



# ITU and ITU-R Basics and Facts

Joaquin Restrepo  
Head OPS/IAP  
Radiocommunication Bureau

International Telecommunication Union

ITU Symposium and Workshop  
on small satellite regulation  
and communication systems

SANTIAGO DE CHILE, CHILE  
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[www.itu.int/go/ITU-R/seminars/](http://www.itu.int/go/ITU-R/seminars/)

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110th Anniversary

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ITU

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# AGENDA

**1. ITU at a Glance**

**2. ITU Radiocommunication Sector (ITU-R)**

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

**4. ITU-R Study Groups and Working Parties**



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# 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

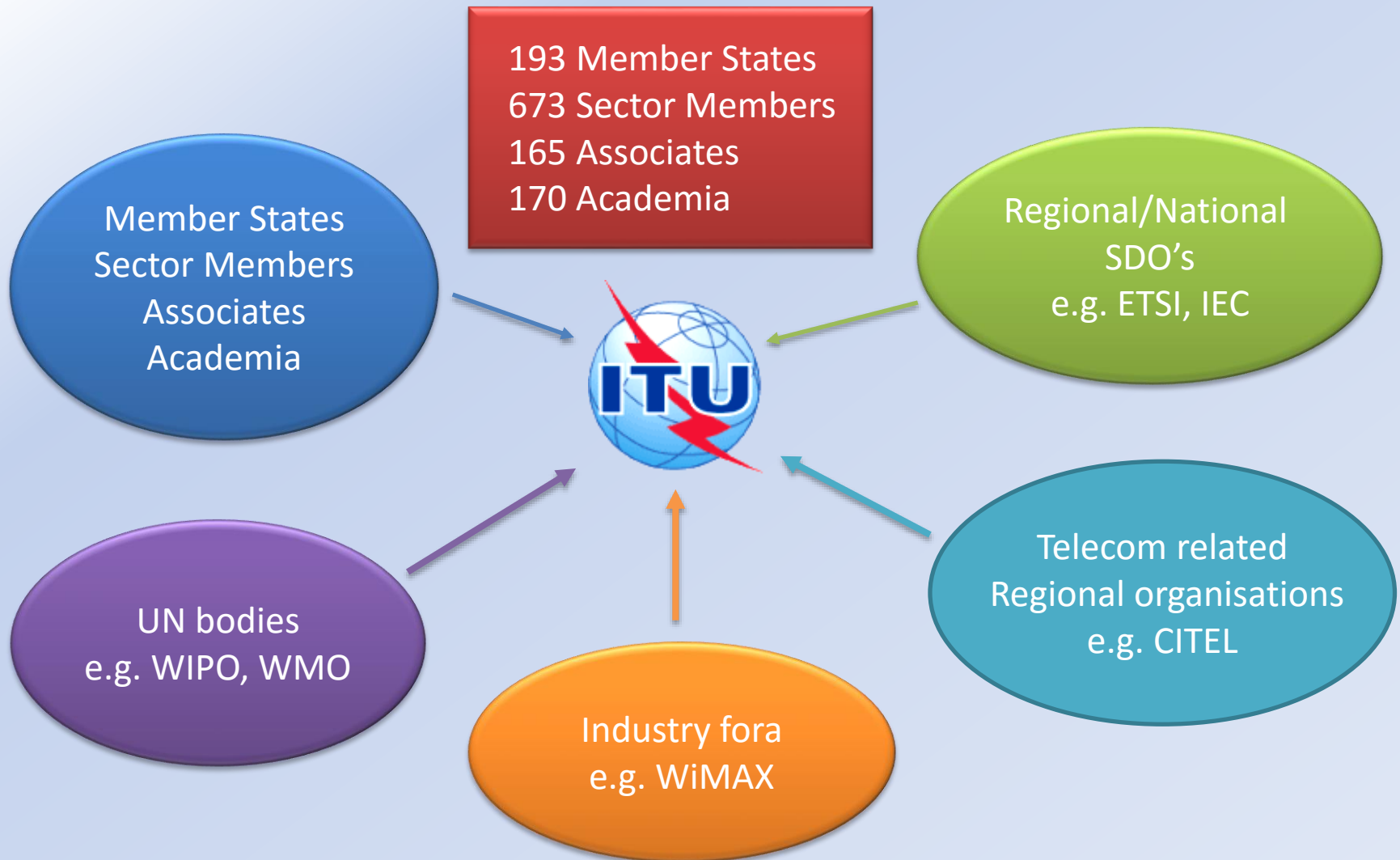
**ITU** coordinates the shared global use of the radio spectrum and satellite orbits, works to improve telecommunication infrastructure in the developing world, and assists in the development and coordination of worldwide technical standards.

