



| ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY



Frequency Finder

NAV Module



**Workshop/Training on
“Frequency Finder 2023” application**

Lima, Perú | 29 May to 02 June 2023

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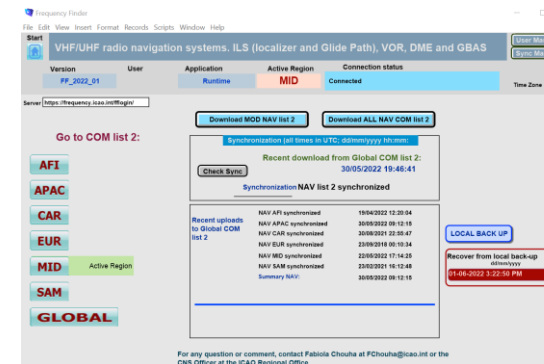
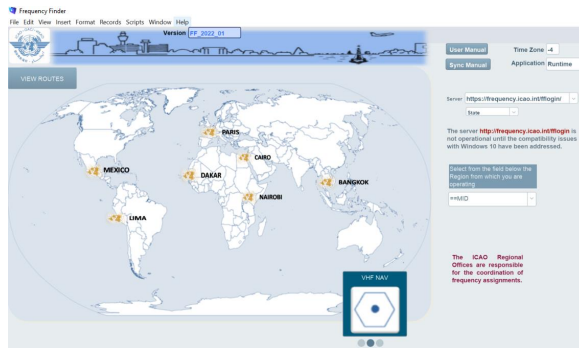
Home Page for VHF/UHF NAV ILS (Localizer and Glide Path), VOR, DME and GBAS

Exploration of the main functions - VHF NAV module Start page

Select "SAM" or "CAR"

Click "VHF-NAV"


Start page → Home page VHF/UHF NAV



- Navigate to Home Page: Automatic Connection Test and check if the **COM list 2** was modified
- Also with button Check Sync
- Dialog box is displayed if a download synchronization is necessary
- Message field
- Download button
- Back-up and Recovery



Home Page for VHF/UHF NAV and Integrity Check ILS (Localizer and Glide Path), VOR, DME and GBAS

Start  VHF/UHF radio navigation systems. ILS (localizer and Glide Path), VOR, DME and GBAS User Manual Sync Manual

Version	User	Application	Active Region	Connection status	Time Zone
FF_2023_01		Runtime	SAM	Connected	-4

Server

Download MOD NAV list 2 **Download ALL NAV COM list 2**

Go to COM list 2:

- AFI
- APAC
- CAR
- EUR
- MID
- SAM** Active Region
- GLOBAL

Synchronization (all times in UTC; dd/mm/yyyy hh:mm):

Recent download from Global COM list 2: 21/02/2022 15:53:49

Check Sync

Synchronization Global NAV list 2 modified

<2A> Update NAV COM list 2


The global NAV COM List 2 was modified.

Click "Download" to download these modifications.
Click "Cancel" to Cancel

LOCAL BACK UP

Recover from local back-up
dd/mm/yyyy
24-05-2023 12:13:39 PM

Cancel **Download**

contact Fabiola Chouha at FChouha@icao.int or the CNS Officer at the ICAO Regional Office  *If required, click download*



Click your active region
"SAM" or "CAR"



Home Page for VHF/UHF NAV ILS (Localizer and Glide Path), VOR, DME and GBAS

Frequency Finder

File Edit View Insert Format Records Scripts Tools Window Help

Home

Go to AFI COM list 2

Save as draft record

Save as registered record

Delete draft record

records found 1 MOD DR Key 930049 D

NEW / MOD / DEL FACILITY

Press Esc to cancel running scripts

Insert here new or modified characteristics

Region AFI Mod assignment Cat I

Country Côte d'Ivoire Ctry CTI

Location BOUAKE

Latitude 07 D 43 ' 00 " N Frequency 109.100

Longitude 005 D 04 ' 00 " W Channel 028X

Facility ILS/DME GlidePath 331.400

ID ILS TRD 30

ILS/DME Range (NM) Height (feet) eirp (dBW)

