

FSS PLAN (Appendix 30B)

(Technical pre-examination (Annex 3 + Article 21/22 hard limits))





(Technical pre-examination (Annex 3 + Article 21/22 hard limits))



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Introduction



Compatibility Issues within AP30B and beyond

Types of Examination conducted by the Bureau

Examples of publication with unfavourable findings

Workshop Exercises:

- ✓ Exercise 1: Self-Exam under §§ 6.3a) and 6.19b) "other provisions" of the Radio Regulations
- ✓ Exercise 2: Self-Exam under §§ 6.3b) and 6.19c) Annex 3 to Appendix 30B (protection beyond coord. arc)
- ✓ Exercise 3: Self-Exam under §§ 6.6 and 6.19a) agreement of ADMs to be included in the service area

Introduction







122559099_ITUSAT-30B.mdb

Available: / Exercise_3_AP30B_Art.21_22



122559099_ITUSAT-30B_GIMS.mdb

Available: / Exercise_3_AP30B_Art.21_22









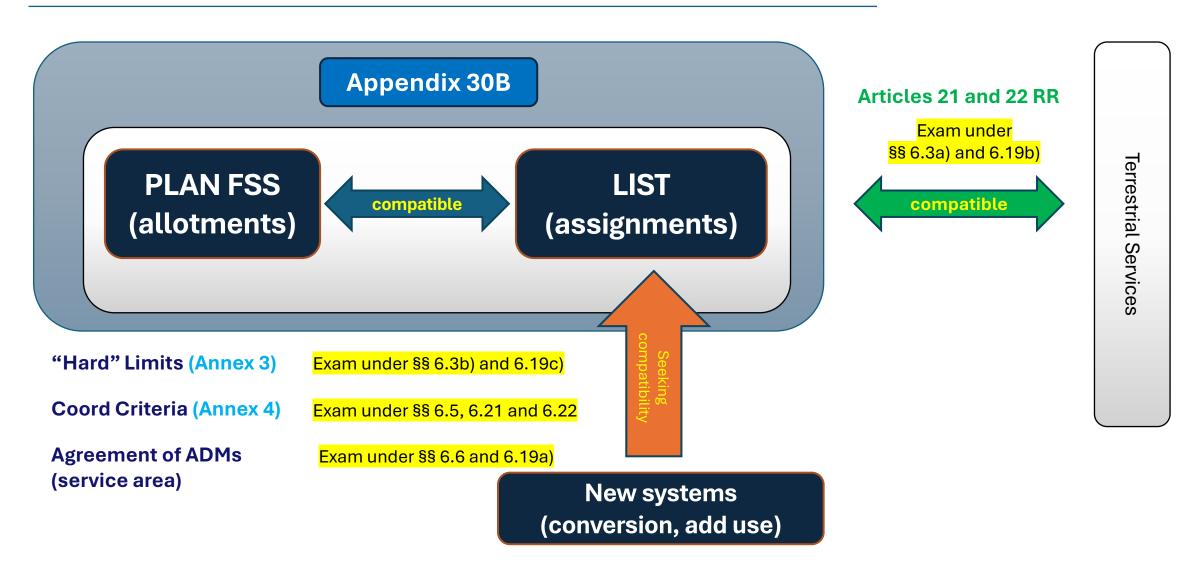








Compatibility Issues within AP30B and beyond





Types of Examination

Compliance with "Hard" Limits:

- * Exam under §§ 6.3a) and 6.19b) "other provisions" of the Radio Regulations,
- * Exam under §§ 6.3b) and 6.19c) Annex 3 to Appendix **30B** (protection beyond coord. arc)

Agreements of ADMs (service area)

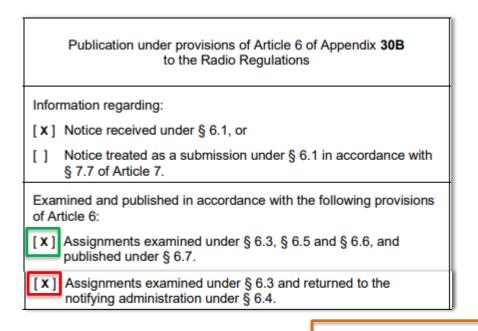
* Exam under §§ 6.6 and 6.19a) - agreement of ADMs to be included in the service area



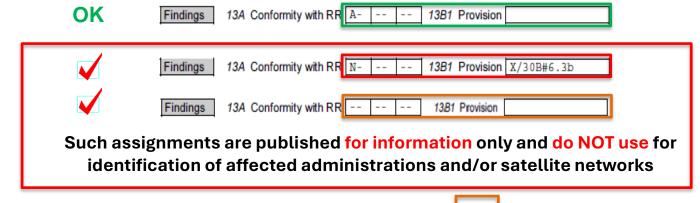


Example of Special Section AP30B/A6A/XXX contains assignment with unfavourable finding

BR findings / Notes



BR findings are established for each frequency assignment



Radiocommunication Bureau Notes

Note relating to the return of assignments having favourable findings but without any favourable associated linked assignment

Assignments receiving a favourable finding that do not have any associated linked assignment with a favourable finding have also been returned.



