



# **U.S. Preparations**

## **2011 World Radiocommunication Conference**

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# World Radiocommunication Conferences



- International forum for world agreement
- Review and revise the Radio Regulations (RRs)
- Held approximately every 4 years
- Operates by consensus, voting on occasion
- Sets the world stage for future technological development
- Greater emphasis on consolidated regional positions and proposals

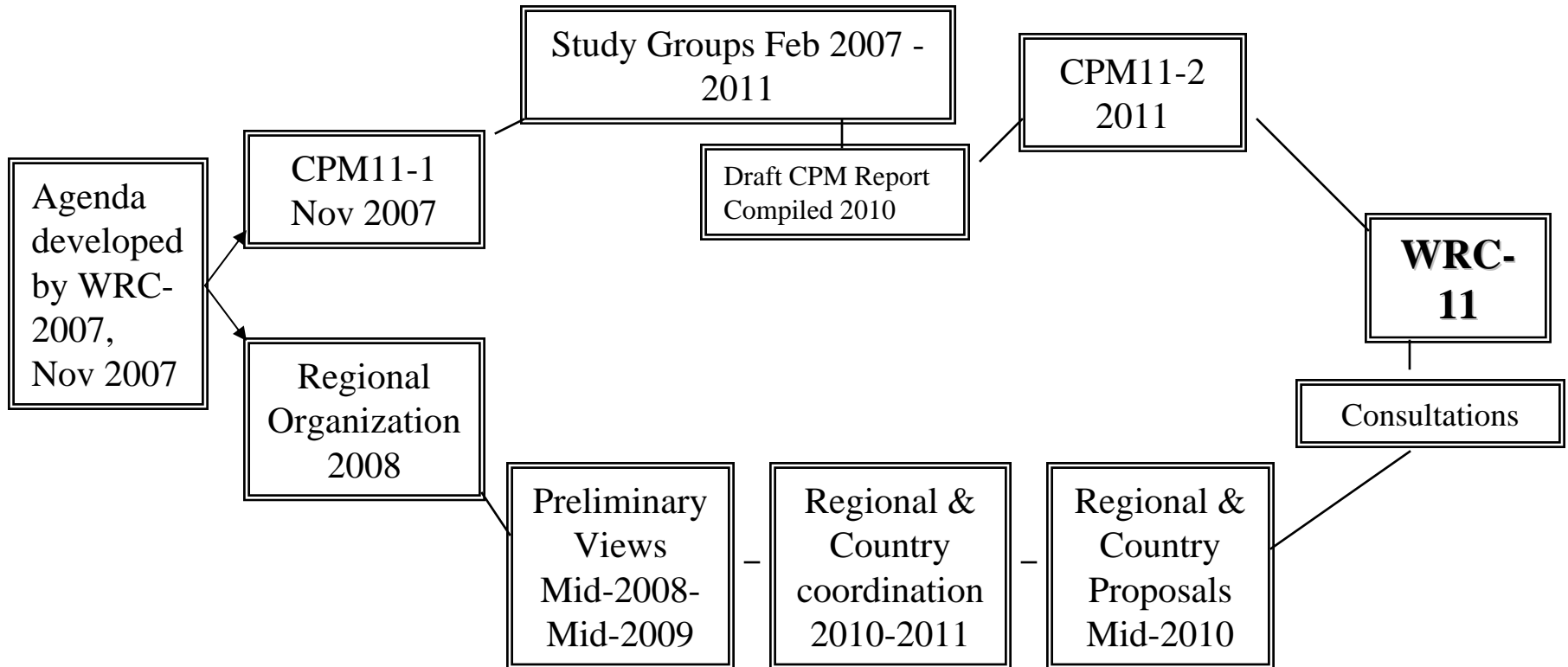
# Opening of WRC-07



# WRC-11

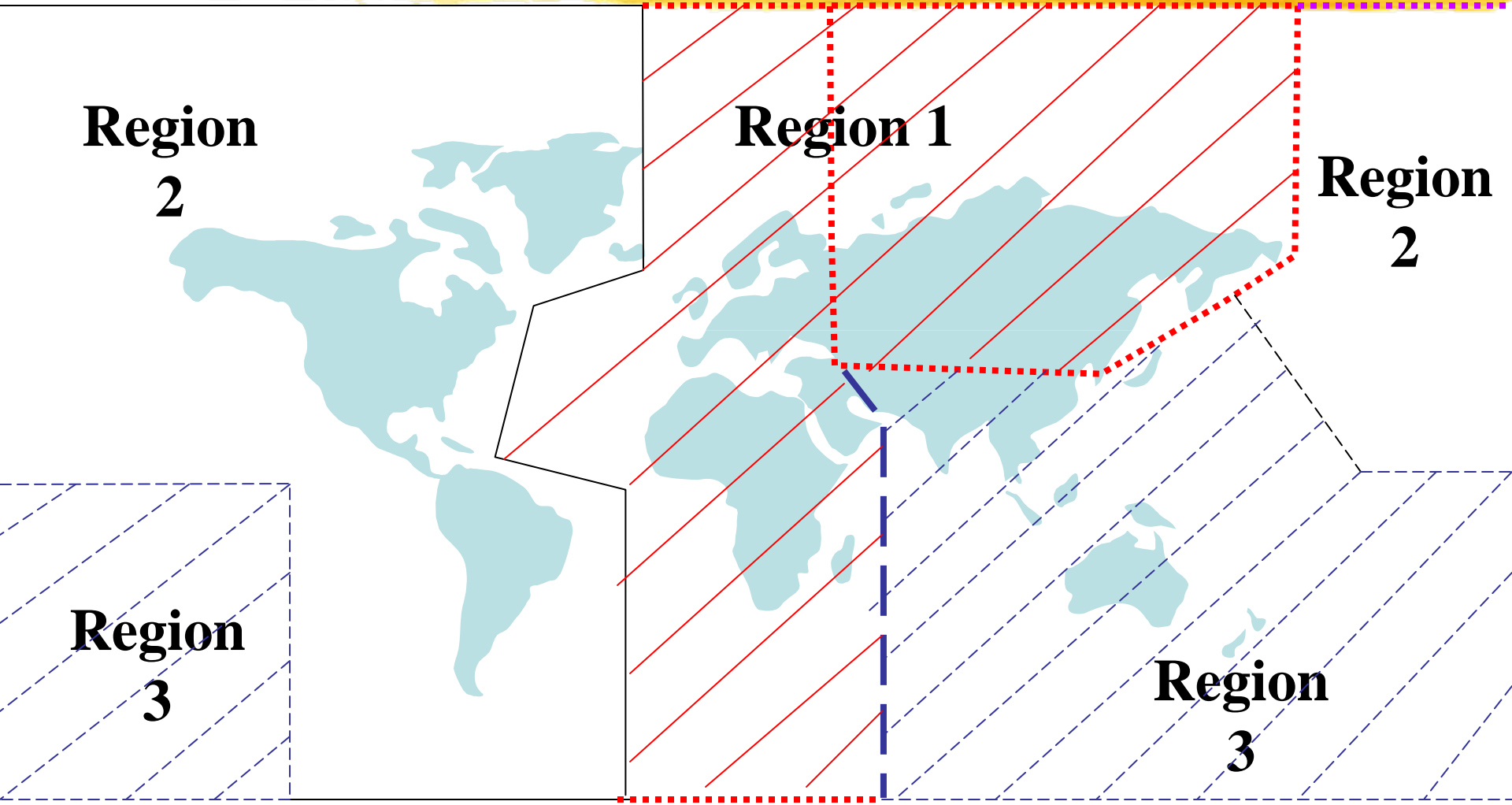
