

ICAO

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IFATSEA
International Federation of Air Traffic Safety Electronics Associations

AIR NAVIGATION WORLD

COMMUNICATIONS, NAVIGATION, SURVEILLANCE, AND SPECTRUM

CNSS 2026

12 - 15 October | Kotor, Montenegro

Session 17: Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

Spectrum Stream
Day 4

Ms. Mie Utsunomiya



Ms. Mie Utsunomiya has been working as a CNS Technical Officer of ICAO HQ since 2011.

Since April 2024, she has been working as the Secretary of the Frequency Spectrum Management Panel (FSMP), which was established in 2015 to manage aeronautical frequency spectrum in order to ensure sufficient access to the resource for the provision of aeronautical communication, navigation and surveillance services (CNS) in an efficient and safe manner.



Scan the QR code to join Slido ask questions, and participate in interactive activities

Aviation Safety Depends on CNS and Spectrum

- About 100.000 flights take off and land every day without any incidents around the world

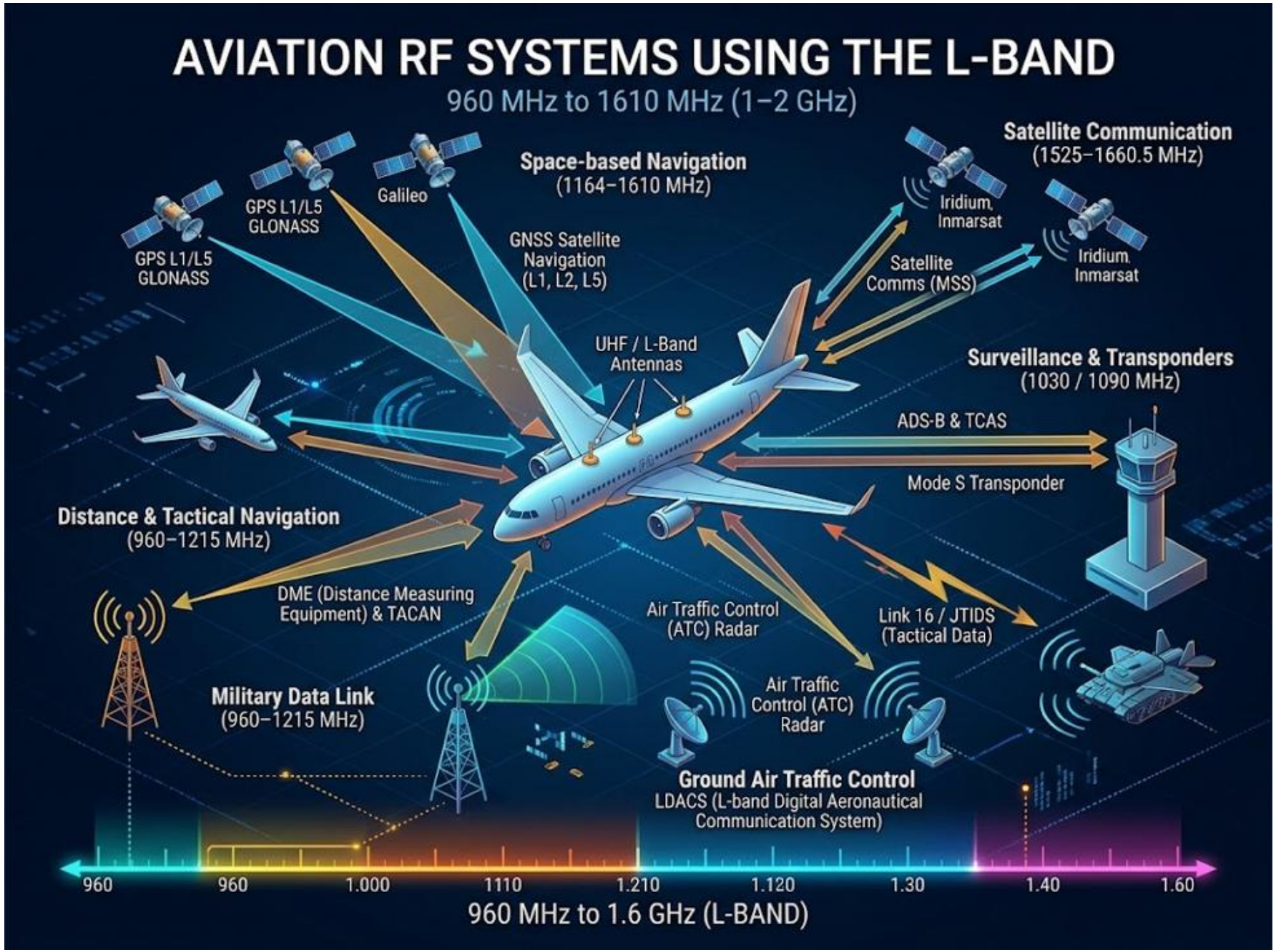
- Aviation maintains its exceptional safety through a globally coordinated approach **supported by CNS systems — all of which rely on access to protected radio-frequency spectrum**