**Last year was ITU's 150<sup>th</sup> Anniversary**

[www.itu.int](http://www.itu.int)

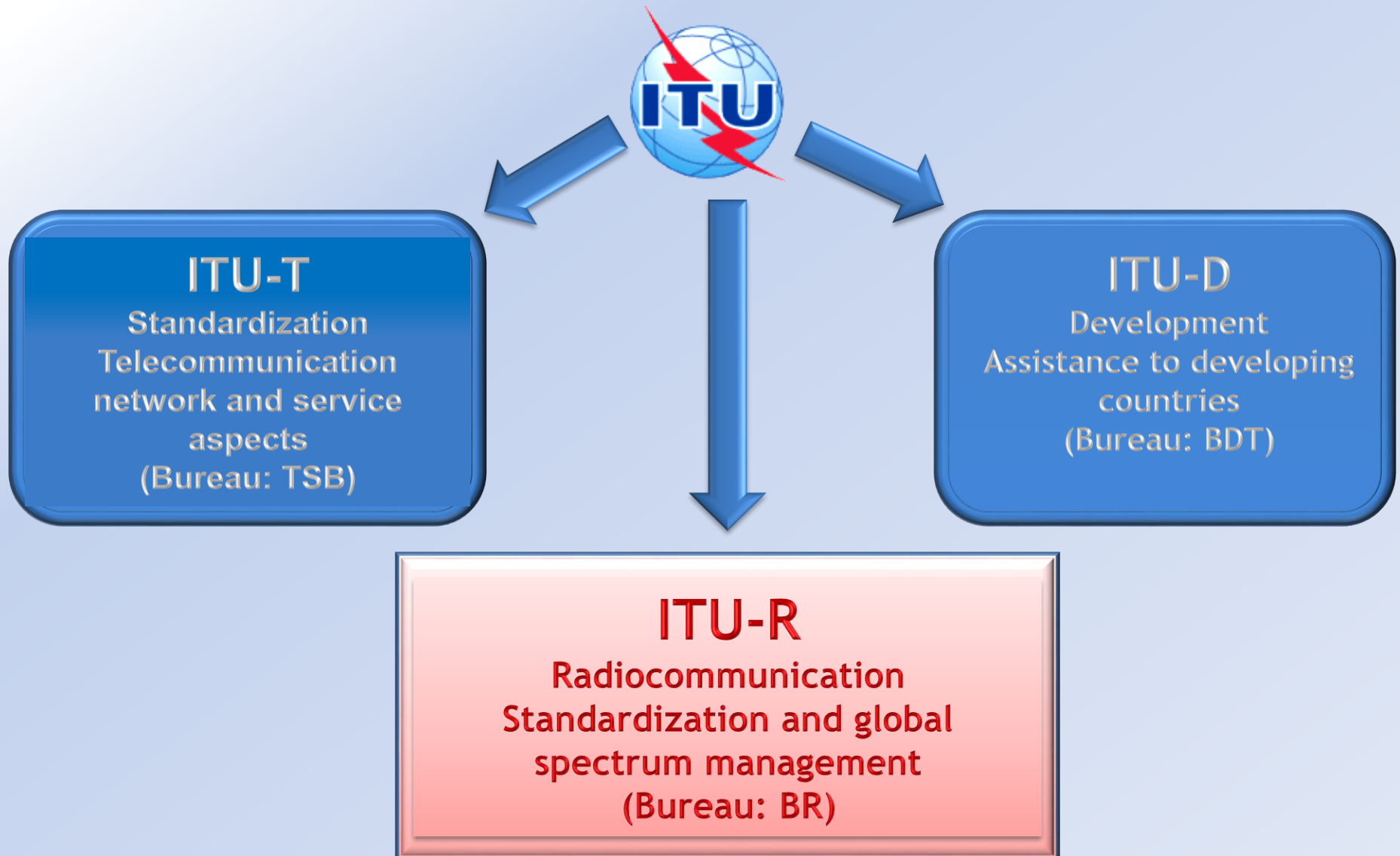


# International Telecommunication Union





# 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 of 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](http://www.itu.int/pub/S-CONF-PLEN-2015)





# ITU Governance

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](http://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.

