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Via ICFS

August 21, 2026

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street, NE
Washington, D.C. 20554

**Re: Further Responses to Technical Questions,
ICFS File No. SAT-MOD-20251206-00374**

Dear Ms. Dortch:

This letter provides more information in support of the above-captioned satellite license modification application. On June 11, Ligado Networks Subsidiary LLC, Debtor-in-Possession ("Ligado") filed a response to technical questions from various parties. [1] As Ligado explained, those questions went well beyond the information the Commission has required from other satellite license modification applicants, but we provided the information as part of our ongoing effort to inform spectrum neighbors about the company's plans for the SkyTerra Next system. This letter provides yet more information in response to recent filings by AFTRCC,[2] as well as from ASRI et al.,[3] that seek additional granular information about the proposed SkyTerra Next system, including dozens of additional questions and requests for analysis by Ligado, AST & Science, LLC ("AST SpaceMobile"), and their technical consultants.

As set out in the Modification Application, the SkyTerra Next system will be hosted on AST SpaceMobile's U.S.-authorized satellite network and will be used by AST SpaceMobile to provide capacity and coverage for the first and only space-based mobile broadband network to MNO partners, AT&T and Verizon Wireless, as well as FirstNet, providing critical public interest benefits. Throughout this proceeding, Ligado has demonstrated a strong commitment to fully explaining its plan to work with AST SpaceMobile to maximize use of Ligado's existing L-band spectrum without causing harmful interference to other users. Technical analyses conducted by

[1] Letter of Ligado, ICFS File No. SAT-MOD-20251206-00374 (filed June 11, 2026) ("Ligado's June 11 Letter").

[2] Letter of AFTRCC, ICFS File No. SAT-MOD-20251206-00374 (filed July 23, 2026) ("AFTRCC's July 23 Letter").

[3] Letter of Aviation Spectrum Resources, Inc., CNH Industrial, Deere & Company, GPS Innovation Alliance, Iridium Communications Inc., Lockheed Martin Corporation, and Trimble Inc., ICFS File No. SAT-MOD-20251206-00374 (filed July 27, 2026) ("ASRI's July 27 Letter").

Ligado, AST SpaceMobile, and their independent consultants clearly demonstrate that SkyTerra Next fits within Ligado's existing spectrum authorizations and coordination agreements and will not cause harmful interference to adjacent-band systems.

Once again, Ligado submits this response to provide additional information to other spectrum users. However, it bears emphasis that the information requested in these recent letters, and the response provided herein, go well beyond what a satellite licensee is required or expected to provide under the Commission's rules. While Ligado has sought to address the questions raised in the docket, a party looking to block progress cannot delay innovation through a treadmill of follow-ups and interrogatories that are beyond the scope of the Commission's inquiry. The record in this proceeding is more than complete and we urge swift action to introduce new competition into the marketplace for direct-to-device services.

Please see our responses below to the aforementioned letters.

AFTRCC's July 23 Letter

1. **"Methodology"**

   a. *Would RKF consider running a sequential time-stepped simulation of AMT operations against a time-stepped simulation of the full 96-satellite constellation, with AMT pointing time-correlated through two-hour representative trajectories, to capture orbital propagation, multi-satellite-in-view persistence, and clustering of exceedances?*

In response to this question, RKF conducted further analysis using a full 96-satellite simulation across 100 time instances, calculating the exceedance for each of 99,999 randomly generated AMT pointing directions at every time instance. Because every possible AMT pointing direction is captured within each instance, this approach fully addresses the issue. The below Table 1 provides the results of the analysis RKF has performed and shows the exceedance over 100 iterations.

