

No. 23-

IN THE
Supreme Court of the United States

YI-CHI SHIH, AKA YUGI SHI, AKA YICHI SHIH,

Petitioner,

v.

UNITED STATES OF AMERICA,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED

Petitioner, an electrical engineer and adjunct professor at UCLA, was prosecuted for failing to obtain a license before exporting models of experimental microwave monolithic integrated circuits (MMICs), a type of semiconductor, to fellow researchers in China. MMICs that are “rated for operation” at performance parameters specified in the export controls may require a license. But at trial a Licensing Officer from the Department of Commerce’s Bureau of Industry and Security (BIS)—the agency that administers the export controls—testified that a MMIC is not “rated for operation” unless post-manufacture testing confirms it will operate reliably at those specified parameters. On Dr. Shih’s Rule 29 motion, the district court gave deference to the Licensing Officer’s interpretation under *Skidmore v. Swift & Co.*, 323 U.S. 134 (1944); and, because it was undisputed the MMICs had not undergone reliability testing before being exported, vacated Dr. Shih’s export control convictions.

Without analyzing the district court’s application of *Skidmore*, a two-judge panel of the Ninth Circuit held that the district court “improperly relied on witness testimony” when interpreting the charged export controls—an opinion creating a blanket prohibition against giving *Skidmore* deference to trial testimony from agency witnesses about the meaning of regulations they administer.

The question presented is whether district courts may, under *Skidmore*, give deference to an agency’s interpretation of its own technical regulations when offered by one of its representatives at trial in a criminal case.

RELATED PROCEEDINGS

- *United States v. Shih*, No. 2:18-cr-00050-JAK, U. S. District Court for the Central District of California. Judgment entered July 28, 2021.
- *United States v. Shih*, No. 20-50144, U. S. Court of Appeals for the Ninth Circuit. Judgment entered July 18, 2023.
- *United States v. Shih*, No. 20-50175, U. S. Court of Appeals for the Ninth Circuit. Judgment entered July 18, 2023.
- *United States v. Shih*, No. 20-50196, U. S. Court of Appeals for the Ninth Circuit. Dismissed on Mar. 8, 2022.
- *United States v. Shih*, No. 20-50197, U. S. Court of Appeals for the Ninth Circuit. Dismissed on Sept. 29, 2021.
- *United States v. Shih*, No. 23-3718, U. S. Court of Appeals for the Ninth Circuit.

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PETITION FOR A WRIT OF CERTIORARI

Petitioner Dr. Yi-Chi Shih respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Ninth Circuit.

OPINIONS BELOW

The opinion of the court of appeals (App., *infra*, 1a-35a) is reported as *United States v. Yi-Chi Shih*, 73 F.4th 1077 (9th Cir. 2023). The district court's order granting in part Dr. Shih's motion for judgment of acquittal (App., *infra*, 36-162) is unreported.

JURISDICTION

The judgment of the court of appeals was entered on July 18, 2023. App., *infra*, 2a. A petition for rehearing was denied on September 25, 2023. *Id.* at 164a. This petition, filed within 90 days of the denial of rehearing, is timely. SUP. CT. R. 13.3. This Court has jurisdiction under 28 U.S.C. § 1254(1).

RELEVANT REGULATORY PROVISIONS

The relevant regulatory provisions, located within the Export Administration Regulations, 15 C.F.R. ch. VII, subch. C, are the Export Control Classification Numbers 3A001.b.2.b and 3A001.b.2.c, which apply to microwave monolithic integrated circuits (MMICs)¹ that are either:

1. MMICs are integrated circuits that operate at microwave frequencies. App., *infra*, 4a.

b.2.b. *Rated for operation* at frequencies exceeding 6.8 GHz up to and including 16 GHz and with an average output power greater than 1W (30 dBm) with a “fractional bandwidth” greater than 10%; [or]

b.2.c. *Rated for operation* at frequencies exceeding 16 GHz up to and including 31.8 GHz and with an average output power greater than 0.8W (29 dBm) with a “fractional bandwidth” greater than 10%.

15 C.F.R. Pt. 774, Supp. 1, Cat. 3 (eff. Oct. 15, 2013, to June 4, 2014) (emphasis added).²

STATEMENT OF THE CASE

A. The Regulatory Provision in Context

The Export Administration Regulations (EAR), issued and administered by the Department of Commerce’s Bureau of Industry and Security (BIS), prohibit exporting certain items to certain countries without first obtaining a license from BIS. *See* 15 C.F.R. §§ 730.1, 736.2(b)(1).

A violation of the EAR constitutes a violation of the International Emergency Economic Powers Act (IEEPA), which may be enforced civilly or criminally. 50 U.S.C. § 1705(a), (c).

2. Unless otherwise indicated, all citations to provisions of the EAR, including ECCNs, are to versions in effect in January 2014, at the time of the alleged criminal conduct.

To determine whether exporting an item requires a license from BIS, one must first determine whether the item has an Export Control Classification Number (ECCN), *e.g.*, 3A001.b.2.b, that describes the item and indicates the reasons it is controlled. All ECCNs are in the BIS's Commerce Control List. 15 C.F.R. Part 774, Supp. 1. If the item is covered by an ECCN, one must then consult BIS's Commerce Country Chart, which contains licensing requirements based on destination and reasons for control. *See* 15 C.F.R. § 738, Supp. No. 1. If the reason for control given in an ECCN is also checked for a country in the Commerce Country Chart, then a license is required to export any item covered by the ECCN to that country.

The ECCNs relevant to this case are 3A001.b.2.b and 3A001.b.2.c, which apply to MMICs that are either:

b.2.b. *Rated for operation* at frequencies exceeding 6.8 GHz up to and including 16 GHz and with an average output power greater than 1W (30 dBm) with a “fractional bandwidth” greater than 10%; [or]

b.2.c. *Rated for operation* at frequencies exceeding 16 GHz up to and including 31.8 GHz and with an average output power greater than 0.8W (29 dBm) with a “fractional bandwidth” greater than 10%.

15 C.F.R. Pt. 774, Supp. 1, Cat. 3 (eff. Oct. 15, 2013 to June 4, 2014) (emphasis added). MMICs that are so “rated for operation” may not be exported to China without a license. *Id.* § 742.4(a) (eff. Oct. 15, 2013 to June 26, 2014); *see also id.* Pt. 738, Supp. 1 (eff. July 23, 2012 to March 25, 2014).

ECCNs covering other types of integrated circuits use noticeably different language to describe the conditions of coverage. For example, ECCNs 3A0001.a.1a and 3A0001.a.1.b apply to “[i]ntegrated circuits *designed or rated* as radiation hardened to withstand” certain specified radiation dosages. 15 C.F.R. Pt. 774, Supp. 1, Cat. 3 (emphasis added). Similarly, electronic vacuum tubes “*designed or rated* for operation in any frequency band” and with certain other specified characteristics are specifically excluded from coverage under ECCNs in category 3A001.b.1. *Id.* (Note 1 to ECCN 3A001.b.1) (emphasis added).

On Dr. Shih’s post-trial motion for a judgment of acquittal on the IEEPA counts, the district court was called upon to construe the term of art “rated for operation.” In doing so, the district court gave *Skidmore* deference to the trial testimony of the government’s expert witness, a BIS Licensing Officer, on the application of the EAR.

B. Dr. Shih’s Trial

1. Dr. Shih was charged with violating IEEPA by exporting MMICs covered by ECCNs 3A001.b.2.b and 3A001.b.2.c to China without first obtaining a license. There was no dispute at trial that the charged MMICs had been *designed* to operate at the performance levels described in those ECCNs. The key questions at trial were instead: (1) as a threshold matter, whether the MMICs fell within the fundamental research exclusion from the export regulations; and (2) if not, whether they were “rated for operation” under the charged ECCNs.

2. Dr. Shih is an electrical engineer who has published numerous research papers and obtained many patents related to semiconductors. App., *infra*, 40a. At the time of the alleged offenses, he was an adjunct professor of electrical engineering at UCLA. *Id.*

Dr. Shih paid a foundry, Cree, to manufacture physical models of nine unique MMICs and some smaller power amplifiers, each designed by Dr. Shih and Chinese research colleagues. App., *infra*, 39a, 48a. Cree made the devices on four “wafers” (four-inch discs), each containing 80 “reticles” (groups) of the nine MMICs and amplifiers. App., *infra*, 38a. Thus, the wafers contained 320 total physical models of each unique MMIC design.

3. Dr. Shih was charged with conspiring to violate (Count One) and violating (Count Two) IEEPA by failing to obtain a license before exporting the Cree MMICs to China. App., *infra*, 77a. The government alleged that the MMICs were subject to ECCNs 3A001.b.2.b. and 3A001.b.2.c.³

4. Dr. Shih presented two related defenses at trial. First, he argued that the alleged exports were not subject to the EAR because he was engaged in fundamental research, an exemption from the EAR. 15 C.F.R. § 734.3(b)(3)(ii). Second, he argued that the Cree MMICs were experimental prototypes which, though *designed* to operate at the parameters specified in ECCNs

3. Dr. Shih was also charged with mail and wire fraud, a violation of the Computer Fraud and Abuse Act (CFAA), money laundering, false statements, income tax fraud, and FBAR violations. App., *infra*, 77a-78a.

3A001.b.2.b. and 3A001.b.2.c, had not yet been “*rated* for operation” at those parameters because no testing had been conducted on the MMICs to determine whether they performed reliably at the specified parameters.

5. Substantial evidence supported these defenses. Carlos Monroy, a BIS Licensing Agent called by the government as an expert on the EAR, testified that determining a MMIC design’s actual operating frequency, power output, and fractional bandwidth requires testing on a manufactured model of the design. App., *infra*, 90a. More specifically, Monroy testified that “a finished device ... has been through a process of research, development, and production,” and that “in each one of those stages, design, research, development, and production, it has to go through certain testing in order for the company or the person to determine that it specifically meets certain frequencies and output powers that would contribute to that device to operate [*sic*] reliably in the market.” Trial Tr. Day 3, vol. 2 (May 17, 2019), 82 (ECF No. 660). While Monroy noted that semiconductor manufacturers often produce data sheets specifying their products’ operating parameters, he confirmed that “the only way to create a data sheet is by testing a manufactured MMIC” and that, “the first time that an item [*i.e.*, a MMIC] is made before any testing, the item is unrated” under the ECCNs. See App., *infra*, 90a. The district court found that Monroy’s testimony supported “the conclusion that an item can only be ‘rated’ as used in ‘rated for operation’ by conducting tests on the manufactured item.” *Id.* at 90a–91a.

The testimony of two other witnesses called by the government supported Monroy’s interpretation. Dr. Christopher Nordquist, a Ph.D. in electrical engineering

and member of the technical staff in microwave research and development at Sandia National Laboratories testifying as an expert, said that “‘rated’ means the quality of an item has been determined because it has been the subject of several testing processes” and that a “‘rated’ item is one whose performance conforms with its specified ratings. App., *infra*, 89a n15, 91a. Nordquist also testified that, other than their design specifications, the Cree MMICs “ha[d] not been rated in any meaningful way.” *Id.* at 91a. The district court found that Nordquist’s testimony “support[ed] the inference that the design documentation of the Cree MMICs was not sufficient for them to be ‘rated’ as used in ‘rated for operation’ under the applicable regulations.” *Id.* Similarly, Dr. Jeffrey Barner, the head of Cree’s foundry, “agreed that the actual outputs of a MMIC that is developed for the first time cannot be determined until it is tested.” *Id.* at 89a n.14, 92a. The district court found that Barner’s testimony was “in accord with the view that testing is needed to determine the actual outputs of a MMIC” and “supports the conclusion that ‘rated’ as used in ‘rated for operation,’ involves the testing of a manufactured item.” *Id.* at 92a.

“[N]o evidence was presented at trial that any testing was performed on the manufactured Cree MMICs prior to any exportation of them.” App., *infra*, 81a. Testing conducted by Nordquist after the alleged export found that only three of the nine MMIC designs performed within the parameters specified in the ECCNs. *Id.* at 50a. The government’s export violation case was based on those three MMICs. *Id.* at 51a.

6. In closing, the government claimed that “rated for operation” meant “specified to operate at” the parameters

stated in the ECCNs and that the Cree MMICs satisfied this standard because Dr. Shih had designed them to operate within those parameters. *Id.* at 80a. The argument assumed the word “rated” meant “designed.”

Dr. Shih argued that the MMICs could not be “rated for operation” because, in the context of electrical engineering, the term means that testing has verified that a chip functions reliably at specified parameters, and the government presented no evidence that such testing had been done on the charged MMICs. *Id.* at 79a. In support of this interpretation, Dr. Shih pointed to other ECCNs covering items that are “designed” or “designed or rated” for operation in certain ways, indicating that the term “rated” must mean something different from “designed.” *Id.* at 86a. He also relied on Licensing Officer Monroy’s testimony to argue that “rated” has the same meaning as it does when, for example, one refers to glass as “fire rated”—i.e., testing has confirmed the item will function reliably for the specified purpose. *Id.* at 90a–91a.

6. Following lengthy deliberations, the jury returned guilty verdicts on Counts 1 and 2.

C. The District Court’s Judgment of Acquittal

After trial, Dr. Shih moved under Federal Rule of Criminal Procedure 29 for a judgment of acquittal on Counts 1 and 2. Dr. Shih argued that MMICs cannot be “rated for operation” at the performance levels specified in the ECCNs until post-manufacture testing confirms that they will operate reliably at those performance levels. *Id.* at 79a. Because the government did not offer evidence that such testing had been conducted before the MMICs

were exported to China, insufficient evidence supported the convictions on Counts 1 and 2. *Id.* at 79a–80a.

The district court agreed. The district court recognized that Dr. Shih’s convictions on Counts 1 and 2 “turn[ed] on the correct interpretation of ‘rated’ as used in ‘rated for operation.’” *Id.* Because the EAR does not define the term “rated,” the district court sought to determine the term’s ordinary meaning by reference to dictionary definitions and witness testimony, including expert testimony from a BIS agency witness whose interpretation of the term warranted *Skidmore* deference.

The district court first found that dictionary definitions offered by the parties were inconclusive on the ordinary meaning. *Id.* at 86a. The district court observed that definitions from lay dictionaries provided by the government suggested that the term “rated” meant “designed.” *Id.* However, the district court rejected this interpretation, first, because the parties agreed that the two terms were not synonymous and, second, because it would render the word “designed” in other ECCNs covering items that are “designed or rated” superfluous. *Id.* The district court reasoned that a definition of the word “rating” in the *Oxford Dictionary of Electronics and Electrical Engineering* offered by Dr. Shih provided some support for his interpretation of the term “rated” but was not conclusive. *Id.* at 87a–88a.

The district court then found that the trial testimony of witnesses with backgrounds in electrical engineering “makes clear that the ordinary meaning of ‘rated’ as used in ‘rated for operation’ in the electrical engineering context means that a manufactured item has been tested

to confirm its operating conditions and performance limitations.” *Id.* at 88a-89a. In reaching this conclusion, the district court applied *Skidmore* deference to expert testimony offered by the government’s BIS witness.

That witness was Carlos Monroy, a Licensing Officer from BIS’s Electronics and Materials Division with thirteen years’ experience processing export licenses and issuing opinions about whether items are export controlled. As the district court noted, his testimony was corroborated by at least two other witnesses from electrical engineering backgrounds: Dr. Jeffrey Barner, the head of Cree’s foundry, and Dr. Christopher Nordquist, Ph.D., a government electrical engineering expert from the Sandia National Laboratories. *Id.* at 89a. Monroy testified that the first time an item is made, before any performance testing has confirmed whether it will operate reliably, it is “unrated.” *Id.* at 90a. Dr. Nordquist testified that “rated” means “the quality of an item has been determined because it has been the subject of several testing processes”; that “a rated item is one whose performance conforms with that rating”; and that the Cree MMICs Dr. Shih allegedly exported “ha[d] not been rated in any meaningful way.” *Id.* at 91a. Dr. Barner testified that “the actual outputs of a MMIC that is developed for the first time cannot be determined until it is tested.” *Id.* at 92a. Based on this testimony, the district court concluded that “in the electrical engineering context, ‘rated’ as used in ‘rated for operation’ ordinarily means that a manufactured item has been tested, with the results confirming that it operates within the specified parameters.” *Id.*

Given the term’s ordinary meaning, the Cree MMICs could not have been “rated for operation” at the specified parameters in the charged ECCNs unless they “ha[d] been tested and thereby confirmed to operate reliably within the specified parameters.” *Id.* at 100a. However, “[t]here was no evidence that such testing was performed prior to the export at issue in this action.” *Id.* Accordingly, the district court granted Dr. Shih’s Rule 29 motion on the export violation counts. *Id.*

On the government’s motion for reconsideration, the district court reversed its ruling on Count 1, concluding that sufficient evidence supported another object of the multi-object conspiracy alleged there. App., *infra*, 8a.⁴

D. The Court of Appeals’ Reversal

On the government’s appeal from the judgment of acquittal on Count 2, a two-judge panel of the Ninth Circuit held that the district court erred in at least two ways when interpreting the term “rated” in the charged ECCNs. App., *infra*, 10a.

First, the court of appeals held that the district court unreasonably adhered to the canon against surplusage in concluding that, within the EAR, the term “rated” meant something different from the term “designed.” App., *infra*, 11a. The court determined that lay dictionary definitions taught that “rated” means “designed.” App., *infra*, 10a. Although the use of the phrase “designed or

4. Dr. Shih challenged this ruling as well as his convictions on the mail and wire fraud, CFAA, money laundering, false statements, and income tax fraud counts in his cross-appeal.

rated” in other ECCNs indicated that, at least in the EAR, the terms have different meanings, the court of appeals concluded that some degree of redundancy in the regulations must be tolerated to avoid creating a “gaping loophole” in the EAR: “If ‘rated for operation’ requires postmanufacture, pre-export testing, one seeking to evade the EARs could simply design an export-controlled item, run reliable pre-manufacture simulations, freely export the item, and then test it only after export to confirm that its performance is consistent with the simulations.” App., *infra*, 12a.

Second, and most relevant to this petition, the court of appeals held that the district court “improperly relied on witness testimony” when interpreting the term. *Id.* at 13a (citing *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 332 (2015)). The court of appeals did not identify which witness’s testimony the district court had relied on improperly. In any event, the holding diverged from well-settled waiver principles in ways that prejudiced Dr. Shih. Indeed, the government had waived the argument by not raising it below, which the court of appeals acknowledged. *Id.* at 13a n.3. Even so, the court of appeals exercised its discretion to raise the argument *sua sponte*, asserting the matter had been fully developed in the parties’ briefing. *Id.* The briefing does not bear this out. Because the government had never raised the issue or otherwise challenged the district court’s *Skidmore* deference to Monroy’s interpretation of the ECCNs, there was no reason for Dr. Shih to fully address the point in his briefing.

Because of this error, the court of appeals reversed the judgment of acquittal. *Id.* at 34a.

After Dr. Shih raised this issue in a petition for rehearing, the court of appeals denied the petition for panel rehearing and rehearing en banc without comment. App., *infra*, 164a.

REASONS FOR GRANTING THE PETITION

This Court should reverse the opinion of a two-judge panel of the court of appeals that, in direct conflict with this Court's precedent, prohibits district courts from giving *Skidmore* deference to agency testimony about the meaning of their own regulations and, as a result, interprets the export controls in a way that may subject U.S.-based academics collaborating with foreign students and colleagues on semiconductor research and design to potential criminal liability.

A. The Court of Appeals Erred in Answering an Important Question of Federal Law by Faulting the District Court for Relying on an Administrative Agency's Interpretation of Its Own Regulations.

1. The court of appeals has decided an important question of federal law in a way that "conflicts with relevant decisions of this Court." SUP. CT. R. 10(c). The court of appeals' holding that the district court "improperly relied on witness testimony" when interpreting the term "rated for operation" conflicts with this Court's precedent allowing district courts to defer to an agency's interpretation of a regulation that it promulgated and administers. *See Skidmore*, 323 U.S. at 139–140; *United States v. Mead Corp.*, 533 U.S. 218, 227–28 (2001).

a. The primary testimony upon which the district court relied when interpreting the ECCNs came from Carlos Monroy, a Licensing Officer with BIS. *See* App., *infra*, 89a–92a. As the district court found, “BIS is the regulatory agency responsible for promulgating and enforcing export control regulations, including the EAR.” *Id.* at 89a. Monroy’s duties at BIS included “processing export licenses, handling requests to determine whether an item is export controlled or requires an export license, and serving on the technical team that meets with international partners to determine what items should be export controlled.” *Id.*⁵

b. Monroy confirmed on cross-examination that, under the EAR, testing must confirm that a circuit will perform reliably within the parameters specified in an ECCN before the circuit is considered “rated for operation” within those parameters. Monroy first testified that an item is “rated for operation” at the performance levels indicated in an ECCN if it is “specified to operate at” those performance levels. *Id.* at 90a. Monroy then clarified, however, that specifications may be based on the results of testing or data sheets published by the circuit’s manufacturer. *Id.* When asked how the

5. The ECCNs in the Commerce Control List include items agreed upon by the Wassenaar Arrangement, a group of 42 states committed to developing a list of arms and dual-use items the export of which members have agreed to control under their respective laws. *See* 88 F.R. 12108 (Feb. 24, 2023); BIS, Multilateral Export Control Regimes, <https://www.bis.doc.gov/index.php/policy-guidance/multilateral-export-control-regimes>. Monroy’s testimony made clear that his experience meeting with international partners was at the Wassenaar Arrangement.

manufacturer obtained the information for the data sheets, Monroy “implied that the only way to create a data sheet is by testing a manufactured MMIC.” *Id.* “Monroy also confirmed that the first time that an item is made before any testing, the item is unrated.” *Id.* Based on these statements, the district court found that Monroy’s testimony supported the conclusion “that an item can only be ‘rated’ as used in ‘rated for operation’ by conducting tests on the manufactured item.” *Id.* at 90a–91a.

c. This Court has established three types of deference federal courts may give to administrative agencies’ interpretations of statutes and regulations.

Under *Chevron v. National Resources Defense Council*, 467 U.S. 837 (1984), courts owe deference to an agency’s interpretations of a statute the agency administers when the statute is ambiguous and Congress has given “an express delegation of authority to the agency to elucidate a specific provision of the statute by regulation.” *Id.* at 843–44.

Under *Auer v. Robbins*, 519 U.S. 452 (1997), courts may give deference to an agency’s interpretation of its own regulation if it is genuinely ambiguous and the interpretation reflects the agency’s “official position” and “implicate[s] its substantial expertise.” *Kisor v. Wilkie*, 139 S. Ct. 2400, 2415–2417 (2019).

In *Skidmore v. Swift & Co.*, 323 U.S. 134 (1944), this Court held that, while “rulings, interpretations and opinions” of an agency were not controlling upon the courts, they did constitute “a body of experience and informed judgment to which courts and litigants may

properly resort for guidance.” *Id.* at 140. The degree to which a court may lean on an agency’s interpretation of a regulation is not fixed but fluid and should be determined according to (1) the thoroughness of the agency’s consideration, (2) the validity of its reasoning, (3) the consistency of its interpretation over time, and (4) “all those factors which give it the power to persuade.” *Id.*; *see also Mead Corp.*, 533 U.S. at 227–228.

d. The district court gave *Skidmore* deference to Monroy’s interpretation of the regulation. This is clear from several aspects of the district court’s order. First, the district court discussed this Court’s precedent regarding deference to administrative agencies, including *Kisor*, at length throughout the order. *See App., infra*, 85a, 98a–99a. In these discussions, the district court demonstrated an awareness and understanding of *Skidmore*’s prerequisites. Second, in describing Monroy’s interpretation of “rated,” the district court specifically noted that BIS promulgated and was charged with enforcing the EAR and that Monroy’s job duties and experience at BIS included processing export licenses, *see id.* at 89a—factors relevant to the applying *Skidmore*, 323 U.S. at 140. Third, the district court was persuaded to adopt Dr. Shih’s interpretation of the ECCNs primarily because Monroy’s testimony supported the conclusion that “rated for operation” means that “a manufactured item has been tested, with the results confirming that it operates within the specified parameters.” *Id.* at 92.a. Finally, in response to the government’s argument that another one of Monroy’s statements about the regulations’ meaning was entitled to deference, the district court thoroughly examined the testimony under *Skidmore*’s rubric before rejecting it, primarily because it conflicted

with Monroy’s more reasonable and persuasive testimony that “rated” requires post-manufacture reliability testing. *Id.* at 98a–100a. This record makes clear that the district court relied on Monroy’s interpretation of the regulation because of Monroy’s position and experience at BIS as well as the reasonableness of his explanations. That is the essence of *Skidmore* deference.

e. The court of appeals’ holding that the district court “improperly relied on witness testimony,” *App., infra*, 13a, when interpreting the charged ECCNs clearly conflicts with *Skidmore*’s holding “that an agency’s interpretation may merit some deference whatever its form, given the ‘specialized experience and broader investigations and information’ available to the agency.” *Mead Corp.*, 533 U.S. at 234 (quoting *Skidmore*, 323 U.S. at 139).

Importantly, the court of appeals did *not* hold that the district court’s particular reasons for giving deference to Monroy’s interpretation were invalid. Indeed, it never analyzed the district court’s reasoning. Instead, the court of appeals broadly ruled that it is erroneous to rely on *any* witness’s interpretation of a regulation for *any* reason. The court of appeals’ reversal was a categorical ruling that deference to an agency witness’s testimony about the meaning of a regulation is always error.

That bright-line bar is clearly in conflict with *Skidmore*. There was undoubtedly room for *Skidmore* deference here, “where the regulatory scheme is highly detailed, and [BIS] can bring the benefit of specialized experience to bear on the subtle questions in this case.” *Mead Corp.*, 533 U.S. at 235.

f. In fact, the district court's approach to determining the correct meaning of "rated for operation" in the charged export controls was perfectly in line with *Skidmore*.

The district court conducted an independent examination of the regulation and, in light of the testimony of Monroy and the government's other electrical engineering experts, concluded that Monroy's interpretation of the term "rated for operation" was sound and entitled to respect. Monroy's testimony was "made in pursuance of official duty, based upon more specialized experience and broader investigations and information than is likely to come to a judge in a particular case." *Skidmore*, 323 U.S. at 139. Indeed, the government itself had called Monroy as an expert on the proper application of the ECCNs in this case. App., *infra*, 89a. As an expert witness at trial, he was essentially providing an advisory opinion about whether the Cree MMICs were covered by the charged ECCNs. And, as the district court specifically noted, Monroy had the qualifications to offer such an opinion. He had a B.S. in electrical engineering and thirteen years of experience at BIS processing export licenses, issuing advisory opinion requests, and serving on the technical team at the Wassenaar Arrangement. *Id.*

Furthermore, the district court did not treat Monroy's interpretation as controlling, only with "respect," a weight commensurate with Monroy's position within BIS, his experience, the depth of his background knowledge, the thoroughness of his consideration, the fact that he was endorsed as an expert by the government, and the validity of his reasoning, as supported by the corroborating testimony of two other experts in the field. *See Skidmore*, 323 U.S. at 140.

The district court's deference to Monroy's interpretation of the regulation was not erroneous.

g. Nor did the district court run afoul of *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318 (2015), the only case cited by the court of appeals in support of its erroneous holding. App., *infra*, 13a.

Teva Pharmaceuticals held that a district court's resolution of extrinsic factual issues when determining the proper interpretation of a written patent claim is reviewed for clear error, 574 U.S. at 331–33, which has nothing to do with deference to an agency's interpretation of a regulation.

Even assuming *Teva Pharmaceuticals* applied here, the court of appeals erred in its application. Far from precluding consideration of witness testimony when construing a patent's technical language, *Teva Pharmaceuticals* recognizes that, in some cases, district courts will need “to consult extrinsic evidence,” including the testimony of expert witnesses, “in order to understand ... the background science or the meaning of a term in the relevant art during the relevant time period.” 574 U.S. at 331. Here, the district court did exactly what *Teva Pharmaceuticals* condones. It considered the testimony of electrical engineering experts, including an expert from the relevant agency, to determine the meaning of the word “rated,” a term of art in the electrical engineering context. The district court then relied on the interpretation of the BIS's Licensing Officer, in part because it was corroborated by the reliable testimony of Nordquist and Barner, to determine the meaning of the term “rated for operation” in the ECCNs.

h. To be clear, in arguing that the district court's reliance on Monroy's interpretation of "rated for operation" was adequately supported by *Skidmore*, Dr. Shih is not implying that the court of appeals held that the district court's *application* of *Skidmore* was erroneous. It did not. The court of appeals' reversal was, instead, tantamount to a holding that district courts can *never* give *Skidmore* deference to witness testimony at trial. That holding plainly conflicts with relevant decisions of this Court and should be reversed.

Of course, the opinion's blanket prohibition against relying on witness testimony to interpret a regulation obviated the need to mention that a BIS Licensing Officer's expert testimony at trial corroborated the defense's interpretation of "rated for operation" or that the district court relied on the Licensing Officer's testimony when determining that the charged export controls did not apply to the Cree MMICs. But due to the opinion's truncation of the record on the agency deference issue, this petition presents more than just a case where the court of appeals simply got a question of regulatory interpretation wrong. It also presents a case where the court of appeals' erroneous rejection of *Skidmore*'s application to trial testimony in a criminal case resulted in key facts falling out of the opinion's analysis—facts that, if properly considered, would have yielded the same outcome the district court reached under *Skidmore*.

2. The court of appeals also "so far departed from the accepted and usual course of judicial proceedings ... as to call for an exercise of this Court's supervisory power." SUP. CT. R. 10(a). In ruling that the district court erroneously relied on witness testimony when interpreting the ECCNs,

the court of appeals violated the party presentation rule by deciding this appeal on an argument never raised by the parties. *See United States v. Sineneng-Smith*, 140 S. Ct. 1575, 1579 (2020).

