



| ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY



ICAO WRC-27 Preparatory Workshop

Aviation Frequency Spectrum and the ITU World Radiocommunication Conferences (WRC)

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International Civil Aviation Organization (ICAO)

ITU
WRC-27



EUR/MID WRC-27 (World Radiocommunication Conference 2027) Workshop
(Paris, France, 06-07 October 2025)

Presentation Overview

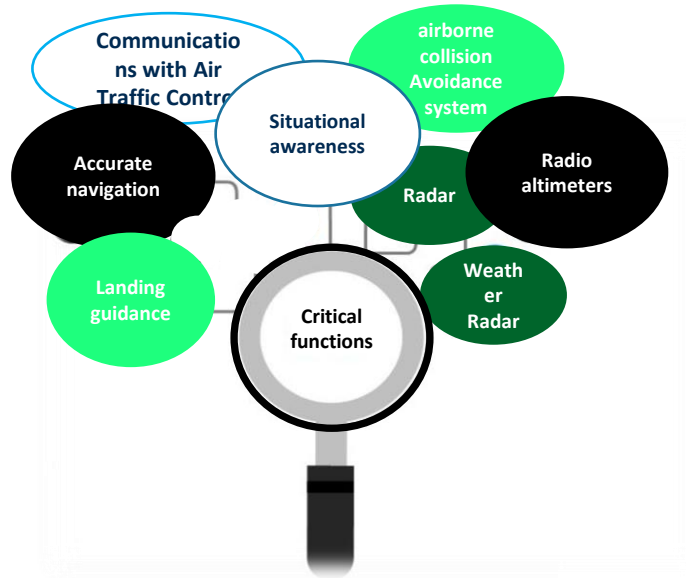
01 **Aeronautical Frequency
Spectrum Management**