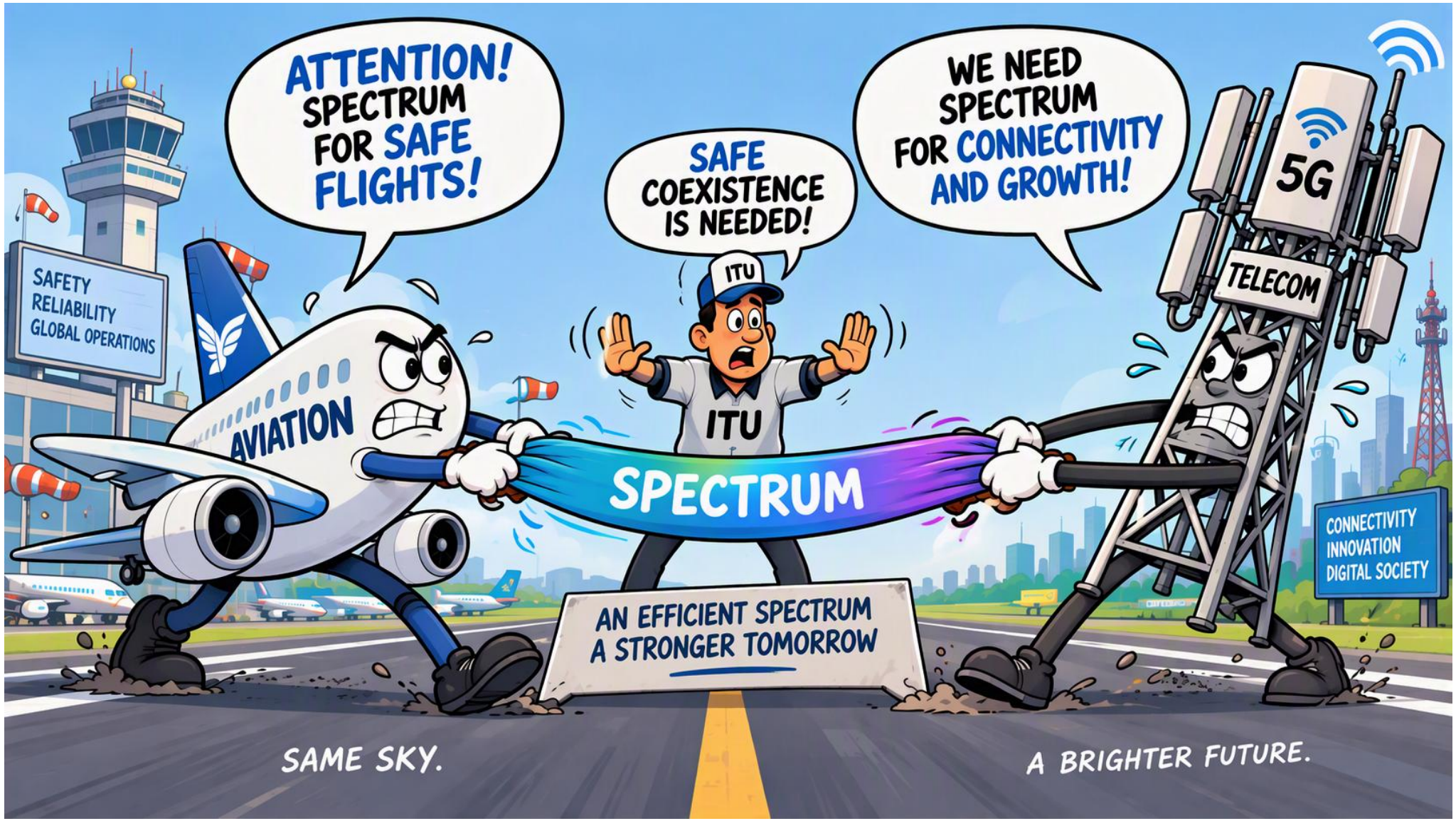




Modern Aircraft: Fully Dependent on Safety Spectrum




AVIATION RF SYSTEMS USING THE L-BAND
960 MHz to 1610 MHz (1–2 GHz)
Space-based Navigation
(1164–1610 MHz)
GPS L1/L5
GLONASS
Galileo
GPS L1/L5
GLONASS
GNSS Satellite
Navigation
(L1, L2, L5)
Satellite Communication
(1525–1660.5 MHz)
Iridium
Inmarsat
Iridium
Inmarsat
Satellite
Comms (MSS)
UHF / L-Band
Antennas
Surveillance & Transponders
(1030 / 1090 MHz)
ADS-B & TCAS
Mode S Transponder
Distance & Tactical Navigation
(960–1215 MHz)
DME (Distance Measuring
Equipment) & TACAN
Air Traffic Control
(ATC) Radar
Link 16 / JTIDS
(Tactical Data)
Military Data Link
(960–1215 MHz)
Air Traffic
Control (ATC)
Radar
Ground Air Traffic Control
LDACS (L-band Digital Aeronautical
Communication System)
960
960
1.000
1110
1.210
1.120
1.30
1.40
1.60
960 MHz to 1.6 GHz (L-BAND)


ATTENTION! SPECTRUM FOR SAFE FLIGHTS!
SAFE COEXISTENCE IS NEEDED!
WE NEED SPECTRUM FOR CONNECTIVITY AND GROWTH!
SAFETY
RELIABILITY
GLOBAL OPERATIONS
AVIATION
ITU
ITU
SPECTRUM
5G
TELECOM
CONNECTIVITY
INNOVATION
DIGITAL SOCIETY
AN EFFICIENT SPECTRUM
A STRONGER TOMORROW
SAME SKY.
A BRIGHTER FUTURE.

Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum



Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

- Spectrum demand is growing, increasing pressure on aviation spectrum resources.
- Expanding non-safety services are contributing to congestion, capacity challenges, and concerns over system resilience, while growing expectations to use non-safety spectrum for safety-related functions are adding complexity and uncertainty to an already constrained environment.
- Protecting aviation safety spectrum is now both a technical and strategic imperative, requiring a careful balance between innovation, access, and the protection of safety-critical aviation systems.

Session Aims:

- Today's panel brings together experts from radio regulatory authorities, industry, and civil aviation authorities to discuss spectrum management principles, the ITU Radio Regulations and WRC process, the importance of protected safety spectrum, and the growing challenge of balancing safety, innovation, and access in an increasingly congested spectrum environment.

Mr. Elvis Babačić



Mr. Elvis Babačić is an expert in the field of radio frequency spectrum management. During more than 20 years of work engagement in the national regulatory body for electronic communications, he worked on the most significant projects in the field of strategic planning, coordination and allocation of radio frequencies for mobile communication networks and participated in a series of processes in the field of RF spectrum management and regulation of electronic communications in general.

He gained knowledge and experience in the field of strategic RF spectrum planning, radio frequency allocation methods, spectrum market valuation models, industrial and regulatory trends in wireless communications and in general in the field of telecommunications at numerous conferences, workshops and trainings organized by ITU, CEPT, BEREC, IRG and others.

Dr. Juliane Iten



Dr. Juliane Iten is a Spectrum Management Specialist at the Swiss Federal Office of Communications (OFCOM).

With over 16 years of experience in frequency planning and spectrum regulation, she has worked extensively on national and international spectrum management issues, including aeronautical, satellite, and emerging wireless technologies.

She previously led Switzerland's preparations for satellite-related agenda items at World Radiocommunication Conferences (WRCs) and managed satellite filing and coordination activities.

Currently, she serves as Vice-Chair of the CEPT Working Group on Frequency Management (WG FM), where she contributes to European spectrum policy, harmonization, and regulatory initiatives.

Ms. Biljana Milošević



Ms. Biljana Milošević is a telecommunications engineer, Compliance Monitoring Manager at the Civil Aviation Agency of Montenegro, and Montenegro's National Frequency Manager. She brings more than two decades of experience across mobile telecommunications and civil aviation, combining technical expertise in radio networks and spectrum management with extensive experience in regulatory oversight and safety assurance. Her technical and regulatory experience includes assessing the safety, reliability and performance of communication, navigation and surveillance (CNS) systems, overseeing technical changes, and coordinating aeronautical frequency planning and protection. She participates in the ICAO Frequency Management Group (FMG) and EUROCONTROL's RAFT.

Previously, she headed the Radio Network Optimisation at T-Mobile Montenegro, with responsibilities spanning radio network and frequency planning of new technologies. Her combined industry and regulatory background provides a broad perspective on spectrum efficiency and the protection of aviation safety systems, as well as the integration of spectrum considerations, interoperability and safety requirements into the development and introduction of new technologies.

Mr. Alex Holt



Mr. Alex Holt is an experienced aviation professional with over 20 years of experience in the aviation industry. An aerospace engineer with a background in air traffic radar, avionics and satellite communications, and a proven track record of delivering on market growth through business development and marketing initiatives.

He is a key figure in Viasat's regional expansion covering the EMEA region for Iris datalink and connected flight deck thanks to his expertise in navigating the complex aviation ecosystem with key stakeholders such as space agencies, regulators, ANSPs and airlines.

As a speaker, he brings deep industry knowledge and practical insights to the stage, engaging audiences with data-driven analysis and real-world examples.

Mr. Christian Fleury



Mr. Christian Fleury is an Air Safety Electronic Systems Engineer (ENAC Class of 1991) working for the French Air Navigation Service Provider (DSNA).

He began his career in Northern France, focusing primarily on the management of ground-based radio navigation aids, before gaining experience across a wide range of areas within the vast airspace of French Polynesia.

He is now based in Toulouse, where he has served as the Spectrum Manager for over ten years.

He has the privilege of representing France on the ICAO Frequency Spectrum Management Panel (FSMP) since its establishment in 2015, and since 2023 he has been honoured to serve as vice-chair.

Audience Interaction and Discussion

Poll Questions for Session 17

1) How many volumes does ICAO Annex 10 contain?

- ☐ 3 volumes
- ☐ 4 volumes
- ☐ 5 volumes
- ☑ 6 volumes
- ☐ 7 volumes

Audience Interaction and Discussion

Poll Questions for Session 17

2) Which volume(s) of ICAO Annex 10 are most critical for aircraft operations?

- ☐ Volume I
- ☐ Volume II
- ☐ Volume III
- ☐ Volume IV
- ☐ Volume V
- ☐ Volume VI
- ☑ All Volumes

