

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

In the Matter of	)	
	)	
LightSquared Inc. Petition for Declaratory Ruling	)	IB Docket No. 11-109
	)	
LightSquared Subsidiary LLC	)	
Request for Modification of its Authority for an Ancillary Terrestrial Component	)	
	)	
Fixed and Mobile Services in the Mobile Satellite Service Bands	)	ET Docket No. 10-142
	)	

**OPPOSITION TO LIGHTSQUARED PETITION  
FOR DECLARATORY RULING**

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Dated: February 27, 2012

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## SUMMARY

The Coalition to Save Our GPS (the “Coalition”), which consists of over 70 members and 130 associate members and represents more than 100,000 companies and millions of employees in a broad range of industries, submits this opposition to urge the FCC to reject the Petition for Declaratory Ruling (the “Petition”) submitted by LightSquared Inc. (“LightSquared”). The Petition’s arguments either have already been fully presented to the Commission and evaluated by all interested parties or are wholly irrelevant to the central issue of whether the FCC should terminate LightSquared’s conditional authority to operate a high-powered, ubiquitous terrestrial network because it would harmfully interfere with hundreds of millions of GPS devices. Consequently, the Coalition respectfully requests that the Commission deny the requests in LightSquared’s Petition and return to the important work of finally determining whether LightSquared may proceed with its plans. To the extent the Commission wishes to consider broader public policy issues relating to exploitation of Mobile Satellite Service (“MSS”) spectrum, this should be done through a full notice and comment rulemaking proceeding, as virtually all affected parties other than LightSquared have consistently urged, and as the FCC contemplated in the *National Broadband Plan*.

The Petition again misrepresents history and the nature of LightSquared’s authority. LightSquared’s often repeated argument that the GPS industry knew about – and acquiesced in – LightSquared’s current plan for a high-powered, stand-alone terrestrial network is inaccurate. The good faith cooperation the GPS industry provided to LightSquared in agreeing to certain technical provisions governing its terrestrial operations occurred against the clearly stated backdrop of the limited nature of LightSquared’s authority to provide terrestrial services. The GPS industry could not have foreseen that LightSquared would request – and the FCC would grant – a waiver in January 2011 completely changing the nature of the service that it was

permitted to provide. In addition, LightSquared's continued tactic of blaming the commercial GPS industry for its current situation fails to consider the significant objections raised by critical government users, including the Departments of Defense and Transportation, that made independent design and critical infrastructure decisions based upon the prevailing regulatory regime.

LightSquared's distorted view of history aside, each of its four requests should be rejected by the Commission. *First*, GPS users and manufacturers have every right to object to LightSquared's interference with GPS operations. Classification of GPS devices under Part 15 or Part 25 of the rules does not strip GPS of protection nor does it limit the right of GPS manufacturers and users to request that the Commission address concerns about LightSquared's proposed operations. Rather, the Commission frequently takes action to protect and address concerns relating to unlicensed devices. LightSquared's reliance on outdated and inapplicable Commission decisions fails to alter this right.

*Second*, contrary to LightSquared's assertions, GPS receivers are clearly protected by the Commission, as LightSquared itself summarizes in the Petition. The Commission also has squarely placed the responsibility on LightSquared to resolve any harmful interference its proposed operations may cause to other services, such as GPS. Proof of full protection of GPS was an explicit condition of the International Bureau's *January 2011 Waiver Order*, and LightSquared did not object to this condition at the time. Only now that LightSquared has belatedly realized that it will never be able to satisfy this condition has it offered its unsupported legal theories as to why it is not obligated to provide interference protection.

*Third*, GPS receivers do not represent a "non-conforming use" as LightSquared contends. Commercial GPS receivers employ state-of-the-art technology. GPS receivers do not

impermissibly “listen in” to the MSS band – rather, as LightSquared’s predecessors knew and LightSquared should have known, GPS receivers must be designed to be highly sensitive in order to receive faint satellite GPS signals, and are therefore vulnerable to overload by high-powered signals in closely adjacent bands. Innovation in GPS receiver design has led to extraordinary market-based success and an astounding variety of successful GPS-based applications and services. LightSquared’s claims that it has a superior right to flood a mobile satellite band with ubiquitous, high-powered terrestrial signals, notwithstanding the existence of these GPS applications and services, is legally wrong. LightSquared’s account also ignores the fact that many precision GPS receivers were required to receive MSS band signals as part of augmentation services provided to GPS devices by LightSquared under the terms of LightSquared’s own contracts.

*Fourth*, the costs of any changes to GPS devices necessitated by LightSquared’s proposal must be borne by LightSquared alone. LightSquared cannot escape this obligation by inappropriately blaming the interference problem on the design of GPS receivers, relying on past Commission decisions that have little or no bearing on the issue at hand, or declaring that it has succeeded in “fixing” the alleged deficiencies in GPS receiver design because interested vendors claim that new equipment “solves” the interference problems – not surprisingly coupled with offers to sell the new equipment to the millions of users who already own perfectly functional GPS devices.

In sum, the Coalition urges the Commission to reject LightSquared’s Petition, so that it may devote its efforts to deciding whether LightSquared’s authority to offer terrestrial operations should now be terminated. The Coalition believes that the Commission will reach the same conclusion that every other party except for LightSquared (and its favored vendors) has reached:

LightSquared's proposed operations will cause devastating interference to GPS receivers and therefore must not be permitted.

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**OPPOSITION TO LIGHTSQUARED PETITION  
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The Coalition to Save Our GPS (the “Coalition”), pursuant to the *Public Notice* released by the Federal Communications Commission (“FCC” or “Commission”) in the above-referenced proceedings,<sup>1/</sup> hereby submits this opposition to the Petition for Declaratory Ruling filed by LightSquared Inc. (“LightSquared”).<sup>2/</sup> LightSquared’s plea that the Commission “resolve the regulatory status” of commercial Global Positioning System (“GPS”) receivers is yet another attempt to divert the Commission’s attention from the fundamental problem that LightSquared’s proposed terrestrial operations will create harmful interference to GPS. The “regulatory status” of GPS does not require clarification. Rather, if the Commission seeks to repurpose the Mobile Satellite Service (“MSS”) band for nationwide, ubiquitous terrestrial-only services, it must do so through full notice and comment rulemaking. Therefore, the Coalition respectfully requests that

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<sup>1/</sup> See *International Bureau Establishes Pleading Cycle for LightSquared Petition for Declaratory Ruling*, Public Notice, Docket Nos. 11-109 & 10-142, DA 12-103 (rel. Jan. 27, 2012) (“*Public Notice*”).

<sup>2/</sup> LightSquared Inc. Petition for Declaratory Ruling, Docket No. 11-109 (filed Dec. 20, 2011) (“*Petition*”). Except as otherwise noted, LightSquared Inc. and its predecessors and affiliates are referred to herein individually and collectively as “LightSquared.”

the Commission reject LightSquared's Petition.

## **I. INTRODUCTION**

The Coalition was formed in March 2011 to safeguard the reliability and viability of GPS. The Coalition consists of representatives from a broad range of industries, including aviation, agriculture, transportation, construction, engineering and surveying, as well as GPS-based equipment manufacturers and service providers. It has over 70 members and 130 associate members representing more than 100,000 companies and millions of employees.<sup>3/</sup> Members of the Coalition have actively participated in all facets of the proceedings designed to evaluate whether LightSquared should be permitted to proceed with its planned ubiquitous terrestrial network using L-Band spectrum designated for MSS. Coalition members have devoted thousands of man-hours to the FCC-mandated technical working group process intended to assess the potential for LightSquared to cause harmful interference to GPS reception and later participated in testing conducted at the direction of the National Telecommunications and Information Administration ("NTIA").<sup>4/</sup> The Coalition and its members have evaluated, and provided the FCC with feedback on, the several iterations of LightSquared's proposal and each successive solution that LightSquared has alleged will ameliorate the massive interference that its system will cause to GPS reception.

LightSquared's Petition strays from the central issue of the interference it will cause, and instead attempts to disguise its system's deficiencies by shifting blame for its failures to the GPS

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<sup>3/</sup> A full list of members and associate members can be found on the Coalition's website at <http://www.saveourgps.org/coalition-members.aspx>, and a description of certain of the Coalition's most active members can be found in the Coalition's comments responding to the report of the FCC-mandated Technical Working Group. *See* Comments of the Coalition to Save Our GPS, Docket No. 11-109, File No. SAT-MOD-20101118-00239, at 3-7 (filed Aug. 1, 2011) ("Coalition Comments").

<sup>4/</sup> *See generally Public Notice* at 1-2.

industry.<sup>5/</sup> The situation in which LightSquared currently finds itself is entirely of its own making, and LightSquared's rhetoric that it is the victim of GPS community actions is unpersuasive. The Petition is simply the latest attempt by LightSquared to divert the Commission's attention from the conclusion that all parties except LightSquared have reached: LightSquared's proposed terrestrial operations will cause devastating interference to GPS – one of the most efficient spectrum uses in history, upon which nearly every government agency, business, and individual in this country relies.<sup>6/</sup>

Recent events have highlighted this consensus. Earlier this month, NTIA submitted a letter to the Commission “conclud[ing] that LightSquared's proposed mobile broadband network will impact GPS services and that there is no practical way to mitigate the potential interference at this time.”<sup>7/</sup> NTIA noted that based on the extensive “testing and analyses conducted to date, as well as numerous discussions with LightSquared, it is clear that LightSquared's proposed implementation plans, including operations in the lower 10 MHz would adversely affect both general/personal navigation and certified aviation GPS receivers”; therefore, NTIA stated that LightSquared should not be permitted to proceed with its plans.<sup>8/</sup> NTIA further concluded that, even if GPS equipment developers could somehow mitigate these issues through the use of new

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<sup>5/</sup> See, e.g., Petition at 4-5 (“LightSquared currently is not able to commence the deployment of terrestrial-only devices on this 4G LTE network because of the objections of the commercial GPS industry.”).

<sup>6/</sup> As the Coalition has demonstrated, GPS facilitates at least \$68 billion to \$122 billion in economic activity per year and those figures do not take into account the considerable additional benefits GPS delivers to the military, consumers, and other non-business users. See Coalition Comments at 9-10; see also Reply Comments of the Coalition to Save Our GPS, Docket No. 11-109, File No. SAT-MOD-20101118-00239, at 10-11 (filed Aug. 15, 2011) (“Coalition Reply Comments”) (discussing the significant benefits GPS brings to the U.S. economy, particularly the agriculture and aviation sectors).

