



FREQUENCY REGISTRATION FOR SMALL SATELLITE MISSIONS

BR-SSD e-Learning Center

ITU Radio Regulations Legal Framework

ITU Radio Regulations (RR)

- Part of the ITU Administrative Regulations and Instruments complementing the provisions of the ITU Constitution (CS) and Convention (CV), which govern the use of telecommunications
- ***Legal treaty - bindings on all Member states***
- Principles of use of orbit/spectrum (CS and RR)
- Allocation of frequency bands and services
- Procedures and Plans

Are we obliged to apply the ITU Radio Regulations?

- Ratification of the ITU Convention (CV) implies acceptance of the ITU Radio Regulations

Radio Regulations – useful sections for small satellite missions

- Article **1** Definitions
- Article **5** Table of Frequency Allocations
- Article **9** and **11** Procedures for the advance publication (API), coordination and notification
- Article **21/22** Power limits
- Article **25** Amateur and Amateur-satellite service
- Appendix **1** Classification of emissions
- Appendix **4** Data required for satellite filings

Obligations of an Administration under the Radio Regulations for amateur satellite service

- No. **25.11** - Administrations authorizing space stations in the amateur satellite service *shall ensure that sufficient earth command stations are established before launch to ensure that any harmful interference caused by emissions from a station in the amateur-satellite service can be terminated immediately* (see No. **22.1**)
- No. **22.1** - space stations shall be fitted with devices to ensure immediate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations.”

What assignments should be notified (No.11.2)?



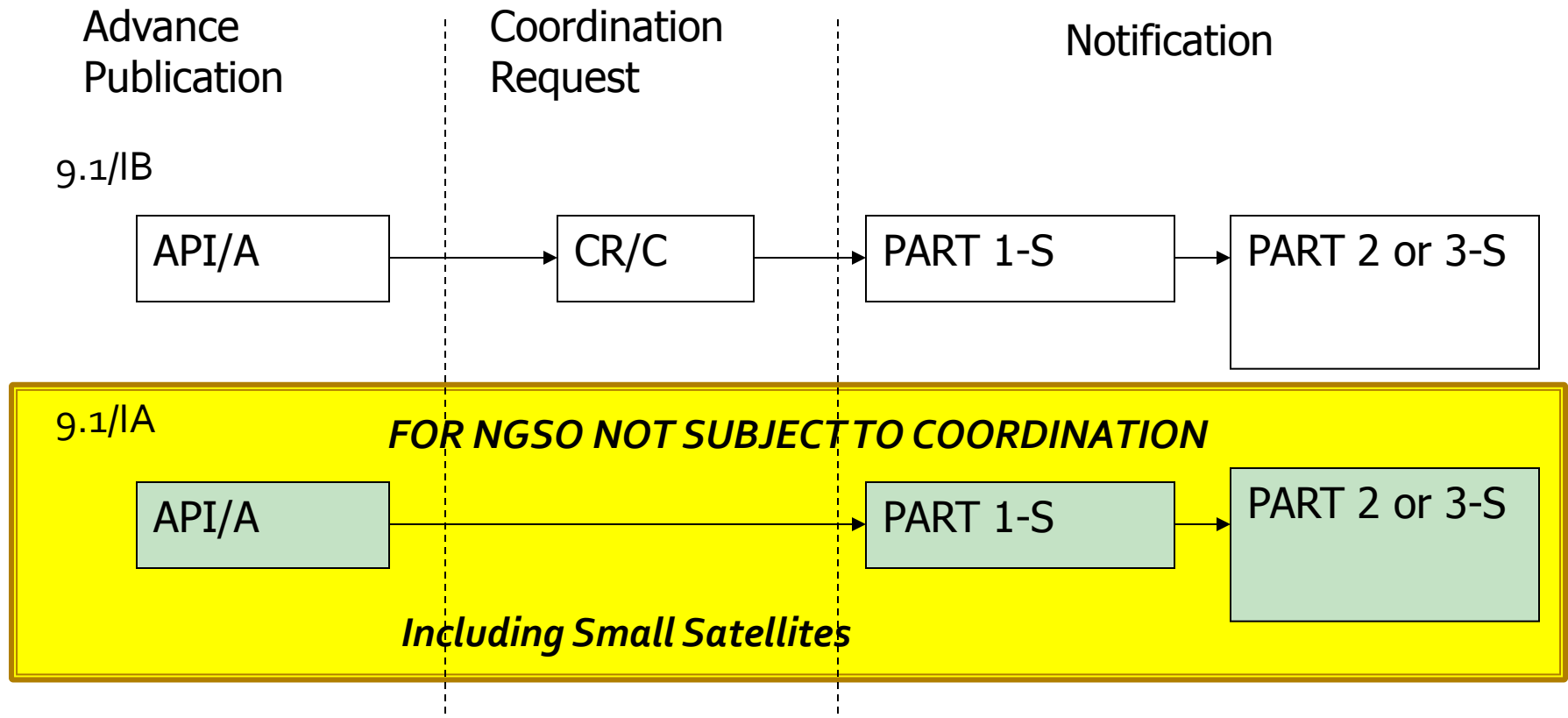
- Any frequency assignments of transmitting and receiving earth and space stations
 - Capable of causing harmful interference; or
 - Used for international radiocommunication; or
 - Seeking to obtain international recognition; or
 - Non conforming assignment seeking to be recorded for information purposes only
 -

Which procedure is applicable for small satellite missions?



- Small satellite missions are generally NGSO systems which are not subject to any form of mandatory coordination. For such systems, the provisions of [Article 9, Sub-Section IA](#) (*Advance publication of information on satellite networks or satellite systems that are not subject to coordination procedure under Section II*), are applicable.

Satellite network filing procedure



Frequency allocations for Amateur Satellite Service



Frequency band	Service	Type of allocation
28-29.7 MHz	Amateur-Satellite Service	Primary
144-146 MHz	Amateur-Satellite Service	Primary
435-438 MHz	Amateur-Satellite Service	Secondary (No.5.282)
1260 – 1270 MHz	Amateur-Satellite Service (E-S)	Secondary (No.5.282)
2400 – 2450 MHz	Amateur-Satellite Service	Secondary (No.5.282)
3400 – 3410 MHz	Amateur-Satellite Service	Secondary (No.5.282)
5650 – 5670 MHz	Amateur-Satellite Service (E-S)	Secondary (No.5.282)
5830 – 5850 MHz	Amateur-Satellite Service (S-E)	Secondary
.....		

For more details and the conditions for the usage of these bands, please refer to Article 5 of the Radio Regulations.

Frequency allocations for EESS usable for TT&C



Frequency band	Service	Type of allocation
401-403 MHz	EESS (E-S)	Primary
401-402 MHz	SOS (S-E)	Primary
1427 – 1429 MHz	SOS (E-S)	Primary
2025 – 2110 MHz	EESS (E-S, S-S) SOS (S-E, S-S)	Primary
2200 – 2290 MHz	EESS(S-E, S-S) SOS(S-E, S-S)	Primary
8025 – 8400	EESS (S-E)	Primary
13.75 – 14 GHz	EESS	Secondary
.....		

For more details and the conditions for the usage of these bands, please refer to Article 5 of the Radio Regulations.

Frequency allocations for EESS downlink usage



Frequency band	Service	Type of allocation
460-470 MHz	EESS (S-E)	Secondary
1690 – 1710 MHz	EESS (S-E)	Secondary
2200 – 2290 MHz	EESS (S-E)	Primary
8025 - 8400 MHz	EESS (S-E)	Primary
.....		

For more details and the conditions for the usage of these bands, please refer to Article 5 of the Radio Regulations.

What information is needed?



- Specified in [Appendix 4](#) of the Radio Regulations, including:
 - Satellite name, responsible administration
 - Orbital characteristics
 - Antenna beam characteristics
 - Frequency band
 - Service Areas
 - Power levels/designation of emissions etc.
 - Earth stations

What information is needed ? (2)

- Sensors specific information
 - Active Sensors
 - Transmit beam
 - Mean peak power and mean power density
 - Pulse length and pulse repetition frequency
 - Receive beam
 - Receiver noise bandwidth
 - Noise temperature at output of signal processor
 - Passive sensors
 - Observed bandwidth
 - Sensitivity
 - To capture sensor information in Spacecap, go to Beam tab, check the box "Beam has Sensors"
 - Class of stations – E1, E2, E3, E4 (consult the Preface)
 - For the guide to capture of sensors, see [ActiveandPassiveSensors.pdf](#)

How to capture these information



- Make use of Spacecap for capturing information
- PDF or JPEG files can be submitted for antenna patterns
- Can add descriptions in PDF or Word format to supplement the information submitted in Spacecap

- The latest version of BR software for capture and validation of space notices are available from the ITU website (<http://www.itu.int/ITU-R/go/space-software/en>)
- They are also available with the BR IFIC DVD-ROM
- *For convenience of workshop participants, the latest version of these software have been included in the workshop CD-ROM.*
- The software needed for the preparation of satellite filings are:
 - SAM, Spacecap, SpaceVal, SpacePub
- Please install them on your PC if you wish to follow through the workshop.

CUBESAT

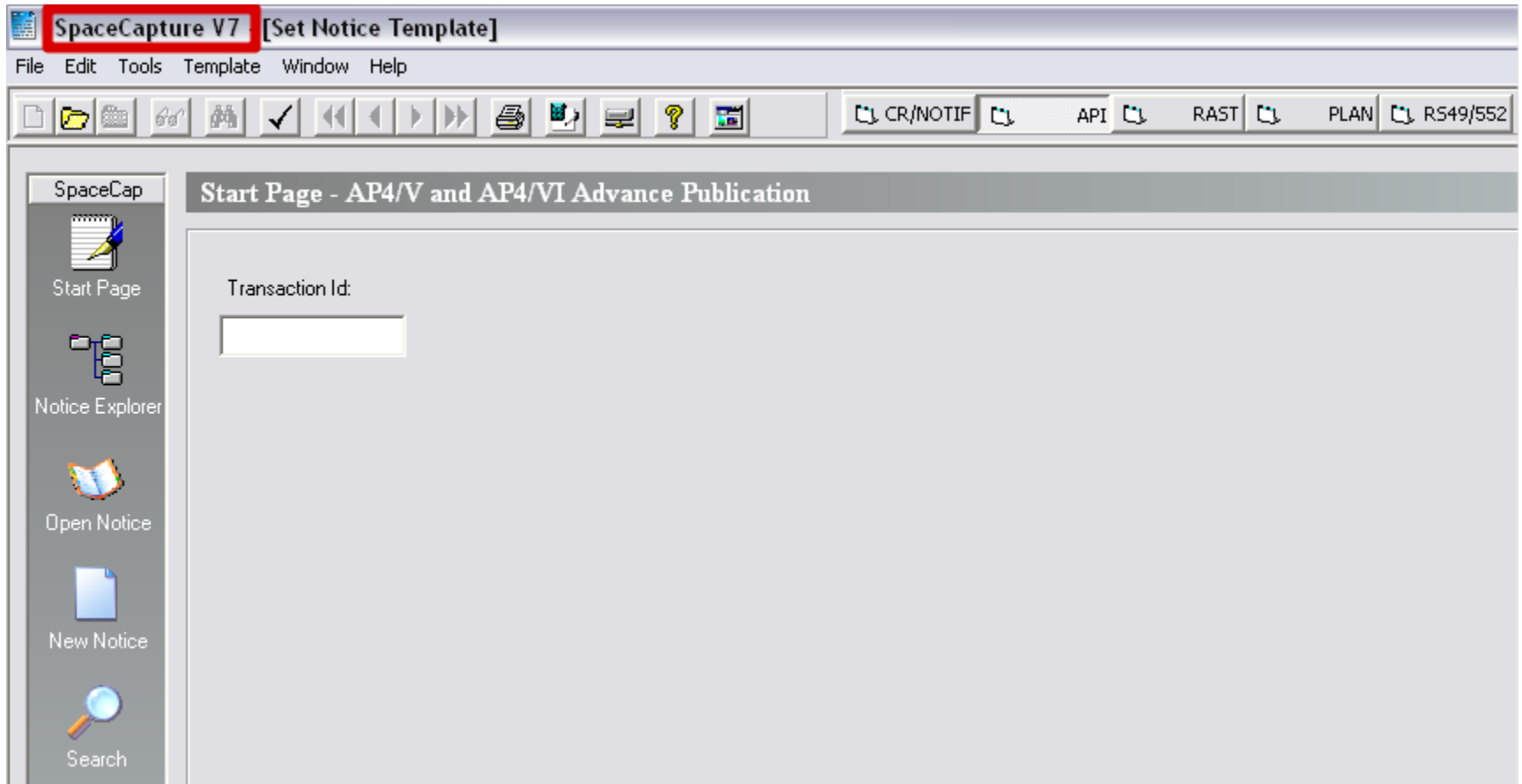
Advance Publication Information (API)

