



Agenda Item 3 : AERONAUTICAL FREQUENCY ASSIGNMENT PROCEDURES IN AFI REGION

**INTERNATIONAL
CIVIL AVIATION
ORGANIZATION**



ICAO Regional Officers CNS ESAF and WACAF

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Introduction



1. Introduction



Overview of aeronautical frequency assignment procedures in the AFI Region



Importance of efficient spectrum management for safe and reliable CNS operations



Alignment with ICAO SARPs, regional guidance, and harmonized practices



Objective: strengthen understanding, ensure consistency, and support States' compliance

Focus on coordination mechanisms, technical steps, and regional responsibilities



02

Spectrum coordination and management

- 2.1 General principles
- 2.2 Frequency coordination and registration
- 2.3 Procedure of coordination for aeronautical frequency in AFI Region
- 2.4 Frequency Finder Tool and global database integration



2. Spectrum coordination and management

2.1 General principles



Radio frequencies are a limited resource and must be used rationally, efficiently, and economically, in accordance with Radio Regulations, ICAO Annex 10, and national/regional planning.



New or modified assignments must avoid harmful interference to existing services



Frequency planning must protect distress and safety frequencies.

2. Spectrum coordination and management

2.2 Frequency coordination and registration



ITU Framework

Coordination/ registration of frequency assignments

- Prerogative of the ITU
- Is performed in accordance with procedures in the Radio Regulations
- Provides international protection of the assignment
- Take place through the radio regulator authorities in each country

Frequency registration

- In the Master International Frequency Register (MIFR) (Geneva)



2. Spectrum coordination and management

2.2 Frequency coordination and registration



ICAO Framework

Coordination of frequency assignments

- ICAO Regional Offices coordinate day-to-day aeronautical frequency assignments in exclusive aeronautical bands.
- Coordination supported by ICAO procedures and planning criteria
- Conducted with Civil Aviation Authorities, with bilateral coordination when neighbouring States are affected.
- At national level: close cooperation is required between CAA and the national telecom/spectrum regulator.
- Inter-regional coordination undertaken when assignments may impact other ICAO Regions.


Frequency registration


- Recorded in national registers and coordination with national telecom/spectrum regulator for registration in MIFR if international protection necessary
- Agreed assignments recorded in ICAO's Global Frequency Database.

