

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

In the Matter of)	
)	
Petition for Rulemaking to Amend and Modernize)	
Parts 25 and 101 of the Commission's Rules to)	RM-11791
Authorize and Facilitate the Deployment of Licensed)	
Point-to-Multipoint Fixed Wireless Broadband)	
Service in the 3700-4200 MHz Band)	

REPLY OF THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association (“SIA”)¹ submits this reply regarding the above-captioned petition for rulemaking filed by the Broadband Access Coalition (“BAC”).² As discussed below, the record in response to the BAC Petition confirms that eliminating the long-standing Commission policy of licensing 3700-4200 MHz C-band earth stations for the full band and full arc would disrupt vital satellite services, including in areas not adequately served by terrestrial networks. Neither the BAC nor any other party has proposed a framework that would adequately protect existing and future satellite operations. As a result, the BAC Petition’s approach would undercut, not advance, its stated goal of bridging the digital divide.

¹ SIA Executive Members include: The Boeing Company; AT&T Services, Inc.; EchoStar Corporation; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; Ligado Networks; Lockheed Martin Corporation; Northrop Grumman Corporation; OneWeb; SES Americom, Inc.; Space Exploration Technologies Corp.; SSL; and ViaSat, Inc. SIA Associate Members include: ABS US Corp.; Artel, LLC; Blue Origin; DigitalGlobe Inc.; DataPath Inc.; DRS Technologies, Inc.; Eutelsat America Corp.; Global Eagle Entertainment; Glowlink Communications Technology, Inc.; Hughes; Inmarsat, Inc.; Kymeta Corporation; L-3 Electron Technologies, Inc.; O3b Limited; Panasonic Avionics Corporation; Planet; Semper Fortis Solutions; Spire Global Inc.; TeleCommunication Systems, Inc.; Telesat Canada; TrustComm, Inc.; Ultisat, Inc.; and XTAR, LLC. ViaSat abstained from participation in this filing.

² Petition for Rulemaking of the Broadband Access Coalition, RM-11791, filed June 21, 2017 (“BAC Petition”).

I. THE COMMENTS HIGHLIGHT SATELLITE NETWORKS' INTENSIVE USE OF C-BAND SPECTRUM TO SUPPLY ESSENTIAL SERVICES

The SIA opposition to the BAC Petition describes the critical and wide-ranging service needs met by C-band fixed-satellite service (“FSS”) systems, conclusively demonstrating that C-band frequencies are used robustly and effectively by FSS operations.³ Other parties reinforce this point, stressing both the importance of C-band satellite services and their efficient use of spectrum.

For example, General Communication, Inc. (“GCI”) sets forth a detailed account of its reliance on C-band satellite services to satisfy requirements for both basic connectivity and more advanced offerings throughout Alaska.⁴ These include long distance telephone services that sometimes are a community’s only link to emergency personnel, provision of broadband connections as part of the Commission’s “Alaska Plan,” vital telehealth services to locations that lack medical specialists, and telecommunications access for schools and libraries serving more than 100,000 patrons.⁵ In addition, GCI supports a Federal Aviation Administration program that “provides real-time weather-camera information to pilots using the GCI satellite network,” improving safety for pilots and their passengers by reducing “weather-related aviation incidents in Alaska by 85 percent.”⁶ As GCI observes, for many of these services, an interruption “could

³ Opposition of the Satellite Industry Association, RM-11791, filed Aug. 7, 2017 (“SIA Opposition”) at 4-9.

⁴ Comments of General Communication, Inc., RM-11791, filed Aug. 7, 2017 (“GCI Comments”) at 1-11.

⁵ *Id.* at 5-9. *See also* Comments of Competitive Carriers Association, RM-11791, filed Aug. 7, 2017 (“CCA Comments”) at 5 (“in Alaska, the 3.7 to 4.2 GHz band is used to facilitate and provide broadband services to areas that would normally not receive such services”).

⁶ *Id.* at 10 (emphasis in original).

result in life-threatening situations.”⁷ In other words, for the residents of Alaska, continued access to reliable C-band satellite capacity is literally a matter of life or death.

