



An Overview of the Structure and Functions of the International Telecommunication Union

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Topics To Be Covered

- Historical perspective
- United Nations Specialized Agencies
- The International Telecommunication Union
- Membership in the Union
- Instruments of the Union
- ITU History and Structure
- ITU Sectors
- Structure of ITU Radiocommunication Sector (ITU-R)

The International Telecommunication Union

The ITU is the leading United Nations agency for information and communication technologies

- The ITU has been around since the earliest days of electronic communications and it has evolved as an organization to meet the evolution of telecommunications technologies
- Following the invention of the telegraph (1837), the first public telegraph message (1844), and then short-distance *wireless* telegraphy (1854), the International Telegraph Union founded in 1865

ITU History

- 1837 – the invention of the telegraph was quickly followed by the interconnection of telegraph systems across *international borders*
- 1865 – the International Telegraph Union was founded
- 1906 – the first Radiotelegraph Conference and Radio Regulations meeting was held in Berlin, Germany
- 1927 – the International Radio Consultative Committee (CCIR) was established within the ITU to focus on radiocommunication and spectrum management
- 1932 – the ITU was re-named the International *Telecommunication* Union
- 1945 – saw the establishment of the United Nations Charter
- 1947 – the ITU became a specialized agency of the UN

Although the ITU is a member agency of the UN, it predates the UN by 82 years

The ITU at Work



The United Nations

U.N. Charter was ratified 24 October 1945. There were fifty-one (51) charter members. Today there are 193 member states in the UN.

The structure the UN consists of,

- General Assembly
- Security Council
- Specialized Agencies

For more information see <https://www.un.org/>

The United Nations in Geneva



United Nations Specialized Agencies

You have probably heard of many of the UN specialized agencies

- International Maritime Organization (IMO)
- International Civil Aviation Organization (ICAO)
- **International Telecommunication Union (ITU)**
- World Meteorological Organization (WMO)
- International Monetary Fund (IMF)
- World Health Organization (WHO)

... plus 9 other specialized agencies

Other UN Specialized Agencies



The International Telecommunication Union (ITU)

The ITU is the lead United Nations agency for information and communication technologies (ICTs)

- 193 Member States
- 900+ Sector Members and Associates
- www.itu.int

Although the ITU is a specialized agency in the UN, membership in the ITU is neither a right nor is it guaranteed

Members must financially support the ITU and its programs through annual fees. The scales of these fees are set by the Plenipotentiary Conference

Membership in the ITU

Member States – These are administrations. They have all rights and privileges. Only member states hold the right to vote

Sector members – Organizations, Industry, Recognized Operating Agencies, Academia, etc.

- **Sector** members, may participate in the activities of a Sector
- **Associate** members, may participate in a single Study Group
- **Academia** members, may participate in the activities of a Study Group through a Memorandum Of Understanding (MOU) with the General Secretariat

Instruments of the Union

- **Constitution of the ITU (CS)**
- **Convention of the ITU (CV)**
- **Administrative Regulations**
 - International Telecommunication Regulations (ITRs)
<https://www.itu.int/en/wcit-12/Documents/final-acts-wcit-12.pdf>
 - Radio Regulations (RR)
<https://www.itu.int/pub/R-REG-RR>

The collection of the Basic Texts of the Union can be downloaded as a single volume for free from <https://www.itu.int/hub/pubs/>

Structure of the ITU

- Plenipotentiary Conference (the primary governing body – *all powerful*)
- Council (acts on behalf of the Plenipotentiary Conference)
- World Conference on International Telecommunications (WCIT)
- Core Sectors (ITU-R, ITU-T, ITU-D)
 - Radiocommunication Sector (ITU-R)
 - Telecommunication Standardization Sector (ITU-T)
 - Telecommunication Development Sector (ITU-D)
- General Secretariat

The General Secretariat provides services to the membership of the Union. The General Secretariat manages the administrative and financial aspects of the Union's activities

Plenipotentiary Conference and Council

The **Plenipotentiary Conference** is the supreme organ of the ITU

- Meets every four years
- Amends the Constitution and Convention
- Elects officers, sets budgets, establishes structure and operating rules, and establishes policies