## International Preparatory Process

### Technical Preparations



### Proposal Preparations

# ITU Regions



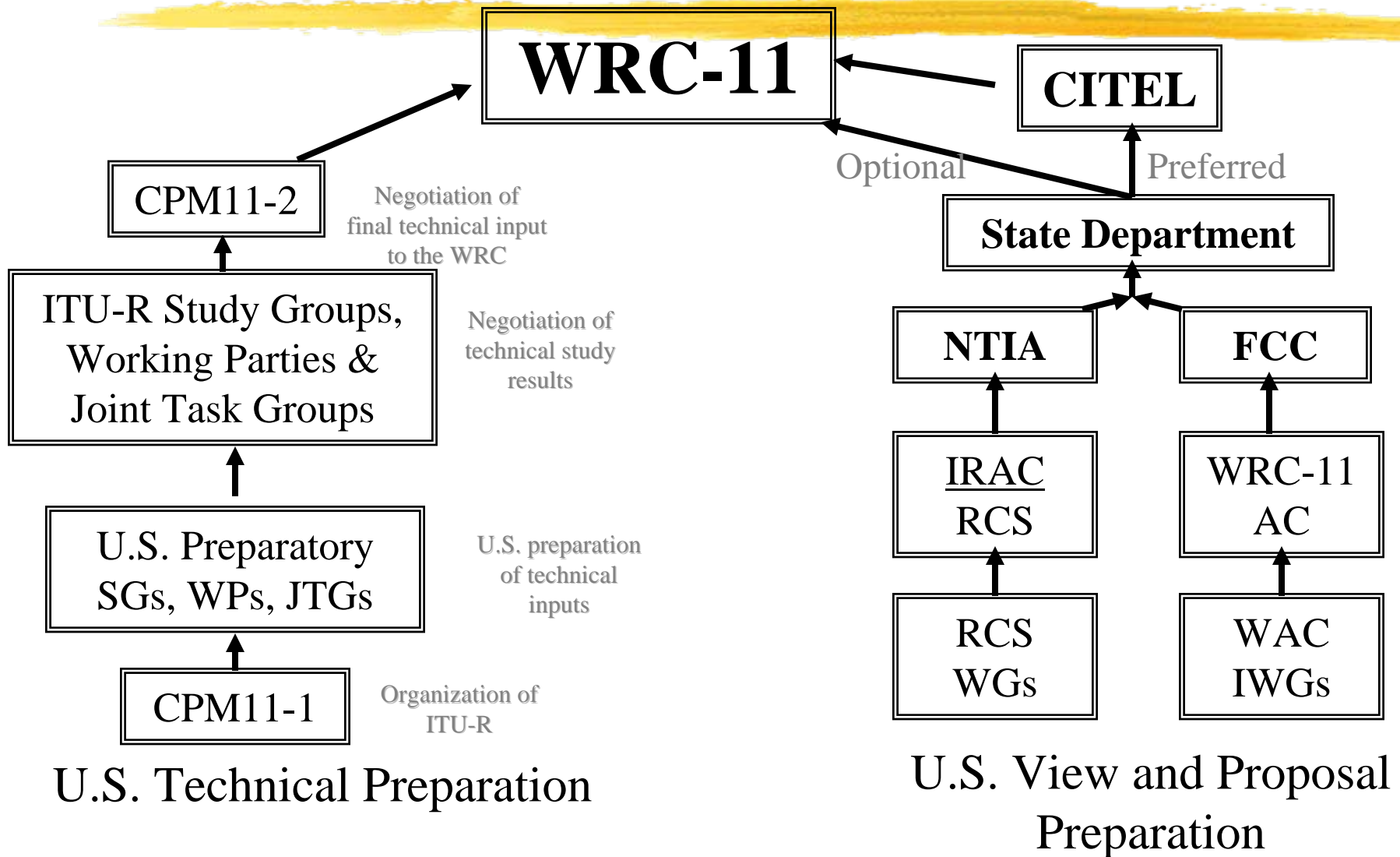
# Regional Spectrum Management Fora



**Each Nation has Sovereignty Over the Use of its Spectrum**



# U.S. Preparatory Organization



# U.S. Preparatory Process

## NTIA - Federal Government Agencies

The RCS of the IRAC develops preliminary views and proposals

NTIA forwards views and proposals to the FCC

## FCC - Commercial

The WAC develops preliminary views and proposals

The WAC forwards views and proposals to the FCC

FCC Bureaus analyze & modify proposals and forward to  
NTIA

NTIA & FCC coordinate, modify & approve proposals

State Department submits proposals to CITELE and ITU




# The Department of State's Role



- In general, U.S. objectives for WRC-11 are based upon five guiding principles:
  - (1) ensuring roll-out of new communication technologies and services;
  - (2) securing protection for critical government systems and services providing them with capacity to expand;
  - (3) ensuring WRC carries out mandate to manage, efficiently and effectively, the radiofrequency spectrum internationally;
  - (4) establishing an environment that fosters predictable, transparent, pro-competitive regulatory policies for telecommunication; and
  - (5) limiting the scope of issues to treaty level issues

