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

In the Matter of:	)	
	)	
Upper C-band (3.98 to 4.2 GHz)	)	
	)	GN Docket No. 25-59
Preliminary Cost Catalog	)	
for Upper C-band Incumbent Transition	)	

REPLY COMMENTS OF THE NATIONAL ASSOCIATION OF BROADCASTERS

1 M Street, SE
Washington, DC 20003
(202) 429-5430

Nandu Machiraju
Alison Martin
Robert Weller

November 9, 2026

TABLE OF CONTENTS

I. Introduction and Summary 1

II. The Preliminary Cost Catalog Understates Costs, Omits Necessary Categories of Equipment and Services, and Ignores Future Inflation 3

A. Cost Estimates Must Reflect Current and Anticipated Market Conditions 4

B. Additional Antenna Categories Must Be Included to Properly Identify the Expenses Necessary to Maintain Substantially the Same Service 5

C. IRDs and Terrestrial Recovery Equipment Must Be Included to Properly Estimate the Costs of Implementing Terrestrial Recovery Systems 6

D. Additional Engineering, Integration, and Site-Specific Expenses Must Be Included to Appropriately Cover the True Cost of the Transition 7

III. Lump-Sum Amounts Require Transparency and Reassessment 8

A. Illustrative Cost Estimates Demonstrate Inadequacies of Proposed Lump-Sum Payments 10

B. Lump-Sum Elections Should Not Preclude Claims by Other Eligible Parties 11

IV. Flexibility For Expenses Not in the Cost Catalog 12

V. Information Previously Collected and Verified Should Not Need to Be Recreated Without a Legitimate Reason 12

VI. Conclusion 13

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

In the Matter of:	)	
	)	
Upper C-band (3.98 to 4.2 GHz)	)	
	)	GN Docket No. 25-59
Preliminary Cost Catalog	)	
for Upper C-band Incumbent Transition	)	

REPLY COMMENTS OF THE NATIONAL ASSOCIATION OF BROADCASTERS

I. INTRODUCTION AND SUMMARY

The National Association of Broadcasters (NAB)[1] submits its reply comments to the Wireless Telecommunications Bureau's Public Notice concerning the Preliminary Cost Catalog for the Upper C-band transition.[2] As we explained in our initial comments,[3] the Upper C-band transition is fundamentally different from the Lower C-band transition. Rather than *repacking* existing facilities within a reduced portion of C-band, many incumbent Earth station operators have to *relocate* to another satellite frequency band or to an entirely different distribution platform or both. The Upper C-band Order establishes that incumbents are entitled to reimbursement of "reasonable and necessary transition costs" to maintain "substantially the

---

1 The National Association of Broadcasters (NAB) is the nonprofit trade association that advocates on behalf of free local radio and television stations and broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the courts.

2 *Wireless Telecommunications Bureau Seeks Comment on Preliminary Cost Catalog for Upper C-band Incumbent Transition,* GN Docket No. 25-59, Public Notice DA 26-1049 (Sep. 30, 2026) (Preliminary Cost Catalog).

3 *See, e.g.*, Comments of NAB, GN Docket No. 25-59 (Oct. 20, 2026).

same service."[4] As the Commission has expressly recognized, the Upper C-band transition will entail greater costs than with the earlier transition, and the Cost Catalog must reflect those costs consistent with the reimbursement framework it established.[5]

The initial comments in the record strongly support NAB's concerns that the Preliminary Cost Catalog does not adequately reflect the equipment, engineering, installation, and other expenses necessary to accomplish that relocation to maintain substantially the same service. Commenters across several industries identify numerous expense categories that are missing or have costs that are substantially underestimated. Those comments support NAB's request that the Bureau thoroughly revise the Preliminary Cost Catalog before adopting final cost ranges and lump-sum amounts. Specifically, the record demonstrates the following:

- Reliance on inflation-adjusted costs from the Lower C-band Cost Catalog fails to account adequately for the full expected costs or the substantially different equipment and services required in the Upper C-band transition.
- The proposed lump-sum amounts are based on unstated and unknown assumptions and may substantially underestimate the reasonable and necessary costs of relocating incumbent Earth station operations.
- The Bureau should preserve flexibility to reimburse reasonable and necessary expenses that are not expressly identified in the Cost Catalog or that exceed the published cost ranges.
- Existing certifications and documentation from the Lower C-band transition or other official sources should be accepted to the greatest extent practicable to avoid unnecessary expense and delay.
- Clarification is needed concerning the allocation of transition costs among various participants in the program distribution chain, the treatment of recurring expenses,

---

[4] *Upper C-Band (3.98–4.2 GHz); Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order, Order of Proposed Modification, and Order on Reconsideration, GN Docket Nos. 25-59 and 18-122, FCC No. 26-46 ¶¶ 21, 108, 116-118 (rel. July 24, 2026) (Upper C-band Order).

