

September 11, 2015

## VIA ELECTRONIC FILING

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

### Written *Ex Parte* Communication

#### GN Docket No. 14-177, *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*

Dear Ms. Dortch:

Straight Path Communications, Inc. applauds the Commission's continued efforts to ensure that the United States remains a leader in wireless technology by, among other things, planning for the use of spectrum that can be deployed in fifth generation ("5G") mobile wireless systems. It is encouraged by Chairman Wheeler's announcement that he expects that the Commission will issue a Notice of Proposed Rulemaking ("NPRM") in the above referenced proceeding this year.<sup>1/</sup>

#### **The Commission Should Issue an NPRM Now**

Others, however, would delay the Commission's consideration of these important issues until after the upcoming 2015 World Radiocommunication Conference ("WRC-15"). In particular, the Satellite Industry Association ("SIA") recently urged the Commission to wait until after the conclusion of WRC-15 to issue the anticipated NPRM.<sup>2/</sup>

That is precisely the wrong approach. Among the matters that WRC-15 is expected to address is the development of an agenda for the 2019 World Radiocommunication Conference ("WRC-19"), including the potential evaluation of bands that may be used for mobile wireless services in the future.<sup>3/</sup> It is the U.S. position that the bands that may be included in the NPRM should be on

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<sup>1/</sup> See Tom Wheeler, *Leading Towards Next Generation "5G" Mobile Services* (Aug. 3, 2015), <https://www.fcc.gov/blog/leading-towards-next-generation-5g-mobile-services> ("Wheeler Blog Post").

<sup>2/</sup> See Letter from Tom Stroup, President, Satellite Industry Association, to Ms. Marlene Dortch, Secretary, FCC, GN Docket No. 14-177 and RM-11664, at 1-2 (filed Aug. 28, 2015) ("SIA Letter").

<sup>3/</sup> See *Final Minutes, Minutes of the Eight Meeting of the FCC Advisory Committee for the 2015 World Radiocommunication Conference (WRC-15) (WAC/130)*, at 4-6 (May 20, 2015), available at <http://apps.fcc.gov/ecfs/document/view?id=60001123457>. See also *WRC-15 Agenda Item 10: With*

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the agenda for evaluation at WRC-19.<sup>4/</sup> Straight Path understands that the Inter-American Telecommunication Commission (“CITEL”) will also support the evaluation of these bands for mobile wireless operations. It would therefore be consistent with the U.S. position to adopt an NPRM covering these bands.

Indeed, issuance of an NPRM will demonstrate U.S. leadership in establishing the bands that may be considered for mobile wireless use. Instead of “conflating the domestic and international arenas,” as SIA suggests, issuing an NPRM would appropriately support an already-adopted U.S. position that can be adopted internationally. It is increasingly important that spectrum allocations be globally harmonized. A U.S. attempt to foster that international harmonization is not conflating domestic and international policy; it is demonstrating leadership towards global harmonization that will benefit all administrations.

SIA observes that this proceeding “raises complex technical and policy matters.”<sup>5/</sup> That is exactly why the Commission should adopt an NPRM – to provide the forum for resolution of those matters. By issuing an NPRM the Commission can achieve the dual goals of helping to direct international dialogue and aiding the international community address the technical and related issues by adopting relevant rules.

### **Recommended LMDS and 39 GHz Band Plans**

Straight Path’s recent filing<sup>6/</sup> recommended technical rules that will enable the deployment of 5G mobile services in the 39 GHz band. Intel<sup>7/</sup> and Samsung<sup>8/</sup> also submitted recommendations for technical rules for 5G mobile services, including proposed band plans for the LMDS and 39 GHz spectrum. Straight Path appreciates Intel’s and Samsung’s recommendations but proposes the following band plans for the LMDS and the 39 GHz bands which it believes will best meet the public interest.

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*Respect to IMT in Bands Above 6 GHz (WAC/118rev1)*, at 3 (May 20, 2015), available at <http://apps.fcc.gov/ecfs/document/view?id=60001048184>.

<sup>4/</sup> See Wheeler Blog Post (stating that the Commission will consider the “spectrum bands proposed by the United States to be studied for consideration at WRC-19 . . . or a subset of the bands” in an upcoming Notice of Proposed Rulemaking).

<sup>5/</sup> See SIA Letter at 2.

<sup>6/</sup> See generally Letter from Jerry Pi, Chief Technology Officer, Straight Path Communications, Inc., to Marlene Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Aug. 5, 2015).

<sup>7/</sup> Letter from Dave Horne, Global Public Policy Group, Intel Corporation, to Ms. Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Aug. 10, 2015).

<sup>8/</sup> Letter from Robert Kubik, Ph.D., Director, Public Policy, Engineering and Technology, Samsung Electronics Washington Office, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Aug. 28, 2015).

Table 1. Proposed band plan for the LMDS and the 39 GHz bands

Spectrum band	Block	Frequency (GHz)	Bandwidth (MHz)
LMDS	A	27.5 – 28.0	500
	B	28.0 – 28.35	350
	C	29.1 – 29.25	150
	D	31.0 – 31.3	300
39 GHz	A	38.6 – 39.0	400
	B	39.0 – 39.5	500
	C	39.5 – 40.0	500

As shown in Table 1, Straight Path’s proposed band plan divides the LMDS band into 4 blocks – block A (27.5 – 28.0 GHz), block B (28.0 – 28.35 GHz), block C (29.1 – 29.25 GHz), and block D (31.0 – 31.3 GHz). The 39 GHz band would be divided into 3 blocks – block A (38.6 – 39.0 GHz), block B (39.0 – 39.5 GHz), and block C (39.5 – 40.0 GHz). This band plan is shown in Figure 1.

