



PUBLIC NOTICE

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COMMENT SOUGHT TO UPDATE THE RECORD ON LIGADO'S REQUEST THAT THE COMMISSION INITIATE A RULEMAKING TO ALLOCATE THE 1675-1680 MHZ BAND FOR TERRESTRIAL MOBILE USE SHARED WITH FEDERAL USE

RM-11681

Comments Due: June 21, 2016
Replies Due: July 21, 2016

This Public Notice seeks comment on additional submissions in this proceeding by LightSquared Subsidiary LLC (LightSquared) and its controlling U.S. parent New LightSquared LLC (hereinafter Ligado, its new name).¹ On November 2, 2012, LightSquared filed a petition requesting that the Commission initiate a rulemaking proceeding to allocate the 1675-1680 MHz band for non-federal terrestrial mobile use on a shared basis with federal users.² On November 9, 2012, this petition was placed on public notice for comment.³ Subsequently, in 2014 and 2015, LightSquared submitted studies concerning the potential allocation of this band for non-federal commercial mobile use.⁴ More recently, Ligado has submitted an additional study and filings that expand upon, and modify in certain respects, LightSquared's initial petition for rulemaking.⁵ Through this Public Notice, we seek to update and refresh the record.

¹ We note that LightSquared emerged from bankruptcy in December 2015. See *Applications of LightSquared Subsidiary LLC, Debtor-in-Possession, and LightSquared Subsidiary LLC For Consent to Assign and Transfer Licenses and Other Authorization and Request for Declaratory Ruling on Foreign Ownership*, Memorandum Opinion and Order and Declaratory Ruling, FCC 15-164, 30 FCC Rcd 13988 (2015). Beginning in December 2015, filings by these entities in this docket have been submitted by "New LightSquared" until its rebranding as Ligado Networks LLC (Ligado) on February 10, 2016. See Ligado Networks press release, available at <http://ligado.com/press-release/ligado-networks-launches-with-goal-to-expand-delivery-of-next-generation-mobile-connectivity>. Prior to December 2015, filings were made by LightSquared, and continue to be so referenced.

² Petition of LightSquared Subsidiary LLC for Rulemaking (filed Nov. 2, 2012).

³ *Petition for Rulemaking Filed*, RM No. 11681, Public Notice, Report No. 2967 (CGB Nov. 9, 2012).

⁴ Letter from John P. Janka, Latham & Watkins, Counsel to LightSquared, to Marlene H. Dortch, Secretary, FCC, IBFS File Nos. SAT-MOD-20120928-00160; SAT-MOD-20120828-00161; SES-MOD-20121001-00872; RM-11681 (filed Jan. 30, 2014) (LightSquared Jan. 30, 2014 *Ex Parte*); Letter from Jeff Carlisle, Executive VP for Regulatory Affairs and Public Policy, LightSquared, to Marlene H. Dortch, Secretary, FCC, IBFS File Nos. SAT-MOD-20120928-00160; SAT-MOD-20120828-00161; SES-MOD-20121001-00872; IB Docket No. 12-340; RM-11681 (filed April 14, 2014) (LightSquared April 14, 2014 *Ex Parte*); Letter from Gerald J. Waldron, Covington, Counsel to LightSquared, to Marlene H. Dortch, Secretary, FCC, RM-11681; IB Docket No. 12-340; IBFS File Nos. SAT-MOD-20120928-00160; SAT-MOD-20120828-00161; SES-MOD-20121001-00872 (filed Nov. 5, 2015) (LightSquared Nov. 5, 2015 *Ex Parte*).

⁵ Letter from Gerald J. Waldron, Covington, Counsel to New LightSquared, to Marlene H. Dortch, Secretary, FCC, RM-11681; IB Docket No. 12-340; IBFS File Nos. SAT-MOD-20120928-00160; SAT-MOD-20120828-00161;

