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 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

5G AMERICAS PETITION FOR RECONSIDERATION

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I. Introduction and Summary

5G Americas, the voice for 5G and LTE in the Americas, applauds the Commission's efforts to make additional spectrum available in the millimeter wave bands in the Spectrum Frontiers *Report and Order and Further Notice of Proposed Rulemaking* for the next generation of wireless technology.[1] Access to the millimeter wave bands will be vital to meet the high capacity requirements and small cell deployments inherent to wireless' fifth generation ("5G"). 5G Americas supports the Commission's identification of additional bands in the *Further Notice* for terrestrial mobile broadband, and encourages the Commission to continue advancing the use and release of these important bands as quickly as possible.[2]

Despite the Commission efforts to date, 5G Americas urges the Commission to reconsider certain provisions in the *Report and Order* pursuant to 47 C.F.R. §1.429.[3]

First, the Commission should provide more opportunities for exclusive licenses within the bands the *Report and Order* covers. Second, the Commission should remove an operability requirement for equipment across the full 37.0-40.0 GHz band. Third, the Commission should not impose the security reporting requirement on millimeter wave ("mmW") licensees.

II. The Commission Should Reconsider the License-by-Rule Sharing Construct Adopted for 37.0-37.6 GHz and Make the Band Available for Exclusive Licensed

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1 *See Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177, et al., Report and Order and Further Notice of Proposed Rulemaking, FCC 16-89, 31 FCC Rcd. 8014 (rel. July 14, 2016) ("*Report and Order*" or "*Further Notice*").

2 *Further Notice* at ¶¶ 370-442.

3 The Commission's *Report and Order* was published in the Federal Register on November 14, 2016, and accordingly, a Petition for Reconsideration is timely.

Use.

Out of almost 11 GHz of spectrum identified in the NPRM,[4] the *Report and Order* makes less than 4 GHz of that spectrum available for licensed use, despite the fact that commenters raised concerns that a balance of licensed and unlicensed use was important. Of that 3.85 GHz of "licensed" spectrum, because of the license-by-rule approach adopted at 37.0-37.6 GHz, less than 3 GHz is available for exclusive licensed use. Shared commercial access under a license-by-rule regime is not exclusive licensed access, which the mobile industry generally prefers. While 5G Americas acknowledges that spectrum for both licensed and unlicensed uses is important, the *Report and Order*'s failure to balance licensed and unlicensed is unsupported by the record.[5]

When the Commission initially sought comment on its proposal for the 37.0-38.6 GHz band, the band was allocated on a co-primary basis to Federal and non-Federal Mobile and Fixed use.[6] Space Research also has a co-primary Federal use allocation in the 37.0-38.0 GHz band. Regarding Federal use in the band, as both the Commission and the U.S. Department of Commerce's National Telecommunications and Information Administration ("NTIA") have acknowledged, there are only "a limited number of existing federal uses that need protection" and "the Federal fixed and mobile service allocations are lightly used."[7] The *Report and Order's* decision in the 37.0-37.6 GHz appears to reflect a "spectrum grab" by the Federal government, to

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4 *See Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177, et al., Notice of Proposed Rulemaking, FCC 15-138, 30 FCC Rcd. 11,878 (rel. Oct. 23, 2015) ("*NPRM*").

5 *Report and Order* at ¶ 110.

6 *See* Part 2, U.S. Table of Allocations. Fixed Satellite (space-to-Earth) also has a co-primary non-Federal use allocation in 37.5-38.6 GHz.

7 *Report and Order* at ¶ 101.

reserve spectrum that they may choose to use in the future, but for which (other than three Space Research Service ("SRS") sites and Department of Defense weather satellites)[8] they do not have current use.

Despite the band being lightly used by Federal systems, in the *Report and Order*, the Commission decided to make Federal and non-Federal rights in the 37.0-37.6 GHz band co-primary, rather than limit co-primary status to the Federal users in the existing deployed sites. The Commission adopted a construct for coordinated co-primary shared access between Federal and non-Federal users across the entire 37.0-37.6 GHz band without justification, and without proper notice.[9] The Commission noted in the *Report and Order* that its decision will allow Federal use to expand in the band, but allowing Federal use to expand is not one of the purposes for which the Commission initiated the rulemaking.[10] 5G Americas does not believe having Federal and non-Federal users be co-primary across the country in the entire band going forward is consistent with the goal of the U.S. leading in 5G. The Commission took that unjustified, band-wide licensing decision despite the fact that there are only a limited number of Federal sites that need protection in the band.[11] There are more tried-and-true means of protecting a limited number of sites than co-primary status, so the Commission's adopted sharing construct was unreasonable.

