

Second meeting of the Frequency Management Working group (FM WG/2)

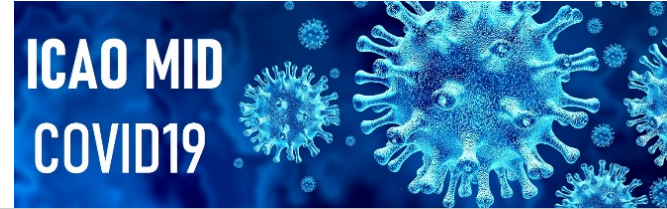
Virtual meeting



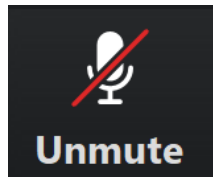
7/6/2021



Welcome & Introduction



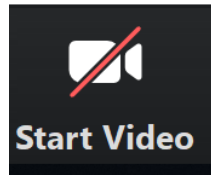
Meeting Notes



Unmute

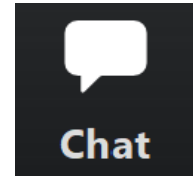
Keep Mic muted

Unmute your mic only when invited to speak



Start Video

Switch off camera if the quality of Internet is not good

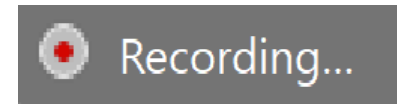


Chat

use “Raise hand” or chat box if you wish address question or comment



Raise Hand



Meeting is recorded

Meeting Agenda



- 1** Adoption of provisional agenda
- 2** Follow-up on MIDANPIRG/18 Conclusions relevant to FM
- 3** Spectrum capacity assessment for the band 108-117.975 MHz
- 4** Future work programme
- 5** any other business

The meeting is invited to review and adopt the Agenda of the meeting

Meeting Agenda



- 1 ~~Adoption of provisional agenda~~
- 2 Follow-up on MIDANPIRG/18 Conclusions relevant to FM
- 3 Spectrum capacity assessment for the band 108-117.975 MHz
- 4 Future work programme
- 5 any other business



No.	Conclusions & Decisions	Concerns/ Challenges/ Rationale	Deliverables/ To be initiated by		Target Date	Status/ Remarks
C. 18/45	<p>FREQUENCY COORDINATION PROCESS IN THE MID REGION</p> <p>That, in order to enhance the frequency coordination process in the MID Region, States be invited to:</p> <ul style="list-style-type: none"> a) use the latest version of the FF tool in frequency coordination process; b) provide ICAO with updated frequency list for COM VHF and NAV (with accurate information); c) provide feedback on the FF tool; d) nominate Frequency Management Focal Points, if not yet done so; and e) participate actively in the frequency management workshop planned for 2021 	<p>To optimize frequency assignment process and reduce interferences</p>	<p>State Letter</p> <p>Registered frequency database is up to date</p>	<p>ICAO</p> <p>States</p>	<p>2022</p>	



No.	Conclusions & Decisions	Concerns/ Challenges/ Rationale	Deliverables/ To be initiated by		Target Date	Status/ Remarks
C. 18/46	<p>LONG-TERM FREQUENCY ASSIGNMENT PLAN IN THE MID REGION</p> <p>That, 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 Frequency Management Ad-hoc Working Group (FM WG) is tasked with the development of a rolling frequency assignment plan in coordination with concerned parties.</p>		Long-TERM Frequency Assignment plan in the MID Region	ICAO in coordination with concerned parties	2022	Ongoing



No.	Conclusions & Decisions	Concerns/ Challenges/ Rationale	Deliverables/ To be initiated by		Target Date	Status/ Remarks
C. 18/44	WRC23 PREPARATORY WORKSHOP That, a WRC23 preparatory Workshop be organised in 2022 jointly with ACAO, the Arab Spectrum Management Group (ASMG) and AFI Region.		WRC23 Preparatory Workshop	ICAO	Q2 2022	<i>Ongoing</i>

