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**6712-01**

## **FEDERAL COMMUNICATIONS COMMISSION**

### **47 CFR Part 101**

**[WT Docket No. 10-153; FCC 12-87]**

#### **Facilitating the Use of Microwave for Wireless Backhaul and Other Uses and Providing Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees**

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule.

**SUMMARY:** In this document, the Commission seeks more detailed comments on specific proposals made by parties to allow use of smaller antennas and wider channels in other part 101 microwave bands. We also seek comment on a proposal to revise our rules to change our treatment of smaller antennas in the 10.7-11.7 GHz band (11 GHz band). We also seek comment on additional ways to increase the flexibility, capacity, and cost-effectiveness of the microwave bands, while protecting incumbent licensees in these bands. In the Second Notice of Inquiry, we seek comment on making additional changes to our antenna standards to reflect advances in technology, accommodate non-parabolic antennas, and harmonize our standards with international standards. By enabling more flexible and cost-effective microwave services, the Commission can help foster deployment of broadband infrastructure across America.

**DATES:** Submit comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Submit reply comments on or before **[INSERT 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Federal Communications Commission, 445 12<sup>th</sup> Street, SW, Washington, DC 20554. You may submit comments, identified by FCC 12-87, or by WT Docket No. 10-153, or by any of the following methods:

Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.

Federal Communications Commission's Web Site: <http://www.fcc.gov/cgb/ecfs/>. Follow the instructions for submitting comments.

People with Disabilities: Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: [FCC504@fcc.gov](mailto:FCC504@fcc.gov) or phone: (202) 418-0530 or TTY: (202) 418-0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the SUPPLEMENTARY INFORMATION section of this document.

**FOR FURTHER INFORMATION CONTACT:** For further information contact John Schable, Deputy Chief, Wireless Telecommunications Bureau, Broadband Division, at 202-418-0797 or by e-mail to [John.Schauble@fcc.gov](mailto:John.Schauble@fcc.gov).

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's Second Further Notice of Proposed Rulemaking and Second Notice of Inquiry, FCC 12-87, adopted and released on August 3, 2012. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Room CY-A257, 445 12<sup>th</sup> Street, SW, Washington, DC 20554. The complete text may be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12<sup>th</sup> Street, SW, Room CY-B402, Washington, DC 20554, (202) 488-5300, facsimile (202) 488-5563, or via e-mail at [fcc@bcpiweb.com](mailto:fcc@bcpiweb.com). The complete text is also available on the Commission's Website at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-12-87A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-12-87A1.doc). Alternative formats (computer diskette, large print, audio cassette, and Braille) are available by contacting Brian Millin at (202) 418-7426, TTY (202) 418-7365, or via e-mail to [bmillin@fcc.gov](mailto:bmillin@fcc.gov).

## **Summary**

### **SECOND FURTHER NOTICE OF PROPOSED RULEMAKING**

1. In this Second Further Notice of Proposed Rulemaking, we continue our efforts to improve and modernize our rules and increase the flexibility of our part 101 rules to promote wireless backhaul. We seek more detailed comment on specific proposals made by parties to allow use of smaller antennas and wider channels in other part 101 microwave bands. We also seek comment on a proposal to revise our rules to change our treatment of smaller antennas in the 10.7-11.7 GHz band (11 GHz band).

#### **Allow Smaller Antennas in the 13 GHz Band**

2. Comsearch asks that the Commission modify its antenna standards for the 13 GHz band to allow the use of 2 foot antennas under Category B. Comsearch states that a 2.5 foot antenna can satisfy the Standard A suppression requirements, but that 2 foot antennas do not meet the Standard B suppression requirements because the suppression criteria are too tight from 5 to 15 degrees. Comsearch states that 2 foot antennas are commonly used in the 11 GHz band under Standard B, and it anticipates that similar usage would be desirable in the 13 GHz band. Comsearch believes using 2 foot antennas should not be a significant interference concern because paths would be limited to rural areas outside of BAS TV pickup service areas. Comsearch proposes specific antenna standards.

