

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Allocation and Authorization of Additional) RM-11773
Spectrum for the Fixed-Satellite Service in the)
50.4-51.4 GHz and 51.4-52.4 GHz Bands)

To: The Commission

OPPOSITION TO PETITION FOR RULEMAKING

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Vice President, Regulatory Affairs

Brian M. Josef
Assistant Vice President, Regulatory Affairs

Kara D. Romagnino
Director, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

October 17, 2016

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY 1

**II. THE COMMISSION SHOULD REJECT BOEING’S SPECULATIVE
REQUEST FOR ADDITIONAL SATELLITE UPLINK SPECTRUM..... 2**

A. The Fixed-Satellite Service Already Has Extensive Spectrum Allocations
Available. 2

B. The Boeing Petition Appears to be Speculative and Premature. 4

**III. BOEING HAS FAILED TO ACCURATELY DESCRIBE THE EXISTING
STATUS OF THE SPECTRUM BANDS THAT ARE THE SUBJECT OF ITS
REQUEST..... 6**

**IV. THERE IS SUBSTANTIAL AND WELL DOCUMENTED INTEREST IN
AND DEMAND FOR USE OF THE 50 GHZ BAND FOR TERRESTRIAL
MOBILE SERVICES..... 8**

V. CONCLUSION..... 11

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Allocation and Authorization of Additional) RM-11773
Spectrum for the Fixed-Satellite Service in the)
50.4-51.4 GHz and 51.4-52.4 GHz Bands)

To: The Commission

OPPOSITION TO PETITION FOR RULEMAKING

I. INTRODUCTION AND SUMMARY.

CTIA¹ hereby responds to the petition for rulemaking filed by The Boeing Company (“Boeing”) asking the Commission to allocate and authorize additional uplink (Earth-to-space) spectrum to the Fixed-Satellite Service (“FSS”) in the 50.4-51.4 GHz and 51.4-52.4 GHz spectrum bands.² The request by Boeing would undermine the framework envisioned by the Commission for next-generation mobile broadband systems as Boeing seeks authority for additional satellite allocations of vital terrestrially allocated spectrum without basis or justification. CTIA urges the Commission to reject Boeing’s speculative request for additional satellite uplink spectrum for the following reasons:

¹ CTIA[®] (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st century connected life. The association’s members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry’s voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry’s leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

² Petition for Rulemaking of the Boeing Company, RM-11773 (filed June 22, 2016) (“Boeing Petition”); *see also Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemaking Filed*, Public Notice, Report No. 3051 (rel. Sept. 16, 2016).

- The Fixed-Satellite Service already has extensive spectrum allocations (more than *five* times the spectrum available for licensed terrestrial mobile services) and has made no technical showing to demonstrate why the currently allotted spectrum is insufficient to deliver satellite service;
- Boeing effectively ignored the terrestrial service allocation in the 50 GHz band in crafting its proposal and made absolutely no concessions to the rights of commercial mobile services; and
- The wireless industry, unlike Boeing, has consistently documented the extensive consumer demand for additional terrestrial mobile broadband services that would be aided by unfettered use of the 50.4-52.4 GHz band.

As the Commission is well aware, millimeter wave band spectrum will play an increasingly important role in delivering upon the promise of 5G. From the Internet of Things (“IoT”) to telemedicine, connected cars, and smart cities, the new 5G revolution will enable myriad new technologies and innovative services for American consumers. The Boeing Petition, if granted, would present a significant obstacle to achieving this reality as it would unnecessarily limit millimeter wave spectrum access for terrestrial mobile providers. CTIA therefore encourages the Commission to dismiss the Boeing Petition and allow the United States to move forward as the preeminent leader in the identification, allocation, and authorization of millimeter wave band spectrum for 5G services.

II. THE COMMISSION SHOULD REJECT BOEING’S SPECULATIVE REQUEST FOR ADDITIONAL SATELLITE UPLINK SPECTRUM.

A. The Fixed-Satellite Service Already Has Extensive Spectrum Allocations Available.

Boeing has proposed to develop and deploy a new satellite system it asserts would leverage the unique characteristics of high-band spectrum.³ The overall system would be a non-geostationary satellite orbit FSS system operating in low Earth orbit in the 37.5-42.5 GHz

³ Boeing Petition at 2.

