



ICAO

International Civil Aviation Organization

**ELEVENTH MEETING OF THE SURVEILLANCE
IMPLEMENTATION COORDINATION GROUP
(SURICG/11)**

Bangkok, Thailand, 25 – 27 March 2026

Agenda Item 13: Next meeting & any other business

UPDATE ON SSR MODULES OF FREQUENCY FINDER TOOL

(Presented by the Secretariat)

SUMMARY

This paper presents the latest work, enhancements and functionalities brought to the Frequency Finder tool to assist ICAO Regional Offices and States to manage and coordinate aeronautical frequency assignment as well as SSR Mode S II/SI codes.

1. INTRODUCTION

1.1 ICAO has developed the program Frequency Finder that offers a tool to assist ICAO Regional Offices and States to manage and coordinate aeronautical frequency assignments. Further Frequency Finder provides also for the calculation of interference areas and a geographical interface for plotting of the frequency assignments, including potential interference area.

1.2 In addition, this program combines the database management functions for updating the ICAO COM lists 2 and 3 as well as the SSR list for SSR Mode S II/SI codes.

2. DISCUSSION

2.1 UPDATE ON NEW FUNCTIONALITIES AND COMPLETED ENHANCEMENTS/REVISIONS

2.1.1 Upgrade to the Server of the Frequency Finder tool

2.1.1.1 Due to an audit performed by IT department, it was necessary to implement security improvements to the FF Server (frequency.icao.int). Due to this upgrade, the central database became inaccessible from outside until the necessary security improvements to the FF Server.

2.1.1.2 After the upgrade to the Server was finalized, the various module scripts of that run the main download and export/import functionalities were upgraded to ensure compliance with the latest server enhancements.

2.1.2 Update on the status of the SSR RT versions

2.1.2.1 Having just completed the work on the VHF-COM module, two standalone modules for the NAV and SSR will be provided to States. It is recommended to continue using your current

versions of these modules offline. Meanwhile, for assignment requests regarding the NAV and SSR modules, please continue to address them to your Regional officer.

2.2 MODERNIZATION OF THE ICAO FREQUENCY FINDER APPLICATION: ENHANCING FREQUENCY SPECTRUM MANAGEMENT FOR AERONAUTICAL COMMUNICATIONS, NAVIGATION, AND SURVEILLANCE

2.2.1 With the rise of new CNS technologies, such as space-based VHF, and the growing complexity of frequency planning, the FF application requires a significant upgrade to support modern demands. Without these improvements, the FF application will struggle to meet the future needs of global aviation, leading to unsafe frequency assignments and a loss of trust among ICAO member States.

2.2.2 This project aims to modernize the existing FF application to address its current limitations, including the challenges posed by the discontinuation of the FileMaker runtime license, and to introduce new capabilities. The modernization will be implemented in four distinct phases described below. Each phase will have clearly defined objectives and deliverables to ensure a structured and efficient approach.

Some of the Common Modernizations Across All Phases

- **Cyber Resilience:** Implement advanced security features to protect the FF application from threats and ensure data integrity.
- **Enhanced Data Presentation:** Improve the visualization and presentation of data, optimize frequency assignment workflows, and enable better decision-making for ICAO member states and regional offices.
- **Real-Time Visualization:** Enhance real-time visualization of communication spectrum usage for more accurate and efficient decision-making.
- **Platform Transition:** Migrate the modules away from FileMaker to a more robust, modular, scalable and secured platform, ensuring operational continuity.

Phase 1: VHF- COMMUNICATION SYSTEMS MODULE

This phase focuses on modernizing the Aeronautical Communication Module, improving the frequency assignment processes for VHF air/ground communications by ensuring compatibility and minimizing interference.

Phase 2: NAVIGATION SYSTEMS MODULE

The second phase focuses on upgrading the Navigation Module, particularly in the frequency planning of navigation aids such as ILS, DME, and VOR.

Phase 3: SURVEILLANCE MODULE

This phase will modernize the Surveillance Module, focusing on improving Interrogator codes (IC codes including II and SI codes) assignment for surveillance systems such as secondary Surveillance Radar.

Phase 4: IMPROVEMENTS OF FREQUENCY FINDER

This phase will enhance the Frequency Finder Application. The key deliverables expected from this phase will include:

- Space-based VHF added to the Communications Module;
- Intermodulation products calculator, and
- Coverage analysis and Simulation

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) make extensive usage of the Frequency finder tool; and
- c) provide feedback on FF tool usage, bugs and recommendations.
