

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

In the Matter of)	
)	
)	
LightSquared Technical Working)	IB Docket No. 11-109
Group Report)	DA 12-214
)	
)	
and)	
)	
LightSquared Subsidiary LLC)	File No. SAT-MOD-20101118-00239
Request for Modification of its)	
Authority for an Ancillary Terrestrial)	
Component)	

REPLY COMMENTS OF LIGHTSQUARED INC.

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EXECUTIVE SUMMARY

A wide range of commenters in this proceeding acknowledge that the *de facto* revocation of LightSquared’s ATC authorization proposed in the Commission’s February 15, 2012 *Public Notice* would not serve the public interest, and in fact would be a wholly incongruous and disproportionate response to the issue at hand: the inability of a limited number of GPS receivers to operate properly in spectrum that has not been allocated for GPS use, and instead has been licensed to LightSquared for different purposes. The continuum of legal and policy responses that the Commission could take to address this issue includes:

- Acknowledging LightSquared’s superior spectrum rights in the MSS/ATC Band vis-à-vis its use by nonconforming, unlicensed GPS receivers, and causing GPS manufacturers to bear the cost of conforming their products to a series of long-final Commission rulemaking and licensing decisions;
- Continuing the process begun by the working group established in this proceeding to explore recommendations “to permit broadband wireless services to be provided in the L-Band MSS frequencies and coexist with GPS devices”¹—a process that *already* has yielded proposals and solutions that effectively eliminate the risk of “overload” effects for more than 99 percent of GPS receivers in the majority of LightSquared’s licensed spectrum; and/or
- Working with NTIA to develop spectrum solutions to enable LightSquared to deploy its broadband wireless services in alternative spectrum—the very solution proposed by the Commission last week to address “interference” concerns related to another MSS/ATC licensee that (unlike LightSquared) had not already invested billions of dollars in its terrestrial network pursuant to a direct Commission order. Indeed, the *2 GHz NPRM and NOI* demonstrates why shifting and swapping blocks of frequencies is an appropriate response to balancing broadband goals, interference concerns, and licensee expectations.²

¹ See *LightSquared Subsidiary LLC*, 26 FCC Rcd 566, at ¶ 42 (2011).

² See *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Notice of Proposed Rulemaking and Notice of Inquiry, FCC 12-32 (Mar. 21, 2012).

The *Public Notice* considers none of these approaches. Instead, it proposes to suddenly “pull the plug” on LightSquared’s multi-billion dollar investment in wireless broadband—after the Commission mandated that LightSquared deploy its network on an accelerated timeframe, and even though the Commission continues to bemoan more generally a broadband spectrum crisis that threatens U.S. competitiveness. As the Chairman of the House Energy and Commerce Subcommittee on Communications and Technology observed earlier this week, “[t]his isn’t a very good process”:

How do you end up having somebody spending billions of dollars on a license, and they go to do what they’re supposed to do, and somebody else, because there are receiver issues, prevents them and destroys their business model? I don’t think that’s right.³

Needless to say, LightSquared and thousands of other commenters do not think it is right or in the public interest, either.

Unsurprisingly, the GPS commenters have flocked to the *Public Notice*’s proposals, offering revisionist history and overheated rhetoric to trumpet NTIA’s flawed testing and unsubstantiated “conclusions” as a reason to end LightSquared’s ATC deployment in the MSS/ATC Band once and for all. But these parties do not demonstrate, because they cannot, that the current record supports a license revocation or suspension. That type of penalty typically is imposed by the agency only for wrongdoing and malfeasance—not when a licensee follows the Commission’s rules and mandates as LightSquared has done since the beginning of the ATC rulemaking process over a decade ago.

Specifically, in this proceeding, the record demonstrates that: (i) LightSquared is a licensed and primary spectrum user in the MSS/ATC Band, whose use of that band is legally

³ Tony Romm, *House telecom panel's policy to-do list*, POLITICO (Mar. 27, 2012) (statement of Chairman Walden).

protected under the Commission’s rules, (ii) GPS receivers that operate outside of the spectrum designated for GPS signals are not legally protected at all under the Commission’s rules when they do so, and (iii) LightSquared’s operations—and the attendant deployment of tens of thousands of wireless base stations and millions of mobile user terminals—have been expected and approved by the GPS community for many years. On these facts alone, it would be arbitrary and capricious for the Commission to impose what commenters acknowledge amounts to a *de facto* revocation of LightSquared’s ATC authority. Section 316 of the Communications Act cannot be invoked for such a purpose.

LightSquared has established that an objective review of the evidence demonstrates both that a very limited number of GPS receivers can be expected to experience “overload” effects in the vicinity of LightSquared’s operations, and that technical solutions are available for those GPS receivers. In fact, consistent with the Commission’s mandate to pursue constructive solutions to “overload” concerns, and the Commission’s historical approach to resolving similar issues, LightSquared has: (i) conveyed its willingness to make extraordinary accommodations for GPS receivers currently “listening” in the MSS/ATC Band, and (ii) offered to implement its network in phases to facilitate the adaptation of the commercial GPS industry to an operating environment where ATC is present.

Just nine days ago, the Commission proposed a radically different course of action for another MSS/ATC licensee than it has proposed for LightSquared. Under last week’s proposal for that other licensee, the Commission would: (i) solve interference concerns by “swapping” spectrum, (ii) advance the *National Broadband Plan* by enabling that licensee to deploy its authorized network, and (iii) minimize the impact of a policy change on that licensee. Moreover, in that proceeding, the Commission took a comprehensive approach and reviewed a

wide range of frequencies in an effort to achieve the most efficient alignment of blocks of spectrum in order to maximize the public interest. There is no reason that L-Band, LightSquared, and GPS interests should not be included in such a comprehensive review of their own, with a goal of finding a workable solution for LightSquared rather than the punitive action contemplated by the *Public Notice*.

Although the Commission has mandated that LightSquared deploy a nationwide terrestrial network by 2015, and LightSquared already has invested more than \$4 billion to do so, the Commission has not even *proposed* a way for LightSquared to continue to deploy this network. Instead, when faced with “interference” concerns (not even of LightSquared’s making), the Commission inexplicably has proposed to terminate LightSquared’s ATC authority without so much as considering the availability of alternatives that would unlock much-needed spectrum for commercial broadband purposes, realize the significant public interest benefits of the LightSquared network, and enable LightSquared to redeem its multi-billion dollar investment and enjoy the benefits of its license and other property.

Against this backdrop, and for the reasons LightSquared articulated in its March 16, 2012 comments, the proposed treatment of LightSquared is profoundly arbitrary, capricious, and discriminatory, and would violate the U.S. Constitution, the Administrative Procedure Act, and the Commission’s contract with LightSquared.

More than 3,000 stakeholders—including federal, state and local elected officials, entrepreneurs, business representatives, public safety officials, healthcare providers, educators, farmers, rural community organizations, tribal communities, recreational associations, private citizens, and many others—recognize the injustice represented by the *Public Notice* and have urged the Commission to find a solution that works for all affected parties. Notably, the former

head of the Commission’s own Office of Engineering and Technology has registered his “strong belief” that “viable options exist that make suspension or revocation of the LightSquared ATC authorization unwarranted,” and that “[t]here are alternatives which would allow GPS and LightSquared to co-exist.”⁴ The GPS industry, on the other hand, has simply crossed its arms, declined to work in good faith, and refused to make any accommodations to solve a problem of its own making.

The Commission need not and should not embrace the false choice presented by the GPS industry between preserving LightSquared’s authority to deploy a wireless broadband network and maintaining GPS service. In fact, both goals can be achieved. The law, the equities, the facts, and the public interest demand that the Commission seek to do so.

⁴ See Declaration of Edmond J. Thomas, attached as Exhibit 1 hereto.

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REPLY COMMENTS OF LIGHTSQUARED INC.

LightSquared Inc., together with its affiliates, including LightSquared Subsidiary LLC (collectively, “LightSquared”),¹ hereby replies to the comments filed in the above-captioned proceeding in response to the *Public Notice* released by the International Bureau on February 15, 2012 (“*Public Notice*”).²

The *Public Notice* proposes a precipitous “about face” after more than a decade of final rulemaking and licensing decisions that formed the basis for the billions of dollars that LightSquared has invested in its nationwide, satellite/terrestrial 4G LTE mobile wireless network. Effectively, the *Public Notice* proposes to: (i) abandon the process that the

¹ Throughout these Reply Comments, unless otherwise indicated, “LightSquared” refers to LightSquared, Inc.; all of LightSquared’s predecessors in interest, including SkyTerra Communications, Inc. (“SkyTerra”), Mobile Satellite Ventures (“MSV”), Motient Services Inc. and American Mobile Satellite Company (“AMSC”); where appropriate, the investors in LightSquared; and, where appropriate, all affiliates of the foregoing.

² *Public Notice: International Bureau Invites Comment on NTIA Letter Regarding LightSquared Conditional Waiver*, IB Docket No. 11-109, DA 12-214 (rel. Feb. 15, 2012).

Commission initiated to address the concerns of the Global Positioning System (“GPS”) industry, and (ii) “address” those concerns instead by summarily revoking, on the basis of a biased and flawed technical analysis submitted by the National Telecommunications and Information Administration (“NTIA”) on the day before the *Public Notice* was issued (the “*NTIA Letter*”), the authority previously granted to LightSquared.³

Over 3,000 stakeholders—including federal, state and local elected officials, entrepreneurs, business representatives, public safety officials, healthcare providers, educators, farmers, rural community organizations, tribal communities, recreational associations, private citizens, and many others—have urged the Commission to find a solution that works for all affected parties. The Commission need not and should not embrace the false choice presented by the GPS industry between preserving LightSquared’s ancillary terrestrial component (“ATC”) authority and maintaining GPS service. In fact, both goals can be achieved. The law, the equities, the facts, and the public interest demand that the Commission seek to do so.

I. GPS INTERESTS HAVE NOT ESTABLISHED ANY LEGAL BASIS FOR SUSPENDING LIGHTSQUARED’S ATC AUTHORITY OR VACATING THE CONDITIONAL WAIVER ORDER

A. The Record Establishes that LightSquared Is in No Way “At Fault”

The comments of the GPS industry attempt to paint a picture of LightSquared somehow operating in a manner other than as permitted by the Commission’s rules, the terms of LightSquared’s ATC authority, and the conditions imposed when a transfer of control of LightSquared was approved over two years ago. In order to do so, the GPS industry makes

³ Letter to Julius Genachowski, Chairman, Federal Communications Commission from Lawrence E. Strickling, Assistant Secretary for Communications and Information, U.S. Dep’t of Commerce (Feb. 14, 2012).

sweeping and unsubstantiated legal assertions about “harmful interference”⁴ and the intended use of the 1525-1559 MHz and 1626.5-1660.5 MHz bands (the “MSS/ATC Band”) that has long been licensed for use by LightSquared’s network.⁵ The GPS industry does so because its efforts to defend the actions proposed in the *Public Notice* depend entirely on ignoring the decade of Commission proceedings, negotiated resolutions, and business choices by the GPS industry that have led to the situation at hand today. A fair description of what has transpired, however, makes clear that: (i) LightSquared’s planned operations are fully consistent with longstanding Commission rules, policies, and precedent, and (ii) no legal basis exists for taking the proposed actions.

1. The record demonstrates that LightSquared’s planned operations are fully consistent with its ATC license and its spectrum usage rights in the MSS/ATC Band

LightSquared’s initial comments in response to the *Public Notice* establish that LightSquared’s planned operations are fully consistent with the terms and conditions of its existing licenses, which permit LightSquared to conduct ATC operations in the MSS/ATC Band.⁶ Indeed, LightSquared has committed to operate base stations at one-tenth of its licensed power levels, and has agreed to operate under other restrictions not required by the terms of its licenses (*e.g.*, initially operating in only the lower portion of the 1525-1559 MHz band) in order to reduce the potential for GPS receiver “overload” that is created by GPS receivers that “listen”

⁴ See, *e.g.*, Comments of the Coalition to Save Our GPS, IB Docket No. 11-109, at 8 (Mar. 16, 2012) (“Coalition Comments”).

⁵ See, *e.g.*, Comments of the U.S. GPS Industry Council, IB Docket No. 11-109, at 12-13 (Mar. 16, 2012) (“USGIC Comments”).

⁶ See Comments in Opposition of LightSquared Inc., IB Docket No. 11-109 (Mar. 16, 2012) (“LightSquared Comments”).

outside of the 1559-1610 MHz band that is allocated for GPS use (the “GPS Band”).⁷

Furthermore, LightSquared’s planned operations are fully consistent with the U.S. Table of Frequency Allocations (“U.S. Table”), which expressly permits ATC operations in the MSS/ATC Band as an amplification of the primary allocation for the mobile-satellite service (“MSS”) in that band segment, while at the same time limiting to a separate band the allocation for the radionavigation-satellite service (“RNSS”) in which GPS operates.⁸

The record establishes that any “overload” experienced by GPS receivers would result from the failure of certain GPS manufacturers to design receivers in a way that accounts for LightSquared’s long-anticipated and authorized use of the MSS/ATC Band. As the *Public Notice* acknowledges, the potential for such “overload” arises only where “signals are received by GPS receivers *outside the frequency bands allocated to GPS.*”⁹ LightSquared has no ability to control the susceptibility of GPS receivers to such “overload”—particularly since GPS

⁷ *Id.* at 34-37. Deere & Company suggests that “LightSquared has not addressed the co-channel interference with Part 25 L-band receivers that will occur under both LightSquared’s initial and revised plans.” Comments of Deere & Company, IB Docket No. 11-109, at 5 (Mar. 16, 2012) (“Deere Comments”). In reality, LightSquared has fully briefed this issue twice, as Deere should know—once in a petition for reconsideration of the renewal of Deere’s L-Band license, attached as Exhibit 5 to LightSquared’s Comments, and again in those Comments themselves. *See* LightSquared Comments at 53-58. In short, because LightSquared’s operations are fully consistent with the terms of its coordination with Inmarsat, Deere (a customer of Inmarsat) has no valid basis to complain to LightSquared or the Commission about “co-channel interference.” That is a matter for Deere to take up with its satellite service provider. *See SkyTerra Subsidiary LLC*, 25 FCC Rcd 3043 (2010).

⁸ *See* 47 C.F.R. § 2.106 & n.US380; *see also* 2003 ATC Order ¶ 253; *Manual of Regulations and Procedures for Federal Radio Frequency Management* § 4.1.3 (2011) (“[a]n assignment that is in conformity with the service allocation (as amplified by pertinent footnotes) for the band in which it is contained takes precedence over assignments therein that are not in conformity . . .”). The USGIC is mistaken in its assertion that LightSquared’s planned ATC operations represent an “unallocated and nonconforming use.” *See* USGIC Comments at 3, 14.

⁹ *See Public Notice* at 2 n.6 (emphasis added).

receiver design specifications and the diagnostic protocols needed to assess their compatibility with licensed uses of adjacent bands were not and are not publicly available. For this reason, the Commission has recognized for decades that “overload” is “basically a . . . receiver design problem.”¹⁰

The Commission does not allow receivers to claim protection for “listening” outside their authorized band unless the Commission first makes a deliberate, explicit decision to do so. This is the only way to avoid any unintended impact on any authorized users of the spectrum at issue. Typically, the Commission permits nonconforming uses only pursuant to a waiver of the U.S. Table, under which an applicant agrees to proceed at its own risk, on an unprotected basis.¹¹ Indeed, consonant with this principle,¹¹ the Commission only last week dismissed part of an application seeking authority to receive satellite transmissions in the 12.7-12.75 GHz band because that band is allocated only for satellite *uplink* operations, and the applicant had not requested a waiver of the U.S. Table.¹²

Because any use of the MSS/ATC Band by a GPS receiver is a nonconforming spectrum use, LightSquared’s planned operations cannot be deemed to cause legally cognizable “harmful interference” in such a case. While some commenters baldly assert that ATC is a nonconforming spectrum use,¹³ they do not attempt to reconcile such unsubstantiated assertions

¹⁰ See *Public Notice: Potential Interference to Television Reception from the Operation of FM Broadcast Stations on Certain Frequencies*, FCC 65-130, at 2 (rel. Feb. 19, 1965).

¹¹ See LightSquared Comments, Exhibit 2.

¹² See Letter to SES Americom, Inc. from FCC, DA 12-437 (Mar. 21, 2012).

¹³ See, e.g., USGIC Comments at 3.

with the precedent that LightSquared has cited evidencing that the Commission modified the U.S. Table to include ATC as a permitted spectrum use.¹⁴

In any event, LightSquared's ATC operations have not caused any actual interference, "harmful" or otherwise, to any party. Moreover, no commenter alleges that LightSquared's planned operations would violate any established MSS or ATC technical rule or requirement.¹⁵ In fact, no commenter questions LightSquared's ability to comply fully with applicable out-of-band emission limits that: (i) were established jointly by LightSquared, the GPS industry, and NTIA; and (ii) are reflected in LightSquared's ATC authorizations. As discussed in LightSquared's Comments and further below, the only asserted bases for taking the proposed actions are unscientific and biased testing, based on overstated power levels, unrealistic

¹⁴ See LightSquared Petition for Declaratory Ruling, IB Docket No. 11-109, at 18-22 (filed Dec. 20, 2011) ("LightSquared Petition"); see also LightSquared Comments at 11-12. Deere & Company asserts that "the FCC has also yet to fully evaluate what protections are necessary to ensure the integrity of wideband signals used by future GNSS systems, including Galileo and Compass." See Deere Comments at 5. This is why action on LightSquared's Petition for Declaratory Ruling is appropriate. As demonstrated therein, and in LightSquared's March 16, 2012 Comments, any foreign RNSS (GNSS) system operating in the United States must comply with the same U.S. Table that governs any other spectrum user in the U.S. As a result, any use of the MSS/ATC Band by those "wideband signals" would represent a nonconforming use of spectrum, subordinate to LightSquared's licensed, primary spectrum rights. Moreover, any use of these foreign GNSS/RNSS satellite networks to serve the United States must be approved by the Commission and NTIA after a technical and policy review that has not yet occurred. See *Public Notice: National Telecommunications and Information Administration Provides Information Concerning Executive Branch Recommendations for Waiver of Part 25 Rules Concerning Licensing of Receive-Only Earth Stations Operating with Non-U.S. Radionavigation Satellites*, DA 11-498 (Mar. 15, 2011) (noting that the FCC's rules require licensing of "receive-only earth stations operating with non-U.S. licensed [RNSS] satellites.")

¹⁵ While the Coalition asserts that LightSquared's planned operations would run afoul of Section 25.255 of the Commission's rules, see Coalition Comments at 28, that section is a procedural rule that does not impose any new substantive obligations on ATC operators. See LightSquared Comments at 63-69. Notably, those procedures do *not* include license modification, as proposed by the Commission here.

propagation models, metrics that are unrelated to the end-user experience, obsolete devices and non-production units—all of which significantly overstate the likelihood of “real-world” issues.

2. The record demonstrates that LightSquared’s planned operations are consistent with the permitted scope of ATC operations

GPS interests rely heavily on unsubstantiated assertions that LightSquared’s planned operations somehow would be inconsistent with the permitted scope of ATC operations, as specified in the *2003* and *2005 ATC Orders*.¹⁶ More specifically, these parties suggest that ATC was intended only to serve as a “gap filler,”¹⁷ employing terrestrial base stations to provide service only where satellite signals cannot reliably be received, and that “LightSquared was expressly prohibited from pursuing its current business plan.”¹⁸ Of course, these parties do not cite *any* Commission order stating as much; instead, they cite only broad statements by the Commission to the effect that ATC operations must remain “ancillary” to MSS operations.¹⁹ Nor do they address the fact that in March 2010 the Commission *mandated* that LightSquared use its ATC authority to build a national ATC network to serve 260 million people using an expected 36,000 base stations.²⁰

The “gap filler” assertion is another legal red herring, because any vulnerability of GPS receivers to the authorized transmissions from LightSquared terrestrial facilities is

¹⁶ See *Flexibility for Delivery of Communications by Mobile Satellite Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band*, 18 FCC Rcd 1962 (2003) (“*2003 ATC Order*”); see also *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*, 20 FCC Rcd 4616 (2005) (“*2005 ATC Order*”).

