



Government of India
Ministry of Communications & Information Technology
Department of Telecommunications

PRESENTATION ON WRC-15 ISSUES FOR INDIA

By

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NEED FOR WORKSHOPS

- The basic purpose of this workshop is to make all concerned aware of WRC-15 issues, create interest among themselves and understand in order to contribute and protect their interest in the light of dealing these agenda items
- All agenda items may not be of our interest but they may impact our existing usages and thus view points on those agenda items are also needed for protection
- In order to understand agenda items , it is necessary to refer the following
 - Resolution
 - Existing RR provisions
 - Relevant Recommendations/ Reports

WRC-15 -ISSUES FOR INDIA

- Agenda items for WRC-15
- Preparatory work for WRC-15
- Brief description of each Agenda item and their present status
- Work being carried out by NPC-15 and its Working Groups

AGENDA ITEMS FOR WRC-15

- 1.1 to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution **233 (WRC-12)**;
- 1.2 to examine the results of ITU-R studies, in accordance with Resolution **232 (WRC-12)**, on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take the appropriate measures;
- 1.3 to review and revise Resolution **646 (Rev.WRC-12)** for broadband public protection and disaster relief (PPDR), in accordance with Resolution **648 (WRC-12)**;

WRC-15 AGENDA ITEMS

- 1.4 to consider possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Resolution **649 (WRC-12)**;
- 1.5 to consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices **30**, **30A** and **30B** for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution **153 (WRC-12)**;
- 1.6 to consider possible additional primary allocations:
 - 1.6.1 to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;
 - 1.6.2 to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz;and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU-R studies, in accordance with Resolutions **151 (WRC-12)** and **152 (WRC-12)**, respectively;

WRC-15 AGENDA ITEMS -CONTINUED

- 1.7 to review the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in accordance with Resolution 114 (Rev.WRC-12);
- 1.8 to review the provisions relating to earth stations located on board vessels (ESVs), based on studies conducted in accordance with Resolution 909 (WRC-12);
- 1.9 to consider, in accordance with Resolution 758 (WRC-12):
 - 1.9.1 possible new allocations to the fixed-satellite service in the frequency bands 7 150-7 250 MHz (space-to-Earth) and 8 400-8 500 MHz (Earth-to-space), subject to appropriate sharing conditions;
 - 1.9.2 the possibility of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime-mobile satellite service and additional regulatory measures, depending on the results of appropriate studies;

WRC-15 AGENDA ITEMS -CONTINUED

- 1.10 to consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz, in accordance with Resolution **234 (WRC-12)**;
- 1.11 to consider a primary allocation for the Earth exploration-satellite service (Earth-to-space) in the 7-8 GHz range, in accordance with Resolution **650 (WRC-12)**;
- 1.12 to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Resolution **651 (WRC-12)**;
- 1.13 to review No. **5.268** with a view to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle, in accordance with Resolution **652 (WRC-12)**;

WRC-15 AGENDA ITEMS -CONTINUED

- 1.14 to consider the feasibility of achieving a continuous reference time- scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with Resolution **653 (WRC-12)**;
- 1.15 to consider spectrum demands for on-board communication stations in the maritime mobile service in accordance with Resolution **358 (WRC-12)**;
- 1.16 to consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Resolution **360 (WRC-12)**;
- 1.17 to consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution **423 (WRC-12)**;

WRC-15 AGENDA ITEMS -CONTINUED

- 1.18 to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band in accordance with Resolution **654 (WRC-12)**;
- 2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-03)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Resolution **27 (Rev.WRC-12)**;
- 3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;
- 4 in accordance with Resolution **95 (Rev.WRC-07)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

WRC-15 AGENDA ITEMS -CONTINUED

- 5 to review, and take appropriate action on, the Report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;
- 6 to identify those items requiring urgent action by the Radiocommunication Study Groups in preparation for the next world radiocommunication conference;
- 7 to consider possible changes, and other options, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)** to facilitate rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;
- 8 to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-07)**;

WRC-15 AGENDA ITEMS -CONTINUED

9. to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:
 - 9.1 on the activities of the Radiocommunication Sector since WRC-12;
 - 9.1.1 Protection of the systems operating in the mobile-satellite service in the band 406-406.1 MHz
 - 9.1.2 Studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7
 - 9.1.3 Use of satellite orbital positions and associated frequency spectrum to deliver international public telecommunication services in developing countries
 - 9.1.4 Updating and rearrangement of the Radio Regulations