The government did not argue either in its appeal or below that the district court was prohibited from considering Monroy's testimony when construing the term "rated for operation." *See App., infra*, 13a n.3. To the contrary, before the district court, the government affirmatively argued that some of Monroy's testimony about the meaning of the term was entitled to *Skidmore* deference. *See, e.g., App., infra*, 80a. The district court ruled, however, that the testimony embraced by the government was not entitled to deference because it conflicted with Monroy's testimony during cross-examination which, the district court found, was more consistent with the regulation's language and the testimony of the government's other electrical engineering experts and, thus, more persuasive. *See id.* at 98a. The government declined to challenge that ruling on appeal. *See Gov't Op. Br. 36 n. 12 (ECF No. 31)*. Moreover, arguing that the district court should not have deferred to Monroy's testimony at all would have been inconsistent with its position below. This is why the government never raised the argument in its appeal; why, contrary to the court of appeals' assessment, *App., infra*, 13a, the record on this issue was not fully developed in the parties' briefing; and, finally, why the court was wrong to have resolved this case *sua sponte* on grounds not advanced by the appealing party.

In our adversarial judicial system, courts must rely on the parties to frame the issues for decision. *See Sineneng-*

Smith, 140 S. Ct. at 1579. While departures from the party presentation principle may be necessary in criminal cases to protect pro se litigants’ rights, *id.* at 866, no such justification existed here. The court of appeals’ reason for exercising its discretion to raise the argument—that the record on an issue of regulatory construction was fully developed, App., *infra*, 13a n.3—further indicates that, for the Ninth Circuit, facts that might otherwise support *Skidmore* deference are irrelevant when the agency interpretation is offered as trial testimony. The court of appeals’ violation of the party presentation principle thus goes hand-in-hand with its erroneous bright-line view of *Skidmore*’s inapplicability to trial testimony.

3. The meaning of a single term in an obscure provision of the EAR may at first glance seem to be far from the types of important questions of federal law warranting this Court’s attention. However, the ECCNs at issue in this case cover items of crucial importance to our country’s economy and national security: semiconductors. By erroneously holding that, under the EAR, an item is “rated for operation” in a certain way merely because it was designed to operate that way threatens to chill domestic semiconductor research and development by subjecting researchers who share their experimental circuit designs with foreign students and colleagues to potential criminal liability.

The interaction of three other provisions of the EAR reveal this prospect. First, engineering designs are considered “technology” under the EAR. *See* 15 C.F.R. § 772.1 (definition of “technology”). Second, under ECCN 3E001, “technology” for “commodities” controlled by any ECCN beginning 3A001 may not be exported to

any country (other than Canada) without a license. *See* 15 C.F.R. § Pt. 774, Supp. 1, Cat. 3 (eff. Nov. 17, 2023). Thus, engineering designs for electronic devices that, if “rated for operation” at performance levels specified in an ECCN beginning 3A001, would require a license before they could be exported also would require a license before they could be exported.⁶ Third, such designs could be “exported” without ever leaving the United States. That is because disclosing such designs to non-citizens—even if the disclosure occurs within the United States—is deemed under the EAR to be an export to the country of citizenship of the person to whom the disclosure was made. *See* 15 C.F.R. § 734.13(a)(2).

Taken together with the court of appeals’ interpretation of the term “rated,” these regulations potentially criminalize the common practice among research engineers of sharing their experimental semiconductor designs with students and research partners whenever one of those students or colleagues happens to be from a country other than Canada.

In sum, this case presents a question of federal law with broad application to semiconductor research in the United States. The court of appeals has interpreted the EAR in a way that criminalizes everyday academic conduct in electrical engineering departments at universities across the country. Its decision will prevent U.S.-based academics and researchers from collaborating with foreign students

6. The ECCNs that begin with 3A001 cover a wide array of electronic devices, including MMICs, microprocessor microcircuits, discrete microwave transistors, and microwave solid state amplifiers. *See* 15 C.F.R. Pt. 774, Supp. 1, Cat. 3.

and research colleagues in the design of any electronic device that might be covered under an ECCN beginning 3A001, regardless of whether their design ideas ultimately work. Reading the term “rated for operation” as the BIS and the district court urged would avoid this outcome. The Court should grant a writ of certiorari to prevent the potentially dire consequences of the Ninth Circuit’s errant ruling.

B. This Is an Opportune Case for Reaffirming *Skidmore* and Addressing Its Proper Application.

1. In recent years, the Court has selected for review several cases involving questions about the proper scope of administrative agency powers, in particular cases considering the degree to which Article III courts should defer to administrative agencies’ interpretations of statutes and regulations. While the Court has already decided or is about to decide the viability and requisite conditions for applying *Auer* and *Chevron* deference, it has not yet been presented with an adequate vehicle for addressing the viability and scope of *Skidmore* deference. Dr. Shih’s case gives the Court the perfect vehicle to do so.

2. While the Court is divided over the validity of *Auer* deference, indicating a potential divide over *Chevron*’s continued viability, its recent opinions foreshadow that *Skidmore* remains not only sound law, but the very foundation for proper agency deference going forward.

Four years ago, in *Kisor v. Wilkie*, 588 U.S. ___, 139 S. Ct. 2400 (2019), this Court reaffirmed the continued viability of *Auer* deference while “reinforc[ing] its limits.”

Id. at 2408, 2410. Justice Kagan, writing for a 5-4 majority, explained that *Auer* deference rests on the presumption that, “when granting rulemaking power to agencies, Congress usually intends to give them, too, considerable latitude to interpret the ambiguous rules they issue,” *id.* at 2412; and that “[a]gencies (unlike courts) have unique expertise, often of a scientific or technical nature, relevant to applying a regulation to complex or changing circumstances,” *id.* at 2413. The Court clarified, however, that “when the reasons for [these] presumption[s] do not apply, or countervailing reasons outweigh them, courts should not give deference to an agency’s reading, except to the extent it has the ‘power to persuade.’” *Id.* at 2414. Justice Gorsuch, joined by Justices Thomas, Alito, and Kavanaugh, dissented, calling for the Court to overturn *Auer*. However, that dissent endorsed “the well-worn path of acknowledging that an agency’s interpretation of a regulation can supply evidence of its meaning,” holding up *Skidmore* as the epitome of that practice. *See id.* 2427 (Gorsuch, J., dissenting).

This term, the Court will decide the future of *Chevron* deference in *Loper Bright Enterprises et al. v. Raimondo et al.*, No. 22-451. The case involves a National Marine Fisheries Service (NMFS) rule requiring commercial fishing vessels in the Atlantic Ocean to pay for onboard federal observers authorized by the Magnusen-Stevens Fishery Conservation and Management Act to ensure compliance with various fishing regulations. *See* Pet. for Writ of Cert. at 7–10, *Loper Bright Enterprises et al. v. Raimondo et al.*, No. 22-451. The Act expressly requires industry-funded observers in three limited contexts but does not expressly require them for the Atlantic herring fishery, where the plaintiffs fish. *Id.* The question on

which certiorari was granted is whether the Court should overrule *Chevron* or, at least, rule that the Act’s authorization to require fishing vessels to fund federal observers in certain limited circumstances does not create statutory ambiguity—a prerequisite for application of Chevron deference—about whether the Act broadly authorizes the requirement in other cases. *See id.* at i-ii; *see also Loper Bright Enterprises v. Raimondo*, 143 S. Ct. 2429 (2023) (granting petition for writ of certiorari on Question 2).

Since *Skidmore* was decided in 1944, however, the Court has not accepted a case directly questioning its validity.

3. Dr. Shih’s case provides a suitable and convenient opportunity for the Court to round out its serial review and clarification of its prior agency deference decisions in *Kisor* and *Loper Bright* by addressing the appropriate role for the remaining third tier of deference federal courts give to agency interpretations—*Skidmore* deference.

The Court’s recent cases point to the importance of an authoritative word about *Skidmore*. The *Kisor* majority held that “the cases in which *Auer* deference is warranted largely overlap with the cases in which it would be unreasonable for a court not to be persuaded by an agency’s interpretation of its own regulation.” *Kisor*, 139 S. Ct. at 2424-25 (Roberts, C.J., concurring). At the same time, the dissenting justices in *Kisor*, who would overrule *Auer*, nevertheless endorse *Skidmore* and, indeed, consider it “an entirely reliable statement of the law.” *Kisor*, 139 S. Ct. at 2428 (Gorsuch, J., dissenting) (brackets and internal quotation marks omitted). Given

the views expressed in *Kisor*, even if—especially if—*Chevron* is repudiated in *Loper Bright*, the principles for evaluating deference to agency interpretations of statutes and regulations as articulated in *Skidmore* seem poised to come to the fore.

The Court should therefore grant certiorari in this case to address and affirm *Skidmore*’s continuing validity, emphasize that *Skidmore* articulates the baseline principles that guide district courts when deciding whether they owe any “respect” to agency interpretations of their own regulations, and reverse the court of appeals’ decision faulting the district court’s proper application of *Skidmore* when interpreting the ECCNs charged in this case.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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December 2023

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**APPENDIX A — OPINION OF THE UNITED
STATES COURT OF APPEALS FOR THE NINTH
CIRCUIT, FILED JULY 18, 2023**

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 20-50144

D.C. Nos. 2:18-cr-00050-JAK-1
2:18-cr-00050-JAK

UNITED STATES OF AMERICA,

Plaintiff-Appellant,

v.

YI-CHI SHIH, AKA YUGI SHI, AKA YICHI SHIH,

Defendant-Appellee.

No. 21-50175

D.C. No. 2:18-cr-00050-JAK-1

UNITED STATES OF AMERICA,

Plaintiff-Appellee,

v.

YI-CHI SHIH, AKA YUGI SHI, AKA YICHI SHIH,

Defendant-Appellant.

Appendix A

Appeal from the United States District Court
for the Central District of California.
John A. Kronstadt, District Judge, Presiding.

May 10, 2023, Argued and Submitted
Pasadena, California

July 18, 2023, Filed

Before: Andrew D. Hurwitz and Ryan D. Nelson,
Circuit Judges*.

Opinion by Andrew D. Hurwitz

OPINION

HURWITZ, Circuit Judge:

After Yi-Chi Shih was indicted for various offenses arising out of the export of semiconductors to the People's Republic of China, a jury returned guilty verdicts on all counts. The district court subsequently entered a judgment of acquittal on one count. The government appeals that acquittal, and Shih appeals his convictions on the other counts. We reverse the judgment of acquittal, affirm Shih's other convictions, and remand.

* This case was decided by quorum of the panel. See 28 U.S.C. § 46(d); Ninth Circuit General Order 3.2(h).

*Appendix A***BACKGROUND****I. The Regulatory Scheme**

The Export Administration Regulations (“EARs”), administered by the Department of Commerce’s Bureau of Industry and Security (“BIS”), impose controls on certain exports to “serve the national security, foreign policy, nonproliferation of weapons of mass destruction, and other interests of the United States.” 15 C.F.R. §§ 730.1, 730.6.¹ After the expiration of the Export Administration Act of 1979, *see* 50 U.S.C. § 2419 (2001), the EARs were continued pursuant to Executive Order 13,222, which declared a national emergency under the International Emergency Economic Powers Act (“IEEPA”), 50 U.S.C. § 1702, and provided that

[a]ll rules and regulations issued or continued in effect by the Secretary of Commerce under the authority of the Export Administration Act of 1979 . . . and all orders, regulations, licenses, and other forms of administrative action issued, taken, or continued in effect pursuant thereto, shall . . . remain in full force and effect as if issued or taken pursuant to this order.

Exec. Order No. 13,222, 66 Fed. Reg. 44025 (Aug. 17, 2001). A violation of the EARs is a violation of IEEPA. 50 U.S.C. § 1705(a), (c).

1. All citations are to the 2014 version of the Code of Federal Regulations.

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Most items subject to the EARs are identified on a BIS Commerce Control List and given an Export Control Classification Number (“ECCN”). 15 C.F.R. Pt. 774, Supp. 1. An exporter of these items must obtain a license from the BIS, 15 C.F.R. § 736.2(b)(1), and file an Electronic Export Information (“EEI”), 15 C.F.R. § 758.1(b)(2).

The ECCNs relevant to this case are 3A001.b.2.b and 3A001.b.2.c, which apply to a monolithic microwave integrated circuit (“MMIC”) that is either:

b.2.b. Rated for operation at frequencies exceeding 6.8 GHz up to and including 16 GHz and with an average output greater than 1W (30 dBm) with a “fractional bandwidth” greater than 10%;

b.2.c. Rated for operation at frequencies exceeding 16 GHz up to and including 31.8 GHz and with an average output power greater than 0.8 W (29 dBm) with a “fractional bandwidth” greater than 10%.

15 C.F.R. Pt. 774, Supp. 1. MMICs are integrated circuits, or “chips,” that operate at microwave frequencies. The foundries that manufacture MMICs typically provide designers with kits that can be rearranged to achieve performance specifications and with software to run pre-manufacture simulations. Final designs are collected on reticles, pieces of glass whose patterns are stamped onto wafers by the foundry. The wafers are then divided into individual MMICs.

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A catch-all “EAR99” basket applies the EARs to some items without an ECCN. 15 C.F.R. § 732.3(b)(3). Although export licenses are not required for EAR99 items not destined for a recipient on a BIS “Entity List,” *see* 15 C.F.R. Pt. 774, Supp. 4, an exporter must file an EEI if the items are valued at more than \$2,500 and destined for a country other than Canada, 15 C.F.R. § 758.1(b).

“Publicly available technology” that “arise[s] during, or result[s] from, fundamental research” is not subject to the EARs. 15 C.F.R. § 734.3(b)(3)(ii). “Technology” is defined as “information necessary for the ‘development,’ ‘production,’ or ‘use’ of a product”; that information can take the form of “technical data,” which includes “blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, [or] manuals and instructions written or recorded on other media or devices such as disk, tape, [and] read-only memories.” 15 C.F.R. § 772.1. “Fundamental research” is “basic and applied research in science and engineering, where the resulting information is ordinarily published and shared broadly within the scientific community.” 15 C.F.R. § 734.8(a).

II. Export of the MMICs

The charges against Shih arose out of the export of MMICs to China. In September 2012, Shih and his colleagues at Chengdu RML, a China-based company, began conducting research for China Avionics Systems (“AVIC 607”), a Chinese state-owned enterprise that develops military weapons. In early 2013, Kiet Mai agreed to help Shih procure MMIC foundry services from Cree,

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Inc. Cree required Mai to submit an export compliance questionnaire, which Shih completed. The completed questionnaire indicated that (1) Cree's customer was MicroEx Engineering, a Los Angeles-based company run by Mai; (2) the approximate frequency of the MMICs would be "up to 18 GHz" and the approximate power "up to 10W"; and (3) the product was neither subject to export control regulations nor to be shipped overseas.

After Mai submitted the questionnaire and signed Cree's Process Design Kit Agreement, Cree gave him access to a web portal that included the design kit, data reports, and other materials. Although Cree creates unique login credentials for each authorized user, Mai requested only one set, which he emailed to Shih. Shih shared Mai's username and password with his Chengdu RML colleagues, who used the Cree software to design the MMICs, respond to feedback from Cree engineers, and run simulations to ensure that the MMICs would meet performance goals.

Cree manufactured the RML-designed MMICs on wafers suited for high-power microwave applications. On December 26, 2013, Cree shipped four wafers to MicroEx. In early 2014, Shih allegedly shipped them to China through several intermediaries. Post-export testing in China confirmed that the MMICs performed consistently with pre-manufacture simulations.

*Appendix A***III. Proceedings Below**

In February 2018, a grand jury returned a ten-count indictment against Shih, Mai, and a third codefendant. Counts 1 and 2 charged conspiracy to violate and violation of export control laws, 50 U.S.C. § 1705(a), (c); 18 U.S.C. § 2(b); Counts 3 through 6 charged mail fraud, 18 U.S.C. § 1341; Counts 7 and 8 charged wire fraud, 18 U.S.C. §§ 1343, 2(b); Count 9 charged conspiracy to defraud the U.S. government and a violation of the Computer Fraud and Abuse Act, 18 U.S.C. §§ 371, 1030; and Count 10 charged money laundering, 18 U.S.C. §§ 1956(a)(2)(A), 2(a). In October 2018, the grand jury returned a first superseding indictment charging four additional defendants under Count 1, extending the conspiracy timeframe, and adding eight new counts against Shih. A second superseding indictment amended Counts 12 through 14. In June 2019, after a 22-day trial, a jury returned guilty verdicts against Shih on all counts.

Shih then moved for a judgment of acquittal on Counts 1 through 10. In April 2020, the district court granted a judgment of acquittal on Counts 1 and 2. Although rejecting Shih’s argument that the MMICs were fundamental research exempt from the EARs, the court held that they were not “rated for operation” under ECCNs 3A001.b.2b.b and 3A001.b.2.c., 15 C.F.R. Pt. 774, Supp. 1, because they had not been “tested and thereby confirmed to operate reliably within the specified parameters” *before* export. It denied Shih’s motion as to the remaining counts as well as his motion for a new trial.

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Upon reconsideration, the district court reinstated the guilty verdict on Count 1, finding that overwhelming evidence supported a conviction for conspiring to export an item without filing a required EEI (Object C of Count 1's multi-object conspiracy) even if an export license were not required (Object A). The court denied Shih's renewed motion for a new trial on Counts 3 through 8 and again declined to grant a judgment of acquittal on Counts 9 and 10.

The district court issued a second amended judgment and commitment order on July 28, 2021. The government had in the meantime timely appealed the judgment of acquittal on Count 2. Shih then timely appealed the second amended judgment, and we consolidated the two appeals.

DISCUSSION**I. Constitutionality of the EARs**

Shih argues that the EARs are invalid because Executive Order 13,222 was an improper invocation of presidential authority. He also argues that IEEPA violates the nondelegation doctrine.

We start our analysis of the Executive Order from the settled premise that courts must be hesitant to review the executive's declaration of a national emergency. *See Haig v. Agee*, 453 U.S. 280, 292, 101 S. Ct. 2766, 69 L. Ed. 2d 640 (1981). Given that maxim, we have previously rejected a similar claim challenging continued enforcement of the EARs through executive orders after previous lapses

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in the Export Administration Act. *See United States v. Spawr Optical Rsch, Inc.*, 685 F.2d 1076, 1081-82 (9th Cir. 1982). Although the prior executive orders were issued under the Trading with the Enemy Act, we see no reason to treat one issued pursuant to IEEPA any differently. *Compare* 50 U.S.C. § 1701, *with* 50 U.S.C. § 4305.

Nor does IEEPA run afoul of the nondelegation doctrine. The statute “meaningfully constrains” the executive’s “discretion to define criminal conduct.” *Touby v. United States*, 500 U.S. 160, 166, 111 S. Ct. 1752, 114 L. Ed. 2d 219 (1991). It specifies the steps the President must take before invoking an emergency, including consultation with Congress, and establishes reporting requirements. *See* 50 U.S.C. § 1703. It also limits the President’s authority to prohibit certain types of transactions, *see* 50 U.S.C. § 1702(b), and prohibits the punishment of unwitting violators, *see* 50 U.S.C. § 1705(c). Because these statutory restrictions strike “a careful balance between affording the President a degree of authority to address the exigencies of national emergencies and restraining his ability to perpetuate emergency situations indefinitely by creating more opportunities for congressional input,” we agree with every Circuit to have considered the issue that IEEPA is constitutional. *United States v. Amirnazmi*, 645 F.3d 564, 577 (3d Cir. 2011); *see also United States v. Dhafir*, 461 F.3d 211, 215-17 (2d Cir. 2006); *United States v. Arch Trading Co.*, 987 F.2d 1087, 1092-94 (4th Cir. 1993); *United States v. Mirza*, 454 F. App’x 249, 255-56 (5th Cir. 2011).

*Appendix A***II. Construction of “Rated for Operation”**

The judgment of acquittal on Count 2 rested on the district court’s construction of the term “rated for operation” in ECCNs 3A001.b.2.b and 3A001.b.2.c. *See* 15 C.F.R. Pt. 774, Supp. 1. We hold that the district court erred in concluding that this term requires post-manufacture, pre-export testing.

“Regulations are interpreted according to the same rules as statutes, applying traditional rules of construction.” *Minnick v. Comm’r*, 796 F.3d 1156, 1159 (9th Cir. 2015). The starting point is the “plain language,” *United States v. Bucher*, 375 F.3d 929, 932 (9th Cir. 2004), and we give undefined terms their ordinary meaning, *see FCC v. AT&T Inc.*, 562 U.S. 397, 403, 131 S. Ct. 1177, 179 L. Ed. 2d 132 (2011). “Ordinarily, a word’s usage accords with its dictionary definition.” *Yates v. United States*, 574 U.S. 528, 537, 135 S. Ct. 1074, 191 L. Ed. 2d 64 (2015).

The district court correctly recognized that numerous dictionary definitions teach that the term “rated” means “designed.”² It rejected these definitions, however, because

2. *See Rate*, *Webster’s Third New International Dictionary, Unabridged* (1961) (“to set an estimate on” or “to estimate the normal capacity or power of (current flowing at the *rated* capacity)”); *Rate*, *Oxford English Dictionary Online*, <https://perma.cc/3T9H-FJK8> (“To estimate or assess the . . . value” or “To assign a standard, optimal, or limiting rating”); *Rate*, *Vocabulary.com*, <https://perma.cc/2RFL-5GXZ> (“estimate the value of” or “assign a rank or rating to”); *Rate*, *Dictionary.com*, <https://perma.cc/RQ7Y-R9DU> (“to estimate the value or worth of; appraise” or “to esteem, consider, or account”); *Rated Frequency*, *Electropedia*, <https://perma.cc/EZ8X->

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the EARs elsewhere include the phrase “designed or rated,” *see, e.g.*, ECCN 3A001.a.1, 15 C.F.R. Pt. 774, Supp. 1. The court therefore concluded that “rated” would be surplusage unless it meant something other than “designed” and—relying on testimony by experts in electrical engineering—held that “rated for operation” means “that a manufactured item has been tested, with the results confirming that it operates within the specified parameters.” Because there was no evidence that the MMICs were so tested before export, the court held that the government failed to establish that they were covered by ECCNs 3A001.b.2.b and 3A001.b.2.c.

We disagree. “The canon against surplusage is not an absolute rule.” *Marx v. Gen. Revenue Corp.*, 568 U.S. 371, 385, 133 S. Ct. 1166, 185 L. Ed. 2d 242 (2013). “Sometimes the better overall reading of the statute contains some redundancy,” *Rimini St., Inc. v. Oracle USA, Inc.*, 139 S. Ct. 873, 881, 203 L. Ed. 2d 180 (2019), and “[i]t is appropriate to tolerate a degree of surplusage rather than adopt a textually dubious construction,” *United States v. Atl. Rsch. Corp.*, 551 U.S. 128, 137, 127 S. Ct. 2331, 168 L. Ed. 2d 28 (2007).

VV4Z (“the frequency at which the transformer or reactor is designed to operate”); *Rated Voltage*, *Electrical Engineering Dictionary* (2000) (“the voltage at which a power line or electrical equipment is designed to operate”); *Rating*, *Oxford Dictionary of Electronics and Electrical Engineering* (5th ed. 2018) (“Stipulating or the stipulation of operating conditions for a machine, transformer, or other device or circuit and stating the performance limitations of such equipment The designated limits to the operating conditions within which the device or equipment functions satisfactorily are the rated conditions”).

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This is the paradigm of such a case. In applying the canon against surplusage, the district court created a gaping loophole in the EARs that plainly contravenes their purpose. The EARs

are intended to serve the national security, foreign policy, nonproliferation of weapons of mass destruction, and other interests of the United States Some controls are designed to restrict access to items subject to the EAR by countries or persons that might apply such items to uses inimical to U.S. interests. These include . . . controls designed to limit the military . . . support capability of certain countries.

15 C.F.R. § 730.6. If “rated for operation” requires post-manufacture, pre-export testing, one seeking to evade the EARs could simply design an export-controlled item, run reliable pre-manufacture simulations, freely export the item, and then test it only after export to confirm that its performance is consistent with the simulations. Although Shih suggests that the district court’s interpretation ensures that mere prototypes or research models are not subject to the EARs, its holding sweeps far more broadly, exempting *all* items not tested before export from the EARs. Moreover, this reading is not necessary; the EARs expressly exempt certain technology arising from fundamental research. *See* 15 C.F.R. § 734.3(b)(3)(ii).

By “reading words or elements into a [regulation] that do not appear on its face,” *Bates v. United States*, 522 U.S.

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23, 29, 118 S. Ct. 285, 139 L. Ed. 2d 215 (1997), the district court’s construction also contravenes a basic principle of statutory interpretation. Moreover, the court improperly relied on witness testimony. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 332, 135 S. Ct. 831, 190 L. Ed. 2d 719 (2015) (noting that expert testimony about terms of art “cannot be used to prove the proper or legal construction of any instrument of writing” (cleaned up)).³

Nor, as Shih claims, does an ordinary meaning interpretation of “rated for operation” render the EARs unconstitutionally vague. The regulations “describe in detail the technologies subject to export control” and thus “provide law enforcement with clear guidance as to what technologies they may police.” *United States v. Zhi Yong Guo*, 634 F.3d 1119, 1123 (9th Cir. 2011). “Moreover, the scienter requirement in [IEEPA] further alleviates any concern over the complexity of the regulatory scheme” because “the government [is] required to prove beyond a reasonable doubt that Defendant *knew* that a license was required for [] export.” *Id.*

III. Fundamental Research Instructions

Shih argues that the district court erred by failing to give his proposed jury instructions on the fundamental research exemption. We reject that argument because

3. Although the government failed to raise this argument below, because the argument “is a matter of statutory construction, and the record has been fully developed, we exercise our discretion to address it.” *El Paso v. Am. W. Airlines, Inc. (In re Am. W. Airlines, Inc.)*, 217 F.3d 1161, 1165 (9th Cir. 2000).

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“other instructions given in their entirety cover the defense theory.” *United States v. Tucker*, 641 F.3d 1110, 1122 (9th Cir. 2011).

Shih proposed the following general instruction:

Publicly available technology and software are excluded from the Export Administration Regulations, and therefore neither a license nor an Electronic Export information filing is required for the export of such materials. Technology and software are “publicly available” when they (i) Are already published or will be published; OR (ii) Arise during or result from fundamental research; OR (iii) Are educational; OR (iv) Are included in certain patent applications. The government bears the burden of proving beyond a reasonable doubt that the items at issue in Counts One and Two were not “publicly available” in any of these four ways.

Shih also requested instructions defining “fundamental research” as including “[r]esearch conducted by scientists, or students at a university, a Federal agency, or a business entity,” and “technology” as “technical data that may take the form of models and/or engineering designs.”

Even assuming that Shih’s proposed instructions were accurate, a defendant “is not entitled to an instruction in a particular form,” and there is no reversible error if the defense theory was “fairly and adequately covered” by

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other instructions. *United States v. Keyser*, 704 F.3d 631, 641-42 (9th Cir. 2012). That was the case here. Instruction 21 stated that the EARs “provide for certain exclusions and exceptions to the requirements to obtain a license and to file Electronic Export Information.” Instruction 29 then stated:

Certain evidence has been presented that items involved in this case were classified with ECCNs in the 3A001 category. In determining whether the 3A001 category applies, you should consider the following matters: 1) the 3A001 category applies to “commodities,” but not to “technology.” “Commodities” are articles, materials, or supplies other than technology or software. “Technology” is specific information necessary for the development, production, or use of a product. This includes such information that is publicly available.

The jury thus was told that if it found the MMICs to be “technology,” neither a license nor an EEI filing was required. 15 C.F.R. § 734.3(b)(3)(ii). And, the district court accurately defined both “technology” and “commodity.” *See* 15 C.F.R. § 772.1. Although the court did not enumerate the various forms that technology can take nor provide examples of when fundamental research results in a commodity rather than technology, the instructions addressed the key jury questions and allowed Shih to argue that the MMICs were not covered by the EARs because they were publicly available technology arising from fundamental research.

*Appendix A***IV. Right to Present a Defense**

The defendant has a constitutional “right to put before a jury evidence that might influence the determination of guilt.” *United States v. Stever*, 603 F.3d 747, 755 (9th Cir. 2010) (cleaned up). But this is not “an unfettered right to offer evidence that is incompetent, privileged, or otherwise inadmissible under standard rules of evidence.” *Montana v. Egelhoff*, 518 U.S. 37, 42, 116 S. Ct. 2013, 135 L. Ed. 2d 361 (1996) (cleaned up). Because the district court’s evidentiary rulings were “well within its discretion” and Shih was able to “present the substance” of his defense, we find no error. *United States v. Waters*, 627 F.3d 345, 353-54 (9th Cir. 2010).

A. Cross-Examination

A trial judge “has considerable discretion in restricting cross-examination.” *United States v. Bensimon*, 172 F.3d 1121, 1128 (9th Cir. 1999). The judge “may limit cross-examination in order to preclude repetitive questioning, upon determining that a particular subject has been exhausted, or to avoid extensive and time-wasting exploration of collateral matters.” *United States v. Weiner*, 578 F.2d 757, 766 (9th Cir. 1978) (per curiam).

1. FBI Special Agent Miller

Special Agent Maureen Miller supervised the execution of a search warrant at Shih’s house. On direct examination, Miller testified that the agents conducting the search found no Cree MMICs. On cross-examination,

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Shih sought to establish that the agents had overlooked two boxes in an upstairs office containing such MMICs.

The district court sustained the government's objections to questions posed to Miller that it found argumentative, asked and answered, speculative, or about agent "error" or "mistakes." Shih's counsel nonetheless extensively cross-examined Miller on the search, and Miller admitted that her team would have seized any boxes from Cree, addressed to Mai, or containing MMICs.

The district court did not abuse its discretion. In sustaining objections to questions about agent error, the district court correctly noted that defense counsel had "asked the question repeatedly" and it had already permitted questions about whether the boxes "would . . . have been material, if identified." The court also reasonably found that questions about "what constitutes an error . . . could open other issues in terms of how to evaluate that term," and that defense counsel already had "a sufficient foundational basis to make arguments . . . as to . . . the quality or error in the work." Indeed, defense counsel drew from this cross-examination to challenge the quality of the agents' search in closing argument.

