

ITUWRS GENEVA2022

Submission of API & Notification for satellite networks not subject to coordination

Summary Section

www.itu.int/go/wrs-22
#ITUWRS

ITU Regulatory Procedures

Submit it in the correct format!

API is a mandatory procedure for all satellite networks **not** subject to coordination procedure.

CR is a mandatory procedure for all satellite networks **subject** to coordination procedure under section II of Article 9.

API/A
Comments - API/B
Notification
ITU (Bring Into Use)

CR/C
Comments - CR/D, CR/E
Notification
ITU (Bring Into Use)

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Notice Level

SpaceCap Notice Tab

Mandatory info after WRC-19 for all non-GSO API not subject to coordination:

API Item	Description	Key word	Type of submission	When can be provided?
A.1.2	Indicator showing that the non-GSO satellite system is planned to be operated in accordance with Resolution 22 (WRC-19)	SDM	Y/N	SpaceCap v9.1 (Notice Tab)
A.4.b.1	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 v9.1 (Notice Tab)
A.4.b.4	Indicator of whether the space station uses spaceborne orbit or not	Spaceborne	Y/N	SpaceCap v9.1 (Notice Tab)

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Space Operation Service / Functions

Space operation: ET, EK, ER, ED

RoP No. 1.23

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. F55, B55, A55)

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.

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Cost Recovery

for satellite networks not subject to coordination

- API: 570 CHF (Category A)
- Notification: 7 030 CHF (Category B)

Note that if the payment is not received by the due date, the filing will be cancelled, and the invoice continues to be payable!

Check ITU Council Decision 1992 (revised)
Implementation of cost recovery for satellite network filings for more details

<https://www.itu.int/en/ITU-D/RegAffairs/eng/4482.aspx>

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To sum up:

- Capture both notice database and GIMS database
- Validation well
- notes or attachments ready when needed

Use the latest BR software

Check completeness and correctness to establish a formal date of receipt

CR/464 only GIMS multi format shall be receivable under: RES 55 (WRC-19), CR/464(2020)

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Graphical Data in GIMS MDB

Diagram Database

CR/464 (2020) only GIMS multi format shall be receivable under: RES 55 (WRC-19)

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SDM (short-duration mission)

NGSO API

- Resolution 32 (WRC-19)
- Regulatory procedures for frequency assignments to NGSO networks or systems identified as short-duration mission not subject to the application of Section II of Article 9
- Frequency bands for space operation service for NGSO-SDM exempt from coordination procedures under Section II of Article 9 but subject to new conditions (Res32/Res60 (WRC-19))
 - 1.48-1.60.9 MHz uplink
 - 137.025-138 MHz downlink

EXAMPLE

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Sensors

The following specific information is required for sensors:

- Active Sensors
 - Mean peak power and mean power density
 - Pulse length and pulse repetition frequency
- For receiving beam
 - Receiver noise bandwidth
 - Noise temperature at output of signal processor
- For active sensor, please ensure that the active sensor class of station (E1, E2) must be captured for both transmitting and receiving beams with the same beam name covering the same frequency band

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Modification of characteristics

According to No. 9.2, for satellite network/system not subject to coordination, 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 parameter, service area, earth station etc.

This will provide other administrations/operators the chance to submit comments before the modifications are notified for recording in the Master Register.

For notification, if there are other changes in characteristics from the information published, other administrations can submit comments following the Part I-5 (No.11.28.1).

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Free online ITU-R Publications

- ITU-R Radio Regulations 2020
<http://www.itu.int/pub/R-REG-RR/>
- ITU-R RoP
<http://www.itu.int/pub/R-REG-ROp/>
- ITU-R Recommendations
<http://www.itu.int/pub/R-REC/>
- ITU-R Reports
<http://www.itu.int/pub/R-REP/>
- ITU-R CR, CIR
<http://www.itu.int/md/R00-CR-CIR/>

Radio Regulations New edition 2020!

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Notice Database (SNS database)

BR SIS Validation

No fatal error

Appendix 4

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Specific tips

Not Allocated, Not Recommended!

- It is not encouraged to use bands where there is no allocation for the service
- If administration wish to do so, please request for No. 4.4 / No. 8.4 - check box at the group tab via SpaceCap should be checked
- Administration should ensure that
 - It will not cause harmful interference to and shall not claim protection from the stations 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/commitment as mentioned above
 - If the use of the frequency and service is subject to coordination, it should not be submitted as an API even with application of No.4.4
 - Even non-conforming assignments recorded under No. 8.4 (i.e. operating under No.4.4) shall also be notified with commitment under E.1.6 to RoP related to No.4.4

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ISL (inter-satellite link)

Related Definitions

RR No. 1.21 fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

RR No. 1.22 inter-satellite service: A radiocommunication service providing links between artificial satellites.

