

# **Generation of Earth Station Coordination contours**

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Radiocommunication Bureau**

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# Earth Station Coordination

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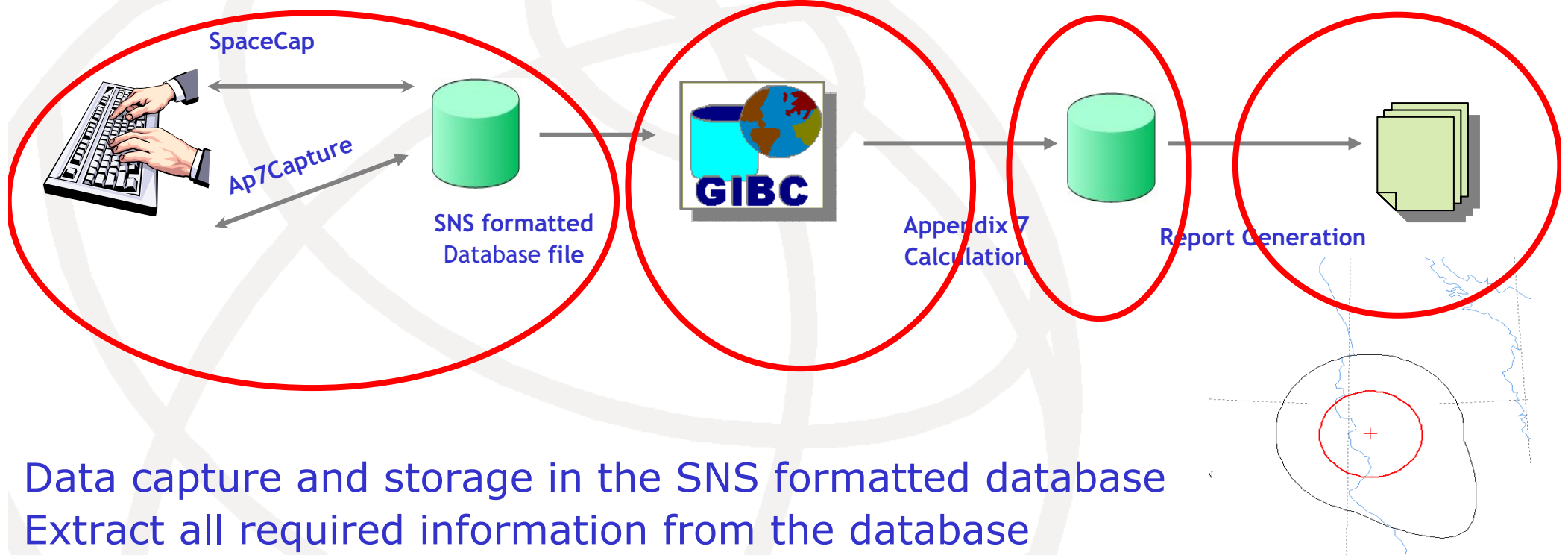
- Determination of the Coordination Area Around an Earth Station based on AP7
  
- 2 Tools :
  - Appendix 7 Capture
  - GIBC Appendix 7 Calculation

# AP7 data capture/calculation

## Data capture

## Calculation

## Report generation



Data capture and storage in the SNS formatted database  
Extract all required information from the database  
Perform Appendix 7 calculation  
Save the results in an ESCC formatted database file  
Produce report document in RTF format

# In this workshop...

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## Appendix 7 Capture tool

- **Software Installation**
- **Select or create a database**
- **Browse an existing database**
- **Create a copy of an ES**
- **Modify parameters**
- **Create new ES**
- **Save into existing database**
- **Save into a new database**

## GIBC Appendix 7 Calculation

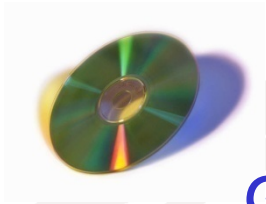
- **Software Installation**
- **Select input database**
- **Appendix 7 calculation**
- **Generate report document**
- **Report re-generation**
- **Include Auxiliary Contours**
- **Change Printing Options**



## Proposed Exercises:

- To generate Coordination Contours for
  - FSS Transmitting and Receiving Earth Station in the 6/4 GHz band
  - FSS Transmitting Earth Station in the 8 GHz band
- To repeat the calculations to see the effect of the horizon elevation angles on the coordination contours

# Installation



*GIBC* and *Ap7Capture* software can be installed from the SRS DVD.

To Install from the SRS DVD:

- Find the **GIBC** and **AP7Capture** programs in BR\_SOFT directory
- Run the setup program



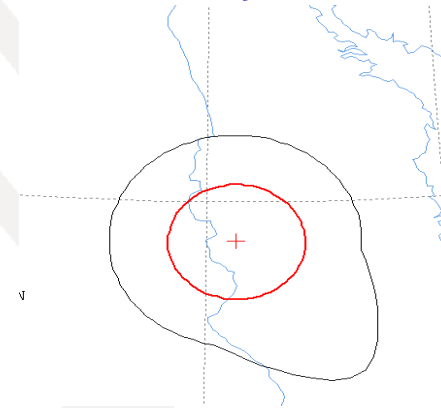
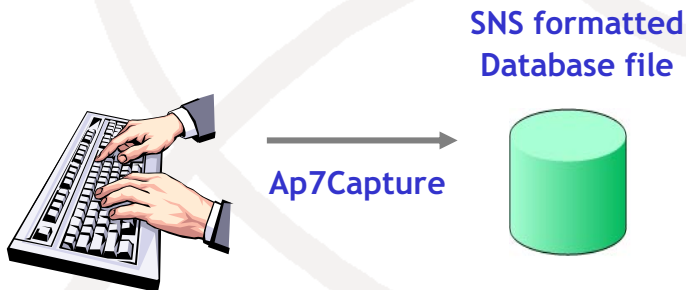
Install GIBC & Open the application

Install Ap7Cap & Open the application

# AP7 Capture Tool



- Enter AP7 data for a new earth station
- Modify parameters of an existing earth station
- Create a copy of an existing earth station entry



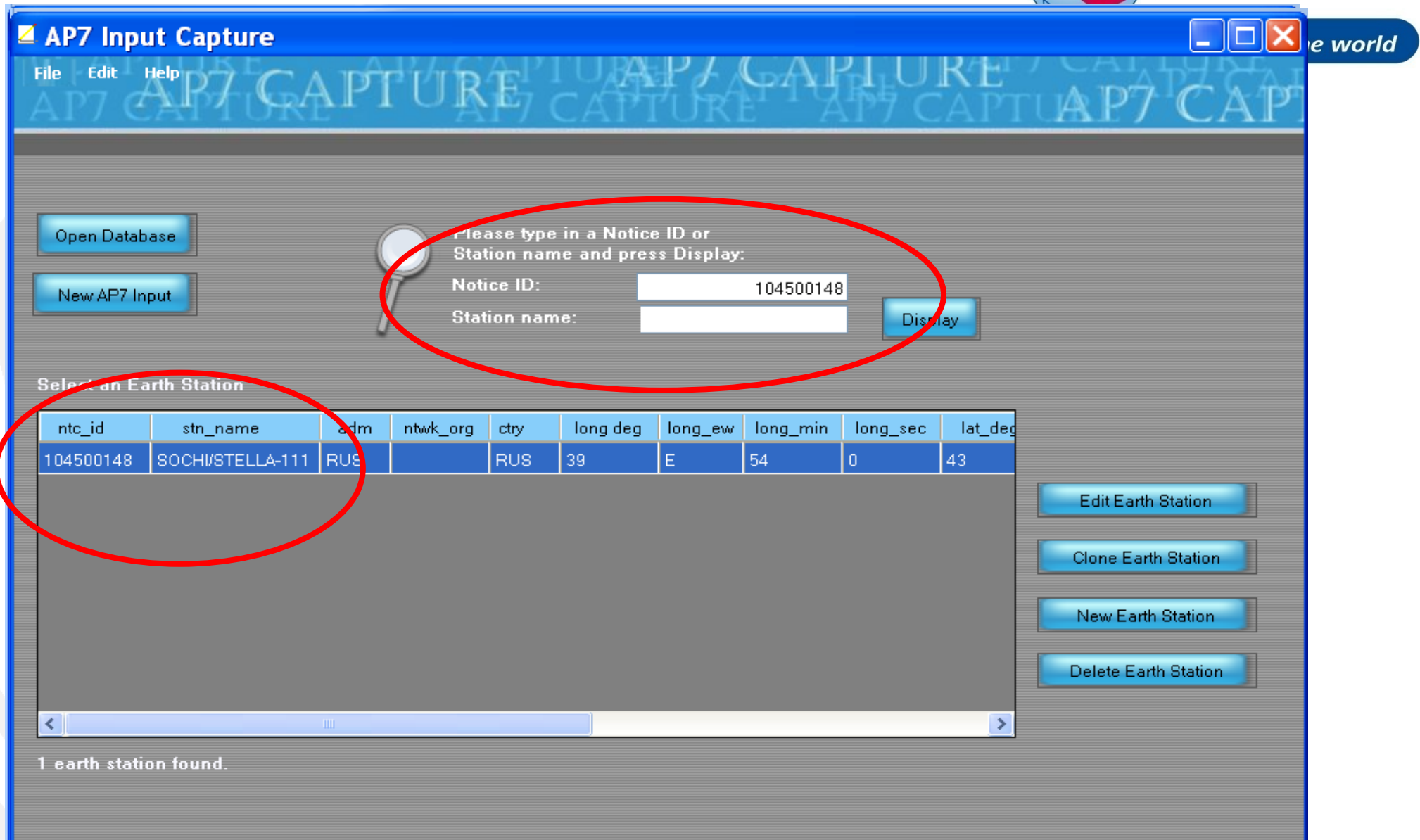
## In addition, Ap7 Capture tool provides:

- oSearch for an earth station by Notice ID
- oBasic validation of AP7 input parameters
- oDeletion of earth stations from AP7 input database
- oUser friendly interface!



- Open Ap7capture tool
- Select the database

# AP7 Capture Tool



AP7 Input Capture

File Edit Help

Open Database

New AP7 Input

Please type in a Notice ID or Station name and press Display:

Notice ID: 104500148

Station name: Display

Select an Earth Station

ntc_id	stn_name	adm	ntwk_org	cty	long_deg	long_ew	long_min	long_sec	lat_deg
104500148	SOCHI/STELLA-111	RUS		RUS	39	E	54	0	43

Edit Earth Station

Clone Earth Station

New Earth Station

Delete Earth Station

1 earth station found.

# AP7 Capture Tool

**AP7 Input Capture** File Edit Help

Open Database

New AP7 Input

Please type in a Notice ID or Station name and press Display:

Notice ID:

Station name:

Display

Select an Earth Station

ntc_id	stn_name	adm	ntwk_org	ctry	long deg	long_ew	long_mir
105500430	WPG_KA56	CAN		CAN	97	W	2
105500431	VAN_KA56	CAN		CAN	123	W	5
99500214	GOOSE BAY LEOL...	CAN		CAN	60	W	28
99500210	OTTAWA LEOLUT	CAN		CAN	75	W	53
103500113	GUADALAJARA 23	E		E	3	W	1
106500122	LENINSK/SKYSTAR	RUS		RUS	45	E	11
104500148	SOCHI/STELLA-111	RUS		RUS	39	E	54
104500375	ESRANGE ETX	S		S	21	E	3

8 earth stations found.

Edit Earth Station

Clone Earth Station

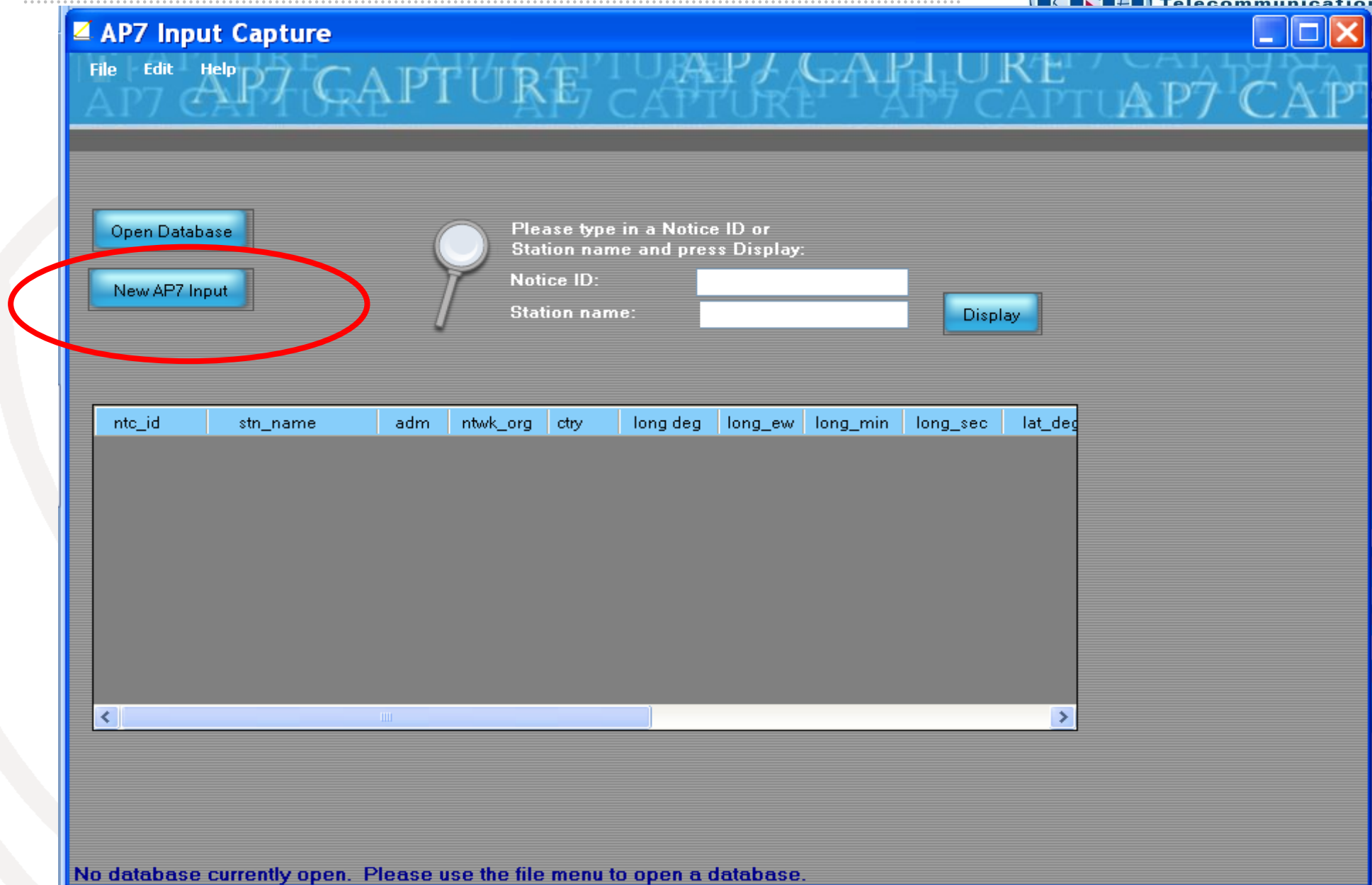
Create a New Earth Station

Delete an Earth Station

world



# AP7 Capture Tool- New input



AP7 Input Capture

File Edit Help

Open Database

New AP7 Input

Please type in a Notice ID or Station name and press Display:

Notice ID:

Station name:  Display

ntc_id	stn_name	adm	ntwk_org	ctry	long_deg	long_ew	long_min	long_sec	lat_deg
--------	----------	-----	----------	------	----------	---------	----------	----------	---------

No database currently open. Please use the file menu to open a database.

