

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 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	)	

**COMMENTS OF GENERAL COMMUNICATION, INC.**

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**COMMENTS OF GENERAL COMMUNICATION, INC.**

General Communication, Inc. (“GCI”) submits the following comments in opposition to the Petition for Rulemaking (the “Petition”) filed by the Broadband Access Coalition (the “Coalition”) in the above-referenced proceeding.<sup>1</sup> The Petition requests that the Federal Communications Commission (“FCC” or “Commission”) initiate a rulemaking to amend and modernize Parts 25 and 101 of the Commission’s Rules to authorize and facilitate a new, licensed fixed wireless point-to-multipoint (“P2MP”) high-speed broadband service on a shared basis in the 3700-4200 MHz Band (the “3.7 GHz Band” or the “3.7-4.2 GHz Band”), commonly called the “C-Band.” For the reasons set forth below, GCI urges the Commission to reject the Coalition’s request to initiate a rulemaking.

**I. INTRODUCTION AND SUMMARY**

GCI, through its subsidiaries, covers more of Alaska’s population through its telecommunications network than any other provider in the state. Unlike the networks of large

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<sup>1</sup> Petition for Rulemaking, Broadband Access Coalition, RM-11791 (filed June 21, 2017) (the “Petition”).

national providers, which primarily serve only the most populated urban areas of Alaska, GCI provides a wide breadth of coverage across the entire state, particularly in under-or otherwise entirely un-served remote rural areas. GCI's longstanding familiarity with the unique demands of the Alaskan marketplace and environment, its deep resources in Alaska, and its understanding of the needs of Alaskans, have all contributed to the development and deployment of the largest mobile network in Alaska.

Providing mobile service to Alaska is particularly challenging. Such challenges include “its remoteness, lack of roads, challenges and costs associated with transporting fuel, lack of scalability per community, satellite and backhaul availability, extreme weather conditions, challenging topography, and short construction season.”<sup>2</sup> Therefore, GCI must utilize a variety of technologies in order to provide dependable services, and often must do so in innovative ways. This includes using fixed satellite service (“FSS”) in conjunction with its terrestrial mobile and fixed wireless networks. GCI's relies on the 3.7 GHz band in order to provide its FSS operations, and has a very long history of providing C-band satellite communications solutions in Alaska in ways that advance the satellite technology space in an effort to provide communications services in rural Alaska. The 3.7 GHz band has excellent propagation characteristics as compared to high-band spectrum, which helps to improve the continuity and availability of the services provided to rural Alaskan customers. This band is particularly important to GCI due to the critical and important services provided over this spectrum. Many of these critical services, if interrupted, could result in life-threatening situations. For instance,

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<sup>2</sup> *Connect America Fund; Universal Service Reform – Mobility Fund; Connect America Fund - Alaska Plan*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 10139, 10162, ¶ 72 (2016) (“*Alaska Plan R&O*”) (citing *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17829, ¶ 507 (2011) (“*USF/ICC Transformation Order*”), *aff'd sub nom. FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014)).

many of GCI's C-Band served customers reside in the most rural and remote areas of the country and rely on satellite technology for the provision of basic telephone service, medical service, and distance-learning. Federal agencies, such as the Federal Aviation Administration ("FAA"), for example, also rely on GCI's operations in the C-Band to assist pilots throughout the state. In many cases, GCI's satellite services are the only communications option that Alaskans can rely upon to contact emergency officials in critical situations.

The proposals contained in the Petition threaten this harmony. Specifically, the Petition offers suggested modifications to the Commission's rules, including, but not limited to, eliminating the Part 25 well-established "full band, full arc" coordination policy and replacing it with an untested and ill-advised "real-time, real-world" FSS protection scheme, as well as introducing a new subpart K to the Part 101 rules that will provide performance and registration requirements to accommodate P2MPs in the 3.7 GHz band. These proposals, if adopted, would adversely impact existing FSS operations and the critical services provided pursuant to such operations.

That such services are provided over the C-Band may come as a surprise to anyone reading the Petition, which offers limited, selective examples relating to services provided in the C-Band, and provides incomplete facts in presenting to the Commission a misleading and skewed view of the 3.7 GHz landscape. As discussed herein, GCI's personal experience providing competitive services in extremely rural, unserved and underserved areas using the 3700-4200 MHz band, using the entire available spectrum band, directly contradicts the majority of the Coalition's misleading assertions. To be sure, the very services that the Petition suggests that it's concerned about – serving unserved, underserved and rural areas – are the very services being provided by GCI today over the band.