DME 17 6250 27

Remarks

Required fields

System

ILS 1

VOR 2

DME 3

GBAS 5

VDL M4 6

Channel spacing

100 kHz

150 kHz

25 kHz

Insert here parameters for finding new frequency

Set VHF or UHF (DME) range

START 108.100 MHz

END 111.950 MHz

START 018X Ch

END 056Y Ch

SEARCH RANGE 108.099...111.951 MHz

018X...056Y Ch

Max. # of frequencies 10

FOUND 0

START SEARCH

Frequencies/Channels found

Select	VHF	DME	Glide Path
FF1			
FF2			
FF3			
FF4			
FF5			
FF6			
FF7			
FF8			
FF9			
FF10			

VHF margin

VHF freq Summ

UHF ch Summ

View calculation results

Searching

MLS selection is currently not included.
Frequency Finder inserts automatically the user name and the date of the modification to the table COM list 2 (NAV systems).

Add a DME to an existing ILS facility
or for VOR Select VOR, VOR/DME, DME, TACAN, VOR/TAC)



Home Page for VHF/UHF NAV ILS (Localizer and Glide Path), VOR, DME and GBAS

Frequency Finder

File Edit View Insert Format Records Scripts Tools Window Help

Home Go to AFI COM list 2

records found 1 MOD DR Key 930049 D

Save as draft record Save as registered record Delete draft record

NEW / MOD / DEL FACILITY

Press Esc to cancel running scripts

Insert here new or modified characteristics

Region AFI Mod assignment Cat I

Country Côte d'Ivoire Ctry CTI

Location BOUAKE

Latitude 07 D 43 ' 00 " N Frequency 109.100

Longitude 005 D 04 ' 00 " W Channel 028X

Facility ILS/DME

System ILS 1 VOR 2 DME 3 GBAS 5 VDL M4 6

Insert here parameters for finding new frequency

Set VHF or UHF (DME) range

START 108.100 MHz END 111.950 MHz

START 018X Ch END 056Y Ch

START SEARCH

Frequencies/Channels found

Select	VHF	DME	Glide Path
FF1			
FF2			
FF3			
FF4			
FF5			
FF6			
FF7			
FF8			
FF9			
FF10			

Selected Frequency / Channel

View calculation results

Searching

MLS selection is currently not included. Frequency Finder inserts automatically the user name and the date of the modification to the table COM list 2 (NAV systems).

ID	BUA	Range (NM)	Height (feet)	eirp (dBW)
ILS	25/62.5	25	6250	17
DME	25/62.5	25	6250	27

Remarks

Required fields

VHFcoSumm VHFadjSumm GPadjSumm GPadjMargin

Not tested

DMEcoSumm DMEadjSumm

Important

- For the ILS, Frequency Finder inserts the standard DOC of 25 NM / 6250 ft.
- When a DME is added to an ILS facility, the DOC is also set to these values.
- The user can modify these as necessary.

Add a DME to an existing ILS facility or for VOR Select VOR, VOR/DME, DME, TACAN, VOR/TAC)



Other ongoing improvements (cont'd)

NAV module – plotting interference contours

Start Home Global COM list 2 Active Find Delete Record New or Mod or Del Test Frequency Calculation results

MID COM list 2 RESET QUERY Mapping Export COM list

total 6522 455 found D ID Query

MOD Key Region Country Ctry Location test Latitude Longitude Facility ID Freq. Gl. P. Ch. TRD VHFDOC VHFpwr DMEDOC DMEPwr Cat Remarks

R 928182				QTR		25D15'10" N 051D36'23" E	ILS/DME	QAT	108.100	334.700	018X	25/62.5	17	80/100	27	I	RWY 16R
----------	--	--	--	-----	--	--------------------------	---------	-----	---------	---------	------	---------	----	--------	----	---	---------