(space-to-Earth) and the 47.2-50.2 and 50.4-52.4 GHz (Earth-to-space) bands.⁴ The Boeing Petition supplements this satellite application and focuses on only a portion of the overall satellite spectrum—the 50.4-52.4 GHz band.⁵

However, Boeing has provided no demonstration that its proposed satellite system requires new, greenfield spectrum in the 37.5-42.5 GHz (for downlinks) and 47.2-50.2/50.4-52.4 GHz (for uplinks) to meet its communications needs.⁶ Indeed, Boeing ignores the fact that nearly 22 gigahertz of spectrum is already available for FSS purposes between 3 and 80 GHz.⁷ In stark contrast, there is a mere 595.5 megahertz of suitable and available spectrum for terrestrial mobile services below 3 GHz⁸ and 3.25 gigahertz of spectrum available for terrestrial

⁴ See The Boeing Company Application for Authority to Launch and Operate a Non-Geostationary Low Earth Orbit Satellite System in the Fixed Satellite Service (S2966), SAT-LOA-20160622-00058 (filed June 22, 2016) (“Boeing Application”).

⁵ Boeing Petition at 1.

⁶ Although Boeing recently made an *ex parte* presentation to the Commission regarding its request, it provided no new information on why the existing FSS spectrum is insufficient. See Letter from Bruce A. Olcott, Counsel to The Boeing Company, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, IB Docket Nos. 15-256 and 97-95, RM-11664, RM-11773, WT Docket No. 10-112 (filed Oct. 11, 2016). Instead, Boeing continues to make unsupported claims that satellite systems “need” the full ten gigahertz of spectrum, providing as support only a single chart showing international growth in global Internet usage—which reflects *all* data usage, not satellite usage alone. *Id.* Moreover, Boeing claims that FSS gateways in the 50 GHz band can coordinate shared use with Upper Microwave Flexible Use Service users, but it does not specify precisely what that would mean. *Id.* Unsupported claims such as these, without more, cannot support Boeing’s request and should not be entertained by the Commission.

⁷ See 47 C.F.R. § 2.106. Section 2.106 of the Commission’s rules provides the allocation status for all spectrum bands governed by the FCC. From 3 GHz to 80 GHz, the Table of Allocations contained within this rule identifies nearly 22 GHz of spectrum with primary allocations for the FSS.

⁸ *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, Nineteenth Report, DA 16-1061, WT Docket No. 16-137, ¶ 62 (rel. Sept. 23, 2016) (“19th Mobile Wireless Competition Report”).

mobile services above 24 GHz.⁹ Summing these two inputs, there is approximately 3.85 gigahertz of terrestrial mobile spectrum available nationwide— less than one-fifth of the spectrum than is available for FSS nationally. Moreover, the entirety of the Boeing Petition would, if granted, allot the company ten gigahertz of spectrum nationally.¹⁰ Thus, Boeing would have a domestic spectrum footprint that is more than *twice* the amount of spectrum available to *all* terrestrial wireless providers in the United States.

Given this significant disparity in spectrum resources, Boeing should be required to demonstrate, with concrete analysis, why the existing FSS allocations of nearly 22 gigahertz of spectrum already available is inadequate to meet the goals of its proposed system. Boeing’s filings fail to note the substantial spectrum resources available to FSS or explain why they would be insufficient for the proposed satellite system.

B. The Boeing Petition Appears to be Speculative and Premature.

The timing of Boeing’s request (and other FSS applications) shortly before the Commission’s adoption of the *Spectrum Frontiers Report and Order and FNPRM* represents a “land rush” application seemingly motivated to disrupt the Commission’s proposals to allocate and assign new terrestrial mobile rights to spectrum above 24 GHz by reserving spectrum and attempting to garner rights for FSS at the expense of new 5G terrestrial mobile networks.¹¹ It

⁹ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, ¶ 5 (2016) (“*Spectrum Frontiers Report and Order and FNPRM*”). The FCC allocated and authorized 850 megahertz of spectrum in the 27.5-28.35 GHz band and 2.4 gigahertz in the 37.6-40 GHz band for mobile services. The aggregate of these two spectrum allocations amounts to 3.25 gigahertz of spectrum above 24 GHz for mobile services.

¹⁰ The Boeing Application seeks five gigahertz of spectrum at 37.5-42.5 GHz and five gigahertz of spectrum at 47.2-50.2 GHz along with 50.4-52.4 GHz.