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

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

[www.itu.int/en/council](http://www.itu.int/en/council)



# ITU 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



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# Radiocommunications and ITU



1906

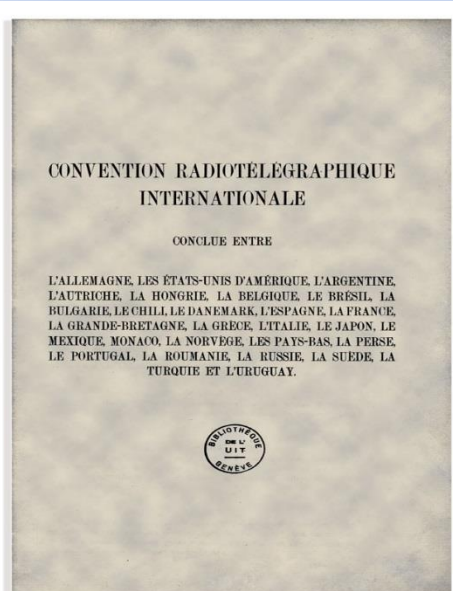
2016



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





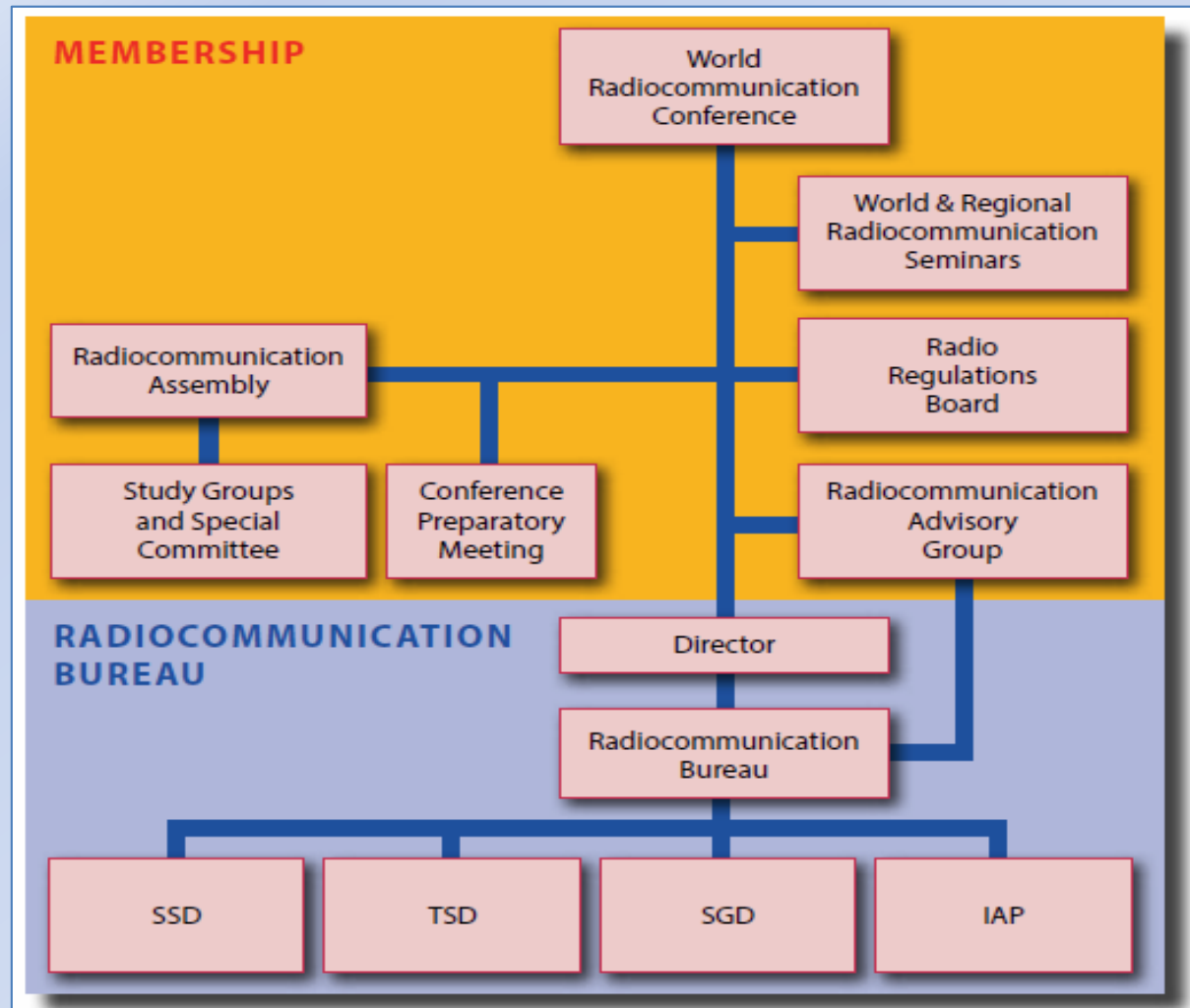
# ITU-R Structure

**SSD:** Space Services Dept.

**TSD:** Terrestrial Services Dept.

**SGD:** Study Groups Dept.

**IAP:** Informatics, Administration and Publications Dept.

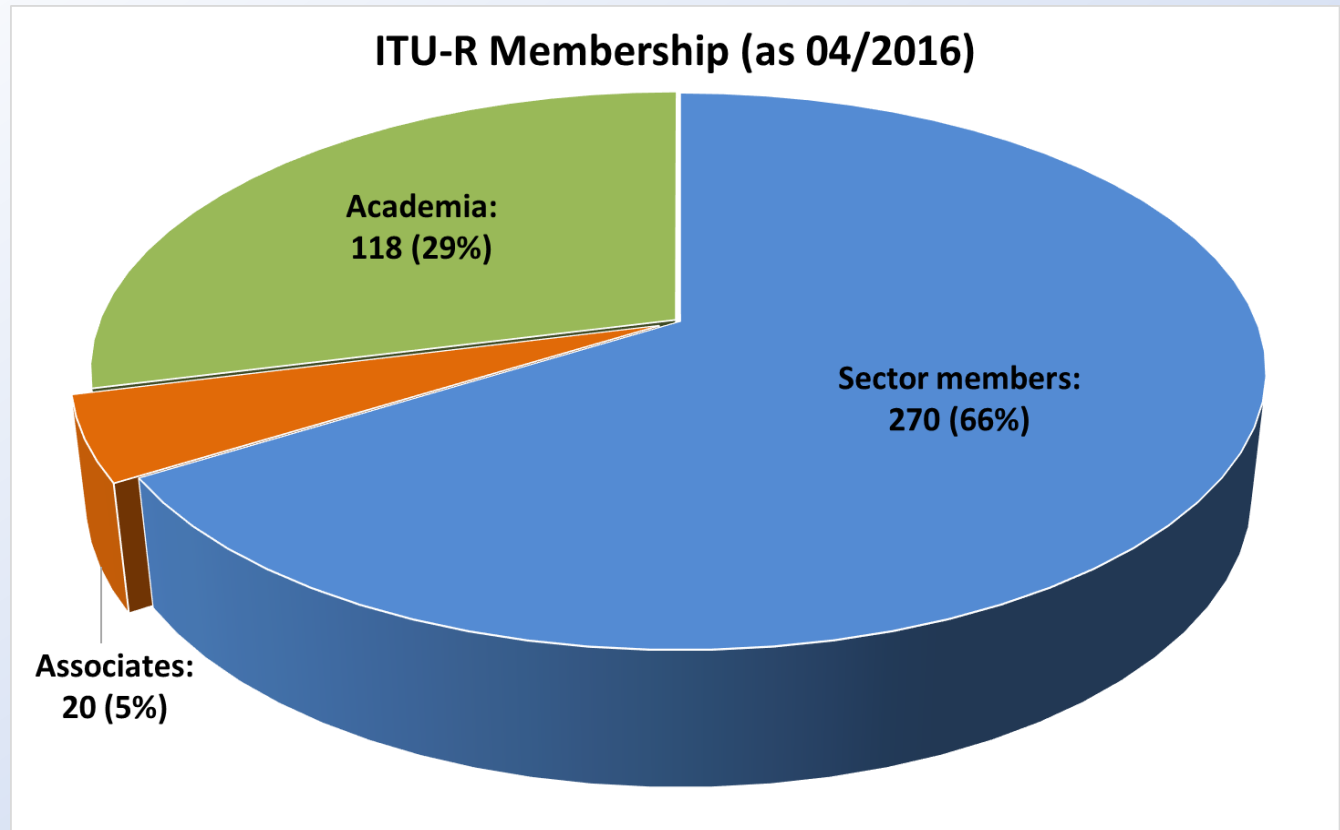




# ITU-R Membership

ITU-R counts with all 193 ITU States members. Also with 408 memberships coming from 74 countries and 82 Regional & International Organizations (as April/2016):

- Sector members: 270
- Associates: 20
- Academia\*: 118



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



# 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.



# World Radio Conferences, WRC

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

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<sup>st</sup> → the week after the WRC (2 days)
- 2<sup>nd</sup> → ~ 6 months before next WRC.

CPM-19 dates:

- 1<sup>st</sup> CPM (CPM19-1): held 30/Nov – 1<sup>st</sup> /Dec 2015
- 2<sup>nd</sup> 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): proposed venue: Sham-El-Sheikh, Egypt



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: 25-27 April 2017

RAG meetings are open to ITU-R Members only.

