Space Plans Workshop (AP30/30A)

Exercise on validation of a submission with a correction of common incorrectly submitted parameters in SpaceCap

Presented by:

ITU-R/Space Services Department
Space Notification and Plans Division

Committed to connecting the world

Outline

Observation on some submitted Appendix 4 data for Appendices 30/30A Article 4 submissions

Exercise on Correction to AP30/30A Article 4 submissions

Exercise 1: Correction to a R1&3 BSS submission
(file: R13_BSS.mdb)

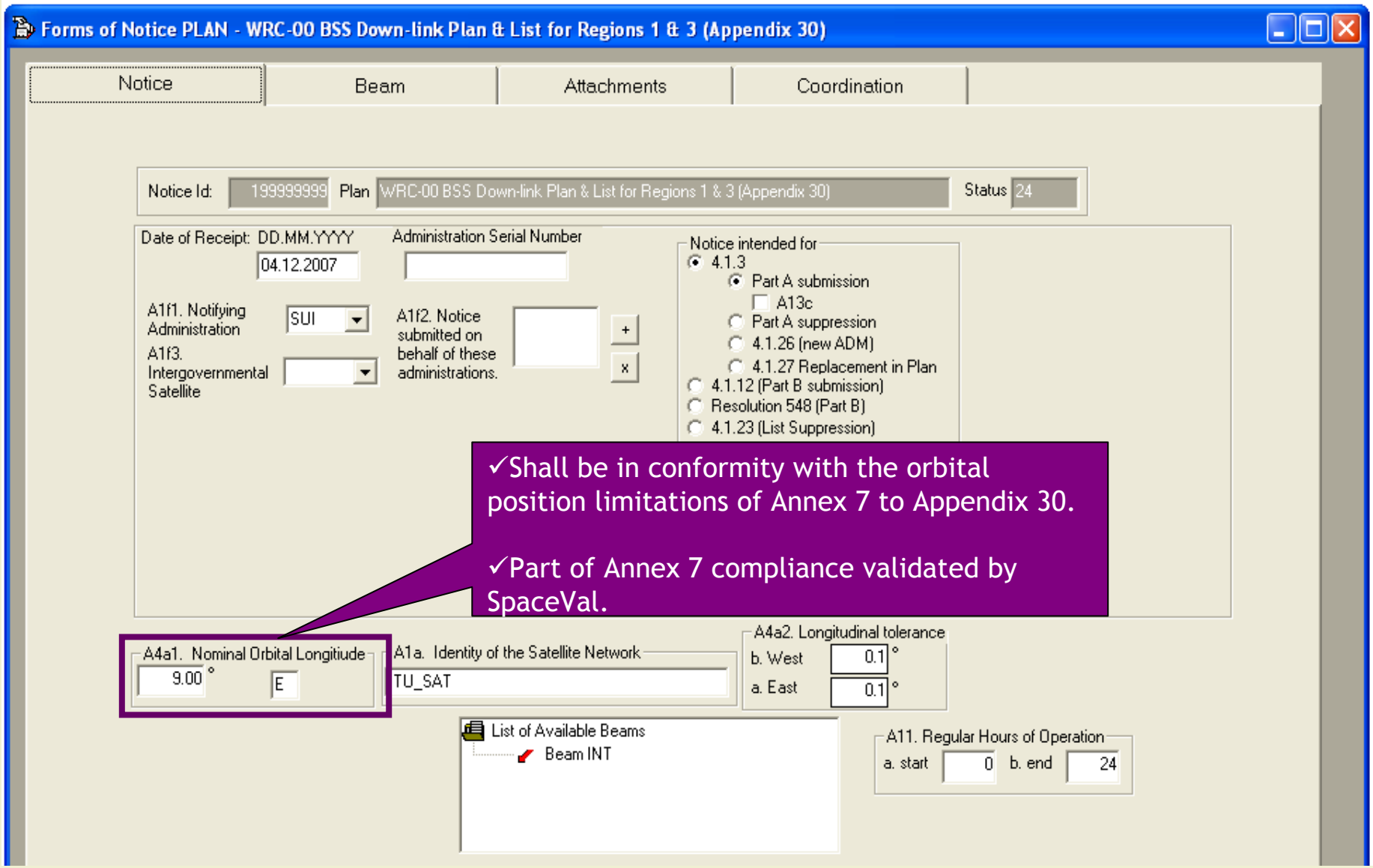
Exercise 2: Correction to a R1&3 BSS Feeder-link submission
(file: R13_BSS_FL.mdb)

Exercise 3: Correction to a Region 2 submission
(file: R2.mdb)

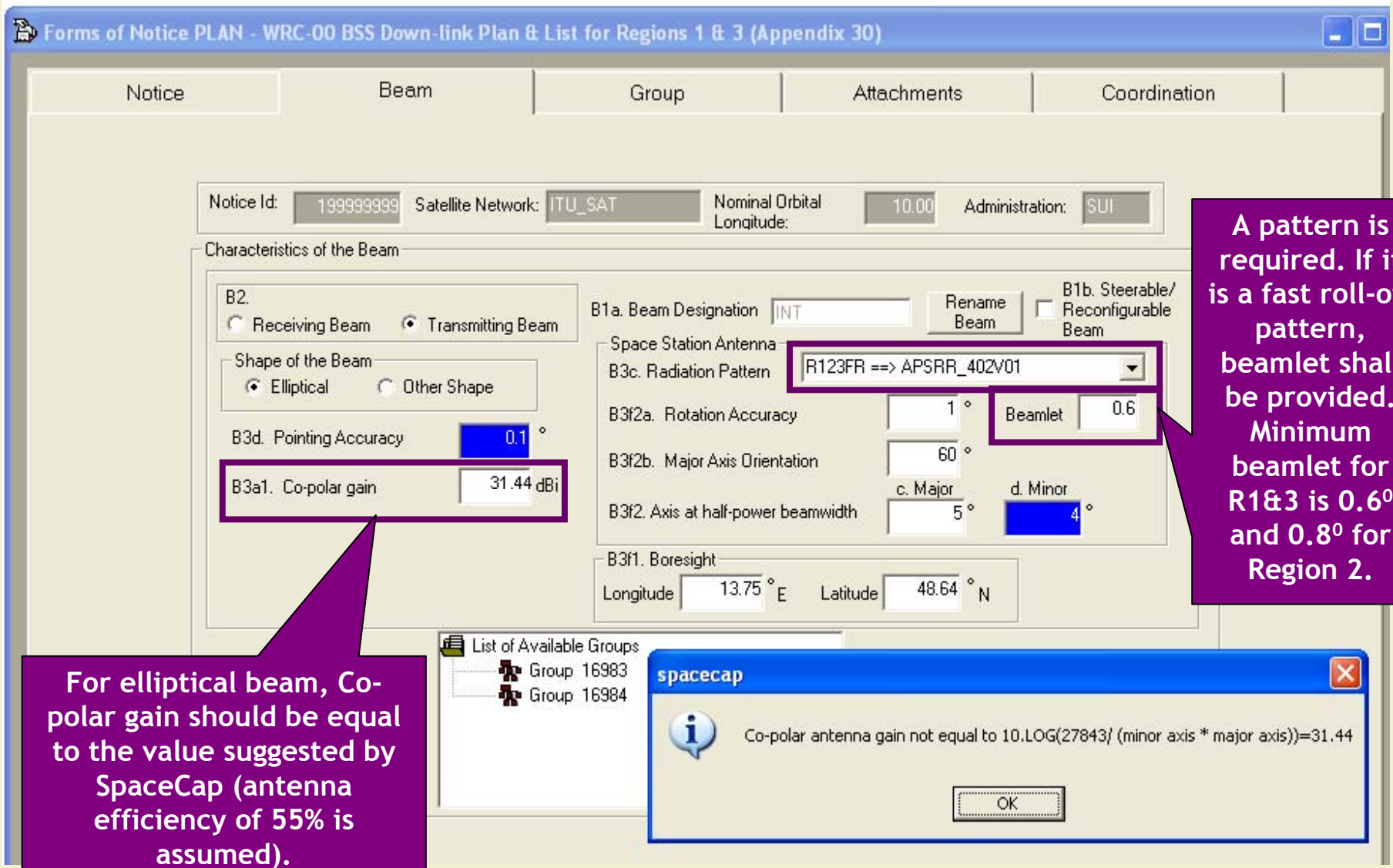
Annex1- Gains at two most Western and Eastern points visible from the GSO satellite

Annex 2 - SpaceVal

Observation on some submitted AP4 data for AP30/30A Article 4 submissions



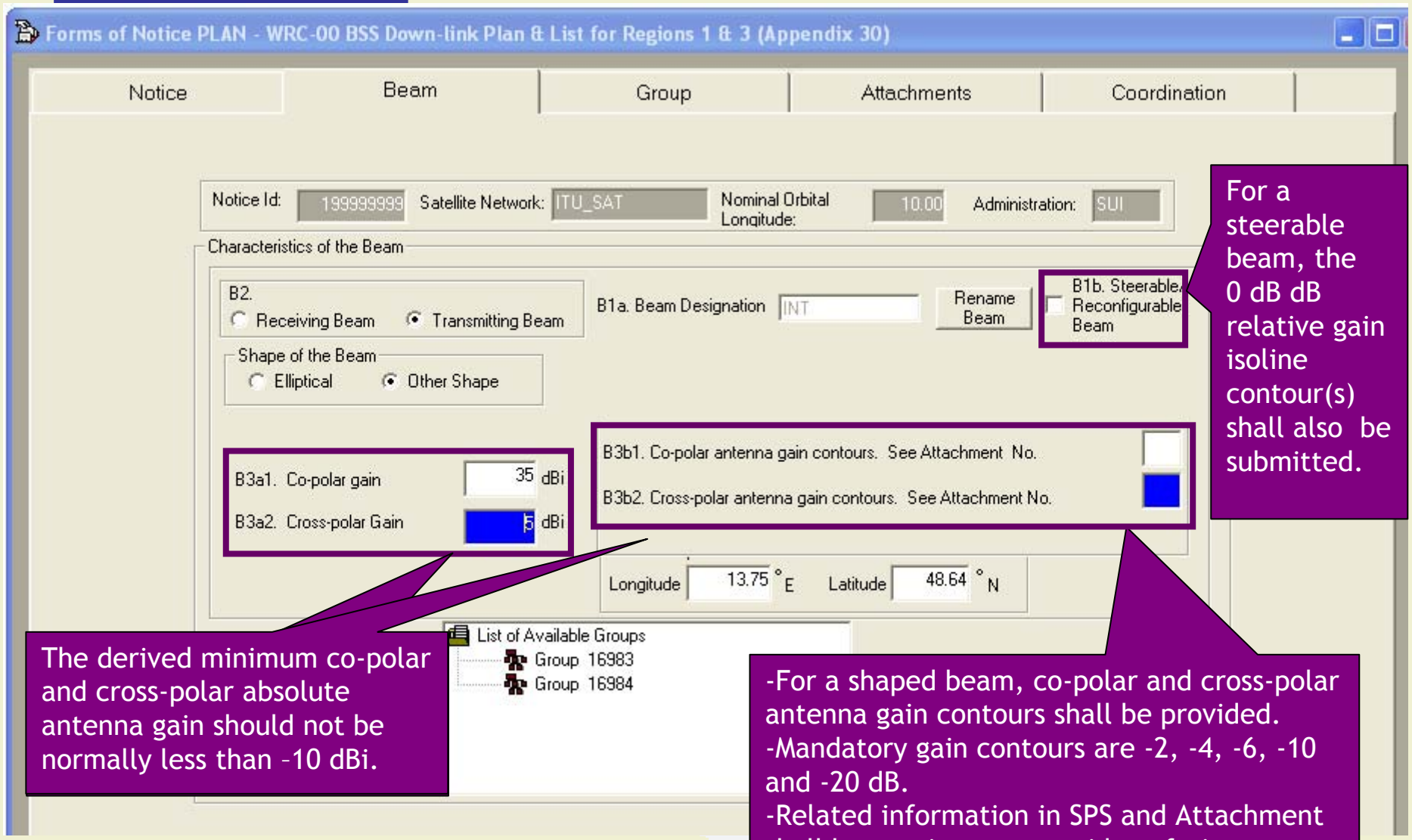
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



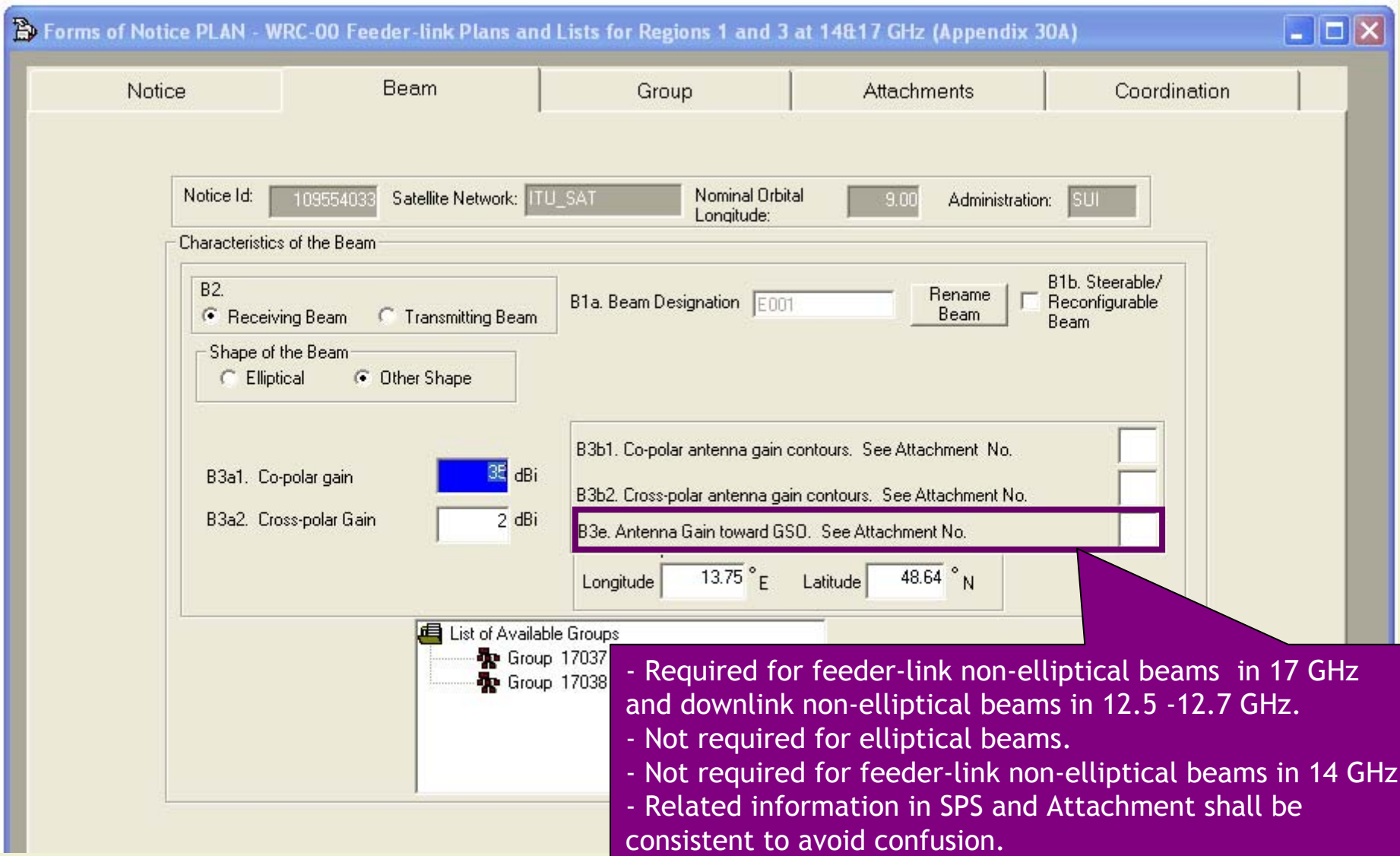
A pattern is required. If it is a fast roll-off pattern, beamlet shall be provided. Minimum beamlet for R1&3 is 0.6⁰ and 0.8⁰ for Region 2.

For elliptical beam, Co-polar gain should be equal to the value suggested by SpaceCap (antenna efficiency of 55% is assumed).

Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)

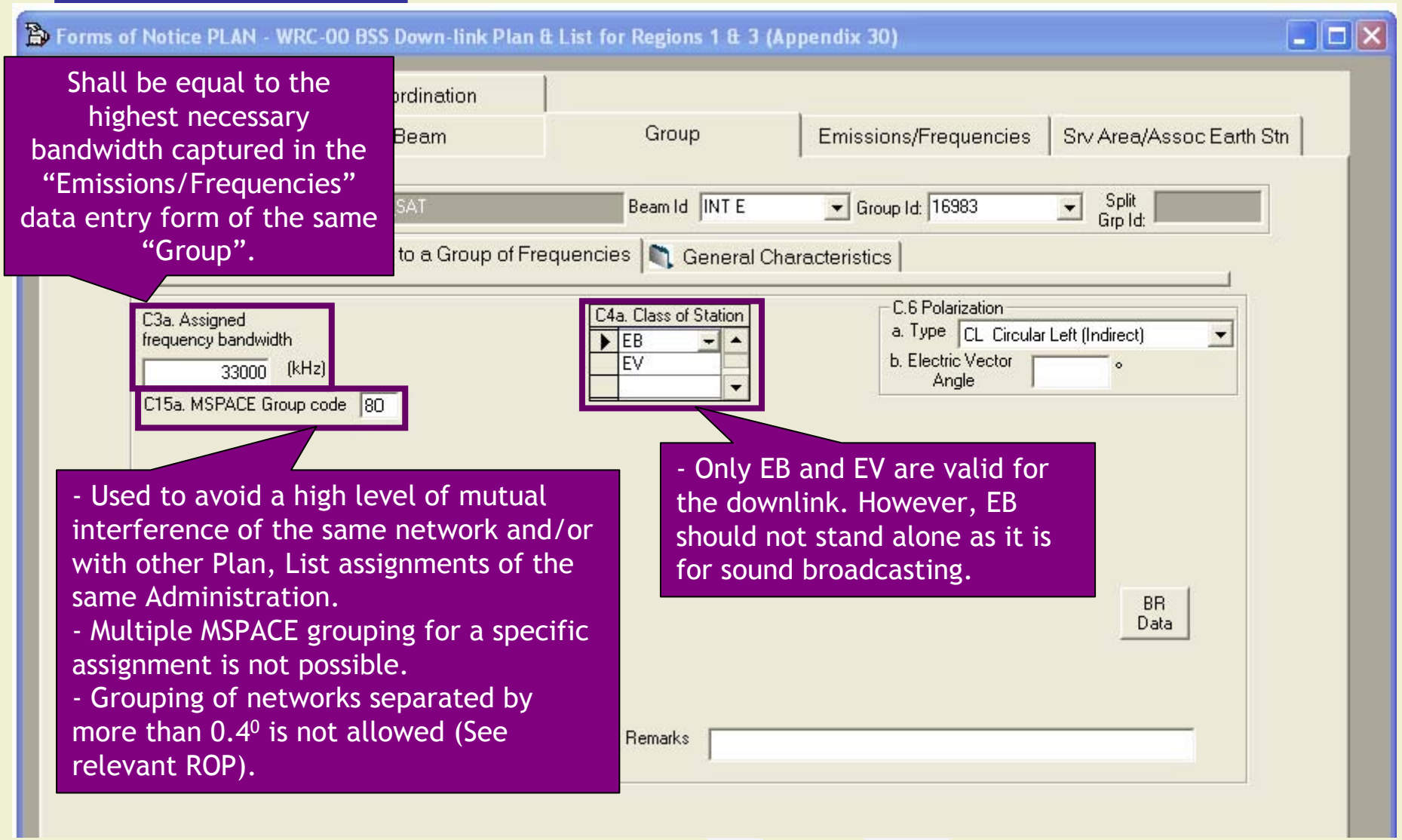


Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)

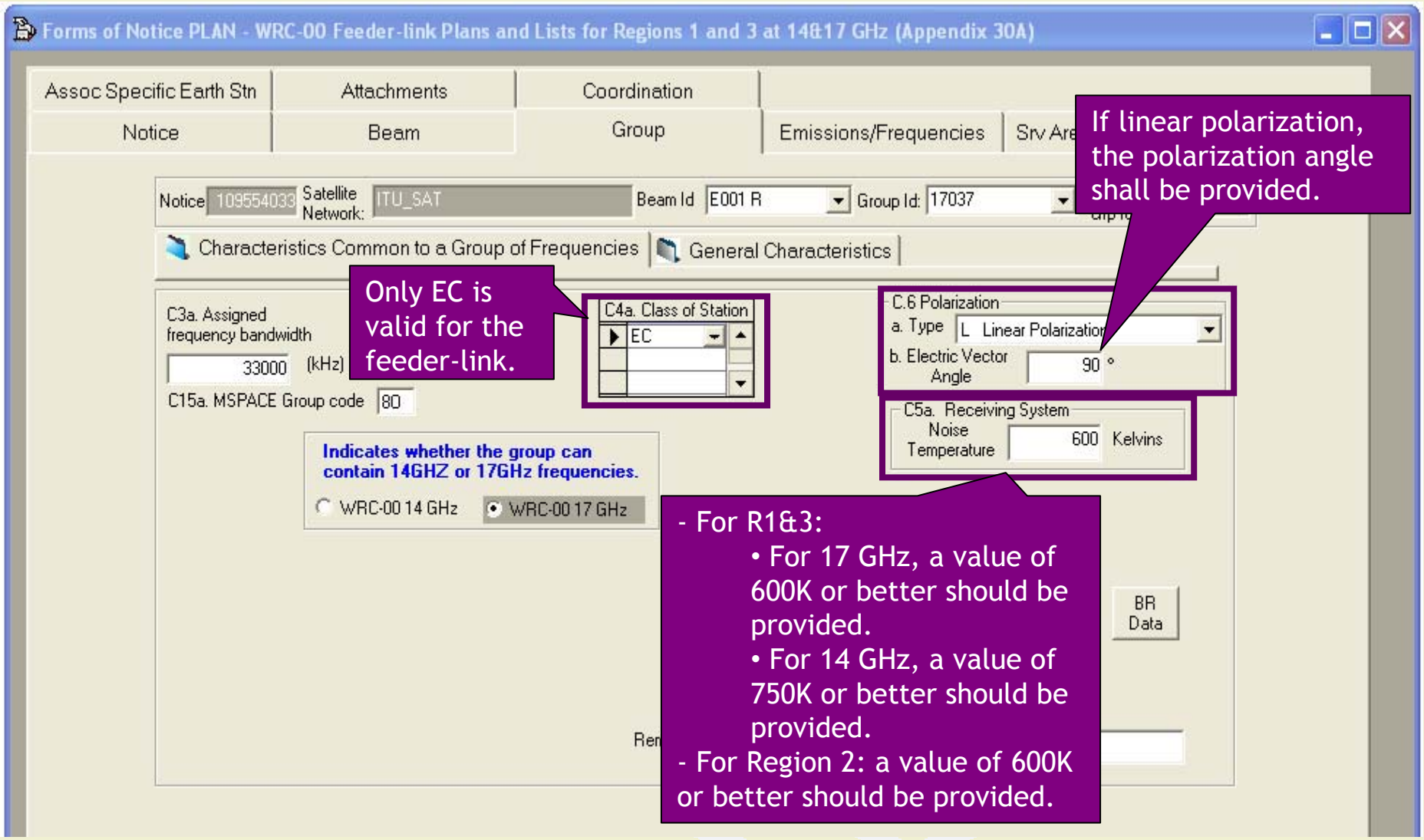


- Required for feeder-link non-elliptical beams in 17 GHz and downlink non-elliptical beams in 12.5 -12.7 GHz.
- Not required for elliptical beams.
- Not required for feeder-link non-elliptical beams in 14 GHz.
- Related information in SPS and Attachment shall be consistent to avoid confusion.
- See Annex 1 for the gains at two most Western and Eastern points visible from the GSO satellite.

