



Agenda Item 4 : INTERFERENCE MANAGEMENT IN AFI REGION

**INTERNATIONAL
CIVIL AVIATION
ORGANIZATION**



ICAO Regional Officers CNS ESAF and WACAF

Outline



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Overview

- 1.1 Why this topic matters?
- 1.2 Regional context
- 1.3 Presentation objectives

02

Addressing frequency interference

- Detection
- Interference resolution process
- ICAO Regional Offices role

03

Recommendations

- Reorting and resolution mechanism

04

Conclusion

- Key takeaways

01

Introduction

1.1 Importance of
Aeronautical Spectrum for
Safety and CNS

1.2 Regional context





1. Overview

1.1 Importance of Aeronautical Spectrum for Safety and Communication, Navigation and Surveillance

Aeronautical spectrum supports safety-of-life CNS systems.



1. Overview

1.1 Importance of Aeronautical Spectrum for Safety and Communication, Navigation and Surveillance

Risks of frequency interference

Interference in aviation bands can disrupt pilot–controller communications, navigation aids, GNSS services, and critical onboard systems such as radio altimeters, thereby increasing safety risks.

Challenges in the AFI Region

Large FIRs, telecom expansion, cross-border spillover, rising frequency interference and illegal jamming create complex spectrum management challenges.

Proper interference management ensures continuity of ATS services, airspace capacity, and flight safety



AFI Regional Interference Overview



AFI Operational Challenges

- Growing Air Traffic
- Spectrum Congestion
- Rising Interference
- Cross-Border Issues

AEAG/1 Event Analysis (Libreville 2025)



455 ATS Events



Loss of Separation & AIRPROX



GNSS RFI Reported



- 33 Facility-COM Issues Ranked in Top 8 Categories
- Communication & Interference Impact

Main Interference Sources



• 4G / 5G / 6G Expansion



• GNSS Jamming & Spoofing



• Unauthorized Broadcasting & Telecom Emissions



• Broadcasting & FM Interference

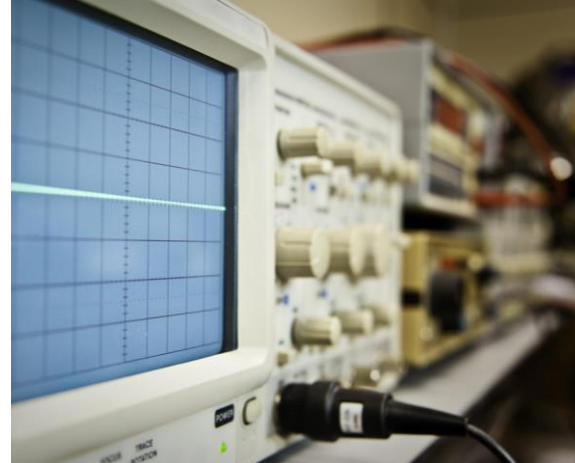
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Addressing frequency interference



2. Addressing frequency interference

2.1 Interference identification



Detection and Initial Reporting

- ✓ Pilot reports / ATCO reports
- ✓ Monitoring systems (COM/NAV/SUR)
- ✓ ANSP technical logs and spectrum monitoring vehicles (where available)

Characterization

- ✓ Identify frequency, geographical coordinates of occurrence,
- ✓ Determine operational impact (communication loss, Nav aids)

Source localization

- ✓ In most of the cases by National Spectrum/Telecom authorities
- ✓ Use monitoring equipment, DF (direction-finding) techniques

2. Addressing frequency interference

2.2 Interference resolution



Immediate mitigation

- ✓ Contingency measures
- ✓ Tactical ATC measures: rerouting, spacing adjustments
- ✓ Switch to backup or alternate frequencies (if any)

Technical investigation

- ✓ Technical investigation by ANSP/CAA
- ✓ Confirm whether interference is internal or external
- ✓ Engage the National Regulatory Authority (NRA)

Coordination

- ✓ ICAO WACAF/ESAF involved when:
 - Cross border interference is suspected
 - Recurrent interference from neighbouring FIRs
 - Interference affecting multiple States
- ✓ ICAO facilitates exchange of technical details and coordination meetings

