

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

In the Matter of)	
)	
Expanding Flexible Use of the 3.7 to 4.2 GHz Band)	GN Docket No. 18-122
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183 (Inquiry Terminated as to 3.7-4.2 GHz)
)	
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission’s Rules to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band)	RM-11791
)	
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed Satellite Service)	RM-11778
)	

COMMENTS OF THE AMERICAN CABLE ASSOCIATION

Matthew M. Polka
President and Chief Executive Officer
American Cable Association
Seven Parkway Center
Suite 755
Pittsburgh, PA 15220
(412) 922-8300

Pantelis Michalopoulos
Georgios Leris
Steptoe & Johnson LLP
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-3000

Counsel for American Cable Association

Ross J. Lieberman
Senior Vice President of Government Affairs
Mary Lovejoy
Vice President of Regulatory Affairs
American Cable Association
2415 39th Place, N.W.
Washington, D.C. 20007
(202) 494-5661

October 29, 2018

TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	1
II.	ACA’S INTERESTS.....	2
III.	BACKGROUND	4
IV.	THE 3.7-4.2 GHZ SPECTRUM IS USED EXTENSIVELY FOR FSS DOWNLINK TODAY AND WILL NEED TO BE USED MORE HEAVILY STILL	6
V.	THE COMMISSION SHOULD REFRAIN FROM BOTH REALLOCATING A PORTION OF THE SPECTRUM AND OPENING ANOTHER PORTION OF IT TO SHARING	8
	A. Reallocation of the Lower Portion of the Band for 5G Mobile Use Requires the Solution of Many Problems	9
	B. Potential Issues with P2MP Use	13
VI.	ANY STEPS FORWARD SHOULD TAKE INTO ACCOUNT THE FOLLOWING SUGGESTIONS	14
	A. Engage a Neutral Expert Party	14
	B. Consider Reallocation Mechanism and Expenses	15
	C. Adopt a Gradualist Approach.....	16
VII.	CONCLUSION	17

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

In the Matter of)	
)	
Expanding Flexible Use of the 3.7 to 4.2 GHz Band)	GN Docket No. 18-122
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183 (Inquiry Terminated as to 3.7-4.2 GHz)
)	
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission’s Rules to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band)	RM-11791
)	
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed Satellite Service)	RM-11778
)	

COMMENTS OF THE AMERICAN CABLE ASSOCIATION

I. INTRODUCTION AND SUMMARY

The American Cable Association (“ACA”)¹ submits its comments on the above-captioned Notice of Proposed Rulemaking, where the Commission seeks input on, among other things, expanding the use of the 3.7-4.2 GHz band and reallocating part of the band. That 500 MHz of spectrum is now used primarily for Fixed-Satellite Service (“FSS”) downlinks and Fixed Service (“FS”) point-to-point links. The FSS downlinks are used for the backhaul of most video programming to MVPDs, including ACA’s members. The FCC asks questions about

¹ ACA represents over 700 small and medium-sized cable, phone and fiber-to-the-home independent operators providing services across the United States in small and rural markets and in competition to larger providers in urban markets. These operators deliver services to about 7 million households and businesses. All ACA members offer multichannel video programming distributor (“MVPD”) service to their customers.

reallocating the lower portion of the band for 5G mobile services and sharing of the upper portion of the band between FSS and terrestrial point-to-multipoint Fixed Services.²

In short:

- ACA salutes the initiative so long as the FSS backhauls, which are nothing less than vitally important for its members, are protected and adequate spectrum is preserved for them;
- the Commission should refrain from “sandwiching” satellite backhauls between *two* potential incompatible uses;
- recognizing that the two main C-band satellite licensees have a legitimate interest both in protecting satellite service and in “monetizing” the spectrum for 5G, the Commission should appoint an independent engineering expert to assess questions presented by out-of-band emissions from 5G and in-band sharing with FS;
- if the Commission decides to reallocate the lower end of the spectrum, it should consider doing so through the mechanism of incentive auctions;
- if the Commission decides to reallocate some of the spectrum through whatever mechanism, users as well as all FSS licensees should be compensated;
- a portion of the proceeds from reallocation should cover the likely increase in backhaul prices as well as the harm to rural distributors’ ability to compete; and
- the Commission should start small—*either* the bottom 50 MHz for reallocation to 5G *or* the top 50 MHz for sharing with FS.

