

ITUWRS
ONLINE2020

29TH WORLD RADIOCOMMUNICATION SEMINAR
30 November - 11 December 2020

Submission of API for satellite networks not subject to coordination

Ellie Xiuqi WANG

Head, Data Treatment Section of SPR

Space Service Department, Radiocommunication Bureau
International Telecommunication Union

www.itu.int BRmail@itu.int Xiuqi.Wang@itu.int

www.itu.int/go/wrs-20

#ITUWRS

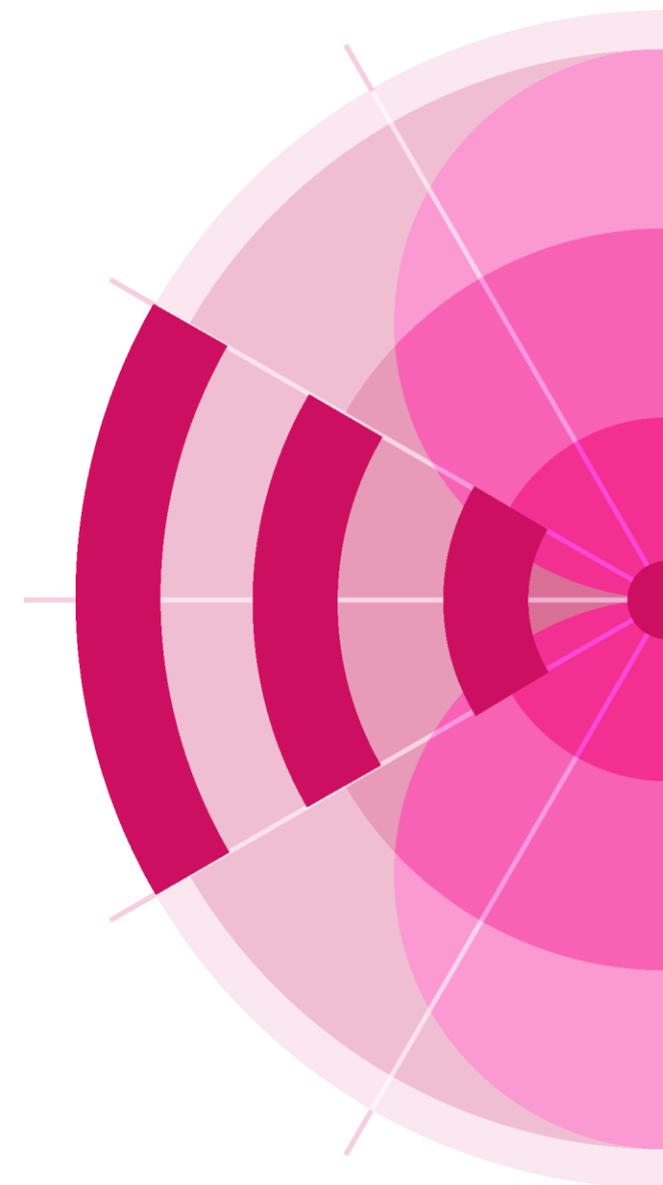
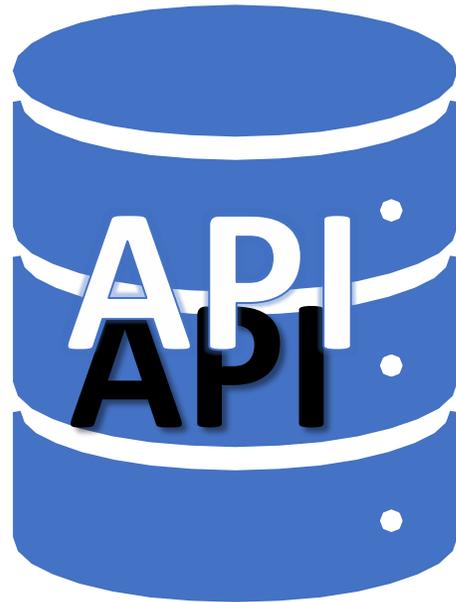


Table of Contents



- Submission
- Receivability
- Establishment of formal date of receipt
- Databases
 - SNS database, Graphical database
- Specific tips
 - Orbital parameters
 - Antenna patterns
 - Space operation
 - No.4.4
 - Modification
 - Reply to BR's enquiry
- Capture/Validation
- Useful Info online

Where to go for submission?



E-Submission of satellite network filings

available at <https://www.itu.int/ITU-R/go/space-submission>

telefax or mail is not required

recorded on the **actual date of receipt**

E-Communication system

available at <https://www.itu.int/ITU-R/go/space-communications>

generally used for response of BR communications

for comments which don't require SpaceCom mdb files

for correspondences between administrations

Telefax and E-mail BRmail@itu.int

recorded as received on the **actual date of receipt**

generally used for response of BR communication

telefax is not recommended

Postal Mail

recorded on the **first working day**

following the period of closure

(not recommended)

Administrative Circulars and Circulars Letters

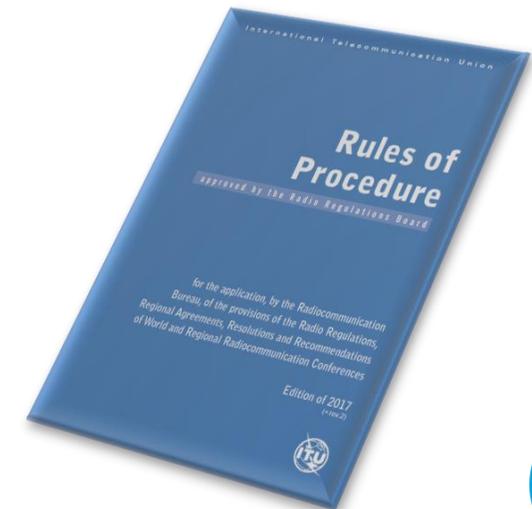
YOU ARE HERE: HOME > ITU-R > INFORMATION > ADMINISTRATIVE CIRCULARS AND CIRCULARS LETTERS

As of 1 March 2018, the **dispatching of all BR circulars by postal mail has been discontinued** (see CA/230 dated 6 Feb. 2018).

