Issued on December 3, 2025.

Peter A. White,

Deputy Director, Integrated Certificate Management Division, Aircraft Certification Service.

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DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 1

[Docket No. USCG–2008–1259]

RIN 1625–AB32

Assessment Framework and Organizational Restatement Regarding Preemption for Certain Regulations Issued by the Coast Guard

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking, withdrawal.

SUMMARY: The Coast Guard is withdrawing the proposed rule entitled ''Assessment Framework and Organizational Restatement Regarding Preemption for Certain Regulations Issued by the Coast Guard,'' published in the **Federal Register** on December 27, 2013. The Coast Guard is withdrawing the proposed rule because our practice of discussing the preemptive effect of the Coast Guard's legal authorities and regulations in the preamble of our rulemaking documents is sufficient to identify any preemptive effects.

DATES: The notice of proposed rulemaking published on December 27, 2013 (78 FR 79242) and comment period extension published on March 28, 2014 (79 FR 17482) are withdrawn as of December 5, 2025.

ADDRESSES: The docket for this withdrawal is available at the Federal eRulemaking Portal at *www.regulations.gov.* Please search for docket number USCG–2008–1259.

FOR FURTHER INFORMATION CONTACT: For information about this document call or email Stephen Hubchen, Coast Guard; telephone 202–372–1198, email *Stephen.K.Hubchen@uscg.mil.*

SUPPLEMENTARY INFORMATION:

Background

On December 27, 2013, the Coast Guard published a notice of proposed rulemaking (NPRM) titled ''Assessment Framework and Organizational Restatement Regarding Preemption for Certain Regulations Issued by the Coast Guard,'' at 78 FR 79242 (hereafter ''the Framework''). On March 28, 2014, the comment period on the NPRM was reopened for an additional 60 days, at 79 FR 17482.

The Coast Guard received many comments on the NPRM that helped inform this decision to withdraw the rulemaking. The comments are available in the docket. Several commenters shared a concern that the breadth of the Framework's assertions of field preemption made it difficult to determine with certainty what the Framework's full impact would be on state laws. In addition, some commenters requested that the Coast Guard withdraw the proposed rule.

The Coast Guard also held two public meetings related to the NPRM, as announced in the notice published at 79 FR 22071 on April 21, 2014. Since 2014, the Coast Guard has not published any other actions related to this rulemaking and has decided to withdraw the NPRM.

Withdrawal

The Coast Guard is withdrawing the proposed rule because our practice of discussing the preemptive effect of the Coast Guard's legal authorities and regulations in the preamble of our rulemaking documents is sufficient to identify any preemptive effects. The Coast Guard has determined that the implied and express preemptive effects of our federal regulations, as established in statutory authorities and case law, do not require a blanket, general restatement in the Code of Federal Regulations of their preemptive effects.

The Coast Guard has taken, and will continue to take, a targeted approach to clarify its authorities in the preamble of each rulemaking document. The Coast Guard believes this approach is more aligned with the principles identified in Executive Order 13132 on Federalism than an organizational preemption statement that would be applied across different Coast Guard authorities. Therefore, the proposed rulemaking is not needed.

Upon publication of this notice, the Coast Guard will classify the corresponding Unified Agenda as a completed action.

This notice is issued under authority of 5 U.S.C. 552(a) and is consistent with the procedures set forth in 5 U.S.C. 533 of the Administrative Procedure Act.

Dated: December 2, 2025.

Giovanna M. Cinelli,

Judge Advocate General and Chief Counsel, Acting, U.S. Coast Guard.

[FR Doc. 2025–22011 Filed 12–4–25; 8:45 am]

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 25, and 27

[GN Docket No. 25–59; FCC 25–78; FR ID 319865]

In the Matter of Upper C-band (3.98–4.2 GHz)

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this Notice of Proposed Rulemaking (*NPRM*), the Federal Communications Commission (Commission) seeks comment on proposed rule changes that would expand the ecosystem for next generation wireless services in the 3.7–4.2 GHz band (C-band) by making as much as 180, and at least 100, megahertz of the 3.98–4.2 GHz band (Upper C-band) available for terrestrial wireless flexible use via a system of competitive bidding. This action would be in furtherance of Congress' direction in the One Big Beautiful Bill Act (OBBB Act) to ''complet[e] a system of competitive bidding not later than 2 years after the date of enactment of this Act for not less than 100 megahertz in the band between 3.98 gigahertz and 4.2 gigahertz.'' The *NPRM* seeks comment on options for reconfiguring the Upper C-band in the contiguous United States ranging from 180 megahertz (3.98–4.16 GHz) to the congressionally mandated minimum of 100 megahertz (3.98–4.08 GHz) for terrestrial wireless use. The *NPRM* seeks comment on how much Upper C-band spectrum—beyond the minimum 100 megahertz required by the OBBB Act—could be repurposed by incumbent fixed satellite service (FSS) space station operators and on how the transition could be effectuated if their existing customers relocate out of the C-band. Under any of the reconfiguration options under consideration, the *NPRM*'s baseline proposition is to apply the existing 3.7 GHz Service rules (applicable in the Lower C-band from 3.7–3.98 GHz) to any newly authorized terrestrial wireless operations. Any other rules and requirements, including those relating to the transition process, would be modeled to the greatest extent possible on those that applied to the Lower C-band transition. The *NPRM* also seeks comment on a range of issues associated with repurposing some portion of the Upper C-band, including: reallocation of the 4.0–4.2 GHz band; competitive bidding procedures for an eventual auction; licensing, operating, and technical rules for any new wireless services; (4) transitioning incumbent

FSS operations; and promoting co-existence with adjacent band radio altimeters.

DATES: Comments are due on or before January 5, 2026; reply comments are due on or before February 3, 2026. Written comments on the Paperwork Reduction Act (PRA) proposed information collection requirements must be submitted by the public, Office of Management and Budget (OMB), and other interested parties on or before February 3, 2026.

ADDRESSES: Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). You may submit comments, identified by GN Docket No. 25–59, by any of the following methods:

- *Electronic Filers:* Comments may be filed electronically using the internet by accessing the ECFS: *https://www.fcc.gov/ecfs.*
- *Paper Filers:* Parties who choose to file by paper must file an original and one copy of each filing.
- Filings can be sent by hand or messenger delivery, by commercial courier, or by the U.S. Postal Service. All filings must be addressed to the Secretary, Federal Communications Commission.
- Hand-delivered or messenger-delivered paper filings for the Commission's Secretary are accepted between 8:00 a.m. and 4:00 p.m. by the FCC's mailing contractor at 9050 Junction Drive, Annapolis Junction, MD 20701. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial courier deliveries (any deliveries not by the U.S. Postal Service) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701. Filings sent by U.S. Postal Service First-Class Mail, Priority Mail, and Priority Mail Express must be sent to 45 L Street NE, Washington, DC 20554.
- *People with Disabilities.* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document. Send a copy of your comment on any proposed information collection to Cathy Williams, FCC, via email to *PRA@fcc.gov* and to *Cathy.Williams@fcc.gov.*

FOR FURTHER INFORMATION CONTACT: For additional information on this proceeding, contact Paul Powell, *Paul.Powell@fcc.gov,* of the Wireless Telecommunications Bureau, Mobility Division, (202) 418–1613. Direct press inquiries to *MediaRelations@fcc.gov.* For additional information concerning the Paperwork Reduction Act of 1995, send an email to *PRA@fcc.gov* or contact Cathy Williams, Office of Managing Director, at (202) 418–2918 or *Cathy.Williams@fcc.gov.*

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking (*NPRM*), FCC 25–78, adopted on November 20, 2025 and released on November 21, 2025. The full text of this document is available electronically via the FCC's Electronic Document Management System (EDOCS) website at *https://www.fcc.gov/edocs* (search using FCC number) or via the FCC's Electronic Comment Filing System (ECFS) website at *https://www.fcc.gov/ecfs* (search using docket number). (Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.)

Providing Accountability Through Transparency Act. Consistent with the Providing Accountability Through Transparency Act, Public Law 118–9, a summary of this document will be available on *https://www.fcc.gov/proposed-rulemakings.*

Paperwork Reduction Act. This *NPRM* may contain proposed new or modified information collections. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on any information collections contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104–13. Public and agency comments are due February 3, 2026.

Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology; and (e) way to further reduce the information collection burden on small business concerns with fewer than 25 employees. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107–198, see 44 U.S.C. 3506(c)(4), the Commission seeks specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

Synopsis

I. Introduction

1. In July 2025, Congress adopted, and President Trump signed, the One Big Beautiful Bill Act (OBBB Act), Public Law 119–21, 40002(b)(2). The OBBB Act re-instituted the Commission's general auction authority and specifically directed the Commission to ''grant licenses through systems of competitive bidding, before the expiration of the general auction authority . . . for not less than 300 megahertz, including by completing a system of competitive bidding not later than 2 years after the date of enactment of this Act for not less than 100 megahertz in the band between 3.98 gigahertz and 4.2 gigahertz.'' Consistent with this directive, we propose today to further expand the ecosystem for next generation wireless services in the 3.7–4.2 GHz band (C-band) by making as much as 180, and at least 100, megahertz of the 3.98–4.2 GHz band (Upper C-band) available for terrestrial wireless flexible use via a system of competitive bidding.

2. To satisfy our congressional mandate and rapidly make more valuable mid-band spectrum available for terrestrial wireless services, we have identified several key goals for this proceeding. First, we propose to make additional spectrum in the Upper C-band available for new terrestrial wireless operations within the congressionally mandated timeframe. Next, as with the earlier 3.7–3.98 GHz (Lower C-band) transition, we seek to expeditiously transition incumbent operations in the Upper C-band in keeping with our *Emerging Technologies* precedent. The Commission's *Emerging Technologies* framework has been relied on since the early 1990s to facilitate the swift transition of spectrum from one use to another. In the Lower C-band, it was used to require new 3.7 GHz Service licensees, as a condition of their licenses, to make ''all necessary relocation and accelerated relocation payments before they are allowed to deploy in the spectrum made available for flexible use.'' Finally, we look to

reinforce a successful coexistence environment by facilitating the timely introduction of new, high-powered terrestrial wireless operations in the Upper C-band alongside a generational upgrade to radio altimeters that facilitates aviation safety through operations in the adjacent 4.2–4.4 GHz band that can safely coexist with wireless services. We therefore seek comment on proposals to enable terrestrial wireless operations in a segment of the Upper C-band in the contiguous United States, to reserve no more than 20 megahertz as a guard band between those wireless operations and Fixed Satellite Services (FSS), and to generally apply the part 27 licensing and operating rules that presently govern wireless operations in the Lower C-band to new full-power commercial operations in the Upper C-band. We ask commenters to provide specifics on the costs and benefits of these proposals, and of potential alternatives, in addition to detailed technical analyses and other studies in support of their positions.

3. Accomplishing these tasks within the timeframe established by the OBBB Act will necessitate broad-based and proactive engagement from relevant industry stakeholders as well as our federal partners. To that end, we look forward to robust participation in this proceeding from entities with current and prospective in-band equities, including Upper C-band incumbents (*e.g.,* FSS space and earth station operators, content providers, and other contractual customers that use FSS services), wireless carriers, and proponents of alternative distribution technologies. In terms of adjacent band equities, we note that the wireless and aviation industries are already engaged in ongoing discussions about how to promote the effective coexistence between any new terrestrial wireless operations in the Upper C-band and radio altimeters in the 4.2–4.4 GHz band. We similarly anticipate continued dialogue and close coordination with the National Telecommunications and Information Administration (NTIA), the Federal Aviation Administration (FAA), and other federal stakeholders in areas of mutual interest. In particular, we expect that FAA will soon initiate a synchronized rulemaking to update its radio altimeter standards to complement our efforts to repurpose the Upper C-band. Although radio altimeters operate in an adjacent band (4.2–4.4 GHz), coordinated timing for these parallel processes will be important to provide certainty for stakeholders and to ensure a successful spectral coexistence environment. We believe that these collective efforts will help us meet the mandatory deadlines established by Congress and bring the benefits of expanded access to advanced wireless services, including 5G and, eventually 6G, to the American people.

II. Background

A. Current Allocation and Use of the Upper C-Band and Adjacent Bands

4. *Upper C-band.* The 4.0–4.2 GHz portion of the Upper C-band is currently allocated for non-federal use on a primary basis for FSS and Fixed Service (FS) links throughout the United States although FS operations were sunset in the contiguous United States throughout the entire C-band as part of the earlier Lower C-band transition. Space station operators use 4.0–4.2 GHz nationwide to provide space-to-earth signals (*i.e.,* downlink) of various bandwidths to licensed transmit-receive, registered receive-only, and unregistered receive-only earth stations nationwide. These signals primarily deliver programming content to television and radio broadcasters throughout the country, as well as telephone, data, and satellite communications services to customers, including federal users, on a contractual basis. FS links remain in use in these frequencies outside the contiguous United States only.

5. The 3.98–4.0 GHz portion of the Upper C-band was reallocated as part of the earlier lower band transition in the contiguous United States, and is reserved as a guard band to protect adjacent incumbent operations in the remainder of the Upper C-band from potential harmful interference. 3.98–4.0 GHz is allocated in the continental United States for non-federal use on a primary basis for FS and Mobile, except aeronautical mobile, Service, but there are no service rules established for that portion of the band. Outside the contiguous United States, these frequencies are allocated for and used by FSS and FS services. Outside of the contiguous United States, authorized FSS and FS providers were allowed to continue operating throughout the entire 3.7–4.2 GHz band.

6. *Lower C-band.* The adjacent Lower C-band from 3.7–3.98 GHz is allocated on a primary basis for non-federal Fixed and Mobile, except aeronautical mobile, services in addition to FS service within the contiguous United States, although as a practical matter only flexible use terrestrial wireless operations remain given the earlier sunset of FS uses. Outside of the contiguous United States, the Lower C-band remains allocated for, and used by, FSS and FS services.

7. *4.2–4.4 GHz.* The adjacent 4.2–4.4 GHz band is allocated in the United States on a primary basis for federal and non-federal Aeronautical Radionavigation Services for radio altimeters, which are aeronautical safety systems primarily used at altitudes under 2500 feet above ground level to measure aircraft height above terrain and obstacles in all phases of flight. The band is also allocated worldwide on a co-primary basis for wireless avionics intra-communications systems; these systems provide communications over short distances between points on a single aircraft and are not intended to provide air-to-ground communications or communications between two or more aircraft.

B. Procedural History

1. Lower C-Band

8. In the *2020 C-band R&O,* the Commission authorized flexible use terrestrial operations in the 3.7 GHz Service from 3.7–3.98 GHz, reserved 3.98–4.0 GHz as a guard band, and migrated incumbent operations into 4.0–4.2 GHz throughout the contiguous United States. To effectuate this transition and clear incumbent operations in the lower portion of the band, the Commission modified the licenses and market access authorizations of incumbent FSS operators, transmit-receive earth station licensees, and FS licensees. The Commission also adopted a freeze on the filing of new or modified earth station applications across the 3.7–4.2 band, and it remains in place. The Commission also assigned overlay licenses for the 3.7 GHz Service through an auction, and adopted service rules requiring those licensees to comply with certain part 27 licensing, operating, and technical rules to encourage efficient use of the spectrum and protect incumbent users both in-band and in adjacent bands. As discussed below, the 3.7 GHz Service licensees subsequently made temporary, voluntary commitments to adjust certain technical parameters in support of both full power deployments across the Lower C-band and the coexistence environment with adjacent band radio altimeters.

9. The *2020 C-band R&O* required 3.7 GHz Service licensees to reimburse the reasonable relocation costs of eligible FSS space station operators, incumbent FSS earth station operators, and incumbent FS licensees, with a third-party Relocation Payment Clearinghouse (Clearinghouse) overseeing the cost-related aspects of the transition. The practical aspects of the FSS transition were managed by the eligible space

station operators who were required to submit public transition plans and work with a Relocation Coordinator to ensure a timely and orderly process. The Commission established an ultimate deadline of December 5, 2025, by which the eligible space station operators were to complete the transition of FSS operations to the upper portion of the band, and also provided incentives for an accelerated clearing process by allowing eligible space station operators to voluntarily commit to relocate on a two-phased accelerated schedule, with a Phase I deadline of December 5, 2021, and a Phase II deadline of December 5, 2023.

10. All five eligible space station operators elected accelerated relocation, subsequently met the respective Phase I and II deadlines, and became eligible for the designated accelerated relocation payments. As a result, the practical work of the transition was completed in 2023, and 3.7 GHz Service licensees are now providing 5G service using these frequencies in markets throughout the contiguous United States. Residual cost-related aspects of the transition were effectively completed by June 2025, and the relocation cost reimbursement program officially ended as of August 21, 2025.

2. 2025 Upper C-Band Notice of Inquiry

11. In February 2025, the Commission issued the *Upper C-band NOI,* which outlined the successful lower band transition, the current state of allocations and services across the C-band, and the Commission's interest in exploring the potential for new services in the Upper C-band. The Commission solicited feedback on the appropriate parameters for additional opportunities for robust connectivity in the Upper C-band and asked commenters to identify how much spectrum in the Upper C-band could be repurposed for new uses. The Commission also sought comment on whether and how to amend the U.S. Table of Frequency Allocations to facilitate new opportunities in the band, either by aligning the Upper C-band's allocations with those in the Lower C-band, or by taking a different approach. The *Upper C-band NOI* asked questions about the structure and mechanics of a potential transition to new operations in the Upper C-band, including whether to utilize some or all of the aspects of the Lower C-band transition, as a means to manage the practical and financial aspects of any new transition effort. The Commission also sought input on the appropriate service and technical rules for any new operations in the Upper C-band.

