FSS PLAN (Appendix 30B)

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

2-6 December 2024, Geneva, Switzerland

FSS PLAN (Appendix 30B)
(Technical pre-examination
(Annex 3 + Article 21/22 hard limits))

WORKSHOP

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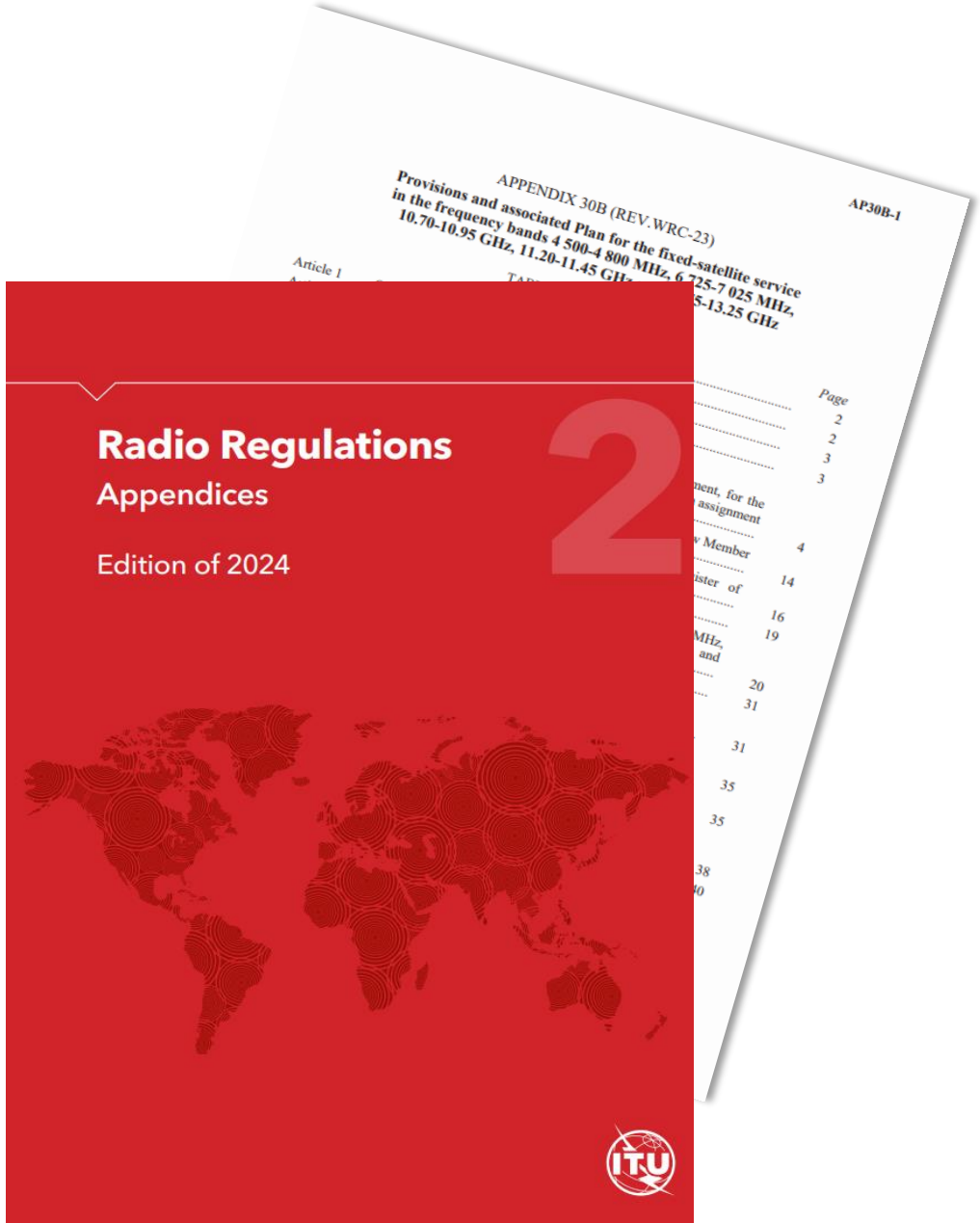
- ✓ Introduction
- ✓ Compatibility Issues within AP30B and beyond
- ✓ Types of Examination conducted by the Bureau
- ✓ Examples of publication with unfavourable findings
- ✓ Workshop Exercises:
  - ✓ Exercise 1: Self-Exam under §§ 6.3a) and 6.19b) – "other provisions" of the Radio Regulations
  - ✓ Exercise 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



122559099_ITUSAT-30B.mdb

Available: / Exercise_3_AP30B_Art.21_22

122559099_ITUSAT-30B_GIMS.mdb

Available: / Exercise_3_AP30B_Art.21_22

V10 New

SAM v10.0

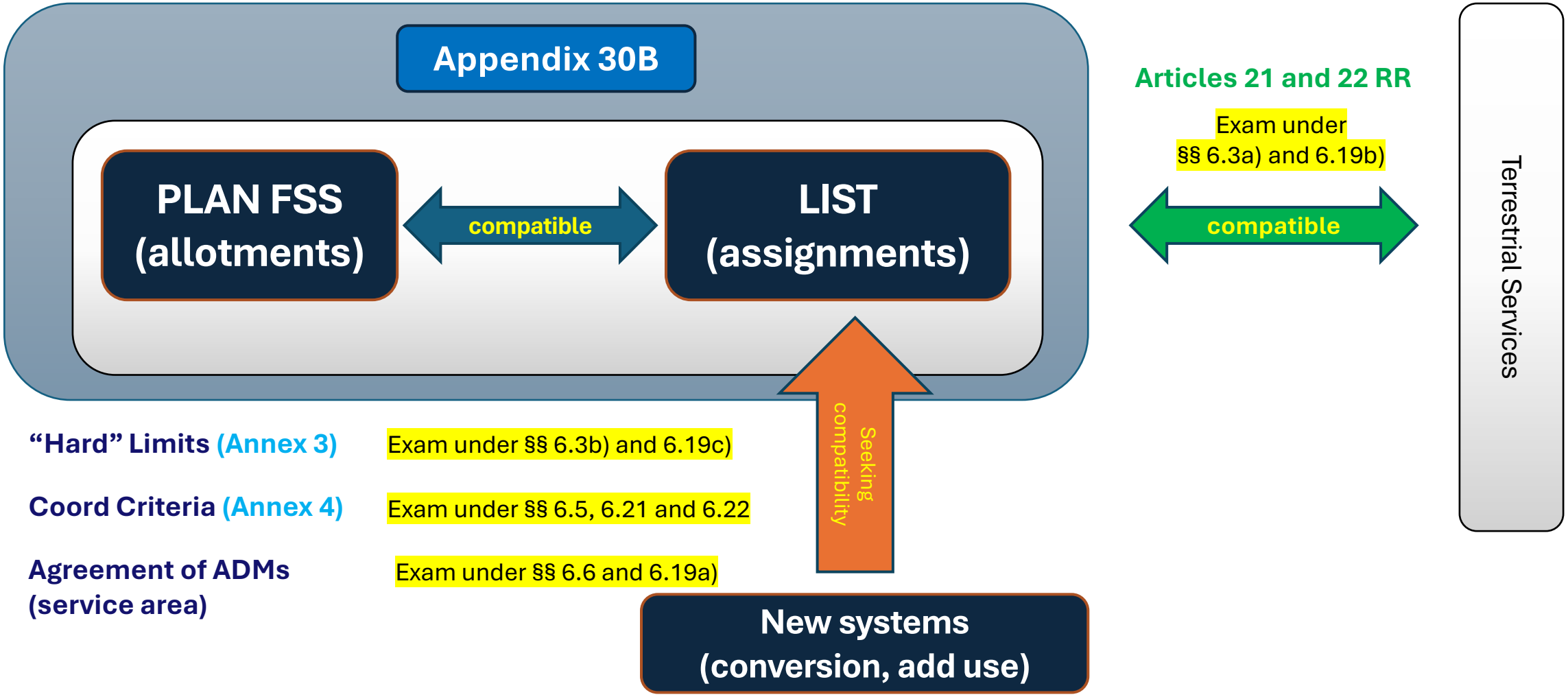
SpaceCap Beta

GIMS Beta

SpaceGibc Beta

AP30BReport

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)

Workshop...

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

Publication under provisions of Article 6 of Appendix **30B** to the Radio Regulations

Information regarding:

[X] Notice received under § 6.1, or

[ ] Notice treated as a submission under § 6.1 in accordance with § 7.7 of Article 7.

Examined and published in accordance with the following provisions of Article 6:

[X] Assignments examined under § 6.3, § 6.5 and § 6.6, and published under § 6.7.

[X] Assignments examined under § 6.3 and returned to the notifying administration under § 6.4.

BR findings are established for each frequency assignment

OK

Findings	13A Conformity with RR				13B1 Provision	
	A-	--	--			

Findings	13A Conformity with RR				13B1 Provision	
	N-	--	--			X/30B#6.3b

Findings	13A Conformity with RR				13B1 Provision	
	--	--	--			

Such assignments are published for information only and do NOT use for identification of affected administrations and/or satellite networks

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. 46913 *BR1* Date of receipt 11.06.2024 *2D* Date of protection

BR62 Expiry date for bringing into use *BR64* Date of receipt of 1st Res49

C1 Frequency Range			
C1a Lower limit		*C1b* Upper limit	
12750	MHz	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 diagram

Associated typical earth station antenna characteristics					
C10d3 Max. iso. gain	*C10d4* Bmwdth	*C10d5a1a* Co-polar ref. pattern	*C10d5a1b* Coef. A		*C10d9* Ant. dim. (DGSO)
39.2	2	APEREC015V01			

Maximum Power density per Hz over ...	
C8b2 4 kHz	*C8h* Necessary bandwidth
-46.2	-46.2

Findings *13A* Conformity with RR N- -- -- *13B1* Prov. 30B#6.3b

C11a5a Test points are identical to group id. 46909

Compliance with "Hard" Limits

Input Database(s)	BR software	Output Database(s)
Exercise 1: Self-Exam under §§ 6.3a) and 6.19b) – "*other provisions*" of the Radio Regulations		
122559099_ITUSAT-30B.mdb 122559099_ITUSAT-30B_GIMS.mdb	Gibc **"PFD / EIRP GSO"**	PFDGSO_Report.rtf

Workshop…

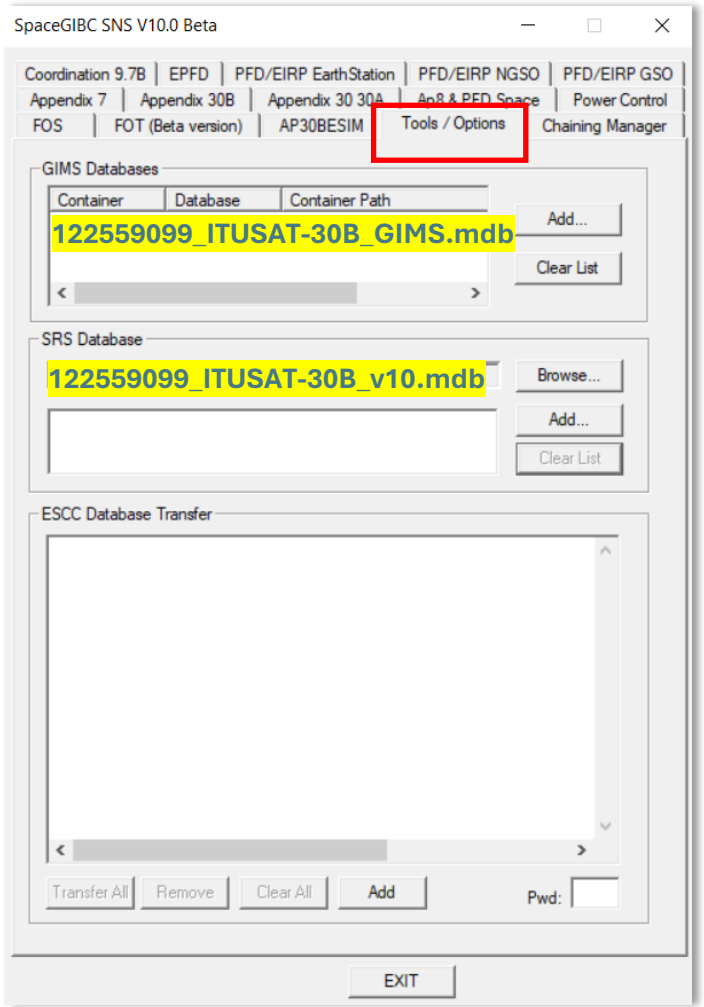
RR Article 21 - Hard limits to protect terrestrial services