Table 1: Percentage of Exceedance of I/N > -4.15 dB over 100 satellite constellation time instances

AMT_1	AMT_2	AMT_3	AMT_4	AMT_5	AMT_6	AMT_7	AMT_8	AMT_9
0.16%	0.15%	0.14%	0.12%	0.15%	0.21%	0.16%	0.14%	0.14%

   b. *What is the frequency reuse factor across the hex grid? How many cells in the first ring around the AMT-centered cell, if any, operate AST co-channel with the AST signal (adjacent-channel to AMT) in the AMT-centered cell?*

To ensure a conservative approach and result, the simulation did not model frequency reuse for out-of-band calculations, so every cell in and around each AMT site was treated as if it were active. This is an extra cautious approach because frequency reuse across the hex grid would further reduce the aggregate interference levels reflected in the analysis.

c. *Across the 99,999 samples, how is the time-instance selection randomized – is each iteration assigned a time instance with equal probability, or is the assignment otherwise weighted?*

For each satellite-constellation time instance modeled – a single instance in RKF's Addendum B and 100 instances (which use different satellite lat/longs for each iteration) in RKF's supplemental analysis described in the response to question 1(d) – the I/N is calculated across each of the 99,999 randomly generated AMT pointing directions in accordance with the statistical distribution described in response 1(d) below.

d. *Please provide the nadir lat/lon (or ECEF positions) of each satellite in view of CONUS at each of the satellite-constellation time instances used in the analysis, the AMT site positions, and the cell-center positions of the hex grid in the region of each AMT site.*

RKF ran its simulation across 100 time instances (which used different satellite lat/longs for each iteration), calculating the exceedance for each of 99,999 randomly generated AMT pointing directions at every time instance. Because every possible AMT pointing direction is captured within each instance, this approach is conservative and shows an expansion of the margin of protection.

The following tables show the sub-satellite points and the AMT points for the original time instance. Additionally, Attachment 1 contains the same information for the sub-satellite points for the 100 time-instance simulation.

Table 2: Nadir Lat/long of each of the 7 satellites in view of CONUS for the one time instance in Addendum B

SAT ID	Satellite Lat (deg)	Satellite Lon (deg)
0	35.3737	-102.1972
1	52.7127	-123.4527
2	40.2448	-68.165
3	53.1493	-94.5918
4	38.715	-119.4241
5	52.2985	-65.6134
6	33.7062	-85.0956

Table 3: AMT Site Positions

ID	Latitude (deg)	Longitude (deg)
1	35.6552	-117.6574
2	34.128	-119.0949
3	34.9	-117.9
4	34.75133	-120.52023
5	38.2746	-76.4458
6	30.489444	-86.542222
7	37.235	-115.81111
8	33.2385	-106.3464
9	40.03577778	-74.3513611

Table 4: Lat/long of the center of the cell within which AMT site lies

AMT site ID	AST cell Lat (deg)	AST cell Long (deg)
1	35.605977	-117.696662
2	34.075368	-119.170431
3	34.925979	-117.975305
4	34.748762	-120.631787
5	38.313833	-76.538376
6	30.408508	-86.588744
7	37.319507	-115.838314
8	33.300747	-106.290766
9	40.006117	-74.298997

e. *Because of the manner in which the results were aggregated, the impacts in each of the three channels cannot be separately discerned. Separately for each of the three channels at each of the four AMT sites with the greatest %-time of I/N exceeding the −4.15 dB criterion per RKF Table 6, please provide the highest I/N experienced per AMT site, the geometry that produced each highest I/N, and rank-ordered per-satellite contributions at the 0.5 %, 0.1 %, and 0.01 % tail percentiles, broken out separately. State the 95 % CI on each percentile estimate.*

RKF's Addendum B and supplemental analyses already presented the relevant results graphically for each AMT site and channel, and it is the 0.5% tail percentile that is the statistically meaningful metric under the methodology specified in Recommendation ITU-R M.1459.

f. *What is the source citation for the "90 % below 20°" AMT elevation statistic? Alternatively, provide the supporting calculation.*

The 90%-below-20° AMT elevation statistic is calculated directly from the elliptical (oval) AMT antenna-pointing distribution used in RKF's simulation, described in RKF's response immediately below and originated by AFTRCC's own input contribution to the US WP 4C, Document No: USWP4C-74.

g. *Please provide a sensitivity sweep at the four AMT sites with the greatest %-time of I/N exceeding the −4.15 dB criterion per RKF Table 6 for P(el < 20°) ∈ {50, 70, 90, 99 %}, demonstrating the asserted low sensitivity.*