Example of Special Section AP30B/A6A/XXX contains assignment with unfavourable finding

D BR7a Group id. 46	913 BR1 [Date of receipt 11.06.2024	2D Date of protection			
BR62 Expiry date for bringing into us	se				BR64 Date of receipt of 1st Res49	
C1 Frequency F	Range					
C1a Lower limit	C1b Upper limit					
	13000 MHz					
13000 MHz	13250 MHz					
C4a Class of station EC					C5a Noise temperature	550
C11a1 Service area no. 1	C11a5e Min. elev.	angle	C11a3 Service area dia	ngram		
		Associated typical earth statio	n antenna characteristics			
C10d3 Max. iso. gain	C10d4 Bmwdth	C10d5a1a Co-polar ref. pattern	C10d5a1b Coef. A		C10d9 Ant. dim. (DGSO)	
39.2	2 AP	EREC015V01				
Maximum Power dens	sity per Hz over					
C8b2 4 kHz	C8h Necessary bandwid	dth				
-46.2	-46.2					
Findings 13A Conformity with RI	R N 13	B1 Prov. 30B#6.3b				
C11a5a Test points are identical to g	group id.		46909			



Compliance with "Hard" Limits

Input Database(s)	BR so	ftware	Output Database(s)
Exercise 1: Self-Exam under §§ 6	e Radio Regulations		
122559099_ITUSAT-30B.mdb 122559099_ITUSAT-30B_GIMS.mdb	Gibc Gibc	"PFD / EIRP GSO"	PFDGSO_Report.rtf
RR Article 21 - Hard lim	Wai a		

No 21.8 Power limits for Earth Stations

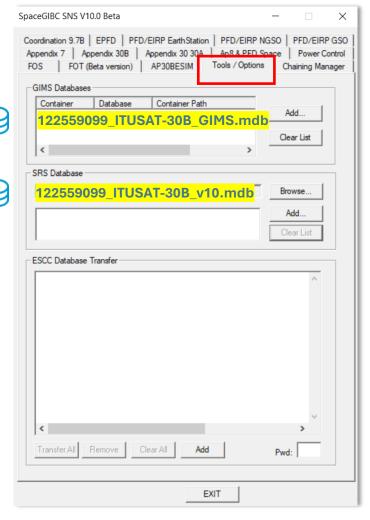
No 21.14 Minimum angle of elevation of Earth Station (3°)
No 21.16 Limits of power flux-density from space stations

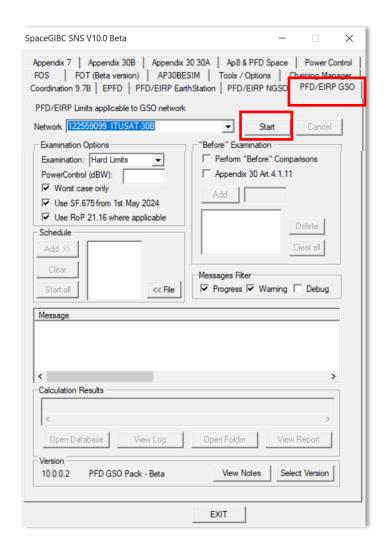
RR Article 22 - Hard limits to control interference to GSO systems

No 22.26 Off-axis power limits on Earth Station of a geostationary-satellite network in the Fixed-Satellite Service (12.75-13.25GHz)









Appendix 7 Appendix 30B Appendix 30 30A Ap8 & PFD Space Power Control FOS FOT (Beta version) AP30BESIM Tools / Options Chaining Manager Coordination 9.7B EPFD PFD/EIRP EarthStation PFD/EIRP NGSO PFD/EIRP GSO
PFD/EIRP Limits applicable to GSO network
Network 122559099 ITUSAT-30B Start Cancel
Examination Options Examination: Hard Limits Perform "Before" Comparisons Appendix 30 Art.4.1.11 Add Perform Add Perform Add Perform Pe
Message PROGR> Compacting output database PROGR> Compacting batchresults database PROGR> End of program. PFD calculation finished. 15:18:31. Calculation Results C:\Users\klyuchar\ITU\BR_SPACE_v10.0\TEX_RESULTS\122559099\PFD_H_24 Open Database View Log Open Folder Version 10.0.0.2 PFD GSO Pack - Beta View Notes Select Version EXIT



EARTH STATION E.I.R.P VALUES WILL BE CHECKED AGAINST ARTICLE 21 LIMITS

-52.50 DEG 0.10 0.10 04.10.2022 EIRP EXAMINATION P 122559099 SUI ITUSAT-30B

NO UNFAVORABLE FINDING FOUND IN EIRP EXAMINATION.

PLEASE CONTINUE CHECKING THE REPORT IN THE NEXT PAGE ...

ESIM POWER COMPLIANCE WILL BE CHECKED WHERE APPLICABLE

-52.50 DEG 0.10 0.10 04.10 ESIM EXAMINATION P 122559099 SUI ITUSAT-30B

NO UNFAVORABLE FINDING FOUND IN ESIM EXAMINATION.

PLEASE CONTINUE CHECKING THE REPORT IN THE NEXT PAGE ...

SPACE STATION PFD VALUES WILL BE CHECKED AGAINST HARD LIMITS ONLY

-52.50 DEG 0.10 0.10 04.10.2022 PFD EXAMINATION P 122559099 ITUSAT-30B SUI

EATK E FIXED GAIN MAX: 30.60 DBi

000000034 EC 2D DATE: 04.10.2022 (DN)

10.82500 GHZ 250000 KHZ EMISS: 250M PEP MAX: DBW PWR DS MAX: -47.10 DBW/HZ PWR DS NBW: -47.10 DBW/HZ

PROV: (06) RR 21.16 SRV: FSS PROT AREA: ALL WORLD REF.BW: 0.004 MHZ

WORST CASE: 023E5033 00N5818/ 5.00 COD GAIN: 28.82 DB PFD: -145.53 PFDL: -150.00 PFDX: 4.47 FINDING: N-X/21.16 11.32500 GHZ 250000 KHZ EMISS: 250M PEP MAX: DBW PWR DS MAX: -47.10 DBW/HZ PWR DS NBW: -47.10 DBW/HZ

