

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

In the Matter of)
)
Fixed and Mobile Services in the Mobile)
Satellite Service Bands at 1525-1559 MHz) ET Docket No. 10-142
and 1626.5-1660.5 MHz, 1610-1626.5)
MHz and 2483.5-2500 MHz, and 2000-)
2020 MHz and 2180-2200 MHz)

To: The Commission

COMMENTS OF LIGHTSQUARED SUBSIDIARY LLC

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Summary

LightSquared applauds the Commission's effort to facilitate additional investment in terrestrial use of Mobile Satellite Service ("MSS") spectrum for wireless broadband, and urges the Commission to adopt certain rule changes to advance this key goal of the National Broadband Plan. Under the Commission's current rules, LightSquared has already invested years of time and over \$1 billion in new facilities and technology to develop an MSS ancillary terrestrial component ("ATC") system in the L-band, which represents a substantial portion of the 90 MHz of MSS spectrum targeted by the National Broadband Plan. In light of the billions of dollars of total investment required to deploy a nationwide terrestrial network, however, LightSquared welcomes the Commission's openness to further flexibility. LightSquared urges the Commission to use this proceeding to advance its goals by providing the following additional regulatory certainty and flexibility:

- take steps to encourage the development of secondary markets;
- eliminate the requirement for a ground spare satellite;
- determine that spectrum fees should not be imposed; and
- support changes to international frequency allocations clarifying that ATC operations are entitled to protection.

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COMMENTS

LightSquared Subsidiary LLC (“LightSquared”) hereby files these comments in response to the Notice of Proposed Rulemaking and Notice of Inquiry in the above-captioned proceeding, which the Commission initiated pursuant to the National Broadband Plan to remove regulatory barriers and promote additional investments in terrestrial use of Mobile Satellite Service (“MSS”) spectrum for wireless broadband.¹ LightSquared urges the Commission to adopt the specific changes discussed below to facilitate investment in terrestrial wireless deployments.

Background

LightSquared (formerly “SkyTerra Subsidiary LLC”) is building a nationwide 4G LTE wireless network, capable of providing wireless broadband to 92% of the U.S. population using, in addition to other spectrum, 40 MHz of L-band spectrum. Originally authorized to provide MSS in the L-band in 1989,² LightSquared became the first MSS licensee authorized to provide

¹ *In the Matter of Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, ET Docket No. 10-142, FCC 10-126 (July 15, 2010) (“MSS Flexibility NPRM/NOF”).

² *Amendment of Parts 2, 22 and 25 of the Commission’s Rules to Allocate Spectrum for and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services*, Order and Authorization, 4 FCC Rcd 6041 (1989); *remanded by Aeronautical Radio, Inc. v. FCC*, 928 F.2d 428 (D.C. Cir. 1991); Final Decision on Remand, 7 FCC Rcd 266

MSS/ATC service in 2004.³ After its acquisition by Harbinger Capital Partners and further liberalization of the ATC technical rules, LightSquared has taken the necessary steps to deploy a groundbreaking MSS/ATC broadband network, which it will begin testing in January 2011.⁴ Deployment of the LightSquared broadband network represents the culmination of an enormous effort on multiple fronts.

- Boeing Satellite Systems, Inc. has largely completed construction of the first next-generation satellite, SkyTerra 1, which is expected to launch by the end of 2010 or early 2011.⁵ This powerful satellite will have the largest dish ever deployed on a commercial satellite, and thus allow customers to reach the satellite using devices that are the same size as those used for access to terrestrial networks.
- In late 2007, LightSquared entered into a groundbreaking agreement with Inmarsat. This agreement radically improved the spectrum efficiency of L-band by making it possible to create four 10 MHz blocks usable for broadband services.⁶ LightSquared recently notified Inmarsat of its intent to implement the next phase of that agreement and began making payments to Inmarsat to facilitate the transition of Inmarsat users to new equipment.⁷

(1992); *aff'd*, *Aeronautical Radio, Inc. v. FCC*, 983 F.2d 275 (D.C. Cir. 1993); *see also* *AMSC Subsidiary Corporation*, 8 FCC Rcd 4040 (1993).

