



ICAO Frequency Finder Easy Reference for Exercise AFI Introductory Virtual Workshop Presentation 2: Demo and Exercise

Presented by

11 May 2022

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Prep for FF operation

- **Download** from the FSMP website the zip-file FF2020.08
www.icao.int/safety/fsmp/documents/frequencyfinder
- Remove earlier version of Frequency Finder, if any.
- **Unzip and run the installer file FF2020.8.R.exe**
- Select to create desktop icon
- **Download and install Google Earth**
- More details in the User Manual :

Installing Frequency Finder(Run-time version)

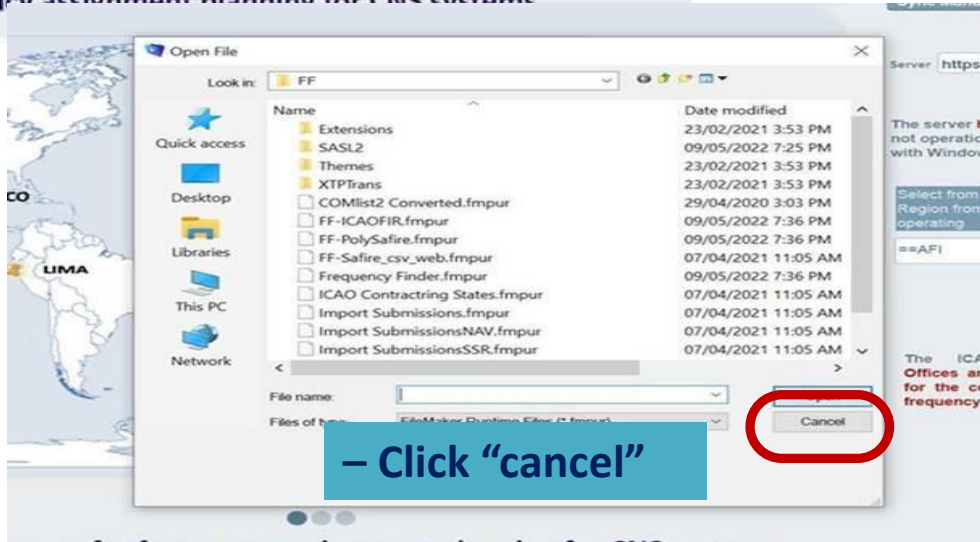
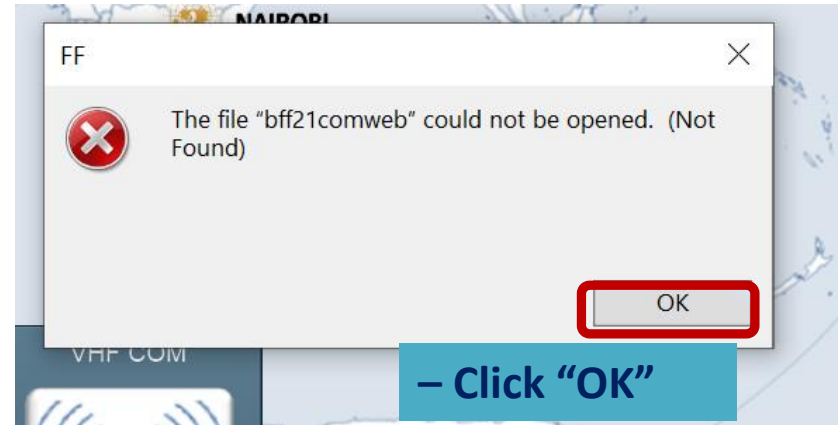
This PC > Windows (C:) > FrequencyFinder

- User manual - Import Submissions.docx
- User manual - InstallFullRegionalOffices.docx
- User manual - InstallRuntime2017.docx
- User manual - Planning criteria Mode S II.docx

RECONNECTING THE WORLD



You might get the messages below.



Note that those do not effect any work of the software but we are working on removing those.





Exercise 1 – VHF-COM module

Query – Example: Angola 130.900 Mhz




Exercise 1 – VHF-COM module Query – Example: Angola 130.900 Mhz

Frequency Finder

Home  Regional COM list 

Query database
Enter your QUERY

 ST

QUERY DATABASE QUERY DATABASE QUERY DATABASE QUERY DATABASE QUERY

Region ==AFI Frequency 130.900
Country ==Angola R Service
Location R FIR Sector
Ext. Range

Query Database

1. Select criteria for the query from the fields in the blue box
2. Select geographic parameters (Region, Country and Location) first, if required
3. Select Frequency, Service or FIR Sector, if required ER

Note: combinations of frequency, service and sector are not permitted since

Find

New Query

To delete parameters for the query click button New Query

① Click **“Query”**

② Select State: **Angola**, Frequency : **130.900**

③ Click **“Find”**



Result – VHF-COM module exercise 1 – Example: Angola 130.900 Mhz

Frequency Finder

FF-2017-07 Active Region ==AFI COM list 3 for VHF COM air/ground frequency assignments in the band

Start Home Global COM list Active Find New or Mod or Del Freq. TEST FREQUENCY Calculation results

