WRC-19 PREPARATION

Akim Falou Dine
Akim.Falou-Dine@itu.int
International Telecommunication Union

ITSO/ITU Workshop on Satellite Communications
AFRALTI, Nairobi, 17-21 July 2017
Create regulatory certainty for a multi-trillion dollars industry which plays a increasingly important role in the development of our societies

For fixed, mobile, satellites and broadcasting industries, global spectrum harmonization is essential to create economies of scale, roaming and interoperability

Creating certainty requires consensus in order to achieve stable results. This demands time, efforts and patience.
The WRC Purposes

✓ Updates the Radio Regulations (CS* 89) (*treaty status*)
  - Spectrum Allocation
  - Coordination and Notification procedures
  - Administrative and operational procedures

✓ Adopts Resolutions

✓ Held every 3-4 years (CS* 90)

✓ Additional provisions in CV* and GR*

* Constitution (CS), Convention (CV) and General Rules (GR) of Conferences, Assemblies and Meetings of the ITU are available in ITU Collection of Basic Texts (www.itu.int/pub/S-CONF-PLEN)
The WRC Cycle

ITU Member States & ITU-R Members

RA: Radiocommunication Assembly
Rep: Radiocommunication Study Groups
CPM-2: Conference Preparatory Meeting
Next Agenda

Radiocommunication Bureau

ITU-R Study Groups:
SG-1: Spectrum management
SG-3: Radiowave propagation
SG-4: Satellite services
SG-5: Terrestrial services
SG-6: Broadcasting service
SG-7: Science services

Final Acts

Revisions to the Radio Regulations

RRB: Radio Regulations Board
CPM-1: Conference Preparatory Meeting
Rec: ITU-R Recommendation
RoP: Rules of Procedure
RR: Radio Regulations (treaty status)

Adopted by ITU Council

WRC: World Radiocommunication Conference
Overview of the preparations

Agenda: draft in WRC Res & final in Council Res

Informal Group (Structure & Chairmanship)

Proposals

Coordinated common proposals

Member States

Final Acts

Radio Regulations (CS89)

Regional preparation Resolution 72 (Rev.WRC-07)

(WRC-15 Docs)

APT (Doc. 32)

ASMG (Doc. 25, also 43, 144, 189)

ATU (Doc. 28)

CEPT (Doc. 9)

CITEL (Doc. 7)

RCC (Doc. 8, also 146, 270)

RA Report (Doc. 216)

CPM Report (Doc. 3)

Director’s Report (Doc. 4 & Doc. 5)

Conference Secretariat (BR & GS)

Radio Regs (CS89)
Some statistics on WRC-15

Took place from 2 to 27 November 2015 in Geneva

- **3275 Participants**
  - (2780 from MS & 495 from OE)
- **162 Member States**
- **130 Observers**
- **678 Documents**
  - submitted with MS proposals
- **2888 MS Proposals**
  - ~2/3 of common proposals

WRC-15 Plenary
45h10m / 25 sessions

- **COMs 4, 5, 6 level:**
  - 53h40m / 37 sessions
- **WG level:**
  - 113h45m / 79 sessions
- **SWG level:**
  - 350h15m / 246 sessions
- **AHG level:**
  - 128h50m / 113 sessions
Some WRC-15 key achievements

- Providing spectrum for mobile broadband (IMT) on a global basis
- Providing frequencies for Global Flight Tracking
- Making new allocations to the FSS, MMSS and EESS
- Authorizing frequency bands and establishing regulatory conditions for unmanned aircraft systems
- Providing required spectrum for WAIC as well as for automotive and maritime transports
- Improving the satellite frequency assignments regulatory procedures

These results have demonstrated once again the ITU ability to keep up with the pace of technological advancements and to timely respond to the urgent needs of the Membership
WRC-15 outcome & follow-up

WRC-15 Final Acts available at:
www.itu.int/pub/R-ACT-WRC.12-2015
(ITU CL-16/22 of 17 May 2016)

