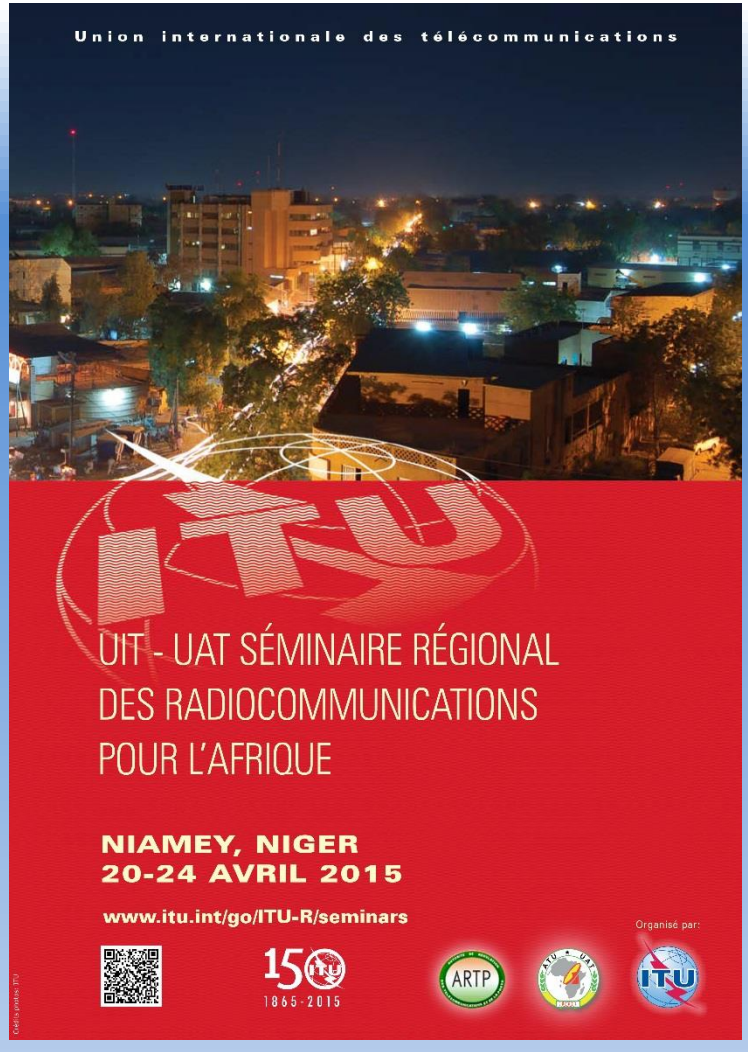
Generation of Coordination Contours for Earth Stations (GIBC AP7 application)



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Earth Station Coordination

- **Determination of the Coordination Area Around an Earth Station based on Appendix 7**

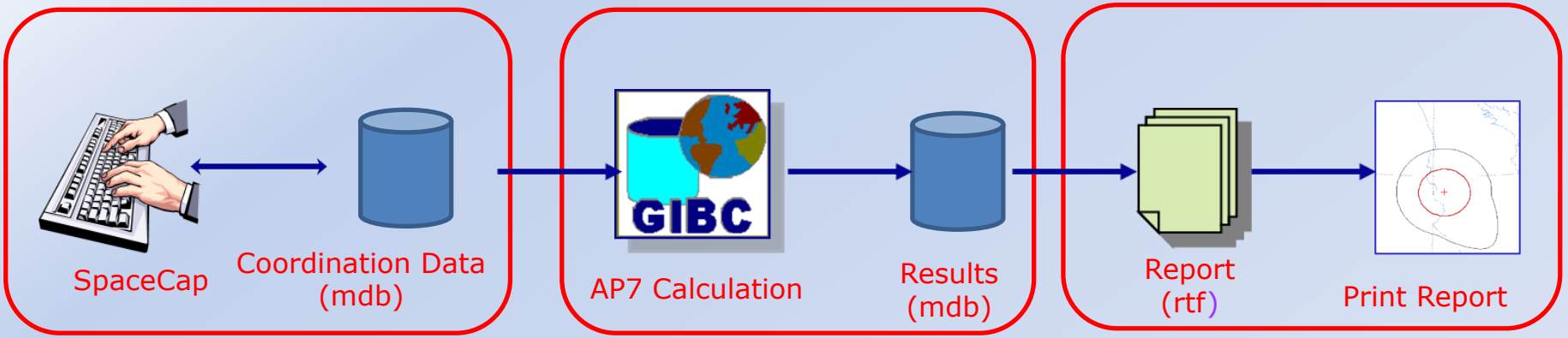
- **Tools :**

  SpaceCap

  GIBC – Appendix 7

AP7 data capture/calculation

Data capture | **Calculation** | **Report generation**



Data capture and storage in the SNS formatted database.

Extract information to perform Appendix 7 calculation. Save the results in an ESCC formatted database.

Produce report document in RTF format.

In this workshop…

SpaceCap Capture tool

- Software installation
- Browse an existing database
- Modify parameters
- Save into the existing database

GIBC Appendix 7 Calculation

- Software installation
- Select input database
- Appendix 7 calculation
- Generate Report
- Include Auxiliary Contours

Proposed Exercises:

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

Installation

SpaceCap and **GIBC** software can be installed from the ITU-R website (ITU-R/space-software).

Each edition of the BR International Frequency Information Circular (BR IFIC) contains the SRS database.

Install GIBC & Open the application

Install SpaceCap and open the application

SpaceCap

GIBC

Proposed Exercises

- 1st exercise

Generate Coordination Contours for FSS Transmitting and Receiving Earth Station in the C band

- 2nd exercise

Repeat the calculations to see the effect of the horizon elevation angles on the coordination contours

Input database: **RRS_15-ES-Coordination.mdb**

ES name: **NGR-1**

ES Notice ID: **1**

Exercise 1

Browse an existing database

SpaceCap

SpaceCapture V7 - [Set Notice Template]

File Edit Tools Template Window Help

CR/NOTIF API RAST PLAN RS49/552

SpaceCap

Start Page

Notice Explorer

Open Notice

New Notice

Search

Start Page - AP4/II and AP4/III

Transaction Id: 11

To select a Notice by the Notice ID

To open a Notice

Current DB : C:\WRS-14\WRS_14-ES-Coordination.mdb | Click on Notice Explorer to see a list of Notices, or New Notice to create one.

Exercise 1

Browse an existing database

SpaceCap

SpaceCapture V7 - [Set Notice Template]

File Edit Tools Template Window Help

CR/NOTIF API RAST PLAN RS49/552

SpaceCap

Start Page

Notice Explorer

Open Notice

New Notice

Search

Notice Explorer - AP4/II and AP4/III

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
List of notices						Count=2
000000001[A]	S	SUI/		GVA-1	03/11/2014	01
000000011[A]	S	MLT/		MLT-11	03/11/2014	01

Control Box

Show

Clone

Export

Delete

To SNS

CFEX

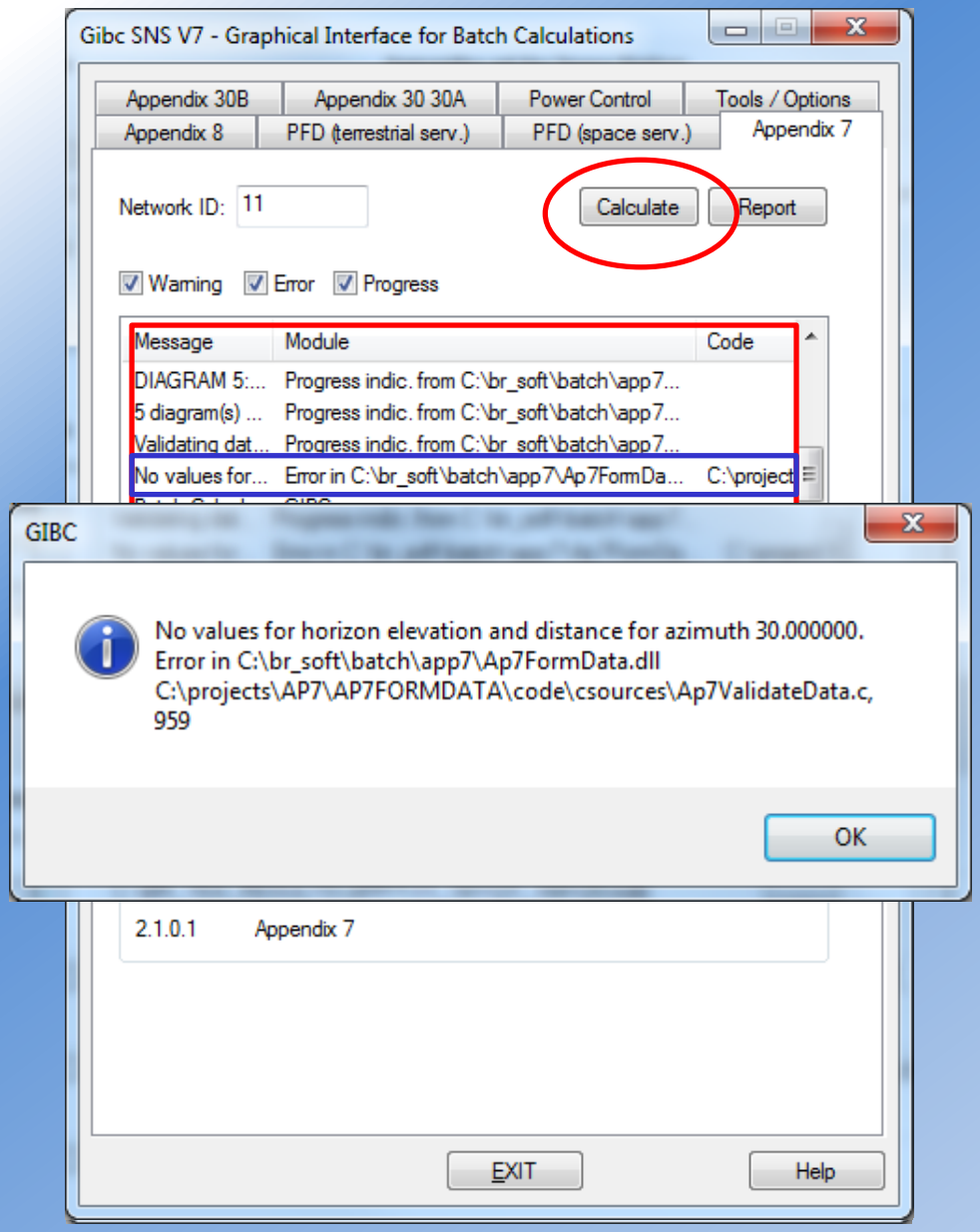
SpaceVal

Esub

RS49/552

Current DB : C:\WRS-14\WRS_14-ES-Coordination.mdb 5:36 PM 12/11/2014

GIBC - AP7 Calculation



Selecting a database:

- Go to Tools/ Options page
- Use the Browse button to select the MS-Access file with coordination data

Calculation:

- Go to Appendix 7 page
- Enter ES Network ID

To check progress of calculation:

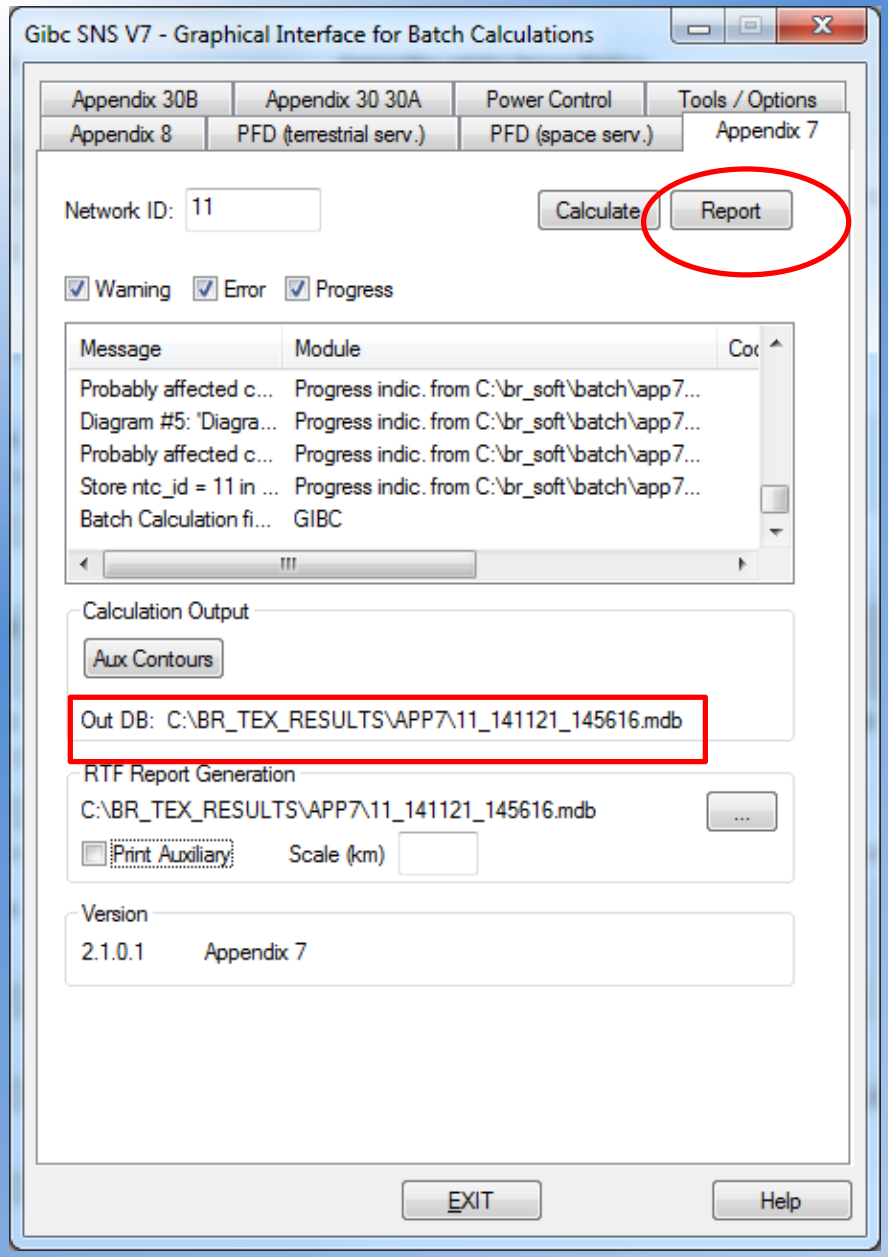
Select Warning\ Error \ Progress

- Press Calculate

Exercise 1

GIBC AP7

Report Generation



After each calculation, results automatically saved in a separate MS-Access file.

Results Directory:

C:\BR_TEX_RESULTS\APP7

Naming Convention:

NetworkID_Date_Time.mdb

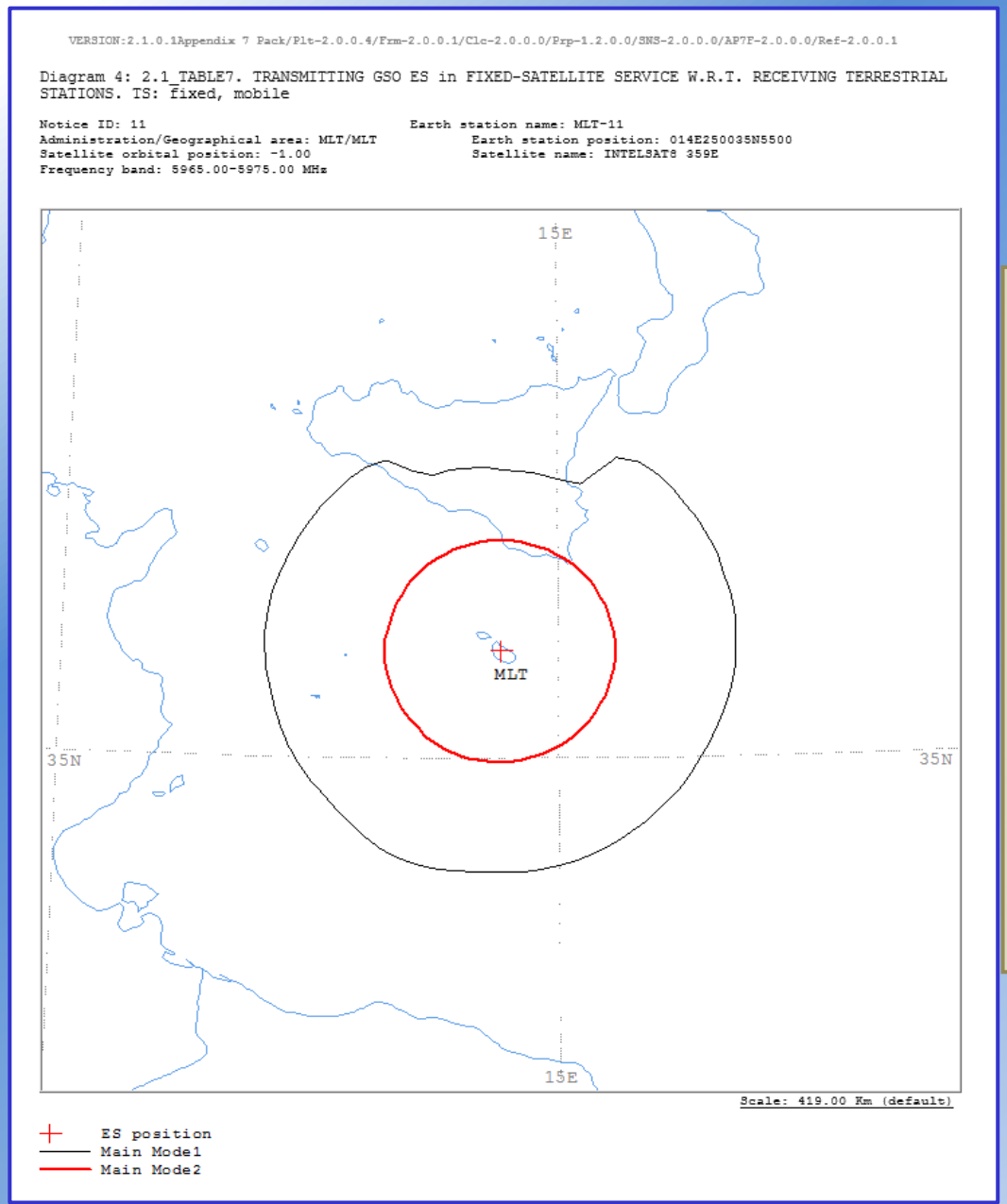
Report Generation:

- Press Report button

Exercise 1

Report Generation – Tx ES

GIBC AP7



Report-Graphics

Contains diagrams displaying:

- Title
- Details
- Coordination Contours
  - Main Mode 1 and Mode 2
  - Auxiliary Contours
- Country codes
- Legend

Report Generation – Tx ES

ANALYSIS DATE AND TIME: 2014-11-20 10:01:13
VERSION: 2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 4: 2.1_TABLE7. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS. TS: fixed, mobile

NOTICE ID: 11 EARTH STATION NAME: MLT-11 EARTH STATION POSITION: 014E250035N5500PHASE: D
ADM/GEO_AREA: MLT/MLT RAIN CLIMATICAL ZONE: K
SATELLITE NAME:INTELSAT8 359E SATELLITE ORBITAL POSITION: -1.00 DEG
ANTENNA AZIMUTH: 205.18 DEG ANTENNA ELEVATION: 45.22 DEG
FREQUENCY BAND:5965.00-5975.00 MHZ ASSIGNED FREQUENCY: 5970.00 MHZ PERCENTAGE OF TIME: 0.0050 %
MAXIMUM ANTENNA GAIN: 44.0 DBI MAXIMUM POWER DENSITY: -52.5 DBW/HZ NOISE TEMPERATURE: - K
ANTENNA PATTERN: APEREC025V01
2.1_TABLE7 Model: PLM_DUCTING

TRANSMISSION LOSS MODE 1: 160.5 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)
TRANSMISSION LOSS MODE 2: 114.5 DB

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	6
OFF-AXIS	129.6	131.4	132.8	133.9	134.5	134.8	134.6	134.0	132.9	131.5	129.7	127.7	125.
HOR.ELEV.	-	-	-	-	-	-	-	-	-	-	-	-	
HOR.CORR.	-	-	-	-	-	-	-	-	-	-	-	-	
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.
COORDINATION DISTANCE (KM)													
MODE 1													
0.0 DB	170	170	170	170	170	173	211	218	219	219	217	217	21
MODE 2													
0.0 DEG	104	104	104	104	104	104	104	104	104	104	104	104	10

AZIMUTH	120	125	130	135	140	145	150	155	160	165	170	175	18
OFF-AXIS	86.6	83.1	79.6	76.2	72.8	69.5	66.3	63.2	60.2	57.4	54.8	52.5	50.
HOR.ELEV.	-	-	-	-	-	-	-	-	-	-	-	-	
HOR.CORR.	-	-	-	-	-	-	-	-	-	-	-	-	
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.
COORDINATION DISTANCE (KM)													
MODE 1													
0.0 DB	208	208	208	208	208	208	209	209	210	210	210	211	20
MODE 2													
0.0 DEG	104	104	104	105	105	105	105	105	105	105	105	105	10

AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	30
OFF-AXIS	54.7	57.2	60.0	63.0	66.1	69.3	72.6	75.9	79.4	82.8	86.4	89.9	93.
HOR.ELEV.	-	-	-	-	-	-	-	-	-	-	-	-	
HOR.CORR.	-	-	-	-	-	-	-	-	-	-	-	-	
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.
COORDINATION DISTANCE (KM)													
MODE 1													
0.0 DB	212	212	212	212	212	213	214	214	214	214	213	213	212
MODE 2													
0.0 DEG	105	105	105	105	105	105	105	105	104	104	104	104	104

AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	30
OFF-AXIS	54.7	57.2	60.0	63.0	66.1	69.3	72.6	75.9	79.4	82.8	86.4	89.9	93.
HOR.ELEV.	-	-	-	-	-	-	-	-	-	-	-	-	
HOR.CORR.	-	-	-	-	-	-	-	-	-	-	-	-	
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.
COORDINATION DISTANCE (KM)													
MODE 1													
0.0 DB	212	212	212	212	212	213	214	214	214	214	213	213	212	212	212	212	212	212	208	187	176	177	174	174
MODE 2													
0.0 DEG	105	105	105	105	105	105	105	105	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104

PROBABLY AFFECTED COUNTRIES: I

Report-Details

- Coordination distances at 72 azimuths (0-355 degrees in 5°steps)
- Calculation details
- Intermediate data
- List of affected countries

Exercise 1

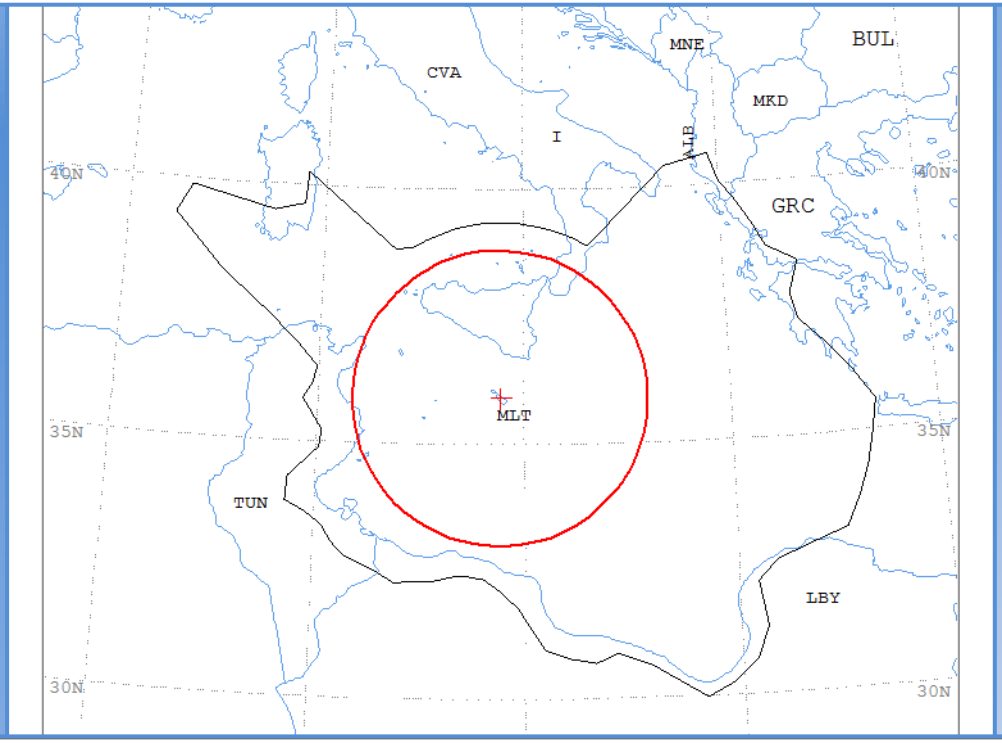
GIBC AP7

Report Generation – Rx ES

Diagram 3: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 11
Administration/Geographical area: MLT/MLT
Satellite orbital position: -1.00
Frequency band: 4045.00-4055.00 MHz

Earth station name: MLT-11
Earth station position: 014E250035N5500
Satellite name: INTELSAT8 359E



Scale: 1019.00 Km (default)

ES position
Main Mode1
Main Mode2

Exercise 1

Report Generation – Rx ES

GIBC AP7

ANALYSIS DATE AND TIME: 2014-11-20 10:01:13
VERSION: 2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 3: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

NOTICE ID: 11 EARTH STATION NAME: MLT-11 EARTH STATION POSITION: 014E250035N5500PHASE: D
ADM/GEO_AREA: MLT/MLT RAIN CLIMATICAL ZONE: K
SATELLITE NAME:INTELSAT8 359E SATELLITE ORBITAL POSITION: -1.00 DEG
ANTENNA AZIMUTH: 205.18 DEG ANTENNA ELEVATION: 45.22 DEG
FREQUENCY BAND:4045.00-4055.00 MHZ ASSIGNED FREQUENCY: 4050.00 MHZ PERCENTAGE OF TIME: 0.0017 %
MAXIMUM ANTENNA GAIN: 44.0 DBI MAXIMUM POWER DENSITY: - DBW/HZ NOISE TEMPERATURE: 150.0 K
ANTENNA PATTERN: APEREC015V01
2.1_TABLE8 Model: PLM_DUCTING

TRANSMISSION LOSS MODE 1: 203.2 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)
TRANSMISSION LOSS MODE 2: 161.2 DB

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115
OFF-AXIS	129.6	131.4	132.8	133.9	134.5													10.7	107.4	104.1	100.6	97.2	93.6	90.1
HOR.ELEV.	-	-	-	-	-													-	-	-	-	-	-	-
HOR.CORR.	-	-	-	-	-													-	-	-	-	-	-	-
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
COORDINATION DISTANCE (KM)																								
MODE 1																								
0.0 DB	382	382	382	382	382													770	819	818	816	812	810	748
MODE 2																								
0.0 DEG	321	321	321	321	321													322	322	322	322	323	323	323

AZIMUTH	120	125	130	135	140													205	210	215	220	225	230	235
OFF-AXIS	86.6	83.1	79.6	76.2	72.8													45.2	45.4	46.0	47.1	48.5	50.3	52.3
HOR.ELEV.	-	-	-	-	-													-	-	-	-	-	-	-
HOR.CORR.	-	-	-	-	-													-	-	-	-	-	-	-
ANT.GAIN	-10.0	-10.0	-10.0	-10.0	-10.0													-9.4	-9.4	-9.6	-9.8	-10.0	-10.0	-10.0
COORDINATION DISTANCE (KM)																								
MODE 1																								
0.0 DB	702	691	768	799	804	795	671	615	616	590	560	460	422	398	398	405	425	442	466	466	474	485	484	481
MODE 2																								
0.0 DEG	323	323	323	323	323	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324

AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355
OFF-AXIS	54.7	57.2	60.0	63.0	66.1	69.3	72.6	75.9	79.4	82.8	86.4	89.9	93.4	96.9	100.4	103.8	107.2	110.5	113.7	116.8	119.8	122.6	125.2	127.5
HOR.ELEV.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HOR.CORR.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
COORDINATION DISTANCE (KM)																								

Save the Report (rtf file) with a specific name.

Ap7Print.rtf file is rewritten each time.