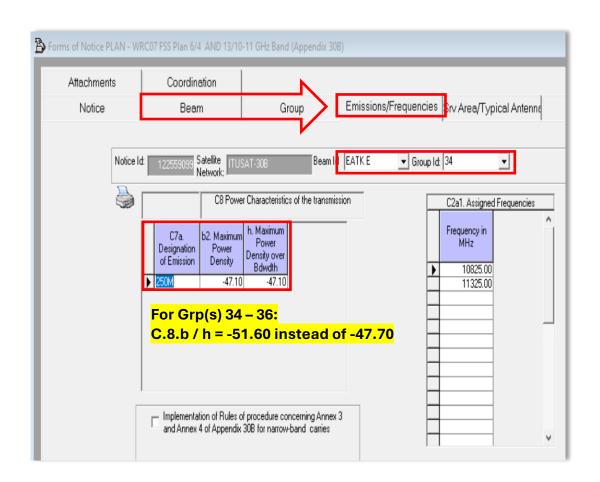
SRV: FSS PROT AREA: ALL WORLD REF.BW: 0.004 MHZ PROV: (06) RR 21.16

FINDING: N-WORST CASE: 023E5033 00N5818/ 5.00 COD X/21.16 GAIN: 28.82 DB PFD: -145.53 PFDL: -150.00





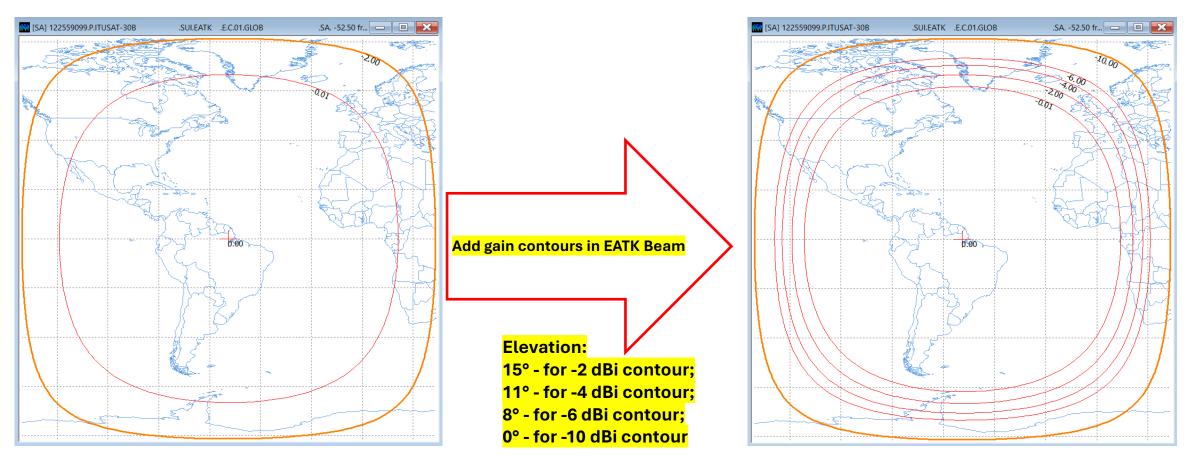
Forms of Notice PLAN - Wi	RC07 FSS Plan 6/4 AND 13/10	-11 GHz Band (Appendix 30	3)	
Notice	Beam	Strapping	Attachments	Coordination
Notice ld: 12255	19099 Plan WRC07 FSS Plan	5/4 AND 13/10-11 GHz Band (Appendix 30B)	Status 01
Date of Receipt: DD.	MM.YYYY Administration S 0.2022	Notic	e Submitted under 08#6.17 Include Assignments in	ut-1:-s
Administration A1f3, Intergovernmental Satellite	SUI code: A30B#6.1A	© A3 C A3 C A3 C A3 C A3 C A3 C A3 C A3 C	JB#6.1A New Additional System JB#6.1C Conversion of Allotmer JB#6.1T Transfer of 7.2 submist JB#6.3B Reinstate Allotment JB#6.3B Reinstate Allotment JB#6.3B Reinstate Allotment JB#6.3D Transfer to Allotment JB#6.3F Transfer to Allotment JB#7.2 Allotment for New Adm S170#6.1A New additional system S170#6.1C Conversion of Allotment S170#6.1C Conversion of Allotment S170#6.1C Notice resubmitted if	total tission to 6.1 der 6.25 (WRC) in the List Res170 em Res170 nent Res170
A4a1. Nominal Orbital		he Satellite Network	A4a2. Longitudinal tolerance b. West 0.1 ° a. East 0.1 °	A4a2c. Inclination Excursion 0.05
	Lis	t of Available Beams - Beam RATC - Beam RATK - Beam EATC - Beam EATK		



Option 1: Correction of AP4 data or ...