The Petition also severely underestimates how interference protection would work in this band – and minimizes the disruptive impact any interference could have on the competitive services being offered. In short, as demonstrated in proceedings on similar topics over the last 15 years, the Petition’s proposal would actually harm the public interest by taking away needed resources that are already being used to provide the same services the Petition purports to promote. As a result, the Commission should reject the Coalition’s request to initiate a rulemaking.<sup>3</sup>

## **II. GCI RELIES ON UNFETTERED ACCESS TO THE 3700-4200 MHZ BAND FOR THE PROVISION OF CRITICAL SERVICES TO CONSUMERS, BUSINESSES AND THE GOVERNMENT**

Remote and rural Alaskan communities depend on GCI’s and other providers’ satellite operations for connection because, as the Commission noted, “for many areas of Alaska, satellite links may be the only viable option to deploy broadband.”<sup>4</sup> C-Band spectrum offers a lifeline between these remote areas and urban areas with better fixed and mobile competencies. GCI highly values the C-Band for the same reason that the Commission has traditionally sought to protect it: “its propagation characteristics allow for greater service reliability compared to other bands, especially in adverse weather conditions.”<sup>5</sup> These propagation characteristics are superior

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<sup>3</sup> In the event that the Commission wants to undertake a review of the services provided over the 3700-4200 MHz spectrum, it should do so in the Notice of Inquiry adopted last week. *See Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, Notice of Inquiry, FCC 17-104 (rel. Aug. 3, 2017) (“*Mid-Band Spectrum NOI*”).

<sup>4</sup> *USF/ICC Transformation Order*, ¶ 24 (quoting *Connect America fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 at 17699, para. 101 (2011) (cites omitted)); *See also* Alaska Broadband Task Force, *A BLUEPRINT FOR ALASKA’S FUTURE: A REPORT FROM THE STATEWIDE BROADBAND TASK FORCE*, Final Report, 28 (2014) (“... so much of the state is off the road system and hard/expensive to reach with terrestrial fiber/microwave options.”).

<sup>5</sup> *In the Matter of Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further

when compared to high-band spectrum, in part due to the fact that this band offers “near-line-of-sign (“nLOS”) capability at low power for last-mile services.”<sup>6</sup> Indeed, it was for these reasons that this band was selected for the downlink allocation on C-Band satellites. It was also for these reasons that GCI chose to invest significant resources (over \$100 million) in developing and deploying the C-Band – with the investment of these resources premised on continued access to this spectrum.

These propagation characteristics are particularly important to GCI, Alaska’s largest communication provider, but are also critical to other users of the C-Band in Alaska that use it for the same or similar purposes. GCI and other FSS earth station operators in Alaska face significant and unique challenges in providing telecommunications services to Alaska, including limited satellite coverage, increasing capacity, and interference issues. The C-Band helps alleviate some of these concerns, as it enables GCI to provide critical and important services via 2G and LTE-over-Satellite data services, among other methods of service that GCI uses to provide services to its customers using the C-Band. Many of these critical services, if interrupted, could result in life-threatening situations. In many instances, GCI’s C-Band satellite operations are the only way that Americans in Alaska are able to make and receive life-saving communications. Below are a number of examples of services provided by GCI across the C-Band spectrum:

*Critical Long-Distance Services.* GCI offers Measured Toll Service (“MTS”) for consumers and businesses using its licensed C-Band spectrum. For many remote villages in the northern, western, and interior regions of Alaska, this is oftentimes the only communications link

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Notice of Proposed Rulemaking, FCC 15-47, ¶292 (rel. Apr. 21, 2015) (“3.5 GHz Report and Order”).

<sup>6</sup> Petition at 4.

to the “outside world,” allowing these residents to contact state troopers and other emergency officials at all times, but especially in critical situations. Many of these communities have no terrestrial (or other) transmission alternative. GCI also provides long-distance private line (special access) services to businesses, native corporations, and local, state and federal governments. These operations also service FAA circuits and other government agency circuits, helping to ensure that the most critical and secured communications travel from and reach their intended destination. Any interference to such circuits could result in the potential for injury or loss of life.