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

382

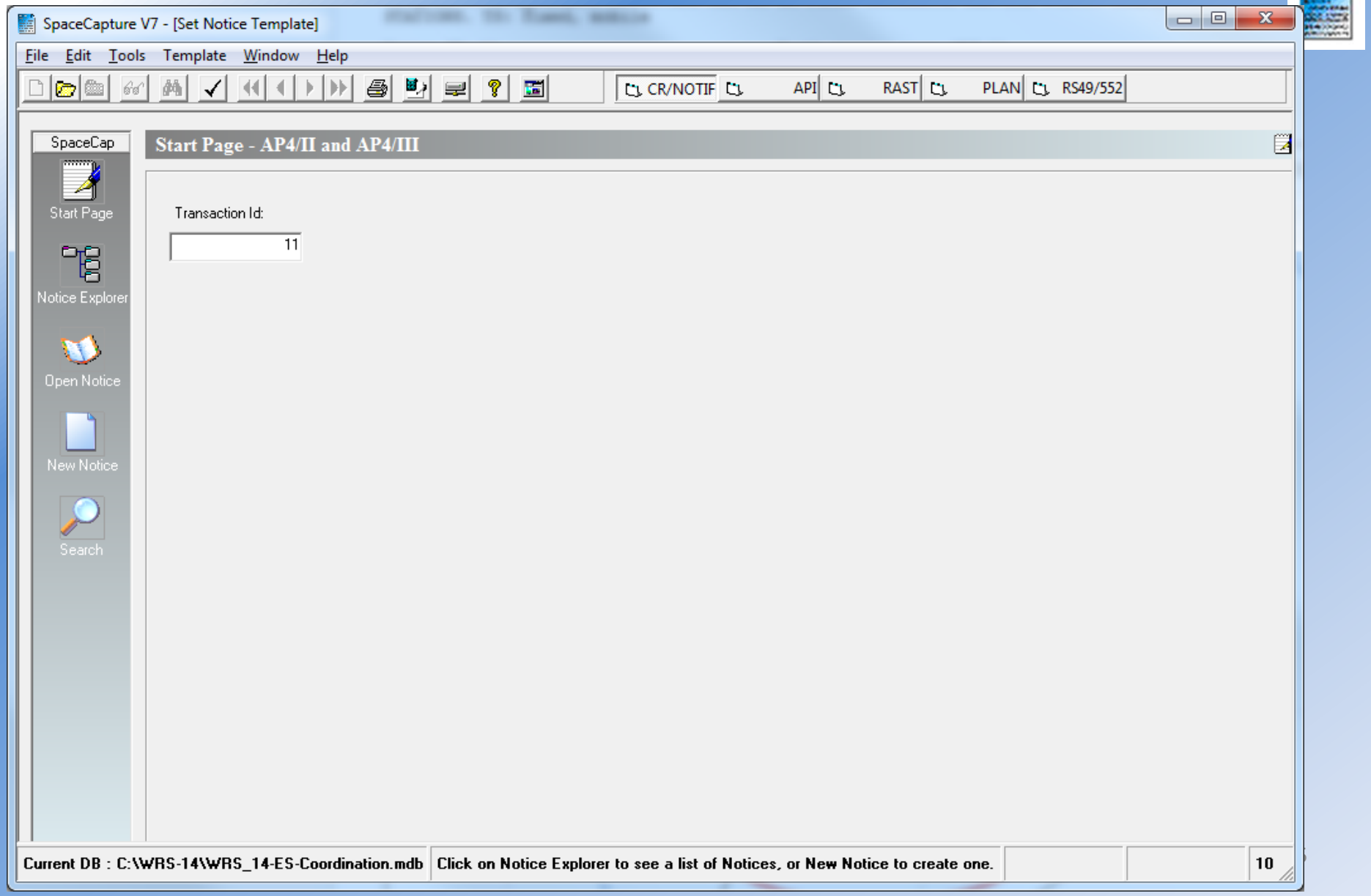
322

PROBABLY AFFECTED COUNTRIES: ALB GRC I LBY TUN

Exercise 2

Effect of the Horizon elevation angles

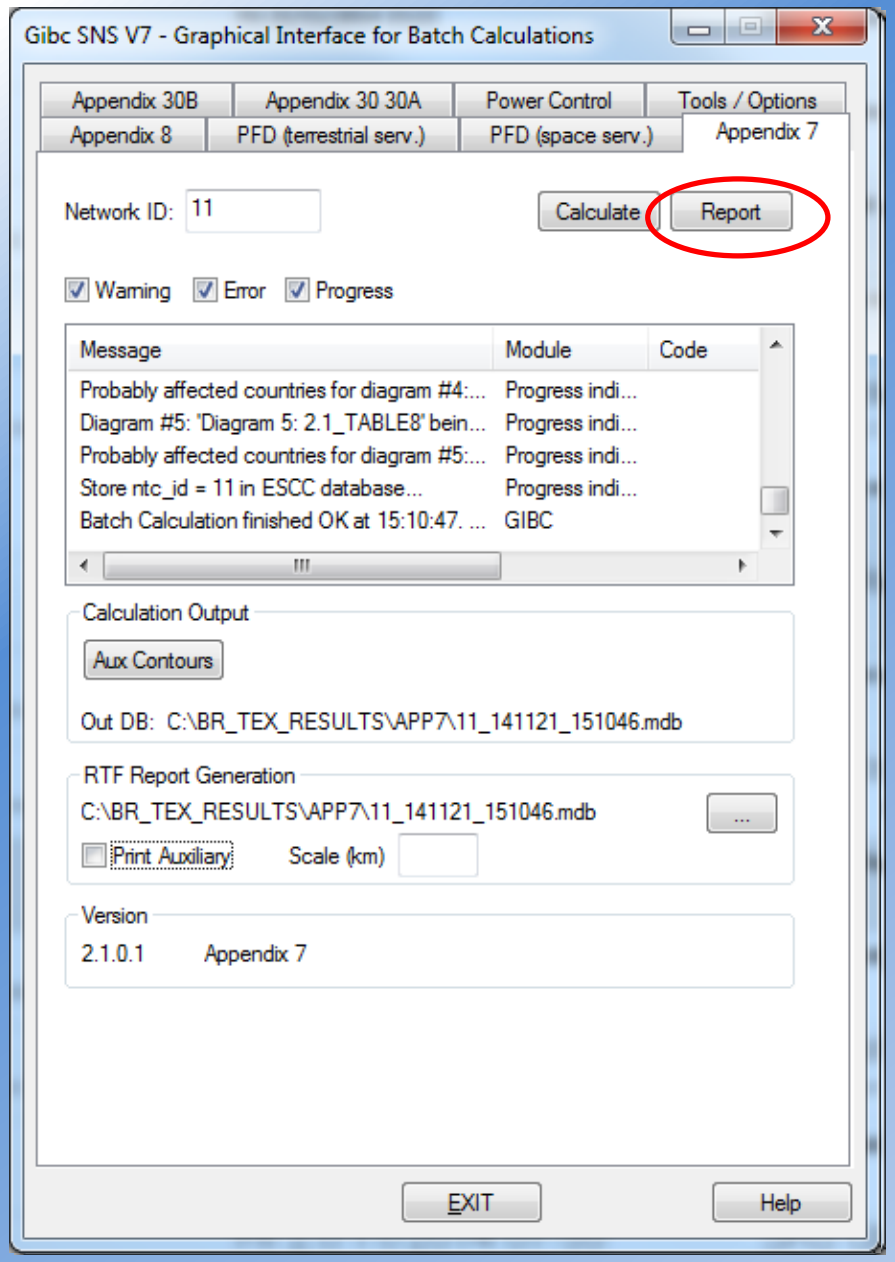
SpaceCap



Exercise 2

GIBC – AP7 Calculation

GIBC AP7



Exercise 2

Report Generation – Tx ES

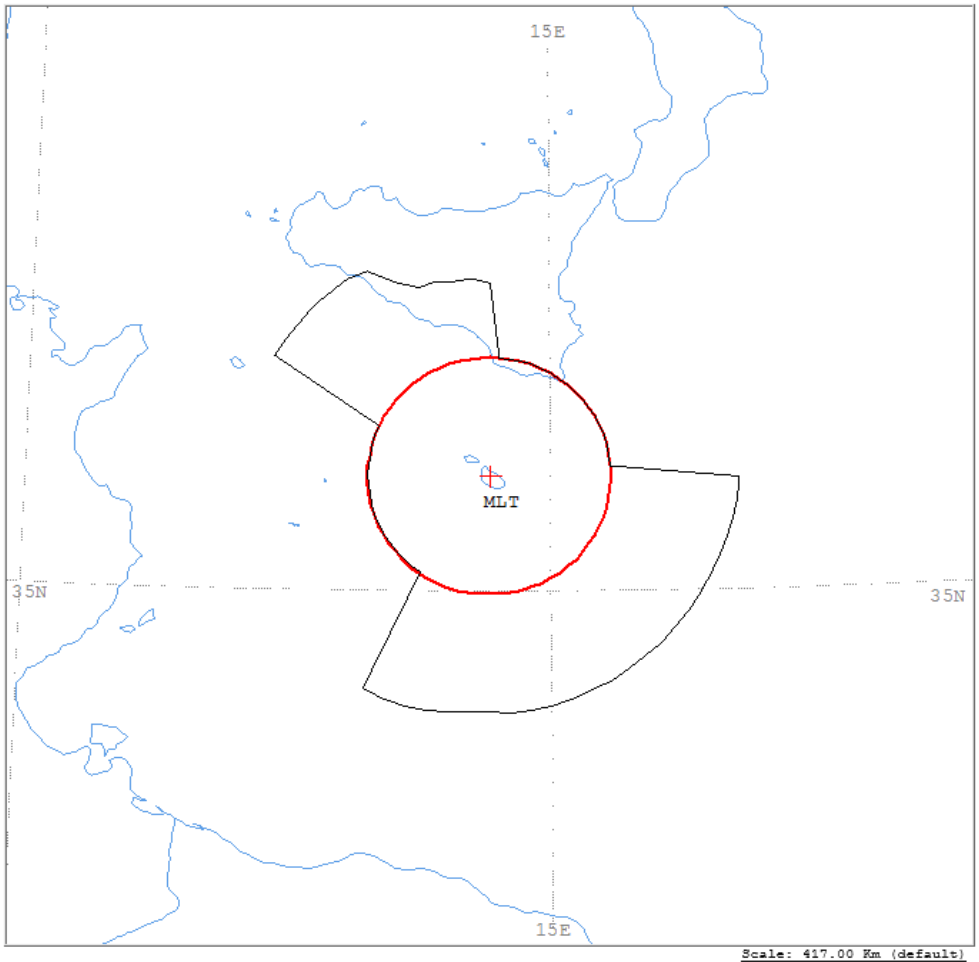
GIBC AP7

VERSION:2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 4: 2.1_TABLE7. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 11
Administration/Geographical area: MLT/MLT
Satellite orbital position: -1.00
Frequency band: 5965.00-5975.00 MHz

Earth station name: MLT-11
Earth station position: 014E250035N5500
Satellite name: INTELSAT8 359E



Scale: 417.00 Km (default)

ES position
Main Mode1
Main Mode2

Report Generation – Tx ES

ANALYSIS DATE AND TIME: 2014-11-20 10:50:38
VERSION: 2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 4: 2.1_TABLE7. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS. TS: fixed, mobile

NOTICE ID: 11 EARTH STATION NAME: MLT-11 EARTH STATION POSITION: 014E250035N5500PHASE: D
ADM/GEO_AREA: MLT/MLT RAIN CLIMATICAL ZONE: K
SATELLITE NAME:INTELSAT8 359E SATELLITE ORBITAL POSITION: -1.00 DEG
ANTENNA AZIMUTH: 205.18 DEG ANTENNA ELEVATION: 45.22 DEG
FREQUENCY BAND:5965.00-5975.00 MHZ ASSIGNED FREQUENCY: 5970.00 MHZ PERCENTAGE OF TIME: 0.0050 %
MAXIMUM ANTENNA GAIN: 44.0 DBI MAXIMUM POWER DENSITY: -52.5 DBW/HZ NOISE TEMPERATURE: - K
ANTENNA PATTERN: APEREC025V01
2.1_TABLE7 Model: PLM_DUCTING

TRANSMISSION LOSS MODE 1: 160.5 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)
TRANSMISSION LOSS MODE 2: 114.5 DB

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115
OFF-AXIS	129.6	130.8	131.5	131.9	132.9	133.4	133.6	132.3	130.7	128.7	127.6	126.2	124.5	121.6	118.6	115.4	112.9	110.2	107.4	104.1	100.6	97.2	93.6	90.1
HOR.ELEV.	0.0	0.7	1.3	2.0	1.7	1.3	1.0	1.7	2.3	3.0	2.3	1.7	1.0	1.3	1.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0
HOR.CORR.	0.0	19.6	26.3	30.9	28.7	26.3	23.4	28.7	32.3	33.0	32.3	28.7	23.4	26.3	28.7	30.9	26.3	19.6	0.0	0.0	0.0	0.0	0.0	0.0
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	-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	170	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	214	213	212	210	209	208
MODE 2																								
0.0 DEG	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104

AZIMUTH	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
OFF-AXIS	86.6	83.1	79.6	76.2	72.8	69.5	66.3	63.2	60.2	57.4	54.8	52.5	50.4	48.6	47.2	46.1	45.5	45.2	45.4	45.7	46.4	47.6	49.0	50.8
HOR.ELEV.	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	0.0	0.0	0.0	0.3	0.7	1.0	1.3	1.7
HOR.CORR.	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	0.0	0.0	0.0	14.0	19.6	23.4	26.3	28.7
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	-9.8	-9.6	-9.4	-9.4	-9.4	-9.5	-9.7	-9.9	-10.0	-10.0
COORDINATION DISTANCE (KM)																								
MODE 1																								
0.0 DB	208	208	208	208	208	208	209	209	210	210	210	211	209	210	212	214	216	217	217	104	104	104	104	104
MODE 2																								
0.0 DEG	104	104	104	105	105	105	105	105	105	105	105	105	105	105	105	106	106	106	106	106	106	105	105	105

AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355
OFF-AXIS	52.9	55.3	57.9	60.6	63.5	66.5	69.6	73.5	77.5	81.4	85.4	89.4	93.4	96.9	100.4	103.8	107.2	110.5	113.7	116.8	119.8	122.6	125.2	127.5
HOR.ELEV.	2.0	2.3	2.7	3.0	3.3	3.7	4.0	3.3	2.7	2.0	1.3	0.7	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.CORR.	30.9	32.3	32.7	33.0	33.3	33.7	34.0	33.3	32.7	30.9	26.3	19.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	-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	104	104	104	104	104	104	104	104	104	104	104	104	212	212	212	212	212	212	208	187	176	177	174	174
MODE 2																								
0.0 DEG	105	105	105	105	105	105	105	105	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104

PROBABLY AFFECTED COUNTRIES: I

Exercise 2

Report Generation – Rx ES

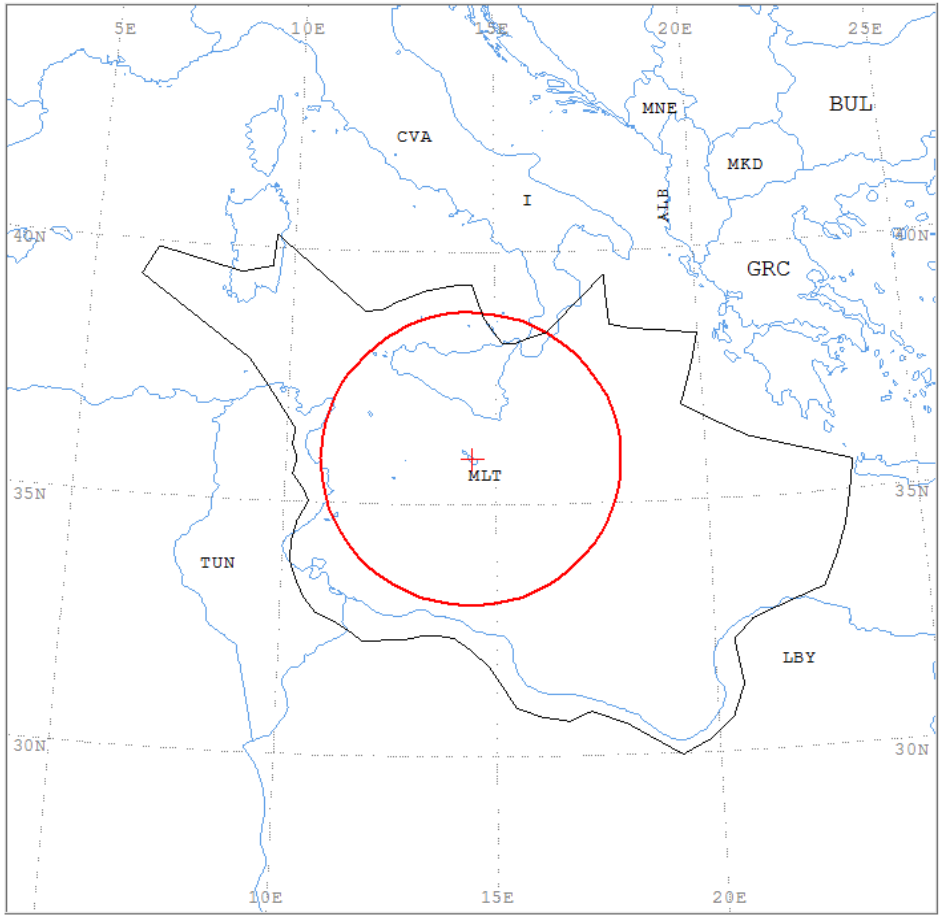
GIBC AP7

VERSION:2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 3: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 11
Administration/Geographical area: MLT/MLT
Satellite orbital position: -1.00
Frequency band: 4045.00-4055.00 MHz

Earth station name: MLT-11
Earth station position: 014E250035N5500
Satellite name: INTELSAT8 359E



Exercise 2

GIBC AP7

Report Generation – Rx ES

ANALYSIS DATE AND TIME: 2014-11-20 10:50:38
VERSION: 2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 3: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

NOTICE ID: 11 EARTH STATION NAME: MLT-11 EARTH STATION POSITION: 014E250035N5500PHASE: D
ADM/GEO_AREA: MLT/MLT RAIN CLIMATICAL ZONE: K
SATELLITE NAME:INTELSAT8 359E SATELLITE ORBITAL POSITION: -1.00 DEG
ANTENNA AZIMUTH: 205.18 DEG ANTENNA ELEVATION: 45.22 DEG
FREQUENCY BAND:4045.00-4055.00 MHZ ASSIGNED FREQUENCY: 4050.00 MHZ PERCENTAGE OF TIME: 0.0017 %
MAXIMUM ANTENNA GAIN: 44.0 DBI MAXIMUM POWER DENSITY: - DBW/HZ NOISE TEMPERATURE: 150.0 K
ANTENNA PATTERN: APEREC015V01
2.1_TABLE8 Model: PLM_DUCTING

TRANSMISSION LOSS MODE 1: 203.2 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN)
TRANSMISSION LOSS MODE 2: 161.2 DB

AZIMUTH	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115
OFF-AXIS	129.6	130.8	131.5	131.9	132.9	133.4	133.6	132.3	130.7	128.7	127.6	126.2	124.5	121.6	118.6	115.4	112.9	110.2	107.4	104.1	100.6	97.2	93.6	90.1
HOR.ELEV.	0.0	0.7	1.3	2.0	1.7	1.3	1.0	1.7	2.3	3.0	2.3	1.7	1.0	1.3	1.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0
HOR.CORR.	0.0	18.0	24.5	28.8	26.8	24.5	21.6	26.8	30.6	33.0	30.6	26.8	21.6	24.5	26.8	28.8	24.5	18.0	0.0	0.0	0.0	0.0	0.0	0.0
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	-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	382	310	281	260	269	292	321	495	450	420	447	494	558	523	492	467	521	598	819	818	816	812	810	748
MODE 2																								
0.0 DEG	321	321	321	321	321	321	321	321	321	321	321	321	322	322	322	322	322	322	322	322	322	323	323	323

AZIMUTH	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
OFF-AXIS	86.6	83.1	79.6	76.2	72.8	69.5	66.3	63.2	60.2	57.4	54.8	52.5	50.4	48.6	47.2	46.1	45.5	45.2	45.4	45.7	46.4	47.6	49.0	50.8
HOR.ELEV.	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	0.0	0.0	0.0	0.3	0.7	1.0	1.3	1.7
HOR.CORR.	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	0.0	0.0	0.0	12.6	18.0	21.6	24.5	26.8
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	-9.8	-9.6	-9.4	-9.4	-9.4	-9.5	-9.7	-9.9	-10.0	-10.0
COORDINATION DISTANCE (KM)																								
MODE 1																								
0.0 DB	702	691	768	799	804	795	671	615	616	590	560	460	422	398	398	405	425	442	466	460	466	475	471	461
MODE 2																								
0.0 DEG	323	323	323	323	323	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324	324

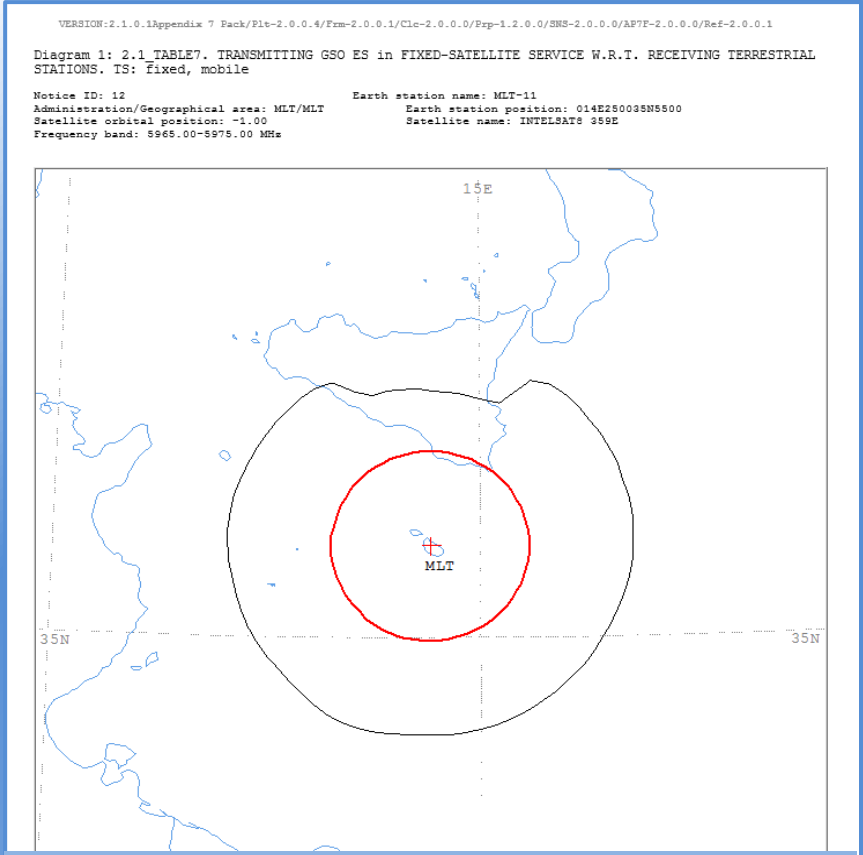
AZIMUTH	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355
OFF-AXIS	52.9	55.3	57.9	60.6	63.5	66.5	69.6	73.5	77.5	81.4	85.4	89.4	93.4	96.9	100.4	103.8	107.2	110.5	113.7	116.8	119.8	122.6	125.2	127.5
HOR.ELEV.	2.0	2.3	2.7	3.0	3.3	3.7	4.0	3.3	2.7	2.0	1.3	0.7	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.CORR.	28.8	30.6	32.3	33.0	33.3	33.7	34.0	33.3	32.3	28.8	24.5	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	-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	450	429	398	362	368	385	376	386	383	416	463	523	816	816	641	601	646	398	380	380	380	381	381	382
MODE 2																								
0.0 DEG	324	324	324	324	324	324	324	323	323	323	323	323	323	323	322	322	322	322	322	322	322	322	322	322