# AP7 Capture tool- New input



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## Earth Station Parameters

AP7 Input Capture

File Edit Help

NT/Rsn: D New Earth Station: Earth Station Parameters:

Specific Earth Station Name: 
  
 Typical

Date Rcv:  Adm:  Ctry: 
  
 Long:     Lat:

Satellite Name:  Long nom:  GS0/Non-GSO

	Satellite Beam Name	E/R	Gain	Cls of Stn	Min freq in MHz	Max freq in MHz	Noise Temp	Pwr ds max	Antenna pattern	Co
▶					0.00000	0.00000				
*										

Please select an Antenna Pattern from this list.

- 0 :: None
- 50 :: ABCDphi1 ::coefa 19 ::coefb 25 ::coefc 32 ::coefd 2
- 51 :: ABCDphi1 ::coefa 25 ::coefb 29 ::coefc 25 ::coefd 3
- 52 :: ABCDphi1 ::coefa 25 ::coefb 29 ::coefc 32 ::coefd 2
- 53 :: ABCDphi1 ::coefa 29 ::coefb 25 ::coefc 32 ::coefd 2
- 54 :: ABCDphi1 ::coefa 29 ::coefb 25 ::coefc 32 ::coefd 2
- 55 :: A-25\*LOG(FI) ::coefa ::coefb ::coefc ::coefd ::phi
- 56 :: A-25\*LOG(FI) ::coefa 27 ::coefb ::coefc ::coefd ::p

A7a. Horizon Elevation

Row No	Azimuth	Elevation Angle	Distance km
▶			
*			

1 Horizon Elevation rows

A7e

Row No	
▶	
*	

Save Back to List Close

# AP7 Capture tool- New input

the world

**AP7 Input Capture**

File Edit Help

NttRsn: N Earth Station Id: 104500148 Earth Station Parameters:

Specific Earth Station Name: **SOCHI/STELLA-111**  
 Typical

Date Rcv: **06.04.2004** Adm: **RUS** Ctry: **RUS** Long: **39 E 54 0** Lat: **43 N 29 0**

Satellite Name: **INTELSAT7 66E** Long nom: **66** GSO

Satellite Beam Name	E/R	Gain	Cls of Stn	Min freq in MHz	Max freq in MHz	Noise Temp	Pwr ds max	Antenna pattern	Co
S1R	E	49.20	TC	14,089.00...	14,161.00...		-54.1	REC-580	
*									

**A7a. Horizon Elevation**

Row No	Azimuth	Elevation Angle	Distance km
1	0.0	0.0	
2	180.0	0.0	
3	360.0	0.0	
*			

3 Horizon Elevation rows

**A7e. Min Antenna Elevation**

Row No	Azimuth	Elevation Angle
*		

Save

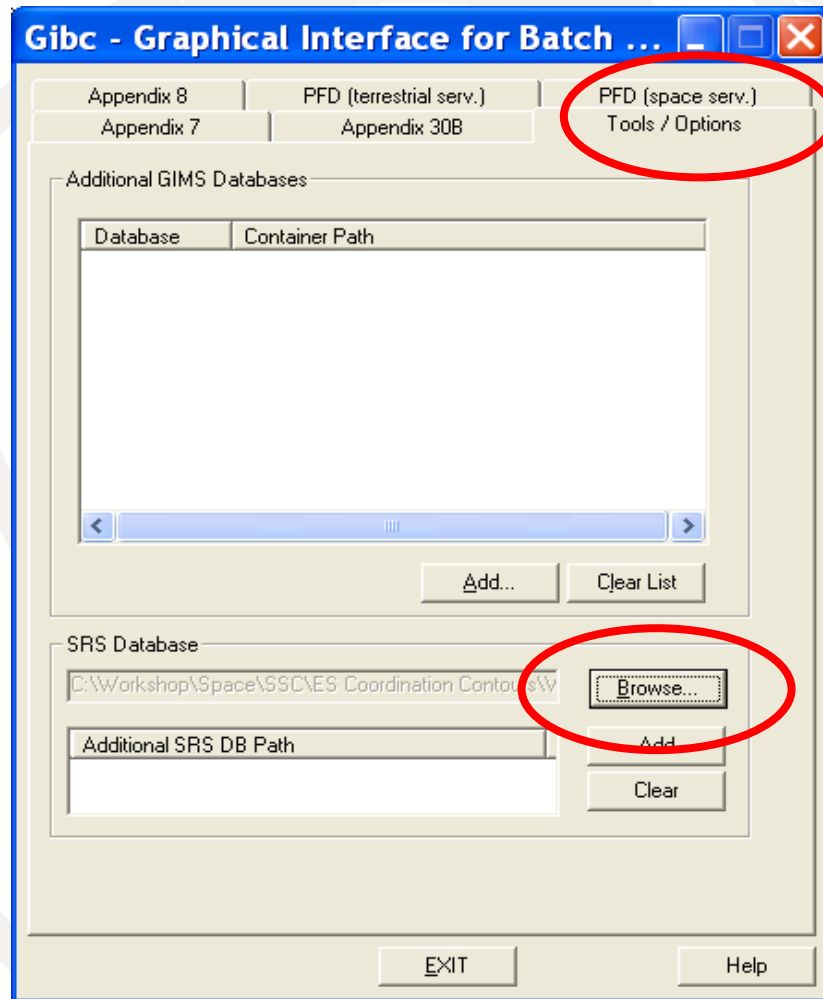
Save As

Back to List

Close

# GIBC/Appendix 7- Input Database

## Database file location- Tools/ Options page



Default location: **SRS.MDB** database file  
in the **DVD Drive**.

Use the **browse** button to:

- change the default location of the input database
- select a different input database file

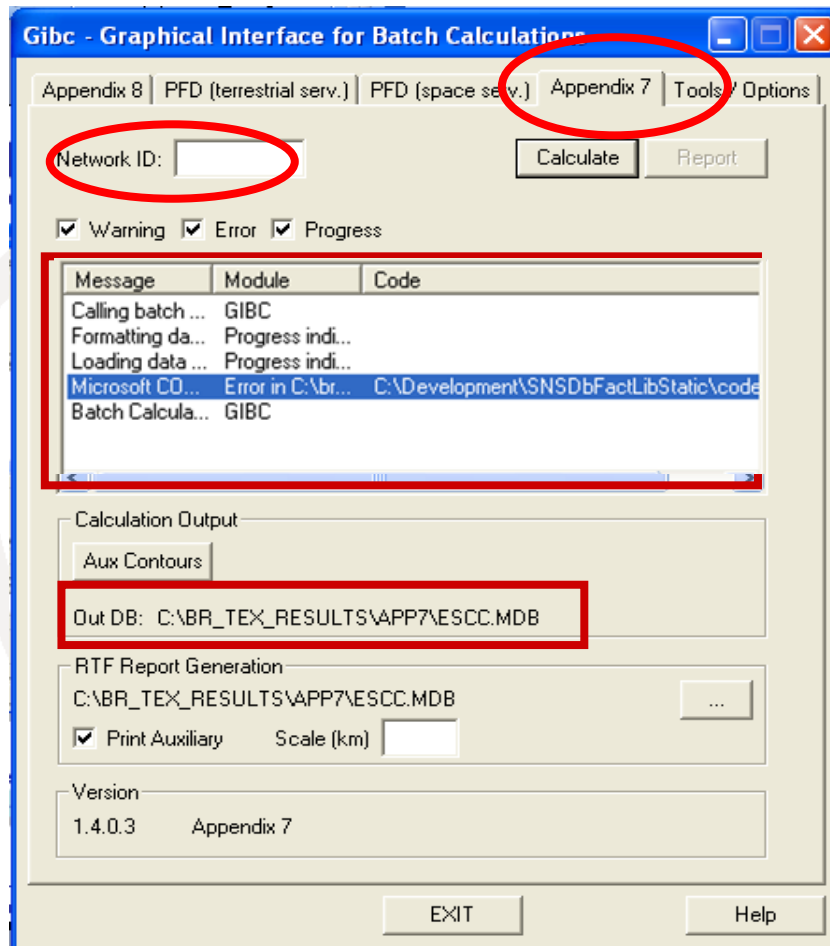


Select the **Tools & Options** tab

Check the SRS database file location

Select the input **WRS10-Workshop\_srs.MDB** file

# GIBC/Appendix 7 Calculation



How to Proceed?

- Select the **Appendix 7** tab
- Enter **ES Network ID**
- Press **Calculate**

Check Progress of Calculation

Select type of messages :  
**Warning \ Error \ Progress**

Results in MS-Access file

**Each calculation in a separate file**

**Results Directory:**

**C:\BR\_TEX\_RESULTS\APP7**

**Naming convention:**

**NetworkId\_Date\_Time.mdb**



**Appendix 7  
Calculation**



Select the Appendix 7 tab

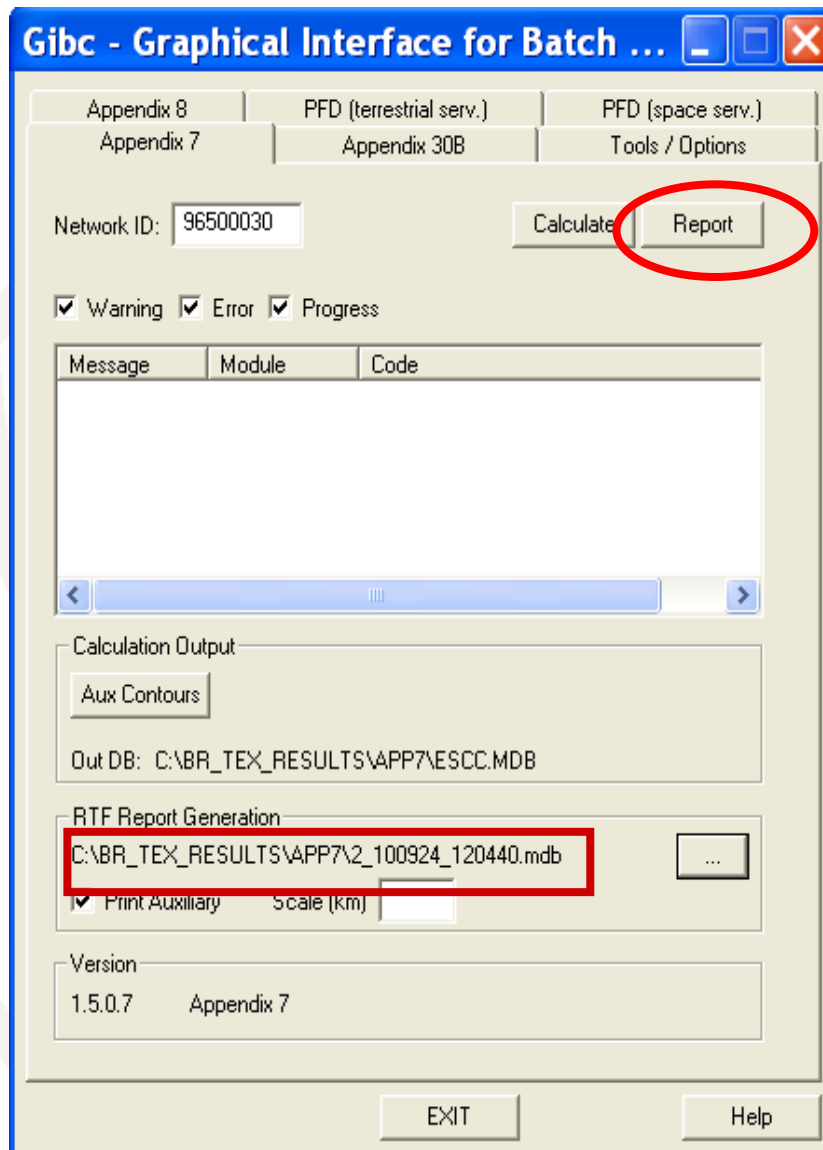
Enter the Network Id of the earth  
station (test case 104500375)

Press Calculate

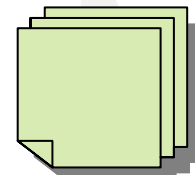
# GIBC/AP7- Generate Report



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Report Generation



Ap7print.rtf

After an Appendix 7 calculation...

