

ITU TRAINING ON SPECTRUM MANAGEMENT FOR TERRESTRIAL
SERVICES

VICTORIA, REPUBLIC OF SEYCHELLES, 5 - 9 OCTOBER, 2015

**ITU-R Study Groups
activities and publications**

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Radiocommunication Bureau

Study Groups work in all ITU Sectors

ITU

Helping the World Communicate

193 Member States
>700 Sector Members
Associates and Academia

ITU-T

Telecommunication
standardization
- network and
service aspects



ITU-R

Radiocommunication
standardization and
global radio spectrum
management

ITU-D

Assisting
implementation and
operation of
telecommunications in
developing countries

ITU-R Study groups – general information

- ITU-R mission includes, among other tasks:
 - approving ITU-R Recommendations, developed by ITU-R Study Groups (SG) in the framework set by Radiocommunication Assemblies, on the technical characteristics and operational procedures for radiocommunication services and systems
- ITU-R Study Groups (SGs) are established by Radiocommunication Assembly (RA) to prepare draft Recommendations by a for approval by ITU Member States.
- Participants of SGs: Members States, Sector Members and Associates

Objectives of ITU-R Study Groups

Develop technical bases
for radio conferences

Establish Recommendations



CPM process
for WRCs



International voluntary *standards* on:

- spectrum management
- system characteristics and operation

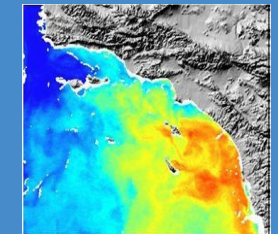
ITU-R represents:

**International focal point for
standardization of wireless systems**

Compile Reports and Handbooks

ITU-R Study groups – general aspects

- SGs study **Questions** and develop draft **Recommendations**, mainly on:
 - Spectrum/orbit utilization
 - System characteristics
 - Operation of radio stations
 - Sharing between different terrestrial and space services
- Key areas of standardization:
 - Spectrum Monitoring
 - Broadband wireless access (terrestrial and satellite)
 - IMT -International Mobile Telecommunications
 - Broadcasting technologies
 - Emergency communications



Study groups in international spectrum management

- **ITU-R Study Groups composition:**

- SG 1: Spectrum management
- SG 3: Radio wave propagation
- SG 4: Satellite services
- SG 5: Terrestrial services
- SG 6: Broadcasting service
- SG 7: Science services
- CPM: Conference Preparatory Meeting
- SC: Special Committee on Regulatory and procedural matters
- CCV: Coordination Committee for Vocabulary



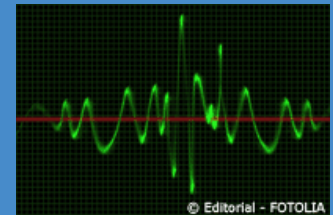
- >900 Recommendations
- -“Standards” in areas of spectrum management and radio technology
- -Result of consensus from meetings of world-wide experts
- -Some referred to in RR
- -Used by spectrum planners and system designers

Radiocommunication Assembly

- Radio Assembly (RA) is convened every 3-4 years
- Associated in time and place with WRCs
- Adopts Study Group work programmes
- Approves ITU-R Resolutions on
 - working procedures
 - specific aspects of Study Group responsibility
- Approves Recommendations
- Establishes ITU-R Study Groups (and elects their chairmen/vice-chairmen)
- Next RA: 26-31 October 2015, Geneva

Study Group 1: Spectrum management

- Areas of studies:
 - Spectrum Management principles and techniques
 - General principles of sharing
 - Spectrum monitoring
 - Long-term strategies for spectrum utilization
 - Economic approaches to national Spectrum Management (SM)



- Examples of studies:
 - Harmonization of SRDs
 - Coexistence studies on wireless power transmissions, PLT, Smart Grid/Home Networking
 - Spectrum Management and Monitoring evolutions, for example for cognitive radio systems

