

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

In the Matter of)	
)	
Expanding Flexible Use of the)	GN Docket No. 18-122
3.7-4.2 GHz Band)	
)	
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)	
3.7-4.2 GHz Band)	
)	
Fixed Wireless Communications Coalition,)	RM-11778
Inc., Request for Modified Coordination)	
Procedures in Band Shared Between the Fixed)	
Service and the Fixed Satellite Service)	

**REPLY COMMENTS OF NCTA – THE INTERNET & TELEVISION
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TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY.....	1
II.	GIVEN THE DEMONSTRATED CONTINUED IMPORTANCE OF THE C-BAND, THE COMMISSION MUST OVERSEE AND IMPLEMENT TRANSPARENT MECHANISMS THAT ENSURE FOUR CORE PROTECTIONS	2
A.	Reallocation Proponents Have Failed to Persuasively Show that Incumbent C-band Users Will Be Afforded Sufficient Bandwidth To Sustain and Grow Their Services as No Viable, Ubiquitous Alternative Transmission Mode Exists Today	4
B.	The Record Lacks Relevant Data on Appropriate Testing and Analysis that Demonstrate an Ability to Fully Protect Earth Station Operators from Harmful Interference.....	9
C.	The Commission Must Oversee Any Transition To Accommodate New Services To Ensure that C-band Earth Station Operators Are Compensated for Direct and Ongoing Costs	13
D.	The Record Demonstrates that Retaining the Full-Band, Full-Arc Policy Is Essential To Meet C-band Earth Stations’ Operational Needs	15
III.	THE COMMISSION MUST EXERCISE ROBUST OVERSIGHT REGARDING THE DEVELOPMENT AND IMPLEMENTATION OF, AND ADHERENCE TO, TAILORED PROTECTIONS RESULTING FROM ANY ADDITIONAL USES AND ASSOCIATED TRANSITION PLANS	16
IV.	THE COMMISSION SHOULD NOT AUTHORIZE CO-CHANNEL SHARED USE BY FIXED P2MP USERS IN THE BAND	24
V.	LIMITS ON EARTH STATION REGISTRATIONS AND DEPLOYMENTS AND NEW INFORMATION COLLECTIONS ARE UNWARRANTED	25
VI.	CONCLUSION	27

I. INTRODUCTION AND SUMMARY

The record affirms that proposed changes to the C-band downlink spectrum in the 3.7-4.2 GHz band (C-band) in the Commission’s Notice of Proposed Rulemaking (NPRM)¹ could significantly disrupt the television content distribution ecosystem to the detriment of more than 100 million U.S. television households, particularly if the Commission does not engage in a sufficiently transparent and robust review and oversight of any reallocation process. It also underscores that the Commission requires significantly more detailed and concrete information about the various mechanisms and technical solutions proffered for protection of incumbent operations before it can proceed with any plan to modify the band. In addition, there must be appropriate Commission oversight to ensure that any new flexible use spectrum is made available through a process that is transparent and open to all interested parties to enable meaningful and diverse 5G deployment across the country. But the initial round of comments leaves open nearly as many questions as before and raises a host of new ones – particularly related to the C-Band Alliance’s (CBA) proposal to minimize transparency and Commission oversight.

If the Commission does move forward with a proposal to expand terrestrial wireless use of the C-band, the record supports the position of NCTA – The Internet & Television Association (NCTA) that any proposal adopted must implement four core protections for incumbent C-band users that are specifically tailored to any introduction of new services:

1. The Commission should ensure there is no adverse impact on or disruption to any of today’s existing C-band services and that such services have room for growth, technological evolution, and requisite back-up capacity;

¹ *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Notice of Proposed Rulemaking, 33 FCC Rcd. 6915.

2. Technical rules, validated by appropriate studies and testing, must fully protect earth station operators from harmful interference that could result from new adjacent mobile services and any new in-band fixed point-to-multipoint (P2MP) services;
3. Earth station operators must be made whole for the costs that they incur in any transition to accommodate new services; and
4. The Commission should retain its full-band, full-arc policy to accommodate the operational needs of 3.7-4.2 GHz earth station operators, including the flexibility to repoint antennas and change frequencies, sometimes on short notice.

Currently, the record reflects no consensus on either the mechanism the Commission should use if it were to expand terrestrial wireless use of the band, or the means or feasibility of protecting incumbent users of the band from harmful interference that would detrimentally affect consumers. What is clear, however, is that to ensure that existing C-band users, consumers, and the public interest are fully protected, the Commission must adopt a transparent, robust process that is subject to direct Commission oversight, including the ability to meaningfully enforce commitments to protect existing users.

II. GIVEN THE DEMONSTRATED CONTINUED IMPORTANCE OF THE C-BAND, THE COMMISSION MUST OVERSEE AND IMPLEMENT TRANSPARENT MECHANISMS THAT ENSURE FOUR CORE PROTECTIONS

The initial comments reflect widespread agreement that the C-band is essential to providing important video programming services, and that there is no alternative transmission mechanism that offers an equivalent level of reliability, ubiquity, and affordability that consumers demand.² Commenters highlight the importance of the C-band to the video content

² See, e.g., Comments of American Cable Association at 2-4 (ACA Comments); Comments of AT&T Services Inc. at 8-11 (stating “C-band satellite services provide an essential component of the infrastructure relied upon by several vital industries” and “there are a number of use cases and locations where there presenting seem to be no comparable alternatives to such C-band services”) (AT&T Comments); Comments of Charter Communications Inc. at 1-2 (stating that the C-band is “a crucial component of Charter’s core video business with 16.14 million residential video customers and 488,000 small and medium business customers across the country relying on this band to receive their daily news, sports, and entertainment”) (Charter Comments); Comments of Comcast Corporation

delivery ecosystem.³ As Speedcast states, “C-band earth station facilities play a critical role in distributing video content, connecting remote, rural and at-risk areas.”⁴ AT&T likewise comments that “C-band satellite services are similarly critical to distributing programming and covering high-value sporting and other events in locations not served by fiber . . . includ[ing] . . . rural and other sparsely populated areas.”⁵ Commenters also stress the band’s importance for other services that resemble public goods, such as public safety-related operations.⁶ For