Subscribe to the ITU-TIES Email Notification Service
to receive an email notification when an ITU-R Administrative Circular or a Circular Letter is published

Administrative Circulars	Circulars Letters
<ul style="list-style-type: none">Administrative Circulars (CA) - Concerning general business of the Radiocommunication Sector.World Radiocommunication Conference (WRC)Conference Preparatory Meeting (CPM)Activities of the SAT-BAG and SCRadiocommunication Advisory Group (RAG)World Radiocommunication Seminar (WRS)Operational PlansWorking methods of the RA and the Study Groups	<ul style="list-style-type: none">Circular Letters (CCL) - Concerning matters related directly to the Radio Regulations Board.Draft modification to the Rules of Procedure (Addendum + Compendum)Circular Letters (CL) - Concerning Maritime Affairs.Publication of Resolution 340 of WRC-07Publication of the List of ship stationsCircular Letters (CLR) - Concerning Radio Regulation FrequencyAdministrative Circulars (AC) - Concerning Radiocommunication Assembly and Study Group work

ITU
Circular Letter





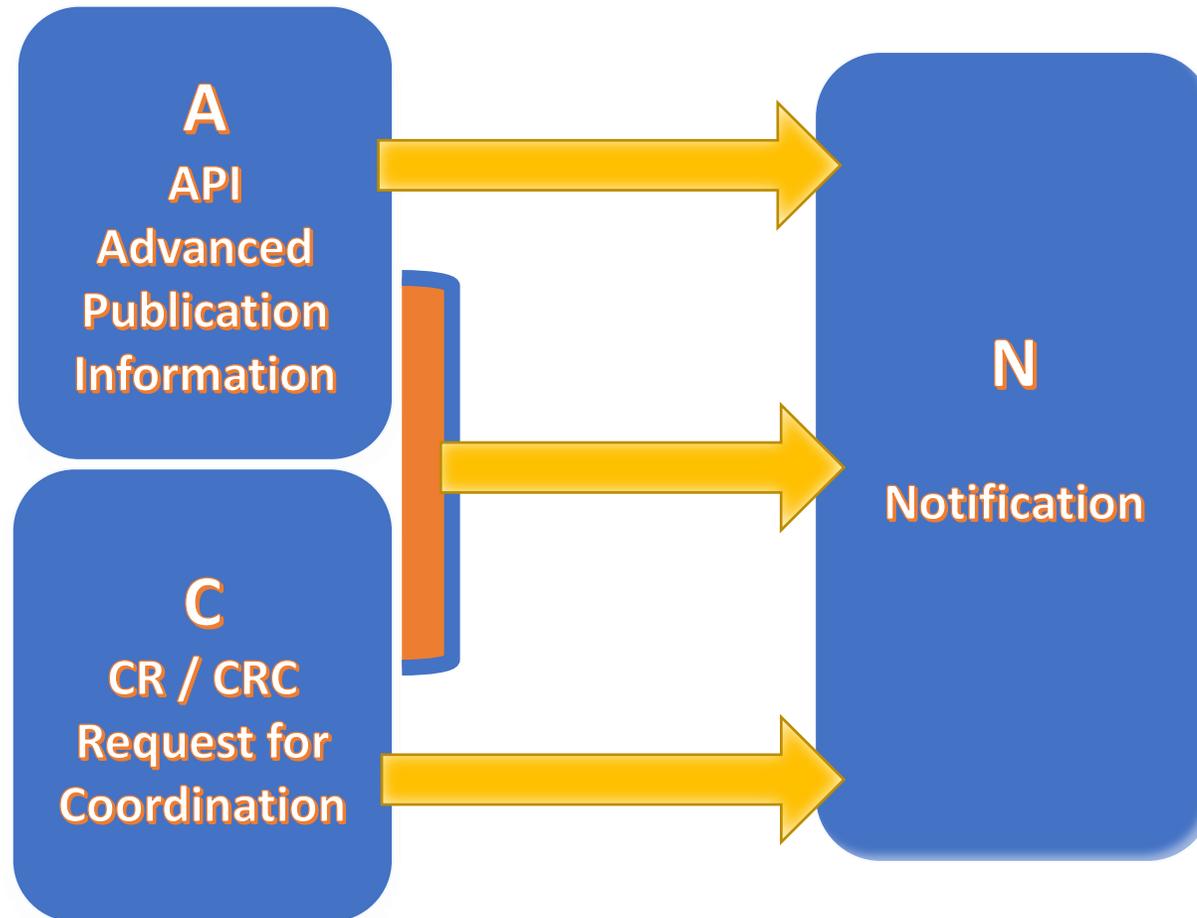
What should you do
to make your **API** notice for satellite networks
receivable





**Submit in
correct formats !**

What is **receivable** ?



ADM obligations

API or CRC ?

❖ **API** is a mandatory procedure for all satellite network
not subject to coordination procedure under section I of Article 9

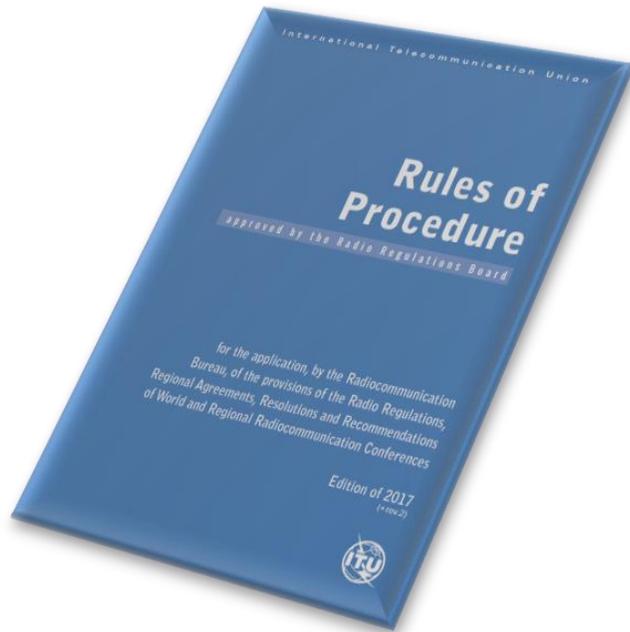
❖ **CRC** is a mandatory procedure for all satellite network
subject to coordination procedure under section II of Article 9

- To know whether a frequency band is subject to coordination:
read the footnotes in **the Table of Frequency Allocations**

Examples of footnote indicating coordination is required:

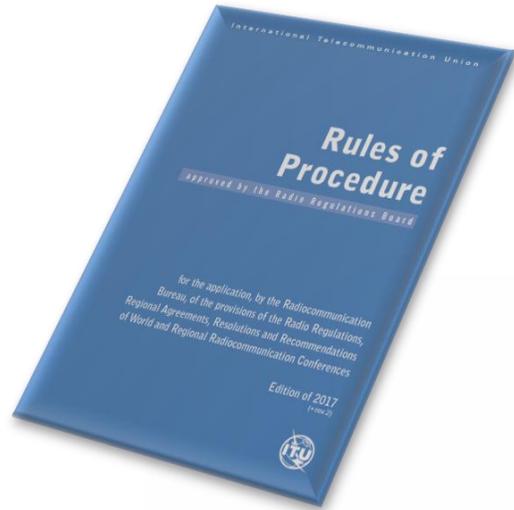
- **No. 5.364** *The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A.*
(For coordination under **No. 9.11A**, see also **Rule of Procedure**)
- **No. 5.286** *The band 449.75-450.25 MHz may be used for the space operation service (Earth-to-space) and the space research service (Earth-to-space), **subject to agreement obtained under No. 9.21.***

Establishment of a formal date of receipt



- In order to establish a formal date of receipt for the purpose of treatment of the submissions, the Bureau shall examine inter alia the completeness and correctness of the information submitted by administrations.
- Where a notice received by the Bureau does not contain all of the mandatory information as defined in Annex 2 of Appendix 4 or appropriate reason for any omissions, the Bureau shall regard the notice as incomplete. The Bureau shall immediately inform the administration and seek the information not provided.
- Further processing of the notice by the Bureau will remain in abeyance and a formal date of receipt will not be established until the missing information is received. The formal date of receipt will be the date of receipt of the missing information.

Rules concerning Receivability



**30 days to respond
with complete info
within the scope of Bureau's enquiry**



Part A1	Receivability	page 1	rev. 2
---------	---------------	--------	--------

Rules concerning the Receivability of forms of notice generally applicable to all notified assignments submitted to the Radiocommunication Bureau in application of the Radio Regulatory Procedures*

Rules concerning Receivability

Response

- **within the scope with complete info by due date** of Bureau's enquiry
 - retain original date of receipt
- **Not within** the scope of Bureau's enquiry, **out of due date**
 - establish new date of receipt
- Missing any mandatory information required under **AP4**
 - will be returned to the Administration
- Frequency bands subject to **AP30/30A/30B** procedures
 - will be returned to the Administration
- Wrong format
 - will be returned to the Administration

Withdrawal within **15 days**
possible
without cost recovery fee

Rules concerning Receivability

Appendix 4



Notice Database



Check **completeness** and **correctness** to establish a formal date of receipt

BR SIS

Validation



Cross validation



Diagram Database



CR/464 only GIMS mdb format shall be receivable under **RES 55** (WRC-19).

Use the latest BR software V9.0



Graphical Data in GIMS MDB



Diagram Database

CR/464 (2020) only GIMS mdb format
shall be receivable under **RES 55 (WRC-19)**.



Graphical Data for **API**

To capture diagrams as images in Gims



GIMS

- mandatory information concerning
 - the **co-polar** antenna radiation pattern (item **B.3.c.1** of Appendix 4) for the space station antenna and
 - the measured **co-polar** antenna radiation pattern or the **co-polar** reference radiation pattern for the associated Earth stations (item **C.10.d.5.a** of Appendix 4)

have to be provided either

with **pattern ids** in the notice database or
with **diagrams** in the Gims database

→ Gain values must be provided for all off-axis angles (0 to $\pm 180^\circ$)

→ Diagrams must be marked with the correct header elements

- Please follow the guide on how to capture the diagrams for API as shown in the website below
 - <https://www.itu.int/ITU-R/go/space-AdditionalDataUnderAP4/en>

For **co-polar** Antenna Radiation Patterns



Kindly submit the appropriate diagrams, or indicate the antenna pattern IDs by selecting from the Antenna Pattern Library (APL) available at the webpage:

<https://www.itu.int/en/ITU-R/software/Pages/ant-pattern.aspx>

Eg. Earth Station **co-polar** Antenna Radiation Patterns

AP7	APERR_012V01	Appendix 7 Earth station antenna pattern for the determination of the coordination area around an earth station in frequency bands between 100 MHz and 105 GHz.	Receiving	32
			Transmitting	75
Non-directional	APEND_099V01	Non-directional earth station antenna pattern.	Receiving	607
			Transmitting	608

Eg. Space Station **co-polar** Antenna Radiation Patterns

Non-directional	APSND_499V01	Non-directional space station antenna pattern.	Receiving	610
			Transmitting	609