2. Codefendant Mai

Shih contends that the district court abused its discretion by restricting on relevance grounds testimony by Mai about Shih's reputation for truthfulness. Even assuming that testimony was relevant to Shih's intent to defraud, *see* Fed. R. Evid. 401(a), 404(a)(2)(A), any error

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was harmless. During cross-examination, Mai stated that Shih had never asked him to say anything untruthful to Cree. Additional testimony about Shih's general reputation for truthfulness was unlikely to affect the verdict.

B. Admission of Evidence

Determining the admissibility of evidence “is a matter first for the district court’s sound judgment under Rules 401 and 403.” *Sprint/United Mgmt. Co. v. Mendelsohn*, 552 U.S. 379, 384, 128 S. Ct. 1140, 170 L. Ed. 2d 1 (2008) (cleaned up). We review the district court’s evidentiary rulings for abuse of discretion. *See United States v. Cherer*, 513 F.3d 1150, 1157 (9th Cir. 2008). “Harmless errors do not warrant reversal.” *Id.*

1. UCLA Personnel File

Shih attempted to introduce portions of his UCLA personnel file during the cross-examination of FBI Agent Alexander Storino. However, Storino had never seen the file and could not provide the foundation necessary for admission. The district court acknowledged that items in the file might be relevant to Shih’s fundamental research defense and, after defense counsel conferred with the government, admitted a page of the file without objection.

Shih’s counsel renewed the request to publish other portions of the file near the end of the defense case. After the district court indicated a reluctance to admit the entire file, defense counsel agreed to confer with the government and bring any disputes to the court. But Shih did not

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seek to publish any other part of the file before resting, instead simply moving for their admission into evidence. The district court admitted the exhibits after the close of evidence but before closing arguments.

Any error in not admitting the evidence earlier was harmless. Defense counsel did not seek to publish the portions of the file later admitted before resting and freely referred to them during closing argument. Moreover, neither party disputed the facts established by these portions of the personnel file—Shih was an acclaimed researcher, UCLA knew about his affiliation with a Chinese company, and he was integrated into the UCLA community. Nor were those facts central questions for the jury.

2. Cree Boxes

The district court also acted within its discretion by delaying the admission of two boxes that were purportedly found in Shih's home after the government's search allegedly containing Cree MMICs. The court declined to admit the boxes during the cross-examination of Special Agent Miller because her testimony failed to establish either authenticity or chain of custody. That foundational ruling was well within the court's discretion. *See United States v. Edwards*, 235 F.3d 1173, 1178 (9th Cir. 2000) (requiring "sufficient proof so that a reasonable juror could find that the evidence is in substantially the same condition as when it was seized" (cleaned up)).

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And although initially denying admission of the boxes, the court nonetheless allowed defense counsel to extensively cross-examine Miller about her team's failure to find them. The boxes were later conditionally admitted after the foundational testimony of a defense paralegal who claimed to have found them and Dr. Jeffrey Barner (a Cree manager) testified as to the MMICs' authenticity. The boxes were fully admitted before closing arguments and Shih referred to them in his closing, arguing that the alleged MMICs were never sent to China and that the government's failure to seize the boxes casts doubt on its investigation. Thus, the court's reluctance to admit the boxes earlier did not prejudice Shih.

3. Cree Internal Emails

During the cross-examination of Dr. Barner, Shih sought to admit internal Cree emails to establish that "Cree's concern is getting paid for the work it does rather than any export compliance or other issues." The district court denied admission, finding the emails cumulative and only minimally probative because they concerned the "assurance of payment for services that are going to be provided," something "distant from the issue of compliance and knowledge of the export regulations." The emails were admitted into evidence before closing arguments.

The court did not abuse its broad discretion in these evidentiary rulings. In any event, there was no prejudice to Shih; the emails were published to the jury and referred to by defense counsel during closing.

*Appendix A***4. YouTube Videos**

Defense counsel sought to introduce seven YouTube videos during Dr. Barner's cross-examination to challenge his testimony that access to the Cree portal was limited and that its functionality was hidden from the public. The government objected, noting that the videos did not contradict Barner's testimony and only three included Cree employees. Although defense counsel offered to limit his request to those with Cree employees, he also indicated that he might not need the videos. The parties reargued admissibility near the end of the defense case, but defense counsel again decided to reserve the issue. At the close of evidence but before closing arguments, the court admitted two Cree videos and a third that mentioned Cree. It denied admission of the other videos as cumulative and because it was not clear that they related to the Cree web portal.

District courts have "considerable latitude even with admittedly relevant evidence in rejecting that which is cumulative." *Hamling v. United States*, 418 U.S. 87, 127, 94 S. Ct. 2887, 41 L. Ed. 2d 590 (1974). The court did not abuse that discretion here. And, any supposed error was clearly harmless. Barner confirmed the existence of YouTube videos showing features of the Cree portal and how it can be used to design MMICs during his cross-examination, and Shih does not explain how the excluded videos contradict any testimony.⁴

4. We are not persuaded by Shih's perfunctory argument on appeal that the district court abused its discretion by delaying admission of dozens of patents and scholarly articles authored by Shih and alleged co-conspirators until the close of evidence. *See United Nurses Ass'n of Cal. v. NLRB*, 871 F.3d 767, 780 (9th Cir. 2017).

*Appendix A***V. Expert Testimony**

Peter Mattis, a Research Fellow in China Studies at the Victims of Communism Memorial Foundation, testified during the government’s case that state-owned AVIC 607 “seems to be focused on electrical components that might . . . be used in missiles or missile guidance systems.” Shih contends that this testimony was (1) not properly disclosed; (2) unreliable; (3) had no probative value or was unfairly prejudicial; and (4) violated the Confrontation Clause. Reviewing the first three challenges for abuse of discretion, *see United States v. Danielson*, 325 F.3d 1054, 1074 (9th Cir. 2003); *United States v. Aubrey*, 800 F.3d 1115, 1129 (9th Cir. 2015), and the Confrontation Clause claim de novo, *see United States v. Vera*, 770 F.3d 1232, 1237 (9th Cir. 2014), we find no reversible error.

A. Rule 16

The government must disclose information about intended expert testimony “sufficiently before trial to provide a fair opportunity for the defendant to meet the government’s evidence.” Fed. R. Crim. P. 16(a)(1)(G). The disclosure must contain “a complete statement of all opinions that the government will elicit from the witness . . . ; the bases and reasons for them; the witness’s qualifications . . . ; and a list of all other cases in which, during the previous 4 years, the witness has testified as an expert.” *Id.* The rule “is intended to minimize surprise that often results from unexpected expert testimony” and to enable the defendant “to test the merit of the expert’s testimony through focused cross-examination.” *Id.* advisory committee’s note to 1993 amendment.

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Although the government likely failed to comply with Rule 16 by not making complete disclosure about Mattis's testimony before trial, Shih has not demonstrated a "likelihood that the verdict would have been different had the government complied with the discovery rules." *United States v. Mendoza-Paz*, 286 F.3d 1104, 1111 (9th Cir. 2002) (cleaned up). The district court held a *Daubert* hearing during trial at which Shih cross-examined Mattis. After that hearing, the court concluded that Mattis qualified as an expert, used a sufficiently reliable methodology, and that Shih had sufficient notice of the witness and the subjects of his testimony. The court ruled that Mattis could not testify about the Chinese military but could explain that AVIC 607's business involved missiles.

Although Shih argues that he did not receive a "fair opportunity to test the merit of the expert's testimony through focused cross-examination" at trial, he does not explain how he would have cross-examined Mattis differently than at the *Daubert* hearing, nor did he later pose any questions he now claims were improperly excluded. Shih never sought to recall Mattis during his case-in-chief, even though the court indicated it might be willing to allow this. And, he neither disputes that he had business dealings with AVIC 607 nor the accuracy of Mattis's testimony about that entity.

B. Reliability

Expert testimony is admissible if

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact

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to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed R. Evid. 702. An expert can rely on information reasonably relied upon by experts in their fields, Fed. R. Evid. 703, but must be “more than a conduit or transmitter for testimonial hearsay,” *Vera*, 770 F.3d at 1237 (cleaned up).

At the *Daubert* hearing, Mattis explained that his opinions were based on

open-source research, looking at company websites, following individuals associated with that company to look at what kind of events they showed up at, looking through the files and books that I’ve collected related to the issues of China’s tech transfer [] or . . . Chinese military modernization, as well as conversations or questions to friends who have followed these same organizations or the same general area of organization.

Those files included news articles and publicly available government documents discussing export-control violations. During cross-examination, Mattis noted that the entities he would testify about were mentioned in his forthcoming book and that he primarily relied on Chinese-

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and English-language publications and websites to develop his opinions. On redirect, Mattis confirmed that it is “normal to rely on publications and written works to help guide . . . opinions and views,” which were also informed by his life experience with China.

Although Mattis’s methodology relied in part on his personal experiences, the district court did not abuse its discretion in concluding that he properly applied those experiences to open sources “in a manner that is beyond what a typical layperson could do.” *See United States v. Damrah*, 412 F.3d 618, 625, 124 Fed. Appx. 976 & n.4 (6th Cir. 2005). For the same reason, the district court did not err in rejecting Shih’s Confrontation Clause argument. *See Vera*, 770 F.3d at 1237-40 (“The key question for determining whether an expert has complied with [the Confrontation Clause] is the same as for evaluating expert opinion generally: whether the expert has developed his opinion by applying his extensive experience and a reliable methodology.” (cleaned up)).

C. Relevance and Prejudice

The district court also acted within its discretion in finding Mattis’s testimony relevant and likely helpful to the jury. Fed. R. Evid. 401, 702(a). The testimony described the objectives of companies that Shih was involved with, information with which a lay juror would be unfamiliar. Nor was a statement by Mattis regarding AVIC 607’s “focus[] on electronic components that might . . . be used in missiles or missiles guidance systems” unfairly prejudicial. Fed. R. Evid. 703. The district court limited

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Mattis's testimony about the Chinese military in general, and Shih's own documents identified AVIC 607, his other customers, and the military applications of MMICs. *See United States v. El-Mezain*, 664 F.3d 467, 509 (5th Cir. 2011) ("Evidence which tends to rebut a defendant's claim of innocent action is unlikely to be unduly prejudicial."). Moreover, other experts testified without objection about the MMICs' potential military applications.

VI. Prosecutorial Misconduct

The prosecutor stated in rebuttal argument that "the customer for the Cree chip was AVIC 607, which you heard develops missiles and missile guidance systems for China"; mentioned the military, missiles, or AVIC 607 sixteen times; called Shih's position at UCLA the "perfect cover" for his scheme; and described the evidence as "scary." Although Shih did not object during the argument, he filed a written objection five days later, citing the district court's "preference . . . not to have counsel interrupt each other with objections during argument."

Even assuming that the objection was timely, Shih has not established that the statements "so infected the trial with unfairness as to make the resulting conviction a denial of due process." *Darden v. Wainwright*, 477 U.S. 168, 181, 106 S. Ct. 2464, 91 L. Ed. 2d 144 (1986) (cleaned up). The statements about AVIC 607 were supported by the record. Mattis testified that the company was focused on electronic components that could be used in missiles, Exhibit 2106A identified AVIC 607 as a probable customer, and other experts testified about the MMICs' military applications.

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Nor did the prosecutor inappropriately appeal to the jurors' fears. "A prosecutor may respond in rebuttal to an attack made in the defendant's closing argument." *United States v. Hui Hsiung*, 778 F.3d 738, 746 (9th Cir. 2015). References to the military were in response to the defense closing or came from the evidence, including Shih's own documents. The government's two uses of the word "scary" were a "fair response," *see United States v. Lopez-Alvarez*, 970 F.2d 583, 597 (9th Cir. 1992), to defense counsel's closing, which accused the prosecution of a "distraction with fear" and trying to "scare" the jurors.

VII. Wire and Mail Fraud Instructions

The parties do not dispute that the jurors were improperly instructed on the wire and mail fraud charges (Counts 3 through 8) because they were asked to find whether Shih intended to deceive *or* cheat Cree, rather than to deceive *and* cheat. *See United States v. Miller*, 953 F.3d 1095, 1098 (9th Cir. 2020). Even assuming *arguendo* that Shih preserved his challenge to the instructions, as in *Miller*, *see id.* at 1103, we find any error harmless.

The "harmless error inquiry [] focuses on what the evidence showed regarding [Shih's] intent to defraud and whether we can conclude beyond a reasonable doubt that the jury verdict would have been the same absent the error." *United States v. Saini*, 23 F.4th 1155, 1164 (9th Cir. 2022) (cleaned up). We find the instructions here harmless for many of the same reasons as we did in *Miller*. Like the instructions in *Miller*, 953 F.3d at 1103, the district court's instruction on the "scheme to defraud" element required

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the jury to find that Shih “knowingly participated in a scheme or plan to defraud Cree, or a scheme or plan for obtaining money or property from Cree by means of false or fraudulent pretenses, representations, or promises.” *Miller* noted that “a scheme . . . to defraud or obtain money or property” encompasses “the intent not only to make false statements or utilize other forms of deception, but also to deprive a victim of money or property by means of those deceptions.” *Id.* at 1101. Here, as in *Miller*, “[i]f the jury had believed that there was any inconsistency between this language and the subsequent language about ‘deceive or cheat,’ they undoubtedly would have sought further instruction, which they did not.” *Id.* at 1103.

Moreover, there was powerful evidence that Shih intended to defraud Cree. *See Saini*, 23 F.4th at 1164. In completing the export compliance questionnaire, Shih obscured the identity of both the customer and end user and stated that the MMICs would not be shipped abroad. Mai falsely told Cree that MicroEx would design, test, and use the MMICs. And Shih used Mai to obtain login credentials without letting Cree know that he would be using them.

VIII. Sufficiency of the Evidence

“There is sufficient evidence to support a conviction if, reviewing the evidence in the light most favorable to the prosecution, any rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt.” *United States v. Ross*, 123 F.3d 1181, 1184 (9th Cir. 1997). Sufficient evidence supports the convictions on the ten counts that Shih challenges.

*Appendix A***A. Violation of the EARs**

As to Counts 1 and 2, a rational factfinder could find that the exported MMICs were not exempt from the EARs as fundamental research. There was sufficient evidence to allow a jury to find that the Cree MMICs were “commodities” rather than “[p]ublicly available technology” that “ar[ose] during, or result[ed] from, fundamental research.” 15 C.F.R. § 734.3(b)(3)(ii); *see also* 15 C.F.R. § 772.1 (defining “commodity,” “technology,” and “technical data”). Multiple witnesses explained that the MMICs had various practical applications. Shih’s business plans suggested that the MMICs would be used by a specific customer for such applications, and were thus not “specific information necessary for the ‘development,’ ‘production,’ or ‘use’ of a product.” 15 C.F.R. § 772.1 (defining “technology”).⁵

B. Mail and Wire Fraud

Sufficient evidence also supports the verdicts on Counts 3 through 8. To establish mail and wire fraud, the government must prove “1) a scheme to defraud, 2) a use of the mails or wires in furtherance of the scheme, and 3) a specific intent to deceive or defraud.” *United States v. Bonallo*, 858 F.2d 1427, 1433 (9th Cir. 1988). Misrepresentations must be material. *See United States v. Brugnara*, 856 F.3d 1198, 1207-08 (9th Cir. 2017).

5. Shih also contends that the evidence is insufficient to support the guilty verdicts on these counts because the MMICs did not undergo post-manufacture, pre-export testing. We reject this contention because it relies upon the district court’s erroneous construction of the relevant EARs. *See supra* Discussion Part II.

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Shih plainly made misrepresentations to Cree. On Cree’s export compliance questionnaire, Shih falsely listed MicroEx as the customer. And, the jury could infer that Mai spoke on Shih’s behalf when falsely telling Cree that MicroEx would be “doing the design, testing and use of the MMICs.”

A reasonable factfinder could find those misrepresentations material. Dr. Barner testified that Cree typically does not provide its foundry materials to customers in China and would not ship wafers to China that contain proprietary technology. He also testified that access to Cree’s design portal was limited to authorized users covered by the Portal Design Kit Agreement and that Cree would have cut off Mai’s access had it known that Mai had shared his login credentials with third parties who had not signed the agreement.

The evidence also supports a finding that Cree was deprived of confidential information, a cognizable property interest under the mail and wire fraud statutes. *See Carpenter v. United States*, 484 U.S. 19, 22-26, 108 S. Ct. 316, 98 L. Ed. 2d 275 (1987). Cree limited access to its portal—which contained confidential information about Cree’s design process—to authorized users. A rational factfinder could find that Shih deprived Cree of that information when Mai shared his login credentials with Shih and other unauthorized users.

Nor were the wire and mail fraud convictions based upon a right-to-control-property theory, an invalidated theory under which a defendant could be found “guilty

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of wire fraud if he schemes to deprive the victim of potentially valuable economic information necessary to make economic decisions.” *Ciminelli v. United States*, 143 S. Ct. 1121, 1124, 215 L. Ed. 2d 294 (2023) (cleaned up). The government’s second superseding indictment and trial strategy did not rest on that theory. *Cf. id.* at 1125. Rather, the government has always argued that Cree was deprived of its confidential information because it would not have provided the information but for Shih’s fraud. Nor was the jury improperly instructed about what constitutes “property.” *Cf. id.*

C. Computer Fraud

To establish computer fraud, the government was required to prove that Shih conspired to (1) intentionally access Cree’s portal without authorization, (2) in furtherance of a criminal act. *See* 18 U.S.C. § 1030(a)(2)(C), (c)(2)(B)(iii).

A rational factfinder could find that Shih and his Chengdu RML colleagues were not authorized to access the Cree web portal. The evidence was also sufficient to establish that Shih gained unauthorized access to the portal through Mai by hiding his identity from Cree, despite his familiarity with the Portal Design Kit Agreement. Moreover, a rational factfinder could reject Shih’s argument that he was authorized to access the portal as a consultant for JYS Technologies. Although Shih argues that JYS had agreements with MicroEx, Mai testified that MicroEx never did any work for JYS. Because sufficient evidence also supports the verdict on

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at least one of Counts 1 through 8, a rational factfinder could find that the unauthorized computer fraud access was in furtherance of a specified crime.

D. Money Laundering

Shih contends that the Count 10 conviction cannot stand because the money laundering was alleged to further the unlawful activity specified in Counts 1 through 9, which he argues that the government did not prove. Because we reject his attacks on those counts, we affirm the conviction on Count 10.⁶

IX. Classified Information Procedures Act

Before trial, the government filed an *ex parte, in camera* motion requesting that the court find certain classified information not discoverable or, in the alternative, that the information need not be disclosed under Section 4 of the Classified Information Procedures Act (“CIPA”), 18 U.S.C. app. 3.

When considering a motion to withhold classified information from discovery, a district court must first determine whether . . . the information at issue is discoverable at all. If the material at issue is discoverable, the court

6. Shih also argues that the convictions on Counts 1, 9, and 10 should be vacated because they included a legally invalid object or predicate offense. *See Skilling v. United States*, 561 U.S. 358, 414, 130 S. Ct. 2896, 177 L. Ed. 2d 619 (2010). Because we find no legal flaw underlying those counts, we reject the argument.

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must next determine whether the government has made a formal claim of the state secrets privileges, lodged by the head of the department which has actual control over the matter, after actual personal consideration by that officer.

United States v. Sedaghaty, 728 F.3d 885, 904 (9th Cir. 2013) (cleaned up).

The district court followed this procedure and determined that none of the allegedly classified material was discoverable. Shih contends that he was denied due process. However, we have stated that precisely such a “challenge . . . is a battle already lost in the federal courts,” noting that “in a case involving classified documents, [] *ex parte*, *in camera* hearings in which government counsel participates to the exclusion of defense counsel are part of the process that the district court may use in order to decide the relevancy of the information.” *Id.* at 908 (cleaned up).⁷

X. Cumulative Error

“In some cases, although no single trial error examined in isolation is sufficiently prejudicial to warrant reversal, the cumulative effect of multiple errors may still prejudice a defendant.” *United States v. Frederick*, 78 F.3d

7. Shih also asserts that “the district court incorrectly found that the submitted classified information was not ‘material to preparing the defense.’” We decline to consider this argument because it was first raised in Shih’s reply brief. *See Cedano-Viera v. Ashcroft*, 324 F.3d 1062, 1066 n.5 (9th Cir. 2003).

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1370, 1381 (9th Cir. 1996). But, “many of [Shih’s] alleged errors are not errors at all.” *United States v. Lindsey*, 634 F.3d 541, 555 (9th Cir. 2011). And, Shih has not established that any errors made his defense “far less persuasive than it might otherwise have been.” *Parle v. Runnels*, 505 F.3d 922, 927 (9th Cir. 2007) (cleaned up).

CONCLUSION

We **REVERSE** the judgment of acquittal on Count 2 and order reinstatement of the guilty verdict on that count, **AFFIRM** the convictions on all other counts, and **REMAND** for further proceedings consistent with this opinion.⁸

8. Shih’s motion for judicial notice of two government manuals and two agency specifications, **Dkt. 92**, is **GRANTED**.

**APPENDIX B — ORDER OF THE
UNITED STATES DISTRICT COURT FOR THE
CENTRAL DISTRICT OF CALIFORNIA,
FILED APRIL 22, 2020**

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CRIMINAL MINUTES - GENERAL

Case No. LA CR18-00050 JAK (1)

Date April 22, 2020

Present: The Honorable John A. Kronstadt,
United States District Judge

Interpreter N/A

Cheryl Wynn
Deputy Clerk

Not Reported
Court Reporter/Recorder

Not Present:
Melanie Sartoris; Judith A. Heinz;
Khaldoun Shobaki; William Rollins;
James C. Hughes
Assistant U.S. Attorney

U.S.A. v. Defendant(s):
Yi-Chi Shih

Present

Not

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Attorneys for Defendants:

James W. Spertus;

Christa L. Culver;

Michael A. Brown

Present

Not

*App.**Ret.*

X

**Proceedings: (IN CHAMBERS) ORDER GRANTING
IN PART AND DENYING IN PART DEFENDANT'S
MOTION FOR JUDGMENT OF ACQUITTAL (Dkt.
633) AND DENYING DEFENDANT'S MOTION FOR
NEW TRIAL (Dkt. 634)**

I. Introduction

On June 26, 2019, following a 22-day jury trial, Defendant Yi Chi-Shih was convicted of all 18 counts charged in the Second Superseding Indictment (“SSI”). Dkt. 569. On October 4, 2019, pursuant to an agreed upon briefing schedule, Defendant filed a Motion for Judgment of Acquittal Pursuant to Fed. R. Crim. P. 29 (“MJOA”) (Dkt. 633) and Motion for New Trial Pursuant to Fed. R. Crim. P. 33 (“Motion for New Trial”) (Dkt. 634) (together, the “Motions”). On November 1, 2019, the Government filed Oppositions to Defendant’s Motions. Dkt. 645; Dkt.

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647. Defendant then filed reply briefs in support of both Motions. Dkt. 650; Dkt. 651. The Government responded with a Sur-Reply. Dkt. 652. Defendant filed a Motion to Strike or, in the alternative, Response to Government's Sur-Reply. Dkt. 654.¹

A hearing was held on Defendant's Motions on December 19, 2019, at which time the Court noted it would take the matter under submission upon the parties' additional briefing or upon notice that no additional briefing would be filed. Dkt. 681. On December 23, 2019,

1. In a footnote, Defendant moved to strike the Government's Sur-Reply because it was filed without leave to do so, required by Local Rules. Dkt. 654 at 1 n.1. Although arguments raised only in footnotes may be deemed to have been waived, Defendant's request to strike is addressed. *See Estate of Saunders v. Comm'r*, 745 F.3d 953, 962 n.8 (9th Cir. 2014) (declining to address an argument raised only in an opening brief footnote and reply brief because "[a]rguments raised only in footnotes, or only on reply, are generally deemed waived."). Local Rule 7-10 provides that "[a]bsent prior written order of the Court, the opposing party shall not file a response to the reply." L.R. 7-10. "The decision as to whether to allow a surreply is within the court's discretion, though the discretion should only be exercised in favor of allowing the surreply when there is a valid reason for the additional briefing." *Cleveland v. Janssen Pharm.*, No. CV 2:16-02308 MCE (ACPS), 2019 WL 6114719, at *1 (E.D. Cal. Nov. 18, 2019), *report and recommendation adopted*, 2020 WL 1157724 (E.D. Cal. Mar. 10, 2020). Because many substantive issues have been presented through the briefing and at the hearing, it is appropriate to consider all arguments on the regulatory interpretation dispute. Further, Defendant had an opportunity to respond to the Sur-Reply in writing and at the hearing. Therefore, because there is no showing of prejudice to Defendant by permitting the Sur-Reply, the Court exercises its discretion and does so. Therefore, Defendant's Motion to Strike is **DENIED**.

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the parties filed a notice that no additional briefing would be filed. Dkt. 680.

For the reasons stated in this Order, Defendant’s MJOA is **GRANTED IN PART** and **DENIED IN PART**, and Defendant’s Motion for New Trial is **DENIED**. Defendant’s MJOA is granted as to Counts One and Two, but denied as to all other counts, and Defendant’s Motion for New Trial is denied in its entirety.

II. Factual Background

A. Overview

The evidence discussed in this section concerns the facts most relevant to Defendant’s Motions. The discussion does not address all the evidence presented by the Government at trial about the export conspiracy violation or the other charges.

Defendant was convicted of, *inter alia*, conspiring to violate, and violating the International Emergency Economic Powers Act (“IEEPA”) by exporting Monolithic Microwave Integrated Circuits (“MMICs”)² to the People’s

2. A MMIC is an integrated circuit. Dkt. 619 at 12–13. MMICs are manufactured on wafers; in this matter the wafers were four-inch discs. *See id.* at 21–22. The MMICs are collected on a “reticle”, which is a piece of glass that is used to do the imaging when manufacturing the circuits. *Id.* at 19. That reticle is the pattern that is repeated like a stamp across a wafer. *Id.* The wafer is then placed on a substance similar to packing tape and may be sawed or diced into individual integrated circuits. *Id.* at 22. Those individual circuits are the MMIC

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Republic of China (“China”) in violation of the Export Administration Regulation (“EAR”). The charges against Defendant are premised on this export conspiracy and violation. The export conspiracy was alleged to have been in place from January 2006 to January 2016, and the actual export at issue occurred in January 2014.

At trial, evidence was presented that, as part of the export conspiracy and violation, the MMICs at issue (the “Cree MMICs”) were designed by individuals in China with Defendant’s assistance and under his direction. They were then manufactured by Cree, a United States-based company that operates a foundry.³ Defendant and others then worked together to send the Cree MMICs to China through a very circuitous process, which the Government contends was intended to conceal the shipments. The Government also presented evidence that the Cree MMICs had practical applications, including in military devices, and that the intended customer for the Cree MMICs was AVIC 607, a Chinese entity.

power amplifiers. *Id.* at 22–23. The MMICs at issue in this case were MMIC power amplifiers. However, in this Order they are referred to as MMICs to simplify the discussion and to be consistent with the use of this term in the briefing by the parties.

3. This type of foundry is used to manufacture integrated circuits, including MMICs. Dkt. 619 at 14.

*Appendix B***B. Defendant**

Defendant is an electrical engineer who has published many research papers and obtained many patents during his career. *See, e.g.*, Ex. 3204, 3207–24, 3227–31, 3273–87, 3290, 3292–97, 3321, 3324–26, 3301–19, 3330–31, 3341–56, 3358–84, 3386–3399, 3974–76, 3999, 4060–61. Defendant has worked for several defense contractors in the United States. During closing argument, defense counsel conceded that Defendant was familiar with the export laws of the United States. *See* Dkt. 671 at 8. Defendant also worked as an adjunct professor in the electrical engineering department of UCLA during the same time period when the conspiracy was operating. Dkt. 665 at 42–45; Dkt. 639-1 at 347–89 (Ex. 4299).

C. Chengdu Gastone and Chengdu RML

Defendant and others established Chengdu Gastone Technology Company (“Chengdu Gastone”), which is a foundry located in China. *See* Dkt. 622 at 43; Dkt 591 at 69; Ex. 153A. Defendant began serving as president of Chengdu Gastone in mid-2011. Dkt. 593 at 50. Although the precise date is unclear, Defendant’s role at Chengdu Gastone changed sometime in 2014 or 2015. *See* Dkt. 511 at 518; Dkt. 517 at 52–53; Dkt. 536 at 20; Dkt. 665 at 11–13; Ex. 700; Ex. 705; Ex. 732.

Defendant also performed work for Chengdu RML Technology Company (“Chengdu RML”), a Chinese entity involved in circuit research and design. *See* Dkt. 581 at 40; Dkt. 590 at 80–81; Dkt. 591 at 16, 74; Dkt. 622 at 43. In connection with the alleged export conspiracy and

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violation, Defendant worked with individuals employed by Chengdu RML to design the Cree MMICs. *See* § II.E, *infra*. Peter Mattis, an expert witness called by the Government, testified that Chengdu RML appeared to be staffed by one or two individuals who are related to the Chinese government. Dkt. 517 at 15–16. He also testified that they appeared to act as facilitators who connected people outside China to companies inside China for the purpose of developing cooperative agreements between them. *Id.*

The Government argued that the establishment of Chengdu RML and Chengdu Gastone was the result of a plan formulated in 2006 by Defendant and others to develop and improve the MMIC design capability and foundry services in China. *See* Dkt. 595 at 70–71; Ex. 204A. Chengdu RML became the design entity and Chengdu Gastone became the foundry entity under this plan. *See* Dkt. 595 at 70–71.

In 2014, the U.S. Department of Commerce, which is the federal agency charged with promulgating the EAR, placed Chengdu Gastone on the Department’s entity list. Dkt. 535 at 44.⁴

4. The EAR contains particular license requirements for the export of specified items to those parties that are on the entity list. A party is placed on the entity list based on a determination that the party has been involved in actions or other conduct that is adverse to the interests or foreign policy of the United States. Dkt. 535 at 19–20. As a result, even if an item might not otherwise be export controlled, it may be so controlled if it is to be exported to a party on the entity list. *Id.* at 16, 42–43.