[www.itu.int/en/ITU-R/conferences/rag](http://www.itu.int/en/ITU-R/conferences/rag)





# Radio Regulations Board, RRB

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

RRB is conformed by 12 members, elected during PP, it performs their functions independently and non-permanent basis, including:

1. Approve the **Rules of Procedure (RoP)** which uses the ITU-R to implement the provisions of RR, and registering frequency assignments made by Member States;
2. Consider matters referred by the BR can not be solved by applying the RR and its Rules of Procedure;
3. Browse research reports unresolved interference by BR application of one or more treatments, and make recommendations thereon;
4. Advise the WRC and RA
5. Consider appeals against decisions taken by the BR regarding frequency assignments;

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

- Last meeting: 17-21 October 2016
- Next meeting: 20-24 February 2017

<http://www.itu.int/en/ITU-R/conferences/RRB/Pages/default.aspx>



# Radio Regulations Board, RRB

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

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



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# 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) 27





# BR SG Department

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.

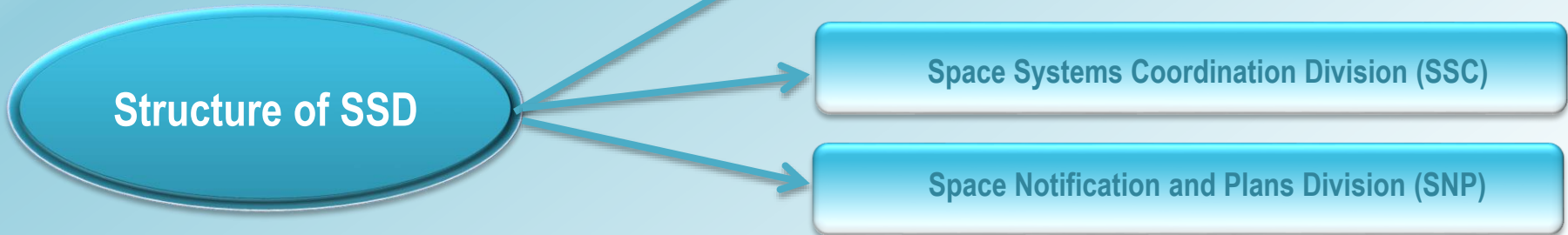
- They provide the Secretariat to every ITU-R SG, headed by each SG Counsellor:
- Study Group 1 (SG 1): Spectrum management
- Study Group - 3 (SG 3): Radiowave propagation
- Study Group 4 (SG 4): Satellite services
- Study Group 5 (SG 5): Terrestrial services
- Study Group 6 (SG 6): Broadcasting service
- Study Group 7 (SG 7): Science services
- Coordination Committee for Vocabulary (CCV)
- Conference Preparatory Meeting (CPM)
- Special Committee on Regulatory/Procedural Matters (SC)



# BR Space Services Department

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).

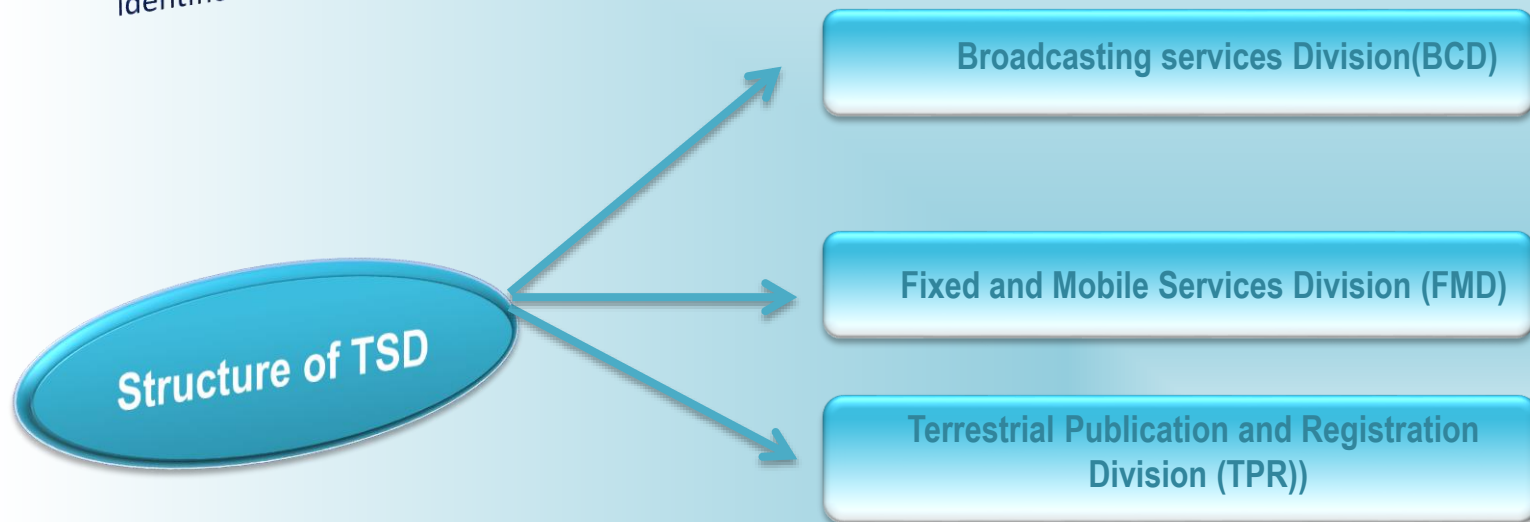
SSD is also responsible for managing the procedures for space related assignment or allotment plans of the ITU and for provision of assistance to administrations on all of the above issues.