See relevant BR Circular Letters at:
www.itu.int/md/R00-CR-CIR/en

<table>
<thead>
<tr>
<th>Number</th>
<th>Received</th>
<th>Source</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>407</td>
<td>2016-07-05</td>
<td>Director, BR</td>
<td>Implementation of decisions of the World Radiocommunication Conference, Geneva 2015 (WRC-15), related to earth stations on board unmanned aircraft (Resolution 155 (WRC-15))</td>
</tr>
<tr>
<td>406</td>
<td>2016-06-21</td>
<td>Director, BR</td>
<td>Implementation of decisions of the World Radiocommunication Conference, Geneva 2015 (WRC-15) and associated transitional arrangements related to terrestrial services</td>
</tr>
<tr>
<td>405</td>
<td>2016-05-24</td>
<td>Director, BR</td>
<td>Equivalent power flux density (EPFD) validation software (Resolution 85 (WRC-03))</td>
</tr>
<tr>
<td>404</td>
<td>2016-05-23</td>
<td>Director, BR</td>
<td>Submission of typical earth stations in the fixed-satellite service</td>
</tr>
<tr>
<td>403</td>
<td>2016-06-21</td>
<td>Director, BR</td>
<td>Implementation of decisions of the World Radiocommunication Conference, Geneva, 2015 (WRC-15) and associated transitional arrangements related to space services</td>
</tr>
<tr>
<td>402</td>
<td>2016-05-26</td>
<td>Director, BR</td>
<td>Rules of Procedure approved by the Radio Regulations Board</td>
</tr>
<tr>
<td>401</td>
<td>2016-05-02</td>
<td>Director, BR</td>
<td>Transitional measures for the elimination of advance publication filings by administrations for frequency assignments to satellite networks and systems subject to Section II of Article 9</td>
</tr>
<tr>
<td>400</td>
<td>2016-04-29</td>
<td>Director, BR</td>
<td>Implementation of revised Appendices 30 and 30A (Rev. WRC-15) and Resolution 556 (WRC-15)</td>
</tr>
</tbody>
</table>

... [389] ...

WRC-15 decisions included in the Minutes of Plenary meetings
Radio Regulations contains the complete texts as adopted by the World Radiocommunication Conference (Geneva, 1995) (WRC-95) and subsequently revised and adopted by World Radiocommunication Conferences, including all Appendices, Resolutions, Recommendations and ITU-R Recommendations incorporated by reference.

Related links

- World Radiocommunication Conferences

2016 New! Publication Notice with Order Form


Available in

Main Steps towards WRC-19

WRC-15: WRC-19 Agenda - Resolution 809 (WRC-15)

1st Session of Conference Preparatory Meeting: CPM19-1
30 Nov – 1 Dec. 2015; Results @CA/226 of 23/12/2015

Council-16: WRC-19 agenda in Res. 1380 with dates & venue
Approved/Confirmed in Geneva after Member States consultation (CV Nos. 42 & 118) (CL-16+/57)

2nd Session of Conference Preparatory Meeting: CPM19-2
Planned dates at CICG in Geneva from 18 to 28 February 2019

Final meetings of regional groups
Member States’ proposals to WRC-19

Chairman
Mr K. AL-AWADHI (UAE), E-mail: khalid.alawadi@tra.gov.ae

Vice-Chairmen, CPM
Mr M. AL BADI (OMA), E-mail: albadi@tra.gov.om
Ms C. BEAUMIER (CAN), E-mail: Chantal.Beaumier@ic.gc.ca
Mr X. GAO (CHN), E-mail: gaoxiaoyang@chinasatcom.com
Mr V. GOEL (IND), E-mail: viresh.goel@gmail.com
Mr A. KÜHN (D), E-mail: alexander.kuehn@bnetza.de
Dr H. SEONG (KOR), E-mail: seong@msip.go.kr
Mr T. SHAFIEE (IRN), E-mail: shafiee@cra.ir
Mr. A. V. VASSILIEV (RUS), E-mail: alexandre.vassiliev@ties.itu.int

(see details at www.itu.int/go/ITU-R/cvc/CPM)
First Session of CPM-19

Scope defined in Resolution ITU-R 2-7

Geneva, 30 November - 1 December 2015
(269 participants, 63 MS, 25 SM, 13 contributions)
⇒ results published in CA/226, of 23 Dec. 2015
(see at http://www.itu.int/md/R00-CA-CIR-0226/en)

- Define framework of preparatory studies with
  Structure of the draft CPM Report (see the proposed
  detailed structure at: http://www.itu.int/oth/R0A0A00000A/en) and
  six Chapter Rapporteurs

- Identify responsible ITU-R Groups
  for each WRC-19 agenda item (AI) and issue
  ⇒ 9 existing Working Parties and
  ⇒ Proposed new TG 5/1 for AI 1.13 (ToR in Annex 9 of CA/226)
  + 3 existing WPs for the WRC-23 preliminary agenda items
  and concerned (contributing / interested) ITU-R groups
  (see Annexes 7 and 8 to CA/226)
Topics on the WRC-19 Agenda

17 specific & 6 standing items, **Res.809** (WRC-15)

1.13 **Fix. & Mob. BB Apps**
(24.25 < IMT < 86 GHz, HAPS, Apps.Id>275 GHz, WAS/RLAN @ 5 GHz)

1.14 **Maritime** (GMDSS modernization (+Sat.), use of radio devices, VDES Sat component)

1.15 **Aeronautical** (GADSS needs)

1.16 **Satellite issues**
(BSS/FSS @12 GHz, ESIM, regul. for N-GSO FSS @ 37.5 to 51.4 GHz)

1.10 **Regulatory issues**
(Sat. regulations, harmonization of spectrum use, etc.)

