

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 74, and 101

[WT Docket Nos. 10–153; 09–106; 07–121; FCC 10–146]

Use of Microwave for Wireless Backhaul; Provision for Additional Flexibility To Broadcast Auxiliary Service and Operational Fixed Microwave Licensees

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Commission commences a proceeding to remove regulatory barriers to the use of spectrum for wireless backhaul and other point-to-point and point-to-multipoint communications. This proceeding will surface ways to increase efficient use of spectrum for backhaul, especially by updating regulatory classifications that may not have kept pace with the evolution of converged digital technologies. Providing for the more flexible use of microwave frequencies for backhaul may help promote access to backhaul solutions that are critical to the deployment of wireless broadband and other services. Our proposed rule changes may be particularly beneficial to rural areas, where wireline alternatives may not exist. Our proposed rules should increase opportunities for all users of point-to-point and point-to-multipoint services, while protecting established license holders who are already using these bands. As an initial matter, we believe 750 megahertz in the 13 gigahertz range and below can be made flexibly usable for broadband backhaul.

DATES: Submit comments on or before October 25, 2010. Submit reply comments on or before November 22, 2010.

ADDRESSES: Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554. You may submit comments, identified by WT Docket No. 10–153, 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

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 Lynn Ratnavale at (202) 418–1514 or Charles Oliver at (202) 418–1325, Broadband Division, Wireless Telecommunications Bureau, Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554, or via the Internet to Lynn.Ratnavale@fcc.gov or Charles.Oliver@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Proposed Rulemaking and Notice of Inquiry*, FCC 10–146, adopted on August 5, 2010, and released on August 5, 2010. 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 12th 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 12th Street, SW., Room CY–B402, Washington, DC 20554, (202) 488–5300, facsimile (202) 488–5563, or via e-mail at fcc@bcpiweb.com. The complete text is also available on the Commission's Web site at http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db0805/FCC-10-146A1.doc. This full text may also be downloaded at: <http://wireless.fcc.gov/releases.html>. 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.

Summary

Notice of Proposed Rulemaking

Permitting Greater Sharing Between FS Operations in Certain BAS and CARS Frequencies

1. One way to potentially increase the availability of microwave spectrum would be to allow FS operations to share spectrum in several bands at 13 GHz and below that are currently assigned to BAS and CARS, but not FS. First, we propose to permit FS operations in the 6875–7125 MHz band, which is adjacent to existing FS operations in the 6525–6875 MHz band and well suited for backhaul and other microwave applications. In particular, we seek comment on sharing between mobile (temporary fixed) operations and fixed operations in the 6875–7125 MHz

band where frequency coordination is not as formalized. In light of the additional sharing proposed by this rulemaking, we also seek comment on whether we should make the identification of receive-only sites associated with TV pickup stations mandatory in the 6875–7125 MHz band.

2. Second, we propose to introduce FS systems into the 12700–13200 MHz band. This band is well suited for short to medium length backhaul microwave applications and in fact prior to 1988 was available to certain relocated FS systems. We seek comment on whether introduction of FS operations in this band, with the additional latitude proposed in this proceeding, will have an adverse impact on cable system operations and whether it will have an effect on future use of the spectrum by cable system operators.

3. Both the 6875–7125 MHz and 12700–13200 MHz bands are currently assigned to television pickup, television studio-transmitter links, television relay stations, television translator relay stations, and CARS. We emphasize that we are not proposing to modify existing licenses and that any new licenses in this band will need to be frequency coordinated with existing licensees. We believe these uses would be compatible with FS operations with use of frequency coordination. The frequency coordination process has been highly successful in allowing maximum utilization of shared bands and eliminating potential interference problems. We therefore propose to require frequency coordination for new FS, BAS, and CARS stations in the 6875–7125 MHz and 12700–13200 MHz bands in accordance with our existing frequency coordination procedures. Commenters that believe that relying on our existing frequency coordination processes would not adequately address all necessary requirements should propose modifications to that process or alternative processes.

4. We seek comment on the best approach to channelization for the various bands under consideration. We note that existing operations in the 6875–7125 MHz and 12700–13200 MHz bands both use 25 megahertz bandwidth channels. We note that this channelization scheme has been in existence for over 40 years. Existing BAS operations in the 12700–13200 MHz band also use 25 MHz bandwidth channels, while CARS operations in the band use 25 MHz, 12.5 MHz and 6 MHz channels. We seek comment on a channelization scheme that would likewise provide applicants with a variety of channel widths to maximize flexibility and utilization of the 6875–

7125 MHz and 12700–13200 MHz bands. Consistent with our recent action allowing 30 megahertz channels in the Upper 6 GHz Band, we seek comment on alternative channelization schemes. In addition, we propose to facilitate use of the 6875–7125 MHz and 12700–13200 MHz bands by BAS operators by making additional channel bandwidths available for their use. Such action would provide BAS licensees with additional flexibility and provide additional opportunities for using modern digital equipment.

5. With respect to the remaining proposed technical rules for FS operation, we propose to apply the same technical parameters that currently apply to the Upper 6 GHz band to the adjacent 6875–7125 MHz band, because those bands are contiguous and should be able to use similar equipment. We believe that applying the rules currently applicable to the Upper 6 GHz Band to the 6875–7125 MHz band will facilitate equipment development and provide consistency to FS licensees. The specific rules that we propose are: (1) Applying a maximum frequency tolerance of 0.005 percent; (2) applying a maximum transmitter power of +55 dBw; (3) applying the antenna standards currently applicable to Upper 6 GHz Band stations authorized after June 1, 1997 to the 6875–7125 MHz band; (4) applying the capacity and loading requirements contained in § 101.141(a)(3) of the Commission's rules to this band; and, (5) confirming that the 17 kilometer minimum path length requirement of § 101.143 of the Commission's rules would apply in the 6875–7125 MHz band. We propose to retain the rules that are already applicable to the 12700–13000 MHz band, with one exception. There is no minimum payload capacity applicable to the 12700–13200 MHz band. We propose to apply the minimum payload capacity and loading requirements that are currently applicable to the 11 GHz band to the 12700–13200 MHz band. We seek comment on these proposals and any possible alternatives to them. We also seek comment on any special technical rules that might be necessary in that band.

Eliminating Final Link Rule

6. While broadcasters are allowed to obtain private fixed service licenses under part 101 of the Commission's Rules, § 101.603(a)(7) prohibits broadcasters from using part 101 stations as the final radiofrequency (RF) link in the chain of distribution of the program material to broadcast stations. In light of recent technological and regulatory developments, we believe

that the “final link” rule may no longer serve a useful purpose and, in fact, may inhibit the full use of part 101 spectrum. As broadcasters and other microwave users move to digital-based systems, we question whether it makes sense to maintain regulatory restrictions based on the type of content that the digital data transmitted by the system represents. As BAS and CARS move to digital and the technical rules have converged with those in part 101, it has become difficult to distinguish video content from any other digital content or to distinguish a microwave link used for BAS and CARS from those licensed under part 101.

7. Retaining the “final link” rule appears to be spectrally inefficient and places an unnecessary burden on broadcasters. Retaining the “final link” rule could force broadcasters to build unnecessarily redundant systems in the same locations: One system using reserved BAS frequencies for the sole purpose of delivering programming to a transmitter site and a second system using FS frequencies for other purposes. Especially in view of the increased sharing of BAS bands with FS stations we propose above, we believe it is appropriate to provide broadcasters with additional flexibility to use the FS bands.

8. We do not believe that eliminating the final link rule will crowd other FS licensees out of the band. Other rules require all FS licensees, including broadcasters, to build out their spectrum promptly and to comply with minimum payload capacities. These requirements serve to ensure productive use of the spectrum and to prevent noneconomic overuse.

9. Accordingly, we seek comment on eliminating the “final link” rule. In considering this proposal, we encourage broadcasters to provide specific data on the efficiencies and cost savings that could result from eliminating this rule. FS licensees who oppose this change should identify the harms they believe would be caused by eliminating this rule and explain why they believe other rules are insufficient to prevent those harms. We also seek comment on whether there are alternatives that could facilitate broadcaster access to FS spectrum while retaining that prohibition under certain circumstances.

Permitting Adaptive Modulation

10. The part 101 rules contain a minimum payload capacity rule intended to ensure that FS links are operated efficiently. We propose to allow temporary operations below the minimum capacity under certain

circumstances, which will enable FS links—particularly long links in rural areas—to maintain critical communications during periods of fading.

11. We propose changes to our rules to allow FS licensees to maintain communications when adverse propagation characteristics would otherwise force communications to be terminated. Specifically, we propose to amend our rules to allow licensees to temporarily drop below minimum payload capacity requirements specified by the rules in certain limited circumstances. These proposed rule changes have the potential to reduce operational costs and increase reliability, which could be particularly important in facilitating the use of wireless backhaul in rural areas.

12. Section 101.141(a)(3) of the Commission's rules establishes minimum payload capacities (in terms of megabits per second) for various channel sizes in certain part 101 bands. The underlying purpose of the rule is to promote efficient frequency use. Although the Commission has never quantified the time period over which licensees must comply with those standards, the industry has generally construed the payload requirements as applying whenever the link is in service.

13. On May 8, 2009, Alcatel-Lucent, Dragonwave, Inc. Ericsson, Inc., Exalt Communications, Fixed Wireless Communications Coalition (FWCC), Harris Stratex Networks and Motorola, Inc. (“Petitioners”) filed a request for interpretation of § 101.141(a)(3) of the Commission's rules to permit data rates to drop for brief periods below the minimum payload capacity specified in the rules, instead of temporarily having a link go completely out of service, so long as the values mandated by the rules were maintained both in normal operation and on average.

14. On May 14, 2010, FWCC followed up its original request for interpretation with a request for waiver of § 101.141(a)(3) so that it can utilize adaptive modulation to average bit rates over time to combat fading. FWCC acknowledges the Commission's indication in the National Broadband Plan that it intends to open a rulemaking with regards to adaptive modulation; however, FWCC argues that it urgently needs relief with respect to adaptive modulation and does not want to wait for a rulemaking cycle to be completed.

15. We agree with Verizon that a rulemaking is necessary to implement the policy interpretation sought in the FWCC request and we therefore deny

the FWCC request for declaratory ruling in this instance because the requested interpretation is inconsistent with the plain language of the current rule. The current rule specifies a “minimum” payload capacity, which commenters admit has been interpreted to mean that it must be complied with at all times when the system is in operation. Such an interpretation is consistent with the use of the word “minimum.” FWCC’s proposed interpretation deviates from the commonly understood meaning of the rule. Furthermore, the fact that licensees had interpreted the rule as establishing a benchmark that must be complied with at all times is further evidence that it would not be appropriate to change the meaning of an established rule under the guise of a declaratory ruling. We also note that the comments raise various policy issues that are best addressed through the rulemaking process.

16. Nonetheless, we believe that it is in the public interest to commence a rulemaking proceeding to amend our rules to facilitate the use of adaptive modulation by allowing licensees to maintain communications in the face of adverse propagation characteristics. Adaptive modulation has the potential to reduce operational costs and facilitate the use of wireless backhaul in rural areas. While our current rules allow the use of adaptive modulation, they would require all modulation modes to comply with the minimum payload capacities contained in the rules at all times. Allowing carriers to operate below the current efficiency standards for short periods when it is necessary to maintain an operational link, without a need for waiver, could enable carriers to save on costs and enhance reliability of microwave links. Accordingly, we seek comment in the context of this *NPRM* on revising § 101.141 of the Commission’s rules to allow greater use of adaptive modulation by FS licensees.

17. Adaptive modulation can allow communications to be maintained during adverse propagation conditions. Given the critical backhaul and public safety applications of FS stations, we find this benefit to be significant. By allowing this level of flexibility in our efficiency standards we hope to provide carriers with a way to lower their costs yet still use the spectrum efficiently.

