

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of:)	
)	
Expanding Flexible Use of the 3.7 to 4.2 GHz)	GN Docket No. 18-122
Band)	
)	

**COMMENTS OF
NATIONAL PUBLIC RADIO, INC.**

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October 29, 2018

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Introduction and Summary

National Public Radio, Inc. (“NPR”) hereby submits its comments in response to the *Order and Notice of Proposed Rulemaking* in the above-captioned proceeding.¹ These comments are offered on behalf of the public radio system, a national, nonprofit media enterprise that broadcasts to almost forty-one million Americans weekly. This system includes NPR; more than 1000 independently owned local public radio stations licensed to NPR Members or otherwise affiliated with NPR; many other stations, large and small, rural and urban; and other producers and distributors of public radio programming, including American Public Media (“APM”) and Public Radio International (“PRI”), that collectively create and distribute content through the Public Radio Satellite System (“PRSS”). In addition, the PRSS and C-band satellite service transmit FEMA emergency alerting and other public safety information, and provide bandwidth for in-state and regional public radio networks. As manager of the PRSS, NPR specifically responds to the Commission’s proposal to transition all or part of the 500 megahertz of mid-band spectrum between 3.7-4.2 GHz (“C-band”) for flexible use, terrestrial mobile

¹*In the Matter of Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Order and Notice of Proposed Rulemaking, GN Docket No. 18-122 (rel. July 13, 2018) [hereinafter *NPRM*].

spectrum (with clearing beginning in the bottom portion of the band and moving higher up), and to promote more intensive fixed use of the C-band on a shared basis in the top segment of the band. In particular, NPR responds to the Commission's request for comment on how best to protect existing users of this spectrum.²

As it noted in its comments and reply comments in response to the Commission's Notice of Inquiry,³ NPR is concerned that, unless properly implemented, allowing additional terrestrial use of the C-band spectrum, particularly for mobile broadband, would threaten the public's access to local public radio station broadcasts of news, public safety information, and unique community and cultural programming, including *Morning Edition*, *All Things Considered*, *Marketplace*, and dozens upon dozens of popular local, regional, and national public radio programming.⁴ The PRSS is completely dependent on extremely low-power satellite-to-earth station C-band downlinks that are particularly susceptible to interference. The public radio system also depends on the Commission's longstanding "full-band, full-arc" policy for authorizing earth stations, which is essential to assuring basic service continuity. Any additional terrestrial C-band use must protect the public radio earth station downlinks from interference and accommodate full-band, full-arc earth station operation. This is especially important given Congress's long-term investment in the PRSS.

² *NPRM* at ¶ 26.

³ *In the Matter of Expanding Flexible Use in Mid-Band Spectrum Between 3.7 to 24 GHz*, Notice of Inquiry, GN Docket No. 17-183 (rel. Aug. 3, 2017), Comments of National Public Radio, Inc. (filed. Oct. 2, 2017); Reply Comments of National Public Radio, Inc. (filed Nov. 15, 2017).

⁴ Local producers include Native Voice One, a Native American radio network that utilizes the PRSS to distribute programming among 60 native stations; West Virginia Public Broadcasting, a statewide network spanning the state and broadcasting important news and information to hard-to-reach places; and the Kansas News Service, which comprises a network of public radio stations and translators across urban and rural Kansas and Missouri, provides coverage of local news and events through a community-based, multiplatform system that relies on the PRSS.

After analyzing the proposals described in the NPRM and by various commenters, NPR remains concerned that re-allocating C-band spectrum for use by mobile wireless services would be disruptive to public radio service. If the Commission chooses to proceed, the proposal initially offered by Intelsat and Intel, and now supported by a consortium of C-band satellite operators including Intelsat, SES, Eutelsat and Telesat (“C-Band Alliance”), may provide the least disruptive option to effect this re-allocation, provided appropriate safeguards are put in place to guarantee the continued effective and affordable operation of the PRSS and other C-band satellite service users. NPR’s conclusion is bolstered by its longstanding relationship with Intelsat and its recent assurances that its plan will protect existing users.⁵ The Commission’s stated goals of protecting incumbent uses of the C-band while allowing some spectrum to be used for mobile and other wireless use can only be accomplished if the Commission preserves sufficient C-band spectrum for fixed satellite service (“FSS”) and preserves its longstanding full-band, full-arc earth station licensing policy.

