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**VIA ELECTRONIC DELIVERY**

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, SW  
Room TWA325  
Washington, DC 20554

**Re: Notice of *Ex Parte* Presentation  
ET Docket Nos. 04-186, 02-380**

Dear Ms. Dortch:

On October 28, 2008, Joseph M. Sandri, Jr., Senior Vice President of Government and Regulatory Affairs for FiberTower Corporation (“FiberTower”); Richard B. Engelman, Director, Spectrum Resources, Government Affairs for Sprint Nextel Corporation (“Sprint Nextel”); Caressa D. Bennet of Bennet & Bennet, PLLC, General Counsel for the Rural Telecommunications Group, Inc. (“RTG”); Karen Reidy, Vice President, Regulatory Affairs, COMPTEL; and the undersigned of Hogan & Hartson, LLP, Special Counsel to FiberTower and RTG, met with Commissioner Deborah Taylor Tate and her special advisor Wayne Leighton in one meeting and with Alan Stillwell, Ira Keltz, Bruce Romano, Geraldine Matise, Hugh Van Tuyl, Rashmi Doshi, Thomas Phillips, William Hurst, and Steven Jones, all from the Commission’s Office of Engineering and Technology; and John Schauble and Paul Malmud from the Commission’s Wireless Telecommunications Bureau in a separate meeting. All of the parties except for Mr. Sandri also met with Commissioner Robert McDowell and his legal advisor Angela Giancarlo. Ms. Bennet also met separately with Bruce Gottlieb, legal advisor to Commissioner Michael Copps, and Renée Crittendon, legal advisor to Commissioner Jonathan Adelstein.

During the meetings, the parties discussed their positions regarding the optimal utilization of the TV bands white spaces, as described in previous filings in this proceeding and the attached one-page paper. Specifically, the parties noted the benefits of licensed use of this spectrum, including the exceptional propagation features of the TV white spaces (which are ideal for lower-cost backhaul over much longer distances), the promotion of build-out in rural areas, and the enhanced protection of incumbents through greater certainty and accountability, as well as the off-the-shelf availability of fixed point-to-point backhaul equipment and the speed with which

this equipment could be deployed. The representatives also noted that the Commission could adopt a “staged” deployment with immediate licensed use in some portions of the spectrum followed later by unlicensed use (once the unlicensed proponents have demonstrated that they will not cause interference to incumbent operators).

At a minimum, the parties noted that the FCC should consider adopting a narrowly tailored approach, similar to the Canadian Remote Rural Broadband Systems model, and set aside approximately six channels in the TV bands white spaces for fixed licensed use in rural areas to ensure that wireless backhaul facilities will be available for both unlicensed and licensed services to facilitate rural broadband access. The parties also stressed the importance of addressing or at least raising the issue of allowing some fixed licensed backhaul use in the forthcoming order, even as a tentative conclusion or as part of a further notice. The Commission should not miss this opportunity to bring the many benefits of the TV bands white spaces spectrum to rural America.

The parties also reiterated that the Commission should license new fixed services in the TV bands white spaces quickly and efficiently, without the need for spectrum auctions, using the same approach that it currently uses in Part 101 of its rules. As stated in FiberTower and RTG’s April 21 *ex parte* letter, “[t]he Commission’s Part 101 site-by-site licensing regime provides an effective framework for licensing new services in the TV bands and for the immediate licensing of critical fixed wireless backhaul services while protecting incumbent users against harmful interference.”<sup>1</sup> The Part 101 rules and procedures have worked extraordinarily well in the fixed microwave context, and the Commission should adopt similar rules for licensed, fixed use of the TV bands white spaces.

Finally, the parties indicated that they have amended their proposed technical rules for licensed, fixed use of the TV bands white spaces pursuant to a series of discussions with the National Cable & Telecommunications Association (“NCTA”). Specifically, the parties have added provisions designed to address NCTA’s concerns regarding potential interference to cable television headends and television receivers. The parties believe that the new language contained in the attached modified technical rules proposal addresses the cable headend and television receiver “direct pickup” interference issues and eliminates any incumbent interference concerns regarding licensed, fixed use of the TV bands white spaces.

