

# COVINGTON

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December 31, 2015

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: *Ex parte* presentation in IB Docket No. 12-340; IB Docket  
No. 11-109; IBFS File Nos. SAT-MOD-20120928-00160;  
SAT-MOD-20120928-00161; SES-MOD-20121001-00872**

Dear Ms. Dortch:

Today, New LightSquared submits to the Commission license modification applications (the “Modification Applications”) that are both required by and designed to fulfill the conditions subsequent contained in agreements that the company made in settling adjacent band spectrum issues with two of the major GPS companies (Deere and Garmin, hereinafter “Settling GPS Companies”), and withdraws the above-referenced prior-filed applications.<sup>1</sup> Approval of these license conditions we believe will address the core concerns raised by the GPS industry and secure those benefits for all GPS parties. With respect to the aviation sector’s use of GPS, New LightSquared requests that such issues also be addressed by the license conditions proposed below. Finally, New LightSquared asks that the Commission move forward with reallocation and auction of the 1675-1680 MHz band, including license conditions that will permit the licensee to use that spectrum on a shared basis and in ways that accommodate the concerns of NOAA. This comprehensive approach will allow the Commission to put this vital mid-band spectrum to use for the American consumer while addressing the concerns of both the GPS industry and government agencies interested in ensuring the compatibility of New LightSquared’s terrestrial operations.

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<sup>1</sup> The Deere and Garmin agreements have already been filed with the Commission in the dockets listed above. *See* Letter from Gerard J. Waldron to Marlene H. Dortch, IB Docket No. 12-340 (Dec. 8, 2015); Letter from Gerard J. Waldron to Marlene H. Dortch, IB Docket No. 12-340 (Dec. 17, 2015). The company has reached a separate cooperation agreement with Trimble, and per its provisions, that agreement is not currently public.

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### **I. Modification Applications**

The Modification Applications are the result of recent settlements between New LightSquared and the Settling GPS Companies that resolve many of their concerns regarding potential incompatibility between GPS receivers and New LightSquared's proposed operations (the "Compromise Settlements").<sup>2</sup> Because the Settling GPS Companies produce devices in the majority of categories of GPS devices, we believe that these modifications will address concerns of other GPS manufacturers, and we expect the comment process initiated by this filing going on public notice will illustrate that. Moreover, because the vast majority of GPS devices in use today are found in smartphones, and since the mobile phone industry has never suggested that LightSquared's operations are incompatible with their use, the Commission will have a record after this process is complete to assess whether this vital mid-band spectrum can be put to its most productive use. We firmly believe that the record will show that grant of the Applications will serve the public interest by securing the compromises reached in the Compromise Settlements for not only the Settling GPS Companies and also by giving the benefit of the bargain to all other parts of the GPS community. And with respect to concerns from the aviation community, the Commission can address those concerns by imposing the condition described below regarding compatibility with the Minimum Operational Performance Standards ("MOPS") and the corresponding Technical Standard Orders ("TSOs") developed by the RTCA and FAA. Equally important from the Commission's role as spectrum manager, approval of the Modification Applications, coupled with implementation of the reallocation and auction of the 1675-1680 MHz band described below, will provide New LightSquared with the ability to deploy and operate 40 MHz of prime mid-band broadband spectrum and put this vital asset to use for the American consumer in the coming years.

The Modification Applications submitted today consist of the following mutually-dependent and interrelated elements:

- New LightSquared, pursuant to the Compromise Settlements, hereby abandons its authority to conduct terrestrial operations in its upper 10 MHz downlink band at 1545-1555 MHz—the part of New LightSquared's downlink band that is closest to the GPS band—thus providing GPS receivers an additional 10 MHz guard band from terrestrial services. This "de-linking" of the terrestrial component from the satellite service for the 1545-1555 MHz band, and relinquishment of the terrestrial component, addresses a critical concern of the GPS industry and enables New LightSquared to continue to operate its long-standing satellite business.

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<sup>2</sup> The Modification Applications request that the Commission impose certain conditions on the company's existing licenses. With this letter, New LightSquared hereby withdraws its previous modification applications, the file numbers for which are listed above.

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- To fulfill the conditions subsequent in the Compromise Settlements, and to secure those benefits for the entire GPS industry, New LightSquared requests that the Commission make the following power limit modifications:
  - Modify the EIRP limit for the 1646.5-1656.5 band from 0 dBW to -7 dBW;
  - Modify the EIRP limit for the 1627.5-1637.5 MHz band from 0 dBW to -7 dBW, *provided that* the 1627.5-1632.5 MHz segment of this band will have an EIRP limit that ramps up from -31 dBW to -7 dBW for a period of five years—until January 1, 2021—and then that segment will revert to -7 dBW; and
  - Modify the EIRP limit for New LightSquared’s lower 10 MHz downlink band at 1526-1536 MHz from 42 dBW to 32 dBW.
- To fulfill the conditions subsequent in the Compromise Settlements, and to secure those benefits for the entire GPS industry, New LightSquared further requests that the Commission make the following Out Of Band Emission (“OOBE”) limit modifications:
  - For the uplink: retain a -34 dBW/MHz limit at 1625 MHz; modify the limit at 1610 MHz from -71 dBW/MHz to -100 dBW/MHz, ramping up between the values at 1625 MHz and 1610 MHz; implement a -105 dBW/MHz limit at 1608 MHz, ramping up between the values at 1610 MHz and 1608 MHz; modify the limit at 1559-1608 from -95 dBW/MHz to -105 dBW/MHz; and modify the limit from 1541-1559 MHz from -43 dBW/MHz<sup>3</sup> to -105 dBW/MHz. And for narrowband, modify the limit from 1610-1625 MHz to ramp from -110 dBW/700 Hz to -44 dBW/700 Hz; modify the limit from 1608-1610 MHz to ramp from -115 dBW/700 Hz to -110 dBW/700 Hz; modify the limit from 1559-1608 MHz to -115 dBW/700 Hz; and modify the limit from 1541-1559 MHz to -132 dBW/2 kHz.
  - For the downlink: implement a -85 dBW/MHz limit for 1610-1650 MHz; retain the -100 dBW/MHz limit from 1559-1610 MHz; and implement a -85 dBW/MHz limit from 1541-1559 MHz. And for narrowband, modify the limit for 1610-1650 MHz to -95 dBW/700 Hz; retain the limit for 1559-1610 MHz at -110 dBW/700 Hz; and modify the limit from 1541-1559 MHz to -112 dBW/2 kHz.

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<sup>3</sup> Please note that -43 dBW/MHz is a conductive power limit. All other power limits are expressed as EIRP.

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- In recognition of the need to operate in a manner that is compatible with the aviation sector's use of GPS and respects vital safety of life issues, the Commission should require, as a license condition, adherence to the following:
  - In addition to the EIRP limit for the 1526-1536 MHz band described above, the licensee would limit its power as necessary to achieve compatibility with current and any future MOPS insofar as they are incorporated into an active TSO by the FAA and RTCA.
- In a separate modification application to be filed shortly, OP, LLC ("OP"), as licensee of the 1670-1675 MHz band leased to New LightSquared, will request that the Commission modify its license to incorporate the power and OOB limits set forth in the Compromise Settlements for any terrestrial broadband network deployed at 1670-1675 MHz in connection with L-band spectrum.

Along with the Applications themselves, a diagram illustrating the technical operating parameters specified in the Compromise Settlements is attached hereto for reference.

### **II. Reallocation and Auction of the 1675-1680 MHz Band**

New LightSquared's proposal to abandon use of the 10 MHz adjacent to GPS provides a substantial guard band to the GPS community, and a substantial benefit to those unlicensed users. However, it means that New LightSquared's network cannot be deployed without access to alternative downlink spectrum that is compatible with New LightSquared's two L-band uplinks bands at 1627.5-1637.5 and 1646.5-1656.5 MHz. To fill this immediate need and, therefore, to enable the deployment of an operational terrestrial broadband network, New LightSquared proposes that the Commission reallocate the 1675-1680 MHz band for sharing by commercial broadband providers with federal government users in a commercially and technically viable manner and consistent with the power and OOB limits set forth herein.<sup>4</sup> The Commission then should designate this band for auction, which should be completed in 2016 and would fulfill President Obama's long-stated goal of monetizing this particular spectrum for commercial use.<sup>5</sup> In return for abandonment of the adjacent 10 MHz to create a GPS guard band, New LightSquared respectfully requests an appropriate bidding credit for the 1675-1680 MHz auction or other appropriate measure. New LightSquared intends to be an active bidder in that auction and will accept reasonable license conditions that the Commission deems are in the public interest.

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<sup>4</sup> New LightSquared hereby amends its Petition for Rulemaking, RM-11681, to incorporate the power limits and OOB restrictions contained herein. As noted above, a license modification application for the 1670-1675 MHz band containing these same restrictions will be filed shortly.

<sup>5</sup> See BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2016, at 119 (2015). The policy objective of monetizing this band is shared by Congress. See S. Rep. No. 113-181, at 46-47, 113th Cong., 2d Sess. (2014).

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To determine what license conditions should be included in the service rules and auction process for the 1675-1680 MHz band, the Commission should issue immediately a public notice that seeks comment on two issues. First is the report filed by the company on November 5, 2015 that seeks to identify private users who monitor NOAA's data feeds in this band and nearby bands and would potentially be affected by commercial use of the 1675-1680 MHz band, describes their derivative use of this band, and explains how this derivative use can be accommodated either by alternative delivery technologies (*e.g.*, the Internet or private network) or by the winning auction bidder.<sup>6</sup> (To be clear, as the Commission well knows, radiosondes operated by NOAA which rely on this and adjacent bands, are in the process of being moved out of the band in connection with the AWS-3 auction, and that relocation is already paid for and is underway.<sup>7</sup>) The second issue is the report filed on December 16 that addresses NOAA's recently stated desire to protect future GOES Rebroadcast stations from anomalous propagation from LTE operations in the 1675-1680 MHz band impacting in the 1680.6-1694.7 spectrum band.<sup>8</sup> The comment cycle on both these issues will give the Commission the information it needs to issue an Notice of Proposed Rulemaking to reallocate the band for shared commercial use; to write the proposed service rules for sharing with government users and address, if appropriate and in the public interest, as a license condition the matter of the private users who monitor this band; and to establish an auction process, including possible bidding credits, that results in the monetization of this vital band by the end of 2016.

### **III. Consolidated and Timely Proceedings with a Final Determination**

After three years in bankruptcy, New LightSquared emerged recently as a new company with new owners, a new board, and a new approach, and stands ready, willing, and able to address legitimate issues and put to use this vital 40 MHz of broadband spectrum to the benefit of the American consumer. The Compromise Settlements testify to the new company's willingness and ability to problem solve, but the new company can only do so much on its own. Now is the time for the Commission, after setting aside this issue for three years, to take action and fulfill the bipartisan goal of bringing more spectrum to the public.

Specifically, we hereby request that the Commission promptly issue a Public Notice requesting comment on (i) the Modification Applications, (ii) the Compromise Settlements, and (iii) the remaining issues surrounding the 1675-1680 MHz band described above, as part of a combined docket, and suggest comments and reply comments due 60 days and 90 days, respectively, from the date the Public Notice is issued. New LightSquared further requests that

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<sup>6</sup> "Assessment of the 1675-1680 MHz Band," a report attached to Letter from Gerard J. Waldron to Marlene H. Dortch (Nov. 5, 2015), filed in RM-11681 and IB Docket No. 12-340.

<sup>7</sup> NTIA Notice of Estimated Relocation or Sharing Costs and Timelines for the 1695-1710 MHz and 1755-1780 MHz Bands, Attachment B1 (May 13, 2014).

<sup>8</sup> Letter from Gerard J. Waldron to Marlene H. Dortch, RM-11681, IB Docket No. 12-340 (Dec. 16, 2015).

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comment on OP's forthcoming license modification application, described above, be solicited as part of the combined docket.

Prompt action by the Commission to issue the Public Notice is necessary for several reasons. A Public Notice issued early in 2016 will provide an important signal for DOT and other agencies to move promptly to perform any testing or analysis those agencies believe needs to be completed to contribute to the Commission's process. Second, after the Commission grants the Applications, New LightSquared will need to participate in the 3GPP standard-setting process. In addition to effectuating the Compromise Settlements, the 3GPP process will ensure that the technical specifications described in the Applications reflect the correct balance between GPS and terrestrial uses of the 1500-1700 MHz band on a global basis. This will benefit GPS and cellular firms in the United States by providing global certainty regarding use of the band, including for GNSS use cases on other continents. However, there are time constraints associated with this process, and New LightSquared likely will need to approach 3GPP in June 2016 in order for the band to be included in 3GPP's next release cycle, Release 14.

We believe the record established in the Public Notice will enable the Commission to modify the company's licenses for the benefit of the Settling GPS Companies and all other GPS companies; to move forward on an auction of the 1675-1680 MHz band; and to determine that New LightSquared can begin to deploy its network consistent with the license modifications, notwithstanding prior Commission announcements. The company stands ready to continue to work with the Commission and all other stakeholders to address these important issues

Please direct any questions to the undersigned.

Sincerely,

/s/Gerard J. Waldron

Gerard J. Waldron

Paul Swain

Ani Gevorkian

*Counsel to New LightSquared*

### Attachments

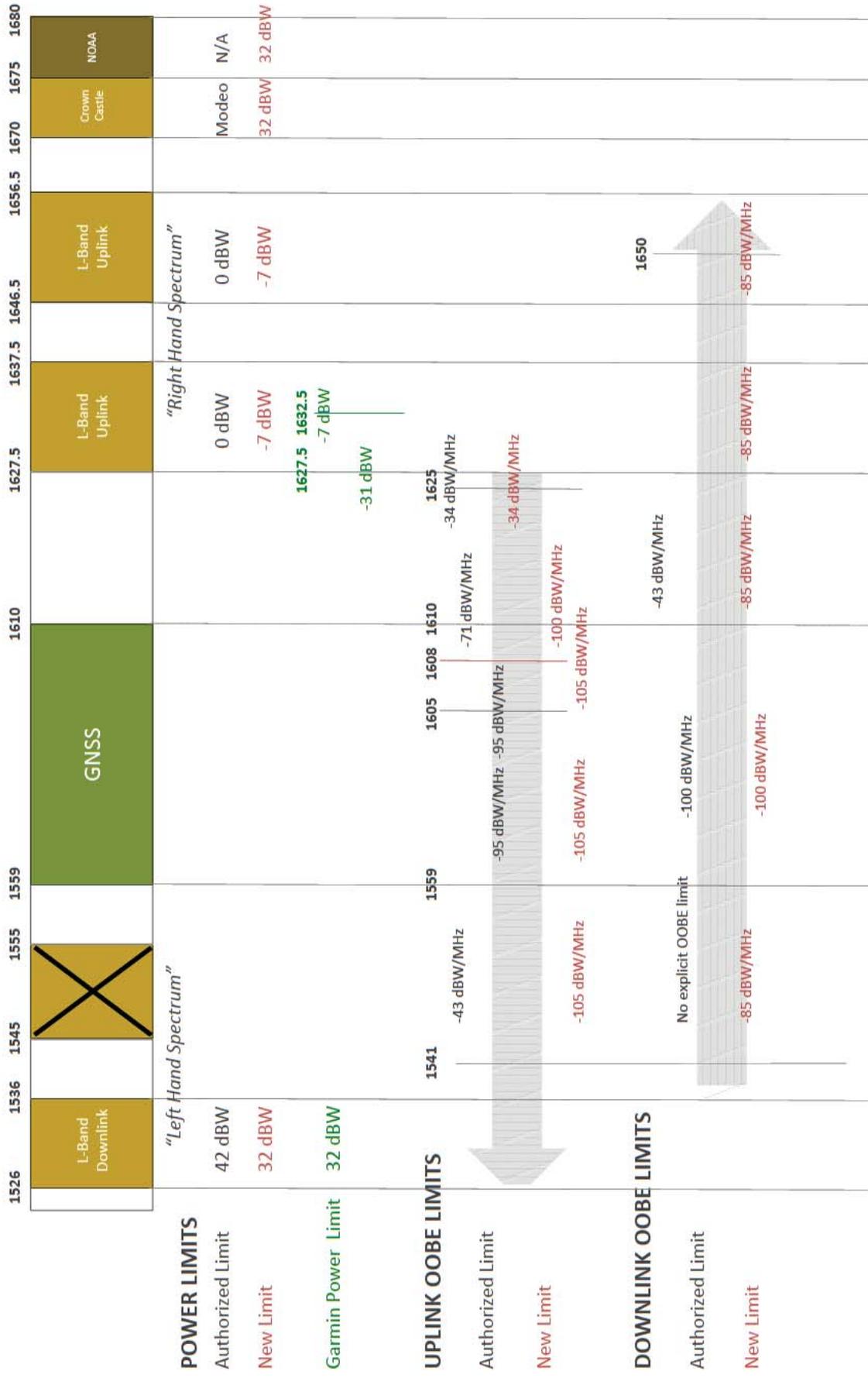
cc: Phil Verveer  
Edward Smith  
Louis Peraertz  
Joanna Thomas  
Erin McGrath  
Brendan Carr  
Mindel De La Torre  
Paul Murray  
Karl Kensinger

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Bob Nelson  
Roger Sherman  
Charles Mathias  
Julius Knapp  
Ron Repasi  
Jon Chambers  
Jennifer Tatel

# Technical Operating Parameters Specified in Coexistence Plans



Date & Time Filed: Dec 31 2015 5:42:21:903PM  
File Number: SAT-MOD-20151231-00091

<b>FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM</b>	<b>FCC Use Only</b>
<b>FCC 312 MAIN FORM FOR OFFICIAL USE ONLY</b>	

**APPLICANT INFORMATION**

Enter a description of this application to identify it on the main menu:  
Application for Modification (S2358)

1-8. Legal Name of Applicant			
Name:	LightSquared Subsidiary LLC	Phone Number:	703-390-2001
DBA Name:		Fax Number:	703-390-2770
Street:	10802 Parkridge Blvd	E-Mail:	jeff.carlisle@lightsquared.com
City:	Reston	State:	VA
Country:	USA	Zipcode:	20191 -
Attention:	Mr Jeffrey J. Carlisle		

9-16. Name of Contact Representative			
Name:	Gerard J. Waldron	Phone Number:	2026625360
Company:	Covington & Burling LLP	Fax Number:	2027785360
Street:	One CityCenter 850 Tenth Street, NW	E-Mail:	gwaldron@cov.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20001-
Attention:	Gerard J. Waldron	Relationship:	Legal Counsel

**CLASSIFICATION OF FILING**

<p>17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.</p> <p><input type="radio"/> a1. Earth Station</p> <p><input checked="" type="radio"/> a2. Space Station</p>	<p>(N/A) b1. Application for License of New Station</p> <p>(N/A) b2. Application for Registration of New Domestic Receive-Only Station</p> <p><input type="radio"/> b3. Amendment to a Pending Application</p> <p><input checked="" type="radio"/> b4. Modification of License or Registration</p> <p>b5. Assignment of License or Registration</p> <p>b6. Transfer of Control of License or Registration</p> <p><input type="radio"/> b7. Notification of Minor Modification</p> <p>(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite</p> <p>(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States</p> <p>(N/A) b10. Other (Please specify)</p> <p>(N/A) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.</p>
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<p>17c. Is a fee submitted with this application?</p> <p><input checked="" type="radio"/> If Yes, complete and attach FCC Form 159.</p> <p>If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).</p> <p><input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee</p>
--

Other(please explain):

17d.