*Appendix B***D. Procuring the Cree MMICs****1. Background**

Kiet Anh Mai (“Mai”), an alleged co-conspirator who had entered a plea of guilty prior to the trial, cooperated with the Government and testified at trial. Mai and Defendant previously worked together in other enterprises. As a result, they had known each other for approximately 12 years at the time that Defendant approached Mai about procuring MMICs from Cree. Dkt. 506 at 36. Defendant told Mai that if Defendant procured the MMICs from Cree through UCLA, it would result in a 40% surcharge. Dkt. 522 at 48. Defendant offered to pay Mai a 20% commission to procure the MMICs from Cree. *Id.* Mai accepted Defendant’s offer, and then proceeded to contact Cree. *Id.* at 48–49.⁵

Dr. Jeffrey Barner, who was in charge of Cree’s foundry services, testified about them. He stated that these services included providing customers with access to the Cree web portal, which contains design software -- the Process Design Kit (“PDK”) -- that customers can use to design MMICs. He also testified that Cree provides assistance to customers during the design process so that they can submit a design that can be manufactured successfully. Dkt. 511 at 124–25, 127–29. Once a customer

5. Mai ultimately procured two wafer runs from Cree; each consisted of four wafers. Although evidence of both Cree wafer runs was presented at trial, the subject of the export conspiracy and violation concerned the first Cree wafer run. All references to Cree MMICs are to that wafer run.

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submits a final design, the Cree foundry uses it to manufacture the physical MMIC.

2. Concealing Defendant's Identity from Cree

When Mai communicated with Cree representatives, he did not disclose that he was working with Defendant or that the MMICs were being manufactured at the direction of, and for Defendant. Rather, Mai contracted with Cree for the manufacture of the MMICs purportedly on behalf of his own company, MicroEx. Mai created that company for certain engineering jobs that he performed. Dkt. 506 at 36. When Mai communicated with Cree, he was in essence the voice and intermediary of Defendant, who provided the information that Mai was to present to Cree. Dkt. 522 at 67. Mai explained that his efforts to conceal Defendant's identity from Cree was consistent with his regular business practice of not revealing the identities of his customers to vendors. *See id.* at 59, 65; Dkt. 507 at 37–39.

3. The Export Questionnaire

When Mai first contacted Cree, Dr. Barner asked Mai to complete an export questionnaire and sign what is called the "PDK Agreement." Cree provided Mai with its standard export questionnaire. Mai forwarded it to Defendant to complete. Dkt. 522 at 51–54. On the export questionnaire, Defendant stated that the MMICs to be manufactured were "Prototype circuits to validate design concepts utilizing high Vbr for wideband, highefficiency power amplifiers." Dkt. 635-1 at 15 (Ex. 6). Defendant

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also listed the approximate frequency of the MMICs as up to 18 GHz and the approximate power up to 10W. *Id.* Further, Defendant wrote that the MMICs would not be subject to export control regulations, including the EAR. He wrote “N/A” on the questionnaire in response to a question whether the product would be shipped outside of the United States. *Id.*

Upon receiving the completed questionnaire, Dr. Barner followed up with Mai. He asked Mai whether MicroEx would be designing, testing and using the MMICs. *See* Dkt. 511 at 158; Dkt. 635-1 at 22 (Ex. 10). Mai responded affirmatively (Dkt. 635-1 at 22), although at trial Mai admitted this was not true. Dkt. 522 at 59. Mai said that Defendant did not direct Mai to make that statement; Mai made it on his own. Dkt. 588 at 49. Mai also testified that Defendant never asked Mai to say anything to Cree that Mai believed was untruthful. *Id.* at 51.

Dr. Barner did not believe that the representation that the MMICs would not be subject to export control regulations was correct based on the power level and frequency range of the MMICs. Dkt. 511 at 158–59. However, he did not ask Mai about this or to correct the form. *Id.* Instead, Cree proceeded with the manufacturing process. *Id.* Dr. Barner explained that there was no further action needed regarding these representations on the export questionnaire because Mai represented that the products would not be exported. *Id.* at 167–69.

*Appendix B***4. The PDK Agreement and Cree's Web Portal**

Cree's web portal is only accessible to customers who have signed the PDK Agreement. Dkt. 511 at 106. Therefore, the web portal is not accessible to the general public. *Id.* at 128–29. Through Cree's web portal, customers can access the PDK, as well as folders that contain data reports and foundry manuals. *Id.* at 127–29. The foundry manuals describe all of the layers in Cree's process on how to design and layout custom circuits. *Id.* at 131. Cree controls what a customer can access through the web portal based on the specific customer. *Id.* at 127–29. The web portal is also used to exchange information between Cree and its customers during the design process. *Id.* at 127–28.

The PDK Agreement also provides additional restrictions regarding the use and confidentiality of Cree's products contained in the web portal or otherwise shared with customers. *Id.* at 106; Dkt. 635-1 at 16–19 (Ex. 6). The typical Cree customer is a company or educational institution. Dkt. 511 at 107. Consequently, the PDK Agreement allows portal access to employees of customers. *Id.* When providing access to its web portal, Cree sets up a unique user name and password for each employee who will be given access to the web portal. *Id.* at 117. The login page of Cree's web portal also contains a warning that if the user has not been given authorization by Cree, the user should leave the page. *See* Dkt. 593 at 64; Ex. 69.

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When Cree was setting up portal access for MicroEx, Mai requested only one username and password, which was for himself. Dkt. 511 at 117. Dr. Barner testified that Mai was not authorized to give that username and password to someone outside of MicroEx, and that, if Mai did so, that person would not be authorized to access the Cree web portal. *Id.* at 117–18. Dr. Barner explained that if Mai had disclosed that he was going to use a third party to do the design, Dr. Barner would have asked to have that third party sign the PDK Agreement so that the third party would be subject to its terms and could properly access Cree’s web portal. *Id.* at 114.

5. Defendant’s Access of the Cree Web Portal

Mai shared his Cree web portal login credentials with Defendant. Dkt. 522 at 63–64, 72; Ex. 284. Mai testified that he believed that he could share that information with Defendant. Dkt. 588 at 49. Mai also admitted that, although he signed the PDK Agreement, he did not read its terms and conditions. *Id.* at 84–85. Mai also sent Defendant a copy of the PDK Agreement. Ex. 274.

In addition to Mai’s admission that he shared the Cree web portal login credentials with Defendant, the Government presented evidence that Defendant accessed Cree’s web portal. This included evidence that Cree foundry manuals, which were accessible through Cree’s web portal, were found on Defendant’s personal computer. *See* Dkt. 511 at 131–33; Dkt. 591 at 78.

*Appendix B***6. Dr. Barner's Testimony Concerning Cree's Work with Customers in China**

Dr. Barner testified about Cree's willingness to work with customers in China as well as the harm that might occur if Cree's products were shared with persons in China.

As to Cree's general willingness to work with customers in China, Dr. Barner testified that when Cree had received inquiries in the past from prospective customers in China, he would reply that Cree was disinclined to contract with Chinese entities given that it was unlikely that such entities would receive an export license from the Department of Commerce for manufactured products. Dkt. 511 at 108. Dr. Barner also explained that, if Mai had disclosed that he planned to work with designers in China, Dr. Barner would have had a much more in-depth conversation with Mai, particularly as to export compliance. *Id.* at 109. Dr. Barner further explained that whether or not a company is located in China, the company would nevertheless need an agreement in place with Cree to access Cree's web portal. *Id.*

As to the Cree wafers, Dr. Barner testified that the process used to manufacture wafers is intellectual property owned by Cree. Dkt. 521 at 25. Dr. Barner explained that, when a customer was provided with a finished Cree wafer it would not result in the disclosure to the customer of everything about Cree's manufacturing process. Dkt. 506 at 9–10. However, with the right analytical tools, a customer could use the finished product to gain a very significant amount of information about the Cree manufacturing process. *Id.* Further, if Cree ships

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an undiced wafer, it contains process control monitors (“PCMs”), which are test structures designed by Cree, that also contain Cree’s proprietary information. Dkt. 511 at 123. A customer could learn additional information about Cree’s design process from the PCMs. *Id.* Cree would never ship an undiced wafer with PCMs in it to China. *Id.* Dr. Barner also explained that if someone were trying to reverse engineer a Cree wafer, it would be helpful to that person to have the PCMs. Dkt. 506 at 17–18.

Finally, as to the Cree foundry manuals, to the best of Dr. Barner’s knowledge, Cree would not release a foundry manual to a customer in China. Dkt. 511 at 132. Release of such a manual publicly would harm Cree because it would allow people to reverse engineer Cree’s processes, giving those competitors an unfair advantage. *Id.* Dr. Barner also confirmed that if someone established a foundry in China similar to Cree’s by using such information, it would permit it to compete unfairly with Cree, with resulting financial harm. *Id.* at 134–35.

E. Design of the Cree MMICs & Electronic Simulations

The Cree MMICs were designed by employees of Chengdu RML in China with the assistance of Defendant using the PDK supplied through the Cree web portal. *See* Dkt. 591 at 19, 23–24. When Mai received questions from Cree about the design of the MMICs, he would email Defendant, who on certain occasions would then email persons at Chengdu RML about the inquiry. *Id.* at 26.

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The Government presented evidence that, as part of the design process, Chengdu RML designers conducted electronic simulations on the designs to specify the outputs of the MMICs. Dr. Christopher Nordquist, an expert witness called by the Government, explained how electronic simulations work. He testified that computer-aided design software can take the electronic representations of the components of an integrated circuit and run electronic simulations, which would show a performance similar to the one on the integrated circuit that the designer is seeking to build. Dkt. 619 at 15–16. Dr. Nordquist described electronic simulations as “a way to predict what you’re actually building and verify your design.” *Id.* at 16. Dr. Barner also explained that, by using Cree’s design kit, an experienced MMIC designer would be able “pretty accurately” to predict the power output and performance of a MMIC. Dkt. 506 at 13–14. Dr. Barner then explained that it was more difficult to predict reliably the frequency range that a MMIC would generate, or at which it would operate, because it is very difficult to get all the potential, relevant factors correct the first time. *Id.*

Carlos Monroy, who is the Licensing Officer of the Department of Commerce, Bureau of Industry and Security (“BIS”),⁶ also testified. He stated that if something has been designed, but not yet manufactured, he could use electronic simulations to specify how the item would work in the design stage before development and production. Dkt. 535 at 95.

6. The BIS is the division of the Department of Commerce that is charged with the administration of the EAR.

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Special Agent (“SA”) Alex Storino testified about several emails between Defendant and Chengdu RML designers in China that were entered into evidence. They suggested that electronic simulations had been performed during the design process of the Cree MMICs. Dkt. 591 at 24–27 (discussing exhibits 2736, 2737, and 2738). SA Storino discussed an email in which someone asked for a simulation on a MMIC design, which Storino interpreted to be a request for a simulation to determine if the circuit would perform in the desired and planned manner. *Id.* at 25. SA Storino then discussed another email that referred to an electrical performance, which Storino interpreted to be the Defendant asking a Chengdu RML designer to conduct a simulation to confirm that any changes to the design made by Cree would not affect the performance of the MMICs. *Id.* at 26–27.

The names of the individual Cree MMICs (PA1-1020-A1, PA2-1020-A1, and PA2-1615-A1), which were part of the design file given to Cree (Dkt. 668 at 32), corresponded to their output. Dkt. 619 at 42–43.

F. Testing the Cree MMICs

A wafer from the first Cree wafer run was given to the FBI by a UCLA professor. The professor stated he had received the wafer from a graduate student who received it from Defendant. Dkt. 534 at 9–10. Dr. Nordquist tested the MMICs on this wafer and determined that three of the Cree MMICs (PA1-1020-A1, PA2-1020-A1, and PA2-1615-A1) had outputs that made them subject to export control. Dkt. 619 at 47–51. Dr. Nordquist also explained that the Cree MMICs performed consistently with their designs. *Id.* at 50–51.

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Dr. Nordquist testified that he would expect that the MMICs with the same design on each of the wafers would have the same performance. *Id.* at 63–64. BIS Licensing Officer Monroy explained that if one MMIC on a wafer was export controlled under the EAR, then the entire wafer would be export controlled. Dkt. 535 at 27–28.

Dr. Nordquist’s testing on the Cree MMICs occurred in 2018. *See* Dkt. 619 at 65. The export of the Cree MMICs occurred in January 2014. *See* Ex. 148, 149, 312, 1301, 1302, 1303, 2124A, 2743A, 2746A.

G. Practical Applications of the Cree MMICs and AVIC 607

During the trial, the Government presented evidence to support the claim that the Cree MMICs had practical applications, including military ones. It also claimed that AVIC 607, a Chinese entity, was the customer of the Cree MMICs. The evidence presented by the Government to support these positions included the following:

- i. Mattis testified that China Avionics Systems Co. Limited is “a state-owned enterprise that is active in all parts of the aerospace industry.” Dkt. 517 at 16–17. He also testified that AVIC 607 is “a subsidiary of the larger body, and it seems to be focused on electronic components that might -- or that could be used in missiles or missile guidance systems.” *Id.* at 17.
- ii. In February 2010, Defendant sent an email to his brother that included a business proposal. It explained that, because certain high-end

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technologies were in “the hands of the United States, Japan, and a handful of European countries, and also because of the urgent needs in defense military applications, we are strictly locked out by the western countries.” Ex. 245A. This proposal also stated that the “project market” in China for wafers included “military units.” *Id.*

- iii. On October 27, 2010, the minutes from a meeting held by Chengdu Ganide, a Chinese company for which Defendant was a director, were emailed to Defendant. The materials also included business plans. Dkt. 635-1 at 58–74 (Ex. 253A). One portion of these plans projected “specialty income” from “missile tip guidance” for 2011 through 2014. *Id.* at 65.
- iv. A document was found on Defendant’s computer titled the “GaN Chip Project (Z5) Implementation Plan VO 1.” Dkt. 635-1 at 135–41 (Ex. 2106A). The beginning section of the Z5 Plan stated that “[t]he development and implementation plan of the GaN chip project (code named Z5) contains mainly an introduction to the project and the cost and risk analysis of the project.” *Id.* at 138. The following introduction was provided about the project:

Ever since September 2012, General Manager Lu of China Avionics Systems Co. Ltd. has presided over in person the company’s five subsidiaries

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that engage in business involving avionics micro electronics systems and conducted exchange sessions in Chengdu. The RML Company that is in charge of designing the radio frequency chip put together a special project team. And based on the characteristics of the airborne needs of the 607, the RML Company has launched its research on the wide frequency band and high power GaN chip (code named Z5). Based on the contents of the meeting on March 13, 2013 between China Avionics Systems Co., Ltd. and the RML Company, the GaN chip project is launched. The project will be a cooperation between Chengdu RML and 607 to jointly conduct research and develop the Z5 chip.

Id.

- v. The Z5 Plan also explained that the human resources dedicated to the project included a team led by Defendant. *Id.* at 141. In addition, the Z5 Plan stated that a “high performance .25um GaN processing line from overseas” would be used as a short-term solution, and “at the same time” the goal was to “develop high performance chip through conducting joint and ongoing research with GaStone processing line in

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the areas of processing and transistor modeling.” *Id.* The Government argued that Cree was this processing line from overseas. Dkt. 595 at 90–92. In support of this position it cited evidence that when, on behalf of Defendant, Mai first asked Cree about manufacturing the MMICs, Mai stated that he “was interested in the Full-Wafer Service for GaN, 0.25um process.” Dkt. 635-1 at 13 (Ex. 6). SA Storino also testified that Z5 referred to the Cree wafers that were part of the first Cree wafer run. Dkt. 591 at 37.

- vi. The Z5 Plan stated that the project would “[t]ake advantage of the experience accumulated by the RML Company in the area of high power Active Electronically Steered Antenna devices.” *Id.* Dr. David Sandison, an expert witness called by the Government, testified that an “active electronic scannable array, sometimes called a steerable array[,]” is “the front end of a missile radar system that allows the radar to track objects without having any moving parts.” Dkt. 663 at 122. And, “gallium nitride and gallium arsenide are technologies used in those missile systems.” *Id.*
- vii. A Chengdu Gastone PowerPoint presentation, dated October 10, 2013, was found on Defendant’s computer. Dkt. 663 at 116; Ex. 2017A. It described “AVIC607” as a major customer for GaN high-electron mobility transistors (“HEMT”) “first batch of specialty products,” and projected sales from 2014 through 2018. Dkt. 663 at 125; Ex.

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2017A. The presentation also contained an image of an Active Electronically Steered Antenna missile borne-radar seeker. *See* Dkt. 663 at 124–25; Ex. 2017A.

- viii. A series of emails were exchanged between June 17, 2013 and June 20, 2013 by Defendant and others with the subject line “Regarding the reliability of Z5 chip.” In them, the parties discussed the demands of the customer for the Z5 concerning the MMICs’ performance and specifically reference “607.” Dkt. 580-5 (admitted as Exhibit 2719A at trial); Dkt. 580-6 (admitted as Exhibit 2721A at trial).
- ix. Defendant received minutes on July 9, 2013 from a board meeting where the market for the Z5 was discussed. Dkt. 511 at 31–33; Ex. 2722A.
- x. Dr. Nordquist testified that the Cree MMICs were optimized for X-band and Ku-band frequencies, which can be used in electronic warfare applications. Dkt. 619 at 30–33.

H. Closing Arguments

Defendant argues that the Government’s statements during its rebuttal closing argument that the customer for the Cree MMICs was AVIC 607, and that AVIC 607 developed missiles, were improper. Dkt. 634 at 44. The following is the relevant excerpt of the Government’s argument:

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And if the defendant was simply developing cell phones, he never would have tried to sell U.S. microchips to a customer in China that develops missile guidance systems. . . . There is no innocent explanation for the fact that a file on defendant's hard drive here in Los Angeles showed that the customer for the Cree chip was AVIC 607, which you heard develops missiles and missile guidance systems for China. That's Exhibit 2106A.

Dkt. 671 at 90–91.

Defendant argues that the prejudicial effect of this argument increased when the Government used the words “military” and “missiles,” as well as the term “code name” in referring to the Z5 project, stated that Defendant's research position at UCLA was a “perfect cover” for his unlawful actions and described this evidence as “scary.” Dkt. 634 at 45–46. Defendant contends that these statements implied that Defendant was a spy. The following are some relevant excerpts of the Government's rebuttal closing argument:

Now, if that evidence [referring to AVIC 607 being a customer for the MMICs] is scary, then ask yourself what was it doing on the defendant's hard drive in Los Angeles.

Dkt. 671 at 91.

Exhibit 245A. If the defendant was focused on gallium arsenide, then why is he e-mailing his brother a proposal explaining that China is,

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quote, strictly locked out of high-end materials by western countries and that the market for GaN wafers includes, quote, military units?

Id. at 96.

And remember, the fact that the defendant also had expertise in gallium arsenide chips and the fact that he also wanted to make money with civilian applications for gallium arsenide chips, gallium arsenide applications, doesn't mean that he didn't want to make even more money with gallium nitride chips for military application. That's exactly what the evidence in this case proves he did. And it's also exactly why the defendant e-mailed his brother meeting minutes saying that the five-year business plan for Chengdu Ganide included income for things like missile-tip guidance. That's Exhibit 253A.

Id. at 96–97.

If the defendant was just doing research at UCLA, why use a code name for the Cree wafer? Why call your academic research work with your students the Z5 project? Why turn around and sell the Z5 project to 607? That's not research.

Id. at 97.

The defendant had the perfect cover, the perfect research lab in the United States, and Chinese government-backed entities were willing to

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pay him millions of dollars for that and for that access.

Id. at 97.

You'll see the topics of discussion included the Z5 chip and that there were two markets that the defendant and his co-conspirator were interested in -- the upward and high-end market and the downward or civil-use market. The plan was to focus the KU band and the X band on the domestic special market. The phrase domestic special market is code for military.

Id. at 98.

Scary or not, that's what the evidence is in this case. And there is no innocent explanation for statements like that, all of which show the defendant's involvement in the conspiracy and his consciousness of guilt.

Id. at 106.

The Government responds to Defendant's position about the use of the word "scary," by arguing that it was an appropriate reply to Defendant's arguments that the Government was trying to scare the jury. Dkt. 647 at 45–47. The Government has provided examples of what it contends are such statements by Defendant's counsel in closing argument:

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I want to spend some time on distracting with fear. I'm going to budget myself six minutes because this they did in closing and they did throughout the trial with the references to military and missiles and radar. And it is wrong. And those dimensions have nothing to do with the crimes you're evaluating. It's designed to scare you. Wow. Without telling you why we listed CGTC on the entity list, here's a publication that says it's in the national security interest; therefore, be afraid. Help us. Let's take an American scientist out of the field that he's practicing in.

Dkt. 671 at 83.

Now, until the mic disconnects, I'm going to focus on this distraction with fear because it permeated the government's case and argument, and I guarantee you all of the rebuttal will be you don't know if there's a MMIC right now in a missile in China circling over Russia. I mean, you're going to hear that. You're going to hear them saying imagine bad things. Don't think of science and research. So the references to dual use, missiles, radars, it all comes down to, even in closing, this line: Dr. Shih did a PowerPoint, and it was done in 2013 when he was at CGTC trying to explain why people should invest in the foundry.

Id. at 84–85.

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So he walked through the PowerPoint explaining things that the government drew his attention to. What is that? That's a missile. Here's a big boat. Here's another big boat on water. I really want to emphasize that, okay, because the government is trying to scare you with this testimony.

Id. at 85.

Dr. Shih is proposing something that's only civilian. It has no military application. Dr. Sandison confirmed this. This is where I was asking Sandison: Would anybody buy for military use a GaNon- silicon chip? No. The failure rate is too high for military standards. I also asked him about dual use. And remember, he confirmed, yeah. M&M's is military Mars. Everything that a military uses is dual use. I mean, trying to keep milk chocolate from melting in the hands of army soldiers is a dual use technology. Don't let the government use that term to scare you into convicting an American scientist.

Id. at 87.⁷

7. Several days after closing arguments, but before the jury reached its verdict, Defendant filed a one-page objection to the Government's rebuttal closing argument. Dkt. 551. After the jury reached its verdict, the Government filed a response to Defendant's objection. Dkt. 580. The Court deferred the matter for presentation in connection with Defendant's Motions. Dkt. 586.

*Appendix B***I. Underlying Facts Related to Defendant's Argument that He Was Deprived of the Opportunity to Present a Complete Defense**

Defendant presented a multi-part defense during the trial. Among other things, he argued that the Cree MMICs were never sent to China, that the Cree MMICs were technology that fell under the fundamental research exception to the EAR, that Cree was not defrauded and that general access to the Cree web portal was not restricted. In the Motion for New Trial, Defendant argues that he was prevented from presenting a complete defense due to the exclusion of certain exhibits and areas of cross-examination.

1. Internal Cree Emails

During Defendant's cross-examination of Dr. Barner, Defendant sought to introduce internal Cree emails sent by Dr. Barner, which Defendant argued established that Cree's concern was its profits not export compliance. Dkt. 511 at 169–71. The Government's objection to the introduction of those exhibits was sustained under Fed. R. Evid. 402 and 403. *Id.* at 170. The Court provided an explanation for the rulings outside the presence of the jury:

These exhibits, as I understand them, concern assurance of payment for services that are going to be provided. And I think that's sufficiently distant from the issue of compliance and knowledge of the export regulations, that

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it's not necessary. And I think that the issue of compliance with the export regulations was already covered in the prior examination of the witness in terms of the communications he had with others, as well as the questions that were asked concerning the EUS and other matters.

Id. at 176.

The following day, the Court gave further instruction to Defendant as to how Defendant might be able to establish a sufficient foundation for these exhibits:

So what you'll need to do is, to establish a basis to follow up -- some of it may have been covered. I'm not looking for something that's lengthy. But a basis upon which the witness who testified about his concerns concerning export limitations, his discussion then with the person at Cree who is there -- was at least at that time very involved in that issue, and the determination and -- I'm not going to state what the document states. But that they would go forward, at least initially, with this customer.

And then go back to what other events, if any, occurred on that issue during the relationship when the -- the business relationship as the wafers were being created so as to make these exhibits, which talk about payment, fit in.

Dkt. 521 at 20–21.

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Defendant later sought to admit the exhibits. *Id.* at 73–74. The Court stated that Defendant would have to establish a foundational basis for their relevance with respect to the arguments that defense counsel wished to make. *Id.* Defendant’s request to admit most of these emails was granted. This occurred after Dr. Barner had completed his testimony. Defendant published the emails during closing argument. Dkt. 671 at 31, 55–56; Dkt. 602-1 at 83–86.

2. YouTube Videos

Defendant sought to introduce seven YouTube videos during the cross-examination of Dr. Barner. Counsel argued that these videos undermined Dr. Barner’s claim that access to the Cree web portal was limited and its functionality not disclosed to the public. Dkt. 521 at 9–10. Defendant first sent these YouTube videos to the Government the night before Defendant sought to use them. *Id.* at 8. The Government argued that the videos did not impeach Dr. Barner’s claim about the Cree web portal and noted that a Cree employee only appeared in three of the seven videos. *Id.* at 11–13. After some discussion, Defendant offered to limit the request to the videos with Cree employees. *Id.* at 15. The Court deferred ruling on the issue because Defendant indicated that he might not use the videos. *Id.* at 15. During Defendant’s cross-examination of Dr. Barner, Dr. Barner confirmed that Cree posted YouTube videos showing the features of the PDK and how it can be used in design. Dkt. 521 at 51.

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On June 14, 2019, during Defendant's case-in-chief, the YouTube videos were again discussed. Dkt. 594 at 19–29. At the end of a lengthy colloquy with counsel for both sides, it was determined that Defendant would seek to lay the foundation for the videos with an upcoming defense witness and then the parties would reargue their positions about the admissibility of the videos. *Id.*

The parties addressed the issue of the videos again immediately before closing arguments. The Court ruled that the two videos that were Cree videos, along with another video that clearly referenced Cree, could be admitted. Dkt. 595 at 6–14. The Court denied Defendant's request to admit the others because they were cumulative, and it was less certain that those videos showed the Cree web portal. *Id.* at 14. Defendant indicated that he would not be publishing the videos during closing argument. *Id.* at 16–17.

3. Defendant's UCLA Personnel File

Defendant sought to introduce his UCLA personnel file. Defendant first provided the Government with copies of the file after Defendant obtained it by subpoena. Dkt. 594 at 7. This was on June 7, 2019, just before Defendant sought to introduce the file during the cross-examination of SA Storino. Dkt. 665 at 4. The Court instructed Defendant to identify the areas of Defendant's UCLA personnel file that Defendant would seek to use or were pertinent to the cross-examination of SA Storino. Based on those disclosures, the Court could evaluate the admissibility of the file, which the Court had also just received. *Id.* at 7–8.

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During cross-examination, SA Storino admitted that the FBI did not obtain Defendant's UCLA personnel file. *Id.* at 37–39. After SA Storino's testimony concluded for the day, the parties and the Court discussed the admissibility of Defendant's UCLA personnel file. *Id.* at 45–59.

The parties also discussed the admissibility of Defendant's UCLA personnel file on June 11, 2019 before SA Storino's testimony was scheduled to resume. Dkt. 592 at 17–21. During this discussion, the Court stated its preliminary views that the part of the file concerning employment history or engagement letter could be admitted, but the part about the resume or evaluations were not necessary for cross-examination of SA Storino. *Id.* at 18–19. At the end of the discussion, Defendant said that he would only show SA Storino one page from the UCLA personnel file, to which the Government did not object. *Id.* at 20. That page was admitted and published during Defendant's cross-examination of SA Storino. *Id.* at 24–25.

The parties and the Court again discussed the admissibility of Defendant's UCLA personnel file on June 14, 2019, before the defense rested. At that time, the Court clarified that it had not excluded the UCLA file entirely, it only excluded the admission of the file during cross-examination of SA Storino. Dkt. 594 at 6–7. The parties presented their arguments on the issue again. *Id.* at 8–9. The Government suggested that the parties confer on the issue during a break. *Id.* at 9. The Court proposed that the Defendant identify to the Government which pages he sought to publish, and then the Court could address

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any disputes. *Id.* at 10–11. Defendant indicated that this was an acceptable plan. *Id.* at 10–11. Then, after more discussion, the Court noted its concerns that the file contained communications about the hiring process and additional matters that were not relevant to the issue of Defendant being a researcher or holding a position at UCLA. Dkt. 594 at 17–18. Defendant argued that the UCLA file was necessary to show that he was part of a close-knit engineering community at UCLA. *Id.* at 18. Defendant indicated that he was willing to confer with the Government about its objections. *See id.*

After the break following Defendant’s final witness, Defendant informed the Court that he had spoken with the Government to seek to narrow the issues, and suggested that the Court address the issues on the next court day, which was the following Monday. *Id.* at 93. The Court explained it was unavailable on that day, and Defendant suggested Tuesday. *Id.* at 93–94. A few moments later once the jury returned to the courtroom, Defendant moved to admit four exhibits from the UCLA personnel file into evidence, but they were not admitted or published to the jury at that time. *Id.* at 95.

Prior to closing arguments, after additional argument on the issue, the Court ruled that some of Defendant’s UCLA personnel file could be admitted. Dkt. 670 at 15–22. The Court sustained the Government’s objections to portions of Defendant’s UCLA personnel file because they were duplicative, not understandable on their own, or both. *Id.* at 19–22. The Court overruled the Government’s objections to other portions of Defendant’s file, allowing

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Defendant to introduce those specific portions. *Id.* Among the portions admitted were materials that showed Defendant disclosed his position at Chengdu Gastone to UCLA, and letters and materials that were generated in connection with Defendant's appointment to UCLA. *Id.* Defendant then incorporated some of the admitted portions of his UCLA personnel file into his closing argument, including in the PowerPoint presentation. Dkt. 602-1 at 49.

4. Defendant's Cross-Examination of Special Agent Miller

SA Maureen Miller was the team leader for the execution of the search warrant at Defendant's residence. Dkt. 517 at 42–43. This role included being the seizing agent, i.e., the one responsible for the overall execution of the search warrant and for taking possession and retaining custody of all things seized during the search. *Id.*

Defendant argues that because certain objections made during his cross-examination of SA Miller were sustained improperly, that examination was prejudiced and limited. The following portions of the trial transcript contain the questions, objections and rulings:

MR. SPERTUS: Do you personally, as the person in charge of seizing items from [Dr. Shih's] residence, wish an agent had told you about the Cree boxes?