Meeting Agenda



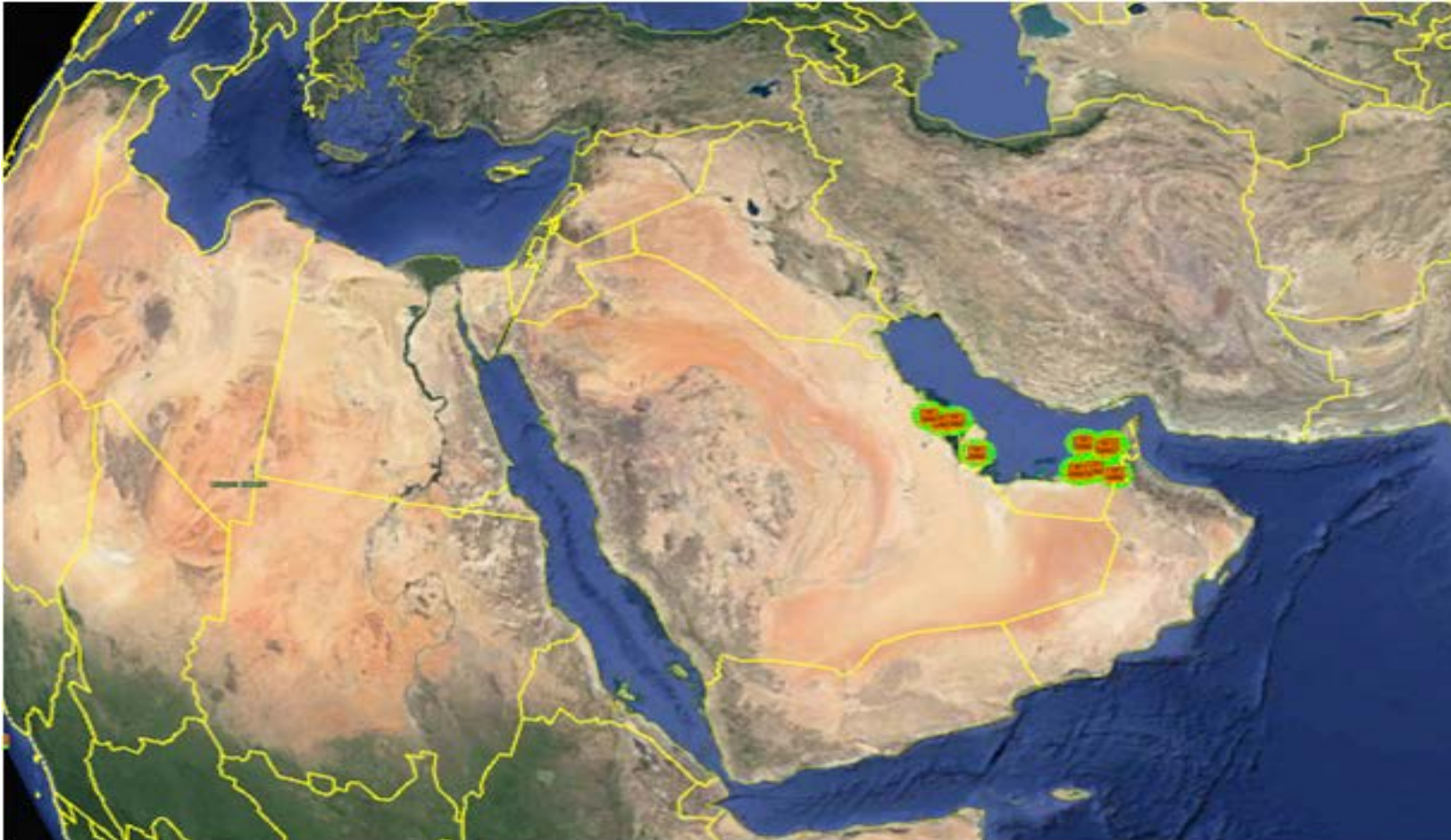
- 1** — ~~Adoption of provisional agenda~~
- 2** — ~~Follow-up on MIDANPIRG/18 Conclusions relevant to FM~~
- 3** — Spectrum capacity assessment for the band 108-117.975 MHz
- 4** — Future work programme
- 5** — any other business



Reducing Channel Spacing for ILS/VOR

- The FM WG/1 meeting was apprised of the result and conclusions of 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 the 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.