[5] Upper C-band Order ¶ 126.

and the timing of reimbursements to ensure that incumbent operations are relocated without disruption or uncompensated expense.

Taken together, the record confirms that substantial revisions and clarifications are necessary to ensure that the final Cost Catalog accurately reflects the costs of the Upper C-band transition. NAB urges the Bureau to incorporate the additional evidence and recommendations submitted by commenters and establish a reimbursement framework that enables incumbents to maintain substantially the same service without bearing the costs of a transition they did not initiate.

II. THE PRELIMINARY COST CATALOG UNDERSTATES COSTS, OMITS NECESSARY CATEGORIES OF EQUIPMENT AND SERVICES, AND IGNORES FUTURE INFLATION

As NAB explained in its initial comments,[6] the Upper C-band transition is not another repack and relying substantially on cost data from the previous repack to estimate the costs will significantly understate the costs of this forthcoming transition. The previous transition generally involved modifying existing receiving systems to continue operating within C-band. The forthcoming transition, by contrast, will require many incumbent operators to migrate programming services to Ku-band or alternative distribution technologies, or both, requiring extensive modifications or replacements of existing facilities.

Other commenters confirm this distinction. SES explains that the proposed cost ranges do not adequately account for the increased complexity of transitioning from C-band service to a hybrid C/Ku-band architecture incorporating a terrestrial recovery network.[7] SES also observes that applying straightforward inflation adjustments to the Lower C-band Cost Catalog may underestimate reasonable expenses and omit entirely new categories of costs.[8] NCTA

---

6 NAB Comments at 2.

7 Comments of SES, GN Docket 25-59 at 2-3 (Oct. 20, 2026) (SES Comments).

8 *Id*.

identifies substantial differences between costs reflected in the Preliminary Cost Catalog and actual estimates provided to its members and proposes significant increases in cost ranges for certain items including antenna feed assemblies, terrestrial recovery equipment, and other transition-related facilities.[9] MediaKind provides additional evidence that the proposed costs for integrated receiver-decoders (IRDs) and terrestrial recovery network equipment do not reflect current commercial equipment configurations or pricing.[10] For example, MediaKind notes that IRDs may need to include the necessary hardware and software requiredfor compatibility with terrestrial recovery systems, and there may be costs for connection to the recovery network. iHeartMedia describes necessary replacement of antenna feedhorns and installation of new low-noise block converters (LNBs), cabling, and other equipment to accommodate dual-polarization.[11] These comments demonstrate that the Preliminary Cost Catalog's deficiencies are not merely the result of inflation or changes in equipment prices. They arise because of the substantially different technical requirements of the Upper C-band transition. The Bureau should therefore specify cost ranges that include the actual equipment, services, and installation activities necessary to complete the Upper C-band transition, rather than relying principally on cost categories developed for the earlier repack.

A. Cost Estimates Must Reflect Current and Anticipated Market Conditions

NAB urged the Bureau to update equipment and service cost estimates using current market information and to account for expected price increases including future inflation

---

9 Comments of NCTA, GN Docket 25-59 at 6-10 (Oct. 20, 2026) (NCTA Comments).

10 Comments of MediaKind, GN Docket 25-59 at 5-6 (Oct. 20, 2026) (MediaKind Comments).

11 Comments of iHeartMedia, GN Docket 25-59 at 7-8 (Oct. 20, 2026) (iHeartMedia Comments).

during the transition period, which will extend into the next decade.[12] Summit Ridge Group supports this concern, recommending that the Bureau identify the price basis used in the final Cost Catalog and provide for annual adjustments using appropriate equipment and labor indexes.[13] Summit Ridge estimates that costs could increase approximately 14 to 17 percent by mid-2031. The proposed cost ranges should therefore not assume that costs for equipment and services procured years after publication of the Cost Catalog will remain static.

NAB therefore reiterates its recommendation that the Bureau establish cost estimates that reflect contemporary market conditions and anticipated cost increases through the transition period. The Bureau should also provide a mechanism for updating the catalog or otherwise ensuring that expenses exceeding the published ranges remain reimbursable.