To capture images in GIMs for API

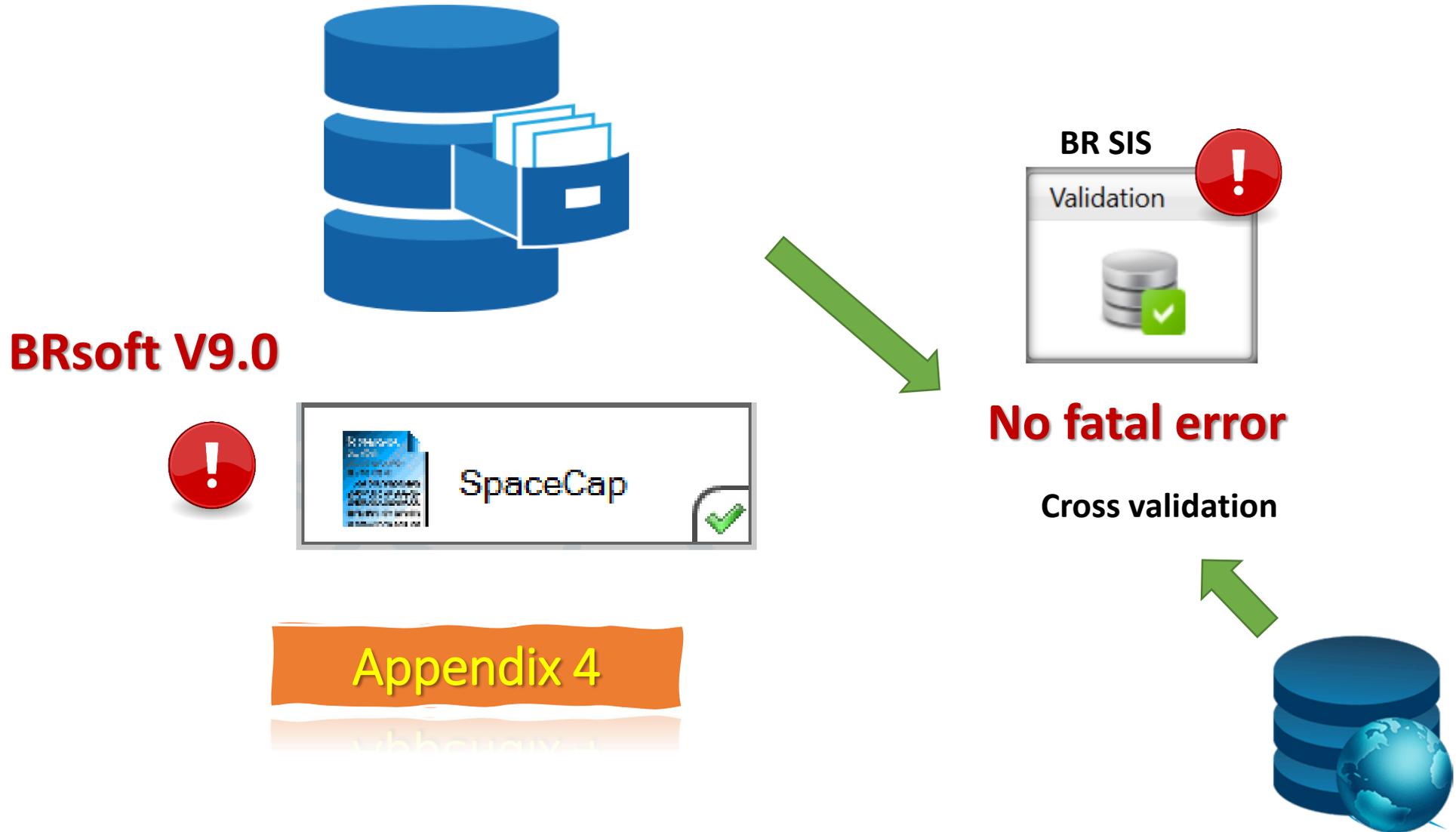
- To be captured for all transmitting / receiving beams and Earth stations that do not contain an antenna pattern ID in the SNS mdb
- To check that all diagrams are there, and with all the correct keys and labels with cross-validation tool

The screenshot displays the GIMS software interface. The main window is titled 'GIMS - 00000001.A.TESTSAT'. The 'GIMS Database Explorer' is open, showing the database location 'c:\work\test\test.mdb'. The 'Filter by' section is set to 'Non-geostationary Satellites'. The 'Select only' section is checked for 'Non-AP4 Diagram Type', 'Antenna Gain vs Elevation Angle (B4b2)', 'Spreading Loss vs Elevation Angle (B4b3)', and 'Earth Station Radiation Pattern (C10d5a)'. The 'Ignore' section is unchecked for 'C (Co-polar)', 'E (Emission = Down Link)', 'X (Cross-polar)', and 'R (Reception = Up Link)'. The 'Notice' table is visible, with the first row selected:

Notice	Reason	Admin.	Satellite
1	A	USA	TESTSAT

The 'Earth Station Radiation Pattern' diagram is displayed, showing a circular plot with a central peak and a secondary peak. The 'Space Station Transmitting Antenna Radiation Pattern' diagram is also displayed, showing a circular plot with a central peak and a secondary peak. The 'OK' button is highlighted in red.

Notice Database



Specific tips for API

- New mandatory info for all NGSO API not subject to coordination:

A1g. Short Duration Mission

A4b1a. Constellation

AP4 item	Description	Key word	Type of response	Where can be provided?
A.1.g	indicator showing that the non-GSO satellite system is planned to be operated in accordance with Resolution 32 (WRC-19)	SDM	Y/N	SpaceCap v. 9.0 (Notice TAB)
A.4.b.1.a	indicator of whether the non-geostationary-satellite system represents a “constellation”, where the term “ constellation ” describes a satellite system, for which the relative distribution of the orbital planes and satellites is defined	Constellation	Y/N	SpaceCap v. 9.0 (Notice TAB)
A.4.b.4.m	indicator of whether the space station uses sun-synchronous orbit or not	Sun-synchronous	Y/N	SpaceCap v. 9.0 (Orbital info 1/3 TAB)

Mandatory !!

Orbital Information [1 of 3]

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

Mandatory	4m. space station uses sun-synchronous orbit	4n. local time reference	4o. local time HH:mm:ss
	<input type="radio"/> yes <input checked="" type="radio"/> no <input type="radio"/> n/a <input type="radio"/> yes <input checked="" type="radio"/> no <input type="radio"/> n/a	A/D	optional

Specific tips for API

- If **Constellation** indicator = **Y**:

Item A.4.b.1.a :

A4b1a. Constellation
 (S) Single

A4b1a. Constellation
 (M) Multiple
 A4b1c. No of sub-sets A4b1d. Attachment Number

AP4 item	Description	Key word	Where can be provided?
A.4.b.4.h	the initial phase angle (ω_i) of the i-th satellite in its orbital plane at reference time $t = 0$, measured from the point of the ascending node ($0^\circ \leq \omega_i < 360^\circ$)	Initial Phase angle	SpaceCap v. 9.0 (Orbital info 2/3 TAB)
A.4.b.4.i	the argument of perigee (ω_p), measured in the orbital plane, in the direction of motion, from the ascending node to the perigee ($0^\circ \leq \omega_p < 360^\circ$)	Argument of Perigee	SpaceCap v. 9.0 (Orbital info 2/3 TAB)
A.4.b.4.j	the longitude of the ascending node (θ_j) for the j-th orbital plane, measured counter-clockwise in the equatorial plane from the Greenwich meridian to the point where the satellite orbit makes its South-to-North crossing of the equatorial plane ($0^\circ \leq \theta_j < 360^\circ$)	LAN	SpaceCap v. 9.0 (Orbital info 3/3 TAB)

Mandatory !!