Spectrum capacity assessment for the frequency band 108 – 117.975 MHz



Locations of
ILS/DME
facilities where
no frequency
assignment
could be made

Spectrum capacity assessment for the frequency band 108 – 117.975 MHz



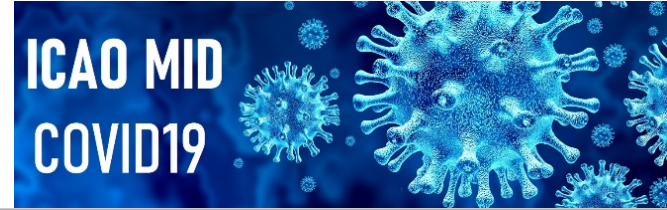
VOR/DME - No
frequency on
100 kHz
channels could
be assigned to
17 VOR/DME
facilities



Spectrum capacity assessment for the frequency band 108 – 117.975 MHz

Next action(s)

- To update the NAV module with operating facilities in the MID Region; Ongoing
- **study the feasibility of implementing 50KHz channel spacing; and**
- To develop a rolling frequency assignment plan for VHF-COM and ILS, VOR, DME and GBAS/VDB facilities that is aimed at satisfying the operational needs from States until 2030. (States plans to install future NAV and/or COM facilities???)



Reducing Channel Spacing for ILS/VOR

- The Annex 10 Volume I published in 1972 indicated possible 50 kHz channel spacing.
- The relevant provisions have been exist long enough from 1972 or 1992...so most probably aircraft if produced after 1992 should have such capabilities.
- Therefore moving to 50 kHz channel spacing should not have such difficulties in MID region considering many of States in MID have the most advanced aviation facilities.
- The frequency congestion necessitates reducing the channel spacing of the VOR/ILS from 100KHz to 50 KHz/Y DME channel.
- The Aircraft equipment must be configured to receive full navigation services. The reduced space channels has been implemented in several ICAO Regions since long time (over 30 years).



4.2.3.1 Frequencies for VOR facilities ending in *even tenths plus a twentieth* of a megahertz in the band 108 – 111.975 MHz and all frequencies ending in *50 kHz* in the band 111.975 – 117.975 MHz shall be permitted to be utilized on the basis of a regional agreement when they have become applicable in accordance with the following:

- a) in the band 111.975 – 117.975 MHz for restricted use;
- b) for general use in the band 111.975 – 117.975 MHz at a date fixed by the Council but at least one year after the approval of the regional agreement concerned;
- c) for general use in the band 108 – 111.975 MHz at a date fixed by the Council but giving a period of two years or more after the approval of the regional agreement concerned.

Note.— “Restricted use”, where mentioned in 4.2.2.1 a) and 4.2.3.1 a), is intended to refer to the limited use of the frequencies by only suitably equipped aircraft and in such a manner that:

- a) *the performance of ILS or VOR equipment not capable of operating on these frequencies will be protected from harmful interference;*
- b) *a general requirement for the carriage of ILS or VOR airborne equipment capable of operation on these frequencies will not be imposed; and*
- c) *operational service provided to international operators using 100 kHz airborne equipment is not derogated.*

4.2.4 To protect the operation of airborne equipment during the initial stages of deploying VORs utilizing 50 kHz channel spacing in an area where the existing facilities may not fully conform with the Standards in Annex 10, Volume I, Chapter 3, all existing VORs within interference range of a facility utilizing 50 kHz channel spacing shall be modified to comply with the provisions of Annex 10, Volume I, 3.3.5.7.

The use of 50 kHz VOR channels is permitted as in Annex 10, Volume V, paragraph



<i>Localizer (MHz)</i>	<i>Glide path (MHz)</i>	<i>Localizer (MHz)</i>	<i>Glide path (MHz)</i>
108.1	334.7	110.1	334.4
108.15	334.55	110.15	334.25
108.3	334.1	110.3	335.0
108.35	333.95	110.35	334.85
108.5	329.9	110.5	329.6
108.55	329.75	110.55	329.45
108.7	330.5	110.7	330.2
108.75	330.35	110.75	330.05
108.9	329.3	110.9	330.8
108.95	329.15	110.95	330.65
109.1	331.4	111.1	331.7
109.15	331.25	111.15	331.55
109.3	332.0	111.3	332.3
109.35	331.85	111.35	332.15
109.5	332.6	111.5	332.9
109.55	332.45	111.55	332.75
109.7	333.2	111.7	333.5
109.75	333.05	111.75	333.35
109.9	333.8	111.9	331.1
109.95	333.65	111.95	330.95



4.3.2 DME channels bearing the suffix “W” or “Z” in Table A, Chapter 3 of Annex 10, Volume I, shall be chosen on the basis of regional agreement when they become applicable in accordance with the following:

- a) for restricted regional use on or after, whichever is the later:
 - 1) 1 January 1989; or
 - 2) a date prescribed by the Council giving a period of two years or more following approval of the regional agreement concerned;
- b) for general use on or after, whichever is the later:
 - 1) 1 January 1995; or
 - 2) a date prescribed by the Council giving a period of two years or more following approval of the regional agreement concerned.

