Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services	)	GN Docket No. 14-177
	)	
Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands	)	IB Docket No. 15-256
	)	
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band	)	RM-11664
	)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services	)	WT Docket No. 10-112
	)	
Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations	)	IB Docket No. 97-95

PETITION FOR RECONSIDERATION OF CTIA

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I. INTRODUCTION AND SUMMARY.

CTIA,[1] pursuant to Section 1.429 of the Commission's rules,[2] respectfully submits this Petition for Reconsideration of three provisions of the Commission's *Order* in the above-captioned proceeding.[3] CTIA asks the Commission to (1) rescind Rule 30.8, *5G Provider Cybersecurity Statement Requirements*; (2) allocate and license the 66-71 GHz band for terrestrial services; and (3) license the 37-37.6 GHz band for exclusive use as between non-federal users.

The Commission set ambitious goals in this proceeding: to establish mobile service rules for certain spectrum bands above 24 GHz, advance the next generation of wireless services, and, ultimately, unleash the 5G revolution across the United States. CTIA actively participated throughout, meeting with Commission staff and filing comments, reply comments, and numerous *ex parte* notices and presentations in this proceeding. The *Order* was developed and finalized with remarkable energy and speed, facilitating innovation and making additional spectrum available to advance the next phase of U.S. wireless leadership. While the *Order* takes important steps towards achieving its objectives, a few actions merit reconsideration.

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[1] CTIA® (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st century connected life. The association's members include wireless carriers, device manufacturers, and suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry's voluntary best practices, hosts educational events that promote the wireless industry, and co-produces the industry's leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

[2] 47 C.F.R. § 1.429.

[3] *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016) ("*Order*").

First, the Commission should reconsider and rescind Rule 30.8 because it violated the Administrative Procedure Act ("APA") and other procedural requirements, and is substantively flawed. Rule 30.8 requires 5G providers to submit statements signed by a senior executive describing the licensee's network security plans and related information. The Commission never provided public notice of the rule, which is unnecessary, contrary to settled policy, and likely to have unintended consequences. The Commission's adoption of Rule 30.8 is unsupported, making it arbitrary and capricious.

Second, the Commission should allocate and license the 66-71 GHz band for terrestrial services. The Commission provided no evidence for its conclusion that unlicensed devices could make use of the band "in the very near future," and there is no reason to expect that integration of the band will occur more rapidly for unlicensed use than licensed given that unlicensed proponents will need to work with industry standards bodies to develop equipment requirements and technical specifications. In contrast, the 66-71 GHz band already is being considered as part of the licensed 5G wireless standards, so there would not be a need for any additional effort to integrate this spectrum band into commercial deployments. The Commission also failed to provide notice and an opportunity to comment on its ultimate application of an undisclosed weighting factor to the 64-71 GHz band to compensate for the band's propagation characteristics.

Third, the Commission should license the 37-37.6 GHz band for exclusive use as between non-federal users rather than on a non-exclusive, license by rule basis. Sharing with co-primary federal users can be effectuated through a condition on the licenses requiring coordinated use with federal parties. This approach was used to much success in the deployment

of AWS-1 and AWS-3 spectrum, and can provide a foundation for efficient use of this 600 megahertz of high band spectrum.

II. RULE 30.8 IS PROCEDURALLY DEFECTIVE AND FLAWED, AND SHOULD BE RESCINDED.

A. The Commission Violated The Administrative Procedure Act In Adopting Section 30.8.

The Commission should rescind Rule 30.8.[4] The Commission failed to provide notice and an opportunity to comment as required by the APA.[5] This, and the lack of a reasoned explanation and support for Rule 30.8, render its adoption arbitrary and capricious.

1. The Commission Failed To Provide Notice That It Was Considering A Mandate For 5G Providers To Submit Cybersecurity Certifications.

The APA requires an agency to "publish notice of its proposed rulemaking that includes 'either the terms or substance of the proposed rule or a description of the subjects and issues involved.'"[6] The APA "does not simply erect arbitrary hoops through which federal agencies must jump without reason," but rather "improves the quality of agency rulemaking by exposing regulations to diverse public comment, ensures fairness to affected parties, and provides a well-developed record."[7] The FCC did not provide notice of its intent to impose a cybersecurity certification requirement or the substance of the rule. This is ground for immediate rescission.[8]

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[4] 47 C.F.R. § 30.8. Rule 30.8 was published in the *Federal Register* on November 14, 2016 but does not become effective until approved by the Office of Management and Budget. *See* 81 Fed. Reg. 79894 (Nov. 14, 2016).

[5] *See* 5 U.S.C. § 553.

[6] *Ariz. Pub. Serv. Co. v. EPA*, 211 F.3d 1280, 1299 (D.C. Cir. 2000) (quoting 5 U.S.C. § 553(b)(3)).

[7] *Sprint Corp. v. FCC*, 315 F.3d 369, 373 (D.C. Cir. 2003) (citation and internal quotation marks omitted).