1.11 **Amateur in R1**
@ 50-54 MHz
(4WWW allocation)

1.12 **New Transport systems**
(harmonized bands for railways, ITS)

1.7 **Earth resources & Climate monitoring**
Weather forecast, DCS protection, TT&C for N-GSO Sat. of short duration

**WRC 2019**

Not: WRC-19 agenda item numbers indicated in italic

> See additional information in the slides attached to this presentation
Overlapping frequency bands (GHz) between some WRC-19 agenda items

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24.25-27.5</td>
<td>24.25-27.5 (Reg. 2)</td>
<td>24.25-27.5 (Reg. 2)</td>
<td>24.25-27.5 (Reg. 2)</td>
</tr>
<tr>
<td>37.5-39.5 (s-E*)</td>
<td>37-40.5</td>
<td>38-39.5 (globally)</td>
<td>38-39.5 (globally)</td>
</tr>
<tr>
<td>39.5-42.5 (s-E*)</td>
<td>40.5-42.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47.2-50.2 (E-s*)</td>
<td>47.2-50.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.4-51.4 (E-s*)</td>
<td>50.4-52.6</td>
<td></td>
<td>51.4-52.4 (E-s*)</td>
</tr>
</tbody>
</table>

* E-s: Earth-to-space; s-E: space-to-Earth.

Studies to address mutual compatibility & sharing feasibility among the services/applications for which allocation/identification is envisaged under the corresponding Res. relating to the AI in the overlapping bands.
## Draft CPM Report – ToC
(see Annex 6 to CA/226)

<table>
<thead>
<tr>
<th>Chapters of the draft CPM Report</th>
<th>WRC-19 Agenda items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Land mobile and fixed services</strong></td>
<td>1.11, 1.12, 1.14, 1.15</td>
</tr>
<tr>
<td><strong>2. Broadband applications in the mobile service</strong></td>
<td>1.13, 1.16, 9.1 (9.1.1, 9.1.5, 9.1.8)</td>
</tr>
<tr>
<td><strong>3. Satellite services</strong></td>
<td>1.4, 1.5, 1.6, 7, 9.1 (9.1.2, 9.1.3, 9.1.9)</td>
</tr>
<tr>
<td><strong>4. Science services</strong></td>
<td>1.2, 1.3, 1.7</td>
</tr>
<tr>
<td><strong>5. Maritime, aeronautical and amateur services</strong></td>
<td>1.1, 1.8, 1.9.1, 1.9.2, 1.10, 9.1 (9.1.4)</td>
</tr>
<tr>
<td><strong>6. General issues</strong></td>
<td>2, 4, 9.1 (9.1.6, 9.1.7), 10</td>
</tr>
<tr>
<td>Chapters</td>
<td>Rapporteurs</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>1. Land mobile and fixed services</td>
<td>Ms K. ZHU (CHN), Email: <a href="mailto:Zhukeer@miit.gov.cn">Zhukeer@miit.gov.cn</a></td>
</tr>
<tr>
<td>2. Broadband applications in the mobile service</td>
<td>Mr J. ARIAS FRANCO (MEX), Email: <a href="mailto:jose.arias@ift.org.mx">jose.arias@ift.org.mx</a></td>
</tr>
<tr>
<td>3. Satellite services</td>
<td>Mr N. VARLAMOV (RUS), Email: <a href="mailto:vnv73@mail.ru">vnv73@mail.ru</a></td>
</tr>
<tr>
<td>4. Science services</td>
<td>Mr V. MEENS (F), Email: <a href="mailto:vincent.meens@cnes.fr">vincent.meens@cnes.fr</a></td>
</tr>
<tr>
<td>5. Maritime, aeronautical and amateur services</td>
<td>Mr W. EL SAYED (EGY), Email: <a href="mailto:wsayed@ntra.gov.eg">wsayed@ntra.gov.eg</a></td>
</tr>
<tr>
<td>6. General issues</td>
<td>Mr P.N. NGIGE (KEN), Email: <a href="mailto:ngige@cck.go.ke">ngige@cck.go.ke</a></td>
</tr>
</tbody>
</table>

5 preliminary agenda items, Res. 810 (WRC-15)

2.1 Res. 361 – Spectrum for GMDSS modernization & implementation of e-navigation
(Responsible ITU-R Groups: WP 5B)

2.2 Res. 656 – Possible new allocations for EESS (active) for spaceborne radar sounders @ 45 MHz
(Responsible ITU-R Groups: WP 7C)

2.3 Res. 657 – Spectrum needs & designation of radio services for space weather sensors
(Responsible ITU-R Groups: WP 4A)

2.4 Res. 161 – Possible new allocations for FSS @ 37.5-39.5 GHz
(Responsible ITU-R Groups: WP 4A)

2.5 Res. 235 – Spectrum use and needs of existing services @ 470-960 MHz in Region 1 and possible regulatory actions @ 470-694 MHz in Region 1
(Responsible ITU-R Groups: none)
Task Group 5/1 on WRC-19 AI 1.13

