

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of

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

REPLY COMMENTS OF INMARSAT MOBILE NETWORKS, INC.

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EXECUTIVE SUMMARY & INTRODUCTION

For decades the United States, and this Commission in particular, has had a clear and compelling vision of the communications services that could be delivered from space to all mankind. This vision was shared with, and adopted by, the rest of the world. And, critically, industry adopted this vision and made it real. We have, circling the earth today, globe spanning networks delivering extraordinary services—everywhere—with new systems and services just over the horizon (and in some cases literally on the launching pad).

As the Commission turns its attention to 5G networks and begins to craft rules for spectrum bands above 24 GHz, it could make no greater mistake than to undermine all that its vision and policy has accomplished over the past twenty plus years. Yet, taken together, the comments in this proceeding demonstrate that the Commission’s current proposal¹ would do just that. The Commission should aspire to a policy that builds on past successes, and creates an environment in which satellite and terrestrial services work harmoniously to create a global 5G ecosystem. Unfortunately, the pending proposal would undercut the success of current policy, and impede the development of global 5G services. Fortunately, the proposal can easily be modified to advance a global 5G network with both terrestrial and space-based components.

The record demonstrates that (1) continued and certain access to spectrum in the 27.5-28.35 GHz band (the “28 GHz band”), the 37.5-38.6 GHz band (the “37 GHz band”), and the 38.6-40 GHz band (the “39 GHz band”) is necessary to the provision, expansion, and enhancement of critical satellite services; (2) 5G services must rely on advanced satellite networks to meet their full potential; and (3) nuanced changes to the current proposal—some of which are supported by terrestrial operators—would produce a more optimal set of rules for

¹ See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, *et al.*, Notice of Proposed Rulemaking, FCC 15-138, 30 FCC Rcd. 11,878 (2015) (“NPRM”).

unleashing telecommunications innovation in the spectrum frontiers, including in the satellite sector the Commission has worked tirelessly to promote.

I. Encouraged by the Commission, Satellite Operators Have Invested Billions of Dollars in Reliance on the Continued Availability of 28 GHz Spectrum.

Since at least the mid-1990s, this Commission has been a strong proponent of the use of the 28 GHz band for satellite services. As the Commission said:

The commercialization of the Ka-band spectrum will give rise to a dynamic new satellite market, potentially stimulating significant economic growth both in the United States and abroad. These systems also represent an opportunity for the United States to continue its leadership role in promoting global development through enhanced communication infrastructures and services. They also represent a major step in achieving a seamless information infrastructure.²

Sharing and relying upon the Commission’s vision, Inmarsat and the rest of the satellite industry did just as the Commission said it would. A “dynamic new satellite market” was created, “economic growth” in the U.S. and elsewhere was generated, our country’s “leadership role in promoting global development” was confirmed, and “a seamless information infrastructure” began to come into being.

Significantly, all of these positive developments, years in the making, are still occurring. Indeed—thanks to ever more advanced technology—they are accelerating. *Inmarsat’s recently launched Global Xpress fixed satellite service (“FSS”) uses the Ka-band to deliver broadband at speeds of up to 50 Mbps to the most remote and inaccessible locations of the world, and along nearly every point of many long-haul aviation and maritime routes that currently lack high-speed*

² *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, CC Docket No. 92-297, Third Report and Order, FCC 97-378, 12 FCC Rcd. 22,310, 22,311-22,316 ¶¶ 2, 14 (1997) (emphasis added).

connectivity.³ Global Xpress is the result of a \$1.5 billion investment that included the launch of three high-bandwidth satellites, and the construction of an earth station in Lino Lakes, Minnesota. The ground and space infrastructure supporting Global Xpress uses the 28 GHz band for earth-to-space communications, and is designed to remain in service for many years.

