

the Lower 6 GHz (5925-6425 MHz) and Upper 6 GHz (6525-6875 MHz) bands.¹⁸⁶ It is reproduced as Figure 1.

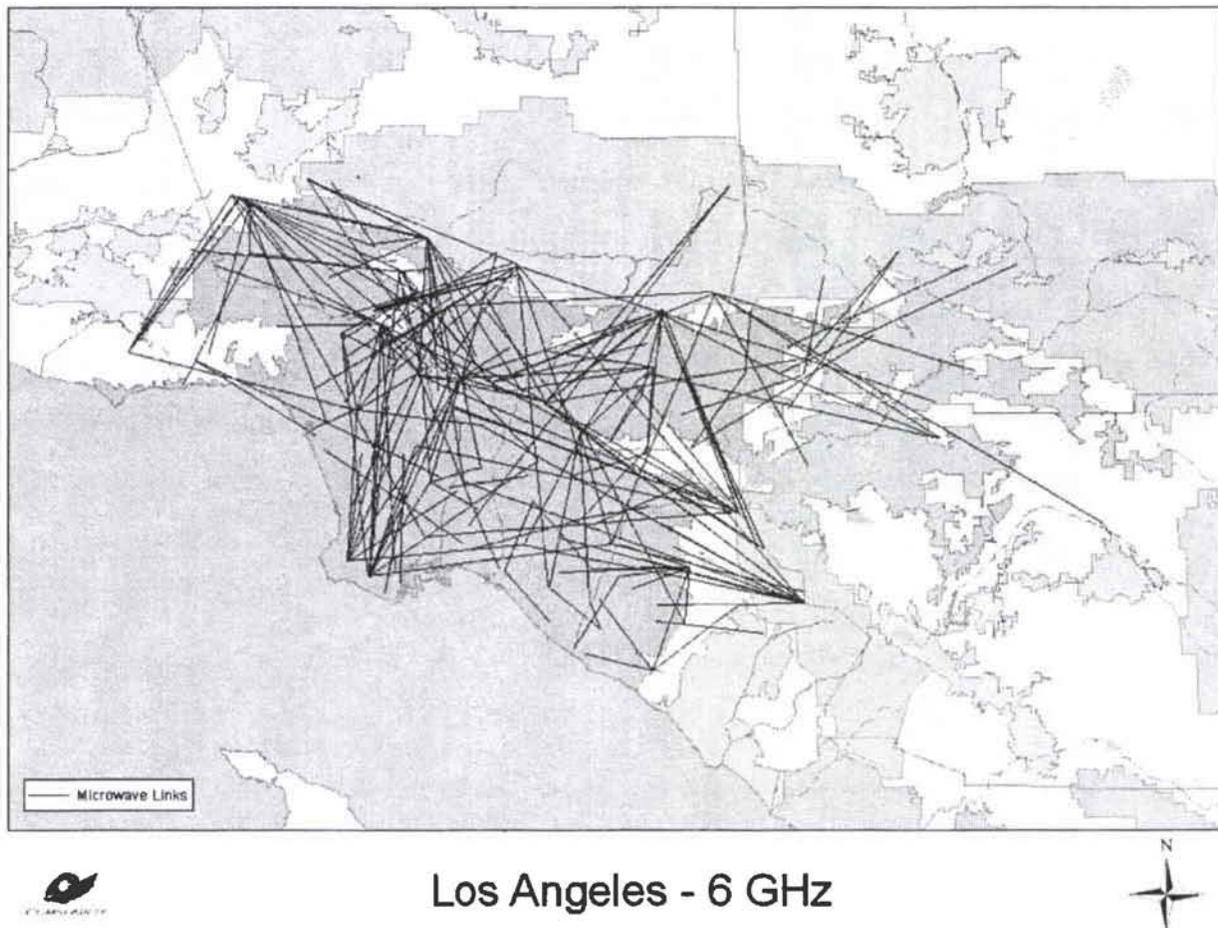


Figure 1: 5,925-6,425 MHz and 6,525-6,875 MHz Links in Los Angeles (Comsearch Data; October, 2010)

62. Comsearch and Ceragon provide additional data showing extensive reuse of FS spectrum in the same geographic area. Comsearch reports that there are approximately 1,500 licensed stations in the 6 GHz band that transmit two or more beams on the same frequency, by pointing them in different directions.¹⁸⁷ Ceragon says that its database search yielded more than 1,400 call signs where multi-way junction sites are transmitting on co-channel frequencies in the Lower 6 GHz band alone.¹⁸⁸ That, it says, illustrates how the signal pattern of a transmitting facility does not preclude sharing the same spectrum with other operators at the same location.¹⁸⁹

¹⁸⁶ Comsearch Comments at 7.

¹⁸⁷ Comsearch Comments at 6-7.

¹⁸⁸ Ceragon Comments at 6.

¹⁸⁹ Ceragon Comments at 6.

63. As mentioned above, there is an insufficient record for us to conclude that auxiliary stations can coexist with existing microwave operations without causing interference. We reject, however, the argument that auxiliary stations should not be allowed solely because authorizing them would cause further congestion to spectrum that is already congested. If auxiliary stations could coexist with other microwave operations, we would view the ability to use spectrum more intensively as a positive development.

64. Most opponents of the auxiliary stations concept argue that it would be inefficient to intermix frequency division duplex (FDD) currently used in the microwave bands and time division duplex (TDD) operations, as WSI proposes.¹⁹⁰ Comsearch points out that intermixing FDD and TDD increases the types of potential interference that may occur, including direct interference between sites, co-site interference, and reflective interference.¹⁹¹ In response, WSI relies on the ability of smart antennas to adapt an antenna pattern and use spectrum more efficiently.¹⁹² As noted by EIBASS, however, WSI has not provided any detailed information concerning the physically small, phased-array microwave antenna that it asserts would be suitable for auxiliary stations.¹⁹³ Indeed, WSI has allegedly ignored requests from SBE and NSMA for credible proof of the performance that WSI ascribes to that antenna.¹⁹⁴

65. Furthermore, while WSI has repeatedly claimed that TDD-style auxiliary station operations would use spectrum more efficiently than existing FDD-style microwave operations,¹⁹⁵ it has offered insufficient analysis of how auxiliary stations would co-exist with existing microwave operations. In the *NPRM*, the Commission had emphasized its intention to avoid interference to existing operations and to maintain “the reliability and integrity of existing systems.”¹⁹⁶ Furthermore, the proposal to require prior coordination for auxiliary stations and to make auxiliary stations secondary to existing primary links does not adequately address the potential for interference but instead could result in situations where incumbent microwave licensees could face the costly and time-consuming process of identifying and resolving complex interference issues.¹⁹⁷

66. An additional consideration is that adopting the auxiliary stations proposal could create a perverse incentive for applicants to propose excessive power for their primary transmitters, creating a more diffuse antenna pattern, and thus precluding other microwave operators from coordinating spectrum or operating in that larger area. In the *NPRM*, the Commission sought comment on that issue.¹⁹⁸ EIBASS, San Mateo, and Verizon point to a prior coordination notice submitted by OEM as an example

¹⁹⁰ Ceragon Comments at 11, Clearwire Comments at 2-3, 9, Comments of Consolidated Spectrum Services (filed Oct. 13, 2010), FWCC Supplemental Comments at 10, NSMA Comments at 10-11, RTG Comments at 2, Stratos Comments at 7.

¹⁹¹ *Ex Parte* of Comsearch (filed Mar. 14, 2011) at 25-30.

¹⁹² *Ex Parte* of Wireless Strategies, Inc. (filed Apr. 6, 2011) at 19-22.

¹⁹³ EIBASS Comments at 7.

¹⁹⁴ EIBASS Comments at 7.

¹⁹⁵ See WSI Reply Comments at 4; WSI December 9 *Ex Parte*.

¹⁹⁶ *NPRM*, 25 FCC Rcd at 11268 ¶ 53.

¹⁹⁷ See FWCC Supplemental Comments at 7-8; Comsearch Comments at 15-16.

¹⁹⁸ *NPRM*, 25 FCC Rcd at 11268 ¶ 57.

of how auxiliary stations could result in an inefficient use of spectrum and preclude frequency sharing.¹⁹⁹ OEM proposed an equivalent isotropic radiated power (EIRP) of 84.7 dBm (near the maximum authorized under the rules) for an extremely short path (9 kilometers).²⁰⁰ We disagree with WSI that the arguments raised against the OEM notices are a “diversion.”²⁰¹ WSI’s claim that higher power was not necessary for that license is not consistent with the prior coordination notice submitted by OEM.²⁰² Furthermore, several licenses issued to WSI proposed the same very high EIRP level of 84.7 dBm.²⁰³ The proponents of auxiliary stations have not adequately explained these circumstances or proposed any ways in which the Commission could prevent or counteract manipulation of the auxiliary stations mechanism in this manner. Thus, we remain concerned about the compatibility of auxiliary stations with existing operations.