Regional COM list SELECT MAPPING Export COM list 3 Special Func

FM DU D total found 27133 1 Query

Query active.
To return query click button "Active Find"
To cancel query: click button "Select" and "Clear"

UL Key Region Frequency Country Location Latitude Longitude DOC

R	300899	AFI	130.900	Angola	LUANDA ACC	08D51'00" S	013D14'00" E	ACC-U C-260/450
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***Frequency Finder found the 130.900 MHz
in Angola (Key code 300899)***



Exercise No. 2 – VHF module Compatibility test – Example: Burkina Faso 119.700 MHz



Exercise No. 2 – VHF module Compatibility test – Example: Burkina Faso 119.700 MHz . cont

File Edit View Insert Format Requests Scripts Window Help

Home Regional COM list

Query COM List 3
Enter your QUERY

QUERY DATABASE QUERY DATABASE QUERY DATABASE QUERY DATABASE QUERY

Region ==AFI Frequency No Frequency selected

Country ==Botswana Service No Service selected

Location No Location selected FIR Sector No FIR name selected

Ext. Range No ER selected

Find

- ① Click "Query"
- ② Select State: **Burkina Faso**
- ③ Click "Find"



MOD	Key	Region	Frequency	Country	Location	Latitude	Longitude	DOC	FIR Sector	PolyID	Extended Range	F	Cat	Stat	Remarks
R	300222	AFI	119.700	Burkina Faso	BKF BOBO DIOULASSO	11D09'48" N	004D19'15" W	TWR C-25/40					ICAO		
R	301675	AFI	120.300	Burkina Faso	BKF BOBO DIOULASSO	11D09'48" N	004D19'15" W	ACC-U C-200/450	FIR NIAMEY	99295	ER-BKF-1	ICAO		Secteur de C	
R	300223	AFI	121.900	Burkina Faso	BKF BOBO DIOULASSO	11D10'00" N	004D19'00" W	AS C-5/1					ICAO		
R	301676	AFI	129.100	Burkina Faso	BKF BOBO DIOULASSO	11D09'49" N	004D19'15" W	ACC-U C-261/450			ER-CTI-1	ICAO		Secteur de A	
R	301672	AFI	120.300	Burkina Faso	BKF DIAPAGA	12D03'58" N	001D00'00" E	ACC-U C-200/450	FIR NIAMEY	99295	ER-BKF-1	ICAO		Secteur de C	
R	301587	AFI	131.300	Burkina Faso	BKF DIAPAGA	12D03'58" N	001D00'12" E	ACC-U C-200/450	FIR NIAMEY	99295	ER-NIR-1	ICAO		Secteur Oue	
R	301191	AFI	118.100	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	TWR C-25/40				ICAO		OP 120.300	
R	301674	AFI	120.300	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	ACC-U C-200/450	FIR NIAMEY	99295	ER-BKF-1	ICAO		Secteur de C	
R	301825	AFI	121.900	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	AS C-5/1				ICAO			

Select: 300222 (119.700 MHz)



Exercise No. 2 – VHF module Compatibility test – Example: Burkina Faso 119.700 MHz . cont

FF-2020-6 Runtime 16.0.6 Active Region COM LIST 3 for VHF COM air/ground frequency assignments in the band 117.975 - 137 MHz

Start Home Global COM list 3 Active Find New or Mod or Del Fre TEST FREQUENCY Calculation results

AFI COM list 3 RESET QUERY MAPPING Export COM list 3

FM DU D total found 10375 9 Query Query active. To return query click button "Active Find" To cancel query: click button "RESET QUERY"

Quick Find Reset Special Functions - Export submissions -

MOD	Key	Region	Frequency	Country	Location	Latitude	Longitude	DOC	FIR Sector	PolyID	Extended Range	F	Cat	Stat	Remarks	
R		AFI	119.700	Burkina Faso	BKF BOBO DILOULASSO	11D09'48" N	004D19'15" W	TWR C-25/40						ICAO		
R		AFI	120.300	Burkina Faso	BKF BOBO DILOULASSO	11D09'48" N	004D19'15" W	ACC-U C-200/450	FIR NIAMEY	99295			ER-BKF-1	ICAO	Secteur de Ouagad	
R		AFI	121.900	Burkina Faso	BKF BOBO DILOULASSO	11D10'00" N	004D19'00" W	AS C-5/1						ICAO		
R		AFI	129.100	Burkina Faso	BKF BOBO DILOULASSO	11D09'49" N	004D19'15" W	ACC-U C-261/450					ER-CTI-1	ICAO	Secteur de Abidjan	
R		AFI	120.300	Burkina Faso	BKF DIAPAGA	12D03'58" N	001D00'00" E	ACC-U C-200/450	FIR NIAMEY	99295			ER-BKF-1	ICAO	Secteur de Ouagad	
R		AFI	131.300	Burkina Faso	BKF DIAPAGA	12D03'58" N	001D00'12" E	ACC-U C-200/450	FIR NIAMEY	99295			ER-NIR-1	ICAO	Secteur Ouest de Ni	
R		AFI	118.100	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	TWR C-25/40						ICAO	OP 120.300	
R		AFI	120.300	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	ACC-U C-200/450	FIR NIAMEY	99295			ER-BKF-1	ICAO	Secteur de Ouagad	
R		AFI	121.900	Burkina Faso	BKF OUGADOUGOU	12D21'22" N	001D30'47" W	AS C-5/1						ICAO		

