

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

In the Matter of)	
)	WT Docket No. 11-186
Sixteenth Annual Report on the State of)	
Competition in Mobile Wireless, including)	IB Docket No. 11-109
Commercial Mobile Radio Services)	
)	

COMMENTS OF LIGHTSQUARED SUBSIDIARY LLC

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Summary

The need for new mobile broadband spectrum is great, as Congress, the Administration and the Commission have recognized. With the United States lagging behind its global competitors in terms of broadband access and mobile broadband likely to be a driver of innovation and economic growth in the next decade, it is critical for the Commission to take immediate action to make more spectrum available for mobile wireless services. The Commission has such an opportunity with LightSquared.

After a decade of planning, development, negotiations, and billions of dollars of investment, LightSquared now stands at the brink of deploying the country's first 4G LTE wireless broadband network that combines cutting-edge satellite and terrestrial technology. LightSquared's network will bring state-of-the-art service to underserved areas, spur competition, drive innovation, and create jobs, improving the country's economic health and enhancing its global competitiveness. The deployment of LightSquared's network will also enhance public safety by ensuring that vital communications, using the same integrated devices carried every day, are available in times of natural disasters or other emergencies when terrestrial networks fail or become unreachable.

One barrier remains. Despite a decade of awareness of LightSquared's plans and active participation in many of the relevant licensing proceedings regarding LightSquared, certain GPS receiver manufacturers now argue that LightSquared's terrestrial system will cause interference to their unlicensed GPS receivers. Instead of engaging in discussions and constructively moving forward to resolve issues, these manufacturers are waging an obstructionistic public relations campaign that inaccurately describes the impact of LightSquared's network and are stubbornly

refusing to accept any responsibility for the poor design of their GPS receivers, which is the root of the problem.

In spite of this, LightSquared, which repeatedly has demonstrated responsiveness to issues raised by the GPS industry, has proposed a reasonable path forward – one that imposes on itself considerable technical and financial compromises. As demonstrated by extensive joint testing, LightSquared’s solution would prevent any interference to over 99.5% of GPS receivers, including all consumer devices. With respect to those few receivers that remain vulnerable, LightSquared has demonstrated that there are cost-effective solutions and also has committed to spend up to \$50 million to assist government users with replacing or retrofitting vulnerable receivers. Accordingly, the time is ripe for the Commission to resolve these concerns, allowing LightSquared to complete the final phase of its deployment.

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In this proceeding, the Wireless Telecommunications Bureau seeks information, *inter alia*, regarding what mobile wireless services are being offered by Mobile Satellite Service (“MSS”) operators using Ancillary Terrestrial Component (“ATC”) authority and the associated impact on mobile wireless competition.¹ In the most recent annual report on wireless competition, the Commission identified LightSquared Subsidiary LLC (“LightSquared”) specifically as one operator with plans to construct a nationwide 4G mobile broadband network that will provide nationwide coverage through its terrestrial network by 2015² and acknowledged that such services would enhance competition in the provision of mobile wireless services.³ LightSquared hereby submits these comments providing an update regarding the deployment of its ATC MSS system, the benefits it will provide, and the steps the Commission should take to allow LightSquared to complete the final phase of its deployment.

Discussion

I. LightSquared Has Labored For Over a Decade and Invested Billions to Bring Its Mobile Wireless System to Market

¹ See “Wireless Telecommunications Bureau Seeks Comment on the State of Mobile Wireless Competition,” Public Notice, DA 11-1856, WT Docket No. 11-186, at pp. 3-4 (November 3, 2011) (“Public Notice”).

² See *In the Matter of Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fifteenth Report, 26 FCC Rcd 9664, at ¶ 116 (2011) (“Fifteenth Annual Report”).

³ *Id.* at ¶ 39.

LightSquared Subsidiary LLC. LightSquared is a mobile communications company that is building a nationwide 4G LTE wireless network, using cutting-edge satellite and terrestrial technology operating on L-band spectrum that is allocated for the provision of MSS.⁴ LightSquared presently operates a satellite network consisting of three satellites authorized to provide MSS and has provided service since 1996.⁵ Using two U.S.-licensed satellites, MSAT-2 and SkyTerra 1, and a Canadian satellite, MSAT-1, licensed to an affiliate, SkyTerra (Canada) Inc., LightSquared currently offers a full range of mobile services, including voice, data, facsimile, two-way radio, fleet management and asset tracking services.

