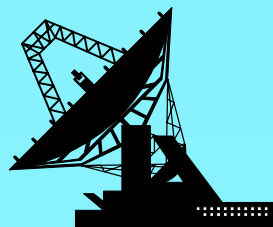
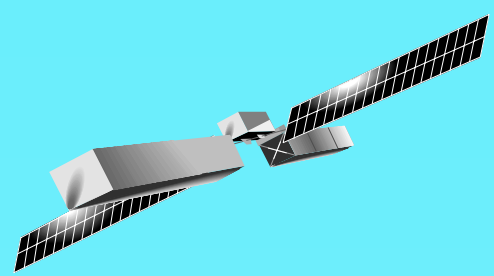


SOLVING FREQUENCY RELATED INTERNATIONAL STANDARDISATION ISSUES THROUGH THE ITU-R

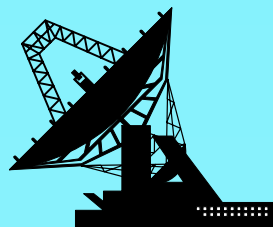
by JOHN A. LEWIS

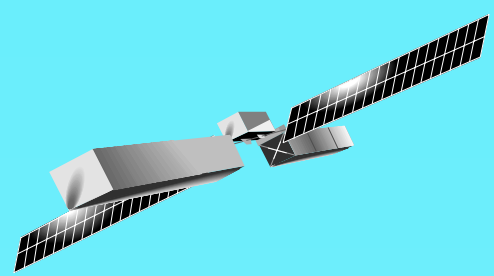




Outline Of Presentation

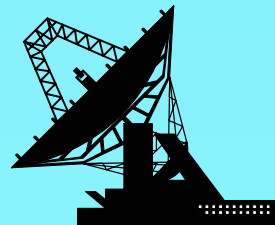
- ▶ **The International Telecommunication Union (ITU) and its conferences**
- ▶ **Plenipotentiary Conferences**
- ▶ **Radiocommunication Conferences**
- ▶ **Development of WRC Agenda Items**
- ▶ **Conference Preparatory Meetings**
- ▶ **ITU-R Study Group activities**
- ▶ **Case study**
- ▶ **Role of Regional Organisations – Asia-Pacific Telecommunity**

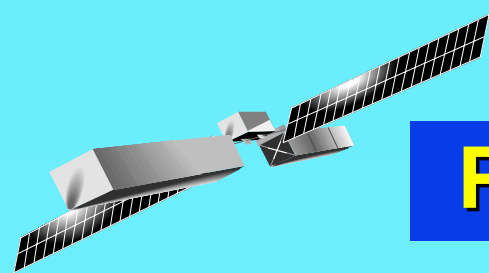




Structure of ITU

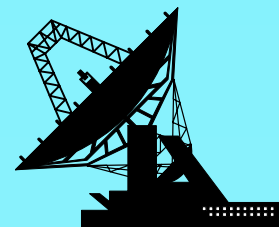
- ▲ **The Union is comprised of the following organs:**
 - a) the Plenipotentiary Conference, which is the supreme organ of the Union;**
 - b) the Council, which acts on behalf of the Plenipotentiary Conference;**
 - c) World Conferences on International Telecommunications;**
 - d) the Radiocommunication Sector (ITU-R), including World and Regional Radiocommunication Conferences, Radiocommunication Assemblies and the Radio Regulations Board;**
 - e) the Telecommunication Standardization Sector (ITU-T), including World Telecommunication Standardization Assemblies;**
 - f) the Telecommunication Development Sector (ITU-D), including World and Regional Telecommunication Development Conferences;**
 - g) the General Secretariat.**

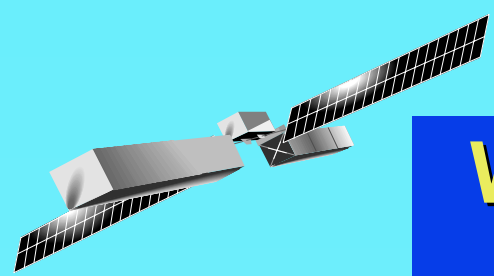




Plenipotentiary Conferences

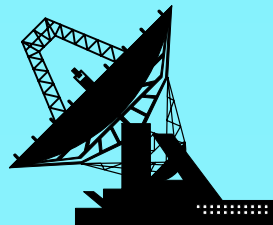
- ▶ Highest level ITU conference
- ▶ Held every four years
- ▶ Structure and role of ITU, budgets, contributory unit
- ▶ Election of officials (Secretary General, Deputy Secretary General, Directors of Bureaus, RRB members)
- ▶ The basic instruments of the International Telecommunication Union are the Constitution and Convention, which are modified at each Plenipotentiary Conference