¹⁷ See USGIC Comments at 4, 11-12; Coalition Comments at 24, 27-28.

¹⁸ See Coalition Comments at 24, 26.

¹⁹ See, e.g., USGIC Comments at 11-12 & n.33; Coalition Comments at 27 n.97.

²⁰ *SkyTerra Communications, Inc., Transferor and Harbinger Capital Partners Funds, Transferee*, 25 FCC Rcd 3059, at ¶ 56 (2010).

independent of whether those facilities are “ancillary” to LightSquared’s MSS network. To the contrary, any incompatibility turns *entirely* on whether the GPS receiver manufacturer, in designing its devices, took into account: (i) the scope of the GPS protection criteria that were adopted by the Commission and NTIA (with the approval of the GPS industry); and (ii) the Air Force interface and performance specifications, which specify that GPS receivers should use only the portion of spectrum allocated for GPS, and should use suitable sharp filtering to ensure compatibility with licensed uses of adjacent bands.²¹

In any event, these unsubstantiated assertions are belied by the record underlying the *2003* and *2005 ATC Orders*, which establish clearly that ATC services always have been viewed as more than “gap fillers.” While the Commission recognized that ATC facilities could be used to serve areas with limited satellite coverage (*i.e.*, “gaps”), the Commission did not restrict the use of ATC facilities to this purpose. In fact, the *2003 ATC Order* finds that one of the key benefits of ATC operations is to allow MSS spectrum to be used with far greater spectral efficiency than is possible with MSS alone, outside of any “MSS gaps,” in “geographic areas that can be more efficiently served by ATC”²² The *2003 ATC Order* also recognizes explicitly that “[a]chieving optimal spectrum usage may require an MSS operator to use ATC even though a particular call might be served via satellite.”²³ Indeed, the Commission acknowledged that, in

²¹ See United States Air Force Global Positioning Systems Wing, *Navstar GPS Space Segment/Navigation User Interfaces*, IS-GPS-200E, at §§ 3.3.1.1, 3.3.1.2 (Jun. 8, 2010); see also United States Department of Defense, *Global Positioning System Standard Positioning Service Performance Standard*, at § 2.4.2 (4th Ed., Sep. 2008).

²² See *2003 ATC Order* ¶ 99.

²³ *Id.* at ¶ 101.

some cases, an MSS/ATC system could use “the large majority of its channels and time for ATC.”²⁴

Moreover, in modifying Globalstar’s ATC authority in 2008, the full Commission concluded that the integration of ATC facilities into MSS systems would have several benefits, “including the filling of gaps in MSS coverage.”²⁵ The Commission went on to emphasize that ATC authority enables the development of new and innovative service offerings that satellite-only MSS systems cannot offer, including, *e.g.*, ubiquitous digital telecommunications and broadband services and other services that take advantage of the unique coverage and capacity characteristics of ATC-enabled MSS.²⁶ Of course, that is precisely what LightSquared’s network will do.

Furthermore, in the *2003* and *2005 ATC Orders*, the Commission explicitly eschewed any suggestion that ATC services be “mostly satellite,” or that mobile user terminals “look to the satellite first.” The Commission in fact rejected a “proposal to require ‘predominant’ satellite use” by ATC services, as this “would limit the MSS provider’s flexibility and its concomitant spectrum efficiencies, *e.g.*, by requiring predominant satellite coverage in geographic areas that can be more efficiently served by ATC, such as large cities.”²⁷ Notably,

²⁴ See *2005 ATC Order* at ¶ 20; see also *id.* ¶ 21 (“[W]e cannot predict what eventualities may cause traffic loading to increase or decrease, or how such loads will be distributed between ATC transmitters and MSS handsets.”).

²⁵ See *Globalstar Licensee LLC*, 23 FCC Rcd 15975, at ¶ 11 (2008) (emphasis added) (citing *2003 ATC Order* ¶ 23) (“*2008 Globalstar Order*”).

²⁶ *Id.*

²⁷ *2003 ATC Order* ¶ 99.

the Commission also rejected proposals that MSS/ATC operators first attempt to route a given call through a satellite before relying on ATC infrastructure.²⁸

Even if ATC had been conceived initially as a “gap-filler” service, LightSquared’s current plans to deploy ubiquitously would not have materially increased the risk of GPS receiver “overload” effects. This is because “overload” is most likely where both ATC operations and GPS receiver use are most concentrated. The highest concentration of these uses would be expected to occur in dense urban areas, where the received MSS and GPS signals tend to be the weakest. These are precisely the “gaps” in effective MSS coverage that the Commission hoped could be overcome through ATC operations.²⁹ In other words, even if the GPS interests are correct about the original conception of ATC—which they are not—they *still* should have anticipated the potential for “overload” that arises from ATC and GPS operations in close proximity to each other, and should have adapted their receiver designs accordingly. The

²⁸ *Id.* at ¶ 100 (“[R]equiring satellite-routing would defeat most of the benefits of authorizing ATC in the first instance. The disadvantages would increase markedly if we were to further restrict MSS operators to offering only dual-mode phones that defaulted to the satellite transmission path.”); *see also* 2005 ATC Order ¶¶ 24-26 (rejecting the “requirement that any MSS/ATC handset first attempt to place a call through the MSS component of the service and only call through the ATC if the satellite signal is unavailable or unreliable” and noting that “the efficiencies of dynamic frequency assignment would be hampered by a firm rule that handsets must try to acquire the MSS communications path first,” as a “satellite first-look” requirement “would involve the use of extra time and power in the handset, . . . increase the cost of providing service, hinder call completion, and ultimately reduce system efficiency” as well as “force a weaker satellite signal on consumers in areas where a stronger ATC signal was available, but a satellite signal was also available.”) (footnotes omitted).

²⁹ *See* 2003 ATC Order ¶ 228 (noting that ATC facilities “will allow for the use of MSS spectrum in urban areas where that spectrum is otherwise unusable”).

Commission has expected as much of GPS and other receiver manufacturers on prior occasions.³⁰

There also is no basis for the GPS industry's assertions that: (i) ATC was envisioned originally as a "primarily narrowband voice" concept;³¹ and (ii) the GPS industry reasonably assumed that the risk of "overload" would be constrained by the need to limit "self-interference" from ATC facilities into MSS spacecraft.³² First, the *2003 ATC Order* recognized explicitly that "MSS operators may choose to deploy a variety of new services through ATC-enabled MSS systems, including ubiquitous digital telecommunications and *broadband* services . . ."³³ In addition, the Commission recognized that ATC-supported services might not resemble traditional wireless voice offerings at all.³⁴ Subsequent filings by the GPS industry itself reinforce its own understanding that new ATC applications could be "consumer products not unlike today's WiFi and similar technologies."³⁵

³⁰ See *AirTouch Satellite Services US, Inc.*, 14 FCC Rcd 17328, at ¶ 15 (1999); see also *2003 ATC Order* ¶ 120 (expressing expectation that any "overload" of PCS handsets could be mitigated through "future PCS handset design modifications").

³¹ See USGIC Comments at 11-12.

³² See, e.g., Deere Comments at 5 n.15 (claiming that the waiver granted in the *Conditional Waiver Order* altered GPS industry expectations because "[a]ssumptions of self-interference protection would not apply if the terrestrial service is no longer integrated with the MSS service.").

³³ *2003 ATC Order* ¶ 23 (emphasis added).

³⁴ See *id.* at ¶¶ 231-234 (recognizing that ATC-supported services might have operational characteristics placing those services outside of the statutory definition of CMRS).

³⁵ See Comments of the U.S. GPS Industry Council, IBFS File No. SAT-MOD-20090429-00047, at 2-3 (Jul. 10, 2009) ("*2009 GPS Comments*").

The GPS industry's arguments with respect to "self-interference" similarly ignore the record.³⁶ As an initial matter, such claims contradict the numerous statements (noted above and below) in which the GPS industry itself acknowledged that ATC base stations and mobile user terminals would be deployed ubiquitously. Moreover, such claims ignore that the *2005 ATC Order* eliminated any requirement that ATC licensees limit "self-interference" to predefined levels, recognizing that "interference to other MSS systems, rather than self-interference, is the appropriate concern upon which to base our interference rules."³⁷ The Commission took that step after determining that such a requirement would be unduly restrictive, and would prevent ATC operators from providing meaningful and economically viable terrestrial service. Thus, for almost seven years, the GPS industry has had *no* reasonable basis for assuming that "self-interference" would preclude the ubiquitous deployment of ATC base stations and mobile user terminals.

Nor can the GPS industry reasonably ground its "expectations" that the risk of "overload" would be constrained in the more general requirement that ATC licensees maintain a robust MSS network under the Commission's gating criteria.³⁸ LightSquared has never questioned this requirement, and has spent billions of dollars building two state-of-the-art commercial satellites for this very purpose.³⁹ Notably, this requirement is unaffected by the *Conditional Waiver Order*, which reinforced LightSquared's obligation to maintain a robust

³⁶ See, e.g., Coalition Comments at 23 n.85; USGIC Comments at 12.

³⁷ *2005 ATC Order* ¶ 42.

³⁸ See, e.g., USGIC Comments at 12; see also 47 C.F.R. § 25.149(b).

³⁹ Contrary to the USGIC's suggestion, see USGIC Comments at 12, LightSquared is capable of providing satellite service throughout its ATC coverage area.

satellite service offering.⁴⁰ And this requirement will be fulfilled by LightSquared’s continued plans to market satellite-based services to meet the needs of its customers—needs that also will provide a compelling business reason to avoid “self-interference.” LightSquared’s hybrid MSS/ATC network in fact does avoid self-interference through patented techniques built into LightSquared’s ground-based satellite beamformer and the satellite air interface protocol.

Put simply, the revisionist history advanced by the GPS industry is belied by its own position in this proceeding. If, as the GPS industry maintains, the *Conditional Waiver Order* had altered the nature of the ATC concept established in the long-final rulemaking process reflected in the *2003* and *2005 ATC Orders*, the GPS industry would be completely comfortable with LightSquared deploying and operating its network under its ATC authority as it existed prior to the *Conditional Waiver Order*. The GPS industry would *not* be advocating for the suspension or revocation of LightSquared’s underlying ATC authority or arguing *against* LightSquared’s ability to deploy a network that supports dual-mode devices. The fact that the GPS industry is, in essence, seeking to discard ten years of settled regulatory history, changing its own position in the process, proves that LightSquared’s planned operations are completely consistent with its longstanding regulatory authority and Commission policy.

3. The record demonstrates that LightSquared’s planned operations have been expected by the GPS industry for many years

While GPS commenters suggest that they somehow were taken unawares by LightSquared’s plans to deploy a nationwide wireless 4G LTE network,⁴¹ the facts belie that

⁴⁰ See *LightSquared Subsidiary LLC*, 26 FCC Rcd 566, at ¶ 36 (2011) (“*Conditional Waiver Order*”).

⁴¹ See, e.g., USGIC Comments at 12 (noting that “MSS ATC was not expected to be problematic to GPS from a technical standpoint . . .”).

claim. As explained in LightSquared’s Comments, the expected ATC operating environment has not changed significantly since 2005, when the Commission’s ATC rules were finalized.⁴²

The record establishes that the GPS industry has understood for nearly a decade that ATC base stations and user terminals would be deployed ubiquitously, but that the risk to GPS receivers—including “overload” effects—would be manageable because of GPS protection criteria in the form of negotiated out-of-band emissions limits. In particular, the joint agreements reached between LightSquared and the GPS industry in 2002 and 2009 reflect the likelihood that ATC base stations and mobile user terminals would be deployed ubiquitously to support a variety of services.⁴³ For example, in the 2002 joint agreement the GPS industry recognized that “[t]here is likely to be a greater density of users operating in the ATC mode than in the satellite mode,” and that those users were “more likely to be in close proximity to terrestrial GPS users.”⁴⁴ Significantly, in 2003 the U.S. GPS Industry Council (“USGIC”) observed that the 2002 agreement had been reached after taking into account the “increased user density from *potentially millions of MSS mobile terminals operating in ATC mode*” and “*tens of thousands of ATC wireless base stations . . .*”⁴⁵ Similarly, in 2009, the GPS industry recognized that LightSquared would be deploying “unlimited numbers of base stations inside office buildings,

⁴² LightSquared Comments at 39-46.

⁴³ See Letter to FCC from Mobile Satellite Ventures L.P. and the U.S. GPS Industry Council, IB Docket No. 01-185, at 4-5 (July 17, 2002) (“*2002 MSV-GPS Joint Letter*”); Letter to FCC from SkyTerra Subsidiary LLC and U.S. GPS Industry Council, IBFS File Nos. SAT- MOD-20090429-00046 at 1 (Aug. 13, 2009).

⁴⁴ See *2002 MSV-GPS Joint Letter* at 4.

⁴⁵ See Reply to Comments of the U.S. GPS Industry Council, IB Docket No. 01-185, at 2 (Sept. 4, 2003) (emphasis added) (“*2003 USGIC Reply to Comments*”).

college campus buildings, homes and many other indoor or outdoor locations.”⁴⁶ Yet, the only relief sought by the GPS industry in response to this planned use of femtocells and microcells—and LightSquared’s since-deferred proposal to increase transmitter power by a factor of ten—was additional out-of-band emission limits, to which LightSquared agreed.

More fundamentally, the joint agreements reflect the parties’ understanding that the GPS industry would restrict reception to the 1559-1610 MHz GPS Band, and thus avoid any potential for GPS receiver “overload.” Indeed, the joint letter sent by LightSquared and the GPS industry to NTIA in 2002 to convey the substance of their agreement explicitly defined the “GPS frequency band” as “1575.42 MHz \pm 12 MHz.”⁴⁷ This is consistent with the GPS industry’s representation at the time that GPS receivers generally process bandwidth in less than 20 MHz of spectrum, and thus confine their operations to the 1559-1610 MHz spectrum allocated to the RNSS.⁴⁸ This also is consistent with NTIA’s analysis of the sufficiency of the agreed-upon out-of-band emission limits, which defined the relevant GPS signal to be protected as extending from 1563.42 to 1587.42 MHz (*i.e.*, 1575.42 MHz \pm 12 MHz), and evaluated the impact of ATC operations only within that portion of the GPS Band.⁴⁹

⁴⁶ *2009 GPS Comments* at 3.

⁴⁷ *See* Letter to NTIA from Mobile Satellite Ventures L.P. and the U.S. GPS Industry Council, Att. at 7 (Aug. 8, 2002) (included in Exhibit A, Attachment 1 to the Technical Appendix to LightSquared’s March 16, 2012 Comments) (“*2002 MSV-GPS Joint Letter to NTIA*”).

⁴⁸ *See* Letter to FCC from the U.S. GPS Industry Council, ET Docket No. 98-153, Att. C (Nov. 22, 2002) (noting that “[m]any GPS receivers process bandwidths greater than 16 MHz—up to 20 MHz, especially those used in aviation and precision applications (ground and air)”).

⁴⁹ *See* Letter to FCC from NTIA, IB Docket No. 01-185, Enclosure 1 at 2-3 (Nov. 12, 2002) (“*November 2002 NTIA Letter*”).

Notably, the joint letter also acknowledged that GPS receivers might need to “listen” outside of the 1563.42-1587.42 MHz range in order to improve accuracy. However, the joint letter reflected that such “augmentation” activities would be limited to the reception of GPS signals in the GPS Band. Accordingly, the parties agreed that the out-of-band emission limits would apply to the “entire GPS band” from 1559-1605 MHz, so as to protect those types of “augmentation” activities.⁵⁰ The 2002 joint letter filed with the Commission underscored the parties’ understanding that the scope of the out-of-band emission limits was widened in this fashion “to protect modern GPS receiver multipath mitigation technology”⁵¹—*i.e.*, the ability of new types of GPS receivers to obtain greater accuracy.

In other words, the 2002 joint agreement recognized that GPS manufacturers might design their receivers to “listen” outside of the specified 24 MHz in order to improve receiver performance, but *expressly* limited protection for such activities to the 1559-1605 MHz portion of the GPS Band.⁵² This is consistent with: (i) the relevant GPS performance and interface specifications issued by the Air Force, which call for a GPS receiver to employ an “ideal sharp-cutoff filter bandwidth” that “corresponds to” the “L1” GPS signal;⁵³ (ii) GPS industry suggestions to the Commission elsewhere that more precise definitions of “interference”

⁵⁰ 2002 MSV-GPS Joint Letter to NTIA, Att. at 3.

⁵¹ See 2002 MSV-GPS Joint Letter at 5.

⁵² The 2002 MSV-GPS Joint Letter to NTIA also limited legally cognizable interference to that occurring within the GPS Band. The joint letter recognizes explicitly that while the susceptibility of GPS receivers to interference is dictated by ATC emission bandwidth, “it is the OOBE bandwidth”—*i.e.*, the bandwidth transmitted by ATC terminals into the GPS band—“and not the [total ATC] signal bandwidth that is relevant.” See 2002 MSV-GPS Joint Letter to NTIA, Att. at 6.

⁵³ See United States Air Force Global Positioning Systems Wing, *Navstar GPS Space Segment/Navigation User Interfaces*, IS-GPS-200E, at §§ 3.3.1.1, 3.3.1.2 (Jun. 8, 2010); see also United States Department of Defense, *Global Positioning System Standard Positioning Service Performance Standard*, at § 2.4.2 (4th Ed., Sep. 2008).

and “harmful interference” would not be required if the Commission more generally were to adopt appropriate limits on out-of-band emissions;⁵⁴ and (iii) the 2008 proceeding in which the full Commission modified Globalstar’s ATC authority, and in which the only “protections” that the USGIC and NTIA sought and received were in connection with Globalstar’s out-of-band emissions into the GPS Band.⁵⁵

B. GPS Interests Establish No Legal Basis for Their Proposals to “Modify” LightSquared’s ATC License

In their comments, GPS interests ask the Commission to “indefinitely suspend” LightSquared’s existing ATC authority, and advance a number of proposals as to how the Commission might accomplish this goal. For example, Aviation Spectrum Resources, Inc. urges the Commission to suspend LightSquared’s ATC authority until such time as LightSquared effectively “reapplies” to the Commission for authority it already has.⁵⁶ The Aerospace Industries Association goes further, suggesting that the Commission suspend indefinitely LightSquared’s ATC authority while the Commission explores alternative “non-space,

⁵⁴ See Comments of the U.S. GPS Industry Council, ET Docket No. 02-135, at 7 (July 8, 2002) (responding to the Commission’s inquiry as to whether “new definitions of ‘interference’ and ‘harmful interference’ [are] needed” by noting that “[w]hat is really needed is more stringent limits on out-of-band emissions.”). The GPS industry also appears to have reasoned that the agreed-upon out-of-band emission limits also would have some benefits with respect to “overload.” See *2003 USGIC Reply to Comments* at 3.

⁵⁵ See Comments and Request for Clarification of the U.S. GPS Industry Council, IBFS File No. SAT-MOD-20080516-00106, at 3 (June 23, 2008); Letter to FCC from Globalstar Licensee LLC, IBFS File No. SAT-MOD-20080516-00106 (Oct. 30, 2008); *2008 Globalstar Order* ¶¶ 34-37.

⁵⁶ Comments of Aviation Spectrum Resources, Inc., IB Docket No. 11-109, at 4-5 (Mar. 16, 2012) (urging the Commission to impose additional conditions on any “future ATC authority that may be granted”) (“ASRI Comments”).

commercial uses” of the MSS/ATC Band.⁵⁷ The Coalition to Save Our GPS (the “Coalition”) suggests outright that the Commission simply revoke LightSquared’s ATC authority entirely.⁵⁸ Lockheed Martin Corporation urges “indefinite suspension” of that authority as a “welcome proactive step.”⁵⁹ True to form, these commenters establish no legal basis upon which the Commission could adopt these proposals, and none in fact exists.