Alaska Plan. The Commission has previously expressed concern that “[o]ver 50 communities in Alaska have no access to mobile voice service today, and many remote Alaskan communities have access to only 2G services.”<sup>7</sup> In recognizing that the unique climate and geographic conditions of Alaska have the effect of hindering deployment of fixed and mobile voice and broadband service to the state, the Commission adopted a plan in 2016 to help extend and upgrade the state’s broadband service to support a large number of underserved and unserved communities (the “Alaska Plan”).<sup>8</sup> Objectives of the Alaska Plan include, but are not limited to introducing broadband service to over 36,000 new residents at speeds of 10/1 Mbps and upgrading almost 70,000 residents to 25/3 Mbps,<sup>9</sup> which requires GCI to deploy 4G LTE or better service to more than 100,000 remote Alaska residents.<sup>10</sup> The C-Band plays a critical role in GCI’s contribution to the Alaska Plan. To meet its obligations under the Alaska Plan, GCI

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<sup>7</sup> *USF/ICC Transformation Order*, ¶ 529.

<sup>8</sup> Indeed, the Commission has recognized that “competitive ETCs in Alaska’s most remote regions face conditions unique to the state, and much of Alaska’s remote areas remain unserved or underserved by mobile carriers.” *Alaska Plan R&O*, ¶ 66.

<sup>9</sup> *Id.* at ¶ 8.

<sup>10</sup> *Id.* at ¶ 73.



uses this spectrum to deliver middle-mile capacity with the last-mile LTE service – a critical initiative to provide needed services to under and under-served areas.<sup>11</sup> GCI has already allocated specific spectrum in Dutch Harbor, Barrow and other served and to-be-served sites. Currently, GCI has about 1.25 transponders (36 MHz each) with plans to increase in the near-term. If GCI’s access to the C-Band were to be modified or interrupted in any way, it could jeopardize GCI’s ability to comply with the obligations it assumed under the Alaska Plan.

Telehealth. Through its “ConnectMD” network, GCI supports the delivery of telemedicine services such as teleradiology, remote patient monitoring, medical network solutions, and live video-conferencing to customers in Alaska.<sup>12</sup> GCI has over 130 C-Band sites in Alaska (many of which are equipped with multiple antennas), ranging from sites in large cities like Anchorage to small, remote islands such as Atka and Nikolski. These C-Band sites cover government health providers such as North Slope Borough Department of Health and Social Services,<sup>13</sup> as well as Tribally-operated, non-profit health and social services organizations like the Arctic Slope Native Association.<sup>14</sup> As discussed in prior comments,<sup>15</sup> GCI has witnessed firsthand the transformational benefits of telemedicine for health care delivery in Alaska. These services improve healthcare in areas that traditionally have few physicians and even fewer medical specialists in a variety of medical fields, including audiology, cardiology, dental, family

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<sup>11</sup> See *Wireless Telecommunications Bureau Approves Performance Plans of The Eight Wireless Providers That Elected to Participate in the Alaska Plan*, Public Notice, WC Docket No. 16-271, Appendix A, page 6 (2016).

<sup>12</sup> See GCI ConnectMD, <http://www.connectmd.com/> (last visited Aug. 7, 2017).

<sup>13</sup> The North Slope Borough, <http://www.north-slope.org/departments/health-social-services> (last visited Aug. 7, 2017).

<sup>14</sup> Samuel Simmonds Memorial Hospital, <http://www.arcticslope.org/> (last visited Aug. 7, 2017).

<sup>15</sup> See, e.g., Reply Comments of General Communication, Inc., GN Docket No. 12-354 (filed Aug. 14, 2015); Comments of General Communication, Inc., WC Docket No. 02-60 (filed Sept. 8, 2010).

medicine, neurosurgery, ophthalmology, pediatrics, psychiatry, and women's health. In most instances, the ConnectMD network is the only way that rural Alaskans may gain access to such specialists. For example, without telepsychiatry services, residents seeking psychiatric care in many remote villages would either have to wait for a sporadic visit from a traveling psychiatrist, or would have to travel vast distances – usually at a prohibitively high cost – to seek the medical help that they needed.<sup>16</sup> Neither of these options would likely be possible during the harsh long Alaskan winter. However, telepsychiatry has “extended the clinical infrastructure of the [Alaska Psychiatric Institute] hospital to areas typically not served by mental health professionals,”<sup>17</sup> and when a resident in a remote area such as Kiana, located in the northwest Arctic Borough of Alaska, needs immediate or on-going care for depression, bipolar disorders, or even schizophrenia, GCI's ConnectMD network enables them to visit with a specialist remotely, via a remote village clinic, on their own schedule. ConnectMD has allowed these communities to offer readily-available, cost-effective psychiatric services to its residents, eliminating any need for residents to take long and expensive trips to faraway cities just to seek medical attention. Importantly, ConnectMD also allows participating communities to accommodate patients with sudden symptoms, often developing treatment plans without the need for costly hospitalization.