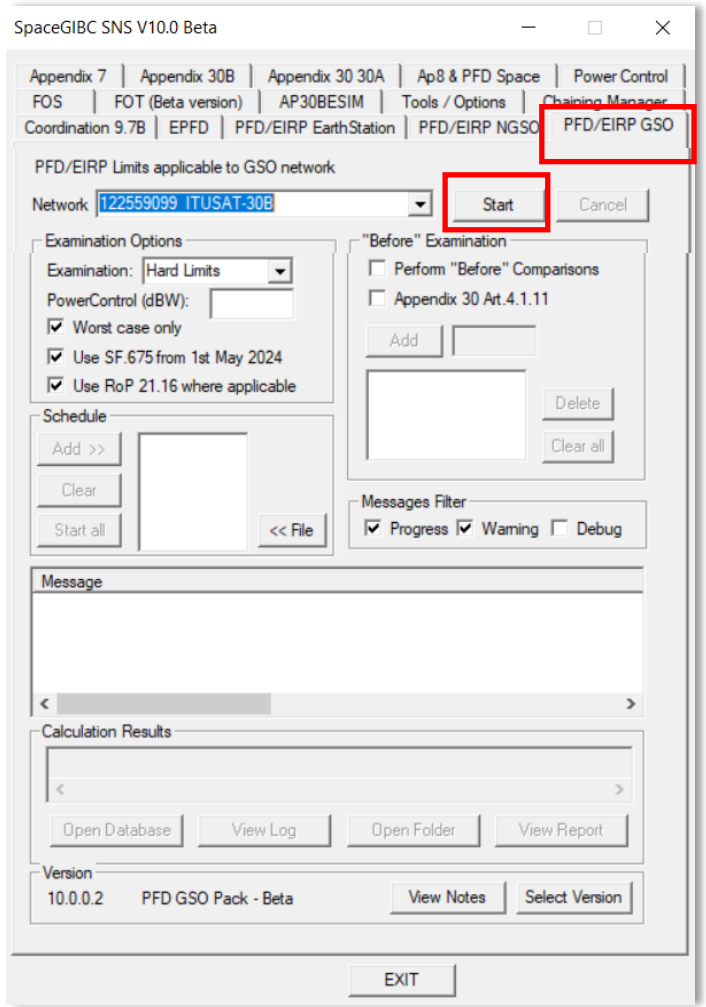
No 21.8 Power limits for Earth Stations
No 21.14 Minimum angle of elevation of Earth Station (3°)
No 21.16 Limits of power flux-density from space stations

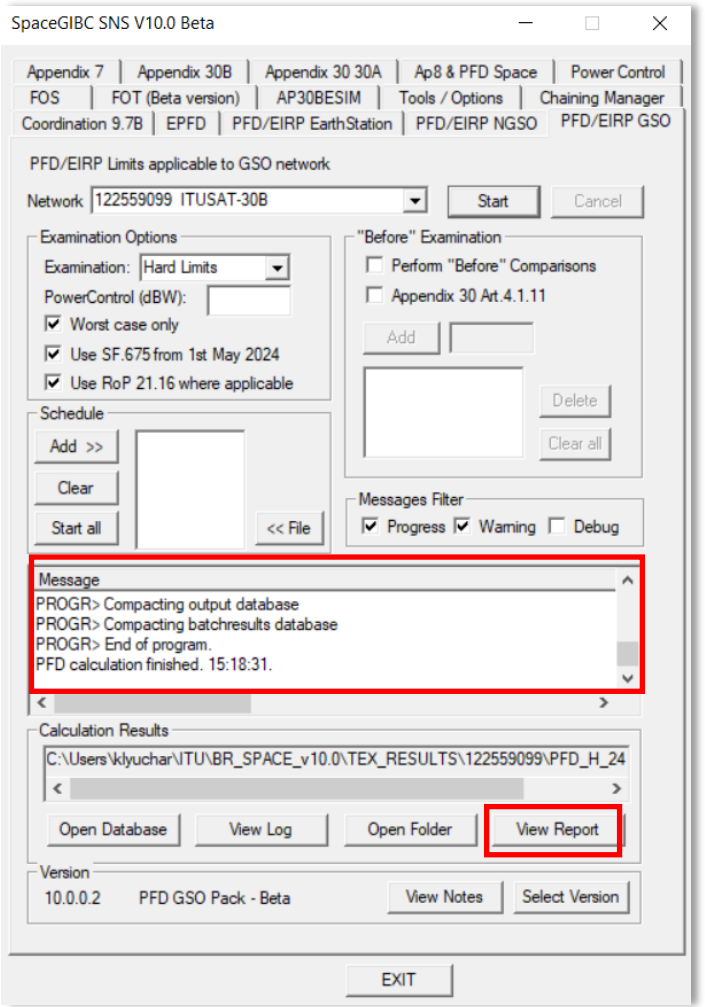
RR Article 22 - Hard limits to control interference to GSO systems

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

SpaceGibc Beta







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

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

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.
```

NO UNFAVORABLE FINDING FOUND IN ESIM EXAMINATION.

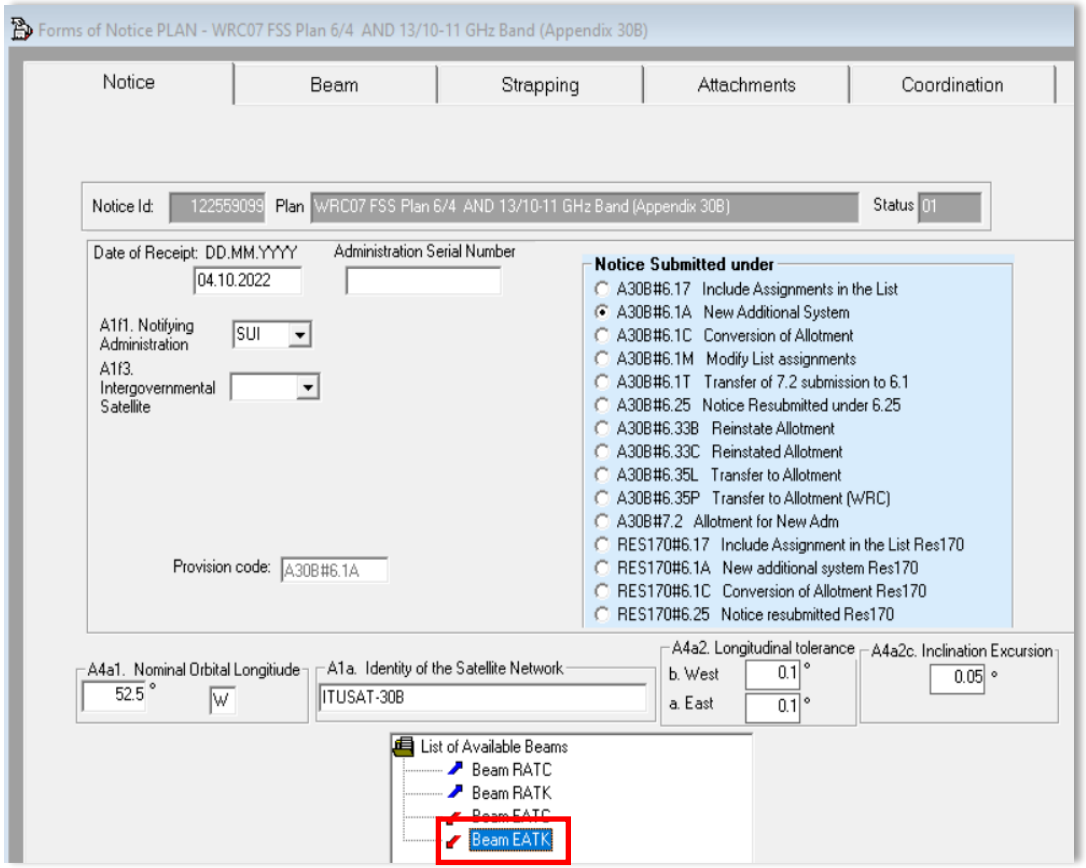
PLEASE CONTINUE CHECKING THE REPORT IN THE NEXT PAGE ...

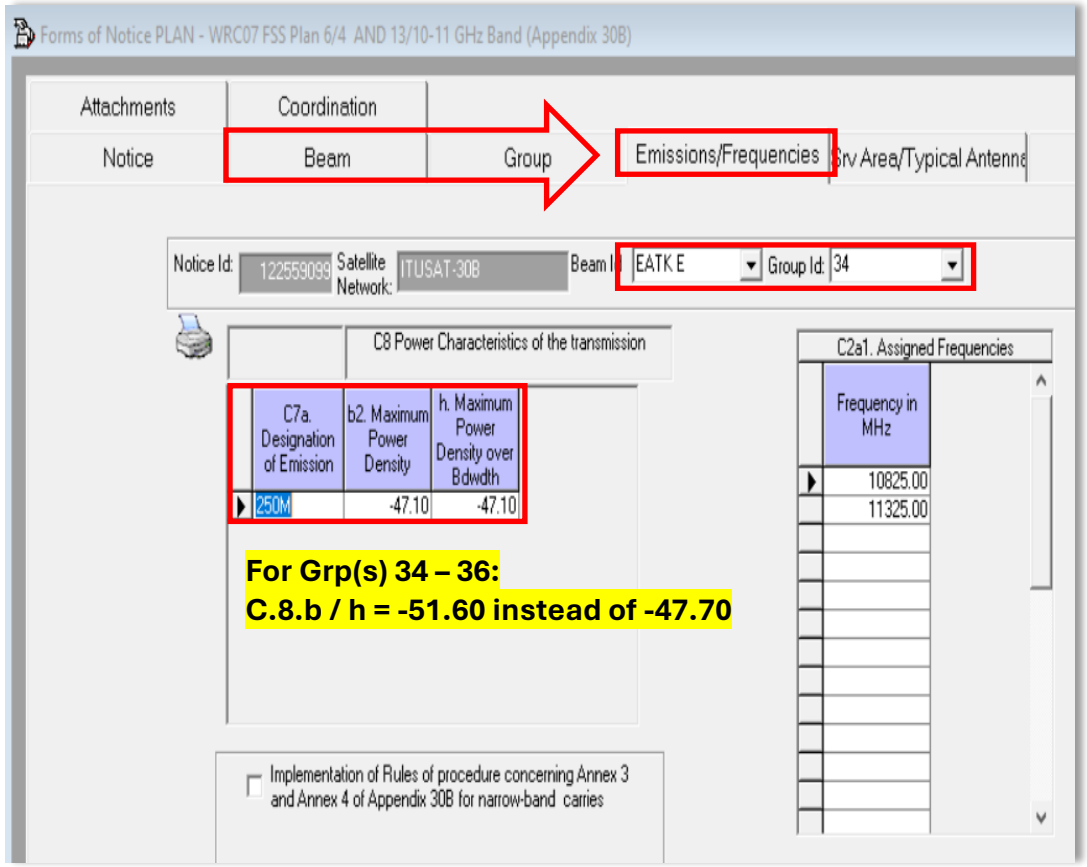
SPACE STATION PFD VALUES WILL BE CHECKED AGAINST HARD LIMITS ONLY

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

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
        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
```

Analyze of the Report...