67. We also decline to authorize auxiliary stations in FS bands because such operations can be accommodated in several upper microwave bands for which the Commission has issued geographic area licenses, including Local Multipoint Distribution Service (LMDS) 24 GHz, and 39 GHz, in which licensees may freely deploy links as they see fit. Moreover, many of the commenters that support the auxiliary station concept say that they would use such stations primarily for short-range applications. For example, Mimvi contends that auxiliary stations would provide cost-effective telecommunications support for small intelligent data centers that would be able to cache information and cloud software applications close to end users, improving the efficiency of national data networks and maintaining local connectivity in rural areas when their long, vulnerable links to the national grid are compromised.²⁰⁴ Sprint contends that auxiliary stations would be especially useful in dense urban environments, where they could enable each primary link to support multiple cell sites where landline alternatives are absent or prohibitively expensive.²⁰⁵ These types of short range applications are exactly the kinds of uses for which these higher frequency upper microwave bands should be most useful. In addition, FiberTower, which has extensive license holdings in the 24 GHz and 39 GHz bands, believes that auxiliary stations would work well within those bands and is willing to work with operators to support such deployments.²⁰⁶ In response, WISPA asserts that auxiliary stations may be a lower cost alternative in rural areas because LMDS and similar bands were auctioned by the Commission but does not provide analysis in support of its contention.²⁰⁷ It is also unclear whether WISPA has taken into account the cost of individually coordinating and applying for each auxiliary station.

68. While we do not authorize auxiliary stations in existing FS bands today, we encourage proponents of the auxiliary stations concept to continue working with other interested stakeholders to develop it. We note that proponents of the auxiliary stations concept believe that auxiliary stations would support such varied uses as the provision of backhaul, telecommunications support for small intelligent

¹⁹⁹ EIBASS Comments at 8-9; Comments of San Mateo County (filed Oct. 25, 2010) (filed Oct. 25, 2010) (San Mateo Comments) at 2-3, Verizon Comments at 18-19.

²⁰⁰ See San Mateo Comments at Attachment (submitting OEM’s prior coordination notices).

²⁰¹ WSI April 6 *Ex Parte* at 23-24.

²⁰² See San Mateo Comments at Attachment (submitting OEM’s prior coordination notices).

²⁰³ See licenses for Stations WQGH695, WQGH696, and WQGH697.

²⁰⁴ Mimvi Comments at 2.

²⁰⁵ Sprint Comments at 6-7.

²⁰⁶ Reply Comments of FiberTower Corporation (filed Nov. 22, 2010) (FiberTower Reply) at 8-9.

²⁰⁷ WISPA Comments at 4.

data centers, and rural telemedicine applications.²⁰⁸ We believe proponents of auxiliary stations should take advantage of the opportunities presented by 24 GHz, LMDS, and 39 GHz bands to develop and deploy auxiliary stations. To the extent parties believe further testing is needed to develop the auxiliary stations concept,²⁰⁹ we encourage those parties to cooperate in testing and development efforts, to develop a better factual record regarding the interaction of potential auxiliary station configurations with existing incumbent microwave systems and with microwave applicants yet to come.

V. FURTHER NOTICE OF PROPOSED RULEMAKING

69. In this *FNPRM*, we seek more targeted comment on proposals originally discussed in the *NOI* for increasing the flexibility of our Part 101 rules to promote wireless backhaul. We also address a petition for rulemaking filed by FWCC. Finally, we seek comment on certain proposals offered by parties in response to the *NOI* that we believe warrant further consideration.

A. Review of Part 101 Antenna Standards

1. Background

70. As noted above, Section 101.115(b) of the Commission's Rules²¹⁰ establishes directional antenna standards designed to maximize the use of microwave spectrum while avoiding interference between operators.²¹¹ 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).²¹² 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.²¹³ 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.²¹⁴ 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.²¹⁵ Indeed, the Commission adopted similar technical specifications that effectively limited

²⁰⁸ Mimvi Comments at 2, Sprint Comments at 6-7, WSI Comments at 6, Reply Comments of Doctors Telehealth Network Inc. (filed Nov. 8, 2010).

²⁰⁹ AT&T Comments at 18, Motorola Comments at 8.

²¹⁰ 47 C.F.R. § 101.115(b).

²¹¹ *Id.*

²¹² *See* 47 C.F.R. § 101.115(b).

²¹³ *See* 47 C.F.R. § 101.115(c).

²¹⁴ We may herein refer to those antennas that comply with the Category A standard as either compliant antennas or Category A antennas and those antennas that do not comply with the Category A standard as non-compliant antennas or Category B antennas.

²¹⁵ *See* Amendment of Part 101 of the Commission's Rules to Modify Antenna Requirements for the 10.7 – 11.7 GHz Band, WT Docket No. 07-54, *Report and Order*, 22 FCC Rcd 17153, 17156 ¶ 3 (2007) (*11 GHz R&O*); Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Report and Order*, WT Docket No. 94-148, 11 FCC Rcd 13449 (1996). The Commission declined to consider significant changes to the proposed rule at that time because commenting parties did not sufficiently address the issue in the record. *See id.* at 13474-13475 ¶¶ 67-71; *see also* Reorganization and (continued....)

the size of antennas used in other bands.²¹⁶ Periodically, the Commission has since reconsidered some of those antenna specifications in light of the technological evolution of communications equipment.²¹⁷

71. In the *NOI*, the Commission solicited proposals for allowing FS licensees to use smaller antennas.²¹⁸ The National Broadband Plan recognized the importance of ensuring that the Commission's antenna standards are up to date "to maximize the cost-effectiveness of microwave services."²¹⁹ The *NPRM* noted that smaller antennas may be cheaper, easier to install, and generate fewer objections in the zoning process than antennas specified by the current requirements.²²⁰ The *NOI* noted that tower siting costs and scarcity of desirable antenna positions may constitute significant entry barriers to new telecommunications providers.²²¹ However, the *NOI* also recognized that 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."²²² Therefore, the *NOI* generally inquired whether smaller antennas can be accommodated in any FS band without causing interference to other users in the band.²²³

72. In the *NOI*, the Commission asked whether it should review our antenna standards in any particular band due to the sharp increase in demand for FS facilities for backhaul and other purposes. Accordingly, in the *NOI*, we asked commenting parties to: (1) identify specific FS bands where they believe the Commission should review its antenna standards; (2) offer specific proposals for new standards; (3) describe the technological or other changes that they believe support new antenna standards; (4) describe how 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; and (6) discuss whether the proposed standards should apply only to rural areas or to all geographical areas.²²⁴

(Continued from previous page)

Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Notice of Proposed Rule Making*, WT Docket No. 94-148, 10 FCC Rcd 2508, 2515 ¶ 19 (1994) (*Part 101 NPRM*).

²¹⁶ See, e.g., *11 GHz R&O*, 22 FCC Rcd at 17156 ¶ 3; Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Memorandum Opinion and Order and Notice of Proposed Rulemaking*, WT Docket 94-148, 15 FCC Rcd 3129 (2000) (*Part 101 MO&O and NPRM*) (seeking comment on permitting smaller antennas in the 10 GHz band).

²¹⁷ See, e.g., *11 GHz R&O* (adopting rules allowing smaller antennas in the 11 GHz band); Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, WT Docket 00-19, *Report and Order*, 17 FCC Rcd 15040 (2002) (*2002 Part 101 R&O*) (adopting rules allowing smaller antennas for 10 GHz and 23 GHz bands); Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz / 3700-4200 MHz Band and 14.0-14.5 GHz / 11.7-12.2 GHz Bands, IB Docket No. 02-10, *Report and Order*, 20 FCC Rcd 674 (2005) (*ESV R&O*).

²¹⁸ *NOI*, 25 FCC Rcd at 11270-11272 ¶¶ 64-67.

²¹⁹ National Broadband Plan, Section 5.5, Recommendation 5.10 at 94.

²²⁰ *NOI*, 25 FCC Rcd at 11271 ¶ 64.

²²¹ *NOI*, 25 FCC Rcd at 11272 ¶ 66 (citing *14th CMRS Competition Report*, 25 FCC Rcd at 158-159 ¶¶ 287-292).

²²² *NOI*, 25 FCC Rcd at 11272 ¶ 66 (citing *11 GHz R&O*, 22 FCC Rcd at 17159 ¶ 9).

²²³ *NOI*, 25 FCC Rcd at 11271 ¶ 64.

²²⁴ *NOI*, 25 FCC Rcd at 11272 ¶ 67.

2. Discussion

73. Based on the record received in response to the *NOI*, we seek additional comment on modifying the antenna standards set forth in the Commission's Rules to permit the use of smaller antennas in the 5925-6875 MHz band (6 GHz band), 17700-18820 and 18920-19700 MHz bands (18 GHz band), and 21200-23600 MHz band (23 GHz band). Several parties expressed general support for modifying the antenna standards on the basis that smaller antennas are cheaper to manufacture, install, and maintain.²²⁵ They also contend that smaller antennas allow existing towers to accommodate more antennas and allow installations at sites that would not otherwise be able to accommodate larger antennas.²²⁶ A number of parties argue that fixed service licensees can also reduce their deployment costs by using smaller antennas because tower space costs are often based significantly on the size and weight of the antenna being placed on the tower.²²⁷ AT&T and EIBASS expressed general opposition to allowing smaller antennas because permitting the use of smaller antennas, without technical restrictions, could produce harmful interference and decrease spectral efficiency.²²⁸

74. The most extensive discussion offered by parties focused on allowing smaller antennas in the 6, 18, and 23 GHz bands.²²⁹ With respect to the 6 GHz band, Cielo and Sprint recommend that the minimum antenna size be reduced from six feet to four feet.²³⁰ While Comsearch originally also supported allowing four foot antennas in the 6 GHz band,²³¹ it later recommended that the Commission revise the antenna standards in Section 101.115 for this band to allow for use of 3-foot antennas.²³² For the 18 GHz band, Ceragon, Cielo, and Comsearch recommend that the minimum antenna size be reduced from two feet to one foot,²³³ while Sprint recommends a minimum diameter of 18 inches.²³⁴ In the 23 GHz band, commenters offered varying minimum antenna sizes. For example, Comsearch, Sprint, and

²²⁵ FiberTower Comments at 13, Sprint Comments at 8, Motorola Comments at 10.