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MS. SARTORIS: Objection, your Honor.

THE COURT: Sustained.

MR. SPERTUS: You're the filter between what's seized and not seized during the search, right, you personally?

SA MILLER: I was one of the filters, yes.

MR. SPERTUS: So with that foundation, do you wish an agent had told you that the box now in front of you bearing the label 'Kiet Mai' was in the office so that you can seize it?

MS. SARTORIS: Same objection, your Honor.

THE COURT: Sustained. This is – let's move on, please.

Dkt. 477 at 58–59.

MR. SPERTUS: Well, during the search, if an agent had approached you with the Cree boxes and said, 'Look what we found,' would you have decided to seize them?

SA MILLER: Yes.

MR. SPERTUS: So do you believe that agents under your supervision made mistakes?

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MS. SARTORIS: Objection. Foundation. We haven't laid foundation these are the actual boxes in the location.

THE COURT: Sustained.

Id. at 72.

MR. SPERTUS: If you were told about these Cree boxes, and since you have already testified you would have seized them, do you believe that agents under your supervision made a mistake by not telling you about them?

MS. SARTORIS: Objection. Speculation.

THE COURT: Sustained. Until the issue we've addressed at the side is resolved, it's an improper hypothetical.⁸ So let's move on, please.

8. The "issue" that is referenced is whether Defendant could establish the authenticity and chain of custody for the Cree boxes and their contents to which these questions refer. Defendant produced these boxes at trial, without any prior disclosure to the Government. Counsel represented that they were found at Defendant's residence and had, therefore, been overlooked during the search. At the time of the cross-examination, there had been no testimony about the authenticity or the chain of custody of the Cree boxes that was necessary to establish the premise for the cross-examination. That issue was deferred so that the necessary information could be provided to, and considered by the Government. *See id.* at 62–67. It was later resolved, and the Cree boxes were admitted into evidence.

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MR. SPERTUS: Your Honor, can I ask this witness any hypothetical questions?

THE COURT: You can ask hypothetical questions, but not ones that turn on that issue because we can address that later. and you can make arguments later. Let's move on, please. Thank you.

MR. SPERTUS: As you sit here today, knowing that the Cree boxes depicted in government Exhibit 793 were not seized, do you believe that seizing agents under your supervision made errors?

MS. SARTORIS: Argumentative.

THE COURT: It's the same question. Let's move on, please.

MR. SPERTUS: Your Honor, may I have a sidebar on this?

THE COURT: No. Let's move on, please.

MR. SPERTUS: Your Honor, may I have a sidebar on this?

THE COURT: No. Let's move on, please. Until the foundational issue is addressed, let's move on, please.

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Id. at 73–74.

MR. SPERTUS: If 793, which is your government agent photo, those boxes, if they bear the label -- address label to Kiet Mai and come from Cree, you would define that as a particularly significant item; correct?

MS. SARTORIS: Objection, Your Honor. Speculation.

THE COURT: You may answer.

[Witness confirms she understands the question and the question is repeated.]

SA MILLER: So in this photograph, the labels of these boxes are not depicted. So if these boxes were at the residence and had the label of ‘Kiet Mai’ – with the name ‘Kiet Mai’ on it, yes, they would have been a significant item.

MR. SPERTUS: And then you would consider it agent error if that agent hadn’t told you about it; right?

MS. SARTORIS: Objection, your Honor.

THE COURT: Sustained. Let’s move on, please.

Id. at 78–79.

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MR. SPERTUS: So as you sit here today, as the supervisor evaluating the agents who report to you during the search only, do you believe that agents under your supervision made errors by not bringing these Cree boxes to your attention?

MS. SARTORIS: Objection, your Honor.

THE COURT: Sustained.

Id. at 80–81.

Defendant also questioned SA Miller about the following: whether the agents saw the Cree boxes, which Defendant argued contained Cree wafers that were never sent to China; her claim that the Cree boxes did not have a shipping label; why agents would not have collected the Cree boxes; whether any agents actually looked inside the Cree boxes; and her failure to ask whether any agents looked inside the Cree boxes. *See id.* at 44–57. During Defendant’s cross-examination, SA Miller admitted that “there is some question in my mind as to what happened with these boxes.” *Id.* at 52–53. Defendant also asked SA Miller about the briefing process and protocol of the search, which demonstrated that agents were advised that Cree and Mai were relevant names and items with those names should be brought to SA Miller’s attention. *Id.* at 76–77.

Outside the presence of the jury, the following colloquy occurred concerning the objections that had been sustained during Defendant’s cross-examination of SA Miller:

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THE COURT: Mr. Spertus, I think you have asked the question repeatedly. And I've continued to sustain the objections in terms of what is agent error. I think that could open the door to an examination of various factors. I think you've already covered in the questions that the -- what was this -- would this have been material, if identified? So I don't think the next question is necessary. we don't need to get into that.

MR. SPERTUS: Can I respond, please?

THE COURT: Briefly.

MR. SPERTUS: In concluding the direct testimony this morning, the prosecutor, after walking through all this evidence, then turned back to the diligence and thoroughness of the search. She asked questions about the diligence and thoroughness of the search that I'm now impeaching with the fact that the Cree boxes were not seized.

THE COURT: And I permitted you to do that.

MR. SPERTUS: But I don't feel I have done that.

THE COURT: I think you have asked that question repeatedly. I think this is actually quite cumulative. I don't think we need to get into the definitional term of "agent error."

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MR. SPERTUS: Your Honor, can I make one last pitch to you because I truly don't understand this to be argumentative? If this agent answers, "yes," that she thinks – she trained these agents on that day. She gave the briefing. she instructed them what to do. And agents – if she concludes that they didn't comply with her instructions, she will say they made a mistake. The fact that the supervising agent says, "agents I trained and supervised made an error" is critically-important evidence.

THE COURT: It's an argument you can make based on the answers that have been given to several questions that I've permitted. So I don't think we need to get into more than that. Thank you.

Id. at 81–83.

5. Defendant's Cross-Examination of Mai

Defendant argues that because the objections in the following passage were sustained, the cross-examination of Mai was improperly limited:

MR. SPERTUS: And you had known Dr. Shih for many, many years, right?

KIET MAI: Yes.

MR. SPERTUS: And you had worked with him at MMCOMM in – 10 of 12 years ago, right?

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KIET MAI: Yes, 1997.

MR. SPERTUS: Since 1997. Okay. And during your relationship with Dr. Shih through the work you did together at MMCOMM, did you grow to trust him?

MS. HEINZ: Objection. Relevance.

THE COURT: Sustained.

MR. SPERTUS: Ultimately did you work with Dr. Shih from 1997 through 2011?

KIET MAI: With a few breaks in between.

MR. SPERTUS: Okay. And during those interactions with Dr. Shih over those years, did he ever exhibit to you, through demeanor or otherwise, any effort to be untruthful in any manner?

MS. HEINZ: Objection. Relevance.

THE COURT: Sustained.

Dkt. 507 at 40.

Outside the presence of the jury, defense counsel and the Court had the following discussion:

MR. SPERTUS: Your Honor, I just do want to bring to the Court's attention that [Fed. R.

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Evid.] 401 and 402 are the lowest standards. Is the evidence I'm seeking to obtain relevant to any fact material in the action? The Court has, I believe, completely shut down cross of a cooperating witness about his state-of-mind issues on numerous occasions. I do not feel that I'm getting the evidence I need for argument.

THE COURT: I understand. We can agree to disagree. I don't agree with even what you just said. I don't think so. I think that many times the same question has been asked more than once. So, yes, there have been multiple objections sustained. I think I've done the best I can do in terms of evaluating the questions and their appropriateness in terms of admissibility, and I've admitted a number of exhibits over the government's objections. So I'm not quite clear. I don't think we need to revisit all of this. As I say, it's routine. It's not uncommon for me to disagree with counsel, both sides. That's that.

Id. at 83–84.

In opposition (Dkt. 647 at 64), the Government argues any error in sustaining the Government's objections did not prejudice Defendant because Defendant was able to bring out Defendant's character for truthfulness during the following exchange with Mai:

MR. SPERTUS: Did Dr. Shih ever ask you to say anything to Cree that you believed was not truthful?

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KIET MAI: No.

Dkt. 588 at 51.

III. Procedural Background

On February 1, 2018, a grand jury returned a ten-count indictment against Defendant, Ishiang Shih and Mai for their alleged unlawful exportation of the Cree MMICs to China. Dkt. 50. Counts One and Two of the Indictment charged the conspiracy to and violation of export laws, Counts Three through Eight charged mail and wire fraud violations, Count Nine charged a violation of the Computer Fraud and Abuse Act (“CFAA”), and Count Ten charged a money laundering violation.

On October 18, 2018, a first superseding indictment (“FSI”) was returned. Dkt. 176. The FSI expanded the scope of the charged conspiracy (Count One), by charging four additional defendants as to that count (Jieru Deng, Yaping Chen, Fei Ye, and Ye Yuan) and extending the timeframe of the conspiracy from January 2006 to January 2016. *See id.* The FSI also added the following eight counts solely against Defendant: making a false statement to the Federal Bureau of Investigation (Count Eleven); making fraudulent or false statements on income tax returns (Counts Twelve through Fourteen); and concealing particular financial interests in Foreign Bank and Financial Accounts forms filed with the Treasury Department (Counts Fifteen through Eighteen).

On November 8, 2018, the SSI was returned. Dkt. 223. The SSI added language to Counts Twelve through

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Fourteen that linked the income that Defendant allegedly failed to report on tax returns with income received through his participation in the alleged conspiracy and/or dividends earned on investments held in a foreign bank account that he allegedly concealed improperly. *Id.* at 46–48.

Defendant was tried individually, and the jury returned guilty verdicts on all 18 counts of the SSI. Dkt. 569.

IV. Motion for Judgment of Acquittal**A. Legal Standards**

“A motion for Judgment of Acquittal is reviewed on a sufficiency-of-the-evidence standard.” *United States v. Stoddard*, 150 F.3d 1140, 1144 (9th Cir. 1998). “Under that standard, evidence supports a conviction, if, viewed in the light most favorable to the government, it would allow any rational trier of fact to find the essential elements of the crime beyond a reasonable doubt.” *Id.* “[A]ny conflicts in the evidence are to be resolved in favor of the jury’s verdict.” *United States v. Alvarez-Valenzuela*, 231 F.3d 1198, 1201–02 (9th Cir. 2000).

B. Application

Defendant has moved for judgments of acquittal on Counts One through Ten on several grounds. They are discussed in the following sections.

*Appendix B***1. Counts One and Two: Whether the Cree MMICs Were “Rated” as Used in “Rated for Operation”**

Counts One and Two charge, respectively, the conspiracy to violate and the violation of the export laws. Defendant argues that the Government failed to prove that the Cree MMICs were export controlled. The basis for this assertion is that the Government did not present evidence that, prior to any exportation by Defendant or an alleged co-conspirator, the Cree MMICs had been “rated” as used in “rated for operation” within the specified parameters -- certain frequencies with the particular power outputs and fractional bandwidths -- in the relevant Export Control Classification Numbers (“ECCNs”). Dkt. 633 at 10–15. On this basis, Defendant argues that, because the Government did not prove that the Cree MMICs were export controlled, any unlicensed exportation of them to China could not violate the EAR. *Id.* Therefore, Defendant contends that judgments of acquittal must be entered on Counts One and Two. *Id.* Defendant’s argument turns on the correct interpretation of “rated” as used in “rated for operation.” The parties disagree on that issue.

Defendant argues that the plain meaning of “rated” as used in “rated for operation” in the context of electrical engineering is that a manufactured MMIC has been tested, thereby confirming that it operates reliably within the specified parameters. *Id.* at 10–13; Dkt. 650 at 9–10; Dkt. 654 at 3–4. Defendant contends that the evidence did not show that any testing was performed on the manufactured Cree MMICs prior to any exportation;

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the Government does not disagree. *See* Dkt. 633 at 14–15; Dkt. 645 at 12–19.

The Government argues that “rated for operation” means “specified to operate at” these stated parameters, and that this requirement can be satisfied through electronic simulations conducted prior to manufacturing the MMICs. Dkt. 645 at 12–16. The Government contends its interpretation is consistent with the plain meaning of “rated” as used in “rated for operation” and that adopting it is appropriate because it is also the interpretation of the relevant agency, to which deference is warranted. *Id.*; Dkt. 652 at 2–7. In support of the deference argument, the Government cites the testimony of BIS Licensing Officer Monroy as to the meaning of the term “rated for operation” in the regulations that apply to the work that he performs. *Id.* at 12–16; Dkt. 652 at 6–7.⁹ The Government

9. The Government also states that the Court should not engage in any regulatory interpretation because Defendant presented his interpretation of “rated” to the jury, which rejected it. Therefore, the Government contends that the issue should not be revisited. Dkt. 652 at 2. The Government does not provide any authority to support this position or why it is inappropriate to address the interpretation as part of considering Defendant’s argument that his convictions for Counts One and Two fail as a matter of law. A challenge to a conviction on grounds involving issues of law, including regulatory or statutory interpretation, is appropriate in a motion for judgment of acquittal. *See, e.g., United States v. James*, 810 F.3d 674, 679 (9th Cir. 2016) (reversing the district court’s grant of defendant’s motion for judgment of acquittal based on the sufficiency of the evidence where the district court’s decision was based on its incorrect interpretation of the statute); *United States v. Drew*, 259 F.R.D. 449, 455–56 (C.D. Cal. 2009) (granting defendant’s motion for judgment of acquittal after analyzing the CFAA and finding the conviction was barred by the void-for-vagueness doctrine).

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argues that, under its interpretation, the evidence was sufficient because it demonstrated that electronic simulations were performed on the Cree MMICs' designs prior to manufacturing that were sufficient to specify their performance, which was within the specified parameters of the ECCNs. Dkt. 645 at 17–19; *see also* § II.E, *supra*.

The dispute presented by the parties' competing interpretations distills to whether a MMIC can be “rated for operation” before it is manufactured. For the reasons stated below, based on the plain and ordinary meaning of “rated” as used in “rated for operation” in the electrical engineering context, the answer is, “No.” Although applying this plain meaning of “rated” as used in “rated for operation” provides a loophole that would allow a party to sidestep the EAR, that does not justify a judicial revision of the language of the regulation.

Before turning to the basis for this interpretation of “rated” as used in “rated for operation,” it is important to identify those matters about which the parties appear to agree. They agree that no evidence was presented at trial that any testing was performed on the manufactured Cree MMICs prior to any exportation of them. They also appear to agree that the testing performed on the manufactured Cree MMICs after the Cree MMICs were exported demonstrated that the Cree MMICs performed within the specified parameters of the ECCNs.¹⁰ The parties also

10. Although Defendant does not expressly concede this point, it is not disputed in his briefing. *See* Dkt. 633; Dkt. 650; Dkt. 654. Further, at the December 19, 2019 hearing, the Court asked Defendant's counsel whether the Cree MMICs performed within the ECCNs' specified parameters. *See* Dkt. 683 at 22–23. Counsel

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agree that “rated” as used in “rated for operation” does not mean “designed.” Finally, at the December 19, 2019 hearing, the parties expressly agreed that to be export controlled, the item must be “rated” as used in “rated for operation” prior to its exportation.

a) The Disputed Term: Rated for Operation

The Commerce Control List (“CCL”) of the EAR assigns ECCNs to certain categories of commodities, software and technology for which licenses must be obtained prior to their export. At trial, the Government argued that the Cree MMICs were covered by ECCN 3A001.b.2.b or ECCN 3A001.b.2.c. These ECCNs provide that the following types of MMICs are export controlled:

b.2. Microwave “Monolithic Integrated Circuits” (MMIC) power amplifiers having any of the following:

...

b.2.b. Rated for operation at frequencies exceeding 6.8 GHz up to and including 16 GHz

responded that the Cree MMICs did not perform as expected, but did not contest that the MMICs performed within the specified parameters. *See id.* Defendant’s claim that the Cree MMICs did not perform as expected is apparently based on Dr. Barner’s testimony comparing the performance of the Cree MMICs to how he thought they would perform based on his assessment that was made through a review of the design of the Cree MMICs. *See id.*; Dkt. 650 at 12–13 (citing Dr. Barner’s testimony (Dkt. 521 at 65–66)).

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and with an average output power greater than 1W (30 dBm) with a “fractional bandwidth” greater than 10%; [or]

b.2.c. Rated for operation at frequencies exceeding 16 GHz up to and including 31.8 GHz and with an average output power greater than 0.8W (29 dBm) with a “fractional bandwidth” greater than 10%[.]

15 C.F.R. § Pt. 774, Supp. 1, Cat. 3.¹¹

b) Regulatory Interpretation Framework

“Regulations are interpreted according to the same rules as statutes, applying traditional rules of construction.” *Minnick v. Comm’r*, 796 F.3d 1156, 1159 (9th Cir. 2015). The traditional rules of construction include the careful examination of “the text, structure, history, and purpose of a regulation.” *Kisor v. Wilkie*, 139 S. Ct. 2400, 2415 (2019).

“A regulation should be construed to give effect to the natural and plain meaning of its words.” *Sec’y of Labor, U.S. Dep’t of Labor v. Seward Ship’s Drydock, Inc.*, 937 F.3d 1301, 1308 (9th Cir. 2019) (quoting *Bayview Hunters Point Cmty. Advocates v. Metro. Transp. Comm’n*, 366 F.3d 692, 698 (9th Cir. 2004)). When a term is not defined in the regulation, it is to be construed as

11. All citations to the Code of Federal Regulations refer to the regulations that were in effect in 2014 and 2015.

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having its ordinary meaning. *FCC v. AT&T Inc.*, 562 U.S. 397, 403 (2011) (“When a statute does not define a term, the Court typically ‘give[s] the phrase its ordinary meaning.’”) (alteration in original) (quoting *Johnson v. United States*, 559 U.S. 133, 138 (2010)). Although courts may consider dictionary definitions in determining the ordinary meaning of a term, the analysis does not end there. *Yates v. United States*, 574 U.S. 528, 537 (2015) (“Whether a statutory term is unambiguous ... does not turn solely on dictionary definitions of its component words.”); see also *Taniguchi v. Kan Pac. Saipan, Ltd.*, 566 U.S. 560, 568 (2012) (“That a definition is broad enough to encompass one sense of a word does not establish that the word is *ordinarily* understood in that sense.”) (emphasis in original). Rather, the plain meaning of language is “determined by reference to the language itself, the specific context in which that language is used, and the broader context of the statute as a whole.” *Robinson v. Shell Oil Co.*, 519 U.S. 337, 341 (1997).

In general, if the disputed term has a plain meaning or is unambiguous, the interpretation process ends there. *Animal Legal Def. Fund v. U.S. Dep’t of Agric.*, 933 F.3d 1088, 1093 (9th Cir. 2019). However, if adopting the plain meaning would lead to an absurd result, courts may consult legislative or regulatory history to determine whether a different interpretation of the term is appropriate. See *Heppner v. Alyeska Pipeline Serv. Co.*, 665 F.2d 868, 872 (9th Cir. 1981) (consideration of legislative history is appropriate when application of the plain meaning of a statute would lead to an unexpected or absurd result). The ability of a court to correct absurd outcomes is limited

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to those that result from drafting errors, i.e., “when Congress uses more sweeping language than it would if it were attending carefully to fact situations, outside the scope of its purpose, to which the language might be erroneously understood to apply,” and where the court is in a position to infer the actual intent of Congress. *Id.* at 872.

If after the traditional, initial rules of interpretation are applied, a term remains ambiguous, courts may then give deference to the interpretation by the agency that issued the regulation; however, to receive such deference, the agency’s interpretation must meet certain standards. *See Kisor*, 139 S. Ct. at 2415–18 (an agency’s interpretation should only be given deference if it is reasonable, it is the agency’s authoritative or official position, it arises from the agency’s substantive expertise, it reflects fair and considered judgment, and it does not create an unfair surprise to regulated parties).

**c) The Ordinary Meaning of “Rated” as
Used in “Rated for Operation”**

Because neither “rated” nor “rated for operation” is defined by the EAR, the ordinary meaning rule applies. *FCC*, 562 U.S. at 403. To support their competing arguments about the ordinary meaning of “rated” as used in “rated for operation,” the parties offer dictionary definitions of “rate” and highlight testimony from witnesses about how “rated” is used in the electrical engineering context. The parties rely in part on the same testimony in advancing their respective, competing interpretations.

*Appendix B***(1) Dictionary Definitions**

The dictionary definitions offered by the parties provide some guidance, but are not determinative of the ordinary meaning of “rated” in the context of electrical engineering.

The Government provides definitions of the word “rate” from several lay dictionaries. They define the word as estimated, designed or assigning a value or capacity. *See* Dkt. 652 at 3–4. The Government also cites two dictionaries of electrical terms that define “rated frequency” as “the frequency at which the transformer or reactor is designed to operate,” and “rated voltage” as the voltage at which a power line or electrical equipment is designed to operate.” *Id.* (quoting *International Electrotechnical Vocabulary* and *Electrical Engineering Dictionary*, respectively).

These definitions provide support for the position that the term “rated” as used in “rated for operation” means “designed.” However, at the hearing on Defendant’s Motions and in its Opposition, the Government expressly argued that its interpretation – specified to operate at – is different from simply meaning designed. Dkt. 652 at 5. Further, as Defendant persuasively argues, if something can be “rated” as used in “rated for operation” through design alone, it would make superfluous the use of “rated for operation” in other parts of the CCL. *See* 15 C.F.R. Pt. 774, Supp. 1, Cat. 3 (using the phrase “designed *or* rated for operation” (emphasis added) three times when referring to other items (not MMICs) that are not export

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controlled); *Hibbs v. Winn*, 542 U.S. 88, 101 (2004) (“A statute should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant”) (quoting 2A N. Singer, *Statutes and Statutory Construction* § 46.06, pp. 181–186 (rev. 6th ed. 2000)). Accordingly, as the parties agree at least in part, and consistent with the text of the regulation, “rated” as used in “rated for operation” does not mean designed.

Defendant offers the following definition of “rating”:

Stipulating or the stipulation of operating conditions for a machine, transformer, or other device or circuit and stating the performance limitations of such equipment. Rating is carried out by the manufacturer of such equipment. The designated limits to the operating conditions within which the device or equipment functions satisfactorily are the rated conditions (current, load, voltage, etc.). If the rated conditions are not adhered to the device is likely not to produce its rated performance.

Dkt. 654 at 3–4 (quoting *Oxford Dictionary of Electronics and Electrical Engineering*).

Focusing on the first sentence, stipulate means “to specify or agree to as a condition in an agreement.”¹²

12. *The American Heritage Dictionary* (5th ed. 2020), <https://ahdictionary.com/word/search.html?q=stipulate>.

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Applying this definition, one could determine that “rating” means to specify the operating conditions for an object, including the precise limitations on its operation. However, the dictionary definition does not include any language about how such a “rating” is to be made or undertaken. Thus, it does not resolve the dispute here, i.e., whether an item may be “rated” as used in “rated for operation” only through the testing on a manufactured MMIC, as Defendant argues, or as the Government contends, through electronic simulations prior to manufacturing.

Defendant asserts in a conclusory manner that this dictionary definition confirms that a MMIC must be tested to be rated. *See* Dkt. 654 at 3–4. The definition provides some support for the view that the rating is of a manufactured item because it is “carried out by the manufacturer of such equipment.” However, this language does not specify how a manufacturer makes its rating, i.e., by testing a manufactured item or by assessing its design and specifications. Nor does this definition state expressly the distinction between the type of testing that a designer and manufacturer may perform. Therefore, it is not dispositive of whether for purposes of the ECCNs, for an item to be “rated” as used in “rated for operation,” testing must be performed on the manufactured item.

(2) Witness Testimony

The trial testimony by those with backgrounds in electronics or electrical engineering matters is more instructive. It makes clear that the ordinary meaning of “rated” as used in “rated for operation” in the electrical

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engineering context means that a manufactured item has been tested to confirm its operating conditions and performance limitations.

The witnesses called by the Government with backgrounds in electronics or electrical engineering were BIS Licensing Officer Monroy,¹³ Dr. Barner,¹⁴ and Dr. Nordquist.¹⁵ Their testimony supports the conclusion that the ordinary meaning of “rated” as used in “rated for operation” in electrical engineering means testing performed on a manufactured item.

The Government’s position is based on Monroy’s stated interpretation of “rated for operation,” which he provided through his trial testimony. However, the

13. The Government presented Monroy as an expert witness. He has a Bachelor of Science in electrical engineering and has worked as a licensing officer in the Electronics and Materials Division of the BIS for 13 years. Dkt. 535 at 9–10. As noted, the BIS is the regulatory agency responsible for promulgating and enforcing export control regulations, including the EAR. *Id.* Monroy testified that his job duties include processing export licenses, handling requests to determine whether an item is export controlled or requires an export license, and serving on the technical team that meets with international partners to determine what items should be export controlled. *Id.* at 10–12.

14. Dr. Barner, a percipient witness called by the Government, is the head of Cree’s foundry services. He has a Ph.D. in solid state physics. Dkt. 511 at 101–02.

15. Dr. Nordquist, another expert witness called by the Government, has a Ph.D. in electrical engineering and is a member of the technical staff in microwave research and development at Sandia National Laboratories. Dkt. 619 at 9–10.

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substance of Monroy's testimony supports Defendant's interpretation, i.e., that only a manufactured item can be "rated" as used in "rated for operation." Monroy's use of "rated" is also consistent with how both Dr. Barner and Dr. Nordquist interpreted the word.

Monroy's testimony addressed the three specific variables in the ECCNs – operating frequency, power output, and fractional bandwidth. He confirmed that testing was required to measure each of them. Dkt. 535 at 80. Although Monroy did not initially testify how such testing would occur, his later testimony clearly reflects a reference to the testing of a manufactured MMIC.

On cross-examination, Monroy was asked successive questions as to whether someone would perform testing in order to rate an item. Monroy answered that companies do such testing. *Id.* at 81–82. Later in the cross-examination, defense counsel characterized this earlier testimony as agreeing that the term "rated" referred to the testing results of a device. *Id.* at 96–97. Monroy disagreed with that assessment of his earlier testimony. *Id.* However, his testimony as to that distinction was limited. Monroy explained that "specify" in "specified to operate at" could mean the results of testing or by publications of data sheets. *Id.* at 97. Monroy then confirmed that data sheets are published by the manufacturers, *id.*, and implied that the only way to create a data sheet is by testing a manufactured MMIC, *id.* at 99–100 (to produce a spec sheet for the Cree MMICs, Cree would need to test them). Monroy also confirmed that the first time that an item is made before any testing, the item is unrated. *Id.* Accordingly, Monroy's testimony provides some support

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for the conclusion that an item can only be “rated” as used in “rated for operation” by conducting tests on the manufactured item.

Dr. Nordquist testified that he is familiar with the term “rated,” and that it has a specific meaning. Dkt. 619 at 84. He also testified that “rated” means the quality of an item has been determined because it has been the subject of several testing processes. *Id.* He also confirmed that a rated item is one whose performance conforms with that rating. *Id.* When asked whether the Cree MMICs were rated, Dr. Nordquist testified that “other than the design documentation we talked about earlier, they have not been rated in any meaningful way.” *Id.*¹⁶ Thus, Dr. Nordquist’s understanding that rated requires several tests supports the inference that the design documentation of the Cree MMICs was not sufficient for them to be “rated” as used in “rated for operation” under the applicable regulations. It also supports the inference that to be “rated” as used in “rated for operation,” requires the testing of a manufactured item.

16. The Government argues that Dr. Nordquist’s testimony should not be considered because he was not asked about rated in the specific context of the ECCNs and was not testifying as an expert about export-control regulations. Dkt. 645 at 19 n.8. This argument is unpersuasive. The Government offered Dr. Nordquist as an expert witness as to several matters, including background information about the technical aspects of MMICs and their design and fabrication processes. Dkt. 349 at 6. That Dr. Nordquist was not asked about rated in the specific context of the ECCNs is not dispositive. What is significant is the meaning of the term in the context of electrical engineering. Dr. Nordquist was qualified to provide that explanation.

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Dr. Barner agreed that the actual outputs of a MMIC that is developed for the first time cannot be determined until it is tested. Dkt. 521 at 66. When asked to opine on the meaning of “rated” as used in “rated for operation” in the context of the ECCNs at issue, Dr. Barner explained “it simply means that it has performance over those frequencies and above those power levels.” *Id.* at 70–71. Dr. Barner also explained that if a MMIC is tested under a range of conditions, the results would provide information necessary to assess the performance of that MMIC under those conditions. Dkt. 506 at 29. This testimony was in accord with the view that testing was needed to determine the actual outputs of a MMIC. Similarly, his testimony that “rated” as used in “rated for operation” means a MMIC has specific outputs, supports the conclusion that “rated” as used in “rated for operation,” involves the testing of a manufactured item.

When considered collectively, the testimony of Monroy, Dr. Nordquist and Dr. Barner supports the view that, in the electrical engineering context, “rated” as used in “rated for operation” ordinarily means that a manufactured item has been tested, with the results confirming that it operates within the specified parameters. This ordinary meaning is inconsistent with the one that the Government has advanced. Even assuming electronic simulations are distinct from design, conducting electronic simulations is not sufficient for an item to be “rated” as used in “rated for operation” because what is done during those simulations occurs prior to the manufacture of the item. *See* § II.E, *supra*. In contrast, the ordinary meaning of “rated” as used in “rated for operation” is consistent with Defendant’s

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interpretation that to be “rated” a manufactured item must be tested and confirmed to operate reliably within the specified parameters.

