International Civil Aviation Organization

MIDANPIRG/19 and RASG-MID/9 Meetings

(Riyadh, Saudi Arabia, 14-17 February 2022)

Agenda Item 5.8: Air Navigation Planning and Implementation - CNS

FREQUENCY MANAGEMENT

(Presented by the Secretariat)

SUMMARY

This paper presents the outcome of the second meeting of the Frequency Management Working Group and proposes that the geographical separation criteria based on assignments of 50 kHz-spaced frequencies to ILS localizer and VOR, X and Y channels to DME be implemented in the MID Region. Furthermore, the paper highlights States' roles to support ICAO position to the World RadioTelecommunication Conference 2023 (WRC23).

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/18 Report
- FM WG/2 Summary of Discussions

1. INTRODUCTION

1.1 The MIDANPIRG/18 meeting, through MIDANPIRG Conclusion 18/9, established the Frequency Management Ad-hoc Working Group (FM WG/2). The second meeting of the FM WG/2 was conducted virtually, 7 June 2021.

2. DISCUSSION

Reducing Channel Spacing for ILS/VOR

2.1 The meeting may wish to recall the study performed to assess spectrum availability for VHF NAV systems (ILS/DME and VOR/DME) operating in the frequency band 108 – 117.975 MHz. The Study concluded that currently in the MID Region in the area around UAE as well as in the northern part of the MID Region the frequency band is heavily congested or saturated for ILS/DME and VOR/DME frequency assignments.

2.2 The FM WG/2 meeting decided, pending final endorsement by MIDANPIRG, that the frequency congestion necessitates reducing the channel spacing of the VOR/ILS from 100 KHz to 50 KHz/Y DME channel to increase the frequencies availability. The FM WG/2 meeting justified the feasibility of reduced channel spacing implementation in the MID Region as follow:

- *the Annex 10 Volume I published in 1972 indicated possible 50 kHz channel spacing;*
- *the relevant provisions have been in existence since long time, so aircraft if produced in 1990s should have such capabilities;*
- *the reduced space channels has been implemented in several ICAO Regions since long time (over 30 years); and*
- *some MID States already implemented the reduced channel spacing without prior coordination with ICAO.*

2.3 Furthermore, IATA MENA confirmed that they did not expect any issue with operator's compliance.

2.4 Based on the above, the FM WG/2 stressed the need for maximum economy in frequency demands and in radio spectrum utilization and proposed that the geographical separation criteria based on assignments of 50 kHz-spaced frequencies to ILS localizer and VOR, X and Y channels to DME be implemented in the MID Region. Accordingly, the FM WG/2 proposed the following Draft Conclusion:

Why	To implement reduced channel spacing for Radio Navigation Aids in the MID Region to increase scale of available frequencies and reduce frequencies saturation issue
What	Process PfA to the MID ANP Vol II, CNS Specific requirements
Who	ICAO
When	February 2022

Draft Conclusion 2/1: Reduced Channel Spacing for VHF NAV

That, the ICAO MID Office, process a proposal for amendment to the MID ANP Volume II, CNS Specific Requirements to implement reduced channel spacing for Radio Navigation Aids.

2.5 The meeting may wish to recall that MIDANPIRG/18 meeting, through Conclusion 18/46, tasked the Frequency Management Working Group with the development of a rolling frequency assignment plan, in order to secure adequate spectrum for VHF-COM, ILS, VOR, DME and GBAS/VDB facilities and meet the operational requirements up to 2030. The FM WG/2 meeting agreed to postpone this action and to conduct another study to assess the frequency congestion after implementation of the reduced channel spacing for VHF navigation facilities.

Review frequency Assignments in the MID Region

2.6 The FM WG/2 was apprised of the following incorrect data in the ICAO Global NAV database:

a) ***Incorrect coordinates***
Some data in NAV module in MID have incorrect coordinates, those wrong data would influence the accuracy and availability of frequency assignment.

b) ***Designated Operational Coverage (DOC)***
Some data includes designated operational coverage more than operationally required, which impact significantly the frequency availability.

2.6 Based on the above, it was agreed that States to continue updating the ICAO Global database and this action should be ideally completed during ACAO/ICAO Frequency Management Workshop.

Radio Altimeter &5G Interference

2.7 The FM WG/2 addressed the issue of Protecting Radio Altimeter Operations Electro magnetic Compatibility (EMC) Aspects related to 5G. The meeting was apprised of latest information on the deployment of 5G services and related safety concern that was subject of ICAO State Letter, which invited States to consider as a priority, public and aviation safety when deciding how to enable cellular broadband/5G services in radio frequency bands near the bands used by radio altimeters.

2.8 The Radio altimeters provide an essential informational component of the automatic flight control system for approach and landing, ground proximity warning system, terrain awareness and warning system, flight management guidance computer, flight control systems, electronic centralized aircraft monitoring.

2.9 ICAO issued a State Letter dated 25 March 2021 on the potential impact of the 5G on Radio Altimeter in the MID Region.

