ITUEvents

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Submission of Earth Station Notices

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In this workshop...

Introduction
 Capturing an E/S
 Creating Coordination contours
 Determination of Coordination Area
 Submission of E/S for Notification

BR software used
➢ SpaceCap
➢ SpaceVal
➢ IDWM
➢ GIBC AP7

Frequency Band = Economy/Money = Record in MIFR



Notification

Coordination

Sharing Frequency Band (Space vs Terrestrial or btw Countries)

Radio Regulations



Status of Space System in MIFR (2018 Nov)







1816 Networks for GSO & NGSO (67 ADMs)

1979-2018 Nov





6278 Earth Stations (81 ADMs) 1959-2018 Nov



Introduction



Frequency Allocations for Earth Stations

Example:

Volume No.1 → Article 5



When Coordination Area includes the territory of another country

Provisions in Article 9 of RR

Volume No.1 → Article 9

Administrations shall effect coordination before
 notifying to the BR or brings into use any frequency assignment.





Coordination of Earth Station is ADM's duty and responsibility.



Most common Provision 1 for Earth Station

Volume No.1 → Article 9

9.17

Coordination of any **Specific Earth Station** or **Typical Mobile** Earth Station in frequency bands above 100 MHz, in respect of **Terrestrial Stations**, *with the exception of the coordination under 9.15*



Example of Record in MIFR for 3 GHz(小) and 14GHz(个) (Sharing Competition between Space & Terrestrial)



Figure status based on 2018 Nov.

Most common Provision 2 for Earth Station

Volume No.1 → Article 9

9.17A
 Coordination of any Specific Earth Station in respect of other Earth Stations operating in the opposite direction of transmission (ODT), or any Typical Mobile Earth Station in respect of Specific Earth Station (ODT)

<u>*Rx E/S – No methodology in AP7</u>



Coordination Data

Volume No.2 \rightarrow Appendix 4

Annex 2								
	GEOGRAPHICAL DATA	Longitude / Latitude Altitude						
THAT IS	SATELLITE	Orbital Location, Identification (Geo, Non-Geo)						
	ANTENNA	Maximum gain Radiation pattern						
	SIGNAL CHARACTERISTICS	Power Maximum Power Density Frequencies Noise temperature Emission Type						
	Others	Horizontal Elevation Angle						

Preparation of Coordination Data



Coordination Data Capture- Exercise



Exercise: Capture an E/S Coordination Request

Two-step Process



Coordination

Submission of Appendix 4 data to the affected ADM's

Notification

Submission of Appendix 4 data to BR

Coordination of Earth Stations



9.6 Administrations shall effect coordination before notifying to the BR or brings into use any frequency assignment

<u>9.15</u> Coordination of a Specific or Typical Earth Station of non-GSO in respect of Terrestrial Stations (associated with Footnote - 9.11A)

<u>9.17</u> Coordination of any **Specific Earth Station** or **Typical Mobile** Earth Station in frequency bands above 100 MHz, in respect of **Terrestrial Stations**, *with the exception of the coordination under 9.15*

<u>9.17A</u> Coordination of any Specific Earth Station in respect of other Earth Stations operating in the opposite direction of transmission (ODT), or any Typical Mobile Earth Station in respect of Specific Earth Station (ODT)

<u>9.21</u> Specific Earth Station of a service required to seek agreement of other administrations (under Footnotes)

Coordination of Earth Stations



- No. 9.29: Requests for coordination under 9.15 to 9.19 shall be sent by the requesting administration to the identified administrations, together with the appropriate information listed in Appendix 4 to the RR
- SpaceCap software can be used for the capture of information required for coordination requests with the affected Administrations and the resulting file can be sent to these affected Administrations
- When coordination is completed, the same file can be converted to a notification notice to be submitted to the Bureau including obtained coordination agreements

Notification of an Earth station



- Any frequency assignment to a transmitting station and to its associated receiving stations shall be notified to the Bureau if (No. 11.2)
 - Assignment is capable of causing harmful interference; or
 - Assignment is used for international radiocommunication; or
 - Assignment is subject to a world or regional frequency allotment or assignment plan which does not have its own notification procedure; or
 - if that assignment is subject to the coordination procedure of Article 9; or
 - It is desired to obtain international recognition; or
 - Non-conforming assignment seeking to be recorded for information purposes only
- Similar requirements for receiving earth station (No. 11.9)

Overview



- We will be creating a new notice with sufficient data to be used for
 - Capture and analyze the coordination filing and
 - Effect the coordination process
- Capturing of:
 - Notice level data
 - Station level data
 - Beam level data
 - Group level data



Create a New Notice



	SpaceCapture V8 - [Set Notice Template]
<u>F</u> ile <u>E</u> dit <u>T</u> ools Template <u>W</u> indow <u>H</u> elp	
	Image: CR/NOTIF CL API CL RAST CL
SpaceCap Start Page Start Page Transaction Id: Topen Notice New Notice Search	

Launch SpaceCap and click on New Notice

Specify Notice Type	
File Edit Tools View Window Help	
Specific Earth Station Notice:118505999	
Notice Id: 118505999 AP4/II and AP4/III (Appendix 4 - Annex 2A) 12.11.18 Status 01 Notice submitted under/for: Image: Constraint of the submitted under/for: Image: Constrainted under/for: Image: Constraint of the s	
Date: DD.MM.YY 11.11.18 Administration A1f1.Notifying Sull Administration A1f3. Intergovernmental Intergovernmental Satellite System Image: Statellite System Image: Statellite System	
Type of Satellite Network or Earth Station C GeoStationary Satellite Network C NonGeoStationary Satellite Network C Typical Earth Station More	

• Select No. 9.17 and Specific Earth Station

Enter Station-level Data
SpaceCapture V8
Image: Specific Earth Station Notice:118505999
Notice Station Beam Attachments
Notice Id: 118505999 Administration: SUI Status: 01 Date: 12.11.18
Altel: Typical Image: Specific Name Ale3a. Country SUI Ale3b. Geographical Coordinates Degrees 6 E Min 8 Sec 44
A4c1. Associated Space Station A4c2. Nominal Orbital Longitude (if geostationary) A7b1. Min Elevation A7e. Table of EUTELSAT 3-33E 33.00 E E/W 27.1 o
A16b Commitment to meet PFD limits (applicable bands 13.75-14 GHz) C Yes C No C N/A A18a Commitment of aircraft earth station (applicable bands 14.14.5 GHz) C Yes C No C N/A A7d. Altitude 400 Metres
A7c. Operating Azimuthal Angles (GSO) 1. From 2. To 141.8 142 A7a Elevation/ Distance A7a Horizon Elevation Diagram attached. See Attachment No.