Indeed, the GPS industry does not cite a single case in which the Commission has “indefinitely suspended” or otherwise terminated all or substantially all of the authority previously granted to a licensee absent culpability on the part of that licensee (which is not present here). Moreover, the GPS industry does not cite a single case in which the Commission has made a more modest “modification” to an existing license without also attempting to preserve the licensee’s ability to provide commercial service (*e.g.*, by providing replacement spectrum). While the Coalition asserts that Section 316 of the Act gives the Commission “broad authority” to modify any station license,⁶⁰ the Coalition cites only cases in which the Commission effectuated a minor modification of existing authority that did not have a substantial impact on the licensee’s ability to continue operations—*i.e.*, a result entirely different than that which the Coalition advocates here.⁶¹

⁵⁷ Comments of the Aerospace Industries Association, IB Docket No. 11-109, at 1 (Mar. 16, 2012) (“AIA Comments”).

⁵⁸ Coalition Comments at 17, 28.

⁵⁹ Comments of Lockheed Martin Corporation, IB Docket No. 11-109, at 5-6 (Mar. 16, 2012) (“Lockheed Comments”).

⁶⁰ See Coalition Comments at 29 & nn.102-103.

⁶¹ See *License Communications Services, Inc.*, 13 FCC Rcd 23781, at ¶ 30 (1998) (approving the *substitution* of new channels to “insure that service to . . . subscribers is not interrupted); *Pacific Gas and Electric Company*, 18 FCC Rcd 22761 (2003) (reducing licensed power levels after finding explicitly that modification would not hamper existing

1. The “indefinite suspension” advocated by GPS interests would constitute an impermissible *de facto* revocation of LightSquared’s ATC authority

As noted above, GPS interests support the proposal in the *Public Notice* to effectuate an “indefinite suspension” of LightSquared’s ATC authority. In doing so, though, these parties recognize that proposal for what it is—an attempt to effectuate a constructive revocation of LightSquared’s ATC authority.⁶² For example, the Coalition characterizes the proposal in the *Public Notice* as a “recommendation that LightSquared’s ATC authorization be revoked entirely.”⁶³ Similarly, the USGIC suggests that it would be appropriate for the

operations). The Coalition also cites *Comtex Communications, Inc.*, 15 FCC Rcd 11730 (2000), in which the Commission proposed to modify Comtex’s license to undo the effects of an unauthorized assignment and consolidation of another party’s licensed authority. The Coalition ignores the subsequent history of this case, which shows that Comtex was only minimally impacted by the modification. Significantly, Comtex did not oppose the proposed modification. Moreover, Comtex: (i) remained licensed to operate on two other channels in the same geographic area, which were entirely unaffected by the modification; and (ii) remained licensed to operate on the channel affected by the modification, only with a reduced number of mobile units. *See Comtex Communications Inc.*, 16 FCC Rcd 4784, at ¶ 5 (2001).

⁶² That LightSquared’s ATC authority has been incorporated into various space and earth station licenses is irrelevant. The Commission’s ATC orders and rules recognize the distinct nature of ATC authority. That such authority sometimes has been tied to a preexisting license is purely a matter of administrative convenience. *See, e.g., 2003 ATC Order* ¶ 240 (permitting MSS operators to apply for “blanket” ATC authority by modifying their existing licenses, but permitting those operators to apply for separate “blanket” authority); *see also id.* at ¶ 239 (requiring MSS operators to obtain site-specific ATC licenses in the event that proposed facilities could pose a potential hazard to the environment, public health, scenic and historic locations, tribal lands, or aviation); *id.* at ¶ 243 (permitting foreign operators to obtain authority to provide ATC by filing an earth station application for ATC authority). Notably, the Commission recently explained that ATC authority is “significant” even though it is ancillary in nature. *See Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Notice of Proposed Rulemaking and Notice of Inquiry, FCC 12-32, at ¶ 170 (Mar. 21, 2012) (“2 GHZ NPRM and NOI”).

⁶³ Coalition Comments at 17.

Commission to “revisit” its decision to grant LightSquared ATC authority in the first place.⁶⁴ Even those that support LightSquared, such as Leap Wireless International, Inc. and Cricket Communications, Inc., recognize that the “modification” proposed by the *Public Notice* would be similar to a revocation.⁶⁵

LightSquared agrees that, if adopted, the actions proposed in the *Public Notice* would effectively revoke LightSquared’s ATC authority, and thus terminate the company’s ability to operate a 4G LTE network. The conclusion that the proposed “indefinite suspension” would constitute a *de facto* revocation is reinforced by the fact that the *Public Notice* identifies no clear path forward that would allow the reinstatement of LightSquared’s ATC authority. To the contrary, the *Public Notice* seeks to vacate the *Conditional Waiver Order* and thus terminate the problem-solving process the Commission earlier endorsed—a process that still offers a valuable vehicle for exploring constructive solutions to the current impasse. At the same time, the *Public Notice* does not reinforce the existing obligation of the GPS industry to find ways to co-exist with LightSquared’s ATC network, and takes no concrete steps either to limit GPS receiver activities to the GPS Band or to impose GPS receiver standards, thus virtually ensuring that the circumstances that have given rise to GPS “overload” concerns in the first place will not change in the foreseeable future. And, contrary to what the Coalition suggests,⁶⁶ the need to adopt future standards to ensure that newer GPS receivers do not “squat” in spectrum licensed to others simply does not warrant revoking the authority issued to LightSquared by final order over seven years ago.

⁶⁴ USGIC Comments at 15.

⁶⁵ Comments of Leap Wireless International, Inc. and Cricket Communications, Inc., IB Docket No. 11-109, at 2-3 (Mar. 16, 2012) (“Leap and Cricket Comments”).

⁶⁶ See Coalition Comments at 31-34.

2. The Communications Act does not permit the Commission to use Section 316 procedures to “indefinitely suspend” a licensee’s authority

The Communications Act provides several different mechanisms through which the Commission can alter authority previously granted to a licensee. Sections 303(m) and 312 of the Act govern the Commission’s ability to “suspend” or “revoke” such authority.⁶⁷ Notably, the *Public Notice* specifically proposes to indefinitely “suspend” LightSquared’s authority which, as a practical matter and for the reasons explained above, would have the effect of revoking that authority. Thus, Sections 303(m) and 312—and not Section 316—guide whether and under what circumstances the Commission may act as proposed in the *Public Notice*.

In enacting Sections 303(m) and 312, Congress recognized that the suspension and revocation of licensed authority are punitive remedies that effectively preclude a licensee from operating and providing service to the public.⁶⁸ Accordingly, Sections 303(m) and 312 sharply limit the circumstances under which the Commission may employ these remedies, *none* of which is present here. More specifically, these provisions of the Act enumerate a list of substantive bases for suspension and revocation that generally presume that a licensee’s operations have been inconsistent with established Commission rules or policies, such that the licensee is somehow “at fault” or otherwise culpable.

In light of the significant adverse consequences of a suspension or revocation, Congress also has afforded greater procedural protections to licensees in the event that the Commission proposes to take such actions. Sections 303(m) and 312 procedures may be

⁶⁷ See 47 U.S.C. §§ 303(m), 312.

⁶⁸ *Hearings before the United States Senate Committee on Interstate Commerce on H.R. 7716*, 72d Cong., at 20-21 (Mar. 11-12, 1932) (“*H.R. 7716 Hearings*”).

employed only subject to public hearing procedures, and any suspension or revocation may not actually occur until the conclusion of the hearing.⁶⁹

In contrast, a “modification” is a more limited alteration of licensed authority intended to conform an existing license to altered circumstances. As Senator White explained in 1932, when he introduced the language that was eventually enacted as Section 312(b) of the Communications Act of 1934 (and subsequently moved to a new Section 316 in 1952):

A modification is different in its character than a revocation or suspension. Those two are punitive. This matter of modification may be in the interest of the station, it may be in the interest of the public, and I think we ought to have written into the law a method by which outstanding licenses may be modified to conform to altered circumstances, to any statutory changes that might come or might be made to conform to any international undertakings entered into by the United States. I think that it should be apart from the revocation and suspension section, because I think it is essentially different in its character.⁷⁰

In other words, Congress intended to permit the Commission to “modify” a license only to ensure consistency with *existing* policy, in a way that would preserve the licensee’s ability to operate effectively and avoid any punitive result.

The courts have interpreted the Commission’s modification powers in like fashion. As the U.S. Supreme Court has observed, the plain meaning of the phrase “to modify”

⁶⁹ See 47 U.S.C. §§ 303(m)(2), 312(b)-(e). These procedures are available regardless of whether a licensee is able to first establish the existence of a “substantial and material question of fact.” Compare 47 U.S.C. §§ 316(a)(3), 309(d).

⁷⁰ *H.R. 7716 Hearings* at 20-21 (Senator White’s discussion of language eventually introduced as Section 312(b) of the Communications Act of 1934); see also H.R. Rep. No. 73-1918, 73d Cong., at 49 (Jun. 4, 1934) (noting that Section 312(b) “amplifies the Radio Act along the lines proposed by H.R. 7716 by providing for the modification of station licenses . . .”).

is “to change moderately or in a minor fashion.”⁷¹ Thus, the Commission’s license modification authority under Section 316 does not include the power to “fundamental[ly] change” the nature of the service that a licensee may provide under an existing license.⁷² Similarly, the Commission may not use Section 316 to effectively destroy a licensee’s business—a result that would be plainly inconsistent with the “connotation of increment or limitation” inherent in the “modification” language of Section 316.⁷³ While effectively revoking a license might modify that license, such action simply is outside of the intended scope of Section 316. As the Court has explained, “[i]t might be good English to say that the French Revolution ‘modified’ the status of the French nobility—but only because there is a figure of speech called understatement and a literary device known as sarcasm.”⁷⁴

Consistent with these limitations, Section 316 has been used to make relatively minor changes to bring existing licenses in line with the U.S. Table and Commission rules—*e.g.*, where an applicant erroneously has been licensed on certain channels.⁷⁵ And in those cases where the Commission has used Section 316 to make more significant changes to a license—*e.g.*, in connection with the implementation of a new band plan—it has done so after: (i) completing an underlying rulemaking proceeding adopting that band plan in the first instance; (ii) identifying “replacement” spectrum for the displaced licensee; and (iii) requiring that the

⁷¹ See *MCI Telecomms. Corp. v. Am. Tel. & Tel. Co.*, 512 U.S. 218, 224 (1994) (“*MCI Telecomms*”).

⁷² *Cnty. Television, Inc. v. FCC*, 216 F.3d 1133, 1141 (D.C. Cir. 2000); *MCI Telecomms.*, 512 U.S. at 228 (explaining that “authority to ‘modify’ does not contemplate fundamental changes”).

⁷³ See *MCI Telecomms.*, 512 U.S. at 224.

⁷⁴ *MCI Telecomms.*, 512 U.S. at 227.

⁷⁵ See Exhibit 2 hereto.

displaced licensee be compensated for its relocation costs.⁷⁶ But even these cases are few and far between, as the Commission has recognized.⁷⁷

At bottom, the Commission simply cannot make an “end run” around the substantive limitations in Sections 303(m) and 312 regarding license suspensions and revocations by characterizing its proposed actions as a Section 316 “modification.”⁷⁸ As the United States Court of Appeals for the D.C. Circuit has made clear, a court considering the applicability of Section 316 in a given case “must look beyond the form of the license document and beyond the language employed by the FCC to describe its action.”⁷⁹ Here, the nature of the proposed actions—as amplified by the interpretation of GPS interests and others—together with the language used by the *Public Notice*, make clear that the Commission may not proceed under Section 316. And, because none of the prerequisites of Sections 303(m) and 312 is satisfied, the Commission may not proceed under those statutory provisions either.

3. Even if the Commission were permitted to effectuate an “indefinite suspension” under Section 316, it could not do so in this case

Under Section 316, the Commission may “modify” a license only where doing so would promote the public interest, convenience, and necessity.⁸⁰ This “public interest” standard

⁷⁶ See, e.g., *Improving Public Safety Communications in the 800 MHz Band*, 19 FCC Rcd 14969 (2004); see also Exhibit 2 hereto.

⁷⁷ See, e.g., *Pacific Gas and Electric Company*, 18 FCC Rcd 22761, at ¶ 16 (2003) (“License modification pursuant to Section 316 should be undertaken only under those limited and unusual cases where, in the light of the circumstances, it is clear that such action will promote the public interest, convenience, and necessity.”)

⁷⁸ See, e.g., *License Communications Services, Inc.*, 24 FCC Rcd 3228, at ¶ 9 n.28 (2009) (noting that it would be inappropriate to use Section 316 procedures to “modify” a license in a way that would preclude operations under that license).

⁷⁹ *P & R Temmer v. FCC*, 743 F.2d 918, 927 (D.C. Cir. 1984).

⁸⁰ 47 U.S.C. § 316(a).

necessarily limits the Commission’s ability to “modify” a license in a way that would contradict existing Commission rules and policies that the Commission already has found to serve the “public interest.”⁸¹

Among other things, the Commission may not use Section 316 to upend the U.S. Table by granting quasi-“primary” spectrum rights to the unlicensed, nonconforming use of the MSS/ATC Band by GPS receivers. As explained in LightSquared’s Comments, this type of substantial policy change would contradict decades of Commission rules, policy, and precedent—all established to advance the “public interest.” Such a change would be doubly inappropriate if taken by the International Bureau pursuant to delegated authority.⁸² Indeed, the USGIC’s own view is that the actions proposed in the *Public Notice* could only be taken by the full Commission.⁸³

⁸¹ See 47 U.S.C. § 303. The importance of existing Commission precedent in informing the “public interest” calculus manifests itself in a number of places. For example, the courts and the Commission have recognized a strong public interest in “finality,” as well as a property interest in existing licenses, which normally weigh against any “modification” of longstanding licenses. As the U.S. Court of Appeals for the D.C. Circuit has observed, a license “confers a property right on its owner, although a limited and defeasible one,” such that the “impairment of such a right . . . is, therefore, *pro tanto* a deprivation of property.” See *L. B. Wilson, Inc. v. FCC*, 170 F.2d 793, 802 (D.C. Cir. 1948). The Commission has found that the length of time between the grant of the license and the initiation of any proposed modification “is certainly a legitimate question for consideration as part of the public interest, convenience, and necessity inquiry.” See, e.g., *JPJ Electronic Communications, Inc.*, 17 FCC Rcd 5512, at ¶ 6 (2002); see also *National Science and Technology Network, Inc.*, 24 FCC Rcd 9220, at ¶ 4 (2009) (modification request filed ten years after license grant would be granted only under extraordinary circumstances). Thus, the significant passage of time since LightSquared’s ATC authority first issued in 2004 weighs heavily against the proposed changes. Cf. Coalition Comments at 30.

⁸² See LightSquared Comments at 74-75; 47 C.F.R. §§ 0.51, 0.261.

⁸³ See USGIC Comments at 15 n.44.

The record establishes compelling public interest reasons to maintain LightSquared’s existing ATC authority. For example, the Computer and Communications Industry Association explains that suspending that authority would undermine the integrity of the Commission’s rules, incentives to invest in the future deployment of mobile broadband networks, competition in existing and future wireless markets, and the expansion of wireless broadband services to “unserved” consumers.⁸⁴ Leap Wireless International, Inc. and Cricket Communications, Inc. echo these sentiments, and explain how LightSquared’s planned operations would facilitate the ability of smaller wireless companies to access new spectrum resources on a wholesale basis, and thus drive increased competition, while the Commission’s proposed actions would have a “chilling effect” on investment and innovation.⁸⁵ RCA agrees that LightSquared “offers an excellent option for 4G deployment” for many smaller carriers, allowing them to resolve “crucial” interoperability and data roaming issues.⁸⁶ In total, over 3,000 stakeholders—including federal, state and local elected officials, entrepreneurs, business representatives, public safety officials, healthcare providers, educators, farmers, rural community organizations, tribal communities, recreational associations, private citizens, and many others—have urged the Commission to preserve LightSquared’s authority for similar public interest reasons.⁸⁷

Finally, the courts and the Commission have recognized that, where some pressing concern suggests the need for a license “modification,” the public interest is served by

⁸⁴ See Comments of the Computer & Communications Industry Association, IB Docket No. 11-109 (Mar. 16, 2012) (“CCIA Comments”).

⁸⁵ See Leap and Cricket Comments at 1-2.

⁸⁶ See Comments of RCA—The Competitive Carriers Association, IB Docket No. 11-109, at 4 (Mar. 16, 2012) (“RCA Comments”).

⁸⁷ See Exhibit 3 hereto.

ensuring that affected licensees are made “whole” to the maximum possible extent.⁸⁸ Thus, in virtually every instance in which Section 316 is employed, the Commission has found either that the licensee’s ability to operate would not be materially affected, or that the provision of substitute spectrum or facilities would allow the licensee to resume operations.⁸⁹ For similar reasons, in reallocating spectrum in a way that would displace incumbent licensees, the Commission has been careful to provide those incumbents with “comparable facilities” elsewhere.⁹⁰ While it is obvious to some commenters that this is precisely what is going on—the GPS industry is seeking to displace LightSquared—no effort has been made to find alternative spectrum for LightSquared.⁹¹

GPS interests make no attempt to explain how the important policy objectives outlined above would be satisfied by the actions proposed in the *Public Notice*. Moreover, GPS interests identify no compelling need to suspend or revoke LightSquared’s ATC authority at this time. In contrast, the diverse stakeholders that would be affected by those actions cogently

⁸⁸ Congress has recently reaffirmed this principle as well. Rather than simply reclaim extremely valuable analog spectrum from terrestrial broadcast licensees that could be repurposed for wireless broadband, Congress has insisted that any such reclamation be purely voluntary, and if the spectrum is reclaimed, that the broadcasters be compensated using incentive and forward auctions. *See Middle Class Tax Relief and Job Creation Act of 2012*, Pub. L. No. 112-96, 126 Stat. 158, 205 (to be codified at 47 U.S.C. § 1411).

⁸⁹ *See* Exhibit 2 hereto.

⁹⁰ *Id.*

⁹¹ *See* RCA Comments at 6 (“Even worse, the GPS industry has gone so far as to ask the Commission to remove MSS L-band spectrum entirely from terrestrial mobile use. In essence, the GPS industry has asked for guard bands totaling dozens of megahertz of broadband-capable spectrum to insulate its operations, a result that is plainly inefficient and completely unacceptable in light of the nation’s broadband goals.”).

explain why doing so would not serve the public interest.⁹² Accordingly, the public interest calculus clearly weighs *against* the actions proposed in the *Public Notice*.⁹³

C. GPS Interests Establish No Basis for Vacating the *Conditional Waiver Order*

1. The record demonstrates that the *Conditional Waiver Order* did not increase the potential for “harmful interference”

GPS interests spill a great deal of ink parroting the testing results presented in the *NTIA Letter* and suggesting that those results somehow justify the *vacatur* of the *Conditional Waiver Order*.⁹⁴ But even if those results are taken at face value—which they should not be for the reasons identified in LightSquared’s Comments⁹⁵—the *Conditional Waiver Order* reflects the Commission’s determination to use those results as the starting point for the exploration of constructive solutions, and not as an excuse for foreclosing such exploration. There is absolutely no reason to undercut the policy reflected in the *Conditional Waiver Order* in favor of the defeatist approach advocated by the GPS industry.

As the *Public Notice* acknowledges, the *Conditional Waiver Order* involved only a “limited waiver” that “narrowly addressed” the integrated service requirement in the Commission’s ATC rules, and allowed LightSquared’s wholesale customers to deploy “terrestrial-only” end-user terminals. As established in LightSquared’s Comments, the *Conditional Waiver Order* did not alter the technical parameters of LightSquared’s planned network, or the degree to which GPS devices “listening” in the MSS/ATC Band might be

⁹² See Exhibit 3 hereto.

⁹³ Notably, the Commission could not proceed to modify LightSquared’s license in this case without first affording it the hearing required by Section 316(a)(1), given the existence of “substantial and material questions of fact.” See 47 U.S.C. §§ 316(a)(1), 316(b), 309(d).

⁹⁴ See, e.g., Coalition Comments at 2-20; USGIC Comments at 3; Lockheed Comments at 4-5.

