



ITU and ITU-R Basics and Facts

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International Telecommunication Union



WORLD
RADIOCOMMUNICATION
SEMINAR 2016

GENEVA, 12-16 DECEMBER 2016

www.itu.int/go/ITU-R/WRS-16



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AGENDA

- 1. ITU at a Glance**
- 2. ITU Radiocommunication Sector (ITU-R)**
- 3. ITU Radiocommunication Bureau (BR)**

1. **ITU at a Glance**
2. **ITU Radiocommunication Sector (ITU-R)**
3. **ITU Radiocommunication Bureau (BR)**



International Telecommunication Union

Founded at Paris in 17 May 1865 as the *International Telegraph Union*. Present name in 1932: *International Telecommunication Union, ITU*

In 1947, **ITU** became a specialized agency of the United Nations, responsible for issues concerning Information and Communication Technologies

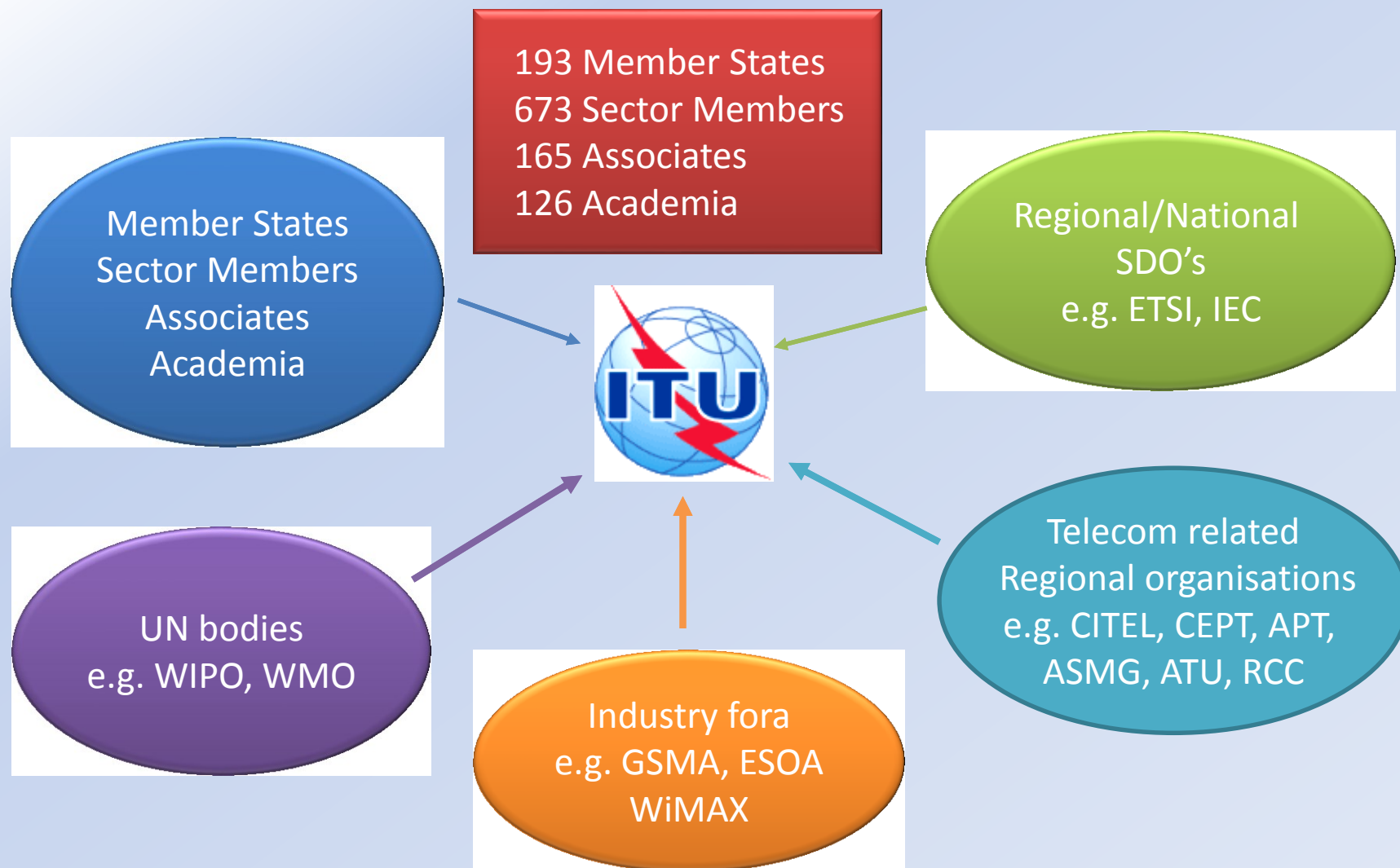
ITU coordinates the shared global use of the radio spectrum and satellite orbits, works to improve telecommunication infrastructure in the developing world, and assists in the development and coordination of worldwide technical standards.