Please add discussion questions to Slido

Session 17

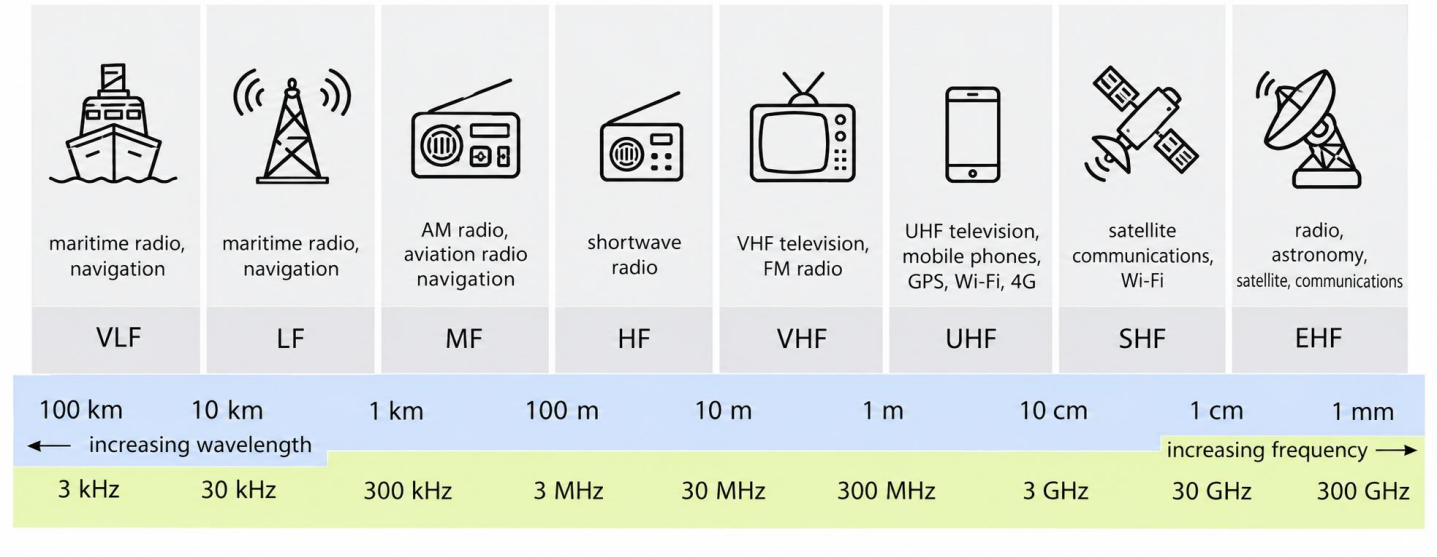
Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

Spectrum management in general

Elvis Babačić,
EKIP Montenegro

What is radio spectrum?

- **Radio spectrum** is the part of the electromagnetic spectrum with frequencies bellow **3,000 GHz** that can propagate through space and be used for signal transmission wirelessly.
- Radio spectrum is **shared** and **limited natural resource**.
- All radiocommunication systems **need a portion** (a frequency band) of the radio spectrum.
- **Hardly enough room** for everyone – decision which frequency band will be allocated for which service/application includes **both regulatory and political elements**.
- **Coordination** is complex but needed in order to:
  - ensure the availability and integrity of all services,
  - ensure the protection of some services,
  - support the integration of new services.

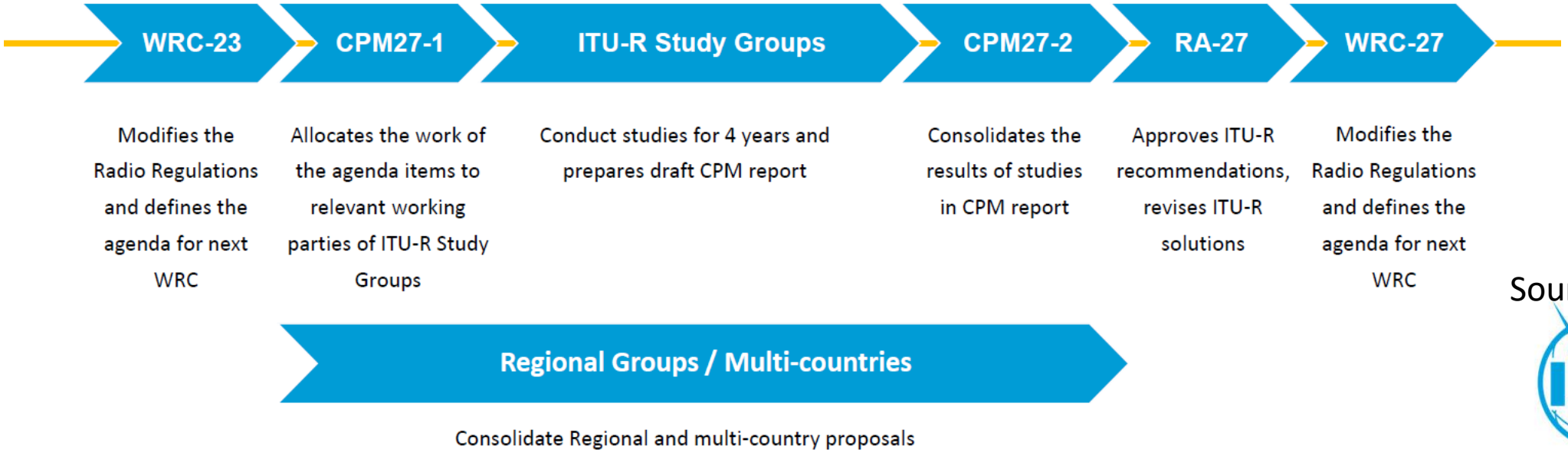


Need for international regulation (ITU-R)

- Spectrum cannot be limited to a given territory - **International coordination/regulation** is necessary to ensure:
  - **rational**, **efficient** and **economical use** of the RF spectrum resources, with equitable access for all countries,
  - **interoperability** and operations of radiocommunication systems **free of harmful interference,**
  - **necessary performance and quality** in operating radiocommunication systems,
  - **regulatory certainty** for trillions of dollars of combined investment and economic activity that play an increasingly important role in the development of our societies.
- Key role in **international spectrum managment** belongs to the **Radiocommunication Sector** of the **International Telecommunication Union (ITU-R)**.
- **ITU-R:** Development of regulations and best practices for the regional and international use of radio spectrum and satellite orbits - 194 member states, 327 private sector organisations, 169 academia members.

World Radiocommunication Conference (WRC)

- The highest level of spectrum management takes place at the ITU World Radiocommunication Conferences (WRC), held every four years. WRC-27 will be held in **Shanghai, China, 18 October-12 November 2027.**
- **Main purpose:** To revise the Radio Regulations (RR); To address Radiocommunication issues of a worldwide character.



Source: ITU

- **Only ITU Memeber States has the right to participate in decision-making at the WRC.**
- International organisations like IMO and ICAO **have no authority over the ITU.**

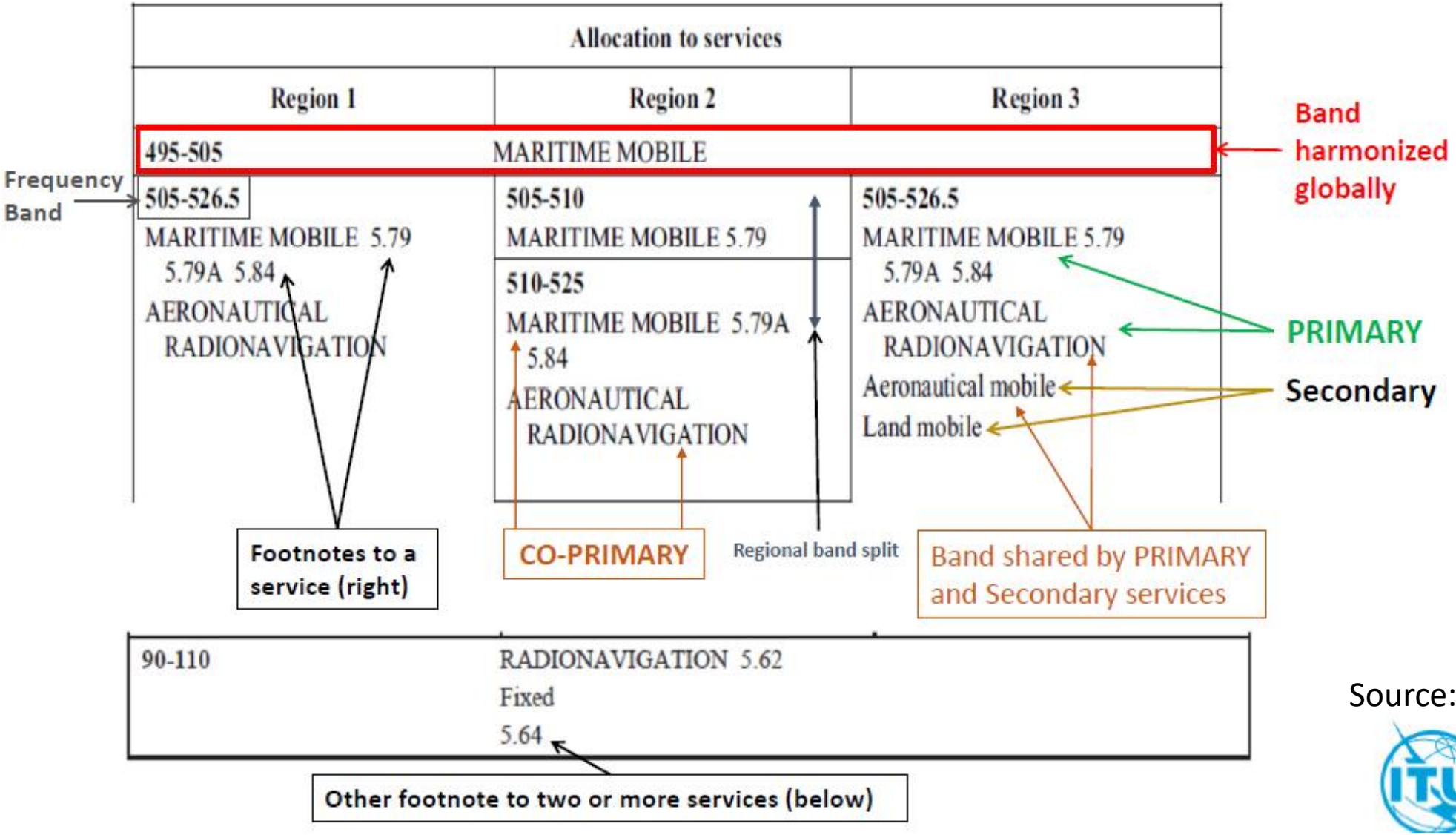
ITU Radio Regulations (RR)