³ *See* *Mobile Satellite Ventures Subsidiary LLC Application for Minor Modifications of Space Station License for AMSC-1; Minor Amendment to Application for Authority to Launch and Operate a Next-Generation Replacement MSS Satellite, Application for Minor Modification of Blanket License for Authority to Operate Mobile Earth Terminals with MSAT-1*, 19 FCC Rcd 22144, at ¶¶ 18-26 (2004).

⁴ *See* Letter to Marlene H. Dortch from Bruce D. Jacobs and Tony Lin, File Nos. SAT-MOD-20090429-00047, SAT-MOD-20090429-00046, SES-MOD-20090429-00536, SAT-MOD-20031118-00333, SAT-AMD-20031118-00332, SES-MOD-20031118-01879 (June 16, 2010).

⁵ *See* Application, File Nos. SAT-MOD-20100405-00064 (April 5, 2010) and SAT-AMD-20100908-00191 (September 8, 2010).

⁶ *See, e.g., In the Matter of SkyTerra Subsidiary LLC*, DA 10-534, at ¶ 6 (Int'l Bur. 2010).

⁷ *See* Press Release, LightSquared Delivers Notice To Inmarsat Triggering Re-Banding Of L-Band Radio Spectrum In North America (August 18, 2010), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited August 29, 2010).

- In September 2008, the company signed an agreement with Qualcomm pursuant to which Qualcomm will integrate the satellite protocol into tens of millions of its chipsets for a wide variety of 3G and 4G devices.⁸ LightSquared also signed agreements with Hughes Network Systems and Infineon, a leading semiconductor manufacturer, for the development of a software-defined radio MSS/ATC chipset,⁹ and with Alcatel-Lucent, for development of ATC base station technology.¹⁰
- In July 2010, LightSquared signed an eight-year agreement with Nokia Siemens Networks (“Nokia”) worth \$7 billion, under which Nokia will deploy, install, operate, and maintain LightSquared’s 4G network.¹¹

As a result of this investment, LightSquared will create a network that will meet many of the Commission’s goals in the areas of access and competition, spectrum efficiency, and public safety.¹² LightSquared will provide services as a wholesaler, using an open architecture that will provide an affordable 4G network for existing wireless retailers, new entrants, and consumer electronics. The integration of the satellite and terrestrial components will provide a mobile broadband network that is available everywhere and is virtually immune to local disasters. The

⁸ See Press Release, SkyTerra’s Mobile Satellite Ventures, ICO Global Communications, and Qualcomm Sign Groundbreaking Technology Agreement Enabling First-Ever Integration of Satellite Communications into Mass Market Cellular Handsets and Devices (September 22, 2008), *available at* <http://www.skyterra.com/media/press-releases-view.cfm?id=187&yr=2008> (last visited June 1, 2010).

⁹ See Press Release, Infineon, SkyTerra and TerreStar Announce Agreement to Develop the World’s First Satellite-Cellular Mobile Platform Based on SDR Technology (April 1, 2009), *available at* <http://www.skyterra.com/media/press-releases-view.cfm?id=204&yr=2009> (last visited June 1, 2010); Hughes Press Release, (April 2, 2009), *available at* http://www.hughes.com/HNS%20Library%20Press%20Release/04-02-09_Hughes_Announces_Agreement_with_SkyTerra_and_TerreStar_to_Implement_GMR1-3G_Satellite_Air_Interface.htm (last visited June 1, 2010).

¹⁰ See Press Release, Alcatel-Lucent to Develop Satellite Base Station Sub-Systems for SkyTerra and TerreStar to Support 3G Satellite Communications (April 1, 2009), *available at* <http://www.skyterra.com/media/press-releases-view.cfm?id=205&yr=2009> (last visited June 1, 2010).

¹¹ See, e.g., “Nokia Siemens wins \$7 billion U.S. deal,” *available at* <http://www.reuters.com/article/idUSTRE66J2ZT20100720> (last visited August 25, 2010).

¹² See *ATC Order*, at ¶¶ 1-32; see also *infra* note 15 and accompanying text (discussing the National Broadband Plan).

intense reuse of the L-band resource and the urban coverage afforded by the ATC network will give the next-generation network the economies of scale required to produce affordable consumer-priced devices, comparable in size and functionality to modern mobile handsets, and the capability to serve hundreds of millions of users. LightSquared will achieve these results while at the same time maintaining service to its existing MSS customer base of over 300,000 terminals used in rural and remote areas and by emergency service providers that need a reliable replacement service in the event terrestrial infrastructure is destroyed.

