

**FACT SHEET\***

**Facilitating Shared Use in the 3.1-3.55 GHz Band**

Notice of Proposed Rulemaking - WT Docket No. 19-348

**Background:** The MOBILE NOW Act requires the Commission and the Department of Commerce to make available new spectrum for mobile and fixed wireless broadband use, and further requires the Commission to work with the National Telecommunications and Information Administration to evaluate whether commercial wireless services and federal incumbents could share use of spectrum between 3.1 and 3.55 GHz. This Notice of Proposed Rulemaking would propose to remove the existing non-federal allocations in the 3.3-3.55 GHz band as a step towards potential future shared use between federal incumbents and commercial users. By taking the initial step needed to clear the band of allocations for non-federal incumbents, the Commission furthers its continued efforts to make more mid-band spectrum potentially available to support next generation wireless networks—consistent with the mandate of the MOBILE NOW Act.

**What the NPRM Would Do:**

- Propose to clear the 3.3-3.55 GHz band of existing non-federal users by removing the non-federal secondary radiolocation and amateur allocations in the 3.3-3.55 GHz band;
- Propose to relocate incumbent non-federal users out of the band;
- Seek comment on relocation options and transition mechanisms for incumbent non-federal users, either to the 3.1-3.3 GHz band or to other frequencies;
- Seek comment on how to ensure that non-federal secondary operations in the 3.1-3.3 GHz band will continue to protect federal radar systems; and
- Prepare the band for possible future shared use between commercial wireless services and federal incumbents, potentially making as much as 250 megahertz of spectrum available for flexible use, including 5G.

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\* This document is being released as part of a “permit-but-disclose” proceeding. Any presentations or views on the subject expressed to the Commission or its staff, including by email, must be filed in WT Docket No. 19-348, which may be accessed via the Electronic Comment Filing System (<https://www.fcc.gov/ecfs/>). Before filing, participants should familiarize themselves with the Commission’s *ex parte* rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. *See* 47 CFR § 1.1200 et seq.

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

In the Matter of
Facilitating Shared Use in the 3.1-3.55 GHz Band
WT Docket No. 19-348

NOTICE OF PROPOSED RULEMAKING

Adopted: []

Released: []

By the Commission:

Comment Date: []

Reply Comment Date: []

I. INTRODUCTION

1. In this Notice of Proposed Rulemaking (Notice), we propose to remove the existing non-federal secondary radiolocation and amateur allocations in the 3.3-3.55 GHz band and to relocate incumbent non-federal operations out of the band, in order to prepare the band for possible future shared use between commercial wireless services and federal incumbents. We also seek comment on relocation options and transition mechanisms for incumbent non-federal operations. This Notice is consistent with the Commission’s responsibilities, as specified in the MOBILE NOW Act, to identify spectrum for new mobile and fixed wireless use and, specifically, to work in consultation with the National Telecommunications and Information Administration (NTIA) to evaluate the feasibility of allowing commercial wireless services to share use of spectrum between 3.1 and 3.55 GHz. By proposing to delete the existing non-federal secondary allocations from the 3.3-3.55 GHz band in the Table of Frequency Allocations, we are taking an important initial step towards satisfying Congress’s directives and making as much as 250 megahertz of spectrum from this band potentially available for advanced wireless services, including 5G, the next generation of wireless connectivity.

II. BACKGROUND

2. Congress addressed the pressing need for additional spectrum for wireless broadband in the Fiscal Year 2018 omnibus spending bill, signed into law in March 2018, which includes the MOBILE

\* This document has been circulated for tentative consideration by the Commission at its December 12, 2019 open meeting. The issues referenced in this document and the Commission’s ultimate resolution of those issues remain under consideration and subject to change. This document does not constitute any official action by the Commission. However, the Chairman has determined that, in the interest of promoting the public’s ability to understand the nature and scope of issues under consideration, the public interest would be served by making this document publicly available. The FCC’s ex parte rules apply and presentations are subject to “permit-but-disclose” ex parte rules. See, e.g., 47 C.F.R. §§ 1.1206, 1.1200(a). Participants in this proceeding should familiarize themselves with the Commission’s ex parte rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. See 47 CFR §§ 1.1200(a), 1.1203.

NOW Act under Title VI of RAY BAUM'S Act.<sup>1</sup> In light of the importance of making spectrum available for new technologies and maintaining America's leadership position in the future of communications technology, the Act mandates that the Secretary of Commerce, working through NTIA: (1) submit, in consultation with the Commission and the head of each affected Federal agency (or a designee thereof), a report by March 23, 2020 on the feasibility of "allowing commercial wireless service, licensed or unlicensed, to share use of the frequencies between 3100 megahertz and 3550 megahertz,"<sup>2</sup> and (2) identify with the Commission "at least 255 megahertz of Federal and non-Federal spectrum for mobile and fixed wireless broadband use" by December 31, 2022.<sup>3</sup> With respect to this second obligation of NTIA and the Commission, the Act further specifies that not less than "100 megahertz below the frequency of 6000 megahertz shall be identified for use on an exclusive, licensed basis for commercial mobile use, pursuant to the Commission's authority to implement such licensing in a flexible manner"<sup>4</sup> and "subject to potential continued use of such spectrum by incumbent Federal entities in designated geographic areas" in accordance with specified terms of the Act and not less than "100 megahertz below the frequency of 8000 megahertz shall be identified for use on an unlicensed basis."<sup>5</sup>

3. Of the frequencies between 3100 MHz and 3550 MHz, NTIA has identified the top 100 megahertz in the 3.45-3.55 GHz band as the most promising portion for sharing in the near term and is conducting a feasibility assessment in collaboration with the Department of Defense (DOD), and continues to study the feasibility of sharing in the entire 3.1-3.55 GHz band with existing and future federal users.<sup>6</sup> The report on the 3.1-3.55 GHz band must include: "(1) [a]n assessment of the operations of Federal entities that operate Federal Government stations authorized to use the frequencies . . ."; (2) "[a]n assessment of the possible impacts of such sharing on Federal and non-Federal users already operating on the frequencies . . ."; (3) "[t]he criteria that may be necessary to ensure shared licensed or unlicensed services would not cause harmful interference to Federal or non-Federal users already operating in the frequencies . . ." and (4) "[i]f such sharing is feasible, an identification of which of the frequencies described in that subsection are most suitable for sharing with commercial wireless services through the assignment of new licenses by competitive bidding, for sharing with unlicensed operations, or through a combination of licensing and unlicensed operations."<sup>7</sup> Once NTIA has submitted the report, "[t]he Commission, in consultation with the NTIA, shall seek public comment on the repor[t] . . ."<sup>8</sup>

4. Currently, the entire 3.1-3.55 GHz band is allocated for both federal and non-federal radiolocation services, with non-federal users operating on a secondary basis to federal radiolocation

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<sup>1</sup> See Consolidated Appropriations Act, 2018, P.L. 115-141, Division P, the Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM'S) Act, Title VI (the Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act or MOBILE NOW Act).