and NBCUniversal Media, LLC at ii (“To date, no one has identified a suitable alternative to C-Band satellites for delivering the video programming on which so many Americans rely.”) (Comcast/NBCUniversal Comments); Comments of the Content Companies at 4 (“Given the critical importance of the C-band to video content delivery and the lack of suitable alternatives, the Commission should abandon the false premise that existing FSS usage in the C-band could be shifted to alternative spectrum bands or terrestrial alternatives.”) (Content Company Comments); Comments of C-SPAN Networks at 2 (C-SPAN Comments); Comments of Cumulus Media Inc. and Westwood One, LLC at 2-8 (Cumulus/Westwood Comments); Comments of Eutelsat S.A. at 4 (“C-band satellite services provide by far the most *efficient* and reliable means to distribute video programming over large areas to television stations, cable operators, and others.” (emphasis in original)) (Eutelsat Comments); Joint Comments of Intel Corporation, Intelsat License LLC, & SES Americom, Inc. at 2 (“C-band infrastructure . . . has become the backbone of U.S. content distribution and an invaluable failsafe for viewers and listeners due to its unmatched reliability and ubiquity.”) (Intel, Intelsat, SES Comments); Comments of North American Broadcasters Association at 2 (“The use of C-Band FSS is essential. . . . [t]here is no alternative distribution means that delivers the necessary service reliability that broadcasting provides to its customers.”) (NABA Comments); Comments of PSSI Global Services, LLC at 3-9 (PSSI Comments). Unless otherwise noted, all references to Comments are to those filed in GN Docket No. 18-122 on October 29, 2018.

³ See, e.g., Comments of Altice USA, Inc. at 1 (“[U]se of the C-Band is critical to distribution of the Company’s video operations to its 4.9M video customers.”) (Altice Comments); Comcast/NBCUniversal Comments at 5-7; C-SPAN Comments at 2 (stating the C-band “is essential to our business operations and our ability to continue to deliver programming of high technical quality”); Comments of National Association of Broadcasters at 3-4 (“Broadcasters, MVPDs and other distributors rely on the C-band as a key component of a near-flawlessly reliable distribution network.”) (NAB Comments).

⁴ Comments of Speedcast Communications, Inc. at 2 (Speedcast Comments).

⁵ AT&T Comments at 11.

⁶ See, e.g., Comments of C-Band Alliance at 13 (CBA Comments).

example, GCI uses the C-band to provide services in support of the Federal Aviation Administration and other government agencies that “help[] to ensure that the most critical and secured communications travel from and reach their intended destination,” as well as services that support telehealth and long-distance learning services.⁷ As GCI points out, interference with such services “could result in the potential for injury or loss of life.”⁸

Given the C-band’s demonstrated importance to delivering these services and the lack of equivalent alternative transmission media, it is all the more important that, as a part of any proposal to authorize expanded terrestrial wireless use of the band, the Commission implement the core protections for these incumbent operations that NCTA highlighted in its initial comments.⁹

A. Reallocation Proponents Have Failed to Persuasively Show that Incumbent C-band Users Will Be Afforded Sufficient Bandwidth To Sustain and Grow Their Services as No Viable, Ubiquitous Alternative Transmission Mode Exists Today

After the initial round of comments, there is still little consensus in the record regarding how much spectrum could be cleared to accommodate new mobile services, or how to meaningfully protect the incumbents that would continue to rely on remaining C-band spectrum. Moreover, questions remain as to how parties have derived the amount of spectrum they propose to clear. The CBA reiterates its recent announcement that it can clear “up to 200 MHz” based on “detailed technical assessments, including technical assessments of new filter specifications and of launching additional satellites in the relevant timeframe.”¹⁰ But while the CBA filed some

⁷ Comments of GCI Communications Corp. at 5-9 (GCI Comments).

⁸ *Id.* at 6.

⁹ Comments of NCTA – the Internet & Television Association at 1 (NCTA Comments).

¹⁰ CBA Comments at 5 & n.6.

conclusory testing results, it has not provided any underlying testing data or detailed information on the methodology and assumptions undertaken to support the conclusion that 200 MHz could be cleared while still accommodating all of today's C-band users with room for growth, or why it was able to adjust its target upwards so dramatically from the 100 MHz it initially proposed to clear.¹¹ The CBA's recent suggestion that interested parties can just "take it on faith" that the CBA is correct in its assessment that 200 MHz may feasibly be cleared is not acceptable.¹² If the CBA in fact based its conclusion on technical assessments, it should make available the testing data, methodology, and underlying assumptions involved in those assessments so that Commission and stakeholder engineers can analyze and validate the CBA's conclusions.

CTIA, Ericsson, and Verizon all argue that the Commission should go beyond the 200 MHz proposed by the CBA and repurpose "hundreds of megahertz" nationwide.¹³ T-Mobile

¹¹ See *id.* at Technical Annex; compare Letter from Henry Gola, Wiley Rein LLP, Counsel to Intelsat Corp., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 17-183 & 18-122, at 2 (filed Apr. 23, 2018) (setting a target of clearing 100 MHz), with Letter from Jennifer D. Hindin, Wiley Rein LLP, Counsel to C-Band Alliance, GN Docket Nos. 17-183 & 18-122, at attachment (filed Oct. 23, 2018) (announcing that "up to 200 MHz of . . . C-band downlink . . . spectrum could be cleared" without explanation for the increase). NCTA notes that the CBA's early-filed reply comments include an additional Technical Annex, which similarly lacks underlying analysis. NCTA members require more than two business days to respond to the CBA's more than 100-page filing, and do not address the CBA's reply comments here. See Reply Comments of the C-Band Alliance, GN Docket No. 18-122 (Dec. 7, 2018) (CBA Reply Comments).

¹² See ITIF, *Mid-band Spectrum: Transitioning the C-Band and More*, YouTube, https://www.youtube.com/watch?v=aA6x-f_bj_U, at 1:13:50 (Nov. 13, 2018) (remarks of Preston Padden, Head of Advocacy & Government Relations, C-Band Alliance) (ITIF Padden Remarks).

¹³ Comments of CTIA at 9 (CTIA Comments); Comments of Ericsson at 10-11 (Ericsson Comments); Comments of Verizon at 9-10 (Verizon Comments); see also Comments of Nokia at 7 (suggesting that the Commission "require a plan and path forward for clearing additional spectrum in the band over and above the recently proposed 200 MHz" and, if no concrete commitment to a particular amount is made, to "consider delaying decision on the granting of flexible use status to the band and the approval of secondary market agreements until such a commitment is offered") (Nokia Comments).

proposes to make all 500 MHz of C-band spectrum initially available for bidding for licenses to offer new mobile use in each geographic area.¹⁴ Yet, as with the CBA, none of these parties offers detailed information demonstrating that it is possible to clear these amounts of C-band spectrum while simultaneously preserving the quality and reliability of existing services within the band.

As NCTA and others explain, repurposing spectrum in the C-band will be socially efficient only if the operations of all existing band users can be accommodated in the remaining spectrum with adequate room for future growth and back-up capacity.¹⁵ No other transmission path or technological solution exists today that could match the reliability, ubiquity, and affordability of C-band spectrum. Although some commenters continue to suggest that alternative spectrum bands or fiber could replace C-band spectrum as a transmission and distribution medium, the record casts serious doubt upon the viability of these purported alternatives as adequate substitutes for C-band spectrum.