¹¹ See Letter from Brian M. Josef, Assistant Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 2 (filed July 5, 2016) (noting that FSS entities

appears that Boeing reviewed the bands that were identified in Resolution 238 at World Radiocommunication Conference 2015 for potential sharing and compatibility for terrestrial mobile services (including 5G) and attempted to encapsulate as many of those spectrum bands as possible in its pending application. Boeing should not be permitted to engage in such tactics and preemptively “reserve” certain spectrum bands without making the appropriate showing that such bands are necessary for their proposed new technology. Nor should Boeing be permitted to use its speculative request to attempt to derail the Commission’s commitment to promoting and allocating additional band resources for future mobile broadband systems and the 5G technology.

The Commission’s rules make clear that a petition for rulemaking must provide “all facts, views, arguments and data deemed to support the action requested”¹² and notes that petitions that are “moot, premature, repetitive, frivolous, or which plainly do not warrant consideration by the Commission may be denied or dismissed without prejudice to the petitioner.”¹³ In this instance, Boeing has failed to demonstrate that it has exhausted all remedies or addressed other available existing spectrum allocations to meet the burden for Commission action on its request. Instead, the Boeing Petition can be more accurately characterized as at best premature and at worst frivolous and repetitive with respect to past FSS advocacy in the Spectrum Frontiers proceeding. CTIA therefore asserts that the Boeing Petition, in accordance with Section 1.401(e), should be dismissed without prejudice.

had *doubled* the number of applications in the time period following the adoption of the Spectrum Frontiers Notice of Proposed Rulemaking).

¹² See 47 C.F.R. § 1.401(c).

¹³ See 47 C.F.R. § 1.401(e).

III. BOEING HAS FAILED TO ACCURATELY DESCRIBE THE EXISTING STATUS OF THE SPECTRUM BANDS THAT ARE THE SUBJECT OF ITS REQUEST.

The Boeing Petition seeks the allocation and authorization of additional uplink spectrum in the 50.4-51.4 GHz and 51.4-52.4 GHz bands. The 50.4-51.4 GHz band has an existing primary FSS uplink allocation as well as primary allocations for terrestrial fixed and mobile and for mobile-satellite service uplinks.¹⁴ Additionally, the 51.4-52.4 GHz band has *no* satellite allocation; it only has primary terrestrial fixed and mobile allocations.¹⁵ Boeing even acknowledges that the International Table does not include an allocation for satellite in the 51.4-52.4 GHz band.¹⁶

To justify its request for additional spectrum allocations for FSS, Boeing effectively ignores the fact that the terrestrial service has a primary fixed and mobile allocation in the band. While Boeing admits that there are terrestrial allocations in the 50.4-52.4 GHz band, it asserts, without any technical support whatsoever, that terrestrial use of the band would not be possible due to the adjacent band passive services.¹⁷ If Boeing intends for the Commission to rely on such assertions in ruling on its request, Boeing must be required to provide at least some level of analysis to support such speculative assertions. To date, it has not done so.

Moreover, instead of ensuring that existing primary terrestrial allocations are fully protected, Boeing posits that, should terrestrial services be initiated in the band, it “may be

¹⁴ See 47 C.F.R. § 2.106.

¹⁵ *Id.*; see also Federal Spectrum Use Summary, 30 MHz – 3000 GHz, National Telecommunications and Information Administration, Office of Spectrum Management, at 78 (June 21, 2010), http://www.ntia.doc.gov/files/ntia/Spectrum_Use_Summary_Master-06212010.pdf (“*Federal Spectrum Use Summary*”).

¹⁶ Boeing Application at 41 (“Boeing acknowledges that the International Table does not include an allocation for FSS in the 51.4-52.4 GHz band.”).

¹⁷ Boeing Petition at 10.

possible to employ opportunistic spectrum access techniques to avoid potential interference from FSS earth station transmissions.”¹⁸ In effect, Boeing is suggesting that the primary fixed and mobile allocations in this band be subordinated to the FSS rights in the band. CTIA strongly disagrees with this position and urges the Commission to reject it. In the 50.4-51.4 GHz band, satellite and terrestrial services are co-primary—meaning that both services must work collaboratively to protect each system’s operation should the Commission adopt service and licensing rules for the spectrum band. As the *Spectrum Frontiers Report and Order and FNPRM* proposes to allocate the entire 50.4-52.4 GHz band for fixed and mobile operations under the Part 30 Upper Microwave Flexible Use Service rules,¹⁹ it also seeks comment on how the 50.4-51.4 GHz band would be used by FSS operators and how sharing between the terrestrial and satellite operations could be accommodated.²⁰ Limiting use of this two gigahertz of spectrum to “opportunistic access” is inconsistent with the primary rights of terrestrial licensees (especially in the 51.4-52.4 GHz band where there is no existing FSS allocation). CTIA encourages Boeing and other FSS providers to work through the Spectrum Frontiers proceeding to provide meaningful sharing criteria and requirements for the 50.4-51.4 GHz band rather than seeking to downgrade use of the band by terrestrial mobile providers.