Summary of CO- and ADJ frequency calculations Delete all records Show all records

Details of station tested

Calculation details

Co freq. compatibility ADJ freq. compatibility

Calculation details Calculation details

Date	Key	D	Frequency	UHF ch	Region	Country	Location	Service	Co frequency compatibility		ADJ frequency compatibility					
									Margin VHF	Result VHF	Margin VHF	Result VHF				
									Result VHF	Result DME	Result VHF	Result DME				
									-16	Not Compatible	-88	Not Compatible	352.11	Compatible	xxx	Compatible
									-16	Not Compatible	-88	Not Compatible	352.11	Compatible	xxx	Compatible
									-16	Not Compatible	-88	Not Compatible	352.11	Compatible	xxx	Compatible



Other ongoing improvements (cont'd)

NAV module – plotting interference contours

Frequency Finder

File Edit View Insert Format Records Scripts Tools Window Help

Calculation of CO-CHANNEL separation distances

Summary calculation

ADJ freq.compatibility

Calculation details

Map interference all

Calculates compatibility with any DME facility

Go to Prop Curve

Key	R 928182	Region	MIC	Country	Saudi Arabia	Location	Saudi Arabia	Facility	ILS/DME	frdeglat	25.2527778	frdeglong	51.6063889			
2	1	Frequency	Height	Range	Minimum transmission loss between the location of the facility in that record and the facility in record 1				This field calculates the minimum transmission loss between the location of the facility in record 1 and the facility in record 2							
		VHF 108.100	6250	25												
		DME 018X	10000	80												
													VHF Marging	-16	NM	Not Compatible
													DME Marging	-88	NM	Not Compatible

Key	R 928033	Region	MIC	Country	Saudi Arabia	Location	DAMMAM	Facility	ILS/DME	frdeglat	26.4500000	frdeglong	49.7930556			
1	2	Frequency	Height	Range	PWR	RD	Copy	Measured from location to test points		Minimum Required Separation	Actual Separation		VHF Margin	-16	NM	Not Compatible
		VHF 108.100	6250	25	17			L xx to 1	Dist to 1	L 1 to xx	Dist to xx	137	121			
		DME 018X	6250	25	27			153	112	153	112	209				
								146	129	146	105					
													DME Margin	-88	NM	Not Compatible

The fields Dist to 1 and Dist to xx present the minimum separation distance between any undesired facility to the edge of the DOC of the desired facility