Taking into account CPM19-1 Decision (CA/226 Annex 9), SG 5 established new TG 5/1 (www.itu.int/en/ITU-R/study-groups/rsg5/tg5-1)

➢ Conduct sharing and compatibility studies
➢ Develop draft CPM text under WRC-19 agenda item 1.13 to be submitted directly to the CPM-19 Process
➢ Considering results from
  • WP 5D* on studies on spectrum needs, technical and operational characteristics of IMT by 31 March 2017
  • Technical characteristics including protection criteria provided by involved Working Parties* by 31 March 2017 for existing services allocated in, or adjacent to bands
  • SG 3 WPs* on propagation models by 31 March 2017;
➢ TG 5/1 will work making maximum use of modern means of communications, incl. remote participation to the extent practicable
➢ TG 5/1 management team including AI 1.13 coordinators from the six regional groups (APG, ASMG, ATU, CEPT, CITELE, RCC)

* Involved Working Parties contributing to this issue: 3J, 3K, 3M, 4A, 4B, 4C, 5A, 5B, 5C, 5D, 6A, 7B, 7C, 7D
Examine contributions from the membership (Member States, Sector members, Associates, Academia)

Ensure necessary coordination with the concerned groups (contributing/interested working parties)

Carry out technical studies (incl. compatibility & sharing) & develop necessary draft ITU-R Rec. & Reports for consideration by the relevant ITU-R Study Group(s)

Develop draft CPM texts, including:
- Background; Summary & Analysis of study results
- Proposed method(s) to satisfy the agenda items
- with associated examples of regulatory texts to be sent to CPM Chp. Rap. on time for CPM19-2

Finalize the technical studies prior to RA-19
Organised in accordance with Res. ITU-R 2-7 and composed of:
- CPM-19 Chairman, Vice-Chairmen and Chapter Rapporteurs
- Chairmen of Study Groups and Responsible Groups

⇒ Consolidate the draft CPM texts/chapters into the draft CPM Report to WRC-19 (input to CPM19-2)

See also CA/226 Add.1 on Preparation of the Draft CPM Report to WRC-19

Second Session of CPM-19

➢ Based on the draft CPM Report (available in six official ITU languages a minimum of 3 months before CPM19-2)
➢ Consider contributions from ITU Member States & ITU-R Sector Members
➢ Consider also a preliminary draft version of the BR Director’s Report to WRC-19

⇒ To finalize the CPM Report to WRC-19 (incl. draft solutions (methods) to satisfy the agenda items
## Overview of the ITU-R Calendar towards WRC-19

<table>
<thead>
<tr>
<th>Year</th>
<th>January – March</th>
<th>April – June</th>
<th>July – September</th>
<th>October – December</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>WP 5D (1st)</td>
<td>WPs 7B &amp; 7C (1st)</td>
<td>WP 4C+WP 4A (2nd)</td>
<td>WP 5D (3rd)</td>
</tr>
<tr>
<td></td>
<td>WP 4C+WP 4A (1st)</td>
<td>WPs 5A, 5B &amp; 5C (1st)</td>
<td>TG 5/1 (1st)</td>
<td>[TG 5/1 (3rd)]</td>
</tr>
<tr>
<td></td>
<td>WPs 1A &amp; 1B (1st)</td>
<td>WP 5D (2nd)</td>
<td>CPM-19 Steering</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>WP 5D (4th)</td>
<td>WPs 7B &amp; 7C (3rd)</td>
<td>[WP 5D (5th)]</td>
<td>[WP 4C+WP 4A (4th)]</td>
</tr>
<tr>
<td></td>
<td>WP 4C+WP 4A (3rd)</td>
<td>TG 5/1 (2nd)</td>
<td>[TG 5/1 (6th)]</td>
<td>[WPs 5A, 5B &amp; 5C (4th)]</td>
</tr>
<tr>
<td></td>
<td>WPs 5A, 5B &amp; 5C (3rd)</td>
<td>WPs 1A &amp; 1B (3rd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[WPs 1A &amp; 1B (4th)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>[Responsible Groups Meetings]</td>
<td>[Responsible Groups Meetings]</td>
<td>[TG 5/1 (6th)]</td>
<td>[Responsible Groups Meetings]</td>
</tr>
<tr>
<td></td>
<td>[TG 5/1 (4th)]</td>
<td>[TG 5/1 (5th)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>CPM19-2</td>
<td>[Last meetings of the Responsible Groups]</td>
<td>[WS on WRC-19]</td>
<td>RA-19</td>
</tr>
</tbody>
</table>

[... ] = planned meetings

**WS on WRC-19** = ITU Inter-regional Workshop on WRC-19 Preparation


Information on CPM19-2 Preparation (e.g. dates, deadlines) at: [www.itu.int/md/R00-CA-CIR-0226](https://www.itu.int/md/R00-CA-CIR-0226)
Up-to-date information online at: http://www.itu.int/en/events/Pages/Calendar-Events.aspx?sector=ITU-R
Pursuant to Resolution 72 (Rev. WRC-07)