WRC-15 AGENDA ITEMS -CONTINUED

- 9.1.5 Consideration of technical and regulatory actions in order to support existing and future operation of fixed satellite service earth stations within the band 3 400-4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1
- 9.1.6 Studies towards review of the definitions of fixed service, fixed station and mobile station
- 9.1.7 Spectrum management guidelines for emergency and disaster relief radiocommunication
- 9.1.8 Regulatory aspects for nano- and picosatellites
- 9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
- 9.3 on action in response to Resolution 80 (Rev.WRC-07);
- 10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

PREPARATORY WORK FOR WRC-15

- 1st meeting of CPM-15 which held at the end of WRC-12 at ITU Geneva during 20-21 February 2012 allocated work related to various agenda items of WRC-15 to ITU Study Groups Working Parties and Joint Task Groups for technical and regulatory studies and also formulated the draft structure of CPM Report

PREPARATORY WORK FOR WRC-15

WRC-15 Agenda item	WRC Resolution	Responsible Group	Concerned Group(
1.1	233 (WRC-12)	JTG 4-5-6-7	WP 4A, WP 4B, WP 4C, WP 5A, WP 5B, WP 5C, WP 5D, WP 6A, WP 7B, WP 7C, WP 7D, (WP 1A, WP 3K, WP 3M)
1.2	232 (WRC-12)	JTG 4-5-6-7	WP 4A, WP 5A, WP 5B, WP 5D, WP 6A, (WP 3K, WP 3M)
1.3	648 (WRC-12)	WP 5A	WP 5B, WP 5C, WP 5D, (WP 1B, WP 4A, WP 4B, WP 4C, WP 6A, WP 7B, WP 7C, WP 7D)
1.4	649 (WRC-12)	WP 5A	WP 5B, WP 5C, (WP 3L)
1.5	153 (WRC-12)	WP 5B	WP 4A, WP 4B, (WP 3M, WP 5C, WP 7B, WP 7C, WP 7D)
1.6	151 (WRC-12)	WP 4A	WP 4C, WP 5A, WP 5B, WP 5C, WP 7B, WP 7C, WP 7D, (WP 3M, WP 6B)
	152 (WRC-12)		WP 4C, WP 5A, WP 5B, WP 5C, WP 7B, WP 7C, WP 7D, (WP 3M)

PREPARATORY WORK FOR WRC-15

WRC-15 Agenda item		WRC Resolution	Responsible Group	Concerned Group ⁽¹⁾
1.7		114 (Rev.WRC-12)	WP 4A	WP 4C, WP 5B, (WP 3M, WP 5A)
1.8		909 (WRC-12)	WP 4A	WP 4C, WP 5A, WP 5B, WP 5C, (WP 7A, WP 7B, WP 7C, WP 7D)
1.9	1.9.1	758 (WRC-12)	WP 4A	WP 5A, WP 5C, WP 7B, (WP 3M)
	1.9.2		WP 4C	WP 4A, WP 4B, WP 5A, WP 5B, WP 5C, WP 7B, (WP 3M)
1.10		234 (WRC-12)	WP 4C	WP 4A, WP 4B, WP 5A, WP 5C, WP 7A, WP 7B, WP 7C, WP 7D, (WP 3M)
1.11		650 (WRC-12)	WP 7B	WP 4A, WP 4C, WP 5A, WP 5C, (WP 3M)
1.12		651 (WRC-12)	WP 7C	WP 5A, WP 5B, WP 5C, WP 7B, WP 7D
1.13		652 (WRC-12)	WP 7B	WP 5A, WP 5C
1.14		653 (WRC-12)	WP 7A	WP 6A, (WP 6B)
1.15		358 (WRC-12)	WP 5B	WP 4A, WP 4C, WP 5A, WP 5C, WP 5D, SG 7 ⁽³⁾ , (WP 3K, WP 3M, WP 6A)