Last year was ITU's 150th Anniversary

www.itu.int

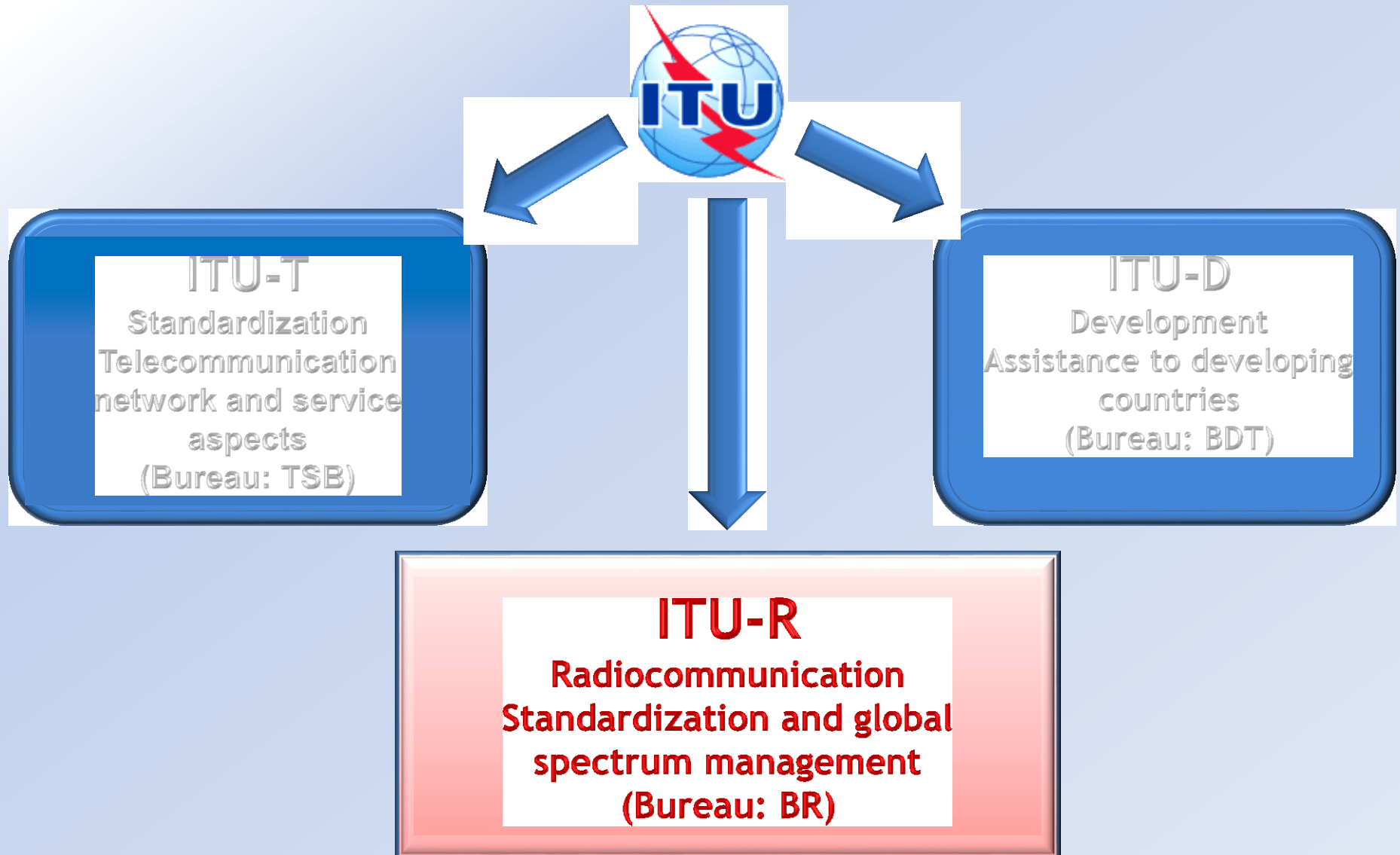


International Telecommunication Union





ITU Sectors





Instruments of the ITU

ITU is ruled by their legal instruments, configured as international treaties and therefore binding for all signatory States. These legal instruments are:

The Basic Texts off the ITU:

- **The Constitution of the International Telecommunication Union, CS**
- **The Convention of the International Telecommunication Union, CV**
- **Optional Protocol on the Compulsory Settlement of Disputes Relating to the Constitution, Convention and Administrative Regulations**

The Administrative Regulations governing the use of Telecommunications:

- a. **International Telecommunication Regulations, ITRs**
- b. **Radio Regulations, RR (including Rules of Procedure, RoP)**

ITU Basics Texts (Constitution, Convention, PP: Decisions, Resolutions, Recommendations) are available free of charge for general public (download) at:

www.itu.int/pub/S-CONF-PLEN-2015

ITU is governed by the Plenipotentiary Conference (PP) and the Council.

Plenipotentiary Conference, PP

Supreme organ of the Union. It is the decision making body which determines the direction of the Union and its activities. PP is held every 4 years, with 3 weeks duration:

- PP10: 4-22/Oct. 2010, Guadalajara, Mexico
- PP14: 20/Oct.-07/Nov. 2014, Busan, Korea
- PP18: November 2018, Dubai, United Arab Emirates (exact date tba)
- PP22: 4Q2022

www.itu.int/en/plenipotentiary



Plenipotentiary Conferences, PP

PP main functions:

- Review ITU Basic Texts: Constitution and Convention
- Review ITU Strategic Plan and Budget
- Elect ITU Council Members (48 States)
- Elect ITU Officials:
 - ☐ Secretary-General
 - ☐ Deputy Secretary-General
 - ☐ ITU Bureaux Directors: BR, TSB, BDT
- Elect Radio Regulations Board (12 members)

Recent PP-14 elected officials (from 01-01-2015 to 31-12-2018)

- **Secretary General** : **Houlin Zhao**, China
- **Deputy-Secretary General**: **Malcolm Johnson**, United Kingdom
- **ITU Radiocommunications Bureau (BR)**: **François Rancy**, France
- **ITU Standardization Bureau (TSB)**: **Chaesub Lee**, Korea
- **ITU Development Bureau (BDT)**: **Brahima Sanou**, Burkina Faso
- **Radio Regulations Board**:

<http://www.itu.int/en/plenipotentiary/2014/Pages/results.aspx>



ITU Council

ITU Council acts as the Union's governing body in the interval between Plenipotentiary Conferences.

The Council is conformed by Administrations elected during PP (less than 25% of State Members, i.e. 48 Members)

Its role is to consider broad telecommunication policy issues to ensure that the Union's activities, policies, strategies, and budget, fully respond to today's dynamic, rapidly changing telecommunications environment.