# Interdepartment Radio Advisory Committee (IRAC) Radio Conference Subcommittee (RCS) – WRC-11



## Working Groups

WG1 – Maritime and Aeronautical Issues

WG2 – Radiolocation Service

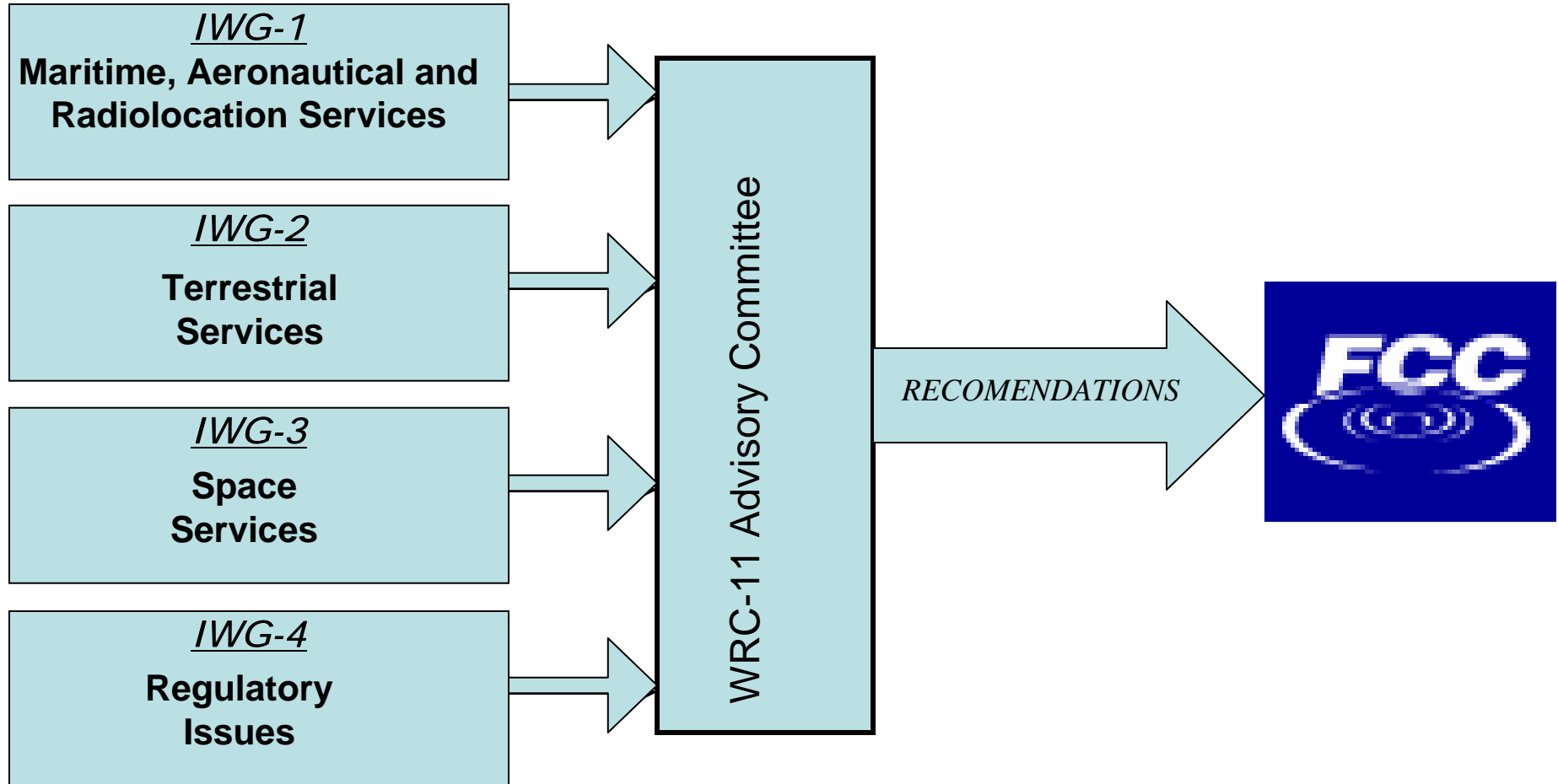
WG3 – Fixed, Mobile, Amateur, and Broadcasting Issues