Commenters advocating for these alternatives offer minimal information to demonstrate their viability as substitutes for C-band spectrum. T-Mobile merely submits the exact same case studies on the transition to fiber that it had previously submitted in the record.¹⁶ As these studies remain unaltered, they still suffer from all of the significant, underlying flaws that NCTA

¹⁴ Comments of T-Mobile USA, Inc. at 5 (T-Mobile Comments).

¹⁵ NCTA Comments at 8; AT&T Comments at 9 (“[A]ny reallocation of C-band FSS spectrum must still provide for capacity that not only meets existing FSS needs, but also expected future demand.”); Comcast/NBCUniversal Comments at 7 (“The Commission should recognize the need for continued robust access to the C-Band for video distribution purposes and not make decisions that would jeopardize or constrain the current and future delivery of advanced video content that consumers demand.”); NAB Comments at 8.

¹⁶ T-Mobile Comments at Attachment A.

identified in opening comments.¹⁷ No other commenters provide technical studies or other detailed information sufficient to support their simple assertions that fiber and alternative spectrum bands are suitable alternatives to C-band spectrum for incumbent users.¹⁸ In contrast, many other commenters, including NCTA, highlight the reasons why neither fiber nor alternative spectrum bands offer comparable levels of reliability, ubiquity, and affordability to C-band spectrum.¹⁹ These commenters explain that fiber is less reliable and would be costly to deploy to the many, particularly rural, areas of the country where fiber is unavailable.²⁰ They also highlight that alternative spectrum bands are not equivalent substitutes for C-band due to rain fade and insufficient capacity to accommodate current, much less future, C-band uses.²¹ Similarly, commenters rebut claims that compression technologies could be used to help enable repurposing of the C-band²² by explaining that advances in compression technology are offset, if

¹⁷ NCTA Comments at 10-14.

¹⁸ See CTIA Comments at 16-19 (relying on T-Mobile's fiber-related studies); Verizon Comments at 12-16 (relying on T-Mobile's fiber-related studies); Ericsson Comments at 3; Comments of Qualcomm Inc. at 5-6 (Qualcomm Comments); Comments of Information Technology & Innovation Foundation at 3-4.

¹⁹ See, e.g., NCTA Comments at 8-18; Altice Comments at 2-3; CBA Comments at 13-15; Charter Comments at 3-4; Comcast/NBCUniversal Comments at 17-22; Content Company Comments at 3-4; Cumulus/Westwood Comments at 4-7; Eutelsat Comments at 4-5 ("Although other services—such as fiber—could be used to replicate the video distribution services provided by C-band satellite services, their use would be vastly more expensive, much less reliable, and entirely impractical in non-urban areas."); GCI Comments at 10-12; NAB Comments at 5-6; NABA Comments at 4; PSSI Comments at 4; Comments of the Satellite Industry Association at 12-16 (SIA Comments); Comments of the Society of Broadcast Engineers, Inc. at 4; Speedcast Comments at 2-4; Comments of World Teleport Association at 2.

²⁰ See, e.g., Charter Comments at 3-4; NAB Comments at 5.

²¹ See, e.g., Content Company Comments at 3; SIA Comments at 13.

²² See, e.g., CTIA Comments at 19-20; Qualcomm Comments at 6.

not negated, by the need for increased bandwidth to support higher resolution video delivery such as 4K.²³

Given the intensive use of the C-band by existing video services and lack of viable alternatives, the Commission should not move forward with a proposed reallocation of any amount of spectrum unless and until the record settles questions about whether a modified C-band can support current and future incumbent uses. In particular, NCTA agrees with AT&T that, “the record requires much further development to determine what is truly necessary to support [the CBA’s] guarantees” that it will protect current users as part of its proposal.²⁴ “Just trust us” is not sufficient, especially in light of the CBA members’ overwhelming incentive to maximize profit and minimize costs and the CBA’s assertions that the Commission need not actively oversee a market-driven process to clear and repurpose a portion of the band.²⁵

The lack of any Commission oversight is particularly troubling given the asymmetric bargaining power the CBA, in its role of “Transition Facilitator,” would have with respect to its current earth station customers. In his study commissioned by Intel, Intelsat and SES, Coleman Bazelon states that bargaining theory “suggests that gains are divided in proportion to the bargaining power of the negotiating participants. Bargaining power, in turn, is related to the

²³ See, e.g., ACA Comments at 7-8; Comcast/NBCUniversal Comments at 7; NAB Comments at 8.

²⁴ AT&T Comments at 7-8.

²⁵ See CBA Comments at 21-23; ITIF Padden Remarks (“These four satellite companies have invested billions and billions of dollars in building out their space segment and ground infrastructure And they are public companies. They have shareholders who have invested in part on reliance on this spectrum asset that has customers and revenues in the United States. It would be a breach of their fiduciary obligation to not try to get compensated if they’re giving up 40 percent of that asset.”).

credibility of the threat to walk away from the bargain.”²⁶ However, C-band customers would not be voluntary participants in clearing or even have a seat at the table for any negotiations between the CBA and wireless carriers. Compounding the problem, as stated above, C-band customers have no viable alternatives to C-band and, therefore, will have no credible threat to walk away from any negotiations with the CBA; even Bazelon recognizes this, stating that Ku-band is not a viable substitute for C-band.²⁷ Thus, despite its assurances, the CBA will have the incentive and the ability to maximize its profits while minimizing costs to protect and make whole existing C-band users.

B. The Record Lacks Relevant Data on Appropriate Testing and Analysis that Demonstrate an Ability to Fully Protect Earth Station Operators from Harmful Interference

Additional noise introduced by new adjacent operations or any new co-channel fixed P2MP operations poses a significant risk to the continued viability of C-band services.²⁸ Yet, the record to date does not include sufficient information demonstrating how protection from harmful interference can be achieved under real-world conditions. Proponents of expanded terrestrial wireless mobile and P2MP use must file such information for review by the

²⁶ Coleman Bazelon, *Maximizing the Value of the C-Band: Comments on the FCC’s NPRM to Transition C-Band Spectrum to Terrestrial Uses* 39 (Oct. 29, 2018) (attached as Appendix A to Intel, Intelsat SES Comments) (Bazelon Study).

²⁷ *Id.* at 33.

