

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Amendment of Part 101 of the Commission's |) | |
| Rules to Facilitate the Use of Microwave for |) | |
| Wireless Backhaul and Other Uses and to |) | WT Docket No. 10-153 |
| Provide Additional Flexibility to Broadcast |) | |
| Auxiliary Service and Operational Fixed |) | |
| Microwave Licensees |) | |
| |) | |
| Request for Interpretation of Section |) | |
| 101.141(a)(3) of the Commission's Rules |) | WT Docket No. 09-106 |
| Filed by Alcatel-Lucent, Inc., <i>et al.</i> |) | |
| |) | |
| Petition for Declaratory Ruling Filed by |) | WT Docket No. 07-121 |
| Wireless Strategies, Inc. |) | |
| |) | |
| Request for Temporary Waiver of Section |) | |
| 101.141(a)(3) of the Commission's Rules |) | |
| Filed by Fixed Wireless Communications |) | |
| Coalition |) | |

REPLY COMMENTS OF FIBERTOWER CORPORATION

FiberTower Corporation (“FiberTower”)¹ submits these Reply Comments in the Federal Communications Commission’s (“Commission”) above-captioned proceeding.² The comments filed in this proceeding support FiberTower’s view that the Commission should adopt its

¹ FiberTower is a leading alternative backhaul provider in the U.S., with an extensive spectrum footprint, carrier-class microwave and fiber networks in 13 major markets, customer commitments from nine of the leading commercial mobile carriers, partnerships with leading government contractors, a GSA Schedule 70 holder, and partnerships with the largest tower operators in the U.S., which provide FiberTower with access to over 100,000 towers and buildings. Commercial mobile carriers, enterprises and government agencies rely on FiberTower’s backhaul and premises access solutions to deliver mission- and business-critical performance.

² *Amendment of Part 101 of the Commission’s Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees*, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 11246 (2010) (“*NPRM*” and “*NOI*”).

spectrum allocation proposals in the *NPRM* and take additional steps to accelerate wireless backhaul deployment, such as:

- Providing fixed wireless licensees access to spectrum in the 450 MHz to 4 GHz range (including by promptly authorizing limited, licensed fixed use of the TV White Spaces);
- More aggressively monitoring and enforcing existing OTARD protections (and refining its interpretation of the protections);
- Providing better incentives and information regarding the deployment and availability of multiple-use shared-access backhaul systems; and
- Developing regulatory drivers for the development and deployment of smaller and lighter wireless backhaul equipment.

FiberTower reiterates its support for these proposals below. In addition, FiberTower encourages the Commission to promote the deployment of auxiliary stations in bands that are already developed for point-to-multipoint use; the Commission should not, however, authorize such stations in the point-to-point microwave bands.

I. COMMENTERS AGREE WITH FIBERTOWER THAT THE COMMISSION SHOULD TAKE ADDITIONAL STEPS TO SPUR THE DEPLOYMENT OF WIRELESS BACKHAUL

A. The Proposed New Spectrum Allocations Will Not Be Sufficient to Meet Wireless Backhaul Spectrum Needs

Like FiberTower, many commenters note that, while laudable, the Commission's fixed service spectrum allocation proposals for the 6875-7125 MHz and 12.7-13.2 GHz bands will not be sufficient to fill the current wireless backhaul spectrum gap because of the coordination challenges associated with sharing the bands with incumbents,³ the limited signal range afforded

³ See, e.g., Verizon and Verizon Wireless Comments at 3 ("These [7 GHz and 13 GHz] BAS and CARS bands . . . currently contain a variety of fixed, temporary fixed, and mobile services that, at least initially, could make spectrum sharing with Part 101 FS operations difficult."); Fixed Wireless Communications Coalition Comments at 5 ("We question whether Fixed Service users [in the 6875-7125 MHz band] can manage the reliability they need, while operating in the same band with TV pickup units.") and 7 ("The FWCC has questions about [the Commission's proposed sharing arrangement in the 12.7-13 GHz band]. We think this plan may lead to ongoing problems in coordination and spectrum inefficiencies.");

by the bands,⁴ the large size and weight of antenna equipment in the bands,⁵ and the high cost of deploying and operating the equipment.⁶ As FiberTower has noted, “[n]ot all backhaul spectrum is the same. Distance, equipment cost, siting cost, siting availability, propagation characteristics, equipment size and weight are all key factors that vary from spectrum band to spectrum band.”⁷ These comments suggest that other, more attractive spectrum will be needed to satisfy growing wireless backhaul demand.⁸