²²⁶ See, e.g., FiberTower Comments at 13, Motorola Comments at 10, PCIA Comments at 3.

²²⁷ Aviat Networks Comments at 3, FiberTower Comments at 13, Motorola Comments at 10, Sprint Comments at 8.

²²⁸ AT&T Comments at 16, EIBASS Comments at 10.

²²⁹ No parties specifically recommend that antenna standards be relaxed in the 7 GHz or 11 GHz bands. With respect to the 7 GHz Band, SBE opposes the relaxation of antenna standards because BAS and CARS operate in those bands, and any size reductions in FS antennas would result in a greater likelihood of interference to electronic newsgathering operations and STL reception sites. SBE Comments at 8. Sprint is the only party to specifically address the 13 GHz band, where it sees particular value in adopting antenna standards that would be similar to the current antenna standards in the 11 GHz band to allow for smaller, less expensive Category B antennas that would have to be upgraded to larger, more robust Category A antennas if that becomes necessary to mitigate interference. Sprint Comments at 8. We decline to reconsider antenna standards for the 13 GHz band because of the presence of BAS and CARS and because of the limited nature of FS operations in that band in recent years.

²³⁰ Cielo Comments at 2, Sprint Comments at 8.

²³¹ Comsearch Comments at 25.

²³² See *Ex Parte* Letter from Christopher R. Hardy, Vice President, Comsearch, to Marlene H Dortch, Secretary, FCC (filed Apr. 14, 2011) (Comsearch April 14 *Ex Parte*).

²³³ Ceragon Comments at 16, Cielo Comments at 2, Comsearch Comments at 25. With the exception of the 18 GHz band, Ceragon opposes any broad relaxation of Part 101 antenna standards. Ceragon Comments at 16.

²³⁴ Sprint Comments at 8.

Cielo proposed, respectively, that the Commission permit the use of antennas eight inches, six inches, and less than 1 foot in diameter.²³⁵ FWCC supports Comsearch's proposals.²³⁶

75. With respect to the 6 GHz band, we seek comment on Comsearch's submitted antenna standards that would permit the use of 3-foot antennas.²³⁷ If such a change can be made without causing harmful interference to existing users, that change would maximize the benefits of allowing smaller antennas. For the 18 GHz band, we propose to adopt the standards Comsearch has offered to allow one-foot antennas. For the 23 GHz band, we propose to allow eight-inch antennas consistent with the standards proposed by Comsearch. We note that for each of those bands, we propose changes only to the standards for Category B antennas.

76. We ask that parties specifically discuss each standard in offering further comments on the proposed modifications. To the extent that commenters propose the use of alternative antenna sizes in the 6, 18, or 23 GHz bands, we ask that they specify the technical parameters (*i.e.*, maximum beamwidth, minimum antenna gain, and minimum radiation suppression) to allow for the use of those antennas.²³⁸ In particular, we seek comment on whether the proposed amendments would facilitate the efficient use of those bands by affording FS licensees the flexibility to install smaller antennas in those bands while appropriately protecting other users in the bands from interference.

77. We recognize that the proposed use of smaller, lower-gain antennas will result in more radiofrequency energy being transmitted in directions away from the actual point-to-point link and that the potential for interference is a concern for several parties.²³⁹ We therefore wish to ensure that any proposed changes to the Commission's Rules appropriately protect other users in the bands from interference due to the operation of these smaller antennas. We seek comment on whether the use of smaller antennas pursuant to the proposed modifications will adversely affect other users in the specific bands by increasing the risk of interference. If so, do the potential benefits of using smaller antennas outweigh the potential risks of interference? We ask proponents of allowing smaller antennas to provide specific information quantifying how much money licensees could save in antenna, tower-siting, and deployment costs if the Commission authorized the use of smaller antennas as proposed in this *FNPRM*. Comments should be specific to a proposed antenna standard for a particular band.

78. We also seek comment on other ideas for changes to our antenna standards. Are additional options to mitigate interference needed if we modify the antenna standards in a specific band? For example, Comsearch suggested that the Commission could consider a power or EIRP tradeoff.²⁴⁰ Clearwire asks the Commission to examine its rules and consider changes to Category A (also known as Standard A) and Category B (also known as Standard B) to account for technology advancements and more sophisticated band sharing techniques and permit the deployment of different antenna geometries

²³⁵ Cielo Comments at 2, Comsearch Comments at 25, Sprint Comments at 8.

²³⁶ See FWCC April 29 *Ex Parte* at 8.

²³⁷ For each band, the technical parameters of the specific standards we are proposing are contained in the proposed rules contained in Attachment C. We note that Comsearch was the only party to offer specific proposed standards.

²³⁸ We note that Comsearch has proposed specific standards for four foot dishes in the 6 GHz band. See Comsearch April 14 *Ex Parte*.

²³⁹ See AT&T Comments at 16, EIBASS Comments at 10, FWCC Comments at 14-15.

²⁴⁰ Comsearch Comments at 26-27. We invite Comsearch or other parties to expand on this suggestion.

and smaller diameter antennas.²⁴¹ Clearwire further urges the Commission to foster the development of different antenna geometries in addition to developing radio pattern envelope (RPE) standards for smaller diameter antennas using current parabolic geometries.²⁴² We seek comment on Clearwire's suggestion and on the advantages and disadvantages of other ideas for changes in our antenna standards.

B. Revising Efficiency Standards in Rural Areas

1. Background

79. In the *NOI*, the Commission sought 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.²⁴³ As discussed above in the *Report and Order*, pursuant to Section 101.141(a)(3) of the Commission's Rules, Fixed Service operators must establish minimum payload capacities (in terms of megabits per second) and minimum traffic loading payload (as a percentage of payload capacity) to promote efficient frequency use for various channel sizes in certain Part 101 bands.²⁴⁴ Under the current rules, the requirements apply equally to stations in urban areas and to stations in rural areas. However, 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 and to the extent that the underlying purpose of the rule would not be frustrated.²⁴⁵

80. The Commission requested comment on whether lowering the current efficiency standards in rural areas would reduce the costs associated with wireless backhaul and thereby increase investment in broadband deployment.²⁴⁶ The Commission asked proponents of changing the standards to explain how changes would provide more flexibility and facilitate deployment of backhaul and other facilities in rural areas while still being consistent with the underlying purpose of Section 101.141(a)(3), which is to promote efficient utilization of the spectrum.²⁴⁷ In addition, the Commission asked commenters to discuss the impact such changes would have on existing licensees, including licensees in other services that share spectrum with Fixed Services.

²⁴¹ See, e.g., Clearwire Comments at 8.

²⁴² Clearwire Comments at 8. Clearwire explains that the gain of an antenna is determined by the intended area of coverage and that the gain at a given wavelength is achieved by appropriately choosing the size of the antenna. *Id.* Therefore, Clearwire believes that developing different antenna geometries provides the most deployment flexibility while promoting higher performance, lower profile antennas. *Id.*

²⁴³ *NOI*, 25 FCC Rcd at 11269 ¶ 60.

²⁴⁴ 47 C.F.R. §101.141(a)(3). We also note that we are seeking comment on Comsearch's proposal to revise the payload capacity requirements of Section 101.141(a)(3). See Section V.E, *infra*.

²⁴⁵ See, e.g., Kentucky Power Company d/b/a American Electric Power, Order, 17 FCC Rcd 453, 455 ¶ 6 (WTB PSPWD 2002) (allowing operation in remote area with transmitter purchased before efficiency standards were adopted); Wilderness Valley Telephone Company, Order, 15 FCC Rcd 11751, 11752 ¶ 6 (WTB PSPWD 2000) (allowing operation in remote area, when no model of compliant transmitter would withstand the weather conditions at the proposed site); Alcatel Network Systems, Inc., Order, 11 FCC Rcd 22407 (WTB PSPWD 1996).

²⁴⁶ *NOI*, 25 FCC Rcd at 11270 ¶ 62.

²⁴⁷ *NOI*, 25 FCC Rcd at 11270 ¶ 62.

81. The Commission also sought comment on how to define “rural” under a revised rule that relaxes the efficiency standards in rural areas.²⁴⁸ The Commission noted that it had established a presumption to define “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.”²⁴⁹

2. Discussion

82. We find that in some instances, the lower traffic volume on rural networks and greater distances between microwave links may make it financially prohibitive to meet these minimum capacity requirements when conducting backhaul operations with wireless fixed links.²⁵⁰ We therefore propose to revise our application of the efficiency standards to reduce the cost of deploying microwave backhaul facilities and thereby spur deployment of broadband in rural areas. Sprint states that “relaxed minimum payload capacities and minimum traffic loading payloads . . . [could] reduce the costs of deployment and [] allow for more microwave backhaul deployment in rural areas.”²⁵¹ Cielo Networks concurs, arguing that lowering the efficiency standards can “lower deployment costs, which improves the businesses case for deploying microwave networks in typically underserved rural markets.”²⁵² Similarly, Aviat Networks supports the proposal to allow lower spectrum efficiency in rural areas because it “will drive the roll out of broadband in rural areas.”²⁵³ Relaxing efficiency standards could also substantially increase the possible path length,²⁵⁴ which could dramatically improve the business case for deploying microwave backhaul facilities in certain rural areas.²⁵⁵

83. We are sensitive to the concerns of commenters that argue that lowering efficiency standards would result in less efficient use of spectrum and discourage innovation.²⁵⁶ In heavily congested areas, those concerns are valid, and we do not propose a general elimination of efficiency standards. In rural areas, however, relaxing efficiency standards could make microwave backhaul affordable by allowing operators to use longer links or reduce costs in other ways. Our goal is to facilitate the use of microwave in remote areas where microwave may be the only feasible means of providing backhaul.