Due to their large coverage areas and resistance to rain fade, C-band satellite services are also central to the nation’s content delivery infrastructure. As Intelsat points out, C-band satellite networks “are used for the distribution of hundreds of channels of video programming, including live sports, broadcast television networks, and non-broadcast television video programming.”⁸ The “cable, telco, direct-to-home, and broadcast television operators that receive this programming either directly or indirectly via C-band in turn serve over 100 million television households.”⁹ Thus, even if a relatively small proportion of viewers still receive video programming directly via a C-band backyard antenna,¹⁰ C-band satellite service still plays a huge role in indirectly delivering the content that U.S. consumers are watching. In addition, C-band satellite networks support significant government operations, provide communications connections to ships at sea, and facilitate private commercial data networks.¹¹

⁷ *Id.* at 5.

⁸ Opposition of Intelsat License LLC, RM-11791, filed Aug. 7, 2017 (“Intelsat Opposition”) at 3.

⁹ *Id.* This total includes an estimated 13 to 17 million television households that still rely solely on over-the-air broadcasting by local affiliates, most of which receive their national feed via C-band satellites. *See, e.g.*, Gordon H. Smith, “Broadcasting as an engine for local economies,” (May 21, 2012) available at: <https://blog.nab.org/category/spectrum/> (citing a study indicating that “17 million households representing 45.6 million consumers receive television exclusively through over-the-air (OTA) broadcast signals”); SNL Kagan, U.S. Multichannel Industry Benchmarks, 2017 full-year estimates (more than 13 million households rely solely on over-the-air broadcast signals).

¹⁰ *See* Comments of the Utilities Technology Council, RM-11791, filed Aug. 7, 2017 (“UTC Comments”) at 3 & n.8.

¹¹ SIA Opposition at 6-7 & n.19, *citing Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 4.2 GHz*, Notice of Inquiry, GN Docket No. 17-183, FCC 17-104 (rel. Aug. 3, 2017) (the “Mid-Band NOI”) at ¶ 8.

These services are made possible by the multibillion-dollar investment of satellite operators and their customers in C-band space stations and ground stations. Intelsat notes that 60 C-band satellites are included in the Commission's Permitted Space Station List as authorized to serve the United States in the 3700-4200 MHz frequencies.¹² Commission rules require full-frequency reuse, thereby doubling the capacity of these spacecraft.¹³ These satellites communicate with thousands of licensed or registered earth stations spread across all 50 states, and an unknown additional number of unregistered receive-only earth stations.¹⁴

The deployment statistics conclusively refute the unsupported statements by the BAC and other commenters suggesting that the C-band spectrum is underutilized or is not used efficiently by satellite systems.¹⁵ Even the Tucson Electric Power Company, which expresses some interest in exploring additional terrestrial use of C-band spectrum, cautions that the record here as well as the Commission's own observations in the Mid-Band NOI suggest that the BAC Petition is underrepresenting the incumbent operations actively using C-band frequencies today.¹⁶

In short, the facts reveal that satellite systems make highly efficient use of C-band spectrum. The services that rely on C-band satellites are critical to the public interest and play a pivotal role in the country's telecommunications infrastructure as a whole.

¹² Intelsat Opposition at 4 n.12.

¹³ *See id.* at 4; SIA Opposition at 6.

¹⁴ Intelsat Opposition at 3 & n.5.

¹⁵ *See* BAC Petition at 5; Comments of the Fixed Wireless Communications Coalition, RM-11791, filed Aug. 7, 2017 ("FWCC Comments") at 2; Comments of the National Spectrum Management Association, RM-11791, filed Aug. 7, 2017 ("NSMA Comments") at 3; UTC Comments at 1.

¹⁶ Opposition of Tucson Electric Power Company to Petition for Rulemaking, RM-11791, filed Aug. 7, 2017, at 2.

II. COMMENTERS AGREE THAT INCUMBENT C-BAND USES MUST BE PROTECTED BUT PRESENT NO VIABLE PROTECTION PROPOSAL

Like the BAC, many of the commenters explicitly recognize that the Commission must ensure that existing uses of C-band spectrum by both satellite and terrestrial networks must be protected from harmful interference caused by the introduction of any new services in the band. But neither the BAC nor any other party has submitted a regulatory approach that would accomplish that goal.

