

FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

UNITED STATES OF AMERICA, <i>Plaintiff-Appellant,</i> v. YI-CHI SHIH, AKA Yugi Shi, AKA Yichi Shih, <i>Defendant-Appellee.</i>	No. 20-50144 D.C. Nos. 2:18-cr-00050- JAK-1 2:18-cr-00050- JAK OPINION
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UNITED STATES OF AMERICA, <i>Plaintiff-Appellee,</i> v. YI-CHI SHIH, AKA Yugi Shi, AKA Yichi Shih, <i>Defendant-Appellant.</i>	No. 21-50175 D.C. No. 2:18-cr-00050- JAK-1
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Appeal from the United States District Court
for the Central District of California
John A. Kronstadt, District Judge, Presiding

Argued and Submitted May 10, 2023
Pasadena, California

Filed July 18, 2023

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

Opinion by Judge Hurwitz

SUMMARY**

Criminal Law

In a case in which a jury returned a guilty verdict on all counts in an indictment charging Yi-Chi Shih with various offenses arising out of the export of monolithic microwave integrated circuits (MMICs) to the People’s Republic of China, the panel reversed the district court’s judgment of acquittal on one count, affirmed Shih’s other convictions, and remanded.

The Export Administration Regulations (EARs), administered by the Department of Commerce’s Bureau of Industry and Security, impose controls on certain exports to “serve the national security, foreign policy, nonproliferation of weapons of mass destruction, and other interests of the

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

** This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

United States.” After the expiration of the Export Administration Act of 1979, the EARs were continued pursuant to Executive Order 13,222, which declared a national emergency under the International Emergency Economic Powers Act (IEEPA).

The panel rejected Shih’s argument that Executive Order 13,222 was an improper invocation of presidential authority. The panel also rejected Shih’s argument argued that IEEPA violates the nondelegation doctrine.

The judgment of acquittal on Count 2 (exporting MMICs without first having obtained the required license) rested on the district court’s construction of the term “rated for operation” in Export Control Classification Numbers 3A001.b.2.b and 3A001.b.2.c. The panel held that the district court erred in concluding that this term requires post-manufacture, pre-export testing. The panel therefore ordered reinstatement of the jury verdict on that count.

Shih argued that the district court erred by failing to give his proposed jury instruction on the fundamental research exemption. The panel rejected this argument because other instructions given in their entirety cover the defense theory.

The panel found no error in the district court’s evidentiary rulings because they were well within the district court’s discretion and Shih was able to present the substance of his defense. The panel found no reversible error in the admission of expert testimony. The panel held that even assuming Shih’s objection was timely, he did not establish that statements by the prosecutor during rebuttal argument so infected the trial with unfairness as to make the conviction a denial of due process. The panel found any error in the wire and mail fraud instructions harmless.

Addressing sufficiency of the evidence, the panel held: (1) as to Counts 1 and 2, a rational factfinder could find that the exported MMICs were not exempt from the EARs as fundamental research; (2) as to Counts 3 through 8, a reasonable factfinder could find Shih’s misrepresentations material, and that the evidence supports a finding that Shih deprived a manufacturer of confidential information, a cognizable property interest under mail and wire fraud statutes; (3) the wire and mail fraud convictions were not based upon the invalidated right-to-control property theory; (4) as to computer fraud (Count 9), a rational factfinder could find unauthorized access to a web portal in furtherance of a specified crime; and (5) Shih’s attacks on Count 10 (money laundering) fail because the panel rejected his attacks on the underlying counts.

The district court rejected Shih’s contention that he was denied due process in connection with the district court’s determination—on the government’s *ex parte, in camera* motion—that none of certain allegedly classified material was discoverable.

COUNSEL

Khaldoun Shobaki (argued), Assistant United States Attorney, Cyber & I.P. Crimes Section Deputy Chief; James C. Hughes and Melanie A. Sartoris, Assistant United States Attorneys; Bram M. Alden, Assistant United States Attorney, Criminal Appeals Section Chief; E. Martin Estrada, United States Attorney of Central District of California; Office of the United States Attorney; Los Angeles, California; Virginia M. Vander Jagt and Joseph F. Palmer, Appellate Counsels, National Security Division;

Steven M. Dunne, Appellate Unit Chief; Matthew G. Olsen, Assistant Attorney General for National Security; United States Department of Justice; Washington, D.C.; for Plaintiff-Appellant.

James W. Spertus (argued), M. Anthony Brown, and Christa Culver, Spertus Landes & Umhofer LLP, Los Angeles, California, for Defendant-Appellee.

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.

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

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

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).

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.

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, 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.

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.

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 (1981). Given that maxim, we have previously rejected a similar claim challenging continued enforcement of the EARs through executive orders after previous lapses 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 (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).

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 (2011). “Ordinarily, a word’s usage accords with its dictionary definition.” *Yates v. United States*, 574 U.S. 528, 537 (2015).

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

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-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”).

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 (2013). “Sometimes the better overall reading of the statute contains some redundancy,” *Rimini St., Inc. v. Oracle USA, Inc.*, 139 S. Ct. 873, 881 (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 (2007).

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. 23, 29 (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 (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

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).

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 “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 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.

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 (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, 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 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 (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 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)).

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.

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 (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

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

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’ns of Cal. v. NLRB*, 871 F.3d 767, 780 (9th Cir. 2017).

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.

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 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- 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 & 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 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 (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.

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 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.

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. § 743.3(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

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.

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).

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 (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 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 (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 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 must next determine whether the government has made a formal claim of the state secrets privileges, lodged by the head of

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 (2010). Because we find no legal flaw underlying those counts, we reject the argument.

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 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

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).

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**.