WG4 – Science Issues

WG5 – Satellite Issues

WG6 – Future Work Program and Other Issues

# *FCC Advisory Committee Structure – Informal Working Groups (IWGs)*



## AI 1.1: Country Footnotes



- 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
- No U.S. preliminary view

## ***AI 1.2 – Enhancing the International Regulatory Framework***



- Make Radio Regulations more responsive to new technologies
  - Example: convergence vs. regulatory definitions, allocations and procedures
- Resolution **951 (Rev.WRC-07)**
- No U.S. preliminary view

## AI 1.3: Unmanned Aircraft Systems (UAS)



- Spectrum requirements and possible regulatory actions, to support Unmanned Aircraft Systems (UAS):
  - Air traffic control
  - Command and Control (remote piloting)
  - Sense and Avoid
  - Payload Functions
- U.S. preliminary view: Support use of existing primary AM(R)S/AMS(R)S allocations, or new allocations for command and control (including ATC communications). Support use of existing primary or new RDS allocations based on ITU-R studies for sense and avoid. Not support new allocations for the radiocommunication requirements for UAS payloads. These systems must protect other co-primary services and not constrain the use by other co-primary services.



## AI 1.4: Aeronautical Mobile (R) Service

- Regulatory measures to facilitate introduction of new AM(R)S systems in the bands:
  - 112 -117.975, 960 -1164, and 5000 - 5030 MHz
  - Adjacent band sharing with FM broadcasting below 108 MHz
- U.S. preliminary view: If the spectrum requirements for surface applications at airports cannot fully be accommodated within 5091-5150 MHz, and if compatibility studies ensure protection of RNSS and RAS from AM(R)S surface applications, support new allocation to AM(R)S in 5000-5030 MHz. Support compatibility studies between AM(R)S systems in 960-1164 MHz and non-ICAO standardized ARNS systems, and based on study results, will consider if further regulatory measures are required to introduce new AM(R)S systems in the band. Support no additional constraints to broadcasting service in 87-108 MHz and no changes to the allocations in the 108-117.975 MHz band or to Resolution **413 (WRC-07)**.

## AI 1.5: Electronic News Gathering (ENG)



- Consider Worldwide/regional harmonization of spectrum for ENG in accord with Res. 954
  - Review needs of ENG systems
  - May lead to possible harmonization of ENG frequencies (in which bands?)
  - May lead to requests from administrations for additional frequency allocations
- U.S. preliminary view: U.S. supports reviewing ENG requirements to see if harmonization is feasible on a regional/global basis. U.S. supports studies on technologies for ENG that maximize efficient and flexible use of bands at a national level in lieu of global/regional identification. If studies demonstrate that harmonization is feasible and required, U.S. supports focus on studying the impact of identifying harmonized spectrum for ENG in the RRs on existing services

## AI 1.6a: Passive Services at 275-3000 GHz



- Spectrum use by the passive services between 275 GHz and 3 000 GHz
  - not allocated in Table of Frequency allocations
  - No. **5.565** identifies 275-1000 GHz for passive services applications
- U.S. preliminary view: Support modification of No. 5.565 to include all appropriate bands of interest to RAS, EESS (passive), and SRS (passive)

## AI 1.6b: Free Space Optical



- Possible regulatory procedures for free-space optical-links above 3000 GHz
- U.S. preliminary view: International Regulations for frequencies above 3000 GHz not needed

## AI 1.7: Aeronautical Mobile-Satellite and Mobile-Satellite Services

- Consider current and future spectrum requirements for aeronautical mobile-satellite (Radio) service (AMS(R)S) in accord with Res. 222
- Under Rs. 222 the generic allocation to the mobile-satellite service (MSS) in bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz must remain unchanged
  - **Is there need for new or modified allocations for AMS(R)S?**
  - **AMS(R)S requirements that may be considered in the context of agenda item 1.25?**
- No U.S. preliminary view

## AI 1.8: Fixed Service at 71-238 GHz

- Consider ITU-R studies on the Fixed service in frequencies between 71 GHz and 238 GHz in accord with Res. 731 & 732
  - Study compatibility between passive and active services
  - Develop sharing criteria for co-primary active services
  - Study spectrum requirements of emerging active services
  - May lead to possible revision of Radio Regulations to accommodate emerging requirements of active services and existing requirements of passive services
- U.S. preliminary view: support sharing studies between current and developing fixed service systems and co-primary services, including passive services. U.S. supports protection of existing services.