²⁸ See, e.g., Content Company Comments at 7-8 (explaining that because C-band earth stations receive low-power signals from space, they are “especially vulnerable to terrestrial emissions at levels contemplated for 5G mobile broadband services”); NABA Comments at 2-3 (asserting that the FCC should be aware of the “inherent technical challenges . . . associated with locating any terrestrial service adjacent to the extremely weak signals in the FSS downlink band”); SIA Comments at 18-19 (arguing that the FCC must base its decisions for introducing new terrestrial services in any part of the C-band downlink spectrum on “rigorous technical analysis of interference issues based on real-world characteristics of existing technology, not predictions that lack any empirical basis”).

Commission and stakeholders before the Commission can make an informed decision about adopting any new technical rules for the band.

For instance, proponents of expanded terrestrial mobile wireless operations urge the Commission to adopt certain technical parameters governing their own desired in-band operations but have offered no evidence showing that those operations would not disrupt adjacent C-band operations.²⁹ Moreover, the technical parameters proposed by wireless proponents differ from those proposed by the CBA, and upon which the CBA purportedly based its clearing and protection targets. For example, the CBA proposed lower in-band power limits for 5G base stations than proposed in the NPRM, whereas CTIA urged the Commission to “impose no limit on total power other than the power density limit.”³⁰ Similarly T-Mobile and CTIA suggest that the Commission adopt higher power limits for mobile and portable devices than the CBA supports.³¹ The CBA also proposed more stringent OOB emission limits for 5G base stations than T-Mobile.³² These conflicting assumptions at best demand a more

²⁹ See AT&T Comments at 19-20; CTIA Comments at 23-24; T-Mobile Comments at 31-33; Verizon Comments at 23-24.

³⁰ Compare CBA Comments at Technical Annex p. 9 (calling for in-band emission limits of “66 dBm/100 MHz (*i.e.*, 46 dBm/MHz)” for 5G base stations as compared to the 75 dBm/100 MHz limit proposed in the NPRM), *with* CTIA Comments at 23-24. NCTA notes that the CBA Reply Comments and accompanying Technical Annex differ from CBA’s initial comments. NCTA may comment further on CBA’s revised recommended technical parameters at a later time. See *supra* note 11.

³¹ Compare CTIA Comments at 24 (“CTIA urges the Commission to permit mobiles and portables in this spectrum to operate beyond 1 Watt (30 dBm).”) and T-Mobile Comments at 32 (“T-Mobile suggests that the Commission adopt an EIRP limit of 43 dBm/100 MHz.”), *with* CBA Comments at Technical Annex p. 9 (“For user equipment, an in-band maximum level of 30 dBm is required.”)

³² Compare CBA Comments at Technical Annex pp. 9-10 (calling for OOB limits of -13 dBm/MHz at band edge, -50 dBm/MHz between 20-40 MHz outside of band edge, and -60 dBm/MHz beyond 40 MHz outside the band edge for base stations), *with* T-Mobile Comments at 32 (agreeing to OOB limits of -13 dBm/MHz at the band edge, but arguing

comprehensive showing of technical and testing data in the record, and potentially call into question the viability of the proposals currently before the Commission.³³

The CBA bears the burden to produce more data and analysis to support its proposal, given its calls for virtually no Commission oversight of its private band transition. The CBA's comments conspicuously lack detail and support for the interference protection that they claim will allow incumbents to continue operating without disruption in much less C-band spectrum. In particular, the CBA should make available sufficiently detailed information to demonstrate that the filters they have proposed as the primary means of protecting incumbent operations will actually work.³⁴ The CBA repeatedly refers to field and laboratory testing to support their technical assessments, but provides only conclusory assurances and de minimis testing results to support their claims that new filters will protect incumbents.³⁵ Merely claiming to have done such testing is not enough to support their assertion that incumbents will be able to continue to provide the 99.999% degree of reliability that NCTA's members currently rely on for their C-band operations.³⁶ Much more robust information is required on the methodology and results of any laboratory and field tests conducted, including information about the real-world assumptions that underlie their methodology.³⁷ Without access to this information, it is impossible to know

that more stringent emission limits beyond the band edge would “diminish the utility of the band and threaten coverage”).

³³ In addition, proponents of expanded terrestrial mobile wireless operations do not sufficiently address the need for such operations to be compatible with operations in the immediately adjacent Citizens Band Radio Service band, which must also be protected.

³⁴ CBA Comments at 19-20, Technical Annex pp. 5-6.

³⁵ *Id.* at 20-21, Technical Annex pp. 4-7.

³⁶ *See* NCTA Comments at 10.

³⁷ Notably, the CBA appears to take a much more conservative and protectionist approach in its analysis of P2MP operations, which it deems incompatible with continued FSS use. CBA Comments at Technical Annex pp. 13-18.

whether the technical characteristics and protections proposed have been tested under real-world conditions, including, but not limited to, realistic 5G technical and operational assumptions.

Similarly, proponents of fixed P2MP use of the C-band have not demonstrated the feasibility of introducing fixed P2MP service without harmful interference to incumbents.³⁸ Nor have they proffered an adequate alternative to full-band, full-arc coordination,³⁹ which as discussed below, provides C-band operators with the flexibility necessary to offer their services.⁴⁰ As NCTA pointed out in opening comments, the Broadband Access Coalition's previously introduced analysis does not take into account the thousands of newly-registered earth stations, or their geographic distribution and nature of use.⁴¹

³⁸ Comments of Broadband Access Coalition at 14-16 (BAC Comments); Comments of Google LLC at 2-10 (Google Comments); Comments of Public Interest Spectrum Coalition at 12-13 (PISC Comments); Comments of Dynamic Spectrum Alliance at 5-13 (DSA Comments); Comments of R Street Institute at 3-4.

³⁹ *Id.*

⁴⁰ *See infra* Section II.D.

⁴¹ Since the Broadband Access Coalition and Google submitted their analysis in March 2018, the number of earth stations registered or licensed in IBFS has grown drastically from about 4,700 to approximately 16,500. *Compare* Letter from Stephen E. Coran, Counsel to the Wireless Internet Service Providers Association, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 17-183, attachment at 14 (filed Mar. 29, 2018) (noting the Broadband Access Coalition and Google's analysis was conducted using "FCC IBFS data plus confirmation based on a 2014 Google Earth study") *and* Letter from Robert S. Koppel, Lukas LaFuria Gutierrez & Sachs, LLP, Counsel to Broadband Access Coalition, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 17-183 (filed Jan. 24, 2018), attachment at 2 n.3 (filed Jan. 24, 2018) (noting that "[t]here are about 4,700 registered earth stations in IBFS"), *with* NAB Comments at 12 ("As of October 26, there were approximately 16,500 C-band earth stations registered in the Commission's IBFS."); ACA Comments at 6 (same); SIA Comments at 2 (same).