Similarly, EchoStar reports that it serves “over one million users through two satellites, Spaceway 3 and EchoStar XVII, operating in the Ka-band (including the 28 GHz band),” and notes that it will expand the reach of its broadband service with the launch of an additional Ka-band satellite later this year.⁴ Competitor ViaSat uses the 28 GHz band to support its “high-throughput broadband satellite network,”⁵ and notes that “satellite operators . . . have invested hundreds of millions [of] dollars, and have plans to invest billions more[] in reliance on the [existing] 28 GHz Band Plan.”⁶ O3b “has made significant investments in the U.S. because O3b’s access to the 28 GHz band allowed its U.S. installations to support its global infrastructure and services,”⁷ which provide “high-throughput, low-latency links to wireless carriers, wireline broadband providers, enterprises, and governments around the world, in places where terrestrial links are impossible, impractical, too expensive, or too limited.”⁸ SES Americom states that the “28 GHz band is particularly critical to SES to provide gateway capacity for SES-15,” a new,

³ Comments of Inmarsat Mobile Networks, Inc., GN Docket No. 14-177, *et al.*, at 2-3 (filed Jan. 28, 2016) (“Inmarsat Comments”). Unless otherwise indicated, all comments referenced herein were filed on Jan. 27-28, 2016, in GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, and IB Docket No. 97-95.

⁴ Comments of EchoStar Satellite Operating Corp., Hughes Network Systems, LLC, and Alta Wireless, Inc., at 4 (filed Jan. 27, 2016) (“EchoStar Comments”).

⁵ Comments of ViaSat, Inc., at i (filed Jan. 28, 2016) (“ViaSat Comments”).

⁶ *Id.* at 12.

⁷ Comments of O3b Limited, at 3 (filed Jan. 28, 2016) (“O3b Comments”).

⁸ *Id.* at ii.

high-bandwidth satellite “scheduled to launch in 2017.”⁹ Likewise, Avanti Communications has committed \$1.2 billion to deploy existing and already procured Ka-band satellite systems.¹⁰

Notwithstanding the billions of dollars already invested in these satellite systems premised on the continued availability of 28 GHz spectrum, several commenters with speculative interests in this proceeding adopt the Commission’s suggestion that FSS operators, because of their secondary status to the Local Multipoint Distribution Service (“LMDS”), do not have a reasonable expectation of using 28 GHz spectrum.¹¹ Inmarsat applauds the Commission’s acknowledgement¹² that, in accordance with longstanding practice, international norms,¹³ and to promote a stable environment for investment in telecommunications, incumbent services must be protected as regulatory changes allow new services to enter bands already in use. But there is no principled basis for the argument that FSS services in the 28 GHz band be excluded from such incumbent protections.

First, the suggestion that satellite investment in the Ka-band reflects merely a speculative wager on the continued availability of 28 GHz spectrum is remarkably out of touch with reality. Gateway earth stations are the hubs of satellite networks. They support an enormous volume of communications traffic, and require stable access to spectrum to enable the reliable delivery of satellite services. As SES says, “[i]f any one of the necessary gateway earth stations were to be

⁹ Comments of SES Americom, Inc., at 4 (filed Jan. 28, 2016) (“SES Comments”).

¹⁰ Comments of Avanti Communications Group PLC, at 1 (filed Jan. 28, 2016) (“Avanti Comments”).

¹¹ *See, e.g.*, Comments of XO Communications, LLC, at 15 (filed Jan. 28, 2016) (“XO Comments”); Comments of Straight Path Communications Inc., at 14 (filed Jan. 27, 2016) (“Straight Path Comments”); *see also* NPRM ¶ 31.

¹² NPRM ¶ 22.

¹³ *See* Provisional Final Acts, World Radiocommunication Conference 2015, Resolution COM 6/20 (2015), https://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.11-2015-PDF-E.pdf (recognizing the “need to protect existing services and to allow for their continued development when considering frequency bands for possible additional allocations to any service”).

unusable because it cannot access the 28 GHz band spectrum,” its SES-15 satellite “would not be capable of serving large portions of the United States, making this capacity unattractive to most customers who seek full coverage of the U.S. or links between the U.S. and other regions.”¹⁴ Precisely because of the central importance of gateways to satellite networks, FSS operators carefully coordinate with existing fixed licensees to ensure reliable operations before commencing earth station operations. Satellite operators have not committed, and could not possibly commit, the billions of dollars necessary for both space and ground infrastructure to operate their networks on an opportunistic basis.¹⁵