[www.itu.int/ITU-R/space](http://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.





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# 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 matter. Particular attention is paid to the radiocommunication needs of developing countries.

ITU-R SGs gathers more than 4,000 specialists, from: ITU Member States, Sector and Associate Members, and Academia 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  
WP meets twice a years (some WP 1 or 3), normally at Geneva.

SG meets yearly (after sessions of their respective WP)

<http://www.itu.int/en/ITU-R/study-groups>

All ITU-R Rec, Rep, Op, and the Spectrum Management related Handbooks are of public access (download), free of charge

[http://www.itu.int/en/ITU-R/Documents/BD\\_Flyer\\_A4\\_E.pdf](http://www.itu.int/en/ITU-R/Documents/BD_Flyer_A4_E.pdf)



# ITU-R Study Groups

**CCV:** Coordination Committee for Vocabulary

**CPM:** Conference Preparatory Meeting

**SC:** Special Committee on regulatory/procedural matters

**SG 1:** Spectrum management; 3 WP

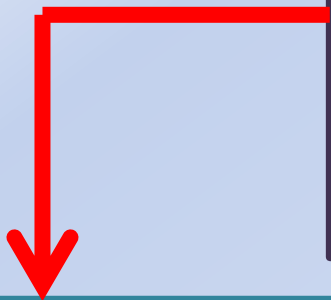
**SG 3:** Radiowave propagation; 4 WP

**SG 4:** Satellite services; 3 WP

**SG 5:** Terrestrial services; 4 WP

**SG 6:** Broadcasting service; 3 WP

**SG 7:** Science services; 4 WP



- “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
- 1163 Recommendations, 499 Reports, 43 Handbooks in force



# ITU-R Study Groups

## ITU-R STUDY GROUPS (SG) AND WORKING PARTIES (WP)

SG 1	Spectrum Management	WP 1A	WP 1B	WP 1C	
		Spectrum engineering techniques	Spectrum management methodologies and economic strategies	Spectrum monitoring	
SG 3	Radiowave Propagation	WP 3J	WP 3K	WP 3L	WP 3M
		Propagation fundamentals	Point-to-area propagation	Ionospheric propagation and radio noise	Point-to-point and Earth-space propagation
SG 4	Satellite Services	WP 4A	WP 4B	WP 4C	
		Efficient orbit/spectrum utilization for the fixed-satellite service (FSS) and broadcasting-satellite service (BSS)	Systems, air interfaces, performance and availability objectives for the fixed-satellite service (FSS), broadcasting-satellite service (BSS) and mobile-satellite service (MSS), including IP based applications and satellite news gathering (SNG)	Efficient orbit/spectrum utilization for the mobile-satellite service (MSS) and the radiodetermination-satellite service (RDSS).	
SG 5	Terrestrial Services	WP 5A	WP 5B	WP 5C	WP 5D
		Land mobile service above 30MHz (excluding IMT); wireless access in the fixed service; amateur and amateur-satellite services	Maritime mobile service including the Global Maritime Distress and Safety System (GMDSS); the aeronautical mobile service and the radiodetermination service	Fixed wireless systems; HF and other systems below 30 MHz in the fixed and land mobile services	IMT systems
SG 6	Broadcasting Services	WP 6A	WP 6B	WP 6C	
		Terrestrial broadcasting delivery	Broadcast service assembly and access	Programme production and quality assessment	
SG 7	Science Services	WP 7A	WP 7B	WP 7C	WP 7D
		Time signals and frequency standard emissions	Space radiocommunication applications	Remote sensing systems	Radio astronomy
CCV	Coordination Committee for Vocabulary				
CPM	Conference Preparatory Meeting				
SC	Special Committee on regulatory/procedural matters				



# ITU-R Study Group 1

**Scope:** Spectrum management principles and techniques, general principles of sharing, spectrum monitoring, long-term strategies for spectrum utilization, economic approaches to national spectrum management, automated techniques and assistance to developing countries in cooperation with the Telecommunication Development Sector.

