World Radiocommunication Conference 2012 (WRC-12)

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Overview of the preparations of WRC-12 (23 Jan-17 Feb 2012)

Agenda: draft in WRC Res & final in Council Res

Informal Group
(Structure & Chairmanship)

Proposals

Coordinated common proposals

WRC

RA

CPM Report

Regional preparation
Resolution 72 (Rev.WRC-07)

Director's Report

Conference Secretariat
(BR & GS)

Proposal

Final Acts

Member States

Radio Regulations (CS89)
Some WRC success stories

Radio Determination Satellite Service (RDSS) (e.g., Geostar Corp., began in 1983)

WARC (MOB-87): allocation of 1610-1626.5 ($\uparrow$)
/2483.5-2500 MHz ($\downarrow$) to RDSS

International Mobile Telecommunications (IMT) (e.g., UMTS, began in 1985)

WARC-92: identification of 1885-2025
/2110-2200 MHz MS bands to IMT-2000

Global Mobile Personal Communication by Satellite (GMPCS) (e.g., Iridium, Globalstar, began in the ‘80’s)

WARC-92: allocation of 1610-1626.5 ($\uparrow$) / 2483.5-2500 MHz ($\downarrow$) to MSS

Constellation of low-Earth orbit satellites in Ka-Band (e.g., Teledesic began in the ‘90’s)

WARC-95: allocation of 18.6-19.3 ($\downarrow$)/28.6-29.1 GHz ($\uparrow$) to FSS

Global Navigation Satellite System (GNSS) (e.g., Galileo began in late ‘90’s)

WRC-2000: allocation of additional spectrum in L-band and 5 GHz to RDSS

WLAN additional spectrum (e.g., WiFi 802.11a)

WRC-2003: allocation of the 5 GHz on a global basis

IMT additional spectrum (e.g., mobile broadband)

WRC-2007: allocation of 450 and 700 MHz
WRC-12

- 3060 Participants
- 163 Member States (165 represented)
- 1 Res.99 Observer
- 102 Observers

- 1615 Documents
- 2992 MS Proposals (~½ of common proposals)
- 153 signatures of the Prov. Final Acts
- 119 Declarations
# WRC-12 Structure

## WRC-12 Chairman:

- **T. Al-Awadhi (UAE)**

## Vice-Chairmen:

- **D. Anstrom (USA)**
- **E. Fournier (F)**
- **A. Nalbandian (ARM)**
- **M. Ouhadj (ALG)**
- **H. Al-Shankiti (ARS)**
- **A. Jamieson (NZL)**

## COM 1 (Steering) Chairman:

- same as for WRC-12

## COM 2 (Credentials)

- **Chair.:** Y. Selek (TUR)

## COM 3 (Budget)

- **Chair.:** B. Gracie (CAN)

## COM 7 (Editorial)

- **Chair.:** M.T. Alajouanine (F)

## COM 4

- (specified agenda items)
- **Chair.:** J. Mettrop (UK)

## COM 5

- (specified agenda items)
- **Chair.:** M. Abe (J)

## COM 6

- (specified agenda items)
- **Chair.:** A. Zourumba (CME)
In addition to establishing the conditions to use of the 800 MHz band (i.e., 790-862 MHz) in Region 1 (the “first “ digital dividend), WRC-12 considered further spectrum allocations to the mobile service, including International Mobile Telecommunications (IMT) to facilitate the development of terrestrial mobile broadband applications; thus the extension of the 800 MHz band, i.e., 694-790 MHz (the “second “ digital dividend) in Region 1 will be available from 2015.
Several regulatory issues were considered including: the enhancement of the international spectrum regulatory framework; consideration of the difficulties in the space regulations; mechanisms and allocations for the use of the broadcasting-satellite service in the 22 GHz band; impact on the spectrum management of new radio technologies as software-defined and cognitive radio, and short-range devices, and finally, use of free-space optical-links.
The Conference agreed on a long series of changes and improvements to the applicable regulations with special emphasis to the ones affecting directly the rights of access to the orbit/spectrum resources:

- clearer definition of the date of bringing into use of a satellite network (i.e., a technically capable satellite must occupy an orbital location for at least 90 days to be considered as “in use” or “back in use”),
- extension of the suspension period to 3 years (as it is considered to be a more realistic timeframe),
- enhancement of the satellite frequency coordination requirements by reducing the coordination arc in the most demanding frequency bands (C and Ku), and
- better control by the ITU of the spacecraft movements in the orbit.
WRC-12 decisions on this issue can be considered as pioneering a paradigm in satellite regulations as a series of innovative concepts and regulatory mechanism were introduced to meet the challenge of equitable access in an unplanned environment. These include:

- procedures for coordination,
- notification and recording of assignments, which contains: improved due diligence provisions, preferential treatment of special submissions, harmonized technical parameters,
- measures to invite administrations to review their number of submissions and harmonize the technical parameters contained in them.

