Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Expanding Flexible Use of the 3.7-4.2 GHz Band	)	GN Docket No. 18-122
	)	
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission's Rules to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band	)	RM-11791
	)	
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed Satellite Service	)	RM-11778

COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association ("TIA")[1] hereby files these comments in response to the Notice of Proposed Rulemaking ("Notice")[2] in the above-captioned proceeding. Mid-band spectrum is important to support emerging technologies including next-generation wireless services such as 5G, and the 3.7-4.2 GHz band represents an important opportunity to make mid-band spectrum available on a flexible-use basis. As described below, TIA is generally supportive of market-based mechanisms to achieve that goal.

We have been specifically following the work of the C-Band Alliance ("Alliance") with interest. The Alliance's approach holds significant potential and merits the Commission's

[1] TIA is the leading trade association for the information and communications technology ("ICT") industry, representing companies that manufacture or supply the products and services used in global communications across all technology platforms. TIA represents its members on policy issues affecting the ICT industry and forges consensus on industry standards.

[2] Order and Notice of Proposed Rulemaking, *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-122, et al., rel. July 13, 2018.

careful consideration, albeit with some potential caveats and not necessarily to the exclusion of other potential approaches, as discussed below. Given the fast-moving developments in this docket, TIA plans to review the Alliance's initial comments and will offer further comments on band plans, licensing and technical issues in reply comments and/or later stages of this proceeding, particularly given the effects that any higher-level outcome regarding the Alliance proposal could have on those more detailed issues.

I. The Public Interest Is Served by Making Spectrum in the C-Band Available for Flexible Use in the Near Term.

As TIA has previously explained, future mobile broadband technologies will likely rely on various spectrum bands, including low, mid, and high-band spectrum.[3] While the future of technology is hard to predict, mid-band spectrum in the 3.7-4.2 GHz band will surely have a significant role to play, and will be an important new tool among several in the toolbox.

While much attention has focused on millimeter-wave spectrum for 5G, many of the technologies for next-generation wireless networks will rely upon low and mid-band spectrum. Indeed, some new technologies may not be well-suited to millimeter-wave frequencies due to their unique propagation and penetration characteristics compared to low and midband spectrum. Therefore, even as the Commission has made admirable progress opening millimeter-wave spectrum for commercial broadband applications and has made low-band spectrum available through creative approaches such as the 600 MHz band voluntary incentive auction, there is a real need for more mid-band spectrum that is available for flexible uses including commercial mobile broadband.

[3] Comments of the Telecommunications Industry Association, filed Oct. 2, 2017 in GN Docket No. 17-183, at 5-6 ("TIA NOI Comments").

For that reason, the rest of the world is moving ahead on mid-band spectrum, and the United States needs to keep pace. As the Commission observes in the Notice, various European institutions and governments are moving rapidly to make spectrum in the 3.4-3.8 GHz band available for 5G, and Japan is studying adding a mobile allocation in the 3.6-4.2 GHz band.[4] Ensuring an adequate supply of domestic flexible-use mid-band spectrum is therefore an important contributing factor toward maintaining U.S. leadership in both wireless technology development and next-generation network deployments.

Moreover, given the global trend toward making various portions of the 3.7-4.2 GHz band available for flexible use, the Commission must also weigh the important public interest benefits of equipment harmonization, including common tuning ranges. As TIA has explained before, globally harmonized spectrum brings several benefits to ICT companies, service providers, and consumers alike. These benefits potentially include improved device performance and battery life, manufacturing economies of scale that reduce device costs, enabling global roaming, and creating a shared ecosystem for future technology development.[5] The Commission has recently recognized the benefits of globally-harmonized spectrum using common tuning ranges in other spectrum proceedings,[6] and it should do so again here.

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[4] Notice ¶ 6.

[5] *See, e.g.,* Comments of the Telecommunications Industry Association, filed Sept. 30, 2016 in GN Docket No. 14-177, at 4 (including citations describing increase in global roaming) ("TIA Spectrum Frontiers FNPRM Comments"); TIA NOI Comments at 4.

[6] *See, e.g.,* Report and Order and Further Notice of Proposed Rulemaking, *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177, *et al.*, rel. July 14, 2016, at ¶ 383 ("The existing manufacturing base and global harmonization of this band make it an attractive option for mobile use."); *id.* ¶ 389 ("Global harmonization … will promote global interconnection, roaming, and interoperability.").

Finally, a private sale approach, as discussed further below, may also specifically promote the public interest. While some have noted that a private sale could "create opportunities to price this resource above what a truly competitive market … would support,"[7] the Commission must also consider that opening spectrum more rapidly would significantly benefit the public interest for the reasons described above. Making C-Band spectrum available through a voluntary private sale market-based mechanism would likely improve speed-to-market for next-generation services, helping the United States maintain its competitive edge in the global race to 5G.