<sup>2</sup> *Id.* § 605(a).

<sup>3</sup> *Id.* § 603(a)(1).

<sup>4</sup> *Id.* § 603(a)(2)(B).

<sup>5</sup> *Id.* § 603(a)(2)(A); see also *id.* § 603(a)(2)(C) ("55 megahertz below the frequency of 8000 megahertz shall be identified for use on either a licensed or unlicensed basis, or a combination of licensed and unlicensed").

<sup>6</sup> See U.S. Dept. of Commerce, Annual Report on the Status of Spectrum Repurposing at 20 (Aug. 2019), available at <https://go.usa.gov/xparp>; see also *Our Wireless Future: Building A Comprehensive Approach to Spectrum Policy: Hearing Before the Subcomm. on Comms. and Technology of the H. Comm. on Energy and Commerce*, 116th Cong. (July 16, 2019) (Testimony of Derek Khlopin, Senior Policy Advisor, NTIA) ("We started aggressively looking at [the 3.1-3.55 GHz] range, what we found in the short-term is the upper 100, the 3450-3550, presents the opportunity in the near-term to make spectrum available. Having said that, we'll continue to look for the larger block as well . . . [w]e're very, very optimistic about it.").

<sup>7</sup> MOBILE NOW Act § 605(c).

<sup>8</sup> *Id.* § 605(d).

services, which have a primary allocation.<sup>9</sup> The federal radiolocation allocation is one piece of a broader federal primary allocation for radiolocation in the 2.9-3.65 GHz band.<sup>10</sup> The DOD operates high-powered defense radar systems on fixed, mobile, shipborne, and airborne platforms in this band. These radar systems are used in conjunction with weapons control systems and for the detection and tracking of air and surface targets. The DOD also operates radar systems used for fleet air defense, missile and gunfire control, bomb scoring, battlefield weapon locations, air traffic control, and range safety.<sup>11</sup>

5. In addition, the 3.3-3.5 GHz band is allocated for non-federal amateur use and the 3.5-3.55 GHz band is allocated for federal aeronautical radionavigation services.<sup>12</sup> Between 3.3 and 3.55 GHz, there are only eight active licenses being used for a variety of commercial and industrial radiolocation services, such as doppler radar to provide weather information to broadcast viewers.<sup>13</sup> Non-federal transmitters operating between 3.3-3.5 GHz are limited to survey operations and cannot exceed a peak power of 5 watts into the antenna.<sup>14</sup> From 3.1-3.3 GHz, the band is allocated for space research (active) and earth exploration satellite (active) in addition to radiolocation services.<sup>15</sup> There are 17 non-federal radiolocation licenses below 3.3 GHz, held by power companies and municipalities.<sup>16</sup>

6. Finally, we note that among the non-federal users already operating on these frequencies are hundreds of experimental licenses, including special temporary authorizations (STAs), active throughout the 3.1-3.55 GHz band.<sup>17</sup> These licenses and STAs, pursuant to part 5 of the Commission's rules, may be granted for a broad range of research and experimentation purposes but such operations are on a non-interference basis (i.e., if an experimental facility should cause interference, the licensee is required to discontinue operation).<sup>18</sup> Many of the recurring STAs in the band enable short-term use of these or other frequencies to add additional capacity during sporting events.<sup>19</sup>

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<sup>9</sup> See 47 CFR § 2.106 and US108; *id.* § 90.103(b), (c)(12).

<sup>10</sup> 47 CFR § 2.106.

<sup>11</sup> See NTIA Compendium of Federal Spectrum Use, available at <https://www.ntia.doc.gov/other-publication/2017/federal-government-spectrum-compendium>; NTIA Special Publication 00-40, Federal Radar Spectrum Requirements at 26 (May 2000) (explaining why certain radar systems are in certain bands), available at <https://www.ntia.doc.gov/report/2000/federal-radar-spectrum-requirements>.

<sup>12</sup> See 47 CFR § 2.106.

<sup>13</sup> Of the eight licenses, three are held by NBC Telemundo License LLC; one is held by Station Venture Operations, LP; one is held by I.O.U. Acquisitions; one is held by Air-Tel, LLC; one is held by Nexstar Broadcasting, Inc; and one is held by the Town of Warrensburg/Warrensburg Police Department.

<sup>14</sup> See 47 CFR § 90.103(b), (c)(13).

<sup>15</sup> See *id.* § 2.106.

<sup>16</sup> Specifically, eight licenses are held by Alabama Power Company; seven licenses are held by Georgia Power Company; and two licenses are held by the city and county of Denver/Denver International Airport.

<sup>17</sup> The total number of active experimental authorizations is always changing. Experimental STAs, for example, may be requested for operation of a conventional experimental radio service station for a temporary period of no longer than six months. See 47 CFR §§ 5.54(a)(2), 5.61. A current list of active experimental authorizations throughout the 3.1-3.55 GHz band can be found via the Office of Engineering and Technology's Experimental Licensing System Generic Search, available at <https://apps.fcc.gov/oetcf/els/reports/GenericSearch.cfm>.

<sup>18</sup> See 47 CFR §§ 5.3, 5.84.

<sup>19</sup> See, e.g., Broad Comm Inc. Application for Special Temporary Authority, File No. 1336-EX-ST-2019 (filed July 23, 2019) (requesting temporary use of the 3.31-3.51 GHz band to provide video coverage of the 2019 U.S. Open Tennis Tournament and related activities using ten Nucomm transmitters, model number 23PT3-L02-1TO); CP Communications Application for Special Temporary Authority, File No. 1236-EX-ST-2019 (filed July 3, 2019) (seeking a single experimental STA to provide remote audio and video at 32 NFL stadiums using eight "various" transmitters in the 3.2-3.55 GHz band).

7. In light of the foregoing statutory provisions contained in the MOBILE NOW Act, the Wireless Telecommunications Bureau in February 2019 imposed a freeze on accepting and processing applications for new or expanded part 90 Radiolocation Service operations in the 3.1-3.55 GHz band to “maintain a stable spectral environment in a band that is under active consideration for possible alternative use.”<sup>20</sup>

### III. DISCUSSION

8. In this Notice, we propose to remove the non-federal allocations for the 3.3-3.55 GHz band and relocate incumbent non-federal users out of the band. We note that the upper portion of 3.3-3.55 GHz has been the focus for 5G use by standards setting organizations and in other countries, and we thus believe our focus on this band would promote international harmonization.<sup>21</sup> We also seek comment on transition and protection mechanisms for non-federal incumbent operators.