18. We are concerned, however, that the proposal to allow compliance with the efficiency standards “on average” and “during normal operation” is too vague and open-ended. Commenters have noted that it is standard engineering practice to design microwave links to have 99.995 percent or higher link availability. Under those

circumstances, we believe the standard proposed in the FWCC request would give licensees too much latitude to deploy inefficient systems that would be inconsistent with good engineering practices. To the extent the underlying concern behind this proposal is that the requirements of the rule are too strict and inhibit full use of the spectrum, we believe the better approach would be to review those standards and amend them, if appropriate. Moreover, using an “on average” standard would make enforcement of the minimum payload capacity rule more difficult. We also tentatively conclude that the equipment restrictions proposed by Verizon would not be in the public interest because, as noted by HSX, such restrictions could increase equipment prices for carriers and consumers.

19. We tentatively conclude to adopt a more carefully tailored approach by amending § 101.141 of the Commission’s rules to state that the minimum payload capacity requirements must be met at all times, except during anomalous propagation conditions, when lower capacities may be utilized in order to maintain communications. This approach will allow licensees to take advantage of the benefits of adaptive modulation without unduly undercutting the efficiency purpose that led to initial adoption of the minimum efficiency requirement. We seek comment on this proposal, as well as alternatives. We also seek comment on what might constitute anomalous signal fading. In that regard, we also propose to adopt AT&T’s suggestion to require licensees that wish to be able to temporarily use modulations below the minimum payload capacity in § 101.141 of the Commission’s rules to state that fact in their prior coordination notices. We seek comment on whether, how, and to what extent this information should be logged and made part of the station records under § 101.217 to facilitate enforcement. We also seek comment on related issues, including whether the rules should specify a minimum amount of time a link is operational or a minimum efficiency standard below which an FS station may not fall even when using adaptive modulation.

20. We deny FWCC’s waiver request. Given the concerns we have regarding FWCC’s proposal to use an “on average” standard, FWCC has not shown that it would be in the public interest to allow operation under such circumstances. Furthermore, FWCC’s claims that there is an urgent need for relief are conclusory and lack any specificity. We therefore conclude that the better course is to proceed through our normal

rulemaking process and determine the best means of allowing licensees to take advantage of adaptive modulation.

Permitting Auxiliary Fixed Stations

21. We seek comment on a proposal to permit substantially spatial reuse of scarce microwave spectrum, which may permit more efficient use of the spectrum thereby potentially reducing the cost of using FS spectrum for backhaul and other important purposes. Specifically, we propose to allow FS licensees to operate “auxiliary stations” in conjunction with existing microwave links, subject to conditions designed to enable the use of such stations to augment capacity while safeguarding existing users in the band. We seek comment on permitting FS licensees to coordinate and deploy multiple links—a primary link and “auxiliary” links.

22. The Commission’s current rules define a fixed station as “[a] station operating at a fixed location,” and require a license for each station. In the part 101 Operational Fixed Services, the rules require evaluation of proposed point-to-point fixed microwave stations on a site-by-site, path-by-path basis, and do not provide exceptions based on the aggregation of multiple sites and paths. Each license application must include “all technical information required by the application form and any additional information necessary to fully describe the proposed facilities and to demonstrate compliance with all technical requirements of the rules governing the radio service involved * * *.” This construct is different from services based on geographic area licensing, where a licensee, subject to certain exceptions, is allowed to place transmitters throughout its service area without individual Commission approval once it has obtained its geographic area license, subject to compliance with applicable service rules.

23. On February 23, 2007, Wireless Strategies, Inc. (WSI) filed a petition asking the Commission to issue a declaratory ruling “confirming that a Fixed Service licensee is permitted to simultaneously coordinate multiple links whose transmitter elements collectively comply with the Commission’s antenna standards and frequency coordination procedures.” Comment on WSI’s petition was sought by public notice, and 27 parties filed comments, reply comments and *ex parte* statements.

24. In its original proposal, WSI proposed that it would be unnecessary to separately coordinate auxiliary elements within the side lobes of the main station because “the antenna

characteristics provided by the applicant to the coordinator, in addition to describing the main lobe, also incorporate the properties of the multiple distributed elements to be used for communication with other locations.” WSI referred to that concept as “concurrent coordination.” In response to arguments that coordination of the auxiliary elements is necessary, WSI modified its proposal. Specifically, WSI suggests that, once a “main link” is successfully coordinated and licensed, an auxiliary element would only be added (1) following regular frequency coordination and filing of an application for major modification of the license of the associated location whose frequency it would reuse, and (2) on a secondary basis to any future coordinated paths.

25. Initially, we determine that the WSI proposal is not consistent with our rules as currently drafted, and we therefore deny the request for declaratory ruling. WSI’s proposal to consider the performance of a system on an aggregate basis is not consistent with the plain wording of our rules for two reasons. First, the rules require evaluation of proposed point-to-point fixed microwave stations on a site-by-site, path-by-path basis, and do not provide exceptions based on the aggregation of multiple sites and paths. Second, WSI’s proposal is inconsistent with the antenna standards rule, § 101.115 of the Commission’s rules, because it proposes the use of antennas that do not meet those standards.

26. While we find that the concept proffered by WSI is not consistent with the current rules, we do find it worthy of further consideration. Because we cannot authorize this operation as a declaratory ruling, we seek comment in this *NPRM* on whether we should make necessary changes to our part 101 rules to afford licensees the opportunity to operate in this manner. We find that it is in the public interest to initiate a rulemaking proceeding on our own motion to consider changes to our part 101 rules to allow operation in the manner contemplated by WSI. A rulemaking proceeding will allow us to gather information on the proposed types of operations, discuss specific rule changes, and consider further the arguments for and against the operations that WSI contemplates.

27. We seek comment on the potential benefits of permitting auxiliary stations under our part 101 rules—the uses they may support, the efficiencies that may be achieved—as well as on the potential harms. Reserving judgment on the ultimate balancing of those benefits and harms, we observe that a series of changes to our part 101 rules would be

necessary in order to effectuate a part 101 regime including auxiliary stations. Specifically, we seek comment on the following elements of such a regime:

- Each auxiliary station must operate on the same frequencies as the main licensed link.

- Auxiliary stations must not cause any incremental interference to other primary links, *i.e.*, they must not cause any more interference to them than the main link would cause. This result can, possibly, be achieved by alternating transmissions between the primary station and the auxiliary stations on a time-division multiplexed basis or by any other method that achieves the required result.

- Auxiliary stations will be secondary in status and have no right to claim protection from interference from any primary stations, including stations in other services, such as BAS, CARS, and satellite stations, other than interference that violates the protection rights of the main link. Otherwise, auxiliary stations will have a right to claim protection only from later-deployed auxiliary stations.

- Auxiliary stations would have to be coordinated in advance with other licensees and applicants pursuant to the frequency coordination process specified in § 101.103 of the Commission’s rules.

- After coordination, the licensee of the main link would file applications to make major modifications to the main link license to add auxiliary stations. In those bands where conditional authority is available, applicants could operate their auxiliary stations as soon as they complete the frequency coordination process and file their application with the Commission, subject to the usual conditions and exceptions to conditional authority. Alternatively, we seek comment on whether, consistent with the procedures set out in § 101.31 of our rules for temporary fixed links, we could allow main link licensees to file blanket applications to operate temporary auxiliary stations at multiple locations within specified geographic areas surrounding the associated main links.

- Until we gain further experience with system operation under these new rules, we further propose to require that auxiliary stations be restricted from communicating directly with each other, *i.e.*, that they be allowed to communicate directly only with the primary link’s transmitter or receiver. We propose this restriction because it would reduce the chance of interference.

- Auxiliary stations would not be subject to the antenna standards or

minimum path length requirements that apply to main links. Eliminating the beamwidth requirement will enable licensees to use smaller, less expensive antennas that put less of a load on support structures and thereby reduce the cost of those structures. The main link, however, would still have to comply with those requirements.

- Main links would remain subject to existing loading and path length requirements, but auxiliary stations would be exempt from the loading and path length requirements. Alternatively, in determining compliance with the loading requirements, licensees would be allowed to aggregate loading on the main link and auxiliary stations. We seek comment on both alternatives. Parties supporting the second alternative should explain how to avoid double counting traffic between a main link and an auxiliary link that also traverses the main link.

- Like primary stations, auxiliary stations would be required to obtain the necessary approvals for FAA tower clearance and to comply with environmental requirements covering non-ionizing radiation hazards, zoning, the National Environmental Act of 1969 and the National Historical Act of 1966, as applicable.

28. We believe these proposed rule changes could facilitate the provision of advanced backhaul services in the FS bands while providing protection to existing users in the band. We seek comment on these proposals, as well as alternatives.

29. We note that FS and satellite users raised concerns about the proposal in the record on the WSI Petition, arguing that it is inconsistent with the frequency coordination and antenna standards rules. Our main concerns are avoiding interference to existing operations in the bands, maintaining the reliability and integrity of existing systems, and avoiding a situation where spectrum becomes unavailable to FS applicants and other users that share spectrum with FS. In order to compare the relative benefits of and risks of allowing auxiliary stations, we request additional information from commenters.

30. Initially, we seek more specific information on the types of operations auxiliary stations could be used for. Information that would be useful would include: (1) An estimate of how many systems parties contemplate operating with auxiliary stations, (2) information on whether such systems would typically be deployed in urban or rural areas, (3) the types of uses to which such systems would be put, (4) the contemplated distances between the auxiliary stations and the main link, and

(5) the relative amount of traffic anticipated to be carried on the main link versus the auxiliary links.

31. We also seek comment on why the contemplated operations could not be accommodated in existing part 101 services and bands that allow point-to-multipoint operation, such as the Local Multipoint Distribution Service, the 24 GHz Service, and the operations in the 38.6–40.0 GHz band. Those bands feature geographic area licensing that would appear to be well suited for the type of operations involving multiple stations, whether “auxiliary” or primary.

32. We note that the examples WSI provides propose use of the Lower 6 GHz Band (5925 MHz–6425 MHz). While the Commission authorized 30 megahertz bandwidth links in the Upper 6GHz Band in the *6/23 GHz Report and Order*, we anticipate that there will be considerable demand for those frequencies. We seek comment on whether there is sufficient capacity in those bands to accommodate many operations of the type contemplated by WSI, in addition to the existing uses in the band. We are particularly interested in the experiences of parties who have coordinated links in that band.

33. We seek comment on whether our proposal would strike the appropriate balance between auxiliary stations and other operations, particularly primary microwave links. We propose requiring frequency coordination and adding auxiliary sites to the license through our normal application process and seek comment on whether those requirements would be sufficient protection. Furthermore, given that auxiliary stations would be secondary to main links and could not be used to prevent coordination of main links, it appears unlikely that they could be used to establish pseudo-geographic service areas. We seek comment on concerns raised by some commenters that auxiliary links could give applicants an incentive to propose main links that would allegedly specify excessive power, and would allegedly be designed to maximize interference and the preclusive effect on other nearby operations. We seek comment on the applicability of § 101.103(d)(1) of the Commission’s rules, which requires applicants to avoid interference in excess of permissible levels to other users and requires applicants to make “every reasonable effort” to avoid blocking the growth of prior coordinated systems, to main links associated with auxiliary stations.

34. Finally, we seek comment on whether we should establish restrictions on the locations of auxiliary stations. One option would be to confine

auxiliary stations to an area within a defined field strength level of the main link. Another option would be to provide that an auxiliary station could not generate field strength that exceeds the primary station’s field strength beyond the perimeter where the primary station generates the field strength discussed above. We emphasize that compliance with such restrictions would not absolve auxiliary stations from the further requirement that they not cause incremental interference to other primary links. We invite comment on the appropriate metrics to use for defining the relevant field strength perimeters, as well as alternative means of establishing limitations on the locations of auxiliary stations.

Notice of Inquiry

35. This Notice of Inquiry is intended to generate a record about other potential changes to part 101 rules that could potentially reduce wireless backhaul costs and increase investment in broadband deployment. In the first part, we ask about the possibility of relaxing efficiency standards in rural areas, where links may be longer and the density of deployment lower than in urban areas. In the second part, we inquire as to whether changes in the part 101 rules to permit smaller antennas could similarly reduce costs and stimulate investment. We invite commenters to offer specific proposals for rule changes on these issues, and encourage a full discussion of the advantages and disadvantages of rule changes.

