# APPENDIX

## APPENDIX TABLE OF CONTENTS

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**[ENTERED: April 19, 2019]**

NOTE: This disposition is nonprecedential.

United States Court of Appeals
for the Federal Circuit

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**NEOLOGY, INC.,**
*Appellant*

**v.**

**INTERNATIONAL TRADE COMMISSION,**
*Appellee*

**KAPSCH TRAFFICCOM USA, INC., KAPSCH TRAFFICCOM HOLDING CORP., KAPSCH TRAFFICCOM CANADA INC., STAR SYSTEMS INTERNATIONAL LTD., STAR RFID CO., LTD.,**
*Intervenors*

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2018-1338

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Appeal from the United States International Trade Commission in Investigation No. 337-TA-979.

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Decided: April 19, 2019

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VINAY VIJAY JOSHI, Amin Turocy & Watson LLP, San Jose, CA, argued for appellant. Also represented by DANIEL W. BEDELL, ANTHONY KIM, ANDREW TIMOTHY OLIVER.

CATHY CHEN, Office of the General Counsel, United States International Trade Commission, Washington, DC, argued for appellee. Also represented by DOMINIC L. BIANCHI, WAYNE W. HERRINGTON, SIDNEY A. ROSENZWEIG.

NATHAN S. MAMMEN, Kirkland & Ellis LLP, Washington, DC, argued for intervenors. Also represented by GREGG F. LOCASCIO, BRIAN H. GOLD.

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Before TARANTO, SCHALL, and CHEN, *Circuit Judges*.

TARANTO, *Circuit Judge*.

Neology filed a complaint with the International Trade Commission in 2015, alleging, as now relevant, infringement of claims 13, 14, and 25 of its U.S. Patent No. 8,325,044 and claims 1, 2, and 4 of its U.S. Patent No. 8,587,436. The patents, which share a specification, describe and claim systems and methods for tracking identifying information, particularly those relying on radio frequency identification (RFID). The Commission held the claims now at issue invalid because (1) they lack adequate written description support and (2) they are invalid for anticipation by U.S. Patent No. 5,627,544 (Snodgrass) or for obviousness based on the combination of Snodgrass and two other pieces of prior art. Neology appeals. We affirm on the written-description ground and do not reach anticipation or obviousness.

## I

A

Neology filed applications for both the '044 and '436 patents in 2012, both applications tracing by the same chain of continuation applications to an application filed in 2003 and a provisional application filed in 2002. The claims that appeared in the 2012 applications as filed (the 2012 claims) issued with very few changes as the claims in the '044 and '436 patents. *Compare* J.A. 3549–54, *with* '044 patent, col. 23, line 5, through col. 24, line 63; *compare* J.A. 3755–59, *with* '436 patent, col. 23, line 13, through col. 25, line 17. The patents share a title, "System and Method for Providing Secure Identification Solutions," as well as a specification. They describe and claim methods and systems "for verifying and tracking identification information" in a secure system that, for one embodiment, "includes at least one of the following: a radio frequency (RF) identification device, an identification mechanism (e.g., a card, sticker), and an RF reader/writer." *See, e.g.*, '044 patent, col. 1, lines 39–45. An example is an RF device (corresponding to the claims "RFID transponder") on an automobile, with identifying information embedded in the RFID device readable by an RFID reader. The important claim limitation for the asserted claims here involves exchanges of a "security key" between the RFID reader and transponder.

The claims of the '044 patent now at issue are claims 13, 14, and 25. Claims 13 and 14 depend on claim 10, which reads:

10. A toll system, comprising:

a central database configured to:

store toll accounts,

receive identifiers related to toll accounts, and

compare the received identifiers to identifiers associated with the toll accounts to determine if a match exists;

an RFID reader comprising a radio and an antenna, the RFID reader configured to:

send a first communication to a RFID transponder that includes a memory the contents of which include an identifier,

send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder,

receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key, and transmit the identifier to the central database.

*Id.*, col. 23, lines 39–56. Claim 13 adds the limitation of an RFID reader sending a "third communication . . . that includes a second security key for validation by the RFID transponder and receive further memory contents in response to the third communication and as a result of validation of the

second security key." *Id.*, col. 23, line 64, through col. 24, line 4. Claim 14, which depends on claim 13, further requires that "the second security key is based on information received from the RFID transponder." *Id.*, col. 24, lines 5–7. Claim 25 depends on claim 23, which recites the same series of communications and transfers of security keys but for an RFID transponder, not the "toll system" of claim 10. *Id.*, col. 24, lines 37–50, 54–60.

The '436 patent claims also include the same series of communications between the RFID reader and transponder. '436 patent, col. 23, lines 13–43. Independent claim 1 recites:

> 1. A RFID reader, comprising:
> a radio and an antenna;
>
> a processor coupled with the radio, the processor configured to:
>
> send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier,
>
> send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder,
>
> receive at least the identifier included in the memory contents via the radio and the antenna in response to the second

> communication and as a result of validation of the security key, and
>
> transmit the identifier to a central database;
>
> wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder and receive via the radio and the antenna further memory contents in response to the third communication and as a result of validation of the second security key.

*Id.*, col. 23, lines 13–34. Claims 2 and 4 depend directly on claim 1. Claim 2 adds the limitation that "the security key is based on information received from the RFID transponder." *Id.*, col. 23, lines 35–36. Claim 4 adds the limitation that "the second security key is based on information received from the RFID transponder." *Id.*, col. 23, lines 41–43.

B

Neology filed a complaint with the Commission on December 4, 2015. The complaint alleged infringement of various claims of the '044 and '436 patents, as well as claims of another patent not at issue here. Neology accused Kapsch TrafficCom U.S. Corp., Kapsch TrafficCom IVHS Technologies Holding Corp., Kapsch TrafficCom IVHS Holding Corp., Kapsch TrafficCom IVHS, Inc., Kapsch TrafficCom Canada Inc., Kapsch TrafficCom Holding Corp., Star Sys- tems International, Ltd., and STAR

RFID Co., Ltd. (collec- tively, Kapsch) of importing infringing products. The Commission instituted an investigation on January 11, 2016. After Neology terminated the investigation with respect to claims 3, 6–12, and 14–18 of the '436 patent, what remained were claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent.

The administrative law judge concluded on June 22, 2017, that the '044 and '436 patents are not entitled to the priority date of U.S. Patent Application No. 10/615,026, filed in 2003, because that application "does not provide written description support" for some of the key limitations of the at-issue claims of the '044 and '436 patents. The ALJ also found invalidity of the claims on several grounds, including the following: (a) claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '446 patent are invalid for lack of written description; (b) claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent are anticipated by Snodgrass; and (c) claims 13 and 14 of the '044 patent are invalid for obviousness over a combination of Snodgrass, U.S. Patent No. 5,819,234 (Slavin), and an article, "RFID for Road Tolling, Road-Use Pricing and Vehicle Access Control," by Phil Blythe (Blythe).

Neology appealed to the full Commission, which issued its final decision on October 30, 2017. The Commission determined that the ALJ was correct that the two patents are not entitled to an earlier priority date, that the claims are invalid for lack of written description, and that the claims are invalid for anticipation by Snodgrass or obviousness

based on a combination of Snodgrass, Slavin, and Blythe. The Commission reversed certain other invalidity determinations made by the ALJ.

Neology filed a timely notice of appeal on December 22, 2017. We have jurisdiction under 28 U.S.C. § 1295(a)(6).

## II

We review the Commission's factual findings for substantial evidence. *Rivera v. Int'l Trade Comm'n*, 857 F.3d 1315, 1319 (Fed. Cir. 2017). Whether a claim is adequately supported by the written description is an issue of fact. *GlaxoSmithKline LLC v. Banner Pharmacaps, Inc.*, 744 F.3d 725, 729 (Fed. Cir. 2014). We review "procedural and evidentiary determinations made by the Commission," including "waiver" determinations, for abuse of discretion. *Windbond Elecs. Corp. v. Int'l Trade Comm'n*, 262 F.3d 1363, 1370 (Fed. Cir. 2001).

A

1

Contrary to Neology's initial contention, Kapsch did not waive the argument that the claims are invalid for lack of written description. Both the ALJ and the Commission decided whether the claims at issue have adequate written-description support both in determining priority and in determining validity. *See* J.A. 38–45; J.A. 147–74. The Commission specifically held that Kapsch had not waived the direct invalidity challenge based on inadequate support in the written description. *See* J.A. 39–40. We see no error in that determination. In pre- and post-hearing briefs, Kapsch and the Commission's Office of Unfair Import Investigations timely raised, and they and Neology all discussed, the issue of invalidity due to inadequate written description. J.A. 764; J.A. 937; J.A. 977; J.A. 1187; J.A. 1188; J.A. 4770–71; J.A. 5135. There was no waiver.

2

When the investigation went to the Commission, on review of the ALJ decision, Neology argued that the specification and the 2012 claims themselves each provided adequate written description, but the Commission concluded that Neology had waived reliance on the 2012 claims by not relying on those claims before the ALJ as a basis for written-description support. J.A. 42−43. We see no error in that conclusion. Neology's briefing, even after the hearing, relied on the argument that the

specification of the '026 application (the 2003 application), which did not include the 2012 claims, provided the written-description support of the claims in the '044 and '436 patents, and it did not make an argument that the 2012 claims furnished the required written-description support. J.A. 4775 ("How a [person of ordinary skill in the art] would specifically understand that each challenged claim limitation is disclosed in the *specification of the '026 Application* is described in even more detail below.") (emphasis added); *id.* ("As further evidence that the *specification of the '026 Application* provides adequate written description for the asserted claims") (emphasis added). It was not until after the Commission requested additional briefing that Neology raised the argument that the 2012 claims contained adequate disclosure to provide written-description support for the issued claims. J.A. 5570 ("For *validity*, the written-description analysis properly relies on the cumulative disclosure of the applications that became the '044 and '436 patents—*including the originally-filed claims* [(the 2012 claims)] *in the asserted patents* along with all prior applications incorporated by reference—to determine whether the asserted claims have adequate support.") (second emphasis added); J.A. 5573 ("Therefore, unlike priority, the written-description analysis for invalidity in this case . . . also relies on *the originally-filed claims of the applications* [(the 2012 claims)] that led to the '044 and '436 patents ") (emphasis added).

In response to the Commission's determination that Neology waived the argument that the 2012 claims provide written-description

support, Neology points to one passage in the pre-hearing brief it submitted to the ALJ. There, previewing its evidence for written description, Neology stated that "[e]xcept for the claims, the as-filed specification of the '026 Application is nearly identical to the respective applications that issued as the later member patents in the same family . . . ." J.A. 765. Neology argues that the quoted sentence differentiates between the claims in the '026 application and the 2012 claims and thereby preserves the argument that the 2012 claims alone provide written description support for the issued claims.

We disagree. We have recognized that claims can be self-describing. *See*, *e.g.*, *Mentor Graphics Corp. v. EVE- USA, Inc.*, 851 F.3d 1275, 1297 (Fed. Cir. 2017); *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1349–51 (Fed. Cir. 2010). On the other hand, genus claims, especially those that "use functional language to define the boundaries of a claimed genus," are unlikely to provide an adequate written description so as to be self-describing. *Ariad Pharm.*, 598 F.3d at 1349. Determining whether a particular claim is self-describing is not a cut-and-dried, simple matter, but would require more development—factual and legal—than the passing reference on which Neology now relies. We conclude that the Commission did not abuse its discretion in finding that Neology waived its argument that the asserted claims are supported by the 2012 claims. We therefore affirm the Board's conclusion that Neology waived this argument. The written-description contention preserved before the ALJ and Commission, therefore, was simply whether support

for the claims at issue can be found in the body of the written description without the 2012 claims—which is substantively the same as the 2003 written description.

B

A patent must "contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use the same." 35 U.S.C. § 112 ¶ 1.[1] We have long held that, for any given claim, "the description must 'clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.'" *Ariad Pharm.*, 598 F.3d at 1351 (quoting *Vas–Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562–63 (Fed. Cir. 1991)). As we have noted, the adequacy of support in the written description is a question of fact, and we review the Commission's answer to that question for substantial evidence. *Rivera*, 857 F.3d at 1319; *GlaxoSmithKline*, 744 F.3d at 729.

The ALJ identified five limitations of the asserted claims that lacked adequate written description, a finding affirmed by the Commission. The five limitations are: "a second communication . . . that includes a security key"; transmission of an "identifier" from transponder memory "in response to

[1] Although the relevant wording has not changed, we cite the version of § 112 that pre-dated the amendments to that section made by the Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 4(c), 125 Stat. 284, 296 (2011). Those amendments do not apply to patents, like the '044 and '436 patents, that issued from applications filed before September 16, 2012. *Id.*, § 4(e), 125 Stat. 297.

the second communication" as a result of "validation" of the "security key"; a central database and toll system; a "third communication . . . that includes a second security key"; and a "security key is based on information received from the RFID transponder." J.A. 24–25; J.A. 70. We find it unnecessary to discuss the third limitation. It suffices to discuss the other four limitations, for which the Commission's findings of inadequate support largely rest on a shared basis.

The first limitation claims the transmission of a second communication containing a security key and is part of claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. It requires both the existence of a "security key" and the transmission of that same key. The specification mentions five types of keys: cryptographic, security, credit and debit exchange, encryption, and exchange encrypted. The specification describes cryptographic keys as "check[ed] and validate[d]" by the "security management unit" and being "sent to the cryptographic block." '044 patent, col. 2, lines, 51–53. The "cryptographic block" also "stores the security keys." *Id.*, col. 2, lines 53–54. Credit and debit exchange keys are disclosed as part of the "Optional Security Features" where identifying information is stored in "[h]ighly secure chips with a hardware programmable cryptographic block" that has the credit and debit exchange key. *Id.*, col. 12, lines 7, 20–23. Encryption keys are disclosed in the same optional security features section and are needed to "initialize[]" equipment that interacts with the device storing identifying information. *Id.*, col. 12, lines 28–31. Finally, the specification discloses a

"hardware wired cryptographic block 2210 (with 4 exchange encrypted keys . . . )." *Id.*, col. 22, lines 18–19.

Based on the disclosures in the specification and testimony from the experts, the Commission had substantial evidence to support its finding of insufficient written description. Despite disclosing several types of keys, the specification discloses only where they are stored and not whether they are exchanged. Experts for both Kapsch and Neology agreed that cryptographic and encryption keys, by their nature, are not exchanged. J.A. 2908–09; J.A. 3046. Dr. Gregory Durgin, Kapsch's expert, testified that credit and debit exchange keys and exchange encrypted keys function like cryptographic keys, in that they are stored in the same cryptographic block, and are not exchanged, because cryptographic keys are not exchanged. J.A. 2433–34. He also testified that the credit and debit exchange and exchange encrypted keys are not exchanged because the specification "doesn't involve those keys in any sort of RFID protocol." J.A. 2433 The Commission could reasonably rely as well on the inventor's own testimony that the keys disclosed in the specification are encryption keys, J.A. 1704–07, which, as previously discussed, are not exchanged, even though he later clarified his testimony that two of the disclosed keys are the credit and debit exchange keys, *id.* And Jack Goldberg, Neology's expert, originally testified that he simply did not know if the keys were exchanged, J.A. 3060–61, which allowed the Commission not to credit—against other evidence—Mr. Goldberg's later testimony that the credit and debit and exchange encrypted keys must be ex-

changed because of their names. We conclude that there is substantial evidence in the specification and the testimony to support the Commission's finding that the specification does not adequately describe a second communication that includes a security key.

The Commission's finding that there is no disclosure of a transmission of the security key supports the finding that three additional claim limitations are likewise inadequately supported. The second limitation requires the transmission of an "identifier" "in response to the second communication" as a result of "validation of the security key." '044 patent, col. 23, lines 53–56; '436 patent, col. 23, lines 23–26. If there is no transmission of a security key, there cannot be validation of such a key or transmission of an identifier in response to the second communication. Similarly, the fourth limitation requires a "third communication . . . that includes a second security key," '044 patent, col. 23, line 64 through col. 24, line 4; '436 patent, col. 23, lines 27–29, so the finding that there is no disclosure of a second communication including a key means that there can be no third communication that includes a "second" one of that key. The fifth limitation, which requires the "security key"/"second security key" from the independent claim to be "based on information received from the RFID transponder," '044 patent, col. 24, lines 5–7; '436 patent, col. 23, lines 34–35, 40–43, also is reasonably found unsupported in the absence of a disclosure of information exchanged between the transponder and the device. Additionally, Dr. Durgin testified that "there is no disclosure of an RFID protocol or any specific step that would

involve the security key, based on information from the RFID transponder." J.A. 2449–53. Thus, the Commission had substantial evidence to find inadequate written-description support for limitations two, four, and five.

For those reasons, we affirm the Commission's finding that the asserted claims lack sufficient written-description support. In view of that conclusion, we need not reach the issues of anticipation or obviousness.

III

The ruling of the Commission that the claims at issue are invalid is affirmed.

**AFFIRMED**

**[ENTERED: April 19, 2019]**

**United States Court of Appeals**
**for the Federal Circuit**

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**NEOLOGY, INC.,**
*Appellant*

v.

**INTERNATIONAL TRADE COMMISSION,**
*Appellee*

**KAPSCH TRAFFICCOM USA, INC., KAPSCH TRAFFICCOM HOLDING CORP., KAPSCH TRAFFICCOM CANADA INC., STAR SYSTEMS INTERNATIONAL LTD., STAR RFID CO., LTD.,**
*Intervenors*

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2018-1338

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Appeal from the United States International Trade Commission in Investigation No. 337-TA-979.

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**JUDGMENT**

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THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

**AFFIRMED**

ENTERED BY ORDER OF THE COURT

April 19, 2019

/s/ Peter R. Marksteiner
Peter R. Marsteiner
Clerk of Court

**EXHIBIT A**

**UNITED STATES INTERNATIONAL TRADE COMMISSION**
**Washington, D.C.**

| | |
|---|---|
| **In the Matter of** | |
| **CERTAIN RADIO FREQUENCY IDENTIFICATION ("RFID") PRODUCTS AND COMPONENTS THEREOF** | **Investigation No. 337-TA-979** |

**COMMISSION OPINION**

The Commission instituted this investigation on January 11, 2016, based on a complaint filed by Neology, Inc. of Poway, California ("Neology"). 81 *Fed. Reg.* 1205-06 (Jan. 11, 2016). The complaint, as supplemented, alleged violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain radio frequency identification ("RFID") products and components thereof by reason of infringement of certain claims of U.S. Patent Nos. 8,325,044 ("the '044 patent"); 8,587,436 ("the '436 patent"); and 7,119,664 ("the '664 patent"). Only the allegations pertaining to claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent (collectively, "the Asserted Claims"

and "the Asserted Patents") remain in the investigation.[1]

On August 16, 2017, the Commission determined to review-in-part the presiding administrative law judge's ("ALJ") final initial determination ("ID") finding no violation of section 337 by Respondents Kapsch TrafficCom IVHS, Inc. of McLean, Virginia; Kapsch TrafficCom Holding Corp. of McLean, Virginia; Kapsch TrafficCom Canada, Inc. of Mississauga, Ontario, Canada (collectively "the Kapsch Respondents"); Star Systems International, Ltd. of Kwai Chung, Hong Kong; and STAR RFID Co., Ltd. of Bangkok, Thailand (collectively, "the Star Respondents"). As explained below, the Commission has determined to affirm, with modified reasoning, the ID's finding of no violation of section 337 by the Respondents in connection with the Asserted Claims because Respondents have shown that the Asserted Claims are invalid for lack of written description under 35 U.S.C. § 112, and invalid as anticipated or obvious under 35 U.S.C. §§ 102 or 103. The Commission has determined to take no position on the ID's findings that the Asserted Claims are directed at patent eligible subject matter under 35 U.S.C. § 101 and that Neology has satisfied the economic prong of the domestic industry requirement with respect to the '436 patent.

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[1] All asserted claims of the '664 patent and certain asserted claims of the '044 and the '436 patents have been terminated from the investigation. *See* Comm'n Notice (Sep. 27, 2016), EDIS Doc ID 591472.

# I. BACKGROUND

## A. Relevant Procedural History

The Commission instituted this investigation on January 11, 2016, based on a complaint filed by Neology. 81 *Fed. Reg.* 1205-06 (Jan. 11, 2016). The complaint, as supplemented, alleged violations of section 337 in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain RFID products and components thereof by reason of infringement of the Asserted Claims. The complaint further alleged that an industry in the United States exists as required by 19 U.S.C. § 1337(a)(2). The notice of investigation named numerous respondents including the Kapsch Respondents and the Star Respondents.[2] The Office of Unfair Import Investigations was also a party in this investigation.

In a telephone conference with the parties on September 8, 2016, the ALJ construed, among other claim terms, the term "security key" to mean "a key that is checked and validated to grant or deny access to a memory." ID at 12. On June 22, 2017, the ALJ issued her final ID finding no violation of section 337 by Respondents in connection with the Asserted Claims. In particular, the ID found the Asserted Claims invalid under §§ 102 or 103 and under § 112. Had the Asserted Claims not been found invalid, the

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[2] The notice of investigation also named Kapsch TrafficCom IVHS Holding Corp.; Kapsch TrafficCom IVHS Technologies Holding Corp.; and Kapsch TrafficCom U.S. Corp., all of McLean, Virginia. 81 *Fed. Reg.* 1205-06. These three respondents were terminated from the investigation. *See* Comm'n Notice (Apr. 4, 2016), EDIS Doc ID 577792.

ID found that the accused products infringe the Asserted Claims; that Neology's domestic industry products practice claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent; and that Neology has satisfied the economic prong of the domestic industry requirement as to the Asserted Patents.

On July 5, 2017, Neology filed a timely petition for review of the final ID, challenging the ID's finding that the Asserted Claims are invalid.[3] That same day, the Commission's Investigative Attorney ("lA") and Respondents filed respective contingent petitions for review of the final ID.[4] Neology and the lA both challenge certain of the ID's findings with respect to the economic prong of the domestic industry requirement as to the '436 patent. Respondents challenge the ALJ's oral ruling finding that the Asserted Claims are not invalid under§ 101. On July 13, 2017, the parties filed responses to the petitions for review.[5]

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[3] Complainant Neology, Inc.'s Petition for Review [and Contingent Petition for Review] of the Final Initial Determination (Jul. 5, 2017) ("CPet").

[4] Office of Unfair Import Investigations' Contingent Petition for Review-in-Part of the Final Initial Determination on Violation (Jul. 5, 2017) ("IAPet"); Respondents' Contingent Petition for Review of the Initial Determination (Jul. 5, 2017) ("RPet").

[5] Complainant Neology, Inc.'s Response to Respondents' Contingent Petition for Review of the Initial Determination (Jul. 13, 2017) ("CResp"); Response of the Office of Unfair Import Investigations to the Petitions for Commission Review of the Final Initial Determination (Jul. 13, 2017) ("IAResp"); Respondents' Combined Response to Neology's Petition for Review of the Initial Determination and Staffs Contingent Petition for Review in Part of the Initial Determination (Jul. 13, 2017) ("RResp").

As stated earlier, the Commission determined to review-in-part the final ID and requested briefing from the parties on certain issues under review. *See* Comm'n Notice (Aug. 16, 2017) (hereinafter, "the Commission's Notice"). Specifically, the Commission determined to review: (1) the final ID's findings that the Asserted Claims are not entitled to claim priority to an earlier filing date; (2) the final ID's findings that the Asserted Claims are invalid under §§ 102, 103 and/or 112; (3) the final ID's finding that the Asserted Claims are not invalid under § 101; and (4) the final ID's finding that Neology has satisfied the economic prong of the domestic industry requirement with respect to the '436 patent. The Commission requested briefing from the parties on certain issues under review. The parties filed their initial submissions on September 5, 2017,[6] and their reply submissions on September 13, 2017.[7]

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[6] Complainant Neology, Inc.'s Initial Submission in Response to the Commission's Notice Regarding Issues Under Review (Sept. 5, 2017) ("CSub"); Office of Unfair Import Investigations' Response to the Commission's Request for Written Submissions on the Issues Under Review (Sept. 5, 2017) ("IASub"); Respondents' Initial Written Submission in Response to the Commission's Determination to Review-In-Part the Final Initial Determination (Sept. 5, 2017) ("RSub").

[7] Complainant Neology, Inc.'s Reply Submission in Response to the Commission's Notice Regarding Issues Under Review (Sept. 13, 2017) ("CReply"); Office of Unfair Import Investigations' Reply to the Private Parties' Response to the Commission's Request for Written Submissions (Sept. 13, 2017) ("IAReply"); Respondents' Reply Written Submission in Response to the Commission's Determination to Review-In-Part the Final Initial Determination (Sept. 13, 2017) ("RReply").

### B. Patents, Claims, and Technology at Issue

The Asserted Patents relate to systems and methods for providing secure identification using radio frequency ("RF") technology. Both patents are titled "System and Method for Providing Secure Identification Solutions" and share a common specification. ID at 25. The patent application that issued as the '044 patent was filed on May 4, 2012, and the patent application that issued as the '436 patent was filed on January 13, 2012. The patents claim domestic priority through a chain of continuations to U.S. patent application No. 10/615,026 ("the '026 Application"), which was filed on July 9, 2003 and issued as U.S. Patent No. 7,081,819 ("the '819 patent"). RX-699 (Patent Family Tree). The patents (and all parent patents) also claim priority to U.S. provisional patent application No. 60/394,241 ("the '241 Provisional Application"), filed on July 9, 2002.

The common specification states that the present invention offers a variety of solutions for making secure and durable identification mechanisms resistant to fraud and counterfeiting. *See* JX-1 (the '044 patent) at 3:8-11.[8] Figure 1 of the specification (reproduced below) illustrates generally an RFID system **100** that includes an RF reader/writer **125** and an RF device **110** embedded in an identification mechanism **105** such as an RF transponder (or "tag"). *See id.* at 2:23-27. The RF device **110** includes an integrated chip **115** and an

[8] Since the '044 (JX-1), '436 (JX-2), and '819 (JX-29) patents all share a common specification, we discuss only the '044 patent specification for background.

antenna **120.** *Id.* at 2:27-28. In an electronic toll collection ("ETC") system, an RF reader positioned at a toll booth. communicates with RF tags located on vehicles using electromagnetic or RF waves. *See* ID at 25, 30. The RF reader reads data stored in the chip on the tag for purposes of identifying each vehicle. *See* JX-1 at 2:32-34.

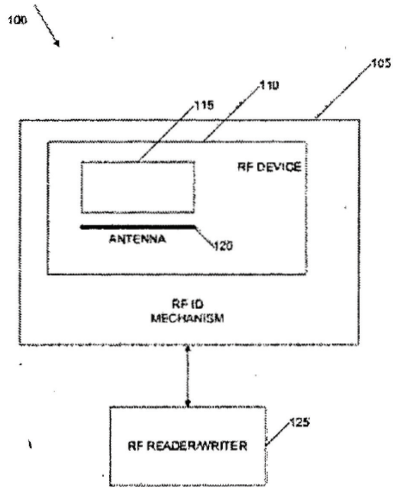


**FIG. 1**

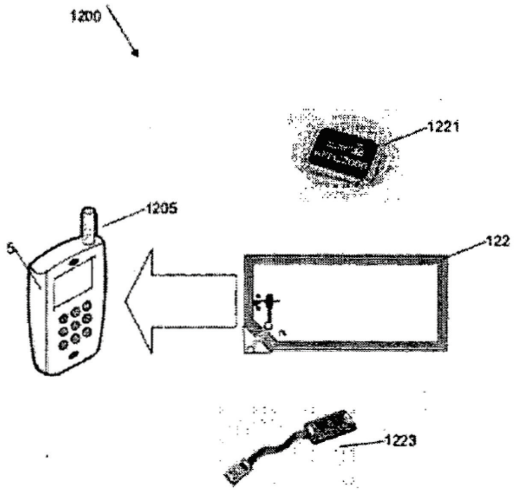


**FIG. 12**

Of particular importance to this investigation is the embodiment shown in Figures 12-14 of the specification. Figure 12 (reproduced above) illustrates an RF communications device system **1200,** which includes an RF cellular telephone **1205** and a point of sale ("POS") **1210.** *Id.* at 14:23-26. The POS **1210** includes an RF reader/writer **31** and a fingerprint digital scanning device **1232.** *Id.* at 14:27-28. The RF cellular telephone **1205** includes an RF device **1222** and either a fingerprint identifier **1221** or fingerprint digital scanner **1223.** *Id.* at 14:31-38.

The specification teaches that instead of POS **1210** obtaining credit card information from a magnetic strip, this embodiment of "the present invention, via an RF embedded on a cellular telephone, provides information to the POS, which has an RF reader/writer." *Id.* at 15:15-19. "In addition, the POS may include a device (e.g., a fingerprint reader) to verify that the holder of the RF cellular telephone is the owner" of the phone. *Id.* at 15:19-21.

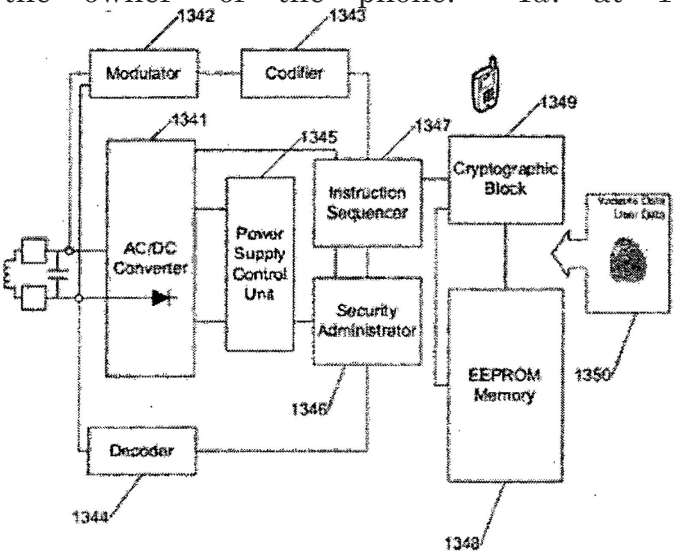


**FIG. 13**

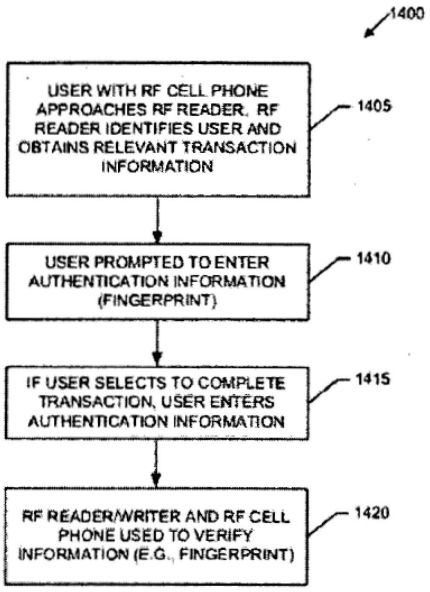


**FIG. 14**

Referring to Figure 13 (reproduced above), the specification describes the RF device **110** as follows:

> The chip [on the RF device **1222]** is a passive chip that is secure. These chips have a power unit converter and are secure. The [EEPROM] **1348,** the memory of the chip, is totally separated from the rest of the communication, so if the security requirements are not met, a user cannot access the memory of the chip. The chip includes ... [a] security management unit **1346** … that checks and validates the cryptographic keys that will be sent to the cryptographic block. A cryptographic block **1349** is a device that stores the security keys.

> These keys are checked and validated to grant or deny access to the memory chip. EEPROM memory **1348** stores data. Information can be read and written from or to this device.
>
> In an embodiment of the present invention, the chip carries authentication information (e.g., fingerprint) and transaction information (e.g., credit card information, airline, or hotel mileage card information). The RF cellular telephone also may include a cryptographic programmable block chip **1349** to enhance security.

*Id.* at 14:43-15:9. The above-described security management unit and cryptographic block are not unique to the embodiment shown in Figures 12-14. Other embodiments of the RF device also include these security components. *See, e.g., id.* at 2:51-57, 11:11-17.

Figure 14 (reproduced above) illustrates a method of using the RF communications system **1400.** The specification discloses:

> [I]n **1405,** a user carries an RF cellular telephone and approaches an RF reader/writer (e.g., in a hotel), which is continuously scanning[.] The RF reader/writer connects to the network (e.g., the Internet), identifies the user, and obtains relevant transaction information (e.g., credit card information and hotel rewards card information).

> In **1410,** the customer purchases a service or product and is prompted to enter authentication information (e.g., a fingerprint). In **1415,** if the user wishes to complete the transaction, the user enters authentication information (e.g., imprints a fingerprint into a fingerprint scanner) and it is loaded to the RF device.
>
> In **1420,** the RF reader/writer and RF cellular telephone are used to verify the authentication information (e.g., the fingerprint scanner works with the RF reader/writer and the RF cellular telephone and/or other devices to ensure the customer's fingerprint matches the fingerprint stored on the RF cellular telephone) and this information is presented to a point of sale or access control device to retrieve purchase information.

*Id.* at 15:35-53.

The specification also discloses that one embodiment of the present invention uses "[h]ighly secure chips with a hardware programmable cryptographic block with credit and debit exchange keys." *Id.* at 12:21-24. In connection with yet another embodiment (Figures 22-23), the specification discloses that the disclosed RF device includes an integrated computer chip having "a memory **2205** (e.g., 2 k), an option hardware wired cryptographic block **2210** (with 4 exchange encrypted keys with up to 256 bits) ... [and] a security management unit

**2255."** *Id.* at 22:17-22. The specification further discloses in relevant part that:

> An RF device can complement all the previously mentioned security features, as it has a unique identifier (e.g., a unique 64 bit serial number), and the information contained on it is protected by sundry cryptographic methods. The capacity of the device will allow a great deal of information about the holder to be stored on the device (e.g., fingerprint minutiae or other biometric template, the holder's

*Id.* at 8:49-56. Other than the above-described portions of the specification, the specification provides no further description of "security key" or the use of "security keys" to grant or deny access to a memory in an RF device.

Neology asserts claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. Claim 25 of the '044 patent is directed to an RFID tag and claims 13 and 14 of the '044 patent are directed to toll systems. The Asserted Claims of the '044 patent (and the unasserted claims from which they depend) are shown below:

> **10.** A toll system, comprising:
>
> a central data base configured to:
>
> store toll accounts,
>
> receive identifiers related to toll accounts, and

compare the received identifiers to identifiers associated with the toll accounts to determine if a match exists;

an RFID reader comprising a radio and an antenna, the RFID reader configured to:

send a first communication to a RFID transponder that includes a memory the contents of which include an identifier,

send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder,

receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key, and

transmit the identifier to the central database.

**13.** The system of claim 10, wherein the RFID reader is further configured to send a third communication to the RFID transponder that includes a second security key for validation by the RFID transponder and receive further memory contents in response to the third communication and as a result of validation of the second security key.

**14.** The system of claim 13, wherein the second security key is based on information received from the RFID transponder.

**23.** A RFID transponder, comprising[:]

a memory the contents of which includes an identifier;

a radio front end and an antenna; and

a processor coupled with the radio front end and the memory, the processor configured to:

receive a first communication from a RFID reader via the radio front end and the antenna;

receive a second communication from the RFID reader that includes a security key via the radio front end and the antenna;

grant access to the memory contents based on the security key; and

send at least the identifier included in the memory contents in response to the second communication.

**25.** The RFID transponder of claim 23, wherein the processor is further configured to receive a third communication from the RFID Reader via the radio front end and an antenna that includes a second security

> key, grant access to the memory based on the second security key, and send further memory contents in response to the third communication.

*Id.* at 23:40-57, 23:64-24:7, 24:37-50, 24:54-60; Certificate of Correction.

Claims 1, 2, and 4 of the '436 patent are directed to RFID readers and are shown below:

> **1.** A RFID reader, comprising:
>
> a radio and an antenna;
>
> a processor coupled with the radio, the processor configured to:
>
> send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier,
>
> send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder,
>
> receive at least the identifier included in the memory contents via the radio and the antenna in response to the second communication and as a result of validation of the security key, and

transmit the identifier to a central database;

wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder and receive via the radio and the antenna further memory contents in response to the third communication and as a result of validation of the second security key.

**2.** The RFID reader of claim 1, wherein the security key is based on information received from the RFID transponder.

**4.** The RFID reader of claim 1, wherein the second security key is based on information received from the RFID transponder.

JX-2 at 23:13-36,23:41-43.

### C. Products at Issue

Neology, Kapsch Respondents, and Star Respondents develop, manufacture, and sell RFID readers, tags, and/or systems for ETC applications. The products at issue in this investigation are certain RFID readers, tags, and toll systems alleged to infringe one or more of claims 1, 2, and 4 of the '436 patent and claims 13, 14, and 25 of the '044 patent. *See* ID at Appendix A (Kapsch Respondents' accused readers, tags, and systems) and Appendix B (Star

Respondents' accused readers and tags). The accused RFID readers, tags and/or toll systems can operate consistent with an international standard known as the International Standards Organization ("ISO") 18000-6C communications protocol ("6C Protocol"). *Id.* at 34.

With respect to domestic industry, Neology asserts that certain of its own tags and certain tags made by its licensee that operate in accordance with the 6C Protocol practice claim 25 of the '044 patent. *Id.* at 8-9, Appendix C. Neology also asserts that certain readers that operate in accordance with the 6C Protocol and that are made by its licensee and its subcontractors practice claims 1, 2, and 4 of the '436 patent. *Id.* at 9-10, Appendix C.

## II. STANDARD ON REVIEW

As noted above, the Commission determined to review the final ID in part. Once the Commission determines to review an ID, its review is conducted *de novo. Certain Polyethylene Terephthalate Yarn and Prods. Containing Same,* Inv. No. 337-TA-457, Comm'n Op. at 9 (June 18, 2002). Upon review, the "Commission has 'all the powers which it would have in making the initial determination,' except where the issues are limited on notice or by rule." *Certain Flash Memory Circuits and Prods. Containing Same,* Inv. No. 337-TA-382, USITC Pub. 3046, Comm'n Op. at 9-10 (July 1997) (quoting *Certain Acid-Washed Denim Garments and Accessories,* Inv. No. 337-TA-324, Comm'n Op. at 5 (Nov. 1992)). Commission practice in this regard is consistent with the Administrative Procedure Act. *Certain EPROM, EEPROM, Flash Memory, and Flash Microcontroller Semiconductor*

*Devices and Prods. Containing Same,* Inv. No. 337-TA-395, Comm'n Op. at 6 (Dec. 11, 2000); *see also* 5 U.S.C. § 557(b).

When reviewing an ID, "the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge. The Commission may also make any findings or conclusions that in its judgment are proper based on the record in the proceeding." 19 C.F.R. § 210.45. This rule reflects the fact that the Commission is not an appellate court, but is the body responsible for making the final agency decision. On appeal, only the Commission's final decision is at issue. *See Fischer & Porter Co. v. US. Int'l Trade Comm'n,* 831 F.2d 1574, 1576-77 (Fed. Cir. 1987); *Spansion, Inc. v. Int'l Trade Comm'n,* 629 F.3d 1331, 1349 (Fed. Cir. 2010).

## III. ISSUES UNDER REVIEW

### A. The ID's Finding That the Asserted Claims Are Not Entitled to Claim Priority to the Earlier Filing Dates of the '026 Application and the '241 Provisional Application

In order to gain the benefit of the filing date of an earlier application under both 35 U.S.C. § 119(e) and 35 U.S.C. § 120, each application in the chain leading back to the earlier application must, among other requirements, comply with the written description requirement of 35 U.S.C. § 112 and contain a specific reference to the earlier filed application. *See Medtronic CoreValve, LLC v. Edwards Lifesciences Corp.,* 741 F.3d 1359, 1363

(Fed. Cir. 2014); *Lockwood v. Am. Airlines, Inc.,* 107 F.3d 1565, 1571 (Fed. Cir. 1997).

As explained below, we substantially agree with the ID's finding and underlying analysis that Respondents have proven by clear and convincing evidence that the '026 Application and the '241 Provisional Application fail to provide written description support for the Asserted Claims. Thus, the Commission affirms with modifications the ID's finding that the Asserted Claims are not entitled to claim. priority to an earlier filing date because they are neither in compliance with § 119 to claim the benefit of the July 9, 2002 filing date of the '241 Provisional Application, nor in compliance with § 120 to claim the benefit of the July 9, 2003 filing date of the '026 Application.

**i. The '026 Application**

The ID found that the Asserted Claims cannot claim priority to the earlier filing date of the '026 Application because that parent application fails to provide written description support for the following claim limitations:

> **Limitation A:** RFID reader sends (or RFID transponder receives) "a second communication ... that includes a security key" (all Asserted Claims);
>
> **Limitation B:** RFID reader receives (or RFID transponder sends) an "identifier" from the transponder's memory "in response to the second communication" and as a

result of "validation" of the "security key" (all Asserted Claims);

**Limitation C:** "central database" and "toll system" (all Asserted Claims except claim 25 of the '044 patent);

**Limitation D:** RFID reader sends (or RFID transponder receives) "a third communication ... that includes a second security key" (all Asserted Claims); and

**Limitation E:** "[] security key is based on information received from the RFID transponder" (claim 14 of the '044 patent; claims 2 and 4 of the '436 patent)

ID at 69-70. The Commission notes that the ID omitted claim 14 of the '044 patent from its written description analysis for Limitation D. *See* ID at 70, 89. However, since claim 14 depends from claim 13, claim 14 is included in the analysis along with all of the other Asserted Claims as indicated above.

Neology does not claim to have invented the 6C Protocol or to have participated in the 6C Protocol's development process. CPet at 7. In 2012, Neology attempted to draft new claims to cover that standard while claiming priority to the '026 Application-a specification filed almost ten years earlier and about seven years after the 6C Protocol was adopted and made publicly available. *See* ID at 34-37; RResp at 6-7; CPet at 7-8; Tr. (Gillespie) at 1736:11-1737:23 (testifying that the Asserted Claims were drafted to cover the 6C Protocol). While broadening claims during prosecution to capture a competitor's products

is not improper, the written description must support the broadened claims. *See Liebel-Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 909 n.2 (Fed. Cir. 2004) ("[I]t is not improper for an applicant to broaden his claims during prosecution in order to encompass a competitor's products, as long as the disclosure supports the broadened claims.") (citing *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.,* 863 F.2d 867, 874 (Fed. Cir. 1988)); *PIN/NIP, Inc. v. Platte Chemical Co.*, 304 F.3d 1235, 1247-48 (Fed. Cir. 2002).

Application of the written description requirement is central to the resolution of this investigation. Entitlement to the filing date of the '026 Application would allow Neology to antedate the 6C Protocol, thereby removing it as prior art against the Asserted Claims. *See infra* at III(C). A "patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112." *In re Chu,* 66 F.3d 292, 297 (Fed. Cir. 1995). The Federal Circuit has explained that to satisfy the written description requirement, "the missing descriptive matter must necessarily be present in the [original] application's specification such that one skilled in the art would recognize such a disclosure." *Tronzo v. Biomet, Inc.,* 156 F.3d 1154, 1159 (Fed. Cir. 1998). This requires that the written description actually or inherently disclose the claim element. *See id.; TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.,* 264 F.3d 1111, 1118-20 (Fed. Cir. 2001) (holding that to comply with the written description requirement the location of the spring must be actually or inherently disclosed;

that the location may be obvious from the disclosure is not enough).

Before analyzing whether there is written description support in the '026 Application for Limitations **A-E**, the ID analyzed evidence (and lack thereof) establishing a date of conception and reduction to practice of the claimed inventions. ID at 70-72. It concluded that there is a lack of corroboration for conception of the claimed inventions and the inventors failed to actually reduce to practice the claimed inventions at the time the '026 Application was filed. *Id.* We find no error in the ID's analysis of corroborating evidence on conception and reduction to practice and the ID's application of the law of written description, including its reliance on *Hyatt v. Dudas,* 492 F.3d 1365, 1371 (Fed. Cir. 2007), and *Trans Video Elecs. Ltd. v. Sony Elecs., Inc.,* 822 F. Supp. 2d 1020, 1027 (N.D. Cal. 2011). While "the written description standard may be met ... even where actual reduction to practice of an invention is absent," *Falko-Gunter Falkner v. Inglis,* 448 F.3d 1357, 1366 (Fed. Cir. 2006), and "application of written description requirement is not subsumed by the 'possession' inquiry," the Federal Circuit has also stated that a "showing of 'possession' is ancillary to the *statutory* mandate that '[t]he specification shall contain a written description of the invention.'" *Enzo-Biochem, Inc. v. Gen-Probe Inc.,* 323 F.3d 956, 969 (Fed. Cir. 2002). "The articulation of the written description requirement in terms of 'possession' is especially meaningful when a patentee is claiming entitlement to an earlier filing date under 35 U.S.C. §§ 119 or 120." *Id.* Contrary to Neology's assertion that the ID's analysis of corroborating evidence on conception and reduction to practice is "wholly

irrelevant," the ID's conception and reduction-to-practice discussion provided context and additional evidence for determining that, as of the filing date of the '026 Application, the inventors were not in possession of the inventions later claimed in the Asserted Patents. Furthermore, the ID separately analyzed and determined that the '026 Application does not provide written description support for Limitations **A-E**, as discussed below.

As for the ID's written description analysis, we find that the ID did not misapply the law of written description and allegedly require "strict verbatim support" of the claimed invention in a single embodiment in the specification. *See* CPet at 10-12. The ID found that the '026 Application does not provide written description support for Limitations **A-E**, but it did not make this finding simply because the '026 Application lacks *verbatim* disclosure of these limitations and the disclosed embodiments do not contain examples explicitly covering the full scope of the Asserted Claims. Rather, the ID analyzed the '026 Application in detail as a whole and weighed the expert testimony from all parties before making its finding. *See, e.g.,* ID at 76 ("Nothing in these descriptions of 'security keys,' *or in the rest of the specification of the '026 application,* contemplates that the security keys stored in the cryptographic block of the Figure 2, 5, or 13 embodiments are needed for the reader to 'identif[y]' the user in the Figure 14 embodiment.") (emphasis added).

Nor did the ID require that Limitations **A-E** be disclosed in a single example. Neology itself concedes that the originally-filed application needs to "reasonably convey to one skilled in the art that [the

inventor] had possession of *at least one embodiment* that meets the [proper construction of the claim]." CPet at 11 (emphasis in original). *Hyatt* and *Trans Video* are inapposite. *Hyatt,* 492 F.3d at 1371 (noting that "in rejecting application claim 163, ... the examiner was explicit that while each element may be *individually* described in the specification, the deficiency was the lack of adequate description of their *combination)*; *Trans Video,* 822 F. Supp. 2d at 1027 (stating that "a court must look to see whether there is a written description for the entirety of the claimed invention-i.e., the *combination* of elements"). The ID properly analyzed the entire specification, including all embodiments that Neology relied on for support, to find that "[a]t most, the specification of the '026 application contemplates multiple security keys, but does not describe the claimed multiple communication protocol involving an 'identifier,' a 'security key,' and a 'second security key.'" ID at 77; *see also id.* ("Thus, the '026 application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed multiple communication protocol (involving multiple communications and an 'identifier,' 'security key,' and 'second security key') as of the filing date of the '026 application.").

In this case, the ID correctly concluded that the '026 Application is devoid of any mention or even implication that the "security keys" stored in a "cryptographic block" of an RFID transponder are transmitted from an RFID reader for validation by the RFID transponder in order to access data stored in the transponder's memory. *See id* at 76-77. The '026 Application does not meet the *quid pro quo* required by the written description requirement for

the Asserted Claims. There are multiple possible communication protocols between a reader and a transponder; the use of the claimed communication protocol to provide secure exchange of information using a security key with each piece of information sought is not something that the '026 Application contemplated. *See id* at 32-33 (discussing the many different RFID protocols used in ETC systems in the United States); Tr. (Goldberg) at 1523:8-24 (testifying that a person of ordinary skill in the art could interpret box **1405** of Figure 14 as using one security key or two security keys to identify the user and obtain relevant transaction information), 1527:8-1528:9 (testifying that there can be information stored in the memory of a chip that is not protected by a security key).

The '026 Application may teach the storage of security keys and checking those keys before granting or denying access to a transponder's memory, but such limited disclosure does not constitute an adequate disclosure of the particular RFID communication protocol required by the Asserted Claims. Thus, as discussed below, the record evidence as a whole supports the ID's finding that Respondents have proven that the '026 Application does not describe the claimed communications protocol between an RFID reader and an RFID transponder using a security key, let alone multiple security keys, to gain access to data stored in the transponder's memory. *See* ID at 76-77, 89-91. The record also supports the ID's finding that the '026 Application does not provide written description support for a "toll system" and a "central database" that stores "toll accounts" and receives and compares "identifiers" associated with those "toll accounts." *Id.* at 85-87.

With respect to Limitations **A**, **B**, **D**, and **E**, the claim term "security keys" is used only three times in the '026 Application in connection with the embodiments of Figures 2, 5, and 12. In all three instances, the term "security keys" is used in the same manner when describing the components of an RF device:

> A security management unit [] is a device that checks and validates the **cryptographic keys** that will be sent to the cryptographic block. A cryptographic block[] is a device that stores the **security keys.** These **keys** are checked and validated to grant or deny access to the memory chip.

JX-30 (the '026 Application) at NEO-ITC00000339:15-18 (emphasis added); *see also id* at NEO-ITC0000035717-21 (same), NEO-ITC00000366:9-12 (same). The '026 Application teaches that "cryptographic keys" are sent to the "cryptographic block" and that the "cryptographic block stores the security keys." *See id.* However, there is no disclosure or even implication that "security keys" are sent from an RFID reader to the "cryptographic block" of an RFID transponder. *See* Tr. (Goldberg) at 1529:5-1530:11 (testifying that the specification does not disclose security keys that need to be exchanged in a series of communications), 1531:3-1532:6 (testifying that the specification discloses that cryptographic keys are checked and validated in the security management unit but it does not disclose where the security keys are checked and validated). Other than this bare-bone disclosure, the '026 Application provides no further description of

"security keys" and how they are used in the context of an RFID system and method.

Aside from "security keys," the '026 Application also uses the language "cryptographic keys," "encryption keys," "credit and debit exchange keys," and "exchange encrypted keys" in connection with the disclosed embodiments.[9] JX-30 at NEO-ITC00000339:15 18, NEO- ITC00000360:9-16, NEO-ITC00000382:10-12. Both Neology's expert and Respondents' expert agree that "cryptographic keys" are used with an encryption (or cryptographic) algorithm to encrypt or decrypt information-making them different from the claimed "security keys" even though both are stored in the cryptographic block.[10]

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[9] The Commission's August 16, 2017 Notice requested the parties to brief the following:

> In addition to "security keys," Application No. 10/615,026 discloses other "keys," including "cryptographic keys," "credit and debit exchange keys," "encryption keys," and "exchange encrypted keys," in various disclosed embodiments. Please discuss how these other "keys" are used in the application disclosure, how they relate or do not relate to "security keys," and whether they provide written description support for the claimed "security key." If they provide written description support for the claimed "security key," please explain if the application disclosure actually or inherently discloses their transmittance from a RFID reader to a RFID transponder.

[10] The parties' contention that "security keys" are different from "cryptographic keys" contradict statements made by the applicant during prosecution of the '026 Application. The originally-filed claims of the '026 Application did not recite "security keys." In response to a prior art rejection by the PTO

*See id.;* CSub at 12; RSub at 9-13; IASub at 9-10, 12. Like "cryptographic keys," there is no dispute that "encryption keys" are different from the claimed "security keys" and that "encryption keys" are not transmitted between a reader and a transponder. *Id.; see* Tr. (Goldberg) at 1420-22, 1534:5-19, (Durgin) 1386:9-1387:1.

While one disclosed embodiment mentions the use of "credit and debit exchange keys" and another disclosed embodiment mentions the use of four "exchange encrypted keys," nowhere does the disclosure teach that these keys are the claimed "security keys" as opposed to the cryptographic or encryption keys. *See* Tr. (Durgin) at 1018:1-19, 1538:21-1539:3 (discussing Mr. Martinez de Velasco's deposition testimony that the exchange keys are all public encryption keys); JX-44C.0136-0137 (Mr. Martinez de Velasco's deposition). Other than attorney argument, Neology points to no record evidence supporting its position that the "credit and

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examiner, the applicant amended the claims to recite "granting access to a memory based on a security key" and argued. that the prior art does not teach this limitation. JX-30 at NEO-ITC00000457-471, NEO-ITC00000479-505. As support for the newly added "security key" limitation, the applicant explained that the "present application teaches a security management unit that checks and validates cryptographic keys that are sent to a cryptographic block," and that the "cryptographic block stores the keys and these keys are checked and validated to grant or deny access to the memory chip." *Id.* at NEO-ITC00000498. The applicant's statement supports a finding that a cryptographic key is a type of security key. Given that both parties' experts agree that cryptographic keys are not exchanged between a reader and a transponder, the applicant's statement during prosecution of the '026 Application provides further support for finding that the claimed "security keys" are not transmitted between a reader and a transponder.

debit exchange keys" and "exchange encrypted keys" are checked and validated, let alone checked and validated to grant or deny access to a transponder's memory. Neology relies on portions of Mr. Goldberg's testimony that do not even relate to "credit and debit exchange keys" and "exchange encrypted keys." *See* Tr. (Goldberg) at 493:9-494:1,495:8-19,493:9-496:7, 1419:18-1420:7. Furthermore, Neology mischaracterizes Mr. Goldberg's testimony in that he never "confirmed" that "read and write access to the chip's memory requires the validation of debit and credit exchange keys." CSub at 14 (citing Tr. (Goldberg) at 1433:24-1434:21, 1547:22-1548:20).

Even though Mr. Goldberg testified at one point during the investigation that "exchange keys [] in the cryptographic block" are exchanged between a reader and a transponder, that testimony contradicts his other testimony concerning "exchange keys." *See* IASub at 11 n.5; RReply at 15 (citing Tr. (Goldberg) at 1546:15-21 (admitting that exchange keys are normally used for encryption), 1548:21-1549:5 (admitting that he did not know if exchange keys were exchanged between a reader and a tag)). Thus, we agree with the ID that "[n]either Mr. Goldberg's not Mr. Martinez's testimony in these points were credible or substantiated by the specifications." ID at 82. The Commission finds no error in the ALJ's determination to credit the testimony of Respondents' expert, Dr. Durgin, who "testified that the '026 application does not describe the reader transmitting a security key from a reader to a tag." *Id.* at 73 (citing Tr. (Durgin) at 1016:5-19).

Neology mischaracterizes the ID's analysis when it argues that the ID dismissed Mr. Goldberg's

testimony simply because the word "security key" does not appear in Figure 14 of the '026 Application. *See* CPet at 16,21-22. Neology relies on block **1405** of Figure 14, specifically the step "RF reader identifies [the] user" for written description support of Limitations **A** and **B.** While the ID found that the word "security key" does not appear in Figure 14, that finding was not the only basis for the ID's determination of lack of written description support for Limitations **A** and **B.** *See* ID at 73-78, 82-83. The specification teaches in connection with Figures 12-14 that the RF device's memory **1348** can store "authentication information (e.g., fingerprint) and transaction information (e.g., credit card information, airline, or hotel mileage card information)," and that such information can be provided to an RF reader for verification. JX-30 at NEO-ITC00000366:12-367:13. However, there is no disclosure that the memory stores any information needed for the RF reader to identify the user. In other words, as the ID found, there is no disclosure that links the step "RF reader identifies [the] user" in block **1405** of Figure 14 with a need to gain access to the memory chip. ID at 76. Neology does not address this deficiency in its submissions before the Commission.

Neology asserts that the ID erred in not finding written description support even though in an *inter partes* review proceeding, "three experienced patent judges who hold technical degrees," on the Patent Trials and Appeals Board ("PTAB") of the Patent and Trademark Office ("PTO") "reviewed the specifications of the [Asserted Patents]," and found evidence of written description support for Limitation A. CPet at 20-21, 21 n.2. The evidence that Neology relies on to support its argument comes from brief

statements made in the background section of the PTAB's decision. *Id.* However, the issue of whether there is written description support for the Asserted Claims was not and could not have been raised by the petitioner. *See* 35 U.S.C. § 311(b) ("A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications."). The Federal Circuit has cautioned against presuming that the PTO has considered an issue, including whether claims satisfied § 112, unless the PTO makes an affirmative statement. *See In re NTP, Inc.,* 654 F.3d 1268, 1279 (Fed. Cir. 2011).

With respect to Limitation **B,** Neology misapprehends the basis for the ID's finding of lack of written description support. The issue is not whether there is support for an RF reader to receive an "identifier" or for an RF transponder to send an "identifier." *See* CPet at 22-23. Rather, the Asserted Claims require that the "identifier" that is received/sent came from the transponder's memory and that the receive/send step is performed "as a result of validation of the security key"/"in response to the second communication." Other than the same evidence the ID found unpersuasive to show support for Limitation A, Neology offers no further evidence in connection with Limitation **B.** *See supra* at 19-22; ID at 73-78, 82-83.

Unable to cite to any disclosure in the '026 Application for support of Limitations **A**, **B**, **D**, and E, Neology relies on the unsupported and conclusory testimonies of its expert, Mr. Goldberg, and the

Asserted Patents' prosecution counsel, Mr. Gillespie, and disclosures in the prior art in an attempt to fill in the gaps. *See* CPet at 16-20, 22-23, 27-32. Although the "knowledge of ordinary artisans may be used to inform what is act ally in the specification," it cannot be used "to teach limitations that are not in the specification, even if those limitations would be rendered obvious by the disclosure in the specification." *Rivera v. Int'l Trade Comm'n,* 857 F.3d 1315, 1322 (Fed. Cir. 2017); *see also Lockwood v. Am. Airlines, Inc.,* 107 F.3d 1565, 1571-72 (Fed. Cir. 1997) ("While the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification."). As discussed above, the ID properly found Neology's expert testimony not credible and unsubstantiated by the specifications. *Supra* at 21.

With respect to Limitation **C**, claims 1, 2, and 4 of the '436 patent and claims 13 and 14 of the '044 patent require that the reader "transmits the identifier to a central database." The '026 Application teaches the use of a "central data base" in two paragraphs of the specification. JX-30 at NEO-ITC00000359:18-19 ("central data base validates the identity information"), NEO-ITC00000360:17-19 ("Secure Data Base. This feature protects information in the central data base and the transaction log indicating where and for whom the device was produced."). Based on this limited disclosure, Mr. Goldberg testified that the "identification information is received from the tag." Tr. (Goldberg) at 1435:18-1436:18. We disagree. At best, the disclosure teaches that a central database can be used to protect and store information and that such information can be

used to validate the identity information. However, the '026 Application is devoid of any mention or even implication that the RFID reader transmits an "identifier" to the central database. *Id.* (Durgin) at 1040:5-13. In fact, as Dr. Durgin testified, the '026 Application teaches the opposite-that the centrally stored information is distributed to the field. *Id.* (Durgin) at 1039:8-14; JX-30 at NEO-ITC00000357:2-3 ("The present invention takes centrally stored information and makes it accessible to the field"), NEO-ITC00000360:19-21 ("Central data base ... This technology allows centrally-stored information to be taken to the field.").

With respect to claims 13 and 14 of the '044 patent, the Commission finds no error in the ID's finding that the '026 Application lacks written description support for the claimed "toll system" and "central data base." Other than pointing to the disclosure's single reference to "toll booths, and other vehicle control applications," JX-30'at NEO-ITC00000357:1-2, Neology cites to no other disclosures in the '026 Application for support of the claimed "toll system." As with the other Limitations, Neology impermissibly relies on Mr. Goldberg's conclusory and unsupported testimony and prior art to fill in the gaps. CPet at 25-26. We find no error in the ID's finding that the '026 Application "does not describe what this 'toll booth' embodiment would look like," does not "state that the data base is used with a toll booth," and does not state that "the data base

contains toll accounts or compares tag identifiers related to toll accounts."[11] ID at 85, 86.

Accordingly, the Commission affirms, with the additional analysis and minor corrections discussed above, the ID's finding that Respondents have proven by clear and convincing evidence that the '026 Application fails to provide written description support for Limitations **A-E** and, thus, the Asserted Claims are not entitled to claim priority to the earlier filing date of the '026 Application.

### ii. The '241 Provisional Application

The ID found that the Asserted Claims are not entitled to claim priority to the earlier filing date of the '241 Provisional Application because (1) the later-filed patent applications did not contain a sufficient reference to the provisional application as required by 35 U.S.C. § 120; and (2) the '241 Provisional Application does not provide written description support for Limitations **A-E**. *Id.* at 64-66, 94.

Neology did not petition for review of the ID's finding that the '241 Provisional Application lacks written description support for the Asserted Claims. The Commission affirms the ID's finding that the '241 Provisional Application fails to provide written description support for the Asserted Claims, and notes that this application provides even less support

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[11] We note that the ID incorrectly attributed to Mr. Goldberg testimony that Dr. Durgin made that in his opinion "toll booths" may not refer to "a tolling application." ID at 87 (citing Tr. (Durgin) at 1038:19-1039:7). However, this citation mistake does not affect the basis for the ID's correct finding on this issue.

than the '026 Application for Limitations **A-E** because it makes no reference to "security keys," how to use them, or that they are transmitted back-and-forth between a reader and a tag.

However, the Commission vacates the ID's finding (at 64-66) that certain later-filed patent applications did not contain a sufficient reference to the provisional application as required by § 120 because the ID did not properly analyze the requirements for claiming priority to the '241 Provisional Application. CPet at 5 n.1; *see also* IAResp at 9 n.3. As an initial matter, the ID erred in applying § 120 when the applicable provision is § 119(e) for determining benefit of an earlier filing date of a provisional patent application. *See* ID at 63-64. In addition, the ID appeared to incorrectly require each intervening application between the '241 Provisional Application and the Asserted Patents to include a specific incorporation-by-reference statement in order to meet the reference requirement under§ 119(e). *Id.* at 64-66; RResp at 9 n.3. In order for a non-provisional application to claim priority to a provisional application, 35 U.S.C. § 119(e)(1) requires, *inter alia,* that the non-provisional application contains or is amended to contain a specific reference to the provisional application. Moreover, under the governing rule at the time these applications were filed, the reference statement to claim benefit of a provisional patent application may be provided either in the first sentence of the specification or in an application data sheet. *See E.I duPont de Nemours & Co. v. MacDermid Printing Solutions, LLC,* 525 F.3d 1353, 1360-61 (Fed. Cir. 2008).

Although Neology asserts that each intervening application includes a specific reference statement to claim benefit of the '241 Provisional Application, Neology does not cite to any record evidence supporting its assertion. *See* CPet at 5 n.1. Respondents and the IA do not appear to contest Neology's assertion. RResp at 9 n.3; IAResp at 8, 9 n.3. Nevertheless, the Commission does not need to resolve this issue since the ID's error does not affect its finding that the '241 Provisional Application does not provide written description support for the Asserted Claims.

Therefore, the Commission affirms the ID's finding that Respondents have proven by clear and convincing evidence that the '241 Provisional Application fails to provide written description support for Limitations **A-E** and, thus, the Asserted Claims are not entitled to claim priority to the earlier filing date of the '241 Provisional Application. However, the Commission vacates the ID's finding that certain later-filed patent applications did not contain a sufficient reference to the '24,1 Provisional Application as required by § 119(e)(1).

### B. The ID's Finding That the Asserted Claims Are Invalid for Lack of Written Description under 35 U.S.C. § 112

In addition to finding that the Asserted Claims are not entitled to an earlier priority date, the ID found the Asserted Claims invalid under § 112 for

lack of written description.[12] Neology admits as much but argues that the§ 112 issue was not adequately presented by Respondents and not properly analyzed in the ID. As explained below, the Commission finds the record does not support Neology's assertion.

It is clear from the record that Respondents and the IA argued before the ALJ that the Asserted Claims are invalid under § 112 in addition to arguing that the Asserted Claims are not entitled to claim priority to an earlier filing date. Before the evidentiary hearing, in their pre-hearing briefs, Respondents and the IA set forth their defense of invalidity based on the '044 and '436 patents lacking written description support. *See* RPreB[13] at 2 ("Those two Security Key patents are [] invalid for lack of a sufficient written description, which prevents an applicant from later asserting that he invented that which he did not.") (internal citation omitted), 41 ("Neither that specification, nor the '241 Provisional Application that it claims priority to, provide written description support for several claim limitations, and thus, the '044 and '436 patents are invalid for lack of

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[12] The Commission's August 16, 2017 Notice requested the parties to brief the following:

> Does the final ID find that the Asserted Claims are invalid for lack of written description under 35 U.S.C. § 112, in addition to finding that the Asserted Claims are not entitled to an earlier priority date? Do both issues rise and fall together? Was the issue of whether the Asserted Claims are invalid for lack of written description adequately presented before the ALJ?

[13] Respondents' Pre-Hearing Brief (Aug. 23, 2016), EDIS Doc ID 588903 ("RPreB").

written description."); IAPreB[14] at 40 ("Staff expects the evidence to show that the asserted claims of the '044 and '436 patent[s] are invalid for a lack of written description. In particular, the parent '819 patent (JX-0029) and the specifications of the '044 and '436 patent[s] fail to provide support for the claimed multiple communication protocol ....").

Additionally, Respondents and the IA identified in their pre-hearing briefs the five claim limitations that they alleged are not supported by the Asserted Patents' specifications. RPreB at 42 ("The following limitations are unsupported by the written description of the '241 Provisional Application and the '568 patent (and therefore, not supported by the '044 and '436 patents' specifications): (1) a second communication with a security key; (2) receiving an identifier in response to the second communication; (3) reader configured to transmit the identifier to a central database *I* toll system's central database; (4) a third communication with a second security key and (5) first or second security key based on information received from the RFID transponder."); IAPreB at 39-40. Respondents presented their defense of invalidity under § 112 for each of the five claim limitations across eight pages of its pre-hearing brief. RPreB at 43-50; *see also* IAPreB at 40-41.

It is also clear from the record that Neology admitted that Respondents argued both the lack of written description and priority date issues at the evidentiary hearing, and that both invalidity

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[14] Pre-Hearing Brief of the Office of Unfair Import Investigations (Aug. 23, 2016), EDIS Doc ID 589595 ("IAPreB").

arguments rise and fall together. Specifically, Neology argued in its initial post- hearing brief:

> Respondents argue that the asserted claims of the Security Key Patents lack written description and, therefore, are invalid under 35 U.S.C. § 112, ¶ 1. They also contend that the claims are not supported by the disclosures of Provisional Application 60/394,241 ("the '241 Provisional") or utility Application No. 10/615,026 ("the '026 Application") and, accordingly, cannot claim the priority dates of July 9, 2002 or July 9, 2003 of those applications, and are invalid as anticipated by the Gen 2 Standard and 6C Protocol, which were respectively published in 2005 and 2006. The arguments are related because the specifications of the '026 Application and the Security Key Patents are virtually identical. Tr., 1001:12-15; 1639:1-9. Thus, the crux of these arguments is that at least the disclosure of the '026 Application does not provide adequate written description for the asserted claims of the Security Key Patents.

CPB[15] at 54. Respondents maintained their position that the Asserted Claims are invalid on both grounds throughout the investigation and before the

[15] Complainant Neology, Inc.'s Initial Post-Hearing Brief (Oct. 14, 2016), EDIS Doc ID 592781 ("CPB").

Commission. RPRB[16] at 17 ("Testimony at the Hearing and evidence in the record establish that the '044 and '436 specifications, including the applications upon which they rely, fail to satisfy this [written description] requirement and are thus invalid."); RResp at 6 ("[B]ecause the specifications of the '044 and '436 patents are, with one important exception explained below, substantively identical to the '026 application, the written description and priority issues are merged.").

Moreover, Neology chose to defend against the lack of written description issue by focusing solely on the '026 Application. CPB at 54 n.5 ("Because the patents share the same specification, the discussion of written description will focus on the '026 Application. The fact that adequate written description is found in the '026 Application means there is also adequate written description in the identical specifications of the Security Key Patents."), 55 ("A key issue in the analysis is whether the '026 Application, by itself and without reliance on the disclosure of the '241 Provisional, provides adequate written description for the asserted claims."); CPRB[17] at 26 ("the relevant question is whether the '026 Application ... provides the requisite written description"); *see also* RPB[18] at 52 ("all parties have focused on the '026 application").

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[16] Respondents' Post-Hearing Reply Brief (Oct. 26, 2016), EDIS Doc ID 593623 ("RPRB").

[17] Complainant Neology, Inc.'s Reply Post-Hearing Brief (Oct. 26, 2016), EDIS Doc ID 593600 ("CPRB").

[18] Respondents' Initial Post-Hearing Bref (Oct. 14, 2016), EDIS Doc ID 592783 ("RPB").

Given the parties' arguments before the ALJ, we find no error in the ID's analysis that both issues rise and fall together. ID at 65-66. There is no dispute that all parties admitted that the ID made findings on both issues. *See* CPet at 2 ("The ID legally erred in determining (1) that the asserted claims of the '044 and '436 Patents are invalid for lack of written description and (2) that the asserted claims are not entitled to the filing date of the '026 Application ...."); CSub at 3 ("the ID purports to find 'that the [Asserted Claims] are invalid for lack of written description'"); CReply at 10 ("Neology petitioned for review of the ID on two separate and distinct issues: '(1) that the asserted claims of the '044 and '436 Patents are invalid for lack of written description and (2) that the asserted claims are not entitled to the filing date of the '026 Application ...."); IARespat 3 ("[T]he ALJ issued a Final Initial Determination on violation of Section 337, concluding that ... It has[] been shown by clear and convincing evidence that the asserted claims of the '044 and '436 patents are invalid for lack of written description under 35 U.S.C. § 112."); RResp at 5 ("The ID Correctly Found That the Asserted Claims of the '044 and '436 Patents Lack Written Description Support and Cannot Claim Priority to the '026 Application"). Notably, no party petitioned for review of the ID's determination to consider only the '026 Application and the '241 Provisional Application to determine whether the Asserted Patent specifications provide written description support for the Asserted Claims.

Based on the parties' submissions and the record evidence, it is clear that Neology seeks another chance for a rebuttal case concerning written description. Neology raises many new arguments

attempting to rebut Respondents' lack of written description case in its submissions in response to the Commission's August 16, 2017 Notice. For example, Neology argues for the first time that the priority issue and the lack of written description support issue "depend on different underlying materials." CSub at 3, *see e.g., id.* at 4 ("A proper invalidity analysis under § 112 ¶ 1 would have considered not only the disclosures of the applications cited for priority, but also the disclosures of the '044 and '436 patents, the as-filed claims therein, as well as the as-filed claims of any prior parent application that was properly incorporated by reference in the '044 and '436 patents (such as the claims of the '746 and '410 patents)."); CReply at 3. However, nowhere in the record did Neology raise this argument before the ALJ and Neology's submissions cite none. Thus, the Commission finds this argument waived for failure to raise the issue before the ALJ. *See Certain Automated Media Library Devices,* Inv. No. 337-TA-746, Revised Comm'n Op. at 15-16 (Jan. 9, 2013); *Broadcom Corp. v. Int'l Trade Comm'n,* 542 F.3d 894, 901 (Fed. Cir. 2008) (party "waived []argument by failing to preserve it in the proceedings before the administrative law judge.").

And, even though Neology petitioned for review of both the ID's findings on written description *and* priority, Neology never identified in its petition for review any error on the part of the ID in failing to analyze originally filed claims or any other reference allegedly incorporated by reference. For example, Neology argues for the first time in response to the Commission's Notice that the "ID's failure to analyze the asserted patents' originally-filed claims, which explicitly recite the limitations that the ID found to

lack support, is a legal error that the Commission should fix." CSub at 3, *see e.g., id.* at 8 ("The ID was only permitted to conclude that the asserted claims are invalid for lack of written description *if* the ID found that the combination of the '026 application, the '241 provisional, any other incorporated applications, *and* the originally-filed claims of such applications did not provide adequate written-description support for the asserted claims."); CReply at 5, 10. The Commission finds these arguments also waived for failure to raise them in the petition for review. *See Broadcom Corp.,* 542 F.3d at 901; *Finnigan Corp. v. Int'l Trade Comm'n,* 180 F.3d 1354, 1362 (Fed. Cir. 1999) ("A party seeking review in this court of a determination by the Commission must 'specifically assert' the error made by the ALJ in its petition for review to the Commission.").

Neology further argues that it was Respondents' burden to prove by clear and convincing evidence that the disclosures of the Asserted Patents, including any original claims and incorporated material, do not provide written description for the Asserted Claims. *See, e.g.,* CReply at 4, 9. Moreover, Neoloy asserts that "the burden cannot be shifted to Neology." *Id.* at 4. Neology, however, mistakenly confuses the burden of proof, in particular, the parties' respective burden of persuasion and burden of production. *See Taurus IP, LLC v. DaimlerChrysler Corp.,* 726 F.3d 1306, 1322 (Fed. Cir. 2013) ("After an accused infringer has put forth a prima facie case of invalidity, the burden of production shifts to the patent owner to produce sufficient rebuttal evidence': but the "ultimate burden of proving invalidity by clear and convincing evidence-i.e., the burden of persuasion-however, remains with the accused

infringer."); *Technology Licensing Corp. v. Videotek, Inc.,* 545 F.3d 1316, 1327-28 (Fed. Cir. 2008) (discussing the difference between burden of persuasion and burden of production). Neology's cited case law is inapposite. *See Ralston Purina Co. v. Far-Mar-Co., Inc.,* 772 F.2d 1570, 1573, 1573 (Fed. Cir. 1985) ("[T]he party asserting invalidity [] bears the initial procedural burden of going forward to establish a legally sufficient *prima facie* case of invalidity. If this burden is met, the party relying on validity is then obligated to come forward with evidence to the contrary.'") (internal citation omitted)).

Neology is wrong that Respondents "failed to establish a *prima facie* case of invalidity for lack of written description!' CReply at 10. As an initial matter, Neology never argued before the ALJ that Respondents failed to establish a *prima facie* case of invalidity under § 112 and, thus this argument is waived. *See Broadcom Corp.,* 542 F.3d at 901. Moreover, as discussed above, Respondents provided detailed invalidity contentions under § 112 for each of the five claim limitations across eight pages of its pre-hearing brief. RPreB at 43-50. After the evidentiary hearing, Neology spent twenty pages of its initial post-hearing brief arguing that Respondents did not meet their "burden to show by clear and convincing evidence that the '026 Application, and therefore the Security Key Patents, does not provide adequate written description." CPB at 61.

Even if Neology had timely argued that the ALJ should have considered the originally filed claims in determining whether there is written description support for the Asserted Claims, the outcome would be no different. The cases that Neology cites are

unavailing. In those cases, the originally filed claims were "part of the original specification," and not, as is the case here, new claims grafted onto a continuation application filed nearly ten years after the original specification was filed. *See Mentor Graphics Corp. v. EVE-USA, Inc.,* 851 F.3d 1275, 1297 (Fed. Cir. 2017); *ScriptPro LLC v. Innovation Associates, Inc.,* 833 F.3d 1336, 1339 (Fed. Cir. 2016). Moreover, the originally filed claims in the '026 Application do not recite "security key." JX-30 at NEO-ITC00000385-399. The Commission, thus, affirms with modifications the ID's finding that Respondents have proven by clear and convincing evidence that the Asserted Claims are invalid under § 112 for lack of written description.[19]

### C. The ID's Findings That the Asserted Claims Are Anticipated by the 6C Protocol or Obvious in View of the 6C Protocol in Combination with Slavin and/or Blythe[20]

As an initial matter, it is unclear whether the ID found that the Asserted Claims are invalid based on the published documents describing the 6C Protocol, or based on prior art RFID readers and tags that conform to the 6C Protocol and prior art toll systems that incorporate these 6C-compliant readers

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[19] The Commission incorporates its analysis from Section III(A) above regarding the lack of written description support for Limitations **A-E** in the '026 Application and the '241 Provisional Application.

[20] The ID (at 95) incorrectly stated that the priority date for the '436 patent is "January 1, 2012" when the patent application that issued as the '436 patent was filed on January 13, 2012.

and tags.[21] *See* ID at 96; RPB at 79-81. Respondents contend that they argued invalidity based on the publications themselves *and* "any tag or reader implementing Gen2/6C." RSub at 17. However, as explained below, the Commission finds that Respondents failed to meet their burden of proving invalidity of the Asserted Claims based on the 6C Protocol publications. The Commission also finds that, prior to the evidentiary hearing, Respondents waived their argument that the Asserted Claims are invalid based on prior art tags, readers, and toll systems that conform to the 6C Protocol. Thus, the Commission reverses the ID's invalidity findings' concerning the 6C Protocol.

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[21] The Commission's August 16, 2017 Notice requested the parties to brief the following:

> Did Respondents argue before the ALJ that the Asserted Claims were anticipated by prior art RFID readers, tags, and toll systems that practice the Gen2 Standard/6C Protocol and/or by the Gen2 Standard/6C Protocol publications? Does the final ID find that the Asserted Claims are anticipated by prior art RFID readers, tags, and toll systems that practice the Gen2 Standard/6C Protocol and/or by the Gen2 Standard/6C Protocol publications? Please provide citations to record evidence setting forth where the limitations of each Asserted Claim can be found in the prior art RFID readers, tags, and toll systems that practice the Gen2 Standard/6C Protocol or the Gen2 Standard/6C Protocol publications, including the limitation "transmit the identifier to a central database" as required by claims 1, 2, and 4 of the '436 patent and claims 13 and 14 of the '044 patent.

### i. The 6C Protocol

As the use of RF technology in ETC systems developed and spread, different communication protocols developed. ID at 32. The 6C Protocol is an international standard known as the ISO 18000-6C communications protocol (JX-16, published on June 15, 2006), which governs communications in systems using RFID tags. *Id.* The 6C Protocol stems from the work performed initially at the Auto-ID Center that was co-founded in 1999 by Dr. Sanjay Sarma at MIT. *Id.* at 35-36. When the Auto-ID Center began to shift its focus from research to developing a business based on the 6C Protocol, Dr. Sarma, with others, co-created a new standards-setting body called EPC Global that spun off from MIT. *Id.* at 36. By the end of 2004, Dr. Sarma and others at EPC Global had developed what became known as the EPCglobal Class-1 Generation-2 RFID protocol ("Gen2 Standard") (RX-751, published on January 26, 2005). *Id.* at 36-37. EPC Global then took the Gen2 Standard to the World Trade Organization's ISO, which renamed the standard according to its naming convention and called it ISO 18000-6C.[22] *Id.* at 37.

In an RFID system in which a reader and a tag communicate using the 6C Protocol, the tag sends a random number ("RN16") to the reader in response to, for example, a *Query* command issued by the reader. *See* JX-20 at 5774. The reader then transmits this RN16 back to the tag with an *ACK* command. *See id.* The tag validates the RN16 against the RN16

[22] For purposes of this investigation, the parties agree that the 6C Protocol and the Gen2 Standard describe the same communication protocol between an RFID tag and an RFID reader.

previously transmitted before the tag grants access to its memory. *See id.* If the RN16 does not match, the tag will not reply. *See id.* If the RN16 is validated, the tag will send another random number ("Handle") to the reader in response to a *Req_RN* command. *See id.* The reader then transmits this Handle back to the tag with, for example, a Read command. *See id.* The tag validates the Handle against the Handle previously transmitted before the tag grants the reader access to further memory contents. *See id.* If the Handle does not match, the tag will not reply Neology asserts that the RN16 and Handle in the 6C Protocol constitute the claimed "security key" and "second security key" as construed by the ALJ.

**ii. Respondents did not establish proof of invalidity of the Asserted Claims based on the 6C Protocol publications.**

It is well established that a "patent is presumed valid, and the burden of persuasion to the contrary is and remains on the party asserting invalidity." *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1573 (Fed. Cir. 1985) (citation omitted). Moreover, the party asserting invalidity bears the initial procedural burden of going forward to establish a legally sufficient *prima facie* case of invalidity. *Id.* Only after this burden is met, is the patentee then obligated to come forward with evidence to the contrary. *Id.*

In view of the parties' submissions and the record evidence, the Commission finds that Respondents did not establish a *prima facie* case of invalidity of the Asserted Claims based on the 6C

Protocol publications and, ultimately, did not prove by clear and convincing evidence that the Asserted Claims are invalid based on the 6C Protocol publications. Thus, the ID erred in finding that "Respondents have met their burden and shown by clear and convincing evidence that the Gen2 Standard/6C Protocol anticipates claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent" and that claims 13 and 14 of the '044 patent are rendered obvious by the Gen2 Standard/6C Protocol in view of Slavin and/or Blythe. ID at 103, 122.

Before the evidentiary hearing, Respondents made only vague invalidity assertions concerning the 6C Protocol publications. As set forth in their pre-hearing brief, Respondents' invalidity defense concerning the 6C Protocol consisted of the following:

> [T]he Gen2 and 6C standards are §§ 102(a) and 102(b) prior art to the '044 and '436 patents if those patents are only entitled to a priority date of no earlier than January 11,2012, the date that Neology added the new matter unsupported by the specification. Accordingly, Neology must come forward with evidence that either (1) the Gen2 or 6C standards do not anticipate or (2) the Gen2 or 6C standards are not prior art because the patents are entitled to claim priority to an earlier filing date. *See PowerOasis, Inc. v. T-Mobile USA, Inc.,* 522 F.3d 1299, 1305-06 (Fed. Cir. 2008). Because Neology contends that any tag or reader implementing Gen2/6C infringes Asserted Claims 25 of the '044

> patent and 1, 2, and 4 of the '436 patent, its only recourse for those claims is proving entitlement to an earlier priority date. *Id. at* 1305. Neology cannot do so. As explained *supra,* the applications to which the '044 and '436 patents claim priority do not provide written description support for the claims and thus, the claims of the '044 and '436 patents are invalid as anticipated by the Gen2 and 6C standards. With respect to claims 13-14 of the '044 patent, which require a specific toll system, a POSA would have found it obvious to use a 6C reader and tag in such a toll system. As described in§ III.D.3.a, the claimed toll system was well-known in the field, including in the Slavin and Blythe prior art.

RPreB at 54. Respondents wrongly argue that "[n]othing more was required of Respondents" and that the issue was "uncontested." RReply at 19. Such vague assertions do not establish a *prima facie* case of invalidity under §§ 102 or 103. Respondents did not set forth their contention as to where each and every claim limitation is found in the 6C Protocol publications but rather, improperly relied solely on Neology's infringement theory and unspecified products that practice the prior art. *Zenith Elecs. Corp. v. PDI Communication Sys., Inc.,* 522 F.3d 1348, 1363 (Fed. Cir. 2008) ("Anticipation requires a showing that each element of the claim at issue, properly construed, is found in a single prior art reference."). "It is the presence of the prior art and its relationship to the claim language that matters for

invalidity." *Id.* (quoting *Tate Access Floors, Inc. v. Interface Architectural Resources, Inc.,* 279 F.3d 1357, 1367 (Fed. Cir. 2002)).

Moreover, the issue of whether the 6C Protocol publications themselves disclose each and every claimed limitation was contested before the ALJ notwithstanding Respondents' assertion to the contrary. *See* ID at 96. Although Neology conceded that unless the Asserted Claims are accorded an earlier filing date, the 6C Protocol publications is prior art, Neology did not concede that the publications themselves disclose all of the limitations of the Asserted Claims. *See id.;* CSub at 24-28. Rather, as Neology consistently argued before the ALJ, it is the implementation of the 6C Protocol by the accused tags and readers that infringe the Asserted Claims. *See* ID at 96.

Respondents argue that Neology waived its right to contest the ID's finding that the Asserted Claims are anticipated by or obvious in view of the 6C Protocol because it failed to contest in its pre-hearing brief and initial post-hearing brief that the 6C Protocol discloses all of the claim limitations. On the contrary, because Respondents did not set forth a *prima facie* case of invalidity based on the 6C Protocol before the evidentiary hearing, Neology was not required to come forward with opposing evidence. *See Ralston Purina Co.,* 772 F.2d at 1573. Rather, it is Respondents that have waived their invalidity defense based on the 6C Protocol publications by failing to set forth in detail their contentions. *See* Order No. 2, Attachment B, Ground Rule 7.2, EDIS Doc ID 572608 (Jan 15, 2016) ("Any contentions not

set forth in detail as required herein shall be deemed abandoned or withdrawn.").