## AI 1.9: Digital Maritime Mobile (Appendix 17)



- Revise frequencies and channelling arrangements of Appendix 17 to the Radio Regulations in order to implement new digital technologies for the maritime mobile service
  - Timing and scope in transition arrangements
  - Coexistence between analog and digital systems
  - Consequential impact to Appendix **25**
  - Requirement for worldwide interoperability of equipment on ships.
- U.S. preliminary view: If studies show that new digital technologies protect existing distress and safety frequencies, and taking into account the commercial maritime communication aspect of the HF band use, the United States supports revision of RR Appendix **17** to accommodate new digital technologies for the maritime mobile service.

## AI 1.10: Safety Systems for Ships and Ports

- Examine frequency allocations & related regulatory provisions for the operation of ship & port security & maritime safety systems.
  - Consider additional allocations for MMS below 1 GHz & between 156-162.025 MHz MMSS (e.g. 3<sup>rd</sup> AIS frequency for satellite).
  - Need for exclusive MMSS allocations to support additional channels for satellite detection of AIS and the impact of these potential new allocations to existing systems and services
  - Appropriate RR designation of terrestrial AIS channels, taking into account the AIS ship-to-ship collision avoidance function, AIS use in Vessel Traffic Services (VTS), AIS general use for navigational safety, & impact on existing systems & services.
  - Communications for Ship and Cargo Identification
  - Provisions for Security Communications in Article 33
  - Safety and Security Communications, including E-navigation

## AI 1.10: Safety Systems for Ships and Ports



- U.S. preliminary view: If studies identified in Resolution **357 (WRC-07)** determine the need for additional allocations to the maritime service and existing services can be protected and not unduly constrained, the United States supports the allocation of spectrum required to support the operation of safety systems for ships and ports.

## AI 1.11: Space Research Service at 22.55-23.15 GHz



- Primary allocation for space research service (SRS) (Earth-to-space) in band 22.55-23.15 GHz
  - sharing between high-eirp SRS (E-to-s) and:
    - Fixed, inter-satellite and mobile services in band 22.55-23.15 GHz
    - Recommend appropriate sharing criteria for an SRS (E-to-s) allocation
- No U.S. preliminary view

## **AI 1.12: Protect primary services in the 37-38 GHz band from Interference from Aeronautical Mobile Service (AMS) in accord with Res. 754**

- Conduct sharing studies in accord with Res. 754 to determine compatibility of AMS and primary services in the band 37-38 GHz
  - Operations Space Research Service (s-to-E)
  - Ground based Fixed and Mobile services
  - Fixed-Satellite Service (s-to-E) in 37.5-38 GHz portion
- U.S. preliminary view: U.S. supports sharing studies and development of appropriate sharing criteria; if the studies show that sharing is not feasible, support the suppression of AMS from the 37-38 GHz band.

## AI 1.13: Broadcasting-Satellite Service 21.4-22 GHz

- Spectrum for broadcasting-satellite service in 21.4-22 GHz band in Regions 1 and 3
  - Regulatory procedures concerning protection of Fixed and Mobile services in Region 2 (U.S.)
- U.S. preliminary view:
  - Terrestrial services of Region 2 and BSS of Regions 1 & 3 have equal regulatory rights and allocation status in 21.4-22.0 GHz. Develop spectrum sharing regulatory procedures with regard to terrestrial services in Region 2 based on equality (No. **4.8**).
  - Resolve inconsistency with applicability of No. **9.11** - the interim procedures of Resolution **525 (Rev. WRC-07)** are in conflict with the requirements of Resolution **33 (Rev. WRC-03)** and Appendix **5**.
  - BSS of Regions 1 & 3 should comply with the pfd limits specified in Recommendation ITU-R BO.1776 but only on territories of Region 2 countries. The United States supports inclusion of appropriate pfd limits in Article **21**, Section **V**.



