

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of:)
)
THE BOEING COMPANY) IBFS File No. SAT-LOA-
) 20160622-00058
Application for Authority to Launch and Operate a)
Non-Geostationary Low Earth Orbit Satellite System)
in the Fixed Satellite Service)

PETITION TO DENY OF CTIA

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PETITION TO DENY OF CTIA

CTIA¹ hereby files this Petition to Deny the above-captioned application filed by The Boeing Company (“Boeing”).² As a trade association representing terrestrial mobile carriers, CTIA has standing to file this petition. Among other things, CTIA’s members would be competitors to a satellite-based mobile data service. And, given the national implications of the application, including its intersection with ongoing rulemaking proceedings where CTIA is participating on behalf of its members, the concerns are germane to CTIA’s purposes as an

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 *Boeing Application Accepted For Filing In Part IBFS File No. SAT-LOA-20160622-00058; Cut-Off Established For Additional NGSO-Like Satellite Applications Or Petitions For Operations In The 37.5-40.0 GHz, 40.0-42.0 GHz, 47.2-50.2 GHz And 50.4-51.4 GHz Bands*, Public Notice, DA 16-1244 (Nov. 1, 2016) (“*Application PN*”).

industry spectrum advocate, and the broad scope of the issues do not require the participation of CTIA’s individual members.³

The *Boeing Application* seeks Commission authority to launch and operate a non-geostationary-satellite orbit (“NGSO”) satellite system providing fixed-satellite service (“FSS”) in the 37.5-42.5 GHz, 47.2-50.2 GHz, and 50.4-52.4 GHz frequency bands.⁴ Consistent with CTIA’s opposition to Boeing’s Petition for Rulemaking—a petition that seeks to add allocations of spectrum for FSS in the 50.4-51.4 GHz and 51.4-52.4 GHz bands⁵—CTIA submits that the *Boeing Application* undermines the framework envisioned by the Commission for next-generation (“5G”) terrestrial mobile broadband networks and therefore should be dismissed. Not only does Boeing’s litany of waiver requests ask the Commission to reconsider or pre-judge issues addressed in the ongoing *Spectrum Frontiers* proceeding,⁶ the *Boeing Application* fails to make any showing of consumer demand or otherwise justify the 10 gigahertz of bandwidth it seeks—a defect that is particularly troubling given the large amounts of spectrum already allocated for FSS use. Moreover, the sharing analysis that Boeing provided to support its arguments that 5G systems will be protected relies upon restricting the density of usage by

³ See, e.g., *United States Telecom Ass’n v. FCC*, 295 F.3d 1326, 1330 (D.C. Cir. 2002); *Living Way Ministries, Inc.*, Memorandum Opinion and Order, 23 FCC Rcd 15070 (2008).

⁴ The Boeing Company, Application for Authority to Launch and Operate a Non-Geostationary Low Earth Orbit Satellite System in the Fixed Satellite Service, IBFS File No. SAT-LOA-20160622-00058 (filed June 22, 2016) (“*Boeing Application*”). Notably, the FCC deferred consideration of the request to the extent that it seeks to operate in the 42.0-42.5 GHz and 51.4-52.4 GHz frequency bands. See *Application PN* ¶ 1 & n.3-4.

⁵ See Opposition to Petition for Rulemaking of CTIA, RM-11773 (filed Oct. 17, 2016); see also Petition for Rulemaking of the Boeing Company, RM-11773 (filed June 22, 2016) (“Boeing Petition”); *Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemaking Filed*, Public Notice, Report No. 3051 (rel. Sept. 16, 2016).

⁶ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016) (“*Spectrum Frontiers Report and Order and Further Notice*”).

mobile broadband operators—a requirement that would eradicate the flexibility necessary for terrestrial providers to innovate in delivering services to the public. The Commission should not permit Boeing to engage in an “end run” around an ongoing rulemaking and speculatively reserve millimeter wave (“mmW”) spectrum without justification.