The Competitive Carriers Association, for example, emphasizes that in “reviewing the 3.7 to 4.2 GHz band, the Commission must undertake an analysis to determine whether or not an interference plan would actually protect incumbent users, some of which are providing critical services to unserved, underserved, and very rural areas.”¹⁷ The National Spectrum Management Association stresses that C-band satellite networks, which serve a variety of commercial and government customers, “must be protected and allowed to expand service.”¹⁸ The Utilities Telecommunication Council similarly argues that the Commission must protect “against interference to existing operations” in C-band spectrum.¹⁹

None of these parties suggest a mechanism that would succeed in protecting existing and future C-band satellite services if full-band, full-arc licensing of earth station is eliminated as proposed by the BAC. Instead, the only evidence in the record reinforces satellite networks’ need to retain the flexibility provided by full-band, full-arc licensing in order to continue providing reliable services to current and prospective satellite service customers.

¹⁷ CCA Comments at 5.

¹⁸ NSMA Comments at 3.

¹⁹ UTC Comments at 4.

The GCI Comments point out that the BAC's attacks on full-band, full-arc licensing of C-band earth stations are premised on incorrect assumptions regarding how GCI uses satellite capacity. For example, GCI notes that contrary to the BAC's suggestion that any given earth station typically just uses a small portion of the C-band spectrum, GCI uses the entire 500 MHz downlink bandwidth at each of its multiple teleport locations in Alaska.²⁰ GCI observes that the BAC's claim that most earth stations only communicate with a single satellite and orbital location is also unsupported and inaccurate with respect to GCI, which has contracted for use of three different satellites for its primary capacity and has arrangements for restoration capacity on two more spacecraft.²¹ And GCI is certainly not unique in this respect – many teleports access multiple orbital locations across the full C-band frequency range, particularly at cable headends downlinking programming from multiple satellites.²²

Moreover, full-band, full-arc licensing is essential for all C-band earth station licensees, even those that might primarily rely on a single transponder and therefore more closely fit the stereotype presented in the BAC Petition. As just one example, the policy is necessary to facilitate the restoration of service in the event of a transponder or satellite failure. SES provides a recent illustration stemming from the unexpected anomaly that affected the AMC-9 satellite earlier this summer.²³ One AMC-9 customer used the satellite to distribute video programming

²⁰ GCI Comments at 12.

²¹ *See id.* at 12-13.

²² *See id.* at 12; *see also* SIA Opposition at 10 & n.33 (discussing broadcasters' requirement to access programming feeds carried over a variety of satellites and channels); Letter from Danielle J. Piñeres, Associate General Counsel, NCTA, The Internet & Television Association, to Marlene Dortch, Secretary, FCC, RM-11778, filed Feb. 3, 2017 at 1 (cable systems use C-band satellite spectrum to distribute programming to "thousands of cable system headends scattered throughout the country").

²³ Opposition of SES Americom, Inc., RM-11791, filed Aug. 7, 2017 ("SES Opposition") at 2-3.

to more than one hundred affiliates, and all those antennas had to be quickly repointed to a different satellite designated by SES to restore service.²⁴ SES notes that absent full-band, full-arc licensing of the earth stations at the affiliate sites, restoring distribution of the customer's network "would likely have been completely impossible, and at a minimum would have taken much, much longer."²⁵

Intelsat agrees that the Commission's policy of full-band, full-arc earth station licensing:

promotes important public interest objectives by enabling FSS providers to respond rapidly and efficiently to interference events, operational anomalies, and emergency situations. For example, satellite operators routinely address potential or actual interference concerns by moving customers to other available frequency band segments or satellites. The ability quickly to move services to different transponders or satellites is critical for limiting the duration of outages or service degradation. The policy is also essential for ensuring continuity of communications networks in the event of a natural disaster or other national security situation. Such circumstances frequently require the rapid initiation of new satellite services capable of providing ubiquitous coverage, especially in cases where terrestrial networks have been damaged.²⁶

As the SIA Opposition emphasizes, the BAC Petition does not even acknowledge "the real-world experience of companies who depend on C-band satellite service," much less present an alternative to full-band, full-arc earth station licensing that would accommodate FSS flexibility requirements.²⁷ The BAC's assertion that it will work with the satellite industry to "define the circumstances when changes in frequency and/or orbital slot communications will be

²⁴ *See id.* at 2.

