Spectrum Management Framework – Malaysian Environment

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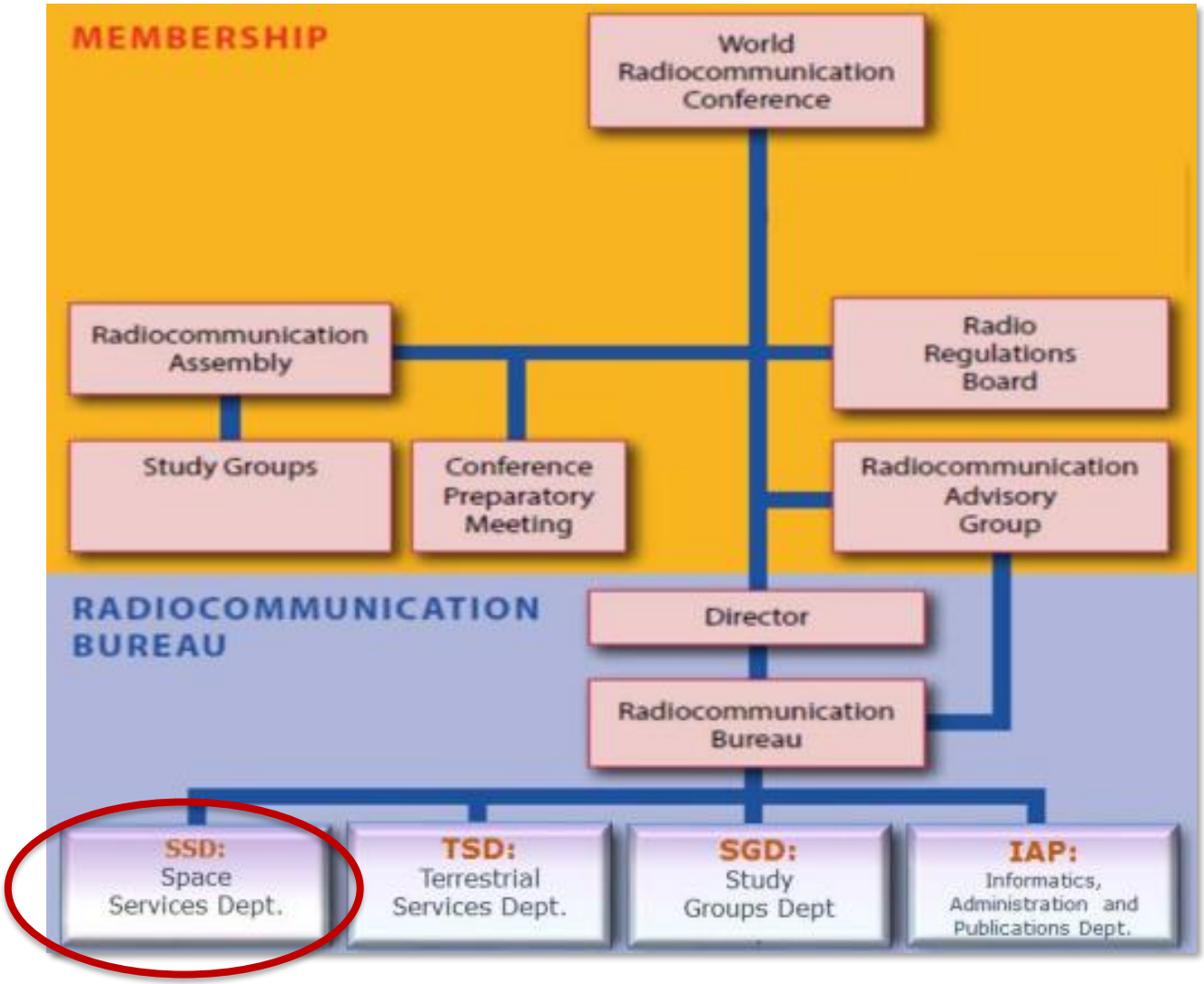
The International Telecommunications Union (ITU)

- Founded on 17 May 1865
- UN's specialized agency for information and communication technologies.
- Membership of 193 countries and almost 900 private-sector entities and academic institutions
- HQ in Geneva, Switzerland and 13 field offices (6 regional offices, 7 area offices)
- 3 main areas of activity organized in sectors: Radiocommunications (ITU-R), Standardization (ITU-T) and Development (ITU-D)
- Website: http://www.itu.int