▪ **Just Press the Report button**



**Ap7Print.RTF is rewritten each time!!!**

**If the file is locked you will get an error message.**



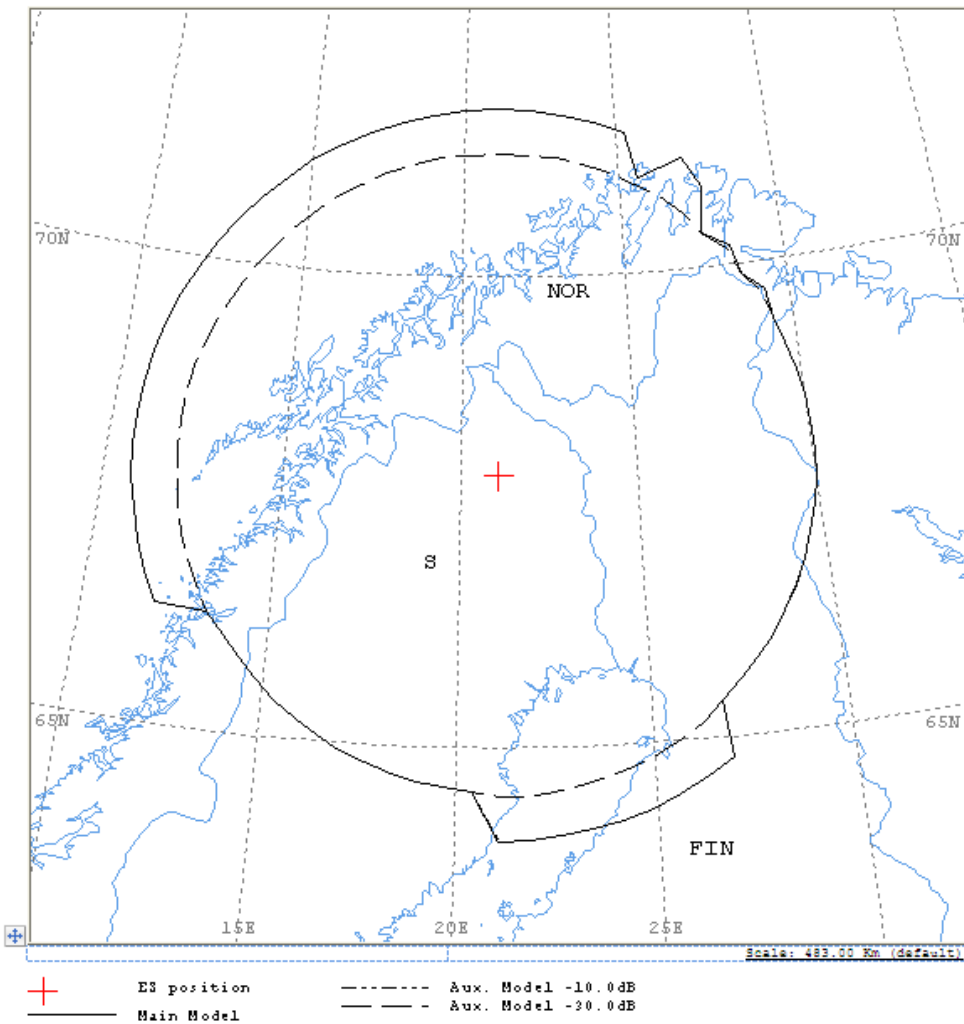
Generate report

# Report Document - Graphics



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VERSION:1.8.0.7/Appendix 7/Plt-1.8.0.0/Tm-1.8.0.0/Clc-1.8.0.2/Psp-1.2.0.0/SMS-1.0.0.142/APTY-1.0.0.142/Rac-1.4.0.0  
Diagram 1: 2\_2\_TABLE7. TRANSMITTINGNGSOES in SPACE OPERATION SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS.  
TS in FS or MS  
Notice ID: 104900375  
Administration/Geographical area: S/ S  
Satellite orbital position: -  
Frequency band: 2033.25-2033.45 MHz  
Earth station name: ESPRANGE ETX  
Earth station position: 021E035667N532E  
Satellite name: ODIN



## Ap7Print.RTF Document

### Graphics:

Contains diagrams displaying:

- o Title
- o Details
- o Coordination Contours
  - Main Mode I and II
  - Auxiliary Contours
- o Country codes
- o Legend



Edits the Ap7Print.RTF file in the  
C:\br\_tex\_results\ap7 folder

# Report Document- Details



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ANALYSIS DATE AND TIME: 2010-10-05 16:42:57  
 VERSION: 1.5.0.7Appendix 7/Plt-1.6.0.0/Frm-1.8.0.0/C1c-1.5.0.2/Frp-1.2.0.0/SNS-1.0.0.142/AP7F-1.0.0.142/Ref-1.4.0.0

Diagram 1: 2.2\_TABLE7. TRANSMITTING NGSO ES in SPACE OPERATION SERVICE W.R.T. RECEI

NOTICE ID: 104500375 EARTH STATION NAME: ESRANGE ETX EARTH STATION POSITIC  
 ADM/GEO AREA: S/ S RAIN CLIMATICAL ZONE: C  
 SATELLITE NAME: ODIN SATELLITE ORBITAL POSITION: - DEG  
 ANTENNA AZIMUTH: - DEG ANTENNA ELEVATION: - DEG  
 FREQUENCY BAND: 2033.25-2033.45 MHZ ASSIGNED FREQUENCY: 2033.35 MHZ  
 MAXIMUM ANTENNA GAIN: 41.0 DBI MAXIMUM POWER DENSITY: -32.0 DBW/HZ  
 ANTENNA PATTERN: APEND\_099V01  
 2.2\_TABLE7 Model: PIM\_DUCTING

TRANSMISSION LOSS MODE 1: 193.0 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)  
 TRANSMISSION LOSS MODE 2:

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
OFF-AXIS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOR.ELEV.	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1
HOR.CORR.	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.1	35.1	35.1	35.1	35.1	35.1
ANT.GAIN	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
COORDINATION DISTANCE (RM)																
MODE 1																
0.0 DB	433	433	433	433	433	389	433	419	375	387	375	385	375	375	375	375
-10.0 DB	433	433	433	433	433	389	433	419	375	387	375	385	375	375	375	375
-30.0 DB	381	381	381	381	381	381	381	381	375	381	375	381	375	375	375	375

AZIMUTH	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195
OFF-AXIS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOR.ELEV.	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.4	5.6
HOR.CORR.	35.1	35.1	35.1	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.4	35.6
ANT.GAIN	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
COORDINATION DISTANCE (RM)																
MODE 1																
0.0 DB	375	375	375	375	433	433	433	433	433	433	433	433	433	375	375	375
-10.0 DB	375	375	375	375	433	433	433	433	433	433	433	433	433	375	375	375
-30.0 DB	375	375	375	375	380	380	380	380	380	380	380	380	380	375	375	375

AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
OFF-AXIS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOR.ELEV.	5.4	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.2	5.2	5.1	5.2	5.3	5.4	5.5	5.5
HOR.CORR.	35.4	35.3	35.3	35.3	35.3	35.3	35.2	35.2	35.2	35.2	35.1	35.2	35.3	35.4	35.5	35.5
ANT.GAIN	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
COORDINATION DISTANCE (RM)																
MODE 1																
0.0 DB	375	381	432	432	432	432	433	433	433	433	433	433	432	432	432	432
-10.0 DB	375	381	432	432	432	432	433	433	433	433	433	433	432	432	432	432
-30.0 DB	375	380	380	380	380	380	380	380	380	381	381	380	380	379	379	379

PROBABLY AFFECTED COUNTRIES: FIN NOR RUS

- o Coordination distances at 72 azimuths (0-355degrees at 5 deg steps)
- o Details of the calculation
- o Intermediate data
- o List of affected countries



Print the Report Document



# Auxiliary Contours

Auxiliary Mode 1 **reduced required loss expressed in dB**

Auxiliary Mode 2 **Angular offset between beams expressed in degrees**

How to produce auxiliary contours?

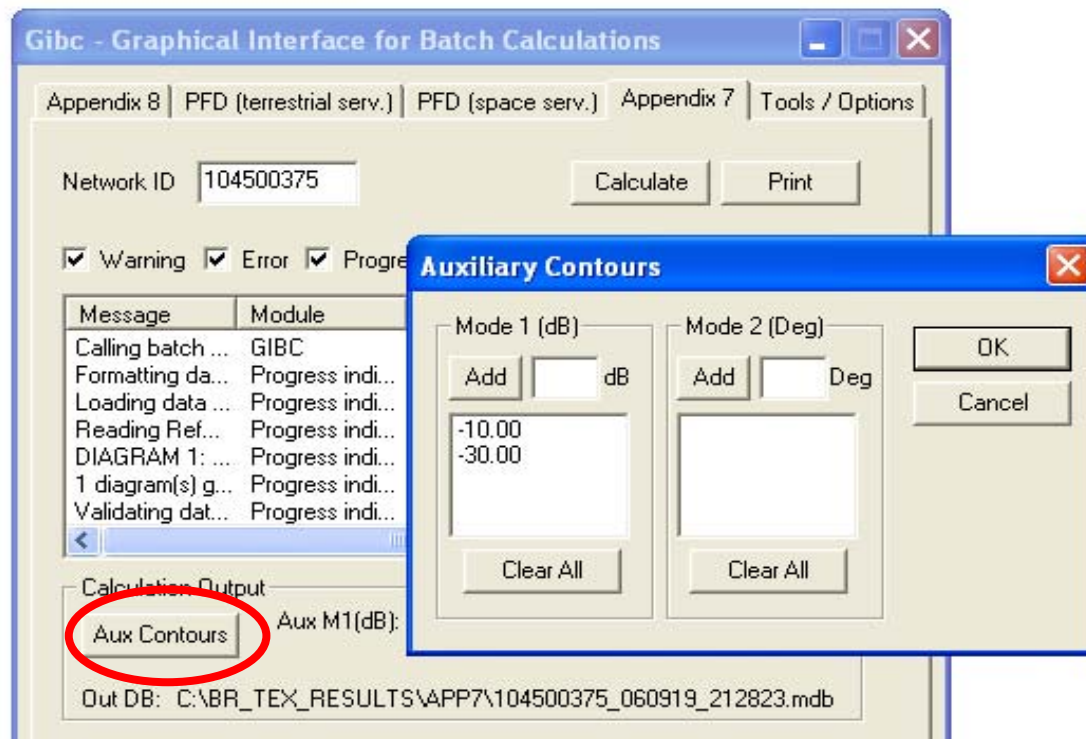
- Press **Auxiliary Contours** button
- Enter the values in the list
  - Mode 1 (dB) (negative values)
  - Mode 2 (deg)
- Perform the Calculation

To add Mode 1 aux contours press the **Auxiliary Contours** button.

Add Mode 1 Contours (-10dB, -30dB)

Perform Calculation

Perform Report Generation



# Printing Options

## Print Auxiliary

Check **Print Auxiliary** (if auxiliary contours information exists).

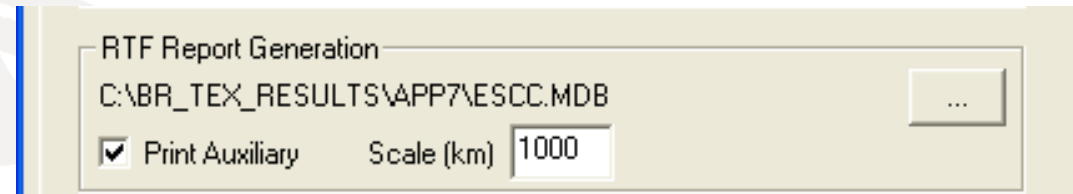
This option is without effect if there is not any auxiliary contours information in the database.

## Distance\Scale

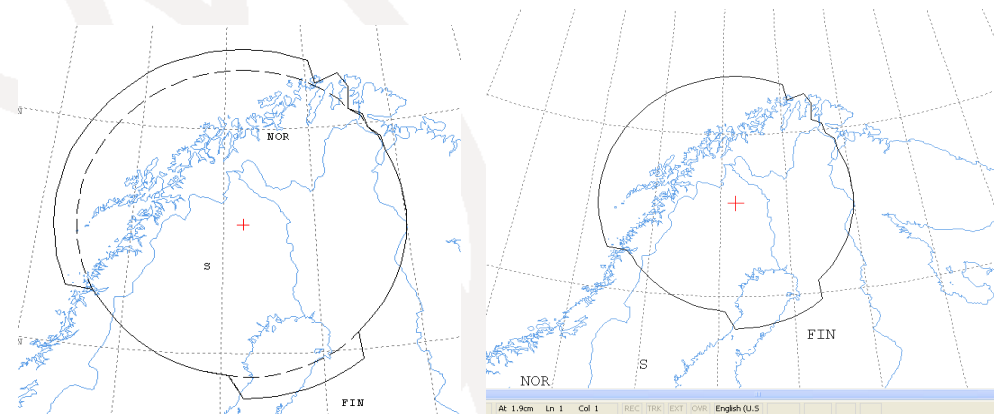
Size of the window of the map (expressed in Km).

By default automatic value is selected that accommodates the diagram.

Useful in comparing results from two different earth stations.