The Boeing Petition further argues that the 50.4-51.4 GHz and 51.4-52.4 GHz bands are well-suited for FSS operations because there are no active non-federal terrestrial or satellite users of these bands and little or no federal use.²¹ Boeing blithely ignores the fact that the Commission has never promulgated mobile or fixed services rules for the 50.4-52.4 GHz band, meaning that

¹⁸ Boeing Petition at 10.

¹⁹ *Spectrum Frontiers Report and Order and FNPRM* ¶ 420.

²⁰ *Id.* ¶ 421.

²¹ Boeing Petition at ii, 3.

there could not have been any terrestrial use of the spectrum. The precise point of the current FCC proceedings addressing spectrum use above 24 GHz is to remedy this issue, given the rapid technological advances occurring in the marketplace that now allows for the use of these millimeter wave bands for mobile broadband services. Boeing's argument that the lack of terrestrial use of the spectrum means that there should be no impediment to new FSS use and/or allocations therefore is without merit.

CTIA encourages the Commission to maintain the existing spectrum hierarchy for the 50.4-52.4 GHz band, ensuring that terrestrial services would be protected. Indeed, Boeing should demonstrate how use of the band for satellite uplink service could protect terrestrial 5G services from harmful interference.²² CTIA believes that the Boeing Petition is simply another "bite at the apple" seeking to slow the Commission's progress in identifying and making available for use spectrum in the millimeter wave bands for terrestrial mobile broadband services. The Commission should not legitimize this effort, but should instead focus on the proposals that are already initiated in the *Spectrum Frontiers Report and Order and FNPRM*, rather than diverting resources to responding to Boeing's latest effort.

IV. THERE IS SUBSTANTIAL AND WELL DOCUMENTED INTEREST IN AND DEMAND FOR USE OF THE 50 GHZ BAND FOR TERRESTRIAL MOBILE SERVICES.

The Commission is to be commended for the worldwide leadership it has shown in moving expeditiously to allot additional millimeter wave band resources for future mobile broadband systems. CTIA and its members share the Commission's goal of advancing the next generation of wireless services and unleashing the 5G revolution. Throughout the *Spectrum Frontiers* proceeding, the industry has demonstrated an aggressive vision of 5G technologies and

²² *Id.*

services. Indeed, 5G development is already underway in laboratories across the country as the wireless industry strives to achieve the “ultra-high speed, high capacity, low-latency, secure mobile connectivity” consumers will expect on the next frontier of wireless services.²³ With four nationwide carriers and dozens of regional and rural providers, the U.S. wireless industry continues to invest in faster, better networks with nearly \$32 billion invested last year and approximately \$177 billion invested over the past six years.²⁴ These figures are over and above the investment of billions in spectrum acquisition. As a result of this investment, new services and applications are constantly being introduced, and consumer demand for wireless connectivity continues to grow as a result. Indeed, wireless data use increased 137 percent from 2014 to 2015, and continued growth is projected for the foreseeable future.²⁵ More spectrum—including millimeter wave spectrum that enables high-speed, low-latency applications like 5G—will be integral in helping wireless services providers meet these growing demands so that consumers can continue to enjoy the mobile broadband connectivity they want and deserve.

As has been demonstrated in the record in the *Spectrum Frontiers Report and Order and FNPRM*, the terrestrial wireless industry has a strong interest in deploying mobile services in the 50.4-52.4 GHz band on a primary, exclusive-use basis in order to help meet that demand. T-Mobile, for instance, has expressly stated that it supports the Commission’s proposal to

²³ See Comments of CTIA, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 2 (filed Sept. 30, 2016) (“CTIA Spectrum Frontiers FNPRM Comments”) (citing Remarks of FCC Chairman Tom Wheeler, CTIA Super Mobility Show, at 2 (Sept. 7, 2016), http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0907/DOC-341138A1.pdf).