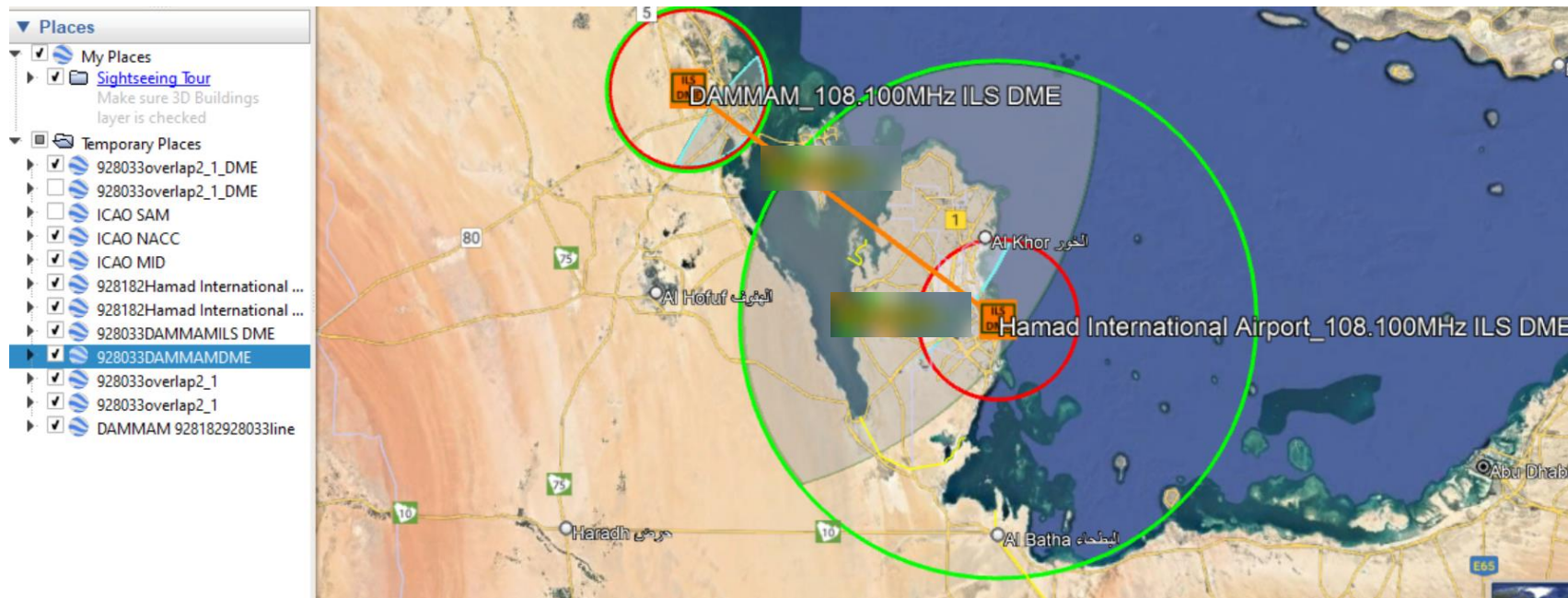
Map interference VHF

Map interference DME



Other ongoing improvements (cont'd)

NAV module – plotting interference contours – Map interference VHF and DME




Examples

Test Frequency & Understand the result

Example: Select Argentina, VALLE DEL CONLARA, VOR/DME 117.500 and click test

NAV CO-CHANNEL compatibility -- NAV CO-CHANNEL compatibility (ILS, VOR, DME, GBAS)

Compatibility of co-frequency NAV VHF facilities (ILS, VOR, GBAS) as well as co-channel DME facilities or TACAN

Go to SAM COM list 2 Go to Summary Calculations Go to Adj Channel compatibility  Go to Prop Curves Map interference all

1 Key R 940128 Region SAM Country ARGENTINA Location VALLE DEL CONLARA frdeglatg -32.3666667 frdeglongg -65.1833333

Facilityg VOR/DME

2 1

Frequency	Height	Range	PWR	TRD	Copy	VHF Frequency	DME channel
VHF 117.500	45000	60	20			117.500	122X
DME 122X	45000	60	37				