84. Our proposal for modifying the efficiency standards rule is based on our antenna standards rule, which is well known to microwave licensees. Under that rule, a licensee is permitted to use antennas meeting performance Standard B if the environment is not congested with other licensees.²⁵⁷

²⁴⁸ *NOI*, 25 FCC Rcd at 11270 ¶ 63.

²⁴⁹ *NOI*, 25 FCC Rcd at 11270 ¶ 63, *citing* In the Matter of Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies To Provide Spectrum Based Services, *Report and Order*, WT Docket No. 02-381, et al., 19 FCC Rcd 19078, 19087 ¶ 11 (2004).

²⁵⁰ *NOI*, 25 FCC Rcd at 11269 ¶ 60.

²⁵¹ Sprint Comments at 7.

²⁵² Cielo Comments at 2.

²⁵³ Aviat Networks Comments at 3.

²⁵⁴ For a detailed analysis of the relationship between modulation and path length, see FWCC April 29 *Ex Parte* at Appendix.

²⁵⁵ *See, e.g.*, Motorola Comments at 9-10.

²⁵⁶ *See* AT&T Comments at 16, Ceragon Comments at 15, Sierra Telecom Comments at 2, U.S. Cellular Comments at 8.

²⁵⁷ *See* 47 C.F.R. § 101.115.

Under our proposal, licensees would not be required to comply with the efficiency standards of Section 101.141(a)(3) if the environment allows for the use of antennas meeting performance Standard B.²⁵⁸ By definition, there should be fewer concerns about congestion and availability of spectrum in those areas. In contrast, in the more congested areas where an antenna meeting performance Standard A is required, the licensee would be required to comply with the efficiency standards unless it made a detailed showing in its application that: (1) the efficiency standards prevent the deployment of the requested link for economic or technical reasons; (2) the applicant does not have any reasonable alternatives (e.g., use of different frequency bands, use of fiber); and (3) relaxing the efficiency standards would result in tangible and specific public interest benefits. If a formerly non-congested area becomes congested such that use of a Standard A antenna is required, future applicants in that area would need to comply with the efficiency standards, absent a showing along the lines described above.

85. We seek comment on this proposed rule, as well as alternative ideas for providing relief from the efficiency standards in rural areas. We ask commenters to provide specific examples of instances in which relief from the efficiency standards could promote broadband deployment. We also seek comment on how much our proposal to modify the efficiency standards rule or any alternative ideas would reduce deployment costs. Are there benefits to our proposal or any alternative ideas beyond encouraging broadband deployment in rural areas and improving the business case for deploying microwave backhaul facilities in rural areas? Parties that oppose the idea should cite specific harms that they believe would result from changing the rule. We also seek comment on various means of implementing relief. Is it appropriate to base relief on the ability to use Category B antennas, or should the rule be based on another factor, such as the number of existing microwave links in a geographic area?²⁵⁹ If the rule is based on the number of links, how many links should be permitted and what is the appropriate geographic area for measuring the number of links? If relief is appropriate, should the Commission establish a new, lower efficiency requirement (e.g., a percentage of Section 101.141(a)(3)'s existing requirements) in addition to the Section 101.141(a)(1) minimum bit rate requirement? In instances where an operator must use a Category A antenna, are the proposed standards for seeking relief from the efficiency standards appropriate, or should we adopt different or additional standards? Should relief from the efficiency standards be granted as a waiver requiring specific Commission action prior to operation, or should the Commission structure the relief in such a manner as to allow conditional authority?

C. Allowing Wider Channels in 6 GHz and 11 GHz Bands

1. Background

86. On May 14, 2010, FWCC filed a petition for rulemaking requesting that the Commission allow Fixed Service operators to combine adjacent 30 and 40 megahertz channels in the 5925-6425 MHz (Lower 6 GHz band) and 10700-11700 MHz band (11 GHz band) to increase the link capacity and

²⁵⁸ The licensee would still be required to comply with the bit rate requirement of 47 C.F.R. § 101.141(a)(1).

²⁵⁹ Although the Commission has established a presumption to define "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," we believe that this distinction is inappropriate in this instance because some rural areas may have a concentration of facilities in a particular area that is not related to its population (e.g., near an interstate highway). See *In the Matter of Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies To Provide Spectrum Based Services*, *Report and Order*, WT Docket No. 02-381, *et al.*, 19 FCC Rcd 19078, 19087 ¶ 11 (2004). In addition, licensees of these bands are familiar with the regulations governing Standard A and Standard B antennas, so it should minimize any confusion in implementing this new rule.

simplify emerging backhaul operations.²⁶⁰ Currently, the maximum authorized channel bandwidths in the Lower 6 GHz band and 11 GHz band are 30 and 40 megahertz, respectively.²⁶¹ FWCC contends that the current 30 and 40 megahertz channels have a “practical maximum on a single polarization of about 180-200 Mb/s” per channel, which is adequate for voice and low-speed data services (text and e-mails) but not for high-speed data (video and web browsing).²⁶² FWCC anticipates that “strong growth in mobile broadband . . . will soon push backhaul requirements . . . toward[s] 360/Mb/s per channel.”²⁶³ Although FWCC acknowledges that it is possible to achieve the higher speeds by running separate signals on separate 30 or 40 MHz channels, it requires “complex electronics to coordinate the transmissions, with the additional disadvantage of intermodulation products due to multiple RF signals sharing the same antenna.”²⁶⁴ FWCC argues that by allowing Fixed Service operators to utilize 60 and 80 megahertz channels, it will simplify the electronics, lower costs, improve reliability, eliminate intermodulation issues, and increase spectrum utilization.²⁶⁵

87. NSMA states that the FWCC petition “has merit and would benefit users” but that the Commission should implement appropriate regulatory constraints to assure efficient use of the spectrum.²⁶⁶ Specifically, NSMA suggests that the Commission should consider: (1) “requiring a showing of necessity and availability for applications planning use of more than one or two 60/80 MHz wide channels on any one path”;²⁶⁷ (2) designating certain slots as “preferred” slots for wider bandwidth channels (*e.g.*, starting at one of the band edges, so all licensees would first attempt use of these channels on the same frequencies);²⁶⁸ (3) adjusting the minimum payload requirements to account for the higher capacity capabilities of the wider bandwidth channels;²⁶⁹ and (4) adopting methods to better assure high utilization with more tightly drawn regulations.²⁷⁰ FWCC concurs with NSMA’s suggestions.²⁷¹

88. Conterra Ultra Broadband, LLC (Conterra) opposes the petition because of concern that increasing the channel bandwidth will further limit the overall availability of channels for use in the Lower 6 and 11 GHz bands as Fixed Service operators begin to license adjacent channels to create 60 and 80 megahertz “super channels.”²⁷² Conterra argues that the “initiative set forth in the FWCC’s petition should not move forward unless there is a concurrent increase in available spectrum in these bands or a

²⁶⁰ Petition for Rulemaking, Fixed Wireless Communications Coalition, RM-11602 (filed May 14, 2010) (FWCC Petition).

²⁶¹ See 47 C.F.R. § 101.109(c), Table.

²⁶² FWCC Petition at 2.

²⁶³ FWCC Petition at 2-3.

²⁶⁴ FWCC Petition at 3.

²⁶⁵ FWCC Petition at 3.

²⁶⁶ NSMA Comments at 1.

²⁶⁷ NSMA Comments at 3.

²⁶⁸ NSMA Comments at 3.

²⁶⁹ NSMA Comments at 3-4.

²⁷⁰ NSMA Comments at 4.

²⁷¹ Reply Comments of FWCC, RM-11602 (filed Jul. 21, 2010) at 2.

²⁷² Conterra Comments at 2.

requirement to release unused allocations.²⁷³ FWCC replies that the availability of 60 and 80 megahertz channels will improve efficiency by putting into productive use the frequency space near adjacent channel edges, where signals must otherwise be attenuated.²⁷⁴

2. Discussion

89. We seek comment on FWCC's proposal to allow 60 megahertz channels in the Lower 6 GHz band and 80 megahertz channels in the 11 GHz band. The proposal has the potential to allow backhaul operators to handle more capacity and offer faster data rates. The record on this issue is quite limited, however, and we therefore seek additional information on this proposal.

90. Initially, we invite commenters to provide data on the anticipated demand for wider channels in these bands in different geographies. As the Commission has recently recognized, the Lower 6 GHz band is increasingly congested, and in some locations, it can be impossible to coordinate even a 30 megahertz link in that band.²⁷⁵ We seek comment on whether there are some areas, such as pockets of rural communities, where it is possible to use wider channels in the 6 and 11 GHz bands. Given the increasing use of these bands, to what extent can wider channels be accommodated? Would the primary benefit be in rural areas, or is there sufficient capacity to support use of wider channels in more urbanized areas?