CAPTURE

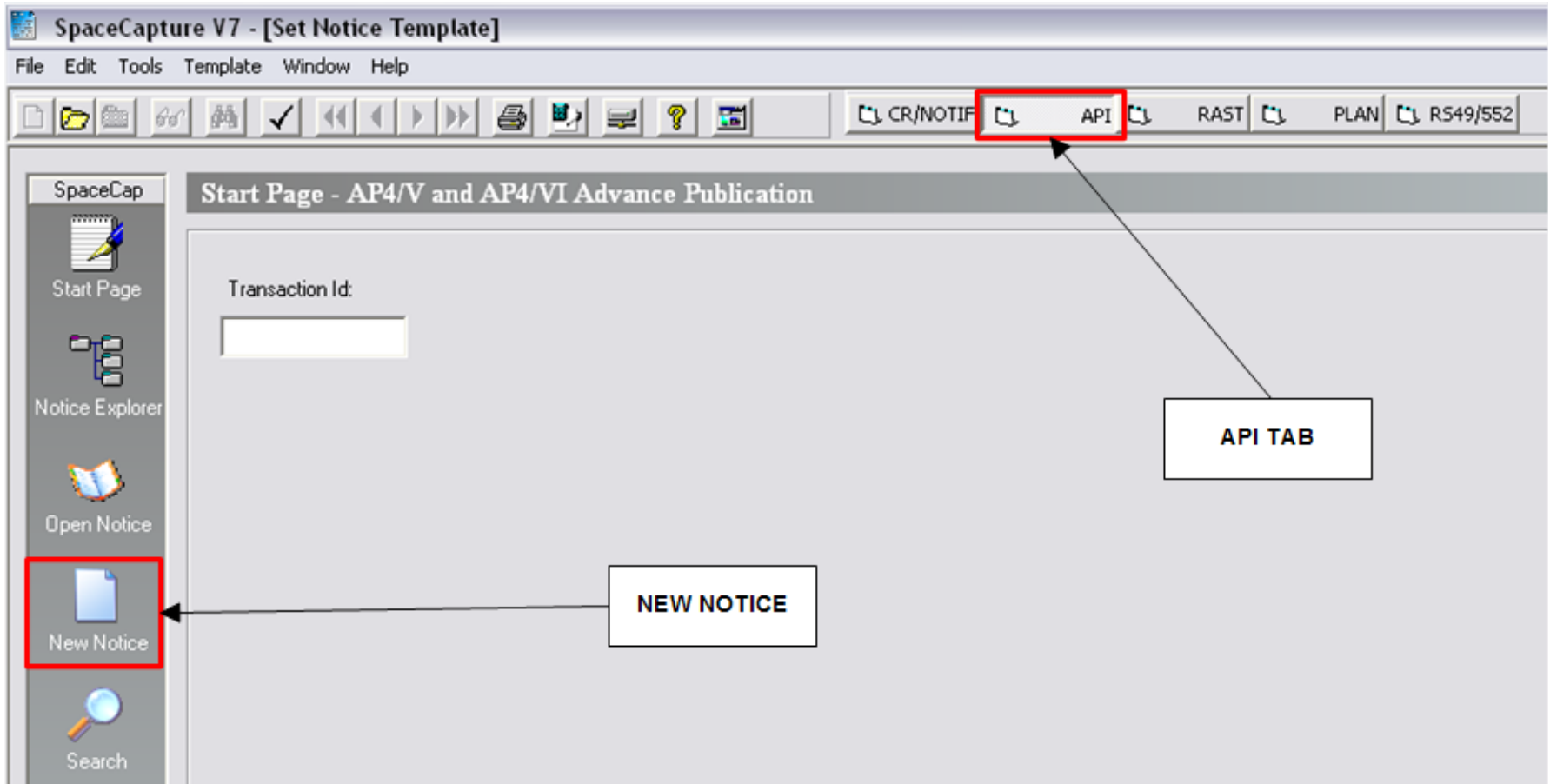
SPACECAP VERSION 7

Verify that you have the latest version of SpaceCap

<http://www.itu.int/ITU-R/go/space-software/>



Select the **API** tab and New notice



By default the SpaceCap submission page will be:

Notice | Beam | Remarks

Notice Id: [] Advance Publication 11.02.2009 Status: 01

Date: DD.MM.YYYY 10.02.2009 Administration Serial Nbr []
A1f1. Notifying Administration VUT A1f2. Notice submitted on behalf of these administrations. [] +
A1f3. Intergovernmental Satellite System [] x

GeoStationary Satellite Network Non GeoStationary Satellite Network

Notice intended for
 Add Mod Sup
BR Identification No. of the Satellite Network to be Modified []

A1a. Identity of the Satellite Network AMATEUR-SAT A4a1. Nominal Orbital Longitude
54 E
Original Nominal Longitude 54

Section II Article 9
 Subject to coordination
 Not Subject to coordination
 Both

List of Available Beams
Beam ADVP

More...

Capture the main characteristics of the network

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Forms of Notice Advance Publication

Notice	Beam	Remarks
<p>Date of receipt <input type="radio"/></p> <p>Notifying administration <input type="radio"/></p> <p>Optional: administration's reference <input type="radio"/></p> <p>Most common case <input type="radio"/></p>	<p>Notice Id: 112500286</p> <p>Advance Publication</p> <p>27.03.2013</p> <p>Status: 01</p> <p>Date: DD.MM.YYYY 27.03.2013</p> <p>Administration Serial Nbr</p> <p>A1f1. Notifying Administration</p> <p>A1f2. Notice submitted on behalf of these administrations.</p> <p>A1f3. Intergovernmental Satellite System</p> <p><input type="radio"/> GeoStationary Satellite Network</p> <p><input checked="" type="radio"/> Non GeoStationary Satellite Network</p>	<p>Notice intended for</p> <p><input type="radio"/> Add <input type="radio"/> Mod <input type="radio"/> Sup</p> <p>BR Identification No. of the Satellite Network to be Modified</p> <p>Section II Article 9</p> <p><input type="radio"/> Subject to coordination</p> <p><input checked="" type="radio"/> Not Subject to coordination</p> <p><input type="radio"/> Both</p> <p>Network has no Beams</p>

*IT IS ASSUMED THAT IN MOST OF
THE CASES, CUBESAT STATIONS ARE:*

NOT SUBJECT TO COORDINATION

API CAPTURE APPROPRIATE ADJUSTMENTS

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49

Notice Beam Remarks

Notice Id: 4 Advance Publication 23.04.2009 Status: 01

Date: DD.MM.YYYY 23.04.2009 Administration Serial Nbr

A1f1. Notifying Administration

A1f3. Intergovernmental Satellite System

A1f2. Notice submitted on behalf of these administrations.

GeoStationary Satellite Network Non GeoStationary Satellite Network

Notice intended for

Add Mod Sup

BR Identification No. of the Satellite Network to be Modified

Section II Article 9

Subject to coordination

Not Subject to coordination

Both

Network has no Beams

NOTE

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49

Notice	Beam	Remarks
--------	------	---------

Notice Id: Advance Publication Status:

Date: DD.MM.YYYY Administration Serial Nbr

A1f1. Notifying Administration


A1f3. Intergovernmental Satellite System


GeoStationary Satellite Network Non GeoStationary Satellite Network

A1f2. Notice submitted on behalf of these administrations. + x

Notice intended for
 Add Mod Sup
BR Identification No. of the Satellite Network to be Modified

Section II Article 9
 Subject to coordination
 Not Subject to coordination
 Both

 Network has no Beams



Checking this box will give access to fields specific to non-geostationary stations

API

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

Notice Beam Remarks

Notice Id: 112500285 Advance Publication 26.03.2013 Status: 01

Date: DD.MM.YYYY 26.03.2013 Administration Serial Nbr

A1f1. Notifying Administration
A1f3. Intergovernmental Satellite System

A1f2. Notice submitted on behalf of these administrations.

Notice intended for
 Add Mod Sup
BR Identification No. of the Satellite Network to be Modified

GeoStationary Satellite Network Non GeoStationary Satellite Network

A1a. Identity of the Satellite Network: CUBESAT

A4. Orbital Information

A4b1. Number of Orbital Planes: 1 A4b2. Reference body: (T) Earth

A4b3a. Nbr of Satellites to NH A4b3b. Nbr of Satellites to SH

Section II Article 9
 Subject to coordination
 Not Subject to coordination
 Both

Network has no Beams

More...

Access to data about Orbital Plane

A4b4. Orbital Plane Information

API

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Notice Beam Remarks

Notice Id: 112500285 Advance Publication 26.03.2013 Status: 01

Date: DD.MM.YYYY 26.03.2013 Administration Serial Nbr

A1f1. Notifying Administration

A1f3. Intergovernmental Satellite System

A1f2. Notice submitted on behalf of these administrations.

Notice intended for
 Add Mod Sup
BR Identification No. of the Satellite Network to be Modified

GeoStationary Satellite Network Non GeoStationary Satellite Network

A4b. Orbital Information for each Orbital Plane, where the Earth is the reference body

Orbital Plane id	4a. Inclination Angle	4b. Satellites in the plane	4c. Period ddd	4c. Period hh	4c. Period mm	4d. Apogee	4d. apog exp	4e. Perigee	4e. perig exp	4f. Minimum Altitude
1	20	1	0	1	34	500	0	500	0	

Close

New mandatory information (WRC 12)

API

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Notice Beam Remarks

Notice Id: 112500285 Advance Publication 26.03.2013 Status: 01

Date: DD.MM.YYYY 26.03.2013 Administration Serial Nbr
A1f1. Notifying Administration
A1f3. Intergovernmental Satellite System
 GeoStationary Satellite Network Non GeoStationary Satellite Network

Notice intended for
 Add Mod Sup
BR Identification No. of the Satellite Network to be Modified

A1a. Identity of the Satellite Network: CUBESAT
A4. Orbital Information
A4b1. Number of Orbital Planes: 1 A4b2. Reference body: (T) Earth
A4b3a. Nbr of Satellites to NH: A4b3b. Nbr of Satellites to SH: A4b4. Orbital Plane Information

Section II Article 9
 Subject to coordination
 Not Subject to coordination
 Both

Network has no Beams

More...

This information must be provided if the station operates in the frequency range 3400-4200 MHz

API CAPTURE RECEIVING BEAM INFORMATION

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

Notice	Beam	Group	Remarks
--------	------	-------	---------

Notice Id: 112500285 Administration: Satellite Network: CUBESAT

More...

Characteristics of the Beam:

B2: Receiving Beam Transmitting Beam

B1a. Beam Designation: UPLINK


B1b. Steerable Beam:

Add of the Beam: Add Mod Sup

Beam has Sensors:

Antenna Characteristics:

B3a1. Maximum Isotropic Gain +/- dBi:

B4a. Orbit Link: 

Antenna Radiation Pattern:


B3c1. Co-polar Radiation Pattern Id: 

Diagram attached. See Attachment no.:

Beam has no Groups

OR

API CAPTURE GROUP INFORMATION

COMMON CHARACTERISTICS

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

Forms of Notice Advance Publication

Assoc Earth Station Notice	Assoc Space Station Beam	Attachments Group	Emissions	Frequencies
-------------------------------	-----------------------------	------------------------------	-----------	-------------

Notice: 112500285 Satellite Network: CUBESAT Beam Id: UPLINK R Group Id: 110628343 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies General Characteristics

No Sensors Active Sensors Passive Sensors

C4a. Cls Strn	C4b. Nat Srv
EA	CR

C2c. compliance with No. 4.4 of the Radio Regulations

C6. Polarization Type: **D Dual Polarization**
If linear, provide angle: °

C5a. Receiving System Noise Temperature: **290** Kelvins

C8f2. Assoc Space Station E.I.R.P.: dBW

C11a. Service Area as List of Countries or Geographic designations: **XAA**
Apply this list to all Frequency Ranges:

Service Area Number:

Service Area Diagram. See Attachment No.