RR No. 1.114 multi-satellite link: A radio link between a transmitting earth station and a receiving earth station through two or more satellites, without any intermediate earth station.

A multi-satellite link comprises one up-link, one or more satellite-to-satellite links and one down-link.

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BR SIS Validation

Space Information System (SIS v9.1)

Run Cross Validation via BR SIS

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Annex 12 of Doc 856 Working Party 4A Chairman's Report

Working document on developing the ITU-R SMALL Satellite Handbook

Annex 12 to Working Party 4A Chairman's Report

Working document on developing the ITU-R SMALL SATELLITE HANDBOOK

ITWRS

Reference Body

Code for the reference body (data Item A.4.3.2)

Code	Reference body
1	Earth
2	Moon
3	Planet
4	Planet
5	Planet
6	Planet
7	Planet
8	Planet
9	Planet
10	Planet
11	Planet
12	Planet
13	Planet
14	Planet
15	Planet
16	Planet
17	Planet
18	Planet
19	Planet
20	Planet

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Amateur-satellite service (EA)

The use of the amateur-satellite service has to be in accordance with the definition of this service in RR No. 1.86/1.87, which state that the amateur-satellite service is a radiocommunication service using space stations on earth satellites for the purpose of **educational, scientific, technical, cultural, recreational, or hobby activities, and for the promotion of amateur radio service, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest**. Therefore, the amateur-satellite service shall be used in a **non-commercial and non-profit** manner.

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Notification

What needs to be notified?

- As specified in Nos. 11.2 - 11.9, any frequency assignment to transmitting and receiving stations shall be notified to the Bureau:
 - if the use of that assignment is capable of causing harmful interference to any service of another administration; or
 - if that assignment is to be used for international radiocommunication; or
 - if that assignment is subject to a world or regional frequency allocation or assignment plan which does not have its own notification procedure; or
 - if that assignment is subject to the coordination procedure of Article 9 or involved in such a case; or
 - if it is desired to obtain international recognition for that assignment; or
 - if it is a non-conforming assignment under No. 8.4 and if the administration wishes to have it recorded for information ...

Except for those mentioned in No.11.3 and 11.3.4

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Conversion from API to Notification

Convert an API into Notification, please select the **CR/NR/IR** tab first, then click **Create First Notification** from the Wizard below

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Hands On

30th WORLD RADIOCOMMUNICATION SEMINAR
24 - 28 October 2022
Geneva, Switzerland

Capture via SpaceCap

Validation via BR SIS Validation

Conversion from API to Notification Via the Wizards

for satellite networks not subject to coordination

www.itu.int/go/wrs-22
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30TH WORLD RADIOCOMMUNICATION SEMINAR

24 – 28 October 2022

Geneva, Switzerland

Submission of API & Notification

for satellite networks **not** subject to coordination
Receivability (Completeness & Correctness)

www.itu.int/go/wrs-22

#ITUWRS

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Table of Contents



- Receivability
 - ❖ Completeness and Correctness
 - ❖ Establishment of formal date of receipt
- Databases
 - ❖ SNS database, Graphical database
- Specific Tips
 - ❖ Orbital parameters, Ref Body...
 - ❖ SDM, Constellation, Sun-sync...
 - ❖ Antenna Patterns
 - ❖ Class of stations (SOS, EA...)
 - ❖ ISL, Sensors ...
 - ❖ No.4.4, Modification
 - ❖ Submission and Response
 - ❖ Capture, Cross-Validation
- Notification
- Conversion of API to Notification
- Useful Webpages