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8 According to the National Academy of Sciences' Committee on Radio Frequency, DoD weather satellites may also use the 37 to 37.5 GHz band. *See Report and Order* at ¶ 146, citing Comments of the National Academy of Sciences' Committee on Radio Frequencies, at 10 & 7 n.2, GN Docket No. 14-177, et al. (filed Jan. 27, 2016).

9 *Report and Order* at ¶¶ 102, 111.

10 *See id.* at ¶ 102.

11 *Id*. at ¶ 101.

The Commission received a letter from NTIA on July 12, 2016 requesting that its rules accommodate expanded Federal access to that 600 MHz of valuable, "greenfield" spectrum.[12] In the letter, NTIA noted that NASA and the National Science Foundation only believed there were three SRS sites with operations in the 37.0-38.6 GHz band that had to be protected through coordination by the Commission's mmW licensees. In addition to those three SRS sites, NTIA noted that there were fourteen sites at which military systems in the 37.0-38.6 GHz band "*are likely to be deployed*."[13] These *planned* systems are apparently not yet built, so there are presumably no actual military incumbents in the band. NTIA acknowledged that "*[a] challenge is the inability to precisely define the extent and location of future federal operations at this time.*"[14] It then recommended, in order to protect those dozen or so military sites, that the Commission segment the band, and require coordination with those military sites in the upper portion of the band—at 37.6-38.6 GHz.[15] The implication is that the military had no firm plans to use the 37.0-37.6 GHz portion of the band, and that the only actual Federal incumbent systems requiring protection are limited to the three SRS sites, which have an existing co-primary allocation at 37.0-38.0 GHz. Such a limited number of sites can be protected through coordination zones, without resorting to co-primary status for the entire band, across the entire Nation.

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12 Letter from Paige R. Atkins, Associate Administrator, Office of Spectrum Management, NTIA, to Julius Knapp, Chief, Office of Engineering and Technology, Federal Communications Commission, GN Docket No. 14-177, et al., at 4 (Jul. 21, 2016) ("NTIA Letter").

13 *Id*.

14 *Id*.

15 *Id*.

Only two days after receiving NTIA's letter, without adequate notice and comment, the Commission agreed on July 14 to take such unjustified decision as nationwide co-primary status at 37.0-37.6 GHz.[16] The decision is inherently suspect, given the short time the Commission gave itself for deliberation, and without the benefit of public comment.

In addition to erring by giving Federal use co-primary status across the entire 37.0-37.6 GHz band, the Commission erred by adopting a license-by-rule approach, which requires commercial users to share the spectrum with each other. A license-by-rule approach begins to resemble the tiered, shared-access paradigm the Commission adopted for the 3.5-3.7 GHz band, but ostensibly rejected for the 37.0-37.6 GHz band.[17] In a similar context, the Spectrum Act of 2012 mandated that NTIA—in making its determinations for bands of frequencies for possible reallocation for exclusive non-Federal use or shared use—give preference to bands where exclusive licensing would be available via relocation of federal users, rather than designating bands that would require sharing.[18] As Congress has clearly indicated a preference for exclusive licensing, the Commission should reconsider its decision to allocate a band for co-primary sharing, when mutually exclusive use is possible, as it is in the 37.0-37.6 GHz band, given that

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16 *Report and Order* at ¶ 149.

17 *Id*. at ¶ 111. 5G Americas and many of its members opposed a hybrid authorization proposal. *See* Comments of 5G Americas, GN Docket No. 14-177, et al., at 14 (filed Sept. 30, 2016); Comments of AT&T, GN Docket No. 14-177, et al., at 11-12 (filed Sept. 30, 2016); Comments of Ericsson, GN Docket No. 14-177, et al., at 16 (filed Sept. 30, 2016); Comments of Intel, GN Docket No. 14-177, et al., at 3-4 (filed Sept. 30, 2016); Comments of Nokia, GN Docket No. 14-177, et al., at 10-14 (filed Sept. 30, 2016); Comments of Qualcomm, GN Docket No. 14-177, et al., at 9 (filed Sept. 30, 2016); and Comments of T-Mobile, GN Docket No. 14-177, et al., at 21-22 (filed Oct. 1, 2016).