• Fill in indicated fields

A7a - Horizon Elevation Data

|--|--|

SpaceCapture V8		
File Edit Tools View Window Help		
	A7a. Table of Horizon Elevation Angles	PLAN 1*1 R549/552
Specific Earth Station Notice:118505999 Notice Station Beam	Azimuth A7a1 Elevation Angle* A7a2 Distance kr (optional) ● 0 .0 90 .0 .0 180 .0 .0 270 .0 .0	
Notice Id: 118505999 Administration: SUI Status: A1e1. Type of Station A1e2. Earth Station GENEY C Typical © Specific Name A1e3. GENEY A1e3a. A1e3b. Geographical Coordinates Country SUI Degrees 6 E/W E Min 8		Paste Rows
A4c1. Associated Space Station A4c2. Nominal Orbit EUTELSAT 3-33E ▼ A16b Commitment to meet PFD limits (applicable bands 13.75-14 GHz) C Yes No N/A		Close
A7d. Altitude 400 Metres A7c. Operating Azimuthal Angles (GSO) 1. From 2. To 141.8 142 47a Horizon Elevation Diagram attached. See Attachment No.	f List of Available Beams	

• Click on A7a button to fill in data in the table



Capture shown data

Group-level Data

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• Capture indicated fields

Operating Agency

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🔁 Specific Earth Station Notice:118505999	
Coordination Special Section Attachments Notice Station Beam Group Emissions Frequencies	
Notice 118505999 Station GENEVA_ITU EAnt Id BSR E 🗸 Group Id: 1 Split Grp Id:	1
3. Observed Frequencies and Related Characteristics	
C Add C Mod C Sup of the group to be modified/suppressed No Data	
💐 Characteristics Common to a Group of Frequencies 📑 General Characteristics	
A3a. Operating Administration or Agency	
012 EPFL - ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	
A3b. Responsible Administration	
To apply this information to other groups, select the beam or notice option.	

A3a and A3b are Notifying ADM specific entries

Emissions



BpaceCapture V8	
File Edit Tools View Window Help	
	RAST CL PLAN CL RS49/552
By Specific Earth Station Notice:118505999	
Coordination Special Section Attachments Notice Station Beam Group Emissions	Frequencies
Notice Id: 118505999 Adm: SUI Station GENEVA_ITU EAnt Id BSR E 🗨 Gro	oup Id: 1
Emissions Applicable to the Assigned Frequencies	
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Frequencies



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Special Sections

File Edit Tools View Window Help	
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Notice Station Beam Group Emissions Frequencies Coordination Special Section Attachments	1
Notice Id: 118505999 Adm: SUI Station GENEVA_ITU EAnt Id BSR E Group Id: 1	•
☐ Information Common to List of Groups in this Beam	
413	
Special Section AR11/A (RR1042) 1165 Other Special Sections	
Special Section AR11/C (RR1060) 2578	
Special Section ART. 14 (RR 1610)	
Special Section API/A (9.1)	
Special Section CR/C (9.6)	
Special Section AP30-30A/F/C	
To apply Special Section data to other groups, select	
the beam or notice option.	

• Apply as appropriate to this group/Beam or full notice



• You may run SpaceVal

Generate coordination area diagrams with AP7 software



Graphical	Inferface for Bat	ch Programs	- 🗆 🗙
Appendix 8	PFD (terrestrial serv.)	PFD (space serv) Appendix 7
Appendix 30B	Appendix 30 30A	Power Control	Tools / Options
- Additional GIMS	Databases		
Database	Container Path		
			L.
		<u>A</u> dd Cl	ear List
- SRS Database -			
C:\BR_SUFT\d	ata\spacecap_v8.mdb		Browse
Additional SRS	DB Path		Add
			Clear
		<u>E</u> XIT	Help

- Start GIBC from SAM
- Make sure that IDWM is installed
- Choose the correct location of your file

GIBC: Switch to Appendix 7



GIBC SNS V8 - Graphical Interface for Batch Calculations $ \Box$ $ imes$
Appendix 30 30A EPFD Power Control Coordination 9.78 PFD Earth-to-space PFD NSGO New Appendix 8 Tools / Option Ghaining Manager SPACE PUBLICATIONS PFD Appendix 8 PXT Appendix 7 Appendix 308
Operator ID faloudin Calculate Report Network ID 118505995 Debug Warning Error Progress
Message Module Code
< >
Optional Contours
RTF Report Generation
Bidirectional Bands Examination
ES ID: BiDir Examination Existing ES ID:
ESCC DB: M:\BR_DATA\SPACE\ESCC_DB\ESCC_ALL.MDB
Version
3.7.0.1 Appendix 7 Pack Test Version
EXIT

• Important to use same Network ID as in captured notice

GIBC: Create Report



Appendix 30 30A EPFD PFD NSGO New A	Power Control Coord	ination 9.7B PFD Options Chain	Earth-to-spacing Manager
SPACE PUBLICATIONS Operator ID faloudin Network ID 118505999 Message Module Validating dat Progress Diagram #1: ' Progress Probaby affe Progress	PFD Appendix 8 P2 □ Debug ▼ Wa ○ Code s indi csources\Ap7Fc s indi csources\Ap7Fc s indi cSources\Ap7Ec s indi CSOURCES\Ap7Ca	Calculate Re aming C Error imData.c, 529 atchPilot.c, 499 alcCore.c, 393 termineAffectedCour	Appendix 30 port Progress
AP7 pack ver Progress Store ntc_id = Progress Batch Calcula GIBC	s indi csources\Ap7Ba s indi csources\Ap7Ba	stchVersion.c, 196 stchPilot.c, 559	,
Optional Contours C:\BR_TEX_RESULTS\	APP7\118505999_18112	?7_134042.mdb	
C:\BR_TEX_RESULTS	APP7\118505999_18112 Scale (Km)	27_134042.mdb	
Bidirectional Bands Exam ES ID: B ESCC DB: M:\BR_DATA	ination iDir Examination B NSPACE\ESCC_DB\ESC	cisting ES ID:	
Version			

Generated Report

)iagram 1: -2.1 TABLE7. -TRANSMITTING -GSO -ES -in -FIXED-SATELLITE -SERVICE -W.R.T. -RECEIVING -TERRESTRIAL TATIONS. TS: fixed, mobile¶

lotice ·ID: ·118505999→ administration/Geographical area: SUI/SUI -Satellite orbital position: -33.00 --+ requency band: 14390.0000-14410.0000 MHzg

→ Earth station name: GENEVA ITU¶ Earth station position: 006E084446N12079 Satellite name: EUTELSAT -3-33E9