See details @ www.itu.int/go/wrc-19-regional

Regional preparation for WRC-19

YOU ARE HERE HOME > ITU-R > CONFERENCES AND MEETINGS > WRC > WRC-19 > REGIONAL PREPARATION FOR WRC-19

Resolution 72 (Rev. WRC-07)

Asia-Pacific Telecommunity (APT)
2nd APG-19: 17-21 July 2017, Bali, Indonesia

Arab Spectrum Management Group (ASMG)
22nd ASMG: [2017]

African Telecommunications Union (ATU)
2nd APM-19: 7-11 August 2017, Dakar, Senegal

European Conference of Postal and Telecommunications Administrations (CEPT)
4th CPG-19: 4-7 July 2017

Inter-American Telecommunication Commission (CITEL)
XXIX PCC.II: 27 - 30 June 2017, Orlando, USA

Regional Commonwealth in the Field of Communications (RCC)
3rd RCC WG WRC-19/RA-19: 10-13 April 2017, Bishkek, Kyrgyz Republic
ITU Inter-Regional Workshops on WRC-19 Preparation

1st Workshop [21-22]*
Nov. 2017

• To be scheduled halfway through the preparatory cycle
  ➔ Presentation and review of the on-going preparatory studies of the ITU-R responsible groups for CPM-19
  ➔ Presentation of the organization, preliminary views, draft priorities and positions of the regional groups

* Subject to the confirmation of the dates of the ITU-R SG 5 meeting currently planned on 20 Nov. 2017 **

2nd Workshop [Q4 2018]**

• To be scheduled few months prior to CPM19-2
  ➔ Presentation of the Draft CPM Report to WRC-19 (explanation of the draft Methods to satisfy the WRC-19 agenda items)
  ➔ Presentation and review of the regional groups’ draft views, positions and common proposals

3rd Workshop [Q3 2019]**

• To be scheduled few months prior to WRC-19
  ➔ Presentation of the CPM & Dir. Reports to WRC-19
  ➔ Presentation and review of the regional groups’ draft views, positions and common proposals

** Updated information on meeting dates to be provided later on at: www.itu.int/en/events/Pages/Calendar-Events.aspx?sector=ITU-R
Thank you for your attention

Additional slides on

➢ Agenda for WRC-19
➢ Radio services and other abbreviations
Agenda for the 2019 World Radiocommunication Conference
The following bands, which are already allocated to mobile, will be studied with a view to an **IMT-2020 identification**:  
• 24.25 – 27.5 GHz  
• 42.5 – 43.5 GHz  
• 47.2 – 50.2 GHz  
• 66 – 76 GHz  
• 37 – 40.5 GHz  
• 45.5 – 47 GHz  
• 50.4 – 52.6 GHz  
• 81 – 86 GHz  
  
The following bands will also be studied, although they do not currently have global mobile allocations:  
• 31.8 – 33.4 GHz  
• 40.5 – 42.5 GHz  
• 47 - 47.2 GHz  

Appropriate regulatory actions, incl. additional MS allocations, for **WAS/RLAN** will be studied in the bands between **5 150-5 925 MHz**

**Res. 238 (WRC-15)**

**Res. 239 (WRC-15)**
Studies for considering **appropriate regulatory actions for HAPS**, within existing FS alloc. at 47.2-47.5, 47.9-48.2 & 31.0-31.3***/27.9-28.2** GHz (**outside Reg. 2, +5 ADMs @6.5/6.5 MHz) or study new bands: 38-39.5 GHz & 21.4-22*** & 24.25-27.5*** GHz (***in Region 2)

▶ **Res. 160 (WRC-15)**

Studies towards an **identification** for use by administrations for **LMS and FS applications** operating in the frequency range **275-450 GHz**

▶ **Res. 767 (WRC-15)**
New transport systems in the MS
(WRC-19 agenda items 1.11 & 1.12)

Studies to take necessary actions, as appropriate, to facilitate global or regional harmonized bands to support railway radiocommunication systems between train & trackside within existing MS allocations

► Res. 236 (WRC-15)

Studies to consider possible global or regional harmonized bands, to the maximum extent possible, for implementation of evolving ITS* within existing MS allocations

► Res. 237 (WRC-15)

* Intelligent Transport systems (ITS)
Maritime issues
(WRC-19 agenda items 1.8, 1.9.1 & 1.9.2)

Studies to consider possible regulatory actions to support GMDSS (Global Maritime Distress and Safety Systems) modernization and the introduction of additional satellite systems into the GMDSS

► Res. 359 (Rev.WRC-15)

Studies to consider regulatory actions within the band 156-162.05 MHz for autonomous maritime radio devices to protect the GMDSS and AIS (Automatic Identification System)

► Res. 362 (WRC-15)