12. The *Upper C-band NOI* asked Upper C-band incumbents—including FSS space and earth station operators, content providers, and other contractual customers (including federal users) that rely on FSS services—about how the introduction of new services might affect their current and future operations in the band. The *Upper C-band NOI* also noted the proximity and sensitivity of the radio altimeter operations in the 4.2–4.4 GHz band, the steps that were taken to protect those operations in the *2020 C-band R&O,* and technical work that has been undertaken in the years since that action. Recognizing the successful coexistence environment that has been fostered between the 3.7 GHz Service and radio altimeters at 4.2–4.4 GHz, we requested further information regarding advancements in radio altimeter resiliency and sought comment on appropriate technical and service rules that would further promote coexistence in light of potential new operations in the Upper C-band.

13. The *Upper C-band NOI* generated a wide array of comments from incumbent FSS operators, 3.7 GHz Service licensees and other wireless providers, content providers and other FSS customers, as well as aviation interests with adjacent band equities. Since that record closed earlier this year, the OBBB Act passed and was signed into law. The proposals set forth in this *NPRM* have been specifically developed to fulfill the directive in the OBBB Act to auction for terrestrial use not less than 100 megahertz of the Upper C-band; we look forward to commenters refining their earlier *Upper C-band NOI* input in response to the specific proposals in this *NPRM,* and with our new legislative remit in mind.

3. The One Big Beautiful Bill Act

14. In July 2025, as part of the OBBB Act, Congress reinstituted the Commission's general authority to grant licenses through systems of competitive bidding through September 2034 and established a path forward for the eventual repurposing of 800 megahertz to be licensed through competitive bidding, including at least 500 megahertz for full power commercial licensed use cases. The OBBB Act also specifically directed the Commission to ''grant licenses through systems of competitive bidding, before the expiration of the general auction authority for not less than 300 megahertz, including by completing a system of competitive bidding not later than 2 years after the date of enactment of this Act for not less than 100 megahertz in the band between 3.98 gigahertz and 4.2 gigahertz.'' In light of this direction, we are quickly moving forward to fulfill our Congressional mandate and seek comment below on reconfiguration alternatives for the Upper C-band which are designed to meet this goal.

III. Notice of Proposed Rulemaking

A. Reconfiguration and Allocation of the Upper C-Band

1. Reconfiguration Options

15. In this *NPRM,* we seek comment on options for reconfiguring the Upper C-band in the contiguous United States ranging from 180 megahertz (3.98–4.16 GHz) to the congressionally mandated minimum of 100 megahertz (3.98–4.08 GHz) for terrestrial wireless use. Under any approach we may adopt within this range, we propose that the remainder of the Upper C-band would be used for repacked FSS operations with a guard band of no more than 20 megahertz. For clarity, we note that the total amount of spectrum ultimately repurposed will include both the spectrum designated for auction as well as any guard band. Thus, to auction 100 megahertz, that amount plus any guard band (*e.g.,* 20 megahertz, for a total of 120 megahertz) will need to be repurposed. Our consideration of the optimal amount of spectrum to repurpose for terrestrial wireless use will take into account what may be achievable in terms of the further transitioning of in-band incumbent FSS operations in the contiguous United States. Notably, incumbent satellite operators serving a majority of the C-band earth stations in CONUS have already stated that it is possible for them to repurpose at least 100 megahertz of the Upper C-band for terrestrial wireless use. We seek comment on how much Upper C-band spectrum—beyond the minimum 100 megahertz required by the OBBB Act—could be repurposed by incumbent FSS space station operators and on how the transition could be effectuated if their existing customers relocate out of the C-band.

16. Our ultimate decision regarding the amount of spectrum to repurpose will depend on a variety of additional factors. Specifically, we seek input on the economic benefits and costs of repurposing spectrum for terrestrial wireless and how that value could be affected by the amount of spectrum that is ultimately repurposed and the clearing timeline. We also will consider the capabilities of adjacent band radio altimeters which are expected to undergo upgrades that will further enhance their signal rejection capabilities and bolster the existing

successful spectral co-existence environment to facilitate a further repurposing in the Upper C-band. We believe that appropriately balancing all these factors will help to further our ultimate goal of repurposing the maximum amount of spectrum for terrestrial mobile broadband as the United States continues to deploy 5G systems and plan for future 6G systems.

17. Under any of the reconfiguration options under consideration, our baseline proposition is that we would apply the existing 3.7 GHz Service rules to any newly authorized terrestrial wireless operations. Any other rules and requirements, including those relating to the transition process, would be modeled to the greatest extent possible on those that applied to the Lower C-band transition. We recognize, however, that certain modifications may be necessary in light of our experiences during that earlier transition with the Lower C-band, with the unique parameters of the Upper C-band and the instant transition in mind, and as a result of the band reconfiguration option we ultimately adopt. We seek comment on these reconfiguration options generally, and specifically as to how each of the topics addressed throughout this *NPRM* might be impacted depending on the amount of spectrum that we ultimately repurpose. We also seek input on how these reconfiguration options might be adjusted or better tailored to the specific circumstances of the Upper C-band, and how they might impact existing and future incumbent services, both in-band and in adjacent bands.

2. Reallocation of the 4.0–4.2 GHz Band

18. To implement any reconfiguration proposal in effectuating the OBBB Act's Upper C-band directive, we propose to add a primary, non-federal mobile, except aeronautical mobile, allocation to whatever portion of the 4.0–4.2 GHz band we reconfigure in the contiguous United States. We also propose to remove the FSS allocation from the reconfigured portion of the Upper C-band in the contiguous United States. This proposal would harmonize the allocations in the immediately adjacent Upper C-band with those in the 3.7–4.0 GHz portion of the band and thus make a wider band of contiguous mid-band spectrum available for next generation wireless services. As noted *supra,* before its 2020 reallocation, the Lower C-band had exclusive non-federal allocations for FSS and FS, as does 4.0–4.2 GHz today. In the *2020 C-band R&O,* the Commission added a primary non-federal mobile, except aeronautical mobile, allocation to the 3.7–4.0 GHz band in the contiguous United States. The Commission also reserved a guard band at 3.98–4.0 GHz to protect adjacent operations.

19. We propose to closely align the allocations across the C-band for reasons similar to those that prompted the Commission's 2020 reallocation of 3.7–4.0 GHz. Mid-band spectrum is crucial for next-generation wireless broadband service due to its favorable propagation and capacity characteristics. As before, we believe that adding a primary non-federal mobile, except aeronautical mobile, allocation to whatever portion of the 4.0–4.2 GHz band that is eventually repurposed in the contiguous United States will foster more efficient and intensive use of mid-band spectrum and facilitate investment in next generation wireless services. Recognizing that FS operations have been sunset in those areas, we further propose to retain exclusive non-federal allocations for FSS and FS in whatever portion of that band is *not* repurposed for terrestrial commercial wireless use in the contiguous United States. The OBBB Act established a compressed deadline to complete an Upper C-band auction. Given our clear mandate to repurpose the Upper C-band for terrestrial wireless services, coupled with the complexity of implementing that legislative directive by July 2027, we propose to not allow any additional satellite or other uses in the Upper C-band at this time. Although the *Upper C-band NOI* sought comment on these issues, we received sparse record evidence in response, particularly with respect to potential impacts on incumbent in-band and adjacent band services. We nevertheless welcome further comment on these issues; we encourage technical specificity on how next generation satellite services could potentially coexist with incumbent or new operations in the 3.98–4.2 GHz or 4.2–4.4 GHz bands after the Upper C-band transition is complete.

20. Although we propose to remove the FSS allocation from the reconfigured portion of the Upper C-band in the contiguous United States, we also propose to preserve the status quo regarding FSS and FS allocations and operations outside of the contiguous United States, which would be permitted to continue in the entire C-band. This proposal would ensure the ongoing provision of C-band services necessary to protect life and property—including national security, telehealth, E911, and education services—for which C-band service may be the only option available, such as in remote areas of Alaska.

21. We seek comment on the above reallocation proposals. What are the benefits and potential drawbacks of adding a mobile allocation, except aeronautical mobile, in some portion of the 4.0–4.2 GHz band in the contiguous United States? Do our reallocation proposals strike the proper balance between enabling more intensive flexible use of the band and reserving spectrum for existing incumbent FSS operations which—based on information previously provided by certain C-band satellite operators—are declining in use over time? What are the potential economic and operational/service impacts of our reallocation proposals, and of any potential alternatives that commenters may advance? Commenters are encouraged to provide specific data in support of any views on existing or future service trends that may inform the reconfiguration approach we adopt, and the resulting allocations that will be needed to implement that decision.

B. Auction of Upper C-Band Spectrum for Flexible Use

1. Competitive Bidding Procedures

22. Consistent with our statutory mandate to grant licenses in the 3.98–4.2 GHz band through a system of competitive bidding, and to complete competitive bidding for such licenses within two years, we propose to conduct an auction of licenses in this band in conformity with the general competitive bidding rules set forth in part 1, subpart Q, of the Commission's rules. As we have done in all recently conducted Commission spectrum auctions, we propose to employ the part 1 rules governing competitive bidding design, designated entity preferences, unjust enrichment, application and certification procedures, payment procedures, reporting requirements, and the prohibition on certain communications between auction applicants. Under this proposal, such rules would be subject to any modifications that the Commission may adopt for its part 1 general competitive bidding rules in the future. We seek comment on whether any of those rules would be inappropriate or should be modified for an auction of licenses in the Upper C-band. Consistent with our longstanding approach, we will initiate a public notice process to solicit input on certain details of auction design and the auction procedures.

23. We also seek comment on the specific implementation of designated entity preferences available in the Upper C-band. Consistent with every recent Commission auction of 5G-

capable spectrum, including the Lower C-band, we propose to offer small business bidding credits to eligible entities, subject to the cap of no less than $25 million, as described in § 1.2110(f)(2)(ii) of the Commission's rules. If we decide to offer small business bidding credits, we seek comment on how to define a small business. In all auctions of licenses likely to be used to provide 5G services in a variety of bands since the part 1 schedule of bidding credits was updated in 2015, we have adopted bidding credits for the two larger designated entity business sizes provided in the Commission's part 1 standardized schedule of bidding credits. We propose to use the same definitions here. Accordingly, we propose to define a small business as an entity with average gross revenues for the preceding five years not exceeding $55 million, and a very small business as an entity with average gross revenues for the preceding five years not exceeding $20 million. A qualifying ''small business'' would be eligible for a bidding credit of 15% and a qualifying ''very small business'' would be eligible for a bidding credit of 25%, subject to the use of a bidding credit cap specified in § 1.2110(f)(2)(ii) of the Commission's rules. We also seek comment on whether the characteristics of the frequencies in the Upper C-band and our proposed licensing model suggest that we should adopt different small business size standards and associated bidding credits than we have in the past. Commenters advocating different standards and/or bidding credits are encouraged to identify specific circumstances and characteristics of licenses in the Upper C-band and to provide specific, data-driven arguments in support of their proposals.

24. Additionally, we propose to offer rural service providers a designated entity bidding credit for licenses in the Upper C-band. Consistent with the findings in the *Updated Part 1 Report and Order* and our approach in other bands where the spectrum is likely to be used to provide 5G services, including the Lower C-band, we propose to offer a 15% bidding credit to any eligible rural service provider, as defined in § 1.2110(f)(4)(i) of the Commission's rules, and subject to the bidding credit cap of no less than $10 million, as described in § 1.2110(f)(4)(ii) of the Commission's rules, that has not claimed a small business bidding credit. Our past experience with the rural service provider credit indicates that the existing part 1 rural service provider bidding credit achieves an appropriate balance of statutory obligations that the Commission is charged with pursuing, while sufficiently enabling rural service providers to compete for spectrum licenses. Commenters addressing this proposal should consider what details of licenses in the band may affect whether rural service providers will apply for them. Those advocating for any alternatives should provide data-driven arguments in support of their proposals.

25. In the *Upper C-band NOI,* we sought comment on steps the Commission could consider to promote connectivity in historically unserved or underserved areas, citing in particular the Commission's earlier Tribal licensing window in the 2.5 GHz band. Mindful of our ''baseline proposition'' to adopt rules that mirror those in the Lower C-band to the greatest extent possible, we seek further comment on these issues here—specifically on the feasibility of conducting a pre-auction or concurrent Tribal licensing window while satisfying our legal requirement under the OBBB Act to assign licenses in the Upper C-band through a system of competitive bidding by July 4, 2027, and on any other differences between the Upper C-band and 2.5 GHz band contexts. For example, in contrast with the 2.5 GHz band, here we are not proposing to reconfigure and auction the Upper C-band for terrestrial wireless use in Alaska or Hawaii, nor is there a pre-existing and mature equipment ecosystem to facilitate Tribal licensee deployments and use of the spectrum in the near term.

2. Licensing and Operating Rules

26. In the *2020 C-band R&O,* the Commission adopted licensing, operating, and technical rules to encourage efficient use of spectrum resources and promote investment in the Lower C-band while protecting incumbent users both in-band and in adjacent bands. Building on the Commission's prior decision to license terrestrial mobile operations in the 3.7–3.98 GHz portion of the C-band under our part 27 flexible use rules, we propose to adopt similar licensing and operating rules that provide the flexibility to align new licenses in the Upper C-band with existing licenses in the Lower C-band already governed by part 27. By providing a consistent framework for development and implementation across the Upper and Lower C-band, we aim to harmonize the entire repurposed band for mobile terrestrial use with the expectation that it will yield significant economies of scale and accelerate the deployment of cutting-edge technologies, such as 5G and eventually 6G. We invite comment on this approach.

27. We also seek to afford new terrestrial wireless licensees the flexibility to align licenses in the Upper and Lower C-band with licenses in other spectrum bands also governed by part 27 of the Commission's rules. We therefore propose that new licensees in the Upper C-band comply with licensing and operating rules that are applicable to all part 27 services, including those rules relating to the assignment of licenses by competitive bidding, flexible use, regulatory status, foreign ownership reporting, compliance with construction requirements, renewal criteria, permanent discontinuance of operations, partitioning and disaggregation, and spectrum leasing. We seek comment on this approach and ask commenters to identify any aspects of our general part 27 service rules that should be modified to accommodate the particular characteristics of the Upper C-band.

28. In addition, we seek comment on whether to adopt service-specific rules in several areas for the Upper C-band, or integrate the Upper C-band into those rules already applicable to the Lower C-band, including eligibility, license term, performance requirements, renewal term construction obligations, and other licensing and operating rules. In addressing these issues, commenters should discuss the costs and benefits associated with these proposals and any alternatives that commenters propose.

a. Band Plan

29. *Block Size.* For the Lower C-band, the Commission issued licenses in 20 megahertz sub-blocks to provide sufficient flexibility for interested bidders to tailor their decisions based on the anticipated clearing costs and accelerated relocation payment obligations associated with a particular amount of spectrum or geographic license area. To facilitate the provision of 5G services, the Commission defined uniform block sizes of 100 megahertz that would run across the entire Lower C-band and allowed new flexible-use licensees to acquire 100 megahertz blocks by aggregating 20 megahertz sub-blocks through the competitive bidding process. In doing so, the Commission ensured that Lower C-band spectrum was licensed in sufficiently wide bandwidths to enable 5G deployments. Moreover, the use of 20 megahertz sub-blocks provided sufficient flexibility for manufacturers and licensees to tailor application of the band to suit future needs, especially when considering that LTE can be made to coexist within or

adjacent to 5G operations. Consistent with Lower C-band, we propose to issue at least 100 megahertz of Upper C-band licenses in 20 megahertz blocks, to facilitate the ability of licensees in both portions of the band to further aggregate mid-band spectrum they need for 5G deployment and enable complementary deployments across the entire band. We invite comment on this proposal. Correspondingly, we also seek comment on whether a block size approach similar to Lower C-band would be appropriate for the wireless technologies that are likely to be deployed in Upper C-band and whether 20 megahertz continues to be the appropriate block size to accommodate a wide range of terrestrial wireless services and provide sufficient bandwidth to support 5G and eventually 6G services.

30. Alternatively, would a mix of channel sizes improve efficiency and flexibility for a wider variety of users in the band? Should we consider smaller block sizes to create opportunities for a wider variety of entities to compete for licenses at auction? For example, in the *3.45 GHz Band 2d R&O,* where only 100 megahertz was available for auction, the Commission determined that smaller 10-megahertz blocks would best serve our dual goals of making spectrum available to a diverse array of entities while also enabling licensees to obtain sufficient spectrum rights for deploying wideband networks. Or should we license the Upper C-band in larger block sizes (*e.g.,* 50–100 megahertz)? Should the specific transition mechanism ultimately adopted by the Commission dictate the appropriate block size for the Upper C-band? What types of services or applications do prospective licensees envision providing using this spectrum? How does the choice of channel block size impact the ability to deliver these services and applications in terms of sufficient capacity as well as network robustness? Commenters who support an alternative approach should support their proposals with detailed cost benefit analyses.

31. *Spectrum Block Configuration.* In the *2020 C-band R&O,* the Commission found that an unpaired spectrum block configuration provides licensees the flexibility necessary to increase the capacity of their networks and make the most efficient use of Lower C-band spectrum. We propose to adopt the same unpaired spectrum block configuration to ensure continuity, spectral efficiency and maximum flexibility for licensees across the Upper and Lower C-band. We invite comment on this approach and on any alternate proposals, including auctioning paired spectrum blocks. Commenters who support an alternative approach should support their proposals with detailed cost benefit analyses.