In addition, inter-service sharing and compatibility (urgent studies by request), including the development of Recommendations(s) or Reports(s) to the Conference Preparatory Meeting in answer to those urgent Questions concerning inter-service sharing and compatibility requiring special attention.

## Structure

- **WP 1A** : Spectrum engineering techniques
- **WP 1B** : Spectrum management methodologies and economic strategies
- **WP 1C**: Spectrum monitoring



## ITU-R Study Group 3

**Scope:** Propagation of radio waves in ionized and non-ionized media and the characteristics of radio noise, for the purpose of improving radicomunication systems.

### Structure

- **WP 3J:** Propagation fundamentals
- **WP 3K:** Point-to-area propagation
- **WP 3L:** Ionospheric propagation and radio noise
- **WP 3M:** Point-to-point and Earth-space propagation





## ITU-R Study Group 4

**Scope:** Systems and networks for the fixed-satellite service, mobile-satellite service, broadcasting-satellite service and radiodetermination - satellite service.

### Structure

- **WP 4A:** Efficient orbit/spectrum utilization for the fixed-satellite service (FSS) and broadcasting-satellite service (BSS)
- **WP 4B:** Systems, air interfaces, performance and availability objectives for the fixed-satellite service (FSS), broadcasting-satellite service (BSS) and mobile-satellite service (MSS), including IP based applications and satellite news gathering (SNG)
- **WP 4C:** Efficient orbit/spectrum utilization for the mobile-satellite service (MSS) and the radiodetermination-satellite service (RDSS).



## ITU-R Study Group 5

**Scope:** Systems and networks for fixed, mobile, radiodetermination, amateur and amateur-satellite services.

### Structure

- **WP 5A:** Land mobile service above 30MHz (excluding IMT); wireless access in the fixed service; amateur and amateur-satellite services
- **WP 5B:** Maritime mobile service including the Global Maritime Distress and Safety System (GMDSS); the aeronautical mobile service and the radiodetermination service
- **WP 5C:** Fixed wireless systems; HF and other systems below 30 MHz in the fixed and land mobile services
- **WP 5D:** IMT systems



## ITU-R Study Group 6

**Scope:** Radiocommunication broadcasting, including vision, sound, multimedia and data services principally intended for delivery to the general public; it encompasses the production and distribution of programmes (vision, sound, multimedia, data, etc.) as well as contribution circuits among studios, information gathering circuits (ENG, requirements for SNG, etc.), primary distribution to delivery nodes, and secondary distribution to consumers.

### Structure

- **WP 6A:** Terrestrial broadcasting delivery
- **WP 6B:** Broadcast service assembly and access
- **WP 6C:** Programme production and quality assessment



# ITU-R Study Group 7

**Scope:** “Science services” refer to the standard frequency and time signal, space research (SRS), space operation, Earth exploration-satellite (EESS), meteorological-satellite (MetSat), meteorological aids (MetAids) and radio astronomy (RAS) services.

## Structure

- **WP 7A:** Time signals and frequency standard emissions: Systems and applications (terrestrial and satellite) for dissemination of standard time and frequency signals;
- **WP 7B:** Space radiocommunication applications: Systems for transmission/reception of telecommanded and tele-metry data;
- **WP 7C:** Remote sensing systems: for space operation and for space research;
- **WP 7D:** Radio astronomy: remote sensing systems and applications for Earth exploration meteorology and planetary sensing



## ITU-R Releases

- **ITU-R Recommendations:** <http://www.itu.int/pub/R-REC>
- **ITU-R Reports:** <http://www.itu.int/pub/R-REP>
- **ITU-R Opinions:** <http://www.itu.int/pub/R-OP>
- **ITU-R Handbooks:** <http://www.itu.int/pub/R-HDB>

Compliance with ITU-R Recommendations is not mandatory. However, while some are incorporated by reference in the ITU Radio Regulations, ITU-R Recommendations are developed by radiocommunication world experts, thereby enjoying a high reputation and worldwide implementation, having the status of international standards in their domain of application.

