

Leann Nguyen

From: Melz, Gregory <GMelz@ntia.gov>
Sent: Tuesday, September 23, 2025 7:14 AM
To: Navid Golshahi; Brian Holland; Michael Crowe; Serey Thai; Leann Nguyen
Cc: Grimaldi, Thomas M.; fas@scan.nasa.gov; Michael Evans [External]
Subject: NG 288091-093/098-100/402-404 (CTC-1A/B/C) - Concurrence

FCC,
NTIA concurs with conditions to the files 0546-EX-CN-2025, 0800-EX-CN-2025, and 0801-EX-CN-2025. Per NASA request, the following conditions will be made to the NG records, and the additional comments below must be included in the grant.

NG 288091/098/402 (Narrowband S-band DL):

- Add P032
- Change PWR01 to W0.416
- Add REMXX *AGN,NIB TO FED SPCE USERS
- Add REMXX *AGN,CONFORMS TO ART 21 PFD LIMS
- Add SUPXX DOWNLINK PFD LEVELS SHALL BE IN ACCORDANCE WITH ARTICLE 21 OF THE RRS AT ALL TIMES. THIS LINK IS LIMITED TO A DUTY CYCLE OF 0.5 PERCENT.

NG 288093/100/404 (Wideband S-band DL):

- Add P032
- Add REMXX *AGN,NIB TO FED SPCE USERS
- Add REMXX *AGN,CONFORMS TO NTIA 5.6.2 MASK
- Add REMXX *AGN,MEAS DATA TO FCC PRIOR TO USE
- Add SUPXX MEASURED DOWNLINK EMISSIONS MUST CONFORM TO THE UNWANTED EMISSION MASK IN SECTION 5.6.2 OF THE NTIA MANUAL. THIS LINK IS LIMITED TO A DUTY CYCLE OF 3 PERCENT. SEE FCC GRANT FOR CONSTRAINTS ON THE COMPANION (CF OF 2072.5 MHZ WITH 5 MHZ EMS) UPLINK.

NG 288092/099/403 (UHF DL):

- Add P032
- Add REMXX *AGN,NIB TO FED SPCE USERS
- Add REMXX *NTS,M008,NASA GND STN,ST. LOUIS (MO)
- Add SUPXX THIS LINK IS LIMITED TO A DUTY CYCLE OF 0.5 PERCENT. SEE FCC GRANT FOR TECHNICAL LIMITATION (NO TX WHEN CONJUNCTION ANGLE IS LESS THAN 20 DEG) TO PROTECT NASA EARTH STATION.

Lastly, here are the corresponding conditions that we request be included in the FCC grant:

- All operations are on a strict non-interference basis to authorized federal users. Numerous factors such as future federal space missions brought-into-use after granting this authorization may prohibit its extension or renewal. This authorization will expire at the end of the CTC-1A/B/C mission or 5 December 2030, whichever occurs first.
- Space-to-Earth transmissions centered at 2245 MHz and using an emission bandwidth of 210 kHz shall not exceed an Effective Radiated Power (ERP) of 0.416 W to ensure conformance with the power flux-density (PFD) limits in Article 21 of the Radio Regulations. Additionally, these links shall not exceed a duty cycle (time transmitting relative to time visible to an authorized ground station) of 0.5%. Additionally, use of downlink

transmissions centered at 2245 MHz with an emission bandwidth of 210 kHz shall be strictly limited to durations when the CTC-1A/B/C spacecraft is visible to one of the earth station locations listed below:

- A. Svalbard, Norway
- B. Tromsø, Norway
- C. Troll, Antarctica
- D. Awarua, New Zealand
- E. Mingenew, Australia
- F. Jeju, South Korea
- G. Absheron, Azerbaijan
- H. Punta Arenas, Chile
- I. Kandy, Sri Lanka
- J. Mon Loisir, Mauritius
- K. Santa Maria, Azores, Portugal
- L. Unst, UK