Notice Information_SpaceCap

Forms of Notice Advance Publication

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

Notice Id: 120545207 Advance Publication 22.04.2020 Status: 01

Date: DD.MM.YY 27.08.2020 Administration Serial Nbr

A1f1. Notifying Administration: B 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:

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

A1a. Identity of the Network: ITUTEST A1g. Short Duration Mission

A4. Orbital Information

A4b1. Number of Orbital Planes: 1 A4b2. Reference body: (T) Earth A4b1a. Constellation

A4b3a. Nbr of Satellites to NH: A4b3b. Nbr of Satellites to SH: (M) Multiple

A4b1c. No of sub-sets: A4b1d. Attachment Number:

A4b1a. Constellation: (S) Single

Orbital Information 1_SpaceCap

Orbital Information (1 of 3) | Orbital Information (2 of 3) | Orbital Information (3 of 3)

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	4f. Min Alt exp
1	98.2	1	0	1	38	700.00	0	700.00	0	700.00	0

Orbital Information (1 of 3) | Orbital Information (2 of 3) | Orbital Information (3 of 3)

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

4d. apog exp	4e. Perigee	4e. perig exp	4f. Minimum Altitude	4f. Min Alt exp	4m. space station uses sun-synchronous orbit	4n. local time reference	4o. local time HH:mm:ss
0	700.00	0	700.00		<input checked="" type="radio"/> yes <input type="radio"/> no <input type="radio"/> n/a	A	22:30:00

Mandatory (circled in red) points to the 4m. space station uses sun-synchronous orbit column.

A/D (in a green box) points to the 4n. local time reference column.

optional (in a green box) points to the 4o. local time HH:mm:ss column.

Orbital Information 2_SpaceCap

Orbital Information (1 of 3) **Orbital Information (2 of 3)** Orbital Information (3 of 3)

A4b4. Orbital Parameters

Orbital Plane id	4a. Inclination Angle	4b. Satellites in the plane	4g. Right Ascension (degrees)	4i. Argument of the Perigee (degrees)
▶ 1	98.2	1		

A4b4h. Phase Data for Orbital Plane number 1

Satellite Number	4h. Initial phase angle
▶ 1	

<< < 1 ▾ > >>

In order to calculate automatically phase angles, please insert values below:

Initial phase angle

Step

Apply to current orbit

Apply to all orbits with same number of satellites

- Items **A4b4h**, **A4b4i**, **A4b4j**: required when **Constellation indicator = Y**
- Item **A4b4i** Argument of the Perigee: required only when **Apogee ≠ Perigee**

Orbital Information 3_SpaceCap

Orbital Information (1 of 3)

Orbital Information (2 of 3)

Orbital Information (3 of 3)

A4b6. Orbital Operation

Orbital Plane id	N. of sats	4a. Inclination Angle	4j. Longitude ascending node
1	1	98.2	

A4b4k/l. Date/time of sat location for Orbital Plane 1

Satellite Number	4k. Reference Date DD.MM.YYYY	4l. Reference Time HH:mm:ss
1		00:00:00

Select Date and Time for all satellites on Selected Orbital Plane:

optional

Items A4b4h, A4b4i, A4b4j, required when **Constellation indicator = Y**



Space Operation Service

Space operation: ET \neq EK, ER, ED

RoP No. 1.23

2 In the No. **11.31** examinations, notices concerned with **space operation functions** will be considered in conformity with the Table of Frequency Allocations (favourable Finding) in the case where the assigned frequency (and the assigned frequency band) lies in a frequency band allocated to the:

- space operation **service**, or
- the main service in which the space station is operating (e.g. FSS, BSS, MSS).

3 In the case where the assigned frequency concerning **space operation functions**, lies in a frequency band allocated to a service in which the space station has **no operating function**, the No. **11.31** finding will be **unfavourable**.



ITUWRS
ONLINE2020

For notice where there is only space operation functions, should include ET as main service



Space Operation Service

Space operation: ET \neq EK, ER, ED

For the frequency band which is **allocated** to the space operation service, should capture ET as service.

For the frequency band which is **not allocated** to the space operation service, should capture ED, EK or ER as space operation functions, plus other main satellite service.

For notice where there is **only** space operation functions, should include ET as the main service.



ITUWRS
ONLINE2020

For notice where there is only space operation functions, should include ET as main service



Non-allocated bands not recommended

- It is not encouraged to use bands that are not allocated to the service
- If administration wish to do so, please request for **No. 4.4**
 - checkbox at the group tab via SpaceCap should be checked
- Administration should ensure that
 - It has determined that it will not cause harmful interference into the stations of other administrations operating in conformity with the Radio Regulations;
 - It has identified measures to avoid harmful interference and to immediately eliminate such in case of a complaint.
- When notifying the use of frequency assignments to be operated under **No. 4.4**, the notifying Administration shall provide a confirmation as mentioned above.

Modification of characteristics



- According to **Nos. 9.2**, amendments to the information that requires **new API** are:
 - **Additional frequency band**
 - **Modification of the direction of transmission**
 - **Modification of reference body**
 - However, it is a good practice to submit a modification to the API for any change in characteristics including orbital characteristics, service area (adding earth stations) etc.
 - This will provide other administrations/operators the chance to submit comments before the modifications are notified for recording in the Master Register.
- If during the **notification**, there are **other changes** in characteristics from the information published, other administrations can submit **comments** following the **Part I-S (No.11.28.1)**.

Modification of characteristics



- For mod API notice, if:
 - **No change in orbital position**
 - Only **new frequency bands** will be given a new regulatory start date same as the date of receipt of the MOD API
 - **Change in orbital information**
 - **All frequency bands** will be given a new regulatory start date same as the date of receipt of the MOD API

Avoid submitting a frequency range that span across frequency bands with different regulatory date limits previously submitted or published, if possible!



Modification of characteristics

- For MOD, it's recommended to **clone** from the target from SRS mdb, it will automatically capture the action codes for beams/groups and target group id's, remove those beams/groups not concerned by the modification
- Pay more attention of all **action codes** for Notice, Beams, Groups, Earth stations etc.
- For **MOD beam**: indicate if any of diagrams has been modified vs. the original notice
- For **MOD group**: indicate the **target group IDs** previously published and the action codes for all groups and for all associated Earth stations via SpaceCap
- Pay more attention for the **associated Earth stations** , remove those Earth stations not concerned by the modification, capture manually the action codes (**add, mod, sup**) for all Earth stations.