Modification of Efficiency Standards in Rural Areas

36. We seek comment on whether lowering the current efficiency standards in rural areas would lower costs associated with providing backhaul service. Under our current rules, rural providers must maintain the same capacity requirements also maintained by carriers in more densely populated metropolitan areas. Lower traffic volume on the rural networks and greater distances between microwave links may make maintenance of these minimum capacity requirements financially prohibitive in some instances. To the extent wireless carriers cannot obtain rural backhaul facilities at reasonable rates, lowering the current efficiency standards in rural areas could reduce the costs associated with wireless backhaul. We therefore seek additional comment on whether relaxing the current efficiency standards in rural areas would benefit rural licensees without diminishing the

availability of already increasingly scarce backhaul spectrum.

37. Section 101.141(a)(3) of the Commission’s rules establishes minimum payload capacities (in terms of megabits per second) and minimum traffic loading payload (as a percentage of payload capacity) for various channel sizes in certain part 101 bands. The underlying purpose of the rule is to promote efficient frequency use. The requirements set forth in the rule apply equally to stations in urban areas and to stations in rural areas. The Wireless Telecommunications Bureau has historically granted waivers to licensees in rural and remote areas where operation of microwave facilities at the required efficiency standards would cause financial hardship to the extent that the underlying purpose of the rule would be frustrated. We ask whether this waiver policy should be reflected in our rules so that applicants could obtain facilities for backhaul in rural areas without the cost and delay inherent in seeking a waiver of our rules.

38. To the extent commenters support lowering the efficiency standards in rural areas, we seek specific proposals to modify the efficiency standards in § 101.141(a)(3) of the Commission’s rules. Proponents of changes to the standards should explain how changes would provide more flexibility and facilitate deployment of backhaul and other facilities in rural areas. Commenters should also address the impact such changes would have on existing licensees, including licensees in other services that share spectrum with FS. We ask whether any changes would be consistent with the underlying purpose of § 101.141(a)(3), which is to promote efficient utilization of the spectrum.

39. In connection with this inquiry, we seek comment on the definition of “rural” that might be used to determine which geographic areas would be defined as rural under a revised rule relaxing efficiency standards in rural areas. In the Commission’s 2004 Report and Order addressing the ways to facilitate and enhance the provision of spectrum-based service in rural areas the Commission provided a baseline definition of “rural areas” as, “those counties (or equivalent) with a population density of 100 persons per square mile or less, based upon the most recently available Census data.” The Commission first used this definition as a proxy definition in its annual *CMRS Competition Report* for purposes of analyzing the average number of mobile telephony competitors in rural versus non-rural counties. At the time that the Commission adopted this definition, it

was determined that such a specific definition was necessary to establish continuity so that the Commission would have a basis for comparison of the effects of its “rural area” policies over time. It was determined in that same proceeding that the definition would be treated as a presumption to be applied for current and future Commission wireless radio service rules, policies and analyses for which the term “rural area” has not been expressly defined. In light of this established presumption, we seek comment on whether this definition is suitable to determine areas which should be considered rural for purposes of microwave efficiency standards in this band. We also seek comment on potential alternative definitions and any supporting reasons for why a specific definition should be utilized.

Review of Part 101 Antenna Standards

40. We seek comment on whether to review the antenna standards in any particular band to allow smaller antennas, to identify opportunities to facilitate increased deployment of FS facilities without subjecting other licensees to increased interference. The National Broadband Plan noted that it was important to ensure that the Commission’s antenna standards are up to date “in order to maximize the cost-effectiveness of microwave services.” Smaller antennas may be cheaper, easier to install, and generate fewer objections than antennas specified by the current requirements. We ask whether smaller antennas can be accommodated in any FS band without causing interference to other users in the band.

41. Section 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. More specifically, the Commission’s rules set forth certain requirements, specifications, and conditions pursuant to which FS stations may use antennas that comply with either the more stringent performance standard in Category A (also known as Standard A) or the less stringent performance standard in Category B (also known as Standard B). In general, the Commission’s rules require a Category B user to upgrade if the antenna causes interference problems that would be resolved by the use of a Category A antenna. 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. The Commission adopts antenna specifications based on the technical sophistication of the communications equipment and the needs of the various users of the band at the time. Indeed, the Commission adopted similar technical specifications that effectively limited the size of antennas used in other bands, including those used by certain types of satellites. Periodically, the Commission has since reconsidered some of those antenna specifications in light of the technological evolution of communications equipment.

42. Smaller antennas can have several advantages for carriers and consumers. In the *11 GHz Report and Order*, the Commission noted that smaller antennas:

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, proponents of the rule change contend that 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. Proponents also state that 0.61 meter antennas raise fewer aesthetic objections, thereby permitting easier compliance with local zoning and homeowner association rules and generating fewer objections.

43. 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.”

44. In light of the sharp increase in demand for FS facilities for backhaul and other purposes, we believe it is appropriate to inquire whether we should review our antenna standards in any particular band. Our goal in this inquiry would be to identify opportunities to facilitate increased deployment of FS facilities without subjecting other licensees to increased interference. Parties that believe that a review of antenna standards is appropriate should: (1) Identify specific FS bands where they believe the antenna standards should be reviewed, (2) offer specific proposals for new standards, (3) describe the technological or other changes that they believe support new antenna standards, (4) describe how the new antenna standards would facilitate deployment in that band, (5) discuss the impact such new antenna standards would have on other licensees in the band, including both FS licensees and other services that

share the band, (6) discuss whether the proposed standards should apply to only rural areas or all geographical areas. Other parties are encouraged to provide their evaluation of proposed changes.

Increasing Flexibility Generally

45. We also seek comment on whether we should examine any additional modifications to the part 101 rules, or other policies or regulations, to promote flexible, efficient and cost-effective provisions of wireless backhaul service. For example, are there any additional measures that could be taken to promote additional sharing with satellite, broadcast and other services? We also seek comment on any additional safeguards that may be needed to adequately protect the interests of existing licensees. Additionally, we seek comment on whether there are any changes we could make to our frequency coordination or application processes that could make it easier for applicants to access backhaul spectrum. We also ask commenters to identify any of our current rules or processes that could act as an unintended barrier to obtaining backhaul spectrum.

Procedural Matters

Ex Parte Rules—Permit-But-Disclose Proceeding

46. This is a permit-but-disclose notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed pursuant to the Commission’s rules.

Comment Period and Procedures

47. Pursuant to §§ 1.415 and 1.419 of the FCC’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: (1) The FCC’s Electronic Comment Filing System (ECFS), (2) the Federal Government’s eRulemaking Portal, or (3) by filing paper copies. 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://www.fcc.gov/cgb/ecfs/> or the Federal eRulemaking Portal: <http://www.regulations.gov>. Filers should follow the instructions provided on the Web site for submitting comments.

- *For ECFS filers,* if multiple docket or rulemaking numbers appear in the caption of this proceeding, filers must

transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Comments shall be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

- *Paper filers:* Parties who choose to file by paper must file an original and four copies 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 (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., Suite 110, Washington, DC 20002. The filing hours at this location are 8 a.m. to 7 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes 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 12th Street, S.W., 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 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 12th Street, S.W., 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 12th Street, S.W., Room CY-B402, Washington, DC 20554, 1-800-378-3160.

Paperwork Reduction Analysis

48. This document does not contain proposed information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 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, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4) requirements.

Initial Regulatory Flexibility Analysis

49. 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 *Notice of Proposed Rulemaking (NPRM)*. 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 *NPRM* for comments. The Commission will send a copy of this *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA). In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the **Federal Register**.

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

50. In this *NPRM*, we propose four changes to our rules involving microwave stations. First, we propose allowing fixed service stations to operate in the 6875-7125 MHz and 12700-13200 MHz bands. Second, we propose to eliminate the prohibition on broadcasters using part 101 stations as the final radiofrequency (RF) link in the chain of distribution of the program material to broadcast stations. Third, we propose to amend our minimum payload capacity rule to facilitate the use of adaptive modulation to allow licensees to maintain communications by briefly reducing the rate at which they send data. Fourth, we propose to

allow part 101 licensees to add auxiliary stations in order to allow substantially greater reuse of microwave spectrum and substantially reduce the cost of using FS spectrum for backhaul and other important purposes.

51. With respect to the first proposal, we anticipate that demand for fixed service spectrum will increase substantially as it is increasingly used for wireless backhaul and other important purposes. The 6875-7125 MHz and 12700-13200 MHz bands are currently assigned to television pickup, television studio-transmitter links, television relay stations, television translator relay stations, and mobile only CARS. Based upon our experience in other bands, we believe assigning this band to the fixed service would be compatible with these other services using the frequency coordination procedures in § 101.103 of the Commission's rules. Assigning this spectrum to the fixed service would help provide additional spectrum that could be used for wireless backhaul and other critical applications.

52. Second, § 101.603(a)(7) of the Commission's rules, commonly known as the "final link" rule, prohibits broadcasters from using part 101 stations as the final radiofrequency (RF) link in the chain of distribution of the program material to broadcast stations. The rule ensures that private operational fixed stations are used for private, internal purposes and prevents broadcasters from causing congestion when part 74 Broadcast Auxiliary Service (BAS) frequencies are available. In light of recent technological and regulatory developments, we believe the "final link" rule may no longer serve its intended purpose and may in fact inhibit the full use of part 101 spectrum. As broadcasters and other microwave users move to digital-based systems, we question whether it makes sense to maintain regulatory restrictions based on the type of content that the digital data represents. Based on the record developed in waiver requests granted by the Wireless Telecommunications Bureau, it appears that there are an increasing number of markets where Broadcast Auxiliary Service (BAS) spectrum is scarce. Furthermore, the rule may impose additional costs by requiring broadcasters to build two different systems: One system to carry program material to the transmitter site, and a separate system to handle other data. In light of the extensive sharing between BAS and FS of the same bands, we believe it is appropriate to provide broadcasters with additional flexibility to use the FS bands. We therefore propose to eliminate this rule.

53. Our third proposal is to amend out part 101 technical rules to facilitate the use of adaptive modulation. Section 101.141(a)(3) of the Commission's rules establishes minimum payload capacities (in terms of megabits per second) for various channel sizes in certain part 101 bands. The underlying purpose of the rule is to promote efficient frequency use. Although the Commission has never quantified the time period over which licensees must comply with those standards, the industry has generally construed the payload requirements as applying whenever the link is in service. Fixed service links, especially long links, are subject to atmospheric fading: A temporary drop in received power caused by changes in propagation conditions. Fading leads to an increase in bit errors, and sometimes to a complete loss of communications. One way to combat fading is by briefly reducing the data rate, which requires a temporary change in the type of modulation, a process called "adaptive modulation." The use of adaptive modulation may reduce the minimum payload capacity below the value specified in the rule for a short time, although this still represents an increase over the otherwise zero level during the fade. Adaptive modulation has public interest benefits of allowing communications to be maintained during adverse propagation conditions. Given the critical backhaul and public safety applications of fixed service stations, we find this benefit to be significant. By allowing this level of flexibility in our efficiency standards we hope to provide carriers with a way to lower their costs yet still use the spectrum efficiently. We therefore propose to amend our rules to state that the minimum payload capacity requirements must be complied with at all times, except during anomalous propagation conditions, when lower capacities may be utilized in order to maintain communications. That approach would allow licensees to take advantage of the benefits of adaptive modulation while ensuring efficient use of the spectrum.

54. Finally, we seek comment on allowing substantially greater reuse of microwave spectrum and substantially reduce the cost of using fixed spectrum for backhaul and other important purposes by allowing licensees to place auxiliary antennas that the licensee of each primary FS link be allowed to deploy as many auxiliary stations as it wishes under the following conditions:

- Each auxiliary station must operate on the same frequencies as the main licensed link.

- Auxiliary stations must not cause any incremental interference to other primary links, *i.e.*, they must not cause any more interference to them than the main link would cause. This result can, possibly, be achieved by alternating transmissions between the primary station and the auxiliary stations on a time-division multiplexed basis or by any other method that achieves the required result.