In March 2010, when it approved the transfer of control of LightSquared to Harbinger Capital Partners, the International Bureau found that LightSquared's ATC plans would result in enhanced competition, market-changing developments in the use and sale of innovative mass-market consumer devices, facilitating broadband service to areas currently without such service, and providing communications capability in times of natural or man-made disasters when service would otherwise be unavailable.¹³ In the introduction to the *NPRM/NOI* in this proceeding, the Commission singled out the investment in the LightSquared 4G network as the kind of investment it is seeking to promote.¹⁴

Also in March 2010, the Commission released its National Broadband Plan providing a detailed strategy for ensuring that every American has access to broadband capability.¹⁵ With regard to L-band specifically, the Plan endorsed taking measures to support LightSquared's network, stating that the "FCC and other government agencies should work closely with L-Band

¹³ *In the Matter of SkyTerra Communications, Inc., Transferor, and Harbinger Capital Partners Funds, Transferee, Applications for Consent to Transfer of Control of SkyTerra Subsidiary LLC*, 25 FCC Rcd 3059, at ¶ 62 (Int'l Bur. 2010).

¹⁴ *MSS Flexibility NPRM/NOI*, at ¶ 1.

¹⁵ *See, e.g.*, Connecting America: The National Broadband Plan, at XI, available at <http://www.broadband.gov/plan/> (last visited August 19, 2010) (the "Plan").

licensees and foreign governments to accelerate efforts to rationalize ATC-authorized L-Band spectrum to make it usable for broadband ATC services.”¹⁶

In this proceeding, the Commission seeks to implement the conclusions reached in the Plan. Here, the Commission proposes to add co-primary Fixed and Mobile allocations in the 2 GHz band and apply the Commission’s secondary market policies and rules for wireless services to all transactions involving the use of MSS bands for terrestrial services.¹⁷ Additionally, the Commission invites comments generally on steps it can take to “promote innovation and investment throughout the MSS bands while ensuring market-wide mobile satellite capability to serve important needs like disaster recovery and rural access.”¹⁸

Discussion

I. The Notice of Proposed Rulemaking’s Proposals Will Accelerate Use of MSS Spectrum for ATC

LightSquared supports the Commission’s proposal to apply its secondary markets policies and rules to MSS spectrum used for ATC.¹⁹ As the Commission recognizes, such action would create greater predictability, consistency, and transparency among all spectrum leasing arrangements involving terrestrially-based mobile service offerings, and would likely have the effect of accelerating deployment of ATC networks. To this end, the Commission should not, at the outset, exclude a subset of leasing policies and rules on the assumption that they may be incompatible with other Commission policies and rules.²⁰ The goal of applying the secondary market rules to MSS spectrum is to encourage innovative approaches to deployment of broadband. It would undermine this goal to assume that it is impossible for parties to structure

¹⁶ *Id.* at 88.

¹⁷ *MSS Flexibility NPRM/NOI*, at ¶¶ 2, 10-13, 17-25.

¹⁸ *Id.* at ¶ 3.

¹⁹ *Id.* at ¶¶ 22-23.

²⁰ *Id.* at ¶ 24.

leases in such a way that they can meet all applicable policies and rules then in place. Moreover, it would be needlessly confusing to adopt such a restriction when the Commission has solicited comment in its Notice of Inquiry that may lead to further changes in the ATC regulations and thus eliminate any possible conflict.

II. The Commission Should Further Accelerate Use of MSS Spectrum for ATC by Moving Quickly on Clearly Needed Measures

A. The Commission Should Eliminate the Requirement for a Satellite Ground Spare

In response to the Notice of Inquiry's invitation to propose additional measures that should be taken to facilitate use of MSS spectrum for terrestrial uses, LightSquared proposes that the Commission eliminate its requirement that MSS/ATC operators maintain a ground spare satellite.²¹ There is no justification to maintain a spare satellite requirement when one compares the rules applied to MSS/ATC to the rules applied to the satellite industry as a whole. Satellite operators across the industry have many incentives to provide replacement capacity to their customers if an in-orbit satellite fails, and take steps to do so. For this reason, the Commission has not dictated, in any other context, the manner in which replacement capacity is made available. In fact, MSS licensees providing ATC service are the *only* satellite licensees that are subject to a spare satellite requirement.

