Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	GN Docket No. 25-59
Upper C-band (3.98-4.2 GHz)	)	

COMMENTS OF THE SOCIETY OF BROADCAST ENGINEERS, INC.

January 20, 2026

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Introduction and Summary

The Society of Broadcast Engineers, Inc. ("SBE")—the professional organization of television and radio engineers and those in related fields, with more than 4,500 members in 117 chapters worldwide—submits these comments in response to the Notice of Proposed Rulemaking (the "NPRM")[1] issued in the above-captioned proceeding. SBE is aware of the congressional mandate to auction "not less than" 100 MHz of the 3.98-4.2 GHz spectrum band (the "Upper C-band") by July 2027,[2] and recognizes that the NPRM's proposals must therefore account for a repurposing of at least 100 MHz of the Upper C-band for terrestrial wireless services.[3] At the same time—and as the Commission itself has recognized—any actions taken to repurpose the Upper C-band will not be taken in a vacuum. There currently exist many substantial and longtime incumbent uses of the Upper C-band; uses that both implicate critical "last-mile" links in existing broadcast communication infrastructure and represent significant prior business investments. In short, the

[1] *Upper C-band (3.98-4.2 GHz)*, GN Docket No. 25-59, Notice of Proposed Rulemaking, FCC 25-78 (rel. Nov. 21, 2025).

[2] NPRM ¶ 14; Pub. L. No. 119-21, § 40002(b)(2) (also known as the One Big Beautiful Bill Act, or "OBBBA").

[3] NPRM ¶ 1.

C-band remains a vital piece of broadcasters' programming distribution chains, and there simply are no alternatives to C-band operations that offer the same level of distribution access and reliability.

SBE therefore encourages the Commission to carefully consider the impacts of any repurposing on incumbent uses of the band—including broadcast uses and the many communities, large and small, that are daily served by those uses—and limit the amount of spectrum being auctioned for wireless use to the 100 MHz mandated by the OBBBA. And, regardless how much Upper C-band spectrum the FCC ultimately elects to repurpose, the resulting rules governing the transition must ensure that incumbents are adequately protected and made whole, including through: flexible and comprehensive reimbursements for transition costs; meaningful and enforceable interference protections for incumbents remaining in the Upper C-band; and providing adequate time and resources for incumbents to complete what is certain to be a complicated transition process.

A. Background

The C-band (3.7-4.2 GHz) has long been the primary source for radio and television broadcasters to receive, for ultimate distribution to communities throughout the nation via free over-the-air broadcast, much of the popular programming that listeners and viewers have come to expect. Indeed, many national programmers and their affiliates, syndicators and their station partners, and station groups with centralized distribution hubs all rely on content transmitted via the C-band, with such content making up a meaningful portion of many local broadcasters' daily programming. The band is ideal for this purpose because of its favorable propagation characteristics and dependability. Yet, in 2020 the FCC ordered the 3.7-3.98 GHz portion of the band (the "Lower C-band") be repurposed for wireless use, and incumbents were required to

transition operations to the Upper C-band.[4] Over the years that followed, broadcasters and other incumbents completed the necessary steps to transition out of the Lower C-band—they diligently worked with stakeholders to calibrate programming delivery timing around equipment modifications necessitated by the transition and to source and acquire all such equipment modifications necessary to successfully transition. And they ultimately calibrated their in-band programming business operations to accommodate the post-transition landscape, but continued to use the Upper C-band.

The bulk of the transition was completed in 2023 and final reimbursement claims paid by June 2025.[5] Now, less than a year later, C-band incumbents are again being asked to accommodate further expansion of wireless operations in the band.

B. A Portion of the Upper C-Band Should be Preserved for Important Incumbent Uses for Which No Comparable Alternative Exists.

The C-band has long been the de facto solution for last mile delivery of all kinds of programming—including news, entertainment, sports, and critical emergency information—to local broadcast stations, primarily because it is an incomparably reliable mechanism for this purpose. Recognizing that the terms of the OBBBA mandate only a 100 MHz portion of the Upper C-band to be auctioned for wireless use,[6] the Commission should retain as much of the band as possible to ensure continued, reliable distribution of such broadcast content to viewers and listeners throughout the nation. Such a division of the remaining Upper C-band spectrum best

[4] *Expanding Flexible Use of the 3.7-4.2 GHz Band*, GN Docket 18-122, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343 (rel. Mar. 3, 2020) (the "2020 C-band R&O").

[5] NPRM ¶ 9; *see also Expanding Flexible Use of the 3.7-4.2 GHz Band*, GN Docket 18-122, Order, DA 25-477, ¶ 3 (June 4, 2025).