B. Additional Antenna Categories Must Be Included to Properly Identify the Expenses Necessary to Maintain Substantially the Same Service

NAB's initial comments identified several missing expense categories that are necessary to maintain substantially the same service, including the need to accommodate larger receiving antennas, specialized feed assemblies, autotracking equipment, and related installation and engineering costs.[14] NCTA provides specific support for these concerns. For example, NCTA estimates the cost of retrofitting existing large-aperture antennas at approximately $220,000 to $400,000 per antenna and associated site surveys costing approximately $15,000 to $20,000 per antenna.[15] These estimates demonstrate that

---

[12] NAB Comments at 4.

[13] Comments of Summit Ridge Group, GN Docket 25-59 at 2 (Oct. 20, 2026) (Summit Ridge Comments).

[14] NAB Comments at 8-10.

[15] NCTA Comments at 9.

antenna modifications may cost hundreds of thousands of dollars, substantially exceeding the amounts in the Preliminary Cost Catalog. NCTA also identifies a need for specialized antenna feed assemblies that provide antenna autotracking capability with costs estimated at $250,000 per antenna, with an additional $20,000 to $50,000 for installation and alignment.[16] NCTA further estimates the cost ranges for Ku-band transmit/receive feed assemblies at $8,000 to $12,000 and Ku-band receive-only feed assemblies at $2,000 to $5,000, compared with the substantially lower ranges in the Preliminary Cost Catalog.[17] These estimates reinforce NAB's position that the Bureau must account for the actual requirements of different antenna configurations rather than relying on equipment allowances from the prior repack. Although not every Earth station facility will require these modifications and these amounts will not apply universally, the final Cost Catalog should recognize the full range of reasonable expenses necessary to preserve existing service.

C. IRDs and Terrestrial Recovery Equipment Must Be Included to Properly Estimate the Costs of Implementing Terrestrial Recovery Systems

NAB previously urged the Bureau to recognize the equipment and services necessary to establish reliable alternative distribution arrangements, including terrestrial recovery systems.[18] MediaKind provides substantial technical and economic evidence supporting this request. MediaKind estimates that an integrated receiver/decoder incorporating terrestrial recovery capabilities costs approximately $22,500 to $32,400, plus installation.[19] It further explains that a properly configured terrestrial recovery system may require redundant

---

16 *Id*. at 8.

17 Preliminary Cost Catalog at 13-19.

18 NAB Comments at 9.

19 MediaKind Comments at 7.

gateways and processing equipment to avoid introducing a single point of failure into the recovery system.[20] MediaKind also finds that small-tier packet recovery gateway facilities may cost approximately $24,000 to $33,600, compared with the Preliminary Cost Catalog's proposed $3,000 to $5,000 range, with similar discrepancies for larger tiers.[21] NCTA recommends increasing the upper end of the packet recovery gateway range to $12,000, the tap/data insertion equipment range to $15,000, and recovery software licenses to $2,000.[22] SES states that the design of its terrestrial network is not yet finalized and that additional equipment and services may be required beyond those presently identified in the catalog.[23]

These independent cost estimates demonstrate that the Preliminary Cost Catalog likely materially underestimate the costs of implementing terrestrial recovery systems. The Bureau should revise its preliminary estimates and preserve flexibility to reimburse additional equipment, installation, integration, and network expenses that are necessary to maintain substantially the same service.

D. Additional Engineering, Integration, and Site-Specific Expenses Must Be Included to Appropriately Cover the True Cost of the Transition

NAB's initial comments identified numerous expenses that may be necessary to accomplish a transition, including FCC filing fees, engineering, system design, compatibility assessments, installation, testing, commissioning of new or modified facilities, and decommissioning of facilities that are rendered unnecessary by the transition.[24] NCTA identifies other necessary expenses, including engineering site surveys, permitting, and

---

[20] *Id.* at 4.

[21] Preliminary Cost Catalog at 24.

[22] NCTA Comments at 10.

[23] SES Comments at 5.

[24] NAB Comments at 9-10.

installation requirements that are not adequately addressed by the proposed catalog. MediaKind likewise identifies installation, integration, connectivity, and network management expenses that are not fully reflected in the proposed terrestrial recovery categories. The final Cost Catalog should expressly recognize that equipment prices alone do not represent the complete cost of relocating an incumbent facility. Engineering, installation, system integration, and testing services are necessary elements of a successful transition and fall within the reasonable relocation expenses contemplated in the Upper C-band Order.[25] Similarly, treatment of stranded investments, contract termination expenses, site restoration, and similar costs associated with decommissioning should be addressed as these may be reasonable and necessary relocation costs not typically encountered in the earlier repack.