Studies to consider RR MODs, including new MMSS (E-s & s-E) allocations, preferably within 156.0125-157.4375 MHz & 160.6125-162.0375 MHz of RR App. 18, to enable a new VDES (VHF data exchange system) satellite component

► Res. 360 (Rev.WRC-15)
Aeronautical and Amateur issues
(WRC-19 agenda items 1.10 & 1.1)

Studies to consider **spectrum needs & regulatory provisions** for introduction and use of the GADSS (Global Aeronautical Distress and Safety System)

- **Res. 426 (WRC-15)**

Studies for consideration of an allocation of the band **50-54 MHz** to the amateur service in Region 1 (towards a worldwide allocation for harmonized weak signal communications)

- **Res. 658 (WRC-15)**
Data Collection Systems (DCS) are used to monitor and predict climate change, monitor oceans, weather and water resources, weather forecasting and assisting in protecting biodiversity, improving maritime security.

Studies to consider in-band power limits for earth stations in MetSat & EESS @ 401-403 MHz for DCS* and in the MSS @ 399.9-400.05 MHz

► Res. 765 (WRC-15)

Studies to consider possible upgrading of the 2ndary MetSat (s-E) allocation to 1mary status & a possible 1mary EESS (s-E) allocation @ 460-470 MHz for DCS

► Res. 766 (WRC-15)

Study spectrum needs for TT&C in the SOS for non-GSO satellites with short duration missions & consider, if necessary, new SOS allocations

► Res. 659 (WRC-15)

* Data Collection Systems (DCS) are used to monitor and predict climate change, monitor oceans, weather and water resources, weather forecasting and assisting in protecting biodiversity, improving maritime security
Satellite issues
(WRC-19 agenda items 1.4, 1.5, 1.6 & 7)

Consider results of studies on review, and possible revision if necessary, of RR App. 30 Annex 7 limitations, incl. orbital position limitations
► Res. 557 (WRC-15)

Studies to consider the use of the bands 17.7-19.7 GHz (s-E) and 27.5-29.5 GHz (E-s) by earth stations in motion communicating with GSO space stations in the FSS and take appropriate action
► Res. 158 (WRC-15)

Studies on development of a regulatory framework for non-GSO FSS systems that may operate in the bands 37.5-39.5 GHz (s-E), 39.5-42.5 GHz (s-E), 47.2-50.2 GHz (E-s) and 50.4-51.4 GHz (E-s)
► Res. 159 (WRC-15)

Satellite Regulatory issues
► Res. 86 (Rev.WRC-07)
Seven issues identified so far under AI 7:

A. Factors related to the BiU of frequency assignments of non-GSO systems subject to coordination

B. Modification (characteristics reduction) of a recorded assignment under RR App. 30 & 30A Reg. 1 and 3 List

C. Discrepancy and/or inconsistency between RR provisions dealing with any changes to characteristics of assignment

D. Ident. specific sat. networks & systems to coordinate with, under RR Nos. 9.12, 9.12A and 9.13 or 9.21

E. Harmonization of RR App. 30B with RR App. 30 & 30A

F. Enhancement of RR App. 30B provisions to observe the principles based on which it was initially established

G. Updating ref. sit. for networks in RR App. 30 & 30A after conversion into definitive of provisionally recorded assign nts
| 9.1.1  | Res. 212 – Terrestrial & Satellite components of IMT co-existence & compatibility @1885-2025 & 2110-2200 (Rev.WRC-15) |
| 9.1.2  | Res. 761 – IMT and BSS sound @ 1452-1492 MHz in Regions 1 and 3 (WRC-15) |
| 9.1.3  | Res. 157 – Technical/Operational/Regulatory studies for new N-GSO Sat. in “C-Band” allocated to FSS (WRC-15) |
| 9.1.4  | Res. 763 – Stations on board sub-orbital vehicles (WRC-15) |
| 9.1.5  | Res. 764 – IbR* of Rec. ITU-R M.1638-1 & M.1849-1 (MS(RLAN))@5GHz & new radar characteristics (WRC-15) |
| 9.1.6  | Res. 958 – 1) Urgent studies on Wireless Power Transmission (WPT) for electric vehicles (WRC-15) |
| 9.1.7  | Res. 958 – 2) Managing unauthorized operations of Earth Station terminals (WRC-15) |
| 9.1.8  | Res. 958 – 3) Narrowband & BB machine-type communication infrastructures (WRC-15) |
| 9.1.9  | Res. 162 – FSS needs @ 51.4-52.4 GHz (WRC-15) |

* Incorporation by Reference
5 preliminary agenda items, Res. 810 (WRC-15)