Long-Distance Learning. GCI's SchoolAccess network provides broadband access, video conferencing and state-of-the-art digital tools to schools and libraries in rural and

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<sup>16</sup> For example, “the transportation costs, and then all of the other unintended costs that go along with that, traveling through Alaska [are a problem] . . . you're out of your village. You have costs if someone travels with you. You have food and lodging.” Joaquin Estus, *Study Shows Telepsychiatry Effective for Alaska Elders*, NEW AMERICA MEDIA (Feb 13, 2014), <http://newamericamedia.org/2014/02/study-shows-telepsychiatry-effective-for-alaska-elders.php>.

<sup>17</sup> ALASKA DEP'T OF HEALTH AND SOC. SERVS., STATUS REPORT ON TELEHEALTH AND HEALTH INFORMATION TECHNOLOGY PROGRAMS AND INITIATIVES IN ALASKA, 11 (Feb. 2011) *available at* [http://dhss.alaska.gov/dph/HealthPlanning/Documents/telehealth/2010\\_Telehealth\\_and\\_HIT\\_Initiatives\\_in\\_Alaska.pdf](http://dhss.alaska.gov/dph/HealthPlanning/Documents/telehealth/2010_Telehealth_and_HIT_Initiatives_in_Alaska.pdf).

underserved regions of the United States.<sup>18</sup> This program focuses on K-12 school and library environments and currently serves more than 100,000 patrons.<sup>19</sup> The SchoolAccess services have become an essential part of educating students in rural areas, with its video service logging more than 2.25 million minutes each year in Alaska, New Mexico, and Montana.<sup>20</sup> The Ouzinkie and Port Lions schools, which are located on separate islands off the coast of Alaska (and are part of a single school district - the Kodiak Island Borough School District (“KIBSD”)), heavily rely on GCI’s SchoolAccess video services to bring their rural students under one virtual “roof.”<sup>21</sup> For instance, these services have allowed students at Ouzinkie and Port Lions schools, along with other students in the school district, to participate (virtually) in district-wide online music performances, and have also spurred an island-wide leadership group that meets via video conference so all students can participate. All children in the district also are now afforded the opportunity to participate in online, state-wide programs and competitions, including Battle of Books, a statewide reading motivational and comprehension program; the District Spelling Bee; and Alaska Robotics, the state-level science and engineering fair.<sup>22</sup> The opportunities do not end there: distance-learning has not only increased academic, athletic and social collaboration between the district’s geographically isolated students, but has also led to improved test scores among its students, providing a greater opportunity for these students to attend college.<sup>23</sup> The

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<sup>18</sup> GCI SchoolAccess, <http://www.schoolaccess.net/public-general/services> (last visited Aug. 7, 2017).

<sup>19</sup> GCI SchoolAccess, About, <http://www.schoolaccess.net/public-general/about> (last visited Aug. 7, 2017).

<sup>20</sup> *Id.*

<sup>21</sup> GCI SchoolAccess, Success Story: KIBSD and AKTEACH Making Globalized Education Happen through Digital Connection, <http://www.schoolaccess.net/public-general/success-stories/kodiak-island> (last visited Aug. 7, 2017).

<sup>22</sup> *Id.*

services provided by GCI's SchoolAccess have become an essential part of educating students in rural Alaska by allowing children in remote areas to gain an education that would otherwise not be available without leaving home.

FAA Assistance. Due to the enormous size of the state and lack of road infrastructure, the use of small aircraft for day-to-day travel is common in rural Alaska. Unfortunately, due to weather, mountainous terrain, and the lack of adequate mapping, travel by small aircraft comes with inherent risk. Pilots routinely find themselves in rough weather and must decide whether to turn around and try again later – at significant expense and inconvenience to their passengers – or face the increased risk of flying in potentially unsafe conditions. For over a decade, GCI has been working with the FAA on a program that provides real-time weather-camera information to pilots using the GCI satellite network for middle-mile backhaul. Based on data compiled by the FAA, this program has reduced weather-related aviation incidents in Alaska by *85 percent*, and has reduced how often pilots must turn a plane around due to weather by *66 percent*.<sup>24</sup>