18 Spectrum Reallocation Act of 2012, Sec. 6701(a), 126 Stat.252 Pub. Law. 112-96, codified at 47 U.S.C. 923(j) (2015).

only three SRS sites and DoD weather satellites need protection.[19] By adopting the unnecessary license-by-rule approach, commercial users of the band will not have guaranteed, interference-free access to the band. They will have to coordinate with each other, which raises costs to access the spectrum and deploy 5G services. License-by-rule does not provide the certainty of rights necessary to provide a high-quality of service for the licensee's customers. Licensed spectrum is vital to the mobile wireless ecosystem and in order to continue to be the economic driver they have become, licensees for wireless systems must have sufficient spectrum. Exclusive licenses are necessary to provide investment incentives for technology and infrastructure development.

In addition, as the Commission noted in its decision, the International Telecommunication Union is studying the 37 GHz band for commercial mobile broadband use.[20] To benefit U.S. consumers through global economics of scale, the Commission should not adopt licensing constructs that unnecessarily decrease commercial access to the 37.0-37.6 GHz band, and raise costs to deploy broadband services in the band. The Commission provided no basis in the record for rejecting arguments that 5G Americas members made that protection zones around the few Federal sites that required such protection could be achieved, while still adopting the Congressionally-preferred exclusive licensing approach. Accordingly, the Commission should reconsider its decision to require sharing through a license-by-rule construct and co-equal status across the entire 37.0-37.6 GHz band for Federal and non-Federal users alike.

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19 *Report and Order* at ¶¶ 146, 150.

20 *Report and Order* at ¶ 103.

The 37.6 to 38.6 GHz upper band segment (UBS) is the only exclusively licensed mmW band without incumbent licensees in major markets, and going forward, the Commission should make more spectrum available within the proven exclusive licensing model.

III. The Commission Should Not Impose an Operability Requirement Across the Entire 37 and 39 GHz Bands.

5G Americas acknowledges the value of *inter*operability requirements, when properly structured, and commends the Commission for focusing on the importance of *inter*operability within contiguous bands.[21] However, the precise meaning of operability vs. interoperability, and its implementation when many different use cases may be deployed over 3 GHz of spectrum raises confusion. Accordingly, the *Report and Order*'s imposition of an operability requirement for the entire 37 and 39 GHz bands is premature, without basis in the record, and could harm development of technology for these bands.[22] The Commission should—at a minimum—remove the requirement for the lower 37 GHz band (37 to 37.6 GHz), or alternatively remove the operability requirement for the full band until the 37 GHz sharing rules have been finalized.

The Report and Order imposes a sweeping operability requirement that encompasses *both* the 37 and 39 GHz band, requiring that "a device operating in either band must be capable of operating across the entirety of *both* bands, from 37 GHz to 40 GHz (including the 37 to 37.6 lower block)."[23] But the Order's imposition of an operability requirement throughout the entire 37 and 39 GHz band at this time is premature, and may prove a greater hindrance to deployment

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21 *Id*. at ¶ 317.

22 *Id.* at ¶ 321.

23 *Id*. at ¶ 323 (emphasis in original).

in these bands if imposed before the sharing rules for the 37 GHz band are settled. 5G Americas urges the Commission to reconsider imposition of such a requirement at this stage.

The *Report and Order* establishes rules for the 39 GHz band, and partially establishes the rules for the 37 GHz band. Specifically, the *Report and Order* establishes that the lower 37 GHz band (37-37.6 GHz) will be available on a shared basis between Federal and non-Federal users.[24] The Commission wisely acknowledges, however, that it does not have sufficient information to fully establish the sharing regime, and the *Further Notice* opens the record to consider and establish how that sharing will occur.[25] In other words, the Commission's Order only partially addresses the 37 GHz band because there is a need to further develop the record on the issue of how this band will be shared between federal and non-federal users.[26] Moreover, there is insufficient information in the record at this stage to indicate which portions of the lower 37 GHz band (37.0 to 37.6 GHz) are used by federal incumbents.

Because the proceeding remains open as to how federal sharing will occur in the 37 GHz band—as well as with whom licensees will even be required to share the band—it is premature for the Commission to impose operability requirements that encompass both the 37 GHz band and the 39 GHz band.