2.1 Res. 361 – Spectrum for GMDSS modernization & implementation of e-navigation
(WRC-15) WP 5B

2.2 Res. 656 – Possible new allocations for EESS (active) for spaceborne radar sounders @ 45 MHz
(WRC-15) WP 7C

2.3 Res. 657 – Spectrum needs & designation of radio services for space weather sensors
(WRC-15) WP 4A

2.4 Res. 161 – Possible new allocations for FSS @ 37.5-39.5 GHz
(WRC-15) WP 4A

2.5 Res. 235 – Spectrum use and needs of existing services @ 470-960 MHz in Region 1 and possible regulatory actions @ 470-694 MHz in Region 1
(WRC-15) none
<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Radio services</th>
<th>RR definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMS</td>
<td>aeronautical mobile service</td>
<td>No. 1.32</td>
</tr>
<tr>
<td>AM(R)S</td>
<td>aeronautical mobile (route) service</td>
<td>No. 1.33</td>
</tr>
<tr>
<td>AMSS</td>
<td>aeronautical mobile-satellite service</td>
<td>No. 1.35</td>
</tr>
<tr>
<td>AMS(R)S</td>
<td>aeronautical mobile-satellite (route) service</td>
<td>No. 1.36</td>
</tr>
<tr>
<td>ARNS</td>
<td>aeronautical radionavigation service</td>
<td>No. 1.46</td>
</tr>
<tr>
<td>ARNSS</td>
<td>aeronautical radionavigation-satellite service</td>
<td>No. 1.47</td>
</tr>
<tr>
<td>ARS</td>
<td>amateur service</td>
<td>No. 1.56</td>
</tr>
<tr>
<td>ARSS</td>
<td>amateur-satellite service</td>
<td>No. 1.57</td>
</tr>
<tr>
<td>BS</td>
<td>broadcasting service</td>
<td>No. 1.38</td>
</tr>
<tr>
<td>BSS</td>
<td>broadcasting-satellite service</td>
<td>No. 1.39</td>
</tr>
<tr>
<td>EESS</td>
<td>Earth exploration-satellite service</td>
<td>No. 1.51</td>
</tr>
<tr>
<td>FS</td>
<td>fixed service</td>
<td>No. 1.20</td>
</tr>
<tr>
<td>FSS</td>
<td>fixed-satellite service</td>
<td>No. 1.21</td>
</tr>
<tr>
<td>ISS</td>
<td>inter-satellite service</td>
<td>No. 1.22</td>
</tr>
<tr>
<td>LMS</td>
<td>land mobile service</td>
<td>No. 1.26</td>
</tr>
<tr>
<td>LMSS</td>
<td>land mobile-satellite service</td>
<td>No. 1.27</td>
</tr>
<tr>
<td>MetAids</td>
<td>meteorological aids service</td>
<td>No. 1.50</td>
</tr>
<tr>
<td>MetSat</td>
<td>meteorological-satellite service</td>
<td>No. 1.52</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>Radio services</td>
<td>RR definition</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>MMS</td>
<td>maritime mobile service</td>
<td>No. 1.28</td>
</tr>
<tr>
<td>MMSS</td>
<td>maritime mobile-satellite service</td>
<td>No. 1.29</td>
</tr>
<tr>
<td>MRNS</td>
<td>maritime radionavigation service</td>
<td>No. 1.44</td>
</tr>
<tr>
<td>MRNSS</td>
<td>maritime radionavigation-satellite service</td>
<td>No. 1.45</td>
</tr>
<tr>
<td>MS</td>
<td>mobile service</td>
<td>No. 1.24</td>
</tr>
<tr>
<td>MSS</td>
<td>mobile-satellite service</td>
<td>No. 1.25</td>
</tr>
<tr>
<td>RAS</td>
<td>radio astronomy service</td>
<td>No. 1.58</td>
</tr>
<tr>
<td>RDS</td>
<td>radiodetermination service</td>
<td>No. 1.40</td>
</tr>
<tr>
<td>RDSS</td>
<td>radiodetermination-satellite service</td>
<td>No. 1.41</td>
</tr>
<tr>
<td>RLS</td>
<td>radiolocation service</td>
<td>No. 1.48</td>
</tr>
<tr>
<td>RLSS</td>
<td>radiolocation-satellite service</td>
<td>No. 1.49</td>
</tr>
<tr>
<td>RNS</td>
<td>radionavigation service</td>
<td>No. 1.42</td>
</tr>
<tr>
<td>RNSS</td>
<td>radionavigation-satellite service</td>
<td>No. 1.43</td>
</tr>
<tr>
<td>SOS</td>
<td>space operation service</td>
<td>No. 1.23</td>
</tr>
<tr>
<td>SFTSS</td>
<td>standard frequency and time signal service</td>
<td>No. 1.53</td>
</tr>
<tr>
<td>SFTSSS</td>
<td>standard frequency and time signal-satellite service</td>
<td>No. 1.53</td>
</tr>
<tr>
<td>SRS</td>