PREPARATORY WORK FOR WRC-15

Allocation of ITU-R preparatory work for WRC-15			
WRC-15 Agenda item	WRC Resolution	Responsible Group	Concerned Group(1)
1.16	360 (WRC-12)	WP 5B	WP 5A, WP 6A, (WP 3K, WP 4A, WP 4C, WP 7B, WP 7C, WP 7D)
1.17	423 (WRC-12)	WP 5B	WP 4A, WP 4C, WP 5A, WP 5C, WP 7B, WP 7C, WP 7D, (WP 1B, WP 3K, WP 6A)
1.18	654 (WRC-12)	WP 5B for invites i) and ii) (based on spectrum requirements from WP 5A) WP 5A for invites iii)	WP 1B, WP 7B, WP 7C, WP 7D, (WP 3M, WP 5C)
2	28 (Rev.WRC-03) 27 (Rev.WRC-12)	CPM15-2	–
4	95 (Rev.WRC-07)	CPM15-2	–
7	86 (Rev.WRC-07)	WP 4A (Technical and Regulatory aspects) SC (Regulatory and Procedural aspects)	WP 4C, WP 5A, WP 7B, WP 7C, (WP 4B, WP 7A)
8	26 (Rev.WRC-07)	Not in the scope of the CPM	

PREPARATORY WORK FOR WRC-15

Allocation of ITU-R preparatory work for WRC-15			
WRC-15 Agenda item	WRC Resolution	Responsible Group	Concerned Group
9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:			
9.1	on the activities of the Radiocommunication Sector since WRC-12;		
9.1.1	205 (Rev.WRC-12)	WP 4C	WP 5A, WP 5B, WP 5C, WP 7B, WP 7C
9.1.2	756 (WRC-12)	WP 4A (Technical and Regulatory aspects) SC (Regulatory and Procedural aspects)	-
9.1.3	11 (WRC-12)		-
9.1.4	67 (WRC-12)	WP 1B SC	-
9.1.5	154 (WRC-12)	WP 4A (Technical and Regulatory aspects) SC (Regulatory and Procedural aspects)	-
9.1.6	957 (WRC-12)	WP 1B	WP 4A, WP 4C, WP 5A, WP 5C, WP 5D, WP 7B, WP 7C, WP 7D
9.1.7	647 (Rev.WRC-12)	WP 1B	-
9.1.8	757 (WRC-12)	WP 7B	WP 4A, SC, (WP 5A, WP 6A)
9.2	on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and		
9.3	on action in response to Resolution 80 (Rev.WRC-07);		
	80 (Rev.WRC-07)		WP 4A

CHAPTERS OF THE DRAFT CPM -15 REPORT TO WRC-15

- CHAPTER 1 - Mobile and Amateur issues
- CHAPTER 2 - Science issues
- CHAPTER 3 - Aeronautical, Maritime and Radiolocation issues
- CHAPTER 4 - Satellite services
 - Sub-Chapter 4.1 - Fixed-satellite service
 - Sub-Chapter 4.2 - Mobile-satellite service
- CHAPTER 5 - Satellite Regulatory issues
- CHAPTER 6 - General issues

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI1.1 additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT)

- The responsible Group of this Agenda item is JTG4-5-6-7 and the concerned Groups are **WP 4A, WP 4B, WP 4C, WP 5A, WP 5B, WP 5C, WP 5D, WP 6A, WP 7B, WP 7C, WP 7D**, (WP 1A, WP 3K, WP 3M)
- The first meeting of JTG 4-5-6-7 was held in ITU Geneva during 23-27 July 2012 under the chairmanship of Mr. Thomas Ewers (Germany).
- The work of JTG 4-5-6-7 has already been commenced and the work plan has been developed to achieve the target.
- The second meeting of ITU-R Joint Task Group 4-5-6-7 was held in Geneva from 21-28 November 2012 under the chairmanship of Mr. Thomas Ewers (Germany).
- JTG4-5-6-7 has established 5 Working Groups to carry out detailed study on the issues related to broadcasting, terrestrial, satellite and science issues and also for development of CPM text. One Adhoc Group has also been established for development of Work Plan
- Joint Task Group 4-5-6-7 developed a technical studies template (Annex 7) as a guideline to facilitate the future work.