Fee Classification BFY - Space Station Modification(Geostationary)

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:  
S2358

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:

(a) Date pending application was filed:  
(b) File number:  
SATMOD2010111800239

#### TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- a. Fixed Satellite  
 b. Mobile Satellite  
 c. Radiodetermination Satellite  
 d. Earth Exploration Satellite  
 e. Direct to Home Fixed Satellite  
 f. Digital Audio Radio Service  
 g. Other (please specify)

ATC

21. STATUS: Choose the button next to the applicable status. Choose only one.

Common Carrier  Non-Common Carrier

22. If earth station applicant, check all that apply.

- Using U.S. licensed satellites  
 Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

Connected to a Public Switched Network  Not connected to a Public Switched Network  N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- a. C-Band (4/6 GHz)  b. Ku-Band (12/14 GHz)  
 c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 1525 Frequency Upper: 1680 (Please specify additional frequencies in an attachment)

#### TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station  
 b. Temporary-Fixed Earth Station  
 c. 12/14 GHz VSAT Network  
 d. Mobile Earth Station  
 e. Geostationary Space Station  
 f. Non-Geostationary Space Station  
 g. Other (please specify) ATC

26. TYPE OF EARTH STATION FACILITY:

Transmit/Receive  Transmit-Only  Receive-Only  N/A

"For Space Station applications, select N/A."

#### PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service  
 b -- authorization to change emission designator and related service  
 c -- authorization to increase EIRP and EIRP density

- d -- authorization to replace antenna
- e -- authorization to add antenna
- f -- authorization to relocate fixed station
- g -- authorization to change frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

### ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.  Yes  No

**ALIEN OWNERSHIP** Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?  Yes  No

30. Is the applicant an alien or the representative of an alien?  Yes  No  N/A

31. Is the applicant a corporation organized under the laws of any foreign government?  Yes  No  N/A

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote. **OWNERSHIP**

### BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?  Yes  No  
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents. **WAIVERS**

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances  Yes  No

Yes  No

39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.

## QUALIFICATIONS

40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. *See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.*  Yes  No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.  Yes  No

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?

43. Description. (Summarize the nature of the application and the services to be provided). See attached exhibit. **DESCRIPTION**

### 43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.  A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.  B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.  C

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## CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing  
Jeffrey J. Carlisle

46. Title of Person Signing  
EVP, Public Policy & Regulatory Affairs

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).**

## FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERF, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to [PRA@fcc.gov](mailto:PRA@fcc.gov). PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

**RESPONSE TO QUESTIONS 34 and 40:  
OWNERSHIP INFORMATION**

The Communications Act does not restrict foreign ownership of satellite authorization holders that operate on a non-common carrier basis. *See* 47 U.S.C. § 310(b). LightSquared Subsidiary LLC operates MSAT-2 on a non-common carrier basis, consistent with the authority granted by the Commission. *See* Stamp Grant, IBFS File No. SAT-MOD-20141212-00128 (granted May 14, 2015). Nevertheless, due to the requirements of Form 312, LightSquared has provided responses to Questions 29 through 33 on the associated Form 312, and further detail regarding the ownership of LightSquared Subsidiary LLC is set forth below.

LightSquared Subsidiary LLC, the Applicant, is a Delaware limited liability company that is the licensee. LightSquared Subsidiary LLC is a wholly owned subsidiary of New LightSquared LLC, a Delaware limited liability company. New LightSquared LLC manages the overall operations of the LightSquared corporate structure, including LightSquared Subsidiary LLC. LightSquared Subsidiary LLC and New LightSquared LLC can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

New LightSquared LLC is owned and/or controlled, directly and indirectly, by a number of individuals and entities (collectively, the “Investors”) that recently were approved by the Commission. Extensive information about the ownership interests of each of the Investors, including foreign ownership, is on file with the Commission in IB Docket No. 15-126.

LightSquared incorporates this information by reference. Notably, the Commission has issued a declaratory ruling under Section 310(b)(4) of the Communications Act, as amended, 47 U.S.C. § 310(b)(4), permitting the aggregate foreign ownership of New LightSquared LLC to exceed the 25 percent limit on foreign ownership that otherwise would be applicable in connection with the

Investors' interests in LightSquared. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC*, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 29-30 (rel. Dec. 4, 2015).

The names and addresses of the managers (who serve the function of directors) and officers of the Applicant are as follows:

**Officers**

Doug Smith – President & CEO

Jeff Carlisle – EVP, Reg Affairs & Public Policy

Elizabeth Creary – VP & Asst. Secretary

Brendan Boughton – VP & Treasurer

Each of these of these officers except Ms. Creary can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

Ms. Creary can be contacted at 1601 Telesat Court, Ottawa, ON K1B 1B9.

**Managers**

Ivan Seidenberg (Chairman)

Doug Smith

Reed Hundt

Jared Hendricks

Drew McKnight

R. Edward Albert

John Fischer

Each of these managers can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

**RESPONSE TO QUESTION 35:**  
**WAIVERS**

The Application requests power limits and out-of-band-emission (“OOBE”) requirements that are different from those set forth in the Commission’s rules. *See* 47 C.F.R. § 25.253. While these limits do not exceed the limits set forth in the rules, out of an abundance of caution, a waiver is requested insofar as operations at the requested power and OOBE levels are inconsistent with the Commission’s rules.

**RESPONSE TO QUESTION 39:  
QUALIFICATIONS**

The Commission, in the context of New LightSquared's applications to assign its licenses to enable its emergence from bankruptcy (the "Emergence Applications"), recently discussed a pending matter relating to JPMorgan Chase & Co. ("JPMorgan"), an entity that was identified as a disclosable interest holder in the Emergence Applications. The Applicant cites this discussion, and the Commission's resolution thereof, out of an abundance of caution. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC*, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 12-18 (rel. Dec. 4, 2015). Please also note that JPMorgan, for purposes of Question 37, is neither "the applicant" nor "a party to this application."

**RESPONSE TO QUESTION 43:  
DESCRIPTION OF PROPOSED MODIFICATION AND  
PUBLIC INTEREST STATEMENT**

As part of a comprehensive solution that would address the concerns of the GPS community, the National Oceanic and Atmospheric Administration (“NOAA”), and the aviation industry and, at the same time, permit deployment of a terrestrial broadband network assisting in the 4G to 5G transition, New LightSquared LLC (“New LightSquared”) hereby seeks to modify its licenses by reducing power limits, limiting out of band emissions, and incorporating appropriate deference to aviation industry and aviation regulatory concerns. These license modification applications (the “Modification Applications”) are both required by, and designed to fulfill the conditions subsequent in, the separate agreements between New LightSquared and Deere & Company<sup>1</sup> (“Deere”) and New LightSquared and Garmin International, Inc.<sup>2</sup> (“Garmin,” and Deere and Garmin together, the “Settling GPS Companies”).<sup>3</sup>

Therefore, pursuant to the Compromise Agreements, New LightSquared hereby abandons its upper 10 MHz downlink band at 1545-1555 MHz and also commits that it will not

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<sup>1</sup> Settlement Agreement and Mutual Release made December 8, 2015, by and among Deere & Company and New LightSquared and LightSquared Subsidiary LLC (the “Deere Agreement”).

<sup>2</sup> Settlement Agreement made December 16, 2015 by and between Garmin International, Inc. and New LightSquared LLC and LightSquared Subsidiary (the “Garmin Agreement” and together with the Deere Agreement, the “Compromise Agreements”).

<sup>3</sup> The Deere Agreement and the Garmin Agreement have already been filed with the Commission in the dockets listed above. *See* New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 8, 2015) (“December 8 Ex Parte”); New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 17, 2015) (“December 17 Ex Parte”). The company has reached a separate cooperation agreement with Trimble, and per its provisions, that agreement is not currently public.

deploy on the bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, 1670-1675 MHz, and 1675-1680 MHz except under the power limits stated in detail below.<sup>4</sup> Further pursuant to the Compromise Agreements, this is the “appropriate filing” and hence is a condition subsequent that New LightSquared must and hereby does fulfill by the instant date.<sup>5</sup>

These modifications also are significant because Deere and Garmin acknowledge that these operational changes mean that those important GPS companies have no objection to New LightSquared deployment in those bands for all devices (except certified aviation, which is discussed and addressed separately below). Specifically, Paragraph 3 of the Deere Agreement stipulates that “Deere, acting as itself or through any third party, will not object to deployment by New LightSquared of a network in the spectrum bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1700 MHz as long as such deployment is consistent with such filings.”<sup>6</sup> Similarly, as long as New LightSquared’s terrestrial deployment plans are consistent with the operational parameters agreed to by the companies in the Garmin Agreement, Garmin agrees not to object to deployment in the spectrum located in the spectrum bands 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1680 MHz.<sup>7</sup> Furthermore, Garmin agrees not to object to

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<sup>4</sup> New LightSquared is withdrawing its previous license modification applications through appropriate filings in IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835. New LightSquared is also submitting a companion letter to the Secretary today regarding the Modification Applications. *See* Letter from Gerard J. Waldron to Marlene Dortch, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 31, 2015), at 1, n. 2 (hereinafter “Comprehensive Proposal”).

<sup>5</sup> *See* Deere Agreement at § 2–8, 11; Garmin Agreement at § 6–9.

<sup>6</sup> *See* Deere Agreement at § 3; Dec. 8, 2015 Ex Parte.

<sup>7</sup> *See* Garmin Agreement at § 10; Dec. 17, 2015 Ex Parte. Both the Deere Agreement and the Garmin Agreement exclude current MSS and Modeo operations in these frequencies. *See* Garmin Agreement at § 6(f)–(g); Deere Agreement at § 17.

New LightSquared's use of the 1526-1536 MHz spectrum up to and including power levels at 32 dBW for Garmin devices that are not Certified Garmin GNSS Aviation Equipment, provided that and upon the condition that LightSquared adheres to all of the requirements of the Garmin Agreement.<sup>8</sup>

Because Deere and Garmin collectively produce equipment in the vast majority of GPS device categories, New LightSquared believes that resolving the concerns of these companies should effectively resolve the concerns of the GPS industry as a whole. Issuance of a public notice on the Modification Applications will invite comment on that proposition, and the company looks forward to engaging with all parts of the GPS industry to review these issues. For its part, New LightSquared believes these significant compromises establish a constructive industry paradigm that gives clarity to all relevant firms and government agencies and in an appropriately open and timely process. New LightSquared expects that a reasonable comment process—such as one involving a 60-day comment period and 30-day reply period—initiated by this filing going on public notice will illustrate that belief. Moreover, because the vast majority of GPS devices in use today are found in smartphones, and because the mobile phone industry has never suggested that LightSquared's operations are not compatible with smartphones, the Commission will have a record after the completion of this process to assess whether this vital mid-band spectrum can be put to its most productive use. New LightSquared firmly believes the record will show that grant of the Applications will serve the public interest by securing the compromises reached in the Compromise Agreements for the Settling GPS Companies and also by giving the benefit of the bargain to all other parts of the GPS community. And with respect to

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<sup>8</sup> With regard to certified aviation receivers, New LightSquared understands the need to continue to work with Garmin, the FAA, and the rest of the aviation community to address any concerns and has committed to doing so. *See* part III.B., *infra*.

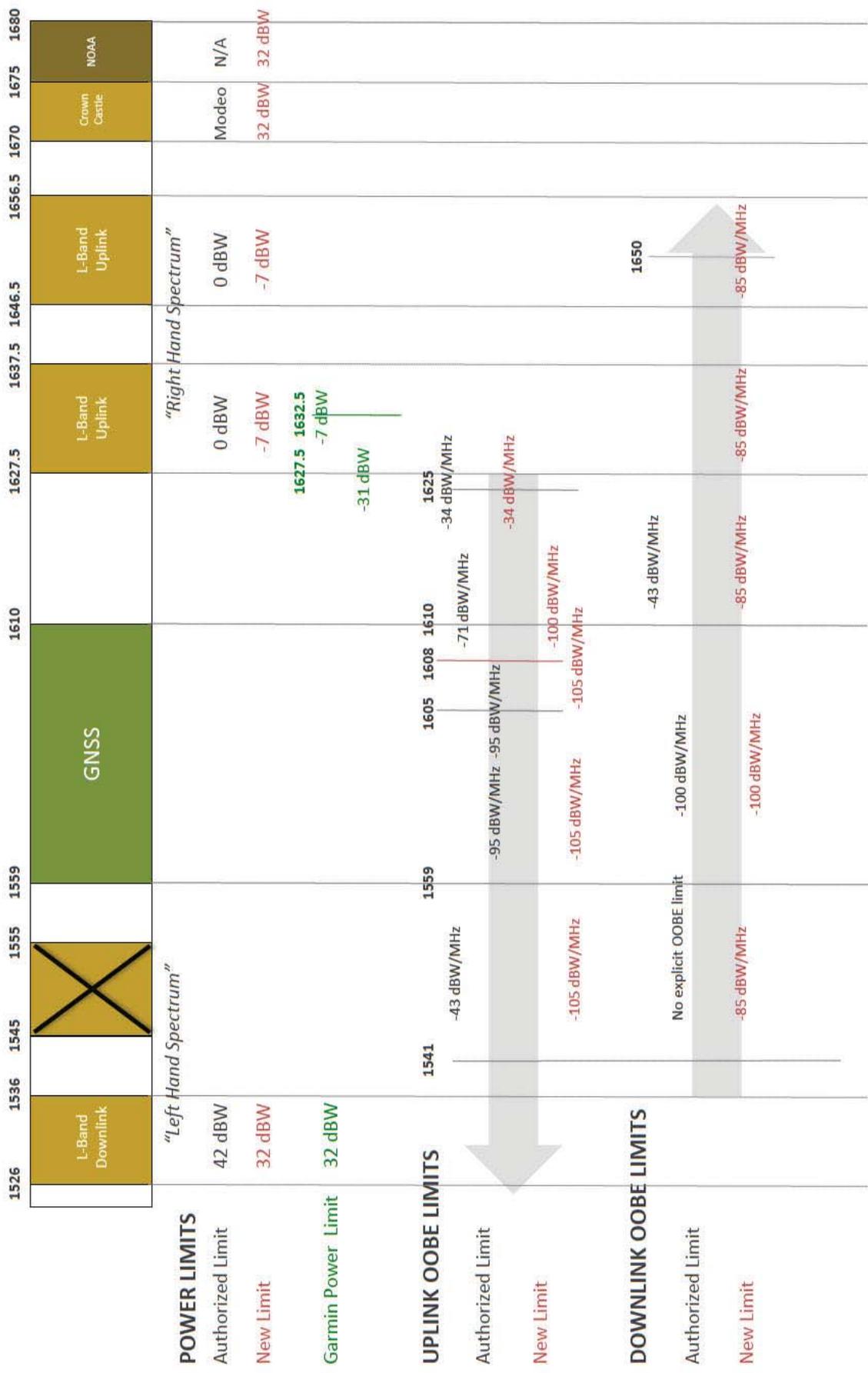
concerns from the aviation community, the Commission can address those concerns by imposing the condition described below regarding compatibility with the Minimum Operational Performance Standards (“MOPS”) and the corresponding Technical Standard Orders developed by the RTCA and FAA.

Equally important from the Commission’s role as spectrum manager, approval of the Modification Applications, coupled with implementation of the reallocation and auction of the 1675-1680 MHz band described below, will provide New LightSquared with the ability to deploy and operate 40 MHz of prime mid-band broadband spectrum and to put to use this vital asset as part of the 4G to 5G transition that will soon commence. In particular, New LightSquared intends to submit the modified technical parameters set forth in these Modification Applications into the 3GPP standardization process in 2016, which will lead to global standards set in Release 14 scheduled for 2017. The modifications proposed by New LightSquared should provide the GPS industry a blueprint for global conduct of its business.

#### **I. NEW LIGHTSQUARED’S PROPOSED LICENSE MODIFICATION**

In these Modification Applications, New LightSquared implements the compromises reached in the Compromise Agreements. This approach will serve the public interest by establishing a path forward for New LightSquared to proceed with building a network and providing service over a commercially viable wireless broadband network. New LightSquared’s proposed license modifications consists of the following mutually-dependent and interrelated elements, illustrated here and explained in detail below.

# Technical Operating Parameters Specified in Coexistence Plans



Note: The Coexistence Plans also include narrowband limits not depicted here.