2. Spectrum coordination and management

2.2 Frequency coordination and registration

List of frequency bands coordinated by ICAO

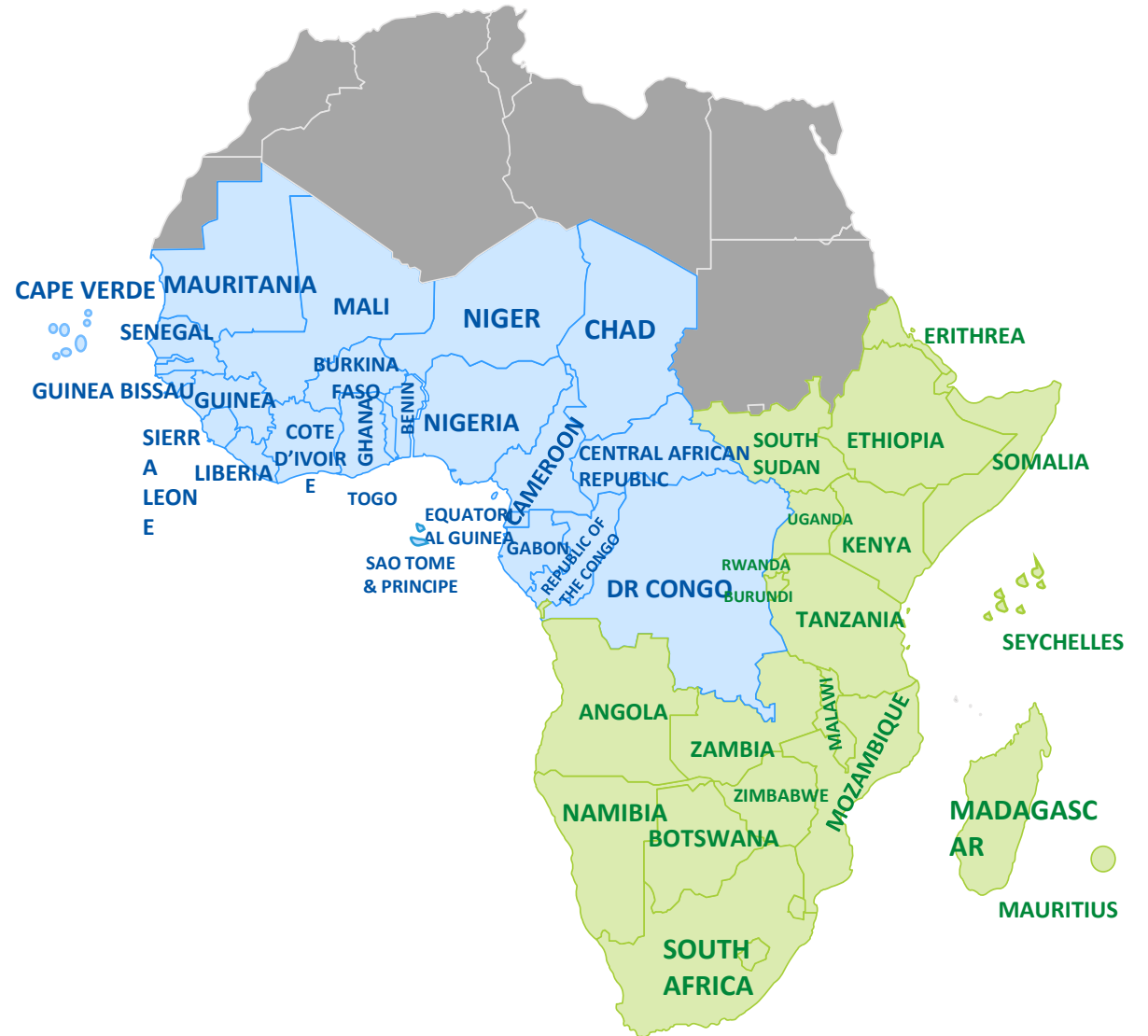
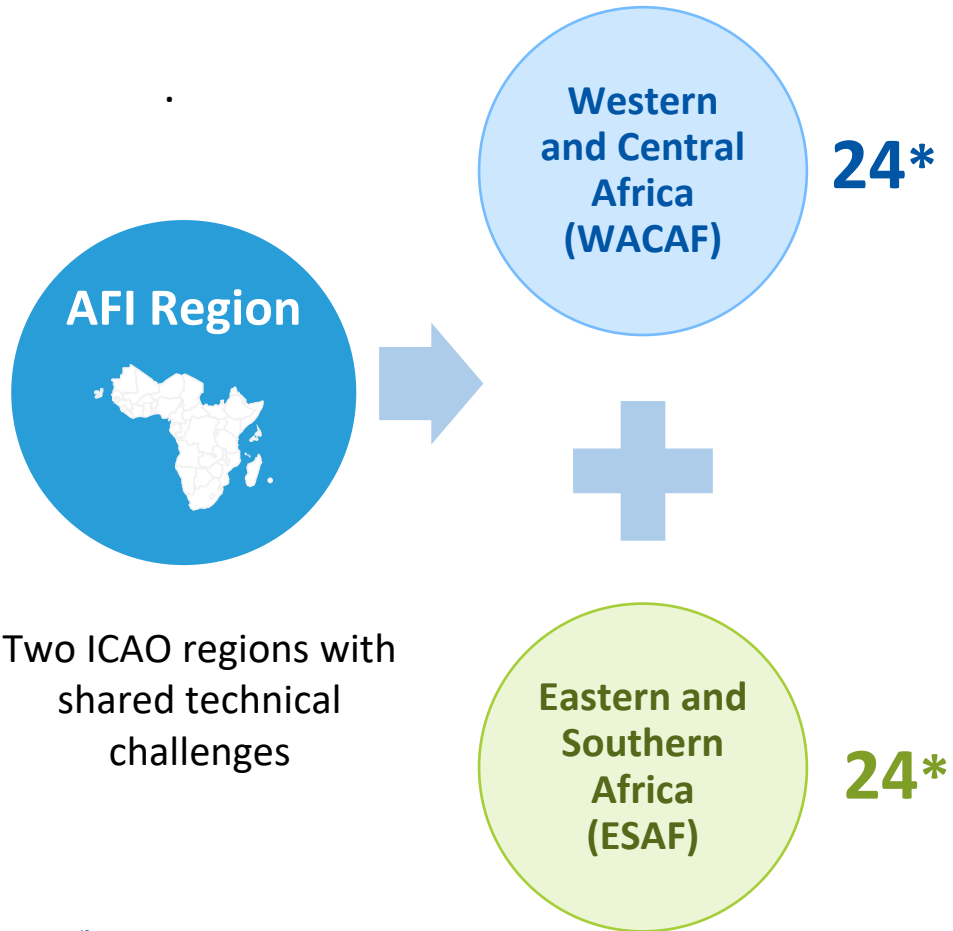
 ICAO ESAF/WACAF coordinate day-to-day assignments in exclusive aeronautical bands and update the ICAO global frequency database