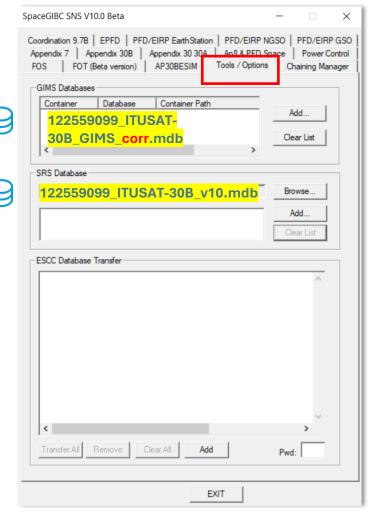


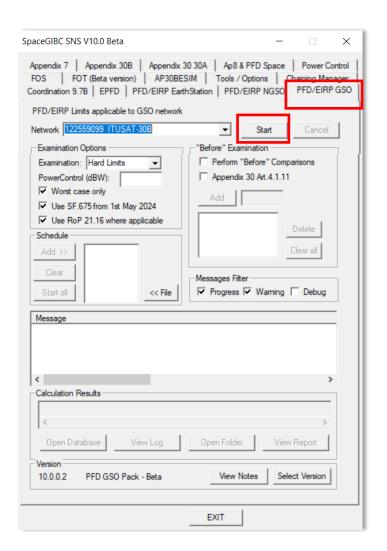


... Option 2: Correction of GIMS data









SpaceGIBC SNS V10.0 Beta – \square X
Appendix 7 Appendix 30B Appendix 30 30A Ap8 & PFD Space Power Control FOS FOT (Beta version) AP30BESIM Tools / Options Chaining Manager Coordination 9.7B EPFD PFD/EIRP EarthStation PFD/EIRP NGSO PFD/EIRP GSO
PFD/EIRP Limits applicable to GSO network
Network 122559099 ITUSAT-30B Start Cancel
Examination Options Examination: Hard Limits PowerControl (dBW): V Worst case only Use SF.675 from 1st May 2024 Use RoP 21.16 where applicable Schedule Add >> Clear Start all Wessages Filter Perform "Before" Comparisons Add Delete Clear all
Message PROGR> Compacting output database PROGR> Compacting batchresults database PROGR> End of program. PFD calculation finished. 15:18:31. Calculation Results C:\Users\klyuchar\ITU\BR_SPACE_v10.0\TEX_RESULTS\122559099\PFD_H_24 \(\) Open Database View Log Open Folder View Report Version 10.0.0.2 PFD GSO Pack - Beta View Notes Select Version EXIT



EARTH STATION E.I.R.P VALUES WILL BE CHECKED AGAINST ARTICLE 21 LIMITS

P 122559099 SUI ITUSAT-30B -52.50 DEG 0.10 0.10 04.10.2022 EIRP EXAMINATION

NO UNFAVORABLE FINDING FOUND IN EIRP EXAMINATION.

PLEASE CONTINUE CHECKING THE REPORT IN THE NEXT PAGE ...

ESIM POWER COMPLIANCE WILL BE CHECKED WHERE APPLICABLE

ESIM EXAMINATION P 122559099 SUI ITUSAT-30B -52.50 DEG 0.10 0.10 04.10.2022

NO UNFAVORABLE FINDING FOUND IN ESIM EXAMINATION.

PLEASE CONTINUE CHECKING THE REPORT IN THE NEXT PAGE ...

SPACE STATION PFD VALUES WILL BE CHECKED AGAINST HARD LIMITS AND ROP21.16 IS ONLY APPLIED WHERE APPLICABLE

-52.50 DEG 0.10 0.10 04.10.2022 PFD EXAMINATION WITH ROP21.16 P 122559099 SUI ITUSAT-30B

NO UNFAVORABLE FINDING FOUND IN PFD EXAMINATION.

Congratulation! Your network complies with "Hard" Limits under §§ 6.3a) and 6.19b) ("other provisions" of RR)

... but please do NOT forget to check compliance with "Hard" Limits under §§ 6.3b) and 6.19c) (Annex 3 to Appendix 30B)



Compliance with "Hard" Limits

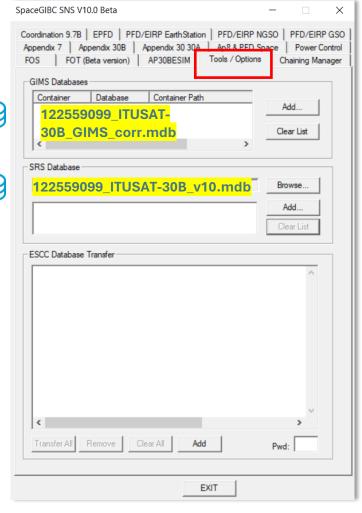
Input Database(s)	BR so	ftware	Output Database(s)
Exercise 2: Self-Exam under §§ 6	B (protection beyond coord. arc)		
122559099_ITUSAT-30B.mdb 122559099_ITUSAT- 30B_GIMS_corr.mdb	Gibc Gibc	"Appendix 30B"	AP30B_RESULTS.mdb

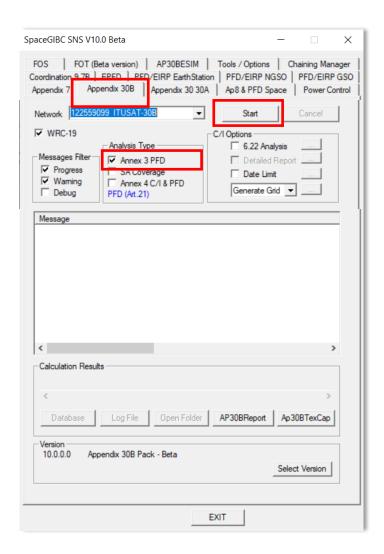
Annex 3 to Appendix 30B

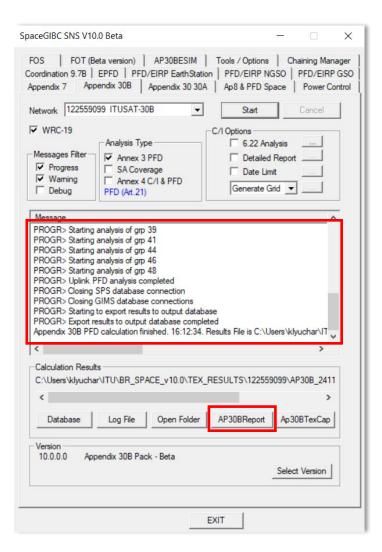
Frequency band	Coord arc	Pfd limits [dBW/(m²*MHz)]
6725 - 7025 MHz	7°	-140
12.75 - 13.25 GHz	6°	-133
4500 - 4800 MHz	7°	-131.4
10.70-10.95 / 11.20-11.45 GHz	6°	-118.4