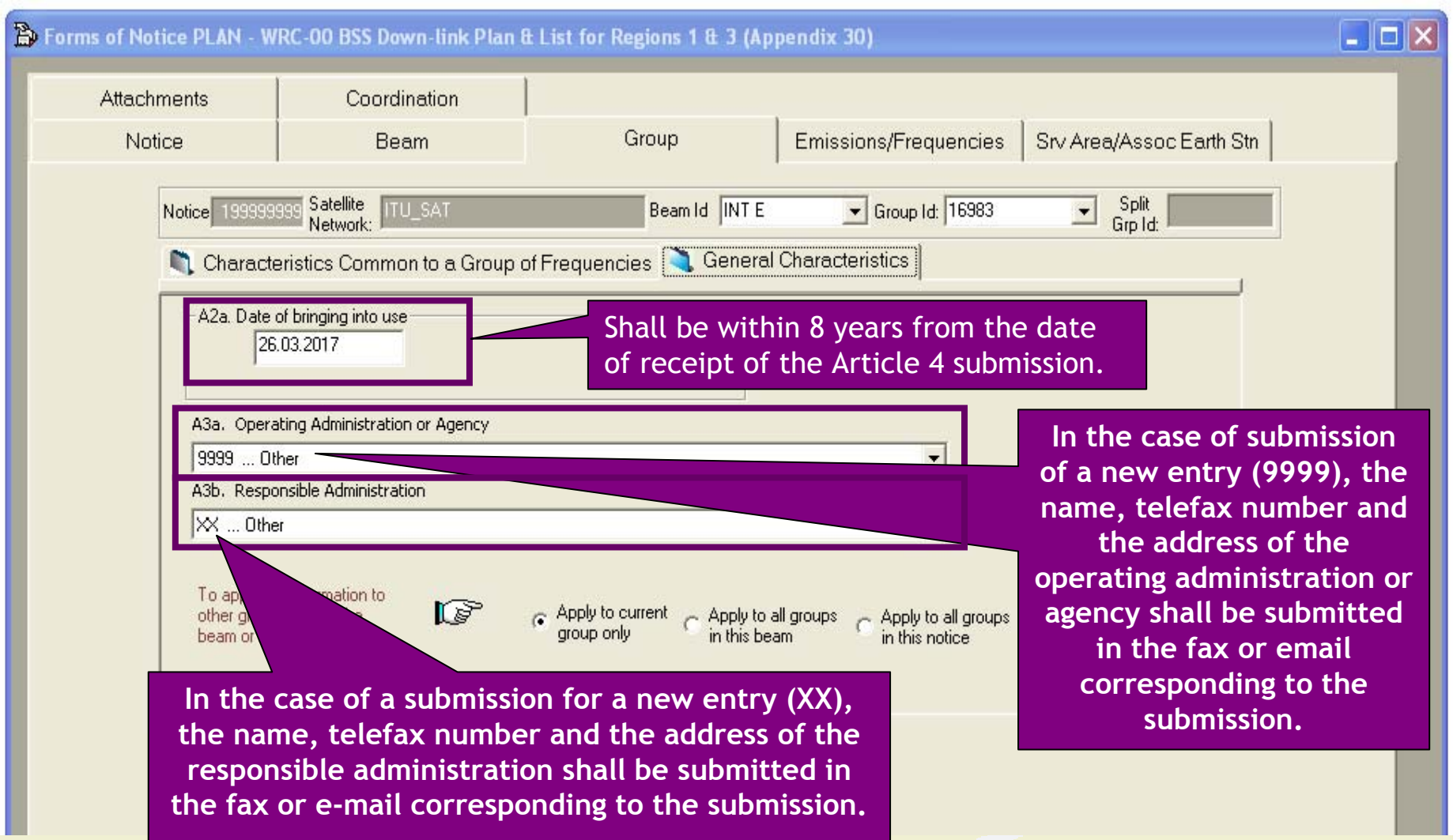
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



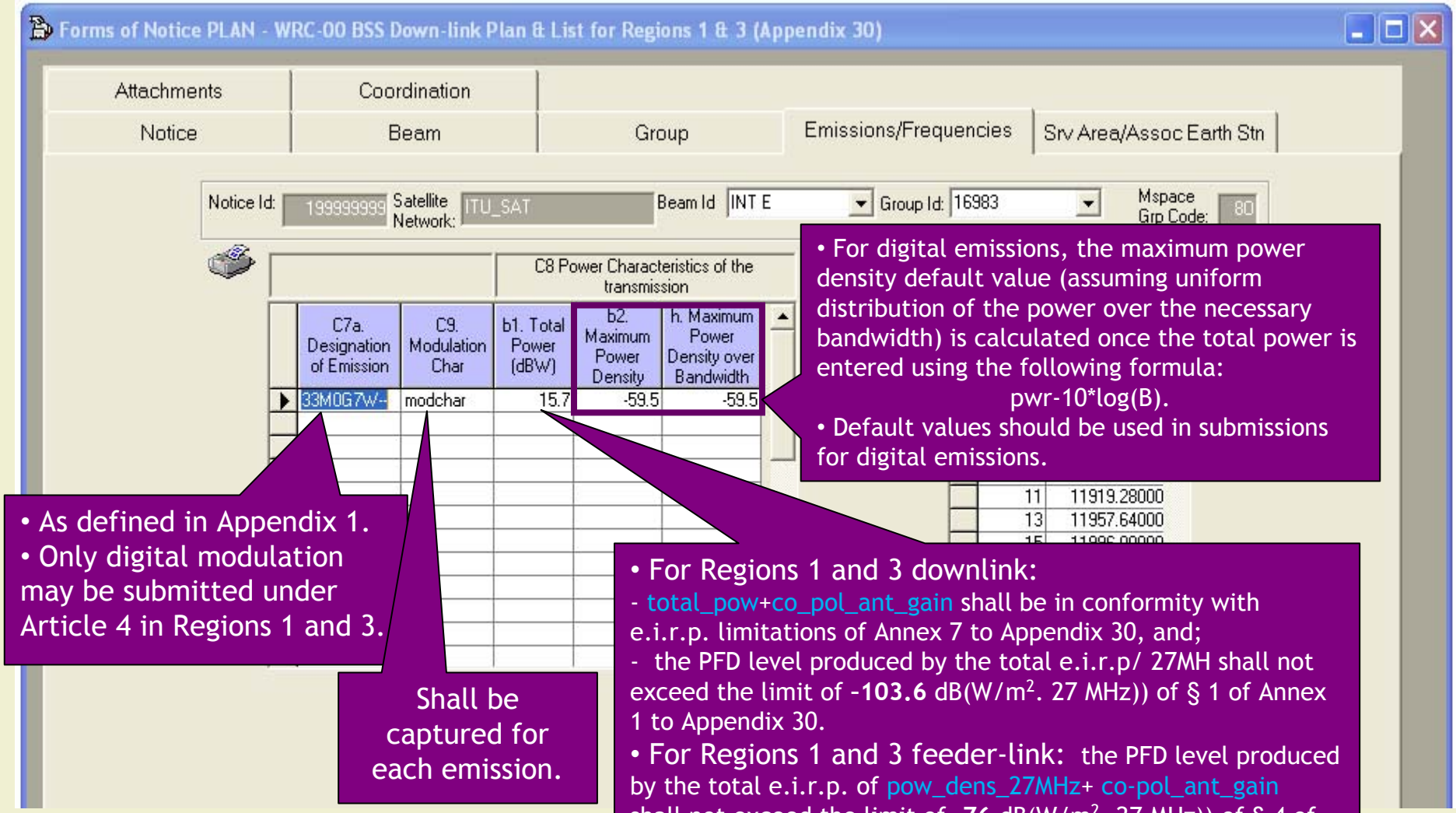
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



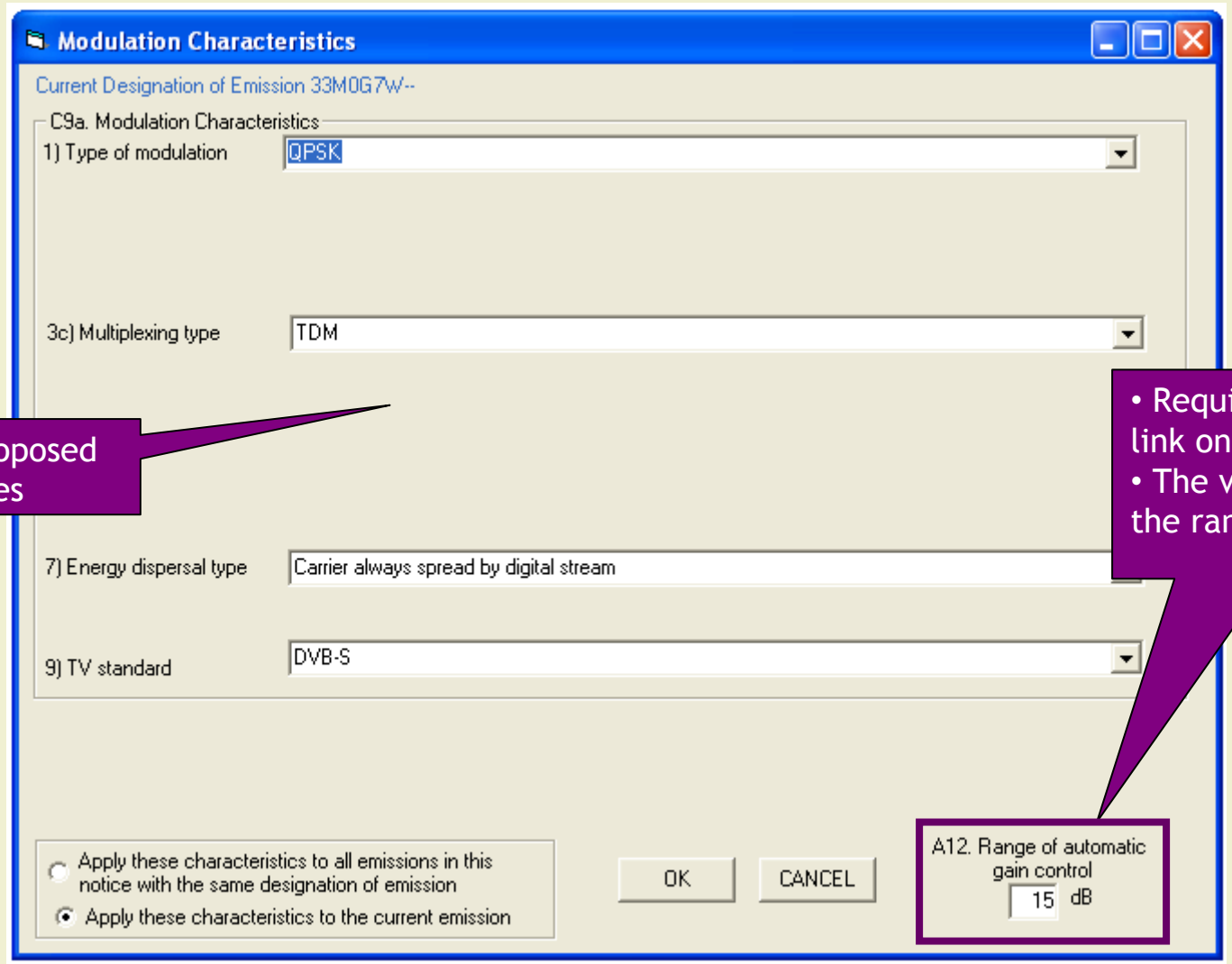
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



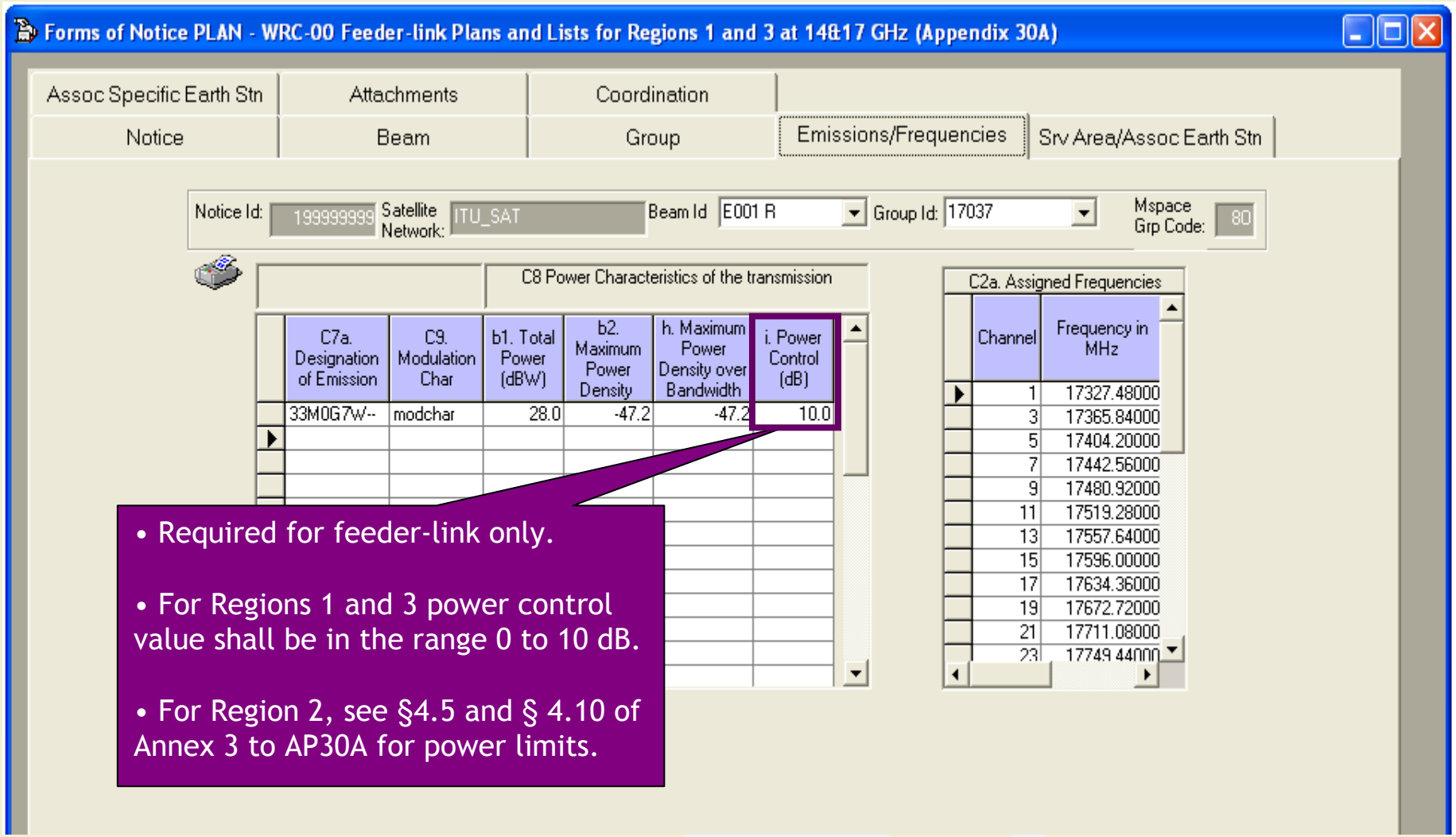
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



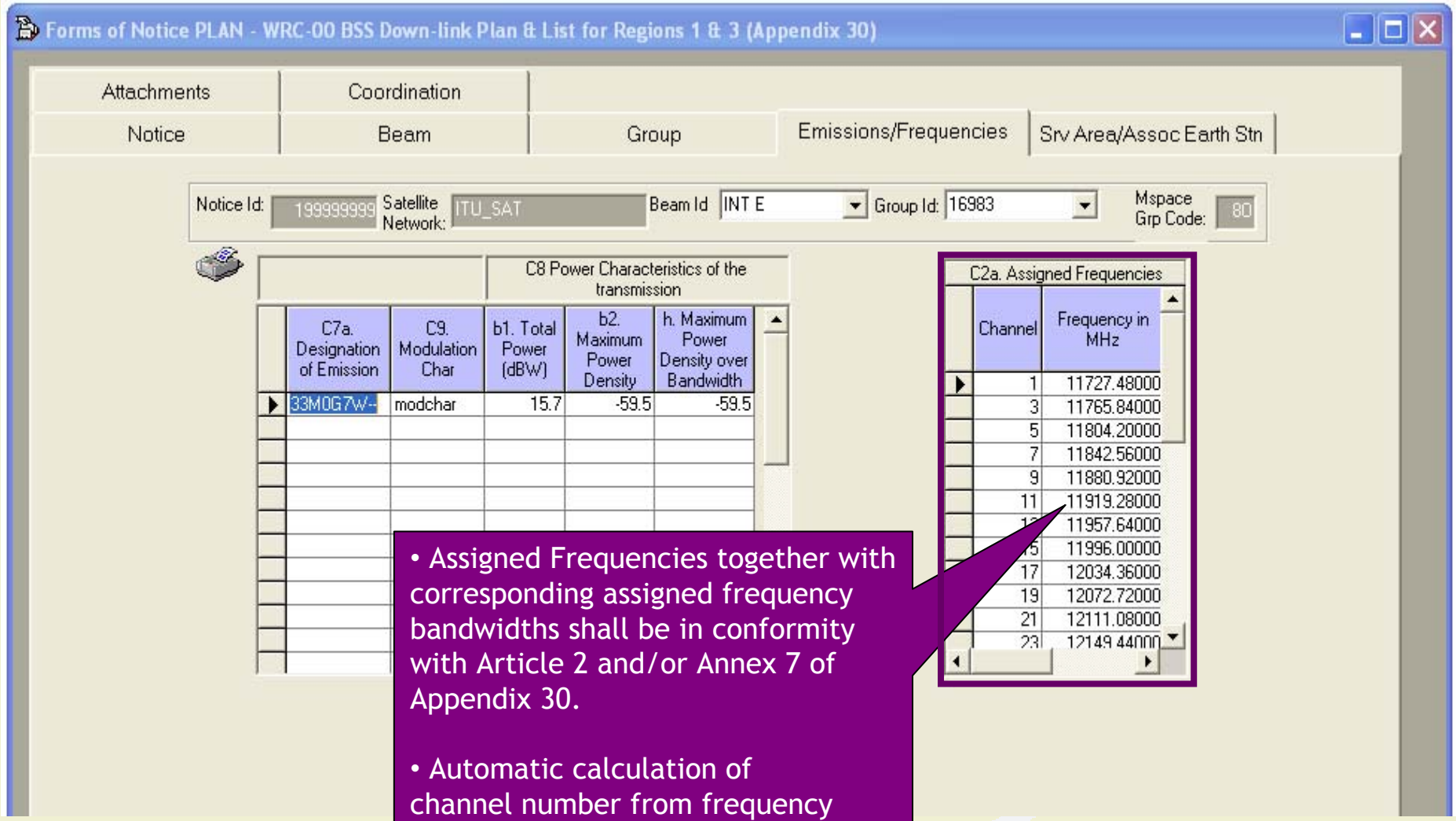
List of proposed values

• Required for feeder-link only.
• The value shall be in the range 0 to 15 dB.

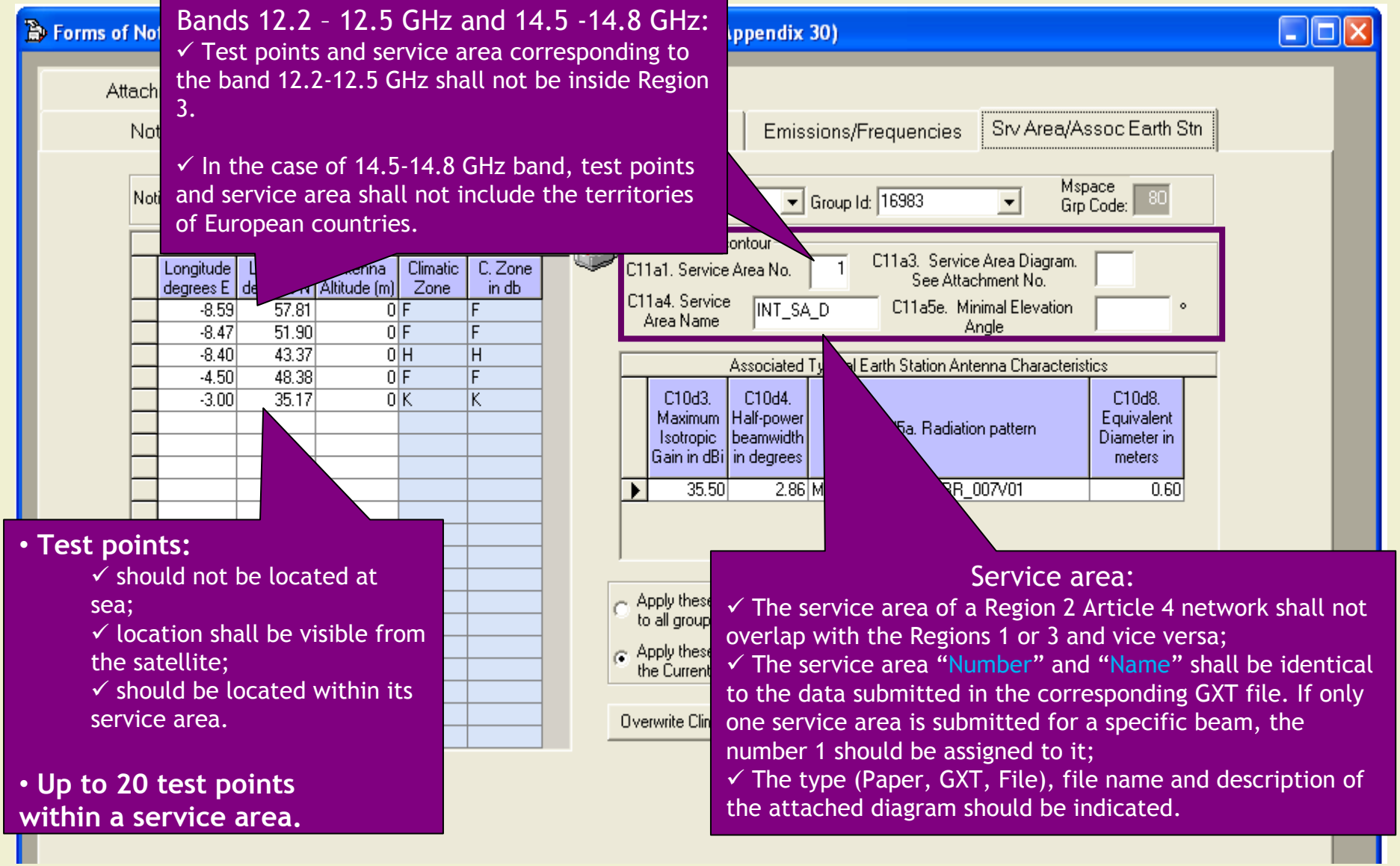
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



Bands 12.2 – 12.5 GHz and 14.5 -14.8 GHz:

✓ Test points and service area corresponding to the band 12.2-12.5 GHz shall not be inside Region 3.

✓ In the case of 14.5-14.8 GHz band, test points and service area shall not include the territories of European countries.

- **Test points:**
  - ✓ should not be located at sea;
  - ✓ location shall be visible from the satellite;
  - ✓ should be located within its service area.
- **Up to 20 test points within a service area.**

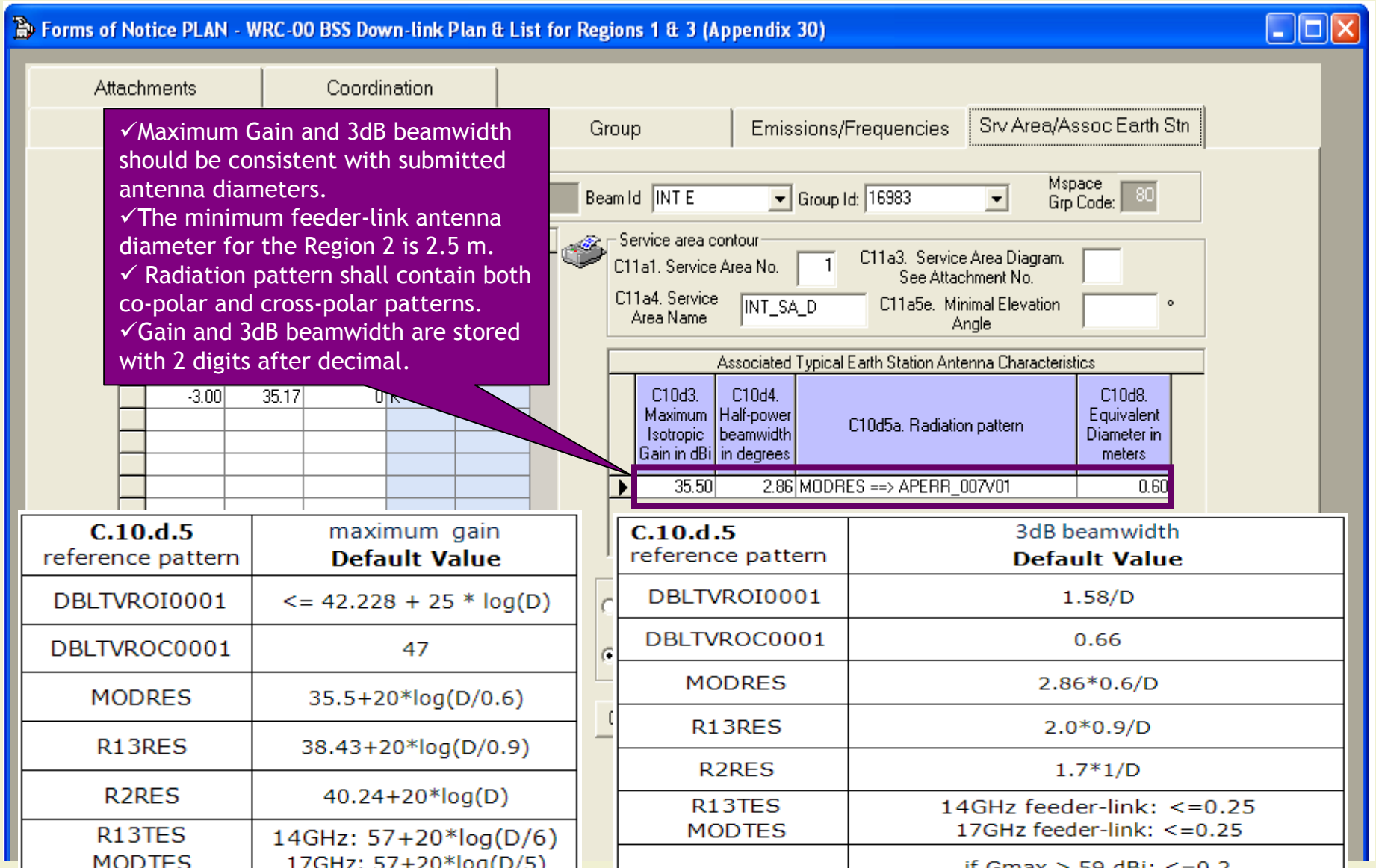
Service area:

✓ The service area of a Region 2 Article 4 network shall not overlap with the Regions 1 or 3 and vice versa;

✓ The service area "Number" and "Name" shall be identical to the data submitted in the corresponding GXT file. If only one service area is submitted for a specific beam, the number 1 should be assigned to it;

✓ The type (Paper, GXT, File), file name and description of the attached diagram should be indicated.

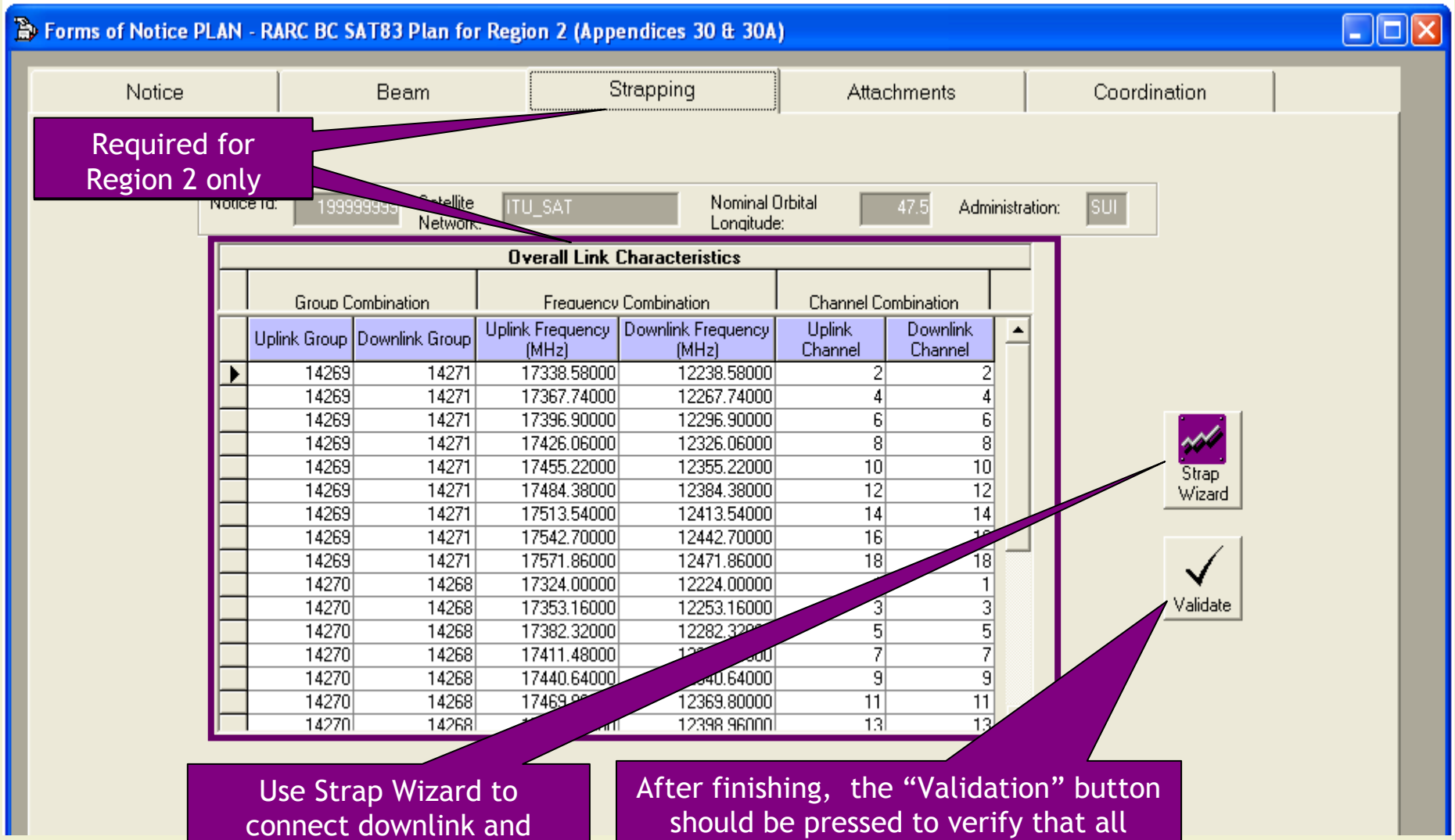
Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



C.10.d.5 reference pattern	maximum gain **Default Value**
DBLTVROI0001	<= 42.228 + 25 * log(D)
DBLTVROC0001	47
MODRES	35.5+20*log(D/0.6)
R13RES	38.43+20*log(D/0.9)
R2RES	40.24+20*log(D)
R13TES MODTES	14GHz: 57+20*log(D/6) 17GHz: 57+20*log(D/5)
R2TES	57.4+20*log(D/5)

C.10.d.5 reference pattern	3dB beamwidth **Default Value**
DBLTVROI0001	1.58/D
DBLTVROC0001	0.66
MODRES	2.86*0.6/D
R13RES	2.0*0.9/D
R2RES	1.7*1/D
R13TES MODTES	14GHz feeder-link: <=0.25 17GHz feeder-link: <=0.25
R2TES	if Gmax > 59 dBi: <=0.2
	if Gmax ≤ 59 dBi 2 * 10^((39-Gmax))/20

Observation on some submitted AP4 data for AP30/30A Article 4 submissions (Cont.)



