



Radio Regulations

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ITU Symposium and Workshop
on small satellite regulation
and communication systems

**SANTIAGO DE CHILE, CHILE
7-9 NOVEMBER 2016**

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World Radio Conferences WRCs

- 1. Main Aspects**
- 2. WRCs process**
- 3. WRC-15 topics**



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World Radio Conferences, WRC

WRC performs a complete and detailed review of the Radio Regulations RR (RR), and its Rules of Procedure (RoP)

WRC updates RR & RoP considering technological developments on Spectrum Radio and sector realities and challenges, to respond early and appropriately to these changes.

WRC have the authority to modify the RR by addenda, modifications or deletions they deem pertinent. These modifications are made by consensus, and only if necessary, would vote (one vote per administration).



WRC Duties

1. Consider any radiocommunication matter of worldwide character
2. Develop instructions to the Radio Regulations Board and the Radiocommunication Bureau, and review their activities
3. Determine issues considered by Radiocommunication Assembly and Study Groups as part of the preparatory work for WRC future
- 4 . Set agenda of next WRC, and subsequent draft.



WRC Calendar

WRCs performs every 4 years; normally is held at Geneva, Switzerland, with a typical duration of 4 weeks

Last WRC: Geneva, Switzerland February 2012 (WRC-12)

Next WRC:

- Geneva, Switzerland October 2015 (WRC-15)
- Geneva, Switzerland 2019 (WRC-19)

Inter WRC preparatory meetings (CPM) are held, typically two:

1st : the week after the WRC; 2nd : ~ 6 months before next WRC.

Regional conferences are held, usually one for each regional ICT Organization, 6 to 12 months before each WRC.



World Radio Conferences WRCs

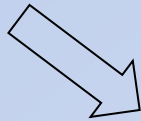
1. **Main Aspects**
2. **WRCs process**
3. **WRC-15 topics**



WRC Process



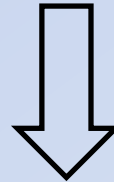
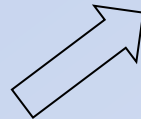
Inter-American Telecommunication Commission



European Conference of Postal and Telecommunications Administrations



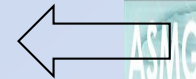
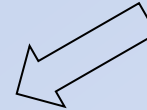
Regional Commonwealth in the field of Communications



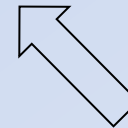
Radio Regulations



Asia Pacific Telecommunity



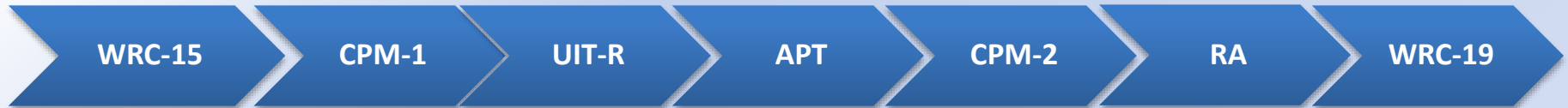
Arab Spectrum Management Group



African Telecommunications Union



WRC Process



- Defines the agenda for WRC-19

- Allocates the work of the agenda items to relevant study groups, defines chapter rapporteur and the structure of the CPM report

- Conducts studies for 4 years and prepares draft CPM text

- Attempts to consolidate Regional positions

- Consolidates the CPM text that includes the methods to solve each agenda item

- The Radio Assembly appoints the chairmans and vice charmans of the study groups, revises the structure of the study groups, approves or revises ITU-R resolutions.