The AMT-pointing model draws elevation angle from a statistical distribution bounded between a minimum elevation of 2.68° and a maximum of 71.56°, parameterized so that a specified critical elevation angle is not exceeded with a specified critical probability. This pointing probability comes directly from AMT studies, utilizing a 640 km x 10 km flight path, which establishes the distribution of AMT antenna pointing and covers the maximum transmission path length described in Recommendation ITU-R M.1459. The timesteps conducted showed additional margin relative to the AMT protection criteria.

h. *Please provide the pattern model (e.g., S.1528, Taylor, or manufacturer-measured), the full envelope from 5° to 60° off boresight, and confirm whether measured pattern data exists from the on-orbit AST satellites (DA 26-391).*

The analysis related to the AMT system includes detailed technical analysis to determine the performance of the array in the out-of-band domain. The satellite antenna gain values can be found in the filed Schedule S.

i. *Please provide copies of any documentation characterizing the proposed constellation's hardware operating in the 1525–1559 MHz band in detail (for example, any ITU-R contributions reflecting the SkyTerra next characteristics filed directly as a sector member or through a member administration, or any internal hardware specifications).*

AST SpaceMobile's internal hardware specifications are proprietary. ITU-R filings made by AST SpaceMobile are available on the ITU website. We note that the necessary materials are all contained within the SkyTerra Next Modification Application and the pertinence of any ITU-R filings is unclear.

j. *What is the aggregate OOBE pfd maximum delivered at the 1525 MHz edge at each of the federal AMT sites studied under the operating conditions in the analysis, evaluated across each of the constellation time instances used?*

RKF calculated the maximum aggregate OOBE spectral PFD at the 1525 MHz band edge at each AMT site, across all constellation time instances used in the analysis. Depending on the site, the results range from approximately -138.4 to -143.8 dBW/m²/MHz as shown below.

Table 5: Maximum aggregate OOBE PFD per AMT site

AMT Site	Max Aggregate OOBE PFD (dBW/m²/MHz)
1	−141.06
2	−143.82
3	−141.46
4	−141.69
5	−143.58
6	−141.01
7	−138.41
8	−140.17
9	−139.03

Because RKF's governing metric for assessing potential harmful interference is the 0.5% I/N tail percentile described in Addendum B rather than an absolute PFD ceiling, the Commission has the information it needs to assess harmful interference.

k. *Please specify the operating-mode parameters (output backoff, DPD coefficients, per-beam traffic loading, beam-to-amplifier allocation rule) used for SkyTerra Next at 1525–1559 MHz.*

Ligado has already provided operating-mode information, detailed technical information, and interference analysis in this proceeding to demonstrate that SkyTerra Next will not cause harmful interference.

l. *Please provide the aggregate I/N floor at each AMT site studied, assuming the earth-fixed cell containing the AMT site operates at full main-beam EIRP density* *for each random AMT antenna pointing event in the simulation, plus sidelobe contributions from the six first-ring neighbor cells at ~24 km, plus sidelobe contributions from the other satellites in view of CONUS at that time instance.*

The scenario described – limiting the modeled illumination to the AMT site's home cell plus only its six first-ring neighbor cells – does not reflect how SkyTerra Next will operate. If only those seven cells were illuminated, aggregate satellite transmit power in the vicinity of the AMT site would be lower than the levels reflected in RKF's existing analysis, which conservatively treats all cells in and around every AMT site as active. This alternative, less representative scenario would be a purely academic exercise and would not provide meaningful additional information since the existing conservative methodology demonstrates protection of the AMT sites.

m. *Please provide the visible-satellite count distribution at each AMT site at 15° minimum elevation, separately for each of the satellite constellation time instances used in the analysis (per RKF Addendum B p. 6, more than one time instances is used).*

For the single time instance addressed in RKF's Addendum B, the number of satellites visible at each AMT site at a 15° minimum elevation angle is between 1 and 4, depending on the site.