[8] *See, e.g.*, *Provision of Aeronautical Services via the Inmarsat System*, Order on Reconsideration and Further Notice of Proposed Rulemaking, 11 FCC Rcd 5330, 5330 ¶ 2, 5332

The lengthy and complex *NPRM* raised numerous issues, but contained no discussion of Rule 30.8.[9] Nor did the rule appear in the *NPRM*'s appendix of proposed rules[10] or in the *Federal Register* notice.[11] The Commission failed to seek comment even on *whether* to impose a requirement at all. The *NPRM* merely sought comment on "how to ensure that effective security features are built into key design principles for all mmW band communications devices and networks" without setting forth any specific proposals.[12] The *NPRM*'s broad questions did not provide the notice that the APA requires.[13] Commenters had no reason to anticipate the requirement. This is particularly so given the focus on collaborative cybersecurity under the Chairman's "new paradigm."[14] And, "an unexpressed intention cannot convert a final rule into a 'logical outgrowth' that the public should have anticipated."[15]

The record confirms the lack of notice. Commenters focused on steps industry is taking to address cybersecurity and 5G in particular, and emphasized the government's role supporting

¶ 13 (1996) (granting a petition for reconsideration where the FCC acknowledged it "may not have complied with the [APA]" because it "failed to give interested parties a reasonable opportunity to participate in the rulemaking" and "should have provided better notice").

[9] *See Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, 30 FCC Rcd 11878, 11952-53 ¶¶ 260-65 (2015) ("*NPRM*").

[10] *See id.*, App'x A.

[11] *See* 81 Fed. Reg. 1802 (Jan. 13, 2016).

[12] *NPRM* ¶ 261.

[13] *See id.* ¶¶ 260-65.

[14] *See* FCC Chairman Tom Wheeler, Remarks at the American Enterprise Institute (June 12, 2014), https://apps.fcc.gov/edocs_public/attachmatch/DOC-327591A1.pdf.

[15] *Council Tree Commc'ns, Inc. v. FCC*, 619 F.3d 235, 254 (3d Cir. 2010) (citation and internal quotation marks omitted).

innovation.[16] Commenters learned of the possibility of a security obligation for the first time in a "fact sheet" that the Commission published *after* the proposed rule was on circulation and *less than a month before* the *Order* was adopted.[17] This is not adequate.[18] The Fact Sheet stated:

> the rules, if adopted, promote security by design without creating a significant regulatory burden. The proposal would require licensees to file a statement before deployment that includes certain security-related information, such as a description of participation in standards body security work, its intended approach to security, and the implications their security by design will have for other parts of the 5G ecosystem.

This short, vague description calls the obligation a "proposal" and bears little resemblance to the final rule. A few commenters filed eleventh hour *ex parte* notices addressing the possibility of a new regulation as they understood it,[19] but the public was never privy to the rule's text. And, despite concerns raised about diverting resources, the availability of information from equipment manufacturers,[20] and other issues, the Commission adopted Rule 30.8 shortly thereafter. This flouted the purpose of public comment, which "enables the agency

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[16] *See, e.g.*, *Ex Parte* Presentation of CTIA, GN Docket No. 14-177, et al. (May 23, 2016); *Ex Parte* Notice of 5G Americas, GN Docket No. 14-177, et al. (Apr. 8, 2016); *Ex Parte* Notice of Competitive Carriers Association, GN Docket No. 14-177, et al. (Feb. 23, 2016).

[17] *See* Federal Communications Commission, *Fact Sheet: Spectrum Frontiers Proposal to Identify, Open up Vast Amounts of New High-Band Spectrum for Next Generation (5G) Wireless Broadband* (June 23, 2016), https://www.fcc.gov/document/fact-sheet-spectrum-frontiers-item.

[18] *See, e.g.*, *Prometheus Radio Project v. FCC*, 652 F.3d 431, 448-54 (3d Cir. 2011) (holding that an op-ed and press release "did not satisfy the APA's notice requirements" because it "raise[d] for the first time substantive issues," "was not published in the *Federal Register*," and because the FCC adopted it five weeks later, with "little opportunity for meaningful consideration").

[19] *See, e.g.*, *Ex Parte* Notice of Competitive Carriers Association, GN Docket No. 14-177, et al. (July 7, 2016) ("CCA July 7 *Ex Parte*"); *Ex Parte* Notice of Verizon, GN Docket No. 14-177, et al. (July 7, 2016) ("Verizon July 7 *Ex Parte*"); *Ex Parte* Notice of AT&T, GN Docket No. 14-177, et al. (July 6, 2016) ("AT&T July 6 *Ex Parte*").

[20] *See* CCA July 7 *Ex Parte*.

to maintain a flexible and open-minded attitude towards its own rules."[21] Rule 30.8 was never "tested via exposure to diverse public comment," and "affected parties [have not had] an opportunity to develop evidence in the record to support their objections to the rule."[22]

2. The Commission Did Not Provide A Reasoned Explanation Or Support For Rule 30.8.

A rule is arbitrary and capricious if it is not "supported by substantial evidence on the record considered as a whole."[23] The Commission must "consider[] the relevant factors" when proposing new rules.[24] And "an agency rule [normally will] be arbitrary and capricious if the agency has . . . entirely failed to consider an important aspect of the problem."[25]

Adoption of Rule 30.8 was arbitrary and capricious because the Commission did not provide a reasoned explanation or evidence of its impetus or supposed benefits. For example:

- The *Order* claims, without evidence or support, that "many wireless communications systems have not been successful at implementing security-by-design."[26]
- The *Order* cobbles together quotes that are supportive of 5G and security by design,[27] but they are stripped of context and do not support the leap to mandatory certifications.
- The *Order* asserts that the rule will enable the Commission to "provide timely, measured and effective responses to address any emerging problems before they become intractable"[28] but does not indicate what the problems might be or how the FCC—as distinct from other agencies or private expertise—would address them.

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[21] *Prometheus Radio Project*, 652 F.3d at 449 (citation, internal quotation marks, and alterations omitted).

[22] *Id*. (citation and internal quotation marks omitted).

[23] *Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 44 (1983) (citation and internal quotation marks omitted).