-+



ANALYSIS DATE AND TIME: 2018-11-27 10:45:09 --- 9 VERSION: 3.7.0.1Appendix 7.Pack/Plt-3.2.0.1/Frm-3.4.0.0/Clc-3.7.0.2/Prp-2.0.0.0/SN3-3.1.0.0/AP7F-3.1.0.0/Ref-3.5.0.0 -> 9 Diagram 1: -2.1 TABLE7. - TRANSMITTING -GSO -ES - in - FIXED-SATELLITE - SERVICE - N.R.T. - RECEIVING - TERRESTRIAL - STATIONS. - TS: - fixed, - mobile NOTICE -ID: -118505999 ····· -EARTH -STATION -NAME: ····· - GENEVA ITU ···· -EARTH -STATION -POSITION: -006E084446N1207 ···· - PHASE: -DI ADM/GEO_AREA: ·SUI/SUI ·····RAIN ·CLIMATICAL ·ZONE: ·K¶ SATELLITE .NAME:EUTELSAT .3-33E - SATELLITE .ORBITAL .POSITION: .33.00 .DEG9 ANTENNA · AZIMUTH: · 144.95 · DEG · · · · · · · · · · · · · · · · · ANTENNA · ELEVATION: · 30.67 · DEG MAXIMUM ·ANTENNA ·GAIN: ·52.50 ·DBI · · · · · · · · · · · · · · · MAXIMUM · POWER · DENSITY: · -60.00 ·DBW/HZ · · · · · · NOISE · TEMPERATURE: · - ·KI ANTENNA · PATTERN: · APENST806V01 · ¶ 2.1 TABLE7 Model: PLM DUCTING T. TRANSMISSION LOSS MODE 1: -+ 156.0 DB (DOES NOT INCLUDE HOR. CORR. AND ANT. GAIN) -TRANSMISSION ·LOSS ·MODE ·2: → 104.0 ·DB · → ¶ AZINUTH ···· → ···· 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 ··· → ·134.8·131.2·127.4·123.5·119.5·115.4·111.3·107.1·102.8·98.5·94.3·90.0·85.7·81.4·77.1·72.8·68.6·64.5·60.4·56.4·52.5·48.7·45.2·41.8¶ HOR FLEV HOR.CORR. -----COORDINATION ·DISTANCE · (KM) -> 9 MODE -1-+9 ····0.0··DB → ····98···· MODE · 2→ ¶ Ŧ AZINUTH ···· → ··120··125··130··135··140··145··150··155··160··165··170··175··180··185··190··195··200··205··210··215··220··225··230··2359 OFF-AXIS ···· + ··38.8 ··36.0 ··33.8 ··32.1 ··31.0 ··30.7 ··31.0 ··32.1 ··33.8 ··36.1 ··38.8 ··41.9 ··45.2 ··48.8 ··52.6 ··56.5 ··60.5 ··64.6 ··68.7 ··72.9 ··77.2 ··81.5 ··85.7 ··90.0 HOR.CORR. ----ANT.GAIN ····+ ·-10.0·-9.9·-9.2·-8.7·-8.3·-8.2·-8.3·-8.7·-9.2·-9.9·-10.0 COORDINATION ·DISTANCE · (KM) → ¶ MODE ·1→¶ ····0.0.0.DB - ····98 MODE ·2→¶ ····0.0.DEG - ···100···00··00··00···100····100···100···100···100···100···100···100···100·· q AZTMITH · · · · → · · · 240 · · · 245 · · · 250 · · · 255 · · · 260 · · · 265 · · · 270 · · · 275 · · · 285 · · · 290 · · · 295 · · · 300 · · · 305 · · · 310 · · · 315 · · · 320 · · · 325 · · · 330 · · · 335 · · · 340 · · · 345 · · · 355 · · · 355 · · · 300 · · · 305 · · · 310 · · · 315 · · · 320 · · · 325 · · · 330 · · · 335 · · · 340 · · · 345 · · · 355 · · · 355 · · · 300 · · · 305 · · · 310 · · · 315 · · · 320 · · · 325 · · · 330 · · · 335 · · · 340 · · · 345 · · · 355 · · · 355 · · · 300 · · · 305 · · · · 300 · · · 305 · · · · 300 · · · 305 · · · 300 · · · 300 · · · 305 · · · 300 · · · 300 · · · 300 · · · 300 · · HOR.ELEV. -----ANT.GAIN · · · → ·-10.0 · -10. COORDINATION · DISTANCE · (KM) - 9

MODE ·1→¶ ····98 ·····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 · MODE ·2→¶

····98 ·····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 ····98 · Ŧ

Contours





Affected Administrations

ANALYSIS:DATE:AND TIME::2018-11-27:13:40:44 → ¶ VERSION::3.7.0.1Appendix:7:Pack/Plt-3.2.0.1/Frm-3.4.0.0/Clc-3.7.0.2/Prp-2.0.0.0/SNS-3.1.0.0/AP7F-3.1.0.0/Ref-3.5.0.0 → ¶

Diagram 1: -2.1 TABLE7. -TRANSMITTING -GSO -ES -in -FIXED-SATELLITE -SERVICE -W.R.T. -RECEIVING -TERRESTRIAL -STATIONS. -TS: -fixed, -mobile1