32. *Use of Geographic Licensing.* Consistent with our approach in other bands used to provide fixed and mobile services, we propose to license the Upper C-band on an exclusive, geographic area basis. Geographic area licensing provides flexibility to licensees, promotes efficient spectrum use, and helps facilitate rapid assignment of licenses, utilizing competitive bidding when necessary. We seek comment on this approach, including the costs and benefits of adopting a geographic area licensing scheme. Parties who do not support the use of geographic licensing should explain their position, describe the type of licensing scheme they prefer, and identify the costs and benefits associated with an alternative licensing proposal.

33. *Geographic License Area.* For Lower C-band, the Commission decided to issue flexible-use licenses on a Partial Economic Area (PEA) basis for 20 megahertz sub-blocks in the contiguous United States and the District of Columbia because the PEA license-area size best optimizes and balances our statutory and regulatory objectives in licensing spectrum. Consistent with that approach, we propose to license the Upper C-band on a PEA basis as well and invite commenters to indicate whether they support the continued use of PEA service areas to issue additional flexible use licenses in the Upper C-band. In line with our proposal to align both portions of the band by adopting a common part 27 flexible-use licensing approach and similar technical rules, we tentatively conclude that licensing on a PEA basis would further facilitate harmonization in the Upper and Lower C-band, increase the availability of spectrum aggregation opportunities for 5G services across the entire band, and encourage auction participation for large, regional, and small carriers for new Upper C-band licenses. Based on our experience with the Lower C-band, we also tentatively conclude that licensing on a PEA basis in the contiguous United States and the District of Columbia is likely to increase competition, spur investment, and make next generation technologies available sooner and on a larger scale than smaller or larger license areas would. Parties who oppose the use of PEAs should explain their position, describe the type of geographic licensing areas they prefer instead, and identify the costs and benefits associated with a different service area approach.

34. While the reconfiguration options discussed *supra* do not anticipate issuing licenses for areas outside the contiguous United States in the Upper C-band, we nonetheless seek comment on whether we should adopt a licensing approach for certain areas outside the contiguous United States. In AWS–1, AWS–3, AWS–4, and the H Block, the Commission issued separate licenses for the Gulf area. In the Lower C-band, the Commission decided not to issue flexible-use licenses for PEAs including Honolulu, Anchorage, Kodiak, Fairbanks, Juneau, Puerto Rico, Guam-Northern Mariana Islands, U.S. Virgin Islands, American Samoa, and the Gulf. Commenters who advocate for this approach should discuss what boundaries should be used, and whether special interference protection criteria or performance requirements may be necessary due to the unique radio propagation characteristics and antenna siting challenges that may exist in these areas, and address any unique impacts on these markets were we to reallocate them from FSS service to terrestrial wireless service.

b. Application Requirements and Eligibility

35. *Eligibility.* Consistent with established Commission practice in the Lower C-band and elsewhere, we propose to adopt an open eligibility standard for licenses in the Upper C-band. We seek comment on this approach and whether it would encourage efforts to develop new technologies, products, and services, while helping to ensure efficient use of this spectrum. We note that an open eligibility approach would not affect citizenship, character, or other generally applicable qualifications that may apply under our rules. Commenters should discuss the costs and benefits of the open eligibility proposal on competition, innovation, and investment. Finally, we note that a person who has been, for reasons of national security, barred by any agency of the federal government from bidding on a contract, participating in an auction, or receiving a grant is ineligible to hold a license that is required by 47 U.S.C. chapter 13 (the Spectrum Act) to be assigned by a system of competitive bidding under Section 309(j) of the Communications Act. In the event that we assign licenses through competitive bidding, we propose to apply this ineligibility provision to the Upper C-band.

c. Mobile Spectrum Holdings

36. Spectrum is an essential input for the provision of mobile wireless

services, and to implement provisions of the Communications Act, the Commission has developed policies to ensure that spectrum is assigned in a manner that promotes competition, innovation, and efficient use. We seek comment generally on whether and how to address any mobile spectrum holdings issues involving the Upper C-band spectrum to meet our statutory requirements and ensure competitive access to the band. Similar to the Commission's approach in the *2020 C-band R&O,* we propose not to adopt a pre-auction bright-line limit on the ability of any entity to acquire spectrum in the Upper C-band through competitive bidding at auction. Since such pre-auction limits may unnecessarily restrict the ability of entities to participate in and acquire spectrum in an auction, we are not inclined to adopt such limits absent a clear indication that they are necessary to address a specific competitive concern, and we seek comment on any specific concerns of this type. Additionally, we propose to review holdings on a case-by-case basis when applications for initial licenses are filed post-auction to ensure that the public interest benefits of having a threshold on spectrum applicable to secondary market transactions are not rendered ineffective. Finally, we propose to include the Upper C-band spectrum in the Commission's spectrum screen, which helps to identify markets that may warrant further competitive analysis, for evaluating proposed secondary market transactions.

d. License Term

37. We propose a 15-year term for licenses in the Upper C-band. In the *2020 C-band R&O,* the Commission found that a 15-year license term was warranted as it would afford licensees sufficient time to achieve significant build-out obligations post-transition and also encourage investment in the Lower C-band given the clearing, relocation, and repacking that had to occur prior to the introduction of mobile operations. We seek comment on the costs and benefits of using the same term in the instant context. In addition, we invite commenters to submit alternate proposals for the appropriate license term, which should include a discussion on the costs and benefits. Commenters seeking to make adjustments to our proposal should explain how their proposals reflect the process for any incumbent transition work that has to occur before mobile operations can be deployed in the Upper C-band.

e. Performance Requirements; Renewal

38. Performance requirements play a critical role in ensuring that licensed spectrum does not lie fallow, and are required for licenses issued through competitive bidding. To that end, the Commission has imposed different performance and construction requirements in various spectrum bands based on the specific characteristics of each band in order to ensure that spectrum is intensely and efficiently utilized in the public interest. Although we propose to use the performance requirements previously adopted for the Lower C-band, we also seek comment on possible alternative approaches to each of the performance requirements proposed below, including how we might facilitate access to portions of this band or geographic areas that are not ultimately assigned or used.

39. *Mobile or Point-to-Multipoint Performance Requirements.* In the *2020 C-band R&O,* the Commission required Lower C-band licensees offering mobile or point-to-multipoint services to provide reliable signal coverage and offer service to at least 45% of the population in each of their license areas within eight years of the license issue date (first performance benchmark), and to at least 80% of the population in each of their license areas within 12 years from the license issue date (second performance benchmark). These performance milestones were designed to provide sufficient time for incumbent operations to transition out of the Lower C-band given that new flexible-use licensees could not commence operations until the necessary band clearing had been completed. Faced with a similar but potentially more complex transition in the current context, we propose to apply the same benchmarks for new terrestrial mobile licensees in the Upper C-band as we did in the Lower C-band. We believe that our proposal will provide sufficient time for incumbents to transition their operations and for new Upper C-band flexible-use licensees to deploy and meet the requisite coverage requirements once the license area has been cleared. We also believe that providing clear benchmarks will provide greater certainty for licensees, ensure investment, and encourage robust deployment of valuable mid-band spectrum in the public interest. We seek comment on this proposal, and whether it strikes the appropriate balance between license-term length and a significant final build-out requirement.

40. We also seek comment on any potential alternatives. We invite commenters to indicate whether we should consider adjustments to the proposed performance benchmarks for the Upper C-band and explain their rationale for proposing such adjustments. We also seek comment on whether small entities face any special or unique issues with respect to build-out requirements such that they require certain accommodations or additional time to comply. Commenters should discuss and quantify how any build-out requirements they support will affect investment and innovation, as well as discuss and quantify other associated costs and benefits.

41. *Alternate internet-of-Things (IoT) Performance Requirements.* We note that licensees providing IoT-type fixed and mobile services may benefit from an alternative performance benchmark metric in contrast with those we may impose on fixed and mobile services. In the *2020 C-band R&O,* the Commission found that the use of geographic coverage levels would maintain reasonable parity between performance requirements for IoT providers and performance requirements for mobile providers relying on population-based coverage metrics. As a result, the Commission provided Lower C-band licensees the flexibility to demonstrate that they offer geographic area coverage of 35% of the license area at the first (eight-year) performance benchmark, and geographic area coverage of 65% of the license area at the second (12-year) performance benchmark. The Commission adopted this framework to provide enough certainty to licensees to encourage investment and deployment as soon as possible, while retaining enough flexibility to accommodate both traditional services and innovative services or deployment patterns. In addition, the Commission asserted that a performance metric based on geographic area coverage (or presence) allows for networks that provide meaningful service but deploy along lines other than residential population. Although the Commission adopted an additional performance metric to facilitate the deployment of IoT and other innovative services, it also emphasized that there is no requirement that a licensee build a particular type of network or provide a particular type of service in order to use whatever metric it selects to meet its performance requirement.

42. We propose to adopt the geographic area coverage levels applied in the Lower C-band as alternative IoT performance benchmarks for the Upper C-band and invite commenters to provide input on our proposal, which we believe will provide sufficient time

for FSS incumbent operators to transition their operations and for new Upper C-band flexible-use licensees to deploy and meet the requisite coverage requirements. We also believe that our proposed benchmarks will provide enough certainty to licensees to encourage investment and deployment as soon as possible, while affording them enough flexibility to accommodate both traditional services and innovative services or deployment patterns. We invite commenters to submit alternate proposals or to indicate whether we should consider adjustments to the proposed performance benchmarks and explain their rationale for proposing such adjustments.

43. *Fixed Point-to-Point under Flexible Use.* For licensees providing fixed, point-to-point links, the Commission generally has evaluated build-out by comparing the number of links in operation to the population of the license area. In the *2020 C-band R&O,* the Commission adopted a requirement that part 27 geographic area licensees providing Fixed Service in the Lower C-band must demonstrate within eight years of the license issue date (first performance benchmark) that they have four links operating and providing service, either to customers or for internal use, if the population within the license area is equal to or less than 268,000. If the population within the license area is greater than 268,000, the Commission required licensees providing point-to-point service to demonstrate they have at least one link in operation and providing service, either to customers or for internal use, per every 67,000 persons within a license area. Licensees relying on point-to-point service were required to demonstrate within 12 years of the license issue date (final performance benchmark) that they have eight links operating and providing service, either to customers or for internal use, if the population within the license area is equal to or less than 268,000. If the population within the license area is greater than 268,000, the Commission required a demonstration that the licensee is providing service and has at least two links in operation per every 67,000 persons within a license area.

44. We propose adopting performance standards that are consistent with the benchmarks for Lower C-band for Upper C-band licensees relying on point-to-point service. For the same reasons as stated above, we believe that extending the Lower C-band framework will afford sufficient time for FSS incumbent operators to transition their operations and for new Upper C-band flexible-use licensees to deploy and meet the requisite coverage requirements once the license area has been cleared of FSS operations. We invite the public to comment on this proposal and on any adjustments or alternative proposals, as well as their basis for proposing such adjustments or alternatives. Commenters should also discuss and quantify how any proposed performance requirements will impact investment and innovation, as well as discuss and quantify other costs and benefits associated with the proposal in question.

45. *Penalty for Failure to Meet Performance Requirements.* To encourage compliance with our performance benchmarks, we propose imposing meaningful and enforceable penalties on Upper C-band licensees that fail to timely build-out. Consistent with our decision in the *2020 C-band R&O,* we propose to adopt a rule requiring that, in the event a licensee fails to meet the first performance benchmark, the licensee's second benchmark and license term would be reduced by two years, thereby requiring it to meet the second performance benchmark two years sooner (at 10 years into the license term) and correspondingly reducing its license term to 13 years. As with the approach the Commission took in the Lower C-band, we further propose that, in the event a licensee fails to meet the second performance benchmark for a particular license area, its authorization for each license area in which it fails to meet the performance requirement shall terminate automatically without Commission action.

46. In the event a licensee's authority to operate terminates automatically, we propose that the licensee's spectrum rights would become available for reassignment pursuant to the competitive bidding provisions of Section 309(j) of the Communications Act. Consistent with the Commission's rules applicable to Lower C-band and in other bands, we propose that any Upper C-band licensee that forfeits its license for failing to meet its performance requirements would be precluded from regaining the spectrum rights covered by the license. We invite comments on these proposals. Is the approach that the Commission adopted for the Lower C-band transition appropriate for the Upper C-band? Commenters should address the costs and benefits of our proposals, and of any suggested alternatives.

47. *Compliance Procedures.* In addition to the compliance procedures applicable to all part 27 licensees, including the filing of electronic coverage maps and supporting documentation, we propose that such electronic coverage maps must accurately depict both the boundaries of each licensed area and the coverage boundaries of the actual areas to which the licensee provides service. If a licensee does not provide reliable signal coverage to its entire license area, we propose that its map must accurately depict the boundaries of the area or areas within each license area not being served. Further, we propose that each licensee also must file supporting documentation certifying the type of service it is providing for each licensed area within its service territory and the type of technology used to provide such service. Supporting documentation must include the assumptions used to create the coverage maps, including the propagation model and the signal strength necessary to provide reliable service with the licensee's technology. We seek comment on our proposal. We also seek comment on whether small entities face any special or unique issues with respect to the transition such that they would require additional time to comply.

48. *License Renewal.* We propose applying the general renewal requirements applicable to all Wireless Radio Services (WRS) licensees to licensees in the Upper C-band. As explained in further detail below, we believe that this approach will promote consistency across the Upper and Lower C-band.

49. *Renewal Term Construction Obligation.* We propose to apply our general part 27 renewal requirements for wireless licenses to the Upper C-band, as the Commission has for the Lower C-band, 3.45 GHz band, and the 3.55–3.7 GHz band. Correspondingly, we propose to include the Upper C-band in the unified renewal framework for WRS. This means that Upper C-band licensees will be required to comply with § 1.949 of our rules by demonstrating that, over the course of their license term, they either: (1) provided and continue to provide service to the public, or (2) operated and continue to operate the license to meet the licensee's private, internal communications needs. Licensees can demonstrate compliance with this requirement either through the renewal showing in § (f) of that rule, or the relevant safe harbor found in § (e). Consistent with other licensing rules we are proposing to adopt in this item, we believe that our proposal to apply this renewal standard to the Upper C-band will help create uniform flexible-use licensing rules across the Upper and Lower C-band and facilitate the deployment of next-generation wireless technologies.

50. In addition to, and independent of, the general renewal provisions set forth in our rules, we seek comment on applying specific renewal term construction obligations to Upper C-band licensees. In particular, we invite comment on whether there are unique characteristics of the Upper C-band that might warrant a different approach than the general renewal requirements applicable to all WRS. Do any of our proposals for the Upper C-band, such as longer license terms, necessitate a more tailored approach than our general part 27 renewal requirements? Commenters advocating rules specific to the Upper C-band should address the costs and benefits of their proposed rules and discuss how a given proposal will encourage investment and deployment in areas that might not otherwise benefit from significant wireless coverage.

3. Technical Rules

51. In addition to the proposed licensing and operating rules discussed *supra,* we seek comment on adopting technical rules that will maximize potential uses of the Upper C-band for next generation wireless technologies, encourage efficient use of spectrum resources, and promote investment in the Upper C-band. As a general matter, we propose to align the technical rules for this band segment with those previously adopted for the adjacent Lower C-band to promote harmony and standardization across the Upper and Lower C-band, to produce significant economies of scale resulting in more affordable products and services, rapid operational expansion, and deployment of high-powered terrestrial 5G, and to align with global efforts. We seek comment on this overarching proposal and its potential impact on operations in adjacent bands, as well as on alternative approaches. Specifically, we seek comment on appropriate power limits, out-of-band emissions limits, antenna height limits, service area boundary limits, international coordination requirements, and any other technical rules that would provide the flexibility necessary to maximize use of the band. We also ask that commenters provide detailed technical data in support of their positions and any alternative approaches they may advance in each of these areas.

a. Power Levels

52. *Power Limits for Fixed and Base Stations.* We propose to permit base stations in non-rural areas to operate at power levels up to 1640 watts per megahertz EIRP and base stations in rural areas to operate with double the non-rural power limits (3280 watts per megahertz EIRP). Our proposal mirrors the Commission's decision to adopt power limits under the part 27 flexible use rules for the Lower C-band and the 3.45 GHz band that are consistent with other broadband mobile services in nearby bands (AWS–1, AWS–3, AWS–4, and PCS). Consistent with our decisions in those bands, we believe that setting a higher power limit for rural areas will further the Commission's objective of fostering rural deployment of broadband services. Further, consistent with our approach in the Lower C-band, we propose to adopt for the Upper C-band the part 27 requirement that, in measuring transmissions using an average power technique, the peak-to-average ratio (PAR) may not exceed 13 dB.

53. In the *2020 C-band R&O,* the Commission provided 3.7 GHz Service licensees with the flexibility to optimize their system designs to offer wide area coverage without sacrificing the flexibility needed to address coexistence issues with incumbent FSS operations. Specifically, we applied the same power density limit to all channel bandwidths to facilitate uniform power distribution across a licensee's authorized band, regardless of whether wideband or narrowband technologies are being deployed. This approach aligns with that also adopted in the 3.45 GHz band, where such limit applies to emissions of all bandwidths, including those of less than one megahertz, to facilitate uniform power distribution across a licensee's authorized band regardless of whether it deploys wideband or narrowband technologies.