ITU Council meets every year, usually 2Q, during ~2 weeks, after the 3 Sectors Advisory Groups annual meetings

- Last ITU Council: 25/May-2/June 2016
- Next ITU Council: 15-25/May 2017

www.itu.int/en/council

Current Council is composed by (from 01-01-2015 to 31-12-2018):

- **Region A (Americas): 9 seats;** Argentina, Brazil, Canada, Costa Rica, Cuba, Mexico, Paraguay, United States, Venezuela
- **Region B (Western Europe): 8 seats;** France, Germany, Greece, Italy, Lithuania, Spain, Switzerland, Turkey
- **Region C (Eastern Europe and Northern Asia): 5 seats;** Azerbaijan, Bulgaria, Poland, Romania, Russian Federation
- **Region D (Africa): 13 seats;** Algeria, Burkina Faso, Egypt, Ghana, Kenya, Mali, Morocco, Nigeria, Senegal, Rwanda, Tanzania, Tunisia, Uganda
- **Region E (Asia and Australasia): 13 seats;** Australia, Bangladesh, China, India, Indonesia, Japan, Korea (Republic of), Kuwait, Pakistan, Philippines, Saudi Arabia, Thailand, United Arab Emirates

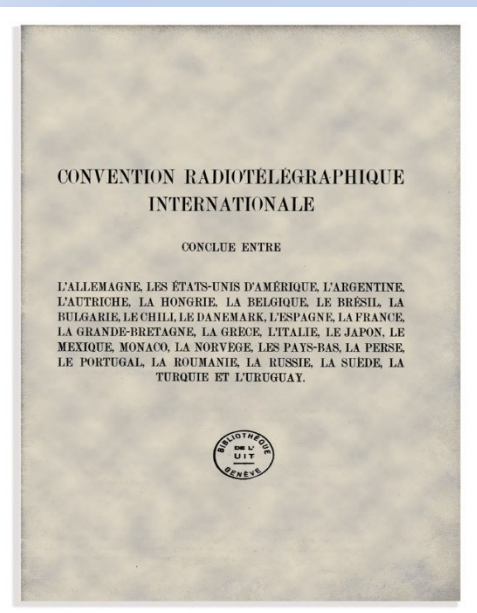
1. ITU at a Glance

2. ITU Radiocommunication Sector (ITU-R)

3. ITU Radiocommunication Bureau (BR)

1906

2016



Regulations
anticipate and
accommodate
technological
advancements

from the
first International
Radiotelegraph
Convention, **1906**
to the Radio
Regulations, **2016**





Radiocommunications in the ICT Ecosystem

- **Mobile Broadband networks**: ubiquitous connectivity
- **Fixed Networks**: mobile networks infrastructure, fixed wireless access, backbone lines
- **Scientific satellites**: Earth Observation, Meteorology (sources of high value information on space, natural resources, climate change, weather and disaster prediction)
- **Radionavigation systems** (space and terrestrial): Location and navigation, a key component of the connected society
- **Communication satellites**: Broadband Mobile networks infrastructure, mobile and emergency communications in remote areas, Broadcasting infrastructure.
- **Radiolocation**: transport safety, anti-collision devices for intelligent transport systems (ITS), air and maritime traffic control
- **Broadcasting and broadcasting satellite**: TV and sound program delivery to population



Role of ITU in radiocommunications

1. Developing and updating international regulations on the use of orbit /spectrum
2. Applying these regulations
- 3 . Updating the Master International Frequency Register
4. Developing and adopting standards and best practices on the use of orbit/spectrum
5. Disseminating information on these regulations, standards and best practices