- Auxiliary stations will be secondary in status and have no right to claim protection from interference from any primary stations, including stations in other services, such as BAS, CARS, and satellite stations, other than interference that violates the protection rights of the main link. Otherwise, auxiliary stations will have a right to claim protection only from later-deployed auxiliary stations.

- Auxiliary stations would have to be coordinated in advance with other licensees and applicants pursuant to the frequency coordination process specified in § 101.103 of the Commission's rules.

- After coordination, the licensee of the main link would file applications to make major modifications to the main link license to add auxiliary stations. In those bands where conditional authority is available, applicants could operate their auxiliary stations as soon as they complete the frequency coordination process and file their application with the Commission, subject to the usual conditions and exceptions to conditional authority. Alternatively, we seek comment on whether, consistent with the procedures set out in § 101.31 of our rules for temporary fixed links, we could allow main link licensees to file blanket applications to operate temporary auxiliary stations at multiple locations within specified geographic areas surrounding the associated main links.

- Until we gain further experience with system operation under these new rules, we further propose to require that auxiliary stations be restricted from communicating directly with each other, *i.e.*, that they be allowed to communicate directly only with the primary link's transmitter or receiver. We propose this restriction because it would reduce the chance of interference.

- Auxiliary stations would not be subject to the antenna standards or minimum path length requirements that apply to main links. Eliminating the beamwidth requirement will enable licensees to use smaller, less expensive antennas that put less of a load on support structures and thereby reduce the cost of those structures. The main

link, however, would still have to comply with those requirements.

- Main links would remain subject to existing loading and path length requirements, but auxiliary stations would be exempt from the loading and path length requirements. Alternatively, in determining compliance with the loading requirements, licensees would be allowed to aggregate loading on the main link and auxiliary stations. We seek comment on both alternatives. Parties supporting the second alternative should explain how to avoid double counting traffic between a main link and an auxiliary link that also traverses the main link.

- Like primary stations, auxiliary stations would be required to obtain the necessary approvals for FAA tower clearance and to comply with environmental requirements covering non-ionizing radiation hazards, zoning, the National Environmental Act of 1969 and the National Historical Act of 1966, as applicable.

B. Legal Basis

55. The proposed action is authorized pursuant to sections 1, 2, 4(i), 7, 10, 201, 214, 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, 160, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333.

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

56. 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.

57. Our proposed action, if implemented, 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 27.2 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 2002, there were approximately 1.6 million 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 2002 indicate that there were 87,525 local governmental jurisdictions in the United States. We estimate that, of this total, 84,377 entities were “small governmental jurisdictions.” Thus, we estimate that most governmental jurisdictions are small.

58. *Wireless Telecommunications Carriers (except satellite)*. Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. At present, there are approximately 31,428 common carrier fixed licensees and 79,732 private and public safety operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. The Commission has not yet defined a small business with respect to microwave services. For purposes of the IRFA, we will use the SBA definition that applies to Wireless Telecommunications Carriers (except satellite)—*i.e.*, an entity with no more than 1,500 persons. Since 2007, the Census Bureau has placed wireless firms within this new, broad, economic census category. Prior to that time, such firms were within the now-superseded categories of “Paging” and “Cellular and Other Wireless Telecommunications.” Under the present and prior category definitions, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees. For the category of Wireless Telecommunications Carriers (except Satellite), preliminary data for 2007, *i.e.*, data based on the superseded SBA classification, show that there were 11,927 firms operating that year. While the Census Bureau has not released data on such establishments broken down by number of employees, we note that the Census Bureau lists total employment for all firms in that sector at 281,262. Since all firms with fewer than 1,500 employees are considered small, given the total employment in the sector, we estimate that the vast majority of wireless firms are small. We estimate that virtually all of the Fixed Microwave licensees (excluding broadcast auxiliary licensees) would qualify as small entities under the SBA definition.

59. *Radio Broadcasting*. A radio broadcasting station is an establishment

primarily engaged in broadcasting aural programs by radio to the public. Included in this industry are commercial, religious, educational, and other radio stations. Radio broadcasting stations which primarily are engaged in radio broadcasting and which produce radio program materials are similarly included. However, radio stations that are separate establishments and are primarily engaged in producing radio program material are classified under another NAICS number. The SBA has established a small business size standard for this category, which is: Firms having \$7 million or less in annual receipts. According to BIA Advisory Services, LLC, MEDIA Access Pro Database on March 17, 2009, 10,884 (95%) of 11,404 commercial radio stations have revenue of \$6 million or less. Therefore, the majority of such entities are small entities. We note, however, that many radio stations are affiliated with much larger corporations having much higher revenue. Our estimate, therefore, likely overstates the number of small entities that might be affected by any ultimate changes to the rules and forms.

60. *Television Broadcasting*. The SBA defines a television broadcasting station as a small business if such station has no more than \$14.0 million in annual receipts. Business concerns included in this industry are those “primarily engaged in broadcasting images together with sound.” The Commission has estimated the number of licensed commercial television stations to be 1,392. According to Commission staff review of the BIA/Kelsey, MAPro Television Database (“BIA”) as of April 7, 2010, about 1,015 of an estimated 1,380 commercial television stations (or about 74 percent) have revenues of \$14 million or less and, thus, qualify as small entities under the SBA definition. The Commission has estimated the number of licensed noncommercial educational (NCE) television stations to be 390. We note, however, that, in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. The Commission does not compile and otherwise does not have access to information on the revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities.

61. In addition, an element of the definition of “small business” is that the

entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply do not exclude any television station from the definition of a small business on this basis and are therefore over-inclusive to that extent. Also, as noted, an additional element of the definition of “small business” is that the entity must be independently owned and operated. We note that it is difficult at times to assess these criteria in the context of media entities and our estimates of small businesses to which they apply may be over-inclusive to this extent.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

62. *This Notice of Proposed Rulemaking* imposes no new reporting or recordkeeping requirements.

E. Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

63. As noted above, this *NPRM* proposes rules to (1) allow fixed service stations to operate in the 6875–7125 MHz band, (2) eliminate the prohibition on broadcasters using part 101 stations as the final radiofrequency (RF) link in the chain of distribution of the program material to broadcast stations, (3) amend our minimum payload capacity rule to facilitate the use of adaptive modulation to allow licensees to maintain communications by briefly reducing the rate at which they send data, and (4) allow part 101 licensees to add auxiliary stations. These actions would provide additional options to all licensees, including small entity licensees. Such action will serve the public interest by making additional spectrum available for fixed service users, providing additional flexibility for broadcasters to use microwave spectrum, allowing communications to be maintained during adverse propagation conditions, facilitating the efficient use of the 6 GHz and 23 GHz bands. The rules could therefore open up economic opportunities to a variety of spectrum users, including small businesses.

64. Generally, the alternative approach would be to maintain the existing rules. If the rules were not changed, the 6875–7125 MHz and 12700–13200 MHz bands would remain unavailable for fixed service use. Given the increasing demand for part 101 spectrum for backhaul and other uses, not making that spectrum available may

make it increasingly difficult to meet demand for microwave facilities. If the prohibition on broadcasters using part 101 stations as the final radiofrequency (RF) link in the chain of distribution of the program material to broadcast stations is not eliminated, broadcasters will be limited to using Broadcast Auxiliary Service spectrum for that purpose, and may have to build two separate microwave systems using different frequencies, such an alternative would be inadequate to meet the demands of licensees and therefore less than ideal. If no BAS spectrum is available, broadcasters will have to pay to prepare a request for waiver to access part 101 spectrum and await action on that waiver request before they can begin operation. Such expense and delay may be particularly harmful to small businesses.

65. With respect to our proposal to amend our minimum capacity payload rule to facilitate adaptive modulation, if our rules are not amended to facilitate the use of adaptive modulation, licensees will be unable to fully use technology to maintain critical communications during signal fades. Under the proposal made in the *NPRM*, the minimum payload capacity requirements must be met at all times, except during anomalous propagation conditions, when lower capacities may be utilized in order to maintain communications.

66. An alternative to the adaptive modulation proposal made in the *NPRM* would be to allow compliance with the efficiency standards "on average" and "during normal operation." We believe that standard would give licensees too much latitude to deploy inefficient systems that would be inconsistent with good engineering practices.

67. Finally, while herein we propose to authorize the use of auxiliary stations, we are open to alternatives such as authorizing auxiliary stations in a more limited fashion or not at all, however, if we do not authorize auxiliary stations in some fashion, we may prevent licensees from fully utilizing their spectrum for backhaul and other purposes.

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

68. None.

Ordering Clauses

69. Accordingly, it is ordered, pursuant to sections 1, 2, 4(i), 7, 10, 201, 214, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332 and 333 of the Communications Act of 1934, 47 U.S.C. 151, 152, 154(i), 157, 160, 201, 214, 301,

302, 303, 307, 308, 309, 310, 319, 324, 332, 333, that this *Notice of Proposed Rulemaking and Notice of Inquiry* is hereby adopted.

70. It is further ordered that notice is hereby given of the proposed regulatory changes described in this *NPRM*, and that comment is sought on these proposals.

71. It is further ordered, pursuant to section 4(i) of the Communications Act of 1934, 47 U.S.C. 154(i), and § 1.2 of the Commission's rules, 47 CFR 1.2, that the Request for Interpretation of § 101.141 (a)(3) of the Commission's rules to Permit the Use of Adaptive Modulation Systems filed by Alcatel-Lucent, Dragonwave, Inc. Ericsson, Inc., Exalt Communications, the Fixed Wireless Communications Coalition, Harris Stratex Networks and Motorola, Inc. on May 8, 2009 is denied.

72. It is further ordered, pursuant to section 4(i) of the Communications Act of 1934, 47 U.S.C. 154(i), and § 1.2 of the Commission's rules, 47 CFR 1.2, that the Request for Declaratory Ruling filed by Wireless Strategies, Inc. on February 23, 2007 is denied.

73. It is further ordered, pursuant to section 4(i) of the Communications Act of 1934, 47 U.S.C. 154(i), and §§ 1.3 and 1.925 of the Commission's rules, that the Request for Waiver of § 101.141(a)(3) filed by the Fixed Wireless Communications Coalition on May 14, 2010 is denied.

74. It is further ordered that WT Docket Nos. 07–121 and 09–106 are terminated.

75. It is further ordered that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of this *NPRM*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects

47 CFR Part 1

Administrative practice and procedure, Communications common carriers, Reporting and recordkeeping requirements, Telecommunications.

47 CFR Parts 74 and 101

Communications equipment, Radio, Reporting and recordkeeping requirements.

Marlene H. Dortch,

Secretary, Federal Communications Commission.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications

Commission proposes to amend 47 CFR parts 1, 74, and 101 as follows:

PART 1—PRACTICE AND PROCEDURE

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

Authority: 15 U.S.C. 79 *et seq.*; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 303(r), and 309.

2. Amend § 1.929 by revising paragraphs (d)(1)(ix) and (d)(1)(x) and adding (d)(1)(xi) to read as follows:

§ 1.929 Classification of filings as major or minor.

* * * * *

(d) * * *

(1) * * *

(ix) Any change in transmit antenna azimuth greater than 1 degree, except as specified in paragraph (d)(3) of this section;

(x) Any change which together with all minor modifications or amendments since the last major modification or amendment produces a cumulative effect exceeding any of the above major criteria; or

(xi) Any addition of or change to auxiliary stations pursuant to § 101.58 of this chapter.

* * * * *

PART 74—EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES

3. The authority citation for part 74 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 307, 336(f), 336(h) and 554.

4. Amend § 74.602 by revising paragraph (a) introductory text and by adding paragraphs (j) and (k) to read as follows:

§ 74.602 Frequency assignment.

(a) The following frequencies are available for assignment to television pickup, television STL, television relay and television translator relay stations. The band segments 17,700–18,580 and 19,260–19,700 MHz are available for broadcast auxiliary stations as described in paragraph (g) of this section. The band segment 6425–6525 MHz is available for broadcast auxiliary stations as described in paragraph (i) of this section. The band segment 6875–7125 MHz is available for broadcast auxiliary stations as described in this paragraph and in paragraph (j) of this section. The band segment 12700–13200 MHz is available for broadcast auxiliary stations as described in this paragraph and in paragraph (k) of this section. Broadcast

network-entities may also use the 1990–2110, 6425–6525 and 6875–7125 MHz bands for mobile television pickup only.