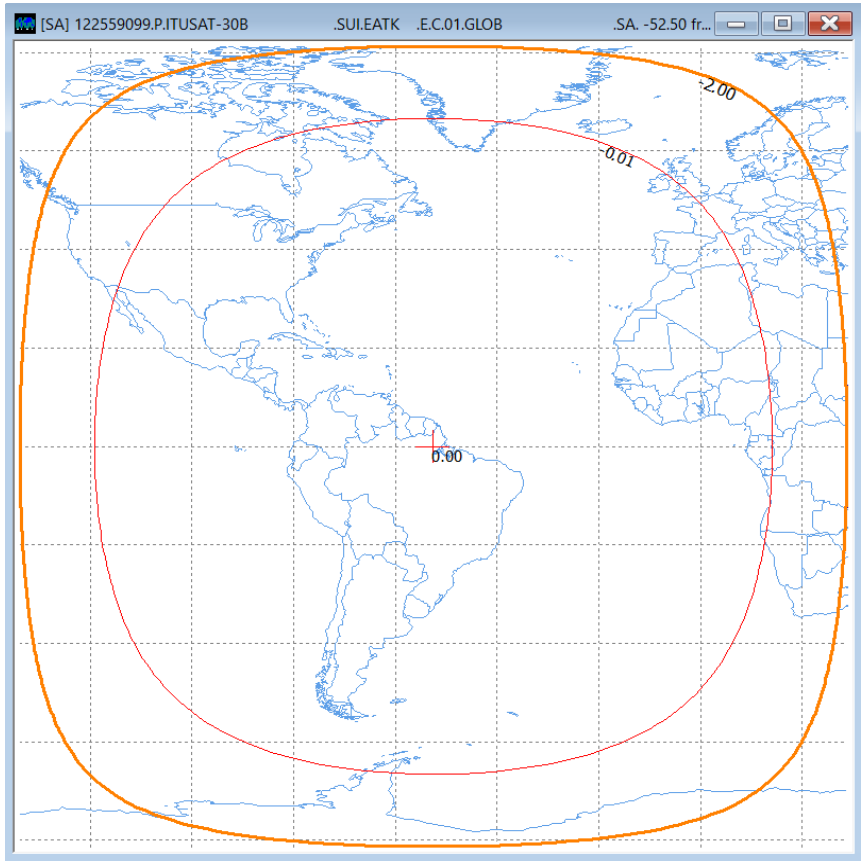
SpaceCap Beta





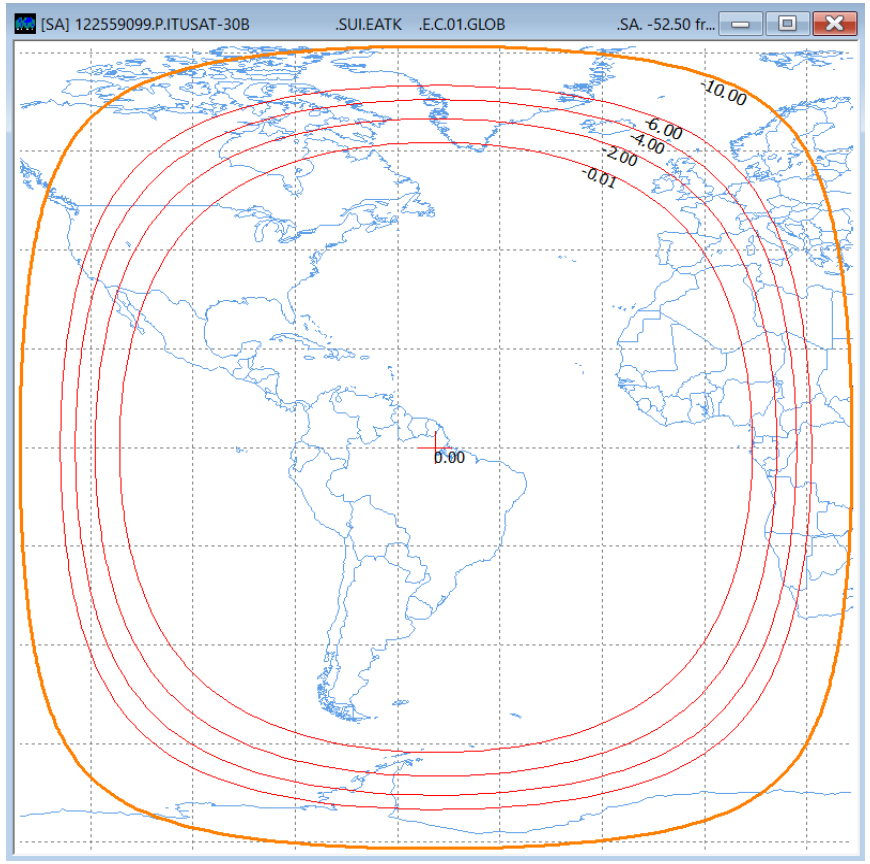
Option 1: Correction of AP4 data or …

GIMS Beta



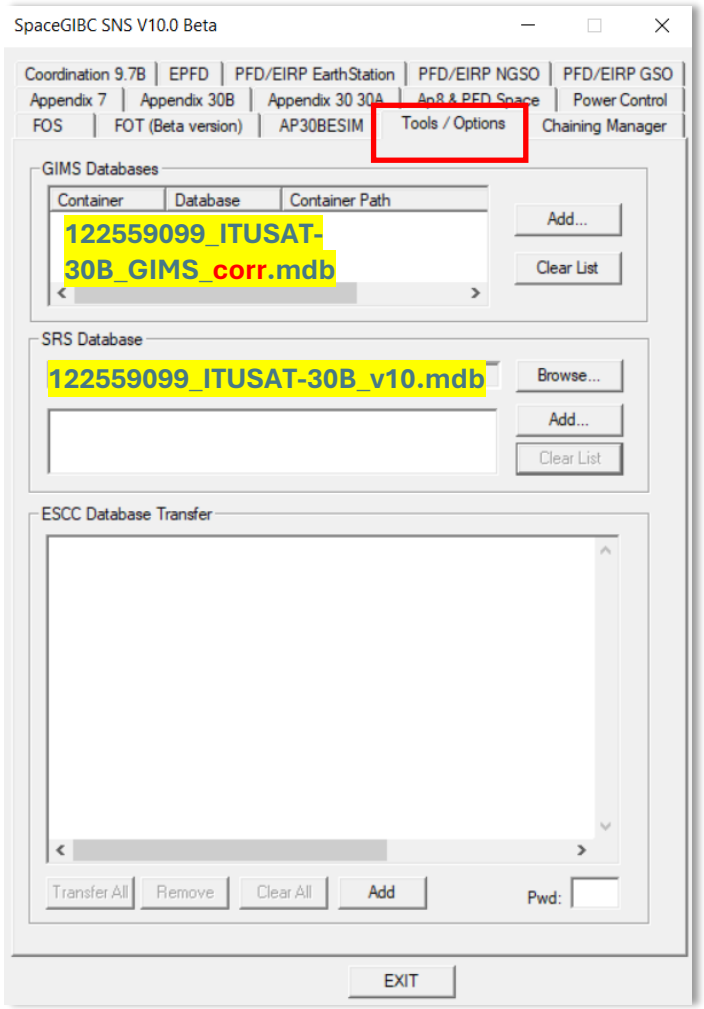
Add gain contours in EATK Beam

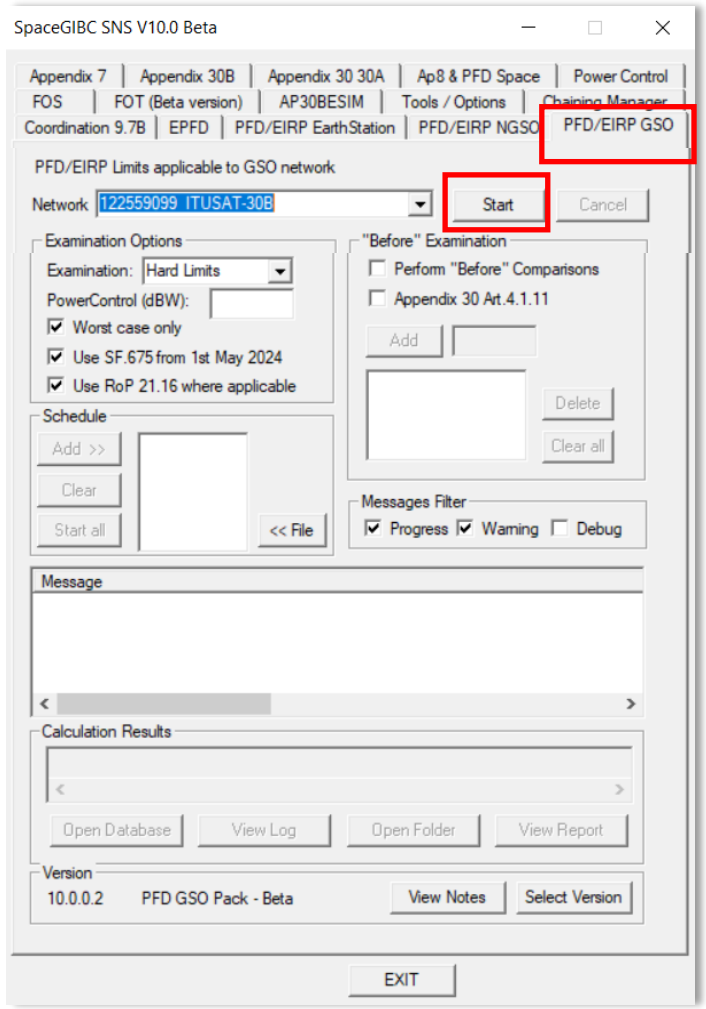
Elevation:
15° - for -2 dBi contour;
11° - for -4 dBi contour;
8° - for -6 dBi contour;
0° - for -10 dBi contour

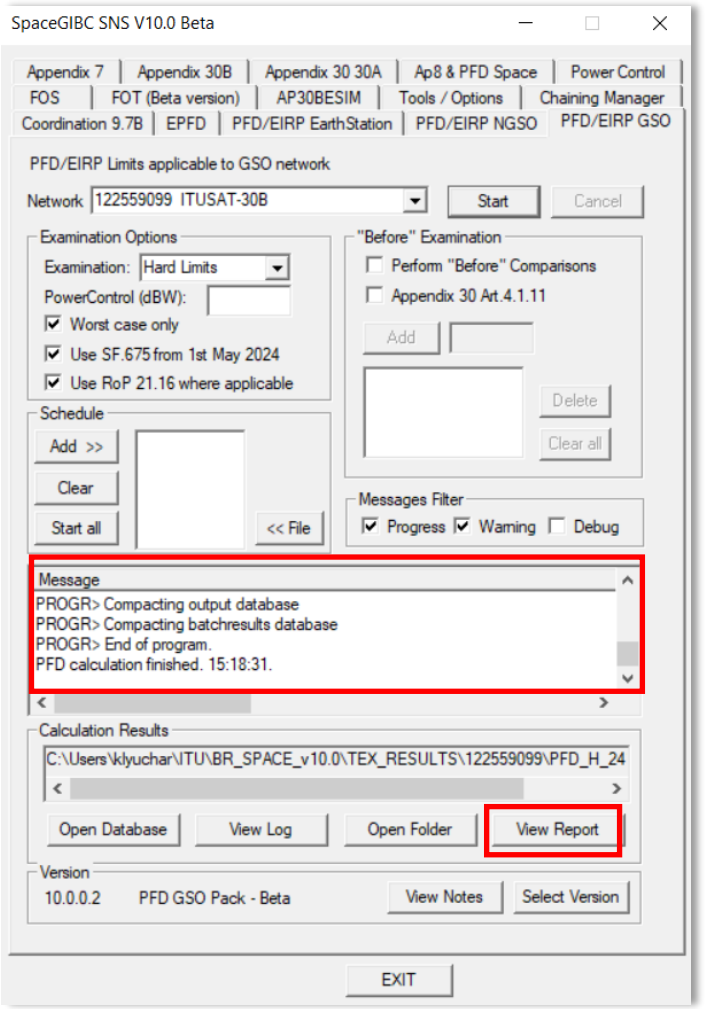


... Option 2: Correction of GIMS data

SpaceGibc Beta







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

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

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

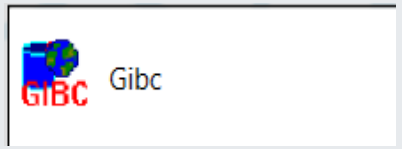
PFD EXAMINATION WITH ROP21.16 P 122559099 SUI ITUSAT-30B -52.50 DEG 0.10 0.10 04.10.2022