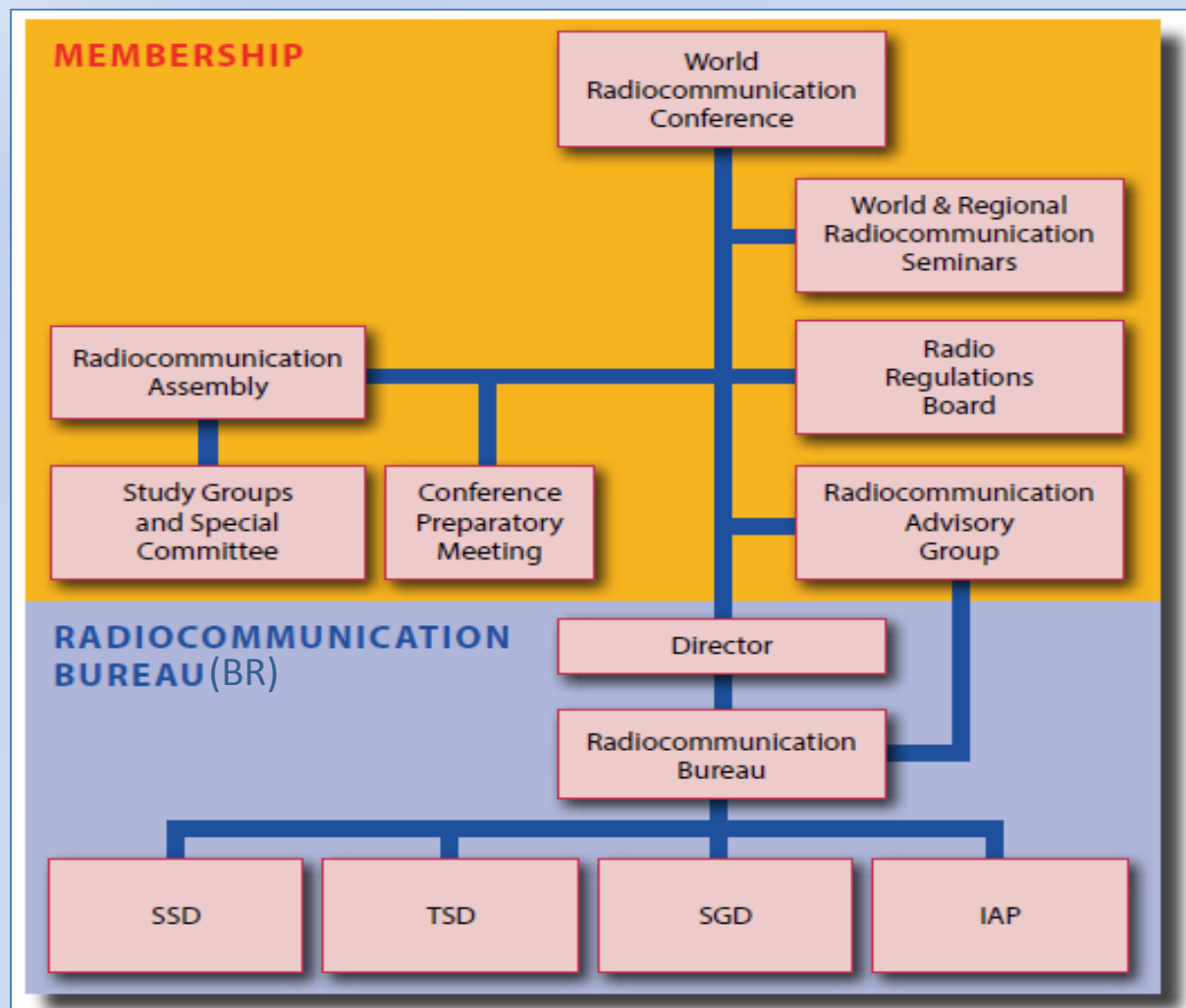
ITU-R Structure

SSD: Space Services Dept.

TSD: Terrestrial Services Dept.

SGD: Study Groups Dept.

IAP: Informatics, Administration and Publications Dept.

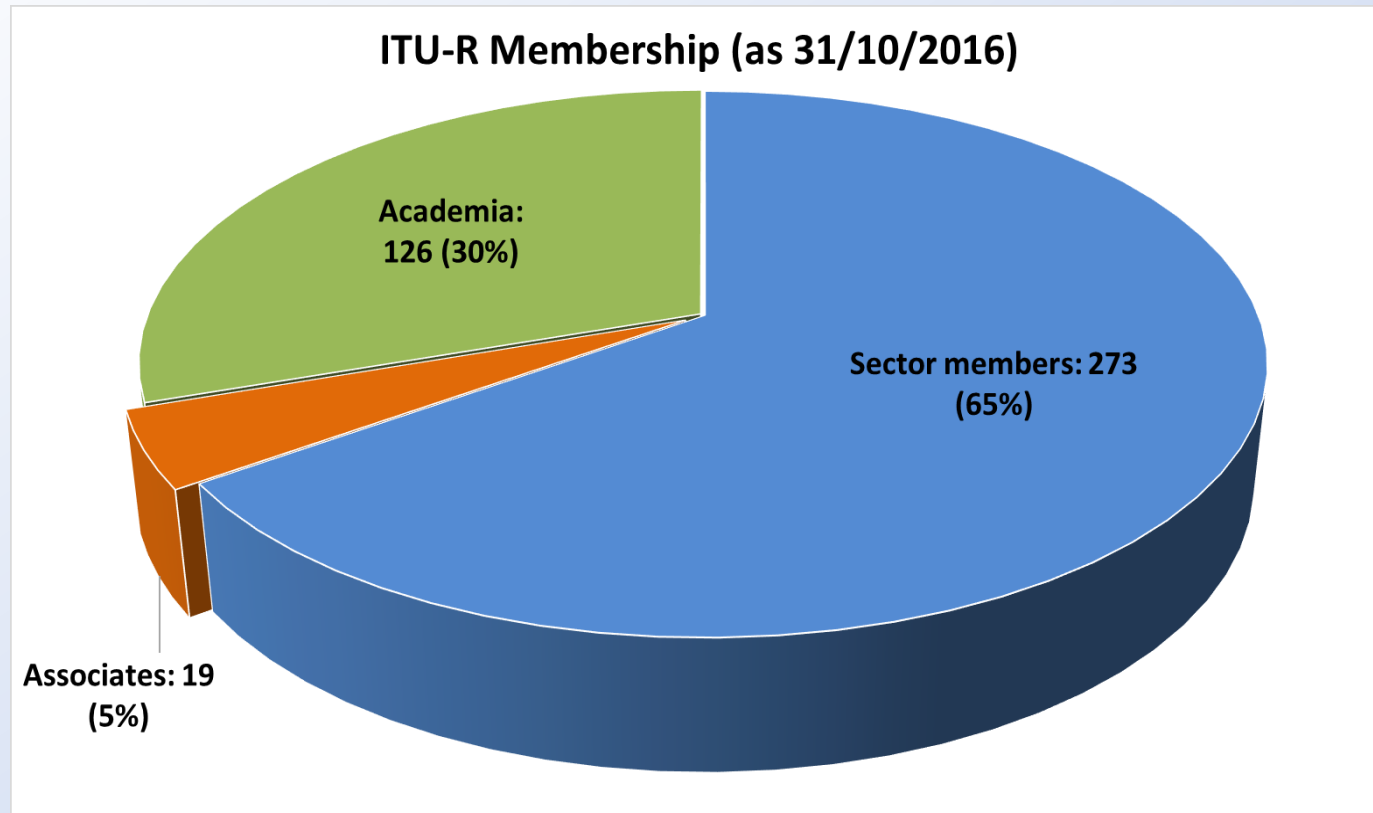




ITU-R Membership

ITU-R counts with all 193 ITU States members. Also with 418 memberships coming from 74 countries and 82 Regional & International Organizations (as 31/Oct/2016):

- Sector members: 273
- Associates: 19
- Academia*: 126



* PP14 decision (Res 169, rev Busan 2014): Academia join all 3 sectors with a single fee

WRC performs a complete and detailed review of the Radio Regulations (RR), and its Rules of Procedure (RoP), updating them by considering technological developments on Radio sector, its realities and challenges, to respond early and appropriately to these.