II. ACA’S INTERESTS

The C-band is the heaviest used medium for backhaul delivery of video to the systems of MVPDs, as well as to broadcast stations and other users. It is favored by programmers and distributors alike because it rarely fails, is cost-effective, and is provided to MVPDs free of charge as part of their programming agreements.

² Entities operating in the FSS use the 3.7-4.2 GHz and 5.925-6.425 GHz bands as downlinks and uplinks, respectively, of the so-called “C-band.” In this notice, the Commission is evaluating the 3.7 GHz band individually. *See* Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, *Order and Notice of Proposed Rulemaking*, GN Docket No. 18-122 *et al.*, FCC 18-91, ¶ 12 (rel. July 13, 2018) (“*NPRM*”).

Diminution of satellite operations across the band would have a hugely disruptive impact on the video programming distribution industry, and ACA members in particular, that rely in many cases exclusively on the C-band to deliver programming content to their customers, as they are mostly concentrated in rural America where fiber delivery is not available. For the hundreds of operators using many thousands of earth stations, both registered and unregistered, a spectrum reallocation, compounded by a reduction in interference protection, would result in dramatic shortages of backhaul capacity. Moreover, it would completely vitiate the competitive choices that programmers have today for delivering their programming to the headends of MVPDs. And that would be the best-case scenario. Under the worst-case scenario, the MVPD and video programming industries would be uprooted and forced to migrate to new modes of delivery at a cost that would run into the billions, and perhaps the tens of billions, of dollars. Ejecting or diminishing video backhaul from the C-band would also deal a serious blow to the cause of advanced television, at a time when the bandwidth requirements for the delivery of programming are on the cusp of a steep increase.

The C-band is the method by which most cable operators receive cable programming, as alternative conduits are unavailable, inadequate or inefficient and would have to be paid for by the cable operators themselves.³ Often the only backhaul method available, it is frequently the primary mode of video delivery even for distributors who have access to fiber. For ACA members, their agreements with programmers typically cover C-band delivery. The ACA members would have to pay extra for any other backhaul methods.⁴ And using fiber for

³ See Comments of the American Cable Association, GN Docket No. 17-183, at 16-19 (Oct. 2, 2017) (“ACA Comments”).

⁴ See ACA Comments at Exhibit 1, Declaration of William D. Bauer ¶ 10; see also *id.* at Exhibit 2, Declaration of Mark Love ¶¶ 9-10.

backhaul presents a number of additional obstacles for the many ACA members without access to it. The headends of these members are typically 10-15 miles away from the nearest transit provider, and would cost them a significant amount to build out fiber and lease fiber capacity.⁵

More than 80 percent of ACA's members have fewer than 5,000 MVPD subscribers, with half having only hundreds. The costs associated with fiber deployment and leasing would be prohibitive for most of ACA's smallest operators, and would require others to pass along significant cost increases to their customers in order to avoid red on their earnings ledger.

III. BACKGROUND

This proceeding follows a Notice of Inquiry that the Commission had released in 2017. There, the Commission had asked questions about alternative ways to make more intensive use of the C-band.⁶ One consisted of clearing a portion of the band for mobile 5G service; another, of a potential sharing solution between FSS and fixed wireless service, including point-to-multipoint ("P2MP").⁷ Specifically, "[i]n addition to considering whether to modify the service rules to support more flexible point-to-point and point-to-multipoint use in the 3.7-4.2 GHz band," the FCC also "invite[d] comment on whether this band is desirable or suitable for mobile use."⁸

In its *NOI* comments, ACA described the crucial need of its members for the 500 MHz of the 3.7-4.2 GHz band. ACA demonstrated that the video programming carried by C-band

⁵ That does not even include the cost of installing back-up fiber. It is standard practice to construct an additional fiber line, using a different route to connect to the nearest node, as redundancy in case the primary line suffers damage.

