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Agenda item 1.11

MSS space-to-space links

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IN THIS SESSION

- 01 Background
- 02 The frequency bands
- 03 Potential issues
- 04 ICAO position and conclusion

Agenda item 1.11 at a glance

MANDATE

Resolution 249 (Rev.WRC-23)

Space-to-space links among non-GSO and GSO satellites in mobile-satellite service frequency bands

RESPONSIBLE GROUP

ITU-R Working Party 4C

Sharing and compatibility studies, draft CPM text, and the regulatory methods

NEXT MILESTONE

WP 4C 7-16 October 2026

Geneva. The second full round of studies and of draft CPM text

AVIATION STAKE

AMS(R)S and RNSS

1610-1626.5 MHz, 1545-1555 MHz and 1646.5-1656.5 MHz, and GNSS in 1559-1610 MHz

WHERE THE AGENDA ITEM STANDS

Studies are under way in all six of the frequency band groups named in Resolution 249 (Rev.WRC-23), and no method has been agreed. The open question is how protection of the incumbent services is demonstrated and then written into the Radio Regulations.

Background

- Agenda item 1.11 considers the technical and operational issues, and the regulatory provisions, for space-to-space links among non-geostationary and geostationary satellites in mobile-satellite service frequency bands, in accordance with Resolution 249 (Rev.WRC-23). The studies are to establish whether such links can be supported on the condition that mobile-satellite systems and other systems operating under an appropriate allocation in the same frequency bands are protected.
- No. 1.25 defines the mobile-satellite service in terms that contemplate space-to-space links. The direction indicators and the conditions of use for those links in the frequency bands concerned remain to be established.
- The agenda item follows the growth in small satellites that rely on a host constellation for connectivity and that operate under No. 4.4 without a firm regulatory basis.

THE FREQUENCY BANDS NAMED IN RESOLUTION 249 (REV.WRC-23)

1518-1544 MHz

1545-1559 MHz

1610-1645.5 MHz

1646.5-1660 MHz

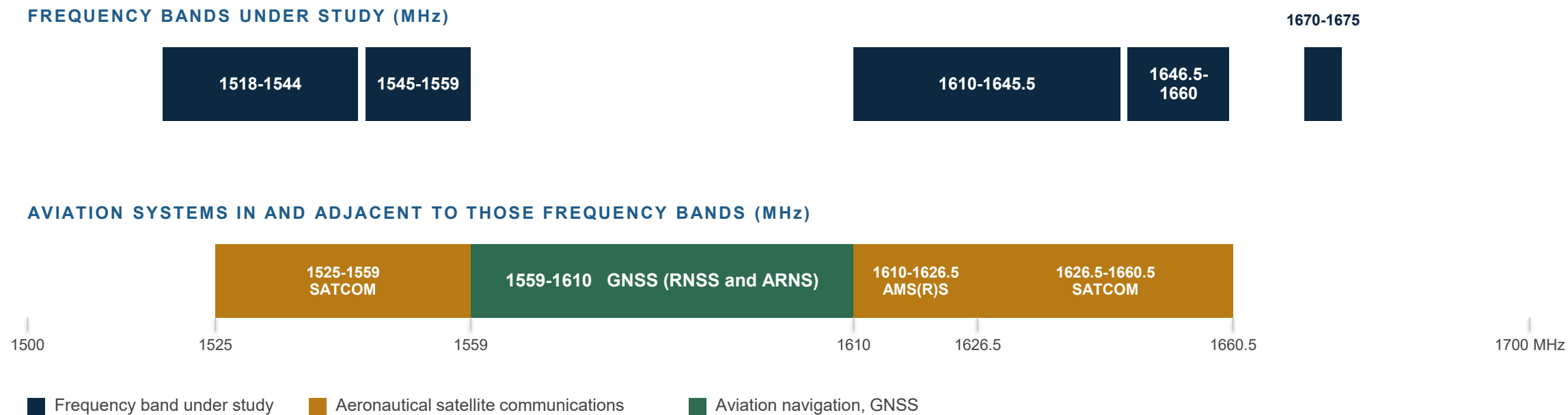
1670-1675 MHz

2483.5-2500 MHz

Source: Resolution 249 (Rev.WRC-23); ICAO Position for WRC-27, Agenda item 1.11.

The frequency bands under study

The mobile-satellite service frequency bands of Resolution 249 (Rev.WRC-23), against the aviation systems that operate in them and next to them