02 **ICAO Position for WRC-27**

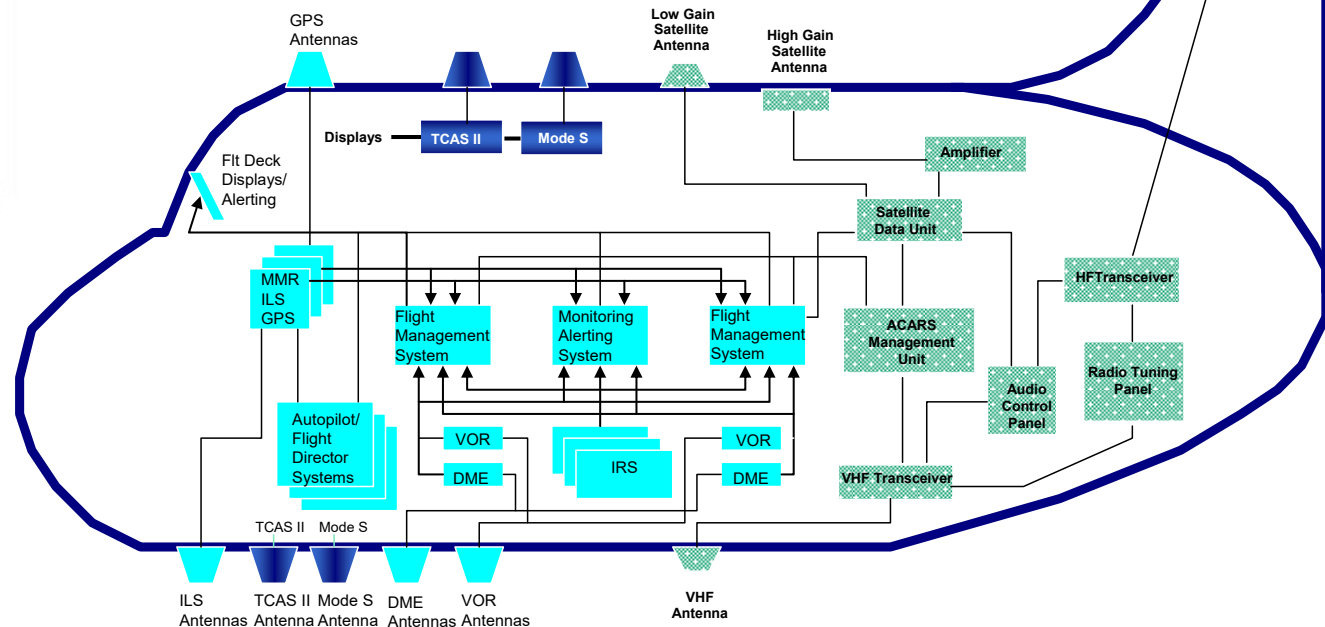
03 **Assembly Resolution 41-7**

04 **Current Status of Work**

Aeronautical Frequency Spectrum Management



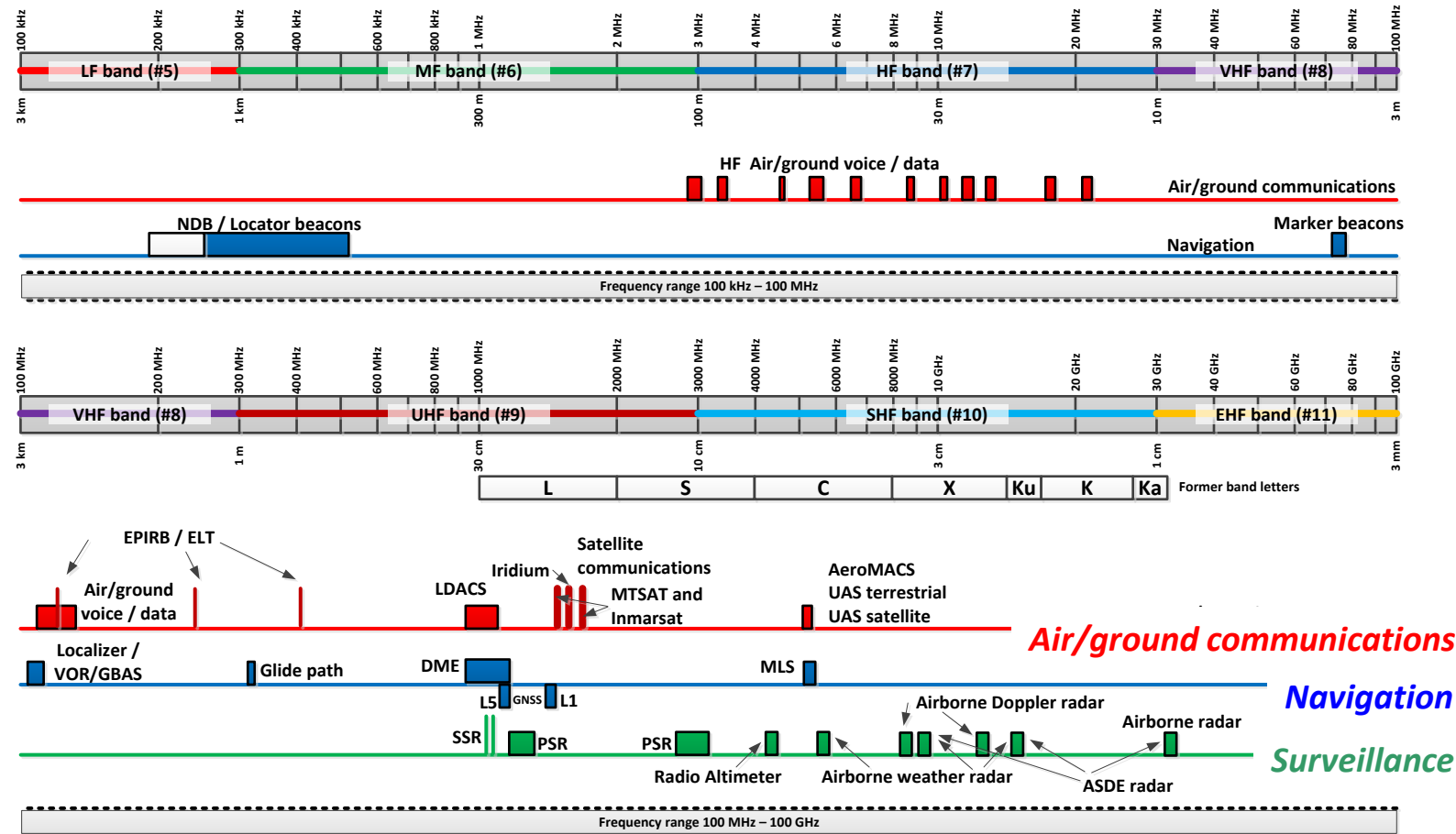
Accurate navigation, landing guidance, situational awareness (airborne collision avoidance system, radar, radio altimeters) weather radar and reliable communications with air traffic control are prerequisites for a safe flight



Aeronautical Frequency Spectrum Management

5

Over 1 GHz of frequency spectrum in global allocations to aeronautical safety services



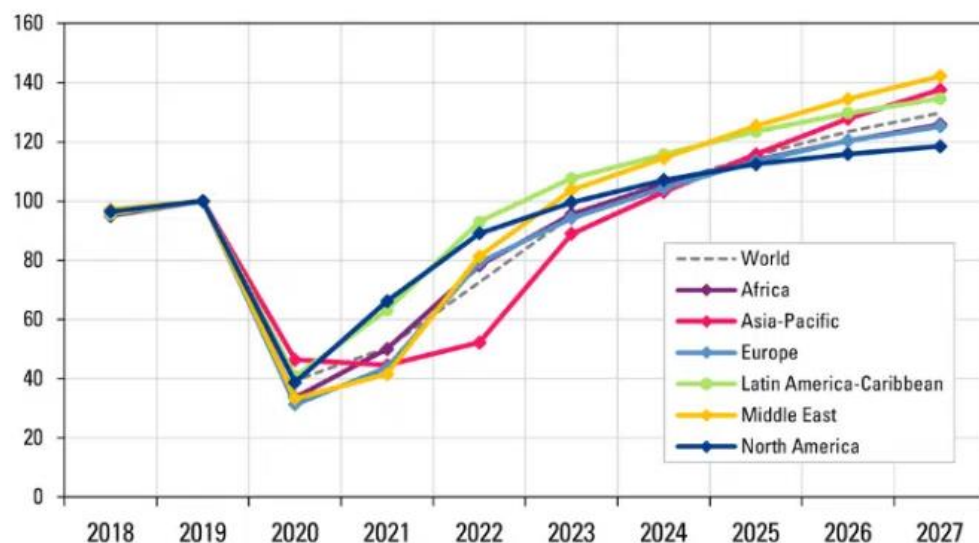
Notes:
 Drawing not to scale
 Not all Regional or sub-Regional allocations are shown
 Band identification (e.g. VHF) and band # per Radio Regulations
 The satellite communication bands used by MTSAT and Inmarsat are not allocated the Aeronautical Mobile Satellite (R) Service

Aeronautical Frequency Spectrum Management

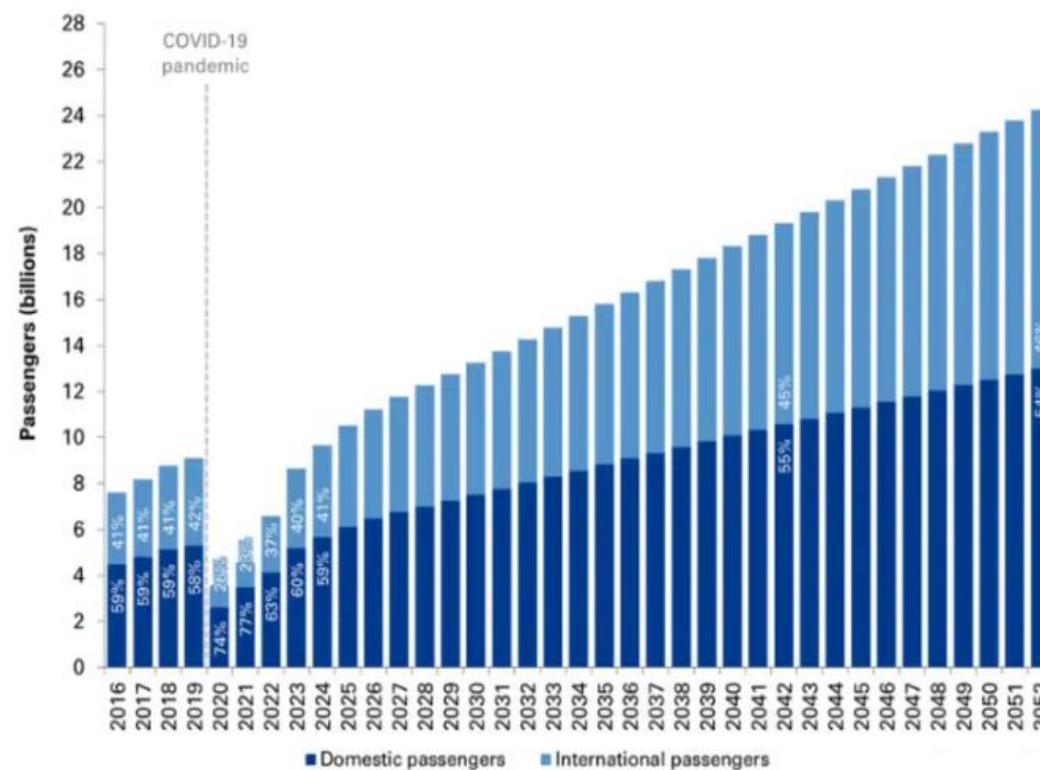
7

World wide consistent growth of air traffic

Medium-term passenger traffic forecast by regions
(indexed, 2019 = 100)