Exercise

You are now requested to do one of the following exercises:

Exercise 1: Correction to a R1&3 BSS submission
(file: R13_BSS.mdb)

Exercise 2: Correction to a R1&3 BSS Feeder-link submission
(file: R13_BSS_FL.mdb)

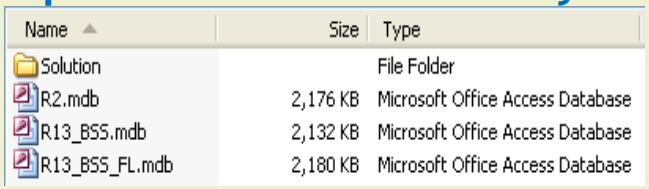
Exercise 3: Correction to a Region 2 submission
(file: R2.mdb)

Annex 1: Gains at two most Western and Eastern points visible from the GSO satellite

Annex 2: SpaceVal

Step by step to do exercise

1. Copy folder “Space Plans” under “\Workshop\Space” from the USB key to your C drive.



2. Find submissions with error under:

“Space Plans\2_A30_30A submission exercise\Exercise”

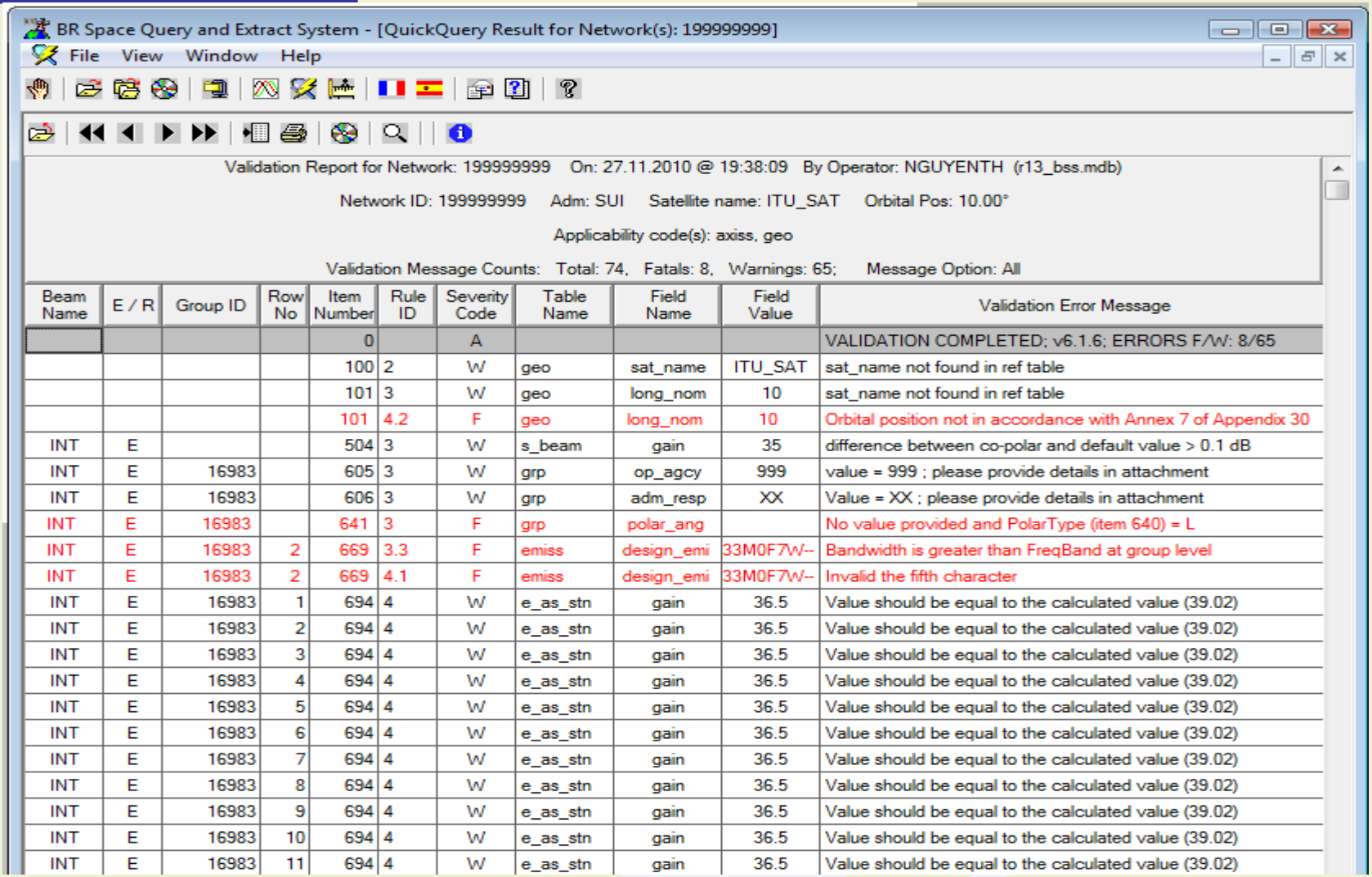
3. Run SpaceVal on selected submission to identify problems *(see Annex 2)*

4. Open SpaceCap Software with the selected submission to correct the problems *(see slides 22-32 for Exercise 1, 33-42 for Exercise 2 and 42-58 for Exercise 3 for step by step correction)*

5. Items to be corrected:
   - *Orbital position to comply with Annex 7*
   - *Co-polar gain for an elliptical beam*
   - *Assigned frequency bandwidth; Class of station; Linear polarization Angle*
   - *Emission and associated power densities; power control for Feeder-link*
   - *Modulation characteristics; automatic gain control for Feeder-link*
   - *Earth station antenna gain and beamwidth*
   - *Strapping for Region 2.*

6. Run SpaceVal again to see if there are any remaining problems.

Example of SpaceVal report before correction



Validation Report for Network: 199999999 On: 27.11.2010 @ 19:38:09 By Operator: NGUYENTH (r13_bss.mdb)

Network ID: 199999999 Adm: SUI Satellite name: ITU_SAT Orbital Pos: 10.00°

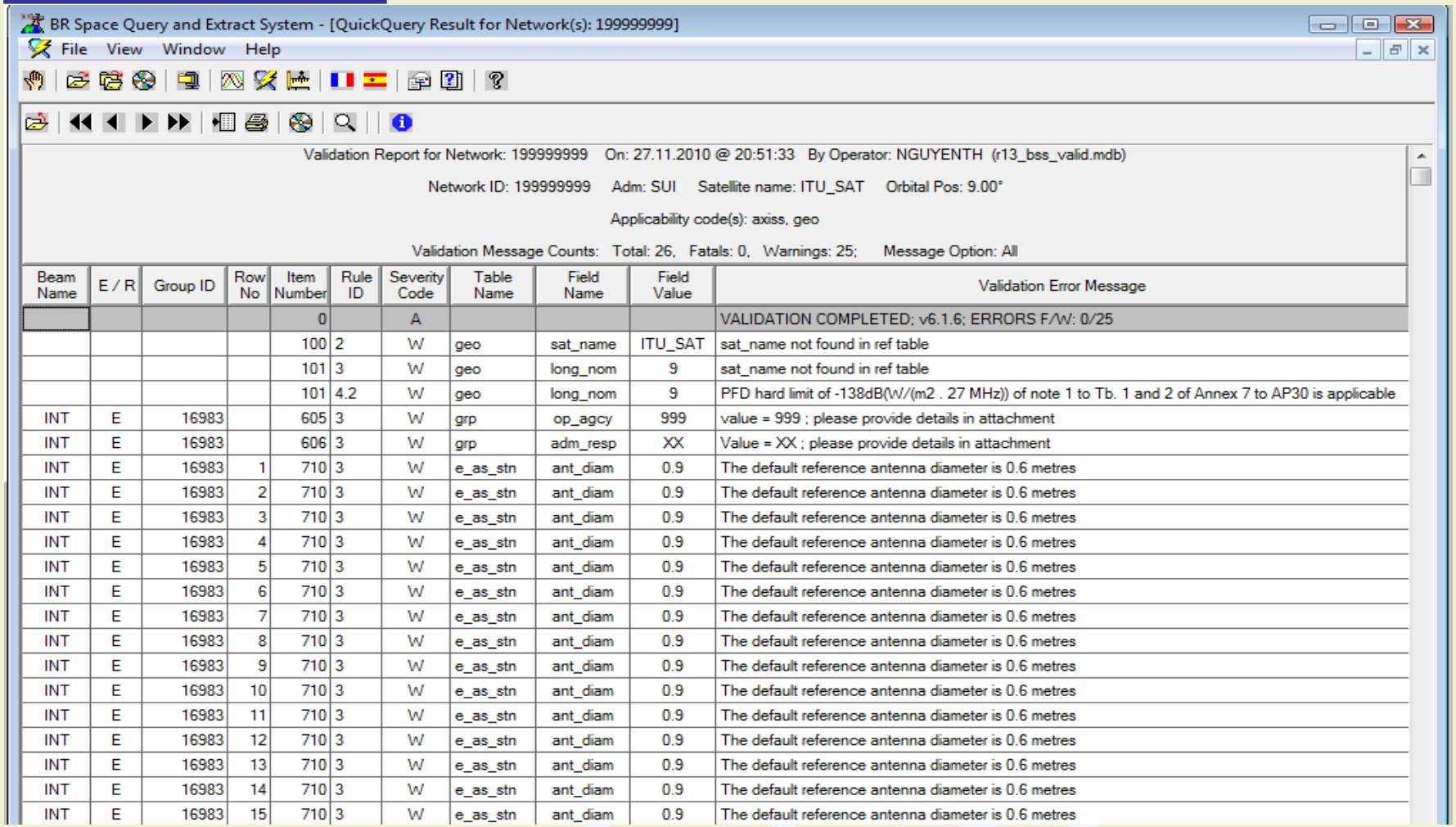
Applicability code(s): axiss, geo

Validation Message Counts: Total: 74, Fatals: 8, Warnings: 65; Message Option: All

Beam Name	E / R	Group ID	Row No	Item Number	Rule ID	Severity Code	Table Name	Field Name	Field Value	Validation Error Message
				0		A				VALIDATION COMPLETED; v6.1.6; ERRORS F/W: 8/65
				100	2	W	geo	sat_name	ITU_SAT	sat_name not found in ref table
				101	3	W	geo	long_nom	10	sat_name not found in ref table
				101	4.2	F	geo	long_nom	10	Orbital position not in accordance with Annex 7 of Appendix 30
INT	E			504	3	W	s_beam	gain	35	difference between co-polar and default value > 0.1 dB
INT	E	16983		605	3	W	grp	op_agcy	999	value = 999 ; please provide details in attachment
INT	E	16983		606	3	W	grp	adm_resp	XX	Value = XX ; please provide details in attachment
INT	E	16983		641	3	F	grp	polar_ang		No value provided and PolarType (item 640) = L
INT	E	16983	2	669	3.3	F	emiss	design_emi	33M0F7W--	Bandwidth is greater than FreqBand at group level
INT	E	16983	2	669	4.1	F	emiss	design_emi	33M0F7W--	Invalid the fifth character
INT	E	16983	1	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	2	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	3	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	4	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	5	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	6	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	7	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	8	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	9	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	10	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)
INT	E	16983	11	694	4	W	e_as_stn	gain	36.5	Value should be equal to the calculated value (39.02)

Notice is not ready to be submitted to the Bureau.

SpaceVal report after correction



BR Space Query and Extract System - [QuickQuery Result for Network(s): 199999999]

File View Window Help

Validation Report for Network: 199999999 On: 27.11.2010 @ 20:51:33 By Operator: NGUYENTH (r13_bss_valid.mdb)

Network ID: 199999999 Adm: SUI Satellite name: ITU_SAT Orbital Pos: 9.00°

Applicability code(s): axiss, geo

Validation Message Counts: Total: 26, Fatals: 0, Warnings: 25; Message Option: All

Beam Name	E / R	Group ID	Row No	Item Number	Rule ID	Severity Code	Table Name	Field Name	Field Value	Validation Error Message
				0		A				VALIDATION COMPLETED; v6.1.6; ERRORS F/W: 0/25
				100	2	W	geo	sat_name	ITU_SAT	sat_name not found in ref table
				101	3	W	geo	long_nom	9	sat_name not found in ref table
				101	4.2	W	geo	long_nom	9	PFD hard limit of -138dB(W/(m2 . 27 MHz)) of note 1 to Tb. 1 and 2 of Annex 7 to AP30 is applicable
INT	E	16983		605	3	W	grp	op_agcy	999	value = 999 ; please provide details in attachment
INT	E	16983		606	3	W	grp	adm_resp	XX	Value = XX ; please provide details in attachment
INT	E	16983	1	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	2	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	3	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	4	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	5	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	6	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	7	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	8	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	9	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	10	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	11	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	12	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	13	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	14	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres
INT	E	16983	15	710	3	W	e_as_stn	ant_diam	0.9	The default reference antenna diameter is 0.6 metres

Notice is now ready to be submitted to the Bureau.

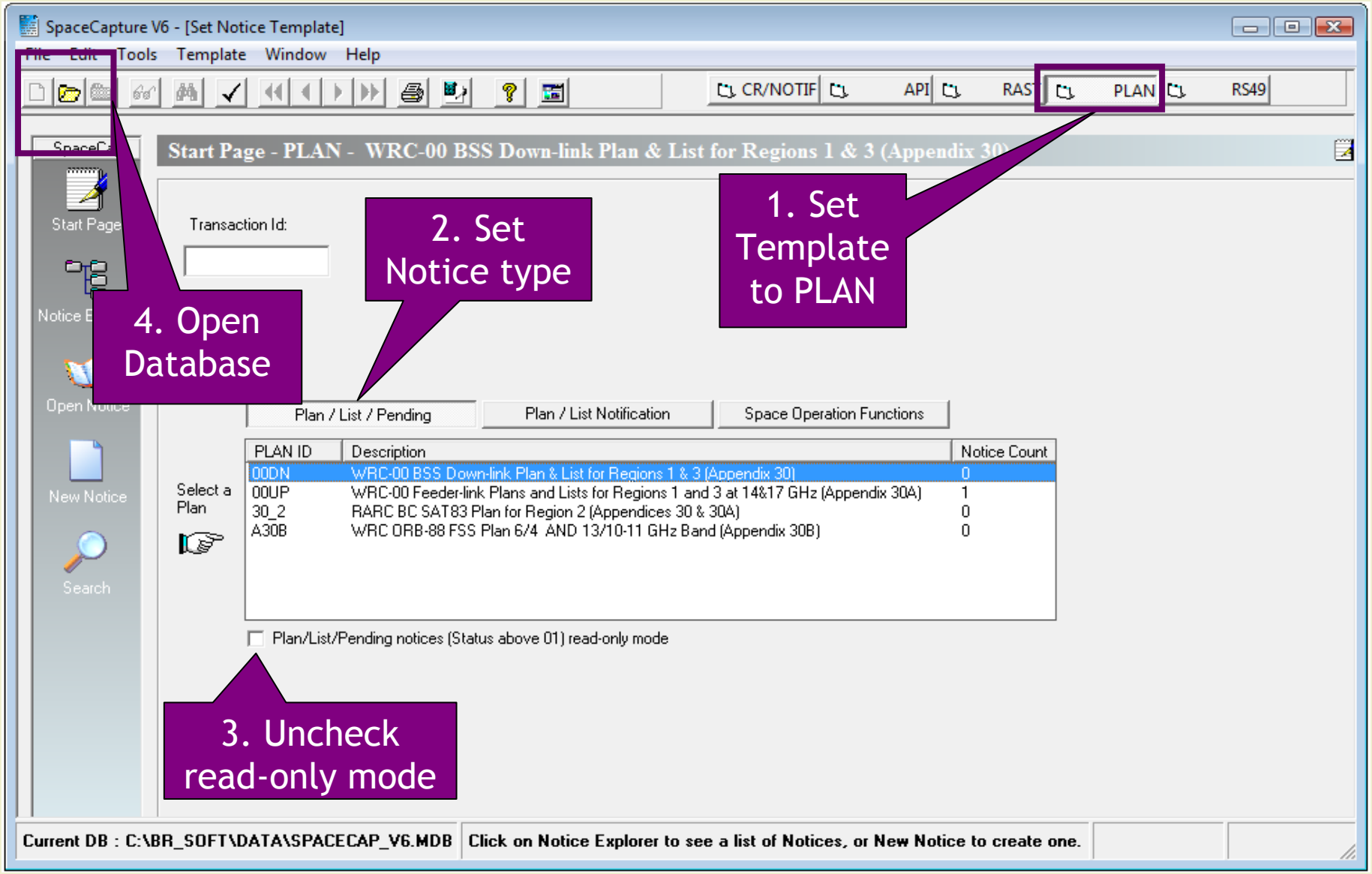
Any Questions?

Presenter: Thong.PHAMVIET@itu.int

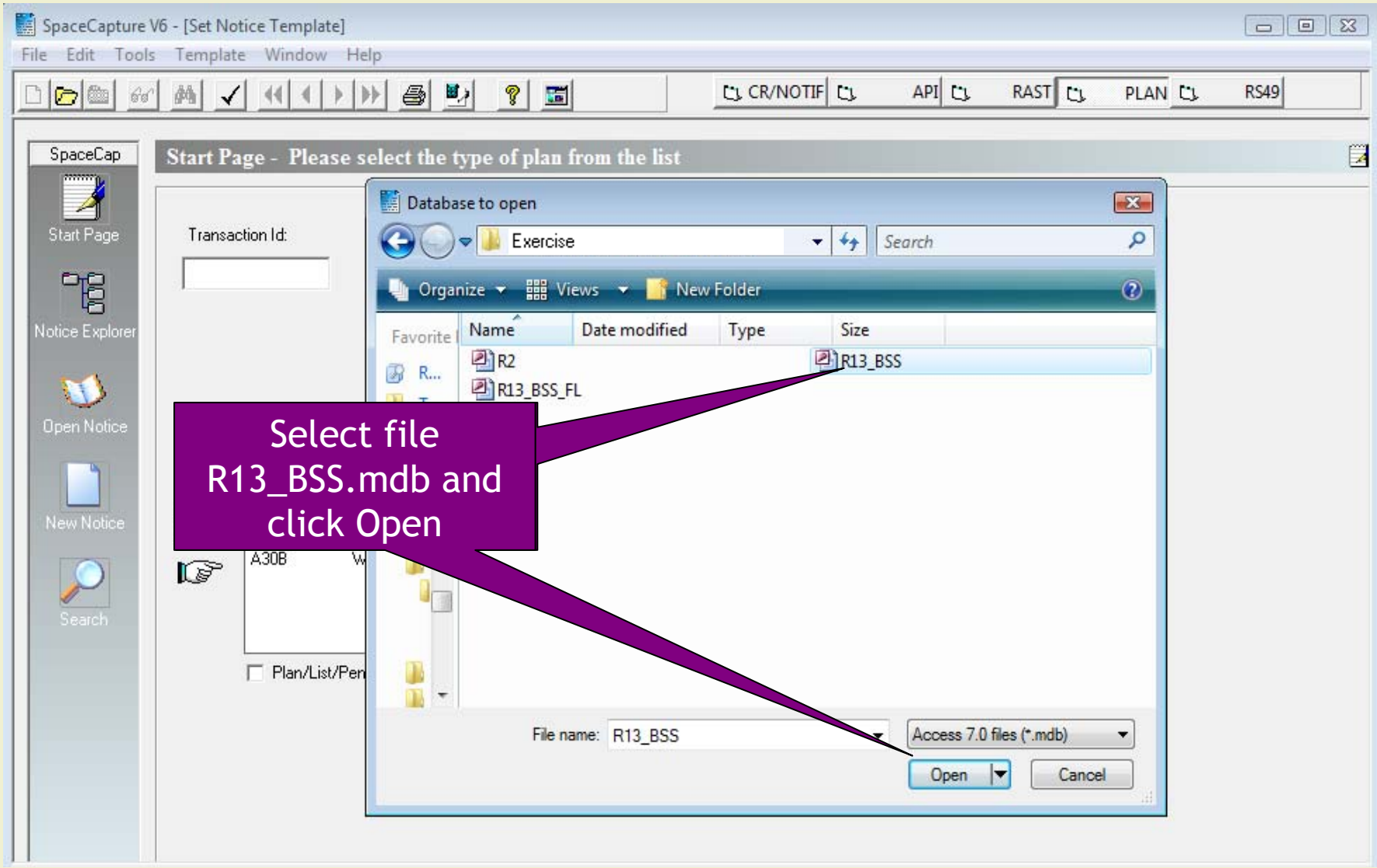
Main contact person for Space Plan Services:
Mitsuhiro.Sakamoto@itu.int

Software: brsas@itu.int

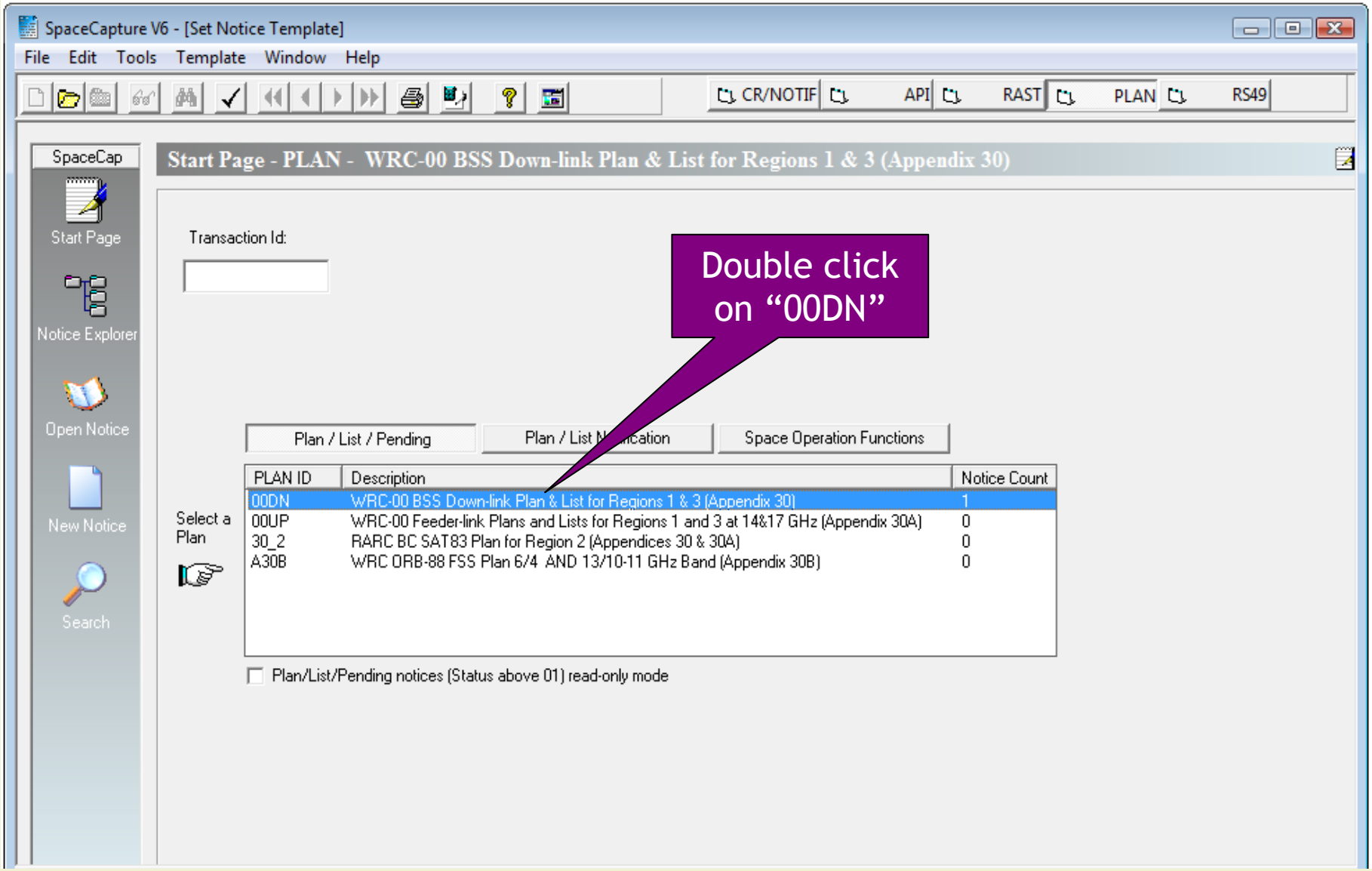
Exercise 1:Correction to a R1&3 BSS submission



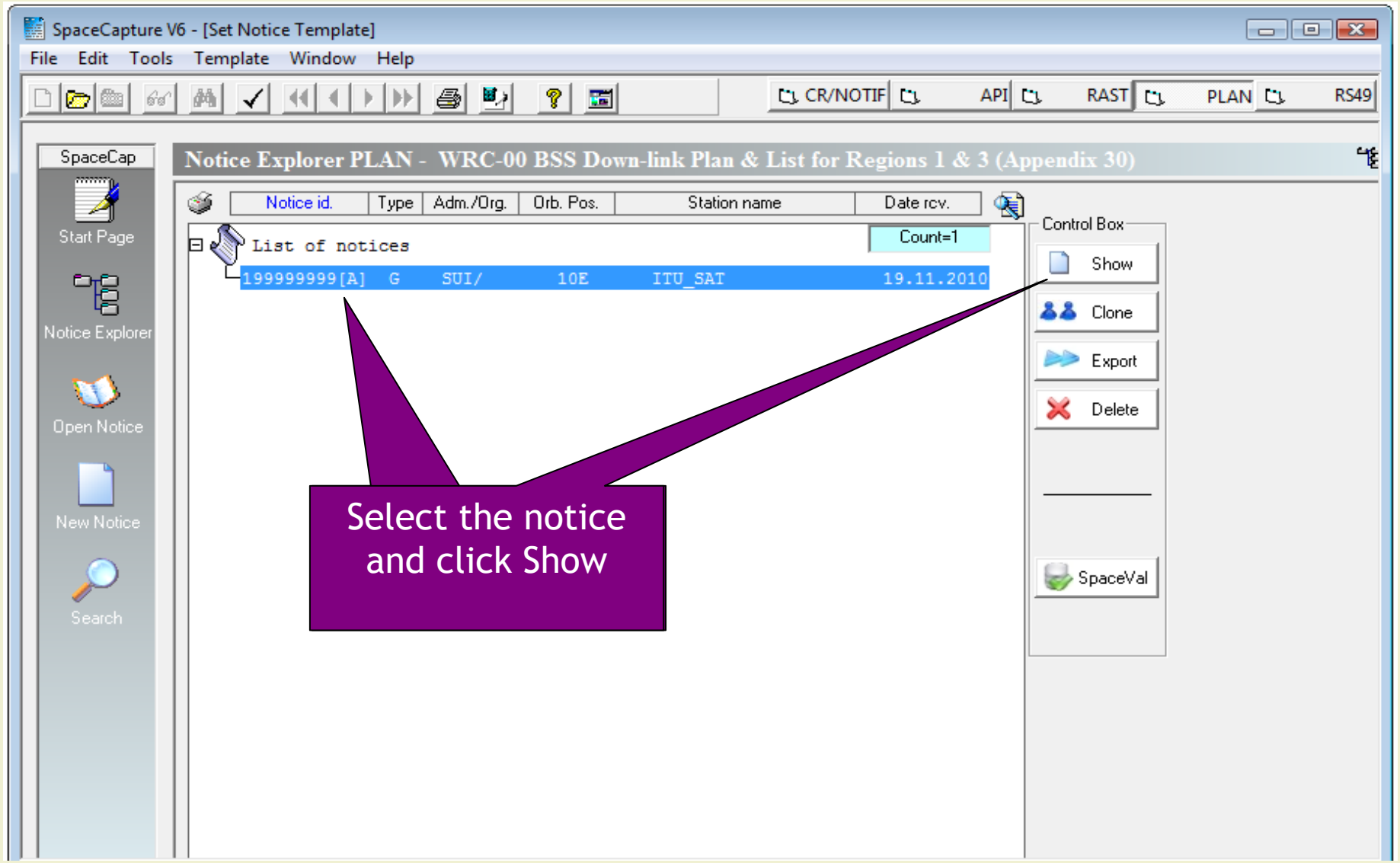
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