Discussion

I. Nationwide Public Radio Service Is Possible Only because of the C-band Spectrum

A. C-band provides the PRSS’s broad reach because it is affordable, reliable, and available throughout the United States.

NPR established the first satellite-based interconnection system for distributing audio content in the late 1970s. What we now know as the PRSS annually delivers more than 450,000 hours of news, music, cultural programming to 1,278 public radio stations throughout the United States, using C-band spectrum. This programming ultimately reaches 95% of the U.S. population. PRSS-interconnected public radio stations, including both NPR and non-NPR

⁵ See C-Band Alliance, Notice of Ex Parte Communication, GN Docket Nos. 17-183, 18-122 (filed Oct. 23, 2018).

stations, maintain and operate 475 receive-only earth stations to permit the distribution of noncommercial news and cultural programming by a multitude of program producers and distributors. Local public radio stations then broadcast this programming to millions of listeners, including many in rural and other underserved areas of the country, each and every day.

The PRSS's contribution to the public interest is supported by a long-standing and substantial Federal interest. In the Public Broadcasting Act of 1967, Congress authorized the establishment of one or more interconnection systems to provide program suppliers with the means to distribute programs to local public television and radio stations.⁶ In 1978, public television and radio became the first extensive broadcasting systems in the nation to switch from a system of land-line distribution to satellite interconnection.⁷ Congress subsequently authorized and appropriated to the Corporation for Public Broadcasting a substantial portion of the funding for the refurbishment of the PRSS in 1988,⁸ with the stated purpose of continuing and expanding the nationwide, satellite-interconnected system of distributing public telecommunications services.⁹ Congress' commitment to the PRSS follows from its belief, as stated in the Public Broadcasting Act, that it "is in the public interest to encourage the growth and development of

⁶ Pub. L. No. 90-129, § 201, 81 Stat. 365, 370 (1967) (codified, as amended, at 47 U.S.C. §396(g)(1)(B)).

⁷ H.R. Conf. Rep. No. 825, 100th Cong., 2d Sess. 11 (1988).

⁸ Pub. L. 100-626, 100th Cong., 2d Sess., 102 Stat. 3207 (amending Section 396(k) of the Communications Act of 1934). Congress appropriated \$200 million for both the public television and public radio satellite systems. Pub. L. No. 100-436, 102 Stat. 1680, 1708-09 (1988) (appropriating \$57.5 million); Pub. L. No. 101-166, 103 Stat. 1159, 1185 (1989) (appropriating \$76.25 million); Pub. L. No. 101-517, 104 Stat. 2190, 2217 (1990) (appropriating \$66.94 million).

⁹ See H. Rep. No. 825, 100th Cong., 2d. Sess. 10-15 (1988); S. Rep. No. 444, 100th Cong., 2d Sess. 6-10 (1988).

public radio and television broadcasting, including the use of such media for instructional, educational, and cultural purposes.”¹⁰ Most recently, Congress has appropriated \$90 million in initial funding for the next generation of the public radio and public television interconnection systems,¹¹ and NPR is projecting to spend in excess of \$50 million over ten years for satellite transponder capacity, ground system refurbishment, and related project support for the next generation of the PRSS. Members of Congress have also asked the Commission to carefully consider the impact of this proceeding on the PRSS and public radio.¹² PRSS continues to use satellite technology as its primary delivery platform because satellite continues to be the most cost-effective and reliable means of delivering high-quality audio programming to a national network of public radio stations serving hard to reach and geographically diverse communities.

Public radio could not serve almost forty-one million Americans each week without the PRSS and would not exist without the indispensable, highly efficient programming distribution methods currently employed using C-band spectrum. The PRSS is used by a large variety of program producers, syndicators and distributors; national, state, and local organizations; and public radio stations. The PRSS reaches stations in geographically diverse areas, from remote villages in northern Alaska and Native American lands in the Southwest, to major market stations such as WOI in Des Moines, Iowa and KUHF in Houston, Texas. Programs distributed over the PRSS span a variety of formats, including news, cultural information, public affairs,

¹⁰ 47 U.S.C. § 396(a)(1).