3. We seek comment on modifying our antenna standards to allow use of 2 foot antennas in the 13 GHz band under Category B as proposed by Comsearch. Smaller antennas have a variety of benefits, including savings in purchasing, installing, and renting space for such antennas. We recognize that the proposed use of smaller, lower-gain antennas will result in more radiofrequency energy being transmitted in the side lobes off the main point-to-point link. We therefore wish to ensure that any proposed changes to the Commission's rules appropriately protect other users in the bands from interference due to the operation of these smaller antennas. We seek comment on whether the use

of smaller antennas pursuant to the proposed modifications will adversely affect other users in the specific bands by increasing the risk of interference. If so, do the potential benefits of using smaller antennas outweigh the potential risks of interference? We also seek comment on the relative costs and benefits of allowing smaller antennas in the 13 GHz band. Can the benefits be calculated in the same manner as we calculated the benefits of smaller antennas in the 6, 18, and 23 GHz bands?

### **Revising Antenna Rules for 11 GHz Band**

4. We seek comment on revising the circumstances under which licensees in the 11 GHz band can reduce power in order to avoid having to upgrade their antennas. We also propose to amend our rules to ensure that applicants do not specify more power than they need.

5. In 2007, the Commission amended its antenna specifications for the 11 GHz band to allow smaller antennas in that band. In response to a question raised by Comsearch about interference protection, the Commission stated:

Under the existing rules, a licensee using a Category B antenna must install a Category A antenna meeting Category A standards if necessary to resolve interference. In response to Comsearch's question as to whether a licensee can resolve interference by reducing power, we will allow licensees to resolve interference by reducing EIRP. Specifically, a licensee using a smaller antenna may demonstrate equivalent protection by reducing its EIRP from the maximum by an amount equivalent to the difference between the minimum suppression of a Category A antenna and the suppression of the actual antenna being used, at the relevant angle to the objecting party.

This concept was codified in § 101.115(f) of the Commission's rules.

6. Comsearch argues that allowing a licensee to reduce its EIRP from the maximum allowed by the rule negates the intent of the rule and does not provide proper interference protection. According to Comsearch, most 11 GHz links operate with far less power than the maximum authorized under the

rules. Comsearch argues that if a link using a Category B antenna is operating significantly below the maximum power authorized under our rules, it will not have to modify the link because its power is already below the power radiated using a Category A antenna with maximum power. Comsearch asks that § 101.115(f) of the Commission’s rules be modified to replace the phrase “and operating with the maximum EIRP allowed by the rules” with “and operating with the authorized EIRP.”

7. The Fixed Wireless Communications Coalition (FWCC) generally supports Comsearch’s request for relief. FWCC is concerned, however, that Comsearch’s proposed rule change would give applicants incentives to apply for more power they need in case a later applicant raises an interference concern. FWCC offers two proposals for addressing that concern. FWCC’s first proposal is to add language to § 101.115(f) limiting the circumstances under which a licensee could reduce EIRP without changing to a Category A antenna. Alternatively, FWCC proposes to amend § 101.113 of the Commission’s rules to clarify that a licensee may not hold an authorization for substantially more power than it actually needs.

8. We seek comment on amending §§ 101.103 and 101.115(f) of the Commission’s rules to address the concerns raised by Comsearch and FWCC. We note that theoretically, the existing rules could allow licensees using lower EIRP to avoid having to change antennas to correct interference problems. At the same time, § 101.115(f) has been in effect for several years, and we are unaware of instances where this rule has led to interference disputes or precluded the placement of links in an area. We ask proponents of this change to provide examples of instances where the existing rules have led to interference problems or precluded other users from using 11 GHz spectrum within a given area. We also ask commenters to provide specific data on the costs and benefits associated with this proposed rule change.