Since 2001, when LightSquared⁶ filed its first application, the company has sought to deploy an integrated satellite-terrestrial system to provide broadband wireless communications.⁷ The authorization LightSquared holds today is very similar to what it proposed in 2001 – a combination of high-power satellites and terrestrial base stations that will: (i) provide uniquely reliable nationwide coverage; (ii) increase system capacity and spectrum efficiency; and (iii) enable user equipment comparable in aesthetics, functionality, and cost to typical mobile consumer devices.⁸

⁴ The L-band MSS spectrum consists of the 1525-1559 MHz band (downlink) and the 1626.5-1660.5 MHz band (uplink).

⁵ See *Mobile Satellite Service (Authorization of American Mobile Satellite Corp.)*, 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 (1992); *aff'd*, *Aeronautical Radio, Inc. v. FCC*, 983 F.2d 275 (D.C. Cir. 1993); see also *AMSC Subsidiary Corporation*, Memorandum Opinion and Order, 8 FCC Rcd 4040 (1993).

⁶ LightSquared's predecessor companies were Mobile Satellite Ventures Subsidiary LLC and SkyTerra Subsidiary LLC. For convenience, the predecessor companies are also referred to as LightSquared, except when inappropriate or part of a direct quotation.

⁷ See Application of Mobile Satellite Ventures Subsidiary LLC, File Nos. SAT-ASG-20010302-00017 *et al.* (March 1, 2001) ("2001 ATC Application").

⁸ *Id.* at i-ii, 13-14.

LightSquared's 4G LTE Network. Over the last ten years, LightSquared has spent considerable time and money in taking the necessary steps to deploy its groundbreaking MSS/ATC broadband network. Some of the major achievements are listed below:

- In 2007, LightSquared entered into a groundbreaking spectrum coordination agreement with Inmarsat Global Limited (“Inmarsat”). This agreement radically improved the spectrum efficiency of the L-band frequencies by making it possible to create four 10 MHz blocks usable for broadband services.⁹
- In 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.¹⁰ 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,¹¹ and with Alcatel-Lucent, for development of ATC base station technology.¹²
- In 2010, LightSquared completed construction and launched the first next-generation satellite, SkyTerra 1.¹³ This powerful satellite has the largest dish ever deployed on a

⁹ See, e.g., *In the Matter of SkyTerra Subsidiary LLC*, 25 FCC Rcd 3043, at ¶¶ 1, 6, 31 (Int’l Bur. 2010).

¹⁰ See Press Release, SkyTerra Communications, 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 November 23, 2011).

¹¹ See Press Release, SkyTerra Communications, 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 November 23, 2011); Press Release, Hughes Network Systems, Hughes Announces Agreement with SkyTerra and TerreStar to Implement GMR1-3G Satellite Air Interface on Chipset for Wireless Handsets (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 November 23, 2011).

¹² See Press Release, SkyTerra Communications, 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 November 23, 2011).

¹³ See Report No. SAT-00759, DA 11-325 (February 18, 2011).

- commercial satellite, allowing end-users to reach the satellite using equipment that resembles modern consumer devices in terms of aesthetics, functionality, and cost. LightSquared has spent over \$1.1 billion dollars thus far in the development, construction, and launch of its satellite system and associated ground station network.
- In July 2011, LightSquared announced a fifteen-year agreement with Sprint Nextel (“Sprint”), under which Sprint will deploy and operate a nationwide 4G LTE network that hosts LightSquared’s L-band spectrum and LightSquared’s end-users will be able to roam on the Sprint network.¹⁴ LightSquared also entered into wholesale agreements regarding the use of its network with 23 customers, including Sprint, Leap Wireless International, Best Buy, and C Spire Wireless.¹⁵ Recently, LightSquared selected Sharp as its first manufacturer to provide advanced smartphones and tablets that will operate on its 4G LTE network.¹⁶
 - In 2011, LightSquared launched its “Innovation Sandbox,” a facility located in Mountain View, California, designed to facilitate growth of an ecosystem of third-party software, hardware, and application providers.¹⁷ Through such innovation, LightSquared hopes to transform not only the wireless industry but also other industries, such as health care, automotive, transportation, education, media, entertainment, and energy.

¹⁴ See Press Release, LightSquared, Sprint Nextel and LightSquared Announce Spectrum Hosting and Network Services Agreement (July 28, 2011), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011).