Long-term international and domestic passenger traffic (2016–2052)



Between 2023 and 2052, global passenger traffic is expected to reach close to 25 billion, approximately 2.5 times the 2024 projection

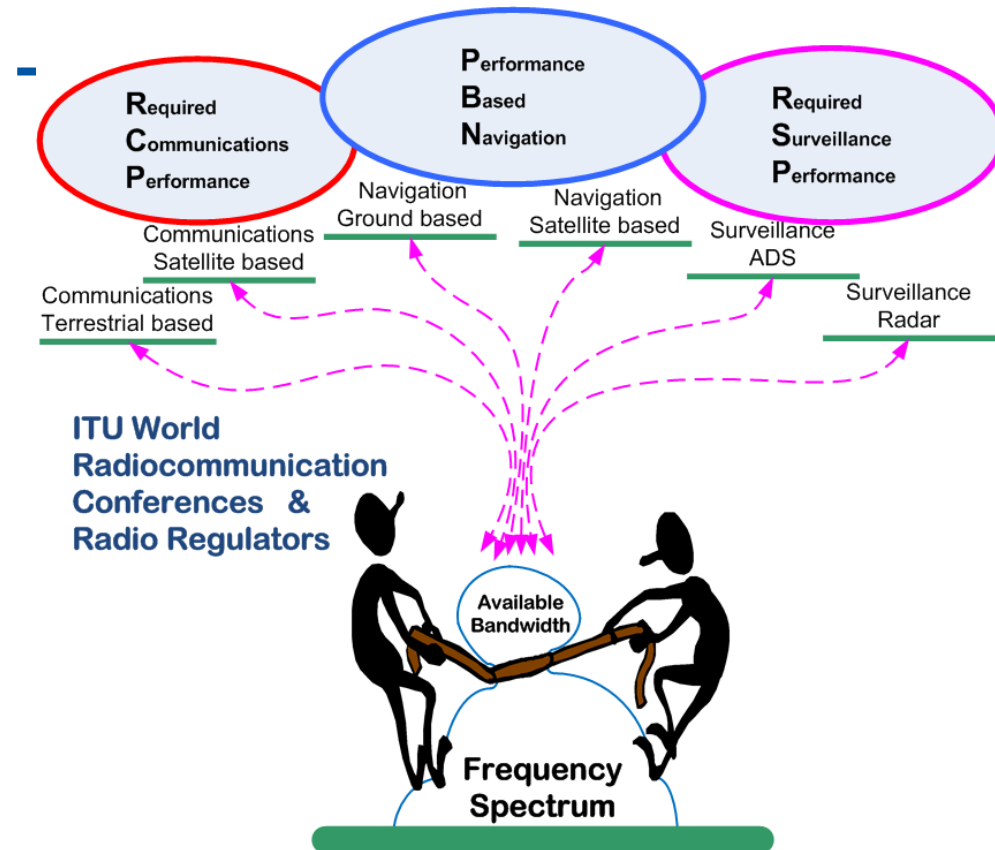
Source: ACI World Airport Traffic Forecasts (WATF) 2023-2052

Performance of Air Traffic Management



Availability and access to frequency spectrum is completely dependent on an outside program:

The ITU World Radiocommunication Conferences; and the WRC preparatory process in the ITU and the Regional Telecommunication Organizations



Aeronautical Frequency Spectrum Management



The highest level of Spectrum Management takes place at the ITU World Radiocommunication Conferences (WRC), held every four years



Maintenance of the International provisions for Spectrum Management, contained in the ITU Radio Regulations (RR)



This includes maintenance of the Table of Frequency Allocations



A consequence of this process is that aeronautical frequency managers need to develop, and lobby for an aviation position on frequency spectrum use



Aeronautical Frequency Spectrum Management



- National position is developed and coordinated by the National Frequency Spectrum authority
- Aviation is but one of many users that lobby for attention

National level



- National telecommunications authorities co-ordinate their position through regional organizations
- Aviation representatives may not be allowed to speak up as the National Frequency Spectrum Authority has only “one official position”
- ICAO is allowed to participate

Regional Level



- National telecommunications authorities co-ordinate their position through the ITU-R Study Groups
- National delegation has only “one official position”
- States look to ICAO for guidance on aviation matters

International level

Aeronautical Frequency Spectrum Management

ITU Radio Regulations update cycle

➤ A very competitive environment

➤ Aviation or any other sector cannot expect preferential treatment

➤ Those that do their homework and participate succeed, others lose



Definition of Radio Frequency Management:

“Radio frequency management is done by experts who meld years of experience with a curious blend of regulation, electronics, politics and not a little bit of larceny. They justify requirements, horsetrade, coerce, bluff and gamble with an intuition that cannot be taught other than by long experience.”

**Vice Admiral Jon L. Boyes
U.S. Navy**



ITU in brief

UN Specialized agency established to standardize and regulate international radio and telecommunications

Radio Regulations

International treaty

- 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



ITU WRC - General overview

1

WRCs update the International Radio Regulations

2

Held every 4 years

- Last was 20 Nov–15 Dec 2023
- Next in 2027

3

Main purpose

- To revise the Radio Regulations (RR);
- To address Radiocommunication issues of a worldwide character.