The ITU **Council** acts on behalf of the Plenipotentiary between Plenipotentiary Conferences

- Council is made up of an elected subset of about 25% the ITU Member States (there are currently 48 Members of Council)
- Has an equitable distribution of Council seats among the five world regions (Americas, Western Europe, Eastern Europe, Africa, Asia & Australia)
- Sets the final agenda for the World Radiocommunication Conference

Telecommunication Standardization Sector (ITU-T)

Telecommunication Development Sector (ITU-D)

The **ITU-T** sets standards in the form of ITU-T Recommendations with a focus on *wireline* communication issues. The ITU-T works through,

- World telecommunication standardization assemblies (**WTSA**)
- Telecommunication standardization study groups
- The Telecommunication Standardization Advisory Group
- The Telecommunication Standardization Bureau

The **ITU-D** promotes the development, expansion and operation of telecommunication networks and services, particularly in developing countries. This sector works in cooperation with the Radiocommunication and Telecommunication Standardization Sectors and does their work through,

- World and regional telecommunication development conferences (**WTDC**)
- Telecommunication development study groups
- The Telecommunication Development Bureau

Radiocommunication Sector (ITU-R)

The **ITU-R** ensures the rational, equitable, efficient, and economical use of the radio-frequency spectrum by all radiocommunication services, including those using geostationary-satellite or other satellite orbits. The ITU-R does its work though,

- World Radiocommunication Conferences (**WRCs**)
- Radio Regulation Board (RRB)
- Radiocommunication Assemblies (**RAs**)
- Radiocommunication Study Groups
- Radiocommunication Bureau

The Cyclic Nature of ITU meetings

You often here people talking about the work in the current or previous “cycle” or “study cycle” at the ITU. What is this “cycle”?

- Plenipotentiary Conference is held every 4 years

Between Plenipotentiary Conferences there will be:

- One Council meeting per year
- One or more WRC and RA (ITU-R)
- At least one WTSA (ITU-T)
- One WTDC (ITU-D)

The frequency of these meetings is specified in the Constitution of the ITU, in Article 13 (for ITU-R), Article 18 (for ITU-T), and Article 22 (for ITU-D)

More Detail on the Radiocommunication Sector

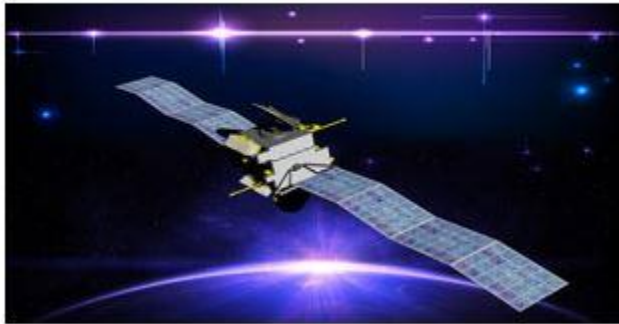
Structure of ITU Radiocommunication Sector (ITU-R)

The ITU-R plays a vital role in the global management of the radio-frequency spectrum and satellite orbits

- Ensure the rational, equitable, efficient, and economical use of the radio-frequency spectrum by all radiocommunications services
- Manages the detailed coordination and recording procedures for space systems and earth stations ([further covered in the satellite briefing](#))

The Radiocommunication Sector (ITU-R)