¹⁵ See, e.g., Letter to Marlene H. Dortch from Jay Paull, Vice President, Regulatory Affairs & Public Policy, Docket No. 11-109 (December 2, 2011).

¹⁶ See Press Release, LightSquared, LightSquared Announces Collaboration with Sharp on L-Band Smartphone and Tablet Product Development (October 3, 2011), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011).

¹⁷ See <http://www.lightsquared.com/what-we-do/applications-and-services/>. The Innovation Sandbox is the only wireless lab in the United States to include satellite, terrestrial and proximal radio technologies.

LightSquared also has committed (and is required by the Commission) to meet an aggressive network deployment plan requiring coverage through its terrestrial network of at least 100 million people by the end of 2012, at least 145 million people by the end of 2013, and at least 260 million people by the end of 2015.¹⁸ LightSquared already has spent billions of dollars and, when all is said and done, expects to spend more than \$14 billion in network deployment and operating costs. LightSquared estimates that the deployment and management of its network will generate tens of thousands of jobs.¹⁹

ATC Proceedings. As LightSquared endeavored to deploy its network, it sought and received all necessary Commission authorizations. Throughout these regulatory proceedings, the Commission repeatedly confirmed that ATC and LightSquared's network, once deployed, would serve the public interest.

In response to the 2001 ATC Application, the Commission initiated a proceeding to develop rules for integrated satellite-terrestrial services.²⁰ In 2003 and 2005, the Commission adopted and then revised its rules allowing MSS licensees to integrate ATC into their satellite systems.²¹ In implementing these rules, the Commission recognized the enormous potential of ATC, finding that expanded authority would promote the efficient use of MSS spectrum, allow

¹⁸ *In the Matter of SkyTerra Communications, Inc., Transferor, and Harbinger Capital Partners Funds, Transferee*, 25 FCC Rcd 3059, at ¶¶ 56, App. B (Attachment 2, at ¶ 5) (Int'l Bur., OET, Wireless Telecommunications Bur. 2010) ("2010 Transfer of Control Order").

¹⁹ See Coleman Bazelon, "The Economic Impact and Associated Employment of SkyTerra's Network Deployment" (February 17, 2009), attached as Appendix D, File Nos. SAT-MOD-20090429-00046 *et al.* (April 29, 2009); see also Letter from Julius Genachowski, Chairman, FCC, to Senator Charles Grassley, Docket No. 11-9 (May 31, 2011) ("[T]he opportunity presented by LightSquared, which if successfully realized, would result in billions of dollars of new private investment and the creation of tens of thousands of jobs.").

²⁰ See *In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-band, and the 1.6/2.4 GHz band*, Notice of Proposed Rulemaking, 16 FCC Rcd 15532 (2001).

²¹ See *In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L Band, and the 1.6/2.4 GHz Bands*, Report and Order, 18 FCC Rcd 1962 (2003) ("ATC Order"); *In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L Band, and the 1.6/2.4 GHz Bands*, Memorandum Opinion and Order and Second Order on Reconsideration, 20 FCC Rcd 4616 (2005) ("ATC Reconsideration Order").

MSS providers to offer ubiquitous service by overcoming coverage gaps in densely populated areas, achieve economies of scale that would reduce dramatically the cost of MSS equipment and service, promote public safety and national security, and increase wireless competition.²²

The FCC has affirmed on several occasions that the successful implementation of LightSquared's system will result in exactly the type of public interest benefits envisioned in the *ATC Order* and *ATC Reconsideration Order*.²³ These proceedings include:

- the grant to LightSquared of the first ever ATC license;²⁴
- the authorization to LightSquared to reuse, for both MSS and ATC, frequencies assigned internationally to two L-band satellites coordinated by the Mexican administration;²⁵
- the grant to LightSquared of additional technical and operational flexibility for its ATC operations based on LightSquared's successful negotiation of a \$337 million spectrum coordination agreement with Inmarsat.²⁶
- the approval of the transfer of control of LightSquared to Harbinger Capital Partners Funds.²⁷

²² See *ATC Order*, at ¶¶ 1, 21, 23, 24, 29, and 32; *ATC Reconsideration Order*, at ¶ 9.