4

Why participate at World Radiocommunication Conferences

- 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; and
- To provide regulatory certainty to operators



ITU WRC

WRC-23 by numbers

4 Weeks

(5 ½ weeks, when counting RA-23 and CPM27-1)



- 163 Administrations
- Several UN specialized agencies and offices, including ICAO, IMO, WMO, UNOOSA...
- Women 22% of WRC23 delegates

~4000 delegates



- Over 50 meetings/day, including weekends
- After 3AM – latest finish to a meeting
- 9AM - ...start time the next (same) morning

Main WRC-27 Agenda Items relevant to Aviation

20

1.7

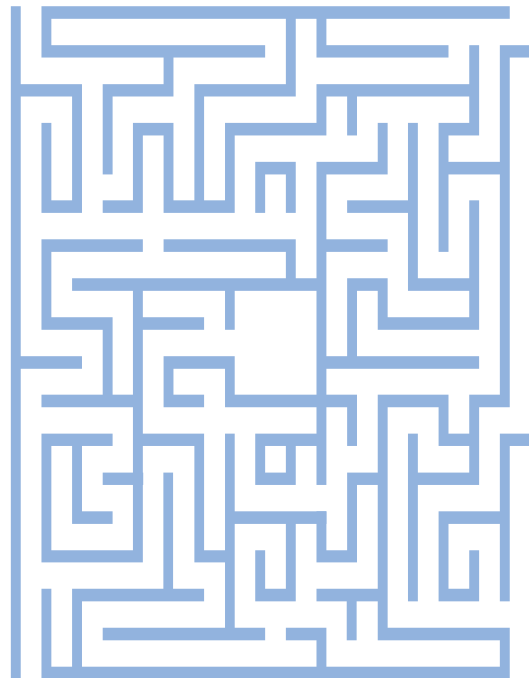
Use of IMT in the frequency bands 4400-4800 MHz

1.9

Update Appendix 26 –
Aeronautical Mobile OR high-frequency modernization

1.17

Space weather sensors



1.19

Primary allocations to the EESS passive in the bands 4200-4400

9.1

Urgent action by Study groups in prep for the next WRC

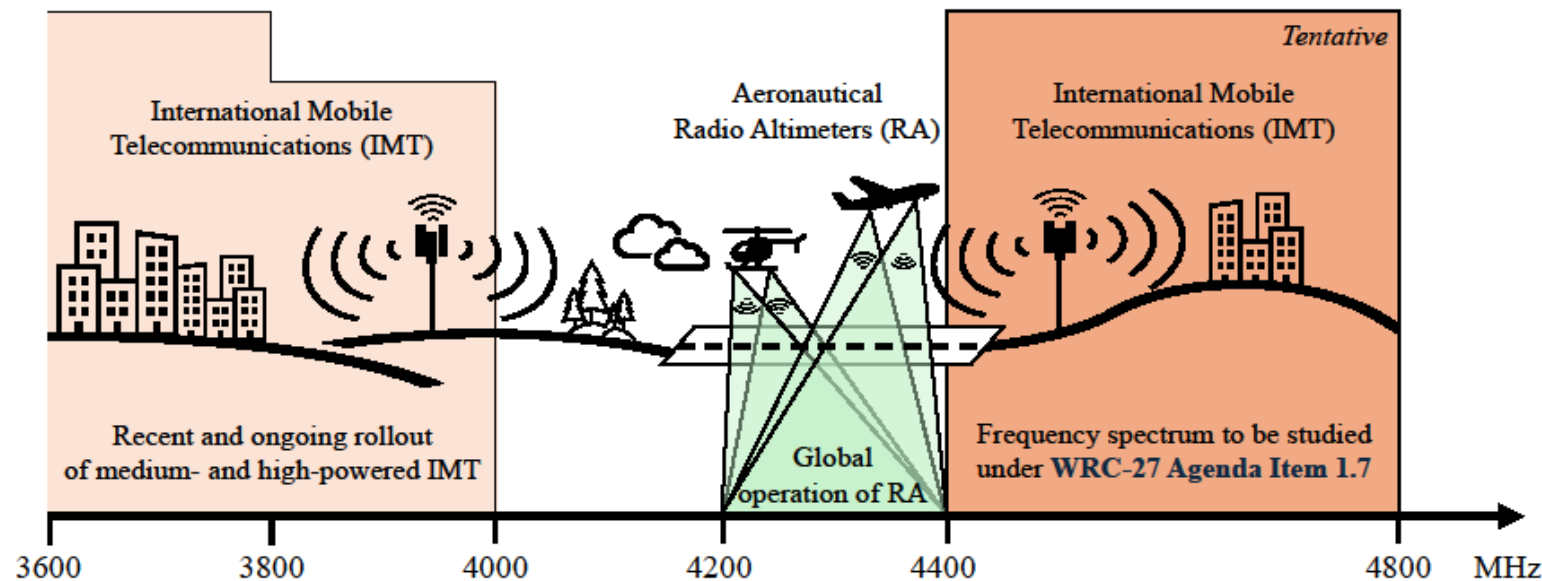
- C2 LINK

And many others...
For example, 1.11, 1.12 and 1.13

WRC-27 Agenda Item 1.7:

Study on IMT use in the frequency bands 4400-4800 MHz, 7125-8400 MHz and 14.8-15.35 GHz

- Looks to identify the frequency band immediately above the Radio Altimeter band to International Mobile Telecommunications.
- Radio Altimeters are a critical safety system.
- In the current ITU preparatory studies (ITU-R WP 5B and WP 5D) due account is not being taken of the safety critical role of the radio altimeters.