9. If rule changes are appropriate, we tentatively conclude that the best method of resolving the issue would be to change the term “maximum EIRP” to “authorized EIRP” and making the changes

to § 101.113 proposed by FWCC. The term “authorized EIRP” is subjective since applicants select the power at which they propose to operate. Absent some additional limitations in the rule, we agree with FWCC that merely inserting the term “authorized EIRP” into § 101.115(f) would give applicants incentive to propose excessive power. Of the two alternatives offered by FWCC, it appears that the proposed changes to § 101.113 would maximize licensee flexibility to resolve interference issues while clearly stating that applicants must request the minimum power necessary. We seek comment on this tentative conclusion, and any associated benefits or costs of this proposal.

#### **Allowing Intermediate Antenna Upgrades**

10. Currently, if a licensee must upgrade its antenna in order to resolve an interference problem, it must upgrade to an antenna meeting the higher Category A standards contained in our rules. We propose to allow licensees to make lesser upgrades (*i.e.*, to an antenna that does not meet Category A standards) if the lesser upgrade would resolve the interference.

11. In general, the Commission’s rules require a Category B user to upgrade to a Category A antenna if the antenna causes interference problems that would be resolved by the use of a Category A antenna. Wireless Strategies, Inc. (WSI) suggests that in the 6 GHz and 11 GHz bands, applicants and licensees be allowed to operate any antenna, including an antenna that does not meet the less demanding Category B standard. WSI also proposes that if the applicant or licensee could resolve an interference issue by upgrading to a lesser antenna that does not meet Category A standards, the applicant or licensee would be allowed to use that lesser antenna. WSI claims that its proposed change “would allow designers and users of FS microwave to minimize the cost and make it easier to comply with local zoning and homeowner association rules and ensure that the use of antennas not meeting Category A requirements does not increase the potential for harmful interference.”

12. We see some merit in the idea of allowing intermediate upgrades if a licensee can resolve an interference issue by upgrading from one Category B antenna to another Category B antenna with

better performance characteristics, that still does not meet Category A standard. There may be instances where an applicant or licensee could resolve an interference issue or conflict by upgrading to an antenna that does not meet Category A standards but would resolve the interference problem. An intermediate upgrade may allow a licensee to maintain operations from an existing site or reduce costs to the point where operation remains economically feasible. Furthermore, while licensees may be reluctant to upgrade antennas, the current rules impose a duty to upgrade to a Category A antenna. The proposed change would give licensees additional flexibility by giving them another option to resolve interference issues. Under our proposal, a licensee proposing to make an intermediate upgrade would assume the risk that the intermediate upgrade would not resolve the interference issue and would be required to make a further upgrade to a Category A antenna if the intermediate upgrade failed to resolve the issue or if a Category A antenna was needed to accommodate another link.

13. Accordingly, we seek comment on allowing licensees and applicants to resolve an interference issue by upgrading from one Category B antenna to another Category B antenna with better performance characteristics, but that still does not meet Category A standard. We ask proponents of this proposal to identify specific instances where such intermediate upgrades could facilitate wireless backhaul deployment. Opponents should identify specific harms that they believe would result from allowing intermediate upgrades, keeping in mind that an applicant or licensee who sought to make an intermediate upgrade would be required to make a further upgrade to a Category A antenna if necessary. While WSI makes its proposal with respect to the 6 and 11 GHz bands, we seek comment on allowing intermediate upgrades in all part 101 bands. We also seek specific, quantitative information on the benefits and costs of our proposal.