GCI currently occupies the majority of a C-Band satellite in the western arc with the services described above.<sup>25</sup> In order to provide these critical services to the state of Alaska, GCI uses the entire 500 MHz C-band receive spectrum allocation and relies on the flexibility afforded by the FCC's rules to efficiently shift frequencies and satellites in the event of a transponder or satellite failure or market competition (resulting in capacity cost reductions).<sup>26</sup> In addition to

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<sup>23</sup> *Id.*

<sup>24</sup> GCI, News Release, *Weather Camera Program Protects Pilots, Saves Lives in Alaska* (Apr. 19, 2017) <https://www.gci.com/about/newsreleases/weather-camera-program>.

<sup>25</sup> In addition, GCI also uses the C-Band to distribute video content throughout the state.

<sup>26</sup> The majority of earth stations utilized by GCI are 3.6m antennas; GCI also uses some larger antennas (6.2m, 7.1m, 9m, 13m). GCI currently uses Satmex 7 at 115 WL and Galaxy 18 at 123 WL for full time services. All of GCI's C-Band stations providing network services are licensed with the FCC pursuant to 47 C.F.R. Part 25, with the major hub stations in Eagle River and

relying on primary, full-time satellites, GCI also requires the ability to operate on other western arc satellites with very little notice (i.e., less than four hours) in order to provide restoration of terrestrial networks that service rural Alaska. GCI has also contracted with satellite providers to obtain “in-orbit protection,” which allows GCI to access additional capacity at other orbital location (with priority assignment) in the event that the primary spacecraft experiences a catastrophic failure. Any shift in GCI’s access to the C-Band could result in catastrophic interruptions to these critical services.

### **III. THE PETITION FAILS TO PROVIDE AN ACCURATE AND COMPREHENSIVE UNDERSTANDING OF THE 3.7 GHZ LANDSCAPE**

Unfortunately, in an effort to make a spectrum-grab, the Coalition does not present an accurate representation of the current services provided in the 3700-4200 MHz band. Indeed, it cherry-picks misleading “supporting” opinions and present them as fact – and ignores critical services already being provided over the band, such as those detailed above. Fortunately for current C-Band operators, this Commission in particular has noted that actual evidence is critical to making important decisions<sup>27</sup> – and, as discussed herein, the Petition fails to meet the threshold of providing such “actual evidence.” Contrary to the assertions presented by the Coalition, the 3.7-4.2 GHz band is currently being utilized to provide critical broadband services to consumers in rural, unserved, and underserved areas – exactly the types of services that the

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Fairbanks. GCI’s network is also configured to provide restoration capabilities on Galaxy 13 at 129 WL. In the past five years GCI has operated, at a variety of earth stations on satellites also located at 139 WL, 137 WL, 135 WL and is currently reviewing other western arc satellites for possible use in its network.

<sup>27</sup> “We must act on concrete evidence, not hypothetical harms.” *Ensuring Customer Premises Equipment Backup Power for Continuity of Communications*, Notice of Proposed Rulemaking and Declaratory Ruling, 29 FCC Rcd 14968, 15038 (2014) (Statement of Commissioner Ajit Pai).

Coalition's proposals purport to promote. Rather, moving forward with the Petition would actually have the opposite effect – and would be contrary to the public interest.

***A. The Petition Largely Underestimates The Current Utilization Of The 3700-4200 MHz Band***

The Coalition – through selective, anecdotal “evidence” – argues that the use of the C-Band is “highly inefficient” and therefore the spectrum goes “needlessly unused.”<sup>28</sup> Indeed, when reading the Petition, one would think that the global C-Band satellite industry and its service delivery are unsuccessful, with many failing businesses using a last gasp to hold on to offer service. This is hardly the case. The Petition focuses on one specific entity (the Associated Press) that has specific, limited, uses for the C-Band – to draw massively inaccurate conclusions about what is actually happening in the C-Band. For instance, the Coalition argues that “FSS earth stations are routinely licensed to use all 500 megahertz of the 3700-4200 MHz band, even though any given earth station typically uses only a small portion of the band.”<sup>29</sup> GCI's experience, however, demonstrates the exact opposite. As noted above, GCI uses the entire 500 MHz of spectrum in its network at multiple hub locations. It has been able to effectively utilize this spectrum and provide ubiquitous service to its customers largely due to the flexibility afforded to it through the existing “full band, full-arc” coordination policy in the Commission's rules. And GCI is not the only licensee that uses the whole band; teleports often use the entire band across multiple orbital slots with many antennas in service. Similarly, the Coalition argues that despite being licensed to communicate with “any Permitted Space Station List satellite . . . . most earth stations only communicate with one orbital slot for most, if not all, of their 15-year

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<sup>28</sup> Petition at 15 (cites omitted).