⁹⁵ See generally LightSquared Comments, Technical Appendix.

incompatible with that network. Thus, the *Conditional Waiver Order* has no bearing on the fundamental technical parameters of LightSquared’s base stations that are the claimed source of “overload,”⁹⁶ or even LightSquared’s mobile user terminals. The power levels of each of those types of transmitters, and their expected proximity to GPS receivers, has been clear for almost seven years.⁹⁷

Moreover, the Commission’s decision to grant the requested waiver did not turn on any evaluation of the potential for “overload” effects. Rather, that decision turned almost exclusively on the Commission’s analysis of fundamental questions of policy—and its conclusion that the benefits of increased consumer access to competitive wireless broadband service justified the relaxation of the integrated service rule, provided that LightSquared continued to ensure the market availability of substantial satellite-based services as well.⁹⁸ Even the Coalition acknowledges that the Technical Working Group (“TWG”) process is not logically linked to the “limited waiver” granted by the Commission.⁹⁹

Since the *Conditional Waiver Order* was not premised on any specific testing results, the results presented in the *NTIA Letter* provide an insufficient basis for vacating that order. Indeed, the only logical basis for vacating that order would be some flaw in the reasoning underlying the Commission’s waiver analysis. Yet, GPS interests identify no such flaw. Nor do they account for the fact that the *Conditional Waiver Order* precludes LightSquared from implementing its network under the waiver granted therein without further action by the

⁹⁶ See *Public Notice* at 2.

⁹⁷ See LightSquared Comments at 39-46.

⁹⁸ See *Conditional Waiver Order* ¶ 36.

⁹⁹ See Coalition Comments at 26 (noting that the “TWG Conditions” would not be necessitated by a “limited waiver” granted to LightSquared by the Commission).

Commission, thereby ensuring that GPS interests are not harmed regardless of the results of testing or whether the *Conditional Waiver Order* is vacated.

2. The record reflects that additional testing would be fruitful

Even as they advocate *vacatur* of the *Conditional Waiver Order*, GPS interests acknowledge that additional testing would be valuable, and potentially provide additional insight into the resolution of the existing impasse. For example, the Coalition asserts that the filter solutions identified by LightSquared have not been tested “across the full range of commercial, performance, and operating parameters”¹⁰⁰ and that “questions . . . remain with respect to whether they would be compatible with existing GPS devices and whether they would degrade the performance of such devices.”¹⁰¹ Similarly, Deere & Company cites the “many unknowns” with respect to interference issues as reasons for vacating the *Conditional Waiver Order*.¹⁰² If these claims were credible, they merely would demonstrate the value of additional testing, as opposed to justifying the summary *vacatur* of the *Conditional Waiver Order*.¹⁰³ While LightSquared contends that the record contains ample testing data showing that the “overload” issue is limited to a relatively small number of receivers, assertions by the GPS industry about various “unknowns” contradict the GPS industry’s assertion that the Commission nevertheless

¹⁰⁰ *Id.* at 19.

¹⁰¹ *Id.* at 20.

¹⁰² Deere Comments at 5.

¹⁰³ The Technical Appendix to LightSquared’s Comments included a detailed discussion of the independent filter testing conducted by Alcatel Lucent Bell Labs. *See* LightSquared Comments, Technical Appendix, Exhibit C, at 2-3.

should rush to judgment on the basis of what the GPS industry characterizes as incomplete data.¹⁰⁴

D. The Proposed Actions Would Violate Both the Administrative Procedure Act and LightSquared's Constitutional Rights

LightSquared's Comments detail why the actions proposed in the *Public Notice* cannot be reconciled with LightSquared's legal rights, including its rights under the Administrative Procedure Act and the U.S. Constitution.¹⁰⁵ Recent Commission action has highlighted and exacerbated the unfairness and arbitrariness of the *Public Notice's* proposed course of action. Less than one week after LightSquared filed its Comments, the Commission proposed to give the existing MSS/ATC licensee in the 2000-2020 MHz band (the "2 GHz Band") increased flexibility to deploy a terrestrial network based on concerns about harmful interference being generated by that network into neighboring bands.¹⁰⁶ Thus, while the Commission has proposed to strip LightSquared of its ATC authority due to the encroachment of GPS receivers into LightSquared's licensed band, the Commission has proposed to provide a significant accommodation to another MSS/ATC licensee notwithstanding the threat of interference caused by its *own* emissions. That arbitrary differential treatment is yet another reason why vacating and suspending LightSquared's ATC authority as proposed in the *Public Notice*, and thus precluding the deployment of its 4G LTE broadband network, would violate both the Administrative Procedure Act and LightSquared's constitutional rights.

¹⁰⁴ Deere & Company asserts that "further testing would give the Commission more granular insight into the range, scope and specific levels at which LightSquared's base station signal creates harmful interference for other more sensitive classes of receivers." *See* Deere Comments at 9-10.

¹⁰⁵ *See generally* LightSquared Comments at 95-120.

¹⁰⁶ *See 2 GHz NPRM and NOI*, FCC 12-32.

The 2 GHz NPRM and NOI addresses a potential conflict between: (i) the 2 GHz Band, which currently is licensed for MSS/ATC use; and (ii) the neighboring bands that have been designated (but are not yet licensed) for Advanced Wireless Services (“AWS”). In particular, certain MSS uses of the 2 GHz Band by the existing licensee¹⁰⁷ would constrain the ability of others to use the adjacent AWS band for terrestrial broadband purposes, because there exists the potential for harmful interference generated by the MSS operations of the 2 GHz Band licensee.¹⁰⁸ Limiting the potential for this interference into the AWS band, however, would impede the optimum use of the 2 GHz Band for terrestrial broadband purposes.¹⁰⁹

Instead of simply “suspending” or “revoking” the authority of the 2 GHz Band licensee in light of this interference concern—as the Commission has proposed with respect to LightSquared—the Commission has proposed to modify the remaining 2 GHz Band licenses under Section 316 by providing replacement spectrum in another band.¹¹⁰ The 2 GHz Band would then be licensed to third parties for terrestrial broadband purposes, thus maximizing the use of both the 2 GHz Band and the replacement band. This solution-oriented approach would be consistent with a long line of cases that: (i) recognize that the public interest is best served by solutions that preserve existing authorizations to the maximum possible extent; (ii) attempt to “make whole” a licensee that is displaced from its licensed spectrum; and (iii) use Section 316 authority to effectuate band reconfigurations in a manner consistent with these policy

¹⁰⁷ See *id.* at ¶¶ 9, 144 (recognizing the existence of only one 2 GHz Band licensee as a result of the Commission’s consent for DISH Network Corporation to acquire TerreStar and DBSD out of bankruptcy).

¹⁰⁸ *Id.* at ¶ 139 (citing Comments of CTIA—The Wireless Association, ET Docket No. 10-142, at 12 (Jul. 8, 2011)).

¹⁰⁹ *Id.* at ¶ 139 & n.259.

¹¹⁰ *Id.* at ¶ 145.

objectives.¹¹¹ This approach also would advance the goals of the *National Broadband Plan* by increasing the availability of spectrum for terrestrial broadband services—precisely the goals that LightSquared’s network will achieve. At the same time, the *2 GHz NPRM and NOI* proposes to provide the existing 2 GHz Band licensee with a significant benefit by relieving it entirely of the burdens of complying with the ATC gating criteria.¹¹²

Against this backdrop, the proposed treatment of LightSquared (a similarly situated MSS/ATC licensee) is profoundly arbitrary, capricious, and discriminatory.¹¹³ It is the most basic tenet of the Equal Protection Clause that a party may not be “intentionally treated differently from others similarly situated [if] there is no rational basis for the difference.”¹¹⁴ Likewise, a central constraint on administrative action under the Administrative Procedure Act is that “[a]n agency must treat similar cases in a similar manner unless it can provide a legitimate reason for failing to do so.”¹¹⁵

Even though the Commission has mandated that LightSquared deploy a nationwide terrestrial network by 2015, and even though LightSquared already has invested more than \$4 billion to do so, the Commission has not proposed a solution that would allow LightSquared to continue to deploy and operate this network. Instead, when faced with “interference” concerns (not even of LightSquared’s making), the Commission inexplicably has

¹¹¹ *Id.* at ¶ 75; *see also* Exhibit 2 hereto.

¹¹² *2 GHz NPRM and NOI* ¶¶ 76-78.

¹¹³ *See Melody Music, Inc. v. FCC*, 345 F.2d 730 (D.C. Cir. 1965).

¹¹⁴ *Village of Willowbrook v. Olech*, 528 U.S. 562, 564 (2000); *see also, e.g., City of Cleburne, Tex. v. Cleburne Living Ctr.*, 473 U.S. 432, 439 (1985) (“The Equal Protection Clause of the Fourteenth Amendment. . . is essentially a direction that all persons similarly situated should be treated alike.”)

¹¹⁵ *Indep. Petroleum Ass’n of Am. v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996).

proposed to terminate LightSquared’s ATC authority without so much as considering the availability of alternatives that would: (i) unlock additional spectrum for commercial broadband purposes; (ii) provide significant public interest benefits from the deployment of LightSquared’s network; and (iii) enable LightSquared to achieve a reasonable return on its substantial investments—investments that the Commission has blessed for years. The differential treatment of LightSquared with respect to other MSS/ATC licensees has no rational basis and thus would not comport with the basic constitutional and administrative constraints on agency action.

II. IT IS INCUMBENT ON THE COMMISSION TO FIND A SOLUTION, AS THE *CONDITIONAL WAIVER ORDER* CONTEMPLATES, AND AS MANY COMMENTERS ENCOURAGE

The *Conditional Waiver Order* mandated that LightSquared and the GPS industry provide to the Commission “recommendations on steps that can be taken going forward to permit broadband wireless services to be provided in the L-Band MSS frequencies and coexist with GPS devices.”¹¹⁶ The Commission also made clear that “[b]ecause the GPS interference concerns stem from LightSquared’s transmissions in its authorized spectrum rather than transmissions in the GPS band,” the Commission expected “full participation by the GPS industry in the working group and . . . the GPS industry to work expeditiously and in good faith with LightSquared to ameliorate the interference concerns.”¹¹⁷

In their comments, GPS interests lean heavily on the alleged failure of the TWG process to produce an agreed solution to the alleged incompatibility of certain GPS receivers

¹¹⁶ *Conditional Waiver Order* ¶ 42.

¹¹⁷ *Id.*

with LightSquared’s licensed operations.¹¹⁸ However, these commenters ignore their own complicity, and that they themselves are the proximate cause of any “failure” to agree to solutions in a timely fashion. As RCA correctly recognizes, the GPS industry has failed to “compromise or accommodate use of a tax-payer owned resource for the benefit of the American consumer.”¹¹⁹

The *Conditional Waiver Order* requires the parties to strive for compromise in the pursuit of constructive solutions to the “overload” issue. This is consistent with the Commission’s historical approach to resolving similar issues,¹²⁰ and reflects the fact that the TWG process is unworkable in the absence of such full cooperation. LightSquared has embraced this spirit of compromise, and repeatedly has conveyed its willingness to make extraordinary accommodations for GPS receivers currently “listening” in the MSS/ATC Band. As one of the “near-term technical and operational measures” contemplated by the *Conditional Waiver Order*, LightSquared has offered to implement its network in phases to facilitate the adaptation of the commercial GPS industry to an operating environment where ATC is present.¹²¹

GPS interests simply have not fulfilled their obligations under the *Conditional Waiver Order*, even though the Commission directed the GPS industry to “work expeditiously

¹¹⁸ See, e.g., Coalition Comments at 8-20; Deere Comments at 2-5; USGIC Comments at 5-10, 16.

¹¹⁹ RCA Comments at 5.

¹²⁰ See *FCC Staff Report on Radio Frequency Interference*, GN Docket No. 78-369, at 28. (Jun. 16, 1981) (noting that “[t]he FCC does not, at the present, have a convenient regulatory handle to resolve interference due to overload,” and that the procedure is to encourage affected parties to cooperate to resolve the problem).

¹²¹ See Letter to FCC from LightSquared, IB Docket No. 11-109, at 10, 16-18 (Dec. 20, 2011).

and in good faith with LightSquared to ameliorate the interference concerns.”¹²² Instead, the GPS industry has been obstructionist, and has undermined the TWG process at every turn¹²³ in favor of facilitating the parallel Executive Agency testing process, which is controlled by government interests that have been the subject of intense lobbying by the GPS industry.¹²⁴ Of course, no opponent of LightSquared in the GPS industry mentions any work that it has undertaken to research and develop solutions on its own. Instead, those opponents’ comments make vain attempts to poke holes in the good work that LightSquared and other GPS equipment manufacturers have done to solve the problem that the GPS industry has created.¹²⁵ In short, the GPS interests that oppose LightSquared have demonstrated no willingness to cooperate with LightSquared, or to follow the directive of the *Conditional Waiver Order* to develop “steps that can be taken going forward to permit broadband wireless services to be provided in the L-Band MSS frequencies and coexist with GPS devices.”¹²⁶

Without doubt, GPS interests would have acted differently if the Commission had stated clearly that, in the absence of a negotiated resolution, the operations of GPS receivers in LightSquared’s “authorized spectrum” would not be protected—an outcome that is fully consistent with the U.S. Table,¹²⁷ Commission precedent,¹²⁸ and the rest of the *Conditional*

¹²² *Conditional Waiver Order* ¶ 42.

¹²³ For example, the USGIC asserts that the delivery of the *NTIA Letter* summarizing that flawed and biased testing somehow constituted the “final stage of the evaluation process contemplated by the *Conditional Waiver Order*.” USGIC Comments at 10.

¹²⁴ See, e.g., E. Krigman, *DoD Official Urged ‘Synch Up’ With GPS Lobby to Stop LightSquared*, POLITICO (Mar. 1, 2012).

¹²⁵ See, e.g., Coalition Comments at 19-20.

¹²⁶ *Conditional Waiver Order* ¶ 42.

¹²⁷ See LightSquared Comments at 8-13.

Waiver Order.¹²⁹ Fortunately, it is not too late to do so, and LightSquared’s pending Petition for Declaratory Ruling provides a suitable vehicle for that purpose.¹³⁰

The Commission should issue such a clarification now, and demand that the GPS industry bear its share of the burden in resolving the “overload” issue. As other commenters correctly recognize,¹³¹ rewarding the GPS industry’s intransigence and lack of cooperation over the last fifteen months by “indefinitely suspending” LightSquared’s authority would disserve the public interest, and compromise important policy objectives that the Commission should be driving, including: (i) developing innovative and competitive wireless broadband networks and solutions and expanding wireless broadband availability; (ii) maintaining the investment-backed expectations of licensees; and (iii) preserving the integrity of final Commission decisions. Rewarding the GPS industry in this manner also would encourage similar intransigence by other parties in the future, while leaving poorly-designed GPS receivers vulnerable to interference from a variety of other sources that may not be controlled easily (*e.g.*, jamming devices, cell phones, laptops, etc.).¹³²

¹²⁸ *Id.* at 46-75. As detailed in LightSquared’s Comments, Section 25.255 does not provide nonconforming GPS receivers with interference protection rights that they do not otherwise have. *Id.* at 63-69; *cf.* Coalition Comments at 28.

¹²⁹ *Conditional Waiver Order* ¶ 42.

¹³⁰ *See generally* LightSquared Petition. Contrary to what the Coalition asserts, *see* Coalition Comments at 5 n.11, the legal clarifications sought by LightSquared’s Petition go to the heart of the issues surrounding the *Public Notice*. Moreover, those issues involve basic questions of spectrum rights under the U.S. Table, not a determination of fault. *Cf.* Coalition Comments at 29.

¹³¹ *See* CCIA Comments at 10-16 (and the filings of other third parties cited therein).

¹³² *See FCC Enforcement Advisory: Cell Jammers, GPS Jammers, and Other Jamming Devices*, DA 12-347 (Mar. 6, 2012); Truong X. Nguyen, *Evaluation of a Mobile Phone for Aircraft GPS Interference*, NASA/TM-2004-213001, at 6 (Mar. 2004) (concluding that the “threat of interference” from FCC-compliant mobile phones and laptop

The Commission should permit LightSquared to deploy under one of the compromise proposals it has suggested. Those proposals recognize that enormous progress has been made in understanding how filtering and other solutions could alleviate the lion's share of the issues regarding potential GPS receiver incompatibility with LightSquared's operations. These proposals also reflect a good faith attempt to address "overload"-related problems, which the Commission has acknowledged are essentially the fault of GPS manufacturers.¹³³ Notably, the former head of the Commission's own Office of Engineering and Technology has registered his "strong belief" that "viable options exist that make suspension or revocation of the LightSquared ATC authorization unwarranted," and "[t]here are alternatives which would allow GPS and LightSquared to co-exist."¹³⁴

At a minimum, the Commission should find that concerns about adverse effects on GPS performance have been "resolved" successfully with respect to: (i) LightSquared's uplink spectrum; and (ii) LightSquared's lower 10 MHz of downlink spectrum. When

computers to aircraft GPS receivers is "real"). It is telling that the GPS industry has not objected to the *existing* operations of the non-ATC MSS METs of Inmarsat and others (*e.g.*, SkyWave, Satamatics). These METs are used in the same places GPS receivers may be used, even though the theoretical potential for "overload" from a single one of those METs is far greater than in the case of an ATC mobile user terminal (because of the significantly higher transmit power of a MET than an ATC mobile user terminal). As detailed in LightSquared's Comments, revoking or suspending its ATC authority in the face of these other sources of "interference" into GPS operations not only would be arbitrary and capricious, but also would violate the Equal Protection Clause of the U.S. Constitution. *See* LightSquared Comments at 105-120.

¹³³ *See 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*, 26 FCC Rcd 5710, at ¶ 28 (2011).

¹³⁴ *See* Declaration of Edmond J. Thomas, attached as Exhibit 1 hereto. Other commenters share this sentiment. *See* CCIA Comments at 1, 6-10; Letter to FCC from CENX, Inc., IB Docket No. 11-109 (Feb. 29, 2012); Letter to FCC from Greater Poplar Bluff, Missouri Area Chamber of Commerce, IB Docket No. 11-109 (Feb. 4, 2012); Letter to FCC from Karma Mobility, Inc., IB Docket No. 11-109 (Feb. 17, 2012); Letter to FCC from Smarter Car LLC, IB Docket No. 11-109 (Feb. 17, 2012).

normalized to account for various flaws, even the NPEF testing upon which the *NTIA Letter* relies reveals no significant problem in these bands. At the same time, the Commission should encourage the longer-term development of solutions regarding the upper 10 MHz downlink spectrum. In the alternative, the Commission and NTIA should find alternative spectrum for LightSquared's use, consistent with prior instances in which the Commission has "modified" a license under Section 316 (as discussed above), and the recommendations of commenters.¹³⁵

III. THE GPS INDUSTRY MISCHARACTERIZES THE DATA UNDERLYING THE *NTIA LETTER*

LightSquared's Comments demonstrate that: (i) the technical conclusions reflected in the *NTIA Letter* are not supported by the evidence; (ii) an objective review of the evidence shows that more than 99 percent of GPS receivers are compatible with LightSquared's planned operations; and (iii) practical mitigation options exist for the relatively few situations where incompatibility may occur. GPS commenters attempt to defend NTIA's technical conclusions, but do so mostly by simply repeating them.¹³⁶ Other commenters correctly recognize that "the testing NTIA relies on to support its analysis and conclusions is unreliable."¹³⁷

In addition to the robust technical analysis provided in LightSquared's Comments,¹³⁸ the following discussion shows that the technical arguments raised by GPS interests in their comments are misguided.¹³⁹

¹³⁵ See, e.g., RCA Comments at 6.

¹³⁶ See, e.g., Deere Comments at 5-9; Lockheed Comments at 2-6.

¹³⁷ See CCIA Comments at 4-6; Letter to FCC from CENX, Inc., IB Docket No. 11-109 (Feb. 29, 2012).

¹³⁸ See LightSquared Comments, Technical Appendix.

