



May 24, 2016

VIA ELECTRONIC FILING

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth 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; *Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands*, IB Docket No. 15-256; *Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band*, RM-11664; *Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services*, WT Docket No. 10-112; *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands*; *Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band*; *Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services*; and *Allocation of Spectrum in the 37.0- 38.0 GHz and 40.0-40.5 GHz for Government Operations*, IB Docket No. 97-95

Dear Ms. Dortch,

In this *ex parte* filing, CTIA provides details for a flexible, substantial service performance requirement containing safe harbors for new 28 GHz, 39 GHz, and 37 GHz licensees. A substantial service performance requirement with safe harbors is reflective of the technical characteristics of, nascent nature of the technology contemplated for, and proposed usage of, these spectrum bands. In particular, CTIA suggests the following:

- A requirement that new licensees of the 28 GHz, 39 GHz, and 37 GHz spectrum bands have a “substantial service” performance requirement. This would allow each individual licensee the flexibility to deploy service without unnecessary regulatory requirements.
- Safe harbors for meeting the substantial service showing should include:
 - Fixed microwave service would require four (4) links per million in population by the end of the license term; or
 - Mobile broadband service must be provided with 10 connections per 10,000 in population by the end of the license term; or



- o Mobile broadband service must be provided with a number of connections consistent with the size of the geographic service area licensed.

CTIA is a strong supporter of the Commission’s proposal to move rapidly to make these millimeter wave bands available for terrestrial mobile broadband, which will facilitate continued US leadership in mobile broadband and will enable US providers to be at the cutting edge of development of 5G services and the Internet of Things. Given that these technologies and services are at an early stage of development, CTIA believes that employing an approach that allows license holders flexibility to respond to the demands of consumers and evolving services, rather than a rigid coverage requirement that is inconsistent with the service likely to be provided, is the correct regulatory outcome.

Background. The Commission’s proposed approach to performance requirements for the 28 GHz, 39 GHz, and 37 GHz (“millimeter wave”) spectrum bands would apply at the county level and measure coverage at the census block level.¹ A census block would be considered “covered” if a reliable signal level is placed over the centroid of the census block.² Under the Commission’s proposal, if a licensee provides coverage to a census block or multiple census blocks that have a total population equal to 40 percent of the population of the county, then the licensee would be deemed to meet the performance requirement and would retain the license for the entire county.³ Given the factors described below, CTIA has asserted that a coverage performance requirement is not viable for the millimeter wave spectrum bands and has instead suggested that a substantial service requirement, along with a “safe harbor,” would be the most effective approach.⁴

Discussion. As an initial matter, the Commission’s proposed performance requirement fails to reflect the unique properties of the millimeter wave bands and the services contemplated for them. CTIA anticipates that millimeter wave spectrum will be used primarily for adding capacity and high-speed data, as opposed to traditional “macro” mobile broadband networks characterized by seamless buildout and broad coverage. While a population or geographic area coverage benchmark is logical for “coverage bands” such as the 700 MHz band, the millimeter wave bands will have uses more in line with those bands that carry substantial service performance requirements. In fact, the millimeter wave bands have propagation characteristics that make extensive, coverage-based performance requirements economically infeasible. Further, the millimeter wave bands will house a variety of different yet-to-be-determined services. Not only will both fixed and mobile architectures be present in the bands, but these bands also may host non-traditional network architectures such as “mesh”

¹ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, Notice of Proposed Rulemaking*, 30 FCC Rcd 11878, ¶¶ 200-207 (2015) (“*NPRM*”).

² *Id.* ¶ 206.

³ *Id.* ¶ 207.

⁴ Comments of CTIA, GN Docket No. 14-177, IB Docket Nos. 15-256 and 97-75, WT Docket No. 10-112, RM-11662, at 25-26 (filed Jan. 27, 2016).



networks – *i.e.*, a network topology in which each node of the network, including receivers, relays data for the network. The Commission should encourage these and other innovations in the millimeter wave bands and should not adopt performance requirements that would force innovators to “build to the rules,” as opposed to allowing innovators to maximize the potential of the technologies and architectures in play.