#### **NOTICE OF INQUIRY – ADDITIONAL CHANGES TO ANTENNA STANDARDS**

14. Several parties argue that the Commission should institute a comprehensive review of its part 101 antenna standards. Comsearch notes that it has been many years since the antenna standards

have undergone a comprehensive review. Comsearch asks the Commission “to revise the standards to make them reflect the proper current balance of manufacturing capabilities, spectral efficiency, and cost.” It points to standards recently adopted by the European Telecommunications Standards Institute (ETSI), which require significantly greater suppression of the far sidelobes and significantly greater front-to-back ratio. Comsearch argues that manufacturers follow the ETSI standards and that it would therefore be reasonable to tighten the Commission’s requirements to meet those standards. Comsearch also asks the Commission to: (1) change the rules to use breakpoints connected by straight line segments rather than the ranges at a constant suppression level that lead to a “stairstep” pattern; (2) introduce standards for suppression of cross-polarized signals; and (3) tighten the Category A and B antenna standards as much as possible consistent with the anticipated size and cost of antennas. FWCC concurs with Comsearch’s ideas. Clearwire and FWCC also ask that the Commission adopt standards for antenna configurations other than the traditional parabolic design. Clearwire argues that manufacturers are developing next generation antennas that will introduce a greater array of options for deploying wireless backhaul in an efficient and cost effective manner. It asks that the Commission’s rules accommodate such non-parabolic antennas.

15. We believe it would be appropriate to seek input on whether a comprehensive review of our antenna standards is appropriate and what changes would be appropriate as part of that review. We ask commenters to offer specific proposals and rule language so that the Commission and parties can evaluate the proposals and offer meaningful comment. We ask whether we can tighten our antenna standards while still allowing the affordable deployment of wireless backhaul facilities. Are the ETSI standards a useful benchmark for changing our standards? Are there factors unique to the United States market that justify different standards? Does the fact that many microwave bands are shared with other services affect the appropriate standards? Would changing the standards allow these bands to be used for new and innovative standards? We seek comment on these and other related questions, including any associated costs and benefits.

16. We also seek comment on Comsearch's more specific suggestions. It appears that we would have to replace the existing table in § 101.115 of the Commission's rules with some other means of indicating the appropriate suppression levels. What would be the best means of implementing such a change in our rules? What changes to our rules would be necessary to take into account cross-polarized signals? What would be the costs and benefits of any such rule changes?

17. We note that our rules do not mandate the use of parabolic antennas. Instead, our rules specify certain technical parameters – maximum beamwidth, minimum antenna gain, and minimum radiation suppression – that limit the interference potential. We ask Clearwire, FWCC and others to explain what rule changes would be necessary in order to accommodate non-parabolic antennas. What effect would such changes have on other licensees? Is it possible to establish rules that would include all the possible types of microwave antennas? We seek comment on these questions and related issues, including potential costs and benefits of any rule changes.

18. Finally, we note that our definition of a congested area, for the purpose of requiring antennas to meet Category A standards, is based in part on a 1976 public notice that was last republished in 1983. We seek comment on how we should update or change our standards for defining a congested area. Should we attempt to develop an updated list of congested areas, rely exclusively on location-specific interference analyses, or should we use some other paradigm for determining what areas require the use of Category A antennas? What would be the costs and benefits of other paradigms?

19. By issuing this Second Notice of Inquiry, we intend to start a broad discussion of our microwave antenna standards. We invite commenters to raise additional questions and ideas. We also encourage a broad range of affected parties to comment, including current licensees, equipment manufacturers, operators who are interested in using microwave facilities, licensees who share spectrum with microwave operators, frequency coordinators, and other interested parties.

## **PROCEDURAL MATTERS**

### **Ex Parte Rules – Permit-But-Disclose**

20. The 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). 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.

### **Comment Period and Procedures**

21. 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). 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://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one 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 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12<sup>th</sup> Street, SW, 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 e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Availability of Documents: The public may view the documents filed in this proceeding during regular business hours in the FCC Reference Information Center, Federal Communications Commission, 445 12<sup>th</sup>

Street, SW, Room CY-A257, Washington, DC 20554, and on the Commission's Internet Home Page: <<http://www.fcc.gov>>. Copies of comments and reply comments are also available through the Commission's duplicating contractor: Best Copy and Printing, Inc., 445 12<sup>th</sup> Street, SW, Room CY-B402, Washington, DC, 20554, 1-800-378-3160.