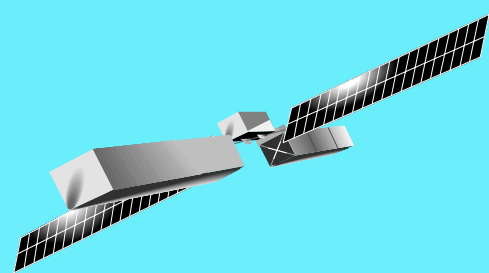




World Radiocommunication Conferences (WRCs)

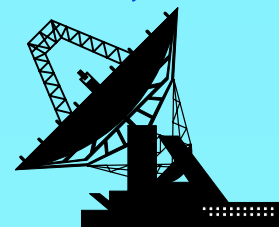
- ▲ **Decisions based on proposals presented to the Conference by administrations:**
 - ▲ National proposals
 - ▲ Regional proposals
 - ▲ Proposals by interest groups – service or industry based (e.g. IMT-2000, digital broadcasting), government interests (e.g. defence, meteorological), etc.
 - ▲ Proposals for new requirements usually from developed countries
 - ▲ Conference agenda established by preceding WRC (3 year cycle)
 - ▲ Industry, operators and users increasingly part of conference delegations
- ▲ **Only in the case of assignment Plans does ITU denote an element of the resource which can be considered to pertain to a country, and then only for the lifetime of the Plan – an example are the Plans of Appendices 30 and 30A for the broadcasting-satellite service in the 12 GHz band and its associated feeder-links**

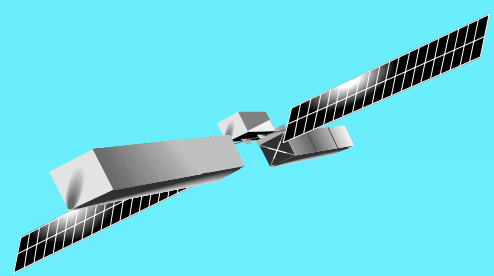




WRC Outputs

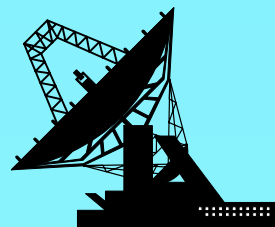
- ▶ **Decisions on Frequency Allocations – Table of frequency allocations and its footnotes**
- ▶ **Mechanisms for access to the spectrum/orbit resource (procedures and plans, use of Resolutions and Recommendations)**
- ▶ **Decisions on operational requirements and technical limits**
- ▶ **Agenda for the following WRC as well as preliminary agenda for the next WRC but one**
- ▶ **Decisions incorporated into the Radio Regulations – some come into force immediately, others (the main part) at a future date, typically 12-18 months after the conference**
- ▶ **The Radio Regulations, which include regulatory provisions, a table of frequency allocations with its footnotes, coordination and notification procedures, technical limits, appendices and resolutions, are a binding international treaty**

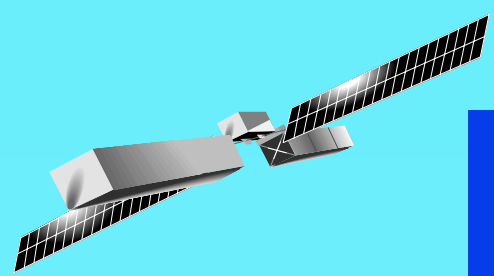




Development of WRC Agenda Items

- ▶ Each WRC develops an agenda for the next WRC and a preliminary agenda for the next but one WRC
- ▶ Agenda Items often associated with a Resolution from the prior WRC
- ▶ Agenda Items arise from consideration of new technologies, need for improvement of existing provisions (e.g. regulatory procedures), need to review Plans, new sharing situations, sharing situations to be re-visited, etc.
- ▶ Some Agenda Items are standing items