[24] *Sinclair Broadcast Group, Inc. v. FCC*, 284 F.3d 148, 159 (D.C. Cir. 2002).

[25] *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

[26] *Order* ¶ 256.

[27] *Id*. ¶¶ 259-61.

[28] *Id*. ¶ 265.

Indeed, it is hard to imagine how the record *could* support the Rule. The few parties commenting on the Fact Sheet's "proposal" opposed it.[29]

The Commission also overlooked important issues. For example, because Rule 30.8 focuses solely on 5G licensees, it ignores other parts of the global mobile ecosystem that are vital to security. The *Order* claims that the Rule will encourage "infrastructure and device firms" to consider security[30] but does not address others in the ecosystem and does not explain how regulating licensees will do so. The FCC also ignored the concern that regulation would "undermin[e] the existing robust partnership that presently exists between the public and private sectors."[31] The Commission does not explain its deviation from settled policy and the Chairman's "new paradigm," which promotes partnership and treats regulation as a *last* resort. Thus, the Rule is arbitrary and capricious and should be reconsidered.

B. The Commission Violated The Regulatory Flexibility Act And The Paperwork Reduction Act.

The Commission's failure to provide notice also led to violations of the Regulatory Flexibility Act ("RFA")[32] and the Paperwork Reduction Act ("PRA").[33] The RFA requires agencies to "prepare and make available for public comment an initial regulatory flexibility analysis" describing "the impact of the proposed rule on small entities."[34] Because the *NPRM* contained no mention of Rule 30.8, the Commission's initial regulatory flexibility analysis failed

[29] *See, e.g.*, CCA July 7 *Ex Parte*; Verizon July 7 *Ex Parte*; AT&T July 6 *Ex Parte*.

[30] *Order* ¶ 257.

[31] AT&T July 6 *Ex Parte*.

[32] 5 U.S.C. §§ 601 *et seq.*

[33] 44 U.S.C. §§ 3501 *et seq.*

[34] 5 U.S.C. § 603(a).

to address the impact of the rule on small entities, as required.[35] And the final analysis[36] could not adequately address these issues because they were not the subject of comment.

Similarly, the PRA requires notice and an opportunity to comment on information collection requirements in order to "evaluate whether the proposed collection of information is necessary," "evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information," "enhance the quality, utility, and clarity of the information to be collected," and "minimize the burden of the collection of information."[37] Because Rule 30.8 contains information collection requirements that were never published in the *NPRM* or *Federal Register*, the rule's adoption violated the PRA. The Commission cannot know how burdensome the certifications will be, particularly given the obligation to update them for material changes.[38]

C. Rule 30.8 Is Contrary To Federal Policy And Will Have Unintended Consequences.

The Commission should reconsider and rescind Rule 30.8 for several reasons that would have been developed with proper notice and comment.

1. Rule 30.8 Upends Settled Policy And Improperly Extends FCC Authority.

Rule 30.8 is a major change in the FCC's approach to cybersecurity, without a clear source of authority or delegation, and at odds with federal policy. Such a change should come from Congress and be the product of serious consideration, not a hastily considered regulation shielded from public review.

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[35] *See NPRM*, App'x B.

[36] *See Order*, App'x E.

[37] 44 U.S.C. § 3506(c)(2)(A)(i)-(iv).

[38] *See Order* ¶ 263 n.673.

Congress has not delegated cybersecurity regulatory authority to the FCC, focusing on the Department of Homeland Security ("DHS") and other agencies to manage cybersecurity risk by emphasizing public-private partnerships. As the sector-specific agency for communications,[39] DHS is engaged in activities in the communications sector, including the National Cybersecurity and Communications Integration Center ("NCCIC"),[40] the Critical Infrastructure Cyber Community,[41] and the Communications Sector Coordinating Council ("CSCC").[42] DHS's Science and Technology Directorate works with numerous public and private parties on security research,[43] and DHS addresses other communications-related security as directed by Congress.[44]

Executive Branch policy is the same. Presidential executive orders task DHS, the National Institute of Standards and Technology ("NIST"), and others with cybersecurity policy and action. Executive Order 13691 gave DHS a central role in encouraging Information Sharing

[39] *See, e.g.*, Presidential Policy Directive-21, *Critical Infrastructure Security and Resilience* (Feb. 12, 2013), *available at* https://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil.

[40] *See* U.S. Department of Homeland Security, National Cybersecurity and Communications Integration Center, https://www.dhs.gov/national-cybersecurity-and-communications-integration-center (last published Jan. 19, 2016).

[41] *See* U.S. Department of Homeland Security, Critical Infrastructure Cyber Community C^3 Voluntary Program, https://www.dhs.gov/ccubedvp (last published Oct. 14, 2015).

[42] *See* U.S. Department of Homeland Security, Communications Sector, https://www.dhs.gov/communications-sector (last published June 28, 2016).

[43] *See* U.S. Department of Homeland Security, Science and Technology, https://www.dhs.gov/science-and-technology (last visited Dec. 12, 2016).

[44] *See* U.S. Department of Homeland Security, Study on Mobile Device Security: RFI for Mobile Threats and Defenses, https://www.dhs.gov/csd-mobile-rfi-industry-days-2016 (studying federal mobile security at Congressional direction); Cybersecurity Information Sharing Act of 2015, Pub. L. No. 114-113, 129 Stat. 2242 (2015) (making DHS central point for information sharing).

and Analysis Organizations ("ISAOs").[45] Executive Order 13636 called for a voluntary, framework to reduce cybersecurity risks,[46] which NIST created with the private sector.[47] No Presidential executive order or policy directive contemplates a cybersecurity leadership role for the FCC. Not surprisingly, the President's *Commission on Enhancing National Cybersecurity*[48] recently recommended steps for DHS and other agencies, with no mention of FCC action.