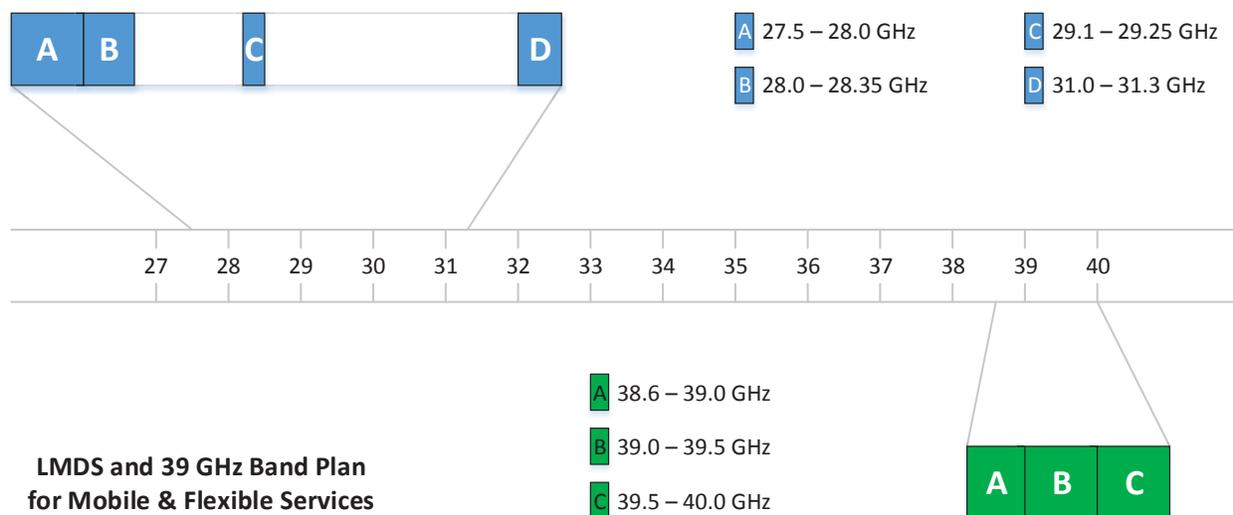


Figure 1. Proposed band plan for the LMDS and the 39 GHz bands

This band plan is based on several factors.

*First*, this plan provides a large block of contiguous spectrum (150 to 850 megahertz) that facilitates the buildout of 5G networks with significantly improved performance over 4G. In contrast, a band plan with too many narrow channels will likely complicate the auction process and lead to fragmentation of spectrum that could degrade the performance and increase 5G equipment costs. Licensees can further aggregate multiple blocks if bandwidth wider than the proposed blocks is desired. For example, an 850-megahertz system can be deployed by aggregating block A and block B of the LMDS band. Similarly, a 1-gigahertz system can be deployed by aggregating block B and block C of the 39 GHz band.

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*Second*, licensees can either acquire any single block for TDD-based mobile services, or pair two blocks in the LMDS band for FDD-based mobile services, if FDD becomes possible for commercial mobile services in millimeter-wave frequencies. Although Straight Path anticipates that 5G deployments will be predominantly TDD for reasons explained in its comments,<sup>9/</sup> this band plan provides the following FDD pairing possibilities:

- Block A and Block C;
- Block B and Block D;
- Block A and Block D; and
- Block C and Block D.

Straight Path does not envision the pairing of blocks between the LMDS band and the 39 GHz band due to the different geographic service area (“GSA”) definitions in the two bands. Moreover, treating the bands separately will permit the Commission the maximum flexibility to proceed first with the use of the 39 GHz band – which presents fewer regulatory obstacles – for 5G mobile operations.<sup>10/</sup>

Straight Path recognizes that the current band plans for the 39 GHz and LMDS bands do not conform to its recommended approach. As the Commission observed, active licenses cover about 75 percent of the U.S. population in the LMDS band and 49 percent of the U.S. population in the 39 GHz band, respectively.<sup>11/</sup> These active licenses are often scattered in frequency and across geographic service areas, resulting in fragmentation for both incumbents and prospective new licensees.

Straight Path therefore recommends that the Commission adopt a mechanism – prior to licensing the current “white spaces” – by which existing licensees can exchange licenses within a geographic area to more closely conform to Straight Path’s recommended band plan. Doing so will aid existing licensees by reducing the number of new licensees with whom they will be required to coordinate and allow the Commission to license larger spectrum blocks with fewer incumbents. Straight Path is happy to work with the Commission and stakeholders to

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<sup>9/</sup> See Comments of Straight Path Communications, Inc., GN Docket No. 14-177, *et al.*, at 8-9 (filed Jan. 15, 2015).

<sup>10/</sup> For example, there are already satellite operations in or around the LMDS band but not the 39 GHz band. For the same reason, the Commission should not combine the licensing of the 39 GHz band and the 37/42 GHz band. The 39 GHz band already has geographic area licensees. Extending mobile service into these bands is relatively straightforward. However, the definition of geographic service areas in the 37/42 GHz band may take time. In addition, the 37/42 GHz band faces fairly complicated sharing and coordination issues with federal usage of the band by NASA, NSF, and military operations. Therefore, it is prudent to respect the current boundaries between bands.

<sup>11/</sup> See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Notice of Inquiry, 29 FCC Rcd. 13020, ¶¶ 52, 57 (2014).

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collectively develop such a plan to optimally position the 39 GHz band and the LMDS band for 5G mobile services.

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Pursuant to Section 1.1206(b)(2) of the Commission's rules, an electronic copy of this letter is being filed for inclusion in the above-referenced dockets. Please address any questions regarding the foregoing to the undersigned.

Respectfully submitted,

/s/ Russell H. Fox

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<sup>\*/</sup> Admitted to practice in California only, and practicing under the supervision and guidance of Members of the Washington, DC office of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.