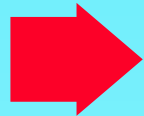




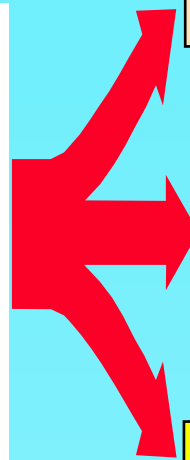
ITU Radiocommunication Sector



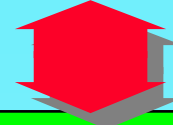
Administrations
and
members



STUDY GROUPS
WRC conference
RADIO REGULATIONS BOARD
RADIOCOMMUNICATION BUREAU



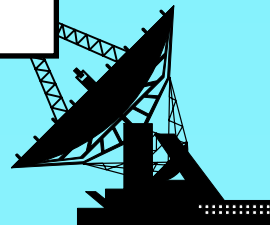
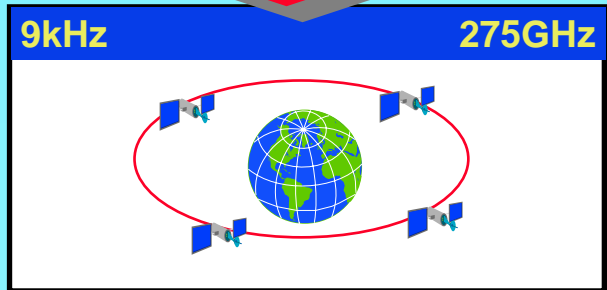
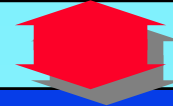
ITU-R Recommendations

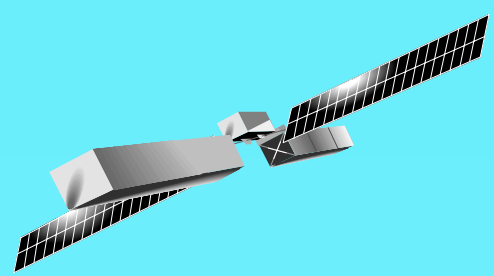


Radio Regulations & Resolutions/Rec.s



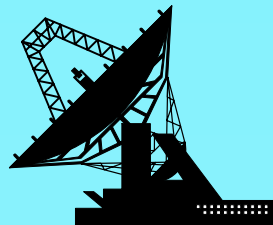
Rules of Procedures

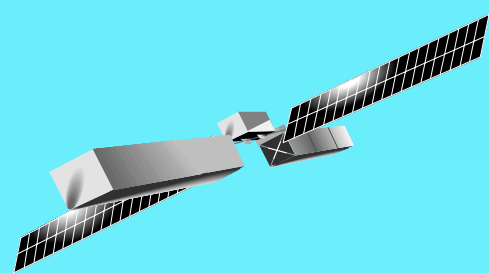




Conference Preparatory Meetings (CPMs)

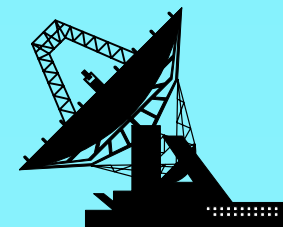
- ▶ CPMs are established by WRCs to carry out studies on technical, operational and procedural matters pertaining to agenda items of future conferences
- ▶ Studies often called for in Resolutions of WRCs
- ▶ First CPM attributes tasks to ITU-R Study Groups and Working Parties – either as responsible, contributing or interested entities
- ▶ Studies undertaken as part of normal Study Group activities
- ▶ Study Group work based on contributions from Administrations and Sector members

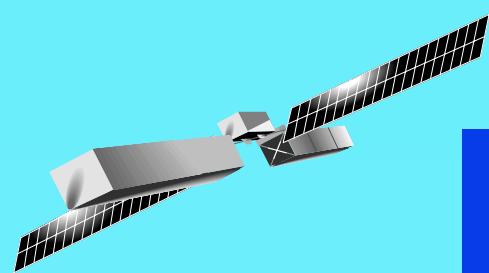




Conference Preparatory Meetings (2)