<sup>29</sup> *Id.* at 21.

license terms.”<sup>30</sup> Again, this is another speculative, unsupported assumption, and is not true for GCI. GCI operates on three full time satellites today and stations are configured to restore services across two additional satellites at different orbital locations than their primary service location.

The Petition, while underselling the current utilization of the 3.7 GHz band, also oversells the need for new P2MP spectrum. For instance, the Coalition argues that making additional spectrum available is “essential” to provide a cost-effective solution “in areas where the costs to deploy fiber-to-the-home (“FTTH”) technology are prohibitive.”<sup>31</sup> The Petition, however, fails to consider that Viasat-1 (Ka-band) has proven this statement to be incorrect. Viasat delivers high-speed Internet directly to consumers at high usage allowance and information rates at competitive prices.<sup>32</sup> Further, the Petition also minimizes the spectrum available in other bands that is, or will be, available for the provision of the exact same type of services that the Petition suggests providing, such as the 3.5 GHz band. Indeed, the Commission recently approved a Notice of Inquiry seeking comment on a number of mid-band spectrum options; a proper place to start for an examination of whether spectrum bands are actually underused.<sup>33</sup>

***B. Elimination Of The Flexible “Full Band, Full Arc” Policy Will Impact The Ability Of FSS Operators To Manage Their Networks As Necessary***

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<sup>30</sup> *Id.* at 22.

<sup>31</sup> *Id.* at 3.

<sup>32</sup> See *Announcing Exede(sm) by ViaSat 12 Mbps High-Speed Broadband Service for \$50*, VIASAT.COM, <https://www.viasat.com/news/announcing-exedesm-viasat-12-mbps-high-speed-broadband-service-for-50> (last visited July 28, 2017); see also *High-Capacity Satellite System: Transforming Satellite Broadband*, VIASAT.COM, <https://www.viasat.com/products/high-capacity-satellites> (last visited July 28, 2017).

<sup>33</sup> See *Mid-Band Spectrum NOI*.

GCI's ability to effectively utilize the C-Band spectrum is due in large part to the well-established flexible operating rules, such as the "full band, full arc" policy associated with the band. GCI relies on this flexibility afforded by the FCC's rules to efficiently shift frequencies and satellites in the event of a transponder or satellite failure or market competition (resulting in capacity cost reductions). The Petition, ignoring any benefit associated with such flexibility, proposes to eliminate the "full band, full arc" policy that FSS operators rely upon to provide uninterrupted service to their customers. This is not the first time that a party has petitioned the FCC to materially modify this policy; most recently the Fixed Wireless Communications Coalition, Inc. ("FWCC") proposed radical modifications to the coordination procedures that would require FSS earth stations to coordinate specific combinations of frequency, azimuth, and elevation angle for immediate use, rather than allow such stations to coordinate across an entire frequency band, and over the entire geostationary arc under "full band, full arc" coordination as is currently permitted by the FCC's rules.<sup>34</sup> The proposals brought forth in the 2016 FWCC petition were duplicative of a request raised by FWCC in 1999, which was reviewed and dismissed by the Commission without taking any action.<sup>35</sup> GCI participated in both the 2016 and 1999 proceedings, and has been advocating against a change to the full-band, full arc policy for

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<sup>34</sup> Petition for Rulemaking, Fixed Wireless Communications Coalition, Inc., RM-11778 (filed Oct. 11, 2016). *See also Consumer & Governmental Affairs Bureau Reference Information Center Petitions for Rulemaking Filed*, Public Notice, Report No. 3059 (rel. Dec. 9, 2016).