The proposed license modifications are as follows:

- New LightSquared permanently abandons its authority to conduct terrestrial operations in its upper 10 MHz downlink band at 1545-1555 MHz—the part of New LightSquared’s downlink band that is closest to the GPS band—thus providing GPS receivers an additional 10 MHz guard band from terrestrial services. This relinquishment of the terrestrial component addresses a critical concern of the GPS industry and enables New LightSquared to continue to operate its long-standing satellite business.
- Pursuant to Section 8(b) of the Garmin Agreement and for clarity, New LightSquared stipulates the following: New LightSquared will not utilize frequencies in the 1545-1555 MHz band for any terrestrial base stations and mobile terminals providing radio communication services, offered together with, or separately from, Mobile-Satellite Services (“MSS”), using or re-using frequencies presently assigned for MSS operations, and it will not enter into a spectrum sharing or similar arrangement with a third party that involves services utilizing such spectrum. New LightSquared will permanently abandon use of the frequency band 1545-1555 MHz, and will not enter into such third-party arrangements. New LightSquared will require any successor, assignee, user, or customer with respect to service in the 1545-1555 MHz band to comply with the same commitment to permanently abandon terrestrial use of the 1545-1555 MHz band. This paragraph does not apply to LightSquared’s satellite-to-earth communications, transmitting pursuant to Part 25 of the FCC’s Rules, 47 C.F.R. Part 25.
- New LightSquared would retain authorization to use its two 10 MHz uplink bands at 1627.5-1637.5 and 1646.5-1656.5 MHz for terrestrial operations and optimally match one of them with an alternative downlink channel at 1670-1680 MHz in an operationally-efficient and commercially viable manner.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared requests that the Commission make the following power limit modifications:
  - modify the EIRP limit for the 1646.5-1656.5 band from 0 dBW to -7 dBW;
  - modify the EIRP limit for the 1627.5-1637.5 MHz band from 0 to -7 dBW, *provided that* the 1627.5-1632.5 MHz segment of this band will have an EIRP limit that ramps from -31 dBW to -7 dBW for a period of five years—until January 1, 2021—and then that segment will revert to -7 dBW; and
  - modify the EIRP limit for the 1526-1536 MHz band from 42 dBW to 32 dBW.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared further requests that the Commission make the following Out Of Band Emission (“OOBE”) EIRP limit modifications, and these limits ramp between OOBE values at the stated frequencies.
  - For the uplink:
    - retain a -34 dBW/MHz limit at 1625 MHz;
    - modify the limit at 1610 from -71 dBW/MHz to -100 dBW/MHz, ramping up between the values at 1625 MHz and 1610 MHz;

- implement a -105 dBW/MHz limit at 1608 MHz, ramping up between the values at 1610 MHz and 1608 MHz;
    - modify the limit at 1559-1608 from -95 dBW/MHz to -105 dBW/MHz;
    - modify the limit from 1541-1559 MHz from -43 dBW/MHz<sup>9</sup> to -105 dBW/MHz;
    - modify the limit for narrowband from 1610-1625 MHz to ramp from -110 dBW/700 Hz to -44 dBW/700 Hz;
    - modify the limit for narrowband from 1608-1610 MHz to ramp from -115 dBW/700 Hz to -110 dBW/700 Hz;
    - modify the limit for narrowband from 1559-1608 MHz to -115 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1549 MHz to -132 dBW/2 kHz.
  - For the downlink:
    - implement a -85 dBW/MHz limit for 1610-1650 MHz;
    - retain the -100 dBW/MHz limit from 1559-1610 MHz;
    - implement a -85 dBW/MHz limit from 1541-1559 MHz;
    - modify the limit for narrowband from 1610-1650 MHz to -95 dBW/700 Hz;
    - retain the limit for narrowband from 1559-1610 MHz to -110 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1559 MHz to -112 dBW/2 kHz.
- In recognition of the need to operate in a manner that is compatible with the aviation sector's use of GPS and respects vital safety of life issues, the Commission should require, as a license condition, adherence to the following:
  - In addition to the EIRP limit for the 1526-1536 MHz band described above, the licensee would limit its power as necessary to achieve compatibility with current and any future MOPS insofar as they are incorporated into an active Technical Standard Order by the FAA.
- In lieu of any terrestrial use of the 1545-1555 MHz band, New LightSquared seeks to use a contiguous 10 MHz band at 1670-1680 MHz, which would provide the needed coverage for its terrestrial network. The alternative 10 MHz of downlink spectrum consists of:
  - 1670-1675 MHz, which New LightSquared already has authority to use nationwide by virtue of its leasing arrangement with Crown Castle, and
  - 1675-1680 MHz, which New LightSquared proposes should be reallocated for sharing with certain existing federal government users. In the context of, and contemporaneous with, the instant Modification Application, New LightSquared

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<sup>9</sup> Please note that -43 dBW/MHz is a conductive power limit, and each time -43 dBW/MHz appears in these Modification Applications, it represents a conductive power limit. All other power limits are expressed as EIRP.

in its Comprehensive Proposal is renewing its request for the Commission to reallocate the 1675-1680 MHz band on a shared basis for a commercially useable, terrestrial wireless broadband service, and to auction that spectrum.<sup>10</sup>

Thus, New LightSquared in effect proposes to provide GPS receivers a significant guard band from terrestrial services. The import of these changes is that the Commission can secure these operational restrictions for the entire GPS community and also promote the public interest benefits of a new, robust broadband network. Furthermore, having major GPS manufacturers agreeing to a set of parameters that allow for compatibility of terrestrial broadband and GPS is a major step forward for U.S. leadership in harmonizing terrestrial use of L-band in other countries. International harmonization will also be advanced by the timely incorporation of these limits into the 3GPP process, which will establish the technical foundation for compatible use wherever this service is authorized.

## **II. THE PROPOSED LICENSE MODIFICATION WOULD YIELD SUBSTANTIAL PUBLIC INTEREST BENEFITS**

### **A. The Need for Additional Spectrum for Mobile Broadband Remains as Acute as Ever.**

An urgent and fast-growing need exists for additional spectrum to be made available to support the transition to 5G and to support mobile broadband services more broadly. As CTIA explains, “making additional spectrum available remains critical to meeting consumer demand, promoting economic growth, and enhancing our Nation’s global competitiveness.”<sup>11</sup> CTIA estimates, for instance, that the network traffic generated by a smartphone is 49 times

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<sup>10</sup> See Comprehensive Proposal at 3–4.

<sup>11</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014).

more than a basic handset, and smartphone traffic is predicted to increase 325% by 2018.<sup>12</sup> Furthermore, mobile video traffic has exploded 733% from 24 PB a month in 2010 to 200 PB a month in 2013. Consequently, about 56% of all mobile data is now data-intensive video, which will increase by 600% by 2018.<sup>13</sup> And despite the increase in data use along all sectors, the United States has the least amount of spectrum available per LTE capable device compared to its G7 peers: only 0.65 Hz/LTE capable device. By contrast, Canada provides its citizens with 37 times as much spectrum per person as the U.S. (24.21 Hz/LTE), and Japan provides four times more than the U.S. (2.58 Hz/LTE).<sup>14</sup> The bottom line, as President Obama has explained, is that it is necessary to “make available even more spectrum and create new avenues for wireless innovation.”<sup>15</sup> Jason Furman, Chairman of the President’s Council on Economic Advisors (“CEA”), has stressed that “[t]he fact that increasing demand for this crucial resource is straining the current supply testifies to just how essential spectrum is.”<sup>16</sup>

Mr. Furman has further explained that the stakes for managing spectrum properly are high: “[t]he continued primacy of the United States in this Internet economy . . . depends on

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<sup>12</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014) (“CTIA Ex Parte”) *citing* CISCO, VNI Mobile Forecast Highlights, 2013-2018, *available at* [http://www.cisco.com/assets/sol/sp/vni/forecast\\_highlights\\_mobile/index.html#~Country](http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country) (“CISCO Forecasts”).

<sup>13</sup> CTIA Ex Parte *citing* CISCO Forecasts.

<sup>14</sup> CTIA Ex Parte *citing* Roger Entner, Spectrum Fuels Speed and Prosperity, Recon Analytics, at 7–8 (Sept. 2014).

<sup>15</sup> The White House, Office of the Press Secretary, *Presidential Memorandum -- Expanding America’s Leadership in Wireless Innovation* (June 14, 2013), *available at* <https://www.whitehouse.gov/the-press-office/2013/06/14/presidential-memorandum-expanding-americas-leadership-wireless-innovatio>.

<sup>16</sup> Jason Furman, Chairman, Council of Economic Advisers, Remarks on Public Sector Spectrum Policy, Brookings Institution (Sept. 23, 2014), *available at* [https://www.whitehouse.gov/sites/default/files/docs/remarks\\_on\\_public\\_sector\\_spectrum\\_policy\\_jf.pdf](https://www.whitehouse.gov/sites/default/files/docs/remarks_on_public_sector_spectrum_policy_jf.pdf).

our ability to get spectrum policy right. The United States currently leads the world in 4G wireless internet availability, with nearly half of the global subscriber base residing in the United States, but such a future is uncertain if we do not improve access to and management of the spectrum.”<sup>17</sup> Chairman Wheeler acknowledged the same when he explained the benefits of making more spectrum available: “More spectrum means more speed, capacity and ubiquity of mobile broadband services such as 4G LTE and Wi-Fi networks.”<sup>18</sup>

In sum, the need for additional spectrum for mobile broadband services remains more pressing today than ever. In this regard, the Commission and NTIA have an obligation to explore every possible solution not to abandon use of L-band for terrestrial broadband and to seek to reap the significant public interest benefits of New LightSquared’s mobile broadband network.

**B. To Protect the Aviation Sector, New LightSquared Requests that the Commission Impose a License Condition Related to FAA/RTCA MOPS.**

New LightSquared recognizes the paramount importance of safety issues related to certified aviation GPS receivers. Because aviation GPS receiver certification and operational standards have an existing, well-established, and robust process, and because New LightSquared’s work with the aviation community and that process is ongoing, New LightSquared requests that the Commission impose a license condition with reference to current and any future FAA/RTCA standards. The Garmin agreement specifically excludes certified aviation receivers, thus leaving that issue open. To address the concerns of Garmin—a very

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<sup>17</sup> *Id.*

<sup>18</sup> Testimony of Tom Wheeler, Chairman, Fed. Comm’n. Comm’n., Hearing on the FCC’s Fiscal 2015 Budget Request Before the Subcomm. on Fin. Services and Gen. Gov’t, Comm. on Appropriations, U.S. House of Representatives, at 1 (Mar. 25, 2014) (“Wheeler Testimony”), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-326246A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-326246A1.pdf).

significant aviation GPS manufacturer—as well as those of other important stakeholders, New LightSquared proposes that its license be conditioned on power limitation requirements for the 1526-1536 MHz band necessary to achieve compatibility with current and future MOPS that are incorporated into an active Technical Standard Order from the FAA.

This license modification serves two complementary purposes. First, it enables the Commission, as the essential license regulator, to perform its vital role and ensure safety of life issues are addressed by imposing a condition on the license to achieve compatibility with FAA/RTCA standards. In other contexts, the Commission has incorporated by reference standards developed elsewhere, and required further coordination with parties rather than establishing specific compatibility requirements.<sup>19</sup> Aviation provides a similar compatibility scenario, and the Commission should do the same here.

Second, the proposed license modification recognizes that the FAA and RTCA have core competencies in this field and a long and well-established multi-stakeholder consultation process to address the specific types of issues presented here. LightSquared has long participated in that process, and it commits to continuing to work with the FAA, the RTCA, and the rest of the aviation community to address any concerns and ensure that its operations are compatible with existing and future standards. This process would assess aviation-specific use cases and the maximum New LightSquared EIRP that would be consistent with the interference tolerance mask that exists for certified aviation equipment under the RTCA DO-229D and related MOPS, both current and future, that are incorporated into an active Technical Standard Order from the FAA. Because much of the necessary modeling has previously been constructed by the FAA and

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<sup>19</sup> See, e.g., 47 C.F.R. § 25.253(c) and (f), which require further coordination—rather than up-front resolution of compatibility concerns—with respect to commercial mobile radio services providers, search and rescue satellite service, and aviation maintenance technology.

aviation stakeholders, New LightSquared believes that with a concerted and cooperative effort, the necessary assessments could be completed in a timely manner.

The advantage from the Commission’s perspective of this approach is that it is both self-executing and “evergreen.” It is self-executing in that the Commission can impose this license condition at any time, and whenever the FAA/RTCA adopts or amends such a requirement, that obligation immediately falls upon the company. It is “evergreen” in that if ever the FAA/RTCA should alter its requirement, then that new obligation becomes binding on the company as an FCC licensee, without need for a Commission action. Finally, the FCC can—and should—participate in the FAA/RTCA process, as appropriate, in order to further the FCC’s core competencies and interests, including promoting broadband deployment.

**C. Considerable Public Interest Benefits Would Be Realized by Deployment of New LightSquared’s Network.**

Chairman Wheeler has stressed the importance of striking a “fair balance that serves the greater public interest” in matters related to spectrum management.<sup>20</sup> By granting this Modification Application, the Commission would be effectuating such a balance and allowing New LightSquared to deploy a mobile broadband network that will offer substantial public interest benefits. These benefits were recognized and relied upon by the Commission when it initially considered New LightSquared’s plan for a mobile broadband network using MSS L-band spectrum.<sup>21</sup> The Commission, however, has also stated that public interest benefits are

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<sup>20</sup> Tom Wheeler, *Crafting Balanced Incentive Auction Rules in the Public Interest*, Fed. Commc’n. Comm’n. Blog (June 17, 2015), available at <https://www.fcc.gov/news-events/blog/2015/06/17/crafting-balanced-incentive-auction-rules-public-interest>.

<sup>21</sup> See *In Re Flexibility for Delivery of Commc’ns by Mobile Satellite Serv. Providers*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd. 1962, 1974 (2003).

“dependent on ... [New LightSquared’s] actually moving forward with its plan.”<sup>22</sup> Since that time, despite its best efforts, New LightSquared has been delayed in implementing its plan because of concerns about the compatibility between New LightSquared’s terrestrial base stations and GPS receivers. New LightSquared diligently worked with the GPS industry to reach a successful resolution to those concerns, and New LightSquared still is in the best position among any potential new broadband network operator to bring the benefits of a robust network to the public in the near- and mid-term.

In this Modification Application, New LightSquared has offered a comprehensive solution to the GPS issue and a way to proceed with deployment of its broadband network. The solution involves modifying the power and OOB limits of New LightSquared’s licenses to be consistent with the terms of the various settlement agreements with the Settling GPS Companies, permanently abandoning New LightSquared’s right to deploy terrestrial downlink operations at 1545-1555 MHz, and permanently relocating those terrestrial operations instead to 1670-1680 MHz. Without this relocation, New LightSquared would not be able to deploy its broadband network and the substantial promise of that network would be lost. Conversely, a grant of the Modification Application would: (i) effectuate the carefully negotiated settlement agreements with the Settling GPS Companies and advance long-term protection for the GPS industry, (ii) recognize the vital issues surrounding aviation and setting forth a license condition to address that concern, (iii) devote acceptable portions of the MSS L-band to broadband terrestrial use in accordance with the national broadband plan, (iv) develop a new, robust mobile broadband

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<sup>22</sup> *In the Matter of Skyterra Commc’ns, Inc.*, Memorandum Opinion and Order and Declaratory Ruling, 25 FCC Rcd. 3059, 3088 (2010).

network, and (v) facilitate a private sector frequency coordination arrangement with federal users that is supported by the extensive precedents of non-federal/federal spectrum use, and offers a unique opportunity to advance the public interest on many fronts.

**D. THE COMMISSION HAS AMPLE PRECEDENT FOR ADOPTING THE PROPOSAL SUBMITTED HEREIN**

On numerous occasions, the Commission has effectuated creative problem solving solutions to manage spectrum interference concerns. In making the 800 MHz band viable for services that would greatly benefit the public, the Commission undertook an extended effort to rationalize that spectrum by reconfiguring the 800 MHz band to resolve interference issues resulting from the differing uses of the interleaved channels in the band.<sup>23</sup> It bears emphasis that in recognition of the “public interest benefit derived from robust and reliable public safety communications,” as well as the spectrum rights surrendered by Nextel in the 800 MHz Band, the Commission provided Nextel with spectrum in the 1.9 GHz Band.<sup>24</sup> Another example comes from the Commission’s relocation of the Digital Electronic Messaging Service (“DEMS”) from the 18 GHz Band to the 24 GHz band, based on national security concerns.<sup>25</sup> In that case, the Commission acted at the request of NTIA, in order to address Department of Defense concerns regarding potential interference from DEMS into military satellite earth stations in Denver and Washington, D.C. operating in the 18 GHz Band. By relocating DEMS to the 24 GHz band and providing DEMS access to twice the amount of spectrum originally

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<sup>23</sup> See *Improving Public Safety Communications in the 800 MHz Band*, 19 FCC Rcd. 14969 (2004).

<sup>24</sup> *Id.* at ¶ 5.

<sup>25</sup> See *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); *aff’d*, 13 FCC Rcd. 15147 (1998).

licensed, the Commission resolved these concerns, as well as concerns about the sharing of the 18 GHz Band with commercial satellite services.<sup>26</sup>

In short, the proposals contained in these Modification Applications and the Comprehensive Proposal present the Commission with a solution that substantially advances its goal of making more broadband spectrum available, thus advancing public interest benefits, and at the same time securing specific protections for private interests that also serve the public interest. The modifications proposed herein offer the Commission a heightened assurance of effectiveness because they reflect an engineering-based solution reached after months of deliberative, good-faith negotiations regarding compatibility concerns.

### **III. GRANT OF THE LICENSE MODIFICATION SHOULD BE COUPLED WITH REALLOCATION OF 1675-1680 MHz TO SHARED USE, FOLLOWED BY AN AUCTION**

#### **A. The 1675-1680 MHz Band Is an Ideal Band to Serve as New LightSquared's Alternate Downlink Spectrum.**

New LightSquared's proposal to provide GPS receivers an immediate, additional 10 MHz guard band from terrestrial services by abandoning all terrestrial authority for the upper 10 MHz downlink band at 1545-1555 MHz means that New LightSquared's network cannot be deployed now without access to alternative downlink spectrum that is compatible with New LightSquared's two L-band uplink bands at 1627.5-1637.5 MHz and 1646.5-1656.5 MHz. To fill this immediate need and, therefore, to enable the deployment of an operational terrestrial broadband network, New LightSquared proposes to reallocate the 1675-1680 MHz band to shared use with federal government users in a commercially and technically viable manner, and

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<sup>26</sup> In doing so, the Commission invoked the "military function" exception to the Administrative Procedures Act, facilitating Commission action within approximately two months and without notice and comment procedures. *See* 5 U.S.C. § 553(a)(1).

then to auction that band with appropriate bidding credits. If successful at auction, New LightSquared would use this 5 MHz along with New LightSquared's currently-leased spectrum in the 1670-1675 MHz band to create a contiguous 10 MHz downlink channel for terrestrial wireless broadband services.<sup>27</sup>

Given its present use of the 1670-1675 MHz band, New LightSquared has extensive experience coordinating the adjacent 5 MHz band with the federal government. The company has used this experience to build out a record that the Commission can use to move forward with a Notice of Proposed Rulemaking on this band.<sup>28</sup> New LightSquared remains ready to work with NTIA in establishing the operating parameters and safeguards that will be built into the service rules and license conditions to ensure its interests are protected.