n. *Please characterize the per-cell UE-position spatial distribution used in the analysis and the resulting probability that the serving-beam direction coincides with the AMT site location for each AMT site studied.*

RKF's simulation assumes that, within each cell, the UE is located at the center of each beam and is served by the satellite with the highest elevation angle that has available capacity.

o. *Please provide 5th- and 7th-order IM, spectral regrowth from LTE/5G through a non-memoryless HPA, phase-noise contributions to the OOB emission pedestal, and broadband noise-floor contributions from the digital-to-analog converter (DAC). The 43.7 dB S/IM3 figure stated in the RKF Addendum characterizes only one of those contributions, not all.*

Fifth-order intermodulation products will be at least 13-14 dB below third-order intermodulation products and seventh-order IM products will be lower than that.

p. *Please confirm the per-HPA IM3 calculation captures the worst-case beam-to-HPA allocation, and specify the beam-to-HPA allocation rule used in the analysis.*

Each satellite's high-power amplifiers (HPAs) will be uniformly loaded – that is, transmit power will be distributed evenly across all active HPAs on a satellite.

q. *Did the analysis include receiver-side intermodulation between in-band signals from multiple visible satellites at the AMT front-end?*

No, the simulation considered only intermodulation power generated at the satellite HPAs; it does not model intermodulation generated at the AMT receiver front end.

r. *What quantitative spatial-coherency factor is applied in part (ii) of the IM analysis, and over what angular range relative to the steered beam direction.*

The intermodulation coherency model calculates IM energy over a region bounded by -125.0° to -66.0° longitude and 24.89° to 49.39° latitude – a region that encompasses all AMT sites studied – by performing a triple convolution in the far field across all beams formed by a satellite.

s. *What is the effective OOB radiation gain at the AMT location after combining parts (i) and (ii) – equivalently, the OOB EIRP toward the AMT site at the relevant off-axis angle?*

The simulation generates a link-budget output file containing the relevant link-budget parameters – including the effective OOB radiation gain toward the AMT site – between a given satellite and a given AMT site for a single time iteration.

t. *Is the spatial-coherency factor derived per sub-array (specify sub-array size and count), or applied at the full-array level?*

Spatial coherency is calculated at the full-array level, not per sub-array, using all beams and beam power levels on a satellite to perform a third-order spatial convolution in the far field.

2. **"Downlink emissions / out-of-band"**

a. *Following provision of the satellite transmit antenna pattern (per item 1.6 above), please provide the EIRP spectral-density mask into 1435–1525 MHz at offsets to be specified by AFTRCC once the antenna pattern is in hand, together with any measured emission data from the on-orbit AST satellites (DA 26-391).*

This analysis demonstrates that SkyTerra Next will be capable of meeting -120 dBW/m²/MHz into the 1435-1525 MHz band.

b. *Please provide the AMT-side filter mask depth and frequency range, and the dB difference between AMT-side and GPS-side rejection at the 1525 MHz band edge and at 5, 10, and 20 MHz offset.*

The RKF analysis shows there is significant margin afforded to both AMT and GPS receivers to protect against any harmful interference.

c. *Please confirm whether the –171.1 dBW/m²/MHz aggregate OOBE spectral pfd stated in the Ligado June 11 response (p. 4) applies at the 1525 MHz AMT band edge in addition to the GPS side. If yes, please substantiate. If no, please provide the corresponding aggregate OOBE spectral pfd at the AMT band edge.*

AFTRCC misread the units on the "-171.1 dBW/m²/MHz" figure, which is actually -171.1 dBW/MHz, as accurately stated in Ligado's June 11 Letter. As explained in that response, the maximum received aggregate OOBE signal strength calculated by RKF – for Air Navigation Precision GPS – was -171.1 dBW/MHz (equivalently, -141.1 dBm/MHz), a received signal-strength figure, not a power-flux-density figure expressed per square meter.

d. *Is the active antenna system sub-arrayed, and, if so, how (i.e., sub-array size, count, geometry)?*

The antenna was modeled at the element level for purposes of interference analysis, which addresses the core interference issue before the Commission. The architecture of the antenna array's sub-array is commercially sensitive, confidential, and not needed for the interference analysis.