NAB also agrees with NCTA that the Bureau should consider the satellite operators' Transition Plans before finalizing the Cost Catalog. The Bureau should also consider additional evidence submitted by incumbent Earth station operators in response to the recently filed Transition Plans, as well as any subsequent revisions to those plans. Doing so will help ensure that the final cost estimates accurately reflect the equipment, services, and other expenses needed to implement the transition arrangements contemplated by the Commission's Order.

III. LUMP-SUM AMOUNTS REQUIRE TRANSPARENCY AND REASSESSMENT

As NAB explained in its initial comments, lump-sum reimbursement can reduce administrative costs, streamline reimbursement, and provide flexibility in selecting replacement distribution technologies.[26] During the Lower C-band transition, the principal benefit of the lump-sum option was reducing administrative burdens by allowing incumbent

---

[25] Upper C-band Order ¶ 116.

[26] NAB Comments at 10-11.

earth station operators to undertake their own transitions without seeking reimbursement for individual expenses through the Relocation Payment Clearinghouse. In the Upper C-band transition, however, the lump-sum option serves an important additional purpose: preserving the ability of incumbent customers to pursue alternative distribution arrangements rather than relying on the migration solutions developed by satellite operators. That choice must be meaningful. If lump-sum amounts do not reflect the full reasonable costs of a typical C-to-Ku migration, incumbent operators may have little practical choice but to accept the satellite operator's proposed arrangements and pursue actual-cost reimbursement.

Inadequate lump-sum amounts would also undermine the efficiency of the transition. During the Lower C-band transition, more than 1,500 separate filers submitted lump-sum elections, demonstrating the significant potential for this option to reduce the number of individualized reimbursement claims processed by the Clearinghouse.[27] If the proposed lump-sum amounts are too low to provide a viable alternative, more incumbents will instead pursue actual-cost reimbursement, increasing administrative burdens, potential disputes, and ultimately the costs borne by wireless licensees. These concerns underscore the importance of transparent and realistic lump-sum calculations. iHeartMedia and NCTA agree that the Bureau should disclose the specific costs, quantities, assumptions, and methodology underlying the proposed lump-sum amounts.[28] Similarly, Summit Ridge observes that the weights, quantities, and probabilities apparently used to calculate those amounts have not been disclosed.[29] The Bureau should disclose these assumptions and reassess the proposed

---

[27] *See Wireless Telecommunications Bureau Announces Procedures for C-Band Lump Sum Election Amendments*, Public Notice, 35 FCC Rcd 11937 (Oct. 23, 2020).

[28] iHeartMedia Comments at 14-15; NCTA Comments at 10-12.

[29] Summit Ridge Comments at 7-11.

amounts to ensure that the lump-sum election remains a meaningful and efficient alternative to actual-cost reimbursement.

A. Illustrative Cost Estimates Demonstrate Inadequacies of Proposed Lump-Sum Payments

The cost estimates in the record compared with the ranges in the Preliminary Cost Catalog demonstrate that certain transition configurations may substantially exceed the proposed lump-sum amounts. For example, NCTA estimates that retrofitting a large dish antenna may cost $220,000 to $400,000, plus an additional $15,000 to $20,000 for an engineering site survey.[30] The combined estimated cost of these activities is therefore approximately $235,000 to $420,000 per antenna, before any IRDs or other equipment, integration, or other costs are considered. Similarly, NCTA's estimates for a specialized C-band transmit/Ku-band receive antenna feed modification, including installation and alignment, total approximately $270,000 to $300,000 per antenna.[31] While these figures are not necessarily representative of typical incumbent Earth station requirements, they illustrate the substantial variation in costs that the final catalog should accommodate. Similarly, although these specialized configurations may not be representative of the facilities underlying the proposed lump-sum categories, they demonstrate the importance of disclosing the assumptions used to calculate those amounts.

For comparison, the Preliminary Cost Catalog proposes lump-sum amounts of just $13,722 for a single-feed receive-only antenna, $21,502 for a multi-feed receive-only antenna, $45,777 for a small multi-beam antenna, $55,985 for a large multi-beam antenna,

---

[30] NCTA Comments at 9.

[31] *Id*. at 8.

and $27,305 for a bidirectional gateway antenna.[32] These substantial disparities raise serious questions about the equipment configurations and transition activities assumed in calculating the proposed lump sums. Without disclosing those assumptions, affected incumbents cannot determine whether the proposed amounts reasonably reflect the costs of a typical transition, consistent with the reimbursement framework established in the Upper C-band Order.

