Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Petition for Rulemaking to Amend and	)	RM-11791
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 3700 – 4200 MHz Band	)	

To: The Commission

REPLY COMMENTS OF THE BROADBAND ACCESS COALITION

Co-Chairs:

Mimosa Networks, Inc.
Brian Hinman, Chief Executive Officer
Jaime Fink, Chief Product Officer

Wireless Internet Service Providers Association (WISPA)
Alex Phillips, President
Mark Radabaugh, FCC Committee Chair

Open Technology Institute at New America
Michael Calabrese, Director, Wireless Future Program

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The Broadband Access Coalition ("Coalition"), pursuant to Section 1.405(b) of the Commission's Rules, hereby replies to certain of the Comments and Oppositions filed in response to the above-captioned Petition for Rulemaking ("Petition").[1]

I. Summary

The Coalition's Petition proposes to amend and modernize Parts 25 and 101 of the Commission's Rules to enable deployment of high-throughput licensed point-to-multipoint ("P2MP") fixed wireless broadband services in the 3700 – 4200 MHz band in a spectrally efficient manner, while protecting Fixed-Satellite Service ("FSS") and Fixed Service ("FS")

[1] The Coalition filed its Petition on June 21, 2017. On July 7, 2017, the Commission issued its Public Notice inviting comments. *See Public Notice*, RM-11791, Report No. 3080 (rel. July 7, 2017). Comments were due August 7, 2017 and Reply Comments are due August 22, 2017. *See Order*, DA 17-788 (rel. Aug.18, 2017) ("*Extension Denial Order*") (denying CTIA's request to extend the deadline for filing Reply Comments). The Commission also designated this proceeding as "permit but disclose" and indicated that hardcopy service by mail is unnecessary for Reply Comments submitted electronically. *See Public Notice*, "Wireless Telecommunications Bureau announces 'Permit but Disclose' Ex Parte Status for Petition for Rulemaking Proceeding," DA 17-786 (rel. Aug. 18, 2017).

incumbents from harmful interference through frequency coordination. The vast majority of the hundreds of Comments filed enthusiastically support the Petition, recognizing that the availability of a significant amount of mid-band spectrum can help satisfy the urgent need to make better broadband available to more American consumers. Initiating a rulemaking proceeding that proposes to adopt the proposals set forth in the Petition will begin the process of making much-needed spectrum available to facilitate the rapid deployment of gigabit and near-gigabit fixed broadband service to rural and other underserved areas.[2] By acting expeditiously to adopt a notice of proposed rulemaking, and consistent with Section 7 of the Communications Act of 1934, as amended (the "Act"),[3] the Commission will be serving these important public interest objectives.

The Coalition vigorously opposes the request of mobile wireless interests to consolidate consideration of the Petition into the *Mid-Band NOI*.[4] The Petition proposes specific and concrete rule changes that would enable the rapid and simple introduction of P2MP services using existing Part 101 frequency coordination procedures. Consolidating the proceedings would likely result in extensive delay in making an underutilized spectrum resource available, and thus further delay the provision of high-throughput broadband services that are so urgently needed in unserved and underserved areas.

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[2] According to the Commission's *2016 Broadband Progress Report*, 31 FCC Rcd 699, 731 – 732 (¶ 79) (2016), five percent of all Americans lack access to fixed broadband service at even 4/1 Mbps, six percent lack access to 10/1 Mbps service, and 39 percent of rural Americans (23 million people) lack access to 25/3 Mbps service.

[3] 47 U.S.C. § 157.

[4] *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, GN Docket No. 17-183, FCC 17-104 (rel. Aug. 3, 2017) ("*Mid-Band NOI*").

The mobile wireless interests mischaracterize the Petition – it will not, as they claim, foreclose mobile use.[5] The Commission can implement rules for P2MP *now* that will ensure that later entry by mobile services is not precluded. The future possibility of using portions of the 3700 – 4200 MHz band for sharing among fixed and mobile services should not, in any way, be allowed to delay immediate allocation and use of the band for P2MP services as described in the Petition, action that can yield immediate and tangible public interest benefits without foreclosing future mobile use of the band. Further, the 3700 – 4200 MHz band is not now, and will not for many years, be suitable for mobile use given the existing deployment of FSS earth stations and FS point-to-point links.[6]

Contrary to CTIA's assertions, implementing the Coalition's proposal does not require an auction under Section 309(j)(1) of the Act.[7] The Commission is required to use the auction process to award licenses for "mutually exclusive" applications. But under the rules proposed in the Petition, licensing through frequency coordination means there will be no mutually exclusive applications. The frequency coordination process under Part 101 of the Commission's Rules is designed to avoid the occurrence of mutually exclusive applications by requiring potential applicants to successfully complete the frequency coordination process before they file a license application.

FSS operators also oppose the Petition, arguing that the 3700 – 4200 MHz band is already used efficiently, and that P2MP services cannot share the band without materially impacting incumbent FSS operations. Both of these arguments are flawed. First, the antiquated

[5] *See* Comments of CTIA and Motion to Extend Reply Comment Date, RM-11791 (filed Aug. 7, 2017) ("CTIA Comments"), at 6 - 8; and Comments of T-Mobile USA, Inc., RM-11791 (filed Aug. 7, 2017), at 6.

[6] *See* Petition at 6.

[7] *See* CTIA Comments at 4 – 6.