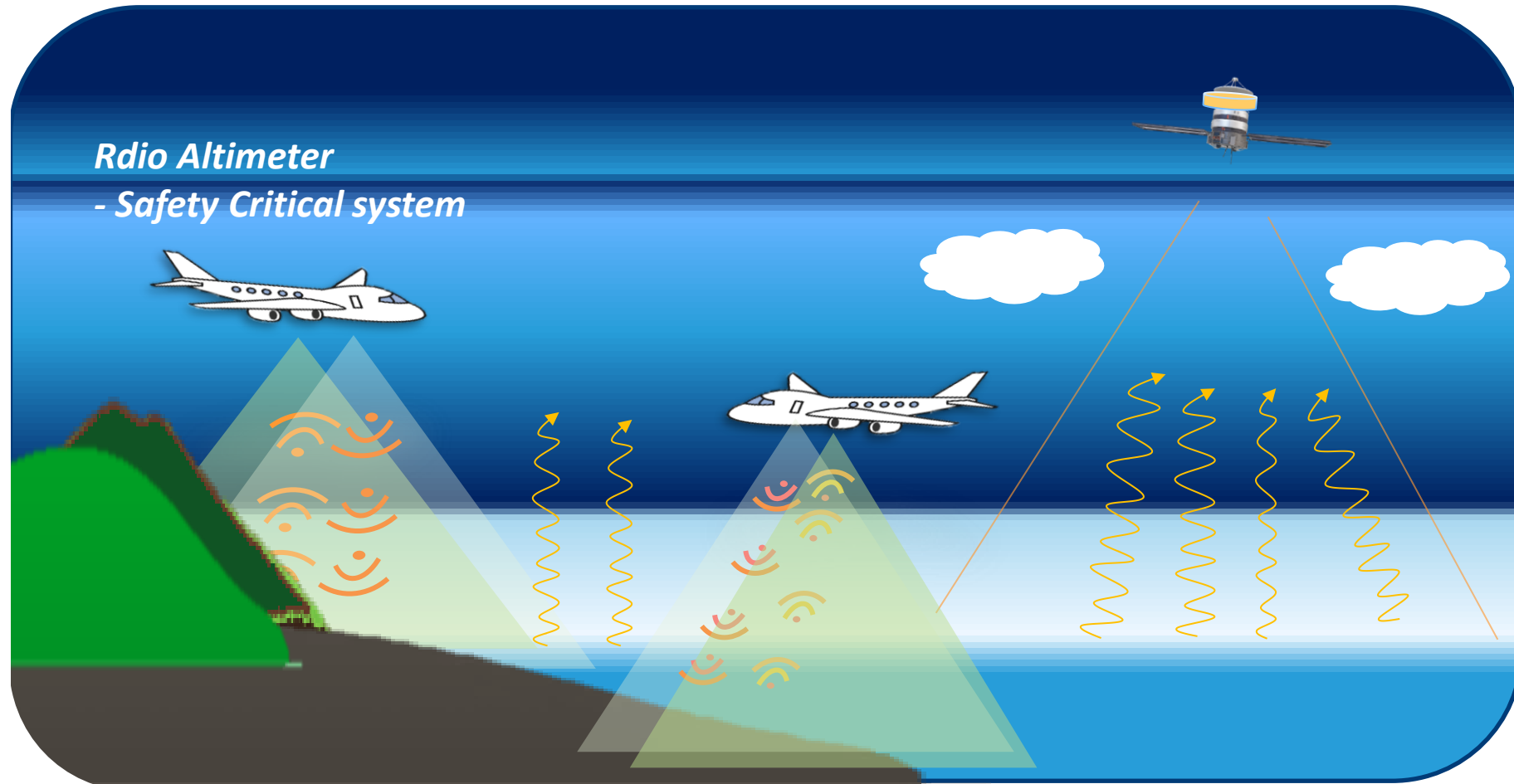


Should Aviation Authorities fail to step up and actively provide expert representation and advice in the ITU World Radiocommunication Conference preparatory process, this may result in unsustainable loss of critical functions necessary for maintaining the current level of safety in aviation



WRC-27

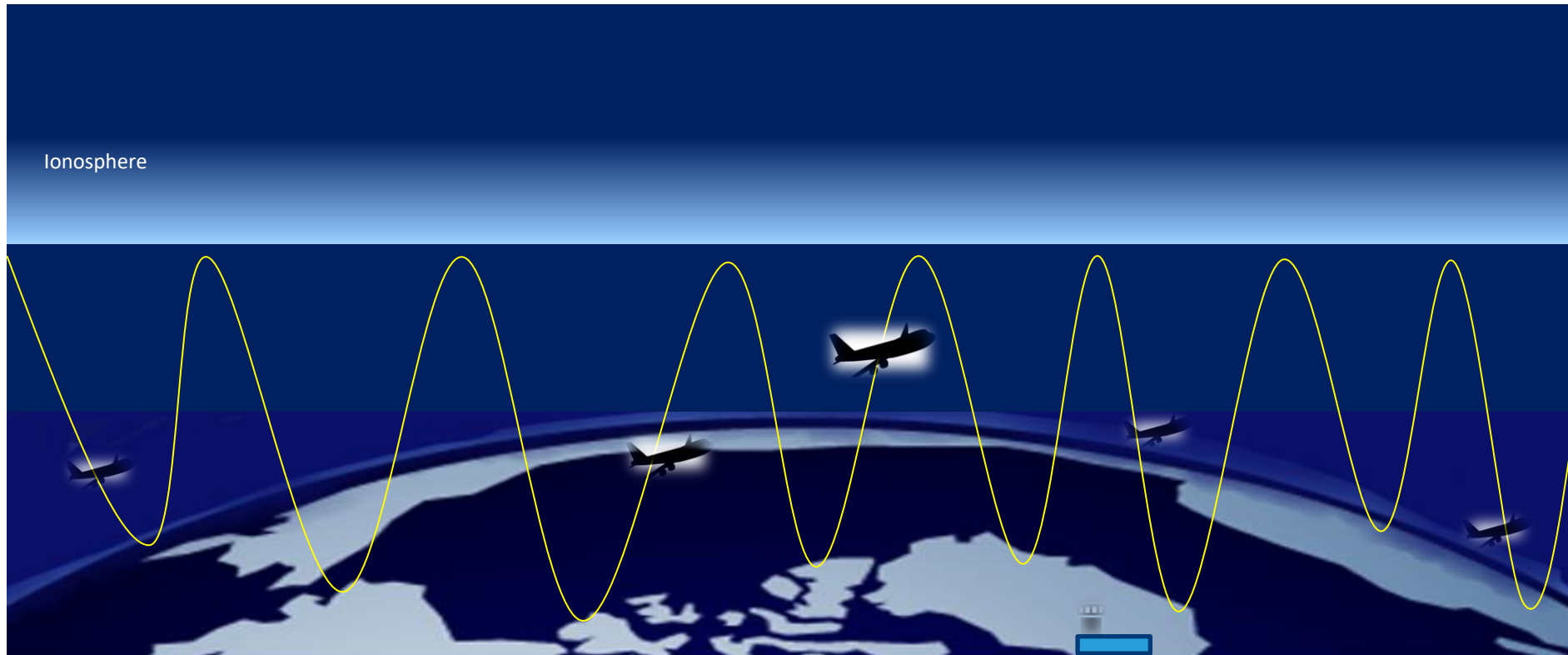
WRC-27 Agenda Item 1.19: Primary allocations to the EESS passive in the bands 4200-4400





WRC-27

WRC-27 Agenda Item 1.9: Update Appendix 26 in support of aeronautical mobile (OR) high frequency modernization