Remarks:

OR

API GENERAL CHARACTERISTICS

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

Assoc Space Station Notice	Attachments Beam	Group	Emissions	Frequencies	Assoc Earth Station
-------------------------------	---------------------	-------	-----------	-------------	---------------------

Notice: 112500285 Satellite Network: CUBESAT Beam Id: UPLINK R Group Id: 110628343 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies **General Characteristics**

Note: Date of bringing into use is not anymore necessary

A2b. Period of Validity Years

A3a. Operating Administration or Agency

A3b. Responsible Administration

To apply this information to other groups, select the beam or notice option.

Apply to current group only Apply to all groups in this beam Apply to all groups in this notice

API ASSOCIATED EARTH STATION

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Forms of Notice Advance Publication

Notice	Beam	Group	Emissions	Frequencies
Assoc Earth Station	Assoc Space Station	Attachments		

Notice Id: 112500285 Adm: Satellite Network: CUBESAT Beam Id: UPLINK R Group Id: 110628343

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name
[Red box]

of the station
 Add Mod Sup


C10d1. Cls Strn	C10d2. Nat Srv
[Red box]	

C10c2. Country
[Blue box]

C10c1. Geographical Coordinates

Longitude				Latitude			
Degrees	E/W	Min	Sec	Degrees	N/S	Min	Sec
[]	[]	[]	[]	[]	[]	[]	[]

C10d. Antenna Characteristics
3. Maximum Isotropic Gain: [Red box] +/- dBi
4. Beamwidth: [Red box] Degrees

Antenna Radiation Pattern
C10d5a1. Co-polar Radiation Pattern Id: [Red box] 

C10d5a2. Diagram attached. See Attachment no.: [Red box]
or diagram no in Gims database: [Red box]

Remember to specify the attachment no of the new Reference Pattern.

IF SPECIFIC (Blue box)

OR (Red circles with arrows pointing to the 'Typical' radio button and the 'Attachment no.' fields)

API CAPTURE TRANSMITTING BEAM INFORMATION

SpaceCapture V7

File **Edit** Tools View Window Help

Clone Beam
Delete Beam
New Beam

CR/NOTIF API RAST PLAN RS49/552

Forms of Notice Advance Publication

Notice	Beam	Group	Remarks
--------	-------------	-------	---------

Notice Id: 112500285 Administration: Satellite Network: CUBESAT

More...

Characteristics of the Beam

B2. Receiving Beam Transmitting Beam

B1a. Beam Designation: UPLINK

B1b. Steerable Beam

Add of the Beam
 Mod of the Beam
 Sup of the Beam

Beam has Sensors

Antenna Characteristics

B3a1. Maximum Isotropic Gain +/- dBi

B4a. Orbit Link

Antenna Radiation Pattern


B3c1. Co-polar Radiation Pattern Id: 

Diagram attached. See Attachment no.:

List of Available Groups

- Group 110628343

API

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Forms of Notice Advance Publication

Notice	Beam	Group	Remarks
--------	------	-------	---------

Notice Id: 112500285 Administration: Satellite Network: CUBESAT

More...

Characteristics of the Beam:

B2. Receiving Beam **Transmitting Beam**

B1a. Beam Designation: **DOWNLINK** B1b. Steerable Beam Add of the Beam Mod of the Beam Sup of the Beam Beam has Sensors

Antenna Characteristics

B3a1. Maximum Isotropic Gain +/- dBi

Antenna Radiation Pattern



B3c1. Co-polar Radiation Pattern Id: 

Diagram attached. See Attachment no.:

Remember to specify the attachment no of the new Reference Pattern.

B4a. Orbit Link 

OR

New information (WRC 12) (Warning icon)

New information (WRC 12) (Mandatory arrow)

New information (WRC 12) (Optional arrow)

B2bis.a Space station only transmits when visible from the notified service area

B.2bis.b the minimum elevation angle

API

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Forms of Notice Advance Publication

Assoc Earth Station Notice	Assoc Space Station Beam	Attachments Group	Emissions	Frequencies
----------------------------	--------------------------	--------------------------	-----------	-------------

Notice: 112500285 Satellite Network: CUBESAT Beam Id: DOWNLINK E Group Id: 110628344 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies

C4a. Cls Strn	C4b. Nat Srv

No Sensors
 Active Sensors
 Passive Sensors

C2c. compliance with No. 4.4 of the Radio Regulations

C6. Polarization Type: If linear, provide angle

C8f1. Space Station E.I.R.P. dBW

C11a. Service Area as List of Countries or Geographic designations
Apply this list to all Frequency Ranges

Service Area Number: Service Area Diagram. See Attachment No.

Remarks:

*EMISSION AND FREQUENCY
SCREENS ARE IDENTICAL
FOR RECEIVING AND
TRANSMITTING BEAMS*

API ASSOCIATED EARTH STATION SCREEN IS ALMOST IDENTICAL IN RECEPTION AND EMISSION

SpaceCapture V7 - [Forms of Notice Advance Publication]

File Edit Tools View Window Help

CR/NOTIF API RAST PL

Notice Beam Group Emissions Frequenc

Notice Id: 3 Adm: ITU Satellite Network: NONGEO AMATEUR SAT Beam Id: DOWNLINK E Group Id: 2

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name

of the station
 Add
 Mod
 Sup

C10d1. Cls Stn	C10d2. Nat Srv

C10c2. Country

C10c1. Geographical Coordinates

Longitude
Degrees E/W Min Sec

Latitude
Degrees N/S Min Sec

C10d. Antenna Characteristics

3. Maximum Isotropic Gain +/- dBi

4. Beamwidth Degrees

6. Receiving System Noise Temperature

Antenna Radiation Pattern

C10d5a1. Co-polar Radiation Pattern Id:

C10d5a2. Diagram attached. See Attachment no.:

Remember to specify the attachment no. of the new Reference Pattern.

except the addition of noise temperature value

API - CAPTURE IS DONE !

SpaceCapture V7 - [Set Notice Template]

File Edit Tools Template Window Help

CR/NOTIF API RAST PLAN RS49/552

SpaceCap

- Start Page
- Notice Explorer
- Open Notice
- New Notice
- Search

Notice Explorer - AP4/V and AP4/VI Advance Publication

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
107540069[A]	N	SUI/		SWISSCUBE	28.02.2007	Count=489

Tree structure:

- 107540069[A] N SUI/ SWISSCUBE 28.02.2007 Count=489
 - Beam id: UPLINK
 - Group id: 107605417
 - Frequency Assignments
 - Emissions
 - Assoc. Earth Station
 - EPFL
 - HES FRIBOURG
 - Beam id: DOWNLINK
 - Group id: 107605416
 - Frequency Assignments
 - Emissions
 - Assoc. Earth Station
 - Group id: 107605418
 - Frequency Assignments
 - Emissions
 - Assoc. Earth Station
 - RADIO AMATEUR

Control Box

Show

Clone

Export

Delete

To SNS

CFEX

SpaceVal

Esub

Use the Bureau **SpaceValidation** programme for a ***MANDATORY CHECK OF THE DATA CAPTURE RESULT***

Verify if you have the latest version of SpaceVal

<http://www.itu.int/ITU-R/go/space-software/en>

Space Validation 7.0.2 (19.02.2013)

Operator Id: PLANCHE

Database Type:
 Ingres: DSN
 MS-Access

User Role:
 As a BR user
 As an outside user

Database Info:
Location:
Notice Id

Error Message Level Selection:
 Show fatal messages only
 Show all messages

Cross validation with Gims mdb file
Gims database:

Open
Validate
Report
Help
Exit

Click on the <Explorer> button to select and open a database

Use the Bureau **SpaceValidation** programme for a ***MANDATORY CHECK OF THE DATA CAPTURE RESULT***

Verify if you have the latest version of SpaceVal

<http://www.itu.int/ITU-R/go/space-software/en>

Space Validation 7.0.2 (19.02.2013)

Operator Id: PLANCHE

Database Type:
 Ingres: DSN
 MS-Access

User Role:
 As a BR user
 As an outside user

Database Info:
Location:
Notice Id

Error Message Level Selection:
 Show fatal messages only
 Show all messages

Cross validation with Gims mdb file
Gims database:

Open
Validate
Report
Help
Exit

Click on the <Explorer> button to select and open a database

Use the Bureau **SpaceValidation** programme for a **MANDATORY CHECK OF THE DATA CAPTURE RESULT**

Verify if you have the latest version of SpaceVal

<http://www.itu.int/ITU-R/go/space-software/en>

STEP 1

Space Validation 6.1.6 (19.05.2010)

Operator Id: PLANCHE

Database Type: Ingres: DSN MS-Access

User Role: As a BR user As an outside user

Database Info: Location: Notice Id

Error Message Level Selection: Show fatal messages only Show all messages

Open Validate Report Help Exit

Click on the <Explorer> button to select and open a database

SELECT YOUR ACCESS DATABASE

STEP 2

Space Validation 6.1.6 (19.05.2010)