<sup>7/</sup> Letter from Lawrence E. Strickling, Assistant Secretary for Communications and Information, NTIA, U.S. Department of Commerce, to the Honorable Julius Genachowski, Chairman, FCC, at 1 (Feb. 14, 2012) (“NTIA Letter”), available at <http://www.ntia.doc.gov/fcc-filing/2012/ntia-lightsquared-recommendation-fcc>.

<sup>8/</sup> *Id.* at 8.

technology in the future, any such mitigation “cannot support the scheduled deployment of terrestrial services proposed by LightSquared.”<sup>9/</sup>

The FCC’s International Bureau responded to NTIA’s determinations by seeking comment on the *NTIA Letter* and proposing to (1) vacate the *January 2011 Waiver Order* “due to LightSquared’s inability to address satisfactorily the legitimate interference concerns surrounding its planned terrestrial operations” and (2) “suspend indefinitely LightSquared’s underlying [Ancillary Terrestrial Component] authorization.”<sup>10/</sup>

Consequently, the Coalition urges the Commission to deny the requests enumerated in LightSquared’s Petition and return to the important work of finally deciding that LightSquared may not provide terrestrial operations in the MSS spectrum.

## II. BACKGROUND

### A. Once Again, LightSquared Misrepresents History and the Nature of Its Authority.

In nearly all of its filings in these proceedings, LightSquared has reiterated the same inaccurate view of history,<sup>11/</sup> which GPS industry participants and other interested parties have

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<sup>9/</sup> *Id.* at 1.

<sup>10/</sup> *International Bureau Invites Comment on NTIA Letter Regarding LightSquared Conditional Waiver*, Public Notice, Docket No. 11-109, DA 12-214, at 4 (rel. Feb. 15, 2012) (“*Public Notice Seeking Comment on NTIA Letter*”); *see also Statement from FCC Spokesperson Tammy Sun on Letter from NTIA Addressing Harmful Interference Testing Conclusions Pertaining to LightSquared and Global Positioning Systems*, Press Release (rel. Feb. 14, 2012) (stating that the FCC’s International Bureau will not lift the condition imposed on LightSquared that prohibits it from commencing commercial operations).

<sup>11/</sup> *See, e.g.*, Recommendations of LightSquared Subsidiary LLC, File No. SAT-MOD-20101118-00239, at 6-7, 11-17 (filed June 30, 2011); Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared, to The Honorable Anna Eshoo, U.S. House of Representatives (Apr. 15, 2011); Petition at 3-9. The Commission’s recent Public Notice seeking comment on the *NTIA Letter* repeats some of LightSquared’s inaccurate view of history, which is based on the faulty premise that LightSquared has always had authority to provide high-powered, stand-alone terrestrial services. *See Public Notice Seeking Comment on NTIA Letter* at 1-3; *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*, Report and Order, 26 FCC Rcd

corrected numerous times.<sup>12/</sup> The Petition is no different. Three particular examples merit mention because they are so egregious. *First*, LightSquared inaccurately states that it has been authorized to deploy a “complementary” terrestrial service, or a “combined” satellite and terrestrial service.<sup>13/</sup> As discussed throughout these proceedings and as further discussed below, however, LightSquared’s authorization is to provide a mobile satellite service. The Ancillary Terrestrial Component (“ATC”) authority granted to LightSquared was to be used only to augment the primary satellite service by filling in gaps in the areas which could not be served by its satellite service.<sup>14/</sup> The authority was never intended to be “complementary” or “combined,” and the FCC has never characterized it that way.<sup>15/</sup>

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5710, ¶ 28 (2011), *recon. pending* (“2 GHz MSS Decision”). The GPS industry has already filed a petition for reconsideration requesting that the Commission correct these inaccuracies in the record, and the Coalition incorporates by reference that request here. *See Petitions for Reconsideration of Action in Rulemaking Proceeding*, Public Notice, Docket No. 10-142, Report No. 2932 (rel. July 29, 2011) (“*Petition Public Notice*”); *see also* Petition for Reconsideration of the U.S. GPS Industry Council, Docket No. 10-142 (filed June 30, 2011) (“USGIC Petition”).

<sup>12/</sup> Coalition Comments at 32-35 (“[LightSquared’s] claim merely recycles LightSquared’s *post hoc* view, endlessly repeated by LightSquared and consistently refuted by the GPS industry, about the history of the FCC’s ancillary terrestrial component rules.”); Comments of Deere & Company, Docket No. 11-109, at 8 (filed Aug. 1, 2011) (“Deere Comments”) (“Even a generous reading of the Commission’s orders, rules and contemporaneous Commissioner statements regarding MSS ATC authorizations reveals exactly the *opposite* plan – the Commission was careful to adopt a scheme specifically designed to *prevent* ATC from becoming a ubiquitous terrestrial CMRS network overtaking the primary satellite purpose.”) (emphasis in original); Comments of Verizon Wireless, Docket No. 11-109, at 15 (filed Aug. 1, 2011) (“Verizon Wireless Comments”) (noting that LightSquared’s view of history is inaccurate because “ancillary terrestrial operations are required by law (and have always been required) to protect GPS receivers and all other primary services from interference”).

<sup>13/</sup> Petition at 4, 5.

<sup>14/</sup> *See, e.g., 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 and Notice of Proposed Rulemaking, 18 FCC Rcd 1962, ¶ 1 (2003) (“2003 ATC Decision”) (“We will authorize MSS ATC subject to conditions that ensure that the added terrestrial component remains ancillary to the principal MSS offering. We do not intend, nor will we permit, the terrestrial component to become a stand-alone service.”).

<sup>15/</sup> *See LightSquared Subsidiary LLC Request for Modification of Its Authority for an Ancillary Terrestrial Component*, Order and Authorization, 26 FCC Rcd 566 (2011) (“January 2011 Waiver Order”).

*Second*, LightSquared is not, as the Petition asserts, a competitive force in the terrestrial wireless industry, which presumably merits protection.<sup>16/</sup> As the Coalition recently discussed in its comments responding to the Commission’s Public Notice regarding its Sixteenth Annual Wireless Competition Report, the Commission’s most recent Wireless Competition Report expressly states that while other spectrum bands, such as MSS spectrum *may* be used for the provision of mobile voice and broadband services, such bands were not discussed further in the report “because, as yet, services offered in those bands do not impact competition in mobile wireless services.”<sup>17/</sup> Similarly, it is not true, as LightSquared claims, that its network “will advance the Commission’s goals in the areas of broadband access, spectrum efficiency, and public safety.”<sup>18/</sup> Rather, all evidence shows that LightSquared could roll out its network “and not wire a single rural American”<sup>19/</sup> with broadband service and it may actually cause harmful interference to public safety operations.<sup>20/</sup>

*Third*, LightSquared states that it “currently is not able to commence the deployment of terrestrial-only devices on [its] 4G LTE network because of the objections of the *commercial GPS* industry.”<sup>21/</sup> LightSquared hides the fact that significant damage would also be done to, and

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<sup>16/</sup> See, e.g., Petition at 4 (stating, among other things, that “LightSquared’s 4G LTE network promises to be a competitive alternative to the commercial mobile wireless networks of companies like AT&T and Verizon, and will continue the long tradition of LightSquared and its predecessors as a positive competitive force”).

<sup>17/</sup> Reply Comments of the Coalition to Save Our GPS, Docket No. 11-186, at 12 (filed Dec. 20, 2011) (“Coalition Wireless Competition Report Comments”) (citing *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, Fifteenth Report, 26 FCC Rcd 9664, ¶ 277 (2011)).

<sup>18/</sup> Petition at 4.

<sup>19/</sup> Letter from Charles E. Grassley, Ranking Member, U.S. Senate Committee on the Judiciary, to Sanjiv Ahuja, Chairman and CEO, LightSquared, at 1 (Oct. 5, 2011).

<sup>20/</sup> See Coalition Wireless Competition Report Comments at 12-15.

<sup>21/</sup> Petition at 5 (emphasis added).

serious objections have been raised by, critical government users, such as the Departments of Defense and Transportation, which have made independent design decisions based upon the prevailing regulatory regime.<sup>22/</sup> In addition to its recent conclusion described above that “there is no practical way to mitigate the potential interference” caused by LightSquared’s proposal, NTIA also points to the findings of the nine federal entities comprising the National Space-Based Positioning, Navigation and Timing Executive Committee, which unanimously concluded that LightSquared’s “plans for its proposed mobile network would cause harmful interference to many GPS receivers” and that “[b]ased upon this testing and analysis, there appear to be no practical solutions or mitigations that would permit the LightSquared broadband service, as proposed, to operate in the next few months or years without significantly interfering with GPS.”<sup>23/</sup> Section 911(a) of the National Defense Authorization Act for Fiscal Year 2012 also recognizes the impact on government GPS use by forbidding the FCC from approving operations of LightSquared’s terrestrial wireless network until the FCC has resolved concerns of widespread

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<sup>22/</sup> See, e.g., *Sustaining GPS for National Security: Hearing Before the Subcomm. on Strategic Forces of the H. Comm. on Armed Services*, 112th Cong. at 3-4 (Sept. 15, 2011) (written testimony of General William L. Shelton, Commander, Air Force Space Command), available at [http://armedservices.house.gov/index.cfm/files/serve?File\\_id=9043b110-61fa-45b9-a8ec-6c9f338981cc](http://armedservices.house.gov/index.cfm/files/serve?File_id=9043b110-61fa-45b9-a8ec-6c9f338981cc) (asserting that if LightSquared is permitted to proceed, it would “fundamentally alter the use of the Mobile Satellite Service band immediately adjacent to GPS L1 by allowing a ground-based 4G broadband network to become the primary user”); *A Review of Issues Associated with Protecting and Improving Our Nation’s Aviation Satellite-Based Global Positioning System Infrastructure: Hearing Before the Subcomm. on Aviation*, 112th Cong. at 6 (Feb. 8, 2012) (written testimony of the Honorable John D. Porcari, Deputy Secretary, U.S. Department of Transportation), available at <http://republicans.transportation.house.gov/Media/file/TestimonyAviation/2012-02-08-Porcari.pdf> (noting that LightSquared’s network would cause harmful interference to many GPS receivers and that “[s]ubstantial federal resources, including over \$2 million from the FAA, have been expended and diverted from other programs in testing and analyzing LightSquared’s proposals”).