VHF MarginG -30 NM Not Compatible
DME MarginG -22 NM Not Compatible

Map coverage

2 Key R 940442 Region SAM Country URUGUAY Location DURAZNO Facility VOR/DME frdeglat -33.3500000 frdeglong -56.5000000

Map coverage

1 2

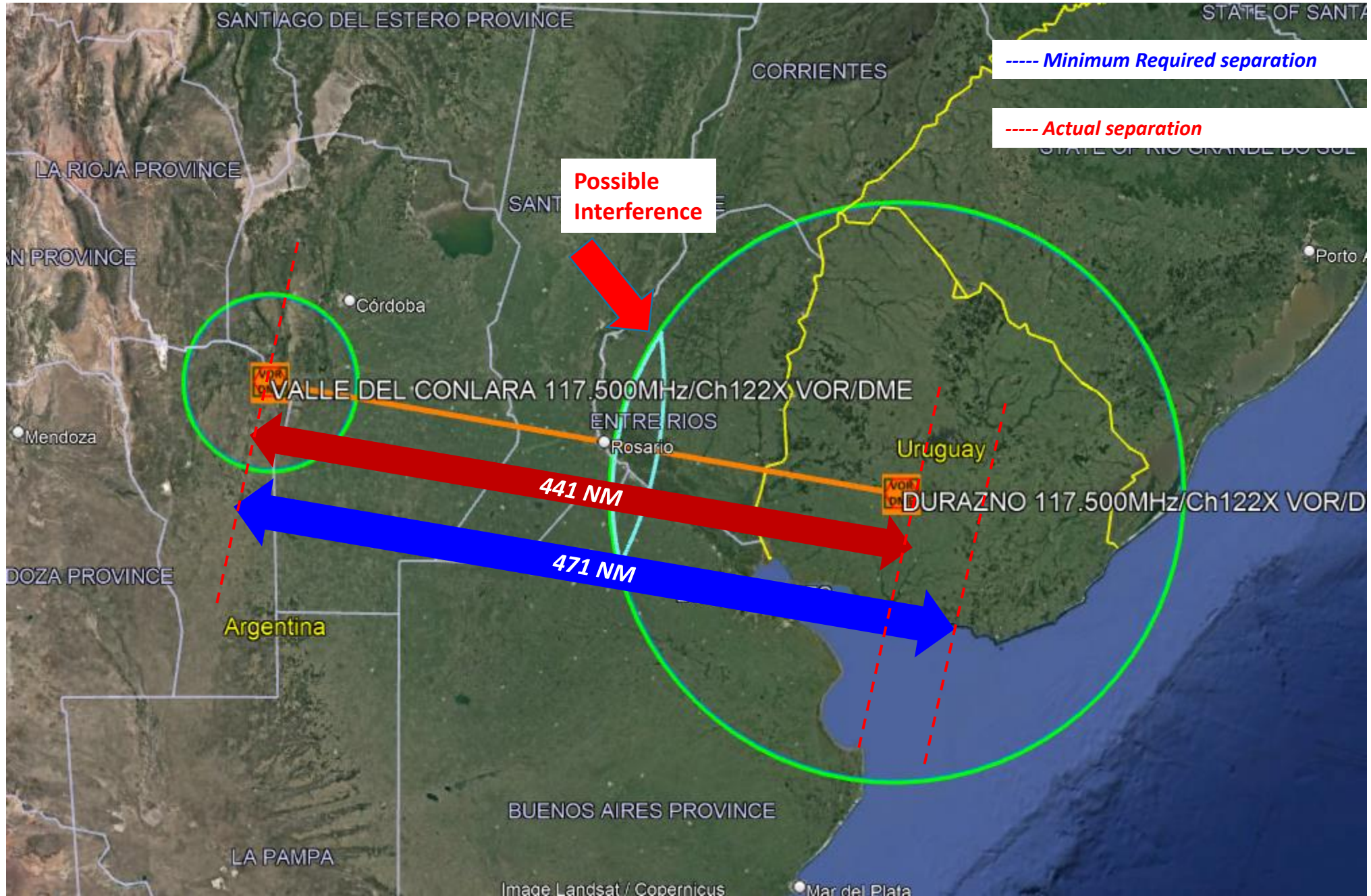
Frequency	Height	Range	PWR	TRD	Copy	Measured from location to test points				Minimum Required Separation	Actual Separation	Map interference VHF	Map interference DME
						L xx to 1	Dist to 1	L 1 to xx	Dist to xx				
VHF 117.500	45000	200	30			160	284	150	271	471	441	VHF Margin -30 NM Not Compatible	DME Margin -22 NM Not Compatible
DME 122X	45000	200	30			149	258	156	263	463			