Radiocommunication Bureau (ITU-R)



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Radiocommunication Sector (ITU-R)

- To **ensure interference-free operations** of radiocommunication systems by implementing the Radio Regulations and regional agreements, as well as updating these instruments in an efficient and timely manner through the processes of world and regional radiocommunication conferences.
- To establish Recommendations intended to **assure** the necessary **performance and quality** in operating radiocommunication systems.
- To seek ways and means to **ensure the rational, equitable, efficient and economical use** of the radio-frequency spectrum and satellite-orbit resources and to **promote flexibility for future expansion** and new technological **developments**.

Role performed through

- World and Regional Radiocommunication Conferences
- Radiocommunication Study Groups
- Radio Regulations Board
- Radiocommunication Bureau

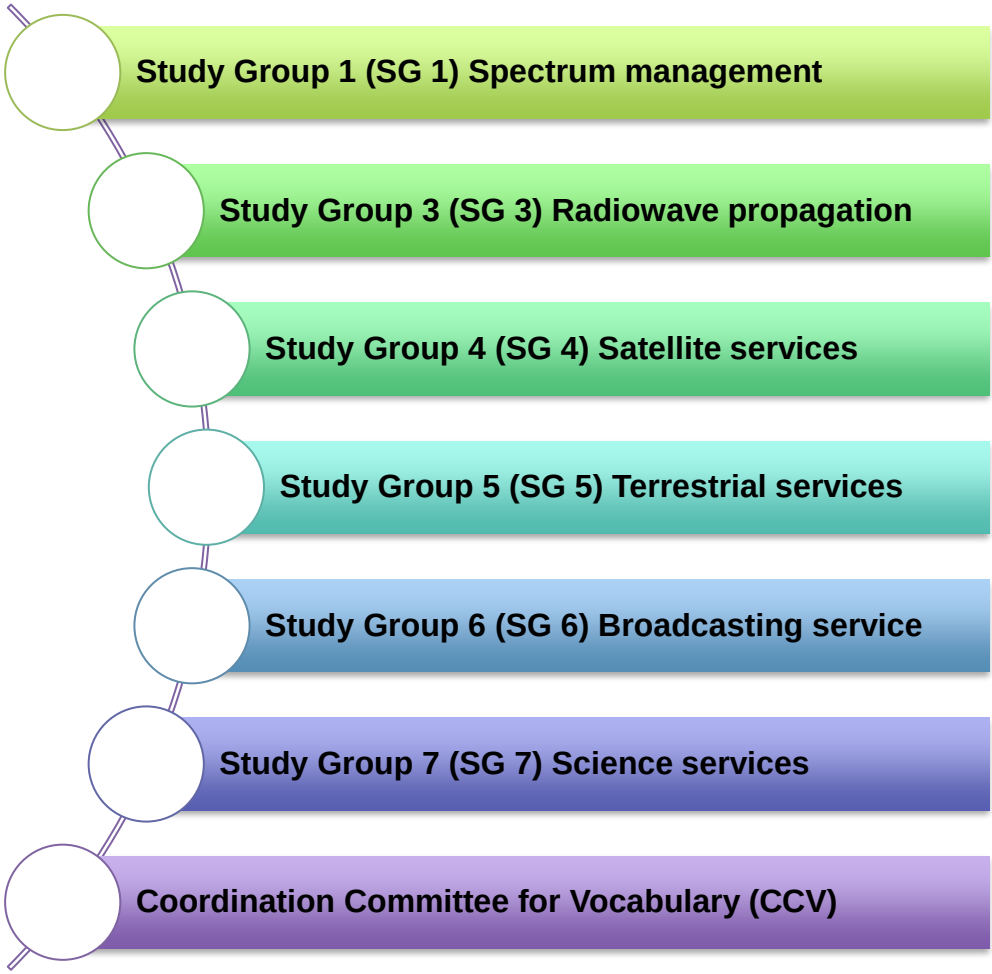
World Radiocommunication Conferences (WRC)

- Updates to the Radio Regulations (treaty status)
  - ❑ **Spectrum Allocation**
  - ❑ **Registration Procedures**
  - ❑ **Administrative & Operational Procedures**
- Adopts Resolutions
- Normally held every 4 years
- Last WRC was held in 2019. The next WRC will be held in 2023.