During the evidentiary hearing, Respondents' invalidity expert, Dr. Durgin, did not opine whether the 6C Protocol publications anticipate or render obvious any Asserted Claims. Then, in their initial post-hearing brief, Respondents relied on the testimony of Neology's expert, Mr. Goldberg, to support their argument that certain claim limitations were inherent in all 6C- compliant tags and readers. RPB at 79-81. Respondents also relied on the testimony of Neology's fact witness, Mr. Gillespie, who allegedly conceded the Asserted Claims were invalid in view of the 6C Protocol ifthe Asserted Claims are not entitled to claim priority to an earlier filing date. *Id.* at 79. But Neology's witness testimonies do not satisfy Respondents' burden of proof because neither witness performed an element-by-element analysis of the Asserted Claims in view of what is disclosed in the 6C Protocol publications. While Mr. Gillespie and Mr. Goldberg testified that the 6C Protocol publications disclose the claimed back-and-forth communications protocol, neither witness testified that the 6C Protocol publications themselves disclose all of the claimed structural elements. *See* Tr. (Gillespie) at 1760:11-1761:23; Tr. (Goldberg) at 532:12-533:4.

Respondents' initial post-hearing brief argued for the first time that certain claimed structural-elements are inherently disclosed in the 6C Protocol publications. RPB at 79-81; *see, e.g.,* RSub at 24 ("[T]he Gen2/6C publications inherently disclose these limitations as well."). However, neither Respondents' pre-hearing brief nor their post-hearing

briefs point to any portion of the 6C Protocol publications for the disclosure of the claimed structural elements. *See* RPB at 79-81; RPRB at 53. In fact, Respondents' invalidity arguments in their briefs before the ALJ cite to the 6C Protocol publications only for their publication dates. *See* RPreB at 54; RPB at 79.

Also for the first time, Respondents' submission before the Commission cites to various portions of the 6C Protocol publications to show the disclosure of certain claimed structural elements. *See* RSub at 20-29. Notably, Respondents do not specify where these same arguments were made before the ALJ. Thus, the Commission will not consider Respondents' belated arguments. *See Certain Automated Media Library Devices,* Inv. No. 337-TA-746, Revised Comm'n Op. at 15-16 (Jan. 9, 2013); *Broadcom Corp.,* 542 F.3d at 901 (party "waived [] argument by failing to preserve it in the proceedings before the administrative law judge.").

Respondents have not shown that the 6C Protocol publications disclose the limitation "transmit the identifier to the central database," which is found in all of the Asserted Claims except claim 25 of the '044 patent. Before the ALJ, Respondents argued:

> Claims 13 and 14, like all of the reader claims, require the reader be configured to transmit the tag's identifier to a central database. For purposes of infringement, Mr. Goldberg contends that the Accused Star Readers satisfy this element because they can output data to a computer. *See, e.g.,* Goldberg

> Tr. 582:3-14. But the same is true with any reader. Moreover, in 2009 Neology bought (and tested) multiple 6C readers and 6C tags that would be prior art under 35 U.S.C. § 102(b). RX-0220C (Aug. 31,2009 email attaching Competitive Benchmark Report); RX-0221C at NEO-ITC00256485 (listing "Fifteen, unique EPC Gen 2 tags were tested with the Alien, Impinj, and Intennec readers. These readers and tags all conform to the EPC Gen 2 standard.") The readers were connected to a computer. RX-0221C at NEO-ITC00256513 (describing interfacing with the readers through "software").

RPB at 79; *see also id* at 81 (claims 1, 2, and 4 of the '436 patent). Other than attorney argument, Respondents offer no support for its assertion that all 6C-compliant readers "can output to a computer." Even though the ID found that Neology's expert testimony may satisfy Neology's burden of showing by a preponderance of the evidence that the limitation is found in the accused readers and Neology's domestic industry products, such testimony does not satisfy Respondents' burden of showing that the limitation is found in the 6C Protocol publications themselves. *See Zenith Elecs.,* 522 F.3d at 1363 ("[M]ere proof that the prior art is identical, in all material respects, to an allegedly infringing product cannot constitute clear and convincing evidence of invalidity"). Furthermore, Respondents' reliance on Neology's Competitive Benchmark Report (RX-0221C) for support is misplaced. That Report does not even mention a "central database," let alone the specific configuration

of the claimed "central database" required by claims 13 and 14 of the '044 patent.

**iii. Respondents waived their argument that the Asserted Claims are invalid based on 6C-compliant tags, readers, and toll systems**

Respondents' Notice of Prior Art did not identify any prior art tag or reader and, thus, Respondents cannot now assert an invalidity defense based on any prior art tag or reader. *See* Respondents' Notice of Prior Art (Mar. 11, 2016), EDIS Doc ID 576199; Ground Rule 4, EDIS Doc ID 576199 ("Prior art, as well as related evidence, that is not disclosed in the Notice of Prior Art on or before the date set forth in the procedural schedule will not be admitted at the hearing absent a timely written motion showing good cause."). Respondents' reliance on their Response to the Complaint and Notice of Investigation as purportedly identifying prior art tags and readers is misleading because the cited portions of the Response all relate to Respondents' inequitable conduct defense and have nothing to do with their invalidity defense. *See* RReply at 28 (citing Response of Kapsch Respondents to th,e Complaint and Notice of Investigation at 42-43, 51, 73, EDIS Doc ID 573421 (Feb. 1, 2016)).

Likewise, in their pre-hearing brief and at the evidentiary hearing, Respondents did not argue that any particular prior art product embodying the 6C Protocol invalidated the Asserted Claims. *See supra* at 37 (quoting RPreB at 54). Respondents' vague and broad assertion based on Neology's infringement

theory and unspecified 6C-compliant products do not satisfy the purpose of Ground Rule 4. *See* Ground Rule 4, EDIS Doc ID 576199 (The purpose of Ground Rule 4 is to "notify all parties (early in the Investigation) of the prior art likely to be raised during the hearing on the question of violation of section 337, and thus to allow the parties to formulate their contentions, and to allow the experts to provide meaningful reports and deposition testimony."). At the hearing, Respondents did riot present any factual or legal analysis comparing any prior art tags, readers, and toll systems with the Asserted Claims.

In their initial post-hearing brief, Respondents for the first time identify tags and readers, including domestic industry tags and readers that Neology bought from subcontractors in 2009, that allegedly would be prior art under § 102(b). *See* RPB at 79-81. We agree with Neology that, under Ground Rule 10.1, Respondents waived any argument that these prior art products invalidated the Asserted Claims because they were not identified in their pre-hearing brief and could not be identified for the first time in their post-hearing brief. *See* CSub at 22.

Despite providing more details regarding its invalidity contention based on prior art products conforming to the 6C Protocol, Respondents' initial post-hearing brief nonetheless failed to meet their burden of proof because it did not specify how any of the identified prior art products disclose every limitation found in the Asserted Claims. *See* RPB at 79-81. Rather, Respondents continued to rely substantially on Neology's infringement contentions and, for the first time, also rely on Neology's domestic industry contentions. *Id.*

Respondents fault Neology for "abandoning" their arguments concerning the Ground Rules because "it never previously argued that Respondents' contention was new or moved to strike it." RReply at 26. For support, Respondents assert that Neology's post-hearing reply brief only argues that the 6C Protocol publications are not prior art and that they fail to disclose certain elements. *Id.; see* CPRB[23] at 50-53. On the contrary, it was reasonable for Neology to address Respondents' arguments as they pertained. to the 6C Protocol publications themselves and not any prior art products since Respondents never identified any specific prior art products. Respondents' identification of Neology's domestic industry products for the first time in their post-hearing brief robbed Neology of the opportunity to formulate their contentions and present evidence at the hearing, including expert testimony, on this issue. *See* Ground Rule 4, EDIS Doc ID 576199.

Respondents argue that Federal Circuit precedent permits them to rely on Neology's infringement contentions to invalidate the Asserted Claims. RReply at 22. Respondents' case law, however, is readily distinguishable. In both *Evans Cooling Sys., Inc. v. General Motors Corp.,* 125 F.3d 1448, 1451 (Fed. Cir. 1997), and *Vanmoor v. Wal-Mart Stores, Inc.,* 201 F.3d 1363, 1366 (Fed. Cir. 2000), the accused infringer asserted an on-sale bar defense with respect to the very product accused of infringement. The district courts in both cases found that the accused infringer had placed the accused product on sale prior to the critical date. *Id.* Under

[23] Complainant Neology, Inc.'s Reply Post-Hearing Brief (Oct. 26, 2016), EDIS Doc ID 593600 ("CPRB").

such circumstances, the Federal Circuit stated that although the accused infringer "bore the burden of proving that the (accused product] embodied the patented invention or rendered it obvious for purposes of the summary judgment motion, this burden is met by [the patentee's] allegation, forming the sole basis for the complaint, that the [accused product] infringes." *Evans Cooling Sys.,* 125 F.3d at 1451; *see also Vanmoor,* 201 F.3d at 1366 (same).

In this case, Respondents do not argue that their accused tags, readers, and toll systems are prior art under § 102(b). Rather, Respondents argue that prior art products that embody the 6C Protocol are identical, in all material respects, to Respondents' products accused of infringement because they embody the same protocol. The Federal Circuit has held that such comparisons between the prior art and products accused of infringement cannot constitute clear and convincing evidence of invalidity. *See Zenith Elecs. Corp.,* 522 F.3d at 1363 ("[M]ere proof that the prior art is identical, in all material respects, to an allegedly infringing product cannot constitute clear and convincing evidence of invalidity.").

In their submissions before the Commission, Respondents, for the first time, describe limitation-by-limitation how Neology's domestic industry tags and readers anticipate the Asserted Claims, relying substantially on the ID's finding that Neology has met its burden of proving by a preponderance of the evidence that its domestic industry tags and readers practice claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. *See* RSub at 20-29. The Commission will not consider Respondents' belated arguments. *See Certain Automated Media Library*

*Devices,* Inv. No. 337-TA-746, Revised Comm'n Op. at 15-16 (Jan. 9, 2013); *Broadcom Corp.,* 542 F.3d at 901 (party "waived []argument by failing to preserve it in the proceedings before the administrative law judge.").

### D. The ID's Findings That the Asserted Claims Are Anticipated by Snodgrass or Obvious in View of Snodgrass in Combination with Slavin and/or Blythe

As explained below, the Commission affirms the ID's finding that Respondents have proven by clear and convincing evidence that Snodgrass anticipates claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent, and that Snodgrass in combination with either Slavin or Blythe renders obvious claims 13 and 14 of the '044 patent. ID at 110, 127.

#### i. U.S. Patent No. 5,627,544 ("Snodgrass")

Snodgrass discloses a communication system that implements a protocol using a common communication medium, such as radio frequency, to establish uninterrupted communications between a command station and potentially thousands of responder stations. *See generally* JX-21 at 1:20-50. Snodgrass teaches that the "central purpose of a protocol is to provide means for arbitrating between stations that would otherwise cause a collision." *Id.* at 1:62-64.

To establish communications, Snodgrass teaches that a command station broadcasts a

command causing each responder station to each select a random number from a known range and retain it as its ARBITRATION NUMBER. *Id.* at Abstract. The ARBITRATION NUMBER is "chosen for self identification by a responder station" and distinguishes responder stations when coupled simultaneously with at least one commander station to a common medium. *Id.* at 11:22-30. Snodgrass explains that "[a]fter the identity of a responder station has been determined, a commander station can conduct uninterrupted communication at any subsequent time using the responder station's ARBITRATION NUMBER." *Id.* at 20:11-14.

"Since the ARBITRATION NUMBER is not unique," however, Snodgrass also explains that "there is some risk that at a subsequent time, more than one responder station having a given value for ARBITRATION NUMBER may become coupled to the common medium." *Id.* at 20:14-18. Therefore, Snodgrass teaches that "[f]or increased accuracy, use of a unique responder station identity, such as the TAG field ... may be used for subsequent communication." *Id.* at 20:18-21. According to Snodgrass, the TAG value is "assigned by a communication system designer at the time a responder station is manufactured or commissioned," and "distinguishes responder stations throughout the life of the communication system." *Id.* at 11:25-28, 11:30-33.

Snodgrass also discloses that as a group of responder stations approach a command station, the command station has a fixed amount of time to determine the identity of each responder station, in order to establish uninterrupted communication. *Id.* at 13:28-31. Referring to Fig. 10, Snodgrass teaches

that the command station broadcasts to the group of responder stations a IDCG (Identify, Clear Locked Bit, and Generate an Arbitration Number) command. *Id* at Figs. 5 & 10, 13:40-45; Tr. (Durgin) at 1046:18-22. The responder station responds to the IDCG command with a response in format **192** of Figure 9 that includes an ARBITRATION NUMBER. JX-21 at Figs. 8 & 9, 13:45-50; Tr. (Durgin) at 1045:17-20, 1048:1-10. The command station then selects a command to communicate with the responding responder station, such as a "Read" (or "RD") command. JX-21 at 14:13-23. The command station uses the ARBITRATION NUMBER in the Read command, in format **144,** which it broadcasts to the responder stations. *Id* at 11:18-22, 14:16-23, Figs. 4-6; Tr. (Durgin) at 1048:11-1049:1.

Referring to Fig. 11, Snodgrass further discloses that each responder station determines whether it has been addressed by determining whether the ARBITRATION NUMBER is "bit- wise identical to ARBITRATION NUMBER as received in the command." JX-21 at 15:26-32, Fig. 11 (address check state **312**); Tr. (Durgin) at 1049:2-5. If so, the responder station's response to the Read command, in format **194**, includes both "TAG" and "DATA" information that is stored in the responder station's memory. JX-21 at 7:12-15, 11:31-35, 12:26-29; Fig. 9; Tr. (Durgin) at 1049:15-1050:8.

In addition to the Read command, Snodgrass teaches that the command station can also send a Write (or "WD") command, in format **146**, to the responder stations. JX-21 at 15:66-16:1, Figs. 5-6; Tr. (Durgin) at 1050:9-25. The command station includes the ARBITRATION NUMBER and TAG in the Write

command to address a particular responder station. JX-21 at 3:56-63,4:1-4,20:18-21, Figs. 5-6. The response to a Write command will include STATUS, which is "a one-byte code chosen by responder station [] to convey current conditions of important system events such as low battery, uncorrectable data received, write protection, and similar information which may indicate to commander station [] that communication should be repeated or abandoned." *Id.* at 12:21-26.

**ii. The Asserted Claims Are Anticipated by Snodgrass or Obvious in View of Snodgrass in Combination with Slavin and/or Blythe**

Prior to institution of this investigation, the Kapsch Respondents filed a Petition seeking *inter partes* review of claims 1-26 of the '044 patent and claims 1-19 of the '436 patent. On September 14, 2015, the PTAB determined to institute an *inter partes* review of claims 1-3, 7-12, 16-20, 23, and 24 of the '044 patent (JX-67), and to deny institution of an *inter partes* review of the other claims of the '044 patent (JX-62) and all of the claims of the '436 patent (JX-63).

After the PTAB found that claim 23 is anticipated by Snodgrass and claim 10 is obvious over Snodgrass and Slavin,[24] Neology limited its

[24] On September 13, 2016, the first day of the evidentiary hearing, the PTAB issued its final decision finding that claim 23 (from which asserted claim 25 depends) of the '044 patent is anticipated by Snodgrass under § 102(b) and that claim 10 (from which asserted claims 13 and 14 depend) of the '044 patent is unpatentable over Snodgrass and Slavin under § 103(a). JX-67 at 9-14. In finding claims 10 and 23 anticipated by Snodgrass,

arguments before the ALJ with respect to Snodgrass to the claimed "second security key." *See* CPB at 76-84, CPRB at 53-56. In particular, Neology argued that PTAB agreed with Mr. Goldberg that Snodgrass does not disclose the "second security key," CPRB at 53-54, and "Snodgrass's TAG *cannot* be both the claimed 'identifier' *and* the claimed 'second security key,'" *id.* at 55 (emphasis in original). Neology also argued that because Snodgrass does not disclose a "second security key," it cannot disclose that the "second security key" is "based on information received from the transponder" as required by claim 14 of the '044 patent and claim 4 of the '436 patent. *Id.* at 56.

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the PTAB rejected Neology's argument "that access to the memory must be based only on checking and validating the security key *(i.e.,* the system cannot check any other information)." *Id.* at 9. The PTAB interpreted claims 10 and 23 as specifying that "access to the memory contents is contingent on, or 'based on,' the security key, which is a key that is checked and validated to grant or deny access to a memory." *Id.* Notably, the PTAB found that the "claims do not include any language precluding other security checks from being performed as well." *Id.* Thus, the PTAB concluded "the fact that other security checks also are performed is immaterial, given that Snodgrass discloses receiving an arbitration number, comparing it to the arbitration number stored in memory, and providing information stored in memory in response when the arbitration numbers match." *Id.* at 23. The PTAB also rejected Neology's argument that Snodgrass's ARBITRATION NUMBER is not a "security key" because it is "used to determine if a responder station has been addressed and not to grant or deny access to memory." *Id.* at 19-20. The PTAB reasoned that the fact that "the arbitration number also serves the purpose of identifying the responder station does not negate the fact that it is used by the responder station to perform a comparison and only provide data from memory in the case of a match." *Id.* at 20. Thus, the PTAB concluded that "the arbitration number in Snodgrass is a key that is checked and validated to grant or deny access to a memory." *Id.*

In view of the broad construction of "security key" proposed by Neology and adopted by the ALJ,[25] the Commission finds no error in the ID's finding that Snodgrass' TAG meets the "second security key" limitation. Snodgrass discloses the use of an ARBITRATION NUMBER, randomly generated by a tag, to distinguish the tag from a group of tags all communicating with a common reader. JX-21 at Abstract, 11:22-30. Snodgrass also discloses that the ARBITRATION NUMBER may not be unique because "there is some risk that at a subsequent time, more than one responder station having a given value for ARBITRATION NUMBER may become coupled to the common medium." *Id* at 20:14-18. Therefore, Snodgrass teaches that "[f]or increased accuracy, use of a unique responder station identity, such as the TAG field in format **146** of FIG. 6, may be used for subsequent communication." *Id.* at 20:18-21. According to Snodgrass, the TAG value is "assigned by a communication system designer at the time a responder station is manufactured or commissioned," *id.* at 11:25-28, and "distinguishes responder stations throughout the life of the communication system," *id.* at 11:30-33. Thus, like the ARBITRATION NUMBER, the TAG value is a unique identification for a particular tag. *Id* at 3:61, 20:19. Contrary to Neology's argument, the ID's finding is consistent with PTAB's finding that "the TAG may be 'used' as an additional verification of the responder station's identity." JX-63 at 11.

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[25] No party petitioned for review of the ALJ's construction of "security key," and the Commission did not review the ALJ's claim constructions.

Neology mischaracterizes Dr. Durgin's testimony when it argues that the ID erred in relying on the inconsistent testimony of Dr. Durgin, who allegedly testified that TAG is the claimed "identifier" and the claimed "second security key." CPet at 41-42. We see no error in the ID's finding that Dr. Durgin consistently testified that TAG meets the claimed "second security key," and that Snodgrass' DATA field is the claimed "identifier" received or sent in response to the second communication. ID at 106-107 (quoting Tr. (Durgin) at 1054:2-18). Dr. Durgin also pointed to Snodgrass' STATUS field as being the claimed "further memory contents" received or sent in response to the third communication. *Id.* at 106 (citing Tr. (Durgin) at 1052:1-12). Before the ALJ, Neology did not challenge Respondents' evidence that Snodgrass' DATA and STATUS values are contents of the tag's memory.

Neology again mischaracterizes Dr. Durgin's testimony when it alleges that he testified that the tag in Snodgrass didn't check and validate the TAG value in order to grant access to the tag's memory. CPet at 41 (citing Tr. (Durgin) at 1341:16-1342:16). Snodgrass discloses that when the reader broadcasts a Write command, it includes the ARBITRATION NUMBER and TAG in the command to address a particular responder station. JX-21 at 3:56-63,4:1-4, 15:66-16:1,20:18-21, Figs. 5-6; Tr. (Durgin) at 1050:9-25. Dr. Durgin testified that Snodgrass teaches that only after the tag checks to confirm that the TAG value sent with the command matches the stored TAG value will the tag respond with the stored STATUS value. Tr. (Durgin) at 1341:16-1342:16, 1403:25-1404:22, 1405:19-1406:1; JX-21 at 3:56-63,4:1-4, 20:18-21, Figs. 5-6. The ID found that Mr. Goldberg admitted that the tag checks the unique identification

number TAG with the TAG value stored in memory and, after that happens, the tag sends the response message **196.** *See* ID at 105; Tr. (Goldberg) at 1452:3-9, 1481:9-24.

Relevant to this investigation, in denying *inter partes* review of claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent, the PTAB found that the Kapsch Respondents failed to demonstrate a reasonable likelihood that Snodgrass discloses a "third communication" and a "second security key," as required by these claims. JX-62 at 11-12, 15. JX-63 at 10-12. Specifically, the PTAB noted that "Kapsch identifies the write (WR) command in Snodgrass, which includes the arbitration number, TAG, and DATA, as the recited 'third communication,' and contends that 'the arbitration number and TAG together function as a second security key.'" JX-63 at 11; *see also* JX-62 at 11. The PTAB found Kapsch's argument unpersuasive because:

> Kaspch does not point to any indication in Snodgrass that ***together*** they constitute a "key" or that the responder station checks and validates them ***together*** to grant or deny access to a memory. Rather, the portion excerpted above appears to suggest that the received arbitration number is compared to the arbitration number in memory in the same manner it is for other commands, and that the TAG may be "used" as an additional verification of the responder station's identity.

JX-63 at 11 (emphasis added); *see also* JX-62 at 12.

Contrary to Neology's assertion, PTAB's refusal to review claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent, based on Snodgrass does not mean that the PTAB panel would agree with Mr. Goldberg's testimony that "TAG" is not a "security key." CPet at 42-44. Rather, PTAB's repeated use of "together" shows it was only ruling on whether the arbitration number and TAG were checked and validated as a single entity and not whether Snodgrass' TAG *alone* can be the claimed "second security key." RResp at 41; JX-63 at 11; JX-62 at 12. Moreover, as discussed above, the ID's finding that TAG constitutes the "second security key" is consistent with PTAB's finding that "the TAG may be 'used' as an additional verification of the responder station's identity." JX-63 at 11.

Snodgrass unquestionably provides more detailed disclosure of how the ARBITRATION NUMBER is used to grant access to a tag's memory when compared to its disclosure of the TAG field. Nevertheless, when Snodgrass' disclosure of TAG is combined with Dr. Durgin's testimony as to how one of ordinary skill in the art would understand that disclosure and Mr. Goldberg's admissions consistent with Dr. Durgin's understanding, the record evidence supports the ID's finding of invalidity of the Asserted Claims based on Snodgrass.

Finally, Neology makes a number of arguments in its petition for review that were never raised in its post-hearing briefs. These arguments include: (1) the arbitration number is not the claimed "security key," CPet at 36, 44-45; (2) Snodgrass does not disclose a required order of commands, or that a write command must follow a read command, *id.* at 35-36; and (3) in

response to a write command, there is no evidence that the STATUS value is stored in the tag memory, *id.* at 39-40. The Commission will not consider these belated arguments. *Broadcom Corp.,* 542 F.3d at 901.

### E. The ID's Other Findings Under Review

The Commission affirms the ID's findings that The European ENV ISO 14906 standard (RX-639) and Klaus Finkenzeller, RFID Handbook (1999) (RX-581) do not anticipate or render obvious the Asserted Claims for the reasons stated in the ID. ID at 110-117, 127-130. The Commission has determined to take no position on the ID's findings that the Asserted Claims are directed at patent eligible subject matter under § 101 and that Neology has satisfied the economic prong of the domestic industry requirement with respect to the '436 patent.

## IV. CONCLUSION

For the reasons discussed above, the Commission has determined to affirm with modifications the ID's finding of no violation of section 337 by the Respondents in connection with claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent.

By order of the Commission.

Lisa R. Barton
Secretary to the Commission

Issued: October 30, 2017

**CERTAIN RADIO FREQUENCY IDENTIFICATION ("RFID") PRODUCTS AND COMPONENTS THEREOF**

**Inv. No. 337-TA- 979**

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached COMMISSION OPINION has been served by hand upon the Commission Investigative Attorney, Todd P. Taylor, Esq., and the following parties as indicated, on October 30, 2017.

Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

**On Behalf of Complainant Neology, Inc.:**

Daniel E. Yonan, Esq.
**STEARN, KESSLER, GOLDSTEIN & FOX PLLC**
1100 New York Avenue
Washington, DC 20005

☐ Via Hand Delivery
☐ Via Express Delivery
☒ Via First Class Mail
☐ Other: _____

**On Behalf of Respondents Kapsch TrafficCom IVHS, Inc., Kapsch TrafficCom Holding Corp., Kapsch TrafficCom Canada, Inc., Star Systems International, Ltd., and STAR RFID Co., Ltd.:**

Nathan S. Mammen, Esq.
**KIRKLAND & ELLIS LLP**
655 Fifteenth Street, NW
Washington, DC 20005-5793

☐ Via Hand Delivery
☐ Via Express Delivery
☒ Via First Class Mail
☐ Other: _____

**[ENTERED: June 22, 2017]**

***Public Version***

**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**Washington, D.C.**

**In the Matter of**

**CERTAIN RADIO FREQUENCY IDENTIFICATION ("RFID") PRODUCTS AND COMPONENTS THEREOF**

**Inv. No. 337-TA-979**

**INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND RECOMMENDED DETERMINATION ON REMEDY AND BOND**

Administrative Law Judge MaryJoan McNamara

(June 22, 2017)

**Appearances:**

*For the Complainant Neology, Inc.*:

Daniel E. Yonan, Esq., Nicholas J. Nowak, Esq., and Jonathan Tuminaro, Esq. of Sterne, Kessler, Goldstein & Fox PLLC, Washington, D.C.

Robert H. Sloss, Esq., Victor M. Felix, Esq., and Brian J. Kennedy, Esq. of Procopio, Cory, Hargreaves & Savitch LLP, San Diego, C.A.

*For the Respondents Kapsch TrafficCom °IVHS Inc., Kapsch TrafficCom Holding Corp., Kapsch TrafficCom Canada Inc .. Star Systems International. Ltd., STAR RFID Co., Ltd. :*

Gregg F. LoCasio, Esq., Nathan S. Mammen, Esq., and Helena D. Kiepura, Esq. of Kirkland & Ellis LLP, Washington, D.C.

*For the Commission Investigative Staff:*

Anne Goalwin, Esq., Supervisory Attorney; and Todd P. Taylor, Esq., Investigative Attorney, of the Office of Unfair Import Investigations, U.S. International Trade Commission, Washington, D.C.

## SELECTED SUMMARY FINDINGS

Pursuant to the Notice of Investigation, 81 Fed. Reg. 1205, dated January 11, 2016, this is the Initial Determination on Violation ("ID") of the Investigation in the Matter of Certain Radio Frequency Identification ("RFID") Products and Components Thereof, United States International Trade Commission Investigation No. 337-TA-979. *See* 19 C.F.R. § 210.42(a).

This ID finds that Complainant, Neology, Inc. ("Neology" or "Complainant"), has not proven by a preponderance of evidence that Respondents Kapsch TrafficCom IVHS, Inc., Kapsch Traffic Corn Holding

Corp., and Kapsch TrafficCom Canada, Inc. ("Kapsch Respondents"), and Respondents Star Systems International Ltd. and Star RFID Co., Ltd. ("Star Respondents," and collectively, with Kapsch Respondents, "Respondents"), have violated subsection (b) of Section 337 of the Tariff Act of 1930, in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain RFID products or components thereof.

It is a finding of this ID that asserted claims 13, 14, and 25 of U.S. Patent No. 8,325,044 (the "'044 patent") and asserted claims 1, 2, and 4 of U.S. Patent No. 8,587,436 (the "'436 patent") are invalid for lack of a written description pursuant to 35 U.S.C. § 112. There is clear and convincing evidence that the '044 and '436 patents are not supported by the written descriptions of the parent patents, U.S. Patent Nos. 8,237,568; 8,004,410; 7,671,746; and 7,081,819, and the U.S. Provisional Application No. 60/394,241 upon which Neology relies for its patent priority dates.

It is a finding of this ID that the '044 and '436 patents are invalid due to anticipation under 35 U.S.C. § 102, and obviousness under 35 U.S.C. § 103.

Because the '044 and '436 patents have been found to be invalid, it is a finding of this ID that Respondents are not liable for infringement of asserted claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent.

Because the '044 and '436 patents have been found to be invalid, Neology has not satisfied the technical prong of the domestic industry requirement.

Although Neology has satisfied the economic prong of the domestic industry requirement through its sub-contractor [ ], that finding is immaterial because of the invalidity of the '044 and '436 patents.

However, in the event the Commission does not uphold the findings that the '044 and '436 patents are invalid, this ID recommends that only a Limited Exclusion Order with a certification provision should be issued.

**CONFIDENTIAL MATERIAL OMITTED**

**TABLE OF CONTENTS**

**ABBREVIATIONS**

The following abbreviations for pleadings, exhibits, briefs, and Orders are used in this Initial Determination:

| | |
|---|---|
| **Compl.** | Complaint |
| **Resp.** | Response of Respondents to the Notice of lnvestigation and Complaint Under Section 337 of the Tariff Act of 1930, as Amended |
| **CX** | Complainant's exhibit |
| **CDX** | Complainant's demonstrative exhibit |
| **CPX** | Complainant's physical exhibit |
| **CPBr.** | Complainant's Pre-Hearing Brief |
| **CBr.** | Complainant's Initial Post-Hearing Brief |
| **CRBr.** | Complainant's Post-Hearing Reply Brief |
| **CPSt.** | Complainant's Pre-Hearing Statement |
| **JX** | Joint exhibit |

| | |
|---|---|
| **RX** | Respondents' exhibit |
| **RDX** | Respondents' demonstrative exhibit |
| **RPX** | Respondents' physical exhibit |
| **RPBr.** | Respondents' Pre-Hearing Brief |
| **RBr.** | Respondents' Initial Post-Hearing Brief |
| **RRBr.** | Respondents' Post-Hearing Reply Brief |
| **RP St.** | Respondents' Pre-Hearing Statement |
| **SPBr.** | Commission Investigative Staffs Pre-Hearing Brief |
| **SBr.** | Commission Investigative Staffs Initial Post-Hearing Brief |
| **SRBr.** | Commission Investigative Staffs Post-Hearing Reply Brief |
| **SPSt.** | Commission Investigative Staffs Pre-Hearing Statement |
| **SX** | Commission Investigative Staffs exhibit |

| | |
|---|---|
| **SDX** | Commission Investigative Staffs demonstrative exhibit |
| **Tr.** | Hearing transcript |
| **Comp'l Claim Br.** | Complainant's Initial Claim Construction Brief |
| **Comp'l Resp. Claim Br.** | Complainant's Responsive Claim Construction Brief |
| **Res'pts Claim Br.** | Respondents' Initial Claim Construction Brief |
| **Res'pts Resp. Claim Br.** | Respondents' Responsive Claim Construction Brief |
| **Staff Claim Br.** | Commission Investigative Staffs Initial Claim Construction Brief |
| **Staff Resp. Claim Br.** | Commission Investigative Staffs Responsive Claim Construction Brief |
| ***Markman* Hr'g Tr.** | Transcript of *Markman* Hearing held on May 24, 2016 |
| ***Markman* Tele. Tr.** | Transcript of Teleconference regarding claim construction held on September 8, 2016 · |
| **August 29, 2016 Tele. Tr.** | Transcript of Teleconference held on August 29, 2016 |

The following abbreviations for technical business-related terms are used in this Initial Determination:

| | |
|---|---|
| **Gen2 Standard** | Version 1.0.9 of the EPCglobal Class-I Generation-2 standard |
| **6B Protocol** | ISO- l 8000-6B communications protocol |
| **6C Protocol** | IS0-18000-6C communications protocol |
| **ATA** | American Trucking Association Protocol (a.k.a. IS0-10374 and/or American Association of Railroads S-819) |
| **BATA** | Bay Area Toll Authority |
| **CGC** | Channel Group Controller |
| **CTOC** | California Toll Operators Committee |
| **ETC** | Electronic Toll Collection |
| **EVI** | Electronic Vehicle Identification |
| **EVR** | Electronic Vehicle Registration |

| | |
|---|---|
| **FRAND** | A legal standard that stands for "Fair, Reasonable, and NonDiscriminatory" |
| **IBTTA** | International Bridge, Tunnel & Turnpike Association |
| **IC** | Integrated Circuit |
| **ISO** | International Standards Organization |
| **LSI ORB** | Louisville-Southern Indiana Ohio River Bridges |
| **MAP-21** | Moving Ahead for Progress in the 21st Century Act |
| **MC** | Main Controller |
| **MPEP** | Manual of Patent Examining Procedure |
| **MPR2** | JANUS Multi-Protocol Reader II |
| **PRHTA** | Puerto Rico Highways and Transportation Authority |
| **PTAB** | Patent Trial and Appeals Board |
| **PTO** | Patent & Trademark Office |
| **RF module** | Multiprotocol RF modules |

| | |
|---|---|
| **RFID** | Radio Frequency Identification |
| **SRTA** | State Road and Tollway Authority |
| **Tolling** | Electronic Toll Collection Systems |
| **6CTOC** | 6C Toll Operators Coalition |

The following shorthand references to certain products and patents at issue are used in this Initial Determination:

| | |
|---|---|
| **Asserted Patents** | '044 and '436 patents, collectively, also called the "Security Key Patents" |
| **Accused ·Products** | Kapsch and Star Accused Products, collectively |
| **'044 patent** | U.S. Patent No. 8,325,044 |
| **'436 patent** | U.S. Patent No. 8,587,436 |
| **'026 application** | U.S. Patent Application No. 10/615,026 |
| **'241 provisional application** | U.S. Provision Application No. 60/394,241 |
| **'819 patent** | U.S. Patent No. 7,081,819 |

| | |
|---|---|
| **'746 patent** | U.S. Patent No. 7,671,746 |
| **'410 patent** | U.S. Patent No. 8,004,410 |
| **'568 patent** | U.S. Patent No. 8,237,568 |

## I. BACKGROUND

### A. Institution and Initial Pleadings.

On December 4, 2015, Neology, Inc. filed a complaint under Section 337 of the Tariff Act of 1937, as amended, 19 U.S.C. § 1337, alleging infringement of certain claims of U.S. Patent No. 8,325,044 (JX-0001, hereafter "'044 patent"), U.S. Patent No. 8,587,436 (JX-0002, hereafter "'436 patent") and U.S. Patent No. 7,119,664 (JX-0003, hereafter "'664 patent"). (Compl. at ¶ 4 (Dec. 4, 2015).).

The Commission instituted this Investigation pursuant to subsection (b) of Section 337 of the Tariff Act of 1930, as amended, to determine:

> whether there is a violation of subsection (a)(l)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain radio frequency identification ("RFID") products and components thereof by reason of infringement of one or more of claims 13, 14, and 25 of the '044 patent; claims 1-4, 6-12, and 14-18 of the '436 patent; and claims 1, 2, 9-12, 14-18, and 26-28 of the '664 patent,[1] and whether an industry in the United States exists as required by subsection (a)(2) of section 337[.]

81 Fed. Reg. 1205 (Jan. 11, 2016).

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[1] Collectively, these are referred to as the "Original Asserted Claims."

Following a series of terminations of both patents and claims, the asserted patents and claims remaining that are the subject of this decision are claims 13, 14 and 25 of the '044 patent, and claims 1, 2 and 4 of the '436 patent ("Asserted Claims," and "Asserted Patents").[2]

The Notice of lnvestigation ("NOI") names Neology, Inc. of Poway, California as complainant ("Complainant"). 81 Fed. Reg. 1205 (Jan. 11, 2016). The NOI names Kapsch TrafficCom IVHS, Inc. of McLean, Virginia; Kapsch TrafficCom IVHS Holding Corp. of McLean, Virginia; Kapsch TrafficCom IVHS Technologies Holding Corp. of McLean, Virginia; Kapsch TrafficCom U.S. Corp. of McLean, Virginia; Kapsch TrafficCom Holding Corp. of McLean, Virginia; Kapsch TrafficCom Canada, Inc. of Mississauga, Ontario, Canada (collectively, "initial Kapsch Respondents"); Star Systems International,

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[2] On September 15, 2016, an Amended ID was issued granting Complainant's partial termination of this Investigation ("First Partial Termination") against Respondents as to claims 3, 6, 7, 8, 11, 14, 15, and 16 of the '436 patent; and claims 1, 2, 9, 10, 12, 16, 17, 18, 26, 27, and 28 of the '664 patent. (Order No. 40 (Sept. 15, 2016).). On the same day, an Amended ID was issued that granted Complainant's second partial termination of this Investigation ("Second Partial Termination") as to claims 9, 10, 12, 17, and 18 of the '436 patent. (Order No. 38 (Sept. 15, 2016).). Also on September 15, 2016, an Amended ID was issued granting Complainant's third partial termination of this Investigation ("Third Partial Termination") as to the remaining asserted claims of the '664 patent, that is, claims 11, 14, and 15. (Order No. 39 (Sept. 15, 2016).). On September 27, 2016, the Commission issued a Notice granting Complainant's First Partial Termination and determining not to review the Amended ID's (Order Nos. 38 and 39) granting Complainant's Second and Third Terminations. (Doc. ID No. 591472 (Sept. 27, 2016).).

Ltd. of Kwai Chung, Hong Kong; and STAR RFID Co., Ltd. of Bangkok, Thailand as respondents ("Star Respondents" and collectively with Kapsch Respondents, "Respondents"). 81 Fed. Reg. 1205-06 (Jan. 11, 2016). *(See also* Compl. at ¶¶ 3-20.).[3]

The Commission Investigative Staff of the Office of Unfair Import Investigations ("Staff") is also a party in this Investigation. 81 Fed. Reg. 1206 (Jan. 11, 2016).

On February 1, 2016, Kapsch Respondents filed their response to the Complaint and the NOI ("Kapsch Response"). (Doc. ID No. 573421.). On that same day, Star Respondents filed their response to the Complaint and NOI ("Star Response"), which was virtually identical to that of the Kapsch Respondents. (Doc. ID No. 573422.). The Kapsch and Star Respondents each identify eleven (11) affirmative defenses ("Affirmative Defenses") in their Responses. (Kapsch Resp. at ¶¶ 168-83; Star Resp. at ¶¶ 163-81.).

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[3] On March 31, 2015, Respondents TrafficCom IVHS Holding Corp. merged into Kapsch TrafficCom IVHS Technologies Holding Corp., which subsequently merged into Kapsch TrafficCom U.S. Corp., which subsequently merged into Kapsch TrafficCom Holding Corp. (Kapsch Resp. at 1 n.1.). Consequently, Kapsch TrafficCom Holding Corp, Kapsch TrafficCom IVHS Technologies Holding Corp., and Kapsch TrafficCom U.S. Corp. no longer exist as entities, the claims against them were withdrawn, and they were terminated from this Investigation. *(Id.; see also* Order No. 6 (Mar. 11, 2016).). The Commission determined not to review the Initial Determination. (Doc. ID No. 577792 (Apr. 4, 2016).). Kapsch TrafficCom IVHS, Inc., Kapsch TrafficCom Holding Corp., and Kapsch TrafficCom Canada, Inc. remain in the Investigation (collectively, "Kapsch Respondents").

## B. The Parties.

### 1. Complainant Neology, Inc.

Complainant Neology, Inc. ("Complainant") is a Delaware corporation with its headquarters in Poway, California. (Compl. at ¶ 8.). The name "Neology" means "new science." (Tr. (Joseph Mullis)[4] at 116:2-6.). Neology began as a company called Bank Note Corporation (BNC), founded by Complainant's current President, Mr. Francisco Martinez de Velasco Cortina[5] in or about 2000. (Tr. (Martinez) at 351:18-

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[4] At the time he testified during the evidentiary hearing on September 13, 2016, Mr. Joseph Mullis was General Manager of Neology's operations located in San Diego, California and a member of Neology's Board of Directors. (Tr. (Mullis) at 118: 18-21.). Mr. Mullis was responsible for overseeing all aspects of Neology's operations, including administration, sales and marketing, research and development ("R&D"), engineering and Neology's intellectual property portfolio. *(Id.* at 119: 1-10.). Complainant identified Mr. Mullis as a fact witness to provide testimony regarding domestic industry (economic prong) including Neology's business and manufacturing operations and facilities, licensing of the Asserted Patents, and sales of products in the United States. *(Id.).* Mr. Mullis provided testimony regarding the public interest issues relating to this Investigation and remedy (bond). (CPSt. at 3.).

[5] At the time he testified during the evidentiary hearing on September 16 and 17, 2016, Mr. Francisco Martinez de Velasco Cortina ("Mr. Martinez") was the Chief Executive Officer of Neology. (CPSt. at 2.). Mr. Martinez was also a named inventor with Manfred Rietzler on the '044 patent (JX-0001) and the '436 patent (JX-0002). Complainant identified Mr. Martinez as a fact witness to provide testimony regarding the corporate background and structure of Neology, the conception and reduction to practice of the inventions claimed in the '044, '436 and related patents, the ownership of the Asserted Patents, the validity of the Asserted Patents, and Respondents' Defense of

352:3, 378:11-15.). In 2003-2004, BNC merged with SCS Corporation ("SCS") and the merged company shortly thereafter changed its name to Neology. *(See id* at 376:2-4 ("[T]his is around 2004, that's when we finally merged with SCS."); RDX-6000; *see also* CDX-0002.0002.). Complainant is wholly owned by SMARTRAC. (Tr. (Mullis) at 126:15-16.). When SCS merged with BNC in 2011, and became Neology, Complainant inherited through SCS a specific RFID protocol called the "Sahara" protocol that was created by Bruce Roesner,[6] who founded SCS. (Tr. (Mullis) at 125:16-23, 190:2-5; *see also id.* at 124:17-20 ("We changed the name, as noted here [to Neology] in July of 2004.").). Complainant describes itself as "a leader in developing and manufacturing radio frequency

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inequitable conduct. *(Id.).* Complainant identified Mr. Martinez as a fact witness to provide testimony regarding the corporate background and structure of Neology, the conception and reduction to practice of the inventions claimed in the '044, '436 arid related patents, the ownership of the Asserted Patents, the validity of the Asserted Patents, and issues concerning Respondents' claim of inequitable conduct. *(Id.).*

[6] Mr. Roesner is a named inventor of the '664 patent, which has been terminated from this investigation. The '664 patent issued on October 10, 2006. (CPBr. at 9.). Mr. Roesner assigned the '664 patent to Bell ID Solutions, Inc., on Sept. 16, 2003, which was recorded with the U.S. Patent and Trademark Office ("PTO") on September 17, 2003. (JX-0011.). Bell ID Solutions, Inc. assigned the '664 patent to ID Solutions, Inc., on July 15, 2005, which was recorded with the PTO. (CPBr. at 9 (citing JX-0012).). ID Solutions, Inc. assigned the '664 patent to Neology on August 7, 2007. *(Id.* (citing JX-0013).). Complainant claims that because Respondent SSI had knowledge of Complainant's patents, it induced Mr. Roesner to use Star's Accused Tags *(see* Section V.F.4) in the U.S., and that Respondent SSI induced Mr. Roesner to infringe claim 25 of the '044 patent. (CPBr. at 40 citing (CX-0734C.6837 (Lockhart Dep.) at 80:7-85:11, 87:11-16, 150:7-22).).

identification ('RFID') communication systems and products."[7] (CPBr. at 3; *see also* Compl. at if 9.). Complainant is in the business of researching, developing, manufacturing, marketing, and selling short-range (or "near field") RFID products (including transponders, inlays, readers, and systems). (Compl. at if 9; *see also* Tr. (Mullis) at 127:5-13 (Complainant has been focusing on "not just tag, not just reader, but having all the elements of a tolling system"), 166:5-9 ("We've been interested [ ] and I've been pursuing that for literally over a year and a half.").). Complainant describes its primary business focus as supplying "end-to-end RFID technology and solutions for electronic vehicle registration ('EVR') and electronic toll collection ('ETC') systems to the tolling industry in the United States." (CPBr. at 3.). However, Complainant does not manufacture RFID readers. *(See* Section IV.B.2.). SMARTRAC, Complainant's parent company, supplies the United States government with passport tags (containing RFID readable chips), the Global Entry passes and similar products. (Tr. (Mullis) at 125:8-12.).

[7] At a basic level RFID, or a radio frequency identification device "uses radio signals to track and automatically identify objects." (CPBr. at 5; Comp'l Claim Br. at 2.). As is described in more detail in Section III.A. I, a "typical" RFID system consists of an RFID "reader," which is also called an "interrogator." (Res'pts Claim Br. at 2.). The reader then transmits signals in the radio-wave band to one or more RFID "tags" or a "transponder," which receives and responds to the signals. *(Id.).*

**2. Respondents Kapsch TrafficCom IVHS Inc., Kapsch TrafficCom Holding Corp., and Kapsch TrafficCom Canada Inc.**

Kapsch TrafficCom IVHS, Inc. ("Kapsch IVHS") is a corporation organized under the laws of Delaware, with its principal place of business in McLean, Virginia. (Compl. at ¶ 21; Kapsch Resp. at ¶ 21.). It is a subsidiary of Respondent Kapsch TrafficCom Holding Corp. ("Kapsch TrafficCom"). (Kapsch Resp. at ¶ 33.). Kapsch IVHS develops, manufactures, sells, imports, sells for importation, and sells after importation RFID products that are capable of being compliant with versions of ISO/IEC 18000-63, Parameters for Air Interface Communications at 860 MHz to 960 MHz Type C, Standard ("6C Protocol" or "Gen2 Standard/6C Protocol"). (Kapsch Resp. at ¶ 22.).

Kapsch TrafficCom is a corporation organized under the laws of Delaware, with its principal place of business in McLean, Virginia. (Compl. at ¶ 29; Kapsch Resp. at ¶ 29.). Kapsch TrafficCom.is a subsidiary of Kapsch TrafficCom A.G. (RPBr. at 5; Kapsch Resp. at ¶ 30.).

Kapsch TrafficCom Canada, Inc. ("Kapsch Canada," and with Kapsch IVHS and Kapsch TrafficCom, collectively, the "Kapsch Respondents") is a corporation organized under the laws of Canada, with its principal place of business in Mississauga, Ontario. (Compl. at ¶ 24; Kapsch Resp. at ¶ 24.). Like Kapsch TrafficCom, Kapsch Canada is a subsidiary of Kapsch TrafficCom A.G. (RPBr. at 5; Kapsch Resp. at

¶ 27.). Kapsch Canada develops, manufactures, sells, imports, sells for importation, and sells after importation RFID products that are capable of being compliant with versions of the 6C Protocol. (Kapsch Resp. at ¶ 25.). Kapsch Canada's manufacturing and assembly operations are also in Mississauga, Ontario. (Tr. (Chris Murray)[8] at 696:22-24.).

Together, the Kapsch Respondents (including their predecessors), have been using RFID technology for electronic tolling for many years. (Resp'ts Claim Br. at 6.). Respondents provide "intelligent transport systems and end-to-end solutions, including ETC systems for multi-lane, free-flow traffic." (RPBr. at 4.). The Kapsch Respondents are the exclusive supplier in the United States of the E-ZPass® tags and readers that are offered on a proprietary but freely licensable basis ("FRAND") and use a Time-Division Multiplexing ("TDM")[9] protocol that was

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[8] At the time he testified during the evidentiary hearing on September 15, 2016, Mr. Chris Murray was the President of Kapsch TrafficCom Holding Corp. (Tr. (Murray) at 691:7-8.). Respondents identified Mr. Murray as a fact witness to provide testimony on Kapsch, tolling and RFCD technology background, the tolling and RFID industries, and Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 5.).

[9] "TOM" is an acronym for Time Division Multiplex. (RX-0049C.0010.). Kapsch renamed this protocol "IAG," an acronym for Inter-Agency Group protocol, also known as E-ZPass®. *(Id.* at KTCITC-00468799.). This is a protocol used by certain of Kapsch Respondents' readers. *(See, e.g.,* RX-0049C.0010.). The TDM/IAG protocol refers to a method by which several users share a common bandwidth. (RX-0420C.0015.). Each user of the system bandwidth is assigned a timeslot within a frame structure that can be used without interference. *(Id.).* The

developed in 1993-94. (RPBr. at 4.). The E-ZPass® Inter Agency Group ("IAG"), to which the Kapsch Respondents sell their tags and readers, includes thirty-eight (38) tolling agencies in sixteen (16) states "in the largest contiguous area of interoperable ETC systems in the United States." *(Id.* at 4-5; *see also* CDX-0002.0010.).[10] The states involved in the E-ZPass® system are Maine, New Hampshire, Massachusetts, New York, Rhode Island, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Ohio, Illinois, Indiana, Kentucky and North Carolina. *(Id.* at 4-5; *see also* CPBr. at 1; *see also* Section III.A.2, Figure 7.).

### 3. Respondents Star Systems International, Ltd. and STAR RFID Co., Ltd.

Star Systems International, Ltd. ("SSI") is a company organized under the laws of Hong Kong, S.A.R, People's Republic of China, with its principal place of business in Hong Kong. (Compl. at ¶ 34; Star Resp. at ¶ 34.). SSI is in the business of selling RFID products that are capable of being compliant with versions of the 6C Protocol. (Star Resp. at ¶ 35.). SSI is the exclusive international distributor of 6C-compatible transponders and readers manufactured in Thailand by Respondent STAR RFID Co., Ltd.

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TDM/IAG protocol has a high data rate which leads to high-occupied bandwidth. *(Id.).*

[10] There is a slight discrepancy between Respondents' Pre-Hearing Brief, which says there are twentyfour (24) tolling agencies in fourteen (14) states. *(See* RPBr. at 4; *cf* CDX-0002.0010.).

("STAR RFID"). (Star Resp. at ¶ 36; Tr. (Stephen Lockhart)[11] at 935:13-19 ("Star Systems distributes all of Star products outside of Thailand"; *see also id.* at 934:3-15).).

STAR RFID is a company organized under the laws of Thailand, with its principal place of business in Bangkok, Thailand. (Compl. at ¶ 38; Star Resp. at ¶ 38.). STAR RFID is in the business of developing, manufacturing, and/or selling RFID products that are capable of being compliant with versions of the 6C Protocol. (Star Resp. at ¶ 39.).

### C. Non-Parties Related to this Investigation

#### 1. Complainant's Licensee, [ ]

In June 2012, [ ] acquired certain assets of [ ] (CX-0380C ([ ] Purchase Agreement).). The acquisition included [ ] 6C-compliant tag manufacturing operations in the United States. (JX-0038C [ ][12] 12 at 13:17-23, 14:18-15:5 .).

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[11] At the time he testified during the evidentiary hearing on September 19, 2016, Mr. Stephen Lockhart served as the Chief Technology Officer of Star Systems International. (Tr. (Lockhart) at 933:23-25.). Mr. Lockhart was identified by Respondents to provide testimony on Star, tolling and RFID technology background, the tolling and RFID industry, and Star's accused tolling and other RFID products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 4.).

[12] At the time of his deposition on May 4, 2016, [ ]. Complainant identified [ ] as a fact witness to provide testimony on domestic industry (economic prong) as it relates to ] in plant, equipment, engineering, employment of labor and capital, including assets acquired from [ ] for manufacturing

In June 2013, Complainant and, *inter alia,* [ ] entered into a licensing agreement as a result from the parties' settlement ("Settlement Agreement").[13] (CX-1092C at NEO-ITC00429303.). Under the Settlement Agreement, which provides Complainant and [ ] with access to each other's technology, Complainant [ ] (CX-0032C (Mullis Deel.) at ¶ 19.). Specifically, the Settlement Agreement grants Complainant [ ] configured to operate pursuant to the 6C Protocol [ ] *(Id.).*

**2. Complainant's Subcontractor,** [ ]

[ ] is in the security business and manufactures security for building access, parking access, and toll collection equipment, including 6C-compatible readers for electronic vehicle tolling

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6C-compatible readers and tags. (CPSt. at 6; JX-0038C at 16:15-20.).

[13] On July 29, 2011, Neology filed a complaint (C.A. No. 11-672-LPS) against Federal Signal Corporation ("Federal Signal"), FS Sub, LLC ("FS Sub"), and Federal Signal of Texas Corp. ("FS of Texas") (collectively, "FSC") in the U.S. Court for the District of Delaware alleging that certain RFID products manufactured and sold by FSC infringed certain patents ("Federal Signal Litigation"). (CX-1092C atNEO-ITC00429297.). On May 21, 2012, Neology filed a complaint (CV12-4422GHK) against FSC in the U.S. Court for the Central District of California alleging that certain RFID products manufactured and sold by Federal Signal infringed certain patents ("California Case"). *(Id.* at NEOITC00429298.). On October 15, 2012, the California Case was transferred to the U.S. Court for the District of Delaware and consolidated with the Federal Signal Litigation ("Consolidated Case"). *(Id.).* On February 22, 2013, Neology filed a complaint (Inv. No. 337-TA-875) against FSC and [ ] at the ITC ("ITC Investigation"). *(Id.).* [ ] *(Id.).*

application. (JX-0039C [ ][14] at 9:18-25, 10:16-17.). Through various agreements with [ ], including an Original Equipment Manufacturing ("OEM") Agreement, dated [ ] (CX-0341C), and an OEM Agreement, dated [ ] (CX-0340C), Complainant contracted with [ ] for the supply of private labeled [ ] (Tr. (Mullis) at 163:9-12; CX-0032C (Mullis Decl.) at ¶¶ 19, 23-24.).). [ ] readers outside of the United States (in Taiwan) and sells them to Complainant, who then deploys the readers in Latin and South America. (Tr. (Mullis) at 212:24-213:6; JX-0039C at 10:19-22, 12:13-20.).

### 3. Complainant's Subcontractor, [ ]

Through various agreements with Complainant, [ ] (CX-0032C (Mullis Decl.) at ¶¶ 19, 25; JX-0046C [ ][15] at 11:18-14:8; *see also* CX-0342C.). The readers are manufactured [ ] (JX-0046C at 11:18-14:8.).

## D. Procedural History.

### 1. Pre-Hearing Motions and Issues

On March 11, 2016, Order No. 6 issued granting Complainant's unopposed motion to

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[14] At the time of his deposition taken on Ma)'.' 10, 2016, [ ] (JX-0039C [ ] at 6:18-21.). [ ] *(Id.* at 9:18-25.).

[15] At the time he gave his deposition testimony on April 4, 2016, [ ]. Complainant identified [ ] as a witness to provide testimony on domestic industry (economic prong) as it relates to [ ] in plant, equipment, engineering, and employment of labor and capital. (CPSt. at 6-7.).

terminate Respondents Kapsch TrafficCom IVHS Holding Corp, Kapsch TrafficCom IVHS Technologies Holding Corp., and Kapsch TrafficCom U.S. Corp. from this Investigation. (Order No. 6 (Mar. 11, 2016.); *see also* n.3, *supra.).*

On May 24, 2016, a *Markman* hearing was held in which the parties identified ten (10) disputed terms for construction. *(See* Doc. ID No. 582142, *Markman* Hr'g Tr. (May 24, 2016).). In a telephone conference held on September 8, 2016, the disputed claim terms were construed, as reflected in Section V.C. *(Markman* Tele. Tr. (Sept. 8, 2016).).

On July 14, 2016, Complainant filed four (4) summary determination motions seeking findings in its favor that: (1) the economic prong of the domestic industry requirement has been satisfied with respect to the articles protected by the Asserted Patents (Motion Docket No. 979-020 (July 14, 2016)); (2) Complainant is not obligated to license the Asserted Patents on FRAND terms as Respondents claim as part of their Tenth Affirmative Defense (Motion Docket No. 979-021 (July 14, 2016)); (3) the '044 and '436 patents are not unenforceable because of Complainant's inequitable conduct during the patent prosecution of those patents (Motion Docket No. 979-019 (July 14, 2016)); and (4) the Asserted Claims are not invalid under 35 U.S.C. § 101 (Motion Docket No. 979-017 (July 14, 2016)).

On July 14, 2016, Respondents moved for summary determination that the Original Asserted Claims are invalid under 35 U.S.C. § 101. (Motion Docket No. 979-018 (July 14, 2016).).

On August 12, 2016, Complainant moved to partially terminate the Investigation with respect to claims 3, 6-8, 11, and 14-16 of the '436 patent; and claims 1, 2, 9, 12, 16-18, and 26-28 of the '664 patent. (Motion Docket No. 979-024 (Aug. 12, 2016).). On September 15, 2016, an amended ID issued granting Complainant's motion. (Order No. 40 (Sept. 15, 2016).).

On August 18, 2016, Complainant's motion for summary determination that the '044 and '436 patents are not unenforceable because of inequitable conduct during patent prosecution was denied without prejudice. (Order No. 32 (Aug. 18, 2016).).

On August 24, 2016, Complainant's motion for summary determination with regard to its obligation to license the Asserted Patents on FRAND terms was denied without prejudice. (Order No. 33 (Aug. 24, 2016).).

On August 25, 2016, Complainant moved to partially terminate the Investigation with respect to claims 9, 10, 12, 17, and 18 of the '436 patent. (Motion Docket No. 979-025 (Aug. 25, 2016).). Complainant filed a corrected motion on September 14, 2016. (Doc. ID 590527 (Sept. 14, 2016).) On September 15, 2016, an amended ID granting Complainant's motion issued. (Order No. 38 (Sept. 15, 2016).).

On August 29, 2016, during a telephone conference with representatives from all of the parties, the parties were informed that the Court was: (i) granting Complainant's motion for summary determination that the Original Asserted Claims are

not invalid under 35 U.S.C. § 101 (Motion Docket No. 979-017); (ii) denying Respondents' motion for summary determination that that the Original Asserted Claims are invalid under 35 U.S.C. § 101 (Motion Docket No. 979-018); and (iii) granting Complainant's motion for summary determination that the economic prong of the domestic-industry requirement has been satisfied as to the articles protected by the '044 and '664 patents, but denying the motion with respect to the '436 patent (Motion Docket No. 979-020).

In a telephone conference held with all parties on September 8, 2016 *("Markman* Tele. Tr."), the disputed claim terms that remain with respect to the '044 and '436 patents were construed as follows:[16]

**Table 1: Disputed Claim Terms Construed on September 8, 2016**

| Claim Term | Construction | Citation |
|---|---|---|
| "security key" ('044 patent, claims 10, 13, 14, 23, 25; '436 patent, claims 1, 2,4) | a key that is checked and validated to grant or deny access to a memory | *Markman* Tele. Tr. at 50:8-10 (Sept. 8,.2016). |
| "as a result of validation of the security key" ('044 | plain and ordinary meaning, i.e., as a result of | *Id.* at52:13-14. |

[16] The analyses of the adopted constructions are discussed in Section V.C.

| | | |
|---|---|---|
| patent, claim 10; '436 patent, claim 1)<br><br>"as a result of the validation of the second security key" ('044 patent, claim 1; '436 patent, claim 1) | confirmation of the security key / as a result of confirmation of the second security key[17] | |
| "based on the security key" ('044 patent, claim 23)<br><br>"based on the second security key" ('044 patent, claim 25) | plain and ordinary meaning, i.e., as a result of confirmation of the security key / as a result of confirmation of the second security key | *Id.* at 53:5-8. |

On September 9, 2016, Complainant moved to partially terminate the Investigation with respect to

[17] During the September 8, 2016 telephone conference, the parties were told a claim construction order would issue. That did not occur because of timing and other issues. During the evidentiary hearing on September 14, 2016, the parties were advised that the constructions of the latter two claim terms in Table 1 included the full definitions proposed by Complainant and Staff in their initial claim construction briefs, (including "i.e., as a result of confirmation of the security key/as a result of confirmation of the second security key"). (Tr. at 464: 16-466: 1; Complainant's Initial CI aim Construction Brief ("Compl's Claim Br.") at 8; OUII's Initial Claim Construction Brief ("Staff Claim Br.") at 16).

the remaining claims of the '664 patent, that is, claims 11, 14, and 15, leaving claims 13, 14, and 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent in the Investigation. (Motion Docket No. 979-027 (Sept. 9, 2016).). On September 14, 2016, Complainant filed a corrected motion. (Doc. ID No. 590526 (Sept. 14, 2016).). On September 15, 2016, an amended ID granting Complainant's motion issued. (Order No. 39 (Sept. 15, 2016).).

**2. Respondents' Motions to Strike in Post-Hearing Briefs**

**a) Granting in Part and Denying in Part Motion to Strike No. 1**

In their Post-Hearing Brief, Respondents claimed that during the evidentiary hearing, Complainant's expert, Mr. Jack Goldberg,[18] offered several new opinions on written description that were not previously disclosed in his expert reports or deposition. (RBr. at 124-29.). Specifically, Respondents argued that Mr. Goldberg's "new opinions" included: (1) testimony that Figure 14 of the '026 application (and the related figure in the '241 provisional application) describes a reader "continuously scanning" for a tag and that this corresponds to the claimed "first communication" *(id.*

[18] At the time of his testimony during the evidentiary on September 14-15, and 21-22, 2016, Mr. Jack Goldberg was the President of Metrionix, Inc. (CPSt. at Ex. 1.). Complainant identified him as an expert witness to provide testimony regarding the characteristics of a person of ordinary skill in the art, claim construction, infringement, validity, enforceability, and domestic industry (technical prong). *(Id.* at.2.).

at 125-26 (citing Tr. (Goldberg) at 1418:1-1419:17; CDX-0007.0008)); (2) testimony that box 1405 in Figure 14 describes two separate communications from the reader that uses two different security keys *(id.* at 126-27 (citing Tr. (Goldberg) at 1419:18-1420:7, 1423:3-10; CDX-0007.0009)); (3) testimony that certain references to "exchange keys" in the '026 application and the '241 provisional application describe the first and second security keys *(id.* at 127-28 (citing Tr. (Goldberg) at 1421:16-42, 1422:19-21; CDX-0007.0011-12)); and (4) testimony that box 1420 of Figure 14 describes the use of a third (unclaimed) security key *(id* at 128-29 (citing Tr. (Goldberg) at 1427:23-142:15, 1428:16-1430:2)).

On these bases, Respondents moved to strike Mr. Goldberg's testimony from: (1) 1418:1-1419:'17 and CDX-0007.0008; (2) 1423:3-10, 1423:14-16, 1423:23-1424:21, and 1426:7-20 and CDX-0007.0013-16; (3) 1421:16-21,1422:19-21, 1424:22-1425:16, 1432:20-1433:23, 1433:24-1435:21, and 1435:8-11 and the reference to JX-0031 on CDX-0007.0010, the reference to JX-0030 and JX-0031 on CDX-0007.0011, the reference to JX-0030 on CDX-0007.0012, the reference to JX-0031 on CDX-0007.0014, the reference to JX-0030 on CDX-0007.0016, the reference to JX-0031 on CDX-0007.0018, the references to JX-0030 and JX-0031 on CDX-0007.0019, and the reference to JX-0030 on CDX-0007.0020; and (4) 1427:23-1430:2 and CDX-0007.0017 to CDX-0007.0020. *(Id* at 126-29.). For the reasons discussed below, Respondents' Motion to Strike No. 1 is *granted-in-part* and *denied-in-part.*

### *i. "Continuously Scanning" Argument*

The evidence proffered by Respondents does not support their assertion that Mr. Goldberg did not identify the "continuously scanning" language from the '026 application or '241 provisional application in his Rebuttal Expert Report or at his deposition. In his Rebuttal Expert Report and at his deposition, Mr. Goldberg specifically referenced step 1405 of Figure 14. (RX-2214C[19] at if 520; CRBr., Ex. D (Goldberg Dep.)[20] at 225:23-226:5, 226:24-227:4).). The '026 application explicitly states that box 1405 of Figure 14 involves a reader that is "continuously scanning."

> According to Figure 14, in 1405, a user carries an RF cellular telephone and approaches an RF reader/writer (e.g., in a hotel), which is ***continuously scanning.*** The RF reader/writer connects to the network (e.g., the Internet), identifies the user, and obtains relevant transaction information (e.g., credit card information and hotel rewards card information).

(JX-0030 at NEO-ITC00000367 (32:16-20) (emphasis added).).

Mr. Goldberg's hearing testimony need not be verbatim from his Rebuttal Expert Report and

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[19] Mr. Goldberg's Rebuttal Expert Report (RX-2214C) is not admitted as evidence in this Investigation.

[20] Mr. Goldberg's deposition transcript (RX-2159C) is not admitted as evidence in this Investigation.

deposition. *See, e.g., Certain Liquid Crystal Display Devices, Including Monitors, Televisions, and Modules, and Components Thereof,* Inv. 337-TA-741 *("Liquid Crystal Display Devices"),* Order 26C, 2011 WL 3860539, at*1 (Aug. 30, 2011) ("[P]arties should not seek to strike expert testimony simply because it is not copied verbatim from the expert reports or depositions."). Mr. Goldberg's Rebuttal Expert Report and deposition testimony adequately disclosed the gist of Mr. Goldberg's hearing testimony so as to comply with the notice requirement of the Ground Rules. *Id.* ("The expert reports and depositions must provide notice of an expert's opinion at trial. An expert may provide more detail in his witness testimony, as long as the opinion at issue is fairly disclosed in the expert reports or deposition."). Specifically, Mr. Goldberg's Rebuttal Expert Report and deposition testimony describe the same concept as his hearing testimony, i.e., how step 1405 in Figure 14, which describes "continuously scanning," discloses the claimed "first communication. *Cold Cathode Fluorescent Lamp Inverter Circuits and Prods. Containing the Same,* Inv. 337-TA-666 *("Cold Cathode Fluorescent Lamp Inverter Circuits"),* Order No. 48, 2010 WL 1792262, at *3 (Apr. 19, 2010).

Thus, Respondents had sufficient notice and were not prejudicially surprised. *Certain Kinesiotherapy Devices & Components Thereof,* Inv. No. 337-TA-823 *("Kinesiotherapy Devices"),* Order No. 38, 2012 WL 3634314, at *4 (Aug. 20, 2012) (citation omitted) (noting that the purpose of Ground Rule 9.5.6 is "to give the opposing party notification in advance of the hearing of the issues to be contested and the substance of any expert opinions on those

issues" in order to "avoid[] prejudicial surprises"). For these reasons, Respondents' Motion to Strike No. 1 Mr. Goldberg's testimony regarding "continuously scanning" is hereby *denied.* Mr. Goldberg's testimony at 1418: 1-1419: 17 and the related demonstrative exhibit, CDX-0007.0008, are not stricken.

### *ii. Box 1405 of Figure 14 Describes Two Communications Argument*

With respect to Mr. Goldberg's hearing testimony that box 1405 in Figure 14 describes two separate communications from the reader and uses two different security keys, as opposed to one communication, which Respondents allege was the opinion Mr. Goldberg provided in his Rebuttal Expert Report and at his deposition, the evidence on which Respondents rely does not support their assertion. In his Rebuttal Expert Report, Mr. Goldberg expressly opined that "the specification discloses at page 31, lines 15-17 of the '026 Application ... that identification information and account information can be stored in the memory *(see also step 1405),* which can then be read out as disclosed at page 32, lines 18-20 of the '026 Application ... , which *would require multiple communications from the reader."* (RX-2214C at if 520 (emphases added).).

Respondents relied on Mr. Goldberg's deposition testimony that box 1405 in Figure 14 of the '044 and '436 patents, has a single communication or key. (CRBr., Ex. D (Goldberg Dep.) at 226:24-227:1) ("Q: You refer to Figure 14 as having two reads, one at block 1405 and a second at block 1420? A: Yes.").). However, Mr. Goldberg's testimony also included his

understanding that "[Figures] 14 and 18 [are] ... embodiments that one of skill in the art would - understand can include security keys as described because the security keys are described as granting or denying access, and 14 and 18 describe access *multiple times" (id.* at 224:12-16 (emphasis added)). *(See also id.* at 222:19-23 (emphasis added) ("Figures 14 and 18 describe applications in which there are *multiple reads or multiple reads or writes* - I'll be more specific as we look at them - and that therefore the keys are involved.").).

Thus, Respondents had sufficient notice and were not prejudicially surprised. *Kinesiotherapy Devices,* 2012 WL 3634314, at *4. For these reasons, Respondents' Motion to Strike No. 1 Mr. Goldberg's testimony with respect to box 1405 describing two communications 1s hereby *denied.* Mr. Goldberg's testimony at 1423:3-10, 1423:14-16, 1423:23-1424:21, and 1426:7-20 and the related demonstrative exhibits, CDX-0007.0013-16, are not stricken.

### *iii."Exchange Keys" Argument*

The evidence does not support Respondents' contention that Mr. Goldberg testified for the first time at the evidentiary hearing that certain references to "exchange keys" in the '026 application and the '241 provisional application describe the first and second security keys. Although the demonstrative exhibits to which Mr. Goldberg referred during his testimony included quotes from embodiments not specifically cited to in his Rebuttal Expert Report, Mr. Goldberg explicitly opined in his Rebuttal Expert Report that the '026 application

discloses the exchange of encrypted keys that serve as the claimed security keys. (RX-2214C at ¶¶ 530, 549.). In his Rebuttal Expert Report, Mr. Goldberg also stated that with regard to the '241 provisional application, "the concept of requiring keys in order to protect the transponder memory and ensure that the contents thereof is only provided to a correct reader is clearly disclosed in the Provisional Patent." *(Id.* at ¶ 541.). Specifically, he stated that "there are at least two keys disclosed as being encrypted and exchanged between the reader and the transponder." *(Id.; see also id.* at ¶¶ 544-547, 554, 558.).

Additionally, Mr. Goldberg opined in his Rebuttal Expert Report that "one of skill in the art would understand that the cryptographic block 210 stores security keys that are checked and validated to grant or deny access to memory." *(Id.* at ¶ 517; *see also id.* at ¶ 518 ("checking and validating the security keys stored in the cryptographic block"); *id.* at ¶ 538 ("A cryptographic block 210 is a device that stores the security keys. These keys are checked and validated to grant or deny access to the memory chip.").). In his Rebuttal Expert Report, Mr. Goldberg also opined that "an exchange, as opposed to just being transmitted or received, implies two way communication, i.e., from the transponder to the reader and then back again." *(Id.* at ¶ 558.).

During his deposition, Mr. Goldberg explained his opinion on the role of the exchange keys as the claimed security keys. For example, Mr. Goldberg testified that the exchange keys are stored in the cryptographic block (CRBr., Ex. D (Goldberg Dep.) at 213:5-7, 221:18-222:15), and that "exchange" means

the keys go back and forth between the reader and the tag *(id.* at 214:11-21). He also testified that "the '241 provisional [application] discloses that two keys are encrypted and exchanged between the reader and the transponder." *(Id.,* Ex. C (Goldberg Dep.) at 176:23-25; *see also id.,* Ex. D (Goldberg Dep.) at 215:14-25, 216:17-22.).

Mr. Goldberg's testimony during the evidentiary hearing with respect to "encrypted keys" is sufficiently within the scope of the disclosures presented in his Rebuttal Expert Report and at his deposition. *See, e.g., Certain Semiconductor Chips with Dram Circuitry, and Modules and Prods. Containing Same,* Inv. No. 337-TA-819, 2013 WL 1780126, at *2 (Mar. 26, 2013). Consistent with his hearing testimony, Mr. Goldberg previously opined that: (1) the disclosed exchange encrypted keys serve as the claimed security keys; (2) the security keys are stored in the cryptographic block; and (3) the fact that the keys are exchanged means there is a two-way communication, i.e., the keys are sent from the transponder to the reader and then back again.

Thus, Respondents had sufficient notice and were not prejudicially surprised. *Kinesiotherapy Devices,* 2012 WL 3634314, at *4. For these reasons, Respondents' Motion to Strike No. 1 Mr. Goldberg's testimony regarding "encrypted keys" is hereby *denied.* Mr. Goldberg's testimony at 1421:16-21, 1422:19-21, 1424:22-1425:16, 1432:20-1433:23, 1433:24-1435:21, and 1435:8-11 and the reference to JX-0031 on CDX-0007.0010, the reference to JX-0030 and JX-0031 on CDX-0007.0011, the reference to JX-0030 on CDX-0007.0012, the reference to JX-0031 on

CDX-0007.0014, the reference to JX-0030 on CDX-0007.0016, the reference to JX-0031 on CDX-0007.0018, the references to JX-0030 and JX-0031 on CDX-0007.0019, and the reference to JX-0030 on CDX-0007.0020, are not stricken.

***iv. "Third Security Key" Argument***

The evidence on which Respondents rely persuasively supports their argument that Mr. Goldberg testified for the first time at the evidentiary hearing that box 1420 of Figure 14 describes the use of a third (unclaimed) security key. As Respondents pointed out, Mr. Goldberg testified that his opinion on a third security key was new:

> Q: -- in your report and at the time of your deposition, you had never looked for support for a fifth communication as shown on 724 or a third key as shown on 717, correct, sir? You hadn't?
>
> A: I understood that there could be other communications.
>
> Q: Well, when you were asked about it, you said that you hadn't done it and it wasn't part of your involvement; right?
>
> A: I hadn't done it in the context of looking for a third key.
>
> Q: ***The third key that you show here on 7.17 was not something you disclosed at that point?***

A: ***That's correct.***

(Tr. (Goldberg) at 1551:13-1552:1 (emphasis added); *see also id.* at 1550:9-1551:2 (testifying that at the time of his deposition, he "didn't look for a third security key").).

Complainant contends that Respondents' argument "is really just a repeat of their assertion that Mr. Goldberg's testimony regarding box 1405 providing multiple security keys was 'new'" and that it is enough that his Rebuttal Expert Report and. deposition testimony discuss multiple communications with security keys. (CRBr. at 86.). Although this Court found that Mr. Goldberg sufficiently opined in his Rebuttal Expert Report and at his deposition that box 1405 involves multiple communications, his hearing testimony above (Tr. (Goldberg) at 1551: 13-1552: 1, 1550:9-1551 :2) makes clear that he did not contemplate a third security key at the time he rendered his opinions.

Thus, Mr. Goldberg's hearing testimony regarding a third security key could not have been within the scope of the disclosures presented in his Rebuttal Expert Report and at his deposition, since those disclosures did not encompass the existence of a third security key. For these reasons, Respondents' Motion to Strike No. 1 Mr. Goldberg's testimony regarding a third security key is hereby *granted*. Mr. Goldberg's testimony at 1427:23-1430:2 and CDX-0007.0017 to CDX-0007.0020 are stricken.

**b) Denying Motion to Strike No. 2**

In their Post-Hearing Brief, Respondents claimed that during the evidentiary hearing, Mr. Goldberg opined for the first time that a section of the RFID Handbook does not disclose "one reader" using two different security keys. (RBr. at 129 (citing Tr. (Goldberg) at 1455:6-12).). On this basis, Respondents moved to strike Mr. Goldberg's testimony at 1455:6-12. *(Id.).*

Respondents' argument is not persuasive. Although Mr. Goldberg did not explicitly opine in his Rebuttal Expert Report that the reader disclosed in the RFID Handbook does not disclose "one reader" using two different security keys, as ***recited in the asserted claims of the '436 patent,*** at his deposition, he sufficiently testified that "my view about the RFID Handbook is that the second security key, which is required by the asserted claims, *is* ***not there,"*** i.e., the disclosed same reader does not involve a second security key. (CRBr.', Ex. C (Goldberg Dep.) at 156:16-20, 157:23-158:1 (emphasis added).). That Mr. Goldberg, in his Rebuttal Expert Report, did not expressly opine on a reader with two security keys is not a compelling reason to find that Respondents were prejudicially surprised and strike these portions of Mr. Goldberg's testimony. *Kinesiotherapy Devices,* 2012 WL 3634314, at *4. For these reasons, Respondents' Motion to Strike No. 1 Mr. Goldberg's testimony with respect to the RFID Handbook not disclosing "one reader" using two different security keys is hereby *denied*. Mr. Goldberg's testimony at 1455:6-12 is not stricken.

## II. JURISDICTION AND IMPORTATION

To have the authority to decide a case, a court or agency must have both subject matter jurisdiction and jurisdiction over either the parties or the property involved. *See Certain Steel Rod Treating Apparatus and Components Thereof,* Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (1981). For the reasons discussed below, the facts support a finding that the Commission has jurisdiction over this Investigation.

### A. The Parties Have Stipulated that the Commission Has Subject Matter and *In Rem* Jurisdiction over Certain Kapsch and Star Products

The Commission has *in rem* jurisdiction over infringing articles that are imported into the United States, sold for importation, or sold within the United States after importation by the owner, importer, or consignee. 19 C.F.R. § 1337(a)(l)(B). A complainant need only establish the importation of a single accused product to satisfy the importation requirement of Section 337. *See, e.g., Certain Trolley Wheel Assemblies,* Inv. No. 337-TA-161, Comm'n Op. at 7-8, USITC Pub. No. 1605 (Nov. 1984) (finding the importation requirement met by the importation of a single product); *Certain Absorbent Garments,* Inv. No. 337-TA-508, Order No. 16, 2004 WL2251882, at *2 (Aug. 20, 2004).

Section 337 declares to be unlawful "[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of

articles" that infringe a valid and enforceable United States patent if an industry relating to the articles protected by the patent exists or is in the process of being established in the United States. *See* 19 U.S.C. §§ 1337(a)(l)(B)(i) and (a)(2). Pursuant to Section 337, the Commission investigates alleged violations of the Section and hears and decides actions involving those alleged violations.

With respect to the Asserted Patents, Kapsch Respondents entered into an unopposed Stipulation with Complainant before the evidentiary hearing that reflects an agreement between Complainant and Kapsch Respondents that at least one unit of each of the following products has been imported into the United States; sold for importation into the United States, or sold within the United States after importation, within the meaning of 19 U.S.C. § 1337(a)(l)(B) ("Kapsch Import Stipulation"): (a) JANUS Multiprotocol Reader II (Redundant); (b) JANUS Multiprotocol Reader II (Non-Redundant); (c) JANUS Multiprotocol RF Module/JANUS Multiprotocol RF Module SMART, Version 2.0 Tabl; (d) JANUS Multiprotocol RF Module/JANUS Multiprotocol RF Module SMART, Version 2.0 Tab2; (e) JANUS Multiprotocol RF Module/JANUS Multiprotocol RF Module SMART, Version 2.3; (f) JANUS Multiprot6col RF Module/JANUS Multiprotocol RF Module SMART, Version 2.3 PRR; (g) IAG 3 Antenna Lane Kit; (h) VENUS Windscreen Tag; (i) VELA UHF RFID USB Reader; (j) DORADO UHF RFID Data Collector; and (k) ARIES Headlight Tag. *(See* Kapsch Import Stip.at 1-2 (¶¶ 3-4) (Doc. ID No. 588684 (Aug. 22, 2016)).). The parties attached as Exhibit A to the Kapsch Import Stipulation a

Customs and Border Patrol ("CBP") Form 7501 sufficient to support the identification of the products imported. *(Id* at Attach. A (CBP Form 7501).).

Complainant and Star Respondents have also agreed that at least one unit of each of the following products has been imported into the United States, sold for importation into the United States, or sold within the United States after importation, within the meaning of 19 U.S.C. § 1337(a)(l)(B) ("Star Import Stipulation"): (a) VENUS Windscreen Tag; (b) ARIES Headlight Tag; (c) SCORPIO Windscreen Tag;(d) ASTRIA RFID Vehicle Registration Decal;(e) METALICA II On-Metal UHF RFID Label; (f) METALICA JUNIOR On-Metal UHF-RFID Label; (g) METALICA MINI On-Metal UHF RFID Label; (h) Jewelry Tag; (i) TOPAZ Inlay; G) SAPPHIRE Inlay; (k) RFID PALLET Label; (1) REGOR UHF RFID Fixed Reader; (m) PROCYON Integrated Reader-12dBi; (n) PROCYON Integrated Reader-8dBi; (o) PLATINO UHF Handheld Reader; (p) CARINA UHF RFID USB Reader; (q) VELA UHF RFID USB Reader; (r) DORADO UHF RFID Data Collector; (s) CSL CS9010 BAP ID Card; (t) LEO Electronic License Plate Tag; (u) LIBRA Inlay; (v) RUNNER Inlay; (w) SATURN Inlay; (x) PISCES Inlay; (y) MARS Inlay; (z) JUPITER Inlay; (aa) CAPRICORN Inlay; (bb) TAURUS Inlay; (cc) AMBER Inlay; (dd) VIRGO Inlay; (ee) 6C-Compliant Switchable Tags; (ff) Hang Tag; (gg) NEMO Long Hard Case Tag; (hh) NEMO Short Hard Case Tag; and (ii) VENUS-Plus Windshield Tag. *(See* Star Import Stip. at 1-2 (Doc. ID No. 588686 (¶¶ 3-4) (Aug. 22, 2016)).).

Accordingly, all of the parties agree that the Commission has subject matter and *in rem* jurisdiction.

### B. Respondents Have Submitted to the Personal Jurisdiction of the Commission

The Kapsch and Star Respondents responded to the Complaint and NOI and have fully participated in the Investigation by, among other things, participating in discovery, participating in the early evidentiary hearing regarding the economic prong of the domestic industry requirement, and filing pre-hearing and post-hearing briefs. Respondents have not contested jurisdiction. *(See* RPBr. at 14; *Certain* Liqui~ *Crystal Display Modules, Prods., Containing Same, & Methods for Using the Same,* Inv. No. 337-TA-506, Initial Determination at 3 (June 12, 2009).). Accordingly, the Kapsch and Star Respondents have submitted to the personal jurisdiction of the Commission and the Commission has *in rem* jurisdiction over the Kapsch and Star Respondents. *Certain Cloisonne Jewelry,* Inv. No. 337-TA-195, Initial Determination at 40-43 (March 1985) (un-reviewed).

### C. Complainant Has Standing in the Commission

Jurisdiction also requires standing. *See SiRF Technology, Inc. v. Int'l Trade Comm'n,* 601F.3d1319, 1326 (Fed. Cir. 2016) (standing to bring an infringement suit is the same under Commission Rules as it would be in a Federal District Court case); *Certain Optical Disc Drives, Components Thereof and*

*Prods. Containing Same,* Inv. No. 337-TA897, Opinion Remanding the Investigation at 4 (Jan. 7, 2015). Commission Rule 210.12 also requires that intellectual property-based complaints filed by a private complainant "include a showing that at least one complainant is the exclusive license of the subject intellectual property." 19 C.F.R. § 210.12(a)(7).

Complainant has standing to bring suit for infringement under Section 337 because it is the owner of the remaining '044 and '436 patents asserted in this Investigation. (Compl. at ¶ 48; JX-0007, JX-0008; Compl. at ¶ 57, JX-0009, JX-0010.). Moreover, because Respondents have not contested Complainant's standing, their Eighth Affirmative Defense ("Lack of Standing") is deemed by this decision to be waived and abandoned pursuant to Ground Rules 7.2 and 10.1.

## III. THE ASSERTED PATENTS

### A. Overview of the Technology

#### 1. Electronic Tolling Systems Using RFID Are the Focus of This Investigation

The '044 and '436 patents are both titled "System and Method for Providing Secure Identification Solutions." (JX-0001; JX-0002.). They are also called the "Security Key Patents." This Investigation concerns "systems, apparatuses, and methods that employ radio frequency identification ('RFID')." (JX-0032C, Doc. ID No. 577452 at if 2.). At its most basic level, RFID technology allows for the remote identification of objects using radio waves.

(RPBr. at 5-6.). All parties agree that a typical RFID system consists of an RFID "reader" (also referred to as an . "interrogator") ('436 patent) that transmits signals in a certain radio-frequency wave band, and one or more "tags" (or "labels") ('044 patent), which receive and respond to signals with identifying information contained in the tag. (CBr. at 4-5; RPBr. at 6; SPBr. at 6; *see also* JX-0032C (Mullis Decl.) at ¶ 2.).