A. Tests of Cellular Devices Show Compatibility

Although NTIA failed to recognize the significance in its conclusions, it did acknowledge that the tests it sponsored of cellular devices demonstrate their compatibility with LightSquared's proposed operations.¹⁴⁰ A few of the comments nevertheless attempt to dispute NTIA's conclusion. Deere & Company bases its disagreement on the TWG testing of LightSquared operations on the Upper 10 MHz channel,¹⁴¹ which is not at issue here because LightSquared has agreed to defer use of that channel subject to further government oversight.¹⁴² The USGIC bases its disagreement on the same flawed analysis of LightSquared's power on the ground that characterized the NTIA report.¹⁴³ The Coalition relies on TWG testing to claim that six cellular devices experienced "overload" when tested with LightSquared operations on the Lower 10 MHz channel.¹⁴⁴ In fact, however, four of those six cellular devices would pass if LightSquared's power on the ground proposal were accounted for properly. Of the remaining

¹³⁹ Deere suggests that NPEF testing found that "LightSquared handsets operating in the 1626.5-1660.5 MHz band created significant OOB interference for GPS receivers during testing." See Deere Comments at 4-5. This is a misreading of the NPEF report. NPEF did not test any actual LightSquared handsets and the test set up was designed to ensure that NPEF was testing only adjacent band "overload" rather than potential interference into the GPS band.

¹⁴⁰ See *NTIA Letter* at 3.

¹⁴¹ See Deere Comments at 7. Deere quotes the *TWG Final Report* as finding that LightSquared's signals "caused GPS failure for a significant number of the tested devices." The full quote, however, acknowledges LightSquared signals in the "higher 5 MHz and 10 MHz" band caused these results. See *Technical Working Group Final Report*, IBFS File No. SAT-MOD-20101118-00239, at 18 (June 30, 2011) (*TWG Final Report*); see also Letter to FCC from LightSquared, IB Docket No. 11-109, at 10 (Dec. 20, 2011).

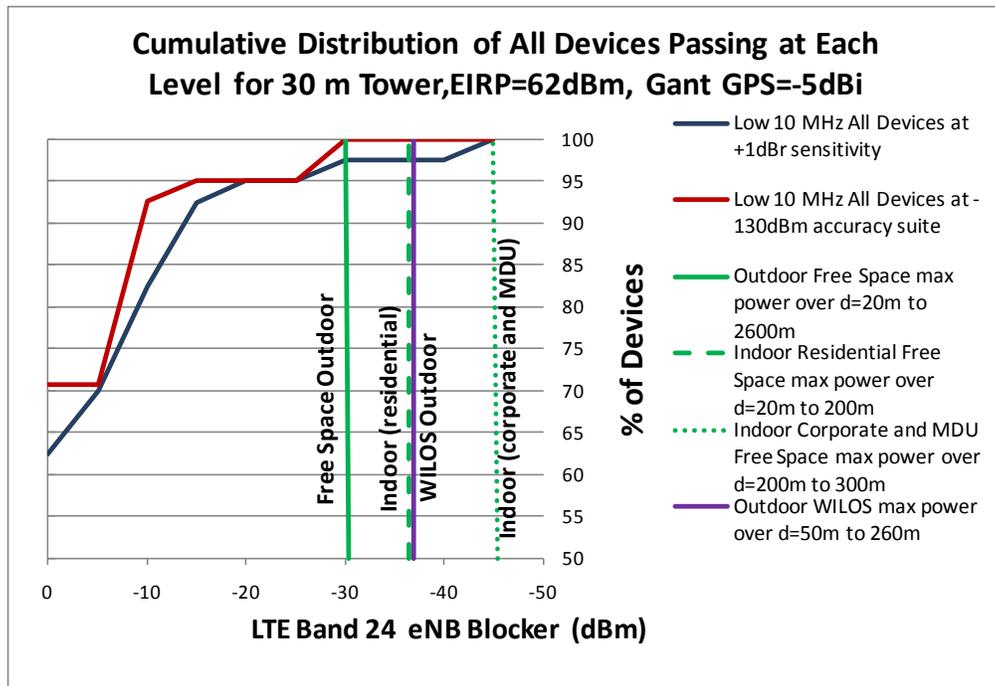
¹⁴² See, e.g., Letter to FCC from LightSquared, IB Docket No. 11-109, at 10, 16-18 (Dec. 20, 2012).

¹⁴³ See USGIC Comments at 8-9 (relying on -15 dBm as the estimated power on the ground to argue that some devices may encounter 1 dB desensitization).

¹⁴⁴ See Coalition Comments at 9 n.28 (citing *TWG Final Report* at 78, Figure 3.2.2.).

two devices, one is obsolete. Both that obsolete device and the remaining device experienced “overload” only in conditions intended to simulate in-building operation, but in which only the GPS signal (and not the LightSquared signal) was attenuated by a building penetration loss factor. Figure 3.2.20 from the *TWG Final Report*, reproduced below, summarizes these results.¹⁴⁵

Figure 3.2.20 Cumulative Distribution of Device Susceptibility Values versus “Power on the Ground” for the LightSquared Nominal Build Plan



B. To the Extent Any Valid Test Data Exist Regarding Personal/General Navigation Devices, a Proper Analysis Shows Compatibility

LightSquared provided extensive evidence in its Comments that the testing and analysis of personal/general navigation devices was fundamentally flawed and invalid.¹⁴⁶

¹⁴⁵ See *TWG Final Report*, Figure 3.2.20.

¹⁴⁶ See LightSquared Comments, Technical Appendix, Exhibit A.

Among other things, NPEF used a biased process to select devices and engaged in uncontrolled tests that produced incomplete and inconsistent results. For example, it appears that some of the devices had their antennas pointed toward the LightSquared base station antenna and away from the GPS antenna.¹⁴⁷ LightSquared also demonstrated that NTIA’s analysis used the wrong power level for the LightSquared signal on the ground and that its metric for determining “overload” (a purported loss of 1 dB in C/N₀) is not a reliable indicator of loss of position accuracy.¹⁴⁸ GPS commenters who support the NTIA conclusions do little more than repeat NTIA’s characterizations of the tests, and their calling these tests “rigorous” and citing to undisclosed peer reviews does not make up for the clear defects in the tests and the analysis.¹⁴⁹

No commenter either attempts to defend NPEF’s decision to permit LightSquared’s opponents to select the devices to be tested, or claims that those devices are representative of the installed base of personal/general navigation devices. The Coalition argues, however, that the results somehow were more favorable to LightSquared because certain devices that were tested, including certain aviation devices, were excluded from the results.¹⁵⁰ While the basis of the Coalition’s claim that certain aviation devices were excluded from the tests is not provided (consistent with NPEF’s stated confidentiality policy, the Coalition should not have had

¹⁴⁷ *Id.* at A-4 through A-7.

¹⁴⁸ *Id.* at A-38 through A-51; *see also* pp. 50-55, *infra*.

¹⁴⁹ *See, e.g.*, Deere Comments at 2, 7, 9; USGIC Comments at 5-6; Coalition Comments at 10-11. NTIA cites reviews of the NPEF testing by the Idaho National Laboratory and Lincoln Labs, but the federal government has not made those reviews available to LightSquared or otherwise publicly released them, so it is not apparent how the commenters have had access to those reviews in order to make any sort of reliable representation about them. *See* Deere Comments at 3.

¹⁵⁰ *See* Coalition Comments at 12-13.

access to the device code key¹⁵¹), the fact remains that results for at least several dual-mode aviation devices were included in the NPEF report and were relied upon by NTIA. In any event, as discussed in detail in LightSquared’s Comments, when the results are normalized to account for various flaws in the testing and analysis, it is apparent that universal or near-universal compatibility of personal/general navigation devices exists with LightSquared’s proposed network, regardless of the biased device selection process.¹⁵²

C. Solutions Exist for High-Precision and Timing Receivers

The USGIC provides no substantiated analysis for its comment that “there is no point in continuing to pursue solutions” regarding high-precision and timing GPS receivers.¹⁵³ Moreover, the USGIC simply ignores the TWG test results, which confirm that no commercially available timing GPS receiver showed adverse effects from LightSquared’s proposed operations.¹⁵⁴ The USGIC simply parrots language in the *NTIA Letter* and ignores the Alcatel Lucent Bell Labs (“ALU”) test results submitted into the record in December 2011 and January 2012, which demonstrate how high-precision receivers can be made fully resilient to LightSquared’s adjacent band transmissions.¹⁵⁵

The comments of the Coalition regarding high-precision and timing receivers simply confirm the value of further analysis. The Coalition complains that the devices tested by

¹⁵¹ The device code key provides a chart associating the actual GPS-related devices tested with the random number codes used in the NPEF report, thereby allowing one to identify the specific test measurements of any device tested and removing the device anonymity established in the report.

¹⁵² See LightSquared Comments, Technical Appendix, at A-52.

¹⁵³ USGIC Comments at 9.

¹⁵⁴ See *TWG Final Report* at 246, Figure 37.

¹⁵⁵ See Letter to FCC from LightSquared, IB Docket No. 11-109 (Dec. 23, 2011); Letter to FCC from LightSquared, IB Docket No. 11-109 (Jan. 20, 2012).

ALU are not currently available in the commercial market,¹⁵⁶ and then goes on to explain that, if that equipment were available, a number of questions would have to be resolved, some of which would require “thorough testing.”¹⁵⁷ Thus, the Coalition actually confirms the need to further explore solutions for this class of devices, and reveals the USGIC’s comments for what they are: yet another hurdle thrown up by the GPS industry to thwart the solution-oriented process mandated by the *Conditional Waiver Order*. LightSquared has demonstrated that solutions are possible,¹⁵⁸ but full resolution of the “overload” issue will require the good faith participation of leading GPS manufacturers. The Commission should not reward their refusal to actively engage in this process.

D. Practical Receiver-Based Solutions Exist for Space-Based Devices

Broad consensus exists that the current generation of space-based GPS receivers is compatible with LightSquared operations, but that more work needs to be done to provide additional resilience to next-generation GPS receivers that are to be deployed in the next few years. While the Coalition “questions” whether solutions are possible for these devices,¹⁵⁹ neither it nor the USGIC¹⁶⁰ presents evidence showing that the necessary resilience could not be provided using the same filter-based approach that has been demonstrated to be effective in the case of high-precision devices.¹⁶¹

¹⁵⁶ This assertion is incorrect, as the Javad GrAnt-G3T-L/G3T-LC modified external antennas are currently available for sale. See <http://www.javad.com/cgi-bin/jgnss/cgi?Action=Buy&ProductID=1395>.

¹⁵⁷ Coalition Comments at 19-20.

¹⁵⁸ See LightSquared Comments, Technical Appendix, Exhibit C.

¹⁵⁹ See Coalition Comments at 20-21.

¹⁶⁰ See USGIC Comments at 8.

¹⁶¹ See LightSquared Comments, Technical Appendix, Exhibit C.

E. The LightSquared Proposals for Limiting Power on the Ground and in the Air Are Not Mutually Exclusive

LightSquared has made several technical proposals that would further reduce any risk that a GPS receiver might experience “overload” effects near a LightSquared base station. The USGIC argues that two of those proposals—limiting power on the ground (“PoG”) to -30 dBm to protect terrestrial GPS devices and limiting power in the air (“PiA”) (above 100 feet) near base stations to -34 dBm to protect aviation devices being used at low altitudes—are mutually exclusive.¹⁶² There is simply no basis for this assertion, as base station power limits would be established to ensure compliance with each of these elements (PoG and PiA). Since the primary mechanism for ensuring compliance would be to reduce the EIRP of individual cell sites (as required), LightSquared would reduce power to levels necessary to abide by the more restrictive of the two elements for any given environment to ensure compliance with both elements.

F. LightSquared’s Concerns with FAA Analysis of Low-Altitude Compatibility Are Well-Founded

As a general matter, the clear indication is that, with appropriate mitigation, aviation GPS receivers would be completely compatible with LightSquared’s proposed network. The mitigation techniques that LightSquared alone is able to employ may be adequate. And if further analysis indicates that mitigation also needs to be implemented in some aviation GPS receivers, the testing that has occurred so far has yielded very encouraging results. For this reason, LightSquared’s Comments raise a number of concerns with the incomplete FAA analysis that the *NTIA Letter* relied upon in its conclusions.¹⁶³ Among other things, LightSquared put

¹⁶² See USGIC Comments at 6-7.

¹⁶³ See LightSquared Comments, Technical Appendix, Exhibit B.

forward the opinion of Mr. Howard Glover, an expert on Terrain Awareness and Warning Systems (“TAWS”), calling into question FAA’s criteria to evaluate various low-altitude cases that FAA presented as the basis for its decision. The Coalition’s comments criticizing Mr. Glover’s opinion misstate the positions of Mr. Glover and LightSquared and fail to provide any supporting evidence.¹⁶⁴

First, the Coalition takes issue with Mr. Glover’s statements about the use of non-GPS position data sources in TAWS equipment, such as inertial sensors.¹⁶⁵ The fact remains that existing standards permit non-GPS based position data sources for commercial aircraft, and such non-GPS position data sources are commonly used.¹⁶⁶ In fact, the comments on FAA’s recent draft TAWS standard indicate that alternate position sources for TAWS used by commercial aircraft are considered to be important and are in common use.¹⁶⁷ For both commercial and general aviation applications, FAA also recommends non-GPS position data sources as back-ups for when GPS may not be available or reliable.¹⁶⁸

¹⁶⁴ See Coalition Comments at 16.

¹⁶⁵ *Id.*

¹⁶⁶ As recently as February 2012, FAA solicited comments on its latest proposal to revise the TAWS Technical Standard Order (“TSO”), TSO-C151c. See Draft Technical Standard Order TSO-C151c – Terrain Awareness and Warning System (January 2012) (“*Draft TSO*”). During an initial comment period, aircraft manufacturers and operators urged FAA to continue to permit these alternate position inputs for Class A TAWS systems. These comments emphasized the importance of these alternative position data sources in TAWS, and FAA agreed to continue to permit alternative sources. See TSO-C151c Document Comment Log, available at http://www.faa.gov/aircraft/draft_docs/media/airTSO_C151cDispo.doc (“*TSO Comments*”).

¹⁶⁷ For example, Honeywell noted that “[m]any current (Class A) applications use Inertial Vertical Speed (IVS) from an Inertial Reference System, which does not meet the referenced [RNSS] TSOs. IVS should be allowed by the final TSO-C151c.” *Id.* at 77.

¹⁶⁸ *Draft TSO* ¶ 5.4.

Second, the Coalition mistakenly asserts that GPS is required for advance warning of rapidly rising terrain.¹⁶⁹ In reality, what is required is an estimate of airplane geographic position relative to the terrain, and such position data may be obtained from several sources, including inertial reference systems and radio navigation receivers.

Third, contrary to the Coalition's assertion,¹⁷⁰ Mr. Glover's opinion makes clear that both FAA criteria and the actual TAWS equipment certified under those criteria provide alerts before the aircraft descends below the minimum terrain clearance floor. FAA TAWS standards require systems to provide a range of visual and aural alerts (*e.g.*, "caution" and "warning" alerts), which are triggered at a range of altitudes and proximity to terrain. For example, to meet a required clearance of 100 feet above terrain, using a conservative scenario in the TAWS certification standard, the TAWS caution alert must sound no more than 350 feet above terrain, and the warning alert must sound no less than 112 feet above terrain.¹⁷¹

¹⁶⁹ See Coalition Comments at 16.

¹⁷⁰ *Id.*

¹⁷¹ TSO-C151b, Appendix 3, Section 1.6 describes standards for Required Terrain Clearances ("RTCs") of 100 feet above ground level. The requirement is that the "terrain alert must be provided in time to assure that the airplane can level off (L/O) with a minimum of 100 feet altitude clearance over the terrain . . ." Pursuant to Table E contained in the same section and using the most conservative scenario (top row), the TAWS caution alert must sound no more than 350 feet above terrain and the warning alert must sound no less than 112 feet above terrain, ensuring that the alerts will be received well above the minimum RTC. Caution alerts require "immediate crew awareness" and normally require substantive action. Appendix 1, Table 4, of TSO-C151b details the types of alerts required and all "caution" alerts provide both visual and aural alerts to the crew that the aircraft is near terrain. See Technical Standard Order TSO-C151b – Terrain Awareness and Warning System, at Appendix 3 at Sections 1.6 and 2.3 (Dec. 17, 2002).

Fourth, while the Coalition criticizes LightSquared for failing to discuss helicopter TAWS in the *FAA Report*,¹⁷² LightSquared actually addressed the unique issues of helicopter TAWS separately in Appendix C of the *FAA Report*.¹⁷³ As noted there, LightSquared believes that the helicopter scenarios can best be addressed through its proposed approaches to mitigation and testing.

G. Aviation Standards Do Not Warrant the Proposed Actions

The Coalition wrongly suggests that because FAA’s receiver standards predate the Commission’s authorization of LightSquared’s ATC operations, the ATC authorization should be revoked as “not compatible with pre-existing uses of the neighboring GPS spectrum.”¹⁷⁴ Receiver standards are routinely updated to reflect technological changes and to improve existing function. Since the time that the aviation receiver rejection standards were first published in 1996,¹⁷⁵ the FAA’s standards advisory group has revised the relevant receiver standard four times, including as recently as 2008;¹⁷⁶ FAA has issued or revised its aviation receiver rejection standards seven times, most recently in 2008;¹⁷⁷ and the international aviation

¹⁷² See Coalition Comments at 16.

¹⁷³ See *FAA Status Report: Assessment of Compatibility of Planned LightSquared Ancillary Terrestrial Component Transmissions in the 1526-1536 MHz Band with Certified Aviation GPS Receivers*, at C-13 – C-15 (Jan. 25, 2012) (“*FAA Report*”).

¹⁷⁴ Coalition Comments at 17.

¹⁷⁵ RTCA/DO-229 – Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment (1996). See *FAA Report*, at 11.

¹⁷⁶ RTCA/DO-229D – Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment (Dec. 13, 2006); RTCA/DO-229D Errata (July 31, 2008).

¹⁷⁷ TWO-C145c – Airborne Navigation Sensors using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS) (May 2008); TSO-C146c

standards group has updated its standard as recently as 2008.¹⁷⁸ These revisions include substantive changes relating to satellite tracking constraints, interference environment revisions, and changes to accommodate the changes from narrow-band satellites to wide-band satellites.¹⁷⁹ Notably, the latest revisions occurred after LightSquared’s ATC authorization was first granted in 2004, and after the *2003* and *2005 ATC Orders* became final. The Coalition has offered no explanation of why FAA did not take LightSquared’s ATC authorization or the Commission’s ATC rules into account when revising its standards, especially given FAA’s participation, through the federal government’s Interdepartment Radio Advisory Committee, in the Commission’s ATC rulemaking and licensing processes. FAA cannot now expect the Commission to rescind a final authorization granted under final rules, especially when FAA has the capacity to address its concerns through means within its own jurisdiction.¹⁸⁰

– Stand-Alone Airborne Navigation Equipment Using the Global Positioning System Augmented by the Satellite Based Augmentation System (May 2008).

¹⁷⁸ Amendment 83 to ICAO Annex 10 to the Convention on Civil Aviation (2008). *See* ICAO Annex 10 to the Convention on Civil Aviation, Volume 1, at xviii (2010).

¹⁷⁹ *See RTCA List of Available Documents*, at 54-55 (Dec. 2011), *available online at* <http://www.rtca.org/downloads/List%20of%20Available%20Docs%20-%20Dec%202011.pdf>.