I. INTRODUCTION AND SUMMARY.

The Commission’s pending *Spectrum Frontiers Report and Order and Further Notice* seeks to allocate additional mmW spectrum in support of 5G services, including many of the bands Boeing subsequently seeks to privately annex through its FSS application. The record compiled in that proceeding, as well as the Commission’s *19th Annual Report on Mobile Competition*, documents the meteoric rise in consumer broadband mobile data traffic, and the Commission’s *Spectrum Frontiers* proceeding prudently anticipates that mmW spectrum will be critical to meet that demand.⁷ The *Boeing Application* undermines the Commission’s efforts to create a rational framework for future mobile services in favor of an opportunistic spectrum grab:

- FSS already has extensive spectrum allocations (more than *five* times the spectrum available for licensed terrestrial mobile services) and Boeing has made no technical showing to demonstrate why the services it proposes cannot be accommodated in existing FSS bands that are not contemplated for terrestrial mobile licensing.
- Boeing is seeking no less than 10 major rule waivers, many of which it agrees to “accept . . . subject to the eventual outcome of the Commission’s deliberations . . . in the *Spectrum Frontiers* proceeding”⁸ or other regulatory proceedings. Not only has Boeing failed to justify these waivers under the relevant Commission

⁷ See, e.g., Comments of CTIA, GN Docket 14-177, at 4-7 (filed Jan. 28, 2016); Comments of CTIA, GN Docket 14-177, at 4-5 (filed Sept. 30, 2016) (“CTIA Comments”); Reply Comments of CTIA, GN Docket 14-177, at 3-4 (filed Oct. 31, 2016). See also *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, Nineteenth Report, 31 FCC Rcd. 10534, ¶¶ 125-127 (2016) (“*19th Annual Mobile Competition Report*”).

⁸ See *Boeing Application* at 56 (seeking a waiver of § 25.202(a)(1) relative to use of the 37.5-40 GHz band); *id.* at 58 (seeking waivers of §§ 2.106 and 25.202(a)(1) relative to use of the 42-42.5 GHz band); *id.* at 64 (seeking waivers of §§ 25.114(c)(8) and 25.208(r) relative to use of 37.5-40 GHz).

standards, these requests impermissibly seek inefficient prejudgment of issues already before the agency.

- 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 bands targeted for Upper Microwave Flexible Use Service (“UMFUS”) licensing in the *Spectrum Frontiers* proceeding.

For the foregoing reasons, the International Bureau should reject Boeing’s application as premature and as undermining ongoing Commission proceedings. Boeing should not be allowed to circumvent significant domestic spectrum debates by virtue of the satellite application process.

II. THE APPLICATION SHOULD BE REJECTED AS UNSUBSTANTIATED AND PREMATURE.

A. Boeing Has Failed To Demonstrate A Need For A New Satellite System.

FSS has nearly 22 gigahertz of spectrum allocated and available between 3 and 80 GHz.⁹ In contrast, until the very recent allocation of 850 megahertz for UMFUS at 27.5-28.35 GHz and the 2.4 gigahertz allocated for UMFUS at 37.6-40 GHz, there has been less than 600 megahertz of spectrum suitable and available for terrestrial broadband mobile data services.¹⁰ Even including the two new UMFUS bands, the mobile industry has less than 3.85 gigahertz of spectrum in total—less than one-fifth of what is allocated for FSS below 80 GHz. Yet, the *Boeing Application* targets nearly every additional band for UMFUS proposed in the *Spectrum Frontiers Report and Order and Further Notice* for its FSS system.

To justify this spectrum grab, Boeing argues that overall broadband demands by consumers are growing—a point CTIA has repeatedly made—but then Boeing couples that with

⁹ 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 gigahertz of spectrum with primary allocations for the FSS.

¹⁰ *19th Annual Mobile Competition Report* ¶ 62.

the unsubstantiated assertion that additional satellite systems are necessary to meet this demand. Boeing has failed to show that *any* of the burgeoning demand for mobile data can only be met (or would be better served) through FSS. The vast majority of demand documented by Boeing (if not all) is for wireless and wired Internet service *generally*, rather than for satellite-based data services *specifically*. Given the vast amounts of spectrum already available for FSS, and the relatively small amount of spectrum available for terrestrial mobile data, requests for the diversion of potential terrestrial mobile spectrum for FSS use should face a very high hurdle.