The Bureau should also examine the implications of terrestrial recovery equipment estimates. MediaKind's estimate of $24,000 to $33,600 for a redundant recovery gateway configuration at a small tier receive site,[33] for example, substantially exceeds the proposed $13,722 single-feed receive-only antenna lump sum.[34] Whether such equipment is required at a particular facility, or included in the applicable lump-sum calculation, depends on the selected transition architecture. That uncertainty underscores the need for greater transparency in the lump-sum determination.

B. Lump-Sum Elections Should Not Preclude Claims by Other Eligible Parties

NAB supports NCTA's request that the Bureau clarify that an Earth station operator's lump-sum election does not preclude reimbursement of separate, reasonable transition expenses incurred by other eligible parties in the programming distribution chain.[35] The reimbursement program must avoid creating uncompensable expenses merely because multiple entities are involved in the delivery of broadcast programming. The Bureau should establish clear procedures to prevent duplicate reimbursement while preserving the ability of all eligible parties to recover their own reasonable and necessary transition expenses.

---

[32] Preliminary Cost Catalog at 22.

[33] MediaKind Comments at 4, 9, 10.

[34] Preliminary Cost Catalog at 22.

[35] NCTA Comments at 12-13.

IV. FLEXIBILITY FOR EXPENSES NOT IN THE COST CATALOG

As the Commission's reimbursement framework makes clear, the Cost Catalog provides guidance concerning certain reasonable transition costs; it does not limit reimbursement to expenses expressly listed in the catalog. SES and NCTA support clarifying this distinction to ensure that reasonable and necessary transition costs are not excluded merely because they fall outside a particular expense category or cost range.[36] The Bureau should confirm that eligibility for actual-cost reimbursement depends on whether an expense is reasonable, necessary, and directly attributable to the transition, rather than whether it is included in the Cost Catalog. This flexibility is especially important because some elements of the proposed transition architectures remain under development, and the recent filing of satellite operators' Transition Plans has afforded incumbents insufficient time to evaluate their implications before the reply comment deadline. Neither incumbents nor the Bureau can reasonably be expected to identify every necessary modification or associated expense before the transition arrangements are fully developed.

V. INFORMATION PREVIOUSLY COLLECTED AND VERIFIED SHOULD NOT NEED TO BE RECREATED WITHOUT A LEGITIMATE REASON

NAB's initial comments described some of the administrative burdens imposed during the Lower C-band transition, including requirements to provide photographic evidence of individual antenna components that could not be verified using satellite imagery. NCTA expressly supports allowing Earth station operators to rely on such earlier certifications and supporting documentation, absent material changes.[37] Although the radio altimeter rebate program differs from the Earth station reimbursement program, the same principle applies:

---

[36] SES Comments at 2, 6; NCTA Comments at 4.

[37] NCTA Comments at 5.

Information previously collected and verified should not need to be recreated without a legitimate reason.[38] The Bureau should direct the Relocation Payment Clearinghouse to accept previously approved certifications and documentation to the greatest extent practicable, establish streamlined electronic submission procedures, and avoid unnecessary verification requirements. These measures would reduce expenses for incumbents, improve processing efficiency, and lower the overall cost of administering the transition.

VI. CONCLUSION

The record strongly supports NAB's position that the Preliminary Cost Catalog requires substantial revision before it can serve as a reliable basis for reimbursement of incumbent Earth station relocation expenses. Commenters representing disparate affected parties have identified significant shortcomings in proposed cost ranges, omitted equipment and service categories, and uncertainty concerning the calculation of lump-sum amounts. The Bureau should update the Preliminary Cost Catalog using current, verifiable equipment and service estimates, incorporate additional cost categories, disclose and reassess the assumptions underlying lump-sum calculations, and preserve flexibility for reasonable expenses that are not identified in the catalog or exceed specified amounts. The Bureau should also establish streamlined certification and reimbursement procedures that avoid unnecessary duplication of previously accepted documentation.

Above all, the final Cost Catalog must recognize that the Upper C-band transition will require many incumbents to relocate their operations to different frequency bands or distribution technologies while maintaining substantially the same service. The

---

[38] See, *e.g.*, Comments of Widelity, Inc., GN Docket 25-59 at 1 (Oct. 26, 2026).

reimbursement framework should reflect the actual costs of accomplishing that transition rather than applying the more limited requirements of the previous Lower C-band repack.

Respectfully submitted,

NATIONAL ASSOCIATION OF BROADCASTERS
1 M Street, SE
Washington, DC 20003
(202) 429-5430



Nandu Machiraju
Alison Martin
Robert Weller

November 9, 2026