WRC has the authority to modify the RR by addenda, modifications or deletions they deem pertinent. These are made by consensus, and only if necessary, would vote (one vote per administration).

WRC can also:

1. Consider any radiocommunication matter of worldwide character
2. Develop instructions to the Radio Regulations Board and the Radiocommunication Bureau, and review their activities
3. Determine issues to be considered by Radiocommunication Assemblies and Study Groups as part of the preparatory work for future WRCs
4. Set the draft agenda for the next WRC



Purpose of ITU WRC

- Create regulatory certainty for a multi-trillion dollars activity which plays an increasingly important role in the development of our societies
- Strike the right balance between the spectrum requirements of all radiocommunication services
- Creating certainty requires consensus in order to achieve stable results on a sustainable use of orbit/spectrum resources
- Reaching consensus requires time, efforts and patience.
- This is the price to pay for developing and maintaining a sustainable ecosystem for radiocommunications and avoid massive disruptions.

WRCs take place every 4 years (Res.77, PP-14); they are normally held in Geneva, Switzerland, for a period of 4 weeks. WRCs are preceded by the Radio Assembly (the prior week)

Last WRC: 2-27/Nov. 2015 (WRC-15)

Next WRCs: 28/Oct. – 22/Nov. 2019 (WRC-19)*

4Q 2023 (WRC-23)

Between WRCs, Preparatory Meetings (CPM) are held, typically two:

1 st	→	the week after the WRC (2 days)
2 nd	→	~ 6 months before next WRC.

CPM-19 dates:

- 1st CPM (CPM19-1): held 30/Nov – 1st /Dec 2015
- 2nd CPM (CPM-19-2): 2Q2019 (2 weeks; date tbc)

Regional Preparatory Meetings are held, usually by each Regional Telecommunication Organization, throughout the period between WRCs.

Interregional Workshops on WRC preparation are organized in Geneva to have a global overview of the preparations and to cater for countries that don't belong to regional organizations.

* Council Res 1380 (06/2016): venue: Geneva, Switzerland

Radiocommunication Assemblies (RA) are responsible for the structure, programme and approval of radiocommunication studies. RA duties include to:

- ☐ **Assign** conference preparatory work and other questions to the Study Groups
- ☐ **Respond** to other requests from ITU conferences
- ☐ **Suggest** suitable topics for the agenda of future WRCs
- ☐ **Approve** and issue ITU-R Recommendations and ITU-R Questions developed by the Study Groups
- ☐ **Set the programme** for Study Groups, and disband or establish Study Groups according to the need.

RA are convened every 4 years (Res.77, PP-14), associated in time and place with WRC (the week before)

Last RA: 26-30/Oct. 2015 (RA-15)

*Next RAs: 21-25/Oct. 2019 (RA-19); the week before WRC-19
4Q2023 (RA-23); the week before WRC-23*

Radiocommunication Advisory Group (RAG) is tasked to:

- ❖ Review the priorities and strategies adopted in the Sector
- ❖ Monitor progress of the work of the Study Groups;
- ❖ Provide guidance for the work of the Study Groups;
- ❖ Recommend measures to foster cooperation and coordination with other organizations and with the other ITU Sectors.
- ❖ Provide advice on these matters to the Director of the Radiocommunication Bureau (BR).

Radiocommunication Assemblies (RAs) may refer specific matters within its competence to the RAG. The RAG may be authorized to act on behalf of the RA between two Assemblies.

RAG meets yearly at Geneva.

-Last meeting: 10-13 May 2016

-Next meeting: 26-28 April 2017

RAG meetings are open to ITU-R Members only.

www.itu.int/en/ITU-R/conferences/rag

Radio Regulations Board

RRB, addresses the correct and accurate application of RR and RoP.

RRB is conformed by 12 members, elected during PP, who perform their functions independently and on a part time basis.

Their functions include:

- ☐ Approving the **Rules of Procedure (RoP)** used by the ITU-R to implement the provisions of RR, and registering frequency assignments submitted by Member States;
- ☐ Considering matters referred to the BR that cannot be solved by applying the RR and Rules of Procedure;
- ☐ Considering research reports on unresolved cases of harmful interference and make recommendations accordingly;
- ☐ Advising the WRC and RA;
- ☐ Considering appeals against decisions taken by the BR regarding frequency assignments;

RRB meets 3 - 4 times per year at ITU headquarters in Geneva, Switzerland.

Current Radio regulation Board members (from 01-01-2015 to 31-12-2018) are:

Americas: Ricardo Teran, Argentina; Joanne Wilson, USA

West Europe: Alfredo Magenta, Italy; Lilian Jeanty, Netherlands

East Europe, North Asia: Victor Strelets, Russia; Ievgen Khairov, Ukraine

Africa: Stanley Kibe, Kenya; Simon Koffi, Côte d'Ivoire; Mustapha Bessi, Morocco

Asia: Yasuhiko Ito, Japan; Nasser Bin Hammad, UAE; Doan Hoan, Vietnam

www.itu.int/en/plenipotentiary/2014/Pages/results.aspx

ITU-R Study Groups

ITU-R Study Groups develop the technical bases for decisions taken at WRCs and develop global standards (Recommendations), Reports and Handbooks on radiocommunication matters. Particular attention is paid to radiocommunication needs of developing countries.

ITU-R Study Groups gather more than 4000 specialists, from: ITU Member States, Sector and Associate Members, and Academia, who participate on ITU-R SG activities; ITU-R SG work in cooperation with other international radiocommunication organizations.