Current RFID readers can communicate with thousands of tags in a short time, which allows for rapid inventorying and identification. (RPBr. at 6.). There are many applications that currently use RFID technology such as store inventory systems, luggage and wallets (to prevent theft of identifying information), and in public transportation (in the form of smart cards). *(Id.).*

RFID tags with chips are now used to track animals, personal objects, or as Complainant used it early on, to develop holographic tags for use on vehicle windshields that permitted those authorized vehicles to make border crossings between Mexico and the United States without stopping. (Tr. (Martinez) at 260:2-15; *see also* JX-0032C (Mullis Decl.) at ¶ 2.). One of the early problems Complainant encountered that appears to be common in electronic tolling systems ("ETC") was how to read tags on vehicles going at some speed. *(Id.).*

RFID tags (as described in the '044 patent) are defined by their source of power. (CBr. at 15.). An "active" tag contains its own power source, such as in a battery. (SBr. at 4; Comp'l Claim Br. at 1-2; SPBr.

at 6; RBr. at 15). These tags are larger and more expensive than the older transponders provided for the E-ZPass® system. *(See* RDX-2009; *see also* CBr. at 4.). "Passive" tags, on the other hand, do not have their own power source so they obtain their power from the reader's transmission signals, as depicted below in RDX-2011. *(See also* SPBr. at 6; JX-0003, claim 11.).[21]

Figure 1: Types of RFID Tags


(RDX-2009 (from Dr. Gregory Durgin's Presentation, Sept. 20, 2016).).[22]

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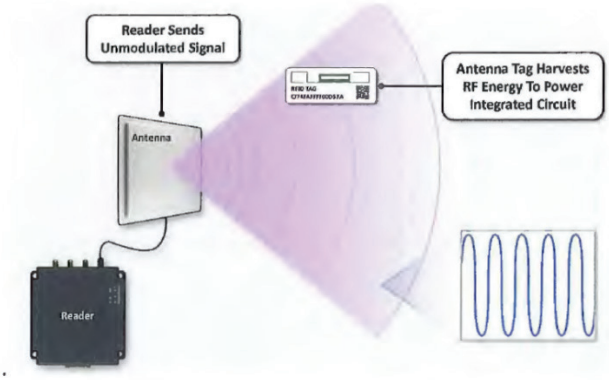
[21] JX-0003 is the '664 patent, which was terminated from this Investigation. *(See* Order No. 39 (Sept. 15, 2016).).

[22] At the time of the his testimony during the evidentia1y hearing held on September 20, 2016, Dr. Gregory Durgin was a Professor of Electrical and Computer Engineering at the Georgia Institute of Technology. (RPSt. at Ex. 2.). Respondents identified Dr. Durgin as an expert witness to testify on the background of RFID technology, claim construction, non-infringement and invalidity of the '044 and '436 patents, whether information not disclosed to the PTO was material to the Asse1ted Patents, and Complainant's technical domestic industry. *(Id.* at 2.).

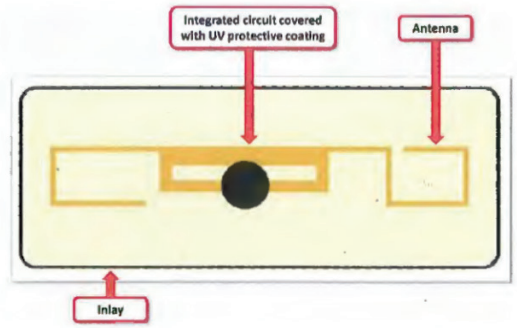
This Investigation concerns accused "passive tags" without batteries, as described in the '044 patent. (JX-0032C at § 4.).

Figure 2: Powering a Passive Tag




(RDX-2011 (from Dr. Durgin's Presentation, Sept. 20, 2016).).

Figure 3: Passive Tag

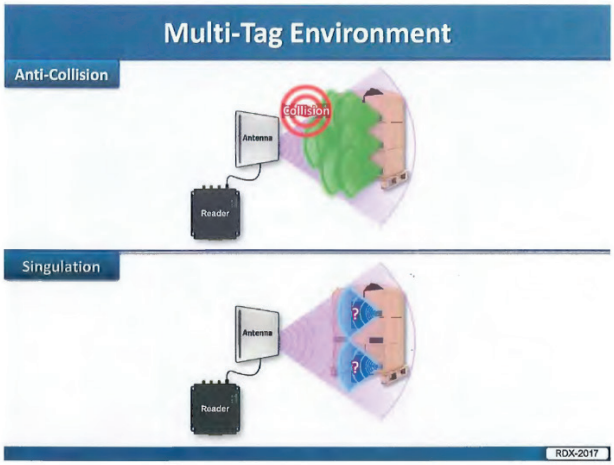



(RDX-2010 (from Dr. Durgin's Presentation, Sept. 20, 2016).).

One of the problems that the '664 patent deals with is a concept called "collision." *(See* RPBr. at 6.).

This concept is also pe1iinent to the '044 and '436 patents. When a reader transmits a signal to an area where there are many passive tags, the reader may receive multiple response signals simultaneously from tags within range of the reader causing "collision." *(Id.*; SBr. at 7; CBr. at 5). Collision can result in interference with the tags' signals thereby making it difficult for the reader to figure out which tag it is supposed to be distinguishing as the correct tag with the correct identifying information. (RPBr. at 6.). Figure 4, below, graphically depicts what can happen when one reader is trying to seek out the correct tag, and conversely when a number of tags are communicating with a reader simultaneously so that the reader may not know which is the correct tag.

Figure 4: Multi-Tag Environment




(RDX-2017 (from Dr. Durgin's Presentation, Sept. 20, 2016).).

Methods of resolving collision, in the form of "singulation"[23] or "anti-collision," have been proposed so that readers can distinguish the appropriate tag, and for a tag to know which signals are intended for it from the reader rather than for other tags. (RPBr. at 7; *Markman* Tele. Tr. at 24:10-19.). One example of an "anti-collision" method is to have tags "hop" through different frequencies. (RPBr. at 7; *Markman* Hr'g Tr. at 17:10-21, 18:7-12, 18:21-24, 19:5-15, 22:24-25:3.).[24] The issue of singulation was argued extensively during the May 24, 2016 *Markman* hearing and is important to understanding tag and reader discriminations. *(Markman* Hr'g Tr. at 17:16-20, 18:2-6, 18:21-22; *see also* Sections V.C, V.F, *infra.).*

Ultimately, the point is for the transponder to find and identify the correct tag, and similarly, for the tag with the correct internal information to respond to the reader. Moreover, it is important for the technology to prevent unauthorized access or attacks

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[23] "Singulation" is the process of identifying a specific tag, as presented by its EPC ID or UTD, in the reader's field of view. A tag must be singulated prior to accessing any data on that tag other than the EPC ID or UID, which can be determined during the singulation process itself. (RX-1202.0003 (from Dr. Durgin's Presentation, Sept. 20, 2016); *see also* RX-1240C.).

[24] U.S. Patent No. 7,031,946 ("Tamai") discloses a singulation technique and is discussed in Sections V.F.2(a)(iv) and VII.A.2. It was distinguished as prior art by Complainant during the prosecution of a parent application to the '044 and '436 patents. (RPBr. at 7; CBr. at 109, 111 (citing JX-0067 at 11).). Tamai was discussed at length during the May 24, 2016 *Markman* hearing. *(Markman* Hr. Tr. at 17: 4-9, 17:22-18:24, 52:14-53:19.). However, Tamai is only relevant in this Investigation with respect to Respondents' inequitable conduct argument. *(See* Section VII.A.2.).

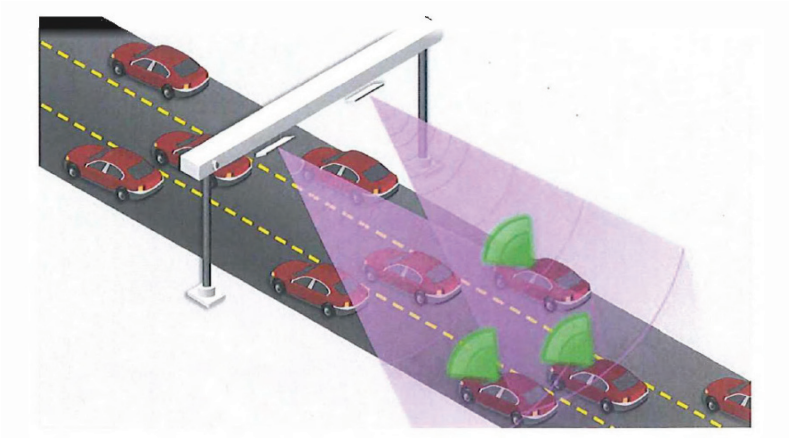
on the system, or "eavesdropping" by one reader of another. (RPBr. at 8.). To that end, one of the critical aspects of an RFID system is to ensure security. *(Id.* at 7; *see also* RX-0581.0034.). Security, and how transponders and tags communicate with each other and "find" each other using the correct identifying information, are the concepts at the heart of the '044 and '436 patents. Each of the Asserted Claims of the '044 and '436 patents contains the term "security key." (JX-0001; JX-0002.). The '044 and '436 specifications explain that a security key "checks and validates" information in a tag. *(Markman* Hr'g Tr. at 50:8-10 (May 24, 2016).).

This Investigation specifically concerns an application of RFID technology in which readers send signals to tags on vehicles as part of ETC systems as is disclosed in the '044 patent. (JX-0032C at ¶¶ 2-3; RPBr. at 7; RX-0581 at KTCITC-00090118.). Tags or transponders are typically sold by various state or regional tolling authorities in the States. (RPBr. at 9 (citing RX-0492C).). The tags or transponders that the tolling authorities sell to consumers typically are affixed to windshields, bumpers, headlights or license plates. *(Id.; see also* RX-0498C). In an ETC system, such as the E-ZPass® system, or the accused Louisiana-Southern Indiana Ohio River Bridge System ("LSIORB") discussed in Section IX.F, an electronic toll reader positioned on a roadway may communicate with tags in vehicles passing through the system, as depicted in Figure 5 below. (RPBr. at 7; SBr. at 7-8).

Readers may be supplied by gantries ("a bridge-like overhead structure"), or by antennae

connected to readers on the ground that send and receive signals from tags on vehicles passing through gantries or toll stops. (RPBr. at 9 (citing RX-0577 at Abstract).).

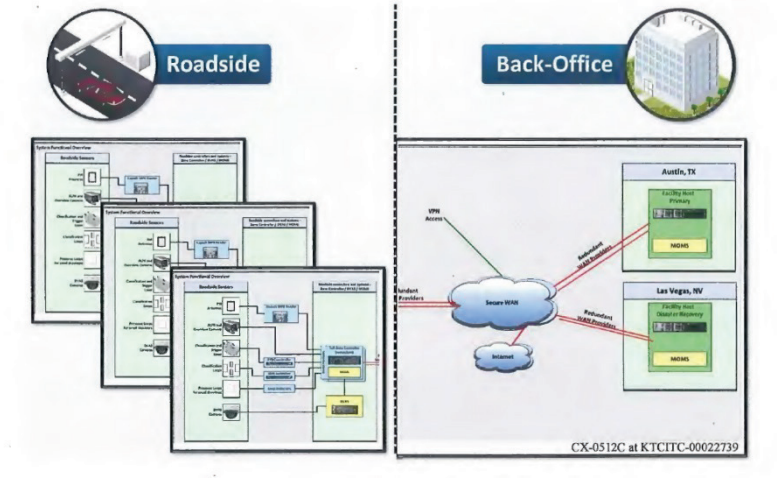
Figure 5: Multi-Tag Environment-Toll pantry



(RDX-2016 (from Dr. Durgin's Presentation, Sept. 20, 2016).).

Once an ETC reader reads the information from the correct tag, information from the collect tag is then transmitted to a "back office" computer system ("BOS"), or a central data base, which then can charge the appropriate toll to the correct customer account/vehicle. (CBr. at 1-2; RPBr. at 7.). However, a central data base must be able to perform a variety of tasks, such as: (1) to store toll accounts; (2) receive identifying information from the readers related to the toll accounts; (3) and compare the received identifiers to identifiers associated with the toll accounts to determine if a match exists. (RPBr. at 9 (citing JX-0001, claim 10).).

Figure 6: Demonstrative Exhibit of Louisville-Southern Indiana Ohio River Bridges




(RDX-1032 (from Mr. Alastair Malarky's Presentation, Sept. 15, 2016).).[25]

### 2. Electronic Tolling Systems in the United States Use Different RFID Protocols, Including the 6C Protocol at Issue in This Investigation

As Respondents have described, ETC based upon RFID technology was first used in Texas in 1989, and then in 1990 when New York, New Jersey

[25] At the time of the evidentiary hearing, Mr. Alastair Malarky was the Chief Engineer and Design Integrity Director of Kapsch TrafficCom Canada. (Tr. (Malarky) at 777:20-25.). Respondents identified Mr. Malarky as a fact witness to provide testimony on Kapsch, tolling and RFID technology background, the tolling and RFID industries, and Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 4.).

and Pennsylvania formed the EZPass ® IAG. (RPBr. at 8 (citing RX-0484C).). As RFID technology developed and spread, different protocols developed. For example, E-ZPass® IAG adopted Respondents' proprietary but licensed, TDM protocol. *(Id.).* California developed a Title-21 protocol. *(Id.).* There are currently eight (8) different protocols used in the United States: IAG/TDM, Title 21, ATA, eGo, SeGo, Allegro, TDMA/ASTM6, and 6C. *(Id.).* At issue in this Investigation is the 6C Protocol. (RPB at 8.).

Because the identified protocols are not "interoperable,"[26] that is, their technology cannot interact or "read" one another, a driver who travels through different toll systems using different protocols has to purchase a tag for each system. *(See* RPBr. at 8.). Depicted in Figure 7 below is a map of the United States showing where the different RFID protocols are in use.

[26] An "interoperable" ETC is defined as one that "allows drivers to establish a single toll account that would allow for payments on all U.S. toll facilities." *(See, e.g.,* RX-0074.0004; *see also id.* at 0002.).

Figure 7: Many Protocols Exist


(CDX-0004.000lC (from Mr. Eric Redman's Presentation (Sept. 15, 2016)).).[27]

Some readers can read more than one protocol and are called "multi-protocol" readers. *(See, e.g.,* RX-0049C.0011). As discussed in Section IX.D regarding the Public Interest, as tolling systems proliferated throughout the United States, there was a perceived need to integrate toll systems across the country, or to make them interoperable in the sense that the technology could interact through "multi-protocol" readers and tags. Accordingly, the Moving Ahead for Progress in the 21st Century Act ("Map-21 "), Pub. L. 112-141, 126 Stat. 405 (July 6, 2012) was enacted. *(See* Section IX.B.). Map-21 mandated that this nation's toll systems become interoperable by October

[27] At the time he testified during the evidentiary hearing on September 15, 2016, Mr. Eric Redman served as Neology's Director of Sales based in San Diego, California. Mr. Redman was responsible for selling Complainant's products throughout North America. (Tr. (Redman) at 639: 1 8-21.). In 2011, Mr. Redman began working for [ ] *(Id* at 641: 13-17 .).

2016. (RBr. at 17-18; CBr. at 127, 133-34; CPBr. at 169-71; SPBr. at 71; SBr. at 62 (citing RX-0528.0001).). To date, interoperability in the country's ETC systems has not yet occurred. However, the International Bridge, Tunnel, and Turnpike Association ("IBTTA"),[28] a trade association to which many State Tolling Agencies belong, has been working to establish a national ETC standard. (RPBr. at 8 (citing RX-0074; RX-0075).). The 6C Protocol is one of the prime contenders for the national ETC standard. (RX-0425.0004.). Complainant has claimed that it developed the 6C Protocol, which is the protocol used in the '044 and '436 patents. However, this decision does not find that to be the case, as discussed in Sections V.E.2(b), V.E.3(b)-(e).

### 3. International Standards Organization and the 6C Protocol Preceded the Issuance of the '044 and '436 Patents

There is a family of international standards called the International Standards Organization (ISO) 18000-6 that was developed for governing communications in systems using RFID tags. (JX-0032, Doc. ID No. 577452 (Technology Stip.) at ¶ 5.). The accused devices and systems in this Investigation can operate consistent with ISO/IEC 1800-63,

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[28] IBTT A is the worldwide association for the owners and operators of toll facilities and the businesses that provide products and services to the industry. *(See, e.g.,* RX-0074.0002.). The main goal of IBTTA is to advance transportation solutions through tolling. *(Id.).* It was founded in 1932 and has, at least as of 2015, more than 60 toll agency members in the U.S. and hundreds of more members in 20 countries on six continents. *(Id.).*

*Information technology-Radio frequency identification for item management-Part 6C: Parameters for air interface communication at 860 MHz Type* C, which is referred to as the "6C standard" or "6C Protocol."[29] *(Id.; see also* SPBr. at 7; CPBr. at 6.).

The 6C Protocol derived from an almost identical standard published by EPC global: the *EPC Radio Frequency Identity Protocols Class-I Generation-2 UHF RFID Protocol for Communications at 800MHz-960 MHZ*. This is also referred to as the "Gen2 Standard," or the "CIG2 standard."[30] (JX-0032, Doc. ID No. 577452 (Technology Stip.) at ¶ 5.).

The timeline to the development of the 6C Protocol explains in-part why this decision finds that the '044 and '436 patents have been found to be invalid over prior art.

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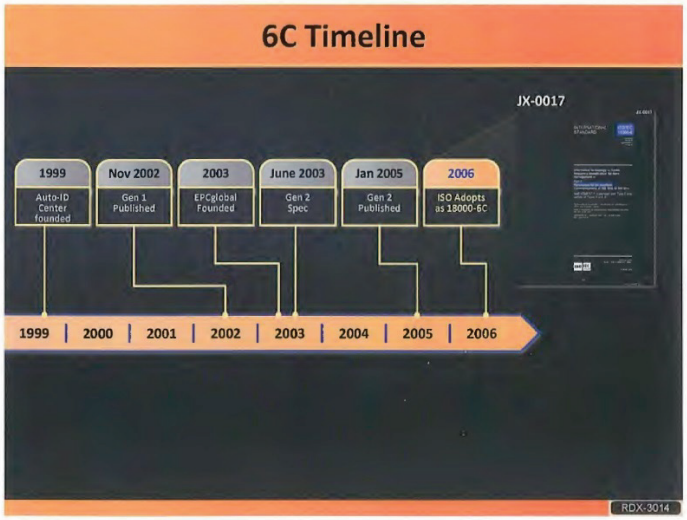
[29] The terms "6C standard" and "6C Protocol" can be used interchangeably. The term "6C Protocol" is used in this decision.

[30] The term "Gen2 Standard" is used in this decision.

Figure 8: 6C Timeline




(RDX-3014.).

The background to the development of the 6C Protocol stems from work that was performed initially at the Auto-ID Center that was co-founded in 1999 by Dr. Sanjay Sarma,[31] at the Massachusetts Institute of Technology (MIT). (Tr. (Sanna) at 1114:13-15.). Dr. Sanna described the work of the. Auto-ID Center as "tasked . . . with the developing the next generation of automatic identification standards." *(Id.* at 1114:22-25.). Although RFID had been used for a number of purposes, there were according to Dr. Sanna "a lot of proprietary standards . . . and interoperability

[31] At the time he testified during the evidentiary hearing on September 20, 2016, Dr. Sanjay Sarmawas the Vice President of Open Leaming at MIT. (Tr. (Sanna) at 1112:1:3; *see also* RDX-3014.). He describes himself as having subject matter expertise in radio frequency identification and "the Internet of things." (Tr. (Sanna) at 1113:1-2.).

issues." *(Id* at 1116:5-9.). According to Dr. Sanna, the Auto-ID Center's purpose was to create.an RFID standard that was intended to be an "open standard . . . ideally without royalties, and certainly without punitive royalties or discrimination." *(Id.* at 1116:18-1117:2 (citing RDX-3005).). The work of the Auto-ID Center was widely published. *(Id.* at 1117:5-17.). A collaboration developed between MIT and a number of universities and well known retailers around the world. *(Id* at 1117:1-25, 1119:2-7.). The MIT Auto-ID Center developed what was called the "Gen 1 Protocol" that was published in 2002. *(Id.* at 1118:5-11.). Initially, the work of the Auto-ID Center was research-related, but then as it began to develop business, Dr. Sanna, with others, co-created a new standards-setting body called EPC Global that spun off from MIT. *(Id.* at 1119: 15-18.).

According to Dr. Sanna, toward the end of 2002 or early 2003, he and others at EPC Global began to write the code for the next generation of product RFID code that developed into the Gen2 Standard/6C Protocol. *(Id.* at 1120:2-18.). Through the Gen2 Standard/6C Protocol, the goal was develop a protocol with enhanced selectivity and "to improve performance . . . but also to make sure the tags remain very inexpensive." *(Id.* at 1121:2-9 (citing RDX-3010).). At the end of 2004, the Gen2 Standard became ratified by EPC Global and it was published in early 2005. *(Id.* at 1123: 2-16.). EPC Global then took the Gen2 Standard to the World Trade Organization's ISO, which renamed the Gen2 Standard according to its naming convention and called it ISO 18000-6C. *(Id.* at 1123:17-19.). The RFID process that Dr. Sanna described is similar to that

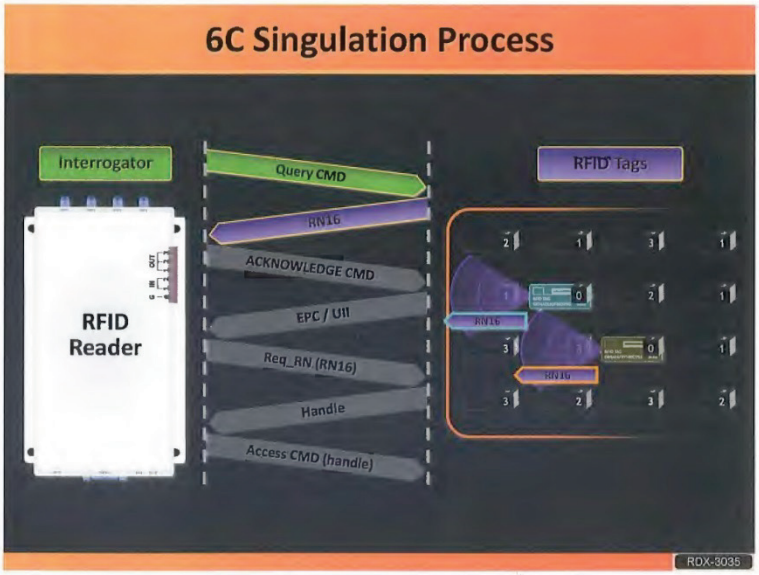
described above both in the narrative and Figures 1 through 6. (See Tr. (Sanna) at 1123:3-1125:23.). According to Dr. Sanna, "the bulk of the standard" deals with multiple tags. *(Id.* at 1125:24-25; *see also,* generally RDX-3010 to RDX-3043.). As Dr. Sarma describes the 6C Protocol:

> So the way it works is the interrogator, the RFID reader, it has a bunch of tags in front of it. . . . . [Y]ou will see that the RFID reader just says, hey, will you all respond, and then they all respond and you have a collision. So obviously, that is not going to work. So instead an elaborate handshake protocol, which is a series of steps, which are designed to go from this giant population of tags potentially to one tag identified with very high probability and uniquely, but also confirmed. And that's singulation.

(Tr. (Sanna) at 1131 :7-22 (citing RDX-3028).).

Ultimately, there is a series of communications that the RFID reader goes through to identify the proper tag as depicted in Figure 9. *(Id.* at 1131 :23-25.).

Figure 9: 6C Singulation Process




(RDX-3035.).

As the analyses of the '044 and '436 patents describe, by the time the '044 and '436 patents issued, the RFID 6C Protocol that Complainant adopted as its own was in use.

## B. U.S. Patent No. 8,325,044 ("'044 Patent)

### 1. Overview of the '044 Patent

The '044 patent (JX-0001) was filed on May 4, 2012, as U.S. Patent Application No. 13/464,894 ("'894 application"). *(Id.* at [21], [22].). The '894 application issued as the '044 patent on December 4, 2012, and names Mr. Martinez and Mr. Rietzler as the inventors. *(Id.* at [45], [75].). On June 24, 2014, the PTO issued a Certificate of Correction to address

minor errors regarding claims 6, 21, 23, and 25. *(Id.* at 38.)

The '044 patent describes a system for "verifying and tracking identification information" using "a radio frequency (RF) identification device, an identification mechanism (e.g., a card, sticker), and an RF reader/writer." *(Id.* at 1 :32-46.). The system facilitates electronic identification by reading data stored on the RF device (without having to contact the device) and verifying the data against known identification information. *(Id.* at 2:30-57.). The system also provides security by checking and validating security keys stored on the RF device before reading the data. *(Id.).* The '044 patent explains that the system can be used in a number of different applications, such as for "vehicle identification," "border crossing solutions," or "toll booths." *(Id.* at 10:20-62, Fig. 4.).

Figure 2 of the '044 patent is reproduced below.

Figure 2 of the '044 Patent

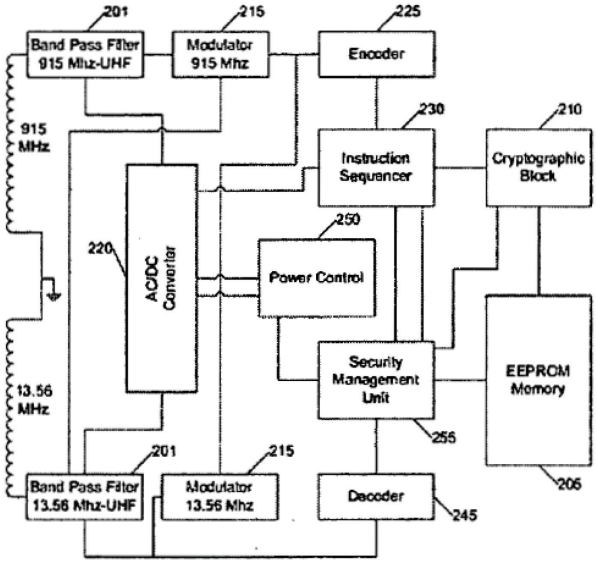



FIG. 2

*(Id.* at Fig. 2.).

As shown in Figure 2, dual frequency RF device **110** comprises modulator **215** that receives baseband signals from an antenna, security management unit **255**, cryptographic block **210**, and electrically erasable programmable read-only memory (EEPROM) **205** that stores data. *(Id.* at 2:30-57, 20:42-51.). RF device **110** receives security keys from an RF reader, and security management unit **255** "checks and validates" the keys to "grant or deny access to the memory chip." *(Id.* at 2:51-55.).

### 2. The Asserted Claims[32]

Remaining asserted claims 13, 14, and 25 of the '044 patent are shown below.[33] They are device and system claims that are directed to, among other things, an RFID reader comprising a radio and an antenna, and configured to send communications (containing a security key) to an RFID transponder. The claims are also directed to an RFID transponder comprising a memory that stores an identifier; radio front end circuitry and an antenna; and a processor configured to receive radio communications (containing a security key) from an RFID reader. The transponder's processor can grant access to its memory based on the security key and send at least the identifier stored in the transponder's memory to the RFID reader. The RFID reader is configured to transmit the information received from the transponder to a central database.

10. A toll system, comprising:

a central data base configured to: store toll accounts, receive identifiers related to toll accounts, and compare the received

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[32] Bolded claim numbers indicate claims asserted in this Investigation. The unbolded claim numbers have not been asserted in this Investigation.

[33] On September 13, 2016, the Patent and Trademark Appeal Board ("PTAB") determined that independent claim 10, from which asserted claims 13 and 14 depend, is unpatentable as obvious in view of U.S. Patent Nos. 5,627,544 ("Snodgrass") and 5,819,234 ("Slavin"). *(See* JX-0067.).

identifiers to identifiers associated with the toll accounts to determine if a match exists;

an RFID reader comprising a radio and an antenna, the RFID reader configured to:

send a first communication to a RFID transponder that includes a memory the contents of which include an identifier,

send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder,

receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key, and

the identifier to the central database.

**13.** The system of claim · 10, wherein the RFID reader is further configured to send a third communication to the RFID transponder that includes a second security key for validation by the RFID transponder and receive further memory contents in response to the third communication and as a result of validation of the second security key.

**14.** The system of claim 13, wherein the second security key is based on information received from the RFID transponder.

23. A RFID transponder, comprising;

a memory the contents of which includes an identifier;

a radio front end and an antenna; and

a processor coupled with the radio front end and the memory, the processor configured to:

receive a first communication from a RFID reader via the radio front end and an antenna;

a second communication from the RFID reader that includes a security key via the radio front end and an antenna;

grant access to the memory contents based on the security key; and

send at least the identifier included in the memory contents in response to the second communication.

**25.** The RFID transponder of claim 23, wherein the processor is further configured to receive a third communication from the RFID transponder via the radio front end and an antenna that includes a second security key, grant access to the memory based on the second security key, and send further memory contents in response to the third communication.

(JX-0001at23:40-57, 23:65-7.).

### C. U.S. Patent No. 8,587,436 ("'436 Patent")

#### 1. Overview of the '436 Patent

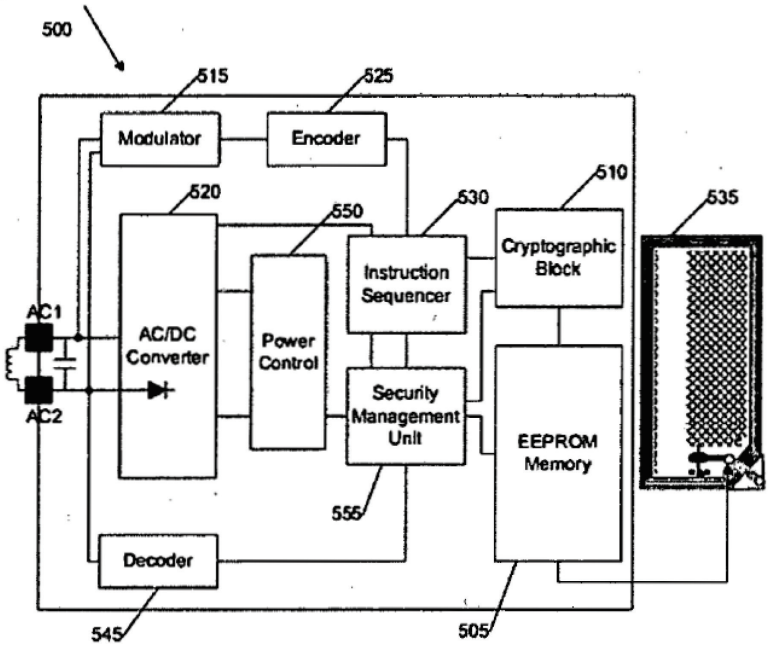
The '436 patent (JX-0002) was filed on January 31, 2012, as U.S. Patent Application No. 13/350,665 ("'665 application"). *(Id.* at [21], [22].). The '665 application issued as the '436 patent on November 19, 2013, and names the same inventors as the '044 patent. *(Id.* at [45], [75].). The PTO also issued a Certificate of Correction for the '436 patent on April 29, 2014, addressing minor errors to claims 6-9 and 18. *(Id.* at 40.).

The '436 patent describes a system for verifying and tracking identification information using security radio frequency devices (RFID tags). *(Id.* at 1 :39-46.). According to an embodiment, "a system for delivering security solutions is provided that includes at least one of the following: a radio frequency (RF) identification device, an identification mechanism (e.g., a card, stick), and an RF reader/writer." *(Id.* at 1 :40-45.). Data stored in memory of an RF chip is used to verify information obtained from a second source, such as a passport photo or a license plate. The invention can be used, for example, at "toll booths" and "other vehicle control applications." *(Id.* at 10:62-63.).

In addition to the typical components RF chips have for communicating, the invention provides security management carried out in part by

structures shown in Figure 5 of the '436 patent, reproduced below.

Figure 5 of the '436 Patent




*(Id.* at Fig. 5.).

Figure 5 illustrates an RF registered item **500**. Modulator **515** receives baseband signals from an antenna. AC/DC converter **520** receives an alternating current (AC) and converts it to direct current (DC). Encoder **525** encodes information received so that it may be utilized by another device or protocol. Decoder **545** decodes information from the encoder output so it may be used by another device or display. Power control **550** regulates voltage and current to protect an apparatus from both power surges and low power. Instructure sequencer **530** queues instructions to be sent to the chip's internal

memory. Security management unit **555** checks and validates cryptographic keys to be sent to cryptographic block **510** for storage. Keys are checked and validated to grant or deny access to the contents of EEPROM memory **505**, which stores data. *(Id.* at 11 :20-23.).

**2. The Asserted Claims**

Remaining asserted claims 1, 2, and 4 of the '436 patent are shown below. Claim 1 is directed to an RFID reader comprising a radio and antenna, and a processor coupled with the radio that is configured to send communications (containing a security key) to an RFID tag via the radio and antenna, receive the contents of the tag's memory if the tag validates the security key, and transmit the information received from the tag to a central database.

**1.** A RFID reader, comprising:

a radio and an antenna;

a processor coupled with the radio, the processor configured to:

send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier,

send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder,

receive at least the identifier included in the memory contents via the radio and the antenna in response to the second communication and as a result of validation of the security key, and transmit the identifier to a central database;

wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder and receive via the radio and the antenna further memory contents in response to the third communication and as a result of validation of the second security key.

2. The RFID reader of claim 1, wherein the security key is based on information received from the RFID transponder.

**4.** The RFID reader of claim 1, wherein the second security key is based on information received from the RFID transponder.

(JX-0002 at 23:13-36, 23:41-43.).

## IV.THE PRODUCTS AT ISSUE.

### A. Accused Products

#### 1. Kapsch Accused Products

##### a) Kapsch Accused Tags

The Kapsch Accused Tags accused of infringing claim 25 of the '044 patent are set forth in Appendix A. Kapsch's Accused Tags are a subset of Star's Accused Tags, which are described in more detail in Section IV.A.2(a) below, and are capable of operating in accordance with the 6C Protocol. (Tr. (Goldberg) at 499:6-8, 500:4-20; Tr. (Lockhart) at 954:13-955:2; Tr. (Durgin) at 985:22-986: 17; JX-0057C; JX-0034C; CX-0654.0034.).

The Kapsch Accused Tags use an integrated circuit ("IC") from third-party chipmaker Alien known as the Higgs 3 IC. (RX-1482 (Aries); RX-0066C (Venus).). The Higgs 3, and Higgs 4, which are also used in some of the Star Accused Tags, are compliant with the Gen2 Standard/Protocol. (RX-0025C at ALNITC-00000101(Higgs3); RX-0026C at ALNITC-00000176 (Higgs 4).). The Higgs 3 and Higgs 4 chips contain an [ ] *(See* RX-0025C at ALNITC-00000103; RX-0026C at ALNITC-00000178.).

##### b) Kapsch Accused Readers

The Kapsch Accused Readers accused of infringing claims 1, 2, and 4 of the '436 patent are set forth in Appendix A. There are four versions of the Kapsch Accused Readers: the JANUS MPR2 Tabl,

JANUS MPR2 Tab2, JANUS MPR2.3, and the JANUS MPR2.3 PRR. (Tr. (Malarky) at 783:14-19; *see also* Appx. A.).

The JANUS MPR2 is a multi-protocol reader, meaning it can send and receive data to tags that implement a variety of different protocols. The reader is offered in "redundant" and "non-redundant" forms.[34] (Tr. (Malarky) at 784:17-785:5.). All four versions of the Kapsch Accused Readers support the following six protocols: TDM/IAG, Allegro, ATA,[35] SeGo, 6B, and 6C.[36] *(Id.* at 783:14-24; CX-0518C at KTCITC-00468800 (JANUS MPR2 Tabl and Tab2).).

Each JANUS MPR2 system comprises three main components: the external antenna(s), the RF module(s) (one per antenna), and the reader subsystem. (Tr. (Malarky) at 780:6-21.). The reader subsystem manages the RF modules and schedules the protocols. *(Id.).* [ ] The readers can hold up to eight RF modules. (RX-0049C at KTCITC-00005302.). The RF module is what communicates with the tags-without it, the readers cannot send or receive RF signals or operate as a tolling device. (Tr. (Malarky) at 781:25-782:11 [ ]; *see also* RX-0049C

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[34] The differences between a "redundant" reader and a "non-redundant" reader are not relevant to any issue in this Investigation.

[35] "ATA" is an acronym for the American Trucking Association. (RX-0049C at KTCITC-00468800.).

[36] Complainant only accuses the readers that support the 6C Protocol of infringing; none of the other protocols are accused of infringing.

at KTCITC-00005303.). [ ] (Tr. (Malarky) at 782:25-783:2.). [ ][37] *(Id.* at 782:14-16; RDX-1007 [ ].).

**c) Kapsch Accused RFID System**

The Kapsch Accused RFID System accused of infringing claims 13 and 14 of the '044 patent is set forth in Appendix A. The Kapsch Accused RFID System uses sensors, including at least cameras, loop detectors, and a JANUS MPR2.3 reader, to provide data to a Toll Zone Controller ("TZC"). (RX-0061C.0060.). Vehicle passage reports are generated by the TZC and then sent to a back-office system ("BOS"), where toll accounts are stored. (Tr. (Malarky) at 814:4-16, 816:5-6, 816:11-15, 816:20-25; 817:8-10, 822:6-10; *see also* Tr. (Goldberg) at 523:12-16.). [ ] (JX-0056C.0008-09 (Malarky Dep.) at 13:13-14:1.).

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[37] Respondents argued that the [ ] However, Mr. Malarky later testified that [ ] Additionally, separately importing components and assembling them in the United States in an infringing way does not obviate infringement. *See High Tech Medical Instrumentation, Inc. v. New Image Indus., Inc.,* 49 F.3d 1551, 1556 (Fed. Cir. 1995) (noting that "if a device is designed to be altered or assembled before operation, the manufacturer may be held liable for infringement if the device, as altered or assembled, infringes a valid patent"); *see also Kreplik v. Couch Patents Co.,* 190 F. 565 (C.C. Mass. 1911) (finding that the sale of an unassembled combination constituted direct infringement).

**2. Star Accused products**

**a) Star Accused Tags**

The Star Accused Tags accused of infringing claim 25 of the '044 patent are set forth in Appendix B. Most of these tags use the Higgs 3 or Higgs 4 IC manufactured by Alien. *(&e* Appx. B; *see also* Tr. (Lockhart) at 938:13-17; CDX-0003.0039; CDX-0003.0049.). The Higgs 3 and Higgs 4 chips are compliant with the Gen2 Standard/6C Protocol. *(See, e.g.,* CX-0322C at ALNITC-00000101 (Higgs 3).). The Higgs 3 and Higgs 4 chips contain an [ ] *(See* CX-0322C at ALNITC-00000103.). The Venus Plus tag uses NXP's UCODE DNA chip and the Nemo tags use the Monza 4D chip made by Impinj, which are also 6C-compliant. *(See* CDX-0003.0053-54, 57-59; Tr. (Malarky) at 938:15-17; Tr. (Goldberg) at 542:25-543:1.).

**b) Star Accused Readers**

The Star Accused Readers accused of infringing claims 1, 2, and 4 of the '436 patent are set forth in Appendix B. Each of these readers is capable of operating in accordance with the 6C Protocol. (Tr. (Goldberg) at 499:22-500:20; Tr. (Lockhart) at 954:13-955:2; Tr. (Durgin) at 985:22-986:17; CDX-0003.0007; JX-0056C; CX-0653; CX-0656; CX-0657; CX-0660.0048; CX-0661; CX-0662.0134, 0137; CX-0673C.7925, 7934-7935; CX-0695C.5443-44; CX-0715C.4838, 4840; CX-0716C.6402-03; CX-0725C.4733-43.).

## B. DI Products

### 1. DI Tags

#### a) Neology DI Tags

The Neology DI Tags that Complainant alleges practice claim 25 of the '044 patent are set forth in Appendix C. These tags operate in accordance with the 6C Protocol and include Alien Higgs 3, NXP G2iM and G2iM+ chips. (Tr. (Goldberg) at 590:16-23, 591:16-593:8, 591:16-592:23; CDX-0003.0105, 109-12; CX-0224C.7035; CX-0228C.0332; CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2658; CX-0322C.0103; CX-0300.2702-03; JX-0050C.0022 (Sheshi Nyalamadugu Dep.)[38] at 40:14-22.). Neology's Non-Transferable Standard Tag ("NTS Tag") is representative of Neology's DI Tags incorporating the NXP G2iM chip (Tr. (Goldberg) at 591:16-592:23; CDX-0003.0110; CX-0028C.0332); Neology's TAG, SWITCH, ON/OFF, 915 ("On/Off Tag") is representative of Neology's DI Tags incorporating the NXP G2iM+ chip (Tr. (Goldberg) at 591 :16-592:23; CDX-0003.0111; CX-0224C.7035); and Neology's SIT, License Plate 6C 860Mhz ("LP Tag") is representative of Neology's DI Tags incorporating the Alien Higgs 3 chip (Tr. (Goldberg) at 591:16-592:23, 605:7-19; CDX-0003.0105, 112; CX-0143C.1418.).

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[38] At the time his deposition testimony was taken on May 25, 2016, Mr. Sheshi Nyamaladugu was Vice President of R&D for Complainant. (JX-0050C (Nyamaladugu Dep.) at 10:10-12.). In that capacity, Mr. Nyamaladugu was responsible for product concepts and design, "development, the whole cycle of products, like all the way to testing and qualification." *(Id.* at 10:25-11 :5.).

**b) [ ] Tags**

The [ ] Tags that Complainant alleges practice claim 25 of the '044 patent are set forth in Appendix C. These tags operate in accordance with the 6C Protocol and include Alien Higgs 3, NXP UCODE G2XM or G2XL, and Impinj Monza 1, 2 or 3 chips. (Tr. (Goldberg) at 590:24-25, 594:22-596:3; CDX-0003.0106, 120-22; CX-0128.4643; CX-0135.4650; CX-0110.4335-36; CX-0322C.0103; CX-300.2702-03; JX-0020.5578-79; JX- 0020.5578-79; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31.). [ ] Non-Transferable Windshield Mount Tag ("NTWM Tag") is representative of [ ] Tags incorporating the Alien Higgs 3 chip. (Tr. (Goldberg) at 594:22-596:3; CDX-0003.0120; CX-0110.4335'-36.). [ ] Inlay is representative of [ ] Tags incorporating the NXP G2XL and G2XM chips. (Tr. (Goldberg) at 594:22-596:3; CDX-0003.0121; CX-0128.4643.). [ ] Inlay is representative of [ ] Tags incorporating the Monza 1, 2 or 3 chip. (Tr. (Goldberg) at 594:22-596:3, 605:7-19; CDX-0003.0106, 122; CX-0135.4650.).

**2. DI Readers**

**a) [ ] DI Readers**

The [ ] that Complainant alleges practice claims 1, 2, and 4 of the '436 patent are set forth in Appendix C. Each of these readers is capable of operating in accordance with the 6C Protocol. (Tr. (Goldberg) at 591:1-15; CDX-0003.0107; CX-0142C.1412-13; CX-0232C.6943; CX-0151.0347; CX-0237C.1859; CX-0104.3528; CX-0036.2833; CX-

0035C; CX-0037C; CX-0060; CX-0061; CX-0062; CX-0064; CX-0065.). Neology's IR-915 LR, Integrated Reader ("IR-915 Reader") (CX-0142C.1412-13), [ ] (CX-0232C.6943; CX-0151.0347), and FR, [ ] (which is the same as [ ] and [ ] (CX-0237C.1859; CX-0104.3528; CX-0036.2833) are representative of Neology's DI Readers that practice claims 1, 2, and 4 of the '436 patent. (Tr. (Goldberg) at 605:7-19; CDXPage 0003.0107.).

**b) [ ] Readers**

The [ ] that Complainant alleges practice claims 1, 2, and 4 of the '436 patent are set forth in Appendix C. Each of these readers is capable of operating in accordance with the 6Cprotocol. (Tr. (Goldberg) at 591:10-15; CDX-0003.0108.). The [ ] DI Readers that practice claims 1, 2, and 4 of the '436 patent. (Tr. (Goldberg) at 591:10-15, 605:7-19; CDX-0003.0108; CX-0237C.1859; CX-0104.3528.).

## V. THE '044 AND '436 PATENTS

### A. Level of Ordinary Skill in the Art

#### 1. Relevant Law

The relevant time for assessing the level of ordinary skill in the art is the effective filing date of the patent. *Phillips v, AWH Corp.,* 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en bane) ("We have made clear . . . that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at

the time of the invention, i.e., as of the effective filing date of the patent application.")

Factors to consider in determining the level of ordinary skill in the art include: (1) the educational level of the inventor; (2) the type of problems encountered in the art; (3) the prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of active workers in the field. *See Envtl. Designs, Ltd. v. Union Oil Co. of Cal.,* 713 F.2d 693, 696 (Fed. Cir. 1983). "These factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art." *Daiichi Sankyo Co., Ltd. v. Apotex, Inc.,* 501F.3d1254, 1256 (Fed. Cir. 2007).

**2. Definition of Person of Ordinary Skill in the Art**

Complainant proposed that "the level of ordinary skill in the art for the Asserted Patents would require a university degree in electrical engineering or a related field and at least two years of industrial or academic experience in radio frequency data communication and/or RFID systems." (Comp'l Claim Br. at 5 (citing CXM-0025 (Goldberg Decl.) at 42).).

Respondents proposed that "[a] person of ordinary skill in the art of the ['044 and '436 patents] would ... have a graduate degree in engineering or physics, or the equivalent. Further such a person would have at least 2-4 years of relevant experience in designing and developing RFID tags and readers,

including understanding RFID systems and communications protocols." (Res'pts Claim Br. at 13.).

Staff agreed with Respondents that a person of ordinary skill in the art would have a graduate degree and proposed the following: "A person of ordinary skill in the art would have (i) a master's degree in electrical engineering, physics, computer science, or the equivalent, and (ii) at least two years of industry or academic experience in radio frequency data communications or RFID systems." (Staff Claim Br. at 11.).

The parties and Staff mainly disagreed over the level of education a person of ordinary skill would possess, and the type of experience a person of ordinary skill would have.[39] Respondents argued that "[ d]ue to the highly specialized and technical nature of RFID, those of ordinary skill at the time required an education beyond just a Bachelor's degree." (Res'pts Resp. Claim Br. at 2 (citing RXM-0014 (Durgin Decl.) at ¶ 29).). Respondents also contended that some level of undefined "industrial or academic experience" in RFID is "too low and fails to recognize the specialized nature of the RFID industry." *(Id.* (citing RXM-0014 (Durgin Decl.) at ¶ 29).). Respondents maintained that such a level of experience "would ostensibly include a person whose 'experience' is just that of a user, rather than that of a developer or designer (as reflected by Respondents'

[39] In. their Responsive Claim Construction Briefs, Complainant and Staff did not offer any additional arguments regarding the definition of a person of ordinary skill in the art. (Doc. ID No. 580455 (May 5, 2016); Doc. ID No. 580434 (May 5, 2016).).

proposal)." *(Id.* (citing RXM-0014 (Durgin Decl.) at ¶ 29).).

Ultimately, the parties agreed that a person of ordinary skill in the art for the '044 and '436 patents would have either: (1) a master's degree in electrical engineering, physics, computer science, or the equivalent, and at least two years of industry or academic experience in radio frequency data communications or RFID systems; or (2) a bachelor's degree in electrical engineering, physics, computer science, or the equivalent, and at least four years of industry experience or academic experience in the radio frequency data communications or RFID systems. (Doc. ID No. 582809 (Corrected Joint Chart of Post-Hearing Constructions) at 1 (June 3, 2016).). The agreed upon definition strikes a fair balance among Complainant's, Staffs, and Respondents' proposed definitions by requiring that an individual with only a bachelor's degree have more experience in the technical field, in light of Respondents' concerns. Accordingly, this ID adopts the definition of a person of ordinary skill in the art as agreed upon by the parties and Staff.

## B. Claim Construction

### 1. Relevant Law

Claim construction begins with the plain language of the claims themselves. Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.,* 415 F.3d 1303, 1312-

13 (Fed. Cir. 2005), *cert. denied,* 546 U.S. 1170 (2006). In some cases, the plain and ordinary meaning of the claim language is readily apparent and claim construction will involve little more that "the application of the widely accepted meaning of commonly understood words." *Id.* at 1314. In other cases, claim terms have a specialized meaning and it is necessary to determine what a person of ordinary skill in the art would have understood the disputed claim language to mean by analyzing "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, as well as the meaning of technical terms, and the state of the art." *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.,* 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The claims themselves provide substantial guidance as to the meaning of disputed claim language. *Id.* "[T]he context in which a term is used in the asserted claim can be highly instructive." *Id.* Likewise, other claims of the patent at issue, "both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." *Id.* (citation omitted).

With respect to claim preambles, a preamble may limit a claimed invention if it (i) recites essential structure or steps, or (ii) is "necessary to give life, meaning, and vitality" to the claim. *Eaton Corp. v. Rockwell Int'l Corp.,* 323 F.3d 1332, 1339 (Fed. Cir. 2003) (citations omitted). The Federal Circuit has explained that a "claim preamble has the import that the claim as a whole suggests for it. In other words,

when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." *Id.* (quoting *Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp.,* 55 F.3d 615, 620 (Fed. Cir. 1995)). When used in a patent preamble, the term "comprising" is well understood to mean "including but not limited to," and thus, the claim is open-ended. *CIAS, Inc. v. Alliance Gaming Corp.,* 504 F.3d 1356, 1360 (Fed. Cir. 2007). The patent term "comprising" permits the inclusion of other unrecited steps, elements, or materials in addition to those elements or components specified in the claims. *Id.*

In cases where the meaning of a disputed claim term in the context of the patent's claims remains uncertain, the specification is the "single best guide to the meaning of a disputed term." *Phillips,* 415 F.3d at 1321. Moreover, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* at 1316. As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323.

The prosecution history may also explain the meaning of claim language, although "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 131 7. The prosecution history consists of the complete record of the patent examination proceedings before the U.S. Patent and Trademark Office ("PTO"), including cited prior art. *Id.* It may reveal "how the inventor

understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

If the intrinsic evidence is insufficient to establish the clear meaning of a claim, a court may resort to an examination of the extrinsic evidence.[40] *Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc.,* 206 F.3d 1408, 1414 (Fed. Cir. 2000). Extrinsic evidence may shed light on the relevant art, and "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips,* 415 F.3d at 1317. In evaluating expert testimony, a court should disregard any expert testimony that is conclusory or "clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent." *Id.* at 1318. Furthermore, expert testimony is only of assistance if, with respect to the disputed claim language, it identifies what the accepted meaning in the field would be to one skilled in the art. *Symantec Corp. v. Comput. Assocs. Int'l, Inc.,* 522 F.3d 1279, 1289 n.3., 1290-91 (Fed. Cir. 2008). Testimony that recites how each expert would construe the term should be accorded little or no weight. *Id.* Extrinsic evidence is inherently "less reliable" than intrinsic evidence, and "is unlikely to result in a reliable

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[40] "In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper." *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1583 (Fed. Cir. 1996).

interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Phillips,* 415 F.3d at 1318-19.

### 2. Agreed Upon Claim Terms

**Table 2: Agreed Upon Claim Terms**

| **Claim Term(s)** | **Agreed Upon Claim Construction** |
|---|---|
| *"grant access to the memory" ('044* patent, claim 25) | The parties agreed, and I confirm, that "grant access to the memory" and "grant access to the memory contents" means "permitting the reading and/or writing of memory[contents]." (Doc. ID No. 582809, Ex. A at 4.). |
| *"grant access to the memory contents"* ('044 patent, claim 23) | |

## C. Construed Terms

**Table 3: Disputed Claim Terms**

| **Claim Term(s)** | **Construed Claim Construction** |
|---|---|
| *"security key"* ('044 patent, claims 10, 13, 14, 23, 25; '436 patent, claims 1, 2,4) | It was determined that the claim term, "security key," means "a key that is checked and validated to grant or deny access to memory." *(Markman* |

| | |
|---|---|
| | Tele. Tr. at 50:8-10(Sept. 8, 2016).). |
| *"as a result of validation of the security key"* ('044 patent, claim 10; '436 patent, claim 1)<br><br>*"as a result of validation of the second security key"* ('044 patent, claim 10; '436 patent, claim 1) | It was determined that the claim terms, "as a result of validation of the security key" and "as a result of validation of the second security key," have their plain and ordinary meaning, i.e., as a result of confirmation of the security key/as a result of confirmation of the second security key. *(Id.* at 52:7-14; Tr. at 464:16-466:1.). |
| *"based on the security key"* ('044 patent, claim 23) *"based on the second security key"* ('044 patent, claim 25) | It was determined that the claim terms, "based on the security key" and "based on the second security key," have their plain and ordinary meaning, i.e., as a result of confirmation of the security key/as a result of confirmation of the second security key. *(Id.* at 53:5-8; Tr. at 464:16-466:1.). |

**1. "security key"**

The term "security key" appears in relevant claims 10, 13, 14, 23, and 25 of the '044 patent and in

asserted claims 1, 2, and 4 of the '436 patent. The adopted construction is the construction proposed by Complainant and Staff. (Comp'l Claim Br. at 6; Staff Claim Br. at 13.). Respondents proposed that "security key" be construed to mean a "key checked and validated to prevent unauthorized access to information," or, alternatively, "a key that is checked and validated by a singulated tag to grant a proper reader access to a memory." (Doc. ID No. 582809, Ex. A at 1.).

Respondents improperly sought to use limiting language that is not contemplated by the claim language or the specification. In contrast, Complainant's and the Staffs construction follows the definition disclosed in the specifications of the '044 and '436 patents.[41] The specifications explicitly define "security key" as "keys that are checked and validated to grant or deny access to the memory chip." (JX-0001at2:54-55, 11:14-15, 14:57-15:1; JX-0002, 2:54-55, 11 :20-21, 15 :3-4. ). It is well established that a patentee may serve as its own lexicographer and define a term in the specification. *See, e.g., CCSFitness, Inc. v. Brunswick Corp.,* 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.").

This description is repeated for other embodiments of the invention. *(See, e.g.,* JX-0001 at

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[41] The patents have nearly identical specifications. (JX-0001; JX-0002; *see also Markman* Tele. Tr.).

11:13-15 and 14:65-15:1.). Hence, Complainant's and Staffs construction is consistent with multiple embodiments disclosed in the common specification. *See Oatey Co. v. JPS Corp.,* 514 F.3d 1271, 1277 (Fed. Cir. 2008) ("At leas[t] where claims can reasonably [be] interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.").

Respondents' construction requires that the security key "prevent unauthorized access" to information. However, this aspect of the proposed construction does not appear in the Asserted Claims and is not supported by the common specification. Similarly, Respondents' alternative construction, that the security key be "checked and validated by a singulated tag" does not appear in the Asserted Claims and is not supported by the specifications.[42] In fact, the term "singulated" is not mentioned once in the Asserted Claims or the specifications.

For these reasons, the term "security key" means "a key that is checked and validated to grant or deny access to memory." *(Markman* Tele. Tr. at 50:8-10.).[43]

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[42] Contrary to this position, Respondents vehemently argued throughout their Initial Post-Hearing and Reply Post-Hearing Briefs that Respondents' Accused Products do not infringe because the Asserted Claims cover singulation. (RBr. at 27-47; RRBr. at 4-12).

[43] In a case filed in the District of Delaware in 2011, Neology asserted patents from the same family as the '044 and '436 patents. *Neology, Inc. v. Federal Signal Corporation, et al.,* Case No. 1:11-cv-00672-LPS-MPT (D. Del.) ("Federal Signal

**2.** "as **a result of validation of the [second] security key"**

The phrases "as a result of validation of the security key" and "as a result of validation of the second security key" appear in relevant claims 10 and 13 of the '044 patent and asserted claim 1 of the '436 patent. The adopted construction is the construction proposed by Complainant and Staff. (Comp'l Claim Br. at 8; Staff Claim Br. at 16.). Respondents proposed the phrase "as a result of validation of the [second] security key" to mean "based only on validation of the [second] security key." (Resp'ts Claim Br. at 25.).

The claims of the '044 and '436 patents make it clear that the term "as a result of validation of a security key" should be given its plain and ordinary meaning. For example, claim 10 of the '044 patent, from which asserted claims 13 and 14 depend, discloses a toll system that includes an RFID reader that will "receive at least the identifier included in the memory [of a tag]" "as a result of validation of the security key." (JX-0001 at 23:54-56.). In other words, after the tag validates (or "as a result of validation of") the security key it receives from the reader, it sends the identifier in its memory to the reader. Dependent claim 13 of the '044 patent likewise recites that a

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Litigation"). Neology moved for a preliminary injunction and proposed that "security key" be construed to mean "a key that is checked and validated to grant or deny access to memory"; the defendants offered a different construction. In a Report and Recommendation, filed June 18, 2012, Magistrate Judge Mary Pat Thynge construed "security key" to mean "a key that is checked and validated to grant or deny access to a memory." (CXM-0007 at 24.).

reader will "receive further memory contents ... as a result of validation of the second security key." (JX-0001 at 23:65-24:4.). Claim 1 of the '436 patent, which claims an RFID reader, contains similar language. (JX-0002 at 23:23-26, 23:30-34.).

The specifications of the '044 and '436 patents describe that security keys "are checked and validated to grant or deny access to the memory chip" after which "[i]nformation can be read and written from or to this device." *(See, e.g.,* JX-0001 at 2:54-57; JX-0002 at 2:54-57.). The reading or writing of information from or to memory thus occurs ***as a result of the validation of the security key.***

Moreover, the words at issue here are well-known, and not obscure, technical terms. *See Phillips,* 415 F.3d at 1314 ("[T]he ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words."). As is the case here, "[i]f the claim term has a plain and ordinary meaning, our inquiry ends." *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.,* 711 F.3d 1348, 1361 (Fed. Cir. 2013). Common dictionaries support the construction of "as a result of validation" proposed by Complainant and the Staff. "Result" means '.'a consequence, effect, or outcome of something." (CXM-0024 at 1583.). Therefore, "as a result of validation of a security key" means "as caused by validation of a security key"; and "as a result of validation of a second security key" means "as caused by validation of a second security key."

Respondents' proposed construction ignores the plain meaning of the term "as a result of validation of the security key" that appears throughout the '044 and '436 patents and in common usage. Instead, Respondents improperly sought to limit the construction of the term by inserting the word "only," so that the construction would be "based ***only*** on validation of the security key." Nowhere in the claims, the specifications, or the prosecution histories of the '044 and '436 patents is a tag limited to implementing conditions precedent that must be satisfied before a tag checks and validates the security key. Once the tag checks and validates the security key, it must grant access to its memory as a result of validating the security key.

For these reasons, the phrases "as a result of validation of the security key" and "as a result of validation of the second security key" are given their plain and ordinary meaning, i.e., as a result of confirmation of the security key/as a result of confirmation of the second security key. *(Markman* Tele. Tr. at 52:7-14; Tr. at 464:16-466:1.).

**3. "based on the [second] security key"**

The phrases "based on the security key" and "based on the second security key" appear in relevant claim 23 of the '044 patent. The adopted construction is the construction proposed by Complainant and Staff. (Comp'l Claim Br. at 10; Staff Claim Br. at 16.). Respondents proposed the phrase "based on the [second] security key" to mean "based only on the [second] security key." (Resp'ts Claim Br. at 25.).

The parties and Staff do not dispute that "based on the security key" and "as a result of validation of the security" key are essentially synonymous and should be given the same construction. Indeed, Complainant and Staff proposed the same construction for "based on the security key" that they offered for "as a result of validation of the security key." (Comp'l Claim Br. at 10; Staff Claim Br. at 16.). Respondents' proposed construction is merely missing the phrase "validation of." (Resp'ts Claim Br. at 25.).

The claims provide further evidence that "based on a security key" is used the same way as "as a result of validation of the security key." Claim 10 of the '044 patent discloses the transmission of a tag identifier "as a result of validation of the security key," while claim 23 provides for "grant[ing] access to the memory contents based on the security key." (JX-0001 at 23:54-57, 24:47-48; *see also* claims 1and9 of the '436 patent (JX-0002, 23:24-26, 24:15-16).).

For these reasons and for the reasons discussed in Section V.C.2 with regard to "as a result of validation of the [second] security key," the phrases "based on the security key" and "based on the second security key" have their plain and ordinary meaning, i.e., as a result of confirmation of the security key/as a result of confirmation of the second security key. *(Markman* Tele. Tr. at 53:5-8; Tr. at 464:16-466:1.).

## D. Priority Date

### 1. Relevant Law

In order for a patent application to claim benefit to an earlier filing date based on a previously filed patent application, 35 U.S.C. § 120 provides, in relevant part:

> An application for patent for an invention disclosed in the manner provided by section 112(a) (other than the requirement to disclose the best mode) in an application previously filed in the United States, or as provided by section 363 or 385, which ***names an inventor or joint inventor in the previously filed application*** shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application and ***if it contains or is amended to contain a specific reference to the earlier filed application.*** No application shall be entitled to the benefit of an earlier filed application under this section unless an amendment containing the specific reference to the earlier filed application is submitted at such time during the pendency of the application as required by the Director. The Director may consider the failure to submit such an amendment within that time period as a waiver of any benefit under this section.

35 U.S.C. § 120 (emphases added).

Moreover, for a claim of priority to an earlier filed application to be proper, the earlier application must disclose the claimed invention in a manner that satisfies the written description requirement of 35 U.S.C. § 112. *See* 35 U.S.C. §§ 119(e)(l), 120; *see also Bradford Co. v. Conteyor N Am., Inc.,* 603 F.3d 1262, 1269 (Fed. Cir. 2010); *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.,* 298 F.3d 1290, 1294 (Fed. Cir. 2002). Specifically, "to gain the benefit of the filing date of an earlier application under 35 U.S.C. § 120, each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112." *Hollmer v. Harari,* 681F.3d1351, 135-5 (Fed. Cir. 2012) (internal quotation marks omitted); *see also New Railhead,* 298 F.3d at 1294 (emphasis in original) (internal quotation marks omitted) ("[T]he specification of the provisional must contain a written description of the invention . . . ." ).

**2. The '044 and '436 Patents Are Not Entitled to the Filing Dates of the '214 Provisional Application and the '026 Patent Application**

As mentioned above in Section III.B, the '044 patent was filed on May 4, 2012 (JX-0001) and the '436 patent was filed on January 31, 2012 (JX-0002). The '044 and '436 patents are claimed continuations of U.S. Patent Application No. 10/615,026 ("'026 application"), filed July 9, 2003, which issued as U.S. Patent No. 7,081,819 ("'819 patent"); U.S. Patent

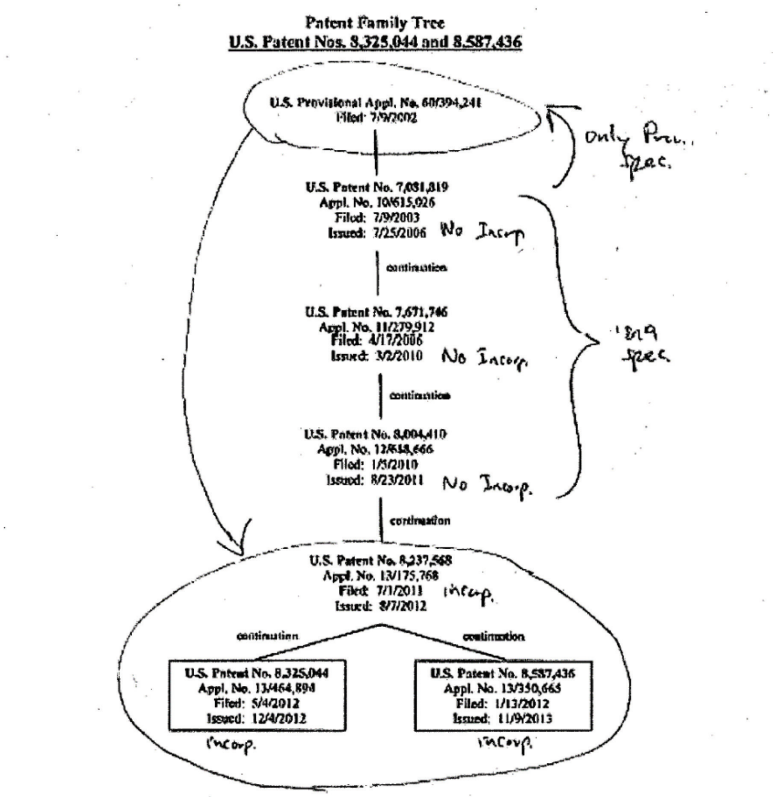
Application No. 111279,912 ("'912 application"), filed April 17, 2006, which issued as U.S. Patent No. 7,671,746 ("'746 patent"); U.S. Patent Application No. 12/688,666 ("'666 application"), filed January 15, 2010, which issued as U.S. Patent No. 8,004,410 ("'410 patent"); and U.S. Patent Application No. 13/175,768 ("'768 application"), filed July 1, 2011, which issued as U.S. Patent No. 8,237,568 ("'568 patent"). *(See* JX-0001 at (63); JX-0002 at (63).). According to Complainant, the '044 and '436 patents have an earliest priority date of July 9, 2002, the filing date of U.S. Patent Application No. 60/394,241 ("'241 provisional application"). *(See, e.g.,* CPBr. at 7; Doc. ID No. 575501 (Complainant's Patent Priority Date Disclosures) at 2-3; JX-0001 at [60]; JX- 0002 at [60].).

As an initial finding, the '044 and '436 patents cannot claim priority to the '241 provisional application. Section 120 of Title 35 of the U.S. Code declares that a newly filed patent application "shall have the same effect" as a parent application so long as it is "filed before the patenting or abandonment ... [of] the first application." 35 U.S.C. § 120. The statute includes two specific limitations: (1) the newly claimed invention must have been properly disclosed in the original application by overlapping inventors; and (2) the new application must specifically reference the parent application. *Id.* The '044 and '436 patents fail on both counts.

With regard to the latter, the standard by which to evaluate the sufficiency of incorporation-by-reference language is "whether one reasonably skilled in the art would understand the application as describing with sufficient particularity the material

to be incorporated." *Harari v. Lee,* 656 F.3d 1331, 1334 (Fed. Cir. 2011). Here, while both the '044 and '436 patents incorporate the '241 provisional application by reference (JX-0001at1:14-16; JX-0002 at 1 :14-17), this incorporation was not added until July 1, 2011, in the '768 application that led to the '568 patent. (SDX-0002; Tr. (Durgin) at 1379:9-1381 :4; Tr. (Goldberg) at 1562:15-1563:3; *see also* JX-0024 at NEO-ITC00031701 ('768 application incorporating the '241 provisional application by reference for the first time).). In other words, only the '568, '044, and 36 patents specifically incorporate the '241 provisional application. During the evidentiary hearing, Staff introduced into evidence Figure 10 below, which is an illustration of the '044 and '436 patent family tree ("Patent Family Tree"), to demonstrate the failure of the intervening parent patents to "contain a specific reference to the earlier filed application," in this instance, to. the '241 provisional application, as required by 35 U.S.C. § 120.

Figure 10: Patent Family Tree




(SDX-0002)

As Staff pointed out above, to which both experts, Dr. Durgin and Mr. Goldberg, agreed, the applications that issued as the '819, '746, and '410 patents- which intervene the parent '568 patent of the Asserted Patents and the '241 provision application- do not incorporate by reference the '241 provisional application. *(Id;* Tr. (Durgin) at 1379:9-1381 :4; Tr. (Goldberg) at 1562:15-1563:3).). This resulting "lack of continuity of disclosure . . . in the family chain"

precludes the '044 and '436 patents from claiming the 2002 priority date based on the '241 provisional application.[44] *Zenon Envtl., Inc. v. US Filter Corp.,* 506 F.3d 1370, 1378, 1382 (Fed. Cir. 2007).

Additionally, both Respondents and Staff contended that the '044 and '436 patents cannot claim priority to the '026 application, filed on July 9, 2003, because the '026 application does not describe the Asserted Claims, i.e., the application does not satisfy the written description requirement set forth in 35 U.S.C. § 112. (RBr. at 78; SBr. at 44.). For the reasons discussed in Section V.E.1(b), *infra,* the '026 application fails to provide written description support for the Asserted Claims. Because the specification of the '026 application is substantively identical to the specifications of the applications that ultimately issued as the '746, '410, and '568 patents, with the exception of the incorporation-by-reference language included in the '568 patent (Tr. (Durgin) at 1001:1-15), the '044 and '436 patents are not entitled to a priority date earlier than their filing dates. *(See* Tr. (Gillespie) at 1736:11-18, 1765:2-16 (agreeing that if written description is not satisfied, the patents cannot get the earlier priority date).).

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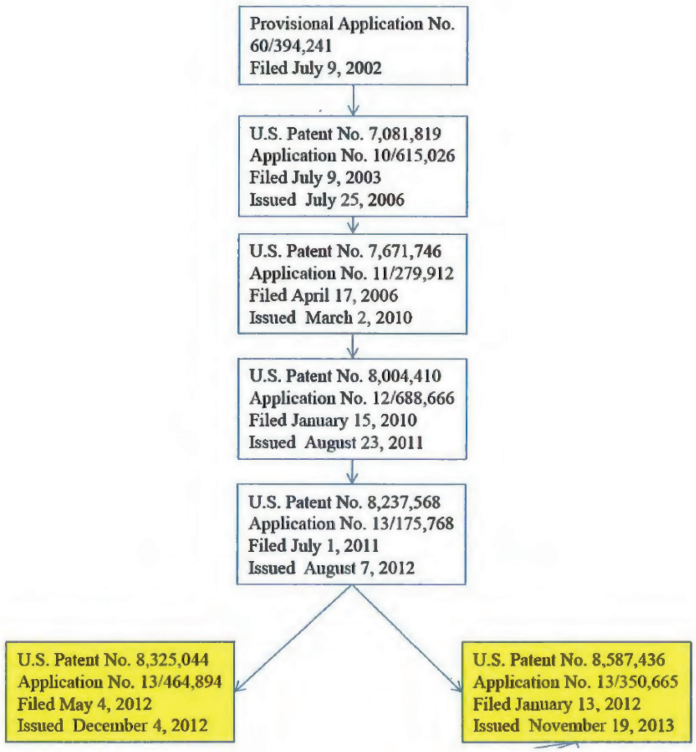
[44] Because the '241 provisional application was not incorporated by reference into all of the continuation applications, Staff did not consider the '241 provisional application as part of its analysis of whether the '241 provisional application provides sufficient written description support for the inventions claimed in the '044 and '436 patents. (SBr. at 44.).

Figure 11: Security Key Patent Family




(RPBr. at App. 1.).

Thus, the priority dates of the '044 and '436 patents are May 4, 2012 and January 1, 2012, respectively.

**E. Validity**

Patent claims are presumed valid. 35 U.S.C. § 282. A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by "clear and convincing" evidence of invalidity. *See, e.g., Checkpoint Sys., Inc. v. US Int'l Trade Comm'n,* 54 F.3d 756, 761 (Fed. Cir. 1995).

Further, as stated by the Federal Circuit in *Ultra-Tex Surfaces, Inc. v. Hill Brothers Chemical Co.* :

> when a party alleges that a claim is invalid based on *the very same references* that were before the examiner when the claim was allowed, that party assumes the following additional burden:
>
> When no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden[45] of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.

*Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.,* 204 F.3d 1360, 1367 (Fed. Cir. 2000) (emphasis added) (quoting *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.,* 725 F.2d 1350, 1359 (Fed. Cir. 1984)).

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[45] This is not an added burden of proof but instead goes to the weight of the evidence. *Sciele Pharma v. Lupin Ltd.,* 684 F.3d 1253, 1260-61 (Fed. Cir. 2012). New evidence not considered by the PTO may carry more weight than evidence previously considered. by the PTO. (Id.).

### 1. Written Description

#### a) Relevant Law

The first paragraph of Section 112 states: "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. . . ." 35 U.S.C. § 112. To comply, a patent applicant must "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the [claimed] invention." *Vas-Cath Inc. v. Mahurkar,* 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (emphasis omitted). "The form and presentation of the description can vary with the nature of the invention[.]" *In re Skvorecz,* 580 F.3d 1262, 1269 (Fed. Cir. 2009). "[T]he applicant [for a patent] may employ 'such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.'" *Id.* (citing *In re Alton,* 76 F.3d 1168, 1172 (Fed. Cir. 1996)). The adequacy of the description depends on content, rather than length. *In re Hayes Microcomputer Prods., Inc. Patent Litig.,* 982 F .2d 1527, 1534 (Fed. Cir. 1992). "Specifically, the level of detail required to satisfy the written description requirement varies depending on the. natlire and scope of the claims and on the complexity and predictability of the relevant technology." *Ariad Pharms., Inc. v. Eli Lilly & Co.,* 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc).

Compliance with the written description requirement is a question of fact, and in order to overcome the presumption of validity, a party must set forth clear and convincing evidence. *Centocor Ortho Biotech, Inc. v. Abbott Labs.,* 636 F.3d 1341, 1347 (Fed. Cir. 2011). The Federal Circuit has held with respect to the written description requirement that "[a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language." *Falko-Gunter Falkner v. Inglis,* 448 F.3d 1357, 1366 (Fed. Cit. 2006) (quoting *LizardTech, Inc. v. Earth Resource Mapping, PTY, Inc.,* 424 F.3d 1336, 1345 (Fed. Cir. 2005)). However, to satisfy the written description, a specification must disclose "the particular claimed combination of elements," not just that "each element may be individually described in the specification." *Hyatt,* 492 F.3d at 1371; *see also Trans Video Elecs., Ltd. v. Sony Elecs., Inc.,* 822 F. Supp. 2d 1020, 1027 (N.D. Cal. 2011).

**b) Neither the '026 Application Nor the '241 Provisional Application Satisfy the Written Description Requirement**

Respondents argued that the '241 provisional application and the '026 application do not provide the necessary written description support for the Asserted Claims. (RBr. at 53.). Specifically, Respondents contended that neither the '241 provisional application nor the '026 application shows that the inventors possessed the following claim limitations:

- "a second communication . . . that includes a security key" (claims 13, 14, and 25 of the '044 patent; claims 1, 2, and 4 of the '436 patent);

- "send/receive ... the identifier" (claims 13, 14, and 25 of the '044 patent; claims 1, 2, and 4 of the '436 patent);

- "central data base," "toll system" (claims 13 and 14 of the '044 patent; claims 1, 2, and 4 of the '436 patent);

- "a third communication with a second security key" (claims 13 and 25 of the '044 patent; claims 1, 2, and 4 of the '436 patent); and

- "security key is based on information received from the RFID transponder" (claim 14 of the '044 patent; claims 2 and 4 of the '436 patent).

(RBr. at 58-75; RPBr. at 42-50.).

As an initial matter, Complainant failed to provide any evidence indicating that Messrs. Martinez and Manfred Rietzler,[46] the named inventors of the '044 and '436 patents, conceived the inventions at or around the time the '241 provision application or '026 application was filed. For example,

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[46] Complainant did not identify Mr. Manfred Rietzler as a fact witness. *(See* CPSt. at 2-6.). Based on the testimonial evidence of Mr. Martinez and Mr. Mullis, at the time of the evidentiary hearing, Mr. Rietzler was the founder and owner of SMAR TRAC, the parent company of Neology. (Tr. (Martinez) at 262:4-12; Tr. (Mullis) at 125:8-126:12.).

Mr. Noel C. Gillespie,[47] Complainant's attorney who drafted and filed the Asserted Patents, provided the following testimony:

> Q: Correct. Besides what's been in this case as I think JX-30 and 31, which are the ['241] provisional and ['026] patent application, other than that, sir, you don't know of a single piece of paper, scrap, note, anything, that reflects that the inventors actually possessed the inventions claimed in the '044 and the '436 patent[ s], are you?
>
> A: I know of no other documents on the invention, yeah.
>
> * * *
>
> Q: Sir, in the - you've looked for things to see if there · was any other support for the idea that Mr. Martinez de Velasco and Mr. Rietzler actually came up with what's claimed in the '436 and '044, and you came up empty; correct?
>
> A: Yes, we would look for conception documents and we did not find them.

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[47] At the time he testified during the evidentiary hearing on September 22-23, 2016, Mr. Noel C. Gillespie was a partner at Procopio, Cory, Hargeaves & Savitch LLP. (CPSt. at 2.). Complainant identified Mr. Gillespie as a fact witness to provide testimony regarding the prosecution of the Asserted Patents before the PTO, the prosecution of related patents, and issues concerning the validity of the Asserted Patents and Respondents' claim of inequitable conduct. *(Id.).*

(Tr. (Gillespie) at 1744:5-12, 1745:18-24.).

In addition, Mr. Gillespie testified that at the time the continuation applications that eventually issued. as the '044 and '436 patents were filed, he had no recollection of any documented analysis or conversations with anyone regarding whether the specification of the '026 application actually supports the claims in these continuations. *(Id.* at 1743:7-13, 1743:14-22.).

Mr. Martinez's deposition testimony and testimony at the evidentiary hearing that Mr. Mullis and Mr. Gillespie had witnessed the conception of the inventions in the '044 and '436 patents also weigh against a finding that the specifications of the '241 provisional application and/or the '026 application provide sufficient written description support. (Tr. (Martinez) at 373:21-374:23 ("Q: Sure. Joe Mullis didn't work there until 2004; correct? A: Until-yes, I met him in 2004. Q: And so Mr. Mullis couldn't have witnessed your invention until 2004, right, when you first met him? A: Yes.").).

As Mr. Martinez testified, Mr. Mullis did not work for him until 2004. However, the '241 provisional application and the '026 application were filed in 2002 and 2003, respectively. Thus, the invention that Mr. Mullis "witnessed" did not take place until *after* the '241 provisional and '026 applications were filed. Based on Mr. Martinez's testimony and the complete lack of any supporting documents, it is evident that Mr. Martinez and Mr. · Rietzler did not conceive the '044 and '436 inventions when the '241 provisional and '026 applications were

drafted and filed. Thus, Mr. Martinez and Mr. Rietzler could not have been in possession of the claimed inventions in 2002 and 2003. *Vas-Cath Inc.,* 935 F.2d at 1563-64.

Moreover, Mr. Martinez provided unequivocal testimony during his deposition that prior to filing the '241 provisional application and the '026 application, he did not reduce to practice the inventions claimed in the '044 and '436 patents. (JX-0044C.0026 (Martinez Dep.) at 28:22-29:5 ("Q: At the time of the original patent application - the provisional was 2002; the first nonprovisional was 2003 - had you ever actually built any kind of tag/reader combination that used a security key? A: Not in that way. No. Q: Had you - had you built one that used a security key in some other way? A: No."); *see also* Tr. (Martinez) at 371 :9-373:20.). Mr. Martinez also unequivocally testified that the inventions claims in the '044 and '436 patents were first reduced to practice when the applications for these patents were filed, that is, May 4, 2012 and January 13, 2012, respectively. (JX-0044C.0081 (Martinez Dep.) at 117:8-14.).

For the additional reasons discussed in more detail below, the claim limitations listed above are not supported by the written description provided in the '241 provisional application or the '026 application.[48]

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[48] Because the '026 application is substantively identical to the applications that ultimately issued as the '746, '410, and '568 patents, with the exception of the incorporation-by-reference included in the '568 patent (Tr. (Durgin) at 1001: 1-15), this ID does not include a separate analysis of whether the subsequently filed applications also provide written description support for the Asserted Claims in accordance with 35 U.S.C. § 119(e).

### *i. "a second communication . . . that includes a security key" ('044 patent, claims 13, 14, 25; '436 patent, claims 1, 2, 4)*

#### (1) *'026 Application*

Respondents claimed that the '026 application does not provide written description support for "a second communication ... that includes a security key" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 58.). Dr. Durgin, Respondents' expert, testified that the '026 application does not describe the reader transmitting a security key from a reader to a tag. (Tr. (Durgin) at 1016:5-19.).

Relying on: (1) the disclosure that a "reader identifies the user" in the embodiment of Figure 14; (2) descriptions of "security keys" stored in cryptographic blocks of the embodiments shown in Figures 2, 5, andl3; and (3) "credit and debit exchange keys" described in a "RF Registered Item and Method of Use" embodiment, Complainant argued that the specification of the '026 application adequately describes a security key that is sent from the reader to the tag.[49] (CBr. at 63-68.).

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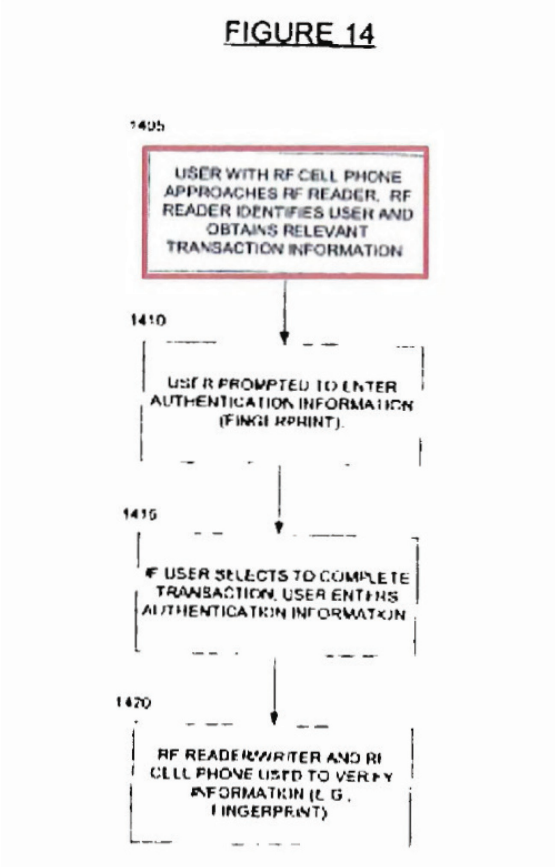
[49] Complainant's expert, Mr. Goldberg provided testimony that the disclosure of a "cryptographic block 2210 (with 4 exchange encrypted keys with up to 256 bits)" supports the written description of the claimed "security key." (See, *e.g.,* Tr. (Goldberg) at 1421:16-24.). This testimony is the subject of Respondents' Motion to Strike *(see* RBr. at 125-29), which was denied. *(See* Section I.D.2.). Thus, this testimony is not stricken.

With regard to Figure 14 of the '026 application (JX-0030 at NEO-ITC00000415), Complainant's expert, Mr. Goldberg, testified that when the "RF reader identifies the user" in box 1405, "a key is necessarily sent to the tag, in order to receive the identification information," and, thus, describes a security key. (Tr. (Goldberg) at1420:3-7; *see also id.* at 1515:6-13.).

Figure 14 of the '026 Application




(JX-0030 atNEO-ITC00000415.).

However, there is no mention of any security keys in Figure 14, which Mr. Goldberg did not dispute. *(Id.* at 1520:19-22 ("Figure 14 doesn't use the word 'security key. '").). Mr. Goldberg instead relied on a disclosure describing a different embodiment. (JX-0030 at NEOITC00000339 (4:17-18); Tr. (Goldberg) at 1425:8-1426: 1.). The disclosure upon which Mr. Goldberg relied describes a "cryptographic block 21 O," shown in Figure 2, that stores security keys. (JX-0030 at NEO-ITC00000339 (4:17-18).). The term "security keys" appears in the specification only two (2) more times, each time including identical language to describe cryptographic blocks 510 and 1349 disclosed in Figures 5 and 13, respectively, that store security keys, which "check[] and validate[] to grant or deny access to the memory chip. (JX-0030 at NEO-ITC00000357 (22:19:21), NEO-ITC00000366 (31:10-12).).

Dr. Durgin and Mr. Goldberg both agreed that no single embodiment describes claims 13 or 25 of the '044 patent, or claim 1 of the '436 patent. For instance, Mr. Goldberg provided the following testimony:

> Q: So there's not one specific embodiment that would match up with that claim 13; is that correct?
>
> A: I don't believe there is. I think that's right, what you just said.
>
> * * *
>
> Q: Try to short-circuit this. I believe it's the same answer that you gave with respect to

> claim 13 of the '044 patent. There isn't one specific embodiment that corresponds to claim 25 –
>
> A: Right.
>
> * * *
>
> Q: But you also look -- if you look at the asserted claims in the '436 patent, in particular, the asserted independent claims, claims 1, 9 and 18, isn't it also your opinion that there isn't a specific embodiment that correspond to each asserted independent claim?
>
> A: I would say so.