#### A. Removal of Non-Federal Allocations

9. We propose to eliminate the non-federal radiolocation services allocation in the 3.3-3.55 GHz band and the non-federal amateur allocation in the 3.3-3.5 GHz.<sup>22</sup> Our proposed removal is an initial step toward potential future shared use between federal operations and flexible use commercial services, in furtherance of our obligations under the MOBILE NOW Act to identify spectrum for mobile and fixed wireless use and to work with NTIA to evaluate this band for potential shared use. As the Commission has recognized in other proceedings, mid-band spectrum is well-suited for next generation wireless broadband services given the combination of favorable propagation characteristics (as compared to high bands) and the opportunity for additional channel re-use (as compared to low bands).<sup>23</sup> As demonstrated by the commercial interest in the adjacent 3.5 GHz band, as well as the extensive use of experimental licenses and STAs operating in the 3.1-3.55 GHz band throughout 2019, flexible-use operations in the 3 GHz band hold substantial promise.<sup>24</sup>

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<sup>20</sup> *Temporary Freeze on Non-Federal Applications in the 3100-3550 MHz Band*, WT Docket No. 19-39, Public Notice, 34 FCC Rcd 19 (WTB Feb. 22, 2019). Two pending applications for new stations are subject to this freeze. See Application of Fort Myers Broadcasting Company, ULS File No. 0008282472 (filed July 12, 2018); Application of Southern California Edison Company, ULS File No. 0008495115 (filed Jan. 17, 2019). In May, Dynetics, Inc., filed requests for modification and waiver of the freeze to allow certain continued operations in the 3.1-3.3 GHz band; these petitions remain pending. See Dynetics, Inc. Request for Modification of Temporary Freeze on Non-Federal Applications in the 3100-3550 MHz Band, WT Docket No. 19-39 (filed May 17, 2019); Dynetics, Inc. Request for Limited Waiver of Temporary Freeze on Non-Federal Applications in the 3100-3550 MHz Band, WT Docket No. 19-39 (filed May 17, 2019).

<sup>21</sup> For example, 3GPP, a global industry standards organization that develops protocols for mobile technology, has specified two spectrum operating bands for 5G that overlap with the 3.3-3.55 GHz band: band n77 between 3.3-4.2 GHz, and band n78 between 3.3-3.8 GHz. 3GPP TS 38.104, NR; Base Station (BS) Radio Transmission and Reception. Note: 3GPP specifications refer to 5G as New Radio (NR).

<sup>22</sup> Specifically, we propose to remove these non-federal allocations from the Table of Frequency Allocations in section 2.106 of our rules, 47 CFR § 2.106, and make conforming rule changes in parts 90 and 97, 47 CFR pts. 90, 97. See App. A, Proposed Rules.

<sup>23</sup> See, e.g., *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-222, Order and Notice of Proposed Rulemaking, 33 FCC Rcd 6915, 6917-18, para. 5 (2018) (*3.7 GHz NPRM*).

<sup>24</sup> See, e.g., *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015) (*3.5 GHz Order*) (the Commission added co-primary fixed and mobile allocations to the 3550-3650 MHz band to facilitate a new commercial broadband service at 3550-3700 MHz); 3G Wireless, LLC Application for Special Temporary Authority, File No. 1736-EX-ST-2019 (filed Sept. 15, 2019) (seeking experimental STA to support transmission of NFL Monday Night Football games throughout the season from various stadium sites); *3.7 GHz NPRM*, 33 FCC Rcd at 6932-38, paras. 49-65.

10. By taking the initial step needed to clear the band of allocations for non-federal incumbents, we further our continued efforts to make more mid-band spectrum potentially available to support next generation wireless networks—consistent with the mandate of the MOBILE NOW Act. We seek comment on this proposal.

### **B. Future of Incumbent Non-Federal Operations**

11. We seek comment on appropriate relocation options for incumbent non-federal users, either to the 3.1-3.3 GHz band or to other frequencies. Which other frequencies might be appropriate to accommodate the current and future uses of the band? Should we consider different frequencies for different licensees depending on their specific needs? For example, are there different considerations that we should take into account in considering alternate frequencies for the relatively low-power operations in the 3.3-3.5 GHz band and the high-power weather radar operations in the 3.5-3.55 GHz band? We believe that moving the high-power weather radars in particular may benefit operations in the adjacent 3.55-3.7 GHz band by minimizing the potential for harmful interference from the non-federal radars to Citizens Broadband Radio Service operations.<sup>25</sup> If non-federal licensees were relocated to the 3.1-3.3 GHz band, we propose that they would continue to operate on a secondary basis to federal operations, consistent with the current allocations in the band. We seek comment on whether this proposal is the most efficient and appropriate scheme for future use of the band. We also seek comment on how best to balance the interests of existing licensees in the 3.3-3.55 GHz band with potentially preparing the band for possible future shared use between federal incumbents and commercial wireless services, if feasible. And we seek comment on how to ensure that non-federal secondary operations in the 3.1-3.3 GHz band will continue to protect federal radar systems. Commenters should precisely describe proposed approaches and explain the costs and benefits of their proposals.

12. With respect to amateur operations, is there sufficient existing amateur spectrum in other bands that can support the operations currently conducted in the 3.3-3.5 GHz band? We note that the 3.40-3.41 GHz segment is designated for communications to and from amateur satellites.<sup>26</sup> We seek comment on: the extent to which the band is used for this purpose, whether existing satellites can operate on other amateur satellite bands, and on an appropriate timeframe for terminating these operations in this band.

13. We also seek comment generally on the transition mechanism and process for relocating existing non-federal users. How can the Commission expedite and incentivize the transition of existing operations? What is a reasonable timeframe to transition the operations? Should these licenses sunset at the end of the existing license term, or at another date certain? What are the potential costs to non-federal incumbent licensees to relocate their operations to another band as compared to the benefits of preparing the band for future shared use? What technical characteristics of non-federal licensee's equipment should factor into our relocation considerations (e.g., tunability, bandwidth, operational power, etc.)? How should non-federal incumbent licensees be compensated for their relocation costs? Should their current status, i.e., secondary to federal radiolocation services,<sup>27</sup> factor into any relocation considerations, including cost reimbursement?