**B. The Commission's and NTIA's Rules and Precedents Permit the Commission to Authorize Non-Federal Use of the 1675-1680 MHz Band.**

New LightSquared's proposal to reallocate spectrum currently used by federal agencies to shared use is well supported by prior precedents. Over the years, the Commission and NTIA have cooperated in applying their respective public interest mandates to foster sound spectrum management and inject flexibility into the division of the radio spectrum between federal users and non-federal users. The most recent example is the Commission's effort that freed up substantial spectrum in connection with the successful AWS-3 auction. Other examples include the use by non-federal law enforcement agencies of a primary federal frequency for

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<sup>27</sup> New LightSquared currently is authorized to operate at 1670-1675 MHz by virtue of a leasing agreement through One Dot Six Corp. to which the Commission has consented. *See* ULS Lease ID L000007295.

<sup>28</sup> *See* Comprehensive Proposal at 3-4.

stolen vehicle recovery,<sup>29</sup> a commercial satellite operator to use federal frequencies to provide satellite service to the Navy,<sup>30</sup> an energy exploration company to timeshare NASA satellite capacity to provide commercial satellite service,<sup>31</sup> and commercial digital message providers to use federal spectrum as a substitute for originally-licensed spectrum that could not be used because of potential interference to government stations.<sup>32</sup> In each instance, the Commission and NTIA found that such flexible and innovative spectrum management initiatives served important national goals that could be served in no practical way other than by cooperating to give private parties access to spectrum that either was used exclusively or primarily by federal agencies.

The reallocation of 1675-1680 MHz that New LightSquared seeks is supported by these precedents and is well within the authority of the Commission and NTIA to provide. Given concerns about GPS compatibility with use of New LightSquared's licensed L-band downlink, obtaining access to 1675-1680 MHz is an efficient solution that would allow New

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<sup>29</sup> *Amendment of Parts 2 and 90 of the Commission's Rules to Provide for Stolen Vehicle Recovery Systems*, 3 FCC Rcd. 7195 (1988) (frequency initially allocated exclusively for federal use re-allocated on a shared basis between federal and non-federal users for the purposes of stolen vehicle monitoring and recovery use).

<sup>30</sup> *Hughes Communications Services, Inc.*, FCC 79-809 (rel. Dec. 10, 1979) (authorizing construction of LEASAT satellite system on federal frequencies).

<sup>31</sup> *In the Matter of Modification Application of SpaceData International LLC; For Authority to Operate on a Time Share Basis NASA's Tracking and Data Relay Satellite System*, 16 FCC Rcd. 9266 (Chief IB 2001) (authorizing use of federal TDRSS spectrum for searching for oil and gas deposits on ocean floor).

<sup>32</sup> *See 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) (federal spectrum made available for DEMS to substitute for originally assigned spectrum that could not be used because of potential interference to government stations).

LightSquared to deploy its broadband network in a manner that already has been found to be in the public interest.

#### **IV. NEW LIGHTSQUARED SEEKS TO PAIR ITS TWO UPLINK BANDS WITH THE NEW DOWNLINK BAND IN AN OPERATIONALLY-EFFICIENT AND COMMERCIALY VIABLE MANNER**

New LightSquared's proposals in this Modification Application regarding terrestrial use of the L-band would leave it unable ever to use the 1545-1555 MHz band downlink band for terrestrial operations. Accordingly, New LightSquared seeks appropriate authorization to pair either of its two uplink bands at 1627.5-1637.5 MHz and 1646.5 MHz-1656.5 MHz with the 1670-1680 MHz downlink channel proposed herein in an operationally efficient and commercially viable manner. Moreover, New LightSquared recognizes that the Commission may want to address this issue in the context of a Notice of Proposed Rulemaking on the 1675-1680 MHz band. For these reasons, New LightSquared respectfully requests such appropriate adjustments and further authorizations with regard to the Commission's rules as may be needed to facilitate the prompt processing and grant of this Modification Application.

#### **V. CONCLUSION**

New LightSquared's proposed license modification and its corresponding relinquishment of terrestrial rights for the 1545-1555 MHz band present the Commission with a constructive and comprehensive approach to resolve the issues that, to date, have precluded the deployment of its terrestrial network. New LightSquared remains committed to fulfilling the Commission's vision of providing a robust wireless broadband capability to the American consumer that can enhance the transition from 4G to 5G. With the Commission's granting of this Modification Application, New LightSquared could achieve this goal in a manner that directly implements the resolutions it has reached with the GPS industry regarding compatibility concerns.

Date & Time Filed: Dec 31 2015 5:42:00:403PM  
File Number: SAT-MOD-20151231-00090

<b>FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM</b>	<b>FCC Use Only</b>
<b>FCC 312 MAIN FORM FOR OFFICIAL USE ONLY</b>	

**APPLICANT INFORMATION**

Enter a description of this application to identify it on the main menu:  
Application for Modification (AMSC-1)

1-8. Legal Name of Applicant			
Name:	LightSquared Subsidiary LLC	Phone Number:	703-390-2001
DBA Name:		Fax Number:	703-390-2770
Street:	10802 Parkridge Blvd	E-Mail:	jeff.carlisle@lightsquared.com
City:	Reston	State:	VA
Country:	USA	Zipcode:	20191 -
Attention:	Mr Jeffrey J. Carlisle		

9-16. Name of Contact Representative			
Name:	Gerard J. Waldron	Phone Number:	2026625360
Company:	Covington & Burling LLP	Fax Number:	2027785360
Street:	One CityCenter 850 Tenth Street, NW	E-Mail:	gwaldron@cov.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20001-
Attention:	Gerard J. Waldron	Relationship:	Legal Counsel

**CLASSIFICATION OF FILING**

<p>17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.</p> <p><input type="radio"/> a1. Earth Station</p> <p><input checked="" type="radio"/> a2. Space Station</p>	<p>(N/A) b1. Application for License of New Station</p> <p>(N/A) b2. Application for Registration of New Domestic Receive-Only Station</p> <p><input type="radio"/> b3. Amendment to a Pending Application</p> <p><input checked="" type="radio"/> b4. Modification of License or Registration</p> <p>b5. Assignment of License or Registration</p> <p>b6. Transfer of Control of License or Registration</p> <p><input type="radio"/> b7. Notification of Minor Modification</p> <p>(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite</p> <p>(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States</p> <p>(N/A) b10. Other (Please specify)</p> <p>(N/A) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.</p>
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<p>17c. Is a fee submitted with this application?</p> <p><input checked="" type="radio"/> If Yes, complete and attach FCC Form 159.</p> <p>If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).</p> <p><input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee</p>
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Other(please explain):

17d.

Fee Classification BFY - Space Station Modification(Geostationary)

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:  
AMSC-1

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:

(a) Date pending application was filed:  
(b) File number:  
SATMOD2014121200128

#### TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- a. Fixed Satellite  
 b. Mobile Satellite  
 c. Radiodetermination Satellite  
 d. Earth Exploration Satellite  
 e. Direct to Home Fixed Satellite  
 f. Digital Audio Radio Service  
 g. Other (please specify)  
ATC

21. STATUS: Choose the button next to the applicable status. Choose only one.

Common Carrier  Non-Common Carrier

22. If earth station applicant, check all that apply.

- Using U.S. licensed satellites  
 Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

Connected to a Public Switched Network  Not connected to a Public Switched Network  N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- a. C-Band (4/6 GHz)  b. Ku-Band (12/14 GHz)  
 c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 1525 Frequency Upper: 1680 (Please specify additional frequencies in an attachment)

#### TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station  
 b. Temporary-Fixed Earth Station  
 c. 12/14 GHz VSAT Network  
 d. Mobile Earth Station  
 e. Geostationary Space Station  
 f. Non-Geostationary Space Station  
 g. Other (please specify) ATC

26. TYPE OF EARTH STATION FACILITY:

Transmit/Receive  Transmit-Only  Receive-Only  N/A

"For Space Station applications, select N/A."

#### PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service  
 b -- authorization to change emission designator and related service  
 c -- authorization to increase EIRP and EIRP density

- d -- authorization to replace antenna
- e -- authorization to add antenna
- f -- authorization to relocate fixed station
- g -- authorization to change frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

### ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.  Yes  No

**ALIEN OWNERSHIP** Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?  Yes  No

30. Is the applicant an alien or the representative of an alien?  Yes  No  N/A

31. Is the applicant a corporation organized under the laws of any foreign government?  Yes  No  N/A

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote. **OWNERSHIP**

### BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?  Yes  No  
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents. **WAIVERS**

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances  Yes  No

Yes  No

39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.

## QUALIFICATIONS

40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.  Yes  No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.  Yes  No

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?

43. Description. (Summarize the nature of the application and the services to be provided). See attached exhibit. DESCRIPTION

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.  A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.  B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.  C

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## CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing  
Jeffrey J. Carlisle

46. Title of Person Signing  
EVP, Public Policy & Regulatory Affairs

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT  
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION  
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).**

## FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERF, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to [PRA@fcc.gov](mailto:PRA@fcc.gov). PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

**RESPONSE TO QUESTIONS 34 and 40:  
OWNERSHIP INFORMATION**

The Communications Act does not restrict foreign ownership of satellite authorization holders that operate on a non-common carrier basis. *See* 47 U.S.C. § 310(b). LightSquared Subsidiary LLC operates MSAT-2 on a non-common carrier basis, consistent with the authority granted by the Commission. *See* Stamp Grant, IBFS File No. SAT-MOD-20141212-00128 (granted May 14, 2015). Nevertheless, due to the requirements of Form 312, LightSquared has provided responses to Questions 29 through 33 on the associated Form 312, and further detail regarding the ownership of LightSquared Subsidiary LLC is set forth below.

LightSquared Subsidiary LLC, the Applicant, is a Delaware limited liability company that is the licensee. LightSquared Subsidiary LLC is a wholly owned subsidiary of New LightSquared LLC, a Delaware limited liability company. New LightSquared LLC manages the overall operations of the LightSquared corporate structure, including LightSquared Subsidiary LLC. LightSquared Subsidiary LLC and New LightSquared LLC can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

New LightSquared LLC is owned and/or controlled, directly and indirectly, by a number of individuals and entities (collectively, the “Investors”) that recently were approved by the Commission. Extensive information about the ownership interests of each of the Investors, including foreign ownership, is on file with the Commission in IB Docket No. 15-126. LightSquared incorporates this information by reference. Notably, the Commission has issued a declaratory ruling under Section 310(b)(4) of the Communications Act, as amended, 47 U.S.C. § 310(b)(4), permitting the aggregate foreign ownership of New LightSquared LLC to exceed the 25 percent limit on foreign ownership that otherwise would be applicable in connection with the

Investors' interests in LightSquared. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 29-30 (rel. Dec. 4, 2015).*

The names and addresses of the managers (who serve the function of directors) and officers of the Applicant are as follows:

**Officers**

Doug Smith – President & CEO

Jeff Carlisle – EVP, Reg Affairs & Public Policy

Elizabeth Creary – VP & Asst. Secretary

Brendan Boughton – VP & Treasurer

Each of these of these officers except Ms. Creary can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

Ms. Creary can be contacted at 1601 Telesat Court, Ottawa, ON K1B 1B9.

**Managers**

Ivan Seidenberg (Chairman)

Doug Smith

Reed Hundt

Jared Hendricks

Drew McKnight

R. Edward Albert

John Fischer

Each of these managers can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

**RESPONSE TO QUESTION 35:**  
**WAIVERS**

The Application requests power limits and out-of-band-emission (“OOBE”) requirements that are different from those set forth in the Commission’s rules. *See* 47 C.F.R. § 25.253. While these limits do not exceed the limits set forth in the rules, out of an abundance of caution, a waiver is requested insofar as operations at the requested power and OOBE levels are inconsistent with the Commission’s rules.

**RESPONSE TO QUESTION 39:  
QUALIFICATIONS**

The Commission, in the context of New LightSquared's applications to assign its licenses to enable its emergence from bankruptcy (the "Emergence Applications"), recently discussed a pending matter relating to JPMorgan Chase & Co. ("JPMorgan"), an entity that was identified as a disclosable interest holder in the Emergence Applications. The Applicant cites this discussion, and the Commission's resolution thereof, out of an abundance of caution. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC*, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 12-18 (rel. Dec. 4, 2015). Please also note that JPMorgan, for purposes of Question 37, is neither "the applicant" nor "a party to this application."

**RESPONSE TO QUESTION 43:  
DESCRIPTION OF PROPOSED MODIFICATION AND  
PUBLIC INTEREST STATEMENT**

As part of a comprehensive solution that would address the concerns of the GPS community, the National Oceanic and Atmospheric Administration (“NOAA”), and the aviation industry and, at the same time, permit deployment of a terrestrial broadband network assisting in the 4G to 5G transition, New LightSquared LLC (“New LightSquared”) hereby seeks to modify its licenses by reducing power limits, limiting out of band emissions, and incorporating appropriate deference to aviation industry and aviation regulatory concerns. These license modification applications (the “Modification Applications”) are both required by, and designed to fulfill the conditions subsequent in, the separate agreements between New LightSquared and Deere & Company<sup>1</sup> (“Deere”) and New LightSquared and Garmin International, Inc.<sup>2</sup> (“Garmin,” and Deere and Garmin together, the “Settling GPS Companies”).<sup>3</sup>

Therefore, pursuant to the Compromise Agreements, New LightSquared hereby abandons its upper 10 MHz downlink band at 1545-1555 MHz and also commits that it will not

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<sup>1</sup> Settlement Agreement and Mutual Release made December 8, 2015, by and among Deere & Company and New LightSquared and LightSquared Subsidiary LLC (the “Deere Agreement”).

<sup>2</sup> Settlement Agreement made December 16, 2015 by and between Garmin International, Inc. and New LightSquared LLC and LightSquared Subsidiary (the “Garmin Agreement” and together with the Deere Agreement, the “Compromise Agreements”).

<sup>3</sup> The Deere Agreement and the Garmin Agreement have already been filed with the Commission in the dockets listed above. *See* New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 8, 2015) (“December 8 Ex Parte”); New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 17, 2015) (“December 17 Ex Parte”). The company has reached a separate cooperation agreement with Trimble, and per its provisions, that agreement is not currently public.

deploy on the bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, 1670-1675 MHz, and 1675-1680 MHz except under the power limits stated in detail below.<sup>4</sup> Further pursuant to the Compromise Agreements, this is the “appropriate filing” and hence is a condition subsequent that New LightSquared must and hereby does fulfill by the instant date.<sup>5</sup>

These modifications also are significant because Deere and Garmin acknowledge that these operational changes mean that those important GPS companies have no objection to New LightSquared deployment in those bands for all devices (except certified aviation, which is discussed and addressed separately below). Specifically, Paragraph 3 of the Deere Agreement stipulates that “Deere, acting as itself or through any third party, will not object to deployment by New LightSquared of a network in the spectrum bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1700 MHz as long as such deployment is consistent with such filings.”<sup>6</sup> Similarly, as long as New LightSquared’s terrestrial deployment plans are consistent with the operational parameters agreed to by the companies in the Garmin Agreement, Garmin agrees not to object to deployment in the spectrum located in the spectrum bands 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1680 MHz.<sup>7</sup> Furthermore, Garmin agrees not to object to

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<sup>4</sup> New LightSquared is withdrawing its previous license modification applications through appropriate filings in IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835. New LightSquared is also submitting a companion letter to the Secretary today regarding the Modification Applications. *See* Letter from Gerard J. Waldron to Marlene Dortch, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 31, 2015), at 1, n. 2 (hereinafter “Comprehensive Proposal”).

<sup>5</sup> *See* Deere Agreement at § 2–8, 11; Garmin Agreement at § 6–9.

<sup>6</sup> *See* Deere Agreement at § 3; Dec. 8, 2015 Ex Parte.

<sup>7</sup> *See* Garmin Agreement at § 10; Dec. 17, 2015 Ex Parte. Both the Deere Agreement and the Garmin Agreement exclude current MSS and Modeo operations in these frequencies. *See* Garmin Agreement at § 6(f)–(g); Deere Agreement at § 17.

New LightSquared's use of the 1526-1536 MHz spectrum up to and including power levels at 32 dBW for Garmin devices that are not Certified Garmin GNSS Aviation Equipment, provided that and upon the condition that LightSquared adheres to all of the requirements of the Garmin Agreement.<sup>8</sup>

Because Deere and Garmin collectively produce equipment in the vast majority of GPS device categories, New LightSquared believes that resolving the concerns of these companies should effectively resolve the concerns of the GPS industry as a whole. Issuance of a public notice on the Modification Applications will invite comment on that proposition, and the company looks forward to engaging with all parts of the GPS industry to review these issues. For its part, New LightSquared believes these significant compromises establish a constructive industry paradigm that gives clarity to all relevant firms and government agencies and in an appropriately open and timely process. New LightSquared expects that a reasonable comment process—such as one involving a 60-day comment period and 30-day reply period—initiated by this filing going on public notice will illustrate that belief. Moreover, because the vast majority of GPS devices in use today are found in smartphones, and because the mobile phone industry has never suggested that LightSquared's operations are not compatible with smartphones, the Commission will have a record after the completion of this process to assess whether this vital mid-band spectrum can be put to its most productive use. New LightSquared firmly believes the record will show that grant of the Applications will serve the public interest by securing the compromises reached in the Compromise Agreements for the Settling GPS Companies and also by giving the benefit of the bargain to all other parts of the GPS community. And with respect to

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<sup>8</sup> With regard to certified aviation receivers, New LightSquared understands the need to continue to work with Garmin, the FAA, and the rest of the aviation community to address any concerns and has committed to doing so. *See* part III.B., *infra*.