C. The Commission Must Oversee Any Transition To Accommodate New Services To Ensure that C-band Earth Station Operators Are Compensated for Direct and Ongoing Costs

The record shows that, regardless of the mechanism that may be used to accommodate any new terrestrial wireless operations, existing C-band users must be compensated for costs incurred during the transition and any ongoing costs resulting from the transition. Moreover, any plan for compensation must be overseen and implemented by the Commission to ensure it is complete, transparent, and enforceable. As noted above, incumbent satellite operators would have every incentive to maximize profit and minimize costs, including costs to make existing users whole. Therefore, the Commission should develop, or at the very least closely review and seek public comment on, a detailed transition plan that provides information about the transition process and the compensation that will be afforded to existing users. It should also ensure that the plan includes concrete, Commission-led mechanisms that existing users can turn to if they encounter difficulties obtaining appropriate relief. Despite the CBA's suggestion, protecting and making C-band users whole for any transition-related costs involves more than just purchasing and perhaps installing new earth station filters.⁴² As GCI aptly states, "adequate compensation must be provided to earth station operators to cover all costs and related impacts associated with transitioning some or all of the band to terrestrial operations and ensure that these operators are 'made whole' again."⁴³

⁴² See CBA Comments at 19-20, Exhibit 2.

⁴³ GCI Comments at 20; *see also* ACA Comments at 16 ("[U]sers, as well as all FSS licensees should be compensated beyond the immediate expenses of filtering, updating equipment, and relocating facilities."); Cumulus/Westwood Comments at 17-18 ("[T]he Commission must establish a compensation mechanism to reimburse all incumbent earth stations for all of the costs in accommodating the new wireless entrants."); Speedcast Comments at 9 (urging the Commission to "provide a mechanism to compensate incumbent licensees for their costs of accommodating new terrestrial services").

First, with respect to filtering, C-band users should not be limited to a third-party providing and/or installing new equipment, but, rather, should be provided with more flexible options, such as a lump-sum payment for direct costs or other appropriate reimbursement befitting their needs. Second, the Commission should ensure that any transition plan and reimbursement proposal include appropriate safeguards to prevent satellite licensees from increasing future costs for the same services as the result of the challenges of accommodating more customers and services in less bandwidth.⁴⁴ Third, the Commission should consider how significantly reducing the bandwidth in which C-band users operate may affect the marketplace, and whether those changes will result in increased ongoing costs for today's band users.⁴⁵ The Bazelon Study recognizes this possibility when it states that "one potentially offsetting impact that could lead to higher revenues (and profits) would be if the reduction in C-Band transponder capacity led to increases in the cost of other transponder pricing."⁴⁶ The study appears to dismiss this concern because of contracts that may be in place between satellite providers and earth station customers. Those contracts, however, presumably will come up for renegotiation and at that point cost increases are a real risk. Fourth, if it pursues a market-based approach, the Commission should consider how coordination among four of the largest satellite service providers, including with regard to technical issues such as transponder usage, to enable band

⁴⁴ See, e.g., ACA Comments at 16 (explaining that the costs of any reallocation of C-band spectrum "includ[es] a likely increase in backhaul prices as backhaul capacity becomes scarcer"); PSSI Comments at 11 ("[A] reduction in available bandwidth . . . will result in higher prices charged for spectrum.").

⁴⁵ See, e.g., Cumulus/Westwood Comments at 18 (explaining that any compensation plan "should include compensation for any increase in the costs of future ongoing operations over that which the incumbent earth stations operators previously incurred while operating in the C-band"); GCI Comments at 21; PSSI Comments at 13-14.

⁴⁶ Bazelon Study at 20.

clearing could reduce competition and customer choice in the C-band services marketplace.

Finally, any compensation plan must be fully transparent, disclosed in advance, enforceable, and subject to ongoing Commission oversight and implementation.

D. The Record Demonstrates that Retaining the Full-Band, Full-Arc Policy Is Essential To Meet C-band Earth Stations' Operational Needs

Earth station operators continue to rely on the flexibility provided by full-band, full-arc licensing. Many commenters highlighted the fact that the flexibility afforded by this policy permits them to repoint antennas and change frequencies as needed, sometimes on short notice, to ensure continued service operations in the event of planned and unplanned outages.⁴⁷

Proponents of eliminating this policy have failed to offer any adequate alternative that would continue to allow earth station operators to switch satellites and/or transponders quickly in response to planned and unplanned outages and to engage in continued itinerant operations for newsgathering and live events.⁴⁸ Given the essential role that full-band, full-arc licensing plays

⁴⁷ See, e.g., Content Company Comments at 9-10 (“[T]he flexibility that full-band, full-arc protection allows. . . . remains essential to nationwide video content delivery when . . . satellite failures, emergency conditions on the ground, or unexpected interference necessitates prompt movement to another satellite and/or frequency.”); Comcast/NBCUniversal Comments at 32 (“The ability to quickly shift frequencies, azimuths, and/or elevation angles is one of the key factors that makes the C-band as reliable as it is and that allows it to function correctly from both business and operational perspectives.”); Comments of National Public Radio at 7 (“[F]ull-band, full arc . . . is critical to the PRSS’s ability to provide uplink and downlink services to the public radio system with any assurances of ongoing business continuity”); CBA Comments at 40-41 (arguing that restricting full-band, full arc protection and allowing P2MP deployments would “effectively render [consolidation of FSS operator customers into the upper portion of the band] impossible”); GCI Comments at 12 (“Proposals to remove the operational flexibility provided to FSS operators by the full-band, full-arc coordination policy would also severely impact C-Band operations and should be rejected.”); WTA Comments at 3 (“The flexibility to change frequencies and receive antenna orientations is essential to the value of the C-and satellite capacity on which WTA member companies and others rely.”).

⁴⁸ Content Company Comments at 9-10 (“None of the proposals to date have offered suitable alternatives to the flexibility that full-band, full-arc protection allows.”).

for existing C-band operations, the Commission should not eliminate the policy. However, if the Commission intends to move forward, it should not do so without first identifying and implementing an alternative approach that would guarantee the same level of flexibility.

III. THE COMMISSION MUST EXERCISE ROBUST OVERSIGHT REGARDING THE DEVELOPMENT AND IMPLEMENTATION OF, AND ADHERENCE TO, TAILORED PROTECTIONS RESULTING FROM ANY ADDITIONAL USES AND ASSOCIATED TRANSITION PLANS

After the initial comment round, many questions remain about the feasibility of introducing new services into the band, and what process to use to repurpose a portion of the 3.7-4.2 GHz band spectrum, even assuming that new services could coexist with incumbent operations. Commenters express concerns and raise questions about how the so-called “market-based” and auction-based proposals set forth in the NPRM would work in practice and whether they would equitably account for the needs of all stakeholders involved. Perhaps most concerning are the suggestions by the CBA that little, if any, Commission oversight is necessary over any spectrum clearing and repacking process. At a bare minimum, the Commission needs substantially more detailed information about the protections that each of the various proposals would afford existing C-band users and how such protections could be meaningfully enforced before proceeding to an Order. Any mechanism for introducing new services must include robust and enforceable transparency, oversight, and process protections, developed with close Commission supervision and input from all stakeholders.