SPACE SERVICES



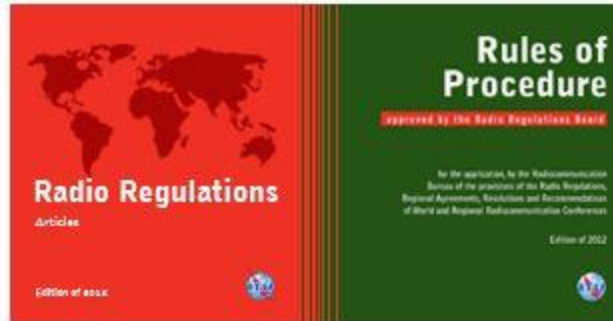
TERRESTRIAL SERVICES



RADIOCOMMUNICATION STUDY GROUPS

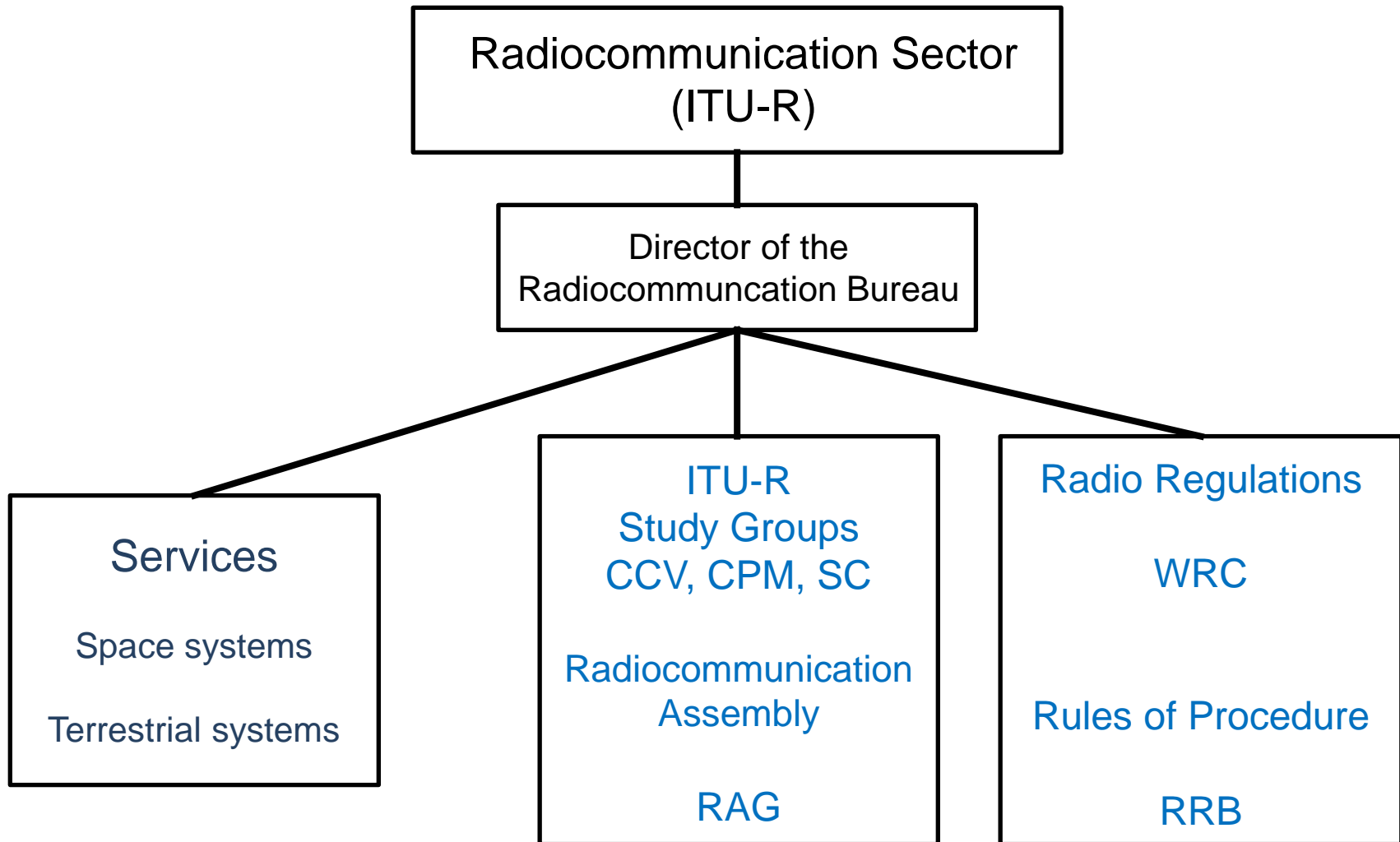


RADIO REGULATIONS



- ▶ World Radiocommunication Conferences (WRC)
- ▶ Radiocommunication Assemblies (RA)
- ▶ Regional Radiocommunication Conferences (RRC)
- ▶ Radio Regulations Board (RRB)
- ▶ Radiocommunication Study Groups
- ▶ Radiocommunication Advisory Group (RAG)

The Radiocommunication Sector (ITU-R)



The Radiocommunication Bureau (BR)

The Radiocommunication Bureau (BR) organizes and coordinates the work of the Radiocommunication Sector (ITU-R) whose aim is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum and the geostationary satellite orbit.