An operability requirement for the full 37 to 40 GHz band is impractical at this time, as the record has not been fully established as to which federal users are in the 37 GHz band—and thus need to be accommodated in the sharing regime, and how the sharing regime will function. An operability requirement that lumps the 37 and 39 GHz band together before the 37 GHz band

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24 *Id*. at ¶ 149.

25 *See Report and Order* at ¶¶ 446-460.

26 *Id.*

rules are finalized will result in delay both to the development of the 39 GHz band technology, and to the 37 GHz band technology. Practically, it is too early to create operability requirements. Equipment design for the lower 37 GHz band will likely need to accommodate whatever sharing plan the Commission adopts in response to the *Further Notice*. The Commission's adoption of the operability requirements in the *Report and Order* fails to consider that the 37 GHz band rules remain open and unsettled.

Moreover, the *Report and Order* fails to acknowledge the likely interval between the time that the upper 37 GHz band is auctioned to *new* licensees, and the time that operations are initiated by incumbent licensees in the 39 GHz band. It is premature to require an operability requirement across both bands until licenses are issued in both bands. Even after the full licenses are issues, there should still be a period of time during which industry can work together to create operability protocols.

The Commission's *Report and Order* fails to consider the concerns with imposing operability requirements that apply to the full 37 and 39 GHz bands. 5G Americas therefore urges the Commission to reconsider the decision to impose the operability requirement at this time, and—at a minimum—to exclude the 37-37.6 GHZ band from the operability requirements until the sharing rules governing the band have been established. Alternatively, the Commission should remove operability requirements throughout the entire 37 and 39 GHz bands until those rules are adopted.[27]

IV. The Commission Should Remove the Security Reporting Requirements, Which Are

[27] *See* Comments of 5G Americas, GN Docket No. 14-177, at 9.

Unnecessary and Contrary to Commission Policy.

In its July decision, the Commission required mmW licensees to submit a statement describing their security plans and related information prior to commencing operations.[28] The *Report and Order*'s requirement that licensees submit a statement prior to commencing operations addressing how "confidentiality, integrity and availability" principles are reflected in the licensees' security design principles[29] has no basis in the record and violates basic Administrative Procedures Act requirements. Accordingly, the Commission should remove this arbitrary and burdensome reporting requirement.

A. The Security Reporting Requirement Was Not Raised in the Record.

There is no support in the record for this requirement. The Commission only raised questions about security concerns generally in the record, but did not make a proposal in the *Notice* for a specific reporting requirement.[30] In the same vein, no commenting party made a proposal or even recognized a need for such a reporting requirement. To the contrary, commenters made clear that business necessity and existing standards organizations provided sufficient incentives and resources for the industry to develop and maintain robust security mechanism. Commenters also noted the risks of the Commission imposing security requirements in an industry with constantly changing standards and security solutions.

Without justification in the record, the *Report and Order* ignores the industry consensus and imposes a burdensome reporting requirement, without providing justification. Because the *Report and Order* imposes a reporting requirement without notice and comment requirement by

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28 *Report and Order* at ¶ 4.

29 *Report and Order* at ¶¶ 262-265, *see also* App'x A, Final Rules, Section 30.8.

30 *See NPRM* at ¶ 261.

the Administrative Procedures Act,[31] the Commission should remove the requirement from its final rules.

B. The Commission Has Not Justified its Authority for Security Reporting Requirements.

The stated purpose of the security disclosures is to "facilitate multi-stakeholder peer review and earlier development of devices and a commercially viable market for the service."[32] But the *Report and Order* provides no justification for the Commission imposing regulatory obligations for this reason, and public policy requires rejection of such a vague justification. In any case, providers have ample motivation to adopt security measures without a Commission reporting obligation. Moreover, the rule is not necessary to facilitate multi-stakeholder peer review nor commercially viable markets for secure services and devices. 5G Americas and others told the Commission in response to some educational outreach that stakeholders were working in a number of industry-wide forums to develop secure 5G services and devices—that indeed, security was a market imperative in today's world.[33] Commissioner O'Rielly noted as much when he stated that "wireless providers have every incentive to ensure the soundness of their networks."[34]

In addition, the Commission justifies the requirements as helping the Commission "in identifying security risks, including areas where more attention to security may be needed, in and

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31 5 U.S.C. § 553.

32 *Id.* at ¶ 264.

33 *See* Letter from Patricia Paoletta, Counsel for 5G Americas, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177, et al. (filed April 8, 2016); *see also* Letter from Thomas K. Sawanobori, Chief Technology Officer, CTIA, and John A. Marinho, Vice President, Technology & Cybersecurity, CTIA, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177, et al. (filed May 23, 2016).