<sup>23/</sup> *NTIA Letter* at 2-3 (quoting Letter from Ashton B. Carter, Deputy Secretary of Defense, and John D. Porcari, Deputy Secretary of Transportation, National Space-Based Positioning, Navigation and Timing Executive Committee, to The Honorable Lawrence E. Strickling, Assistant Secretary for Communications and Information, U.S. Department of Commerce (Jan. 13, 2012)); see also *NTIA Letter* at 5-6 (reporting that the Federal Aviation Administration (“FAA”) was unable to find any practical solution to the LightSquared interference problem that would alleviate the FAA’s concerns regarding LightSquared’s proposed operations’ impact on safety-critical GPS functionality).

interference to military GPS devices.<sup>24/</sup> Government entities have submitted ample evidence suggesting that the impact of LightSquared's network on their use of GPS would be highly problematic and expensive.<sup>25/</sup>

General William L. Shelton, the nation's most senior official responsible for oversight of the national GPS, testified before the Strategic Forces Subcommittee of the House Armed Services Committee that he "would put GPS in the category of critical infrastructure for the United States" and that to his knowledge "there are no mitigation options that will be effective in eliminating interference [caused by LightSquared's proposal] to essential GPS services in the United States."<sup>26/</sup> The record is replete with similar statements from other government officials.<sup>27/</sup> Consequently, it is disingenuous and inaccurate for LightSquared to characterize the objections to its proposed operations as those of the commercial GPS industry alone.

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<sup>24/</sup> National Defense Authorization Act for Fiscal Year 2012, H.R. 1540, 112th Cong., § 911(a) (enacted Dec. 31, 2011). Similarly, Congress has prohibited the Commission from using any funds made available by the 2012 Financial Services and General Government Appropriations Act "to remove the conditions imposed on commercial terrestrial operations in the [*January 2011 Waiver Order*] or otherwise permit such operations, until the Commission has resolved concerns of potential widespread harmful interference by such commercial terrestrial operations to commercially available Global Positioning System devices." Consolidated Appropriations Act, 2012, Pub. L. No. 112-74, at Division C – Financial Services and General Government Appropriations Act, 2012 (enacted Dec. 23, 2011); *Public Notice* at 2.

<sup>25/</sup> See *Sampling of Departments and Agencies Shows \$245 Billion Potential LightSquared Impacts on GPS in Federal Government Uses Alone*, Press Release (rel. Oct. 27, 2011), available at [http://www.saveourgps.org/pdf/Government\\_Cost\\_Estimates.pdf](http://www.saveourgps.org/pdf/Government_Cost_Estimates.pdf) ("A compilation of the limited number of publicly available statements and estimates concerning the costs the federal government would face if LightSquared's planned broadband system is allowed to go forward shows that the impact could be in the range of \$245 billion.").

<sup>26/</sup> *Sustaining GPS for National Security: Hearing Before the Subcomm. on Strategic Forces of the H. Comm. on Armed Servs.*, 112th Cong. (Sept. 15, 2011) (oral testimony of General William L. Shelton, Commander, Air Force Space Command) ("General Shelton Oral Testimony"); see also *Sustaining GPS for National Security: Hearing Before the Subcomm. on Strategic Forces of the H. Comm. on Armed Servs.*, 112th Cong. (Sept. 15, 2011) (oral testimony of Teresa M. Takai, Chief Information Officer, U.S. Department of Defense) (expressing concern about LightSquared's proposed operations affecting GPS, which is "integrated into almost every aspect of U.S. military operations").

<sup>27/</sup> See, e.g., *Impacts of the LightSquared Network on Federal Science Activities: Hearing Before the Comm. on Science, Space, and Technology*, 112th Cong. at 4 (Sept. 8, 2011) (testimony of Victor D. Sparrow, Director, Spectrum Policy and Planning Division, Human Exploration and Operations Mission

More generally, LightSquared's view of history is inaccurate because the Commission did not provide LightSquared with authority to offer the terrestrial-only services it now proposes.<sup>28/</sup> LightSquared did not apply for authority to provide broadband wireless communications in 2001, and it did not spend the last ten years taking the steps necessary to deploy a nationwide terrestrial broadband network.

In March 2010, at the same time that the International Bureau approved the transfer of control of the company now known as LightSquared to its current owner, Harbinger Capital,<sup>29/</sup> the FCC made it clear in its *National Broadband Plan*, that LightSquared and its predecessors never had authority to provide a stand-alone terrestrial service.<sup>30/</sup> One of the *National Broadband Plan*'s goals was to "accelerate terrestrial deployment in 90 megahertz of Mobile Satellite Spectrum (MSS)."<sup>31/</sup> This goal was part of the FCC's plan to make 300 megahertz of spectrum available within five years and a total of 500 megahertz available within ten years.<sup>32/</sup> In particular, the *National Broadband Plan* recognized that while the FCC had authorized use of

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Directorate, National Aeronautics and Space Administration) ("Impacts to NASA's GPS-dependent systems from interference created by the network would be substantial, impacting airborne and spaceborne science, as well as certain space operations."); *Impacts of the LightSquared Network on Federal Science Activities: Hearing Before the Comm. on Science, Space, and Technology*, 112th Cong. at 1 (Sept. 8, 2011) (opening statement of Hon. Ralph Hall, Chairman, House Comm. on Science, Space, and Technology) (stating that the FAA estimates that LightSquared's proposal "would result in billions of dollars of investment lost, a decade of delays to ongoing projects, a cost impact of roughly \$72 billion, and almost 800 additional fatalities").

<sup>28/</sup> See Petition at 8-9.

<sup>29/</sup> See *SkyTerra Communications, Inc., Transferor, and Harbinger Capital Partners Funds, Transferee, Applications for Consent to Transfer of Control of SkyTerra Subsidiary, LLC*, Memorandum Opinion and Order and Declaratory Ruling, 25 FCC Rcd 3059 (2010).

<sup>30/</sup> See *Connecting America: The National Broadband Plan*, at 87 ("National Broadband Plan"), available at <http://www.broadband.gov/download-plan/>.

<sup>31/</sup> *Id.* at 76.

<sup>32/</sup> *Id.* at 10.

MSS ATC in 2003, that authority was limited to “areas where the satellite signal is attenuated or unavailable.”<sup>33/</sup>

In considering how to promote more intensive use of the MSS spectrum for terrestrial operations, the *National Broadband Plan* said that the FCC should “ensure that these actions to introduce greater flexibility in the MSS spectrum do not interfere with non-ATC MSS operations . . .”<sup>34/</sup> The FCC said that it, and other government agencies, “should work closely with L-Band licensees and foreign governments to accelerate efforts to rationalize ATC-authorized L-Band spectrum . . .”<sup>35/</sup> Because the FCC, however, never initiated such a broad-based effort involving other government agencies to modify the limitations on the use of L-Band MSS spectrum, LightSquared could not have believed that it already had the authority it needed to build a ubiquitous terrestrial broadband network. If it already had that authority, then the FCC’s statements in March 2010, when the *National Broadband Plan* was released, would have been meaningless.

Similarly, the *January 2011 Waiver Order* which granted LightSquared conditional authority also makes it clear that LightSquared did not, until then, have authority to provide a stand-alone terrestrial service. Indeed, in the *January 2011 Waiver Order*, the International Bureau consistently referred to LightSquared’s authority as enabling it to operate a satellite/terrestrial network.<sup>36/</sup> In response to LightSquared’s attempted “update” of its service

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<sup>33/</sup> *Id.* at 87.

<sup>34/</sup> *Id.*

<sup>35/</sup> *Id.*

<sup>36/</sup> See *January 2011 Waiver Order* ¶ 1 (noting the consideration of build-out requirements associated with LightSquared’s deployment of a “satellite/terrestrial network in the L-Band”); *id.* ¶ 7 (“In approving [LightSquared’s] transfer of control, we observed that if LightSquared successfully deploys its integrated satellite/terrestrial 4G network, it will be able to provide mobile broadband communications in areas where it is difficult or impossible to provide coverage by terrestrial base stations . . . , as well as at

offering to provide a ubiquitous terrestrial network, the International Bureau found that LightSquared's plans were not covered by its existing authority and required a waiver of the "integrated service" rule. Even though the International Bureau granted LightSquared's request, it conditioned that relief on LightSquared's continued commitment to provide satellite services.<sup>37/</sup> More importantly, the International Bureau also required LightSquared to demonstrate that it would not cause harmful interference to GPS operations.<sup>38/</sup> This latter condition was based, in part, on the concerns that NTIA, the United States GPS Industry Council, and others expressed about the potential impact that the waiver would have on GPS operations.<sup>39/</sup>

The provisions in the *National Broadband Plan* and the *January 2011 Waiver Order*, standing alone, directly contradict LightSquared's often repeated claim that the FCC long ago imposed a burden on adjacent spectrum users such as GPS to accommodate nationwide, high-powered terrestrial use of the MSS band.

In fact, the International Bureau's findings that LightSquared did not have authority to provide a nationwide terrestrial service is strongly supported by prior International Bureau and

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times when coverage may be unavailable from terrestrial-based networks . . ."); *id.* ¶ 31 ("A grant of a waiver here will enable LightSquared to implement its proposed satellite/terrestrial service offering . . .").

<sup>37/</sup> See *id.* ¶ 36.

<sup>38/</sup> See *id.* ¶ 41.

<sup>39/</sup> See Letter from Lawrence E. Strickling, Assistant Secretary for Communications and Information, U.S. Department of Commerce, to Julius Genachowski, Chairman, FCC, File No. SAT-MOD-20101118-00239, at 1 (filed Jan. 12, 2011); Letter from Stephen D. Baruch, Counsel for the U.S. GPS Industry Council, to Marlene H. Dortch, Secretary, FCC, File No. SAT-MOD-20101118-00239, at 1 (filed Jan. 7, 2011); see also Letter from Raul R. Rodriguez, Counsel for the U.S. GPS Industry Council, to Marlene H. Dortch, Secretary, FCC, File No. SAT-MOD-20101118-00239, at Attachment, at 1 (filed Jan. 7, 2011). As the International Bureau was considering LightSquared's request, LightSquared continued to assert that interference to GPS was "highly unlikely," acknowledging that any interference it caused to GPS would be problematic. See Letter from Jeff Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared, to Marlene H. Dortch, Secretary, FCC, File No. SAT-MOD-20101118-00239 (filed Dec. 20, 2010).