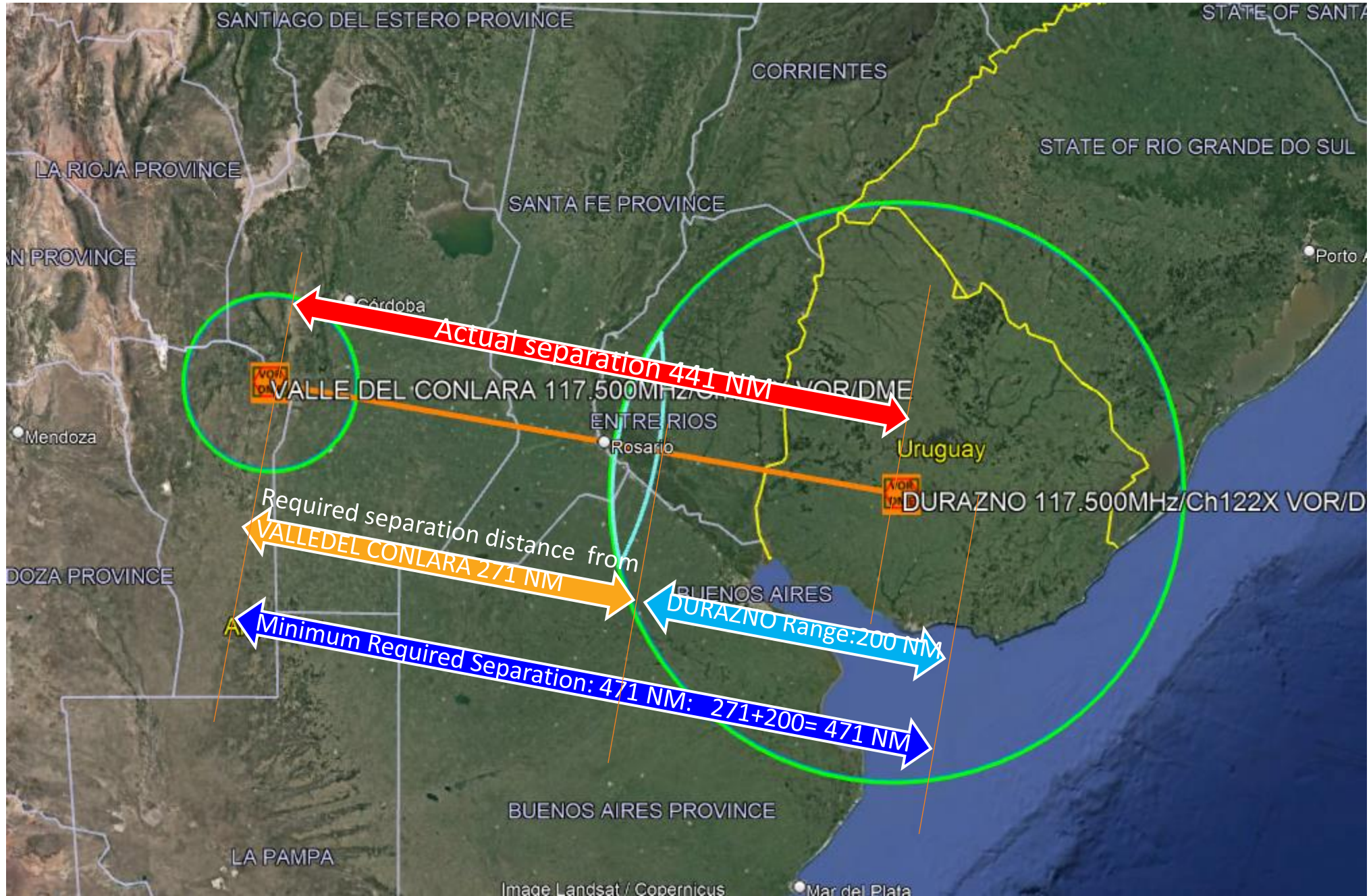
Map interference VHF Map interference DME