“Market-Based” Approach. The benefit of a true market-based approach is that, “to allocate scarce resources” the use of these “resources are coordinated through a decentralized process where market participants share private information.”⁴⁹ Unfortunately, the CBA

⁴⁹ Bazelon Study at 24.

proposal bears little resemblance to (and therefore lacks the benefits of) a true market-driven approach. As the Bazelon Study notes, by “bringing satellite operators under a Transition Facilitator, the boundaries of the firms are in essence altered by making transactions within the Transition Facilitator internal *and not market-based*.”⁵⁰ In addition, “the overlapping and non-exclusive legal rights in the C-Band prevent a market from using price signals to transmit information to find the efficient solution” and, instead, any attempt to arrive at an efficient outcome “must be developed and coordinated through a different, non-price mechanism.”⁵¹ In other words, to arrive at a place where satellite licensees can negotiate a private sale with wireless carriers requires market distortion in the form of coordination among satellite operators.

Intel and the satellite licensees attempt to justify this approach, which is at best a distortion of a free and open marketplace, by raising the “holdout problem” that may exist because all relevant satellite providers operate within the entire range of the 3.7 to 4.2 GHz band and, therefore, freeing up any portion of this range requires an agreement on the part of all operators. However, though the CBA contains four providers who control more than 90 percent of the satellites serving this band, it does not include them all, so it is not clear if the holdout problem is resolved completely. The Bazelon Study suggests that, to deal with any residual holdouts, “the Commission could mandate that all C-Band satellite operators would lose primary protection in those frequencies, thus eliminating any residual hold-out problem.”⁵² If this is feasible for any remaining holdouts under the CBA proposal, it begs the question why the Commission itself could not use this approach in the first place.

⁵⁰ *Id.* at 24 n.63 (emphasis added).

⁵¹ *Id.* at 25.

⁵² *Id.* at 26-27.

A range of commenters have expressed serious concerns about the CBA approach and raised questions about how specifically such a private sale would be conducted. In particular, commenters highlight the many technical, legal, policy, cost reimbursement, and enforcement-related questions that remain unanswered by its proponents. The limited information revealed by proponents of the CBA plan is woefully inadequate. Much more due diligence is required to ensure that existing users have a clear understanding of the mechanism and are adequately protected by reasonably enforceable measures before the process proceeds.

Even the Bazelon Study recognizes that there is a great deal of uncertainty with respect to the outcome of the CBA approach.⁵³ This uncertainty extends to Bazelon's attempt to do a cost-benefit analysis of the CBA proposal, to the point that the analysis provides no meaningful insight into these questions. The Bazelon Study's estimate of potential benefits ranges from \$96 million to \$65 billion, with the size of this range attributed to, at least in part, the many uncertainties about the outcomes of this plan.⁵⁴ The \$65 billion upper bound is virtually meaningless because it assumes the repurposing of 500 megahertz of spectrum, not the 200 megahertz suggested by the CBA. Moreover, all of the study's cost estimates are also based on the repurposing and sale of all 500 megahertz, so there is no basis in the report to determine what the costs associated with repurposing 200 megahertz might be.⁵⁵

⁵³ *Id.* at 12-13.

⁵⁴ *Id.* at 23.

⁵⁵ Given that there is no viable alternative to C-band for today's existing users, the Commission should not move forward with a plan to repurpose spectrum unless the operations of all existing band users can be accommodated in the remaining spectrum with adequate room for future growth and back-up capacity.

The CBA and others point to this “market-based” approach as being a way to bring 5G to market more quickly.⁵⁶ The Bazelon Study estimates that every year of delay in bringing 5G services in mid-band spectrum to market reduces the value of 5G implementation by 7 to 11 percent. However, even if accurate, this analysis ignores any costs, such as disruption to existing services, that may result from repurposing the spectrum too quickly.

Other commenters share similar apprehensions to those NCTA expressed in its comments over the Commission delegating its authority to regulate spectrum in the public interest to private parties.⁵⁷ The Commission has been delegated the authority to make spectrum policy decisions in the public interest and should assiduously consider whether it can or should cede that responsibility to private parties. Concerns about the CBA’s proposal to proceed without any meaningful Commission oversight of a market-based reallocation process are magnified in light of the mismatch of incentives between the satellite licensees and their customers. As commenters have explained, the CBA’s incentives are to maximize their own profits, rather than to ensure that the amount of spectrum repurposed for terrestrial mobile use is socially efficient or

⁵⁶ The incentives of the four members of the CBA may not fully align with each other, which could actually be a source of delay in implementing the CBA’s approach. The four members of the CBA bring a range of assets to the alliance, in terms of the number of satellites, their orbital locations and their transponder capacities. As the Bazelon Study notes, it “is not the case” that “transponder capacity is a homogenous good that can be easily standardized and substituted across different transponders, uses, and bands.” Bazelon Study at 32-33. Therefore, the incentives of the four members of the Alliance will differ and they likely will have different views of how to proceed with the implementation of their high-level proposal, particularly as unforeseen developments occur. This could lead to significant delay that proponents of the “market-based” approach have not taken into account.

⁵⁷ See NCTA Comments at 28; Comcast/NBCUniversal Comments at 24 (“[I]t would run counter to the public interest for the Commission to abdicate its traditional role in repurposing spectrum.”); PISC Comments at 22-32 (arguing that a market-based approach would contravene Section 309(j) of the Communications Act, as well as congressional intent and the public interest).

to ensure robust protections for C-band customers and earth station operators.⁵⁸ Furthermore, those incentives may not align with policies designed to encourage competitive entry in either the marketplace for C-band satellite services or the marketplace for mobile broadband spectrum.⁵⁹ The Commission should be wary of adopting an approach in this proceeding that could limit competition for spectrum in any portion of the C-band reallocated for flexible use. The unsupported assurances that the CBA proffers in its comments do little to allay these concerns.

In any plan to clear a portion of the C-band, the Commission should ensure that mechanisms exist to guarantee a transparent process and – contrary to the CBA’s stated desire – exercise appropriate oversight over the entire process. Results of private negotiations between the CBA and 5G service providers likely will not adequately protect those who rely on the spectrum today – transponder lessees, earth station operators, and more than 100 million American households who watch television programming provided by these stakeholders – unless sufficient, enforceable safeguards are developed in a transparent process with the input of all affected parties and oversight by the Commission.⁶⁰

⁵⁸ See ACA Comments at 10-12; Google Comments at 10-11; DSA Comments at 16-18.