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LightSquared's 2012 petition for rulemaking. In LightSquared's November 2, 2012 petition, LightSquared requested that the Commission initiate a rulemaking proceeding to amend the U.S. Table of Allocations to add a primary allocation permitting non-federal terrestrial mobile use of the 1675-1680 MHz band.⁶ In requesting this allocation, LightSquared stated that it sought to use this spectrum as an alternative to use of the 1545-1555 MHz portion of L-band Mobile-Satellite Service (MSS) spectrum for downlink mobile terrestrial operations. It further proposed to make use of the 1675-1680 MHz band for mobile operations as part of a 10 megahertz contiguous block of spectrum (1670-1680 MHz) that would include use of the 1670-1675 MHz band that already has been allocated and licensed for terrestrial mobile use.⁷ LightSquared proposed that use of the 1675-1680 MHz band under a terrestrial allocation be permitted only if coordinated to protect government systems that will remain in the band, including weather monitoring and predicting operations of the National Oceanic and Atmospheric Administration (NOAA) that operate under primary allocations in the band for Meteorological Aids and the Meteorological Satellite Service.⁸ LightSquared asserted that the proposed allocation, along with the grant of other pending LightSquared requests relating to terrestrial operations in portions of the MSS L-band, would serve the public interest by making additional spectrum available for mobile broadband services.⁹

Federal allocations and uses associated with the 1675-1680 MHz frequencies. The 1675-1680 MHz band is currently allocated as part of the 1675-1695 MHz band on a primary basis in the Federal and non-Federal Tables of Frequency Allocations for Meteorological Aids (radiosondes¹⁰) and the Meteorological-Satellite Service (space-to-Earth).¹¹ The 1675-1683 MHz portion of the 1675-1695 MHz

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SES-MOD-20121001-00872 (filed Dec. 16, 2015) (Ligado Dec. 16, 2015 *Ex Parte*); Letter from Gerald J. Waldron, Covington, Counsel to New LightSquared, to Marlene H. Dortch, Secretary, IB Docket No. 12-340; IBFS File Nos. SAT-MOD-20120928-00160; SAT-MOD-20120828-00161; SES-MOD-20121001-00872 (filed Dec. 31, 2015) (Ligado Dec. 31, 2015 *Ex Parte*). On February 8, 2016, Ligado included the December 31, 2015 *Ex Parte* in RM-11681. Letter from Gerard J. Waldron, Counsel to New LightSquared, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 10-142; IB Docket Nos. 12-340 and 11-109; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091; RM-11681 (filed Feb. 8, 2016) (Ligado Feb. 8, 2016 *Ex Parte*).

⁶ See generally Petition.

⁷ Petition at 7-9. LightSquared noted that a LightSquared subsidiary is authorized to operate at 1670-1675 MHz pursuant to a spectrum leasing arrangement. *Id.* at 7 n.20. In 2001, the 1670-1675 MHz band, which had been allocated on a primary basis to Government and non-Government Meteorological Aids and the Meteorological-Satellite Service (space-to-Earth or downlink), was reallocated for Fixed and Mobile (except aeronautical mobile) services on a primary basis. *Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands; and Amendment of Parts 2 and 95 of the Commission's Rules to Create a Wireless Medical Telemetry Service; and Amendments to Part 90 of the Commission's Rules Concerning Private Land Mobile Radio Services*, Report and Order and Memorandum Opinion and Order, 17 FCC Rcd 368 (2001) (*Reallocation Order*). Service rules for fixed and mobile operations were established in 2002. *Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, 17 FCC Rcd 9980 (2002) (*Service Rules Order*).

⁸ Petition at 1, 8-10.

⁹ *Id.* at 3-6.

¹⁰ Radiosondes are expandable free-floating balloons equipped with transmitters and antennas that provide near real-time environmental data (e.g., atmospheric pressure, temperature, and relative humidity). The meteorological data from these radiosondes provide warnings and forecasts of weather events such as tornados and tropical cyclones. Radiosondes are launched twice a day from nearly 90 sites located throughout the United States and its possessions.

¹¹ See 47 C.F.R. § 2.106 (Table of Frequency Allocations); *id.* Footnote US88.