[6] Pub. L. No. 119-21, § 40002(b)(2).

serves the public interest by ensuring that broadcasters can continue to reliably serve the nation's communities, including rural and otherwise underserved viewers and listeners, particularly in times of crisis and during the broadcast of potentially life-saving emergency information.

As commenters in this docket have already explained, broadcasters large and small currently use the C-band to deliver many various types of radio and television programming to stations, which is then broadcast to those stations' local communities. Importantly, the C-band was not chosen for this critical task at random; other methods of programming distribution are neither as reliable, cost effective, nor, in many cases, readily available. Indeed, several of the most prominent national Primary Entry Point stations for the nation's emergency alerting infrastructure have historically relied on C-band delivery.[7] Put differently, broadcaster C-band use is currently one of the primary ways by which the U.S. public can be assured their local broadcast stations will receive emergency communications from the President in the event of a national emergency.[8]

Much of the broadcast programming received via C-band constitutes the bread and butter content that stations depend on to be economically viable, particularly in smaller markets where station budgets are tightly squeezed. Moreover, broadcast stations remain the most reliable source for timely information and reporting in emergency situations.[9] The public counts on broadcasters in emergencies to deliver sometimes life-saving information at times when other sources like

[7] *See, e.g.*, Leslie Stimson, *FEMA, Premiere Networks Partner on EAS*, TV Tech (May 2, 2013), https://www.tvtechnology.com/news/fema-premiere-networks-partner-on-eas.

[8] *See, e.g.*, Amanda H. Peskin, *National Alerts: A Primer and Selected Issues for Congress*, CRS, n.25 (Aug. 15, 2025), https://www.congress.gov/crs-product/R48632.

[9] *See, e.g., Broadcasters Stand Strong on the Frontlines of Hurricane Helene*, We Are Broadcasters (Sept. 30, 2024), https://www.wearebroadcasters.com/americasStories/2024_hurricaneHelene.asp; *NAB Report Stresses AM Radio's Invaluable Role in Public Safety*, Inside Radio (Jan. 19, 2024), https://www.insideradio.com/free/nab-report-stresses-am-radio-s-invaluable-role-in-public-safety/article_639eb9a6-b61f-11ee-af76-a3af20974b9e.html.

cellular service may not be available—the C-band is a key part of the distribution pathway through which much of that reporting currently reaches the public.

Because of the importance of the continued access to and reliability of this content delivery, both from a business and public safety standpoint, stations must be able to rely on a robust and resilient mechanism for consistent operation without interruption. The C-band provides this reliability; other alternatives simply do not. The NPRM suggests that some broadcasters and other C-band users have been moving to alternative distribution sources like the Ku-band, fiber optics, and content delivery networks, and asks whether this "potential migration" to other distribution sources could be incorporated into the Upper C-band reconfiguration process.[10] Unfortunately, the alternative methods noted in the NPRM will not provide a stand-alone alternative to C-band operations, and may not be available to all incumbent broadcasters.

As NAB has noted previously, Ku-band satellites do not provide hemispheric coverage like C-band satellites, and may be far more expensive to deploy, particularly in rural areas.[11] Moreover, the Ku-band is less resistant to rain fade when compared to the C-band, which makes the Ku-band a less desirable alternative for broadcasters, who rely on dependable signal delivery in order to ensure programming is delivered to listeners and viewers without disruption.[12] This concern is unfortunately exacerbated during emergency weather events, when the dependability of broadcast programming is most vital.

[10] NPRM ¶¶ 92, 97.

[11] Reply Comments of the National Association of Broadcasters, GN Docket No. 25-59, 7-8 (May 29, 2025) ("NAB Reply Comments").

[12] Comments of the National Association of Broadcasters, GN Docket No. 25-59, 5-6 (Apr, 29, 2025) ("NAB Comments").

Fiber provides another possible alternative for broadcasters to receive programming content, but only if the technology is available in the geographic areas where needed. As of December 2025, fiber was reportedly only available in around sixty percent of U.S. households, meaning large parts of the country remain unconnected.[13] So fiber may not be available *at all* to many broadcasters, particularly in remote transmitter site locations and/or rural areas, the latter of which remain some of the communities that are most reliant on broadcasters for free, readily accessible over-the-air programming. And even where fiber is available to broadcasters, it relies on a third-party internet provider to be dependably operational—if the provider is knocked out during an emergency, the station again will be unable to provide listeners and viewers with important information.

In short, the C-band is a vital piece of broadcasters' programming delivery infrastructure, which allows stations to provide via their free over-the-air broadcasts not only the entertainment and news content that its viewers and listeners love, but also the emergency alerts and reporting they rely on for their safety. While the OBBBA has determined that a portion of the Upper C-band must be auctioned for wireless use, the FCC should recognize the vitality of incumbent operations in the band and preserve as much spectrum as possible for those important broadcast operations.