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ADM/GEO AREA: ·SUI/SUI · · · · RAIN ·CLIMATICAL ·ZONE: ·K¶
ANTENNA ·AZIMUTH: ·144.95 ·DEG · · · · · · · · · · · · · ANTENNA ·ELEVATION: ·30.67 ·DEG
MAXIMUM ANTENNA GAIN: 52.50 DBI ..... MAXIMUM POWER DENSITY: -60.00 DBW/HZ .... NOISE TEMPERATURE: -- KI
ANTENNA · PATTERN: · APENST806V01 · ¶
2.1 TABLE7 Model: ·PLM DUCTING9
P P
TRANSMISSION LOSS .MODE .1: - 156.0 .DB . (DOES .NOT .INCLUDE .HOR. .CORR. .AND .ANT. .GAIN) . (
TRANSMISSION ·LOSS ·MODE ·2: → 104.0 ·DB · → ¶
OFF-AXIS · · · → · 134.8 · 131.2 · 127.4 · 123.5 · 119.5 · 115.4 · 111.3 · 107.1 · 102.8 · · 98.5 · · 94.3 · · 90.0 · · 85.7 · · 81.4 · · 77.1 · · 72.8 · · 68.6 · · 64.5 · · 60.4 · · 56.4 · · 52.5 · · 48.7 · · 45.2 · · 41.8 ¶
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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-10.0·-10.0·-1
COORDINATION · DISTANCE · (KM) - 9
MODE ·1→¶
····0.0··DB → ····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····
MODE ·2→¶
AZIMUTH · · · · → · · · 120 · · 125 · · 130 · · 135 · · 140 · · 145 · · 155 · · 160 · · 165 · · 170 · · 175 · · 180 · · 185 · · 190 · · 195 · · 200 · · 205 · · 210 · · 215 · · 220 · · 225 · · 230 · · 2359
OFF-AXIS····→ ··38.8··36.0··33.8··32.1··31.0··30.7··31.0··32.1··33.8··36.1··38.8··41.9··45.2··48.8··52.6··56.5··60.5··64.6··68.7··72.9··77.2··81.5··85.7··90.0
HOR_ELEV. · · →
COORDINATION · DISTANCE · (KM) - ¶
MODE ·1→¶
····0.0.··DB → ····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98
MODE ·2→¶
q
P
AZIMUTH · · · · → · · · 240 · · · 245 · · · 250 · · · 255 · · · 260 · · · 265 · · · 270 · · · 275 · · · 280 · · · 285 · · · 290 · · · 295 · · · 300 · · · 315 · · · 320 · · · 325 · · · 330 · · · 335 · · · 340 · · · 345 · · · 350 · · · 355¶
OFF-AXIS · · · · → · · · 94.3 · · 98.6 · 102.9 · 107.2 · 111.4 · 115.5 · 119.6 · 123.6 · 127.5 · 131.3 · 134.8 · 138.2 · 141.2 · 144.0 · 146.2 · 147.9 · 149.0 · 149.3 · 149.0 · 147.9 · 146.2 · 143.9 · 141.2 · 138.1
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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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·-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→¶
MODE ·2→¶
 ·····0.0.0.DEG → ····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98····98
PROBABLY ·AFFECTED ·COUNTRIES: ·F · · · · · · I · · · · · · · · ·
```

• This is the list of ADM to forward your coordination request
Contacting Affected Administrations



- Cover Letter
- Email attachment containing:
 - ESName.mdb (the file we just captured)
 - Coordination contour diagrams generated using AP7 software
 - Any other attachments or notes in Word or PDF format



Exercise: Studying Scenarios Coordination Contours Around Earth Stations Using GIBC

Affected Administrations within the Coordination Area

Determination of the Coordination Area Around an Earth Station: Technical and regulatory requirements in

Appendix 7 of RR



Rules of Procedure



Definition of Coordination Area- AP7

Coordination area represents the area surrounding an earth station sharing the same frequency band with terrestrial stations, or the area surrounding a transmission station that is sharing the same bidirectionally allocated frequency band with receiving earth stations, within which the permissible level of interference may be exceeded and hence coordination is required.

Determination of Coordination Area



Determination of Coordination Area



Coordination Area- What does it mean?



Coordination Area-Exercises

➢ Open GIBC

Locate the input database in the USB Key:

Space Workshop Day 4 Submission of E/S Notices: AP7 Coordination area.mdb

Proposed Exercises:

Exercise 1: Understand the Coordination Contour diagrams

Exercise 2: Effect of Horizon elevation angles

Exercise 3: Creating Auxiliary contours



Understand the Coordination Contour Diagrams - Exercise 1



Exercise 1:

Coordination Contour Diagrams in different sharing scenarios

Understand the Coordination Contour Diagrams - Exercise 1

		_
GIBC SNS V8 - Graphical Interface for Batch Calculations —		
Appendix 30B Appendix 30 30A EPFD Power Control T Appendix 8 PFD (terrestrial serv.) PFD (space serv.) FFD (space serv.)	ools / Options Appendix 7	
Network ID: 1	Report	
Varming V Error V Progress		
Message Modul Probably affected countries for diagram #4: BIH CVA F Progre Diagram #5: 'Diagram 5: 2.1_TABLE8' being calculated Progre Probably affected countries for diagram #5: CVA F HR Progre AP7 pack version: 3.7.0.1Appendix 7/Plt-3.2.0.1/Fm-3.4.0 Progre Store ntc id = 1 in ESCC database Progre	le ess inc ess inc ess inc ess inc ess inc	
Batch Calculation finished OK at 10:17:08. Output database GIBC	~	
<	>	
Aux Contours Out DB: C:\BR_TEX_RESULTS\APP7\1_181114_101706.mdb		
RTF Report Generation C:\BR_TEX_RESULTS\APP7\1_181114_101706.mdb		
Version 3.7.0.1 Appendix 7		
<u>E</u> XIT	Help	
		1



- > Open GIBC
- Open Tools/Options
- Browse and Select the input database

AP7 Coordination area.mdb

- Open Appendix7
- Insert Network ID 1
- Calculate
- Check for Warnings
- > Report

Exercise 1 – GIBC Results





ANALYSIS DATE AN VERSION: 3.7.0.1	ID TIME: 2 Appendix	2018-11- 7 Pack/	-13 18:2 /Plt-3.2	23:06 2.0.1/F	rm-3.4.	0.0/Clc	-3.7.0	2/Prp-2	2.0.0.0	/SNS-3.	1.0.0/A	P7F-3.1	.0.0/Re	f-3.5.0	0.0								¢ N	
NOTICE ID: ADM/GEO_AREA:	I/ I	igram 1 EA RA	ARTH SI AIN CLI	TABLE TATION IMATICA	NAME: AL ZONI	SMITTI	NG GSC) ES 11	CIVITA	VECCHI2	A	EARTH	STATIC	N POSI	TION:	011E44	TRIAL 0042N1	STATIC	PH2	S: Ilxe	a, m			
SATELLITE NAME ANTENNA AZIMUT FREQUENCY BAND MAXIMUM ANTENN ANTENNA PATTER 2.1_TABLE7 Mod	: 220.1 2: 7975.0 1A GAIN: 1N: AHERF 10: 1LM	6 DEG 58.00 2 012V0 DUCTIN		51 00 MP	ara	âm	SATEL ANTEN CELLE MAXIM	LITE O NA ELE DE SR UM FOW	RBITAL VATION E DELC ER DEN	SITY	10N: - 7 DEG -30.00		ni 2	ng	RGENTA ISE TE	S OF T	IIME: -	0.0050 K	90					
TRANSMISSION L TRANSMISSION L	OSS MODE	1: 22:	183. 137.	0 DB	(DOES 1	NOT INC	LUDE B	HOR. CO	ORR. AI	ND ANT	. GAIN))												