band currently is used widely by NOAA for radiosondes,¹² but in 2014 these radiosondes were scheduled to be relocated to the 401-406 MHz band by February 19, 2021.¹³ The National Telecommunications and Information Administration (NTIA) has assigned several frequencies throughout the 1675-1695 MHz band to NOAA for Geostationary Operational Environmental Satellites-N Series (GOES-N) downlinks, with the 1673.4-1678.6 MHz portion of the band being used for Sensor Data Links at four locations (Wallops Island, Virginia; Greenbelt, Maryland; Omaha, Nebraska; and Fairbanks, Alaska).¹⁴ In addition, the National Weather Service uses GOES-N downlinks from 1680.5 to 1694.5 MHz at several locations (Miami, Florida; Kansas City, Missouri; Suitland, Maryland; Norman, Oklahoma; Boulder, Colorado; Honolulu, Hawaii; and Anchorage, Alaska). To provide improved detection and observation of environmental phenomena, NOAA plans to launch the first satellite of its next generation GOES-R Series in October 2016,¹⁵ using frequencies in the 1679.7-1694.7 MHz band.¹⁶ Existing GOES systems will continue to use the 1675-1678.6 MHz portion of the 1675-1680 MHz band for Sensor Data Links until as late as 2025, while GOES-R systems will become operational in the upper portion of that band at 1679.7-1680 MHz as early as 2017.¹⁷ NOAA, the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), the Department of Interior, the Federal Aviation Administration, and other federal and non-federal entities operate earth stations that receive environmental research and weather data transmitted from both GOES and Polar-Orbiting Environmental Satellites (POES) in the 1675-1710 MHz band.¹⁸

The 1670-1675 MHz band adjacent to 1675-1680 MHz is allocated on a primary basis in the non-Federal Table to Fixed and Mobile (except aeronautical mobile) services.¹⁹ In 2001, the Commission reallocated this band from Federal and non-Federal Meteorological Aids and Meteorological-Satellite Service (space-to-Earth) primary allocations, subject to the requirement that the GOES earth stations at Wallops Island, Greenbelt, and Fairbanks that receive in the 1670-1675 MHz band – and remain co-primary in the band – are protected through coordination by any new non-federal user with those earth stations.²⁰

¹² See *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands* (“Fast Track Report”), available at https://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf), at 2-2.

¹³ See *Department of Commerce (DOC) National Oceanic and Atmospheric Administration Transition Plan for the 1695-1710 MHz Band*, July 1, 2014 (available at https://www.ntia.doc.gov/files/ntia/publications/doc_noaa_web-ready_1jul14_final_rev7_admin_chng.pdf), at 11, 13.

¹⁴ See Fast Track Report at 3-2, A-7.

¹⁵ See <http://www.goes-r.gov>.

¹⁶ See 2015 NOAA Satellite Conference, Session 4.4 Frequency Matters. <http://satelliteconferences.noaa.gov/2015/NSC20150Agenda-final.htm>.

¹⁷ See NOAA “GOES Flyout Chart as of 04/01/16,” available at http://www.nesdis.noaa.gov/flyout_schedules.html.

¹⁸ Fast Track Report at 3-1.

¹⁹ See 47 C.F.R. § 2.106.

²⁰ See *Reallocation Order*, 17 FCC Rcd at 394-397, paras. 61-66 (2001) (revising U.S. Table of Frequency Allocations and adopting US362 to protect GOES earth stations); *Service Rules Order*, 17 FCC Rcd 9980 (authorizing a nationwide license and requiring licensee to protect GOES earth station operations in the band, per US362 and § 1.924(f)); 47 C.F.R. § 2.106, at Footnote US362.

Comments on LightSquared's 2012 petition. Several parties filed comments on the petition.²¹ Many expressed concern about the potential impact of sharing the band with terrestrial mobile operations, and encouraged careful consideration to ensure that current and anticipated uses under the existing allocations be protected.²² Some expressed concern that LightSquared had not submitted technical studies supporting its request.²³ Several stated that, in reviewing LightSquared's request for initiating the allocation proceeding, the Commission should separate its consideration about potentially revising the allocation in the 1675-1680 MHz band from consideration of LightSquared's other requests concerning its mobile operations in the MSS L-band spectrum,²⁴ while one recommended linking consideration of LightSquared's various requests.²⁵

Subsequent filings by LightSquared in 2014 and 2015. Subsequently, LightSquared submitted several additional filings and reports. On January 30, 2014, it submitted a report by Alion Science and Technology (Alion) that provided an assessment of the potential relocation of National Weather Service Radiosonde operations from the 1675-1683 MHz band to spectrum in the 401-406 MHz band. LightSquared asserts that the report demonstrates the feasibility of this relocation.²⁶ On April 14, 2014, LightSquared submitted two additional reports by Alion that examined the potential for terrestrial mobile LTE operations, on a shared basis, with the current GOES systems and the GOES-R series that is planned for operation in the 1679.7-1694.5 MHz band.²⁷ LightSquared asserts that these reports appropriately