<sup>35</sup> The Commission's rejection was largely based on its finding that "FWCC failed to demonstrate that FS networks face any disadvantage due to full-band, full-arc earth station licensing." Petition to Dismiss or Deny of the Satellite Industry Association in RM-11778, at 3 (filed Jan. 9, 2017) ("SIA Petition"); *see also FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service*, Notice of Proposed Rulemaking, 15 FCC Rcd 23127 (2000); *FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service*, Second Report and Order, 17 FCC Rcd 2002 (2002) (terminating the proceeding without taking any action).



over 15 years.<sup>36</sup> While the Coalition is “confident” that FSS operators will still be able to effectively “change the frequency band in which they are operating or the satellite with which they are communicating,”<sup>37</sup> seeking to eliminate the full band, full arc coordination policy ignores the very-real fact that changes in frequency are an integral part of the day-to-day operations of FSS operators, including GCI. Requiring coordination with a third party, under the Coalition’s proposal, would cripple FSS operator’s ability to be responsive to customers – and would result in harmful interference that halts necessary services.

***C. Contrary to Claims Within The Petition, The Coalition’s Proposal Will Result In Catastrophic Interference Which Would Be Contrary to The Public Interest***

The Petition also makes a number of bold, unsupported claims about the ability to protect incumbent operations in the C-Band with the introduction of a third service. The claims are entirely speculative, and not based in fact. First, band sharing in the 3.7-4.2 GHz band is problematic due in large part to the fact that the received signal level (“RSL”) at the satellite antenna is extremely small. It is so small that very sensitive low-noise amplifiers (“LNAs”) are required to recover the signal and discriminate it from the thermal noise floor. However, the presence of even small amounts of external, intentional radiator energy can easily overwhelm the input signal limits of an LNA and saturate it.<sup>38</sup> In short – even the smallest levels of interference could be harmful to the provision of services over the C-Band. GCI requires clear, unobstructed

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<sup>36</sup> See, e.g., Reply Comments of General Communication, Inc., RM 11778 (filed Jan. 24, 2017); Letter from Kathleen S. O’Neill, Counsel to GCI, Drinker Biddle & Reath LLP, to Magalie Roman Salas, Secretary, FCC, IB Docket No. 00-203 (Mar. 1, 2001); Reply Comments of General Communication, Inc., IB Docket No. 00-203 (filed Feb. 10, 2001).

<sup>37</sup> Petition at 26.

<sup>38</sup> Received signals from geostationary satellites are dramatically lower than those observed in terrestrial microwave solutions. This requires the use of ultra-sensitive low noise amplifier components in order to overcome thermal noise. The presence of intentional, in-band interferers can easily swamp the input power threshold of an LNA.

access to/from the target satellite in order to achieve reliable operation of circuits delivered via satellite. Alternatively, if saturation of the input does not occur, the presence of interference increases the noise density and causes a degradation of the signal quality, rendering the signal unrecoverable. Once interference occurs, the mitigation of that interference can become very difficult to realize because multiple transmitters could operate in the same region, with spectrum re-use. Service affecting interference events occur in existing satellite networks as new antennas come into networks or fall out of performance specifications. Under those conditions, identifying the source of the interference, particularly if the operation is intermittent or time-of-day specific, could take days or weeks, and requires expensive, complex triangulation systems. Such an occurrence would effectively cripple the critical services already being provided in the band.

Second, band sharing will not automatically be successful due to the coordination policies as purported by the Petition. Indeed, the Coalition would like the Commission to believe that “coordination will ensure spectrally efficient co-existence among [FSS, Fixed Service (“FS”), and P2MP] services.”<sup>39</sup> However, this is difficult, if not impossible to realize from a practical perspective because of the large number of unlicensed receive-only antennas used in the broadcast industry (pursuant to the FCC’s rules). From a coordination perspective, the P2MP service cannot be aware of these antennas because there is no available record of their presence, and frequency coordination only works if all antennas subject to the interference potential are registered or licensed with the FCC. The proposal, if accepted by the FCC, would effectively force all antennas operating in the 3.7 GHz – 4.2 GHz band to be registered. This would greatly increase the administrative burden on operators and further constrain network management practices – while still not allowing for necessary interference protection.

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<sup>39</sup> Petition at 1.

If the Commission were to accept the Coalition’s proposal, substantial interference would undoubtedly be introduced into the C-Band. Interference would adversely affect the critical and important services provided by GCI and other operators over this band, resulting in the loss of critical communications services. Simply put, the Coalition’s proposal would result in catastrophic effects and is not in the public interest.