RTF Report Generation  
C:\BR\_TEX\_RESULTS\APP7\ESCC.MDB  
 Print Auxiliary    Scale (km) 1000



Uncheck the **Print Auxiliary Contours** option

Specify 1000Km

Perform Report Generation

Check the report file

# Proposed Exercises



## Generation of coordination contours:

- 1<sup>st</sup> exercise: FSS Transmitting and Receiving ES in the 6/4 GHz band
  - Input example database (SNS format):  
**Tx&RxEarthStation@6&4GHz.mdb**
  - ES name: **MAGTAB**
  - ES Notice Ids: Ex.1.1 **87500999** (with non-zero deg. horizon elevation angles)  
Ex.1.2 **87501000** (with zero deg. horizon elevation angles)
  
- 2<sup>nd</sup> exercise: FSS Transmitting ES in the 8 GHz band
  - Input example database (SNS format):  
**TxEarthStation@8GHz.mdb**
  - ES name: **MAGTAB**
  - ES Notice Ids: Ex. 2.1 **87500999** (with non-zero deg. horizon elevation angles)  
Ex. 2.2 **87501000** (with zero deg. horizon elevation angles)

# Proposed Exercises



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## Input and solution files

- [-] BR\_SEMINAR
  - [-] WRS-10
    - [-] Workshop
      - [-] Space
        - [-] SSC
          - [-] Generation of ES Coord Cont
            - [-] Excercise-1
              - Solution\_Ex\_1.1
              - Solution\_Ex\_1.2
            - [-] Excercise-2
              - Solution\_Ex\_2.1
              - Solution\_Ex\_2.2

# Exercise 1

## FSS Transmitting and Receiving ES in the 6/4 GHz band

Input database (SNS format):

**Tx&RxEarthStation@6&4GHz.mdb**

ES name: **MAGTAB**

- Ex. 1.1 ES notice id: **87500999** (non-zero deg. horizon elevation angles)
- Ex. 1.2 ES notice id: **87501000** (zero deg. horizon elevation angles)



Solution\_Ex\_1.1  
Solution\_Ex\_1.2  
Tx&RxEarthStation@6&4GHz.mdb

# AP7 Capture/View - Exercise 1

AP7 Input Capture

**Open Tx&RxEarthStation@6&4GHz.mdb database**

Open Database

New AP7 Input

Please type in a Notice ID or Station name and press Search:

Notice ID:

Station name:

Search

Select an Earth Station

ntc_id	stn_name	adm	nrwk_brg	city	long_deg	long_dir	long_min	long_sec	lat_deg
87500999	MAGTAB	MLT		MLT	14	E	26	40	35
87501000	MAGTAB	MLT		MLT	14	E	26	40	35

Edit Earth Station

Clone Earth Station

**Select an earth station from the list**

**View/Edit 1<sup>st</sup> Earth Station**

Delete Earth Station

2 earth stations found.

C:\Br\_soft\data\TxRxEarthStation@64GHz.mdb

# Exercise 1 - AP7 Capture/View

AP7 Input Capture

File Edit Help

Earth Station Parameters:

Earth Station Name: **MAGTAB**

Date Rcv: 30.09.2002 Adm: MLT Ctry: MLT Deg: Long: 14 E 26 40 Lat: 35 N 55 56

Satellite Name: INTELSAT Long nom: -1 GSO

Satellite Beam Name	E/R	Gain	Cls of Stn	Min freq in MHz	Max freq in MHz	Noise Temp	Pwr ds max	Antenna pattern	Co
F	E	63.00	TC	5'925.00000	6'425.00000		-33.0	AP28	
F	R	59.30	TC	3'700.00000	4'200.00000	100		AP28	
*									

Save Save As Back to List Close

A7a. Horizon Elevation

Row No	Azimuth	Elevation Angle	Distance km
1	0.0	0.3	
2	8.0	0.3	
3	14.0	0.3	

A7e. Min Antenna Elevation

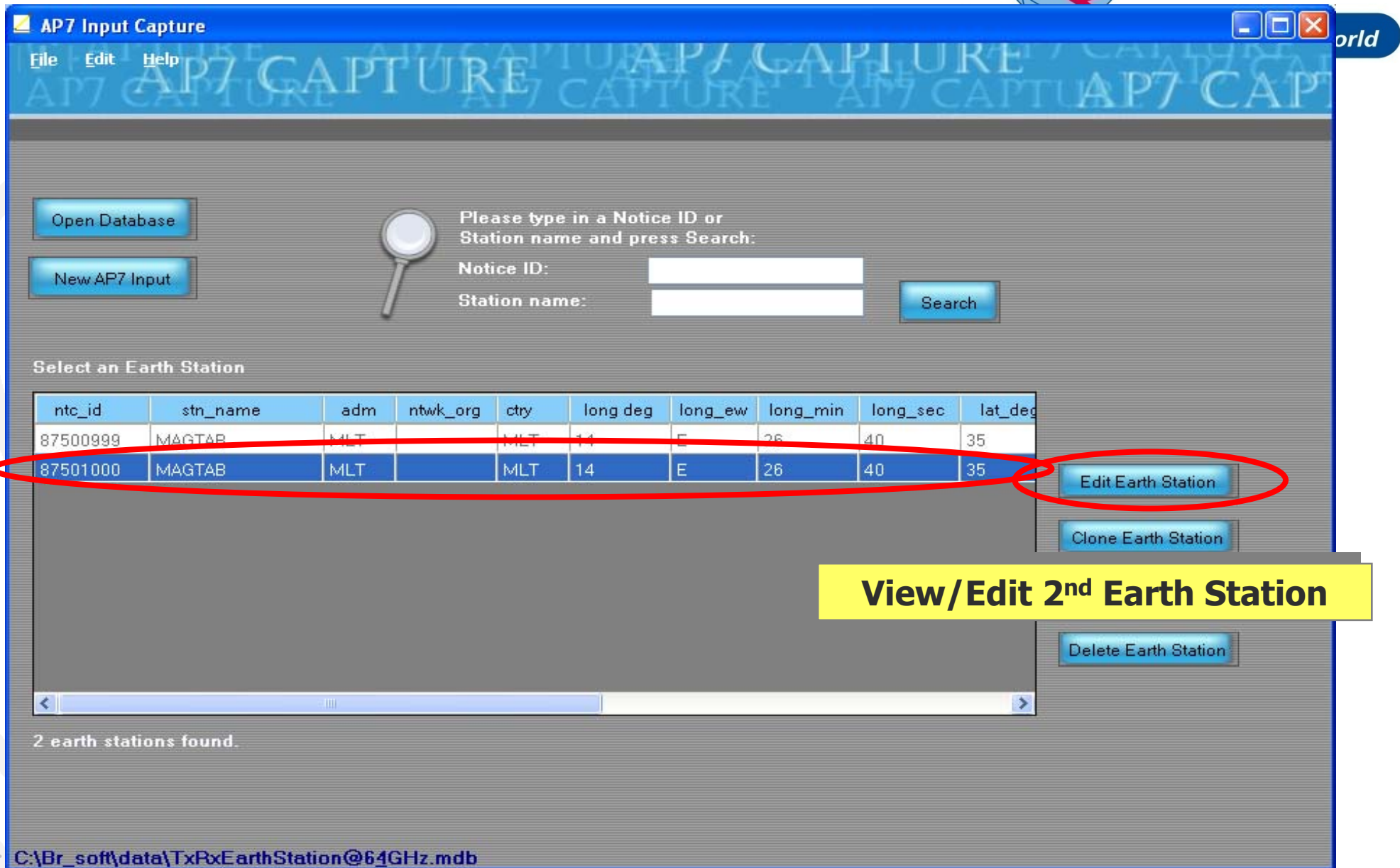
Row No	Azimuth	Elevation
*		

Back to the List

Horizon Elevation Angles (non-zero deg.)

C:\Br\_soft\data\TxRxEarthStation...

# Exercise 1 - AP7 Capture/View



AP7 Input Capture

File Edit Help

AP7 CAPTURE

Open Database

New AP7 Input

Please type in a Notice ID or Station name and press Search:

Notice ID:

Station name:

Search

Select an Earth Station

ntc_id	stn_name	adm	ntwk_org	ctry	long deg	long_ew	long_min	long_sec	lat_deg
87500999	MAGTAB	MLT		MLT	14	E	26	40	35
87501000	MAGTAB	MLT		MLT	14	E	26	40	35

Edit Earth Station

Clone Earth Station

Delete Earth Station

2 earth stations found.

C:\Br\_soft\data\TxRxEarthStation@64GHz.mdb

**View/Edit 2nd Earth Station**



# Exercise 1 - AP7 Capture/View



AP7 Input Capture

File Edit Help

Earth Station Parameters:

Specific  
 Typical

Earth Station Name: **MAGTAB**

Date Rcv: 14.03.2008 Adm: MLT Ctry: MLT Deg: Long: 14 E 26 40 Lat: 35 N 55 56

Satellite Name: INTELSAT Long nom: -1 GSO

Satellite Beam Name	E/R	Gain	Cls of Stn	Min freq in MHz	Max freq in MHz	Noise Temp	Pwr ds max	Antenna pattern	Co
F	E	63.00	TC	5'925.00000	6'425.00000		-33.0	AP28	
F	R	59.30	TC	3'700.00000	4'200.00000	100		AP28	
*									

Buttons: Save, Save As, Back to List, **Close**

A7a. Horizon Elevation

Row No	Azimuth	Elevation Angle	Distance km
1	0.0	0.0	
2	180.0	0.0	
3	348.0	0.0	
*			

A7e. Min Antenna Elevation

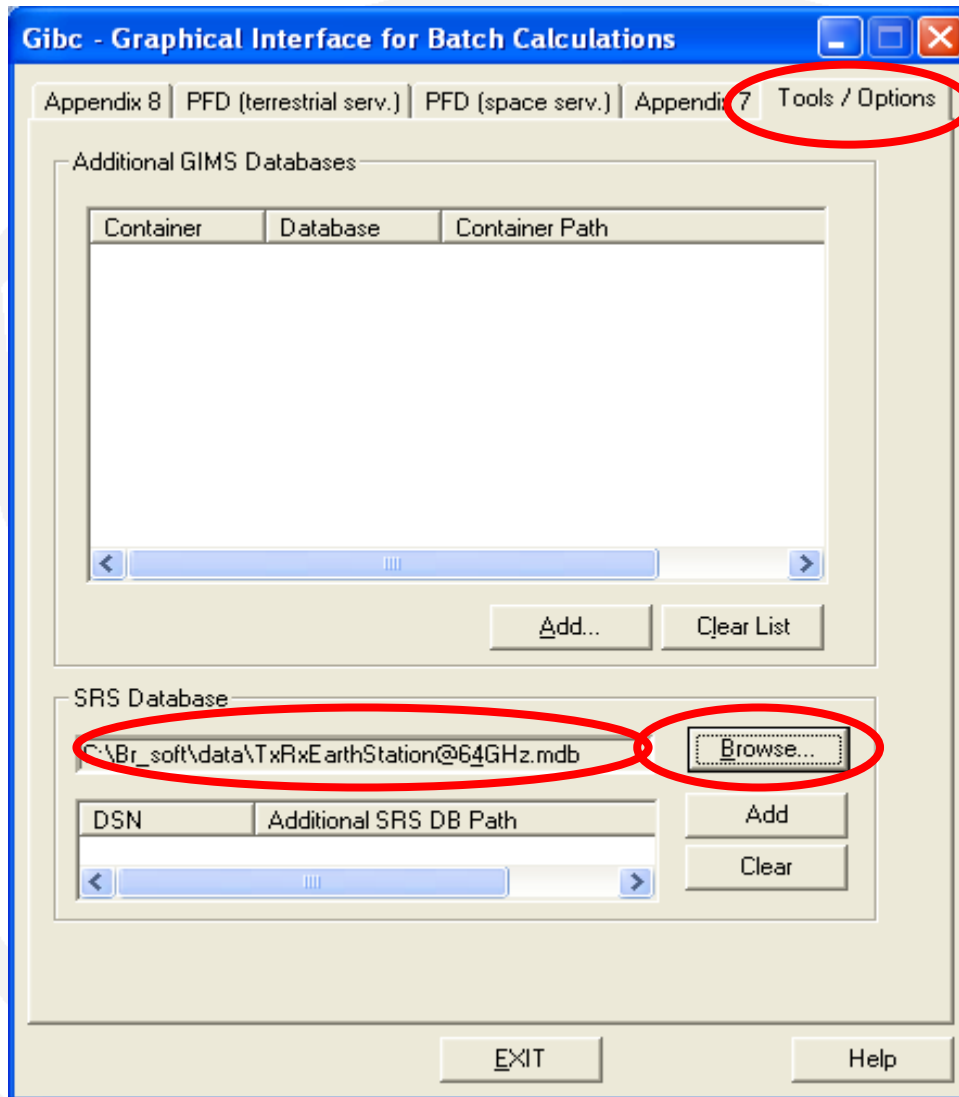
Row No	Azimuth	Elevation
*		

**Close AP7 Capture**

**Zero degree Horizon Elevation Angles**

C:\Br\_soft\data\TxPxEarthStation@64...