"full-band, full-arc" licensing policy results in severe underutilization of the band. Under the Coalition's proposals, FSS operators would receive full protection from harmful interference from terrestrial operators for any and all current operations. Second, given the current demands on spectrum, it is bad public policy to reserve over 450 MHz of prime mid-band spectrum in the unlikely event of a satellite or transponder outage. Such outages can be accommodated within the scope of the Coalition's proposals without the need for "full-band, full-arc" protection.

II. The Commission Should Expeditiously Issue A Notice Of Proposed Rulemaking To Consider The Coalition's Proposals

The extensive record in this proceeding clearly shows that there are more than "sufficient reasons" for the Commission to expeditiously initiate a rulemaking proceeding, and that it would be in the public interest to do so. The Petition is strongly supported by fixed wireless broadband service providers, who seek to gain access to additional mid-band spectrum so they can improve and expand service. Spectrum managers, several trade associations representing point-to-point service providers and users, and members of the general public also support the objectives of the Petition.

A. The Record Demonstrates That The Petition Discloses "Sufficient Interest" To Initiate A Rulemaking Proceeding

According to the Commission's rules:

> If the Commission determines that the petition [for rulemaking] discloses *sufficient reasons* in support of the action requested to justify the institution of a rulemaking proceeding, and notice and public procedure thereon are required or deemed *desirable* by the Commission, an appropriate notice of proposed rulemaking *will be issued*.[8]

In this case, the record clearly shows that there are "sufficient reasons" for the Commission to initiate a rulemaking proceeding, and that it would be "desirable" to do so.

[8] 47 C.F.R. § 1.407 (emphases added).

First and foremost, there is great interest among fixed wireless broadband service providers to gain access to additional mid-band spectrum so they can improve and expand service. A number of providers explained that they "urgently"[9] or "desperate[ly] need[] more spectrum to help solve the Digital Divide problem for rural areas."[10] ProValue.net, a 20-year-old WISP in rural Oklahoma, called opening the 3700 - 4200 MHz band for fixed point-to-multipoint service "a game changer for rural providers" that would enable it "to bring faster [throughput] rates to our underserved areas."[11] Hudson Valley Wireless, a fixed wireless broadband provider in the Albany, New York area, agreed that "[e]xisting unlicensed bands are becoming oversaturated and we need more spectrum to meet consumer demand."[12] Joink, an established wireless internet service provider ("WISP") operating in Indiana and Illinois, noted that access to sub-5 GHz spectrum "will help us reach further into rural areas to serve the unserved as well as allow us to bring competitive options to more urban markets . . . ."[13]

Cal.net, which operates in rural Northern California, observed that "[t]he mid-band positioning and increased power allowed by operating in a licensed manner enable true nLOS [near line-of-sight] capabilities, thus dramatically increasing the serviceability of the band, reaching those difficult customer locations that are currently unable to be served."[14] Bernhardt

[9] Comments of Cal.net, Inc., RM-11791 (filed Aug. 7, 2017) ("Cal.net Comments"), at 2.

[10] Comments of Broadband VI, LLC, RM-11791 (filed Aug. 7, 2017). *See also* Comments of Slopeside Internet, RM-11791 (filed Aug. 7, 2017) (the proposed rules "can also be a solution to the huge gulf that exists economically between rural and urban settings").

[11] Comments of ProValue.net, RM-11791 (filed Aug. 7, 2017).

[12] Comments of Hudson Valley Wireless, RM-11791 (filed Aug. 7, 2017).

[13] Comments of Joink, Inc., RM-11791 (filed Aug. 1, 2017).

[14] Cal.net Comments at 2. *See also* Comments of Tekify Fiber & Wireless, RM-11791 (filed Aug. 7, 2017) ("proposed EIRP limits will provide a significant improvement in signal quality over what is available now in existing unlicensed bands").

Communications observed that "3700 - 4200 MHz is a mid-range spectrum which can traverse distances and provide excellent opportunities for fixed networks to thrive and provide advanced services where large providers often stay away."[15] Rise Broadband, a Coalition member that operates fixed wireless broadband networks in 16 states, noted that mobile interests may plead that access to the 3700 - 4200 MHz band "is needed to augment network capacity due to congestion," but that such congestion would mostly likely occur in urban areas, not rural areas where "3700 - 4200 hits the sweet spot."[16] Or, as All Points Broadband rhetorically asked, "All Americans need access to fixed, high quality, and unlimited Internet service. What other item before the Commission is more important than ensuring they have it?"[17]

Second, the Coalition's proposal to license P2MP service under Part 101 garnered strong support in the record as well. Commenters recognized that Part 101 licensing addresses the needs of rural and underserved communities by offering access to spectrum in relatively small and targeted areas on a shared and coordinated basis. For example, Mimbres Communications, a fixed wireless provider operating in Grant County, New Mexico, noted that "[l]icensing by location -- taking beamwidth, azimuth, and ERP into account though Part 101 coordination procedures would enable faster, more affordable service to large portions of rural America," whereas a "traditional spectrum auction would require us to bid on a license covering multiple counties, traversing mountain ranges and areas where we would never realistically be able to

[15] Comments of Bernhardt Communications Company, RM-11791 (filed Aug. 7, 2017).

[16] Comments of Rise Broadband, RM-11791 (filed Aug. 3, 2017). *See also* Comments of Metro FastNet, LLC, RM-11791 (filed Aug. 2, 2017) (noting the problem of over-utilization of unlicensed spectrum); Comments of Prairie Hills Wireless LLC, RM-11791 (filed Aug. 7, 2017) (existing unlicensed bands are becoming more crowded, creating service quality challenges).