WRC-27

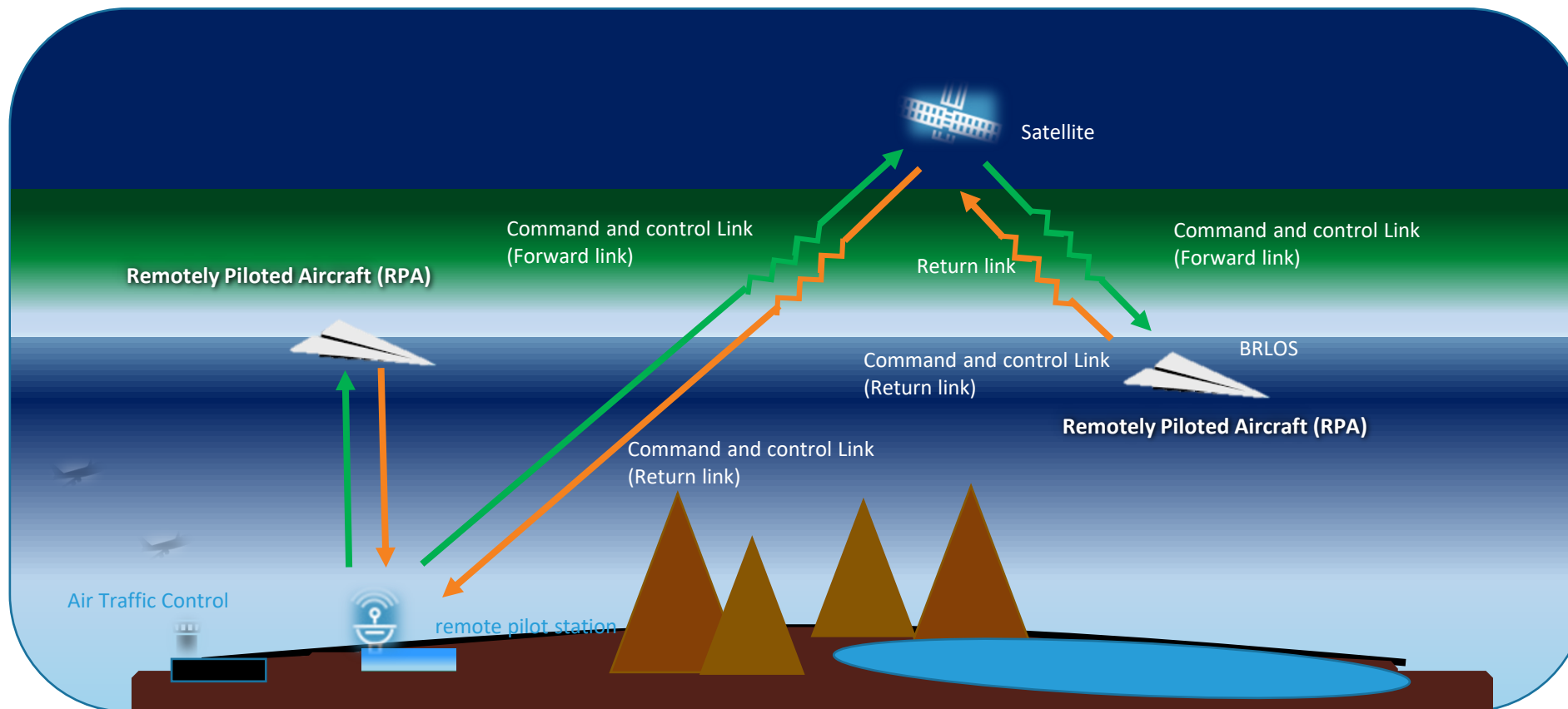
WRC-27 Agenda Item 1.17: Space Weather Sensors



WRC-27

WRC-27 Agenda Item 9.1:

Urgent action by Study groups in prep for the next WRC
beyond-line-of-sight C2-link for RPAS



RECONNECTING THE WORLD



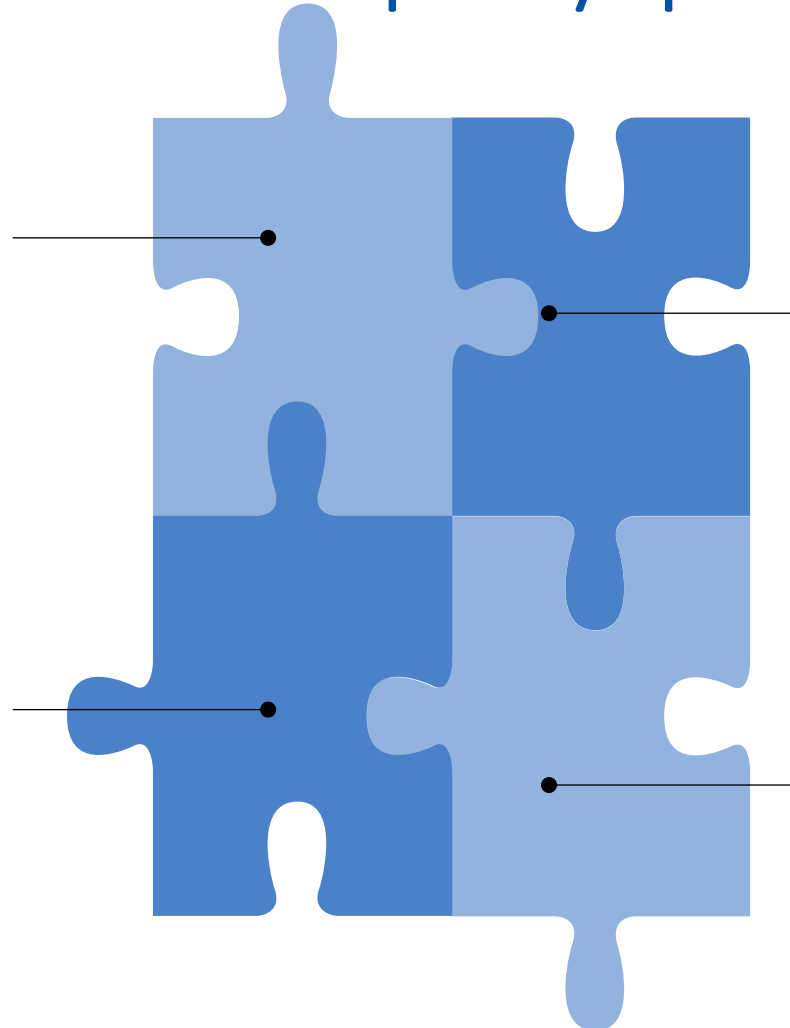
Management and Defence of Aviation Frequency Spectrum

ICAO Frequency Spectrum Strategy

High level vision on
existing and future
spectrum requirements
in support of the
evolving CNS systems
and infrastructure
requirements

ICAO Frequency Policy Statements

Statements of official
policy on each and
every frequency band
used by aeronautical
systems for the
provision of CNS



ICAO Position for WRC

ICAO Position on the
specific agenda items of
the upcoming ITU WRC to
ensure that aeronautical
requirements and safety
concerns are met

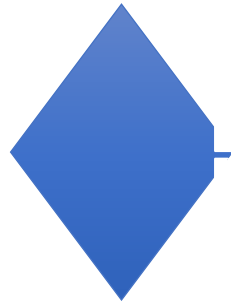
Strategy for establishing and promoting the ICAO WRC Position

(including Assembly
Resolution A41-7)

RECONNECTING THE WORLD

ICAO Spectrum Strategy

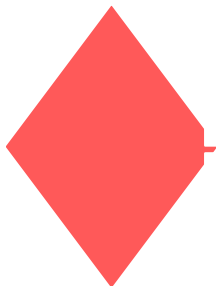
AN-Conf/12 Recommendation 1/12



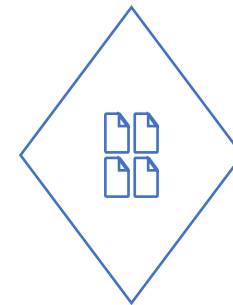
- › timely availability and appropriate protection of adequate spectrum
- › create a sustainable environment for growth and technology development to support safety and operational effectiveness for current and future operational systems
- › allow for the transition between present and next generation technologies



- › demonstrate efficient use of the spectrum allocated through efficient frequency management and use of best practice.