### **Paperwork Reduction Analysis**

22. This document does not contain proposed information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA), Pub. L. 104-13. In addition, therefore, it does not contain any new or modified "information collection burden for small business concerns with fewer than 25 employees," pursuant to the Small Business Paperwork Relief Act of 2002, Pub. L. 107-198, see 44 U.S.C. 3506(c)(4).

23. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this present 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 this Second Further Notice of Proposed Rulemaking (2<sup>nd</sup> FNPRM). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines specified in the 2<sup>nd</sup> FNPRM for comments. The Commission will send a copy of this 2<sup>nd</sup> NPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).

### **Need for, and Objectives of, the Proposed Rules**

24. In this Second Further Notice of Proposed Rulemaking, we propose five additional changes to our rules involving microwave stations. These changes are described in further detail below. First, we propose to allow the use of smaller antennas in the 12700-13150 MHz band (13 GHz band)

fixed service (FS) band. Second, we seek comment on amending our rules for the 11 GHz band to clarify the rules concerning antenna upgrades. Finally, we propose to provide additional flexibility to licensees who must upgrade their antennas to resolve interference issues.

25. With respect to the first proposal, § 101.115(b) of the Commission's rules establishes directional antenna standards designed to maximize the use of microwave spectrum while avoiding interference between operators. The rule on its face does not mandate a specific size of antenna. Rather, it specifies certain technical parameters – maximum beamwidth, minimum antenna gain, and minimum radiation suppression – that, depending on the state of technology at any point in time, directly affect the size of a compliant antenna. Smaller antennas have several advantages. They cost less to manufacture and distribute, are less expensive to install because they weigh less and need less structural support, and cost less to maintain because they are less subject to wind load and other destructive forces. In addition, the modest weight of small antennas makes them practical for installation at sites incapable of supporting large dishes, including many rooftops, electrical transmission towers, water towers, monopoles and other radio towers. Smaller antennas raise fewer aesthetic objections, thereby permitting easier compliance with local zoning and homeowner association rules and generating fewer objections. On the other hand, smaller antennas have increased potential to cause interference because smaller antennas result in more radiofrequency energy being transmitted in directions away from the actual point-to-point link. We seek comment on whether we can allow smaller antennas in the 13 GHz band without producing harmful interference.

26. Second, we seek comment on amending our rules for the 11 GHz band to clarify the circumstances under which a licensee can reduce power to avoid having to upgrade its antenna and to make clear that that a licensee may not hold an authorization for substantially more power than it actually needs. Parties have expressed concern that our existing rules allow licensees using powers below the maximum specified in the rules to avoid upgrading antennas and that the existing rules do not provide proper interference protection.

27. Finally, we propose to allow licensees to make intermediate antenna upgrades to resolve interference issues. Currently, a licensee using an antenna meeting Category B standards must upgrade to an antenna meeting Category A standards if an antenna upgrade is necessary to resolve an interference issue. Currently, under § 101.115(c) of the Commission’s rules, if an existing antenna is insufficient to resolve interference, the operator must upgrade to an antenna meeting performance standard A. There may be instances where an applicant or licensee could resolve an interference issue or conflict by upgrading to an antenna that does not meet Category A standards but would resolve the interference problem. An intermediate upgrade may allow a licensee to maintain operations from an existing site or reduce costs to the point where operation remains economic.

#### **Legal Basis**

28. The proposed action is authorized pursuant to sections 1, 2, 4(i), 7, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 157, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333 and section 706 of the Telecommunications Act of 1996, as amended, 47 U.S.C. 1302.

#### **Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply**

29. 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 and policies, 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. 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.

30. 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 comprehensive, statutory small entity size standards. First, nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA. In addition, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.” Nationwide, as of 2007, there were approximately 1,621,315 small organizations. Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.” Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States. We estimate that, of this total, as many as 88,506 entities may qualify as “small governmental jurisdictions.” Thus, we estimate that most governmental jurisdictions are small.