Operator Id: PLANCHE

Database Type:
 Ingres: DSN
 MS-Access

User Role:
 As a BR user
 As an outside user

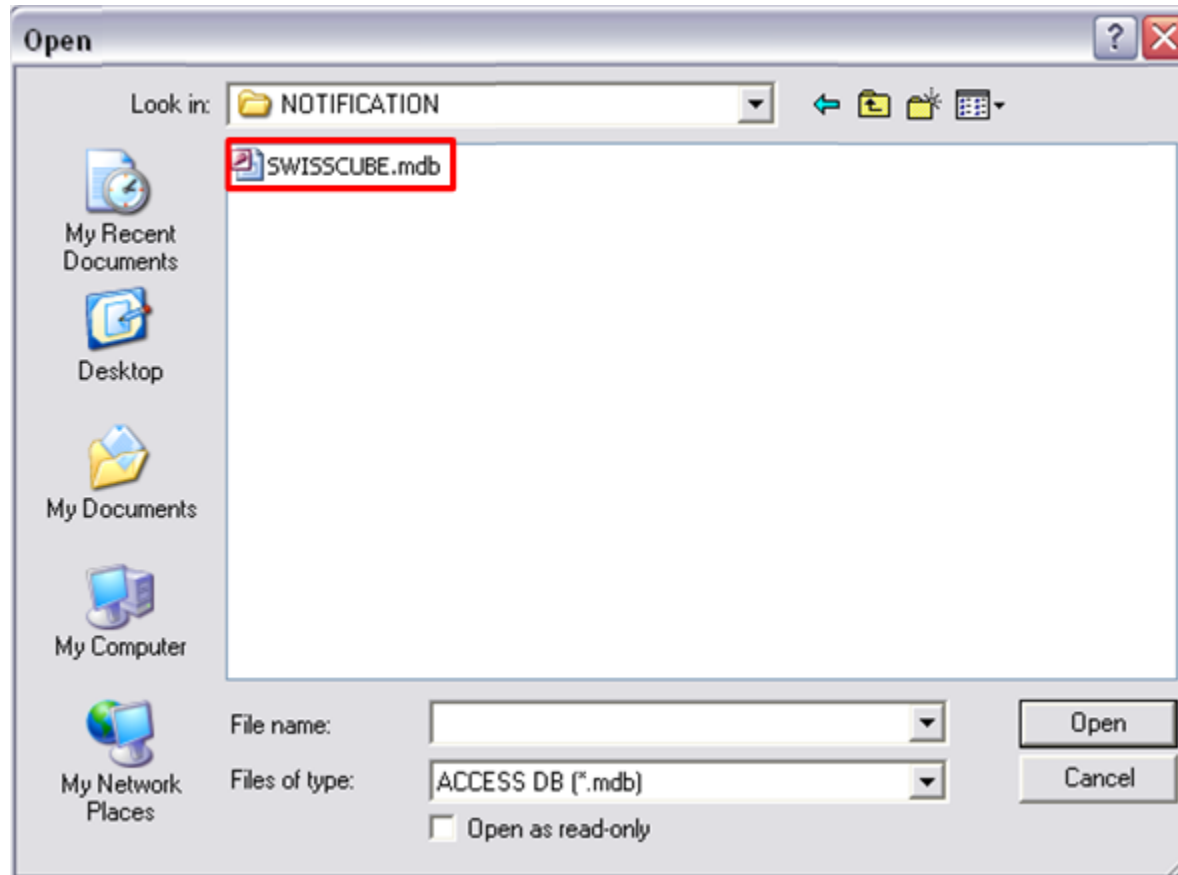
Database Info:
Location:
Notice Id

Error Message Level Selection:
 Show fatal messages only Show all messages

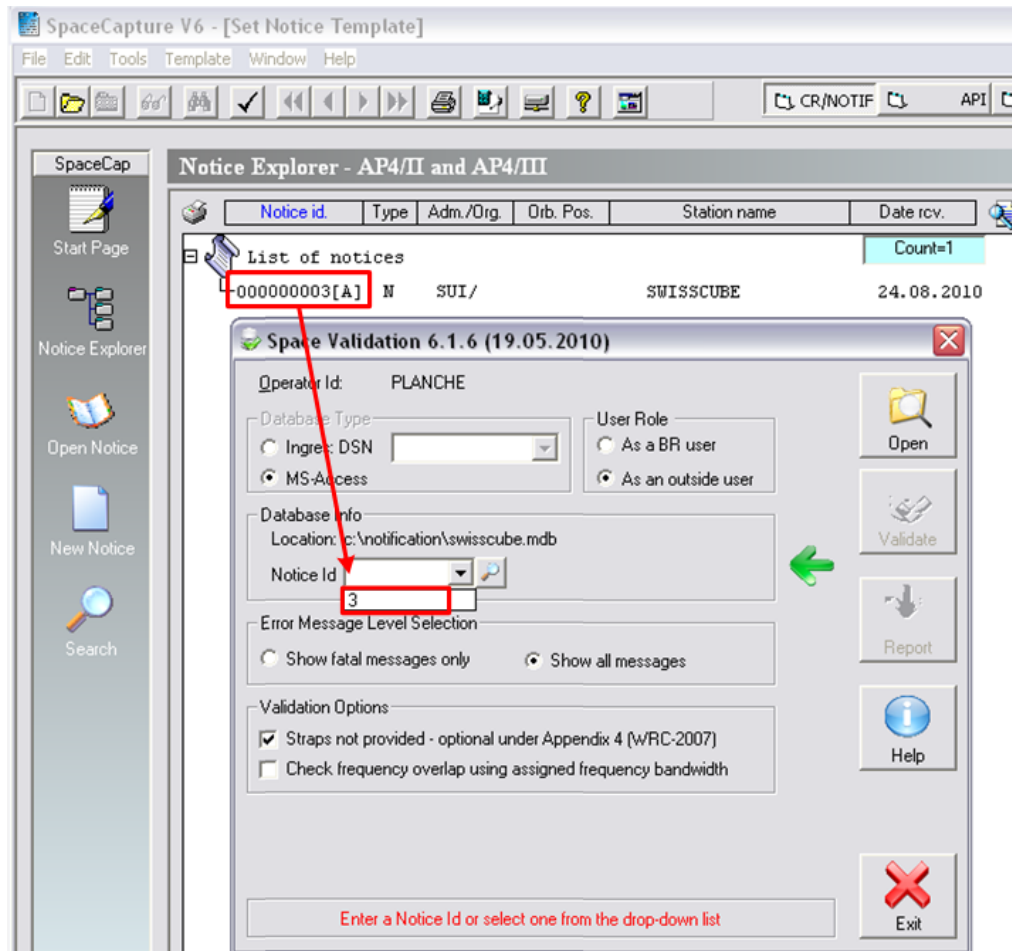
Buttons: Open, Validate, Report, Help, Exit

Click on the <Explorer> button to select and open a database

SELECT ON YOUR HARD DISK THE FILE CONTAINING YOUR CAPTURE

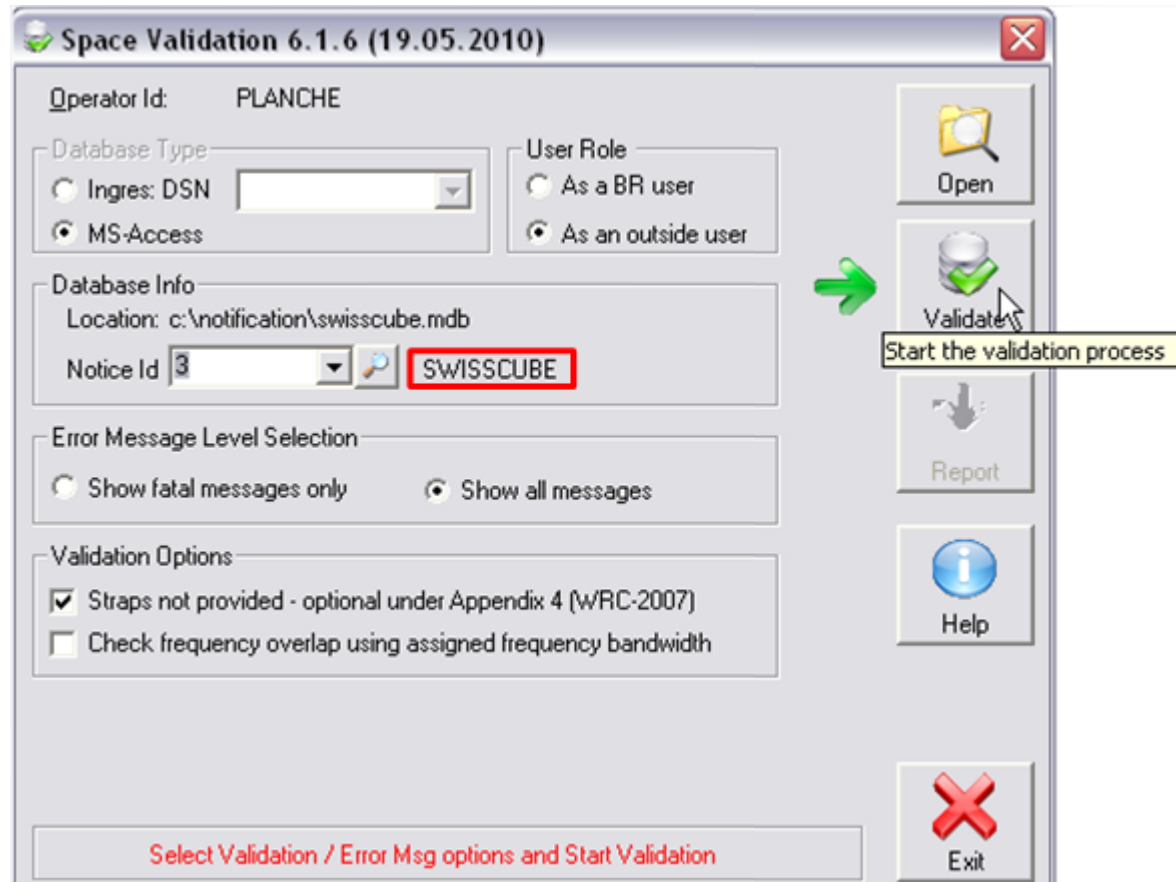


CONFIRM YOUR SELECTION



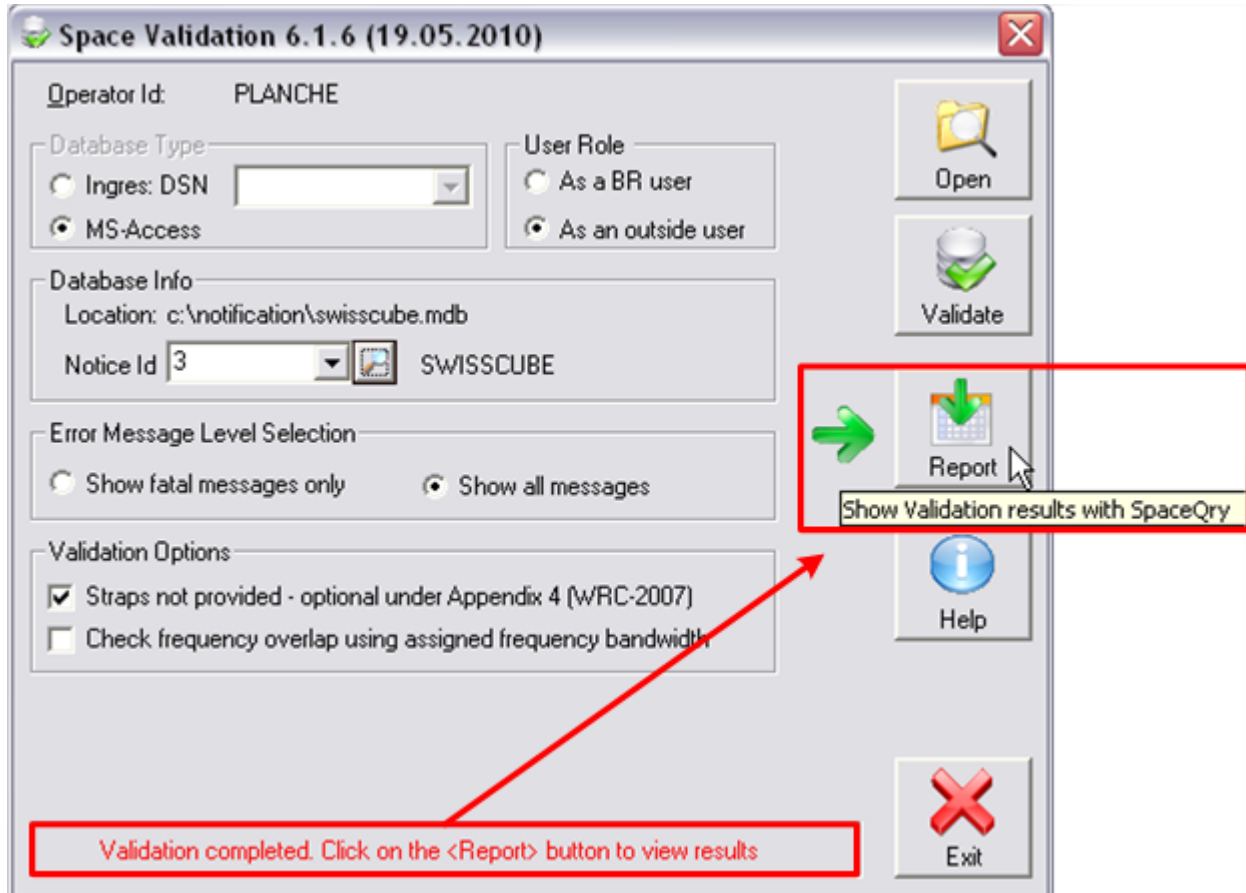
LAUNCH THE VALIDATION PROCESS

STEP 3



WHEN THE VALIDATION IS COMPLETED DISPLAY THE VALIDATION REPORT

STEP 4



PROCEED WITH ANALYZE AND CORRECTIONS

BR Space Query and Extract System - [QuickQuery Result for Network(s): 3]

File View Window Help

Validation Report for Network: 3 On: 25.08.2010 @ 09:12:32 By Operator: PLANCHE (swisscube.mdb)
 Network ID: 3 Adm: SUI Satellite name: SWISSCUBE
 Applicability code(s): axiss, gxiss
 Validation Message Counts: Total: 15, FataIs: 9, Warnings: 3; 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: 9/3
UPLINK	R	1		603	1	F	grp	d_inuse		Value missing
DOWNLINK	E	2		603	1	F	grp	d_inuse		Value missing
UPLINK	R	1		604	1	F	grp	prd_valid		Value missing
DOWNLINK	E	2		604	1	F	grp	prd_valid		Value missing
UPLINK	R	1		605	1	F	grp	op_agcy		Value missing
DOWNLINK	E	2		605	1	F	grp	op_agcy		Value missing
UPLINK	R	1		606	1	F	grp	adm_resp		Value missing
DOWNLINK	E	2		606	1	F	grp	adm_resp		Value missing
DOWNLINK	E	2		644	3	F	grp	pwr_max		Value not provided, item 666 not provided and item 500 = E
UPLINK	R	1		647			grp	area_no	1	[axiss]
DOWNLINK	E	2		647			grp	area_no	1	[axiss]
DOWNLINK	E	2	1	693	2	W	e_as_stn	noise_t	1000	Invalid value
UPLINK	R	1	1	695	4	W	e_as_stn	bwwidth	15	Value outside computed allowable range (30.7 - 39.09)