ITU Regulatory Procedures

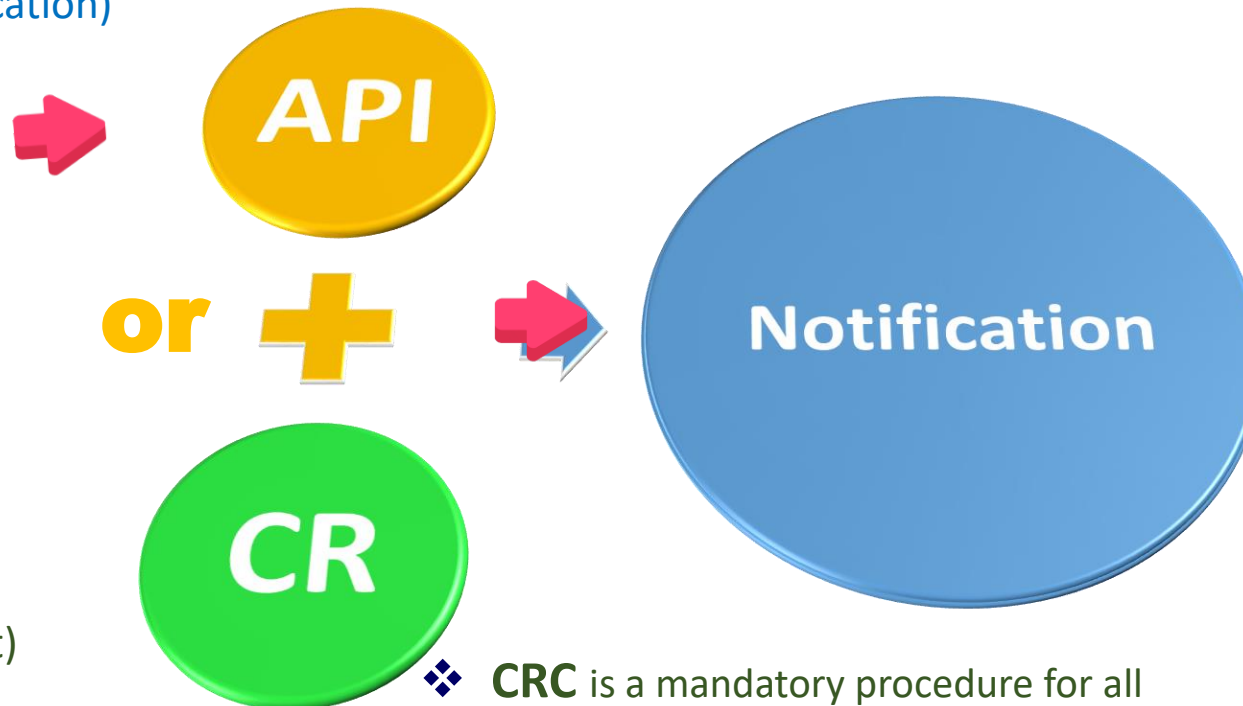


Submit it in the correct format !

Advance Publication Information

(default procedure when no coordination procedure is specified in RR for the allocation)

❖ **API** is a mandatory procedure for all satellite networks **not** subject to coordination procedure



- *API/A*
- *Comments – API/B*
- *Notification*
- *BIU (Bring Into Use)*

Coordination Request

(if specified in RR that the allocation/use is subject to coordination or agreement)

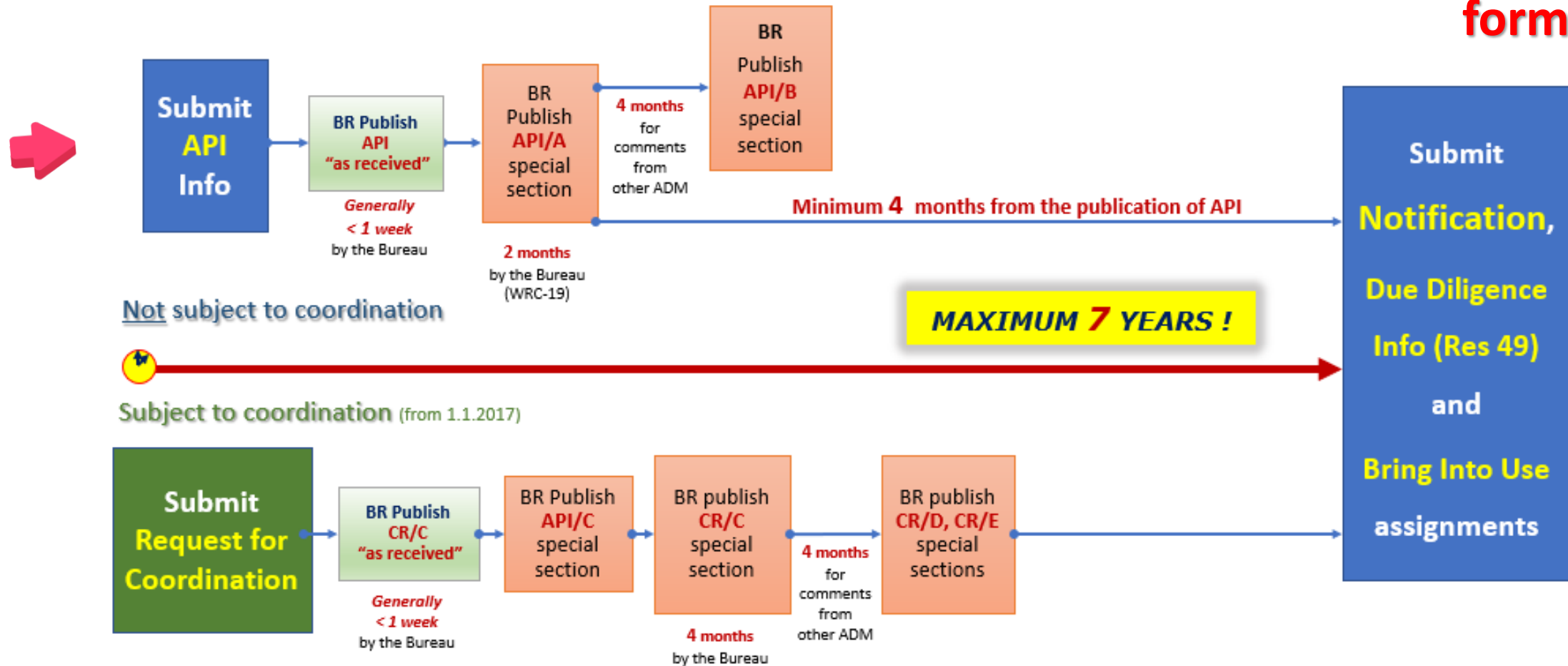
❖ **CR** is a mandatory procedure for all satellite networks **subject** to coordination procedure under section II of Article 9