54. Because advanced antenna systems often have multiple radiating elements in the same sector, the Commission adopted power limits in the 3.45 GHz and Lower C-bands that apply to the aggregate power of all antenna elements in any given sector of a base station. The Commission found that adopting power levels consistent with other bands used for wide area wireless operations (*e.g.,* AWS) would permit the Lower C-band to reach its full potential and licensees to achieve similar coverage, creating network efficiencies between network deployments in different spectrum bands. By adopting base station power limits that have spurred development in other bands, the Commission sought in the Lower C-band to promote investment and facilitate the rapid and robust deployment of next-generation mobile broadband services, including 5G. On this basis, we similarly propose to apply § 27.50(j)(1) through (2) and (4) through (5) of the Commission's rules to both fixed and base stations operating in the Upper C-band. We invite comment on this proposal.

55. We also seek comment on alternative base station power limits. We invite commenters who propose alternative solutions to provide specific technical details and thorough analyses to support their proposals, including the effect on receiver blocking or other aggregate interference issues impacting receivers operating above and below the band. In addition to providing this technical support, proponents should outline the corresponding costs and benefits underlying their proposals. Should power be composed of transmit conducted power and antenna gain with some flexibility to ''mix and match'' both, or should the rule only define the final power in EIRP? Although higher power limits can facilitate deployment, what impact might this approach have on adjacent bands? Are there particular circumstances or locations where a different approach may be merited in consideration of adjacent band operations?

56. *Power Limits for Mobiles and Portables.* We propose to adopt a 1 Watt (30 dBm) EIRP power limit for mobile devices, matching the standards adopted for the Lower C-band and the 3.45 GHz band. In the *2020 C-band R&O,* the Commission found that a 1 Watt limit provides adequate power for robust mobile service deployment and also permits operation of mobile device power classes as outlined in the 5G standards given that mobile devices typically operate at levels below 1 Watt to preserve battery life and meet both human exposure limits and power control requirements. In recognition that 3.7 GHz Service licensees are expected to deploy much wider channel bandwidths and will operate in exclusively licensed spectrum, the Commission indicated that it was adopting a mobile device power limit intended to provide consistency between mobile 5G deployments in the Lower C-band and comparable macro cell deployment in the PCS, AWS, and similar bands.

57. Similarly, in the *3.45 GHz Band 2d R&O,* the Commission found that providing consistency between mobile 5G deployments in various bands is crucial for the entire 3 GHz band to reach its full potential and therefore aligned the mobile power limit for the 3.45 GHz band with that adopted for the Lower C-band. The Commission concluded that this mobile power limit will provide an adequate range for operation of different mobile and fixed broadband deployments across a wide variety of use cases and permit operation of mobile power classes as

outlined in the 3GPP standards. In light of this precedent, we invite comment on our proposed power limit for mobiles and portables operating in the Upper C-band. We also seek comment on whether alternative mobile station power limits should be considered based on expected use cases. Commenters supporting alternative mobile power limits should include a technical justification for such power limits and a detailed evaluation of any coexistence issues. Commenters should also provide an analysis of the costs and benefits of their proposals.

b. Out-of-Band Emissions

58. *Base Station Out-of-Band Emissions.* As a baseline matter, we propose here to adopt base station out-of-band emission (OOBE) requirements consistent with the limits adopted for the Lower C-band. For the Lower C-band, base stations were required to suppress their emissions beyond the edge of their authorization to a conducted power level of −13 dBm/MHz. The Commission adopted this limit because it is consistent with emission limits established for many other mobile broadband services as well as those established for 5G technologies by standards bodies, and has been widely accepted as being adequate for reducing unwanted emissions into adjacent bands. We seek comment on whether to harmonize the limits applied to the Lower and Upper C-bands, generally on what the appropriate limits should be, and whether they should diverge from the baseline cited *supra.* We also seek comment on whether the same or different OOBE limits should be applied to emissions within the band as compared to those at either edge of the band. Should we consider additional requirements beyond the upper and lower band edges similar to the two-step limits adopted in the 3.45 GHz and CBRS bands to facilitate widespread deployment of next-generation wireless services while ensuring effective coexistence with incumbent federal and non-federal services operating in adjacent bands?

59. For base station OOBE, we also propose to adopt the same part 27 measurement procedures and resolution bandwidth that are currently used for the Lower C-band. Specifically, the resolution bandwidth used to determine compliance with the base station limit is 1 megahertz or greater, except that within the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block where a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. We seek comment on our proposal to apply the part 27 measurement procedures and resolution bandwidth and invite input on alternative approaches to defining resolution bandwidth.

60. *Mobile Out-of-Band Emissions.* We propose to adopt a mobile OOBE limit that is consistent with the service rules adopted for the Lower C-band. Specifically, we propose to require mobile units to suppress their conducted emissions to no more than −13 dBm/MHz outside their authorized frequency band, *i.e.,* at the authorized channel edge as measured at the antenna terminals. We also propose to adopt the same measurement procedure as we adopted for the Lower C-band where a narrower resolution bandwidth can be used to measure the OOBE limits in the spectrum immediately adjacent to the channel edge. For emissions within 1 megahertz from the channel edge, the minimum resolution bandwidth would be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kilohertz. In the bands between one and five megahertz removed from the licensee's authorized frequency block, the minimum resolution bandwidth would be 500 kilohertz. We believe that this proposal will promote consistency between mobile 5G deployments in various bands and does not increase the potential for OOBE to cause harmful interference and seek comment on that belief. We seek comment generally on whether to harmonize the mobile OOBE limits applied to the Lower and Upper C-bands, generally on what the appropriate limits should be, and whether they should diverge from the baseline cited *supra.*

61. *Other OOBE Limit Issues.* As noted in the *2020 C-band R&O,* the Commission adopted provisions that permit licensees in the Lower C-band to implement private agreements with adjacent block licensees to exceed the adopted OOBE limits. In addition, like other part 27 services, the *2020 C-band R&O* applied § 27.53(i) to the Lower C-band, providing that the Commission may, in its discretion, require greater attenuation than specified in the rules if an emission outside of the authorized bandwidth causes harmful interference. Consistent with this approach, we propose to apply §§ 27.53(h)(4) and 27.53(i) to the Upper C-band as well. We seek comment on our proposal and invite commenters to indicate whether harmonizing the OOBE limit for Upper and Lower C-band segments will help facilitate broader deployment of multi-band 5G radio equipment that can operate across the 3 GHz bands. What would be the impact of implementing a consistent OOBE limit across Upper and Lower C-band segments relative to immediately adjacent FSS operations or operations in nearby channels in the 3.5 GHz band? How might any such impacts be addressed? Finally, we also seek comment on whether base station power levels or OOBE limits should be adjusted to promote coexistence with radio altimeters operating in the adjacent 4.2–4.4 GHz band.

c. Antenna Height Limits

62. Consistent with the existing part 27 AWS rules and Lower C-band and 3.45 GHz band requirements, none of which impose antenna height limits on antenna structures, we propose to not restrict antenna heights for Upper C-band operations beyond any requirements necessary to ensure air navigation safety. In both the Lower C-band and 3.45 GHz proceedings, the Commission noted that rather than using antenna height limits to reduce interference between mobile service licensees, as had been done in the past, it has more recently used field strength limits at service boundaries to provide licensees more flexibility to design their systems while still ensuring harmful interference protection between systems. Furthermore, the limitations of field strength at the geographical boundary of the license also effectively limit antenna heights. Given its success in other services, the Commission adopted the same approach in the Lower C-band as well as the 3.45 GHz band. We propose to take the same approach here as well and seek comment on this proposal, including its costs and benefits along with those associated with any alternative approaches that may be advanced.

d. Service Area Boundary Limit

63. In the *2020 C-band R&O,* the Commission adopted a −76 dBm/m^2/MHz power flux density (PFD) limit at a height of 1.5 meters above ground at the geographical border of 3.7 GHz Service licensees' service areas. We propose to apply the same service area boundary limit for any new terrestrial wireless licensees in the upper portion of the band. As the Commission previously observed, the −76 dBm/m^2/MHz PFD limit is the same as what we established for the Upper Microwave Flexible Use Service (UMFUS), and it is both easy to measure and scales with channel bandwidth to offer licensees flexibility for demonstrating compliance. We seek comment on this proposal. Is this an appropriate limit in the Upper C-band, or should we impose a different service area boundary power

limit than that which applies to the 3.7 GHz Service in the lower portion of the band? Would some other limit better protect geographically adjacent licensees from co-channel interference?

e. International Boundary Requirements

64. We propose to apply § 27.57(c) of the Commission's rules to terrestrial licensees in the Upper C-band, consistent with the approach that was adopted for the Lower C-band. Section 27.57(c) requires all part 27 operations to comply with international agreements for operations near the Mexican and Canadian borders. Under this provision, licensee operations must not cause harmful co-interference across the border, consistent with the terms of agreements currently in force. We note that modification of the existing rules might be necessary in order to comply with any future agreements with Canada and Mexico regarding the use of these bands. We seek comment on this proposal, including the costs and benefits of any alternative approaches.

f. Other Part 27 Rules

65. Consistent with the approach taken in the Lower C-band, we propose to once again adopt several additional technical rules that are applicable to all part 27 services, including §§ 27.51 (Equipment authorization), 27.52 (RF safety), 27.54 (Frequency stability), and part 1, subpart BB of the Commission's rules (Disturbance of AM Broadcast Station Antenna Patterns) for new terrestrial commercial wireless operations in the Upper C-band. As observed in the *2020 C-band R&O,* because the Upper C-band will be a part 27 service, we believe that these rules implement important safeguards for all wireless services to ensure that devices meet RF safety limits and that the potential for harmful interference to other operations is minimized. We seek comment on this proposal. Should we consider a different approach with respect to the adoption of these generally applicable part 27 technical rules to govern new terrestrial wireless licenses in the Upper C-band? Are there other generally applicable rules, not listed above, that we should apply to these new Upper C-band operations?

66. We also propose to require client devices to be capable of operating across any portion of the Upper C-band that is allocated for terrestrial commercial wireless operations, as the Commission has done for other part 27 services since 2014. Specifically, we propose to add any such portion of the Upper C-band to § 27.75, which requires mobile and portable stations operating in the 600 MHz band and certain AWS–3 bands to be capable of operating across the relevant band using the same air interfaces that the equipment uses on any frequency in the band. The Commission observed in the *2020 C-band R&O* that cross-band operability is important to ensure a robust equipment market for all licensees. We seek comment on this proposal. Is there a reason not to apply § 27.75 to new terrestrial wireless licensees in the Upper C-band?

g. Protection of Incumbent FSS Earth Stations

67. For any repacked FSS operations in the C-band band after the proposed transition is complete, we propose to incorporate the existing incumbent protection measures that apply to 3.7 GHz Service operations in the Lower C-band and to apply them to new terrestrial wireless licensees in the Upper C-band. These measures include: (1) a PFD limit to protect registered FSS earth stations from out-of-band emissions from Upper C-band operations; (2) a PFD limit to protect against receiver blocking resulting from Upper C-band operations; and (3) allowing full band/full arc use of the Upper C-band by FSS earth stations.

68. To safeguard against out-of-band emissions, we propose to require a PFD limit of -124 dBW/m^2/MHz within the portion of the Upper C-band that will continue to be used for FSS operations, as measured at the registered incumbent earth station antenna. As with the existing 3.7 GHz Service licensees in the Lower C-band, this PFD limit would apply to all emissions within the earth station's authorized band of operation, from both base and mobile stations. The Commission concluded in the *2020 C-band R&O* that compliance with a PFD limit like the one we now propose was simpler and less burdensome on both FSS earth station licensees and on new licensees in the 3.7 GHz Service to implement than a power spectral density (PSD) limit would be. We seek comment on this proposal in the instant context. Are the assumptions from the past proceeding accurate and applicable to our proposed licensing regime for the Upper C-band? If not, what alternative approaches should we consider, and what costs and benefits would such approaches entail?

69. In order to protect earth stations from receiver blocking, we propose to require a PFD limit of -16 dBW/m^2/MHz within the portion of the Upper C-band that is repurposed for terrestrial wireless use, as measured at the registered incumbent earth station antenna, and applied across the transitioned frequency range. This blocking limit would apply to all emissions within the new terrestrial wireless licensee's authorized frequency range, and it is the same limit that we applied to protect earth stations during the Lower C-band transition. Are the assumptions from the past proceeding accurate and applicable to our proposed licensing regime for the Upper C-band? If not, what alternative approaches should we consider, and what costs and benefits would such approaches entail?

70. Finally, we propose to allow full band/full arc use by FSS earth stations that continue to operate in the band during and after the transition process. In the *2020 C-band R&O,* the Commission noted the need to offer flexibility to earth stations that, in that proceeding, were transitioned above 4.0 GHz. We seek comment on this proposal in the current context. Does the need for operational flexibility still recommend retention of full band/full arc use? What consequences would elimination of the policy hold for earth stations and for new terrestrial wireless licensees in the Upper C-band? Should we consider any alternative approaches, and what consequences such alternatives impose?

h. Protection of TT&C Earth Stations

71. In the *2020 C-band R&O,* the Commission established protection measures to safeguard Telemetry, Tracking, and Command (TT&C) operations throughout the C-band until such operations can be relocated to other bands. Incumbent space station operators were required to identify and consolidate their TT&C operations to four locations within the contiguous United States by December 5, 2021, and the Commission indicated that it would not authorize any new TT&C operations elsewhere in CONUS, except to facilitate that consolidation. TT&C operations are protected at the consolidated locations until December 5, 2030, in order to allow time for the launching of replacement satellites, and after that date TT&C operations may operate in the C-band on an unprotected basis. The Commission also authorized private negotiation between incumbent space station operators and 3.7 GHz Service licensees regarding TT&C sites, including early entry of 3.7 GHz Service operations, and prolonged TT&C operations.

72. Are there additional TT&C sites which were not identified for purposes of the Lower C-band transition that are active in the Upper C-band? If so, could operations at those sites be consolidated or co-located at already protected facilities? If additional sites are identified, should they be protected from harmful interference through

December 5, 2030, consistent with our approach in the Lower C-band?

73. *Co-channel Protection Criteria.* We propose to maintain and apply existing co-channel protection criteria to safeguard TT&C operations in the C-band. In the *2020 C-band R&O,* the Commission required 3.7 GHz Service licensees to ensure that the aggregated power from their operations meet an interference to noise ratio (I/N) of −;6 dB as received by the TT&C earth station. The Commission also required 3.7 GHz Service licensees to coordinate their co-channel operations within 70 km of TT&C earth stations that continued to operate in the Lower C-band. The Commission observed in the *2020 C-band R&O* that there are few TT&C earth stations relative to other FSS earth stations, they are run by highly qualified technical staff, and that a coordination process accounting for terrain, shielding, polarization, and other technical parameters will result in adequate earth station protection and permit terrestrial use at a closer distance. Further, the usual coordination process would presumably minimize the risk of harmful interference; this process includes the expectation the 3.7 GHz Service licensees take all practical steps necessary to protect TT&C operations, operate in good faith, and cooperate to resolve any interference issues via mutually satisfactory arrangements.

74. We seek comment on our proposal to apply the existing co-channel protection criteria to TT&C operations throughout the C-band. Do the assumptions that the Commission made in the *2020 C-band R&O* regarding aggregated power and coordination distance remain accurate and applicable? Has the coordination framework proven to be sufficient and workable for affected operators? Have the protection criteria sufficed, both for 3.7 GHz Service licensees and for TT&C operations? Should we consider alternative protection criteria, and if so, what criteria would be appropriate? Commenters proposing alternatives should supply detailed technical information to support their positions.

75. *Adjacent Channel Protection Criteria.* We also propose to maintain existing criteria to protect TT&C operations in the C-band from adjacent channel interference due to out-of-band emissions, including: (1) aggregated power from adjacent 3.7 GHz Service operations must meet a −6 dB I/N ratio, and the limit would apply to all emissions removed from the TT&C's center frequency by more than 150% of the TT&C's necessary emission bandwidth; (2) we would not require prior coordination between adjacent operations, but 3.7 GHz Service licensees and TT&C earth station operators would be expected to cooperate in good faith and make reasonable efforts to anticipate and resolve technical problems that may inhibit effective and efficient use of the spectrum; and (3) TT&C operators would be expected to make available pertinent technical information about their systems upon request by the 3.7 GHz Service licensees, and licensees of stations suffering or causing harmful interference would be expected to cooperate and resolve the problem by mutually satisfactory arrangements.

76. To provide protection from potential receiver overload, we propose to require that: (1) base stations and mobile devices meet a PFD limit of −16 dBW/m²/MHz, as measured at the TT&C earth station antenna; (2) this blocking limit applies to all emissions within the 3.7 GHz Service licensee's authorized band of operation and protect TT&C earth stations based on the assumption that robust, custom filters have been installed at those facilities, like other FSS earth stations; (3) TT&C filter quality must provide a minimum of 60 dB of rejection, and the frequency at which the filter must meet this 60 dB of rejection would vary with the bandwidth; (4) TT&C filters must meet 60 dB of rejection for all frequencies removed from the center frequency by more than 150% of the TT&C's emission bandwidth, both above and below the channel; (5) the filter must provide 70 dB of rejection for all frequencies removed from the TT&C's center frequency by more than 250% of the TT&C's emission bandwidth, both above and below; and (6) in the event of a claim of harmful interference, the earth station operator must demonstrate that they have installed a filter that complies with the mask described above, and if they have not installed such a filter or are unable to make such a demonstration, and the 3.7 GHz Service licensee can confirm it meets the PFD, the TT&C operator would have to accept the interference.