Capture

For MOD, export your target database from SRS mdb first

The screenshot shows a software interface with a table of notices and an export dialog box. The table has columns: Notice id., Type, Adm./Org., Orb. Pos., Station name, Date rcv., and Status. The selected row is: 120545207 [A], N, KOR/, SNUGLITE-II, 27.08.2020, 20. The dialog box has the following sections:

- Target Database:** Radio buttons for Access (selected) and Ingres. A text field shows the path: C:\Users\wangxi\Documents\My C Drive\WORK\others\training\2020.11\WRS. A button labeled "Set Target Db" is highlighted with a red box and number 3.
- Keep History:** A checked checkbox.
- Group Ids:** Radio buttons for "Renumber Group Ids" and "Keep Group Ids of the source" (selected). A red box and number 4 highlight the "Keep Group Ids of the source" option.
- Notice Already in Target database:** Radio buttons for "Give a new Notice Id" (selected), "Replace Notice in Target", and "Do not export".
- Export:** Radio buttons for "Run Export now" (selected) and "Schedule Export to run later".
- Buttons:** "OK" and "Cancel" buttons at the bottom. A red box and number 5 highlight the "OK" button.

On the right side, a "Control Box" contains buttons: "Show", "Clone", "Export" (highlighted with a red box and number 2), "Delete", and "Esub".



In your individual database, use "clone" to create the MOD

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
List of notices Count=1						
120545207 [A]	N	B /		ITUTEST	27.08.2020	01

Control Box

- Show
- Clone**
- Export
- Delete
- To SNS
- CFEX
- Validation
- Esub

Clone Dialog

Clone Parameters

Clone ID:

Date of Receipt:

Notice Status:

Action Code: Add Mod Sup

External/Internal: External Internal Review WithDraw

Grp mapping

Beams: All None Emitting Receiving

Groups: Yes No

Coordination: Yes No

Special Sections: Yes No

Straps: Yes No

Noise Gama: Yes No

BR Data

Coordination: Yes No

Special Sections: Yes No

Findings: Yes No

Notice and Grp Links: Yes No



Capture

Using the “Clone” function via SpaceCap, action codes and target group ids are captured automatically

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

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
000000002 [M]	N	B		ITUTEST	03.11.2020	01

List of notices

- Beam id: BEAM3 [M]
 - Group id: 120697010 [M] {tgt_id=120697005}
- Beam id: BEAM1 [M]
 - Group id: 120697008 [M] {tgt_id=120697006}
- Beam id: BEAM2 [M]
 - Group id: 120697009 [M] {tgt_id=120697007}

Annotations:

- Blue oval: Action codes
- Red box: 03.11.2020
- Blue cloud: Target group IDs

Capture

After the “Clone”, you can remove beams/group, modify action codes, or rename beam to have a new one, then modify the detail characteristics

The screenshot displays a software interface with a table of notices and a control box on the right. A context menu is open over the table, and a dialog box is overlaid on top.

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
000000002	[M]	N B /		ITUTEST	03.11.2020	01
120545207	[A]	N			27.08.2020	20

The control box on the right contains the following buttons: Show, Clone, Export, Delete, To SNS, CFEX, Validation, and Esub. The 'Clone' and 'Delete' buttons are highlighted with red boxes.

The context menu is open over the first notice, showing options: Open Notice, Show Selected Entity, View History, Print Notice, Export Notice(s), Clone, Delete, Rename Beam, and Modify Beam Action Code. The 'Modify Beam Action Code' option is highlighted with a red box.

The dialog box titled 'Question' asks: 'What is the new Action Code? (. , A, M or S)'. The input field contains the letter 'A', which is circled in red. The dialog has 'OK' and 'Cancel' buttons.

To create a new beam:

File Edit Tools View Window Help

- Clone Beam
- Delete Beam
- New Beam

2

1

Notice Beam Group Remarks

Notice Id: 2 Administration: B Satellite Network: ITUTEST

Characteristics of the Beam

B2. Receiving Beam
 Transmitting Beam

B1a. Beam Designation: BEAM3

B1b. Steerable Beam

Add of the Beam
 Mod
 Sup

Beam has Sensors

Antenna Characteristics

B3a1. Maximum Isotropic Gain
+/- dBi
0

B4a. Orbit Link

Antenna Radiation Pattern

B3c1. Co-polar Radiation Pattern Id:



Capture

Pattern in the form of
diag. See Attach no. 1

To capture a new beam, you need to go **Beam** tab first, then, click **Edit** menu, select **New Beam** from the drop-down list

List of Available Groups
Group 120697010

Capture

File Edit Tools View Window Help

- Clone Group
- Delete Group
- New Group**
- Find Group

2

CR/NOTIF API RAST PLAN RS49/552

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

1

Notice Satellite Network: Beam Id: Group Id: 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

C2c. Frequency assignments are filed under No.4.4

	C4a. Cls Strn	C4b. Nat Srv
▶	EA	CR

C6. Polarization
 Type
 If linear, provide angle

Limit to 4 class so stations

C11a. Service Area as List of Countries or Geographic designations

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

If you need more for the same freq bands, create new groups

In group tab

Capture

Notice Satellite Network: Beam Id: Group Id: 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 Stn	C4b. Nat Srv
EA	CR

C2c. Frequency assignments are filed under No. 4.4

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  

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

Remarks:

For service area:

- **XVE is used for GSO**
- **For NGSO, please use XAA or XAX**
See preface for more details
- **Once you have captured XAA, please do not add other country code, because they are included**
- **Don't use the remarks here, if so wish, provide in notes**

In Emissions tab

Capture

Forms of Notice Advance Publication

Assoc Earth Station Notice Assoc Space Station Beam Attachments Group **2** Emissions Frequencies

Notice Id: 1 Adm: B Satellite Network: ITUTEST Beam Id: BEAM2 E Group Id: 120697013

Space Station Emissions												
	C7a. Designation of Emission	C8a1/C8b1. Maximum Peak Power (dBW)	C8a2/C8b2. Maximum Power Density	Emission of Type C8b	C8c1. Minimum Peak Power (dBW)	C8c2. Atch No. Pep	C8c3. Minimum Power Density	C8c4. Atch No. Mpd	C8e1. C/N objective (total - clear sky) (dB)	C8e2. Atch No. C/N	C9 Modulation Char	seq
▶	1M30G1DXM	-3.0	-64.1	<input type="checkbox"/>	-14.0		-75.1		8.6		modulation	
				<input type="checkbox"/>								
*				<input type="checkbox"/>								

Once you click the "Group" tab, the "Emissions" tab will then appear
Pay more attention to the "Carrier Frequencies" button

Please specify carrier frequencies for each emission here.

Carrier Frequencies

Carrier Frequencies

Capture

Carrier Frequencies

Notice Id: 1 Adm: B Satellite Network: ITUTEST Beam Id: BEAM2 Emi Rcp: E Grp Id: 120697013

Select the Designation of Emission from the list below for which you wish to add Carrier Frequencies.