34 *See* Statement of Commissioner Ajit Pai, *Report and Order*.

in disseminating information about successful practices for addressing risks."[35] But once again, the Commission provides no basis for its authority to do this, or a justification for the Commission stepping into this role. As Commissioner Pai notes in his dissent, the Commission "lack[s] the expertise and authority to dive headlong into this issue, and I don't think *any* agency should take a band-by-band approach to cyber. These are issues that are better left for security experts to handle in a more comprehensive way."[36]

C. Security Reporting Requirements are Discriminatory and May Harm Innovation in the Millimeter Wave Bands

In addition to the APA concerns, the reporting obligations are discriminatory, and may actually limit innovation in the mmW bands.

No similar security reporting requirements exist for licensees in other spectrum bands or on wireline providers. To the extent this issue must be addressed—and only if the Commission has the authority to do so—the security reporting requirement should be raised in a separate proceeding governing all communications systems, not just the millimeter wave bands. The Internet of Things will involve both fixed and mobile wireless devices, as well as wireline devices.

The *Report and Order* acknowledges the potential risks involved in this type of reporting for licensees, but because the Commission did not raise this issue in the NPRM, there was no chance to develop the risks on the record. As the *Report and Order* acknowledges, reporting details about a licensees' security plans could harm licensees by making this information public, both as a matter of security and as a matter of competition concerns. More importantly, such a reported statement would harm licensees' customers by disclosing methods to potential hackers.

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35 *Report and Order* at ¶ 262.

36 *See* Statement of Commissioner Ajit Pai (emphasis in original).

But other than simply noting that information should be provided at a high enough level to minimize those concerns, the *Report and Order* simply fails to weigh the potential harms imposed by this type of reporting.

In addition to the potential harms of the reporting requirements themselves, the timing requirement imposed by the Commission for these reports may hinder deployment timelines. The *Report and Order* requires the reports "no later than 6 months prior to deployment,"[37] arbitrarily choosing a date without support in the record. Requiring licensees to file these reports so far in advance of deployment may put timelines for deployment at risk. At a minimum, this six-month advance deadline adds an additional burden to deployment. Further, the Commission gives no indication of what it plans to do with such information six months in advance of deployment.

D. The Report and Order Fails to Acknowledge Continued Burden and Enforcement Concerns

As the Commission acknowledges, security safeguards will necessarily change frequently. But rather than acknowledging limited value to these reports, the Commission instead imposes the additional burden of requiring ongoing updates in the case of material changes in a footnote of the *Report and Order*.[38] The Commission fails to acknowledge the burden of this ongoing reporting requirement.

Even more concerning is the fact that the Commission provides inconsistent information about how the information may be used for enforcement purposes. The Commission suggests that the information "will not be used for the purpose of enforcing compliance with the [Act] or

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37 *Id.* at ¶ 263.

38 *Id* at ¶ 263, n.673.

any of the Commission's rules," but then suggests in a footnote that the Commission *may* use the information for enforcement purposes.[39] Given the burdensome reporting requirement, the Commission's failure to provide a clear explanation of enforcement implications is problematic, and will leave licensees guessing as to the Commission's potential use of the information they are providing. The precedent of the Commission's subsequent enforcement of its vague *reasonable conduct* standard from its Open Internet rules justifies 5G Americas concern that the requirement of a security statement could also be used to penalize licensees when the Commission arbitrarily decides to punish some behavior that it decides violates the licensee's statement. The Commission's enforcement against Zero Rating is an example of such arbitrary and capricious enforcement unforeseen when it adopted the Open Internet rules. Such arbitrary and capricious action is highly likely if the Commission does not reconsider the security statement requirement.

Accordingly, the Commission's reporting requirement is not only unnecessary, but has not been sufficiently justified, fails to comply with the APA, and is likely to result in arbitrary and capricious behavior. As O'Rielly noted, "[o]nce again, this is 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." As such, 5G Americas urges the Commission to remove the requirement from the final rules.

V. Conclusion

5G Americas urges the Commission to reconsider a few relatively minor—but significant—points that will affect deployment in these important millimeter wave bands. With

[39] *Id.* at ¶ 264, n.677.

these modifications, the goal of the Commission – to position the U.S. for leadership in 5G through innovation – will be achieved.

Respectfully submitted,

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