Prior to the adoption of Rule 30.8, the Commission took a modest role in cybersecurity. As Chairman Wheeler observed, "[t]he pace of innovation on the Internet is much, much faster than the pace of a notice-and-comment rulemaking," and the FCC "cannot hope to keep up if [it] adopt[s] a prescriptive regulatory approach."[49] The Commission thus favors "business-driven cybersecurity risk management," because a "flexible, adaptable approach," like NIST's *Cybersecurity Framework* is "the only workable strategy for securing commercial networks."[50] Where the FCC addresses cybersecurity in the Communications Security, Reliability and

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[45] Executive Order 13691 of February 13, 2015, *Promoting Private Sector Cybersecurity Information Sharing*, 80 Fed. Reg. 9349, § 2(a) (Feb. 20, 2015).

[46] Executive Order 13636 of February 12, 2013, *Improving Critical Infrastructure Cybersecurity*, 78 Fed. Reg. 11739, § 7(a) (Feb. 19, 2013).

[47] *See* National Institute of Standards and Technology, Framework for Improving Critical Infrastructure Cybersecurity (Feb. 12, 2014) ("*Cybersecurity Framework*"), http://www.nist.gov/cyberframework/upload/cybersecurity-framework-021214.pdf.

[48] *See* Commission on Enhancing National Cybersecurity, *Report on Securing and Growing the Digital Economy*, at 15 (Dec. 1, 2016), *available at* https://www.whitehouse.gov/sites/default/files/docs/cybersecurity_report.pdf.

[49] FCC Chairman Tom Wheeler, Remarks at the American Enterprise Institute (June 12, 2014), https://apps.fcc.gov/edocs_public/attachmatch/DOC-327591A1.pdf.

[50] *Id*.

Interoperability Council ("CSRIC") and Technological Advisory Council, its focus is on voluntary efforts.[51]

The *Order* reflects a substantial change in direction and opens the door to future cybersecurity regulation. But it does not clearly state under what authority the FCC can reach beyond the routine management of radio transmissions to the broader ecosystem of devices[52] and software. Nor does it explain its authority to inquire about ISAO[53] and standard-body[54] participation.

The FCC attempts to downplay Rule 30.8's departure from past policy by analogizing it to "reporting requirements" imposed for the Emergency Alert System ("EAS") and television "white spaces."[55] In the EAS context, the Commission required state EAS plans to include a description of steps taken by the EAS participant, if any, to provide multilingual alerts, and allowed the requirement to "be fulfilled by indicating that no steps have been taken."[56] In contrast to that flexible and outcome-agnostic requirement, Rule 30.8 requires 5G providers to provide detailed information regarding specified steps taken by licensees. Licensees must describe—"at a minimum"—their "approach" to network "confidentiality, integrity, and

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[51] *See* Federal Communications Commission, Communications Security, Reliability, and Interoperability Council, https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability-10 (last visited Dec. 12, 2016); Federal Communications Commission, Technical Advisory Council, https://www.fcc.gov/general/technological-advisory-council (last visited Dec. 12, 2016).

[52] 47 C.F.R. § 30.8(a)(1), (2), (4).

[53] 47 C.F.R. § 30.8(a)(6).

[54] 47 C.F.R. § 30.8(a)(4).

[55] *See Order* ¶ 265 n.678.

[56] *Review of the Emergency Alert System*, Order, 31 FCC Rcd 2414, 2425 ¶ 21 (2016) ("*EAS Order*").

availability" as to communications from devices to the network, between network elements, networks, and devices.[57] Licensees must describe their "anticipated approach" to risk from multiple band participants,[58] as well as standards and practices "to be employed," which must be "industry recognized or related to some other identifiable approach."[59] The rule also demands information on "plans to incorporate" information from ISAOs.[60] Most of the reporting obligations are predicated on an underlying expectation, unlike standards body work, about which licensees must simply describe "the extent to which the licensee participates."[61]

It seems unlikely that the FCC will be satisfied, as in EAS, with a statement that "no steps have been taken."[62] Indeed, licensees may fear enforcement should they take the wrong view or omit information the FCC deems relevant, because it is unclear how the obligations will be interpreted. The *Order* emphasizes the duty to be "truthful and accurate" in Section 1.17[63] and a requirement to "file updates" if there are "material changes" to the information.[64]

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[57] 47 C.F.R. § 30.8(a), (a)(1).

[58] 47 C.F.R. § 30.8(a)(2).

[59] 47 C.F.R. § 30.8 (a)(3).

[60] 47 C.F.R. § 30.8 (a)(6).

[61] 47 C.F.R. § 30.8 (a)(4).

[62] *EAS Order* ¶ 21.

[63] *Order* ¶ 264 n.677. The FCC has made clear that "a false statement may constitute an actionable violation of Section 1.17 of the Rules if provided without a reasonable basis for believing that the material factual information it contains is correct and not misleading," *Cardinal Broadband, LLC*, Forfeiture Order, 27 FCC Rcd 7985, 7987 ¶ 7 (2012). Section 1.17 is intended to "prohibit incorrect statements or omissions that are the result of negligence, as well as an intent to deceive," *Amendment of Section 1.17 of the Commission's Rules Concerning Truthful Statements to the Commission*, Report and Order, 18 FCC Rcd 4016, 4017 ¶ 2 (2003).