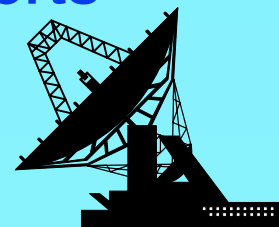
- ▲ SGs and WPs develop draft text for the CPM report to the WRC
- ▲ Final CPM held six months before the WRC to finalize its Report
- ▲ Report is based on Chapters dealing with like Agenda Items
- ▲ Each section of the Report includes, for each Agenda Item:
 - ▲ Issue
 - ▲ Background
 - ▲ Summary of technical and operational studies and relevant ITU-R Recommendations
 - ▲ Analysis of the results of studies
 - ▲ Methods to satisfy the agenda item
 - ▲ Regulatory and procedural considerations
- ▲ CPM Report often includes options as well as advantages and disadvantages associated with each option
- ▲ Options may involve more than one Method to satisfy the Agenda Item

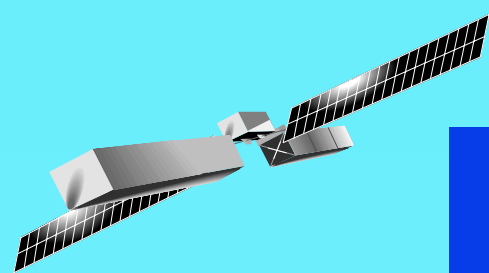




Activities in Study Groups and Working Parties

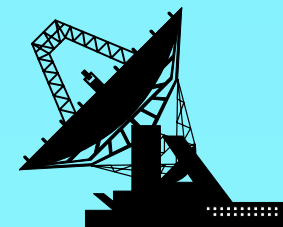
- ▶ Study Groups and Working Parties address ITU-R Questions, established for a particular study topic, as well as WRC agenda items, as appropriate
- ▶ WRC agenda items under study often associated with a Resolution from the prior WRC
- ▶ Studies are driven by contributions, addressing the Question or WRC Agenda Item concerned, from ITU Member administrations and ITU-R Sector Members
- ▶ Process is one of peer review
- ▶ Studies can cover both technical and operational aspects
- ▶ Outputs in the form of ITU-R Recommendations and Reports

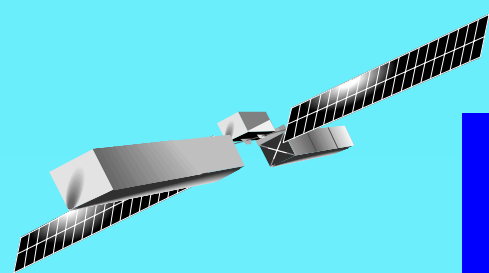




Activities in Study Groups and Working Parties (2)

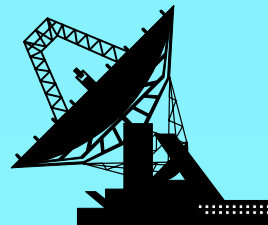
- ▶ In sharing studies, liaison between relevant Working Parties is normally required in order to assemble all relevant characteristics of the services and systems concerned
- ▶ Sharing studies involve agreement on:
 - ▶ technical characteristics of both interferer and victim services and systems
 - ▶ methodology to analyse interference
 - ▶ interference assessment criteria
 - ▶ regulatory implementation of agreed sharing mechanism
- ▶ Equal burden sharing an important aspect of consensus decisions in sharing studies

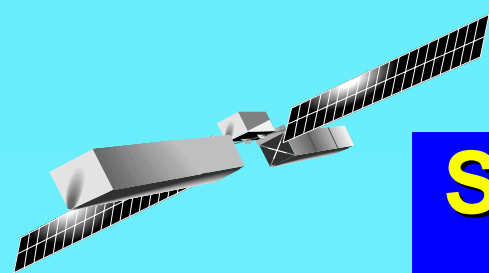




Study Group Standardisation Activities

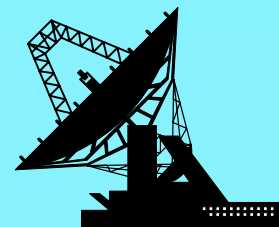
- ▶ Standardisation activities in ITU-R Study Groups starts with establishing a relevant study question
- ▶ Output text is usually an ITU-R Recommendation on the subject
- ▶ Text development goes through several phases, firstly in the relevant Working Party and then its parent Study Group, as follows:
 - ▶ Working document towards a Draft New Recommendation
 - ▶ Preliminary Draft New Recommendation (PDNR)
 - ▶ Draft New Recommendation (DNR)
- ▶ DNR goes through an adoption and approval process in the relevant Study Group and with ITU Administrations – process described in ITU-R Resolution 1-4
- ▶ Once approved, Recommendations may later be revised and the process of revision is similar