PROBABLY AFFECTED COUNTRIES: I LBY TUN

Compare the results - Tx ES in C-band

GIBC AP7

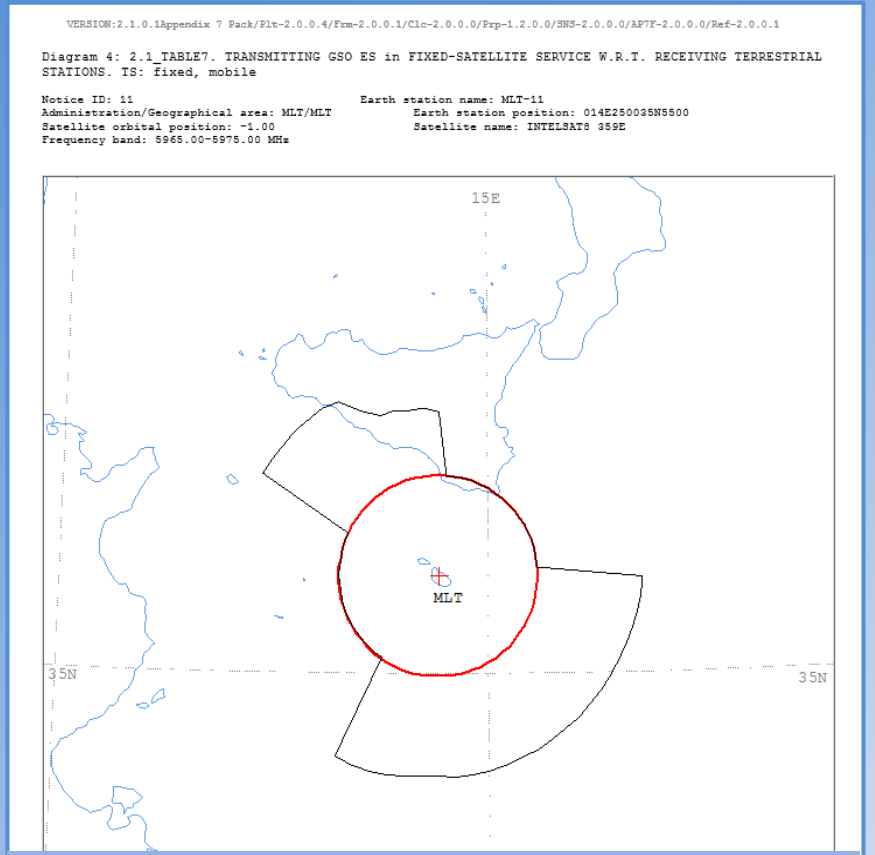
TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS. TS: fixed, mobile



With zero degree horizon elevation angle

PROBABLY AFFECTED COUNTRIES:

I



With non-zero degree horizon elevation angle

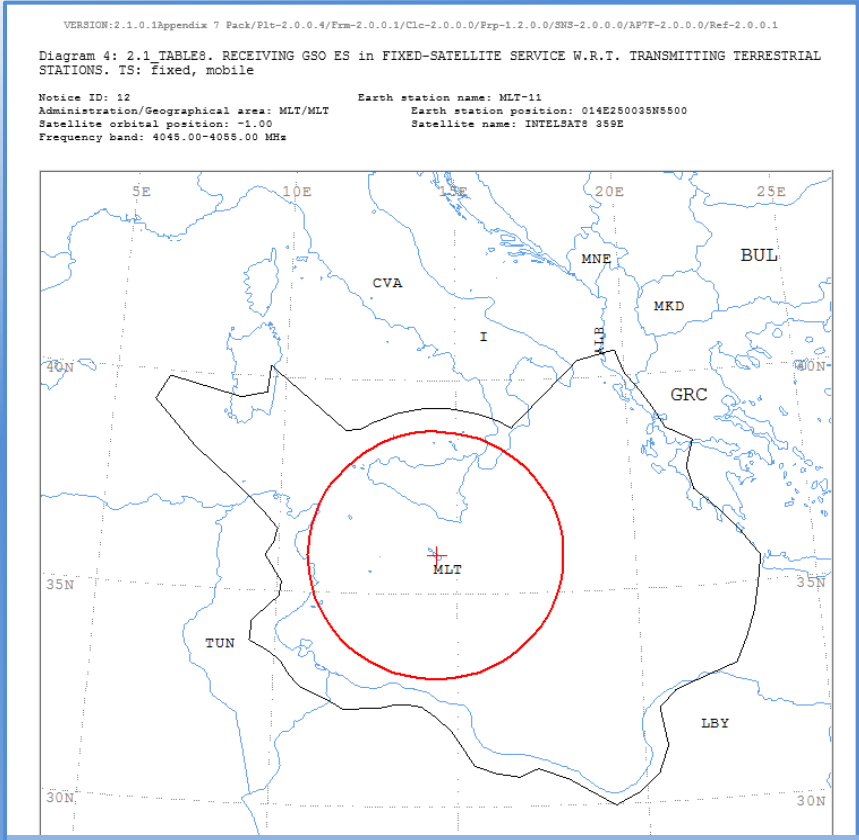
PROBABLY AFFECTED COUNTRIES:

I

Compare the results – Rx ES in C-band

GIBC AP7

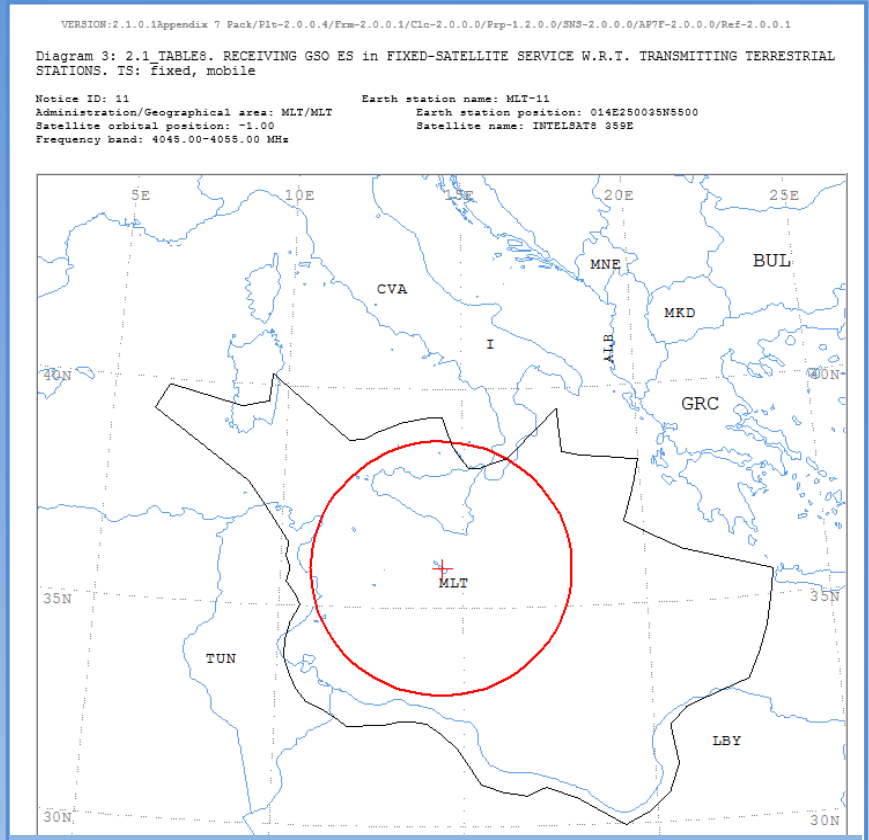
RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T.
TRANSMITTING TERRESTRIAL STATIONS. TS: fixed mobile



With zero degree horizon elevation angle

PROBABLY AFFECTED COUNTRIES:

ALB GRC I LBY TUN



With non-zero degree horizon elevation angle

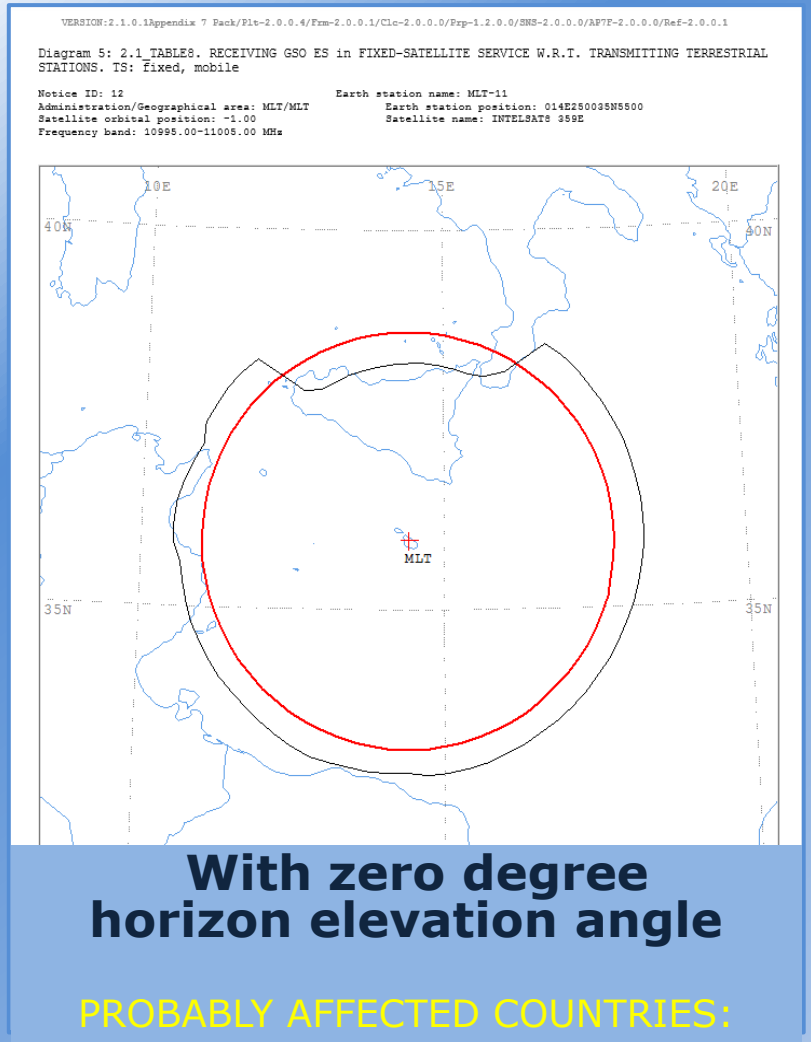
PROBABLY AFFECTED COUNTRIES:

I LBY TUN

Compare the results – Rx ES in Ku band

GIBC AP7

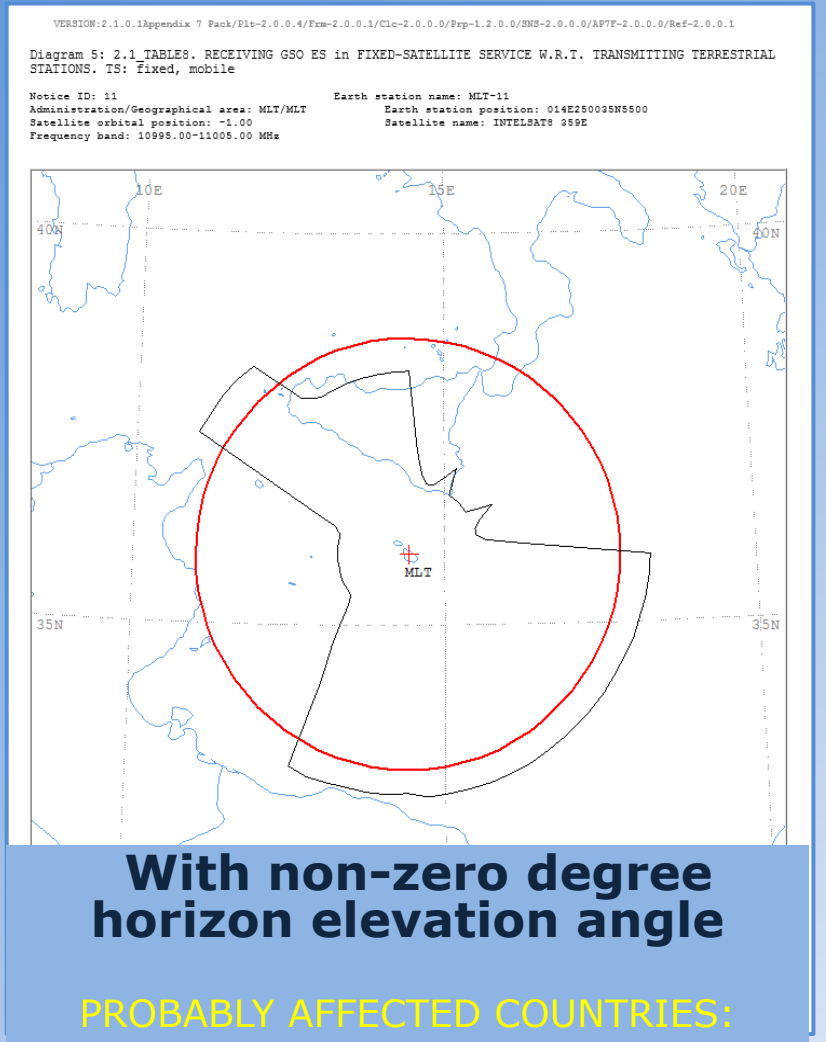
RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed mobile



With zero degree horizon elevation angle

PROBABLY AFFECTED COUNTRIES:

I TUN



With non-zero degree horizon elevation angle

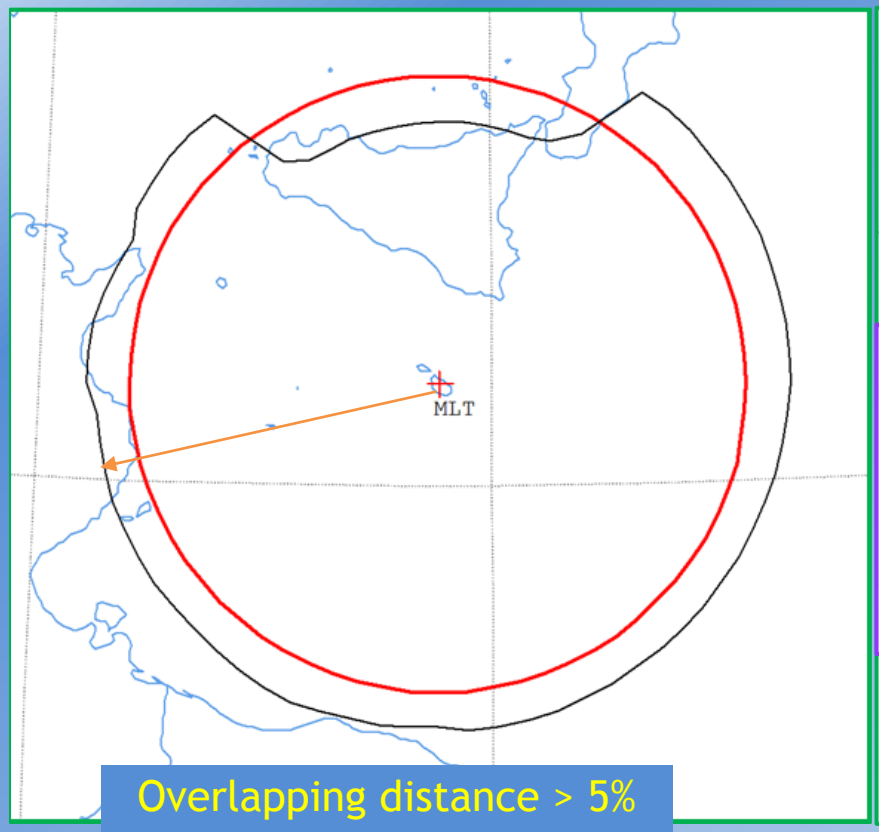
PROBABLY AFFECTED COUNTRIES:

I TUN

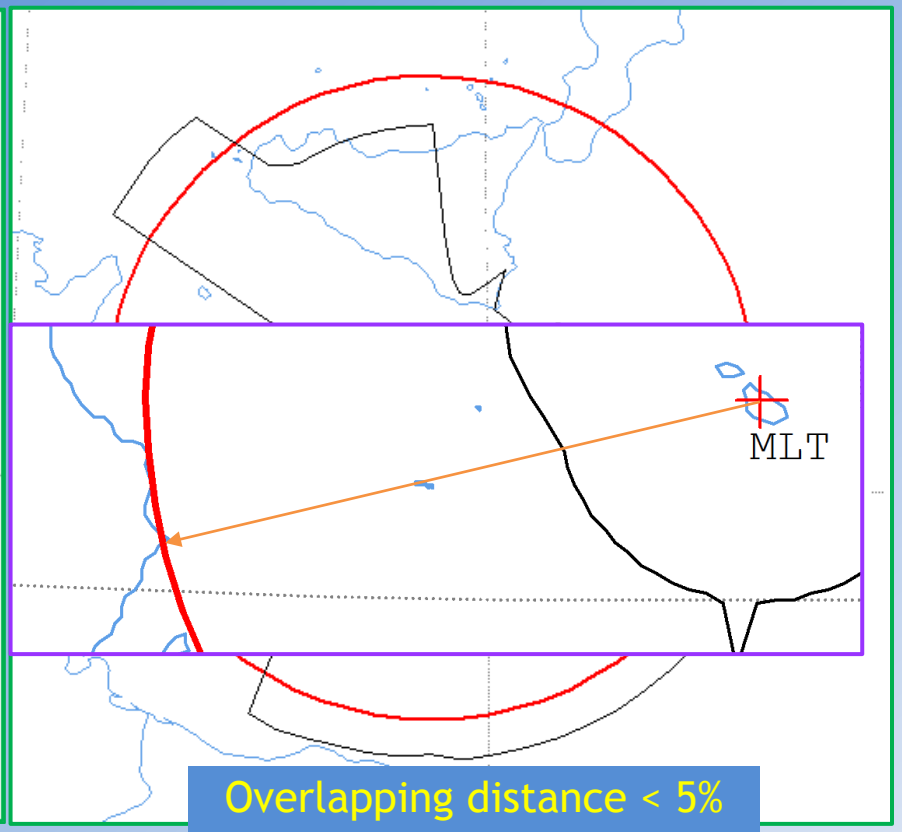
GIBC AP7

Rules of Procedure (Appendix 7):

No coordination is required when the overlapping distance is less than 5% of the coordination distance.



Overlapping distance > 5%
0-elevation angle



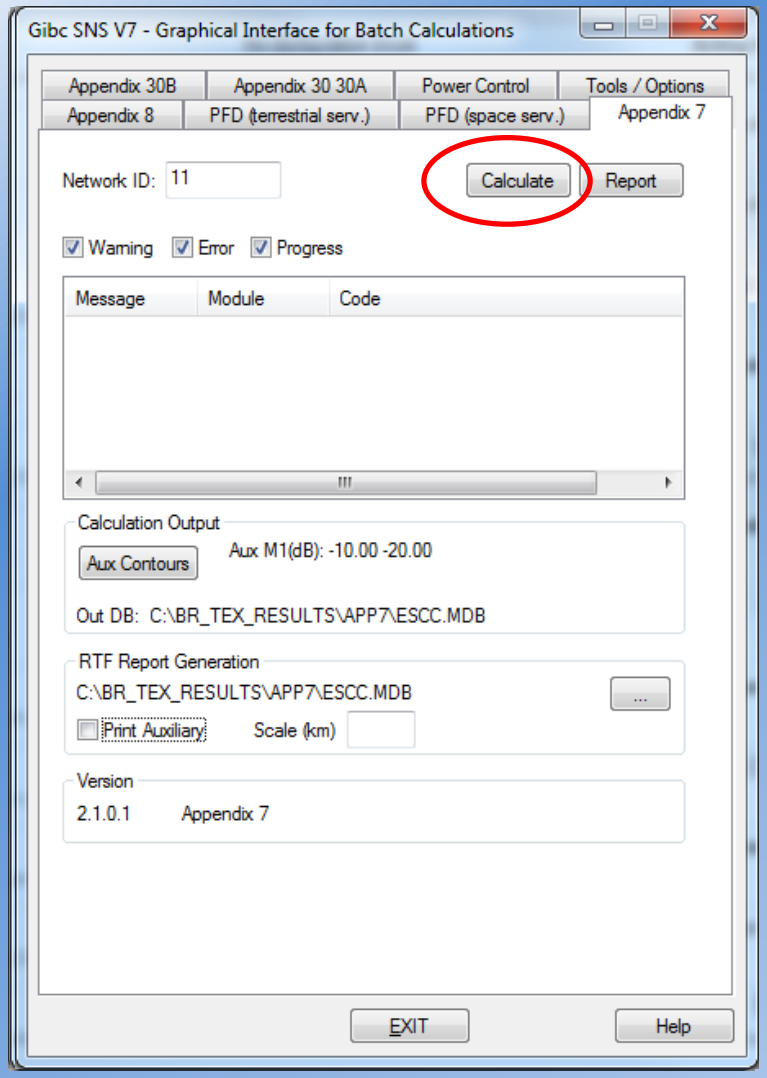
Overlapping distance < 5%
Non 0-elevation angle