²⁵ *Id.* at 2-3. *See also* SIA Opposition at 10 & n.34 (describing PBS's experience in needing to quickly switch satellites in response to an outage).

²⁶ Intelsat Opposition at 7.

²⁷ SIA Opposition at 11.

necessary”²⁸ is, as Intelsat observes, “wholly unsatisfactory to protect vital incumbent operations.”²⁹ Any approach that requires an earth station operator to request a modification of its authorization or special temporary authority in order to use a new frequency or antenna would undermine FSS networks’ ability to provide service continuity, as well as placing undue burdens on Commission staff.³⁰ GCI similarly observes that requiring coordination of such changes with a third party, as proposed by the BAC Petition, would impair FSS systems’ “ability to be responsive to customers – and would result in harmful interference that halts necessary services.”³¹

GCI also points to the inherent technical difficulties of introducing new terrestrial operations in heavily-used C-band satellite downlink spectrum as proposed by the BAC. First, because the received signal level at the earth station antenna is so low, “even the smallest levels of interference could be harmful to the provision of [satellite] services over the C-band.”³² Moreover, once interference occurs, it is extremely difficult to identify its source and resolve the problem.³³ Second, the 3700-4200 MHz band is used by an unknown number of unregistered receive-only antennas in addition to the licensed and registered facilities that appear in the Commission’s database.³⁴ The BAC’s assertion that coordination can ensure protection of incumbent users does not take into account these facilities.

²⁸ BAC Petition at 26.

²⁹ Intelsat Opposition at 7.

³⁰ *See id.* at 7-8; SIA Opposition at 12.

³¹ GCI Comments at 15.

³² *Id.* at 15.

³³ *Id.* at 16.

³⁴ *Id.*

These challenges are exacerbated by the fact that, contrary to the BAC’s assertion that proposed point-to-multipoint services will be “low power,”³⁵ the power levels set forth in the Petition are significantly higher – 25 times higher, in fact – than those specified today for C-band terrestrial fixed point-to-point services.³⁶ As the proponent of allowing new point-to-multipoint services in C-band spectrum, the burden must be on the BAC to demonstrate that those operations would fully protect satellite services, and it clearly has not met that burden.³⁷

A number of commenters note that they have previously objected to full-band, full-arc licensing,³⁸ but they choose not to mention that their arguments have been expressly rejected by the Commission. Specifically, the Commission has reaffirmed that its full-band, full-arc licensing policy “promotes important operational objectives” by giving earth station operators “the needed flexibility to change transponders or satellites on short notice, and without having to be re-licensed by the Commission, to meet changing operational requirements.”³⁹ Because neither the BAC itself nor any of its supporters has suggested an alternate approach to meet those objectives, the BAC Petition must be rejected.

III. CONCLUSION

The record before the Commission clearly demonstrates that C-band FSS networks supply critical services to rural and remote areas today, as well as performing a key role in the

³⁵ BAC Petition at 26.

³⁶ GCI Comments at 17.

³⁷ See Intelsat Opposition at 2 (the BAC has not shown “that the proposed terrestrial point-to-multipoint service can share spectrum with, while offering protection to, existing vital satellite services”).

³⁸ See, e.g., FWCC Comments at 2; UTC Comments at 3.

³⁹ *FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum*, Notice of Proposed Rulemaking, 15 FCC Rcd 23127, 23146 ¶ 40 (2000).

national communications infrastructure. The BAC Petition's request for elimination of the full-band, full-arc earth station licensing policy would compromise the satellite industry's ability to continue to provide these essential services and is therefore contrary to the public interest.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 22nd day of August, 2017, I caused a true copy of the foregoing "Reply of the Satellite Industry Association" to be sent by first class mail, postage prepaid, to the following:

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