Not only has Boeing failed to provide any demonstration of consumer demand for satellite services necessitating a new five-gigahertz by five-gigahertz satellite system, the proposed satellite system pales in comparison to all other broadband services contemplated for the future. Boeing's system would require 10 gigahertz to provide an estimated 25 Mbps data rate to consumers.¹¹ Given the proposed satellite orbital distance of 1,200 kilometers, the system will also have a minimum system latency of over 16 milliseconds, much greater than the latency even in existing terrestrial networks.¹² Today, in only six percent of the spectrum that Boeing is proposing to use, terrestrial carriers are already serving 99.7 percent of the U.S. population with LTE, which has burst rates of up to 50 Mbps and, with use of carrier aggregation, peak data rates

¹¹ See *Ex Parte* Presentation of The Boeing Company, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, RM-11773, WT Docket No. 10-112, IB Docket No. 97-95 (filed Oct. 11, 2016), at Attachment at 3 (noting that peak user rates would “exceed” FCC broadband goals of 25 Mbps down/3 Mbps up).

¹² At a minimum, a packet would have to travel from the mobile unit to the satellite and then from the satellite to a ground station. A return acknowledgement would then have to go from the ground station to the satellite then back to the mobile—a round trip of $4 \times 1,200$ km, or 4,800 km. At the speed of light (299,792,458 m/s) that round trip would take over 16 milliseconds.

of up to 300 Mbps.¹³ By the time Boeing's system is fully deployed, it is expected that 5G services will have launched, with data rates 40 times faster than Boeing's system and with only one millisecond of latency—approximately five percent of what Boeing could even theoretically achieve. Against this backdrop, it is difficult to believe that there is now, or ever will be, extensive consumer demand for such a limited data service.

As the Commission is well aware, speculative projections for new satellite networks also have a long history of over-promising and under-delivering. As CTIA noted in a July 7, 2016 *ex parte* in the *Spectrum Frontiers* proceeding,¹⁴ similar claims of universal global broadband data have been made by previous satellite proponents, such as Teledesic and Skybridge, with the projects ultimately scrapped as being infeasible. Indeed, Teledesic promised data rates well above what Boeing has proposed—using fewer satellites and less spectrum—in 1997.¹⁵ The claims in the *Boeing Application*, therefore, should be viewed with skepticism.

B. The Commission Has An Active Proceeding In Which It Has Adopted Or Is Considering Adopting Terrestrial Mobile Services In The Spectrum Targeted By Boeing.

Boeing is seeking authority to launch and operate an LEO/NGSO FSS system using the 37.5-42.5 GHz (space-to-Earth), the 47.2-50.2 GHz (Earth-to-space), and 50.4-52.4 GHz (Earth-to-space) bands. The *Spectrum Frontiers Report and Order and FNPRM* provided for shared federal-commercial terrestrial mobile use of 37-37.6 GHz, allocated the 37.6-38.6 GHz band for

¹³ See e.g., Verizon Press Release, Mobile users in 461 cities today get 50% faster peak speeds at no extra cost. Introducing Verizon LTE Advanced (Aug. 29, 2016), <http://www.multivu.com/players/English/7814954-verizon-lte-advanced-network/>.

¹⁴ See *Ex Parte* Presentation of CTIA, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, RM-11773, WT Docket No. 10-112, IB Docket No. 97-95, at 8 (filed July 7, 2016).

¹⁵ *Teledesic Mounts Lead in New Space Race*, WIRED (Oct. 14, 1997), <http://archive.wired.com/science/discoveries/news/1997/10/7655>.

UMFUS, and conformed rules for the 38.6-40 GHz band for UMFUS. The same proceeding has also proposed to allocate the 42-42.5 GHz, 47.2-50.2 GHz and 50.4-52.6 GHz bands. Thus, the vast majority of the spectrum proposed for use by Boeing has been targeted for primary or co-primary terrestrial mobile use in an ongoing proceeding (or has already been dedicated to related unlicensed use).¹⁶

The International Bureau has only sought comment on a portion of the *Boeing Application*, having deferred consideration of the 42.0-42.5 GHz and 51.4-52.4 GHz bands.¹⁷ The remaining bands, as discussed in more detail below, have been allocated for, or are proposed to be allocated for, mobile use in the *Spectrum Frontiers* proceeding.