Through separate correspondence, the undersigned also distributed the attached “Background on the Licensed, Fixed Use Proposal for the TV Bands White Spaces” to Charles Mathias, legal advisor to Chairman Kevin Martin; Bruce Gottlieb; Renée Crittendon; Wayne Leighton; Angela Giancarlo; and Alan Stillwell.

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<sup>1</sup> See *Ex Parte* filing by FiberTower and RTG, ET Docket Nos. 04-186 and 02-380, at 2 (filed Apr. 21, 2008).

Pursuant to Section 1.1206 of the Commission's rules, this letter is being filed via ECFS with your office.

Respectfully submitted,

*/s/ Michele C. Farquhar*

Michele C. Farquhar  
Counsel to Sprint Nextel Corporation  
Special Counsel to FiberTower Corporation  
and Rural Telecommunications Group, Inc.

cc: Commissioner McDowell  
Commissioner Tate  
Charles Mathias  
Bruce Gottlieb  
Renée Crittendon  
Wayne Leighton  
Angela Giancarlo  
Alan Stillwell  
Ira Keltz  
Bruce Romano  
Geraldine Matise  
Hugh Van Tuyl  
Rashmi Doshi  
Thomas Phillips  
William Hurst  
Steven Jones  
John Schauble  
Paul Malmud

### **Benefits of Fixed Licensed Use of the TV Bands White Spaces**

The FCC's notices in this proceeding all highlight the potential benefits of increased broadband access and competition, and the 2006 *FNPRM* specifically sought comment on whether to license the TV white spaces. Last October, FiberTower and RTG submitted a white paper (which was later endorsed by Sprint Nextel, T-Mobile, NTCA, and COMPTTEL) that described the many benefits of licensed use of the TV white spaces to provide much-needed broadband services. Fixed licensed use of the TV white spaces can serve critical rural broadband access needs immediately and cost-effectively, without interference to incumbents and without precluding other uses.

***All Broadband Providers Require Backhaul*** – ALL mobile broadband networks – unlicensed as well as licensed – rely on backhaul infrastructure, and by far the most cost-effective backhaul in rural areas can be provided by wireless fixed licensed point-to-point systems. Backhaul infrastructure must be built before consumers can benefit from innovative new unlicensed and licensed broadband networks and devices. The unlicensed mobile proponents may not know about the critical need for installing backhaul before they can activate their own proposed networks, because none of them operate a mobile broadband network.

***Critical Need for Cost-Effective Long-Range Backhaul Solution in Rural Areas*** – This spectrum is particularly well-suited for licensed use given its long-range propagation characteristics, allowing coverage of much longer distances – up to 70 miles – compared to 12 miles at most with current spectrum. Most TV white spaces availability is in rural areas, and rural carriers especially need access to lower cost (longer range) spectrum to expand and upgrade their service offerings to their rural customers and those traveling in rural America. Looming build-out deadlines for 700 MHz and other wireless services increase the urgency of this need.

***Immediate Use of Spectrum*** – Unlike unlicensed devices (requiring further testing and development), fixed backhaul equipment is available off-the-shelf now and can be easily adapted for use in the TV white spaces, and the 6 MHz bandwidth of TV channels is well suited and scalable for this use.

***Protection of Incumbents*** – Licensed use allows far greater certainty and protection of the many incumbents in this band, particularly broadcasters, as well as greater accountability.

***Benefits to Consumers*** – Consumers will benefit from faster deployment of new licensed wireless broadband services, especially in rural areas, as well as the related cost savings of cheaper backhaul. Consumers will also benefit from reduced potential interference to their TV receivers with licensed use.

***Other Unlicensed or Licensed Uses Not Precluded*** – Fixed licensed use is fully compatible with allowing unlicensed or other licensed uses of the TV white spaces, and the FCC can use a gradual or phased licensing process to allow immediate use of some of the spectrum for fixed licensed services, possibly targeted to more rural areas (similar to Canada's Remote Rural Broadband Systems licensing approach), where availability of TV white spaces spectrum is greatest and well-matched to the most immediate needs.