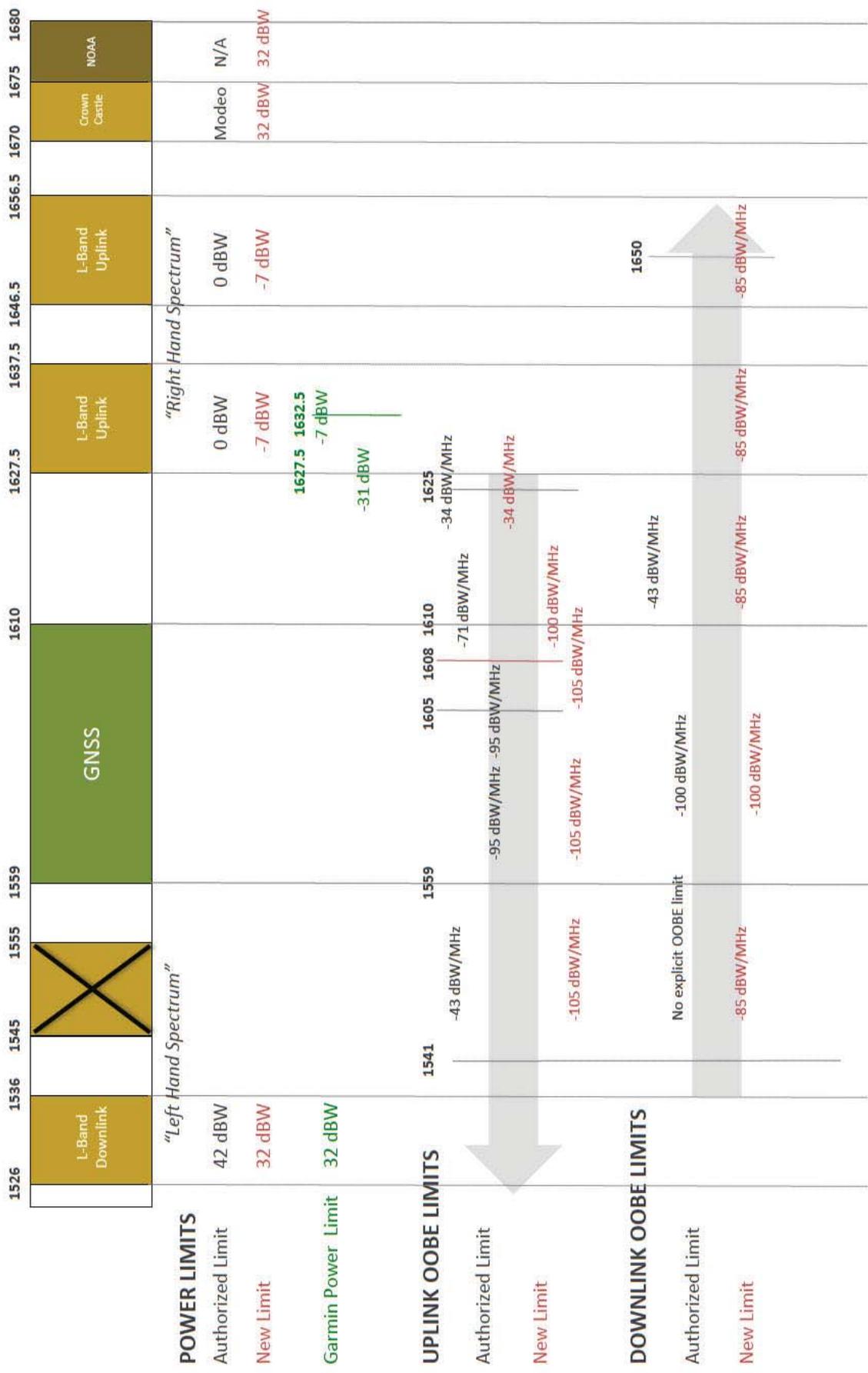
concerns from the aviation community, the Commission can address those concerns by imposing the condition described below regarding compatibility with the Minimum Operational Performance Standards (“MOPS”) and the corresponding Technical Standard Orders developed by the RTCA and FAA.

Equally important from the Commission’s role as spectrum manager, approval of the Modification Applications, coupled with implementation of the reallocation and auction of the 1675-1680 MHz band described below, will provide New LightSquared with the ability to deploy and operate 40 MHz of prime mid-band broadband spectrum and to put to use this vital asset as part of the 4G to 5G transition that will soon commence. In particular, New LightSquared intends to submit the modified technical parameters set forth in these Modification Applications into the 3GPP standardization process in 2016, which will lead to global standards set in Release 14 scheduled for 2017. The modifications proposed by New LightSquared should provide the GPS industry a blueprint for global conduct of its business.

#### **I. NEW LIGHTSQUARED’S PROPOSED LICENSE MODIFICATION**

In these Modification Applications, New LightSquared implements the compromises reached in the Compromise Agreements. This approach will serve the public interest by establishing a path forward for New LightSquared to proceed with building a network and providing service over a commercially viable wireless broadband network. New LightSquared’s proposed license modifications consists of the following mutually-dependent and interrelated elements, illustrated here and explained in detail below.

# Technical Operating Parameters Specified in Coexistence Plans



Note: The Coexistence Plans also include narrowband limits not depicted here.

The proposed license modifications are as follows:

- New LightSquared permanently abandons its authority to conduct terrestrial operations in its upper 10 MHz downlink band at 1545-1555 MHz—the part of New LightSquared’s downlink band that is closest to the GPS band—thus providing GPS receivers an additional 10 MHz guard band from terrestrial services. This relinquishment of the terrestrial component addresses a critical concern of the GPS industry and enables New LightSquared to continue to operate its long-standing satellite business.
- Pursuant to Section 8(b) of the Garmin Agreement and for clarity, New LightSquared stipulates the following: New LightSquared will not utilize frequencies in the 1545-1555 MHz band for any terrestrial base stations and mobile terminals providing radio communication services, offered together with, or separately from, Mobile-Satellite Services (“MSS”), using or re-using frequencies presently assigned for MSS operations, and it will not enter into a spectrum sharing or similar arrangement with a third party that involves services utilizing such spectrum. New LightSquared will permanently abandon use of the frequency band 1545-1555 MHz, and will not enter into such third-party arrangements. New LightSquared will require any successor, assignee, user, or customer with respect to service in the 1545-1555 MHz band to comply with the same commitment to permanently abandon terrestrial use of the 1545-1555 MHz band. This paragraph does not apply to LightSquared’s satellite-to-earth communications, transmitting pursuant to Part 25 of the FCC’s Rules, 47 C.F.R. Part 25.
- New LightSquared would retain authorization to use its two 10 MHz uplink bands at 1627.5-1637.5 and 1646.5-1656.5 MHz for terrestrial operations and optimally match one of them with an alternative downlink channel at 1670-1680 MHz in an operationally-efficient and commercially viable manner.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared requests that the Commission make the following power limit modifications:
  - modify the EIRP limit for the 1646.5-1656.5 band from 0 dBW to -7 dBW;
  - modify the EIRP limit for the 1627.5-1637.5 MHz band from 0 to -7 dBW, *provided that* the 1627.5-1632.5 MHz segment of this band will have an EIRP limit that ramps from -31 dBW to -7 dBW for a period of five years—until January 1, 2021—and then that segment will revert to -7 dBW; and
  - modify the EIRP limit for the 1526-1536 MHz band from 42 dBW to 32 dBW.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared further requests that the Commission make the following Out Of Band Emission (“OOBE”) EIRP limit modifications, and these limits ramp between OOBE values at the stated frequencies.
  - For the uplink:
    - retain a -34 dBW/MHz limit at 1625 MHz;
    - modify the limit at 1610 from -71 dBW/MHz to -100 dBW/MHz, ramping up between the values at 1625 MHz and 1610 MHz;

- implement a -105 dBW/MHz limit at 1608 MHz, ramping up between the values at 1610 MHz and 1608 MHz;
    - modify the limit at 1559-1608 from -95 dBW/MHz to -105 dBW/MHz;
    - modify the limit from 1541-1559 MHz from -43 dBW/MHz<sup>9</sup> to -105 dBW/MHz;
    - modify the limit for narrowband from 1610-1625 MHz to ramp from -110 dBW/700 Hz to -44 dBW/700 Hz;
    - modify the limit for narrowband from 1608-1610 MHz to ramp from -115 dBW/700 Hz to -110 dBW/700 Hz;
    - modify the limit for narrowband from 1559-1608 MHz to -115 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1549 MHz to -132 dBW/2 kHz.
  - For the downlink:
    - implement a -85 dBW/MHz limit for 1610-1650 MHz;
    - retain the -100 dBW/MHz limit from 1559-1610 MHz;
    - implement a -85 dBW/MHz limit from 1541-1559 MHz;
    - modify the limit for narrowband from 1610-1650 MHz to -95 dBW/700 Hz;
    - retain the limit for narrowband from 1559-1610 MHz to -110 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1559 MHz to -112 dBW/2 kHz.
- In recognition of the need to operate in a manner that is compatible with the aviation sector's use of GPS and respects vital safety of life issues, the Commission should require, as a license condition, adherence to the following:
  - In addition to the EIRP limit for the 1526-1536 MHz band described above, the licensee would limit its power as necessary to achieve compatibility with current and any future MOPS insofar as they are incorporated into an active Technical Standard Order by the FAA.
- In lieu of any terrestrial use of the 1545-1555 MHz band, New LightSquared seeks to use a contiguous 10 MHz band at 1670-1680 MHz, which would provide the needed coverage for its terrestrial network. The alternative 10 MHz of downlink spectrum consists of:
  - 1670-1675 MHz, which New LightSquared already has authority to use nationwide by virtue of its leasing arrangement with Crown Castle, and
  - 1675-1680 MHz, which New LightSquared proposes should be reallocated for sharing with certain existing federal government users. In the context of, and contemporaneous with, the instant Modification Application, New LightSquared

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<sup>9</sup> Please note that -43 dBW/MHz is a conductive power limit, and each time -43 dBW/MHz appears in these Modification Applications, it represents a conductive power limit. All other power limits are expressed as EIRP.

in its Comprehensive Proposal is renewing its request for the Commission to reallocate the 1675-1680 MHz band on a shared basis for a commercially useable, terrestrial wireless broadband service, and to auction that spectrum.<sup>10</sup>

Thus, New LightSquared in effect proposes to provide GPS receivers a significant guard band from terrestrial services. The import of these changes is that the Commission can secure these operational restrictions for the entire GPS community and also promote the public interest benefits of a new, robust broadband network. Furthermore, having major GPS manufacturers agreeing to a set of parameters that allow for compatibility of terrestrial broadband and GPS is a major step forward for U.S. leadership in harmonizing terrestrial use of L-band in other countries. International harmonization will also be advanced by the timely incorporation of these limits into the 3GPP process, which will establish the technical foundation for compatible use wherever this service is authorized.

## **II. THE PROPOSED LICENSE MODIFICATION WOULD YIELD SUBSTANTIAL PUBLIC INTEREST BENEFITS**

### **A. The Need for Additional Spectrum for Mobile Broadband Remains as Acute as Ever.**

An urgent and fast-growing need exists for additional spectrum to be made available to support the transition to 5G and to support mobile broadband services more broadly. As CTIA explains, “making additional spectrum available remains critical to meeting consumer demand, promoting economic growth, and enhancing our Nation’s global competitiveness.”<sup>11</sup> CTIA estimates, for instance, that the network traffic generated by a smartphone is 49 times

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<sup>10</sup> See Comprehensive Proposal at 3–4.

<sup>11</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014).

more than a basic handset, and smartphone traffic is predicted to increase 325% by 2018.<sup>12</sup> Furthermore, mobile video traffic has exploded 733% from 24 PB a month in 2010 to 200 PB a month in 2013. Consequently, about 56% of all mobile data is now data-intensive video, which will increase by 600% by 2018.<sup>13</sup> And despite the increase in data use along all sectors, the United States has the least amount of spectrum available per LTE capable device compared to its G7 peers: only 0.65 Hz/LTE capable device. By contrast, Canada provides its citizens with 37 times as much spectrum per person as the U.S. (24.21 Hz/LTE), and Japan provides four times more than the U.S. (2.58 Hz/LTE).<sup>14</sup> The bottom line, as President Obama has explained, is that it is necessary to “make available even more spectrum and create new avenues for wireless innovation.”<sup>15</sup> Jason Furman, Chairman of the President’s Council on Economic Advisors (“CEA”), has stressed that “[t]he fact that increasing demand for this crucial resource is straining the current supply testifies to just how essential spectrum is.”<sup>16</sup>

Mr. Furman has further explained that the stakes for managing spectrum properly are high: “[t]he continued primacy of the United States in this Internet economy . . . depends on

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<sup>12</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014) (“CTIA Ex Parte”) *citing* CISCO, VNI Mobile Forecast Highlights, 2013-2018, *available at* [http://www.cisco.com/assets/sol/sp/vni/forecast\\_highlights\\_mobile/index.html#~Country](http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country) (“CISCO Forecasts”).

<sup>13</sup> CTIA Ex Parte *citing* CISCO Forecasts.

<sup>14</sup> CTIA Ex Parte *citing* Roger Entner, Spectrum Fuels Speed and Prosperity, Recon Analytics, at 7–8 (Sept. 2014).

<sup>15</sup> The White House, Office of the Press Secretary, *Presidential Memorandum -- Expanding America’s Leadership in Wireless Innovation* (June 14, 2013), *available at* <https://www.whitehouse.gov/the-press-office/2013/06/14/presidential-memorandum-expanding-americas-leadership-wireless-innovatio>.

<sup>16</sup> Jason Furman, Chairman, Council of Economic Advisers, Remarks on Public Sector Spectrum Policy, Brookings Institution (Sept. 23, 2014), *available at* [https://www.whitehouse.gov/sites/default/files/docs/remarks\\_on\\_public\\_sector\\_spectrum\\_policy\\_jf.pdf](https://www.whitehouse.gov/sites/default/files/docs/remarks_on_public_sector_spectrum_policy_jf.pdf).

our ability to get spectrum policy right. The United States currently leads the world in 4G wireless internet availability, with nearly half of the global subscriber base residing in the United States, but such a future is uncertain if we do not improve access to and management of the spectrum.”<sup>17</sup> Chairman Wheeler acknowledged the same when he explained the benefits of making more spectrum available: “More spectrum means more speed, capacity and ubiquity of mobile broadband services such as 4G LTE and Wi-Fi networks.”<sup>18</sup>

In sum, the need for additional spectrum for mobile broadband services remains more pressing today than ever. In this regard, the Commission and NTIA have an obligation to explore every possible solution not to abandon use of L-band for terrestrial broadband and to seek to reap the significant public interest benefits of New LightSquared’s mobile broadband network.

**B. To Protect the Aviation Sector, New LightSquared Requests that the Commission Impose a License Condition Related to FAA/RTCA MOPS.**

New LightSquared recognizes the paramount importance of safety issues related to certified aviation GPS receivers. Because aviation GPS receiver certification and operational standards have an existing, well-established, and robust process, and because New LightSquared’s work with the aviation community and that process is ongoing, New LightSquared requests that the Commission impose a license condition with reference to current and any future FAA/RTCA standards. The Garmin agreement specifically excludes certified aviation receivers, thus leaving that issue open. To address the concerns of Garmin—a very

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<sup>17</sup> *Id.*

<sup>18</sup> Testimony of Tom Wheeler, Chairman, Fed. Comm’n. Comm’n., Hearing on the FCC’s Fiscal 2015 Budget Request Before the Subcomm. on Fin. Services and Gen. Gov’t, Comm. on Appropriations, U.S. House of Representatives, at 1 (Mar. 25, 2014) (“Wheeler Testimony”), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-326246A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-326246A1.pdf).

significant aviation GPS manufacturer—as well as those of other important stakeholders, New LightSquared proposes that its license be conditioned on power limitation requirements for the 1526-1536 MHz band necessary to achieve compatibility with current and future MOPS that are incorporated into an active Technical Standard Order from the FAA.

This license modification serves two complementary purposes. First, it enables the Commission, as the essential license regulator, to perform its vital role and ensure safety of life issues are addressed by imposing a condition on the license to achieve compatibility with FAA/RTCA standards. In other contexts, the Commission has incorporated by reference standards developed elsewhere, and required further coordination with parties rather than establishing specific compatibility requirements.<sup>19</sup> Aviation provides a similar compatibility scenario, and the Commission should do the same here.

Second, the proposed license modification recognizes that the FAA and RTCA have core competencies in this field and a long and well-established multi-stakeholder consultation process to address the specific types of issues presented here. LightSquared has long participated in that process, and it commits to continuing to work with the FAA, the RTCA, and the rest of the aviation community to address any concerns and ensure that its operations are compatible with existing and future standards. This process would assess aviation-specific use cases and the maximum New LightSquared EIRP that would be consistent with the interference tolerance mask that exists for certified aviation equipment under the RTCA DO-229D and related MOPS, both current and future, that are incorporated into an active Technical Standard Order from the FAA. Because much of the necessary modeling has previously been constructed by the FAA and

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<sup>19</sup> See, e.g., 47 C.F.R. § 25.253(c) and (f), which require further coordination—rather than up-front resolution of compatibility concerns—with respect to commercial mobile radio services providers, search and rescue satellite service, and aviation maintenance technology.

aviation stakeholders, New LightSquared believes that with a concerted and cooperative effort, the necessary assessments could be completed in a timely manner.

The advantage from the Commission’s perspective of this approach is that it is both self-executing and “evergreen.” It is self-executing in that the Commission can impose this license condition at any time, and whenever the FAA/RTCA adopts or amends such a requirement, that obligation immediately falls upon the company. It is “evergreen” in that if ever the FAA/RTCA should alter its requirement, then that new obligation becomes binding on the company as an FCC licensee, without need for a Commission action. Finally, the FCC can—and should—participate in the FAA/RTCA process, as appropriate, in order to further the FCC’s core competencies and interests, including promoting broadband deployment.

