



India (Republic of)

**PRELIMINARY VIEWS ON WRC-23 AGENDA ITEMS 1.2, 1.3, 1.4, 1.5,
9.1 TOPIC C, 21.5**

Agenda Item 1.2:

to consider identification of the frequency bands 3 300-3 400 MHz, 3 600 3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution 245 (WRC-19);

1. Background

Resolution 245 (Rev.WRC-19) invites

i) the ITU Radiocommunication Sector *to* conduct and complete the sharing and compatibility studies in time for WRC-23, with a view to ensure the protection of services to which the frequency band is allocated on a primary basis, without imposing additional regulatory or technical constraints on those services, and also, as appropriate, on services in adjacent bands, for the frequency bands:

- 3 600-3 800 MHz and 3 300-3 400 MHz (Region 2);
- 3 300-3 400 MHz (amend footnote in Region 1);
- 7 025-7 125 MHz (globally);
- 6 425-7 025 MHz (Region 1);
- 10.0-10.5 GHz (Region 2),

ii) the WRC-23 to consider, based on the results of the above studies, additional spectrum allocations to the mobile service on a primary basis and to consider identification of frequency bands for the terrestrial component of IMT.

Frequency range 6 425-6 725 MHz is allocated for FSS globally. While frequency range 6 425-6 725 MHz is allocated to FSS globally (Earth-to-space) and is not subject to a Plan, frequency range 6 725-7 025MHz is allocated to FSS globally (Earth-to-space) and is subject to AP30B Plan. India is using this band extensively for providing satellite services with Indian as well as foreign satellites.

Considering the less susceptibility to atmospheric and rain fade degradation, this band is used globally by all satellite operators. Especially, this band has unique characteristic of low degradation to rain fade, hence, ideal for providing services over the regions that are situated in the tropical regions. This band is also best suited for covering wider geographical area.

In accordance with the Resolution 245 (WRC-19) and the results of CPM 23-1, ITU-R WP 5D has been developing working documents on sharing and compatibility studies of IMT systems in the frequency band 3 300-3 800 MHz, 6 425-7 125 MHz and 10-10.5 GHz (see Annexes 4.11–

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4.26 to Document 5D/1361). ITU-R WP 5D has also been developing working document towards draft CPM text on WRC-23 agenda item 1.2 (see Annex 4.10 to Document 5D/1361).

2. Preliminary Views

India views on the following bands:

- 3 300-3 400 MHz (amend footnote in Region 1, and Region 2);

India supports the band for IMT identification as it would lead towards global harmonization of band, bringing in economies scale; subject to ensuring protection to services in adjacent band based upon studies.

- 6 425-7 025 MHz (Region 1);

India is of the preliminary view that any possible IMT identification in the band 6 425-7 025 MHz in Region 1, shall protect the satellite services in Region 3.

- 7 025-7 125 MHz (globally);

India supports possible identification in this range for IMT as it would lead towards global harmonization of band, bringing in economies scale. India is of the view that any possible identification of the band for IMT shall protect existing services and not impose undue regulatory or technical constraints on existing primary services having allocation in this band.

Agenda Item 1.3:

to consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with Resolution 246 (WRC-19);

1. Background

Resolution 246 (Rev.WRC-19) invites

(i) the ITU Radiocommunication Sector to conduct sharing and compatibility studies in time for WRC-23 between the mobile service and other services allocated on a primary basis within the frequency band 3 600-3 800 MHz and adjacent frequency bands in Region 1, as appropriate, to ensure protection of those services to which the frequency band is allocated on a primary basis and not impose undue constraints on the existing services and their future development

ii) the 2023 World Radiocommunication Conference based on the results of studies in resolves to invite the ITU Radiocommunication Sector, to consider possible upgrade of the allocation of the frequency band 3 600-3 800 MHz to the mobile, except aeronautical mobile, service on a primary basis within Region 1, and to take appropriate regulatory actions,

This agenda item is being dealt by ITU-R Working Party 5A. The last meeting of Working Party 5A was held during 23 May-03 June 2022. Working Party 5A is developing the following documents: i) Draft CPM text for WRC-23 agenda item 1.3 (see Annex 4 of Doc. 5A/597) and ii) Working document towards a draft Report for sharing and compatibility studies in compliance with Resolution 246 (WRC-19) (see Annex 22 of Doc. 5A/597).

2. Preliminary Views

India supports the upgrading of the allocation of the frequency band 3 600-3 800 MHz to the mobile, except aeronautical mobile service on a primary basis in Region 1 based on the sharing

and compatibility studies as per Resolution **246 (Rev.WRC-19)** while ensuring protection to the existing and planned satellite usages in the band in Region 3.

Agenda Item 1.4:

to consider, in accordance with Resolution 247 (WRC-19), the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level;

1. Background

Resolution **247 (Rev.WRC-19)** among others,

resolves to invite the ITU Radiocommunication Sector

1 to study spectrum needs, as appropriate, for HIBS to provide mobile connectivity in the mobile service, taking into account:

- the existing identification in recognizing b);
- the usage and deployment scenario envisioned for HIBS as complementary for terrestrial IMT networks;
- the technical and operational characteristics and requirements of HIBS;

2 invites the ITU Radiocommunication Sector to conduct and complete in time for WRC-23, taking into account the results of studies already performed and those in progress within ITU-R, sharing and compatibility studies to ensure the protection of services, without imposing any additional technical or regulatory constraints in their deployment, to which the frequency band is allocated on a primary basis, including other IMT uses, existing systems and the planned development of primary allocated services, and adjacent services, as appropriate, for certain frequency bands below 2.7 GHz, or portions thereof, globally or regionally harmonized for IMT, i.e.:

- 694-960 MHz;
- 1 710-1 885 MHz (1 710-1 815 MHz to be used for uplink only in Region 3);
- 2 500-2 690 MHz (2 500-2 535 MHz to be used for uplink only in Region 3, except 2 655-2 690 MHz in Region 3)

This agenda item is being dealt by ITU-R Working Party 5D. The last meeting of Working Party 5D was held during 13-24 June 2022. Working Party 5D is developing the following documents: i) Working document towards draft CPM Text on WRC-23 agenda item 1.4 (see Annex 4.28 of Doc 5D/1361) and ii) Overview table and summary of the sharing and compatibility studies for WRC-23 agenda item 1.4 (see Annex 4.31 of Doc 5D/1361)

2. Preliminary Views

While considering the feasibility of HIBS in the IMT bands below 2.7 GHz, India supports technical and regulatory provision for the protection of existing and planned satellite services in the band 2500-2690 MHz and in the adjacent band 2483.5 -2500 MHz.

In addition, India supports technical and regulatory provisions required for protection of existing and planned IMT services in the proposed bands below 2.7 GHz

Agenda Item 1.5:

to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15);

1. Background

Resolution 235 (Rev.WRC-15) invites

i) ITU-R, after the 2019 World Radiocommunication Conference and in time for the 2023 World Radiocommunication Conference

1 to review the spectrum use and study the spectrum needs of existing services within the frequency band 470-960 MHz in Region 1, in particular the spectrum requirements of the broadcasting and mobile, except aeronautical mobile, services, taking into account the relevant ITU Radiocommunication Sector (ITU-R) studies, Recommendations and Reports;

2 to carry out sharing and compatibility studies, as appropriate, in the frequency band 470-694 MHz in Region 1 between the broadcasting and mobile, except aeronautical mobile, services, taking into account relevant ITU-R studies, Recommendations and Reports;

3 to conduct sharing and compatibility studies, as appropriate, in order to provide relevant protection of systems of other existing services,

ii) the 2023 World Radiocommunication Conference to consider, based on the results of studies above, provided that these studies are completed and approved by ITU-R, possible regulatory actions in the frequency band 470-694 MHz in Region 1, as appropriate.

This agenda item is being dealt by ITU-R Task Group 6/1 under Study Group 6: Broadcasting Issues. The last meeting of Task Group 6/1 was held during 21 February- 4 March 2022. Task Group 6/1 is working on following documents: i) Summary and analysis of the review of the spectrum use and the study on spectrum needs of existing services within the frequency band 470-960 MHz in Region 1 (see Annex 02 of Doc 6-1/106 and ii) Working document towards a draft CPM Text for WRC-23 agenda item 1.5 (see Annex 05 of Doc 6-1/106)

2. Preliminary Views

India is of the preliminary view that any changes made to Radio Regulation for Region 1 shall not impact existing and planned usages in this band in Region 3 and also shall not impose any procedural or regulatory constraints on existing services in Region 3.

Agenda Item 9.1 topic c):

to study the use of International Mobile Telecommunication system for fixed wireless broadband in the frequency bands allocated to the fixed services on primary basis, in accordance with Resolution 175 (WRC-19);

1. Background

Resolution 175 (WRC-19) invites the ITU Radiocommunication Sector to conduct any necessary studies on the use of IMT systems for fixed wireless broadband in the frequency bands allocated to the fixed service on primary basis, taking into account the relevant ITU-R studies, Handbooks,

Recommendations and Reports, and instructs the Director of the Radiocommunication Bureau to report to WRC-23 on the results of these studies

This agenda item is being dealt jointly by ITU-R Working Party 5A and 5C. The last meeting of Working Party 5A and 5C was held during 23 May-03 June 2022. Working Party 5A is developing the following document: Draft CPM text for WRC-23 agenda item 9.1, topic c) (see Annexure 8 of Doc. 5A/597). Working Party 5C is developing the following document in this regard: Working document towards a preliminary draft revision of Recommendation ITU-R F.746-10 - Radio-frequency arrangements for fixed service systems (see Annex 14 of Doc. 5C/291)

2. Preliminary Views

India supports discussing modification of the existing ITU-R Recommendations, Reports and/or Handbooks and, if required, development of new ITU-R deliverable(s), in response to the ongoing studies in ITU-R. The IMT systems for fixed wireless broadband shall not impose restrictions or shall not cause interference to other radiocommunications services.

RR no. 21.5

1. Background

Doc 550 of WRC-19 states that:

ITU-R is invited to study, as a matter of urgency, the applicability of the limit specified in No. 21.5 of the Radio Regulations to IMT stations, that use an antenna that consists of an array of active elements, with a view to recommend ways for its possible replacement or revision for such stations, as well as any necessary updates to Table 21-2 related to terrestrial and space services sharing frequency bands.

Furthermore, the ITU-R is invited to study, as a matter of urgency, verification of No. 21.5 regarding the notification of IMT stations that use an antenna that consists of an array of active elements, as appropriate.

At present ITU-R WP5D is responsible for carrying out studies in this matter. As per ongoing studies at WP5D, it is difficult to measure conducted power of the IMT stations with integrated Active Antenna System (AAS). This has raised difficulties for administrations to provide notification data against the Item Identifier 8AA "Power delivered to the antenna" (see RR Appendix 4 Table 1). To deal with the situation WP5D studies has been split into two approaches, i) TRP with reference bandwidth, and ii) derive conducted power from TRP for single transmitter. (see WP-5D Chairman's Report Doc. 5D/1361)

2. India Views

India would continue to participate in the ITU-R Working Party 5D meetings with a view to support the approach which will ensure appropriate protection to satellite services and give opportunities for IMT growth and innovation in active antenna system.