FCC decisions. LightSquared acquired its current spectrum license from its predecessor in interest – SkyTerra – which had been granted authority to provide MSS without *any ability* to provide terrestrial services. In the *2003 ATC Decision*,<sup>40/</sup> the FCC revised its MSS rules to allow the integration of ATC into MSS networks. This rule change, however, only allowed SkyTerra the right to seek authority to provide an *ancillary* service. The purpose behind allowing MSS licensees to integrate ATC into their MSS networks was to enable them to provide terrestrial services in locations where the satellite could not reliably deliver a sufficiently strong signal.<sup>41/</sup> ATC was therefore seen merely as a “gap filler” to *enhance* primary mobile satellite services, not to displace it.<sup>42/</sup> In the *2003 ATC Decision*, the Commission specifically stated that it would not allow terrestrial-only services like those featured in LightSquared’s current business plan.<sup>43/</sup>

The Commission’s subsequent *2005 ATC Decision* confirmed that it never intended to grant LightSquared’s predecessors authority to provide ubiquitous, terrestrial-only broadband services.<sup>44/</sup> To the contrary, that decision included strong protections for GPS that are inconsistent with the type of stand-alone service LightSquared claims it was authorized to provide. For instance, in that decision, the Commission expressly committed to proactively

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<sup>40/</sup> See *2003 ATC Decision* ¶ 1.

<sup>41/</sup> See *id.* ¶ 23 (finding that by “filling gaps in the MSS coverage area . . . , MSS ATC should [ ] permit customers in underserved or unserved terrestrial markets to use ATC-enabled MSS handsets when in urban areas or inside buildings”).

<sup>42/</sup> See *id.* ¶ 68 (“[B]y using the term ‘ancillary,’ we intended to exclude ‘services that differ materially in nature or character from the principal services offered by MSS providers.’”) (citation omitted).

<sup>43/</sup> See, e.g., *id.* ¶ 1 (“We will authorize MSS ATC subject to conditions that ensure that the added terrestrial component remains ancillary to the principal MSS offering. We do not intend, nor will we permit, the terrestrial component to become a stand-alone service.”).

<sup>44/</sup> See *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 Order and Second Order on Reconsideration, 20 FCC Rcd 4616, ¶ 33 (2005) (“*2005 ATC Decision*”) (“We reiterate our intention not to allow ATC to become a stand-alone system . . . We will not permit MSS/ATC operators to offer ATC-only subscriptions, because ATC systems would then be terrestrial mobile systems separate from their MSS systems.”).

protect GPS from harmful interference by consulting with affected government users and by adopting whatever rules might be necessary in the future.<sup>45/</sup> Therefore, even if LightSquared mistakenly believed prior to the FCC's *January 2011 Waiver Order* that its predecessors were authorized to provide a stand-alone terrestrial system, it should have still recognized that the authority was always subject to the obligation to protect GPS. The Commission's decisions have consistently recognized the critical benefits that GPS provides and the need to ensure that there is no interference to GPS operations.<sup>46/</sup>

### **B. LightSquared Misstates Its Relationship with the GPS Industry.**

LightSquared also inaccurately states that its terrestrial authority “has evolved with the active participation *and support* of the commercial GPS industry for almost a decade.”<sup>47/</sup> This often-repeated argument – that the GPS industry knew about and acquiesced in LightSquared's current business plan and therefore should have been preparing for its implementation – has been

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<sup>45/</sup> See *id.* ¶ 70 (“While we agree with the GPS Industry Council, NTIA, and other government agencies that it is essential to ensure that GPS does not suffer harmful interference, it is also important to ensure that new technologies are not unnecessarily constrained. In this regard, we recognize that the President's new national policy for space-based positioning, navigation, and timing (PNT) directs the Secretary of Commerce to protect the radio frequency spectrum used by GPS and its augmentations through appropriate domestic and international spectrum management regulatory practices . . . . Furthermore, the President's PNT policy calls for the establishment of an inter-agency Executive Committee, on which the Chairman of the FCC will be invited to participate as a liaison, and a National Space-Based PNT Coordination Office. *It is our intention to establish discussions with other agencies, through the PNT Executive Committee and Coordination Office as appropriate, to better understand what protection levels for GPS are warranted.* The results of those discussions may lead to future rulemaking proposals *in order to ensure that all FCC services provide adequate protection to GPS*, and produce a more complete record upon which to establish final GPS protection limits for MSS ATC licensees.”) (emphasis added).

<sup>46/</sup> See, e.g., *2003 ATC Decision* ¶ 183 (requiring L-band ATC base stations and mobile terminals to meet certain out-of-band emission levels, operate under a maximum transmit power, and incorporate a guard band “in order to demonstrate that its base stations will be capable of meeting the -70 dBW/MHz and -80 dBW for discrete spurious emissions measured in a 700 MHz bandwidth to protect GPS”).

<sup>47/</sup> Petition at 5 (emphasis in original).

refuted numerous times.<sup>48/</sup> While it is true that the GPS industry actively worked with LightSquared and the Commission in good faith during the adoption of certain specific technical standards governing LightSquared’s terrestrial operations, all such actions took place in the context of the FCC’s settled regulatory scheme that ATC operations would not be a stand-alone terrestrial service, but would be ancillary to, and integrated with, the underlying primary satellite service,<sup>49/</sup> the FCC’s express commitment to protect GPS,<sup>50/</sup> and LightSquared’s own need to prevent its ATC operations from interfering with its underlying primary satellite service.<sup>51/</sup>

Not until November 2010 did LightSquared, for the first time, indicate that it planned to offer terrestrial-only services,<sup>52/</sup> an approach that the FCC’s International Bureau found in clear contravention of Commission rules, necessitating a rule waiver.<sup>53/</sup> The GPS industry never could have anticipated that the Commission in the *January 2011 Waiver Order* would grant LightSquared a waiver allowing it to provide terrestrial-only operations using spectrum long-

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<sup>48/</sup> See, e.g., Coalition Comments at 32-35; Coalition Wireless Competition Report Comments at 5-6; Comments of the U.S. GPS Industry Council, Docket No. 11-109, at 29-39 (filed Aug. 1, 2011); Deere Comments at 18-22; Comments of Trimble Navigation Limited, Docket No. 11-109, at 5-25 (filed Aug. 1, 2011) (“Trimble Comments”).

<sup>49/</sup> See, e.g., *2005 ATC Decision* ¶¶ 19, 33 (reiterating that to “ensure that ATC will be ancillary to provision of MSS . . . [w]e require[ ] the offer of MSS and ATC services to be integrated” and “will not permit MSS/ATC operators to offer ATC-only subscriptions, because ATC systems would then be terrestrial mobile systems separate from their MSS systems”).

<sup>50/</sup> See, e.g., *id.* ¶ 70 (stating the Commission’s commitment “to ensure that all FCC services provide adequate protection to GPS”).

<sup>51/</sup> See, e.g., *id.* ¶ 46 (using as a premise for the adoption of certain technical rules MSS operators’ “need to control self-interference sufficient[ ] to maintain satellite service”).

<sup>52/</sup> See Letter from Jeffrey J. Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared, to Marlene H. Dortch, Secretary, FCC, File No. SAT-MOD-20101118-00239 (filed Nov. 18, 2010).

<sup>53/</sup> *January 2011 Waiver Order* ¶ 24.

dedicated primarily for satellite use and thus freeing it from the constraints under which it had always been required to operate and which protected GPS.<sup>54/</sup>

**C. The GPS Industry’s Objection to the *January 2011 Waiver Order* Was Not Limited to In-Band Power Levels.**

LightSquared also mischaracterizes the GPS industry’s concern with the *January 2011 Waiver Order* as being limited to power levels. In particular, LightSquared states that “certain members of the commercial GPS industry have used the underlying proceeding to raise concerns that the in-band power levels from LightSquared’s licensed terrestrial base stations could ‘overload’ GPS receivers – concerns entirely unrelated to the waiver relief sought by LightSquared (which did not affect those power levels in any manner whatsoever).”<sup>55/</sup>

The GPS industry’s concern with the *January 2011 Waiver Order* extends well beyond power levels to the fact that the *January 2011 Waiver Order* fundamentally changed the nature of LightSquared’s ATC authority. Contrary to LightSquared’s view that “nothing in the [*January 2011 Waiver Order*] altered the relative substantive rights and obligations of the parties,”<sup>56/</sup> the *January 2011 Waiver Order* for the first time allowed LightSquared to offer a stand-alone terrestrial service. As multiple pleadings filed by GPS interests in these proceedings documented, the GPS industry was concerned with the *January 2011 Waiver Order*’s significant change to LightSquared’s existing authority, *not* solely with in-band power levels.<sup>57/</sup> The mere

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<sup>54/</sup> See *id.* ¶¶ 25-38.

<sup>55/</sup> Petition at 9.

<sup>56/</sup> *Id.*

<sup>57/</sup> See, e.g., Trimble Comments at 8 (“[N]o one thought the MSS license held by LightSquared’s predecessors, under Commission policies in effect prior to 2011, conferred a right to build a free-standing nationwide terrestrial broadband wireless network.”) (emphasis in original); Consolidated Reply Comments of the U.S. GPS Industry Council, Docket No. 11-109, at 15 (filed Aug. 15, 2011) (“USGIC Reply Comments”) (“LightSquared is the entity that fundamentally altered the intended use of ATC when it sought, in November 2010, to operate a stand-alone high-power co-primary terrestrial signal in its MSS bands instead of an ancillary gap-filler.”).

fact that the FCC found it necessary to waive the integrated service rule in order to permit LightSquared to proceed demonstrates that concerns regarding its permitted power level were not the only factor driving GPS industry opposition to the *January 2011 Waiver Order*.<sup>58/</sup>

All of the decisions that LightSquared cites cannot obscure that the FCC never intended for ATC to be a stand-alone terrestrial service and that it has consistently protected GPS from harmful interference. The Commission should therefore reject LightSquared's efforts to distract it from the truth and rule that LightSquared should not be permitted to proceed with its proposed system.

### **III. DISCUSSION**

Each of LightSquared's requests should be rejected because (1) GPS users and manufacturers have a right to object to interference from LightSquared's proposed operations, (2) the Commission affords commercial GPS receivers with certain protections, (3) GPS receivers do not amount to a "non-conforming" use, and (4) Commission rules squarely place the obligation to resolve interference on LightSquared alone.

#### **A. GPS Users and Manufacturers Have the Right To Object To Interference.**

LightSquared argues that GPS users and manufacturers "lack standing" to complain about interference to GPS devices.<sup>59/</sup> This argument is specious.