¹¹ *See* Consolidated Appropriations Act, 2016, Pub. L. 114-113, § 407, 129 Stat. 2242, 2642-43 (Dec. 18, 2016) (appropriating \$40 million “for the costs associated with replacing and upgrading the public broadcasting interconnection system”); Consolidated Appropriations Act, 2017, Pub. L. 115-31, § 405, 131 Stat. 135 (May 5, 2017) (appropriating \$50 million for such costs).

¹² Letter from Representative Tom Cole, 4th District, Oklahoma, to Commissioner Ajit Pai, July 2, 2018.

drama, documentaries, classical and contemporary music, and jazz, and come from a wide variety of producers and distributors in addition to NPR, including APM, PRI, and more than 100 others. Eighty percent of programming is broadcast live.

Regional and in-state public radio networks also depend on C-band satellite service for distribution of local content. For example, West Virginia Public Broadcasting uses the PRSS network operations center to distribute local public radio programming among its local stations, bypassing the need for and cost of operating a local satellite uplink. Colorado Public Radio, Minnesota Public Radio, and New Hampshire Public Radio use PRSS satellite bandwidth to distribute in-state public radio programming using their own uplinks. Alaska Public Media uses C-band satellite service for in-state program distribution separate from PRSS.

C-band satellite service also permits regional public radio emergency networks to operate before, during and after disasters to disseminate emergency and public safety information.¹³ For example, regional emergency networks in Louisiana, Minnesota, and West Virginia use PRSS satellite bandwidth for their regional operations. Temporary and other regional emergency networks, such as the Florida Public Radio Emergency Network, also rely on C-band satellite for their operations during disasters.¹⁴

By enabling its interconnected stations to receive and send programming across the satellite interconnected network, the PRSS is able to bring important voices to listeners

¹³ See Comments of National Public Radio, Inc., *In the Matter of Response Efforts Undertaken During 2017 Hurricane Season*, PS Docket No. 17-344 (filed Jan. 22, 2018) (describing local public radio stations' resilience during the 2017 Hurricane Season).

¹⁴ See also Comments of Gary Timm, *In the Matter of Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-122, at 2 (filed Oct. 23, 2018) (explaining that it is common for state EAS networks to use the state public radio or public TV networks to distribute National and State EAS messages throughout their state, and many of those networks are based on C-Band satellite).

throughout a state, a region, or the country. Rural communities in particular rely on their local public radio station and, in turn, the PRSS, as an important and sometimes exclusive source of news, public affairs, cultural programming, emergency alerting and public safety information.

Just this month, for example, as Hurricane Michael swept the Florida panhandle, Panama City public radio station WKGC was the only local broadcaster to stay operational before, during, and after the storm, supplying needed information to the community from its permanent backup studio inside the Emergency Operations Center. As Hurricane Michael incapacitated terrestrial broadband infrastructures, WKGC remained a lifeline in the Florida panhandle when electric power, cell service, and fiber-optic infrastructure were severely damaged. WKGC is part of the Florida Public Radio Emergency Network (FPREN), a collective of 13 public radio stations that reach 99% of Florida's population and are prepared to stay on-air during times of crisis to broadcast real-time updates from the Emergency Operations Center in Tallahassee. FPREN also delivers local and regional information during emergencies and is part of the national Emergency Alert System (EAS).

B. Full-band, full-arc licensing is key to efficient use of C-band spectrum and the uninterrupted availability of public radio service.

The Commission's policy of licensing earth stations on a full-band, full-arc basis is critical to the PRSS's ability to provide uplink and downlink services to the public radio system with any assurance of ongoing business continuity. The policy is rooted in a basic fact of satellite communications: satellite operators and earth station receivers require flexibility to assure reliable service.

