



India (Republic of)

**PRELIMINARY VIEWS ON WRC-23 AGENDA ITEMS 1.12, 1.13, 1.14, 9.1 TOPIC A
& 9.1 TOPIC D**

Agenda Item 1.12:

to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution 656 (Rev. WRC-19);

1. Background

Resolution 656 (WRC-19) resolves to

- i) to invite the 2023 world radiocommunication conference to consider the results of studies on spectrum needs for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, and take appropriate action,
- ii) invite ITU-R to conduct studies on spectrum needs and sharing studies between the Earth exploration-satellite (active) service and the radiolocation, fixed, mobile, broadcasting, amateur and space research services in the frequency range 40-50 MHz and in adjacent bands.

In its recent meeting during 26 April 2022 to 05 May 2022, ITU-R WP 7C has drafted a revised Report ITU-R RS.2455-1 on “Results of sharing studies between a 45 MHz radar sounder and in-band and selected out-of-band incumbent services over the 40-50 MHz frequency range” (*See Annex 5 of Doc. 7C/361*) as well as drafted a revised Recommendation ITU-R RS.2042-1 on “Typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz band” (*See Annex 6 of Doc. 7C/361*).

2. Preliminary Views

India supports studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution 656 (Rev. WRC-19).

Agenda Item 1.13:

Contact: Name
Organization, Country

Email:

to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution 661 (WRC-19);

1. Background

Resolution **661 (WRC-19)** resolves to invite the ITU-R

- i) to investigate and identify all relevant scenarios that need to be considered in compatibility and sharing studies taking into account relevant ITU-R recommendations as well as considering that the frequency band 14.8-15.35 GHz is currently used by
 - a. data relay satellites in intersatellite links that permits the establishment of communications with satellites in non-geostationary orbits, including manned flights in the Space Research Service (SRS);
 - b. existing high-speed data links from non-GSO satellites within the SRS and is planned for use in future systems; and these satellites are needed for the operation of telescopes and/or other passive instruments used for measuring such phenomena as the Earth's magnetosphere and solar flares.
- ii) to conduct and complete in time for WRC-23 sharing and compatibility studies in order to determine the feasibility of upgrading the SRS allocation to primary status in the frequency band 14.8-15.35 GHz, with a view to ensuring protection of the primary services in the frequency bands 14.8-15.35 GHz (*fixed and mobile services on a primary basis*) and 15.35-15.4 GHz (*EESS (passive), the radio astronomy service and the SRS (passive) on a primary basis*) taking into account that upgrading should not impose constraints on existing systems of primary services in the frequency band 14.8-15.35 GHz;
- iii) to determine the technical and regulatory conditions according to the results of the studies.

This Agenda Item is being dealt by ITU-R Working Party 7B. At its recent meeting held during 26 April 2022 to 04 May 2022, WP 7B has developed a draft CPM text framework for WRC-23 (*See Annex 1 of Doc. 7B/198*) and a preliminary draft new Report ITU-R SA. [15 GHz SRS SHARING] on 'Sharing and compatibility studies for the SRS in the band 14.8-15.35 GHz' (*See Annex 2 of Doc. 7B/198*).

2. Preliminary Views

India supports upgrading the SRS allocation to primary status in the frequency band 14.8-15.35 GHz, while ensuring protection to incumbent services and its/their planned usages without imposing constraints; in this frequency band as well as in the adjacent bands 14.44 – 14.50 GHz and 15.35 - 15.4 GHz based on the result of the ITU-R studies.

Agenda Item 1.14:

to review and consider possible adjustments of the existing or possible new primary frequency allocations to Earth exploration-satellite service (EESS) (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements, in accordance with Resolution 662 (WRC-19);

1. Background

Resolution 662 (WRC-19) resolves to invite the ITU-R

- i) to review the existing primary allocations to the EESS (passive) in the frequency range 231.5-252 GHz in order to analyze if these allocations are aligned with the observation requirements of passive microwave sensors;
- ii) to study the impact that any change to the EESS (passive) allocations in the frequency range 231.5-252 GHz might have on the other primary services in these frequency bands;
- iii) to study, as appropriate, possible adjustments to the EESS (passive) allocations in the frequency range 231.5-252 GHz, taking into account the results of studies.

This Agenda Item is being dealt by ITU-R Working Party 7C. WP 7C in its recent meeting held during 26 April 2022 to 05 May 2022 has developed a preliminary draft new Report ITU-R RS. [231.5-252 GHz EESS] on “Studies related to possible EESS (passive) allocations in the frequency range 231.5-252 GHz” (*See Annex 19 of Doc. 7C/361*) and a preliminary draft CPM text on WRC-23 (*See Annex 20 of Doc. 7C/361*).