[17] Comments of All Points Broadband, RM-11791 (filed Aug. 7, 2017) ("All Points Comments"), at 2.

provide service."[18] All Points Broadband, another Coalition member, explained that "[i]f the Band is allocated for mobile use and auctioned over large geographic areas, it will primarily be deployed in dense urban areas and companies such as All Points will be priced out of any spectrum auctions."[19] Highspeedlink, a small WISP in rural Virginia, emphasized that "participating in large auctions and bidding against major carriers is not an option unless auctions are conducted on very small areas, such as the census tract."[20]

Third, commenters pointed out that fixed wireless broadband service could be deployed quickly and in a cost-effective manner in the 3700 – 4200 MHz band. Southern Ohio Communication Services stated that increasing the amount of available spectrum would increase the number of customers that could be added "quickly and efficiently."[21] By contrast, as Alaska-based Vertical Broadband observed, fiber can cost up to $80,000 per mile to install, and that increased licensed spectrum "is the only cost effective way to serve rural Alaskans."[22] Quantum Links Networks stated that "[b]y being able to offer higher speeds on these frequencies, we can provide some real competition to the giant corporations that … keep the American citizens hostage to their unreasonable rates as well as poor customer service."[23]

[18] Comments of Mimbres Communications, RM-11791 (filed Aug. 7, 2017).

[19] All Points Comments at 1.

[20] Comments of Highspeedlink, RM-11791 (filed Aug. 3, 2017). *See also* Comments of NGL Connection, RM-11791 (filed Aug. 7, 2017), at 2 ("the larger companies will continue to offer their services to the urban and suburban areas, continuing to ignore the much needed access to wireless services in rural areas. The rural areas will never grow population centers necessary for the large companies to fully invest. That is why smaller companies specialize in this targeted market").

[21] Comments of Southern Ohio Communication Services, Inc., RM-11791 (filed Aug. 2, 2017).

[22] Comments of Vertical Broadband, RM-11791 (filed Aug. 7, 2017).

[23] Comments of Quantum Links Networks LLC, RM-11791 (filed Aug. 1, 2017).

Support for the Petition is not limited to the fixed wireless broadband industry. The National Spectrum Management Association ("NSMA"), which represents entities involved in the spectrum management profession, recognized that the Petition presents "a huge opportunity to bring high-speed internet to millions of Americans and should not be delayed," and asked the Commission to keep the Petition separate from the *Mid-Band NOI*.[24] NSMA further noted that "one of the best things about [the Coalition's] approach is that very few rules changes are involved and the changes required can be implemented quickly."[25] Micronet, an experienced frequency coordinator, viewed the Coalition's Petition as "a win-win for rural areas and existing carriers" and suggested that point-to-point and point-to-multipoint uses could "coexist nicely" if coordinated.[26] The Fixed Wireless Communications Coalition ("FWCC") observed that "[g]rant of the [Coalition's] request will offer consumers and businesses badly needed options for broadband delivery, particularly in areas that current providers choose not to serve …."[27] FWCC further noted that the "need is urgent for broadband Internet alternatives," and urged the Commission not to consolidate this proceeding with the *Mid-Band NOI*.[28] The Utilities Technology Council ("UTC"), which represents electric utilities, asked the Commission to conduct a rulemaking proceeding, stating that the record already includes "sufficient information" for it to do so.[29]

[24] Comments of the National Spectrum Managers Association, RM-11791 (filed Aug. 7, 2017), at 5. .

[25] *Id.*

[26] Comments of Micronet, RM-11791 (filed Aug. 7, 2017), at 2.

[27] Comments of the Fixed Wireless Communications Coalition, RM-11791 (filed Aug. 7, 2017) ("FWCC Comments"), at 2.

[28] *Id.* at 3.

[29] Comments of the UTC, RM-11791 (filed Aug. 7, 2017), at 2 and 5.

In addition, hundreds of individuals filed express comments noting the lack of reliable service in rural areas and the need for alternative delivery platforms. A small sample:

- "We have school children no internet we need your help... 'no child left behind'"[30]
- "I need better Internet at my farm."[31]
- "The lack of broadband is negatively impacting my community. Better, lower cost broadband would positively impact my community."[32]
- "Live in country and no internet except wireless.....run a business and have to physically leave my house to have internet....."[33]
- "My wife could work from home if we had a reliable, faster internet connection."[34]

In sum, the docket strongly demonstrates that the Petition has generated more than "sufficient reasons" for the Commission to initiate a rulemaking proceeding pursuant to Section 1.407. The Commission should do so at the earliest possible time.

B. The Petition Should Not Be Consolidated With The *Mid-Band NOI*

Shortly after the Commission released its *Public Notice* inviting comment on the Petition, the Commission issued its *Mid-Band NOI* seeking "detailed comment on three specific bands: 3.7 – 4.2 GHz; 5.925 – 6.425 GHz; and 6.425 – 7.125 GHz."[35] Some commenters requested that the Petition be consolidated into the *Mid-Band NOI*,[36] and CTIA requested that the date for

[30] Comments of Pam, RM-11791 (filed Aug. 7, 2017).

[31] Comments of Luis A. Alvarado-Borjas, RM-11791 (filed Aug. 7, 2017).