Second, the Commission’s unreasonably formalistic approach to measuring the settled expectations of FSS operators fails even as a matter of formalism. The assumption that satellite operators built their networks with the expectation that terrestrial mobile services may effectively displace them from the 28 GHz band defies the Commission’s own orders and authorizations. As many commenters observe, the FSS has a co-primary allocation in the 28 GHz band.¹⁶ In adopting the current 28 GHz band plan, the Commission designated FSS to operate on a secondary basis *only* with respect to LMDS—a fixed service.¹⁷ Indeed, in granting Inmarsat’s

¹⁴ SES Comments at 4; *see also* Comments of the Satellite Industry Association, at 9 (filed Jan. 28, 2016) (“SIA Comments”) (“because earth stations are critical components of satellite networks,” regulatory uncertainty “could reduce investment in future satellite services in these bands.”).

¹⁵ SES Comments at 3 (“The potential for mobile operations in the 28 GHz spectrum greatly increases the risk to SES’s investment and was not part of SES’s initial decision to build a satellite and the associated gateway stations in the 28 GHz band.”).

¹⁶ *See, e.g.*, Comments of AT&T, at 11 (filed Jan. 28, 2016) (“AT&T Comments”); SIA Comments at 8; ViaSat Comments at 11; EchoStar Comments at 13.

¹⁷ *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, CC Docket No. 92-297, First Report and Order, FCC 96-311, 11 FCC Rcd 19005, 19024 ¶ 44 (1996) (“28 GHz First Report and Order”).

application to operate the Lino Lakes facility, the Commission summarized the impact of the facility's secondary status succinctly:

We determine that Inmarsat-5 F2 may use the 27.5-28.35 GHz frequency band for its Lino Lakes gateway operations on a non-interference basis *with respect to LMDS*, and Inmarsat may not claim protection against harmful interference *from LMDS operators*.¹⁸

Moreover, as ViaSat explains, the Commission explicitly provided FSS operators with “licensing priority vis-à-vis any third service allocated domestically or internationally in the band,” which at the time “included the terrestrial mobile service.”¹⁹ Thus, FSS operators have had no reason to expect that their gateway earth stations would operate on a secondary basis with respect to the terrestrial mobile services envisioned in this proceeding. “In fact, the Commission made clear that the opposite is true,” because “the FSS has licensing priority over terrestrial mobile service today, and it has had that priority since 1996.”²⁰

II. V-Band Spectrum is Necessary for New Satellite Services.

The record also establishes the 37 GHz and 39 GHz bands are far more important to satellite services than the Commission acknowledges in the NPRM.²¹ In its comments, Inmarsat described the critical importance of V-band spectrum to the expansion of satellite services, especially in light of the increases in “bandwidth used by the typical satellite consumer.”²² Inmarsat also described the “substantial resources” it has “already committed . . . to the use of

¹⁸ *Inmarsat Mobile Networks, Inc.: Application to Operate a Fixed-Satellite Service Gateway Earth Station Facility in Lino Lakes, Minnesota with the Inmarsat-5 F2 Space Station*, Order and Authorization and Declaratory Ruling, DA 15-392, 30 FCC Rcd. 2770, 2774 ¶ 12 (Int'l Bureau & Office of Eng'g and Tech. 2015) (emphasis added).

¹⁹ See ViaSat Comments at 11 (quoting 28 GHz First Report and Order) (emphasis omitted).

²⁰ ViaSat Comments at 11-12.

²¹ See NPRM ¶ 23.

