Spectrum management

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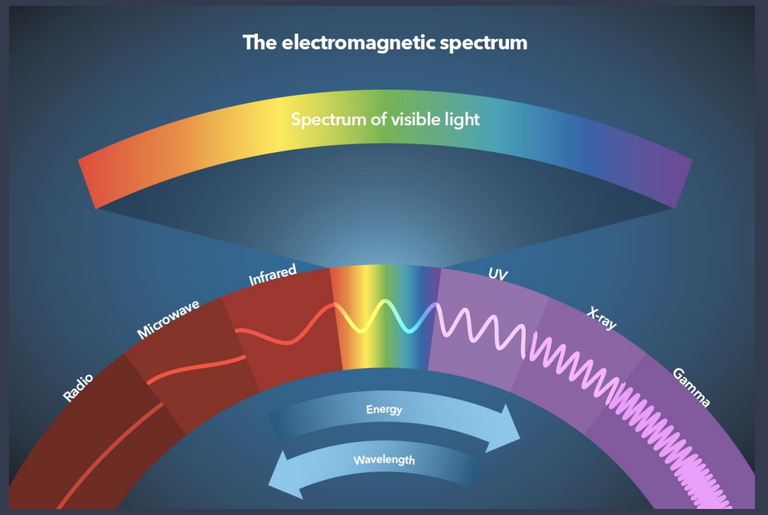
”Ask not what your country can do for you, ask what you can do for your country.”

John F. Kennedy



Ask not what spectrum can do for us, ask what we can do for spectrum and orbits.

What can spectrum do for us?

Enable new technologies and services

Deliver more content and applications

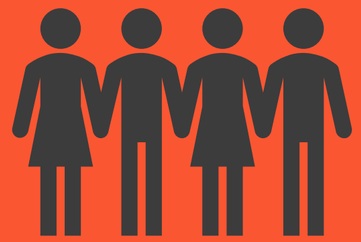
Increase capacity
Improve coverage

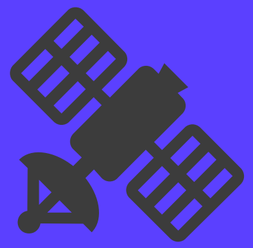
Increase reliability
Lower latency

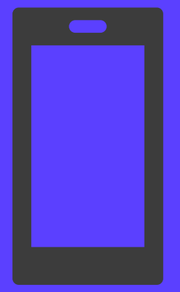
Connect more people and devices

Reduce the cost of network deployment and devices

What can we do for spectrum and orbits?







“In using frequency bands for radio services, Members shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit are **limited natural resources** and that they must be used:

Rationally

Efficiently

Economically

In conformity with the provisions of these ***(Radio)* Regulations**”

“Members shall endeavour to limit the number of frequencies and the spectrum used

to the minimum essential to provide in a satisfactory manner the necessary services.

To that end, they shall endeavour to apply the latest technical advances as soon as possible.”

Technological Advancements

5G	Massive MIMO/ Beamforming High order Modulation and Coding Scheme
Wi-Fi 6	Multi-user MIMO OFDMA 1024-QAM

Regulatory and licensing models

Licensed
Auction
First-come-first-served

Unlicensed
General Authorization

Ensure quality requirements
Reliability
Security

Dynamic spectrum access
Scalability
Cost benefit

Mobile network operators (MVNOs)
Shared spectrum
Network slicing

Industries/Verticals
Dedicated spectrum
Private localized networks

Towards WRC-23

	Region 1	Region 2	Region 3
AI 1.2 Identification of the frequency bands 3 300-3 400 (Region 2, footnote in Region1), MHz, 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) for IMT	—	—	—
AI 1.3 Primary allocation of the band **3 600-3 800 MHz to mobile service within Region 1**	—		
AI 1.5 Review the spectrum use and spectrum needs of existing services in the frequency band **470-960 MHz in Region 1** and consider possible regulatory actions in the frequency band 470-694 MHz	—		

We believe in a shared journey so that all may benefit from global regulations and standards.

Thank you

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