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

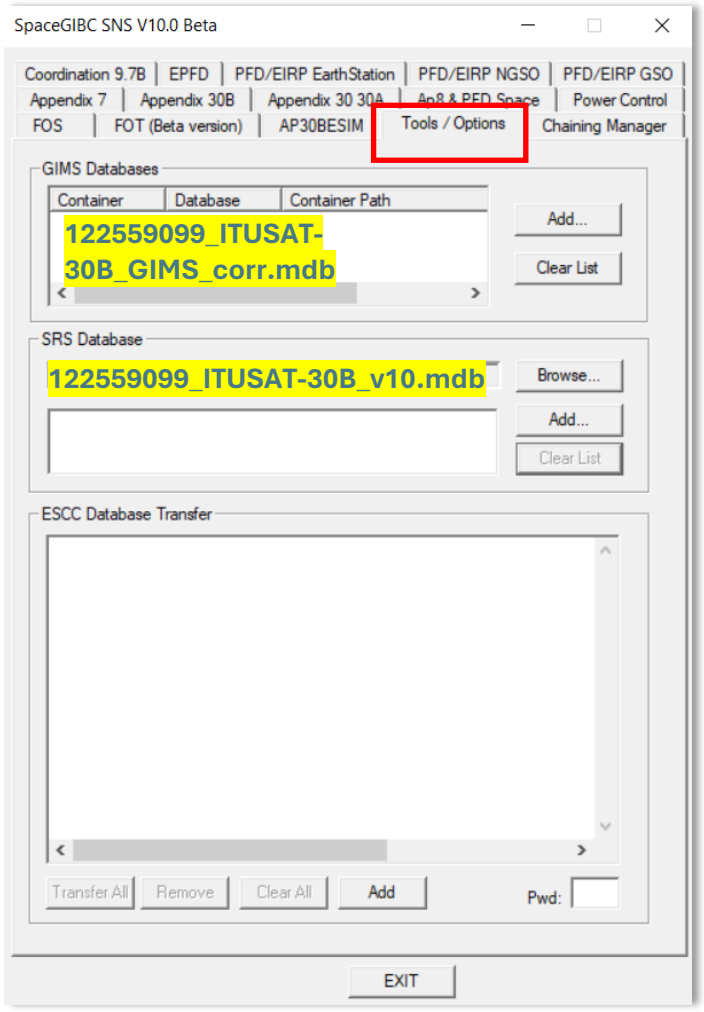
Input Database(s)	BR software	Output Database(s)
Exercise 2: Self-Exam under §§ 6.3b) and 6.19c) - Annex 3 to Appendix 30B (protection beyond coord. arc)		
122559099_ITUSAT-30B.mdb 122559099_ITUSAT-30B_GIMS_corr.mdb	 **“Appendix 30B”**	AP30B_RESULTS.mdb

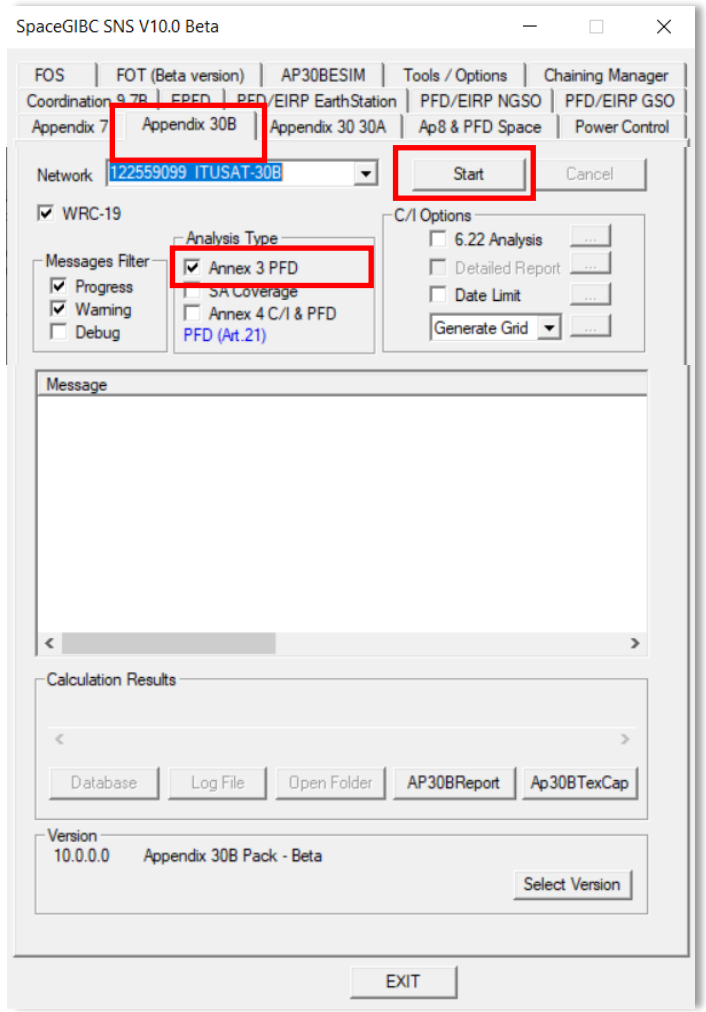
Workshop…

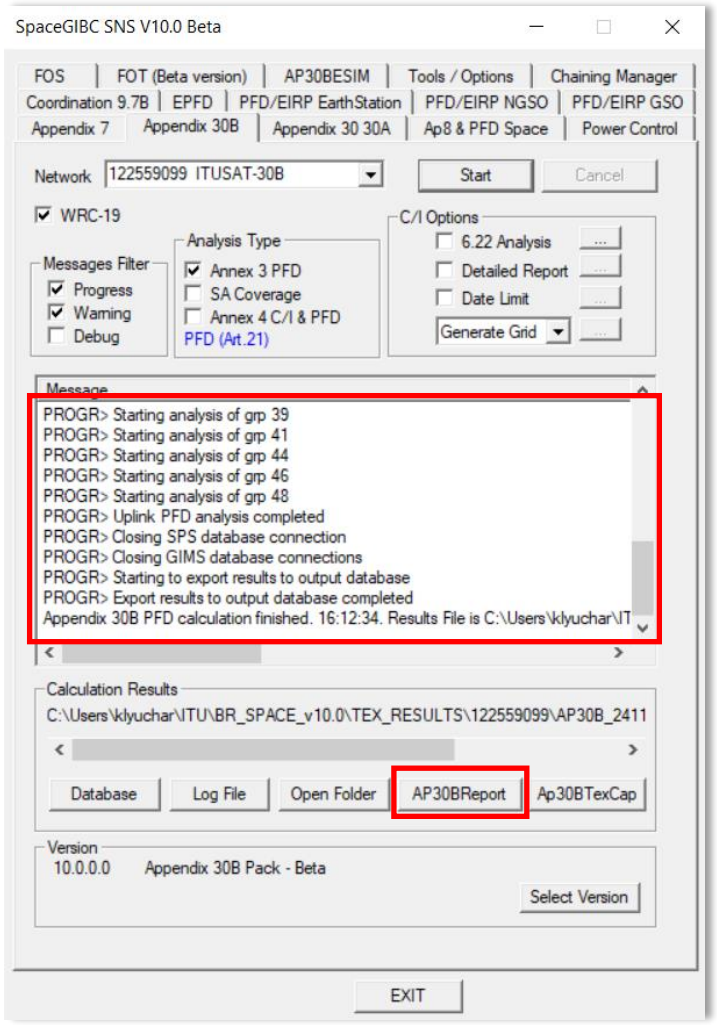
Annex 3 to Appendix 30B

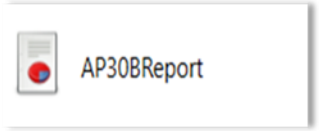
Frequency band	Coord arc	Pfd limits [dBW/(m²*MHz)]
6725 - 7025 MHz	7°	-140
12.75 - 13.25 GHz	6°	-133
4500 - 4800 MHz	7°	-131.4
10.70-10.95 / 11.20-11.45 GHz	6°	-118.4