- ① With selection of 119.700 MHz, Click **"Test Frequency"**
- ② Select : **Single frequency**
- ③ Click **"MAP"**



Exercise No. 2 – VHF module Compatibility test – Example: Burkina Faso 119.700 MHz . cont

File Edit View Insert Format Records Scripts Window Help

COM Data Base (COM LIST 3) Summary Calculations ST

Active Region ==AFI **Regional COM list** Delete all records Redo calculations Co-frequency details Adj. frequency details

Date	Key	D	Frequency	Region	Country	Location	Service	Margin	Result Co. freq.	Margin	Result Adj. freq.
10_May_2022 8:45:06	300222	R	119.700	AFI	Burkina Faso	BOBO DIULASSO	TWR	-109	Not compatible	***	Compatible
10_May_2022 8:45:27	300222	R	119.700	AFI	Burkina Faso	BOBO DIULASSO	TWR	-109	Not compatible	***	Compatible

① Click **“Co-frequency details”**

File Edit View Insert Format Records Scripts Window Help

COM Data Base (COM LIST 3) Details Co-frequency compatibility Calculation of CO-frequency separation distances Plot interference - All ST

Regional COM list 4 / 8 records Show all records Frequencies with a margin greater than 300 NM are not shown Go to Adj channel calc Go to Summary calc.

Test for the frequency

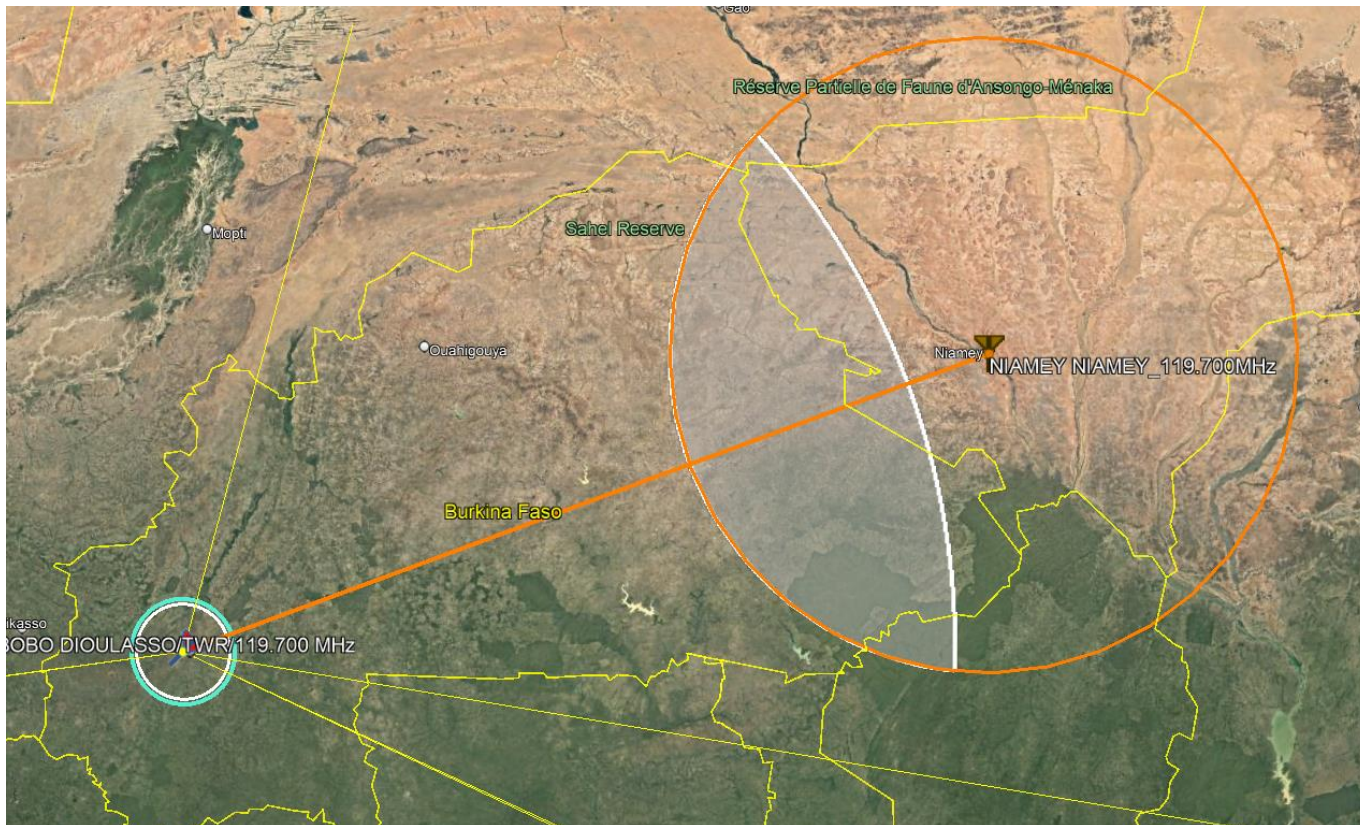
Key	R	Frequency	Range	Height	Radio Horizon	Sectorname	Latitude	Service
1	R	300222	25	4000	78		11D09'48" N	TWR
Region		AFI	Country		BOBO DIULASSO		004D19'15" W	DOC TWR C-25/40
Not compatible with record #2		Margin	-109 NM		Not compatible		Tower Circular	Ext. range
Plot coverage								
First record is station being tested, records below are stations against which the first station has been tested.								
Compatibility calculations between unprotected services are only shown for information.								
2	R	301153	150	45000	261		13D29'00" N	APP-U
Region		AFI	Country		NIAMEY NIAMEY		002D10'00" E	DOC APP-U C-150/450
The distance is measured between the location of the station in record 1 and the location of the station in the current record		Actual distance	405 NM	Required distance	514 NM	Margin	-109 NM Not compatible	
							APP Upper Circular	Ext. range
Plot interference								
3	R	300336	150	45000	261		09D34'00" N	APP-U
Region		AFI	Country		CONAKRY GBESSIA		013D37'00" W	DOC APP-U C-150/450
The distance is measured between the location of the station in record 1 and the location of the station in the current record								
Compatibility calculations between unprotected services are only shown for information.								