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<sup>25</sup> See, e.g., CTIA Reply, GN Docket No. 12-354, at 8-9 (filed Aug. 8, 2017) (arguing that OOB from high-power weather radar systems are high enough to cause base station shutdown or damage); Wireless Innovation Forum (WInnForum) Comments, GN Docket No. 12-354, at 4 (filed July 24, 2017) (“In particular, the power levels and rolloff characteristics of adjacent band weather radar systems will pose challenges to CBRS operations in the 3.5 GHz band.”). In 2018, both CTIA and WInnForum opposed Fort Myers Broadcasting’s application for a new weather radar station to operate in the 3.5-3.55 GHz band for these reasons. See Informal Objection of WInnForum, ULS File No. 000828472 (filed Aug. 27, 2018); Informal Objection of CTIA, ULS File No. 000828472 (filed Aug. 14, 2018).

<sup>26</sup> See 47 CFR §§ 97.207-97.211.

<sup>27</sup> *Id.* § 90.103(b), (c)(12).

#### IV. PROCEDURAL MATTERS

14. *Ex Parte Presentations.* The proceedings shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.<sup>28</sup> 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). In proceedings governed by rule 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.

15. *Comment Period and Filing Procedures.* Pursuant to sections 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). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one active docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission’s Secretary must be delivered to FCC Headquarters at 445 12<sup>th</sup> St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. 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 overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12<sup>th</sup> Street, SW, Washington DC 20554.

16. *People with Disabilities:* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call

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<sup>28</sup> *Id.* §§ 1.1200 *et seq.*

the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

17. *Availability of Documents.* Comments, reply comments, and *ex parte* submissions will be available for public inspection during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12<sup>th</sup> Street, S.W., Room CY-A257, Washington, D.C. These documents will also be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

18. *Initial Regulatory Flexibility Analysis.* As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>29</sup> the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities of the policies and rules addressed in this *Notice*. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines for comments on the *Notice* and should have a separate and distinct heading designating them as responses to the IRFA.

19. *Paperwork Reduction Act Analysis.* This document contains proposed new or modified information collection requirements. 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 the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

20. *Further Information.* For additional information on this proceeding, contact Jessica Greffenus of the Mobility Division, Wireless Telecommunications Bureau, at [jessica.greffenus@fcc.gov](mailto:jessica.greffenus@fcc.gov) or (202) 418-2896, or Mary Claire York of the Mobility Division, Wireless Telecommunications Bureau, at [MaryClaire.York@fcc.gov](mailto:MaryClaire.York@fcc.gov) or (202) 418-2205.

## V. ORDERING CLAUSES

21. IT IS ORDERED, pursuant to the authority found in sections 1, 2, 4(i), 303, 316, and 1502 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154(i), 303, 316, and 1502, and section 1.411 of the Commission's Rules, 47 C.F.R § 1.411, that this Notice of Proposed Rulemaking IS HEREBY ADOPTED.

22. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

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<sup>29</sup> 5 U.S.C. § 603.



**APPENDIX A****Proposed Rules****PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

[INSERT CURRENT AUTHORITY CITATION]

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:
  - a. Pages 40 and 41 are revised.
  - b. In the list of United States (US) Footnotes, footnote US108 is revised.
  - c. In the list of Federal Government (G) Footnotes, footnotes G2 and G59 are revised.

**§ 2.106 Table of Frequency Allocations.**

The revisions read as follows:

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Federal Communications Commission

FCC-CIRC1912-03

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|--|--|--|--|---|---|
| 2670-2690<br>FIXED 5.410<br>MOBILE except aeronautical mobile 5.384A<br>Earth exploration-satellite (passive)<br>Radio astronomy<br>Space research (passive) | 2670-2690<br>FIXED 5.410<br>FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415<br>MOBILE except aeronautical mobile 5.384A<br>Earth exploration-satellite (passive)<br>Radio astronomy<br>Space research (passive) | 2670-2690<br>FIXED 5.410<br>FIXED-SATELLITE (Earth-to-space) 5.415<br>MOBILE except aeronautical mobile 5.384A<br>MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419<br>Earth exploration-satellite (passive)<br>Radio astronomy<br>Space research (passive) |  |   |   |
| 5.149 5.412  | 5.149  | 5.149  | US205  | US385   |   |
| 2690-2700<br>EARTH EXPLORATION-SATELLITE (passive)<br>RADIO ASTRONOMY<br>SPACE RESEARCH (passive)  |  |  | 2690-2700<br>EARTH EXPLORATION-SATELLITE (passive)<br>RADIO ASTRONOMY US74<br>SPACE RESEARCH (passive) |   |   |
| 5.340 5.422  |  |  | US246  |   |   |
| 2700-2900<br>AERONAUTICAL RADIONAVIGATION 5.337<br>Radiolocation   |  |  | 2700-2900<br>METEOROLOGICAL AIDS<br>AERONAUTICAL RADIONAVIGATION 5.337 US18<br>Radiolocation G2        | 2700-2900   | Aviation (87)                             |
| 5.423 5.424  |  |  | 5.423 G15  | 5.423 US18  |   |
| 2900-3100<br>RADIOLOCATION 5.424A<br>RADIONAVIGATION 5.426   |  |  | 2900-3100<br>RADIOLOCATION 5.424A G56<br>MARITIME RADIONAVIGATION                                      | 2900-3100<br>MARITIME RADIONAVIGATION<br>Radiolocation US44                                   | Maritime (80)<br>Private Land Mobile (90) |
| 5.425 5.427  |  |  | 5.427 US44 US316   | 5.427 US316   |   |
| 3100-3300<br>RADIOLOCATION<br>Earth exploration-satellite (active)<br>Space research (active)  |  |  | 3100-3300<br>RADIOLOCATION G59<br>Earth exploration-satellite (active)<br>Space research (active)      | 3100-3300<br>Earth exploration-satellite (active)<br>Space research (active)<br>Radiolocation | Private Land Mobile (90)                  |
| 5.149 5.428  |  |  | US342  | US342   |   |
| 3300-3400<br>RADIOLOCATION   | 3300-3400<br>RADIOLOCATION<br>Amateur<br>Fixed<br>Mobile   | 3300-3400<br>RADIOLOCATION<br>Amateur  | 3300-3500<br>RADIOLOCATION   | 3300-3500   |   |
| 5.149 5.429 5.429A 5.429B 5.430  | 5.149 5.429C 5.429D  | 5.149 5.429 5.429E 5.429F  |  |   |   |
| 3400-3600<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile 5.430A<br>Radiolocation  | 3400-3500<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile 5.431A 5.431B<br>Amateur<br>Radiolocation 5.433  | 3400-3500<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>Amateur<br>Mobile 5.432 5.432B<br>Radiolocation 5.433  |  |   |   |
|  | 5.282  | 5.282 5.432A   | US342  | US342   |   |