***D. The Petition Contradicts Itself Concerning The Power Levels Associated With The Proposed P2MP Service***

Finally, another fundamental flaw of the Petition is that it offers contradictory evidence regarding the power levels associated with P2MP operations. As an initial matter, although the Coalition claims that the P2MP services will be “low power,” it also recognizes that the 3.7 – 4.2 GHz band offers nLOS capability. nLOS signal propagation implies high radiating powers to overcome diffraction and reflection. This is inconsistent with the Coalition’s assertion of low power operation. Furthermore, the actual proposed levels themselves are not what the industry considers to be “low.” For instance, the Petition proposes a maximum EIRP of 50 dBm for licensed P2MP operations, and a maximum conducted power of 1 Watt.<sup>40</sup> The proposed increase from 36 dBm is a 25x power increase and is a 100W power output; this is not “low power.” The Coalition’s proposal to conduct in-band operations (along C-Band receive carriers) with no offered modifications to the existing Part 101 out of band emission (“OOBE”) limits may not be adequate to protect the receive signals for adjacent channels, particularly at the higher output levels of 50 dBm. In essence, in addition to offering misleading anecdotes about services in the band, the Coalition is also aiming for a bait-and-switch; proposing to offer low power services while proposing rules and services that require high power – even more reason to have to review all of the Coalition’s claims with a critical eye.

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<sup>40</sup> *Id.* at 30.

#### **IV. THE COMMISSION SHOULD DISMISS OR DENY THE PETITION FOR RULEMAKING AND FOCUS ITS REVIEW ON THE RECENTLY RELEASED NOTICE OF INQUIRY IN ORDER TO DEVELOP A HOLISTIC STRATEGY WITH RESPECT TO MID-BAND SPECTRUM**

As emphasized throughout these comments, the Commission must dismiss or deny the Petition for Rulemaking because the proposals presented by the Coalition would disrupt critical services being offered to customers in rural and remote areas, and such an outcome would not be in the public interest.<sup>41</sup> In addition, the Commission should also reject the Petition due to the duplicative efforts being explored in the recently-released *Notice of Inquiry* (“NOI”). The NOI seeks to explore “potential opportunities for additional flexible access – particularly for wireless broadband services – in spectrum bands between 3.7 and 24 GHz.”<sup>42</sup> This new proceeding will allow interested parties to collaborate on long-term strategies that would enhance efficiency and promote flexible use opportunities of three specific mid-range bands as well as ways to protect and benefit incumbent services.

The Petition, on the other hand, offers a narrow, one-sided proposal for the use of one of the three (or more) bands currently being explored by the NOI. This simply is not the appropriate vehicle for reviewing potential new spectrum opportunities. The Petition’s proposals would not enhance efficiency or promote flexible use of the 3.7 GHz band, and, as demonstrated herein, would not protect FSS services being provided by incumbent operators. Opening up a second, duplicative, proceeding to consider one specific proposal for only one of the mid-bands is a waste of administrative resources, and would not further the Commission goals in this

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<sup>41</sup> Indeed, the proposals would result not only in interference concerns, but the Commission would effectively be modifying (and eliminating operators’ access to) the C-Band spectrum for carriers like GCI. While the Commission may modify a license if “such action will promote the public interest, convenience, and necessity,” here, such a high standard cannot be met due in large part to the critical services currently being provided over the C-Band by FSS operators. See 47 U.S.C. § 316.

<sup>42</sup> *Mid-Band Notice of Inquiry*, ¶ 1.

proceeding. Rather, the Commission should dismiss the Petition, and focus its mid-band efforts on the record developed in response to the *NOI*.

## **V. CONCLUSION**

For the foregoing reasons, GCI respectfully requests that the Commission dismiss or deny the Coalition's request for a rulemaking proceeding concerning its proposal to amend Parts 25 and 101 of the Commission's rules to authorize and facilitate a new, licensed fixed wireless P2MP broadband service. The Coalition's proposals are not in the public interest. FSS operators such as GCI have relied upon the entire 500 MHz offered in the 3.7-4.2 GHz band for many years to provide critical services to customers in remote or rural areas. Modifying the current 3.7 GHz landscape, as proposed in the Petition, would adversely impact these services, and the customers that rely on them the most. Accordingly, the Commission should reject the Petition for Rulemaking and focus its review of opportunities presented in mid-band spectrum through its *NOI* on the subject.

Respectfully submitted,

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August 7, 2017

**CERTIFICATE OF SERVICE**

I hereby certify that on this 7<sup>th</sup> day of August, 2017, I caused a true copy of the foregoing to be sent by first class mail, postage prepaid, upon the following:

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