(Tr. (Goldberg) at 1496:3-6, 1496:18-22, 1498:8-13; *see also* Tr. (Durgin) at 1384:22-1386:4.).

However, to satisfy the written description, a specification must disclose "the particular claimed ***combination*** of elements," not just that "each element may be ***individually*** described in the specification." *Hyatt,* 492 F.3d at 1371 (emphases in original); *see also Trans Video Elecs., Ltd. v. Sony Elecs., Inc.,* 822 F. Supp. 2d 1020, 1027 (N.D. Cal. 2011) (emphasis in original) ("In evaluating whether the written description requirement has been satisfied, a court does not simply look to see whether the specification contains descriptions of the individual elements of the claim. Rather, a court must look to see whether there is a written description for

the entirety of the claim invention-i.e., the ***combination*** of elements.").

Nothing in these descriptions of "security keys," or in the rest of the specification of the '026 application, contemplates that the security keys stored in the cryptographic block of the Figure 2, 5, or 13 embodiments are needed for the reader to "identif[y]" the user in the Figure 14 embodiment. In other words, while the specification of the '026 application refers to the term "security keys," it does not state that such keys are sent from the reader to the tag, which Complainant's expert, Mr. Goldberg, did not dispute.

> A: This simply says that there's [sic] multiple keys, that they're checked and validated to grant or deny access to the memory chip.
>
> Q: And this doesn't say, this portion at least, we can agree, doesn't say that those security keys need to be exchanged in a series of communications, does it?
>
> A: There's no verbiage here about exchange.

(Tr. (Goldberg) at 1530:8-11; *see also* Tr. (Durgin) at 1017:7-17.).

Mr. Goldberg also relied on the '026 application's disclosure of "credit and debit exchange keys" of the "RF Registered Item and Method of Use" embodiment (JX-0030 at NEOITC00000360 (25:9-11); CDX-0007.0012) and testified that these keys are "exchanged" or "transmitted" between the reader and

the tag. (Tr. (Goldberg) at 1546:2-10, 1548:4-8.). Once again, nothing in the specification indicates that these are security keys or that they are sent from the reader to the tag. (Tr. (Durgin) at 1017:14-25 ("It really doesn't involve those keys in any sort of RFID protocol. There's not even enough description to indicate that these are being wirelessly exchanged in any type of protocol.").).

As Respondents' expert, Dr. Durgin, testified, "[t]here's no real discussion about how many keys, what kind of keys, how are they used, are they even part of a radio interface and what is the - what would be the protocol that guides that exchange, if it were exchanged." (Tr. (Durgin) at 1017:7-17.). At most, the specification of the '026 application contemplates multiple security keys, but does not describe the claimed multiple communication protocol involving an "identifier," a "security key," and a "second security key." Thus, the '026 application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed multiple communication protocol (involving multiple communications and an "identifier," "security key," and "second security key") as of the filing date of the '026 application. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64. (Tr. (Durgin) at 999:16-22 ("It's my opinion that there is no disclosure or written support of the claims in the '044 and '436 that are in suit.").)

Mr. Goldberg's testimony does not overcome the fundamental deficiencies of the '026 application's written description. *See, e.g., Anascape, Ltd. v. Nintendo of Am., Inc.,* 601 F.3d 1333, 1339 (Fed. Cir.

2010) (noting that the expert's conclusion was "not supported by any evidence at all, and cannot override the objective content of these documents"). For example, Mr. Goldberg testified that the section of the 026 application discussing security keys of Figure 5 embodiment ***"implies*** that there's more than one security key" (Tr. (Goldberg) at 494:9-16) (emphasis added)); "there ***can*** *be* more than one communication with more than one security key" *(id.* at 495:8 ¶ 19 (emphasis added)); and "if you have more than one communication, you're going to have more than one security key" *(id.* at 496:4-7). His testimony is mere speculation and is not supported by the '026 application. *See Lockwood v. Am. Airlines, Inc.,* 107 F.3d 1565, 1572 (Fed. Cir. 1997) ("It is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to modifications that the inventor might have envisioned, but failed to disclose."). Much of Mr. Goldberg's testimony on written description appeared to be a post-hoc rationale for deficient patent disclosures.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '026 application does not provide written description support for "a second communication . . . that includes a security key" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

(2) *'241 Provisional Application*

Respondents claimed that the '241 provisional application does not provide written description support for "a second communication ... that includes a security key" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 58.). Dr. Durgin, Respondents' expert, testified that the '241 provisional application does not describe ***any*** security keys, much less a reader transmitting a security key from a reader to a tag. (Tr. (Durgin) at 1016:5-19.).

Complainant argued that the disclosure in the '241 provisional application of "encrypted keys" adequately supports the written description requirement for the claimed security key.[50] (CBr. at 66-68.). Complainant's expert, Mr. Goldberg, relied on a figure illustrating a "RF Cell Phone and Method of Use" embodiment of the '241 provisional application that is almost identical to Figure 14 of the '026 application, again focusing on the first step/block. (JX-0031 at NEO-ITC00002278; Tr. (Goldberg) at 1421:9-15.).

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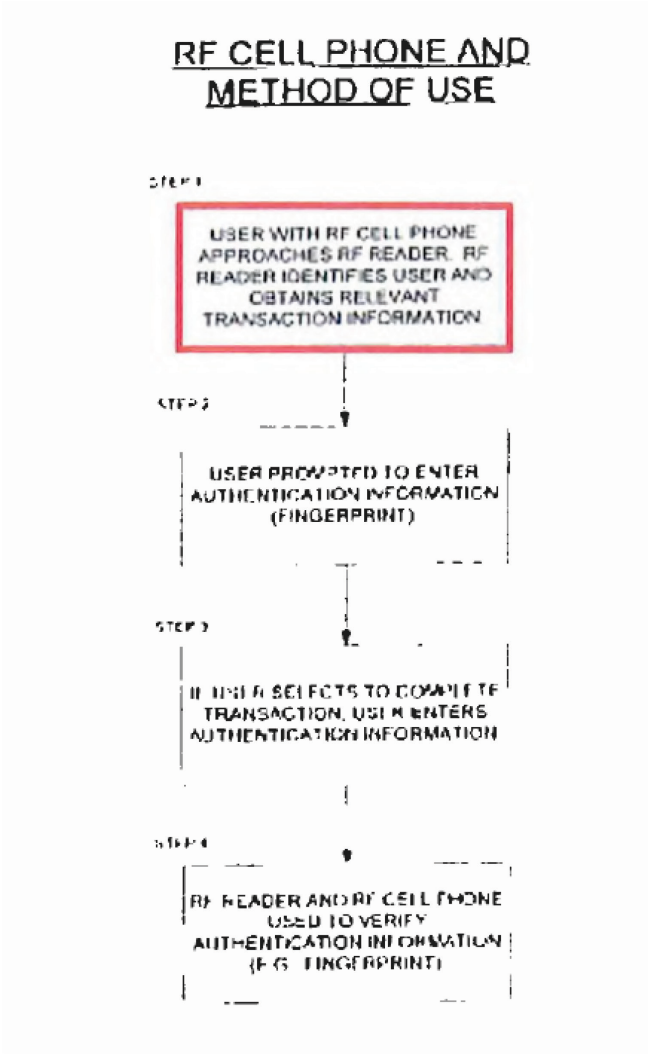
[50] Mr. Goldberg also testified that statements that the "chip has a hardware wired programmable cryptographic block with 4 exchange keys" and "two exchange encrypted keys" provide written description support for the claimed "security key." (Tr. (Goldberg) at 1421: 16-24.). This testimony is the subject of Respondents' Motion to Strike *(see* RBr. at 125-29), which was denied. *(See* Section I.D.2.). Thus, this testimony is not stricken.

Figure from the '241 Provisional Application Depicting RF Cell Phone and Method of Use[51]

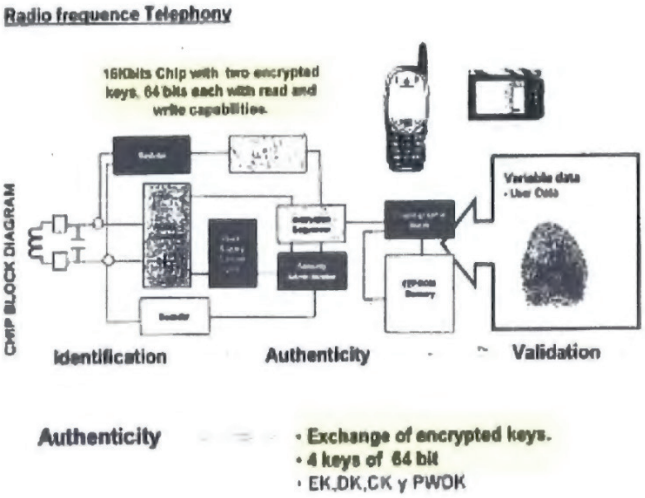



(JX-0031 at NEO-ITC00002278.).

[51] The figures contained in the '241 provisional application do not include figure numbers. *(See* JX-0031.).

Like Figure 14 of the '026 application, there is no mention of any security keys in the figure above or in the remainder of the '241 provisional application, which, again, Mr. Goldberg did not dispute. (Tr. (Goldberg) at 1554:8-10 ("Q: Sir, you know the provisional does not recite the word 'security key;' correct? A: I do. Q: You know the provisional does not recite 'a second communication that includes a security key;' correct? A: Those words do not appear. ").). The '241 provisional application also does not disclose checking and validating a key to grant or deny access to memory. (Tr. (Durgin) at 1019: 12-1020:4.). As a result, Messrs. Goldberg and Gillespie relied on the disclosure of "16Kbits Chip with two encrypted keys" and the "[e]xchange of encrypted keys" for support of a "security key." (Tr. (Goldberg) at 1420: 8-1421:3; Tr. (Gillespie) at 1659:8-12; JX-0031 atNEO-ITC00002282.).

Figure from the '241 Provision Application Depicting RF Telephony




(JX-0031 at NEO-ITC00002282.).

However, nothing in the specification of the '241 provisional application states that these "encrypted keys" are "exchanged," that is, checked and validated to grant or deny access to memory. For example, Respondents' expert, Dr. Durgin, provided the following testimony:

> In this section of the provisional, it's just mentioning an exchange of encrypted keys. It's not clear whether the keys are being exchanged or if this is an exchange involving encrypted keys. Or if they really meant to say "encryption keys."
>
> It does mention four keys of 64 bit below that, EK, DK, CK and PWDK. These acronyms are not described in the document, so one has to sort of guess that maybe it means encryption key, decryption key or password key. There's no guidance elsewhere in the document for this.
>
> And we really don't know if these are keys that are exchanged, well, who is exchanging what with what? Are they all going to one place? Are they being exchanged 50/50? Are they being sent to one location in hardware simultaneously?
>
> And so if, however, you could also read this as an exchange, an exchange of messages that involve encrypted keys or potentially encryption keys, which may mean again that the keys are not exchanged themselves.

(Tr. (Durgin) at 1021 :4-22.).

In fact, Mr. Goldberg testified that the use of the word "exchange," as used in the '241 provisional application, does not mean the encrypted keys are exchanged between the reader and the tag. (Tr. (Goldberg) at 1543:24-1535:5 ("A: Exchanged and encrypted are adjectives modifying keys, yes. Q: Your view is exchange keys described in the specification is - it's actually right above there as well, it's an adjective; correct? It's not a verb; right? A: I read the word 'exchange' as used in those two passages as an adjective.").). Thus, the '241 provisional application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed security keys that are checked and validated to grant or deny access to memory as of the filing date of the '241 provisional application. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64.

Messrs. Goldberg and Gillespie also opined that the "encrypted keys" are not encryption keys. (Tr. (Goldberg) at 1420:15-22; Tr. (Gillespie) at 1656:14-1657:13.).

Mr. Goldberg distinguished an encrypted key from an ***encryption*** key and described an "encryption key" as a key "used to inform its recipient as to how to encrypt or decrypt information." (Tr. (Goldberg) at 1420:21-22.). He also explained that unlike encrypted keys, encryption keys are not typically exchanged between a reader and a tag. *(Id.* at 1420:23-1421 :3.).

To the contrary, Mr. Martinez testified that the keys in "4 keys of 64 bit, EK, DK, CK y PWDK," ***are*** "encryption keys." (Tr. (Martinez) at 366:16-368:3.). Moreover, Mr. Goldberg stated that "at least two of

[the four keys] are encrypted keys," implying that the remaining two keys, could be encryption keys. (Tr. (Goldberg) at 1537:21-1538:3.).

Even assuming, *arguendo,* that these "encrypted keys" are exchanged, based on the testimony of the two witnesses, a person of ordinary skill would not know whether "exchange" refers to: (1) transmitting one of these "keys" to a tag (as required by the Asserted Claims); (2) merely exchanging data using encryption keys; or (3) distributing the keys through some other data interface. (Tr. (Durgin) at 1017:7-25, 1021:1-22.). Moreover, even if the "encrypted keys" disclosed in the '241 provisional application are not encryption keys, that does not mean that these "encrypted keys" are the "security keys" claimed in the '044 and '436 patents, i.e., that they are checked and validated to grant access to memory. Neither Mr. Goldberg's nor Mr. Martinez's testimony in these points were credible or substantiated by the specifications.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '241 provisional application does not provide written description support for "a second communication ... that includes a security key" as recited in claims 13, **14,** and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

***ii. "send/receive . . . the identifier" ('044 patent, claims 13, 14, 25; '436 patent, claims 1, 2, 4)***

(1) *'026 Application*

Respondents claimed that the '026 application does not provide written description support for the "send/receive . . : the identifier" limitation, as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 63-65.). Dr. Durgin, Respondents' expert, opined that the '026 application does not show that the inventors possessed the claim element of sending/receiving the identifier as a result of validating a security key. (Tr. (Durgin) at 1025:6-1026:1.).

Relying again on Figure 14 of the '026 application, and certain statements describing identification information, Complainant's expert, Mr. Goldberg, opined that the '026 application provides sufficient written description support for this claim limitation. (CBr. at 68.). With regard to block 1405 of Figure 14, Mr. Goldberg testified that in order for the RF reader to "identify" the user, the reader "necessarily sen[ds] to the tag" a security key. (Tr. (Goldberg) at 1420:3-7; *see also* Tr. (Gillespie) at 1651:19-1652:6.). However, as discussed in Section V.E.l(b)(i) above, Figure 14 does not mention a security key, which Mr. Goldberg did not dispute. (Tr. (Goldberg) at 1520:19-22.).

Moreover, Complainant relied on unsupported testimony by Mr. Goldberg that because the key is sent "in order to receive the identification

information," the claimed "identifier" is "amply" described. (CBr. at 68 (citing Tr. (Goldberg) at 1420:3-7).). The '026 application lacks any disclosure that the alleged "identifier" is sent as a result of the validation of a security key. Thus, the '026 application does not convey with reasonable clarity to those skilled in the art that the inventors were in possession of this aspect of the claimed invention at the time the '026 application was filed. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '026 application does not provide written description support for "send[ing]/receiv[ing] . . . the identifier" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

(2) *'241 Provisional Application*

Respondents claimed that the '241 provisional application does not provide written description support for "send/receive ... the identifier" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 65.).

Complainant contended that because the '241 provisional application depicts the same flow diagram as Figure 14 of the '026 application, the '241 provisional application describes keys that have read and write capabilities vis-a-vis the tag's memory and, thus, discloses this claim limitation. (CBr. at 68 (citing JX-0031.2278, 2274; CDX-0007.0012; Tr. (Goldberg) 1421:9-15, 1422:11-18).).

As discussed in Section V .E. l (b)(i) above, the figure upon which Complainant relies does not disclose a security key or an "identifier" that is sent as a result of the validation of a security key. Thus, the '241 provisional application does not convey with reasonable clarity to those skilled in the art that the inventors were in possession of this aspect of the claimed invention at the time the '241 provisional application was filed. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '241 provisional application does not provide written description support for "send[ing]/receiv[ing] . . . the identifier" as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

*iii. "central data base," "toll system" ('044 patent, claims 13, 14; '436 patent, claims 1, 2, 4)*

(1) *'026 Application*

Respondents claimed that the '026 application does not provide written description support for a "central data base" and "toll system" as recited in claims 13 and 14 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 70-72.).

Complainant's expert, Mr. Goldberg, testified that the specification of the '026 application expressly states that a "central data base validates the identity information" and that it describes a central data base

protecting information. (Tr. (Goldberg) at 1435:12-1436:1, 1436:2-18; JX-0030.0359, 0360.). He also opined that the '026 application describes how the claimed invention can be used across several applications, including use with a "toll booth" or other "vehicle control applications." (Tr. (Goldberg) at 1436:19-1437:14; JX-0030.0356, 0357).).

Mr. Goldberg's testimony is not persuasive. As Respondents' expert, Dr. Durgin, pointed out, the '026 application does not state that the data base is used with a toll booth. (Tr. (Durgin) at 1041:12-1042:6.). Moreover, the '026 application does not state that the data base contains toll accounts or compares tag identifiers related to toll accounts. *(Id.* at 1039: 17-1040: 13, 1042:7-18.).

The one time the word "toll" is disclosed in the '026 application is in a laundry list of possible uses. (JX-0030 at NEO-ITC00000356-57 (21 :22-22:5) ("The present invention can be used, for example, for vehicle identification, border crossing solutions, traffic violations, insurance programs, pollution control, vehicle access control, traffic logistics planning and engineering, toll booths, and other vehicle applications.").). This is not sufficient to satisfy the written description requirement. *See, e.g., Fujikawa v. Wattanasin,* 93 F.3d 1559, 1571 (Fed. Cir. 1996) (finding that a "laundry list" disclosure does not constitute written description "because such a disclosure would not 'reasonably lead' those skilled in the art to any particular species"). Additionally, this section of the '026 application is describing a "RF Registered Item and Method of Use" embodiment (JX-0030 at NEO-ITC00000356 (21:7), and not the

cellular telephone embodiment of Figure 14 that Mr. Goldberg relied on for the other claim elements. *See, e.g., Hyatt,* 492 F.3d at 1371 (emphases added) (to satisfy written description, the specification must disclose "the particular claimed *combination* of elements, not just that "each element may be *individually* described in the specification"); *see also Novozymes AIS v. DuPont Nutrition Biosciences APS,* 723 F.3d 1336, 1346 (Fed. Cir. 2013) (noting that a patent's "generalized guidance listing several variables that might, in some combination, lead to" the claim did not satisfy the written description requirement); *see also id.* at 1346 ("[t]aking the claims as a whole rather than as the sum of their individual limitations, nothing in the 2000 application indicates that Novozymes then possessed what it now claims").

Mr. Goldberg testified that the mere disclosure of the claimed invention with a "toll booth" and other "vehicle control applications" would permit a person of ordinary skill to "unambiguously understand . . . using the claimed RFID device to collect tolls." (Tr. (Goldberg) at 1436:19-1437:14; JX-0030.0356, 0357.). However, the '026 application does not describe what this "toll booth" embodiment would look like-whether it includes a central data base that involves toll accounts, how it would use RF, and whether it would involve security keys. (Tr.(Durgin) at 1038: 19-1039: 16.).

For instance, the disclosed "toll booth" could simply refer to reading a license plate number from a tag so the toll booth operator can visually confirm that the car has the correct license plate. Such an application would not use a central data base, toll

identifiers, or accounts. In fact, the sentence immediately following the laundry list disclosure states that this embodiment would not send data to a central data base but rather "takes centrally stored information and ***makes it accessible to the field*** (e.g., to police or other authorities)." (JX-0030 at NEO-ITC00000357 (22:2-3) (emphasis added): *see also* RDX-2112; Tr. (Durgin) at 1039:8-16.). Mr. Goldberg acknowledged that the reference to toll booths in the '026 application "may not necessarily mean a tolling application." (Tr. (Goldberg) at 1038:19-1039:7.). Thus, the '026 application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed "central data base" and "toll system" as of the filing date of the '026 application. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '026 application does not provide written description support for a "central data base" and "toll system" as recited in claims 13 and 14 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

(2) *'241 Provisional Application*

Respondents claimed that the '241 provisional application does not provide written description support for a "central data base" and "toll system" recited in claims 13 and 14 of '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 72.).

Complainant's expert, Mr. Goldberg, testified that the '241 provisional application discloses the

incorporation of a central data base in several places. (Tr. (Goldberg) at 1437:15-1439:9; JX-0031.2264, 2265, 2267.). In particular, Mr. Goldberg pointed to the following section of the specification for support of the claimed "central data base." (Tr. (Goldberg) at 1438:11-16.).

> The use of a radio frequency device allows us to track the individual information of the vehicle identification number together with the identification of the owner through biometrics described above. Radio frequency technology brings the last mile to be able to take this information to the field on individual bases, and it is the last string between a central data base and the individual.

(JX-0031.2265.). Nothing here states that this data base is used for tolling, storing toll accounts, or comparing tag identifiers related to toll accounts.

Mr. Goldberg relied upon the disclosure that the claimed invention can be used for "vehicle control applications" as providing written description support for "tolling" because "tolling is a form of vehicle control application." (Tr. (Goldberg) at 1438:21-1439:19 (citing JX-0031.2267).). However, as Mr. Goldberg acknowledged, the term "toll" or "tolling" does not appear anywhere in the '241 provisional application. *(Id.* at 1439:12-14; 1552:21-15531, 1555:7-9.). Undermining his conclusion is his own deposition testimony in which he stated that the reference to "vehicle control applications" does not necessarily include tolling. *(Id.* at 1554:1-7.). It is not enough to describe a use that might "include" other,

undescribed uses. *See Small v. Nobel Biocase Use, LLC,* Nos. 05-cv-3225 (NRB), 06-cv-68~, 2013 WL 3972459, at*13 (S.D.N.Y. Aug. 1, 2013) (noting the "logical fallacy that to disclaim nothing is to claim everything"); *see also Martin v. Mayer,* 823 F.2d 500, 505 (Fed. Cir. 1987), *superseded on other grounds* (quoting *Jepson v. Coleman,* 314 F.2d 533, 536 (C.C.P.A. 1963)) (emphasis in original) (citation omitted) (explaining that written description is "not a question of whether one skilled in the art ***might*** be able to construct the patentee's device from the teachings of the disclosure . . . .Rather, it is a question whether the application necessarily discloses that particular device."); *Certain Modified Vaccinia Ankara ("MVA ") Viruses & Vaccines & Pharm. Compositions Based Thereon,* Inv. No. 337-TA-550, Initial Determination, 2006 WL 2812487, at *50 (Sept. 6, 2006).

Based on the weight of the evidence, the '241 provisional application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed "central data base" and "toll system" as of the filing date of the '026 application. *See, e.g., VasCath Inc.,* 935 F.2d at 1563-64. Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '241 provisional application does not provide written description support for a "central data base" and "toll system" as recited in claims 13 and 14 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

*iv. "a third communication with a second security key" ('044 patent,* claim *13, 25 '436 patent, claims 1, 2, 4)*

(1) *'026 Application*

Respondents claimed that the '026 application does not provide written description support for "a third communication with a second security key" as recited in claims 13 and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 65-69.).

Mr. Goldberg opined that because the '026 application discloses the use of more than one "security key," that is, "security keys" in the plural, the specification contemplates a third communication with a security key.

> Q: Does it also provide that multiple keys may be checked and validated to get access to the memory for that information?
>
> A: Well, if we look at the - at the figure that goes along with this in conjunction with the fact that there's more than one security key, security keys in the cryptographic block, that a security is required in order to gain access to the memory, and that there's more than one type of information that is described in this figure. To me, it shows that there can be more than one communication with more than one security key to get read or write information to the tag.

(Tr. (Goldberg) at 495:8-19; *see also* Tr. (Gillespie) at 1652:10-14.).

He also testified that the process described in block 1405 of Figure 14, i.e., "RF reader identifies use and obtains relevant transaction information," "could occur in one step or two steps, and a person of skill in the art would realize that there could be two communications that do such a thing." (Troc-(Goldberg) at 1423:8-13.). However, as Respondents pointed out, the specification of the '026 application does not provide any description of how multiple security keys would be used in the communication protocol required by the claims. (Tr. (Durgin) at 1030:25-1031:21.). For instance, it does not state that each key is used in a separate communication (as claimed), as opposed to sending multiple keys in a single communication.

This is confirmed by Mr. Goldberg's testimony:

> Q: The specification doesn't require that - I know you believe that it discloses multiple keys. It doesn't require those be sent in separate communications. They could be sent in two keys in the same communication; correct?
>
> A: ***It doesn't say either way.***

(Tr. (Goldberg) at 1532:7-12 (emphasis added); *see also id.* at 1523:21-24 ("It could be either way.").). Mr. Goldberg also testified that it is possible for the process disclosed in block 1405 to be part of ***one*** communication. *(Id.* at 1423:17-24, 1523:2-24 (stating

that box 1405 "could be" one communication with one security key).). If this is the case, there is no third communication to retrieve the "relevant transaction information." Mr. Gillespie's testimony regarding this claim limitation is similarly speculative and unsupported.

> Q: Now, you said - and we've looked at the language, it talks about multiple keys, security keys. How do you know that more than one key is used to access the memory for the separate pieces of the transaction- of the memory that you're trying to get?
>
> A: Well, as I just mentioned, we know that more than one key can be used, because it says security keys, plural, the keys ate used to access memory, is the language.
>
> So if you have multiple pieces of information, you can clearly use multiple keys as described. And, again, I think there would only be two ways to do that. You could either send the multiple keys all at once and then get information out, or you could send them each time you get information.

(Tr. (Gillespie) at 1653:25-1654:14.). In providing this testimony, Mr. Gillespie did not point to any disclosure in the '026 application supporting his position that "we're claiming that second possibility." *(Id.* at 1654:15.).

Additionally, Messrs. Goldberg's and Gillespie's testimony both reference embodiments in

the specification that they opine ***"could"*** include more than one communication and multiple security keys. (Tr. (Goldberg) at 494:3-16, 495:20-496:3, 496:4-7, 1423:3-19; Tr. (Gillespie) at 1652:10-14, 1654:5-14.). Such testimony is unsupported conjecture and does not provide sufficient bases for establishing written description. *See, e.g., Martin,* 823 F.2d at 505 (emphasis in original) (noting that assessing whether there is sufficient written description is "not a question of whether one skilled in the art ***might*** be able to construct the patentee's device from the teachings of the disclosure . . . . Rather, it is a question whether the application necessarily discloses that particular device."); *see also Lockwood,* 107 F.3d at 1572 ("It is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to modifications that the inventor might have envisioned, but failed to disclose.").

Based on the weight of the evidence, the '026 application fails to convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed "second security key" as of the filing date of the '026 application. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64. Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '026 application does not provide written description support for "a third communication with a second security key" as recited in claims 13 and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

(2) *'241 Provisional Application*

Respondents claimed that the '241 provisional application does not provide written description support for "a third communication with a second security key" as in claims 13 and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent. (RBr. at 69.). Complainant's expert, Mr. Goldberg, relied on the same portions of the '241 provisional application that he cited for the first security key in Section V.E.l(b)(i) above. For the same reasons discussed in Section V.E.l(b)(i), the '241 provisional application fails to adequately describe this claim limitation.

Based on the evidence, the '241 provisional application does not convey with reasonable clarity to those skilled in the art that the inventors were in possession of the claimed "second security key" at the time the '241 provisional application was filed. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64. Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '241 provisional application does not provide written description support for "a third communication with a second security key" as recited in claims 13 and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent.

*v. "security key is based on information received from the RFID transponder" ('044 patent, claim 14; '436 patent claims 2, 4)*

(1) *'026 Application*

Respondents claimed that the '026 application does not provide written description support for a "security key [that] is based on information received from the RFID transponder" as recited in claim 14 of the '044 patent, and claims 2 and 4 of the '436 patent. (RBr. at 73-74.).

Mr. Goldberg, Complainant's expert, testified that security keys are stored in the tag's cryptographic block and that the security keys are "exchanged," that is, the security keys are "passed back and forth between the reader and the tag." (Tr. (Goldberg) at 1433:5-8, 1433:24-1434:21.). Mr. Goldberg based his testimony on the disclosure of "credit and debit exchange keys" (JX-0030 at NEO-ITC00000360 (25:9-11) and "4 exchange encrypted keys" *(id.* at NEOITC00000382 (47:10-14). However, on cross-examination, Mr. Goldberg stated that the '026 application uses the word "exchange" as an adjective, and not a verb. (Tr. (Goldberg) at 1535:1-5.). Even if, *arguendo,* "exchange" refers to a communication, there is no discussion in the '026 application that the same key is first sent from the tag to the reader, and then sent from the reader to the tag. Thus, the '026 application does not convey with reasonable clarity to those skilled in the art that the inventors were in possession of this aspect of the

claimed invention at the time the '026 application was filed. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64. Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '026 application does not provide written description support for a "security key [that] is based on information received from the RFID transponder" as recited in claim 14 of the '044 patent, and claims 2 and 4 of the '436 patent.

(2) *'241 Provisional Application*

Respondents claimed that the '241 provisional application does not provide written description support for a "security key [that] is based on information received from the RFID transponder" as recited in claim 14 of the '044 patent, and claims 2 and 4 of the '436 patent. (RBr. at 74-75.).

Complainant's expert, Mr. Goldberg, relied on the disclosure of "exchange of encrypted keys" (JX-0031 at NEO-ITC00002282), "4 exchange keys" *(id.* at NEO-ITC00002293), and "4 exchange encrypted keys" *(id.* at NEO-ITC000023 l 2) for his opinion that the '241 provisional application provides sufficient written description support for this claim limitation. (Tr.(Goldberg) at 1431:21-1432:7, 1432:18--;1433: 17 (citing JX-0031 at NEO-ITC00002282, 2293, 2312).). These disclosures are almost the same as, and in one instance, identical, to the disclosures Mr. Goldberg relied on for the '026 application, discussed in Section V.E.l(b)(v)(a) above. For the same reasons discussed in Section V.E.l(b)(v)(a), the '241 provisional application fails to adequately describe this claim limitation. Thus, the '026 application does not convey

with reasonable clarity to those skilled in the art that the inventors were in possession of this aspect of the claimed invention at the time the '026 application was filed. *See, e.g., Vas-Cath Inc.,* 935 F.2d at 1563-64.

Accordingly, Respondents have met their burden and shown by clear and convincing evidence that the '241 provisional application does not provide written description support for a "security key [that] is based on information received from the RFID transponder" recited in claim 14 of the '044 patent, and claims 2 and 4 of the '436 patent.

**c) Conclusion**

The '026 application and '241 provisional application fail to provide sufficient written support of the Asserted Claims. For the reasons discussed above, the '026 application and '241 provision application do not sufficiently describe the following claim limitations: (1) "a second communication ... that includes a security key," as recited in claims 13, 14, and 25 of '044 patent, and claims 1, 2, and 4 of the '436 patent; (2) "send/receive ... the identifier," as recited in claims 13, 14, and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent; (3) a "central data base" and "toll system," as recited by claims 13 and 14 of the '044 patent, and claims 1, 2, and 4 of the '436 patent; (4) "a third communication with a second security key," as recited by claims 13 and 25 of the '044 patent, and claims 1, 2, and 4 of the '436 patent; and (5) a "security key [that] is based on information received from the RFID transponder," as recited in claim 14 of the '044 patent, and claims 2 and 4 of the '436 patent. Accordingly, the '044 and '436 patents are

not entitled to the earlier filing date of the '241 provision application, July 9, 2002, or the earlier filing date of the '026 application, July 9, 2003.

**2. Anticipation**

**a) Relevant Law**

A determination that a patent is invalid as being anticipated under 35 U.S.C. § 102 requires a finding, based upon clear and convincing evidence, that each and every limitation is found either expressly or inherently in a single prior art reference. *See, e.g., Celeritas Techs. Inc. v. Rockwell Int'l Corp.,* 150 F.3d 1354, 1361 (Fed. Cir. 1998). Anticipation is a question of fact, including whether a limitation, or element, is inherent in the prior art. *In re Gleave,* 560 F.3d 1331, 1334-35 (Fed. Cir. 2009). The limitations must be arranged or combined the same way as in the claimed invention, although an identity of terminology is not required. *Id.* at 1334 (noting that "the reference need not satisfy an *ipsissimis verb.is* test"); MPEP § 2131.

In addition, the prior art reference's disclosure must enable one of ordinary skill in the art to practice the claimed invention "without undue experimentation." *Gleave,* 560 F.3d at 1334-35. A prior art reference that allegedly anticipates the claims of a patent is presumed enabled; however, a patentee may present evidence of nonenablement to overcome this presumption. *Impax Labs., Inc. v. Aventis Pharmaceuticals Inc.,* 468 F.3d 1366, 1382 (Fed. Cir. 2006). "[W]hether a prior art reference is

enabling is a question of law based upon underlying factual findings." *Gleave,* 560 F.3d at 1335.

**b) Claim 25 of the '044 Patent and Claims 1, 2, and 4 of the '436 Patent Are Invalid as Anticipated**

Because neither the '026 application nor the '241 provisional application provides sufficient written description support for the '044 and '436 patents, the '044 and '436 patents are not entitled to a priority date earlier than their filing dates. *(See* Tr. (Gillespie) at 1736: 11-18, 17 65 :2-16 (agreeing that if written description is not satisfied, the patents cannot get the earlier priority date).). Thus, the priority dates for the '044 and '436 patents are May 4, 2012 and January 1, 2012, respectively. As a result, claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent are anticipated by the Gen2 Standard/6C Protocol and Snodgrass.

***i. Gen2 Standard/6C Protocol Anticipates Claim 25 of the '044 Patent and Claims 1, 2, and 4 of the '436 Patent***

Respondents asserted that because the '044 and '436 patents are not entitled to the earlier 2002 or 2003 filing date, claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patents are invalid as anticipated by: (1) version 1.0.9 of the EPCglobal Class-I Generation-2 standard ("Gen2 Standard"), published on January 26, 2005 (RX-0751 at KTCITC-00091721, 814); and (2) the International Standards Organization ("ISO") 18000-6 communications

protocol ("6C Protocol," and with Gen2 Standard, "Gen2 Standard/6C Protocol"),[52] published on June 15, 2006 (JX-0016 at NEO-ITC00002525). (RPBr. at 54; RBr. at 53.).

Without providing any supporting evidence, Complainant argued that the Gen2 Standard/6C Protocol does not disclose all the structural elements recited in the Asserted Claims, "such as, the claimed toll system, RFID transponder, central database, or RFID reader." (CBr. at 51.). Similarly, Complainant contended that it never accused the Gen2 Standard/6C Protocol itself of infringing and that Respondents' "implementation" of this standard infringes because Respondents' "implementation" includes all the, structural limitations of the Asserted Claims. *(Id.).* Complainant's arguments are unpersuasive and not supported by the evidence.

As an initial matter, Complainant's responses to certain interrogatories propounded by Respondents are informative. Respondents propounded, *inter alia,* the following interrogatory:

**INTERROGATORY NO. 40:**

> For each of the Asserted Patents or Related Patents, state whether Neology contends that any claims are necessary to practice any Standard and state in detail the factual and legal basis supporting Neology's

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[52] The Gen2 Standard and the 6C Protocol refer to the same standard protocol. *(See, e.g.,* Tr. (Sarma) at 1113:20-21, 1123:8-1.9.).

> contention, including an identification of each such claim, the Standard or Standards for which the claim is alleged to be necessary to practice, an identification of the specific portion or portions of the Standard allegedly covered by the claim, and a detailed description of how the claim is met by the Standard or Standards.

(RX-0370C at 13.).

In its first supplemental response to Interrogatory No. 40, Complainant stated, *inter alia,* that "any ***6-C compliant*** transponder, ***6C-compliant*** reader, and/or ***6C-compliant*** system or service in a tolling application infringes the Asserted Patents." *(Id.* at 14 (emphases added).). Complainant incorporated by reference this response to its response to Interrogatory No. 42, shown below:

> **INTERROGATORY NO. 42:**
>
> For each Asserted Claim, state whether Neology contends that practicing any Standard, including, without limitations, the 6C Protocol and/or Gen2 Standard, is evidence of infringement, and state in detail all factual and legal bases supporting Neology's contention, including describing how any such Standard evidences infringement of each Asserted Claim.

*(Id.* at 16. ).

In addition, Mr. Goldberg testified at the evidentiary hearing that all the accused tags operate

according to the 6C Protocol and, thus, infringe claim 23 of the '044 patent, from which claim 25 depends, and claim 25 of the '044 patent. *(See, e.g.,* Tr. (Goldberg) at 528:2-530:9 ("[The Kapsch Accused Tags] follow the 6C protocol." (CDX-0003.0037)), 537:6-15 ("Q: Are all the Star tags that you looked at 6C-compliant tags? A: All the ones on that previous list, yes, with the exception of the one I mentioned." (CDX-0003.0048)), 530:10-25 (stating that with regard to the Kapsch Accused Tags, CDX-0003.0040 "emphasizes the fact there is, indeed, an antenna, it emphasizes the fact that there is indeed a radio that operates in the frequency in the UHF frequency range as shown, according to the 6C protocol."), 542:7-543:1 ("There's many transponders that Star sells. They're all 6C-compliant, they all have radios and antennas." (CDX-0003.53)), 532: 12-533:4 (describing the drawing of the communication path disclosed in the 6C Protocol in support of his testimony that the Kapsch Accused Tags meet the "processor" limitation of claim 23 (CDX-0003.0042; JX-0020 at SSIITC-00015774)), 544:21-545:17 (testifying that the "processor" limitation of claim 23 "applies to Star tags, which are 6Ccompliant" (CDX-0003.0058)), 545:18-546:16("Q: [W]hat claim 25 adds is the third communication and second security key. A: Yes .... All 6C-compliant tags will meet this limitation of claim 25." (CDX-0003.0058)).).

Likewise, Mr. Goldberg opined that the accused readers infringe claims 1, 2, and 4 of the '436 patent because each is 6C-compliant. (See, *e.g., id.* at 546:22-551 :6 ("That line, protocol, ISO 18,000-6C, that word appears in both the Vela documentation and - that line appears both the Vela documentation

and the Dorado documentation, indicating that they're both 6C – that they both operate in accordance with the 6C protocol." (CDX-0003.0065)), 584:12-586:22 ("Q: Again what you're showing with this is that the [Star] readers that comply with the 6C standard have the first communication, second communication and receipt of identifier limitations? A: Yes, all 6C compatible readers to do this. Q: That would include the Star readers that you looked at? A: That's correct." (CDX-0003.0091)), 583:13-23 (describing the drawing of the communication path disclosed in the 6C Protocol in support of his testimony that the Kapsch Accused Tags meet claim 2 (CDX-0003.0081; JX-0020 at SSIITC-00015602, 15774)), 589:22-590:5 (describing the drawing of the communication path disclosed in the 6C Protocol in support of his testimony that the Star Accused Tags meet claim 2 (CDX-0003.0102; JX-0020 at SSIITC-00015602, 15774)), 583:24-584:7 (describing the drawing of the communication path disclosed in the 6C Protocol in support of his testimony that the Kapsch Accused Tags meet claim 4 (CDX-0003.82; JX-0020 at SSIITC-00015607, 15774)), 590:6-15 (describing the drawing of the communication path disclosed in the 6C Protocol in support of his testimony that the Star Accused Tags meet claim 4 (CDX-0003.0102; JX-0020 at SSIITC-00015602, 15774)).).

Additionally, Mr. Gillespie, Complainant's fact witness, agreed that if the '044 and '436 patents are not entitled to a priority date pre-dating the 6C Protocol, the patents would be invalid in view of the 6C Protocol.

Q: ... You know that it's being asserted that these patents cover the 6C standard; right?

A: Oh, yes, I am aware of that.

Q: And, oh, yeah, you know that was published long before those were filed; correct?

A: I know that the 6C standard was published before the '044 and the '436 patents, yes.

* * *

Q: And so back to my question. If your '044 and '436 patent [sic] didn't have adequate written description, they wouldn't get the earlier filing date, and given that the 6C standard had published, ergo you know they would be invalid; correct?

A: Over the 6C standard?

Q: Yes.

A: Yeah, that would probably be true.

Q: As it's been asserted in this case, it's alleged, and you've said this apparently multiple times, that you think it covers the 6C standard; correct?

A: Correct.

Q: And if it covers the 6C standard but the 6C standard published before your priority date, the patent is invalid?

A: Yes, if - if the claims read on had come before, then that would be invalidating.

Q: Sir, you knew at the time you were prosecuting those patent applications that in order for those patents to cover 6C and be valid, they would need to claim priority back to before 2006 or 2004, whenever the standard was published; correct?

A: Yes.

Q: And you knew at the time that you were prosecuting those patent applications that if you couldn't claim priority back to 2004, any' claim that you would draft that could possibly cover 6C would be invalid in light of 6C itself?

A: In these patent applications?

Q: Correct.

A: Yes, if we -- in these applications, given the date they were filed, if we wrote a claim that covered 6C and those claims couldn't get the earlier priority dates, then they would be invalid over the 6C standard.

Q: And you knew when you were filing those patents that if you couldn't get the earlier priority, the claims would be invalid?

A: Yes, for the reasons I just stated, yeah.

* * *

Q: And, sir, given that, remember I asked you there were two outcomes here if the patent claimed improper priority, one it would be it claimed improper priority because it lacked written description but it was not intentional, that was my first bucket. And the outcome in that scenario is the patent is invalid; correct?

A: If they couldn't get priority?

Q: Correct.

A: And the claims read on 6C?

Q: Yes.

A: Yes, they would be likely invalid over the 6C standard.

Q: Likely invalid or just invalid, sir? If it covers 6C in your view of the claims and 6C exists before your priority date, it's invalid, point -- end of story?

A: Yes.

(Tr. (Gillespie) at 1736:2-8, 1736:11-1737:23,.1738:18-1739:8.).

Complainant argued that Mr. Gillespie's testimony "did not admit invalidity" and that "the

gist" of his testimony is merely that "if the claims read on [what] had come before, then that would be invalidating." (CBr. at 51 (quoting Tr. (Gillespie) at 1737:1-2).).

Complainant's argument is neither persuasive nor supported by the evidence. When Mr. Gillespie's testimony on this issue is viewed in its entirety, it is clear he was opining beyond that of a hypothetical situation. (Tr. (Gillespie) at 1737:20-23 (Q: And you knew when you were filing those patents that if you couldn't get the earlier priority, the claims would be invalid? A: ·Yes, for the reasons I just stated, yeah.). Staff agreed. (SBr. at 48 ("[B]ecause the '044 and '436 patents are not entitled to the earlier 2003 filing date, the patents are invalid as anticipated by [the Gen2 Standard/6C Protocol].") (citing Tr. (Gillepsie) at 1736:5-1737:3 ("If your .'044 and '436 patent [sic] didn't have adequate written description, they wouldn't get the earlier filing date, and given that the 6C standard had published, ergo you know they would be invalid; correct" A: Over the 6C standard? Q: Yes. A: Yeah, that would probably be true.")).).

Mr. Gillespie also provided testimony that he was not only aware of the Gen2 Standard/6C Protocol at the time he was drafting the claims of the '044 and '436 patents, but that he also drafted these claims to *specifically* cover the "handshake" used in the Gen2 Standard/6C Protocol.

> Q: And then at some point after you looked at the standard and you and your colleagues analyzed how it would apply to the claims, you realize that there was a handshaking protocol

in the standard with an exchange of an RN16 and a handle; correct?

A: Yes.

* * *

**Q:** ***Well, sir, you learned about and you saw the 6C standard before you had any claims at all with two security keys and three communications?***

**A:** ***That's true.***

Q: Not even before you had the claims, if that's ambiguous, before you even filed the claims?

**A:** ***I knew about the Gen 2 before we filed any two security key claims, yes.***

Q: And, sir, you specifically looked at the Gen 2 standard and thought there could be value in trying to get claims that covered that two-key exchange as you contended?

A: I think that's true.

**Q:** ***And specifically, sir, you looked at the disclosure in the standard of the RNJ 6 handle handshaking portion, and you tried to draft claims to cover that; correct?***

**A:** ***Yeah.***

> Q: Okay. And you knew, sir -- withdrawn. And the place this all happens and comes to a head is when you file the '044 and the '436, because those are specifically designed to include those two keys; correct?
>
> A: I believe the '044 has dependent claims, yes, with that, and the '436, all of the claims include that.
>
> Q: And those two were split up and specifically designed in part to cover 6C and in part to cover 6C uses in tolling; correct?
>
> A: I think that's true, yeah.

(Tr. (Gillespie) at 1760:11-1761:23 (emphases added).).

Based on Mr. Gillespie's testimony, it is clear that certain claim limitations required by the Asserted Claims were intended to read on the Gen2 Standard/6C Protocol. *(See also* Tr.(Martinez) at 404:4-14 ("Q: . . . [T]his [ 6C] handshake is being alleged to be not just a first communication and a security key, but a second and a third communication and a second security key; right? A: Yes. Q: And none of those concepts, second security key, third communication, this full handshake, were filed as a claim at the Patent Office by Neology until after that standard was published in 2007 and 2006; correct? A: That is correct, yes.").).

Because the '044 and '436 patents are entitled only to their 2012 filing dates, Respondents have met

their burden and shown by clear and convincing evidence that the Gen2 Standard/6C Protocol anticipates claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. "[I]t is axiomatic that that which would literally infringe if later anticipates if earlier." *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.,* 246 F.3d 1368, 1378 (Fed. Cir. 2001); *see also, e.g., Lewmar Marine, Inc. v. Barient, Inc.,* 827 F.2d 744, 747 (Fed. Cir. 1987) ("That which would literally infringe if later in time anticipates if earlier than the date of invention.").

***ii. Snodgrass Anticipates Claim 25 of the '044 Patent and Claims 1, 2, and 4 of the '436 Patent***

Snodgrass issued on May 6, 1997, as U.S. Patent No. 5,627,544, from U.S. Patent Application No. 08/619,274 filed on March 18, 1996. (JX-0021.). Respondents alleged that Snodgrass anticipates claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. (RPBr. at 55; RBr. at 75.). Complainant disputed only that Snodgrass does not disclose a "second security key" and a "second security key ... based on information received from the RFID transponder." (CBr. at 76-84.).

Snodgrass discloses a protocol used to coordinate the use of a common communication medium. (JX-0021 at Abstract.). In order to establish uninterrupted communications, a command station broadcasts a command causing each responder station to each select a random number from a known range and retain it as its ARBITRATION NUMBER. *(Id.).* "The ARBITRATION NUMBER distinguishes

responder stations when coupled simultaneously with at least one commander station to a common medium." *(Id.* at 11 :28-30). A TAG value. is assigned by a communication system designer when the responder station is manufactured or commissioned, and it distinguishes responder stations throughout the life of the communication system. *(Id.* at 11:25-33.) In other words, the TAG may be used to verify the responder station's identity.

Respondents alleged that the TAG disclosed in Snodgrass is the "second security key" required in claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. (RBr. at 90 (citingTr. (Durgin) at 1050:9-25, 1051:4-7).). Specifically, Respondents' expert, Dr. Durgin, testified that Snodgrass' TAG is checked and validated as a prerequisite to the transponder responding to a Write command.

> Q: So in the transponder, switch terms if I may, when the transponder receives a TAG, does it do a check and validation of the TAG?
>
> A: Yes, it appears to do a check with the copy of TAG in its memory to be a proper handle.
>
> Q: Okay. And so does a TAG meet the Court's construction of a security key?
>
> A: Yes, I believe that it does.

(Tr. (Durgin) at 1051:18-25.). This was confirmed by Mr. Goldberg's testimony.

> Q: Okay. And the transponder, lowercase tag, after it gets the unique identification number TAG has to ***check*** it, has to ***compare*** it to the one in its memory; correct?
>
> A: Yes.
>
> Q: And after that happens, the tag sends the response message 196 that we looked at earlier; correct? That's what happens after a write command comes in with the TAG?
>
> A: Generally, yes.

(Tr. (Goldberg) at 1481:16-24 (emphases added).).

Complainant argued that TAG is not "used as a security key to grant to deny access to the tag's memory" because it is "used to ***identify*** the targeted" transponder. (CBr. at 77 (emphasis in original).). However, Complainant provided no plausible reason why this would remove TAG from the scope of a "security key," as that term has been construed.[53] The PTAB (IPR2015-00819), in applying this same construction to find claims 19, 20, 23 and 24 of the '044 patent anticipated by Snodgrass, explained that "[t]he fact that the arbitration number *also* serves the purpose of identifying the responder station does not negate the fact that it is used by the responder station to perform a comparison and only provide data from

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[53] A "security key" has been construed to mean "a key that is checked and validated to grant or deny access to a memory." *(Markman* Tele. Tr. at 50:8-10 (Sept. 8, 2016); *see also* Section V.C. 1.).

memory in the case of a match." (JX-0067 at 20 (emphasis in original).).

This is also the case with Snodgrass' TAG., (Tr. (Durgin) at 1050:9-20 ("Q: Okay. And so when the tag sends this response that includes the TAG and the data to the reader, what happens next on the reader side? A: Okay. The next step is you may write to the tag, WD. So if you go to format 146 to see what constitutes a write command, that includes the arbitration number, the local ID and TAG. And this is the identifier now or the handle, if you will, that Snodgrass states that is the important one to key in to conduct the next data transaction. It says that tag is more reliable at this point, so it will employ tag as the handle, so it's functioning much like the handle in 6C."); *see also id.* at 1051 :9-22.). For example, both parties' experts provided testimony confirming that TAG is used to address a transponder.[54] (Tr. (Durgin) at 1403:25-1404:9; Tr. (Goldberg) at 1473:12-14,

[54] Notably, in IPR2015-00819, Complainant attempted to argue that Snodgrass' arbitration key is not the first "security key" because it is "used to determine if a responder station has been *addressed* and not to grant or deny access to memory." (JX-0067 at 19-20 (emphasis added) (citation omitted).). The PTAB disagreed. *(Id.* (emphasis in original) (internal citations omitted) ("In Snodgrass's communication protocol, the responder station receives an RD command with an arbitration number, compares the received arbitration number with the one stored in memory, and provides TAG and DATA only when there is a match. Importantly, the responder station does *not* provide TAG and DATA if there is not a match, as Mr. Goldberg acknowledged. In other words, access to TAG and DATA is contingent on a matching arbitration number being sent by the commander station in the RD command .... Thus, we agree with Petitioner that the arbitration number in Snodgrass is a key that is checked and validated to grant or deny access to a memory.").).

1452:2-9; JX-0021at3:56-63.). Both Dr. Durgin and Mr. Goldberg also testified that TAG is checked and validated by the transponder. (Tr. (Durgin) at 1040:23-25, 1406:22-1407:2; Tr. (Goldberg) at 1481:16-19.). Additionally, Snodgrass explains that the result of checking and validating is to grant or deny access to memory. (JX-0021 at 3:56-63 ("[W]hen not addressed, the responder station does not respond."); *id.* at 4:1;4 ("[W]hen the message transmitted from a commander station includes the unique identification of one responder station, only one responder station responds.").). Both experts agreed that only "after" the transponder checks TAG will the transponder "send[] the response message 196" (Tr.(Goldberg) at 1481:20-24; Tr. (Durgin) at 1406:22-1407:2), which includes memory contents in the form of STATUS (Tr. (Durgin) at 1052:1-12).

Complainant contended that because Dr. Durgin identified TAG as "the claimed identifier," it cannot also be a "second security key." (CBr. at 77-78.). Indeed, Dr. Durgin relied on passages in Snodgrass describing TAG as a "unique responder station identity" (JX-0021 at 20: 19) and a "unique identification number" *(id.* at 3 :61 ). However, when asked whether Snodgrass discloses a memory storing an identifier, which is ***"the*** identifier" received (claim 10) or sent (claim 23) in response to the second communication, Dr. Durgin pointed to the DATA field:

> Q: Okay. And this is RDX-2139. The memory, are there different components of memory in Snodgrass?

> A: Yeah, it mentions a register array, a memory, possibly a volatile or a nonvolatile memory, and then a flag register as well, which could be -- all be considered memory.
>
> Q: Okay. And then does Snodgrass disclose an identifier?
>
> A: It does. The identifier stored in data, that data field, corresponds to -- it says "data in a format that includes some or all of the contents for any or all device memory," including all these components possible. So th1s is the whole of the memory and the Snodgrass is aimed towards using identification – RFID identification in the field of baggage tag for airlines, inventory control tags and other applications that require identification information to be loaded into data.

(Tr. (Durgin) at 1054:2-18; *see also* JX-0021at7:12-15 ("Memory 64 is used to store values for responder station identification and data related to the communication system application."); *id* at 12:26-29 ("DATA in response format 194 includes some or all of the contents of any or all devices including memory 64 . . . . ").).

Complainant did not dispute that DATA is the claimed identifier in either its Pre-Hearing Brief or Initial Post-Hearing Brief. (CPBr. at 87-90; CBr at 76-84.). Thus, Complainant has waived any argument to the contrary. *(See* Ground Rules 7.2, 10.1.). Moreover, the PTAB agreed that both TAG and DATA can be

considered the identifier. (JX-0067 at 19 ("sending an 'identifier' (i.e., TAG or DATA)").).

Complainant also relied heavily on the PTAB's decision to decline institution of two (2) IPRs: ( 1) IPR2015-00819 regarding, *inter alia,* claim 25 of the '044 patent in view of Snodgrass; and (2) IPR2015-00815 regarding, *inter alia,* claims 1, 2, and 4 of the '436 in view of Snodgrass. (JX-0062 (IPR 2015-00819) at 2; JX-0063 (IPR 2015-00815) at 2.). In particular, Complainant contended that the PTAB "agreed with Mr. Goldberg" that Snodgrass' TAG is not a "second security key." (CBr. at 78-81.). However, as Respondents pointed out, this is not correct. In this Investigation, Dr. Durgin opined that Snodgrass' TAG alone is the "second security key." (Tr. (Durgin) at 1402:8-14 ("Q: So, Dr. Durgin, I want to make sure we're clear on your opinion. Is it your opinion that Snodgrass discloses a second security key as construed by the Court? A: It is. Q: ·And, again, tell us what that second security key is. A: That is TAG alone.").).

The PTAB' s decisions and testimony from the evidentiary hearing with respect to the second security make clear that at issue before the PTAB was whether "the arbitration number and TAG ***together*** function as a second security key." (JX-0062 at 12 (emphasis added); JX-0063 at 11 (emphasis added).). In this context, the PTAB found that "[w]e are not persuaded that the arbitration number and TAG ***together*** constitute a 'second security key'" because there was a lack of evidence that "the responder station checks and validates them ***together*** to grant or deny access to a memory." (JX-0062 at 12

(emphases added); JX-0063 at 11 (emphases added).). At the evidentiary hearing, Mr. Goldberg acknowledged this difference.

> Q: And you understand in this proceeding and in the discussions we've just had that the question before the Court is is TAG alone a second security key; right?
>
> A: I do.
>
> Q: And that was not the analysis before the Patent Office, because as they said in their institution decision -- and I think you said, to be fair, on your examination that that was a question of whether those two things, an arbitration number and a TAG, were being checked together and used together to be a security key. You understand that was what the Patent Office was discussing; right?
>
> A: I understand that the petitioner used that term "arbitration" and "TAG" together when it was originally petitioning. And the response to the petition uses the same phrase, "arbitration number" and "TAG" together. And –
>
> Q: That's not the question here . .
>
> A: That's where the together comes from.
>
> Q: But the question here is is TAG alone a security key; correct?

> A: The question before this right here is whether the ***TAG alone*** is a security key, that's correct.

(Tr. (Goldberg) at 1478:13 - 1479:6 (emphasis added).).

Despite the explicit language in the PTAB's decisions and testimonies by both parties' experts, Complainant asserted that TAG cannot be a "second security key" based on the PTAB's "more comprehensive disclosure of ARBITRATION NUMBER and TAG." (CBr. at 79-80; *see also id.* at 80 (contending that "TAG alone [is] a less comprehensive disclosure"); *id.* at 81 (contending that Dr. Durgin could not explain why "a combination that naturally includes all aspects of the first feature (e.g., ARBITRATION NUMBER) and all aspects of the second feature (e.g., TAG) do [sic] not disclose a claimed limitation (e.g., second security key), while just one of those features (e.g., TAG) would.").). This argument is nonsensical. The PTAB could not have meant that if the arbitration number and TAG together are not a security key, the arbitration number or TAG alone cannot be a security key. Indeed, the PTAB found that Snodgrass' arbitration number by itself constitutes the claimed first "security key." (JX-0067 at 20 (holding that "the arbitration number in Snodgrass is a key that is checked and validated to grant or deny access to a memory"); *see also* JX-0063 at 11 (explaining that "the received arbitration number is compared to the arbitration number in memory in the same manner it is for other commands").).

In addition, Complainant's reliance on the PT AB' s statement that the disclosure in Snodgrass (JX-0021 at 20: 11-21) to which the IPR petitioner cites in support of a "second security key" "appears to suggest that . . . the TAG may be 'used' as an additional verification of the responder station's identity" is misplaced. As noted above, the PTAB in IPR2015-00819 explained that "[t]he fact that the arbitration number ***also*** serves the purpose of identifying the responder station does not negate the fact that it is used by the responder station to perform a comparison and only provide data from memory in the case of a match." (JX-0067 at 20 (emphasis in original).). Similarly, the PTAB's opinion that TAG may be involved in identifying a transponder does not mean that it cannot also be "checked and validated to grant or deny access to a memory."

With regard to the additional claim limitation recited in claim 4 of the '436 patent requiring the second security key to be "based on information received from the transponder," Respondents' expert, Dr. Durgin testified that the reader in Snodgrass receives TAG from the transponder in its response to the Read command. (Tr. (Durgin) at 1049:16-1050:3; JX-0021 at Fig. 8 (response to read command is format 194), Fig. 9 (format 194 includes TAG); RDX-2131.). Complainant's only rebuttal argument is that because Snodgrass' TAG is not a "second security key," there is no disclosure of a "second security key . . . based on information received from the transponder." (CBr. at 84.).

Accordingly, Respondents have shown by clear and convincing evidence that claim 25 of the '044

patent and claims 1, 2, and 4 of the '436 patent are invalid as anticipated by Snodgrass.

#### *iii. ENV ISO 14906 Does Not Anticipate the Asserted Claims of the '044 and '436 Patents*

Respondents alleged in their Pre-Hearing Brief that European ENV ISO 14096 standard ("ENV ISO 14096") anticipates the Asserted Claims of the '044 and '436 patents. (RPBr. at 68; RX-0639.). However, Respondents did not include these arguments in their Post-Hearing Brief. Thus, under Ground Rule 10.1, Respondents have waived any arguments on this issue. (Order No. 2 at G.R. 10.1 (Jan. 15, 2016).).

#### *iv. RFID Handbook Does Not Anticipate Claim 25 of the '044 Patent and Claims 1, 2, and 4 of the '436 Patent*

The RFID Handbook was published at least as early as 1999. (RX-0581 at KTCITC-00088544.). Respondents alleged that the RFID Handbook anticipates claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. (RPBr. at 80; RBr. at 97.).

In support of his opinion that the RFID Handbook discloses a second communication to a RFID transponder that includes a security key, Dr. Durgin relied on a description of "ready and write protection by checking a ***password***" disclosed in a section entitled "Transponder with cryptological function." (Tr. (Durgin) at 1083:11-1084:1; RX-0581 at KTCITC-00088589 (emphasis in original).). Dr.

Durgin opined that because "the card compares the transmitted password with a stored reference password and permits access to the data memory if the passwords correspond" (RX-0581 at KTCITC-00088589), this "password" is checked and validated to grant or deny access to memory. (Tr. (Durgin) at 1083:11-1084:1.). However, this passage does not mention anything about the password being used ***each*** time information is accessed from the tag's memory, which Dr. Durgin acknowledged on cross-examination.

> Q: So a reader could send a password, open up the memory, arid then you can send further communications without having to use again the password to gain access to additional banks of memory; correct?
>
> A: So that could be one –
>
> Q: Let me rephrase it. ***Does that statement say (hat you need a password every single time you need to get access to the memory?***
>
> A: ***That statement does not say that.***

(Tr. (Durgin) at 1350:16-24 (emphases added).).

Because the RFID Handbook's disclosure of a password does not describe the use of security keys in the manner required by the claims, this passage does not constitute the claimed "security key" and "second security key."

Dr. Durgin also testified that a security key is disclosed in a section entitled "Mutual Symmetrical Authentication" that describes a "cryptological key." (RX-0581 at KTCITC-00088576; Tr. (Durgin) at 1084:20-1085:3.). This section of the RFID Handbook explains that "[m]utual authentication" between a reader and tag is based on both participants in communication "check[ing] the other party's knowledge of a secret (secret cryptological key)." (RX-0581 at KTCITC-00088575.). Additionally, this section states that all of the tags and readers involved in this application are "in possession of the same secret cryptologic key K" where the reader protects the application from manipulation using falsified data, and the tag protects their stored data from "unauthorised [sic] reading or overwriting.". *(Id.* at KTCITC-00088575-8576.). Dr. Durgin testified that in this process, shown in Figure 11 below (Figure 8.1 in the RFID Handbook), the signal containing the encrypted number, illustrated as "Token 1," is the second communication with a security key. (Tr. (Durgin) at 1351:16-25.).

Figure 11: Mutual Authentication Procedure Between Transponder and Reader


(RX-0581 at KTCITC-00088576.).

However, as Complainant's expert, Mr. Goldberg, pointed out, the implementation of cryptology is to ensure both the reader and tag are ***authenticated*** by each other by confirming that they share a common secret cryptologic key (key K), and not about granting or denying access to the memory of the tag. (Tr. (Goldberg) at 1457:10-17.). Dr. Durgin provided testimony acknowledging that "authentication" is not the same concept as "checking and validation" to access information stored in memory. (Tr. (Durgin) at 1354: 10-13 ("I would say authentication is checking to see if an identity is correct, whereas security is more about access to information. So there's some overlap, but of course, they're slightly different concepts."); *id.* at 1354: 16-20 ("[I]njust the general sense, validating something is just a check. You can validate anything. But authentication involves validation of identify or, you know, some aspect of agreed upon items.").).

> Q: So, sir, if -- let me give you an example. If I want to go to the bank and access my lockbox in the vault, I go to the teller, I present my ID, my driver's license.
>
> A: Okay.
>
> Q: Would you say that's authenticating myself?
>
> A: I would say that that's an act. Authentication with the bank, yes.
>
> Q: So the teller knows who I am, that I am who owns the account that I want to access; correct?

> A: That's correct.
>
> Q: So then if I want to access a lockbox, I then still need my key to open that lockbox?
>
> A: Those are the steps for accessing a lockbox, the protocol if you will.
>
> Q: So you authenticate yourself, but that still doesn't get you access to the lockbox, you still need the key to open that lockbox; correct?
>
> A: So I would say that in that example, that there was both authentication and validation going on. As part of the steps for this, the bank teller was looking at not just your identification information to validate your identity or to authenticate your identity, but also checking and validating in their computer system, for example.

*(Id.* at 1354:21-1355:19.).

Additionally, Dr. Durgin relied on another section in the RFID Handbook describing two different keys that provide "access rights" to support his opinion that the RFID Handbook discloses a second security key. (Tr. (Durgin) at 1355:20-25.). However, this refers to two different "secret keys," which the RFID Handbook associates with ***encryption*** that are not transmitted. (RX-0581.8589 (emphases added) ("Fundamentally, an authentication procedure always involves a comparison of two secret keys, which are *not transmitted* via the interface . . . . Cryptological

authentication is usually associated with the *enc1yption* of the data stream to be transmitted."). Mr. Goldberg testified that authentication (by encryption methods) is not the same as checking and validating a password to grant access to memory, a distinction with which Dr. Durgin, Respondents' expert, also agreed. (Tr. (Goldberg) at 1457:3-17; (Tr. (Durgin) at 1353: 14- 1355 :9.).

In addition, the disclosure of two keys with different access rights is made in the context of the "hierarchical structure" that is discussed earlier in the same chapter under the section "Hierarchical key concept," where the RFID Handbook describes *two readers,* each having a *single key* with different access rights. (RX-0581.8590 (emphasis added) ("Some systems provide the option of storying two separate keys - key A and key B - that give different access rights. The authentication between transponder and reader may take place using key A *or* key B."); *see also id.* ("Reader 1 is only in possession of key A . . . . Reader 2, on the other hand, is in possession of key B.").). This is also clearly depicted in Figure 1~ (Figure 10.10 in the RFID Handbook), below. (RX-0581.0050.).

Figure 12: Hierarchical Allocation of Access Rights

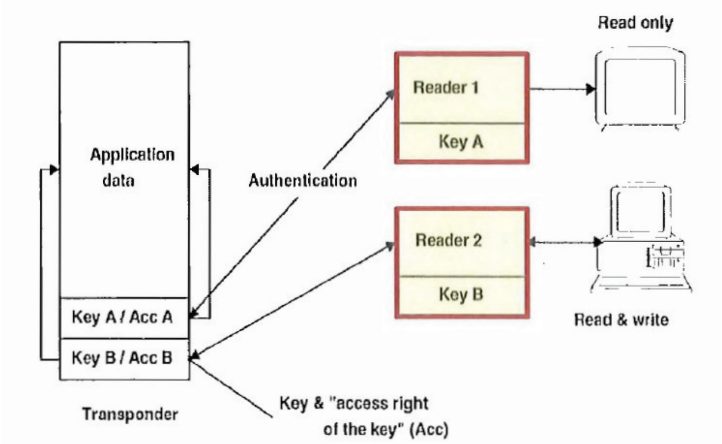
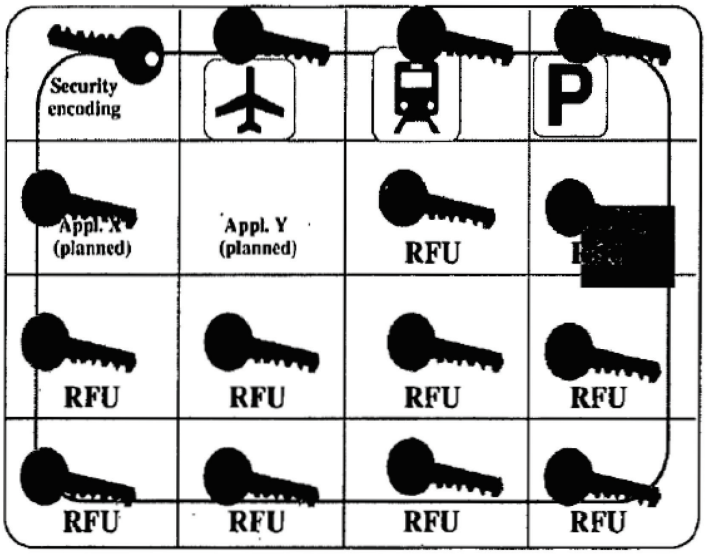



**Figure 10.10:** A transponder with two key memories facilitates the hierarchical allocation of access rights, in connection with the authentication keys used (RX-0581.0050.). ·

Dr. Durgin acknowledged that the example and diagram upon which he was relying does not show one reader using two keys to access both sections of memory. (Tr. (Durgin) at 1356:9-16; *see also* Tr. (Goldberg) at 1454:10-1455:12.). Dr. Durgin's reliance upon Figure 13 below (Figure 10.11 in the RFID Handbook), illustrating a tag with segmented memory that could be accessed by different keys, is similarly flawed. (Tr. (Durgin) at 1356:17-1357:13.).

Figure 13: Segmented Transponder




(RX-0581.0051.).

The RFID Handbook clarifies that "a reader belonging to one application can only gain access to ***its 'own' segment*** if it only knows the application's own key." *(Id.* (emphasis added).). Again, there is no disclosure that one reader uses multiple keys to access the various segments of memory, which Dr. Durgin did not dispute. (Tr. at 1358:21-24.). In their Reply Post-Hearing Brief, Respondents contended that "Neology does not dispute that the RFID Handbook discloses two passwords and encrypted random numbers" but that Complainant instead "spends much of its brief on whether the RFID Handbook discloses that the same reader has those two security keys." (RRBr. at 78.). The Asserted Claims *require* that one reader have multiple keys.

*(See* claim 13 of the '044 patent ("the RFID reader is further configured to send a third communication to the RFID transponder that includes a second security key"); claim 14 of the '044 patent ("The system of claim 13, wherein the second security key is based on information received from the RFID transponder."); claim 25 of the '044 patent ("the processor is further configured to receive a third communication from the RFID transponder via the radio front end and an antenna that includes a second security key"); claim 1 of the '436 patent ("A RFID reader, comprising . . . a processor . . . configured to . . . send a second communication to the RFID transponder via the radio and antenna that includes a security key ... wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key"). Thus, Respondents' reliance on passages and examples in the RFID Handbook that describe multiple readers each having only one security key does not support their argument that the RFID Handbook discloses this claim limitation.

Respondents have failed to show by clear and convincing evidence that the RFID Handbook discloses "a security key" and "a second security," as claimed in claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. Claim 4 of the '436 patent also requires a second security key that is "based on information received from the transponder." Because the RFID Handbook does not disclose "a second security key," it does not disclose "a second security key ... based on information received from the RFID transponder." Accordingly, claim 25 of the '044 patent

and claims 1, 2, and 4 of the '436 patent are not invalid as anticipated by the RFID Handbook.

**c) Conclusion**

For the reasons discussed above in Sections V.E.3(a)-(b), claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent are invalid as anticipated by the Gen2 Standard/6C Protocol and Snodgrass. The Gen2 Standard/6C Protocol teach each claim element recited in these claims and in particular, disclose the claimed first and second "security key." To the contrary, none of the Asserted Claims are anticipated by ENV ISO 14906 or the RFID Handbook.

**3. Obviousness**

**a) Relevant Law**

Under 35 U.S.C. § 103(a), a patent is valid unless "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made" to a person having ordinary skill in the art. 35 U.S.C. § 103(a). The ultimate question of obviousness is a question of law, but "it is well understood that there are factual issues underlying the ultimate obviousness decision." *Richardson-Vicks,* 122 F.3d 1476, 1479 (Fed. Cir. 1997) (citing *Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 17 (1966)).

After claim construction, "[t]he second step in an obviousness inquiry is to determine whether the

claimed invention would have been obvious as a legal matter, based on underlying factual inquiries including: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) secondary considerations of non-obviousness." *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.,* 183 F.3d 1347, 1354 (Fed. Cir. 1999) (citing *Graham,* 383 U.S. at 17). The existence of secondary considerations of non-obviousness does not control the obviousness determination; a court must consider "the totality of the evidence" before reaching a decision on obviousness. *Richardson-Vicks,* 122 F.3d at 1483.

The Supreme Court clarified the obviousness inquiry in *KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 389 (2007). The Supreme Court said:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson's Black Rock* are illustrative-a court must ask whether the improvement is more than the predictable use

of prior art elements according to their established functions.

Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order. to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

* * *

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modem technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive

> design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

*KSR,* 550 U.S. at 417-19.

The Federal Circuit has since held that when a patent challenger contends that a patent is invalid for obviousness based on a combination of several prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.,* 491F.3d1342, 1360 (Fed. Cir. 2007) (citations omitted).

> The TSM[55] test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence--teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)--that arise before the time of invention as the statute requires. As *KSR* requires, those teachings, suggestions, or motivations need not always be written references but may be found within the knowledge and creativity of ordinarily skilled artisans.

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[55] TSM is an acronym that stands for teaching, suggestion, motivation.

*Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.,* 520 F.3d 1358, 1365 (Fed. Cir. 2008).

**b) Claims 13 and 14 of the '044 Patent Are Obvious in View of the Gen2 Standard/6C Protocol in Combination with Slavin and/or Blythe**

U.S. Patent No. 5,819,234 issued on October 6, 1998 to Slavin et al. ("Slavin"), from U.S. Patent Application No. 08/681,712 filed on July 29, 1996. (RX-0612.). An article entitled "RFID for Road Tolling, Road-Use Pricing and Vehicle Access Control" ("Blythe") was published in 1999. (RX-0597.). Respondents alleged that the Gen2 Standard/6C Protocol in view of Slavin and/or Blythe renders obvious claims 13 and 14 of the '044 patent. (RPBr. at 55; RBr. at 81.).

Slavin describes an "electronic toll collection system" where a toll collection plaza receives information from RF transponders in vehicles passing through the plaza. (RX-0612 at 1:4-8, 5:40-49.). "[E]ach of the transponders ... broadcasts a unique tag number associated therewith which is received and correlated by the [Roadside Collection Stations] with a toll account number of the vehicle." *(Id.* at 5:49-52, 9:49-59.).

Blythe is an IEEE[56] publication that discusses a "tolling system using RFID transponders on cars

[56] IEEE is an acronym that stands for "Institute of Electrical and Electronics Engineers." IEEE is a technical professional organization aimed at fostering technological innovation for the

and readers and tolling stations." (Tr. (Durgin) 1074:12-22; RX-0597.0002 ("This paper will provide an insight into the use [of] in-vehicle tags and transponders to facilitate roadside to vehicle data-communications for electronic tolling and road-use pricing systems.").).

Respondents alleged that the Gen2 Standard/6C Protocol renders obvious claims 13 and 14 of the '044 patent. (RPBr. at 55; RBr. at 79-80.). According to Respondents, a person of ordinary skill in the art would have found it obvious to use a 6C-compliant reader'and tag in toll systems disclosed in the prior art, such as Slavin and Blythe. (RBr. at 80.).

In 1999, Blythe expressly recognized that a "communication problem" existed between a vehicle's transponder and a roadside charging system "because of the need to have dialogue in an orderly manner with several vehicles [sic] transponders individually, which may be in the communication zone at any one time." (RX-0597 at KTITC-00090125.). Blythe instructs that the roadside system hardware and software be "designed in such a way that the controller [reader] can efficiently handle the largest number of vehicles simultaneously present in the communications zone." *(Id.* at KTITC-00090126.).

It is undisputed that the benefits of RFID in tolling were known by at least 2002. (RX-0612 at 1:11-40 ("One form of toll collection system is represented

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benefit of humanity. *See* http://www.ieee.org/about/vision mission.html?utmsource= mmlink&utmcampaign= mav&utm medium= ab&utm term=mission%20vision.

by the E-ZPass® (a proprietary trademark) toll collection system . . . . The heart of the E-ZPass® system resides in technically unsophisticated transponders, carried in vehicles, which permit themselves to be interrogated by signals produced at the toll plazas and which respond to those signals by transmitting a unique 'tag number' identifying the transponder."); RX-0597 at KTITC-00090118 ("The use of radio frequency identification tags and intelligent transponders for vehicle to roadside communication and vehicle identification is now widespread with such technology and systems being seen as one of the early market successes .... "); *id.* at KTITC-00090118-20 (noting high capital and labor costs of manual tolling).).

It is also undisputed that the Gen2 Standard/6C Protocol was used in tolling before 2012. *(See, e.g.,* RX-0212 at NEO-ITC00240714 (2010 testing of Sirit's 6C-complaint tag used in Utah's toll system).). In 2011, Complainant sued Federal Signal for its use of 6C in tolling. (RX-0155C at 208:21-209:14 (preliminary injunction hearing testimony of Eric Redman, then at Federal Signal, describing its tolling products).). Thus, a person of ordinary skill in the art would have been motivated to use the Gen2 Standard/6C Protocol with toll systems, such as those disclosed in Slavin and Blythe, because Gen2 Standard/6C Protocol was being used for tolling by 2011.

As discussed above in Section V.E.2(b)(i), the Gen2 Standard/6C Protocol teaches all the claimed elements of claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent, including the claimed

"second security key." Slavin and Blythe discuss toll uses of RFID. It would have been understood by one of ordinary skill in the art that an RFID tolling system requires a communication protocol like the Gen2 Standard/6C Protocol to solve the type of problem described in Blythe. (Tr. (Durgin) at 1074:23-1075:6 ("So if you were building an RFID tolling system, you would, of course, need to choose a protocol, because have these same issues involving trying to singulate and communicate with a bunch of tags on the toad that are moving by at highway speeds in some instances.").). *PharmaStem,* 491 F.3d at 1360 (citation omitted) (noting that in a claim of obviousness, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so").

With regard to the additional claim limitation recited in claim 14 of the '044 patent requiring the second security key to be "based on information received from the transponder," Respondents' expert, Dr. Durgin testified that the reader in Snodgrass receives TAG from the transponder in its response to the Read command. (Tr. (Durgin) at 1049:16-1050:3; JX-0021 at Fig. 8 (response to read command is format 194), Fig. 9 (format 194 includes TAG); RDX-2131.). Complainant's only rebuttal argument is that because Snodgrass' TAG is not a "second security key," there is no disclosure of a "second security key . . . based on information received from the transponder." (CBr. at 84.).

Accordingly, Respondents have shown by clear and convincing evidence that claims 13 and 14 of the '044 patent are rendered obvious by the Gen2 Standard/6C Protocol in view of Slavin and/or Blythe.

**c) Claims 13 and 14 of the '044 Patent Are Obvious in View of Snodgrass in Combination with Slavin and/or Blythe**

According to Respondents, Snodgrass describes the details of a communication protocol but does not disclose a toll system. (RBr. at 83.). Dr. Durgin, Respondents' expert, testified that Slavin and Blythe do not specify a protocol but disclose toll uses of RFID. (Tr. (Durgin) 1074:2-3, 1074:14-22, 1075:7-9.). He also testified that a person of ordinary skill in the art would have understood that an RFID tolling system requires a communication protocol. *(Id.* at 1074:23-1075:6 ("So if you were building an RFID tolling system, you would, of course, need to choose a protocol, because have these same issues involving trying to singulate and communicate with a bunch of tags on the toad that are moving by at highway speeds in some instances.").).

Relying on a "Market Overview" section of the RFID Handbook, Complainant argued that because there were many RFID systems available, it is "not credible for Dr. Durgin to conclusively assert that a POSA would have been aware of Snodgrass, Slavin, and/or Blythe," and that "it would be 'difficult for the user to select the most suitable system.'" (CBr. at 100-01; RX-0581.8610 ("It is almost impossible, even for an expert, to maintain an overview of the product

range of RFID systems on offer today. This makes it difficult for the user to select the most suitable system.").). However, as Respondents pointed out, the Federal Circuit has defined a "person of ordinary skill" as a "hypothetical person who is presumed to be aware of ***all*** the pertinent prior art."[57] *Standard Oil Co. v. American Cyanamid Co.,* 774 F.2d 448, 454 (Fed. Cir. 1985). Whether Dr. Durgin was aware of Snodgrass before this case is legally irrelevant. *Chem. Separation Tech., Inc. v. US.,* 51 Fed. Cl. 771, 794 (Ct. Fed. Cl. 2002) ("The person of ordinary skill in the art is legal construct-a hypothetical person who is placed in the position of being aware of all of the relevant prior art.") (citing *Custom Accessories, Inc. v. Jeffrey-Alan Indus., Inc.,* 807 F.2d 955, 962 (Fed. Cir. 1986)).

Complainant also contended that the "span of three and a half to seven years between the references and the earliest priority date(s) attributable to the Asserted Patents," which Complainant described as a "significant passage of time," is another indication that there was no motivation to combine. (CBr. at 102.). In support, Complainant cited to *Leo Pharm. Prods., Ltd. v. Rea,* 726 F.3d 1346 (Fed. Cir. 2013). However, *Leo* is distinguishable from the

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[57] Here, a person of ordinary skill in the art would have had either: (1) a master's degree in electrical engineering, physics, computer science, or the equivalent, and at least two years of industry or academic experience in radio frequency data communications or RFID systems; or (2) a bachelor's degree in electrical engineering, physics, computer science, or the equivalent, and at least four years of industry experience or academic experience in the radio frequency data communications or RFID systems. (Doc. ID No. 582809 (Corrected Joint Chart of Post-Hearing Constructions) at 1(June3, 2016).).

circumstances here. In *Leo,* the earliest filing date of the patent at issue was 2000, the prior art patents were issued in 1978 and 1986, and the prior art reference was published in 1994. *Id.* at 1356. As the Federal Circuit noted, the prior art patents and reference were "published *decades* before" the asserted patent. *Id.* (emphasis added). Here, Snodgrass was issued in 1997, Slavin was issued in 1998, and Blythe was published in 1999. These references were issued/published only a few years before the priority dates of the '044 and '436 patents that Complainant claimed is attributable to the Asserted Patents (2002 or 2003). Thus, the case is inapposite.

For the same reasons discussed with regard combining the Gen2 Standard/6C Protocol with Slavin and/or Blythe, it would have been obvious to one of ordinary skill to combine the protocol of Snodgrass with the toll collection · systems disclosed in Slavin and/or Blythe. To begin with, it is undisputed that the benefits of RFID in tolling were known by at least 2002. (RX-0612at1:11-40; RX-0597 atKTITC-00090118; *id.* atKTITC-00090118-20.).

Additionally, by 1999, Blythe acknowledged that there was a "communication problem" between a vehicle's transponder and the roadside charging system "because of the need to have dialogue in an orderly manner with several vehicles [sic] transponders individually," and, accordingly instructs that the roadside system hardware and software be "designed in such a way that the controller [reader] can efficiently handle the largest number of vehicles simultaneously present in the

communications zone." (RX-0597 at KTITC-00090125-26.). Snodgrass addresses this issue by disclosing a protocol for communicating-with "objects [that] must be identified and tracked." (JX-0021at1:40-43; Tr. (Durgin) at 1075:24-1076:15.). Snodgrass explains that its protocol satisfies the need for a "communication system suited for coordinating the use of a common medium among potentially ***thousands*** of" tags. (JX-0021 at 3:25-29; RDX-2162; Tr.(Durgin) at 1076:6-15.). *PharmaStem,* 491 F.3d at 1360.

The PTAB concluded the same. In finding that the IPR petitioner had demonstrated a reasonable likelihood of prevailing on its assertion that certain claims of the '044 patent are unpatentable as obvious over Slavin and Snodgrass, the PTAB explained that both Snodgrass and Slavin "pertain to RFID systems for tracking moving objects, and both evince a desire for less complexity in such systems." (JX-0067 at 31.). The PTAB also found that the "disclosure of Snodgrass itself indicates advantages of its transponders that would have spurred an ordinarily skilled artisan to consider using its communication protocol in a system like the one described in Slavin." *(Id.* at 33.).

Furthermore, a person of ordinary skill in the art would have understood the importance of providing a cost-effective solution for tolling. (Tr. (Durgin) at 1076:16-1077:10; RX-0594 at KTITC-00089808; RDX-2163.). For example, Slavin noted that a disadvantage of many prior art transponders was their increased complexity and cost. (Tr. (Durgin) 1076:16-1077:10; RX-0612 at 2:39-42; RDX-2163.).

One of ordinary skill would have turned to Snodgrass to solve this problem, which sought to "minimize the circuit, firmware, and software complexity" of transponders, thus decreasing their "size and cost." (JX-0021at3:30-47; Tr. (Durgin) 1077:11-1078:12; RDX-2164.). *See also DyStar Textilfarben GmBh & Co.,* 464 F.3d 1356, 1368 (Fed. Cir. 2006) ("Indeed, we have repeatedly held that an implicit motivation to combine exists . . . when the 'improvement' is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient."). A person of ordinary skill in the art would have also known to use a central database of toll accounts "in order to reduce the cost and complexity of the interrogating equipment." (RX-0594 at KTCITC-0089807.).

Complainant's expert, Mr. Goldberg, did not dispute any of Dr. Durgin's testimony on the motivation to combine these references. (Tr. (Goldberg) at 1453:23-1454:8.). In fact, on cross-examination, Mr. Goldberg acknowledged that there may be a motivation to combine Slavin and Blythe with a protocol-focused reference like Snodgrass. (Tr. (Durgin) at 1074:23-1076:5; Tr. (Goldberg) at 1483:13-18 (Q: The whole reason you combined Snodgrass, which has a protocol, with Slavin and Blythe is because that's a combination of the RFID protocol with a specific discussion of tolling; correct? A: That might a reason why a person of skill would have combined them, yes.").