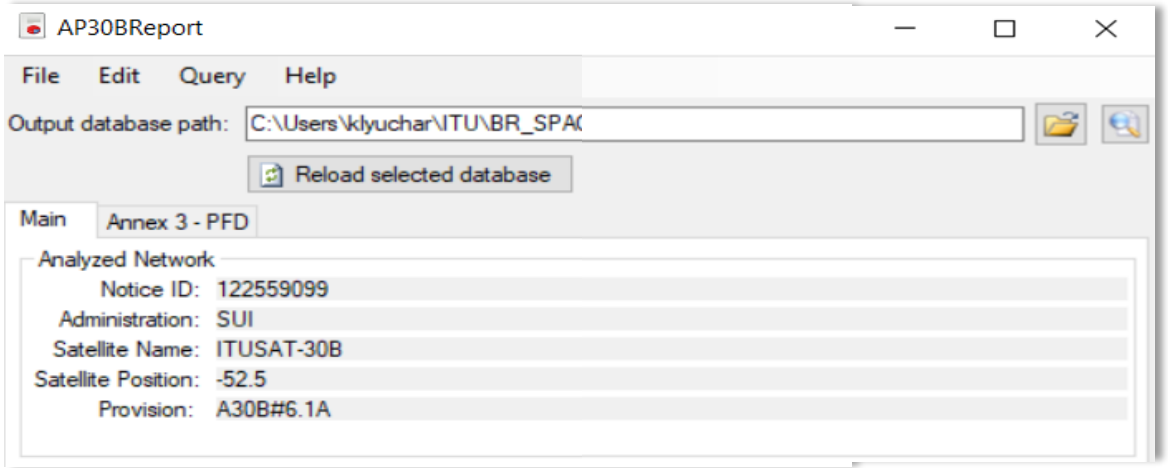
SpaceGibc Beta

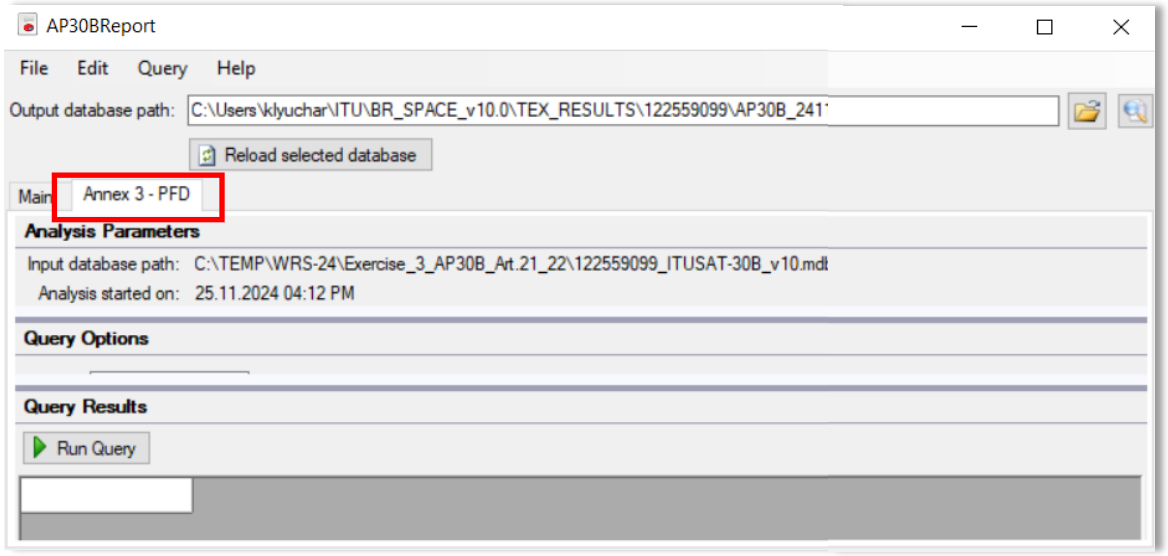








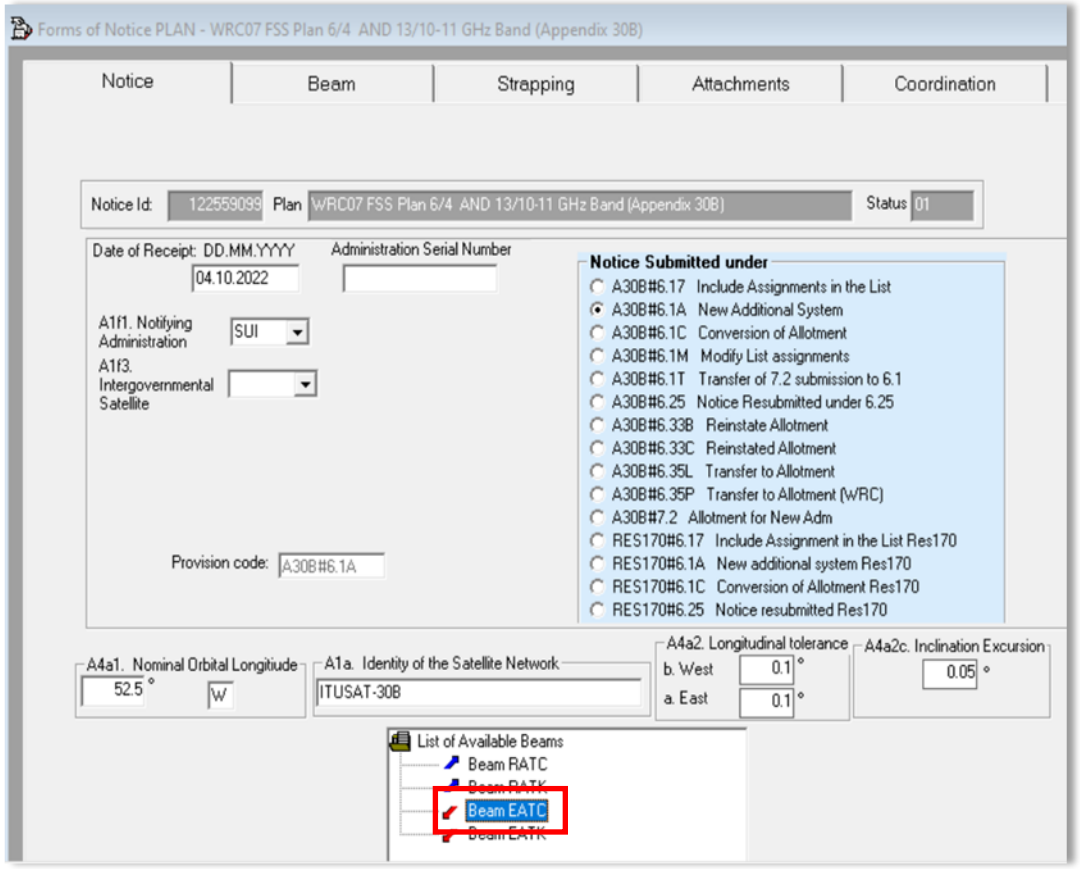


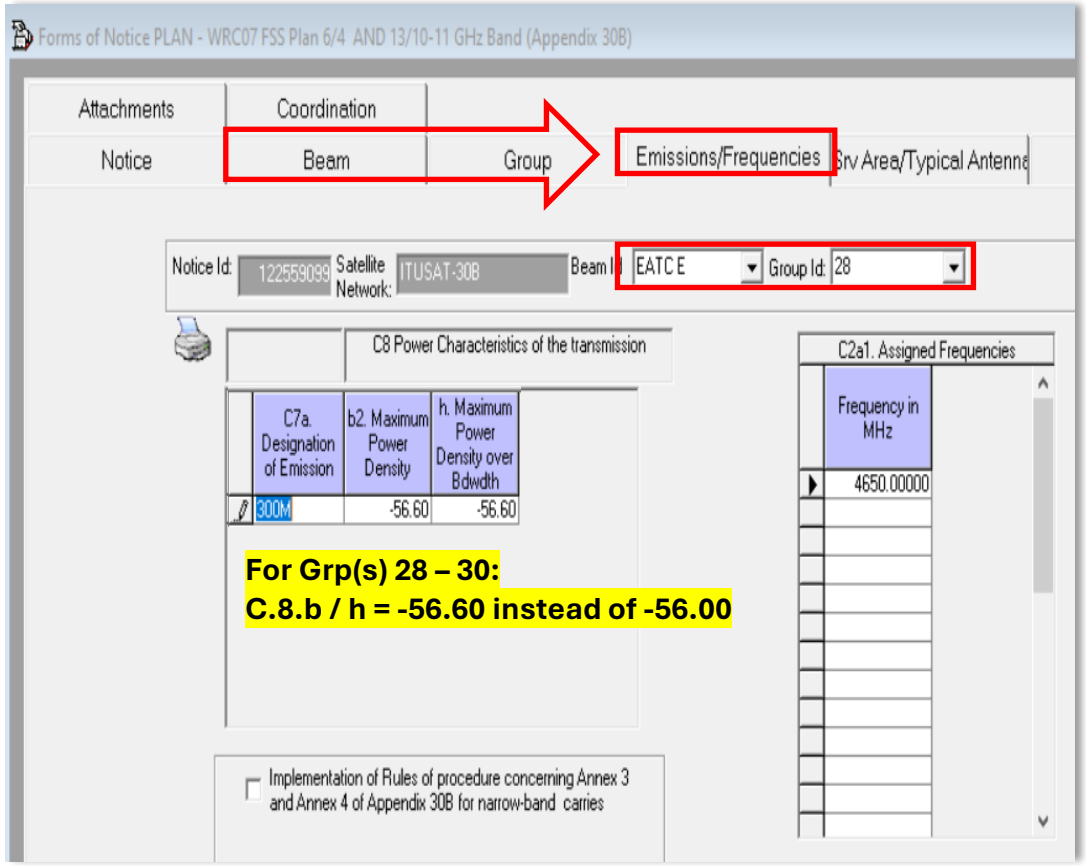


Beam Name	E/R	Frequency Band	Group ID	Finding	PFD Excess	PFD Limit	Worst GSO Pos.
EATC	E	4	28	N-	0.333	-131.4	
EATC	E	4	29	N-	0.333	-131.4	
EATC	E	4	30	N-	0.333	-131.4	
EATK	E	10-11	34	A-	-0.167	-118.4	
EATK	E	10-11	35	A-	-0.167	-118.4	
EATK	E	10-11	36	A-	-0.167	-118.4	
RATC	R	6	38	A-	-1.397	-140	-59.51
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

Analyze of the Report...

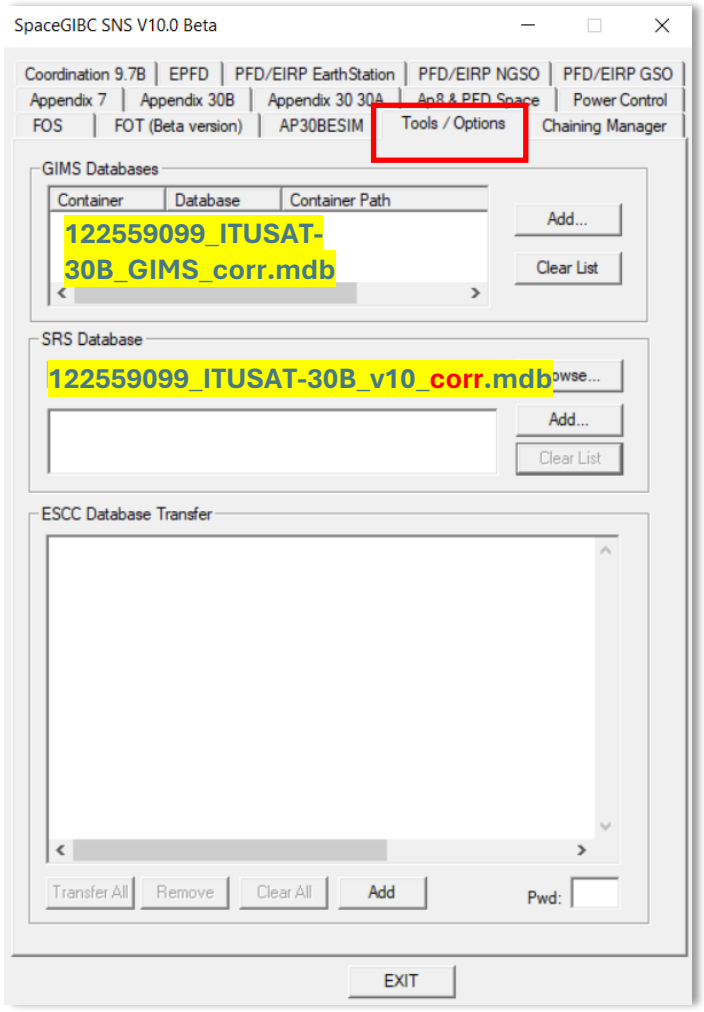
SpaceCap Beta

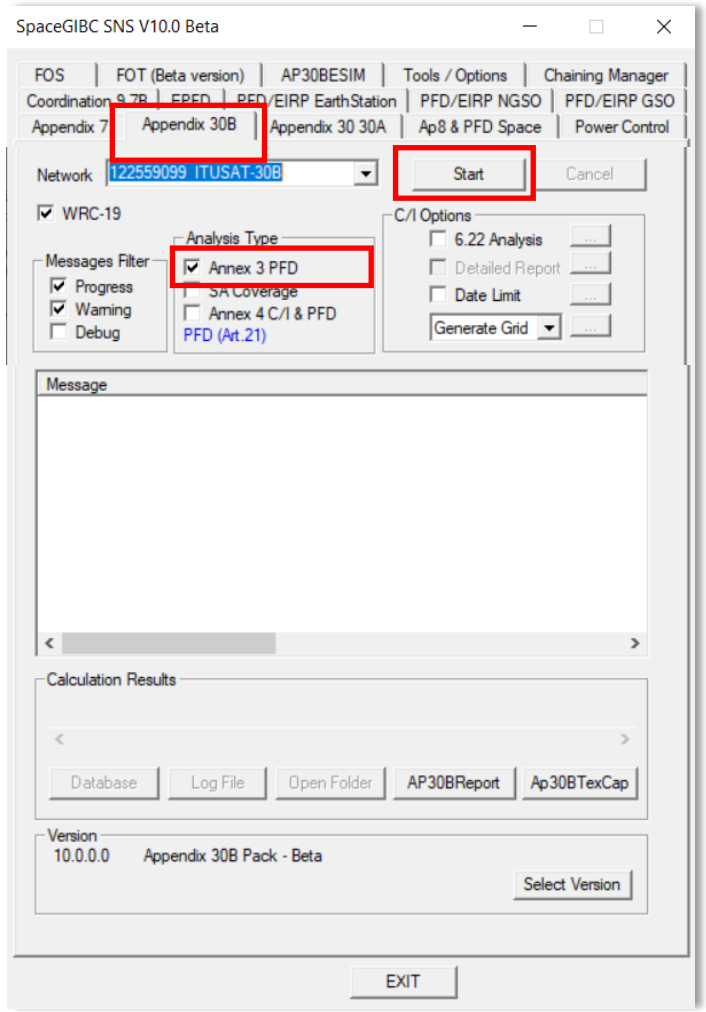


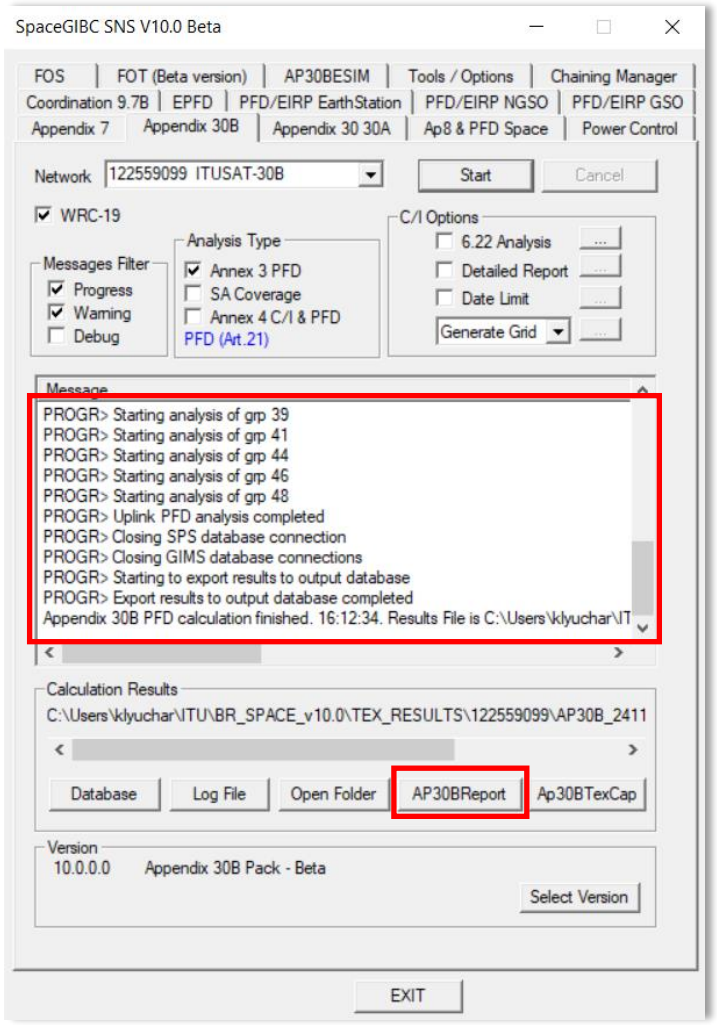


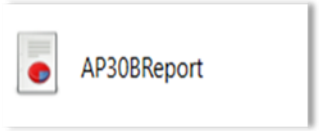
Correction of AP4 data ...