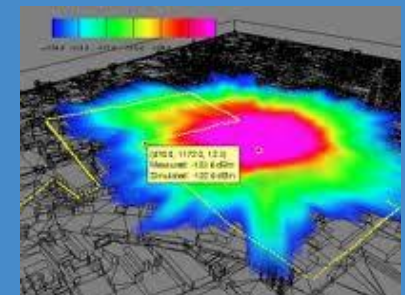


Study Group 3: Radiowave propagation

- Areas of studies:
 - Propagation in ionized and non-ionized media
 - Point-to-point and Earth-space propagation
 - Modelling and development of prediction methods
 - Radio noise

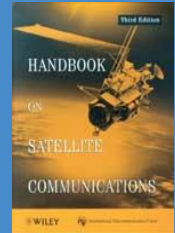


- Examples of studies:
 - Characteristics and mapping of propagation medium
 - propagation prediction methods



Study Group 4: Satellite services

- Areas of studies:
 - Systems and performance in FSS, BSS, MSS and RDSS
 - Efficient orbit/spectrum utilization for FSS, BSS, MSS and RDSS
 - IP global broadband Internet access via satellite
 - Early warning and relief operations
 - Systems and networks in the RNSS



- Examples of studies:
 - Satellite radio interface of IMT-2000 and IMT-Advanced
 - Earth stations on mobile platforms
 - BSS UHDTV systems



Study Group 5: Terrestrial services

- Areas of studies:
 - IMT-2000, IMT-Advanced and “IMT-2020”
 - Fixed, mobile, portable and nomadic communications, including BWA, RLANs, HAPS
 - Maritime and aeronautical services
 - Radiodetermination service
 - Amateur service
 - SDR and CRs



- Examples of studies:
 - 5G mobile broadband
 - Spectrum issues for maritime and aeronautical services



Study Group 6: Broadcasting service

- Areas of studies:
 - Programme production
 - Programme assembly
 - Delivery
 - Reception quality

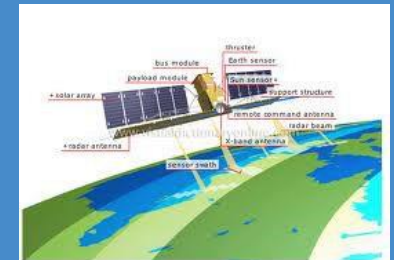
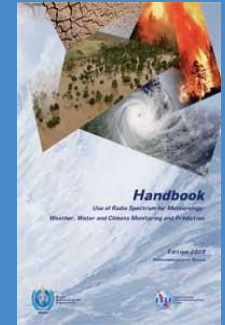


- Examples of studies:
 - Sharing issues at UHF
 - Use of broadcasting in emergency and disaster relief
 - Advanced audio systems and extended image dynamic range



Study Group 7: Science services

- Areas of studies:
 - Systems for space operation, space research, Earth exploration and meteorology
 - Radio astronomy
 - standard frequency and time signals



- Examples of studies:
 - EESS including meteorological satellite service for disaster prediction and detection, and for climate monitoring
 - Protection of passive services, e.g. radioastronomy



ITU-R Study Groups on the Web Site

Radiocommunication Study Groups

YOU ARE HERE HOME > ITU-R > STUDY GROUPS

SHARE    

The ITU-R Study Groups

The ITU-R Study Groups develop the technical bases for decisions taken at World Radiocommunication Conferences and develop global standards (Recommendations), Reports and Handbooks on radiocommunication matters. More than 4 000 specialists, from administrations, the telecommunications industry as a whole and academic organizations throughout the world, participate in the work of the Study Groups on topics such as efficient management and use of the spectrum/orbit resource, radio systems characteristics and performance, spectrum monitoring and emergency radiocommunications for public protection and disaster relief.

[More >](#)

Study Groups

- ▶ [Study Group 1 \(SG 1\) Spectrum management](#)
- ▶ [Study Group 3 \(SG 3\) Radiowave propagation](#)
- ▶ [Study Group 4 \(SG 4\) Satellite services](#)
- ▶ [Study Group 5 \(SG 5\) Terrestrial services](#)
- ▶ [Study Group 6 \(SG 6\) Broadcasting service](#)
- ▶ [Study Group 7 \(SG 7\) Science services](#)