| International Table  |   |   | United States Table   |  | FCC Rule Part(s)   |
|--|---|---|---|--|--|
| Region 1 Table   | Region 2 Table  | Region 3 Table  | Federal Table   | Non-Federal Table  |  |
| (See previous page)  | 3500-3600<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile 5.431B<br>Radiolocation 5.433 | 3500-3600<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile 5.433A<br>Radiolocation 5.433 | 3500-3550<br>RADIOLOCATION<br>AERONAUTICAL RADIONAVIGATION (ground-based) G110                          | 3500-3550  |  |
|  |   |   | 3550-3650<br>RADIOLOCATION G59<br>AERONAUTICAL RADIONAVIGATION (ground-based) G110                      | 3550-3600<br>FIXED<br>MOBILE except aeronautical mobile<br>US105 US433   | Citizens Broadband (96)                                  |
| 3600-4200<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>Mobile   | 3600-3700<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile 5.434<br>Radiolocation 5.433  | 3600-3700<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile<br>Radiolocation              | US105 US107 US245 US433   | 3600-3650<br>FIXED<br>FIXED-SATELLITE (space-to-Earth) US107 US245<br>MOBILE except aeronautical mobile<br>US105 US433 | Satellite Communications (25)<br>Citizens Broadband (96) |
|  |   | 5.435   | 3650-3700<br>FIXED<br>FIXED-SATELLITE (space-to-Earth) NG169 NG185<br>MOBILE except aeronautical mobile | 3650-3700<br>FIXED<br>FIXED-SATELLITE (space-to-Earth) NG457A  |  |
|  | 3700-4200<br>FIXED<br>FIXED-SATELLITE (space-to-Earth)<br>MOBILE except aeronautical mobile                               |   | US109 US349   | 3700-4200<br>FIXED<br>FIXED-SATELLITE (space-to-Earth) NG457A  | Satellite Communications (25)<br>Fixed Microwave (101)   |
| 4200-4400<br>AERONAUTICAL MOBILE (R) 5.436<br>AERONAUTICAL RADIONAVIGATION 5.438<br>5.437 5.439 5.440                |   |   | 4200-4400<br>AERONAUTICAL RADIONAVIGATION<br>5.440 US261  |  | Aviation (87)  |
| 4400-4500<br>FIXED<br>MOBILE 5.440A<br>4500-4800<br>FIXED<br>FIXED-SATELLITE (space-to-Earth) 5.441<br>MOBILE 5.440A |   |   | 4400-4940<br>FIXED<br>MOBILE  | 4400-4500  |  |
|  |   |   |   | 4500-4800<br>FIXED-SATELLITE (space-to-Earth) 5.441 US245  |  |
| 4800-4990<br>FIXED<br>MOBILE 5.440A 5.441A 5.441B 5.442<br>Radio astronomy   |   |   | US113 US245 US342<br>4940-4990  | 4800-4940<br>US113 US342   |  |
|  |   |   |   | 4940-4990<br>FIXED<br>MOBILE except aeronautical mobile  | Public Safety Land Mobile (90Y)                          |
| 5.149 5.339 5.443<br>4990-5000   |   |   | 5.339 US342 US385 G122<br>4990-5000   | 5.339 US342 US385  |  |

|  |   |  |
|--|---|--|
| FIXED<br>MOBILE except aeronautical mobile<br>RADIO ASTRONOMY<br>Space research (passive)<br>5.149 | RADIO ASTRONOMY US74<br>Space research (passive)<br><br>US246 |  |
|--|---|--|

\* \* \* \* \*

**UNITED STATES (US) FOOTNOTES**

\* \* \* \* \*

US108 In the band 10-10.5 GHz, survey operations, using transmitters with a peak power not to exceed five watts into the antenna, may be authorized for Federal and non-Federal use on a secondary basis to other Federal radiolocation operations.

\* \* \* \* \*

**FEDERAL GOVERNMENT (G) FOOTNOTES**

\* \* \* \* \*

G2 In the bands 216.965-216.995 MHz, 420-450 MHz (except as provided for in G129), 890-902 MHz, 928-942 MHz, 1300-1390 MHz, 2310-2390 MHz, 2417-2450 MHz, 2700-2900 MHz, 5650-5925 MHz, and 9000-9200 MHz, use of the Federal radiolocation service is restricted to the military services.

\* \* \* \* \*

G59 In the bands 902-928 MHz, 3100-3300 MHz, 3550-3650 MHz, 5250-5350 MHz, 8500-9000 MHz, 9200-9300 MHz, 13.4-14.0 GHz, 15.7-17.7 GHz and 24.05-24.25 GHz, all Federal non-military radiolocation shall be secondary to military radiolocation, except in the sub-band 15.7-16.2 GHz airport surface detection equipment (ASDE) is permitted on a co-equal basis subject to coordination with the military departments.

\* \* \* \* \*

**PART 90—PRIVATE LAND MOBILE RADIO SERVICES**

3. The authority citation for Part 90 continues to read as follows:

[INSERT CURRENT AUTHORITY CITATION]

4. In § 90.103, revise the table in paragraph (b) by removing the entries for the “3300 to 3500” MHz and “3500 to 3550” MHz bands to read as follows:

**§ 90.103 Radiolocation Service.**

\* \* \* \* \*

(b) \* \* \* \*

RADIOLOCATION SERVICE FREQUENCY TABLE

| Frequency or band  | Class of station(s) | Limitation |
|--------------------|---------------------|------------|
| * * *              | * *                 | * *        |
| Megahertz          |                     |            |
| * * *              | * *                 | * *        |
| 3100 to 3300 ..... | .....do             | 12         |
| 3550 to 3650 ..... | .....do             | 30         |
| * * *              | * *                 | * *        |

\* \* \* \* \*

**PART 97—AMATEUR RADIO SERVICE**

5. The authority citation for part 97 continues to read as follows:

[INSERT CURRENT AUTHORITY CITATION]

6. Revise Section 97.207 to read as follows:

**§ 97.207 Space station.**

\* \* \* \* \*

(c) \* \* \*

(2) The 7.0-7.1 MHz, 14.00-14.25 MHz, 144-146 MHz, 435-438 MHz, 2400-2450 MHz, 5.83-5.85 GHz, 10.45-10.50 GHz, and 24.00-24.05 GHz segments.