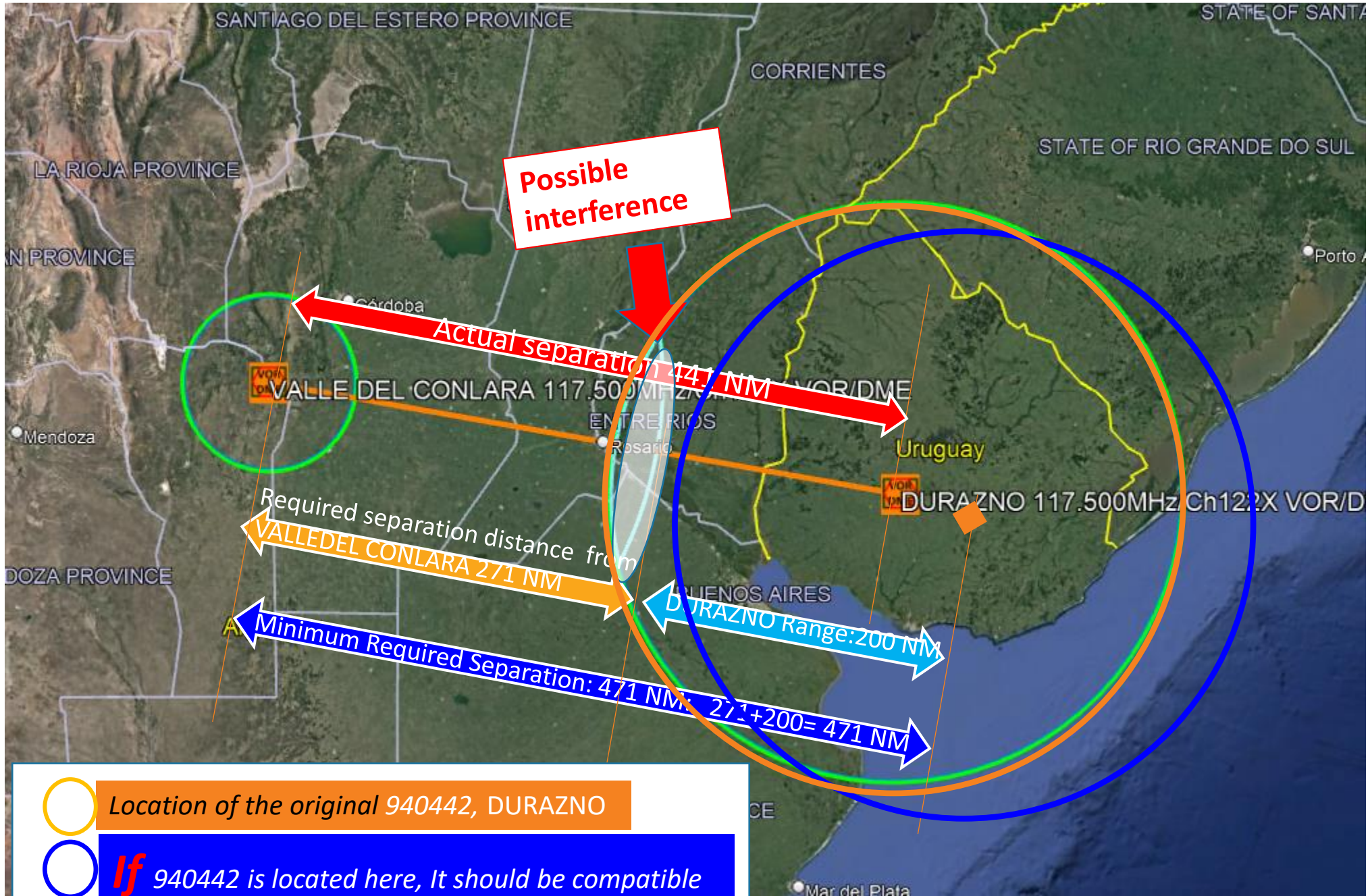
Minimum Required Separation Distance from Station 2 to Station 1

Minimum Required Separation Distance from Station 1 to Station 2









Exercises

Exercise NAV 1- Update your COM List 2 of the Frequency Finder, using your latest data.



Thank You!