ITU-R Study Groups

- The ITU-R Study Groups develop the technical bases for decisions taken at WRCs and develop global standards (Recommendations), Reports and Handbooks on radiocommunication matters.
- “Standards” in areas of spectrum management and radio technology
- Result of consensus from meetings of world-wide experts
- Some referred to in RR

The current ITU SGs are:



Radio Regulations Board (RRB)

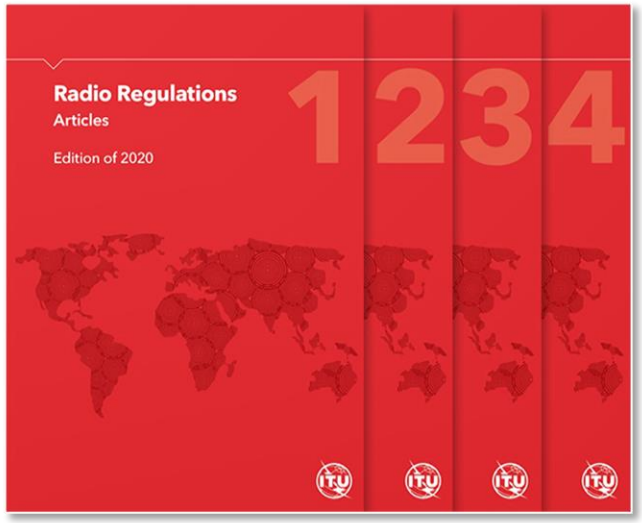
- 12 Part-time Members, elected at the Plenipotentiary Conferences
- Three meetings/year in Geneva

The Board,

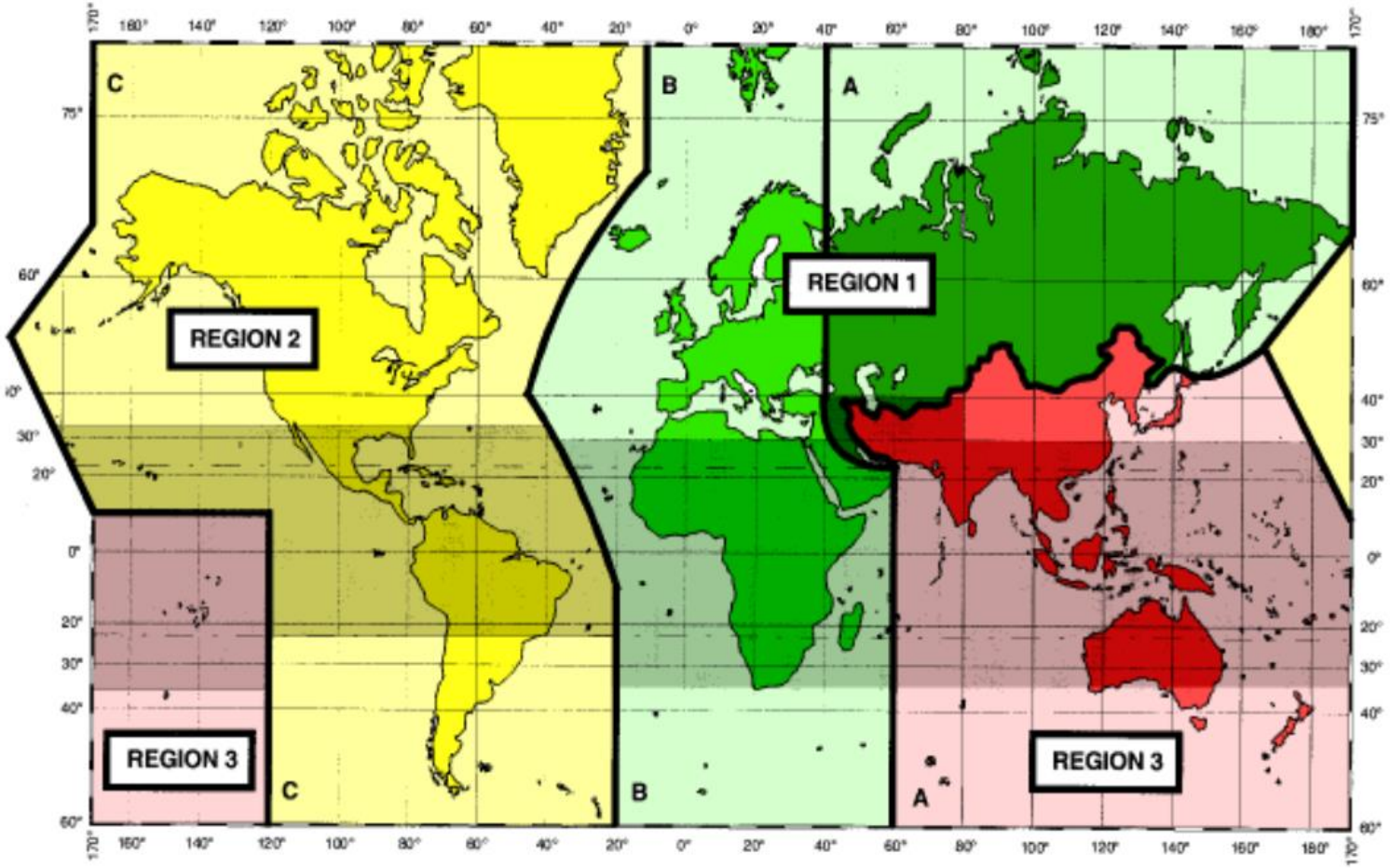
- **approves Rules of Procedure** to facilitate the application of the Radio Regulations
- **addresses matters referred by the Bureau** which cannot be resolved through application of the Radio Regulations and Rules of Procedure;
- considers **reports of unresolved interference investigations** carried out **by the Bureau at the request of one or more administrations and formulates Recommendations**;
- provides **advice to Radiocommunication Conferences** and the **Radiocommunication Assemblies**;
- **considers appeals against decisions** made **by the Radiocommunication Bureau** regarding frequency assignments;
- performs any additional duties prescribed by a competent conference or by the Council.