¹⁸⁰ FAA has authority to review proposed and existing structures, towers, and antennas, 49 U.S.C. § 44718, but it lacks any authority to either prevent construction or compel modification of physical structures, or deny FCC licenses. FAA itself has long recognized its lack of authority. *See* FAA Order 7400.2J (“Section 44718 does not provide specific authority for the FAA to regulate or control how land (real property) may be used in regard to structures that may penetrate navigable airspace.”); *Air Line Pilots Ass’n v. FAA*, 446 F.2d 236, 240 (5th Cir. 1971) (summarizing FAA’s position that “regardless of what determination the FAA makes, the proponent of the structure may proceed in his construction with impunity.”) Courts agree with this position. *See Reminga v. United States*, 631 F.2d 449, 453 (6th Cir. 1980) (“[T]he FAA has limited authority to control the construction of . . . towers.”); *AOPA v. Federal Aviation Administration*, 600 F.2d 965, 966-67 (D.C. Cir. 1979) (“The FAA is not empowered to prohibit or limit proposed construction it deems dangerous to air navigation.”). In cases involving an FCC license in which FAA finds a hazard to air navigation, the FCC—not

H. GPS Interests Are Misguided in Asserting that a 1 dB Increase in C/N_0 Constitutes “Harmful Interference”

GPS interests assert that it is appropriate to assume that legally cognizable “harmful interference” has occurred if, in testing the susceptibility of a GPS receiver to “overload,” the GPS receiver experiences a 1 dB reduction in the carrier-to-noise-density (C/N_0) ratio (*i.e.*, a 1 dB decrease in the ratio of the power of the desired GPS signal to the power spectral density of unwanted signals and background noise).¹⁸¹

As an initial matter, and as LightSquared has explained at length, any performance degradation that results from a GPS receiver “listening” in frequencies outside of the GPS Band represents a nonconforming spectrum use that is not legally entitled to any interference protection whatsoever. Thus, any such performance degradation cannot constitute legally cognizable harmful interference under U.S. law.¹⁸²

Moreover, as also explained in LightSquared’s Comments, a 1 dB reduction in C/N_0 simply is not a valid indicator of a GPS receiver’s operational performance. It is far more appropriate to evaluate a loss of position accuracy, and whether the GPS receiver can provide a required level of accuracy with a sufficiently high probability.¹⁸³ This type of approach focuses on the intended use of the receiver and its observable behavior, and takes into account the inherent, random variability in the instantaneous position error during testing. By focusing on

FAA—retains jurisdiction over issuance of the licenses. In the context of a recent rulemaking amending FAA obstruction review standards in 14 C.F.R. Part 77, FAA expressly recognized that it does not manage use of the radio spectrum. *FAA Final Rule: Safe, Efficient Use and Preservation of the Navigable Airspace*, 75 Fed. Reg. 42296 at 42297 (Jul. 21, 2010). FAA does have clear authority to establish standards for aviation receiver equipment. 49 U.S.C. § 44701(a).

¹⁸¹ See, *e.g.*, Coalition Comments at 13-14.

¹⁸² See LightSquared Comments at 8-22, 46-69.

¹⁸³ *Id.* at 80-82.

the real-world impact of “overload,” this approach also avoids compromising LightSquared’s ability to provide critical broadband service where there is no significant offsetting benefit to GPS operations. In short, the relevant test should be whether there is an actual loss of position accuracy.¹⁸⁴ This simply was not measured in the NPEF testing or considered in the FAA report.

In fact, variables other than a 1 dB reduction in C/N_0 typically are more important in determining the position accuracy of a GPS receiver, including the number of visible satellites, variations in their power, and ionospheric and tropospheric delay. Furthermore, an evaluation of short-term and long-term inherent variations in C/N_0 in the GPS Band reveals frequent variations of more than 1 dB, such that a 1 dB degradation in C/N_0 would not be perceptible to the user of a GPS receiver.¹⁸⁵ In other words, the user of a GPS receiver would not be able to distinguish a 1 dB degradation in C/N_0 that is caused by its proximity to a LightSquared transmitter (or any other emitter of radiofrequency energy for that matter¹⁸⁶) from the inherent and significant variability in C/N_0 that normally and naturally occurs wherever the GPS receiver is used. For these types of reasons, the Commission previously has rejected a 1 dB C/N_0 degradation as a measure of “harmful interference,” even where cited by NTIA in its own analysis.¹⁸⁷

¹⁸⁴ See LightSquared Comments, Technical Appendix, Exhibit A, Section III. Both the cellular and aviation industry standards use a function of the observed position error as the pass/fail metric. See RTCA DO-229D § 2.1.2.1.

¹⁸⁵ See Letter to FCC from LightSquared, IB Docket No. 11-109 (Mar. 16, 2012) (demonstrating regular and significant variations in measured C/N_0 values in GPS signals).

¹⁸⁶ See n.132, *supra*.

¹⁸⁷ *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, 18 FCC Rcd 3857, at ¶ 14 (2003). The Coalition mischaracterizes the Commission’s decision in this UWB case, suggesting that the Commission adopted the use of a 1 dB threshold when, in fact, it declined to do so. See Coalition Comments at 13 n.46; see also *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, 25 FCC Rcd 11710, at ¶¶

To the extent that the Commission nevertheless focuses on a 1 dB degradation, it bears emphasis that the 1 dB threshold specified in the just-adopted ITU-R M.1903 applies as a “protection criterion” by its own terms only for the operations of GPS (RNSS) receivers *within* the GPS Band, and not for the operations of a receiver in adjacent spectrum that is allocated for other services, like the MSS/ATC Band. Moreover, the ITU Radio Regulations provide interference protection only for spectrum uses that comply with the ITU Table of Frequency Allocations.¹⁸⁸ Just as with the U.S. Table, the allocation for GPS (RNSS) in the ITU Table extends only from 1559-1610 MHz and not into the spectrum licensed to LightSquared.¹⁸⁹

For this reason, ITU-R M.1903 defines “ N_0 ” (receiver’s internal, thermal noise spectral density) and “ I_0 ” (received, co-channel, interference power spectral density) across specific frequency ranges in the GPS Band, within which the specified GPS (RNSS) interference protection criteria apply.¹⁹⁰ Critically, none of these ranges extends beyond the borders of the GPS Band. This is consistent with the common-sense understanding that C/N_0 ¹⁹¹ is significant only within the GPS Band, where the GPS signal appropriately is “desired.” It is only within the

100-101 (2010) (rejecting 1 dB degradation threshold in establishing out-of-band emission limits for WCS operations).

¹⁸⁸ ITU Radio Regulation No. 4.4 (“Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, *except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.*”) (emphasis added).

¹⁸⁹ See ITU Radio Regulations, Article 5, Section 4, RR5-64.

¹⁹⁰ See ITU-R M.1903 (Jan. 2012). This is consistent with the analysis of LightSquared’s ATC operations conducted by NTIA in 2002. See *November 2002 NTIA Letter*, Enclosure 1 at 4 (basing analysis on the typical “noise figure” within the frequency range of the “L1” GPS signal).

¹⁹¹ It is more accurate to call this term, $C/(N_0+I_0)$, but it is common practice to use it interchangeably with C/N_0 .

GPS Band that any reasonable expectation can exist that the GPS signal will not be degraded, and only in the GPS Band that signals from other sources (such as out-of-band emissions that are co-channel to the GPS signal) can reasonably be referred to as “noise” or “interference” vis-à-vis the GPS signal. Any contrary interpretation of ITU-R M.1903 would lead to absurd results. As a matter of physics, C (*i.e.*, the strength of the GPS signal) declines with spectral separation from the GPS Band, while N_0 (*i.e.*, other signals from adjacent bands allocated for different purposes, and background noise) necessarily increases. Absent the use of appropriate filtering by a GPS manufacturer, a 1 dB reduction in C/N_0 becomes more and more likely the farther from the GPS Band that N_0 is measured.

Thus, “listening” for the GPS signal in spectrum where it is not supposed to be received may significantly increase the chance of a GPS receiver not successfully and reliably operating in the manner contemplated by ITU-R M.1903. In this case, “overload” concerns exist because: (i) in some cases GPS manufacturers have chosen to design receivers that “listen” in the MSS/ATC Band in order to receive out-of-band emissions from GPS satellites; and (ii) in other cases GPS manufacturers have made poor receiver design choices. In all cases, it is the design of the GPS receiver that renders it susceptible to the effects of other, non-GPS signals that are transmitted entirely (and properly) within the MSS/ATC Band. The type of “overload” at issue here does not involve any transmissions of energy into the GPS Band. Accordingly, the use of the C/N_0 metric, which has meaning only within the GPS Band, is inappropriate for the

purpose of assessing the legal consequence of “overload” that may be experienced near ATC transmitters.¹⁹²

Furthermore, the 1 dB C/N_0 degradation discussed in ITU-R M.1903 cannot be viewed in isolation from the entirety of the technical characteristics and protection criteria detailed in that document. The ability of a GPS receiver to operate as intended (and not experience a 1 dB C/N_0 degradation) depends in large part on whether it has been designed to comply with a long list of characteristics specified in ITU-R M.1903, including but not limited to specified RF filter 3 dB bandwidth, specified pre-correlation filter 3 dB bandwidth, specified receiver system noise temperature, and maximum receiver antenna gain in different hemispheres, among others.¹⁹³ There is no indication that the Executive Agencies assessed whether the receivers that purportedly experienced a 1 dB C/N_0 degradation during testing actually complied with the receiver characteristics specified in that ITU Recommendation. In the absence of such proof, reliance alone on the 1 dB C/N_0 degradation discussed in ITU-R M.1903 is meaningless, and in fact is misleading.

Moreover, it is not even clear that the 1 dB C/N_0 degradation threshold discussed in ITU-R M.1903 applies beyond a very limited class of “assisted-RNSS” GPS receivers that are typically incorporated into mobile phone (cellular) devices that use information delivered via the phone network to enable operations in shadowed locations.¹⁹⁴ In fact, Section 4 of ITU-R M.

¹⁹² Notably, the out-of-band emission limits negotiated by LightSquared and the GPS industry in 2002 and 2009 are intended to ensure that the C/N_0 levels *within the GPS Band* are not materially degraded.

¹⁹³ See ITU-R M.1903 at Table 2.

¹⁹⁴ See *id.* at §§ 2.3, 4. As discussed above, both the TWG and the NTIA-sponsored testing of cellular-based GPS devices (in the most comprehensive and rigorous testing of all classes of GPS receivers) confirmed that cellular-based GPS devices are compatible with

1903 “proposes different levels of protection depending on the RNSS receiver type or application.”¹⁹⁵ For this reason and those provided in the preceding paragraph, NTIA’s direction that the Executive Agencies use the 1 dB C/N_0 degradation by itself as the relevant “protection criteria” [sic]¹⁹⁶ for all types of GPS receivers appears facially inconsistent with the very words of ITU-R M. 1903.

Finally, the metric on which pass/fail was determined in the Executive Agency testing was not in fact the C/N_0 discussed in ITU-R M. 1903 (the actual C and N_0 measured at the input to the receiver). Instead, that evaluation was based on data reported by the GPS receiver, and based on the observed *GPS signal quality*. No standards exist for how such data should be derived and the Executive Agency testing did not ascertain the scientific validity of using these data. In fact, huge, unexplained variances existed in the quiescent C/N_0 values from the Executive Agency tests.¹⁹⁷ Thus, the chief GPS “performance” metric on which the *NTIA Letter* and, correspondingly, the *Public Notice* rely is of very questionable quality, totally apart from the inappropriateness of using a 1 dB decrease in C/N_0 as a proxy for “harmful interference.”

LightSquared’s ATC plans. See *TWG Final Report* at 82, Figure 3.2.4; *Report to NTIA on November 2011 Laboratory Tests of Selected Cellular Devices* at 3, Table 1 (amended Jan. 26, 2012).

¹⁹⁵ ITU-R M.1903 at § 4 (referencing the applicability of parameters specified in Table 2 to ITU-R M.1903, as discussed above).

¹⁹⁶ *NTIA Letter* at 4.

¹⁹⁷ LightSquared Comments, Technical Appendix, Exhibit A at A-1, A-3, A-8, 9, A-13 through 16, A-52, 53.

IV. CONCLUSION

For the foregoing reasons, and those set forth in LightSquared's Comments, the Commission cannot and should not take the actions proposed in the *Public Notice*, and instead should continue to foster the development of LightSquared's licensed ATC network for the benefit of U.S. consumers.

Respectfully submitted,

/s/ Jeffrey J. Carlisle
Jeffrey J. Carlisle
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March 30, 2012

EXHIBIT 1

DECLARATION OF EDMOND J. THOMAS

I, Edmond J. Thomas, hereby make the following declarations under penalty of perjury:

1. I served at the FCC from 2002 to 2005 as the Chief of the Office of Engineering and Technology. I am presently employed as a Senior Advisor at the law firm of Hogan Lovells LLP. Additionally, in the past, I have been the CEO of RSL USA, an international telecommunications company and CEO of MM RadioLink, a UK based millimeter wave radio manufacturer. Also, I served as CTO of Bell Atlantic.
2. I am intimately familiar with the Federal Communication Commission's IB Docket No. 11-109 (the LightSquared Docket) and the issues surrounding it. It is my strong belief other viable options exist that make suspension or revocation of the LightSquared ATC authorization unwarranted. There are alternatives which would allow GPS and LightSquared to co-exist. In the interest of equity, below I fully support an alternative which will undisputedly cause no harm to GPS, cost the GPS industry nothing and allow LightSquared to operate terrestrially.
3. Among other proposals being discussed, a frequency swap between the government and LightSquared has been suggested by LightSquared. Instead of presently assigned frequencies, the object is to assign a new frequency slot to LightSquared for terrestrial operation which is economically viable for LightSquared while at the same time being sufficiently removed from GPS frequencies so there is no possibility of overload. I wholeheartedly support such a swap and I am convinced that it is technically doable and in the interest of all involved. It creates a win for the government, a win for the GPS industry, a win for LightSquared and a win for the American public. It also minimizes the economic burden on all parties.

/s/ Edmond J. Thomas
Edmond J. Thomas

Executed: March 30, 2012

EXHIBIT 2

SELECTED COMMISSION LICENSE “MODIFICATION” PRECEDENT

Use of Section 316 to Effect Changes without Significant Operational Impact

- *Establishing Rules and Policies for the use of Spectrum for Mobile Satellite Services in the Upper and Lower L-band*, 17 FCC Rcd 2704 (2002) (modifying satellite license to reduce authorized spectrum from 28 MHz to 20 MHz after concluding that licensee would not be unduly affected, as advances in satellite technology would permit provision of equivalent service with less spectrum).
- *Globalstar Licensee LLC*, 23 FCC Rcd 15207 (2008) (modifying license to delete certain frequencies, but agreeing to entertain waivers to permit continued use in regions where this deletion would impose undue costs).
- *Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands*, 23 FCC Rcd 7210 (2008) (using Section 316 to expand Globalstar’s ATC authority to cover additional spectrum).
- *Petition of the International Telecommunications Satellite Organization under Section 316 of the Communications Act, as amended*, 23 FCC Rcd 2764 (2008) (modifying space station license to conform conditions to international treaty obligations and effect prior agreement to which licensee was party).
- *Modification of Licenses Held by Iridium Constellation, LLC and Iridium, US LP*, 18 FCC Rcd 11480 (2003) (using Section 316 to grant Iridium temporary operational authority, and thus indirectly modify the licenses of other operators sharing spectrum with Iridium, after concluding that additional interference risk would be minimal).
- *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band*, 25 FCC Rcd 643, at ¶¶ 67-70 (2010) (modifying licenses of low-power auxiliary stations in the 700 MHz Band to prohibit operations after June 12, 2010, but noting that the licensees generally were authorized to operate in other bands, while exceptions could be accommodated with other spectrum).
- *Nevada Ready Mix Corporation, Inc.*, 24 FCC Rcd 4648 (2009) (proposing to modify license to change radio service code so as to avoid interference after noting that the modification would not unduly disrupt the station’s operations).
- *Mobile Relay Associates*, 24 FCC Rcd 3234 (2009) (proposing to delete frequency pair from license because it did not comply with the distance separation requirement and such deletion would not unduly burden licensee’s operations).
- *Jack in the Box, Inc.*, 22 FCC Rcd 12737 (2007) (proposing to modify license to prevent interference by deleting two frequencies after noting that such deletion would not unduly

disrupt licensee operations as existing stations were authorized to operate on alternate frequencies).

- *Long Beach Unified School District*, 21 FCC Rcd 6358 (2006) (proposing to delete two out of six frequency pairs after noting that this change would not unduly disrupt operations, which could continue on other authorized frequency pairs).
- *Pacific Gas and Electric Company*, 18 FCC Rcd 22761 (2003) (modifying license to reduce authorized power from 185 Watts to 23 Watts due to interference concerns after finding no evidence that modification would actually hamper the licensee's current operations).
- *VSS Enterprises, LLC*, 18 FCC Rcd 6225 (2003) (proposing to delete licensed frequency pair after noting that such deletion would not unduly disrupt ongoing operations given availability of other licensed spectrum).
- *Industrial Telecommunications Association, Inc.*, 8 FCC Rcd 1522 (2003) (concluding that proposed modification would serve the public interest as it would not unduly disrupt ongoing operations given availability of alternative licensed spectrum).
- *Industrial Telecommunications Association, Inc.*, 18 FCC Rcd 201 (2003) (modifying license after concluding that proposed change would not unduly disrupt ongoing operations).
- *Pacific Gas and Electric Company*, 17 FCC Rcd 20900 (2002) (modifying license to reduce authorized transmitting power after finding that licensee could still operate station and concluding that there was no evidence that the modification would disrupt service).
- *National Science and Technology Network, Inc.*, 17 FCC Rcd 15728 (2002) (proposing to modify license to alter station class after recognizing that the modification would preserve the existing coverage areas of the affected licensee and not unduly disrupt its operations).
- *Industrial Telecommunications Association, Inc.*, 16 FCC Rcd 15765 (2001) (proposing modification after finding that it would preserve the existing coverage area of affected parties without disrupting ongoing operations).
- *Comtex Communications Inc.*, 16 FCC Rcd 4784, at ¶ 5 (2001) (modifying license to reduce number of authorized mobile units on certain frequencies after licensee failed to file protest, noting that licensee would retain adequate authority to sustain operations).
- *License Communications Services, Inc.*, 24 FCC Rcd 3228, at ¶ 9 n.28 (2009) (declining to modify license in a way that would preclude operations under that license).

Use of Section 316 to Effect Changes after Providing Substitute Channels

- *RadioLink Corporation*, 20 FCC Rcd 12024 (2005) (deleting five licensed frequencies that had been improperly coordinated after requesting that frequency coordinator find replacement frequencies to minimize the impact of the proposed action).
- *License Communications Services, Inc.*, 13 FCC Rcd 23781, at ¶ 30 (1998) (approving substitution of seven out of eight channels to ensure that service could continue without interruption).
- *CSX Transportation, Inc.*, 18 FCC Rcd 2578 (2003) (proposing to replace frequency after noting that the change would not unduly disrupt licensed operations).
- *Amendment of Section 73.202(b), Table of Allotments, Dinosaur and Rangely, et al.*, 19 FCC Rcd 10327 (2004) (modifying licenses to specify new channels and communities of license and requiring proponent to bear costs of required changes).
- *Amendment of Section 73.202(b), Table of Allotments, Cross Plains et al.*, 15 FCC Rcd 5506 (2002) (modifying licenses to specify new channels and communities of license and requiring proponent to bear costs of required changes).
- *Amendment of Section 73.202(b), Table of Allotments, Burkesville et al.*, 21 FCC Rcd 11465 (2006) (modifying licenses to specify new channels and communities of license and requiring proponent to bear costs of required changes).
- *Amendment of Section 73.202(b), Table of Allotments, Coal Run, Kentucky and Clinchco, Virginia*, 26 FCC Rcd 8557 (2011) (modifying license to specify new channel but requiring proponent to reimburse the incumbent licensee for its reasonable expenses associated with changing its frequency).
- *Amendment of Section 73.202, Table of Assignments, Leitchfield et al.* 8 FCC 2d 159 (1967) (modifying license to specify new channel and noting that reimbursement for the costs of relocation should come from the party benefiting from the change; *i.e.*, whoever becomes the permittee on the new channel).