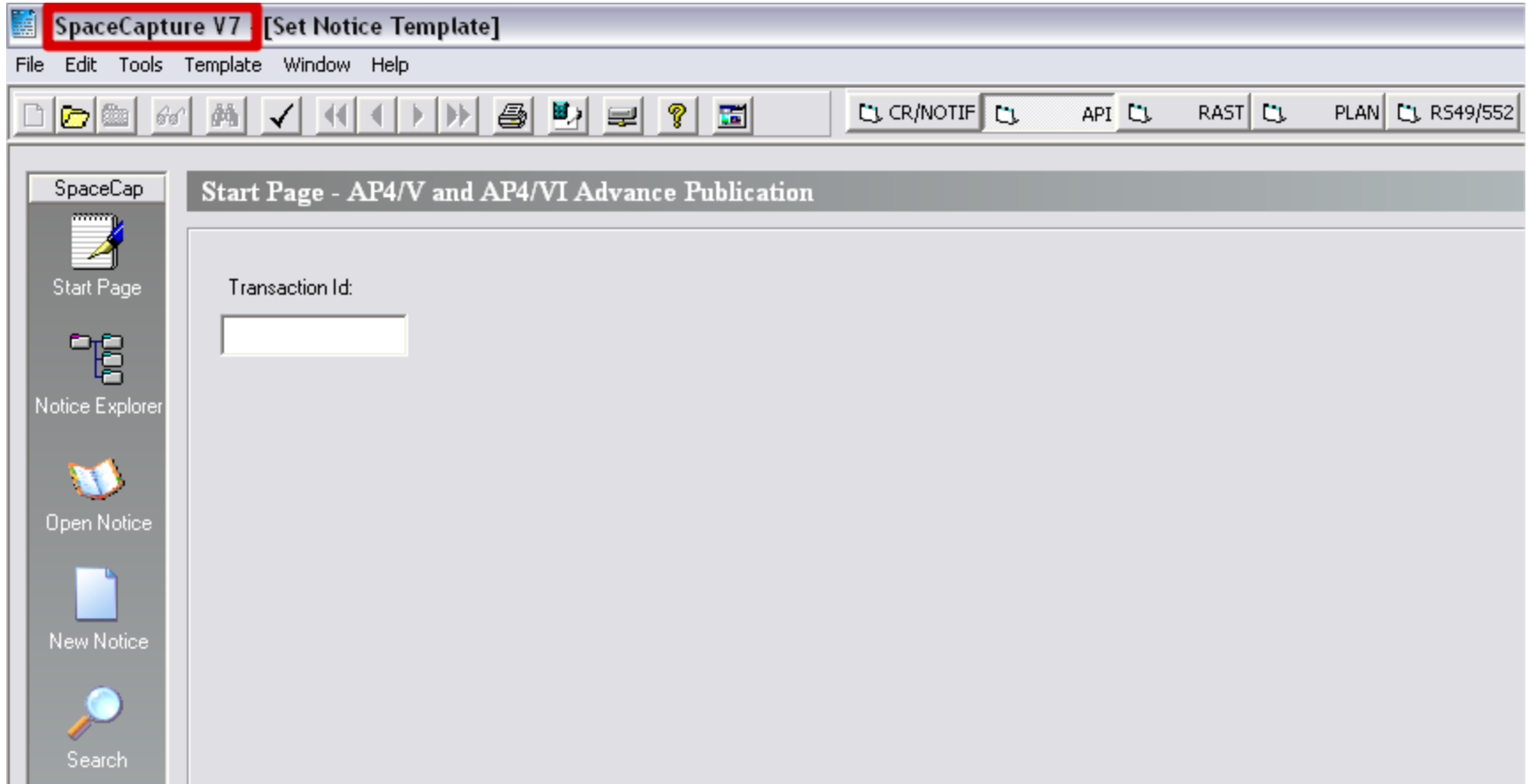
SRS: INGRES Production

CUBESAT

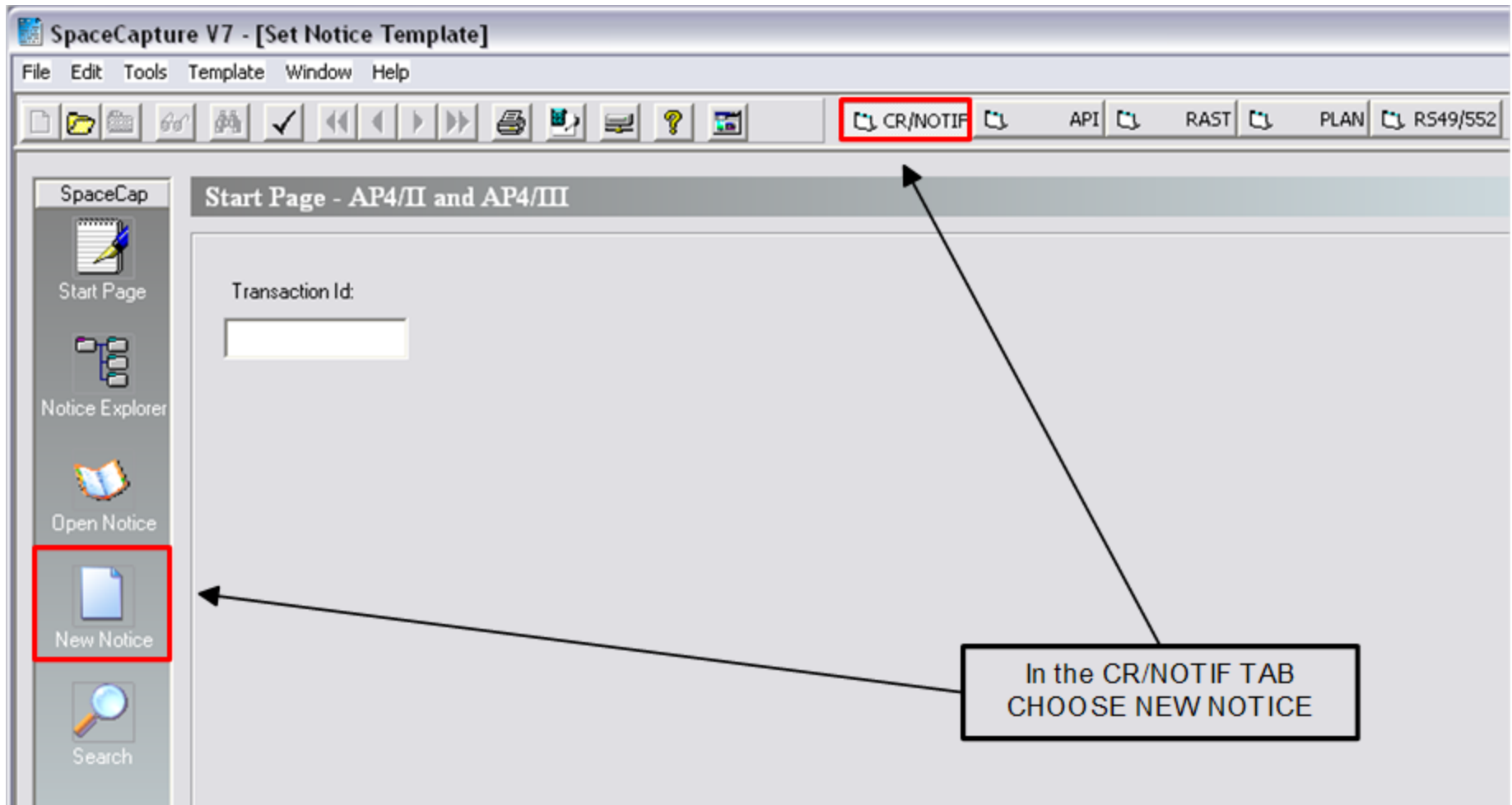
NOTIFICATION CAPTURE
SPACECAP VERSION 7

Verify that you have the latest version of SpaceCap

<http://www.itu.int/ITU-R/go/space-software/>



NOTIFICATION



NOTIFICATION

CAPTURE THE MAIN CHARACTERISTICS OF THE NETWORK

The screenshot displays the SpaceCapture V7 interface for a notification form. The form is titled "Forms of Notice Ap4/II and Ap4/III" and includes several tabs: Notice, Station, Beam, Strapping, Noise Gamma, and Attachments. The "Notice" tab is active, showing a form for "Notice submitted under:" with the following details:

- Notice Id: 1
- AP4/II and AP4/III (Appendix 4 - Annex 2A)
- Date: 04.04.2013
- Status: 01

The form contains several radio button options for the type of notification:

- No. 9.6 Coordination
- No. 11.2 Notification
- First Notification
- Resubmission

Additional options include:

- No. 9.11A Applies
- Bands 21.4 to 22 GHz
- Bands 21.4 to 22 GHz Special Procedure
- No. 9.7A Specific Receive GSO FSS Earth stn Coordination
- No. 9.17 Earth Station Coordination amongst Administrations

Key fields and callouts are highlighted:

- NOTIFICATION UNDER ARTICLE 11**: Points to the "No. 11.2 Notification" radio button.
- DATE OF RECEIPT**: Points to the "Date" field, which is set to "04.04.2013".
- NOTIFYING ADMINISTRATION**: Points to the "A111. Notifying Administration" dropdown menu.
- FIRST NOTIFICATION**: Points to the "First Notification" radio button.
- ADDITION**: Points to the "Addition" radio button under "Notice intended for".
- NON-Geo SYSTEM**: Points to the "NonGeoStationary Satellite Network" radio button under "Type of Satellite Network or Earth Station".

Other fields include "Administration Serial Nbr", "A112. Notice submitted on behalf of these administrations", "A113. Intergovernmental Satellite System", and "Notice intended for" (Addition, Modification, Suppression). A "BR Identification No. of Station to be modified/suppressed" field is also present.

The bottom status bar shows: "Current DB : C:\BR_SOFT\DATA\SPACECAP_V7.MDB", "date of receipt of the notice", "12:53", and "04.04.2013".

NOTIFICATION

BY DEFAULT THE SUBMISSION WILL BE FILLED AS AN ADDITION, FIRST SUBMISSION, WITH THE DATE OF THE CAPTURE AS THE DATE OF RECEIPT

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

NonGeoStationary Notice:1

Notice Station Beam Attachments

Notice Id: 1 AP4/II and AP4/III (Appendix 4 - Annex 2A) 04.04.2013 Status 01

Notice submitted under:

No. 9.6 Coordination **No. 11.2 Notification** **First Notification** Resubmission

No. 9.11A Applies Bands 21.4 to 22 GHz Bands 21.4 to 22 GHz Special Procedure

No. 9.7A Specific Receive GSO FSS Earth stn Coordination

No. 9.17 Earth Station Coordination amongst Administrations

Date: DD.MM.YYYY Administration Serial Nbr

A1f1. Notifying Administration A1f2. Notice submitted on behalf of these administrations. + x

A1f3. Intergovernmental Satellite System

Notice intended for:

Addition Modification Suppression

BR Identification No. of Station to be modified/suppressed

Type of Satellite Network or Earth Station:

GeoStationary Satellite Network Specific Earth Station

NonGeoStationary Satellite Network Typical Earth Station

More...

Current DB : C:\BR_SOFT\DATA\SPACECAP_V7.MDB reference id of the notice provided by the notifying administration 13:03

NOTIFICATION

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice: 1

Notice **Station** Beam Attachments

Notice Id: 1 Administration: SUI Status: 01 Date: 04.04.2013

A1a. Identity of the Satellite Network

A4b1. Number of Orbital Planes

A4b2. Reference body

A4b3a. Nbr of Satellites to NH

A4b3b. Nbr of Satellites to SH

A16a. Commitment to meet off-axis power limitations (applicable bands 12.75-13.25 GHz, 13.75-14.5 GHz and 29.5-30 GHz) Yes No N/A

A17a. Commitment to meet power-flux density limits (applicable bands 1164-1215 MHz) Yes No N/A

A18a. Commitment of aircraft earth station (applicable bands 14-14.5 GHz) Yes No N/A

Current DB : C:\BR_SOFT\DATA\SPACECAP_V7.MDB 13:09 04.04.2013

NOTIFICATION

AFTER THE CAPTURE OF THE REFERENCE BODY, NEW FIELDS CONCERNING ORBITAL CHARACTERISTICS WILL APPEAR

The screenshot shows the SpaceCapture V7 software interface. The main window is titled "NonGeoStationary Notice: 2". It contains several tabs: Notice, Station, Beam, and Attachments. The Notice tab is active, showing fields for Notice Id (2), Administration (SUI), Status (01), and Date (04.04.2013). Below these are fields for A1a. Identity of the Satellite Network (HELVETICUBE), A4b1. Number of Orbital Planes (1), A4b2. Reference body ((T) Earth), A4b3a. Nbr of Satellites to NH, and A4b3b. Nbr of Satellites to SH. A section titled "Basic Orbital Information" is expanded, showing a table for "A4b. Orbital Information for each Orbital Plane, where the Earth is the reference body". The table has columns for Orbital Plane id, 4a. Incl Angle, 4b. Satellites in the plane, 4c. Period ddd, 4c. Period hh, 4c. Period mm, 4d. Apogee, 4d. apog exp, 4e. Perigee, 4e. perig exp, 4f. Minimum Altitude, and 4f. Min Alt exp. The first row of the table is highlighted in blue, and the last two columns (4f. Minimum Altitude and 4f. Min Alt exp) are highlighted in red. Below the table are fields for A15a. Commitment to meet epfd limits, A17a. Commitment to meet power-flux density limits, and A18a. Commitment of aircraft earth station. Three callout boxes provide additional information: "INDICATE ORBITAL INFORMATION ACCORDING TO CHARACTERISTICS" points to the orbital information fields; "New Mandatory information (WRC-12)" points to the 4f. Minimum Altitude and 4f. Min Alt exp columns; and "INDICATE COMMITMENTS WHEN APPLICABLE" points to the commitment fields.