\* \* \* \* \*

7. Revise Section 97.209 to read as follows:

**§ 97.209 Earth station.**

\* \* \* \* \*

(b) \* \* \*

(2) The 7.0-7.1 MHz, 14.00-14.25 MHz, 144-146 MHz, 435-438 MHz, 1260-1270 MHz and 2400-2450 MHz, 5.65-5.67 GHz, 10.45-10.50 GHz and 24.00-24.05 GHz segments.

8. Revise Section 97.211 to read as follows:

**§ 97.211 Space telecommand station.**

\* \* \* \* \*

(c) \* \* \*

(2) The 7.0-7.1 MHz, 14.00-14.25 MHz, 144-146 MHz, 435-438 MHz, 1260-1270 MHz and 2400-2450 MHz, 5.65-5.67 GHz, 10.45-10.50 GHz and 24.00-24.05 GHz segments.

\* \* \* \* \*

9. In § 97.301, revise the table in paragraph (a) to read as follows:

**§ 97.301 Authorized frequency bands.**

\* \* \* \* \*

(a) \* \* \*

| Wavelength band | ITU Region 1  | ITU Region 2  | ITU Region 3  | Sharing requirements<br><i>see</i> §97.303<br>(paragraph) |
|-----------------|---------------|---------------|---------------|---|
| VHF             | MHz           | MHz           | MHz           |   |
| 6 m             | -             | 50-54         | 50-54         | (a)   |
| 2 m             | 144-146       | 144-148       | 144-148       | (a), (k)  |
| 1.25 m          | -             | 219-220       | -             | (l)   |
| Do              | -             | 222-225       | -             | (a)   |
| UHF             | MHz           | MHz           | MHz           |   |
| 70 cm           | 430-440       | 420-450       | 430-440       | (a), (b), (m)   |
| 33 cm           | -             | 902-928       | -             | (a), (b), (e), (n)  |
| 23 cm           | 1240-1300     | 1240-1300     | 1240-1300     | (b), (d), (o)   |
| 13 cm           | 2300-2310     | 2300-2310     | 2300-2310     | (d), (p)  |
| Do              | 2390-2450     | 2390-2450     | 2390-2450     | (d), (e), (p)   |
| SHF             | GHz           | GHz           | GHz           |   |
| 5 cm            | 5.650-5.850   | 5.650-5.925   | 5.650-5.850   | (a), (b), (e), (r)  |
| 3 cm            | 10.0-10.5     | 10.0-10.5     | 10.0-10.5     | (a), (b), (k)   |
| 1.2 cm          | 24.00-24.25   | 24.00-24.25   | 24.00-24.25   | (b), (d), (e)   |
| EHF             | GHz           | GHz           | GHz           |   |
| 6 mm            | 47.0-47.2     | 47.0-47.2     | 47.0-47.2     |   |
| 4 mm            | 76-81         | 76-81         | 76-81         | (c), (f), (s)   |
| 2.5 mm          | 122.25-123.00 | 122.25-123.00 | 122.25-123.00 | (e), (t)  |
| 2 mm            | 134-141       | 134-141       | 134-141       | (c), (f)  |
| 1 mm            | 241-250       | 241-250       | 241-250       | (c), (e), (f)   |
|                 | Above 275     | Above 275     | Above 275     | (f)   |

10. In § 97.303, revise paragraphs (b) and (f) and remove and reserve paragraph (q) to read as follows:

**§ 97.303 Frequency sharing requirements.**

\* \* \* \* \*

(b) Amateur stations transmitting in the 70 cm band, the 33 cm band, the 23 cm band, the 5 cm band, the 3 cm band, or the 24.05-24.25 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the United States Government in the radiolocation service.

\* \* \* \* \*

(f) Amateur stations transmitting in the following segments must not cause harmful interference to radio astronomy stations: 76-81 GHz, 136-141 GHz, 241-248 GHz, 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz, or 926-945 GHz. In addition, amateur stations transmitting in the following segments must not cause harmful interference to stations in the Earth exploration-satellite service (passive) or the space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

\* \* \* \* \*

(q) [Reserved]

\* \* \* \* \*

11. In § 97.305, revise the SHF portion of the table in paragraph (c) by removing the entry for the 9 cm band to read as follows.

**§ 97.305 Authorized emission types.**

\* \* \* \* \*

(c) \* \* \*

| <b>Wavelength Band</b> | <b>Frequencies</b> | <b>Emission types authorized</b>               | <b>Standards see §97.307(f), paragraph:</b> |
|------------------------|--------------------|--|---|
| * *                    | *                  | *  | *   |
| <b>SHF:</b>            |                    |  |   |
| 5 cm                   | Entire band        | MCW, phone, image, RTTY, data, SS, test, pulse | (7), (8), and (12).                         |
| 3 cm                   | Entire band        | MCW, phone, image, RTTY, data, SS, test        | (7), (8), and (12).                         |
| 1.2 cm                 | Entire band        | MCW, phone, image, RTTY, data, SS, test, pulse | (7), (8), and (12).                         |
| * *                    | *                  | *  | *   |



## APPENDIX B

### Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Notice of Proposed Rulemaking (Notice)*. Written comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Notice*. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>2</sup> In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register.<sup>3</sup>

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

1. This *Notice of Proposed Rulemaking (Notice)* proposes to remove the existing non-federal radiolocation and amateur allocations in the 3.3-3.55 GHz band and to relocate incumbent non-federal operations out of the band, in order to prepare the band for possible future shared use between commercial wireless services and federal incumbents. It also seeks comment on relocation options and transition mechanisms for incumbent non-federal operations. If non-federal licensees are relocated to the 3.1-3.3 GHz band, the Commission proposes that they would continue to operate on a secondary basis to federal operations, consistent with the current allocations in the band. This *Notice* is consistent with the Commission's responsibilities, as specified in the MOBILE NOW Act, to work with the National Telecommunications and Information Administration (NTIA) to identify spectrum for new mobile and fixed wireless use and, specifically, to work in consultation with NTIA to evaluate the feasibility of allowing commercial wireless services to share use of spectrum between 3.1 and 3.55 GHz.<sup>4</sup> The Commission's proposal to delete the existing non-federal secondary allocations from the 3.3-3.55 GHz band in the Table of Frequency Allocations is an important initial step towards satisfying Congress's directives and making as much as 250 megahertz of spectrum from the band potentially available for advanced wireless services, including 5G.