[32] Comments of Kay Andrus, RM-11791 (filed Aug. 7, 2017).

[33] Comments of Duke Blevins, RM-11791 (filed Aug. 3, 2017).

[34] Comments of Justin Williams, RM-11791 (filed Aug. 14, 2017).

[35] *Mid-Band NOI* at ¶ 2.

[36] *See* CTIA Comments at 3 - 4; T-Mobile Comments at 3 – 5; Comments of Competitive Carriers Association, RM-11791 (filed Aug. 7, 2017), at 2 – 5; Opposition of the Edison Electrical Institute, RM-11791 (filed Aug. 7, 2017), at 2 – 5; and Comments of General Communications, Inc., RM-11791 (filed Aug. 7, 2017) ("GCI Comments"), at 18 – 19.

Reply Comments be extended by nearly 2½ months (until November 1, 2017) to coincide with the date for Reply Comments in the *Mid-Band NOI*.[37] These commenters argue that "because the *Mid-Band NOI* subsumes the fundamental issues raised in the Petition, separate consideration would require parties to make duplicative filings and would otherwise be an inefficient use of Commission resources."[38] Certain commenters also misinterpret the Petition and argue that "because the [Coalition's] proposal would preclude mobile use, consideration of the Petition would be premature until the Commission resolves the larger question of whether it should permit flexible use of the 3.7 – 4.2 GHz band."[39]

The Coalition vigorously opposes consolidating consideration of the Petition into the *Mid-Band NOI* proceeding. The Petition proposes specific and concrete rule changes that would enable the immediate introduction of P2MP fixed wireless broadband service into the 3700 – 4200 MHz band without disrupting incumbent operations. As the Petition explains, implementing P2MP services can be done *rapidly* and *simply*, using existing Part 101 frequency coordination procedures. The proposals in the Petition are ripe for a rulemaking. By contrast, the *Mid-Band NOI* raises a broad range of questions regarding the use of three different spectrum bands. Options under consideration for the 3700 – 4200 MHz band include repurposing all or part of the band, a reallocation that could involve the long-term clearing or relocation of incumbent licensees. Sharing mechanisms for the 6 and 7 GHz bands will be particularly complicated, due to the varied and heavy use of the spectrum by incumbent users. Not surprisingly, the *Mid-Band NOI* proposes few, if any, specific rule changes. One or more

[37] CTIA Comments at 1. The Commission denied this extension request. *See Extension Denial Order*.

[38] CTIA Comments at 3.

[39] *Id.*

rulemaking proceedings may follow, should the record support future proceedings. This will take time, quite possibly a long time.

The Commission apparently agrees that the Petition should be considered separately from the *Mid-Band NOI*, where the Commission expressly recognized "that there are ongoing proceedings … that relate to spectrum within the 3.7 – 24 GHz frequency range."[40] Among these proceedings, the Commission specifically referenced the Coalition's Petition.[41] In recognizing these ongoing proceedings, the Commission specifically determined that "*[t]his Notice of Inquiry is not intended to preclude us from acting on or otherwise addressing these matters prior to the development of a record in this docket ….*"[42]

The Coalition submits that consolidating the proceedings would likely result in extensive delay in consideration of its Petition. In fact, the Coalition submits that imposing this extensive delay is a fundamental reason behind the request of several commenters for consolidation. Delay will undoubtedly serve the interests of incumbent satellite operators that have no incentive to share the 3700 – 4200 MHz band and want to retain the legacy "full-band, full-arc" protection for as long as possible. Delay also will serve the interests of the mobile industry, which has not yet made public any proposal for the 3700 – 4200 MHz band and, in all events, will need significant time to develop standards, insert chips into handsets, design networks and deploy service in more lucrative urban areas – activities that can occur in parallel with lengthy Commission proceedings. For mobile carriers, the 3700 - 4200 MHz band provides little more

[40] *Mid-Band NOI* at ¶ 11.

[41] *Id.* at n. 14.

[42] *Id.* at ¶ 11 (emphasis added). *See also Extension Denial Order* at 2 (noting that the Commission has already declined to consolidate this proceeding with the *Mid-Band NOI* proceeding).

than a long-term option to "densify" their networks – that is, to add capacity to their networks in high-traffic and high-ARPU locations, rather than expanding their service footprint to unserved and underserved areas.[43]

Rural Americans that lack broadband access today should not be denied the ability to access spectrum for high-capacity and affordable fixed broadband simply because a few parties want to delay the process. As Starry observed in supporting the Petition, the *Mid-Band NOI* "will likely take years to complete, especially if the Commission concludes that it will clear incumbents out of the band. By making this spectrum available now for point-to-multipoint operations, it can be used to the benefit of broadband consumers across the country."[44] Starry added that "[t]he Commission should consider allowing point-to-multipoint operations during the pendency of its consideration of the full C-band pursuant to the [Mid-Band] NOI."[45]

CTIA and T-Mobile are incorrect in their assertion that the Coalition's proposal would preclude mobile use.[46] In fact, the Commission can implement rules for P2MP now that will ensure that later entry by mobile services is not precluded. As the Coalition explained in its Petition:

> The 3700 – 4200 MHz band is not now, and will not for several years, be suitable for mobile use given the existing deployment of [Fixed-Satellite Service] earth

[43] According to Sprint CEO Marcelo Claure, "5G is all about densification." *Sprint Still Looking for a Merger Partner, CEO Says*, Communications Daily, Aug. 2, 2017 at 7. T-Mobile, and other mobile carriers, have identified mid-band spectrum for the deployment of 5G services. *See* http://www.fiercewireless.com/wireless/t-mobile-cto-has-huge-interest-3-5-ghz ("T-Mobile CTO Neville Ray said he has "huge interest" in the 3.5 GHz block and said the 3.5-4 GHz range is the most formative block of spectrum emerging globally for 5G.").