⁶ Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, *Notice of Inquiry*, 32 FCC Red. 6373 (2017) ("*NOI*").

⁷ *NOI* at 6379-80 ¶¶ 16-20.

⁸ *Id.* at 6380 ¶ 19.

satellites comprises almost 2,000 channels and takes 308 transponders on 24 satellites.⁹

Nevertheless, ACA expressed a can-do, constructive attitude, so long as the Commission proceeds from a principle of doing no harm to the important current use of the band.¹⁰

Some satellite stakeholders emphasized the intensive use of the C-band, and cautioned against reallocation of the spectrum. SES stated that eliminating the full-band, full-arc licensing policy would kneecap spectrum efficiency in the band.¹¹ Similarly, the Satellite Industry Association commented that “[f]ull-band, full-arc earth station licensing is critical to deriving the maximum value from the multibillion-dollar investment of satellite operators and their customers in C-band facilities and to exploiting the propagation characteristics of C-band spectrum.”¹²

⁹ Comments of the American Cable Association, GN Docket No. 17-183, at 6 & Exhibit 3 (Oct. 2, 2017) (“ACA Comments”).

¹⁰ ACA Comments at 3-11.

¹¹ Reply Comments of SES Americom, Inc., GN Docket No. 17-183, at 10-12 (Nov. 15, 2017) (“The record demonstrates that the Commission’s full-band, full-arc licensing policy for earth stations facilitates robust spectrum use, maximizing the value derived from both space and ground segment facilities An earth station’s ability to shift operational parameters is essential to optimize satellite usage and extract the maximum value from the investment in space station facilities. Removing this critical flexibility by limiting each earth station to a specific pointing and frequency segment would be comparable to mandating that an individual smartphone could only communicate on one channel with a limited subset of base stations. Such an approach would eviscerate, not enhance, spectrum efficiency.”) (quotations omitted).

¹² Comments of Satellite Industry Association, GN Docket No. 17-183, at 26 (Oct. 2, 2017). One stakeholder—Intelsat (in a joint pleading with Intel)—had foreshadowed its current position by urging the Commission “to allow co-primary terrestrial mobile operations in the 3700-4200 MHz band through commercial agreements between terrestrial mobile interests and primarily affected FSS satellite operators.” *See* Joint Comments of Intelsat License LLC and Intel Corporation, GN Docket No. 17-183, at 2 (Oct. 2, 2017). But Intelsat itself had earlier stated that “the Commission’s full-band, full-arc licensing policy gives earth station licensees flexibility essential to fulfill critical FSS operational objectives The flexibility afforded by the Commission’s full-band, full-arc earth station licensing policy is critical for occasional use customers and their spectrum coordinators to identify available frequencies on a very short notice.” Opposition of Intelsat License LLC, RM-118872, at 4-5 (Jan. 9, 2017).

IV. THE 3.7-4.2 GHZ SPECTRUM IS USED EXTENSIVELY FOR FSS DOWNLINK TODAY AND WILL NEED TO BE USED MORE HEAVILY STILL

As of the date of the *NOI*, there were approximately 4,700 receive-only earth stations registered in the band.¹³ Since registration is voluntary, many expressed the views that these 4,700 earth stations are only the visible minority. The Commission requested the help of ACA and others in encouraging the invisible majority of users to register their antennas. ACA jumped into the fray, organizing a webinar for its members and urging them to register their earth stations, both for their sake of protection from future interference and to help the Commission understand the extent to which the C-band is currently being used. ACA engaged in a comprehensive education campaign, publicizing the processing window opened by the Commission, communicating directly with members through email, mail and telephone, sending repeated updates and reminders, using social media, answering members' questions about the registration process, and trying to resolve any registration issues.