❑ Radio Regulations (RR) - Last version: RR-25 (as revised during WRC-23)

- Includes allocation of the frequency bands to radiocommunication services (Article 5 - Table of frequency allocations),
- International Treaty,
- **Elaborated and revised by the ITU Member States during WRC,**
- RR has a **binding nature** for ITU Member states.
  - ➢ Facilitate equitable access to and rational use of the radio frequency spectrum and the geostationary orbit,
  - ➢ Ensure availability and protection from harmful interference of frequencies for distress and safety purposes,
  - ➢ Assist in prevention and resolution of cases of harmful interference,
  - ➢ Facilitate efficient and effective operation of radiocommunications services,
  - ➢ Provide for, and regulate new applications of telecommunications technology.



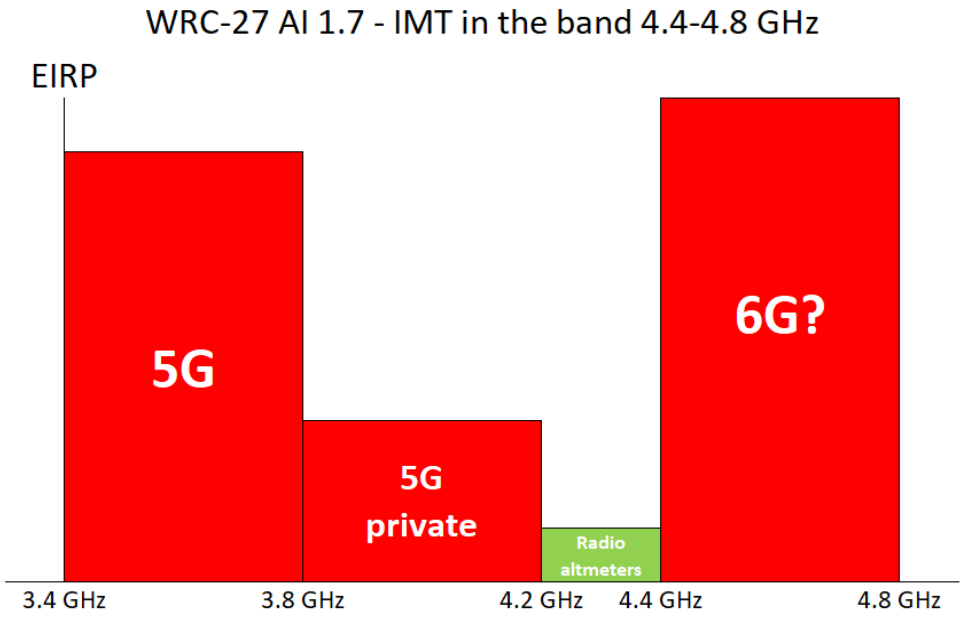
Article 5 of RR - Table of frequency allocations



Source: ITU

WRC-27 Agenda Items important for civil aviation

AI 1.7 to consider studies on sharing and compatibility and develop technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands, in accordance with Resolution 256 (WRC-23)



AI 1.9 to consider appropriate regulatory actions to update Appendix 26 to the Radio Regulations in support of aeronautical mobile (OR) high frequency modernization, in accordance with Resolution 411 (WRC-23)

AI 1.19 to consider possible primary allocations in all Regions to the Earth exploration-satellite service (passive) in the frequency bands 4 200-4 400 MHz and 8 400-8 500 MHz, in accordance with Resolution 674 (WRC-23)

Why is important to participate at WRC?

- ITU Radio Regulations update cycle is a **very competitive environment**.
- **Participation at WRC is important:**
  - To protect existing services
  - To obtain access to spectrum for new services
  - To enhance spectrum access for existing services
  - To facilitate market access for radio equipment manufacturers
  - To provide regulatory certainty to operators.
- **Any sector or user cannot expect preferential treatment.**
- Decision how to use certain frequency band is made by Member States after **coordination** and **negotations** at national, regional and global level and balacing between social and economical needs, taking into acount results of technical studes.



Source: ITU

Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

A Radio Regulator Perspective

Juliane Iten
Swiss Federal Office of Communications
(OFCOM)

How Does the RR Address Safety?

Radio Regulations Framework

RR No. 1.59

Safety Service

What is a safety service?

↓

RR No. 4.10

Protection Principle

How should safety services be protected?

↓

Article 5

Frequency Allocations

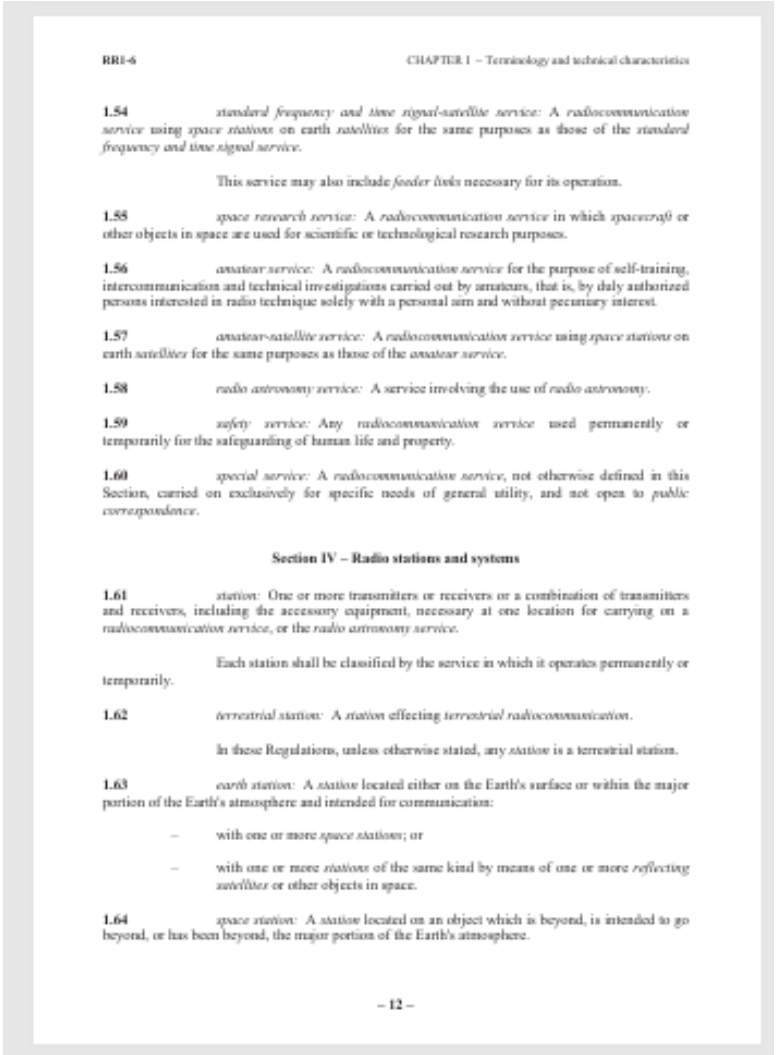
Where do safety services operate?