[44] Comments of Starry, Inc., RM-11791 (filed Aug. 7, 2017), at 2.

[45] *Id.* at n.6.

[46] *See* CTIA Comments at 3; T-Mobile Comments at 6 ("T-Mobile recognizes that the Petition does not specifically propose to exclude mobile use of the 3.7 – 4.2 GHz band. … However, permitting additional P2MP use could potentially foreclose meaningful use of the band for other applications – including mobile wireless broadband.")

> stations and [Fixed-Service point-to-point] links. The future possibility of using portions of the band for sharing between [point-to-multipoint] and mobile services should not, in any way, be allowed to delay immediate allocation for and use of the band by [point-to-multipoint] services.[47]

C. The Petition Qualifies For Consideration Under Section 7 Of The Act

Section 7 of the Act specifies that if a petitioner proposes a "new technology or service," the Commission shall determine within one year whether the proposal is in the public interest.[48] As explained in the Petition, the Coalition is proposing a "new service" that combines and incorporates several novel attributes. The Petition proposes, for the first time, rules that will enable the provision of economically viable licensed gigabit wireless broadband service to rural and other underserved areas, using wide channels operating with interference protection in a spectrum band that supports near-line-of-sight links to customer premises. Further, the Petition proposes to implement such service without requiring the relocation of incumbent users.

Only the Satellite Industry Association ("SIA") asserts that the Petition does not qualify for consideration under Section 7, arguing that the Petition does not "propose[] a new technology or service that would warrant application of Section 7."[49] The Coalition disagrees. The Petition builds on new technology and new spectrum management techniques to convert 500 megahertz of underutilized spectrum into a regulatory structure that can enable gigabit fixed wireless broadband service that is unique and urgently needed in large parts of the country. In all events, SIA has failed to meet the statutory burden of proof requiring it to demonstrate that the

[47] Petition at 6.

[48] 47 U.S.C. § 157.

[49] Opposition of the Satellite Industry Association, RM-11791 (filed Aug. 7, 2017) ("SIA Opposition"), at 15 – 16.

Coalition's proposal "is inconsistent with the public interest."[50] Accordingly, the Commission should adopt a notice of proposed rulemaking pursuant to Section 7.

III. Implementing The Coalition's Proposal Does Not Require An Auction

CTIA challenged the Petition on the grounds that the Coalition did not explain how its proposal comports with the requirement under Section 309(j)(1) of the Act for the Commission to use the auction process to award licenses for mutually exclusive applications.[51] CTIA's entire argument ignores the basic, underlying fact that the frequency coordination process under Part 101 of the Commission's Rules is necessarily designed to avoid the occurrence of mutually exclusive applications. Indeed, the Part 101 coordination process for local deployments of P2P links is currently in use in the 3700 - 4200 MHz band. Therefore, the auction requirement of Section 309(j)(1) does not apply to the Coalition's proposal.

The Coalition proposes to require operators seeking to deploy P2MP service in the 3700 – 4200 MHz band to undertake the very same, well-established frequency coordination process that has been successfully used by the Commission for decades to manage spectrum for a number of different fixed services under Part 101, as well as for various other services, including mobile services licensed under Part 90 of its rules.[52] CTIA failed to acknowledge that, by design, the Part 101 rules are structured to avoid mutually exclusive applications. Significantly, for radio services that are subject to frequency coordination – including the new P2MP service proposed by the Coalition – the Commission will not accept for filing a license application that has not already successfully completed the required coordination process to confirm the

[50] 47 U.S.C. § 157(a) ("Any person or party (other than the Commission) who opposes a new technology or service proposed to be permitted under this chapter shall have the burden to demonstrate that such proposal is inconsistent with the public interest.")

[51] *See* CTIA Comments at 4 - 6.

[52] *See* Petition at 19.

availability of the requested frequencies along the specified path or around the area of the specified sites. The frequency coordination process ensures that mutual exclusivity never occurs.

Another example of the approach proposed in the Petition is the frequency-coordinated and non-exclusive licensing scheme adopted by the Commission for shared use of the 71 - 76 GHz, 81 - 86 GHz, and 92 - 95 GHz bands. In its 2003 Order, the Commission authorized the issuance of an unlimited number of non-exclusive, nationwide licenses to non-Federal Government entities for all 12.9 gigahertz of the spectrum in those bands.[53] Once licensed, an operator is required to coordinate each proposed new link in advance, and verify that it will not cause or receive harmful interference to or from any existing link previously registered in either the government (NTIA) or non-government database of registered links.[54] The Commission explained that although it expected that this Part 101 coordination process would typically avoid any mutual exclusivity, if interference between two links became evident later, "the first-in-time registered link is entitled to interference protection and the database manager will so inform the later-registered link operator that the link must be discontinued or modified to resolve the problem."[55]

CTIA argues that, even with frequency coordination, mutual exclusivity "is likely under [the Coalition's] proposal, as both the amount of available spectrum and geographic service areas

[53] *See Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands*, WT Docket No. 02-146, Report and Order, 18 FCC Rcd 23318, 23337 (2003) (¶ 45) ("it is appropriate that we facilitate the sharing of the spectrum among multiple users, which we believe can facilitate the provision of communications services to underserved areas").