**C. Considerable Public Interest Benefits Would Be Realized by Deployment of New LightSquared’s Network.**

Chairman Wheeler has stressed the importance of striking a “fair balance that serves the greater public interest” in matters related to spectrum management.<sup>20</sup> By granting this Modification Application, the Commission would be effectuating such a balance and allowing New LightSquared to deploy a mobile broadband network that will offer substantial public interest benefits. These benefits were recognized and relied upon by the Commission when it initially considered New LightSquared’s plan for a mobile broadband network using MSS L-band spectrum.<sup>21</sup> The Commission, however, has also stated that public interest benefits are

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<sup>20</sup> Tom Wheeler, *Crafting Balanced Incentive Auction Rules in the Public Interest*, Fed. Commc’n. Comm’n. Blog (June 17, 2015), available at <https://www.fcc.gov/news-events/blog/2015/06/17/crafting-balanced-incentive-auction-rules-public-interest>.

<sup>21</sup> See *In Re Flexibility for Delivery of Commc’ns by Mobile Satellite Serv. Providers*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd. 1962, 1974 (2003).

“dependent on ... [New LightSquared’s] actually moving forward with its plan.”<sup>22</sup> Since that time, despite its best efforts, New LightSquared has been delayed in implementing its plan because of concerns about the compatibility between New LightSquared’s terrestrial base stations and GPS receivers. New LightSquared diligently worked with the GPS industry to reach a successful resolution to those concerns, and New LightSquared still is in the best position among any potential new broadband network operator to bring the benefits of a robust network to the public in the near- and mid-term.

In this Modification Application, New LightSquared has offered a comprehensive solution to the GPS issue and a way to proceed with deployment of its broadband network. The solution involves modifying the power and OOB limits of New LightSquared’s licenses to be consistent with the terms of the various settlement agreements with the Settling GPS Companies, permanently abandoning New LightSquared’s right to deploy terrestrial downlink operations at 1545-1555 MHz, and permanently relocating those terrestrial operations instead to 1670-1680 MHz. Without this relocation, New LightSquared would not be able to deploy its broadband network and the substantial promise of that network would be lost. Conversely, a grant of the Modification Application would: (i) effectuate the carefully negotiated settlement agreements with the Settling GPS Companies and advance long-term protection for the GPS industry, (ii) recognize the vital issues surrounding aviation and setting forth a license condition to address that concern, (iii) devote acceptable portions of the MSS L-band to broadband terrestrial use in accordance with the national broadband plan, (iv) develop a new, robust mobile broadband

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<sup>22</sup> *In the Matter of Skyterra Commc’ns, Inc.*, Memorandum Opinion and Order and Declaratory Ruling, 25 FCC Rcd. 3059, 3088 (2010).

network, and (v) facilitate a private sector frequency coordination arrangement with federal users that is supported by the extensive precedents of non-federal/federal spectrum use, and offers a unique opportunity to advance the public interest on many fronts.

**D. THE COMMISSION HAS AMPLE PRECEDENT FOR ADOPTING THE PROPOSAL SUBMITTED HEREIN**

On numerous occasions, the Commission has effectuated creative problem solving solutions to manage spectrum interference concerns. In making the 800 MHz band viable for services that would greatly benefit the public, the Commission undertook an extended effort to rationalize that spectrum by reconfiguring the 800 MHz band to resolve interference issues resulting from the differing uses of the interleaved channels in the band.<sup>23</sup> It bears emphasis that in recognition of the “public interest benefit derived from robust and reliable public safety communications,” as well as the spectrum rights surrendered by Nextel in the 800 MHz Band, the Commission provided Nextel with spectrum in the 1.9 GHz Band.<sup>24</sup> Another example comes from the Commission’s relocation of the Digital Electronic Messaging Service (“DEMS”) from the 18 GHz Band to the 24 GHz band, based on national security concerns.<sup>25</sup> In that case, the Commission acted at the request of NTIA, in order to address Department of Defense concerns regarding potential interference from DEMS into military satellite earth stations in Denver and Washington, D.C. operating in the 18 GHz Band. By relocating DEMS to the 24 GHz band and providing DEMS access to twice the amount of spectrum originally

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<sup>23</sup> See *Improving Public Safety Communications in the 800 MHz Band*, 19 FCC Rcd. 14969 (2004).

<sup>24</sup> *Id.* at ¶ 5.

<sup>25</sup> See *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); *aff’d*, 13 FCC Rcd. 15147 (1998).

licensed, the Commission resolved these concerns, as well as concerns about the sharing of the 18 GHz Band with commercial satellite services.<sup>26</sup>

In short, the proposals contained in these Modification Applications and the Comprehensive Proposal present the Commission with a solution that substantially advances its goal of making more broadband spectrum available, thus advancing public interest benefits, and at the same time securing specific protections for private interests that also serve the public interest. The modifications proposed herein offer the Commission a heightened assurance of effectiveness because they reflect an engineering-based solution reached after months of deliberative, good-faith negotiations regarding compatibility concerns.

### **III. GRANT OF THE LICENSE MODIFICATION SHOULD BE COUPLED WITH REALLOCATION OF 1675-1680 MHz TO SHARED USE, FOLLOWED BY AN AUCTION**

#### **A. The 1675-1680 MHz Band Is an Ideal Band to Serve as New LightSquared's Alternate Downlink Spectrum.**

New LightSquared's proposal to provide GPS receivers an immediate, additional 10 MHz guard band from terrestrial services by abandoning all terrestrial authority for the upper 10 MHz downlink band at 1545-1555 MHz means that New LightSquared's network cannot be deployed now without access to alternative downlink spectrum that is compatible with New LightSquared's two L-band uplink bands at 1627.5-1637.5 MHz and 1646.5-1656.5 MHz. To fill this immediate need and, therefore, to enable the deployment of an operational terrestrial broadband network, New LightSquared proposes to reallocate the 1675-1680 MHz band to shared use with federal government users in a commercially and technically viable manner, and

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<sup>26</sup> In doing so, the Commission invoked the "military function" exception to the Administrative Procedures Act, facilitating Commission action within approximately two months and without notice and comment procedures. *See* 5 U.S.C. § 553(a)(1).

then to auction that band with appropriate bidding credits. If successful at auction, New LightSquared would use this 5 MHz along with New LightSquared's currently-leased spectrum in the 1670-1675 MHz band to create a contiguous 10 MHz downlink channel for terrestrial wireless broadband services.<sup>27</sup>

Given its present use of the 1670-1675 MHz band, New LightSquared has extensive experience coordinating the adjacent 5 MHz band with the federal government. The company has used this experience to build out a record that the Commission can use to move forward with a Notice of Proposed Rulemaking on this band.<sup>28</sup> New LightSquared remains ready to work with NTIA in establishing the operating parameters and safeguards that will be built into the service rules and license conditions to ensure its interests are protected.

**B. The Commission's and NTIA's Rules and Precedents Permit the Commission to Authorize Non-Federal Use of the 1675-1680 MHz Band.**

New LightSquared's proposal to reallocate spectrum currently used by federal agencies to shared use is well supported by prior precedents. Over the years, the Commission and NTIA have cooperated in applying their respective public interest mandates to foster sound spectrum management and inject flexibility into the division of the radio spectrum between federal users and non-federal users. The most recent example is the Commission's effort that freed up substantial spectrum in connection with the successful AWS-3 auction. Other examples include the use by non-federal law enforcement agencies of a primary federal frequency for

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<sup>27</sup> New LightSquared currently is authorized to operate at 1670-1675 MHz by virtue of a leasing agreement through One Dot Six Corp. to which the Commission has consented. *See* ULS Lease ID L000007295.

<sup>28</sup> *See* Comprehensive Proposal at 3-4.

stolen vehicle recovery,<sup>29</sup> a commercial satellite operator to use federal frequencies to provide satellite service to the Navy,<sup>30</sup> an energy exploration company to timeshare NASA satellite capacity to provide commercial satellite service,<sup>31</sup> and commercial digital message providers to use federal spectrum as a substitute for originally-licensed spectrum that could not be used because of potential interference to government stations.<sup>32</sup> In each instance, the Commission and NTIA found that such flexible and innovative spectrum management initiatives served important national goals that could be served in no practical way other than by cooperating to give private parties access to spectrum that either was used exclusively or primarily by federal agencies.

The reallocation of 1675-1680 MHz that New LightSquared seeks is supported by these precedents and is well within the authority of the Commission and NTIA to provide. Given concerns about GPS compatibility with use of New LightSquared's licensed L-band downlink, obtaining access to 1675-1680 MHz is an efficient solution that would allow New

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<sup>29</sup> *Amendment of Parts 2 and 90 of the Commission's Rules to Provide for Stolen Vehicle Recovery Systems*, 3 FCC Rcd. 7195 (1988) (frequency initially allocated exclusively for federal use re-allocated on a shared basis between federal and non-federal users for the purposes of stolen vehicle monitoring and recovery use).

<sup>30</sup> *Hughes Communications Services, Inc.*, FCC 79-809 (rel. Dec. 10, 1979) (authorizing construction of LEASAT satellite system on federal frequencies).

<sup>31</sup> *In the Matter of Modification Application of SpaceData International LLC; For Authority to Operate on a Time Share Basis NASA's Tracking and Data Relay Satellite System*, 16 FCC Rcd. 9266 (Chief IB 2001) (authorizing use of federal TDRSS spectrum for searching for oil and gas deposits on ocean floor).

<sup>32</sup> *See 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) (federal spectrum made available for DEMS to substitute for originally assigned spectrum that could not be used because of potential interference to government stations).

LightSquared to deploy its broadband network in a manner that already has been found to be in the public interest.

#### **IV. NEW LIGHTSQUARED SEEKS TO PAIR ITS TWO UPLINK BANDS WITH THE NEW DOWNLINK BAND IN AN OPERATIONALLY-EFFICIENT AND COMMERCIALY VIABLE MANNER**

New LightSquared's proposals in this Modification Application regarding terrestrial use of the L-band would leave it unable ever to use the 1545-1555 MHz band downlink band for terrestrial operations. Accordingly, New LightSquared seeks appropriate authorization to pair either of its two uplink bands at 1627.5-1637.5 MHz and 1646.5 MHz-1656.5 MHz with the 1670-1680 MHz downlink channel proposed herein in an operationally efficient and commercially viable manner. Moreover, New LightSquared recognizes that the Commission may want to address this issue in the context of a Notice of Proposed Rulemaking on the 1675-1680 MHz band. For these reasons, New LightSquared respectfully requests such appropriate adjustments and further authorizations with regard to the Commission's rules as may be needed to facilitate the prompt processing and grant of this Modification Application.

#### **V. CONCLUSION**

New LightSquared's proposed license modification and its corresponding relinquishment of terrestrial rights for the 1545-1555 MHz band present the Commission with a constructive and comprehensive approach to resolve the issues that, to date, have precluded the deployment of its terrestrial network. New LightSquared remains committed to fulfilling the Commission's vision of providing a robust wireless broadband capability to the American consumer that can enhance the transition from 4G to 5G. With the Commission's granting of this Modification Application, New LightSquared could achieve this goal in a manner that directly implements the resolutions it has reached with the GPS industry regarding compatibility concerns.

Date & Time Filed: Dec 31 2015 5:41:27:473PM  
File Number: SES-MOD-INTR2015-02526

<b>FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM</b>	<b>FCC Use Only</b>
<b>FCC 312 MAIN FORM FOR OFFICIAL USE ONLY</b>	

### APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:  
Application for Modification (E980179)

1-8. Legal Name of Applicant			
Name:	LightSquared Subsidiary LLC	Phone Number:	703-390-2001
DBA Name:		Fax Number:	703-390-2770
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City:	Reston	State:	VA
Country:	USA	Zipcode:	20191 -
Attention:	Mr Jeffrey J. Carlisle		

9-16. Name of Contact Representative			
Name:	Gerard J. Waldron	Phone Number:	2026625360
Company:	Covington & Burling LLP	Fax Number:	2027785360
Street:	One CityCenter 850 Tenth Street, NW	E-Mail:	gwaldron@cov.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20001-
Attention:	Gerard J. Waldron	Relationship:	Legal Counsel

### CLASSIFICATION OF FILING

<p>17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.</p> <p><input checked="" type="radio"/> a1. Earth Station <input type="radio"/> a2. Space Station</p>	<p>(N/A) b1. Application for License of New Station (N/A) b2. Application for Registration of New Domestic Receive-Only Station <input type="radio"/> b3. Amendment to a Pending Application <input checked="" type="radio"/> b4. Modification of License or Registration b5. Assignment of License or Registration b6. Transfer of Control of License or Registration <input type="radio"/> b7. Notification of Minor Modification (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States (N/A) b10. Other (Please specify) (N/A) b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.</p>
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<p>17c. Is a fee submitted with this application?</p> <p><input checked="" type="radio"/> If Yes, complete and attach FCC Form 159.</p> <p>If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).</p> <p><input type="radio"/> Governmental Entity   <input type="radio"/> Noncommercial educational licensee</p>
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Other(please explain):

17d.

Fee Classification CGB - Mobile Satellite Earth Stations

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:  
E980179

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:

(a) Date pending application was filed: (b) File number:

SESMFS2015060500325

#### TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- a. Fixed Satellite  
 b. Mobile Satellite  
 c. Radiodetermination Satellite  
 d. Earth Exploration Satellite  
 e. Direct to Home Fixed Satellite  
 f. Digital Audio Radio Service  
 g. Other (please specify)

ATC

21. STATUS: Choose the button next to the applicable status. Choose only one.

Common Carrier  Non-Common Carrier

22. If earth station applicant, check all that apply.

- Using U.S. licensed satellites  
 Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

Connected to a Public Switched Network  Not connected to a Public Switched Network  N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- a. C-Band (4/6 GHz)  b. Ku-Band (12/14 GHz)  
 c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 1525 Frequency Upper: 1680 (Please specify additional frequencies in an attachment)

#### TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station  
 b. Temporary-Fixed Earth Station  
 c. 12/14 GHz VSAT Network  
 d. Mobile Earth Station  
 e. Geostationary Space Station  
 f. Non-Geostationary Space Station  
 g. Other (please specify) ATC

26. TYPE OF EARTH STATION FACILITY:

Transmit/Receive  Transmit-Only  Receive-Only  N/A

"For Space Station applications, select N/A."

#### PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service  
 b -- authorization to change emission designator and related service  
 c -- authorization to increase EIRP and EIRP density

- d -- authorization to replace antenna
- e -- authorization to add antenna
- f -- authorization to relocate fixed station
- g -- authorization to change frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

### ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.  Yes  No

**ALIEN OWNERSHIP** Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?  Yes  No

30. Is the applicant an alien or the representative of an alien?  Yes  No  N/A

31. Is the applicant a corporation organized under the laws of any foreign government?  Yes  No  N/A

32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?  Yes  No  N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote. **OWNERSHIP**

### BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?  Yes  No  
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents. **WAIVERS**

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.  Yes  No

38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances  Yes  No

Yes  No

39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.

**QUALIFICATIONS**

40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.  Yes  No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.  Yes  No

**Non-U.S. Satellite**

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? **Canada**

**43. Description. (Summarize the nature of the application and the services to be provided). See attached exhibit. DESCRIPTION**

43a. Geographic Service Rule Certification  
By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.  A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.  B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.  C

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**CERTIFICATION**

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing  
Jeffrey J. Carlisle

46. Title of Person Signing  
EVP, Public Policy & Regulatory Affairs

**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).**

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FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERF, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

**RESPONSE TO QUESTIONS 34 and 40:  
OWNERSHIP INFORMATION**

The Communications Act does not restrict foreign ownership of satellite authorization holders that operate on a non-common carrier basis. *See* 47 U.S.C. § 310(b). LightSquared Subsidiary LLC operates MSAT-2 on a non-common carrier basis, consistent with the authority granted by the Commission. *See* Stamp Grant, IBFS File No. SAT-MOD-20141212-00128 (granted May 14, 2015). Nevertheless, due to the requirements of Form 312, LightSquared has provided responses to Questions 29 through 33 on the associated Form 312, and further detail regarding the ownership of LightSquared Subsidiary LLC is set forth below.

LightSquared Subsidiary LLC, the Applicant, is a Delaware limited liability company that is the licensee. LightSquared Subsidiary LLC is a wholly owned subsidiary of New LightSquared LLC, a Delaware limited liability company. New LightSquared LLC manages the overall operations of the LightSquared corporate structure, including LightSquared Subsidiary LLC. LightSquared Subsidiary LLC and New LightSquared LLC can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

New LightSquared LLC is owned and/or controlled, directly and indirectly, by a number of individuals and entities (collectively, the “Investors”) that recently were approved by the Commission. Extensive information about the ownership interests of each of the Investors, including foreign ownership, is on file with the Commission in IB Docket No. 15-126. LightSquared incorporates this information by reference. Notably, the Commission has issued a declaratory ruling under Section 310(b)(4) of the Communications Act, as amended, 47 U.S.C. § 310(b)(4), permitting the aggregate foreign ownership of New LightSquared LLC to exceed the 25 percent limit on foreign ownership that otherwise would be applicable in connection with the

Investors' interests in LightSquared. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 29-30 (rel. Dec. 4, 2015).*

The names and addresses of the managers (who serve the function of directors) and officers of the Applicant are as follows:

**Officers**

Doug Smith – President & CEO

Jeff Carlisle – EVP, Reg Affairs & Public Policy

Elizabeth Creary – VP & Asst. Secretary

Brendan Boughton – VP & Treasurer

Each of these of these officers except Ms. Creary can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

Ms. Creary can be contacted at 1601 Telesat Court, Ottawa, ON K1B 1B9.

**Managers**

Ivan Seidenberg (Chairman)

Doug Smith

Reed Hundt

Jared Hendricks

Drew McKnight

R. Edward Albert

John Fischer

Each of these managers can be contacted care of LightSquared Subsidiary LLC at 10802 Parkridge Blvd, Reston, VA 20191.

**RESPONSE TO QUESTION 35:**  
**WAIVERS**

The Application requests power limits and out-of-band-emission (“OOBE”) requirements that are different from those set forth in the Commission’s rules. *See* 47 C.F.R. § 25.253. While these limits do not exceed the limits set forth in the rules, out of an abundance of caution, a waiver is requested insofar as operations at the requested power and OOBE levels are inconsistent with the Commission’s rules.