Because “rated” as used in “rated for operation” has an ordinary and plain meaning that is unambiguous, Defendant’s interpretation is adopted. In light of this determination, it is unnecessary to consider the other bases for interpretation. However, for completeness, the Government’s other arguments as to interpretation are considered. Neither warrants a different outcome.

d) The Purpose of the EAR

The Government argues that Defendant’s interpretation lacks force because its application is inconsistent with the purpose of the EAR. Dkt. 652 at 5–6. Thus, it would enable Defendant and others similarly situated to circumvent the EAR by not testing MMICs after they are manufactured and before they are exported to confirm the operational capacities of the MMICs as designed. *Id.* Defendant responds that the EAR contemplated such a scenario by providing the fundamental research exception to the EAR licensing requirements. Dkt. 654 at 5. Although the application of the ordinary meaning of “rated” as used in “rated for operation” in the present matter would permit the unlicensed export of an item to which the regulations are generally directed, that does not warrant an interpretation that is different than the ordinary meaning. Instead, it would invite an amendment to the regulations so that rating could include, *inter alia*, simulations based on the design and specifications of the object.

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The EAR explains its purpose:

The export control provisions of the EAR are intended to serve the national security, foreign policy, nonproliferation of weapons of mass destruction, and other interests of the United States, which in many cases are reflected in international obligations or arrangements. Some controls are designed to restrict access to items subject to the EAR by countries or persons that might apply such items to uses inimical to U.S. interests. These include controls designed to stem the proliferation of weapons of mass destruction and controls designed to limit the military and terrorism support capability of certain countries.

15 C.F.R. § 730.6.

As one district court observed, the “EAR provisions are geared specifically to national security issues and reach beyond mere reporting obligations.” *United States v. Colon-Solis*, 508 F. Supp. 2d 186, 191 n.2 (D.P.R. 2007). In continuing the EAR by executive order, President George W. Bush declared a national emergency because the unrestricted access of foreign parties to American goods and technology constituted an unusual and extraordinary threat to the national security of the United States. Exec. Order No. 13,222, 66 Fed. Reg. 44,025 (Aug. 17, 2001).

The application of the ordinary meaning of “rated” as used in “rated for operation,” which aligns with

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Defendant's interpretation, is not in harmony with the purpose of the EAR. As noted, it allows an informed person who is purposefully seeking to evade the EAR, to do so by simply deferring the testing of the item until after it is exported. Defendant's reliance on the fundamental research exception does not justify this result. As discussed below, the fundamental research exception only applies to publicly available technology and software, not commodities. Fully functioning MMICs, like the Cree MMICs, are commodities. *See* Section V.B.1, *infra*. Further, that exception does not expressly contemplate the present scenario, i.e., where a person manufactures a functional MMIC and exports it prior to actual testing. Instead, the exception provides that publicly available technology or software that arises during or results from fundamental research is not subject to the EAR and explains what qualifies as fundamental research, which includes university based or corporate research. *See* 15 C.F.R. §§ 734.3(b)(3)(b)(ii), 434.8. Moreover, the exception that results from the application of the ordinary meaning of "rated" as used in "rated for operation" allows anyone, not just those engaged in fundamental research, to sidestep the EAR by not testing an item prior to exporting it.

Where the ordinary meaning of a regulation is unambiguous, "judicial inquiry is complete except in rare and exceptional circumstances." *Demarest v. Manspeaker*, 498 U.S. 184, 190 (1991). This is not one of those rare and exceptional circumstances. With respect to the application of the absurdity doctrine, although the Government argues that the aforementioned interpretation is contrary to the

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purpose of the EAR, the Government does not expressly argue that applying the ordinary meaning would lead to an absurd result. Nor has it shown that there would be an absurd result. *See Robbins v. Chronister*, 435 F.3d 1238, 1241 (10th Cir. 2006) (“One claiming that the plain, unequivocal language of a statute produces an absurd result must surmount a formidable hurdle. It is not enough to show that the result is contrary to what Congress (or, perhaps more accurately, some members of Congress) desired.”).

To justify a departure from the application of the ordinary meaning of a term used in a statute or regulation, because it produces an absurd result, “the absurdity must be so gross as to shock the general moral or common sense,” and “there must be something to make plain the intent of Congress that the letter of the statute is not to prevail.” *Crooks v. Harrelson*, 282 U.S. 55, 60 (1930). As the Supreme Court has explained:

It is not enough merely that hard and objectionable or absurd consequences, which probably were not within the contemplation of the framers, are produced by an act of legislation. Laws enacted with good intention, when put to the test, frequently, and to the surprise of the lawmaker himself, turn out to be mischievous, absurd, or otherwise objectionable. But in such case the remedy lies with the lawmaking authority, and not with the courts.

Id. at 60.

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The Government has not presented evidence that applying the ordinary meaning of “rated” as used in “rated for operation” would shock the general moral or common sense or that the rulemaking authority clearly intended that the plain language should not apply. Moreover, any such absurdity does not appear to be in the form of a simple drafting error that a court may address through its interpretation of the words at issue. *Heppner*, 665 F.2d at 872; *see also Abdalla v. Comm’r*, 647 F.2d 487, 503 (5th Cir. 1981) (declining to rewrite the legislation although Congress did not appear to have intended the outcome “unambiguously dictated” by the tax code provision, because Congress did not seem to have intended either of the schemes proposed by the parties, and “[t]he choices implicated by the problem raised in this case are difficult and interrelated; the solution, when and if one is designed, will not be a simple one”).

For these reasons, although the application of the ordinary meaning of “rated” as used in “rated for operation” may result in an outcome that is different than what was intended by the Department of Commerce in drafting the regulation, the remedy is through an amendment to the regulation, not through judicial interpretation.

e) Agency Deference

Where the ordinary meaning of a term in a regulation is clear, it is not necessary to defer to the views of the agency that drafted it. However, even if the general rule permitted such deference, it would not be appropriate

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here to defer to Monroy’s interpretation of “rated for operation.”.

The Government argues that the Court should give deference to Monroy’s interpretation of “rated for operation” under the agency deference doctrine. The basis for this position is that BIS is the federal agency charged with promulgating and interpreting the export control regulations, and Monroy was the only witness from the BIS to testify about their meaning. Dkt. 645 at 11–12; Dkt. 652 at 7. Defendant responds that, even if it were appropriate to reach the issue of agency deference, Monroy’s interpretation does not warrant such treatment. Defendant presents the following bases for this position: (1) Monroy’s interpretation is inconsistent with the plain meaning of rated; (2) Monroy is a mid-level employee without authority to make policy decisions for the BIS; and (3) interpreting rated to mean designed would result in an unfair surprise to Defendant because the common understanding with the engineering profession is that rated means tested and confirmed. Dkt. 650 at 14–15.

The Supreme Court has identified the prerequisites for a court to defer to an agency’s interpretation of a regulation. *See Kisor*, 139 S. Ct. at 2415–18. Two of those prerequisites are dispositive here. First, the agency’s interpretation must be reasonable. *Id.* at 2415. Second, the interpretation must reflect “the agency’s ‘authoritative’ or ‘official position,’ rather than any more *ad hoc* statement not reflecting the agency’s views.” *Id.* at 2416 (quoting *United States v. Mead Corp.*, 533 U.S. 218, 257–259, and n.6 (2001) (Scalia, J., dissenting)).

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Neither of these tests is met. Because the portion of Monroy’s testimony interpreting “rated for operation” as “specified to operate at,” which the Government argues can be done through electronic simulations, is inconsistent with the ordinary meaning of “rated,” it is not a reasonable one. *See Kisor*, 139 S. Ct. at 2416 (noting that “text, structure, history and so forth at least establish the outer bounds of permissible interpretation[,]” and the requirement that an agency interpretation be reasonable is “a requirement an agency can fail.”). It is also not clearly supported by his aforementioned testimony on cross-examination. Given that the first part of the test is not satisfied, no deference is appropriate.

Even if Monroy’s interpretation were deemed reasonable, there is no basis to conclude that it reflects the authoritative or official position of the BIS. The Supreme Court has explained that, although the interpretation does not need to be presented by the Secretary of an agency or its top-level personnel to be deemed an authoritative or official position, “[t]he interpretation must at the least emanate from those actors, using those vehicles, understood to make authoritative policy in the relevant context.” *Id.* at 2416–17 (citing examples, including *Paralyzed Veterans of Am. v. D.C. Arena L.P.*, 117 F.3d 579, 581 (D.C. Cir. 1997), *abrogated on other grounds by Perez v. Mortg. Bankers Ass’n*, 575 U.S. 92 (2015), where the court refused to consider a “speech of a mid-level official” as an “authoritative departmental position”). Here, the Government has failed to show that Monroy holds such a position. Nor has it identified any document, such as a policy manual or official staff memorandum,

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that supports its argument that Monroy's interpretation reflects the authoritative or official position of the BIS. Therefore, the second prong of the deference test is not satisfied.

For these reasons, Monroy's interpretation does not warrant deference.

f) Conclusion

For the foregoing reasons, Defendant's interpretation of "rated" as used in "rated for operation" is adopted because it is consistent with the plain and unambiguous meaning of the word as used in the electrical engineering context. Applying Defendant's interpretation, for the Cree MMICs to have been "rated" as used in "rated for operation" under the ECCNs, the manufactured Cree MMICs must have been tested and thereby confirmed to operate reliably within the specified parameters. The Cree MMICs must have been "rated" as used in "rated for operation" before being exported to China. There was no evidence that such testing was performed prior to the export at issue in this action. Because the Government did not establish that the Cree MMICs were export controlled, it failed to prove that Defendant's conduct in conspiring to export, and exporting the Cree MMICs to China without complying with the proper EAR licensing or filing requirements, violated the EAR and IEEPA. Therefore, Defendant's MJOA on Counts One and Two is **GRANTED**.

*Appendix B***2. Defendant's Additional Grounds for Acquittal on Counts One Through Ten**

Defendant's MJOA also raises additional grounds for acquittal on Counts One through Ten. None is persuasive.

a) Counts One and Two: Fundamental Research Exception

Defendant argues that the Government failed to prove that the Cree MMICs were not within the fundamental research exception to the EAR. Dkt. 633 at 16–18. In support of this position, Defendant contends that the evidence showed that the Cree MMICs were technology, i.e., engineering designs and models, prototypes, that was developed through fundamental research. *Id.* As a result, Defendant contends that his convictions for Counts One and Two must be vacated. *Id.* The Government responds by stating that it sufficiently proved that the fundamental research licensing exception does not apply because the Cree MMICs were commodities, not technology. Dkt. 645 at 19–22.

The fundamental research exception to the EAR applies to publicly available technology or software that arises during, or results from, fundamental research. *See* 15 C.F.R. §§ 734.3(b)(3)(ii), 743.8. As a result, the fundamental research exception does not apply to commodities. Technology and commodities are separately defined under the EAR. Technology is the “[s]pecific information necessary for the ‘development’, ‘production’, or ‘use’ of a product[,]” and a commodity is “[a]ny article,

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material, or supply except technology and software.” 15 C.F.R. § 772.1.

The parties dispute whether a functioning MMIC can be deemed “technology.” *See* Dkt. 647 at 21–23; Dkt. 651 at 12–14. The Government’s position is the more persuasive one. *See* Section V.B.1, *infra*. However, even if a functioning MMIC can qualify as technology, the Government presented sufficient evidence from which a rational trier of fact could have concluded that the Cree MMICs were commodities rather than technology.

The Government presented testimony from Monroy in support of its position. He opined that the Cree MMICs were commodities, not technology, as defined by the EAR. Dkt. 535 at 27; Dkt. 581 at 17. The Government also presented evidence about how the Cree MMICs could be used. Dr. Barner explained that the Cree MMICs could be used for research, but also could be removed from the wafers and used in a variety of practical applications, including military ones. Dkt. 668 at 41–42. Dr. Sandison provided similar testimony. He described how a single MMIC can be removed from a wafer and then used for a practical application. Dkt. 663 at 132. Dr. Nordquist also testified that the Cree MMICs were optimized for X-band and Ku-band frequencies, which are operating frequencies that can be used to identify and distinguish products. Dkt. 619 at 30–31. Dr. Nordquist also explained in general terms how MMICs can be used in radar systems. *Id.* at 36–37. Additional support for the jury’s determination that the Cree MMICs were commodities, is in the evidence that

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the Cree MMICs were designed for a specific customer who would be using them for practical applications. *See* § II.G, *supra*. Furthermore, any reasonable dispute over the interpretation of competing evidence as to whether the Cree MMICs were technology must be resolved in favor of the verdict. As noted, it reflects that the Cree MMICs were commodities, not technology.

Because the Government presented sufficient evidence from which a rational trier of fact could conclude that the Cree MMICs were commodities, the Government presented sufficient evidence from which a rational trier of fact could find that the fundamental research exception did not apply. Therefore, Defendant's MJOA on this basis is **DENIED**.

b) Counts Three Through Eight: Material Misrepresentations, Cognizable Property Interest, and Intent to Defraud

Defendant challenges the verdicts on mail and wire fraud in Counts Three through Eight on three grounds. *First*, the evidence was insufficient to establish that any misrepresentations to Cree were material. *Second*, Cree was not deprived of a legally cognizable property interest. *Third*, the evidence did not establish Defendant had any intent to defraud Cree. Dkt. 633 at 19–27. To establish that Defendant was guilty of mail and wire fraud in Counts Three through Eight, the Government was required to prove the following:

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- (1) Defendant knowingly participated in a scheme or plan to defraud Cree, or a scheme or plan for obtaining money or property from Cree by means of false or fraudulent pretenses, representations, or promises;
- (2) The statements made as part of the scheme were material;
- (3) Defendant acted with the intent to defraud, that is, the intent to deceive or cheat; and
- (4) Defendant used, or caused to be used, the mail (for the mail fraud counts) or an interstate wire communication (for the wire fraud counts) to carry out or attempt to carry out an essential part of the scheme.

18 U.S.C. §§ 1341, 1343; Dkt. 568 at 36–40.

(1) Material Misrepresentations

Defendant argues that the evidence was insufficient to establish that Mai's misrepresentations were material. Dkt. 633 at 20–22. The basis for this position is that there was no evidence that Cree would not have done business with MicroEx had it known that the Cree MMICs would be designed or tested by individuals in China or shipped to China. *Id.* Further, Defendant contends that Cree worked with Mai notwithstanding that Dr. Barner thought Mai's answers on the export compliance questionnaire were inaccurate. *Id.* The Government responds that Mai's

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misrepresentations were material because Dr. Barner explained that Cree would not have proceeded as it did had it known the truth, and that Cree does not typically do business with customers in China, export Cree wafers to China, or provide foundry manuals to customers in China. Dkt. 645 at 23–26.

“In general, a false statement is material if it has ‘a natural tendency to influence, or [is] capable of influencing, the decision of the decisionmaking body to which it was addressed.’” *United States v. Lindsey*, 850 F.3d 1009, 1013–14 (9th Cir. 2017) (alteration in original) (quoting *Neder v. United States*, 527 U.S. 1, 16 (1999)). Materiality is assessed under an objective test; the Government does not have to prove actual reliance to establish materiality. *Id.* at 1014.

The Government presented sufficient evidence that the misrepresentations were material. Mai falsely represented to Cree that the MMICs would not be shipped to a location outside of the United States and that MicroEx would be designing, testing and using the MMICs. It is also significant that Mai did not tell Cree that he would be providing his Cree login credentials to Defendant. These representations, when viewed under an objective test, are sufficient to show materiality as to Cree’s decision to manufacture the MMICs for MicroEx in the manner that it did. Moreover, as Dr. Barner testified, Cree would never ship an undiced wafer that contained PCMs to China or release a foundry manual to a customer in China. In addition, testimony was presented that Cree determined the limitations on access to certain data available through

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its web portal based on whether the person with whom it was contracting is a U.S. citizen.

Defendant's argument that Dr. Barner never expressly testified that Cree would not have worked with MicroEx had he known the truth does not change the outcome under the objective test. Nor does it sufficiently address the testimony by Dr. Barner about Cree's practice of not working with customers in China or sending its products and foundry manuals there. Finally, any arguably conflicting evidence that might undermine the materiality of the misrepresentations, which includes Dr. Barner's testimony about what he thought were inaccurate responses in the export compliance questionnaire, must be resolved in favor of the verdict.

(2) Cognizable Property Interest

Defendant argues that the Government failed to prove that Cree was deprived of any property or money because Cree was paid the entire amount that it was owed under the contract to produce the Cree MMICs. Dkt. 633 at 23. Defendant contends that the Government's theory at trial -- which he characterizes as Cree would have never sold the Cree MMICs to MicroEx had it known they would be sent to China -- fails to establish a cognizable property interest under the mail and wire fraud statutes. *Id.* In support of this position he argues that the same theory of property deprivation was rejected in *United States v. Bruchhausen*, 977 F.2d 464 (9th Cir. 1992). Dkt. 633 at 23–25. The Government responds that *Bruchhausen* is distinguishable because the claimed property interest at

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issue there – a manufacturer’s control of the location to which its products may be shipped after they are sold to a customer – is more limited than the one at issue here. Dkt. 645 at 26–32. Thus, the Government argues that the evidence showed that Defendant acted with the intent to implement a fraudulent scheme to obtain access to Cree’s confidential and proprietary business information including its wafers, web portal and foundry services. *Id.* It contends that such confidential, proprietary information is a cognizable property interest under the mail and wire fraud statutes. *Id.* In support of its position, the Government relies on *United States v. Carpenter*, 484 U.S. 19 (1987). Dkt. 645 at 27.

(a) *Carpenter and Bruchhausen*

Carpenter held that the mail and wire fraud statutes apply to intangible property interests, including confidential business information. 484 U.S. at 25–26. It held that the Wall Street Journal was defrauded of “property” when, prior to the publication of one or more articles, certain of its employees leaked the contents to co-conspiring brokers. *Id.* at 22–26. Those persons then engaged in securities transactions to profit on the anticipated market response to the articles once they were published. *Id.* *Carpenter* held that the Journal “had a property right in keeping confidential and making exclusive use, prior to publication,” of the contents of the articles. *Id.* at 26. The Court noted that confidential business information has historically been recognized as property and explained that “[c]onfidential information acquired or compiled by a corporation in the course and

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conduct of its business is a species of property to which the corporation has the exclusive right and benefit, and which a court of equity will protect through the injunctive process or other appropriate remedy.” *Id.* (quoting 3 W. Fletcher, *Cyclopedia of Law of Private Corporations* § 857.1, p. 260 (rev. ed. 1986)).

In *Bruchhausen*, defendant was convicted of a scheme to defraud manufacturers by acquiring goods from them with the undisclosed plan to smuggle this “American technology” to Soviet Bloc countries. 977 F.2d at 466–68. Witnesses from the manufacturers testified that none of the manufacturers would have sold products to defendant had they known his actual intended destination for their products -- a matter about which defendant’s agents had lied to them. *Id.*

The court characterized the property interest at issue as the right to exercise control over the destination of products after their sale by the manufacturer: “The manufacturers received the full sale price for their products; they clearly suffered no monetary loss. While they may have been deceived into entering sales that they had the right to refuse, their actual loss was in control over the destination of their products after sale.” *Id.* at 467. The court then noted it was “difficult to discern why [the manufacturers] had a property right to such post-sale control[,]” and concluded that the “interest in the disposition of goods it no longer owns is not easily characterized as property.” *Id.* at 467–68. Although *Bruchhausen* acknowledged that a manufacturer may have an interest in ensuring that the shipment of its

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products by a customer to a destination will not be in violation of the law, it held that such interest is not a cognizable property interest under the mail and wire fraud statutes. *Id.*

(b) Analysis

Cree's confidential and proprietary business information contained in its wafers, web portal, and foundry services is a legally cognizable property interest under the mail and wire fraud statutes. *Bruchhausen* is factually distinguishable. Central to the *Bruchhausen* analysis was that the manufacturers no longer owned the products at issue when they were shipped unlawfully to the destinations. 977 F.2d at 467–68 (concluding the “interest in the *disposition of goods it no longer owns* is not easily characterized as property.”) (emphasis added). The evidence here was sufficient to show that Cree continued to have proprietary interests in certain elements of the wafers, as well as its web portal and foundry services. Additionally, the nature in which Cree shares its web portal and foundry services with customers is distinct from the products at issue in *Bruchhausen*. Therefore, the protected property interest was distinct from the evidence that Cree would not have agreed to the shipment of the wafers to China.

The trial evidence addressed Cree's ongoing interests in wafers that it produced and then provided to its customers, including MicroEx. When the wafers are received, customers own them. *See* Dkt. 511 at 109 (Dr. Barner testifying that what Cree produces “[o]ut of

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the MMIC foundry services business is a custom device that the customer owns.”). However, the wafers contain certain information that is proprietary to Cree. As Dr. Barner testified, “[t]he process used to manufacture those wafers is intellectual property owned by Cree” and when a customer has a wafer if it has the appropriate training and equipment, it can obtain a significant amount of information about that proprietary process. *See* Dkt. 521 at 25; Dkt. 506 at 9. When Cree manufactures undiced wafers, which is what occurred in this case, even if they were designed by a customer, they still contain Cree’s PCMs. These constitute Cree’s proprietary, intellectual property. Dkt. 511 at 123 (Dr. Barner testifying that undiced wafers contain the PCMs); Dkt. 506 at 18 (Dr. Barner confirming that PCMs are particularly proprietary to Cree); Dkt. 619 at 71 (Dr. Nordquist testifying that Cree’s intellectual property is contained in the PCMs). According to Dr. Barner, having Cree’s PCMs would provide additional information about Cree’s manufacturing processes, thereby increasing the risk of reverse-engineering and the resulting injury to Cree. Dkt. 511 at 123; Dkt. 506 at 17–18.

That the foregoing proprietary information is something over which Cree retains an interest after the shipment of a wafer to a customer, is shown by the PDK Agreement. Cree only provides access to its foundry services and products after a customer agrees to the terms and conditions in the PDK Agreement, which are designed to protect Cree’s confidential and proprietary business information. *See* Dkt. 511 at 106–07, 124–25; Dkt. 635- 1 at 16–19 (Ex. 6). By signing the PDK Agreement, customers, including Mai, agree to abide by its terms and conditions. *See* Dkt. 635-1 at 16–19.

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Dr. Barner testified that Cree's willingness to work with customers is predicated on their assurances through the PDK Agreement. Dkt. 511 at 124–25. The PDK Agreement places limitations on a customer's use of the products that are made for them by Cree. For example, the PDK Agreement identifies the type of information Cree deems confidential and requires that the customer not compromise that confidentiality by disclosing it to persons other than its authorized employees and contract workers. Those persons are also obligated by agreement to maintain the confidentiality of the information. Dkt. 635-1 at 16–17. Thus, the PDK Agreement expressly provides that the customer agrees to "COMMUNICATE THE RESTRICTIVE CONDITIONS OF THIS AGREEMENT TO ITS EMPLOYEES AND CONTRACT WORKERS WHO COME INTO CONTACT WITH THE LICENSED PROGRAM," i.e., with Cree's confidential information. *Id.* at 16 (all capital letters in PDK Agreement).

The PDK Agreement also places limitations on the use of Cree's confidential information, including the express prohibition of any reverse engineering of the products produced in the foundry and provided to the customer. *Id.* at 17. Additionally, the PDK Agreement prohibits customers from reverse engineering or attempting to discern the method or processes used to manufacture the microchips contained on wafers without the prior approval of Cree to do so. *See id.* at 17 ("Customers may not reverse engineer, disassemble or otherwise attempt to discover the underlying structure of the Die or attempt to determine any method, mask, process, or material used in their manufacture without prior written approval from Cree."); Dkt. 619 at 8–9 (Dr. Nordquist explaining that

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an integrated circuit is often referred to as a chip, die, or microchip).

Defendant argues that the Government's attempt to distinguish *Bruchhausen* based on the type of technology at issue fails because the products in *Bruchhausen* involved semiconductor materials and the risk of reverseengineering was present. Dkt. 650 at 22. This argument is based on an annual report issued by the Attorney General purportedly about *Bruchhausen*; it is not based on the opinion itself. *Bruchhausen* does not discuss the technology in the products at issue, whether the products contained the manufacturer's confidential and proprietary business information, or whether there was a risk of reverse-engineering by a customer or by those to whom the product was sold. It is not appropriate to interpret *Bruchhausen* as addressing a matter that the opinion does not mention. Therefore, the possibility that the products at issue in *Bruchhausen* may have involved technology similar to what is at issue here is not a persuasive basis to interpret *Bruchhausen* in the manner proposed by Defendant. Even assuming that there was proprietary information in the products at issue in *Bruchhausen*, there is no showing of evidence comparable to what was presented here as to the harm that would result from the disclosure of that information or the contractual restrictions on its use. Nor is there a showing that in *Bruchhausen* there were contractual limitations like those in the PDK Agreement.

Similarly, notwithstanding Defendant's argument (Dkt. 650 at 22–23), the analogy to *Carpenter* that was

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rejected in *Bruchhausen* does not warrant the same outcome here. In *Bruchhausen*, the government argued that the manufacturers were deprived of a property interest because the domestic use of their products was part of the consideration for the sale, and defendant's deception deprived the manufacturers of that part of their bargain. *Id.* at 467–68. The government analogized the “Journal’s intangible interest in controlling prepublication information to the manufacturers’ intangible interest here in controlling the destination of their products.” *Id.* at 468. *Bruchhausen* noted that the “government’s argument [was] not without force,” but rejected this analogy. *Bruchhausen* distinguished *Carpenter* because there is no “understanding that a manufacturer has a property interest in the destination of its products[,]” that is comparable to the long standing principle that confidential business information is property as recognized in *Carpenter*. *Id.*

Here, the Government has not sought to analogize an interest in controlling the destination of products no longer owned by manufacturers to confidential business information. Instead, the Government contends that the confidential and proprietary business information contained in Cree’s wafers, in addition to Cree’s web portal and foundry services, is a protected property interest under *Carpenter*. This argument is not foreclosed by *Bruchhausen*.

Carpenter established that confidential business information is a form of property. “The property right is defined by the extent to which the owner protects its

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interest from disclosure to others.” *Estate of Osborn-Vincent v. Ameriprise Fin. Servs., Inc.*, No. CV 3:16-02305 YY, 2018 WL 6809177, at *2 (D. Or. Dec. 27, 2018); *cf. Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1002 (1984) (“If an individual discloses his trade secret to others who are under no obligation to protect the confidentiality of the information, or otherwise publicly discloses the secret, his property right is extinguished.”). Here, the trial evidence included that Cree protected the redisclosure of its confidential and proprietary business information contained in its wafers by having customers agree to the terms and conditions of the PDK Agreement. As noted, that agreement includes an obligation that customers protect the confidentiality of Cree’s confidential and proprietary business information that is contained in the products that it produces for its customers. Thus, neither Cree’s disclosure of its confidential and proprietary business information to these customers, nor its shipment of wafers to them, terminated its property rights in the products.

That Cree was paid all that was due under the contract does not change the analysis. As *Carpenter* held, a scheme to defraud does not require a monetary loss, because “it is sufficient that the Journal has been deprived of its right to exclusive use of the information, for exclusivity is an important aspect of confidential business information and most private property for that matter.” *Carpenter*, 484 U.S. at 26–27. Dr. Barner testified that Cree spent the last 30 years developing its wafers and intends to protect how it makes its wafers. Dkt. 511 at 136. Dr. Barner also testified that unauthorized access of the technology

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in Cree's wafers would subject Cree to harm through new, unfair competition and loss on the investment in developing the technology used to create the wafers. *Id.* Although Cree was paid all that was due for the MMICs, the evidence was sufficient to allow the jury to conclude that Defendant's fraudulent scheme deprived Cree of its right to exclusive use of its confidential and proprietary business information in the manner stated in the PDK Agreement.

Cree's proprietary interests in its web portal and foundry services are also distinguishable from those in *Bruchhausen*. Unlike the products at issue there, the trial evidence in this action included that Cree does not physically transfer its products to customers, including the proprietary information they may contain, without restrictions. Instead, Cree allows customers to access and use Cree's confidential and proprietary business information contained in the portal and corresponding services in connection with the design and manufacturing processes provided by Cree. *See id.* at 98, 117, 124–25. When customers log in to Cree's web portal with their unique login credentials, they can view different types of documents, including Cree's foundry manuals, which are not publicly available. *Id.* at 127–29, 131–32. Cree's foundry manuals contain proprietary information about its manufacturing process. *Id.* at 131–32. Dr. Barner testified that Cree would be harmed if these manuals were publicly released because they provide information about Cree's manufacturing process that would be helpful to someone trying to discern and reverse engineer Cree's processes. *Id.* at 131–32. The confidential and propriety information

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contained in Cree's web portal and foundry services are also protected by the terms and conditions of the PDK Agreement. *See* Dkt. 635-1 at 16–19.

Defendant argues that the Government did not present this position about Cree's web portal and foundry services at trial. Dkt. 650 at 22–23; Dkt. 683 at 15, 17. This position is not persuasive. For example, in its closing argument, the Government stated that “[i]f China reverse-engineered Cree's MMICs and its design process, you heard Dr. Barner tell you that Cree would be harmed.” Dkt. 671 at 100. Further, as noted, the Government presented substantial evidence about Cree's web portal, foundry manuals and foundry services, including that they contained confidential, proprietary information that was valuable to Cree's business. Moreover, the jury instructions as to mail and wire fraud jury referred to money or property, without limiting those terms. *See* Dkt. 568 at 36–37, 39–40. Accordingly, Defendant's argument that the Government is now raising a new theory in opposition to his MJOA lacks force. *Cf. United States v. Dann*, 652 F.3d 1160, 1170 (9th Cir. 2011) (in a forced labor case, the government did not waive its right to emphasize a specific form of harm on appeal notwithstanding that at trial it focused primarily on other types of harm; the jury instructions used a broad definition of harm and sufficient evidence of other harms was presented such that the jury could reasonably have decided that the combination of harms was sufficient to support its guilty verdict). Furthermore, the Government's evidence as to Cree's confidential and proprietary business information in its wafers is an adequate, independent basis to conclude that

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the Government presented sufficient evidence to support the verdict as to a legally cognizable property interest.

For the foregoing reasons, the property interest at stake was Cree's confidential and proprietary business information contained in, or part of, its wafers, web portal and foundry services. Cree's interest in these things did not terminate upon the shipment of the wafers to MicroEx or providing Mai with access to its web portal and foundry services. *See United States v. Mullins*, 992 F.2d 1472, 1477 (9th Cir. 1993) (characterizing *Bruchhausen* as "distinguishing a manufacturer's property interest in confidential information from any interest the manufacturer might have in a product's ultimate destination"). The Government presented sufficient evidence that a rational trier of fact could find that the Defendant engaged in a fraudulent scheme to deprive Cree of a legally cognizable property interest.