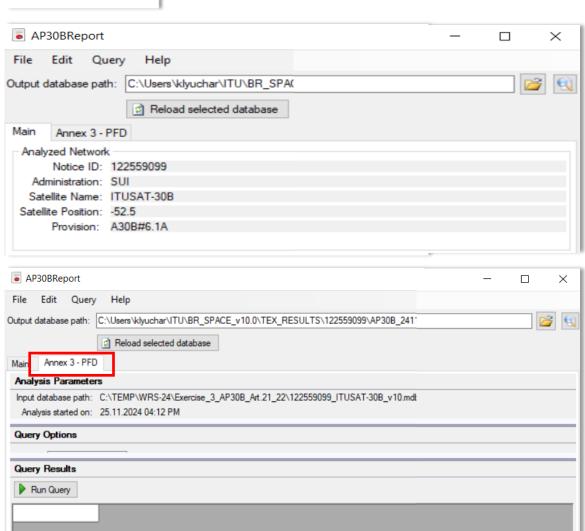










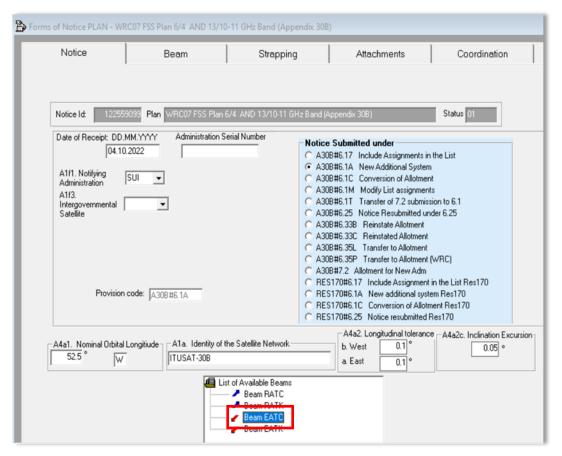


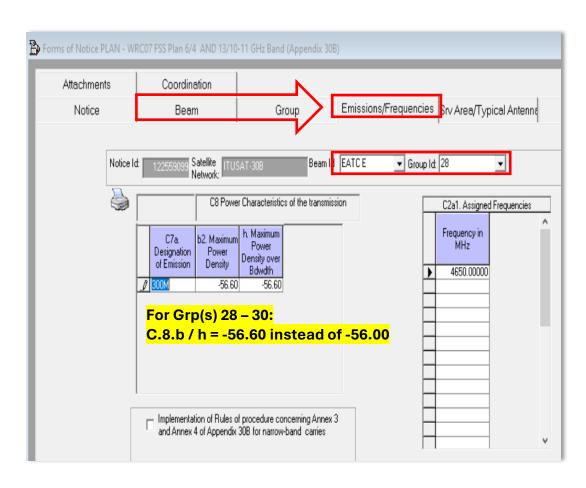
Beam Name	E/R	Frequency Band	Group ID	Finding	PFD Excess	PFD Limit	Worst GSO Pos.
EATC	Е	4	28	N-	0.333	-131.4	
EATC	Е	4	29	N-	0.333	-131.4	
EATC	Е	4	30	N-	0.333	-131.4	
EATK	Е	10-11	34	A-	-0.167	-118.4	
EATK	Е	10-11	35	A-	-0.167	-118.4	
EATK	Е	10-11	36	A-	-0.167	-118.4	
RATC	R	6	38	A-	-1.397	-140	-59.51
RATC	R	6	38	A-	-1.313	-140	-45.49
RATC	R	6	39	A-	-1.05	-140	-59.51
RATC	R	6	39	A-	-0.966	-140	-45.49
RATC	R	6	41	A-	-1.1	-140	-59.51
RATC	R	6	41	A-	-1.016	-140	-45.49
RATK	R	12-13	44	A-	-1.034	-133	-58.51
RATK	R	12-13	44	A-	-0.953	-133	-46.49
RATK	R	12-13	46	A-	-1.034	-133	-58.51
RATK	R	12-13	46	A-	-0.953	-133	-46.49
RATK	R	12-13	48	A-	-1.084	-133	-58.51
RATK	R	12-13	48	A-	-1.003	-133	-46.49

Analyze of the Report...