In addition, WRC-12 decisions included a new FSS allocation for feederlink of the BSS in 24.65 – 25.25 GHz in Region 1 and FSS allocation in 24.65 – 24.75 GHz in Region 3 (100 MHz added to the existing allocation in 24.75 – 25.25 GHz), and hard PFD limits to protect the terrestrial services with a primary allocation in all three regions.
Topical technological subjects

- Software-defined radio (SDR)
- Cognitive radio systems (CRS)
- Short-range devices (SRD)
- Free-space optical links
- High-altitude platform stations (HAPS) gateway links
- Electronic news gathering (ENG)
- High-density fixed wireless systems above 71 GHz

NOC to RR

MOD RR (allocations to countries & sharing conditions)
Safety issues

• Unmanned aircraft systems (UAS) → worldwide allocations in the 5 GHz band
• Aeronautical mobile-satellite (in route) service in L-band → detailed coordination meeting procedure
• Radars for aerospace surveillance, tracking and maneuvering spacecraft → additional primary allocation to the radiolocation service
• Maritime service → provision of satellite detection of signals from automatic identification systems (AIS) onboard ships for global ship-tracking and enhance search and rescue; improvement of broadcasting of safety and security information for ships and ports; improvement of VHF communications for port operations and ship movement
Environment

• Oceanographic radars for environmental, meteorological, climatological, maritime and disaster mitigation operations → primary and secondary allocations to the radiolocation service

• Lightning detection and location → new primary allocation for passive systems at 8.3-11.3 kHz

• Non-geostationary meteorological satellite (MetSat) systems to provide data used in the areas of operational meteorology, climate monitoring, and detection of global climatic changes → extension of the current allocation
Science & satellite navigation

- Space research missions in near-Earth orbit, including robotic and other missions in transit to the Moon and at or near the Moon → new allocation
- Space research service (SRS) earth station receivers to support manned near-Earth missions and deep-space missions → exclusion of the aeronautical mobile service from the shared band
- Space systems for navigation and mobile communications in 2.5 GHz band → new primary allocation and upgrade of RDSS
WRC-15 Agenda

✓ Mobile broadband (IMT)
✓ PPDR (emergency comms)
✓ Amateur service
✓ UAS satellite component
✓ FSS in 7-8 GHz, 10-17 GHz
✓ MSS 22-26 GHz
✓ MSS feederlinks in 5 GHz (non-GSO)
✓ EESS in 7-8 GHz & extension of 9.3-9.9 GHz
✓ ESV regulations
✓ SRS in 400 MHz
✓ Maritime mobile: on-board comms & AIS
✓ Aeronautical mobile: WAIC
✓ Radars for ITS in 78 GHz
✓ UTC
ITU-R Studies for WRC-15 on IMT

Agenda items for WRC-15 (ResCOM6/6):

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 COM6/8 (WRC-12);

1.2 to examine the results of ITU-R studies, in accordance with Resolution COM5/10 (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;

Spectrum requirements for the mobile service including suitable frequency ranges, and other specific requirements (WP 5D)

Spectrum sharing and compatibility with other services including consolidation of draft CPM text (JTG 4-5-6-7)
Current work at ITU for further harmonization after WRC-12 focus on:

- establishing **harmonized channeling arrangements** for IMT in Region 1 (band 694-790 MHz);
- undertaking all the necessary technical studies to **ensure coexistence** with the networks operated in the new allocation.

**July 2012**: receive contributions from members/develop work plan/begin compatibility studies in 694-790 MHz

**November 2012**: consider contributions received/continue compatibility studies in 694-790 MHz

**July 2013**: continue compatibility studies in 694-790 MHz

**November 2013**: complete compatibility studies in 694-790 MHz

**February 2014**: draft CPM text for WRC-15

**July 2014**: complete CPM text for WRC-15