ITU-R counts with 6 SG, composed by 21 Working Parties (WP).

ITU-R Study Groups meet yearly (after sessions of their respective Working Party)

www.itu.int/en/ITU-R/study-groups

Currently 1154 Recommendations and 502 Reports in force, and also 43 Handbooks. All ITU-R Rec, Rep, Op, and the Spectrum Management related Handbooks are of public access (download), free of charge

www.itu.int/en/ITU-R/Documents/BD_Flyer_A4_E.pdf



ITU-R Series

BO: Satellite delivery

BR: Recording for production, archival and play-out; film for television

BS: Broadcasting service (sound)

BT: Broadcasting service (television)

F: Fixed service

M: Mobile, radiodetermination, amateur and related satellite services

P: Radiowave propagation

RA: Radio astronomy

RS: Remote sensing systems

S: Fixed-satellite service

SA: Space applications and meteorology

SF: Frequency sharing and coordination between fixed-satellite and fixed service systems

SM: Spectrum management

Nomenclature :	Recommendation ITU-R	SM.2061-0	(08/2014)
	Type	Sector	Serie.Number-version*
			Issued date

* Normally version .x supersedes version.x-1



ITU-R Publications

SERIES	TOPIC	Study Group*	SG matters	Recommendations	Reports
BO	Satellite delivery	SG4 & SG6		45	29
BR	Recording for production, archival and play-out; film for television	SG6	Broadcasting service	4	0
BS	Broadcasting service (sound)	SG6	Broadcasting service	82	48
BT	Broadcasting service (television)	SG6	Broadcasting service	161	101
F	Fixed service	SG5	Terrestrial services	146	19
M	Mobile, radiodetermination, amateur and related satellite services	SG4 & SG5		247	166
P	Radiowave propagation	SG3	Radiowave Propagation	77	11
RA	Radio astronomy	SG7	Science services	14	9
RS	Remote sensing systems	SG7	Science services	38	22
S	Fixed-satellite service	SG4	Satellite services	141	22
SA	Space applications and meteorology	SG4 & SG7		58	28
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems	SG4 & SG7		20	1
SM	Spectrum management	SG1	Spectrum Management	92	46
SNG	Satellite news gathering	SG4	Satellite services	9	0
TF	Time signals and frequency standards emissions	SG7	Science services	15	0
V	Vocabulary and related subjects	(CCV)	Coordination Committee for Vocabulary	5	0
TOTAL				1154	502

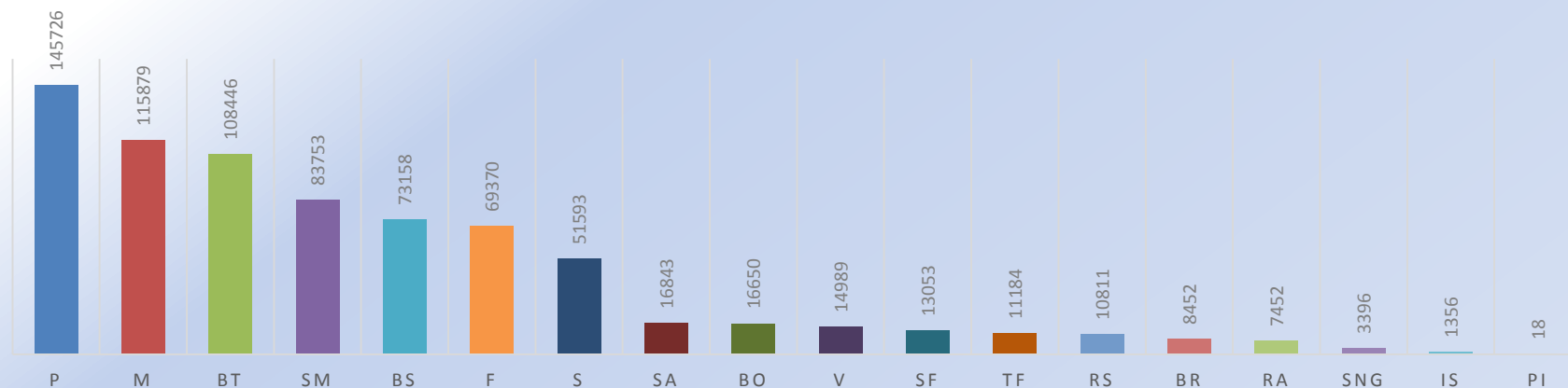
*SGs mainly involved; due to transversal nature, some series also involve other(s) SG

SG	SG1	SG3	SG4	SG5	SG6	SG7	Special Supplements	TOTAL
	Spectrum Management	Radiowave Propagation	Satellite Services	Terrestrial Services	Broadcasting Services	Science Services		
Handbooks	4	8	4	13	7	6	1 (1-4) - MSS	43