91. In support of its proposal, FWCC claims that allowing wider channels would result in a number of benefits, including lower costs, improved reliability, elimination of intermodulation issues, and increased spectrum utilization?²⁷⁶ We ask supporters of the proposal to provide specific data corroborating and quantifying the cost savings and other benefits claimed by FWCC. We also seek comment on any conditions that should limit the ability to seek such wider channels, including the conditions proposed by NSMA. To what extent would NSMA's suggestions alleviate the concerns raised by Conterra? Would combining adjacent channels simplify emerging backhaul operations, and if so, by how much? We also seek comment on concerns that combining adjacent links would unnecessarily deplete the spectrum and possibly encourage speculative licensing by applicants seeking more spectrum than they need for their own operational purposes.

92. In addition, we seek comment on how the Commission should adjust the minimum payload requirements to account for the increased capacity that is available with wider bandwidth channels, should the Commission permit wider bandwidth channels.²⁷⁷ Given that the licensee will be utilizing twice as much spectrum, should the minimum payload requirements be doubled? Or should the Commission require an even greater increase in the payload requirements because combining the two channels would allow productive use of the frequency space in the middle of the now larger channel where the signal would otherwise have had to be attenuated if it were divided into two channels? Or should the Commission adopt an alternative approach? What are the potential advantages and disadvantages of adjusting the minimum payload requirements?

²⁷³ Conterra Comments at 2.

²⁷⁴ Reply Comments of FWCC, RM-11602 (filed Jul. 21, 2010) at 3.

²⁷⁵ See *6/23 GHz R&O*, 25 FCC Rcd at 7761 ¶ 4.

²⁷⁶ FWCC Petition at 3.

²⁷⁷ See also Section V.E, *infra*, concerning a proposal to establish minimum payload capacity across all channel widths in terms of bits/second/hertz.

D. Geostationary Orbital Intersections

1. Background

93. To protect receivers on geostationary satellites from the potential for interference from FS transmitters, Section 101.145 of the Commission's Rules requires a waiver filing for: (1) FS transmitters in the 2655-2690 MHz²⁷⁸ and 5925-7075 MHz bands with an antenna aimed within 2° of the geostationary arc; and (2) FS transmitters in the 12700-13250 MHz range with an antenna aimed within 1.5° of the geostationary arc.²⁷⁹ To be approved, a waiver request must show, among other things, that the transmitter EIRP is below listed limits.²⁸⁰ In contrast, Article 21 of the ITU Radio Regulations places the 2° restriction on the pointing azimuth of antennas of FS transmitters in the 1-10 GHz band only if the EIRP is greater than 35 dBW, and the 1.5° restriction on the azimuth of antennas in the 10-15 GHz band only if the EIRP is greater than 45 dBW.²⁸¹

94. Comsearch asks that the Commission amend Section 101.145 of the Commission's Rules to require a waiver filing for FS facilities pointing near the geostationary arc only if the EIRP is greater than the values listed in the ITU Radio Regulations.²⁸² Comsearch contends that the requirement primarily protects satellites located over Europe, Africa, or the Atlantic or Pacific Oceans.²⁸³ Comsearch believes that because the ITU has determined that FS transmitters with EIRPs below the values listed in Article 21 are unlikely to cause interference to geostationary satellites, amending the Commission's Rules would improve the administrative efficiency of licensing FS links for backhaul without any corresponding harm.²⁸⁴

2. Discussion

95. We seek comment on amending Section 101.145 of the Commission's Rules to limit the circumstances under which FS transmitters must obtain a waiver in order to point near the geostationary arc. This action could facilitate microwave deployments by allowing affected licensees to deploy more quickly. The Commission's rules provide many applicants with conditional authority to begin service immediately, without waiting for final approval from the Commission, once they complete frequency coordination, with the stipulation that they must take their stations down if the Commission later rejects their applications.²⁸⁵ Conditional authority is not available, however, to applicants that must request waivers of existing rules.²⁸⁶ To the extent we can reduce the number of applicants that seek waivers, we can expedite deployment. Furthermore, the proposed change would harmonize our regulations with

²⁷⁸ The 2655-2690 MHz band is currently allotted to the Broadband Radio Service and Educational Broadband Service. See 47 C.F.R. § 27.5(i). Accordingly, the Commission will not accept any new FS applications in that band.

²⁷⁹ See 47 C.F.R. § 101.145.

²⁸⁰ See 47 C.F.R. § 101.145(b), (c).

²⁸¹ ITU Radio Regulations, Article 21.

²⁸² Comsearch Comments at 29.

²⁸³ Comsearch Comments at 32-33.

²⁸⁴ Comsearch Comments at 33.

²⁸⁵ 47 C.F.R. § 101.31(b)(1).

²⁸⁶ 47 C.F.R. § 101.31(b)(1)(iii).

international regulations. It also appears that we can make a change without any increased risk of interference to satellite services. Under our proposal, we would require a waiver only if the EIRP is greater than 35 dBW for the 5925-7075 MHz band and is greater than 45 dBW in the 12700-13250 MHz band. Should the Commission adopt this or an alternative proposal? What are the potential advantages and disadvantages of adopting this or an alternative proposal?

E. Revising Definitions for Efficiency Standards

1. Background

96. Currently, Section 101.141(a)(3) of the Commission's Rules lists a "minimum payload capacity" for various nominal channel bandwidths.²⁸⁷ The term "payload capacity" is not defined. According to Comsearch, data that is transmitted over a radio link includes both capacity that is available to carry traffic, as well as overhead generated by the radios such as coding and forward error correction information.²⁸⁸ Comsearch also states that IP radio systems use header compression techniques that result in repetitive overhead bits of data that are not transmitted over the radio link.²⁸⁹ As a result, the data rate at the Ethernet interfaces is higher than the rate at which data traverses the over-the-air radio path.²⁹⁰ In light of this difference, Comsearch argues that the payload capacity required by the rule should include the over-the-air capacity available for user traffic but exclude all overhead data.²⁹¹ Accordingly, Comsearch asks the Commission to define "payload capacity" as "the bit rate available for transmission of data over a radiocommunication system, excluding overhead data generated by the system."²⁹²

97. The same rule also defines "typical utilization" of the required payload capacity for each channel bandwidth as multiples of the number of voice circuits a channel can accommodate.²⁹³ Comsearch recommends revising Section 101.141(a)(3) to de-emphasize these legacy voice-based TDM data rates and instead emphasize a consistent efficiency requirement in terms of bits-per-second-per-Hertz ("bps/Hz").²⁹⁴ Comsearch argues that while these examples were typical when the rule was written, they are becoming outdated as systems support other interfaces such as Internet Protocol.²⁹⁵ In addition, Comsearch believes that the rule should be changed because the bandwidth efficiency requirements vary (from 2.46 to 4.47 bps/Hz) based on channel bandwidth rather than having a uniform requirement for all channel bandwidths.²⁹⁶ Comsearch asks the Commission to obtain input from equipment manufacturers

²⁸⁷ 47 C.F.R. § 101.141(a)(3), Table.

²⁸⁸ Comsearch Comments at 34.

²⁸⁹ Comsearch Comments at 34.

²⁹⁰ Comsearch Comments at 34.

²⁹¹ Comsearch Comments at 35.

²⁹² Comsearch Comments at 35.

²⁹³ 47 C.F.R. § 101.141(a)(3), Table.

²⁹⁴ Comsearch Comments at 35.

²⁹⁵ Comsearch Comments at 35.

²⁹⁶ Comsearch Comments at 35.

and other interested parties to develop an appropriate efficiency rate in terms of bits-per-second-per-Hertz.²⁹⁷

2. Discussion

98. We seek comment on Comsearch's proposals. Is the suggested definition of payload capacity appropriate, or should we adopt an alternative definition or leave the term undefined? Are there alternative ways of resolving the problems Comsearch identifies? What are the advantages and disadvantages of defining payload capacity as Comsearch requests? We ask commenters to identify advantages and disadvantages to defining the efficiency requirement in terms of bits-per-second-per-hertz or in terms of some other metric. We seek input on an appropriate benchmark value for defining the efficiency requirement in terms of bits-per-second-per-hertz if we decide to define the efficiency requirement in terms of bits-per-second-per-hertz. Should the value be the same across all frequency bands? Related to our inquiry on efficiency standards in rural areas, should there be a different benchmark value in rural areas? We also seek comment on whether there is any need to consider how the definition should be applied to legacy systems. Is there a need for any grandfathering provisions for equipment that is currently installed or equipment that is currently on the market?

VI. MEMORANDUM OPINION AND ORDER

99. In this *MO&O*, we address various other proposals offered in response to the *NOI* that we do not intend to consider further at this time, either because the proposals lack specificity, are better considered in other proceedings, were previously considered by the Commission, or are not ripe for consideration at this time.

A. Local Multipoint Distribution Service

100. TIA recommends that the Commission consider harmonizing its approach to the 27.5-28.35 GHz Local Multipoint Distribution Service (LMDS) band with recent proposals by the Radio Advisory Board of Canada (RABC).²⁹⁸ TIA says that Canada has designated that band for Local Multipoint Communications Systems (LMCS), a service similar to LMDS.²⁹⁹ In an effort to maximize use of the currently underutilized LMCS spectrum, the RABC has proposed to apply site-based licensing in the band, with technical rules that favor frequency division duplex operations on bandwidths ranging from 10 to 50 megahertz.³⁰⁰ TIA argues that harmonizing U.S. rules with Canada's would establish a broader market for equipment and services, thus improving the band's market potential through economies of scale.³⁰¹ NSMA also supports this proposal.³⁰²

101. We decline to take any action on this proposal at this time. No current LMDS licensee supports the proposal. Furthermore, most LMDS licensees have received an extension until June 1, 2012

²⁹⁷ Comsearch Comments at 35.

