**Key Questions and Requests Contained Within FCC Public Notice DA 16-443**

April 25, 2016

“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”

Each numbered item below, repeats a question contained in the public notice document. This format may make it easier to see the questions asked, with hyperlinks to reference documents or reports, mentioned in the Public Notice.

The complete, original FCC Public Notice may be found on the Internet at: <http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0422/DA-16-443A1.pdf>

**Note: All Initial Comments by Companies, Organizations, Academia, End Users and Individuals due by June 21, 2016. A second round of comments, based on review of what has already been filed is due by July 21, 2016.** Submissions can be letters or word documents with answers to the questions poised by the FCC in the document, or relevant information that you wish to provide to decision makers.

**Note: The FCC Proceeding Number is RM-11681** and all filed comments may be found in the FCC’s Electronic Comment Filing System (ECFS) on the Internet at <http://www.fcc.gov/ECFS> by entering the above proceeding number. Instructions on how to use the ECFS system may be found on the Internet at: <http://apps.fcc.gov/ecfs/userManual/ecfsmanual.jsp>

The actual process to upload a written document is quite simple and straightforward.

**Questions about Federal or non-Federal use of data which uses the subject spectrum band**

1. [Page 7] 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.
   1. We [i.e. FCC] seek input on the potential impact of new commercial operations in the 1675-1680 MHz band to the missions of non-federal entities,
      1. particularly those engaged in state and local emergency management functions,
      2. or in support of land, air, and sea transportation operations,
      3. 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.
2. [Page 7] We [FCC] 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)
3. We [FCC] 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
   1. DCPR information,
   2. GOES-Rebroadcast (GRB),
   3. Telemetry, and
   4. High Rate Information Transfer (HRIT) and Emergency Managers Weather Information Network (EMWIN) services
4. We [FCC] seek comment on how [petitioner] Ligado’s proposal could affect non-federal users’ access to GOES-N and GOES-R data.
5. We [FCC] request comment on which non-federal entities directly access NOAA’s data or services delivered by GOES-N and GOES-R satellites,
   1. what types of data or services are received directly (as opposed to indirectly through some other source, such as the Internet),
   2. and how frequently?
6. Which frequencies are used? [**Note:** A user may receive this data directly via a receiving system using the frequencies listed, or may procure services of a private sector weather enterprise supplier, who receives the data via the frequencies listed, or they may utilize Federal products which receive the data via the frequencies listed to create a watch, warning, advisory or other product. The FAQ lists frequencies for each service.]
7. We [FCC] 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.
8. To the extent that receipt of GOES-N or GOES-R satellite data and services by non-federal entities would be affected, we [FCC] seek comment on possible alternatives that might be available for receiving the data and services.
9. Would [petitioner] Ligado’s proposal requiring development of a data delivery network[[1]](#footnote-1) provide an effective alternative? **Note**: See item 1 (a) (iv) below.
10. To what extent would this proposal affect data latency and data availability to users,
    1. what might be the cost impact to non-federal users
    2. and [any] beneficiaries of this data?
11. 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?
12. In addition, we [FCC] 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. **Note:** the band directly above GOES/ GOES-R broadcasts was sold at auction last year and this question relates to whether any entities are making changes as a result of that sale, potentially due to future out of band interference into the GOES/GOES-R band or to protect polar satellite (POES and MetOp operations).
    1. 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?
13. We [FCC] 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.
14. 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?
15. [The petitioner] 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.
    1. We [FCC] recognize that this community of users may not ordinarily be aware of FCC proceedings and their potential impact.
    2. We [FCC] therefore seek comment on how these users and uses can be effectively identified and their views solicited.
16. In particular, we [FCC] seek comment on whether there are classes of users or uses that can serve to identify the types of users and uses,
    1. and whether there may be other effective ways of reaching out to these stakeholders to ensure that their concerns can be addressed.
17. Finally, we [FCC] 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.

**­Questions about Past Studies and Statements by the Commercial Petitioner:**

The FCC would invite comment on any or all of these past filings, if any user so desires to express a view on any of these topics:

1. [Page 6] We [i.e., The FCC] “invite comment on the studies and filings that the commercial petitioner has submitted since 2014 with respect to potentially providing a primary terrestrial non-federal mobile service allocation in 1675-1680 MHz band”.
   1. Recent studies:
      1. Petitioner engaged private company to assess the potential relocation of NWS radiosondes from the frequency band of interest to the 401-406 MHz band. Commercial petitioner “asserts that the report demonstrates the feasibility of relocating the NWS radiosondes”.
      2. Petitioner submitted two reports (April 14, 2014) “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. These reports may be found on the Internet at: <http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0422/DA-16-443A1.pdf> [Please note that these reports discuss operation of the petitioner’s proposed commercial services as they would operate only with the Federal stations used for satellite Command and Data Acquisition by NOAA, and not any other Federal receive site or non-Federal user receive site.] The petitioner “asserts that these reports appropriately 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”
      3. Petitioner also “states that the Commission [i.e., FCC] 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* [i.e., rules from the recent auction of 1695-1710 MHz, that is also used for downlinks from the POES and MetOp satellites], while allowing LTE operations at specified power levels outside of the zones without coordination.”
      4. Petitioner submitted an assessment report [November 5, 2015] in which they describe potential methods by which the 1675-1680 MHz band could be shared between NOAA and a commercial wireless network. This report may be found on the Internet at: <http://apps.fcc.gov/ecfs/document/view?id=60001333282>
      5. The above assessment report “proposes potential protection zones around federal GOES and GOES-R earth stations.” The petitioner submitted their proposed protection zone designs on the Internet [December 16, 2015] at: <http://apps.fcc.gov/ecfs/document/view?id=60001387484>
      6. The petitioner 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.” The petitioner concludes “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”
      7. The petitioner “describes its inquiries about NOAA data products and services that are received by non-NOAA end users.” “Recognizing that ‘the universe’ of these users was not fully known at this time [i.e. of the report], the petitioner requests that the Commission [i.e., FCC] 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,
         * Available technologies or alternatives to address any such impacts.
      8. The petitioner submitted (December 16, 2015) “additional analysis into the record, which it asserts 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 operations” This submission may be found on the Internet at: <http://apps.fcc.gov/ecfs/document/view?id=60001387484> The petitioner “claims that the results of this analysis show that relatively small protection zones would fully protect NOAA’s GOES-R operations from the potential impacts of anomalous propagation.”
      9. The petitioner submitted a filing (that amends their original November 2012 petition) requesting that the Commission initiate a proceeding to provide a commercial terrestrial mobile service in the f1675-1680 MHz band. The petitioner “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.” This filing may be found on the Internet at: <http://apps.fcc.gov/ecfs/document/view?id=60001396805> **NOTE:** This December 31, 2015 filing contains discussions of other bands that the petitioner would like to utilize in the development of a commercial LTE broadband network, as the typical LTE network has transmissions in both directions on different frequency bands for communications between handsets and towers versus towers and handsets.
      10. The petitioner submitted (on February 9, 2016) “a specific proposal for addressing potential concerns of non-NOAA users …” “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.” That filing may be found on the Internet at: <http://apps.fcc.gov/ecfs/document/view?id=60001425595>
   2. FCC says, “We do not here seek comment on other proceedings that potentially affect [the petitioner’s] operation of a terrestrial mobile network using spectrum in the MSS L-band. Comments on those issues will be addressed in other proceedings.”
   3. [Page 7] FCC says, “We invite specific comment on the technical studies and filings submitted by LightSquared and Ligado [i.e., the petitioner] in 2014 and 2015”
   4. The FCC continues, “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.” **Note:** Meteorological Aids refers to the NWS radiosondes currently operated in 1675-1679.6 MHz, and Meteorological-Satellite Service refers to the GOES downlinks of Sensor Data, Multi-Use Data Link, Processed Data Relay (known as GOES-Variable or GVAR), Low Rate Information Transmission (LRIT), the Emergency Manager’s Weather Information Network (EMWIN), and the Data Collection Platform Report (DCPR) of the Data Collection System and the GOES-R downlinks of Data Collection System Report (DCPR), GOES-Rebroadcast (GRB), High Rate Information Transmission/ Emergency Managers Weather Information Network (HRIT/EMWIN)
   5. FCC continues, “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?”
   6. FCC continues, “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? “
   7. FCC continues, “What additional technical and policy issues would be relevant for the Commission to consider?”
   8. “We [i.e. FCC”] also invite comment on [petitioner] Ligado’s proposal regarding the its proposed power limits and OOBE [Out of Band Emission] 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. “

**EX PARTE Status**

The end of the FCC Public Notice indicates rules that apply if any party wishes to meet personally with the staff of the Federal Communications Commission on this topic. It is a “permit-but-disclose” proceeding such that anyone meeting specifically on the topic of this public notice must file a memorandum or copy of a written presentation in this proceeding. It may not significantly impact a user that is only filing a written letter or comment. See the FCC website at <https://www.fcc.gov/proceedings-actions/ex-parte>

**Submit a comment or letter in the RM-11681 Proceeding**

The FCC Public Notice describes that inputs should be made via the Electronic Comment Filing System (ECFS) at <http://apps.fcc.gov/ecfs/>

However the Public Notice does not clearly indicate that the proper proceeding is **RM-11681**, using the “**Submit a Filing**:**”** link on the FCC ECFS webpage.

1. *See* Ligado Feb. 9, 2016 *Ex Parte.* [↑](#footnote-ref-1)