



PUBLIC NOTICE

Federal Communications Commission
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SPACE BUREAU SEEKS COMMENT ON GSO REFERENCE LINKS

SB Docket No. 25-157

Comment Deadline: June 11, 2026

Reply Comment Deadline: June 26, 2026

By this Public Notice, the Space Bureau seeks comment on potential revisions to the set of geostationary (GSO) satellite network reference links adopted in the Modernizing Spectrum Sharing for Satellite Broadband Report and Order.¹ Ensuring the GSO reference links appropriately reflect typical and widespread GSO satellite operations in the United States will promote efficient spectrum sharing among today's broadband satellite systems.

Background. On April 30, 2026, the Commission adopted a Report and Order updating its spectrum-sharing rules for GSO and non-GSO (NGSO) satellite systems operating in the 10.7-12.7 GHz, 17.3-18.6 GHz, and 19.7-20.2 GHz (space-to-Earth) bands.² Specifically, as an alternative to compliance with equivalent power-flux density limits in the United States, the Commission adopted a procedure whereby an NGSO applicant may either certify that it has completed a coordination agreement with any operational co-frequency GSO satellite network or submit a compatibility showing which demonstrates that it will not cause unacceptable interference to any such system with which coordination has not been completed.³

Compatibility showings must contain the following elements:

(A) A demonstration that the NGSO system will cause no more than 3% time-weighted average degraded throughput of any GSO reference link that uses adaptive coding and modulation;

(B) A demonstration that the NGSO system will cause no more than 0.1% absolute change in link availability to any GSO reference link; and

(C) A demonstration that the NGSO system will cause no more than -10.5 dB I/N for 80% of time for any GSO reference link that does not use adaptive coding and modulation.

Reference links are used by an NGSO operator to demonstrate that it will comply with the criteria in (A) through (C) above. They also provide transparency and regulatory certainty for both GSO and NGSO operators as to the types of operations that will be protected to the threshold levels. The

¹ *Modernizing Spectrum Sharing for Satellite Broadband*, Report and Order, SB Docket No. 25-157, FCC 26-26 (2026) (*Order*).

² *Id.*

³ *Id.* at Appx. A.

Commission adopted a set of GSO reference links to accompany these protection criteria.⁴ The initial set of 328 GSO reference links adopted by the Commission were drawn from both International Telecommunication Union data and the Commission's licensing databases.⁵

In adopting this initial set of reference links, the Commission noted the potential for its further refinement and delegated authority to the Bureau to initiate a proceeding by Public Notice to remove, revise, or add appropriate GSO links.⁶ The Commission specifically directed the Bureau to initiate a focused proceeding to refine the initial set of reference links within 15 days after release of the Report and Order, and to adopt a decision within 60 days after close of that comment period.

Comment Sought. We invite comment on potential revisions to the set of GSO reference links, including the antenna patterns and other operating parameters, technical justifications, deployment information, and considerations of efficient spectrum use. Should any additional GSO reference links be added to the database?⁷ If so, do those links meet the selection criteria employed for the initial set of links, or should the selection criteria be modified? Should any reference links be removed from the database, for example to focus on the most sensitive links and reduce the burden of performing the compatibility showing analyses while maintaining equivalent levels of GSO protection?⁸ Should any columns of information be added or removed in the database? Should any changes be made to the information provided for the current links in the database? For any proposed changes to the GSO reference link database, commenters should provide analyses of the impacts on both GSO networks and NGSO systems.

Ex Parte Rules. This proceeding has been designated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.⁹ 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 proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt,

⁴ *Id.* at paras. 66-69; Attach. *infra*.

⁵ *Id.* at para. 67; Attach. *infra*.

⁶ *Id.* at para. 69. The Commission noted that the Bureau could also consider related arguments raised in the rulemaking. *Id.* at para. 69 n.237; *see also, e.g.*, SES Apr. 21, 2026 SB *ex parte* at 3, Appx. C; Eutelsat Apr. 22, 2026 *ex parte*, Attach.; CSF Apr. 22, 2026 *ex parte* at 2-3; DIRECTV Apr. 23, 2026 *ex parte*, Attach. B; Astranis Apr. 24, 2026 *ex parte*, Attach.

⁷ Any new links should have the complete information necessary to be incorporated into the database or an explanation for any omissions.

⁸ *See, e.g.*, Amazon Jan. 29, 2026 *ex parte*.

⁹ 47 CFR § 1.1200 *et seq.*

searchable.pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

Filing Requirements. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, 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://www.fcc.gov/ecfs/>.

Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.

- Filings can be sent by hand or messenger delivery, by commercial courier, or by the U.S. Postal Service. **All filings must be addressed to the Secretary, Federal Communications Commission.**
- Hand-delivered or messenger-delivered paper filings for the Commission's Secretary are accepted between 8:00 a.m. and 4:00 p.m. by the FCC's mailing contractor at 9050 Junction Drive, Annapolis Junction, MD 20701. 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 courier deliveries (any deliveries not by the U.S. Postal Service) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- Filings sent by U.S. Postal Service First-Class Mail, Priority Mail, and Priority Mail Express must be sent to 45 L Street NE, 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 FCC's Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice).

Availability of Documents. Comments, reply comments, and *ex parte* submissions will be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

ATTACHMENT

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APPENDIX A**Selection Criteria for Initial GSO Reference Links¹**

Filter to select links

The following reference link selection principles ensure the collection of links is reasonably representative of modern GSO operations:

1. Exclude links for non-typical specialty/niche applications like ESIMs and antenna sizes smaller than 45 cm for both Ku-band and Ka-band.
2. Verify the proposed GSO link can maintain the declared unavailability C/N for the specified percentage of time in the absence of interference.
3. Similar to the NGSO-NGSO sharing rules, verify the link will maintain a baseline availability (rain only) of greater than or equal to 99%.
4. Verify that the link maintains a clear-sky link margin of at least 3 dB on top of the margin for rain fade.
5. Verify that the GSO victim earth station noise temperature is at least 115 K.
6. Verify that the GSO victim earth station elevation angle is at least 25 degrees.
7. Verify that the GSO link has a C/I internal (i.e., the C/I linked to internal sources of interference) of less than 40 dB.
8. Similar to the NGSO-NGSO sharing rules, verify that the unavailability C/N threshold is defined as the C/N ratio at which the wanted signal power is just sufficient to sign onto the network and lock the signal and/or sustain minimum user traffic (for ACM links). For GSOs using ACM, this threshold is typically between 0 and -3 dB. For GSOs not using ACM, the single unavailability threshold can be greater than 0 dB.

¹ *Order*, para. 67 n.231; SpaceX Reply, Appx. 1.