Complainant only disputed that the combination does not render claims 13 and 14 obvious because Snodgrass does not disclose the claimed "second security key." (CBr. at 99; Tr. (Goldberg) at 1453 :23-1454:8 ("So, sir, here what opinions do you have about the combination of Snodgrass with Slavin or Blythe? A: Slavin - neither Slavin nor Blythe discloses security key, and so the combination, because the Snodgrass [reference] doesn't include a second security key, the combination can't render the claim - the asserted claims obvious.").). Since this Court finds that Snodgrass discloses this limitation, and that it would have been obvious to one of ordinary skill to combine Snodgrass with Slavin and/or Blythe, claim 13 of the '044 patent is rendered obvious by Snodgrass in view of Slavin and/or Blythe.

Claim 14 requires a second security key that is "based on information received from the RFID transponders." Respondents' expert, Dr. Durgin testified that the reader in Snodgrass receives TAG _from the transponder in its response to the Read command. (Tr. (Durgin) at 1049:16-1050:3; JX-0021 at Fig. 8 (response to read command is format 194), Fig. 9 (format 194 includes TAG); RDX-2131.). Complainant's only rebuttal argument is that because Snodgrass' TAG is not a "second security key," there is no disclosure of a "second security key . . . based on information received from the transponder." (CBr. at 84.).

Thus, Respondents have shown by clear and convincing evidence that claims 13 and 14 of the '044 patent are rendered obvious by Snodgrass in view of Slavin and/or Blythe.

**d) Claims 13 and 14 of the '044 Patent Are Not Obvious in View of the RFID Handbook in Combination with Slavin and/or Blythe**

Respondents argued that a person of skill in the art would have been motivated to combine the RFID Handbook with the well-known prior art concept of electronic toll systems, such as those disclosed in Slavin and/or Blythe. (RBr. at 98.). Complainant failed to address Respondents' contention in its Post-Hearing Brief. (CBr. at 98-102.). Thus, Complainant has waived any arguments on this issue. (See Order No. 2 at G.R. 10.1 (Jan. 15, 2016).).

The evidence upon which Respondents relied, including, *inter alia,* the Blythe reference, confirms that the necessity of security of information in electronic toll systems was well-known and recognized because of the potential for fraud and tampering. (RX-0581 at KTCITC-00088575-612; RX-0597 at KTCITC-00090123-24.). The evidence demonstrates that those of skill in the art knew that the security necessary for an electronic tolling system could be accomplished through passwords and authentication protocols, such as those disclosed in the RFID Handbook. (RX-0581 at KTCITC-00088575-76.). Given these well-known security issues, it is clear that one of ordinary skill in the art would have been motivated to combine the authentication protocol disclosed in the RFID Handbook with Slavin and/or Blythe.

To support his opinion that the RFID Handbook discloses a second security key as claimed in claim 13 of the '044 patent, Dr. Durgin again referred to disclosures in the RFID Handbook of multiple passwords and security keys. (Tr. (Durgin) at 1084:2-13, 1086:8-21.). For instance, Dr. Durgin pointed to an example of a tag with four segments of memory, where "each of the 4 segments can be protected against unauthorised [sic] reading or writing by its own password." *(Id.* at 1084:2-13; RX-0581.8593.). However, the section to which Dr. Durgin referenced describes multiple passwords used to protect different segments of a transponder. There is no mention, and Dr. Durgin did not opine, that a single reader sends a "third communication to the RFID transponder that includes a second security key" or a "second communication to the RFID transponder that includes a security key," as required by claims 13 and 10, respectively. In fact, the disclosure to which Dr. Durgin referred falls under a section entitled "Segmented memory," which describes the reader as follows: "Access to an individual segment can only be gained after successful authentication with the appropriate key. Therefore, a reader belonging to one application can only gain access to ***its 'own' segment*** if it only knows the applications' own key." (RX-0581.0051 (emphasis added).).

Dr. Durgin also testified that the RFID Handbook teaches that different segments of memory can be protected by different keys. (Tr. (Durgin) at 1086:8-21; RX-0581.8590-9,2.). However, the section Dr. Durgin describes are ***two readers,*** each having a ***single key*** with different access rights. (RX-

0581.8590 (emphasis added) ("Some systems provide the option of storying two separate keys - key A and key B - that give different access rights. The authentication between transponder and reader may take place using key A ***or*** key B."); *see also id.* ("Reader **1** is only in possession of key A. . . . Reader 2, on the other hand, is in possession of key B."); *id.* at Fig. 10.10.).

Thus, Respondents have not shown clearly and convincingly that the RFID Handbook teaches a reader that is "configured to send a third communication to the RFID transponder that includes a second security key." Nor have Respondents provided any evidence that Blythe or Slavin teaches a "second security key." Without any teaching in the RFID Handbook, Slavin, or Blythe of the claimed "second security key," Respondents' arguments fail. "[O]bviousness can only be found when the prior art discloses all limitations of the claim or claims." *LifeScan, Inc. v. Shasta Techs., LLC,* 933 F. Supp. 2d 1243, 1256 (N.D. Cal. 2013), *rev 'don other grounds,* 734 F.3d 1361 (Fed. Cir. 2013) (citing *CFMT, Inc. v. Yieldup Int'! Corp.,* 349 F.3d 1333, 1342 (Fed. Cir. 2003)); *see also In re Royka,* 490 F.2d 981, 985 (C.C.P.A. 1974) (obviousness requires a suggestion of all limitations in a claim)).

Claim 14 requires a second security key that is "based on information received from the RFID transponders." Because the combination of the RFID Handbook, Slavin, and Blythe does not disclose "a second security key," the combination does not disclose "a second security key . . . based on information received from the RFID transponder."

Accordingly, Respondents have failed to show by clear and convincing evidence that claims 13 and 14 of the '044 patent are rendered obvious by the RFID Handbook in view of Slavin and/or Blythe.

**e) The Asserted Claims Are Not Obvious in View of ENV ISO 14906 in Combination with Slavin, Blythe, and/or RFID Handbook**

Respondents alleged in their Pre-Hearing Brief that ENV ISO 14096 standard in combination with the state of the art, as described in Slavin, Blythe, and/or the RFID Handbook, renders obvious the Asserted Claims of the '044 and '436 patent. (RPBr. at 68; RX-0639.). However, Respondents did not include these arguments in their Post-Hearing Brief. Thus, under Ground Rule 10.1, Respondents have waived any arguments on this issue, and have failed to show by clear and convincing evidence that the Asserted Claims are obvious in view of ENV ISO 14906 in combination with Slavin, Blythe, and/or RFID Handbook. (Order No. 2 at G.R. 10.1(Jan.15, 2016).).

**f) Conclusion**

For the reasons discussed above in Sections V.E.3(b)-(d), claims 13 and 14 are invalid as obvious by the Gen2 Standard/6C Protocol in view of Slavin and/or Blythe and Snodgrass in view of Slavin and/or Blythe. None of the Asserted Claims are rendered obvious by the RFID Handbook or the ENV ISO 14906 reference in view of Slavin and/or Blythe.

## F. Infringement

### 1. Relevant Law

#### a) Direct Infringement (Literal Infringement)

"Determination of infringement is a two-step process which consists of determining the scope of the asserted claim (claim construction) and then comparing the accused product . . . to the claim as construed." *Certain Sucralose, Sweeteners Containing Sucralose, and Related Intermediate Compounds Thereof,* Inv. No. 337-TA-604, Comm'n Op. at 36 (U.S.I.T.C., April 28, 2009) (citing *Litton Sys., Inc. v. Honeywell, Inc.,* 140 F.3d 1449, 1454 (Fed. Cir. 1998) *"Litton").*

An accused device literally infringes a patent claim if it contains each limitation recited in the claim exactly. *Litton,* 140 F.3d at 1454. Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.,* 946 F.2d 1534, 1538 (Fed. Cir. 1991). In a Section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Enercon GmbH v. Int'! Trade Comm 'n,* 151F.3d1376, 1384 (Fed. Cir. 1998). If any claim limitation is absent, there is no literal infringement of that claim as a matter of law. *Bayer AG v. Elan Pharm. Research Corp.,* 212 F.3d 1241, 1247 (Fed. Cir. 2000).

**b) Indirect Infringement (Induced Infringement)**

"Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). A patentee asserting a claim of inducement must show (i) that there has been direct infringement[58] and (ii) that the alleged infringer "knowingly induced infringement and possessed specific intent to encourage another's infringement." *Minnesota Mining & Mfg. Co. v. Chemque, Inc.,* 303 F.3d 1294, 1304-05 (Fed. Cir. 2002). With respect to the direct infringement requirement, the patentee "must either point to specific instances of direct infringement or show that the accused device necessarily infringes the patent in suit." *ACCO Brands, Inc. v. ABA Locks Mfrs. Co., Ltd.,* 501F.3d1307, 1313 (Fed. Cir. 2007) (citation omitted). This requirement may be shown by circumstantial evidence. *Vita-Mix Corp. v. Basic Holding, Inc.,* 581 F.3d 1317, 1326 (Fed. Cir. 2009). "[A] finding of infringement can rest on as little as one instance of the claimed method being performed during the pertinent time period." *Lucent Techs., Inc. v. Gateway, Inc.,* 580 F.3d 1301, 1317 (Fed. Cir. 2009).

The specific intent requirement for inducement necessitates a showing that the alleged infringer was aware of the patent, induced direct infringement, and that he knew that his actions would induce actual direct infringement. *Cammil USA, LLC v. Cisco Systems, Inc.,* 720 F.3d 1361, 1367 (Fed. Cir. 2013),

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[58] *See also Limelight Networks, Inc. v. Akamai Technologies, Inc.,* 134 S.Ct. 2111, 2117 (2014).

*aff'd and vacated in part on other grounds,* 135 S.Ct. 1920, 1926-28 (2015); *Global-Tech Appliances, Inc. v. SEE S.A.,* 131 S.Ct. 2060, 2068-70 (2011) (holding that willful blindness may be sufficient to meet specific intent requirement). Willful blindness, which will also constitute such "knowledge," has two basic requirements: "(1) the defendant must subjectively believe that there is a high probability that a fact exists"; and "(2) the defendant must take deliberate actions to avoid learning of that fact." *Global-Tech,* 131 S.Ct. at 2070. The intent to induce infringement may be proven with circumstantial or direct evidence and may be inferred from all the circumstances. *Commit USA,* 720 F.3d at 1366; *Global-Tech,* 131S.Ct.2071-72.

The Federal Circuit has upheld the Commission's authority to cover "goods that were used by an importer to directly infringe post-importation as a result of the seller's inducement." *Suprema Inc. v. Int'l Trade Comm 'n,* 796 F.3d 1338, 1352-53 (Fed. Cir. 2015).

**2. No Direct Infringement of the '044 Patent**

Complainant has accused the Kapsch Accused RFID System[59] of directly infringing claims 13 and 14 of the '044 patent. *(See* CBr. at 8.). Complainant has

[59] Complainant has defined this to include "Kapsch's Accused Janus Reader (which includes the Accused Janus Multiprotocol Reader II, Janus Multiprotocol RF Module/Janus Multiprotocol RF Module Smart, IAG 3 Antenna Lane Kit), Accused Venus and/or Aries Tags, and Accused Back-Office/Roadside System." (CBr. at 13.).

also accused the Kapsch Accused Tags[60] and the Star Accused Tags[61] ("'044 Accused Tags") of directly infringing claim 25 of the '044 patent. *(See id.* at 7, 9.). To prove that the '044 Accused Tags infringe certain asserted claims, Complainant relied, in part, on a showing that the '044 Accused Tags operate pursuant to the 6C Protocol. (CDX-0003.0009.). Indeed, "a district court may rely on an industry standard in analyzing infringement . . . . if an accused product operates in accordance with a standard, then comparing the claims to that standard is the same, as comparing the claims to the accused product." *Fujitsu Ltd. v. Netgearlnc,* 620 F.3d 1321, 1327 (Fed. Cir. 2010).

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[60] Complainant has defined this to include "the Aries (which includes the Alien Higgs 3 chip) and the Venus (which is available with either the Alien Higgs 3 or Higgs 4 chip)." (CBr. at 11.).

[61] Complainant has defined this to include "(l) VENUS Windshield Decal, (2) ARIES Headlamp Decal, (3) SCORPIO Decal, (4) ASTRIA Decal, (5) MET ALICA II Label, (6) METALICA JUNIOR Label, (7) METALICA MINI Label, (8) JEWELRY Tag, (9) TOPAZ Inlay, (10) SAPPHIRE Inlay, (11) RFID PALLET Label, (12) AMBER Inlay, (13) PISCES Inlay, (14) MARS Inlay, (15) JUPITER Tag, (16) LEO Tag, (17) CAPRICORN Inlay, (18) LIBRA Inlay, (19) VIRGO Inlay, and (20) RUNNER Inlay, (21) SATURN Inlay, (22) TAURUS Inlay, (23) Hang Tag, (23) NEMO Long Hard Case Tag, (24) NEMO Short Hard Case Tag, (25) Switch Tag, and (26) VENUS PLUS tag." (CBr. at 10.). According to Star, Infinity RFID, Inc. ("Infinity") has sold and/or offered for sale in the United States four (4) tags sold for importation by Star (Aries, Leo, Scorpio, and Venus). (CBr. at 29; JX-0069C (Doc. ID No. 590635; Joint Stip. Regarding Infinity) at~ 3 (Sept. 12, 2016).).

As discussed in further detail below, the record evidence shows by a preponderance of the evidence that the Kapsch Accused RFID System contains each and every claim limitation recited in claims 13 and 14 of the '044 patent. The evidence also shows by a preponderance of that the '044 Accused Tags include each and every claim limitation recited in claim 25 of the '044 patent.

However, because Respondents have shown by clear and convincing evidence that the asserted claims of the '044 patent are invalid for failure to meet the written description requirement *(see* Section V.E.l(b)), are invalid as anticipated by the Gen2 Standard/6C Protocol and Snodgrass, and are invalid as obvious in view of the Gen2 Standard/6C Protocol combination with Slavin and/or Blythe, the Kapsch Accused RFID System cannot by operatio of law, directly infringe claims 13, 14, and 25 of the '044 patent. *See, e.g., Commil USA, LLC v. Cisco Sys., Inc.,* 135 S. Ct. 1920, 1929 (2015) ("[A]n act that would have been an infringement or an inducement to infringe pertains to a patent that is shown to be invalid, there is no patent to be infringed . . . . Invalidity is an affirmative defense that 'can preclude enforcement of a patent against otherwise infringing conduct.'"); *ePlus, Inc. v. Lawson Software, Inc.,* 790 F.3d 1307, 1309 (Fed. Cir. 2015) ("[I]f the patent is indeed invalid, and shown to be so under proper procedures, there is no liability.") (quoting *Commil,* 135 S. Ct. at 1929)).

**a) Claim 10**

Complainant accused the Kapsch Accused RFID System of directly infringing claims 13 and 14 of the '044 patent. *(See* CBr. at 8.). Although claim 10 was not asserted in this Investigation, claim 13 depends from claim 1 and claim 14 depends from claim 13. Thus, a separate analysis of claim 10 is necessary to assess infringement of claims 13 and 14. For the reasons discussed below, the Kapsch Accused RFID System includes each and every claim limitation recited in claim 10 because, *inter alia,* the Accused JANUS Reader is configured to transmit an identifier to the accused central database, i.e., BOS.

*i. Kapsch's Accused RFID System's Readers Include the Claimed Radio and Antenna*

Complainant alleged, and Respondents did not dispute, that the Accused JANUS Readers used in the Kapsch Accused RFID System meet this limitation. (CBr. at 21-22.). The testimonial evidence and technical documents demonstrate that the Accused JANUS Reader is an RFID reader comprising a radio and an antenna. (Tr. (Goldberg) at 508:6-510:1, 799:7-801 :15; CDX-0003.0016-17; CX-0513C.2833-2834; CX-0515C.5302; CX-0603C.7625; CX-0604C.4412-13, 4483-4484.).

Figure 14: JANUS MPR2

(CDX-0003.0017 (citing CX-0515C at KTCITC-00005302).).

As Respondents' witness, Mr. Malarky, confirmed, the individual components of the Accused JANUS Reader (which includes the accused JANUS Multiprotocol Reader II, JANUS Multiprotocol RF Module/JANUS Multiprotocol RF Module Smart, IAG 3 Antenna Lane Kit) are intended to function together and are sold as a one complete reader system. (Tr. (Malarky) at 792:7-793:19, 798:17-22, 799:7-801:15; CX-0604C.4483-84; CX-603C.7625; JX-0034C.0008.).

Complainant's expert testified, Mr. Goldberg, and Mr. Malarky did not dispute, that the JANUS Reader incorporates a Smart Multi-protocol RF Module ("MRFM-S"), which is a radio. (Tr. (Goldberg) at 508:6-510:1; CDX-0003.0016-17; CX-0513C.2838; Tr. (Malarky) at 792:7-793:3, 801:1-15.). As Complainant pointed out, the Accused JANUS Reader is advertised as using "in air" communications through radio frequencies of up to five different channels, and operates at a radio frequency of 902 to 921. 7 5 MHz and, thus, incorporates a radio that sends and receives radio waves. (CX-0604C.4424-4425.).

The evidence on which Mr. Goldberg based his opinion also confirms that the Accused JANUS Reader includes the IAG 3 antenna that is part of the Accused IAG 3 Antenna Lane Kit. (Tr. (Goldberg) at 508:6-510:1; CDX-0003.0016-17; CX-0513C.2833-34, 2836; CX-0515C.5302; CX-0604C.4483-84.). As shown in an Operator and Maintenance Manual for the Accused JANUS Reader, the IAG 3 antenna sends and receives RF signals to and from the tag. (CX-0513C.2833, 2836.). In its bid to supply readers and tags as part of the Kapsch Accused RFID System, Respondents offered to sell and sold the Accused JANUS Reader with the "MPR2 IAG-3 Channel Kit" (the Accused IAG 3 Antenna Lane Kit). (Tr. (Malarky) at 801:1-15; CX-0603C.7625; CX-0604C.4483-84.). According to Respondents, the JANUS Reader sends and receives data via its radio and an antenna. (CX-0604C.4413.).

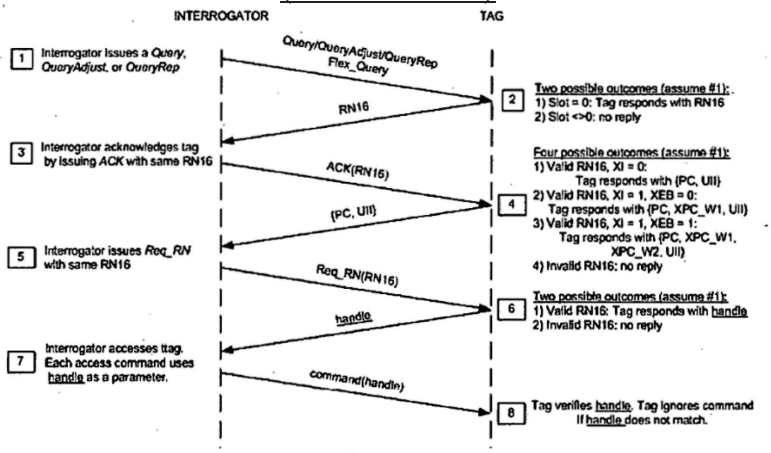
Accordingly, Complainant has shown by a preponderance of the evidence that the Accused JANUS Reader used in the Kapsch Accused RFID System is an RFID reader comprising a radio and an antenna.

#### *ii. Kapsch's Accused RFID System's Readers Are Configured to Send and Receive the Claimed 6C "Communication" Protocol*

Complainant alleged, and Respondents did not dispute, that the Accused JANUS Readers used in the Kapsch Accused RFID System meet this limitation. (CBr. at 22-26.). The testimonial evidence of Respondents' witness, Mr. Malarky, and the technical

documents on which Complainant relies confirm that the Accused JANUS Readers are configured to operate pursuant to the 6C Protocol. (Tr. (Malarky) at 799:7-801 :15; CX-0523C.4028-4030; CX-0603C.7625; CX-604C.4413, 4483-84.). Pursuant to the 6C Protocol, a 6C-compliant reader inventories and accesses the memory of 6C-compliant RFID tags (including the UII memory) as follows:

Figure 15: 6C Communications Protocol Diagram ("Handshake")




(JX-0020 at SSIITC-00015774 ("6C Protocol Communications Diagram"); Tr. (Goldberg) at 510:2-518:3, 520:15-522:5; CDX-0003.0016-23.).

The table below shows how each of the communication steps illustrated by the 6C Communications Protocol Diagram, above, corresponds to the limitations of the reader portion of claim 10.

**Table 4: Claim 10 of the '044 Patent vs. 6C Protocol**

| **Claim 10 of the '044 Patent** | **6C Protocol *Step*** |
|---|---|
| send a first communication to a RFID transponder that includes a memory the contents of which include an identifier | Step 1 to Step 2 |
| send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder | Step 3 to Step 4 |
| receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key | Step 4 to Step 5 |

(Tr. (Goldberg) at 510:2-518:3, 520:15-522:5; CDX-0003.0016-23; JX-0020 at SSIITC-00015774; CX-0523C.4028-4030.).

Based on Complainant's expert, Mr. Goldberg, and the 6C Protocol, the RN 16 in the 6C Protocol constitutes a first "security key." *(See, e.g.,* Tr. (Goldberg) at 520: 15-521: 11, 637:2-13; CDX-0003.0019, 21-22.). As illustrated in the 6C Communications Protocol Diagram above, and

confirmed by Mr. Goldberg, the 6C-compliant tag sends a random number ("RN16") to the reader in response to, for example, a *Query* command issued by the 6C-compliant reader. *(See, e.g.,* Tr. (Goldberg) at 512:8-11; CDX-0003.0019-20.). The 6C-compliant reader then transmits this RNl 6 back to the tag with an *ACK* command in order to be granted access to memory. *(See, e.g.,* Tr. (Goldberg) at 512:12-17; CDX-0003,0021.). The tag checks and validates the RN16 against the RN16 previously transmitted before the tag grants the reader access to its UII memory. *(See, e.g.,* Tr. (Goldberg) at 512:22-513:2; CDX-0003.0021.). If the RN16 does not match, the tag will not reply. *(See, e.g.,* Tr. (Goldberg) at 512:22-513:2; CDX-0003.0021.). Mr. Goldberg testified, and Respondents' witness, Mr. Malarky, confirmed, that the transponder ID is the serial number contained within the UII (also referred to as EPC) memory of a 6Ccompliant tag that is read by the Accused JANUS Reader and is the identifier used in the Kapsch Accused RFID System to identify the toll account associated with the transponder. (Tr.(Goldberg) at 510:5-511:8; CDX-0003.0018; Tr. (Malarky) at 795:21-25, 797:4-16; CX-0512C.2695, 2716, 22935; CX-0581C.8456, 8463; JX-0056C.0028-31 (Malarky Dep.) at 73:15-24, 76:4-10, 76:17-24, 77:6-15, 79:23-80:15); JX-0020 at SSIITC-00015578; CX-0025.9634.).

Furthermore, the evidence adduced in this Investigation establishes that access to memory contents of a tag is granted "as a result of validation of the security key." *(See, e.g.,* Tr.(Goldberg) at 520: 15-521 :11, 637:2-13; CDX-0003.0019, 21-22.).

As detailed above in the 6C Protocol Communications Diagram, the reader transmits this RN16 to the tag with an *ACK* command in order to be granted access to memory. (Tr.(Goldberg) at 520:15-521:11, 637:2-10; CDX-0003.0019, 21-22; JX-0020 at SSIITC-00015602, 5753, 5774; CX-0523C.4028-30.). The tag checks and validates the RN16 against the RN16 previously transmitted before the tag grants the reader access to its UII (EPC) memory. (Tr. (Goldberg) at 520: 15-521 :11, 637:2-10; CDX-0003.0019, 21-22; JX-0020 at SSIITC-00015602, 5753, 5774; CX-0523C.4028-30.). If the RN16 does not match, the tag will not reply. *(See, e.g.,* Tr. (Goldberg) at 520:15-521:11, 637:11-13; CDX-0003.0019, 21-22; JX-0020 at SSIITC-00015602, 5753, 5774; CX-0523C.4028-30.). Thus, the reader is granted access to and sent the UII (EPC) memory as a result of validation of the RN16 (i.e. the "security key"). *(See, e.g.,* Tr. (Goldberg) at 520:15-521:11; CDX-0003.0019, 22.).

Accordingly, Complainant has shown by a preponderance of the evidence that the Accused JANUS Readers used in the Kapsch Accused RFID System are configured to operate pursuant to the 6C Protocol and meet these claim limitations recited in claim 10.

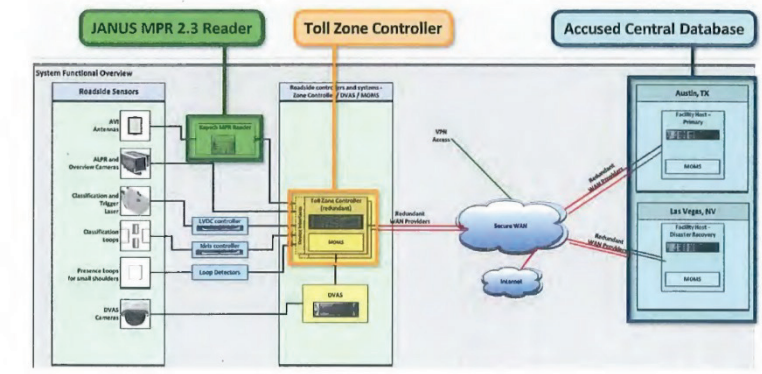
### *iii. Kapsch Accused RFID System's Readers Are Each Configured to Transmit the Identifier to the Central Database of the Kaps ch Accused RFID System*

Respondents only disputed that the Kapsch Accused RFID System does not satisfy the "central data base" and "RFID reader configured to . . . transmit the identifier to the central database" limitations of claim 10 of the '044 patent because the Accused JANUS Reader does not transmit the identifier directly to the commercial portion of the Accused Back-Office System ("BOS") where the toll accounts are stored but rather outputs information to the Toll Zone Controller ("TZC"), [ ] (RBr. at 30-32; Tr. (Malarky) at 814:12-23, 816:11-16, 820:23-821:10; RDX-1032; RDX-2050C; RDX-0251C.). Specifically, Dr. Durgin testified that "there's not a comparison of identifier data made at a central database in a central office." (Tr. (Durgin) at 997:17-998:6.).

Respondents' argument is not supported by the evidence. For instance, Kapsch's technical documents for the Kapsch Accused RFID System explain that the [ ] (CX-0512C.2751, 2935.). Kapsch's technical witness, Mr. Malarky, testifiedat his deposition that [ ](JX-0056C.0031 (Malarky Dep.) at 79:23-80:15 (emphasis added), 80:16-81:6).). Mr. Malarky also testified at the evidentiary hearing that the [ ] (Tr.(Malarky) at 813:22-24.). In addition, he stated that [ ] *(Id.* at814:12-16; *see also id.* at 822:7-10 [ ] That the

reader first transmits the tag identifier to TZC, which then sends the tag identifier to the BOS, does not change the fact that the transmitted identifier originates from the Accused JANUS Reader and ultimately ends up in the commercial portion of the BOS, where it is used to identify a corresponding toll account. *See, e.g., SiRF,* 601 F.3d at 1330; *Promega Corp. v. Life Techs. Cmp.,* 773 F.3d 1338, 1350 (Fed. Cir. 2014 (open ("comprising") claims "embrace technology that may add features to devices otherwise within the claim definition").

Figure 16: Accused Portions of LSI ORB Toll System




(RDX-2049C (citing RX-0061C at KTCITC-00022739) (from Dr. Durgin's Presentation, Sept. 20, 2016).).

Respondents' contention that the Accused JANUS Reader "does not know or control what the Toll Zone Controller does with" the identifier data is not pe1tinent because nothing in the claim or the specification of the '044 patent requires the reader to have such knowledge or control. The only salient point is that the Accused JANUS Readers "transmit the identifier to the central database," which they do. Thus, the accused readers are so "configured." (JX-

0001 at 23:56; Tr. (Malarky) at 813:22-24.). In fact, that the reader "does not know or control" what the TZC does with the data actually supports the notion that the transmission to the TZC is simply an intervening site and that the identifier is ultimately intended to be sent to the BOS.

In a feeble attempt to avoid the Kapsch Accused RFID System from reading on this claim limitation, two (2) weeks after the evidentiary hearing, Respondents moved to strike ("Respondents' Motion to Strike"), *inter alia,* what Respondents described as Complainant's "new construction" of the term "transmit" recited in claim 10.[62] (Motion Docket No. 979-030 (Nov. 15, 2016); Resp'ts' Mot. to Strike at 1; Resp'ts Mem. at 1-4.). According to Respondents, Complainant for the first time in its Reply Post-Hearing Brief proposed to construe "transmit" as encompassing both direct and indirect transmission. (Resp'ts Mem. ISO Mot. to Strike at 1 (citing CRBr. at 3).). In its opposition to Respondents' Motion to Strike ("Opposition"), Complainant claimed that its construction of the term "transmit" is not a claim construction argument *per se* but rebuttal to Respondents' own "new" non-infringement position based on judicial estoppel, that appeared for the first time in Respondents' Initial Post-Hearing Brief. (Doc. ID No. 596566; Opp'n at 1; *see also id.* at 4.). Both parties were in agreement that neither Complainant

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[62] Respondents' Motion to Strike was denied. *Certain Automated Media Library Devices,* Inv. No. 337-TA-746, Order No. 33 at 3 (Oct. 26, 2011) (denying a motion to strike a new argument in party's reply post-hearing brief that was offered in response to an assertion made in the other party's initial posthearing brief). *(See* Order No. 46 (Apr. 10, 2017).).

nor Respondents requested that this term be construed. (Mem. at 1; Opp'n at 2.).

Here, Complainant's arguments are persuasive. Because the term "transmit" was never construed, the plain and ordinary meaning applies. *See, e.g., Apple, Inc.* v. *Samsung Elecs. Co.,* 2014 WL 660857, at *3 (N.D. Cal. Feb. 20, 2014) ("Where, as here, [the] parties 'did not seek construction' of the terms at issue, courts give those terms their 'ordinary and customary meaning . . . to a person of ordinary skill in the art in question at the time of the invention.") (quoting *Belden Techs. Inc.* v. *Superior Essex Commc'ns LP,* 733 F.Supp.2d 517, 545 (D. Del. 2010)); *Phillips* v. *AWH Corp.,* 415 F.3d 1303, 1313 (Fed. Cir. 2005). In *SiRF Tech., Inc.* v. *lnt'l Trade Comm 'n,* the Federal Circuit construed the term "transmitting" to encompass "transmitting, whether direct or indirect" because "[n]either the claim language nor the patent specification requires that the communication/transmission be direct." *SiRF Tech., Inc. v. lnt'l Trade Comm'n,* 601F.3d1319, 1329-30 (Fed. Cir. 2010). The Court further held, "[w]ith respect to infringement, under this construction it is clear that SiRF performs the step of communicating/transmitting the files to the end users' devices because SiRF initiates the process of transmitting and communicating, and the files are actually transmitted to the end users." *Id.* at 1330. The Court also found that although the accused "'transmitting' can only occur if the customer forwards the data to the end user and the end user downloads the data ... the actions of 'forwarding' or 'downloading are not required by the claims ... and, therefore, ***the fact that other parties perform***

***these actions does not preclude a finding of direct infringement."*** *Id.* (emphasis added).

As Complainant pointed out, Respondents' interpretation of "transmit" is overly narrow. (Resp'ts Mem. ISO Mot. to Strike at 4-5; Opp'n at 1.). Nothing in the claims or specification of the '044 patent limits "transmit" to just "direct transmission," as Respondents contended. *(Id.).* The Accused JANUS Reader transmits a tag identifier to the BOS. That the tag identifier is first transmitted to the TZC does not obviate infringement. *See Amstar Corp. v. Envirotech Corp.,* 730 F.2d 1476, 1482 (Fed. Cir. 1984) ("Modification by mere addition of elements . . . cannot negate infringement without disregard of . . . long-established, hombook law .... "); *Kinik Co. v. Int'l Trade Comm'n,* 362 F.3d 1359, 1366 (Fed. Cir. 2004) ("Precedent indeed holds that when all the steps of a claimed process are practiced in the same way and for the same purpose as shown in the patent, the addition of further steps generally does not avoid infringement.").

In Respondents' Motion to Strike, Respondents contended that Complainant's reliance on *SiRF Technology* is misplaced. (Resp'ts Mem. ISO Mot. to Strike at 4-5.). Specifically, Respondents argued that *SiRF Technology* involved method claims, whereas this Investigation involves apparatus claims. *(Id.* at 5.). Respondents also asserted that the specification of the patent at issue in *SiRF Technology* "specifically contemplated" indirect transmission. *(Id.* at 5.). In this instance, these distinctions are not germane. Both here and in *SiRF Technology,* "[n]either the claim language nor the patent specification requires

that the communication/transmission be direct." *SiRF,* 601 F.3d at 1330. Therefore, as the Federal Circuit concluded, the plain and ordinary meaning of "transmit" encompasses both direct and indirect transmissions. *Id.*

In their Motion to Strike and Initial Post-Hearing Brief, Respondents relied on *Ball Aerosol and Specialty Container, Inc. v. Limited Brands, Inc.* in support of the proposition that "configured" requires evidence that the accused product was actually "placed in the infringing configuration" and that infringement is not proven if the product is only reasonably capable of being put into the claimed configuration." (Resp'ts Mem. ISO Mot. to Strike at 5 (citing *Ball Aerosol and Specialty Container, Inc. v. Limited Brands, Inc.,* 555 F.3d 984, 994-95 (Fed. Cir. 2009); RBr. at 31 (citing same).). *Ball Aerosol* is distinguishable from the facts here. In *Ball Aerosol,* the Federal Circuit noted that the "claim language *clearly specifies* a particular configuration" and thus concluded that "infringement only occurs if the accused product is configured with the cover being used as a base underneath a candle holder with feet." *Ball Aerosol,* 555 F.3d at 994-95. Here, the asserted claims do not specifically require the accused reader to be configured in such a way that the tag identifier must be directly transmitted from the reader to the central database, i.e., BOS. Moreover, the Accused JANUS Reader is "placed in the infringing configuration," that is, the accused reader is configured to send the tag identifier to the BOS. *Id.* at 994. (Tr. (Malarky) at 813:22-24.).

Respondents' reliance on *Telemac Cellular Corp. v. Topp Telecom, Inc.* is similarly flawed. (RBr. at 31.). Respondents argued that the Court in *Telemac* found there was no infringement where the accused device did not itself "store an international rate in its memory," as claimed, and the user "must employ the services of an outside international carrier" to perform the claimed function. *Telemac Cellular Corp. v. Topp Telecom, Inc.,* 247 F.3d 1316, 1331 (Fed. Cir. 2001 ). In *Telemac,* the claimed "billing algorithm" required the calculation of charges using call rates based on classification of calls into local, long distance, international and roaming call categories, which required the accused phone to store international call rates in its memory. *Id.* at 1330. The plaintiff contended that "even though Topp [Defendant] has chosen not to permit direct dialing of international calls, the ***capability*** of billing for international rates is nonetheless present in the phone's source code," and that the accused phones thus infringe. *Id.* (emphasis added). That is not the case here. In this instance, the Accused JANUS Reader is not merely "capable" of transmitting the tag identifier to the central database. It *is* transmitting the tag identifier to the central database.

For these reasons, the Accused JANUS Reader used in the Kapsch Accused RFID System is configured to transmit an identifier to the central database of the Kapsch Accused RFID System. Accordingly, Complainant has shown by a preponderance of the evidence that the Kapsch Accused RFID System satisfies each and every limitation recited in claim 10 of the '044 patent.

### *iv. Respondents' Judicial Estoppel and Judicial Admission Arguments*[63]

(1) *Relevant Law*

"[W]here a party assumes a certain position in a legal proceeding, and succeeds in maintaining that position, he may not thereafter, simply because his interests have changed, assume a contrary position . . . ." *New Hampshire v. Maine,* 532 U.S. 742, 749 (2001) (quoting *Davis v. Wakeless,* 156 U.S. 680, 689 (1895)). This rule, known as judicial estoppel, "generally prevents a party from prevailing in one phase of a case on an argument and then relying on a contradictory argument to prevail in another phase." *Id.* (quoting *Pegram v. Herdich,* 530 U.S. 211, 227 n.8 (2000)).

In *New Hampshire,* the Supreme Court identified several factors guiding the decision to apply judicial estoppel: (1) the party's later position must be "clearly inconsistent" with the earlier position; (2) the party must have succeeded in persuading a court to adopt the earlier position in the earlier proceeding, so that judicial acceptance of an inconsistent position in a later proceeding would create the "perception that either the first or the second court was misled"; and (3) the courts consider "whether the party seeking to assert an inconsistent position would derive an unfair advantage or impose an unfair detriment on the opposing party if not estopped." *Id.* at 751; *SanDisk*

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[63] Respondents created a "judicial estoppel" argument for the first time in their Initial Post-Hearing Brief. (RBr. at 32)

*Corp. v. Memorex Prods., Inc.,* 415 F.3d 1278, 1290-91 (Fed. Cir. 2005).

The doctrine of judicial estoppel has been applied to positions taken in administrative or quasi-judicial proceedings. *See e.g., Simon v. Safelight Glass Corp.,* 128 F.3d 68, 72 (2nd Cir. 1997); *Risetto v. Plumbers & Steamfitters Local 343,* 94 F.3d 597, 600 (9th Cir. 1996); *·Chaveriat v. Williams Pipe Line Co.,*. 11 F.3d 1420, 1427 (7th Cir. 1993); *Smith v. Montgomery Ward & Co.,* 288 F.2d 291, 291 (6th Cir. 1968). The doctrine has also been applied to proceedings before the USPTO. *Nada Pacific Corp. v. Power Eng'g and Manufacturing, Ltd.,* 73 F.Supp.3d 1206, 1216 (N.D. Cal. 2014) (citing *Synopsis, Inc. v. Magma Design .(lutomation, Inc.,* 2007 WL 322353, at *25-26 (N.D. Cal. Jan. 31, 2007) (applying the doctrine with respect to prior statements made to the USPTO)).

For judicial admissions "to be binding," they must be "unequivocal." *Mformation Techs., Inc. v. Research in Motion Ltd.,* 764 F.3d 1392, 1396-97 (Fed. Cir. 2014). Importantly, "[a] statement during an argument made to a court constitutes a conclusive 'judicial admission' only if the concession is 'clear, deliberate, and unambiguous.'" *Centillion Data Sys., LLC v. Qwest Commc'ns Int'l, Inc.,* 547 F. App'x 980, 984-85 (Fed. Cir. 2013) (citing *US. v. Cunningham,* 405 F.3d 497, 504 (7th Cir. 2005)).

(2) *Complainant Is Not Judicially Estopped from Asserting Its Infringement Theory*

Respondents argued that Complainant should be judicially estopped from asserting that the 6C singulation process infringes because in their successful argument for the proper construction of "security key," Complainant was "unequivocal" when its counsel argued that "[t]he security key patents do not relate to singulation," but rather, "relate to the process after singulation has occurred." (quoting *Markman* Tr. at 17:10-21).). Based on this statement and other statements made by Complainant in its claim construction briefing,[64] Respondents contended that: (1) Complainant's infringement case is based on 6C's singulation process, which is "clearly inconsistent" with Complainant counsel's statement at the *Markman* hearing *(id.* at 33-35); (2) Complainant succeeded in persuading this Court to accept its "earlier position" *(id.* at 36); and (3) Complainant would derive an unfair advantage or impose an unfair detriment on Respondents if Complainant is not estopped *(id.* at 37). Respondents'

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[64] Respondents relied on the following statements made by Complainant in its Responsive Claim Construction Brief: (1) "the operation involving security key occurs after singulation has occurred, at which point the singulated tag uses a security key to ensure that it only makes the contents of its memory available to the proper reader (Doc. ID No. 580455 at 7); (2) "singulation or anti-collision is a different process, covered by a different protocol, than the process in which a security key is used" (id. at 8): and(3) "the process in which a security key is checked and validated to grant or deny access to a tag's memory which is at the heart of the '044 and '436 Patents, and related patents, does not begin until after singulation has occurred" *(id.).*

arguments are unpersuasive and not supported by the evidence.

As an initial matter, it is undisputed that the terms "singulation" and "anticollision" are not found in either the specification or the claims of the '044 patent. (Tr. (Durgin) at 1389:8-13, 1389:22-1390:2 ("The '044 does not disclose a singulation algorithm or protocol or any RFID protocol."), 1390:20-25 ("Q: And do the claims - the asserted claims in this investigation, does any one step include a singulation concept? Just looking at the claims. A: The claims claim a sequence of steps, and there is no language that would specify or deny singulation in those claims."); Tr. (Goldberg) at 624:7-8 ("Singulation is not part of the - part of the claims.").). The PTAB determined that with regard to, *inter alia,* claim 10 of the '044 patent, singulation was also not relevant:

> ***We do not read into the challenged independent claims any limitation with respect to singulation. Neither the claims nor the Specification mention the concept.*** The claims recite particular sets of steps or components that are configured to perform certain steps; if those limitations are present in the prior art, the prior art may render the claims anticipated or obvious, regardless of the ultimate purpose behind why the components are so configured (e.g., for singulation or any other function) . . . . Thus, ***we do not interpret the claims to exclude any use of the recited components for singulation, or any requirement that singulation already***

> ***have occurred; the claims mean just what they say.***

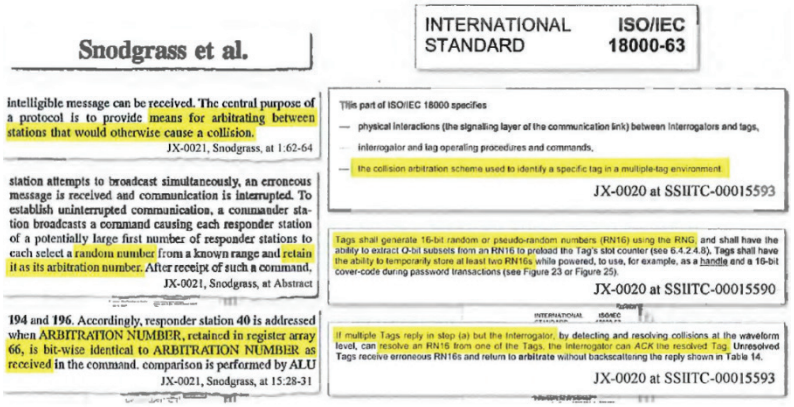
(JX-0067 at 13-14 (emphases added).).

Respondents have not established that certain statements made by Complainant during the *Markman* proceedings are "clearly inconsistent" with its infringement theory. Complainant has always maintained the same construction for the claim term "security key," which is "a key that is checked and validated to grant or deny access to a memory." *(See* Comp'l Claim Br. at 6-8; Tr. (Goldberg) at 520:15-521:11; CDX-0003.0019, 21-2; JX-0020 at SSIITC-00015602, 5753, 5774; CX-0523C.4028-30.). Complainant has also consistently accused the RN16 and Handle of the 6C Protocol as satisfying the security key limitations of the Asserted Patents both before and after the *Markman* hearing. *(See, e.g.,* Tr. (Goldberg) at 523:21-525:9, 637:2-21; CDX-0003.0027-29; JX-0020 at SSIITC-00015607-09, 5754, 5774; CX-0523C.4028, 4030; Compl., Ex. 97 at 16.). Thus, Respondents' contention that Complainant has advanced infringement arguments in this Investigation that are "clearly inconsistent" with its earlier position that the "security key patents relate to the process after singulation has occurred" is unavailing, and not supported by the evidence.

As Complainant pointed out, in asserting that Snodgrass anticipates the Asserted Claims of the '044 and '436 patents, Respondents identified the RD command with an arbitration number as corresponding to the second communication and security key limitations of the Asserted Claims. Based

on the testimonial evidence of Respondents' expert, Dr. Durgin, this communication is identical to the 6C Protocol's *ACK* command and RN16 that Complainant accused of satisfying these limitations of the Asserted Claims. (Tr. (Durgin) at 1045:6-22 (emphasis added) ("So here's some example language excerpted from both the standard on the right, from the 6C standard, and Snodgrass on the left .... So they're dealing with the same problem, this problem of singulating and communicating with the tag. Snodgrass uses random numbers, it causes - its - *it calls its random number an arbitration number, but it's using it in tile exact same way that 6C is using its RN16.* And those arbitration numbers we'll see are checked and validated to grant access to memory.").

Figure 17: Snodgrass vs. 6C




(RDX-2126 (from Dr. Durgin's Presentation, Sept. 20, 2016); *see also* Tr. (Durgin) at 1047:20- 25 ("At this point, the only difference between 6C and Snodgrass is that Snodgrass is using at least one of his preferred embodiments, an 8-bit random number instead of a 16-bit random number. Q: Otherwise it's the same? A: Yes, it's identical at this point.").).

This accused second communication step in the 6C Protocol occurs after the reader has received the 6C-compliant tag's RN16 in response to a *Query* command and before the 6Ccompliant tag checks and validates the RNI 6 to grant access to its identifier stored in the UII memory in response to an *ACK* command. (Tr. (Goldberg) at 623:18 624:5.). Thus, Complainant's statements during the *Marlanan* proceeding are consistent with its infringement theory.

Based on the evidence, it appears that it was Respondents who offered inconsistent arguments regarding their non-infringement position in this Investigation and their invalidity contentions before the PTAB in the IPR proceeding that invalidated certain claims of the '044 patent over, *inter alia,* Snodgrass.[65] For example, Respondents represented to the PTAB that the transmitted RD command with arbitration number disclosed in Snodgrass, which Respondents have argued meets the claimed second communication and security key limitations in the Asserted Claims, is not singulation:

> JUDGE ARBES: Okay. So what we have is, in Snodgrass is part of it pertains to singulation, part of it does not; is that right?

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[65] In that IPR proceeding (IPR2015-00819), the PTAB concluded that claims 19, 20, 23, and 24 are anticipated by Snodgrass under 35 U.S.C. § 102(b). (JX-0067 at 15, 23.). The PTAB also found that claims 1-3, 7-12, and 16-18 are unpatentable as obvious in view of Slavin and Snodgrass under 35 U.S.C. § 103(a). *(Id.* at 23, 40.).

> MR. LoCASIO: As the Patent Owner has tried to define singulation being sort of this something that is different than what their claims require, because their claims don't speak of it in this fashion. Okay. I think you could say a patent that solely does and if the people called it singulation, it could still fall within it and they're asserting it against things that are doing nothing more than that, nothing other than an identifier for that tag.
>
> But for purposes of what's necessary for this claim to be found invalid based on your Institution Decision, yes, Your Honor, which is that if you say the first half of the steps in Snodgrass, IDR, those steps are "singulation," the remaining steps where it sends back - it's the second communication of the '568 and '044 – a security key, that security key is validated before the data is sent. *That's under no one's definition of "singulation" and it is present in Snodgrass and it's what's claimed in these patents.*

(CRBr., Ex. B[66] (IPR Transcript) at 55:11-56:4 (emphasis added).). In adopting and relying on

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[66] Exhibit B of Complainant's Post-Hearing Reply Brief is an excerpt from the transcript of the combined oral hearing before the PTAB with regard to IPR2015-00818 (U.S. Patent No. 8,237,568 ("'568 patent")) and IPR0215-00819 ('044 patent). The '044 and '436 patents are continuations of the '568 patent. (JX-0001 at (63); JX-0002 at (63).). Exhibits A (Petitioner's Reply to Patent Owner's Response in IPR2015-00819) and B were the subject of Respondents' Motion to Strike. (Motion Docket No. 979-030 (Nov. 15, 2016).). Respondents' Motion to Strike was denied. *(See* Order No. 46 (Apr. 10, 2017).). This Court took

Respondents' arguments and representations that singulation is complete upon the reader's receipt of the arbitration number, the PTAB held that:

> Snodgrass's communication protocol pertains to more than just singulation, however. Even if transmitting the IDCG command and receiving a response can be considered singulation, the additional processing of sending the RD command and receiving a response (i.e., what Petitioner relies on for the "second communication" and information provided "in response to the second communication" in claim 1) is not singulation. ***It is not part of the process of identifying a particular tag from among a group of tags, but rather reading data from a single tag that already has been identified by its ARBITRATION NUMBER.***

(JX-0067 at 33 (emphases added).).

As discussed above, Dr. Durgin testified that this communication in Snodgrass is *identical* to the 6C Protocol's *ACK* command and RN16 that Complainant has accused of satisfying these limitations of the asserted claims, and that Snodgrass' arbitration numbers "are checked and validated to grant access to memory." (Tr. (Durgin) at 1045:6-22, 1047:20-25, 1052:24-1053:8; *see also* RDX-2130, 2136, 2137.). Hence, Respondents' argument

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judicial notice of the entire IPR proceeding in IPR2015-00819, and not merely Exhibits A and B to Complainant's Post-Hearing Reply Brief. *(Id.* at 10-11.).

that the accused handshake does not infringe here because it is part of the 6C singulation process (the 6C Protocol's *ACK* command and RN16) rings hollow. (RBr. at 39.).

Additionally, Complainant did not persuade the Court to adopt Complainant's claim construction because of the statements made by Complainant in response to Respondents' prosecution history estoppel arguments during the *Markman* proceedings that pose a risk of inconsistent determinations. *Jackson Jordan, Inc. v. Plasser Am. Corp.,* 747 F.2d 1567, 1579 (Fed. Cir. 1984) (noting that "[i]n all precedent cited to us and which we have researched independently, the party against whom estoppel is invoked received some benefit from the previously taken position, i.e., he 'won' because of it").

Respondents contended that this Court adopted Complainant's construction because Complainant's statements "assured" this Court that "singulation does not fall within the claims." (RBr. at 36-37.). However, as the transcript from the September 8, 2016 teleconference *("Markman* Tele. Tr.") reflects, this Court relied on language contained in the '044 patent specification and not on any statements or positions regarding singulation. *(Markman* Tele. Tr. at 49:22-52:1 (Sept. 8, 2016).). In fact, this Court rejected Respondents' claim construction that expressly disclaimed singulation: "a key that is checked and validated by a singulated tag to grant a proper reader access to a memory." *(See* EDIS Doc ID 582809, Corrected Joint Chart of Post-Hearing Constructions, Ex. A at 1; RPBr. at 17; *Markman* Tele. Tr. at 50:8-53 :8 (Sept. 8, 2016).).

Moreover, Complainant did not derive an unfair advantage or impose an unfair detriment on Respondents. Respondents argued that they relied on Complainant's statements that singulation was not encompassed by Complainant's claims, and, to their detriment, "structured their non-infringement arguments" to show that the 6C Protocol does not infringe the Asserted Patents. (RBr. at 37-38.). Respondents' assertions are not persuasive. Throughout this Investigation, Respondents continued to contend that Snodgrass and Tamai were invalidating prior art despite the fact that the references relate to singulation. (RBr. at 81, 118; Tr. (Durgin) at 1045: 15-20 ("So they're [Snodgrass and 6C Protocol] are dealing with the same problem, this problem of singulating and communicating with the tag. Snodgrass uses random numbers, it causes - it calls its random number an arbitration number, but it's using it in the exact same way that 6C is using its RN16."); Tr. (Goldberg) at 1459:3-10 ("the identification code in Tamai is . . . collected as part of a process of identifying one tag out of many"); Tr. (Durgin) at 974: 11-19 (singulation identifies one tag out of many).). Moreover, Complainant has not obtained any unfair advantage because the construed meaning of "security key" is broad, and accordingly, renders the Asserted Claims more susceptible to prior art challenges.

In contrast to the Asserted Claims of the '044 and '436 patents, the 6C Protocol includes a slotted random anti-collision algorithm "where tags load random (or pseudo-random) number into a slot counter, decrement this slot counter based on Interrogator commands, and reply to the Interrogator

when their slot counter reaches zero." (JX-0020 (6C protocol) at SSIITC-00015550.). Specifically, 6C uses a "Q value" to singulate a tag. *(Id.* at SSIITC-00015774; *see also* RBr. at 39-40.). However, this functionality is not claimed and does not stand accused. Thus; Respondents' non-infringement theory that the accused products do not infringe because they also involve an additional, unclaimed process for singulating a tag fails. *See Amstar,* 730 F.2d at 1482 (noting that "modification by mere addition of elements . . . cannot negate infringement, without disregard of . . . long-established, hombook law"); *Kinik,* 362 F.3d 1366.

Respondents' judicial estoppel argument is simply a reiteration of a rejected argument made during the *Markman* proceeding that Complainant disclaimed the singulation process during prosecution. The origin of Respondents' argument is in the prosecution of the '746 patent.[67] In view of a rejection of certain claims as being obvious over U.S. Patent No. 7,031,946 ("Tamai") in view of U.S. Patent no. 5,528,222 ("Mish"), the applicant distinguished Tamai's singulation process from the pending claims: "[T]he process( es) described and claimed in the present application can be used in conjunction with a collision avoidance process such as that described in Tamai. This is because the process(es) of the present application would not begin until the collision avoidance process cited and described in Tamai, or a similar process, was complete and a single tag, or

[67] The '746 patent is a continuation of the '819 patent, and a parent application of the '044 and '436 patents. (JX-0001 at (63); JX-0002 at (63); JX-0028 at [0001].).

chip, was isolated." (JX-0028 at NEO-ITC00000980.). Then, during the *Markman* hearing, when discussing the Tamai reference and the response quoted above, Complainant's counsel stated the following: "The security key patents do not relate to singulation. The security key patents relate to the process after singulation has occurred. ***And that is a statement that was clearly made in the argument related to the Tamai reference.*** *"(Markman* Tr. at '17:18-23 (emphasis added).). This alleged disclaimer was raised, briefed, argued, and rejected during the *Markman* proceeding. Thus, Respondents' arguments are improper.

Besides Respondents' inappropriate attempt to re-argue a claim construction, Respondents' assertions suffer other weaknesses. For example, the concept of singulation is not precisely defined. Respondents relied on the 6C Protocol's definition of singulation (i.e., after the tag transmits its UII) to assert non-infringement. (RBr. at 41.). However, relying on a concept that has different meanings in the industry and different meanings in different contexts, as Respondents' expert, Dr. Sanjay Sarma, testified, is not helpful and only obfuscates the issues. (Tr. (Sarma) at 1183:17-20 ("singulation is a made-up word ... [a]nd there's a continuum spectrum between anticollision and identifying one tag. And that word gets used in that context, in different ways.").

For these reasons, Complainant is not estopped from asserting its infringement theory.

(3) *Complainant's Statements Are Not a Judicial Admission*

Alternatively, Respondents argued that Complainant's statements made during the *Markman* Proceedings regarding "singulation" must be deemed a judicial admission. (RBr. at 38-39.).

The evidence establishes that Complainant did not make a make a "clear, deliberate, and unambiguous" concession during the *Markman* proceedings relating to singulation sufficient to establish a binding judicial admission. *Centillion Data Sys.,* 547 F. App'x at 984-85. As already discussed in Section V.F.l(a)(iv)(a), Complainant never submitted a specific meaning for the term "singulation" during the *Markman* proceedings that would preclude Complainant from maintaining its present infringement theory. *(See* Comp'l Resp. Claim Br. at 7-8; *Markman* Hr'g Tr. at 17:10-21.). As Respondents' own expert, Dr. Sarma acknowledged, "singulation is a made-up word" that gets used in different ways and in different contexts in RFID. (Tr. (Sarma) at 1183:15-1184:7.). There was also no stipulation of fact between the parties on this issue entered in the record. *(See, e.g.,* Comp'l Resp. Claim Br. at 7-8; *Markman* Hr'g Tr. at 17:10-21.).

Respondents knew at the time of the *Markman* hearing that under Complainant's understanding of the term singulation, singulation would be complete upon the reader's receipt of a temporary random number from a tag despite the fact that it is possible that multiple tags could have the same temporary

random number. (JX-0067.0033; CRBr., Ex. B (IPR Tr.) at 54:9-56:4; *see also* Tr. (Durgin) at 1403:6-11.).

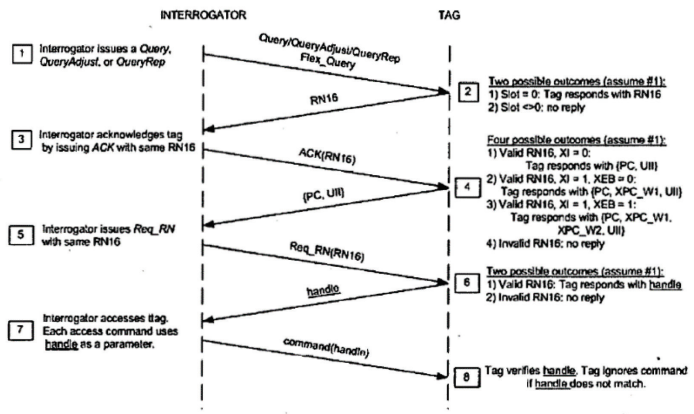
Respondents made the same representation to the PT AB with respect to Snodgrass, which the PTAB adopted in invalidating certain claims of the '044 and '568 patents (from which the '044 and '436 patents depend). (JX-0067.0033; CRBr., Ex. B (IPR Tr.) at 54:9-56:4.). Respondents also represented to the PT AB that all subsequent communications after the reader receives the tag's temporary random number, including a command transmitting the temporary random number back to the tag for checking and validating in order to grant read access to an identifier, is not singulation under anyone's definition of the term. (CRBr., Ex. B (IPR Tr.) at 54:9-56:4 ("[I]f you say the first half of the steps in Snodgrass, IDR, those steps are 'singulation,' the remaining steps where it sends back- it's the second communication of the '568 and '044 - a security key, that key is validated before the data is sent. That's under no one's definition of 'singulation' and it is present in Snodgrass and it's what's claimed in these patents.").). Respondents argued that this process of sending the RD command with an arbitration number in Snodgrass- which Respondents presented is not singulation-is identical to 6C Protocol's *ACK* command and RN16 that Complainant has accused of satisfying the second communication and security key limitations of the Asserted Claims. *(See* Tr. (Durgin) at 1045:6-22, 1047:20-25; RDX-2135-2136; *see also* RPBr. at 23.). Thus, Complainant made no clear, unambiguous concession that is sufficient to establish a judicial admission.

**b) Claim 13**

Complainant alleged, and Respondents did not dispute, that the Accused JANUS Readers, which are included in the Kapsch Accused RFID System, meet the additional limitation recited in claim 13. (CBr. at 26-28.). Respondents' only rebuttal was that because the Kapsch Accused RFID System does not infringe claim 10, from which claim 13 depends, the Kapsch Accused RFID System cannot infringe claim 13. (RBr. at 44.).

The testimonial and documentary evidence on which Complainant relies confirm that 6Ccompliant readers, like the accused readers, are configured to send a third communication to the tag, such as a *Read* command, that includes a Handle (i.e., "second security key") (Step 7). (Tr. (Goldberg) at 523:21-526:13, 637:2-21; CDX-000.0019, 27-30; JX0020.5607-09, 5754, 5774, 5785-86; CX-0523C.4028, 4030.).

Figure 18: 6C Protocol Communications Diagram ("Handshake")




(JX-0020 at SSIITC-00015774.).

Moreover, Respondents' witness, Dr. Chang-Chi Liu,[68] confirmed that the tag checks and validates the Handle before sending further memory contents in response (Step 8). (Tr. (Liu) at 862:21-863:10, 872:9-25, 876:6-14, 881:7-23, 883:9-22, 886:9-887:23; RPX-Q017C.0821; RPX-0019C.1053.).

Additionally, Mr. Goldberg testified, and the evidence confirmed, that the Handle represents a "second security key." (S, *e.g.,* JX-0020 at SSIITC-00015774; Tr. (Goldberg) 524:1-526:7; CDX-0003.0027-28.). If the Handle does not match, the tag will ignore the command and not reply with further memory contents. (Tr. (Goldberg) 524:1-526:7; CDX-0003.0027-28.). If the Handle included in the *Read* command sent by the reader is validated by the tag, the tag will respond to the *Read* command with further memory contents, such as all or part of the tag's Reserved, UII, TID or User memory contents stored in the tag's on-board memory or an error code if the tag encounters an error when executing the access command. (Tr. (Goldberg) 524:1-526:7; CDX-0003.0027-28.). If the Handle is invalid, the tag will ignore the *Read* command and not provide a response. (Tr. (Goldberg) 525:5-9; CDX-0003.0027-28.). Accordingly, Complainant has shown by a preponderance of the evidence that the Accused JANUS Readers satisfy the additional limitations

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[68] At the time of the evidentiary hearing, Dr. Chang-Chi Liu was the Director of lntegrated Circuit Design Engineering at Alien Technology, LLC ("Alien"). (Tr. (Liu) at 846:7-13; RPSt. at 3.). Respondents called Dr. Liu as a fact witness to provide testimony on Alien, background of RFID technology, and the function and engineering of Alien's Higgs chips. (RPSt. at 3.).

recited in claim 13 of the '044 patent, and directly infringe this claim.

**c) Claim 14**

Complainant alleged, and Respondents did not dispute, that the Accused JANUS Readers, which are included in the Kapsch Accused RFID System, meet the additional limitation recited in claim 14. (CBr. at 28-29.). Respondents only rebutted that because the Kapsch Accused RFID System does not infringe claim 14, from which claim 14 depends, the Kapsch Accused RFID System cannot infringe claim 14. (RBr. at 44.).

The testimonial and documentary evidence on which Complainant relies confirm that because the ac~used readers are 6C-compliant, they are configured to receive the Handle from a 6C-compliant tag in response to a valid *Req_RN* command. (Tr. (Goldberg) at 526:14-528:1; CDX-0003.31-34; JX-0020 at SSIITC-00015606-5607; CX-0523.4029-30.).

The evidence demonstrates that the Handle is from the tag. According to the 6C Protocol Communications Diagram above in Sections V.F.2(a)(ii) and V.F.2(b), and discussed in conjunction with independent claim 10 and dependent claim 13 of the '044 patent, the Handle, which is the "second security key" in communication step 7-8 is based on the Handle which the reader previously received from the 6C-compliant tag in communication step 6-7. (CX-0523C.4028-4030.). Accordingly, Complainant has shown by a preponderance of the evidence that the Accused JANUS Readers satisfy the additional limitation recited in claim 14 of the '044 patent.

**d) Claims 23 and 25**

Complainant accused the '044 Accused Tags of directly infringing claim 25. Although claim 23 was not asserted in this Investigation, claim 25 depends from claim 23. Thus, a separate analysis of claim 23 is necessary to assess infringement of claim 25. For the reasons discussed below, the'044 Accused Tags contain each and every claim limitation recited in claim 23 because they, *inter alia,* involve a processor configured to "receive a first communication," "receive a second communication ... that includes a security key," and "grants access to the memory contents based on the security key."

As an initial matter, claims 10 and 13 recite all the limitations of claim 23. The only difference is that claim 23 does not require a "toll system" and a "central database" as recited in claims 10 and 13. Additionally, claim 23 refers only to tag and not a reader. The correspondence between these two claims is shown in Figure 19 below:

Figure 19: Common Elements of the Security Key Claims

| '044, Claim 13 | '044, Claim 25 |
|---|---|
| 10. A toll system, comprising:<br>a central data base configured to:<br>store toll accounts,<br>receive identifiers related to toll accounts and<br>compare the received identifiers to identifiers associated with the toll accounts to determine if a match exists; | |
| an RFID reader comprising a radio and an antenna, the RFID reader configured to: | 23. A RFID transponder, comprising;<br>a memory the contents of which includes an identifier;<br>a radio front end and an antenna; and<br>a processor coupled with the radio front end and the memory, the processor configured to: |
| send a first communication to a RFID transponder that includes a memory the contents of which include an identifier, | receive a first communication from a RFID reader via the radio front end and the antenna; |
| send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder, | receive a second communication from the RFID reader that includes a security key via the radio front end and the antenna; |
| | grant access to the memory contents based on the security key; and |
| receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key, and | send at least the identifier included in the memory contents in response to the second communication. |
| transmit the identifier to the central database. | |
| 13. The system of claim 10, wherein the RFID reader is further configured to send a third communication to the RFID transponder that includes a second security key for validation by the RFID transponder and receive further memory contents in response to the third communication and as a result of validation of the second security key. | 25. The RFID transponder of claim 23, wherein the processor is further configured to receive a third communication from the RFID reader via the radio front end and an antenna that includes a second security key, grant access to the memory based on the second security key, and send further memory contents in response to the third communication. |

(CDX-0003.0001; RDX-2071.).

Complainant alleged that the same 6C features that satisfy the reader limitations of claim 13 satisfy the tag limitations of claim 25. For example, Complainant asserted that the *ACK* command with RN16 corresponds to the second communication with the first security key, and the *Read* command with the Handle constitutes the third communication with the second security key. (CBr. at 29-34 (citations omitted).). Respondents' only rebuttal is that the accused tags do not infringe claim 25 for the same

reasons that the Accused JANUS Readers do not satisfy "claim 13.[69] (RBr. at 44.).

Respondents' witnesses and Complainant's expert, Mr. Goldberg, agreed that the '044 Accused Tags are all passive RFID tags that operate according to the 6C Protocol. *(See, e.g.,* Tr. (Goldberg) at 528:2-530:9, 537:6-15; Tr. (Lockhart)[70] at 954:13-21; CDX-0003.36-39, 47-48; JX-0034C; JX-0057C; JX-0069C; CX-0588.0035-37; CX-0599C.8472; CX-604C.4444; CX-605C.6188; CX-0654.0033-34; CX-0659.0046-47; *see also* Tr. (Murray)[71] at 697:17-24, 718:23-719:5.).

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[69] Other than their judicial estoppel and judicial admission arguments Respondents raised against certain statements made by Complainant during the *Markman* proceedings, which this Court found unpersuasive for the reasons discussed in Section V.F.2(a)(iii), Respondents' sole non-infringement theory rested on the notion that the accused readers are not "configured to . . . transmit the identifier to the central database," where the "central database" is a part of the claimed "toll system." (RBr. at 30-32.). Those assertions do not apply here, since that limitation in claim 10 (from which claim 13 depends) is not recited in claim 23 (frqm which claim 25 depends), which leaves Respondents to rely only on their contentions that Complainant should be estopped from asserting its infringement theory based on the 6C Protocol.

[70] At the time of the evidentiary hearing, Mr. Stephen Lockhart was the Chief Technology Officer of Star Systems International, Ltd ("Star"). (Tr. (Lockhart) at 933 :23-25; RPSt. at 4.). Respondents identified Mr. Lockhart as a fact witness to provide testimony regarding Star, background on tolling and RFID technology, the tolling and RFID industries, and Respondent Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 4.).

[71] At the time of the evidentiary hearing, Mr. Christopher Murray was the President of Kapsch TrafficCom Holding Corp.

The testimonial and documentary evidence also show that each of the '044 Accused Tags contains an RFID chip (Alien Higgs 3, Alien Higgs 4, Impinj Monza 4D, or NXP UCODE DNA) with on-board memory, the contents of which include an identifier stored in the UII (also referred to as EPC) memory. *(See, e.g.,* Tr. (Goldberg) at 537:16-543:1; CDX-003.0018, 39, 49-54; Tr. (Malarky) at 795:21-25, 797:4-798:5; Tr. (Lockhart) at 937:4-938:12; JX-0020 at SSIITC-00015578; CX-0025.9634; JX-0054C.0035-36, 42, 44-45 (162:12-163:20, 183:11-20, 187:6-12, 187:14-188:4, 191:7-14); JX-0055C.0035-36 (43:13-45:14); JX-0056C.0028-31 (73:15-24, 76:4-10, 76:17-24, 77:6-15, 79:23-80:15); CX-0025.9634; CX-0322C.0103; CX-0481C.0941-42; CX-0483C.8879-80; CX-0581C.8459, 8463; CX-0610.3190; CX0633.0011; CX-0646.0174; CX0650.0024; CX0654.0034; CX-0659.0047; CX-0712C.1992; CX-0749; CX-0323C.0178; CX-0776C.4180, 4186, 4188, 4195; CX-0771C . .9826, 9827, 9829. 9839; CX- 0588.0035-37; CX0838C.6515-16; CX0839C.6642-45.). The 6C Protocol confirms that "[t]he UII is a code that identifies the object to which the tag is affixed." (JX-0020 at SSIITC-00015578; *see also, e.g.,* CX-

("Kapsch TrafficCom North America" or "Kapsch"). (Tr. (Murray) at 691 :7-8; RPSt. at 5.). According to Mr. Murray, Kapsch.TrafficCom North America consists of all the Kapsch TrafficCom legal entities in the U.S., Canada, and Mexico. (Tr. (Murray) at 691:11-13.). Respondents identified Mr. Murray as a fact witness to provide testimony regarding Kapsch, tolling and RFID technology background, the tolling and RFID industries, and Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 5.).

0025.9634 ("The EPC identifies the object to which the Tag is affixed."); CX-0581C.8459, 8463.

The evidence adduced in this Investigation also shows that the '044 Accused Tags are RFID tags comprising a radio front end and an antenna. *(See, e.g.,* Tr. (Goldberg) at 530: 10-25, 539:21-543:1; Tr. (Lockhart) at 936:25-938:22; CDX-0003.40, 51-54; CX-0659.0046-47; CX-0654.0033-34; CX-0322C.0103; CX-0776C.4186, 4195; CX-0323C.0178; CX-0588.0035-37; CX-0838.6515-16; CX-0839.36642-45; CX-0771C.9827.). As Mr. Goldberg testified, the '044 Accused Tags include a processor coupled with the radio front end and the memory. *(See, e.g.,* Tr. (Goldberg) at 531:1-532:11,543:2-545:16; CDX-0003.41, 55-58; CX-0322C.0103; CX-0300.2702-03; CX-0323C.0178; CX-0776C.4195; CX-0588.0035-37; CX-0838.6515-16; CX-0839.6642-45; CX-0771C.9811, 9816, 9827.).

The evidence demonstrates that to practice the 6C Protocol, the processors in each of the '044 Accused Tags are configured to receive a first communication from a RFID reader via the radio front end and the antenna; receive a second communication from the RFID reader that includes a security key via the radio front end and the antenna; grant access to the memory contents based on the security key; and send at least the identifier included in the memory contents in response to the second communication. (Tr. (Goldberg) at 532:12-533:4, 545:13-17, 637:2-21; CDX-0003.42, 59; JX-0020 at SSIITC-00015774; *see also* Tr. (Goldberg) at 520:15-521:11, 523:21-525:9; CDX-0003.0019, 21-22, 27-29.). Pursuant to the 6C Protocol, a 6Ccompliant RFID reader inventories and

accesses the memory of 6C-compliant RFID tags according to the sequence presented in the 6C Protocol Communications Diagram in Sections V.F.2(a)(ii) and V.F.2(b). (Tr. (Goldberg) at 532:12-533:4, 545:13-17, 637:2-21; CDX-0003.42, 59; JX-0020 at SSIITC-00015774; *see also* Tr. (Goldberg) at 520:15-521:11, 523:21-525:9; CDX-0003.0019, 21-22, 27-29.). As discussed above in Section V.F.2(a)(ii), the RN16 constitutes a "security key" under the Court's construction.

Additionally, the evidence establishes that the '044 Accused Tags grant access to memory contents "based on the [second] security key." *(See, e.g.,* Tr. (Goldberg) at 520: 15-521: 11, 523:21-525:9, 637:2-21; CDX-0003.0019, 21-22, 27-29, 42, 44, 59-60.). The reader transmits this RN16 to the tag with an *ACK* command in order to be granted access to memory. (Tr. (Goldberg) at 520:15-521:11, 637:2-21; CDX-0003.0019, 21-22; 42, 59; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774; CX-0523C.4028-30.). The tag checks and validates the RNl 6 against the RNl 6 previously transmitted before the tag grants the reader access to its UII (EPC) memory. *(See, e.g.,* Tr. (Goldberg) at 520:15-521:11, 637:2-21; CDX-0003.0019, 21-22; 42, 59; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774; CX-0523C.4028-30.). If the RN16 does not match, the tag will not reply. *(See, e.g.,* Tr. (Goldberg) at 521:9-10, 637:2-21.). Thus, the tag grants the reader access to its memory as a result of validation of the RN16 (i.e., "security key") and sends the UII (EPC) memory contents (i.e., "identifier") in response.

Likewise, when the tag receives, for example, a *Read* command with the Handle, the tag checks and validates the Handle against the Handle previously transmitted before the tag grants the reader access to further memory contents, such as the TID memory or an error code. *(See, e.g.,* Tr. (Goldberg) at 523:21-525:9, 637:2-21; Tr. (Liu) at 862:21-863:iO, 872:9-25, 876:6-14, 881:7-23, 883:9-22, 886:9-887:23; CDX-0003. 27-29, 42, 44, 59-60; JX-0020 at SSIITC-00015607-09, 5754, 5774; CX-0523C.4028, 4030; RPX-0017C.0821; RPX-0019C.1053.). If the Handle does not match, the tag will not reply. *(See, e.g.,* Tr. (Goldberg) at 525:5-9; CDX-0003:27.). Thus, the tag grants the reader access to its memory as a result of validation of the Handle (i.e., "second security key") and sends further memory contents in response.

For the reasons discussed above, Complainant has met its burden and proven by a preponderance of the evidence that the '044 Accused Tags satisfy each and every limitation recited in claims 23 and 25 of the '044 patent.

**e) Conclusion**

For the reasons discussed above in Sections V.F.2(a)-(d), the Accused JANUS Readers used in the Kapsch Accused RFID System and the Kapsch Accused RFID System include each and very claim limitation recited in claims 13 and 14 of the '044 patent, and the '044 Accused Tags contain each and every claim limitation recited in claim 25. of the '044 patent. The Kapsch Accused RFID System satisfies every limitation recited in independent claim 10, from which claims 13 and 14 depend, and asserted claims

13 and 14, because they are, *inter alia,* configured to transmit an identifier to the accused central database, i.e., BOS, and include the claimed "first communication," "second communication," "identifier," and "security keys." The'044 Accused Tags satisfy every limitation recited in claim 23 because they, *inter alia,* involve a processor configured to "receive a first communication," "receive a second communication ... that includes a security key," and "grants access to the memory contents based on the security key." However, because Respondents have shown by clear and convincing evidence that the asserted claims of the '044 patent are invalid *(see* Section V.E), the Kapsch Accused RFID System cannot directly infringe claims 13, 14, and 25 of the '044 patent. *See, e.g., Commil,* 135 S. Ct. at 1929; *ePlus,* 790 F.3d at 1309.

### 3. No Direct Infringement of the '436 Patent

Complainant has accused the Kapsch Accused Readers[72] and the Star Accused Readers[73]

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[72] Complainant has defined these to include the "Janus Reader (which includes the Accused Janus Multiprotocol Reader II, Janus Multiprotocol RF Module/Janus Multiprotocol RF Module Smart, and IAG 3 Antenna Lane Kit); Dorado Reader (DORADO Handheld Data Collector); and Vela Reader (VELA USB Connected RFID Reader)." (CBr. at 8.).

[73] Complainant has defined these to include "(1) VELA USB Connected RFID Reader ('Vela Reader'), (2) DORADO Handheld Data Collector ('Dorado Reader'), (3) REGOR UHF RFID Fixed Reader ('Regor Reader'), (4) PROCYON Integrated Reader (12dBi and 8dBi models) ('Procyon Reader'), (5) PLATINO Handheld Reader ('Platino Reader'), (6) CARINA UHF RFID Integrated Reader ('Carina Reader')." (CBr. at 10.). According to

(collectively, "'436 Accused Readers") of directly infringing claims 1, 2, and 4 of the '436 patent. *(See* CBr. at 9-10.). To prove that the '436 Accused Readers infringe the asserted claims of the '436 patent, Complainant relied, in part, on a showing that the '436 Accused Readers operate pursuant to the 6C Protocol. (CDX-0003.0009.). *Fujitsu,* 620 F.3d at 1327 (noting that "a district court may rely on an industry standard in analyzing infringement . . . . if an accused product operates in accordance with a standard, then comparing the claims to that standard is the same as comparing the claims to the accused product").

As discussed in further detail below, the record evidence shows by a preponderance of the evidence that the '436 Accused Readers include each and every claim recited in the asserted claims. However, because Respondents have shown by clear and convincing evidence that the asserted claims of the '436 patent are invalid for failure to meet the written description requirement *(see* Section V.E.l(b)), and are invalid as anticipated by the Gen2 Standard/6C Protocol and Snodgrass *(see* Section V.E.2(b)), the '436 Accused Readers cannot directly infringe claims 1, 2, and 4 of the '436 patent. *See, e.g.; Commil,* 135 S. Ct. at 1929; *ePlus,* 790 F.3d at 1309.

**a) Claim 1**

Complainant accused the '436 Accused Readers of directly infringing claim 1. (CBr. at 35.). As an

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Star, Infinity has sold and/or offered for sale these readers in the United States. (JX-0069C (Doc. ID No. 590635; Joint Stip. Regarding Infinity) at if 3 (Sept. 12, 2016).).

initial matter, claims 10 and 13 of the '044 patent recite all but one of the limitations of claim 1 of the '436 patent. Claim 1 of the '436 patent requires a RFID reader that includes "a processor coupled with the radio," which is not recited in claims 10 or 13 of the '044 patent. Additionally, claim 1 of the '436 patent refers only to a reader and does not require a "toll system" or a "central database," as recited in claim 10 of the '044 patent, from which asserted claims 13 and 14 depend. The correspondence between claim 1 of the '436 and claims 10 and 13 of the '044 patent is shown in Figure 20 below:

Figure 20: Common Elements of the Security Key Claims

| '044, Claim 13 | '436, Claim 1 |
|---|---|
| 10. A toll system, comprising:<br>a central data base configured to:<br>store toll accounts,<br>receive identifiers related to toll accounts and<br>compare the received identifiers to identifiers associated with the toll accounts to determine if a match exists; | Key: Toll system elements; Reader elements; Tag elements |
| an RFID reader comprising a radio and an antenna, the RFID reader configured to: | 1. A RFID reader, comprising:<br>a radio and an antenna;<br>a processor coupled with the radio, the processor configured to: |
| send a first communication to a RFID transponder that includes a memory the contents of which include an identifier, | send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier, |
| send a second communication to the RFID transponder that includes a security key for validation by the RFID transponder, | send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder, |
| | |
| receive at least the identifier included in the memory contents in response to the second communication and as a result of validation of the security key, and | receive at least the identifier included in the memory contents via the radio and the antenna in response to the second communication and as a result of validation of the security key, and |
| transmit the identifier to the central database. | transmit the identifier to a central database; |
| 13. The system of claim 10, wherein the RFID reader is further configured to send a third communication to the RFID transponder that includes a second security key for validation by the RFID transponder and receive further memory contents in response to the third communication and as a result of validation of the second security key. | wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder and receive via the radio and the antenna further memory contents in response to the third communication and as a result of validation of the second security key. |

(CDX-0003.0001; RDX-2071.).

'436, Claim 1

With regard to the identical claim limitations, the Accused JANUS Readers that Complainant accused of infringing the asserted claims of the '044 patent meet these limitations for the reasons discussed in Section V.F.2. In summary, the Accused JANUS Readers: (1) are RFID readers with "a radio and an anterurn (CDX-0003 .0016-17 (citing CX-0515C (Janus technical specification) at KTCITC-00005302); Tr. (Goldberg) at 508:7- 509: 11); (2) are configured to operate pursuant to the 6C Protocol, which includes a communication protocol for the reader to access a tag (CDX-0003.0016 (citing CX-0604C (LSIORB award) at KTCITC-00034413)); and (3) include the random number RN16 as a "security key" and the Handle as the "second security key" (JX-0020 (6C Protocol) at SSIITC-00015774; Tr. (Goldberg) at 491:8:10, 517:13-23, 524:1-3). The evidence also shows that: (1) each of the accused readers issue a *Query* command ("send a first communication") to the tag; (2) each of the tags have a memory that include a UII or Electronic Product Code ("EPC") ("an identifier"); (3) the tag responds with an RN16 ("security key"); (4) the reader issues an *ACK* command ("send a second communication") with the same RN16 ("security key"); (5) the tag validates the RN16 ("security key") and responds with the UII ("send at least the identifier included in the memory"); and ( 6) the reader receives the UII ("receive at least the identifier"). (CDX-0003.0018-23 (citing JX-0020 (6C Protocol) at SSIITC-00015774); Tr. (Goldberg) at 510:5-522:5.).

Likewise, the testimonial evidence and technical documents confirm that the Kapsch Dorado

and Vela Readers, and the Star Accused Readers are RFID readers which include a radio and an antenna used to communicate with an RFID tag to perform "read" and "write" operations on RFID tags. (Tr. (Goldberg) at 550:15-551:9, 584:12-586:22, 954:12-955:2; CDX-0003.67; CX-0653.0031-32; CX-0454.1970; CX-0455.0916; CX-0444; CX-0657.0043; CX-0452.3412; CX-0453.2735; CX-0445-0448; CX-0784C.9043; CX-0695C.5443-44; CX-0660.0048-49; CX-0619C.4455-57; CX-0661.0050; CX-0725C.4 736; CX-0656.0041-42; CX-0778C. l 805-06).

With regard to "a processor coupled with the radio" limitation and the Kapsch Accused JANUS Readers, the JANUS technical specification indicates that the [ ] (CX-0515C (Janus technical specification) at KTCITC-00005300, 5302.). Similarly, with respect to the Kapsch Dorado and, Vela Readers, and the Star Accused Readers (Vela, Procyon, Carina, Regor, Dorado, and Platino ), the evidence shows that these readers include a "processor coupled with the radio." (Tr.(Goldberg) at 550:15-551:9, 584:21-586:22; CDX-0003.67, 85-90; CX-0653.0031-32; CX-0454.1970; CX-0455.0916; CX-0444; CX-0657.0043; CX-0452.3412; CX-0453.2735; CX-0445-0448; CX-0784C.9043; CX-0695C.5443-44; CX-0660.0048-49; CX-0619C.4455-57; CX-0661.0050; CX-0725C.4 736; CX-0656.0041-42; CX-0778C.1805-06.).

The record evidence demonstrates that the processors in the Kapsch Dorado and Vela Readers, and the Star Accused Readers, are also configured to: (1) send the claimed "first communication . . . which includes an identifier"; (2) send the claimed "second

communication . . . that includes a security key for validation by the RFID transponder"; (3) receive the claimed "identifier . . . as a result of validation of the security key"; ( 4) transmit the claimed "identifier to a central database"; and (5) send the claimed "third communication . . . that includes a second security key." (JX-0002 at 13-34.). All of the '436 Accused Readers are configured to operate pursuant to the 6C Protocol. *Fujitsu Ltd. v. Netgear Inc.,* 620 F.3d 1321, 1327 (Fed. Cir. 2010) (finding that "a district court may rely on an industry standard in analyzing infringement" and that "if an accused product operates in accordance with a standard, then comparing the claims to that standard is the same as comparing the claims to the accused product"). (Tr. (Goldberg) at 546:22-551:6, 584:12-586:22, 954:12-955:2; 783: 14-24, 799:7-801:15, 954:12-955:2; CDX-0003.68-70, 78-79, 91-92, 99-100; CX-0523C.4028-4030; CX-0603C.7625; CX-604C.4413, 4483-84; JX-0034C; JX-0057C; JX-0069C; CX-0599C.8475; CX-0604C.4483; CX-0515C.05302; CX-0653.0031-32; CX-0454.1970; CX-0455.0916; CX-0444; CX-0657.0043; CX-0452.3412; CX-0453.2735; CX-0445-0448; CX-0784C.9043; CX-0695C.5443-44; CXPage 0660.0048-49; CX-0619C.4455-57; CX-0661.0050; CX-0725C.4736; CX-0656.0041-42; CX-0778C. l 805-06.). The 6C Protocol requires that the 6C-compatible tags with which the '436 Accused Readers communicate contain a memory configured to store identifiers in the UII memory. *(See, e.g.,* Tr. (Goldberg) at 551:10-552:8, 586:23-587:3; CDX-0003.68, 91; JX0020.5576-5578; CX-0025.3964; CX-0581C.8463; CX-0604C.4424-4425, 4444.).