²⁹⁸ TIA Comments at 7-8.

²⁹⁹ TIA Comments at 7.

³⁰⁰ TIA Comments at 7.

³⁰¹ TIA Comments at 8.

³⁰² NSMA Reply Comments at 9-12.

to demonstrate buildout.³⁰³ While LMDS licensees can deploy point-to-point services, the majority of deployments that have been reported to the Commission at this time have involved point-to-multipoint services.³⁰⁴ We believe it would be premature to undertake the type of review contemplated by TIA and NSMA before current licensees have had an opportunity to build out their systems under the existing rules.

B. Wireless Communications Service

102. Sirius XM suggests that the Commission encourage use of the 2.3 GHz Wireless Communications Service (WCS) band for wireless backhaul operations because it would present substantially fewer interference concerns to adjacent licensees than mobile operations.³⁰⁵ In 2010, the Commission adopted technical rules for the 2.3 GHz band that would allow WCS licensees to offer mobile broadband services while limiting the potential for harmful interference to incumbent services operating in adjacent bands such as Sirius XM.³⁰⁶ In response, Sirius XM and other parties filed petitions for reconsideration asking, among other things, that the Commission reconsider several technical rules that were adopted.³⁰⁷ Given that the issue of the appropriate technical rules for the 2.3 GHz band is currently pending in WT Docket No. 07-293, we decline to consider it in the instant proceeding.

C. Multichannel Video and Data Distribution Service

103. DTV Norwich, LLC (DTV Norwich), a licensee in the Multichannel Video Distribution and Data Service (MVDDS), asks the Commission to allow MVDDS licensees to utilize higher power to provide point-to-point services.³⁰⁸ MVDDS is a fixed wireless terrestrial service at 12.2-12.7 GHz that may be used to provide one-way digital fixed non-broadcast service, including one-way direct-to-home/office wireless service.³⁰⁹ MVDDS is authorized on a co-primary, non-harmful interference basis with incumbent Direct Broadcast Satellite Service³¹⁰ (DBS) providers and on a co-primary basis with non-geostationary satellite orbit fixed-satellite service (NGSO FSS) stations.³¹¹ MVDDS is licensed on a

³⁰³ Applications filed by Licensees in the Local Multipoint Distribution Service (LMDS) Seeking Waivers of Section 101.1011 of the Commission's Rules and Extensions of Time to Construct and Demonstrate Substantial Service, *Memorandum Opinion and Order*, 23 FCC Rcd 5894 (WTB 2008).

³⁰⁴ See, e.g., notifications of completion of construction submitted by Nextlink Wireless, Inc. (File No. 0003587593, *et al.*) and Broadband One (File No. 0003627810, *et al.*).

³⁰⁵ Sirius XM Comments at 3-5.

³⁰⁶ See Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band, Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, IB Docket No. 95-91, WT Docket No. 07-293, *Second Report and Order*, 25 FCC Rcd 11710 (2010).

³⁰⁷ See, e.g., Petition for Partial Reconsideration and Clarification of Sirius XM Radio Inc., WT Docket No. 07-293 (filed Sep. 1, 2010) at 2-4.

³⁰⁸ Comments of DTV Norwich, LLC (filed Oct. 25, 2010) (DTV Norwich Comments).

³⁰⁹ See 47 C.F.R. § 101.1407 (two way services can be provided using spectrum in other bands for the return link).

³¹⁰ See 47 C.F.R. § 25.201.

³¹¹ See, e.g., Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, ET Docket No. 98-206, *First Report and Order and Further Notice of Proposed Rule Making*, 16 FCC Rcd 4096, 4099-4100 ¶ 2 (2000) (*MVDDS First R&O*); see also 47 C.F.R. § 2.106.

geographic area basis according to Nielsen's 2002 Designated Market Areas and several FCC-defined areas.³¹²

104. DTV Norwich argues that it may be possible MVDDS point-to-point services to operate at higher power levels without causing interference to DBS and NGSO FSS.³¹³ According to DTV Norwich, however, "at existing power levels, the point-to-point path 'hops' would simply be too short to be economically viable."³¹⁴

105. DTV Norwich's proposal lacks sufficient specificity to be worthy of further consideration at this time. The Commission adopted rules for MVDDS based on the extensive record in the MVDDS rulemaking proceeding,³¹⁵ which included a congressionally mandated independent analysis³¹⁶ of potential MVDDS interference to DBS.³¹⁷ These rules include detailed frequency coordination procedures, interference protection criteria, and limitations on signal emissions, transmitter power levels, and transmitter locations.³¹⁸ The rules limit the EIRP for MVDDS stations to 14.0 dBm per 24 megahertz (-16.0 dBW per 24 megahertz).³¹⁹ To accommodate co-primary DBS earth stations, an MVDDS licensee may not begin operation unless it can ensure that the equivalent power flux density (EPFD)³²⁰ from a

³¹² See 47 C.F.R. § 101.1401. Designated Market Area (DMA®) is a registered trademark of Nielsen Media Research, Inc. (Nielsen). Although Nielsen revises DMAs periodically, the MVDDS license areas remain fixed to the boundaries of the 2002 DMAs. To avoid confusion with Nielsen's current DMAs, MVDDS license areas are designated as "MVDs" in the Universal Licensing System.

³¹³ DTV Norwich Comments at 4.

³¹⁴ DTV Norwich Comments at 4.

³¹⁵ See Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operations of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band with Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band, *Memorandum Opinion and Order and Second Report and Order*, ET Docket No. 98-206, 17 FCC Rcd 9614 (2002) (*MVDDS Second R&O*).

³¹⁶ See Prevention of Interference to Direct Broadcast Satellite Services, Pub. L. No. 106-553, App. B. Tit. X, § 1012(a), 114 Stat. 2762, 2762A-128, 2762A-141 (2000) (LOCAL TV Act).

³¹⁷ See, e.g., *Second R&O*, 17 FCC Rcd at 9635 ¶ 56 (citing MITRE Corporation, "Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band" (Apr. 18, 2001) (MITRE Report)).

³¹⁸ See, e.g., *Second R&O*, 17 FCC Rcd at 9634-9664 ¶¶ 53-125; 9690-9695 ¶¶ 196-209; 47 C.F.R. §§ 25.139 (NGSO FSS coordination and information sharing between MVDDS licensees in the 12.2 GHz to 12.7 GHz band); 25.208(k) (Power flux density limits); 101.103 (Frequency coordination procedures); 101.105 (Interference protection criteria); 101.111 (Emission limitations); 101.113 (Transmitter power limitations); 101.129 (Transmitter location); 101.1409 (Treatment of incumbent licensees); 101.1440 (MVDDS protection of DBS).

³¹⁹ See 47 C.F.R. §§ 101.113(a) note 11; 101.147(p).

³²⁰ The EPFD is the power flux density produced at a DBS receive earth station, taking into account shielding effects and the off-axis discrimination of the receiving antenna assumed to be pointing at the appropriate DBS satellite(s) from the transmitting antenna of a MVDDS transmit station. 47 C.F.R. § 101.105(a)(4)(ii)(A).

proposed transmitting antenna does not exceed the applicable³²¹ EPFD limit at any DBS subscriber location.³²²

106. Under these circumstances, DTV Norwich's proposal is far too general to warrant further consideration. The Commission found that the power limits and other technical requirements applicable to MVDDS service providers would ensure that any interference caused to DBS customers will not exceed a level that is considered permissible.³²³ The Commission also contemplated that MVDDS service providers might petition for waiver(s) of the technical rules³²⁴ and required that the petitioning party "submit an independent technical demonstration of its equipment and technology."³²⁵ In denying petitions to reconsider the power limits,³²⁶ the Commission reiterated that MVDDS providers may seek waivers of the general MVDDS limits.³²⁷ DTV Norwich's proposal, if considered as a waiver request, would not meet that standard because it does not provide any technical analysis to support its claims.³²⁸ Indeed, DTV Norwich does not identify the power levels it wishes to use. For the reasons listed above, we decline to consider DTV Norwich's proposal.

D. Revising Technical Rules in Bands Above 15 GHz

107. Sprint recommends that the Commission develop more specific technical rules governing the use of spectrum masks above 15 GHz, which would allow for less variance in the interpretation of the

³²¹ The Commission established different EPFD limits in four regions of the U.S., see 47 C.F.R. § 101.105(a)(4)(ii)(B), mainly due to differences in rainfall in each region. See, e.g., *Second R&O*, 17 FCC Rcd at 9691 ¶ 197.

³²² See 47 C.F.R. § 101.105(a)(4)(ii) (referencing the procedures listed in 47 C.F.R. § 101.1440). Among other things, an MVDDS licensee must conduct a survey of the area around its proposed transmitting antenna site to determine the location of all DBS customers of record that may potentially be affected by the introduction of its MVDDS service and must coordinate with the DBS operator. See 47 C.F.R. § 101.1440(a)-(d).

³²³ See, e.g., *MVDDS Second R&O*, 17 FCC Rcd at 9640-9663 ¶¶ 67-125; 9691-9692 ¶ 198; see also 47 C.F.R. Part 2 (defining harmful interference).