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.2 Use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1

- JTG 4-5-6-7 is responsible Group to carry out studies and preparation of CPM Report
- The concerned Groups to deal this agenda items are **WP 4A, WP 5A, WP 5B, WP 5D, WP 6A**, (WP 3K, WP 3M)
- Joint Task Group 4-5-6-7 considered information received from Working Party 6A on spectrum requirements (Document 4-5-6-7/54) with respect to WRC-15 Agenda item 1.2 based on a questionnaire to the membership
- a Correspondence Group to study sharing and compatibility between the mobile service and the broadcasting service under WRC-15 Agenda item 1.2 has been established
- Detailed about the studies and its work plan may be seen in the Chairman's Report of JTG 4-5-6-7

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.3 Broadband public protection and disaster relief (PPDR), - revision of Resolution 646(rev. WRC-12);

- The responsible Group for this Agenda item is Working Party 5A and concerned Groups are **WP 5B, WP 5C, WP 5D**, (WP 1B, WP 4A, WP 4B, WP 4C, WP 6A, WP 7B, WP 7C, WP 7D)
- Work on this agenda item has been initiated regarding identification of regionally harmonised bands for PPDR in Working Party 5A
- The work on revision of Resolution is also being attempted based on the inputs received from different administration.
- Draft CPM text is also under development in respect of this agenda item

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.4 possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz

- The Working Party 5A is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 5B, WP 5C, (WP 3L)**
- 5 250-5 450 kHz is used by stations in the fixed and mobile (except aeronautical mobile) services in many countries.
- a range of possible allocations to the amateur service may be proposed such that administrations might determine how much accommodation can be made to the amateur service.
- Last meeting held in November 2012 W.P 5A finalised the work plan

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.5 to consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices **30**, **30A** and **30B** for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces,

- The Working Party **5B** is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 4A**, **WP 4B**, (WP 3M, WP 5C, WP 7B, WP 7C, WP 7D)
- UAS enable the remote piloting of aircraft both over short range and at significant distances within or beyond line-of-sight of the remote pilot. These flight operations currently take place in airspace segregated from commercial air traffic, to ensure the safety of the unmanned air vehicle and other airspace users.
- The 2012 World Radiocommunication. (WRC-12 allocated the band 5 030 – 5 091 MHz to the aeronautical mobile (R) service for terrestrial line-of-sight UAS control links and enhance the possible use of the existing aeronautical mobile-satellite (R) service (AMS(R)S) allocations in the same band for beyond line-of-sight UAS control links.
- WRC-12 did not adopt proposals to address beyond line-of-sight operations within some fixed satellite service (FSS) allocations, and established WRC-15 agenda item 1.5 to study the use of non plan FSS for beyond line-of-sight UAS control and non-payload communications (CNPC) links
- Studies have been initiated in WP5B

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.6 to consider possible additional primary allocations:

1.6.1 to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;

1.6.2 to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz; and review the regulatory provisions

- The Working Party 4A is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 4C, WP 5A, WP 5B, WP 5C, WP 7B, WP 7C, WP 7D**, (WP 3M, WP 6B)
- satellite traffic is typically symmetrical in a large variety of applications, i.e. similar amounts of Earth-to-space (uplink) and space-to-Earth (downlink) traffic are transmitted.
- There is imbalance in U/L and D/L for FSS
- Studies are required to address this imbalance so that the limited spectrum resources could be used in the most efficient and economical manner
- Last meeting of W.P 4A Work Plan have been finalised

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.7 to review the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in accordance with Resolution 114 (Rev.WRC-12);

- ❑ The Working Party 4A is responsible Group for this Agenda
- ❑ The concerned Working Groups of this agenda item are **WP 4C, WP 5B**, (WP 3M, WP 5A)
- ❑ At WRC-07, the priority to MLS was removed in the band (5 091-5 150 MHz) and the sunset date for assignments to the FSS in this band was extended from 2012 to 2016 (a date after which no new assignments should be made to the FSS).
- ❑ A review of the allocation to the FSS and ARNS in this band is now scheduled for WRC-15, in particular with regard to the January 2018 limitation to the FSS.
- ❑ Work Plan for the above study has been finalised

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.8 to review the provisions relating to earth stations located on board vessels (ESVs), based on studies conducted in accordance with Resolution **909 (WRC-12)**;

- The Working Party 4A is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 4C, WP 5A, WP 5B, WP 5C,**
(WP 7A, WP 7B, WP 7C, WP 7D)
- *Resolution 909 provide the regulatory provisions and technical parameters applicable to stations located on board vessels operating in fixed-satellite service networks in the uplink bands 5 925-6 425 MHz and 14-14.5 GHz.*
- *Under this agenda item studies will be carried out to review affordable protection to ESVs in the frequency band 5 925-6 425 MHz and 14-14.5 GHz.*
- *W.P 4A finalised the work plan*