As discussed in Sections III.A.3, V.F.2(a)(ii) and V.F.2(b) above, the 6C Protocol further requires the '436 Accused Readers' processors each be configured to communicate with, and inventory and access the memory of, 6C-compatible tags according to a specific sequence. The table below shows how each of the communication steps illustrated by the 6C Communications Protocol Diagram above corresponds to the limitations of claim 1:

**Table 5: Claim 1 of the '436 Patent v. 6C Protocol**

| **Claim 1 of the '436 Patent** | **6C Protocol Step** |
|---|---|
| send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier | Step 1 to Step 2 |
| send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder | Step 3 to Step 4 |
| receive at least the identifier included in the memory contents via the radio and the antenna in response to the second | Step 4 to Step 5 |

| | |
|---|---|
| communication and as a result of validation of the security key | |
| send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder. | Step 7 to Step 8 |
| receive via the radio and the antenna further memory contents in response to the third communication and as a result of validation of the second security key | Step 8 to Step 9 |

*(See* Tr. (Goldberg) at 551:10-553:25, 577:5-578:24, 587:4-11, 589:7-21, 637:2-21; CDX-0003.68-70, 78-79, 91-92, 99-100; JX-0020 at SSIITC-00015602, 5604-05, 5607-09, 5774; *see also* CX-0523C.4028-4030.).

As discussed in Section V.F.2(a)(ii), the RN16 constitutes a "security key" and the Handle constitutes a "second security key" under the Court's construction of "security key." (Tr.(Goldberg) at 520: 15-521 :11, 523:21-526: 13, 637:2-21; CDX-000.0019, 21-22, 27-30; JX0020.5607-09, 5754, 5774, 5785-86; CX-0523C.4028, 4030.). Further, as discussed in Section V.F.2(a)(ii), the 6C-compatible reader receives at least the identifier included in the tag's memory "as a result of validation of the security key," and receives further memory contents from the tag's memory" as a

result of validation of the second security key." *(See, e.g.,* Tr.(Goldberg) at 520:15-521:11, 637:2-21; CDX-0003.0019, 21-22; 42, 59; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774; CX-0523C.4028-30.).

In addition to the above-required communication steps, the 6C Protocol and Mr. Goldberg's testimony confirm that the '436 Accused Readers' processors are each configured to also transmit the identifier read from a 6C-compliant tag's UII (EPC) memory to a central database, for example a central database located in a host computer, a toll zone controller, or the commercial portion of a tolling back-office system. (Tr. (Goldberg) 578:25-582:14, 587:12-589:6, 829:25-831:10, 954:12-955:2, 956:1-957:24; CDX-0003.71-77, 93-98; CX-0015C.6204, 6211; CX-0509C.5346; CX-0515C.5302; CX-0513C.2833, 3006, 3079, 3084; CX-0773C.5489; CX-0774C.6037; CX-0512C.2716, 2917, 2935; CX-0662.0135, 0137; CX-0716C.6404-05; RX-1 lOOC.9565; CX-1206.0018, CX-0715C.4840; 4846, 4848; CX-0673C.7929, 7934-35; CX-0778C. 1805-06; JX-0057C.). Respondents asserted that because Snodgrass discloses a reader that can output data to a computer that contains a database, which Respondents pointed out was not disputed by Mr. Goldberg, "[t]o the extent Neology belatedly disputes that point, then the Accused Readers would likewise not satisfy this claim element." *(Id.* (citations omitted).). This is a curious-and unpersuasive-assertion given Respondents' position that this claim is invalid as anticipated by Snodgrass.[74]

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[74] Respondents also argued that Snodgrass anticipates claim 25 of the '044 patent.

For the reasons discussed above, Complainant has shown by a preponderance of the evidence that the '436 Accused Readers satisfy each and every limitation recited in claim 1 of the '436.

**b) Claims 2 and 4**

Complainant accused the '436 Accused Readers of directly infringing claims 2 and 4, which Respondents did not dispute. (CBr. at 40; RBr. at 45-46.). Claim 2 recites the additional limitation that "the security key is based on information received from the RFID transponder." (JX-0002 at 23:35-26.). As illustrated in the 6C Communications Protocol Diagram in Sections V.F.2(a)(ii) and V.F.2(b) above, according to the 6C Protocol', the RNl 6 (i.e., the "security key") 1s sent by the reader back to the tag as part of communication Steps 3 and 4. The RN16 was previously sent by the tag to the reader in communication Steps 2 and 3. *(See* Tr. (Goldberg) at 583:13-23, 589:22-590:5, 637:2-21; CDX-0003.81, 83, 102, 104; JX-0020 at SSIITC-00015602, 15774; see also CX-0523C.4028-4030.). The "security key" is therefore based on the RN16 previously transmitted by the 6Ccompliant tag and received by the 6C-compliant reader.

Claim 4 recites the additional limitation that "the second security key is based on information received from the transponder." (JX-0002 at 23:41-43.). According to the 6C Protocol, the Handle (i.e., "second security key") is sent by the reader back to the tag as part of communication Steps 7 and 8. The Handle was previously sent by a 6C-compliant tag to

the 6Ccompliant reader in communication Steps 6 and 7. *(See* Tr. (Goldberg) at 583:24-584:7, 590:6-15, 637:2-21; CDX-0003.82-83, 103-104; JX-0020 at SSIITC-00015607, 15774; *see also* CX-0523C.4028-4030.). Thus, the "second security key" is based on the Handle previously transmitted by the 6C-compliant tag and received by the 6C-compliant reader.

Accordingly, Complainant has shown by a preponderance of the evidence that the '436 Accused Readers satisfy each and every limitation recited in claim.1 of the '436.

**c) Conclusion**

For the reasons discussed above in Sections V.F.3(a)-(b), the '436 Accused Readers satisfy every limitation recited in claims 1, 2, and 4 of the '436 patent. The '436 Accused Readers include, *inter alia,* the claimed "processor coupled with the radio," as recited in claim 1, and "security keys" that are "based on information received from the RFID transponder," as claimed in claims 2 and 4 of the '436 patent. However, because Respondents have shown by clear and convincing evidence that the asserted claims of the '436 patent are invalid *(see* Sections V.E.l(b), V.E.2(b)), the '436 Accused Readers cannot directly infringe claims 1, 2, and 4 of the '436 patent. *See, e.g., Cammil,* 135 S. Ct. at 1929; *ePlus,* 790 F.3d at 1309.

### 4. No Indirect Infringement of the Asserted Claims

#### a) Kapsch TrafficCom Holding Corp. and Kapsch TrafficCom Canada Inc. Induced Kapsch TrafficCom IVHS, Inc. to Infringe All the Asserted Claims

Complainant alleged that at least Kapsch TrafficCom Holding Corp. and Kapsch TrafficCom Canada Inc., with knowledge of Complainant's patents since at least November 2013, induced Kapsch TrafficCom IVHS, Inc.'s direct infringement by actively encouraging, aiding, abetting, and/or facilitating Kapsch TrafficCom IVHS, Inc. to offer for sale, sell, and/or import the Accused Janus Reader, Accused Venus and Aries Tags, and the Kapsch Accused RFID System in the United States knowing that the Accused Janus Reader, Accused Venus and Aries Tags, and/or the Kapsch Accused RFID System infringed the Asserted Claims of the '044 and '436 patents. *(See, e.g.,* Tr. (John Freund)[75] at 911: 1-917:2; JX-0059C.0044-50 (Depo. Tr. (Gerard Plaschka)[76] at

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[75] At the time of his testimony during the evidentiary hearing on September 19, 2016, Mr. John Freund was the Senior Vice President of Sales at Kapsch TrafficCom Holding Corp. ("Kapsch"). (Tr. (Freund) at 889:9-10, 912:19-21; RPSt. at 2.). Respondents identified Mr. Freund as a fact witness to provide testimony regarding Kapsch, tolling technology background, the tolling and RFID industries, Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 2.).

[76] At the time of his deposition, taken on May 18, 2016, Dr. Gerhard Plaschka, Ph.D was the Executive Chairman of Kapsch TrafficCom Holding Corp. (JX-0059C.0008 (Depo. Tr. (Plaschka)

211 :24-214:22, 225: 19-226:21, 229: 14-230:5, 232: 10-233:4); CX-0388; CX-0572C; CX-0573C; CX-0575C; CX-0576C; CX-0599C; CX-0604C; CX-0748C; CX-0816C; CX-0821C; CX-0825C; CX-0979C; JX-0034C.).

The evidence adduced in this Investigation confirms that Kapsch TrafficCom Canada Inc., through at least its Chief Technology Officer Mr. Richard Tumock[77] (JX-0052C.0009 (Tumock Dep.) at 17:8-18:19)) obtained knowledge of the Asserted Patents, and Complainant's assertion that such patents covered 6C-compatible products from Complainant during [ ] on or around November 2013. (Tr. (Gillespie) at 1666:3-1668:16; JX-0052.0028, 0042 (Tumock Dep.) at 84:15-85:4, 121:17-122:15, 123:16-124:2); CX-0573C; CX-0574C; CX-0575C; C.X-0576C; CX-0578C; CX-0579C.). Kapsch TrafficCom Holding Corp., through at least its Chairman Dr. Plaschka (CX-0825C; JX-0059C.0010-12 (Plaschka Dep.) at 10:8-11 :2, 13:12-15:22)), obtained knowledge of Complainant's '044 and '436 patents, and Complainant's assertion that such patents covered 6C-compatible products from Complainant during [ ] on

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at 10:8-16).). Respondents identified Dr. Plaschka as a fact witness to provide testimony regarding Kapsch, tolling and RFID technology background, the tolling and RFID industries, Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (RPSt. at 5.).

[77] At the time of his deposition held on June 3, 2016, Mr. Richard Turnock was a consultant for Kapsch TrafficCom Canada, Inc. (JX-0052C.0002 (Turnock Dep. at 9:9-17, 18: 1-6).). Prior to September 2015, he was the Chief Technology Officer of Kapsch TrafficCom Canada, Inc. *(Id.* at 5 (Turnock Dep. at 17: 17-18:6.).

or around November 2013. (Tr. at (Gillespie) 1666:3-1668:16; JX-0052.0028, 0042 (84:15-85:4, 121:17-122:15, 123:16-124:2); CX-0573C; CX-0574C; CX-0575C; CX-0576C; CX-0578C; CX-0579C; CX-0748C; CX-0810C; CX-081 lC; CX-0815C; CX-0816C; CX-0821C; CX-0823C; CX-0825C; CX-0979C; CX-1218C; JX-0034C.).

Complainant also filed suit against Kapsch TrafficCom Holding Corp. and Kapsch TrafficCom IVHS Inc. alleging infringement of the '044 and '436 patents by, *inter alia,* Kapsch's Accused JANUS Reader, Star's Accused VELA Reader, and Star's Accused VENUS Tag that are at issue in this Investigation,' in the District of Delaware. (CX-0748C (First Am. Compl.) at ¶ 19 (D. Del. Feb. 27, 2014).).

Despite this knowledge, the record evidence shows that Kapsch TrafficCom Canada continued to sell and ship 6C-compliant products, including the Accused JANUS Reader, to Kapsch TrafficCom IVHS Inc. for use in 6C-compliant tolling systems in the United States, including the Kapsch Accused RFID System. *Commil USA,* 720 F.3d at 1367 (specific intent requirement for inducement necessitates a showing that the alleged infringer was aware of the patent, induced direct infringement, and that he knew that his actions would induce actual direct infringement). *(See, e.g.,* JX-0070C (Joint Stipulation Regarding Kapsch Business Relationships) at ¶ 3 ("Kapsch admits that Kapsch TrafficCom Canada Inc. sells and ships 6Ccompliant products to Kapsch TrafficCom IVHS Inc. for use in 6C-compliant tolling systems in the United States."); Tr. (Malarky) at 827:17-829:5; JX-0034C.0006-10 (Joint Stipulation

Regarding Importation).). Likewise, Kapsch TrafficCom Holding Corp (as reflected in the email sent by Dr. Plasckha as the Chairman of Kapsch TrafficCom Holding Corp.) approved and encouraged Kapsch TrafficCom IVHS Inc.'s sale of Kapsch's Accused Tags and Readers as part of Kapsch's "alternate strategy" and was "awarded already the first project (Ohio River Bridges)" with knowledge and "expect[ation] that Neology moves forward with a litigation" as a result. *Commil USA,* 720 F.3d at 1367. (CX-0825C; CX-0604C.).

Despite Kapsch TrafficCom Canada's (through at least its CTO Mr. Tumock) and Kapsch TrafficCom Holding Corp.'s (through at least its Chairman Dr. Plaschka) knowledge of the infringement detailed above, on February 4, 2015, Kapsch TrafficCom Canada's CTO Mr. Tumock and Kapsch TrafficCom Holding Corp.'s Chariman Dr. Plaschka voted to allow and approve Kapsch TrafficCom IVHS Inc.'s offer to sell the Kapsch Accused RFID System. *Commil USA,* 720 F.3d at 1367. (CX-0388.0460-62; *see generally* CX-0388.).

As established in Section V.F.2(d) above, Kapsch's Accused Tags meet all the elements of claim 25 of the '044 patent; Kapsch's Accused Readers meet all the elements of claims 1, 2, and 4 of the '436 patent; and Kapsch's Accused RFID System meets all the elements of claims 13 and 14 of the '044 patent. (JX-0034C). Moreover, Kapsch Respondents admit that it has imported into the United States, sold for importation into the United States, and/or sold within the United States after importation each of Kapsch's Accused Readers and Tags. (JX-0034C).

Accordingly, the evidence shows that Kapsch TrafficCom Holding Corp. and Kapsch TrafficCom Canada Inc. induced Kapsch TrafficCom IVHS, Inc. to infringe the Asserted Claims. *Minnesota Mining & Mfg. Co. v. Chemque, Inc.,* 303 F.3d 1294, 1304-05 (Fed. Cir. 2002) (A patentee asserting a claim of inducement must show (i) that there has been direct infringement and (ii) that the alleged infringer "knowingly induced infringement and possessed specific intent to encourage another's infringement.").

However, because Respondents have shown by clear and convincing evidence that the Asserted Claims of the '044 and '436 patents are invalid, Kapsch TrafficCom Holding Corp. and Kapsch TrafficCom Canada Inc. cannot be held liable for inducement. *See, e.g., Commil,* 135 S. Ct. at 1929 ("[A]n act that would have been an infringement or an inducement to infringe pertains to a patent that is shown to be invalid, there is no patent to be infringed . . . . Invalidity is an affirmative defense that 'can preclude enforcement of a patent against otherwise infringing conduct.'"); *ePlus,* 790 F.3d at 1309 ("[I]f the patent is indeed invalid, and shown to be so under proper procedures, there is no liability.") (quoting *Commil,* 135 S. Ct. at 1929)).

**b) Star Induced Kapsch and Infinity to Infringe Claim 25 of the '044 Patent and Claims 1, 2, and 4 of the '436 Patent**

Complainant alleged that because Star had knowledge of Complainant's patents and nevertheless knowingly induced Kapsch to offer for sale and sell

Kapsch's Accused Tags and Accused Readers in the United States, Star induced Kapsch to infringe claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. *(See e.g.,* Tr. (Lockhart) at 941:21-942:24; CX-0734C.6837; CX-0748C; JX-0057C; JX-0034C.). Complainant also filed suit against Star alleging infringement of the '044 and '436 patents by, *inter alia,* Star's VENUS Windshield Tag at issue in this Investigation, in the District of Delaware in February 2014, and had specific knowledge of the '044 and '436 patents, and allegations of infringement against Star's Accused Tags and Readers by at least March 2014. (Tr. (Lockhart) at 941 :21-942:24; CX-0748C; CX-0734C.). The evidence adduced in this Investigation demonstrates that despite this knowledge, Star continues to deliver and supply Star's Accused Tags and Readers to Kapsch with knowledge that Kapsch would offer for sale and sell such products in the United States, including as part of Kapsch's LSIORB and Puerto Rico Highways and Transportation Authority ("PRHTA") projects. *Commil USA,* 720 F.3d at 1367. *(See, e.g.,* Tr. (Lockhart) at 943:1-945:13, 948:8-950:4; JX-0057C; JX-0034C.0011; CX-0749C.0018-23; CX-0481C.).

Complainant also alleged that because Star had knowledge of Complainant's patents and nevertheless knowingly induced Infinity to offer for sale and sell its Accused Tags and Accused Readers in the U.S, Star induced Infinity to infringe claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. (JX-0069C; CX-0748C; *see, e.g.,* CX-0695C.5435-5449.). Star has stipulated that if the Infinity Accused Readers and Tags are found to infringe any of the Asserted Claims of the '044 or '436

patents, Star "will not contest that it has actively induced Infinity RFID's activities in the United States within the meaning of 35 U.S.C. § 271(b) as to such infringement." (JX-0069C (Joint Stipulation Regarding Infinity) at if 4.).

As established in Section V.F.2(d) above, the Infinity's Accused Tags meet all the elements of claim 25 of the '044 patent. In addition, Infinity's Accused Readers meet all elements of claims 1, 2, and 4 of the '436 patent. Moreover, Infinity has sold and/or offered for sale in the United States Infinity's Accused Tags and Readers. *(See, e.g.,* JX-0069C at if 3; JX-0057C; CX-0695C.5435-5449.).

As established in Section V.F.2(d) above, Star's Accused Tags meet all the elements of claim 25 of the '044 patent. In addition, Star's Accused Readers meet all the elements of claims 1, 2, and 4 of the '436 patent. Furthermore, Star admits that it has imported into the United States, sold for importation into the United States, or sold within the United States after importation each of Star's Accused Readers and Tags. (JX-0057C.).

Accordingly, the evidence shows that Star induced Kapsch and Infinity to infringe claim 25 of the '044 patent and claims 1, 2, and 4 of the '436 patent. *Minnesota Mining & Mfg. Co, v. Chemque, Inc.,* 303 F.3d 1294, 1304-05 (Fed. Cir. 2002). However, because Respondents have shown by clear and convincing evidence that the Asserted Claims of the '044 and '436 patents are invalid, Star cannot be held liable for inducement. *See, e.g., Commil,* 135 S. Ct. at 1929; *ePlus,* 790 F.3d at 1309.

## G. Technical Prong

### 1. Relevant Law

A complainant in a patent-based Section 337 investigation must demonstrate that it is practicing or exploiting the patents at issue. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same, and Prods. Containing Same, Including SelfStick Repositionable Notes,* Inv. No. 337-TA-366, Comm'n Op. at 8, Pub. No. 2949 (U.S.I.T.C., Jan. 16, 1996) *("Microsphere Adhesives").* The technical prong of the domestic industry requirement is satisfied when the complainant establishes that it is practicing or exploiting the patents at issue. *See id.*

The test for claim coverage for the purposes of the technical prong of the domestic industry requirement is the same as that for infringement. *Certain Doxorubicin and Preparations Containing Same,* Inv. No. 337-TA-300, Initial Determination at 109, 1990 WL 710463 (U.S.I.T.C., May 21, 1990), *aff'd,* Views of the Commission at 22 (October 31, 1990). "First, the claims of the patent are construed. Second, the complainant's article or process is examined to determine whether it falls within the scope of the claims." *Id.* The technical prong of the domestic industry can be satisfied either literally or under the doctrine of equivalents. *Certain Dynamic Sequential Gradient Devices and Component Parts Thereof,* Inv. No. 337-TA-335, Initial Determination at 44, Pub. No. 2575 (U.S.I.T.C., Nov. 1992). "In order to satisfy the technical prong of the domestic industry requirement, it is sufficient to show that the domestic

industry practices any claim of that patent, not necessarily an asserted claim of that patent." *Certain Ammonium Octamolybdate Isomers,* Inv. No. 337-TA-477, Comm'n Op. at 55 (U.S.I.T.C., Jan. 5, 2004) *("Certain Isomers").*

**2. Claim 25 of the '044 Patent Does Not Satisfy the Technical DI Requirement**

Complainant alleged that the Neology tags identified in Exhibit P to its Pre-Hearing Brief practice claim 25 of the '044 patent ("Neology DI Tags"). (CPBr. at 46, 133, Ex. P; *see also* CBr. at 10-11. ). Complainant also alleged that the [ ] tags identified in Exhibit 0 to its Pre-Hearing Brief practice claim 25 of the '044 patent ([ ] and collectively, with Neology DI Tags, "DI Tags"). (CPBr. at 41-42, 126, Ex. O; *see also* CBr. at 12.).

For the reasons discussed in more detail below, the DI Tags practice claim 25 of the '044 patent. However, because claim 23, from which claim 25 depends, and claim 25 have been found invalid, as discussed in Sections V.E.1 (b) and V.E.2(b) above, claim 25 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Certain Ground Fault Circuit Interrupters and Prods. Containing Same,* Inv. No. 337-TA-739 *("Ground Fault Circuit Interrupters"),* Comm'n Opinion, 2012 WL 2394435, at *46 (June 8, 2012) (citing *Bayer AG v. Elan Pharm. Research Corp.,* 212 F.3d 1241, 1247 (Fed. Cir. 2000) ("To prevail [on the test for satisfying the technical prong], the patentee must establish by a preponderance of the evidence that the domestic product practices one or more ***valid***

claims of the patent, either literally or under the doctrine of equivalents.") (emphasis added). Accordingly, Complainant has failed to meet its burden and show that the DI Tags practice at least one valid claim of the '044 patent. Therefore, Complainant has not satisfied the technical prong of the domestic industry requirement for the '044 patent.

**a) Claim 23**

***i. "A RFID transponder, comprising; a memory the contents of which includes an identifier"***

The evidence on which Complainant relies demonstrates that the DI Tags are all passive RFID tags that operate pursuant to the 6C Protocol, which Respondents do not dispute. *(See, e.g.,* Tr. (Goldberg) at 590:16-23, 591:16-593:8, 591:16-592:23, 594:22-596:3; CDX-0003.0105, 109-112, 12Q-122; CX-0224C.7035; CX-0228C.0332; CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2658; CX-0322C.0103; CX-300.2702-03, CX-0110.4335-36; CX-0128.4643; CX-0135.4650; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31.).

The record evidence shows that each of the Neology DI Tags contains an RFID chip (Alien Higgs 3, NXP G2iM and G2iM+ chips) with on-board memory, the contents of which include an identifier stored in the UII (EPC) memory. (Tr. (Goldberg) at 590:16-23, 591:16-593:8, 591:16-593:8; CDX-0003.0105, 109-113; CX-0224C.7035; CX-0228C.0332;

CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2649-50, 2658; CX-0322C.0103; CX-0300.2702-03; JX-0020 at SSIITC-00015578-79; CX-0025.9634.).

Likewise, the evidence establishes that each of the [ ] Tags contains an RFID Chip (Alien Higgs 3, NXP UCODE G2XM or G2XL, and Impinj Monza 1, 2 or 3) with on-board memory, the contents of which include an identifier stored in the UII (EPC) memory. (Tr.(Goldberg) at 594:22-596:3; CDX-0003.0120-22; CX-0128.4643; CX-0135.4650; CX-0110.4335-36; CX-0322C.0103; CX-0300.2702-03; JX-0020 at SSIITC-00015578-5579; JX-0020 at SSIITC-00015578-5579; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CXPage 0250.4622, 4629-31.). The 6C Protocol confirms that "[t]he UII is a code that identifies the object to which the tag is affixed." (JX-0020 at SSIITC-00015578; *see also, e.g.,* CX-025.9634 ("The EPC identifies the object to which the Tag is affixed."); CX-0581C.8459, 8463.

Accordingly, the DI Tags meet this claim limitation.

***ii. "a radio front end and an antenna; and a processor coupled with the radio front end and the memory"***

The testimonial and documentary evidence on which Complainant relies demonstrate that the Neology DI Tags have a radio front end and an antenna, and a processor coupled to a radio and memory, which Respondents do not dispute. *(See, e.g.,* Tr. (Goldberg) at 593:9-594:4; CDX-0003.0114-15;

CX-0143C.1418; CX-0300.2703; CX-0322C. 0103; CX-0027.2653, 2658; CX-0228C.0332; CX-0224C.7035.). For example, Mr. Goldberg's testimony and technical documents describing Neology's NTS Tag (representative of the Neology DI Tags incorporating the NXP G2iM chip) and On/Off Tag (representative of the Neology DI Tags incorporating the NXP G2iM+ chip) confirm the presence of a radio (the Analog RF Interface Block) that is connected to the tag's antenna, and a processor coupled to a radio and memory (included within the Digital Control Block). (Tr. (Goldberg) at 593:9-22; CDX-0003.0114; CX-0027.2653, 2658; CX-0228C.0332; CX-0224C.7035.). The evidence shows that Neology's LP Tag (representative of the Neology DI Tags incorporating the Alien Higgs 3 chip) also has an antenna and a radio (the RF/Analog Block), and a processor coupled to a radio and memory (included within the Digital Logic Block). (Tr. (Goldberg) at 593:23-594:4; CDX-0003.0115; CX-0143C'.1418; CX-0300.2703; CX-0322C.0103.).

Likewise, the record evidence demonstrates that the [ ] Tags have a radio front end and an antenna, and a processor coupled to a radio and memory. *(See, e.g.,* Tr. (Goldberg) at 596:4-597:6; CDX-0003.0124-126; CX-0128.4643; CX-0135.4650; CX-0110.4335-36; CX-0322C.0103; CX-0300.2702-03; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31.). For example, [ ] (representative of the [ ] Tags incorporating the Alien Higgs 3 Chip) confirms the presence of a' radio connected to the tag's antenna. *(See, e.g.,* Tr. (Goldberg) at 596:4-11; CDX-0003.0124; CX-0110.4335-36; CX-0114.4348; CX-0300.2703; CX-

0322C.0103.). [ ] Tag also includes a processor coupled to aradio and memory. (Tr. (Goldberg) at 596:4-11; CDX-0003.0124; CX-0110.4335-36; CX-0114.4348; CX-0300.2703; CX-0322C.0103.). [ ] Inlay (representative of the [ ] Tags incorporating the NXP G2XM and G2XL chips) has an antenna and a radio, and a processor coupled to a radio and memory. *(See, e.g.,* Tr. (Goldberg) at 596:12-19; CDX-0003.0125; CX-0128.4643; CX-0148.8027.). [ ] Inlay (which is representative of the [ ] Tags containing the Monza 1, 2 or 3 chips) also has an antenna and a radio, and a processor coupled to a radio and memory. *(See, e.g.,* Tr, 596:20-597:6; CDX-0003.0126; CX-0135.4650; CX-0147C.7981-7983, CX-0250.4622, 4629-31.).

Mr. Goldberg's unrebutted testimony is that the characteristics of the representative tags Neology's NTS Tag, On/Off Tag, and LP Tag, and [ ] Tag [ ] Tag, [ ] Inlay, and [ ] Inlay) are the same for the other DI Tags. (Tr. (Goldberg) at 605:7-19.). Accordingly, the DI Tags meet this claim limitation.

***iii. "the processor configured to: receive a first communication from a RFID reader via the radio front end and an antenna; receive a second communication from the RFID reader that includes a security key via the radio front end and an antenna; grant access to the memory contents based on the security key; and send at least the identifier included in the memory contents in response to the second communication"***

Complainant asserted that the DI Tags meet these limitations because they are each configured to operate pursuant to the 6C Protocol. *(See, e.g.,* Tr. (Goldberg) at 590:16-23, 591 :16-593:8, 591 :16-592:23, 594:5-10, 594:22-596:3, 597:7-15; CDX-0003.0105, 116, 127; CX-0224C.7035; CX-0228C.0332; CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2658; CX-0322C.0103; CX-300.2702-03, CX-0110.4335-36; CX-0128.4643; CX-0135.4650; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774.).

Respondents' only rebuttal is that the DI Tags do not practice claim 23 for the same reason that the Accused Tags do not infringe this claim. (RBr. at 48, RRBr. at 15.). Respondents' sole non-infringement theory rested on the notion that the accused readers are not "configured to . . . transmit the identifier to the central database," where the "central database" is a part of the claimed "toll system." (RBr. at 30-32.).

However, those assertions do not apply here, since the claimed "central database" and "toll system" required in claim 10 is not recited in claim 23. Respondents are left to rely only on their contentions that Complainant should be estopped from asserting its infringement theory based on the 6C Protocol, which this Court rejected for the reasons discussed in Section V.F.2(a)(iv) above. *(See also supra* n.32.).

As discussed in, *inter alia,* Section V.F.2(a)(ii), to practice the 6C Protocol, the processor in each of the DI Tags are configured to receive a first communication from a RFID reader via the radio front end and the antenna; receive a second communication from the RFID reader that includes a security key via the radio front end and the antenna; grant access to the memory contents based on the security key; and send at least the identifier included in the memory contents in response to the second communication. *(See, e.g.,* Tr. (Goldberg) at 520: 15-521:11, 523:21-525:9, 532:12-533:4, 545:13-17, 590:16-23, 591:16-593:8, 591:16-592:23, 594:5-10, 594:22-596:3, 597:7-15, 637:2-21; CDX-0003.0105, 116, 127; CX-0224C.7035; CX-0228C.0332; CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2658; CX-0322C.0103; CX-300.2702-03, CX-0110.4335-36; CX-0128.4643; CX-0135.4650; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774; CDX-0003.0019, 21-22, 42, 59.).

Pursuant to the 6C Protocol, a 6C-compliant RFID reader inventories and accesses the memory of 6C-compliant RFID tags according to the sequence presented in the 6C Communications Protocol

Diagram in Sections V.F.2(a)(ii) and V.F.2(b). (JX-0020 at SSIITC-00015774.). As discussed in Section V.F.2(ii), the RN16 constitutes a "security key" under the construed construction. (Tr. (Goldberg) at 520:15-521:11, 523:21-526:13, 637:2-21; CDX-000.0019, 21-22, 27-30; JX0020.5607-09, 5754, 5774, 5785-86; CX-0523C.4028, 4030.). Further, as discussed in, *inter alia,* Section V.F.2(a)(ii), the tag's processor grants access to the memory contents "based on the security key," as this term has been construed. *(See, e.g.,* Tr. (Goldberg) at 520:15-521:11, 637:2-21; CDX-0003.0019, 21-22; 42, 59; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774; CX-0523C.4028-30.).

Accordingly, the DI Tags meet these claim limitations. However, because claim 23 has been found invalid, as discussed in Sections V.E.l(b) and V.E.2(b) above, claim 23 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46.

**b) Claim 25**

***i. "The RFID transponder of claim 23, wherein the processor is further configured to receive a third communication from the RFID transponder via the radio front end and an antenna that includes a second security key, grant access to the memory based on the second security key, and send further memory contents in response to the third communication***

The evidence on which Complainant relies demonstrates that the DI Tags operate pursuant to the 6C Protocol, which Respondents do not dispute. *(See, e.g.,* Tr. (Goldberg) at590:16-23, 591 :16-593:8, 591 :16-592:23, 594:5-21, 594:22-596:3, 597:7-598:6; CDX-0003.0105, 116-19, 127-30; CX-0224C.7035CX-0228C.0332; CX-0143C.1418; CX-0036.2789, 2793; CX-0027.2658; CX-0322C.0103; CX-300.2702-03, CX-0110.4335-36; CX-0128.4643; CX-0135.4650; CX-0148.8027, 8046; CX-0147.7978, 7981-83, 7988; CX-0250.4622, 4629-31; JX-0020 at SSIITC-00015602, 5604-05, 5753, 5774.). As such, each of the DI Tags is configured to receive a third communication from the reader via the radio front end and the antenna that includes a Handle (i.e., the "second security key"), such as a *Read* command. (Tr.(Goldberg) at 594:5-21, 597:16-598:6, 637:2-21; CDX-0003.0117-18, 128-29; JX-0020 at SSIITC-00015607-09, 5754, 5774; *see also* Tr. (Goldberg) at 523:21-525:9; CDX-0003.0027-29.).

The *Read* command received from the reader includes a Handle (a "second security key") (Step 7), which is checked and validated by the tag's processor before granting access to its memory contents and sending further memory contents in response (Step 8). (Tr. (Goldberg) at 594:5-21, 597:16-598:6, 637:2-21; CDX-0003.0117-18, 128-29; JX-0020 at SSIITC-00015607-09, 5754, 5774; *see also* Tr. (Goldberg) at 523:21-525:9; CDX-0003.0027-29.). If the Handle included in the command sent by the reader is validated by the tag's processor, the tag will send a response to the *Read* command with further memory contents, such as the TID memory or an error code. *(See, e.g.,* Tr. (Goldberg) at 594:5-21, 597:16-598:6, 637:2-21; CDX-0003.0117-18, 128-29; JX-0020 at SSIITC-00015595, 5607-09, 5774, 5785-86; *see also* Tr. (Liu) at 862:21-863:10; 872:9-25; 876:6-14; 881:7-23, 883:9-22, 886:9-887:23; RPX-0017C.0821; RPX-0019C.1053.). If the Handle is invalid, the DI Tags will ignore the *Read* command and not respond. *(See, e.g.,* Tr. (Goldberg) at 637:2-21; JX-0020 at SSIITC-00015595, 5607-09, 5774, 5785-86.). As discussed in Section V.F.2(b), the Handle constitutes a "second security key" under the construed construction. *(See* Section V.F.2(b).). Additionally, as discussed in Section V.F.2(b), the tag's processor grants access to further memory contents "based on the second security key," as this term has been construed. *(See id.).*

Accordingly, the DI Tags meet these additional claim limitations. However, because claim 23 has been found invalid, as discussed in Sections V.E.l(b) and V.E.2(b) above, claim 25 cannot be relied upon to establish the technical prong of the domestic industry

requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46.

**c) Conclusion**

For the reasons discussed above in Sections V.G.2(a)-(b), the DI Tags meet each and every limitation recited in the claim 25 of the '044 patent. However, because this claim has been found invalid, as discussed in Sections V .E.1 (b) and V .E.2(b) above, Complainant has failed to meet its burden and show that the DI Tags practice at least one valid claim of the '044 patent. *See, e.g., Certain Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46 (June 8, 2012). Accordingly, Complainant has not satisfied the technical prong of the domestic industry requirement for the '044 patent.

**3. Claims 1, 2, and 4 of the '436 Patent Do Not Satisfy the Technical DI Requirement**

Complainant alleged that the following readers practice claims 1, 2, and 4 of the '436 patent: (1) the eight readers manufactured by [ ] and identified in Exhibit R to its Pre-Hearing Brief (collectively, [ ] (CPBr. at 55; Ex. R; *see also* CBr. at 13-14); (2) the three readers [ ] and identified in Exhibit R to its Pre-Hearing Brief (collectively, [ ]) (CPBr. at 55; Ex. R; *see also* CBr. at 13-14); and (3) the [ ] identified in Exhibit Q to its Pre-

Hearing Brief ([ ] and collectively, with [ ] Readers and [ ] Readers, "DI Readers"). (CPBr. at 51; Ex. Q; *see also* CBr. at 13-14).

For the reasons discussed in more detail below: (1) Neology's IR-915 LR Reader ("915 Reader"), [ ] Reader ([ ]), and [ ] Reader"), which are representative of all the Neology DI Readers, practice claims 1, 2, and 4 of the '436 patent; and (2) [ ] Reader, also representative of all the [ ] Readers, practice claims 1, 2, and 4 of the '436 patent. Mr. Goldberg's unrebutted testimony is that the characteristics of these representative readers are the same for the other DI readers. (Tr. (Goldberg) at 605:7-19.).

However, because claims 1, 2, and 4 have been found invalid, as discussed in Sections V.E.1(b) and V.E.2(b) above, claims 1, 2, and 4 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46 (June 8, 2012). Accordingly, Complainant has failed to meet its burden and show that the DI Readers practice at least one valid claim of the '436 patent. Therefore, Complainant has not satisfied the technical prong of the domestic industry requirement for the '436 patent.

**a) Claim 1**

***i. "A RFID reader, comprising: a radio and an antenna; a processor coupled with the radio"***

The evidence on which Complainant relies demonstrates that the DI Readers are all configured to operate pursuant to the 6C Protocol and each includes a radio and an antenna, and a processor coupled with the radio, which Respondents do not dispute. *(See, e.g.,* Tr. (Goldberg) at 591:1-15, 598:10-600:21; CDX-0003.0107-08, 130-37; CX-0142C.1412-13; CX-0058C.0063; CX-0232C.6943; CX-0151.0347; CX-0037.3251; CX-0075C. 0024, 0028, 0029; CX-0237C.1859, 1860, 1897; CX-0104.3528, 3590, 3592, 3646.). Specifically, Neology's IR-915 Reader (representative of Neology DI Readers [ ]) is a self-contained reader that incorporates all necessary electronics, including a radio and antenna, and a processor coupled with the radio. (Tr. (Goldberg) at 598:19-599:2; CDX-0003.0131-32; CX-0142C.1412-1413; CX-0058C.0020, 0028-0050, 0063-0112.). Neology's [ ] (representative of Neology DI Readers [ ]) also comprises a radio and antenna, and a processor coupled with the radio. (Tr. (Goldberg) at 599:3-600:6; CDX-0003.0013-35; CX-0232C.6943; CX-0151.0347; CX-0037.3251; CX-0075C.0024, 0028, 0029.).

Likewise, the evidenced adduced in this Investigation confirms that Neology's and [ ] Reader (which is representative of both Neology DI Readers [ ], and all [ ] Readers) comprises a radio and antenna, and a processor

coupled with the radio. (Tr.(Goldberg) at 600:7-21; CDX-0003.0137-38; CX-0237C.1859, 1860, 1897, 1910; CX-0104.3517, 3518-19, 3528, 3590, 3592, 3646; CX-0036.2833.).

Accordingly, the DI Readers meet this claim limitation.

***ii. "the processor configured to: send a first communication to a RFID transponder via the radio and the antenna that includes a memory the contents of which includes an identifier, send a second communication to the RFID transponder via the radio and the antenna that includes a security key for validation by the RFID transponder, receive at least the identifier included in the memory contents via the radio and the antenna in response to the second communication and as a result of validation of the security key, and transmit the identifier to a central database; wherein the processor is further configured to send a third communication to the RFID transponder via the radio and the antenna that includes a second security key for validation by the RFID transponder and receive via the radio and the*** **antenna** ***further memory contents***

***in response to the third communication and as a result of validation of the second security key"***

Complainant asserted that the DI Readers meet this limitation because they each configured to operate pursuant to the 6C Protocol. *(See, e.g.,* Tr. (Goldberg) at 591:1-15, 598:10-600:21, 601:7-604:14; CDX-0003.0107-08, 130-47; CX-0142C.1412-13; CX-0058.0063, 0069-0070, 0072, 0080; CX-0035C.1946, 91951; CX-0232C.6943; CX-0151.0347; CX-0037.3251; CX-0075C. 0024, 0028, 0029; CX-0237C. 1859, 1860, 1897; CX-0104.3528, 3590, 3592, 3646.). Respondents' only rebuttal is that the DI Readers do not practice claim 1 for the same reason that the Accused JANUS Readers do not infringe this claim. (RBr. at 48, RRBr. at 15.). As explained above, Respondents' single non-infringement position that the Accused JANUS Readers are not "configured to . . . transmit the identifier to the central database" has been rejected. *(See* Section V.F.2(a)(iii), *supra.).*

The evidence on which Complainant relies establishes that Pursuant to the 6C Protocol, the tags are required to have a unique item identifier, stored in the UII memory. *(See, e.g.,* Tr.(Goldberg) at 600:25-601 :6; CDX-0003.0138; JX-0020.5552, 5576, CX-0025.3964; *see also* Tr. (Goldberg) at 551:10-552:8, 586:23-587:3; CDX-0003.68, 91.).

The testimonial and documentary evidence also shows that pursuant to the 6C Protocol, the IR~915 Reader, [ ] Reader are configured to perform the following communication steps

illustrated by the 6C Communications Protocol Diagram in Sections V.F.2(a)(ii) and V.F.2(b): (1) send a *Query* command (a "first communication") to a RFID tag that has a memory containing an identifier (Step 1); (2) send an *ACK* command to the tag (a "second communication") that also includes an RN16 (a "security key") that is to be checked and validated by the tag (Step 3); (3) receive from the tag a unique item identifier ("UII") from the tag's memory ifthe RN16 is validated (Step 4); (4) send a third communication to the tag, such as a *Read* command, that includes a Handle (a "second security key") that is to be checked and validated by the tag (Step 7); and (5) receive from the tag the further memory contents (such as TID memory or error code) if the Handle is validated (Step 8). *(See, e.g.,* Tr. (Goldberg) at 601:7-604:14, 637:2-21; CDX-0003.0139-147; JX-0020.5602, 5604-05, 5607-09, 5753-54, 5774; *see also* Tr. (Liu) at 862:21-863:10; 872:9-25; 876:6-14; 881:7-23, 883:9-22, 886:9-887:23; RPX-0017C.0821; RPX-0019C.1053.).

As discussed in Sections V.F.2(a)(ii) and V.F.2(b), the RN16 constitutes the claimed "security key," the Handle constitutes the claimed "second security key," and the reader receives at least the identifier included in the tag's memory "as a result of validation of the security key," and receives further memory contents from the tag's memory "as a result of validation of the second security key." (Tr. (Goldberg) at 520:15-521:11, 523:21-526:13, 637:2-21; CDX-000.0019, 21-22, 27-30, 42, 59; JX0020.5607-09, 5754, 5774, 5785-86; CX-0523C.4028, 4030.).

In addition, the evidence confirms that the DI Readers are configured to transmit the identifier read

from a 6C-compliant tag's UII (EPC) memory to a central database, for example a central database located in a host computer or a toll zone controller. (See, *e.g.,* Tr. (Goldberg) at 601:13-603:19, 637:2-21; CDX-0003.0140-144; CX-0058.0063, 0069-0070, 0072, 0080; CX-0035C.1946, 1951, 1953; CX-0232C.6943; CX-0075C. 0028, 0033, 0043; CX-0104.3528, 3553, 3555, 3562, 3553; CX-0237C.1859, 1924-26, 1931.).

Accordingly, the DI Readers meet these claim limitations. However, because claim 1 has been found invalid, as discussed in Sections V.E.1 (b) and V .E.2(b) above, claim 1 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46.

**b) Claim 2**

***i. "The RFID reader of claim 1, wherein the security key is · based on information received from the RFID transponder."***

The evidence on which Complainant relies demonstrates that the DI Readers are 6Ccompliant and thus meet this limitation, which Respondents do not dispute. In reference to the 6C Communications Protocol Diagram in Sections V.F.2(a)(ii) and V.F.2(b), and discussed in conjunction with claim of the '436 patent, according to the 6C Protocol, the RN16 is a "security key" that is sent by the reader back to the tag as part of communication Step 3 to Step 4. The RN16 was previously sent by the tag to

the reader in communication Step 2 to Step 3. (Tr. (Goldberg) at 604:15-21, 605:4-6, 637:2-21; CDX-0003.0148, 150; JX-0020.5602, 5774; *see also* Tr. (Goldberg) at 583:13-23, 589:22-590:5; CDX-0003.81, 83, 102, 104.). The "security key" is therefore based on the RNl 6 previously transmitted by the 6C-compliant tag to and received by the 6C-compliant reader.

Accordingly, the DI Readers meet this additional claim limitation. However, because claim 2 has been found invalid, as discussed in Sections V.E.l(b) and V.E.2(b) above, claim 2 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46.

**c) Claim 4**

***i. "The RFID reader of claim 1, wherein the second security key is based on information received from the RFID transponder."***

The evidence on which Complainant relies demonstrates that the D1 Readers are 6Ccompliant and thus meet this limitation, which Respondents do not dispute. In reference to the 6C Communications Protocol Diagram in Sections V.F.2(a)(ii) and V.F.2(b), and discussed in conjunction with claim of the '436 patent, according to the 6C Protocol, the Handle is the "second security key" sent by the reader back to the tag as part communication Step 7 to Step 8. The Handle was previously sent by a 6C-compliant tag to the 6C-compliant reader in communication

Step 6 to Step 7. (Tr. (Goldberg) at 604:22-605:6, 637:2-21; CDX-0003.0149-50; JX-0020.5607, 5774; *see also* Tr. (Goldberg) at 583:2+-584:7, 590:6-15; CDX-0003.82-83, 103-104.). Thus, the "second security key" is based on the Handle previously transmitted by the 6C-compliant tag and received by the 6C-compliant reader.

Accordingly, the DI Readers meet the additional claim limitation. However, because claim 4 has been found invalid, as discussed in Section V.E.1 (b) and V.E.2(b) above, claim 4 cannot be relied upon to establish the technical prong of the domestic industry requirement. *See, e.g., Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46.

**d) Conclusion**

For the reasons discussed above in Sections V.G.3(a)-(c), the DI Readers meet each and every limitation recited in the claims 1, 2, and 4 of the '436 patent. However, because these claims have been found invalid, as discussed in Sections V.E.l(b) and V.E.2(b) above, Complainant has failed to meet its burden and show that the DI Readers practice at least one valid claim of the '436 patent. *See, e.g., Certain Ground Fault Circuit Interrupters,* Comm'n Opinion, 2012 WL 2394435, at *46 (June 8, 2012). Accordingly, Complainant has not satisfied the technical prong of the domestic industry requirement for the '436 patent.

## VI. ECONOMIC PRONG OF THE DOMESTIC INDUSTRY

### A. Relevant Law

The Commission may only find a violation of Section 337 "if an industry in the United States relating to the articles protected by the patent . . . exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). Typically, a complainant must show that a domestic industry existed at the time a complaint was filed. *See Motiva LLC v. Int 'l Trade Comm'n,* 716 F.3d 596, 601 n.6 (Fed. Cir. 2013).

Section 337(a)(3) sets forth the following economic criteria for determining the existence of a domestic industry in such investigations that a complainant must satisfy:

> (3) For purposes of paragraph (2), and industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned –
>
> > (A) significant investment in plant and equipment;
> > (B) significant employment of labor, or capital; or
> > (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

Given that these criteria are listed in the disjunctive, satisfaction of any one of them will be

sufficient to meet the economic prong of the domestic industry requirement. *Certain Integrated Circuits, Chipsets and Prods. Containing Same,* Inv. No. 337-TA-428, Order No. 10, Initial Determination (unreviewed) (May 4, 2000) *("Certain Integrated Circuits").* However, under Section 337(a)(3) a complainant must substantiate the nature and the significance of its activities with respect to the articles protected by the patent at issue. *Certain Printing and Imaging Devices and Components Thereof,* Inv. No. 337-TA-690, Comm'n Opp'n at 30 (Feb. 17, 2011). In explaining this, the Commission has also interpreted sections 337(a)(3)(A) and (B) to concern investments in plant and equipment and labor and capital "with respect to the products presented by the patent." *Certain Ground Faults Interrupters and Prods. Containing Same,* Inv. No. 337-TA-739, 2012 WL 2394435 at *50, Commission Op. at 78 (June 8, 2012) (quoting U.S.C. §§ 1337(a)(3)(7)). It is not sufficient for the "substantial investment" under paragraph (C) to merely relate to articles protected by the asserted patents. Rather, "the complainant must establish that there is a nexus between the claimed investment and asserted patent regardless of whether the domestic- industry showing is based on licensing, engineering, research and development." *Certain Integrated Circuit Chips & Products Containing,* Inv. No. 337-TA-845, Final Initial Determination, 2013 WL 3463385 at *14 (June 7, 3013) *("Certain Integrated Circuit Chips").*

In other words, the domestic industry requirement consists of both an economic prong (concerning "the activities of or investment in a domestic industry") and a technical prong ("whether

complainant (or its licensees) practices its own patents."). *Certain Elec. Devices, Including Wireless Commc'n Devices, Portable Music & Data Processing Devices, & Tablet Computers,* Inv. No. 337-TA-794, Order No. 88, 2012 WL 2484219, at *3 (June 6, 2012).

There is no mathematical threshold test or a "rigid formula" for determining whether a domestic industry exists. *Certain Male Prophylactic Devices, Inc.* Inv. No. 337-TA-292, Comm'n Op. at 39, USITC Pub. 2390 (June 1991). However, to determine whether investments are "significant" or "substantial," the actual amounts of a complainant's investments or a quantitative analysis must be performed. *Lelo Inc. v. Int'l Trade Comm'n,* 786 F.3d 879, 883-84 (Fed. Cir. 2015). Even after *Le lo, supra,* which requires some quantification of a complainant's investments, there is still no bright line as to a threshold amount that might satisfy an economic industry requirement. It is the Complainant's burden to show by a preponderance of evidence that each prong of the domestic industry requirement is satisfied. *Certain Prods. Containing Interactive Program Guide and Parental Control Tech.,* Inv. No. 337-TA-845, Final Initial Determination, 2013 WL 3463385 at*14 (June 7, 2013.). Moreover, the Commission makes its determination by "an examination of the facts in each investigation, the article of commerce, and the realities of the marketplace." *Certain Male Prophylactic Devices,* Inv. No. 337-TA-546, Comm'n Op. at 39, USITC Pub. 4005 (May 2008) (quoting *Certain Double Sided-Floppy Disk Drives and Components Thereof,* Inv. No. 337-TA".'215, Comm'n Op. at 17, USITC Pub. 1859 (May 1986).).

### B. It Was Uncontested that the '044 Patent Satisfies the Economic Prong of the Domestic Industry Requirement

#### 1. An August 29, 2016 Oral Order Held that the '044 Patent Meets the Economic Prong of Domestic Industry by a Preponderance of Evidence

In an August 29, 2016 telephone conference ("August 29, 2016 Tele. Tr.") with the parties, an oral Order was issued granting Complainant's summary determination motion that Complainant has satisfied the economic prong of the domestic industry requirement with respect to the '044 patent and Complainant's investments in its RFID tags. (Doc. ID No. 589566 (Aug. 29, 2016); *see also* Docket No. 979-020.).[78] However, because no written Order issued, there was no finality to the finding, or a Commission review of the oral Order.

The August 29, 2016 oral Order (August 29, 2016 Tele. Tr.) issued after Staff and the Kapsch Respondents filed their August 8, 2016 responses in which they each acknowledged that Complainant had provided sufficient information to support its motion

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[78] During the August 29, 2016 Telephone Conference, I noted that I would be issuing an Order memorializing the ruling. (Aug. 29, 2016 Tele. Tr. at 15:5-15, 16:16-20.). No formal Order was issued. However, the oral ruling on the Complainant's Motion serves as an Order. The August 29, 2016 ruling was in response to Complainant' Neology, Inc.'s Motion for Summary Determination that the Economic Prong of the Domestic Industry Requirement Has Been Met (Motion Docket No. 979-020 (July 14, 2016.).

that it satisfied the economic prong of the domestic industry requirement with respect to the '044 patent. [79] *(See* Resp'ts Opp'n at 1; Staff Resp. at 1.).

However, Staff and Respondents both opposed a summary determination finding with respect to the '436 patent. *(See* Staff Resp. at 2, 6 n.1; Resp'ts Opp'n at 2.). There were material disputes of fact in August 2016 whether Complainant had economic investments in the '436 patent under any theory, whether through its own investments, its license with [ ], or through its 'subcontractors, [ ]. (Staff Resp. at 1, 2; Resp'ts Opp'n 1, 3-10; Aug. 29, 2016 Tel. Tr. at 14:7-14.).

As explained below, this decision finds that Complainant has proven by a preponderance of the evidence that it has satisfied the economic prong of a domestic industry requirement under Section 337(a)(3)(B), and then, only through Complainant's contractor, [ ]. However, because Complainant has not satisfied the technical prong of the domestic industry requirement because its patents are invalid, that the Complainant's met the economic prong is largely immaterial.

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[79] *See* Respondents' Opposition to Neology's Motion for Summary Determination on the Economic Prong of the Domestic Industry Requirement, Doc. ID No. 587529 (Aug. 8, 2016); Staff's Response to Complainant's Motion for Summary Determination that the Economic Prong of the Domestic Industry Requirement Has Been Met, Doc. ID No. 587520 (Aug. 8, 2016). Both Respondents and Staff supported summary determination that the '664 patent also satisfied the economic prong of the domestic industry - requirement. (Resp'ts Opp'n at 1; Staff Resp. at 1.). However, the '664 patent was eliminated from this Investigation.

### 2. Complainant Proved at Summary Determination that It Met Sections 337(a)(3)(A) and (a)(3(B) of the Economic Prong with Respect to the '044 Patent

The evidence Complainant provided with its July 14, 2016 summary determination motion was uncontroverted that Complainant proved that it had established a domestic industry with respect to the '044 patent under Sections 337(a)(3)(A) and (B). (Motion Docket No. 979-020; Mem. at 24-28.).

With respect to Section 337(a)(3)(A) and Complainant's investment in plant and equipment, it is undisputed that Complainant has a 14,000-square foot facility in Poway, California ("Poway facility") that serves as its corporate headquarters, and as primary location for its manufacturing, sales and marketing, financial and administration, and R & D operations. (Complainant's Statement of Material Facts ("CSMF") at ¶¶ 9, 41.). Complainant manufactures all its identified domestic 6C-compatible tags, the only domestic industry product Complainant manufactures at the Poway facility. (Mem. at 4-6; CSMF at ¶ 42; *see also* MSD at 11.). The manufacturing process includes connecting the tags, chips and antennae without the use of wires. (CSMF at ¶¶ 52-57.). Complainant has proven that from 2009 through the end of2015, it has manufactured and sold millions of its domestic 6C-compliant tags. *(Id.* at if 24; *see also* CDX-0008.0016.). Between 2009 and through end of year 2015, Complainant invested some[ ] in plant and equipment for developing manufacturing, producing and testing its

domestic 6C-compatible tags, alone. (Mem. at 12-17, CSMF at ¶¶ 60-97.). While no evidence was provided in August 2016 that compared Complainant's tag production in comparison with others in the industry, the parties did not disagree that Complainant's investments were significant, and that Complainant satisfied subsection (a)(3)(A). *(Accord,* Staff Resp. at 5.).

With respect to Section 337(a)(3)(B) and proof of Complainant's expenditures for labor, there also was no dispute that from 2009-2015, Complainant employed between [ ] individuals, with labor-related expenditures of some [ ] that were directly attributable to production of Complainant's domestic 6C-compliant tags. (Mem. at 15, CSMF at if 125.). Accordingly, Complainant's investments are significant, and it has satisfied Section 337(a)(3)(B). *(Accord,* Staff Resp. at 6.).

No decision was made in August 2016 with respect to Complainant's investments under Section 337(a)(3)(C) because there was insufficient evidence that Complainant had made a substantial investment in its exploitation of its '044 patent, whether through its own research and development and engineering, or through its licensing or subcontracting. Accordingly, no findings are being made under Section 337(a)(3)(C) either with respect to the magnitude or "substantial" nature of Complainant's investments, or whether Complainant proved that there was a nexus between its investment and the '044 patent. *See Certain Integrated Circuit Chips,* Inv. No. 337-TA-859at14.

Given that criteria for finding a domestic industry are listed in the disjunctive, and that satisfaction of any one of Section (a)(3)(A) or (a)(3)(B) is sufficient to meet the economic prong of the domestic industry requirement, no analysis of subsection (a)(3)(C) is required or provided here as it would be superfluous since Complainant has met the economic domestic requirement for the '044 patent under the other two (2) subsections, that is Sections (a)(3)(A) and (B). *See, Certain Integrated Circuits, supra.*

### C. Complainant Has Not Proven by a Preponderance of Evidence that It Has Made Sufficient Investments of Its Own in the '436 Patent to Support a Finding that It Satisfies the Economic Prong of the Domestic Industry Requirement

#### 1. Complainant Stopped Making Its Own Qualifying Expenditures in the '436 Patent by 2009

The '436 patent is directed, *inter alia,* to readers and electronic tolling systems with readers. Complainant contends that the '436 patent is practiced by the [ ] Readers, [ ] Readers, and [ ] Readers. (CBr. at 160-65; *see also* Section V.G.3.) In support of its contention that it has met the economic prong of the domestic industry requirement with respect to the '436 patent, Complainant offered evidence of its own domestic investments in RFID readers, as well as those by its licensee, [ ], and its subcontractors [ ]. *(Id.).*

However, with respect to its own investments in 6C~compliant, toll system readers related to the '436 patent, the evidence is that Complainant only made qualifying economic investments in attempts to develop a prototype for 6C-compliant readers between the years 2006 and 2009. (CPBr. at 119-21; *id.* at 160-61; CDX-0008.0004-05; *see also* Tr. (Brian Napper)[80] at 1577:10, 1582:23.). While Complainant has argued that that its own domestic investments during those years suffice, the evidence is not sufficient quantitatively or qualitatively, let alone sufficiently specific by year, to support Complainant's claims. Complainant has not sustained its burden of proof that it had an ongoing economic domestic industry through its own investments after 2009.

Mr. Brian Napper, Complainant's, expert witness on its economic domestic industry, testified with unrebutted evidence that between 2006 and 2009, Complainant itself invested some [ ] of its own funds on research and development, engineering and design that was largely attributable to labor-related expenditures to develop a 6C-compatible reader that would incorporate the features claimed in the '436 patent, including a

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[80] At the time he testified during the evidentiary hearing, Mr. Brian Napper was a Senior Director of FTI Consulting, San Francisco. (Tr. (Brian Napper) 1572:17-20.). In that capacity, Mr. Napper served as Global Head of Intellectual Property (Tr. (Napper) 158:9-159: 17, 193:22-195:23, 203: 18-204:2), Intellectual Property and, *inter alia,* values patents *(id.* at 1573:8-10). He is an expert in economics and was called to testify on Neology's economic domestic industry with respect to tags and readers, on remedy and bond, and on public interest. *(Id.* at 1574:7-10, 1574:17-20.).

security key feature. *(See* CBr. at 119 (citing Tr. (Napper) 1577:16-1578:9; CX-0081C.0007-10); *see also* CDX-0008.0004; Tr.(Napper) at 579:1-25).).

Mr. Napper's testimony corroborated Mr. Joseph Mullis' testimony, Complainant's witness on its domestic investments in R&D and in manufacturing. *(See* Tr. (Mullis) at 110:12-19, 154:8-155:17, 157:1-25, 158:9-159:17, 193:22-195:23, 203:18-204:2; *see also* CDX-0002.0008.). In addition to the [ ] expenditures for some [ ], which Mr. Napper described as "substantial,"[81] Complainant also leased first in 2006 a 24,000-square foot facility in Poway, California, at an [ ], and made investments in equipment such as spectrum analyzers, anechoic chambers, a laboratory and a test bed. (CBr. at 119 (citing Tr. (Mullis) at 145:2-22 (citing CDX-0002.0005), 146:12-18, 158:9-159:17, 160:18-25, 193:22-195:23, 203:8-204:3; CX-0081C)).). In 2009, Complainant moved its headquarters and manufacturing to a smaller 14,000 feet facility, also in Poway, California, for which it has paid some [ ]. (Tr.(Mullis) at 145:1-147:25 (citing CDX-0002.0005, CX-0078C and CX-0079C).). Complainant primarily manufactures its 6C-compliant tags in the Poway facility, in an amount of some 90 million tags per year (i.e., the '044 patent).

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[81] Respondents objected to Mr. Napper's testimony that the $3.2 million was "substantial" on grounds that Mr. Napper had not offered that conclusion in the context of the reader market. (Tr. at 1578:21-15 80-3). In considering all the evidence, it seemed appropriate to allow the testimony since it flows from the absolute amount and Mr. Napper's expert recognition that the reader market is a smaller market than that for tags. (Tr. (Napper) at 1578:12-17.).

*(Id.* at 151:1-152:25.). In other words, none of those investments can be attributed to the '436 patent.

However, between 2009 and the time it filed its Complaint in 2015, Complainant had virtually no economic investment of its own in the development of 6C-compliant readers. By 2009, according to Mr. Mullis, Complainant's entire [ ]. *(See* Tr. (Mullis) at 204:3-5 (Q: ... But you stopped working on that reader in 2009; right? A: Correct."); *see also id.* at 206:2-3 ("We have not made reader development investments since 2009."). Mr. Mullis testified that at that point, Complainant was no longer specifically tracking its reader-related, expenditures in part because it was [ ]. *(Id.* at 155:4-24, 160:9-17; CDX-0002.0008.).

Complainant made a "strategic decision" in 2009 to work with subcontractors to develop 6C-compatible readers rather than continuing to try to develop a 6C-compatible reader on its own. (CBr. at 120; Tr. (Mullis) at 206:2-3.). Mr. Napper corroborated Mr. Mullis' testimony that in 2009, Complainant chose to "outsource" its 6C-compatible reader manufacturing to different subcontractors, including [ ]. (Tr. (Napper) at 1580:24-1581:4.). Accordingly, and this is also unrebutted, Complainant entered into an OEM agreement with [ ] in June 2009 for the supply of 6C-compatible readers specifically tailored to Complainant's requirements, and updated its agreement with [ ] on September 15, 2015, just before it filed its Complaint. (CBr. at 120 (citing CX-03 70C; CX-03 71 C; Tr. (Mullis) at 127:19-129:21, 130:12-131:4).).

Similarly, Complainant subcontracted with [ ] for the development of multi-protocol readers. (Tr. (Mullis) at 129:19-131:24.). However, Mr. Mullis testified that its previous relationship with [ ], and its original distribution agreement had expired and changed to a relationship in 2016 in which Complainant was the end-customer that simply bought readers [ ]. *(Id.* at 132:2-25.).

In 2013, Complainant entered into a license agreement with [ ] to [ ] while also being a competitor with [ ] market. *(Id.* at 133:1-136:7; *see also id.* at 129:22-130:11, 131:15-22; CX-1092C; CX-0342C.).

Complainant's argument that it continued to work with [ ] on "firmware design, qualification, testing, application engineering, development and tech support" between 2009 and 2015 when it filed its Complaint, is not supported with even minimally reliable quantitative, let alone, qualitative evidence. *(See* CBr. at 121 (citing Tr. (Mullis) 155:8-156:6, 158:9-159:2; Tr. (Napper) at 1580:8-1581:4, 206:4-208:1, 242:17-246:1).).

### 2. Complainant's Licensing Agreement with [ ] and Complainant's Subcontracts with [ ] Between 2009-2015 Do Not Establish a Domestic Industry Based Upon Complainant's Own Investments[82]

Complainant relies on Mr. Mullis' testimony that it carried through its own investments in 6C-compatible readers by providing firmware design, qualification, testing, application engineering, and other support through certain employees who worked in Complainant's Poway facility from 2009 and through 2015, as well as through Complainant's licensee, [ ], and its sub-contractors [ ]. (Tr. (Mullis) at 158:24-159:2, 206:4-17; *see also* CDX-0008.0007, 10, 13.). While Mr. Mullis testified that [ ] worked closely with Complainant after 2009, Mr. Mullis could name only two (2) employees, [ ], and a consultant, [ ], who were "dedicated to focusing on the reader business." (Tr. (Mullis) at 156:7-19, 159:3-11, 204:16-23.).

Mr. Napper also testified, consistently with Mr. Mullis' testimony, that after 2009, Complainant had

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[82] Complainant claims that its prototypes "practiced the claimed features of the '436 patent." *(See* CBr. at 119; *contra* RRBr. at 93.). However, as this decision finds in Section V.E.l(b), the '436 patent is invalid for lack of a written description. It is not at all clear that [ ] have practiced the '436 patent because according to a conversation Mr. Brian Napper, Complainant's expert on economic domestic industry, had with Dr. Goldberg, the prototype used only one security key. *(See* RRBr. at 93 (citing Tr. (Napper) at 1608: 17-1609:3).). Respondents' argument is a legitimate one.

[ ] employees and a contractor who worked in any capacity on "ongoing activities" with [ ]. However, like Mr. Mullis' testimony, Mr. Napper's testimony was vague with respect to [ ] employees and a contractor did: "part of their activities was on a reader, ongoing firmware (and development activities)." (Tr. (Napper) at 1581:5-13.). Mr. Napper acknowledged that after the accounting cost code that supported the 6C-compatible reader development was eliminated in 2009, he was "unable to specifically quantify" the amount spent on the activities that Complainant attempted to identify as "ongoing" investments in a domestic industry. (Tr.(Napper) at 1581:4-13; *see also* Tr. (Mullis) at 204:14-25 ("Q: Did you not cut your entire reader group in 2009? A: No, what we cut were those engineers that were related to protocol, firmware, analog and digital. . . . a component piece . . . we did keep . . . the engineers . . . that have enabled us the ability to interface with these third-party vendors . . . . And that is [ ]*");see also id.* at 205: 11-23 ("Q: So on the reader side, you thought that the -- readers being offered by other providers could meet the requirements of the market? A: That was my assessment, yes. Q: [ ]).[83]

If certain of Mr. Napper's evidentiary hearing demonstrative exhibits with the supporting documents are examined critically, they also are devoid of any specific expenditure numbers for

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[83] Complainant provided its annual salary expenditures from December 2006 through December 2015. *(See* CX-0081C.). However, there is no allocation of those expenditures to show which were even supportive of reader development after 2009 beyond the [ ] Mr. Mullis and Mr. Napper identified, *supra.*

Complainant's costs for working with [ ] from 2009-2015. *(See, e.g.,* CDX-0008-13 (citing CX-0334C; CX-0073C; CX-0076C).). For example, while Mr. Napper's demonstrative exhibit CDX-0008.0013 shows an expenditure of [ ], an arrow across the top suggests that Complainant worked with [ ] but there are no expenditure numbers associated with the individual years 2006-2016 along the bottom axis because Complainant did not provide explicit reader-related testing, evaluation and firmware expenditures for any year after 2009. *(Id.).*

Other demonstrative exhibits are similarly somewhat misleading. For example, CDX-0008.0016 purports to show [ ] domestic expenditures for readers those entities developed for Complainant. *(See* CDX-0008.0016 (supporting exhibits omitted).). While expenditures are listed for 337 Sections (a)(3)(A), (B) and (C) for [ ], the demonstrative exhibit fails to mention the specific expenditures for each of the years 2009-2015 that each of the entities invested in domestic industry upon which Complainant could rely because, for the most part, their expenditures were fairly minimal or not quantified.

While Mr. Mullis testified that Complainant's ongoing relationships with its subcontractors and [ ] were "extremely important," he acknowledged that "the number of readers that are sold are fairly nominal." (Tr. (Mullis) at 159:4-160-3; *see also* CDX-0008.0016 (citing Complainant's purchase of [ ], and [ ], but without a breakdown of how many of those readers were purchased each year from 2009-2015).). Moreover, Mr. Mullis also acknowledged that

Complainant was only providing "guidelines within firmware changes and their engineers [ ] are doing that because of [sic] they're their readers. We don't have access to their firmware . . . . " (Tr. (Mullis) at 206:13-17.).

Mr. Mullis' testimony was undermined by Mr. Nyamaladugu's testimony, Complainant's Vice-President of R&D. According to his deposition testimony, he and his deputy, [ ], are involved with products other than 6C-compatible readers, and with the conception, design, and development for *all* Complainant's products. *(See* RPBr. at 135 (citing, e.g., JX-0050C at 10:25-11:5, 103:17-104:7).). Mr. Mullis confirmed Mr. Nyamaladugu's testimony that Complainant has no presence in the United States reader market. (Tr. (Mullis) at 208:14-24.). Like Mr. Mullis and Mr. Napper, Mr. Nyamaladugu was unable to quantify the time Complainant's employees spent solely on Complainant's support for Complainant's licensee and sub-contractors on the 6C-compatible readers after 2009. At best, the testimony offered, as described above, was weak and lacking in quantitatively specific information with respect to Complainant's 6C-compliant reader-related activities from 2009 until it filed its Complaint in 2015. *Motiva, LLC,* 716 F.3d at 600-01 (finding that while the complainant had made significant past expenditures, the domestic industry requirement still had not been satisfied because there was no proof that the complainant's current activities were sufficient).

In other testimony with respect to the closeness of Complainant's collaboration with [ ] between 2009 and 2015, and the filing of its

Complaint, Complainant's own witnesses were unable to support even the *qualitative* extent of their collaboration with [ ], let alone Complainant's quantitative support to [ ]. For example, Mr. Nyalamadudgu was unable to corroborate Mr. Mullis' initial testimony that there was *any* close collaboration with [ ] with respect to its readers or their functionality. *(See* RBr. at 136 (citing JX-0050C at 75:10-25) (emphasis added).). Mr. Nyalamadugu testified as follows:

> Q: What features has Neology requested of [ ], implemented in-in its 6Ccompatible readers? ·
>
> A: [ ], it's probably the least of it. We just wanted to have a multiprotocol, like especially [ ] market. So they already had features that's, like, good enough for us to use [ ]. So we didn't have to modify much of the-they have to work on the reader, modify the reader much to accommodate our request [ ].
>
> Q: Do you know of any modifications they would have made to the reader on your behalf-on Neology's behalf?
>
> A: I don't think so. I don't- · I don't know, but I don't think so.

(JX-0050C at 75: 10-25.).

Complainant's evidence with respect to its collaboration with [ ] from 2009 to 2015 is similarly weak. [ ] OEM and supply

agreements with Complainant contain provisions that they themselves were responsible for reader research, development and engineering. *(See e.g.* RBr. at 137 (citing CX-0340C at NEO-ITC00079676 ("[ ] designs and manufactures a line of readers"), 84 ("[ ] will provide . . . PRODUCTS" and "engineering support"); CX-0342 at NEO-ITC00075068 ("[ ] to provide any Readers" and "system engineering"). Mr. Nyalamadugu's testimony also undermined already weak evidence that Complainant was active in supplying firmware or other support to [ ] even after 2009. For example, Mr. Nyalamadugu testified as follows:

> Q: Does-did [ ] kind of provide or tell Neology how it implemented these features [referencing 6C-compatible readers]?
>
> A: I don't think that's the case, but probably-I may not know that. But I'm not the-like, I don't think so.
>
> * * *
>
> Q: Did Neology work with [ ] with respect to how the reader would implement 6C?
>
> A: Not on the base protocol. They already had a 6C reader.

(JX-0050C (Nyalamadugu Dep.) at 77:19-24, 81:22-25).).

Noteworthy from this testimony is that [ ] was using the 6C Protocol four (4) years before Complainant even obtained the '436 patent.

Moreover, any hardware or software design work Complainant performed appears to have occurred in Mexico, and therefore was not part of a U.S. domestic industry. (Tr. (Mullis) at 206:19-22; 210:4-8; *see also* JX-0050C (Nyalamadugu Dep.) at 25:18-26:6, 26:1-2 ("We do a little bit [of software work] here, but not [to any] extent-we have a bigger team in Mexico.").).

With respect to [ ] and Complainant's inability to quantify its interactions with [ ] after 2009, most of Complainant's interactions were handled with Complainant's employees in Mexico given that [ ] readers are purchased by Complainant [ ] and shipped [ ]. (JX-0050C (Nyalamadugu Dep.) at 77:25-78:3); *see also* Tr.(Mullis) at 210:12-25).).

Notwithstanding the weakness of its quantitative and qualitative evidence pertaining to its "ongoing" investments in the '436 patent at the time it filed its Complaint, Complainant has argued strenuously, but not convincingly, that "[m]eeting the economic prong requirement is not dependent on any 'minimum monetary expenditure'" and there is no need for a complainant to 'to define the industry itself in absolute mathematical terms.'" *(See* CBr. at 117 (quoting *Certain Stringed Musical Instruments and Components Thereof,* Inv. No. 337-TA-586, Comm'n Op. at pp. 25-26 (May 16, 2008).). While this may be true, Complainant argues that its ongoing qualifying

activities need only be "cognizable under section 337(a)(3)." (CRBr. at 91 (citing *Certain Digital Processors & Digital Processing Sys., Components Thereof,* Inv. No. 337-TA-559, Order No. 24, 2007 WL 7597610 at *51 (June21, 2007)).).

In making this argument, Complainant seemingly has completely ignored the holding in *Lela,* which requires *some* quantification of a complainant's domestic industry, which presumably applies to Section (a)(3)(C). *Lela,* 786 F.3d at 883 ("Prior ITC § 337 investigations confirm that a § 337 analysis is quantitatively based."); *see id.* at 884 ("Qualitative factors cannot compensate for quantitative data that indicate insignificant investment . . . .").).

Equally problematic from a legal precedent standpoint, Complainant relies upon *Certain Male Prophylactic Devices,* Inv. No. 337-TA-690, Comm'n Op. at 39 (Aug. 1, 2007) *("Male Prophylactic Devices").* However, the *Lela* Court distinguished *Male Prophylactic Devices* and noted that case contained economic information reflecting the impact of a 34 percent *value added* to domestic operations of a subcontractor upon which the complainant relied. *Lela,* 786 F.3d at 884. By contrast, here there is no significant quantitative metric of Complainant's ongoing investments from 2009-2015, let alone a product *value added* metric.

Nonetheless, Complainant also says that Commission case precedent supports its argument that its "ongoing activities deserve distinct consideration." (CRBr. at 89.). To support its contention, Complainant in part also relies on *Certain*

*Television Sets, Television Receivers, Television Tuners & Components Thereof,* Inv. No. 337-TA-910, Comm'n Op. at 37 (Oct. 30, 2015.) ("*Certain Television Sets*").[84] That is a mistaken reliance because the holding of that opinion does not support Complainant. In *Certain Television Sets*, the Commission found that the Complainant had *not* sustained its burden of proof of a domestic industry because its evidence was unreliable, and also because a domestic industry did not exist as of six (6) months before the filing of the complaint. *Certain Television Sets* at 37. Like this case, the complainant's activities in *Certain Television Sets* consisted only of "product support activities" on certain products after they were acquired by another company. *Id. In Certain Television Sets*, the Commission held that "past expenditures may be considered to support a domestic industry claim so long as those investments pertain to the complainant's industry with respect to the articles protected by the asserted IP rights and the complainant is continuing to make qualifying investments at the time a case is filed." *Id*. at 36.

While Complainant suggests that Respondents have mistakenly tried to impose an additional requirement that there be a nexus between the '436 patent and its ongoing activities after 2009, this Section of the decision does not even reach the question whether any of Complainant's ongoing

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[84] Not only is the page citation incorrect, but Complainant suggests that even Staff "overlooked" the precedent. (CRBr. at 90 n.13.). In fact, Complainant cited to the same precedent in its Motion for Summary Determination on the Economic Prong which was considered then, just as it is considered here. (Motion Docket No. 979-020 at 23-24 (July 14, 2016).).

domestic expenditures exploit the '436 patent. (See CRBr. at 91.). Instead, Complainant's evidence has been evaluated on its merits even before considering a nexus, because even the basic, absolute financial information to support Complainant's claim that it has any ongoing investments in a domestic reader industry since 2009 has been found lacking.

As noted above, an economic domestic industry is established typically at the time of the filing of the complaint, with some exceptions. Motiva, LLC, 716 F.3d at 601 n. 6 ("We also affirm the Commission's use of the date of the filing of Motiva's complaint in this case as the relevant date at which to determine if the domestic industry requirement of Section 337 was satisfied.")).

The Complaint in this Investigation was filed on December 4, 2015. (Compl., Doc. ID No. 570192 (Dec. 4, 2015) (Public Version).). Thus, approximately six (6) years elapsed between the time that Complainant stopped investing any qualifying funds to develop a prototype for a 6C-compatible reader in 2009 and the filing of its Complaint in December 2015. It is worth noting, and discussed in Section VI.C that Complainant's investments in its attempts to develop a prototype for a 6C-compliant reader stopped more than four (4) years *before* the '436 patent even issued in 2013. Necessarily, Complainant had to have been using information from other sources to develop a 6C-compatible reader prototype, which it never accomplished. Section V.E.1 (b) of this decision has found that Complainant did not .even have a written description for the '436 patent. .

Complainant's claim that it provided "qualifying" economic support to [ ] from 2009 to 2015 in support of 6C-compatible readers that practice the '436 patent is unsubstantiated with quantitative or qualitative evidence, or by legal precedent. Complainant has not proven by a preponderance of evidence that it had a domestic industry in the '436 patent at the time it filed its Complaint or even within any reasonable period time frame before it filed its Complaint.

### D. Complainant Relies Upon Investments Made by Its Licensee, [ ] for Its Economic Domestic Industry

#### 1. Complainant Has Not Proven that Its [ ] Licensee Has a Significant Ongoing Investment in a Domestic Industry Under Sections 337 (a)(3)(A) or (C)

The domestic-industry analysis is not limited to the activities of the patent owner, but also involves the activities of any licensees. *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, Remand, Commission Op. at 20, USITC Pub. 3072 (Nov. 1997) (internal citations omitted). Nonetheless, the same problem that Complainant had with respect to proving its own "ongoing investments" in a domestic industry also plagues the evidence the Complainant witnesses offered reliance to prove a domestic industry through its [ ]. Complainant had an obligation to provide substantive, meaningful quantitative evidence of [ ] current, continued investments in the

domestic industry upon which Complainant relies. (RBr. at 134 (citing *Certain Television Sets, Television Receivers, Television Tuners, and Components Thereof*, Inv. No. 337-TA-910, Comm'n Op., 2015 WL 6755093, at *35-39 (Oct. 30, 2015)) (no domestic industry where complainant failed to "demonstrate investment in product support at the time of the complaint" and because it "provided no reliable evidence " that "it was engaged in qualified activities . . . involving continued investments in its claimed domestic industry").). [85]

Complainant proffered no current evidence from [ ] ongoing investments in qualifying 6C-compliant reader development, or in investments in labor, capital, research and development ("R&D").[86] There was no current information with respect to any of [ ] operations. Only two (2) individuals

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[85] Staff agrees with Complainant that [ ] in 2012, that Complainant appears to have acquired in 2013 satisfy Section 337(a)(3(A). (SBr. at 68-69.). Clearly, this decision disagrees because of Complainant's lack of any updated (current) evidence from [ ] at the time Complainant filed its Complainant in December 2016. See Motiva, LLC, 716 F.3d at 601, n.6.

[86] Respondents argued that because Complainant cannot point to any specific license between Neology and [ ] operations that relate to 6C-compliant readers, none of [ ] claimed domestic industry activities relate to "articles protected by the patent." (RBr. at 139 (citing 19 C.F.R. § 1337(a)(2)); see also RRBr. at 101.). Respondents make a slightly different argument with respect to [ ] that because they are not licensees, their investments do not relate to articles "protected by the patents[ s ]." (RP Br. at 151-52; RBr. at 142-43 (citing Certain Methods of Making Carbonated Candy Prods., Inv. No. 337-TA-292, Comm'n Notice, 1991 WL 790063, at *17).). That is not so.

currently employed by [ ][87] testified with respect to [ ] domestic activities that might qualify as a domestic industry. Their knowledge was limited. Neither of them was involved in [ ] accounting or finance operations. Neither of them had reviewed or was able to even discuss the dollars [ ] had invested or spent since 2012 on [ ] reader-related manufacturing, research and development. Complainant relied upon evidence as discussed below.

On June 20, 2012, [ ] through an asset purchase agreement that also included assets from a purchase [ ] (JX-0038C [ ] at 13:1-25 (citing [ ]).). According to Eric Redman,[88] Complainant's Vice President for Sales, [ ] a Settlement Agreement with [ ] . (Tr. (Eric Redman) at 641: 13-17. ). At the time [ ], FSTech had 6C-compatible tags and readers, camera equipment that could read license plates, and software to manage toll transactions. (Id. at 642:3-4.). [ ] also had software that managed toll transactions, and a loop system that could detect vehicles in a toll lane, much of which is used in certain

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[87] At the time his deposition was taken on May 4, 2016, [ ] in which he supports sales and product development, including readers and tags for tolling applications. (JX-0040C.0009 [ ] at 10:24-11: 17.). [ ] worked for [ ].

[88] At the time he testified during the evidentiary hearing on September 15, 2016, Mr. Eric Redman served as Neology's Director of Sales based in San Diego, California. Mr. Redman was responsible for selling Neology's products throughout North America. (Tr. (Redman) at 639: 18-21.). In 2011, Mr. Redman began working for [ ], and was familiar with the asset purchase of [ ]. (*Id*. at 641:13-17.).

East Coast toll systems. (*Id.*). [ ] also had camera systems in states such as Colorado where electronic tolling captures camera based license plate images. (*Id.* at 642:5-19.). As part of its acquisition, [ ] acquired machinery and equipment, inter alia, from an [ ]. (CPBr. at 164.).

Then, on June 14, 2013, Complainant and [ ] entered into a Settlement Agreement ([ ]) that resolved, *inter alia*, the preliminary injunction suit Complainant had brought in Delaware against certain Federal Signals entities with respect to Complainant's '819 and '746 patents. (CX-1092C; CX-0390C.).[89] In that [ ] Agreement, Complainant gave [ ] to certain patents, products, and services defined in the [ ] Agreement. (CX-1092C at ¶¶ 1, 7, 5.1; Tr. (Mullis) at 134:25-135:4, 217:1-25 (citing CX-1092C); see also CX-0309C.).[90] As part of the [ ] Agreement in 2013, Complainant and [ ] also entered into a supply agreement by which [ ] agreed to supply [ ] to Complainant for resale to end use customers. (See CBr. at 124; CRBr. at 95 (citing JX-0038C.0019; CX-1092C at ¶ 6.3; CDX.0008.0011); see

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[89] *See supra*, n.12. Because of the settlement, [ ] for the license [ ]. (Tr. (Mullis) at 134: 1 :25-135:20.). Complainant has not provided evidence that it has received any ongoing royalty payments from any of the parties for either the Inv. No. 337-TA-875 Investigation or as a result of the settlement of the Delaware litigation.

[90] Respondents argued that the [ ] is no longer in force. (RBr. at 139). However, Neology has the better evidence in pointing to a provision in the license agreement between Neology and [ ]. (CRBr. at 95 (citing CX-1092C at ¶ 5.1).).

also JX-0038C.0018 [ ] at 85: 4-6.).[91] Complainant has not quantified the value of the supply agreement or the [ ] has manufactured since Complainant and [ ] Agreement in 2013.

Instead, for its domestic industry under Section 337(a)(3)(A) and (C), Complainant relies upon an asset evaluation that it obtained in conjunction with its [ ] Agreement. to argue that $158,420 in equipment that has been in use in North Carolina, and some [ ] in equipment from a Texas plant, are sufficient to establish Complainant's domestic industry. (See CBr. at 124 (citing CX-1092C; JX-0040C.0013-14, 0032-33; CX-0309C ([ ] Agreement)); SBr. at 68.). The [ ] Agreement also included certain [ ] 6C-compliant tag and reader manufacturing operations, and included equipment, tools, dies and machinery valued at [ ]. (SPBr. at 63 (citing JX-0038C [ ] at 39:13-16; CX-0044C[ ].).

[ ] employees who were deposed, testified during his deposition that [ ] tag and reader manufacturing units were integrated into [ ] facilities. (JX-0038C [ ] at 16:15-18.). However, [ ] also testified that while he was familiar with [ ] acquisition of [ ] generally, and of the later ] Settlement with Complainant, he was not familiar with the specifics of the equipment Complainant purchased as part of the [ ] Agreement. (*Id*. at 24:13-14.). Similarly, while

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[91] When he gave deposition testimony on May 4, 2016, [ ] (JX-0038C.0008 [ ] at 10:23.). [ ]. (*Id*. at 13:17-14:13.).

he knew certain [ ] had been moved to Austin, Texas, he did not know specifics. (*Id.* at 24:8-16.). A review of the entirety of [ ] admitted and agreed upon deposition designations reflect that [ ] had *no* information with respect to the ongoing [ ] facilities from 2012 to 2016, and did not know the nature of the activities taking place at each of the facilities. (JX-0038C [ ].).

Mr. Napper, Complainant's expert on only the economic prong of Complainant's domestic industry, also testified about the assets Complainant acquired through the [ ] Settlement in 2013.[92] In general terms, he discussed assets for reader development that had been located in Carrollton and Austin Texas, in Morrisville, North Carolina and, more generally, about the relationship that Complainant had with [ ] starting in 2012. (See Tr. (Napper) at

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[92] Mr. Napper testified that his opinion during the evidentiary hearing was limited solely to whether Complainant's investments, and those of [ ] met the economic prong of domestic industry. (Tr. (Napper) at 1593 :4-14). Mr. Napper was not offered for: the technical prong of the domestic industry requirement; whether the '044 or '436 patents are valid; whether the patents are standard-essential to the 6C Protocol; whether the patents were FRAND encumbered; what an "open" standard is; or whether Respondents' inventory is commercially significant in the context of a cease and desist order. (Tr. (Napper) at 1600:10-1601:17.). When Mr. Napper offered an opinion on bond and a reasonable royalty rate, Respondents objected on the grounds that Mr. Napper's initial royalty rate opinion was inappropriate. (Tr. (Napper) at 1594:2-12.). After hearing from all parties, and having reviewed the evidence from the evidentiary hearing, I have allowed Mr. Napper's testimony on bond. I considered Mr. Napper's change in position on bond, and gave it the weight (t deserved in the context of all of the evidence, as explained in Sections VI.C-F of this decision.