⁵⁹ DSA Comments at 17-18; USCC Comments at 9 (arguing that incumbent FSS licensees may decide, in the interest of a shorter negotiation period, to negotiate with “only a couple of large buyers interested in acquiring significant bandwidth covering an expansive geographic area, perhaps even nationwide”); T-Mobile Comments at 16 n.26 (“Satellite operators may choose to limit supply [of spectrum for terrestrial operators] for several reasons, including to frustrate competition. Satellite companies have asserted that they also wish to provide broadband services, limiting access to wireless mobile broadband capacity.”); PISC Comments at 31-32 (stating “PISC is also very concerned about the impact of a private auction on competition and consumer choice” and noting many of the competition-related questions that the CBA’s proposal raises).

⁶⁰ See Google Comments at 11-12.

As part of its transparency-related requirements, the Commission should ensure that private sale proponents disclose in detail in a written, public transition plan how they will protect today's C-band users and put that plan out for public comment. Specifically, NCTA agrees that if the Commission modifies the C-band to permit terrestrial mobile use, it should "require a specific, documented, actionable and public plan for accommodating existing users . . . [that] reflect[s] input from C-band users . . . and . . . spell[s] out in detail whether users will need filtering or other technical fixes to prevent harmful interference from wireless operations, with technical analyses demonstrating that these fixes will prevent interference in real world conditions."⁶¹ As discussed above, this information should include test data, along with the methodology and real-world assumptions used to produce such results.⁶²

The Commission must also institute meaningful and reasonably enforceable protections for existing C-band customers and earth station operators.⁶³ Protections that are not enforceable are effectively meaningless. The CBA's proposal still lacks a disturbing amount of detail about how earth station operators can hold the participants involved in the negotiations of a market-based approach accountable for the guarantees made to customers. The Commission should examine whether to ensure enforceability through license condition, rule, or private contract.

⁶¹ NAB Comments at 6; *see also* Content Company Comments at 2 ("A threshold question for any proposal for new uses of the C-band should be: does the proposal demonstrate with sufficient clarity how it will preserve uninterrupted video delivery to the American public?"); Charter Comments at 4 ("[A]ny process enacted . . . must include appropriate FCC oversight to ensure protection of all incumbents.").

⁶² *See supra* Section II.B.

⁶³ *See, e.g.*, NAB Comments at 6 ("Any accommodation plan should be fully transparent; it should be submitted to the Commission for approval, reflect substantial input from C-band users, and provide remedies in the event any C-band user is not fully protected or successfully relocated."); Content Companies Comments at 7-8.

The CBA's overt call for no transparency or Commission oversight of the transition process alone raises significant red flags about the CBA's proposed protections.

Auction Mechanisms. If the Commission pursues plans to clear a portion of the C-band spectrum for terrestrial use, it also should consider the propriety of relying on a public auction administered by the FCC to assign the terrestrial rights to the spectrum. While questions remain about how an auction approach would work,⁶⁴ the Commission should explore whether a public auction, consistent with Section 309(j) of the Communications Act, could maximize the amount of spectrum made available for terrestrial uses while still protecting the delivery of critical video programming.

As noted above, the C-Band Alliance's proposal falls well short of adequate in several key respects. Its proposal lacks transparency, enforceability, and representation by affected C-band users who wish to ensure continuity of operations. Yet the CBA asks the Commission to hand it the reins to reallocating and reassigning this spectrum, despite the Alliance's call for little to no Commission involvement or oversight. It would be inappropriate for the Commission to delegate these functions to a self-selected subset of the affected parties that effectively excludes other stakeholders, the public, and their representatives from the process. It is the Commission's

⁶⁴ Compare T-Mobile Comments at 5-7 (proposing a multi-phase hybrid auction starting with all 500 MHz up for bid in the initial phase, and an FCC-imposed minimum spectrum to be cleared in the final phase), and Comments of United States Cellular Corporation at 5-8 (expressing support for T-Mobile's proposal), with ACA Comments at 16-17 (proposing a gradualist approach starting 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), and CCA Comments at 7 (stating that "an auction mechanism could be appropriately structured to maximize mid-band spectrum and provide the most pro-competitive approach to freeing up the band," but also encouraging the FCC to "further explore whether hybrid approaches can strike an adequate balance to amplify this slice of spectrum"), and Google Comments at 14 (asserting that overlay auctions are an alternative that "deserves attention").

responsibility to facilitate and manage spectrum reallocation in the public interest.⁶⁵ In fulfilling this role, the Commission has often turned to spectrum auctions, which present numerous benefits, including robust Commission oversight, FCC-driven and enforceable incumbent protection and reimbursement methods, and a fair and transparent process for assigning scarce spectrum resources. Given the paucity of details on the record with respect to both the auction and the CBA approaches, it would be premature for the Commission to endorse either method. But the Commission should fully explore how it can reap the transparency and other benefits of spectrum auctions in this proceeding.⁶⁶ NCTA urges the FCC to use its well-established spectrum expertise to make the crucial decisions necessary to determine the best use of this spectrum,⁶⁷ rather than allowing private parties with potentially divergent financial interests to define the use of this important spectrum band.

⁶⁵ See 47 U.S.C. § 303(y); see also *id.* §§ 301, 303(c), 309.

⁶⁶ See Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, Division P, Title VI, §§ 605(c)(3)-(4) (directing the Commission to submit a report on how to “ensure shared licensed or unlicensed services [in the 3.7-4.2 GHz band] would not cause harmful interference to Federal or non-Federal users already operating in” the band and “[i]f such sharing is feasible,” to include “an identification of which of the frequencies described in that subsection are most suitable for sharing with commercial wireless services through the assignment of new licenses by *competitive bidding* . . .”) (emphasis added).

⁶⁷ Letter from Sen. Jerry Moran and Sen. Tom Udall to Ajit Pai, Chairman, FCC, at 1 (Nov. 13, 2018), http://www.nab.org/documents/newsRoom/pdfs/111318_Moran_CBand.pdf (“[A]s the FCC considers repurposing spectrum to meet the growing demand for wireless broadband, it must ensure that the needs of existing users and the millions of consumers who enjoy the content delivery services that rely on those same spectrum bands can continue to be met”); *id.* at 2 (“The FCC must ensure that necessary content delivery to American consumers is not harmed as a result of [its] policymaking.”).