 HF frequencies are coordinated and registered only through ITU by each State's telecom regulator.

| | Frequency range | Facility |
|--------------|--|---|
| LF/MF | 190 – 495 kHz and 505 – 526.5 kHz | NDB Locator |
| VHF | 108 – 117.975 MHz 117.975 – 137 MHz | ILS localizer (below 112 MHz), VOR and GBAS Air-ground communications (e.g., VDL Mode 4) |
| UHF | 328.6 – 335.4 MHz 960 – 1215 MHz | ILS glide path DME/TACAN SSR |

2. Spectrum coordination and management

2.3 Procedure of coordination for aeronautical frequency in AFI Region





PROCEDURE OF COORDINATION FOR AERONAUTICAL FREQUENCY

IN AFI REGION



PROCEDURE OF COORDINATION FOR AERONAUTICAL FREQUENCY IN AFI REGION

ICAO Regional Role

- WACAF & ESAF Offices manage day-to-day frequency selection and coordination for aeronautical bands.
- Final coordinated assignments are recorded in the ICAO Global Frequency Database.

Frequency Finder = Primary Planning Tool

- Used for VHF COM, NAV assignments, **reviewing existing assignments**, compatibility test, ...
- Provides a single, up-to-date regional reference (VHF COM, NAV)
- Registration of Final coordinated assignments

Submitting Frequency Requests

- Current: Letter submission to ICAO ROs.
- Optional: Electronic request generated via Frequency Finder (*excel*)
- States can validate candidate frequency, check NAV & VHF COM entries

Coordination steps

- ICAO RO coordinates with other ICAO Regions when assignments may have cross-regional impact.
- ICAO coordinates with affected States/Administrations when bilateral coordination is required.