[54] *Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands*, WT Docket No. 02-146, Memorandum Opinion and Order (2005), at ¶¶ 11-14.

[55] *Id*. at ¶ 13.

are finite."[56] According to CTIA, this means that there would be a "limited set of licenses" and thus "the grant of one application will necessarily preclude the grant of others."[57] But CTIA's hypothetical concern goes a step too far and does not reflect the Act's concept of mutual exclusivity. The successful coordination and licensing of every P2P link precludes, by definition, not only the coordination and licensing of other P2P links on the same frequencies and the same path, but links on neighboring frequencies and neighboring paths. Taken to its logical extreme, CTIA's oversimplified definition of what constitutes "mutual exclusivity" would inherently apply to every single band of spectrum (a finite resource) across the entire United States (a finite geographic service area), leading to the absurd result that any application for any spectrum anywhere in the United States would create mutual exclusivity because it "will necessarily preclude" the grant of other applications. CTIA's argument is thus founded on faulty logic and directly contravenes the real-world example of the Commission's long-standing use of the frequency coordination process, without resort to an auction, to successfully and expeditiously make spectrum available for various radio services.

Contrary to CTIA's assertions, the Coalition's proposal for the licensing of new P2MP services in the 3700 - 4200 MHz band avoids mutually exclusivity. In addition to requiring frequency coordination to ensure that the requested frequencies are available, the size and shape of the local area that could potentially be covered by a license under the Coalition's proposal will vary (depending on what can be coordinated with incumbent operators) and would be relatively small, particularly in comparison to the size of license areas made available for other radio services, including those currently subject to frequency coordination. In particular, under the

[56] CTIA Comments at 5.

[57] *Id.*

Coalition's proposal, the *maximum* sector radius for a license would be 10 kilometers from a specified site in more densely populated areas and 18 kilometers in rural areas,[58] thus creating the opportunity for tens of thousands of licenses for discrete, targeted areas around the country. By comparison, licensees for mobile services in the 800/900 MHz B/ILT band – which is frequency-coordinated – must maintain a minimum separation of at least 113 kilometers (70 miles) between co-channel systems, thus giving these licensees an effective radius of at least 56.5 kilometers for a full 360 degree sector.[59] The Coalition's proposed license area is also significantly smaller than the Basic Trading Area (BTA)-based licensing area adopted by the Commission for the 39 GHz band,[60] which CTIA inappropriately relies on as precedent.

In addition to the tens of thousands of small-area licenses of varying sizes that would be available on a site-specific, geographically-limited basis, the Coalition's proposal magnifies this diversity by limiting the amount of spectrum that an applicant could initially apply for to 40 megahertz on a site-specific, frequency-coordinated basis.[61] Thus, while the geographic area that could potentially be covered is already small, even this small area could accommodate simultaneous applications from up to twelve applicants, all of which must be frequency coordinated as a prerequisite to filing with the Commission. Moreover, because license applications subject to the frequency coordination process are reviewed and granted on a "first-

[58] *See* Petition at 30.

[59] *See* 47 C.F.R. § 90.621(b).

[60] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, Report and Order and Second Further Notice of Proposed Rulemaking, 12 FCC Rcd 18600 (1997) ("*39 GHz R&O*").

[61] *See* Petition at 34.

in-time" basis with no specified filing windows or deadlines, the likelihood of multiple applications being submitted *simultaneously* for the same, discrete area is at most infinitesimal.

Finally, CTIA relies heavily on the Commission's licensing rules for the 39 GHz band in support of its arguments against the Coalition's proposals. In particular, CTIA cites to the rules adopted for the 39 GHz band as "precedent in favor of assigning area wide licenses by auction."[62] However, the licensing options that the Commission had under consideration for the 39 GHz band at the time were significantly different than what the Coalition is now proposing for new P2MP services in the 3700 - 4200 MHz band. In particular, the Commission determined that the large geographic service areas that were being requested for the 39 GHz band warranted the adoption of BTA-based licensing areas for that band.[63] With a total of 487 BTAs covering the entire United States, plus an additional six BTAs covering US territories and possessions,[64] the size of the licensing area adopted for the 39 GHz band is substantially larger (often tens or even hundreds of times larger) than the maximum 10 - 18 kilometer site-specific sectors proposed by the Coalition, thus greatly reducing the potential number of licenses available in the 39 GHz band and requiring a much different approach with regard to the assignment of the spectrum.[65] The decisions the Commission made twenty years ago with respect to the 39 GHz band are therefore not applicable to the Coalition's proposals for the 3700 - 4200 MHz band, and CTIA's reliance on these determinations is misplaced.

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[62] CTIA Comments at 6.

[63] *See 39 GHz R&O*, 12 FCC Rcd at 18647 (¶ 101).

[64] *Id*. at 18604 (¶ 3).

[65] A licensing scheme based on BTAs or similarly large geographic areas would also be entirely inappropriate for low-power, localized P2MP services that could effectively coexist with existing FS and FSS operations in the 3700 - 4200 MHz band.