RR No. 1.59

Safety Service

“Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property.”



RR1-6 CHAPTER I – Terminology and technical characteristics

1.54 *standard frequency and time signal-satellite service:* A *radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *standard frequency and time signal service*.

This service may also include *feeder links* necessary for its operation.

1.55 *space research service:* A *radiocommunication service* in which *spacecraft* or other objects in space are used for scientific or technological research purposes.

1.56 *amateur service:* A *radiocommunication service* for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

1.57 *amateur-satellite service:* A *radiocommunication service* using *space stations* on earth *satellites* for the same purposes as those of the *amateur service*.

1.58 *radio astronomy service:* A service involving the use of *radio astronomy*.

1.59 *safety service:* Any *radiocommunication service* used permanently or temporarily for the safeguarding of human life and property.

1.60 *special service:* A *radiocommunication service*, not otherwise defined in this Section, carried on exclusively for specific needs of general utility, and not open to *public correspondence*.

Section IV – Radio stations and systems

1.61 *station:* One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a *radiocommunication service*, or the *radio astronomy service*.

Each station shall be classified by the service in which it operates permanently or temporarily.

1.62 *terrestrial station:* A *station* effecting *terrestrial radiocommunication*.

In these Regulations, unless otherwise stated, any *station* is a terrestrial station.

1.63 *earth station:* A *station* located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication:

– with one or more *space stations*; or

– with one or more *stations* of the same kind by means of one or more *reflecting satellites* or other objects in space.

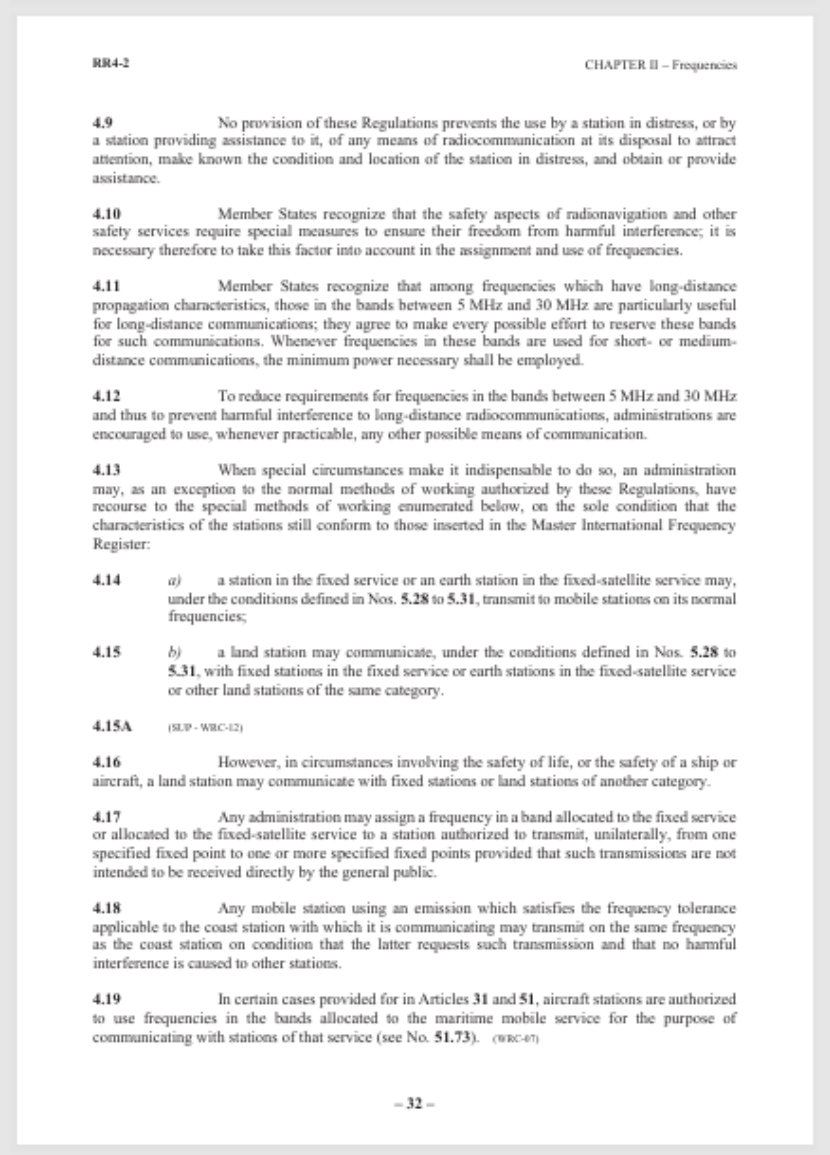
1.64 *space station:* A *station* located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.

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RR No. 4.10

How Are Safety Services Protected?

"Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference..."



RR4-2 CHAPTER II – Frequencies

4.9 No provision of these Regulations prevents the use by a station in distress, or by a station providing assistance to it, of any means of radiocommunication at its disposal to attract attention, make known the condition and location of the station in distress, and obtain or provide assistance.

4.10 Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies.

4.11 Member States recognize that among frequencies which have long-distance propagation characteristics, those in the bands between 5 MHz and 30 MHz are particularly useful for long-distance communications; they agree to make every possible effort to reserve these bands for such communications. Whenever frequencies in these bands are used for short- or medium-distance communications, the minimum power necessary shall be employed.

4.12 To reduce requirements for frequencies in the bands between 5 MHz and 30 MHz and thus to prevent harmful interference to long-distance radiocommunications, administrations are encouraged to use, whenever practicable, any other possible means of communication.

4.13 When special circumstances make it indispensable to do so, an administration may, as an exception to the normal methods of working authorized by these Regulations, have recourse to the special methods of working enumerated below, on the sole condition that the characteristics of the stations still conform to those inserted in the Master International Frequency Register:

4.14 *a)* a station in the fixed service or an earth station in the fixed-satellite service may, under the conditions defined in Nos. **5.28** to **5.31**, transmit to mobile stations on its normal frequencies;

4.15 *b)* a land station may communicate, under the conditions defined in Nos. **5.28** to **5.31**, with fixed stations in the fixed service or earth stations in the fixed-satellite service or other land stations of the same category.

4.15A (SUP - WRC-12)

4.16 However, in circumstances involving the safety of life, or the safety of a ship or aircraft, a land station may communicate with fixed stations or land stations of another category.

4.17 Any administration may assign a frequency in a band allocated to the fixed service or allocated to the fixed-satellite service to a station authorized to transmit, unilaterally, from one specified fixed point to one or more specified fixed points provided that such transmissions are not intended to be received directly by the general public.

4.18 Any mobile station using an emission which satisfies the frequency tolerance applicable to the coast station with which it is communicating may transmit on the same frequency as the coast station on condition that the latter requests such transmission and that no harmful interference is caused to other stations.

4.19 In certain cases provided for in Articles **31** and **51**, aircraft stations are authorized to use frequencies in the bands allocated to the maritime mobile service for the purpose of communicating with stations of that service (see No. **51.73**). (WRC-07)