C7a. Designation of Emission	seq_no	C7b. Carrier Frequency MHz	seq_emiss
1M30G1D--	1	2405.00000	1
500KG1D--	2		

Please select the designation of Emissions from the left-side list one by one, in order to capture the carrier frequencies for each Emissions

Make sure the carrier frequencies with the BW concerned are within the frequency range for the same group

Apply these characteristics to all emissions in this grp Apply these characteristics to the current emission

Save Close



Frequency Range

Please respect the allocation under RR Art 5

Forms of Notice Advance Publication

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

Notice Id: Adm: Satellite Network: Beam Id: Group Id:

C1. Frequency Range

Freq From	Sym	Freq To	Sym
<input type="text" value="2404"/>	<input type="text" value="M"/>	<input type="text" value="2406"/>	<input type="text" value="M"/>

To add additional frequency range, please clone the group.

C1. Frequency Range			
Frequency From	k/M/GHz	Frequency To	k/M/GHz
2404	M	2406	M

kHz for frequencies up to 28 000 kHz inclusive

MHz for frequencies above 28 000 kHz up to 10 500 MHz inclusive

GHz for frequencies above 10 500 MHz

- Check allocation table under Art 5
- One group one frequency range
- Please clone the group to have different frequency range
- The units are described here in accordance with the RR
- For MOD, avoid overlapping partially with different regulatory dates submitted or published in the past



Associated Earth Station

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: 2 Adm: B Satellite Network: ITUTEST Beam Id: BEAM3 R Group Id: 120697010

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name

ITUTEST ES-1

of the station

- Add
- Mod
- Sup

C10d1. Cls Stn	C10d2. Nat Srv
TA	CR

C10d. Antenna Characteristics

3. Maximum Isotropic Gain 4. Beamwidth
14.4 +/- dBi 38 Degrees

Antenna Radiation Pattern

C10d5a1. Co-polar
Radiation Pattern Id:C10d5a2. Diagram attached. See
Attachment no.:

1

or diagram no in Gims database

Capture

Associated Earth Station

SpaceCapture v9

File Edit Tools View Window Help

Clone Assoc Earth Station
Delete Assoc Earth Station
New Assoc Earth Station
Find Assoc Earth Station

CR/NOTIF API RAST PLAN RS49/552

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

Notice Id: 2 Adm: B Satellite Network: ITUTEST Beam Id: BEAM3 R Group Id: 120697010

C10b2. Type of Station
 Typical Specific

C10b1. Associated Earth Station Name
ITUTEST ES-1

of the station
 Add
 Mod
 Sup

C10d1. Cls Strn	C10d2. Nat Srv
TA	CR

C10d. Antenna Characteristics
3. Maximum Isotropic Gain: 14.4 +/- dBi
4. Beamwidth: 38 Degrees

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

C10d5a2. Diagram attached. See Attachment no.: 1
or diagram no in Gims database

To capture a new Earth station, you need to go Assoc Earth Station tab first, then, click Edit menu, select New Assoc Earth Station from the drop-down list

Capture

Associated Space Stations

Forms of Notice Advance Publication

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

Notice Id: Adm: Satellite Network: Beam Id: Group Id:

C10a. Assoc Space Station Name	Nominal Longitude	E/W	Beam Name	Add/Mod/Sup	Station Type
USASAT-28M					
Sat Name	Longitude	Adm			
USASAT-2B	-63W	USA			
USASAT-30A		USA			
USASAT-30B		USA			
USASAT-30C		USA			
USASAT-30D-1	-90W	USA			
USASAT-30D-2	-160W	USA			
USASAT-30E		USA			
USASAT-30F		USA			
USASAT-30G		USA			
USASAT-30H-LM		USA			
USASAT-30J		USA			
USASAT-31A	-147W	USA			

For space-to-space service:

- You can select the space station name from the drop-down list
- Make sure the associated space station name is the satellite network name submitted or published by the BR, which is not the commercial name of the satellite network or system
- Make sure the beam name are the same name submitted or published for the associated space station
- Otherwise, such group will be given unfavorable finding at the notification stage

Capture

Cross_Validation via SpaceCap

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

Notice id.	Type	Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
000000002	[M] N B /			ITUTEST	03.11.2020	01

Control Box

- Show
- Clone
- Export
- Delete
- To SNS
- CFEX
- Validation**
- Esub

Count=2

List of notices

- Beam id: BEAM3 [M]
 - Group id: 120697010 [M] {tgt_id=120697005}
- Beam id: BEAM4 [A]
 - Group id: 120697011
- Beam id: BEAM1 [M]
 - Group id: 120697008 [M] {tgt_id=120697006}
- Beam id: BEAM2 [M]
 - Group id: 120697009 [M] {tgt_id=120697007}

Run Validation via SpaceCap →

Cross_Validation via SpaceCap

Adm./Org.	Orb. Pos.	Station name	Date rcv.	Status
B /		ITUTEST	03.11.2020	01

Count=2

Dialog

Initiate Validation for:
Dbname: C:\Users\wangxi\Documents\My C_Drive_WORK\others\training\2020.11.WRS
Ntc ID: 2 Adm: B Sat Name: ITUTEST Action:M Status:01 D_RCV: 03.11.2020

Enter parameters for Validation Run as external user

Validation Options

- Straps not provided - optional under appendix 4 (w/RC2007)
- Check frequency overlap using assigned frequency bandwidth

Graphical Data Cross Validation

Cross Validate

GIMS Database (.mdb) C:\Users\wangxi\Documents\My C_Drive_WORK\others\training\2020.11.WR

ITU internal Options

- Skip API check
- Skip FixThings
- Partial Merge option

Press control button to start Validation

Control Box

-
-
-
-
-
-
-
-

BRSIS Validation

ITU-BR Space Applications Manager v9.0.1.26 (SNS V9)

Selected task:

- CFEX
- FindCap
- PCom
- SpaceQry
- SRS Convert
- Validation

Run Validation via BRSIS

Validation



Space Information System (SNS v9)

1

Selected task: Validation

Validation

- Version: 9.0.0.7 [\(what's new?\)](#)
- Description: Validate electronic submissions
- Contact: sandrine.moret@itu.int
- Validation Rules: [Satellites](#) [Earth Stations](#) [Plans](#)

