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September 27, 2016

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

**Re: WT Docket No. 10-153, Amendment of Part 101 to Facilitate Wireless Backhaul
Ex Parte Communication**

Dear Ms. Dortch:

On behalf of the Fixed Wireless Communications Coalition, Inc. (FWCC),¹ pursuant to Section 1.1206(b)(1) of the Commission's Rules, I am electronically filing this written *ex parte* communication in the above-referenced docket.

As the Commission considers issues relevant to the Fixed Service (FS), we ask that it add wider-bandwidth channels to the 4 GHz FS band.

This is one of only two bands suitable for long-haul FS communications. Space attenuation (free-space path loss) increases markedly at higher frequencies; and rain fade due to moisture in the atmosphere causes additional attenuation above about 10 GHz. Transmissions that span tens of kilometers require frequencies below 10 GHz. The only FS bands in this range are 4 and 6 GHz; and the 6 GHz band is badly congested on high-demand routes.

¹ The FWCC is a coalition of companies, associations, and individuals interested in the fixed service – i.e., in terrestrial fixed microwave communications. Our membership includes manufacturers of microwave equipment, fixed microwave engineering firms, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. The membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. Our members build, install, and use both licensed and unlicensed point-to-point, point-to-multipoint, and other fixed wireless systems in frequency bands from 900 MHz to 95 GHz. For more information, see www.fwcc.us.

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The Commission's rules set specific channel widths and frequencies for each FS band. All except 4 GHz have a range of available channel widths. The 5925-6425 MHz band, for example, has nine different available bandwidths ranging up to 60 MHz.² But the 4 GHz band allows only one channel width: 20 MHz.³

Wider channels can transmit more data in a given time. Demands for higher data speeds have appeared across all telecommunications platforms, from 4G to Wi-Fi to fixed microwave. A trend toward wider FS channelization has accommodated these demands.⁴

We ask the Commission to amend Section § 101.147(h) to allow the use of 30, 40, 60, and 80 MHz channels in the 4 GHz FS band, in addition to the present 20 MHz. Our proposed band plan appears in an appendix to this letter. The plan provides for the maximum possible number of channels of each bandwidth. The channel edges line up, so that coordinating a 40 MHz channel, for example, locks out only two 20 MHz channels.⁵ Both of these characteristics promote spectrum efficiency. Moreover, as in other bands, every channel pair of every bandwidth has the same difference between transmit and receive frequencies (260 MHz), a property that benefits equipment manufacturers.

Operators will find it easier and more efficient to frequency-coordinate higher-bandwidth channels rather than "stacking" multiple adjacent 20 MHz channels. The 30 MHz option, for those that need it, is more frequency-efficient than stacking two 20 MHz channels.

We suggest the Commission also reconfigure the existing 20 MHz transmit/receive assignments. The present arrangement, shown in Table 1, is set up in interleaved pairs. While it would be simple to overlay 40 MHz channels on this plan, the addition of 30, 60, or 80 MHz channels would cause potential transmit/receive conflicts, sometimes called "bucking" situations. Our proposal in the Appendix avoids this problem.

² 47 C.F.R. § 101.147(i).

³ 47 C.F.R. § 101.147(h).

⁴ In 2012, for example, the Commission allowed the use of wider channels in the 6 and 11 GHz bands. *The Use of Microwave for Wireless Backhaul and Other Uses*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Second Notice of Inquiry, Order on Reconsideration, and Memorandum Opinion and Order, 27 FCC Rcd 9735 at ¶ 52 (2012) (*2012 Broadband Order*).

⁵ The Commission recently realigned channel assignments in the 6 and 11 GHz bands to achieve a similar result. *The Use of Microwave for Wireless Backhaul and Other Uses*, Order, 27 FCC Rcd 12600 (2012).

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3710	Transmit (receive)	3950	Transmit (receive)
3730	Transmit (receive)	3970	Transmit (receive)
3750	Receive (transmit)	3990	Receive (transmit)
3770	Receive (transmit)	4010	Receive (transmit)
3790	Transmit (receive)	4030	Transmit (receive)
3810	Transmit (receive)	4050	Transmit (receive)
3830	Receive (transmit)	4070	Receive (transmit)
3850	Receive (transmit)	4090	Receive (transmit)
3870	Transmit (receive)	4110	Transmit (receive)
3890	Transmit (receive)	4130	Transmit (receive)
3910	Receive (transmit)	4150	Receive (transmit)
3930	Receive (transmit)	4170	Receive (transmit)
		4190	(unpaired)

Table 1
Present 4 GHz Transmit/Receive Assignments (MHz)
(adapted from 47 C.F.R. § 101.147(h))

The loading requirements of Section 101.141(a) will apply to the new channels. Operators must carry at least 4.4 bits/second per hertz of radio bandwidth, and must load to at least 50 percent of that capacity within 30 months of licensing.⁶ These provisions will deter operators from licensing more bandwidth than they actually need.

We are unable to identify any downside to this proposal for any party.

Accordingly, we ask the Commission to issue a Notice of Proposed Rulemaking consistent with the foregoing.

Please do not hesitate to contact us with any questions.

Respectfully submitted,



Cheng-yi Liu
Mitchell Lazarus
Counsel for the Fixed Wireless
Communications Coalition

⁶ 47 C.F.R. § 101.141(a).

APPENDIX—Proposed Rule

Amend Section 101.147(h) to read as follows:

(h) 3,700 to 4,200 MHz. 80 MHz authorized bandwidth.

(1) 20 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3710	3970
3730	3990
3750	4010
3770	4030
3790	4050
3810	4070
3830	4090
3850	4110
3870	4130
3890	4150
3910	4170
3930	4190
N/A	3950 ¹

¹This frequency may be assigned for unpaired use.

(2) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3715	3975
3745	4005
3775	4035
3805	4065
3835	4095
3865	4125
3895	4155
3925	4185

(3) 40 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3720	3980
3760	4020
3800	4060
3840	4100
3880	4140
3920	4180

(4) 60 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3730	3990
3790	4050
3850	4110
3910	4170

(5) 80 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3740	4000
3820	4080
3900	4160