2. Preliminary Views

India supports the consideration of possible adjustments of the existing or new primary frequency allocations to EESS (passive) in the frequency range 231.5-252 GHz in accordance with Resolution 662 (WRC-19) subject to the outcome of the results of ITU-R studies. Any changes to the EESS (passive) allocations in the frequency range 231.5-252 GHz should not adversely affect the operation of other primary services in this frequency band.

Agenda Item 9.1 Topic A:

In accordance with Resolution 657 (Rev. WRC-19), review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services;

1. Background

Resolution 657 (WRC-19) resolves to invite the ITU -R

- i) to identify, in time for WRC-23, and based on existing and possible further ITU-R studies on the technical and operational characteristics, specific space weather sensors which need to be protected by appropriate regulation, including:
 - a. to determine if receive-only space weather sensors shall be designated as applications of the Metads service;
 - b. to determine the appropriate radiocommunication service, if any, for cases where it is determined that receive-only space weather sensors do not fall under the Metads service;
- ii) to conduct, in time for WRC-23, any necessary sharing studies with incumbent systems operating in frequency bands used by space weather sensors with the objective of determining potential regulatory provisions that can be provided to receive-only operational space weather

sensors for their appropriate recognition in the Radio Regulations, while not placing additional constraints on incumbent services;

iii) to develop potential solutions to describe in the Radio Regulations, in Articles 1 and 4, and/or as a WRC resolution, if deemed appropriate, for consideration by WRC-23, space weather sensor systems and their corresponding usage, as well as protection requirements for receive-only space weather sensors;

iv) to conduct studies, in time for WRC-23, on the technical and operational characteristics of active space weather sensors and conduct necessary sharing studies with incumbent systems operating in frequency bands used by active space weather sensors, with the objective of determining the appropriate radiocommunication service for those sensors,

ITU-R Working Party 7C has been conducting studies on space weather sensor systems using radio spectrum for operational space weather monitoring, prediction and warnings. At its recent meeting held during 26 April 2022 to 05 May 2022, WP 7C has developed a preliminary draft new Report ITU-R RS.[SPEC_REQTS_TX_SPACE_WEATHER] on “Spectrum requirements and applicable radio service designations for active space weather sensors that provide data critical for predictions and warnings” (See Annex 10 of Doc. 7C/361) and ii) a preliminary draft new Report ITU-R RS.[RXSW_INTERF_CRITERIA] on “Interference criteria of receive-only space weather sensors” (See Annex 11 of Doc. 7C/361).

2. Preliminary Views

India considers it necessary to develop appropriate recognition of space weather sensors in the Radio Regulations and determine the appropriate radio service for space weather sensors. India supports further study on spectrum requirements and the relevant interference criteria for space weather sensors, without any additional adverse effects on existing services to which the same and adjacent frequency bands are allocated.

Agenda Item 9.1 Topic D:

Protection of Earth exploration-satellite service (EESS) (passive) in the frequency band 36-37 GHz from non-GSO FSS space stations;

1. Background

Under studies considered for WRC 19 (Doc. 573 (Minutes of the twelfth plenary meeting), Section 35.2), a preliminary study on the protection of EESS (passive) sensors operating in the 36-37 GHz was submitted to the ITU-R. This preliminary study indicated that it may be necessary to not exceed an out-of-band e.i.r.p of -34 dBW/100 MHz, for all angles greater than 71.4 degrees from nadir, for FSS non-GSO space stations operating in the frequency band 37.5-38 GHz. In addition, interference into the cold calibration channel of the EESS (passive) sensor operating in the frequency band 36-37 GHz had not been studied.

WRC 19 then invited ITU-R to conduct further study of this topic and develop Recommendations and/or Reports, as appropriate, and Report back to WRC 23 to take action, if necessary.

This Agenda Item is being dealt by ITU-R Working Party 7C. At its meeting held in April/May 2022, ITU-R WP 7C has developed the preliminary draft new Report on studies

related to WRC-23 on “Protection of EESS (passive) in the frequency band 36-37 GHz from non-GSO FSS space stations” (*See Annex 24 of Doc. 7C/361*) and the working document towards a preliminary draft CPM text for this agenda item (*See Annex 25 of Doc. 7C/361*).

2. Preliminary Views

India supports further work w.r.t the studies that have been conducted with a view to protection of EESS (passive) sensors operating in the band 36-37 GHz from non-GSO fixed satellite service space stations in the band 37.5-38 GHz, and development of Recommendations and Reports as appropriate.