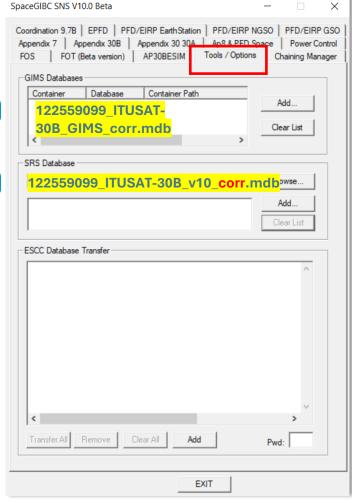


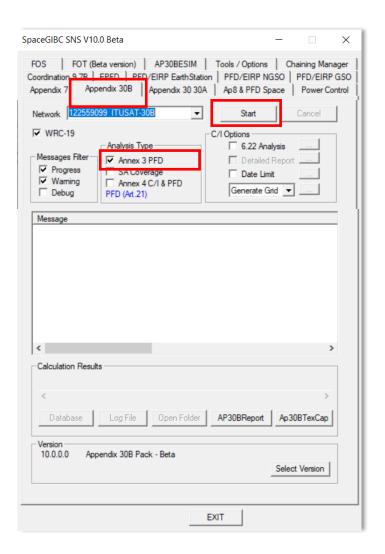


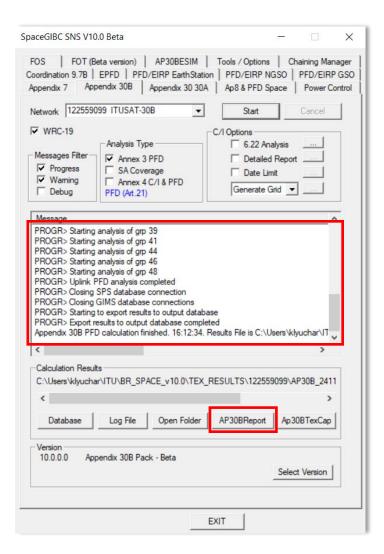
Correction of AP4 data







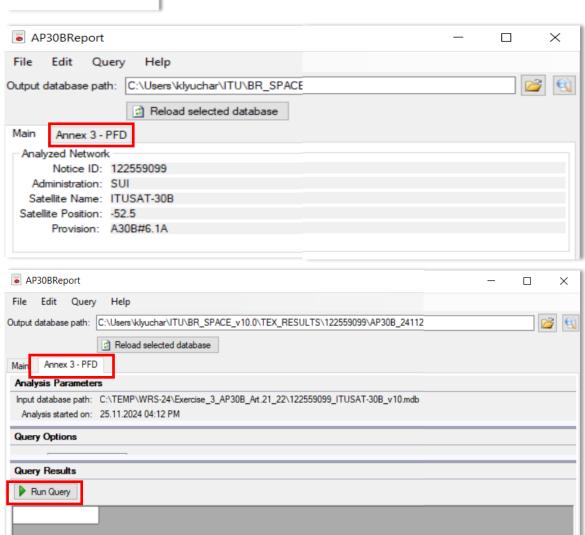












Beam Name	E/R	Frequency Band	Group ID	Finding	PFD Excess	PFD Limit	Worst GSO Pos.
EATC	Е	4	28	A-	-0.267	-131.4	
EATC	Е	4	29	A-	-0.267	-131.4	
EATC	E	4	30	A-	-0.267	-131.4	
EATK	E	10-11	34	A-	-4.667	-118.4	
EATK	E	10-11	35	A-	-0.167	-118.4	
EATK	E	10-11	36	A-	-0.167	-118.4	
RATC	R	6	38	A-	-1.397	-140	-59.51
RATC	R	6	38	A-	-1.313	-140	-45.49
RATC	R	6	39	A-	-1.05	-140	-59.51
RATC	R	6	39	A-	-0.966	-140	-45.49
RATC	R	6	41	A-	-1.1	-140	-59.51
RATC	R	6	41	A-	-1.016	-140	-45.49
RATK	R	12-13	44	A-	-1.034	-133	-58.51
RATK	R	12-13	44	A-	-0.953	-133	-46.49
RATK	R	12-13	46	A-	-1.034	-133	-58.51
RATK	R	12-13	46	A-	-0.953	-133	-46.49
RATK	R	12-13	48	A-	-1.084	-133	-58.51
RATK	R	12-13	48	A-	-1.003	-133	-46.49

Bravo! Now your network complies with "Hard" Limits under §§ 6.3b) and 6.19c) (Annex 3 to Appendix 30B) as well!



Agreements of ADMs (service area)

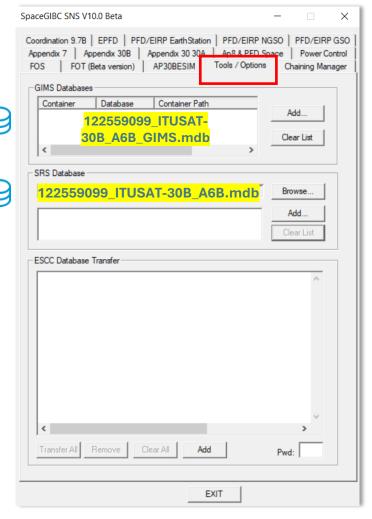
Input Database(s)	BR sof	tware	Output Database(s)
Exercise 3: Self-Exam under §§ 6.6 an	d 6.19a) - agreement	of ADMs to be inclu	uded in the service area
122559099_ITUSAT-30B_A6B.mdb 122559099_ITUSAT-30B_A6B_GIMS.mdb	"Appendix 30B"		AP30B_RESULTS.mdb
			Molina

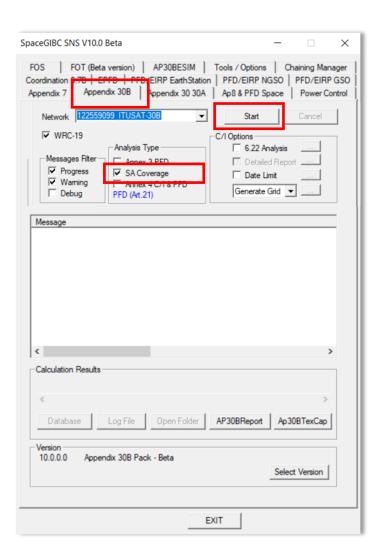
- **6.6** The Bureau shall then identify those administrations whose territories have been included in the service <u>area</u> of the assignment under examination. The notifying administration <u>shall seek the agreement</u> of any administration whose territory is partially or wholly included in the intended service area of the assignment.
- **6.19** ... the Bureau shall examine each assignment in the notice:
- a) with respect to the requirement for the notifying administration to seek the agreement of those administrations whose territories are included in the service area:

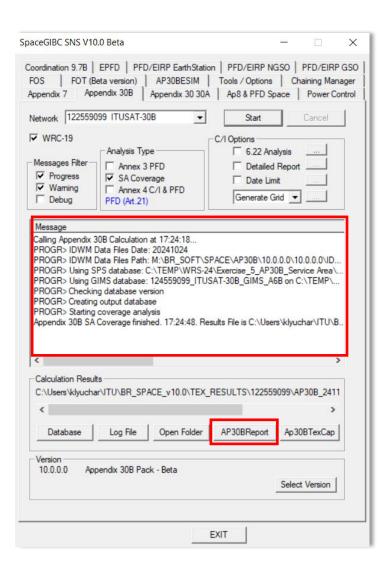
Agreements received from: ARG, BOL, CHL, CLM, PRG and PRU