31. Wireless Telecommunications Carriers (except satellite). The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer, and 44 firms had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers(except satellite) are small entities that may be affected by our proposed action.

32. Fixed Microwave Services. Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. At present, there are approximately 31,549] common carrier fixed licensees and 89,633 private and public safety operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. They also include the Local

Multipoint Distribution Service (LMDS), the Digital Electronic Message Service (DEMS), and the 24 GHz Service, where licensees can choose between common carrier and non-common carrier status. The Commission has not yet defined a small business with respect to microwave services. For purposes of the IRFA, the Commission will use the SBA's definition applicable to Wireless Telecommunications Carriers (except satellite)—i.e., an entity with no more than 1,500 persons is considered small. For the category of Wireless Telecommunications Carriers (except Satellite), Census data for 2007, which supersede data contained in the 2002 Census, show that there were 1,383 firms that operated that year. Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees. Thus under this category and the associated small business size standard, the majority of firms can be considered small. The Commission notes that the number of firms does not necessarily track the number of licensees. The Commission estimates that virtually all of the Fixed Microwave licensees (excluding broadcast auxiliary licensees) would qualify as small entities under the SBA definition.

33.     Satellite Telecommunications and All Other Telecommunications. Two economic census categories address the satellite industry. The first category has a small business size standard of \$15 million or less in average annual receipts, under SBA rules. The second has a size standard of \$25 million or less in annual receipts.

34.     The category of Satellite Telecommunications “comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications.” Census Bureau data for 2007 show that 512 Satellite Telecommunications firms operated for that entire year. Of this total, 464 firms had annual receipts of under \$10 million, and 18 firms had receipts of \$10 million to \$24,999,999. Consequently, the Commission estimates that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

35. The second category, i.e. “All Other Telecommunications” comprises “establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry.” For this category, Census Bureau data for 2007 show that there were a total of 2,383 firms that operated for the entire year. Of this total, 2,347 firms had annual receipts of under \$25 million and 12 firms had annual receipts of \$25 million to \$49, 999,999. Consequently, the Commission estimates that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

**Description of Projected Reporting, Recordkeeping, and other Compliance**

**Requirements**

36. This 2<sup>nd</sup> FNPRM proposes no new reporting or recordkeeping requirements.

**Steps taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

37. The RFA requires an agency to describe any significant 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 or 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.

38. The actions proposed in the FNPRM would provide additional options to all licensees, including small entity licensees. Such actions will serve the public interest by providing additional flexibility for broadcasters to use microwave spectrum. The rules will therefore open up beneficial economic opportunities to a variety of spectrum users, including small businesses. Because the actions proposed in the FNPRM will improve beneficial economic opportunities for all businesses, including small businesses, a detailed discussion of alternatives is not required.

39. Generally, the alternative approach would be to maintain the existing rules.

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

40. None.

41. It is ordered that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of this 2<sup>nd</sup> Further Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

42. It is further ordered, pursuant to sections 1, 2, 4(i), 7, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 157, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333, and section 706 of the Telecommunications Act of 1996, as amended, 47 U.S.C. 1302, that this Second Further Notice of Proposed Rulemaking is hereby adopted and that comment is sought on these proposals.

43. It is further ordered, pursuant to sections 1, 2, 4(i), 7, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 152, 154(i), 157, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333, and section 706 of the

Telecommunications Act of 1996, as amended, 47 U.S.C. 1302, that this Second Notice of Inquiry is hereby adopted.

**List of Subjects in 47 CFR Part 101**

Communications equipment, Radio, Reporting and recordkeeping requirements.

FEDERAL COMMUNICATIONS COMMISSION.