The only conceivable purpose of the ground spare requirement is to ensure that ATC service providers remain *bona fide* satellite service providers even if their MSS satellites fail. LightSquared supports this objective, but there are better means, already in place, of achieving it.

²¹ 47 C.F.R. § 25.149(b)(2). GSO systems must maintain a ground spare within one year of commencement of ATC operations, and NGSO systems must maintain an in-orbit spare. *Id.*

The Commission requires that MSS/ATC licensees “offer an integrated service of MSS and MSS/ATC.”²² It is by definition impossible for an MSS/ATC licensee to offer an integrated service that includes MSS unless the licensee gives its customers access to an MSS satellite. If an MSS/ATC licensee’s satellite fails, therefore, the licensee must secure within a reasonable time substitute MSS capacity to maintain its ATC authority. This requirement itself, then, ensures that ATC licensees will be *bona fide* providers of satellite service and renders the ground spare requirement unnecessary.

In addition to being unnecessary, the ground spare requirement imposes a heavy burden on MSS/ATC licensees. The construction of a satellite is an extraordinarily capital-intensive project. For example, a typical geostationary satellite may cost roughly \$300 million to construct. On top of this, an operator must pay storage costs that can amount to almost \$700,000 to place a ground spare satellite in storage, remove it and retest it prior to launch, and recurring storage costs of almost a quarter million dollars a year. Moreover, retesting and obtaining the next available launch slot can add significant delay. This can be as long as 12 to 18 months, depending on when the next satellite launch may be available and from what provider. The ground spare satellite requirement, then, is an unnecessary and costly measure, and the Commission should eliminate it.

B. Spectrum Fees are not Necessary to Promote Effective Use of MSS Spectrum

In the NOI, the Commission asks whether spectrum fees should be imposed in an effort to promote effective use of spectrum.²³ LightSquared’s actions demonstrate that the Commission’s rules and policies already provide ample incentive to make efficient use of

²² 47 C.F.R. § 25.149(b)(4).

²³ See *MSS Flexibility NPRM/NOI*, ¶ 31 & n. 83 (citing National Broadband Plan, Recommendation 5.3, pp. 81-83 (“Expanding Incentives and Mechanisms to Reallocate or Repurpose Spectrum”)); see also Statement of Commissioner Michael J. Copps (stating that “charging fees for the ancillary terrestrial use in the MSS bands could provide incentives to ensure that the spectrum resource is used more efficiently and intensively”).

MSS/ATC spectrum. Spectrum fees would add nothing to this incentive and could well make it more difficult to deploy LightSquared's new broadband network.

LightSquared already has invested over \$1 billion in its satellite network and in developing L-band, and has entered into a \$7 billion agreement under which Nokia-Siemens will build and operate the network.²⁴ LightSquared also has paid Inmarsat \$81.25 million, and has pledged to pay a total of \$337.5 million, in furtherance of an agreement under which LightSquared will improve the efficiency of its network by creating large contiguous blocks of spectrum in L-band.²⁵ Given these undertakings, LightSquared's commitment to spectrum efficiency is beyond dispute.

In addition, MSS/ATC licensees are subject to special obligations that enhance spectrum efficiency. MSS/ATC licensees that build terrestrial networks also must operate MSS satellites each of which costs hundreds of millions of dollars to construct, launch, and insure. These MSS satellites complement the terrestrial network by making it possible to provide service to rural areas that are not within range of terrestrial base stations. The MSS satellites also provide vital redundancy for first responders and others in the public safety community. Licensees of terrestrial-only spectrum have no such obligations and cannot provide these benefits.

C. The Commission Should Continue to Support Efforts to Develop Flexible Use of All MSS Bands, Domestically and Internationally

LightSquared supports the Commission's proposal to add a mobile service allocation to the 2 GHz band, which will afford greater regulatory protection for the ATC operations of 2 GHz

²⁴ See "Nokia Siemens wins \$7 billion U.S. deal," available at <http://www.reuters.com/article/idUSTRE66J2ZT20100720> (last visited August 25, 2010).