# **Proposed Technical Rules for Licensed, Fixed Use of TV White Spaces**

October 28, 2008

## **Summary of Proposed Rules**

- 1) **Timing:** Licensed, fixed use would be authorized in the TV bands, but no operations would begin until after the digital TV (“DTV”) transition is completed on February 17, 2009.
- 2) **Part 101 Site-Based Licensing:** Fixed use would be licensed on a site-by-site basis under Part 101. Applicants would be subject to frequency coordination with other Part 101 fixed service licensees, pursuant to procedures outlined in section 101.103(d). Applicants also would need to demonstrate that their proposed Part 101 fixed operations will protect existing primary and secondary incumbents in other services, as discussed below. The licenses would be granted for ten-year, renewable terms, and each licensed site would need to be placed in operation within eighteen months of licensing.
- 3) **Frequencies/Channels:** Fixed use would be licensed only on UHF TV Channels 21-35 (512-596 MHz) and 39-51(620-698 MHz). Fixed use channels would be 6 MHz wide and align with the UHF TV channels. Contiguous channels may be aggregated to obtain a bandwidth greater than 6 MHz. For contiguous channel applications, the applicant must submit as part of the original application a detailed plan indicating how the bandwidth requested will be utilized. In particular, the application must contain detailed descriptions of the modulation method, the total data throughput (specified for each link), the channel time sharing method (if applicable), and any error detecting and/or correcting codes. Further, any contiguous channel applications must include a separate analysis of the spectrum efficiency, including both information bits per unit bandwidth and the total bits per unit bandwidth.
- 4) **Power Limit:** On any authorized frequency, the average power delivered to an antenna in this service will be the minimum amount of power necessary to carry out the communications desired. The average EIRP on any authorized frequency would be limited to 24 dBW/6 MHz in urban counties and 35 dBW/6 MHz in rural counties. Designation of urban and rural counties would be based on existing PCS and cellular rules (*i.e.*, rural counties are counties that have population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census. *See, e.g.*, section 24.232(b).)
- 5) **Antenna Requirements:** Vertical polarization, horizontal polarization, and cross polarization would be allowed. If multiple polarization modes are used on the same frequency at the same location, the maximum permitted average EIRP would be reduced to keep the total power limited to 24 dBW/6 MHz in urban counties and 35 dBW/6 MHz in rural counties. The transmitting antenna must comply with the following antenna standards, which would apply in both the azimuth (horizontal) and elevation (vertical) planes:

Maximum beamwidth to 3 dB points: 25°

Minimum antenna gain: 15 dBi

Minimum radiation suppression from centerline of main beam:

15° - 20°	4 dB
20° - 25°	7 dB
25° - 30°	11 dB
30° - 40°	15 dB
40° - 55°	20 dB
55° - 150°	25 dB
150° - 180°	30 dB

6) **Protection of Other Operations in the Band:** Licensed, fixed use would be secondary to, and would be required to protect, all current and future “full service” TV broadcast stations (*i.e.*, stations licensed pursuant to Subpart E of Part 73) and Class A TV broadcast stations (*i.e.*, stations licensed pursuant to Subpart J of Part 73). Licensed, fixed use would share co-secondary status with analog and digital low-power TV (“LPTV”) stations, TV translators, TV booster stations, TV studio transmitter links (“STLs”), TV relay stations, TV translator relay stations, and Low Power Auxiliary Services stations (*e.g.*, wireless microphones). Secondary status stations generally would be protected from other secondary stations on a “first come, first served” basis, *except that* licensed, fixed use would protect LPTV stations, TV translators, and TV booster stations filed during a limited filing window, as discussed below.

a. **Existing Part 73 Subpart E TV Broadcast Stations.** Licensed, fixed operations would be required, at a minimum, to protect co-channel and first-adjacent channel TV broadcast stations, just as DTV broadcast stations must protect each other. That is:

- Licensed, fixed co-channel or adjacent-channel operational endpoints and the path length between endpoints would not be permitted within the 41 dB $\mu$ V/m noise-limited service area contour of a DTV broadcast station, as defined in section 73.622(e).
- Licensed, fixed operations may not exceed, at any location within the DTV broadcast station’s noise-limited service area contour, the desired-to-undesired (D/U) signal ratio thresholds contained in section 73.623(c)(2) for co-channel DTV-into-DTV (D/U of +15 dB), lower first adjacent channel DTV-into-DTV (D/U of -26 dB), and upper first adjacent channel DTV-into-DTV signals (D/U of -28 dB).
- Licensed, fixed operations that operate with endpoints with antenna height above average terrain (“HAAT”) less than 152 meters (500 ft.) can demonstrate the necessary D/U protections by providing a minimum buffer distance of 19.3 kilometers (12 miles) from all adjacent channel DTV broadcast station noise-limited service area contours (adjacent channel frequencies based on -28 dB protection for DTV broadcast stations) and a minimum buffer distance of 67.6 kilometers (42 miles) from all co-channel DTV broadcast station noise-limited service area contours (co-channel frequencies based on 15 dB protection for DTV broadcast stations).

**b. Existing Part 73 Subpart J Class A TV Broadcast Stations.** Licensed, fixed operations would be required, at a minimum, to protect co-channel and first-adjacent channel Class A TV broadcast stations, just as Class A TV broadcast stations must be protected from other TV stations. Thus, Part 73 Subpart J Class A TV broadcast stations must receive, from licensed fixed operations, protections that meet or exceed the Class A protections articulated in sections 73.6012-73.6019.

**c. New DTV Broadcast and DTV Broadcast Station Maximization/Relocation Requests.** New licensed, fixed stations may not object to, and must protect, any new “full power” DTV station or an existing DTV station’s maximization or relocation request. However, if a new DTV station, or maximization or relocation of an existing DTV station, is implemented after February 17, 2011 (two years after the DTV transition is complete), then the DTV licensee must provide at least 120 days’ advance notice of such changes to the fixed service licensee to ensure that the fixed service licensee’s network is reconfigured as necessary. Class A station facility change/relocations shall receive, from licensed fixed operations, protections that meet or exceed the Class A protections articulated in sections 73.6012-73.6019.

**d. LPTV, TV Translators, and TV Booster Stations.** New licensed, fixed stations must protect all existing LPTV, TV translators, and TV booster stations as well as the following “grandfathered” secondary stations:

- all LPTV, TV translators, and TV booster stations in operation by February 17, 2010 (one year after the DTV transition is complete);
- all LPTV, TV translators, and TV booster stations that have been granted construction permits by February 17, 2010; and
- all LPTV, TV translators, and TV booster stations for which applications are filed in the first six months after the opening by the FCC of a new application filing window, provided such window opens no later than February 17, 2011 (two years after the DTV transition is complete).

Licensed, fixed co-channel or adjacent-channel operational endpoints and the path length between endpoints would not be permitted within a 8 kilometer (5 mile) buffer surrounding the “grandfathered” station’s 74 dB $\mu$ V/m noise-limited service area contour.

**e. Low-Power Auxiliary Stations, Including Wireless Microphones.** Licensed, fixed stations must coordinate with Low-Power auxiliary stations whose locations are registered with the FCC or frequency coordinators. In order to accommodate the temporary and/or transient use of Low-Power Auxiliary Stations, licensed, fixed devices will also: 1) not operate on UHF TV Channels 36 through 38 nor in the 1<sup>st</sup> adjacent channels to DTV stations; 2) provide a 30-day coordination notice, prior to system turn-up, to any previously-registered wireless microphone and production venues within 8 kilometers (5 miles) of the fixed link path and its endpoints. Any potential frequency interference issues that arise from the coordination notice will be worked out by the parties affected.

f. **Medical Devices and Healthcare Facilities.** Licensed, fixed stations are prohibited from operating on Channel 37, which is set aside for radio astronomy and wireless medical telemetry service (“WMTS”) use, and on the first adjacent Channels 36 and 38.