There are 1163 Recommendations and 499 Reports in force (March 2015). All ITU-R Rec, Rep, Op, and the SM related Handbooks are of public access (download), free of charge

[more than 1.5 million downloads in 2015](#)





# 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	47
BT	Broadcasting service (television)	SG6	Broadcasting service	161	99
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	86	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 Comitee for Vocabulary	5	0
<b>TOTAL</b>				<b>1163</b>	<b>499</b>

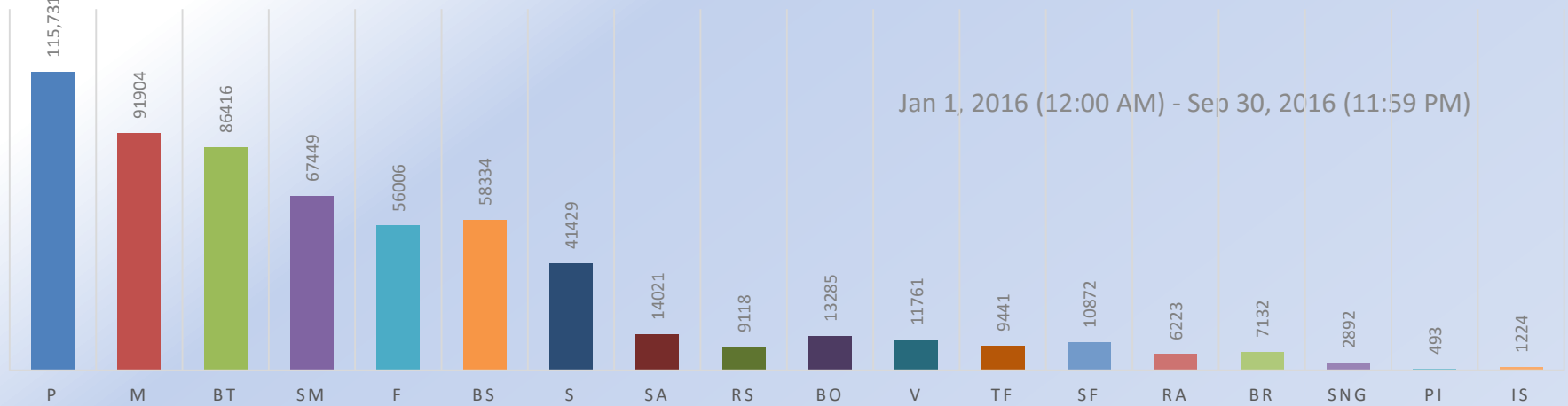
\*SGs mainly involved; due to transversal nature, some series also involves other(s) SG

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

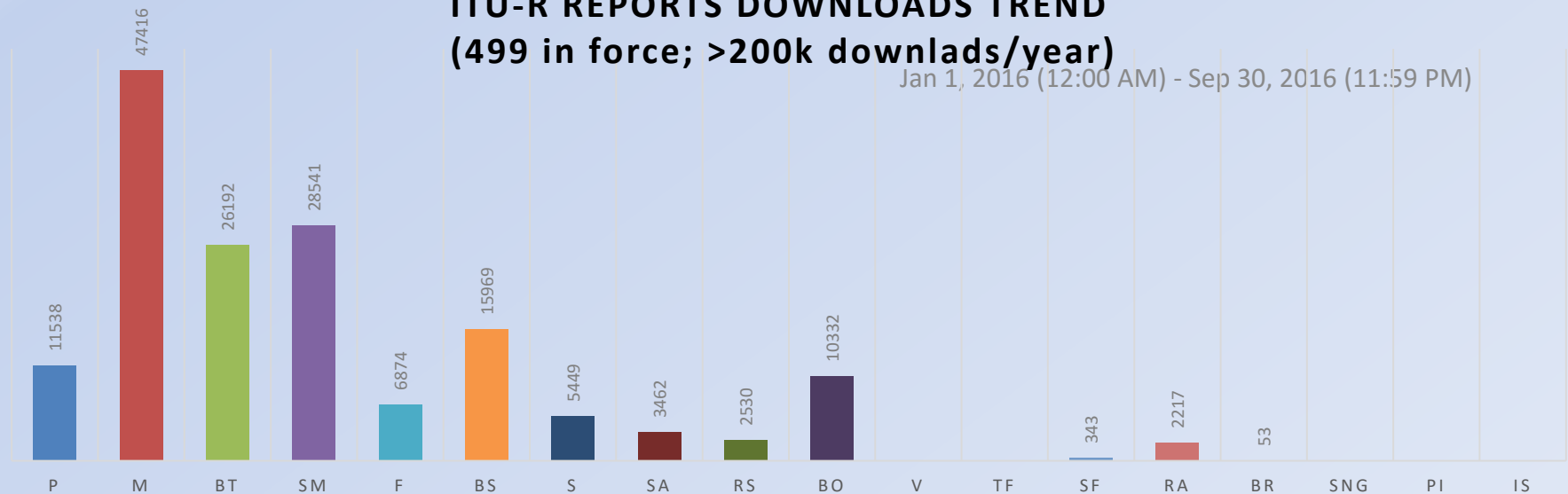




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