

ITUEvents

1st ITU Inter-regional information session (IRIS) on WRC-27 Preparations

**3 - 5 December 2025
Geneva, Switzerland**

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#ITUWRC**

**Satellite Issues
WRC-27 agenda item**

1.2

**Reduction on antenna sizes FSS
Earth Stations in the frequency band
13.75-14 GHz**

***Fernanda Sánchez*
Chair, ITU-R WP 4A SWG AI 1.2**



Our Panelists Today:

- **Ms Maria Fernanda SANCHEZ** (Chair, ITU-R WP 4A SWG AI 1.2)
- **APT – Mr Mrunmaya PATTANAIK** (APG WP 1 Co-Chair)
- **ASMG – Eng. Omar Saleh Al MARRI** (Vice Chair WG 1 - ASMG)
- **ATU – Ms Basebi MOSINYI** (ATU WG 1 Chair)
- **CEPT – Mr Thomas WELTER** (CPG PT B Chair & CPG Vice Chair)
- **CITEL – Mr Cesar CAMILO** (CITEL MSS SWG Alternate Coordinator)
- **RCC – Mr Alexander PASTUKH** (RCC Coordinator team AI 1.2 Member)

WRC-27 Agenda Item 1.2

AI 1.2 *to consider possible revisions of sharing conditions in the frequency band 13.75-14 GHz to allow the use of uplink fixed-satellite service earth stations with smaller antenna sizes, in accordance with Resolution 129 (WRC-23);*

Resolution 129 (WRC-23) *Studies on possible revisions of sharing conditions in the frequency band 13.75-14 GHz to allow the use of uplink fixed-satellite service earth stations with smaller antenna sizes*

Responsible Group:
WP 4A

Contributing Groups:
**WP 3M; WP 5A; WP 5B*; WP 5C;
WP 7A; WP 7B; WP 7C**

*Based on past experiences on the studies on this frequency band and the complexity of this issue, special attention should be paid to the interaction between WP 4A and WP 5B. Therefore WP 4A needs to take into account, as received, the potential update information and characteristics on the protection and operation of the radiolocation service as duly provided by WP 5B, in order to perform the relevant sharing studies. Based on progress on the studies in WP 4A, in case of necessity, joint meeting sessions of WP 4A and WP 5B should be organized to facilitate the collaboration between the WPs on the issue relative to the protection of the radiolocation service.

WRC-27 Agenda Item 1.2: Background and motivation

- WARC-92 added an allocation to the fixed-satellite service (FSS) (Earth-to-space) in the frequency band 13.75-14 GHz;
- WRC-03 introduced changes to Nos. **5.502** and **5.503** that made it possible to use earth station antennas in the range of 1.2 to 4.5 metres for the geostationary fixed-satellite service (FSS) networks with limits on power flux-density (pfd) and equivalent isotropically radiated power (e.i.r.p.) density to protect RLS and SRS;
- there is a requirement for more uplink spectrum in the frequency range 13-15 GHz, which could be used worldwide by smaller earth station antennas, to complement the downlink capacity in the frequency range 10-13 GHz;
- The enhancement of operating conditions of the earth stations in the frequency band 13.75-14 GHz would help to meet the evolving needs of FSS applications and facilitate an efficient and rational use of the Earth-to-space and space-to-Earth frequency bands corresponding to the frequency ranges 13-15 GHz and 10-13 GHz;
- the possible use of the frequency band 13.75-14 GHz by uplink FSS earth stations with smaller antenna sizes requires studies to support possible regulatory changes while continuing to ensure the protection of the RLS and SRS, as addressed in Nos. **5.502** and **5.503**;

WRC-27 Agenda Item 1.2: Organization of the work in WP 4A

WRC-27 Agenda Item 1.2: **SWG 4A2b**

Main Activities:

- Development of the Working Document Relating to WRC-27 AGENDA ITEM 1.2
(Doc. [4A/830 Annex 5](#) (+[Parts 1 to 6](#)))
- Development of the Working Document towards draft CPM text for WRC-27 AGENDA ITEM 1.2
(Doc. [4A/830 Annex 4](#))

WRC-27 Agenda Item 1.2: Status of the studies

Main Activities:

A number of studies have been carried out to estimate interference into RLS and SRS assuming a single and multiple FSS earth station interferers respectively. Studies have analyzed the current regulatory technical conditions to estimate potential exceedance of protection criteria assuming a deployment of both GSO and Non-GSO ES antenna sizes ranging from 0.3 m to 1.3 m.

Different methodologies have been used in the studies:

- a statistical approach to simulate the dynamic nature of the radar and of the interference.
- static geometrical approach to determine the impact of interference on the detection range of radars operating in the RLS.

Discussions on core assumptions such as percentages of time associated with protection criteria, deployment models, methodologies, with the aim of having a common set of technical characteristics operational parameters and methodologies to conduct studies are still ongoing. No consensus reached yet.

The draft CPM text propose three methods and their regulatory procedural considerations however draft CPM text needs to be duly reviewed, and discussions are expected at the May 2026 WP4A meeting.

WRC-27 Agenda Item 1.2: Methods

Three Methods identified so far:

- NOC: retain protections due to aggregate impacts of smaller earth station FSS antennas
- Method B: modifications to Radio Regulations Nos. **5.502** and **5.503** to introduce new conditions for the use of FSS earth stations in the 13.75-14 GHz band.
 - Method B1: Modify No. **5.502** to specify a minimum separation distance when using antenna with a smaller diameter than 1.2 m for GSO and 4.5 m for non-GSO, suppress the existing PFD limits. Suppress also No. **5.503**.
 - Method B2: Modify both Nos. **5.502** and **5.503** to remove the limits on FSS antennas in terms of diameter of antennas, pfd limits and EIRP limits respectively for GSO only
- Method C: remove all the technical constraints specified in Nos. **5.502** and **5.503**

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Thank you!

***Any questions?
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