Result indicated that 300222 is *Not compatible* with 301153



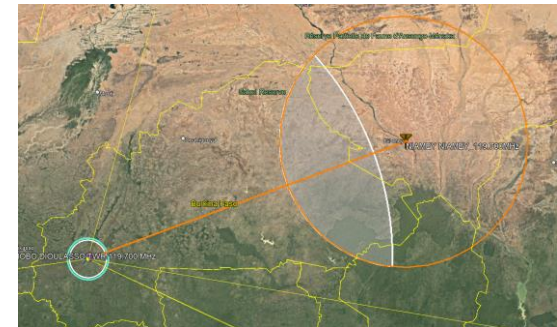
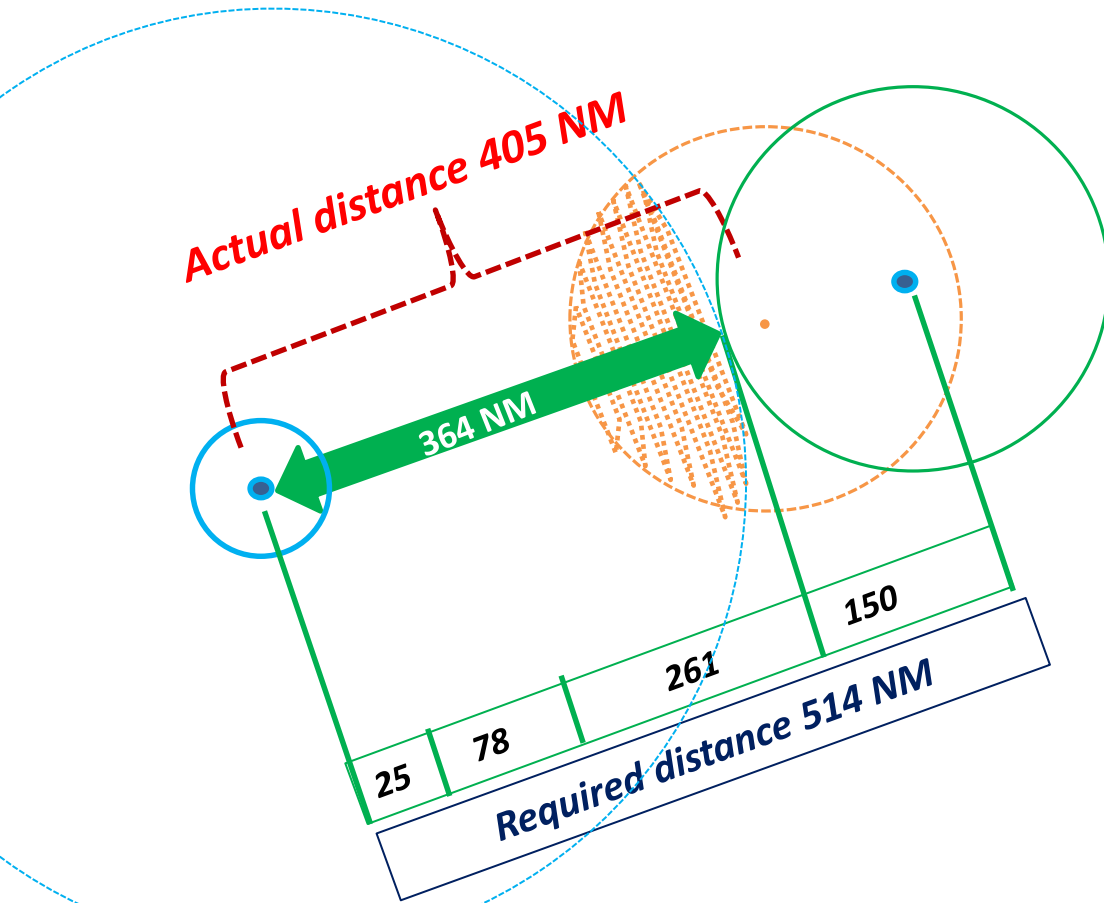
Exercise No. 2 – VHF module Compatibility test – Example: Burkina Faso 119.700 MHz . cont