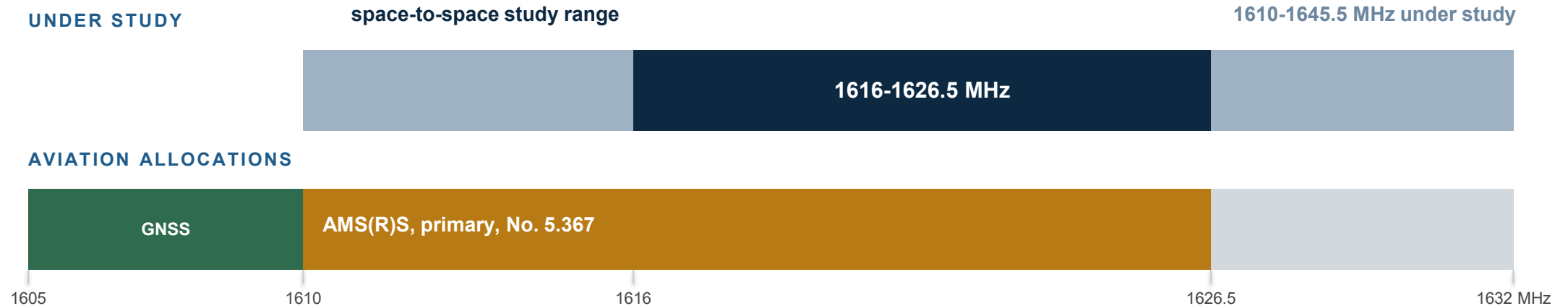
2483.5-2500

Also under study, and shown apart because it is far from the L-band groups. The aeronautical mobile-satellite (R) service and the radionavigation-satellite service have no allocation there, so the aviation questions arise in the frequency bands drawn above.

Frequency band edges from Resolution 249 (Rev.WRC-23), No. 5.367, No. 5.357A and No. 5.362A.

Inside 1610-1626.5 MHz

The space-to-space study range at 1.6 GHz, inside the frequency band allocated to the aeronautical mobile-satellite (R) service under No. 5.367



The range under study. The studies and the draft CPM text before Working Party 4C examine space-to-space use in 1616-1626.5 MHz.

What that means for aviation. All of 1616-1626.5 MHz is inside 1610-1626.5 MHz, which is allocated to the aeronautical mobile-satellite (R) service on a primary basis under No. 5.367. The studies have to demonstrate compatibility with, and protection of, that service.

The whole of 1610-1626.5 MHz is allocated to the aeronautical mobile-satellite (R) service on a primary basis under No. 5.367, subject to agreement obtained under No. 9.21.

Potential issues

- 01 Direction indicators.** The Radio Regulations contain no space-to-space direction indicators for the mobile-satellite service frequency bands concerned. An affirmative outcome has to supply them.
- 02 Effect on existing links.** Space-to-space transmissions must be studied for potential changes to the interference environment for space-to-Earth operations in the same frequency bands.
- 03 Same and Adjacent-band compatibility.** Compatibility with services allocated on a primary basis in the same and adjacent frequency bands, including the radionavigation-satellite service in 1559-1610 MHz.
- 04 Protection criteria.** Criteria drawn from one system or one scenario are being offered as general criteria. A criterion used in 1610-1626.5 MHz has to account for safety services, because safety traffic and other traffic use the same links.
- 05 Form of the protection.** Distinguish as to whether hether protection is achieved through coordination or through conditions adopted in the Radio Regulations.

Where the ITU-R record stands

Converging

- Studies are under way in every frequency band group named in Resolution 249 (Rev.WRC-23).
- Contributions accept that space-to-space use must not degrade incumbent mobile-satellite service operations.
- The draft CPM text is structured around a no-change method and methods that would provide for space-to-space use with direction indicators.

Open

- No method has been agreed, and the methods before Working Party 4C differ in how protection of the incumbent services would be achieved.
- The protection criteria and power flux-density concepts offered for the mobile-satellite service have not been finalized against safety-service operations.
- User space-station assumptions differ widely between contributions, and the results follow the assumptions.

Documents: WP 4C Chairman's Report and its Agenda item 1.11 annexes, and the contributions from administrations and operators submitted to WP 4C during 2026.

ICAO position

Source: ICAO Position for the ITU World Radiocommunication Conference 2027, Agenda item 1.11.

To ensure the results of this agenda item would not reduce the protection of, or impose additional regulatory or technical constraints, on safety related aeronautical satellite communication for AMS(R)S in the frequency bands 1545-1555 MHz and 1646.5-1656.5 MHz, and in No. 5.362A the frequency bands 1555-1559 MHz and 1656.5-1660.5 MHz as well as frequency band 1610-1626.5 MHz, and the aviation radionavigation satellite service receivers in the adjacent frequency band 1559-1610 MHz.

FREQUENCY BANDS THE POSITION PROTECTS

1545-1555 MHz

1555-1559 MHz

1610-1626.5 MHz

1646.5-1656.5 MHz

1656.5-1660.5 MHz

1559-1610 MHz

What the position asks of the studies. The studies should demonstrate compatibility with, and protection of, the incumbent services in the frequency bands under study and in the adjacent frequency bands,

Conclusion

01

October 2026 4C meeting. The studies before Working Party 4C at its meeting of 7-16 October 2026 should establish the technical limits of any space-to-space framework.

02

What the ICAO position protects. Aeronautical mobile-satellite (R) service communications in 1545-1555 MHz and 1646.5-1656.5 MHz, where No. 5.357A applies, the aeronautical mobile-satellite (R) service in 1610-1626.5 MHz under No. 5.367, and radionavigation-satellite service receivers in the adjacent frequency band 1559-1610 MHz. The studies have to demonstrate compatibility with, and protection of, those services.

Thank you

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Agenda item 1.11 | Lima, Peru, 31 August-1 September 2026