AZIMUTH OFF-AXIS HOR FLEV	0 129.9	5 133.4	10 136.6	15 139.5	20 142.0	25 144.2	30 145.8	35 146.8	40 147.1	45 146.8	50 145.8	55 144.3	60 142.2	65 139.7	70 136.8	75 133.6	80 130.2	85 126.6	90 122.8	95 118.9	100 115.0	105 110.9	110 106.8	115 102.7
HOR.CORR. ANT.GAIN COORDINATION D	10.0 ISTANCE	-10.0 (KM)	-10.0	11a ^{-10.0}		-1 D		-10.0	ete	-10.0	by	5 - -10.0	A Z	-10.0	ut -10.0	n - -10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
0.0 DB MODE 2	265	C			nấ	tiố	n²đ	list	añ	Cể⁵	bỹ	5 [@]	At	im	ut	h ²⁶⁴	265	265	265	265	265	265	265	265
0.0 DEG	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	281	281	281	281
AZIMUTH OFF-AXIS	120 98.5	125 94.3	130 90.1	135 85.9	140 81.7	145 77.6	150 73.4	155 69.3	160 65 . 3	165 61.3	170 57.4	175 53.7	180 50.1	185 46.6	190 43.4	195 40.5	200 38.0	205 35.8	210 34.2	215 33.2	220 32.9	225 33.2	230 34.2	235 35.7
HOR.ELEV. HOR.CORR. ANT.GAIN COORDINATION D MODE 1	- 10.0 DISTANCE	-10.0 (KM)	-10.0	- - -10.0	-10.0	-10.0	- - -10.0	-10.0	- - -10.0	-10.0	-10.0	-10.0	-10.0	-10.0 (0	-10.0 - <mark>35</mark>	-10.0 5º	-10.0	-9.9	-9.4	-9.0	- - -8.9	- - 9.0	-9.3	- - 9.8
0.0 DB MODE 2 0.0 DEG	265 281	291 281	334 282	346 282	356 282	359 282	359 282	362 283	364 283	364 283	364 283	364 283	304 283	364 283	364 283	364 284	364 284	366 284	369 284	334 284	304 284	279 284	270 284	272 284
AZIMUTH OFF-AXIS HOR.ELEV.	240 37.8	245 40.3	250 43.2	255 46.4 -	260 49.8 -	265 53.4	270 57.2	275 61.1	280 65.0 -	285 69.1	290 73.2	295 77.3	300 81.5	305 85.7 -	310 89.9	315 94.1	320 98.3	325 102.4	330 106.6 -	335 110.7	340 114.7 -	345 118.7 -	350 122.6 -	355 126.3 -
HOR.CORR. ANT.GAIN COORDINATION D MODE 1	-10.0 DISTANCE	-10.0 (KM)	-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
0.0 DB MODE 2	271	363	358	293	264	265	263	263	263	312	350	350	356	359	358	347	335	267	266	265	265	265	265	265
D.U DEG	284	284	283	283	283	283	283	283	283	283	282	282	282	282	282	281	281	281	281	281	281	280	280	280
FRUBABLY AFFEC	TED COON	URIES:	CVA:	Ľ		Dr'IK																		

Exercise 1 - GIBC Results

VERSION: 3.7.0.1 Appendix 7/Plt-3.2.0.1/Frm-3.4.0.0/Clc-3.7.0.2/Prp-2.0.0.0/SNS-3.1.0.0/AP7F-3.1.0.0/Ref-3.5.0.0

Diagram 5: 2.1 TABLE8, RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 1 Administration/Geographical area: I/ I Satellite orbital position: -17.80 Frequency band 7250.0000-7675.0000 MHz Earth station name: CIVITAVECCHIA Earth station position: 011E440042N1000 Satellite name: SATCOM-4



Appendix 7- Table 8

TABLE 8c

Parameters required for the determination of coefficients

Barris	ine succe		$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Mataatra								
radiocon service o	ing space imunication designation		P Med 4	Server of the	radio- determination satellite	satellite	sat	tellite	logical- satellite 7, 8	logical- satellite ⁹		
Frequency bar	ds (GHz)		4.500	4.800	5.150-5.216	6.700- 7.075	7.29	0-7.750	7,450-7.550	7.750-7.90		
Transmitting to service design	errestrial ations		Fixed,	mobile	Aeronautical radionavigation	Fixed, mobile	Fixed, mobile		Fixed, mobile		Fixed, mobile	Fixed, mobile
Method to be a	ised		<u>ā</u> 2	2.1	§ 2.1	§ 2.2	§ 2.1		§2.1, <u>§2.2</u> §2.2			
Modulation at station 1	earth		Α	N		N	Α	N	N	Ν		
station ¹ Earth station interference parameters and criteria	p_0 (%)		0.03	0.005		0.005	0.03	0.005	0.002	0.001		
	п		3	3		3	3	3	2	2		
and criteria	p (%)		0.01	0.0017		0.0017	0.01 0.0017		0.001	Meteoro- logical- satellite 9 50 7.750-7.900 Fixed, mobile 2 § 2.2 N 0.0001 2 0.0005 - - - 55 42 13 0 42 10 ⁷ -125		
	N_L (dB)		1	1		1	1	1	-	-		
	$M_g(\mathrm{dB})$		7	2		2	7	2	-	-		
	W(dB)		4	0		0	4	0	-	Meteoro- logical- s satellite 0 7.750-7.90 Fixed, mobile 2 2 § 2.2 N 0.0001 2 0.0005 - 55 42 113 0 42 10 ⁷ 125 -		
Terrestrial	E (dBW)	A	92.3	92.3		55	55	55	55	55		
station parameters	in <i>B</i> ²	Ν	42.4	42.4		42	42	42	42	42		
	$P_{f}(dBW)$	Λ	40.3	40.3		13	13	13	13	13		
	in B	Ν	0	0		0	0	0	0	0		
	$G_{\chi}(d\mathrm{Bi})$		52 3, 4	52.3,4		42	42	42	42	42		
Reference band- width ⁶	B (Hz)		105	106		105	105	106	107	107		
Permissible interference power	$P_r(\rho)$ (dBV in B	V)				-151.2			-125	-125		

ES position Main Model

Main Mode2

Exercise 1 - GIBC Results





Exercise 1 - GIBC Results





Predetermined coordination distances

AP7-93

Coordination area of mobile earth stations and non-GSO MSS feederlink earth stations w.r.t terrestrial stations- Nos. 9.15/9.17

Table 10 of Appendix 7

provides predetermined coordination distances.

TABLE 10 (Rev.WRC-15)

Predetermined coordination distances

Frequency sharin	g situation	Coordination distance (in sharing
Type of earth station	Type of terrestrial station	situations involving services allocated with equal rights) (km)
Ground-based in the bands below 1 GHz to which No. 9.11A applies. Ground-based mobile in the bands within the range 1-3 GHz to which No. 9.11A applies	Mobile (aircraft)	500
Aircraft (mobile) (all bands)	Ground-based	500
Aircraft (mobile) (all bands)	Mobile (aircraft)	1 000
Ground-based in the bands: 400.15-401 MHz 1 668.4-1 675 MHz	Station in the meteorological aids service (radiosonde)	580
Aircraft (mobile) in the bands: 400.15-401 MHz 1 668.4-1 675 MHz	Station in the meteorological aids service (radiosonde)	1 080
Ground-based in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	100
Airborne earth station in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	400
Receiving earth stations in the meteorological-satellite service	Station in the meteorological aids service	The coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming 4/3 Earth radius (see Note 1)
Non-GSO MSS feeder-link earth stations (all bands)	Mobile (aircraft)	500
Non-GSO MSS feeder-link earth stations in the band 5 091-5 150 MHz	Station in the aeronautical radionavigation service	Note 2
Receiving earth stations in the space research service in the band: 2 200-2 290 MHz	Mobile (aircraft)	880
Ground-based in the bands in which the frequency sharing situation is not covered in the rows above	Mobile (aircraft)	500