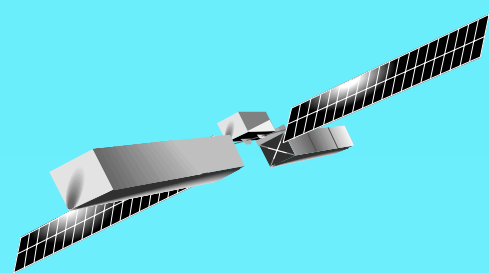




Study Group Standardisation Activities (2)

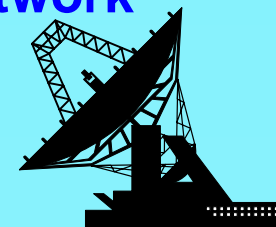
- ▲ Well over 1000 ITU-R Recommendations available
 - ▲ Various series of Recommendations – BO, BR, BS, BT, F, M, P, RA, S, SA, SF, SM, SNG, TF and V
 - ▲ Examples of ITU-R Recommendations:
 - ▲ Satellite system characteristics, performance standards, interference allowances and noise objectives, etc. – in the ITU-R S series
 - ▲ Television standards - over 100 in the ITU-R BT series
 - ▲ Radio propagation – in the ITU-R P series
 - ▲ Fixed service channeling arrangements, system characteristics, antenna patterns, link standards, etc. – in the ITU-R F series
- etc., etc.

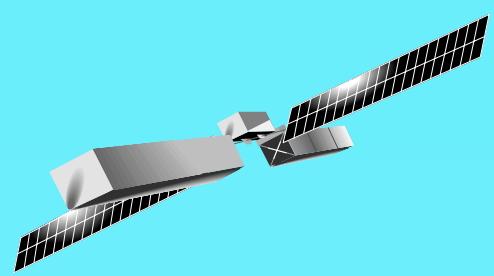




Case Study – WRC-07 Agenda Item 1.11

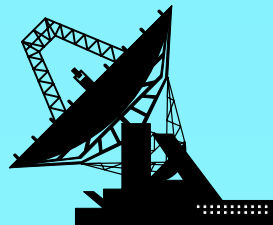
- ▲ **Agenda Item 1.11:** to review sharing criteria and regulatory provisions for protection of terrestrial services, in particular the terrestrial television broadcasting service, in the band 620-790 MHz from broadcasting-satellite service networks and systems, in accordance with Resolution 545 (WRC-03)
- ▲ **Use of BSS in the band specified in RR footnote provision No. 5.311:**
 - ▲ 5.311 Within the frequency band 620-790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions 33 (Rev.WRC-97) and 507). Such stations shall not produce a power flux-density in excess of the value -129 dB(W/m²) for angles of arrival less than 20° (see Recommendation 705) within the territories of other countries without the consent of the administrations of those countries.
- ▲ Footnote originally established at WARC-71
- ▲ Only use for many years was by Russia to provide TV transmissions in the remote parts of its territory (Stationar-T GSO satellite network at 99 degrees East longitude)

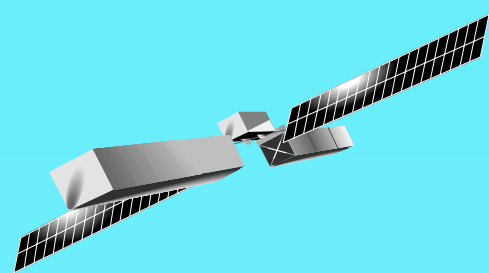




Case Study – WRC-07 Agenda Item 1.11 (2)

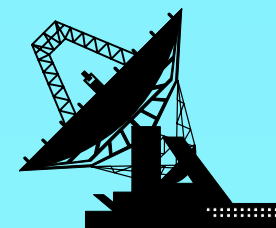
- ▶ Resurge of interest in implementing BSS systems in the band with several coordination request filings from France in 2002, both for GSO satellite networks and non-GSO systems
- ▶ Substantial concern from many administrations on likely interference into terrestrial services concerned (terrestrial broadcasting, fixed, mobile, radionavigation and radio astronomy)
- ▶ Concern about interpretation of footnote 5.311, especially the power flux density requirement
- ▶ Input contributions to WRC-03 on the issue, including Asia-Pacific Telecommunity Common Proposal proposing a WRC Resolution text
- ▶ Modifications to No. 5.311 and Resolution 545 agreed at WRC-03