Radio Regulations (RR)

- The Radio Regulations (in 4 different compilations) incorporates the decisions of the World Radiocommunication Conferences, including all Articles, Appendices, Resolutions, Recommendations and ITU-R Recommendations incorporated by reference
    - Intergovernmental Treaty **governing the use of spectrum/orbit resources** by administrations
    - Define the **rights and obligations** of Administrations in respect of the use of these resources
    - Recording of a frequency assignment in the Master Register (MIFR) provides **international recognition**
- Updated every 4 years by World Radiocommunication Conferences (WRCs)
- The Radio Regulations (edition 2020) was updated after the last WRC in 2019.
- Download the RR from https://www.itu.int/pub/R-REG-RR-2020



ITU-R Regions



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Regional Spectrum Related Platforms

- Within the ITU, the global representation is divided into **six regional groups**:

Asia Pacific Telecommunity (APT)

Arab Spectrum Management Group (ASMG)

African Telecommunication Union (ATU)

European Conference of Postal and Telecommunications Administrations (CEPT)

Inter-American Telecommunication Commission (CITEL)

Regional Commonwealth in the Field of Communications (RCC)

- Within the APT (https://www.apt.int/), the key works are
  - **APT Conference Preparatory Group for World Radiocommunication Conference (APG)**
    - APG is a key activity and most important works of the APT
    - Its objective is to harmonize views and developing common proposals from the Asia-Pacific region for the World Radio Conference (WRC)
  - **APT Wireless Group (AWG)**
    - AWG carries out studies and develop outputs to facilitate the harmonization of spectrum usage, the efficient and effective deployment of radiocommunication systems, and the development of new radiocommunication technologies and applications

Spectrum Management in Malaysia

- The **Malaysian Multimedia Commission (MCMC)** is tasked to regulate and ensure use of spectrum is in accordance with the Communications and Multimedia Act 1998 (“CMA”) and the Communications and Multimedia (Spectrum) Regulations 2000. Spectrum Plan is a document developed by MCMC pursuant to section 172 of CMA.

Regulatory Framework

- Use of spectrum is regulated to ensure spectrum is efficiently used and to minimize interference. MCMC is tasked to regulate and ensure use of spectrum is in accordance with the Communications and Multimedia Act 1998 (“CMA”) and the Communications and Multimedia (Spectrum) Regulations 2000.