²² Inmarsat Comments at 9-10.

the 37 GHz and 39 GHz bands for satellite operations.” Indeed, in partnership with the European Space Agency, Inmarsat launched a satellite with a Q/V-band payload almost three years ago—and expects “to apply for earth station authorization in the V-band in the near future.”²³

Other commenters confirm the need to preserve V-band spectrum for satellite operations. For example, Boeing notes that “[t]he satellite industry has been designing and testing new space communications systems in reliance on the existing U.S. and international rules for FSS use of the 37 and 39 GHz bands and will soon seek authority to launch new satellite networks using this spectrum.”²⁴ EchoStar reports that “for over a decade (spurred by actions taken at WRC-2000), the V-band has generally been considered the natural expansion band for broadband satellite system gateways,” and that “[o]perators have been planning accordingly, with satellite manufacturers developing appropriate technology.”²⁵ ViaSat similarly states that its “filings at the ITU for future satellite networks include V-band spectrum[,]” and that “technology has been developing to enable operators to tap this critical spectrum resource for commercial networks.”²⁶

III. Satellite Networks Will Be Critical Components of 5G Services.

By definition, satellite services are more ubiquitous, more secure, and more reliable than terrestrial networks. Thus they bring connectivity to otherwise unserved areas of the globe. When terrestrial systems are down or overwhelmed by disaster, satellite services are also the last line of support for critical commercial, public safety, and national security communications. These attributes make satellite systems indispensable. While that alone should stop the

²³ *Id.*

²⁴ Comments of the Boeing Company, at 7 (filed Jan. 28, 2016) (“Boeing Comments”).

²⁵ EchoStar Comments at 25.

²⁶ ViaSat Comments at 19.

Commission from proceeding down a path that would undermine the provision and expansion of satellite services, the record now makes clear that the protection of satellite services is also essential to unleashing the full potential of 5G technologies.

For example, in its comments, AT&T explicitly recognizes the need for 5G services to “accommodate a variety of different use cases covering diverse geographies,” and to “always be available, secure, and reliable.”²⁷ Verizon likewise views 5G as a means to achieving a “*fully-connected* society and a turbo-charged . . . Internet of Things.”²⁸ Nokia envisions that 5G “will be designed for use cases expanding from humans to machines requiring more of networks,” including “reliable” and “mission-critical wireless control and automation tasks.”²⁹ Mobile Future recognizes that “the 5G world will be about much more than simply increasing the speeds of individual smartphones,” and must promote an “increasingly interconnected” world to “transform[] whole sectors of our economy.”³⁰

The simple truth is that, without satellite services, new technologies will not support services that are “always . . . available, secure, and reliable,” and create a “fully-connected” world. Even with the significant advancements expected over the next decade, terrestrial networks will not be able to support applications that depend on reliable and ubiquitous global access unless they continue to leverage satellite technology. Thus, without a thriving satellite industry, critical infrastructure, public safety, and important government and military operations will be left out of the next generation of spectrum-based services. Rural and remote

²⁷ AT&T Comments at 8-9.

²⁸ Comments of Verizon, at 1 (filed Jan. 28, 2016) (“Verizon Comments”) (emphasis added).

²⁹ Letter from Jeffrey A. Marks to Marlene Dortch, GN Docket No. 14-177 *et al.*, Attachment A at 1 (filed Feb. 5, 2016) (“Nokia Ex Parte”).

³⁰ Comments of Mobile Future, at 4-5 (filed Jan. 27, 2016) (“Mobile Future Comments”).

communities, in the United States and around the world, will also be left out of the next generation of spectrum-based services. Failing to protect satellite networks will expand the urban/rural digital divide that is already unacceptably large. Even fully connected communities would suffer as they grow increasingly reliant on sophisticated communications services, since they will be much more vulnerable to the natural and man-made disasters that inevitably require satellite networks to step in.

Put simply, unlocking the potential inherent in 5G technologies requires more than expanded access to high frequency spectrum for terrestrial services. In order to meet the goals set by advocates of 5G—a group that includes Inmarsat—sound spectrum policy must promote heterogeneous solutions that leverage the reach, reliability, and security of increasingly sophisticated satellite networks. A thriving satellite industry will ensure that “the 5G environment” can “support integrated network design,” “promote innovative technologies,” “facilitate new services,” “contemplate a variety of use cases covering a wide-range of geography,” and “prioritize international harmonization.”³¹ As O3b, which counts a number of terrestrial operators as core customers, further explains:

As the Commission looks to pave the way for new technologies to meet the growing demand for data, it should recognize that the full potential of a broadband economy cannot be reached simply by adding more capacity to mobile networks. To foster a robust broadband economy, enhance competition, and assure global leadership in broadband, the U.S. must foster technologies that extend broadband to, and enhance broadband in, unserved and underserved places.³²

³¹ AT&T Comments at 3.