II. The Commission Should Carefully Consider a Private Sale Approach For the 3.7-4.2 GHz Band.

The Commission should seriously explore any market-based mechanism, including a private sale, that allows for repurposing spectrum in the 3.7-4.2 GHz band. Non-regulatory approaches, especially when based upon voluntary participation by the key stakeholders, present various benefits when compared to alternatives that would require more hands-on involvement by the Commission and lead to more regulatory delay. For example, although not every use of spectrum can be evaluated on market-based value alone, in those bands where commercial services are mainly or exclusively at issue, flexible market-based approaches are more likely to ensure that a given spectrum band is put to its most efficient and/or economically productive use. This is especially true in the 3.7-4.2 GHz band where satellite authorizations are overlapping, *i.e.* they are non-exclusive, on a nationwide basis and each license covers the full frequency range, which makes a traditional FCC auction approach very challenging. And while not analogous in terms of the licensing and operational structure, the success of the first-of-its-kind voluntary

[7] Notice, Statement of Commissioner Jessica Rosenworcel.

incentive auction of the broadcast TV spectrum in the 600 MHz band has vindicated the concept of implementing market-based frequency reassignments on a significant scale.

Here, a private sale approach to the C-Band would likely have various specific benefits compared to the other alternatives proposed in the Notice. Perhaps most importantly, the holdout problem[8] is effectively dealt with via the voluntary formation of the C-Band Alliance, while the alternative approaches do not posit a viable solution for that critical issue. In addition, some C-Band spectrum could likely be repurposed for flexible terrestrial uses much more quickly – likely within 18-36 months – than if the Commission were to adopt alternative, more top-down regulatory methods for clearing or repurposing the band, and for dealing with the non-exclusive licensing structure. For example, it took more than five years after passage of the 2012 Spectrum Act before the initial phases of new services in the 600 MHz band became operational, and even that was a fairly *rapid* process facilitated by a clear congressional directive for action. Especially at a moment when 5G deployments and IoT applications are beginning in earnest, speed-to-market is undeniably an important factor toward keeping up with consumer demand and maintaining U.S. leadership in both technology development and network deployment.

A. The C-Band Alliance's Most Recent Announcement Holds Significant Promise, But the Commission Should Follow Certain Principles When Considering It.

TIA has been monitoring the recent work of the C-Band Alliance to develop a voluntary market-based mechanism to clear a significant amount of C-Band spectrum on an expedited basis. Although we await further details in the Alliance's initial comments, we are encouraged by their work and the Commission should seriously consider their latest proposal as the potential

[8] The holdout problem refers to the ability of one or more satellite rights holders – given their overlapping nationwide rights – being able to prevent transactions from taking place.

basis for a path forward. Specifically, the Alliance's announcement on October 22, 2018 that up to 180 MHz of licensed spectrum could be cleared – rather than 100 MHz – is a promising step.[9] While the Commission should seek to ensure that as much of the band can be opened for flexible use as quickly as possible, and without disruption to the important incumbent services in the band, this new announcement represents meaningful progress. And importantly, with Telesat joining the Alliance on October 1, 2018,[10] the Alliance proposal would now essentially reflect a *voluntary* transfer of this spectrum due to the participation of four C-Band operators – Intelsat, SES, Eutelsat, and Telesat—who represent almost all or all of the FSS use in the continental U.S.

With that said, as the Commission considers the C-Band Alliance proposal or similar proposals, it should keep several principles in mind.[11] *First*, a private sale plan need not be a one-time event, and can still be truly market-based by reflecting the perspectives – currently and in the future – of both satellite incumbents (and their associated earth station customers) and terrestrial operators that seek to repurpose the spectrum for flexible uses. The Commission can thus allow future technological and market realities to flexibly dictate stakeholder actions without the use of top-down mandates.

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[9] Press Release, *C-Band Alliance Increases to 200 MHz Its FCC Proposal for Spectrum Repurposing in the U.S. to Support Nationwide 5G Deployment*, filed Oct. 23, 2018 in GN Docket No. 18-122.

[10] Press Release, *Intelsat, SES, Eutelsat, and Telesat Establish the C-Band Alliance (CBA), a Consortium to Facilitate Clearing of U.S. Mid-band Spectrum for 5G While Protecting U.S. Content Distribution and Data Networks*, filed Oct. 3, 2018 in GN Docket No. 18-122.

[11] TIA recognizes that certain satellite services such as those that provide telemetry, tracking, and commanding ("TT&C") for on-orbit satellites, or that support Launch, Early Orbit Operations ("LEOP") for recently launched satellites, are not fungible as they provide services in frequencies that are fixed to the design of the satellite, usually at the band edges. TIA believes that under the market-based approach, the C-Band Alliance would have appropriate incentives to propose well-defined protection for TT&C functionality. The Commission should ensure that earth stations supporting these services be protected from harmful interference at all necessary elevation angles and azimuths.