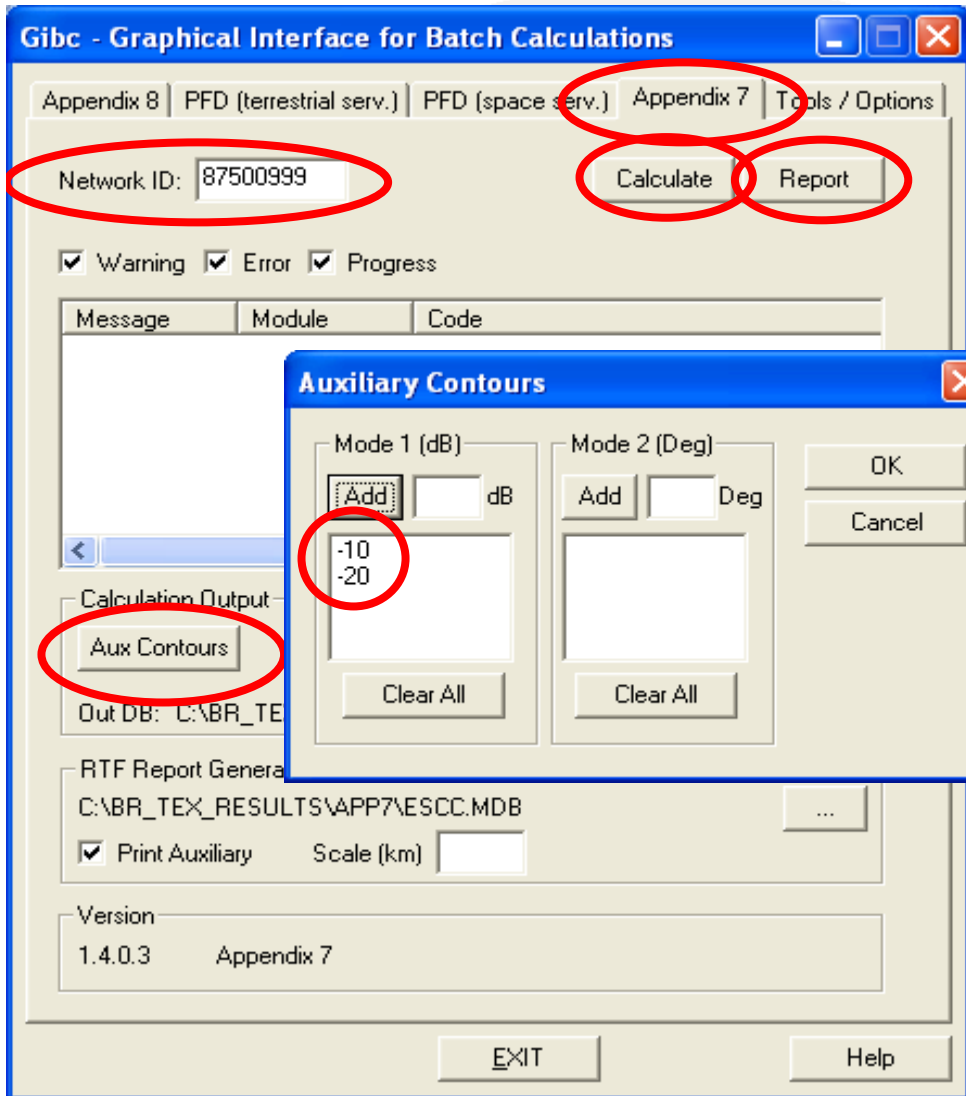
# Exercise 1 - GIBC – Open input Database



- Run GIBC
- Select the Tools & Options tab
- Change the SRS database reference input file:  
⇒ Browse and Select the following file from the Workshop directory

**Tx&RxEarthStation@6&4GHz .mdb**

# Exercise 1 - GIBC – Calculate



- Select the Appendix 7 tab
- Enter the 1<sup>st</sup> Earth Station notice Id. (Ex.1.1 Non-Zero deg horizon elevation angle):

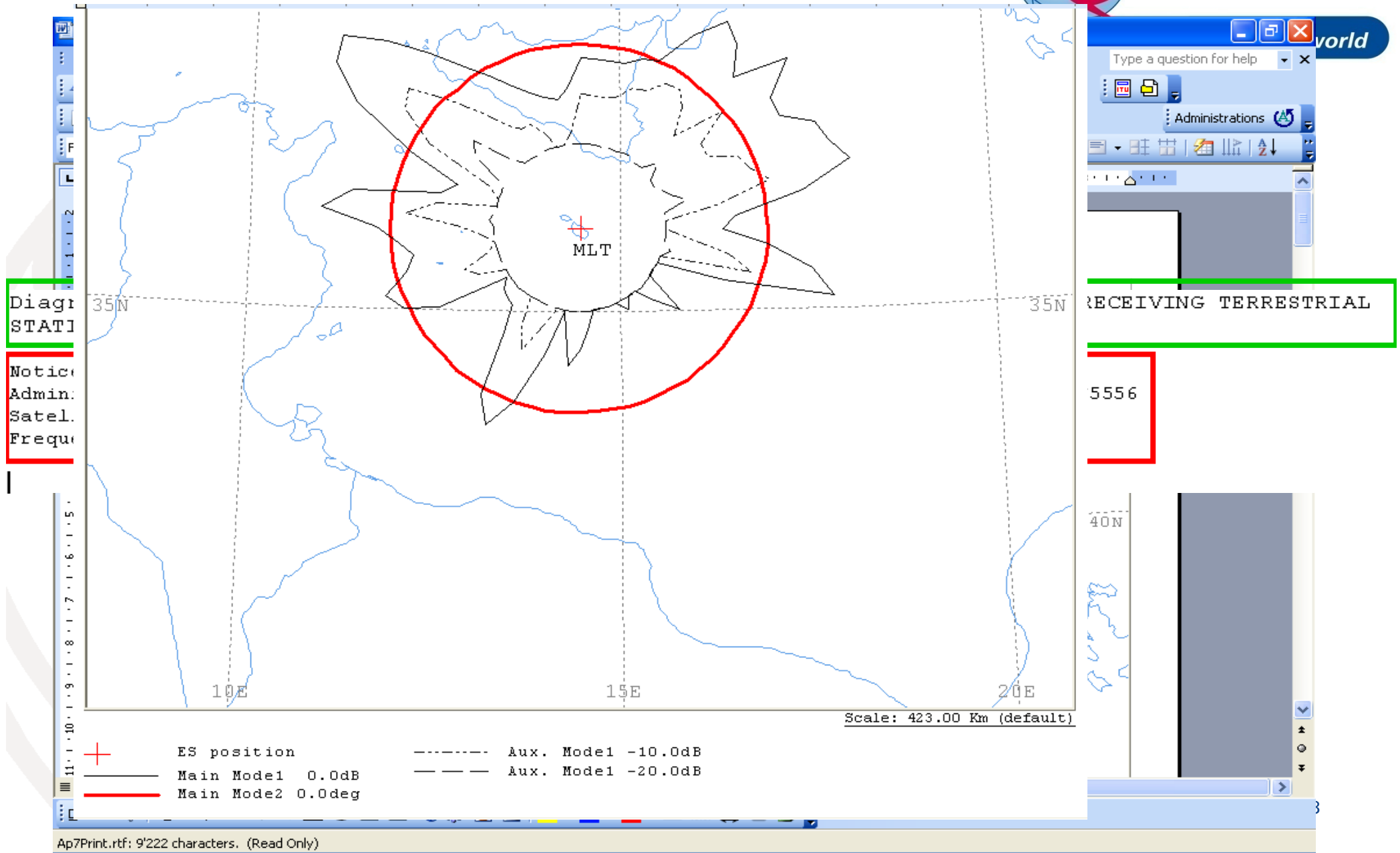
**87500999**

- Select the values for generating Auxiliary Contours :

**-10 dB and -20 dB for mode 1**

- Calculate
- Create and Open the Report

# GIBC –Results –Exercise 1.1(Tx)



# GIBC –Results –Exercise 1.1 (Tx)



World

ANALYSIS DATE AND TIME: 2010-10-07 11:43:35  
 VERSION: 1.5.0.7Appendix 7/Plt-1.6.0.0/Frm-1.8.0.0/Clc-1.5.0.2/Prp-1.2.0.0/SNS-1.0.0.142/AP7F-1.0.0.142/Re

Diagram 1: 2.1\_TABLE7. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.F

NOTICE ID: 87500999 EARTH STATION NAME: MAGTAB EARTH STAT  
 ADM/GEO\_AREA: MLT/MLT RAIN CLIMATICAL ZONE: K  
 SATELLITE NAME: INTELSAT SATELLITE ORBITAL POSITION: -1.00 DEG  
 ANTENNA AZIMUTH: 205.21 DEG ANTENNA ELEVATION: 45.19 DEG  
 FREQUENCY BAND: 5925.00-6425.00 MHZ ASSIGNED FREQUENCY: 6175.00 MHZ  
 MAXIMUM ANTENNA GAIN: 63.0 DBI MAXIMUM POWER DENSITY: -33.0 DBW/HZ  
 ANTENNA PATTERN: APERR\_001V01  
 2.1 TABLE7 Model: PLM DUCTING

TRANSMISSION LOSS MODE 1: 180.0 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)  
 TRANSMISSION LOSS MODE 2: 134.0 DB

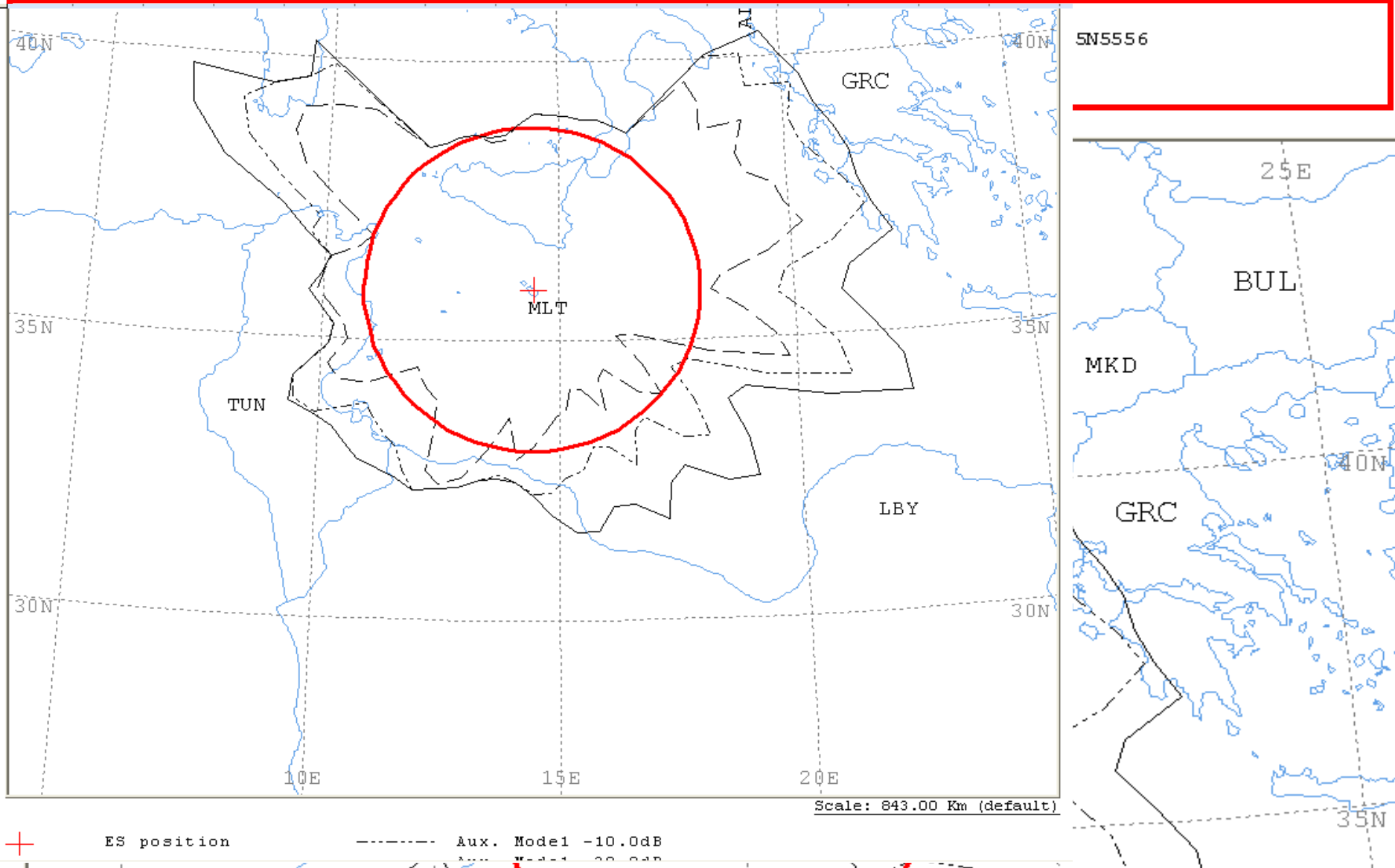
AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	300	305
OFF-AXIS	54.0	56.8	59.7	62.5	65.5	68.8	72.2	75.8	79.2	82.2	85.6	89.5	93.3	96
HOR.ELEV.	0.7	0.4	0.4	0.6	0.7	0.6	0.4	0.2	0.3	0.9	1.1	0.5	0.2	0.1
HOR.CORR.	20.2	16.4	15.1	18.5	19.7	18.2	15.5	8.8	12.3	22.6	24.3	17.8	9.2	4
ANT.GAIN	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
COORDINATION DISTANCE (KM)														
MODE 1														
0.0 DB	197	236	251	216	205	219	248	315	279	174	157	224	312	360
-10.0 DB	104	135	149	114	104	117	145	213	177	104	104	121	210	257
-20.0 DB	104	104	104	104	104	104	104	111	104	104	104	104	108	155
MODE 2														
0.0 DEG	230	230	230	230	230	230	230	230	230	229	229	229	229	229

PROBABLY AFFECTED COUNTRIES: I

# GIBC – Results – Exercise 1.1 (Rx)

Diagram 2: 2.1\_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS in PS or MS

rd



# GIBC – Results – Exercise 1.1 (Rx)



ANALYSIS DATE AND TIME: 2010-10-07 11:43:35  
 VERSION: 1.5.0.7Appendix 7/Plt-1.6.0.0/Frm-1.8.0.0/Clc-1.5.0.2/Prp-1.2.0.0/SNS-1.0.0.142/AP7F-1.0.0.142/Re