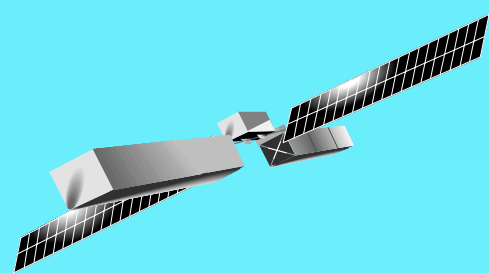




Case Study – WRC-07 Agenda Item 1.11 (3)

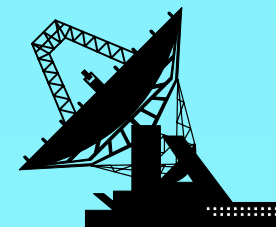
- ▲ **In Resolution 545:**
 - ▲ processing of coordination request filings by the BR was suspended pending WRC-07 decisions
 - ▲ application of No. 5.311 and Recommendation 705 is suspended until WRC-07
 - ▲ no BSS networks/systems are to be brought into use between WRC-03 and WRC-07
- ▲ **ITU-R invited in Resolution 545 to conduct studies as a matter of urgency, and develop sharing criteria and regulatory provisions, prior to WRC-07, for the protection of terrestrial services, in particular terrestrial television broadcasting services, in the 620-790 MHz band from GSO BSS networks and non-GSO BSS satellite networks or systems which it is planned to operate in this band**

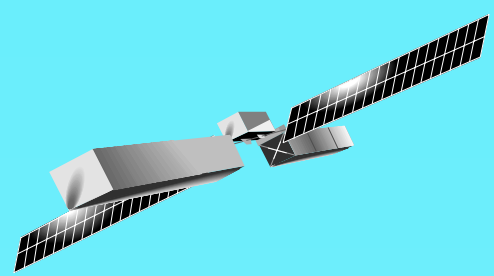




Case Study – WRC-07 Agenda Item 1.11 (4)

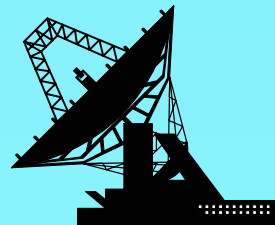
- ▶ For WRC-07 AI 1.11, first CPM meeting decided that WP 6E (Broadcasting terrestrial delivery) would be the *responsible* WP, that WP 6S (Broadcasting satellite delivery) would be a *contributing* WP and that WPs 7D (Radio astronomy), 8A (Land mobile service excluding IMT-2000), 8B (Radiodetermination service) and 9D (Fixed service sharing with other services) as well as the Planning Project Team for RRC-06 would be *interested* WPs and entities
- ▶ WPs 6E and 6S now driving assembly of all relevant technical characteristics, interference criteria and methodologies, as well as developing CPM text, with contributions from other interested WPs
- ▶ Current status of documentation available on ITU web site – see documents for WPs concerned

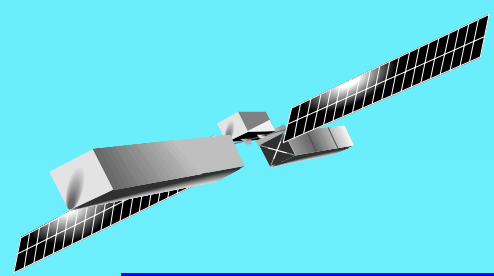




Role of Regional Organisations

- ▶ **Coordinating role for preparation for ITU WRCs in accordance with Resolution 72 of ITU Radio Regulations (e.g APT Preparatory Group – APG)**
- ▶ **APG Working Party structure follows structure of CPM report**
- ▶ **APG prepares views and, eventually, contributions to the CPM and proposals to the WRC**
- ▶ **Formal approval process when developing ACPs (Asia-Pacific Telecommunity proposals to the conference) due to treaty nature of WRC decisions**
- ▶ **Cooperation between regional groups – APT, ATU, CEPT, CITELE, Arab Group, CIS**
- ▶ **Regional role allows for good coordination prior to the WRC**





Solving Frequency Related International Standardisation Issues Through The ITU-R

Questions?