²¹ See Coalition to Save Our GPS Comments; Lockheed Martin Comments; T-Mobile Comments; U.S. GPS Industry Council Comments; Aerospace Industries Association (AIA) Reply; LightSquared Reply; World Meteorological Organization Reply. See also Letter from Keith Seitler, Executive Director, American Meteorological Society, and Janice Bunting, Executive Director, National Weather Association, to Marlene H. Dortch, Secretary, FCC (filed July 27, 2015) (AMS/NWS July 27, 2015 *Ex Parte*). See also Letter from Keith Seitler, Executive Director, American Meteorological Society, and Janice Bunting, Executive Director, National Weather Association, to Marlene H. Dortch, Secretary, FCC (filed March 1, 2016).

²² Lockheed Martin Comments at 2-3 (Commission should only consider the allocation if it determines that the allocation is compatible with existing user, and sharing conditions can be readily identified and imposed); U.S. GPS Industry Council Comments at 3-4 (while not objecting to inquiry, only permit if such allocation would be compatible with existing users or reasonable transition arrangements can be made); Aerospace Industries Association (AIA) Reply at 2-3 (concern about potential threat of mobile LTE operations on important meteorological data supplied for air transportation system and weather forecasting that promotes safety of Americans); World Meteorological Organization Reply at 1-2 (describing important international use of METAFIDS and METSAT services for meteorology, climatology, and operational hydrology, and expressing concern for international harmonization of this band for these services); AMS/NWS July 27, 2015 *Ex Parte* (encouraging careful deliberation about potential impact). See also T-Mobile Comments at 1 (objecting to the allocation to the extent it would jeopardize the potential to use the 1695-1710 MHz band for mobile services).

²³ See, e.g., Lockheed Martin Comments at 2; AIA Reply at 3.

²⁴ U.S. GPS Industry Council Comments at 5 (in considering LightSquared's allocation petition, resolution of other proceedings should not be presumed); Lockheed Martin Comments at 2 (opposing allocation if the Commission supports LightSquared's request to make the allocation "as an alternative to use of the 1545-1555 MHz portion of the L band for terrestrial mobile purposes").

²⁵ Coalition to Save Our GPS Comments at 1 (Commission should only consider LightSquared's allocation request as part of an overall resolution of its future plans to provide terrestrial mobile services).

²⁶ LightSquared Jan. 30, 2014 *Ex Parte* and Attachment ("Assessment of the Viability of Relocating National Weather Service Radiosonde Operations From the 1675-1683 MHz Band to the 400.15-406 MHz Band"). LightSquared noted that Alion was able to generate the report because LightSquared had obtained Special Temporary Authority (STA) from the Commission to conduct certain operations in the 1675-1680 MHz band. LightSquared Jan. 30, 2014 *Ex Parte* at 1.

²⁷ LightSquared April 14, 2014 *Ex Parte* and attached reports by Alion ("Assessment of the Potential for LightSquared Broadband Base Stations in the 1670-1680 MHz Band to Interfere with Select NOAA Legacy Ground

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address the technical parameters for establishing protection zones around NOAA earth stations, and confirm the viability of the proposed sharing of LTE operations in the 1675-1680 MHz band with both the currently operational NOAA GOES satellites and the next-generation GOES-R satellites that are slated to become operational within the next few years.²⁸ LightSquared states that the Commission could require prior coordination of any LTE base station proposing to operate within the proposed protection zones in order to protect ongoing NOAA operations, in a manner similar to that taken by the Commission in the *AWS-3 Report and Order*,²⁹ while allowing LTE operations at specified power levels outside of the zones without coordination.³⁰