²³ *Id.*

²⁴ *In the Matter of Mobile Satellite Ventures Subsidiary LLC*, 19 FCC Rcd 22144, at ¶ 2 (Int'l Bur. 2004) (“[I]mplementation of ATC, pursuant to these rules, would increase network capacity and efficiency of spectrum use, extend coverage for handset operation in places where MSS operators have previously been unable to offer reliable service, make possible substantial economies of scale, improve emergency communications, and enhance competition.”).

²⁵ *In the Matter of SkyTerra Subsidiary LLC*, 25 FCC Rcd 2022, at ¶ 13 (Int'l Bur. 2010) (“We find that granting the subject application will serve the public interest by facilitating more efficient spectrum use and provision of advanced broadband services.... This grant of authority will enable [LightSquared] to operate in wider contiguous spectrum bands, thereby facilitating provision of high-speed broadband services to users in the United States.”).

²⁶ *In the Matter of SkyTerra Subsidiary LLC*, 25 FCC 3043, at ¶ 1 (“This action will afford additional flexibility for the technical design of [LightSquared's] ATC network, enabling [LightSquared] to operate with greater capacity and improved spectrum efficiency.”); *id.* at ¶ 31 (“We also conclude that giving effect to the . . . Coordination Arrangement will facilitate continued improvement in the efficiency of spectrum use in the L-band. These improvements are necessary to ensure that this resource is available for high-value uses, such as to address critical broadband needs.”).

- the grant to LightSquared of a waiver of the ATC integrated service requirement.²⁸

II. LightSquared’s Wireless Broadband Network Will Bring Broadband Service to Underserved Areas, Spur Competition, Drive Innovation, Create Jobs, and Enhance Public Safety

The need for new mobile broadband spectrum is great. Nearly 100 million Americans do not have broadband today, and the U.S. currently ranks 17th worldwide in providing broadband to its citizens.²⁹ Largely due to the explosion of Internet-enabled mobile-computing devices (such as smartphones and tablet computers), wireless networks in North America are expected to experience a forty-fold increase in data usage over the next three years.³⁰ Moreover, 4G wireless broadband networks “are poised to be a primary driver of innovation in the U.S. economy over the next decade.”³¹

Recognizing these issues, Congress enacted the American Recovery and Reinvestment Act of 2009 directing the FCC to develop a National Broadband Plan to ensure that every

²⁷ *2010 Transfer of Control Order*, at ¶ 62 (“[Harbinger’s] network will provide additional broadband capacity at a time when – as the National Broadband Plan noted – the nation is increasing its use of such services exponentially. It will help enhance competition among current mobile wireless providers. Through Harbinger’s role as a wholesale provider, it may be a catalyst for market-changing developments in the use and sale of innovative new mass-market consumer devices. It will provide mobile wireless broadband service to those areas that are currently unable to receive it. And it will provide wireless broadband service during those times, such as natural disasters, when it would otherwise be unavailable.”); *id.* at ¶ 69 (The LightSquared “network will operate with greater capacity and improved efficiency compared to its legacy network.”); *id.* at ¶ 70 (“Harbinger’s plans to provide 4G mobile wireless broadband area a significant public interest benefit, both because of the competition it will bring in mobile wireless broadband services and because it will provide mobile wireless broadband service to traditionally underserved areas.”).

²⁸ *In the Matter of LightSquared Subsidiary LLC*, 26 FCC Rcd 566, at ¶ 34 (Int’l Bur. 2011) (“Deployment of LightSquared’s network will expand the capabilities of traditional MSS offerings and make terrestrial mobile wireless broadband service available to a wider variety of users. For example, we expect that LightSquared will actively market to rural areas that do not currently have access to broadband services. The public safety and homeland security communities will also benefit from a broadband service that is readily available when they are operating in or transitioning between urban, suburban, or rural environments.”).

²⁹ See *Connecting America: The National Broadband Plan*, at XI, 3 (“National Broadband Plan”), available at <http://www.broadband.gov/plan>.

³⁰ *Id.* at 77; see also *Beyond the PC*, THE ECONOMIST, October 8, 2011, available at <http://www.economist.com/node/21531109> (describing rapid growth of smartphones and tablet computers).

³¹ *2010 Transfer of Control Order*, at ¶ 57.