C. An Upper C-Band Transition Will Be More Complicated and Costly Than the Lower C-Band Transition.

Unfortunately, transitioning incumbent users to accommodate wireless use of any portion of the Upper C-band is certain to be more complicated, time-consuming, and costly than the Lower C-band transition. During the Lower C-band transition, incumbents were able to transition

[13] *Fiber Broadband Association Reports Historic Fiber Deployment Highs*, Fiber Broadband Association, (Dec.16, 2025), https://fiberbroadband.org/2025/12/16/fiber-broadband-association-reports-historic-fiber-deployment-highs/.

operations into the Upper C-band while still accommodating the same or similar traffic demand by deploying more efficient compression techniques and launching additional C-band satellites. Broadcasters were often able to "retune" their existing earth station equipment, upgrade receiving equipment, and install additional filters to effectively transition to Upper C-band operations. And the Commission's Report and Order made clear that incumbents, upon valid election, were entitled to be provided with "a turnkey solution to the transition"—i.e., incumbents could almost entirely rely on the satellite operators to successfully transition their operations to the newly reconstituted band.[14] The same comparatively "simple" transition will not be possible this time.

Even if the Commission elects to repurpose the minimum amount of 100 MHz of the Upper C-band, the remaining portion of the band is unlikely to be able to accommodate the existing demand of incumbent users. Consequently, many incumbent broadcasters will be forced to transition out of the Upper C-band, either to other spectrum bands or to alternative methods of receiving needed programming.[15]

D. Alternative Transmission Methods Are Likely to be Inferior to the Upper C-Band or Not Available to All Incumbents.

As it did in the Lower C-band transition, the FCC proposes to repurpose portions of the Upper C-band under its *Emerging Technologies* framework.[16] Under that framework, incumbents

[14] 2020 C-band R&O, 35 FCC Rcd at 2455.

[15] The NPRM notes that some satellite operators have indicated that at least 100 MHz of the Upper C-band could be cleared, NPRM ¶ 15, n.36, but those estimates are based on the assumption that incumbent C-band uses will decline, and only after significant financial investment. *See* Comments of SES Americom, Inc., GN Docket No. 25-59, 5-7 (Apr. 29, 2025); Letter from Brian D. Weimer, Counsel to Eutelstat Communications S.A., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 25-59 (filed July 28, 2025). SBE is not aware of any clear, comprehensive explanation of how current incumbent operations could be adequately accommodated in a smaller portion of the Upper C-band.

[16] NPRM ¶ 2 n.2.

that are involuntarily relocated to accommodate emerging technologies must be compensated for costs of relocating to a "comparable facility," and comparable facilities must be "equal to or superior to existing facilities."[17] With this in mind, the Commission should fully investigate the comparability of alternative technologies before adopting any plan to repurpose portions of the Upper C-band that will have the practical effect of forcing incumbent broadcasters out of the band. Any alternative technology offered to replace Upper C-band operations must be *at least* as robust and reliable as incumbents' current facilities.[18] But unfortunately, SBE has serious concerns that the alternatives proposed to date will not provide a "comparable" option for many broadcasters.

The NPRM discusses two primary potential alternatives to the Upper C-band for broadcasters: The Ku-band (12-18 GHz) and fiber optics.[19] However, both present concerns that may prevent them from serving as viable comparative facilities for displaced incumbents from the Upper C-band. As discussed in Section B above, Ku-band satellites do not provide the same service coverage as the C-band and are much more susceptible to disruption as a result of inclement weather. Consequently, in many cases the Ku-band will not serve as a programming delivery mechanism that is truly "comparable" to broadcasters' existing and long-standing operations in the C-band.

Fiber offers similar challenges, in that it may not be available in many rural areas and may not be as dependable as incumbent Upper C-band operations. Deployment of fiber can also be prohibitively expensive, particularly in underserved and rural areas. Even in communities where

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[17] *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, ET Docket No. 92-9, Third Report and Order, 8 FCC Rcd 6589, 6591, 6603 (Aug. 13, 1993) (*Emerging Technologies* Order).

[18] *See, e.g.*, *id.* at 6603-04 (noting that analysis of comparability includes, inter alia, "system reliability," "capability," "overall efficiency," and "interference protection").

[19] *See, e.g.*, NPRM ¶¶ 92, 97.

fiber has been deployed, it can be extremely costly to bring a fiber link to broadcast transmitter sites, which are often located outside of populated areas. Moreover, in order to maintain the same level of dependability, a comparable broadcast solution may require deployment of one or more back-up fiber links in case the first fails. Again, this may be impractical or impossible in remote areas.