In addition to supporting ongoing work in the ITU-R Study Groups, the BR also

- maintains the Radio Regulations (an international treaty)
- organizes meetings and conferences, such as World Radiocommunication Conferences
- provides services, such as the Master International Frequency Register (MIFR) for Terrestrial Services and Space Services
- provides satellite coordination services

The Radio Regulations

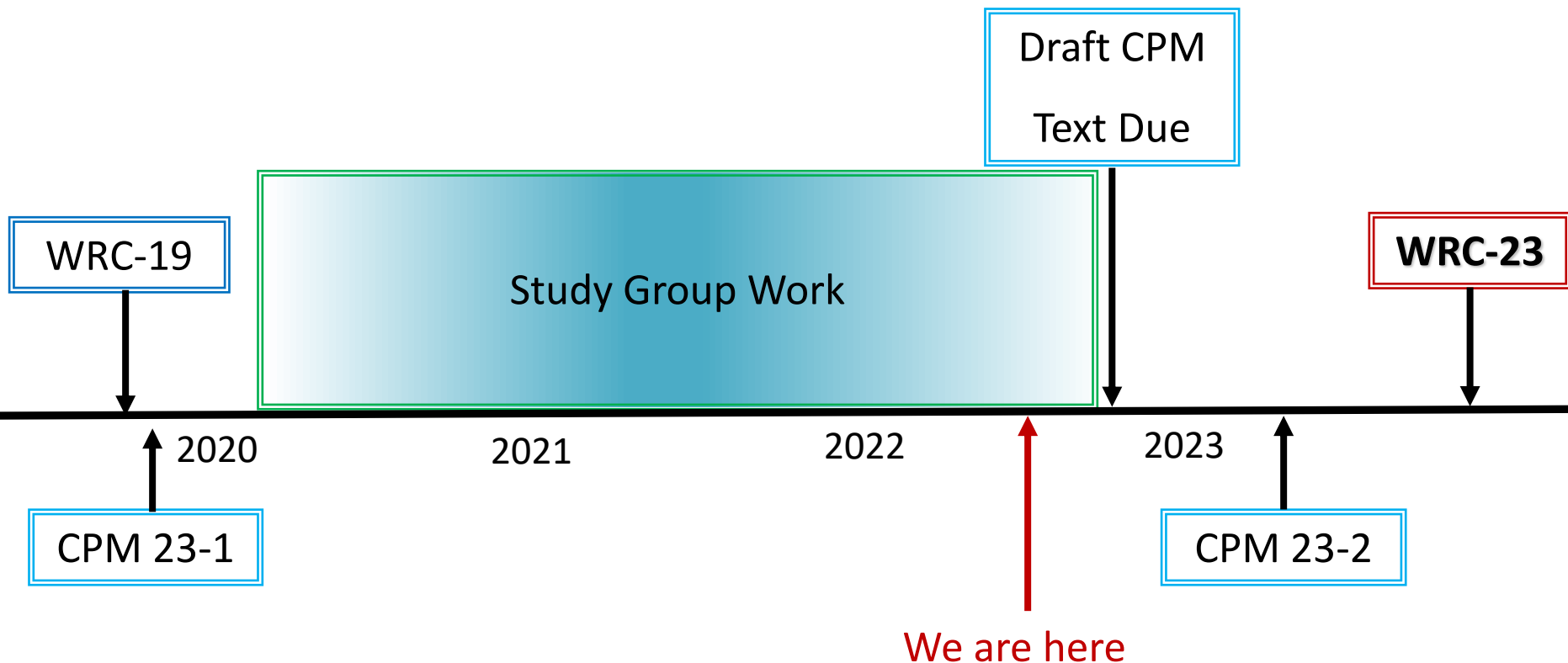
World Radiocommunication Conferences (WRCs)

- WRCs meet every three to four years to review and revise the Radio Regulations, an international treaty
- Much of the work done in the ITU-R Study Groups, and all of the work of the Conference Preparatory Meetings (CPMs) is done in support of the WRC

The Radio Regulations Board (RRB)

- The *Rules of Procedure* are approved by the Radio Regulations Board
- They complement the Radio Regulations by providing clarification of the application of particular Regulations or establishing the necessary practical procedures that may not be provided for in the current Regulatory Procedures.