Rules of Procedure- AP7- Example

Rules of Procedure (Appendix 7):

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



Effect of Horizon Elevation Angles- Exercise-2



Exercise 2:

Effect of Horizon Elevation Angle on the Coordination Contour

Horizon elevation angles

Azimuth x2 °

Horizontal Elevation Angles

 \sim

- All Azimuths around Earth Station Ant.
- if no values between \rightarrow Average value
- No values \rightarrow default 0 degree

HE AND CHE HORZON Elevation

Effect of Horizon elevation angle- Example



HORIZON ELEVATION ANGLE : 0 °

HORIZON ELEVATION ANGLE: Actual Value 56

Effect of the Horizon Elevation Angle - Exercise 2

GIBC SNS V8 - Graphical Interface for Batch Calculations – 🗌 🗙
Appendix 30B Appendix 30 30A EPFD Power Control Tools / Options Appendix 8 PFD (terrestrial serv.) PFD (space serv.) Appendix 7
Network ID: 2 Calculate Report
Varning V Error V Progress
Message Module Probably affected countries for diagram #4: BIH CVA F Progress inc Diagram #5: 'Diagram 5: 2.1_TABLE8' being calculated Progress inc Probably affected countries for diagram #5: CVA F MC Progress inc AP7 pack version: 3.7.0.1Appendix 7/Plt-3.2.0.1/Frm-3.4.0 Progress inc Store atc_id = 2 in ESCC database Batch Calculation finished OK at 15:03:48. Output database GIBC Y
< >
Calculation Output Aux Contours Out DB: C:\BR_TEX_RESULTS\APP7\2_181114_150339.mdb
RTF Report Generation
C:\BR_TEX_RESULTS\APP7\2_181114_150339.mdb
Print Auxiliary Scale (km)
Version 3.7.0.1 Appendix 7
<u>E</u> XIT Help



- > Open GIBC
- Open Tools/Options
- Browse and Select the input database

AP7 Coordination area.mdb

Open Appendix7

Insert Network ID 2

- Calculate
- Check for Warnings
- > Report

Effect of the Horizon Elevation Angle – Compare Results

Diagram 5: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 2 Administration/Geographical area: I/ I Satellite orbital position: -17.80 Frequency band: 7250.0000-7675.0000 MHz Earth station name: CIVITAVECCHIA Earth station position: 011E440042N1000 Satellite name: SATCOM-4 Diagram 5: 2.1_TABLE8. RECEIVING GSO ES in FIXED-SATELLITE SERVICE W.R.T. TRANSMITTING TERRESTRIAL STATIONS. TS: fixed, mobile

Notice ID: 1 Administration/Geographical area: I/ I Satellite orbital position: -17.80 Frequency band: 7250.0000-7675.0000 MHz Earth station name: CIVITAVECCHIA Earth station position: 011E440042N1000 Satellite name: SATCOM-4



Prob Aff Countries: CVA F MCO SMR TUN

Prob Aff Countries: CVA F HRV MCO SMR_TUN

Effect of the Horizon Elevation Angle – Compare Results

Diagram 3: 3.1_TABLE9. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING GSO ES in EARTH EXPLORATION SATELLITE SERVICE.

Notice ID: 2 Administration/Geographical area: I/ I Satellite orbital position: -17.80 Frequency band: 8025.0000-8400.0000 MHz Earth station name: CIVITAVECCHIA Earth station position: 011E440042N1000 Satellite name: SATCOM-4 Diagram 3: 3.1_TABLE9. TRANSMITTING GSO ES in FIXED-SATELLITE SERVICE W.R.T. RECEIVING GSO ES in EARTH EXPLORATION SATELLITE SERVICE.

Notice ID: 1 Administration/Geographical area: I/ I Satellite orbital position: -17.80 Frequency band: 8025.0000-8400.0000 MHz Earth station name: CIVITAVECCHIA Earth station position: 011E440042N1000 Satellite name: SATCOM-4



Probably Affected Countries: CVA F

Probably Affected Countries: CVA F_SMR

Auxiliary Contours- Exercise-3



Exercise 3: Creating Auxiliary Contours

Auxiliary Contours- Mode 1 (& 2)

Annex 6 of AP7



Auxiliary Contours- Example

letwork ID: 2		Calculate	Report	
Warning V Error V P	rogress		Module	,
		·		
<			>	
Calculation Output				
Aux Contours Out DB: C:\BR_TEX_RES	ULTS\APP7\ESCC.I	MDB		
RTF Report Generation				
C:\BR_TEX_RESULTS\AP	P7\ESCC.MDB			
Print Auxiliary Scale	e (km)			
Version				
3.7.0.1 Appendix 7				

Embedded in GIBC Appendix7



It's all Complementary information.

Auxiliary Contours- Exercise

GIBC SNS V8 - Graphical Interface for Batch Calculations —		×
Appendix 30B Appendix 30 30A EPFD Power Control To Appendix 8 PFD (terrestrial serv.) PFD (space serv.) PFD (space serv.)	ools / Op Append	tions ix 7
Network ID: 2 Calculate	eport	
Varming V Error V Progress		
Message Module	• ^	
Probably affected countries for diagram #4: BIH CVA F Progre Diagram #5: 'Diagram 5: 2.1_TABLE8' being calculated Progre Probably affected countries for diagram #5: CVA F MC Progre	ss inc ss inc ss inc	
AP7 pack version: 3.7.0.1Appendix 7/Plt-3.2.0.1/Fm-3.4.0 Progre	ss in:	
Batch Calculation finished OK at 10:38:49. Output database GIBC	ssind	
	×	
	/	
Aux M1(dB): -10.00 -5.00 Out DB: C:\BR_TEX_RESULTS\APP7\2_181114_103847.mdb		
- RTF Report Generation		
C:\BR TEX RESULTS\APP7\2 181114 103847.mdb		
Print Auxiliary Scale (km)		
_ Version		
3.7.0.1 Appendix 7		
<u>E</u> XIT	He	İp



Auxiliary Contours- Results



64

ANALYSIS DATE VERSION: 3.7.	AND TIME: 3 0.1Appendix	2018-11 7/Plt-	-14 10: 3.2.0.1	38:49 /Frm-3.	4.0.0/C	lc-3.7.	0.2/Prg	-2.0.0	0/SNS-:	3.1.0.0	/AP7E-3	.1.0.0/	Ref-3.5	.0.0										
	Dia	agram 1	1: 2.1	TABLE7	7. TRAN	ISMITTI	ING GSC) ES ir	n FIXEI)-SATEI	LITE S	SERVICE	E W.R.T	. RECE	IVING	TERRES	STRIAL	STATIC	DNS. TS	5: fixe	ed, mok	oile		
NOTICE ID: ADM/GEO_AREJ SATELLITE NM ANTENNA AZIN FREQUENCY BJ MAXIMUM ANTI ANTENNA PATI 2.1_TABLE7 N	E: L 4	SATEL ANTEN ASSIG MAXIM	CIVITAVECCHIA EARTH STATION POSITION: 011E440042N1000 PHASE: N SATELLITE ORBITAL POSITION: -17.80 DEG ANTENNA ELEVATION: 32.87 DEG ASSIGNED FREQUENCY: 8187.50 MHZ PERCENTAGE OF TIME: 0.0050 % MAXIMUM POWER DENSITY: -30.00 DEW/HZ NOISE TEMPERATURE: - K																					
TRANSMISSION TRANSMISSION	N LOSS MODI N LOSS MODI	E 1: E 2:	183 137	.0 DB .0 DB	(DOES 1	NOT INC	CLUDE I	HOR. CO	ORR. AN	ND ANT	. GAIN))												
AZIMUTH OFF-AXIS HOR.ELEV. HOR.CORR.	0 129.5 0.6 20.0	5 132.9 0.6 20.7	10 136.0 0.7 21.4	15 138.9 0.8 22.1	20 141.3 0.8 22.7	25 143.4 0.8 22.7	30 145.0 0.8 22.7	35 146.0 0.8 22.7	40 146.3 0.8 22.7	45 146.0 0.9 23.3	50 145.0 0.9 23.8	55 143.4 0.9 24.3	60 141.3 1.0 24.9	65 138.7 1.1 26.1	70 135.8 1.3 27.2	75 132.5 1.4 28.2	80 129.1 1.5 29.2	85 125.4 1.6 30.1	90 121.7 1.8 31.0	95 117.8 1.9 31.8	100 113.8 2.0 32.0	105 109.8 1.9 31.8	110 105.8 1.8 31.0	115 101.8 1.6 30.1