As a result of these and other efforts, thousands of additional users registered their earth stations—bringing the total number to approximately 16,500 as of October 26, 2018.¹⁴

But in ACA's view, thousands of antennas in operation may still remain unregistered.¹⁵ As ACA and other commenters stated in their *NOI* comments, far from lying fallow, the C-band

¹³ *NOI* at 6377 ¶ 14.

¹⁴ The FCC's IBFS indicates that, as of October 26, 2018, users have licensed or registered approximately 16,500 earth stations using the 3.7-4.2 GHz frequencies (including registering earth stations through the process established in the *NPRM*). *NPRM* ¶¶ 16-22.

¹⁵ Based on ACA's internal tracking, for one reason or another, there are likely to be as many as 250 small cable operators (both ACA and non-ACA members) who will not have registered their earth stations by the October 31 deadline.

is used extensively for the satellite backhaul of video to MVPDs, broadcast stations and others.¹⁶ In fact, as discussed, the C-band is the heaviest used medium for backhaul delivery of video.

Virtually all MVPDs across the country, including hundreds of small and mid-sized cable operators like ACA members, pick up video programming by means of thousands of C-band receive-only earth stations, both registered and unregistered, and then deliver it to the more than 90 million MVPD households. Video is the most bandwidth-intensive traffic to begin with, and live video even more so. The bandwidth demands it poses on any backhaul technology have been steadily increasing owing to the increase in the number of video channels over the last couple of decades, and, even more important, the increasing quality of the resolution that consumers demand. This is why a stunning amount of video traffic is travelling on C-band satellites today, placing large demands on the bandwidth—demands that will soon become larger still.

In fact, ACA has calculated that there are almost 2,000 video channels that are backhauled on C-band satellites today. They (along with some 231 audio channels) fill up around 308 transponders on 24 satellites.¹⁷ The C-band is already under a strain, as video backhaul must cohabit it with other FSS services provided in the band.

As for future use, advancements in digital compression and modulation are weighed against demand for ever-higher resolution content. So the number of feeds, combined with the immense popularity of the HD format, have already overwhelmed progress in compression and have increased dramatically cable operators' backhaul demands. Second, the consumption of video content is moving inexorably towards an expectation of 4K resolution for all programming

¹⁶ ACA Comments at 2, 4.

¹⁷ ACA Comments at Exhibit 3.

on the part of consumers. In fact, the Commission is actively promoting 4K and other advances in the transmission of video content in other proceedings.¹⁸ Two thousand channels of 4K programming would take at least 20 full-power, fully loaded satellites to accommodate, spaced at least two degrees from one another. Such a fleet does not exist today.¹⁹

V. THE COMMISSION SHOULD REFRAIN FROM BOTH REALLOCATING A PORTION OF THE SPECTRUM AND OPENING ANOTHER PORTION OF IT TO SHARING

One of the most troubling questions presented by the *NPRM* is its “double (or multiple) whammy” aspect—the compounding of proposed new uses. As mentioned above, the *NOI* had asked about sharing and refarming, presumably as alternative methods for using the band more intensively. By contrast, the *NPRM* entertains the possibility that both could be cumulatively done, one on top of the other: “[w]e [] seek comment on various proposals for transitioning all or part of the band for flexible use, terrestrial mobile spectrum, with clearing for flexible use beginning at 3.7 GHz and moving higher up in the band as more spectrum is cleared. We also seek comment on potential changes to the Commission’s rules to promote more efficient and

¹⁸ See, e.g., Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard, *Report and Order and Further Notice of Proposed Rulemaking*, 32 FCC Rcd. 9930 (2017); Remarks of FCC Chairman Ajit Pai at the National Associations of Broadcasters Show (Apr. 25, 2017), https://apps.fcc.gov/edocs_public/attachmatch/DOC-344558A1.pdf (“My view is simple: As with any industry, the FCC should promote innovation in the broadcasting business—not stand in the way of progress. We should allow interested broadcasters to experiment with [ATSC 3.0].”).