Use of Section 316 to Effect Rebanding/Relocation

- *Establishing Rules and Policies for the use of Spectrum for Mobile Satellite Services in the Upper and Lower L-band*, 17 FCC Rcd 2704 (2002) (using Section 316 to modify satellite license to specify new frequencies in the Lower L Band, after concluding that Upper L Band effectively was unavailable due to difficulties with international coordination).
- *Improving Public Safety Communications in the 800 MHz Band*, 19 FCC Rcd 14969 (2004) (using Section 316 to effect reconfiguration of the 800 MHz band to cure interference issues affecting public safety licensees, by relocating Nextel to the 1.9 GHz band and other wireless licensees to replacement spectrum).

- *Amendment of the Commission's Rules to Relocate the Digital Electronic Message Service from the 18 GHz Band to the 24 GHz band and to Allocate the 24 GHz Band for Fixed Service*, 12 FCC Rcd 3471 (1997) (using Section 316 to modify DEMS licenses to relocate operations from the 18 GHz band to the 24 GHz band in order to accommodate Department of Defense military systems).
- *Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band*, 16 FCC Rcd 16043, at ¶ 30 (2001) (expressing intent to use Section 316 to modify 2 GHz MSS licenses to make conforming changes after conclusion of rulemaking proceeding).
- *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, 18 FCC Rcd 2223, at ¶ 33 (2003) (using Section 316 authority to enlarge 2 GHz MSS spectrum allocation and delegating authority to the International Bureau to use Section 316 to make conforming changes to 2 GHz MSS licenses).
- *See New Advanced Wireless Services*, 20 FCC Rcd 15866, at ¶ 19 (2005) (proposing to use Section 316 to effect relocation of BRS licensees from the 2.1 GHz band to the 2.5 GHz band).

Band Reconfiguration Pursuant to *Emerging Technologies* Policies

- *Emerging Technologies*, 8 FCC Rcd 6589 (1993) (adopting new 2 GHz band plan, but requiring new entrants to relocate incumbents as necessary to avoid interference, with new entrants covering all costs associated with relocation).
- *Personal Communications Services*, 8 FCC Rcd 7700 (1993) (applying *Emerging Technologies* policies to relocate microwave licensees to free spectrum for new PCS operations).
- *800 MHz Specialized Mobile Radio Service*, 11 FCC Rcd 1463 (1995) (applying *Emerging Technologies* policies to relocate incumbent licensees to free spectrum for new SMR operations).
- *Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, 12 FCC Rcd 7388 (1997) (applying *Emerging Technologies* policies to relocate BAS licensees to free spectrum for new MSS operations).
- *Redesignation of the 17.7-19.7 GHz Frequency Band*, 15 FCC Rcd 13430 (2000) (applying *Emerging Technologies* policies to relocate microwave licensees to free spectrum for new FSS operations).

EXHIBIT 3

PUBLIC COMMENTERS URGE THE COMMISSION TO FURTHER THE PUBLIC INTEREST BY FINDING A SOLUTION AND FACILITATING BOTH LIGHTSQUARED'S 4G LTE SERVICE AND GPS SERVICE

The Commission has before it thousands of comments from a myriad of federal, state and local elected officials, entrepreneurs, business representatives, public safety officials, healthcare providers, educators, farmers, rural community organizations, tribal communities, recreational associations, private citizens, and many others who have expressed disparate reasons fueling a common sentiment—that Americans are best served by a Commission that facilitates both GPS service and LightSquared's nationwide provision of 4G LTE mobile broadband services via an integrated satellite-terrestrial network.

Thousands of comments show the multitude of concrete ways in which LightSquared's integrated satellite-terrestrial 4G LTE mobile broadband network would generate much-needed economic growth through the expansion of affordable access to robust wireless broadband products and services, while also advancing key public interest goals by increasing competition, investment, and innovation. Moreover, hundreds of these comments note the revolutionary advancements LightSquared's integrated satellite-terrestrial service would offer public safety agencies and first responder personnel, many who have come to trust the reliability of LightSquared's push-to-talk, interoperable satellite communications services.

I. CREDIBLE AND SUBSTANTIAL PUBLIC COMMENTS ESTABLISH THAT THE COMMISSION'S PROPOSED SUSPENSION OF LIGHTSQUARED'S ATC AUTHORITY IS NOT IN THE PUBLIC INTEREST

The record includes more than 3,000 comments from across the country urging the Commission to find a solution enabling LightSquared to deploy its integrated satellite-terrestrial network. Over 400 elected state and local elected officials, including city councilpersons, town managers, county judge-executives, mayors, county commissioners, state

senators and representatives, and a governor filed supportive comments urging the Commission to facilitate the deployment of the LightSquared network. Dozens of current and former public safety providers, including first responders, emergency medicine practitioners, firefighters, chiefs of police, and the former Director of the U.S. Marshals Service, urge the Commission to consider the revolutionary advances in public safety communications capabilities LightSquared would offer via an integrated satellite-terrestrial network. More than 500 community leaders and many others representing a wide swath of industries and interests, including education, entrepreneurs, economic development, minorities, small businesses, aviation, healthcare services, tourism, recreational associations, tribal communities, legal, engineering, rural organizations, veterans, senior citizens, recreational boating, agriculture, and public policy consultants, have submitted comments for the record that collectively reflect broad public support for finding a constructive solution that would facilitate both LightSquared service and GPS service, and oppose the actions proposed by the Commission in the *Public Notice*.

II. SUMMARY OF BENEFITS OF LIGHTSQUARED'S NETWORK IDENTIFIED BY INTERESTED PARTIES

Thousands of comments from interested parties identify LightSquared's network as the source of a wide range of benefits that include: closing the digital divide; generating economic opportunities through its infrastructure build out and its wholesale model; providing advancements in public safety and maritime communications technology, especially in rural areas; and expanding affordable access to wireless broadband. Many comments also note that LightSquared's planned network will advance the Commission's key public interest goals of increasing competition, supporting investment in wireless broadband networks and technologies, and encouraging technological innovation. Moreover, hundreds of parties urge the Commission

to consider alternative options such as a relocation of the LightSquared network to new spectrum, instead of revoking or indefinitely suspending LightSquared's ATC authority.

III. SAMPLE PASSAGES FROM COMMENTS SUBMITTED TO THE COMMISSION

The following are excerpts from a sampling of the thousands of comments on record with the Commission in this proceeding.

“LightSquared’s nationwide wholesale network is said to help create thousands of jobs and help provide rural access to wireless broadband services. In addition to helping our local and state economies, expanded access to a wireless broadband network will hopefully help address public safety problems caused by gaps in current wireless networks in rural communities across New York State. Please do all that you can to promote a fair process that will help LightSquared and the GPS community find a solution to current interference problems.”

-Patty Ritchie, New York State Senator and Chair of the New York State Senate Agriculture Committeeⁱ

“In lieu of suspending LightSquared’s license and throwing away \$14 billion of privately funded wireless infrastructure expansion, the Commission should clarify the rights of the GPS user segment in adjacent non-GPS bands and push GPS manufacturers to commercialize more resilient and reliable GPS devices - particularly those used by public safety. This would drive this spectrum to a greater and more efficient use and allow Americans to enjoy the benefits of more reliable GPS services *and* a new wholesale nationwide mobile broadband network.”

-William Tunnell, Boater and CEO, ALL PHASE Power and Lighting, Inc.ⁱⁱ

“With any game-changing effort, such as the efforts of LightSquared, there will always be obstacles. In this case, we need to find a solution where we have a capable and effective GPS community that also allows for the deployment of LightSquared’s national broadband network.”

-Rajiv Srinivasan, Veteran and CEO, National Foundation for Veteran Redeploymentⁱⁱⁱ

“I am optimistic that a solution can be found that will ensure our nation’s GPS devices and LightSquared’s networks are able to coexist. Our nation has a proud tradition of solving complex problems for the betterment of our society. In the spirit of that

tradition, I am hopeful that something can be done to bring more competition, additional coverage and capacity to our country's high-speed wireless broadband market so that every American can experience the benefits of affordable wireless broadband."

-James D. Conte, Minority Leader Pro-Tem, New York State Assembly^v

"I would respectfully request the FCC work towards a viable solution that allows the GPS industry and LightSquared's network to coexist. Barring LightSquared, a private business, from building out its network prevents a competitive broadband network needed by thousands of small businesses from being completed."

-Keith Jones, Owner, The Paint Grill^v

"Both GPS and wireless broadband are important to Missouri, and especially to rural communities. However, there are filters on the market that can allow both technologies to peacefully co-exist. I urge the Commission to act quickly and resolve any outstanding technical issues so that Missourians and others across the country can benefit from a new 4G wireless network. My constituents should not have to choose between GPS and a new wireless broadband network."

-Todd Richardson, Missouri State Representative^{vi}

"LightSquared's allocated spectrum is optimal for wireless broadband. It's important that as solutions become apparent, allowing all GPS users to continue their functional use of GPS, that LightSquared is allowed to proceed in bringing its spectrum online for wireless broadband use. I respectfully request that the FCC address this matter promptly, working to find a way forward that will allow deployment of a new wireless broadband network that would benefit American consumers."

-Fred Weatherly, Small business owner in rural Arkansas^{vii}

"Please work with LightSquared and our nation's GPS industry to resolve this matter so that our country can benefit from both GPS devices that work and the connectivity offered by LightSquared's unique network."

-Joseph P. O'Connor, Principal, IRISHOAK, LLC^{viii}

"Without LightSquared's network, Americans will lose out on thousands of job opportunities, quality wireless service, and lower prices. LightSquared deserves a fair, neutral process. It is time for the FCC to figure out a path forward for LightSquared, so the

American people can have wireless broadband and fully functioning GPS devices.”

-David La Torre, President, La Torre Communications^{ix}

“I understand there are technical issues which need to be resolved before the ground network is allowed to be fully operational. However, considering the widespread benefit this technology would have on our economy and public safety, I urge Congress to support a full, fair, and open process under the direction of the Federal Communications Commission through which all business and government stakeholders can resolve any technical issues.”

-Eduardo Gonzalez, Director, United States Marshals Service (Retired)^x

“As the government entity that primarily impacts federal telecommunications decisions, I would like to encourage the FCC to take over the testing process and conduct it with all the stakeholders at the table. If there is in fact harmful interference, then I hope the FCC will also help guide the parties on how to resolve such interference to allow LightSquared’s network to move forward.”

-Robert N. Mayer, President Pro Tem, Missouri State Senate^{xi}

“I understand there have been a number of technical developments, such as filters to eliminate interference, that demonstrate good progress in allowing for a peaceful co-existence of both technologies. While I am sure that there is still work to be done, I sincerely hope the FCC will continue to push the parties toward a resolution that allows both GPS devices and a new wholesale broadband network to be available to consumers. The opportunity for a 4G LTE broadband network like LightSquared’s, which includes \$14 billion in investment and thousands of new jobs across the country, is too important to not press forward in finding a workable solution.”

-Michael Burcham, Sr., Chairman, Poplar Bluff Medical Partners^{xii}

“Now that you have this technology at your fingertips, I urge you to do everything in your power to bring this service to the American people. Find a way to allow both GPS and LightSquared to exist within their own licensed spectrums, and arm first responders nationwide with an assured method of effective communication.”

-Manly Barton, Mississippi State Representative^{xiii}

“Technological solutions, such as filters, are viable options to strengthen the reliability of GPS devices and enable compatibility between these devices and LightSquared's terrestrial network. Such compatibility should be pursued, as the **FCC rules** make abundantly clear it is GPS makers' responsibility to adapt to LightSquared's proposed wireless broadband network. The FCC should reaffirm the usage rights of LightSquared's licensed spectrum. I also encourage the FCC to rule in favor of options that would allow for coexistence between Lightsquared's network and GPS device users and manufactures, if it is only for a short period. We cannot allow people to forego network expansion opportunities, especially those that are most beneficial to consumers.”

-Stacie Mack, Owner, Divine Imaging^{xiv}

“I sincerely hope the FCC can find a new path forward for LightSquared to co-exist with existing technologies like GPS so the American people can have world-class wireless broadband.”

-Kathy Wolfe Moore, Kansas State Representative^{xv}

“I am writing to express my support for allowing LightSquared's proposed mobile broadband network to move forward by considering the technological solutions that exist that will allow LightSquared and GPS to coexist. As someone who currently works professionally with the refugee population, and as a long-standing member of the Maine NAACP, I was troubled to read this article. LightSquared's wholesale only business model would increase competition, and lower consumer prices, helping close the digital divide.”

-Regina Phillips, Portland, Maine^{xvi}

“GPS is very important to rural Missouri, but so is wireless broadband access. The FCC is the governing body for this type of dispute and I encourage the Commission to find a way to move forward. The stakes are too high to let this American company's proposed network slip by. As Chairman of the FCC, I hope you will use your power and oversight to see that both GPS and LightSquared can be utilized by the millions of Americans who desperately need it.”

-Steve Hodges, Missouri State Representative^{xvii}

“I urge you to not throw up unnecessary roadblocks so that LightSquared may move forward with their free market solution. Citizens have come to want and expect both broadband and GPS. I

am confident that a solution can be found and urge you to exercise your leadership to find that solution.”

-John C. Mobley, Blue Ridge Mountain Media^{xviii}

“An avid boater, I frequently use my GPS device when on the lake, or on the road. However, as a businessman in rural Arkansas, I also recognize the vital need for better broadband access across our state. We are ranked near the bottom in high-speed connectivity, and it puts our students, our job seekers, and our economy at a serious disadvantage. LightSquared’s network would open up much needed spectrum, increasing broadband access and lowering costs for consumers. We all benefit from the availability of both of these technologies, and I firmly believe there are viable solutions that will allow them to co-exist.”

-Brandon Ryburn, Avid boater and businessman in rural Arkansas^{xix}

“In Maine, we used Recovery Act funds to invest in the Three Ring Binder project that is bringing broadband to parts of the state that did not have it with great success. But there are still places that need broadband for businesses to compete, their kids to learn, and to bridge a very real digital divide. I write to urge the FCC to find a path forward that enables rural Americans to benefit from both mobile broadband and GPS.”

-Diane Russell, Maine State Representative^{xx}

“...the FCC is in the best position to mitigate this disagreement and find a path forward for both LightSquared and existing technologies. I hope you will do so.”

-Steve Halter, President, Greater Poplar Bluff Area Chamber of Commerce^{xxi}

“West Virginia needs improved broadband and the private investment in wireless networks offered by LightSquared. However, GPS plays an integral role in public safety, tourism and aviation within our state and should be protected. I encourage the FCC to retake control of the testing of LightSquared’s network and the GPS devices to ensure that fair and impartial testing is conducted. I am confident that with the leadership of the FCC reasonable mitigation solutions can be developed that will allow both GPS and integrated wireless broadband and satellite networks to co-exist for the benefit of our state.”

-John D. O’Neal IV, West Virginia Delegate^{xxii}

“This has already taken too long, and nobody really believes we have to choose between better broadband and GPS, but somebody

does have to choose who pays and how the system gets done. I urge you to get on with making those decisions.”

-Bob Higgins, *GOP Like Me*^{xxiii}

“LightSquared is pioneering the integration of wireless broadband and satellite capabilities and is paving the way to provide quality, top-of-the-line broadband service to rural areas which will make an immediate positive impact on my constituents. I understand that they are working to address interference issues that must be resolved before their product is put on the market, and their plan is not to start operations until their technology can be fully tested and proven sound. I respectfully request that you allow them to continue testing and resolving any interference issues so that they can proceed down the path to bringing affordable access to broadband to rural Mississippi.”

-Lydia Chassaniol, *Mississippi State Senator*^{xxiv}

“I urge you to make it a top priority to help facilitate a technical solution that would solve the interference issue in the L-Band, allowing for expanded mobile broadband infrastructure while also protecting GPS. I am confident that a scientific solution can be found because America’s ingenuity remains one of her greatest assets. Indeed, recent news articles have reported on the development of new GPS receivers that block out interference from LightSquared’s signal. Please continue to work toward a practical and just solution that benefits all Americans and Tennesseans.”

-Tony Aikens, *Mayor of Lenoir City, Tennessee*^{xxv}

“While as an elected official I can take no official position on a contested matter, as a Kentucky State Senator representing a large rural area in Eastern Kentucky, underserved by cell service, I once again urge the FCC to do everything within its power to give rural America, including the four counties within my district, the benefits of both a strong, robust GPS system, and the full benefits of LightSquared's proposed 4G LTE system. As a Kentucky State Senator who represents thousands of rural residents in the mountains of Eastern Kentucky, I ask the FCC to do everything it can do to help LightSquared bring 4G broadband service to rural America. For those of us who live in rural areas, there are few issues more important today.”

-Johnny Ray Turner, *Democratic Caucus Chair, Kentucky State Senate*^{xxvi}

“I realize every new opportunity comes with challenges, and I understand that there have been some questions about interference

with existing GPS signals. It seems short-sighted, however, to throw in the towel before fully exploring every possible solution that will allow GPS and LightSquared's technology to co-exist. On behalf of rural users all over our state, I would like to see the introduction of technology that gives Mississippians the same opportunities that folks in more urban areas have. LightSquared's integrated technology opens the gate to more jobs, better education, and improved access to information and technology; all while supporting a solution to the threat of a wireless infrastructure collapse. I encourage you to allow LightSquared to continue testing and resolve the necessary issues in order to get their product on the market.”

-Phil Bryant, Governor of Mississippi^{xxvii}

“As the President of the Greater Phoenix Urban League, a private non-profit that helps start small businesses, I cannot express the importance of affordable broadband access. A company called LightSquared plans to expand broadband wireless. This is important to emerging businesses because LightSquared’s plans mean greater competition, which leads to lower prices. Emerging businesses must watch every penny, so they look for any opportunity to keep costs low. LightSquared’s plans provide this opportunity. Therefore, I’m writing today to urge the Federal Communications Commission to continue working toward a solution to the LightSquared/GPS interference issue.”

-George Dean, President & CEO, Greater Phoenix Urban League^{xxviii}

“All we need now is for the FCC to come up with a compromise so the devices and networks of LightSquared and the GPS industry are able to coexist. We desperately need an independent and transparent process to quickly address the few outstanding issues remaining with certain GPS devices and LightSquared’s network. We are a nation of doers, let’s fix the problems so LightSquared can begin to build its \$14 billion 4G LTE wireless network so that the 70,000 members of our association and their families can have the coverage they need while riding, grooming and ensuring the safety of over 10,500 miles of snowmobile trails which generates nearly a billion dollars in NY economic activity.”

-Dominic Jacangelo, Executive Director, New York State Snowmobile Association^{xxix}

“Ultimately, I believe the best public policy is one in which the FCC drives an equitable outcome that enables consumers to benefit from both GPS and 4G-LTE services that utilize LightSquared’s L-band spectrum. If this is not possible, I urge the FCC to consider

alternative solutions, including perhaps a relocation to commercially equivalent spectrum that will enable LightSquared to move forward. I cannot overstate the importance of accessible and affordable mobile broadband service and how it is a key to making sure our country is economically competitive.”

-Michael Skudera, Mayor, Borough of Tinton Falls^{xxx}

“I understand that there have been concerns regarding interference with GPS, but am concerned that those on the GPS side of the fence are circumventing the process in their demands that LightSquared be shut down. This technology is too important not to examine the issue from every side, and come up with a solution that will allow for a healthy GPS system and LightSquared to coexist.

If no compromise can be reached with respect to the older GPS devices and the interference issues, I urge you to explore an alternative spectrum solution that will allow LightSquared to deploy their network and bring affordable access to the millions of Americans who are currently without.”

-Brice Wiggins, Mississippi State Senator^{xxxi}

“As steward of our nation's commercial airwaves, I urge the Federal Communications Commission to provide strong leadership in pursuing wireless broadband policies that promote investment, unleash innovation and empower consumers in a fair and solution-driven manner. Given the technology, capital and capacity LightSquared can bring to bear in unleashing innovation and empowering consumers across the country, I urge the Commission to serve the public interest by finding an alternative spectrum solution that LightSquared can prepare for mobile broadband use.”

-Ryan Haynes, Tennessee State Representative^{xxxii}

“I believe the country would benefit greatly from LightSquared's proposed nationwide satellite/terrestrial wireless broadband network, which could give public safety and public health agencies 24/7/365 access to a state-of-the-art backup communications system; such redundancy would surely save lives. I thus ask that you make every effort to find a way for LightSquared to bring the nation a new, competitive wireless communications network in the near future.”