American has access to broadband capability and establishing billions of dollars in loan and grant money to expand broadband deployment to rural areas.³² The plan the FCC adopted, which is consistent with that of the Administration, proposes to make 300 MHz of spectrum available for mobile broadband use with five years and 500 MHz within 10 years.³³ Included as part of the FCC's plan is the goal of "accelerat[ing] terrestrial deployment in 90 MHz of Mobile Satellite Spectrum," including specifically the MSS L-band frequencies in which LightSquared is authorized to operate.³⁴

LightSquared now stands at the brink of deploying the country's first 4G LTE wireless broadband network that combines cutting-edge satellite and terrestrial technology.

LightSquared's network promises to unleash a new era in wireless broadband services with important benefits for our nation's technological infrastructure and economic health.

Specifically, LightSquared's network will:

Bring State-of-the-Art Wireless Broadband to Underserved Areas. Using LTE technology, the most widely-adopted 4G standard in the world, the LightSquared network will support all manner of present-day and emerging wireless devices and will provide significantly higher data rates than most incumbent networks. In addition, LightSquared's integrated satellite-terrestrial network will expand wireless broadband capacity and coverage to millions of underserved Americans at a time when the demand for wireless broadband services is increasing

³² See American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(k), 123 Stat. 115, 516 (2009).

³³ National Broadband Plan at XII; Office of the Press Secretary, "President Obama Details Plan to Win the Future through Expanded Wireless Access" (February 10, 2011), *available at* <http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access> (last visited November 22, 2011).

³⁴ National Broadband Plan, at 87-88 (FCC should take actions that will optimize license flexibility sufficient to increase terrestrial broadband use of MSS satellite spectrum); *see also 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*, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 9481, at ¶ 1 (2010) (singling out Harbinger's investment in LightSquared as the type of investment the FCC's seeks to promote).

exponentially. Largely due to the explosion of Internet-enabled mobile-computing devices (such as smartphones and tablet computers), wireless networks in North America are expected to experience a forty-fold increase in data usage over the next three years.

LightSquared has made a particular commitment to serve those in rural and underserved areas. LightSquared has committed to build out its network rapidly, promising coverage of at least 260 million people by 2015. LightSquared has also already signed several capacity agreements with customers who provide telecommunications services to rural communities in states such as Kansas, Oklahoma, New Mexico, Mississippi, Arizona, Kentucky, Tennessee, and Texas.³⁵ That these rural providers are entering into agreements with LightSquared before its network is complete underscores the importance of LightSquared's network to those in rural America.

Spur Competition. The LightSquared network promises to enhance competition among wireless broadband providers, not only by adding a new provider in an increasingly concentrated market, but also by enabling new entrants to provide retail broadband services. LightSquared's commitment to operate its network on a wholesale basis lowers barriers to entry for new and diverse types of businesses, allowing them to readily enter the markets and offer competitive alternatives to the benefit of consumers.

Drive Innovation in New Businesses and Expand Existing Ones. By providing open access to a state-of-the-art wireless broadband network to those that lack such access, LightSquared's network will drive innovation and investments in new consumer devices and

³⁵ These customers include YourTel America, a provider of telecom services in Illinois, Kansas, Maine, Missouri, Oklahoma, Rhode Island and Washington State; ClearTalk Wireless, a provider of telecom services to rural communities in Arizona, California, Colorado, New Mexico and Texas; SI Wireless, a partnership of rural independent telephone companies that deliver wireless connectivity to rural parts of Illinois, Kentucky and Tennessee; C Spire Wireless (f/k/a Cellular South), a provider of wireless telecom services with operations in Mississippi, Tennessee and Alabama; and Aircado, a wireless broadband service provider for 'micropolitan' towns and cities across the United States.

applications. Even ten years ago, it was hard to imagine the degree to which mobile computing would revolutionize nearly every part of the economy. Devices not thought possible are now everyday items for business and personal use. Three-quarters of all mobile phones sold today are smartphones,³⁶ and Forrester Research forecasts sales of tablets in the U.S. will grow from 10.3 million in 2010 to 44.0 million by 2015.³⁷ These devices are more powerful than their predecessors, and enable the use of services such as streaming media, online games, social networking and video calling, all of which contribute to the vast expansion of wireless data consumption.