*First*, the classification of GPS receivers as Part 25 or Part 15 devices does not mean that GPS receivers are ineligible for protection by the Commission. Indeed, the Commission has expressly noted that "Part 15 manufacturers and users require regulatory certainty," just like

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<sup>58/</sup> See *January 2011 Waiver Order* ¶ 24 ("We find that LightSquared fails to satisfy the integrated service rule set forth in Section 25.149(b)(4) of the Commission's rules [because the] Commission has interpreted the integrated service rule as prohibiting ATC-only subscriptions."); *id.* ¶¶ 25-38 (granting LightSquared a waiver of the integrated service rule).

<sup>59/</sup> Petition at 11-13.

manufacturers and users of licensed services.<sup>60/</sup> The importance of unlicensed devices and the Commission's efforts to protect them are well-established. For example, in adopting rules for the licensed Location and Monitoring Service ("LMS"), the Commission recognized the "important role" that Part 15 devices play "in providing valuable services to the American public," and therefore adopted a rule requiring LMS licensees "to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to Part 15 devices."<sup>61/</sup> Similarly, in 2005, the FCC issued a Public Notice reporting that consumers near certain military installations were experiencing interference to their garage door opener controls.<sup>62/</sup> The Public Notice explained the cause of the interference and the steps the FCC committed to take to alleviate the problem. The Commission also took unlicensed wireless microphones into consideration when it permitted the use of TV band "white spaces," ensuring that those wireless microphones would continue to function without interference from the new

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<sup>60/</sup> *Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Report and Order, 10 FCC Rcd 4695, ¶ 16 (1995).

<sup>61/</sup> *Id.* ¶¶ 11, 82; see also 47 C.F.R. § 90.353(d); *Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules*, Order, DA 11-2036, ¶ 29 (rel. Dec. 20, 2011) (granting M-LMS licensee, Progeny LMS, LLC ("Progeny"), a limited waiver of the FCC's construction requirements, but requiring that it comply with its interference-related requirements, including the requirement that it "demonstrate through actual field tests that its M-LMS system will not cause unacceptable levels of interference to Part 15 devices in the 902-928 MHz band"). Progeny recently submitted a report demonstrating that its M-LMS network does not cause unacceptable levels of interference to Part 15 devices. See Letter from Bruce A. Olcott, Squire Sanders (US) LLP, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-49 (filed Jan. 27, 2012) ("Progeny Report"). In its report, Progeny acknowledges that unlicensed devices must be reviewed when conducting field tests pursuant to Section 90.353(d) of the FCC's rules. See Progeny Report, at Attachment 2, at 6 ("M-LMS is a licensed service, but unlicensed devices also operate in this band. For this reason, the FCC's rules require M-LMS operators to 'demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to [Part 15] devices.'").

<sup>62/</sup> See *Consumers May Experience Interference to Their Garage Door Opener Controls Near Military Bases*, Public Notice, DA 05-424 (rel. Feb. 15, 2005) ("The Department of Defense is working with the National Telecommunications and Information Administration to make reasonable efforts consistent with their mission requirements, and the Federal Communications Commission is working with the garage door opener industry to make every effort on their part, to minimize the impact to consumers.").

service.<sup>63/</sup> It is simply untrue that the FCC is unconcerned about interference to unlicensed devices.

*Second*, if users of unlicensed devices are prohibited from complaining of interference from licensed operations, it is only when such licensed operations are *properly conducted* consistent with the FCC's rules. While Section 15.5 of the Commission's rules requires the users of unlicensed devices to accept interference from "authorized" services, it does not strip users of unlicensed devices of the ability to object to interference caused by an authorized service operating beyond the scope of the rules, as LightSquared proposes to do.<sup>64/</sup>

*Third*, LightSquared presents a distorted version of a generation-old Commission decision when it asserts that Part 25 earth stations are entitled to no interference protection from the Commission.<sup>65/</sup> The FCC's *1979 Decision* addressed the impact that the Commission's optional licensing regime for domestic receive-only earth stations would have on those facilities with respect to licensed facilities operating in the same spectrum band.<sup>66/</sup> The Commission in the *1979 Decision* was careful to note that consumer – or user – remedies and rights relating to interference protection would remain intact to the greatest extent possible; the only remedies eliminated by the transition to the optional licensing regime were the right to file a petition to deny an earth station renewal application and the right to file a request for revocation of the

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<sup>63/</sup> See *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, Second Memorandum Opinion and Order, 25 FCC Rcd 18661, ¶¶ 3, 29-36 (2010) (adopting rules protecting unlicensed microphones operating under Part 15 from interference by allowing "operators of event and production/show venues that use large numbers of wireless microphones on an unlicensed basis . . . to register the sites of those venues on TV bands databases to receive the same geographic spacing protections afforded licensed wireless microphones").

<sup>64/</sup> See 47 C.F.R. § 15.5.

<sup>65/</sup> See Petition at 11-13.

<sup>66/</sup> See *Regulation of Domestic Receive-Only Satellite Earth Stations*, First Report and Order, 74 F.C.C. 2d 205, ¶ 4 (1979) ("*1979 Decision*") (stating that the fundamental basis underpinning the Commission's regulation of satellite facilities "is the existence of interference in shared frequency bands and the effect it might have on the quality of service available to the public").

license for any earth station opting out of the licensing regime.<sup>67/</sup> The *1979 Decision* did not strip Part 25 receive-only earth stations of interference protection from interfering uses in adjacent spectrum bands, and certainly did not “anticipate[ ] the introduction of a new terrestrial service (e.g., the introduction of LightSquared’s ATC service in the MSS band)” that would change the interference environment or “caution[ ] unlicensed users that they would not be permitted to block such change.”<sup>68/</sup> Even in 1979, the Commission recognized that users of unlicensed receive-only earth station devices were entitled to interference protection.

*Fourth*, even if GPS users are not Commission licensees, that does not mean they are without a voice at the FCC. The FCC takes into consideration non-licensee end user concerns in nearly every decision it makes affecting FCC licensees.<sup>69/</sup> For example, the Commission considers the concerns of consumers of telecommunications services in regulating matters affecting telecommunications,<sup>70/</sup> the concerns of radio listeners in matters affecting radio,<sup>71/</sup> and

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<sup>67/</sup> See *id.* ¶ 28.

<sup>68/</sup> Petition at 12.

<sup>69/</sup> See, e.g., *Connect America Fund, et al.*, Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161, ¶ 661 (rel. Nov. 18, 2011) (noting that the FCC works with its bureaus “to ensure that consumer interests are appropriately protected”).

<sup>70/</sup> See, e.g., 47 U.S.C. § 208 (providing individual consumers, among others, with the right to file complaints with the Commission against common carriers); 47 C.F.R. §§ 1.711-1.736 (setting forth Commission procedures for handling complaints against common carriers filed by individual consumers, among others); *FCC Announces OMB Approval of New Obscene, Profane, and/or Indecent Material Complaint Form and Revised General Complaint Form*, Public Notice, 20 FCC Rcd 17905 (2005) (announcing the adoption of streamlined complaint forms to allow consumers to more easily file indecency and Telephone Customer Protection Act complaints for consideration by the Commission); *In re Applications of Ameritech Corp., Transferor, and SBC Communications Inc., Transferee, For Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95 and 101 of the Commission’s Rules*, Memorandum Opinion and Order, 14 FCC Rcd 14712, ¶ 415 (1999) (“[M]embers of the public may pursue a claim in accordance with either section 207 or section 208 of the Act.”).

<sup>71/</sup> See, e.g., 47 U.S.C. § 309(d)(1) (“Any party in interest may file with the Commission a petition to deny any [broadcast] application . . .”); *CBS Radio Inc. of Philadelphia; Licensee of Station WIP(AM), Philadelphia, Pennsylvania*, Memorandum Opinion and Order, 24 FCC Rcd 10993, ¶ 7 (2009) (“As a general matter, in a license application proceeding, a party seeking to file a petition to deny may qualify as a party in interest if the petitioner alleges that he or she is a listener or viewer of the station in question

the concerns of television viewers in matters affecting television.<sup>72/</sup> GPS users are no different – they are beneficiaries of telecommunications services provided by others.<sup>73/</sup>

*Finally*, the FCC has broad authority to promote the public interest when making spectrum use and allocation decisions. The FCC is authorized, for example, to issue rules to regulate potential interference between services in a manner that is consistent with the public interest.<sup>74/</sup> The Commission is also authorized to act in the public interest even when such action may adversely affect the interests of private parties. As the Commission acknowledged in its March 2010 Order modifying the licenses held by SkyTerra,

“[t]he Communications Act does not require the Commission to rule on each application in a way that minimizes interference to each and every end user. If it did, we would be obliged to deny SkyTerra’s contested waiver requests. Its ATC base stations, operating as proposed in its application, will cause interference over wider areas than they would if operated in strict compliance with the ATC rules. The Communications Act, however, does require that the Commission consider the overall public interest, even though that consideration may negatively impact one or more private interests.”<sup>75/</sup>

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or that he or she resides within the station’s service area.”); *In re Applications of CHET-5 Broadcasting, L.P. (Assignor) and Crystal Communications Corporation (Assignee); For Consent to Assignment of WKNY(AM), Kingston, NY, et al.*, Memorandum Opinion and Order, 14 FCC Rcd 13041, ¶ 3(1999) (interpreting Section 309(d)(1) of the Communications Act as allowing party-in-interest status, and thus petition to deny standing, to a petitioner “who demonstrates either residence in the station’s service area or that the petitioner listens to or views the station regularly”).

<sup>72/</sup> See, e.g., *Paxson Management Corporation and Lowell W. Paxson (Transferors) and CIG Media LLC (Transferee); For Transfer of Control of ION Media Networks, Inc., and Certain Subsidiaries, Licensees of Station KPPX(TV), Tolleson, Arizona, et al.*, Memorandum Opinion and Order, 22 FCC Rcd 22224, ¶ 1, n.2 (2007) (holding that the petitioners had viewer standing since Section 309(d)(1) of the Communications Act of 1934 provides that a party filing a petition to deny must demonstrate that he or she is a “party in interest”, and that the Commission has “granted viewer standing to petitioners raising similar allegations in the past”); *In re Applications of Certain Television Stations Serving Communities in the State of California*, Memorandum Opinion and Order and Notices of Apparent Liability, 6 FCC Rcd 2340, ¶ 5 (1991) (noting that in the context of Section 309(d)(1) of the Communications Act of 1934, “a party in interest is a viewer of the station or a resident in the station’s service area”).