²⁵ See, e.g., "LightSquared Delivers Notice to Inmarsat Triggering Re-banding of L-Band Radio Spectrum in North America," available at <http://www.prnewswire.com/news-releases/lightsquared-delivers-notice-to-inmarsat-triggering-re-banding-of-l-band-radio-spectrum-in-north-america-100967639.html> (last visited Sept. 13, 2010).

MSS/ATC licensees.²⁶ But as it does so, the Commission should continue to support efforts to develop flexible use of all MSS bands, domestically and internationally.²⁷ At present, ATC in the L-band, because it lacks a primary allocation in the United States, may have to protect other services and to accept interference from other services.²⁸ LightSquared has addressed this by engaging in comprehensive coordination negotiations over many years. The Commission could, however, make it substantially easier to implement ATC domestically in the future by expanding the definition of MSS in its rules to include ATC and thus rendering ATC a primary service.²⁹ Similarly, in international fora, the Commission should work with Administrations to implement changes to improve the non-conforming use status of ATC. By elevating the regulatory status of ATC operations, the Commission would foster investment.³⁰ Such changes can be made while maintaining LightSquared's existing obligations to coordinate with other users.³¹

D. LightSquared is Making Efficient Use of Spectrum While Ensuring Continued Availability of MSS

²⁶ *MSS Flexibility NPRM/NOI*, at ¶ 11. LightSquared takes no position with respect to the proposal to adopt a Fixed allocation in this band.

²⁷ *Id.* at ¶¶ 32-33.

²⁸ *See ATC Flexibility Order*, at ¶ 213.

²⁹ The ITU-R has adopted a working definition for "Integrated MSS" systems that would provide a reasonable definition for any change to the Table of Allocations:

An integrated MSS system is a system employing a satellite component and ground component where the ground component is complementary to the satellite component and operates as and is an integral part of the MSS system. In such systems the ground component is controlled by the satellite resource and network management system. Further, the ground component uses the same portions of MSS frequency bands as the associated operational mobile-satellite system.

³⁰ *See* LightSquared draft proposal, IWG-4/074 (September 13, 2010) (proposing: (i) a WRC-12 resolution indicating that Integrated MSS systems are being implemented in the L-band and to define MSS in the L-band as including Integrated MSS systems; (ii) to provide a Resolution with interim procedures for the coordination and notification of the terrestrial portion of Integrated MSS systems in the L-band; and (iii) a WRC-16 Agenda item to consider adopting regulatory, technical and allocation provisions in the Radio Regulations to enable the terrestrial component of an Integrated MSS system in the L-band to operate on a co-primary basis with the MSS allocation in the band).

³¹ *See e.g.*, 47 C.F.R. Sections 25.253(f) and (g) (requiring coordination to protect Search-and-Rescue Satellite-Aided Tracking earth stations and Mobile Aeronautical Telemetry receive sites, respectively).

The Commission asked about the characteristics of MSS use.³² Specifically, the Commission asked about number of uses, location, whether they are grouped in certain areas, services, substitutability, and coexistence with terrestrial services.

LightSquared provides MSS services to approximately 300,000 units. These units are used by the following types of customers:

- public safety, meaning emergency management, law enforcement, fire, and medical services;
- commercial maritime;
- commercial vehicle tracking (trucking, rail);
- critical infrastructure, including oil and gas facilities and electrical distribution; and
- homeland security and military.

The nature of the service is mobile, and so it is not possible to characterize these users as being primarily located in any single geographic location. Some of these users—such as critical infrastructure providers—may very well be located in rural or remote locations. However, others purchase the service in the event of the loss of terrestrial infrastructure and are thus located in urban areas as well. Others purchase the location for commercial vehicle tracking, and thus could be found anywhere.

LightSquared's efforts to develop an integrated MSS/ATC service are completely consistent with the Commission's goals in the NBP and this proceeding. LightSquared's coordination negotiations among various satellite operators, particularly its Cooperation Agreement with Inmarsat, established a way to aggregate spectrum into the contiguous blocks of 5 and 10 MHz needed to support wireless broadband services, while still providing enough

³² *MSS Flexibility NPRM/NOI* at ¶ 33.