¹⁹ The *NOI*’s estimate of 48 geostationary satellites seems to include satellites that are not fully available for the backhaul of video programming, as it would appear to include satellites located far outside the continental United States (“CONUS”) range of the arc. It is also unclear if that estimate includes in-orbit spares. Finally, even many of the operational satellites are older and, because of power loss, cannot operate at full capacity.

intensive fixed use of the band on a shared basis starting in the top segment of the band and moving down the band.”²⁰

What does this mean? Not only would reception of backhaul programming in the C-band have to occur in a smaller sliver of spectrum; it would be sandwiched between mobile 5G at the lower end—which would translate into out-of-band transmissions by potentially millions of devices—and shared use with fixed P2MP services in the upper end. So earth station users would have to receive more, and more bandwidth-intensive, programming than they do today. They would need to receive it in less spectrum than they use today and in spectrum whose utility is impaired by out-of-band emissions from the low end. And they would have to receive it on channels that they may have to switch to or from if P2MP services are not subject to geographic restrictions or if a terrestrial transmitter violates such restrictions.

ACA is concerned that, even if one of these encroachments on its members’ ability to utilize the spectrum were workable, the accumulation of all of them may well not be. And each of the two flanks of this attack on the C-band presents its own problems.

A. Reallocation of the Lower Portion of the Band for 5G Mobile Use Requires the Solution of Many Problems

The suggested reallocation of lower C-band spectrum would reduce the already strained capacity available for satellite backhaul. It would create the risk of higher prices for these backhauls, as the crucial spectrum input would become more scarce. It would impair the ability of rural distributors to compete against direct broadcast satellite and video-over-IP providers. It would also further impair the use of the remaining spectrum for satellite backhauls by resulting in out-of-band emissions from millions of 5G terminals into the satellite portion of the band.

²⁰ *NPRM* ¶ 2.

As mentioned, satellite operators stressed the importance of the Commission’s full-band, full-arc policy in the *NOI* phase. These positions have now been modified. SES and Intelsat claim that a reallocation can be accomplished without impairing their ability to serve their users, and that the out-of-band emissions risk can be averted by a combination of filters, which they plan to install on their users’ antennas, and a guard band.²¹

Investors have applauded this changed stance. In the words of an investment management firm: “Intelsat and SES hold the keys to the right frequencies, in the right way, at the right time, without the irreconcilable interference issues that have beset other spectrum stories The spectrum in question is called the C band Clearly the upside for both stocks is extremely large.”²² Given these estimates, Intelsat’s and SES’s market value has been boosted several times over by the prospect that they will monetize some of their licensed spectrum.²³

As a consequence, it is only to be expected that these two satellite licensees, who would in ordinary circumstances be the vanguard in the effort to prevent any invasion of the band, and to fully protect against all problems that might arise from such an incursion, have a strong

²¹ See *C-Band Alliance Proposal Fact Sheet: October 22 Update*, C-Band Alliance (Oct. 22, 2018), <http://www.intelsat.com/wp-content/uploads/2018/10/CBand-Alliance-Fact-Sheet.pdf>; see also Caleb Henry, *C-Band Alliance doubles spectrum offer to 200 megahertz*, SpaceNews (Oct. 22, 2018), <https://spacenews.com/c-band-alliance-doubles-spectrum-offer-to-200-megahertz/>.

²² Kerrisdale Capital Management, LLC, *Intelsat S.A. & SES S.A.: To the Moon*, at 1, 43-44 (June 2018), <https://www.kerrisdalecap.com/wp-content/uploads/2018/06/Intelsat-and-SES.pdf> (“Kerrisdale Report”).