77. We seek comment on our proposal to maintain the existing adjacent channel interference protection criteria for TT&C operations. Do our previous assumptions regarding aggregated power, blocking protections, and the workability of the coordination framework remain true? What, if any, alternatives might be appropriate in light of the past several years of experience and technical developments?

i. Other Matters

78. Lastly, in its *Upper C-band NOI* comments, NTIA stated that in the 3.98–4.2 GHz band there are a limited number of radio astronomy sites that operate on an opportunistic basis (*i.e.,* no primary allocation), primarily located in remote areas where natural isolation aids in mitigating interference. We seek comment on whether we should take steps to facilitate coordination between wireless operations in the band and operations at these radio astronomy sites, including the costs and benefits of any proposed measures.

C. The Transition of FSS Operations

79. In the *2020 C-band R&O,* the Commission transitioned incumbent services out of the Lower C-band and into the upper 200 megahertz of the C-band by relying on the *Emerging Technologies* framework to facilitate the swift transition of spectrum from one use to another. Specifically for incumbent FSS services, the Commission required overlay licensees to pay for the reasonable transition costs of eligible space station operators and incumbent earth station operators that were required to clear the lower 300 megahertz of the C-band spectrum in the contiguous United States.

80. As discussed in further detail below, we propose adopting many of the same transition framework elements used for the Lower C-band for the Upper C-band transition of incumbent FSS operations. We seek comment on this proposal. We also seek comment on whether there are any improvements that should be made to certain elements of the Lower C-band transition framework based on technological advances or lessons learned during that process which will facilitate our efforts to meet Congress' mandate of completing a system of competitive bidding ''for not less than 100 megahertz in the band between 3.98 gigahertz and 4.2 gigahertz'' by July 4, 2027. In addition, we seek comment on whether modifications to the elements of the transition framework are necessary to accommodate whatever reconfiguration option we elect for the Upper C-band.

1. Definition of Incumbent FSS Operations

81. In the *2020 C-band R&O,* the Commission defined the classes of incumbent FSS space station and earth station operations that would be transitioned out of the Lower C-band and reimbursed for their transition costs consistent with our *Emerging*

Technologies precedent. Identification of these incumbent FSS operations was an important step toward providing clarity about the transition process and informing auction bidders about the costs they would incur as a condition of their overlay license. With these same goals in mind, below we seek comment on the appropriate definitions to identify the specific incumbent FSS space station and incumbent earth station operators that are relevant for purposes of the next proposed transition, using the Lower C-band model as a guide.

82. *Incumbent Space Station Operators.* For purposes of the Lower C-band transition, the Commission determined that ''incumbent space station operators'' would generally include all space station operators authorized to provide C-band service to any part of the contiguous United States pursuant to an FCC-issued license or grant of market access as of June 21, 2018. On that date, the Commission's former International Bureau issued a temporary freeze on certain new space station applications in order to preserve the landscape of authorized operations in the 3.7–4.2 GHz band, and that freeze remains in place. At the time of the *2020 C-band R&O,* eight entities qualified under this definition, but since then certain of those entities have either ceased operations in the contiguous United States or merged with other incumbent space station operators. Today, the remaining entities that qualify under this definition are: Empresa, Eutelsat, Hispasat, SES, and Telesat. We propose to use the same baseline definition of incumbent space station operators for purposes of the forthcoming Upper C-band transition, while accounting for any intervening changes in the legal or operational status of those entities since the Lower C-band transition, and seek comment on this proposal.

83. For purposes of transition cost reimbursement, the Commission defined an ''eligible space station operator'' as an incumbent space station operator that has demonstrated as of February 1, 2020, that it has an existing relationship to provide service via C-band satellite transmission to one or more incumbent earth stations in the contiguous United States. At the time of the *2020 C-band R&O,* five of the incumbent space station operators qualified as 'eligible' under this definition. Today, the remaining entities that would qualify under this definition and continue to provide service to one or more incumbent earth stations within the contiguous United States are: Eutelsat, SES, and Telesat. We propose to use the same baseline definition of eligible space station operators for purposes of the forthcoming Upper C-band transition, with the requirement that each must still provide service to one or more incumbent earth stations within the contiguous United States, and seek comment on this proposal.

84. *Incumbent Earth Stations.* The Commission previously defined ''incumbent earth stations'' for the Lower C-band transition to include fixed and temporary fixed earth stations that were operational as of April 19, 2018, and that: (1) continue to be operational; (2) were licensed or registered in the ICFS database on November 7, 2018; and (3) timely certified the accuracy of the information on file with the Commission by May 28, 2019. As with space stations, a freeze on the filing of new or modified earth station applications throughout the entire C-band was issued on April 19, 2018—the qualifying date for incumbency—and the freeze remains in place. Throughout the Lower C-band transition, Commission staff continuously updated its list of incumbent earth stations found to qualify under these criteria, the most recent of which was issued on November 19, 2025.

85. We propose to retain the existing definition of incumbent earth stations for purposes of the Upper C-band transition, using the most recently released incumbent earth station list for the Lower C-band transition as the baseline going forward. We seek comment on this proposal, and any considerations we should keep in mind given the passage of time since the Lower C-band transition.

2. Clearing FSS Operations in the Upper C-band

86. As noted above, we propose to adopt rules to reconfigure the Upper C-band landscape. and to use our authority under Section 316 of the Communications Act to modify, as needed, the existing licenses, market access authorizations, and registrations currently held by FSS C-band incumbents to clear whatever portion of the Upper C-band we ultimately reallocate.

a. Clearing Space Station Operations

87. The OBBB Act directs the Commission to grant licenses through a system of competitive bidding for at least 100 megahertz of the Upper C-band. This directive necessitates modification of the space station operator licenses and market authorizations that operate in whatever portion of the band we ultimately reallocate. We again propose to use our authority under Section 316 of the Communications Act to accomplish the legislative mandate in this context. We also propose to further modify our existing rules to prohibit new applications for space station licenses and new petitions for market access concerning space-to-Earth operations in whatever portion of the band we reallocate in the contiguous United States.

88. As observed in the *2020 C-band R&O,* ''[s]ection 316 of the Communications Act vests the Commission with broad authority to modify licenses 'if in the judgment of the Commission such action will promote the public interest, convenience, and necessity.' '' Here we similarly believe that modifying the authorizations of incumbent space station operators to clear at least 100 megahertz of the Upper C-band for auction as required by Congress is within the Commission's statutory authority, consistent with prior Commission practice, and will promote the public interest, convenience, and necessity by increasing the availability of wireless broadband services throughout the contiguous United States. Commenters should explain any concerns with the proposed reconfiguration options, which were proposed in furtherance of a clear directive from Congress, and submit technical and other supporting documents to inform the Commission's consideration of these issues. We also seek comment on the extent to which implementation of our reconfiguration proposals in the instant *NPRM* align with the clearing approach taken in the Lower C-band transition.

89. We also seek comment on the specific clearing targets, steps, and timing for any further FSS transition in the Upper C-band. Space station operators have indicated that greater use of advanced compression technologies, combined with the ongoing trend of customer migrations to alternative distribution mechanisms, means that a repacking and clearing of some portion of the Upper C-band might be achievable in a shorter timeframe than that required for the Lower C-band. We seek additional input and specifics from the incumbent space station operators about their anticipated customer needs, the trajectory of their capacity demands, the extent of potential capacity gains that can be achieved by greater use of advanced compression, and any other factors and considerations relating to the potential future transition of their existing services. To the extent that any such information may be confidential or

business sensitive in nature, we note that the incumbent space station operators may request confidential treatment of some or all of the information that they submit, consistent with the Commission's rules.

b. Clearing Earth Station Operations

90. In the *2020 C-band R&O,* the Commission modified the registrations of receive-only earth stations but noted that, unlike transmitting space stations, they are not licensees. Title III of the Communications Act requires a license for ''the *transmission* of energy or communications or signals by radio.'' The Commission has long concluded that, because receive-only earth stations do not transmit, they do not require a license under Section 301 of the Communications Act. As such, past regulatory actions relating to receive-only earth stations have been predicated on our Title I ancillary authority as part of ''other regulatory responsibilities to maximize effective use of satellite communications'' over which the Commission has express Title III authority. The Commission is also empowered to make reasonable regulations to prevent harmful interference to and among its licensed users. We thus have an ongoing responsibility to modify this registration regime for receive-only earth stations as appropriate to ensure that it remains consistent with our regulation, in the public interest, of the licensed satellite stations.

91. Accordingly, the Commission previously modified all necessary earth station registrations to comport with the Lower C-band reconfiguration adopted in the *2020 C-band R&O.* Those modifications limited the frequencies on which incumbent earth stations may receive interference protection to the upper 200 megahertz of the C-band. As the Commission further observed in the *2020 C-band R&O,* a relatively small number of earth stations that receive in the 4.0–4.2 GHz band are licensed to transmit in another band (*i.e.,* licensed transmit-receive earth stations). Those licenses to transmit do not provide the earth station operators with the right to do so in the C-band, where they hold no licensed spectrum usage rights. To the extent that certain incumbent earth stations have licenses to transmit in another band, we believe that we have ample authority to propose to modify their authorizations and their interference protection rights in the Upper C-band once incumbent satellite operations have been relocated consistent with our Section 316 authority. In light of the foregoing, we again propose to modify incumbent earth station registrations consistent with our regulation of the corresponding incumbent space stations, regardless of the reconfiguration option we ultimately adopt for the Upper C-band. We seek comment on this proposal. Commenters should explain any concerns with the proposed reconfiguration options, which were proposed in furtherance of a clear directive from Congress, and submit technical and other supporting documents to inform the Commission's consideration of these issues.

92. As noted by the incumbent space station operators, any transition of existing C-band services will necessarily impact and must be carefully coordinated with their customers. That said, C-band utilization is gradually declining, particularly in terms of media content services, with C-band customers switching to alternative distribution technologies (including but not limited to Ku-band, fiber, and content delivery networks) over time. To this end, we seek additional information and input on how this trend may impact any clearing of incumbent earth stations from the Upper C-band and on any considerations specific classes of earth station operators, including those in rural locations and with transportable facilities, may have.

3. Transition Schedule

93. We propose to set a specific transition deadline to ensure that all incumbent FSS operations are cleared in a timely manner to facilitate the introduction of terrestrial wireless services in the Upper C-band and to provide potential auction bidders with some certainty as to when they will be able to obtain access to Upper C-band spectrum. In the *2020 C-band R&O,* the Commission found that it was in the public interest to adopt a December 5, 2025 final deadline as it would ensure that Lower C-band spectrum would be made available for flexible use in a timely manner, while ensuring a smooth and predictable transition of incumbent FSS services to the upper 200 megahertz of the band. The Commission also noted that setting a specific transition deadline would make sure that eligible space station operators, incumbent earth station operators, and other stakeholders have the necessary time to complete the transition in a careful, fair, and cost-effective manner. In addition to setting a final transition deadline, the Commission also adopted a two-phased accelerated schedule for eligible space station operators in the Lower C-band who opted to transition on this basis in order to become eligible for certain incentives.

94. We seek comment on whether a transition timeline of a similar length (*i.e.,* approximately five-and-a-half years from the adoption of final rules) would be appropriate here as well and, if not, whether one or more different deadline(s) should be used. We invite commenters to indicate how quickly eligible space station operators and incumbent earth station operators will be able to transition their Upper C-band operations to make spectrum available for new terrestrial wireless licensees. Specifically, commenters are encouraged to propose one or more FSS transition deadline(s) they believe to be achievable and to provide a step-by-step breakdown of what would be required from a technical and operational standpoint to achieve a transition in a timely manner, including but not limited to a description of the technical steps of repacking or relocating incumbent FSS services, any necessary compression equipment upgrades, and the need for construction and launch of any new satellites, along with the corresponding time frames for achieving each step. Parties commenting on the transition timeline should address the extent of any transition-related information needed at particular points in time for potential bidders to participate effectively in an auction for any new licenses. Commenters proposing one or more specific spectrum clearing deadlines are also encouraged to indicate how their proposed deadline(s) might change under the band reconfiguration options under consideration, and how any in-band FSS transition timelines align with adjacent band considerations discussed *infra.* We also seek comment on whether to retain or modify the certification process by which eligible space station operators, on an individual basis, demonstrated compliance with the relevant Lower C-band deadlines, and on the potential costs and penalties in the event that an incumbent space station operator fails to clear their existing services by any final transition deadline that we establish. Incumbent space station operators that failed to clear their existing services by the final deadline for the Lower C-band transition would not be eligible to receive reimbursement for their reasonable transition costs or receive Accelerated Relocation Payments, and could also be subject to penalties for violation of the conditions of their license authorization. Further, we seek comment on the viability of private negotiations among relevant parties to accomplish earlier clearing than any

deadlines established by the Commission.

4. Transition Cost Reimbursement

95. As discussed in further detail *infra,* we propose to establish an FSS transition cost reimbursement structure that is generally consistent with the approach adopted by the Commission in the *2020 C-band R&O.* That model required new terrestrial wireless licensees in the Upper C-band to reimburse the reasonable transition costs incurred by eligible FSS space station and incumbent earth station operators allocated the responsibility for those costs among the new terrestrial wireless licensees on a *pro rata* basis. We further offered incumbent earth station operators the choice of either accepting reimbursement for their actual reasonable transition costs or accepting a lump sum reimbursement for *all* of their incumbent earth stations based on the average, estimated cost of transitioning those facilities. We seek comment on the potential repurposing of these reimbursement mechanisms and standards in the instant context, as well as whether there are any improvements that could be made based on lessons learned from the Lower C-band transition process. We acknowledge that, depending on the reconfiguration option we ultimately adopt in the instant context, the transition of the Upper C-band may differ in some important respects from that in the Lower C-band including as to key transition actions and related costs incurred. As such, we also seek comment on estimates for the potential total amount of transition cost reimbursements for FSS services in the Upper C-band for a given clearing target, and how we may need to modify certain reimbursement mechanisms and standards depending on what reconfiguration approach we ultimately adopt and how incumbent services may be transitioned.

96. *Compensable Transition Costs.* In the Lower C-band proceeding, the Commission set guidelines for compensable costs, *i.e.,* those reasonable transition costs for which eligible space station operators and incumbent earth station operators were able to seek actual cost reimbursement. In doing so, the Commission required all such transition costs to be reasonable, and indicated that such expenses would be compensable so long as they were both reasonable in cost and reasonably necessary to complete the transition in a timely manner. While the Commission allowed reimbursement for the reasonable replacement cost of newer equipment needed to carry out the transition, it also indicated that it would not permit reimbursement for equipment upgrades beyond what was necessary to clear the lower portion of the band and cautioned incumbents against attempts to gold-plate their systems. The Commission emphasized that compensable transition costs were only those that are reasonable and needed to transition *existing* operations in the contiguous United States out of the lower 300 megahertz of the C-band. Consistent with this approach, and as relevant to the reconfiguration option we ultimately adopt in the instant proceeding, we propose to again require any actual transition costs needed to clear existing Upper C-band operations in the contiguous United States to be ''reasonable'' in order to qualify for reimbursement and will not permit reimbursement for equipment upgrades beyond what is necessary to clear the band. We further seek comment on whether the type of reimbursable transition activities may differ in an Upper C-band transition, particularly as to current FSS C-band customers that may migrate to another satellite band or alternative delivery mechanism. We also propose not to reimburse incumbents for the speculative value of any business opportunities they claim they would lose as a result of the transition, and any ''soft costs'' would again be subject to a rebuttable presumption for a cap of 2% of the hard costs involved in the transition. We invite comment on this proposal, and on whether any clarifications or adjustments are needed to delineate what constitutes reasonable in the context of the forthcoming Upper C-band transition.

97. In this context, we seek comment on certain issues relating to compensable transition costs that were raised by stakeholders during the Lower C-band transition which may likewise be relevant for an Upper C-band transition depending on which reconfiguration option we ultimately adopt. As in the Lower C-band transition, to the extent that any unregistered earth stations, or registered earth stations that do not meet the existing definition of an incumbent earth station, remain operational in the C-band in the contiguous United States, our intent is that such stations would *not* be eligible for reimbursement of transition costs in the Upper C-band transition. We similarly clarify our intent that—assuming that the Upper C-band transition is limited to operations in CONUS, as proposed—earth stations outside CONUS but within the United States would only be eligible for reimbursement of transition costs where they ''demonstrate that they were required to make the system modifications for which they seek reimbursement as a direct result of the transition in the contiguous United States.'' Further, we propose that costs associated with facilities outside the United States would *not* be eligible for any reimbursement of transition costs, independent of any arguable relationship to the transition in the contiguous United States. To be clear, with the limited exception referenced above for earth stations within the United States but outside the contiguous United States, the only C-band earth stations that we propose would be eligible to have any reasonable transition costs reimbursed in connection with the Upper C-band transition are those within the contiguous United States that meet the proposed incumbent earth station definition, are currently on the most recent incumbent earth station list released by the Space Bureau, and that remain on any successor lists issued in the future. In a similar vein, we clarify our intent that any incumbent space station operators seeking reimbursement for new satellites may only seek reimbursement for reasonable transition costs that directly relate to and are necessary to continue to offer C-band service to one or more incumbent earth stations in the contiguous United States. As such, for any new satellites that may carry other payloads, transmit using other spectrum bands, or transmit C-band service into locations outside the contiguous United States, we anticipate that the only costs which will be compensable are those directly relating to the transition of C-band services in the contiguous United States. We seek comment on this approach, and how it might align with the different reconfiguration options under consideration, and the potential migration of existing C-band customers to Ku-band satellite service or other distribution technologies.