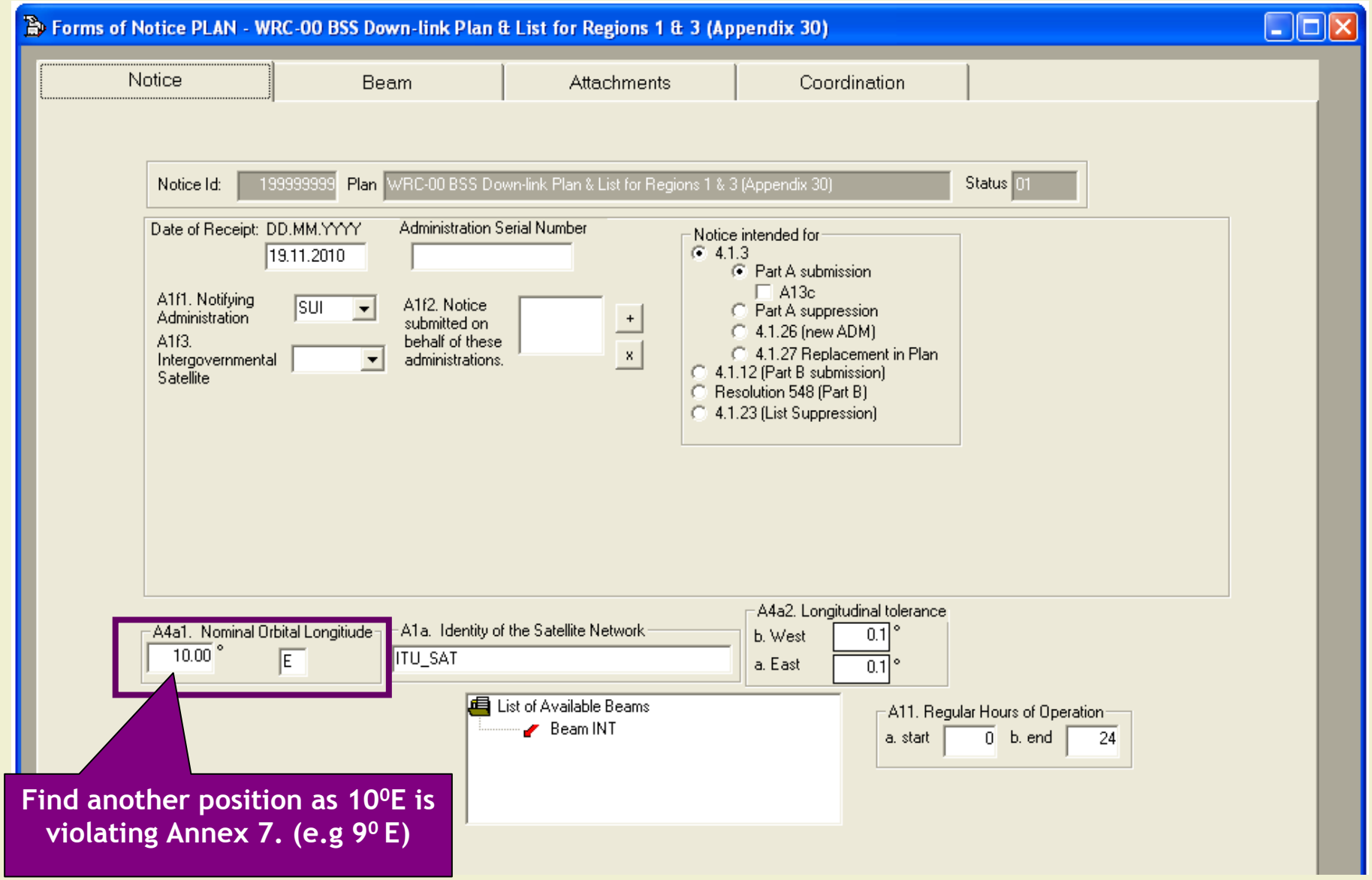
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



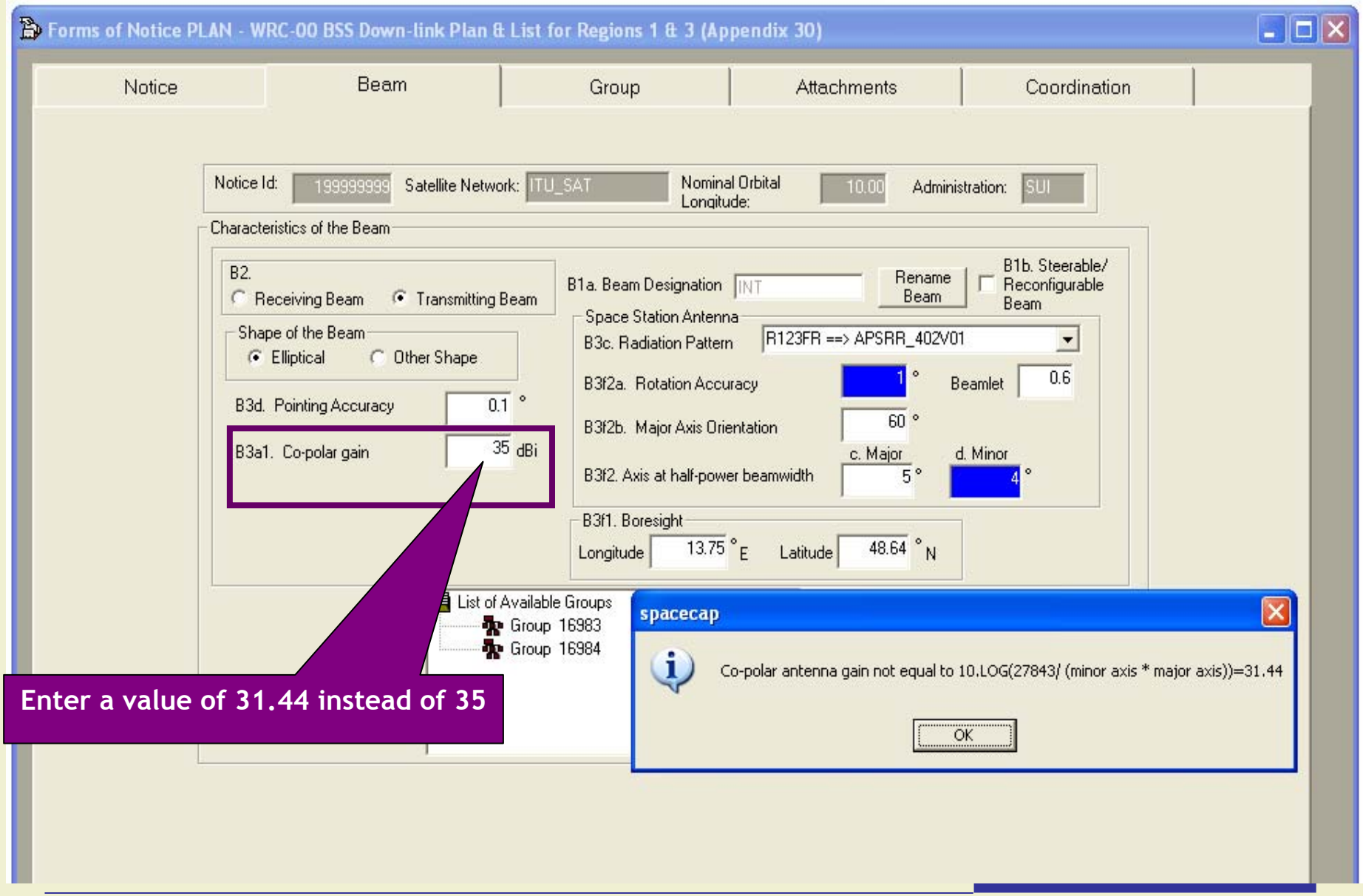
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



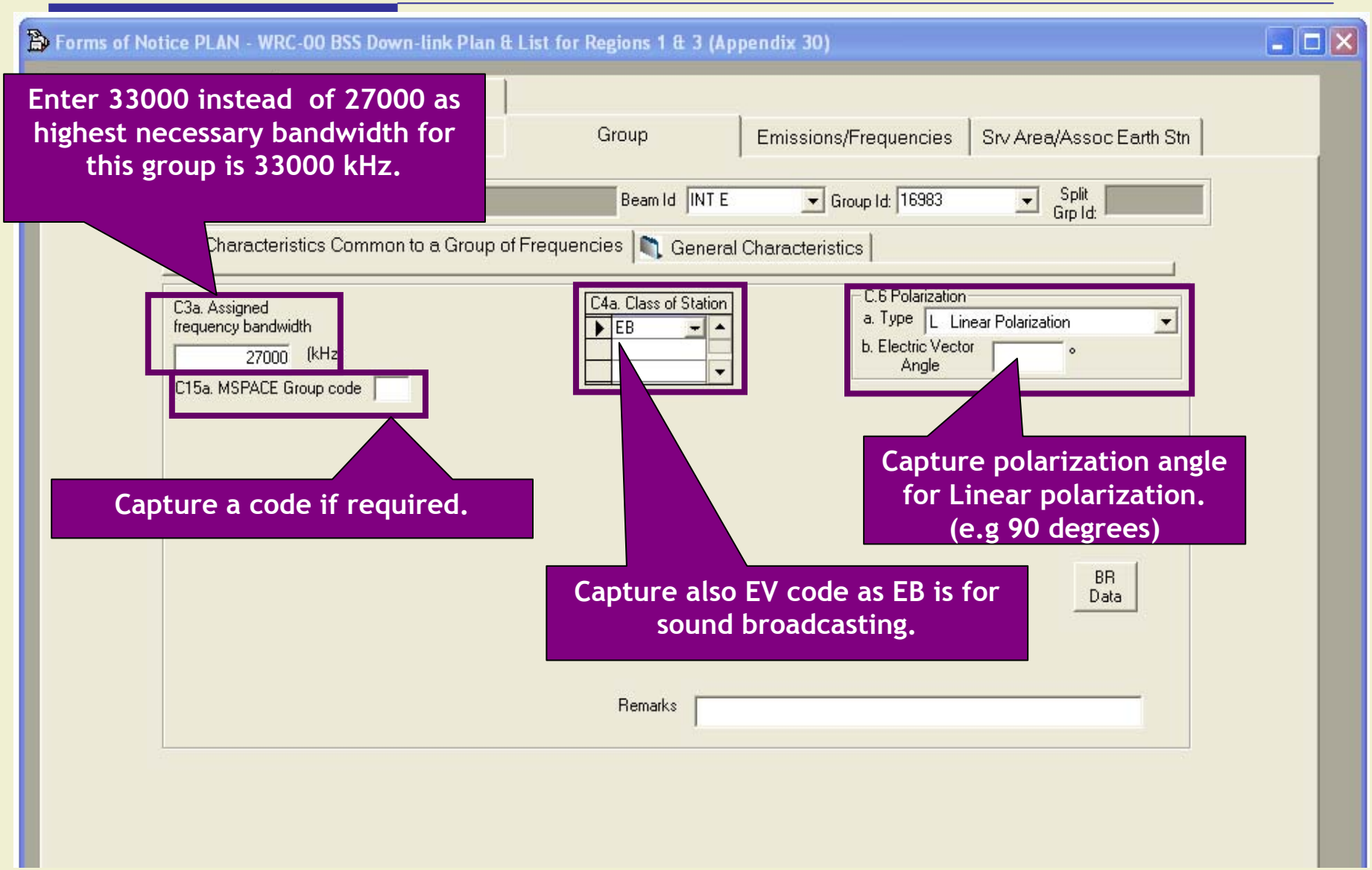
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



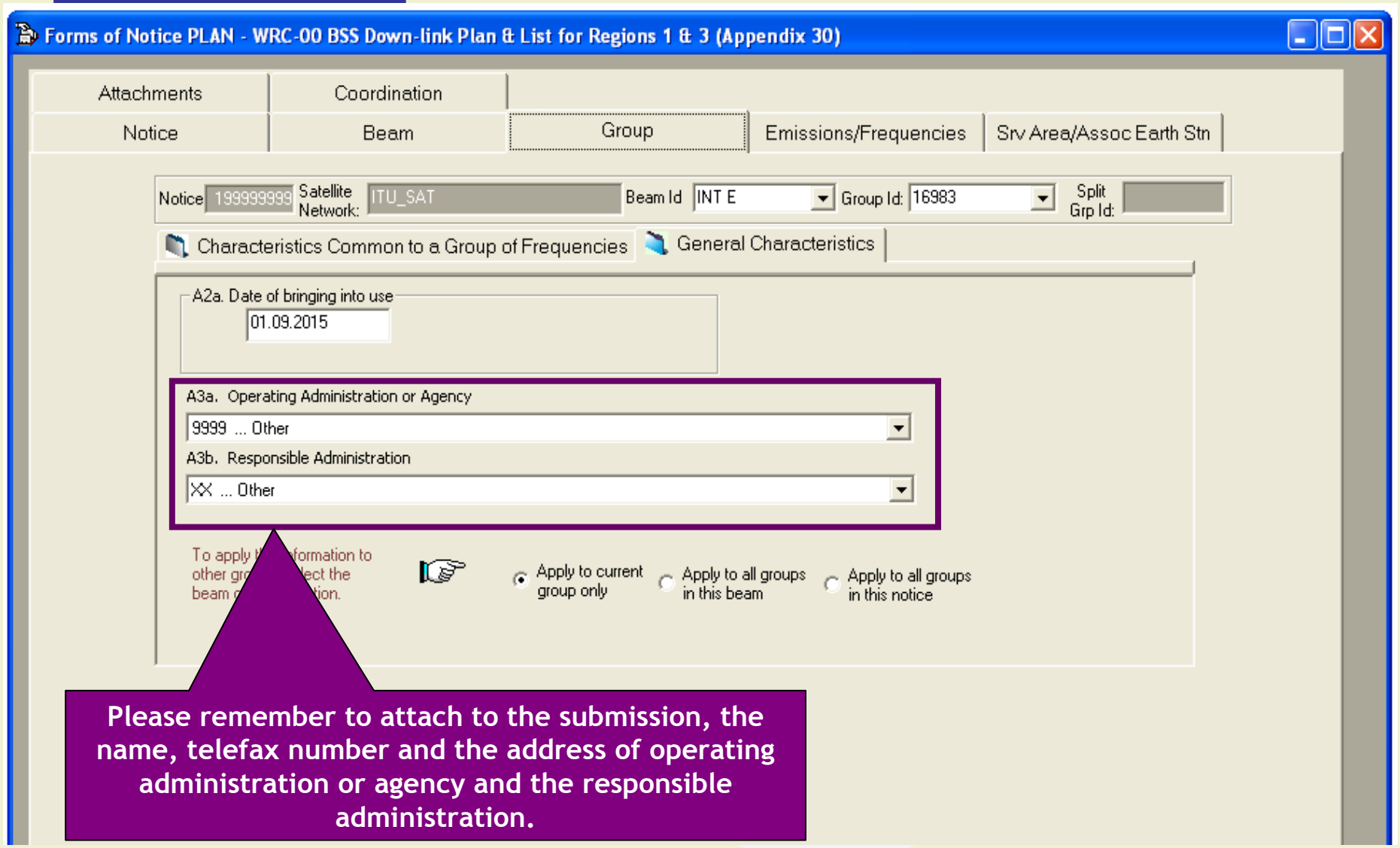
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



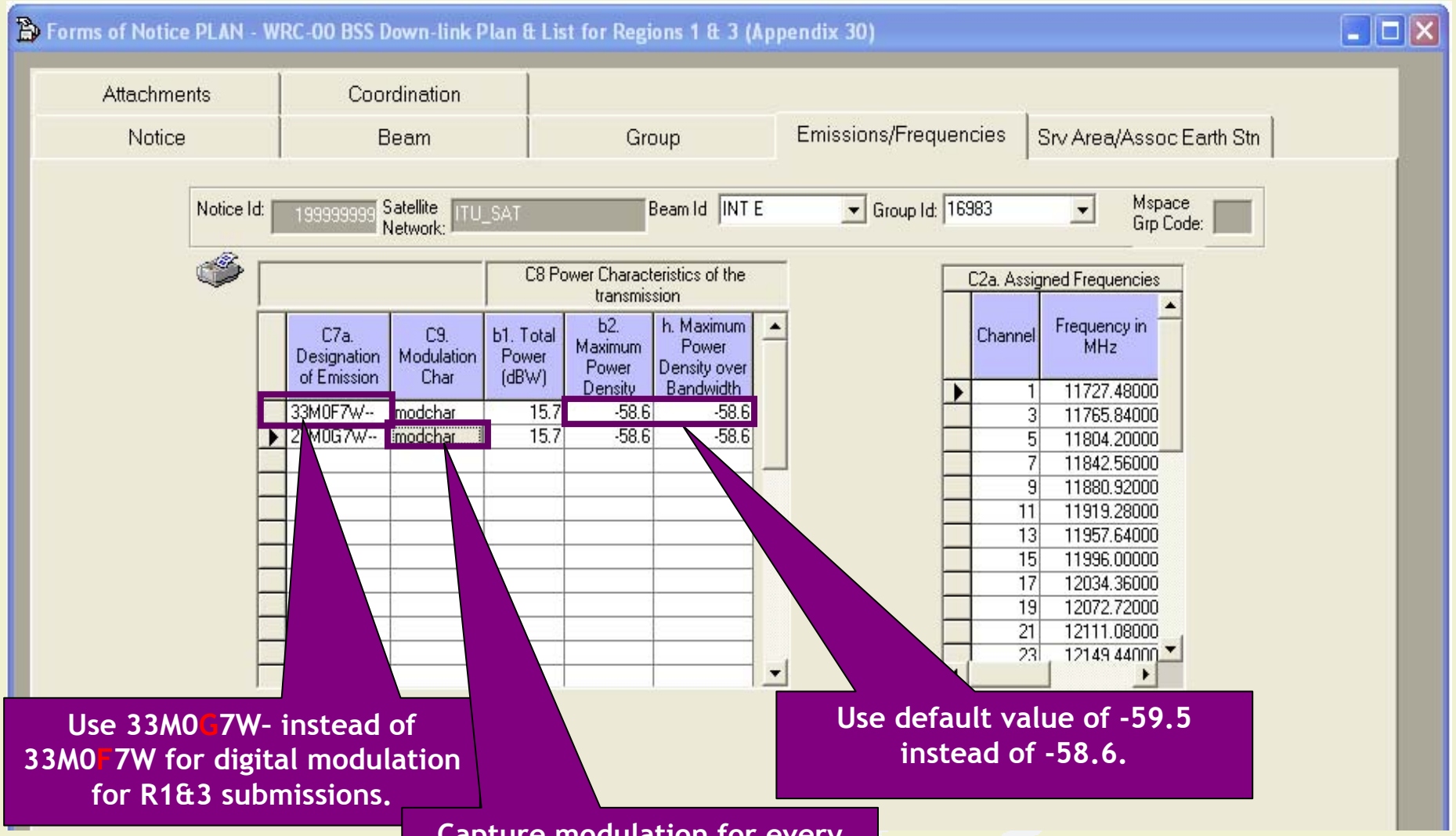
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



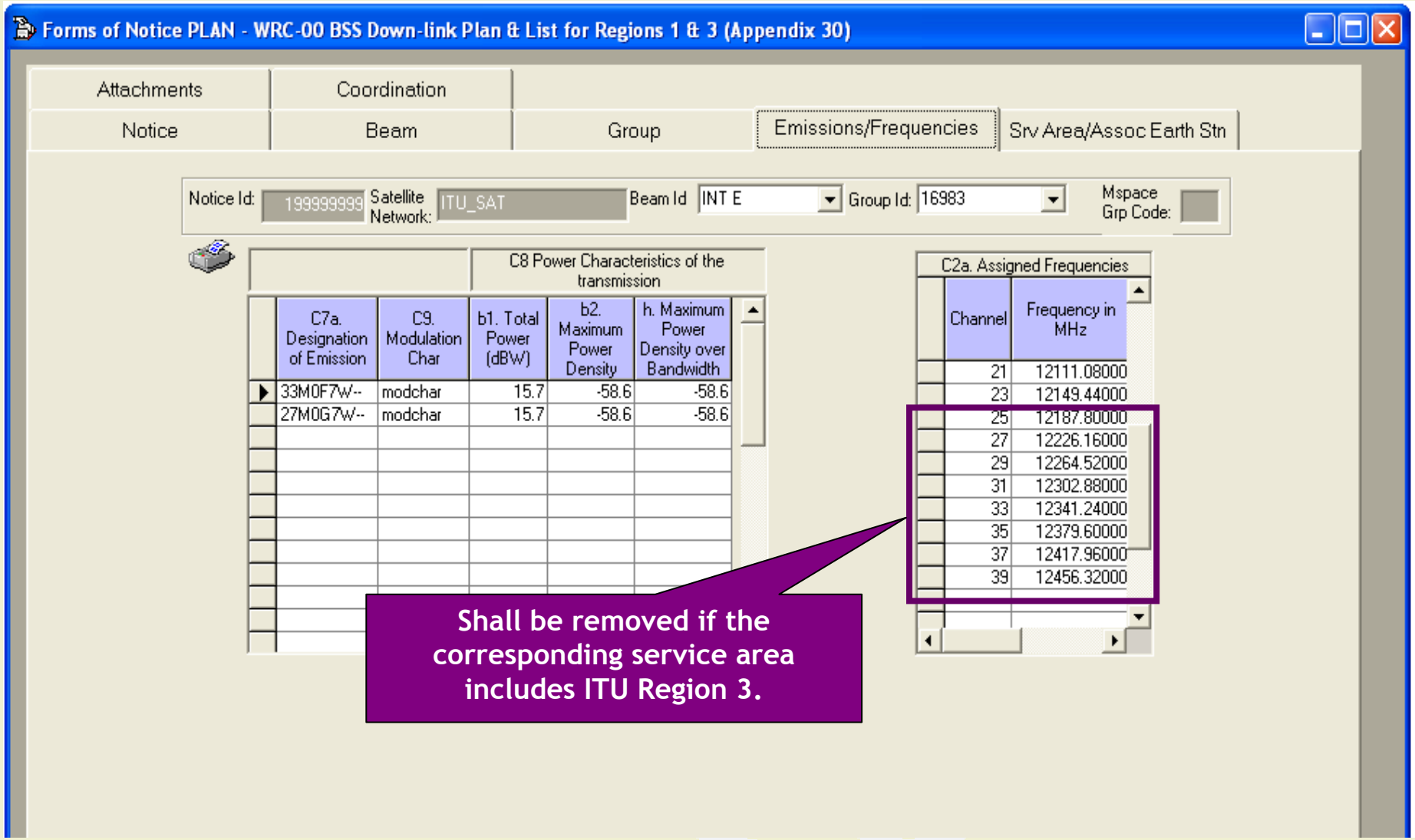
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



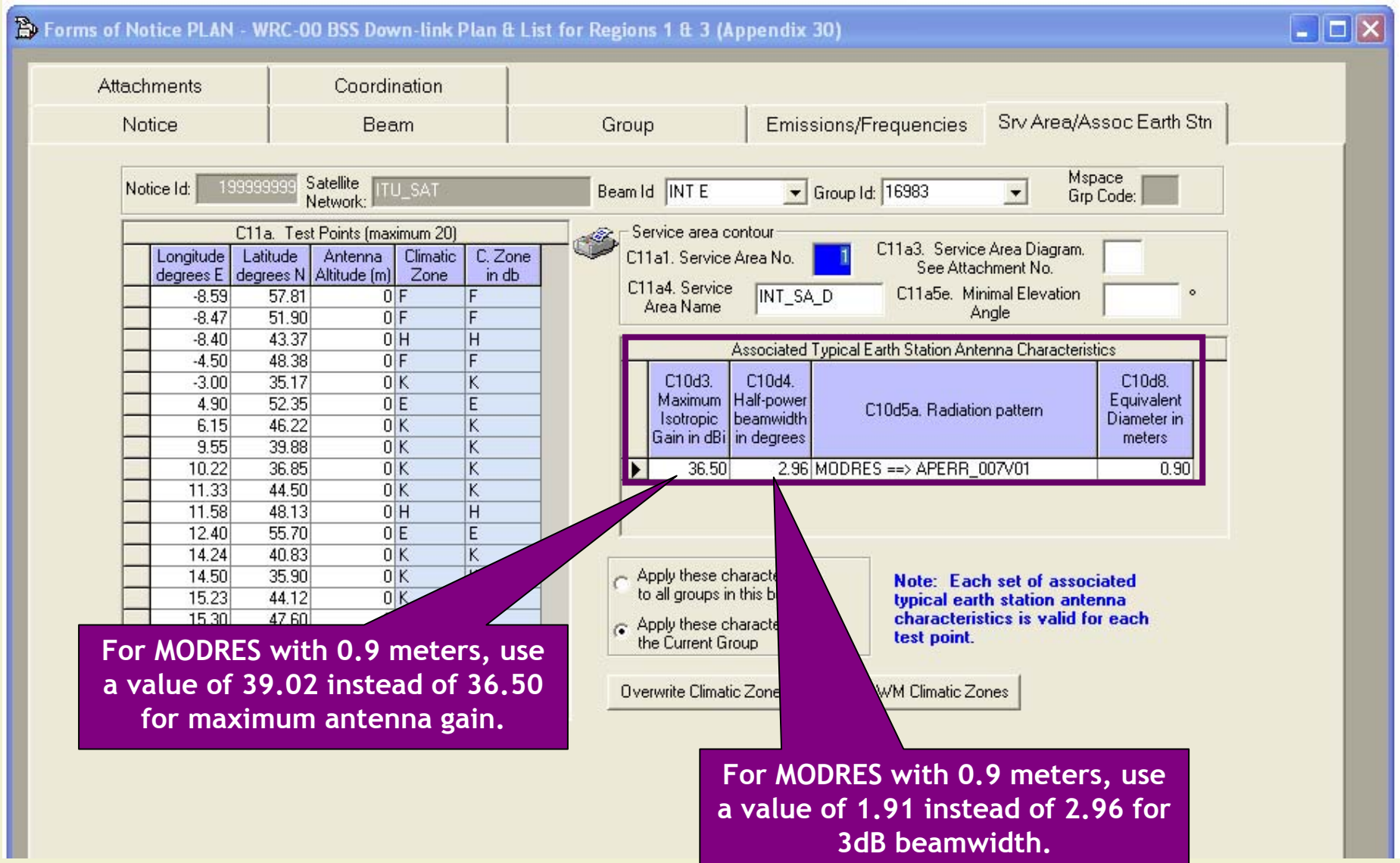
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