B. The Commission Should Swiftly Authorize Licensed Fixed Use of Vacant TV White Spaces Channels

Similarly, other commenters share FiberTower’s view that more wireless backhaul spectrum is needed below 4 GHz,⁹ and limited use of licensed operations in the TV White Spaces would be ideal for satisfying certain wireless backhaul needs in rural and tribal areas.¹⁰ WCAI, for example, notes that “[t]he high cost and difficulty of constructing and deploying new backhaul and middle mile facilities – especially in rural and remote tribal areas – is rapidly

Motorola Comments at 4-5 (“[S]haring between fixed wireless backhaul operations and temporary mobile Electronic News Gathering (“ENG”) operations in the 6875-7125 MHz band may give rise to harmful inference The Commission’s current proposal to prevent interference – mandating the identification of receive-only sites associated with TV pickup stations – is likely insufficient.”).

⁴ See, e.g., Wireless Communications Association International (“WCAI”) Comments at 3 (“The Achilles heel for microwave links in rural areas is range and antenna size, which are largely a function of the spectrum bands that are currently available for fixed links.”).

⁵ See, e.g., *id.* at 3 (“In the 6 GHz band a carrier-grade link may be established at up to 20 miles with a single radio pair, though that requires 6-foot or taller dishes, which in turn require very sturdy towers”).

⁶ See *id.* at 2 (“In rural areas . . . the cost of currently available 4G backhaul solutions is problematic due to the high cost of bridging the great distances that often exist between local networks and access points.”).

⁷ FiberTower Comments at 6.

⁸ See Motorola Comments at 4 (noting that the Commission’s new spectrum allocation proposal, by itself, “will not satisfy the expected surge in wireless backhaul.”).

⁹ See WCAI Comments at 2; Sirius XM Radio Comments at 4.

¹⁰ See WCAI Comments at 2-4.

becoming a barrier to the widespread availability of affordable broadband services,”¹¹ and in the 6 GHz band, covering distances of 50-100 miles (the coverage needed in rural and tribal areas) currently requires multiple microwave links and towers.¹² On a more positive note, however, WCAI explains that “[m]aking a limited number of DTV white spaces channels available for fixed wireless backhaul would increase the availability of affordable backhaul solutions where low cost backhaul is most needed – in rural and remote tribal areas.”¹³

FiberTower urges the Commission to heed these suggestions and swiftly authorize limited, licensed use of vacant TV White Spaces channels in rural and tribal areas for wireless backhaul. As FiberTower has noted, “the licensed fixed proposal can largely accommodate any subsequent repacking in the TV White Spaces because dozens of vacant channels exist in the rural and tribal areas at issue, and the supporters propose utilizing at most a limited amount of the vacant channels in those areas.”¹⁴ Moreover, BAS equipment available for UHF Channels 14-20 can be readily used in providing wireless backhaul in the vacant spectrum.¹⁵ Time is of the essence, and the Commission could make significant progress in filling the wireless backhaul gap in rural and tribal areas by authorizing limited, licensed fixed use of the TV White Spaces.

C. The Commission Should More Aggressively Use its OTARD Authority to Promote Wireless Backhaul Deployments

FiberTower agrees with WCAI that the Commission should act more aggressively to eliminate governmental and private restrictions that retard wireless backhaul deployment,

¹¹ *Id.* at 2.

¹² *Id.* at 3-4.

¹³ *Id.* at 2- 3.

¹⁴ FiberTower Comments at 8.

¹⁵ *Id.* at 9.

including using its existing OTARD authority.¹⁶ Under the OTARD rule, the Commission may pre-empt or invalidate rules or restrictions that “impair the installation, maintenance or use” of fixed wireless antennas that are one meter or less in diameter, absent certain enumerated exceptions.¹⁷ As WCAI suggests, wireless backhaul deployment could be bolstered by a declaratory ruling that rules, provisions and restrictions that require pre-approval of fixed wireless antennas measuring one meter or less in diameter “impair” the installation, maintenance and use of such antennas.¹⁸ There is no legitimate reason why the placement of small fixed wireless antennas should elicit more onerous governmental and private scrutiny and regulation than the placement of satellite dishes.¹⁹ Moreover, as FiberTower suggested in its comments, an education campaign targeted at state and local zoning officials and private landlords and homeowner associations could help significantly to minimize this widespread and vexing problem.²⁰

D. The Commission Should Make Available More Information About Shared-Access Wireless Backhaul Platforms to Promote Backhaul Deployment and Spectrum Leasing

As FiberTower noted in its comments, if more information regarding wireless backhaul availability were easily searchable, shared-use access could become much more prevalent, reducing the current backhaul gap in many areas.²¹ FiberTower agrees with XO

¹⁶ See 47 CFR § 1.4000.