The 37-40 GHz Band. The 37.0-40.0 GHz band has been allocated in its entirety for mobile broadband use on a primary or co-primary basis in the *Spectrum Frontiers Report and Order and Further Notice*. Specifically, the 37.0-37.6 GHz band was made “available for coordinated co-primary sharing between Federal and non-Federal users, where non-Federal rights are granted by rule”¹⁸ and “[i]n the upper band segment (37.6-38.6 GHz), [the Commission] will use geographic area licensing with PEAs as the licensing unit.”¹⁹ With respect to the 38.6-40.0 GHz band, the Commission determined “to grant mobile operating rights to

¹⁶ CTIA notes that the 40-42 GHz band sought by Boeing has not been proposed for terrestrial mobile services by the Commission, but CTIA and a number of parties in the wireless industry have suggested that this band also be allocated for terrestrial mobile use. *See e.g.*, CTIA Comments at 12-13.

¹⁷ As noted in the *Application PN*, “[i]n the 42.0-42.5 GHz frequency band there is no domestic allocation for satellite services.” *Application PN* at 1, n.3. The FCC further noted that 25.112(a)(3) barred Boeing’s filing relative to the 51.4-52.4 GHz band, notwithstanding that Boeing has a pending petition for rulemaking, which CTIA has opposed, to revise the allocation. *Id.* at n.4.

¹⁸ *Spectrum Frontiers Report and Order and Further Notice* ¶ 111.

¹⁹ *Id.* ¶ 116.

existing active 39 GHz licensees.”²⁰ While Boeing states in its application that it filed “extensive technical materials in the Commission’s *Spectrum Frontiers* proceeding [urging] the Commission to lift the restriction on satellite user terminals in the 37.5-40.0 GHz band,” those materials were unpersuasive to the full Commission—the question was deferred to the further notice with the Commission appropriately asking satellite proponents “to provide further information concerning the need and demand for user equipment in that band,” and asking “[a]re there uses for which access to the 40-42 GHz band is insufficient?”²¹ Boeing’s attempt to undo the Commission’s adoption of this approach came after months of public comment on the proceeding and a mere day before the *Spectrum Frontiers Report and Order and Further Notice* was placed on the Commission’s tentative agenda for adoption.

The 47.2-50.2 GHz Band. The Commission has proposed to make the 47.2-50.2 GHz band available for fixed and mobile terrestrial services in the *Spectrum Frontiers Report and Order and Further Notice*.²² While the Commission has proposed mechanisms for potential FSS end-user terminal deployment in the band, there are vastly different frameworks under consideration, including segmentation, use of a Spectrum Access System, or a first-come, first-served registration system to effectuate such sharing. While the *Boeing Application* acknowledges that the 47.2–48.2 GHz band “is allocated to non-Federal *fixed*, FSS, and *mobile* services on a co-primary basis” and notes that 48.2-50.2 GHz “is a shared band between Federal and non-Federal users, with co-primary allocations for *Fixed*, FSS, and *Mobile*,” it does not even

²⁰ *Id.* ¶ 86.

²¹ *Id.* ¶ 501.

²² *Id.* ¶¶ 410-415.

purport to make a showing regarding the compatibility of its proposed use with other potential terrestrial co-primary licensees.²³

The 50.4-51.4 GHz Band. The *Spectrum Frontiers Report and Order and Further Notice* also proposes to license the 50.4-52.6 GHz band, which encompasses the 50.4-51.4 GHz band that is one of the subjects of the *Application PN*, for fixed and mobile terrestrial services.²⁴ While the Commission sought comment on the satellite allocation in the 50.4-51.4 GHz band, the assumption is that the 40-42 GHz space-to-Earth segment would be paired with the 48.2-50.2 GHz band as an Earth-to-space band, and therefore the Commission was unclear on how 50.4-51.4 GHz would be used by satellite operations.²⁵ The Commission also sought comment on accommodating sharing between the services. The *Boeing Application*, again acknowledging the “co-primary allocations for *Fixed*, *FSS*, *Mobile*, and *MSS*,”²⁶ makes no attempt to demonstrate how sharing with UMFUS licensees might be practical.