2.10 The meeting may wish to note that the FM WG/2 meeting agreed on the need to collect and share information on the best practices implemented by States and Regional Organizations to mitigate 5G potential interference that may impact the radio altimeters and develop MID guidance material. Accordingly, the FM WG/2 amended the its Terms of Reference as at **Appendix A**; and agreed to the following Draft Decision:

Why	To add new tasks related to Radio Altimeter /5G interference
What	Update the FM WG Terms of Reference
Who	MIDANPIRG/19
When	February 2022

DRAFT DECISION 2/2: TERMS OF REFERENCE OF THE FREQUENCY MANAGEMENT AD-HOC WORKING GROUP

That, the Terms of Reference of the Frequency Management WG be updated as at ***Appendix A.***

2.11 The FM WG/2 meeting proposed to establish an Action Group to develop Guidance Material to protect the aircraft operations from 5G potential interference associated with the deployment of 5G ground

infrastructure in radio frequency bands near the bands used by radio altimeters (RADALT). Accordngly, the meeting agreed to the following Draft Decision:

Why	To develop guidance material to protect the RADALT from RFI
What	Establish Protecting RADALT Guidance Action Group
Who	MIDANPIRG/19
When	February 2022

DRAFT DECISION 2/3: PROTECTING RADALT GUIDANCE ACTION GROUP

That, the Protecting RADALT Guidance Ad-hoc Action Group be:

a) established to develop guidance material to protect the aircraft operations from potential Radio Altimeter interference associated with the deployment of cellular broadband/5G ground infrastructure near the bands used by RADALT; and

b) Composed of:

Mr. Ridha Dridi, (Saudi Arabia, Rapporteur);
Khaled Alhazmi (Saudi Arabia)
Fares A. Alzahrani (Saudi Arabia)
Abdullaziz Hussain (Saudi Arabia)
Mohammed Kamal (Egypt);
Nevin Askar (Jordan);
Talal Al Jasmi (UAE);
ICAO MID

Preparation for WRC23

2.12 The ICAO Position at the WRC-23 was disseminated to States on 18 August 2021 (refers SL E 3/5-21/37), and will be submitted to the ITU WRC-23.

2.13 In addition, ICAO will undertake, within the budget limits of the Organization, to present the ICAO Position at the WRC-23 preparatory activities within ITU and Regional Telecommunications Organizations. However, the active support from States is the only way to ensure that the results of WRC-23 reflect civil aviation's continued need for radio frequency spectrum.

2.14 The meeting may wish to recall the Assembly Resolution A38-6 (Support of the ICAO Policy on radio frequency spectrum matters). Hence, States' support and participation in regional WRC-23 preparatory meetings is crucial. Furthermore, MIDANPIRG/18, through Conclusion 18/44, agreed that a WRC23 preparatory Workshop be organised in 2022. The ICAO MID Office planned to organise a WRC23 preparatory Webinar in the 2nd quarter 2022 (23-24 May 2022).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) endorse the proposed Draft Conclusion & Decisions;

b) urge States to participate actively in the ACAO/ICAO Frequency Management Workshop and WRC23 preparatory Webinar; and

c) consider the ICAO Position when developing State's position for WRC-23 and to support the ICAO Position during WRC-23.

APPENDIX 6.2U

Frequency Management ~~Ad hoc~~ Working Group (FMWG)

1. TERMS OF REFERENCE (TOR)

The FMWG will undertake the following tasks in the work required to manage the MID Region frequency assignments in order to ensure sufficient access to the resource for the provision of aeronautical communication, navigation and surveillance services (CNS) in an efficient and safe manner:

a) develop MID Region frequency assignment plan including long term spectrum usage of radio systems;
b) validate the ICAO Global database and keep it up to date;
c) resolve current frequency assignments conflict in the ICAO Global database;
d) develop recommendation or proposal for improvement to the existing regional VHF frequency assignment process based on the ICAO Global Spectrum Management tool, ICAO 9718 Volume II Handbook provision and current coordination issues;
e) propose solutions for the interference incidents occurred in MID Region states in a timely manner;
f) escalate the intentional frequency interference matters and coordinate with other relevant international organizations, as and when required;
g) provide guidance/support to States to protect the GNSS signals;
h) collaborate with ITU and other relevant international organization to address frequent interference incidents;
i) support for ICAO Position at World Radio Communication Conference (WRC) and ensure MID States' support ICAO at ITU meetings;
j) collaborate with Regional Groups; Arab Spectrum Management Group (ASMG) ~~and~~ African Telecommunication Union (ATU), and Asia/Pacific Telecommunication Group (APT) to support ICAO position at WRC;
k) ensure the continuous and coherent development of the relevant sections of the MID eANP, taking into account the evolving operational requirements in the MID Region and the need for harmonization with the adjacent regions in compliance with the Global Air Navigation Plan;
l) develops recommendations for CNS SG about how to address the future operational needs and limitations in VHF voice communications, aiming at avoiding introduction of 8.33 kHz spacing in the MID Region for as long as practicable; and
m) Frequency Management Working Group will be responsible for overall supervision of the frequency issues in the MID Region and will review/update the FMWG work plan whenever required.
n) Collect and share information on the best practices implemented by States and Regional Organizations to mitigate potential radio altimeters (RADALT) interference that caused by 5G operation.
~~m)~~ Develop guidance material to protect aircraft operations from potential Radio Altimeter interference associated with the deployment of 5G ground infrastructure

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2. COMPOSITION

a) ICAO MID Regional Office;
b) MIDANPIRG CNS Sub Group Chairpersons;

c) Members appointed by the MIDANPIRG member States; and
d) other representatives, who could contribute to the activity of the Working Group, could be invited to participate as observers.