#### B. Legal Basis

2. The proposed action is authorized pursuant to sections 1, 2, 4(i), 303, 316, and 1502 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154(i), 201(b), 303, 316, and 1502, and section 1.411 of the Commission's Rules, 47 C.F.R. § 1.411.

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

3. 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.<sup>5</sup> The RFA generally

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<sup>1</sup> See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See 5 U.S.C. § 603(a).

<sup>3</sup> See *id.*

<sup>4</sup> See Consolidated Appropriations Act, 2018, P.L. 115-141, Division P, the Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM'S) Act, Title VI (the Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act or MOBILE NOW Act).

<sup>5</sup> 5 U.S.C. § 603(b)(3).

defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>6</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>7</sup> A small business concern is one that: (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.<sup>8</sup>

4. *Small Businesses, Small Organizations, and Small Governmental Jurisdictions.* Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.<sup>9</sup> First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the SBA’s Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.<sup>10</sup> These types of small businesses represent 99.9 percent of all businesses in the United States, which translates to 28.8 million businesses.<sup>11</sup>

5. Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>12</sup> Nationwide, as of August 2016, there were approximately 356,494 small organizations based on registration and tax data filed by nonprofits with the Internal Revenue Service (IRS).<sup>13</sup>

6. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>14</sup> U.S. Census Bureau data from the 2012 Census of Governments<sup>15</sup> indicate that there were 90,056 local governmental jurisdictions consisting of general

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<sup>6</sup> 5 U.S.C. § 601(6).

<sup>7</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

<sup>8</sup> 15 U.S.C. § 632.

<sup>9</sup> See 5 U.S.C. § 601(3)-(6).

<sup>10</sup> See SBA, Office of Advocacy, “Frequently Asked Questions, Question 1—What is a small business?,” [https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016\\_WEB.pdf](https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf) (June 2016).

<sup>11</sup> See SBA, Office of Advocacy, “Frequently Asked Questions, Question 2—How many small businesses are there in the U.S.?” [https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016\\_WEB.pdf](https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf) (June 2016).

<sup>12</sup> 5 U.S.C. § 601(4).

<sup>13</sup> Data from the Urban Institute, National Center for Charitable Statistics (NCCS) reporting on nonprofit organizations registered with the IRS was used to estimate the number of small organizations. Reports generated using the NCCS online database indicated that as of August 2016 there were 356,494 registered nonprofits with total revenues of less than \$100,000. Of this number 326,897 entities filed tax returns with 65,113 registered nonprofits reporting total revenues of \$50,000 or less on the IRS Form 990-N for Small Exempt Organizations and 261,784 nonprofits reporting total revenues of \$100,000 or less on some other version of the IRS Form 990 within 24 months of the August 2016 data release date. See <http://nccs.urban.org/sites/all/nccs-archive/html/tablewiz/tw.php> where the report showing this data can be generated by selecting the following data fields: Report: “The Number and Finances of All Registered 501(c) Nonprofits”; Show: “Registered Nonprofits”; By: “Total Revenue Level (years 1995, Aug to 2016, Aug)”; and For: “2016, Aug” then selecting “Show Results”.

<sup>14</sup> 5 U.S.C. § 601(5).

<sup>15</sup> See 13 U.S.C. § 161. The Census of Government is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Program Description Census of Government,

(continued....)

purpose governments and special purpose governments in the United States.<sup>16</sup> Of this number there were 37, 132 General purpose governments (county<sup>17</sup>, municipal and town or township<sup>18</sup>) with populations of less than 50,000 and 12,184 Special purpose governments (independent school districts<sup>19</sup> and special districts<sup>20</sup>) with populations of less than 50,000. The 2012 U.S. Census Bureau data for most types of governments in the local government category show that the majority of these governments have populations of less than 50,000.<sup>21</sup> Based on this data we estimate that at least 49,316 local government jurisdictions fall in the category of “small governmental jurisdictions.”<sup>22</sup>

7. *Radio Frequency Equipment Manufacturers (RF Manufacturers)*. Neither the Commission nor the SBA has developed a small business size standard applicable to Radio Frequency Equipment Manufacturers (RF Manufacturers). There are several analogous SBA small entity categories applicable to RF Manufacturers -- Fixed Microwave Services, Other Communications Equipment Manufacturing, and Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. A description of these small entity categories and the small business size standards under the SBA rules are detailed below.

8. *Fixed Microwave Services*. Microwave services include common carrier,<sup>23</sup> private-operational fixed,<sup>24</sup> and broadcast auxiliary radio services.<sup>25</sup> They also include the Upper Microwave

(Continued from previous page) \_\_\_\_\_

<https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=program&id=program.en.COG#>

<sup>16</sup> See U.S. Census Bureau, 2012 Census of Governments, Local Governments by Type and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG02.US01>. Local governmental jurisdictions are classified in two categories - General purpose governments (county, municipal and town or township) and Special purpose governments (special districts and independent school districts).

<sup>17</sup> See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>. There were 2,114 county governments with populations less than 50,000.

<sup>18</sup> See U.S. Census Bureau, 2012 Census of Governments, Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States – States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>. There were 18,811 municipal and 16,207 town and township governments with populations less than 50,000.

<sup>19</sup> See U.S. Census Bureau, 2012 Census of Governments, Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. There were 12,184 independent school districts with enrollment populations less than 50,000.

<sup>20</sup> See U.S. Census Bureau, 2012 Census of Governments, Special District Governments by Function and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG09.US01>. [The U.S. Census Bureau data did not provide a population breakout for special district governments.](#)

<sup>21</sup> See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>; Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States–States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>; and Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. [While U.S. Census Bureau data did not provide a population breakout for special district governments, if the population of less than 50,000 for this category of local government is consistent with the other types of local governments the majority of the 38, 266 special district governments have populations of less than 50,000.](#)

<sup>22</sup> *Id.*

<sup>23</sup> See 47 CFR Part 101, Subparts C and I.

Flexible Use Service<sup>26</sup>, Millimeter Wave Service<sup>27</sup>, Local Multipoint Distribution Service (LMDS),<sup>28</sup> the Digital Electronic Message Service (DEMS),<sup>29</sup> and the 24 GHz Service,<sup>30</sup> where licensees can choose between common carrier and non-common carrier status.<sup>31</sup> There are approximately 66,680 common carrier fixed licensees, 69,360 private and public safety operational-fixed licensees, 20,150 broadcast auxiliary radio licensees, 411 LMDS licenses, 33 24 GHz DEMS licenses, 777 39 GHz licenses, and five 24 GHz licenses, and 467 Millimeter Wave licenses in the microwave services.<sup>32</sup> The Commission has not yet defined a small business with respect to microwave services. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite) and the appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees.<sup>33</sup> For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.<sup>34</sup> Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more.<sup>35</sup> Thus under this SBA category and the associated size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

9. *Other Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing communications equipment (except telephone apparatus, and radio and television broadcast, and wireless communications equipment).<sup>36</sup> Examples of such manufacturing include fire detection and alarm systems manufacturing, Intercom systems and equipment manufacturing, and signals (e.g., highway, pedestrian, railway, traffic) manufacturing.<sup>37</sup> The SBA has established a size standard for this industry as all such firms having 750 or fewer employees.<sup>38</sup>

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<sup>24</sup> See 47 CFR Part 101, Subparts C and H.