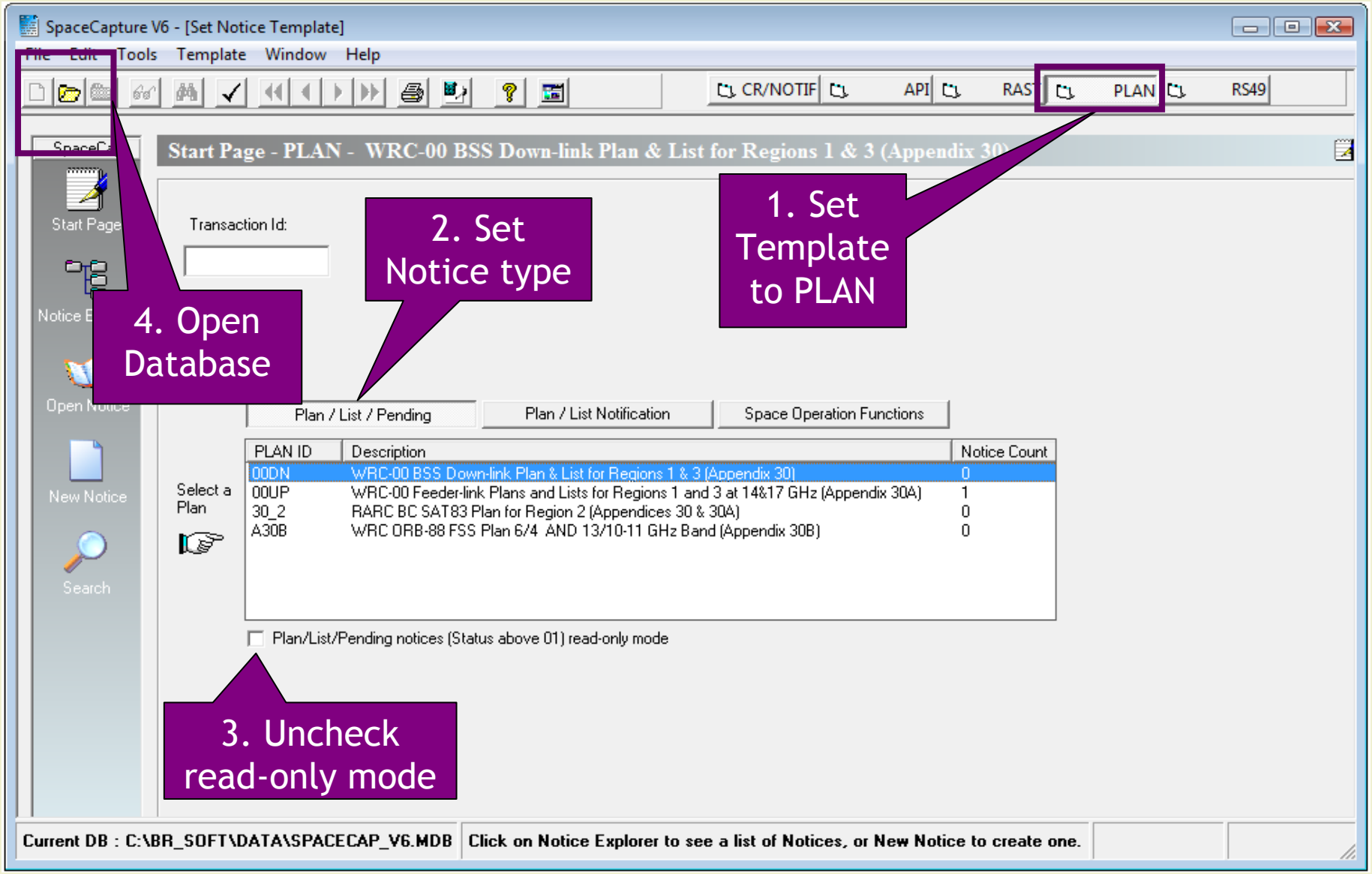
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



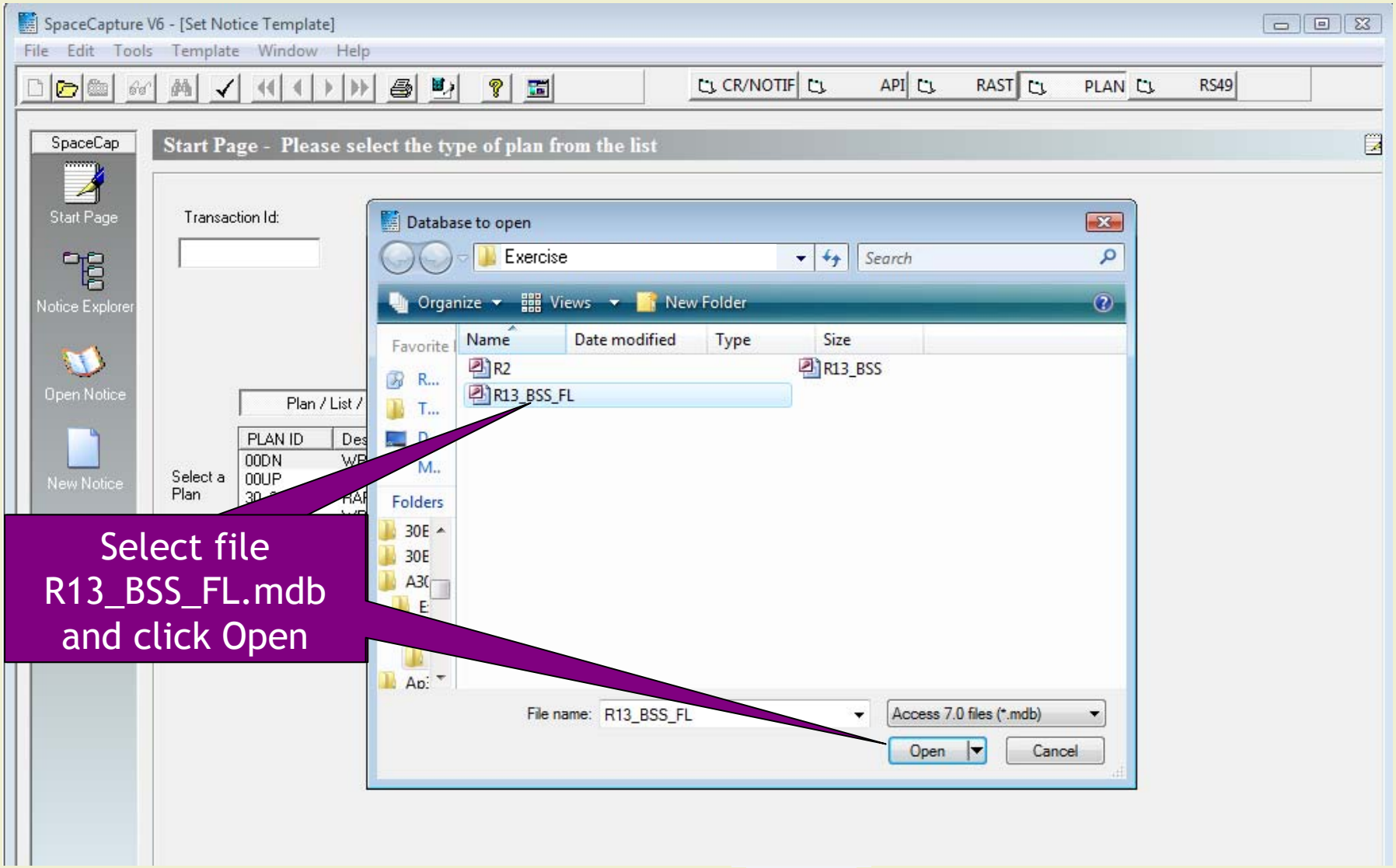
Exercise 1:Correction to a R1&3 BSS submission (Cont.)



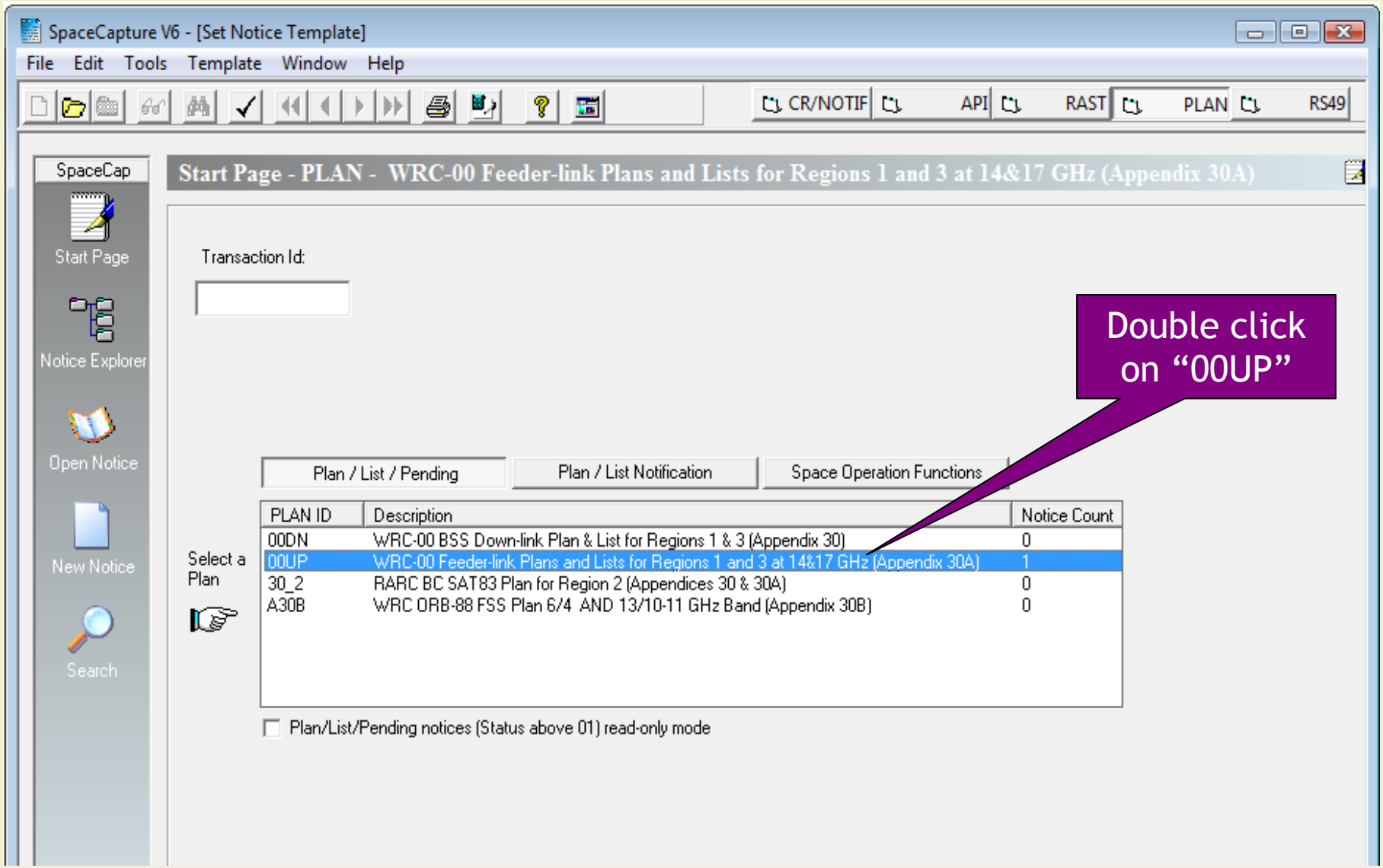
Exercise 2:Correction to a R1&3 BSS Feeder-link submission



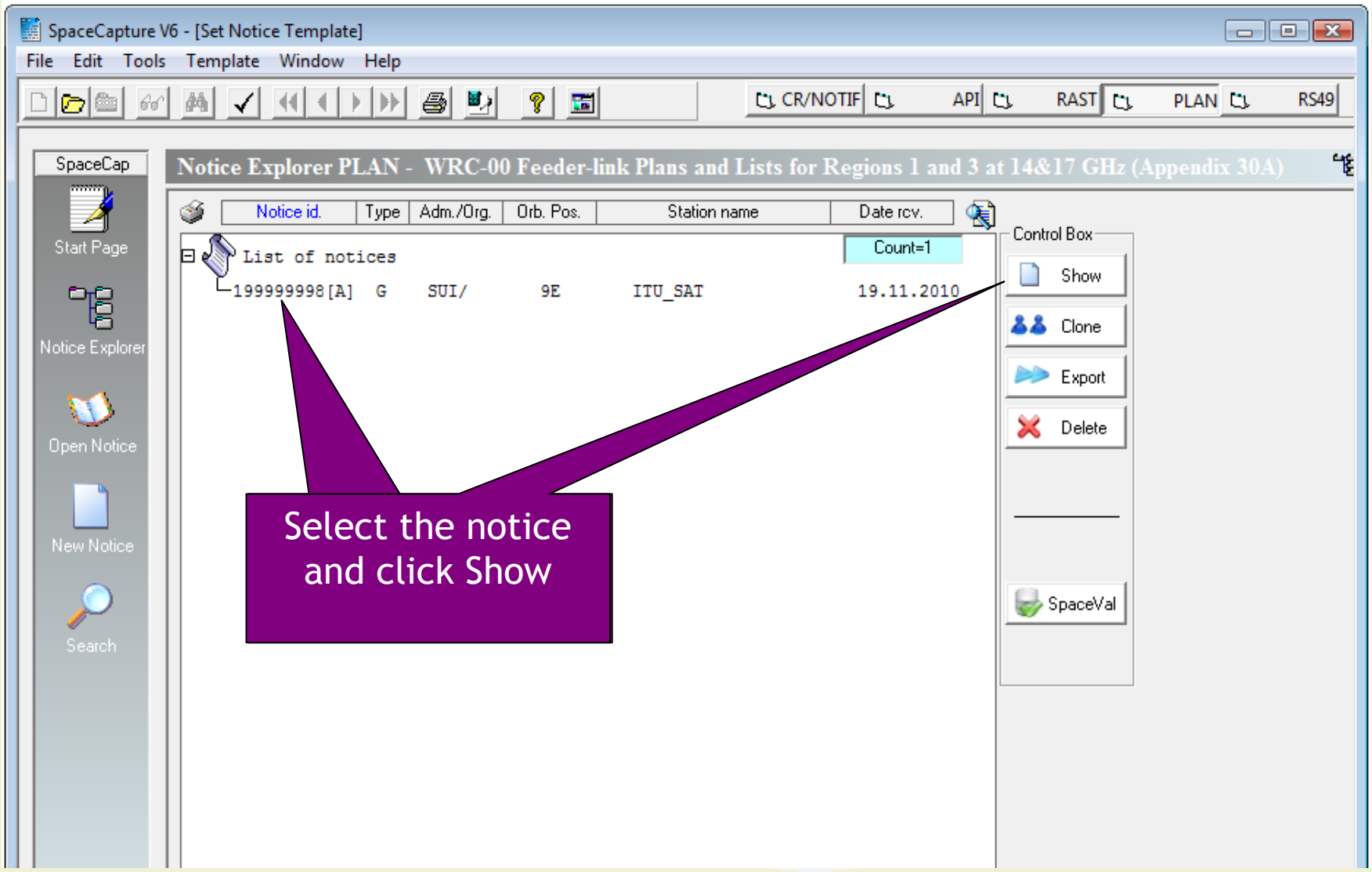
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



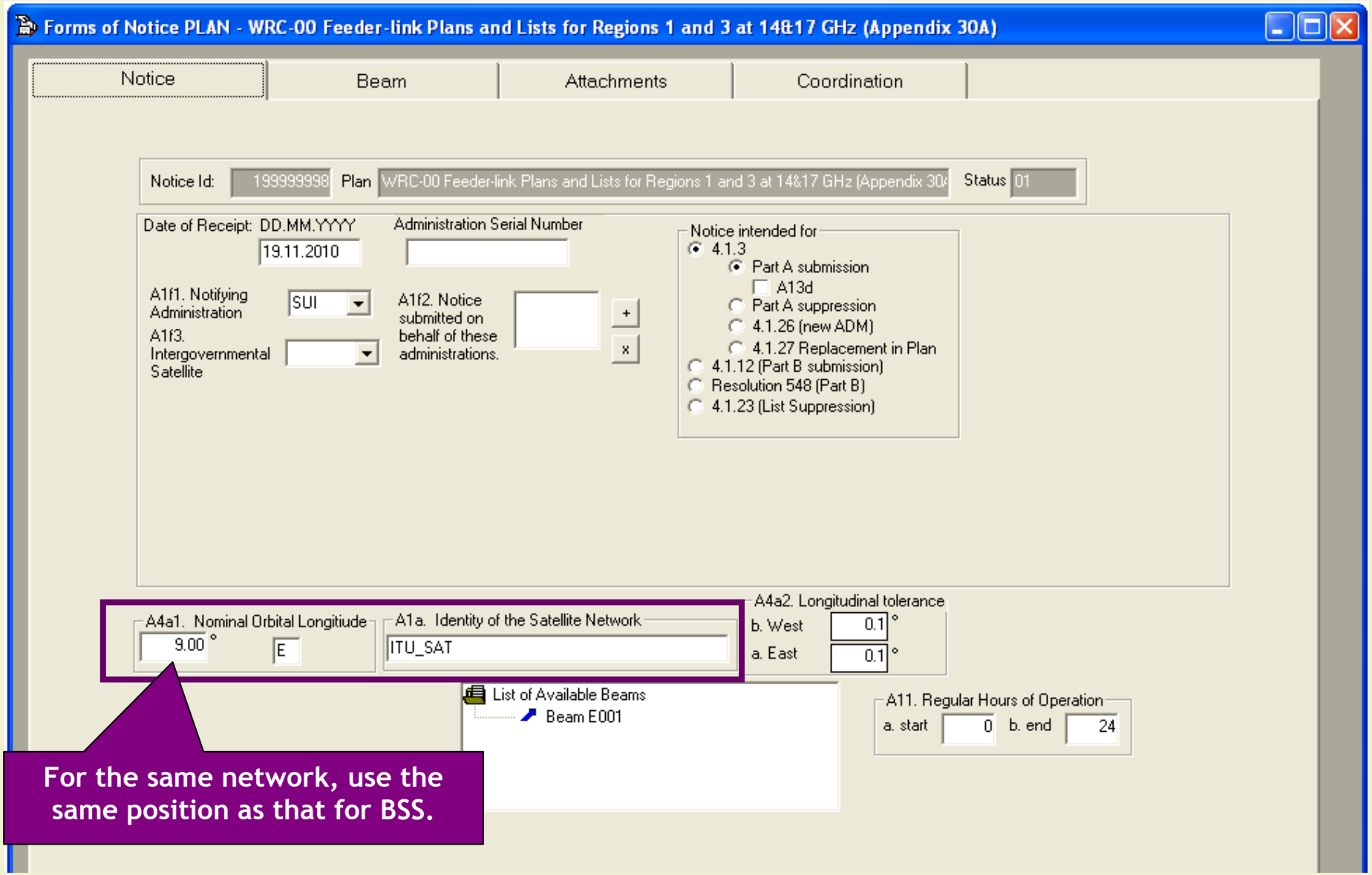
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



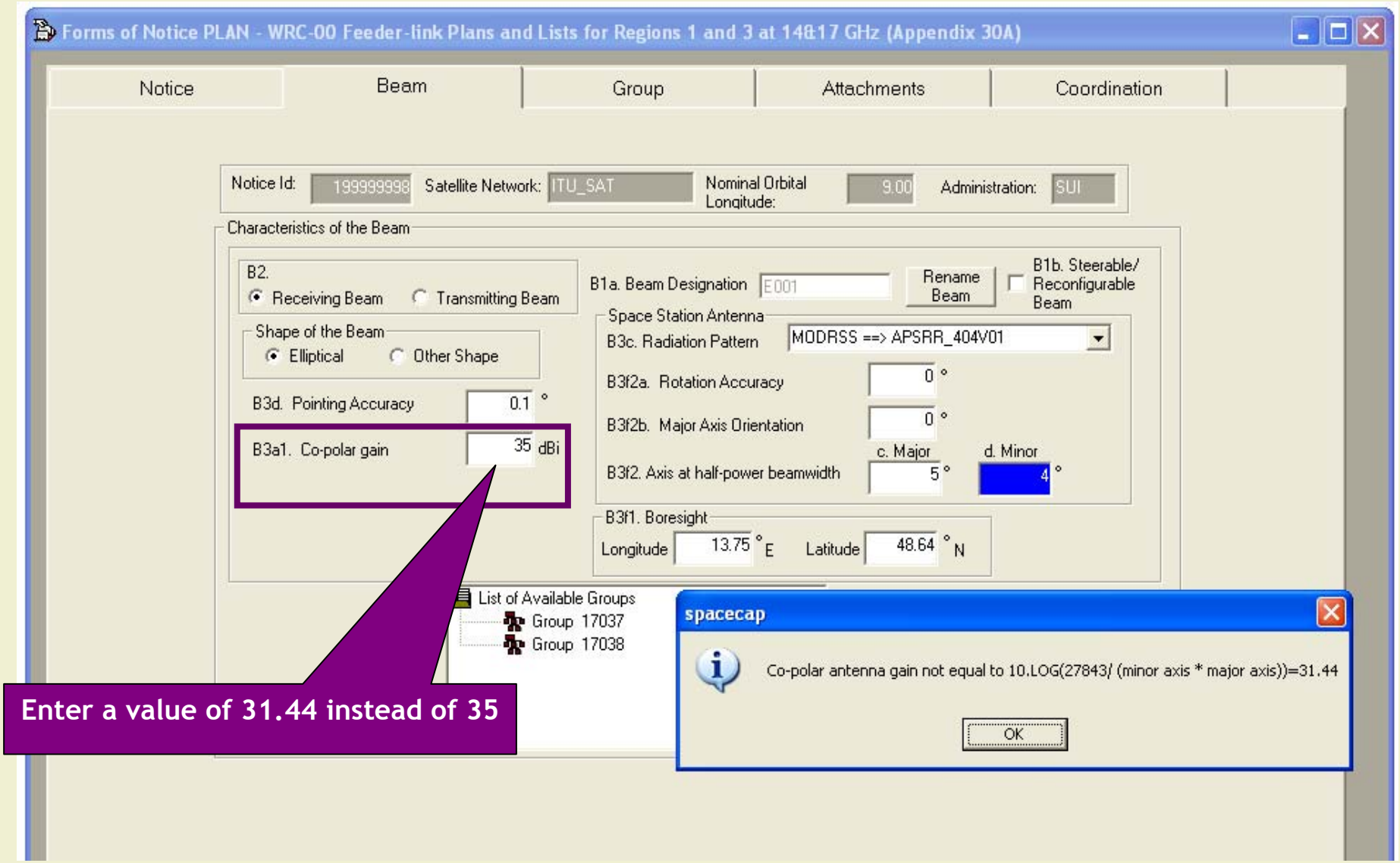
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



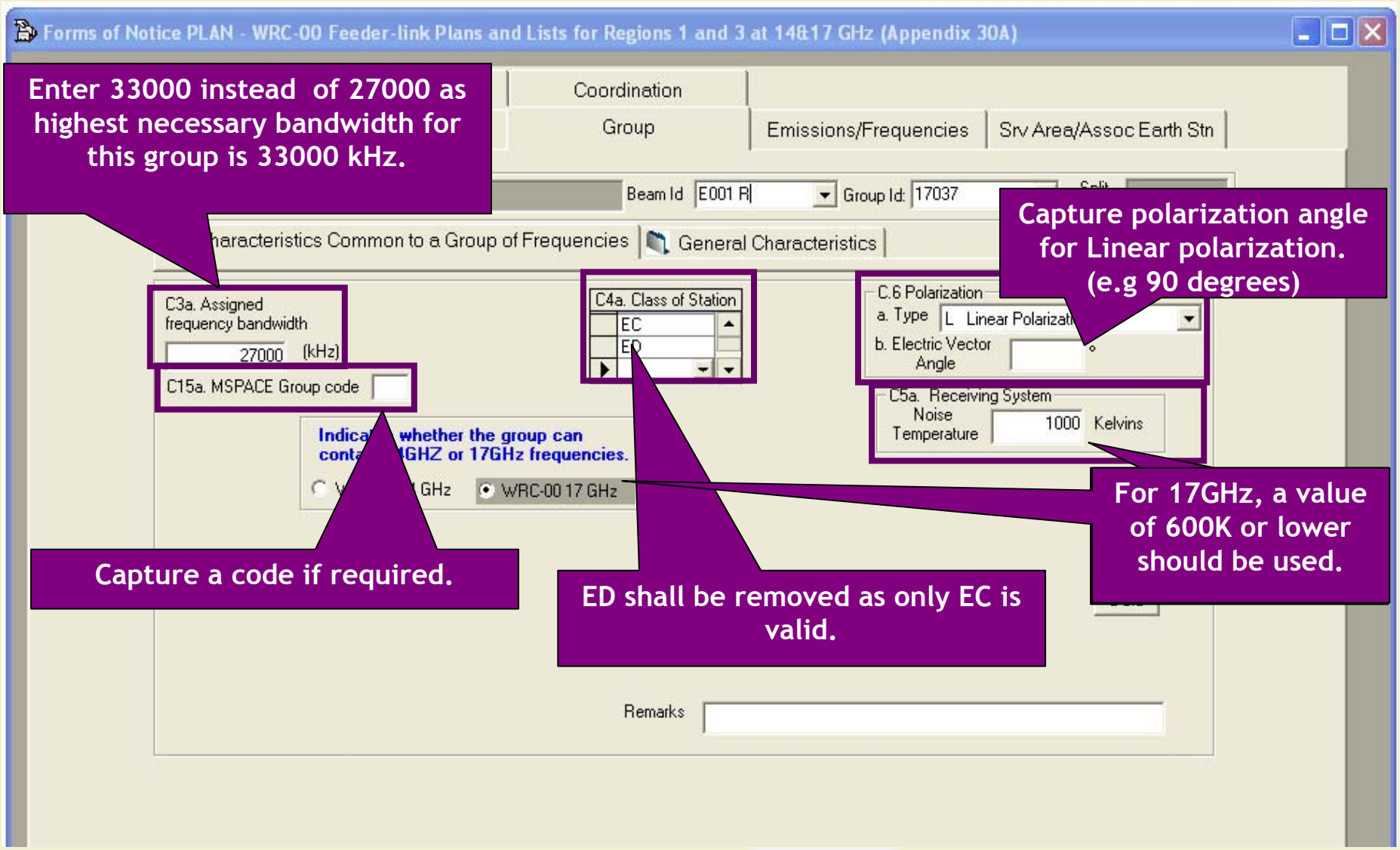
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