The Big Picture



Much of the work that is done to prepare for a WRC is done in a period called a *study cycle*

Conference Preparatory Meetings (CPM)

The CPM is one part of the family of ITU-R *Study Groups*

The CPM prepares a *report* detailing the technical basis for agenda items being considered by a WRC, including Methods to satisfy the agenda items

CPM XX-1 is held immediately following a WRC

- Attended by Chairmen and Vice Chairmen of ITU-R Study Groups
- Determines the structure of the CPM report and designates Chapter Rapporteurs
- Assigns work to Working Parties of the Study Groups, which will conduct studies and prepare the text to be compiled in the report

Conference Preparatory Meetings (CPM)

CPM XX-2 is held 6 months prior to the WRC

- This meeting is open to delegates from ITU member states
- The meeting reviews and finalizes the CPM report
- This meeting may lead to consensus on how to address some agenda items prior to the WRC, but the meeting could produce more options for some agenda items for the WRC to consider

The CPM Report is a contribution to the WRC

The Radiocommunication Assembly (RA)

The Radiocommunication Assembly manages ITU-R Study Groups and their work by developing ITU-R Resolutions. The RA assigns conference preparatory work and other Questions to the Study Groups

- Some Resolutions of the RA can affect WRC agenda items
- An RA is usually held the week before a WRC
- The RA appoints the Chairmen and Vice-Chairmen of Study Groups
- The RA approves ITU-R Recommendations and Questions developed by the Study Groups

The Radio Advisory Group (RAG)

The RAG provides advice to the Director of the BR on Study Group issues

- Reviews the priorities and strategies adopted in the R-Sector
- Reviews processes and procedures used by the Study Groups and the Radiocommunication Assembly upon request
- Reviews the R-Sector budget and operational plan
- Recommends measures for fostering cooperation and coordination between Study Groups, with the other ITU Sectors, and with other organizations

ITU-R Study Groups

The study groups carry out the technical work to support methods for addressing agenda items under a WRC as well as other work on *Reports, Recommendations, and Handbooks* for spectrum issues under their area of expertise and sharing and compatibility studies in cooperation with other study groups.

- SG1 – Spectrum Management
- SG3 – Radiowave Propagation
- SG4 – Satellite Services
- SG5 – Terrestrial Services
- SG6 – Broadcasting Service
- SG7 – Science Services