[64] *Order* ¶ 262 n.673.

Nor is the FCC's white spaces regime a good analogy. There, in response to requests for specific security regulations, the FCC adopted obligations to ensure the "protection of databases and connections between devices and databases regarding channel availability."[65] The FCC required "[a]pplications for certification of TV bands devices" to have "a high level operational description of the technologies and measures that are incorporated in the device to comply with the security requirements of this section."[66] Those "security requirements" were targeted at known use cases and parties.[67] As highlighted above, Rule 30.8 does not merely require 5G providers to provide a summary of compliance with specific requirements. Indeed, the comparison reveals how the Commission equivocates when it requires licensees to provide "high level" information, but lists detailed "elements," use cases and practices that, "at a minimum,"[68] must be addressed.

The rush to adopt Rule 30.8 in the absence of Congressional direction raises questions about Commission authority, and the FCC nowhere explains its authority to regulate cybersecurity. As Commissioner Pai explained, the Commission "lack[s] the expertise and authority" to regulate cybersecurity issues, which are "better left for security experts to handle in a more comprehensive way."[69] Moreover, as Commissioner O'Rielly recognized, Rule 30.8 is

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[65] *Unlicensed Operations in the TV Broadcast Bands*, Second Memorandum Opinion and Order, 25 FCC Rcd 18661, 18703 ¶ 98 (2010) ("*White Spaces Order*").

[66] 47 C.F.R. § 15.711(j)(4).

[67] *White Spaces Order* ¶ 100. The FCC required that "fixed and Mode II TVBDs only be capable of contacting databases operated by administrators designated by the Commission," and that "communications between TV bands devices and databases be transmitted using secure methods to prevent corruption or unauthorized modification of data." *Id.* ¶¶ 98, 99.

[68] 47 C.F.R. § 30.8(a).

[69] *Order*, Statement of Commissioner Ajit Pai.

an example of "the Commission gathering data for the purposes of monitoring, but it is really a means for the Commission to interfere in the design and operations of networks and the starting point for future regulation."[70] The Commission should not go down this path.

2. Rule 30.8 Is Unjustified, Unnecessary, And Will Do More Harm Than Good, As The FCC Would Have Seen If It Had Taken Comment.

The Commission has a burden to justify its foray into regulating cybersecurity, but the *Order* fails to establish a problem the agency is solving or explain how Rule 30.8 will improve security. In fact, the certification requirement is flawed and will do more harm than good.

The Commission provided no evidence that existing network security efforts suffer from market failures or are inadequate. As Commissioner O'Rielly recognized, "wireless providers have every incentive to ensure the soundness of their networks" because "[a] lack of security measures, or even worse a security breach, results in a loss of subscribers, which is not a successful business plan."[71] From 2G to LTE, the private sector has addressed security through constant innovation and iterations of wireless technology for decades. Longstanding efforts have yielded success and wireless networks transmit billions of communications every day securely. Operators and others in the ecosystem work effectively to handle their traffic, ensure continuously available service, and mitigate threats. The global ecosystem is working to strengthen all aspects of 5G security through a multi-layered approach that includes original equipment manufacturers, operating system providers, wireless service providers, application designers, and standards bodies and associations. The wireless industry also is collaborating with DHS, NIST, and others to address 5G interoperability, security, and emerging use cases, sharing information about best practices in the NCCIC, the Communications Information

[70] *Id*., Statement of Commissioner Michael O'Rielly.

[71] *Id*.

Sharing and Analysis Center, the CSCC, and the National Security Telecommunications Advisory Committee.

The Commission does not show how its regime will improve this robust security environment. It is unclear what the FCC means when it says the new requirement might enable the agency to provide "responses to address any emerging problems before they become intractable."[72] Commission staff is not better able to assess a 5G provider's network security than the company's executives, IT and security professionals, and auditors. Nor does the Commission explain why a *public* filing or open dialogue is needed; it claims that disclosures can "facilitate multi-stakeholder peer review," and "expect[s] that these disclosures will contain information that could be disclosed at a standards meeting where stakeholders gather to share ideas and information."[73] Review already occurs at DHS, the CSCC, associations, and standards groups, and such meetings are often not public and usually involve trusted partners.

Not only does the Commission fail to explain how Rule 30.8 might improve security, it is likely to be ineffective. *First*, it is not based on fundamental risk management principles. For example, the Rule requires a description of the licensee's approach to protecting communications in four use cases and its approach to "assessing and mitigating cyber risk induced by the presence of multiple participants in the band" across four communication flows.[74] The Commission did not receive comment on these use cases, and its selection of relevant communication flows is premature because the supporting architecture for 5G is presently in development and is likely to remain in flux. It is unclear why the FCC is focused on machine-to-

[72] *Id*. ¶ 265.

[73] *Id*. ¶ 264.

[74] *See* 47 C.F.R. § 30.8(a)(1), (2).

machine communications or other particular concerns.[75] Nor did the FCC seek comment on or justify its judgment that the "presence of multiple participants in the band"[76] raises unique risks that need to be assessed and mitigated.

Second, if Rule 30.8 is to be taken at face value,[77] the information it demands is unlikely to be useful. The *Order* states that licensees "should not provide information at [such] a level of granularity that its public disclosure would jeopardize the competitive position of the licensee."[78] If information is too high level, it is unlikely to be the sort of information that would generate "effective responses to address any emerging problems."[79] But if it seeks more information, such information would be subject to risk of public disclosure.[80] The FCC has set up a regime that is unnecessary and unlikely to be useful.