- Space-to-Earth transmissions centered at 2245 MHz and using an emission bandwidth of 5 MHz shall not exceed a duty cycle of 3% and are strictly limited to durations when the CTC-1A/B/C spacecraft is visible to Lagos, Nigeria. Furthermore, measured data for this mode must conform to the emission mask provided in Section 5.6.2 of the NTIA Manual, and measured data demonstrating compliance must be submitted to the FCC prior to its use.
- Space-to-Earth transmissions centered at 401.5 MHz and using an emission bandwidth of 2.4 kHz shall not exceed a duty cycle of 0.5% and are strictly limited to durations when the CTC-1A/B/C spacecraft is visible to one of the earth station locations listed below:
 - A. Melbourne, FL
 - B. Upland, IN
 - C. Unst, UK
- Space Telecommunications, Inc. shall ensure that space-to-Earth transmissions centered at 401.5 MHz with an emission bandwidth of 2.4 kHz are ceased and no receive operations are permitted when the conjunction angle formed by the location 38° 38' 09" N 90° 13' 38" W, the CTC-1A/B/C spacecraft, and the NASA ACS3 (NORAD ID: 59588) spacecraft is less than or equal to 20 degrees.
- This authorization does not directly authorize any transmissions in the 2025-2110 MHz band. However, for electromagnetic compatibility with Federal systems, Space Telecommunications, Inc. specified an uplink (Earth-to-space) centered at 2067.5 MHz with an emission bandwidth of 52.6 kHz and an uplink centered at 2072.5 MHz with an emission bandwidth of 5 MHz. Any deviation from these two modes shall be cause for revocation of this license. Space Telecommunications, Inc. shall ensure that earth station operations adhere to the following constraints to protect Federal space systems:
 - The uplink centered at 2067.5 MHz shall not exceed a duty cycle of 1%.
 - The uplink centered at 2072.5 MHz shall not exceed a duty cycle of 3%. Additionally, the uplink centered at 2072.5 MHz shall be completely ceased when any of the following satellites are within 5 degrees of the earth station antenna boresight: AXAF-1 (NORAD ID: 25867), ACS3 (NORAD ID: 59588), EZIE (NORAD ID: 63247, 63249, and 63250), GRACE-FO (NORAD ID: 43476 and 43477), IXPE (NORAD ID: 49954), Pandora (NORAD ID: TBD, Expected Launch in Dec 2025), PTD-R (NORAD ID: 60523), and TROPICS (NORAD ID: 56442, 56444, 56753, and 56754).
- Space Telecommunications, Inc. shall submit the appropriate advance publication and information to the International Telecommunications Union (ITU) prior to operations of the CTC-1A/B/C spacecraft, and transmissions from foreign earth stations to the CTC-1A/B/C spacecraft shall obtain the appropriate regulatory approvals from the respective foreign administrations prior to operations.

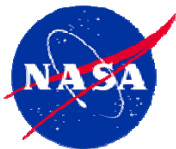
Mr. Gregory A Melz
Chief, Frequency Assignment Branch (FAB)
Chair (Acting), Frequency Assignment Subcommittee (FAS)
Spectrum Services Division (SSD)/Office of Spectrum Management (OSM)
National Telecommunications & Information Administration (NTIA)
Department of Commerce (DOC)
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JWICS: gmelz@doc.ic.gov

From: Evans, Michael A. (GRC-MS0) <michael.a.evans-1@nasa.gov>
Sent: Monday, September 22, 2025 4:29 PM
To: Navid Golshahi <Navid.Golshahi@fcc.gov>; Melz, Gregory <GMelz@ntia.gov>; Brian Holland <Brian.Holland@fcc.gov>; Michael Crowe <Michael.Crowe@fcc.gov>; Serey Thai <serey.thai@fcc.gov>
Cc: Grimaldi, Thomas M. <TGrimaldi@ntia.gov>; fas@scan.nasa.gov; Leann Nguyen <Leann.Nguyen@fcc.gov>
Subject: RE: [EXTERNAL] RE: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)

Greg,

There's zero issue from the NASA perspective with NTIA providing concurrence once the NG modifications are pending in the system and before the server is able to fully go accept on its own. However, given that there's agreement in principle to add the conditions to both the NGs and the Part 5 license, I don't have an issue with NTIA providing concurrence right now. I apologize in advance if there's a subtlety that I'm not fully accounting for.

Thanks!



Michael Evans
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21000 Brookpark Rd., Cleveland, OH 44135
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michael.a.evans-1@nasa.gov

From: Navid Golshahi <Navid.Golshahi@fcc.gov>
Sent: Monday, September 22, 2025 4:22 PM
To: Melz, Gregory <GMelz@ntia.gov>; Evans, Michael A. (GRC-MS0) <michael.a.evans-1@nasa.gov>; Brian Holland <Brian.Holland@fcc.gov>; Michael Crowe <Michael.Crowe@fcc.gov>; Serey Thai <Serey.Thai@fcc.gov>
Cc: Grimaldi, Thomas M. <TGrimaldi@ntia.gov>; fas@scan.nasa.gov; Leann Nguyen <Leann.Nguyen@fcc.gov>
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Adding one more FCC engineer

From: Melz, Gregory <GMelz@ntia.gov>
Sent: Monday, September 22, 2025 4:16 PM
To: Navid Golshahi <Navid.Golshahi@fcc.gov>; Michael Evans [External] <michael.a.evans-1@nasa.gov>; Brian Holland <Brian.Holland@fcc.gov>; Michael Crowe <Michael.Crowe@fcc.gov>; Serey Thai <Serey.Thai@fcc.gov>
Cc: Grimaldi, Thomas M. <TGrimaldi@ntia.gov>; fas@scan.nasa.gov; Travis Nguyen <Travis.Nguyen@fcc.gov>
Subject: RE: [EXTERNAL] RE: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)
Importance: High

My only concern to get these ACCEPT is time..