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice: 2

Notice Station Beam Attachments

Notice Id: 2 Administration: SUI Status: 01 Date: 04.04.2013

A1a. Identity of the Satellite Network: HELVETICUBE

A4b1. Number of Orbital Planes: 1 A4b2. Reference body: (T) Earth

A4b3a. Nbr of Satellites to NH: A4b3b. Nbr of Satellites to SH:

Basic Orbital Information Subject to 9.11A, 12, 12A Subject to 22.5c,d,f

A4b. Orbital Information for each Orbital Plane, where the Earth is the reference body

Orbital Plane id	4a. Incl Angle	4b. Satellites in the plane	4c. Period ddd	4c. Period hh	4c. Period mm	4d. Apogee	4d. apog exp	4e. Perigee	4e. perig exp	4f. Minimum Altitude	4f. Min Alt exp
1	10	1	0	1	38	1000	0	1000	0	1000	0

Network has no Beams

A15a. Commitment to meet epfd limits (applicable bands 10.7-12.75 GHz depending on region) Yes No N/A

A17a. Commitment to meet power-flux density limits (applicable bands 1164-1215 MHz) Yes No N/A

A18a. Commitment of aircraft earth station (applicable bands 14-14.5 GHz) Yes No N/A

INDICATE ORBITAL INFORMATION ACCORDING TO CHARACTERISTICS

New Mandatory information (WRC-12)

INDICATE COMMITMENTS WHEN APPLICABLE

NOTIFICATION

CAPTURE CHARACTERISTICS OF THE RECEIVING BEAM

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

Notice Station Beam Group Attachments

Notice Id: 2 Administration: SUI Satellite Network: HELVETICUBE

More...

Characteristics of the Beam

B2. Receiving Beam Transmitting Beam

B1a. Beam Designation: UPLINK
Old Beam Designation (if changed)

B1b. Steerable Beam

Add of the Beam
 Mod
 Sup

Beam has Sensors

Antenna Characteristics

B3a1. Maximum Isotropic Gain +/- dBi: 3

B4a. Orbit Link

Antenna Radiation Pattern

B3c1. Co-polar Radiation Pattern Id: 610

ND-SPACE ==> APSND_499V01

Diagram attached. See Attachment no.:

NOTIFICATION

CAPTURE CHARACTERISTICS OF THE GROUP(S)

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

Coordination Notice Special Section Station Assoc Earth Station Beam Assoc Space Station Group Attachments Emissions Frequencies

Notice: 2 Satellite Network: HELVETICUBE Beam Id: UPLINK R Group Id: 11 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies **General Characteristics**

C3a. Assigned Frequency Bandwidth
4 (kHz)

No Sensors
 Active Sensors
 Passive Sensors

C4a. Cls Str EA Space stz **C4b. Nat Srv CP Station of**

C6. Polarization
Type: M Mixed Polarization
If linear, provide angle: °

C2c. compliance with No. 4.4 of the Radio Regulations

B4b5. Peak Pfd

C5a. Receiving System
Noise Temperature: 500 Kelvins

C11a. Service Area as List of Countries or Geographic designations
SUI

OR

Service Area Number: 1

Service Area Diagram. See Attachment No.

Remarks:

NOTIFICATION

CAPTURE CORRESPONDING SPECIAL SECTION REFERENCE

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49

NonGeoStationary Notice: 3

Notice	Station	Beam	Group	Emissions	Frequencies
Coordination	Special Section	Assoc Earth Station	Assoc Space Station	Attachments	

Notice Id: 3 Adm: SUI Satellite Network: SWISSCUBE Beam Id: UPLINK R Group Id: 1

Information Common to List of Groups in this Beam

A13.

Special Section AR11/A (RR1042)	<input type="checkbox"/>
Special Section AR11/C (RR1060)	<input type="checkbox"/>
Special Section ART.14 (RR1610)	<input type="checkbox"/>
Special Section API/A (9.1)	<input checked="" type="checkbox"/> 4527
Special Section CR/C (9.6)	<input type="checkbox"/>

Other Special Sections	
Reference	Number

To apply Special Section data to other groups, select the beam or notice option.

Apply to current group only Apply to all groups in this beam Apply to all groups in this notice

NOTIFICATION

CAPTURE THE ASSOCIATED EARTH OR SPACE STATION

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice: 2

Notice	Station	Beam	Group	Emissions	Frequencies
Coordination	Social Section	Assoc Earth Station	Assoc Space Station	Attachments	

Notice Id: 2 Adm: SUI Satellite Network: HELVETICUBE Beam Id: UPLINK R Group Id: 1

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name: EPFL

EPFL Old Station Name (if changed)

C10d1. Cls Stn	C10d2. Nat Srv
1A	CP

C10c2. Country: SUI

C10c1. Geographical Coordinates

Longitude				Latitude			
Degrees	E/W	Min	Sec	Degrees	N/S	Min	Sec
6	E	33	55	46	N	31	10

C10d. Antenna Characteristics

3. Maximum Isotropic Gain: 13.3 +/- dBi

4. Beamwidth: 15 Degrees

7. Diameter: Meters

9. Dgso: Meters

C8g1. Max Aggregate Power: 768 dBW

C8g2. Aggregate Bandwidth: 21 kHz

C8g3. Bandwidth Corresponds to Aggr Bandwidth:

Antenna Radiation Pattern

C10d5a1. Co-polar Radiation Pattern Id:

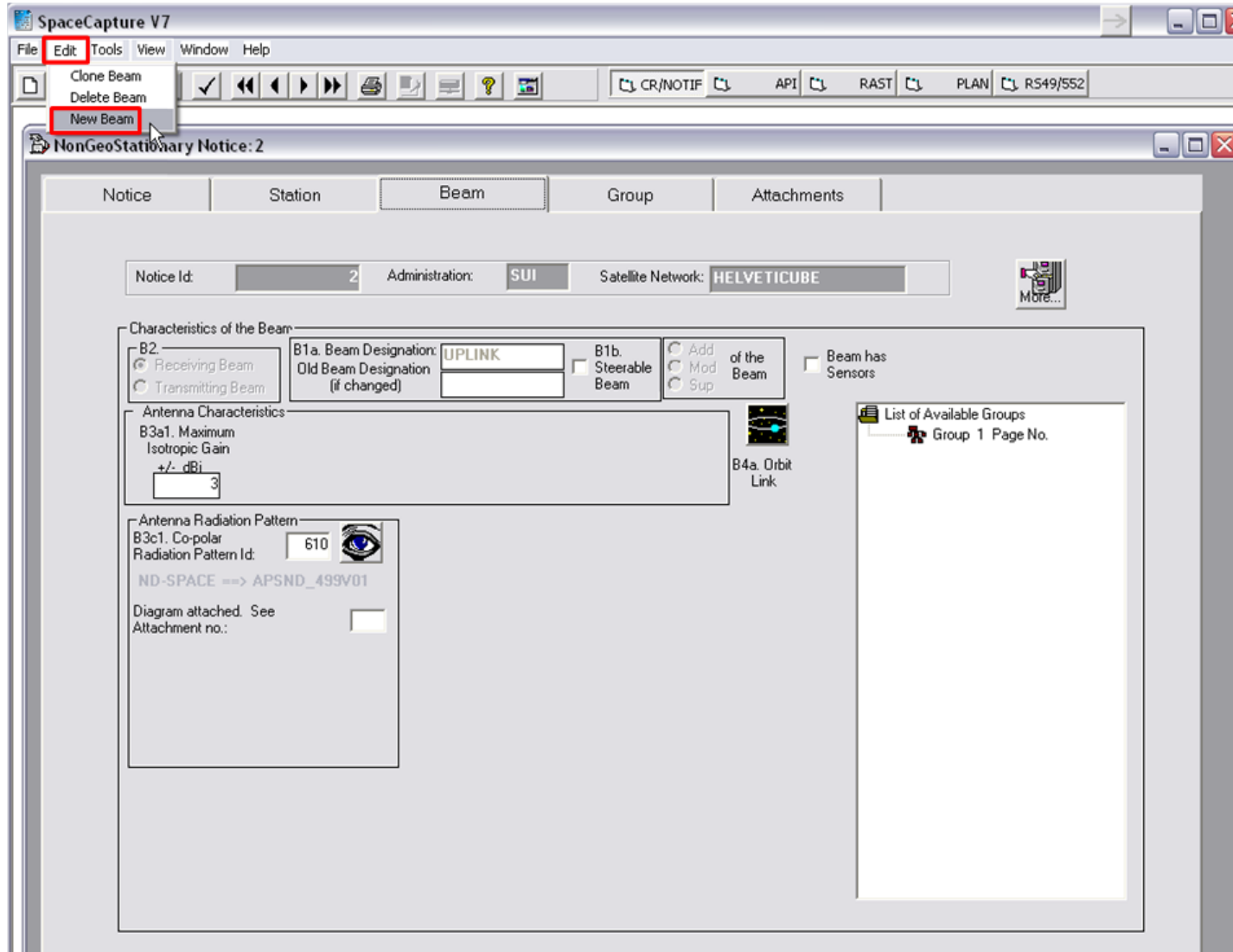
C10d5a2. Diagram attached. See Attachment no.:

or diagram no in Gims database: 1

OR

NOTIFICATION

PROCEED WITH THE NEXT BEAM



NOTIFICATION

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/SS2

NonGeoStationary Notice: 2

Notice Station **Beam** Group Attachments

Notice Id: 2 Administration: SUI Satellite Network: HELVETICUBE

More...

Characteristics of the Beam:

B2. Receiving Beam **Transmitting Beam**

B1a. Beam Designation: **DOWNLINK** B1b. Steerable Beam


Old Beam Designation (if changed) Add of the Beam Mod Sup Beam has Sensors

Antenna Characteristics:

B3a1. Maximum Isotropic Gain +/- dBi: **3**

B4a. Orbit Link

Antenna Radiation Pattern:

B3c1. Co-polar Radiation Pattern Id: **609** 

ND-SPACE ==> APSND_493V01

Diagram attached. See Attachment no.:

OR

MANDATORY

OPTIONAL

New information (WRC 12)

B2bis.a Space station only transmits when visible from the notified service area

B.2bis.b the minimum elevation angle

NOTIFICATION

CAPTURE CHARACTERISTICS OF THE GROUP(S)

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice: 2

Coordination Notice Special Section Station Assoc Earth Station Beam **Assoc Space Station Group** Attachments Emissions Frequencies

Notice: 2 Satellite Network: HELVETICUBE Beam Id: DOWNLINK E Group Id: 2 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies General Characteristics

C3a. Assigned Frequency Bandwidth: 4 (kHz) No Sensors Active Sensors Passive Sensors

C4a. Cls Stn	C4b. Nat Srv
EA	CR

C2c. compliance with No. 4.4 of the Radio Regulations B4b5. Peak Pfd

C6. Polarization: Type: D Dual Polarization If linear, provide angle: °

C8d1. Maximum Total Peak Power: 0 dBW C8d2. Contiguous Bandwidth: 4 (kHz)

C11a. Service Area as List of Countries or Geographic designations: XAA

Service Area Number: Service Area Diagram. See Attachment No.: Remarks:

OR

NOTIFICATION

GENERAL CHARACTERISTICS

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice: 2

Coordination Notice	Special Section Station	Assoc Earth Station Beam	Assoc Space Station Group	Attachments Emissions	Frequencies
---------------------	-------------------------	--------------------------	---------------------------	-----------------------	-------------

Notice: 2 Satellite Network: HELVETICUBE Beam Id: DOWNLINK E Group Id: 2 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies **General Characteristics**

A2a. Date Bringing into use: Check if this is the confirmed Date of Bringing into use.