In fact, Rule 30.8 may undermine security. The resources needed to create, vet, and adhere to federal certifications will detract from scarce cybersecurity expertise, particularly given the lack of clarity around many parts of the Rule.[81] It will be challenging for licensees to be sure

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[75] *See* 47 C.F.R. § 30.8(a)(6) (requiring "comment on machine-to-machine threat information sharing").

[76] *See* 47 C.F.R. § 30.8(a)(2).

[77] Rule 30.8 prescribes the "minimum" content required in the rule. 47 C.F.R. § 30.8(a). It is not clear what extra information the FCC might envision a licensee providing.

[78] *Order* ¶ 264.

[79] *Id*. ¶ 265.

[80] The FCC recognizes concerns about public dissemination and notes that it can afford confidential treatment. This nod is insufficient. The *Order* indicates it will require justification of confidential treatment and "work toward a Statement that can be shared publicly." *Order* ¶ 264 n. 676. FCC records remain subject to requests for disclosure and judicial review, so materials remain at risk.

[81] For example, the requirement to describe the security approach to communications from a "licensee's network to another network" doesn't differentiate between types of networks or explain whether "another network" refers to another carrier's network. *See* 47 C.F.R. § 30.8(a)(1)(iii). The requirement to address communications from "[o]ne element of the

they are providing enough, or the right, information to comply. Worse, certification requirements encourage a "compliance mindset" ill-suited to a dynamic context like cybersecurity, which requires nimble responses and innovation. Rule 30.8 encourages licensees to focus on specific issues and use cases and elevates plans rather than creative responses, in real time, to pressing problems.[82] Rule 30.8 threatens security by publicizing information that can help bad actors. Network providers take pains to not reveal security plans, system architectures, or the tools they use. Public dissemination of even "high level" network security plans risks exacerbating threats.

Finally, and unfortunately, the *Order* expressly contemplates future regulation.[83] This is a troubling harbinger that threatens to chill public-private partnerships and fragment global security efforts. This will harm security by limiting information sharing and collaboration. As for fragmentation, federal efforts are starting to multiply and may diverge. FCC activity may inspire state governments as well as non-U.S. entities to adopt their own approaches to cybersecurity regulation. This will multiply burdens, slow responses, and stymie innovation.

For all these reasons, the Commission should rescind Rule 30.8 on reconsideration.

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licensee's network to another element on the licensee's network" is similarly broad; it is unclear which of myriad network elements a certification must cover. *See* 47 C.F.R. § 30.8(a)(1)(ii).

[82] Indeed, the *Order* states that licensees must update certifications if their approaches materially change, creating administrative challenges for companies eager to ensure compliance, who must consider updating the FCC anytime their security approaches evolve.

[83] *See Order* ¶ 264 n.677 (noting that the Commission may "engage in future rulemaking in this area" based on licensees' statements in response to Rule 30.8).

III. THE 66-71 GHZ BAND SHOULD BE ALLOCATED AND LICENSED FOR TERRESTRIAL SERVICES.

The *Order* adopted rules permitting unlicensed operations in the 64-71 GHz band, which, with the 57-64 GHz band, creates a contiguous 14 gigahertz spectrum segment for unlicensed devices.[84] In reaching this decision, the Commission rejected allocating the 66-71 GHz band for flexible use mobile broadband licenses, stating that licensing the spectrum would ensure that five gigahertz of spectrum would lay fallow for years while unlicensed devices could make use of the spectrum "in the very near future."[85] The Commission also rejected arguments for "gigahertz parity"—balancing spectrum between licensed and unlicensed uses in the millimeter wave bands.[86] To justify this decision, the Commission noted that spectrum characteristics vary at different frequencies (due to propagation losses and other atmospheric and sharing conditions) and a strict linear comparison of spectrum allotted to licensed and unlicensed, as suggested by commenting parties, would be an invalid comparison for the millimeter wave bands.[87] In fact, as discussed below, the Commission's conclusion against providing "gigahertz parity" in the 28 GHz, 37 GHz, 39 GHz and 64-71 GHz bands provides no basis for the disproportionate weighting in the *Order*.

CTIA urges the Commission to reconsider its reservation of the entire 64-71 GHz band for unlicensed operations and instead provide a more equitable distribution of spectrum. This could be accomplished by licensing the 66-71 GHz band, while still providing unlicensed use of the 57-66 GHz band. This allocation would result in a nearly equivalent distribution of

[84] *Id*. ¶ 130.

[85] *Id*.

[86] *Id*.

[87] *Id*.

millimeter wave band spectrum between the two uses: nine gigahertz for unlicensed devices and 8.85 gigahertz for licensed services, a result clearly in the public interest.

A. Licensing The 66-71 GHz Band Will Not Delay Spectrum Deployment.

The reservation of the 66-71 GHz band solely for unlicensed uses is unsupported by record evidence. The sole basis for the decision is the Commission's assertion that the 66-71 GHz band would lay fallow if allocated and licensed for terrestrial mobile services. Similarly, the decision carries the inference that unlicensed uses will come to market before licensed solutions can be deployed. Both of these conclusions, however, are speculative and lack any factual basis in the record.

As an initial matter, the Commission has provided no evidence for its conclusion that unlicensed devices could make use of the 64-71 GHz band "in the very near future."[88] The text of the *Order* suggests that current planned deployments of WiGig products means that use of the 64-71 GHz band by unlicensed devices could be expedited.[89] However, the Commission cites only standards efforts for the 57-64 GHz band, not actual product development and deployment.[90] Indeed, the Commission adopted rules for use of the 57-64 GHz band for unlicensed uses in 2013[91]—yet today there are only five products that have been certified by the Wi-Fi Alliance for use of this band.[92] The Commission makes no conclusion that integration of the 64-71 GHz band will occur at a more rapid pace than the more than three-year process it took

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[88] *Id*.