(3) Intent to Defraud

Defendant argues that the trial evidence was not sufficient to establish his intent to defraud for several reasons. Dkt. 633 at 25–27. *First*, the Government's theory of the scheme to defraud was based on the incorrect assertion that sending the Cree MMICs to China violated the export laws. *Id.* *Second*, any alleged misrepresentations on the export compliance form about whether export laws applied were based on valid interpretations of export laws. *Id.* *Third*, Mai's misrepresentation that MicroEx would be designing, testing and using the MMICs cannot be imputed to Defendant because Mai testified that Defendant did not

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know about the misrepresentation. *Id.* Therefore, it cannot be attributed to him unless the Government first proves Defendant had the intent to defraud, which it has failed to do. *Id.* The Government responds that Defendant's intent to defraud was sufficiently shown through the evidence concerning the export violations and the material misrepresentations that were made to Cree by Mai who was working in collaboration with Defendant. Dkt. 645 at 33.

The evidence was sufficient to show that Defendant intended to defraud Cree. This included the evidence concerning the steps taken by Defendant to enlist Mai, as well as those taken by Defendant and Mai to conceal the identity of Defendant and the RML designers from Cree. Thus, the Government presented sufficient circumstantial evidence to prove that Defendant had the requisite intent to defraud. *See United States v. Kaplan*, 836 F.3d 1199, 1212 (9th Cir. 2016) ("Evidence of intent to defraud can be circumstantial and may be inferred from misrepresentations and omissions.").

Because the Government presented sufficient evidence to prove the misrepresentations were material, Cree was deprived of a legally cognizable property interest, and that Defendant had the intent to defraud, Defendant's MJOA on these grounds is **DENIED**.

c) Count Nine: Access of Cree's Web Portal

Defendant argues that, for two reasons, the Government did not present sufficient evidence that Defendant intentionally accessed the Cree web portal

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without authorization. Dkt. 633 at 27–29. *First*, Defendant was a contract worker for Mai’s company MicroEx and, in that role, was authorized to have access under the PDK Agreement. *Id.* *Second*, even if Defendant was not such a contract worker, Defendant reasonably believed that his access was authorized based on Mai’s belief that he could share the login credentials with Defendant. *Id.* The Government responds by citing trial evidence that Defendant’s access to the Cree portal was unauthorized, and that he knew that when he did so. Dkt. 645 at 34–39.

Defendant’s contract worker argument is unpersuasive. Although the parties dispute whether the PDK Agreement covers contract workers, even if it does, a rational trier of fact could have found that Defendant was not a contract worker of MicroEx. Defendant argues that he was a contract worker of MicroEx because he was a consultant for the Canadian company JYS Technologies, which was owned by Defendant’s brother and alleged co-conspirator Ishiang Shih, and that MicroEx had consulting and development agreements with JYS Technologies. Dkt. 633 at 27–29.¹⁷

The Government presented evidence that Mai did not actually work for or with JYS Technologies. Although there was evidence that Mai remembered drafting and signing the development agreement, he did not recall

17. Defendant’s MJOA appears to suggest that a purchase order between Mai and Defendant’s company, Pullman Lane, supports the conclusion that Defendant was a contract worker of MicroEx. *See* Dkt. 633 at 28. However, Defendant fails to provide a substantive basis for this position.

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receiving a signed copy from JYS Technologies. Dkt. 507 at 23–24. Mai also testified that he drafted the development agreement because Defendant told him that JYS Technologies was going to pay for the second Cree wafer run. *Id.* at 22–23. Mai explained that he thought he needed a development agreement with JYS Technologies so that he could send an invoice to that entity. *Id.* at 23. Other than the payment that JYS Technologies made for the second Cree wafer run, Mai received no other payments from that entity. Dkt. 588 at 81. Mai also testified that he did not work with anyone at JYS Technologies on the first Cree wafer run. *Id.* Further, he testified that he did not do any work or consulting for JYS Technologies. Dkt. 507 at 25; Dkt. 588 at 80–81. Mai added that he had no personal knowledge of the business activities of JYS Technologies, had never been to its office, had never met with any of its personnel, and if he had spoken to any of them, it was a brief one-time exchange. Dkt. 588 at 79–80. For these reasons, the Government’s evidence supports that the jury could reject Defendant’s argument that he was a contract worker of MicroEx due to its relationship with JYS Technologies.

The result is the same as to Defendant’s alternative argument that he believed his access of Cree’s web portal was authorized because Mai believed he could share his login credentials with Defendant. Although Mai so testified, the Government presented evidence that contradicted Mai’s testimony. The Government presented evidence such that a rational trier of fact could find that Defendant knew his access was unauthorized. This evidence includes the PDK Agreement, which Mai

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sent to Defendant, that Mai did not request separate login credentials for Defendant, the warning on the Cree web portal login page, and the efforts by both Mai and Defendant to conceal Defendant's identity from Cree. Again, any conflict in the trial evidence as to whether Defendant knew his access of the Cree web portal was unauthorized must be resolved in favor of the verdict.

For the foregoing reasons, Defendant's MJOA on this basis is **DENIED**.

d) Counts Nine and Ten: Whether Specific Conduct Was in Furtherance of Criminal Acts

Counts Nine and Ten charge Defendant with, respectively, a violation of CFAA and money laundering. Defendant moves for judgments of acquittal on Counts Nine and Ten on similar grounds: Because the evidence fails as to Counts One through Eight, the Government did not present sufficient evidence that the conduct in Counts Nine and Ten was in furtherance of criminal acts. Dkt. 633 at 29–30. The Government argues that the evidence was sufficient. Dkt. 645 at 39–40.

As to Count Nine, to establish that Defendant was guilty of conspiring intentionally to access without authorization a protected computer and obtain information, the Government was required to prove several elements. They included that the information obtained by the intentional unauthorized access was in furtherance of a criminal act as alleged in Counts One through Eight. 18

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U.S.C. §§ 1030(a)(2)(C), (c)(2)(B)(ii); Dkt. 568 at 41–42. Similarly, as to Count Ten, to establish Defendant was guilty of aiding and abetting money laundering, the Government was required to prove, among other elements, that Defendant’s alleged money laundering was carried out with the intent to promote specified illegal activity: the export violations in Counts One and Two, the mail and wire fraud violations in Counts Three through Eight, or the CFAA violation in Count Nine. 18 U.S.C. §§ 2, 1956; Dkt. 568 at 44–45.

Because the Government presented sufficient evidence to sustain the mail and wire convictions in Counts Three through Eight, it presented sufficient evidence that the conduct in Counts Nine and Ten was in furtherance of the criminal activity established as to Counts Three through Eight. Therefore, Defendant’s MJOA on this basis is **DENIED**.

e) Counts One through Ten: Validity of Executive Order 13,222

Defendant argues that he is entitled to a judgment of acquittal on Counts One through Ten because Executive Order 13,222 is unlawful. Dkt. 633 at 30–32. He contends that this is because it was either the result of an unlawful delegation of Congressional legislative power or it was an unauthorized Presidential action. *Id.* The Government disputes both positions. Dkt. 645 at 40–44.

The EAR was originally issued under the Export Administration Act (“EAA”), which Congress passed in

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1969. *See* 50 U.S.C. app. §§ 2401–02, 2414(b). The EAA expired by its own terms on August 20, 2001. *See* 50 U.S.C. app. § 2419 (Nov. 13, 2000); Pub. L. 106–508. Since that time, the EAR has been continued by Executive Order 13,222. In issuing Executive Order No. 13,222, President George W. Bush declared a national emergency because “the unrestricted access of foreign parties to U.S. goods and technology and the existence of certain boycott practices of foreign nations, in light of the expiration of the [EAA] . . . constitute[s] an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States.” Exec. Order No. 13,222.

Defendant’s argument that the IEEPA unlawfully delegates legislative authority fails. Although the Ninth Circuit has not expressly addressed this issue, four other circuits have done so. Each upheld the constitutionality of the IEEPA’s delegation of legislative authority. *See United States v. Mirza*, 454 F. App’x 249, 255–56 (5th Cir. 2011); *United States v. Amirnazmi*, 645 F.3d 564, 574–77 (3d Cir. 2011); *United States v. Dhafir*, 461 F.3d 211, 215–17 (2d Cir. 2006); *United States v. Arch Trading Co.*, 987 F.2d 1087, 1092–94 (4th Cir. 1993). Several district courts have done the same. *See United States v. Akova*, No. CR 1:12-00220 ELR (JKL), 2016 WL 7116127, at *3 (N.D. Ga. Oct. 28, 2016) (collecting cases), *report and recommendation adopted*, 2016 WL 7118273 (N.D. Ga. Dec. 6, 2016).

Akova explained the rationale adopted by the circuit courts that have found that the IEEPA does not violate the non-delegation doctrine because it meaningfully limits the powers of the President:

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The IEEPA clearly sets out the policy behind delegating power to the President, namely, to “deal with any unusual and extraordinary threat, which has its source in whole or substantial party outside the United States.” 50 U.S.C. § 1701(a); *Mirza*, 454 Fed. Appx. at 256. The Act also restricts the circumstances under which the President can exercise authority. “To activate IEEPA, the President must find that an ‘unusual and extraordinary threat ... to the national security, foreign policy, or economy of the United States’ originating on foreign soil has reached ‘national emergency’ proportions.” *Amirnazmi*, 645 F.3d at 576. The IEEPA also exempts certain transactions (including, among other things, personal communications, humanitarian aid, and news feeds) from regulation as well as those who act in good faith. 50 U.S.C. § 1702(a)(3), (b); *Amirnazmi*, 645 F.3d at 576. It also bears mentioning that the IEEPA relates to foreign affairs, “an area in which the President has greater discretion.” *See Dhafir*, 461 F.3d at 217.

The IEEPA also sets out procedural requirements that ensure Congress’s continued involvement. Before exercising the power conferred by the IEEPA, the President is generally required to consult with Congress. 50 U.S.C. § 1703(a) Then, whenever the President exercises any of the powers granted by the IEEPA, the President is required to report to

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Congress and periodically provide follow-up reports to Congress to reaffirm the necessity of the executive's actions. *Id.* § 1703(b), (c). Congress also retains the power to terminate of the declaration of emergency, and thus end the President's authority under the Act. *Id.* §§ 1701(b), 1706.

Id. at *3–4.

Defendant cites no cases that have held that the IEEPA violates the non-delegation doctrine. Nor does he present a persuasive basis that the reasoning of the circuit courts that have addressed the issue is incorrect. *See Padilla-Ramirez v. Bible*, 882 F.3d 826, 836 (9th Cir. 2017) (the Ninth Circuit declines “to create a circuit split unless there is a compelling reason to do so[,]” especially where the rules at issue “are best applied uniformly.”) (quoting *Kelton Arms Condo. Owners Ass’n, Inc. v. Homestead Ins. Co.*, 346 F.3d 1190, 1192 (9th Cir. 2003)). Accordingly, for the reasons stated in the opinions of the circuit courts that have addressed this issue, the IEEPA does not violate the non-delegation doctrine.

Defendant next argues that Executive Order No. 13,222 was an invalid exercise of Presidential authority because the expiration of the EAA cannot constitute an “unusual and extraordinary threat,” and did not raise “in whole or substantial part outside the United States.” Dkt. 633; Dkt. 650 at 27–28. There is no factual or legal basis to conclude that the declaration of a national emergency was incorrect. Defendant has not shown that this is one

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of those very rare circumstances where it is appropriate to review a political question involving the declaration of a national emergency. *See Haig v. Agee*, 453 U.S. 280, 292 (1981) (“Matters intimately related to foreign policy and national security are rarely proper subjects for judicial intervention.”); *United States v. Spawr Optical Research, Inc.*, 685 F.2d 1076, 1080 (9th Cir. 1982) (declining to review the President’s declarations of national emergency under Trading with the Enemy Act because federal courts have historically declined to review “the essentially political questions surrounding the declaration or continuance of a national emergency”) (quoting *United States v. Yoshida Int’l, Inc.*, 526 F.2d 560, 579 (C.C.P.A. 1975)).

For the foregoing reasons, Defendant’s MJOA on this basis is **DENIED**.

V. Motion for New Trial**A. Legal Standards**

Fed. R. Crim. P. 33 provides that “[u]pon the defendant’s motion, the court may vacate any judgment and grant a new trial if the interest of justice so requires.” Fed. R. Crim. P. 33(a). “A district court’s power to grant a motion for a new trial is much broader than its power to grant a motion for judgment of acquittal.” *United States v. A. Lanoy Alston, D.M.D., P.C.*, 974 F.2d 1206, 1211 (9th Cir. 1992). “The court is not obliged to view the evidence in the light most favorable to the verdict, and it is free to weigh the evidence and evaluate for itself the credibility of the witnesses.” *United States v. Kellington*, 217 F.3d

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1084, 1097 (9th Cir. 2000). However, a motion for a new trial should be granted only in “exceptional circumstances in which the evidence weighs heavily against the verdict.” *United States v. Del Toro-Barboza*, 673 F.3d 1136, 1153 (9th Cir. 2012).

B. Application**1. Defendant’s Proposed Jury Instructions**

Defendant argues that a new trial is warranted because the Court erred in denying his proposed jury instructions regarding the technology definition and the fundamental research exception to the EAR. Dkt. 634 at 12–22. Defendant argues those instructions were essential to Defendant’s defense theory and were both factually and legally supported. *Id.* The Government responds that Defendant’s instructions were properly denied because they were neither factually supported nor legally correct. Dkt. 647 at 13–28. It also contends that the Court’s instructions adequately stated the basis for the defense theory. *Id.*

a) Relevant Jury Instructions**(1) The Court’s Instructions**

The jury instruction at issue states that “[t]he [EAR] also provide for certain exclusions and exceptions to the requirements to obtain a license and to file Electronic Export Information[,]” and the Court specifically instructed the jury that Instruction Nos. 29 and 30

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addressed those exclusions and exceptions. Dkt. 568 at 24. Through Instruction No. 29, the jury was then instructed that, in order to determine whether a license and the Electronic Export Information filing was required under the EAR, the jury needed to determine “whether the item is classified with an [ECCN] that requires a license for exports to” the destination to which the item is exported. Dkt. 568 at 33. After explaining that “[c]ertain evidence has been presented that items involved in this case were classified with ECCNs in the 3A001 category,” the following instruction was read to the jury:

The 3A001 category applies to “commodities,” but not to “technology.” “Commodities” are articles, materials, or supplies other than technology or software. “Technology” is specific information necessary for the development, production, or use of a product. This includes such information that is publicly available.

Id. at 33–34.

(2) Defendant’s Proposed Instructions

(a) Technology Definition Instruction

After briefing and discussion regarding jury instructions that had occurred over several months, on June 18, 2019, for the first time Defendant orally requested that the technology definition in Instruction No. 29 be modified to include the following language: “Technology

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includes technical data that may take the form of models and/or engineering designs.” Dkt. 600 at 20.

**(b) Fundamental Research
Exception**

Defendant also proposed several instructions specifically directed to the fundamental research exception to the EAR. These instructions were the subject of several rounds of briefing by the parties and much discussion at hearings. *See* Dkt. 411-1 at 59–72 (Joint Proposed Agreed-Upon and Disputed Post-Trial Jury Instructions); Dkt. 420-1 at 1–5 (Def.’s Revised Proposed Instructions); Dkt. 449 (Def.’s Supp. Brief re Jury Instructions Concerning EAR Licensing Exclusions & Exceptions); Dkt. 463 (Govt’s Supp. Brief re Jury Instructions); Dkt. 540 (Govt’s Second Supp. Brief re Jury Instructions); Dkt. 541 (Def.’s Further Supp. Brief re Jury Instructions Concerning EAR Licensing Exclusions & Exceptions); Dkt. 424 at 54–63 (April 18, 2019 transcript); Dkt. 669 at 20–32 (June 14, 2019 Hearing Transcript); Dkt. 600 at 18–24 (June 18, 2019 Hearing Transcript).

**b) Defendant’s Technology Definition
Instruction**

The decision not to give Defendant’s proposed modification to the technology definition was not an error. The proposed modification was not supported by the trial evidence and would have been confusing. Moreover, even if giving this proposed instruction had been justified by the trial evidence, the instructions that were read and

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provided to the jury adequately addressed Defendant's theory that the Cree MMICs were technology, thereby permitting Defendant to present that argument to the jury.

To determine whether a new trial is warranted because of an alleged error in jury instructions, the court must decide "whether the instructions—taken as a whole and viewed in the context of the entire trial—were misleading or confusing, or inadequately guided the jury's deliberations, or improperly intruded on the fact finding process." *United States v. Warren*, 25 F.3d 890, 898 (9th Cir. 1994). Although defendants "are entitled to have a court instruct a jury on their theory of defense if the instruction is supported by law and has some foundation in the evidence[.]" defendants "are not entitled to their preferred wording of the instruction." *Id.* at 895. The failure to give an "otherwise proper 'theory of the defense' instruction" is affirmed when "the instructions actually given, taken as a whole, adequately encompass the defendant's theory." *United States v. Sarno*, 73 F.3d 1470, 1485 (9th Cir. 1995); *see also United States v. Hernandez-Escarsega*, 886 F.2d 1560, 1570 (9th Cir. 1989) ("It is not error, however, to reject a theory-of-the-case instruction if the other instructions in their entirety cover the defense theory.").

At the center of the issue whether Defendant's instruction was factually supported is the parties' dispute about the meaning of "models." The Government contends that Defendant's proposed instruction would have misled the jury because it did not properly limit the

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term “models.” Dkt. 647 at 21–22. Based on the principle of *noscitur a sociis* – a word is known by the company it keeps – the Government argues that when “models” and “engineering designs” are viewed in the context of the other items in the list of technical data, the word “models” is properly interpreted to mean three-dimensional forms of a blueprint, plan, or diagram, and not functional MMICs that could be used in military applications. Dkt. 647 at 22–23.

Defendant responds that when the terms “models” and “engineering designs” are viewed in the context of the EAR as a whole, “models” must be interpreted to include physical designs of microchips. Dkt. 651 at 12–14. Defendant argues that the fundamental research exception is specifically intended to cover applied research which, in the field of integrated circuits, includes building and testing microchip designs for practical uses. *Id.* Defendant claims that this interpretation is also supported by trial testimony. Dkt. 651 at 14 (citing Dr. Nordquist’s testimony explaining that manufacturing four wafers is consistent with a prototype or test to determine whether an object works (Dkt. 619 at 78–79), and Dr. Barner’s testimony where he said that he interpreted Mai’s representations to mean that the Cree MMICs were intended to test the designs (Dkt. 511 at 124–26)).

The EAR provides that technology refers to the “[s]pecific information necessary for the ‘development’, ‘production’, or ‘use’ of a product. 15 C.F.R. § 772.1. The information takes the form of ‘technical data’ or ‘technical assistance.’” *Id.* The EAR then explains that

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technical data “[m]ay take forms such as blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.” *Id.* The EAR also provides that a commodity is “[a]ny article, material, or supply except technology and software.” *Id.* Although neither party relies on the definition, the EAR also defines “development.” It provides that “[d]evelopment’ is related to all stages prior to serial production, such as: design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design, layouts.” *Id.*

In light of the foregoing, when the terms “models” and “engineering designs” are viewed in the context of the other words in the technical data list, as well as the definition of development, “models” must be something less than a fully functional MMIC, even if that functional MMIC is a prototype. This is because technology is the specific information necessary for development, which includes the assembly and testing of prototypes. The testimony on which Defendant relies is not inconsistent with this conclusion. Neither witness opined on whether prototypes qualify as technology as defined by the EAR. Therefore, because technology does not include functioning MMICs, even if the MMICs are prototypes, there was no factual support for Defendant’s proposed modification to Instruction No. 29. Consequently, the decision declining Defendant’s proposed modification was not an error.

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Further, it would have been confusing to include Defendant's proposed instruction about what qualifies as technology without more information. Thus, the meaning of the word "models" in context of the EAR would not have been intuitive to a reasonable juror. Finally, even if Defendant's view that technology can take the form of a functioning MMIC were accepted, the instructions sufficiently addressed Defendant's defense theory. At trial, Defendant argued that the Cree MMICs were technology because they were research prototypes. By applying the instructions that were given, the jury was able to consider this argument because they included the definitions of commodity and technology without limiting the forms technology can take.¹⁸

For these reasons, there was no error in denying Defendant's request to instruct the jury that technology may take the form of models and engineering designs.

18. Although Monroy testified that commodities are things, and all MMICs are devices or hardware (Dkt. 535 at 13–14, 96), which Defendant argued was a misstatement of the law (Dkt. 669 at 20–21), the jury was instructed that it was the Court's duty to instruct the jury on the law. Dkt. 568 at 2. Juries are presumed to follow instructions. *Cf. United States v. Gallenardo*, 579 F.3d 1076, 1082 (9th Cir. 2009) (affirming denial of motion for a mistrial because it is "presume[d] that the jury followed the district court's limiting instruction"). Further, Defendant did not object to that question when it was posed to Monroy, and has not raised any other issues related to that portion of his testimony.

*Appendix B***c) Defendant's Fundamental Research Exception Instructions**

There was also no error in the decision rejecting Defendant's fundamental research exception instructions. Those instructions were not factually supported. Further, even had they been, the instructions that were used adequately covered the defense theory, i.e., that the Cree MMICs are within the fundamental research exception.

The fundamental research exception to the licensing requirements of EAR applies to an item that is classified as technology, not as a commodity. *See* § IV.B.1, *supra*. As a result, to show that a license or EEI filing was not required because an item was within the fundamental research exception, the threshold question is the proper classification of the item as technology or a commodity. As explained above, there was no factual support for the argument that the Cree MMICs were technology. Therefore, there was no factual support for a finding that the fundamental research exception applied. Consequently, it was not error to deny Defendant's request to give his proposed fundamental research exception instructions.

Even if Defendant had provided factual support for the fundamental research defense theory, it was not error to decline to use Defendant's proposed instructions. The instructions that were used adequately encompassed Defendant's fundamental research defense theory. Under those instructions, if the jury determined that the Cree MMICs were technology, the jury was told that the ECCNs did not apply, and for this reason no license or EEI

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filing was required. As a result, an instruction specifically directed to the fundamental research exception was unnecessary. If the jury found the Cree MMICs were technology, its analysis ended there – no license or EEI filing was required and sending the Cree MMICs to China did not violate the export laws. Alternatively, if the jury found that the Cree MMICs were commodities, as the verdict reflects, then any instruction on the fundamental research exception would not apply because that exception does not cover commodities. The Court explained this rationale to the parties on June 18, 2019. *See* Dkt. 600 at 18–19.

Defendant argues that the instructions provided to the jury were not sufficient because they failed to explain that technology may arise during, or result from fundamental research. This position lacks force because finding that the technology arose during, or resulted from fundamental research is distinct from determining that an item is technology. When briefing the fundamental research exception throughout the Motions addressed in this Order, Defendant has conflated the requirement that the item be technology with the one that the technology arise during, or result from, fundamental research. These inquiries are distinct. An item properly considered a commodity under the EAR does not become technology simply because it arose during, or resulted from, fundamental research.

The EAR contemplates that research and development will be performed on commodities. For example, in defining the contours of when an item is not considered “specially designed,” the EAR discusses the distinction

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between when a commodity might be in “production” or “development” where there are “new models or versions of such commodities developed from such efforts that change the basic performance or capability of the commodity.” 15 C.F.R. § 772.1, Note 1 to paragraph (b)(3). The EAR does not then state that a commodity can become technology simply because its development is ongoing. *See id.* For these reasons, although the jury was not instructed that technology could arise during or result from fundamental research, such an instruction was not needed for the jury to find that the Cree MMICs were technology.

For the foregoing reasons, Defendant’s Motion for New Trial because these proposed instructions were not accepted is **DENIED**.

2. Peter Mattis’s Testimony

Defendant argues that the testimony of Government expert Peter Mattis was erroneously admitted for several reasons: (1) the Government’s disclosures were deficient under Fed. R. Crim. P. 16; (2) Mattis’s testimony did not comply with Fed. R. Evid. 702 and 703 and violated the Confrontation Clause and rules restricting the admission of hearsay; (3) Mattis’s testimony should have been excluded pursuant to Fed. R. Evid. 403; and (4) Mattis’s testimony unduly prejudiced Defendant. Although Defendant objected to Mattis’s testimony in its entirety prior to its presentation at trial, Defendant’s Motion focuses on Mattis’s opinion that AVIC 607 developed missiles. Dkt. 634 at 22–36. The Government has responded to each of Defendant’s arguments. Dkt. 645 at 29–42.

*Appendix B***a) Fed. R. Crim. P. 16**

Defendant argues that the Government did not comply with Rule 16 because: (1) the Government's notices about Mattis's testimony prior to trial were deficient; and (2) the notice that summarized Mattis's opinion was deficient because it was provided on May 17, 2019, which was during the trial and just days before Mattis's testimony, and it did not provide the basis for Mattis's opinion. Dkt. 634 at 33–35. The Government responds that there was no violation of Rule 16 because Defendant knew Mattis would be testifying about AVIC 607 given the Government's expert notices and the documentary evidence produced concerning AVIC 607. Dkt. 647 at 34.

Prior to Mattis's trial testimony, the Court determined that the timing and content of the Government's disclosure did not warrant excluding his testimony. *See* Dkt. 621 at 16; Dkt. 581 at 121–22. The Government's pre-trial disclosures, when viewed collectively and in the context of the documentary evidence that was produced, satisfied the requirements of Rule 16 because they adequately apprised Defendant both of Mattis's opinion regarding AVIC 607 and its basis.

Rule 16(a)(1)(G) requires that the Government provide, upon request, a summary of the opinions of its experts that will be offered during its case-in-chief. Fed. R. Crim. P. 16(a)(1)(G). The summary “must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.” *Id.* These disclosure requirements were adopted “to minimize surprise that

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often results from unexpected expert testimony, reduce the need for continuances, and to provide the opponent with a fair opportunity to test the merit of the expert's testimony through focused cross-examination." Fed. R. Crim. P. 16 advisory committee's note to 1993 amendment; *see also United States v. Cerna*, No. CR 08-0730 WHA, 2010 WL 2347406, at *2 (N.D. Cal. June 8, 2010) ("Rule 16(a)(1)(G) does not require recitation of the chapter and verse of the experts' opinions, bases and reasons."). "The prejudice that must be shown to justify reversal for a discovery violation is a likelihood that the verdict would have been different had the government complied with the discovery rules, not had the evidence been suppressed." *United States v. Mendoza-Paz*, 286 F.3d 1104, 1111 (9th Cir. 2002) (quoting *United States v. Baker*, 10 F.3d 1374, 1398 n. 8 (9th Cir.1993)).

The Government's pre-trial notices provided Defendant with sufficient notice of the content of Mattis's opinion regarding AVIC 607. The Government's March 14, 2019 notice stated that Mattis would "provide some background and explanatory testimony about Chinese business organizations and structures, as it pertains to the entities at issue in this case." Dkt. 351-1 at 3. On April 9, 2019, the Government produced a translated document that identified AVIC 607 as a client for the MMICs and referenced the "airborne needs of the 607." *See* Dkt. 647 at 34 (referring to Exhibit 2106A (Dkt. 635-1 at 135–41)). The Government's supplemental April 11, 2019 notice added that Mattis "is expected to testify about efforts by entities and individuals in [China] to obtain export controlled good and sensitive technologies[,] and "will

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provide background testimony based on his knowledge of the various [China] entities named in the named in the SSI and his review of open-source Chinese and English language materials.” Dkt. 394 at 11. During the April 18, 2019 hearing on the matter, the Government expressly stated that part of Mattis’s testimony would include a description of certain entities and identified AVIC 607 as one of them. Dkt. 424 at 75–76.

Defendant does not dispute that he knew that AVIC 607 was an entity at issue in this case. Defendant’s Motions in Limine show that, prior to the May 17, 2019 disclosure, Defendant was aware of the Government’s position that the Cree MMICs had military applications. *See* Dkt. 320 (Defendant’s Motion in Limine No. 6, filed on March 4, 2019, seeking to exclude “the government from presenting evidence or argument that suggest that this case involves efforts by [Defendant] to aid the Chinese government in attempting to steal American technology and thereby threatening the national security interests of the United States and its citizens.”); Dkt. 315 (Defendant’s Motion in Limine No. 3, filed on March 4, 2019, seeking to exclude expert testimony (not specifically that of Mattis) that would portray Defendant as having a part in a much larger effort by Chinese government to steal American technology for military and other purposes antithetical to the interests of the United States).

Any uncertainty about Mattis’s opinion was resolved by the Government’s May 17, 2019 disclosure. It explained what Mattis had told FBI agents: “Number 607 Institute, a state owned enterprise, was a subsidiary to AVIC and

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developed missile guidance systems, air-to-air missiles and other PLAAF weapons and armament. Lead by one of the two main contractors for the PLAAF.” Dkt. 457-2 at 4. Accordingly, although Mattis’s precise AVIC 607 opinion was not provided until just a few days before he was scheduled to testify at trial, the Government’s prior notices and discovery disclosures sufficiently apprised Defendant of Mattis’s opinion. Therefore, Defendant cannot establish that he was surprised or unable to prepare to engage in a meaningful cross-examination of Mattis.

It is also significant that the Government’s disclosures adequately apprised Defendant of the basis for Mattis’s opinion. The Government’s March 14, 2019 notice stated that Mattis is “expected to testify that his opinions are based on his training and education, his extensive experience with [China], his review of the Complaint and [SSI], the evidence in this case, academic literature, and open-source materials.” Dkt. 351-1 at 3. The notice also attached Mattis’s 18-page curriculum vitae, which included his educational background, work experience, professional memberships and citations to his numerous publications and presentations relating to his work about China. *Id.* at 7–24. Similarly, the April 11, 2019 notice provided that “Mattis will provide background testimony based on his knowledge of the various China entities named in the SSI and his review of opensource Chinese and English language materials.” Dkt. 394 at 11. Thus, the Government’s notices and its incorporation of Mattis’s curriculum vitae adequately apprised Defendant of the basis for Mattis’s opinion.