Our full-band licensing policy promotes important operational objectives in the FSS, *in particular by providing earth station licensees the needed flexibility to*

*change transponders or satellites on short notice, and without having to be re-licensed by the Commission, to meet changing operational requirements.*¹⁵

To operate effectively, earth stations must have the ability to reorient within minutes to different frequencies or different satellites in case of a disruptive event. NPR believes the only viable licensing approach for C-band spectrum is one that both protects down-link earth stations and incorporates the Commission's full-band, full-arc policy. For decades, the PRSS has successfully shared the C-band with terrestrial, fixed microwave service providers whose wireless use is carefully coordinated and which accommodates the Commission's full-band, full-arc licensing regime. NPR sees no reason why this framework should not continue if the Commission is serious about effectively accommodating existing C-band satellite service users. For these reasons, NPR opposes the Commission's proposal to eliminate its full-band, full-arc earth station licensing policy.¹⁶

C. PRSS's use of C-band allows it to reach areas that 5G service will not.

PRSS's nationwide coverage allows it to reach rural and remote areas where terrestrial broadband is unavailable and where affordable mobile wireless service is unlikely to appear soon. Terrestrial delivery over the Internet is not an option for live content that must be available across the public radio network; and dedicated fiber is too expensive and in many rural areas of

¹⁵ *In the Matter of FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum; FWCC Petition for Rulemaking to Set Loading Standards for Earth Stations In the Fixed-Satellite Service that Share Terrestrial Spectrum; Onsat Petition for Declaratory Order that Blanket Licensing Pursuant to Rule 25.115 (c) is Available for Very Small Aperture Terminal Satellite Network Operations at C-Band; Onsat Petition for Waiver of Rule 25.212(d) to the Extent Necessary to Permit Routine Licensing of 3.7 Meter Transmit and Receive Stations at C-Band; Ex parte Letter Concerning Deployment of Geostationary Orbit FSS Earth Stations in the Shared Portion of the Ka-band, Notice of Proposed Rulemaking*, 15 FCC Rcd 23127, at 23146, 47 (2000) (*emphasis added*).

¹⁶ See *NPRM* at ¶ 38. NPR also opposes the Commission's proposal to prohibit new earth stations, including in new locations, as unnecessary to achieving more efficient use of the C-band spectrum retained for FSS use and antithetical to maintaining PRSS service. See *NPRM* at ¶ 29.

America simply non-existent. The PRSS's efficiency and reach are possible only because of the C-band satellite spectrum's ability to serve rural and remote locations, where cost-effectiveness is a necessary requirement for providing service.

The wireless industry has made no claims that the spectrum they request for 5G service would be used to deploy this service in rural areas. Thus, if the Commission were to re-allocate a large amount of the C-band to mobile wireless use, the effect in rural America would be a clear loss: public radio programming forced off the air without even the potential offsetting benefit of improved mobile wireless service.

II. If the Commission Reallocates C-band Spectrum, It Should Preserve Sufficient Spectrum to Protect Existing Users.

As explained above, the Commission must preserve incumbent C-band spectrum uses for the public radio system, and the best approach would be to retain the spectrum for FSS and existing terrestrial point-to-point uses. Should the Commission decide to reallocate some portion of the C-band spectrum for wireless use or other terrestrial use, however, NPR offers the following comments.

A. The C-Band Alliance's proposal offers the best means of achieving the Commission's goals while protecting existing users.

If the Commission decides to reallocate any portion of the C-band spectrum for terrestrial mobile wireless, NPR believes that the C-Band Alliance's market-based proposal, subject to reasonable and appropriate conditions, offers a workable, if yet unproven option for managing the competing demands of mobile wireless operators and current users of C-band spectrum, including the public radio system. If the Commission decides to adopt this market-based approach, NPR encourages the Commission to: (i) reallocate no more than 200 MHz of C-band downlink spectrum, as identified in the C-Band Alliance's recent proposal as the maximum

amount that can be cleared to support 5G wireless while protecting current users;¹⁷ and (ii) to provide opportunity for public comment and Commission oversight through the transition process and beyond, as discussed below.

NPR has engaged in discussions with Intelsat, its longstanding C-band satellite service provider, about how clearing up to 200 MHz of C-band spectrum could affect the PRSS and Intelsat has provided high-level representations regarding its proposed plans to mitigate disruption of PRSS and other incumbent users. These discussions are ongoing. Based on the PRSS's longstanding relationship with Intelsat and the C-Band Alliance's recently augmented proposal, Intelsat (and the C-band Alliance) have some understanding of the protections necessary to guarantee the continuation of PRSS's and other public radio service with minimal disruption. There is some promise that its market-based approach will provide the flexibility needed during the transition process and will benefit from the combined industry experience of the C-Band Alliance's members, something that cannot be said of an auction.