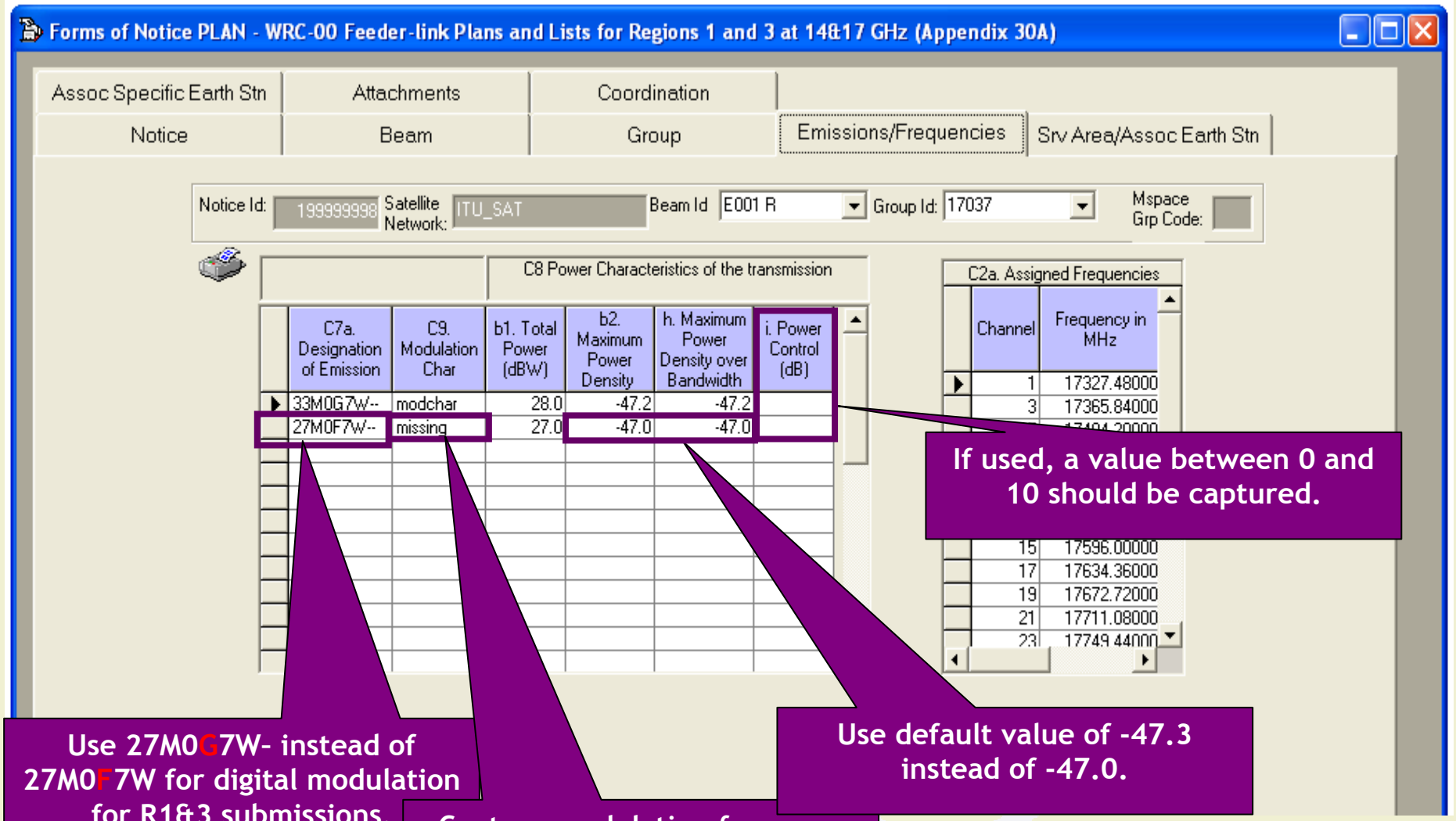
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



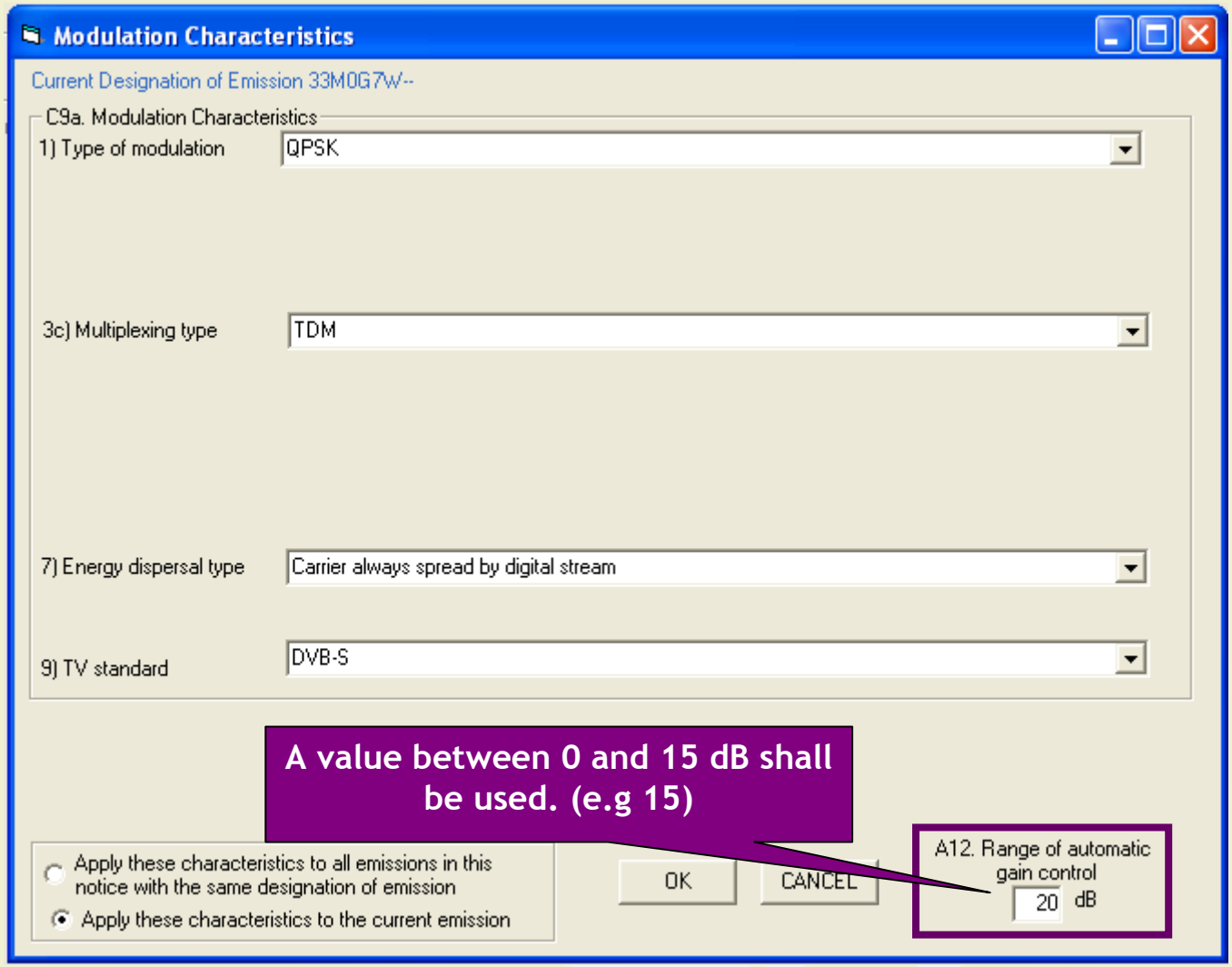
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



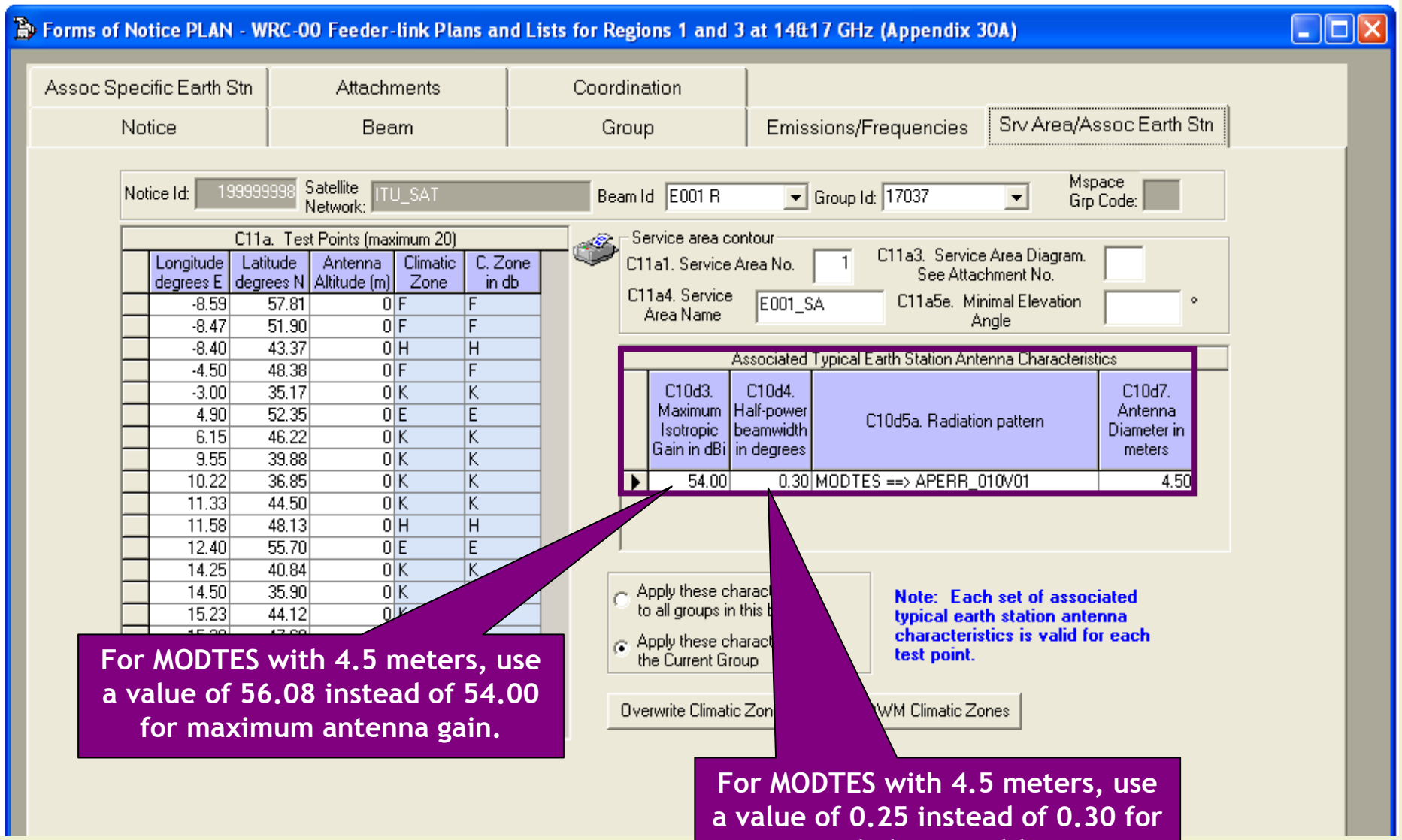
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



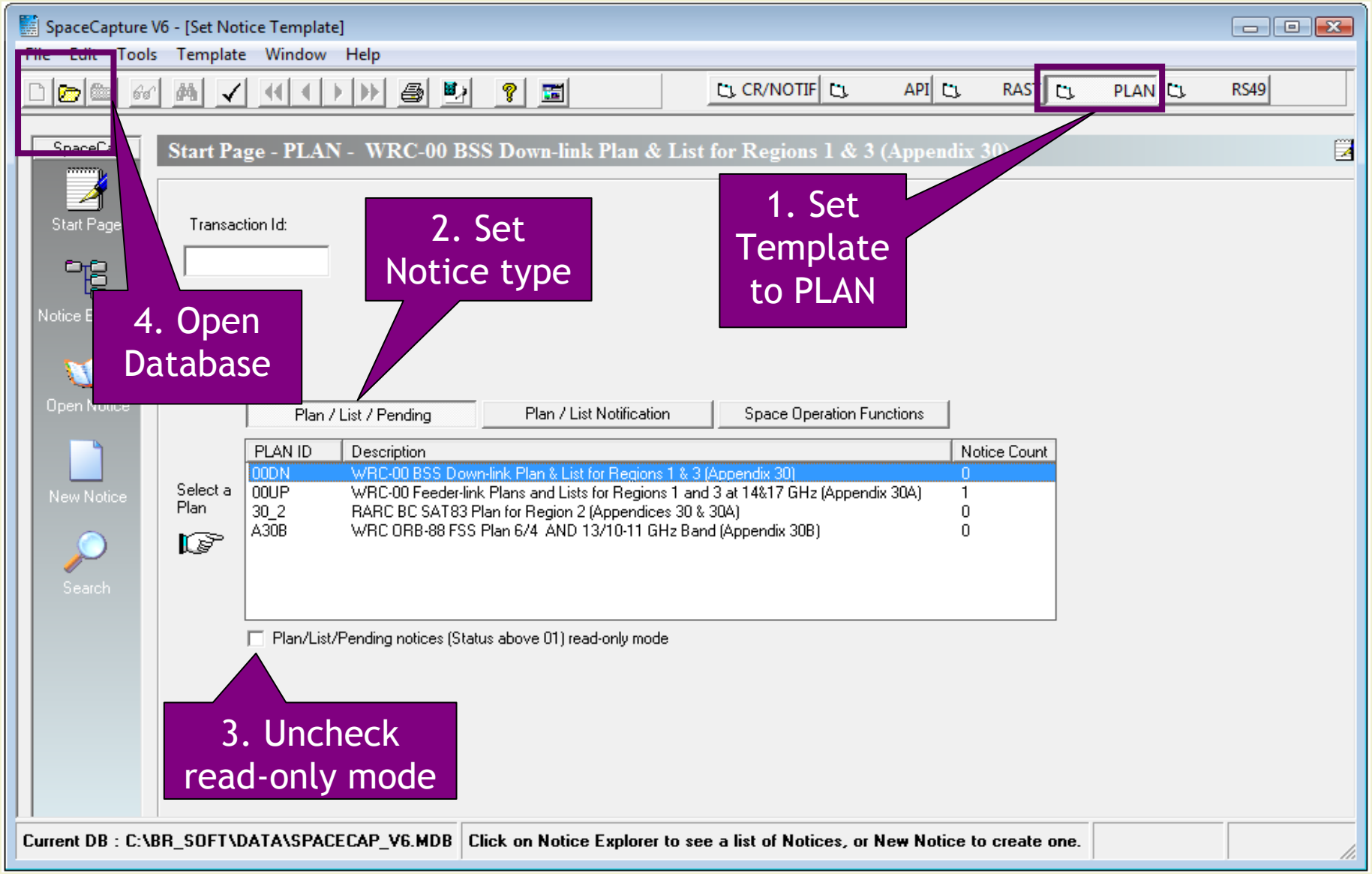
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



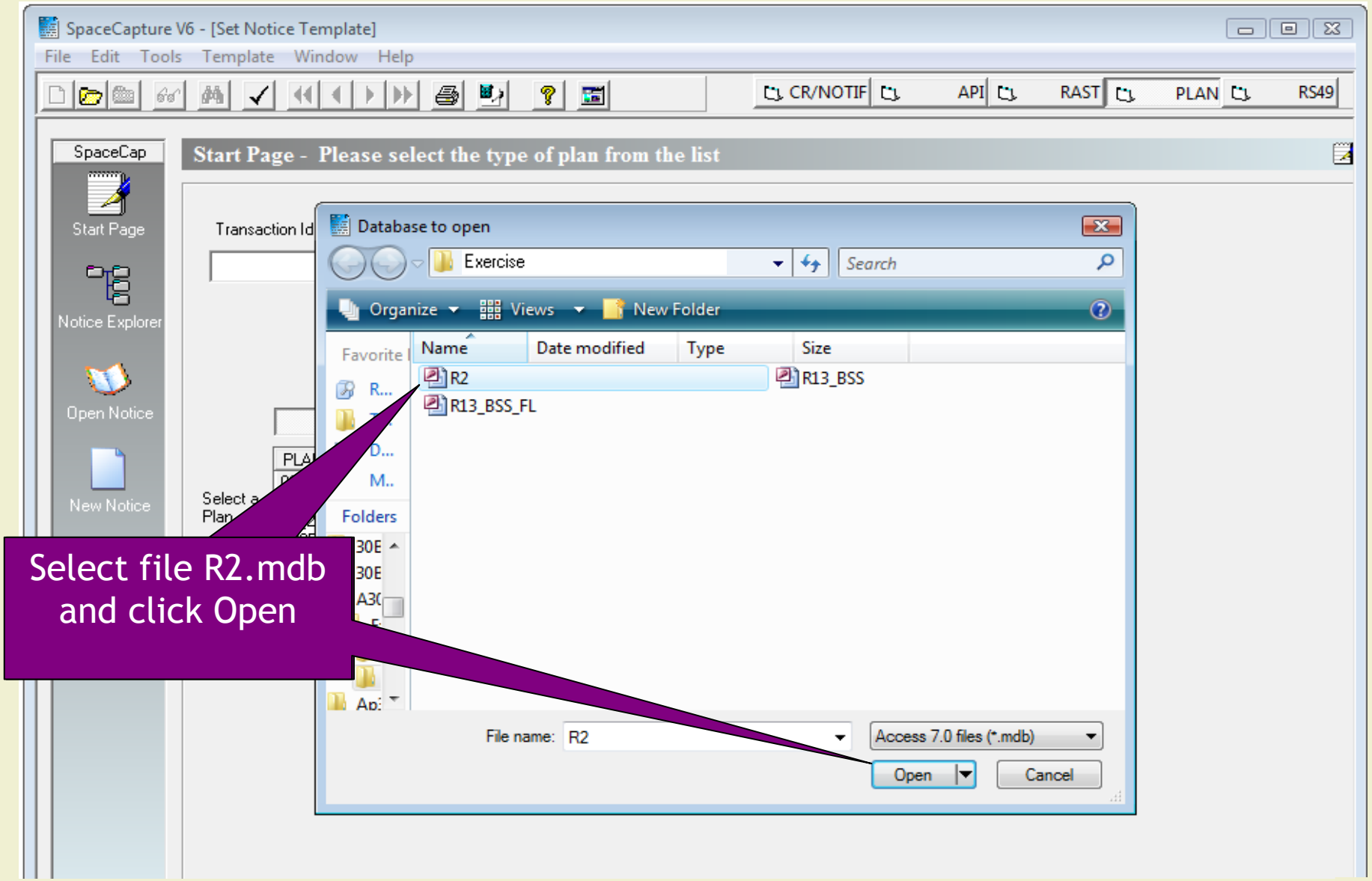
Exercise 2:Correction to a R1&3 BSS Feeder-link submission (Cont.)



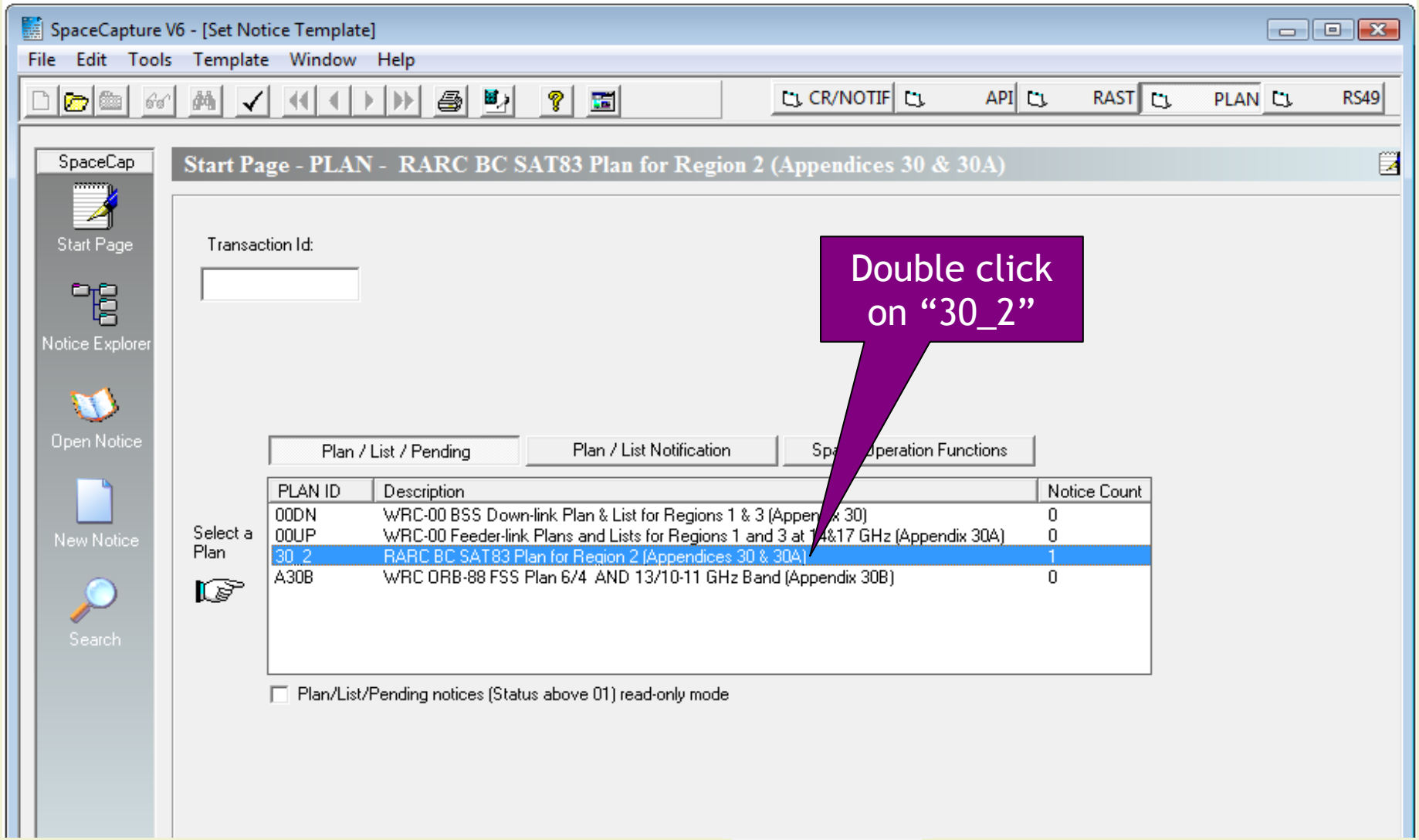
Exercise 3: Correction to a Region 2 submission



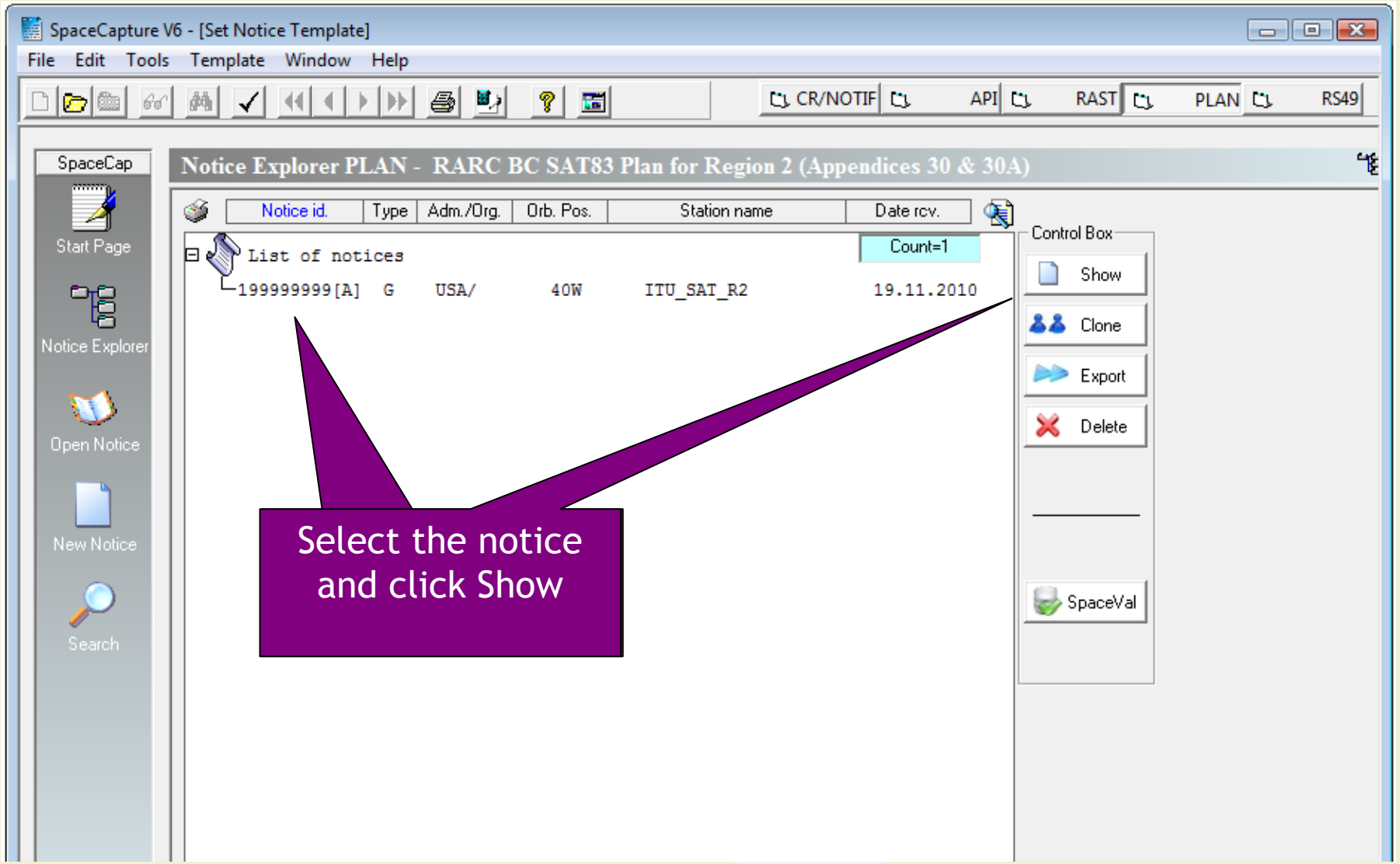
Exercise 3: Correction to a Region 2 submission (Cont.)



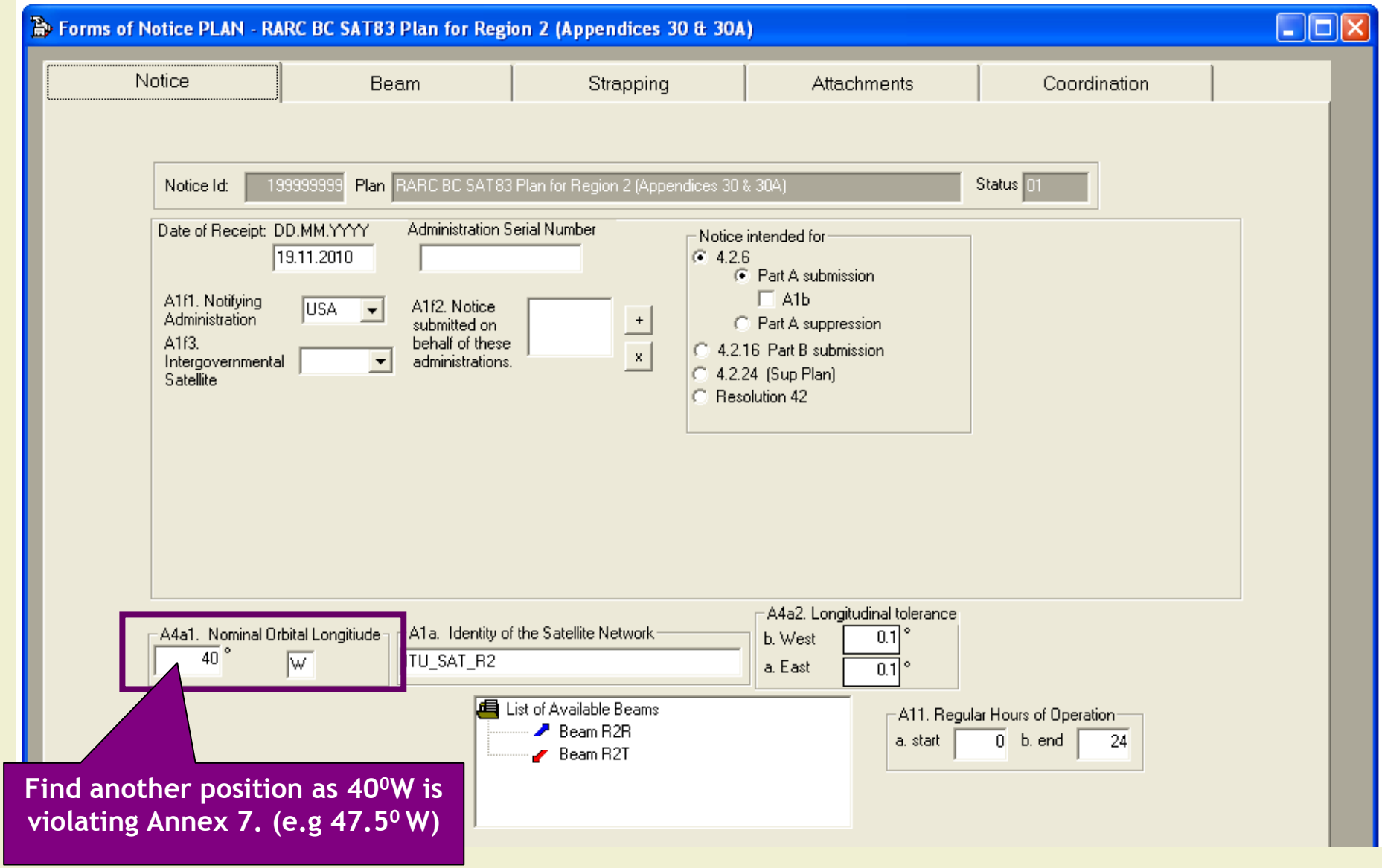
Exercise 3: Correction to a Region 2 submission (Cont.)