98. *Lump Sum Reimbursement Option.* As noted *supra,* in the *2020 C-band R&*O, the Commission provided incumbent earth station operators with the choice to either accept reimbursement for their actual reasonable transition costs in maintaining C-band satellite reception, or instead accept a lump sum reimbursement based on the average, estimated costs of transitioning *all* of their incumbent earth stations. The decision to accept a lump sum reimbursement was irrevocable—by accepting the lump sum, the incumbent took on the risk that the lump sum

would be insufficient to cover all its relocation costs—to ensure that incumbents had the appropriate incentive to accept the lump sum only if doing so is truly the more efficient option. Earth station operators that elected the lump sum payment and were intending to remain operating in the band were responsible for performing any necessary transition actions themselves, and they were required to complete any such work consistent with the space station operator's deadlines for transition.

99. We propose to give incumbent earth station operators the same choice in the instant transition to opt out of the formal transition process through a lump sum reimbursement option, and seek comment on whether we should again utilize the lump sum categories and general procedures set forth in our cost category schedule (Cost Catalog) for the Lower C-band transition. Proponents of any changes to the lump sum reimbursement option should describe both the scope of intended lump sum reimbursements as well as any new basis upon which to calculate the lump sum amounts, or other adjustments thereto, such as for inflation. For example, should lump sum payments now be premised on the cost of potentially moving incumbent earth station operators to an alternate distribution technology? How might the scope of lump sum reimbursements differ under the band reconfiguration options we are considering for Upper C-band? Could a modified and expanded lump sum regime essentially replace or obviate the need to reimburse actual costs, resulting in a more streamlined and efficient cost reimbursement program? We encourage commenters to submit detailed breakdowns of any potential alternative approaches to the lump sum option and also describe in detail the methodology they would use to determine an appropriate lump sum payment in lieu of actual cost reimbursement for incumbent earth station operators in the instant context.

100. *Allocating Payment Obligations Among Overlay Licensees.* For Lower C-band, the Commission explained the financial responsibilities that each 3.7 GHz Service licensee would incur to reimburse incumbent space station operators for clearing the band, as well as our authority to require such payments as license conditions on the new 3.7 GHz Service licensees consistent with our *Emerging Technologies* precedent. Specifically, the Commission found it reasonable to generally base the share for each 3.7 GHz Service licensee on that licensee's *pro rata* share of gross winning bids in the underlying auction, with specific allocation formulas governing each type of payment obligation. We propose to utilize the same general payment obligation structure and mechanisms used in Lower C-band and to again base the share of transition costs for each new 3.7 GHz Service licensee on that licensee's *pro rata* share of gross winning bids in the competitive bidding process. We seek comment on this proposal. Commenters are invited to recommend alternative approaches with a detailed description of the methodology behind their proposals. Would our methodology for allocating payment obligations have to be modified based on whatever reconfiguration option we adopt for the Upper C-band?

5. Incentives

101. We seek comment on the possible use of incentives to facilitate the timely introduction of new terrestrial wireless operations in the Upper C-band. For example, in the Lower C-band, the Commission used incentives in the form of accelerated relocation payments to eligible space station operators that voluntarily committed to relocate on an accelerated two-phase schedule and met those deadlines. The use of accelerated relocation payments to incentivize eligible space station operators to voluntarily relocate by early clearance benchmarks sought to leverage the technical and operational knowledge of incumbent space station operators, align their incentives to achieve a timely transition, and enable that transition to begin as quickly as possible. As further incentive, the Commission determined that eligible space station operators which failed to clear their existing C-band services out of the lower band by either of the Accelerated Relocation Deadlines would receive an incremental reduction in the amount of accelerated relocation payment based on the number of days that had passed since the deadline, with a payment of zero after more than 180 days.

102. Given the different circumstances in the Upper and Lower C-band—including the scope and scale of parties that may be seeking transition cost reimbursement as well as the timing of any adjacent band altimeter retrofits—would a similar incentive structure be appropriate for eligible space station operators in the forthcoming transition process? Will successful completion of the Upper C-band transition to terrestrial wireless services be primarily dependent on the expeditious clearing of incumbent FSS operations or will other factors and other parties be the primary drivers of the transition timeline? In light of these different considerations, what is the economic value of accelerating the FSS transition in this instance? We encourage parties supporting incentives for eligible space station operators in the Upper C-band to submit detailed arguments, including cost-benefit analyses, underlying their perspectives.

103. We also seek comment more generally on whether we should consider incentives—monetary or otherwise—to facilitate expeditious clearing of the Upper C-band. If so, who should be eligible for such incentives, how should any responsibility thereto be allocated, and what benchmarks should they be aligned with? If monetary in nature, how should such incentives be calculated, and should there be any reduction or elimination of incentives if the requisite deadlines are missed? Commenters should also indicate how such an estimate would be impacted by either of the band reconfiguration options we are considering. For example, should any incentives hinge on the amount of spectrum to be cleared?

6. Relocation Payment Clearinghouse

104. Consistent with our approach in the earlier transition, we propose to again use an independent Clearinghouse to oversee the cost-related aspects of the eventual Upper C-band transition, using a similar selection process and imposing the same broad responsibilities that were outlined in the *2020 C-band R&O.* The Commission there noted that selecting an independent third party for this purpose, subject to the Commission's rules and oversight, would help to ensure fairness and transparency in the handling of the reimbursement obligations associated with the Lower C-band transition. At the time, the Commission observed that it had previously and successfully adopted cost-sharing plans that utilized private clearinghouses to administer such reimbursement obligations among affected licensees. We believe, based on the experience of the earlier C-band transition, that such an approach would once again be in the public interest here. We seek comment on this proposal and on ways to build upon the success of the Lower C-band Clearinghouse in terms of potential improvements to any new transition cost reimbursement program.

a. Duties of the Clearinghouse

105. In the *2020 C-band R&O,* the Commission established that a Clearinghouse would be responsible for carrying out four categories of essential duties in connection with overseeing

the financial aspects of the Lower C-band transition. We propose to task any new Clearinghouse that is ultimately selected to oversee the financial aspects of the Upper C-band transition with broadly the same responsibilities, described in more detail below.

106. First, the Commission charged the Clearinghouse with collecting from all eligible space station operators and incumbent earth station operators a showing of their transition relocation costs, as well as a demonstration of those costs' reasonableness. Parties submitted their costs to the Clearinghouse directly, which then ascertained in the first instance whether the costs were reasonable, and allowed submitting parties to supplement claims initially deemed insufficient. Entities seeking reimbursement were required to document all of their costs, and to justify them; these entities were subject to audits and required to make all relevant documentation available to the Clearinghouse upon its request. The Clearinghouse notified requesting parties in the event that it deemed any claimed costs to be unreasonable, and the Wireless Telecommunications Bureau was empowered to make further determinations related to reimbursable costs, as necessary, throughout the transition process.

107. Second, the Clearinghouse was tasked with apportioning costs among new 3.7 GHz Service licensees and distributing payments to eligible space station operators, incumbent earth station operators, and appropriate surrogates of those parties that incurred compensable costs. After the auction, the Clearinghouse calculated each 3.7 GHz Service licensee's estimated share of the eventual relocation costs, as well as an estimate of total costs from before the auction through the first six months after it was complete. Licensees paid their shares of the initial cost estimate into the Clearinghouse-administered relocation fund shortly after the auction was complete, and the Clearinghouse drew from that fund to reimburse approved claims. The Clearinghouse calculated the estimated total program costs for every six-month period until the transition was complete, notified the 3.7 GHz Service licensees of their amounts owed at least 30 days before every six-month payment deadline, and reimbursed approved claims within 30 days of invoice submissions. The Clearinghouse included its own reasonable costs in its six-month estimates and provided an annual financial audit to the Office of the Managing Director and the Wireless Telecommunications Bureau including those costs, which were paid by 3.7 GHz Service licensees once their licenses were issued.

108. Third, the Clearinghouse was directed to, as needed, act as a special master and either mediate disputes related to cost estimates or payments, or refer the parties to alternate dispute resolution fora. The Commission also provided for expedited non-binding arbitration, with costs shared by the disputing parties, and for review of any disputes by the Wireless Telecommunications Bureau, with the opportunity for further review on appeal to the Commission.

109. Fourth, the Clearinghouse was required to provide quarterly information and progress reports to the Commission in order to ensure proper oversight of the Clearinghouse program. These reports included information related to available funds for reimbursement, payments issued, amounts collected from licensees, incumbents' certifications, funds spent on the transition, and description of any disputes and their resolutions. The Clearinghouse was also required to provide additional information upon the request of the Wireless Telecommunications Bureau and the Office of the Managing Director.

110. We propose to task a new independent third-party Clearinghouse with these same broad duties for the Upper C-band transition, and we seek comment on this proposal. Should we retain the basic structure of the processes by which the new 3.7 GHz Service licensees will replenish the reimbursement fund and eligible incumbents submit reimbursement claims for their reasonable transition costs? To the extent that a new terrestrial wireless licensee relinquishes to the Commission its license prior to all its transition payment responsibilities being discharged, we again propose that the remaining payments will be distributed among other similarly situated new terrestrial wireless licensees. If a new license is issued for such previously relinquished rights prior to final payments becoming due, we propose that the new licensee will be responsible for the same pro rata share of the payment obligations as the initial terrestrial wireless licensee. Finally, if a new terrestrial wireless licensee sells its rights on the secondary market, we propose that the new licensee will be obligated to fulfill all payment obligations associated with the license. We again anticipate that each eligible space station operator will be responsible for payment of its own satellite transition costs until the new terrestrial wireless licensees are determined, and those licensees will pay the Clearinghouse's costs throughout the reimbursement program, and thus seek comment on those proposals. Did the dispute resolution process resolve any open issues in a timely manner, or would additional alternative dispute resolution options or a more streamlined appeals process from the Wireless Telecommunications Bureau directly to the Commission facilitate the expeditious resolution of such matters? Were the quarterly Clearinghouse reporting requirements sufficient for the Commission to carry out its transition oversight duties, or would a different cadence of filings serve the same goal? Did the experience of the Lower C-band transition offer any other lessons that should guide us to adopt alternative approaches to any of the duties described above? If so, what are those alternatives, and why should we depart from our previous practice? For example, are there ways in which the new Clearinghouse could streamline the claims review process without compromising its duty to prevent fraud, waste, or abuse in the transition cost reimbursement program? Would any additional Clearinghouse duties, not contemplated in the Lower C-band transition, be useful in administering the cost aspects of the Upper C-band transition?

111. As part of the earlier transition, the Commission directed Wireless Telecommunications Bureau to establish a Cost Catalog which provided guidance to both incumbents and the new 3.7 GHz Service licensees about a range of reasonable transition costs. The Cost Catalog also detailed the process and relevant categories for incumbent earth station operators opting out of the formal transition and seeking a lump sum payment. Consistent with this approach, reimbursement claims that fell within the applicable range in the Cost Catalog were presumed reasonable. Should we once again utilize a Cost Catalog to establish ranges of presumptively reasonable transition costs? If so, should we retain the existing Cost Catalog, adjust it in some way (such as for inflation), or develop an entirely new one for the Upper C-band transition? If we again direct the Wireless Telecommunications Bureau to develop a new Cost Catalog or modify the existing one, how should we develop appropriate ranges identifying presumptively reasonable reimbursement claims?

b. Selecting the Clearinghouse

112. We propose to appoint a search committee tasked with selecting the Clearinghouse for the Upper C-band transition. As in the *2020 C-band R&O,*

we propose to establish a search committee that: (1) represents various stakeholder interests, including space station operators, earth station incumbents, and prospective flexible-use licensees; (2) proceeds by consensus, and, if necessary, selects the Clearinghouse by a majority vote; and (3) notifies the Commission of its choice by an established deadline. In order to streamline the search committee process, in contrast with the lower band transition where the search committee established the Clearinghouse's selection criteria, here we propose the use of selection criteria based upon the Clearinghouse's duties as discussed *supra.* Upon the selection of a Clearinghouse, we propose to direct the Wireless Telecommunications Bureau to issue a public notice seeking comment on whether the entity selected satisfies the selection criteria, and to issue a final order announcing whether the selection criteria has been satisfied. We further propose to again direct and delegate broad authority to the Wireless Telecommunications Bureau to provide the Clearinghouse and incumbent space station operators with any needed clarifications and interpretations of the Commission's orders and rules, and more generally to take such measures as are necessary to ensure the timely and efficient transition of the Upper C-band.

113. We seek comment on our proposal to adopt for the Upper C-band transition a process broadly similar to that used to select the Clearinghouse for the Lower C-band transition, with certain proposed modifications as detailed above. What lessons from the previous transition might inform the composition of the search committee, the substance of the selection criteria, or the procedures for, and timing of, the Clearinghouse's selection? We also seek comment on what should happen in the event that the search committee fails to select a Clearinghouse and notify the Commission by the deadline, including but not limited to procedures similar to those used in the Lower C-band transition?

7. The Logistics of Relocation

114. In order to relocate incumbent FSS operations out of the reconfigured portion of the Upper C-band, we propose to adopt requirements similar to those that governed the transition of FSS operations out of the Lower C-band. We therefore propose to require: (1) the preparation and submission of Transition Plans by the eligible space station operators; (2) a filing deadline for the submission of such Transition Plans, to be followed by a public comment period and the opportunity to update the plans as permitted by the Commission; (3) requirements for the content of eligible satellite operators' Transition Plans; and (4) the submission of quarterly status reports by the eligible space station operators on their implementation efforts; and (5) the selection and appointment of a Relocation Coordinator to ensure that relocation is completed in a timely manner.

115. The Commission previously found that the eligible space station operators possessed the technical and operational expertise that was required to facilitate the transition of FSS services out of the Lower C-band, and that putting them in charge of practical transition logistics—with Commission oversight—would be the most effective approach. Such operators were required to submit formal Transition Plans roughly three months after the Commission adopted the *2020 C-band R&O,* and the public was allowed to comment on those plans. The Commission required that the Transition Plans describe seven items in detail. Should we once again make the eligible space station operators responsible for both establishing and satisfying their clearing obligations? If so, should we adopt similar deadlines and content requirements for eligible space station operators' Transition Plans and status reports, and enable the filing of joint Transition Plans by multiple operators who deem it useful to develop a combined space station grooming plan, as long as it includes all of the required elements? Depending on the reconfiguration option we ultimately adopt, would any changes to the relocation process be appropriate?

116. The Commission previously determined that the establishment of a Relocation Coordinator to oversee the FSS transition was in the public interest, upon a demonstration of its expertise. Should we take the same approach to ensure the timely execution of the Upper C-band transition, or might a different approach be warranted depending on which reconfiguration option is adopted? Should we again establish a search committee of interested parties to select the Relocation Coordinator, or would another approach better suit this transition? What lessons from the Lower C-band transition might inform our approach to using a Relocation Coordinator for this effort? Should the Relocation Coordinator's selection process and responsibilities remain essentially the same as before, or might they change depending on which reconfiguration approach we select?

D. Coexistence With Adjacent Band Radio Altimeters

117. In light of our statutory mandate to complete a system of competitive bidding for licenses for at least 100 megahertz of the Upper C-band by July 4, 2027, we seek comment on how best to promote spectral coexistence between these proposed new wireless services and radio altimeters in the neighboring 4.2–4.4 GHz band. Since this issue was first addressed in the *2020 C-band R&O,* there has been significant technical work done by government and industry stakeholders to better understand any potential for harmful adjacent band interference. In addition, temporary measures were adopted by the wireless industry in the Lower C-band to adjust certain technical parameters in support of both full power deployments across the Lower C-band and the coexistence environment with adjacent band radio altimeters, for which retrofits were required by the FAA for part 121 and certain 129 aircraft in the United States as of February 1, 2024 to improve their signal rejection performance. There are also ongoing aviation industry-led efforts to design next generation radio altimeters that predate the instant FCC proceeding but nonetheless may lead to the production and deployment of more resilient altimeters in the near future. To that end, we expect the FAA to initiate and complete a rulemaking to codify the new radio altimeter standards in parallel with our rulemaking and prior to any auction we are required to commence under the OBBB Act. We believe that the development and installation of more robust radio altimeters will further aviation safety and aligns with other ongoing efforts to improve safety in the national airspace (NAS) including, for example, forthcoming air traffic control improvements recently appropriated for in the OBBB Act. Further, radio altimeter improvements will also reinforce the successful coexistence environment that exists between radio altimeters and operators in the 3.7 GHz Service, and we expect will obviate any need for ongoing mitigations or burdensome regulatory oversight going forward.

118. We seek comment on the current state of radio altimeter performance, and particularly specific technical data about the signal rejection capabilities of existing radio altimeters above 3.98 GHz that have been in use following the 2023 FAA-mandated retrofit. We ask radio altimeter equipment manufacturers and other relevant stakeholders to provide this data in sufficient detail to allow us to independently assess the ability of

post-retrofit radio altimeters, with or without additional modifications such as filtering, to coexist with the planned new adjacent band wireless operations. We are concurrently issuing a protective order in this proceeding to enable requests for the confidential treatment of any data and related business sensitive information. Further, we welcome updates related to ongoing private sector efforts to improve radio altimeter performance. We seek input on the expected level of performance from new radio altimeters based on technical work currently underway, along with the timing for finalization of any new performance standard and its implementation by the aviation industry.