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

- 1.9** to consider, in accordance with Resolution **758 (WRC-12)**:
- 1.9.1** possible new allocations to the fixed-satellite service in the frequency bands 7 150-7 250 MHz (space-to-Earth) and 8 400-8 500 MHz (Earth-to-space), subject to appropriate sharing conditions;
- 1.9.2** the possibility of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime-mobile satellite service and additional regulatory measures, depending on the results of appropriate studies;
- The Working Party 4A is responsible Group for this Agenda 1.9.1 and WP 4C is responsible Group for 1.9.2
- The concerned Working Groups for 1.9.1 are of this agenda item are WP 5A, WP 5C, WP 7B, (WP 3M) and for 1.9.2 are WP 4A, WP 4B, WP 5A, WP 5B, WP 5C, WP 7B, (WP 3M)
- Work Plan has been finalised by WP 4A & 4 C

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.10 to consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz.

- WP 4C is responsible Group for this agenda item
- WP 4A, WP 4B, WP 5A, WP 5C, WP 7A, WP 7B, WP 7C, WP 7D, (WP 3M) are concerned group
- WP 4C has initiated studies (i) requirement of MSS spectrum (ii) compatibility of MSS with services allocated in the range 22-26 GHz .

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

Ai 1.11 to consider a primary allocation for the Earth exploration-satellite service (Earth-to-space) in the 7-8 GHz range,

- The Working Party 7B is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are WP 4A, WP 4C, WP 5A, WP 5C, (WP 3M)
- In WP 7B first considered the WP 7B a DG is created to deal with the following compatibility issues:
 - Feasibility of sharing the 7145-7190 MHz (Earth-to-space) SRS (deep-space) frequency band with EESS uplink
 - Compatibility between EESS (E-S) and SRS (E-S) missions in the band 7 190-7 235MHz
 - sharing between the EESS (Earth-to-space) and the fixed service in the 7-8 GHz range.
 - Requirement of ESSS
- Work Plan have been finalised
- In the future meetings DG will discuss above sharing issues

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.12 to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9900-10 500 MHz, in accordance with Resolution 651 (WRC-12);

- ❑ The Working Party 7C is responsible Group for this Agenda
- ❑ The concerned Working Groups of this agenda item are WP 5A, WP 5B, WP 5C, WP 7B, WP 7D
- ❑ During the study cycle for WRC-07, studies were performed by ITU-R under Agenda item 1.3 (WRC-07) to investigate the conditions for the extension of the EESS (active) allocation by 200 MHz above or below the former allocation 9 500–9 800 MHz (prior to WRC-07).
- ❑ Based on the results of studies WRC-07 decided to extend the allocation to 9 300-9 900 MHz.
- ❑ The growing demand for higher resolution radar pictures raises the need to further increase the bandwidth used for linear FM chirp radar transmission of the next generation of EESS Synthetic Aperture Radars (SAR).
- ❑ work plan to study potential extension of the EESS allocation in the 9 GHz frequency range have been finalised by last meeting of WP 7C

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.13 to review No. 5.268 with a view to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle,

- ❑ The Working Party 7B is responsible Group for this Agenda
- ❑ The concerned Working Groups of this agenda item are WP 5A, WP 5C
- ❑ The band 410-420 MHz is used for communications by astronauts conducting extra-vehicular activities (EVA) operations in the immediate vicinity of the international space station (ISS).

in accordance with 5.268, use of this band by SRS is limited to communication within 5 km of an orbiting , manned space vehicle with pfd limit on earth surface

- ❑ This AI is to modify No. 5.268 to remove the 5 km limitation while maintaining the current pfd limits. Similarly, to allow proximity operations with orbiting vehicles and not solely limiting the use of the band for extra-vehicular activities.
- ❑ WP 7B has initiated studies

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI1.14 to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time(UTC) or some other method

- The Working Party 7A is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 6A**, (WP 6B)
- Various Administrations such as USA, Japan, China, Russian Federation have submitted their input papers to discuss UTC in the light of a revision to Recommendation ITU-R TF.460-6 “Broadcast Time and Frequency Services” and also the relationship of UTC to the rotation of the earth and purpose of the leap second is discussed as well as the origin of the name. The relationship of the earth’s rotation angle with Universal Time, the impact of the elimination of leap-seconds and practical concerns in modern timekeeping systems.
- Further, possible consequences of transition to the continuous time scale and the relationship to radio astronomy, various radio satellite services and navigation are also to be deliberated in the WP7A
- Based on the results of above ITU studies, draft CPM text shall be prepared.