- *CR/C (+API/C)*
- *Comments – (CR/D, CR/E)*
- *Notification*
- *Res 49 (Due Diligence)*
- *BIU (Bring Into Use)*

ITU Regulatory Procedures



Submit it in the correct format !



Not subject to coordination



Subject to coordination (from 1.1.2017)

- ❖ Although API is not subject to coordination, there is a **commenting procedure** and **resolutions of difficulties** specified under No.9.3.



API or CRC first?

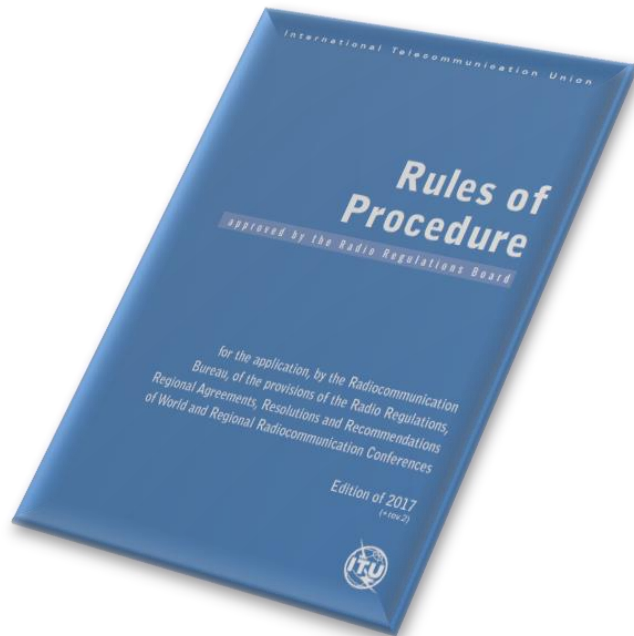
Whether **the frequency bands** and **services** are subject to coordination under **section II of Article 9**



To know whether a frequency band is subject to coordination, check the footnotes in the **Table of Frequency Allocations in Article 5**

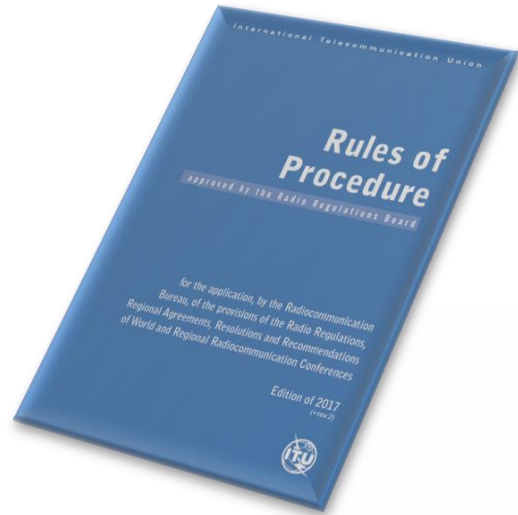
- Generally, all geostationary-satellite networks (GSO) are subject to coordination under Section II of RR Article 9, **except GSO** using **inter-satellite links** communicating with a non-geostationary space station (NGSO) which are **not** subject to the coordination procedure under Section II of Article 9
- For NGSO satellite networks, pay particular attention to **No.9.21, No.9.11A** and the sub provisions **Nos.9.12, 9.12A, 9.14 ...**
- For coordination under **No.9.11A**, please note **§2.3 of Rules of Procedure** related to **No.9.11A**:
The procedure is applicable to **all other space and terrestrial services** with respect to those satellite services **having allocations with equal rights** and mentioned in the specific footnotes to which this provision applies. (check **TABLE 9.11A-1** in the RoP)