I can modify the records before the 2pm processing tomorrow, however, those changes wont show until Wednesday. I will then need to vote the records which wont show until Thursday.

Can I provide NTIA's concurrence via email tomorrow morning when I have the modifications pending in the system, understanding the additional conditions will be placed on the grant.

I don't think the applicant can wait until Thursday for the ACCEPT file.

v/r

Mr. Gregory A Melz
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Chair (Acting), Frequency Assignment Subcommittee (FAS)
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Cc: Grimaldi, Thomas M. <TGrimaldi@ntia.gov>; fas@scan.nasa.gov; Travis Nguyen <Travis.Nguyen@fcc.gov>
Subject: RE: [EXTERNAL] RE: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)

Greg and Michael,

It is ok with us if NTIA can speed up the approval process.

Thanks,
Navid

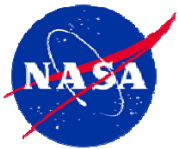
From: Evans, Michael A. (GRC-MS0) <michael.a.evans-1@nasa.gov>
Sent: Monday, September 22, 2025 3:59 PM
To: Melz, Gregory <GMelz@ntia.gov>; Navid Golshahi <Navid.Golshahi@fcc.gov>; Brian Holland <Brian.Holland@fcc.gov>; Michael Crowe <Michael.Crowe@fcc.gov>; Serey Thai <Serey.Thai@fcc.gov>
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Subject: RE: [EXTERNAL] RE: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)

Greg,

Thanks for letting us know.

If you're able to make these changes to the NG proposals directly and the FCC is willing to incorporate the companion/corresponding conditions in their Part 5 license, then I have no issues with immediate approval so that they're able to get their license for LV manifest.

Thanks!



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Subject: [EXTERNAL] RE: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)
Importance: High

Mike, thank you.. I wish I had gotten to this earlier.. but the applicant is ok with NASA's conditions.

We cannot make the changes to the records until tomorrow. If I make the changes to the records, can we provide anything to FCC so the applicant can make their suspense for manifesting?

v/r

Mr. Gregory A Melz
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From: Evans, Michael A. (GRC-MS0) <michael.a.evans-1@nasa.gov>
Sent: Monday, September 22, 2025 9:27 AM
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Cc: Melz, Gregory <GMelz@ntia.gov>; Grimaldi, Thomas M. <TGrimaldi@ntia.gov>; fas@scan.nasa.gov
Subject: NASA Coord Notes/Comments on NG 288091-093/098-100/402-404 (CTC-1A/B/C)
Importance: High

All,

It is NASA's understanding that the applicant is in severe need of their Part 5 license for this item and is at the risk of being de-manifested from their launch vehicle. Therefore, NASA completed an expedited interference analysis and review of all associated exhibits for this item and is ready to provide conditional concurrence.

As a general note, there is significant disagreement between latitude/longitude coordinates ('N' vs. 'S', 'W' vs. 'E', etc.) for the same ES locations between the various proposals. This should be addressed first and foremost, as I'm generally concerned about erroneous data in RFA proposals and its impact on our ability to properly analyze records.

With that being said, we kindly request that the following directives be applied to:

NG 288091/098/402 (Narrowband S-band DL):

- Add P032
- Change PWR01 to W0.416
- Add REMXX *AGN,NIB TO FED SPCE USERS
- Add REMXX *AGN,CONFORMS TO ART 21 PFD LIMS
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NG 288093/100/404 (Wideband S-band DL):

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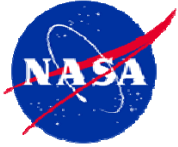
Lastly, here are the corresponding conditions that we request be included in the FCC grant:

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 - B. Tromsø, Norway
 - C. Troll, Antarctica
 - D. Awarua, New Zealand
 - E. Mingenew, Australia
 - F. Jeju, South Korea
 - G. Absheron, Azerbaijan
 - H. Punta Arenas, Chile
 - I. Kandy, Sri Lanka
 - J. Mon Loisir, Mauritius
 - K. Santa Maria, Azores, Portugal
 - L. Unst, UK
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(NORAD ID: 63247, 63249, and 63250), GRACE-FO (NORAD ID: 43476 and 43477), IXPE (NORAD ID: 49954), Pandora (NORAD ID: **TBD**, Expected Launch in Dec 2025), PTD-R (NORAD ID: 60523), and TROPICS (NORAD ID: 56442, 56444, 56753, and 56754).

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Thanks!



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