Diagram 2: 2.1\_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T

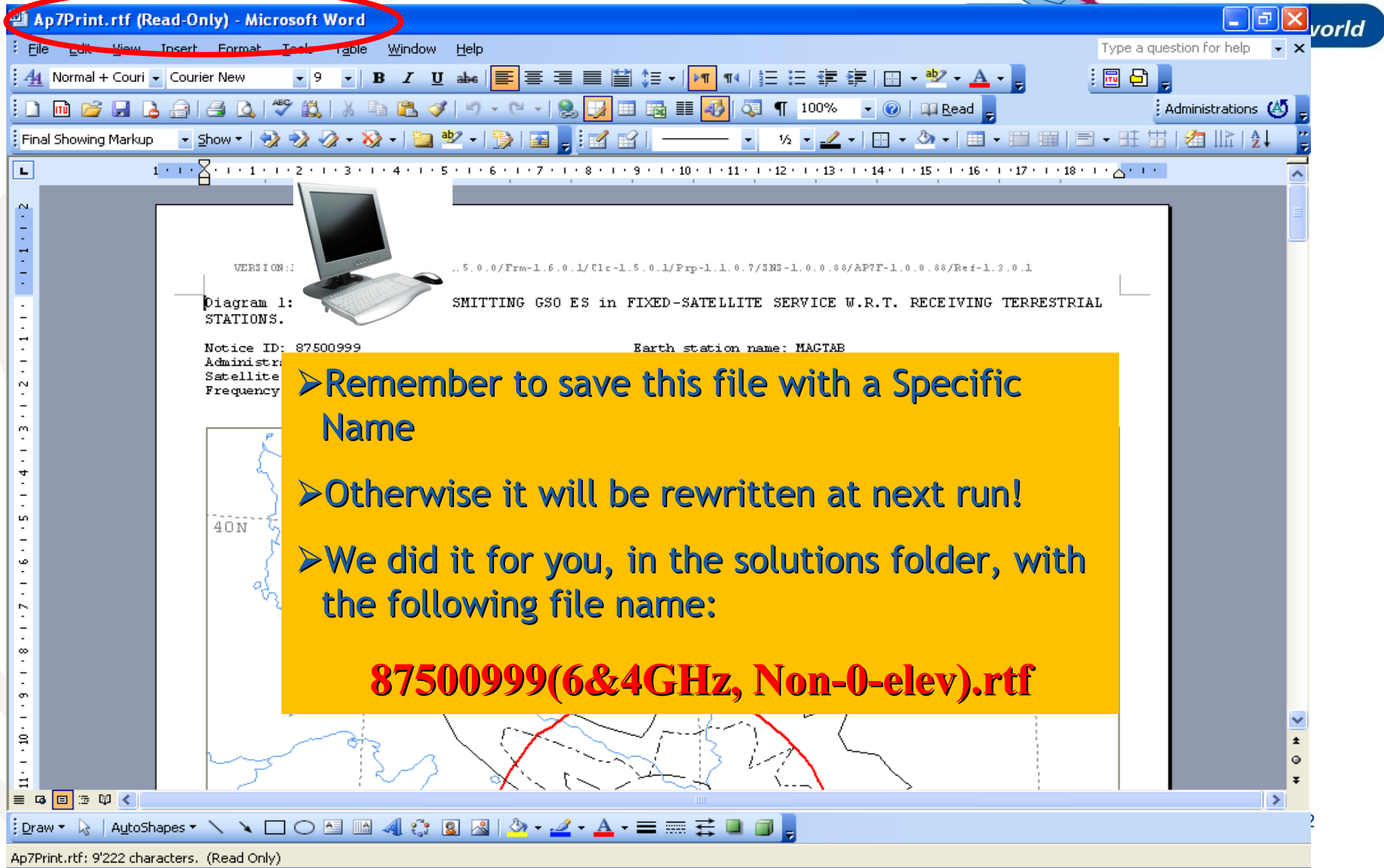
NOTICE ID: 87500999 EARTH STATION NAME: MAGTAB EARTH STAT  
 ADM/GEO AREA: MLT/MLT RAIN CLIMATICAL ZONE: K  
 SATELLITE NAME: INTELSAT SATELLITE ORBITAL POSITION: -1.00 DEG  
 ANTENNA AZIMUTH: 205.21 DEG ANTENNA ELEVATION: 45.19 DEG  
 FREQUENCY BAND: 3700.00-4200.00 MHZ ASSIGNED FREQUENCY: 3950.00 MHZ  
 MAXIMUM ANTENNA GAIN: 59.3 DBI MAXIMUM POWER DENSITY: - DBW/HZ  
 ANTENNA PATTERN: APERR\_001V01  
 2.1\_TABLE8 Model: PLM\_DUCTING

TRANSMISSION LOSS MODE 1: 204.9 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)  
 TRANSMISSION LOSS MODE 2: 162.9 DB

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	60	65
OFF-AXIS	129.3	131.1	132.6	133.6	134.3	134.6	134.4	133.8	132.7	131.2	129.6	127.4	125.1	
HOR.ELEV.	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.3	0.2
HOR.CORR.	11.8	11.8	11.8	11.6	10.8	9.8	9.2	9.2	10.8	13.8	8.0	12.0	12.2	9.
ANT.GAIN	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
COORDINATION DISTANCE (KM)														
MODE 1														
0.0 DB	349	349	349	350	357	359	359	569	672	663	665	655	661	668
-10.0 DB	349	349	349	350	357	359	359	567	612	573	644	596	593	611
-20.0 DB	349	349	349	350	357	359	359	504	487	449	522	471	469	506
MODE 2														
0.0 DEG	321	321	321	321	321	321	321	321	321	321	321	321	322	322

PROBABLY AFFECTED COUNTRIES: ALB GRC I LBY TUN

# GIBC –Results - Exercise 1.1



Ap7Print.rtf (Read-Only) - Microsoft Word

File Edit View Insert Format Tools Table Window Help

Normal + Couri Courier New 9 B I U abc

Final Showing Markup Show

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

VERSION: .. 5.0.0/Frm-1.6.0.1/Clt-1.5.0.1/Prp-1.1.0.7/SMS-1.0.0.88/AP7P-1.0.0.88/Ref-1.3.0.1

Diagram 1: SMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS.

Notice ID: 87500999 Earth station name: MAGTAE

Administr Satellite Frequency

40N

➤ Remember to save this file with a Specific Name

➤ Otherwise it will be rewritten at next run!

➤ We did it for you, in the solutions folder, with the following file name:

**87500999(6&4GHz, Non-0-elev).rtf**

Draw AutoShapes

Ap7Print.rtf: 9'222 characters. (Read Only)



# GIBC – Report re-generation – Exercise 1.2



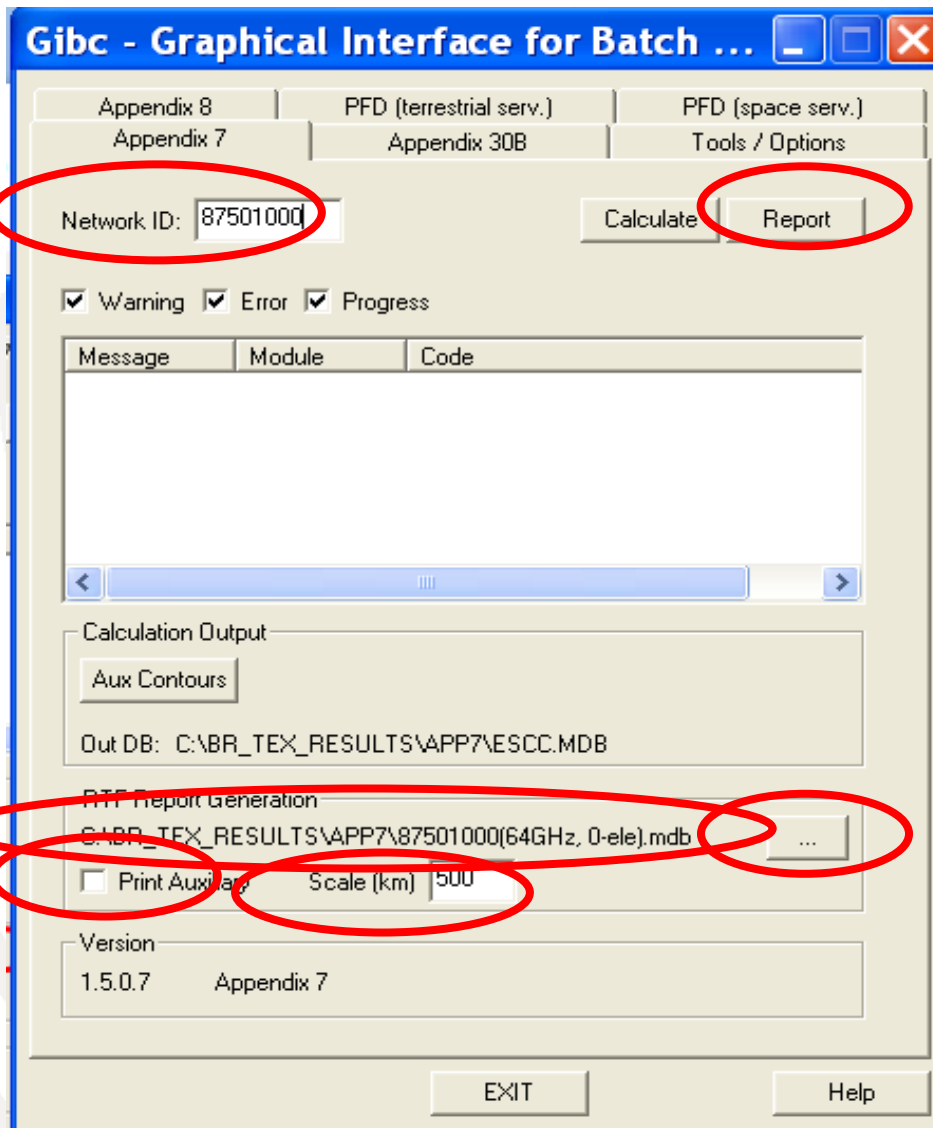
- Run GIBC
- Select the Appendix 7 page
- Enter the 2<sup>nd</sup> Earth Station notice Id. (Ex.1.2 Zero deg horizon elevation angle):

**87501000**

- Select resulting database

**87501000(6&4GHz, 0-elev).mdb**

- Disable print of auxiliary contours
- Enter a value for the scale
- Re-create the output Report



Gibc - Graphical Interface for Batch ...

Appendix 8 PFD (terrestrial serv.) PFD (space serv.)  
Appendix 7 Appendix 30B Tools / Options

Network ID: 87501000 Calculate Report

Warning  Error  Progress

Message	Module	Code
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Calculation Output

Aux Contours

Out DB: C:\BR\_TEX\_RESULTS\APP7\ESCC.MDB

RTF Report Generation

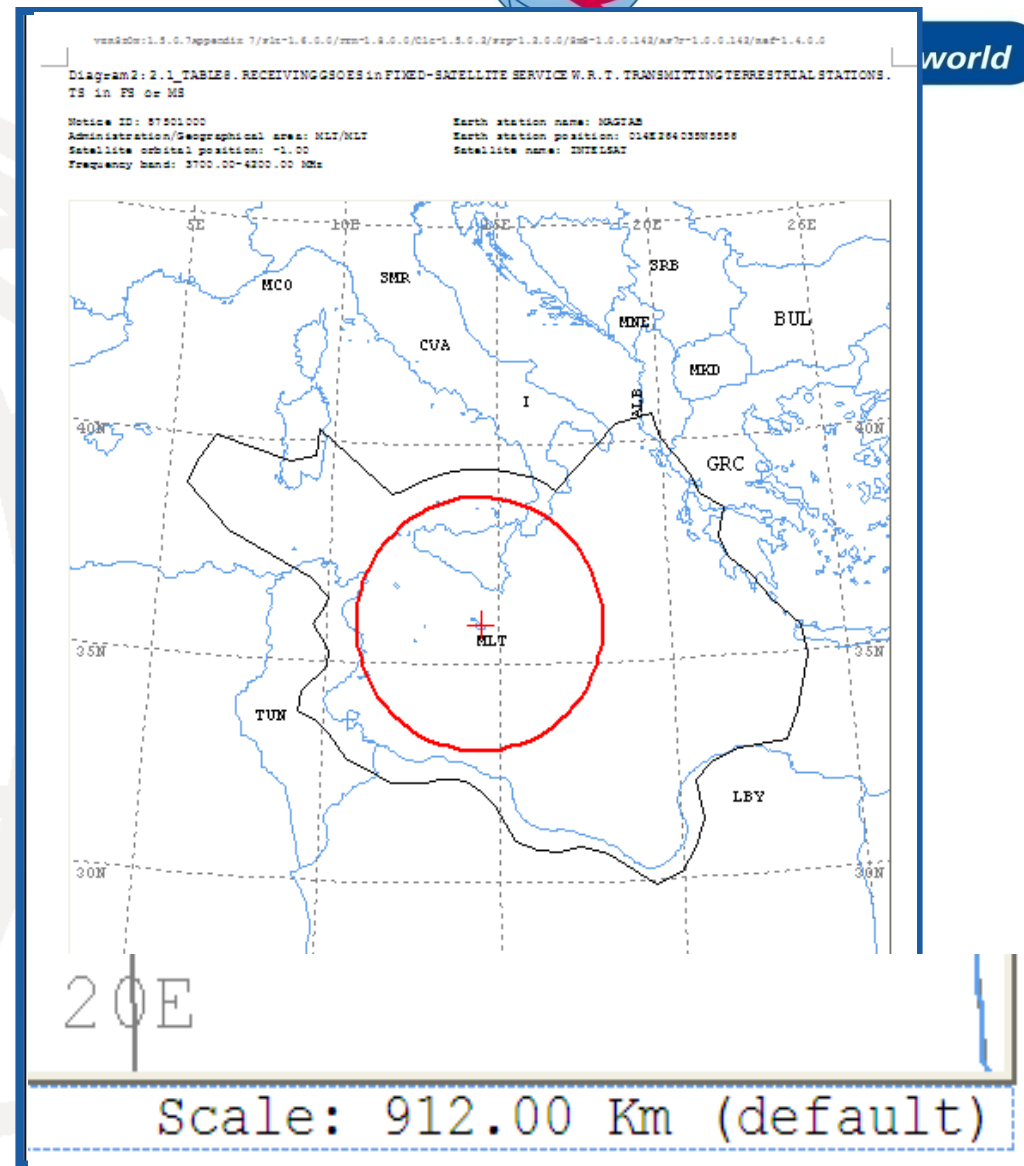
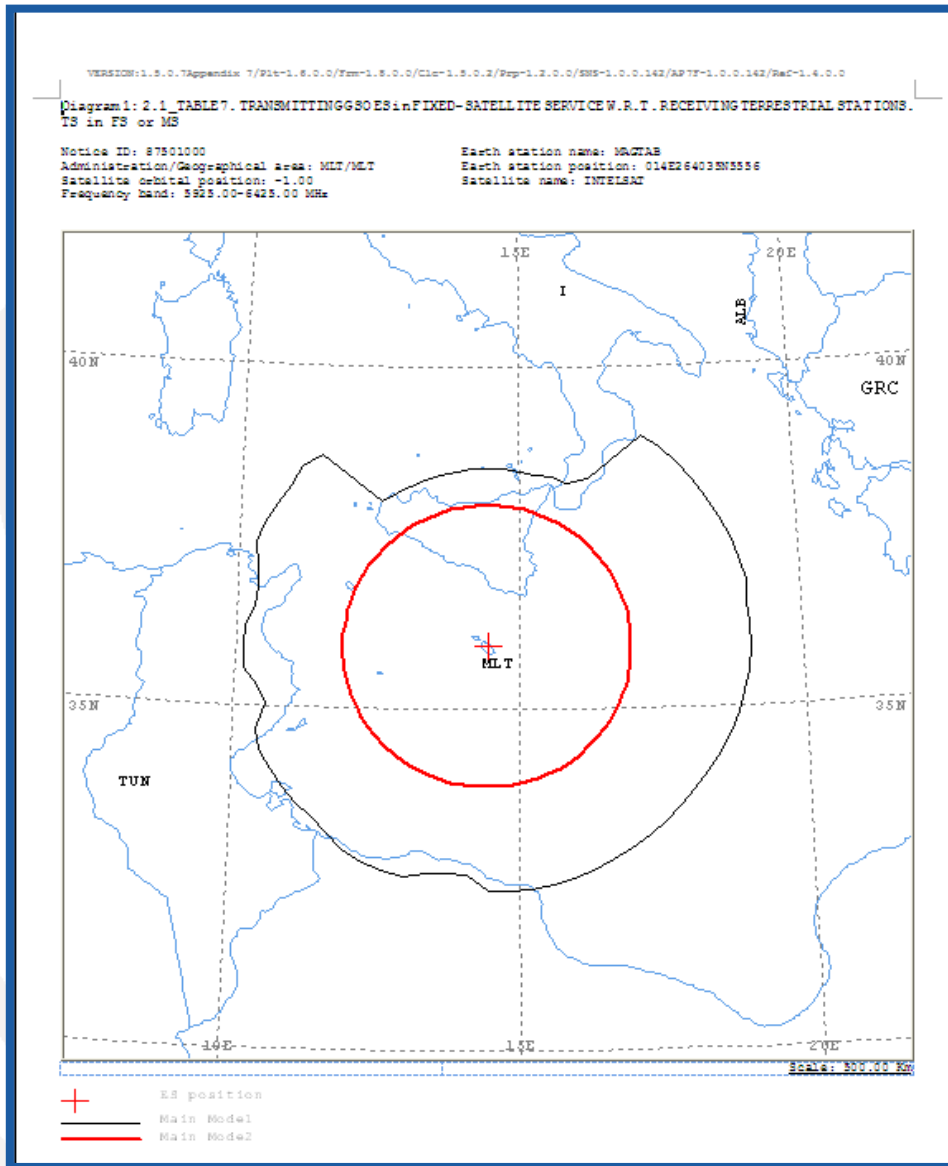
C:\BR\_TEX\_RESULTS\APP7\87501000(64GHz, 0-ele).mdb ...