The C-Band Alliance proposes that up to 200 MHz (180 MHz and 20 MHz of guard band) be cleared for mobile wireless service, stating that this amount of spectrum is tied to the amount of C-band spectrum required by the Alliance members to satisfy the current and anticipated needs of their C-band customers and assumes the launch of additional satellites to meet those needs. Satellite operators have the tools to adequately assess the minimum amount of spectrum necessary to preserve existing C-band FSS service, and contractual obligations and incentive to do so. With that understanding, the Commission should not allocate any more than 200 MHz of C-band spectrum for flexible use at this time. To proceed otherwise would certainly harm incumbent users of the band, who would face the prospect of (1) reduction of capacity and

¹⁷ See C-Band Alliance, Notice of Ex Parte Communication, GN Docket Nos. 17-183, 18-122 (filed Oct. 23, 2018).

supply as well as higher prices for the remaining portion of the band allocated for FSS use and (2) terrestrial alternatives that cannot provide, let alone assure, reliability, affordability, and availability of service.

Should the Commission move forward with the C-Band Alliance's plan to reallocate spectrum, NPR recommends that in so doing the Commission make clear that this action cannot serve as the basis to trigger force majeure clauses in satellite providers' contracts with existing users of C-band.

i. Notice and an opportunity to comment should be required before the Commission authorizes any additional reallocation of C-band spectrum.

While NPR conditionally supports the C-Band Alliance's proposal to institute a flexible, market-based approach to reallocating a limited amount of C-band spectrum for new use, it urges the Commission to require notice and an opportunity for comment before it approves the reallocation of any more than the lower 200 MHz of the C-band spectrum. It is the Commission's statutory responsibility to manage the radio frequency spectrum in the public interest.¹⁸ The Administrative Procedure Act also obligates the Commission to afford the public an opportunity to address Commission regulatory proposals prior to adoption.¹⁹ As the filings in this docket demonstrate, there are many interested stakeholders concerned with the future of C-band. It would be inappropriate to further alter the use of the spectrum band, thereby benefitting some parties and harming others, without giving those parties an opportunity to contribute to the record on which the Commission may base any decision to further reallocate the C-band for new

¹⁸ 47 U.S.C. §§ 151, 303.

¹⁹ 5 U.S.C. § 553.

uses, particularly in light the Commission’s stated objective to protect existing earth station users.²⁰

ii. The Commission should adopt procedures for ongoing oversight and public comment throughout the C-band transition.

The Commission also needs to provide ample opportunity for notice and public comment and other close oversight throughout any C-band spectrum transition process using a market-based approach. The NPRM describes the proposed market-based approach to clearing spectrum as a four-step process: (1) C-band satellite operators voluntarily forming a Transition Facilitator;²¹ (2) the Transition Facilitator would negotiate with any interested terrestrial operators and incumbent users; (3) the Commission would review the Transition Facilitator’s plan and conditionally authorize terrestrial licenses in the band; and (4) the Transition Facilitator would clear the negotiated-for spectrum, making it available for flexible use while protecting incumbent earth stations through a variety of potential means.²² Step Three is crucial for existing C-band users.

NPR urges the Commission to provide meaningful oversight and adopt appropriate safeguards in reviewing the Transition Facilitation Plan to assure that incumbent earth station operators and other users are adequately protected. For example, the Commission should require, as part of any approval process, that the C-band satellite providers certify: (1) that their transition plan enables them to meet any and all contractual obligations to provide satellite service, and that they are not using the spectrum reallocation as a reason to avoid fulfilling their customers’ satellite service needs; and (2) that the plan provides for full and prompt

²⁰ *NPRM* at ¶ 27.

²¹ The newly formed C-Band Alliance serves this “Transition Facilitator” role.