¹⁷ See *id.* at (a)(1)(i), (b).

¹⁸ See WCAI Comments at 5; FiberTower Comments at 10-12.

¹⁹ FiberTower also agrees with the Comments of PCIA – The Wireless Infrastructure Association, on this subject. See PCIA Comments at 2-5 (“Microwave services are unreasonably burdened by local regulatory policies, which range from outright bans on microwave antennas to unnecessary and burdensome local review of microwave attachments.”).

²⁰ FiberTower Comments at 11.

²¹ See *id.* at 12.

Communications, LLC (“XO”) that microwave collocation at incumbent Local Exchange Carrier (“LEC”) central offices provides a key platform from which to bring backhaul solutions to the surrounding area.²²

FiberTower also agrees with XO that current practices regarding commercial licensing discourage the public from leasing spectrum that can be used for wireless backhaul deployment.²³ For example, as highlighted by XO, the Commission’s Universal Licensing System (“ULS”) database includes only limited information – site coordinates and TX and RX frequencies – for Local Multipoint Distribution Service (“LMDS”) wide-area licenses.²⁴ This same dearth of available information also applies to geographic area 24 GHz and 38.6-40.0 GHz licenses. This lack of information creates barriers and confusion for consumers seeking to compare potential point-to-point or point-to-multipoint spectrum leased links with common carrier links (for which a breadth of important information is provided in the ULS database), and thus may inhibit the deployment of wireless backhaul by artificially limiting leasing opportunities.²⁵

To spur shared use of wireless backhaul facilities, the Commission should also consider establishing a wireless backhaul page on its website and providing backhaul providers with an opportunity to provide site and coverage maps showing where they are offering managed wireless backhaul services and spectrum on the secondary market (*e.g.*, via leasing) suitable for wireless backhaul.

²² See XO Comments at 4-5.

²³ See *id.* at 3-4.

²⁴ See *id.*

²⁵ See *id.* (indicating that the ULS database provides broad information for common carrier microwave links, including site ID, site address, Above Ground Level, and TX and RX frequencies).

E. Permitting Fixed Service Licensees to Use Smaller Antennas Wherever Feasible Would Facilitate Wireless Backhaul Deployment

Like FiberTower, several commenters support the Commission’s efforts to allow Fixed Service licensees to use smaller antennas wherever feasible.²⁶ Smaller antennas provide substantial manufacturing, installation, and maintenance cost advantages over large antennas because they are less expensive to purchase and ship, are lighter, are easier to mount and reinforce, and can be installed in many more places.²⁷

Smaller antennas are particularly appropriate for use in spectrum at 11 GHz and below in rural areas, where the cost of deploying large antennas is great and the risk of harmful interference is not significant.²⁸ As Motorola explains, the narrow beamwidth and lower sidelobe gain required by current Part 101.115 rules for the 6 GHz and 11 GHz bands, which necessitates the use of antennas with diameters of six feet or larger, are not needed in rural areas where four foot antenna provide adequate protection against interference from adjacent links.²⁹ Indeed, antennas as small as two-feet in diameter are available and would be appropriate for use in rural areas.³⁰

²⁶ See *NOI* at ¶¶ 64-67; Motorola Comments at 10-11; Sprint Nextel Comments at 4 (suggesting “that the Commission permit the use of smaller antennas in the 6875-7125 MHz band based on the Category A and Category B approach currently permitted in the 11 GHz band”).

²⁷ See *NOI* at ¶¶ 64, 66; FiberTower Comments at 13-14; Motorola Comments at 10.

²⁸ See FiberTower Comments at 13-14; Motorola Comments at 10-11.

²⁹ Motorola Comments at 10-11.

³⁰ See *id.* at 11.