1587:1-1590:18.). Mr. Napper testified that the equipment Complainant acquired in 2013 from [ ] had a combined acquisition price of [ ] at the time it was acquired. (*See id.* at 1587:21-1588-25; CX-0044C, subsection B; see also CBr. at 124 (citing Tr. (Napper).).

However, it is interesting that in his testimony, as well as in Complainant's Initial Post-Hearing Brief, there is no attempt to identify or quantify any ongoing Complainant expenses that can be attributed to the use of the acquired equipment since its acquisition in 2012. (See Tr. (Napper) at 1587-90 (citing CX-0044C); CBr. 124-25.). Mr. Napper offered no aggregate expenditure figures on [ ] domestic activities relating to its [ ] from 2012-2015. Mr. Napper [ ] year-by-year expenditures from 2012-2015 for any of the specific categories of expenditures under Section 337 (a)(3)(A), (B) or (C).

The asset purchase and valuation data upon which Mr. Napper and Complainant rely is taken exclusively from a [ ] from June 3, 2012 through June 30, 2012 that apparently was created in conjunction with the [ ] Agreement. (CX-0044C,[ ].). The equipment identified in the [ ] that forms the basis of Complainant's reliance on [ ] to satisfy the economic domestic industry prong appears to have been purchased between 2005 and 2011 with most of the purchases made by 2010. (Id. at 0044C, [ ] equipment appears to be equipment [ ].). The identified that is unclear. (*Id.*). Mr. Napper did not offer any testimony on [ ]. However, even [ ] expenses or investments

in conjunction with its use of the acquired equipment, the current value of the equipment, or even how much of the acquired machinery and equipment was still in use after 2012. Mr. Napper's testimony, along with Complainant's Initial Post-Hearing Brief, were singularly lacking in quantitative specifics about [ ] at 124-26; RBr. at 139-40.).

The [ ] who testified about the [ ].). Before he worked at [ ] 11:19-23.). While he was employed at [ ] investments after 2012. (CBr. [ ] relationship was [ ]. (JX-0040C.0009 [ ]. (*Id.* at [ ] worked with sales of back office equipment, RFID technologies, automatic license plate recognition systems, and automatic vehicle classification systems. (*Id.* at 12:1-16.).

[ ] currently sells 6C-compatible tags and readers, and stated that [ ] models have been in production at various times from 2012-2016. (*Id.* at 16:12-16.). [ ] only certainty was that R&D pertaining to the [ ] models was occurring in [ ], along with research and engineering (which he distinguished from R&D). (*Id.* at 17:5-19.). He was unable to testify with any certainty where all the product models were manufactured, but thought that only two models, the [ ] were being manufactured in 2016. (*Id.* at 19:10-25.). He did not know "with clarity" where repair, support and maintenance occurred but his "best guess" was that some of such services were occurring in Austin, Texas. (*Id.* at 20:18-24.). [ ] also testified that some manufacturing of [ ]

was also occurring in the same Austin, Texas facility. (*Id.* at 21 :20-22.).

With respect to [ ] had maintained certain contracts for back office systems, but that [ ]. (*Id.* at 29:1-30:5.).

Moreover, it appears from [ ] testimony that any [ ] and then configured and tested in Austin, Texas. (*Id.* at 43:1-17.). It is not clear how [ ] were being manufactured, configured or serviced in [ ] facilities Moreover, [ ] had no knowledge of the [ ] was spending for salaries; or the number of employees involved in any of the described activities; or even the equipment that was in use related to the design or manufacture, configuration or support of [ ]. (*Id.* at 45:7-9, 46:3-4, 46:11-12, 46:14, 48:4-7, 48:16-17.). He did not know if [ ] or leased the equipment in Austin. (*Id.* at 51:1-52:25.). While [ ] also thought that perhaps [ ]square footage of [ ] facility was used to manufacture [ ], he had no knowledge of the cost of the leased space. (*Id.* at 55:16-56:1-25.). While he also thought that [ ] could manufacture [ ] per month if necessary, he had no sales figures for some [ ]. (*Id.* at 69:4-25.).

In sum, while there is no question that Complainant's basic argument that [ ] is engaged in manufacturing, configuration and maintenance of some 6C-compatible readers in the United States at some level appears to be correct,

unfortunately for Complainant, it offered no quantification of [ ] for any of its ongoing activities after 2012. (CBr. at 124-26.). The [ ] information from 2012 is stale evidence. Given an evaluation of all of the evidence, whether from [ ] or Complainant's witnesses, there was no qualifying or reliable evidence from 2012 to 2015. Finally, no matter how much Complainant argues the point, it cannot ignore Lela, which requires some quantification of a complainant's domestic industry. Lela, 786 F.3d at 884 ("Qualitative factors cannot compensate for quantitative data that indicate insignificant investment.").). Complainant has not proven by a preponderance of evidence that even [ ], Complainant's licensee, has had a qualifying economic domestic industry since 2012 under Section 337(a)(3)(A) or (C).

**2. Complainant Has Not Proven that [ ] Has a Significant Investment in Labor or Capital Under Section 337(a)(3)(B)**

The best evidence Complainant offered with respect to [ ] ongoing investments in labor or capital to satisfy a domestic industry under Section 337(a)(3)(B) was information that [ ] in its Austin, Texas facility who are involved in quality testing, configuration, and regulatory lockdown activities for [ ]. (CBr. at 125 (citing JX-0040.0015-16); see also SBr. at 70; Tr. (Napper) at 1589:1-5.). However, the inforillation is anecdotal, and it did not come from any current, [ ] or source document.

Complainant relied instead on Eric Redman, Complainant's Vice President of Sales, who worked for [ ]. (Tr. (Redman) at 641:13-23.). According to Mr. Redman, he saw [ ] in July 2016, who told Mr. Redman that [ ] facility was still active and suggested some of the people he knew were still employed there. (*Id* at 944:9-14.). That was the extent of Mr. Redman's knowledge with respect to [ ] labor pool or labor investments since 2012. Other anecdotal information came from Mr. Mullis who never visited [ ] facility, but claimed he understood that there were between [ ] working there. (Tr. (Mullis) at 165: 22-25.). Mr. Mullis testified that he obtained that information from "two data points." (*Id.* at 165:25.). One of those data points was the due diligence he said he and others at Neology conducted when they were considering acquiring [ ] in 2012. (*Id* at 166:1-4.). Mr. Mullis' second "data point" was from a meeting he had in August 2015 with a [ ]. (*Id.* at 166:5-10.). According to Mr. Mullis, [ ] confirmed "at a high level" that the "data point was still in place." (*Id.* at 166:10-13.). However, Mr. Mullis had no [ ], let alone documentation of any type, to support his "data points." His testimony was unreliable.

Moreover, Mr. Mullis' testimony was at odds with that of John Freund, a Senior Vice President of Kapsch, North America.[93] (Tr. (John Freund) at

[93] At the time he testified during the evidentiary hearing on September 19, 2016, John Freund was Senior Vice President of Kapsch, North America with responsibilities for pre-sale proposal development and submission of bids and contract negotiations for electronic toll systems in North America. (Tr.

889:7-10.). Mr. Freund testified that [ ] would have difficulty trying to test a certain reader for tolling because their engineering team was "very, very small . . . maybe three or four." (Id. at 896: 17-897:2.).

It is impossible to know whether Mr. Freund's anecdotal information is any better than Mr. Redman's. Both lack any reliable, substantive support from [ ].

When Mr. Napper was called upon as Complainant's expert to provide testimony on [ ] in capital or labor, he chose to use Mr. Redman's anecdotal evidence rather than Mr. Freund's. Mr. Napper acknowledged that he was using an anecdotal source for the number of employees [ ] workforce (without naming Mr. Redman) and he also acknowledged that he had no information on actual salaries or other compensation. (Tr. (Napper) at 1589:8-12.). He testified: "And while I didn't have their specific compensation, [3M] was uncomfortable I guess producing that information, what I did is I said, well I'm kind of familiar with what engineering salaries are in the Bay Area, but that may not be appropriate for [ ]." (*Id.* at 1589:8-12.). Mr. Napper took an average figure of $60,000 for an engineering salary in San Francisco, and calculated that [ ] was spending in the range of $720,000-$900,000 for [ ]

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(Freund) at 889:9-18.). Before working for Kapsch, Mr. Freund worked for Sirit Technologies. (*Id.* at 889:24-25.).

salaries, without benefits, on an annual basis as "a frame of reference." (*Id.* at 859:13-20.).[94]

The [ ] investment Mr. Napper described was the [ ] guessed at during his deposition was supporting the configuration/testing of [ ]. (See Tr. (Napper) 1589:23 -1590:5.). Mr. Napper had no figure for [ ] cost of leasing this [ ] facility. (*Id.*).

During cross-examination, Mr. Napper acknowledged that he had no knowledge of any investments [ ] facility since 2013. (*Id.* at 1615:1-20.). Similarly, he had no knowledge of any of [ ]. (*Id.* at 1615-18.). Ultimately, the sources of Mr. Napper's information were far too weak, too stale, and unsubstantiated to be used as the measure of [ ] ongoing investments in labor or capital after 2012. Moreover, Mr. Napper confirmed, also on cross-examination, that he had no actual information of [ ] in any of its 6C-related activities since 2013. (Id. at 1615-27.). Given the weakness of this evidence, and the lack of any evidence after 2012, Complainant has not proven by a preponderance of evidence that [ ], Complainant's licensee, had an ongoing, economic domestic industry pursuant to Section 337(a)(3)(B).

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[94] Before he completed his testimony, Mr. Napper stated that he had used "Glassdoor" as his reference for calculating the engineering salaries for the [ ] area. (Tr. (Napper) at 1627: 1-16.). That testimony conflicts with his testimony that he used San Francisco Bay Area average engineering salaries.

### E. Complainant Relies Upon Investments Made by Its Sub-Contractor [ ] for Its Economic Domestic Industry

#### 1. Complainant Has Not Proven that [ ] Has a Significant or Substantial Ongoing Investment in a Domestic Industry Under Sections 337(a)(3)(A), (B) or (C)

Just as a domestic industry can be predicated on the qualifying domestic industry of a complainant's licensee, so too can a complainant prove a domestic industry through the work of its contractor or subcontractor. (See SBr. at 69 (citing Certain Male Prophylactic Devices, Inv. No. 337-TA-546, Order No. 22, 2006, WL 855798 at *4 (Mar. 15, 2006)); see also Certain Home Vacuum Packaging Prods., Inv. No. 337-TA-496, USITC Pub. 3681(May2004), Order No. 36 at 143.). Just as Complainant has not carried its burden of proof with regard to its reliance on [ ] for ongoing investments in a domestic industry, Complainant has not carried its burden of proof of [ ] domestic industry.

Complainant has had two (2) agreements with [ ], an OEM Agreement, dated August 20, 2009, and an OEM Agreement, dated September 10, 2015, still in force, by which Complainant contracts with [ ]. (CX-0341C; CX-0240C; Tr. (Mullis) at 129:19-21; see also CX-0036.). The [ ] "are tailored specifically to our [Neology's] requirements and that of our customers." (Tr. (Mullis) at 130:22-131:1.). However, [ ] has no license arrangements with Complainant with respect to the Asserted

Patents or the 6C Protocol. (JX-0039C [ ] at 51:13-18.).

Complainant offered little quantitative evidence with respect to the investments [ ] makes solely in its [ ]. (RBr. at 147.). [ ], testified during a deposition on May 10, 2016, that [ ] in 2014, "maybe" [ ] in 2015, and by the time he testified in 2016, [ ] to Complainant. (JX-0039C [ ] at 10:1-15, 16:11-23.). [ ], in Taiwan and then sells them to Complainant (and other customers) which then uses the [ ] in tolling operations in South and Latin America. (JX-0039C [ ] at 10:19-25, 21: 1-9, 46: 7-10; Tr. (Mullis) at 212:24-213-6.).

[ ] is performed exclusively in the United States. (JX-0039C [ ] at 11:1-14.). [ ], then tests them and loads programming into the readers, and provide a system label in a [ ] facility. (*Id.*; see also CBr. at 123.). The support that [ ] provides to Complainant consists of product training, repair and service. (JX-0039C [ ] at 17:19-21.). [ ] testified that the California facility [ ] described above. (*Id.* at 27:8-17; see also CBr. at 123 (citing Tr. (Napper) at 1584:16-1585:9).). [ ] but beyond that could not tell how much of the space is allocated specifically to testing or programming [ ] for vehicle tolling. (JX-0039C [ ] at 27:19-28:1; see also CX-0053C; Tr. (Napper) at 1585:1-9.). [ ] per month. (JX-0039C [ ] at 28:17-19; see also Tr. (Napper) at 1625:15-20.). [ ] was not able to allocate [ ] or any of its expenses more discretely than as

described. (JX-0039C [ ] at 21:4-9, 27:19-28:1, 43:5-12.).

With respect to salaries and compensation, [ ] testified that in 2015, there were approximately [ ]. (*Id.* at 25:18-26:7.). [ ] was unable to allocate how much of the office square footage or the engineers' salaries [ ]. (*Id.* at 43:1-12, 47:8-17.). He identified only [ ], yet he did not know the amount of their salaries and noted that they supported customers other than Complainant. (*Id.* at 40:11-41:16, 53:17-54:3.).[95] Similarly, he identified only [ ], but they support other customers in addition to Complainant and have other job responsibilities. (Id. at 54:4-14; Tr. (Napper) at 1585:1-25). According to [ ] (JX-0039C [ ] at 43: 17-44:8, 54: 14.). [ ] identified the type of equipment used for the vehicle tolling testing, but he did not know the cost of the equipment. (Id. at 41 :18-42:8.). [ ] was also able to identify equipment used for R&D, but again, he was unable to state the cost of that equipment. (Id. at 42: 10-21; see also CDX-0008.0008).

Given [ ] information, Mr. Napper, Complainant's expert on economic domestic industry, acknowledged that he did not have "granular" detail for any of the R&D, equipment, capital and labor. (Tr. (Napper) at 1585-1589.). Indeed, Mr. Napper applied a sales-based allocation method by inquiring about the percentage of [ ] worldwide sales of all products in 2014 and 2015, [ ] sales to Complainant, and derived a sales allocation percentage of [ ]

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[95] The Respondents did not ask about the salaries [ ].

worldwide sales that could be attributed to Complainant. (Id. at 1585:25-1586:9.). The Commission has held that a sales-based allocation method can be used to demonstrate the economic prong for the domestic industry requirement. (RBr. at 124 (citing *Certain Toner Cartridges and Components Thereof*, Inv. No. 337-TA-740, Order No. 26 at 12 (June 1, 2011)).). From that, he derived allocation percentages of [ ] for 2014, and [ ] for 2015. (*Id.*). From that sales allocation method, Mr. Napper concluded that [ ] that could be attributed to Complainant's domestic industry was [ ] for 2014 and 2015, or an average of [ ] per year. (See Tr. (Napper) at 1586:1-9, 1622:8-25; RBr. at 148-49.).

With respect to [ ] space, Mr. Napper acknowledged that he did not allocate the space in his opinion because he did not have the cost of [ ] space and he was unable to obtain average rents for [ ]. (Tr. (Napper) at 1623:1-7, 1625:1-9.).

However, during the evidentiary hearing, Mr. Napper allocated the square footage to Complainant's products using that same allocation above (i.e., some [ ] and derived a figure that some [ ] could be attributed to worldwide 6C-compatible products. (*Id.* at 1623:14-1624:11.). Then using the same allocation factors of [ ] that could be attributed to Complainant, the square footage of [ ] that possibly could be attributed to Complainant's business in 2014 would have been [ ] square feet, and in 2015, [ ] square feet. (*Id.* at 1624:12-1625:9.). During the evidentiary hearing, Mr. Napper then applied a similar percentage allocation to [ ]. From that

mathematic exercise, Mr. Napper had to conclude that the cost of [ ] space that possibly could be attributed to Complainant's business would be [ ] for 2014 and approximately [ ] for 2015. (*Id.* at 1625:9-1626:6.). In other words, even using a legitimate, cost allocation method as Mr. Napper did, at most [ ] domestic industry that could be attributed to Complainant in any absolute sense is [ ].

Ultimately, Mr. Napper's opinion that [ ] domestic investments that could even be calculated by proxy and attributed to Complainant's domestic investments in plant and equipment, or in labor or capital, were "significant" under Sections 337(a)(3)(A) or (B) is not supported. (Id. at 1584:1-1585:25, 1595:11-14.). Similarly, Mr. Napper's opinion that [ ] investments in engineering or R&D that exploits the '436 patent was "substantial" under Section 337(a)(3)(C) is equally unsupported. (*Id.*).[96]

### F. Complainant Relies Upon Investments Made by [ ] for Its Economic Domestic Industry

#### 1. Complainant Has Proven that [ ] Has a Significant or Substantial Ongoing Investment in a Domestic Industry Under Section 337(a)(3)(C)

The Commission recognizes that work performed by contractors and sub-contractors hired

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[96] There was no testimony whether [ ] activities specifically practiced the '436 patent. All the testimony was directed to "6C-compatible" [ ]. Section V.G.3(a).

by a complainant may be considered as part of an investment in a domestic industry. (CRBr. at 98 (citing Certain Male Prophylactic Devices, Inv. No. 337-TA-546, Order No. 22, 2006 WL 855798 at *4 (Mar. 15, 2006); Certain GPS Chips, Associated Software and Sys. and Prods. Containing Same, Inv. No. 337-TA-596, Order No. 37, 2008 WL 838257, at 2 (Feb 27, 2008)).). Complainant and Staff both assert that [ ] domestic industry investments constitute proof of a domestic industry. (CBr. at 122; SBr. at 71-72, 74.). Respondents contest this on several grounds, one of which is that if [ ] was a distributor to Complainant, it was no longer by 2016. (RRBr. at 96 (citing CBr. at 122; Tr. (Mullis) at 245:2-5).). However, even Respondents acknowledge that there was a supply agreement in place between Complainant and [ ] when Complainant filed its Complaint in 2015. (RRBr. at 96.).

It is undisputed that in 2011, [ ] became a supplier for Complainant of [ ] as a result of a distribution agreement. (CRBr. at 98; SBr. at 74; see also CX-0342C; Tr. (Mullis) 129:22-130:11, 131:5-22.). As Complainant notes, pursuant to their distribution agreement, [ ] manufactured and sold Neology [ ]. (Tr. (Napper) at 1590-1591:23; JX-0046C.0013-16 [ ].). All of the [ ] sold to Complainant are [ ]. (JX-0046C [ ] at 13:6-8, 18:12-15; see also Tr. (Mullis) at 164:11-165:16.). From 2012 to 2015, [ ] made domestic investments in labor and capital in the amount of [ ] manufactured and then sold to Complainant using standard cost accounting methods. (CRBr. at 122 (citing CX-0073C; CX-0034C; JX-0046C.0018-28 [ ] at 16:17-23, 31:12-23; Tr.

(Napper) at 1591:9-1593:3).). Additionally, [ ] incurred [ ] for R&D costs, and [ ] for product testing, development and support, again specifically for Complainant's [ ]. (CBr. at 122 (citing CX-0073C; CX-0334C; JX-0046C.0018-28 J at 30:8-21, 31:12-23, 32:23-33:6; Tr. (Napper) at 1591:9-1593:3; CX-0076C.00150.). While Respondents objected to the product testing and development costs because [ ] described them as "SWAG" (scientific wild-ass guess), nonetheless [ ] thought it was a "reasonable range." (RRBr. at 97; *see also* JX-0046C [ ] at 32:24-33:6).). Additionally, [ ] is in the process of developing a [ ] for Complainant called [ ] (Tr. (Napper) at 1591:24-1593:3; *see also* JX-0046C [ ] at 14:22-15:19; SBr. at 75).). No estimates of cost of development were provided.

Additionally, Respondents argue that these sums, even without the SWAG, are not significant in the context of the 6C-compatible, [ ] market. (RRBr. at 98.). Respondents note that Complainant reportedly spent [ ] just to attempt to develop its 6C prototype between 2006 and 2009 that was not successful. (Id. (citing Tr. (Mullis) at 203:24-204:2).). Respondents note that Mr. Martinez's prior company, BNC, spent [ ] to develop RFID technology. (RRBr. at 98 (citing Tr. (Martinez) at 359:8-15).). While that may be true, by the time [ ] was developing 6C for Complainant, 6C protocols were well known and had been a standard protocol since at least 2005. While none of the parties or witnesses gave statistics for a worldwide market, there are apparently few new requests for proposals for 6C-compatible [ ] industry in the United States.

One estimate is that there are some [ ] for tolling sold in the United States each year. (SBr. at 75 (citing Tr. (Mullis) at 238:23-239:11, 153:9-12).).

In that context, Complainant has established that [ ] domestic investments for capital and labor for Complainant's [ ] satisfies at least Section 337(a)(3)(B), even if barely. However, because this decision finds that the Asserted Patents are invalid, as discussed in Sections V .E.1 (b ), V .E.2(b) and V .E.3 (b )-( e) above, [ ] investments cannot be used to satisfy the technical prong of the domestic industry requirement set forth in Section 337(a)(3)(C).

## VII. RESPONDENTS' DEFENSES

On February 1, 2016, the Kapsch and Star Respondents filed their separate Responses to the Complaint in which they each asserted the same "Affirmative and Other Defenses." (Kapsch Resp., Doc. ID No. 573421 (Feb. 1, 2016); Star Resp., Doc. ID No. 573422 (Feb. 1, 2016).).[97]

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[97] As their First, Second, and Thi~d Affirmative Defenses, the Kapsch and Star Respondents each asserted Non-Infringement, Invalidity, and Failure to State a Claim, respectively. (Kapsch. Resp. at ¶¶ 168-70; Star Resp. at ¶¶ 165-67.). Non-infringement and invalidity are discussed in Sections V.F and. V.E, respectively, of this decision. The Kapsch and Star Respondents each asserted a Fourth Affirmative Defense: Lack of Domestic Industry, which is discussed in Section V.G of this decision. (Kapsch Resp. at ¶ 171; Star Resp. at ¶ 168.). The Kapsch and Star Respondents each asserted a Fifth Affirmative Defense: Covenant Not to Sue, License and/or Patent Exhaustion. (Kapsch Resp. at ¶ 172; Star Resp. at ¶ 169.). The Kapsch and Star Respondents each asserted a Sixth Affirmative Defense: The Requested Remedy Is Not in the Public Interest. (Kapsch

This section of the decision deals with three (3) of the Respondents' Affirmative Defenses but in reverse order: their Seventh Affirmative Defense (Equitable Estoppel); their Ninth Affirmative Defense (Prosecution History Estoppel); and the Eleventh Affirmative Defense (Inequitable Conduct), all of which Respondents contend render Complainant's '044 and '046 patents unenforceable.

### A. Respondents Have Not Proven by Clear and Convincing Evidence Their Eleventh Affirmative Defense that Complainant Engaged In Inequitable Conduct

#### 1. The Legal Standard for Proof of Inequitable Conduct Is a High Bar to Overcome.

Every individual who is involved with a patent application filing and prosecution has "a duty of

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Resp. at ¶ 173; Star Resp. at ¶ 170.). The Kapsch and Star . Respondents each asserted a Seventh Affirmative Defense: Estoppel, Acquiescence and Waiver. (Kapsch Resp. at ¶ 174; Star Resp. at ¶ 171.). The Kapsch and Star Respondents each asserted an Eighth Affirmative Defense: Lack of Standing. (Kapsch Resp. at ¶ 175; Star Resp. at ¶ 172.). The issue of standing is discussed in Section II.C of this decision. The Kapsch and Star Respondents each asserted a Ninth Affirmative Defense: Prosecution History Estoppel. (Kapsch Resp. at ¶¶ 176-82; Star Resp. at ¶ 173.). The Kapsch and Star Respondents each asserted a Tenth Affirmative Defense: Failure to Comply with FRAND/RAND Obligations. (Kapsch Resp.at ¶¶ 175-82; Star Resp. at ¶¶ 174-80). The Kapsch and Star Respondents each asserted an Eleventh Affirmative Defense: Unenforceability Because of Inequitable Conduct, which is discussed in Section VII.A.2. (Kapsch Resp. at ¶¶ 183-411; Star Respondents' Resp. at ¶¶ 175-409.).

candor and good faith" which includes a duty to disclose to the PTO "all information known to that individual to be material to patentability." 37 C.F.R. § l.56(a). This standard applies to every inventor named in an application; each attorney or agent who prepares an application; and "every other person who is substantively involved in the preparation or prosecution of the application." (Id. at § 1.56 (c)(l)-(3).). "If inequitable conduct occur[s] with respect to one or more claims of an application, the entire patent is unenforceable." (SPBr. at 46 (citing Impax Labs, Inc. v. Aventis Pharm. Inc., 468 F.3d 1366, 1375 (Fed. Cir. 2006)).).

To prevail on a claim of inequitable conduct, "the accused infringer must prove that the patentee acted with the specific intent to deceive the PTO." *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1290-91 (Fed. Cir. 2011) (en bane) (citing *Star Scientific, Inc. v. R.J Reynolds Tobacco Co.*, 537 F.3rd 1357, 1366 (Fed. Cir. 2008)).). *Therasense* applies to inequitable conduct claims brought before the Commission. (CBr. at 103 (citing *In the Matter of Certain Static RAMs and Prods. Containing Same*, USITC Inv. No. 337-TA-792, Remand Initial Determination on Validity and Unenforceability, 2013 WL 1154018 at *6-7 (Feb. 25, 2013)).). An accused infringer must prove that the applicant "misrepresented" or "omitted" **material** information with an intent to deceive the PTO. *Therasense*, 649 F.3d at 1287 (emphasis added).

While the *Therasense* decision emphasized that honesty at the PTO is "essential," the Court also noted that a history of the previously low standards for

proving materiality and intent, the two (2) required elements of an inequitable conduct claim, had resulted in several unintended consequences, "among them increased adjudication cost and complexity, reduced likelihood of settlement, burdened courts, strained PTO resources, increased PTO backlog, and impaired patent quality." *Id.* at 1290. Noting as well that an "inequitable conduct" charge spawned antitrust and unfair competition claims, as well as claims for attorneys' fees, the *Therasense* Court also observed that, "with these far-reaching consequences, it is no wonder that charging inequitable conduct has become a common litigation tactic." *Id.* at 1289.

Accordingly, the *Therasense* decision held that proving an intent to deceive requires clear and convincing evidence of: (1) knowledge of the withheld information; (2) knowledge that the withheld information was material; and (3) a deliberate decision to withhold the information. *Id*. at 1290. In other words, both materiality and intent must be proven by clear and convincing evidence. (SBr. at 53 (citing *Star Scientific, Inc. v. R.J Reynolds Tobacco Co.*, 537 F.3d 1357, 1365 (Fed. Cir. 2008)).). Moreover, "the specific intent must be the single most reasonable inference able to be drawn from the evidence." *Therasense*, 649 F.3d at 1290; see also *Cordis Corp. v. Boston Scientific Corp.*, 658 F.3d 1347, 1360 (Fed. Cir. 2011); *Star Scientific*, 537 F.3d at 1360. "Materiality and intent are separate requirements, and intent to deceive cannot be found on materiality alone." *Cancer Research Tech. Ltd. v. Barr Labs, Inc.*, 625 F.3d, 724, 733 (Fed. Cir. 2010). Materiality exists if the PTO "would not have allowed

a claim had it been aware of the undisclosed prior art." *Therasense*, 649 F.3d at 1291.

Information is considered material to patentability when it is "not cumulative to information already of record or being made of record in the application and (1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) it refutes, or is inconsistent with, a position the applicant takes in (i) Opposing a argument of unpatentability relied on by the Office [PTO], or (ii) Asserting an argument of patentability." 37 C.F.R. § 1.56 (b)(l), (b)(2). (See also CBr. at 111 (citing *Ohio Willow Wood Co. v. Alps, South, LLC*, 813 F.3d 1350, 1357 (Fed. Cir. 2016)).). There is a lower threshold for establishing materiality than for proving that a patent is invalid. "Information concealed from the PTO may be material even though it would not invalidate the patent." (SBr. at 53 (citing *Larson Mfg. Co. of South Dakota, Inc. v. Aluminart Prods. Ltd.*, 559 F.3d 1317, 1327 (Fed. Cir. 2009) (quoting *Li Second Family Ltd. v. Toshiba Corp.*, 231 F.3d 1373, 1380 (Fed. Cir. 2000))).).

**2. Complainant's Actions Do Not Rise to the Level of Inequitable Conduct**

Respondents have contended from the outset of this Investigation that the'044 and '436 patents are unenforceable because of Complainant's alleged patent prosecution misconduct. (Respondents' Eleventh Affirmative Defense (Inequitable Conduct); *see also* RPBr. at 89-108; RBr. at 6-7, 106-17, 122-

24.).[98] Respondents contend that [ ],[99] Complainant's patent prosecution counsel, and [ ], one of named inventors of the '044 and '436 patents, intentionally misinformed the PTO during the prosecution of the '044 and '436 patents in 2012 and 2013, and during prosecution of the '044 and '436 patents' common parent, the '568 patent, that each of those patents was entitled to priority back to the patent application that Complainant filed in 2003 that issued as the '819 patent. (RBr. at 106; see also SBr. at 55.).

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[98] In their Responses, the Kapsch and Star Respondents named Attorney Patrick Lavender and the law firm of Procopio, Cory, Hargreaves & Savitch, LLP ("Procopio Law Firm"), and Manfred Reitzler, the other named inventor of the '044 and '046 patents, as participating in the alleged inequitable misconduct that constitutes Respondents' Eleventh Affirmative Defense. (Kapsch Resp. at i-fi-f 183-411; Star Resp. at ¶¶ 181-409.). The claims against Mr. Reitzler and Mr. Lavender have been abandoned and/or waived for purposes of this Investigation pursuant to Ground Rules 7.2 and 10.l because they were not mentioned in Respondents' Pre-or Post-Hearing Briefs. (See RPBr. at 89-108; see also RBr. at 6-7, 106-18, 122-24.). Neither of these individuals testified during the evidentiary hearing. The Procopio Law Firm is only mentioned once in the context of "inequitable conduct" (RPBr. at 94; RBr. at 115); [ ] is currently an equity partner at the [ ]. (See RPBr. at 94 (citations to RX-22 l 8C omitted); see also RBr. at 115 (citing Tr. [ ] at 1748: 17-24, 1748:25-2; 1749:3-7, 1749:8-13, 1751:9-12).).

[99] At the time he testified on September 22-23, 2016, [ ] served as the patent prosecution counsel for Complainant, as well as to its predecessors Single Chip Systems ("SCS"), which later merged into Bank Note Corporation ("BNC"), which later became Neology. (See Tr. [ ] at 1630: 12-1631: 11.). He holds a B.S. in electrical engineering and received his law degree in 2001. (Id. at 1629: 11-25).

According to Respondents, among other considerations, Complainant had to find a way it could claim the 6C Protocol as one it invented because Complainant's own RFID protocol, Sahara, was more expensive and slower than the 6C Protocol that by 2005 was adopted as the ISO's industry standard. (RBr. at 106-07, 113; Tr. (Mullis) at 191:11-193:2; see also SBr. at 55 (citing SDX-0002; see also RX-0021C; RX-2464C).). According to Respondents, to claim the 6C Protocol as one which Complainant invented, and for which it could claim patent priority and licensing rights over the 6C Protocol, [ ], with [ ] knowledge, filed a series of continuation applications, first in the application that issued as the '568 patent, and then later in the applications that issued as the '044 and '436 patents, to incorporate the 6C Protocol and specific claims and terms that were identical to the 6C Protocol (and its predecessor, the Gen2 Standard) that were missing from Complainant's earlier patents or patent applications. (RBr. at 90, 106-07; SBr. at 55 (citing JX-0024 ('568 file history) atNEOITC00031650-57.). According to Respondents, [ ] knew that the statements they made to the PTO, i.e.,. that the '568, '044 and '436 patents were continuations of earlier patents were false. (RBr. at 107; see also Tr. [ ] at 1761-1764.).

Specifically, Respondents charge that [ ] knew that the specific claims and claim terms they added to the '568 patent, including "second security key," a "third communication" and security keys "based on information received from radio frequency device" that would reflect the "handshake" communications or protocol between a tag and reader

as shown in Sections III.A.3, V.F.2(a)(ii), and V.F.2(b) were not supported by the written description contained in either the '819 patent or the '241 provisional application. (RBr. at 107; JX-0024 at NEO-ITC00031656; see also Tr. [ ] at 1761:1-25.). Respondents contend that when [ ] explicitly represented to the PTO that "these new claims and amendments represent no new matter and are fully supported by the original disclosure," [ ] made a knowingly false statement. (RBr. at 107; JX-0024 ('568 file history) at NEOITC00031656; RPBr. at App.l; RX-0699; see also SBr. at 55.). Because [ ] admitted during the evidentiary hearing that the term "security key" was not contained in the early patents, Respondents suggested that he had previous knowledge that the '241 provisional application and the '819 patent did not invent or disclose the 6C Protocol. (RBr. at 110 (citing Tr. [ ] at 1761:4-7); see also JX-0001 at NEO-ITC00091269; JX-0002 at NEOITC00090403.).

Respondents argue that [ ] knew there was a problem with the language in the early patents because [ ] amended the specification of the '568 patent to "incorporate by reference" the '241 provisional application without notifying the PTO that it, too, was a "new" addition. (RBr. at 107, 110 (citing JX-0024 at NEOITC00031701).). As [ ] acknowledged during his evidentiary hearing testimony, when a specification is changed, "you would designate it as a continuation in part" and not as a continuation. (Tr. [ ] at l763:9:19.).

In addition to the information described above that Respondents say demonstrates an "intent to

deceive," Respondents contend that because their expert, Dr. Durgin, provided his opinion in 2016 that Complainant's patent priority claim was clearly incorrect, neither [ ] could have believed when they filed the '044 and '436 patents that the '241 provisional application contained sufficient written description support for Complainant's claims. (RPBr. at 93 (citing RX-2208C at ¶¶ 89, 92-159); see also RBr. at 107-08; SBr. at 55-56.).

A brief, selected chronology to explain Respondents' allegations in a time context is provided as follows:

**Table 6: Selected Chronology**

| Date | Event |
|---|---|
| July 9, 2002 | U.S. Provisional Application 60/294,241 is filed. |
| July 9, 2003 | U.S. Patent Application No. 10/615,026 (which issued as the '819 patent) is filed. **([ ] involved only up to this point)** |
| April 22, 2005 | [ ] adds "security key" to claims of the '819 patent in an attempt to claim priority. |
| April 17, 2006 | U.S. Patent Application No. 11/279,912 (which issued as the '746 patent) is filed. |

| | |
|---|---|
| January 15, 2010 | U.S. Patent Application No. 12/688,666 (which issued as the '410 patent) is filed. |
| July 1, 2011 | U.S. Patent Application No. 13/175,568 (which issued as the '568 intent) is filed. |
| July 29, 2011 | Complainant sues Federal Signal Corporation. |
| December 2, 2011 | Complainant accused the RN16 handle of infringing the '819 and '746 patents. |
| January 11, 2012 | [ ] amends the '568 patent to add a "third communication" and "second security key. |
| January 13, 2012 | U.S. Patent Application No. 13/350,665 (which issued as the '436 patent) is filed. |
| April 24, 2012 | Federal Signal argues that Yap anticipates "security key." Complainant does not disclose the Yap reference to PTO. |
| May 4, 2012 | U.S. Patent Application No. 13/464,894 (which issued as the '044 patent) is filed. |

(RBr. at Appx. 1 (internal citations omitted).).

Respondents contend that all of [ ] alleged misrepresentations to the PTO were "material' under *Therasense* because [ ] acknowledged during his evidentiary hearing testimony that the added claims would be invalid over 6C if they could not claim priority to the '819 patent. (RBr. at 110-11 (citing Tr. [ ] at 1737:2).).

In addition to the assertions described above, Respondents state that [ ] failed to disclose the existence of the preliminary injunction litigation Complainant brought against Federal Signal Corp. in the Federal District Court of Delaware in 2011 ("Federal Signal Litigation") while simultaneously, Complainant was filing the '044 and '436 patents.[100] (RBr. at 96-108; SPBr. at 50.). It should be noted that [ ] did not give testimony during the Federal Signal Litigation. However, [ ] testified on claim construction. (RBr. at 117-18, 122 (citing RX-0155C.0003 at 25:16-19, 97:15-109:13); see also RX-0155C.0056-57 at 77:21-78:1.).

Respondents note that [ ] also failed to disclose to the PTO that Federal Signal presented and argued that certain prior art references (including Yap, Tamai and Ohanian) would have invalidated the '746 and the '819 patents. (RBr. at 106-07 (citing Tr. [ ] at 1794:17-25; 117, 121-123; RX-0729C at NEO-ITC00051858-65, 937-49; RX-0693C at 216:2-24; RX-2218C at 550:15-551:2, 568:5-569:13, 570:11-15, 574:8-11, 577:2-7, 57:9-10).).

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[100] *Neology, Inc. v. Federal Signal Corp., et al*, 1:11-cv-00672-LPS (D. Del. Jul. 29, 2011), was terminated on June 13, 2013.

Finally, Respondents argue that [ ], who presented claim construction in the Federal Signal Litigation, made different arguments about the meaning of the term "security key" during prosecution of the '819 patent in May 2012 than he made only one month later, in June 2012, to the PTO while trying to overcome the Ghazarian prior art reference to gain allowability of the '568 patent. (RBr. at 107-08 (citing Tr. [ ] at 1786:20-1788:4, 1792: 18-1793:10, 1793:18-1794:6, 1785:13-15); see also RBr. at 117.). Based on [ ] arguments to the PTO, the examiner withdrew his initial rejection and allowed the '568 patent. (RBr. at 117 (citing Tr. [ ] at 1792:18-1793:10, 1793:18-1794:6; JX-0024 at NEO-ITC00031488-90); see also id. at 107 (citations omitted); id. at 108 (citing Tr.[ ] at 1794:17-25, 1786:20-1788-4, 1792:18-1796-4).).

Respondents argue that [ ] made other statements during the Federal Signal Litigation that Federal Signal's 6C-compliant products infringed Complainant's earlier patents with regard to which [ ] later made contradictory statements to the PTO. (RBr. at 117; see also RBr. at 106-08, 110-12, 118-23 (citations omitted).). As Respondents charge, [ ] argued a different meaning for "security key" during the Federal Signal Litigation than he argued to the PTO. (RBr. at 122 (citing RX-0155C at96:15-109:13; JX-0024 at NEOITC00031503-04; Tr. [ ] at 1792: 1-1794:6).).

Respondents argue that all of [ ] failures to disclose to the PTO, and their misstatements to the PTO, are material and show the requisite intent to deceive. (RBr. at 105, 115-17, 121-22.).

**a) Respondents Contend that Complainant and [ ] Had Commercial and Financial Motives to Deceive the PTO**

A motive Respondents ascribe to Complainant for its intention to deceive the PTO is that, by at least 2008, Complainant was desperate for cash. (RPBr. at 112-14; (citing also id. at App. 1 (Timeline).). As Mr. Mullis and [ ] both acknowledged during their evidentiary hearing testimonies, [ ]. (JX-0048C.0014 (June 1, 2016 Mullis Dep.) at 17:19-18:1; JX-0049C.0015 (July 29, 2016 Mullis Dep.) at 302:7-16; Tr. (Mullis) at 127:23-128:14, 154-157 (citing CDX-0002.0008); see also Tr. [ ] at 337:18-23). As this decision discusses in Section VI.C.1, in 2009, [ ]. (Tr. [ ] at 338:2-12; see also Section VI.C.1.). Additionally, Respondents note that Complainant knew that its Sahara protocol was being rejected in the larger RFID market in favor of the 6C Protocol. (RBr. at 112.). According to unrebutted facts developed during the evidentiary hearing, [ ] became aware of the 6C Protocol by 2005, after the '026 patent application, which eventually issued as the '819 patent (that did not read on the 6C Protocol) had been filed. (Id. (internal citations omitted.). [ ] acknowledged during his hearing testimony that he received a presentation at a meeting in which one of the founders of the Gen2 Standard, that developed into the 6C Protocol, explained how the technology worked, including the "handshake protocol." (Id. (citing Tr.[ ] at 391: 13-17, 392:21-393:22, 394:5-1 O); see also RX-0223C at NEOITC00260996.). According to [ ] testimony, he became aware of the 6C Protocol later

in 2005, after the PTO issued the '819 patent. (Id. (citing Tr. [ ] at 1757:15, 1758:7) (other citations omitted).).

Thereafter, during 2006-2007, to learn more information about the 6C Protocol that ISO had adopted and was surging in the industry as a preferred RFID standard, Respondents described a series of events during which Complainant's staff attended ISO standard meetings to learn more about the 6C Protocol, without joining the ISO, which would have required Complainant to make its patents available on a FRAND basis. (*Id.* at 112-13). After the 6C Protocol was released as the ISO standard, Complainant's Sahara protocol could not compete. (*Id.* at 113 (citing RX-0221C atNEO-ITC00256482-85; Tr. (Mullis) at 191:1-193:2).). According to Respondents' explanation of the events along a timeline that connects to Complainant's patent prosecution actions, Complainant took several steps to shift away from its Sahara protocol and toward the 6C Protocol. (*Id.* (citing Tr. [ ] at 407:10-15; RX 2461C at NEO-ITC00416076-79).).

Among other steps it took to find a way to maximize its intellectual property, Complainant asked the law firm of [ ]. (*Id.* at 113 (citing RX-0227C at RETSKY-00000169, 209, 259; Tr. [ ]. at 413:10-414:6, 414:11-416:6).).

According to the [ ] (RX-0227C.0007 at RETSKY-00000173.). Not long after [ ] (RBr. at 114 (citing Tr. [ ] at 1781:8-1783: 8; RX-0173C at NEO-ITC 135184).). According to Respondents' theory, [ ], with

Complainant's knowledge, amended the application that issued as the '568 patent to include claim language adopted from the 6C Protocol, and then filed the application that issued as the '436 patent with the same claim language. (RBr. at 114-15 (citing Tr. [ ] at 1649:4-16; 1761:4-12; 1761:14-23).). Thereafter, Complainant sued Federal Signal claiming infringement of the '436 patent. (RBr. at 115 (citations omitted).).

Respondents argue that Complainant's and [ ] commercial need to find a substitute for the Sahara protocol also served as the requisite intent to deceive, particularly given [ ] knowledge that Complainant's Sahara protocol could not compete against the 6C Protocol. (Id. (citing *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1366-67 (Fed. Cir. 2007); *Digital Control, Inc. v. Charles Mach. Works*, 437 F. 3d 1309, 1320 (Fed. Cir. 2006)).).

Respondents' theory is that [ ] had his own financial motive to deceive the PTO; he needed to keep Complainant as his client. (RPBr. at 94; RBr. at 115; see also Tr. [ ] at 1747:10-14, 1747:16-25.). According to his testimony, [ ] handled all of Complainant's patent prosecution work from at least 2005 and acted as Complainant's general counsel. (See Tr. [ ] at 1747:10-1748:6.). When [ ] changed law firms from [ ], he took Complainant's business with him where he was the billing partner for Complainant's work. (See RPBr. at 94 (citations to RX-2218C omitted); see also RBr. at 115 (citing Tr. [ ] at 1748: 17-24, 1749:3-7, 1749:8-13, 1751:9-12).). [ ] testified during the evidentiary hearing that Complainant has been his

largest client since 2009, comprising more than 50% of his billings and up to almost 80% during the past several years. (Tr. [ ] at 1749:8-13; 1751:9-12; 1751: 2-8.).

**b) [ ] Did Not Engage in Inequitable Conduct Because He Lacked the Requisite Intent to Deceive**

A patentee must have a "specific intent to deceive." *Therasense*, 649 F.3d at 1287. An intent to deceive the PTO must be "the single most reasonable inference able to be drawn from the evidence." *Star Scientific*, 537 F.3d at 1366. Complainant and Staff argue that there is no evidence, let alone clear and convincing evidence, to support a finding that [ ] acted with an intent to deceive to deceive the PTO. (CBr. at 112; SBr. at 56.). The finding of this decision is that Respondents have not proven by clear and convincing evidence Complainant's inequitable conduct.

Throughout his testimony with respect to just those issues directed toward possible misconduct before the PTO, [ ] appeared to testify directly and relatively consistently, at least with respect to his own role in the development of the patents at issue and in their prosecution before the PT0.[101] While [ ] testified he understood that

[101] On cross-examination, [ ] was questioned extensively about the concept of a "security key" claiming an "access to memory" that Complainant has contended is contained in the '819 patent ('026 patent application) as well as in the '044 and '436 patents. (Tr. [ ] at 356:1-11; *see generally id.* at 355: 1-356:25.). [ ] acknowledged when pressed that he understood that a "security key" was not contained in the '819 patent ('026 patent

he had an obligation to "disclose all the information that could be relevant [to the patents and to the PTO]"[ ] (Tr. [ ] at 334:7-9), he testified unequivocally that he played no role in drafting the claims or the specifications contained in the July 2003 '026 patent application, or in the '044 or '436 patents. (Tr. [ ] at 332:20-337:25.). According to [ ], the only patent or paten.t application to which he contributed was the '241 provisional application for which he drew "most of the diagrams and the block diagrams and the process diagrams and the description of the products." (Id. at 275:14-23.). As discussed in Section V.E.l(b), while the embodiments disclosed in the '241 provisional application include a passport for border crossing, a telephone using a fingerprint with an RFID device, and a holographic antenna, there is no explanation of a security key. (Id. at 275:23-279:1-12.).

Specifically, when [ ] was asked to describe the process that was used in preparing the '026 patent application, which was filed in 2003 and that issued as the '819 patent, he testified: "Well, we gave all the information we had, and we had a lot of calls and discussions with the lawyer. We gave him everything we had, and we explained the best the concepts that we had invented at the time. And he wrote the patent application." (Id. at 332:23-333:2 (citing JX-0030).). In providing this testimony, [ ]

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application) even though he claimed it originally was in the "provisional and I think it's in the specification word by word." (Id. at 355:22-23.). Clearly, he changed his testimony, which might weigh against his credibility. However, the evaluation must be based upon what he thought at the time, and all of the evidence with respect to this issue.

was referencing the lawyer at the law firm [ ] who filed the '026 patent application. (*Id.*).

[ ] also testified that since the '819 patent was his first patent, and while he reviewed the underlying '026 patent application that he signed, everything appeared to be appropriate. (Tr. [ ] at 333:16-334:25) ("I read everything, and as far as I represented the ideas that we had, I think it looked good."). Similarly, [ ] testified consistently that even after [ ] took over the prosecution of the '568, the '044 and '046 patents, "the lawyer," i.e., [ ], drafted the claims and specifications, and he relied upon his lawyer to meet any "burden" or obligations with respect to the patent filings, including any disclosures of prior art that might invalidate the patents, and specifically the Gen2 Standard/6C Protocol. (*Id* at 334:14-336:13.). [ ] confirmed that while the '568, '044 and '436 patents were being prosecuted and pending, he was aware of the Gen2 Standard/6C Protocol. (Id. at 335:23-336:5.). When asked if he had told [ ] to disclose the RFID standards to the PTO, [ ] responded, "[n]o, I did not." (Id. at 336:7-9.). When asked if he had an "opinion" whether the Gen2 Standard/6C Protocol should have been disclosed to the PTO, [ ] answered, "I really didn't have an opinion. I rely [sic] on [the attorney]." (Id. at 336:8-10.).

With respect to the Federal Signal Litigation and Respondents' allegations of the failures to disclose that litigation to the PTO, [ ] testified that he attended the Federal Signal Litigation preliminary injunction hearing and read "some" of the documents, but that he relied on his attorney to

provide the appropriate prior art references and arguments. (Id. at 336:15-337:17.). When asked if he had an understanding of the prior art arguments, and if any one argument made during the Federal Signal Litigation stood out, [ ] answered said "they made many arguments" and "not really no . . . . Again, I've always relied on our lawyers to do that." (Id at 336:21-337:2.). [ ] testimony was largely consistent: he heard invalidity arguments directed at Complainant's patents during the Federal Signal Litigation, but he did not review them; he did not know if the contentions should be disclosed to the PTO; and since he could not tell what prior art is, he relied on his attorneys to make such determinations. (*Id.* at 337:1-17.).

Regardless of any later understandings [ ] may have arrived at in hindsight, particularly with respect to whether the '241 provisional application actually disclosed a "security key," or what he thought it disclosed; or whether the '044 and '436 patents correctly claimed priority to the '241 provisional application, that is quite different than a contention that, from the onset, he had specifically set out to deceive the PTO. (Id. at 356:7-9 ("Q: In the claims of the patent as originally filed [referencing the '241 provisional application], there is no claim to a security key at all, is there? A: Not as originally filed, no.").

Contrary to Respondents' argument that [ ] must have known by Dr. Durgin's testimony in 2016 that the '044 and '436 patents were invalid, the question would be why would he have believed that in 2002-2012? (RBr. at 110.). In 2011-2012, the Federal Signal Litigation settled with a payment to

Complainant, a license arrangement between Complainant and [ ], and a purchase of [ ] assets. (See Section VI.D.). During 2016, [ ] and Complainant had an expert, Mr. Goldberg, in addition to their attorneys, who have been arguing that the '044 and '436 patents are valid. (See Sections V.E.).

It is not clear from the extensive testimony whether [ ] clearly understood until recently that the broad "security" concepts and "cryptographic keys" contained in the '241 provisional application and the '026 patent application are not the same as "security keys" claimed in the '568, '044, and '046 patents; or whether the drawings he provided for the '241 provisional application depict embodiments that sufficiently encompass the "security key" and the tag and reader interactions or the 6C Protocol "handshake" he claimed he thought his drawings represented.

It is also not clear from the testimony *when or if* [ ] knew or came to understand that the '568, '044, and '046 patents were legally faulty because they did not provide adequate written description support for a "security key" or the "handshake" protocol that is part of the 6C Protocol, or that the patents did not properly claim priority to the '241 provisional application or '026 patent application. (See Sections V.D.2, V.E.l(b).). [ ] may not have understood fully between 2002-2016 what was required to ensure a valid, enforceable patent or what was needed to claim a priority date based on an earlier filed patent application. According to his testimony, he relied upon his attorneys for the

necessary expertise to file and prosecute his patents. (Tr. [ ] 334: 14-336:13.). Notwithstanding the fact that [ ] affirmatively signed the declarations associated with each patent application and that he is undoubtedly sophisticated in business, whether he truly understood precisely the technology the patents disclosed, or the problems with the continuation patent applications as they were filed, is another question.

Finally, and perhaps most significantly, other than placing his name on the patent applications and providing his signature on the requisite declarations, it does not appear from the totality of the evidence that [ ] made other affirmative statements to the PTO.

In the absence of other direct involvement in the patent process before the PTO by [ ] or Complainant, any commercial motive that can be attributed to Complainant and [ ] must also fail in this instance.

Moreover, even given that Respondents argue that the circumstantial evidence and Complainant's clear commercial need and motive suggest an intent to deceive, the *Cargill* and *Digital Control* decisions upon which Respondents rely do not help them here. In the *Cargill* case, the Federal Circuit reviewed the district court's finding and upheld it because the district court did not rely solely upon the applicant's motive in drawing its inference of intent, but on three circumstantial factors, with motive being only one of them. *Cargill*, 476 F.3d at 1366-67.

In the *Digital Control* case, while the district court found that applicant's testimony regarding his intent to be "lacking in credibility" because the court found that the applicant engaged in "constant restatement and revision . . . during the time of this litigation," the Federal Circuit reversed the district court's decision in-part because the district court was not explicit as to the extent it relied for materiality upon affirmative misstatements the applicant made versus the applicant's failure to disclose previous patents/prior art. *Digital Control*, 437 F.3d at 1315. Moreover, unlike this case and the evidence with respect to [ ], the applicant in *Digital Control* testified as a patent expert in other cases, was knowledgeable about the PTO requirements, and was involved in deliberately withholding a prior art reference. *Id.*

As explained above, there are factual distinctions here from those in *Cargill* and *Digital Control*. There is a lack of evidence to attribute inequitable conduct to [ ]. Notwithstanding his admissions that the '819 patent did not contain a security key or the other terms that were later added, generally, I found [ ] to be credible with respect to his involvement in the drafting of the '044 or the '436 patents.

Moreover, regardless of [ l business sophistication or what he may now understand about the PTO's duty of candor, given the totality of [ ] testimony, Respondents have not proven by clear and convincing evidence that [ ] acted "knowingly and deliberately" to deceive the PTO, or that the most reasonable inference to be drawn is that he intended

to deceive the PTO when the applications that later issued as the '819, '014, '044 and '046 patents were filed. See *Therasense*, 649 F.3d at 1290; see also *Outside the Box Innovations v. Travel Caddy, Inc.,* 695 F.3d 1285, 1291-1292 (Fed. Cir. 2012) (internal citations omitted).). There is a lack of evidence that [ ] was actively involved in decisions by which material information was withheld from the PTO, or by which material active misstatements were made to the PTO. *See e.g., Avid Identification Systems, Inc. v. Crystal Import Corp.*, 603 F.3d 67, CPLRG 0059 (Fed. Cir. 2010); *cf, American Calcar, Inc. v. American Honda Motor Co.*, 768 F.3d 1185, 1189 (Fed. Cir. 2014) (upholding the district court's finding of invalidity of the patents at issue based on inequitable conduct where, inter alia, the patentee/inventor was actively involved in patent prosecution).

***i. A Monetary Incentive Does Not by Itself Show Specific Intent to Deceive***

[ ] was not involved in the filing of the initial '241 provisional application. He first became involved with the prosecution of Complainant's patents in or about 2004/2005, after the '241 provisional application had been filed, and after the filing of the '026 application, which claims priority to the '241 provisional application. (Tr. [ ] at 1630:22-1631:11.). [ ] interactions with the PTO regarding Complainant's patents began with filing responses and documents to the PTO for the allowance of the '026 application, which ultimately issued as the '819 patent. He subsequently handled the prosecution of the '044 and '436 patents, which he

claimed were continuations of the '819 patent. (See SDX-0002.). [ ] was also actively involved in the Federal Signal Litigation, to the point of providing testimony on claim construction issues. (RBr. at 107-22.).

The question with respect to whether [ ] intentionally set out to deceive the PTO is a much closer one than that involving [ ] given [ ] expertise as a skilled patent prosecution attorney. However, the Court in *Therasense* has made it clear that:

> negligence under a "should have known standard" does not satisfy this intent requirement. "In a case involving nondisclosure of information, clear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference." In other words, the accused infringer must prove by clear and convincing evidence that the applicant knew of the reference, knew it was material, and made a deliberate decision to withhold it.

*Therasense*, 649 F.3d at 1290 (quoting *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1181 (Fed. Cir. 1995) (other internal citations omitted).

Additionally, "because direct evidence of deceptive intent is rare, a district court may infer intent from indirect and circumstantial evidence. However, to meet the clear and convincing evidence standard, the specific intent to deceive must be 'the

single most reasonable inference able to be drawn from the evidence.'" *See Auxilium Pharms., Inc. v. Watson Labs., Inc.*, 2014 WL 9859224, *36 (D.N.J. Dec. 16, 2014) (citing *Therasense*, 649 F.3d at 1290)). "Because the party alleging inequitable conduct bears the burden of proof, the 'patentee need not offer any good faith explanation unless the accused infringer first . . . prove[s] a threshold level of intent to deceive by clear and convincing evidence.' The absence of a good faith explanation for withholding a material reference does not, by itself, prove intent to deceive." *See Therasense*, 649 F.3d at 1291. Finally, if the accused infringer "prove[s] both elements-intent and materiality-by clear and convincing evidence," the court must still "weigh the equities to determine whether the applicant's conduct before the PTO warrants rendering the entire patent unenforceable." *Id.* at 1287.

As a starting point, Respondents' broad argument that [ ] had an incentive and motive to deceive the PTO because Complainant's billings comprised from [ ] of his billings from 2005 through the "last years" in not wholly inconceivable. However, a financial motive is not the only inference that can be drawn with respect to [ ] actions. As Staff notes, "incentive" is not the same as "intent." (SRBr. at 7 (citing RBr. at 112 ("Messrs. [ ] had ample incentive to deceive the PTO"); RBr. at 115 ("[ ] is heavily dependent upon Neology for business")).). Having observed [ ] closely, and having reviewed his trial testimony several times, it is a factual finding of this decision that based on the totality of the facts and circumstances, a monetary incentive in this instance is circumstantial evidence,

but it does not constitute specific intent, and it is not "the single most reasonable inference" that can be drawn for [ ] actions. (Accord and adopting CRBr. at 72 (citing *Research Corp. Techs., Inc. v. Microsoft Corp.*, 536 F.3d 1247, 1253 (Fed Cir. 2008) ("[E]ven if an inventor did hope for remuneration, any financial reward alone does not show an intent to deceive the USPTO."); *Auxilium Pharms., Inc. v. Watson Labs.*, Inc., 2014 WL 9859224, *36 (D.N.J. Dec. 16, 2014) (finding no deceptive intent where, on the one hand, "it could be reasonable to infer that Mr. Gyurik's failure to disclose proper inventorship of the patent-in-suit was due to financial motive[,] . . . it is equally reasonable to infer . . . that it was, in fact, his subjective belief that [the omitted co-inventor's prior research from which the patented invention was derived] were failures".).

It appears that both [ ] were trying to capitalize on what they thought was the value of the Complainant's patents. That would appear not to be unusual given the patent system's requirement that patents be exploited.

**c) [ ] Had a Belief that the Written Description Was Adequate Because None of Complainant's Patents Had Been Rejected Based on Written Description**

Although this decision finds that the '241 provisional application and the '026 application lack sufficient written description support under 35 U.S.C. § 112, the better argument that Complainant makes with regard to [ ] actions before the PTO, rather

than a "good faith belief," is that the written descriptions were adequate because Complainant had never received a written description rejection even though the '819, the '044 and the '436 patents share a "virtually identical specification."[102] (CBr. at 108 (citing Tr. [ ] at 1661:10-19); see also JX-0030; JX-0004; JX-0005); Tr. (Goldberg) at 1567:23-1568:12 (citing CDX-0007.0007; CDX-0007.0009; CDX-0007.0010; CDX-0007.0011).).

During his testimony, [ ] was clear in his interpretation of the specification of the '026 application (which shares a specification with the '044 and '436 patents) that when he looked at the disclosure, "the cryptologic block stores security keys, these keys are checked and validated to grant or deny access to the memory chip," he thought this language described a security key protocol that included the possibility of more than one exchange, even though the term "security key" was not used. (Tr. [ ] at 1649:1-1654:25.). As [ ] also testified, he thought that "this equipment," as disclosed in the '241 provisional application, was a reader, which had to be protected from the equipment that reads and write from the device" (i.e., JX-0024.1768; see also JX-0030 ('241 provisional application, which was incorporated into the '768 application, and which issued as the '568 application, the parent of the Asserted Patents)).

[ ] testified that when he saw the same "idea" in the '819 patent of at least two (2) keys

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[102] Complainant offered no case precedent to support its claim that a "good faith belief' is sufficient to support a claim that there was no intent to deceive.

contained in the '241 provisional application, he thought at that time (in 2004-2005) that the embodiments could be interpreted to disclose some type of protocol where a reader was receiving multiple pieces of information from the tag. (Tr. [ ] at 1659:9-1661.).

Similarly, [ ] testified at length that, rightly or wrongly, he had relied on Figure 14 of the '026 application for written description in support of at least two (2) security keys. (*See* CRBr. at 68 (citing Tr. [ ] at 1824:2-13, 1649:24-1650:16).).

Respondents contend that [ ] testimony was not credible because he did not cite to Figure 14 when he distinguished a prior art reference that did not teach a "security key" during the prosecution of the '026 application. (See Tr. [ ] at 1827:6-1827:24 (discussing JX-0030.0498, 0480-0496).).

However, since [ ] (and Complainant) had the same primary patent examiner throughout the prosecution of the patents at issue, [ ] noted that it was his understanding of the Manual of Patent Examining Procedure ("MPEP") that if the patent examiner had thought the written description for the "security key" limitation was deficient, he could have rejected the claims of the patents. (Tr. [ ] at 1661:20-1663:15.). Based upon his testimony, it appears that [ ] had a belief, at least early on, that since the patent examiner did not reject any of the claims that recited the "security key" limitation for lack of written description, the written description requirement for these claims was satisfied. This explanation is at least plausible and sufficient to

defeat "specific intent" here because "the specific intent must be the single most reasonable inference able to be drawn from the evidence." *Therasense*, 649 F.3d at 1290 (quoting *Star Scientific*, 537 F.3d at 1366); see also *Cordis Corp.*, 658 F.3d at 1360.

***i. There Are Alternative Explanations for [ ] and Complainant's Failure to Disclose the Federal Signal Litigation to the PTO***

It is undisputed that [ ] failed to disclose certain positions that the defendant Federal Signal took during the Federal Signal Litigation, or those of Complainant before the PTO. (CBr. at 108-09.). Respondents have alleged that [ ] violated his duty of candor to the PTO by failing to disclose the Federal Signal Litigation. Additionally, Respondents argue that [ ] failures to disclose the arguments that Federal Signal made that certain prior art references (Yap, Ohanian and Lowe, but particularly Tamai) invalidated the '044 and '046 patents, or the arguments that [ ] made with respect to "security key" were material to those patents, evidenced [ ] intent to hide potentially invalidating information from the PTO at the same time [ ] was prosecuting the patents at issue. (RPBr. at 96-107; RBr. at 117-23 (citing 37 C.F.R. § 1.56; MPEP 2001.06(c); Tr. [ ] 1794: 17-25).).

Respondents also attempted to undermine [ ] testimony that the defense did not raise a written description argument during the Federal Signal Litigation to impeach his credibility on cross-

examination. (Tr. [ ] at 1664:5-7 ("Q: Did the defendants in the Federal Signal case raise a written description defense? A: They did not.").).[103] In fact, an argument that the '044 and '046 patents lacked written description support was raised during the Federal Signal litigation on May 1, 2012. (Tr. [ ] at 1730:1-1731 :25; *see also id.* at 1729:1-25; 1732:1-25.). However, [ ] testified he did not recall "the specifics" some five (5) years later. (*Id.* at 1733:1-1734:25.).

Respondents take umbrage at what they describe as [ ] "inconsistent positions" with respect to the term "security key." Respondents contend that had the PTO known of Complainant's infringement and claim construction arguments, it would have rejected at least one claim of each of the '044 and '046 patents in view of Tamai, because Tamai discloses every limitation even under Complainant's own arguments. (RBr. at 97-104).

With respect to [ ] "security key" construction, in April 2012, Complainant (and apparently, [ ]) took the position that it is "a key that is checked and validated to grant or deny access to a memory," as opposed to a representation to the PTO during the prosecution of the '568 patent that the "security key" limitations concern "preventing information (e.g., sensitive information) contained within an RFID tag from being read by unauthorized individuals." (RPBr. at 97 (citing RX-663C at NEO-

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[103] On cross-examination, [ ] acknowledged that written description was raised during the Federal Signal Litigation. (Tr. [ ] at 1725:2-1729:25 (citing RX-0155).).

ITC00081231-36; RX-0732C at ¶¶ 36-62); RBr. at 117 (citing JX-0024 at NEO-ITC00031513; id. at NEO-ITC0001503-04; Tr. [ ] at 1792: 18-1793:10, 1793:18-1794:6).).[104] The latter argument caused the patent examiner to withdraw its rejections to the '568 patent. (RBr. at 117 (citing JX-0024 at NEO-ITC00031488-90).).

If the arguments that Complainant advanced during the Federal Signal Litigation are examined (distinguishing, for example, the Ghazarian reference that does not disclose a security key for accessing information in the tag), they are generally consistent with the ultimate claim construction adopted in this Investigation. (See Section V.C; CBr. at 110 (citing JX-0024.1504-05).). Moreover, [ ] testified that he did not disclose Complainant's arguments or construction of "security key" to the PTO because he did not believe they were material to or contradictory to the arguments Complainant made to the PTO regarding the Ghazarian reference. (RBr. at 110 (citing Tr. [ ] at 1796:2-23, 1800:19-1801:1).). It also appears that that the patent examiner issued a Notice of Allowance for the '568 patent based on his own evaluation of Ghazarian as prior art rather: than simply adopting Complainant's argument. (CBr. at 110-11 (citing JX-0024.1489).). With respect to the Tamai reference, Complainant notes that its expert, Mr. Goldberg, and Respondents' expert, Dr. Durgin, were still disputing during this Investigation whether Tamai discloses a "security key" even though Tamai is not strictly material in this Investigation. (CBr. at

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[104] That is the claim construction adopted for "security key" in this Investigation. (See Section V.C.1.).

112 n.18.). When [ ] was asked why the arguments and information from the Federal Signal Litigation were not disclosed to the PTO, he testified: "I just didn't think about it, I guess. Normally, [in] the litigations I've been involved . . . or the patents I have prosecuted, been involved in, the litigation team makes a filing or kind of takes care to insure its filed. So I just-it wasn't something I was thinking about. It didn't get done." (Tr. [ ] at 1819:18-1829:3.).

This explanation for [ ] failures to disclose the Federal Signal Litigation, or the arguments Complainant made in that litigation, simply does not reflect, in hindsight, a "knowing" attempt to deceive. [ ] explanation that "[i]t didn't get done" may be described in other terms, but the lack of disclosure does not suggest intent. With respect to prior art references, as Complainant points out, infra, the patent examiner was familiar with the Tamai and Ghazarian references, and therefore could have at least rejected Complainant's claims on those bases. Based upon [ ] explanations, it appears that the failures to disclose the Federal Signal Litigation, for example; was more of a form of a misstep or miscalculation rather than a deliberate intent to deceive.

From one perspective, Respondents built a strong circumstantial case by connecting timing with motive to deceive, the materiality of some of [ ] and Complainant's affirmative statements to the PTO, and a lengthy recital of Complainant's and [ ] actions and filings in the PTO, or the matters they did not disclose, that appears compelling.

Particularly troublesome is the evident lack of description of the "handshake" protocol in either the '241 provisional application or the '026 patent application, which [ ] later tried to rectify by adding claim language to be consistent with the 6C Protocol. The timing of the amendments to add necessary claim language that reads on the 6C Protocol, and the use of an embodiment (particularly Figure 14 of the '241 provisional application) that bears little to or no relationship to the 6C Protocol, gives pause.

Alternatively, with respect to the Yap, Tamai, and Gazharian prior art references, and with respect to his construction of the term "security key," [ ] was involved in an active give and take exchange with the PTO, and with the same patent examiner throughout the course of the prosecution of the Security Key Patents. The Federal Circuit has distinguished the "routine back and forth between applicant and examiner" and an intent to deceive. (See SBr. at 54 (citing *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988) (en bane)); *see also Rothman v. Target Corp.*, 556 F.3d 1310, 1329 (Fed. Cir. 2009) ("[T]he Patent Act gave the examiner the discretion to reject or accept an applicant's arguments based on the examiner's own conclusions regarding the prosecution record.").). In this case, the failure to incorporate by reference the '241 provisional application into all of the continuation patent applications (that eventually issued as the '819, '746 and '410 patents) appear to be lapses that were not intentional, even though they were material to the fate of those patents and to the '044 and '436 patents. (See SDX-0002.).

The standard by which to evaluate the sufficiency of incorporation-by-reference language is "whether one reasonably skilled in the art would understand the application as describing with sufficient particularity the material to be incorporated." *Harari v. Lee*, 656 F.3d 1331, 1334 (Fed. Cir. 2011.). Here, Complainant's and Respondents' expert, Mr. Goldberg and Dr. Durgin, both agreed that the '819, '746 and '410 patents do not incorporate by reference the '241 provisional application but it took two experts to reach that conclusion even after much debate about other claim-related issues. (See Tr. (Goldberg) at 1561:25-1566:7; Tr. (Durgin) at 1377:17-1381:25.).

When [ ] testimony is examined closely, he advanced plausible alternative explanations that support his actions and conduct. I had an opportunity to observe [ ] closely and carefully under strong and capable examination by Respondents. Ultimately, I found [ ] explanations of the prosecution of Complainant's Security Key Patents to be generally credible, even if, in some instances, the explanations were weaker than in others. Respondents have not proven by clear and convincing evidence that [ ], on behalf of Complainant, engaged in conduct so egregious that it meets both the materiality and specific intent requirements of *Therasense* or its progeny. "[T]he specific intent must be the single most reasonable inference able to be drawn from the evidence." *Therasense* at 1280; see also *Cordis Corp.*, 658 F.3d at 1360. [ ] and Complainant had acceptable alternative explanations for their conduct before the PTO.

### B. Respondents Do Not Have Facts to Support an Equitable Estoppel as They Have Fashioned that Defense

#### 1. Respondents' Attempt to Reargue that Complainant Is Obligated to Offer Its Patents on FRAND Terms Is Not Supported

Respondents' "equitable estoppel" argument has, as Complainant describes, "morphed" into a "boot strapped" claim that attempts to tie Respondents' previously unsupported argument that Complainant was obligated to offer its Asserted Patents on a FRAND[105] basis (if they are standard-essential), and into a public interest argument and at least partially, an inequitable conduct argument. (CRBr. at 108-09 (citing RPBr. at 145); see also RRBr. at 92 (referencing RRBr. at Section V.D ("A LEO is Detrimental to the Public Interest Given Neology's Misleading Representations to the Industry").).

Respondents' styling of its equitable estoppel defense as being linked to Complainant's alleged FRAND obligations was first dealt with in Order No. 33, which decided, inter alia, that as of August 24, 2016, Respondents had not adduced sufficient evidence (a preponderance of evidence standard) to support their claim that Complainant had offered its Asserted Patents on FRAND Terms. (See Order No.

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[105] FRAND is sometimes referenced as "RAND" or as "Reasonable and Non-Discriminatory."

33 at 6 (Aug. 24, 2017).).[106] Respondents contended then, as they did in their Post-Hearing Brief, that. Complainant is equitably estopped because it offered its '044 and '436 patents as an "open" standard to others whether or not they were tolling agencies. (Order No. 33 at 4; see also RPBr. at 145-50; RBr. at 124 (citing Section V.A.3. at 161-64).).

Complainant contends that Respondents waived both an equitable estoppel argument as well as one that ties it to the public interest because Respondents did not raise this defense during the evidentiary hearing, and did not demonstrate how Respondents were harmed or relied on any of Complainant's alleged misleading conduct (as it applies to reliance on a 6C "open" standard). (CRBr. at 109.).

Complainant is correct that Respondents did not develop pre-hearing that somehow Complainant is equitably estopped from offering its Asserted Patents other than on a FRAND basis as a matter of public interest. (See RPBr. at 145.). Similarly, Complainant is correct that pursuant to Ground Rules 7.2 and 10.1, Respondents' waived their FRAND argument and any relationship it might have to the public interest. However, because of the importance of the issue, it is addressed briefly.

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[106] Order No. 33 is entitled: Denying Without Prejudice Complainant's Motion for Summary Determination with Regard to Respondents' Seventh and Tenth Affirmative Defenses. (Order No. 33; see also Motion Docket No. 979-021.).

The Federal Circuit has held that "equitable estoppel is appropriate where a patentee engages in misleading representations, and an alleged infringer then relies on that conduct which leads to prejudice or harm." (See CRBr. at 109 (citing *Radio Sys. Corp. v. Lalor*, 709 F.3d 1124, 1130 (Fed. Cir. 2013)).). The three elements of equitable estoppel are: "[1] The patentee, through misleading conduct, leads the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer ... [2] The alleged infringer relies on that conduct. [3] Due to its reliance, the alleged infringer will be materially prejudiced if the patentee is allowed to proceed with its claim." (SBr. at 59 (quoting *A.C. Aukerman Co. v. RL Chaides Constr. Co.*, 960 F.2d 1020, 1028 (Fed. Cir. 1992)).

As a starting point, Order No. 33 held there was no evidence of an express contract under which Complainant offered its Asserted Patents on FRAND terms to anyone. (Order No. 33 at 6 (citing Certain 3G Mobile Headsets and Components Thereof, Inv. No. 337-TA-613, Initial Determination, on remand, at 39 (Apr. 27, 2015)).). That Order applied only to Complainant's own dealings with its customers since there was no evidence that Complainant's Asserted Patents were standard essential patents ("SEPs"). (Id. at 5.). Initially, the public interest did not come into play.

In the context of the doctrine of patent equitable estoppel, it is clear that the it must be the infringers, in this case Respondents, who rely on the patentee's alleged misrepresentations or conduct, and it must be the infringers, here Respondents, who will

be materially prejudiced if the patentee is allowed to proceed with its claim. See, e.g., *A. C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1028 (Fed. Cir. 1992.). Staff makes the subtle, but correct point that "the market's understanding (or misunderstanding)" of Complainant's actions and how it represented whether 6C was "open" standard, is not only not relevant, but also probably not reliable. (SBr. at 60.). As to the first point of relevance, Staffs argument is also a subtle argument for standing by the tolling agencies who are the "market" Staff (and Respondents) identifies. In other words, the tolling agencies are not the potentially harmed parties referenced in patent equitable estoppel principles. To buttress that point, Staff points out that Complainant has never sued a state tolling agency. (Id. (citing Tr. (Mullis) at 246:14-18 ("Q: Has Neology ever sued a state tolling agency before? A: No, and I've told them we would not . . . . ").).

Moreover, representatives of the tolling agencies had varying notions of the meaning of an "open" standard. For example, Ms. Merryl Mandus[107]

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[107] When she testified during her deposition on July 28, 2016, Merryl Mandus was General Counsel of the Georgia State Road and Tollway Authority ("SRTA") that is the toll authority for all state roads, and for the Georgia Regional Transportation Authority ("GRTA"). (JX-0043.0010-12 (Mandus Dep.).). SRTA is the financing arm of the Georgia Transportation Department and administers loans and contracts for the Georgia Transportation Infrastructure Bank. (*Id.* at 0011.). Ms. Mandus served as Vice-President of the 6C TOC, a group of states that use the 6C protocol in their toll facilities to collect toll revenues. (Id. at 0012-0013.). At the time she testified, SRTA purchased its car tags from the Complainant. (*Id.* at 0014). SRTA's readers are "multi-protocol readers," that is, they read three (3) protocols: 6C, SEGO and TDN. (Id. at 1015.). One of the Kapsch

of the Georgia SRTA testified that her agency's understanding of the meaning of "open" in the context of 6C is that it be "published," "without a license." (See JX-0043.0043 (Mandus Dep.) at 73:21-74:12; 74:18-23.). Similarly, Complainant notes that Mr. Andrew Fremier,[108] the Deputy Executive Director of the Bay Area Toll Authority ("BATA") in California at d Chair of the California Toll Operators Committee testified that an "open" standard is one that is "published," "available to the public" and "anybody that is interested and has the wherewithal can produce" a product. (CBr. at 110 (citing JX-0035.0039 at 53:22-54:24.).). The tolling agency representatives did not necessarily have the same understandings of "open."[109] Consequently, Respondents' argument that the principle of equitable estoppel applies to representations Complainant may have made to tolling agencies is not supported. There was neither

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Respondents' General Counsel reached out to Ms. Mandus' organization to testify regarding the public interest. (*Id.* at 0021.).

[108] Respondents identified Mr. Andrew Premier as a fact witness to provide testimony regarding tolling operations in the United States. (RPSt. at 2.). At the time of his deposition, taken on August 2, 2016, Mr. Premier was the Deputy Executive Director of Operations of the Metropolitan Transportation Commission in San Francisco and Deputy Executive Director of BATA. (JX-0035C.001 l-12 (8:20-9: 12).).

[109] Complainant makes the point that the request for bid document prepared by the Indiana Department of Transportation for the LISORB project, makes it clear that the representative tolling agencies understood that there might be third-party patent claims for whichever protocol it adopted, whether the 6C Protocol, or Respondents' IAG/TDM Protocol. (See CBr. at 111-12 (citing RX-1788.0014).).

reliance by the tolling agencies on any representation Complainant may have made with respect to whether its claimed 6C-compatible products were open, nor even a common understanding.

If anything, the evidence adduced during the hearing is far stronger that Complainant had no FRAND obligations, and indeed there is no evidence that Respondents changed their position or relied on Complainant for that purpose. Mr. Martinez testified clearly that Complainant had not joined the EPC/ISO standard setting organization because Complainant wished to retain what it thought were its rights to its own intellectual property, which Mr. Martinez believed included the 6C Protocol. (See Tr. (Martinez) at 453:2:10 ("[W]e were never a member of the ISO standard. My belief in those days was that if we were to be a member, we had to give up all our intellectual property, so we decided not to."). Mr. Mullis, another Neology employee, described elsewhere, also testified clearly and directly that Complainant did not contribute its patent rights to the EPC/ISO standard setting organization. "Q: Has Neology signed any contracts that would commit its IP rights to any standard-setting organizations? A: Not at all." (See SBr. at 61 (citing Tr. (Mullis) at 171:9-12).). Mr. Jason Liu, the individual who monitored the pertinent standard setting meetings (including the ISO) for Complainant, corroborated Mr. Martinez's and Mr. Mullis' testimony that during 2006-2007, he attended only the plenary general ISO meetings for Complainant; he never attended any of the closed meetings for ISO members that would have required Complainant to sign an Intellectual Property agreement, or an "Opt-in" Agreement, by which

Complainant would have offered its 6C standard as "open." (See JX-0042 (Jun Liu Dep.)[110] at 0014, 0023 ("for EPCglobal meetings, I only attended the plenary sessions. Never attended the standards setting sessions").).

Moreover, the 6C Protocol that Respondents argue Complainant represented as "open," clearly never was. As early as 2006, Complainant made it clear that the 6C Protocol it claimed as its own (and wrongly as this decision finds) was known to the ISO/IEC, but subject to patent rights. In other words, 6C itself was not seen as a completely "open" standard even by the major standard setting organization at the time. The "Forward" to the 6C Protocol (ISO/IEC 18000-6C) that ISO/IEC issued in 2006 states:

> Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all patent rights.

(See JX-0017 at NEO-ITC00091501.).

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[110] When his deposition was taken on May 1, 2016, Mr. Jun Liu (known as "Jason") confirmed that he was a Neology employee from April 2006 until June 2009, at which time he was laid off due to Neology's financial difficulties. (JX-0042.0014.). When he first began working at Neology, Mr. Liu held the position as Director of Research and Development. (Id.). During the middle of 2007, his title changed to Director of Technology. (Id. at 0015.). Mr. Liu testified that he worked with Mr. Gillespie to analyze the technical aspects of Complainant's patent portfolio. (Id. at 0020-22.). Mr. Liu was also tasked by Mr. Martinez and Jeffrey Zhu, to whom Mr. Liu reported, to monitor the standard setting organization (SSOs) and particularly, EPC Global. (Id. at 0023-0024.).

Finally, there is no evidence that Respondents ever relied to their detriment on any representations that Complainant made with respect to whether or not its Asserted Patents were "open" or encumbered on a FRAND basis. The evidence adduced during the evidentiary hearing is to the contrary.

For example, Mr. Murray acknowledged that Complainant claimed that the Asserted Patents were not FRAND encumbered, and that the Asserted Patents related to the 6C Protocol. If Kapsch wanted to use them, they needed a license. (See SBr. at 64 (citing (Tr" (Murray) at 743:7-17 ("Q: And Neology also told you that its patents relate to 6C; correct? A: I do believe that they claimed that those patents related to 6C, yes. Q: And it wasn't just you. There were others with you from Kapsch that heard that? A: That is correct. Q: And whoever uses 6C technology needs a license. Do you remember that part of the conversation? A: So I remember that Neology made these claims to us in the discussions.").). Moreover, Mr. Murray also know that Complainant had sued other companies in the tolling industry with respect to the 6Ccompliant products, and so Respondents knew that Complainant had been asserting what it believed to be its patent rights. (SBr. at 64 (citing Tr. (Murray) at 751: 11-752:4; Tr. (Redman) at 666:17-20; 667:19-25.).

In sum, Respondents have not proven their equitable estoppel defense.

### 2. The Electronic Tolling Trade Associations' Collective Understanding of "Open" Standards Is Not Relevant to Respondents' Own Claim of Equitable Estoppel

In applying a preponderance of evidence standard, as required by the Federal Circuit, the evidence that Respondents marshalled to support its position was carefully considered. The pertinent testimony included that of Ms. Mandus, that an "open" standard meant "published," and that it could be used either for "free" or under FRAND terms. (JX-0043.0043, 0045.). However, Ms. Mandus was not at all clear whether there was a common understanding of the meaning "open" in the larger toll community or industry, as Respondents argue. (See JX-0043.0043).[111] Her understanding was that if a protocol was to compete as a standard, it had to be available on FRAND terms. (*Id.* at 0044 ("And here, this is what we've done at IBTTA -- obligate. If you say this is going to be available, you have to have it available on FRAND terms if it's a proprietary protocol.").). Similarly, according to Andrew Fremier, a representative of the IBBTA, "open" meant accessible to multiple suppliers." (See RBr. at 113 (citing JX-0043 at 73:21-74:12, 75:3-8).). The

[111] It appeared that Respondents were trying to lead Ms. Mandus to an answer or position that the "industry" had an understanding of an "open" standard, consistent with Respondents' argument with respect to how Complainant used the term "open," to mislead. Ms. Mandus was very clear she could not speak for the "industry's" general understanding. She made no link to any reliance upon Complainant for the meaning of an "open" standard. (JX-0043.0043-44.).

"understandings" of a tolling agency representative or of a trade association representative does represent the legal standard consistent with the legal standard described in Order No. 33. Respondents have not proven their defense.

### C. "Prosecution History Estoppel" Is Not an Affirmative Defense: Respondents Have Waived or Abandoned That Argument

It is a specific finding of this decision that Respondents have not adduced sufficient information to support their Ninth Affirmative Defense: Prosecution History Estoppel. The doctrine of prosecution history estoppel (formerly referred to as "file wrapper" estoppel) precludes a patent owner in an infringement suit from obtaining a construction of a claim that would in effect resurrect subject matter surrendered during the prosecution of the underlying patent application. See, e.g., *Festa Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 733-34 (2002), on remand, 344 F.3d 1359 (Fed. Cir. 2003), cert. denied, 541 U.S. 988 (2004). Prosecution history estoppel is not an affirmative defense, but rather a tool used in claim construction and infringement analysis. 5B Donald S. Chisum, Patents § 18.0S[l][a][iii]; *see also Trading Tech. Int'l Inc. v. Open E Cry, LLC*, 728 F.3d 1309, 1322 (Fed. Cir. 2013) ("Prosecution history estoppel applies as part of an infringement analysis to prevent a patentee from using the doctrine of equivalents to recapture subject matter surrendered from the literal scope of a claim during prosecution.")). To the extent that it applies, prosecution history estoppel supersedes a patentee's infringement claim under the doctrine of equivalents.

Court decisions prior to the Supreme Court's 2002 *Festa* decision treated prosecution history estoppel as a question of law.[112] However, in the *Festa* decision on appeal, the Supreme Court indicated that the estoppel's presumptive preclusion of equivalency could be rebutted under some circumstances, including circumstances in which an alleged equivalent was not foreseeable or when a patent applicant could not reasonably have been expected to claim literally the alleged equivalent. *Festa*, 535 U.S. at 740-41.

While a key part of Respondents' argument for unenforceability of the asserted patents is that Complainant took materially deceptive positions before the PTO during the prosecution of the applications that issued as the '044 and '436 patents with regard to the scope of those patents, and wrongly attempted through the '044 and '436 patents to claim priority to the '819 patent, Respondents never claimed that Complainant based any of its infringement contentions on the doctrine of equivalents. (See e.g. RBr. at 106-24.).