119. In light of the ongoing industry efforts to develop and produce improved radio altimeters, we also seek comment on the substance and timing of the transition process for implementing future radio altimeter upgrades throughout the NAS. Once any new technical requirements are adopted by FAA, what compliance steps would the aviation industry need to undertake, and how long would an altimeter retrofit process last? What steps, if any, can be taken to enable a rapid implementation timeframe for any needed retrofits? Given our statutory mandate to complete a system of competitive bidding for the Upper C-band spectrum by July 2027, and the need to provide bidders with assurances of when they will be able to access the spectrum won at auction, we also seek comment on how the timing of the aviation industry's future implementation efforts can be aligned with the fulfillment of our statutory responsibilities.

120. In this context, we note that the requirement in the OBBB Act to complete a system of competitive bidding for least 100 megahertz of the Upper C-band by July 4, 2027 does not mention adjacent band issues. We also recognize that our established *Emerging Technologies* framework has not previously been used to address adjacent band equities. Nevertheless, we recognize that radio altimeter retrofits by the aviation industry that significantly improve their signal rejection capabilities within an accelerated timeframe would not only promote coexistence with future terrestrial wireless operations in the Upper C-band over the long term, but also support a timely implementation of our legislative remit and a successful conclusion of the competitive bidding process. Therefore, given the unique circumstances and timing considerations involved with the Upper C-band, we seek comment on ways in which any future radio altimeter retrofits can be incentivized and accelerated as part of the overall Upper C-band repurposing and transition process.

121. As an initial matter, and to provide financial certainty and transparency to all stakeholders, we seek comment on the estimated scale and scope of anticipated radio altimeter retrofits as a result of any new technical requirements that FAA may adopt in the near term that would facilitate a predictable and rapid repurposing of the Upper C-band. We also seek comment on specific proposals and mechanisms to facilitate these retrofits from a financial perspective, including how best to design and implement any such regime, as well as the basis for calculating such payments (*e.g.,* number of altimeter retrofits, installation timing). What would be an appropriate underlying rationale or predicate supporting such proposals, such as our *Emerging Technologies* framework? We also seek comment on who might be eligible to receive any such payments from winning bidders (*e.g.,* airlines or other aircraft owners, equipment manufacturers)? Should eligibility be limited to certain types of aircraft or classes of operator? Are there certain such categories, such as foreign aircraft or aircraft operated for personal, private use, for which a right to receive payment would not serve the public interest? We also seek comment on who might be responsible for addressing any payments and how they could be allocated (*e.g.,* the Upper C-band auction winners on a *pro rata* basis, akin to the mechanism used for the Lower C-band FSS transition)? Or would an alternate approach be more appropriate?

122. We further seek comment on how best to manage any potential payments related to radio altimeter retrofits. Specifically, could a list of eligible entities be created and maintained, such as with the incumbent earth station list used in the in-band FSS transition? What mechanism could be used to manage any such process and prevent potential fraud, waste, or abuse? If a third-party clearinghouse were used, could that be the same clearinghouse that we propose would oversee the in-band FSS transition cost reimbursement process? If not, what other type of entity might be appropriate to manage payments relating to an aviation retrofit process, how would it be selected, what would its responsibilities include, and who would be responsible for its operational costs?

123. Finally, in recognition of the evolving spectral environment in the adjacent 4.2–4.4 GHz band, we seek comment on whether the proposed technical rules in the instant proceeding—including limits on maximum base station power and OOBE—would contribute to a successful coexistence environment between new wireless operations in the Upper C-band and current and upgraded radio altimeters. Some commenters have suggested that more stringent limits on power and OOBE than those that were adopted in the *2020 Report and Order* may be appropriate. Accordingly, we seek comment on whether more restrictive limits on power or OOBE are necessary in the face of recent and future radio altimeter improvements to promote effective spectral coexistence. Does the answer depend on which repurposing option the Commission ultimately selects for the Upper C-band? Should any changes to such technical parameters be limited to the block(s) immediately adjacent to the 4.2–4.4 GHz band or within certain geographic areas? What is the minimum size guard band that would be required between terrestrial wireless and altimeters and how might this answer change based on the power and OOBE limits of the adjacent spectrum block(s)? While we seek to avoid ongoing and potentially burdensome oversight that may inhibit the rapid and robust deployment of wireless services in the Upper C-band, we also seek comment on whether other emissions management techniques may help to promote effective coexistence with radio altimeter operations.

IV. Procedural Matters

124. *Ex Parte Rules—Permit-But-Disclose.* This proceeding shall be treated as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules. Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda, or other

filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule § 1.1206(b), 47 CFR 1.1206(b). In proceedings governed by rule § 1.49(f), 47 CFR 1.49(f), or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.,* .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

Initial Regulatory Flexibility Analysis

125. As required by the Regulatory Flexibility Act (RFA) of 1980, as amended, Public Law 104–121, the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the policies and rules proposed in the Notice of Proposed Rulemaking (*NPRM*) assessing the possible significant economic impact on a substantial number of small entities. The Commission requests written public comments on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments specified on the first page of the *NPRM.* The Commission will send a copy of the *NPRM,* including this IRFA, to the Chief Counsel for the Small Business Administration (SBA). In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the **Federal Register**.

A. Need for, and Objectives of, the Proposed Rules

126. With today's *NPRM,* the Commission seeks comment on proposals to expand next generation wireless services in the 3.7–4.2 GHz band (C-band). As means of furthering its objective of optimizing use of the C-band's versatile coverage, capacity, and propagation characteristics, the Commission in 2020 repurposed the 3.7–3.98 GHz portion of the band (Lower C-band) for flexible use in the contiguous United States. As a result of that effort, Fixed Satellite Service (FSS) space and earth station operators deployed new and improved wireless services that brought 5G to countless communities, including rural, remote, and underserved areas. The *NPRM* takes another step to put vital mid-band spectrum to more intensive, flexible use that will support robust connectivity, spur economic growth, and advance American security interests, in furtherance of the One Big Beautiful Bill Act (OBBB Act), Public Law 119–21, 40002.

127. The *NPRM* proposes to further enable terrestrial wireless operations in a segment of the 3.98–4.2 GHz portion of the C-band (Upper C-band) in the contiguous United States and to generally apply the part 27 licensing and operating rules that presently govern wireless operations in the Lower C-band to new full-power commercial operations in the Upper C-band. In July 2025, as part of the OBBB Act, Congress reinstituted the Commission's general authority to grant licenses through systems of competitive bidding through September 2034 and established a path forward for the eventual repurposing of 800 megahertz to be licensed through competitive bidding, including at least 500 megahertz for full power commercial licensed use cases. OBBB Act, 40002(b)(1); *see also* 47 U.S.C. 309(j)(11). The OBBB Act also specifically directed the Commission to ''grant licenses through systems of competitive bidding, before the expiration of the general auction authority for not less than 300 megahertz, including by completing a system of competitive bidding not later than 2 years after the date of enactment of this Act for not less than 100 megahertz in the band between 3.98 gigahertz and 4.2 gigahertz.'' OBBB Act, 40002(b)(2).

128. Pursuant to this statutory directive, the *NPRM* seeks comment on options for reconfiguration of the Upper C-band. We have developed these options in light of what we believe might be achievable both in terms of further transitioning in-band incumbent FSS operations in the contiguous United States, as well as ongoing technical advancements with adjacent band radio altimeters which will further enhance their signal rejection capabilities and bolster the existing successful spectral co-existence environment. We propose to generally apply the existing 3.7 GHz Service rules to any newly authorized terrestrial wireless operations in any reconfiguration scenario. As discussed in further detail below, any other rules and requirements, including those relating to the transition process, would be modeled to the greatest extent possible on those that applied to the Lower C-band transition.

129. Thus, throughout the *NPRM,* we seek to enable more intensive flexible use of key mid-band spectrum by retaining many elements of the successful Lower C-band transition, and, where appropriate, by leveraging the lessons learned from that process to craft an improved process for transitioning the Upper C-band.

B. Legal Basis

130. The proposed action is authorized pursuant to Sections 1, 2, 4(i), 301, 302(a), 303, 304, 307, 309, 316, and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 301, 302(a), 303, 304, 307, 309, 316, and 403, and by Section 40002 of the OBBB Act.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

131. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act (SBA). A ''small business concern'' is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA. The SBA establishes small business size standards that agencies are required to use when promulgating regulations relating to small businesses; agencies may establish alternative size standards for use in such programs, but must consult and obtain approval from SBA before doing so.

132. Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe three broad groups of small entities that could be directly affected by our actions. In general, a small business is an independent business having fewer than 500 employees. These types of small businesses represent 99.9% of all businesses in the United States, which translates to 34.75 million businesses. Next, ''small organizations'' are not-for-profit enterprises that are independently owned and operated and not dominant their field. While we do not have data regarding the number of non-profits that meet that criteria, over 99 percent of nonprofits have fewer than

500 employees. Finally, ''small governmental jurisdictions'' are defined as cities, counties, towns, townships, villages, school districts, or special districts with populations of less than fifty thousand. Based on the 2022 U.S. Census of Governments data, we estimate that at least 48,724 out of 90,835 local government jurisdictions have a population of less than 50,000.

133. We have identified the Wireless Telecommunications Carriers (except Satellite) and Satellite Telecommunications industries as the most likely to be impacted by the rules proposed in the *NPRM.* These industries are identified in the chart below by their six-digit North American Industry Classification System (NAICS) codes and corresponding SBA size standard. Based on currently available U.S. Census data regarding the estimated number of small firms in each identified industry, we conclude that the proposed rules will impact a substantial number of small entities. Where available, we also provide additional information regarding the number of potentially affected entities in the industries identified below.

Regulated Industry (Footnotes specify potentially affected entities within a regulated industry where applicable)	NAICS code	SBA size standard	Total firms	Total small firms	% Small firms
Wireless Telecommunications Carriers (except Satellite).	517112	1,500 employees	1,184	1,081	91.30
Satellite Telecommunications	517410	$44 million	332	195	58.73

2024 Universal Service Monitoring Report Telecommunications Service Provider Data (Data as of December 2023)	SBA size standard (1,500 Employees)		
Affected entity	Total # FCC Form 499A filers	Small firms	Small entities
Wireless Telecommunications Carriers (except Satellite)	585	498	85.13

D. Description of Economic Impact and Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

134. The RFA directs agencies to describe the economic impact of proposed rules on small entities, as well as projected reporting, recordkeeping and other compliance requirements, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record.

135. The proposed changes in the *NPRM,* if adopted, may require small entities to hire attorneys, engineers, consultants, or other professionals to comply. Although the Commission cannot quantify the cost of compliance, we note that several of the proposed rule changes are consistent with and mirror existing policies and requirements used for other part 27 flexible-use licenses. Therefore, small entities with existing licenses in other bands may already be familiar with such policies and requirements and have the processes and procedures in place to facilitate compliance resulting in minimal incremental costs to comply with our requirements for the Upper C-band. Below is an overview of areas discussed in the *NPRM* that contain proposals that may, if adopted, lead to modified or additional compliance requirements for small entities.

136. *Reconfiguration and Allocation of the Upper C-band.* The *NPRM* seek comment on options for reconfiguring the Upper C-band in the contiguous United States ranging from a minimum of 100 megahertz (3.98–4.08 GHz) for terrestrial wireless use, as required by the OBBB Act, to a maximum of 180 megahertz (3.98–4.16 GHz). Under any approach that may be adopted within this range, the *NPRM* proposes that any remainder of the Upper C-band would be used for repacked FSS operations with a guard band of no more than 20 megahertz. The Commission seeks comment on these reconfiguration options generally, and further seeks input specifically as to how each of the topics addressed throughout the *NPRM* might be impacted depending on which reconfiguration approach we elect.

137. Additionally, the *NPRM* proposes to add a primary, non-federal mobile, except aeronautical mobile, allocation to whatever portion of the 4.0–4.2 GHz band we reconfigure in the contiguous United States. This proposal would harmonize the allocations in the Upper C-band with those in 3.7–4.0 GHz and thus make a wider band of contiguous mid-band spectrum available for next generation wireless services. The *NPRM* further proposes to retain exclusive non-federal allocations for FSS and Fixed Service (FS) in whatever portion of that band is *not* repurposed for terrestrial commercial wireless use in the contiguous United States, recognizing that FS operations have been sunset in those areas, and to preserve the status quo regarding FSS and FS allocations and operations outside of the contiguous United States. We seek comment on the benefits and potential drawbacks of our reconfiguration and reallocation proposals, including their economic impacts, potential alternatives, and whether they strike the right balance between incumbent interests and our goal of enabling more intensive flexible use of the C-band.

138. *Competitive Bidding Procedures.* The *NPRM* proposes to conduct an auction of licenses in the Upper C-band in conformity with the general competitive bidding rules set forth in part 1, subpart Q, of the Commission's rules. As we have in all recent previous Commission spectrum auctions, we propose to employ the part 1 rules governing competitive bidding design, designated entity preferences, unjust enrichment, application and certification procedures, payment procedures, reporting requirements, and the prohibition on certain communications between auction applicants. Under this proposal, such rules would be subject to any modifications that the Commission may adopt for its part 1 general competitive bidding rules in the future. Further, the *NPRM* seeks comment on whether any of those rules would be inappropriate or should be modified for an auction of licenses in the Upper C-band.

139. The *NPRM* also proposes to adopt bidding credits for the two larger designated entity business sizes provided in the Commission's part 1 standardized schedule of bidding credits, as we have done in all auctions

of licenses likely to be used to provide 5G services in a variety of bands since the part 1 schedule of bidding credits was updated in 2015. Further, the *NPRM* proposes to offer rural service providers a designated entity bidding credit for Upper C-band licenses. We seek comment on these proposals, and on whether the characteristics of the Upper C-band and our proposed licensing model suggest that we should adopt different small business size standards and associated bidding credits than we have in the past.

140. *The Transition of FSS Operations.* The *NPRM* proposes to adopt many of the same transition framework elements used for Lower C-band for the Upper C-band transition of incumbent FSS operations. First, the *NPRM* proposes that ''incumbent space station operators'' will generally include all space station operators authorized to provide C-band service to any part of the contiguous United States pursuant to an FCC-issued license or grant of market access as of June 21, 2018. The *NPRM* also proposes to define an ''eligible space station operator'' as an incumbent space station operator that has demonstrated as of February 1, 2020, that it has an existing relationship to provide service via C-band satellite transmission to one or more incumbent earth stations in the contiguous United States. In addition, the *NPRM* proposes to define ''incumbent earth stations'' for the Upper C-band transition to include fixed and temporary fixed earth stations that were operational as of April 19, 2018, and that: (1) continue to be operational; (2) were licensed or registered in the ICFS database on November 7, 2018; and (3) timely certified the accuracy of the information on file with the Commission by May 28, 2019. We seek comment on these proposals to apply the same baseline definitions as in the Lower C-band transition.

141. The *NPRM* also proposes to use our authority under Section 316 of the Communications Act to modify, as needed, the existing licenses, market access authorizations, and registrations currently held by FSS C-band incumbents to clear whatever portion of the Upper C-band we ultimately reallocate. The *NPRM*'s proposals aim to align with the clearing approach that the Commission took in carrying out the Lower C-band transition. We seek comment on this proposal.

142. Regarding the transition schedule, the *NPRM* proposes to set a specific transition deadline to ensure that all incumbent FSS operations are cleared in a timely manner to facilitate the introduction of terrestrial wireless services in the Upper C-band, and to provide potential auction bidders with some certainty as to when they will be able to obtain access to Upper C-band spectrum. As a result, the *NPRM* seeks comment on whether a transition timeline of approximately five and one half years, as was done with the Lower C-band, would be appropriate here and, if not, whether one or more different deadline(s) should be used. We seek comment on this proposal, including how deadlines should shift depending upon which reconfiguration proposal we adopt.

143. As with the Lower C-band transition, the *NPRM* proposes to require new terrestrial wireless licensees in the Upper C-band to reimburse the reasonable transition costs incurred by eligible FSS space station and incumbent earth station operators and to allocate the responsibility for those costs among the new terrestrial wireless licensees on a *pro rata* basis. We again propose to offer incumbent earth station operators the choice of either accepting reimbursement for their actual reasonable transition costs or accepting a lump sum reimbursement for all of their incumbent earth stations based on the average, estimated cost of transitioning those facilities. We seek comment on these proposals, whether improvements can be made in light of lessons learned in the prior transition, and whether the expected amount of transition cost reimbursement for FSS services in the Upper C-band will vary depending upon the reconfiguration option that we ultimately adopt.

144. Consistent with the Lower C-band approach, the *NPRM* also proposes to require all actual transition costs needed to clear existing Upper C-band operations in the contiguous United States to be ''reasonable'' in order to qualify for reimbursement and would not permit reimbursement for equipment upgrades beyond what is necessary to clear the band. The *NPRM* proposes not to reimburse incumbents for the speculative value of any business opportunities they claim they would lose as a result of the transition. The *NPRM* also proposes that any soft costs (*e.g.,* transactional expenses directly attributable to relocation) would again be subject to a rebuttable presumption for a cap of 2% of the hard costs involved in the transition. We seek comment on these proposals.

145. To allocate the transition financial responsibilities of new 3.7 GHz Service licensees, the *NPRM* again proposes to generally base the share for each licensee on that licensee's *pro rata* share of gross winning bids in the underlying auction, with specific allocation formulas governing each type of payment obligation. We seek comment on this proposal, and commenters are invited to recommend alternative approaches with a detailed description of the methodology behind their proposals.

146. The *NPRM* also seeks comment on whether we should consider incentives—monetary or otherwise—to facilitate expeditious clearing of the Upper C-band. We ask commenters to address who should be eligible for such incentives, how any responsibility thereto should be allocated, and what benchmarks they should be aligned with, as well as how incentives should be calculated and whether they would be impacted by adoption of either of the band reconfiguration options we are considering.