On November 5, 2015, LightSquared submitted a report in which it outlines potential methods by which the 1675-1680 MHz band could be shared between NOAA and a commercial wireless network.³¹ Specifically, the report provides an overview of existing analyses, noting that NOAA's radiosonde operations would be relocated out of the 1675-1683 MHz band and proposing potential protection zones around federal GOES and GOES-R earth stations. LightSquared also indicated that in June 2015, NOAA had expressed concern about the ability of non-NOAA users who make use of NOAA's satellite transmissions for free access to data and alerts to continue to receive these data streams through alternate sources should the 1675-1680 MHz band be shared with commercial operations.³² LightSquared states that its preliminary assessment indicates that commercial mobile operations in the 1675-1680 MHz band would have little or no impact on many non-NOAA users and that reasonable alternative means exist for any users that might be affected to obtain NOAA's data products and services.³³ In its submission, LightSquared describes its inquiries about NOAA data products and services that are received by non-NOAA end users and its outreach efforts to identify the groups of non-NOAA end users.³⁴ Recognizing that "the universe" of these users was not fully known at this time, LightSquared requests that the Commission issue a public notice seeking comment on the report, use cases surrounding the data products and services, the potential impact of commercial mobile operations in the band on non-NOAA users, and available technologies or alternatives to address any such impacts.³⁵ LightSquared indicates that the public notice could serve to gather information that would enable the Commission to move forward with issuance of a notice of proposed rulemaking on allocating the band for sharing with terrestrial mobile operations.³⁶

Recent filings by New LightSquared/Ligado. On December 16, 2015, New LightSquared (now Ligado) submitted additional analysis into the record, which it asserts addresses the potential for anomalous propagation from LTE operations in the 1675-1680 MHz band that would affect future GOES-R stations that are planned for operation.³⁷ Ligado claims that the results of this analysis show that

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Locations." February 2014; "Potential for LightSquared Broadband Base Stations in the 1670-1680 MHz Band to Interfere with Select NOAA GOES-R Ground Locations," April 2014).

²⁸ LightSquared April 14, 2014 *Ex Parte* at 3.

²⁹ *Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, Report and Order, 29 FCC Rcd 4610 (2014) (*AWS-3 Report and Order*).

³⁰ LightSquared April 14, 2014 *Ex Parte* at 3.

³¹ LightSquared Nov. 5, 2015 *Ex Parte* and Attachment ("Assessment of the 1675-1680 MHz Band," August 2015).

³² LightSquared Nov. 5, 2015 *Ex Parte* Attachment at 14.

³³ LightSquared Nov. 5, 2015 *Ex Parte* at 2.

³⁴ LightSquared Nov. 5, 2015 *Ex Parte* at 2-3, Attachment at 14.

³⁵ LightSquared Nov. 5, 2015 *Ex Parte* at 1-3.

³⁶ *Id.* at 3.

³⁷ Ligado Dec. 16, 2015 *Ex Parte* and Attachment ("Single Entry GOES-R GRB Analysis").

relatively small protection zones would fully protect NOAA's GOES-R operations from the potential impacts of anomalous propagation.³⁸

On December 31, 2015, Ligado submitted a filing that amends LightSquared's original November 2012 petition requesting that the Commission initiate a proceeding to provide a commercial terrestrial mobile service allocation in the 1675-1680 MHz band.³⁹ With respect to operations in this band, Ligado now proposes that any terrestrial commercial mobile operations under a new allocation be required to incorporate the specified power limits and out-of-band emissions (OOBE) restrictions that are contained in its filing – i.e., 32 dBW and -85 dBW/MHz, respectively (the same levels that Ligado is proposing for downlink operations in a 10 megahertz portion of the MSS L-band).⁴⁰ On February 9, 2016, Ligado submitted a specific proposal for addressing potential concerns of non-NOAA users (and noted the Administration's FY 2017 proposal that the 1675-1680 MHz band be auctioned or assigned for shared use).⁴¹ In particular, it proposes that the commercial mobile licensee be required to fund the design and development of an effective data delivery network to provide an alternative means for ensuring that non-NOAA end users receive NOAA-generated data in a spectrum sharing environment.⁴²

Updating/refreshing the record. In issuing this Public Notice, we invite comment on the studies and filings that LightSquared and Ligado collectively have submitted since 2014 with respect to potentially providing a primary terrestrial non-federal mobile service allocation in the 1675-1680 MHz band and establishing terrestrial service rules for shared federal/non-federal operations in this band. In seeking comment in this Public Notice on these submissions, we focus only on the requests relating to the allocation and associated service rules for potential terrestrial commercial operations in the 1675-1680 MHz band. We do not here seek comment on other proceedings that potentially affect Ligado's operation of a terrestrial mobile network using spectrum in the MSS L-band. Comments on those issues will be addressed in other proceedings.⁴³

³⁸ Ligado Dec. 16, 2015 *Ex Parte*.