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.15 Spectrum demands for on-board communication stations in the maritime mobile service

- The Working Party 5B is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are WP 4A, WP 4C, WP 5A, WP 5C, WP 5D
- In the bands between 450 and 470 MHz, only six frequencies are currently identified under provision no. 5.287 of Radio Regulations for on-board communication stations .
- Technical characteristics of equipment identified in Recommendation ITU-R M.1174; Provision is made for 25 kHz or 12.5 kHz channel spacing.
-
- There are following issues involved in this agenda
 - On board many ships the existing channels are congested to the extent that ship and port operations are impacted by cross transmissions;
 - it is important that the services to which the frequency band is currently allocated need to be protected,
 - that No. 5.286AA identifies the frequency band 450-470 MHz for use by administrations wishing to implement International Mobile Telecommunications (IMT)
- Based on the results of ITU-R studies, WRC-15 will consider the need to possibly identify additional UHF channels within the bands already allocated to the maritime mobile service for on-board communication stations;
- Studies have been initiated in WP5B

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.16 Regulatory provisions and spectrum allocations for new Automatic Identification System (AIS) technology/applications to improve maritime radiocommunication

- The responsible Group of this Agenda is WP5B and the concerned Groups are **WP 5A, WP 6A**, (WP 3K, WP 4A, WP 4C, WP 7B, WP 7C, WP 7D)
- The AIS is a shipboard broadcast system that acts like a transponder, operating in the VHF maritime band, that is capable of handling over 4,500 reports per minute and updates as often as every two seconds. It uses Self-Organizing Time Division Multiple Access (SOTDMA) technology to meet this high broadcast rate and ensure reliable ship-to-ship operation.
- The International Maritime Organization (IMO) requires SOLAS vessels (SOLAS Chap. V, Reg. 19) to carry AIS transponders onboard.
- The issue was also discussed in WRC-12 and allocations were made
- Under this agenda item WP 5B is studying requirement for additional channel

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 1.17 to consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution 423 (WRC-12);

- The Working Party 5B is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are WP 4A, WP 4C, WP 5A, WP 5C, WP 5D
- WAIC is radiocommunication between two or more points on a single aircraft. It is integrated wireless and/or installed components to the aircraft. It is part of a closed, exclusive network required for operation of the aircraft. It provides communications for passengers or in-flight entertainment.
- WAIC does not provide air-to-ground, air to satellite, or air-to-air communication.
- Under this agenda item WRC-15 will consider, results of ITU-R studies for possible regulatory actions, including appropriate aeronautical allocations, to support the implementation of WAIC systems, while taking into account spectrum requirements for WAIC and protection requirements for systems operating in accordance with existing allocations,
- Studies have been initiated in WP5B

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

Ai 1.18 to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band

- The Working Party 5B& 5A is responsible Group for this Agenda
- The concerned Working Groups of this agenda item are **WP 1B, WP 7B, WP 7C, WP 7D,** (WP 3M, WP 5C)
- Portions of the 76-81 GHz frequency band are allocated to the radio astronomy service (RAS), amateur and amateur-satellite and radiolocation (RLS) services on a primary or secondary basis and to the space research (space-to-Earth) service on a secondary basis
- Studies have been initiated to make possible allocation for automotive applications

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 9.1.1 Protection of the systems operating in the mobile-satellite service in the band 406-406.1 MHz

- The Working Party 4C is responsible Group for this Agenda
- the concerned Working Groups for this agenda item are WP 5A, WP 5B, WP 5C, WP 7B, WP 7C
- The frequency band 406-406.1 is allocated to MSS. As per 5.266 the use of this band for MSS is limited to EPIRB(Cospas-Sarsat systems)
- Band in vicinity to this band has been allocated to Fixed & Mobile on primary or secondary basis
- The protection criteria developed in Recommendations ITU-R M.1478-2 and ITU-R M.1731-1 provide allowable power flux-density requirements against broadband out-of band and narrow band spurious emissions for the frequency bands used by the Cospas-Sarsat systems.
- Emissions in adjacent bands, if not adequately controlled, could raise the level of noise captured by the Cospas-Sarsat systems and hinder their abilities to detect and/or relay signal from beacons.
- regulatory, technical and operational studies with a view to ensuring the adequate protection of MSS systems in the frequency band 406-406.1 MHz from any emissions has been initiated