²⁴ *19th Mobile Wireless Competition Report* ¶¶ 23-24; see also Comments of CTIA, WT Docket No. 16-137, at 63-67 (filed May 31, 2016) (“CTIA 19th Competition Report Comments”).

²⁵ CTIA 19th Competition Report Comments at 14-15; see also *19th Mobile Wireless Competition Report* ¶ 126.

authorize fixed and mobile operations in the 50 GHz band, and supports the Commission designating the band exclusively for non-federal use, with protection of federal incumbents.²⁶ Likewise, AT&T has emphasized that to achieve the innovative prospects of 5G, mobile service providers will need more spectrum, and lots of it.²⁷ AT&T further notes that all of the spectrum bands identified in the *Spectrum Frontiers Report and Order and FNPRM* hold potential for 5G networks and services and AT&T supports reallocation and modification of the allocation status of all of the identified bands to render them suitable for 5G licensed services and further accelerate the deployment of these next-generation technologies and services.²⁸ Samsung also has applauded the Commission’s efforts to unleash additional millimeter wave spectrum for 5G networks and services, which will revolutionize consumers’ mobile experiences.²⁹ Similarly, Qualcomm expressed its support of the FCC proposal to authorize fixed and mobile services in the 50 GHz band using geographic licensing on a partial economic area basis.³⁰ Moreover, in specific response to the Boeing Petition, Qualcomm stated that “as this spectrum band [50.4-51.4 and 51.4-52.4 GHz] is under active consideration for 5G services in this proceeding, the Commission should not take separate action to authorize additional FSS uplink use without

²⁶ See Comments of T-Mobile USA, Inc., GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 18 (filed Sept. 30, 2016).

²⁷ See Comments of AT&T, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 9 (filed Sept. 30, 2016).

²⁸ *Id.*

²⁹ See Comments of Samsung Electronics America, Inc. and Samsung Research America, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 3 (filed Sept. 30, 2016).

³⁰ See Comments of Qualcomm Incorporated, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 11 (filed Sept. 30, 2016).

assessing its impact on the use of the band for terrestrial services.”³¹ CTIA agreed with that approach in its comments³² and again urges the Commission to dismiss the Boeing Petition here.

In seeking a completely new allocation for satellite services, at least in the 51.4-52.4 GHz band, Boeing must demonstrate why its new FSS system would require the substantial amount of spectrum to deliver its expected services. While the terrestrial mobile industry has documented a specific need and provided extensive demand projections for more millimeter wave spectrum, to this point Boeing has not delivered similar information to justify action on its request. To authorize a single FSS entity access to *twice* the spectrum available nationally to *all* terrestrial mobile providers, the Commission should have absolute certainty, based on real-world data and analysis in the public record, that there is a cognizable need for a new FSS allocation.

V. CONCLUSION.

For these reasons, CTIA urges the Commission to swiftly deny the Boeing Petition seeking the allocation and authorization of additional uplink spectrum in the bands 50.4-51.4 GHz and 51.4-52.4 GHz. Doing so will allow the Commission to continue its goal of advancing the next generation of wireless services by permitting timely action on its 50 GHz band proposals. CTIA encourages the Commission to stay the course that the *Spectrum Frontiers* proceeding has unleashed—allowing the stunning innovation and investment delivered by the

³¹ *Id.*

³² Comments of CTIA, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, at 13-14 (filed Sept. 30, 2016).

wireless ecosystem to continue to thrive and expand. Dismissing the Boeing Petition will ensure that this world-leading activity will continue apace without unnecessary and problematic delays.

Respectfully submitted,

/s/ *Brian M. Josef*

Brian M. Josef
Assistant Vice President, Regulatory Affairs

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Vice President, Regulatory Affairs

Kara D. Romagnino
Director, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

October 17, 2016

CERTIFICATE OF SERVICE

I, Emma Prieskorn, do hereby certify that on this 17th day of October, 2016, I caused a copy of the foregoing Opposition to be served via electronic courtesy copy and U.S. Mail on the following:

Audrey L. Allison
Senior Director, Frequency Management Services
The Boeing Company
929 Long Bridge Drive
Arlington, VA 22202

Bruce A. Olcott
Jones Day
51 Louisiana Ave., NW
Washington, DC 20001

Preston N. Thomas
Jones Day
51 Louisiana Ave., NW
Washington, DC 20001

/s/ Emma Prieskorn

Emma Prieskorn
October 17, 2016