CFEX

FindCap

PCom

+ New Window

3

Start

Quit

Selected database: ITUTEST_API.mdb

Ingres Production

Ingres Development

Microsoft Access

2

C:\Users\wangxi\Documents\My C_Drive_WORK\others\training\201

Browse

✓ Selected task

✓ Selected database

wangxi



Cross_Validation via BRSIS

.WORK > others > training > 2020.11.WRS ITU > api

Name	Date modified	Type	Size
ITUTEST_API.mdb	03.11.2020 16:38	Microsoft Access ...	2 404 KB
ITUtestGims.mdb	03.11.2020 16:37	Microsoft Access ...	1 516 KB

4 Notice Id. 2

Sat. name: ITUTEST
Type of notice: Advance publication Status: 01
Adm./Org.: B Orb. pos.: NGSO Station type: N

Validation

Run as external user

Graphical data cross validation

GIMS Database (.mdb) 5 Browse

ITU internal options

API check Run SRSFix Partial merge option

Select a GIMS Database

Create a new empty database

Location: [] ...

Name: [] .mdb

Description: (This is a string that shortly describes the database. Max. 255 characters)

Open an existing file

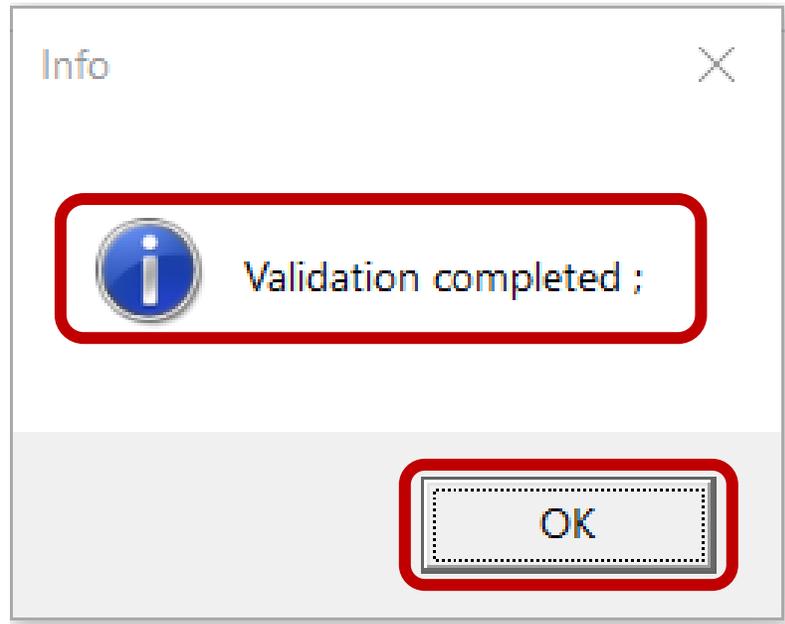
6 More files...

GIMS on Prod
GIMS on Devl

8 OK

9 Validate notice

Check Cross Validation Report



- Make sure that **validation completed**
- Make sure there is **no fatal error**
- If there is, fix before submitting
- Seek other's support to fix further
- If really can not fix, ask your administration to explain in the cover letter or notes for submission

To sum up:

- Capture both notice database and diagram/Gims database
- Run Cross Validation



Notice Database



Check **completeness** and **correctness** to establish a formal date of receipt

Appendix 4

BR SIS

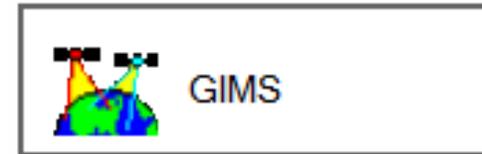
Validation



Cross validation
Without fatal errors



Diagram Database



CR/464 only GIMS mdb format shall be receivable under **RES 55** (WRC-19).

Use the **latest** BR software V9.0



Reply to the Bureau for clarification

- Administrations sometimes need to send **revised mdb** files
- To avoid these being treated as a modification with a new date of receipt, **do not upload them like a new submission**
- Please submit in e-Submissions system using “**others**” category, and attach a letter to **explain** that it is a reply to the Bureau’s enquiry

<https://www.itu.int/ITU-R/go/space-submission>

- It is also possible to send the replies by **e-mail** to the BRmail@itu.int
- As from 23 October 2019, the **e-Communications** system enable exchange of correspondence and other information between Administrations and the Bureau, as well as between Administrations (see CR/447, 450)

<https://www.itu.int/ITU-R/go/space-communications>

Free online ITU-R Publications



**Radio Regulations
New edition 2020!**

➤ **ITU-R Radio Regulations 2020**

<http://www.itu.int/pub/R-REG-RR/>

➤ **ITU-R RoP**

<http://www.itu.int/pub/R-REG-ROP/en>

➤ **ITU-R Recommendations**

<http://www.itu.int/publ/R-REC/>

➤ **ITU-R Reports**

<https://www.itu.int/pub/R-REP/>

➤ **ITU-R CR CIR**

<https://www.itu.int/md/R00-CR-CIR/en>

➤ **WRC-19 Final Acts**

<https://www.itu.int/en/mediacentre/Pages/CM01-2020-WRC19-Final-Acts.aspx>

Free online ITU-R Publications

- **Latest BR Software**

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

- **SNL online** - *basic reference info concerning space stations*

- <https://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)*

- <https://www.itu.int/sns/>

- **BR Space Service Support websites**

- <https://www.itu.int/en/ITU-R/space>
- *How to capture diagrams in Gims as images:* <https://www.itu.int/ITU-R/go/space-AdditionalDataUnderAP4/en>
- *Small satellites:* <https://www.itu.int/en/ITU-R/space/Pages/supportsmallsat.aspx>

Free online ITU-R Publications

<https://www.itu.int/en/publications/ITU-R/Pages/default.aspx>

- **Handbook for amateur and amateur-satellite services**

<https://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-52-2014&media=electronic>

- **Handbook for earth exploration satellite service**

<https://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-56-2011&media=electronic>

- **Handbook for meteorological-satellite service**

<https://www.itu.int/en/publications/ITU-R/Pages/publications.aspx?lang=en&media=electronic&parent=R-HDB-45-2017>

- **Handbook for space research service**

<https://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-43-2013&media=electronic>

Thank you!



ITUWRS
ONLINE2020

ITU – Radiocommunication Bureau
Questions to BRmail@itu.int or Xiuqi.Wang@itu.int