Related Groups

- ▶ [Coordination Committee for Vocabulary \(CCV\)](#)
- ▶ [Conference Preparatory Meeting \(CPM\)](#)
- ▶ [Special Committee on Regulatory/Procedural Matters \(SC\)](#)
- ▶ [Joint Task Group 4-5-6-7 \(JTG 4-5-6-7\) WRC-15 Agenda items 1.1 and 1.2 *\(Disbanded\)*](#)
- ▶ [Disbanded Groups](#)



Meetings and Events

Related Meetings

Highlights

- ▶ [ITU-R Meeting schedule - Meeting sessions](#)
- ▶ [ITU-R Event Registration and Practical Information](#)

References

Related ITU-R Texts

Circulars

- ▶ [Radio Regulations](#)
- ▶ [Working methods \(Resolution ITU-R 1\)](#)
- ▶ [Guidelines for the working methods](#)
- ▶ [Format of ITU-R Recommendations](#)
- ▶ [ITU Style Guides](#)
- ▶ [ITU Terms and Definitions Database](#)
- ▶ [Structure of Radiocommunication Study Groups \(Resolution ITU-R 4\)](#)
- ▶ [Liaison and collaboration with other relevant organizations \(Resolution ITU-R 9\)](#)

Contacts

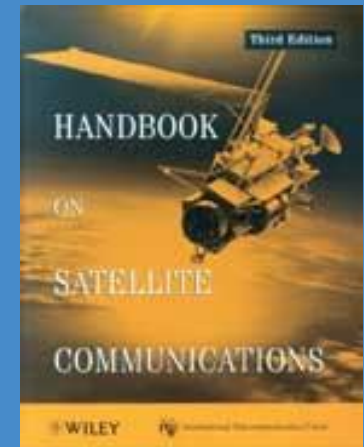
Intellectual Property Rights

- ▶ [SGD Contacts](#)
- ▶ [Study Group Chairmen and Vice-Chairmen](#)
- ▶ [Working Party Chairmen and Vice-Chairmen](#)
- ▶ [Conference Preparatory Meeting Chairman and Vice-Chairmen](#)
- ▶ [Special Committee on Regulatory/Procedural Matters Chairman and Vice-Chairmen](#)
- ▶ [Coordination Committee for Vocabulary Chairman and Vice-Chairmen](#)

See: <http://www.itu.int/ITU-R/go/rsg>

Study Group Products

- ITU-R Recommendations
- Reports
- Handbooks
- Technical bases for radio conferences



ITU-R Reports

- **Examples of reports from ITU-R:**
 - Economic aspects of spectrum management
 - Fixed service applications using free-space optical links
 - Means of calculating low-orbit satellite visibility statistics
 - Guidelines for evaluation of radio interface technologies for IMT-Advanced
 - Transition from analogue to digital terrestrial broadcasting

<http://www.itu.int/publ/R-REP/en>

ITU-R Handbooks

- **Examples of Handbooks from ITU-R:**

- National Spectrum Management
- Spectrum Monitoring
- Satellite Communications (FSS)
- Radiowave Propagation information for designing terrestrial point-to-point links
- Use of radio spectrum for meteorology: weather, water, climate monitoring and prediction
- Digital terrestrial TV broadcasting
- Land mobile including wireless access
- Frequency adaptive systems

<http://www.itu.int/publ/R-REP/en>

Examples of utilization of ITU-R documents

- For establishment/development of **radiomonitoring system** – ITU-R documents cover almost all regulatory and technical aspects
 - ITU-R Recommendations, e.g. SM.182, SM.1537...
 - Handbook on radiomonitoring (methods, equipment, automatization...)
- For introduction of **spectrum pricing system**:
 - Report ITU-R SM.2012 “Economic methods of spectrum management” (1998–2000–2004–09/2010)
 - Analyses strategies on economic approaches to national spectrum management and financing this activity, different types of spectrum fees
 - Contains experience of 12 countries, including AUS, B, CAN, CHN, D, ISR, KGZ, KOR, NZL, RUS, UK, USA

Summary

- ITU Radiocommunication Sector represents a focal point for standardization of radiocommunication services and systems
- **ITU-R Study Groups** are the “home” for the technical studies required for the standardization activities
- Principal products:
 - Recommendations, Reports and Handbooks
 - Technical bases for Radiocommunication Conferences

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Thank you !