- Modifies the Radio Regulations (e.g. allocation/identification of frequency bands)





WRC Regional Preparation

Preparation of common & coordinated proposals



Asia Pacific Telecommunity

- APG15-2, 1-5 July 2013, Bangkok, Thailand
- APG15-3, 9-13 June 2014, Brisbane, Australia



Arab Spectrum Management Group

- 2nd meeting, 24 – 28 November 2013, Kuwait
- 3rd meeting, 19 – 23 May 2014, Dubai, UAE



African Telecommunications Union

- 2nd meeting, 27-31 January 2014, Khartoum, Sudan
- 3rd meeting, [Q4] 2014



European Conference of Postal and Telecommunications Administrations

- CPG15-4, 25-28 March 2014, Riga, Latvia
- CPG15-4, 23-26 September 2014, France



Inter-American Telecommunication Commission

- XXIII PCC.II, 17-21 March 2014, Cartagena, Colombia
- XXIV PCC.II, 29 Sep.-3 Oct. 2014, Mexico



Regional Commonwealth in the field of Communications

- WG 3rd meeting, 29 Oct. - 1 Nov. 2013, Yerevan, Armenia
- WG 4th meeting, 14 - 16 April 2014, Minsk, Belarus
- COM 4th meeting, 17 - 18 April 2014, Minsk, Belarus



World Radio Conferences WRCs

1. **Main Aspects**
2. **WRCs process**
3. **WRC-15 topics**



WRC-15 AGENDA

- WRC-15 Agenda was drafted during the past WRC-12 (WRC-12 Res. 807)
- Approved by the ITU Council in 2012 (C12 Res. 1343)





WRC-15 AGENDA

1. Allocations: Items 1: 1.1 to 1.18 (incl. 1.6.1 & 1.6.2; 1.9.1 & 1.9.2)
- 2: ITU-R Recommendations incorporated by reference
- 3: RR changes and amendments
- 4: Res. and Rec. of previous WRC
- 5: Report from the Radiocommunication Assembly
- 6: Urgent items to ITU-R SG for next WRC
- 7: Review Res. 86 related to rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;
- 8: country footnotes
- 9: BR Director Report (items 9.1 to 9.3)
- 10: Agenda Next WRC (WRC-18), and Draft Agenda WRC-?



WRC-15 TOPICS

BROADBAND

- Additional spectrum for mobile BB applications (and band identification for IMT)
- Use of the 700 MHz band in Region 1 by the mobile (with IMT Id.) and other services
- Additional spectrum for Broadband PPDR for a revision of Res. 646 (Rev. WRC-12)



WRC-15 TOPICS

SPACE SERVICES

- Possible additional primary allocations for FSS:
 - 250 MHz (Reg. 1) for E-S & S-E, within 10-17 GHz to overcome shortfall in spectrum available at 10-15 GHz
 - 250 MHz (Reg. 2) & 300 MHz (Reg. 3) for E-S, within the 13-17 GHz, to overcome the bandwidth limitation in E-S vs. S-E
- Review regulatory provisions of current FSS allocations



WRC-15 TOPICS

SPACE SERVICES

- Possible new FSS & MMSS allocations at 7/8 GHz – to increase spectrum available for current & future FSS applications, estimated at ~100 MHz max – for MMSS, to address operations beyond territorial waters with additional regulatory measures
- Spectrum requirements & possible additional allocations to MSS, incl. Sat. comp. for BB applications (IMT), 22-26 GHz



WRC-15 TOPICS

SPACE SERVICES

- Review the use of the band 5091-5150 MHz by the FSS (E-to-S) (limited to feeder links of N-GSO MSS systems)
- Review provisions relating to ESVs at 5.925-6.425 & 14-14.5 GHz, to take account of the technological advancements and compatibility improvements
- Regulatory notification/coordination procedures for an efficient use of spectrum/orbit resources - Res.86
- Coordination Arc reduction and technical criteria
- Protection of the MSS in the band 406-406.1 MHz



WRC-15 TOPICS

SPACE SERVICES

- Satellite orb. & frequency spectrum to deliver International Public Telecommunication Services in developing countries
- FSS ES operation at 3.4-4.2 GHz, as an aid to safe operation of aircraft & reliable distribution of meteorological information in some Reg. 1 countries
- Regulatory aspects for nano- & pico-satellites