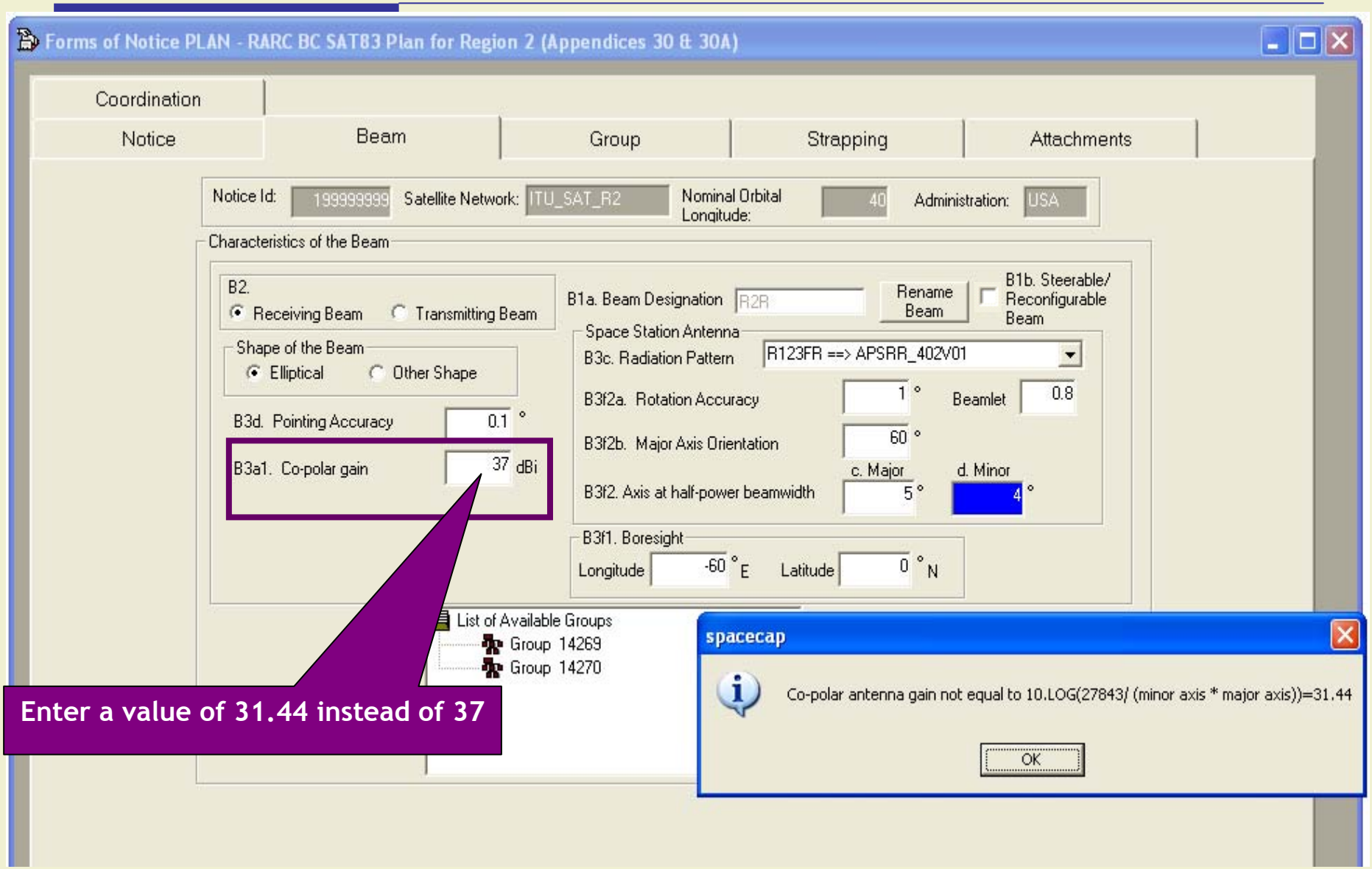
Exercise 3: Correction to a Region 2 submission (Cont.)



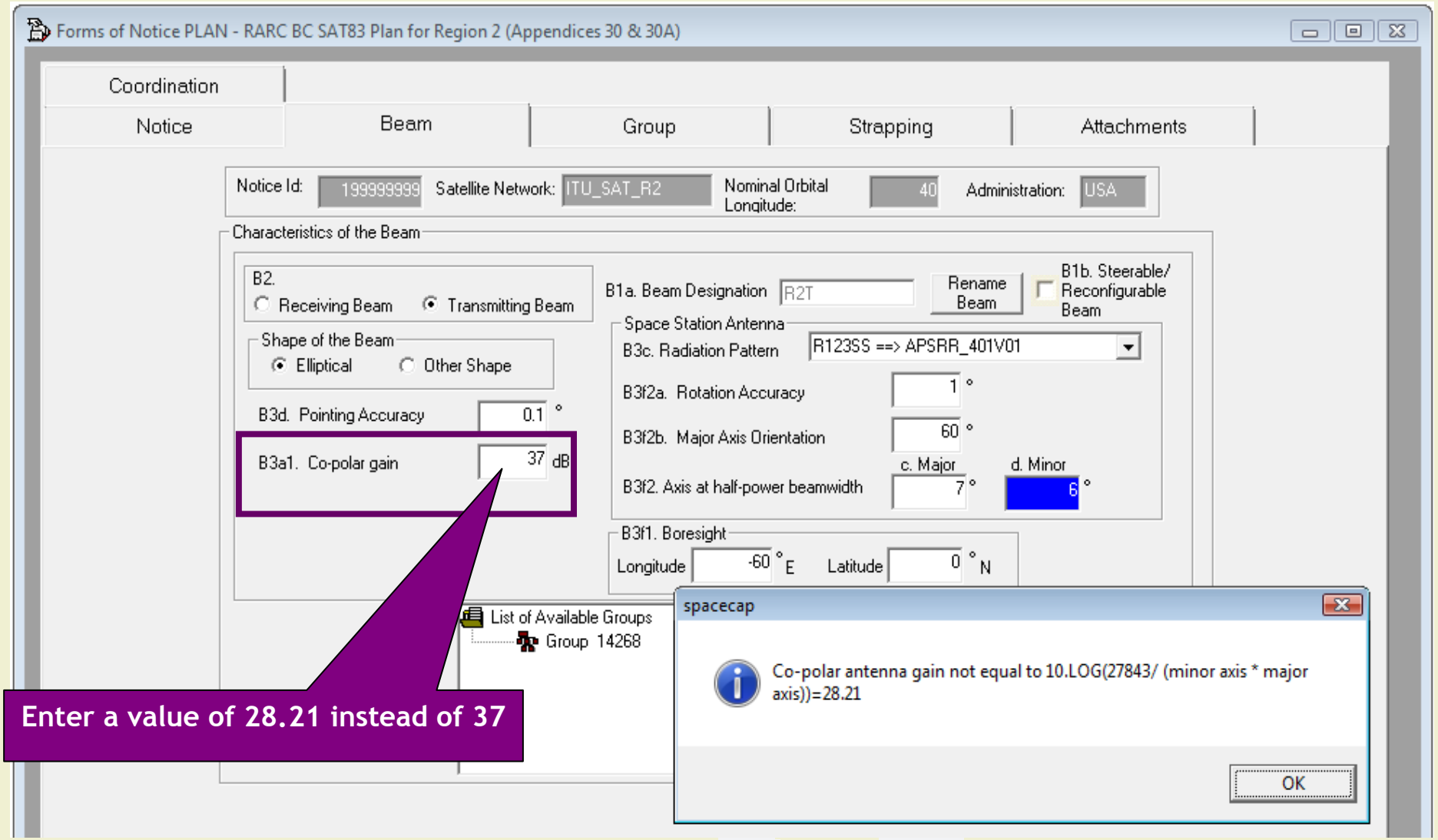
Exercise 3: Correction to a Region 2 submission (Cont.)



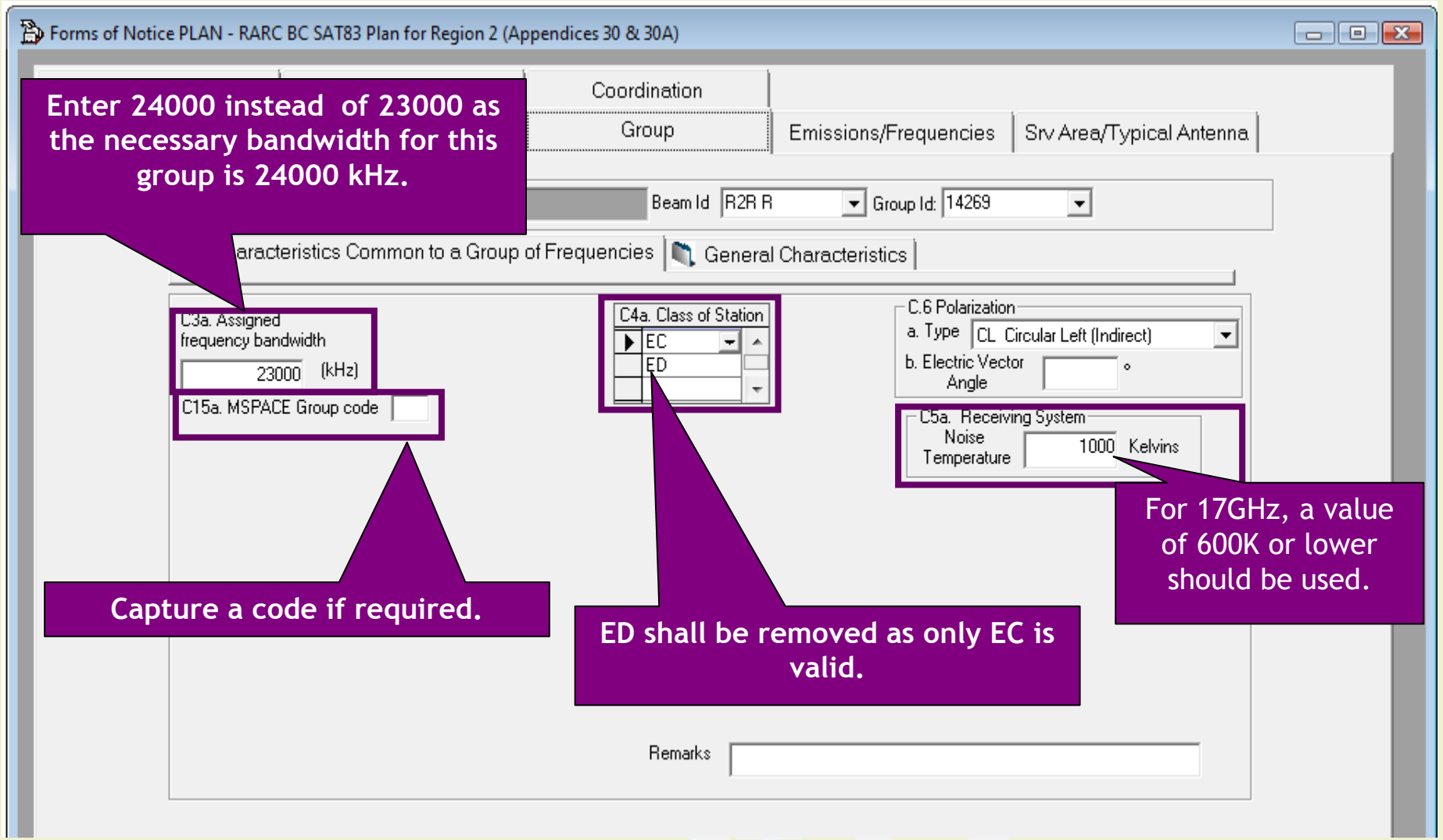
Exercise 3: Correction to a Region 2 submission (Cont.)



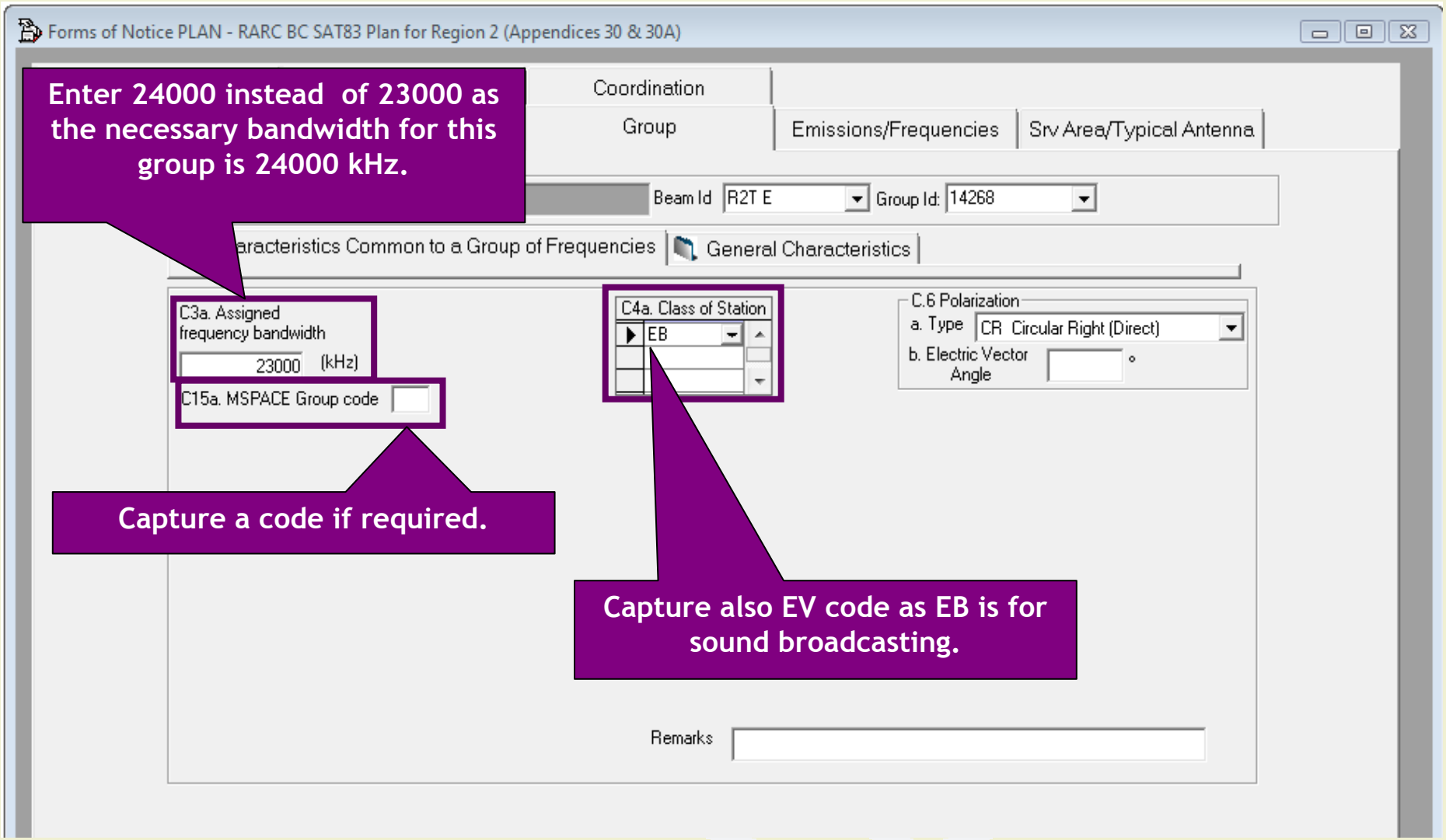
Exercise 3: Correction to a Region 2 submission (Cont.)



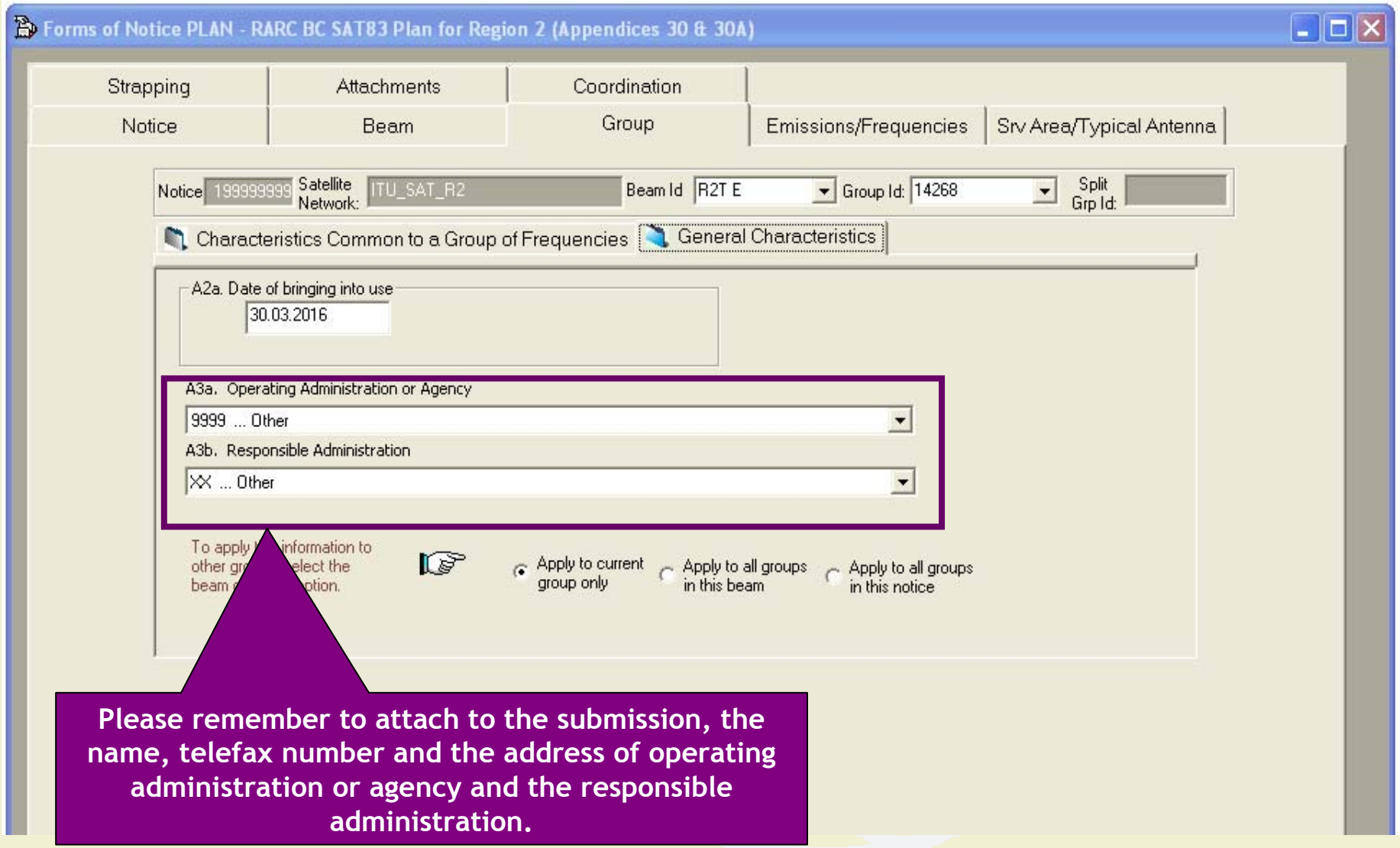
Exercise 3: Correction to a Region 2 submission (Cont.)



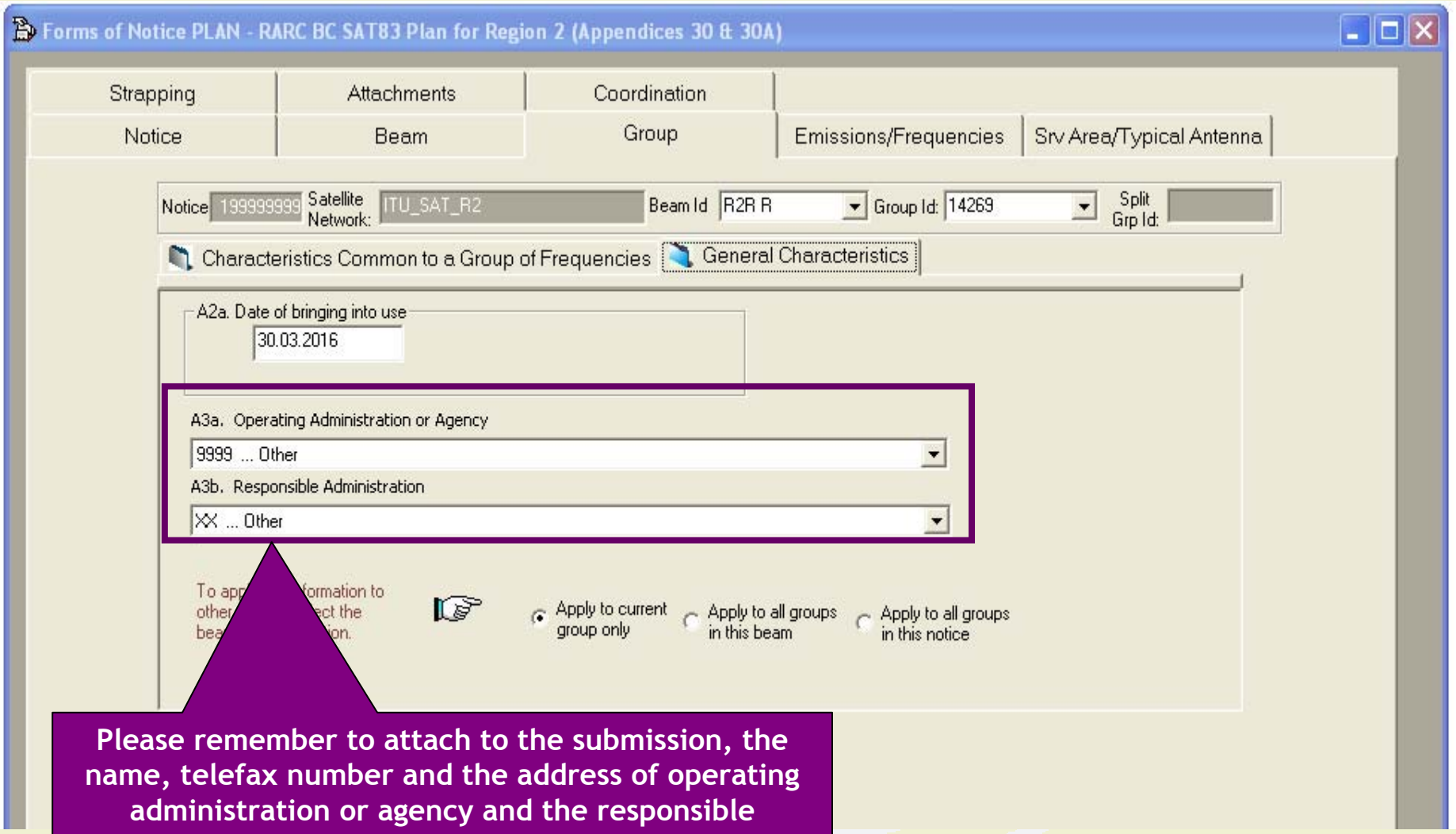
Exercise 3: Correction to a Region 2 submission (Cont.)



Exercise 3: Correction to a Region 2 submission (Cont.)

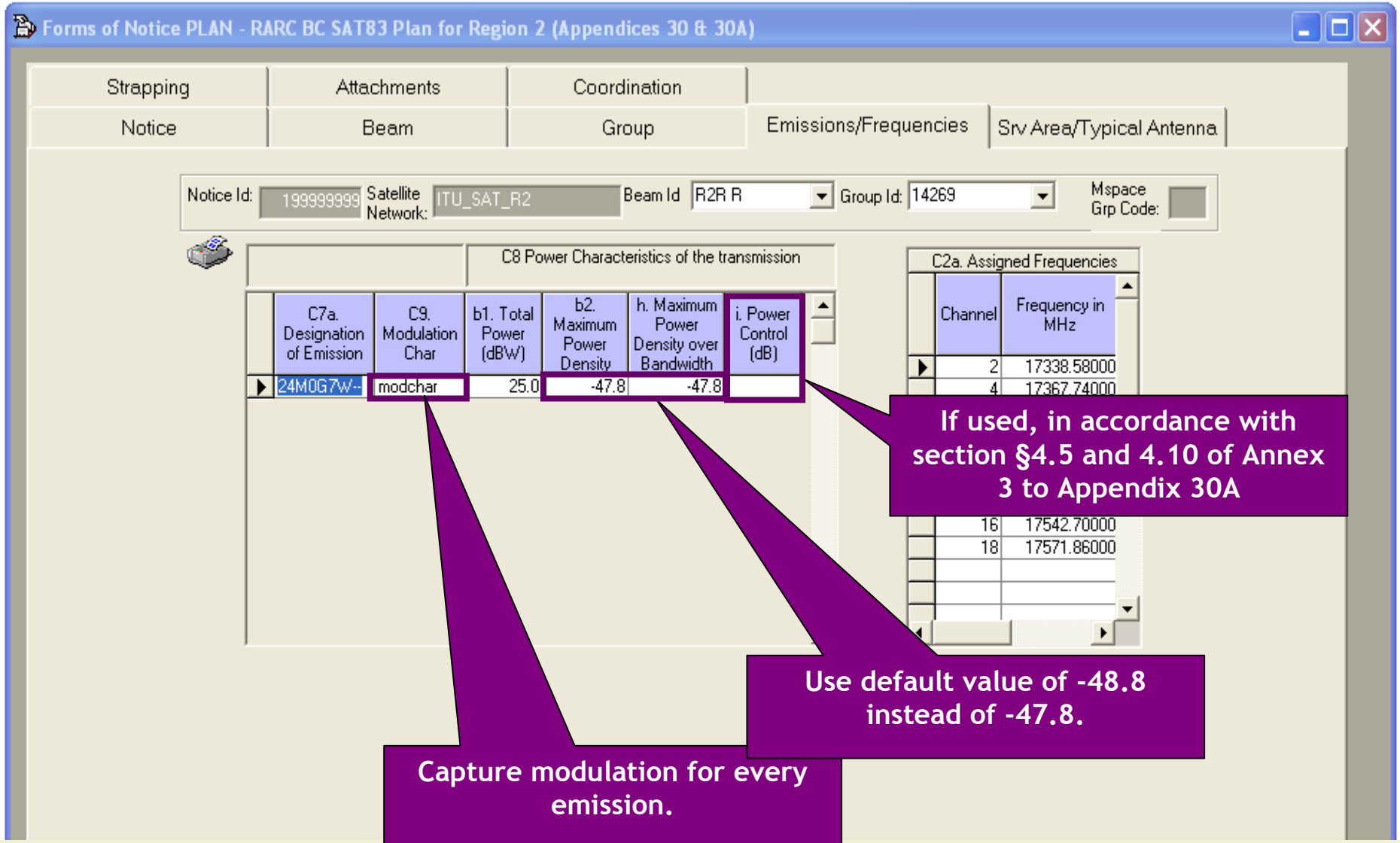


Exercise 3: Correction to a Region 2 submission (Cont.)