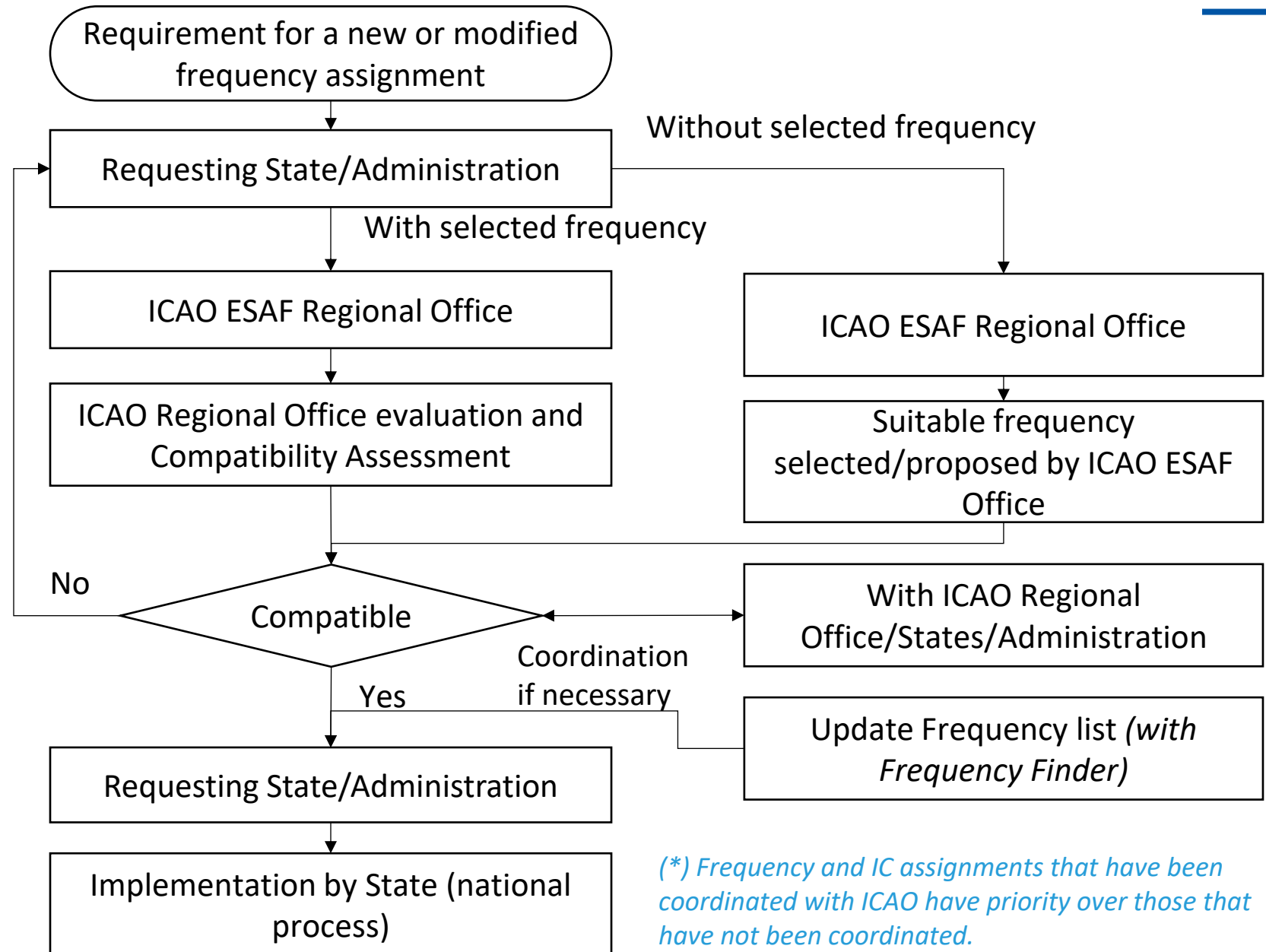


“ICAO Regional Offices, Frequency Finder tool, and State collaboration together enable effective AFI frequency coordination”.