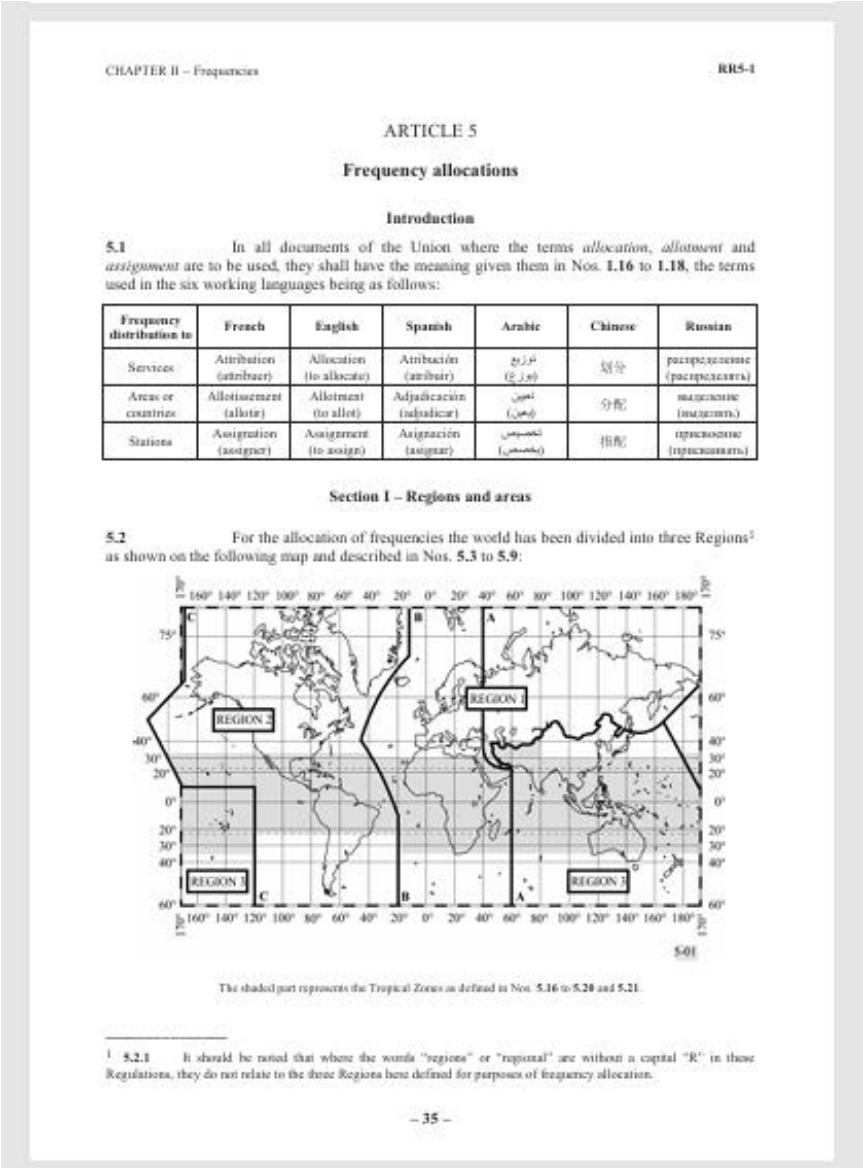
– 32 –

Article 5

Where Do Aviation Safety Services Operate?

Examples of aeronautical safety-related services:

- ✈ Aeronautical Mobile (R) Service (AM(R)S)
- Aeronautical Mobile-Satellite (R) Service (AMS(R)S)
- Aeronautical Radionavigation Service (ARNS)
- Radionavigation-Satellite Service (RNSS)



CHAPTER II – Frequencies RR5-1

ARTICLE 5

Frequency allocations

Introduction

5.1 In all documents of the Union where the terms *allocation*, *allotment* and *assignment* are to be used, they shall have the meaning given them in Nos. **1.16** to **1.18**, the terms used in the six working languages being as follows:

Frequency distribution to	French	English	Spanish	Arabic	Chinese	Russian
Services	Attribution (attribuer)	Allocation (to allocate)	Atribución (atribuir)	توزيع (توزع)	划分	распределение (распределять)
Areas or countries	Allotissement (allotir)	Allotment (to allot)	Adjudicación (adjudicar)	تعيين (يعين)	分配	выделение (выделять)
Stations	Assignation (assigner)	Assignment (to assign)	Asignación (asignar)	تخصيص (يخصص)	指配	присвоение (присваивать)

Section I – Regions and areas

5.2 For the allocation of frequencies the world has been divided into three Regions[1] as shown on the following map and described in Nos. **5.3** to **5.9**:

The shaded part represents the Tropical Zones as defined in Nos. **5.16** to **5.20** and **5.21**.

[1] **5.2.1** It should be noted that where the words "regions" or "regional" are written with a capital "R" in these Regulations, they do not relate to the three Regions here defined for purposes of frequency allocation.

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Non-Safety Spectrum for Safety Systems?

Traditional Model

Safety Service

+

RR No. 4.10 Protection

+

Article 5 Allocations

Emerging Model

Safety Function

↓

Different Spectrum Solutions

Looking Ahead

Key Reflections

- Protected aviation spectrum will remain a cornerstone of aviation safety.
- New technologies may offer complementary capabilities and greater flexibility.
- Some future safety-critical functions may rely on spectrum outside traditional aviation allocations.
- The transition of aviation systems requires stability, long-term planning and international harmonization.
- Any future evolution must maintain the level of protection required for safety-critical aviation functions.

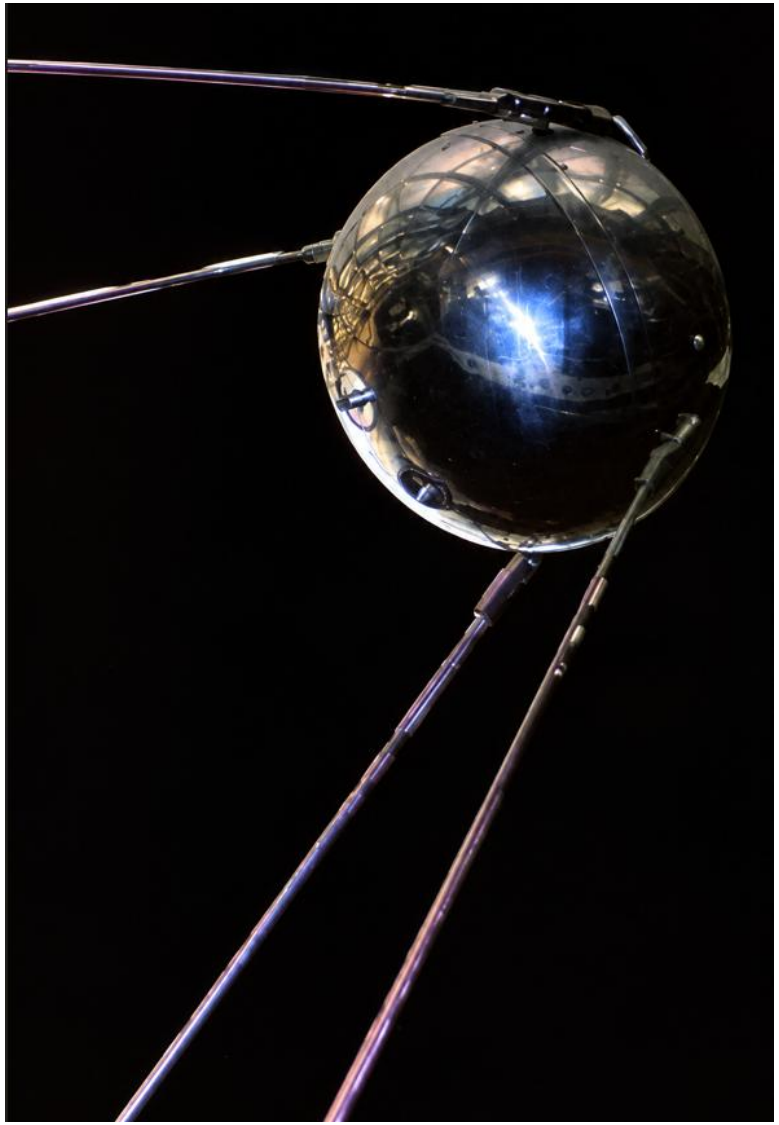
Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

Crowded orbits in a congested spectrum

Biljana Milosevic
Civil Aviation Agency Montenegro

Crowded orbits in a congested spectrum



Artificial satellites above our head

- 1957 : Sputnik 1, first artificial satellite
- 1962 : Telstar first telecommunications satellite
- 1990 : 500 satellites
- 2010 : 1000 satellites
- 2018 : more than 2000
- 2019 : first Starlink satellite, since at least 6,700 are
- over our heads, with the objective of 12,000
- Sept 2024 : 10,345
- June 2026 : 15711
- And more mega-constellations are expected

Over 33,000 objects catalogued

(including inactive payloads, discarded rocket stages and space debris)

Satellite growth and aviation safety

How do we maintain protection as satellite services grow?

Orbital congestion

Physical separation, collision risks and space debris

Spectrum congestion

Frequency use, system compatibility and protection from interference

Radiofrequency impact depends on how systems operate together.

Lessons from introducing new services

Digital dividend

Digital TV released spectrum for new services.
Careful planning helped protect existing users.

C-band 5G and aircraft radio altimeters

Compatibility assessment needs to happen before new services enter operation.

Innovation and protection need to develop together.