g. **TV STL and Relay Links.** Licensed, fixed stations must protect existing TV STL and relay links, as well as “grandfathered” TV STL and relay links, in operation by February 17, 2010 (one year after DTV transition is complete). New TV STL and relay links authorized after February 17, 2010 would need to be coordinated with and protect previously-existing fixed, licensed stations or obtain the consent of the fixed station licensee to operate. However, every effort should be made to accommodate coordination requests from TV STL and relay links that must be moved to another channel as a result of the DTV transition.

h. **Other Licensed, Fixed Operations.** Any pre-existing licensed, fixed operations shall receive coordination protection in accordance with section 101.103 frequency coordination procedures.

i. **Cable Television Operations.** The cable industry will establish a voluntary database of CATV headends which will include, at minimum, the latitude and longitude of each headend, a list of the over-air television stations which are received there, and the azimuth direction towards which the receiving antenna for each television station is pointed. Licensed, fixed stations must adequately protect against interference with reception of over-air television programming at any headend listed in the database. This may be demonstrated by coordination with each individual headend for which the technical design of the licensed, fixed station predicts that the field strength of the licensed, fixed station, as measured at the headend location, will be greater than +19 dB $\mu$ V/m on any over-air television channel that is received at a given headend or greater than +75 dB $\mu$ V/m on any channels that are adjacent to any channel received at the same headend.

Adequate protection will be demonstrated if the signal of the licensed, fixed station is at least 23 dB below the same-channel over-air television signal as received at the headend, and no greater than 33 dB higher than higher or lower adjacent channels of such signals as received at the headend, as measured at the download of the headend receiving antenna used for the desired station. The over-air signal strength reference for this comparison will be that which is achieved 99% of the time as determined by extended signal level tests.

j. **Television Receiver Direct Pickup.** In general, licensed, fixed operations shall be designed to produce no more than 99 dB $\mu$ V/m at the external wall of any building where a television receiver is likely to be located (*e.g.*, residences, apartment buildings, office buildings). The field strength from a licensed, fixed operation can be calculated considering a number of factors, including the following: path loss (distance from transmitter), transmitter power, antenna gain/suppression at the relevant angle, and terrain attenuation.

## Background on the Licensed, Fixed Use Proposal for the TV Bands White Spaces

ET Docket Nos. 04-186, 02-380 October 28, 2008

In the *First Report and Order*, the Commission determined that fixed low power devices could operate on unused spectrum in the TV bands without causing harmful interference to other authorized services.<sup>1</sup> In the *Further Notice*, the Commission sought comment on whether operations in the TV bands should be allowed on a licensed basis.<sup>2</sup> The Commission noted that, compared to the unlicensed model, “[t]he licensed model is more efficient in many cases.”<sup>3</sup> The Commission also stated that licensing the TV bands “may have the benefit of enabling policy makers and incumbent licensees to more rapidly and easily determine the source of any harmful interference that such devices may cause” and “may also more effectively balance competing uses in markets where the amount of unused spectrum in the TV bands is low.”<sup>4</sup>

In response to the *Further Notice*, FiberTower Corporation (“FiberTower”) and the Rural Telecommunications Group, Inc. (“RTG”) filed a “White Paper”<sup>5</sup> proposing that the Commission adopt a licensed, fixed model for the TV bands white spaces. FiberTower and RTG indicated that a licensed, fixed model would increase backhaul deployment and broadband access in rural areas and protect incumbent operations against harmful interference. FiberTower, RTG, Sprint Nextel, and COMPTTEL also filed proposed technical rules designed to address and mitigate harmful interference from new licensed, fixed operations to other operations in the band, including broadcasters, wireless microphone users, medical devices, radio astronomy, TV studio transmitter and relay links, and pre-existing fixed licensed operations.<sup>6</sup> The parties also encouraged the Commission to license new fixed services on a point-to-point basis in the TV bands white spaces quickly and efficiently, using the same Part 101 rules and procedures that have worked well in the fixed microwave context.<sup>7</sup>