e. *Please characterize the operating conditions (e.g., temperature, scan angle, traffic loading, backoff) under which DPD is disabled or reduced, per the Ligado June 11, 2026 response – DPD is "used as needed" -- and quantify the resulting OOB emission pedestal (5th- and 7th-order IM, spectral regrowth, phase noise) in the DPD-off or DPD-reduced regimes.*

If significant margin is available then DPD may not be required, however, this is a core capability of the AST system. DPD will be used under all conditions to protect AMT operations below 1525 MHz.

f. *How many independent beams does each satellite generate?*

In the simulation, satellites generate 1,000 independent beams, except for the satellite farthest from CONUS in the modeled time instance (Satellite ID 5), which has 647 beams in view.

g. *How many beams across the full 96-satellite constellation are simultaneously active relative to the AMT site (i.e., within the visible-sky aperture of each AMT site and its near vicinity), in each of the satellite constellation time instances used in the analysis? Does one beam from the constellation predominate for each of the 99,999 samples at each AMT site? If not, please substantiate the aggregation effects?*

Thousands of beams across the constellation are simultaneously active over CONUS, including in the vicinity of the AMT sites. Because intermodulation is a function of amplifier loading, RKF's model processes the patterns of all beams on a satellite through a triple convolution to determine the spatial coherency of IM energy in the far field. Across the satellites active in the modeled time instance, one (the satellite farthest from CONUS) operates 647 channels and all of the remaining operate 1,000 channels each.

h. *What is the sub-array organization (sub-array size, count, geometry) that drives the OOB emission pattern?*

See the response to question 2(d) above.

i. *In the real operational system (separate from the static-analysis assumption), is the earth-fixed hex maintained by dynamic per-beam steering – in which case Schedule S must reflect dynamic steering – or is the hex satellite-body-fixed with ground footprints sweeping at orbital velocity? Which reference frame applies in the operational system?*

The system is flexible to implement varying schemes. The analysis assumes earth-fixed grids, maintained through dynamic beam steering.

j. *Please demonstrate, if RKF takes that position, that the static-snapshot architecture for AMT exposure is conservative relative to the operational dynamic beam-scheduling system, particularly for the case in which UE traffic within the cell containing an AMT site concentrates near that site.*

Additional analysis was conducted with the 100-time-instance run described above. Averaged across those 100 time instances, the percentage of time the -4.15 dB I/N criterion is exceeded at each AMT site is shown in Table 1 and confirms significant margin to the AMT operations.

These 100-instance averages are lower than the corresponding single-instance exceedance percentages reported in RKF's Addendum B Table 6, confirming that the single-time-instance snapshot did not underestimate the multi-realization result.

k. Please refile Schedule S to reflect that the beams are shapeable, as stated in the Ligado June 11, 2026, response (p. 2). Otherwise, please explain why the apparent contradictions described [in Section 2.5 of the July 23 Letter] are not present.

Ligado has already addressed this question in Ligado's June 11 Letter. To reiterate, the Addendum B analysis was performed using shapeable-beam operating parameters, not the Schedule S generic-beam parameters, so no corrected analysis is necessary.

l. Please reconcile these apparently conflicting statements. Provide downlink channelization, EIRP density per channel at maximum loading, the relationship among TRP / EIRP / EIRP density / per-beam values, and the maximum number of simultaneously-active beams per satellite.

All of the above requested information about TRP/ EIRP/ EIRP density has been provided in the Modification Application and in documentation for the RKF analysis. The number of beams is noted above in Question 2(f). As Ligado has explained, the downlink channelization plan for SkyTerra Next is proprietary business information.

m. Please provide OOB IM PSD vs. loading $L \in \{0.2, 0.5, 0.8, 1.0\}$ and identify the actual worst-case loading used in the RKF study. State whether the M.1459-0 comparison in the RKF Analysis is against instantaneous-peak or time-averaged interference.