-Terry Stewart, Gateway District Health Department, Kentucky^{xxxiii}

“While there are always issues with any project of this size, I hope the FCC will take the steps necessary to assist LightSquared in their efforts to rectify any issues that may exist. I firmly believe

that LightSquared can transform the wireless industry as American currently knows it. The American people deserve to have a trustworthy and affordable wireless network.”

-Robert Stout, Fire Chief, Halifax Fire Department^{xxxiv}

“LightSquared’s proposed network may indeed result in interference with GPS devices, but the origin of interference must be accurately measured and properly attributed given the enormous benefits of this network. If the FCC decides to permanently revoke LightSquared’s 2004 authorization, I urge the Commission to assign LightSquared licenses to other suitable spectrum that will enable LightSquared and its partners to commence commercial operations as soon as possible.”

-Michael T. Evans, Director of Government Affairs, Ohio Hotel & Lodging Association^{xxxv}

“If LightSquared is denied the chance to build its network, the American people will pay more for wireless, with less competition, choice and innovation. The 26 million Americans without broadband, some of whom live in my district, will continue to be stuck without the kind of the Internet access that the vast majority of Americans take for granted.

The FCC’s job now is to find alternative spectrum for LightSquared so that the American people can have world-class wireless broadband and fully functioning GPS.”

-Tony Dugger, Missouri State Representative^{xxxvi}

“With significant gaps in wireless coverage in New York’s rural communities and increased demand for reliable mobile broadband bandwidth in areas with high-speed coverage or no coverage at all, now is the time for the FCC to follow through on its promise to help companies like LightSquared quickly build out its nationwide ground-based network and bring more mobile broadband spectrum online for American consumers. Please work with the GPS industry and LightSquared to find a solution to the current GPS interference issues so that the company can deploy its network. Our country’s current approach to providing access to high-speed wireless broadband to its citizens is proving more and more insufficient each day. We need to change course. It is time to streamline our regulatory processes and honor our nation’s inherent commitment to ensuring every person has access to affordable modern telecommunications services. Ubiquitous service is not a noble goal. It is a necessity if we intend to keep our edge in the world marketplace.

We respectfully encourage the FCC to follow through on its conclusions that Americans would significantly benefit from

LightSquared's network and diligently work toward identifying solutions to the current GPS issues. We are no experts, but it appears the solution could be as simple as identifying an alternative spectrum."

-Rosemary O'Brien and Kathleen Whitley-Harm, Co-Founders, Concerned Citizens for Better Broadband in Greene County NY^{xxvii}

"As you determine the future of the investment that LightSquared has made, I encourage you to act on the commission's 2010 findings that this product would provide significant public benefits. Find a way for LightSquared to bring their product to the marketplace, and completely transform the entire industry."

-Hank Lott, Mississippi State Representative^{xxviii}

"I understand that the FCC has decided that LightSquared cannot use the portion of bandwidth originally assigned to it. I would urge the FCC help LightSquared find another portion of the bandwidth to use, and that it facilitate the process in any manner allowed by law. As I have written in the past, this is a vital issue to Kentucky, not only to our first responders, but for economic development as well. This is a poor region, and it is made poorer by the lack of good, reliable cell phone and wireless internet service. Therefore, I urge the FCC to help LightSquared find a solution that would allow it to build its revolutionary new network. My county and the entire mountain region of Kentucky need this service, and they need it now. I understand that the FCC has many competing priorities, but I urge it to make helping LightSquared an important priority."

-Brendon D. Miller, Breathitt County Attorney^{xxix}

"More than two dozen companies *have* already partnered with LightSquared to offer their customers world-class wireless broadband at a fraction of the cost of upgrading their own networks and they are chomping at the bit to get the service rolled out from what I understand. Here's the bottom line, farmers need access to the information highway to make intelligent decisions about what to plant and raise. GPS is a gadget to most small farmers, while access to information directly affects the livelihood of most family farmers. I urge you to find an alternative spectrum that can work to everyone's satisfaction."

-Frank Niceley, Tennessee State Representative and Chairman of the Tennessee House Agriculture Committee^{xl}

"I understand the FCC originally required LightSquared to quickly build out a nationwide ground-based network and bring more

mobile broadband spectrum online for consumers and businesses. Despite the fact that there have been interference issues, the FCC should not abandon this mandate. Instead, I hope the FCC will find alternative spectrum for LightSquared that both protects GPS and enables LightSquared to deploy its network. We have to find a way forward.”

-Kevin Peterson, Regional Director, Vortex Valves^{xli}

“This technology is a win-win. It creates new jobs; it provides much-needed technology; and it provides relief to our country's strained wireless infrastructure. Rather than closing the door on this multi-billion dollar private investment, I encourage you to consider relocating LightSquared's licensed authority to another suitable band of spectrum. Don't forsake the ten years of research and development that LightSquared has already invested; rather, find a solution that will allow GPS and LightSquared to co-exist. Mississippi needs them both.”

-Brad Mayo, Mississippi State Representative^{xlii}

“The State of Ohio and Miami County, through Connect Ohio, are working to eliminate vast areas of countryside where access to broadband is not currently available. It is now incumbent upon the FCC to ensure that a private enterprise that is ready to invest \$14 billion of private money be provided a path for the delivery of wireless broadband to underserved rural communities and improves service quality in many areas.”

-John F. Evans, Commissioner, Commissioners of Miami County, Ohio^{xliii}

“It appears that only LightSquared is in a position to help meet all of the FCC's goals without expending any taxpayer funds, or undercutting our economy in any way. In fact, LightSquared's plan to market its services through independent dealers will both increase competition in the areas in which I work, but will help create jobs there as well. These are areas that desperately need jobs. I urge you to grant the relief sought in LightSquared's Petition, and allow it to help rural America. I also urge you to come up with some type of compromise that would allow it to build its system even if the bandwidth on which it now proposes to operate is truly unavailable to it.”

-Greg May, President and CEO, Utility Management Group^{xliv}

“As a pilot with a major airline, I value the importance of safety-of-life avionics, including those that use Global Positioning System (GPS) technology. However, living in Odenville,

Alabama, I also value the importance quality cellular service and see a great need for more options for affordable and better high-speed wireless broadband. In securing our nation's economic security, we must have both and I urge the Commission to ensure that security.

As much as our country needs GPS, we also need more consumer options for wireless and better and more affordable wireless service. If the GPS interference concerns are too heavy a lift for the Commission to enable LightSquared to bring their capital and technology to bear quickly, I urge the Commission to find alternative, equivalent spectrum that will enable the company to bring its benefits to consumers across the country quickly."

-Donald Naman, Captain (ret.) Alabama Army National Guard^{xlvi}

"It is my view that if LS is not allowed to use its spectrum to build and operate the above referenced service, Tribal and Rural America will be effectively left without meaningful alternatives for high-speed broadband service. It is also my considered view that the concerns raised by the GPS industry and the NTIA are technically shortsighted and continues the effective monopoly of the major service providers in the US."

-Joseph Valandra, CEO & Chairman, Tehan Woglake, Inc.^{xlvi}

"I understand that the FCC has determined that LightSquared cannot use the bandwidth originally assigned to it. I would think that some portion of the bandwidth would be available for LightSquared's use, and that the FCC could help LightSquared with the process in some manner. I strongly urge the FCC to help LightSquared meet any regulatory issues that arise, and help it obtain suitable bandwidth in some manner. The public safety community in Kentucky is very impressed with LightSquared, and I urge the FCC to help bring its benefits to all Kentucky residents. Our public safety officials need the help dealing with day to day emergencies as well as the terrible tornadoes that we have recently suffered."

-Berl Perdue, Sheriff, Clark County, Kentucky^{xlvi}

"I want to be able to access both LightSquared's unique satellite-terrestrial service and GPS services. However, should maritime GPS devices malfunction due to their infringement on LightSquared spectrum, GPS device makers should conduct a recall of their devices and insert the components necessary to enable compatibility between GPS services and any services provided in non-GPS spectrum."

-James P. Hannan, Recreational boater and businessman in Ohio^{xlvi}

“Since the onset, LightSquared has stayed within its licensed spectrum and has worked diligently with the GPS industry to address any interference issues. Now, as the FCC rules on whether LightSquared can continue to operate within its licensed spectrum, I urge you to consider the fact that LightSquared has worked quickly to rectify the interference concerns that have been raised to date, and that they are only operating within their licensed spectrum. It is imperative that we develop a system of telecommunications that will be operable even when terrestrial communications are rendered ineffective. I respectfully ask you to expeditiously consider their position.”

-Casey Eure, Mississippi State Representative^{xlix}

“It is time to resolve any interference controversy and move forward with both LightSquared’s network and GPS for our country. I want to encourage the Federal Communications Commission to conduct its own, un-biased and transparent testing of the new network to see if real interference exists with GPS. If it does exist, fix it. If it doesn’t, let’s move forward. Don’t make my constituents choose—they deserve both technologies as they compete in our country and abroad.”

-Terry Swinger, Missouri State Representative^l

“Those of us who live and work in small organic farming have experienced firsthand the severe disadvantage of insufficient access to high-speed wireless broadband. We are very excited about LightSquared’s plan to bring real, new wireless broadband capabilities to our communities. The commitment that LightSquared has made to complete broadband is essential to our future economic success. I’m sure I speak for many small farmers when I say that we want the FCC to do everything possible to help make this new service a reality. We understand that there is some questions about LightSquared and GPS interests. But we feel strongly the FCC needs to help resolve those issues. Thank you for working to remove the technical hurdles that stand in the way of LightSquared’s innovative new network.”

-Kyle Ward, Beyond Organic Farms^{li}

“Given the importance of providing rural communities with reliable and affordable high-speed broadband services, MAT encourages a timely review of LightSquared’s pending application for approval to launch their system, and to grant that approval as quickly as possible should the FCC be satisfied with the efforts LightSquared has taken to mitigate the GPS interference issue. If interference is determined to remain a problem, MAT requests that the FCC use whatever powers available to it to promote a timely

cooperative effort between the GPS industry and LightSquared to find a workable solution that would allow this type of new technology to be made available as soon as practical.”

-Loren Ingebretsen, President, Minnesota Association of Townships (MAT)^{lii}

“Today I want to inform the FCC that LightSquared has been of great service to Kentucky’s emergency workers during the past few days. Disastrous tornadoes ripped through parts of Eastern Kentucky last week, leaving behind death, destruction, and sadness. LightSquared provided satellite phones and other types of communications equipment to Kentucky's disaster relief workers, allowing them to communicate not only with their fellow workers, but also with Federal, state, and local officials in the affected counties.

As an elected local leader and former first responder, who understands the impact of technology on rural America, and who is fighting every day for economic development in rural America, I urge the FCC to use all its efforts to help LightSquared implement its network. Thank you for your time and attention to this issue, which is of utmost importance to rural small towns like mine all over America.”

-Kenny Rice, Councilman, Clay City, Kentucky; former Clay City VFD Assistant Fire Chief^{liii}

“The part that appeals most to me is that first responders, like myself, will have the chance to choose a network that will provide reliable satellite communications. This can really help to cut down on response times during emergencies. When considering your options of whether or not to approve LightSquared and its network, please consider all that LightSquared has to offer and how their new network can benefit Americans across the country.”

-Robert A. Martin, Chief of Police, Susquehanna Township Police Department^{liv}

“The GPS industry has created this problem on their own, because they have been squatting on LightSquared’s network spectrum. LightSquared has taken matters into their own hands and have already begun to address the matter and have adapted its network to allow for coexistence with current GPS devices. As the oversight Commissioner for Emergency Management in Dauphin County, I truly am impressed with the time and resources that LightSquared has invested to adjust to the GPS issues.”

-Mike Pries, Dauphin County Commissioner, Pennsylvania^{lv}

“West Virginia’s EMS community greatly needs improved wireless broadband service in order to better care for our patients.

I urge the FCC and NTIA to take control of further testing to ensure the findings are fair and impartial. GPS and wireless broadband are both important to the delivery of services by our nation's first responders and I am confident that proper testing will help develop mitigation solutions that will allow them to co-exist.”
-Chris Hall, Executive Director, West Virginia EMS Coalition^{lvi}

“I am writing in support of the LightSquared wireless network. As a farmer, I urge you to prioritize expansion of high-speed wireless in rural areas of the country by encouraging new wireless providers to enter the market.”
-Eck Snowden, Farmer and Owner, Powell County Feed & Farm Supply, Inc.^{lvii}

“I am sure you are aware of the one area of concern, the GPS interference. I am aware of this as well and have researched what seems to be the issue. From what I have researched it seems as though some GPS devices are experiencing interference because they operate inside LightSquared's spectrum. LightSquared is feverishly working to eliminate this issue even though it is not their fault. They are dedicated to providing quality wireless services to the entire continental United States. I hope that you see the dedication and perseverance LightSquared has put forth in an effort to make this new network a reality. Please move forward with the approval of LightSquared and their innovative wireless network. In doing so you are helping America make advances in the wireless industry.”
-Jeffrey Enders, Mayor of Halifax Borough, Pennsylvania^{lviii}

“Recently, I learned that potential interference with GPS signals may delay LightSquared's plans. To keep up with other countries increasing broadband capacity, America must look to innovative solutions like LightSquared's new broadband network. Therefore, I ask that you continue to work with LightSquared on this matter so that this important broadband service becomes available as soon as possible.”
-Phil Gordon, Mayor of Phoenix, Arizona^{lix}

“I have learned of LightSquared and its plan to make available a wholesale 4G network throughout the country. As the owner of a small, family business, this technology would benefit my family and me tremendously. LightSquared's plan to wholesale a new, expanded 4G network will do wonders in improving access, cost and quality to wireless service around the United States. If their plans are approved, my community would then be on the same playing field as those in larger, more populated cities. Not only are

we in need for this service here in Arkansas, we're way past due for it. Along with the benefits rural communities would gain, I know LightSquared services would be invaluable to our emergency service workers, hospitals, schools and colleges, small businesses, and families. Please make sure these technologies are able to reach those areas in which they would help the most, by supporting LightSquared's efforts to wholesale high-speed wireless broadband."

-Hudgens Jeter, Owner, JetAg Services, LLC^{lx}

"Our members live in a very rural area in Michigan. Having expanded access to broadband wireless network will be extremely advantageous to the Hannahville Indian Community. LightSquared will be a wholesale provider, enabling sorely needed competition like never before in the wireless market. Consumers will benefit the most because LightSquared will ease bandwidth limitations, allow for the introduction of new devices, and facilitate more competitors to enter the wireless market, lowering prices. Please consider the benefits LightSquared can offer the country as a whole and to our state in particular, and please do everything possible to bring this exciting new nationwide wireless network to the country as quickly as possible."

-Kenneth Meshigaud, Tribal Council Chairperson, Hannahville Indian Community^{lxi}

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- ⁱ <http://apps.fcc.gov/ecfs/comment/view?id=6017026932>
 - ⁱⁱ <http://apps.fcc.gov/ecfs/comment/view?id=6017026530>
 - ⁱⁱⁱ <http://apps.fcc.gov/ecfs/comment/view?id=6017026359>
 - ^{iv} <http://apps.fcc.gov/ecfs/comment/view?id=6017026392>
 - ^v <http://apps.fcc.gov/ecfs/comment/view?id=6017025391>
 - ^{vi} <http://apps.fcc.gov/ecfs/comment/view?id=6016988005>
 - ^{vii} <http://apps.fcc.gov/ecfs/comment/view?id=6017024537>
 - ^{viii} <http://apps.fcc.gov/ecfs/comment/view?id=6017024534>
 - ^{ix} <http://apps.fcc.gov/ecfs/comment/view?id=6017024502>
 - ^x <http://apps.fcc.gov/ecfs/comment/view?id=6017025062>
 - ^{xi} <http://apps.fcc.gov/ecfs/comment/view?id=6016983763>
 - ^{xii} <http://apps.fcc.gov/ecfs/comment/view?id=6017024576>
 - ^{xiii} <http://apps.fcc.gov/ecfs/comment/view?id=6017024500>
 - ^{xiv} <http://apps.fcc.gov/ecfs/comment/view?id=6017022425>
 - ^{xv} <http://apps.fcc.gov/ecfs/comment/view?id=6016995947>
 - ^{xvi} <http://apps.fcc.gov/ecfs/comment/view?id=6016985225>
 - ^{xvii} <http://apps.fcc.gov/ecfs/comment/view?id=6017022309>
 - ^{xviii} <http://apps.fcc.gov/ecfs/comment/view?id=6016995934>
 - ^{xix} <http://apps.fcc.gov/ecfs/comment/view?id=6016986945>
 - ^{xx} <http://apps.fcc.gov/ecfs/comment/view?id=6016986947>

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- xxi <http://apps.fcc.gov/ecfs/comment/view?id=6016985214>
 - xxii <http://apps.fcc.gov/ecfs/comment/view?id=6016882210>
 - xxiii <http://apps.fcc.gov/ecfs/comment/view?id=6016881268>
 - xxiv <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016879340>
 - xxv <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016879901>
 - xxvi <http://apps.fcc.gov/ecfs/comment/view?id=6017024581>
 - xxvii <http://apps.fcc.gov/ecfs/comment/view?id=6017027036>
 - xxviii <http://apps.fcc.gov/ecfs/document/view?id=7021705007>
 - xxix <http://apps.fcc.gov/ecfs/comment/view?id=6017027069>
 - xxx <http://apps.fcc.gov/ecfs/comment/view?id=6017027099>
 - xxxi <http://apps.fcc.gov/ecfs/comment/view?id=6017027042>
 - xxxii <http://apps.fcc.gov/ecfs/comment/view?id=6017026697>
 - xxxiii <http://apps.fcc.gov/ecfs/comment/view?id=6017026695>
 - xxxiv <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016880083>
 - xxxv <http://apps.fcc.gov/ecfs/comment/view?id=6016986940>
 - xxxvi <http://apps.fcc.gov/ecfs/comment/view?id=6017026435>
 - xxxvii <http://apps.fcc.gov/ecfs/comment/view?id=6017027021>
 - xxxviii <http://apps.fcc.gov/ecfs/comment/view?id=6017026376>
 - xxxix <http://apps.fcc.gov/ecfs/comment/view?id=6017026556>
 - xl <http://apps.fcc.gov/ecfs/comment/view?id=6017025582>
 - xli <http://apps.fcc.gov/ecfs/comment/view?id=6017025264>
 - xlii <http://apps.fcc.gov/ecfs/comment/view?id=6017021739>
 - xliiii <http://apps.fcc.gov/ecfs/comment/view?id=6017022022>
 - xliiv <http://apps.fcc.gov/ecfs/comment/view?id=6017024564>
 - xlv <http://apps.fcc.gov/ecfs/comment/view?id=6016995597>
 - xlvi <http://apps.fcc.gov/ecfs/comment/view?id=6017026646>
 - xlvii <http://apps.fcc.gov/ecfs/comment/view?id=6017025267>
 - xlviii <http://apps.fcc.gov/ecfs/comment/view?id=6016986946>
 - xliv <http://apps.fcc.gov/ecfs/comment/view?id=6016986162>
 - l <http://apps.fcc.gov/ecfs/comment/view?id=6017027016>
 - li <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016877713>
 - lii <http://apps.fcc.gov/ecfs/document/view?id=7021703083>
 - liii <http://apps.fcc.gov/ecfs/comment/view?id=6017026553>
 - liiv <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016880082>
 - liv <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016880085>
 - lv <http://apps.fcc.gov/ecfs/document/view?id=7021754745>
 - lvii <http://apps.fcc.gov/ecfs/comment/view?id=6017027044>
 - lviii <http://fjallfoss.fcc.gov/ecfs/comment/view?id=6016877718>
 - lix http://licensing.fcc.gov/myibfs/download.do?attachment_key=891245
 - lx <http://apps.fcc.gov/ecfs/document/view?id=7021703205>
 - lxi http://licensing.fcc.gov/myibfs/download.do?attachment_key=929645