**RESPONSE TO QUESTION 39:  
QUALIFICATIONS**

The Commission, in the context of New LightSquared's applications to assign its licenses to enable its emergence from bankruptcy (the "Emergence Applications"), recently discussed a pending matter relating to JPMorgan Chase & Co. ("JPMorgan"), an entity that was identified as a disclosable interest holder in the Emergence Applications. The Applicant cites this discussion, and the Commission's resolution thereof, out of an abundance of caution. *See Applications of LightSquared Sub. LLC, DIP, & LightSquared Sub. LLC*, Mem. Op. & Order and Declaratory Ruling, IB Docket No. 15-126, FCC 15-164, at ¶¶ 12-18 (rel. Dec. 4, 2015). Please also note that JPMorgan, for purposes of Question 37, is neither "the applicant" nor "a party to this application."

**Communications with a Non-U.S. Satellite**  
**Response to Question 42**

The Commission has authorized LightSquared Subsidiary LLC (“LightSquared”) to provide MSS in the United States via a Canadian-licensed satellite, MSAT-1. *See Applications of SatCOM Systems, Inc. et al.*, Order and Authorization, 14 FCC Rcd 20798 (1999). This application does not alter any of the information previously submitted pursuant to 47 C.F.R. § 25.137 and in response to Question 42.

**RESPONSE TO QUESTION 43:  
DESCRIPTION OF PROPOSED MODIFICATION AND  
PUBLIC INTEREST STATEMENT**

As part of a comprehensive solution that would address the concerns of the GPS community, the National Oceanic and Atmospheric Administration (“NOAA”), and the aviation industry and, at the same time, permit deployment of a terrestrial broadband network assisting in the 4G to 5G transition, New LightSquared LLC (“New LightSquared”) hereby seeks to modify its licenses by reducing power limits, limiting out of band emissions, and incorporating appropriate deference to aviation industry and aviation regulatory concerns. These license modification applications (the “Modification Applications”) are both required by, and designed to fulfill the conditions subsequent in, the separate agreements between New LightSquared and Deere & Company<sup>1</sup> (“Deere”) and New LightSquared and Garmin International, Inc.<sup>2</sup> (“Garmin,” and Deere and Garmin together, the “Settling GPS Companies”).<sup>3</sup>

Therefore, pursuant to the Compromise Agreements, New LightSquared hereby abandons its upper 10 MHz downlink band at 1545-1555 MHz and also commits that it will not

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<sup>1</sup> Settlement Agreement and Mutual Release made December 8, 2015, by and among Deere & Company and New LightSquared and LightSquared Subsidiary LLC (the “Deere Agreement”).

<sup>2</sup> Settlement Agreement made December 16, 2015 by and between Garmin International, Inc. and New LightSquared LLC and LightSquared Subsidiary (the “Garmin Agreement” and together with the Deere Agreement, the “Compromise Agreements”).

<sup>3</sup> The Deere Agreement and the Garmin Agreement have already been filed with the Commission in the dockets listed above. *See* New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 8, 2015) (“December 8 Ex Parte”); New LightSquared, Ex Parte Presentation, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 17, 2015) (“December 17 Ex Parte”). The company has reached a separate cooperation agreement with Trimble, and per its provisions, that agreement is not currently public.

deploy on the bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, 1670-1675 MHz, and 1675-1680 MHz except under the power limits stated in detail below.<sup>4</sup> Further pursuant to the Compromise Agreements, this is the “appropriate filing” and hence is a condition subsequent that New LightSquared must and hereby does fulfill by the instant date.<sup>5</sup>

These modifications also are significant because Deere and Garmin acknowledge that these operational changes mean that those important GPS companies have no objection to New LightSquared deployment in those bands for all devices (except certified aviation, which is discussed and addressed separately below). Specifically, Paragraph 3 of the Deere Agreement stipulates that “Deere, acting as itself or through any third party, will not object to deployment by New LightSquared of a network in the spectrum bands 1526-1536 MHz, 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1700 MHz as long as such deployment is consistent with such filings.”<sup>6</sup> Similarly, as long as New LightSquared’s terrestrial deployment plans are consistent with the operational parameters agreed to by the companies in the Garmin Agreement, Garmin agrees not to object to deployment in the spectrum located in the spectrum bands 1627.5-1637.5 MHz, 1646.5-1656.5 MHz, and 1670-1680 MHz.<sup>7</sup> Furthermore, Garmin agrees not to object to

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<sup>4</sup> New LightSquared is withdrawing its previous license modification applications through appropriate filings in IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835. New LightSquared is also submitting a companion letter to the Secretary today regarding the Modification Applications. *See* Letter from Gerard J. Waldron to Marlene Dortch, IB Docket No. 12-340; IB Docket No. 11-109; IBFS File Nos. SAT-MOD-20101118-00239; SAT-MOD-20120928-00160; SAT-MOD-20120928-00161; SES-MOD-20121001-00872; SES-RWL-20110908-01047; SES-MOD-20141030-00835 (Dec. 31, 2015), at 1, n. 2 (hereinafter “Comprehensive Proposal”).

<sup>5</sup> *See* Deere Agreement at § 2–8, 11; Garmin Agreement at § 6–9.

<sup>6</sup> *See* Deere Agreement at § 3; Dec. 8, 2015 Ex Parte.

<sup>7</sup> *See* Garmin Agreement at § 10; Dec. 17, 2015 Ex Parte. Both the Deere Agreement and the Garmin Agreement exclude current MSS and Modeo operations in these frequencies. *See* Garmin Agreement at § 6(f)–(g); Deere Agreement at § 17.

New LightSquared's use of the 1526-1536 MHz spectrum up to and including power levels at 32 dBW for Garmin devices that are not Certified Garmin GNSS Aviation Equipment, provided that and upon the condition that LightSquared adheres to all of the requirements of the Garmin Agreement.<sup>8</sup>

Because Deere and Garmin collectively produce equipment in the vast majority of GPS device categories, New LightSquared believes that resolving the concerns of these companies should effectively resolve the concerns of the GPS industry as a whole. Issuance of a public notice on the Modification Applications will invite comment on that proposition, and the company looks forward to engaging with all parts of the GPS industry to review these issues. For its part, New LightSquared believes these significant compromises establish a constructive industry paradigm that gives clarity to all relevant firms and government agencies and in an appropriately open and timely process. New LightSquared expects that a reasonable comment process—such as one involving a 60-day comment period and 30-day reply period—initiated by this filing going on public notice will illustrate that belief. Moreover, because the vast majority of GPS devices in use today are found in smartphones, and because the mobile phone industry has never suggested that LightSquared's operations are not compatible with smartphones, the Commission will have a record after the completion of this process to assess whether this vital mid-band spectrum can be put to its most productive use. New LightSquared firmly believes the record will show that grant of the Applications will serve the public interest by securing the compromises reached in the Compromise Agreements for the Settling GPS Companies and also by giving the benefit of the bargain to all other parts of the GPS community. And with respect to

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<sup>8</sup> With regard to certified aviation receivers, New LightSquared understands the need to continue to work with Garmin, the FAA, and the rest of the aviation community to address any concerns and has committed to doing so. *See* part III.B., *infra*.

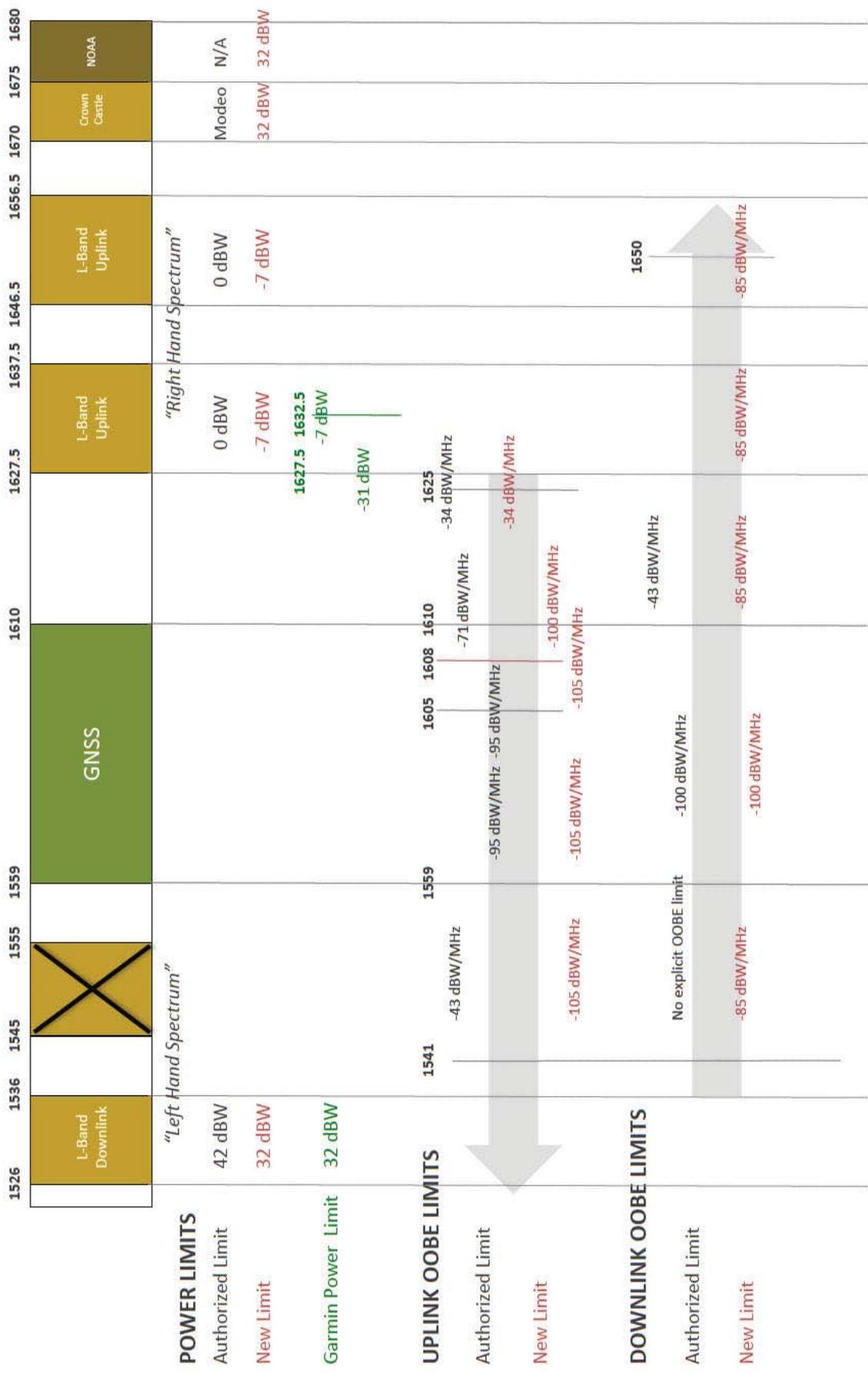
concerns from the aviation community, the Commission can address those concerns by imposing the condition described below regarding compatibility with the Minimum Operational Performance Standards (“MOPS”) and the corresponding Technical Standard Orders developed by the RTCA and FAA.

Equally important from the Commission’s role as spectrum manager, approval of the Modification Applications, coupled with implementation of the reallocation and auction of the 1675-1680 MHz band described below, will provide New LightSquared with the ability to deploy and operate 40 MHz of prime mid-band broadband spectrum and to put to use this vital asset as part of the 4G to 5G transition that will soon commence. In particular, New LightSquared intends to submit the modified technical parameters set forth in these Modification Applications into the 3GPP standardization process in 2016, which will lead to global standards set in Release 14 scheduled for 2017. The modifications proposed by New LightSquared should provide the GPS industry a blueprint for global conduct of its business.

#### **I. NEW LIGHTSQUARED’S PROPOSED LICENSE MODIFICATION**

In these Modification Applications, New LightSquared implements the compromises reached in the Compromise Agreements. This approach will serve the public interest by establishing a path forward for New LightSquared to proceed with building a network and providing service over a commercially viable wireless broadband network. New LightSquared’s proposed license modifications consists of the following mutually-dependent and interrelated elements, illustrated here and explained in detail below.

# Technical Operating Parameters Specified in Coexistence Plans



Note: The Coexistence Plans also include narrowband limits not depicted here.

The proposed license modifications are as follows:

- New LightSquared permanently abandons its authority to conduct terrestrial operations in its upper 10 MHz downlink band at 1545-1555 MHz—the part of New LightSquared’s downlink band that is closest to the GPS band—thus providing GPS receivers an additional 10 MHz guard band from terrestrial services. This relinquishment of the terrestrial component addresses a critical concern of the GPS industry and enables New LightSquared to continue to operate its long-standing satellite business.
- Pursuant to Section 8(b) of the Garmin Agreement and for clarity, New LightSquared stipulates the following: New LightSquared will not utilize frequencies in the 1545-1555 MHz band for any terrestrial base stations and mobile terminals providing radio communication services, offered together with, or separately from, Mobile-Satellite Services (“MSS”), using or re-using frequencies presently assigned for MSS operations, and it will not enter into a spectrum sharing or similar arrangement with a third party that involves services utilizing such spectrum. New LightSquared will permanently abandon use of the frequency band 1545-1555 MHz, and will not enter into such third-party arrangements. New LightSquared will require any successor, assignee, user, or customer with respect to service in the 1545-1555 MHz band to comply with the same commitment to permanently abandon terrestrial use of the 1545-1555 MHz band. This paragraph does not apply to LightSquared’s satellite-to-earth communications, transmitting pursuant to Part 25 of the FCC’s Rules, 47 C.F.R. Part 25.
- New LightSquared would retain authorization to use its two 10 MHz uplink bands at 1627.5-1637.5 and 1646.5-1656.5 MHz for terrestrial operations and optimally match one of them with an alternative downlink channel at 1670-1680 MHz in an operationally-efficient and commercially viable manner.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared requests that the Commission make the following power limit modifications:
  - modify the EIRP limit for the 1646.5-1656.5 band from 0 dBW to -7 dBW;
  - modify the EIRP limit for the 1627.5-1637.5 MHz band from 0 to -7 dBW, *provided that* the 1627.5-1632.5 MHz segment of this band will have an EIRP limit that ramps from -31 dBW to -7 dBW for a period of five years—until January 1, 2021—and then that segment will revert to -7 dBW; and
  - modify the EIRP limit for the 1526-1536 MHz band from 42 dBW to 32 dBW.
- To fulfill conditions subsequent in the Compromise Agreements, and to secure those benefits for the entire GPS industry, New LightSquared further requests that the Commission make the following Out Of Band Emission (“OOBE”) EIRP limit modifications, and these limits ramp between OOBE values at the stated frequencies.
  - For the uplink:
    - retain a -34 dBW/MHz limit at 1625 MHz;
    - modify the limit at 1610 from -71 dBW/MHz to -100 dBW/MHz, ramping up between the values at 1625 MHz and 1610 MHz;

- implement a -105 dBW/MHz limit at 1608 MHz, ramping up between the values at 1610 MHz and 1608 MHz;
    - modify the limit at 1559-1608 from -95 dBW/MHz to -105 dBW/MHz;
    - modify the limit from 1541-1559 MHz from -43 dBW/MHz<sup>9</sup> to -105 dBW/MHz;
    - modify the limit for narrowband from 1610-1625 MHz to ramp from -110 dBW/700 Hz to -44 dBW/700 Hz;
    - modify the limit for narrowband from 1608-1610 MHz to ramp from -115 dBW/700 Hz to -110 dBW/700 Hz;
    - modify the limit for narrowband from 1559-1608 MHz to -115 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1549 MHz to -132 dBW/2 kHz.
  - For the downlink:
    - implement a -85 dBW/MHz limit for 1610-1650 MHz;
    - retain the -100 dBW/MHz limit from 1559-1610 MHz;
    - implement a -85 dBW/MHz limit from 1541-1559 MHz;
    - modify the limit for narrowband from 1610-1650 MHz to -95 dBW/700 Hz;
    - retain the limit for narrowband from 1559-1610 MHz to -110 dBW/700 Hz; and
    - modify the limit for narrowband from 1541-1559 MHz to -112 dBW/2 kHz.
- In recognition of the need to operate in a manner that is compatible with the aviation sector's use of GPS and respects vital safety of life issues, the Commission should require, as a license condition, adherence to the following:
  - In addition to the EIRP limit for the 1526-1536 MHz band described above, the licensee would limit its power as necessary to achieve compatibility with current and any future MOPS insofar as they are incorporated into an active Technical Standard Order by the FAA.
- In lieu of any terrestrial use of the 1545-1555 MHz band, New LightSquared seeks to use a contiguous 10 MHz band at 1670-1680 MHz, which would provide the needed coverage for its terrestrial network. The alternative 10 MHz of downlink spectrum consists of:
  - 1670-1675 MHz, which New LightSquared already has authority to use nationwide by virtue of its leasing arrangement with Crown Castle, and
  - 1675-1680 MHz, which New LightSquared proposes should be reallocated for sharing with certain existing federal government users. In the context of, and contemporaneous with, the instant Modification Application, New LightSquared

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<sup>9</sup> Please note that -43 dBW/MHz is a conductive power limit, and each time -43 dBW/MHz appears in these Modification Applications, it represents a conductive power limit. All other power limits are expressed as EIRP.

in its Comprehensive Proposal is renewing its request for the Commission to reallocate the 1675-1680 MHz band on a shared basis for a commercially useable, terrestrial wireless broadband service, and to auction that spectrum.<sup>10</sup>

Thus, New LightSquared in effect proposes to provide GPS receivers a significant guard band from terrestrial services. The import of these changes is that the Commission can secure these operational restrictions for the entire GPS community and also promote the public interest benefits of a new, robust broadband network. Furthermore, having major GPS manufacturers agreeing to a set of parameters that allow for compatibility of terrestrial broadband and GPS is a major step forward for U.S. leadership in harmonizing terrestrial use of L-band in other countries. International harmonization will also be advanced by the timely incorporation of these limits into the 3GPP process, which will establish the technical foundation for compatible use wherever this service is authorized.