147. The *NPRM* proposes to once again use an independent Clearinghouse to oversee the cost-related aspects of the Upper C-band transition, using a similar selection process and imposing the same broad responsibilities as in the Lower C-band transition. We seek comment on this proposal, and on ways to build upon the success of the Lower C-band Clearinghouse by way of potential improvements to any new transition cost reimbursement program. Additionally, we seek comment on whether we should again use a Cost Catalog to establish ranges of presumptively reasonable transition costs, including whether we should retain the existing Cost Catalog, adjust it in some way (such as for inflation), or develop an entirely new one for the Upper C-band transition. The *NPRM* proposes to establish a search committee that will use selection criteria based upon the Clearinghouse's duties, rather than asking the committee to establish those criteria itself. We also seek comment on the proposal to adopt for the Upper C-band transition a process broadly similar to that used to select the Clearinghouse for the Lower C-band transition, with some proposed modifications.

148. In order to relocate incumbent FSS operations out of the reconfigured portion of the Upper C-band, the *NPRM* proposes to adopt requirements similar to those that governed the transition of FSS operations out of the Lower C-band. These requirements would include that eligible space station operators prepare and submit their own Transition Plans by a set deadline, and also submit quarterly status reports on their efforts. We seek comment on this proposal, on whether we should again establish a Relocation Coordinator to oversee the FSS transition, and if so, how we should

select it and with what responsibilities we should task it.

149. *Band Plan.* As with the Lower C-band, the *NPRM* proposes to license at least 100 megahertz of the Upper C-band in 20 megahertz blocks, using an unpaired spectrum block configuration, and on an exclusive, Partial Economic Area (PEA) basis. We seek comment on whether this approach remains appropriate for the wireless technologies likely to be deployed in the Upper C-band, whether PEAs are the appropriate areas, and whether 20 megahertz remains the appropriate block size, or if we should consider smaller or larger block sizes. We also invite comment on the costs and benefits of geographic licensing, and of any alternatives that commenters propose. Although the *NPRM* does not propose licensing areas outside of the contiguous United States, we seek comment on whether we should adopt a licensing approach for certain such areas.

150. *Licensing and Operating Rules.* The *NPRM* proposes to adopt similar licensing and operating rules that provide flexibility to align new licenses in the Upper C-band with existing licenses in the Lower C-band, which are already governed by part 27. In particular, we propose that new licensees in the Upper C-band comply with licensing and operating rules that are applicable to all part 27 services, including those rules relating to the assignment of licenses by competitive bidding, flexible use, regulatory status, foreign ownership reporting, compliance with construction requirements, renewal criteria, permanent discontinuance of operations, partitioning and disaggregation, and spectrum leasing. The *NPRM* asks commenters to identify any aspects of our general part 27 service rules that should be modified to accommodate the particular characteristics of the Upper C-band. Similarly, the *NPRM* seeks comment as to whether we should adopt service-specific rules for the Upper C-band in certain other areas, or if we should integrate the band into the rules that already apply to the Lower C-band. These rules govern eligibility, license term, performance requirements, renewal term construction obligations, and other licensing and operating rules. We also seek comment on a 15-year term for licenses in the Upper C-band. We ask commenters to discuss the costs and benefits associated with these approaches, as well as with any proposed alternatives.

151. In addition, the *NPRM* proposes to adopt an open eligibility standard for Upper C-band licenses. This approach would not affect citizenship, character, or other generally applicable qualifications that apply under our rules, and it would be consistent with that taken in the Lower C-band. We seek comment on the costs and benefits of this standard, including its effects on competition, innovation, and investment.

152. Regarding mobile spectrum holding policies, the *NPRM* proposes to not adopt a pre-auction bright-line limit on the ability of any entity to acquire spectrum in the Upper C-band through competitive bidding at auction. Instead, we propose to review holdings on a case-by-case basis when applications for initial licenses are filed post-auction to ensure that the public interest benefits of having a threshold on spectrum applicable to secondary market transactions are not rendered ineffective. Finally, we propose to include the Upper C-band spectrum in the Commission's spectrum screen, which assists the Commission with identifying markets that may warrant further competitive analysis, as a means of evaluating proposed secondary market transactions.

153. *Performance Requirements.* The *NPRM* proposes to require Upper C-band licensees offering mobile or point-to-multipoint services to provide reliable signal coverage and offer service to at least 45% of the population in each of their license areas within eight years of the license issue date (first performance benchmark), and to at least 80% of the population in each of their license areas within 12 years from the license issue date (second performance benchmark). We propose to once again permit Internet of Things (IoT) providers to instead demonstrate that they offer geographic area coverage of 35% of the license area at the first (eight-year) performance benchmark, and geographic area coverage of 65% of the license area at the second (12-year) performance benchmark. The *NPRM* also seeks comment on proposed requirements for licensees relying on fixed, point-to-point links that would mirror those adopted for the Lower C-band. Specifically, licensees relying on point-to-point links licensees would be required to demonstrate within eight years of the license issue date (first performance benchmark) that they have four links operating and providing service, either to customers or for internal use, if the population within the license area is equal to or less than 268,000. If the population within the license area is greater than 268,000, we propose to require licensees to demonstrate they have at least one link in operation and providing service, either to customers or for internal use, per every 67,000 persons within a license area. Licensees relying on point-to-point service would be required to demonstrate within 12 years of the license issue date (final performance benchmark) that they have eight links operating and providing service, either to customers or for internal use, if the population within the license area is equal to or less than 268,000. If the population within the license area is greater than 268,000, we would require a demonstration that the licensee is providing service and has at least two links in operation per every 67,000 persons within a license area. We seek comments on all of these proposals.

154. Regarding penalties for failure to meet performance requirements, we propose to adopt a rule requiring that, in the event a licensee fails to meet the first performance benchmark, the licensee's second benchmark and license term would be reduced by two years, thereby requiring it to meet the second performance benchmark two years sooner (at 10 years into the license term) and correspondingly reducing its license term to 13 years. As with our approach in the Lower C-band, we further propose that, in the event a licensee fails to meet the second performance benchmark for a particular license area, its authorization for each license area in which it fails to meet the performance requirement shall terminate automatically without Commission action. In the event a licensee's authority to operate terminates automatically, we propose to make the relevant license available for reassignment pursuant to the competitive bidding provisions of § 309(j). Consistent with the Commission's rules applicable to the Lower C-band and other bands, we propose that any Upper C-band licensee that forfeits its license for failing to meet its performance requirements would be precluded from regaining the license. We invite comments on these proposals.

155. *Compliance Procedures.* In addition to the compliance procedures applicable to all part 27 licensees, including the filing of electronic coverage maps and supporting documentation, the *NPRM* proposes to require that the coverage maps accurately depict both the boundaries of each licensed area and the coverage boundaries of the areas to which the licensee actually provides service. Therefore, if a licensee does not provide reliable signal coverage to its entire license area, we propose that its map must accurately depict the boundaries of the area or areas within each license

area not being served. Further, we propose that each licensee also must file supporting documentation certifying the type of service it is providing for each licensed area within its service territory and the type of technology used to provide such service. We seek comment on our proposals, as well as whether small entities face any special or unique issues with respect to the transition that would require additional time for them to comply.

156. *License Renewal and Renewal Term Construction Obligations.* We propose to apply the general renewal requirements applicable to all Wireless Radio Services (WRS) licensees to licensees in the Upper C-band. We further propose to apply our general part 27 renewal requirements for wireless licenses to the Upper C-band, as the Commission has for the Lower C-band, the 3.45 GHz band, and the 3.55–3.7 GHz band. Correspondingly, we propose to include the Upper C-band in the unified renewal framework for WRS. This means that Upper C-band licensees will be required to comply with § 1.949 of our rules by demonstrating that, over the course of their license term, they either: (1) provided and continue to provide service to the public, or (2) operated and continue to operate the license to meet the licensee's private, internal communications needs. Licensees can demonstrate compliance with this requirement either through the renewal showing in section (f) of that rule, or through the relevant safe harbor found in section (e).

157. In addition to, and independent of, the general renewal provisions set forth in our rules, we seek comment on applying specific renewal term construction obligations to Upper C-band licensees. We invite comment on whether there are unique characteristics of the Upper C-band that might warrant a different approach than the general renewal requirements. Commenters are encouraged to address the costs and benefits of their proposed rules and discuss how a given proposal will encourage investment and deployment in areas that might not otherwise benefit from significant wireless coverage.

158. *Technical Rules.* Consistent with existing rules for similar wireless services in nearby bands, the *NPRM* proposes to permit base stations in non-rural areas to operate at power levels up to 1640 watts per megahertz EIRP and base stations in rural areas to operate with double the non-rural power limits (3280 watts per megahertz EIRP). The *NPRM* also proposes to apply § 27.50(j)(1) through (2) of the Commission's rules to both fixed and base stations operating in the Upper C-band. For mobiles and portables, the *NPRM* proposes to adopt a 1 Watt (30 dBm) EIRP power limit, matching the standards adopted for the Lower C-band and the 3.45 GHz band. We invite comment on alternative power limits, request technical details in support of any proffered alternatives, and request analyses of the costs and benefits of such proposals.

159. For base station out-of-band emissions (OOBE), the *NPRM* proposes—consistent with the Lower C-band limit—to require base stations to suppress their emissions beyond the edge of their authorization to a conducted power level of −13 dBm/MHz, and to apply the existing part 27 measurement procedures and resolution bandwidth that are used for the Lower C-band. We seek comment on whether the same or different limits should be applied to emissions within the Upper C-band compared to those at the band's edge. For mobile units, the *NPRM* proposes to require that they suppress their conducted emissions to no more than −13 dBm/MHz outside their authorized frequency band, *i.e.,* at the authorized channel edge as measured at the antenna terminals. This proposal is consistent with the mobile OOBE limit that governs the Lower C-band, as is our proposal to adopt a relaxation of the emission limit within the first five megahertz of the channel edge by varying the resolution bandwidth used when measuring the emission. For emissions within 1 megahertz from the channel edge, the minimum resolution bandwidth would be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kilohertz. In the bands between one and five megahertz removed from the licensee's authorized frequency block, the minimum resolution bandwidth would be 500 kilohertz. Finally, the *NPRM* proposes to apply §§ 27.53(h)(4) and 27.53(i) of the Commission's rules to Upper C-band, as was done for the Lower C-band.

160. Consistent with the existing part 27 AWS rules, Lower C-band, and 3.45 GHz band requirements, none of which impose antenna height limits on antenna structures, the *NPRM* proposes not to restrict antenna heights for Upper C-band operations beyond any requirements necessary to ensure air navigation safety. And as with the Lower C-band, the *NPRM* proposes to apply a −76 dBm/m²/MHz power flux density (PFD) limit at a height of 1.5 meters above ground at the geographical border of Upper C-band licensees' service areas. We seek comment on the costs and benefits of these proposals, and on any potential alternatives.

161. The *NPRM* proposes to apply § 27.57(c) of the Commission's rules to terrestrial licensees in the Upper C-band; this rule requires all part 27 operations to comply with international agreements for operations near the Mexican and Canadian borders. Also consistent with our Lower C-band approach, we propose to adopt several additional technical rules that apply to all part 27 services, including §§ 27.51 (Equipment authorization), 27.52 (RF safety), 27.54 (Frequency stability), and part 1, subpart BB of the Commission's rules (Disturbance of AM Broadcast Station Antenna Patterns) for new terrestrial commercial wireless operations in the Upper C-band.

162. To safeguard incumbent FSS earth stations, the *NPRM* also proposes to adopt a PFD limit of −124 dBW/m²/MHz as measured at the registered incumbent earth station antenna; this PFD limit is consistent with the Lower C-band and would apply to all emissions within the earth station's authorized band of operation, from both base and mobile stations. In order to protect earth stations from receiver blocking, we propose to require a PFD limit of −16 dBW/m²/MHz, as measured at the registered incumbent earth station antenna, and applied across the transitioned frequency range. This blocking limit would apply to all emissions within the new terrestrial wireless licensee's authorized frequency range, and it is the same limit that applied to the Lower C-band transition. Finally, the *NPRM* proposes to allow full band/full arc use by FSS earth stations that continue to operate in the band during and after the transition process. We seek comment on these proposals, including the ongoing applicability of the assumptions that guided the Lower C-band transition, along with any appropriate alternatives.

163. In order to protect Telemetry, Tracking, and Command (TT&C) operations, the *NPRM* proposes to require new terrestrial licensees to ensure that the aggregated power from their operations meet an interference to noise ratio (I/N) of −6 dB as received by the TT&C earth station, and that they coordinate their co-channel operations within 70 km of TT&C earth stations that continue to operate in the Upper C-band. We also propose protections against adjacent channel interference, including: (1) aggregated power from adjacent 3.7 GHz Service operations must meet a −6 dB I/N ratio, and the limit would apply to all emissions removed from the TT&C's center frequency by more than 150% of the TT&C's necessary emission bandwidth; (2) we would not require prior

coordination between adjacent operations, but 3.7 GHz Service licensees and TT&C earth station operators would be expected to cooperate in good faith and make reasonable efforts to anticipate and resolve technical problems that may inhibit effective and efficient use of the spectrum; and (3) TT&C operators would be expected to make available pertinent technical information about their systems upon request by the 3.7 GHz Service licensees, and licensees of stations suffering or causing harmful interference would be expected to cooperate and resolve the problem by mutually satisfactory arrangements.

E. Discussion of Significant Alternatives Considered That Minimize the Significant Economic Impact on Small Entities

164. The RFA directs agencies to provide a description of any significant alternatives to the proposed rules that would accomplish the stated objectives of applicable statutes, and minimize any significant economic impact on small entities. The discussion is required to include alternatives such as: ''(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.''

165. In formulating its request for comments, the Commission considered alternatives addressing the economic impact of its proposals on small entities, should they be adopted. In the *NPRM,* the Commission broadly proposes to reconfigure the Upper C-band for more intensive, next-generation wireless use by generally deploying the procedures used in—and the lessons learned from—the successful similar transition of the Lower C-band. Throughout that proceeding, the Commission contemplated how its adopted rules would uniquely affect small entities and calibrated its determinations accordingly. The approach taken towards considering the effect of our rules towards small entities in that proceeding largely informs our process in this one. For example, we consider the potential economic hardship or compliance burdens to small entities with respect to the information collection, such as whether they would require certain accommodations or additional time to comply. We seek comment from small entities as to whether these entities face any special or unique concerns regarding this issue. Similarly, in developing its proposals, the Commission considers the effect of modifications that could be made to our rules regarding administrative processes that would reduce the economic impacts of proposed rule changes on small entities. By seeking comment specifically targeting effects on small entities, the Commission will obtain the data required to consider the approach that will be most cost-effective and minimize the economic impact on small entities while also fulfilling the Commission's statutory mandate.

166. Specifically, the *NPRM* proposes to adopt 15-year license terms for new licenses in the Upper C-band. If adopted, small entities should once again benefit from the opportunity for long-term operational certainty and a longer period to develop innovative services. The *NPRM* also contemplates and seeks comment on potential issues that small entities might face in meeting the proposed performance requirements for new Upper C-band licensees. To that end, the *NPRM* inquires whether our proposed point-to-multipoint coverage and service benchmarks might necessitate that we grant small entities certain accommodations or additional time to comply. Similarly, the *NPRM* considers the impact of, and seeks comment on, whether small entities should be offered additional time to fulfill proposed compliance procedures. Finally, the proposed competitive bidding procedures would implement familiar designated entity preferences in an auction of Upper C-band licenses. The *NPRM* proposes to adopt bidding credits for small and very small businesses, and to adopt a rural service provider credit.

167. The Commission finds an overriding public interest in encouraging investment in wireless networks, facilitating access to scarce spectrum resources, and promoting the rapid development of mobile services to Americans. All licensees, including small entities, play a crucial role in achieving these goals. Therefore, the *NPRM* seeks comment on alternative obligations, timing for implementation, and other measures that could accommodate the needs and resources of small entities. The Commission will carefully consider the effects of its proposals on small entities before adopting final rules in this proceeding.

F. Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rules

168. None. This proposed rule is not duplicative, nor does it overlap or conflict, with any other federal rules.

V. Ordering Clauses

169. *It Is Ordered,* pursuant to Sections 1, 2, 4(i), 301, 302(a), 303, 304, 307, 309, 316, and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 301, 302(a), 303, 304, 307, 309, 316 and 403, and by Section 40002 of the OBBB Act, that this Notice of Proposed Rulemaking *Is Hereby Adopted.*

170. *It Is Further Ordered* that, pursuant to applicable procedures set forth in §§ 1.415 and 1.419 of the Commission's Rules, 47 CFR 1.415, 1.419, interested parties may file comments on the Notice of Proposed Rulemaking on or before 30 days after publication in the **Federal Register**, and reply comments on or before 60 days after publication in the **Federal Register**.

171. *It Is Further Ordered* that the Commission's Office of the Secretary *Shall Send* a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for the Small Business Administration (SBA) Office of Advocacy.

Federal Communications Commission.

Marlene Dortch,

Secretary.

[FR Doc. 2025–22020 Filed 12–4–25; 8:45 am]

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 64

[CG Docket Nos. 17–59, 02–278, 25–307; WC Docket No. 17–97; FCC 25–76; FR ID 319452]

Advanced Methods To Target and Eliminate Robocalls

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) proposes steps to improve the availability and accuracy of caller identification information transmitted to consumers to enable them to better understand who is calling and decide whether to answer calls. Specifically, the Commission proposes to enhance the effectiveness of STIR/SHAKEN by