300222 is Not compatible with 301153

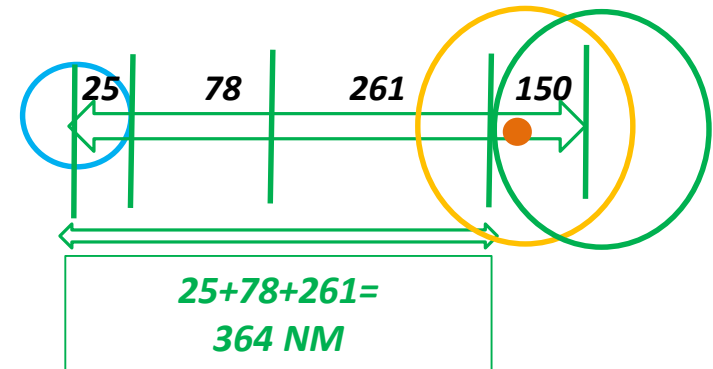




Exercise No. 2 – VHF module Compatibility test
 – Example: Burkina Faso 119.700 MHz . cont
300222 is *Not* compatible with 301153



Required distance 514 NM



If 301153 is located here, It should be compatible

Location of the original 300222

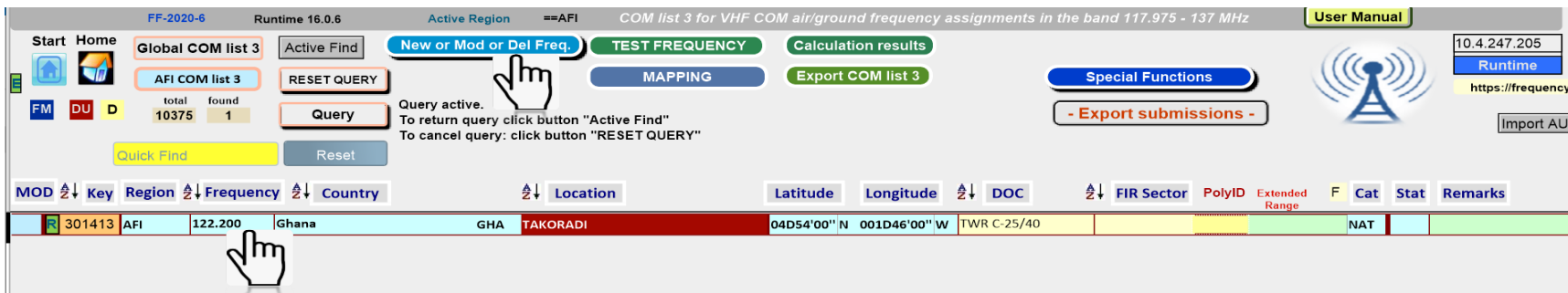


- Exercise No. 3 – VHF module Add Frequency
– Example: Add New TWR frequency to ICAO TEST AFI



Exercise No. 3 – VHF module Add Frequency – Example: Add New TWR frequency to ICAO TEST AFI

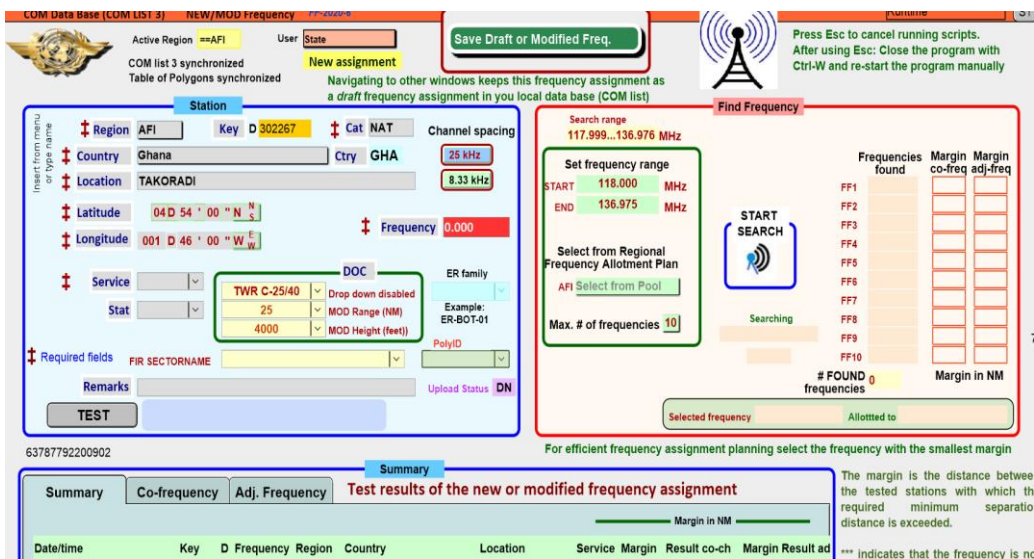
1. Select Ghana 122.200 using Query



Global COM list 3 Active Find **New or Mod or Del Freq.** TEST FREQUENCY Calculation results
AFI COM list 3 RESET QUERY MAPPING Export COM list 3
total 10375 found 1 Query active. To return query click button "Active Find" To cancel query: click button "RESET QUERY"