The OOBE analysis assumed 100% loading – *i.e.*, all beams active at full power – which represents the worst case. For a lower uniform loading level L, if transmit power on each beam is reduced proportionally, each amplifier's operating point is reduced by $-10 \cdot \mathrm{LOG}(L)$ dB; because IM power is dominated by third-order effects, IM power is reduced by approximately $-30 \cdot \mathrm{LOG}(L)$ dB. For example, at L = 0.8, the operating point is reduced by about 1 dB and IM power by about 3 dB.

3. <u>"Site coverage, aggregation, ops"</u>

a. Please provide per-satellite rank-ordered contributions to aggregate I/N at each AMT site studied, per time instance. Please also confirm the satellite-to-AMT assignment rule (per RKF Addendum B p. 7: beams within 300 km of the AMT site → highest-elevation satellite; remainder → other satellites) and the resulting satellite-to-AMT elevation distribution.

Satellites are not assigned to AMT sites; rather, beams are assigned to satellites. The relevant I/N level is aggregate rather than the per-satellite contribution, and has already been provided in Question 1(a).

b. *In addition to the pending request for the channel-specific data (such as I/N CDF) for 1501.5, 1515.5, and 1524.5 MHz at each AMT site studied, provide the 0.5 %, 0.1 %, and 0.01 % I/N tail percentiles per channel per site.*

AMT sites use varying channels across the AMT allocation, so providing the results for all three channels accurately reflects the AMT operations.

c. *Please provide multi-realization confidence intervals on the percentile per AMT site, and a decomposition of the variability source (frozen-constellation artifact, sampling noise, and site geometry relative to the specific satellite positions in each time instance).*

RKF's 100-time-instance run can be used to characterize this per-site variability. As shown in Ligado's response to question 2(j) above, the 100-instance average exceedance at each AMT site is meaningfully lower than the corresponding single-instance result reported in RKF's Addendum B Table 6, demonstrating an improvement relative to the single-time-instance result.

<u>ASRI's July 27 Letter</u>

ASRI's July 27 Letter purports to seek "further clarification" regarding Ligado's response to a letter filed in this docket on May 15.[4] However, rather than presenting new questions, ASRI's July 27 Letter rehashes its previous arguments. ASRI's July 27 letter generally requests information that Ligado already has provided or has indicated is competitively sensitive or not relevant under the FCC's rules for licensing.

Ligado's responses to the statements made in ASRI's July 27 Letter are organized in accordance with the three categories of questions set out in ASRI's May 15 Letter. Each of those categories is addressed below.

1. **General assumptions, methodology, and frequency plan"**

ASRI's July 27 letter requests information about the "specific frequencies [Ligado] will utilize to provide MSS within the 1525-1544/1545-1559 MHz (space-to-Earth) and 1626.5-1645.5/1646.5-1660.5 MHz (Earth-to-space) bands."[5] As Ligado has explained, the description of the exact frequencies to be utilized by SkyTerra Next is confidential sensitive business information for Ligado and other coordinated parties. All frequencies are within Ligado's licensed and coordinated MSS spectrum.

Ligado plans to utilize two 10 MHz 3GPP LTE/NR-based channels for providing broadband D2D services via SkyTerra Next. The L band payload for these channels will utilize these frequencies:

- Downlink: 1525–1544 MHz and 1545-1559 MHz

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[4] *See* Letter of Aviation Spectrum Resources, Inc., CNH Industrial, Deere & Company, GPS Innovation Alliance, Iridium Communications Inc., & Trimble Inc., ICFS File No. SAT-MOD-20251206-00374 (filed May 15, 2026) (the "ASRI's May 15 Letter").

[5] *Id*. at 3-4.

- Uplink: 1626.5–1645.5 MHz and 1646.5-1660.5 MHz

2. "Satellite downlink emissions"

Ligado has provided sufficient information to assess potential interference involving SkyTerra Next's downlink. ASRI's primary concern appears to be the methodology used to calculate an OOBE signal at the Earth's surface, and it calls for RKF's analysis to be "further documented" without explaining what more is needed. The RKF analysis calculated aggregate OOBE Spectral PFD levels over all SkyTerra Next satellites in view at the center of every beam covering all of CONUS which provides all required information. As explained in the RKF report, the maximum aggregate OOBE Signal Strength at any receiver was for Air Navigation Precision GPS: -171.1 dBW/MHz or -141.1 dBm/MHz.