<sup>73/</sup> The fact that television viewers, for example, use a service licensed by the FCC while GPS users employ a service licensed to the federal government is irrelevant. If it is the FCC’s actions that affect GPS operations, then the FCC is the appropriate entity to which a consumer should express his or her concern.

<sup>74/</sup> See 47 U.S.C. § 302a.

<sup>75/</sup> *SkyTerra Subsidiary LLC Application for Modification Authority for an Ancillary Terrestrial Component*, Order and Authorization, 25 FCC Rcd 3043, ¶ 27 (2010).

It is clearly in the public interest to protect a highly valued national asset such as GPS. As the Coalition previously reported, GPS technologies have become a critical resource affecting nearly every facet of modern-day life, and government and private users alike have invested billions of dollars in the GPS industry.<sup>76/</sup> Given the FCC's charge to act in the public interest, it simply makes no sense for LightSquared to argue that the FCC is without authority to address the public's concerns regarding LightSquared's potential interference to GPS devices.<sup>77/</sup>

**B. Commercial GPS Receivers Have Protection from LightSquared's Operations.**

Surprisingly, the Petition declares that GPS receivers “have no general ‘protection’ from LightSquared’s operations,” and then presents five pages worth of protections the FCC has provided to GPS.<sup>78/</sup> The FCC’s actions that LightSquared cites were intended specifically to protect GPS receivers from interference. The protections – including but not limited to power levels, emissions limits, and frequency separation – would be meaningless if users of those receivers have no right to enforce them. The fact that the transmitters are operated by the Department of Defense (“DoD”) is no answer. As the Commission is aware, DoD merely makes the GPS signal available for commercial use; there is no interaction between DoD and commercial providers of GPS service. DoD is not, therefore, the appropriate entity to protect GPS users from interference from FCC-regulated services.

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<sup>76/</sup> See Coalition Comments at 7-9 (“The federal government has invested \$35 billion in the GPS satellite constellation alone and much more in critical systems, such as those employed by the Department of Defense and other federal agencies, which use GPS. Businesses and consumers have also spent billions on GPS-based technologies and devices. The United States is now the world’s leader in satellite navigation technology due to this steady stream of investment.”).

<sup>77/</sup> See, e.g., Petition at 12-13 (arguing that users of GPS devices lack the right to protection from LightSquared’s adjacent band operations and the procedural right to complain to the Commission regarding the incompatibility of LightSquared’s ATC operations and commercial GPS devices).

<sup>78/</sup> *Id.* at 13-17.

As the Commission’s decisions, which LightSquared cites, make clear, it is the FCC that is responsible for ensuring that GPS remains interference free. Proof of full protection of GPS was an explicit condition of the International Bureau’s *January 2011 Waiver Order*, and LightSquared did not object to this condition at the time. Only now that LightSquared has realized that it would never be able to satisfy this condition has it offered its unsupported legal theories as to why it is not obligated to provide interference protection.<sup>79/</sup> GPS manufacturers and users are the logical, indeed only, entities that can assert the rights the FCC’s rules and decisions are designed to create.

LightSquared recognizes the protection afforded to GPS by Section 25.255 of the Commission’s rules, but then affords it an unreasonably narrow reading.<sup>80/</sup> Section 25.255 is unambiguous. As the Coalition and other interested parties have explained numerous times,<sup>81/</sup> Section 25.255 states that “[i]f harmful interference is caused to other services by ancillary MSS

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<sup>79/</sup> The *January 2011 Waiver Order* shows that LightSquared readily accepted the FCC’s partial, conditional grant of its application, including the condition protecting GPS from interference. See *January 2011 Waiver Order* ¶ 40 (“LightSquared states that it would accept, as a condition of the grant of its request, the creation of a process to address interference concerns regarding GPS and, further, that this process must be completed to the Commission’s satisfaction before LightSquared commences offering commercial service, pursuant to the approval of its request, on its L-Band MSS frequencies.”). If, upon the Bureau’s release of the *January 2011 Waiver Order*, LightSquared changed its mind and did not wish to be required to comply with the testing condition, or if LightSquared took issue with any other aspect of the Bureau’s decision to partially grant its application, then LightSquared had 30 days to challenge such action under the Commission’s rules. See 47 C.F.R. § 1.110 (“Where the Commission without a hearing grants any application in part . . . , the action of the Commission shall be considered as a grant of such application unless the applicant shall, within 30 days from the date on which such grant is made . . . file with the Commission a written request rejecting the grant as made [in which event the application will be set for hearing]”). LightSquared did not exercise its right to challenge the terms of the *January 2011 Waiver Order* in a timely fashion, and therefore cannot challenge these terms now.

<sup>80/</sup> See Petition at 16-17.

<sup>81/</sup> See, e.g., Coalition Comments at 30; Trimble Comments at 24-25; Verizon Wireless Comments at 15; USGIC Reply Comments at 26-27.

ATC operations, either from ATC base stations or mobile terminals, the MSS ATC operator must resolve any such interference . . .”<sup>82/</sup>

This rule unequivocally places the responsibility on the ATC operator – LightSquared in this instance – to resolve any interference caused to “other services” – such as GPS – at its own expense. It cannot reasonably be read to “merely provide[ ] a procedural vehicle” for addressing interference experienced by some narrow category of users as LightSquared contends.<sup>83/</sup> The rule also does not carve out unlicensed services<sup>84/</sup>; rather, it broadly protects “other services” from harmful interference from ATC operations. The Coalition recognizes that the Commission, in another proceeding, recently suggested that the responsibility for protecting services “rests not only on new entrants but also on incumbent users themselves.”<sup>85/</sup> However, the Petitions for Reconsideration in that proceeding show that, in the case of terrestrial use of L-Band MSS spectrum, the assertion is incorrect and the responsibility for curing interference rests solely with LightSquared – there is no “shared responsibility” for addressing interference.<sup>86/</sup>

LightSquared’s distinction that Section 25.255 applies to “inter-service” interference “only in the event that concerns about out-of-band emissions exist . . . , and not in the case of receiver ‘desensitization’ or ‘overload’” is likewise an invention entirely of LightSquared’s own making.<sup>87/</sup> In fact, the *2003 ATC Decision* it cites fails to support such a limited reading. Instead of establishing a narrow basis for protection from harmful interference, the *2003 ATC Decision*

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<sup>82/</sup> 47 C.F.R. § 25.255.

<sup>83/</sup> Petition at 17 n.48.

<sup>84/</sup> *See id.*

<sup>85/</sup> *Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660 MHz, 1610-1626.5 MHz and 2483-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, Report and Order, 26 FCC Rcd 5710, ¶ 28 (2011).

<sup>86/</sup> *See* USGIC Petition at 10; *see also* Petition Public Notice at 1.

<sup>87/</sup> *See* Petition at 17 n.49.

broadly states that “[t]he ATC technical rules shall apply to all 2 GHz MSS licensees choosing to implement ATC in their selected MSS frequency assignments . . . and protect systems operating in adjacent service allocations from interference.”<sup>88/</sup> In any event, the portions of the *2003 ATC Decision* cited by LightSquared address potential interference to Personal Communications Service (“PCS”) devices, not GPS.<sup>89/</sup> A few paragraphs later, in the *2003 ATC Decision*, the Commission does broadly address the potential of ATC operations to interfere with GPS, “recogniz[ing] that the unwanted emissions from terrestrial stations in the MSS will have to be carefully controlled in order to avoid interfering with GPS receivers” and concluding that, in light of the significant concerns raised regarding potential interference to GPS devices, the Commission would “continue to assess the appropriate interference protection levels for GPS.”<sup>90/</sup>

**C. GPS Receivers Do Not Represent a “Non-Conforming Use”.**

Despite LightSquared’s assertions, GPS operations in the MSS band do not represent a “non-conforming use” because the industry “has manufactured and sold many GPS receivers that employ inadequate filtering and frequency discrimination.”<sup>91/</sup> To the contrary, commercial GPS devices have long been designed to take advantage of the latest technology. As previously explained by the Coalition, current GPS receivers already incorporate state-of-the-art filtering technologies that are designed to resist signals tens of thousands or even millions of times more powerful than the GPS signal from space.<sup>92/</sup> The most sensitive precision GPS devices typically have at least five stages of state-of-the-art filtering in an effort to preserve the GPS signal.<sup>93/</sup>

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<sup>88/</sup> *2003 ATC Decision* ¶ 109.

<sup>89/</sup> *See id.* ¶¶ 119-20; Petition at 17 n.49.

<sup>90/</sup> *2003 ATC Decision* ¶¶ 124-26.

<sup>91/</sup> Petition at 18.

<sup>92/</sup> *See Coalition Reply Comments* at 15.

<sup>93/</sup> *See Coalition Comments* at 38 n.105.

Innovation in GPS receiver design has led to extraordinary market-based success and an astounding variety of successful GPS based applications and services.

LightSquared also argues that GPS receivers do not employ proper filtering techniques “largely because they fail to meet standards set forth in the relevant U.S. Specifications for civilian GPS use.”<sup>94/</sup> LightSquared made similar arguments in the fall of 2011, arguing that GPS receivers somehow violate DoD standards.<sup>95/</sup> As other parties have demonstrated, however, DoD has never specified GPS receiver standards or attempted to do so.<sup>96/</sup> NTIA has also recently recognized that “[t]here are currently no federal, FCC, or industry developed GPS receiver standards except for those international standards . . . for certified aviation devices.”<sup>97/</sup> Even LightSquared acknowledges that the “Navstar GPS Space Segment/Navigation User Interfaces” document that it cites does not include “mandatory” standards.<sup>98/</sup> Manufacturers have always had the ability to design GPS receivers as they see fit to support their applications and maximize

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<sup>94/</sup> See Petition at 18.

<sup>95/</sup> See Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Honorable Michael Turner, Chairman, Strategic Forces Subcommittee, House Armed Services Committee, and Honorable Loretta Sanchez, Ranking Member, Strategic Forces Subcommittee, House Armed Services Committee, at 3 (Sept. 15, 2011) (citing the “Global Positioning System Standard Positioning Service Performance Standard”); see also Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Julian Genachowski, Chairman, FCC, Docket No. 11-109, at 1-2 (filed Oct. 3, 2011).