[89] *Id*.

[90] *Id*.

[91] *Revision of Part 15 of the Commission's Rules Regarding Operation in the 57-64 GHz Band*, Report and Order, 28 FCC Rcd 12517 (2013).

[92] *See* Wi-Fi Alliance, Product Finder, http://www.wi-fi.org/product-finder-results?sort_by=certified&sort_order=desc&certifications=62 (last visited Dec. 14, 2016).

for standards to develop for the 57-64 GHz band. Just as is true for allocated and licensed spectrum, unlicensed proponents will need to work with industry standards bodies to develop equipment requirements and technical specifications prior to the sale of any devices that might use the 64-71 GHz band.

More importantly, licensed wireless standards have also been steadily progressing for the millimeter wave bands, with numerous trials underway and initiation of service as soon as 2017.[93] Moreover, the 66-71 GHz band is being considered as part of the licensed 5G wireless standards,[94] so there would not be a need for any additional effort to integrate this spectrum band into commercial deployments, unlike the new efforts that will be needed for unlicensed use of the band.[95] Under these circumstances, contrary to the Commission's assertions, licensed use of the 66-71 GHz spectrum would occur in an expeditious fashion—and is further along than any potential use of the band for unlicensed operations.

B. The Commission Failed To Provide A Technical Basis For The Spectrum Disparity Between Licensed And Unlicensed Uses.

The Commission also argues that differing propagation and other technical characteristics undercut the basis for a "gigahertz parity" requirement between licensed and unlicensed uses of the millimeter wave bands, but it fails to quantify or justify this assertion in

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[93] Dan Meyer, *Ericsson Predicts North America to Lead Initial 5G Push*, RCR WIRELESS NEWS (Nov. 23, 2016), http://www.rcrwireless.com/20161123/carriers/ericsson-predicts-north-america-lead-initial-5g-push-tag2.

[94] *See e.g.*, 3GPP TR 38.913 v14.0 (2016-10), *3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Study on Scenarios and Requirements for Next Generation Access Technologies;* (Release 14).

[95] *See* Comments of AT&T, GN Docket No. 14-177, et al., at 17 (Jan. 28, 2016); Comments of Huawei, GN Docket No. 14-177, et al., at 19-20 (Jan. 28, 2016); Comments of Nokia, GN Docket No. 14-177, et al., at 14 (Jan. 28, 2016), Comments of T-Mobile, GN Docket No. 14-177, et al., at 14-15 (Jan. 28, 2016).

any fashion.[96] While CTIA agrees that different spectrum bands will have different physical and propagation characteristics, the Commission provides no technical basis or engineering analysis that demonstrates that the 14 gigahertz of spectrum made available for unlicensed devices[97] is more than *four* times less useful than the 3.25 GHz of spectrum allocated for licensed services in the 28 GHz and 37 GHz bands.[98]

In other similar circumstances, the courts have found that the Commission must provide "a reasoned explanation" for relying upon a technical factor in reaching a decision.[99] Simply making a declaratory statement, with no basis or engineering support for that statement, does not provide a "reasoned explanation" for a Commission determination. Moreover, the Commission never discloses what factor it believes is appropriate to diminish the effectiveness of the 64-71 GHz band spectrum when compared to the physical properties of the 28 and 37 GHz bands—and never sought comment from the public on this calculation. The courts have insisted that an agency "examine the relevant data and articulate a satisfactory explanation for its action."[100] In this instance, however, there is simply no data provided on the record—this is unsurprising as the Commission never gave notice that it was considering a weighting factor that would be applied to the 64-71 GHz band due to its propagation deficiencies. At a minimum, the Commission

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[96] *Order* ¶ 130.

[97] Unlicensed devices would have use of the entire 14 gigahertz of spectrum from 57-71 GHz as the 57-64 GHz band has already been made available for unlicensed use. *See* 47 C.F.R. § 15.255.

[98] The Commission has allocated the 27.5-28.35 GHz ("28 GHz") and the 37.6-40 GHz ("37 GHz") millimeter wave bands for licensed services. *Order* ¶¶ 28, 77, 106. Adding these two allocations (0.85 gigahertz at 28 GHz plus 2.4 gigahertz at 37 GHz) results in a total of 3.25 gigahertz of allocated spectrum for licensed services.

[99] *See Am. Radio Relay League v. FCC*, 524 F.3d 227, 241 (D.C. Cir. 2008).

[100] *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43.

should have provided an analysis of the differences between the 28 GHz, 37 GHz, and 57-71 GHz bands so that the public would have an opportunity to debate the appropriate scaling factor (if any) required between the spectrum bands—but it did not. Having failed to comply with the notice and comment procedures, the Commission conclusions are unjustified and arbitrary.

