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February 26, 2016

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Reply Comments to GN Docket No. 14-177: Use of Spectrum Bands Above 24 GHz For Mobile Radio Services

Dear Ms. Dortch:

The Dynamic Spectrum Alliance (DSA) strongly supports the Federal Communication Commission's ("Commission" or "FCC") proposal to enable greater use of spectrum resources for mobile services in frequencies above 24 GHz (collectively, the millimeter wave bands).[1] In particular, the Commission should designate the 64-71 GHz band for unlicensed operations, using rules that generally track the existing Part 15 rules for the 57-64 GHz band,[2] and resist proposals for all or part of the 64-71 GHz band to be licensed. Commenters supporting a licensed approach rest their proposals primarily on cursory, inconsistently applied arguments regarding international harmonization. Separately, in bands where the Commission decides to issue exclusive licenses, the Commission should also consider adopting a three-tier framework similar to the one set forth in Part 96 of its rules. Such an approach leads to increased spectrum utilization, as the Commission has recognized, and there is substantial support for the model in the record.

The DSA urges the Commission to reject the proposals made by some to license all or part of the 64-71 GHz band.[3] Many commenters who advocated this approach based their arguments on the need for international harmonization, noting that the 66-71 GHz band will be studied for international mobile telecommunications (IMT-2020) in the International

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[1] *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-77, Notice of Proposed Rulemaking, 30 FCC Rcd 11878 (2015) (NPRM).

[2] 47 C.F.R. § 15.255.

[3] *See, e.g.*, Comments of AT&T at 17 (AT&T Comments), Comments of CTIA at 17-19 (CTIA Comments), Comments of Ericsson at 19-20 (filed Jan. 26, 2016) (Ericsson Comments), Fixed Wireless Communications Coalition at 9-10 (filed Jan. 27, 2016), Comments of Giganets at 2 (filed Dec. 21, 2015), Comments of Mobile Future at 16 (filed Jan. 27, 2016), Comments of Nokia (Nokia Comments) (filed Jan. 27, 2016), Comments of T-Mobile USA, Inc. at 14 (filed Jan. 27, 2016), Comments of Verizon at 13. Unless otherwise noted, all comments cited were filed in GN Docket No. 14-177 on January 28, 2016.

Telecommunication Union (ITU).[4] But the same commenters also advocated licensed terrestrial mobile use of the 28 GHz band—which the ITU did not recommend for additional study at the last World Radio Conference.[5] In the case of CTIA, for example, the association argued that "international harmonization should not serve as a barrier to deployment of . . . the 28 GHz band" while simultaneously arguing that "mak[ing] the 66-71 GHz band available for licensed services" would serve "the Commission's policy of . . . promoting international harmonization of spectrum."[6] This selective emphasis undermines proposals for licensing the 64-71 GHz band.

The Commission should instead designate the 64-71 GHz band for unlicensed use. Many commenters in the record supported this proposal, generally agreeing that contiguous spectrum for unlicensed devices between 57-71 GHz would increase the attractiveness of the band and speed the development, adoption, and deployment of unlicensed devices. [7] Commenters supporting unlicensed use also broadly agree that devices using the 57-71 GHz bands can operate onboard aircraft—a prominent potential application for additional unlicensed spectrum—without causing harmful interference to other users.[8] For example, the Boeing Company noted that modern airplanes are specifically designed to eliminate "emissions from low-power devices used within the aircraft cabin. Such attenuation is a natural result of aircraft fuselage construction materials, and is also intentionally enhanced to shield aircraft systems, such as on the Boeing 787 Dreamliner."[9] Boeing also observed that fuselage alone can provide up to 35 dB of attenuation.[10] Pressurized cabins, clutter within aircraft, and two-pane acrylic windows also

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[4] *See, e.g.*, AT&T Comments at 17; CTIA Comments at 18-19; Ericsson Comments at 5; Nokia Comments at 9-10.

[5] *See* AT&T Comments at 12; CTIA Comments at 14; Ericsson Comments at 20; Nokia Comments at 17.

[6] *Compare* CTIA Comments at 14 *with* CTIA Comments at 17-18.