Several parties, including Sprint Nextel, T-Mobile, the National Telecommunications Cooperative Association (“NTCA”), and COMPTTEL,<sup>8</sup> filed letters in support of the licensed, fixed model. Supporters noted the benefits of licensed use, including the exceptional propagation features of the TV bands white spaces, the promotion of build-out in rural areas, and the protection of incumbents through greater certainty and accountability, as well as the immediate off-the-shelf availability of fixed point-to-point backhaul equipment and the speed with which such equipment could be deployed.<sup>9</sup> RTG, NTCA, and the Rural Independent Competitive Alliance also support authorizing licensed, fixed operations in the TV bands white spaces because “the white spaces are particularly well-suited for boosting broadband deployment in rural areas, and a licensed, fixed approach would encourage carriers to construct and deploy wireless networks across large regions of the country.”<sup>10</sup>

We believe that allowing licensed, fixed operations in the TV bands white spaces is in the public interest because of the potential for increased broadband deployment, particularly in rural areas. This band is ideal for long-distance backhaul services, a crucial input for building mobile broadband networks. We believe that the FCC should conclude that (or at a minimum seek comment on how) it can implement licensed, fixed use of the TV bands white spaces. We also believe the Commission could designate certain channels (such as six channels) nationwide or in certain markets for licensed, fixed operations, similar to the Canadian Remote Rural Broadband Systems model for rural markets. Similarly, the Commission could limit such operations to the third or greater adjacent channel in each market, or authorize licensed, fixed operations in rural areas only. In any event, if the Commission adopts an initial order authorizing exclusively unlicensed use of the TV bands white spaces, it should also reserve certain white spaces channels for licensed, fixed use.

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<sup>1</sup> See *First Report and Order* ¶ 17 (noting that “it is easier to protect incumbent operations in the TV bands, including wireless microphones, when devices are limited to fixed operation”).

<sup>2</sup> *Further Notice* ¶¶ 26-32.

<sup>3</sup> *Id.* ¶ 27.

<sup>4</sup> *Id.* ¶ 30.

<sup>5</sup> “Optimizing the TV Bands White Spaces: A Licensed, Fixed-Use Model for Interference-Free Television and Increased Broadband Deployment in Rural and Urban Areas,” *Ex Parte* filing by FiberTower Corporation and RTG, ET Docket Nos. 04-186, 02-380 (filed Oct. 2, 2007) (“White Paper”).

<sup>6</sup> *Ex Parte* filing by FiberTower, RTG, Sprint Nextel, and COMPTTEL, ET Docket Nos. 04-186, 02-380 (filed Jun. 25, 2008) [updated version filed Oct. 28, 2008].

<sup>7</sup> *Id.*; see also *Ex Parte* filing by FiberTower and RTG, ET Docket Nos. 04-186, 02-380 (filed Apr. 21, 2008).

<sup>8</sup> See, e.g., *Ex Parte* filing by Sprint Nextel Corporation and T-Mobile USA, Inc., ET Docket Nos. 04-186, 02-380 (filed Jan. 3, 2008); *Ex Parte* filing by the National Telecommunications Cooperative Association, ET Docket Nos. 04-186, 02-380 (filed Mar. 6, 2008); *Ex Parte* filing by COMPTTEL, ET Docket Nos. 04-186, 02-380 (filed May 9, 2008).

<sup>9</sup> See, e.g., *Ex Parte* filing by FiberTower, Sprint Nextel, and RTG, ET Docket Nos. 04-186, 02-380 (filed Oct. 9, 2008); *Ex Parte* filing by FiberTower, Sprint Nextel, RTG, and COMPTTEL, ET Docket Nos. 04-186, 02-380 (filed Oct. 28, 2008).

<sup>10</sup> *Ex Parte* filing by RTG, NTCA, and the Rural Independent Competitive Alliance, ET Docket Nos. 04-186, 02-380 (filed Oct. 24, 2008); see also *Ex Parte* filing by FiberTower, ET Docket Nos. 04-186, 02-380 (filed Oct. 28, 2008); *White Paper* at 7.