WRC-15 TOPICS

AERONAUTICAL SERVICES

- Unmanned Aircraft Systems – Consider use of FSS bands (not App. 30/30A/30B) for control and non-payload communications of UAS in non-segregated airspaces
- Consider possible spectrum requirements & regulatory actions, including appropriate aeronautical allocations, to support WAIC



WRC-15 TOPICS

MARITIME SERVICES

- Consider spectrum demands for on-board communication stations in the maritime mobile service (MMS) in the UHF band
- Regulatory provisions & spectrum allocations to enable possible new AIS technology and other new applications to improve maritime radiocommunication



WRC-15 TOPICS

CLIMATE MONITORING, WEATHER FORECAST

Earth observations

- New primary allocation to EESS (E-to-S) at 7/8 GHz to accommodate \uparrow & \downarrow TT&C in the same transponder, increasing efficiency and reducing satellite complexity, [56 MHz] needed
- Extension of current EESS (active) allocation at 9.3-9.9 GHz by up to 600 MHz within the bands 8.7-9.3 GHz and/or 9.9-10.5 GHz for future high-resolution radars (SAR) to satisfy global environment monitoring of great value for the global community (50 cm resolution \rightarrow 1200 MHz bandwidth)



WRC-15 TOPICS

SPACE RESEARCH

Possibility of increasing the 5 km distance limitation & allowing SRS (S-to-S) use of the 410-420 MHz band for proximity operations by space vehicles communication with orbiting manned space vehicle)



WRC-15 TOPICS

RADAR

Consider a primary allocation to the RLS at 77.5-78.0 GHz for automotive applications (with short range high resolution radars)



WRC-15 TOPICS

AMATEUR RADIO FOR EMERGENCY

New secondary allocation at 5.25-5.45 MHz to bridge the propagation gap between 3.5 & 7.0 MHz amateur radio bands and maintain stable communication over various distances & 24 hours/day, especially for use when providing emergency communications



WRC-15 TOPICS

SPECTRUM MANAGEMENT

- Updating & rearrangement of the RR (excepting Art. 1, 4-9, 11, 13-18, 21-23 & 59)
- ***Review of definitions of fixed-service, fixed stations and mobile station***
- Spectrum management guidelines for emergency & disaster relief radiocommunication



WRC-15 TOPICS

WRC-19 AGENDA

Following issues in addition to standing agenda items on IbR of ITU-R Rec., review of WRC Res. & Rec., Country footnotes, Res.86, BR Dir.'s Report:

- Regulatory actions, including spectrum allocations, to support GMDSS modernization and implementation of e-navigation
- Appropriate regulatory procedures for notifying satellite networks needed to facilitate the deployment and operation of nano-satellites and pico-satellites



New RR (as revised by WRC-15)

The Radio Regulations new edition of 2016, contains the complete texts of the Radio Regulations as adopted by:

- World Radiocommunication Conference (Geneva, 1995) (WRC-95) revised and approved by
- the World Radiocommunication Conference (Geneva, 1997) (WRC-97)
- the World Radiocommunication Conference (Istanbul, 2000) (WRC-2000)
- the World Radiocommunication Conference (Geneva, 2003) (WRC-03)
- the World Radiocommunication Conference (Geneva, 2007) (WRC-07)
- the World Radiocommunication Conference (Geneva, 2012) (WRC-12) and
- **the World Radiocommunication Conference (Geneva, 2015) (WRC-15),**

including all Appendices, Resolutions, Recommendations and ITU-R Recommendations incorporated by reference.



Availability:	October/November 2016
Languages:	Arabic Chinese English French Russian Spanish
Formats:	Paper; DVD-ROM; free download
Paper format:	A5 (14.85 × 21 cm); 4 volumes set plus maps
Electronic format:	Microsoft® Office Word® – Adobe® Acrobat® PDF



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