³⁹ Ligado Dec. 31, 2015 *Ex Parte*; Ligado Feb. 8, 2016 *Ex Parte* (including the December 31, 2015 *Ex Parte* in RM-11681). In addition to discussing its amendment to LightSquared's initial petition regarding the proposed 1675-1680 MHz band allocation proceeding, Ligado discusses its revised requests concerning related proceedings on Ligado's proposals for terrestrial mobile operations under its ATC authority in portions of the MSS L-band spectrum. Ligado views all of these proposals as mutually-dependent and interrelated with regard to its efforts that aim to enable operation of a terrestrial mobile broadband network, and requested that consideration of these issues be addressed in a combined docket with the satellite modification applications. Ligado also states that it intends to be an active bidder in such an auction (requesting appropriate bidding credits), and would seek to combine use of this spectrum with the 1670-1675 MHz band to create a 10-megahertz downlink that would be part of a broadband network utilizing spectrum associated with the ATC authorizations. *See generally id.*

⁴⁰ *Id.* at 4 n.4, 5 (“Technical Operating Parameters Specified in Coexistence Plans”). Ligado states that in the future the Commission would be receiving an application that would propose to modify the power levels authorized for terrestrial operations in the 1670-1675 MHz band to the same levels. *Id.* These proposed transmit power level would be lower than currently authorized power levels (42 dBW) for operations in the 1670-1675 MHz band.

⁴¹ Letter from Gerard J. Waldron, Counsel to New LightSquared LLC, to Marlene H. Dortch, Secretary, FCC, RM-11681; IB Docket No. 12-340; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091 (filed Feb. 9, 2016) (Ligado Feb. 9, 2016 *Ex Parte*). Ligado notes that in the Administration's FY 2017 budget, the Administration proposes that the Commission auction or assign the 1675-1680 MHz band for sharing use of the band and, if enacted, directs NOAA to “develop alternative data broadcast systems for users of its data products.” *Id.* at 1 (citing the Administration's proposed budget, “Analytic Perspectives, Budget of the United States Government, Fiscal Year 2017,” p. 220).

⁴² *See generally id.* (setting forth details of the proposal in the attached presentation).

⁴³ *See Comment Sought on Ligado's Modification Applications*, IB Docket Nos. 11-109 and 12-340, Public Notice (DA 16-442) (rel. April 22, 2016).

We invite specific comment on the technical studies and filings submitted by LightSquared and Ligado in 2014 and 2015, and whether the record in this proceeding supports commencing a rulemaking examining whether the band could be shared with terrestrial commercial operations under rules that would adequately accommodate existing Meteorological Aids prior to their relocation and protect Meteorological-Satellite Service in the band. We seek comment on whether these studies and filings have identified the technical and policy issues that would need to be addressed with regard to these services, as well as paths for potentially addressing these issues, were the Commission to move forward with initiating an allocation and service rule proceeding? Have these submissions identified appropriate types of mitigations to protect meteorological satellite ground stations from interference associated with terrestrial mobile transmitters, and are there other types of mitigations that should be considered? What additional technical and policy issues would be relevant for the Commission to consider? We also invite comment on Ligado's proposal regarding the its proposed power limits and OOB restrictions, including the extent to which they are sufficient to enable a commercial mobile broadband service while protecting or accommodating the federal and non-federal incumbent operations in the 1675-1695 MHz band.

As noted above, there are several federal and non-federal entities that access and make use of the GOES and GOES-R data and services in the 1675-1695 MHz band, and potentially could be affected as a result of new terrestrial mobile operations in the 1675-1680 MHz band. We seek input on the potential impact of new commercial operations in the 1675-1680 MHz band to the missions of non-federal entities, particularly those engaged in state and local emergency management functions, or in support of land, air, and sea transportation operations, and the feasibility of alternative means for these entities to receive the GOES data that they currently receive directly from the GOES satellites or will receive from GOES-R satellites.⁴⁴ In this regard, we note that non-federal users that access GOES-N satellites currently directly receive Sensor Data (SD), Multi-Use Data Link (MDL), Processed Data Relay (PDR) (also referred to as GOES Variable or GVAR), Low Rate Information Transfer (LRIT), and Data Collection Platform Reports (DCPR). In addition, we request comment on the potential impact on future non-federal users of the GOES-R series services, recognizing that these users' experience with GOES-R services will not begin until after the October 2016 launch and subsequent operation in 2017. To what extent do non-federal users plan to directly access GOES-R satellites for DCPR information, GOES-Rebroadcast (GRB), Telemetry, and High Rate Information Transfer (HRIT) services, and to what these non-federal users of this data part of the Emergency Managers Weather Information Network (EMWIN)? We seek comment on how Ligado's proposal could affect non-federal users' access to GOES-N and GOES-R data.