[7] *See* Comments of the Boeing Company at 11-13 (Boeing Comments); Comments of Consumer Technology Association at 8-9 (filed Jan. 27, 2016) (CTA Comments); Comments of Facebook, Inc. at 5-6 (filed Jan. 26, 2016) (Facebook Comments); Comments of Google Inc. at 6-9; Comments of IEEE 802 LAN/MAN Standards Committee at 4-5 (IEEE Comments); Comments of Information Technology Industry Council (ITI) at 5 (filed Jan. 27, 2016); Comments of Microsoft Corporation at 5-14 (filed Jan. 27, 2016) (Microsoft Comments); Comments of National Cable and Telecommunications Association (NCTA) at 3-9 (NCTA Comments); Comments of Open Technology Institute at New America And Public Knowledge at 28-29 (OTI/PK Comments), Comments of Qualcomm Incorporated at 14-15 (Jan. 27, 2016), Comments of Straight Path Communications Inc. at 6 (filed Jan. 27, 2016); Comments of ViaSat Inc. at 21-23 (ViaSat Comments); Comments of Vubiq Networks Inc. at 3-5 (filed Jan. 26, 2016); Comments of WiFi Alliance at 5-6 (filed Jan. 27, 2016) (Wi-Fi Alliance Comments).

[8] Boeing Comments at 13-14; CTA Comments at 8-9; IEEE Comments at 4-5; Microsoft Comments at 11-14; ViaSat Comments at 22; NCTA Comments at 7-8; Wi-Fi Alliance Comments at 5-6.

[9] Boeing Comments at 13.

[10] *Id.*

make it very unlikely that low power emissions would interfere with incumbent operations.[11] At the same time, the Commission should raise the power levels set forth in Part 15 by at least 10 dB and apply that limit across the 57-71 GHz band, [12] and it should consider unlicensed operation in the 71-76 GHz and 81-86 GHz bands, provided that licensed operations can be protected from harmful interference.[13] In particular, allowing unlicensed use up to 72.5 GHz would allow for an additional IEEE 802.11ad channel.[14] Taken together, these changes will drive innovation and investment in millimeter wave unlicensed technologies.

Equally importantly, in bands where the Commission decides to assign exclusive licenses, it should consider adopting a three-tier sharing framework similar to the one recently adopted for the 3550-3700 GHz band.[15] The Commission has recognized that allowing opportunistic access to unused, licensed spectrum ensures that spectrum remains "in consistent and productive use."[16] While the Commission's proposal to adopt a use-or-share framework in some bands is helpful to ensure spectrum does not lie fallow, it does not go far enough. The Commission proposes that portions of a millimeter wave license area that remain unused after five years after the initial license is issued be made available for shared use by other users.[17] As pointed out by NCTA, "a general opportunistic unlicensed access rule, [as opposed to a use-or-share condition that goes into effect five years after licenses are granted], would promote efficient spectrum sharing by allowing unlicensed users to operate in bands where licensees have not yet deployed and provide incentives for the unlicensed industry to move forward expeditiously with equipment development, testing, and certification."[18] And such an approach is eminently feasible: spectrum access system design is becoming increasingly developed, allowing intensive sharing among a diversity of users.[19] Indeed, the millimeter wave bands are especially well suited to sharing because the propagation characteristics of these very high frequency bands make spectral reuse commercially viable for relatively low-power operations.[20]

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[11] Microsoft Comments at 12-13.

[12] IEEE Comments at 4; NCTA Comments at 6; Wi-Fi Alliance Comments at 8.

[13] ITI Comments at 7; Microsoft Comments at 5-7; OTI/PK Comments at 29; Wi-Fi Alliance Comments at 9-10.

[14] *See, e.g.*, Microsoft Comments at 7.

[15] *See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd. 3959 (2015) (3.5 GHz Report and Order); *see also* Facebook Comments (supporting a variation of this proposal); Comments of Federated Wireless at 20-21 (filed Jan. 27, 2016) (Federated Comments); NCTA Comments at 11-13; OTI/PK Comments at 7.

[16] 3.5 GHz Report and Order ¶ 72.

[17] NPRM ¶ 216.

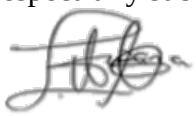
[18] NCTA Comments at 11.

[19] *Id.*; *see also* Federated Comments at 20-21.

[20] Federated Comments at 10.

The millimeter wave bands hold great potential for unlicensed and shared technologies. The Commission should make the most of that potential by designating the 64-71 GHz spectrum for unlicensed use and adopting multi-tier sharing frameworks wherever feasible.

Respectfully submitted,



H. Nwana
Executive Director