## **II. THE PROPOSED LICENSE MODIFICATION WOULD YIELD SUBSTANTIAL PUBLIC INTEREST BENEFITS**

### **A. The Need for Additional Spectrum for Mobile Broadband Remains as Acute as Ever.**

An urgent and fast-growing need exists for additional spectrum to be made available to support the transition to 5G and to support mobile broadband services more broadly. As CTIA explains, “making additional spectrum available remains critical to meeting consumer demand, promoting economic growth, and enhancing our Nation’s global competitiveness.”<sup>11</sup> CTIA estimates, for instance, that the network traffic generated by a smartphone is 49 times

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<sup>10</sup> See Comprehensive Proposal at 3–4.

<sup>11</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014).

more than a basic handset, and smartphone traffic is predicted to increase 325% by 2018.<sup>12</sup> Furthermore, mobile video traffic has exploded 733% from 24 PB a month in 2010 to 200 PB a month in 2013. Consequently, about 56% of all mobile data is now data-intensive video, which will increase by 600% by 2018.<sup>13</sup> And despite the increase in data use along all sectors, the United States has the least amount of spectrum available per LTE capable device compared to its G7 peers: only 0.65 Hz/LTE capable device. By contrast, Canada provides its citizens with 37 times as much spectrum per person as the U.S. (24.21 Hz/LTE), and Japan provides four times more than the U.S. (2.58 Hz/LTE).<sup>14</sup> The bottom line, as President Obama has explained, is that it is necessary to “make available even more spectrum and create new avenues for wireless innovation.”<sup>15</sup> Jason Furman, Chairman of the President’s Council on Economic Advisors (“CEA”), has stressed that “[t]he fact that increasing demand for this crucial resource is straining the current supply testifies to just how essential spectrum is.”<sup>16</sup>

Mr. Furman has further explained that the stakes for managing spectrum properly are high: “[t]he continued primacy of the United States in this Internet economy . . . depends on

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<sup>12</sup> CTIA The Wireless Association, Ex Parte Letter, WT Docket No. 13-135 (Oct. 2, 2014) (“CTIA Ex Parte”) *citing* CISCO, VNI Mobile Forecast Highlights, 2013-2018, *available at* [http://www.cisco.com/assets/sol/sp/vni/forecast\\_highlights\\_mobile/index.html#~Country](http://www.cisco.com/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country) (“CISCO Forecasts”).

<sup>13</sup> CTIA Ex Parte *citing* CISCO Forecasts.

<sup>14</sup> CTIA Ex Parte *citing* Roger Entner, Spectrum Fuels Speed and Prosperity, Recon Analytics, at 7–8 (Sept. 2014).

<sup>15</sup> The White House, Office of the Press Secretary, *Presidential Memorandum -- Expanding America’s Leadership in Wireless Innovation* (June 14, 2013), *available at* <https://www.whitehouse.gov/the-press-office/2013/06/14/presidential-memorandum-expanding-americas-leadership-wireless-innovatio>.

<sup>16</sup> Jason Furman, Chairman, Council of Economic Advisers, Remarks on Public Sector Spectrum Policy, Brookings Institution (Sept. 23, 2014), *available at* [https://www.whitehouse.gov/sites/default/files/docs/remarks\\_on\\_public\\_sector\\_spectrum\\_policy\\_jf.pdf](https://www.whitehouse.gov/sites/default/files/docs/remarks_on_public_sector_spectrum_policy_jf.pdf).

our ability to get spectrum policy right. The United States currently leads the world in 4G wireless internet availability, with nearly half of the global subscriber base residing in the United States, but such a future is uncertain if we do not improve access to and management of the spectrum.”<sup>17</sup> Chairman Wheeler acknowledged the same when he explained the benefits of making more spectrum available: “More spectrum means more speed, capacity and ubiquity of mobile broadband services such as 4G LTE and Wi-Fi networks.”<sup>18</sup>

In sum, the need for additional spectrum for mobile broadband services remains more pressing today than ever. In this regard, the Commission and NTIA have an obligation to explore every possible solution not to abandon use of L-band for terrestrial broadband and to seek to reap the significant public interest benefits of New LightSquared’s mobile broadband network.

**B. To Protect the Aviation Sector, New LightSquared Requests that the Commission Impose a License Condition Related to FAA/RTCA MOPS.**

New LightSquared recognizes the paramount importance of safety issues related to certified aviation GPS receivers. Because aviation GPS receiver certification and operational standards have an existing, well-established, and robust process, and because New LightSquared’s work with the aviation community and that process is ongoing, New LightSquared requests that the Commission impose a license condition with reference to current and any future FAA/RTCA standards. The Garmin agreement specifically excludes certified aviation receivers, thus leaving that issue open. To address the concerns of Garmin—a very

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<sup>17</sup> *Id.*

<sup>18</sup> Testimony of Tom Wheeler, Chairman, Fed. Comm’n. Comm’n., Hearing on the FCC’s Fiscal 2015 Budget Request Before the Subcomm. on Fin. Services and Gen. Gov’t, Comm. on Appropriations, U.S. House of Representatives, at 1 (Mar. 25, 2014) (“Wheeler Testimony”), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-326246A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-326246A1.pdf).

significant aviation GPS manufacturer—as well as those of other important stakeholders, New LightSquared proposes that its license be conditioned on power limitation requirements for the 1526-1536 MHz band necessary to achieve compatibility with current and future MOPS that are incorporated into an active Technical Standard Order from the FAA.

This license modification serves two complementary purposes. First, it enables the Commission, as the essential license regulator, to perform its vital role and ensure safety of life issues are addressed by imposing a condition on the license to achieve compatibility with FAA/RTCA standards. In other contexts, the Commission has incorporated by reference standards developed elsewhere, and required further coordination with parties rather than establishing specific compatibility requirements.<sup>19</sup> Aviation provides a similar compatibility scenario, and the Commission should do the same here.

Second, the proposed license modification recognizes that the FAA and RTCA have core competencies in this field and a long and well-established multi-stakeholder consultation process to address the specific types of issues presented here. LightSquared has long participated in that process, and it commits to continuing to work with the FAA, the RTCA, and the rest of the aviation community to address any concerns and ensure that its operations are compatible with existing and future standards. This process would assess aviation-specific use cases and the maximum New LightSquared EIRP that would be consistent with the interference tolerance mask that exists for certified aviation equipment under the RTCA DO-229D and related MOPS, both current and future, that are incorporated into an active Technical Standard Order from the FAA. Because much of the necessary modeling has previously been constructed by the FAA and

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<sup>19</sup> See, e.g., 47 C.F.R. § 25.253(c) and (f), which require further coordination—rather than up-front resolution of compatibility concerns—with respect to commercial mobile radio services providers, search and rescue satellite service, and aviation maintenance technology.

aviation stakeholders, New LightSquared believes that with a concerted and cooperative effort, the necessary assessments could be completed in a timely manner.

The advantage from the Commission’s perspective of this approach is that it is both self-executing and “evergreen.” It is self-executing in that the Commission can impose this license condition at any time, and whenever the FAA/RTCA adopts or amends such a requirement, that obligation immediately falls upon the company. It is “evergreen” in that if ever the FAA/RTCA should alter its requirement, then that new obligation becomes binding on the company as an FCC licensee, without need for a Commission action. Finally, the FCC can—and should—participate in the FAA/RTCA process, as appropriate, in order to further the FCC’s core competencies and interests, including promoting broadband deployment.

**C. Considerable Public Interest Benefits Would Be Realized by Deployment of New LightSquared’s Network.**

Chairman Wheeler has stressed the importance of striking a “fair balance that serves the greater public interest” in matters related to spectrum management.<sup>20</sup> By granting this Modification Application, the Commission would be effectuating such a balance and allowing New LightSquared to deploy a mobile broadband network that will offer substantial public interest benefits. These benefits were recognized and relied upon by the Commission when it initially considered New LightSquared’s plan for a mobile broadband network using MSS L-band spectrum.<sup>21</sup> The Commission, however, has also stated that public interest benefits are

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<sup>20</sup> Tom Wheeler, *Crafting Balanced Incentive Auction Rules in the Public Interest*, Fed. Commc’n. Comm’n. Blog (June 17, 2015), available at <https://www.fcc.gov/news-events/blog/2015/06/17/crafting-balanced-incentive-auction-rules-public-interest>.

<sup>21</sup> See *In Re Flexibility for Delivery of Commc’ns by Mobile Satellite Serv. Providers*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd. 1962, 1974 (2003).

“dependent on ... [New LightSquared’s] actually moving forward with its plan.”<sup>22</sup> Since that time, despite its best efforts, New LightSquared has been delayed in implementing its plan because of concerns about the compatibility between New LightSquared’s terrestrial base stations and GPS receivers. New LightSquared diligently worked with the GPS industry to reach a successful resolution to those concerns, and New LightSquared still is in the best position among any potential new broadband network operator to bring the benefits of a robust network to the public in the near- and mid-term.

In this Modification Application, New LightSquared has offered a comprehensive solution to the GPS issue and a way to proceed with deployment of its broadband network. The solution involves modifying the power and OOB limits of New LightSquared’s licenses to be consistent with the terms of the various settlement agreements with the Settling GPS Companies, permanently abandoning New LightSquared’s right to deploy terrestrial downlink operations at 1545-1555 MHz, and permanently relocating those terrestrial operations instead to 1670-1680 MHz. Without this relocation, New LightSquared would not be able to deploy its broadband network and the substantial promise of that network would be lost. Conversely, a grant of the Modification Application would: (i) effectuate the carefully negotiated settlement agreements with the Settling GPS Companies and advance long-term protection for the GPS industry, (ii) recognize the vital issues surrounding aviation and setting forth a license condition to address that concern, (iii) devote acceptable portions of the MSS L-band to broadband terrestrial use in accordance with the national broadband plan, (iv) develop a new, robust mobile broadband

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<sup>22</sup> *In the Matter of Skyterra Commc’ns, Inc.*, Memorandum Opinion and Order and Declaratory Ruling, 25 FCC Rcd. 3059, 3088 (2010).

network, and (v) facilitate a private sector frequency coordination arrangement with federal users that is supported by the extensive precedents of non-federal/federal spectrum use, and offers a unique opportunity to advance the public interest on many fronts.

**D. THE COMMISSION HAS AMPLE PRECEDENT FOR ADOPTING THE PROPOSAL SUBMITTED HEREIN**

On numerous occasions, the Commission has effectuated creative problem solving solutions to manage spectrum interference concerns. In making the 800 MHz band viable for services that would greatly benefit the public, the Commission undertook an extended effort to rationalize that spectrum by reconfiguring the 800 MHz band to resolve interference issues resulting from the differing uses of the interleaved channels in the band.<sup>23</sup> It bears emphasis that in recognition of the “public interest benefit derived from robust and reliable public safety communications,” as well as the spectrum rights surrendered by Nextel in the 800 MHz Band, the Commission provided Nextel with spectrum in the 1.9 GHz Band.<sup>24</sup> Another example comes from the Commission’s relocation of the Digital Electronic Messaging Service (“DEMS”) from the 18 GHz Band to the 24 GHz band, based on national security concerns.<sup>25</sup> In that case, the Commission acted at the request of NTIA, in order to address Department of Defense concerns regarding potential interference from DEMS into military satellite earth stations in Denver and Washington, D.C. operating in the 18 GHz Band. By relocating DEMS to the 24 GHz band and providing DEMS access to twice the amount of spectrum originally

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<sup>23</sup> See *Improving Public Safety Communications in the 800 MHz Band*, 19 FCC Rcd. 14969 (2004).

<sup>24</sup> *Id.* at ¶ 5.

<sup>25</sup> See *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); *aff’d*, 13 FCC Rcd. 15147 (1998).

licensed, the Commission resolved these concerns, as well as concerns about the sharing of the 18 GHz Band with commercial satellite services.<sup>26</sup>

In short, the proposals contained in these Modification Applications and the Comprehensive Proposal present the Commission with a solution that substantially advances its goal of making more broadband spectrum available, thus advancing public interest benefits, and at the same time securing specific protections for private interests that also serve the public interest. The modifications proposed herein offer the Commission a heightened assurance of effectiveness because they reflect an engineering-based solution reached after months of deliberative, good-faith negotiations regarding compatibility concerns.

### **III. GRANT OF THE LICENSE MODIFICATION SHOULD BE COUPLED WITH REALLOCATION OF 1675-1680 MHz TO SHARED USE, FOLLOWED BY AN AUCTION**

#### **A. The 1675-1680 MHz Band Is an Ideal Band to Serve as New LightSquared's Alternate Downlink Spectrum.**

New LightSquared's proposal to provide GPS receivers an immediate, additional 10 MHz guard band from terrestrial services by abandoning all terrestrial authority for the upper 10 MHz downlink band at 1545-1555 MHz means that New LightSquared's network cannot be deployed now without access to alternative downlink spectrum that is compatible with New LightSquared's two L-band uplink bands at 1627.5-1637.5 MHz and 1646.5-1656.5 MHz. To fill this immediate need and, therefore, to enable the deployment of an operational terrestrial broadband network, New LightSquared proposes to reallocate the 1675-1680 MHz band to shared use with federal government users in a commercially and technically viable manner, and

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<sup>26</sup> In doing so, the Commission invoked the "military function" exception to the Administrative Procedures Act, facilitating Commission action within approximately two months and without notice and comment procedures. *See* 5 U.S.C. § 553(a)(1).

then to auction that band with appropriate bidding credits. If successful at auction, New LightSquared would use this 5 MHz along with New LightSquared's currently-leased spectrum in the 1670-1675 MHz band to create a contiguous 10 MHz downlink channel for terrestrial wireless broadband services.<sup>27</sup>

Given its present use of the 1670-1675 MHz band, New LightSquared has extensive experience coordinating the adjacent 5 MHz band with the federal government. The company has used this experience to build out a record that the Commission can use to move forward with a Notice of Proposed Rulemaking on this band.<sup>28</sup> New LightSquared remains ready to work with NTIA in establishing the operating parameters and safeguards that will be built into the service rules and license conditions to ensure its interests are protected.

**B. The Commission's and NTIA's Rules and Precedents Permit the Commission to Authorize Non-Federal Use of the 1675-1680 MHz Band.**

New LightSquared's proposal to reallocate spectrum currently used by federal agencies to shared use is well supported by prior precedents. Over the years, the Commission and NTIA have cooperated in applying their respective public interest mandates to foster sound spectrum management and inject flexibility into the division of the radio spectrum between federal users and non-federal users. The most recent example is the Commission's effort that freed up substantial spectrum in connection with the successful AWS-3 auction. Other examples include the use by non-federal law enforcement agencies of a primary federal frequency for

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<sup>27</sup> New LightSquared currently is authorized to operate at 1670-1675 MHz by virtue of a leasing agreement through One Dot Six Corp. to which the Commission has consented. *See* ULS Lease ID L000007295.

<sup>28</sup> *See* Comprehensive Proposal at 3-4.

stolen vehicle recovery,<sup>29</sup> a commercial satellite operator to use federal frequencies to provide satellite service to the Navy,<sup>30</sup> an energy exploration company to timeshare NASA satellite capacity to provide commercial satellite service,<sup>31</sup> and commercial digital message providers to use federal spectrum as a substitute for originally-licensed spectrum that could not be used because of potential interference to government stations.<sup>32</sup> In each instance, the Commission and NTIA found that such flexible and innovative spectrum management initiatives served important national goals that could be served in no practical way other than by cooperating to give private parties access to spectrum that either was used exclusively or primarily by federal agencies.

The reallocation of 1675-1680 MHz that New LightSquared seeks is supported by these precedents and is well within the authority of the Commission and NTIA to provide. Given concerns about GPS compatibility with use of New LightSquared's licensed L-band downlink, obtaining access to 1675-1680 MHz is an efficient solution that would allow New

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<sup>29</sup> *Amendment of Parts 2 and 90 of the Commission's Rules to Provide for Stolen Vehicle Recovery Systems*, 3 FCC Rcd. 7195 (1988) (frequency initially allocated exclusively for federal use re-allocated on a shared basis between federal and non-federal users for the purposes of stolen vehicle monitoring and recovery use).

<sup>30</sup> *Hughes Communications Services, Inc.*, FCC 79-809 (rel. Dec. 10, 1979) (authorizing construction of LEASAT satellite system on federal frequencies).

<sup>31</sup> *In the Matter of Modification Application of SpaceData International LLC; For Authority to Operate on a Time Share Basis NASA's Tracking and Data Relay Satellite System*, 16 FCC Rcd. 9266 (Chief IB 2001) (authorizing use of federal TDRSS spectrum for searching for oil and gas deposits on ocean floor).

<sup>32</sup> *See 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) (federal spectrum made available for DEMS to substitute for originally assigned spectrum that could not be used because of potential interference to government stations).

LightSquared to deploy its broadband network in a manner that already has been found to be in the public interest.

#### **IV. NEW LIGHTSQUARED SEEKS TO PAIR ITS TWO UPLINK BANDS WITH THE NEW DOWNLINK BAND IN AN OPERATIONALLY-EFFICIENT AND COMMERCIALY VIABLE MANNER**

New LightSquared's proposals in this Modification Application regarding terrestrial use of the L-band would leave it unable ever to use the 1545-1555 MHz band downlink band for terrestrial operations. Accordingly, New LightSquared seeks appropriate authorization to pair either of its two uplink bands at 1627.5-1637.5 MHz and 1646.5 MHz-1656.5 MHz with the 1670-1680 MHz downlink channel proposed herein in an operationally efficient and commercially viable manner. Moreover, New LightSquared recognizes that the Commission may want to address this issue in the context of a Notice of Proposed Rulemaking on the 1675-1680 MHz band. For these reasons, New LightSquared respectfully requests such appropriate adjustments and further authorizations with regard to the Commission's rules as may be needed to facilitate the prompt processing and grant of this Modification Application.

#### **V. CONCLUSION**

New LightSquared's proposed license modification and its corresponding relinquishment of terrestrial rights for the 1545-1555 MHz band present the Commission with a constructive and comprehensive approach to resolve the issues that, to date, have precluded the deployment of its terrestrial network. New LightSquared remains committed to fulfilling the Commission's vision of providing a robust wireless broadband capability to the American consumer that can enhance the transition from 4G to 5G. With the Commission's granting of this Modification Application, New LightSquared could achieve this goal in a manner that directly implements the resolutions it has reached with the GPS industry regarding compatibility concerns.