Communications and Multimedia Act 1998

https://www.mcmc.gov.my/legal/acts/communications-and-multimedia-act-1998-reprint-200

Communications and Multimedia (Spectrum) Regulations 2000

https://www.mcmc.gov.my/legal/acts/communications-and-multimedia-act-1998-reprint-200/communications-and-multimedia-(spectrum)-regulatio

Spectrum Plan

- Spectrum Plan is a document developed by MCMC pursuant to section 172 of CMA. It contains information on frequency allocation for various wireless services in Malaysia, international allocation of spectrum as agreed by the International Telecommunication Union (ITU) for all three ITU regions, procedures for assignment and reassignment of spectrum and general information on spectrum usage in Malaysia.

National Spectrum Plan 2022

https://www.mcmc.gov.my/skmmgovmy/media/General/MCMC-Spectrum-Plan-2022.pdf

Outcome of the World Radiocommunication Conference (WRC-19)

- WRC-19 was held in Sharm El Sheikh, Egypt from 28 October to 22 November 2019, with more than 3500 delegates from various international organizations.
- WRC-19 addressed more than 28 agenda items on regulatory and technical matters relating to fixed service, fixed-satellite service, mobile service, mobile-satellite service, radiodetermination-satellite service and broadcasting-satellite service.
- **Identification of bands for IMT was considered under WRC-19 Agenda Item1.13:**

Frequency bands identified for IMT

**facilitated through bilateral agreements for cross-border coordination*

24.25-27.5 GHz	Global identification for IMT, subject to certain limitations to protect EESS and measures to protect FSS*
37-43.5 GHz	Global identification of the whole band or portions thereof, subject to measures to protect FSS
45.5-47 GHz	Identified for IMT in countries in Region 1 & Region 3 as identified in the footnote
47.2-48.2 GHz	Identified for IMT in Region 2 and countries in Region 1 & Region 3 as identified in the footnote, subject to measures to protect FSS*
66-71 GHz	Global identification for IMT
3 400-3 500 MHz	Identified for IMT in Malaysia, Thailand, Brunei and Indonesia added to footnote 5.432B
3 500-3600 MHz	Identified for IMT in Indonesia and Brunei added to footnote 5.433A

Frequency bands considered but *not approved* for IMT

31.8-33.4 GHz, 47-47.2 GHz, 48.2-50.2 GHz, 50.4-52.6 GHz, 71-76 GHz and 81-86 GHz

- **WRC-23 Agenda Item 1.2 is considering possible allocation to IMT** in the bands 3 300-3 400 MHz (Regions 1 & 2), 3 600-3 800 MHz (Region 2), 6 425-7 025 MHz (Region 1), 7 025-7 125 MHz (globally) and 10.0-10.5 GHz (Region 2).

5G IMT in Malaysia

3 400 - 3 600 MHz

- Band is shared with Fixed Service and Fixed satellite service
- Priority is given to Mobile Service
- FSS in Malaysia to operate VSAT or Hub only

26.5 - 28.1 GHz

- Sharing between Fixed Service and Fixed satellite service (Hub)
- First come first serve basis

Unlicensed 5G band in Malaysia

- On 12 August 2021, MCMC published a consultation paper in the 6 GHz Frequency Band seeking comments with regard the possible allocation of the band 5925- 7125 GHz (1200 MHz) or portion thereof for use by Wireless Local Area Network.
- Thereafter, as the outcome of the consultation, MCMC has issued the Class Assignment No. 1 of 2022 on 19 January 2022, to update on the Class Assignment for Short Range Device (Second Schedule) to allow the use of radiocommunications devices, including WLAN applications, in the 5925 - 6425 MHz frequency band.
- *Currently some countries are using the entire of the band with power limitations for indoor and outdoor operations. US is using 850 MHz of the spectrum with standard power for Indoor utilising the Automated Frequency Coordination (AFC) technique for the interference mitigation. FCC called this spectrum as 5G NR-U " New Radio Unlicenced" band.*

Digital Nasional Berhad (DNB)

- Established on 18 Feb 2021, wholly owned by the Ministry of Finance, Malaysia
- Has license to offer 5G services via a wholesale model
- Government investing RM 10 Billion over 10 years to roll out the 5G network nationwide
- Ericson selected as National 5G Network Vendor by DNB
- Ericsson will provide vender financing for supply, delivery and management of the entire 5G networks
- DNB has secured the following spectrum for the 5G operation
    - 700 MHz band (2 x 40 MHZ) (4G operation)
    - 3400 - 3600 MHz current operation
    - 26.5 - 28.1 GHz for future operation