

October 19, 2015

**VIA ELECTRONIC FILING**

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

Re: *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services* (GN Docket No. 14-177)

Dear Ms. Dortch,

On Thursday, October 15, 2015, Tom K. Sawanabori, Senior Vice President and Chief Technology Officer, Scott Bergmann, Vice President, Regulatory Affairs, and Brian Josef, Assistant Vice President, Regulatory Affairs, of CTIA – The Wireless Association® (“CTIA”) met with Jessica Almond, Legal Advisor to Chairman Tom Wheeler, to discuss the above-referenced proceeding. During the meeting, CTIA discussed how spectrum above 24 GHz will help complement existing and future mobile broadband services and increase the capacity and capabilities of wireless providers to provide advanced services to the public. CTIA reiterated the importance of a broad range of spectrum bands, including low, medium and high band, to support future Fifth Generation (“5G”) services to consumers.

CTIA noted the important attributes associated with spectrum above 24 GHz, which offers the potential to deliver enhanced capacity for mobile broadband services as well as substantial increases in throughput. Spectrum bands above 24 GHz may yield extensive amounts of contiguous spectrum blocks (gigahertz rather than megahertz available in lower spectrum bands), potentially allowing the provision of extensive throughput and capacity improvements as compared to other spectrum bands available for mobile services. However, CTIA noted that such capabilities may be limited to portions of densely populated areas of the country due to the inherent propagation limits associated with spectrum above 24 GHz. CTIA also emphasized the need for very small cells, reduced barriers to small cell siting, and the need for fiber backhaul to enable these deployments. In light of this, CTIA emphasized that spectrum below 3 GHz will still be critically important to providing consumers with the full panoply of 5G improvements. Therefore, the Commission should continue its efforts to free much-needed additional spectrum below 3 GHz for mobile services.

CTIA also discussed the benefits and advancements expected from 5G. The 5G standards will require increased capacity and data throughput to allow new services to be delivered to consumers, including ultra HD video streaming.<sup>1</sup> These throughput and capacity increases will require large block sizes and cutting-edge antenna technologies. Latency (the time it takes

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<sup>1</sup> See 4G Americas White Paper *LTE and 5G Innovation: Igniting Mobile Broadband*, [http://www.4gamericas.org/files/9214/3991/2167/4G\\_Americas\\_Rysavy\\_Research\\_LTE\\_and\\_5G\\_Innovation\\_white\\_paper.pdf](http://www.4gamericas.org/files/9214/3991/2167/4G_Americas_Rysavy_Research_LTE_and_5G_Innovation_white_paper.pdf) at 16.

communications to complete a full circuit through the network) will be improved by at least five times, allowing for real time video communications for consumers and business, virtual telemedicine using a wireless device and augmented reality devices.<sup>2</sup>

Dramatic changes to the mobile ecosystem dictate that the new 5G standard must support a broad range of spectrum bands. For instance, the exploding development of the Internet of Things (“IoT”) will require a substantial increase in device density (an increase of greater than 100 times the capability of 4G LTE).<sup>3</sup> IoT devices such as smart city sensors, wearables, consumer and industrial tracking devices, smart home controls, augmentation of existing car collision avoidance systems, and devices for monitoring or control of energy, medical, and health will all drive deployment of IoT.<sup>4</sup>

CTIA reiterated its support for an exclusive use licensing framework as much as practicable. Creating an environment with certainty and predictability through exclusive use licensing is critical to promoting investment and fostering innovation in the spectrum above 24 GHz. CTIA also encouraged the Commission to propose spectrum “homes” for both licensed and unlicensed uses that will allow the wireless industry to continue to innovate and deliver improved services to the public. Additionally, CTIA suggested that the NPRM should propose significantly larger spectrum block sizes to allow the new 5G standards to deliver the expected enhancements to capacity and data throughput. Finally, CTIA reiterated that the proposed rules governing out-of-band emissions should not penalize technologies using large bandwidths but should instead suggest technical rules that are technology neutral.

CTIA looks forward to the opportunity to comment further on the Commission’s proposals for spectrum above 24 GHz and to work with interested stakeholders to craft a regulatory framework that enables intensive use of spectrum above 24 GHz for innovative and flexible commercial uses. Pursuant to Section 1.1206 of the Commission’s rules, a copy of this letter is being filed in ECFS. Please do not hesitate to contact the undersigned with any questions.

Sincerely,

*/s/ Scott K. Bergmann*

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Scott K. Bergmann  
Vice President, Regulatory Affairs  
CTIA – The Wireless Association®

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<sup>2</sup> *Id.* at 20.

<sup>3</sup> *Id.* at 21.

<sup>4</sup> See 4G Americas White Paper *5G Technology Evolution Recommendations*, [http://www.4gamericas.org/files/2414/4431/9312/4G\\_Americas\\_5G\\_Technology\\_Evolution\\_Recommendations\\_-\\_10.5.15\\_2.pdf](http://www.4gamericas.org/files/2414/4431/9312/4G_Americas_5G_Technology_Evolution_Recommendations_-_10.5.15_2.pdf) at 3.