CTIA's attempt to analogize the Part 101 coordination of a P2MP deployment with "area wide" mobile licenses subject to auction is inapt. Whether Part 101 coordination is used for a P2P or a P2MP deployment, the fixed service is between a limited number of end points within a relatively localized area. Service would not cover a wide area, but smaller, targeted areas where demand is greatest. Licenses auctioned for wide-area coverage (*e.g.*, PCS and AWS) grant exclusive use over geographic areas that are between tens and hundreds of times larger than the distances covered by P2P or P2MP links coordinated under Part 101. Mutual exclusivity is inevitable with licenses for truly wide-area mobile coverage networks, but not so with localized fixed wireless P2P or P2MP deployments. Moreover, although a P2MP operator *could* separately coordinate each link to a home or business customer under Part 101, the cost (and inherent delay) would make the service financially unviable. The Coalition's proposal seeks to simplify and greatly reduce the cost of the fixed broadband service to end users by coordinating in advance all the points that could be served by the base station. This advances the public interest in rapidly making available affordable high-capacity fixed broadband service in underserved areas; it certainly does not convert a highly localized, fixed wireless service into an "area-wide" mobile coverage service, as CTIA claims.

In sum, the Coalition's proposal to license new P2MP services in the 3700 - 4200 MHz band effectively negates the issue of mutual exclusivity among applications, thus rendering the auction requirement of Section 309(j)(i) inapplicable.

IV. The Objections Of The FSS Operators Are Without Merit

Certain FSS operators that use the 3700 – 4200 MHz band (also referred to as the "C-band") opposed the Coalition's proposal.[66] They raise two primary arguments: that FSS operators are using the band efficiently, and that P2MP services cannot share the C-band without materially impacting incumbent FSS operations. Both of these arguments are flawed.

A. The 3700 – 4200 MHz Band Is Severely Underutilized

The FSS operators argue that C-band spectrum is already used efficiently. In fact, the antiquated "full-band, full-arc" licensing policy results in severe underutilization of the band. As the Commission has calculated, there are approximately 4,700 registered earth stations in this band.[67] Google and FWCC independently estimated that 27 – 29 percent of these earth stations are not in service. That leaves approximately 3,400 earth stations scattered across the United States.

Each of these earth stations is licensed to operate across the entire 500 megahertz of the 3700 - 4200 MHz band. Yet, many operate with only a single 36 megahertz transponder. The Associated Press alone operates approximately 975 of these earth stations using only a single 23 megahertz transponder. In order to construct a new terrestrial link, a P2P or prospective P2MP operator must successfully complete a frequency coordination process ensuring that there will be no harmful interference to incumbent operations, namely FSS receive earth stations. Based on

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[66] *See* SIA Opposition; Opposition of SES Americom, Inc., RM-11791 (filed Aug. 7, 2017) ("SES Opposition"); Intelsat Opposition; and GCI Comments.

[67] *See Mid-Band NOI* at ¶ 14. Intelsat points out that "an unknown number of additional receive-only earth stations use the band under FCC rules that do not require registration or licensing." Intelsat Opposition at 3; *see also* GCI Comments at 16 (asserting that there are a "large number of unlicensed receive-only antennas used in the broadcast industry …." The Commission's Rules are quite clear that receive-only earth stations that do not register with the Commission are not entitled to interference protection. *See* 47 C.F.R. § 25.131(b). As a result, these unregistered earth stations are not relevant to the current inquiry.

the "full-band, full-arc" licensing regime, frequency coordinators must assume that all FSS earth stations are always using all 500 megahertz of spectrum in the C-band. In fact, a typical FSS earth station is using only 23 – 36 megahertz, leaving unused – but currently unavailable to terrestrial P2P or prospective P2MP operators – a staggering 464 to 477 megahertz of fallow spectrum.

The C-band FSS operators argue that "full-band, full-arc" protection is necessary in the event of a satellite outage, or for temporary uplinks.[68] Given the current demands on spectrum, it is incredibly wasteful, not to mention bad public policy, to reserve over 450 megahertz of prime mid-band spectrum in the unlikely – and temporary – event of a satellite outage. The Coalition is not aware of any other spectrum band where tens of megahertz, let alone hundreds of megahertz, of prime spectrum lay fallow in the unlikely event of temporary outages. Further, as explained below, satellite outages can be accommodated – without the need for "full-band, full-arc" protection -- within the scope of the Coalition's proposals.

B. P2MP Can Share Successfully With FSS

The Coalition has demonstrated how P2MP services can successfully share with incumbent FSS operators. Prospective P2MP service providers would be required to complete successful coordination with incumbent FSS and FS operations, on the frequencies actually used by these operators, prior to deployment. In other words, FSS operators would receive full protection from harmful interference from terrestrial operators for any and all current FSS operations. SIA, Intelsat and SES do not challenge the ability of P2MP service providers to share successfully with incumbent FSS providers using the current frequency coordination

[68] *See, e.g.,* SIA Opposition at 9 – 11; SES Opposition at 2 – 3.

process.[69] Instead, they express concern about their ability to change frequencies or satellites, particularly in the event of a satellite outage. This is a rare event, and must not be permitted to preclude spectrally efficient sharing as described in the Coalition's proposal.