These concerns raise the real possibility that the alternatives proposed so far will be insufficient to provide "comparable facilities" to broadcasters displaced from the Upper C-band. Any Report and Order issued in response to the comments received on the NPRM must meaningfully grapple with the record-documented deficiencies[20] with the potential Upper C-band alternatives proposed to date so that displaced incumbents are assured comparable facilities and that all applicable transition costs can be accurately assessed.

E. Relocated Incumbents Must Be Fully Reimbursed and Given Time to Establish Comparable Facilities and Incumbents Remaining in the Upper C-Band Must Be Protected from Interference.

The NPRM acknowledges that any incumbent displaced by expanded wireless operations in the Upper C-band should be reimbursed for all reasonable costs to transition to comparable facilities.[21] Under the *Emerging Technologies* framework, such costs should include "all engineering, equipment, and site costs and FCC fees, as well as any reasonable additional costs."[22] Consequently, incumbent broadcasters should be reimbursed for the full costs of any disruption in the Upper C-band, regardless whether they remain operating within the C-band or must deploy

[20] *See, e.g.*, NAB Comments, at 5-6; Comments of the Content Companies, GN Docket No. 25-59, 4-8 (Apr. 29, 2025); Comments of the E.W. Scripps Company, GN Docket No. 25-59, 4-6 (Apr. 29, 2025).

[21] NPRM ¶¶ 95-100.

[22] *Emerging Technologies* Order, 8 FCC Rcd at 65591.

alternative technologies outside the C-band. Moreover, and particularly in light of the fact that many broadcasters are likely to be transitioned out of the band, the FCC must account for the fact that feasible transition solutions are likely to differ considerably for various incumbents. Any reimbursement program must therefore be broad and flexible enough to accommodate station-specific disparities that necessitate very different—and sometimes hybrid—paths to the deployment of comparable facilities.

The NPRM proposes to model incumbent reimbursements on the guidelines established in the Lower C-band proceeding,[23] but given the myriad challenges and increased complexity of an Upper C-band transition the Commission should consider expanding the scope of reimbursements made available in this proceeding. Any reimbursement structure must be broad enough to effectively encompass all reasonable costs associated with broadcasters that transition outside the C-band. The types of these costs are sure to differ as between incumbents, and could include, among other things, land acquisition, construction, and ongoing increases in maintenance and operational costs to support new equipment that would otherwise not have been needed absent the displacement.[24]

Further, just as the increased complexity of repurposing the Upper C-band—and all the attendant challenges described herein—will necessitate broader reimbursement policies, incumbents will also require longer to accomplish an orderly transition as compared to the Lower

[23] NPRM ¶ 95

[24] To use fiber as one such example—unlike the one-time fixed cost of deploying a C-band receive dish, fiber service requires ongoing (and almost certainly escalating) expenditures in the form of subscription fees. If the Commission's Upper C-band auction and transition decision here effectively render certain broadcasters unable to continue relying on C-band service, such ongoing costs for alternative distribution mechanisms must be part of the relocation reimbursement regime.

C-band. Though the NPRM asks whether a similar timeline to the Lower C-band transition is feasible here, [25] this transition is likely to require significantly more time.

In addition to being ensured of adequate reimbursement, including through clear guidelines and procedures to govern such reimbursement, incumbents remaining in the Upper C-band must be provided with real, enforceable interference protections. Again, the NPRM proposes to apply the same interference protections implemented in the Lower C-band proceeding,[26] but many incumbents have reported concerns with the sufficiency of those protections.[27] Consequently, the Commission should thoroughly investigate the interference concerns raised by wireless operations in the Lower C-band and establish protections in the Upper C-band that address any such concerns, and provide clear enforcement mechanisms to address any interference that may occur.

Conclusion

The Upper C-band is actively and intensively used by satellite operators and broadcasters alike, and repurposing any portion of the band is certain to be a significantly more complex and time-consuming process than the prior repurposing of the Lower C-band. Throughout the process, SBE encourages the Commission to carefully consider the impacts on incumbents that currently rely on operations in the band in order to effectively serve the public interest. The Commission should preserve as much of the Upper C-band as possible for the ongoing mission-critical uses by incumbents, and rules governing the repurposing of any portions of the band must provide all necessary protections to ensure that displaced incumbents are provided comparable facilities and

[25] NPRM ¶ 93-94.

[26] *Id.* ¶ 67.

[27] *See, e.g.*, NAB Reply Comments, 9-10 (citing reported interference).

fully reimbursed for all costs necessary to maintain broadcasters' current level of service to the American public.

Respectfully submitted,

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