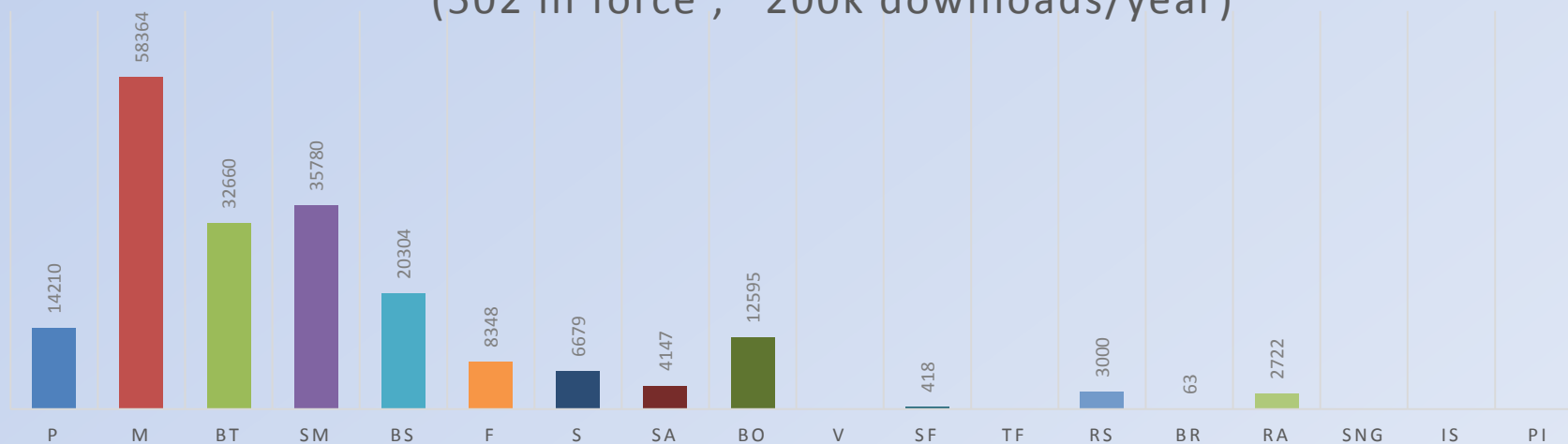


Period: Jan 1, 2016 - Nov 30, 2016

ITU-R RECOMMENDATIONS DOWNLOADS TREND (1,154 in force ; ~800k downloads/year)



ITU-R REPORTS DOWNLOADS TREND (502 in force ; ~200k downloads/year)





ITU-R Resources free access

Free online access to ITU Radiocommunication Sector (ITU-R) Publications:

ITU-R Publications constitute an essential reference source for all those wishing to remain abreast of the rapid and complex technological changes occurring in the wireless world of international radiocommunications, such as government agencies, public and private telecommunication operators, manufacturers, scientific or industrial bodies, international organizations, consultancies, universities, academia, technical institutions, etc.

ITU-R Publications are available in paper format, CD-ROM, DVD-ROM and Online versions.

WRC-15 Agenda and Resolutions:

www.itu.int/go/ITU-R/WRC-15-Agenda

Radio Regulations:

www.itu.int/pub/R-REG-RR-2012

Rules of Procedure:

www.itu.int/pub/R-REG-ROP-2012

ITU-R Handbooks:

Computer-aided Techniques for Spectrum Management (CAT)

www.itu.int/pub/R-HDB-01

Spectrum Monitoring

www.itu.int/pub/R-HDB-23

National Spectrum Management

www.itu.int/pub/R-HDB-21

Use of Radio Spectrum for Meteorology:

Weather, Water and Climate Monitoring and Prediction

www.itu.int/pub/R-HDB-45

ITU-R Study Group Outputs:

ITU-R Recommendations

www.itu.int/pub/R-REC

ITU-R Reports

www.itu.int/pub/R-REP

ITU-R Questions

www.itu.int/pub/R-QUE

ITU-R Opinions

www.itu.int/pub/R-OP

ITU-R/ITU-T Terms and Definitions

www.itu.int/pub/R-TER

ITU-R Booklets:

ITU-R Book of Resolutions

www.itu.int/pub/R-VADM-RES

ITU-R Radiocommunication: Committed to connecting the world

www.itu.int/pub/R-GEN-OVW

ITU-R Radiocommunication: Study Groups

www.itu.int/pub/R-GEN-SGB

ITU-R Radiocommunication: Climate Change

www.itu.int/pub/R-GEN-CLC

ITU Committed to Connecting the World

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Free online access to ITU-R Software and Databases

ITU Radiocommunication Sector (ITU-R):

Terrestrial Services:

Terrestrial Services Software

www.itu.int/pub/R-SOFT-TER

Global Administration Data System (GLAD)

www.itu.int/pub/R-SOFT-GLAD

Maritime Mobile Access and Retrieval System (MARS)

www.itu.int/pub/R-SOFT-MARS

Emergency (Res.647)

www.itu.int/net/itu-r/terrestrial/res647

Monitoring reports

www.itu.int/ITU-R/go/terrestrial-monitoring

Space Services:

Space Network List (SNL)

www.itu.int/pub/R-SOFT-SNL

Space Network Systems (SNS)

www.itu.int/pub/R-SOFT-SNS (available as a free service for IIES registered users only)

Others:

SG3 Databanks (Radiowave propagation)

www.itu.int/pub/R-SOFT-SG3

ITU Patent Statement and Licensing Declaration Information

www.itu.int/pub/R-SOFT-PAT

ITU Digitized World Map (IDWM) and Subroutine Library (32-bit)

www.itu.int/pub/R-SOFT-IDWM



These resources are available online on the ITU-R homepage www.itu.int/ITU-R "Free Resources" – in six languages of ITU (Arabic, Chinese, English, French, Russian, Spanish) whenever possible.

ITU Committed to Connecting the World

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http://www.itu.int/dms_pub/itu-r/oth/04/02/R040200003C2801PDFE.pdf

AGENDA

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3. **ITU Radiocommunication Bureau (BR)**



Radiocommunication Bureau (ITU BR)

The Radiocommunication Bureau is the executive arm of ITU-R. BR is headed by an elected Director responsible for the coordination of the work of the Sector, managing professional and administrative teams of BR.

The Radiocommunication Bureau:

- ✓ **Provides** administrative and technical support to WRCs, RAs, ITU-R SG, including WPs and Task Groups;
- ✓ **Applies** the provisions of the Radio Regulations and various Regional Agreements;
- ✓ **Records and registers** frequency assignments and also orbital characteristics of space services, and maintains the Master International Frequency Register, MIFR
- ✓ **Provides advice to Member States** on the equitable, effective and economical use of the radio frequency spectrum and satellite orbits, and investigates and assists in resolving cases of harmful interference;
- ✓ **Coordinates** the preparation, editing and dispatch of circulars, documents and publications developed within the Sector;
- ✓ **Provides** technical information, organizes seminars on national frequency management and radiocommunications, and works closely with the ITU Telecommunication Development Bureau (BDT)

IAP is responsible for the development and maintenance of major software packages used by the BR as well as software adapted to national frequency management units. IAP carries out studies related to policies for the technologies to be used for the information handling within the BR and administrations in the fields of management of the radio frequency spectrum and satellite orbits.