- › clearly state in the strategy the need for aeronautical systems to operate in spectrum allocated to an appropriate aeronautical safety service



Develop and implement a comprehensive aviation frequency spectrum strategy to be referenced in the GANP

GLOBAL STRATEGIC
GLOBAL TECHNICAL
REGIONAL
NATIONAL





ICAO Spectrum Policy Statements

- WRC is limited to certain issues and certain frequency bands
- ICAO position only addresses spectrum usage in context with issues identified in the pre-set WRC agenda



The Policy Statements are “Official ICAO Policy” approved by Council



ICAO Policy Statements indicate overall ICAO policy for every frequency band used by aviation safety



The ICAO Policy Statements are contained in Chapter 7 of the Radio Frequency Handbook





ICAO Position and WRC preparations

ITUWRC



ICAO position established
after WRC agenda established

FSMP is the focal point on
all aspects related to
development of ICAO's position

Reviewed by ANC,
State Letter process,
Approved by Council



The Position presents ICAO
views on all WRC agenda items
of interest to international civil
aviation, with particular regard
to safety and regularity of flight

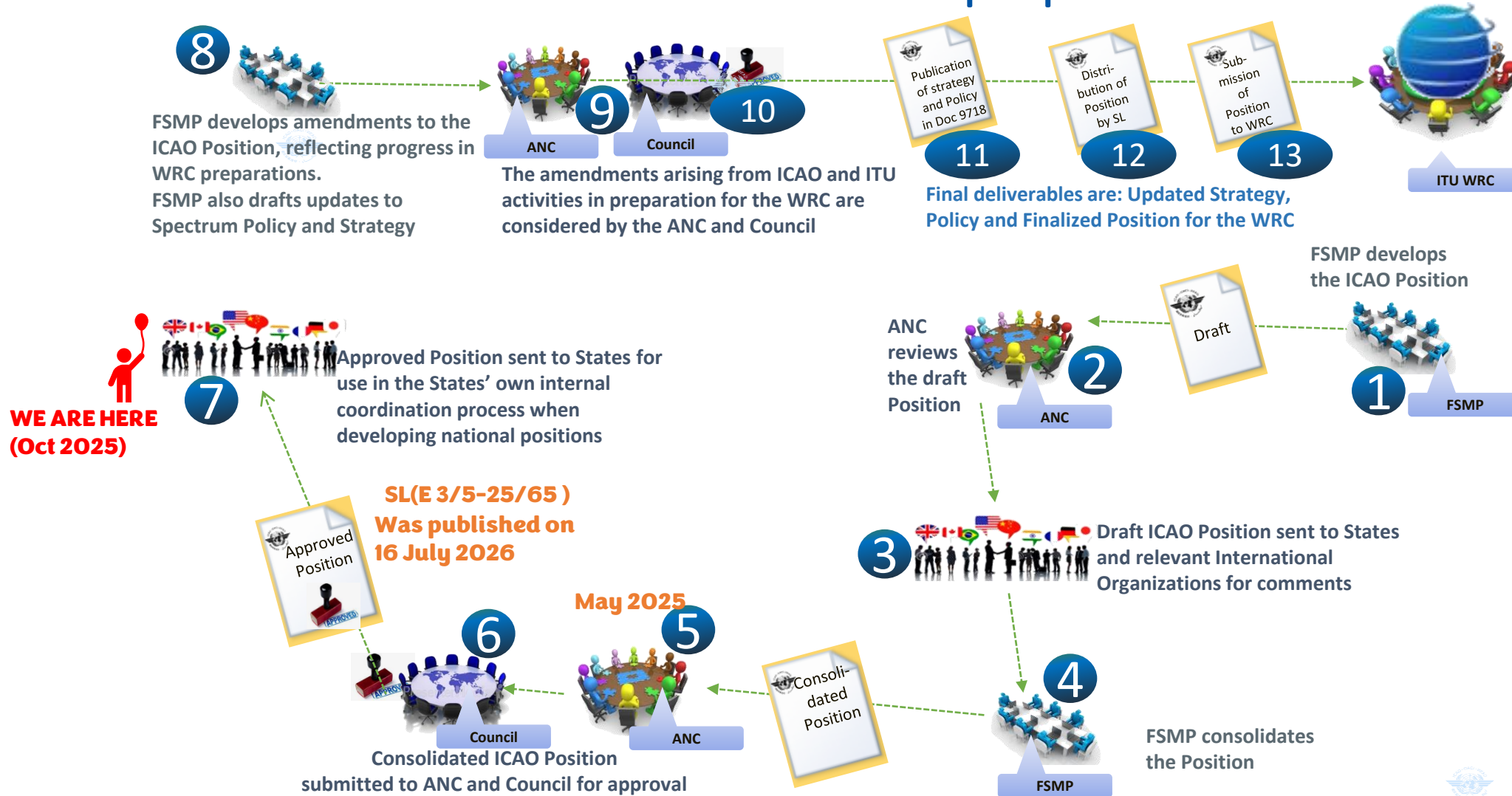
ITU WRC Agenda established



Proper co-ordination
with the 7 ICAO
Regional Offices




ICAO Position and WRC preparations





ICAO Position for the International Telecommunication Union (ITU) World Radiocommunication Conference 2027 (WRC-27)

- The ICAO Council, at the ninth meeting of its 235th Session held on 25 June 2025, approved the ICAO Position for ITU WRC-27.
- The relevant State Letter was published on 16 July 2025.
- States and Int Orgs are requested to take into account the ICAO Position, to the maximum extent possible,
 - in their prep activities for the WRC-27 at the national level,
 - in the activities of the regional telecommunication organizations and
 - in the relevant meetings of the ITU.