²³ Keith Noonan, *Why Intelsat S.A. Stock Gained 17% in July*, The Motley Fool (Aug. 8, 2018), <https://www.fool.com/investing/2018/08/08/why-intelsat-sa-stock-gained-17-in-july.aspx>; cf. *Satellite Group SES Profits Beat Expectations, Shares Surge*, Reuters (Apr. 27, 2018), <https://www.reuters.com/article/ses-sa-results/update-1-satellite-group-ses-profits-beat-expectations-shares-surge-idUSL8N1S4227>.

economic interest in monetizing the spectrum for which they have satellite licenses.²⁴ ACA does not doubt SES's and Intelsat's good faith. But ACA remains perplexed by the successive positions staked out by these operators' coalition (the "C-Band Alliance") that progressively more spectrum can be allocated to 5G and progressively less spectrum is enough for satellite downlinks. Specifically, while the SES/Intelsat proposal initially involved the reallocation of 100 MHz, this has now increased to a full 200 MHz—a difference that does not seem to be accounted for by SES's and Intelsat's finding that the guard band can be smaller by 40 MHz (from 60 MHz to 20 MHz).

ACA is open to a neutral, objective assessment of these technical arguments. There are many questions that call for such an evaluation. For example, there may be tension between the concept of adding a filter to receiving earth stations so that the satellite downlink margin reduces by up to a certain dB and the idea of increasing the available capacity from a reduced amount of C-band downlink spectrum.

The two may not be compatible because a satellite link that uses more efficient modulation/coding schemes requires a higher signal-to-noise ratio, yet the filter being inserted is reducing the available signal-to-noise ratio. C-band links operate with very little clear sky margin. So these new "more efficient" links will be more susceptible to rain fade, or equipment performance degradation, resulting in potentially significantly lower availability than at present. This phenomenon could be further exacerbated by the potential need to operate the satellite transponders at somewhat lower Equivalent Isotropically Radiated Power ("EIRP") levels to increase their linearity, which is a requisite if more efficient modulation and coding schemes are

²⁴ Gagan Agrawal, *C-Band Spectrum Reallocation: Too Lucrative to Ignore?*, Northern Sky Research (Oct. 18, 2018), <https://www.nsr.com/c-band-spectrum-reallocation-too-lucrative-to-ignore/>.

used. New, more powerful C-band satellites, could combat these potential degradations to the C-band service quality, but the existing C-band satellites may already operate up to the FCC power-flux density limits (“PFD”) limits, and so it might not be possible to increase the EIRP/PFD further.

As yet another example, the C-Band Alliance’s explanations in meetings with ACA seem to be focused exclusively on base stations and are silent on out-of-band emissions from potentially ubiquitous consumer terminals. And, even as to base stations, a conclusive showing needs to be made that the combination of filters and a guard band is enough to restore the satellite signal to its current quality.

ACA is also interested in questions such as the risk of unavailability of backhaul capacity for 4K programming, the risk of increased prices, both because of a diminution in capacity and because the two operators will virtually ensure a duopoly by precluding future entry into the market, the risk of coordination between the two, and the further risks if one of the two operators exits the business altogether or makes a token effort to compete. ACA notes that, according to a financial analyst, SES and Intelsat could take steps to hinder greater usage, or worse promote lesser usage (than would otherwise be the case), thinking they would clear more spectrum later. For example, they would have no incentive to permit any programmer to launch any new higher resolution services,²⁵ to replace their aging C-band satellite fleet beyond what they have committed, or to replace new satellites when they, too, age. It is difficult to fashion conditions that can avert such risks.

²⁵ See Kerrisdale Report at 27.