## AI 1.14: Radiolocation Service at VHF

- Allocations or regulatory provisions for implementation of new applications in the radiolocation service in the range 30-300 MHz
  - sharing conditions between radiolocation systems and existing services in 30 - 300 MHz
  - Requirements for radiolocation systems for space-object detection: 2 MHz bandwidth or wider frequency range
  - Bands currently under consideration: 138-144 MHz and 154-156 MHz
- U.S. preliminary view: Adopt new allocations to support radiolocation operations within 30-300 MHz. ITU-R studies must demonstrate that radiolocation systems are compatible and do not cause interference to existing services, including mobile-satellite, mobile (including aeronautical mobile), land mobile, fixed, radio astronomy, amateur, and amateur-satellite. Some regulatory text in the form of one or more applicable footnotes may be necessary to ensure incumbent services are protected.

## AI 1.15: Oceanographic Radar 3-50 MHz

- New allocations in the range 3-50 MHz to the radiolocation service for oceanographic radar :
  - Applications: monitor sea surface, wave heights, ocean currents, tracking of large objects
  - bands not exceeding 600 kHz
  - sharing conditions between oceanographic radar systems and existing services
- U.S. preliminary view: If the outcome of studies identified in Resolution **612 (WRC-07)** demonstrate that oceanographic radar systems are compatible and do not cause harmful interference to incumbent services and systems in the 3-50 MHz bands, support new allocations limited to oceanographic radars. Support studies of sub-bands near 4.5 MHz, 13 MHz, 27 MHz, and 42 MHz. Appropriate regulatory provisions may be necessary to ensure that incumbent services are protected.

## ***AI 1.16 – Lightning Detection***

- Consideration of “the needs of passive systems for lightning detection”
  - recognition of systems in meteorological aids service in frequency range below 20 kHz and possible allocations
  - may lead to possible constraints on existing services:
    - fixed and maritime mobile services in band 14-19.95 kHz
    - standard frequency and time signal (20 kHz) service in band 19.95-20.05 kHz
    - radionavigation service in band 9-14 kHz and 14-17 kHz in some countries (RR5.55)
    - Other allocated services in frequencies between 9 kHz to 20 kHz
- No U.S. preliminary view

## AI 1.17: Mobile and Other Services at 790-862 MHz

- Consider sharing between mobile service and other services in the 790-862 MHz band in Regions 1 and 3 in accord with Res. 749
  - terrestrial broadcasting services
    - Geneva 2006 (GE06) Region 1 Agreement
    - Possible extension of GE06 regulatory constraints to countries in Region 3
  - aeronautical radio navigation (No. **5.312**)
- U.S. preliminary view: any RR changes related to IMT in Regions 1 and 3 must not affect Region 2. The U.S. seeks to avoid undue constraints that may impede worldwide introduction of new telecommunication services in the band

## AI 1.18: Radiodetermination-Satellite Service at 2483.5-2500 MHz

- Consider extending the existing primary and secondary radiodetermination-satellite service (RDSS) (space-to-Earth) allocations to worldwide primary in the band 2 483.5-2 500 MHz in accord with Res. 613
  - Currently China and India provide national navigation and timing signals
  - Global allocation to RDSS will need to account for:
    - U.S. Satellite system
    - Terrestrial Services
- U.S. preliminary view: A global primary allocation to RDSS in 2483.5 – 2500 MHz band may be feasible if ITU-R studies show conclusively that the operation of RDSS systems are compatible with the operation and expansion of currently allocated services in the 2483.5 – 2500 MHz band and if the provisions of Nos. 5.398 and 5.402 (RRs) apply in all three Regions.

# AI 1.19: Software-Defined and Cognitive Radio Systems



- Regulatory measures to enable introduction of software-defined radio (SDR) and cognitive radio systems (CRS)
  - What, if any, regulatory measures are required for introduction of SDR or CRS
    - Regulatory definition for SDR or CRS
    - Harmonization
  - May lead to possible allocation/identification of supporting Pilot Channel
- U.S. preliminary view: Changes to the Radio Regulations not needed. Technologies may be implemented in unlicensed devices.