A2b. Period of Validity: Years

A3a. Operating Administration or Agency:

A3b. Responsible Administration:

To apply this information to other groups, select the beam or notice option.

Apply to current group only Apply to all groups in this beam Apply to all groups in this notice

NOTIFICATION

ASSOCIATED EARTH STATION

SpaceCapture V7

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN R549/552

NonGeoStationary Notice: 2

Notice	Station	Beam	Group	Emissions	Frequencies
Coordination	Special Section	Assoc Earth Station	Assoc Space Station	Attachments	

Notice Id: 2 Adm: SUI Satellite Network: HELVETICUBE Beam Id: DOWNLINK E Group Id: 2

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name

Old Station Name (if changed)

C10d1. Cls Stn	C10d2. Nat Srv
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

C10c2. Country

C10c1. Geographical Coordinates
 Longitude: Degrees E/W Min Sec
 Latitude: Degrees N/S Min Sec

C10d. Antenna Characteristics

3. Maximum Isotropic Gain +/- dBi 4. Beamwidth Degrees

6. Receiving System Noise Temperature

9. Dgso Meters

7. Diameter Meters
 OPTION (AP4)

Antenna Radiation Pattern
 C10d5a1. Co-polar Radiation Pattern Id:

C10d5a2. Diagram attached. See Attachment no.:
 or diagram no in Gims database

Remember to specify the attachment no of the new Reference Pattern.

OR

OR

IF SPECIFIC

NOTIFICATION

PROCEED WITH THE NEXT GROUP

SpaceCapture V7

File Edit Tools View Window Help

Clone Group
Delete Group
New Group
Find Group

CR/NOTIF API RAST PLAN RS49/552

Notice: 2

Coordination	Special Section	Assoc Earth Station	Assoc Space Station	Attachments	
Notice	Station	Beam	Group	Emissions	Frequencies

Notice: 2 Satellite Network: HELVETICUBE Beam Id: UPLINK R Group Id: 1 Split Grp Id:

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed Page No. BR Data

Characteristics Common to a Group of Frequencies General Characteristics

C3a. Assigned Frequency Bandwidth: 768 (kHz)

No Sensors
 Active Sensors
 Passive Sensors

C4a. Cls Str	C4b. Nat Srv
EA	CP

C2c. compliance with No. 4.4 of the Radio Regulations

B4b5. Peak Pfd

C5a. Receiving System Noise Temperature: 500 Kelvins

C6. Polarization Type: M Mixed Polarization
If linear, provide angle: °

C11a. Service Area as List of Countries or Geographic designations: SUI

Service Area Number: 1 Service Area Diagram. See Attachment No.

Remarks

NOTIFICATION - CAPTURE IS DONE !

SpaceCapture V7 - [Set Notice Template]

File Edit Tools Template Window Help

CR/NOTIF API RAST PLAN RS49/552

SpaceCap

Start Page

Notice Explorer

Open Notice

New Notice

Search

Notice Explorer - AP4/II and AP4/III

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
000000002[A]	N	SUI/		HELVETICUBE	04.04.2013	01

List of notices Count=1

- 000000002[A] N SUI/
 - Beam id: UPLINK
 - Group id: 1
 - Special Sections
 - Emissions
 - Assoc. Earth Station
 - EPFL
 - Beam id: DOWNLINK
 - Group id: 2
 - Frequency Assignments
 - Emissions
 - Assoc. Earth Station
 - EPFL

Control Box

- Show
- Clone
- Export
- Delete
- To SNS
- CFEX
- SpaceVal
- Esub

Use the Bureau **SpaceValidation** programme for a ***MANDATORY CHECK OF THE DATA CAPTURE RESULT***

Verify if you have the latest version of SpaceVal

<http://www.itu.int/ITU-R/go/space-software/en>

Space Validation 7.0.2 (19.02.2013)

Operator Id: PLANCHE

Database Type:
 Ingres: DSN
 MS-Access

User Role:
 As a BR user
 As an outside user

Database Info:
Location:
Notice Id

Error Message Level Selection:
 Show fatal messages only
 Show all messages

Cross validation with Gims mdb file
Gims database:

Open
Validate
Report
Help
Exit

Click on the <Explorer> button to select and open a database

Use the Bureau **SpaceValidation** programme for a **MANDATORY CHECK OF THE DATA CAPTURE RESULT**

Verify if you have the latest version of SpaceVal

<http://www.itu.int/ITU-R/go/space-software/en>

STEP 1

Space Validation 6.1.6 (19.05.2010)

Operator Id: PLANCHE

Database Type

Ingres: DSN

MS-Access

User Role

As a BR user

As an outside user

Database Info

Location:

Notice Id

Error Message Level Selection

Show fatal messages only

Show all messages

Open

Validate

Report

Help

Exit

Click on the <Explorer> button to select and open a database

SELECT YOUR ACCESS DATABASE

STEP 2

Space Validation 6.1.6 (19.05.2010)

Operator Id: PLANCHE

Database Type:
 Ingres: DSN []
 MS-Access

User Role:
 As a BR user
 As an outside user

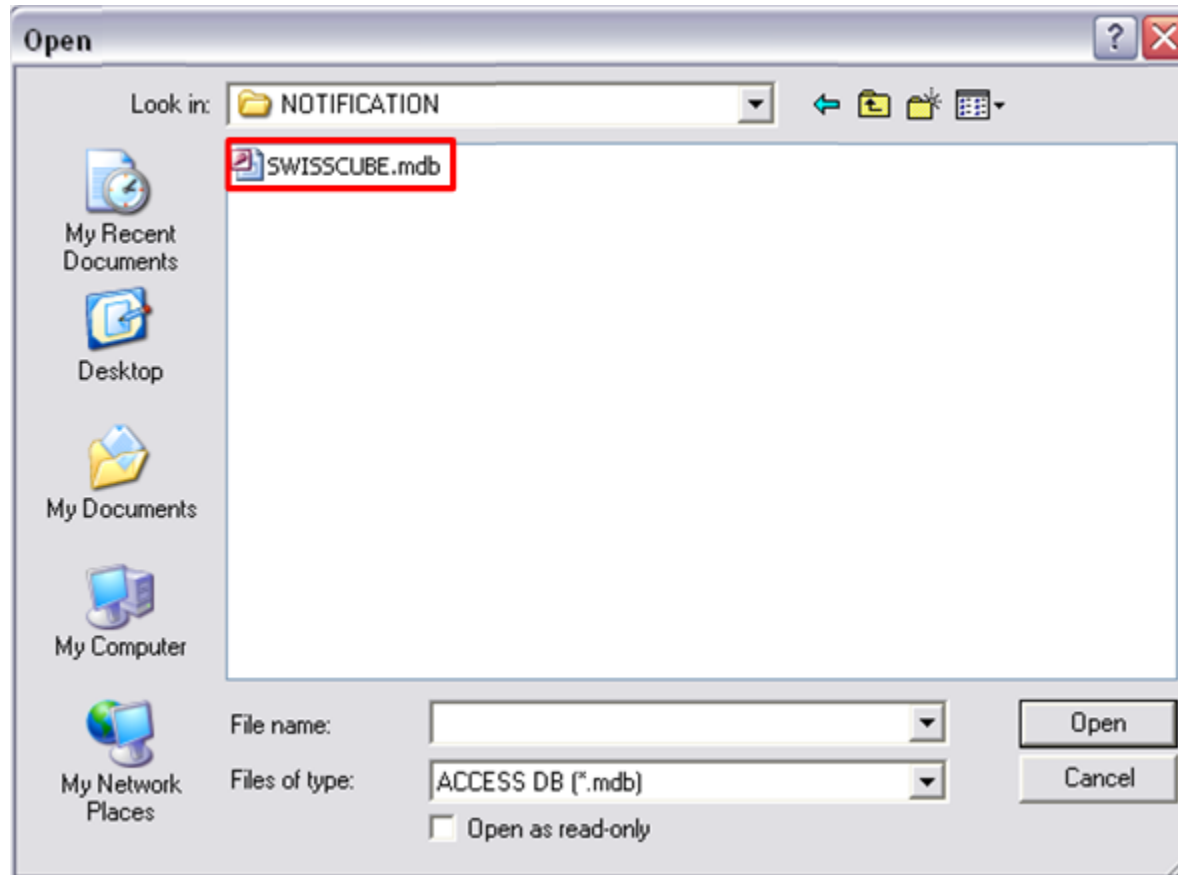
Database Info:
Location:
Notice Id []

Error Message Level Selection:
 Show fatal messages only
 Show all messages

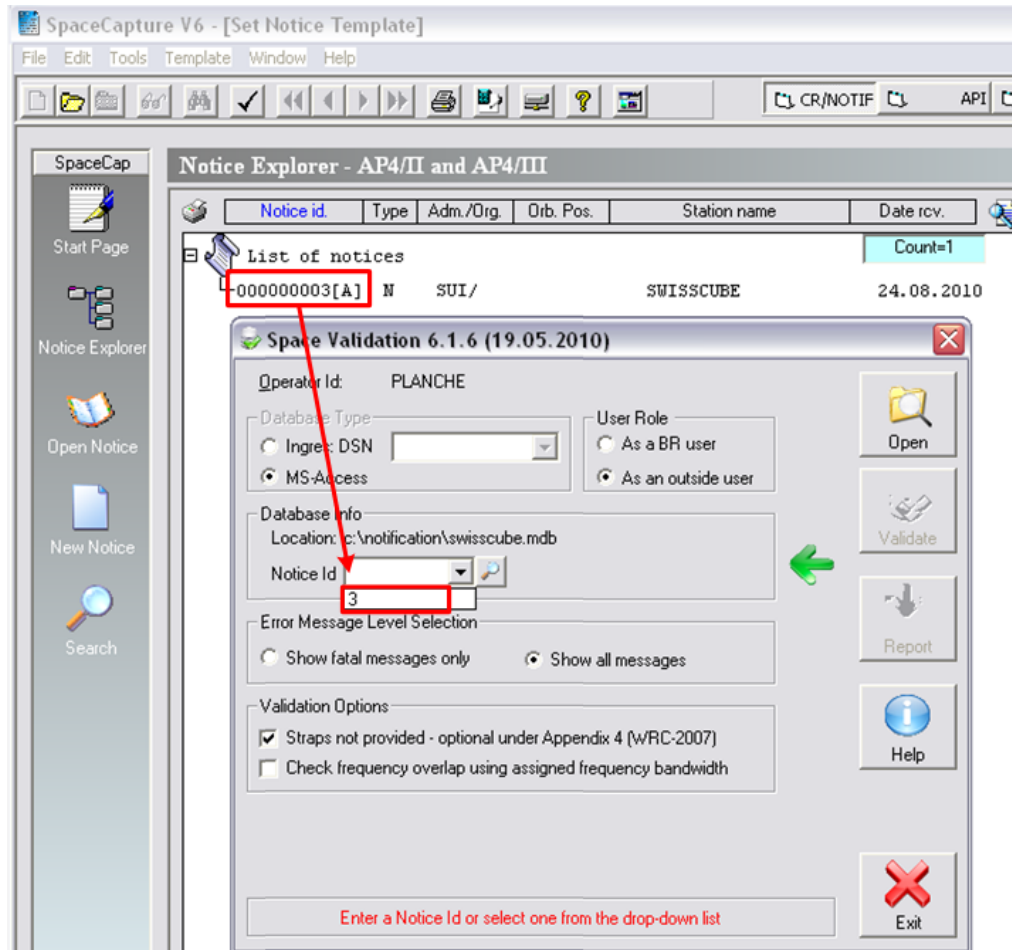
Buttons: Open, Validate, Report, Help, Exit