The adoption and growth of new mobile devices and data-rich content are key catalysts for the acceleration of high-speed, high-bandwidth mobile Internet usage. Increasingly, end users are demanding mobile access to the same data-intensive services that they use in the home and office, at similarly high performance levels. If wireless access is faster, more available, and less expensive, there is no telling what new machines and uses can be conceived. And increased high-speed wireless access will only enable existing businesses to work more efficiently and at the rapid pace demanded by the current economy. As the FCC has succinctly summarized, “the growth of mobile broadband networks will “spawn[] new industries and allow[] existing industries to become more productive,” and will enable “entrepreneurs, consumers, non-profit organizations, and government to interact and build better businesses and stronger communities.”³⁸

³⁶ Leslie Kwoh, *Smartphones to Overtake Traditional Cell Phones, Become the New “Standard,”* STAR-LEDGER, Sept. 4, 2011, available at http://www.nj.com/business/index.ssf/2011/09/smartphones_overtake_feature_p.html (quoting former Nielsen analyst Roger Entner).

³⁷ See Erick Schonfeld, *Forrester Forecasts One Third of U.S. Online Consumers Will Own a Tablet By 2015,* TECHCRUNCH (January 4, 2011), available at <http://techcrunch.com/2011/01/04/forrester-forecasts-one-third-of-u-s-online-consumers-will-own-a-tablet-by-2015/>.

³⁸ *2010 Transfer of Control Order*, at ¶ 57; see also National Broadband Plan, at xi (“Like electricity a century ago, broadband is a foundation for economic growth, job creation, global competitiveness and a better way of life.”).

Create Jobs. LightSquared’s estimates that the deployment and management of its network will generate tens of thousands of jobs – a conclusion that is also supported by Chairman Genachowski.³⁹ With the new opportunities for business growth offered by LightSquared’s wholesale model, the company expects that there will be even greater indirect job growth as a result of the deployment of LightSquared’s network.

Enhance Public Safety. LightSquared’s satellite and terrestrial network offers public safety personnel and commercial customers alike a valuable alternative in the marketplace: a resilient, interoperable and ubiquitous communications network. In the case of an emergency where terrestrial networks fail or are unreachable, as was the case during and after Hurricane Katrina and other natural disasters, integrated devices will instantly and seamlessly operate with the satellite network, ensuring that emergency responders have continued and immediate access to vital communications using the same integrated devices they carry every day.⁴⁰ The deployment of an integrated terrestrial network greatly enhances the value of satellite capability by making such services more cost effective and practical.

III. The Commission Should Not Permit the Last-Minute Efforts by Certain GPS Manufacturers to Thwart or Delay the Deployment of LightSquared’s Mobile Wireless System

One barrier remains to the deployment of LightSquared’s mobile wireless system.

Despite a decade of awareness of LightSquared’s plans and active participation in many of the

³⁹ See Coleman Bazelon, “The Economic Impact and Associated Employment of SkyTerra’s Network Deployment” (February 17, 2009), attached as Appendix D, File Nos. SAT-MOD-20090429-00046 *et al.* (April 29, 2009); see also Letter from Julius Genachowski, Chairman, FCC, to Senator Charles Grassley, Docket No. 11-9 (May 31, 2011).

⁴⁰ Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, Report and Recommendations to the Federal Communications Commission, June 12, 2006, at pp. 10-11, *available at* <http://www.fcc.gov/pshs/docs/advisory/hkip/karrp.pdf> (last visited November 28, 2011) (“[B]oth fixed and mobile satellite systems provided a functional, alternative communications path for those in the storm-ravaged region.”) (citation omitted); see also SkyTerra, Case Study: Statewide Talkgroup on SkyTerra’s Network Became the Saving Grace During Katrina (January 6, 2009), *available at* <http://www.skyterra.com/docs/casestudies/katrina.pdf> (last visited November 28, 2011).

relevant licensing proceedings regarding LightSquared, certain GPS receiver manufacturers now argue that LightSquared's terrestrial system will cause interference to their GPS receivers.

Spectrum allocated to the GPS service is immediately adjacent to the L-band frequencies in which LightSquared operates.⁴¹ Thus, the potential impact on GPS receivers from LightSquared's terrestrial operations has been a consideration since LightSquared submitted its initial 2001 ATC Application.⁴²

For the great majority of the past decade, the GPS industry's only concern was LightSquared's out-of-band-emissions ("OOBE") into the adjacent GPS band.⁴³ With respect to such concerns, LightSquared worked with the GPS industry to resolve all such issues, and today that concern is no longer a problem.⁴⁴ LightSquared's resolution of the OOBE issue was not without substantial cost. In order to meet the agreed upon OOBE limits for base stations, which are substantially more restrictive than the FCC's limits, LightSquared effectively was required to establish a substantial internal guard band, in which spectrum for broadband service cannot be used, and research and develop state-of-the-art filters for use with its terrestrial base stations. The lost value caused by foregoing use of the internal guardband is enormous; the cost of the research and development associated with the filters was \$9 million.