B. Potential Issues with P2MP Use

The P2MP issues are equally complex. The Broadband Access Coalition (“BAC”) and Google have proposed using the band to expand rural broadband. They suggest that co-channel sharing is possible. In their words, “co-channel sharing is possible by considering geographic and directional isolation between P2MP and FSS; that is, operating in areas with a relatively low number of earth stations, and using directional antennas that don’t point toward earth stations in the area.”²⁶ But they also suggest that such constraints can be relaxed by channel-switching and avoiding co-frequency sharing, including by means of an improved database and manual (and eventually automatic) coordination between them and earth station users: “[a] future automated database will facilitate a densification of P2MP networks by modifying channel and bandwidth assignments to allow the construction of new networks that would otherwise be unavailable through static coordination.”²⁷

Both propositions are questionable. A robust showing is necessary that the geographic exclusion zones are sufficiently large to prevent interference into satellite backhubs. Even if the boundaries of the exclusion zones are drawn accurately to achieve this, the important problem of policing and ensuring that no terrestrial transmitters trespass on the zone remains unsolved. And

²⁶ Letter from Stephen E. Coran, Broadband Access Coalition and Google, to Marlene Dortch, Secretary, FCC, GN Docket No. 17-183, at 42 (Mar. 29, 2018). BAC suggests that frequency coordination between FS incumbents, P2P, and P2MP licensees would eliminate interference concerns. *See* Broadband Access Coalition Petition for Rulemaking, CG RM-11791, at 34 (June 21, 2017) (“BAC Petition for Rulemaking”) (“[T]he existing frequency coordination process can ultimately be automated to govern interference protection criteria for incumbent FSS and FS facilities, incorporate ‘real-time, real-world’ FSS protection criteria, and enable immediate coordination for any new facilities authorized under the proposed rules. As discussed above, a critical element to the accuracy of the database will be to require FSS licensees in the band to certify the operational status of their licensed facilities and update the database as operational circumstances change. Interference protection would not apply if any licensee, whether FSS, P2P or P2MP, failed to timely submit a notification of completion of construction.”).

²⁷ BAC Petition for Rulemaking at 31.

the number of licensed or registered C-band earth stations has more than doubled since BAC and Google submitted their comments and studies. The significant increase requires that these propositions be reexamined in its light and calls into question whether there is a viable business case beyond a limited number of geographic areas each with a limited number of households, and whether the burdens on existing earth station users do not outweigh the benefits.

As to channel switching, it appears both untested and costly, even if it were feasible. And it is unclear whether an automated database exists, or whether it could accommodate automatic coordination. There are many C-band earth station users, including ACA members, who have small operations and may not have the resources necessary to participate in the coordination contemplated. It therefore appears that any sharing of the band would need to involve a minimum required geographic separation from each registered earth station.

VI. ANY STEPS FORWARD SHOULD TAKE INTO ACCOUNT THE FOLLOWING SUGGESTIONS

ACA has identified several concerns with the *NPRM*. In light of those, ACA makes the following suggestions.

A. Engage a Neutral Expert Party

In light of the potential and totally understandable conflicting interests of Intelsat and SES, the Commission should assign a neutral organization to assess issues arising from 5G and FSS on lower end and shared use of spectrum between FSS and P2MP on higher end. Based on past experience, such an evaluation can be achieved in an expeditious timeframe.

There is precedent for such an approach. The MITRE Corporation was hired to assess P2MP co-share with DBS operators.²⁸ In just four months, The MITRE Corporation issued a

²⁸ In *Re Broadwave USA*, *Fourth Memorandum Opinion and Order*, 18 FCC Rcd. 8428, 8431 ¶ 7 (2003) (“On December 21, 2000, Congress enacted Section 1012, *Prevention of Interference to*

detailed report on transmission interference in the 12 GHz band, listing potential interference mitigation methods, suggesting licensing approaches, and addressing key policy issues. The Commission placed the report on public notice and sought comment on its findings and proposals. In its 2002 order amending its rules in the 12 GHz band, the Commission noted that in its consideration of “more complicated and creative sharing arrangements” necessitated by the “increasing demand for spectrum access,” it had “the benefit of the extensive analytic record derived from the MITRE Report.”²⁹ On such a complex and foundational issue as spectrum refarming and reallocation of incumbents, the Commission could no doubt benefit from an expert party that could deliver results in an efficient and impartial manner. The Commission can place a time limit of four months on completion of the report.