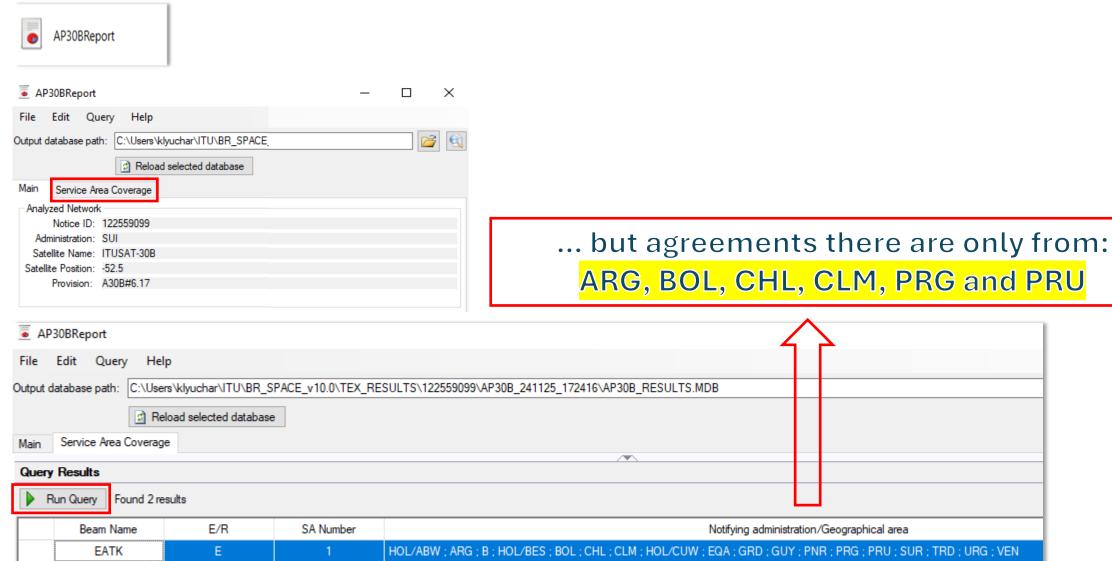




RATK

R

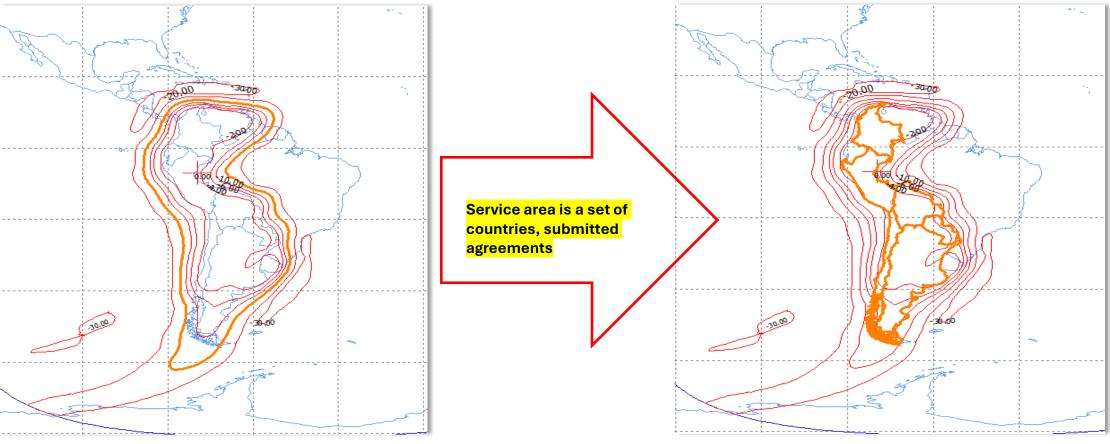




HOL/ABW; ARG; B; HOL/BES; BOL; CHL; CLM; HOL/CUW; EQA; GRD; GUY; PNR; PRG; PRU; SUR; TRD; URG; VEN



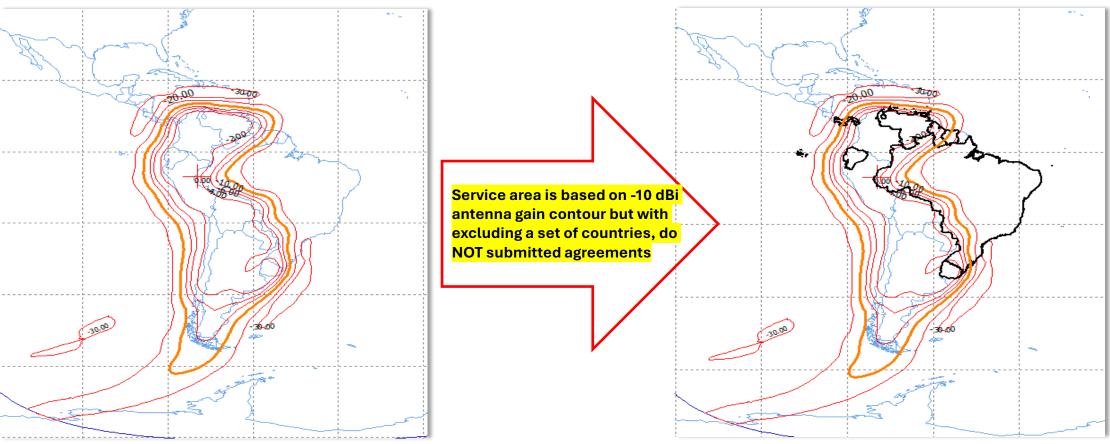




Correction GIMS data (Option 1)



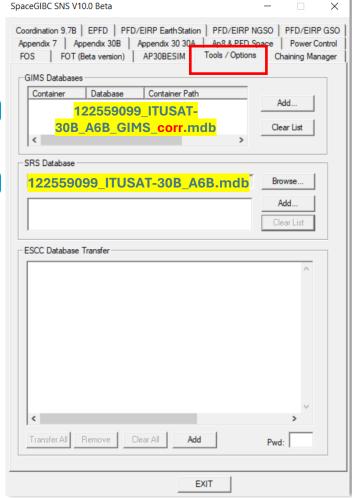




Correction GIMS data (Option 2)