2. Spectrum coordination and management

2.3 Procedure of coordination for aeronautical frequency in AFI Region

(based on current practices) not formalized yet

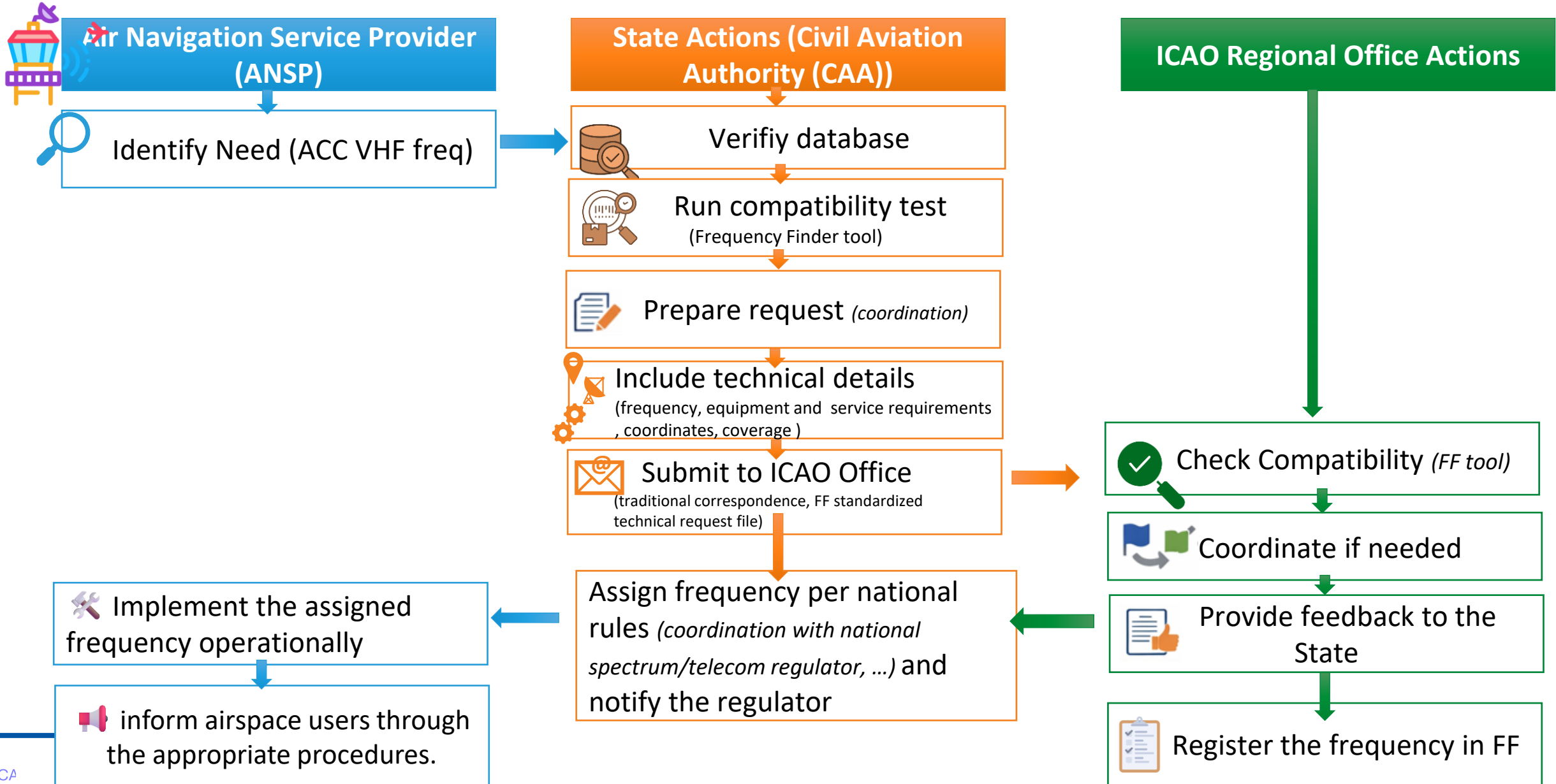


() Frequency and IC assignments that have been coordinated with ICAO have priority over those that have not been coordinated.*

2. Spectrum coordination and management

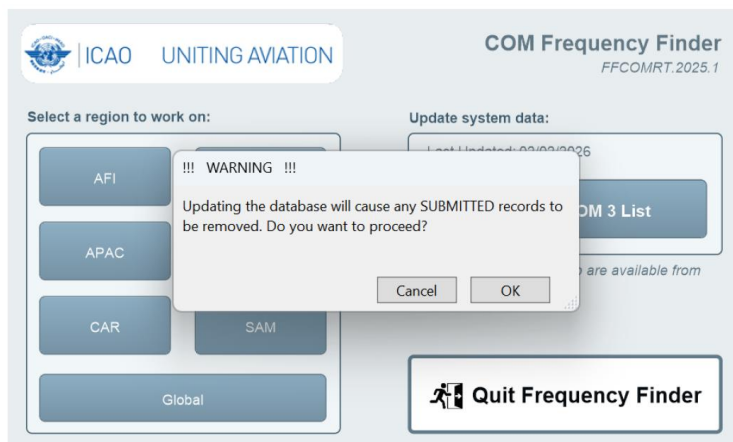
2.3 Procedure of coordination for aeronautical frequency in AFI Region

Example



2. Spectrum coordination and management

2.4 Frequency Finder Tool and global database integration



Frequency Finder Tool

- Provides an interactive platform to evaluate frequency availability and run compatibility analyses across aeronautical bands. *(calculation of interference areas and a geographical interface for plotting of the frequency assignments, including potential interference area).*

Global Frequency database

- Serves as the permanent authoritative record for all coordinated aeronautical frequency assignments ensuring data accuracy.

Data integration and accuracy

- Merges multiple datasets to reduce duplication and maintain up-to-date, reliable frequency information.