In short, the bands identified in the *Boeing Application* have either been or are proposed to be licensed under Part 30 of the Commission’s rules for terrestrial mobile and fixed services on a primary or co-primary basis. And Boeing has not provided any technical demonstration—as required by the Commission in the *Spectrum Frontiers* proceeding—that shows how primary terrestrial services would be protected if FSS operations were permitted in those bands. Instead, Boeing’s sharing analysis requires that the Commission mandate a maximum equivalent

²³ *Boeing Application* at 94-95 (emphasis added).

²⁴ *Spectrum Frontiers Report and Order and Further Notice* ¶¶ 420-421.

²⁵ While the Commission is seeking comment on licensing the entire 50 GHz band (50.4-52.6 GHz) for fixed and mobile operations, it is only requesting comment on terrestrial-satellite sharing for the 50.4-51.4 GHz portion of the band.

²⁶ *Boeing Application* at 97 (emphasis added).

isotropically radiated power (“EIRP”) density limit on future 5G networks.²⁷ Any such restriction on 5G services would inhibit the business case for future auction participants seeking to deploy in the mmW bands. The hallmark of the Commission’s service and technical rule policies for terrestrial fixed and mobile services is to allow flexibility to develop innovative use cases without burdensome governmental requirements. Boeing’s request would severely undermine the fundamental principles associated with flexible-use licenses that have been so successful in delivering novel services to the public.

Boeing appears to have filed its application with the International Bureau—a mere three weeks before the Commission adopted its *Spectrum Frontiers Report and Order and Further Notice*—in an apparent attempt to forum shop. Having been rebuffed in its efforts to obtain new rights and spectrum for FSS from the full Commission, it now seeks relief through the filing of an application with the International Bureau. CTIA therefore recommends that the International Bureau reject the *Boeing Application* as unsupported and premature. The ongoing *Spectrum Frontiers* proceeding should be completed prior to the consideration of any FSS applications for these spectrum bands, much less an FSS application that does not even begin to address the substantive issues already raised on the record.

C. Boeing’s Numerous Requests For Waivers Do Not Meet The Legal Thresholds For Grant.

The *Boeing Application* contains requests for waivers of no less than 10 major regulations, but it fails to meet its burden to justify grant of these waivers. Boeing argues the FCC may grant waivers upon a showing of “good cause,” and cites to *BellSouth Corp. v. FCC*

²⁷ Comments of The Boeing Company, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, RM-11773, WT Docket No. 10-112, IB Docket No. 97-95, at 46 (filed Sept. 30, 2016).

for the proposition that the courts have encouraged the Commission to take a “hard look” at waivers based on a proposal for “a new service.”²⁸ Notably, in *BellSouth*, the Court of Appeals upheld the FCC’s denial of BellSouth’s waiver request notwithstanding the “hard look” policy, stating that “strict adherence to a general rule may be justified by the gain in certainty and administrative ease, even if it appears to result in some hardship in individual cases,” and noting “[r]igid and consistent adherence to a policy will be upheld if it is valid.”²⁹ To actually determine whether the exercise of waiver authority is warranted and legally permissible, therefore, requires more than Boeing’s blithe assertion that “good cause” exists.

In such regards, the courts have generally favored the rulemaking process over *ad hoc* adjudication through waivers as being more efficient. In *Industrial Broadcasting Co. v. FCC*, for example, the court stated:

a heavy burden traditionally has been placed upon one seeking a waiver to demonstrate that his arguments are substantially different from those which have been carefully considered at the rulemaking proceeding In this manner, one of the foremost advantages of rulemaking— the formulation and effectuation of agency policy with a minimum expenditure of time and resources—will not be undermined by the necessity for continuous case-by-case adjudication.³⁰

In this instance, as CTIA has documented, Boeing is attempting to subvert an ongoing rulemaking process through the expedient of an application seeking broad-ranging spectrum authority. The questions raised in the *Boeing Application* can—and should—be settled in the

²⁸ *Id.* at 53; see also *BellSouth Corp. v. FCC*, 162 F.3d 1215 (D.C. Cir. 1999) (“*BellSouth*”).