<sup>96/</sup> See Letter from James A. Kirkland, Vice President and General Counsel, Trimble Navigation Limited, to Honorable Michael Turner, Chairman, Strategic Forces Subcommittee, and Honorable Loretta Sanchez, Ranking Member, Strategic Forces Subcommittee, Docket No. 11-109, at 9 (filed Oct. 6, 2011) (“Trimble HSAC Letter”) (noting that the “Global Positioning System Standard Positioning Service Performance Standard” sets forth standards for the performance of GPS satellites and related positioning services, *not* GPS receivers, and that the GPS receiver characteristics described in the report, “are *not* intended to impose any minimum requirements on receiver manufacturers or integrators . . . [r]eceiver characteristics used in this standard are required in order to establish a frame of reference in which the SPS [Standard Positioning Service] performance can be described”) (citing Department of Defense, Global Positioning System Standard Positioning Service Performance Standard, at 7 (4th ed. 2008)).

<sup>97/</sup> NTIA Letter at 6.

<sup>98/</sup> See LightSquared Petition at 18.

the benefits they convey in a manner that keeps pace with technological and market developments.

In fact, it is this flexibility that has allowed manufacturers to design GPS devices that adhere to LightSquared's own contracts with satellite customers providing GPS augmentation services using the MSS band, which require that GPS receivers be designed to receive signals in the entire MSS band. As the Coalition has explained on numerous occasions, GPS receivers do not suffer harmful interference from LightSquared's network because they improperly "listen to" the adjacent MSS band.<sup>99/</sup> The "capture" of MSS signals by GPS devices of which LightSquared complains is, and always has been, intentional and required by LightSquared's own contracts to support receipt of LightSquared's and other parties' support of augmentation services.

LightSquared acknowledges that certain commercial GPS manufacturers "also provide MSS 'augmentation' services, using narrowband data streams leased from LightSquared or Inmarsat."<sup>100/</sup> LightSquared, however, asserts that such arrangements "do[] not give them the right also to conduct GPS (or RNSS) operations in that band on a protected basis."<sup>101/</sup> The GPS industry has consistently utilized augmentation services to provide support to GPS signals, thereby improving the accuracy of the location information generated by the GPS devices. GPS devices that use these services, and therefore "listen to signals outside the GNSS band," have operated properly as MSS receivers, not GPS or RNSS receivers. In contrast to LightSquared's claims, they are a data communications service, not a radiodetermination service. LightSquared has not provided any evidence demonstrating that GPS devices are operating otherwise.

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<sup>99/</sup> See, e.g., Coalition Wireless Competition Report Comments at 7.

<sup>100/</sup> Petition at 21.

<sup>101/</sup> *Id.*

As also previously explained by the Coalition, non-augmentation GPS devices have been designed for decades to pick up very faint signals transmitted at very low power throughout – but not outside – the GPS band by satellites 12,000 miles away.<sup>102/</sup> This is because the wider the bandwidth a GPS receiver is designed to receive, the greater the potential for the receiver to pick up the intended GPS signal and deliver more accurate positioning information to users. While non-augmentation devices are designed to listen to as much of the GPS band as possible, they only receive signals in the GPS band. They are not, as LightSquared characterizes it, “listening” to MSS signals. At the same time, those non-augmentation devices are receiving harmful interference within the band designated for GPS from signals outside that band and therefore must be protected.

As LightSquared’s predecessors knew and LightSquared itself should have known, GPS receivers must be designed to be highly sensitive in order to receive faint satellite GPS signals, and they are therefore vulnerable to overload by high-powered signals in closely adjacent bands. LightSquared’s claims that it has a superior right to flood a mobile satellite band with ubiquitous, high-powered terrestrial signals, notwithstanding the existence of a vibrant and critical GPS industry, is legally wrong.

**D. Commercial GPS Users Should Not Bear the Costs of Any Changes Needed To Accommodate LightSquared’s Operations.**

**1. GPS Receivers Are Not Poorly Designed.**

LightSquared continues to argue that the GPS industry must bear the costs of ensuring that its operations are compatible with operations in the adjacent MSS band because the interference problem is a result of “poorly-designed receivers.”<sup>103/</sup> The Coalition and several

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<sup>102/</sup> See Coalition Wireless Competition Report Comments at 7.

<sup>103/</sup> See Petition at 23.

GPS manufacturers, however, have explained numerous times that GPS receivers are not poorly designed.<sup>104/</sup> GPS devices were never intended to operate in the presence of a ubiquitous, high-powered terrestrial network because such operations were not authorized under the Commission's prevailing policies.<sup>105/</sup> GPS receivers were developed with the historical interference environment in mind and the expectation that the "quiet neighborhood" in which MSS was originally authorized would be maintained.

Further, if commercial GPS devices are poorly designed as LightSquared wrongly contends,<sup>106/</sup> then military and other GPS devices must be poorly designed as well because these GPS devices use the same platforms as commercial GPS devices. LightSquared's accusations in this regard must be false as it is highly unlikely that, for example, the DoD relies upon subpar GPS receivers in connection with its vast array of navigation and weapons systems. Given our nation's reliance on GPS technologies for nearly every facet of modern-day life, it is impossible to believe LightSquared's assertion that the entire GPS community comprised of actors in both the public and private sectors have spent billions of dollars developing, selling, purchasing, installing, and using poorly designed GPS equipment.

To the contrary, design and use of GPS by the military has consistently been handled with the utmost care and consideration. For example, in 2000, the GPS Military Design Team, led by the GPS Joint Program Office, completed a multi-year process to define a recommended

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<sup>104/</sup> See Coalition Wireless Competition Report Comments at 7; Coalition Reply Comments at 15-16; see also Deere Comments at 25 ("LightSquared is simply wrong to the extent it is insinuating that the interference caused by LightSquared is because GPS receivers are defective or poorly designed. They are not."); Trimble HASC Letter at 8-11.

<sup>105/</sup> See Coalition Wireless Competition Report Comments at 7.

<sup>106/</sup> See Petition at 23-29.

design for a new military signal, designated as the “M code.”<sup>107/</sup> The purpose of this signal, which is to be implemented in the next generation of GPS satellites and military GPS receivers over the coming several decades, is to add new military capabilities, to protect military use of GPS by the United States and its allies, and to prevent hostile use of GPS, while at the same time preserving the peaceful use of the civil radionavigation system.<sup>108/</sup> It was designed in the interests of spectral efficiency and reuses the spectrum already allocated for GPS use, including the spectrum adjacent to the MSS band at the L1-Band (1560 – 1610 MHz).<sup>109/</sup> The GPS Military Design Team also determined that the new military signal should use a “split spectrum” modulation that places most of its power near the edges of the allocated L1 and L2 bands, away from the center of the bands, in order to add signals while ensuring mutual coexistence with the civilian signal centered at 1575.42 MHz.<sup>110/</sup> Thus, the M code design puts one lobe of the new military signal almost directly adjacent to the upper MSS band.

As discussed throughout these proceedings, GPS devices are designed to provide the highest accuracy, which requires the use of as much of the GPS band as possible. GPS devices have not “fail[ed] . . . to work as intended,”<sup>111/</sup> but rather work exactly as intended in providing the best service to customers taking into account the long-standing and well-established interference environment which the Commission specifically established and in which GPS has

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<sup>107/</sup> See Capt. Brian C. Barker, et al., *Overview of the GPS M Code Signal*, at 2 (2000), available at [http://www.mitre.org/work/tech\\_papers/tech\\_papers\\_00/betz\\_overview/betz\\_overview.pdf](http://www.mitre.org/work/tech_papers/tech_papers_00/betz_overview/betz_overview.pdf).

<sup>108/</sup> See *id.*

<sup>109/</sup> See *id.*

<sup>110/</sup> See *id.*

<sup>111/</sup> Petition at 24.

thrived.<sup>112/</sup> Liberally quoting irrelevant excerpts from 1960's decisions involving television receivers does not change the fact that GPS receivers work precisely as intended.<sup>113/</sup>

The *AirTouch Decision* cited by LightSquared is similarly inapplicable to GPS receiver design and the determination of which party must bear the responsibility for resolving interference concerns.<sup>114/</sup> In the *AirTouch Decision*, the Commission found it unnecessary to provide certain *additional* protections to GPS based on AirTouch's proposed operations. In the instant case, the GPS industry is not requesting any protections beyond those already in place.<sup>115/</sup>

The *2003 ATC Decision*'s treatment of interference issues involving PCS is similarly inapposite. First, while LightSquared itself recognizes that PCS carriers were aware of certain "potential interference from MSS systems in adjacent spectrum,"<sup>116/</sup> the Commission noted that these carriers were aware of only a "minimal" potential for interference.<sup>117/</sup> What LightSquared fails to disclose is that the Commission in this decision found that "ATC may pose a greater interference problem for adjacent PCS operations" than previously anticipated, and therefore "some additional requirements on ATC . . . are necessary and appropriate."<sup>118/</sup> The Commission

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<sup>112/</sup> The Coalition notes that, in any case, the FCC has historically declined to adopt receiver standards, except in very specific circumstances. See, e.g., *Interference Immunity Specifications for Radio Receivers*, Order, 22 FCC Rcd 8941, ¶ 2 (2007) (terminating without action a proceeding assessing whether the Commission should incorporate receiver standards into its spectrum policies, stating that "to the extent receiver interference immunity performance specifications are desirable, they may be addressed in proceedings that are frequency band or service specific"); *Spectrum Policy Task Force*, Report, Docket No. 02-135, at 31 (2002) (noting that while the Commission may have "the requisite statutory authority to promulgate receiver performance standards, [the Spectrum Policy Task Force] recommends that legislation more explicitly granting such authority be enacted").

<sup>113/</sup> See Petition at 23 nn. 70-71.

<sup>114/</sup> See *id.* at 25-26.

<sup>115/</sup> See *AirTouch Decision* ¶ 15 (declining to adopt additional requirements to protect certain types of ground-based GPS receivers).

<sup>116/</sup> Petition at 26; *2003 ATC Decision* ¶ 118.

<sup>117/</sup> *2003 ATC Decision* ¶ 118.

<sup>118/</sup> *Id.*

further noted that “in the event that a PCS operator receives harmful interference from ancillary ATC base stations or mobile terminals, we will also require that the ATC operator [not the PCS carrier] must resolve any such interference.”<sup>119/</sup> In addition, with respect to the *2003 ATC Decision*’s discussion regarding the potential for “overload” of PCS devices, the Commission stated that concerns regarding overload were minimal – very different from the concerns validated by the assessments of LightSquared’s proposed operations.<sup>120/</sup>

LightSquared’s reliance on the Commission’s recent *2 GHz MSS Decision* is similarly misplaced as it contains inaccurate statements regarding the responsibilities of incumbent spectrum users and the anticipated nature of L-Band terrestrial operations, as pointed out in several petitions for reconsideration.<sup>121/</sup> The Commission’s offhand statement, which has been challenged in these petitions, failed to include any reasoned analysis or discussion of, much less citation to, relevant prior decisions, and the statement is entitled to no precedential weight.