* * * * *

(j) 6875 to 7125 MHz. These frequencies are available for assignment to television STL, television relay stations and television translator relay stations as described in paragraphs (a) and (j) of this section. This band is co-equally shared with stations licensed pursuant to parts 78 and 101 of the Commission’s rules. The following channel plans apply:

(1) 400 kHz bandwidth channels:

		Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
		6897.2	7022.2	6926.0	7051.0
		6897.6	7022.6	6926.4	7051.4
		6898.0	7023.0	6926.8	7051.8
		6898.4	7023.4	6927.2	7052.2
		6898.8	7023.8	6927.6	7052.6
		6899.2	7024.2	6928.0	7053.0
		6899.6	7024.6	6928.4	7053.4
		6900.0	7025.0	6928.8	7053.8
		6900.4	7025.4	6929.2	7054.2
		6900.8	7025.8	6929.6	7054.6
		6901.2	7026.2	6930.0	7055.0
		6901.6	7026.6	6930.4	7055.4
		6902.0	7027.0	6930.8	7055.8
		6902.4	7027.4	6931.2	7056.2
		6902.8	7027.8	6931.6	7056.6
		6903.2	7028.2	6932.0	7057.0
		6903.6	7028.6	6932.4	7057.4
		6904.0	7029.0	6932.8	7057.8
		6904.4	7029.4	6933.2	7058.2
		6904.8	7029.8	6933.6	7058.6
		6905.2	7030.2	6934.0	7059.0
		6905.6	7030.6	6934.4	7059.4
		6906.0	7031.0	6934.8	7059.8
		6906.4	7031.4	6935.2	7060.2
		6906.8	7031.8	6935.6	7060.6
		6907.2	7032.2	6936.0	7061.0
		6907.6	7032.6	6936.4	7061.4
		6908.0	7033.0	6936.8	7061.8
		6908.4	7033.4	6937.2	7062.2
		6908.8	7033.8	6937.6	7062.6
		6909.2	7034.2	6938.0	7063.0
		6909.6	7034.6	6938.4	7063.4
		6910.0	7035.0	6938.8	7063.8
		6910.4	7035.4	6939.2	7064.2
		6910.8	7035.8	6939.6	7064.6
		6911.2	7036.2	6940.0	7065.0
		6911.6	7036.6	6940.4	7065.4
		6912.0	7037.0	6940.8	7065.8
		6912.4	7037.4	6941.2	7066.2
		6912.8	7037.8	6941.6	7066.6
		6913.2	7038.2	6942.0	7067.0
		6913.6	7038.6	6942.4	7067.4
		6914.0	7039.0	6942.8	7067.8
		6914.4	7039.4	6943.2	7068.2
		6914.8	7039.8	6943.6	7068.6
		6915.2	7040.2	6944.0	7069.0
		6915.6	7040.6	6944.4	7069.4
		6916.0	7041.0	6944.8	7069.8
		6916.4	7041.4	6945.2	7070.2
		6916.8	7041.8	6945.6	7070.6
		6917.2	7042.2	6946.0	7071.0
		6917.6	7042.6	6946.4	7071.4
		6918.0	7043.0	6946.8	7071.8
		6918.4	7043.4	6947.2	7072.2
		6918.8	7043.8	6947.6	7072.6
		6919.2	7044.2	6948.0	7073.0
		6919.6	7044.6	6948.4	7073.4
		6920.0	7045.0	6948.8	7073.8
		6920.4	7045.4	6949.2	7074.2
		6920.8	7045.8	6949.6	7074.6
		6921.2	7046.2	6950.0	7075.0
		6921.6	7046.6	6950.4	7075.4
		6922.0	7047.0	6950.8	7075.8
		6922.4	7047.4	6951.2	7076.2
		6922.8	7047.8	6951.6	7076.6
		6923.2	7048.2	6952.0	7077.0
		6923.6	7048.6	6952.4	7077.4
		6924.0	7049.0	6952.8	7077.8
		6924.4	7049.4	6953.2	7078.2
		6924.8	7049.8	6953.6	7078.6
		6925.2	7050.2	6954.0	7079.0
		6925.6	7050.6	6954.4	7079.4

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6875.2	7000.2
6875.6	7000.6
6876.0	7001.0
6876.4	7001.4
6876.8	7001.8
6877.2	7002.2
6877.6	7002.6
6878.0	7003.0
6878.4	7003.4
6878.8	7003.8
6879.2	7004.2
6879.6	7004.6
6880.0	7005.0
6880.4	7005.4
6880.8	7005.8
6881.2	7006.2
6881.6	7006.6
6882.0	7007.0
6882.4	7007.4
6882.8	7007.8
6883.2	7008.2
6883.6	7008.6
6884.0	7009.0
6884.4	7009.4
6884.8	7009.8
6885.2	7010.2
6885.6	7010.6
6886.0	7011.0
6886.4	7011.4
6886.8	7011.8
6887.2	7012.2
6887.6	7012.6
6888.0	7013.0
6888.4	7013.4
6888.8	7013.8
6889.2	7014.2
6889.6	7014.6
6890.0	7015.0
6890.4	7015.4
6890.8	7015.8
6891.2	7016.2
6891.6	7016.6
6892.0	7017.0
6892.4	7017.4
6892.8	7017.8
6893.2	7018.2
6893.6	7018.6
6894.0	7019.0
6894.4	7019.4
6894.8	7019.8
6895.2	7020.2
6895.6	7020.6
6896.0	7021.0
6896.4	7021.4
6896.8	7021.8

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6954.8	7079.8	6983.6	7108.6	6894.6	7019.6
6955.2	7080.2	6984.0	7109.0	6895.4	7020.4
6955.6	7080.6	6984.4	7109.4	6896.2	7021.2
6956.0	7081.0	6984.8	7109.8	6897.0	7022.0
6956.4	7081.4	6985.2	7110.2	6897.8	7022.8
6956.8	7081.8	6985.6	7110.6	6898.6	7023.6
6957.2	7082.2	6986.0	7111.0	6899.4	7024.4
6957.6	7082.6	6986.4	7111.4	6900.2	7025.2
6958.0	7083.0	6986.8	7111.8	6901.0	7026.0
6958.4	7083.4	6987.2	7112.2	6901.8	7026.8
6958.8	7083.8	6987.6	7112.6	6902.6	7027.6
6959.2	7084.2	6988.0	7113.0	6903.4	7028.4
6959.6	7084.6	6988.4	7113.4	6904.2	7029.2
6960.0	7085.0	6988.8	7113.8	6905.0	7030.0
6960.4	7085.4	6989.2	7114.2	6905.8	7030.8
6960.8	7085.8	6989.6	7114.6	6906.6	7031.6
6961.2	7086.2	6990.0	7115.0	6907.4	7032.4
6961.6	7086.6	6990.4	7115.4	6908.2	7033.2
6962.0	7087.0	6990.8	7115.8	6909.0	7034.0
6962.4	7087.4	6991.2	7116.2	6909.8	7034.8
6962.8	7087.8	6991.6	7116.6	6910.6	7035.6
6963.2	7088.2	6992.0	7117.0	6911.4	7036.4
6963.6	7088.6	6992.4	7117.4	6912.2	7037.2
6964.0	7089.0	6992.8	7117.8	6913.0	7038.0
6964.4	7089.4	6993.2	7118.2	6913.8	7038.8
6964.8	7089.8	6993.6	7118.6	6914.6	7039.6
6965.2	7090.2	6994.0	7119.0	6915.4	7040.4
6965.6	7090.6	6994.4	7119.4	6916.2	7041.2
6966.0	7091.0	6994.8	7119.8	6917.0	7042.0
6966.4	7091.4	6995.2	7120.2	6917.8	7042.8
6966.8	7091.8	6995.6	7120.6	6918.6	7043.6
6967.2	7092.2	6996.0	7121.0	6919.4	7044.4
6967.6	7092.6	6996.4	7121.4	6920.2	7045.2
6968.0	7093.0	6996.8	7121.8	6921.0	7046.0
6968.4	7093.4	6997.2	7122.2	6921.8	7046.8
6968.8	7093.8	6997.6	7122.6	6922.6	7047.6
6969.2	7094.2	6998.0	7123.0	6923.4	7048.4
6969.6	7094.6	6998.4	7123.4	6924.2	7049.2
6970.0	7095.0	6998.8	7123.8	6925.0	7050.0
6970.4	7095.4	6999.2	7124.2	6925.8	7050.8
6970.8	7095.8	6999.6	7124.6	6926.6	7051.6
6971.2	7096.2			6927.4	7052.4
6971.6	7096.6			6928.2	7053.2
6972.0	7097.0			6929.0	7054.0
6972.4	7097.4			6929.8	7054.8
6972.8	7097.8			6930.6	7055.6
6973.2	7098.2			6931.4	7056.4
6973.6	7098.6			6932.2	7057.2
6974.0	7099.0	6875.4	7000.4	6933.0	7058.0
6974.4	7099.4	6876.2	7001.2	6933.8	7058.8
6974.8	7099.8	6877.0	7002.0	6934.6	7059.6
6975.2	7100.2	6877.8	7002.8	6935.4	7060.4
6975.6	7100.6	6878.6	7003.6	6936.2	7061.2
6976.0	7101.0	6879.4	7004.4	6937.0	7062.0
6976.4	7101.4	6880.2	7005.2	6937.8	7062.8
6976.8	7101.8	6881.0	7006.0	6938.6	7063.6
6977.2	7102.2	6881.8	7006.8	6939.4	7064.4
6977.6	7102.6	6882.6	7007.6	6940.2	7065.2
6978.0	7103.0	6883.4	7008.4	6941.0	7066.0
6978.4	7103.4	6884.2	7009.2	6941.8	7066.8
6978.8	7103.8	6885.0	7010.0	6942.6	7067.6
6979.2	7104.2	6885.8	7010.8	6943.4	7068.4
6979.6	7104.6	6886.6	7011.6	6944.2	7069.2
6980.0	7105.0	6887.4	7012.4	6945.0	7070.0
6980.4	7105.4	6888.2	7013.2	6945.8	7070.8
6980.8	7105.8	6889.0	7014.0	6946.6	7071.6
6981.2	7106.2	6889.8	7014.8	6947.4	7072.4
6981.6	7106.6	6890.6	7015.6	6948.2	7073.2
6982.0	7107.0	6891.4	7016.4	6949.0	7074.0
6982.4	7107.4	6892.2	7017.2	6949.8	7074.8
6982.8	7107.8	6893.0	7018.0	6950.6	7075.6
6983.2	7108.2	6893.8	7018.8	6951.4	7076.4