MOD	Key	Region	Frequency	Country	Location	Latitude	Longitude	DOC	FIR Sector	PolyID	Extended Range	F	Cat	Stat	Remarks
	301413	AFI	122.200	Ghana	GHA TAKORADI	04D54'00"N	001D46'00"W	TWR C-25/40					NAT		

2. Click New or Mod or Del Freq. And select "ADD frequency"



COM Data Base (COM LIST 3) NEW/MOD Frequency Find Frequency

Active Region ==AFI User State Save Draft or Modified Freq. Press Esc to cancel running scripts. After using Esc: Close the program with Ctrl-W and re-start the program manually

COM list 3 synchronized Table of Polygons synchronized New assignment Navigating to other windows keeps this frequency assignment as a draft frequency assignment in your local data base (COM list)

Station

Region AFI Key D 302267 Cat NAT Channel spacing 25 kHz
Country Ghana Ctry GHA 8.33 kHz
Location TAKORADI
Latitude 04 D 54 ' 00 " N Longitude 001 D 46 ' 00 " W Frequency 0.000
Service TWR C-25/40 DOC Drop down disabled ER family
Stat 25 MOD Range (NM) Example: ER-BOT-01
4000 MOD Height (feet) PolyID
Required fields FIR SECTORNAME Upload Status DN
Remarks TEST

Find Frequency

Search range 117.999..136.976 MHz

Set frequency range
START 118.000 MHz
END 136.975 MHz

Select from Regional Frequency Allotment Plan
AFI Select from Pool
Max. # of frequencies 10

Frequencies found	Margin found	Margin co-freq	Margin adj-freq
FF1			
FF2			
FF3			
FF4			
FF5			
FF6			
FF7			
FF8			
FF9			
FF10			

FOUND 0 frequencies Margin in NM

Selected frequency Allotted to

For efficient frequency assignment planning select the frequency with the smallest margin

Summary

Test results of the new or modified frequency assignment

Margin in NM

The margin is the distance between the tested stations with which the required minimum separation distance is exceeded. *** Indicates that the frequency is not

Date/time	Key	D	Frequency	Region	Country	Location	Service	Margin	Result co-ch	Margin Result ad
-----------	-----	---	-----------	--------	---------	----------	---------	--------	--------------	------------------



Exercise No. 3 – VHF module Add Frequency – Example: Add New TWR frequency to ICAO TEST AFI

Add (or change) required information

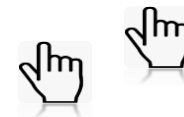
In this example,
Change the following information.

- Country: Ghana to **ICAO TEST AFI**
- Location: TAKORADI to **TEST**
- Cat: NAT to **ICAO**

Add the following information.

- Service: **TWR**
- Stat: **NOP**
- Remark: **TEST**

(No change to the latitude and longitude)





Exercise No. 3 – VHF module Add Frequency – Example: Add New TWR frequency to ICAO TEST AFI

Find compatible frequency for this new TWR ICAO TEST AFI

1. Select TWR and Max # 3 for search. Then 2. click “Start Search”

Frequency Finder

File Edit View Insert Format Records Scripts Window Help

COM Data Base (COM LIST 3) NEW/MOD Frequency FF-2020-6 Runtime

Active Region ==AFI User State Save Draft or Modified Freq.

COM list 3 synchronized New assignment
Table of Polygons synchronized Navigating to other windows keeps this frequency assignment as a draft frequency assignment in you local data base (COM list)

Station

Region AFI Key D 302267 Cat ICAO Channel spacing
Country ICAOTEST AFI Ctry ZZA 25 kHz
Location TEST 8.33 kHz
Latitude 04 D 54 ' 00 " N S
Longitude 001 D 46 ' 00 " W E
Frequency 118.075
Service TWR DOC TWR C-25/40 Drop down disabled
Stat NOP 25 MOD Range (NM)
4000 MOD Height (feet)
ER family Example: ER-BOT-01
Required fields FIR SECTORNAME PolyID
Remarks TEST Upload Status DN
TEST Test completed

Find Frequency

Search range 117.999...136.976 MHz

Set frequency range
START 118.000 MHz
END 136.975 MHz

Select from Regional Frequency Allotment Plan
AFI TWR
Max. # of frequencies 3

START SEARCH
Search completed
118.075
Selected frequency Allotted to

	Frequencies found	Margin co-freq	Margin adj-freq
FF1	118.025	***	302
FF2	118.050	***	***
FF3	118.075	***	100
FF4			
FF5			
FF6			
FF7			
FF8			
FF9			
FF10			

FOUND 3 frequencies
Margin in NM

For efficient frequency assignment planning select the frequency with the smallest margin

Summary

Summary Co-frequency Adj. Frequency Test results of the new or modified frequency assignment

Date/time	Key	D	Frequency	Region	Country	Location	Service	Margin	Result	co-ch	Margin	Result
10/05/2022 11:24:14	302267	D	118.075	AFI	ICAO TEST AFI	TEST	TWR	***	Compatible	100	Compatible	

The margin is the distance between the tested stations with which required minimum separate distance is exceeded.