2. Addressing frequency interference

2.3 Closure and documentation

- National Spectrum Regulatory Authority enforces corrective actions
- State (CAA) records incident in national database
- Report shared during AFI regional CNS/ATM meetings (if relevant)



2. Addressing frequency interference

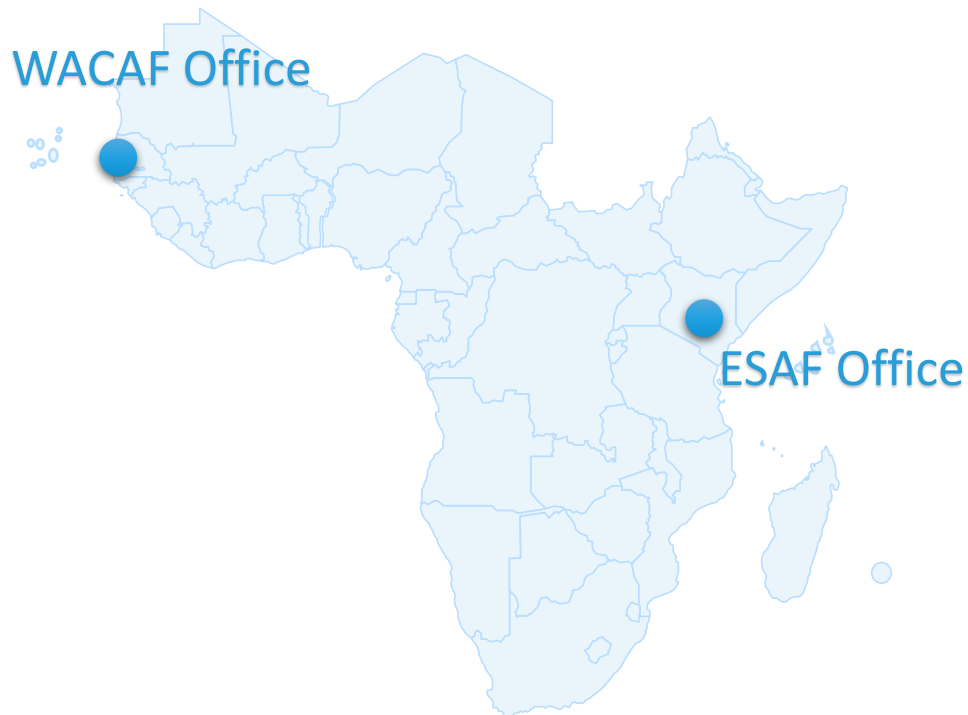
2.4 GNSS RFI in AFI (Growing Challenge)

- Observed in some States in AFI region with operational impact
- Need for **regional standard reporting** (template under development)
- Strong link with **Session 5** (GNSS RFI Reporting Procedures)



2. Addressing frequency interference

2.5 Role of ICAO Regional Offices (WACAF/ESAF)



- Provide **technical support** and **facilitate inter-State coordination**
- Assist with GNSS RFI reporting and analysis
- Promote ICAO standards (Annex 10, Doc 9718, Doc 8071)
- Support States in cross-border interference resolution
- Provide platforms: CNS SG, IIM SG, workshops, technical missions

03

Recommendations



3. Recommendations

State level

- Establish robust reporting and resolution mechanisms in coordination with national spectrum authorities.
- Designate national focal points for interference management.
- Harmonize frequency plans across all aviation stakeholders.
- Engage telecom regulators to prevent unauthorized emissions and resolve conflicts.

Regional level

- Interference issues are regularly addressed through regional platforms, including:
- Strengthen the AFI Frequency Management Task Force under APIRG and AFI IIM spectrum projects : GNSS RFI reporting templates , guidance for GNSS RFI management,
- Implement conclusions from AASPG/APIRG and other regional bodies to mitigate radio interference.
- ICAO AFI Regional Office

04

Conclusion



4. Conclusion

Key Takeaways

- Interference is a shared challenge requiring regional cooperation
- Effective management depends on:
 - ✓ Timely reporting
 - ✓ Efficient coordination with national spectrum/ telecom regulators
 - ✓ Technical capability
 - ✓ Cross-border coordination
- Next steps:
 - ✓ Strengthen regional monitoring
 - ✓ Improve data sharing
 - ✓ Enhance training and awareness



Thank You