²² *NPRM* at 25, ¶ 72.

reimbursement of all transition costs for earth station operators and other satellite service customers, including filters and repointing satellite dishes, and related equipment, labor and services. The Commission should also seek public comment as part of this process.

In addition, the Commission should conduct a more holistic periodic review of the Transition Facilitator and the C-band transition, to assure that this market-based approach with satellite service providers controlling capacity, price and use fairly serves incumbent users and the public interest. Again, opportunity for public comment would be integral to this oversight and review process to ensure that protected incumbent users and earth station operators are indeed protected.

B. If the Commission adopts an auction-based approach, it should also adopt safeguards to protect existing users.

If the Commission decides to adopt an auction mechanism to expand flexible use of the C-band, NPR likewise recommends that it adopt safeguards to protect existing FSS users, including ample notice and opportunity for public comment. As explained above, the Commission should not allocate more than 200 MHz of spectrum for flexible use at this time. In addition, the Commission should adopt appropriate procedures to ensure that any existing users and earth station operators are “made whole” in any transition process, able to continue existing service, and fully reimbursed for any and all transition costs.

C. The Commission should reject the proposal by the Broadband Access Coalition, which does not adequately protect existing users.

NPR urges the Commission to reject the proposal by the Broadband Access Coalition (“BAC”) to open up C-band spectrum to new point-to-multipoint terrestrial services for several

reasons.²³ First, the BAC proposal depends on eliminating the Commission's full-band, full-arc earth station licensing policy.²⁴ As explained above, the PRSS and other incumbent services rely on the operational flexibility inherent in that policy to change frequencies and antenna orientations to address service disruptions in real time. This flexibility allows restoration of service if an outage affects the PRSS's primary spectrum assignment and allows it to resolve interference issues quickly. These advantages would be negated if the PRSS were forced to work around new point-to-multipoint facilities and coordinate earth station technical changes to make any change in operating parameters. Further, BAC's proposal does not address how the new services it envisages could co-exist with PRSS's national network of downlink sites. Point-to-multipoint facilities in different geographic regions could use different spectrum frequencies, whereas the PRSS's signal is consistent throughout the nation. This could lead to conflicting demands for frequency adjustment across the range of point-to-multipoint facilities, a situation that could ultimately prove unworkable. For these reasons, the Coalition's proposal is impracticable and incompatible with the Commission's nationwide approach to C-band licensing and should be rejected.

III. The Commission Should Exclude Alaska, Hawaii, and the Caribbean from C-band Reallocation.

NPR urges the Commission to define the geographic scope of any C-band reallocation to the lower 48 states. For the purposes of spectrum use, this region generally acts as a cohesive whole. However, Alaska, Hawaii, Puerto Rico, and other Caribbean islands each have distinct needs and circumstances that render them best addressed individually. In Alaska's case, it is

²³ See Petition for Rulemaking of the Broadband Access Coalition, CG RM-11791 (filed June 21, 2017).

²⁴ See *id.* at 15.

unlikely that mobile wireless carriers will use C-band to provide 5G service in anything close to the majority of the state in the coming years, and thus retaining all 500 MHz of C-band spectrum for satellite downlinks remains the most efficient use. The same is true in Puerto Rico and other islands in the Caribbean, where the PRSS also provides resiliency through tropical storms unmatched by terrestrial networks.²⁵ In Hawaii, the extent of mobile wireless buildout and spectrum these services use has a significantly different profile than in the lower 48 states. For this reason, the Commission should limit the geographic area of any C-band reallocation plan to exclude these unique areas.

²⁵ See Comments of National Public Radio, Inc., *In the Matter of Response Efforts Undertaken During 2017 Hurricane Season*, PS Docket No. 17-344 (filed Jan. 22, 2018).

Conclusion

For these reasons, the Commission must preserve incumbent C-band spectrum uses and the best approach would be to retain the spectrum for FSS and existing terrestrial point-to-point uses. If the Commission decides to reallocate some portion of the C-band spectrum for wireless use or other terrestrial use, NPR conditionally supports the proposal offered by the C-Band Alliance, including preserving the full-band, full-arc earth station licensing policy, provided FCC exercises appropriate oversight to avoid disruption and cost to the nation's public radio system.

Respectfully submitted,

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