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6981.25	7106.25	6962.5	7087.5	12731.875	12981.875
6983.75	7108.75	6967.5	7092.5	12733.125	12983.125
6986.25	7111.25	6972.5	7097.5	12734.375	12984.375
6988.75	7113.75	6977.5	7102.5	12735.625	12985.625
6991.25	7116.25	6982.5	7107.5	12736.875	12986.875
6993.75	7118.75	6987.5	7112.5	12738.125	12988.125
6996.25	7121.25	6992.5	7117.5	12739.375	12989.375
6998.75	7123.75	6997.5	7122.5	12740.625	12990.625
(5) 3.75 MHz bandwidth channels:		(7) 10 MHz bandwidth channels:		12741.875	12991.875
Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	12743.125	12993.125
6876.875	7001.875	6880	7005	12744.375	12994.375
6880.625	7005.625	6890	7015	12745.625	12995.625
6884.375	7009.375	6900	7025	12746.875	12996.875
6888.125	7013.125	6910	7035	12748.125	12998.125
6891.875	7016.875	6920	7045	12749.375	12999.375
6895.625	7020.625	6930	7055	12750.625	13000.625
6899.375	7024.375	6940	7065	12751.875	13001.875
6903.125	7028.125	6950	7075	12753.125	13003.125
6906.875	7031.875	6960	7085	12754.375	13004.375
6910.625	7035.625	6970	7095	12755.625	13005.625
6914.375	7039.375	6980	7105	12756.875	13006.875
6918.125	7043.125	6990	7115	12758.125	13008.125
6921.875	7046.875	(8) 30 MHz bandwidth channels:		12759.375	13009.375
6925.625	7050.625	Transmit (receive) (MHz)	Receive (transmit) (MHz)	12760.625	13010.625
6929.375	7054.375	6890	7015	12761.875	13011.875
6933.125	7058.125	6920	7045	12763.125	13013.125
6936.875	7061.875	6950	7075	12764.375	13014.375
6940.625	7065.625	6980	7105	12765.625	13015.625
6944.375	7069.375	6990	7115	12766.875	13016.875
6948.125	7073.125	(k) 12700 to 13200 MHz. 30 MHz authorized bandwidth.		12768.125	13018.125
6951.875	7076.875	(1) 1.25 MHz Bandwidth Channels:		12769.375	13019.375
6955.625	7080.625	Transmit (receive) (MHz)	Receive (transmit) (MHz)	12770.625	13020.625
6959.375	7084.375	6890	7015	12771.875	13021.875
6963.125	7088.125	6920	7045	12773.125	13023.125
6966.875	7091.875	6950	7075	12774.375	13024.375
6970.625	7095.625	6980	7105	12775.625	13025.625
6974.375	7099.375	6990	7115	12776.875	13026.875
6978.125	7103.125	12700.625	12950.625	12778.125	13028.125
6981.875	7106.875	12701.875	12951.875	12779.375	13029.375
6985.625	7110.625	12703.125	12953.125	12780.625	13030.625
6989.375	7114.375	12704.375	12954.375	12781.875	13031.875
6993.125	7118.125	12705.625	12955.625	12783.125	13033.125
6996.875	7121.875	12706.875	12956.875	12784.375	13034.375
(6) 5 MHz bandwidth channels:		12708.125	12958.125	12785.625	13035.625
Transmit (receive) (MHz)	Receive (transmit) (MHz)	12709.375	12959.375	12786.875	13036.875
6877.5	7002.5	12710.625	12960.625	12788.125	13038.125
6882.5	7007.5	12711.875	12961.875	12789.375	13039.375
6887.5	7012.5	12713.125	12963.125	12790.625	13040.625
6892.5	7017.5	12714.375	12964.375	12791.875	13041.875
6897.5	7022.5	12715.625	12965.625	12793.125	13043.125
6902.5	7027.5	12716.875	12966.875	12794.375	13044.375
6907.5	7032.5	12718.125	12968.125	12795.625	13045.625
6912.5	7037.5	12719.375	12969.375	12796.875	13046.875
6917.5	7042.5	12720.625	12970.625	12798.125	13048.125
6922.5	7047.5	12721.875	12971.875	12799.375	13049.375
6927.5	7052.5	12723.125	12973.125	12800.625	13050.625
6932.5	7057.5	12724.375	12974.375	12801.875	13051.875
6937.5	7062.5	12725.625	12975.625	12803.125	13053.125
6942.5	7067.5	12726.875	12976.875	12804.375	13054.375
6947.5	7072.5	12728.125	12978.125	12805.625	13055.625
6952.5	7077.5	12729.375	12979.375	12806.875	13056.875
6957.5	7082.5	12730.625	12980.625	12808.125	13058.125
				12809.375	13059.375
				12810.625	13060.625
				12811.875	13061.875
				12813.125	13063.125
				12814.375	13064.375
				12815.625	13065.625
				12816.875	13066.875
				12818.125	13068.125
				12819.375	13069.375
				12820.625	13070.625

subpart I of this chapter may add auxiliary stations to their authorizations in accordance with this section.

(b) Each auxiliary station must operate on the same frequencies as the main licensed link. Auxiliary stations may communicate directly only with the primary link's receiver.

(c) Auxiliary stations may not cause any increase in interference to other licensed services, *i.e.*, less than the interference that would be predicted to exist from its own main link. A licensee or prior applicant with auxiliary

stations may object to a prior coordination notice based on interference only if such interference would be predicted to exist to the other service based solely on the operation of the main link.

(d) Auxiliary stations shall not be required to comply with the provisions of §§ 101.115, 101.141 and 101.143.

(e) Licensees seeking to add auxiliary stations shall prior coordinate such stations pursuant to the frequency coordination procedures of § 101.103.

(f) For each auxiliary station, an application shall be filed on Form 601 to modify the license to add the auxiliary station. Such application shall contain the information required in § 101.21. Auxiliary stations shall be eligible for conditional authorization pursuant to § 101.31(b) if they comply with the requirements of that section.

8. Amend § 101.101 by adding the entry "6875–7125" to the table to read as follows:

§ 101.101 Frequency availability.

Frequency band (MHz)	Radio service					Notes
	Common carrier (Part 101)	Private radio (Part 101)	Broadcast auxiliary (Part 74)	Other (Parts 15, 21, 22, 24, 25, 74, 78, & 100)		
6875–7125	CC	OFS	TV BAS	CARS.		*

9. Amend § 101.103 by revising paragraph (d)(2)(ii) to read as follows:

§ 101.103 Frequency coordination procedures.

- (d) * * *
- (2) * * *
- (ii) Notification must include relevant technical details of the proposal. At minimum, this should include, as applicable, the following:
 - Applicant's name and address.
 - Transmitting station name.
 - Transmitting station coordinates.
 - Frequencies and polarizations to be added, changed or deleted.
 - Transmitting equipment type, its stability, actual output power, emission designator, and type of modulation(s) (loading). Notification shall indicate if modulations not compliant with the standards contained in § 101.141(a)(3) of the Commission's rules will be used.
 - Transmitting antenna type(s), model, gain and, if required, a radiation pattern provided or certified by the manufacturer.
 - Transmitting antenna center line height(s) above ground level and ground elevation above mean sea level.
 - Receiving station name.
 - Receiving station coordinates.
 - Receiving antenna type(s), model, gain, and, if required, a radiation pattern provided or certified by the manufacturer.

Receiving antenna center line height(s) above ground level and ground elevation above mean sea level.

Path azimuth and distance.

Estimated transmitter transmission line loss expressed in dB.

Estimated receiver transmission line loss expressed in dB.

For a system utilizing ATPC, maximum transmit power, coordinated transmit power, and nominal transmit power.

Note to paragraph (d)(2)(ii): The position location of antenna sites shall be determined to an accuracy of no less than ±1 second in the horizontal dimensions (latitude and longitude) and ±1 meter in the vertical dimension (ground elevation) with respect to the National Spatial Reference System.

10. Amend § 101.107(a) in the table by adding the entry "6,875 to 7,125¹" to read as follows:

§ 101.107 Frequency tolerance.

(a) * * *

Frequency (MHz)	Frequency tolerance (percent)
6,875 to 7,125 ¹	0.005

11. Amend § 101.109(c) in the table by adding the entry "6,875 to 7,125" to read as follows:

§ 101.109 Bandwidth.

Frequency band (MHz)	Maximum authorized bandwidth
6,875 to 7,125	30 MHz ¹

12. Amend § 101.113(a) in the table by adding the entry "6,875–7,125" to read as follows:

§ 101.113 Transmitter power limitations.

(a) * * *

Frequency band (MHz)	Maximum allowable EIRP ^{1,2}		Frequency band (MHz)	Maximum allowable EIRP ^{1,2}	
	Fixed ^{1,2} (dBW)	Mobile (dBW)		Fixed ^{1,2} (dBW)	Mobile (dBW)
6,875–7,125	+55				

* * * * *
 13. Amend § 101.115(b)(2) in the table by adding the entry “6,875–7,125” to read as follows:

§ 101.115 Directional antennas.
 * * * * *
 (b) * * *

ANTENNA STANDARDS

Frequency (MHz)	Category	Maximum beamwidth to 3 dB points ¹ (included angle in degrees)	Minimum antenna gain (dBi)	Minimum radiation suppression to angle in degrees from centerline of main beam in decibels						
				5° to 10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°
6,875 to 7,125	A	2.2	38	25	29	33	36	42	55	55
	B	2.2	38	21	25	29	32	35	39	45

* * * * *
 14. Amend § 101.141 by revising paragraph (a)(3) introductory text to read as follows:

§ 101.141 Microwave modulation.

(a) * * *

(3) The following capacity and loading requirements must be met for equipment applied for, authorized, and placed in service after June 1, 1997 in 3700–4200 MHz (4 GHz), 5925–6425, 6525–6875 MHz, and 6875–7125 MHz (6 GHz), 10,550–10,680 MHz (10 GHz), and 10,700–11700 MHz (11 GHz) bands, except during anomalous signal fading. During anomalous signal fading, licensees may adjust to a modulation specified in their authorization if such modulation is necessary to allow licensees to maintain communications, even if the modulation will not comply with the capacity and loading requirements specified in this paragraph.

* * * * *

15. Amend § 101.147 by adding the entry “6,875–7,125 MHz (10)” to the list in paragraph (a), redesignating paragraph (l) as paragraph (k), adding a new paragraph (l), and revising paragraphs (p) and (q) to read as follows:

§ 101.147 Frequency assignments.

(a) * * *

6,875–7,125 MHz (10)

* * * * *

(l) 6,875 to 7,125 MHz. 30 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6875.2	7000.2	6893.2	7018.2
6875.6	7000.6	6893.6	7018.6
6876.0	7001.0	6894.0	7019.0
6876.4	7001.4	6894.4	7019.4
6876.8	7001.8	6894.8	7019.8
6877.2	7002.2	6895.2	7020.2
6877.6	7002.6	6895.6	7020.6
6878.0	7003.0	6896.0	7021.0
6878.4	7003.4	6896.4	7021.4
6878.8	7003.8	6896.8	7021.8
6879.2	7004.2	6897.2	7022.2
6879.6	7004.6	6897.6	7022.6
6880.0	7005.0	6898.0	7023.0
6880.4	7005.4	6898.4	7023.4
6880.8	7005.8	6898.8	7023.8
6881.2	7006.2	6899.2	7024.2
6881.6	7006.6	6899.6	7024.6
6882.0	7007.0	6900.0	7025.0
6882.4	7007.4	6900.4	7025.4
6882.8	7007.8	6900.8	7025.8
6883.2	7008.2	6901.2	7026.2
6883.6	7008.6	6901.6	7026.6
6884.0	7009.0	6902.0	7027.0
6884.4	7009.4	6902.4	7027.4
6884.8	7009.8	6902.8	7027.8
6885.2	7010.2	6903.2	7028.2
6885.6	7010.6	6903.6	7028.6
6886.0	7011.0	6904.0	7029.0
6886.4	7011.4	6904.4	7029.4
6886.8	7011.8	6904.8	7029.8
6887.2	7012.2	6905.2	7030.2
6887.6	7012.6	6905.6	7030.6
6888.0	7013.0	6906.0	7031.0
6888.4	7013.4	6906.4	7031.4
6888.8	7013.8	6906.8	7031.8
6889.2	7014.2	6907.2	7032.2
6889.6	7014.6	6907.6	7032.6
6890.0	7015.0	6908.0	7033.0
6890.4	7015.4	6908.4	7033.4
6890.8	7015.8	6908.8	7033.8
6891.2	7016.2	6909.2	7034.2
6891.6	7016.6	6909.6	7034.6
6892.0	7017.0	6910.0	7035.0
6892.4	7017.4	6910.4	7035.4
6892.8	7017.8	6910.8	7035.8