The C-band FSS operators paint a picture of "doom and gloom" whereby customers would lose service if "full-band, full-arc" coordination were no longer in effect. That is just not the case. In the first instance, it must be noted that prolonged satellite outages are rare.[70] SIA cites to a PBS pleading highlighting a satellite outage in 1997 – fully twenty years ago.[71] SES discussed a recent anomaly on AMC-9, and the need to find new capacity for a video distributor.[72] Importantly, SES itself recognized that "it took time for the affiliates to dispatch qualified staff to each antenna site in order to perform the necessary realignment."[73] A P2MP wireless broadband system would have the capability to change frequencies in a matter of minutes after notification, long before the satellite operator and its customers could re-direct the earth stations or migrate to different frequencies.

The ability of satellite operators to accommodate customers that must be re-located does not, in any manner, require "full-band, full-arc" protection. For example, the Commission could modify its rules to permit satellite operators to retain their current licenses to operate across the entire 3700 – 4200 MHz band, but limit interference protection to the registered frequencies on

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[69] GCI asserts, however, that the implementation of the Coalition's proposal could result in harmful interference. GCI Comments at 15 – 16. GCI's concerns appear to ignore the current frequency coordination process, which takes into account the sensitivity of satellite receive antennas.

[70] Not only is the event rare, but it is typically time-bounded. Often, the satellite operator is able to bring the affected transponder(s) (or satellite) back on-line. If functionality cannot be restored, in many cases replacement satellites (often in-orbit spares) are eventually moved into the orbital slot of the malfunctioning satellite.

[71] *See* SIA Opposition at 10.

[72] *See* SES Opposition at 2.

[73] *Id.*

which the earth station is actually operating. Those frequencies would simply be added electronically to the Commission's database, and considered by all frequency coordinators. In the event of the need to change frequencies, the satellite operator would be required to update the database and potentially interfering terrestrial uses could be relocated to new frequencies as determined by the frequency coordinator. Contrary to Intelsat's dire outlook, earth station licensees would not be required "to file a license modification application or request for special temporary authority …" and Commission involvement would not be required.[74]

In any event, the Petition recognizes the legitimate concern of the C-band FSS operators and has committed to work with the satellite industry to develop procedures that would apply to those rare cases where FSS operators need to change the frequencies in which they are operating, or the satellite with which they are communicating. Among other things, the Petition proposes to require all P2MP radios to be frequency agile, so that they can operate in any 20-megahertz channel across the entire 3700 – 4200 MHz band. This would enable P2MP operators to change frequencies in the event FSS operators needed to change operating frequencies or satellites.

Finally, SIA's criticism of the Coalition for failing to reach out to the satellite industry is wholly unwarranted.[75] In fact, within a few days of filing its Petition, the Coalition contacted SIA to schedule a meeting to discuss the Petition, and specifically to discuss how to accommodate the occasional need of satellite operators to change their operating parameters. Shortly thereafter, representatives of the Coalition met with representatives of the FSS industry to discuss these matters.

[74] Intelsat Opposition at 7 – 8.

[75] *See* SIA Opposition at 12 – 13 ("the reasonable approach would have been to reach out to members of the satellite industry and consider their view *before* submitting the petition") (emphasis in original).

C. The Commission Should Expeditiously Audit Satellite Earth Station Operating Parameters

In its Petition, the Coalition urged the Commission to require FSS licensees operating in the 3700 – 4200 MHz band to update the IBFS database as soon as possible so the Commission can determine which earth station licenses are still active.[76] SIA agrees with the Coalition that "a clean-up of the Commission's International Bureau Filing System ("IBFS") database containing earth station licensing and registration information is appropriate to ensure its ongoing accuracy and completeness."[77] The Coalition has no objection to SIA's proposal that any such audit should offer amnesty to operators that correct inaccurate information in the database on a timely basis in a manner specified by the Commission.[78] The goal of the audit would be to obtain the most accurate information possible so that frequency coordination can ensure interference-free co-existence.

The Coalition further proposed that the licensees of active earth stations provide, on a one-time basis and if and when any further changes are made, limited additional information – specifically, the frequencies used and the orbital slot being accessed.[79] Earth station operators can readily provide such information, and the information will be highly valuable to the Commission as it reviews potential sharing of the 3700 – 4200 MHz band and to P2P and prospective P2MP operators as they review deployment opportunities in the 3700 – 4200 MHz band. Further, the Coalition submits that C-band FSS operators would affirmatively want to

[76] *See* Petition at 24 – 25.

[77] SIA Opposition at 8.

[78] *See id.* at 9.

[79] Petition at 25.

provide such information – so as to support their assertions regarding the use of the entire 3700 – 4200 MHz band.

V. Conclusion

The Petition and the record demonstrate "sufficient reasons" and significant public interest benefits such that the Commission should expeditiously adopt a rulemaking proceeding and consider it under Section 7 of the Act.

Respectfully submitted,

BROADBAND ACCESS COALITION

/s/ Robert S. Koppel
Robert S. Koppel
Lukas LaFuria Gutierrez & Sachs, LLP
8300 Greensboro Drive, Suite 1200
Tysons, VA 22102
bkoppel@fcclaw.com
Counsel to Mimosa Networks, Inc.

/s/ Stephen E. Coran
Stephen E. Coran
Lerman Senter PLLC
2001 L Street, NW, Suite 400
Washington, DC 20036
scoran@lermansenter.com
Counsel to WISPA

/s/ Michael Calabrese
Michael Calabrese
Director, Wireless Future Program
Open Technology Institute at New America
740 15th Street, NW, Suite 900
Washington, DC 20005
calabrese@newamerica.org

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