<td>space research service</td>
<td>No. 1.55</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>Description</td>
<td>RR Nos.</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>ADS-B</td>
<td>Automatic Dependent Surveillance-Broadcast</td>
<td>-</td>
</tr>
<tr>
<td>AIS</td>
<td>Automatic Identification System</td>
<td>-</td>
</tr>
<tr>
<td>Art. or AP/App</td>
<td>An Article or an Appendix of the RR</td>
<td>-</td>
</tr>
<tr>
<td>BB</td>
<td>Broadband</td>
<td>-</td>
</tr>
<tr>
<td>BIPM</td>
<td>International Bureau of Weights and Measures</td>
<td>-</td>
</tr>
<tr>
<td>(D)BiU</td>
<td>(Date of) Bringing Into Use</td>
<td>-</td>
</tr>
<tr>
<td>BR</td>
<td>ITU Radiocommunication Bureau</td>
<td>-</td>
</tr>
<tr>
<td>DCS</td>
<td>Data Collection System</td>
<td>-</td>
</tr>
<tr>
<td>E-s, s-E</td>
<td>Earth-to-space, space-to-Earth</td>
<td>-</td>
</tr>
<tr>
<td>ES</td>
<td>Earth station</td>
<td>No. 1.63</td>
</tr>
<tr>
<td>ESIM</td>
<td>ES In Motion</td>
<td>-</td>
</tr>
<tr>
<td>ESV</td>
<td>ES on board Vessels</td>
<td>-</td>
</tr>
<tr>
<td>GE06</td>
<td>Geneva 2006</td>
<td>-</td>
</tr>
<tr>
<td>GFT</td>
<td>Global Flight Tracking</td>
<td>-</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>Description</td>
<td>RR Nos.</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>GMDSS</td>
<td>Global Maritime Distress and Safety System</td>
<td>-</td>
</tr>
<tr>
<td>GSO</td>
<td>Geostationary-Satellite Orbit</td>
<td>No. <strong>1.190</strong></td>
</tr>
<tr>
<td>HAPS</td>
<td>High Altitude Platform Station</td>
<td>No. <strong>1.66A</strong></td>
</tr>
<tr>
<td>HF</td>
<td>High Frequency: 3 to 30 MHz</td>
<td>No. <strong>2.1</strong></td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency: 30 to 300 MHz</td>
<td></td>
</tr>
<tr>
<td>UHF</td>
<td>Ultra High Frequency: 300 to 3000 MHz</td>
<td></td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
<td>-</td>
</tr>
<tr>
<td>IMT</td>
<td>International Mobile Telecommunications</td>
<td>-</td>
</tr>
<tr>
<td>ITS</td>
<td>Intelligent Transport Systems</td>
<td>-</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
<td>-</td>
</tr>
<tr>
<td>ITU-R</td>
<td>ITU Radiocommunication Sector</td>
<td>-</td>
</tr>
<tr>
<td>PPDR</td>
<td>Public Protection and Disaster Relief</td>
<td>-</td>
</tr>
<tr>
<td>SARPs</td>
<td>Standards and recommended practices</td>
<td>Nos. <strong>5.2 to 5.9</strong></td>
</tr>
<tr>
<td>R1, R2, R3</td>
<td>RR Regions 1, 2 or 3</td>
<td>Nos. <strong>5.2 to 5.9</strong></td>
</tr>
<tr>
<td>Abbreviations</td>
<td>Description</td>
<td>RR Nos.</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Rec. / Rap.</td>
<td>Recommendation / Report</td>
<td>-</td>
</tr>
<tr>
<td>Res.</td>
<td>Resolution</td>
<td>-</td>
</tr>
<tr>
<td>RLAN</td>
<td>Radio Local Area Network(s)</td>
<td>-</td>
</tr>
<tr>
<td>RR</td>
<td>ITU Radio Regulations</td>
<td>-</td>
</tr>
<tr>
<td>RRB</td>
<td>ITU Radio Regulations Board</td>
<td>-</td>
</tr>
<tr>
<td>TT&amp;C</td>
<td>Telemetry, Tracking and Command</td>
<td>(See Nos. 1.131-1.136)</td>
</tr>
<tr>
<td>UA / UAS</td>
<td>Unmanned Aircraft / Unmanned Aircraft Systems</td>
<td>-</td>
</tr>
<tr>
<td>UTC</td>
<td>Coordinated Universal Time</td>
<td>No. 1.14</td>
</tr>
<tr>
<td>VDES</td>
<td>VHF Data Exchange System</td>
<td>-</td>
</tr>
<tr>
<td>VSAT</td>
<td>Very Small Aperture Terminal</td>
<td>-</td>
</tr>
<tr>
<td>WAIC</td>
<td>Wireless Avionics Intra-Communications</td>
<td>-</td>
</tr>
<tr>
<td>WAS</td>
<td>Wireless Access System(s)</td>
<td>-</td>
</tr>
<tr>
<td>WRC</td>
<td>World Radiocommunication Conference</td>
<td>-</td>
</tr>
</tbody>
</table>