## AI 1.20: High Altitude Platform Stations (HAPS) at 5850-7075 MHz

- Spectrum identification for gateways of HAPS in the 5850-7075 MHz frequency range
  - Preliminary requirement - two 80 MHz channels
  - FSS C-band uplink band, includes Earth Stations on Vessels
  - Fixed and Mobile
- U.S. preliminary view: U.S. supports studies for potential identification of spectrum for HAPS, but it should not constrain applications in services allocated in the band or in the adjacent bands

## AI 1.21: Radiolocation Service at 15.4-15.7 GHz



- Radiolocation service in 15.4 -15.7 GHz sharing with:
  - aeronautical radionavigation service (ARNS), safety service
  - NGSO MSS feeder uplinks in 15.43 -15.63 GHz band (agenda item 1.25?)
  - RAS in adjacent band 15.35-15.40 GHz
- U.S. preliminary view: If studies demonstrate that the incumbent services and systems can be protected from the potential use of the 15.4-15.7 GHz band by radiolocation systems, support a new primary allocation to the radiolocation service in the band 15.4-15.7 GHz.

## AI 1.22: Emissions from Short-Range Devices



- Examine effect of emissions from short-range devices on radiocommunications services
  - Sharing in Industrial, Scientific and Medical (ISM) bands (e.g., 900-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz)
  - What regulatory actions may be required at WRC-11?
- U.S. preliminary view: Short-range devices are primarily a national matter.

## AI 1.23: Amateur Service at 415-526.5 kHz



- Consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis
  - Sharing with Maritime and other services
  - Does secondary allocation need to be contiguous?
- U.S. preliminary view: U.S. supports this allocation provided appropriate ITU-R sharing studies demonstrate compatibility with existing services, including maritime mobile service

## AI 1.24: Meteorological-Satellite Service at 7750-7850 MHz

- Allocation to non-geostationary meteorological satellites in the space-to-Earth direction in the band 7 850 -7 900 MHz
  - Extension of existing NGSO MetSat allocation in the band 7 750-7 850 MHz
  - Sharing with Fixed service
- U.S. preliminary view: If studies indicate that sharing is feasible, support the allocation of additional spectrum with appropriate regulatory constraints on MetSat to protect the fixed & mobile services.

## AI 1.25: Mobile-Satellite Service



- Consider additional allocations to the mobile-satellite service (MSS) – focus on 4 - 6 GHz bands in accord with Res. 231
  - Res. 231 indicates a shortfall of 19-90 MHz in Earth-to-space and 144-257 MHz in space-to-Earth directions for satellite component of International Mobile Telecommunications by the year 2020.
  - “candidate bands” not yet identified
- U.S. preliminary view: U.S. supports studies to determine if additional allocations are possible. These studies must show that MSS is compatible with existing and future deployments of systems in the incumbent services in the band(s)

## AI 7: Satellite Network Filings

- To consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: “Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks”, in accordance with Resolution **86 (Rev.WRC-07)**
- U.S. preliminary view: PV1 - Changes to Art 9 and Ap 5 required to allow a definitive list of administrations and corresponding satellite networks with which coordination needs to be effected be generated as early as possible in the coordination process.  
PV 2 - Changes to Article 9 of the Radio Regulations are required so that: (1) if an administration, in respect to a coordination request from another administration, is not in a position to give its agreement under No. 9.51 then this administration would not need to respond to such a request; and (2) the lack of such a response would be understood by the Bureau to mean that this administration believes that coordination with one or more of its networks is required.

## No U.S. Preliminary Views At This Time



- AI 2: Incorporation by Reference
- AI 3: Consequential Changes to the Radio Regulations
- AI 4: Conference Resolutions and Recommendations
- AI 5: Report from the Radiocommunication Assembly
- AI 6: Items Requiring Urgent Action by the Study Groups
- AI 8.1: Report of the Director
- AI 8.2: Future Conference Agendas





## Summary

- **Encourage involvement in WRC preparatory process**
  - Participation in ITU-R Study Group work
  - National & Regional Preparation of CPM Proposals
  - National & Regional Preparation of WRC Proposals
  - Consultations with other administrations
- **Keep up to date on U.S. WRC preparations - visit our websites: [www.ntia.doc.gov](http://www.ntia.doc.gov) (click on Spectrum Management and scroll down to International Activities) and [www.fcc.gov/ib/wrc-11](http://www.fcc.gov/ib/wrc-11)**