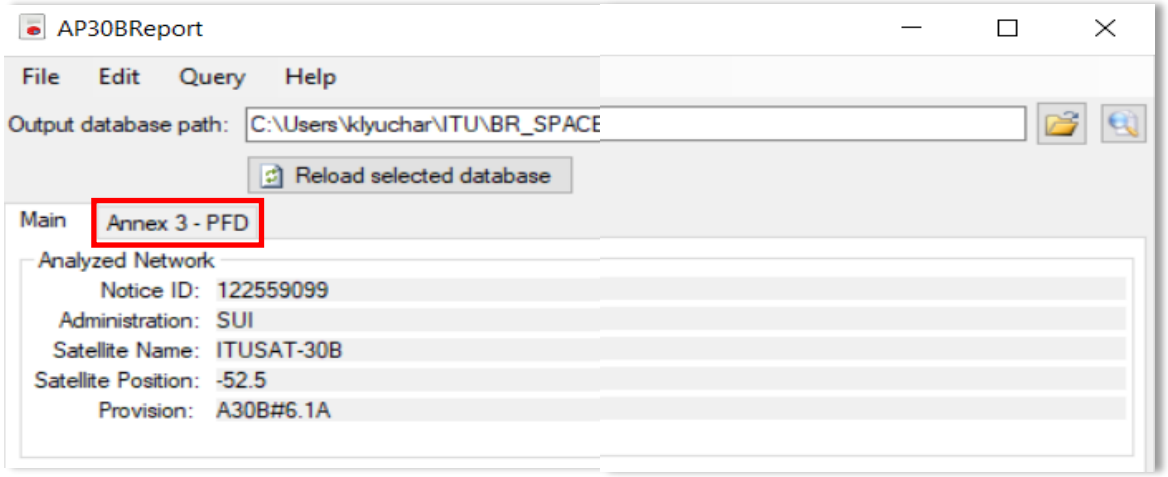
SpaceGibc Beta

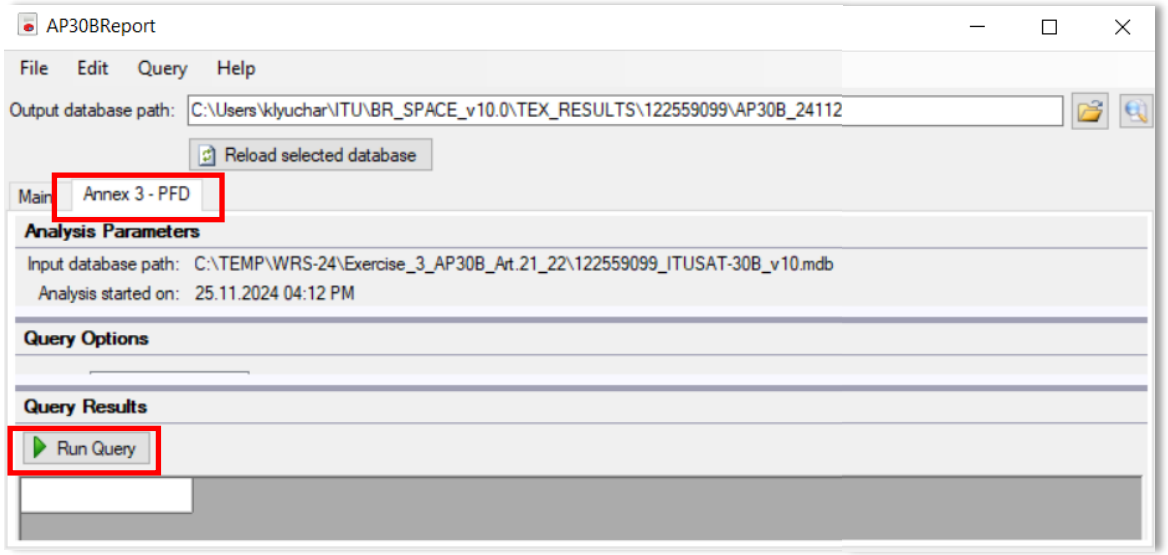












Beam Name	E/R	Frequency Band	Group ID	Finding	PFD Excess	PFD Limit	Worst GSO Pos.
EATC	E	4	28	A-	-0.267	-131.4	
EATC	E	4	29	A-	-0.267	-131.4	
EATC	E	4	30	A-	-0.267	-131.4	
EATK	E	10-11	34	A-	-4.667	-118.4	
EATK	E	10-11	35	A-	-0.167	-118.4	
EATK	E	10-11	36	A-	-0.167	-118.4	
RATC	R	6	38	A-	-1.397	-140	-59.51
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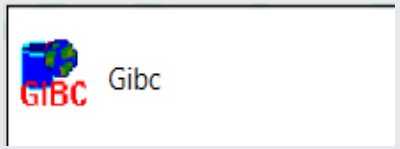
RATC	R	6	39	A-	-1.05	-140	-59.51
RATC	R	6	39	A-	-0.966	-140	-45.49
RATC	R	6	41	A-	-1.1	-140	-59.51
RATC	R	6	41	A-	-1.016	-140	-45.49
RATK	R	12-13	44	A-	-1.034	-133	-58.51
RATK	R	12-13	44	A-	-0.953	-133	-46.49
RATK	R	12-13	46	A-	-1.034	-133	-58.51
RATK	R	12-13	46	A-	-0.953	-133	-46.49
RATK	R	12-13	48	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 software	Output Database(s)
Exercise 3: Self-Exam under §§ 6.6 and 6.19a) - agreement of ADMs to be included in the service area		
122559099_ITUSAT-30B_A6B.mdb 122559099_ITUSAT-30B_A6B_GIMS.mdb	 **"Appendix 30B"**	AP30B_RESULTS.mdb

Workshop...

6.6 The Bureau shall then identify those administrations whose territories have been included in the service area of the assignment under examination. The notifying administration shall seek the agreement of any administration whose territory is partially or wholly included in the intended service area of the assignment.

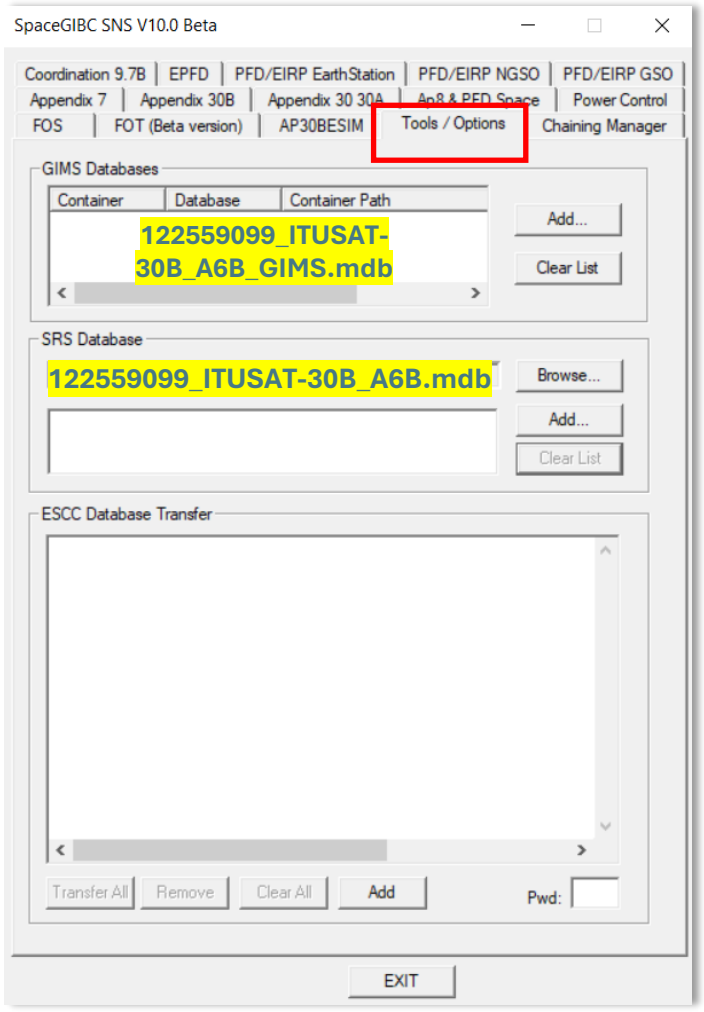
6.19 ... the Bureau shall examine each assignment in the notice:

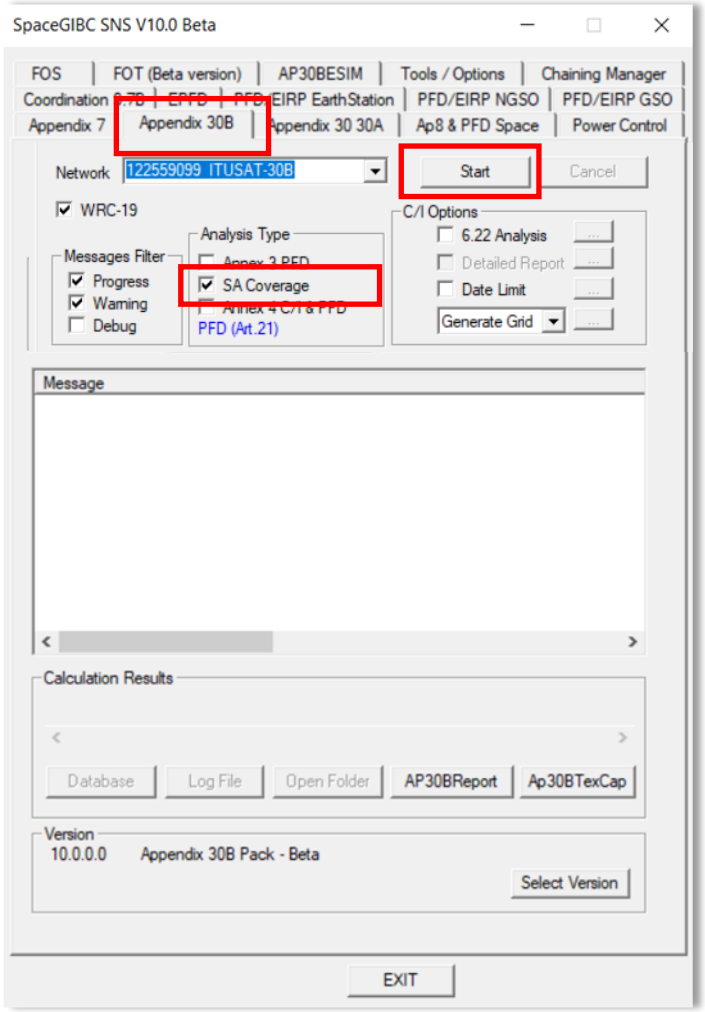
a) with respect to the requirement for the notifying administration to seek the agreement of those administrations whose territories are included in the service area;