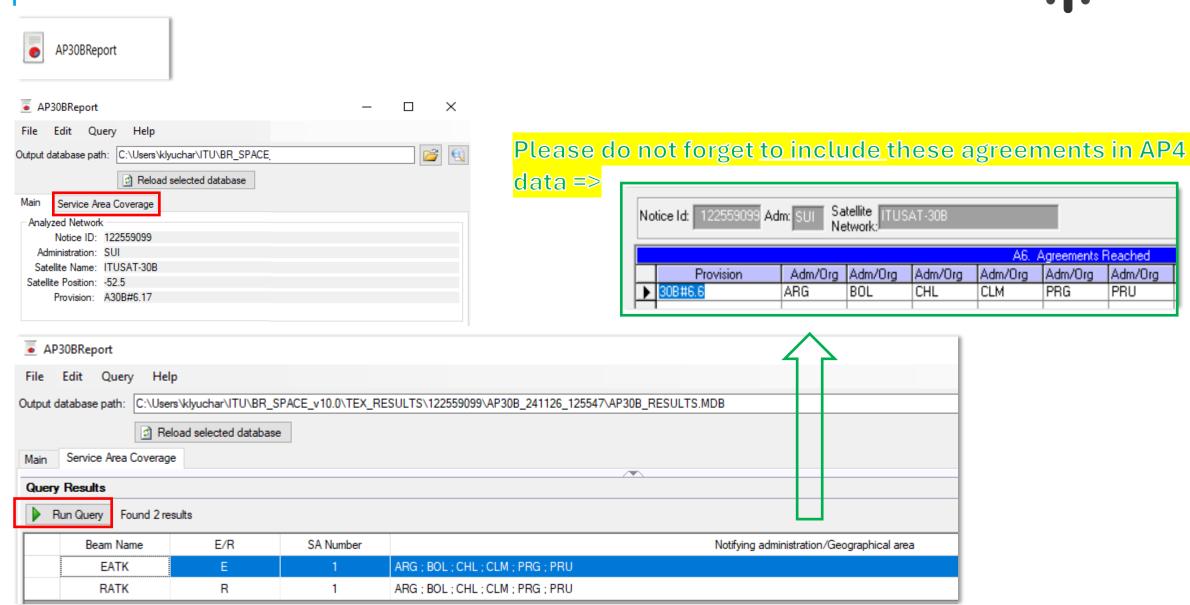


FOS FOT (Beta version) AP30BESIM Tools / Options Chaining Manager		
Coordination 78 ECFB PFD EIRP Earth Station PFD/EIRP NGSO PFD/EIRP GSO Appendix 30 B Appendix 30 30 A Ap8 & PFD Space Power Control Network 122559099 TTUSAT-30B Start Cancel WRC-19	paceGIBC SNS V10.0 Beta	- 🗆 ×
Network 122559099 ITUSAT-30B Start Cancel	Coordination 2.78 EPFD PFD EIRP EarthStation	PFD/EIRP NGSO PFD/EIRP GSO
WRC-19 Messages Filter ✓ Progress ✓ Warning □ Debug Message Message C/I Options □ 6.22 Analysis □ □ Detailed Report □ □ Date Limit □ □ □ □ Date Limit □ Date	Appendix 7 Appendix 30B Appendix 30 30A	Ap8 & PFD Space Power Control
Messages Filter	Network 122559099 ITUSAT-30B	Start Cancel
Messages Filter ✓ Progress ✓ Warning ☐ Debug Message Message Message Message Message Calculation Results Calculation Results Calculation Results Calculation Results Calculation Results Calculation Results Select Version 10.0.0.0 Appendix 30B Pack - Beta Select Version Select Version	✓ WRC-19	C/I Options
Version Tour Version Tour	- Analysis Type	6.22 Analysis
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Message Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version	To we are the second of the se	Date Limit
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Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version	Message	
Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
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Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
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Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
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Calculation Results Calculation Results Database Log File Open Folder AP30BReport Ap30BTexCap Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version	•	,
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version	Calculation Results	
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version		· /
Version 10.0.0.0 Appendix 30B Pack - Beta Select Version	Database Log File Open Folder	AP30BRenot Ap30BTexCap
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10.0.0.0 Appendix 30B Pack - Beta Select Version		1400000
Select Version		
EXIT		
	10.0.0.0 Appendix 30B Pack - Beta	Select Version

SpaceGIBC SNS V10.0 Beta	- □ X
Coordination 9.7B EPFD PFD/EIRP EarthStat FOS FOT (Beta version) AP30BESIM Appendix 7 Appendix 30 B Appendix 30 30	Tools / Options Chaining Manager A Ap8 & PFD Space Power Control
Network 122559099 ITUSAT-30B	Start Cancel
₩RC-19	C/I Options
Analysis Type	6.22 Analysis
Messages Filter	Detailed Report
Waming	Date Limit
☐ Debug PFD (Art.21)	Generate Grid 🔻
M	
Message Calling Appendix 30B Calculation at 12:56:31	
PROGR> IDWM Data Files Date: 20241024	
PROGR > IDWM Data Files Path: M:\BR_SOFT\: PROGR > Using SPS database: C:\TEMP\WRS-	
PROGR> Using GIMS database: 124559099_ITU	
PROGR> Checking database version PROGR> Creating output database	
PROGR> Starting coverage analysis	
Appendix 30B SA Coverage finished. 14:01:05. R	esults File is C:\Users\klyuchar\ITU\B
	 ,
Calculation Results	
C:\Users\klyuchar\ITU\BR_SPACE_v10.0\TEX	_RESULTS\122559099\AP30B_2411
<	>
Database Log File Open Folder	AP30BReport Ap30BTexCap
Database Log File Open Folder	AP30BReport Ap30BTexCap
Version	
10.0.0.0 Appendix 30B Pack - Beta	
	Select Version
L	
	EXIT









(Technical pre-examination (Annex 3 + Article 21/22 hard limits))



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