Sheryl Todd,  
Deputy Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 101 as follows:

## **PART 101 – FIXED MICROWAVE SERVICES**

1. The authority citation for part 101 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

2. Amend § 101.113 by revising the first sentence of paragraph (a) introductory text and by revising paragraph (b) to read as follows:

### **§ 101.113 Transmitter power limitations.**

(a) On any authorized frequency, the average power requested in an application for authorization and delivered to an antenna in this service must be the minimum amount of power necessary to carry out the communications desired, except as provided in paragraph (b) of this section. \* \* \*

\* \* \* \* \*

(b) The maximum power of transmitters that use Automatic Transmitter Power Control (ATPC) and the power of non-ATPC transmitters shall not exceed, and the power input or output specified in the instrument of station authorization. The power of non-ATPC transmitters shall be maintained as near as practicable to, the power input or output specified in the instrument of station authorization. A licensee that reduces power in order to resolve interference pursuant to § 101.115(f) must update its license to reflect the reduced power level.

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3. Amend § 101.115 by revising the entry “12,200 to 13,250” in the table in paragraph (b)(2) and paragraphs (c) and (f) to read as follows:

### **§ 101.115 Directional antennas.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

Frequency	Category	Maximum beam- width to 3 dB points <sup>1</sup> (included angle in degrees)	Minimum antenna Gain (dBi)	<u>Minimum radiation suppression</u>						
				<u>to angle in degrees</u> <u>from centerline of main beam in decibels</u>						
5°	10°	15°	20°	30°	100°	140°				
				to 10°	to 15°	to 20°	to 30°	to 100°	to 140°	to 180°
*	*	*	*	*	*	*	*	*	*	*
12,200 to 13,250 <sup>9</sup>	A	1.0	n/a	23	28	35	39	41	42	50
	B1	2.0	n/a	20	25	28	30	32	37	47
	B2	2.0	n/a	17	24	28	32	35	60	60
*	*	*	*	*	*	*	*	*	*	*

\* \* \* \* \*

<sup>9</sup> Except for Temporary-fixed operations in the band 13200–13250 MHz with output powers less than 250 mW and as provided in §101.147(q), and except for antennas in the MVDDS service in the band 12.2–12.7 GHz.

\* \* \* \* \*

(c) The Commission shall require the replacement of any antenna or periscope antenna system of a permanent fixed station operating at 932.5 MHz or higher that does not meet performance Standard A specified in this paragraph (c), at the expense of the licensee operating such antenna, upon a showing that said antenna causes or is likely to cause interference to (or receive interference from) any other authorized or applied for station whereas a higher performance antenna is not likely to involve such interference. Antenna performance is expected to meet the standards of this paragraph (c) for parallel polarization. A licensee may upgrade to an antenna not meeting performance standard A if such upgrade will resolve the interference. A licensee who chooses to upgrade to an antenna not meeting performance standard A will be required to upgrade to an antenna meeting performance standard A in the future if necessary to resolve a subsequent interference issue. For cases of potential interference, an antenna will not be considered to meet Standard A unless the parallel polarization performance for the discrimination angle involved meets the requirements, even if the cross-polarization performance controls the interference.

\* \* \* \* \*

(f) In the 10,700–11,700 MHz band, a fixed station may employ transmitting and receiving antennas meeting performance standard B in any area. If a Fixed Service or Fixed Satellite Service licensee or applicant makes a showing that it is likely to receive interference from such fixed station and that such interference would not exist if the fixed station used an antenna meeting performance standard A, the fixed station licensee must modify its use. Specifically, the fixed station licensee must either substitute an antenna meeting performance standard A or operate its system with an EIRP reduced so as

not to radiate, in the direction of the other licensee, an EIRP in excess of that which would be radiated by a station using a Category A antenna and operating with the authorized EIRP. A licensee or prior applicant using an antenna that does not meet performance Standard A may object to a prior coordination notice based on interference only if such interference would be predicted to exist if the licensee or prior applicant used an antenna meeting performance standard A.

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