*** indicates that the frequency is used within a range of 1050 NM from the station that is tested.

Frequency Finder found three compatible frequencies.



Exercise No. 3 – VHF module Add Frequency

– Example: Add New TWR frequency to ICAO TEST AFI

Select 118.025 from the outcome.

You can also plot interference all to see the result on the MAP.

The screenshot shows the ICAO software interface. The 'Station' window is on the left, and the 'Find Frequency' window is on the right. The 'Station' window has the following fields:

- Region: AFI, Key: D 302267, Cat: ICAO, Channel spacing: 25 kHz
- Country: ICAO TEST AFI, Ctry: ZZA
- Location: TEST
- Latitude: 04 D 54 ' 00 " N, Longitude: 001 D 46 ' 00 " W
- Service: TWR, Stat: NOP, Frequency: 118.025
- DOC: TWR C-25/40, 25, 4000
- Remarks: TEST

The 'Find Frequency' window shows a search range of 117.999...136.976 MHz. The results table is as follows:

Freq	Margin co-freq	Margin adj-freq
FF1 118.025	***	302
FF2 118.050	***	***
FF3	***	100
FF4		
FF5		
FF6		
FF7		
FF8		
FF9		
FF10		

The 'Summary' window at the bottom shows the test results:

Date/time	Key	D	Frequency	Region	Country	Location	Service	Margin	Result co-ch	Margin	Result adj
10/05/2022 11:32:19	302267	D	118.025	AFI	ICAO TEST AFI	TEST	TWR	***	Compatible	302	Compatible

The map on the right shows the location of the station (TEST_118.025MHz) near Takoradi, Ghana, with a red circle indicating the search area.



RECONNECTING THE WORLD



Exercise No. 3 – VHF module Add Frequency – Example: Add New TWR frequency to ICAO TEST AFI

Save it as a registered frequency

You can also plot interference all to see the result on the MAP.

COM Data Base (COM LIST 3) NEW/MOD Frequency

Active Region: AFI User: State
COM list 3 synchronized
Table of Polygons synchronized

Station
Region: AFI Key: D 302267 Cat: ICAO Char: []
Country: ICAO TEST AFI Ctry: ZZA
Location: TEST
Latitude: 04D 54.00 N
Longitude: 001 D 46.00 W
Frequency: 118.025
Service: TWR DOC: []
Stat: NOP
Remarks: TEST

Find Frequency
Search range: 117.999..136.976 MHz
Set frequency range: START 118.000 MHz, END 136.975 MHz
Select from Regional Frequency Allotment Plan: AFI TWR
Max. # of frequencies: 3
Frequencies found: FF1 118.025, FF2 118.050, FF3 118.075, FF4, FF5, FF6, FF7, FF8, FF9, FF10
FOUND frequencies: 3
Selected frequency: 118.025 Allotted to TWR

Summary
Test results of the new or modified frequency assignment
Date/time: 10/05/2022 11:32:19 Key: D 302267 Frequency: 118.025 Region: AFI Country: ICAO TEST AFI Location: TEST Service: TWR Margin: *** Result co-ch: Compatible Margin Result ad: Compatible