Print Auxiliary Scale (km) 500

Version  
1.5.0.7 Appendix 7

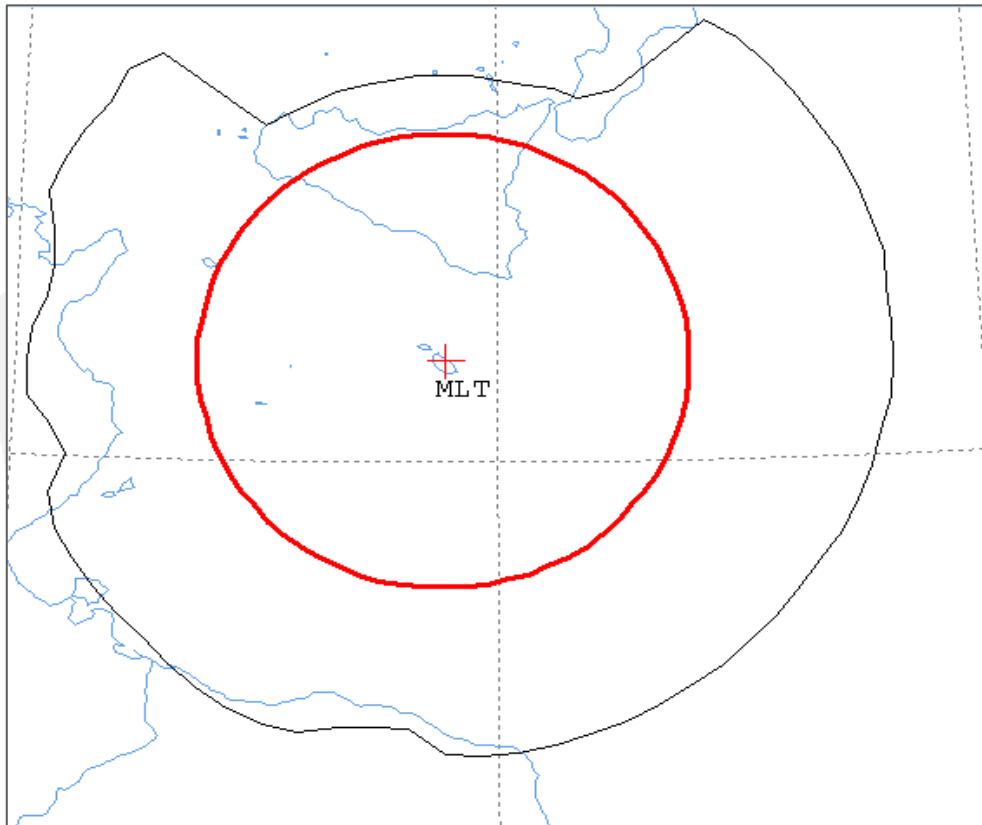
EXIT Help

# GIBC – Results - Exercise 1.2



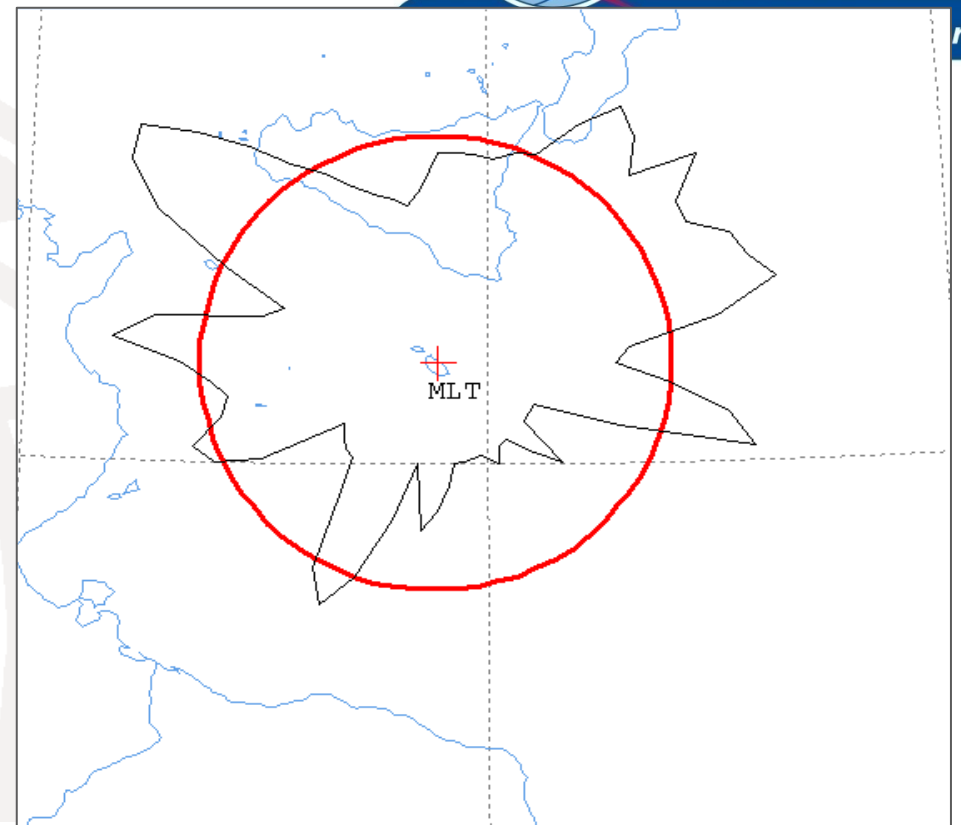
world

# Exercise 1 – GIBC – Compare Results (Tx)



Zero-degree horizon elevation angles

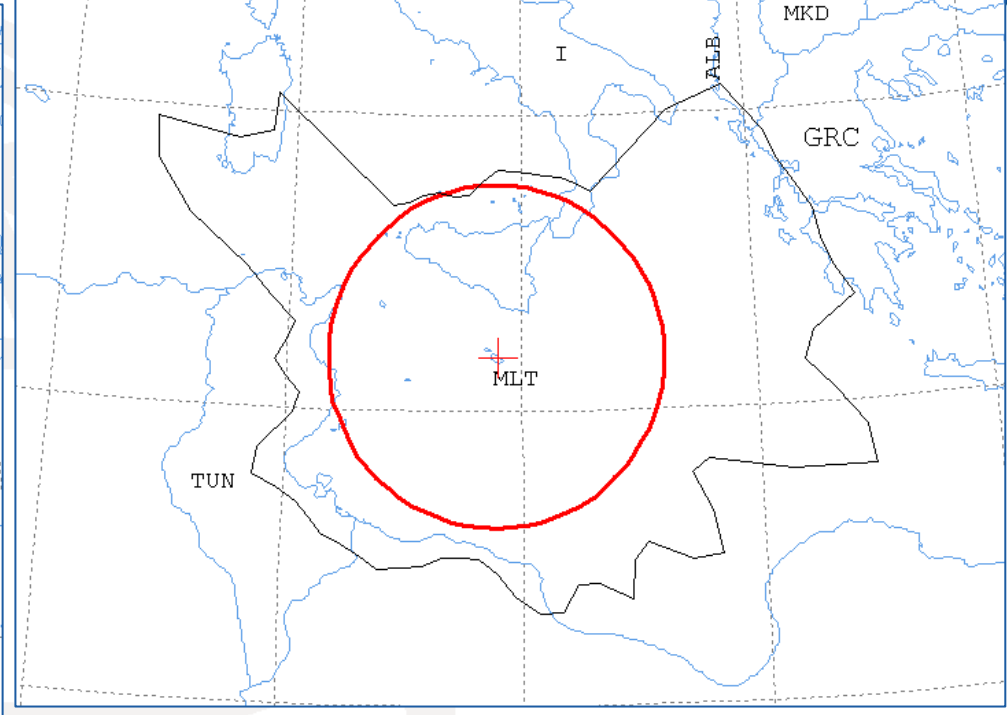
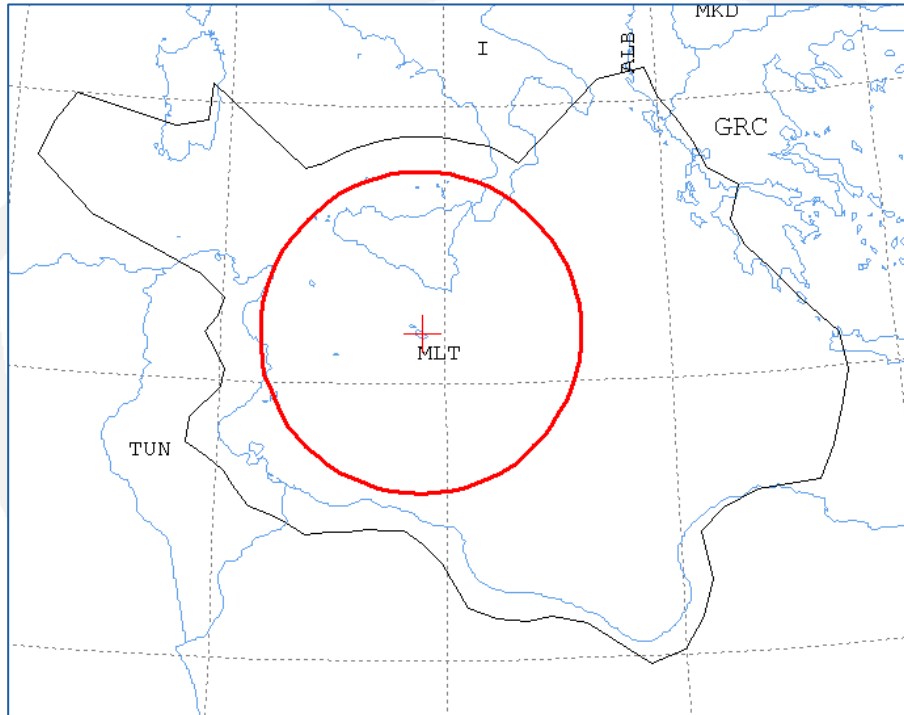
PROBABLY AFFECTED COUNTRIES:  
I LBY TUN



Non-zero-degree horizon elevation angles

PROBABLY AFFECTED COUNTRIES:  
I

# Exercise 1 – GIBC – Compare Results (Rx)



**Zero-degree horizon elevation angles**

**Non-zero-degree horizon elevation angles**

**PROBABLY AFFECTED COUNTRIES:  
ALB GRC I LBY TUN**

**PROBABLY AFFECTED COUNTRIES:  
ALB GRC I LBY TUN**

## Exercise 2

### FSS Transmitting ES in the 8 GHz band

Input example database (SNS format):

#### **TxEarthStation@8GHz.mdb**

ES name: **MAGTAB**

- Ex. 2.1 ES Notice Id: **87500999** (non-zero deg. horizon elevation angles)
- Ex. 2.2 ES Notice Id: **87501000** (zero deg. horizon elevation angles)



Solution\_Ex\_2.1  
Solution\_Ex\_2.2  
TxEarthstation@8ghz.mdb

## Exercise 2 – GIBC – Results



- FSS Transmitting Earth Station in 8 GHz band
- Input database file:

**TxEarthStation@8GHz.mdb**

- Results in following files:
  - For Ex. 2.1 with non-zero-degree horizon elevation angle:

**87500999(Tx8GHz, Non-0-elev).rtf**

- For Ex. 2.2 with zero-degree horizon elevation angle:

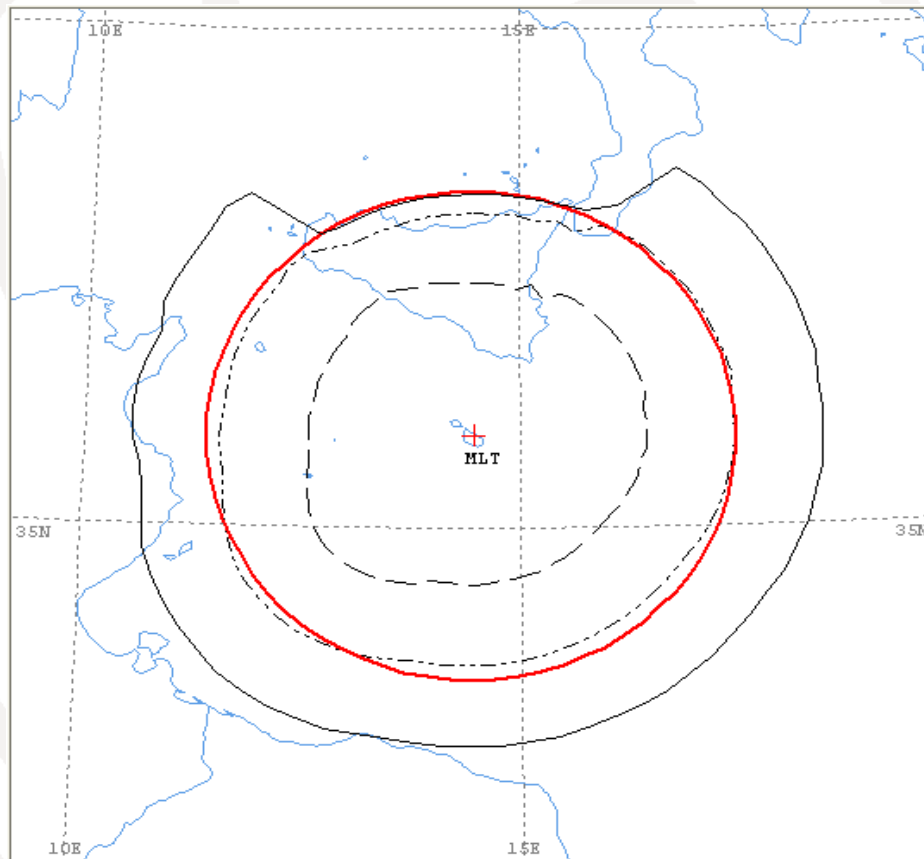
**87501000(Tx8GHz, 0-elev).rtf**

# Exercise 2 – GIBC – Results

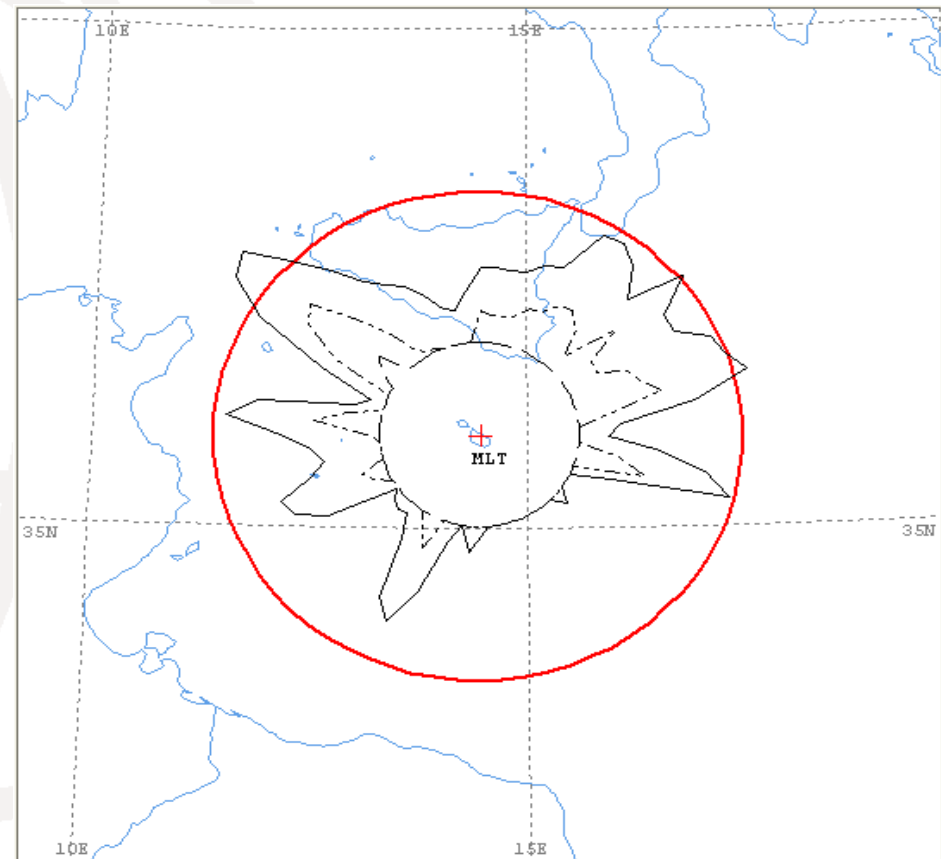
Diagram 1: 2.1\_TABLE7.

TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T.  
RECEIVING TERRESTRIAL STATIONS. TS in FS or MS

With zero-degree  
horizon elevation angles



With non-zero-degree  
horizon elevation angles

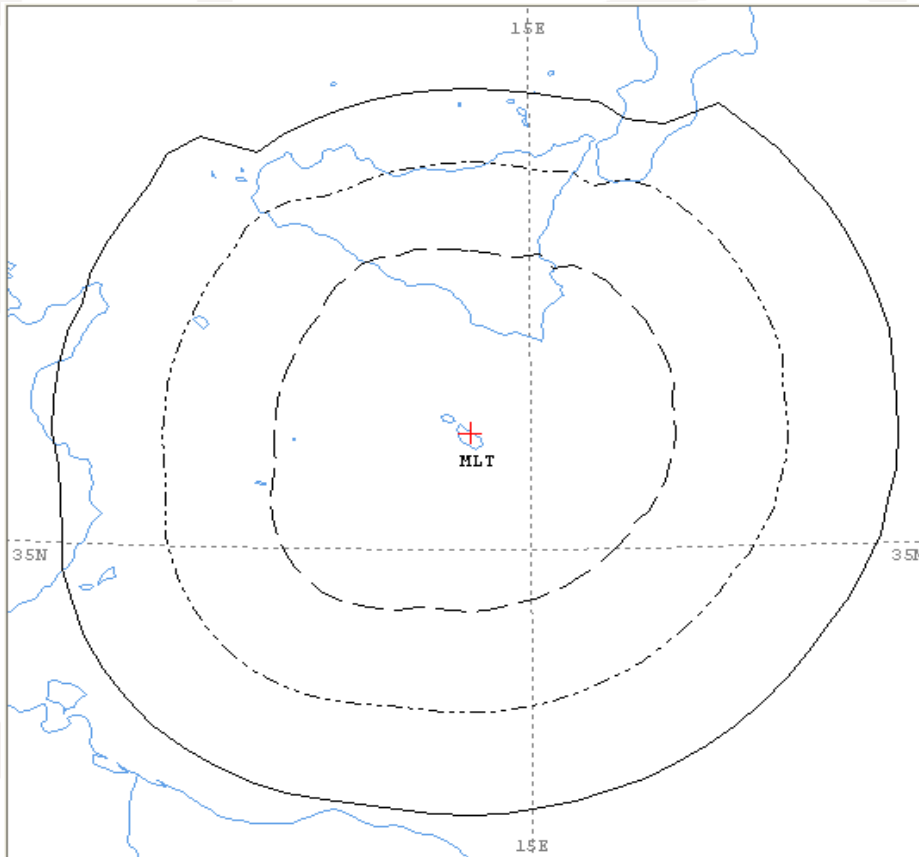


# Exercise 2 – GIBC – Results

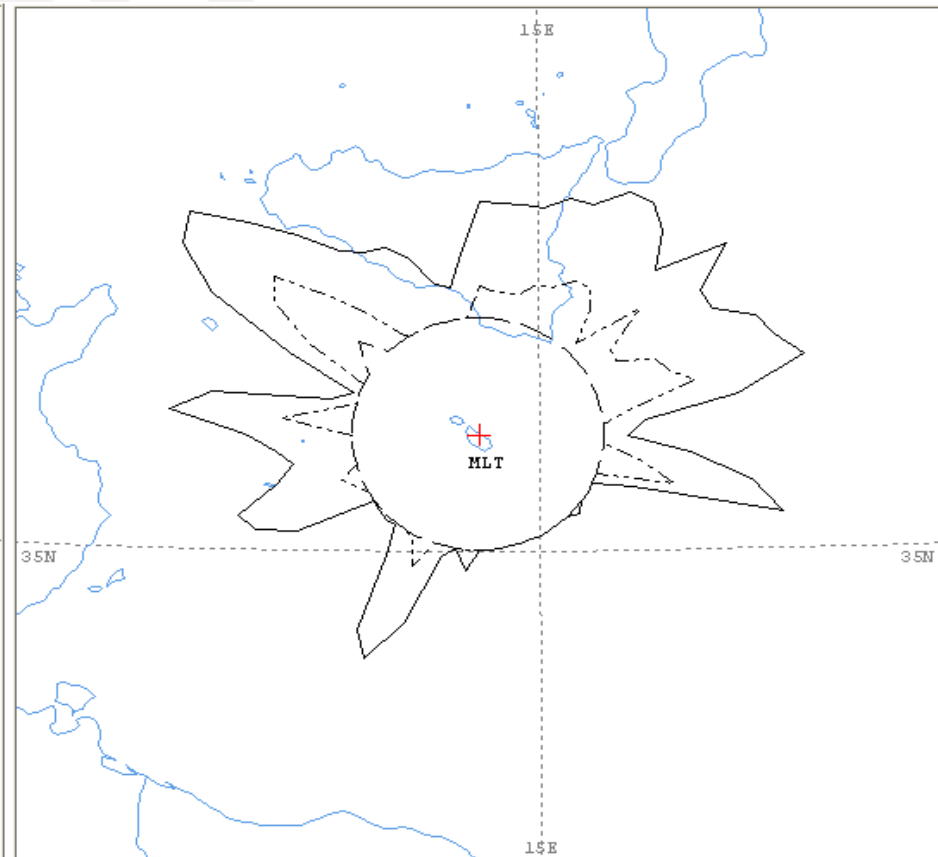
Diagram 2: 3.2.1\_TABLE9.

TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T.  
RECEIVING NGSO ES in EARTH EXPLORATION SATELLITE SERVICE

With zero-degree  
horizon elevation angles



With non-zero-degree  
horizon elevation angles



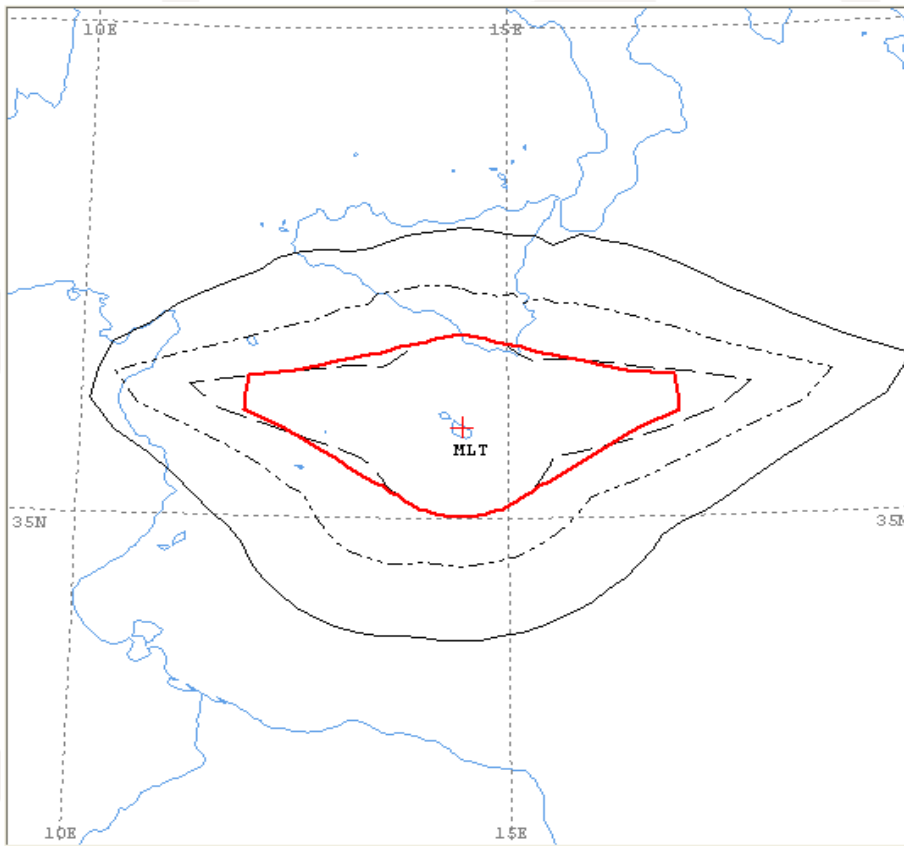


# Exercise 2 – GIBC – Results

Diagram 3: 3.1\_TABLE9.

TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T.  
RECEIVING GSO ES in EARTH EXPLORATION SATELLITE SERVICE

With zero-degree  
horizon elevation angles



With non-zero-degree  
horizon elevation angles