³² O3b Comments at 6.

IV. The Commission Should Allow Co-Primary FSS Operations in the 28 GHz Band and the V-band, and Immediately Initiate a Proceeding to Address Satellite Operations on Movable Platforms.

To vindicate the Commission’s long expressed vision for satellite services, to allow 5G services to fulfill their true promise, and as a matter of fundamental fairness, FSS services must have sufficient rights to operate in the 28 GHz, 37 GHz, and 39 GHz bands if the Commission decides to authorize new flexible use services in this spectrum. The possibility that new terrestrial services will demand protection from interference from 28 GHz gateway operations would place existing satellite services at risk and deter further investments by satellite operators—including those necessary to develop integrated solutions for the delivery of 5G services. As EchoStar explains, “the stable sharing environment currently enjoyed with fixed LMDS operations could be destabilized by the introduction of potentially ubiquitous mobile operations in the band, threatening continuity of FSS service to U.S. consumers.”³³ According to Boeing, this would also “cripple new investment in such services by undermining the regulatory certainty necessary for continued technological innovation that makes the Ka-band an optimal resource for direct-to-user broadband satellite communications.”³⁴ Moreover, as explained by Inmarsat and other satellite operators,³⁵ the risk of harmful aggregate interference from new terrestrial services at the satellite receiver would further frustrate and discourage satellite investments in the Ka-band. Finally, because the “V band is an important expansion band for future broadband satellites as the Ka band becomes increasingly congested and as access is

³³ EchoStar Comments at 23.

³⁴ Boeing Comments at 6; *see also* O3b Comments at 8.

³⁵ Inmarsat Comments at 7; O3b Comments at 20; SIA Comments at 19; Avanti Comments at 6; EchoStar Comments at 17.

needed to meet growing demands for satellite broadband services[,]”³⁶ new services in the 37 GHz and 39 GHz bands may foreclose future earth station operations, and discourage the investment necessary to develop this spectrum for satellite growth.

These are not idle threats made to change the course of a regulatory proceedings—they are well-understood and rational responses to industry economics. As EchoStar explains, because “satellites require considerable time and upfront costs to plan, build and launch” and “a satellite asset is typically designed to last 15 years or more,” the “U.S. government, including the Commission, has consistently recognized the need for long-term certainty in the satellite industry to provide the services demanded by U.S. consumers.”³⁷

In light of these risks and economic considerations, participants from the satellite industry uniformly report that the Commission’s proposed mechanisms for protecting satellite services are too limited and unreliable to serve as a basis for continued investment. As an initial matter, as O3b explains, none of the avenues for protection would prevent harmful aggregate interference at the satellite receiver.³⁸ Moreover, the proposed rule-based mechanisms to upgrade existing earth stations would exclude facilities located within LMDS license areas, like Inmarsat’s recently authorized Lino Lakes earth station, even though these facilities are coordinated with existing fixed operations and have licensing priority under current rules with

³⁶ ViaSat Comments at 19.

³⁷ EchoStar Comments at 7 (citing *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*, 18 FCC Rcd. 25428 ¶ 54 (2003); Executive Office of the President, *National Space Policy of the United States of America* at 9 (2010)).