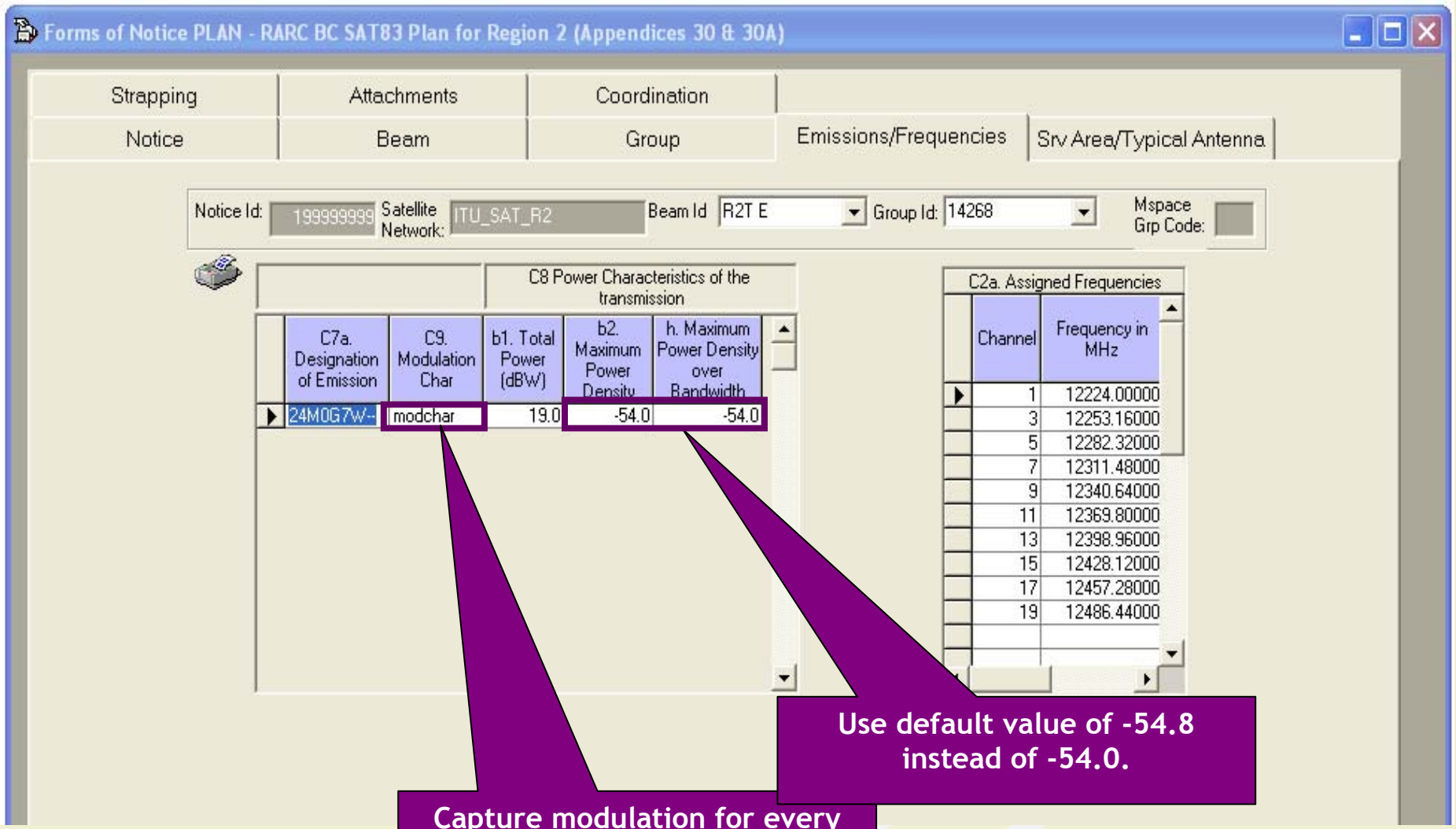


Please remember to attach to the submission, the name, telefax number and the address of operating administration or agency and the responsible administration.

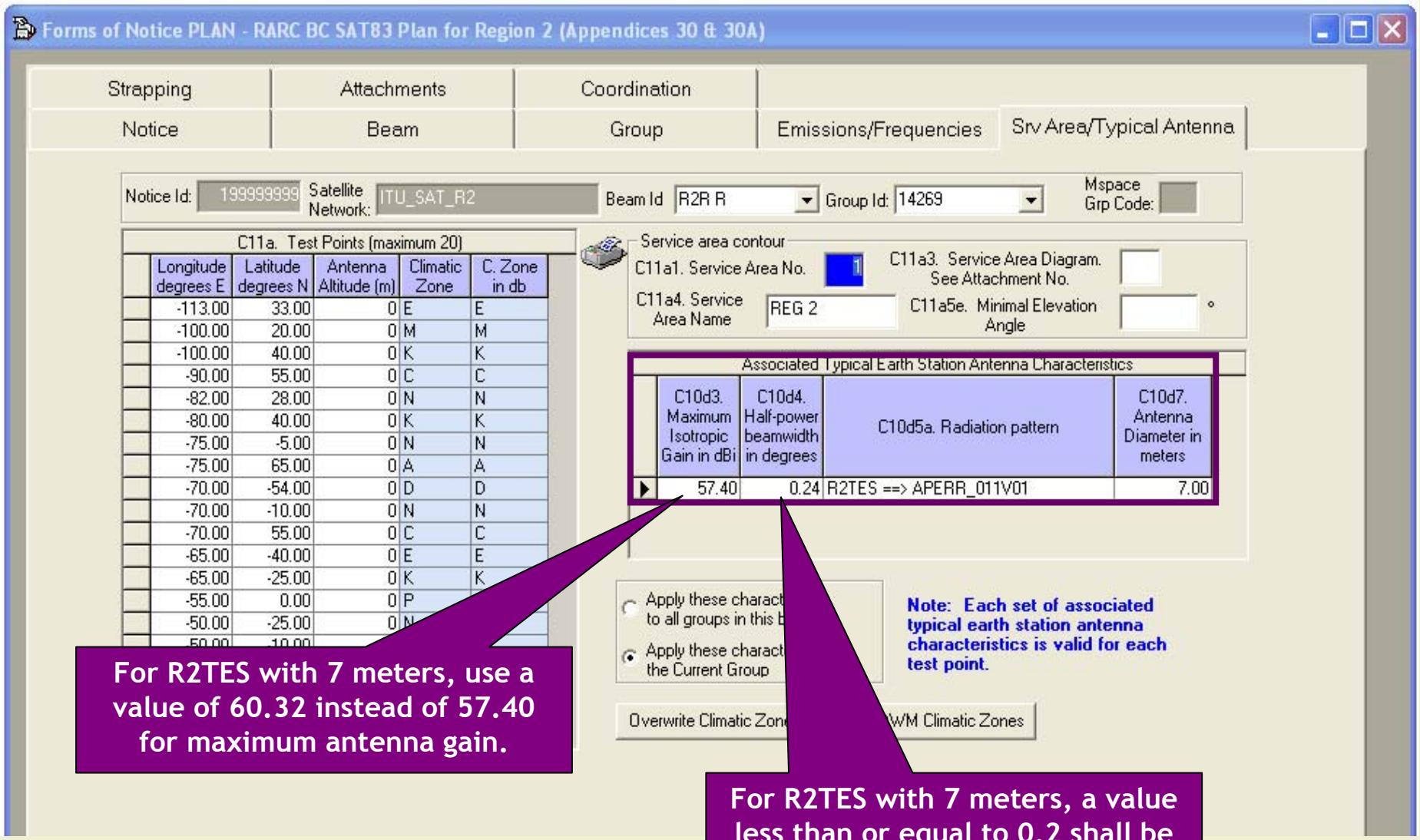
Exercise 3: Correction to a Region 2 submission (Cont.)



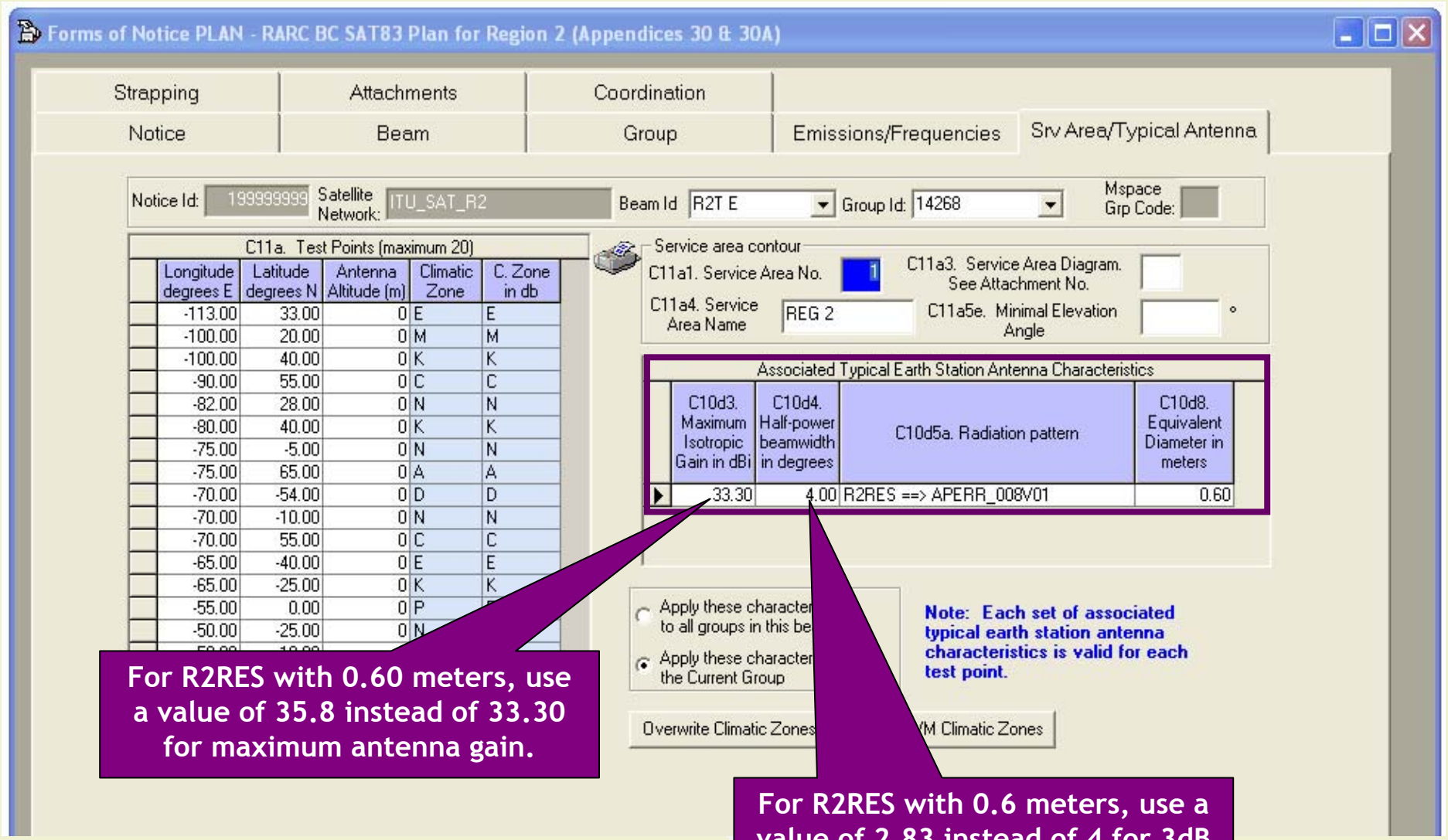
Exercise 3: Correction to a Region 2 submission (Cont.)



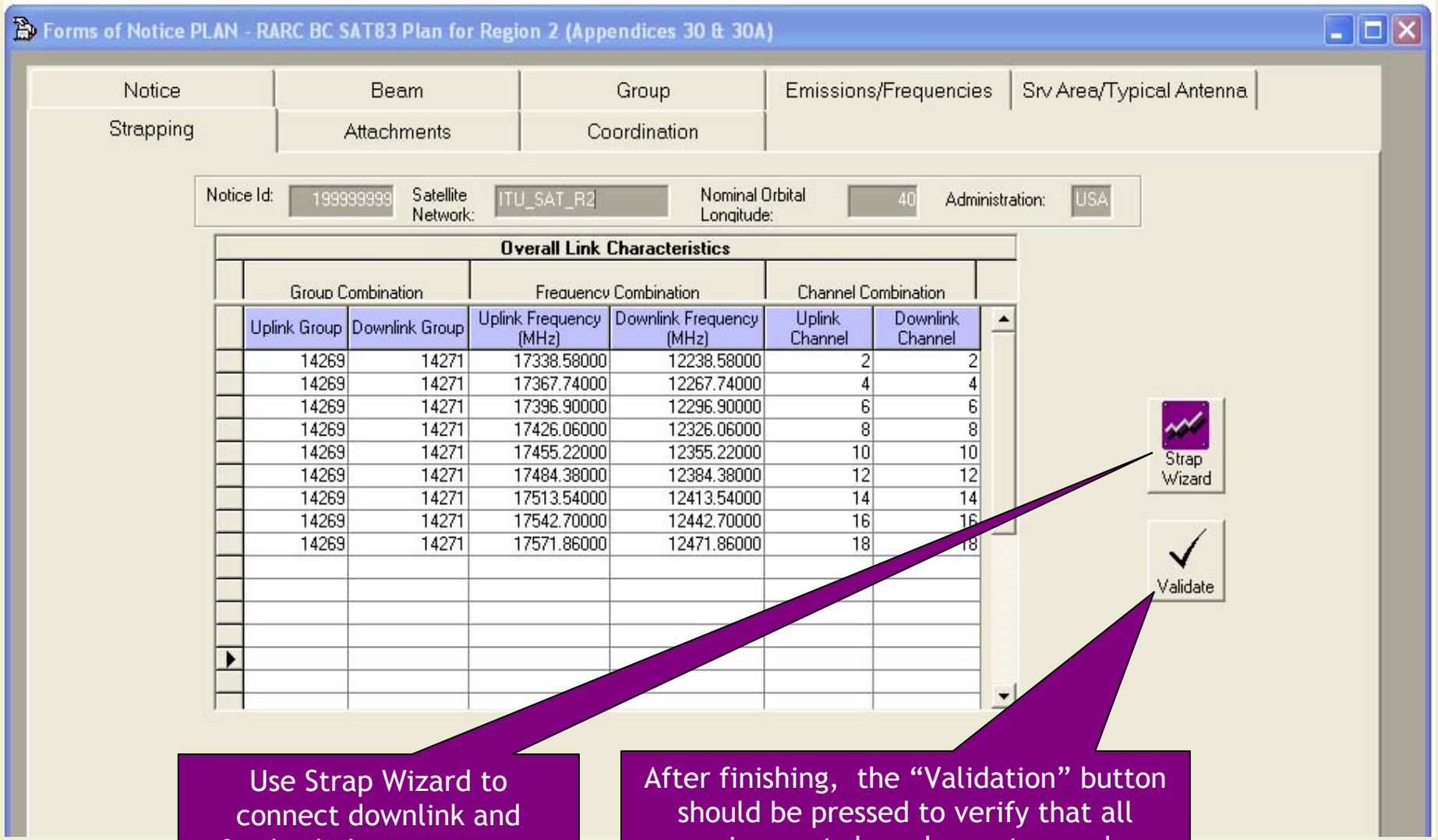
Exercise 3: Correction to a Region 2 submission (Cont.)



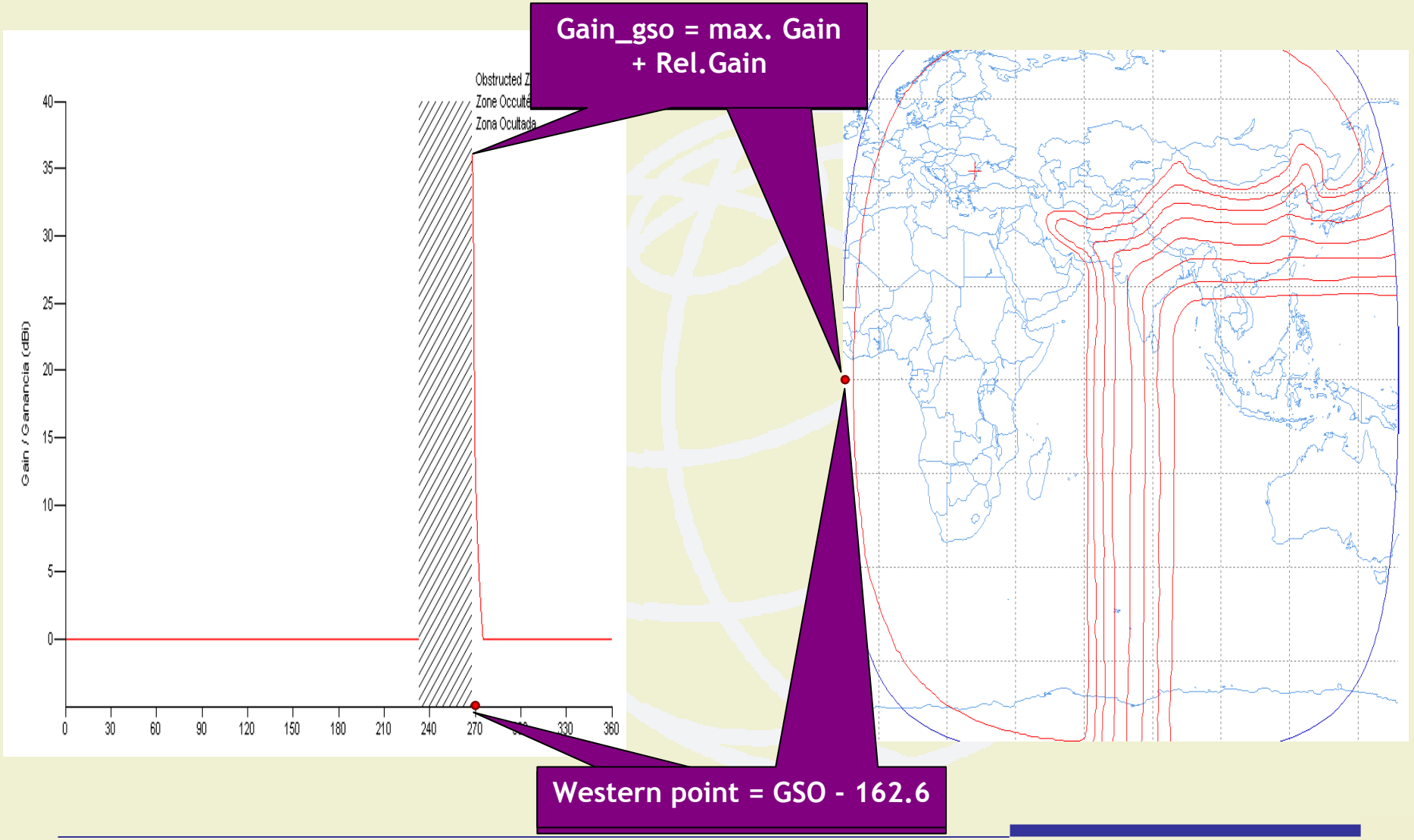
Exercise 3: Correction to a Region 2 submission (Cont.)



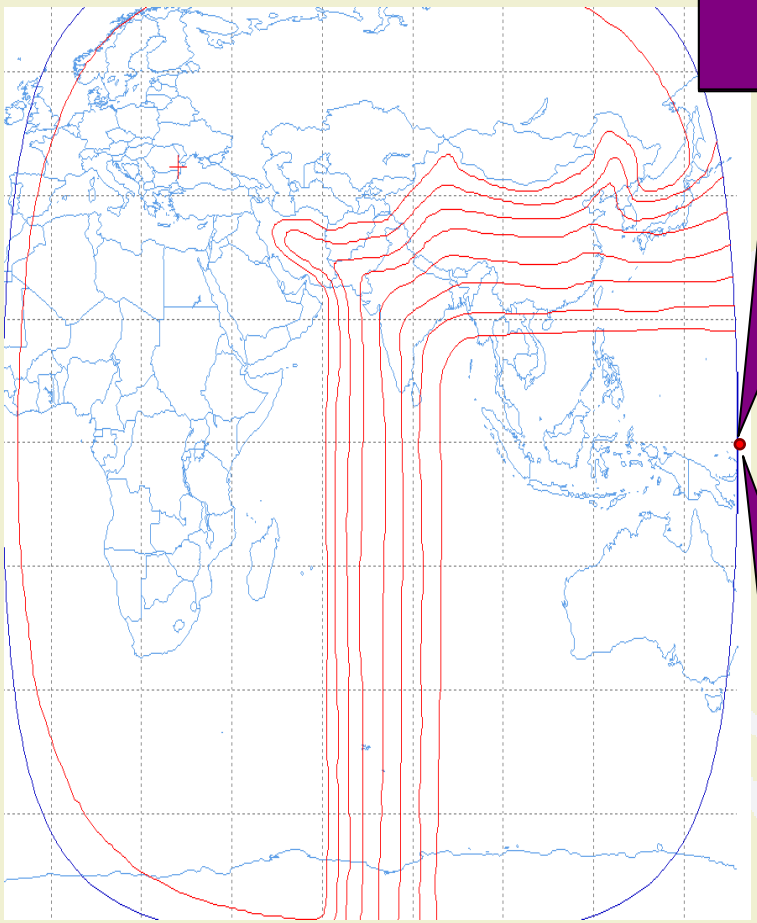
Exercise 3: Correction to a Region 2 submission (Cont.)



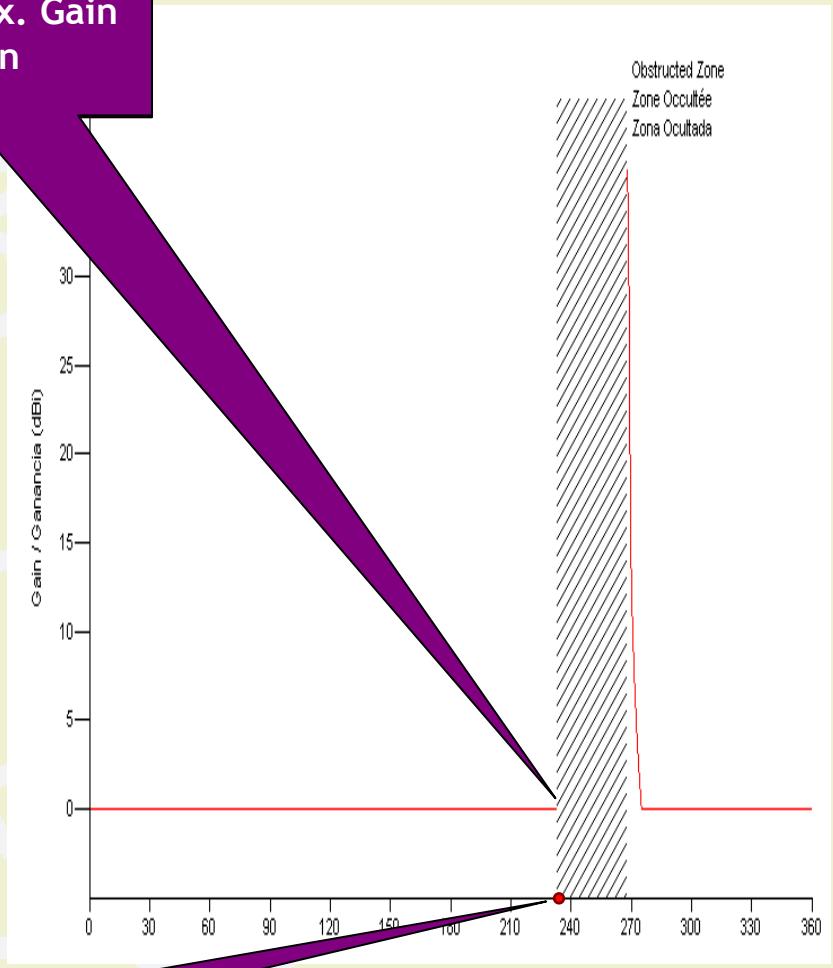
Annex1-Gains at two most Western and Eastern points visible from the GSO satellite



Annex1-Gains at two most Western and Eastern points visible from the GSO satellite

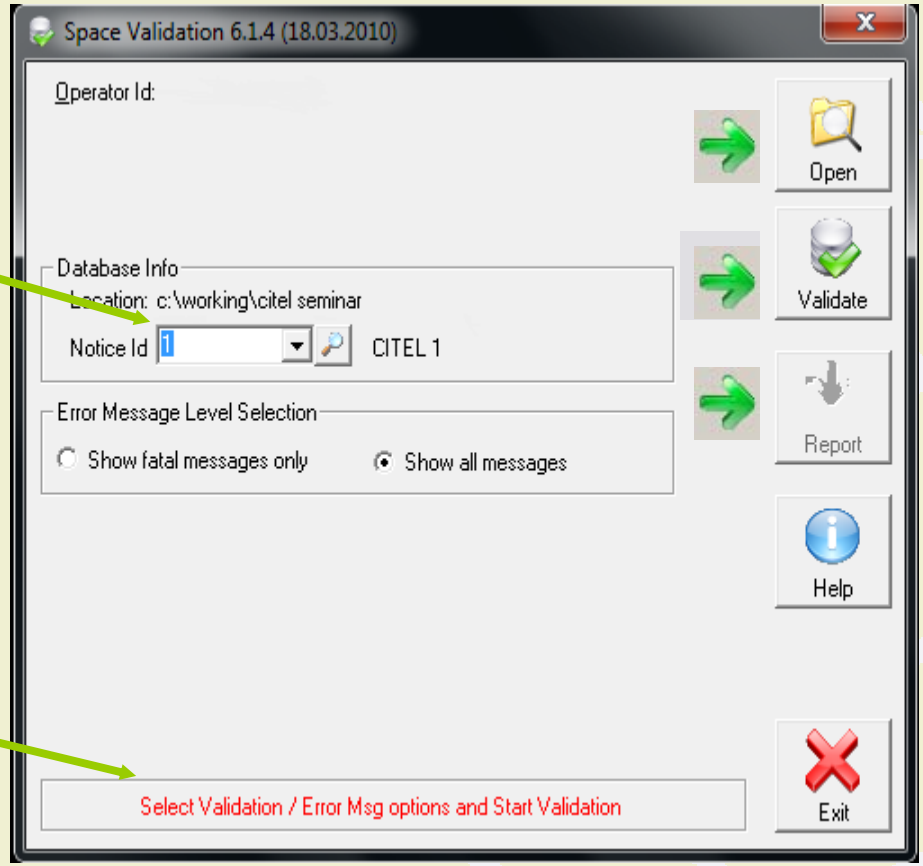


Gain_gso = max. Gain + Rel.Gain



Eastern point = GSO + 162.6

Annex2: SpaceVal



2.Select the notice Id. to be validated

4. Check validation message

1.Browse to Select/open the database to be validated

3.Start the validation process

5.Show validation results with SpaceQry

Help / show validation rules

Exit SpaceVal