⁴¹ Specifically, GPS service operates in the 1559-1610 MHz band, which is adjacent to the 1525-1559 MHz band allocated for MSS downlinks. *See* 47 C.F.R. § 2.106.

⁴² *See, e.g.*, Inmarsat Ventures PLC, Partial Petition to Deny, at 9, File No. SAT-ASG-20010302-00017 (Apr. 18, 2001); *see also* Comments of Deere & Company, at 6, File Nos. SAT-ASG-20010302-00017 et al. (May 7, 2001).

⁴³ *See ATC Order*, at ¶¶ 109, 117-127, 131, 142, 148, 155; *see also ATC Reconsideration Order*, at ¶¶ 37, 91-92.

⁴⁴ In 2002, LightSquared voluntarily entered into an agreement with the U.S. GPS Industry Council consenting to limit its OOBE into the GPS band to a level far more rigorous than required by the FCC. *See ATC Order*, at ¶ 184; *see also* Letter from Bruce D. Jacobs, Counsel for Mobile Satellite Ventures L.P., and Raul R. Rodriguez, Counsel for the U.S. GPS Industry Council, to Marlene H. Dortch, Secretary, FCC, File Nos. SAT-ASG-20010302-00017 et al. (July 17, 2002). In 2009, LightSquared voluntarily entered into another agreement with the U.S. GPS Industry Council consenting to restrict the OOBE of its femtocells. *See In the Matter of SkyTerra Subsidiary LLC*, 25 FCC Rcd 3043, at ¶ 45; *see also* Letter from Bruce D. Jacobs, Counsel for SkyTerra Subsidiary LLC, and Raul R. Rodriguez, Counsel for the U.S. GPS Industry Council, to Marlene H. Dortch, Secretary, FCC, File Nos. SAT-MOD-20090429-00046 et al. (August 13, 2009).

The current issue, which the GPS receiver manufacturers have pursued aggressively within the last year, concerns potential “overload” of a GPS receiver, i.e. the potential that a receiver is desensitized because it improperly “listens to” the MSS/ATC frequencies adjacent to the GPS band where LightSquared’s authorized terrestrial transmitters would operate.⁴⁵ Notably, this was raised years after the abovementioned agreement which, in the words of the GPS industry, “considered all relevant issues concerning potential interference to GPS,” and reflected the agreement of “[a]ll relevant stakeholders.”⁴⁶ Proper receiver design typically dictates “narrower” front ends that focus on a spectrum user’s authorized frequencies and filter out those adjacent frequencies used by other entities.⁴⁷ However, rather than constructively moving forward to resolve interference issues, which are entirely of the GPS receiver manufacturers’ own making, they are waging an obstructionistic public relations campaign inaccurately describing the impact of LightSquared’s network on GPS receivers and are stubbornly refusing to accept any fault for the poor design of their GPS receivers.⁴⁸

In spite of this, LightSquared has proposed a reasonable path forward – one that imposes on itself considerable technical and financial compromises.⁴⁹ On the operational side, LightSquared will limit initial terrestrial operations to the lower of the two channels on which

⁴⁵ See, e.g., Deere & Co., Reply, File No. SAT-MOD-20101118-00239, at 4-5 (March 29, 2011); U.S. GPS Industry Council, Consolidated Reply to Oppositions, ET Docket No. 10-42 (September 6, 2011).

⁴⁶ Petition for Reconsideration of the U.S. GPS Industry Council, IB Docket No. 01-185, at 4 (June 11, 2003).

⁴⁷ In the course of designing a receiver, a manufacturer has to make decisions as to how “wide open” or “narrow” to make its front end, i.e., what range of frequencies it will let in and what frequencies it will filter out. The more wide open its front end, the more potential there is for the receiver to pick up both the intended signals (in this case, the signals from GPS satellites) and those from adjacent bands (such as signals from LightSquared’s terrestrial operations).