Click on the <Explorer> button to select and open a database

SELECT ON YOUR HARD DISK THE FILE CONTAINING YOUR CAPTURE

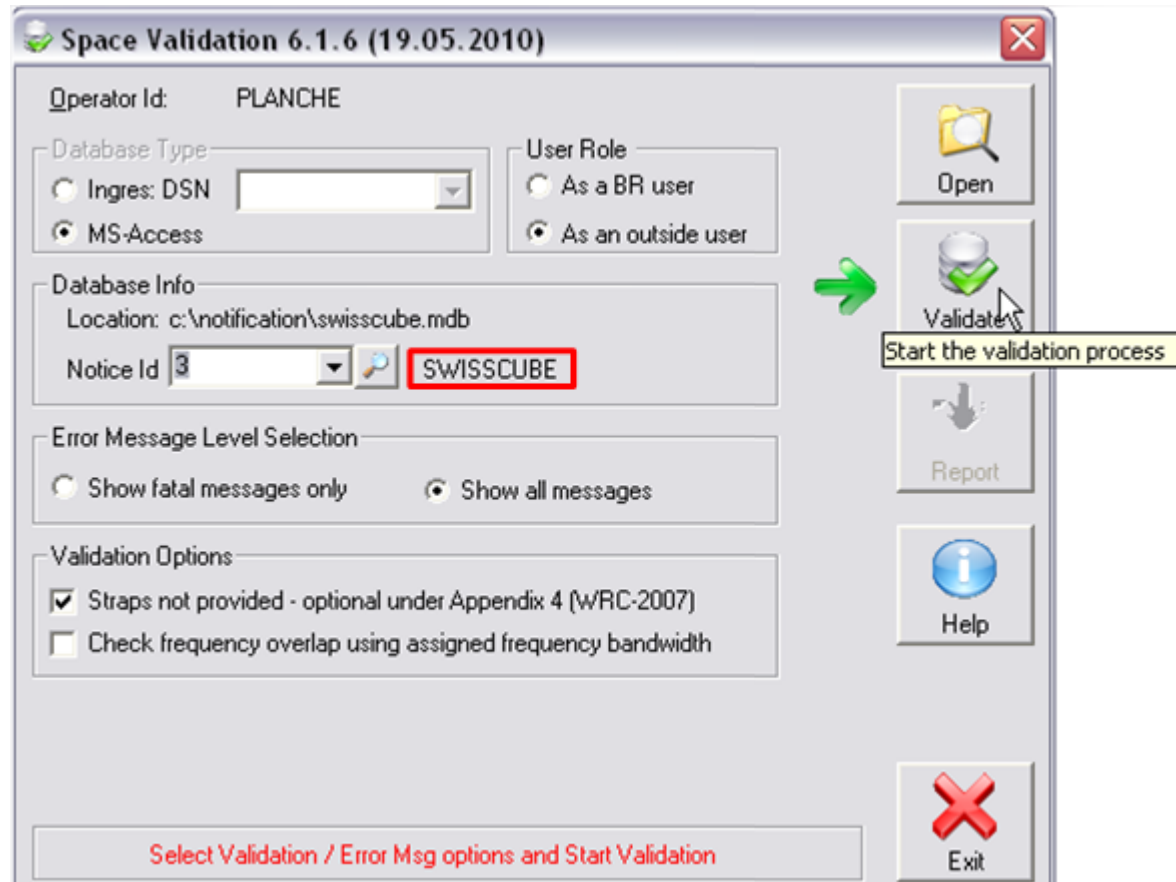


CONFIRM YOUR SELECTION



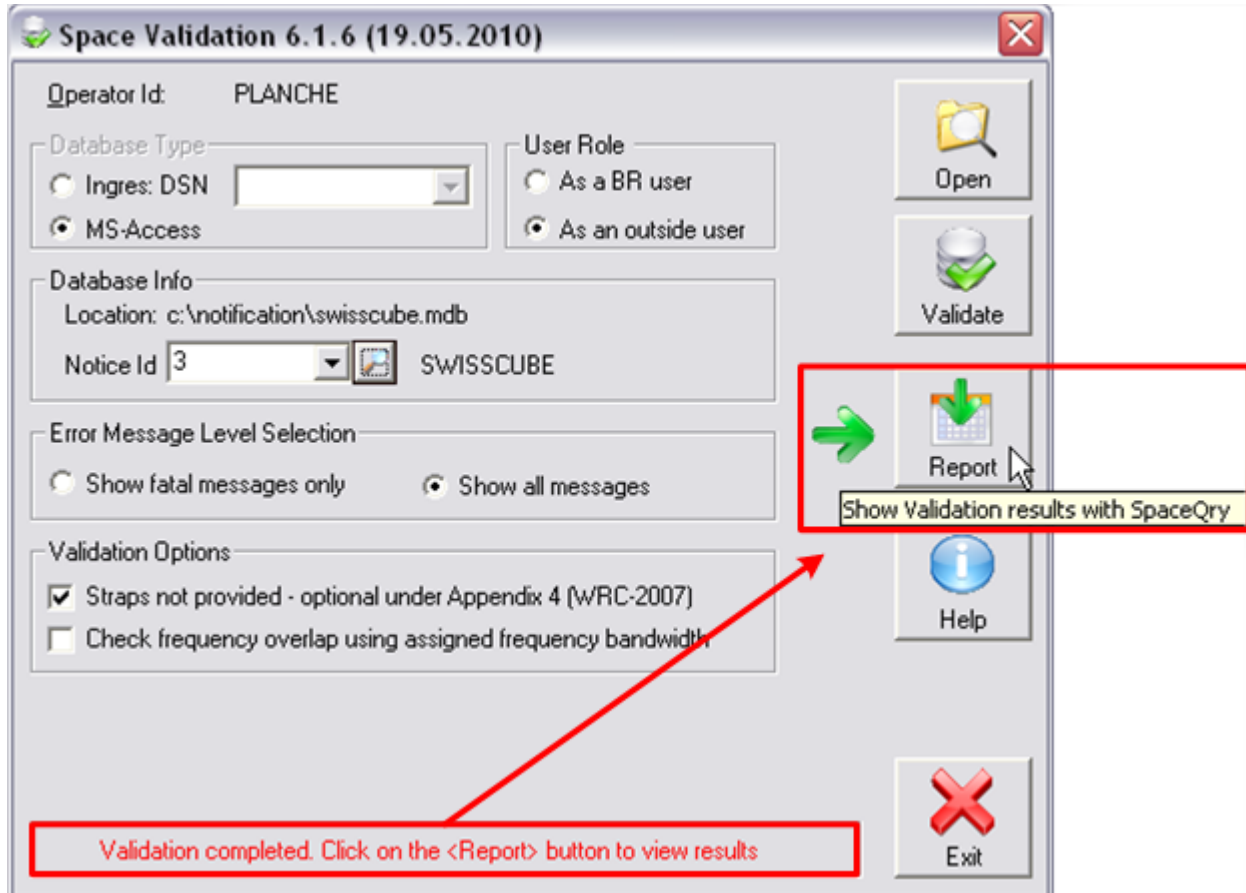
LAUNCH THE VALIDATION PROCESS

STEP 3



WHEN THE VALIDATION IS COMPLETED DISPLAY THE VALIDATION REPORT

STEP 4



PROCEED WITH ANALYZE AND CORRECTIONS

BR Space Query and Extract System - [QuickQuery Result for Network(s): 3]

File View Window Help

Validation Report for Network: 3 On: 25.08.2010 @ 09:12:32 By Operator: PLANCHE (swisscube.mdb)

Network ID: 3 Adm: SUI Satellite name: SWISSCUBE

Applicability code(s): axiss, gxiss

Validation Message Counts: Total: 15, FataIs: 9, Warnings: 3; 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: 9/3
UPLINK	R	1		603	1	F	grp	d_inuse		Value missing
DOWNLINK	E	2		603	1	F	grp	d_inuse		Value missing
UPLINK	R	1		604	1	F	grp	prd_valid		Value missing
DOWNLINK	E	2		604	1	F	grp	prd_valid		Value missing
UPLINK	R	1		605	1	F	grp	op_agcy		Value missing
DOWNLINK	E	2		605	1	F	grp	op_agcy		Value missing
UPLINK	R	1		606	1	F	grp	adm_resp		Value missing
DOWNLINK	E	2		606	1	F	grp	adm_resp		Value missing
DOWNLINK	E	2		644	3	F	grp	pwr_max		Value not provided, item 666 not provided and item 500 = E
UPLINK	R	1		647			grp	area_no	1	[axiss]
DOWNLINK	E	2		647			grp	area_no	1	[axiss]
DOWNLINK	E	2	1	693	2	W	e_as_stn	noise_t	1000	Invalid value
UPLINK	R	1	1	695	4	W	e_as_stn	bwwidth	15	Value outside computed allowable range (30.7 - 39.09)

SRS: INGRES Production

How to submit a filing to the Bureau?

- **Administrations** may submit electronic filings to the Bureau on a **CD-ROM or as email file attachment** (zipped)
- Each Directory/Folder or zipped file should then contain the following files, as appropriate, for that particular network:
 - One Network_Name/Station_Name.mdb file in the SNS file format (this file should contain only ONE network !!)
 - One or several files for the submission of graphical data, notes on the diagrams in English only
 - One Network_Name/Station_Name.doc file (for any comments pertaining to the network)

Before you submit....



- Run Spaceval to ensure that there are no fatal errors
- If there are fatal errors, try to correct them before submission.
- If you are unable to get rid of the fatal errors, you can describe them in the cover letter of your submission, the Bureau will provide assistance to address the errors
- Make sure that all required antenna patterns are provided, either by formula or diagrams.
- Change extension of .mdb to .itu if there is a problem with your email server
- **Satellite filings must be submitted by the Administration.**

Other things to note



- Filing should be sent by email to BRMAIL@ITU.INT
- Filing must be confirmed by a fax (no. +41 (22) 730 5785) from an Administration within 7 days
- 7-year limit to bringing into use and submission of notification, otherwise API will be cancelled, and the entire filing process need to be restarted
- Cost recovery
 - No cost recovery fee for amateur satellite service
 - For all other services, containing assignments that are not subject to coordination
 - 570 CHF for API
 - 7030 CHF for Notifications
 - One free entitlement per year for each Administration

Regulatory procedures for comments and resolution of difficulties



- Commenting procedures
 - Comments to an API/A should be submitted within 4 months of API (No.9.3)
 - Comments to be captured using SPACECOM (**RES-55**)
 - The Bureau publishes the list of administrations which have sent comments in an API/B special section
- Resolution of difficulties
 - Both administrations shall endeavour to cooperate in joint efforts to resolve any difficulties and shall exchange any additional relevant information that may be available
 - *Either party can request for the assistance of the Radiocommunication Bureau (No.9.3)*
 - In case of difficulties, the administration responsible for the planned satellite network shall explore all possible means to resolve the difficulties without considering the possibility of adjustment to networks of other administrations
 - If no such means can be found, it may request the other administrations to explore all possible means to meet its requirements.
 - The administrations concerned shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks.

Modification of characteristics



- According to No.9.2, the only change for NGSO filing that requires a new API would be additional frequency band.
- However, it is a good practice to submit a modification to the API any change in characteristics including orbital characteristics, service area (adding earth stations) etc.
- This will allow other administrations/operators the chance to submit comments before the modifications are notified for recording in the Master Register.

Changes by WRC-12



- The World Radiocommunication Conference (WRC-12) was held in Geneva, Switzerland from 22 January – 17 February 2012
- Among the WRC-12 decisions that affect NGSO filing procedures No. **9.2**:
 - A new API would be required if
 - The reference body of the space station is changed
 - The direction of transmission is changed
 - New **AP₄** data element **B.2bis.a** to indicate whether the assignment will be used for continuous/non-continuous transmission (*space station only transmits when visible from notified service area*)

For more information



- BR space website (<http://www.itu.int/en/ITU-R/space>)
- SNL online: <http://www.itu.int/ITU-R/space/snl/index.html>
- SNS online - TIES account required, need to be an ITU member (member state, ITU-R sector member, associate or academia) - <http://www.itu.int/sns/>
- BR IFIC on DVD-ROM
- BR IFIC Annual collection
- [ITU Radio Regulations](#) (RR)
- Rules of Procedure (RoP)
- ITU publications:
 - Handbook for earth exploration satellite service
 - Handbook for amateur and amateur-satellite services
- Workshop CD-ROM

Conclusions



- *Registration of frequency assignments with the ITU for small satellites is an obligation of the Administration under the treaty agreement of the Radio Regulations.*
- This will facilitate a harmonized and coordinated environment for which radio frequency is used on a global basis, minimizing the potential for any harmful interference.
- The Radiocommunication Bureau can provide assistance to operators/administrations to achieve the objective of getting their small satellite missions registered, recognized and protected in the Master Register.
- BR space website (<http://www.itu.int/en/ITU-R/space>) for more information .

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