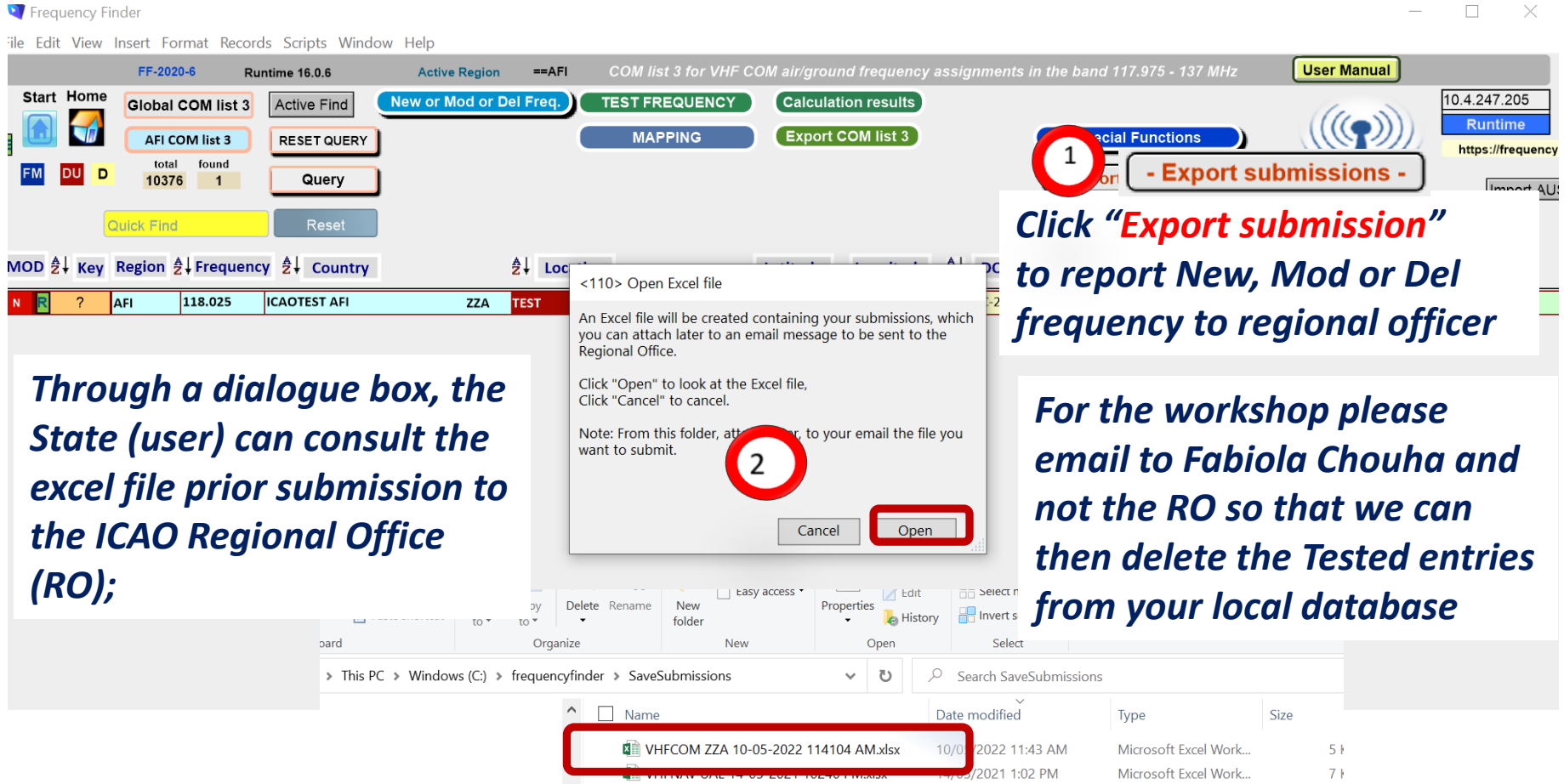


ID	Region	Country	Key	D	Frequency	Region	Country	Location	Service	Margin	Result co-ch	Margin Result ad
R 302227	AFI	ICAO TEST AFI	ZZA		118.100	AFI	ICAO TEST AFI	Reykjavik 2	ACC-L C-155/250		Compatible	Compatible
R 302025	AFI	ICAO TEST AFI	ZZA		127.850	AFI	ICAO TEST AFI	Sornfelli	A/G C-250/450		Compatible	ER-ZZA-1 ICAO
R 302196	AFI	ICAO TEST AFI	ZZA		119.825	AFI	ICAO TEST AFI	Sornfelli	AS C-5/1		Compatible	ICAO
N R 302267	AFI	ICAO TEST AFI	ZZA		118.025	AFI	ICAO TEST AFI	TEST	TWR C-25/40		Compatible	ICAO NOP TEST
R 301977	AFI	ICAO TEST AFI	ZZA		126.550	AFI	ICAO TEST AFI	Vaðlaheiði	A/G C-222/450		Compatible	ER-ZZA-2 ICAO
R 301989	AFI	ICAO TEST AFI	ZZA		127.850	AFI	ICAO TEST AFI	Porbjörn	A/G C-260/450		Compatible	ER-ZZA-1 ICAO



Export Submissions

The registered frequency needs to report to Regional officer



Frequency Finder

File Edit View Insert Format Records Scripts Window Help

FF-2020-6 Runtime 16.0.6 Active Region ==AFI COM list 3 for VHF COM air/ground frequency assignments in the band 117.975 - 137 MHz User Manual

Start Home Global COM list 3 Active Find New or Mod or Del Freq. TEST FREQUENCY Calculation results

AFI COM list 3 RESET QUERY MAPPING Export COM list 3

FM DU D total found 10376 1 Query

Quick Find Reset

MOD Key Region Frequency Country

AFI 118.025 ICAOTEST AFI ZZA TEST

Special Functions - Export submissions -

1

Click "Export submission" to report New, Mod or Del frequency to regional officer

Through a dialogue box, the State (user) can consult the excel file prior submission to the ICAO Regional Office (RO);

2

For the workshop please email to Fabiola Chouha and not the RO so that we can then delete the Tested entries from your local database

This PC > Windows (C:) > frequencyfinder > SaveSubmissions

Name	Date modified	Type	Size
VHFCOM ZZA 10-05-2022 114104 AM.xlsx	10/05/2022 11:43 AM	Microsoft Excel Work...	5 1
VHFCOM ZZA 10-05-2021 102401 AM.xlsx	10/05/2021 1:02 PM	Microsoft Excel Work...	7 1

3. Attach the excel file to your e-mail and send it to the Regional officer (for the workshop please send to fchouha@icao.int) as it is not real data