In addition, the Commission has apparently ignored recent technical studies of the propagation capabilities for the 66-71 GHz band. Presumably, the Commission believes that this spectrum band, due to the effects of oxygen absorption, would be unusable for 5G services. However, there have been a number of measurement studies, both by industry and academia, that demonstrate that oxygen absorption and other propagation limits will not "significantly hamper communications, especially for small cells (e.g., distances of less than around 200 m)."[101] Indeed, this study found that, even at higher frequencies such as 73 GHz, "extensive channel measurements show very comparable path loss behavior for both the access and backhaul scenarios for 28 and 73 GHz bands in New York City."[102] More recently, there have been measurements made in a rural setting in Riner, Virginia in the 73 GHz band that demonstrated that communication links "will be useful to rural distances > 10 km."[103] As such, the empirical evidence that exists currently demonstrates that higher band (above 60 GHz) millimeter wave systems perform just as well as lower band (28-40 GHz) and that there should be no reason to

[101] Amitava Ghosh et al., *Millimeter-Wave Enhanced Local Area Systems: A High-Data-Rate Approach for Future Wireless Networks*, 32 IEEE J. Selected Areas in Commc'ns 1152, 1153 (June 2014), http://gmacc.me/pubs/JSAC2014_GTC.pdf.

[102] *Id.* at 1161.

[103] George R. MacCartney, Jr. et al., *Millimeter Wave Wireless Communications: New Results for Rural Connectivity* 27 (Oct. 27, 2016), http://wireless.engineering.nyu.edu/presentations/Rural-Macrocell-path-loss-NYU-Al-things-cellular-Oct-7-2016.pdf.

adopt differing spectrum allocations for licensed and unlicensed systems based solely on the variations in the frequency of the allocations.

CTIA urges the Commission to reconsider its decision to reserve the entirety of the 64-71 GHz band for unlicensed uses and instead allow for an equitable bifurcation of the 57-71 GHz band: 57-66 GHz for unlicensed devices and 66-71 GHz for licensed services. This approach would result in an overall balance of the spectrum available for both services: nine gigahertz for unlicensed (57-66 GHz); and 8.85 gigahertz for licensed (850 megahertz at 28 GHz plus 3 gigahertz at 37-40 GHz plus 5 gigahertz at 66-71 GHz).[104]

IV. THE 37-37.6 GHZ BAND SHOULD BE LICENSED FOR EXCLUSIVE USE WITH FEDERAL SHARING AS A CONDITION OF LICENSING.

The Commission determined that the 37-37.6 GHz band should be allocated on a coordinated, co-primary basis between federal and non-federal users, with non-federal rights granted by rule.[105] Under this approach, the 37-37.6 GHz band would be made available on a non-exclusive shared basis—with sharing both among non-federal users and between federal and non-federal users.[106] While the Commission's view appears to be that non-exclusive, non-federal licensing will better facilitate the necessary federal/non-federal sharing, CTIA believes there is considerable record evidence supporting exclusive non-federal licensing that was ignored. CTIA believes that this portion of the 37 GHz spectrum band should be licensed for exclusive use as between non-federal users, rather than on a non-exclusive, license by rule

[104] This calculation assumes that the Commission grants CTIA's reconsideration request concerning the licensing of the 37-37.6 GHz band, discussed *infra*.

[105] *Order* ¶ 111.

[106] *Id*. ¶¶ 112-13.

basis. Sharing with co-primary federal users could be effectuated through a condition on the licenses requiring coordinated use with federal parties.

The Commission's decision ignored the record, which expressed support "to license the entire 37 GHz band by geographic area."[107] As the Commission noted, licensing the entire 37 GHz band presents "a number of opportunities" because the band is largely "greenfield" and "is adjacent to the 39 GHz band, which presents an opportunity to create a larger, contiguous 37/39 GHz band."[108] Squandering the opportunity presented by this greenfield allocation—especially considering that much of the other millimeter wave bands has been licensed—is unsound public policy. As CTIA has noted previously, a wholesale sharing and complex coordination approach, similar to what has been adopted for the 3.5 GHz band, has not been implemented in a commercial system and remains, at best, experimental.[109] It is premature to apply such a framework to the millimeter wave bands before this approach proves workable. Rejecting use of the highly successful licensing policies deployed in the AWS-1 and AWS-3 contexts in favor of an untested sharing model would undermine the value of this 600 megahertz of spectrum, harm the timely deployment of the band, and may be impractical in application.

Importantly, the benefits to the sharing approach adopted by the Commission would not be endangered by exclusive-use licensing of the 37-37.6 GHz band, as long as "exclusive" non-federal licensees are under an obligation to share the spectrum with federal entities. Non-federal entities could obtain authorizations through competitive bidding with an obligation to manage sharing with federal users—much as what was accomplished in the AWS-1 (1710-1755

[107] *Id.* ¶ 112.

[108] *Id.* ¶ 101.

[109] *See e.g.*, Reply Comments of CTIA, GN Docket No. 14-177 at 11 (Oct. 31, 2016).

MHz) and AWS-3 (1755-1780 MHz) spectrum. Indeed, NTIA filed in the record in the proceeding and noted that "operation within the coordination areas is possible if the non-federal entity can demonstrate to NTIA that its proposed deployment will adequately protect the existing and planned DOD operations."[110] Given that the affected federal users have agreed that implementing a coordination requirement would be sufficient and acceptable, it is unclear why the Commission failed to adopt a similar process for the 37-37.6 GHz band. This methodology was highly successful for both the AWS-1 and AWS-3 spectrum bands and there is no reason to believe that there would be a different outcome if it was implemented in the 37-37.6 GHz band. Requiring that both federal and non-federal spectrum users instead gain access to the spectrum through similar (although ultimately different) licensing mechanisms serves no discernable benefit and should be reconsidered.

[110] *Ex Parte* Presentation of NTIA, GN Docket No. 14-177, et al. (July 12, 2016).

V. CONCLUSION.

For the above-stated reasons, the Commission should reconsider and rescind Rule 30.8, allocate and license the 66-71 GHz band for terrestrial services, and license the 37-37.6 GHz band for exclusive use as between non-federal users.

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