



June 17, 2016

**BY ELECTRONIC FILING**

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

**Re: Ex Parte Presentation, *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services***, GN Docket No. 14-177; IB Docket No. 15-256; RM-11664, WT Docket No. 10-112; IB Docket No. 97-95

Dear Ms. Dortch,

On June 15, 2016, representatives of the Telecommunications Industry Association (“TIA”) met with staff from the Wireless Telecommunication Bureau and the Office of Engineering and Technology to discuss the above-captioned proceeding. During the meeting, TIA urged the Commission to adopt the policies described in the attached presentation. In addition to topics raised in the presentation, TIA now provides further information regarding the two issues below.

**Intermediate Power Level for Semi-Stationary Devices**

TIA and many other commenters support creating a new intermediate power category for equipment that is transportable, but not intended for use while in motion.<sup>1</sup> Such devices would typically only be operational in a fixed location and not in contact with human bodies, justifying a higher power level compared to handheld mobile devices.

As things stand, the Commission’s proposal “suggests an ecosystem based on the traditional base station / mobile handset model,”<sup>2</sup> but the final rules should not “preclude other use cases that fall

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<sup>1</sup> Comments of the Telecommunications Industry Association, filed Jan. 27, 2016 in GN Docket No. 14-177, at 32 (“[TIA Comments](#)”); *see also* Comments of CTIA, filed Jan. 28, 2016 in GN Docket No. 14-177, at 30 (“[CTIA Comments](#)”); Comments of Ericsson, filed Jan. 26, 2016 in GN Docket No. 14-177, at 13 (“[Ericsson Comments](#)”); Comments of Nokia, filed Jan. 27, 2016 in GN Docket No. 14-177, at 27 (“[Nokia Comments](#)”); Comments of Qualcomm Incorporated, filed January 27, 2016 in GN Docket No. 14-177, at 16 (“[Qualcomm Comments](#)”); Samsung Electronics America, Inc. and Samsung Research America, filed Jan. 26, 2016 in GN Docket No. 14-177, at 19 (“[Samsung Comments](#)”); Comments of Verizon, filed Jan. 28, 2016 in GN Docket No. 14-177, at 17 (“[Verizon Comments](#)”).

<sup>2</sup> CTIA Comments at 30.

in between the classic mobile use case and the high-power point-to-point and point-to-multipoint use cases established for Part 101 operations.”<sup>3</sup> The millimeter-wave bands are likely foster a wide range of deployment scenarios, and the Commission’s rules “should be designed to permit innovation to occur.”<sup>4</sup>

*Use Cases.* The ICT industry has provided several examples of potential applications for this category. To begin with, Samsung envisions that customer premises equipment (“CPE”) would be small cell sites that are operated in a fixed environment within buildings.<sup>5</sup> Similarly, Nokia envisions a scenario whereby base stations might be deployed to cover 1-2 residential blocks, with semi-stationary CPE then being deployed either inside or outside a single residence.<sup>6</sup> CTIA suggests that this “in-between” class of equipment would be larger than a handheld device but smaller than a base station, with CPE being (for example) similar in size to Wi-Fi access points.<sup>7</sup>

Beyond that paradigm, Qualcomm envisions an ecosystem of local Internet access hubs, with devices being deployed (i) on the rooftop of buildings to support point-to-multipoint broadband services; or (ii) for a mobile relay transceiver, e.g., mounted atop a vehicle, to connect nearby end-user devices with remote base stations.<sup>8</sup> Ericsson suggests this category might be also appropriate for devices hard-wired into vehicles of various sizes (trains, buses, cars) that are stationary in relative terms to the end-user devices operated by passengers within the vehicles.<sup>9</sup>

*Power Level.* TIA supports the April 21, 2016 joint proposal from Ericsson, Intel, Nokia, Qualcomm, Samsung, and Verizon to establish **55 dBm / 100 MHz** as the appropriate limit for this intermediate category of devices.<sup>10</sup> Moreover, TIA agrees with Verizon that the Commission should not prescribe different power levels for uplink and downlink, since the potential use cases for such “in between” applications would not necessarily involve traditional base stations and mobile devices.<sup>11</sup>

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<sup>3</sup> Verizon Comments at 16.

<sup>4</sup> Reply Comments of Samsung Electronics America, Inc. and Samsung Research America, filed Feb. 26, 2016 in Gn Docket No. 14-177, at 13-14 (“[Samsung Reply Comments](#)”)

<sup>5</sup> Samsung Comments at 19.

<sup>6</sup> See Comments of Nokia at 27-28 (describing performance improvements); *id.* at Appendix A pp. 1-3 (describing deployment scenario and system assumptions); *see also* Reply Comments of Nokia, filed Feb. 26, 2016 in GN Docket No. 14-177, at 7-8 and Appendix (“[Nokia Reply Comments](#)”) (continuing analysis).