Suitability for safety functions

Passenger internet and flight safety communications have different requirements.

How reliably does the service perform?

What happens when the connection fails?

What backup is available?

Safety use requires evidence of performance and protection.

Protection in daily operations

Coordination and oversight need to keep pace with growth

Early coordination between aviation and other sectors

Interference monitoring and prompt resolution

Clear responsibilities when performance decreases

For Montenegro, regional and international cooperation is essential. Radio interference crosses borders.

Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

Alex Holt
Regional Business Development Manager (EMEA)
Viasat

35 years providing safety services before, during and after flights.

Oceanic and remote

- Surveillance / position reporting (ADS-C)
- Communications between ATC and pilot (CPDLC)

Operational (but still safety?)

- Sending and receiving weather
- Medilink
- SWIM & EFB applications



Domestic

- ‘Iris’ satcom - dual-link with VDL
- Enabling Trajectory Based Operations

Our resilient L-band also supports

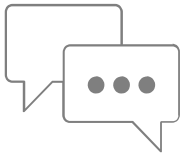
- Government and head of state aircraft
- Maritime safety communications
- Uncrewed air vehicles & drones

The benefits observed from safety satcom



FANS 1/a reduced separation

- Fuel and navigation savings
- New routes launched
- Increased airspace capacity



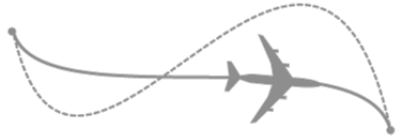
Reduced Pilot / ATC workload

- Automates routine exchanges
- Reduces miscommunication and readback errors



Satcom Voice

- Free of charge distress calls
- Rapid exchange of data in flight
- Better handling of potentially disruptive incidents



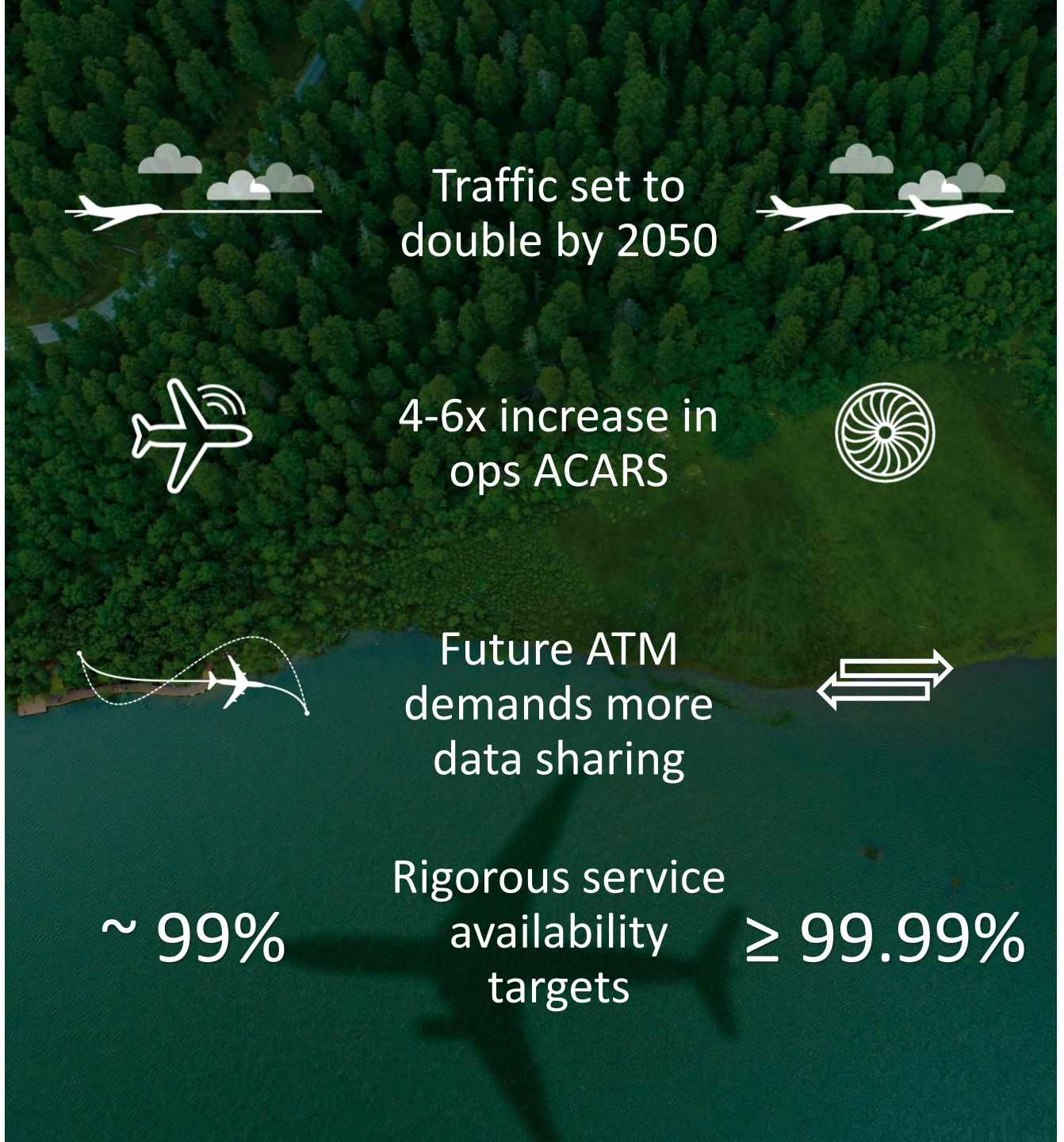
Trajectory Based Operations

- Need to accommodate increasing airspace volumes
- Estimated to deliver 8-10% fuel savings in European airspace

Viasat

Addressing aviation's communication challenges

All while improving resilience and efficiency



Cybersecurity

ATM communications must also consider cybersecurity and network priority



PKI and IPSEC VPN



Segregation of aircraft domains ACD and AISD



Safety services always take priority

Evolution | Doing more with what we have

CLASSIC AERO

Communication and Surveillance over non-VHF coverage areas

CPDLC / ADS-C
SATVOICE
AOC ACARS



10.5
Kbps

SWIFTBROADBAND SAFETY (SB-S)

CPDLC / ADS-C
SATVOICE
AOC ACARS

IP & PKI
Operations

Electronic
Flight Bag

Engine and
airframe data

Flight Data
Recovery

Future Air Traffic
Services

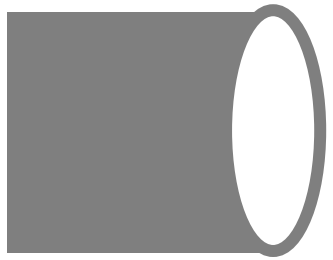


432
Kbps

+SECURITY

+QoS
ROUTING
POLICIES

NEXT GENERATION L-BAND



?
Mbps

Safety spectrum is a valuable asset to the aviation industry.

Protecting it requires a continued investment and commitment to its use

Session 17

Non-Safety Spectrum for Safety Systems? Implications of the Aviation Safety Spectrum

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Non-Safety Spectrum for Safety Systems?
Implications of the Aviation Safety Spectrum