³²⁴ See *MVDDS Second R&O*, 17 FCC Rcd at 9704 ¶ 236. The Commission stated that it would seek public comment on such waiver requests. *Id.*

³²⁵ *MVDDS Second R&O*, 17 FCC Rcd at 9704 ¶ 236. The Commission adopted this independent testing requirement to ensure that terrestrial services deployed in this band would not cause harmful interference to existing operations in accordance with Section 1012(a) of the LOCAL TV Act while still allowing the flexible use of the spectrum without limiting current and future innovations for terrestrial deployment of wireless technologies in this band. *Second R&O*, 17 FCC Rcd at 9704 ¶ 236.

³²⁶ See Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, ET Docket No. 98-206, *Fourth Memorandum Opinion and Order*, 18 FCC Rcd 8428, 8468-8469 ¶¶ 86-88 (2003) (*MVDDS Fourth MO&O*).

³²⁷ See *MVDDS Fourth MO&O*, 18 FCC Rcd at 8469 ¶¶ 87-88.

³²⁸ DTV Norwich submits that, at a minimum, the Commission should be open to authorizing MVDDS licensees to conduct field tests to confirm their ability to operate at higher power levels to provide point-to-point backhaul services while protecting others authorized to use the band from impermissible interference. See DTV Norwich Comments at 5. The Commission has been and is open to authorizing MVDDS licensees to operate at higher power levels under experimental authority to conduct field tests that can provide data to support waiver requests for specific, proposed MVDDS operations. See MDS Operations Inc., Request for Waiver of Certain Multichannel Video Distribution and Data Service Technical Rules for One Station in Sandia Park, New Mexico, WT Docket No. 07-255, *Order*, 25 FCC Rcd 7963 (WTB 2010).

Commission's rules by equipment vendors and enable more frequencies to be used while also reducing interference.³²⁹ Sprint also asks that the Commission establish maximum power limits based on the link distance for the bands above 15 GHz.³³⁰ No other commenter responded to this suggestion. We decline to take action at this time because: (1) Sprint has not made a concrete showing that there is a problem requiring Commission intervention; and (2) Sprint does not offer specific proposals for changes to our rules. We reserve the right to consider the matter further if additional information is brought to our attention.

E. Modification of Existing Licensing Practices and Procedures

108. XO Communications (XO) expresses concern "that substantial portions of spectrum are made available to the public in a manner that neither promotes . . . efficient spectrum use nor captures the value of this spectrum for the United States Treasury."³³¹ XO contends that making "these frequencies available to interested parties at virtually no cost on a first-come, first-served basis . . . undercut[s] the value of existing LMDS spectrum licenses."³³² XO suggests that the Commission should consider changing its procedures for licensing point-to-point services to promote more efficient spectrum use by implementing a licensing regime under which mutually exclusive applications would be accepted and resolved through competitive bidding, or alternatively, applying spectrum usage fees, and by making changes to the Universal Licensing System (ULS) database.³³³ XO argues that adopting competitive bidding or spectrum fees would give licensees greater economic incentives to use their spectrum fully and efficiently.³³⁴ XO also states that the microwave link information provided in the ULS database for LMDS spectrum relative to the more extensive technical information provided for common carrier point-to-point microwave links may discourage customers from seeking to lease LMDS spectrum and that we should make changes to the ULS to place users of LMDS and common carrier microwave spectrum on an equal footing.³³⁵

109. We are not persuaded that we should adopt XO's proposed changes to our licensing procedures for point-to-point services at this time. XO has provided no factual basis upon which to decide that the existing frequency coordination-based licensing regime, under which we accept applications for each microwave link or path, leads to inefficient use of this spectrum or is otherwise no longer in the public interest. While we recognize that accepting mutually exclusive applications that are resolved through competitive bidding is often an efficient way to assign licenses, we do not believe that the spectrum coordination regime for point-to-point services currently in effect, which does not result in the acceptance of mutually exclusive applications, has failed thus far either to promote efficient spectrum use or capture its value. We note, further, that the Commission may continue to use licensing schemes

³²⁹ Sprint Comments at 9.

³³⁰ Sprint Comments at 10.

³³¹ XO Comments at 2.

³³² XO Comments at 2. Currently, under the Part 101 rules, the Commission's licensing regime requires frequency coordination and the filing of an application for each microwave link or path. *See* 47 C.F.R. §§ 101.21(e), (f), 101.103.

³³³ XO Comments at 2-4.

³³⁴ XO Comments at 3.

³³⁵ XO Comments at 3-4.

and other means to avoid mutual exclusivity if public interest goals are met.³³⁶ Moreover, we decline to implement XO's proposal to impose fees for the use of this spectrum. As the Commission has previously noted in other proceedings, we may lack the authority to impose certain user fees.³³⁷ Finally, to the extent that XO seeks to eliminate what it sees as an "economic disparity" between common carrier microwave spectrum and existing LMDS spectrum,³³⁸ we observe as an initial matter that there are significant differences between these spectrum bands. To the extent that XO's proposals regarding possible changes to the ULS are motivated by its desire to lease its LMDS spectrum for point-to-point uses, we are unaware of any obstacles that would prevent an LMDS licensee such as XO from making additional detailed technical information available to potential users seeking to lease spectrum for point-to-point use.

F. Siting Issues

1. OTARD

110. PCIA states that "local regulations continue to be a significant barrier to the collocation of antennas on existing towers" and recommends that the Commission examine its authority to streamline the collocation review process by restricting the ability of local authorities to review the placement of wireless antennas.³³⁹ We deny PCIA's request. In 2000, the Commission determined that Section 332(c)(7) of the Communications Act provides state and local governments with the authority to regulate the placement, construction, and modification of carrier hub sites and relay antennas.³⁴⁰ PCIA is asking the Commission to modify this decision. PCIA, however, has not presented any change of circumstances, legal precedent, or statutory authority to support this change, so we see no reason to revisit the Commission's decision in the *2000 OTARD Report and Order*.

³³⁶ See 47 U.S.C. § 309(j)(6)(E); see also Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended: Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies; Establishment of Public Service Radio Pool in the Private Mobile Frequencies Below 800 MHz; Petition for Rule Making of the American Mobile Telecommunications Association, WT Docket No. 99-87, RM-9332, RM-9405, RM-9705, *Report and Order and Further Notice of Proposed Rule Making*, 15 FCC Rcd 22709, 22719-22723 ¶¶ 21-27 (2000).

³³⁷ See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies; Establishment of Public Service Radio Pool in the Private Mobile Frequencies Below 800 MHz, WT Docket No. 99-87, RM-9332, RM-9405, *Notice of Proposed Rulemaking*, 14 FCC Rcd 5206, 5244 ¶ 76 (1999).

³³⁸ XO Comments at 3.

³³⁹ PCIA Comments at 3, 5.

³⁴⁰ In the Matter of Promotion of Competitive Networks in Local Telecommunications; Markets Wireless Communications Association International, Inc. Petition for Rulemaking to Amend Section 1.4000 of the Commission's Rules to Preempt Restrictions on Subscriber Premises Reception or Transmission Antennas Designed to Provide Fixed Wireless Services; Implementation of the Local Competition; Provisions in the Telecommunications Act of 1996, WT. Docket No. 99-217; CC Docket Nos. 96-98 and 88-57; *First Report and Order and Further Notice of Proposed Rulemaking in WT Docket No. 99-217, Fifth Report and Order and Memorandum Opinion and Order in CC Docket No. 96-98, and Fourth Report and Order*, 15 FCC Rcd 22983, 23028, 23032 ¶¶ 99, 109 (2000) (*2000 OTARD Report and Order*). While the Commission's over-the-air reception device rule does not apply to carrier hub and relay antennas, the rule does apply to 'customer-end' antennas that also relay or route signals to other customers so long as the antenna is used to provide service to the customer at that location. See In the Matter of Promotion of Competitive Networks in Local Telecommunications, WT Docket No 99-217, *Order on Reconsideration*, 19 FCC Rcd 5637, 5643-5644 ¶¶ 16-17 (2004).

2. Colocation of Microwave Facilities

111. XO states that some carriers violate Section 251(c)(6) of the Communications Act by hindering XO's efforts to expand its collocation facilities at incumbent LEC central offices to include microwave transmission equipment.³⁴¹ XO contends that "the Commission should expressly confirm that the collocation of microwave transmission facilities as proposed by XO was one of the arrangements contemplated by Section 251(c)(6) of the [Communication] Act."³⁴² We find that the limited information provided by XO on this issue does not provide us with a sufficient basis upon which to act at this time. This decision does not preclude XO from filing a more complete submission as it deems appropriate.

G. Universal Service

112. FiberTower suggests that the Commission utilize the Universal Service Fund to make wireless backhaul available to qualifying areas and for qualifying purposes.³⁴³ In February of 2011, the Commission proposed to revise the Universal Service Fund.³⁴⁴ In that item, the Commission asked whether it should modify the universal service rules to provide additional support for middle mile costs and what effect middle mile support would have on incentives for small carriers to develop regional networks that provide lower cost, higher capacity backhaul capability.³⁴⁵ Given that the issue of providing Universal Service funding for wireless backhaul service is currently pending in the Universal Service proceeding, we decline to address this issue in this proceeding but are incorporating FiberTower's comments into the record of WC Docket No. 10-90.