²⁹ *BellSouth* (citing *Turro v. FCC*, 859 F.2d 1498, 1500 (D.C. Cir. 1988); *FCC v. WNCN Listeners Guild*, 450 U.S. 582, 601 n.44 (1981); *Thomas Radio Co. v. FCC*, 716 F.2d 921, 925 & n.20 (D.C. Cir. 1983)).

³⁰ *Industrial Broad. Co. v. FCC*, 437 F.2d 680 (D.C. Cir. 1970) (citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1156 (1969)).

context of the *Spectrum Frontiers* process, and Boeing has made no effort to show why waiting for the outcome of that proceeding would be prejudicial.³¹ Boeing even attempts to justify some its waivers by referencing the rulemaking—and continues to prosecute its application even though the rulemaking failed to reach the conclusions Boeing sought.³²

The courts have held that the Commission may exercise its discretion to waive a rule where the particular facts make strict compliance inconsistent with the public interest.³³ Indeed, a “waiver of the Commission’s rules is appropriate only if both (i) special circumstances warrant a deviation from the general rule, and (ii) such deviation will serve the public interest.”³⁴ In this particular case, Boeing has shown no special circumstances that warrant deviation from the rules. To the extent Boeing has justified its spectrum use waivers at all, it is simply citing to improvements in spectrum sharing techniques (developed by terrestrial mobile carriers)³⁵ that are not conditions unique to Boeing, but rather broad industry developments appropriately considered in a rulemaking of general applicability.

³¹ Ironically, Boeing has argued in numerous contexts that the *Spectrum Frontiers* proceeding should be delayed.

³² *Boeing Application* at 58 (“Based on the extensive record that was developed in the Commission’s Spectrum Frontiers proceeding and in response to its 2010 V-Band Third NPRM, good cause exists to waive the FSS allocation restrictions of Sections 2.106 and 25.202(a)(1) in order to permit Boeing to operate the proposed NGSO System to use the 42.0-42.5 GHz band for space-to-Earth transmissions to support end users.”); *see also id.* at 56 (“Boeing has filed extensive technical materials in the Commission’s Spectrum Frontiers proceeding explaining why it is appropriate for the Commission to lift the restriction on satellite user terminals in the 37.5-40.0 GHz band and to adopt rules that promote sharing between terrestrial and satellite services in this spectrum.”).

³³ *See Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (“*Northeast Cellular*”) (citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969)).

³⁴ *Id.*

³⁵ *Boeing Application* at 55.

In short, Boeing has not justified the waivers it is seeking—waivers that are fundamental to its proposed use of spectrum in bands slated for primary or co-primary terrestrial fixed and mobile use. The question of whether sharing between FSS and terrestrial mobile services is possible and, if so, the mechanisms by which such sharing will be affected, are precisely the questions being addressed in the *Spectrum Frontiers* proceeding. Boeing has made no showing of any circumstances that are unique to its application or that cannot be entertained within the context of that ongoing proceeding. Under the circumstances, Boeing has not made the *prima facie* case that major waivers are warranted.

III. CONCLUSION.

The *Boeing Application* is a speculative and opportunistic attempt to engage in an “end run” around the Commission’s *Spectrum Frontiers* proceeding—a proceeding where the full Commission already made determinations that appear fatal to Boeing’s arguments—and should not be tolerated. Boeing has made no effort to justify the use of a massive amount of mmW spectrum—more than 16 times what the entire terrestrial broadband industry had been allocated prior to the recent *Spectrum Frontiers Report and Order and Further Notice*—or to show why it cannot use some other combination of the 22 gigahertz allocated for FSS between 3 and 80 GHz. The *Boeing Application* should therefore be dismissed.

Respectfully submitted,

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Dated: December 1, 2016

CERTIFICATE OF SERVICE

I, Emma Prieskorn, do hereby certify that on this 1st day of December, 2016, I caused a copy of the foregoing Petition to Deny to be served via electronic courtesy copy and U.S. Mail on the following:

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