01 Spectrum



02 Analogy



03 Spectrum Under Pressure



04 keystone of CNS



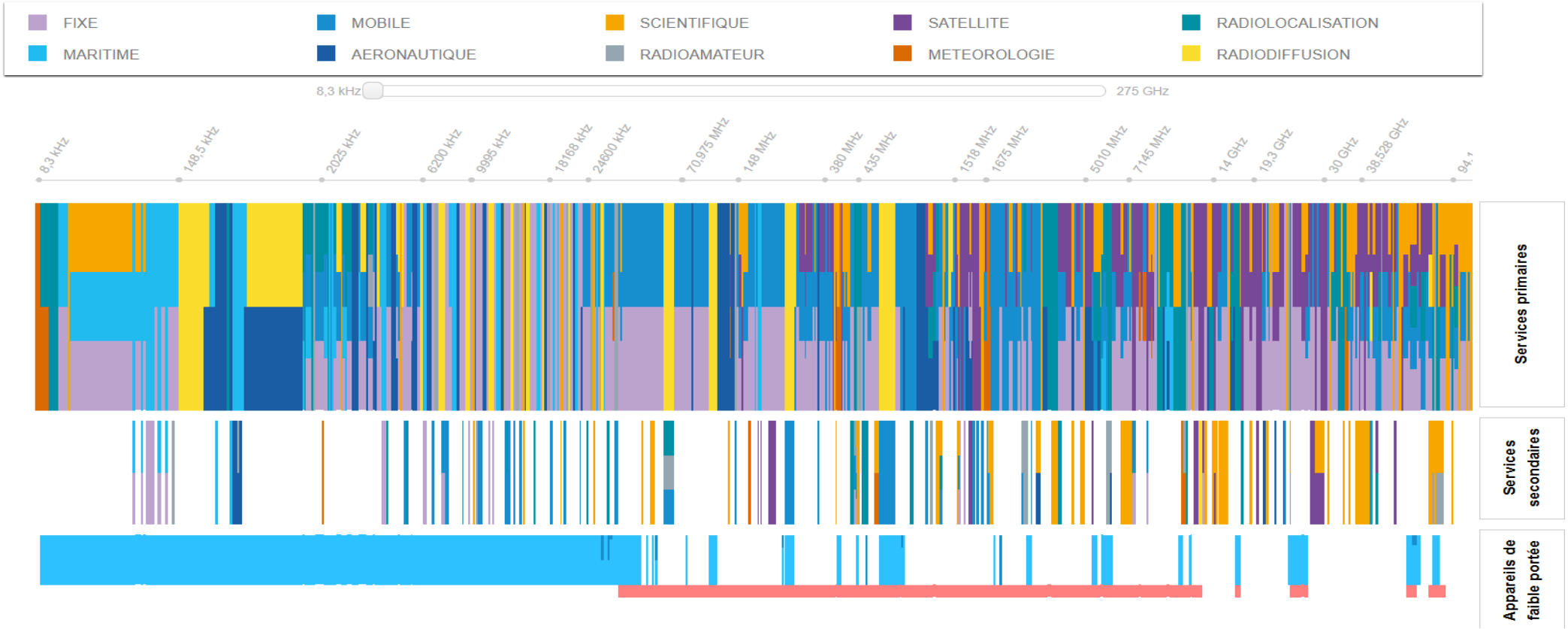
05 Safety versus Non-Safety



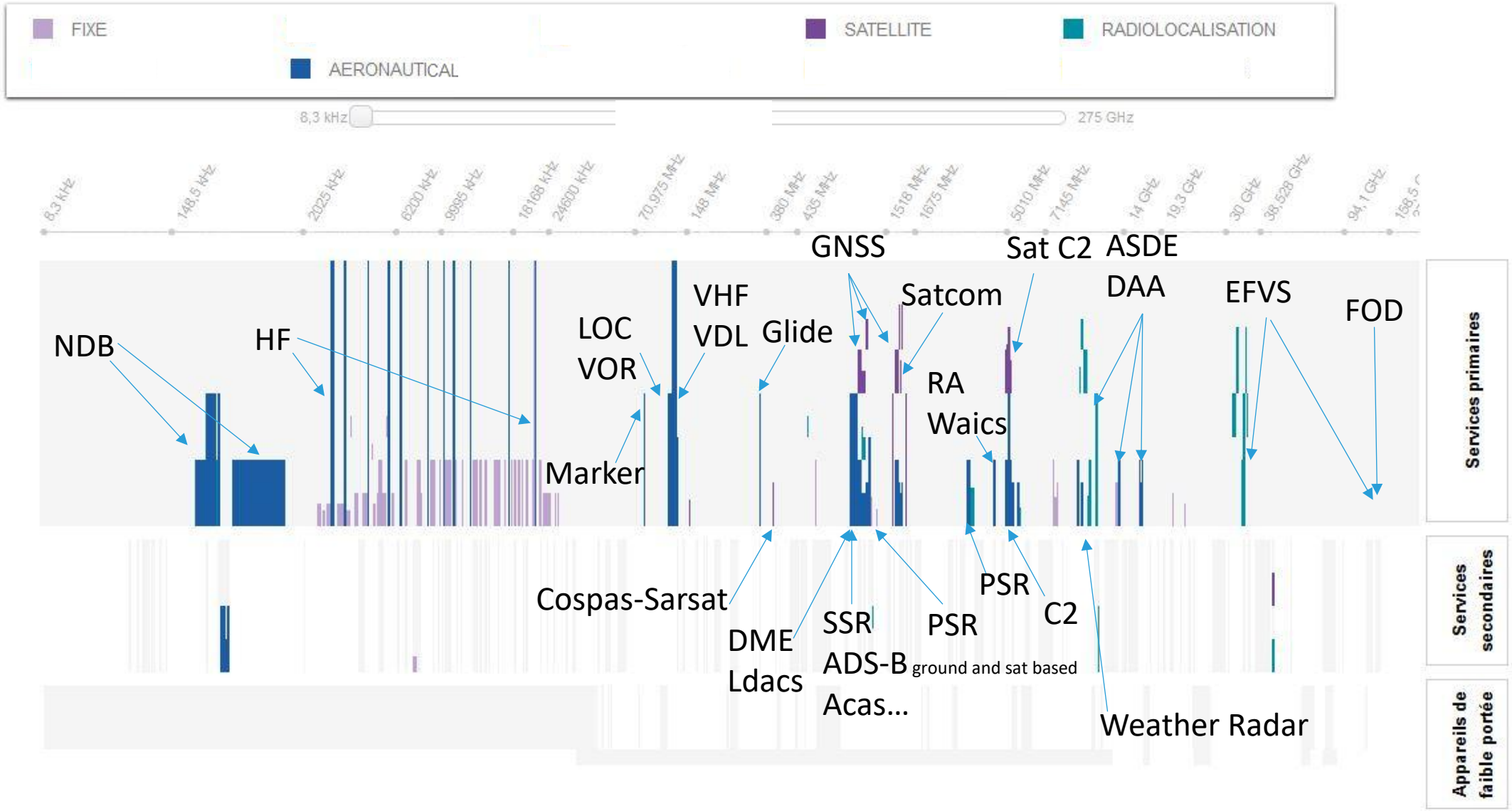
06 What are the risks?



01 Is the “Spectrum eye chart” a work of abstract art?



The “Aviation Spectrum Usage”



02 Spectrum is like a beach



Around the 80s



Now



Could be polluted



Could be Well-organized



subject to the agreement of the various users



those who are on special treatment



03 The Radio Spectrum Under Pressure

- Growth of terrestrial and satellite wireless communications and related digital services
- Increasing number of spectrum users
- Growing congestion in certain frequency bands
- Domino effect on other bands
- This limited resource has become strategic.

04 The Spectrum keystone of CNS



- The Spectrum is the Keystone enabling all Communications, Navigation, and Surveillance systems.
- Without Spectrum : No more
  - Rnav (GNSS, ILS, VOR, DME, NDB)
  - Radar (SSR, PSR, airborne radar)
  - Any aeronautical communication (ATC, OPC,ADS-B,ACAS/TCAS etc)
  - Weather forecast.

Advantage / Disadvantage

Safety frequency bands	Non-safety frequency bands
High cost due to limited number of users	Low cost due to mass market
Used by dated systems/technology	High speed of innovation
Capacity limit reached?	High data rate, capacity
Globally harmonized dedicated spectrum	Not necessarily harmonized globally
Specific regulatory protection	ITU heterogeneous rule
Mainly exclusive spectrum	Strong push to gain or share frequency band access
Low likelihood of interference	No control over sustainability
Priority given to service continuity	No priority
Recognition of the criticality of use	ESIMs shall not be used or relied upon for safety-of-life applications
Other?	Other?



06 What are the risks for aviation?

- **Is it in accordance with the RR to use non-safety bands for safety applications?**
- **If the aviation industry is acting in this way, can we justify maintaining a dedicated safety spectrum or continue to expect preferential treatment?**
- **How can the economic viability of safety band operators be guaranteed?**
- **Does the aviation industry have the capacity to be sufficiently reactive to the dynamics of commercial band usage?**
- **We would be just one user among many, without receiving any special consideration.**
- **As the demand for data exchange between ground and space increases, and no one will invest in safety innovations, this is a point of no return,**
- **…**



CONCLUSION

QUESTIONS?

Scan the QR code to join Slido
ask questions, and participate in
interactive activities

Thank You


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