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6911.2	7036.2	6940.0	7065.0	6968.8	7093.8
6911.6	7036.6	6940.4	7065.4	6969.2	7094.2
6912.0	7037.0	6940.8	7065.8	6969.6	7094.6
6912.4	7037.4	6941.2	7066.2	6970.0	7095.0
6912.8	7037.8	6941.6	7066.6	6970.4	7095.4
6913.2	7038.2	6942.0	7067.0	6970.8	7095.8
6913.6	7038.6	6942.4	7067.4	6971.2	7096.2
6914.0	7039.0	6942.8	7067.8	6971.6	7096.6
6914.4	7039.4	6943.2	7068.2	6972.0	7097.0
6914.8	7039.8	6943.6	7068.6	6972.4	7097.4
6915.2	7040.2	6944.0	7069.0	6972.8	7097.8
6915.6	7040.6	6944.4	7069.4	6973.2	7098.2
6916.0	7041.0	6944.8	7069.8	6973.6	7098.6
6916.4	7041.4	6945.2	7070.2	6974.0	7099.0
6916.8	7041.8	6945.6	7070.6	6974.4	7099.4
6917.2	7042.2	6946.0	7071.0	6974.8	7099.8
6917.6	7042.6	6946.4	7071.4	6975.2	7100.2
6918.0	7043.0	6946.8	7071.8	6975.6	7100.6
6918.4	7043.4	6947.2	7072.2	6976.0	7101.0
6918.8	7043.8	6947.6	7072.6	6976.4	7101.4
6919.2	7044.2	6948.0	7073.0	6976.8	7101.8
6919.6	7044.6	6948.4	7073.4	6977.2	7102.2
6920.0	7045.0	6948.8	7073.8	6977.6	7102.6
6920.4	7045.4	6949.2	7074.2	6978.0	7103.0
6920.8	7045.8	6949.6	7074.6	6978.4	7103.4
6921.2	7046.2	6950.0	7075.0	6978.8	7103.8
6921.6	7046.6	6950.4	7075.4	6979.2	7104.2
6922.0	7047.0	6950.8	7075.8	6979.6	7104.6
6922.4	7047.4	6951.2	7076.2	6980.0	7105.0
6922.8	7047.8	6951.6	7076.6	6980.4	7105.4
6923.2	7048.2	6952.0	7077.0	6980.8	7105.8
6923.6	7048.6	6952.4	7077.4	6981.2	7106.2
6924.0	7049.0	6952.8	7077.8	6981.6	7106.6
6924.4	7049.4	6953.2	7078.2	6982.0	7107.0
6924.8	7049.8	6953.6	7078.6	6982.4	7107.4
6925.2	7050.2	6954.0	7079.0	6982.8	7107.8
6925.6	7050.6	6954.4	7079.4	6983.2	7108.2
6926.0	7051.0	6954.8	7079.8	6983.6	7108.6
6926.4	7051.4	6955.2	7080.2	6984.0	7109.0
6926.8	7051.8	6955.6	7080.6	6984.4	7109.4
6927.2	7052.2	6956.0	7081.0	6984.8	7109.8
6927.6	7052.6	6956.4	7081.4	6985.2	7110.2
6928.0	7053.0	6956.8	7081.8	6985.6	7110.6
6928.4	7053.4	6957.2	7082.2	6986.0	7111.0
6928.8	7053.8	6957.6	7082.6	6986.4	7111.4
6929.2	7054.2	6958.0	7083.0	6986.8	7111.8
6929.6	7054.6	6958.4	7083.4	6987.2	7112.2
6930.0	7055.0	6958.8	7083.8	6987.6	7112.6
6930.4	7055.4	6959.2	7084.2	6988.0	7113.0
6930.8	7055.8	6959.6	7084.6	6988.4	7113.4
6931.2	7056.2	6960.0	7085.0	6988.8	7113.8
6931.6	7056.6	6960.4	7085.4	6989.2	7114.2
6932.0	7057.0	6960.8	7085.8	6989.6	7114.6
6932.4	7057.4	6961.2	7086.2	6990.0	7115.0
6932.8	7057.8	6961.6	7086.6	6990.4	7115.4
6933.2	7058.2	6962.0	7087.0	6990.8	7115.8
6933.6	7058.6	6962.4	7087.4	6991.2	7116.2
6934.0	7059.0	6962.8	7087.8	6991.6	7116.6
6934.4	7059.4	6963.2	7088.2	6992.0	7117.0
6934.8	7059.8	6963.6	7088.6	6992.4	7117.4
6935.2	7060.2	6964.0	7089.0	6992.8	7117.8
6935.6	7060.6	6964.4	7089.4	6993.2	7118.2
6936.0	7061.0	6964.8	7089.8	6993.6	7118.6
6936.4	7061.4	6965.2	7090.2	6994.0	7119.0
6936.8	7061.8	6965.6	7090.6	6994.4	7119.4
6937.2	7062.2	6966.0	7091.0	6994.8	7119.8
6937.6	7062.6	6966.4	7091.4	6995.2	7120.2
6938.0	7063.0	6966.8	7091.8	6995.6	7120.6
6938.4	7063.4	6967.2	7092.2	6996.0	7121.0
6938.8	7063.8	6967.6	7092.6	6996.4	7121.4
6939.2	7064.2	6968.0	7093.0	6996.8	7121.8
6939.6	7064.6	6968.4	7093.4	6997.2	7122.2

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6925.625	7050.625	6888.75	7013.75	6951.875	7076.875
6926.875	7051.875	6891.25	7016.25	6955.625	7080.625
6928.125	7053.125	6893.75	7018.75	6959.375	7084.375
6929.375	7054.375	6896.25	7021.25	6963.125	7088.125
6930.625	7055.625	6898.75	7023.75	6966.875	7091.875
6931.875	7056.875	6901.25	7026.25	6970.625	7095.625
6933.125	7058.125	6903.75	7028.75	6974.375	7099.375
6934.375	7059.375	6906.25	7031.25	6978.125	7103.125
6935.625	7060.625	6908.75	7033.75	6981.875	7106.875
6936.875	7061.875	6911.25	7036.25	6985.625	7110.625
6938.125	7063.125	6913.75	7038.75	6989.375	7114.375
6939.375	7064.375	6916.25	7041.25	6993.125	7118.125
6940.625	7065.625	6918.75	7043.75	6996.875	7121.875
6941.875	7066.875	6921.25	7046.25		
6943.125	7069.125	6923.75	7048.75	(6) 5 MHz bandwidth channels:	
6944.375	7069.375	6926.25	7051.25		
6945.625	7070.625	6928.75	7053.75	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6946.875	7071.875	6931.25	7056.25		
6948.125	7073.125	6933.75	7058.75		
6949.375	7074.375	6936.25	7061.25		
6950.625	7075.625	6938.75	7063.75	6877.5	7002.5
6951.875	7076.875	6941.25	7066.25	6882.5	7007.5
6953.125	7078.125	6943.75	7068.75	6887.5	7012.5
6954.375	7079.375	6946.25	7071.25	6892.5	7017.5
6955.625	7080.625	6948.75	7073.75	6897.5	7022.5
6956.875	7081.875	6951.25	7076.25	6902.5	7027.5
6958.125	7083.125	6953.75	7078.75	6907.5	7032.5
6959.375	7084.375	6956.25	7081.25	6912.5	7037.5
6960.625	7085.625	6958.75	7083.75	6917.5	7042.5
6961.875	7086.875	6961.25	7086.25	6922.5	7047.5
6963.125	7088.125	6963.75	7088.75	6927.5	7052.5
6964.375	7089.375	6966.25	7091.25	6932.5	7057.5
6965.625	7090.625	6968.75	7093.75	6937.5	7062.5
6966.875	7091.875	6971.25	7096.25	6942.5	7067.5
6968.125	7093.125	6973.75	7098.75	6947.5	7072.5
6969.375	7094.375	6976.25	7101.25	6952.5	7077.5
6970.625	7095.625	6978.75	7103.75	6957.5	7082.5
6971.875	7096.875	6981.25	7106.25	6962.5	7087.5
6973.125	7098.125	6983.75	7108.75	6967.5	7092.5
6974.375	7099.375	6986.25	7111.25	6972.5	7097.5
6975.625	7100.625	6988.75	7113.75	6977.5	7102.5
6976.875	7101.875	6991.25	7116.25	6982.5	7107.5
6978.125	7103.125	6993.75	7118.75	6987.5	7112.5
6979.375	7104.375	6996.25	7121.25	6992.5	7117.5
6980.625	7105.625	6998.75	7123.75	6997.5	7122.5
6981.875	7106.875				
6983.125	7108.125	(5) 3.75 MHz bandwidth channels:		(7) 10 MHz bandwidth channels:	
6984.375	7109.375	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6985.625	7110.625				
6986.875	7111.875	6876.875	7001.875	6880	7005
6988.125	7113.125	6880.625	7005.625	6890	7015
6989.375	7114.375	6884.375	7009.375	6900	7025
6990.625	7115.625	6888.125	7013.125	6910	7035
6991.875	7116.875	6891.875	7016.875	6920	7045
6993.125	7118.125	6895.625	7020.625	6930	7055
6994.375	7119.375	6899.375	7024.375	6940	7065
6995.625	7120.625	6903.125	7028.125	6950	7075
6996.875	7121.875	6906.875	7031.875	6960	7085
6998.125	7123.125	6910.625	7035.625	6970	7095
6999.375	7124.375	6914.375	7039.375	6980	7105
		6918.125	7043.125	6990	7115
(4) 2.5 MHz bandwidth channels:		6921.875	7046.875		
Transmit (receive) (MHz)	Receive (transmit) (MHz)	6925.625	7050.625	(8) 30 MHz bandwidth channels:	
		6929.375	7054.375	Transmit (receive) (MHz)	Receive (transmit) (MHz)
6876.25	7001.25	6933.125	7058.125		
6878.75	7003.75	6936.875	7061.875		
6881.25	7006.25	6940.625	7065.625		
6883.75	7008.75	6944.375	7069.375		
6886.25	7011.25	6948.125	7073.125		

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6920	7045
6950	7075
6980	7105

* * * * *

(p) *12,000–12,700 MHz.* (1) The Commission has allocated the 12.2–12.7 GHz band for use by the Direct Broadcast Satellite Service (DBS), the Multichannel Video Distribution and Data Service (MVDDS), and the Non-Geostationary Satellite Orbit Fixed Satellite Service (NGSO FSS). MVDDS shall be licensed on a non-harmful interference co-primary basis to existing DBS operations and on a co-primary basis with NGSO FSS stations in this band. MVDDS use can be on a common carrier and/or non-common carrier basis and can use channels of any desired bandwidth up to the maximum of 500 MHz provided the EIRP does not exceed 14 dBm per 24 megahertz. Private operational fixed point-to-point microwave stations authorized after September 9, 1983, are licensed on a non-harmful interference basis to DBS and are required to make any and all adjustments necessary to prevent harmful interference to operating domestic DBS receivers. Incumbent public safety licensees shall be afforded protection from MVDDS and NGSO FSS licensees, however all other private operational fixed licensees shall be secondary to DBS, MVDDS and NGSO FSS licensees. As of May 23, 2002, the Commission no longer accepts applications for new licenses for point-to-point private operational fixed stations in this band, however, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in § 1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license. Notwithstanding any other provisions, no private operational fixed point-to-point microwave stations are permitted to cause harmful interference to broadcasting-satellite stations of other countries operating in accordance with the Region 2 plan for the Broadcasting-Satellite Service established at the 1983 WARC.

(2) *Special provisions for incumbent low power, limited coverage systems in the band segments 12.2–12.7 GHz.* (i) As of May 23, 2002, the Commission no longer accepts applications for new stations in this service and incumbent stations may remain in service provided they do not cause harmful interference to any other primary services licensed

in this band as described in paragraph (p) of this section. However, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in § 1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license.

(ii) Prior to December 8, 2000, notwithstanding any contrary provisions in this part, the frequency pairs 12.220/12.460 GHz, 12.260/12.500 GHz, 12.300/12.540 GHz and 12.340/12.580 GHz, were authorized for low power, limited coverage systems subject to the following provisions:

(A) Maximum equivalent isotropically radiated power (EIRP) shall be 55 dBm;

(B) The rated transmitter output power shall not exceed 0.5 watts;

(C) Frequency tolerance shall be maintained to within 0.01 percent of the assigned frequency;

(D) Maximum beamwidth shall not exceed 4°. However, the sidelobe suppression criteria contained in § 101.115 shall not apply, except that a minimum front-to-back ratio of 38 dB shall apply;

(E) Upon showing of need, a maximum bandwidth of 12 MHz may be authorized per frequency assigned;

(F) Radio systems authorized under the provisions of this section shall have no more than three hops in tandem, except upon showing of need, but in any event the maximum tandem length shall not exceed 40 km (25 miles);

(G) Interfering signals at the receiver antenna terminals of stations authorized under this section shall not exceed –90 dBm and –70 dBm respectively, for co-channel and adjacent channel interfering signals, and

(H) Stations authorized under the provisions of this section shall provide the protection from interference specified in § 101.105 to stations operating in accordance with the provisions of this part.