IAP undertakes activities related to:

- ITU-R Publications
- Website development;
- Membership and outreach in coordination with the General Secretariat and the other Bureaux.
- Also centralizes the IT resources of ITU-R. I
- IAP undertakes actions and activities relating to development and enhancement of the automation tools for the support of all the other activities and outputs of the Sector. In addition, VI) IAP is responsible for the general administrative functions of BR, including the correspondence registry, document and delegate registration management for conferences and meetings. It also oversees all BR financial and personnel matters

IAP comprises four Divisions:

Space Application Software Division (SAS)

Terrestrial Applications Software Division (TAS)

Administrative Division (ADM)

Outreach and Publication Services (OPS)

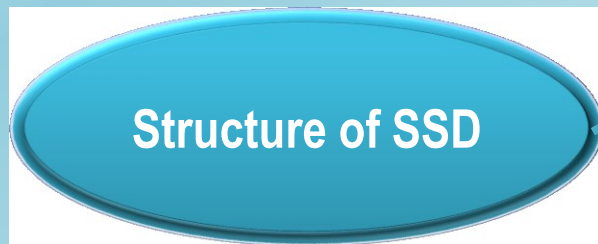
The Study Group Department (SGD) supports the work of the ITU-R Study Groups following the working methods and work programs as adopted by the Radiocommunication Assembly.

They provide the Secretariat to every ITU-R SG, headed by each SG Counsellor:

- ☐ 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
- ☐ Coordination Committee for Vocabulary (CCV)
- ☐ Conference Preparatory Meeting (CPM)

The Space Services Department (SSD) is responsible for coordination and recording procedures for space systems and earth stations. The Department handles capture, processing and publication of data and carries out examination of frequency assignment notices submitted by administrations for inclusion in the formal coordination procedures or recording in the Master International Frequency Register (MIFR).

SSD is also responsible for managing the procedures for space related assignment or allotment plans of the ITU and for provision of assistance to administrations on all of the above issues.



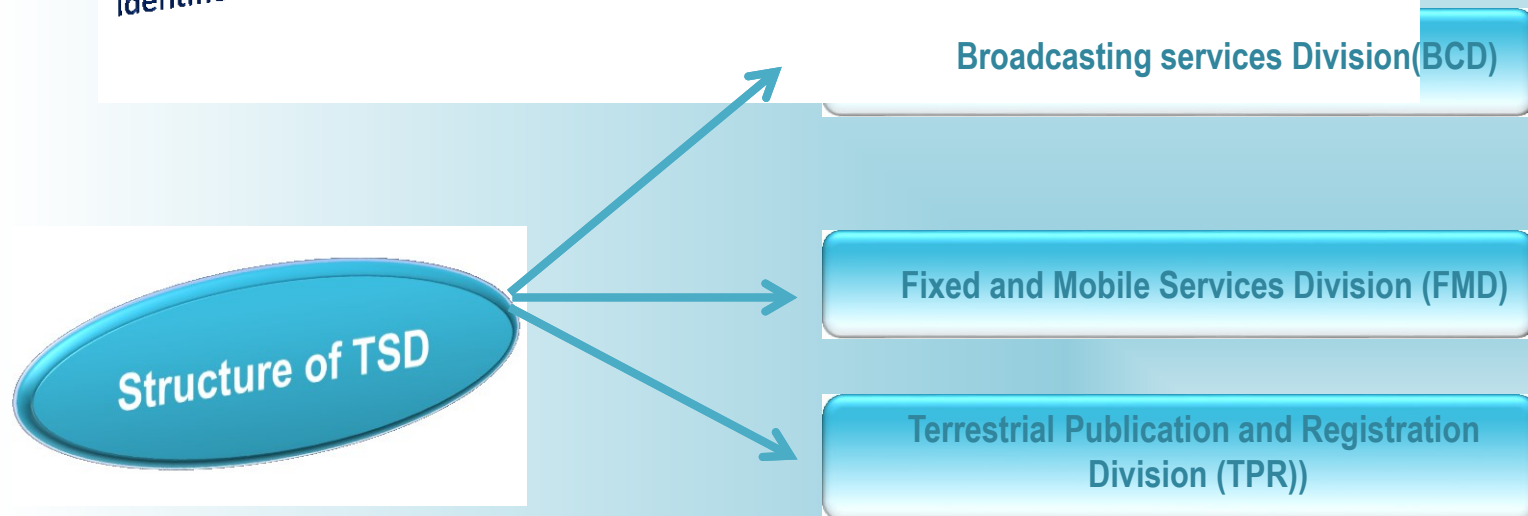
Space Publication and Registration Division (SPR)

Space Systems Coordination Division (SSC)

Space Notification and Plans Division (SNP)

www.itu.int/ITU-R/space

The Terrestrial Services Department (TSD) carries out technical and regulatory functions and provides assistance to administrations in the domain of international management of the RF spectrum, as specified in the Radio Regulations and various Regional Agreements, concerning terrestrial services (broadcasting, fixed, maritime mobile, aeronautical mobile, etc.). It processes notifications of frequency assignments, maintains the Master Register and Plans concerning terrestrial services and publishes their updates at regular intervals. It also applies various administrative regulations dealing with allocation of international means of identifications (call sign series, MIDs) and with safety of life.





THANK YOU!

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SEMINAR 2016

GENEVA, 12-16 DECEMBER 2016

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