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Even if the notices by the Government were deemed insufficient under Rule 16, Defendant has not shown any corresponding prejudice. Defendant argues that he was prejudiced with respect to Mattis's opinion on AVIC 607 because he did not have sufficient time to respond and cross-examine. Dkt. 634 at 23. He also contends that the Government purposefully delayed the disclosure to gain an unfair tactical advantage. *Id.* at 34–38. In discussing the Government's alleged unfair tactical advantage, Defendant focuses on how the content of Mattis's opinion was used by the Government during closing arguments. *See id.* at 36–38. However, he does not explain how he was precluded from preparing and making a suitable response during cross-examination of Mattis or in closing arguments. *See id.* at 34–38.

Defendant does not dispute the substance of Mattis's opinion about AVIC 607. Nor does he challenge the reliability of the publicly available website stating that AVIC 607 was involved in obtaining radar related to Air-to-Air Missiles. *See* Dkt. 651 at 20. Further, Defendant's assertion that he was denied a fair opportunity to cross-examine Mattis is not supported by the record. Although Defendant elected not to cross-examine Mattis at trial, as the Court mentioned at the time, Defendant's cross-examination of Mattis during the *Daubert* hearing showed that Defendant was well-equipped to do so again at trial. *See* Dkt. 517 at 17–19; Dkt. 581 at 94–110. Finally, Defendant has not shown why an earlier disclosure of Mattis's precise AVIC 607 opinion would have changed Defendant's ability to prepare for trial.

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For these reasons, even if the Government did not comply with Rule 16, a new trial is not warranted. Thus, Defendant has not shown that there is a reasonable likelihood that the verdict would have been different had the Government done so. *See, e.g., Mendoza-Paz*, 286 F.3d at 1111–12 (defendant did not demonstrate the requisite degree of prejudice for a Rule 16 expert disclosure violation where she did not contest the expert’s opinion, and did not explain how her counsel’s claimed inability adequately to cross-examine the expert caused prejudice); *United States v. Melucci*, 888 F.2d 200, 203 (1st Cir. 1989) (defendant did not establish prejudice regarding the late disclosure of an expert report because defendant did not state how he was prejudiced by the late disclosure or how an earlier disclosure would have changed his defense strategy).

b) Fed. R. Evid. 702 and 703

Defendant also challenges Mattis’s testimony on the ground that it did not comply with Rule 702. The basis for this position is that the testimony was not helpful to the jury, was not based on sufficient facts or data, and was not the product of the application of reliable principles and methods. Dkt. 634 at 38–43. Defendant also argues that Mattis’s testimony did not meet the requirements of Rule 703, and violated both the Confrontation Clause and the limitations on the admission of hearsay. The basis for this position is that his testimony included hearsay as to factual matters in the guise of an expert opinion. *Id.* The Government disputes these positions. Dkt. 647 at 29–40.

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Fed. R. Evid. 702 allows testimony by an expert only if the witness's "scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702. Rule 702 permits experts to testify if their testimony is: (1) "based on sufficient facts or data," (2) "the product of reliable principles and methods," and (3) the result of applying those principles and methods reliably to the facts of the case. *Id.* In determining whether an expert's testimony meets the standards of Rule 702, the court acts as a "gatekeep[er]" that "ensur[es] that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 148–49 (1999). "[I]n considering the admissibility of testimony based on some 'other specialized knowledge,' Rule 702 generally is construed liberally." *United States v. Hankey*, 203 F.3d 1160, 1168 (9th Cir. 2000). Rule 703 controls the bases for expert testimony. It expressly allows an expert's opinion to rely on hearsay and other inadmissible evidence so long as "experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject." Fed. R. Evid. 703.

Mattis's opinion was helpful as defined by Rule 702. As the Court concluded before Mattis's trial testimony, his opinions would be helpful to the jury because the Chinese entities about which Mattis was to testify were not familiar to a reasonable, lay juror. Dkt. 581 at 122–23. In contrast, such lay persons might be familiar with similar domestic entities. *See Scott v. Ross*, 140 F.3d 1275, 1286

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(9th Cir. 1998) (the district court properly admitted expert testimony concerning the origin and general practices of the anti-cult movement, notwithstanding that the expert had not specifically studied the defendant's practices, because these matters were beyond the general knowledge of jurors); *United States v. Morales*, 108 F.3d 1031, 1038 (9th Cir. 1997) (to be admissible, expert testimony must address a subject matter "beyond the common knowledge of the average layman") (quoting *United States v. Winters*, 729 F.2d 602, 605 (9th Cir. 1984)). Further, this testimony was helpful because information about these entities was relevant to the Government's argument that the Cree MMICs were not, as Defendant argued, research prototypes.

Defendant argues that Mattis's opinion was not helpful to the jury because the Government did not introduce any evidence that Defendant had knowledge about AVIC 607. This position is unpersuasive. The evidence presented at trial, which consists of documents found on Defendant's computer or email exchanges to which Defendant was a party, supports the inference that the Cree MMICs had missile applications and that AVIC 607 was the customer of the Cree MMICs. *See* § II.G, *supra*. Therefore, the opinion was helpful to a reasonable juror.

Mattis's opinion also satisfied the other criteria of Rule 702. It was the product of the application of reliable principles and methods and was based on sufficient facts. "Assessing the reliability of expert testimony based on specialized knowledge, unlike scientific or technical expert testimony, is not contingent upon a particular methodology

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or technical framework.” *Siring v. Oregon State Bd. of Higher Educ. ex rel. E. Oregon Univ.*, 927 F. Supp. 2d 1069, 1075 (D. Or. 2013). The analysis of the reliability of expert testimony based on other specialized knowledge “depends heavily on the knowledge and experience of the expert, rather than the methodology or theory behind it.” *Hankey*, 203 F.3d at 1169.

During the *Daubert* hearing, Mattis testified about his expertise about the Chinese government and its military and general security affairs. Dkt. 581 at 96–98, 106. Mattis testified that he performed work for more than ten years in this field. *Id.* This included his work about the Chinese Intelligence Services while he worked at the Central Intelligence Agency. *Id.* He also testified about his related research and the 100 articles he wrote on the subject. *Id.* Mattis’s curriculum vitae also supported his expertise. It provided details about his educational background, research projects, and his many publications and presentations concerning China. Dkt. 351-1 at 7–24. Mattis also testified that, although his work at the Central Intelligence Agency did not involve the specific entities at issue in this case, it did provide him with a broad understanding of China and the operations of its government. Dkt. 581 at 96–97.

Mattis also described his methodology at the *Daubert* hearing. He explained that he conducted open-source research by looking at company websites, reviewing websites in both English and Chinese, reviewing Chinese language news articles about specific individuals and meetings that they attended or agreements they signed,

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following individuals associated with those companies online, and looking through his own files and books that he collected related to China's technology transfer and military modernization. *Id.* at 92, 103–04, 109. Mattis also explained that he had authored a soon to be published book that includes a chapter about individuals who were convicted of export violations related to the movement of technology to China. *Id.* at 93. He also reviewed public record documents when researching this chapter. *Id.* at 93–94. Mattis also stated that, although one or two of the entities at issue in this case are mentioned in his forthcoming book, none was mentioned in any of his prior publications. *Id.* at 97. Mattis added that he consulted with Dr. James Mulvenon, who was previously employed at RAND and authored a book on the People's Liberation Army Corporate Empire, to confirm that his own analysis was thorough. *Id.* at 95, 105.

As a preliminary matter, as the Court concluded prior to Mattis's trial testimony and a result of the *Daubert* hearing, Mattis possessed sufficient knowledge and expertise related to certain China-specific issues. *See id.* at 120–21. This included the entities about which he was to, and did testify. Because his testimony was based on his ability to analyze relevant information that he gathered from open sources, which was something that a typical lay person could not do, it was appropriate. *See id.*

With respect to the methodology that Mattis used, Defendant's characterization of it as looking up things on the Internet and repeating them in his testimony, is not supported. During the *Daubert* hearing, Mattis

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explained, based on his expertise and knowledge concerning China, as well as his review of open source documents, how he formed an opinion on the specific entities. This methodology, in light of Mattis's subject matter expertise, is sufficiently reliable, and is similar to other expert testimony that has been found appropriate. *See, e.g., United States v. Hammoud*, 381 F.3d 316, 337 (4th Cir. 2004), *rev'd on other grounds*, 543 U.S. 1097 (2005) (affirming the admission of expert testimony on the structure of terrorist groups after "[the expert] identified his methodology as one generally employed in the social sciences"—that is, "collect[ing] as much information as possible," then balancing "each new incoming piece of information against the body of information you've built to that point"); *Gill v. Arab Bank, PLC*, 893 F. Supp. 2d 523, 533 (E.D.N.Y. 2012) (allowing a former veteran of the Israel Security Agency to testify as an expert and opine about the terrorist organization responsible for an attack, noting the expert's "analysis of Internet-based material is rooted in the methodology employed by other experts in his field").

Defendant's argument that Mattis's opinions were not based on sufficient facts or data is premised solely on the contention that Mattis could not remember the specific websites he visited. Dkt. 634 at 31–32. This characterization is not supported by Mattis's testimony at the *Daubert* hearing. He testified that, although he had not memorized the names of the websites, he maintained a list of those that he visited as part of his work. Dkt. 581 at 108–09. Defendant's claim that Mattis's testimony was improper speculation based on his choice of words also

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fails. Any limitations in Mattis's AVIC 607 opinion based on his word choice goes to weight rather than admissibility. *United States v. Elkins*, 885 F.2d 775, 786 (11th Cir. 1989) (the weakness of the basis for the expert's opinion "goes to the weight rather than to the admissibility of [expert's] opinion"). Accordingly, Mattis's testimony complied with the requirements of Rule 702.

Mattis's opinions also met the standards of Rule 703. They were based on his subject matter expertise and knowledge, as well as his review and analysis of open source documents, including websites. This included some hearsay. As discussed above, Mattis did not simply repeat what he read online. Mattis's reliance on hearsay or potentially inadmissible evidence in forming his opinion is contemplated by Rule 703. *See United States v. Vera*, 770 F.3d 1232, 1237 (9th Cir. 2014) (noting that "there is generally no *Crawford* problem when an expert 'appli[es] his training and experience to the sources before him and reach[es] an independent judgment'") (alterations in original) (quoting *United States v. Gomez*, 725 F.3d 1121, 1129 (9th Cir. 2013)). Further, it was his opinions that were admitted, not the underlying bases for them.

For these reasons, Mattis's opinions complied with Rules 702 and 703, and did not violate the Confrontation Clause or the hearsay rules. *Id.*

c) Rule 403

Defendant next argues that the risk of unfair prejudice outweighed the probative value of Mattis's opinion. Dkt.

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634 at 42–43. The Government responds that the opinion was probative, and that any risk of undue prejudice was addressed by the Court’s limitation on the scope of Mattis’s testimony. Dkt. 647 at 41–42.

Expert testimony that is “otherwise admissible may be excluded under Rule 403 if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.” *United States v. Rincon*, 28 F.3d 921, 923 (9th Cir. 1994) (citing *Daubert*, 509 U.S. at 595). “Relevant evidence is inherently prejudicial; but it is only unfair prejudice, substantially outweighing probative value, which permits exclusion of relevant matter under Rule 403.” *Hankey*, 203 F.3d at 1172 (quoting *United States v. Mills*, 704 F.2d 1553, 1559 (11th Cir. 1983)). Unfair prejudice arises when the challenged evidence presents an “undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one.” *Id.* (quoting Fed. R. Evid. 403 advisory committee’s note to 1972 proposed rules). Rule 403 “favors admissibility, while concomitantly providing the means of keeping distracting evidence out of the trial.” *Id.*

For the reasons stated above, Mattis’s testimony had probative value, which was more than sufficient to outweigh the risk identified by Defendant. Furthermore, any such risk was minimized by the limited scope of the testimony that the Court permitted through the directions to Mattis, with which he complied. Thus, Mattis was directed not to make any statements in his testimony that would suggest a nexus between the entities he discussed and the Chinese military. Dkt. 517 at 7–8. Mattis was

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permitted to testify about missiles generally and how they may be related to the entities, but could not link the missiles to the Chinese military. *Id.*

For these reasons, the challenge under Fed. R. Evid. 403 is unpersuasive, particularly, given the discretionary standard that controls its application. *See United States v. Joetzki*, 952 F.2d 1090, 1094 (9th Cir. 1991) (“The district court has wide latitude in determining the admissibility of evidence under Rule 403, and its decision is accorded considerable deference.”) (internal citation and quotation marks omitted).

d) Prejudice

Even if the admission of Mattis’s testimony was an error, Defendant has not shown sufficient prejudice. *See United States v. Whittemore*, 776 F.3d 1074, 1077–78 (9th Cir. 2015) (“Evidentiary rulings will be reversed for abuse of discretion only if such nonconstitutional error more likely than not affected the verdict.”) (quoting *United States v. Corona*, 34 F.3d 876, 882 (9th Cir. 1994)). There was other trial evidence that showed some connection between the Cree MMICs and AIVC 607, and the Cree MMICs and military or missile applications, which also supported the Government’s arguments. *See* § II.G., *supra*. Accordingly, it has not been shown that the admission of the contested portions of Mattis’s testimony more likely than not affected the verdict.

To the extent that Defendant argues that the admission of Mattis’s testimony was prejudicial because

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it was a basis for a portion of the Government's closing, rebuttal argument, this position fails for the same reasons that it does not support the request for a new trial. *See* § V.3., *infra*. Finally, the force of the claim of prejudice is limited because Defendant does not contest the accuracy of Mattis's opinion concerning AVIC 607. *See Elkins*, 885 F.2d at 786 (declining to address defendant's argument that the district court's admission of expert evidence was erroneous because defendant did not, for example, claim prejudice based on the position that the expert opinion was wrong).

For these reasons, Defendant's Motion for New Trial based on the admission of Mattis's testimony is **DENIED**.

3. The Government's Rebuttal Closing Argument

a) Background

Defendant argues that a new trial is warranted because of Government misconduct during rebuttal closing argument. Dkt. 634 at 44–49. *First*, Defendant contends that the Government presented arguments that were based on facts that were not supported by the evidence, i.e., that the customer for the Cree MMICs was AVIC 607, which develops missiles. *Id.* *Second*, the Defendant argues that the Government improperly sought to induce jurors to act on fear by referring to evidence as scary, implying that Defendant was a spy, and referring to missiles and the military. *Id.* The Government responds that its statement that AVIC 607 develops missiles and missile guidance

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systems for China was a reasonable inference based on the evidence, including Mattis's testimony. Dkt. 647 at 43–45. The Government also contends that its argument was a proper response to Defendant's closing argument and corresponding theories. *Id.* at 45–49. Finally, it contends that even if any arguments could be deemed improper, they did not unfairly prejudice Defendant given the strength of the evidence against him. *Id.* at 49–50.

“Analysis of a claim of prosecutorial misconduct focuses on its asserted impropriety and substantial prejudicial effect.” *United States v. Weatherspoon*, 410 F.3d 1142, 1145 (9th Cir. 2005) (citation omitted). When challenging a jury verdict based on an improper argument by the Government, defendant must demonstrate that the statements by Government counsel “so infected the trial with unfairness as to make the resulting conviction a denial of due process.” *Darden v. Wainwright*, 477 U.S. 168, 181 (1986) (quoting *Donnelly v. DeChristoforo*, 416 U.S. 637, 643 (1974)). It is not enough for the statements to be undesirable or even universally condemned. *Id.*

“[I]t is improper for the government to present to the jury statements or inferences it knows to be false or has very strong reason to doubt.” *United States v. Reyes*, 577 F.3d 1069, 1077 (9th Cir. 2009). It is also improper for Government counsel to make statements “designed to appeal to the passions, fears and vulnerabilities of the jury.” *Weatherspoon*, 410 F.3d at 1149. If a statement is deemed improper, the first step in determining whether such “misconduct affected the jury verdict” is to consider “the substance of a curative instruction.” *United States*

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v. Kerr, 981 F.2d 1050, 1053 (9th Cir. 1992) (analyzing prosecutor’s misconduct in personally vouching for key witnesses). In addition, a court must consider the “closeness of the case” in determining whether any misconduct was prejudicial. *Id.* at 1054. “When the case is particularly strong, the likelihood that prosecutorial misconduct will affect the defendant’s substantial rights is lessened because the jury’s deliberations are less apt to be influenced.” *Weatherspoon*, 410 F.3d at 1151.

b) Arguing Facts Not in Evidence

The Government’s statement that “the customer for the Cree chip was AVIC 607, which you heard develops missiles and missile guidance systems for China” was stating a reasonable inference from the evidence presented. Part of Defendant’s argument is premised on his characterization of Mattis’s testimony as speculative because of Mattis’s choice of words. As discussed above, Mattis’s word choice did not make his opinions speculation. Accordingly, the Government could reasonably rely on them in making the argument at issue.

That Mattis’s opinion did not specify the date when AVIC 607 began developing missiles is not material. The Government’s argument was also supported by documentary evidence presented at trial that suggested AVIC 607 was the customer for the Cree MMICs, and that the Cree MMICs had military applications. Defendant’s attempt to discount the documentary evidence connecting the Cree MMICs to AVIC 607 and military applications by arguing that the Government did not expressly

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make this connection during closing arguments, is not persuasive. This documentary evidence, in connection with Mattis's testimony, provided a sufficient basis for the Government's arguments. Accordingly, because the evidence demonstrates that the Government did not have a reasonable basis to question the accuracy of its statement or believe it was false, this challenge fails.

c) Appealing to the Fears of Jurors

As the Government correctly notes, Defendant first used the word "scare." Dkt. 671 at 83, 85, 87. The Government used the word "scary" twice in its rebuttal closing argument, *id.* at 91, 106. This was a reasonable response to Defendant's closing argument. *See United States v. Lopez-Alvarez*, 970 F.2d 583, 597 (9th Cir. 1992) (noting that "the propriety of the prosecutor's remarks must be judged in relation to what would constitute a fair response to the remarks of defense counsel.").

The Government's argument that the evidence showed the AVIC 607 was the customer for the Cree MMICs was a proper response to the defense that the Cree MMICs were prototypes that were developed during or resulted from Defendant's general research. From the beginning of the trial, Defendant argued that no license was required under the fundamental research exception. As a result, the Government's responses to this defense in both its first and rebuttal closing arguments was proper. Further, as discussed above, although Defendant's requested fundamental research defense jury instructions were not used, the Court's instructions provided an adequate basis

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for Defendant to present his theory and for the jury to consider it.

d) Prejudice

Even if the Government's statements were designed to appeal to the fears of the jurors, they were not prejudicial considering the substantial trial evidence presented by the Government. Defendant's argument that the Government's case was not strong focuses on the export violation charges and is based on many of the same arguments that Defendant raised in his MJOA. *See* Dkt. 634 at 48. Although the MJOA has been granted on Counts One and Two, this was due to narrow legal issues, not an absence of evidence. Similarly, the Government presented substantial evidence that the Cree MMICs had practical applications, were intended for AVIC 607, and Defendant and others acted in a manner that reflected an intent to evade export laws. For example, the evidence connected the funding of the Cree MMICs to Chinese backed companies, and the evidence showed certain MMIC shipments to China were made through circuitous and deceptive means, including giving them to Air China pilots to transport to China. Moreover, as discussed above, the Government presented sufficient evidence as to Counts Three through Ten. Nor has Defendant challenged the adequacy of the Government's evidence as to Counts Eleven through Eighteen.

Defendant's argument that the length of the jury deliberations indicates that the jury was unduly affected by the Government's statements is unpersuasive

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speculation. The length of deliberations can be the result of many factors, including the complexity of the evidence, the number of charges and necessary discussions about how to evaluate the evidence. Further, the Court instructed that members of the jury should “not allow personal likes or dislikes, sympathy, prejudice, fear, or public opinion to influence you.” Dkt. 671 at 107. Moreover, Defendant did not object to the alleged improper statements until well after closing arguments and did not request any curative instruction. Defendant’s attempt to justify this failure to object based on the Court’s expressed preference that parties not object during closing argument is unpersuasive. At a minimum, the issue could have been raised at a requested side bar, or immediately after the conclusion of the argument.

For these reasons, Defendant’s Motion for New Trial based on the Government’s statements during rebuttal closing argument is **DENIED**.

4. Vagueness Challenge to Counts One and Two

Defendant challenges his convictions in Counts One and Two by arguing that, if the Court finds that “rated for operation” in the ECCNs means “designed or rated for operation,” then the ECCNs are void for vagueness. Dkt. 634 at 49–51. Because the Court has not adopted that interpretation, *see* § IV.B.1, *supra*, Defendant’s argument fails. Therefore, Defendant’s Motion for New Trial based on the vagueness challenge to the ECCNs is **DENIED**.

*Appendix B***5. Defendant's Opportunity to Present a Complete Defense**

Defendant argues that a new trial is warranted because he was denied a meaningful opportunity to present his defense because the Court did not admit, or delayed the admission of defense exhibits and limited Defendant's cross-examination of certain witnesses. Dkt. 634 at 51–67. The exhibits at issue are Dr. Barner's internal Cree emails showing that Cree was profit driven, YouTube videos that show Cree describing the content of its web portal, and Defendant's UCLA personnel file. *Id.* at 53–60. As to the limitation of cross-examination, Defendant cites the limitations with respect to SA Miller about agent error and of Mai about Defendant's character for truthfulness. *Id.* at 60–67. Attachment C to the Motion for New Trial identifies 133 objections that were sustained during trial, and refers generally to times when the Court told Defendant's counsel to "move on" during cross-examination. *Id.* The Government disagrees with these positions. Dkt. 647 at 58–64. The Government also disputes Defendant's claim that the Court refused to rule on the admissibility of exhibits prior to closing argument and provides a detailed account of how each issue developed during the trial proceedings. *Id.* at 59–61.

Defendant has not provided persuasive arguments that warrant a new trial based on the cited rulings and process. Defendant generally relies on the same arguments that he made at trial, which the Court rejected after much discussion. "[T]he Constitution guarantees criminal defendants 'a meaningful opportunity to present

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a complete defense.” *United States v. Stever*, 603 F.3d 747, 755 (9th Cir. 2010) (quoting *Holmes v. South Carolina*, 547 U.S. 319, 324 (2006)). This right includes “the right to put before a jury evidence that might influence the determination of guilt.” *Id.* (quoting *Pennsylvania v. Ritchie*, 480 U.S. 39, 56 (1987)). However, the evidence that a defendant seeks to have admitted, is limited by the Federal Rules of Evidence.

As noted earlier, Fed. R. Evid. 403 provides that a court may “exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.” Fed. R. Evid. 403. “Rule 403 confers broad discretion on the trial judge.” *United States v. Hooton*, 662 F.2d 628, 636 (9th Cir. 1981); *see also Hamling v. United States*, 418 U.S. 87, 127 (1974) (“The District Court retains considerable latitude even with admittedly relevant evidence in rejecting that which is cumulative, and in requiring that which is to be brought to the jury’s attention to be done so in a manner least likely to confuse that body.”). Further, a “district court ... has considerable discretion in restricting cross-examination.” *United States v. Bensimon*, 172 F.3d 1121, 1128 (9th Cir. 1999). “Cross-examination should not go beyond the subject-matter of the direct examination and matters affecting the witness’s credibility.” Fed. R. Evid. 611(b). Applying these principles to the evidence at issue shows that a new trial is not warranted.

First, as to the Internal Cree emails, for the reasons stated at the time, the decision to delay the admission of

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these emails was proper. The initial denial of admission for lack of relevance and failure to establish the proper foundation was warranted because Defendant had not sufficiently linked the emails with the issue of compliance and knowledge of the export regulations. *See* § II.I.1, *supra*. Moreover, these emails were ultimately admitted, and there is no showing that even if they should have been admitted earlier, this caused any prejudice to an effective defense. Further, Defendant's argument that Cree was motivated by a desire to make profits, which is what Defendant claims these emails show, does not offset the evidence that Mai's misrepresentations to Dr. Barner were material for purposes of the mail and wire fraud charges. *See* § IV.B.2.b.1, *supra*. For all of these reasons, there was no material prejudice by the delay in the admission of these exhibits.

Second, as to the YouTube videos, the decision to admit only the three videos with a clear connection to Cree was proper for the reasons stated on the record at the time. Denying admission of the non-Cree videos was warranted because, as the Court stated at the time, those videos were cumulative, and it was less certain that the non-Cree videos showed the Cree web portal. *See* § II.I.2, *supra*. Further, when Defendant questioned Dr. Barner about the existence of certain YouTube videos that showed features of the PDK and how it could be used in design, Dr. Barner confirmed their existence. *See id.* Finally, any delay in admitting the three videos was not prejudicial because they were largely cumulative, given that Dr. Barner had confirmed the existence of YouTube videos that showed features of the PDK and how it could be used in design.

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Third, as to Defendant's UCLA personnel file, the decision to admit certain portions and exclude others was proper for the reasons stated at the time. Portions were excluded on grounds that they were duplicative, not understandable on their own, or both. *See* § II.I.3, *supra*. Defendant has not provided any new or persuasive arguments why the exclusion of specific portions of this personnel file was an error. Moreover, the portions of Defendant's UCLA personnel file that supported Defendant's arguments for why the file was relevant were admitted -- Defendant openly disclosed his affiliation with Chengdu Gastone to UCLA and Defendant was integrated into the UCLA community.

Fourth, the Court did not improperly limit Defendant's cross-examination of SA Miller. As the Court explained at the time, Defendant was able to explore fully the quality of the agents' search of Defendant's residence. *See* § II.I.4, *supra*. Therefore, Defendant's questions on the ultimate question of agent error were cumulative and unnecessary. *See, e.g., United States v. Miller*, 874 F.2d 1255, 1266 (9th Cir. 1989) (no abuse of discretion where the district court excluded evidence related to defendant's argument that the agent violated the FBI manual because defendant was able to explore extensively the quality of the investigation and possible bias during cross-examination, and the marginal probative value of the fact that the manual may have been technically violated was "outweighed by its potential for confusing the jury and wasting the court's time.").

Fifth, the cross-examination of Mai was not improperly restricted. The Court properly sustained the relevance

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objections at issue because the questions were not related to the subject matter of Mai's direct testimony or his potential bias or credibility. Therefore, it was not error to exclude them from cross-examination. Had Defendant sought to introduce evidence of Defendant's character, he could have recalled Mai as a character witness in his case-in-chief after making the requisite showing to allow the introduction of character evidence. *See* Fed. R. Evid. 405 (providing the appropriate methods for proving character); *Michelson v. United States*, 335 U.S. 469, 480 (1948) ("Both propriety and abuse of hearsay reputation testimony, on both sides, depend on numerous and subtle considerations . . .").

Finally, Defendant claims that the Court's instructions to Defendant's counsel to "move on" during cross-examination and the Court's rulings on the objections that were sustained as shown in Attachment C, were erroneous. Defendant makes broad assertions of error supported by generic arguments, but does not explain why these rulings on each objection in Attachment C or each time the Court instructed Defendant to "move on" were erroneous. The use of that phrase is a neutral means of promoting efficient proceedings without making a ruling that could be construed as critical of counsel. In sum, because Defendant has not offered a persuasive basis for the Court to revisit these trial rulings, they do not warrant granting a new trial, and the motion is denied on this ground. *See, e.g., United States v. Sogbein*, No. CR 12-00054-1 JSW, 2014 WL 12691533, at *2 (N.D. Cal. May 27, 2014), *aff'd sub nom. United States v. Adebimpe*, 649 F. App'x 449 (9th Cir. 2016) (denying defendant's motion for a new trial where defendant argued that the court made

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adverse evidentiary rulings but did “not offer[] the Court a reasoned basis to revisit each and every ruling it made prior to or during trial.”).

For the foregoing reasons, Defendant’s Motion for New Trial based on any and all of these grounds is **DENIED**.

6. Cumulative Effect of Errors

Defendant argues that the cumulative effect of the errors asserted in his Motion for New Trial made the trial fundamentally unfair, and violated his right to due process. Dkt. 634 at 67–68. For the same reasons stated above as to the particular claimed errors, there is not a basis to grant a new trial on the dependent contention of cumulative error.

VI. Conclusion

For the foregoing reasons, Defendant’s MJOA is **GRANTED IN PART** and **DENIED IN PART**. Defendant’s MJOA is granted as to Counts One and Two for the reasons stated, and Defendant’s MJOA is denied as to all other grounds raised by Defendant. Defendant’s Motion for New Trial is **DENIED**. The Motion to Strike is **DENIED**.

IT IS SO ORDERED.

Initials of Deputy
Clerk

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**APPENDIX C — ORDER DENYING PETITION
FOR REHEARING OF THE UNITED STATES
COURT OF APPEALS FOR THE NINTH CIRCUIT,
FILED SEPTEMBER 25, 2023**

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 20-50144

D.C. Nos.
2:18-cr-00050-JAK-1
2:18-cr-00050-JAK
Central District of California,
Los Angeles

ORDER

UNITED STATES OF AMERICA,

Plaintiff-Appellant,

v.

YI-CHI SHIH, AKA YUGI SHI, AKA YICHI SHIH,

Defendant-Appellee.

No. 21-50175

D.C. No.
2:18-cr-00050-JAK-1

Appendix C

UNITED STATES OF AMERICA,

Plaintiff-Appellee,

v.

YI-CHI SHIH, AKA YUGI SHI, AKA YICHI SHIH,

Defendant-Appellant.

Before: HURWITZ and R. NELSON, Circuit Judges.*

The panel has voted to deny the petition for panel rehearing.

Judge Nelson voted to deny the petition for rehearing en banc, and Judge Hurwitz so recommended. The petition for rehearing en banc was circulated to the judges of the Court, and no judge requested a vote for en banc consideration. Fed. R. App. P. 35.

The petition for panel rehearing and rehearing en banc, **Dkt. 100**, is **DENIED**.

* This case was decided by quorum of the panel. *See* 28 U.S.C. § 46(d); Ninth Circuit General Order 3.2(h).