We request comment on which non-federal entities directly access NOAA's data or services delivered by GOES-N and GOES-R satellites, what types of data or services are received directly (as opposed to indirectly through some other source, such as the Internet), and how frequently? Which frequencies are used? We seek comment on the ways in which non-federal entities may make use of products or services derived from receipt of data in the 1675-1680 MHz band. These commenters should provide information on how the general public, specific populations, or industry sectors may depend on these services. To the extent that receipt of GOES-N or GOES-R satellite data and services by non-federal entities would be affected, we seek comment on possible alternatives that might be available for receiving the data and services. Would Ligado's proposal requiring development of a data delivery network⁴⁵ provide an effective alternative? To what extent would this proposal affect data latency and

⁴⁴ We note that in 2010, when the 1675-1710 MHz band was being examined for its potential suitability for mobile broadband use, a public notice was issued seeing information with the respect to non-federal entities that accessed services that operated in the entire 1675-1710 MHz band. *Office of Engineering and Technology Requests Information on Use of 1675-1710 MHz Band*, ET Docket No. 10-123, Public Notice, 25 FCC Rcd 7285 (OET, 2010).

⁴⁵ See Ligado Feb. 9, 2016 *Ex Parte*.

data availability to users, what might be the cost impact to non-federal users and beneficiaries of this data? What kinds of steps could be taken to ensure that these non-federal users could continue to receive the data and services through other means? In addition, we seek comment on whether these non-federal entities are planning changes in operations as a consequence of the allocation of the 1695-1710 MHz band for commercial fixed and mobile services.⁴⁶ What types of changes are being made, and to what extent would these changes affect, or obviate, the need for these non-federal entities to rely on the 1675-1680 MHz band? We seek comment on the extent to which terrestrial mobile use of the band could be compatible with the existing and future use of the band for radiosonde operations on a shared basis before these radiosondes vacate the band, scheduled for 2021. What would be the combined effect of allowing new terrestrial and existing radiosonde operations on the GOES-N and GOES-R receiving systems until 2021?

LightSquared earlier identified a number of non-federal users and uses of GOES data and services, but acknowledged that more should be identified in order to determine potential pathways for ensuring that these users continue to have access to this data if the 1675-1680 MHz band were allocated for commercial terrestrial operations.⁴⁷ We recognize that this community of users may not ordinarily be aware of FCC proceedings and their potential impact. We therefore seek comment on how these users and uses can be effectively identified and their views solicited. In particular, we seek comment on whether there are classes of users or uses that can serve to identify the types of users and uses, and whether there may be other effective ways of reaching out to these stakeholders to ensure that their concerns can be addressed.

Finally, we seek comment on any other public interest considerations that should be taken into account with respect to any potential proposed allocation and service rules governing terrestrial commercial mobile operations in the 1675-1680 MHz band.

EX PARTE STATUS

This proceeding is a “permit-but-disclose” proceeding in accordance with the Commission’s ex parte rules.⁴⁸ Persons making ex parte presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that

⁴⁶ See generally *AWS-3 Report and Order*, 29 FCC Rcd 4610.

⁴⁷ LightSquared Nov. 5, 2015 *Ex Parte* at 3.

⁴⁸ 47 CFR § 1.1200 *et seq.* Although the rules do not require that this be a “permit-but-disclose” proceeding, considering the broad set of issues discussed in this public notice we exercise our discretion in making it so. See *id.* §§ 1.1204(b)(2); 1.1200(a).

proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.

GENERAL INFORMATION

Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.149, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

For further information, contact: Paul Murray, at Paul.Murray@fcc.gov or (202) 418-0688 (Office of Engineering and Technology); Charles Mathias, at Charles.Mathias@fcc.gov or (202) 418-7147 (Wireless Telecommunications Bureau); or Robert Nelson, at Robert.Nelson@fcc.gov or (202) 418-2341 (International Bureau).

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