Auxiliary Contours

GIBC AP7

Auxiliary Mode 1 : Reduced required loss expressed in dB

Auxiliary Mode 2 : Angular offset between beams expressed in degrees



Producing auxiliary contours:

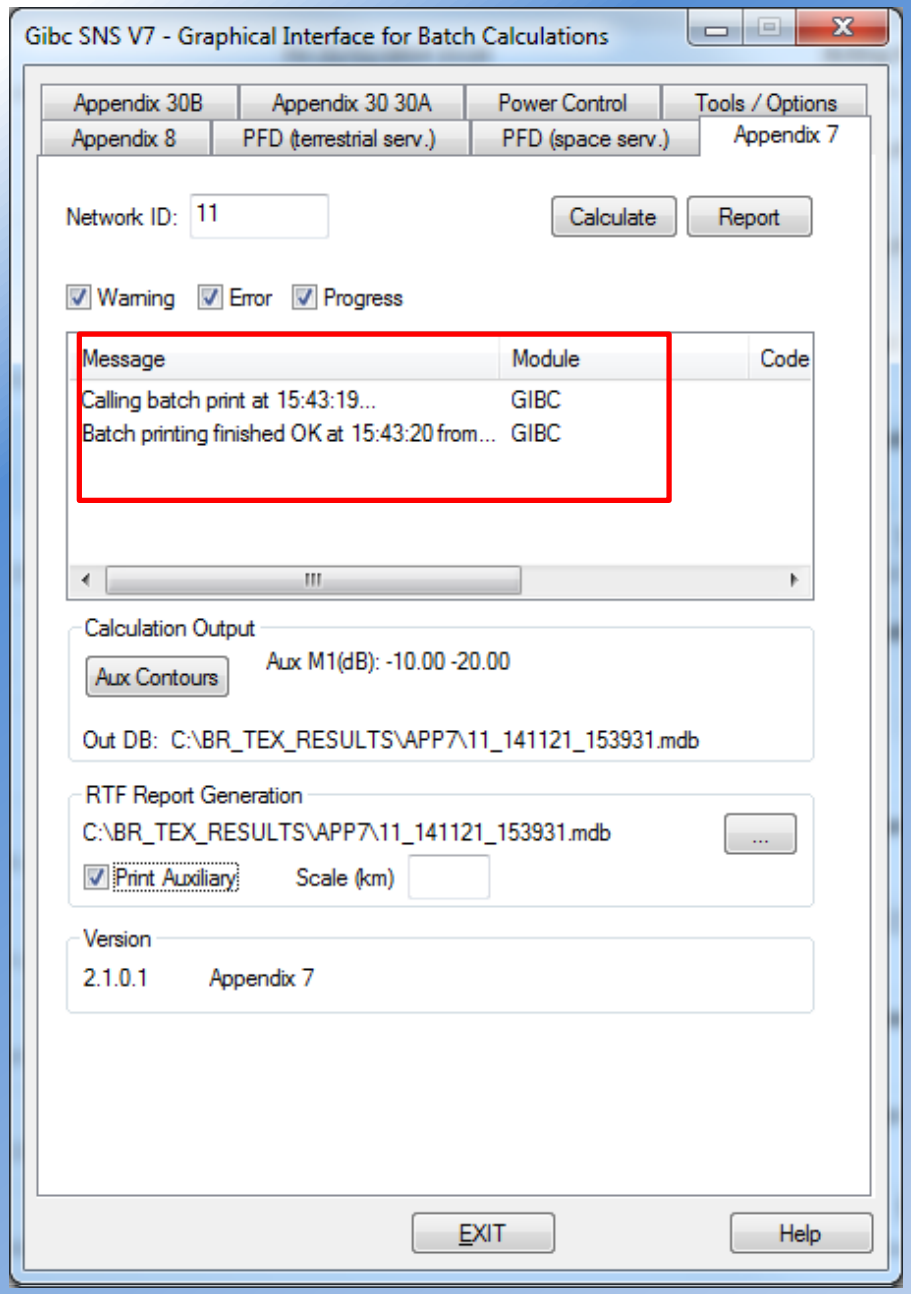
- Go to Tools/ Options page
- Select WRS_14 – ES -Coordination database
- Go to Appendix 7 page
- Select the Network ID 11
- Press Aux Contours button

- Enter the values in the lists:
  Mode 1 (dB)
  -10 dB
  -20 dB

- Press Calculate

Auxiliary Contours - Printing

GIBC AP7



Printing Auxiliary contours:

- Select Print Auxiliary
- Press Report

Auxiliary Contours

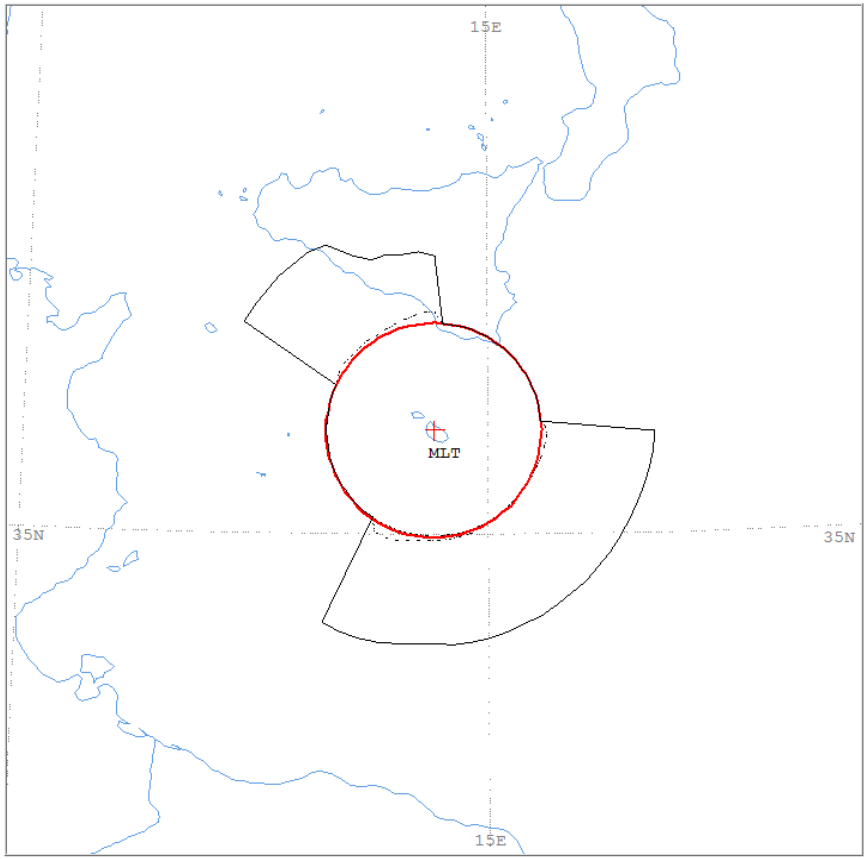
GIBC AP7

VERSION:2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 4: 2.1_TABLE7. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 11
Administration/Geographical area: MLT/MLT
Satellite orbital position: -1.00
Frequency band: 5965.00-5975.00 MHz

Earth station name: MLT-11
Earth station position: 014E250035N5500
Satellite name: INTELSAT8 359E



Scale: 417.00 Km (default)

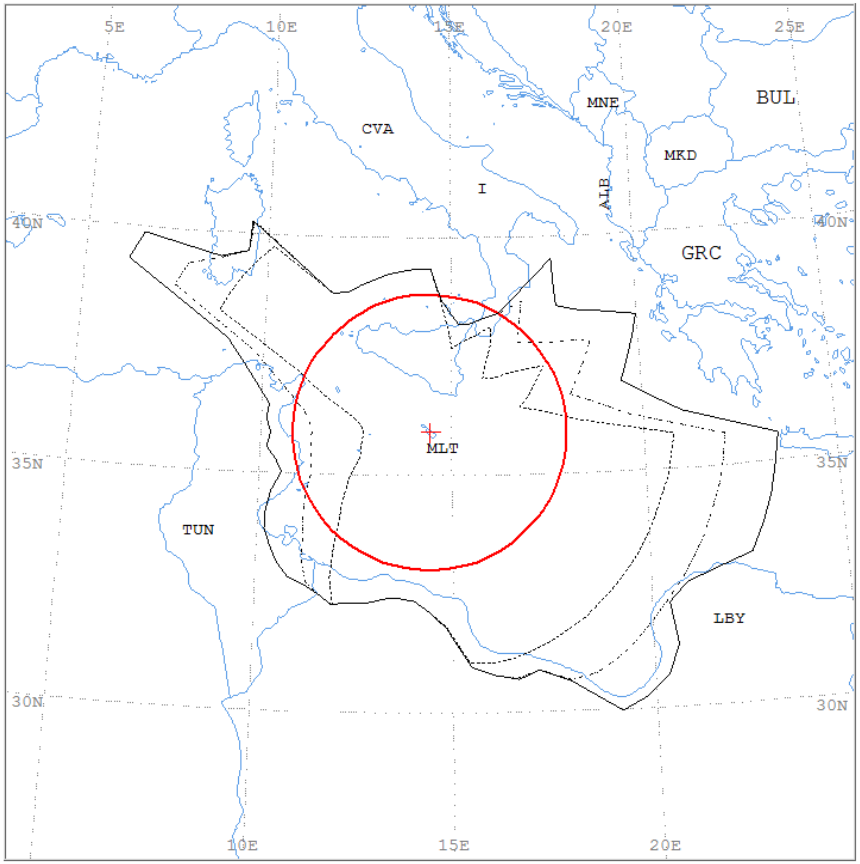
ES position
Main Mode1
Main Mode2
Aux. Mode1 -10.0dB
Aux. Mode1 -20.0dB

VERSION:2.1.0.1Appendix 7 Pack/Plt-2.0.0.4/Frm-2.0.0.1/Clc-2.0.0.0/Prp-1.2.0.0/SNS-2.0.0.0/AP7F-2.0.0.0/Ref-2.0.0.1

Diagram 3: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 11
Administration/Geographical area: MLT/MLT
Satellite orbital position: -1.00
Frequency band: 4045.00-4055.00 MHz

Earth station name: MLT-11
Earth station position: 014E250035N5500
Satellite name: INTELSAT8 359E



Scale: 1019.00 Km (default)

ES position
Main Mode1
Main Mode2
Aux. Mode1 -10.0dB
Aux. Mode1 -20.0dB

Questions?