Note.— “Restricted use” is intended to refer to the limited use of the channel by only suitably equipped aircraft and in such a manner that:

- a) the performance of existing DME equipment not capable of operating on these multiplexed channels will be protected from harmful interference;*
- b) a general requirement for the carriage of DME airborne equipment capable of operating on these multiplexed channels will not be imposed; and*
- c) operational service provided to international operators using existing DME equipment without the multiplexed channel capability is not derogated.*



Channel pairing				DME parameters					
				Interrogation				Reply	
				Frequency MHz	DME/N µs	Pulse codes		Frequency MHz	Pulse codes µs
Initial approach µs	Final approach µs								
DME channel number	VHF frequency MHz	MLS angle frequency MHz	MLS channel number						
28X	109.10	5 034.0	510	1 052	12	12	18	989	12
28W	–	5 034.3	511	1 052	–	24	30	989	24
28Y	109.15	5 049.6	562	1 052	36	36	42	1 115	30
28Z	–	5 049.9	563	1 052	–	21	27	1 115	15
29X	109.20	–	–	1 053	12	–	–	990	12
29Y	109.25	5 050.2	564	1 053	36	36	42	1 116	30
29Z	–	5 050.5	565	1 053	–	21	27	1 116	15
30X	109.30	5 034.6	512	1 054	12	12	18	991	12
30W	–	5 034.9	513	1 054	–	24	30	991	24
30Y	109.35	5 050.8	566	1 054	36	36	42	1 117	30
30Z	–	5 051.1	567	1 054	–	21	27	1 117	15
31X	109.40	–	–	1 055	12	–	–	992	12
31Y	109.45	5 051.4	568	1 055	36	36	42	1 118	30
31Z	–	5 051.7	569	1 055	–	21	27	1 118	15



Reducing Channel Spacing for ILS/VOR

The meeting is invited to agree to issue PfA to MID ANP VOL II, Specific Regional Requirements – CNS to add the following under Frequency Management for Radio Navigation Aids:

Frequencies should be assigned to all radio navigation facilities taking into account:

- a) agreed geographical separation criteria based on assignments of 50 kHz-spaced frequencies to ILS localizer and VOR, X and Y channels to DME;
- b) the need for maximum economy in frequency demands and in radio spectrum utilization; and
- c) a deployment of frequencies which ensures that international services are planned to be free of interference from other services using the same band.



Review frequency Assignments in the MID Region

- FM WG/1 meeting agreed to update the NAV module with operating facilities in the MID Region;
- The review of the current entries in ICAO database:
 - a) wrong coordinates

Some data in NAV module in MID have incorrect coordinates. Since those wrong data will influence outcome of the NAV modules outcome, and in some cases, appropriate frequencies cannot be found due to those wrong data. --→ ***review the registered data and if required, correct them***

b) DOC

Some data includes designated operational coverage more than operationally required.

review the operational requirements for each registered DOCs and correct them

Meeting Agenda



- ~~1 Adoption of provisional agenda~~
- ~~2 Follow-up on MIDANPIRG/18 Conclusions relevant to FM~~
- ~~3 Spectrum capacity assessment for the band 108-117.975 MHz~~
- 4 Future work programme
- 5 any other business



OCTOBER 2021				
18-21	ACAO/ICAO Frequency Management Workshop	Casablanca	(Joint with ACAA, Supported by HQ)	TBC
21-22	Frequency Management WG/3	Casablanca	(Back-to-back with the Frequency Management Workshop)	TBC

Meeting Agenda



- ~~1 Adoption of provisional agenda~~
- ~~2 Follow-up on MIDANPIRG/18 Conclusions relevant to FM~~
- ~~3 Spectrum capacity assessment for the band 108-117.975 MHz~~
- ~~4 Future work programme~~
- 5 any other business

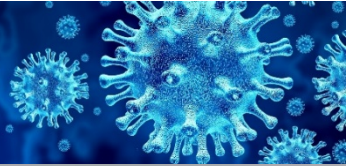


AOB

Protecting Radio Altimeter Operations – presented by
Saudi Arabia

A stylized lightbulb icon with a blue outline, a yellow arrow pointing right inside, and three green lines at the base representing the filament.

Any other Business



Thank you for your Attention