Regional coordination benefits

- Enhances planning, reduces interference and supports coordination



03

Aeronautical frequency databases

- 3.1 Overview
- 3.2 What We use in AFI Region ?
- 3.3 How We Use Them ?
- 3.4 Status and update process of frequency database in AFI Region (ESAF and WACAF)



3. Aeronautical Frequency databases

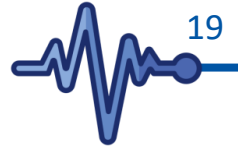
3.1 Overview

Aeronautical Frequency Databases



- ✓ Support the planning for Communication, Navigation, and Surveillance systems
- ✓ Must remain consistent with Aeronautical Information Publication (AIP), COM/NAV, SURV tables)
- ✓ Used to verify existing assignments, perform compatibility checks, avoid duplication, and manage changes
- ✓ Data quality depends on updates from States (CAA/ANSP/Airport operators / National Radio Spectrum Authorities/ Air operators
- ✓ Need for harmonized practices for updating the COM, NAV frequency databases

3. Aeronautical frequency databases



3.2 What We use in AFI Region ?



COM List 1 – NDB (190–526.5 kHz)

- ✓ Legacy/transitioning; still referenced for decommissioning tracking and interference checks
- ✓ no more supported by Frequency Finder



COM List 2 – NAV (108–117.975 MHz; 960–1215 MHz)

- ✓ Navigation aids VOR/ILS/DME (and pairings) used to verify spacing/protection criteria , Update using Frequency Finder Tool



COM List 3 – VHF COM (117.975–137 MHz)

- ✓ Primary list for air–ground communications; core to congestion management, sectorization and cross-border compatibility.
- ✓ most dynamic database/ Update using Frequency Finder Tool



SSR list for SSR Mode S II/SI codes.

HF frequencies are not coordinated by ICAO; they are critical for contingency and oceanic operations. States should audit and update HF assignments and report any issues.

3. Aeronautical frequency databases

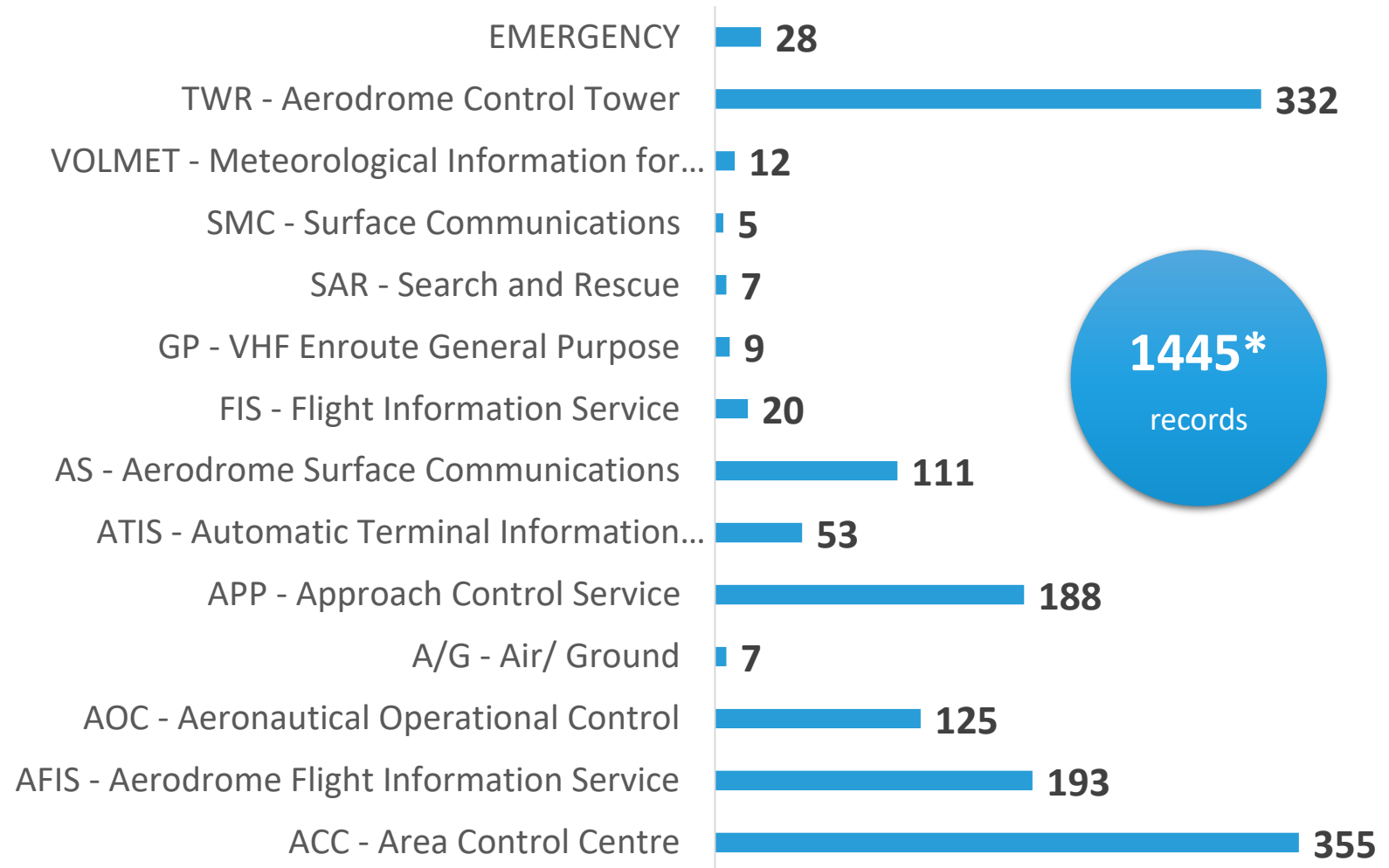
3.3 How We Use Them ?