Moreover, in their discussion of "equitable estoppel" in their Initial Post-Hearing Brief, Respondents made no mention of prosecution history estoppel. They simply referenced "equitable estoppel," which is an affirmative defense, and referred to another part of their Initial Post-Hearing Brief that is

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[112] *Festa Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 585 (Fed. Cir. 2000) (en banc), *rev'd & remanded*, 535 U.S. 722 (2002, *on remand*, 344 F.3d 1359 (Fed. Cir. 2003), *cert. denied*, 541 U.S. 988 (2004).

not relevant to either an argument of equitable estoppel or prosecution history estoppel. (See RBr. at 124 (referencing "*infra* at V.A.3," a section discussing public interest).). Accordingly, Respondents' Ninth Affirmative Defense is not applicable in the manner in which it is raised. Moreover, the '044 and '436 patents have been held to be invalid elsewhere in this decision. (See Sections V.E.1(b).). Respondents also appeared to have changed their claim of "prosecution history estoppel" to one of judicial estoppel," which Respondents raised in the context of infringement, [113] and is addressed in this decision in Section V.F.2(a)(iv) above. (See RBr. at 32-34.). Given Respondents' failure to discuss prosecution history estoppel in its Initial Post-Hearing Brief, it is deemed waived, withdrawn, and/or abandoned as an argument for unenforceability.[114] (Ground Rules at 7.2, 10.1.).

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[113] *See* Section V.F.2(a)(iv), *supra*.

[114] Respondents' factual descriptions in their Responses come close to sounding like a claim of prosecution history estoppel. For example, in their Response to the Complaint and NOI, Kapsch Respondents allege that on or about May 1, 2012, during the Federal Signal Litigation, Mr. Gillespie took one position in Federal Court with respect to the scope of the construction of the clam term "security key" in claim 1 of the '044 patent that was far broader than the position he later argued before the PTO. (*See* Kapsch Resp. at ¶¶ 254-58.). In the Federal Signal Litigation, Mr. Gillespie argued that the term "security key" was not dependent upon security measures like encryption. (*Id.* at ¶¶ 1254-55; Star Resp. at ¶¶ 253-54; see also RX-0155C at 96:15-109:13; RX-2218C at 527:24-530:2.). Less than a month later, on or about June 7, 2012, Mr. Gillespie allegedly asserted a contradictory construction of the term "security key" to the PTO examiner in the '768 patent application that issued as the '568 patent. (Kapsch Resp. at ¶ 256; Star Resp. at ¶ 254; see also RX-1991.0013-15; RX-2208C at ¶ 110; RX 2158C at 12:17-13:20,

## VIII. WAIVER OR WITHDRAWAL OF RESPONDENTS' OTHER DEFENSES

Respondents did not raise in their Pre-Hearing Brief or offer any evidence during the evidentiary hearing to support their Third (failure to state a claim), Fifth (covenant not to sue, license, and/or patent exhaustion), Eighth (lack of standing), and Tenth (failure to comply with FRAND/RAND obligations) Affirmative Defenses. (See n.97, supra.).

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13:22-14:5, 14:7-15:1, 15:3, 16:13-18; 16:20-17:10, 18:6-12.). Initially, the patent examiner rejected claim 1 of the '768 patent application on grounds it was anticipated by the Ghazarian prior art reference. (Kapsch Resp. at ¶¶ 1256-57; Star Resp. at ¶¶ 1254-55.). As evidence reflects, Mr. Gillespie then argued to the same patent examiner that Ghazarian had a fundamentally different purpose. (Kapsch Resp. at ¶ 256; see RX-0693C at 187:24-188:3, 188: 13-16.). Specifically, he argued that the "security key" limitations concern "preventing information (e.g. sensitive information) contained within an RFID tag from being read by unauthorized individuals (e.g. identity thieves, scam artists, and various other persons in possession of an RFID reader." (JX-0024 at NEO-ITC0031498-507.). He explained that "security key" was meant to prevent someone with the wrong reader, that is someone who was unauthorized, from gaining access. (RX-0693C at 189: 1-11, 190:8-17.). The PTO then issued a Notice of Allowability for the '768 patent application, stating that the prior art failed to teach or to suggest a "system including: a radio frequency RFID device comprising memory, the memory configured to store a security key," which is precisely what Complainant argued in this Investigation, and which was adopted. (Kapsch Resp. at ¶ 257; Star Resp. at ¶ 255; Markman Hr'g Tr. at 10:14-19, 11:9-15, 12:1-7, 13: 1-4; RX-0693C at 192: 15-17, 193 :8-18.). This is not the same explanation that Complainant argued during claim construction because the accused 6C Protocol does not prevent unauthorized users with a 6C-compatible reader from reading the information on the tag. (See RX-2208C at ¶ 110; see also RX-2 l 58C at 12: 17-13 :20, 13:22-14-5, 14:7-15:1, 15:3, 16:13-18, 16:20-17:10; 18:6-12.).

Consequently, it is a finding of this decision that the identified Affirmative Defenses have been withdrawn, waived, and/or abandoned consistent with Ground Rules 7.2 and 10.1. *See also Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1367 (Fed. Cir. 2004) ("We agree with the Commission that the omission of the issue of validity from the Joint Narrative statement of issues and from the prehearing briefs was in this case a waiver of challenge to validity . . . .").

## IX. PUBLICINTEREST

In the NOI, the ALJ was directed to "take evidence or other information and hear arguments from the parties and other interested persons with respect to the public interest in this investigation, as appropriate, and provide the Commission with findings of fact and a recommended determination on this issue . . . . "80 Fed. Reg. 18,254 (Apr. 3, 2015). For the reasons discussed in Sections IX.C, IX.D, and IX.E below, the evidence does not show that the public interest factors weigh against the entry of any remedial orders. However, as explained in Section IX.F below, there is sufficient evidence to show that any LEO should be tailored to allow state agencies to continue to support and implement existing investments involving contracts that have been awarded to Respondents involving the Accused Products.

### A. Relevant Law

Section 337 mandates consideration of the effect of exclusion on: (1) public health and welfare;

(2) competitive conditions in the U.S. economy; (3) U.S. production of articles that are like or directly competitive with the articles subject to the investigation; and (4) U.S. consumers. 19 U.S.C. § 1337(d)(l). In general, relief under section 337 should be denied only when the adverse effect on the public interest outweighs the interest in protecting the patent holder. *Certain Battery-Powered Ride-On Toy Vehicles*, Inv. No. 337-TA-314, Comm'n Op., 0091 WL11732578 at *8-9 (Apr. 1991). Such instances are rare in the history of the Commission.

**B. Moving Ahead for Progress in the 21st Century Act ("MAP-21")**

The products at issue-RFID tags, readers, and systems-are not the types of products that raise particular public interest concerns. For example, in Radio Frequency Identification ("RFID") Products and Components Thereof, Inv. No. 337-TA-875, where Complainant asserted the parent '819 and '746 patents against Federal Signal Corp., Federal Signal Technologies, LLC, Sirit Corp., and 3M Co., the Commission did not delegate to the ALJ the task of receiving evidence regarding the public interest factors. 78 Fed. Reg. 19311 (Mar. 29, 2013).

In this Investigation, public interest issues appear to arise as a result of the Moving Ahead for Progress in the 21st Century Act ("MAP-21 "; P.L. 112-141), which President Obama signed into law on July 6, 2012. (See SX-0001 (FHA 2012 memorandum re MAP-21.). Map-21, which became effective on October 1, 20.12, provides:

> Electronic Toll Collection Interoperability Requirements.-Not later than 4 years after the date of enactment of this Act, all toll facilities on the Federal-aid highways shall implement technologies or business practices that provide for the interoperability of electronic toll collection programs.

(Pub. L. 112-141, div. A, title I, § 1512(b), July 6, 2012; see also SX-0015 (FHA summary of MAP-21) at 5).).

Respondents argued that a limited exclusion order ("LEO") will limit the number of suppliers of 6C-compatible tolling products in the United States, which, in tum, will lead to an increase in prices, which, in tum, will impact ETC adoption and interoperability in the United States and harm the public interest. (Tr. (Carla Mulhem)[115] at 1255:1.4-1256:6.).

Moreover, several members of the 6C Toll Operators Coalition ("6C TOC") as well as the California Toll Operators Committee ("CTOC") submitted letters ("6C Letters") dated between May 18, 2016 and June 3, 2016 raising "concern[s] about the potential adverse effects on U.S. consumers and important national transportation initiatives if Neology's request for an exclusion order is granted."

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[115] At the time Ms. Carla Mulhern provided her testimony at the evidentiary hearing on September 20, 2016, Ms. Mulhern was a Managing Partner at Analysis Group. (RPSt. at Ex. 3.). Respondents identified her as an expert to testify on remedy, bonding, and public interest. (*Id.* at 5.).

(RX-0532 at 1; see also RX-0530, RX-0533, RX-0534, RX-0535.).[116]

### C. There Is No Adverse Effect on Public Health and Welfare

The Commission has historically examined whether "an exclusion order would deprive the public of products necessary for some important health or welfare need: energy efficient automobiles, basic scientific research, or hospital equipment." *Spansion,Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1360 (Fed. Cir. 2010) (citations, omitted). Here, Respondents have not presented persuasive evidence that a LEO will adversely impact the public health and welfare in the United States.

Respondents broadly argue that ETC systems: (i) lead to improved road conditions and safer highways (RBr. at 150-51), and (ii) reduce traffic. congestion and fuel consumption, which leads to less pollution and, according to one study, a reduction in the number of premature and/or low birth-weight

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[116] After Complainant was served with the 6C Letters on June 8, 2016, five (5) days after the fact discovery cutoff date, Complainant filed a motion for leave for the issuance of subpoenas to the third parties who submitted the 6C Letters after the close of fact discovery. (Motion Docket No. 979-015 (June 15, 2016).). Complainant's motion was granted in part. (See Order No. 24 (July 5, 2016).). Complainant was limited to discovery from the CTOC and one member of the 6C TOC. (Id. at 5.). In its Reply, Complainant agreed to obtain discovery from the Georgia State Road and Tollway Authority, in the person of Merryl Mandus, and the CTOC, in the person of either Andrew Premier or Samuel Johnson. (Doc. ID No. 584871 at 2 n.2 (June 29, 2016).).

babies born to mothers living in close proximity to a toll plaza (id. at 150; RX-2436 (Traffic Congestion and Infant Health).). Although such public health benefits may be derived from ETC systems in general, Respondents have proffered no evidence that any such. benefits are derived solely from-or are specific to-the 6C Protocol or the Accused Products. For example, at his deposition, Mr. Fremier, the Deputy Executive Director of Operations of the Metropolitan Transportation Commission in San Francisco and Deputy Executive Director of the Bay Area Toll Authority ("BATA"), provided the following testimony:

> Q: In paragraph 2 of the letter [RX-0530][117] you talk about the benefits of electronic toll collection generally . . . . And I think you talk about things like the revenue stream for infrastructure improvements and managing traffic, improving efficiency. Do you see those?
>
> A: Yes.
>
> Q: So those benefits aren't specific to any particular electronic toll collection method, correct?
>
> A: Correct.

(JX-0035C.0023 (Fremier Dep.) (29:22-30:11); see also JX-0035C.0024 (30:12-20, 30:21-31:2))

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[117] RX-0530 is Mr. Premier's letter, dated June 3, 2016, to the Commission, sent on behalf of the CTOC.

This was confirmed by testimony from Respondents' expert on public interest, remedy and bonding, Ms. Carla Mulhern, (Tr. (Mulhern) at 1278:3-6 ("Q: Can we see slide RDX-5020, please. So Ms. Mulhern, 5020 is talking about the benefits of ETC generally, right, not 6C specifically. A: That's correct."); RDX-5020) and Ms. Mandus, General Counsel for the State Road and Tollway Authority ("SRTA") and the Georgia Regional Transportation Authority (JX-0043.0033-34 (Mandus Dep.) (58:19-59:1)).

In addition, the evidence demonstrates that excluding the Accused Products would not preclude tolling agencies from implementing other ETC systems based on, for example, TDM, SeGo, and 6C (supplied by others) and thereby enabling the public to continue to receive the alleged benefits of ETC systems. (See, e.g., Tr. (Mullis) at 152:22-153:24 (testifying that approximately [ ] tags are sold yearly); JX-0047C.0040-41 (Brian McNiffDep.)[118] (68:18-69:23) (estimating that the total yearly demand for tags in the United States is "somewhere in the vicinity of [ ]"); JX-0047C.0042 (70:8-23) (estimating that the yearly demand for readers is [ ]); Tr. (Mullis) at 151:1-25 (testifying that Complainant can manufacture approximately 90

[118] At the time of his deposition on June 3, 2016, Mr. Brian McNiff was the Vice President of Product Management and Marketing for Kapsch TrafficCom IVHS, Inc. (RPSt. at 4.). Respondents identified Mr. McNiff as a fact witness to provide testimony on Kapsch, tolling and RFID technology background, the tolling and RFID in Freund dustries, and Kapsch's accused tolling products, including their function, sale, importation, and licensing of tolling or RFID technology. (*Id.*).

million tags a year).). Thus, there is no evidence that a LEO will adversely affect the public health and welfare. Accordingly, the unsubstantiated harm to public health and welfare is not sufficient to bar entry of relief.

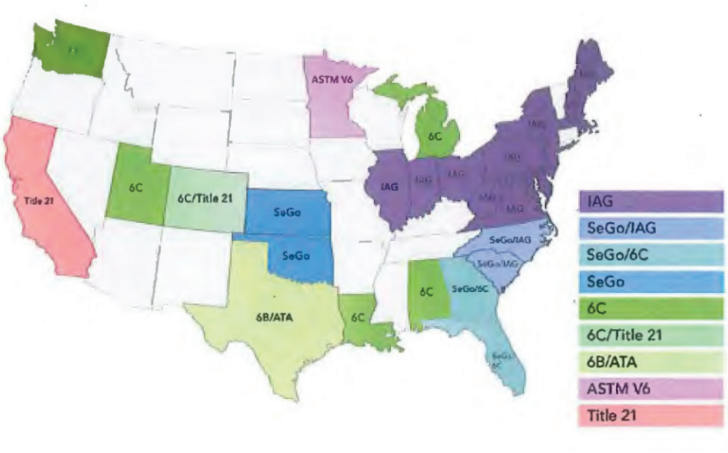
### D. There Is Limited Impact on Competitive Conditions in the U.S. Economy and No Deficiency in the U.S. Production of Like or Directly Competitive Articles

Respondents contended that the requested remedy would reduce or eliminate competition in the market for 6C-compliant equipment in the U.S. and thereby drive up pricing for 6Ccompliant equipment. (RBr. at 155-56.). In particular, Respondents contended that only four companies-Complainant, Respondent Kapsch, Respondent Star, and 3M-currently supply 6Ccompliant tags and readers in the United States. (Tr. (Mulhern) at 1215:11-16; JX-0044C (Martinez Dep.) at 283:16-284:5.).

Respondents' argument that there will be a reduction in the number of competitors for tolling products is contrary to the evidence. The U.S. ETC market is comprised of multiple protocols supplied by a number of vendors, as shown in Figure 21 below. (CDX-0004.0001; Tr. (Mullis) at 172:9-173:1; Tr. (Redman) at 645:13-649:1.). See *Certain Mobile Devices, Associated Software, and Components Thereof*, 337-TA-744, USITC Pub. No. 4384, Comm'n Op. at 30 (Mar. 2013), aff'd in part and rev'd in part on other grounds; *Microsoft Corp. v. Int'l Trade Comm'n*, 731 F.3d 1354 (Fed. Cir. 2013) (no significant negative impact on competitive conditions

in the United States because there were numerous other sources for Android-based mobile devices, and even more sources for mobile devices based on other operating systems).

Figure 21: Many Protocols Exist



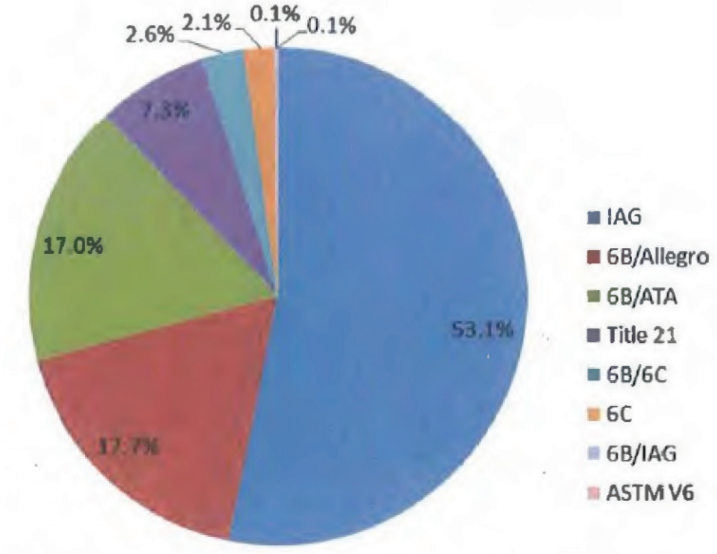

(CDX-0004.0001 (from Mr. Redman's Presentation, Sept. 15, 2016); Tr. (Redman) at 645:16-646: 19 ("Q: Fair to say that there's a number of different protocols out there that a state could use to do its electronic tolling? A: Yes, definitely. There's a patchwork of different options . . . ."). ).

Figure 21 shows that in addition to the 6C Protocol, there are six other available protocols used in the states that have implemented ETC. In fact, the IBTTA is considering three of these-IAG/TDM, SeGo, and 6C- for selection as a proposed national protocol for purposes of achieving national toll collection interoperability. (RX-0425 at KTCITC-0196604.).

As shown in the pie chart below (CX-0935C), the majority of the U.S. ETC market consists of

products that operate pursuant to Respondent Kapsch's own TDM/IAG protocol and Transcore's SeGo/eGo protocol. (CX-0935C (Kapsch 2013 protocol overview) at KTCITC-007577204; CDX-0004.0001 ; Tr. (Mullis) at 172:9- 176:2; Tr. (Redman) at 645 : 13-646:1 , 648 :22-649:1; Tr. (Mulhern) at 1263:21-1264:7.). Respondents' expert, Ms. Mulhern, confirmed this. (Tr. (Mulhern) at 1264:2-5 (noting that IAG/TDM accounts for approximately 54% of the 6C-compatible tags used in the ETC in the United States).). The SeGo® protocol occupies the next most significant share of the market, with products sold only by TransCore. (Tr. (Redman) at 646:2-5, 648:17-21.). Mr. Redman testified that SeGo® accounts for approximately 20% of the U.S. ETC market. (Tr. (Redman) at 646:2-5.). According to Respondents' expert, Ms. Mulhern, IAG/TDM and SeGo® combine to represent more than 70% of the ETC market in the U.S. (Tr. at 1264:16-22.).

Figure 22: Protocol Combinations in US States



As illustrated in Figure 22 above, 6C only represents a small portion of the ETC market. (CX-0935C (Kapsch 2013 protocol overview) at KTCITC-007577204.). Currently, 6C has only about 5% to 10% of the market. (Tr. (Redman) at 646:7-12 ("And there's a few states that use [6C]. Georgia, Colorado uses it, Utah and Washington, Louisiana recently switched to that as well. And it's really only about 5 to 10 percent of the market . . . .").). Although 6C has become more popular, only a few states have switched to 6C since 2012. (Tr. (Redman) at 680:10-19.).[119]

The evidence shows that there are available alternatives to the Accused Products in the U.S. ETC market. (Tr. (Mulhern) at 1264:23-1265:3 ("Q: And as we've looked at, even if an exclusion order issues, there would be at least two 6C vendors [Kapsch and [ ], even under your view, that there would two 6C vendors at least in the United States, even if an exclusion order issues; is that right? A: That's right.").). Consequently, excluding the Accused Products would not adversely affect the overall competitive conditions in the U.S. ETC market since only a small portion of the overall market would be affected.

Moreover, there is no evidence that a LEO will have any undue adverse impact on the competitive conditions in the 6C tolling market itself. Respondents' sales of the accused 6Ccompatible tags and readers are small. Since 2013, Kapsch, for example; has only made sales to the LSIORB and the

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[119] At the time of his deposition, taken on May 4, 2016, [ ] as it relates to [ ]

PRHTA. (JX00047C.0016-18 (McNiff Dep.) at 22:3-24:7; JX0047C.0032 (54:11-55:20); CX-0968C (Kapsch 6C sales spreadsheet); JX0047C.0036-37 (McNiffDep.) at 61:8-62:18.). Products supplied by Complainant, [ ] constitute acceptable alternatives to the Accused Products, are widely available and there exists more than sufficient capacity to satisfy market demand. Complainant alone has more than ample excess capacity for tags, and the annual demand for readers is also easily satisfied. (Tr. (Mullis) at 151:1-153:24; JX-0040C.0033 [ ] [120]at 55:3-56:22, 57:23-63:3); CX-0308C; JX-OQ46C.0028-34 [ ] at 35:12-46:3; CX-0333C; JX-0039C.0016 [ ] at 18:2-6.).[121]

Contrary to Respondents' argument, the tolling agencies themselves believe that there will still be multiple vendors for 6C-compatible tolling products even if a LEO issues. To the extent adoption of the 6C Protocol expands in the ETC market in the United States, several more vendors will enter the market. (Tr. (Mulhern) at 1260:8-1263:20; CX-1131 at 439050 (Talking points for CTOC on the Neology litigation ("[t]here are multiple 6C vendors that provide equipment"), 439052 ("[e]ven if Neology prevails with their lawsuit, . . . it is important to remember that there will still be multiple vendors for 6C"); CX0934 (CTOC Plan for Transitioning from the Title 21 Protocol to the 6C Protocol) at 93204 ("[m]ultiple vendors for transponder and readers").). Because

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[120] At the time of his deposition, taken on April 4, 2016, [ ]

[121] At the time of his deposition, taken on May 10, 2016, [ ]

there are available alternatives to the Accuse Products in the U.S. market, a LEO will not have a significant negative impact on the competitive conditions in the United States economy.

### E. There Is No Adverse Effect on U.S. Consumers

Respondents also contend that a LEO will adversely impact U.S. consumers because the / , number of suppliers of 6C-compatible tolling products will be reduced to only two, which will, in turn, lead to higher prices and reduction in choice. (Tr. (Mulhern) at 1214:6-14.). Respondents claim that the consumers who will be harmed are the tolling agencies that implement ETC systems and the drivers that use them. (Tr. (Mulhern) at 1213:22-1214:5.). The evidence fails to show that a LEO will adversely affect these U.S. consumers.

As an initial matter, Respondents' argument that a LEO will reduce the number of vendors of 6C-compatible tolling products from four to two is not only contradicted by the evidence, but also overlooks the fact that, even if it were true that just two vendors remained, more vendors would still exist for 6C-compatible products than for the two dominant protocols, IAG/TDM and SeGo.

Substantial evidence exists that there are more than just four vendors supplying 6Ccompatible tolling products, including not only Complainant, and Respondents Kapsch and Star, but also [ ], among others. (Tr. (Mullis) at 128:6-135:25; Tr. (Redman) 648:10-16; (Tr. (Mulhern) at 1260:8-

1261:25; CX-1131at439050,439052.). For example, Complainant recently competed against [ ] for the LSI ORB project involving tags and readers. (Tr. (Mullis) at 135:21-25) and for procurements in Georgia and Louisiana (Tr. (Redman) at 643:19-25; CX-0005C (Neology 2016 response to Louisiana Invitation to Bid).). Complainant also submitted a bid to the Georgia State Road & Tollway Authority's ("SRTA") Invitation to Bid to procure RFID tags, readers, and support services, but lost the bid to [ ], who sourced the 6C-compatible tags from a company called Metal Craft. (See CX-1208 (SRTA 2009 Invitation to Bid) atNEO-ITC00020291; RX-0125C (Neology's response to SRTA Invitation to Bid); Tr. (Redman) at 652:3-15, 652:16-653:2.). Additionally, Complainant is expecting to compete against [ ] in Utah. (Tr. (Mullis) at 239:23-239:8.). These alternative suppliers of 6C-compatible products could fill the demand that may result if the Accused Products were excluded. *See Certain Optoelectronic Devices for Fiber Optic Commc'ns*, *Components Thereof, & Prods. Containing the Same*, Inv. No. 337-TA-860, Initial Determination (Dec. 13, 2013) ("The crucial issue in assessing the public interest for these products is the availability of substitutes.").

Respondents' argument is also contradicted by the evidence from the tolling operators. themselves, who have made clear that they are not concerned about the number of suppliers for 6C-compatible products should a LEO issue. (CX-1131 at 439050, 439052; CX0934 at 93204.). The tolling operators believe there will still be multiple vendors for 6C-compatible tolling products even if a LEO issues and that, to the extent adoption of the 6C Protocol

expands in the ETC market in the United States, other vendors will enter the market. (CX-1131 at 439050, 439052; CX0934 at 93204; Tr. (Mulhern) at 1260:8-1262:9, 1263:2-20.). In contrast to Respondents' contention, the toll operators themselves-the very consumers Respondents claim will be harmed-believe that there will be no adverse impact on the number of vendors available to them should a LEO issue.

Respondents also lack evidence to support their argument that a LEO would lead to higher prices and reduction in choice. Respondents' claim that lowering the number of competitors will cause prices to rise is not based on any empirical evidence, studies or analysis of actual facts in the ETC marketplace. Respondents solely rely on general economic theory and general, experience to support the proposition that a market with fewer competitors tends to have higher prices. (See, e.g., RDX-5007C (referencing general "Economic Literature" and "ETC Marketplace Evidence"); RDX-5008C (same); RX-2422 (article entitled "Multiple Source Procurement Competitions," published in Marketing Science); RX-2414 (article entitled "Uncertainty and the Bidding for Incentive Contracts," published in The American Economic Review); RX-2410 (article entitled "Monopolistic Competition and Optimum Product Diversity," published in The American Economic Review); JX-0035C.0045 (63:15-19) (So our experience, not only in the toll environment, but in procurements in general, is that when you limit the number of vendors, you reduce competition and you raise costs potentially associated with risk."); JX-0043.0068 (120:12-14) ("[I]t's basic economics 101.

You limit the number of suppliers, the price will increase.").).

Respondents' argument that a LEO would lead to a reduction in choice also lacks evidentiary support. To the contrary, substantial evidence indicates that there are a number of vendors who can supply 6C-compatible tolling products and, as recognized by the tolling agencies, other vendors would likely join the marketplace with their own 6C-compatible products. (CX-1131at439050; CX-1131at439052; CX0934 at 93204; Tr. (Mulhern) at 1260:8-1262:9, 1263:2-20.). Ms. Mulhern claims that product differentiation, such as the notion that Kapsch's products are more desired by toll operators because of perceived quality differences, is not consistent with the evidence. The evidence demonstrates that toll operators have not indicated any such preference or concerns based on product differences between Respondents' products and Complainant's products. (Tr. (Redman) at 669:12-671:4; CX-1131 at 439050; CX-1131 at 439052; CX0934 at 93204.).

Neither is there any evidence supporting Respondents' contention that higher prices that Respondents speculate will occur will reduce the rate of adoption of 6C. As discussed in Section IX.D above, the evidence shows that other suppliers (e.g., Complainant, [ ]) currently offer 6C-compliant equipment and have the capability to meet market demands. (See, e.g., Tr. (Mullis) at 151: 1-6 (Complainant estimates that it can manufacture about 90 million tags per year), 151:14-19 (the annual demand for 6C-compatible tags is approximately 1 to 2.5 million per year).).

Respondents' claim is also contrary to the evidence of what has actually happened in the ETC market. More than 80% of all toll lanes in the U.S. have adopted ETC, with the vast majority using Kapsch's IAG/TDM protocol. (Tr. (Mulhern) at 1263:21-1264:5, 1277:10-22; CX-0934.3198; CX-0919C.0115.). IAG/TDM tags cost as much as [ ] than a 6Ccompliant tag. (Tr. (Mulhern) at 1277:10-18; CX-0935C.7204.). Yet, IAG/TDM tags account for approximately 54%-60% of all tags used in the U.S. (Tr. (Redman) at 645:18-646:1; Tr. (Mulhern) at 1263:21-1264:5.). Thus, the evidence demonstrates that significant adoption has been achieved with much higher priced products than 6C-compatible products. The evidence also shows that tag prices are only a small portion of ETC applications and do not drive adoption. (Tr. (Redman) at 646:24-647:22.). Therefore, there is no evidence to support Respondents' speculation that the rate of adoption of 6C by consumers would be adversely affected even if 6C prices were to increase.

Similarly, Respondents' claim that the notion of a movement to interoperability, as suggested by the MAP-21 legislation and trade groups such as the IBTTA and Alliance for Toll Interoperability ("ATI"), among others, would be impacted adversely by a LEO is not support by the evidence. The IBTT A, in which Kapsch is a member, does not have the authority to mandate a particular national standard. (Tr. (Murray) at 723:20-25 ("We are a member of the IBTTA"), 704:20-705: 1 ("IBTTA is an industry association. It has no mandate or authority to compel or force any of the agencies to - to follow their recommendation.").). In fact, the evidence suggests

that the IBTT A has not even set a date by which it would select a single protocol as the proposed national standard. (Tr. (Murray) at 753:4-6.). In its Strategic Plan adopted on August 29, 2015, the IBTTA identified as a long-range (3 to 5 year) strategic goal of achieving interoperability in ETC. (SX-0010 (IBTTA 2015 Strategic Plan) at 4-7.).

In addition to the IBTTA's efforts related to interoperability, ATI is offering a different solution involving a hub or central clearinghouse for toll transactions. (See SX-0005 (ATI 2015 Congressional presentation) at 3; SX-0003 (About ATI) at 1-2; Tr. (Redman) at 663:19-664:19.). ATI members include numerous tolling agencies-including SRTA and BATA. (SX-0004 (ATI members) at 4.). In particular, ATI has developed a "technology-neutral solution based on account management techniques" that provide agencies with one location with common integrated finance and business rules to clear all interoperable transactions. (SX-0005 (ATI 2015 Congressional presentation) at 3.). As to a technical solution to national interoperability, "ATI participants recognized that if all tolling facilities used the same transponder technology today it would still not guarantee national interoperability." (*Id.* at 2-3.).

There are also other ways in which interoperability is being achieved. As an example of regional interoperability, Florida and Georgia are using license plate recognition technology to recognize each other's electronic toll collections. (Tr. (Redman) at 683:7-684:11.). Other companies (e.g., GeoToll and Kapsch) are developing smartphone applications that

could potentially be used in the tolling environment. (Tr. (Murray) at 706:14-707:4, 719:18-720:4.).

Moreover, the market is implementing multi-protocol readers-another way of achieving interoperability in line with MAP-21. (Tr. (Redman) at 680:23-681: 1.). Examples of this market-driven trend include Georgia and the BATA in California. (Id. at 681:2-20.). The President of Kapsch TrafficCom North America testified that "the vast majority of the readers that we are producing and selling in the U.S. today are multiprotocol. (Tr. (Murray) at 697:10-16.)

To summarize, the evidence does not support a finding that the requested remedy will have an adverse impact on U.S. consumers for at least the following reasons: (1) there is no evidence that a LEO would lead to higher prices and reduction in choice; (2) the evidence does not support Respondents' speculation that higher prices would reduce the rate of adoption of 6C to comply with MAP-21's requirement of interoperability in ETC; and (3) there is no evidence that a LEO would hamper the movement to operability in ETC.

### F. There Is an Adverse Impact on Respondents' Existing Supply Agreements

Respondents claimed that the tolling agencies that already have contractual supply agreements with Respondents, i.e., LSIORB and PRHTA, would be adversely impacted. (RBr. at 164.). Respondents thus argued that any remedy that issues should be tailored to exclude these agencies, and should allow

Respondents to continue importing Accused Products for the purpose of servicing those agreements. (*Id.*).

The evidence shows that Kapsch Respondents have an agreement with tolling agencies in Kentucky and Indiana for LSIORB to provide 6C-compatible tags (purchased from Star) and 6Ccompatible readers, along with systems integration and back office services. (See, e.g., RX-0408C.). LSIORB issued a bid request in 2013 for a 6C-compatible and TDM tolling system, i.e., they wanted to distribute both 6C and TDM tags while installing multi-protocol readers configured to read both protocols. Kapsch Respondents (with Star Respondents as a subcontractor) won that bid. (Tr. (Murray) at 710:25-713:15; RX-0408C; RX-1788.). Kapsch Respondents subsequently won a follow-up bid for the project's systems integration. (RX-1044C.). The LSIORB tolling system was not yet live when Complainant filed its Complaint, but was scheduled to open in December 2016, with readers and lane systems installed and tags distributed. (Tr. (Murray) at 713:16-22.). This contract extends to at least 2017. (See, e.g., RX-0405C at KTCITC-00026177, 78.).

At the time of the evidentiary hearing, about 80% of tag enrollments had been for 6CPage compatible, rather than TDM tags. (*Id.* at 712:13-713:3.). According to Respondents, if Respondents were excluded from the 6C market, LSIORB would likely have to re-procure the tolling equipment, which would cause a delay of several months, or even years, in the system's implementation and operation. (Tr. (Murray) at 714:6-12, 716:10-23; Tr. (Freund) at 896:4-8; JX-0046C.0041, 50 [ ] at 60:10-20, 85:1-

5, 86:1-16.). This was confirmed by Mr. Redman, Complainant's Vice President of Sales & Marketing.

> Q: What's the sales and purchasing process like with these governmental agencies as it relates to electronic tolling products?
>
> A: It's normally driven by their own state government procurement process. It's typically an RFP or request for proposal process. Specifications will be developed, they will be refined over a period of time. And an RFP will be issued. Sometimes there will be a prebid meeting, other activities that go on where vendors come in. Bids will be submitted and then there will be a selection process. So it can take anywhere from a couple of months to even a year in some cases for the procurement to be finalized.

(Tr. (Redman) at 649: 13-25.).

Complainant contended that even if re-bids are necessary, Respondents failed to present any evidence that such re-bids would significantly impact the projects. (CBr. at 113-14.). In support, Complainant pointed to two instances where the bidding process alone took one month (CX-0855.7601) and less than three months (RX-1788.0001; RX-0408C.0001C). However, as [ ] explained, the bidding phase is just one phase involved in procuring a vendor to implementing the system.

> Q: Just following up on the last question from Mr. Jones. So we're talking about the -- if

there's an order from the IAG agencies to switch over to 6C, for example, it will take them some time, as you detailed, to make those change [sic] over to 6C technology, changing the readers, check out the lanes, all the back office, that's going to take some time. So once they make that decision, though, and they make orders for the readers, you would have sufficient time, if I understand your testimony correctly, to make the readers, to have them available so when the switch over happens, you will be there for the agency; is that correct?

A: Yes. There would be plenty of lead time. Because the IAG would go through a procurement, they would go through some form of an RFP process, submit the RFP out to the industry in one or more vendors, in fact I can think of three today that would respond to that RFP. If they followed their past practices, once they did the RFP process, they would down select to a short list, there would be another round of BAFO's and the -- like best and final bid requirements. Then they would likely have a very involved test process where they would ask the successful bidder, or for potential bidders to participate in a test process as they did last time they did a procurement, and that test process lasted over a year. So there's plenty of lead time for a company such as ours to understand, hey, you need to get geared up and get ready to produce. And typically an RFP would say, We want to be able to receive readers in this quantity over this timeframe.

(JX-0046C.0050 [ ] at 85:13-86:21.).

The LSIORB RFP was issued on May 23, 2014, which informed the bidders that the anticipated date by which the preferred proposer would be notified was August 11, 2014. (RX-1044C.0001.). It also stated that the Execution of Contract Documents by the Joint Board would take place by or on November 11, 2014. (*Id.*). In this instance, the time from the issuance of the RFP to the execution of contract documents took a little less than seven months. Going through an additional procurement process like this one would cause a delay of at least several months, and possibly longer for the system's implementation and operation. (Tr. (Redman) at 649:13-25; Tr. (Murray) at 716:10-23; JX-0046C [ ] at 60:10-20, 85:1-5, 86:1-16.).

The evidence also shows that Kapsch Respondents have an agreement as a subcontractor to Municipal Services Bureau or Gila Corporation to provide 6C-compatible tags (purchased from Star) and 6C-compatible readers to the PRHTA. (Tr. (Murray) at 714:13-23; RX-0404C.). At the time of Complainant filed the Complaint, the PHRTA's 6C-compatible tolling system was live and operational. (Tr. (Freund) at 895: 13-19.). The new Kapsch readers have been installed and configured (after some engineering work) to operate with the pre-existing TransCore lane controllers and the tags started distribution back in February 2016. (Id. at 895:13-19, 899:5-14, 906:23-25.). The contract extends to at least 2019. (See, e.g., RX-0404C.0004.). According to Respondents, the exclusion of the Kapsch and Star

Respondents would impose a series of substantial costs on PHRTA:

> [I]t very well may require them to enter into a new procurement to procure both the tags and the readers for the remainder of the facilities and to the upgrade of those facilities, which may very well be at a higher cost.

(Tr. (Murray) at 715:16-20.).

Moreover, as Mr. Freund pointed out, the tags are unique and "complex." (Freund Tr. 898:21-899:3.). Rather than conventional tags, they include "a swipe or debit card" because there are several "unbanked users of the toll road in Puerto Rico[.]" (Id.). Respondent SSI's CTO, Mr. Lockhart, explained that one way SSI differentiates itself from the competition in the RFID market is its ability to provide custom products. (Tr. (Lockhart) at 934:25-935:6). Complainant has provided no evidence that either Complainant or 3M is in a position to provide 6C-compatible tags with the same capabilities. (Tr. (Freund) at 898:21-899:3; see also id. at 899:5-14 ("[T]he readers would need to be able to interface with TransCore lane controllers. So we're the in-lane provider there. We're not the prime to the end customer. But what we were able to do was because we understand our own readers so well, we were able to provide an interface to the TransCore lane controller in order to be able to perform and make that transition for the customer. That would be a very difficult thing, I suspect, for somebody else to do.").

Respondents argued for the first time in their Initial Post-Hearing Brief that a LEO should be tailored to exclude the Accused Products covered under Kapsch Respondents' exclusive agreement with the IAG/E-ZPass® group. (RBr. at 168-71.). Although Respondents failed to raise this contention in their Pre-Hearing Brief, and any arguments regarding this issue would be deemed abandoned, withdrawn, and/or waived, in this instance, the issue of a LEO is being addressed. (See Ground Rules 7.2, 10.1.).

### G. Conclusion

For the reasons discussed above in Sections IX.C-E, the evidence does not show that a LEO would adversely affect: (1) the public health and welfare; (2) the competitive conditions in the U.S. economy; (3) production of like or directly competitive products; or (4) U.S. consumers. Moreover, any LEO that issues in this Investigation should exclude the LSIORB and PRHTA projects. (See Section IX.F.).

## X. CONCLUSIONS OF LAW

1. The Commission has subject matter, personal, and in rem jurisdiction in this Investigation.

2. The Kapsch Accused Tags and Readers have been imported into the United States. The Star Accused Tags and Readers have also been imported into the United States.

3. It has been proven by. clear and convincing evidence that asserted claims 13, 14, and 25 of U.S.

Patent No. 8,325,044 and asserted claims 1, 2, and 4 of U.S. Patent No. 8,587,436 are invalid.

4. Because claims 13, 14, and 25 of U.S. Patent No. 8,325,044 and claims 1, 2, and 4 of U.S. Patent No. 8,587,436 have been found to be invalid, Respondents are not liable for infringement of claims 13, 14, and 25 of U.S. Patent No. 8,325,044 and claims 1, 2, and 4 of U.S. Patent No. 8,587,436.

5. Because claims 13, 14, and 25 of U.S. Patent No. 8,325,044 and claims 1, 2, and 4 of U.S. Patent No. 8,587,436 have been found to be invalid, Complainant has not satisfied the technical prong of the domestic industry requirement.

6. Although Complainant has satisfied the economic prong of the domestic industry requirement through its sub-contractor [ ], that finding is immaterial because of the invalidity of the '044 and '436 patents.

## XI. RECOMMENDED DETERMINATION ON REMEDY AND BOND

### A. Remedy and Bond

The Commission's Rules provide that subsequent to an initial determination on the question of violation of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, the Administrative Law Judge shall issue a recommended determination containing findings of fact and recommendations concerning: (1) the appropriate remedy in the event that the Commission

finds a violation of Section 337; and (2) the amount of bond to be posted by respondents during Presidential review of Commission action under Section 337G). See 19 C.F.R. § 210.42(a)(l)(ii).

### B. Neither a Remedy Nor a Bond Is Warranted, but an Alternative Recommendation Is Provided

Pursuant to Commission Rule 210.42, an ALJ must issue a recommended determination on (i) appropriate remedy in the event that the Commission finds a violation of Section 337, and (ii) amount, if any, of the bond to be posted. 19 C.F.R. § 210.42(a)(l)(ii). Complainant has requested a limited exclusion order ("LEO"). (Compl. at if 43.). Additionally, Complainant has requested that a bond issue at 100% of the value of the infringing products. (CPBr. at 173-74.).

Because this decision finds that none of the Kapsch or Star Respondents has violated Section 337, the initial recommendation is that neither a remedy nor a bond is warranted. In other words the recommendation is that no Cease or Desist Order ("CDO"), no Exclusion Order ("EO"), no limited exclusion order ("LEO"), and no bond should during the Presidential Review Period ("PRP"), should issue.

However, if the findings of this decision that Complainant's '044 and '436 patents are invalid are overturned on review, a different recommendation is warranted. For reasons explained more fully below, the alternative recommendations are that: (1) only a LEO should issue against a few of the Kapsch and

Star Products that read on the 6C Protocol, as identified in Appendices A and B; (2) a CDO should not issue because neither Kapsch Respondents nor Star Respondents maintain commercially significant inventories of either readers or tags in the United States. (Tr. (Freund) at 903:20-904:2.); and (3) a bond is not warranted because Complainant did not produce sufficient evidence, which was its burden, to support a bond. (Accord SBr. at 87-89; RBr. at 171-75.).

### C. If a Section 337 Violation Is Found on Appeal, a Limited Exclusion Order with a Certification Provision Would Be an Appropriate Remedy

When a violation of Section 337 is found, the Commission may issue either a limited exclusion order ("LEO") directed against only the infringing products that are found to be in violation, or a general exclusion order ("GEO") directed against all infringing products. 19 U.S.C. § 1337(d). As noted above, Complainant has requested a LEO directed to accused products that may be found to infringe. (Compl. at if 43.). While this decision has found that there is no Section 337 violation in this Investigation, Respondents argue (in the alternative) that any EO should be a LEO and: (1) narrowly tailored to permit them to fulfill existing contractual obligations; or (2) delayed by 12-18 months. (RPBr. at 172; RBr. at 86.).

Respondents note that 6C-compatible electronic tolling equipment is "typically purchased by public or quasi-public entities through a legally proscribed procurement process." (See SBr. at 86.). If

all Accused Products were to be excluded, both Kapsch and Star Respondents would be prevented from supplying 6C-compatible equipment under two (2) publicly bid contracts that extend into 2017: the LSIORB and PRHTA projects. (See RPBr. at 170; see also Tr. (Murray) at 713:23-716:3.). Mr. Murray testified during the evidentiary hearing that if all of those products were excluded, most likely LSI ORB would have to issue a re-procurement to replace the equipment and find another supplier of its tags. (*Id*.). Additionally, Respondents note that many of the Kapsch Respondents' [ ]. (RBr. at 171-73 (citing Tr. (Malarky) at 783:3-785:11); see also RX-Ol04C; RX-430C.).

Similarly, Respondents note that certain Respondent Star products, specifically the Bobcat, Hydra and Tiger antennas, are stand-alone products that are not specific to either the 6C Protocol or the 6C tolling system, and therefore, should not be included in any LEO. (RBr. at 171.). Staff agrees with Respondents that any LEO be narrowly tailored and include a certification provision that would enable the Star and Kapsch Respondents to certify that certain products are not subject to the LEO. (SBr. at 87; RBr. at 171.). An exemption with even a broader certification provision would allow Respondents to fulfill both their current contractual obligations as well as those for which a bid has been made but the contract has not yet been awarded. This would reduce the impact any LEO would have on the public agencies involved, and thus, on the affected U.S. consumers who purchase passes or, tags for the electronic tolling systems that would be affected. (SBr. at 86 (citing Certain Personal Data and Mobile

Comm'ns Devices, Inv. No 337-TA-710, USITC Pub. 4331, Comm'n Op. at 71, 83 (Dec. 29, 2011) (Commission delayed the effect of an exclusion order by four months in order to allow a wireless carrier to replace its smartphone offerings with those of a competitor)).). Specifically, a LEO should include Respondents' current obligations to the states that participate in EZ Pass® states that are part of the LISORB, and to the PRHTA project. (See SBr. at 86.). Any exemption would also include other toll projects in states where Respondents 6C-compatible products are used to facilitate state management of transportation projects. (*Id.*).

A LEO with an exemption and a certification provision with the scope described above is also the alternative recommendation of this, decision.

### D. If a Section 337 Violation Is Found on Appeal, a Cease and Desist Order ("CDO") Would Not Be an Appropriate Remedy

For a CDO to issue, Complainant must have established that Respondents maintain a commercially significant inventory of infringing products in the United States. See e.g., Certain Optoelectronic Devices, Components Thereof, & Prods. Containing the Same, Inv. No. 337-TA-669, Comm'n Op., 2011 WL 7628061, at *9-10 (Nov. 1, 2011); see also Certain Lighting Control Devices Including Dimmer Switches and Parts Thereof (IV), Inv. No. 337-TA-776, Comm'n Op. at 26-27, USITC Pub. No. 4403 (July 2013).). CDOs may be issued in addition to or in lieu of, an exclusion order. 19 U.S.C. § 1137(f). Complainant has requested that in the

event a violation of Section 337 is found, that a CDO issue. (Compl. at ¶ 43.). Staff argues, as does Complainant, that as of September 2016, Kapsch Respondent had a commercially significant inventory of accused products in the United States. (SBr. at 88 [ ].

However, given the timing of this decision, it is unlikely that the evidence is the same now as it was when the evidence was given in September 2016. Moreover, Respondents contend that a CDO cannot issue against either SSI or STAR RFID. Respondents contend that neither SSI nor STAR RFID have commercially, significant inventories of Accused Products in the United States. (RBr. at 173.). Respondents contend that SSI ships products [ ] from its warehouse in Asia, and [ ]. (*See id.* (citing *Certain Pers. Data & Mobile Commc'ns Devices & Related Software*, Inv. No. 337-TA-710, Comm'n Op., 2011WL12488979, at *47-48 (no basis for a cease-and-desist order where the respondent surrenders title to the imported products outside the United States).).[122]

[122] Staff takes the positon that Respondents maintain a commercially significant inventory of Accused tags and readers in the United States. (SBr. at 88 (citations omitted).). However, based on Respondents' explanation of its contractual obligations and the inability of its customers to re-sell commercially any of their inventory, Respondents have the better argument that no CDO would be warranted. Practically, a LEO seems to be a better option than a CDO if the invalidity findings made in this decision are overturned. Complainant did not rebut Respondents' position in its Post-Hearing Reply Brief.

With respect to its 6C-compatible readers and tags, the Kapsch Respondents contend that at the time the evidence was provided, they, like the Star Respondents, had no commercially significant inventory of readers or tags in the United States. (RBr. at 171-72 (citing Tr. (Freund) at 903:20-904:2).). [ ]

Respondents provided argument and evidence that they do not keep an inventory of readers in the United States for commercial distribution, a not so subtle distinction, because the [ ] (emphasis in original). (RBr. at 172 (citing Tr. (Freund) at 903:20-904:2-6); see also Tr. (Freund) at 929:1-25.). Respondents explain that they ship readers to the customer's site for use in the highway lanes, with a small percentage of some [ ]--kept on site as spares and for maintenance. (RBr. at 171-72 (citing Tr. (Freund) at 930:20-904:6, 929:6-16); see also Tr. (Freund) at 907:25-908:8).). For the PRHTA project, that would mean that during 2016, Puerto Rico had some [ ] as spares if Kapsch Respondents sold [ ] that year, as reflected in the evidence given during hearing. (Tr. (Freund) at 907:22-25).). For Puerto Rico, the PRHTA project, Respondents explained that readers were installed earlier in 2016. (RBr. at 1 72. ). With respect to 6C-compatible tags meant for Puerto Rico and the PRHT A project, Respondents note that tags are shipped to [ ]. (Id. (citing Tr.(Freund) at 906:1-9).).

For the LSIORB project, at the time of the hearing, 6C-compliant readers were expected to be installed between September and December 2016, but 6C-compliant tags for that project had already

shipped, for a total of some [ ]. (*Id.* at 172; see also Tr. (Freund) at 908:8-25 (citing CX-0364C (Purchase Order for the LSIORB project)).). The LSIORB 6Ccompatible tags are shipped to a Kapsch sub-contractor in Austin, Texas that handles fulfillment and distribution for Kapsch Respondents. (RBr. at 172 (citing Tr. (Freund) at 908:23-909:24, 928:1, 929:5); see also Tr. (Freund) at 904:10-19.).

Complainant argues that because of the Kapsch Respondents' agreement with LSIORB that it must maintain parts in storage, and has an agreement with its subcontractor to do so, the Kapsch Respondent could not circumvent a CDO because it was shipping Accused Products to its subcontractor. (CBr. at 120 (citing RX-1 '788.0032 (Section 9); RX-1788.0041; CX-0083C.2430 (quoting CX-0883.2439).). Complainant makes the same argument with respect to the PRHT A project and seems to imply that because Kapsch and its subcontractor in Puerto Rico share the same address, they may be one and the same. (CBr. at 121.). However, the unrebutted and consistent testimony is that the 6C-compliant tags and readers designated for a particular electronic tolling system such as the PRHTA or the LSIORB, cannot be resold commercially; they are designed for particular system electronic tolling systems. (See, e.g., Tr. (Freund) at. 910:14-25; 927-930:1.).

Since Staff agrees that there should be a certification provision for any LEO that would issue against Respondents in the event of a finding of a Section 337 violation, then a strong argument and recommendation can be made that a CDO is not necessary since the certification provision, at least

theoretically, would identify all of the Accused Products Respondents have imported into the United States that have been sold to its customers (the E-ZPass®, LSIORB, and PRHTA), as well as those that are stored as spares, and those that are not yet sold.

Moreover, Respondents' testimony was unrebutted that any 6C-compliant tags and readers, whether previously manufactured for the LSIORB project or the PRHTA project, cannot be resold. (See, e.g., Tr. (Freund) at 910:14-25; 927-930:1.). It is the recommendation of this decision that a CDO might be unnecessary if a LEO with a certification provision and an exemption were to issue in the event that the Commission does not uphold the findings of this decision that the '044 and '436 patents are invalid.

### E. If a Section 337 Violation Is Found on Appeal, a Bond Would Not Be an Appropriate Remedy

If the Commission enters an LEO, a CDO or both, then during an interim 60-day Presidential Review Period ("PRP"), the affected articles may be sold under bond. However, the amount of a bond must "be sufficient to protect complainant from injury." 19 C.F. R. § 210.50(a) (3); see also 19 U.S.C. § 13370)(3). It was Complainant's burden in this Investigation to establish both the propriety and amount of any bond during the PRP. *See, e.g., Certain Coenzyme Q-10 Prods. and Methods of Making Same*, Inv. No. 337-TA-790, Order No. 16, 2012 WL 14244633 at *175-177 (Mar. 20, 2012). Typically, a bond during the PRP is based either on a reasonable royalty rate or on a price differential between the complainant's and

respondent's products. *See, e.g., Certain Plastic Encapsulated Integrated Circuits*, Inv. No. 337-TA-315, Comm'n Op. on Issues Under Rev. & on Remedy, Public Interest, & Bonding, at 45, USITC Pub. No. 2574 (Nov. 1992) (setting the bond based on a reasonable royalty); *Certain Mobile Devices Associated Software, & Components Thereof*, 337-TA-744, Comm'n Op., Q.012 WL 3715788, at *19-20 (June 5, 2012) (setting bond based on reasonable royalty rate); see also *Certain Microsphere Adhesives, the Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 24, USITC Pub. No. 2949 (Jan. 1996) (setting bond based on price differential between domestic products and lower-priced imports).

Complainant contends, that if necessary, a bond should be set during the 60-day PRP at 100% of the value of the Accused Products. (CBr. at 124.). However, for the reasons explained, it is the recommendation of this decision that no bond should issue during the PRP even if this decision with respect to invalidity is not affirmed. If a bond is considered, Staff suggests that a reasonable royalty rate might be appropriate "assuming there is sufficient evidence to determine such a rate." (SBr. at 89.). However, there is a problem even with a reasonable royalty rate: there is insufficient evidence to consider a royalty rate. While the tag royalty rate as calculated is *de minimus*, there was no evidence presented by experts on the value of Complainant's readers that compete with the Accused Products, and no strong evidence supplied with respect to the other bond alternatives.

First, as Complainant notes, both Mr. Napper, Complainant's expert, and Ms. Mulhern, Respondents' expert, agreed that a price differential method for calculating a bond would not be appropriate. (CBr. at 138.). Both thought there was too little evidence with respect to the patent licenses to be meaningful. (See Tr. (Mulhern) at 1245: 17-22, 1246:22-1247:1-25; Tr. (Napper) at 1593:15-1594:1.).

Then, Complainant's expert, Mr. Napper, disagreed strongly with Ms. Mulhern's calculation with respect to royalty rate data, and testified that a royalty rate cannot properly be assessed. (*Id.* (citing Tr. (Napper) at 1593:15-1594:5.). As Respondents argue, and this decision finds, Ms. Mulhern's royalty rate analysis is not strong; it is missing a great deal of information such that it is not reliable for a current calculation.

Ms. Mulhern calculated the royalty rate to be 1.25% for tags and 1.88% for readers. (*See* CPBr. at 138; see also Tr. (Mulhern) at 1246:4-8, 1254:1-10.). However, as Ms. Mulhern acknowledged, based upon the average price for a 6C-compatible tag of approximately $1.00, the resulting royalty would be "less than one penny" per tag, or *de minimus*, and not enough to compensate Complainant during the PRP. (*See* CBr. at 138 (citing Tr. (Mulhern) at 1254:1-20; Dep. Tr. (Napper) at 97: 12-98: 10).). With respect to calculating a royalty price for 6Ccompatible readers, Complainant relied upon the bid it submitted that competed with Kapsch for the LSIORB project, a bid which it lost. (*See* CBr. at 138 (citations omitted).). Complainant appears to believe that it lost the LSIORB project only because Kapsch Respondents

underbid it. (*Id.*). While Complainant's LSIORB bid may serve as a proxy for a royalty rate on readers; it is a limited proxy at best.

With respect to her royalty rate calculations, Ms. Mulhern also excluded the only two, current licenses Complainant has that are related to the Accused Patents, that is with the Florida Department of Transportation and with [ ]. (Tr. (Mulhern) at 1253: 14-25). Ms. Mulhern relied on a sales distribution agreement that covered only 6C-compatible tags, but did not conduct any analysis or valuation with respect to the Asserted Patents, or the how the patents she analyzed were related to the 6C Protocol or tolling applications. (CBr. at 139 (citing Tr. (Mulhern) at 1253:14-25, 1246:9-22, 1247:8-1248:5; 1248:14-1253:13).). Moreover, much of her information was old; it dated back to 2006 and 2008. (Tr. (Mulhern) at 1250:2-1251:10.).

The third option, the 100% value of the Accused Products, that Complainant proposed is also problematic. *See, e.g. Flash Memory Circuits and Prods. Containing the Same*, Inv. No. 337-TA-382, Comm'n Op. 26, 27 (June 2, 1997) (100% bond imposed when price comparison was not practical and the proposed royalty rate appeared to be *de minimus* and without support in the record). As Staff notes, and as this decision finds, Mr. Napper, Complainant's expert, provided no explanation in his testimony on either direct or cross examination why a 100% value bond should apply, except as a default option. (Accord RBr. at 173 (citing Tr. (Napper) at 1593:15-1594:5).). He offered no information by which a 100% bond could be calculated, either by offering a current value of

Complainant's Asserted Patents directed toward the Accused Products, or any calculation on how to arrive at such a bond price. Accordingly, it is a finding of this decision that Complainant has not met its burden of proof on any method for calculating a bond during the Presidential Review Period.

## XII. INITIAL DETERMINATION ON VIOLATION

It is the initial determination of the undersigned that no violation of Section 337 (19 U.S.C. § 1337) has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain RFID products and components thereof with respect to asserted claims 13, 14, and 25 of U.S. Patent No. 8,325,044 and asserted claims 1, 2, and 4 of U.S. Patent No. 8,587,436.

This initial determination on violation, together with the record of the hearing in this Investigation consisting of: (1) the transcript of the hearing, with appropriate corrections as may hereafter be ordered; and (2) the exhibits received into evidence in this Investigation, are hereby certified to the Commission.

In accordance with 19 C.F.R. § 210.93(c), all material found to be confidential by the undersigned under 19 C.F.R. § 210.5 is to be given *in camera* treatment.

The Secretary shall serve a public version of this initial determination on violation upon all parties

of record and the confidential version upon counsel who .are signatories to the Protective Order (Order No. 1 (Jan. 11, 2016)) issued in this investigation.

Pursuant to 19 C.F.R. § 210.42(h), this initial determination on violation shall become the determination of the Commission unless a party files a petition for review pursuant to 19 C.F.R. § 210.43(a) or the Commission, pursuant to 19 C.F.R. § 210.44, orders on its own motion a review of the initial determination or certain issues herein.

## XIII. ORDER

To expedite service of the public version, within fourteen (14) days of the date of this document, the parties shall submit to the Office of Administrative Law Judges a joint statement regarding whether or not they seek to have any portion of this document deleted from the public version. The parties' submission shall be made by hard copy and must include a copy of this ID with red brackets indicating any portion asserted to contain CBI to be deleted from the public version. The parties' submission shall also include an index identifying the pages of this document where proposed redactions are located. The parties' submission concerning the public version of this document need not be filed with the Commission Secretary.

**SO ORDERED.**

/s/
Mary Joan McNamara
Administrative Law Judge

Inv. No. 337-TA-979
Initial Determination

## Appendix A: Kapsch Accused Products

### Kapsch Accused Tags

| Product | Chip | Abbreviation |
|---|---|---|
| Aries Headlight Tag | Alien Higgs 3 | Aries |
| Venus Windscreen Tag | Alien Higgs 3 | Venus |

### Kapsch Accused Readers

| Reader | RF Module | RF Module Version | Antenna | Abbreviation |
|---|---|---|---|---|
| JANUS Multiprotocol Reader II (Redundant); JANUS Multiprotocol Reader II (Non-Redundant) | JANUS Multiprotocol RF Module/JANUS Multiprotocol RF Module SMART | Version 2.0 Tabl; Version 2.0 Tab2; Version 2.3; Version 2.3 PRR | IAG 3 Antenna Lane Kit | JANUS MPR2 |
| Dorado Handheld Data Collector | | | | Dorado |

| | | | | |
|---|---|---|---|---|
| Vela USB-Connected Reader | | | | Vela |

**Kapsch Accused RFID System**

| Product | Tag | Reader | Antenna | Database |
|---|---|---|---|---|
| ORD | Aries Headlight Tag; Venus Windscreen Tag | JANUS MPR2 Version 2.3[1] | JAG 3 Antenna Lane Kit | JANUS MPR2 |

[1] Complainant broadly alleges that the system includes Kapsch Accused Readers (i.e, all versions of the JANUS MPR2 reader) . (CPBr. at 13; CDX-0003.4 (Goldberg demonstrative).). However, the evidence indicates that only the JANUS MPR2 Version 2.3 reader is being used in the Kapsch Accused RFlD · System. (Tr. (Malarky) at 825:16- 826:2.).

## Appendix B: Star Accused Products

### Star Accused Tags

| Product | Chip | Abbreviation |
|---|---|---|
| Amber Inlay[2] | Alien Higgs 4 | Amber |
| Aries Headlight Tag | Alien Higgs 3 | Aries |
| Astria RFID Vehicle Registration Decal | Alien Higgs 3 | Astria |
| Capricorn Inlay | Alien Higgs 3 | Capricorn |
| Hang Tag | Alien Higgs 3 | Hang Tag |
| Jewelry Tag | Alien Higgs 4 | Jewelry |
| Jupiter Inlay | Alien Higgs 3 or 4 | Jupiter |
| Leo Electronic License Plate Tag | Alien Higgs 3 or 4 | Leo |
| Libra Inlay | Alien Higgs 3 | Libra |
| Mars Inlay | Alien Higgs 3 | Mars |
| Metalica II On-Metal UHF RFID Label | Alien Higgs 3 | Metalica II |

[2] This tag was not identified in Respondents' Pr -Hearing Brief as an accused Star product. (RPBr. at 13, App. 3.). However, it was included in the Joint Stipulation Regarding [mportation. (JX-0057C (Joint Stipulation Regarding Star Importatjon) at ¶ 4 (Aug. 22, 2016); see also CDX-0003 .00005 (Goldberg ·demons trat ive) .).

| | | |
|---|---|---|
| Metalica Junior On-Metal UHF RFID Label | Alien Higgs 3 | Metalica Junior |
| Metalica Mini On-Metal UHF RFID Label | Alien Higgs 3 | Metalica Mini |
| Nemo Long Hard Case Tag | Monza4D | Nemo |

| **Product** | **Chip** | **Abbreviation** |
|---|---|---|
| Nemo Short Hard Case Tag | Monza4D | Nemo |
| Pisces Inlay | Alien Higgs 3 or 4 | Pisces |
| RFID Pallet Label | Alien Higgs 3 | RFID Pallet Label |
| Runner Inlay | Alien Higgs 3 | Runner |
| Sapphire Inlay | Alien Higgs 3 | Sapphire |
| Saturn Inlay | Alien Higgs 4 | Saturn |
| Scorpio Windscreen Tag | Alien Higgs 4 | Scorpio |
| 6C Complaint Switchable Tag_ | Alien Higgs 3 | 6C Switchable |
| Taurus Inlay | Alien Higgs 3 or 4 | Taurus |
| Topaz Inlay | Alien Higgs 3 | Topaz |
| Venus Windscreen Tag | Alien Higgs 3 or 4 | Venus |
| Venus-Plus Windshield Tag | NXP UCODE DNA | Venus-Plus |
| Virgo Inlay | Alien Higgs 3 | Virgo |

**Star Accused Readers**

| Reader | Antenna | Abbreviation |
|---|---|---|
| Vela UHF RFID USB Reader | Integrated antenna | Vela |
| Procyon Integrated Reader 8dBi | Integrated antenna | Procyon |
| Procyon Integrated Reader - 12dBi | Integrated antenna | Procyon |
| Carina UHF RFID Integrated Reader | Integrated antenna | Carina |

| Reader | Antenna | Abbreviation |
|---|---|---|
| Regor UHF RFID Fixed Reader | Bobcat, Hydra, Tiger, Cheetah, or Pictor antenna | Regor |
| Dorado Handheld Data Collector | | Dorado |
| Platino UHF Handheld Reader | | Platino |

## Appendix C: DI Products

### Neology DI Tags

| Neology Prod. No. | Neology Product Description | IC | Reference |
|---|---|---|---|
| 200426 | Tag, RPV Gen2 900MHz, High Dielectric | Alien Higgs3 | CX-0206C at NEO-ITC00124347-56 |
| 200441 | Tag, RPV Gen2 900MHz, High Dielectric | Alien Higgs3 | CX-0182C at NEO ITC00124258-59 |
| 200451 | Tag, RPV Copper Gen2 900MHz, High Dielectric | Alien Higgs3 | CX-0178C at NEO-ITC00124249-50; CX-0023C at NEO-ITC00183639 |
| 200498 | Tag, CFE, Gen2 900MHz Integrated | Alien Higg3 | CX-0195C at NEO-ITC00124315-17 |
| 200502 | Non-Transferable Inlay | Alien Higgs3 | ITC Complaint Ex94 pl *6;* CX-0146C at NEO-ITC00036371; CX-Ol45C at NEO-ITC00031451; CX-Ol68C at NEO-ITC00124222 |
| 200506 | SRTA Mini | Alien | CX-0209C at NEO- |

| | | | |
|---|---|---|---|
| | 6C Windshield Tag | Higgs3 | ITC00124363400; CX-0254C at NEO-ITC00425552 |
| 200507 | Tag, Panama, 18000-6C | Alien Higgs3 | CX-Ol97C at NEO-ITC00124321, 23; CX-0255C at NEO-ITC00425682 |
| 200511 | Standard Inlay | Alien Higgs3 | ITC Complaint Ex94 p9; CX-0168C at NEO-ITC00124222; CX-0246C at NEO-ITC00237686 |
| 200515 | Tag, Gen2 w/NT & Sec.Holo 6C: Non-Transferable Holographic Inlay | Alien Higgs3 | CX-0199C at NEO-ITC00124329; ITC Complaint Ex94 p l7; CX-0144C at NEO-ITC00031450 |
| 200523-DEN | Card, PETG ISO-6C w/ Slot Hole | Alien Higgs3 | CX-0164-C at NEO-ITC001242B; ITC Complaint Ex94 p7 |
| 200528 | Switch, M/P 6C A/B Mode 915Mhz | Alien Higgs3 | CX-0193C at NEO-ITC00124307-08; CX-0034C at NEO-ITC00090298; |
| | | | Exhibit 94, page 26 |
| 200530 | Tag, WST, 6C, NT, NA30 | Alien Higgs3 | CX-0162C at NEO-ITC00124210-11; CX-0116C at NEO-ITCU6137053 |

| | | | |
|---|---|---|---|
| 200531 | SIT License Plate 6C 915 Mhz; License Plate Tag | Alien Higgs3 | CX-0196C at NEO-ITC09124318; ITC Complaint E'i94 pp4,21; · CX-0143Cat NEO-ITC0003t418 |
| 200534 | ID Card | Alien Higgs3 | ITC Complaint Ex94 p24; CX-0141C at NEO-ITC00031.407 |
| 200535 | Label Bangladesh 6C Security Hologram Non Transferable | Alien Higgs3 | CX-0170C at NEO-ITC00124224; CX-0244C at NEO-ITC0023U79 |
| 200536 | SRTA Mini 6C Windshield Tag, | Alien Higgs3 | CX-0213C at NEO-ITC00124411; CX-0 45C at NEO-ITC00231874 |
| 200537 | Tag., Passive RF1D (18000-6C) Medium clear | Alien Higgs3 | CX-0163C at NEO-ITC00124212; CX-0229C at NEO-ITC00141630 |
| 200538 | Tag, MP, WST, 6C | Alien Higgs3 | CX-0217C at NEO-ITCGO1244l7-21; CX-0160C at NEO-ITC00096276 |
| 200548 | Tag, Nigeria | Alien Higgs3 | CX-0181C at NE ITC00124256 |
| 200551 | Motorcycle Tag, Bangladesh Custom | Alien Higgs3 | CX-0170C at NEO-ITC00124224; CX-0174C at NEOITC00124238-39; |

| | | | |
|---|---|---|---|
| | | | CX-0244C at NEO-ITC0023U79 |
| 200552 | Tag, Bolivia | Alien Higgs3 | CX-016.fCat NEO-ITCOOl24209; CX,.0234C at NEO-ITCOOl75380 |
| 200552-BLUE | Tag, Bolivia | Alien Higgs3 | CX-0186C at NEO-ITC00124276; CX-0241C at NEO-ITC00202569 |

| | | | |
|---|---|---|---|
| 200555 | Mini Format Surface Independent Tag | Alien Higgs3 | ITC Complaint Ex94 p11 |
| 200556 | Small Format Surface Independent Tag | Alien Higgs3 | ITC Complaint Ex94 p10 |
| 200557 | Large Format Surface Independent Tag | Alien Higgs3 | ITC Complaint Ex94 p12 |
| 200558 | SIT, License Plate 6C 860Mhz; license Plate Tag 860 | Alien Higgs3 | CX-0169C at NEO-ITC00124223; ITCC Ex94 p22 |
| 200560 | Hard Case 6C Transportation Tag | NXP G2iM: | ITC Complaint Ex94 p5.25 |
| 200561 | Motorcycle Tag 6C 915 | Alien Higgs3 | ITC Complaint Ex94 p18 |
| 200562 | Motorcycle Tag 6C 860 | Alien Higgs3 | ITC Complaint Ex94 p19 |
| 200564 | Mini Standard Tag | Alien Higgs3 | ITC Complaint Ex94 pp3.20 |

| | | | |
|---|---|---|---|
| 200564-A30 | Tag, Canada A30 Mini Std Mini Standard Tag | Alien Higgs3 | CX-0215C at NEO-ITC00124413-15; ITC Complaint Ex94 pp3.20 |
| 200565 | Standard Tag | Alien Higgs3 | ITC Complaint Ex94 p8 |
| 200566 | Non-Transferable Standard Tag | Alien Higgs3 | ITC Complaint Ex94 pl4 |
| 200568 | Tag, Clear Poly. 6CSecurity | Alien Higgs3 | ITC Complaint Ex94 pp1,15 |
| 200570 | Non-Transferable Tag with Hologram | Alien Higgs3 | ITC Complaint Ex94 p23 |
| 200571 | Card, PVC IS0-6C, Blank | Alien Higgs3 | CX l77C at NEO-ITC00114246-48; CX 235C at NEO-ITC00175381 |
| 200621-02 | Tag, SFO Airport., 6C, Security | NXP G2iM | CX-0221C at NEO-ITC00124604 |
| 200621-03 | Tag, DIA, 6C-SST Security | NXP G2iM | CX-0223C at NEO-ITC00124621 |
| 200641 | WSDOT Dual Mode Transponder; Dual Mode Switch Tag US Freq. | NXP G2iM+ | CX-0202C at NEO-ITC00124336; CX-0187C at NEO. ITC00124283-85; ITC Complaint Ex94 p6; CX-0225C at NEO-ITC00013 7036; |

| | | | |
|---|---|---|---|
| 200641-e470 | E-470 Dual Mode Transponder; Dual Mode Switch Tag | NXP G2iM | CX-0188C at NEO.-IT000124286; CX-0188C at NEO-ITC00124287-292; CX-0220C at NEO-ITC00124564: |
| | | | ITC Complaint Ex41 p6 |
| 200658 | Non-Transferable Standard Tag | NXP G2iM | CX-022SC at NEO-ITC00140332; CX-024SC at NEO-ITC00289531 |
| 200612 | Tag, SFO Airport 6CSecurity | NXP G2iM+ | CX-0122C at NEO-ITC00124607 |
| 200665-PANA | Tag, 80mm, Panapass | NXP G2iM+ | CX-0194C at NEO-ITCOOl24309-12; CX 6C at NEO-ITC0018l719 |
| 200682 | ON/OFF Switch Tag, US Freq TAG SWITCH, ON/OFF, 915 | NXP G2iM+ | CX-0216C at NEO-ITC001244l6; CX-0224C at NEO-ITC00137035 |

| | | | |
|---|---|---|---|
| 200691 | Tag, COVI Honduras | Alien Higgs3 | CX-0167C at NEO-ITC00124219-21; CX-0233C at NEO-ITC00147464 |
| 200703 | 6C Non-transferable medium clear windshield tag; TAG, MED, CLEAR, NT, 6C | NXP G2iM+ | CX-0165C at NEO-ITC00124215; CX-0219C atNEO-ITC00124521 |
| 200703-AXIS | Tag, Medium Clear, 6C, NI Axis Bank Graphics | NXP G2iM+ | CX-0201C at NEO-ITC00124334-35; CX-0227C at NEO-ITC00138587 |
| 200703-DUBAI | Tag, Clear Polyester Security 6C (Dubai) | NXP G2iM+ | CX-018:SC at NEO-ITC00124271-75; CX-0230C at NEO-ITC00141887 |
| 200704-MEP | Tag, Medium Wht, 6C, NT, MEP Graphics | NXP G2iM+ | CX-0176C at NEO-ITC00124241-45; CX-0227C at NEO-ITC00138587 |
| 200704-SICE | Tag, Medium Wht, 6C, NT | NXP G2iM+ | CX-0210C at NEO-ITC00124405; CX-0150C at NEO-ITC00080301 |

| | | | |
|---|---|---|---|
| 200706 | Tag, Nigeria, 6C, Security | Alien Higgs3 | CX-0171C at NEO-ITC00124225 28; CX-0243C at NEO-ITC00229149 |
| 200710 | Tag, COBI Concesionaria Bicentenario | Alien Higgs3 | CX-0218C at NEO-ITC001244-24; CX-0242C at NEO- |

| | | | |
|---|---|---|---|
| | | | ITC00226637 |
| 200720 | Tag, 80mm 6C, HC | NXP G2iM | CX-0208C at NEO-ITC00124358; CX-0201C at NEO-ITC00124335 |
| 200721 | Tag.SIT6C | Alien Higgs3 | CX-0200C at NEO-ITC0012433031; CX-0231C NEO-ITC00146028 |
| 200852 | Dual Mode Switch Tag EU Freq | NXP G2iM+ | CX-0202C at NEO-ITC00124336; CX-0225C at NEO-ITC00137036 |

**[ ] Tags**

| **Description** | **IC** | **Reference** |
|---|---|---|
| [ ]MountTag | Higgs 3 | CX-0111 at [ ]00004337-38; CX-0159C at NEO-ITC00093516 |
| Windshield Mount Tag | Higgs 3 NXP UCODE G2XL | CX-0110 at [ ]00004135-36 CX-0159C at NEO-ITC00093516 |
| [ ]Plate Transponder | Higgs3 NXPUCODE G2XM | CX-0109 at [ ]00004333-3,4 · CX-0159C at NEOI-TOJ00913516 |
| Windshield Mount Tag | Alien Higgs] NXP UCODE G2XM. | CX-0117 at [ ]00004594-9,5 ·CX-0159C at NEO-ITOJ0093516 |
| Card Tag, | Higgs 3 | CX-0125 at [ ]00004638-39; CX-0159C at NEO-ITC00093516 |
| Self Declaration Tag | Higgs3 NXP UCODE G2XL | CX-0116at _00004590; CX-0159C at NEO-IIC00093516 |
| Passive Tag | Monza3 | CX-0122 at _ .. _ _ .... _ 00004617 |
| Inlay | Monza 1 | CX-0238C at NEO-ITC00183634 |
| Inlay | Monza 1 | CX-0238C at NEO-ITCOOl83634 |
| Inlay | Monza 2 | CX-023SC at NEO-ITC00183634 |
| Inlay. | Monza 2 | CX-023SC atNEO- |

| | | |
|---|---|---|
| | | ITC:00183634 |
| Inlay | Monza 1 | CX-0238C at NEO-ITC00183634 |
| Inlay | Monza 3 | CX-0126at - at 00004641 |
| Inlay | Monza 1 | CX-0238C at NEO-ITC0Ol83634 |
| Inlay | Monza 1 | CX-0238C at NEO-ITC00183634 |
| Inlay | Monza 1 | CX-0138C at NEO-ITC00183635 |
| Inlay | Monza 2 | CX-0238C at NEO-ITC0Ots.3635 |
| Inlay | Monza 2 | CX-0238C at NEO-ITC00183635 . |
| Inlay | NXP UCODE | CX-0238C at NEO-ITC00183635 |
| Inlay | NXP UCODE | CX-0238C at NEO-ITC001&3635 |

| **Description** | **IC** | **Reference** |
|---|---|---|
| Inlay | NXP UCODE G2XL G2XM; Alien Higgs3 | CX-0127at - _00004642; CX-0238C at NEO-ITC001S:3635; CX-0159C at NEO-ITC00093517 |
| Inlay | NXP UCODE G2XL G2XM | CX.-0238C at NEO-ITC0013635 |
| Inlay | NXP UCODE | CX.-0238C at NEO-ITC001S3635 |

| | | |
|---|---|---|
| Inlay | NXP UCODE *G2XL / G2XM* Alien Higgs3 | CX-0238C at NEO-ITC001S3636 |
| Inlay | NXP UCODE G2XL/G2XM | CX-0238C at NEO-ITC00183636 |
| Inlay | NXP UCODE *G2XL* G2XM; Alien Higgs3 | CX-0128 at - 00004643 · CX-0238C at NEO-ITC00183636 |
| Inlay | NXP UCODE G2XL/ G2XM Higgs3 | CX-0129at - 00004644· CX-023SC at NEO-ITaJ01S363'6 |
| Inlay | Alien Higgs3 | CX-0309C at - - 0()008725 |
| Inlay | NXP UCODE G2XL/ G2XM; Alien Higgs3 | CX-OBO at - 00004645 · CX-0238C at NEO-ITC001S3636 |
| Inlay | NXP UCODE G2XL G2XM; AlienHiggs3 | CX-0131 at . - 000046l6: CX-0238C at NEO-ITC00183636 |
| Inlay | NXPUC0DE G2XL/ G2XM; Alien Higgs3 | CX-0132at - 00004647 · CX-023SC at NEO-ITC00183636' |
| Inlay | Monza 1 | CX-0238C at NEO- |

| | | |
|---|---|---|
| | | ITC00183637 |
| Inlay | Monza 1 | CX-0038C at NEO-ITC00183637 |
| Inlay | Monza. 1 | CX-023SC at1NEO-ITCOOJ83637 |
| Inlay | Monza l | CX-023SC at NEO-ITC00183637 |
| Inlay | Monza 1 | CX-023SC at NEO-ITC00183637 |
| Inlay | Monza 1 | CX-023SC at NEO-ITC00183637 |

| **Description** | **IC** | **Reference** |
|---|---|---|
| Inlay | Monza 1 | CX-0238C at NEO-ITC00183637 |
| Inlay | NXP UCODE G2XL/ G2XM | CX-OB3a1 CX-0238C at NEO-IIOl0lS.3636 |
| Inlay | Monza 3 UCODE G2XL | CX-0134 at - 00004649: CX-0238C at NEO-ITOJ0IS3636" |
| Inlay | Monza 3 UCODE G2XL | CX-0135 at 00004650 CX-0238C a1NEO-ITOl0183636 |
| Inlay | NXP UCODE G2XL/G2XM | CX-0136 at 00004651 |
| Inlay | Higgs 3 | CX-0309C at 00008725 |

**[ ] DI Readers**

| **Neology; Prod. No.** | **Neology Product Description** | **Contracted Manufacturer** | **Antenna** | **Reference** |
|---|---|---|---|---|
| 200440 | DR-915 Desktop RFID Reader | | Integrated | CX-0207C at NEO-ITC00124357; CX-0033C at NEO-ITC00091772-73; CX-0253C at: NEO-ITC00418915 |
| 200442 | FR-915 Fixed RFID Reader SPort | | External | NEO-ITCOOl24230 31; CX-0253C at NEO-ITC0041S915; CX-0033C at NEO-ITC0009l770-71 |
| 200524 | IR-860E Integrated RFID Ream | | Integrated | CX9IC at NEO-ITCOOl2429 9•7; CX-0033iC |

| | | | | |
|---|---|---|---|---|
| | | | | at NEO-ITC00091768-6 CX-0253C at NEO-ITC00418915 |
| 200525 | DR-860Desktop RFID Reader | | Integrated | CX-0205C at NEO-ITC00124343; CX-0033Cat NEO-ITC00091760-61; CT0253C at NEO-ITC00418915 |
| 200526 | IR-860SIntegrated RFID Reader | | Integrated | ITC00124327; CX-0033C at NEO-ITC00091766 |
| 200541 | IR.-915 LR, Integrated Reader | | Integrated | CX-0184C at NEO-ITC00124268-69; CX-0033C at NEO-ITC00091764-65 |

| | | | | |
|---|---|---|---|---|
| 200545 | IR.-915E Integrated Reader | | Integrated | CX"0033C at NEO-ITC0009l762-63; CX-Ol49C at NEO-ITC000&0174 |
| 200596 | HH. 6600 lJHF RFID Handheld | | Integrated | CX-Ol80C at NEO-ITCOOf 24254-55; CX-0253C at NEO-ITC00418915 |

| **Neology Prod. No.** | **Neology Product Destination** | **Contracted Manufacturer** | **Antenna** | **Reference** |
|---|---|---|---|---|
| 200637 | - - - | | External | CX-0192C at NEO.. ITC00124198; CX-0104 at |
| 500296 | | | External | CX-01S3C at NEO ITCOOl24260; CX-0232CatNEO-ITCOOl46943; TCI..P0000 |

| | | | | |
|---|---|---|---|---|
| | | | | 24-069: |
| 500328 | | | External | CX-Ol7.5C at ""EO.. ITC00124240;; CX-0232C at ""EO.. ITCOOl46943; CX-0075Cat TCLP000024-069: |
| 500326 | | | Integrated | CX-0203C at NEO.. ITC00124341; |

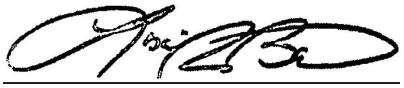
## 3M DI Readers

| Description | Antenna | Reference |
|---|---|---|
| | External | CX-0282 at 3M<br>CX-0098 at 3M |
| | External | CX--0107 at 3M<br>CX-0107 at 3M |
| | Integrated | CX--0090 at 3M<br>CX-0090 at 3M |
| | Integrated | CX-0283 at 3M.<br>CX-0096 at 3M |
| | Integrated | CX-0284 at 3M.<br>CX-0098 at 3M |
| | Integrated | CX-0101 at 3M CX-<br>0101 at 3M- |
| | External | CX-OU5at 3M<br>CX-0104 at 3M |
| | External | CX-0036<br>0309C at |

**CERTAIN RADIO FREQUENCY IDENTIFICATION ("RFID") PRODUCTS AND COMPONENTS THEREOF**

**Inv. No. 337-TA- 979**

I, Lisa R. Barton, hereby certify that the attached INITIAL DETERMINATION has been served by hand upon the Commission Investigative Attorney, Todd Taylor, Esq., and the following parties as indicated, on July 24, 2017.



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

**On Behalf of Complainant Neology, Inc.:**

Daniel E. Yonan, Esq.
**STEARN, KESSLER, GOLDSTEIN & FOX PLLC**
1100 New York Avenue
Washington, DC 20005

☐ Via Hand Delivery
☒Via Express Delivery
☐ Via First Class Mail
☐ Other: _____

**On Behalf of Respondents Kapsch TrafficCom IVHS, Inc., Kapsch TrafficCom Holding Corp., Kapsch TrafficCom Canada, Inc., Star Systems International, Ltd., and STAR RFID Co., Ltd.:**

Nathan S. Mammen, Esq.
**KIRKLAND & ELLIS LLP**
655 Fifteenth Street, NW
Washington, DC 20005-5793
(202) 879-5000

☐ Via Hand Delivery
☒Via Express Delivery
☐ Via First Class Mail
☐ Other: _____

**[ENTERED: July 3, 2019]**

NOTE: This order is nonprecedential.

United States Court of Appeals
for the Federal Circuit

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**NEOLOGY, INC.,**
*Appellant*

**v.**

**INTERNATIONAL TRADE COMMISSION,**
*Appellee*

**KAPSCH TRAFFICCOM USA, INC., KAPSCH TRAFFICCOM HOLDING CORP., KAPSCH TRAFFICCOM CANADA INC., STAR SYSTEMS INTERNATIONAL LTD., STAR RFID CO., LTD.,**
*Intervenors*

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2018-1338

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Appeal from the United States International Trade Commission in Investigation No. 337-TA-979.

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**ON PETITION FOR PANEL REHEARING AND REHEARING EN BANC**

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Before PROST, *Chief Judge*, NEWMAN, LOURIE, SCHALL*, DYK, MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, CHEN, HUGHES, and STOLL, *Circuit Judges*.

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* Circuit Judge Schall participated only in the decision on the petition for panel rehearing.

PER CURIAM.

**ORDER**

Appellant Neology, Inc. filed a combined petition for panel rehearing and rehearing en banc. The petition was referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

The mandate of the court will issue on July 10, 2019.

FOR THE COURT

July 3, 2019
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

sometimes people argue new matter.

Since no one seems to be arguing it here, let's try and avoid that concept.

And the last thing involved in the written description analysis is incorporation by reference. You know, what was incorporated by reference in these applications and through this chain of applications?

So why is this relevant, your Honor? I believe everyone knows the short story is Neology needs to get back to an earlier filing date in order to avoid the prior art. If they can't, the prior art will flood in and invalidate the patents. I don't think there's any dispute about that.

The first security key, I believe Mr. LoCascio mentioned, came up in the '819 patent by amendment, and then the second security key came in at the '568 patent prosecution, also by amendment.

Then it was part of the original claims of the '044 and '436. So on our written description analysis, if your original claims actually can support your written description support for that application. So the original claims that would get credit. They wanted to argue those original claims provide written description support for the '044 claims, that's fine. But that just gives you that filing date.

So as I mentioned, these are in this chain of