Substantial Service Performance Requirement. Instead, a “substantial service” requirement should be the relevant benchmark for buildout of the millimeter wave spectrum band. Indeed, most bands licensed by auction have substantial service requirements rather than performance requirements tied to coverage of a specific population or geographic area.⁵ Notably, both the 28 and 39 GHz bands are currently subject to substantial service requirements and there is no basis for modifying that prior approach.⁶ A substantial service requirement better reflects the technical characteristics and more limited propagation of the millimeter wave spectrum, as well as the evolving network and device ecosystem contemplated for the band. CTIA recommends that the substantial service requirement occur at the completion of the license term. Further, CTIA suggests that any substantial service requirement (as well as the companion safe harbors described in detail below) be tolled until at least two manufacturers have certified equipment to operate in the millimeter wave band spectrum. This requirement would alleviate concerns that licensees’ compliance with performance requirements may not be viable due to a lack of necessary devices to deploy.

Need for Safe Harbors. In addition to adopting a substantial service requirement, CTIA recommends that the Commission also provide a “safe harbor” to demonstrate compliance with this benchmark. This safe harbor should not be a requirement, but instead would provide examples of potential deployment scenarios that would meet the Commission’s substantial service requirement. Licensees would be permitted to make other showings as well, but would be required to have the Commission staff review and approve any other approaches that fall outside of the relevant examples adopted by the Commission as safe harbors. A safe harbor approach would provide certainty and guidance to licensees on potential means of compliance with the substantial service requirement without requiring the use of any particular technology or coverage choice.

Proposed Safe Harbors. CTIA has worked with its members to develop potential safe harbors that could be implemented by the Commission for the millimeter wave spectrum bands. First, for fixed microwave services, there are extensive precedents in place that argue for a safe harbor of four (4) links per one million in population. This safe harbor exists for licensees of the 39 GHz, 3650-3700 MHz, and 24 GHz spectrum bands.⁷ CTIA believes there is no reason to move

⁵ Federal Communications Commission, *Wireless – Construction Requirements by Service*, <https://www.fcc.gov/general/wireless-construction-requirements-service> (last visited May 9, 2016).

⁶ *Id.*

⁷ *The 39 GHz Band*, Report and Order and Second Notice of Proposed Rulemaking, 12 FCC Rcd 18600 (1997); *3650-3700 MHz Government Transfer Band (Extended C-Band)*, First Report and Order and Second Notice of Proposed Rulemaking, 15 FCC Rcd 20448, ¶¶ 85-91 (2000).



away from this safe harbor for fixed microwave deployment, given that two of these bands are in the millimeter wave band, and one of those is a band under consideration in this proceeding.

Second, for mobile broadband services, CTIA suggests that new millimeter wave band licensees be permitted to comply with either a population-based or geographic license area-based safe harbor. The population-based safe harbor would consist of mobile broadband service provided to 10 connections per 10,000 in population by the end of the license term. Licensees would not be required to provide actual connection data, but would certify that they have met (or exceeded) the safe harbor example. Furthermore, CTIA would suggest that the Commission only provide examples to define “connections” to allow flexibility to licensees in meeting the safe harbors. For example, “connections” could be defined as, but not limited to: (1) the number of access points in the market; or (2) the number of mobile or fixed connections that occurred in the market over a period of time (such as a month); or (3) the number of mobile devices that could be connected in the market. The geographic license area-based safe harbor would be adapted based on the size of the license area adopted by the Commission in these proceedings. The two tables below provide details on each of these proposals:

Table 1: Mobile Broadband Safe Harbors Based On Population

Population	Connections
10,000	10
100,000	100
1,000,000	1000
5,000,000	5000
10,000,000	10,000

Table 2: Mobile Broadband Safe Harbors Based On License Area

License Area	Connections
Counties	50
PEAs	100
BTAs	100
EAs	1000



All of these safe harbors, as is true of the substantial service showing, would be relevant at the end of the license term.

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The millimeter wave bands have great potential for innovative, future mobile broadband services. It is therefore essential that the Commission provide wireless licensees with the flexibility to achieve the bands' promise. Flexible performance requirements best reflect the millimeter wave bands' ability to host a variety of services and to serve in a complementary role to more traditional uses. Additionally, adoption of potential "safe harbors" will prove beneficial for consumers as licensees experiment with pioneering network architectures and deployment strategies.

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/ Brian M. Josef

Brian M. Josef
Assistant Vice President, Regulatory Affairs
CTIA