International
Civil Aviation
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منظمة الطيران
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航空组织

Tel.: +1 514-315-2009
 Ref: E 3/5-25/65
 16 July 2025

Subject: ICAO Position for the International Telecommunication Union (ITU) World Radiocommunication Conference (2027) (WRC-27)

Action required: To consider the ICAO Position when developing your State's position for WRC-27, CAA representation in your State's Delegation participating in WRC-27, and to support the ICAO Position during WRC-27


Sir/Madam,

1. I have the honour to inform you that the ICAO Council, at the ninth meeting of its 235th Session held on 25 June 2025, approved the ICAO Position on issues of critical concern to aviation which are on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2027) (WRC-27) as contained in the attachment to this letter.

2. The ICAO Position will be submitted to the ITU WRC-27. In addition, ICAO will undertake, within the budget limits of the Organization, to present the ICAO Position at the WRC-27 preparatory activities within ITU and Regional Telecommunications Organizations. However, I wish to emphasize that active support from States is the only way to ensure that the results of WRC-27 reflect civil aviation's continued need for radio frequency spectrum. In this regard, I invite your attention to Assembly Resolution A41-7 (Support of the ICAO Policy on radio frequency spectrum matters). Hence, I would kindly request your support and participation in regional WRC-27 preparatory meetings and symposia, and that representatives from your civil aviation administration, relevant international organizations representing the civil aviation industry and other civil aviation stakeholders are included in your delegation to the conference.

3. I wish to request that the enclosed information be considered for incorporation into your State's position for WRC-27 and that your delegation to the conference be prepared to support the ICAO Position on issues of concern to international civil aviation.

Accept, Sir/Madam, the assurances of my highest consideration.


 for Juan Carlos Salazar
 Secretary General

Enclosures:
 A — Executive Summary
 B — ICAO Position for the ITU WRC-27

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State Letter 24/93 (ICAO-NET)

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[zh](#)

Assembly Resolution A41-7

Urges Member States, international organizations and other civil aviation stakeholders to support firmly the ICAO frequency spectrum strategy and the ICAO position at WRCs and in regional and other international activities conducted in preparation for WRCs, including by the following means:

BE RESPONSIBLE	working together to deliver spectrum-efficient aeronautical systems as well as frequency management that meet current best practices
BE ACCOUNTABLE	supporting ICAO activities relating to the aviation frequency spectrum strategy and policy through relevant expert group meetings and regional planning groups
ADOPT A COMMON AVIATION POSITION	undertaking to provide for aviation interests to be fully integrated in the development of their positions presented to regional telecommunications fora involved in the preparation of joint proposals to the WRC including in their proposals to the WRC, to the extent possible, material consistent with the ICAO position
SUPPORT	supporting the ICAO position and the ICAO policy statements at ITU WRCs
PARTICIPATE	undertaking to provide civil aviation experts to fully participate in the development of States' and regional positions and development of aviation interests at the ITU
REPRESENT AVIATION INTERESTS	ensuring, to the maximum extent possible, that their delegations to regional conferences, ITU study groups and WRCs include experts from their civil aviation authorities and other civil aviation stakeholders who are fully prepared to represent aviation interests

Assembly Resolution A41-7

Urges Member States to consider, as a priority, public and aviation safety when deciding how to enable new or additional services, and to consult with aviation safety regulators, subject matter experts and airspace users, to provide all necessary considerations and to establish regulatory measures to ensure that incumbent aviation systems and services are free from harmful interference:

Requests the Secretary General to bring to the attention of ITU the importance of adequate radio frequency spectrum allocation and protection for the safety of aviation; and

Instructs the Council and the Secretary General, as a matter of high priority within the budget adopted by the Assembly, to ensure that the resources necessary to support the development and implementation of a comprehensive aviation frequency spectrum strategy, as well as increased participation by ICAO in international and regional spectrum management activities are made available



Long Term Evolution of CNS and Spectrum matters

In addition to the continued engagement in the ITU spectrum management process, aviation also needs to engage in a proactive and long-term evolution of the CNS systems

AN-Conf/13 Recommendation 2.2/1



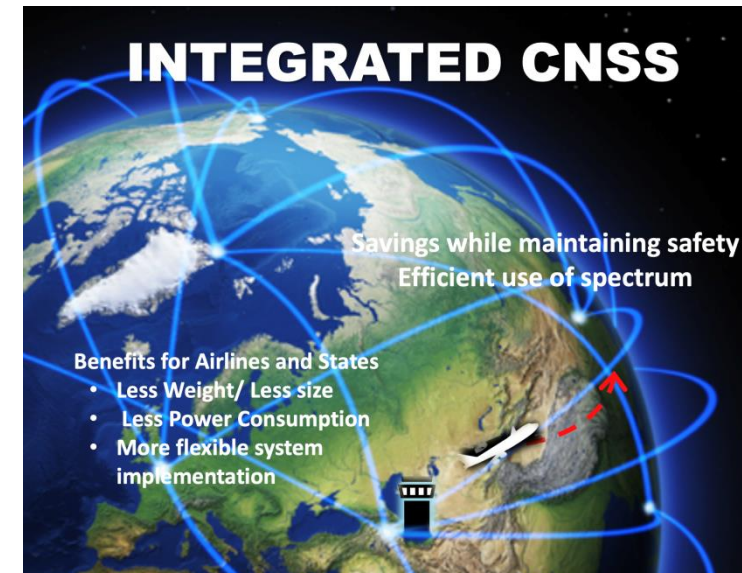
- › ICAO to launch a study on evolving the required CNS and spectrum access strategy in the long term, to ensure that CNS systems remain efficient users of the spectrum resource



- › request States to engage in the spectrum regulatory process to ensure the continued necessary access and protection of the safety critical aeronautical CNS systems



Work is being initiated to undertake this study. This activity is expected to benefit the development of aeronautical CNS systems and their spectrum use in the medium to longer term and eventually the formulation of the ICAO spectrum policy for future WRCs





Current status of work

- WRC-27 preparations are on-track, as per the instructions given in Assembly Resolution 41-7
- The Position for WRC-27 developed by FSMP was reviewed by the ANC, and it was approved by the ICAO Council on 25 June 2025. The relevant State Letter was published on 16 July 2025.
- ITU-R studies are supported by ICAO Secretariat
- A new task has been initiated in coordination with ANC, looking into the long-term evolution of CNS and spectrum matters, as per AN-Conf/13 Recommendation 2/2.1:
 - ✓ Initially this task is being progressed using a small informal taskforce, consisting of select industry representatives, CNS panel participants and Secretariat.
 - ✓ Taskforce is foreseen to be taken over by ANC. The initial outcome of the Study will be presented at the future Assembly.

Thank You