**2. LightSquared’s Assertion That It Has Been Able to “Fix” the Alleged Deficiencies in GPS Design Is Completely Unsupported.**

LightSquared argues that it “was able to develop appropriate filtering technologies for GPS receivers in less than six months (starting earlier this year)” which demonstrates that “the commercial GPS industry readily could have done the same.”<sup>122/</sup> LightSquared’s claim that it can “fix” the alleged deficiencies in GPS design, however, is without support and must be rejected. LightSquared’s proposed technologies have not been made available for commercial testing, and serious questions remain about the compatibility of those devices with tens, perhaps

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<sup>119/</sup> *Id.* ¶ 119.

<sup>120/</sup> *See id.* ¶ 120.

<sup>121/</sup> *See Public Notice at 2; Petition Public Notice at 1; see also USGIC Petition at 10.*

<sup>122/</sup> *Petition at 25.*

even hundreds, of millions of existing GPS receivers including costly precision receivers, and the manner by which the proposed filters can be retrofitted to existing devices.

In particular, LightSquared announced this past fall that its vendor, Javad GNSS, Inc. (“Javad”), had developed a system that eliminates interference issues for high precision GPS devices.<sup>123/</sup> Not surprisingly, its announcements were accompanied by offers from Javad to sell these receivers to all customers. In December 2011, and again in January 2012, LightSquared submitted to the FCC a series of results from the testing of high precision GPS equipment performed by Alcatel Lucent Bell Labs (“ALU”) allegedly demonstrating “the ability of high precision GPS devices to be appropriately filtered so as to be able to fully reject LightSquared authorized transmissions in the adjacent spectrum band.”<sup>124/</sup> LightSquared noted that it had tested “commercially-available” devices including a modified Javad external antenna.

Contrary to LightSquared’s assertions, however, these technologies have not been shown to provide a feasible “fix” for interference, including to the many kinds of precision devices in use. As other parties have confirmed, the equipment tested by ALU did not include production units that are available in the commercial market.<sup>125/</sup> Moreover, many barriers exist to making

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<sup>123/</sup> See Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Sept. 21, 2011); Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Oct. 6, 2011).

<sup>124/</sup> See Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Dec. 23, 2011); Letter from Jeffrey Carlisle, Executive Vice President, Regulatory Affairs & Public Policy, LightSquared Subsidiary, LLC, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Jan. 20, 2012) (“LightSquared January 2012 Letter”).

<sup>125/</sup> See Letter from F. Michael Swiek, Executive Director, U.S. GPS Industry Council, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Jan. 12, 2012) (“USGIC January 2012 Letter”); Letter from Catherine Wang and Tim Bransford, Bingham McCutchen LLP, Outside Counsel to Deere & Company, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109 (filed Nov. 11, 2011) (“[W]e discussed the need for rigorous and comprehensive testing, including consideration of various

these new, unproven devices commercially available. Increased filtering of GPS devices may lead to degradation in performance. Even the manufacturers cited in the ALU test results have pointed out that the experimental technology proposed by LightSquared would adversely affect the GPS signal, even where LightSquared's transmissions are not present, and that it may take several months to a year for these devices to be introduced and to be qualified for high precision use.<sup>126/</sup>

Further, there is simply no evidence that such filtering technologies can be compatibly used with existing equipment. Different types of GPS receivers are manufactured by several different entities, and it is impractical to assume that a single proposed "fix" will resolve the interference issues for *all* devices. Any solution proposed by LightSquared must undergo comprehensive and rigorous testing to assess its effect on the many different types of GPS equipment, especially on high precision receivers. As General Shelton explained before the Strategic Forces Subcommittee of the House Armed Services Committee, if some kind of filter solution exists, "we would have to thoroughly test it. We might even have to do software modifications to accommodate it. I mean, there's just a whole bevy of questions that are unanswered at this point."<sup>127/</sup>

Testing must examine the performance of the modified GPS receivers, including their accuracy, as well as the susceptibility of the devices to interference from LightSquared's operations. Devices modified by the addition of the Javad "fix" must also be tested to evaluate how they function when faced with various operational conditions like shock and vibration. This

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performance characteristics, of high precision receivers under test that have been retrofitted with filters developed by LightSquared vendors . . . Such filters have not yet been made available to Deere.").

<sup>126/</sup> See LightSquared January 2012 Letter, Attachment 3, at 17; see also USGIC January 2012 Letter at 1-2.

<sup>127/</sup> General Shelton Oral Testimony at \*11-12.

testing should include an evaluation of the ability of the modified receivers to continue to react to a range of environmental conditions. GPS receivers, particularly high precision devices, often confront challenging environmental conditions in the industrial, agricultural, construction, and other similar sectors of the economy. Any filter or proposed solution must allow GPS equipment to continue to function properly without interference in those environments.

Even if a commercially available solution existed and was found, after extensive testing, to be compatible with existing GPS equipment, the proposed “fix” would be prospective. Its existence and compatibility with GPS devices in no way solves the need to retrofit a massive quantity of existing devices. Numerous parties have questioned whether retrofitting is even possible, let alone practical. Several GPS manufacturers have noted that “[a]ny effort to retrofit equipment, if such retrofitting is even possible, would be a complex process and involve extensive costs associated with modifying or replacing equipment, significant end user disruption, and submission to lengthy government aviation equipment certification procedures.”<sup>128/</sup>

As Trimble explained in its letter to members of the Strategic Forces Subcommittee of the House Armed Services Committee, prior to placing any new equipment into operations, DoD must first conduct comprehensive testing, evaluations, and certification programs. Even if an effective filter could be developed, DoD would still have to conduct testing and weapon system recertification “for *every* class of ground vehicle, helicopter, tactical aircraft, strategic bomber, and ship in the DoD inventory. This would affect assets of the Army, Navy, Air Force, Marine Corps, Special Operations Command, and Guard and Reserve units in every State.”<sup>129/</sup> There is

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<sup>128/</sup> Letter from Catherine Wang and Tim Bransford, Bingham McCutchen LLP, Outside Counsel to Deere & Company, to Marlene H. Dortch, Secretary, FCC, Docket No. 11-109, at 2 (filed Oct. 27, 2011).

<sup>129/</sup> Trimble HSAC Letter at 17.

no guarantee that after this extensive process suitable filter solutions could be applied to such devices, and even still the costs for retrofitting a million or more GPS precision receivers would be enormous. General Shelton opined that “the cost would be in the billions of dollars” and that it would “probably be a decade or more to accomplish all this.”<sup>130/</sup> LightSquared, however, has consistently refused to accept any responsibility for the costs to retrofit GPS devices or to otherwise ensure the compatibility of such devices with adjacent band operations.<sup>131/</sup>

There is simply no workable solution from Javad or anyone else. This is particularly troubling in light of tests recently conducted by the National Space-Based Positioning, Navigation, and Timing Systems Engineering Forum (“NPEF”) and others, which confirm that devastating interference would be experienced by a number of GPS receivers, particularly personal/general navigation and aviation GPS receivers, from LightSquared’s proposed network. NPEF concluded that 69 out of the 92 devices tested were impacted by the lower 10 MHz base station signal with an EIRP of 62 dBm, a representative base station antenna pattern, an antenna height of 15 meters, and an antenna down-tilt angle of six degrees.<sup>132/</sup> NTIA also concluded “that the lower 10 MHz base station signal would impact currently deployed personal/general navigation GPS receivers.”<sup>133/</sup> Testing performed by the FAA found that “GPS receivers used for low-altitude aviation operations such as terrain awareness navigation and surveillance would not be compatible with a LightSquared base station operating at its maximum proposed EIRP taking into account transmitter and GPS receiver antenna patterns” and that “[i]nterference

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<sup>130/</sup> General Shelton Oral Testimony at \*11.

<sup>131/</sup> See Petition at iv, 23-29.

<sup>132/</sup> See *NTIA Letter* at 4; National Space-Based Positioning, Navigation, and Timing Systems Engineering Forum, *Follow-on Assessment of LightSquared Ancillary Terrestrial Component Effects on GPS Receivers*, at Executive Summary, at ii (Jan. 6, 2012).

<sup>133/</sup> *NTIA Letter* at 4.

would occur when the GPS receiver is in the vicinity of a base station, or at lower altitudes in the presence of multiple base stations.”<sup>134/</sup> NTIA agreed with the FAA and concluded that it did not believe “that base stations can operate in the lower 10 MHz, as proposed, in the next few years, without impacting to some degree safety-critical GPS functionality.”<sup>135/</sup>

As shown throughout these proceedings, LightSquared’s assertion that GPS manufacturers should have been migrating users to “more robust receivers” is based on its own flawed interpretation of history and must be viewed instead against the regulatory protections under which GPS has always operated.<sup>136/</sup> Today’s GPS devices represent the most advanced engineering available in light of the clear meaning of the FCC’s rules and decisions. Consequently, any harm caused to GPS by LightSquared’s proposed operations must be mitigated by LightSquared alone at its sole cost.

#### **IV. CONCLUSION**

LightSquared’s Petition demonstrates its unwillingness to accept what every other interested party in these proceedings has recognized: LightSquared’s proposed operations will cause devastating harmful interference to the hundreds of millions of GPS devices in use in every sector of the economy, and therefore LightSquared must not be permitted to move forward with its plans. The vast majority of the contentions in the Petition simply rehash arguments already considered and fully addressed on the record. Any new arguments presented by LightSquared are peripheral and meaningless, serving only to seek to distract the Commission from its evaluation of the central question of whether it should now withdraw LightSquared’s

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<sup>134/</sup> *Id.* at 5; *see also* Letter from Michael P. Huerta, Acting Administrator, U.S. Department of Transportation, Federal Aviation Administration, to the Honorable Lawrence E. Strickling, Administrator, NITA (Jan. 27, 2012).

<sup>135/</sup> *NTIA Letter* at 6.

<sup>136/</sup> Petition at 28.

authority to provide terrestrial services. If the Commission seeks to consider broader public policy issues relating to the repurposing of MSS spectrum for terrestrial-only services, it must do so through full notice and comment rulemaking. Consequently, the Coalition urges the Commission to promptly reject LightSquared's Petition.

Respectfully submitted,

/s/ Paul G. Scolese

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February 27, 2012