<sup>7</sup> CTIA Comments at 30.

<sup>8</sup> Qualcomm Comments at 16.

<sup>9</sup> Ericsson Comments at 13.

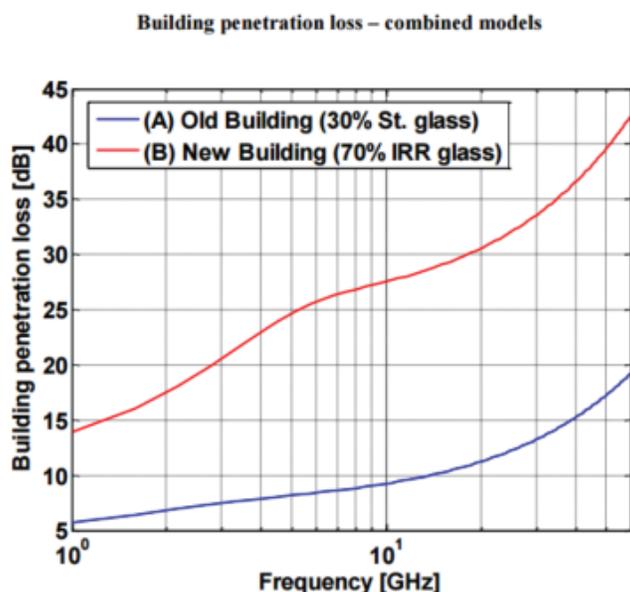
<sup>10</sup> Ex Parte Letter from Verizon, Samsung Electronics America, QUALCOMM Incorporated, Intel Corporation, Nokia, and Ericsson, Inc. to Marlene H. Dortch, filed Apr. 21, 2016 in GN Docket No. 14-177 (“[Joint Proposal](#)”).

<sup>11</sup> Verizon Comments at 17.

## 75 dBm Power Level for Base Stations

TIA endorses the April 21, 2016 joint proposal to establish 75 dBm / 100 MHz as the appropriate power limit for base stations.<sup>12</sup> This compromise level is below the limit originally proposed by TIA in our comments, *i.e.*, 82 dBm / 100 MHz, or 85 dBm / 100 MHz in rural areas.<sup>13</sup>

As described in the joint proposal, 75 dBm / 100 MHz would permit power spectral densities that are better aligned with other mobile bands,<sup>14</sup> while also remaining compliant with the IEEE C.95.1 rules for RF exposure. An increase from the Commission's proposed level of 62 dBm / 100 MHz will help overcome expected increases in loss when propagating in dense urban environments and through foliage, ground clutter, and various building materials.<sup>15</sup> For example, building penetration loss above 6 GHz becomes very significant for newer buildings with a higher share of infrared reflective glass ("IRR"), as shown in the figure below:<sup>16</sup>



Beyond the need to compensate for path loss for outdoor-to-indoor coverage, millimeter-wave spectrum usage should not be limited to urban hotspots, but should also be usable for wide area coverage in suburban and highway areas in an economical way. Higher power allows adequate

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<sup>12</sup> See Joint Proposal.

<sup>13</sup> See TIA Comments at 32.

<sup>14</sup> See Joint Proposal.

<sup>15</sup> See, *e.g.*, Joint Whitepaper (ver. 2.1), *5G channel model for band up to 100 GHz*, 3rd Workshop on Mobile Communications in Higher Frequency Bands (MCHFB), at Section 4.4 pp. 12-15 (May 2016), <http://www.5gworkshops.com/5gcm.html>

<sup>16</sup> ITU-R, *Technical feasibility of IMT in bands above 6 GHz*, July 2015, at Annex 3 p. 69, [http://www.itu.int/dms\\_pub/itu-r/opb/rep/R-REP-M.2376-2015-PDF-E.pdf](http://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2376-2015-PDF-E.pdf)

headroom to improve and innovate with state-of-the-art technology. And making allowances for higher power does not determine when such power is used – for instance, small cells are permitted to transmit using the same power as macro base stations but typically do not do so. Power has a cost, and if used indiscriminately could also create self-interference.

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Pursuant to Section 1.1206 of the Commission’s rules, this letter is being filed in ECFS. Please do not hesitate to contact the undersigned with any questions.

Sincerely,

/s/ Dileep Srihari

Dileep Srihari

Director, Legislative and Government Affairs

Telecommunications Industry Association

Enc: List of Meeting Attendees  
Meeting Presentation

Cc: FCC meeting participants (via email)

## List of Meeting Attendees

### FCC Participants

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