⁴⁸ See, e.g., U.S. GPS Industry Council, Consolidated Reply Comments of the U.S. GPS Industry Council, File No. SAT-MOD-20101118-00239 (August 15, 2011); Garmin International, Inc., Reply Comments, File No. SAT-MOD-20101118-00239, at 17-19 (August 15, 2011)

⁴⁹ See Recommendation of LightSquared Subsidiary LLC, Docket No. 11-109, at 4-5, 24-27 (June 30, 2011) (“LightSquared Recommendation”).

LightSquared has planned to operate, i.e. the channel farther away from the GPS band.⁵⁰ By doing so, tests show that more than 99.5% of all GPS devices, including all consumer devices (i.e. cell phones and general navigation devices) would not be susceptible to overload.⁵¹

With respect to devices that are “high-precision” and used largely for agriculture, construction, and survey, tests show unfortunately that most, but not all, of these devices have not been designed to work in the presence of LightSquared’s authorized transmitters, even if LightSquared limits its operations to the lower channel. In order to minimize and ultimately solve this problem, LightSquared has made several proposals, including the following:

- provide ample notice of specific LightSquared deployments that might impact specific precision receivers and undertake to coordinate with those users to minimize disruption.⁵²
- work with filter manufacturers and GPS device manufacturers to develop filters and other potential solutions to ensure protection of new precision receivers.⁵³
- spend up to \$50 million to assist government users of precision devices with any replacement or retrofitting costs.⁵⁴
- for those precision devices that rely on a satellite augmentation signal from LightSquared or Inmarsat,⁵⁵ provide a stable set of frequencies close to the GPS band to facilitate the

⁵⁰ *Id.*

⁵¹ *Id.* at 27-31. For purposes of this discussion regarding the test results, GPS receivers used by aviation are excluded. The resilience of those receivers is governed by FAA minimum performance standards. Discussions between LightSquared and the FAA are ongoing with respect to what level of LightSquared operation on the lower channel would be compatible with FAA standards. LightSquared is optimistic that further analysis will support the consistency of LightSquared’s lower channel operation with FAA performance standards.

⁵² *Id.* at 35-36.

⁵³ *Id.* at 34.

⁵⁴ See Press Release, LightSquared, Statement from Curtis Lu, General Counsel of LightSquared (October 1, 2011), available at <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011).

⁵⁵ In order to increase their accuracy, some precision GPS receivers rely on receiving an additional signal outside the GPS band, containing additional information. That information can be transmitted either terrestrially or by satellite. While the use of a terrestrial augmentation signal provides greater accuracy, a satellite signal provides better coverage of rural areas. GPS device manufacturers that rely on a satellite augmentation signal have chosen to use a receiver that is “open” across both the GPS band and the entire L-band, which based on those design choices makes their receivers uniquely incompatible with LightSquared’s terrestrial operations. By providing for the long-term availability of an augmentation signal at the top end of the L-band, close to the GPS band, LightSquared will make it relatively simple for GPS manufacturers to fix this receiver problem.

design and manufacture of more resilient precision devices that continue to rely on a satellite augmentation signal.⁵⁶

Recent work on the development of solutions for precision devices has been very encouraging. Several major manufacturers of precision devices have announced solutions that will ensure that precision devices will be protected from LightSquared operations.⁵⁷ Because the filter is introduced at the antenna, no modifications are required to the receiver itself, which makes redesign and even retrofit much simpler than otherwise. Early indications are that retrofitting legacy devices could be accomplished for a modest cost and, in almost all cases, without a measurable impact on performance. Thus, there is a reasonable and cost-effective technical fix. Moreover, LightSquared will continue to work with the FCC, the GPS industry, and other parties to resolve their concerns.

Accordingly, the time is ripe for Commission action. LightSquared requests that the Commission address the issues of certain GPS receiver manufacturers in the appropriate proceeding, allowing LightSquared to complete the final phase of the deployment of its 4G LTE network.

⁵⁶ See LightSquared Recommendation, at 33-34.

⁵⁷ See Press Release, LightSquared, LightSquared and Javad GNSS Present Findings of Interference Solution at PNT Advisory Board Meeting (November 9, 2011), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011); *see also* Press Release, LightSquared, LightSquared and PCTEL Protect High Precision GPS Applications (October 27, 2011), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011); Press Release, LightSquared, LightSquared Shows Filtering Technology (October 13, 2011), *available at* <http://www.lightsquared.com/press-room/press-releases/> (last visited November 28, 2011).

Respectfully submitted,

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