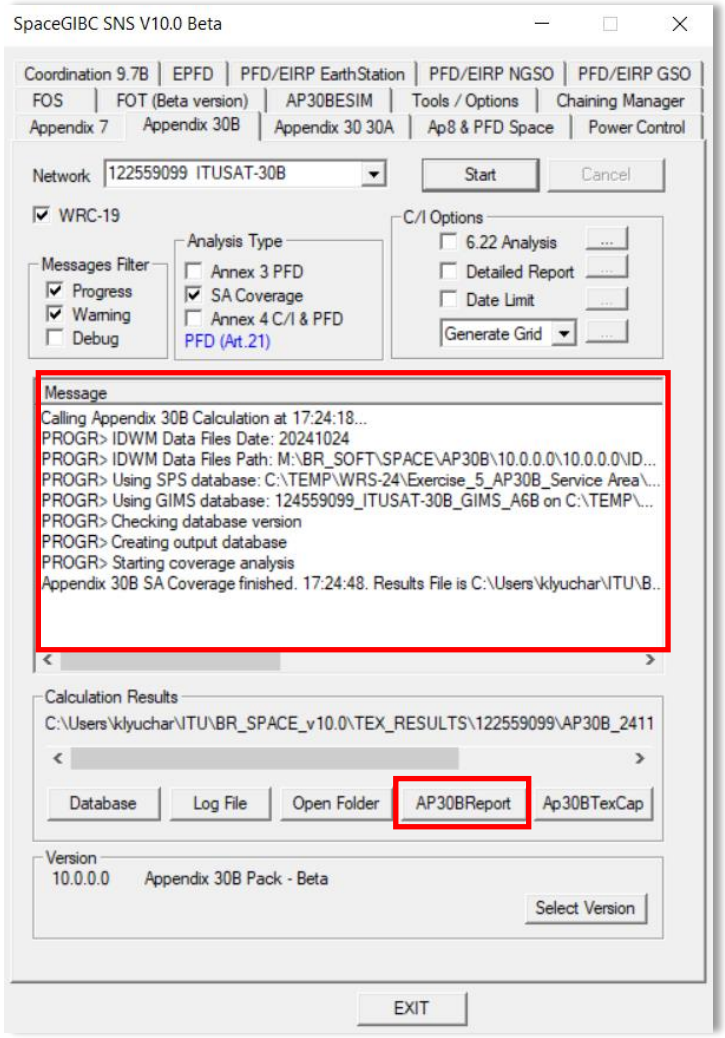
Agreements received from: ARG, BOL, CHL, CLM, PRG and PRU

Exercise 3: Self-Exam under §§ 6.6 and 6.19a)

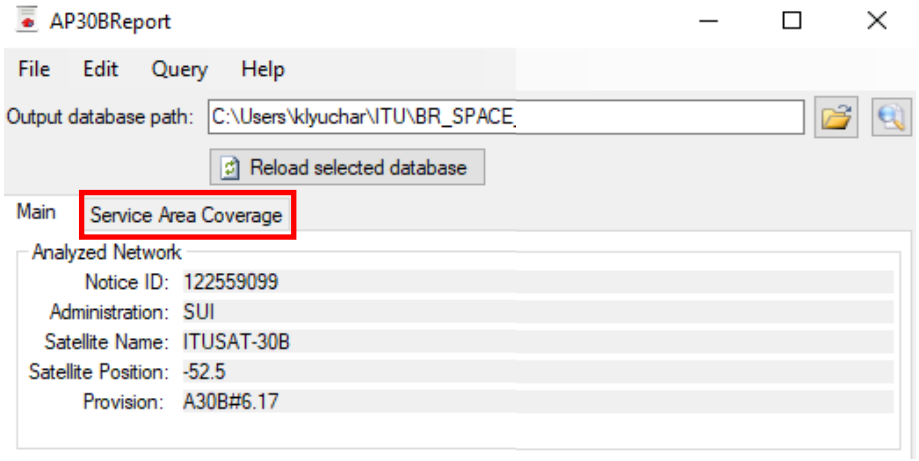
SpaceGibc Beta



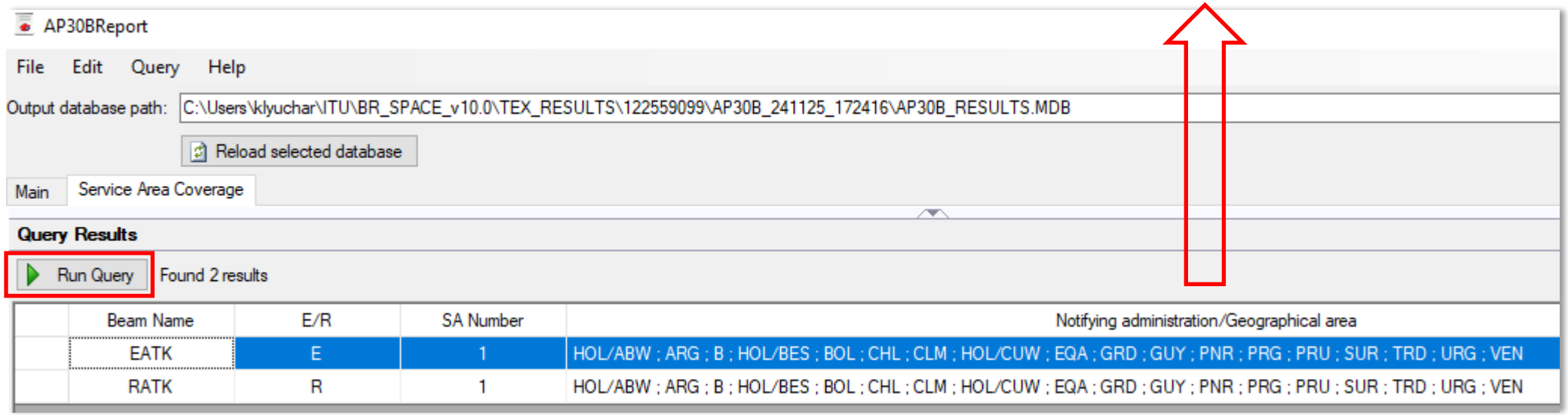




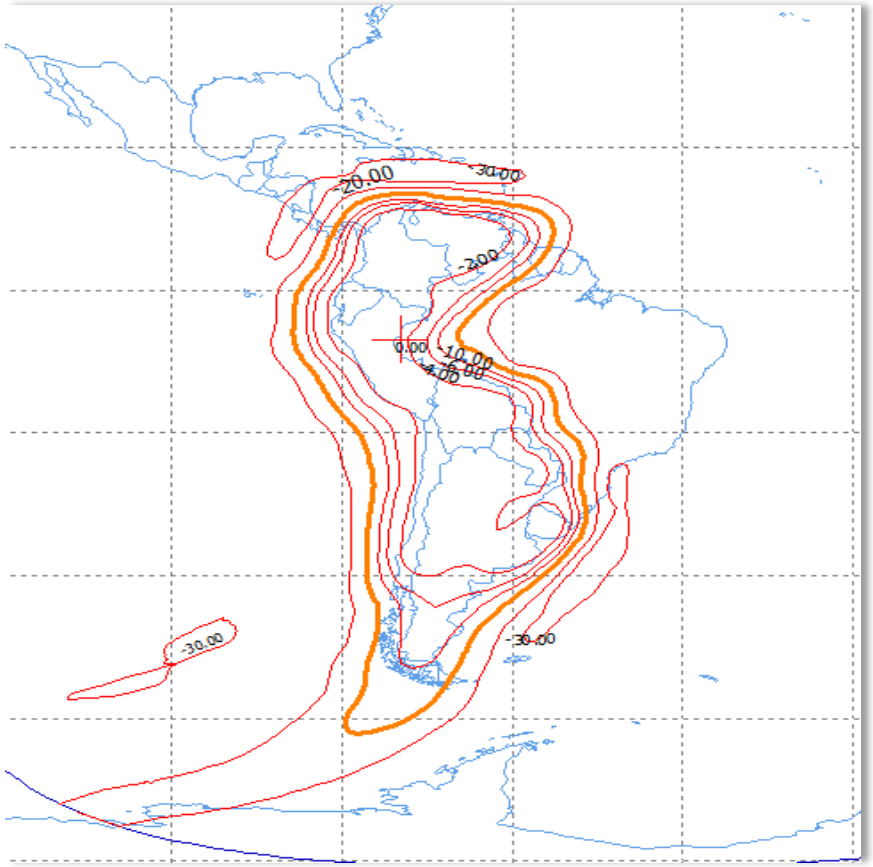
AP30BReport



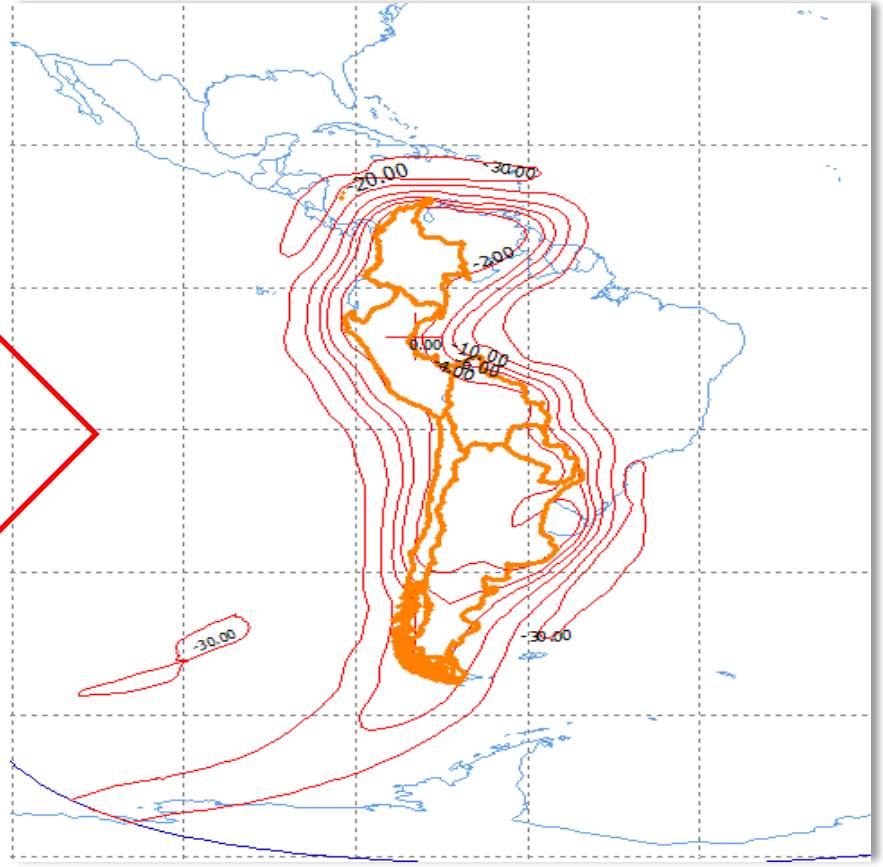
... but agreements there are only from:
ARG, BOL, CHL, CLM, PRG and PRU