H. Upper Microwave Substantial Service

113. NSMA argues that in determining whether 24 GHz, 39 GHz, and LMDS licensees have offered substantial service, the Commission fails to positively consider "basic and important steps that lead to successful band utilization."³⁴⁶ It gives the following examples of such activity: (1) spending significant resources producing Requests for Proposals (RFPs) to develop equipment in its band; (2) utilizing the Secondary Markets rules to offer spectrum leases throughout the license area; (3) submitting proposals to carrier, government, or enterprise customers that rely on utilizing the wide-area license; and/or (4) building several links, but not yet meeting the safe harbor criterion (typically four links per million of population).³⁴⁷ NSMA asks the Commission to "track and credit" such activities.³⁴⁸

³⁴¹ XO Comments at 4-5.

³⁴² XO Comments at 5.

³⁴³ FiberTower Comments at 15.

³⁴⁴ Connect America Fund; A National Broadband Plan for Our Future, Establishing Just and Reasonable Rates for Local Exchange Carriers, High-Cost Universal Service Support, Developing an Unified Intercarrier Compensation Regime, Federal-State Joint Board on Universal Service, Lifeline and Link-Up, WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 07-135, WC Docket No. 05-337, CC Docket No. 01-92, CC Docket No. 96-45, WC Docket No. 03-109, *Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking*, 26 FCC Rcd 4554 (2011) (*Universal Service NPRM and FNPRM*).

³⁴⁵ *Universal Service NPRM and FNPRM*, 26 FCC Rcd at 4676 ¶ 395.

³⁴⁶ NSMA Reply Comments at 12.

³⁴⁷ NSMA Reply Comments at 13.

³⁴⁸ NSMA Reply Comments at 14.

114. We see no need to modify our substantial service rules and policies. NSMA's arguments ignore one of the Commission's overriding purposes of buildout requirements: providing "a clear and expeditious accounting of spectrum use by licensees to ensure that service is indeed being provided to the public."³⁴⁹ The Wireless Telecommunications Bureau has correctly rejected substantial service showings based on preparatory activities of the type described by NSMA where there is no actual service being provided to the public.³⁵⁰ We emphasize, however, that safe harbors are merely one means of demonstrating substantial service, and given an appropriate showing, a level of service that does not meet a safe harbor may still constitute substantial service.³⁵¹ Furthermore, we will evaluate all substantial service showings that do not meet an established safe harbor on a case-by-case basis.

I. Other Pending Matters

115. We recognize that there are other pending matters and proceedings relating to wireless backhaul that are not addressed in this item. Those matters and proceedings include: (1) A petition for rulemaking asking that the 7125-8500 MHz band be allocated for non-federal use and allotted for FS use,³⁵² (2) a petition for rulemaking asking that conditional authority be authorized throughout the 23 GHz band and seeking change to the mechanism for coordinating operation with the National Telecommunications and Information Administration (NTIA),³⁵³ and (3) a request made in this proceeding to revise the Commission's policy of allowing a satellite earth station to coordinate for the full 360-degree azimuth range of the earth station even when it is communicating with only one satellite in a limited segment of the band.³⁵⁴ We will address these issues separately or in future orders in this proceeding.³⁵⁵

³⁴⁹ See Amendment of the Commission's Rules Regarding the 37.0 – 38.6 GHz and 38.6 – 40 GHz Bands, *Report and Order and Second Notice of Proposed Rulemaking*, ET Docket No. 95-183, 12 FCC Rcd 18600, 18623 ¶ 42 (1997) (*39 GHz R&O*); see also *id.* at 18625 ¶ 46 ("This approach will permit flexibility in system design and market development, while ensuring that service is being provided to the public."); *id.* at 18626 ¶ 46 ("This revised performance standard should ensure that meaningful service will be provided without unduly restricting service offerings."); *id.* at 18625 ¶ 47 ("[A]pplying a similar performance requirement to all licensees at the license renewal point will help establish a level playing field without compromising the goals of ensuring efficient spectrum use and expeditious provision of service to the public."); Renewal of Licenses to Provide Microwave Service in the 38.6-40.0 GHz Band, *Memorandum Opinion and Order*, 17 FCC Rcd 4404, 4407 ¶ 11 (WTB PSPWD 2002) ("The Commission's overarching purpose behind adopting the substantial service standard for renewal was to ensure that the spectrum was being used to provide service to the public.").

³⁵⁰ See, e.g., IDT Spectrum, LLC, *Order on Reconsideration and Memorandum Opinion and Order*, 23 FCC Rcd 12005, 12013-12016 ¶¶ 19-23 (WTB 2008).

³⁵¹ See, e.g., *39 GHz R&O*, 12 FCC Rcd at 18625 ¶ 46 (building four links per million population is an example of substantial service, and a "finding of substantial service will depend upon the particular type of service offered by the licensee").

³⁵² See *Petition for Rulemaking of the Fixed Wireless Communications Coalition In the Matter of Amendment of Parts 2 and 101 of the Commission's Rules to Provide for Federal and Non-Federal Sharing in the 7125-8500 MHz Band*, RM-11605 (filed Mar. 16, 2010).

³⁵³ See *Petition for Rulemaking of the Fixed Wireless Communications Coalition Petition to Amend Part 101 of the Commission's Rules for Automated Government Frequency Coordination and Conditional Licensing in the 23 GHz Fixed Service Band*, RM-11610 (filed Jul. 26, 2010).

³⁵⁴ AT&T Comments at 14-15, FWCC Comments at 15-16, EIBASS Reply Comments at 9-10.

³⁵⁵ We also recognize the interest expressed by certain commenters in using television white spaces in rural areas for point-to-point backhaul. See FiberTower Comments at 7-10, Comments of Wireless Communications Association (continued....)

VII. PROCEDURAL MATTERS

A. *Ex Parte* Rules – Permit-But-Disclose

116. The proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.³⁵⁶ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

B. Comment Period and Procedures

117. Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- **Electronic Filers:** Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- **Paper Filers:** Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

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

(Continued from previous page)

International (filed Oct. 25, 2010), Reply Comments of Sprint Nextel Corporation (filed Nov. 22, 2010) at 3. In the TV white spaces proceeding, the Commission declined to set aside TV channels for fixed licensed backhaul use as requested by FiberTower, Sprint Nextel, and others. See *Unlicensed Operation in the TV Broadcast Bands, et al.*, ET Docket No. 04-186, *et al.*, *Second Memorandum Opinion and Order*, 25 FCC Rcd 18661, 18718 (2010). The Commission, however, expressed interest in pursuing whether it could accommodate licensed rural backhaul in the television white spaces and directed further evaluation of the idea by Commission staff. *Id.* While there is not currently any request pending for use of television white spaces for point-to-point backhaul, Commission staff have met with interested parties to discuss the filing and review of such requests.

³⁵⁶ 47 C.F.R. §§ 1.1200 *et seq.*

Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

C. Final Regulatory Flexibility Analysis of the Report and Order

118. The Regulatory Flexibility Act (RFA)³⁵⁷ requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."³⁵⁸ Accordingly, we have prepared a Final Regulatory Flexibility Analysis concerning the possible impact of the rule changes contained in the *Report and Order* on small entities. The Final Regulatory Flexibility Analysis is set forth in Appendix B.

D. Initial Regulatory Flexibility Analysis

119. As required by the Regulatory Flexibility Act of 1980 (RFA),³⁵⁹ the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed in the *Further Notice of Proposed Rulemaking*. The analysis is found in Appendix D. We request written public comment on the analysis. Comments must be filed in accordance with the same deadlines as comments filed in response to the *FNRPM* and must have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this *BRS/EBS 5th FNPRM*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

E. Paperwork Reduction Analysis

120. This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. While we did not seek comment on the information collection requirements in the *NPRM*, we are seeking comments now. The information

³⁵⁷ See 5 U.S.C. § 601–612. The RFA has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

³⁵⁸ 5 U.S.C. § 605(b).

³⁵⁹ See 5 U.S.C. § 603.

collection will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

F. Further Information

121. For further information, contact John Schauble of the Wireless Telecommunications Bureau, Broadband Division, at 202-418-0797 or John.Schauble@fcc.gov.

VIII. ORDERING CLAUSES

122. Accordingly, IT IS ORDERED, pursuant to Sections 1, 2, 4(i), 7, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, 333 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 157, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333, and Section 706 of the Telecommunications Act of 1996, as amended, 47 U.S.C. § 1302, that this *Report and Order* is hereby ADOPTED.

123. IT IS FURTHER ORDERED, pursuant to Sections 1, 2, 4(i), 7, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, 333, and 706 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 157, 201, 301, 302, 303, 307, 308, 309, 310, 319, 324, 332, and 333, and Section 706 of the Telecommunications Act of 1996, as amended, 47 U.S.C. § 1302, that this *Further Notice of Proposed Rulemaking* is hereby ADOPTED.

124. IT IS FURTHER ORDERED that the rules adopted herein WILL BECOME EFFECTIVE 30 days after the date of publication in the *Federal Register*, except for Section 74.605, which contains new or modified information collection requirements that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA) and WILL BECOME EFFECTIVE after the Commission publishes a notice in the *Federal Register* announcing such approval and the relevant effective date.

125. IT IS FURTHER ORDERED that the Comments of FiberTower Corporation filed on October 25, 2010 SHALL BE INSERTED into the record of WC Docket No. 10-90.

126. IT IS FURTHER ORDERED that NOTICE IS HEREBY GIVEN of the proposed regulatory changes described in this *Further Notice of Proposed Rulemaking* and that comment is sought on these proposals.

127. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this *Report and Order* to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

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

FEDERAL COMMUNICATIONS COMMISSION



Marlene H. Dortch
Secretary