<sup>25</sup> Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's Rules. See 47 CFR Part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

<sup>26</sup> See 47 CFR Part 30.

<sup>27</sup> See 47 CFR Part 101, Subpart Q.

<sup>28</sup> See 47 CFR Part 101, Subpart L.

<sup>29</sup> See 47 CFR Part 101, Subpart G.

<sup>30</sup> See *id.*

<sup>31</sup> See 47 CFR §§ 101.533, 101.1017.

<sup>32</sup> These statistics are based on a review of the Universal Licensing System on September 22, 2015.

<sup>33</sup> See 13 CFR § 121.201, NAICS code 517210.

<sup>34</sup> U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1251SSSZ5, Information: Subject Series, "Estab and Firm Size: Employment Size of Firms for the U.S.: 2012 NAICS Code 517210" (rel. Jan. 8, 2016). [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/51SSSZ5//naics~517210](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ5//naics~517210).

<sup>35</sup> *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "1000 employees or more."

<sup>36</sup> See U.S. Census Bureau, 2017 NAICS Definitions, NAICS Code "334290 Other Communications Equipment Manufacturing", <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?input=334290&search=2017+NAICS+Search&search=2017>.

<sup>37</sup> *Id.*

<sup>38</sup> See 13 CFR 121.201, NAICS Code 334290.

U.S. Census Bureau data for 2012 show that 383 establishments operated in that year.<sup>39</sup> Of that number, 379 operated with fewer than 500 employees and 4 had 500 to 999 employees.<sup>40</sup> Based on this data, we conclude that the majority of Other Communications Equipment Manufacturers are small.

10. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.<sup>41</sup> Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.<sup>42</sup> The SBA has established a small business size standard for this industry of 1,250 employees or less.<sup>43</sup> U.S. Census Bureau data for 2012 show that 841 establishments operated in this industry in that year.<sup>44</sup> Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees.<sup>45</sup> Based on this data, we conclude that a majority of manufacturers in this industry are small.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

11. The proposed actions in the *Notice* to remove the existing non-federal radiolocation and amateur allocations in the 3.3-3.55 GHz band and relocate incumbent non-federal operations out of the band, if adopted, may impose reporting, recordkeeping and other compliance requirements on small entities as well as other licensees. In the event the proposed actions are adopted, the *Notice* seeks comment on relocation options and on transition and protection mechanisms for incumbent non-federal operations.<sup>46</sup> We note that between 3.3 and 3.55 GHz, there are only eight active licenses being used for a variety of commercial and industrial radiolocation services, with the majority being held by large entities.<sup>47</sup> We also note that between 3.1-3.3 GHz, the band is allocated for space research (active) and earth exploration satellite (active) in addition to radiolocation services, and that there are 17 non-federal radiolocation licenses below 3.3 GHz, that held by large power companies and municipalities.<sup>48</sup> Thus,

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<sup>39</sup> U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012, NAICS Code 334290, [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/31SG2//naics~334290](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334290).

<sup>40</sup> *Id.*

<sup>41</sup> See U.S. Census Bureau, 2012 NAICS Definitions, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing” <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=ib&id=ib.en./ECN.NAICS2012.334220#>.

<sup>42</sup> *Id.*

<sup>43</sup> 13 CFR § 121.201, NAICS Code 334220.

<sup>44</sup> U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012, NAICS Code 334220, [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/31SG2//naics~334220](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334220).

<sup>45</sup> *Id.*

<sup>46</sup> See *Notice*, paras. 10-12.

<sup>47</sup> Of the eight licenses, three are held by NBC Telemundo License LLC; one is held by Station Venture Operations, LP; one is held by I.O.U. Acquisitions; one is held by Air-Tel, LLC; and one is held by Nexstar Broadcasting, Inc; and one by the Town of Warrensburg/Warrensburg Police Department.

<sup>48</sup> Eight licenses are held by Alabama Power Company; seven licenses are held by Georgia Power Company; and two licenses are held by the city and county of Denver/Denver International Airport.

while the Commission is not currently in a position to determine whether, if adopted, the rule changes that could result from the proposals and the questions raised in the *Notice* will require small entities to hire attorneys, engineers, consultants, or other professionals, and we cannot quantify the cost of compliance with any potential rule changes that may be adopted, we do not believe that the costs and/or administrative burdens associated with any of the potential rule changes will unduly burden small entities.

12. In the discussion of the proposals in the *Notice*, the Commission has sought comments from parties in the proceeding on options, alternatives and other matters we should consider, including seeking cost and benefit analyses.<sup>49</sup> The Commission expects that the information it receives in comments will help it identify and evaluate all relevant matters associated with the proposed removal of the existing non-federal radiolocation and amateur allocations in the 3.3-3.55 GHz band and the relocation of incumbent non-federal operations out of the band, including compliance costs and burdens on small entities.

**E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

13. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(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 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 small entities.”<sup>50</sup>

14. To assist in the Commission’s evaluation of the economic impact on small entities and alternatives, as a result of the actions that have been proposed in this proceeding, in the *Notice* the Commission has raised questions and sought comment on alternatives to identify appropriate relocation options, mechanisms, timing, and costs.<sup>51</sup> Regarding costs, the Commission has specifically requested information on the potential costs to non-federal incumbent licensees to relocate their operations to another band as compared to the benefits of preparing the band for future shared use, and on how non-federal incumbent licensees should be compensated for their relocation costs. The Commission expects to consider more fully the economic impact on small entities following its review of comments filed in response to the *Notice*, including costs and benefits information. The Commission’s evaluation of the comments filed in this proceeding will shape the final conclusions it reaches, the final alternatives it considers, and the actions it ultimately takes in this proceeding to minimize any significant economic impact that may occur on small entities.

**F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules**

15. None.

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<sup>49</sup> See *Notice*, paras. 10-12.

<sup>50</sup> 5 U.S.C. § 603(c)(1)-(4).

<sup>51</sup> See *Notice*, paras. 8-11.