COM lists 2 and 3 :
Frequency Finder as the common compatibility tool (co/adjacent channel, separation minima).

➤ Cross-check each assignment request against the relevant COM List(s) before coordination.

List of Frequency Assignments in the Band 117.975- 137.000 MHz – AFI Region- FF – COM 3 List February 2026*

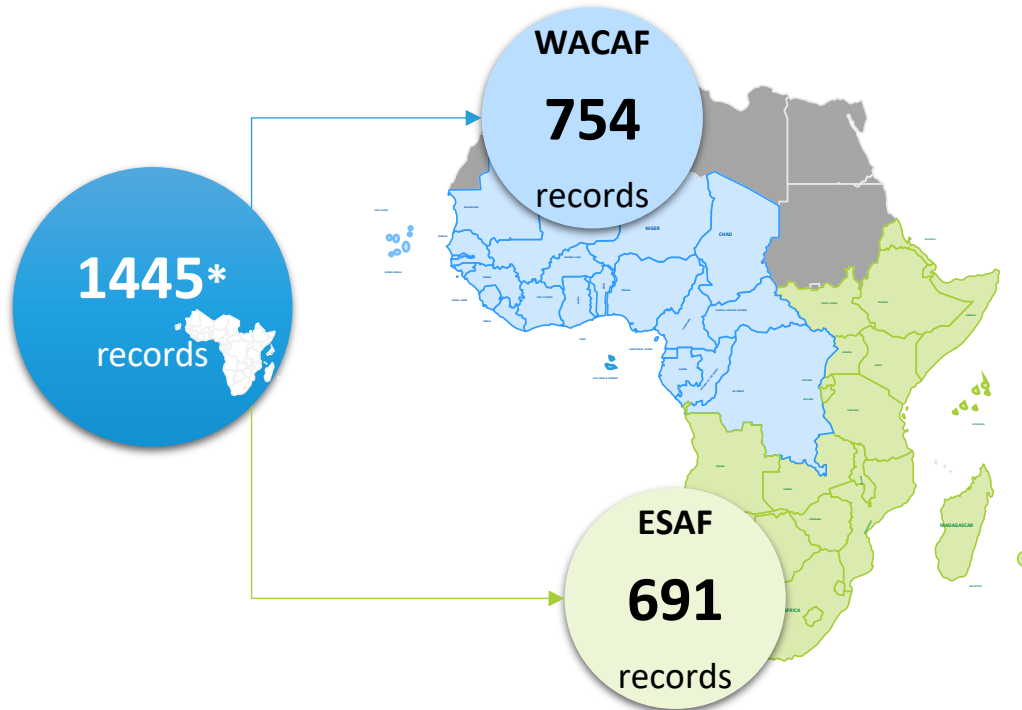


3. Aeronautical frequency database

3.3 How We Use Them ?

List of Frequency Assignments in the Band 117.975- 137.000 MHz – AFI Region- FF – COM 3 List February 2026*