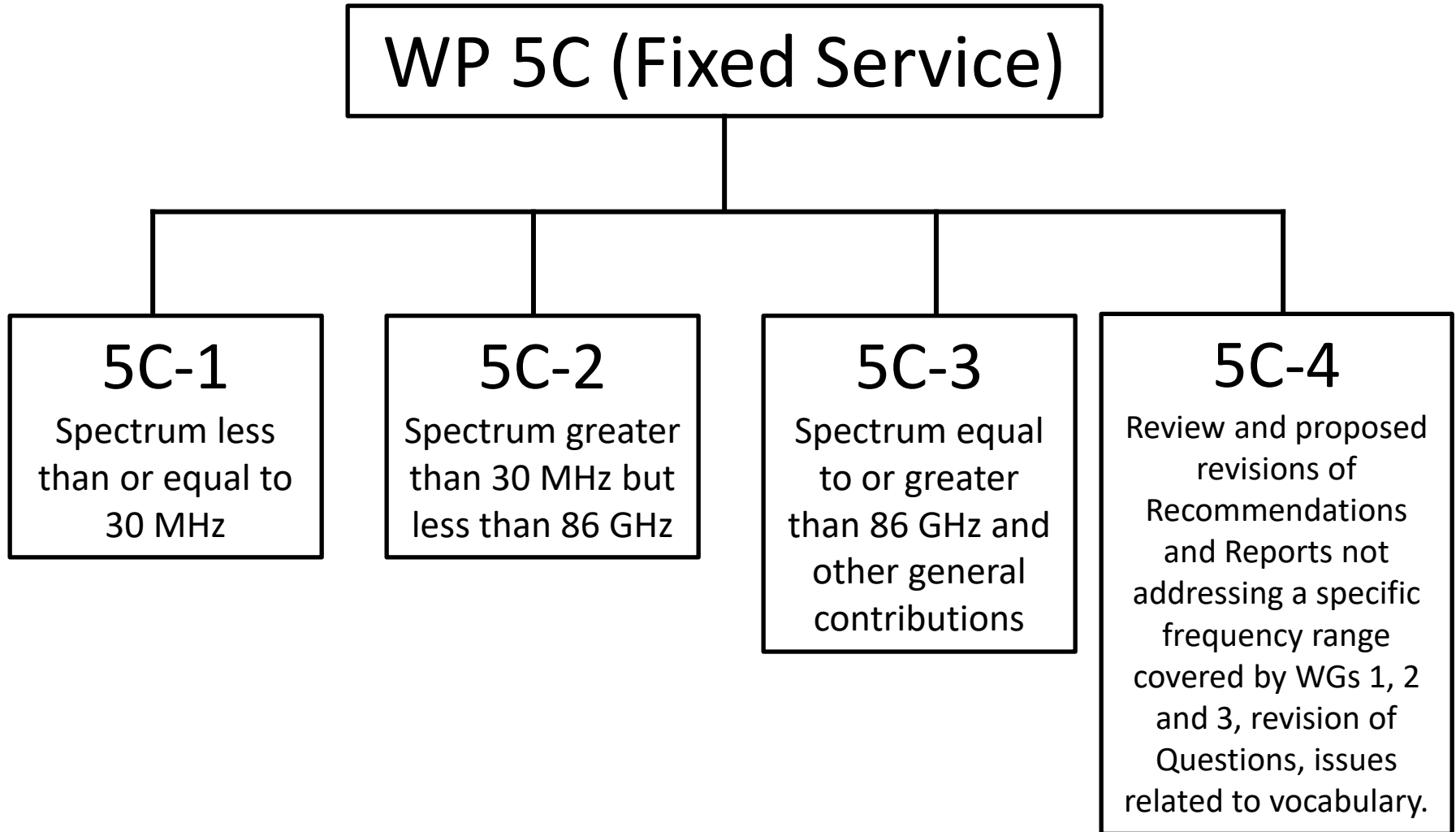
- Coordination Committee On Vocabulary (CCV)
- Conference Preparatory Meeting

ITU-R Study Group and Working Party Output

Study Groups and further divided into Working Parties in order to better distribute the work by topic. Typical output includes,

- **ITU-R QUESTION** - A statement of a technical, operational or procedural problem seeking a Recommendation, Handbook or Report
- **ITU-R RECOMMENDATION** - An answer to a Question or part(s) of a Question which, within the scope of existing knowledge and studies, gives specifications, data, or guidance
- **ITU-R REPORT** - A technical, operational or procedural statement
- **ITU-R HANDBOOK** - Practical information engineers, system planners, and operating officials
- **DRAFT CPM TEXT** - Provides the technical basis, summary of studies, and suggested Methods to address WRC agenda items

Example ITU-R Study Group Working Party Structure



ITU-R Study Group Work in the 2015 – 2019 Study Cycle

From the Report of the Director of the Radiocommunication Bureau, Sept 2019

The following numbers relate to the study period up to RA-19:

- Number of documents processed (to Sept 2019): **26,153**
- Number of pages processed (to Sept 2019): **388,677**
- Number of meetings: **177**
- Number of days on which meetings were held (block meeting days): **988**
- Average number of participants at SG and WP meetings: **108**
- Number of Recommendations approved (to Sept 2019): **200**
- Number of Reports finalized (to Sept 2019): **180**
- Number of Handbooks finalized (to Sept 2019): **6**

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Questions?