IV. THE COMMISSION SHOULD NOT AUTHORIZE CO-CHANNEL SHARED USE BY FIXED P2MP USERS IN THE BAND

The record reflects widespread rejection of introducing new P2MP uses in the band.⁶⁸

From a technical perspective, authorizing P2MP in the same portion of the band as FSS operations would require extensive frequency coordination, which would essentially freeze existing users in place and substantially curtail their ability to change frequencies on short notice in the event of an unplanned outage, thus degrading the quality and reliability of the service.⁶⁹ It would also effectively prevent use of the C-band for itinerant uses like covering breaking news and live events. Similarly, commenters explain that permitting P2MP operations in the C-band would be a poor policy decision, as such operations would undermine the socially valuable services currently offered by FSS operations to achieve at best theoretical benefits.⁷⁰ As

⁶⁸ See AT&T Comments at 13-14; Content Company Comments at 10-11; CTIA Comments at 25-27; Cumulus/Westwood Comments at 18; GCI Comments at 21-24; NAB Comments at 12-13; NABA Comments at 1-2; Nokia Comments at 9; Comments of National Public Radio, Inc. at 13-14; PSSI Comments at 11, 15; T-Mobile Comments at 21; Comments of Telecommunications Industry Association at 8; WTA Comments at 3; SIA Comments 20-29.

⁶⁹ The CBA's technical analysis evaluating the feasibility of P2MP sharing demonstrates that permitting such an authorization is "inherently incompatible" with FSS operations. CBA Comments at 40, 47-49, Technical Annex pp. 13-18; *see also* WTA Comments at 3 ("The requirement to work around new P2MP facilities would undermine the nationwide reach of C-band service, and the requirement to modify earth station licenses for any change in operating parameters would impose significant and unjustified regulatory burdens."); Cumulus/Westwood Comments at 18 (asserting that P2MP operations in the band would threaten the vital flexibility largely responsible for the band's utility); Content Company Comments at 10-11 ("Point-to-multipoint transmissions necessarily emit high-powered signals in many directions, which greatly increases the difficulty of frequency coordination and the potential for harmful interference to existing C-band usage.").

⁷⁰ See CBA Comments at 39 ("[D]epriving incumbent FSS users of essential full-band, full-arc flexibility in order to benefit P2MP systems would fundamentally undermine the quality and reliability of FSS content delivery that supplies video and audio programming enjoyed by more than 100 million households in every corner of the United States."); Comments of Telecommunications Industry Association at 8 (arguing that P2MP service has "very uncertain market potential" and "could lead to unnecessarily cluttering" in the C-band); NAB Comments at 12 (asserting that permitting "additional operations on a co-frequency basis based on unproven sharing technologies. . . . would severely undermine the value of the

discussed above, P2MP proponents must settle open questions regarding the feasibility of their proposal to permit P2MP in the C-band before it can be seriously considered.⁷¹

V. LIMITS ON EARTH STATION REGISTRATIONS AND DEPLOYMENTS AND NEW INFORMATION COLLECTIONS ARE UNWARRANTED

In the initial comments, a number of commenters joined NCTA in calling upon the Commission to decline to adopt its proposals to curtail the deployment of new earth station facilities and to impose substantial new reporting requirements on earth stations.⁷² These commenters explain that the information collections proposed in the NPRM would be burdensome and that the potential benefits do not exceed these burdens.⁷³ They similarly note that, not only is there no justification for permanently freezing new earth station deployments and limiting modifications, doing so would prevent growth and thereby harm C-band incumbents.⁷⁴ Without a reasonably persuasive rationale establishing that these measures are

remainder of the C-band for existing users and risk impairing the content distribution architecture that currently serves America's viewers and listeners"); SIA Comments at 24-25 (stating that P2MP proponents "rely on a mixture of inaccurate assumptions and unsupported assertions" that "fail[] to provide a reasoned basis" for permitting P2MP in the C-band).

⁷¹ See *supra* Section II.B, II.D.

⁷² See CBA Comments at 52-55; Eutelsat Comments at 11; GCI Comments at 24-25; SIA Comments at 27.

⁷³ See, e.g., GCI Comments at 24 (noting that the proposed collections "only will increase the burdens on . . . operators, diverting resources from the provision of service, and ultimately impacting the future of such services" and that "[t]here is no justification in the record for imposing this unique burdensome treatment").

⁷⁴ See, e.g., CBA Comments at 54-54 (explaining that "[c]odifying the freeze on new earth stations would prevent U.S. video and audio content providers from extending their reach to new communities" and is unsupported by the NPRM's asserted rationale); Content Company Comments at 8-9 ("If the freeze . . . is made permanent . . . with each year it will become more challenging for video programmers to make video programming reliably available to the public."); SIA Comments at 30 ("A Commission policy precluding the deployment of C-band earth stations would keep growing communities from obtaining access to the news, sports, and entertainment programming other U.S. consumers enjoy."); AT&T Comments at 13; Eutelsat Comments at 13.

necessary, the burdens they would impose on existing earth stations would outweigh any supposed benefits and the Commission should decline to adopt them.

Given the hardship to which these proposals would subject existing C-band users, proponents must demonstrate that (1) the limits on the deployment and registration of new earth stations and modifications to existing earth stations in the spectrum that remains available for FSS use are necessary to produce a socially efficient allocation of C-band spectrum among potential users; and (2) the additional detailed information collections that the Commission has proposed are necessary to facilitate the introduction of the new services proposed. To date, parties have not justified the need for an earth station deployment freeze or for the additional information collections. CTIA and T-Mobile merely suggest that these measures would be helpful for the reasons noted in the NPRM – i.e., understanding usage and potentially facilitating a transition, but do not offer any meaningful analysis of their necessity as compared to the burden it would create.⁷⁵ Given that there were “approximately 16,500 C-band earth stations registered” in IBFS on October 26,⁷⁶ claims that the band is underutilized and further study is necessary are also questionable. P2MP proponents argue that these measures are necessary to allow frequency coordination between proposed new P2MP operations and existing C-band users.⁷⁷ But, as discussed above, the record raises serious doubts about authorizing P2MP use of C-band spectrum.⁷⁸ Unless such doubts are resolved, it would be premature for the Commission

⁷⁵ CTIA Comments at 14-15; T-Mobile Comments at 17-18.

⁷⁶ NAB Comments at 12.

⁷⁷ BAC Comments at 17-18; Google Comments at 15-17, Microsoft Comments at 6-7; Comments of Starry, Inc. at 4.

⁷⁸ *See supra* Section IV.

to require burdensome new information collections or curtail existing users' deployments and modifications in the portion of the band that remains available for their use.

VI. CONCLUSION

Based on the current state of the record, much more detailed information and analysis about the various proposals is necessary for the Commission and interested stakeholders to accurately and adequately assess how to move forward in this proceeding. What is clear however, is that any approach the Commission adopts should involve Commission oversight to ensure transparency of any transition process and robust protections for existing C-band users that are meaningfully enforceable.

Respectfully submitted,

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