³⁸ O3b Comments at 20.

respect to terrestrial mobile operations.³⁹ These limited, rule-based proposals would also undermine satellite investment by setting a firm cut-off date for operational rights.⁴⁰

The core of the Commission’s proposal—a mixed marketplace for flexible use licenses that would indirectly confer satellite operators with operational rights—“would be unworkable and unnecessary,”⁴¹ not to mention grotesquely unfair. The Commission’s approach would require satellite operators to “spend significant funds at auction for geographic exclusivity within an artificially defined license area that may be unsuitable for its requirements,”⁴² and to negotiate with “competitors of satellite broadband operators[] [who would] become gatekeepers to any satellite operations in the 28 GHz Band.”⁴³ The already dim prospects for satellite operators in this marketplace would further diminish if the Commission expands the geographic license area for flexible use services beyond counties, as many participants have asked it to do.⁴⁴ At bottom, “[a] multi-billion-dollar industry based on assets that take years to develop and deploy cannot rely” on the possibility of success at an auction dominated by terrestrial operators, or “on an unpredictable secondary market.”⁴⁵ Thus, the Commission should consider the well-supported alternative proposals suggested by Inmarsat in its opening comments to provide FSS operators with more certain access to critical spectrum assets.

³⁹ See, e.g., Inmarsat Comments at 6; EchoStar Comments at 18-19; ViaSat Comments at 10-13.

⁴⁰ NPRM ¶¶ 132, 134, 136-146.

⁴¹ ViaSat Comments at 16.

⁴² SES Comments at 12.

⁴³ ViaSat Comments at 16.

⁴⁴ See, e.g., AT&T Comments at 17-18; Verizon Comments at 7.

⁴⁵ EchoStar Comments at 24.

*First, the Commission “can and should protect incumbent FSS licensees by according them co-primary status throughout the [28 GHz] band.”*⁴⁶ This protection should be available “without regard for when the application” for earth station authorization “was filed,”⁴⁷ and regardless whether the earth station is located within or outside an LMDS license area.⁴⁸ The Commission should implement co-primary sharing in a way that would allow satellite services to continue existing operations, ensure that satellite services can expand and further develop their current services, and address the risk of harmful aggregate interference at the satellite receiver.⁴⁹ As AT&T explains, this approach would promote “5G hallmarks . . . including supporting integrated network designs,” “facilitating many use cases across the country,” and “promoting international harmonization.”⁵⁰ It would also “avoid disrupting existing services and stranding significant investments made in reliance on settled expectations regarding the longstanding rules and operating environment that have governed the 28 GHz Band.”⁵¹

Second, the Commission should promptly initiate further proceedings to address satellite operations on movable platforms. As Boeing states, “the technology and applications of satellite communications on moving platforms has advanced rapidly and proactive regulatory action will help ensure continued innovation.”⁵²

Third, the Commission should support both terrestrial and satellite use of the V-band.

Importantly, several parties with an interest in developing new terrestrial services express

⁴⁶ AT&T Comments at 12.

⁴⁷ SES Comments at 8.

⁴⁸ *Id.* at 11; *see* EchoStar Comments at 19.

⁴⁹ EchoStar Comments at 17; O3b Comments at 20-21; SES Comments at 6.

⁵⁰ AT&T Comments at 23.

⁵¹ ViaSat Comments at 15; *see also* EchoStar Comments at 19.

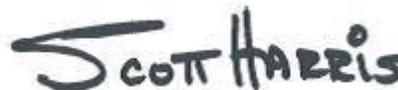
⁵² Boeing Comments at 10.

hesitance about the Commission's proposed hybrid licensing regime in the 37 GHz band, and ask the Commission to combine the 37 GHz and 39 GHz bands into a single, contiguous band.⁵³ Inmarsat would support these proposals, provided that the Commission appropriately segment the band to reserve spectrum for primary satellite operations.

CONCLUSION

Decades ago this Commission developed and promoted across the globe an extraordinary vision of sophisticated services delivered from the heavens. The Commission led the world, and the world followed. All of today's globe-spanning satellite networks—which provide services to remote and rural areas, which provide services on the world's battlefields, which provide services to jets at 30,000 feet and ships on the seven seas, and which provide services after natural and man-made catastrophes—were developed because of the Commission's vision. Nothing could be more short-sighted, or more unnecessary, than abandoning that vision. Rather, that vision should animate the extension of new 5G services, so that they can be made available to everyone, everywhere, at all times. The record demonstrates that, with three relatively modest changes to the current proposal, the Commission can promote innovative services delivered by satellite and terrestrial networks alike.

Respectfully submitted,



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⁵³ See, e.g., AT&T Comments at 15.