GIMS

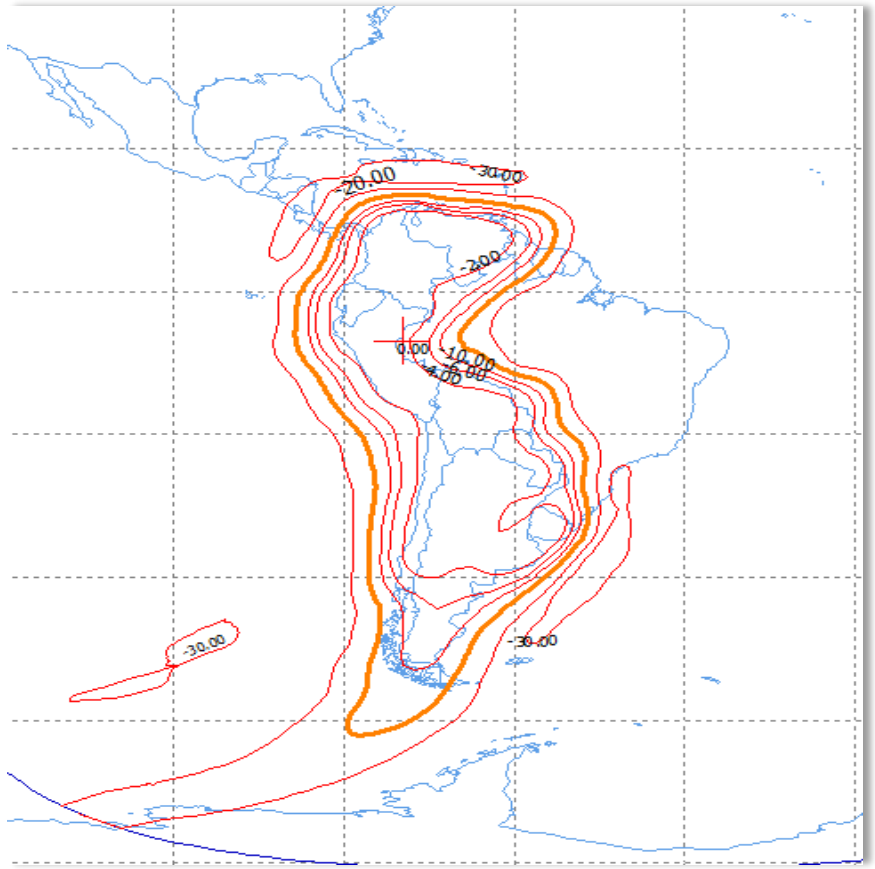


Service area is a set of countries, submitted agreements

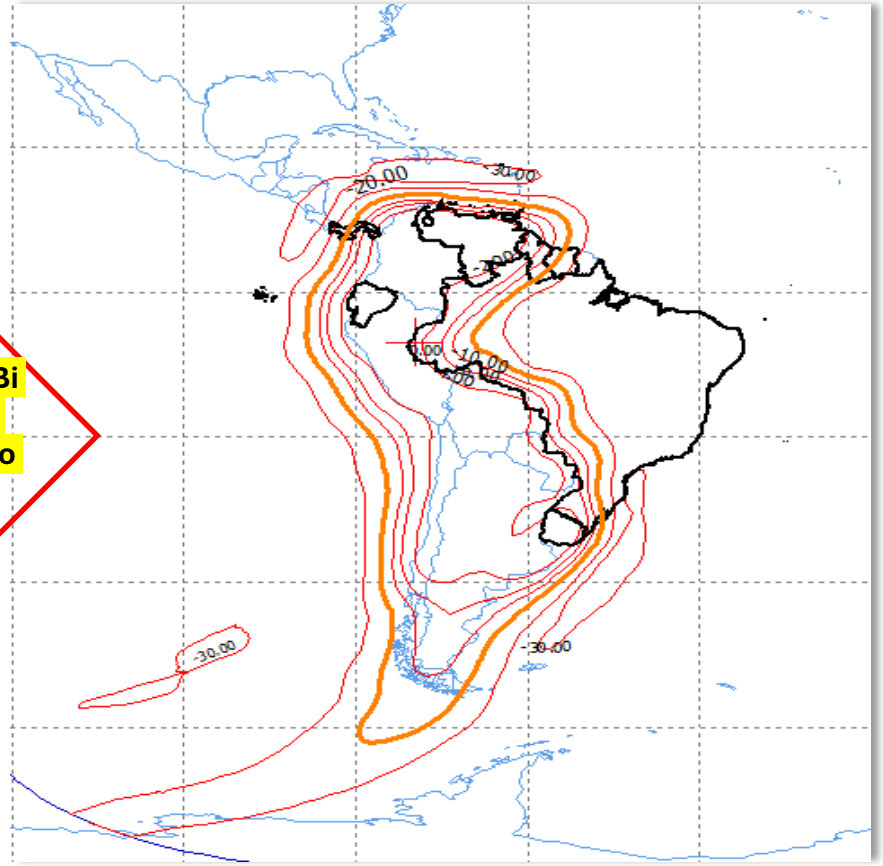


Correction GIMS data (Option 1)

GIMS

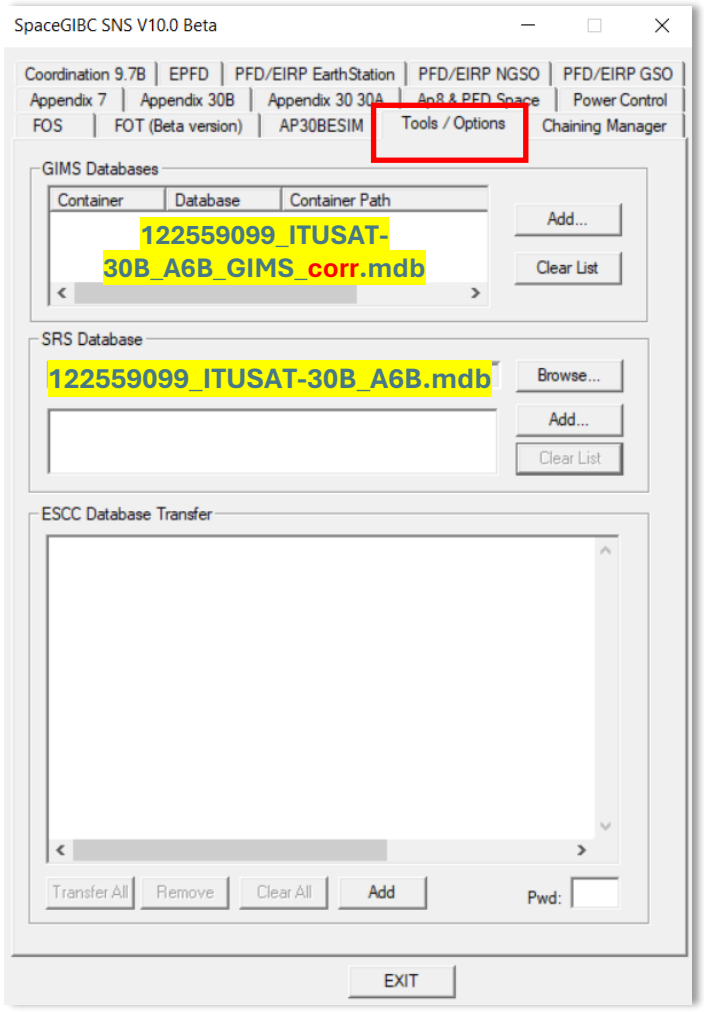


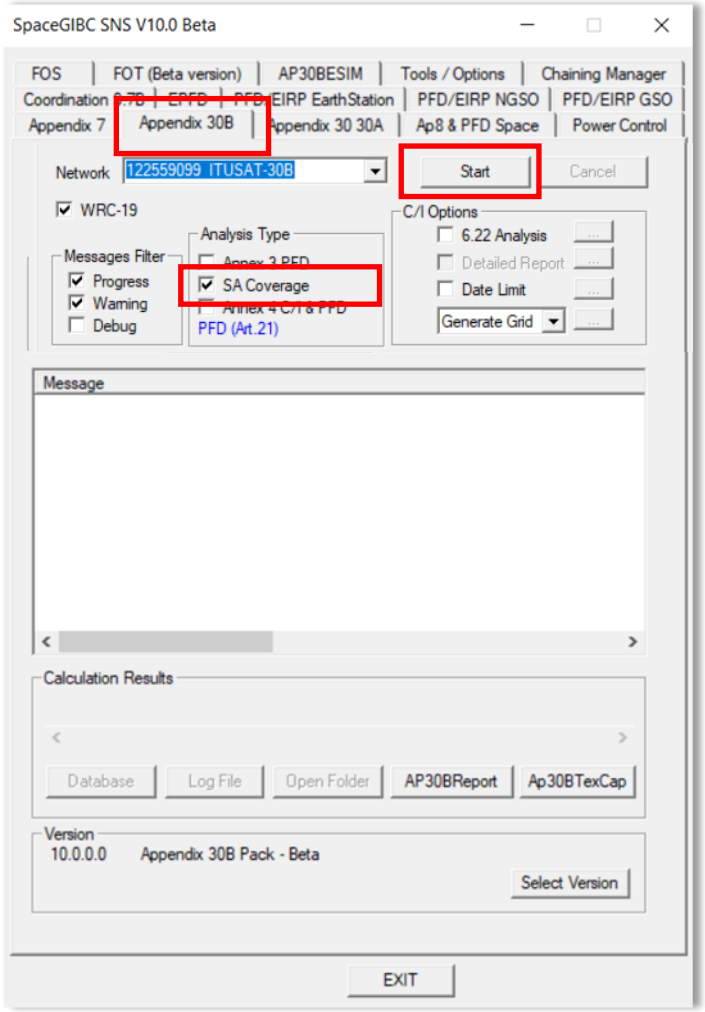
Service area is based on -10 dBi antenna gain contour but with excluding a set of countries, do NOT submitted agreements

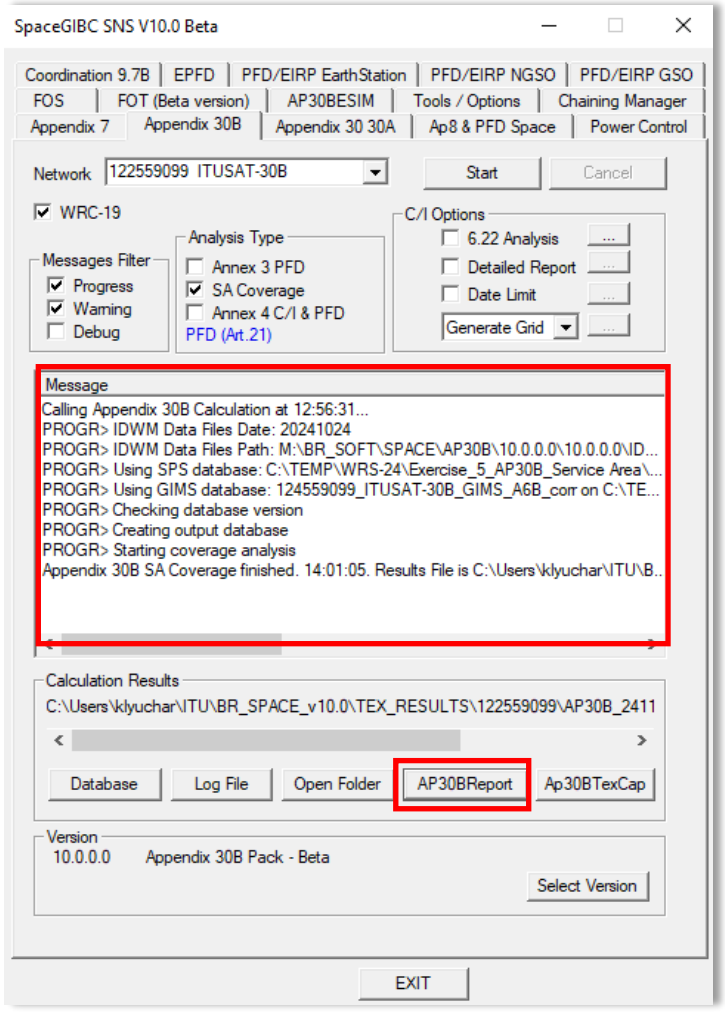


Correction GIMS data (Option 2)

SpaceGibc Beta







AP30BReport

AP30BReport

File Edit Query Help

Output database path: C:\Users\klyuchar\ITU\BR_SPACE

Reload selected database

Main | Service Area Coverage

Analyzed Network

Notice ID: 122559099
Administration: SUI
Satellite Name: ITUSAT-30B
Satellite Position: -52.5
Provision: A30B#6.17

Please do not forget to include these agreements in AP4 data =>

Notice Id: 122559099 Adm: SUI Satellite Network: ITUSAT-30B

A6. Agreements Reached

Provision	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org	Adm/Org
30B#6.6	ARG	BOL	CHL	CLM	PRG	PRU

AP30BReport

File Edit Query Help

Output database path: C:\Users\klyuchar\ITU\BR_SPACE_v10.0\TEX_RESULTS\122559099\AP30B_241126_125547\AP30B_RESULTS.MDB

Reload selected database

Main | Service Area Coverage

Query Results

Run Query Found 2 results

Beam Name	E/R	SA Number	Notifying administration/Geographical area
EATK	E	1	ARG ; BOL ; CHL ; CLM ; PRG ; PRU
RATK	R	1	ARG ; BOL ; CHL ; CLM ; PRG ; PRU

FSS PLAN (Appendix 30B)
(Technical pre-examination
(Annex 3 + Article 21/22 hard limits))

WORKSHOP

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