ASRI's July 27 Letter wrongly suggests that Ligado's statement that it will comply with the emissions limitations in the Commission's rules is "inconsistent with its 2016 agreement to comply with more rigorous OOBE requirements that the Commission subsequently adopted in its *2020 Ligado Order*."[6] That statement confuses the proposed 2016 ATC system (with base stations at 30 meters) and the SkyTerra Next system (space stations at 690 kilometers). The proposed SkyTerra Next application is for a satellite system operating under the Commission's long-standing MSS rules. The SkyTerra Next system is consistent with the Commission's MSS rules, and, accordingly, does not seek any waivers.

Further, SkyTerra Next will not disrupt existing GSO MSS services, including GPS correction signals.[7] As we have previously made clear, spectrum use within the L-band by SkyTerra Next is coordinated with other L-band operators. SkyTerra Next will be operated subject to the same rules and compliance framework to which SkyTerra-1 currently is subject. Ligado is aware of commercial relationships with some entities for GPS correction signals, and it has held commercial discussions and expects to resolve those issues.

3. "User equipment emissions"

ASRI's July 27 Letter also freelances with a claim that Ligado's user equipment may cause interference. The paper-thin basis for this allegation put forward by ASRI comes from unrelated technical provisions found in an order having *nothing to do with* the proposed MSS system (the April 2020 Order discussing a terrestrial ATC proposal).[8] SkyTerra Next is an *MSS system* subject to the FCC's MSS rules, and it will be operated in accordance with those rules.

This baseless claim on user equipment impact not only ignores that the D2D devices used with SkyTerra Next will operate within the Commission's rules, and ignores the millions of D2D-capable devices that operate today in the MSS L-band and Big LEO band. Thus, the use of unmodified consumer mobile devices in this context will have no impact on the operating environment since the Commission's rules ensure that OOBE from low-power D2D devices will be materially lower than emissions from traditional higher-power MSS terminals. Under Part 25, the relevant emission limit is expressed as a relative mask tied to in-band transmit power, rather than as a fixed absolute value. As a result, the lower the in-band power, the lower the

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[6] *Id.* at 4-5.

[7] *Id.* at 5.

[8] *Id.* at 6.

absolute OOBE. As an example, Section 25.202(f) provides for 25 dB suppression relative to in-band transmit power, which means that a lower-power terminal must satisfy a proportionally lower absolute OOBE level. In practical terms, this means that a 1-watt terminal must meet an absolute OOBE level 100 times lower than a 100-watt terminal.

As clarified in Ligado's June 11 Letter, Ligado plans to utilize two 10 MHz 3GPP LTE/NR-based channels for providing broadband D2D services via SkyTerra Next. These 3GPP technologies utilize network-controlled duplexing and scheduling architecture of 3GPP LTE/NR systems. In LTE and NR, user terminals do not transmit simultaneously on the same assigned uplink resource. The network scheduler controls uplink access by assigning each terminal specific time-frequency resources for transmission. In FDD operation, uplink and downlink use paired spectrum, and terminals transmit only on scheduled uplink resources within the uplink carrier. So even though there are multiple users served by the same carrier, their transmissions are separated in time or frequency, and terminals transmit only during configured uplink slots.

* * *

As Ligado has explained, immediate grant of Ligado's modification application will further advance U.S. leadership in the space economy by enabling innovative services, without causing harmful interference to other users. SkyTerra Next is poised to deliver a true space-based mobile broadband service to American consumers with its partner, AST SpaceMobile, which is clearly in the public interest and advances the Commission's goal of ubiquitous connectivity. Please direct any questions to the undersigned.

Respectfully submitted,

/s/ *Gerard J. Waldron*
Gerard J. Waldron

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ATTACHMENT 1: 100 Time Instance Sub-Satellite Lat/Long Information

[See accompanying document]