COORDINATION	N DISTANCE	(KM)																						
0.0 DB -10.0 DB -5.0 DB	149 102 123	144 102 117	140 102 111	136 102 106	132 102 102	132 102 102	132 102 102	132 102 102	132 102 102	129 102 102	125 102 102	122 102 102	119 102 102	111 102 102	104 102 102	102 102 102	102 102 102	102 102 102	102 102 102	102 102 102	102 102 102	102 102 102	102 102 102	102 102 102
MODE 2 0.0 DEG	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	281	281	281	281
AZIMUTH	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190 43 4	195	200	205	210	215	220	225	230	235
HOR.ELEV.	1.5	1.3	1.1	0.9	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOR.CORR.	29.2	27.6	25.8	24.1	22.1	20.4	18.4	16.1	13.0	12.3	11.5	11.5	11.5	9.6	7.4	4.4	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	-9.9	-9.4	-9.0	-8.9	-9.0	-9.3	-9.8
COORDINATION MODE 1	N DISTANCE	(KM)																						
0.0 DB	102	104	122	138	160	176	194	217	246	253	260	260	260	277	297	324	364	366	369	334	304	279	270	272
-10.0 DB	102	102	102	102	115	131	140	172	200	207	215	215	215	231	206	233	2/3	2/5	2/9	282	282	200	25/	23/
MODE 2	102	102	102	102	110	101	115	1/2	200	20,	210	210	210	201	202	275	515	020	020	522	000	2,5	270	2/2
0.0 DEG	281	281	282	282	282	282	282	283	283	283	283	283	283	283	283	284	284	284	284	284	284	284	284	284
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	37.8	40.3	43.2	46.4	49.8	53.4	57.2	61.1	65.0	69.0	73.1	77.2	81.4	85.6	89.8	94.0	98.3	102.4	106.4	110.5	114.5	118.4	122.2	125.9
HOR.ELEV.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	11 5	0.2	0.1	0.1	0.0	0.1	11 5	14.9	0.4	17 5	10.5	0.6
ANT CAIN	-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	-10.4	-10.0
COORDINATION MODE 1	N DISTANCE	(KM)	-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
0.0 DB	271	363	358	293	264	265	263	263	263	281	287	268	255	275	292	309	335	226	201	183	170	164	158	153
-10.0 DB	257	273	270	250	241	240	240	240	240	223	204	186	167	184	202	223	260	186	153	129	110	102	102	102
-5.0 DB	271	319	315	288	264	265	263	263	263	262	248	228	212	230	247	267	303	225	193	170	152	144	136	130
MODE Z																								

Notification



Notification of an Earth Station

- Any frequency assignment to a transmitting station and to its associated receiving stations shall be notified to the Bureau if (No. 11.2)
- Assignment is capable of causing harmful interference; or
- Assignment is used for international radiocommunication; or
- Assignment is subject to a world or regional frequency allotment or assignment plan which does not have its own notification procedure; or
- if that assignment is subject to the coordination procedure of Article 9; or
- It is desired to obtain international recognition; or
- Non-conforming assignment seeking to be recorded for information purposes only
- Similar requirements for receiving earth station (No. 11.9)



Exercise: Capture an E/S notification request

Change Notice Type

File Edit Tools View Window Help
Specific Earth Station Notice:118505999
Notice Station Beam Attachments
Notice Id: 118505999 AP4/II and AP4/III (Appendix 4 - Annex 2A) 12.11.18 Status 01
Notice submitted under/for:
No. 9.6 Coordination In No. 11.2 Notification First Notification C Resubmission
No. 9.11A Applies Bands 21.4 to 22 GHz Special Procedure
Specific Earth Station Coordination under No. 9.7A Searth Station Coordination under No. 9.21 Earth Station Coordination between Administrations under No. 9.17
Date: DD.MM.YY 11.11.18 Administration Graduate Control Addition
A1f1.Notifying Administration SUI A1f2.Notice + C Suppression
A1f3. BR Identification No. of Station to be modified/suppressed
Satellite System
Type of Satellite Network or Earth Station
C GeoStationary Satellite Network
C NonGeoStationary Satellite Network C Typical Earth Station

Update Coordination Agreements

								J
File Edi	t Tools	View Window	Help					
	2 60	M 🗸 📢		🕑 🖃 🔋 📰	C, CR/NOTIF	API 📴	RAST 📴	PLA

🖹 Specific Ea	rth Station	Notice:1185059	99									
No Coord	tice ination	Special Stat	ion Sectior	n 4	Beam Attachment	ts	Grou	o	Emis	sions) Frec	uencies
	Notice Id:	118505999 Adn	r: SUI	Station Name:	ENEVA_ITU		EA	ntld BSR	E		: 1	•
					As	A6. Coordi	nated Obtair	ned or Agreer	ment Reques	ted		
		Provision	Status	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org
	9.17		Obtain	F	1							
												-
	To apply other gro beam or	coordination to pups, select the notice option.	G	<u>ک</u> ح	pply to curre roup only	nt C App in th	ly to all group iis beam	ps ⊙ App in th	ly to all group iis notice	os		
	bodin of	notice option.										

Enter Date of Bringing into Use

File	Edit Tools	View W	/indow Help										
	🐑 🛅 🚳 🕯	M 🗸		토로	? 📰		CL CR/NOTIF	С.	API 🗅	RAST	С.	PLAN C	RS49/5
B	Specific Earth S	tation N	otice:118505999										
				1 i i	1	_		_					
	Coordinati	ion	Special Section Station	Attachn Bea	nents l m í		Group	1	Emissions	- 1	Frequ	oncios	1
	Notice		Oldalon	Dea					Emissions		ricuu	encies	
		Notice	118505999 Station GEN Name:	EVA_ITU		EAnt	d BSR E	-	Group Id: 1		-	Split Grp Id:	
	[3. Obse	rved Frequencies and Relati	ed Characteristic			- C			D		BB	1
		C Add	C Mod C Sup	of the group	to be modifi	ed/suppre	e Group			No.		Data	
	L	C C	haracteristics Co	mmon to	a Group	o of Fr	equencies	s 💽	General	Chara	cteris	tics	
							•						
			a. Date Bringing into use										
			30.01.19										
		A3	a. Operating Administration	n or Agency									
		01	12 EPFL - ECOLE POLY1	ECHNIQUE FE	DERALE DE	LAUSAN	NE		-				
		A3	b. Responsible Administrati										
			FEDERAL OFFICE OF C	UMMUNICATIC	л				-				
			o apply this information to										
		ot	her groups, select the	<u>r</u>	C Apply to	o current	 Apply to all g 	groups	 Apply to all 	groups			
		be	eam or notice option.		group o	niy	in this beam		in this notic	e			