II. THE COMMISSION SHOULD ENCOURAGE AUXILIARY STATIONS IN BANDS ALREADY AVAILABLE FOR SUCH POINT-TO-MULTIPOINT USE

In the *NPRM*, the Commission sought comment on Wireless Strategies, Inc.’s (“WSI”) February 23, 2007 petition for a declaratory ruling.³¹ Specifically, the Commission asks whether it makes sense to permit Fixed Service licensees to deploy auxiliary stations in the common carrier bands originally developed for point-to-point use.³² In response, several commenters noted that the geographic area-licensed Fixed Service bands, such as the LMDS, 24 GHz, and 38.6-40.0 GHz bands, would be more suitable for the proposed point-to-multipoint operations.³³

FiberTower agrees with multiple commenters that the Commission has already authorized auxiliary station-type uses in bands such as the LMDS, 24 GHz, and 38.6-40.0 GHz bands already developed for point-to-multipoint use, and customers, carriers, equipment developers and others seeking to develop or benefit from such capabilities can access them through systems that the licensees in those bands have already put in place. Among other benefits, these bands feature geographic area licensing, which (as the Commission recognizes) is “well suited for the type of operations involving multiple stations, whether ‘auxiliary’ or primary.”³⁴ Moreover, the flexible operating requirements in these bands can accommodate the proposed auxiliary stations.³⁵ FiberTower’s geographic area licenses in the 24 GHz and 38.6-

³¹ *NPRM* at ¶ 50.

³² *Id.*

³³ See, e.g., AT&T Comments at 19-20; Ceragon Comments at 13, 17; Comsearch Comments at 15-16 (“[T]he Commission developed specific bands for multipoint use, provided licensees with flexible operating requirements, and auctioned licenses on an area-wide geographic basis. It is clear that systems with auxiliary stations in bands should be located in the bands with area licensing.”); National Spectrum Management Association Comments at 13-14; Verizon and Verizon Wireless Comments at 18-19 (“Ample area-licensed spectrum has been allocated in the 24 GHz Digital Electronic Message Service, 27-29 GHz / 31 GHz Local Multipoint Distribution Service, and 38.6-40.0 GHz bands.”).

³⁴ *NPRM* at ¶ 55; see also Comsearch Comments at 15-16.

³⁵ See, e.g., Comsearch Comments at 15-16.

40.0 GHz bands, for example, are ideal for the use of auxiliary stations because they already support the placement of transmitters throughout a specified area without prior Commission approval. FiberTower would be eager to work with operators interested in point-to-multipoint systems in these bands by offering spectrum leases or managed service wireless backhaul solutions to multiple locations.³⁶

FiberTower opposes the deployment of auxiliary stations in the common carrier bands developed for point-to-point use because, as the Commission recognizes, the point-to-point bands targeted by WSI are already heavily-used and “highly congested.”³⁷ As commenters note, those bands are not suitable for the operations proposed by WSI because multiple links are likely to cause unacceptable interference with other licensees’ operations.³⁸ Moreover, point-to-point microwave spectrum supports critical wireless backhaul links that are needed to expand broadband services (particularly in rural areas), and these backhaul services should be protected against the “major risks” of interference from auxiliary stations.³⁹

III. CONCLUSION

For the foregoing reasons, FiberTower urges the Commission to take additional steps to promote wireless backhaul deployment by authorizing licensed fixed use of a limited portion of the vacant White Spaces in rural and tribal areas, more aggressively using its OTARD authority,

³⁶ See NSMA Comments at 14 (proposing that “point-to-multipoint operators could purchase area licenses and institute service there or contract with current license holders”).

³⁷ See *NPRM* at ¶ 56.

³⁸ See, e.g., AT&T Comments at 19 (“[T]his spectrum is already heavily used and use of these bands is expected to support significant 4G mobile broadband deployment.”); Clearwire Comments at 9-10 (expressing concern “that the proposal will increase the probability of interference in an already congested environment”); Comsearch Comments at 15 (“The Commission long ago identified the potential benefits associated with deploying point-to-multipoint radios and recognized that the traditional site-by-site licensed bands were ill-suited for that purpose.”); NSMA Comments at 8-15; TIA Comments at 8-10; T-Mobile Comments at 10-11.

³⁹ See Verizon and Verizon Wireless Comments at 18-19.

making more information about shared-access backhaul platforms publicly available, facilitating the development and deployment of smaller and lighter antennas and wireless backhaul equipment, and promoting auxiliary stations in bands developed for point-to-multipoint use.

Respectfully submitted,

/s/ Joseph M. Sandri Jr.

Ari Q. Fitzgerald
Mark W. Brennan

Joseph M. Sandri, Jr.
Angela Parsons

HOGAN LOVELLS US LLP
555 Thirteenth Street, NW
Washington, DC 20004
(202) 637-5600

FIBERTOWER CORPORATION
1730 Rhode Island Avenue, NW
Washington, DC 20036
(202) 223-2003

Attorneys for FiberTower Corporation

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