(*) COM List 3 ongoing update

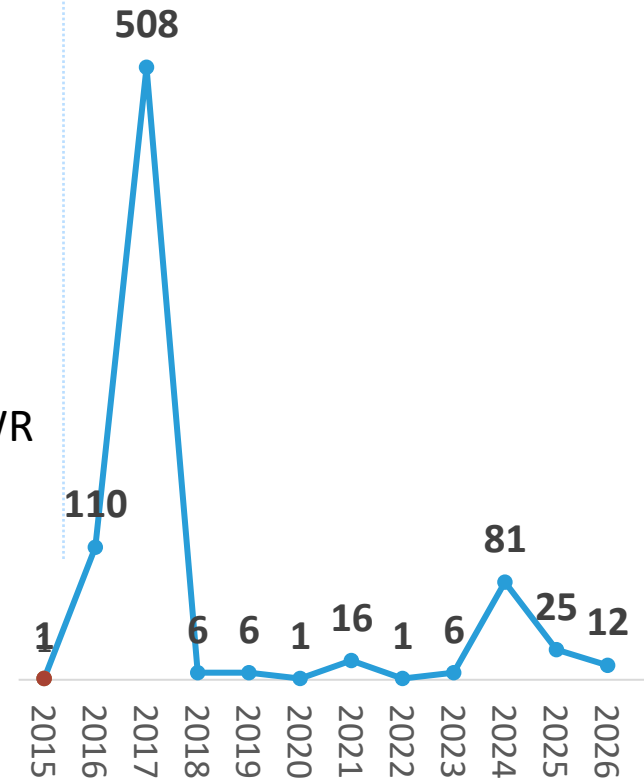


Registered frequencies for Aera Control Centre Service



Registered frequencies for TWR Tower service

Frequency records by date of entry







3. Aeronautical frequency databases






3.4 Status and update process of frequency database in AFI Region (ESAF and WACAF)



Why Accurate data matters ?

-  Feeds ICAO global and regional databases and planning tools (Frequency Finder)
 -  Supports operational continuity
 -  Prevents harmful interference
 -  Enables coordinated regional planning
- WACAF Database Status

ESAF and WACAF Frequency database Status (COM List 3 - VHF)

-  Quality Control by ICAO HQ: Comparison with AIP frequency data
-  Common Issues: Missing parameters, outdated assignments, unused frequencies, missing frequencies
-  States currently updating files



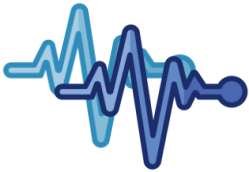
04

Recommendations




4. Recommendations

- Maintain accurate aeronautical frequency database (VHF COM, NAV,) in collaboration with CAA, ANSPs, Airport Operators, Air operators
- Ensure alignment with Aeronautical Information Publication (related to frequencies, COM/NAV/SUR) tables
- Ensure systematic cross-check of all new assignments with Frequency Finder and coordinate with ICAO Regional offices (ESAF, WACAF)
- Coordinate early with National Spectrum/Telecom Regulatory Authorities (NRA), ensuring aviation has priority as a safety-of-life service



4. Recommendations

- 
- Complete as soon as possible the verification and confirmation of frequency data as requested following the data quality control performed by ICAO HQ
 - Coordinate early with National Spectrum/Telecom Regulatory Authorities (NRA), ensuring aviation has priority as a safety-of-life service
 - Apply ICAO Doc 9718 criteria for planning (protection ratios, separation distances)
 - Develop and adopt a formalized AFI Frequency management procedure, through AASPG Infrastructure and Information Subgroup Spectrum related activities
 - Maintain a regularly updated frequency coordination focal point list (CAA/ANSP)

05

Conclusion



5. Conclusion

Key takeaways



Coordination with ICAO Regional Offices (WACAF/ESAF)

- For frequency bands coordinated by ICAO
- When the frequency has cross-border impact



ICAO Tools and guidance for aeronautical frequency assignment

- Compatibility assessment using Frequency Finder tool
- Facilitation of inter-State coordination and technical exchanges
- Guidance on Doc 9718 and AFI ANP requirements (vol I and II)



Internal national coordination between

- Civil Aviation Authorities, Air Navigation Services providers, Airport operators, Air operators



AFI Regional harmonization

- Via :
 - ✓ AASPG/IIM Subgroup
 - ✓ ICAO-led CNS/Spectrum workshops and technical missions
- AFI frequency coordination process to be developed



Thank You