Before submitting the notification



- Check the following:
 - Associated space station must be already notified
 - Provide the correct name used in BR databases
 - Check also the beam names/ if the frequency bands are covered by the bands used by the space station
- Use Spacecap to convert the notice from No. 9.17 to No. 11.2
- Use Spacecap to update the status of coordination of the earth station
- Run Spaceval to ensure that there are no fatal errors
Launch SpaceVal



• Mandatory prior to submitting to BR

Validation Results



🥪 SNS Valid	lation Error	2				-	-											
Rule	an Report		€ First	Prev	N) lext) Last		j Space	Nules E	arth Rules	A Plan Rules	l It	8 tems	្រូ÷ Summ	hary	Fatal	Export
Validation F C:\GENEV/ Ntc ID: 11	Report for 4_ITU.mdt 18505999	1185059 Adm:	99 User SUI S	MENONI (tn name: E	created	l on 27.1 SAT 3-3	11.18 11 3E Acti	1:02: ! ion:A	54 with Status Fatal E	SpaceV • N1 D rrors:	al 8.0.14 BCV [.] 11 1	1 18 0 Warnin	gs:		1			
Bean	n E/R	Grp id	Table	Field	Value	Row no	Val err	Rule	Severit	Ap4_Re	ef					Text		
Þ			e_stn	stn_name	GENE VA_IT		1000	2	W	A.1.e.2	Invalid e	earth station n	ame (not	in referer	nce table)			

• No fatal errors

Common Errors



- Space station name, beam name, frequency band do not correspond to those of the Space Station
- Missing horizon elevation angle
- Missing minimum angle of elevation
- Missing coordination area diagram
- Missing antenna diameters when required
- Missing antenna radiation patterns
- Missing coordination agreements

Related Notification Publications



Part I-S

 When notice is found to be complete, it will be published in Part I-S, which will constitute the acknowledgement to the notifying administration of receipt of its notice (No.11.28).

Part II-S

 Assignments, after detailed technical and regulatory examination, that are found to be favourable will be published in a Part II-S and recorded in the MIFR.

Part III-S

 Assignments, after detailed technical and regulatory examination, that are found to be unfavourable will be published in a Part III-S.

Reasons for unfavorable findings Part III-S



Notes for return of notices for earth station

Provision	Examples of paragraphs	Resubmission Within 6 months
A N - X/9.17 X	With respect to the frequency assignment groups Nos. () of your earth station (), it is noted that the <u>coordination</u> <u>procedure under</u> No. 9.17 has not been shown as completed with the Administrations of () since the <u>coordination area of your earth station includes the territories of those Administrations</u> (see coordination contours attached). Thus, an unfavorable finding with respect to No. 11.32 has been reached and the notice in question is being returned to you in conformity with No. 11.37 .	
	Should the notice <u>be resubmitted with the indication that coordination has been successfully completed with the Administration</u> (s) mentioned above, a favorable finding might result.	Yes
	However, these being frequency assignments for reception, your Administration may be prepared to accept the interference resulting from existing and future terrestrial stations of the countries concerned. In this event, should your Administration resubmit the notice concerned and insist upon its reconsideration, the assignment will be recorded in the Master Register, symbol "H" will be inserted in Column 13B2 as well as AP5 PARA 6E(III) in the column reserved for coordination information.	
A N - X/9.7 X No SS subject to <u>coord</u> .)	With regard to the frequency assignment groups Nos. () of your earth station (), it is noted that the corresponding frequency assignments of the associated space station () have not yet been communicated to the Radiocommunication Bureau for recording. Thus, these frequency assignments have been given an unfavourable finding with respect to No. 11.32 (see paragraph 2.1.2.1 of the Rules of Procedure relating to No. 11.32) and the notice in question is being returned to you in conformity with No. 11.37 . Once the corresponding assignments of the associated space station have been notified and recorded in the Master Register, it will be possible to examine again your earth station notice.	Yes
A N - X/9.7 X Outside SA	With respect to the frequency assignments groups Nos. () of your earth station (), it is noted that the <u>station is</u> outside the service area of the transmitting/receiving beam () of the associated space station (). Consequently, your earth station frequency assignments have been given an unfavorable finding with respect to No. 11.32 (see paragraph 2.1.3 of the Rules of Procedure relating to No. 11.32) and the notice in question is being returned to you in conformity with No. 11.37 .	Yes
N X/ROP RCV4.4	With regard to the frequency assignments groups Nos. () of your earth station (), it is noted that the <u>associated</u> <u>space station ()</u> does not have any valid publication in the <u>Radiocommunication Bureau</u> . As stated in paragraph 2.1.2.1 of Rules of Procedure relating to No. 11.32 , starting from the principle that the leading element of a space network is the space station and that it would be misleading to record in the <u>Master</u> Register earth station cannot be recorded in the Master Register earth station cannot be recorded in the Master Register before its associated space station. In view of the above, according to Rules of Procedure, paragraph 4.4 of "Rules concerning the <u>Radiocommunication</u> Bureau in application of the Radio Regulatory Procedures relating to space services" the subject notice is not receivable.	Yes





• You may submit the notification of your Earth Station through e-Submission (Resolution 908)

by uploading

- ESName.mdb
- Additional documents like Coordination contour diagrams generated using AP7 software, cover letter or any useful documents





Please remember to visit the WRS-18 Exhibition located at the entrance of the ITU Montbrillant building