(q) *12700 to 13200 MHz.* 30 MHz maximum authorized bandwidth.

(1) 1.25 MHz Bandwidth Channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12700.625	12950.625
12701.875	12951.875
12703.125	12953.125
12704.375	12954.375
12705.625	12955.625
12706.875	12956.875
12708.125	12958.125
12709.375	12959.375
12710.625	12960.625
12711.875	12961.875
12713.125	12963.125
12714.375	12964.375
12715.625	12965.625

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12716.875	12966.875
12718.125	12968.125
12719.375	12969.375
12720.625	12970.625
12721.875	12971.875
12723.125	12973.125
12724.375	12974.375
12725.625	12975.625
12726.875	12976.875
12728.125	12978.125
12729.375	12979.375
12730.625	12980.625
12731.875	12981.875
12733.125	12983.125
12734.375	12984.375
12735.625	12985.625
12736.875	12986.875
12738.125	12988.125
12739.375	12989.375
12740.625	12990.625
12741.875	12991.875
12743.125	12993.125
12744.375	12994.375
12745.625	12995.625
12746.875	12996.875
12748.125	12998.125
12749.375	12999.375
12750.625	13000.625
12751.875	13001.875
12753.125	13003.125
12754.375	13004.375
12755.625	13005.625
12756.875	13006.875
12758.125	13008.125
12759.375	13009.375
12760.625	13010.625
12761.875	13011.875
12763.125	13013.125
12764.375	13014.375
12765.625	13015.625
12766.875	13016.875
12768.125	13018.125
12769.375	13019.375
12770.625	13020.625
12771.875	13021.875
12773.125	13023.125
12774.375	13024.375
12775.625	13025.625
12776.875	13026.875
12778.125	13028.125
12779.375	13029.375
12780.625	13030.625
12781.875	13031.875
12783.125	13033.125
12784.375	13034.375
12785.625	13035.625
12786.875	13036.875
12788.125	13038.125
12789.375	13039.375
12790.625	13040.625
12791.875	13041.875
12793.125	13043.125
12794.375	13044.375
12795.625	13045.625
12796.875	13046.875
12798.125	13048.125
12799.375	13049.375
12800.625	13050.625
12801.875	13051.875
12803.125	13053.125
12804.375	13054.375
12805.625	13055.625

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
12806.875	13056.875	12896.875	13146.875	12756.25	13006.25
12808.125	13058.125	12898.125	13148.125	12758.75	13008.75
12809.375	13059.375	12899.375	13149.375	12761.25	13011.25
12810.625	13060.625	12900.625	13150.625	12763.75	13013.75
12811.875	13061.875	12901.875	13151.875	12766.25	13016.25
12813.125	13063.125	12903.125	13153.125	12768.75	13018.75
12814.375	13064.375	12904.375	13154.375	12771.25	13021.25
12815.625	13065.625	12905.625	13155.625	12773.75	13023.75
12816.875	13066.875	12906.875	13156.875	12776.25	13026.25
12818.125	13068.125	12908.125	13158.125	12778.75	13028.75
12819.375	13069.375	12909.375	13159.375	12781.25	13031.25
12820.625	13070.625	12910.625	13160.625	12783.75	13033.75
12821.875	13071.875	12911.875	13161.875	12786.25	13036.25
12823.125	13073.125	12913.125	13163.125	12788.75	13038.75
12824.375	13074.375	12914.375	13164.375	12791.25	13041.25
12825.625	13075.625	12915.625	13165.625	12793.75	13043.75
12826.875	13076.875	12916.875	13166.875	12796.25	13046.25
12828.125	13078.125	12918.125	13168.125	12798.75	13048.75
12829.375	13079.375	12919.375	13169.375	12801.25	13051.25
12830.625	13080.625	12920.625	13170.625	12803.75	13053.75
12831.875	13081.875	12921.875	13171.875	12806.25	13056.25
12833.125	13083.125	12923.125	13173.125	12808.75	13058.75
12834.375	13084.375	12924.375	13174.375	12811.25	13061.25
12835.625	13085.625	12925.625	13175.625	12813.75	13063.75
12836.875	13086.875	12926.875	13176.875	12816.25	13066.25
12838.125	13088.125	12928.125	13178.125	12818.75	13068.75
12839.375	13089.375	12929.375	13179.375	12821.25	13071.25
12840.625	13090.625	12930.625	13180.625	12823.75	13073.75
12841.875	13091.875	12931.875	13181.875	12826.25	13076.25
12843.125	13093.125	12933.125	13183.125	12828.75	13078.75
12844.375	13094.375	12934.375	13184.375	12831.25	13081.25
12845.625	13095.625	12935.625	13185.625	12833.75	13083.75
12846.875	13096.875	12936.875	13186.875	12836.25	13086.25
12848.125	13098.125	12938.125	13188.125	12838.75	13088.75
12849.375	13099.375	12939.375	13189.375	12841.25	13091.25
12850.625	13100.625	12940.625	13190.625	12843.75	13093.75
12851.875	13101.875	12941.875	13191.875	12846.25	13096.25
12853.125	13103.125	12943.125	13193.125	12848.75	13098.75
12854.375	13104.375	12944.375	13194.375	12851.25	13101.25
12855.625	13105.625	12945.625	13195.625	12853.75	13103.75
12856.875	13106.875	12946.875	13196.875	12856.25	13106.25
12858.125	13108.125	12948.125	13198.125	12858.75	13108.75
12859.375	13109.375	12949.375	13199.375	12861.25	13111.25
12860.625	13110.625			12863.75	13113.75
12861.875	13111.875			12866.25	13116.25
12863.125	13113.125			12868.75	13118.75
12864.375	13114.375			12871.25	13121.25
12865.625	13115.625			12873.75	13123.75
12866.875	13116.875			12876.25	13126.25
12868.125	13118.125			12878.75	13128.75
12869.375	13119.375			12881.25	13131.25
12870.625	13120.625			12883.75	13133.75
12871.875	13121.875			12886.25	13136.25
12873.125	13123.125			12888.75	13138.75
12874.375	13124.375			12891.25	13141.25
12875.625	13125.625			12893.75	13143.75
12876.875	13126.875			12896.25	13146.25
12878.125	13128.125			12898.75	13148.75
12879.375	13129.375			12901.25	13151.25
12880.625	13130.625			12903.75	13153.75
12881.875	13131.875			12906.25	13156.25
12883.125	13133.125			12908.75	13158.75
12884.375	13134.375			12911.25	13161.25
12885.625	13135.625			12913.75	13163.75
12886.875	13136.875			12916.25	13166.25
12888.125	13138.125			12918.75	13168.75
12889.375	13139.375			12921.25	13171.25
12890.625	13140.625			12923.75	13173.75
12891.875	13141.875			12926.25	13176.25
12893.125	13143.125			12928.75	13178.75
12894.375	13144.375			12931.25	13181.25
12895.625	13145.625			12933.75	13183.75

(2) 2.5 MHz Bandwidth Channels:		Transmit (receive) (MHz)	Receive (transmit) (MHz)
		12701.25	12951.25
		12703.75	12953.75
		12706.25	12956.25
		12708.75	12958.75
		12711.25	12961.25
		12713.75	12963.75
		12716.25	12966.25
		12718.75	12968.75
		12721.25	12971.25
		12723.75	12973.75
		12726.25	12976.25
		12728.75	12978.75
		12731.25	12981.25
		12733.75	12983.75
		12736.25	12986.25
		12738.75	12988.75
		12741.25	12991.25
		12743.75	12993.75
		12746.25	12996.25
		12748.75	12998.75
		12751.25	13001.25
		12753.75	13003.75

Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)	Transmit (receive) (MHz)	Receive (transmit) (MHz)
12936.25	13186.25	12889.375	13139.375	12902.5	13152.5
12938.75	13188.75	12893.125	13143.125	12907.5	13157.5
12941.25	13191.25	12896.875	13146.875	12912.5	13162.5
12943.75	13193.75	12900.625	13150.625	12917.5	13167.5
12946.25	13196.25	12904.375	13154.375	12922.5	13172.5
12948.75	13198.75	12908.125	13158.125	12927.5	13177.5
(3) 3.75 MHz Bandwidth Channels:		12911.875	13161.875	12932.5	13182.5
Transmit (receive) (MHz)	Receive (transmit) (MHz)	12915.625	13165.625	12937.5	13187.5
12701.875	12951.875	12919.375	13169.375	12942.5	13192.5
12705.625	12955.625	12923.125	13173.125	12947.5	13197.5
12709.375	12959.375	12926.875	13176.875	(5) 10 MHz Bandwidth Channels:	
12713.125	12963.125	12930.625	13180.625	Transmit (receive) (MHz)	Receive (transmit) (MHz)
12716.875	12966.875	12934.375	13184.375	12705	12955
12720.625	12970.625	12938.125	13188.125	12715	12965
12724.375	12974.375	12941.875	13191.875	12725	12975
12728.125	12978.125	12945.625	13195.625	12735	12985
12731.875	12981.875	(4) 5 MHz Bandwidth Channels:		12745	12995
12735.625	12985.625	Transmit (receive) (MHz)	Receive (transmit) (MHz)	12755	13005
12739.375	12989.375	12702.5	12952.5	12765	13015
12743.125	12993.125	12707.5	12957.5	12775	13025
12746.875	12996.875	12712.5	12962.5	12785	13035
12750.625	13000.625	12717.5	12967.5	12795	13045
12754.375	13004.375	12722.5	12972.5	12805	13055
12758.125	13008.125	12727.5	12977.5	12815	13065
12761.875	13011.875	12732.5	12982.5	12825	13075
12765.625	13015.625	12737.5	12987.5	12835	13085
12769.375	13019.375	12742.5	12992.5	12845	13095
12773.125	13023.125	12747.5	12997.5	12855	13105
12776.875	13026.875	12752.5	13002.5	12865	13115
12780.625	13030.625	12757.5	13007.5	12875	13125
12784.375	13034.375	12762.5	13012.5	12885	13135
12788.125	13038.125	12767.5	13017.5	12895	13145
12791.875	13041.875	12772.5	13022.5	12905	13155
12795.625	13045.625	12777.5	13027.5	12915	13165
12799.375	13049.375	12782.5	13032.5	12925	13175
12803.125	13053.125	12787.5	13037.5	12935	13185
12806.875	13056.875	12792.5	13042.5	12945	13195
12810.625	13060.625	12797.5	13047.5	(6) 30 MHz Bandwidth Channels:	
12814.375	13064.375	12802.5	13052.5	Transmit (receive) (MHz)	Receive (transmit) (MHz)
12818.125	13068.125	12807.5	13057.5	12715	12965
12821.875	13071.875	12812.5	13062.5	12745	12995
12825.625	13075.625	12817.5	13067.5	12775	13025
12829.375	13079.375	12822.5	13072.5	12805	13055
12833.125	13083.125	12827.5	13077.5	12835	13085
12836.875	13086.875	12832.5	13082.5	12865	13115
12840.625	13090.625	12837.5	13087.5	12895	13145
12844.375	13094.375	12842.5	13092.5	12925	13175
12848.125	13098.125	12847.5	13097.5	* * * * *	
12851.875	13101.875	12852.5	13102.5	[FR Doc. 2010-20785 Filed 8-23-10; 8:45 am]	
12855.625	13105.625	12857.5	13107.5	BILLING CODE 6712-01-P	
12859.375	13109.375	12862.5	13112.5		
12863.125	13113.125	12867.5	13117.5		
12866.875	13116.875	12872.5	13122.5		
12870.625	13120.625	12877.5	13127.5		
12874.375	13124.375	12882.5	13132.5		
12878.125	13128.125	12887.5	13137.5		
12881.875	13131.875	12892.5	13142.5		
12885.625	13135.625	12897.5	13147.5		