*International Civil Aviation Organization*

**EIGHTH MEETING OF SPECTRUM REVIEW WORKING GROUP (SRWG/8)**

Bangkok, Thailand, 05 – 07 March 2024

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**Agenda Item 4:** Update on Frequency Finder

# UPDATE ON THE MODULES IN FREQUENCY FINDER

A toolkit for managing, assessing compatibility and presenting frequency assignments for aeronautical communication and navigation systems as well as for the coordination of SSR Mode S Interrogator Identifier (II)/ Surveillance Identifier (SI) codes

(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.

Action by the meeting is in paragraph 3.

## 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 any 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. CURRENT WORK ON FREQUENCY FINDER

2.1 New functionality brought to the VHF-Communications (VHF-COM) module

2.1.1 Recently, the need has been identified in the APAC Region and other ICAO regions for States to be able to import bulk records to their local copy of FF, when they required to add a lot of data. Since ICAO received several similar requests, to assist them ICAO implemented this new functionality in the VHF-COM module, where the records imported are treated as drafted records.

2.1.2 The import function till now was only provided to the Regional Officer (RO) with the possibility to select the file and upload it to the server after having saved the excel file received from the State in the chosen folder e.g. “import submissions”. However, it is important to note that these imported records need then to be revisited by the State performing this action and tested, if they are compatible and thereafter to decide, whether to save them as registered or to delete them. Once they are

imported, they are only on their local copy of FF. This action as normally done with the new draft records created. Since these records are only saved on their local copy of FF, the regular export submission to the RO must still be followed for them to be uploaded to the server.

2.1.3 As shown in Figure 1 below, to perform this functionality several steps are necessary and will also need to be performed in that order:

- Reading the instructions on how to perform this functionality;
- Filling out the import excel template which includes the fields found in the VHF-COM module;
- Once this template is filled, it can be imported through the button “import bulk excel draft records”.


**Figure 1. Import bulk records excel sheet, button and instructions**

2.1.4 With the kind collaboration of the State of Japan, this functionality was successfully tested with the import of approx. 800 records as draft records. This functionality was performed in a timely manner not exceeding two minutes.

2.1.5 It is further planned to implement this functionality in the VHF-NAV module as well.

2.2 Enhancement being brought to the VHF- Navigation systems (VHF-NAV) module

2.2.1 FSMP-WG/18 meeting was held between6 and16 February 2024 and reviewed WP02 - Proposed changes to DOC 9718, Volume II on GBAS frequency assignment planning. This WP presented modification proposals from the Navigation Systems Panel (NSP) Joint Working Groups to the ICAO Spectrum Handbook, Volume II, Chapter 6 on Ground-based augmentation system (GBAS)/VHF data broadcast (VDB) frequency assignment planning.

2.2.2 The proposed modifications included clarifications and corrections of the DOC for the GBAS/VDB, and optional use of the airborne contribution factor (ACF) in frequency assignment planning.

The WP also emphasized that currently GBAS/VDB facilities are satisfactorily operating while the ACF has not been considered (APAC and EUR Regions as well as in the United States).

FSMP WG/18 raised a lot of comments and questions on the proposal from NSP (WP02), which resulted in an action (ACTION ITEM 18-08) for the FSMP membership to provide those comments to the NSP sub working group (SWG) Rapporteur and to the NSP Secretary before 30th April 2024. Those comments from FSMP-WG18 will then be provided and discussed in May 2024 NSP JWGs/12.

2.2.2 Considering the proposed modifications, which will be further discussed at the next NSP sub working group and be re-provided to the FSMP (FSMP WG/19 in July 2024), the VHF-NAV module will be enhanced to be set (forced) to NO ACF. And further, when performing a test with ACF the user would be advised with a dialog box that he/she is using the planning parameters for "WITH ACF" if the Frequency Finder is set to "WITH ACF". It will be noted that the transmission loss in the field “L xx to 1” changes. The same changes will also be noted in the window FF Cochannel. The change will be made automatically when the user changes the button “With ACF” to “No ACF” and vice versa.

2.3 Enhancements of functions brought to the SSR module

2.3.1 In principle, all the functions are the same as for the current version, and the new enhancement which is being brought is based on the request received from European States via the EUR/NAT office and a survey conducted by Eurocontrol.

2.3.2 The coverage of some Mode S radars which have been allocated an interrogator code in the ICAO European Region may overlap the coverage of Mode S radar deployed in adjacent ICAO Regions. Therefore, the coordination of Mode S interrogator codes was required with adjacent ICAO Regional Offices to avoid overlapping coverage of Mode S radars operating on the same interrogator code, i.e. to avoid IC conflicts. It was therefore proposed to perform the IC allocation coordination with adjacent ICAO Regions using ICAO Frequency Finder tool while performing an online survey to request each Mode S Operator their approval for sharing radar information (including radar position) on Frequency Finder.

2.3.3 Based on the outcome of the survey and in order to accommodate also other ICAO regions which may have other needs, it was decided to implement in Frequency Finder a function that hides the coordinates of each radar entry in Frequency Finder, which can be unhidden by the owner of this entry (the State), who will be provided with a code by the RO in order to view the coordinates, modify them or add new coordinates. This applies as well to the display in google earth. This functionality, however will not apply to the Regional Officer role as he/she will still be able to review all coordinates and assist States as needed. This functionality will also not affect the performance of any calculations.

## 3. ACTION BY THE MEETING

3.1 It is foreseen, that the modified version of Frequency Finder will be distributed to the Regional Offices during the end of the second quarter of 2024. The meeting is therefore invited to:

a) note the information contained in this paper;
b) make extensive usage of the Frequency finder tool;
c) discuss any relevant matter as appropriate; and
d) provide feedback on FF tool usage, suggestions, bugs and recommendations.

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