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

Ai 9.1.2 Studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7

- The Working Party 4A for Technical and Regulatory aspects and SC for Regulatory and Procedural aspects is responsible Group for this Agenda
Following two studies are required to be carried out under this agenda
- the effectiveness and appropriateness of the current criterion ($\Delta T/T > 6\%$) used in the and consider any other possible alternatives.
- whether additional reductions in the coordination arcs in RR Appendix 5(**Rev.WRC-12**) are appropriate for the 6/4 GHz and 14/10/11/12 GHz frequency bands,
- whether it is appropriate to reduce the coordination arc in the 30/20 GHz band.
- Work plan for these studies have been finalised by WP4A

BRIEF ON AGENDA ITEMS OF WRC-15 AND THEIR PRESENT STATUS

AI 9.1.8 Regulatory aspects for nano- and picosatellites

- The Working Party 7B is responsible Group for this Agenda
- The concerned Working Groups for this agenda item are WP 4A, SC, (WP 5A, WP 6A)
- Nano satellites involves short development time, short mission time and unique orbital characteristics.
- Procedures for notifying space networks and possible modifications to enable the deployment and operation of nano- and picosatellites are required to be studies under this AI

REGIONAL PREPARATIONS

- APG(APT Preparatory Group) of APT has been entrusted for WRC-15 regional preparation in Asia Pacific region
- Similar to CPM-15 (1) work structure, APG has also established Working Groups to deal with preparatory work for WRC-15 Agenda items
- The preparatory work of APG for WRC-15 has already been started
- The first meeting of APG has been convened in September 2012
- The regional harmonized views on each agenda item have more force at ITU for success of any agenda item.

NATIONAL PREPARATION FOR WRC-15

- National Preparatory Committee-15 (NPC-15) for undertaking preparatory work for WRC-15 has been constituted in line with the CPM-15-1 Structure under the Chairmanship of Shri V.V.Singh, Joint Wireless Adviser
- NPC -15 has established 6 Working Groups as per below-
 - Working Group-1 : Mobile and Amateur Service (AI-1.1, 1.2, 1.3, 1.4)
 - Working Group-2 : Science Issues(AI 1.11,1.12, 1.13, 1.14)
 - Working Group-3: Aeronautical, Maritime and Radiolocation Issues(AI 1.5, 1.15, 1.16, 1.17, 1.18)
 - Working Group-4 : Fixed-Satellite Service & Mobile-Satellite Service(FSS-AI1.6,1.7,1.8,1.9.1, MSS-AI-1.9.2, 1.10)
 - Working Group-5 Satellite Regulatory Issues(AI-7,9.1.1, 9.1.2,9.1.3,9.1.5,9.1.8 9.3)
 - Working Group-6 General Issues(AI-2,4,9.1.4,9.1.6,9.1.7,10)

NATIONAL PREPARATION FOR WRC-15

- NPC has convened three meetings on 29th June 2012, 9th July 2012 and 24th August 2012 in order deliberate contributions received from stakeholders
- In the meeting held in July, 2012, one contribution on Agenda item 1.1 was discussed and forwarded to JTG4-5-6-7 held in Geneva held in 22-26 July 2012
- In the meeting held in August 2012, contributions received from COAI for identification of suitable frequency ranges for IMT applications was discussed in detail and contribution shall be forwarded to JTG 4-5-6-7 for its meeting scheduled in July 2013.

NATIONAL PREPARATION FOR WRC-15

- Working Groups have also started their work and proposals are being discussed
- Working Group-1 has convened one meeting to finalize the contributions on Agenda item 1.1 to be submitted to JTG 4-5-5-7
- The contributions so finalized shall be submitted to corresponding Working parties of ITU for further deliberations and inclusion in then Draft CPM Report
- The draft working document in respect of agenda item 1.3 dealing with broadband PPDR issues has already been forwarded to WP5A

WAY FORWARD

- All stakeholder must refer relevant Resolution, Recommendations, Reports, RR provision with regard to each WRC-15 Agenda item
- All Stakeholders must consult the work being carried out at various Study Groups of ITU and provide appropriate inputs for discussion
- Consult and keep watch on Regional preparation and provide inputs for consideration
- Identify their requirements to fit in the Agenda items based on the above
- Participate in the above meetings and involve themselves for the work of Agenda items

THANKS

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