B. Consider Reallocation Mechanism and Expenses

If the Commission decides to reallocate the lower end of the spectrum, it should consider doing so through the mechanism of incentive auctions. The *NPRM* identifies several issues with using an incentive auction mechanism, including that C-band licenses are not substitutes for one another, that C-band competition is limited, and that the Commission faces a “reverse public goods problem” since the property rights are assigned to FSS operators: “[h]ow to recover an

Direct Broadcast Satellite Services, of the Commerce, Justice, State and Judiciary Appropriations Act, H.R. 5548. Section 1012 required the Commission to arrange for independent testing of ‘any terrestrial service technology proposed by any entity that has filed an application to provide terrestrial service’ in the 12 GHz band. The Commission selected The MITRE Corp. (MITRE) to conduct this testing. MITRE filed its report detailing its testing on April 18, 2001.”).

²⁹ Amendment of Parts 2 & 25 of Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in Ku-Band Frequency Range; Amendment of the Commission’s Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite and Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corp., and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band, *Memorandum Opinion and Order and Second Report and Order*, 17 FCC Rcd. 9614, 9630 ¶¶ 35-36 (2002).

efficient amount of a public good which is no longer efficiently allocated,” as “each FSS licensee has an incentive to overstate its value of the spectrum in order to increase its payment.”³⁰ While these issues deserve further consideration, they do not appear insuperable. For example, the reverse public goods problem can be mitigated by rules that make “holding out” less attractive.

Regardless of the mechanism used to reallocate the C-band, users as well as all FSS licensees should be compensated beyond the immediate expenses of filtering, updating equipment, and relocating facilities. Reallocation entails many other costs for video distributors, including a likely increase in backhaul prices as backhaul capacity becomes scarcer, new entry is precluded, and coordination is easier; and the likely harm to rural distributors’ ability to compete, as they will be unable to keep up with the number and resolution quality of the video programming available online. Among other things, the reduction of C-band spectrum will likely result in the inability of rural cable operators to transmit 4K programming even if such resolution will be increasingly available from direct broadcast satellite and independent online video providers.

C. Adopt a Gradualist Approach

The FCC suggests requiring an Initial Minimum Spectrum Benchmark. But such an approach does not go far enough to ensure that incumbents are not harmed; in light of the multiplicity of the problems described above—problems that are apt to compound one another. In these circumstances, it is important to start small. ACA proposes that the FCC start with 50 MHz in a limited geographic area to conduct tests on 5G use or 50 MHz in an equally limited area for sharing between FSS and P2MP FS. The FCC should not initiate sharing in the

³⁰ *NPRM* ¶ 61.

remaining spectrum until problems arising from the proximity or coexistence between FSS and each of the two services are understood and solved.

VII. CONCLUSION

While ACA supports the FCC's initiative for expanding uses of the C-band, the FCC should proceed cautiously and gradually in light of what is at stake: disrupting video content to millions of Americans, especially in rural areas, and harming thousands of small businesses in the process.

Respectfully submitted,

Matthew M. Polka
President and Chief Executive Officer
American Cable Association
Seven Parkway Center
Suite 755
Pittsburgh, PA 15220
(412) 922-8300

/s/

Pantelis Michalopoulos
Georgios Leris
Steptoe & Johnson LLP
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-3000

Counsel for American Cable Association

Ross J. Lieberman
Senior Vice President of Government Affairs
Mary Lovejoy
Vice President of Regulatory Affairs
American Cable Association
2415 39th Place, N.W.
Washington, D.C. 20007
(202) 494-5661

October 29, 2018