Second, a private sale approach would likely provide FSS operators who have the most detailed information on earth station users – many of whom are their customers and with whom they have contractual obligations – with the financial incentive to reach appropriate agreements with their earth station users. Although subject to reviewing further details from the Alliance on this point, FSS operators can presumably renegotiate contracts to make their customers whole as necessary. However, in doing so both the Commission and the Alliance should be open to exploring alternative means of meeting their customer needs, potentially including non-C-Band or even non-wireless solutions.

Third, and related to the above, both the Commission and the Alliance should remain open to considering additional approaches to make more spectrum available that go beyond those being proposed or driven by the Alliance itself. For example, some flexible-use operators might seek to use more detailed information about FSS earth station locations to enable some form of geographic and/or frequency coordination to make more C-Band spectrum available on a localized basis. These efforts should be encouraged and explored to the extent possible.

Fourth, TIA endorses the Alliance's earlier proposal that the issuance of final flexible-use licenses be subject to Commission review and public comment as a safeguard to address any public interest considerations which may arise.[12]

III. The Commission Should Allow New Terrestrial Licensees Flexibility But Should Not Create a Stand-Alone Point-to-Multipoint Service.

TIA supports the Commission's proposal in the Notice to license C-Band spectrum on a flexible-use basis. Licensees should have the maximum flexibility possible to determine the type of services that will be deployed in the mid-band flexible use ("MBX") spectrum, including

[12] *See* Notice of Ex Parte Letter from Henry Gola to Marlene H. Dortch, filed Apr. 20, 2018 in GN Docket No. 18-122.

mobile services such as 5G licensed service, point-to-multipoint services, or potentially IoT or other future technologies not yet determined. The Commission has increasingly adopted a flexible-use licensing model to allow for innovation, perhaps most recently in the Spectrum Frontiers proceeding, and it should follow that general approach here as well.

The Commission should not, however, adopt the proposal of the Broadband Access Coalition ("BAC") to establish specific rules and frequency ranges within this band dedicated to point-to-multipoint use of the band. First, as the Commission notes, current point-to-point fixed service usage of the band has been very limited, and the Commission is appropriately proposing to sunset point-to-point services.[13] Likewise, the introduction of a dedicated point-to-multipoint service with very uncertain market potential could lead to unnecessarily cluttering this valuable band – a value clearly demonstrated by the strong interest of both satellite incumbents and those promoting MBX use. It could eventually require the Commission to sunset those licensees in the future to free up additional portions of the band, as it is doing now with point-to-point licenses.

In addition, numerous other bands are available, or could be made available, for point-to-multipoint use, especially given the rural focus of the BAC. The adjacent Citizens Broadband Radio Service ("CBRS") band will soon be available with 150 MHz of Priority Access License ("PAL") and General Authorized Access ("GAA") spectrum that permits point-to-multipoint use, while pending proceedings in the 4.9 GHz and 2.5 GHz bands could also potentially result in accommodating such use. Meanwhile, it is not clear that point-to-multipoint services in rural areas would be capacity-constrained to a level that justifies additional spectrum, or that the adoption barriers in rural America are being adequately addressed as a separate but related matter so that newly deployed capacity is intensively used.

[13] Notice ¶¶ 47-48.

Moreover, the C-Band is increasingly viewed globally as a potential band for services such as 5G, and the Commission does not identify any basis to the contrary or for specific point-to-multipoint use. Finally, even if non-interfering co-channel use with FSS earth stations is technically possible, introducing such services now could make future tranches of FSS-to-MBX reallocation more difficult to execute, potentially undermining the future market value of the spectrum for both FSS incumbents and prospective MBX licensees alike. In short, introducing a dedicated point-to-multipoint service of uncertain scope poses significantly more risks than any speculative potential benefits that might be achieved.

With that said, the Commission's MBX service rules should indeed be "flexible." Thus, to the extent that any entity is interested in purchasing MBX licenses to offer a point-to-multipoint service, it should be permitted to do so provided that it complies with all technical rules and avoids harmful interference.

IV. Conclusion

Mid-band spectrum is important to promote next-generation technologies and services including the deployment of 5G networks, and the 3.7-4.2 GHz band represents a significant opportunity. TIA therefore supports market-based mechanisms that would make spectrum in that band available for use on a flexible basis. We are specifically encouraged by the ongoing work of the C-Band Alliance on a private sale approach, albeit with some caveats and with openness to additional methods of making spectrum available. We look forward to reviewing the Alliance's comments in detail and responding accordingly.

Given the fast-moving developments in this docket, TIA also plans to address remaining issues including band plans, licensing, and technical rules in reply comments and/or at later

stages of this proceeding, especially given the significant effects that any higher-level outcome regarding the Alliance proposal might have on those issues.

Respectfully submitted,

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