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
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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, or **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 **coordination** or **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

API - Advance Publication Information

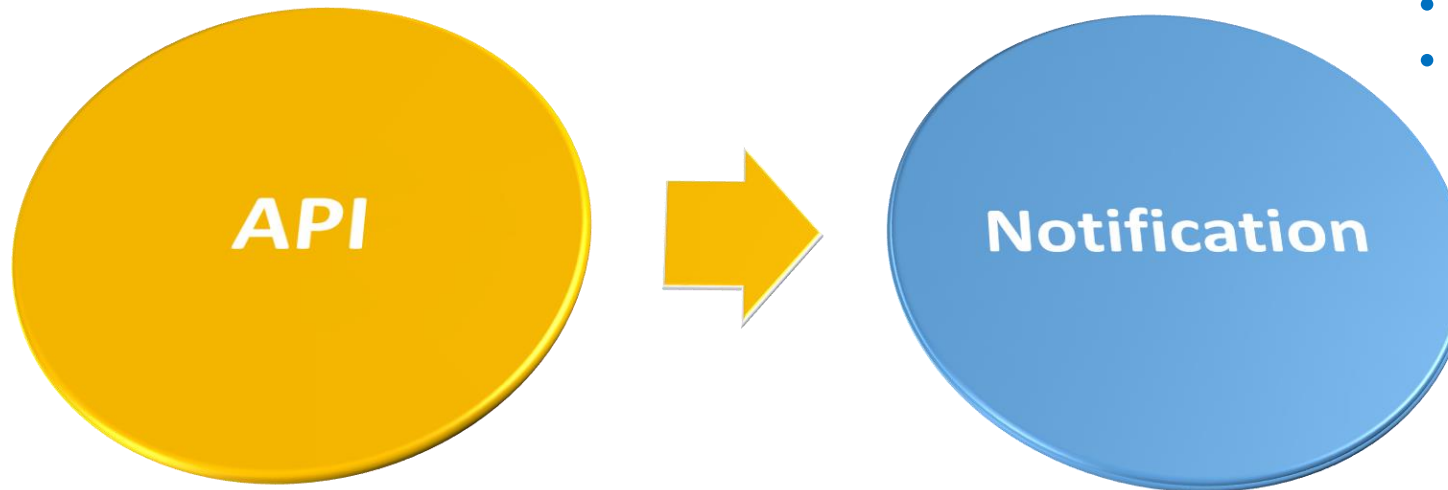


❖ **API** is a mandatory procedure under **No.9.1** for all satellite networks **not** subject to coordination procedure

- default procedure when no coordination procedure is specified in RR for the allocation
- starts the 7-year regulatory date limit

- *Published in the API/A special section*
- *Comments – API/B special section*

- *Notification*
- *BIU (Bring Into Use)*



Rules concerning Receivability



Appendix 4

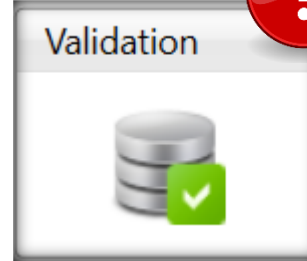


Notice Database



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

BR SIS



Cross validation



Diagram Database



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

Use the latest BR software

Graphical Data in GIMS MDB



Diagram Database

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



Antenna Patterns



- 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 captured as images** in the **Gims** database
 - Gain values must be provided for all **off-axis angles (0 to $\pm 180^\circ$)**
 - only one gain at any off-axis angle and all values should be compatible with the notice database
 - Diagrams must be marked with the **correct header elements**

Please follow the online guide below for more details:

<https://www.itu.int/en/ITU-R/space/Pages/API.aspx>

To capture images in GIMs for API

- To check that all diagrams concerned are captured with the correct headers and labels, compatible with the SNS mdb, using cross-validation tool

The screenshot shows the GIMS Database Explorer interface. The 'Database' section is set to 'm:\brssd\spr\api\wrs-22\mdb for running val\test ngso api_pattern.mdb'. Under 'Browse for ...', 'Non-geostationary Satellites' is selected. The 'Filter by' section shows 'Notification Reason' set to 'A'. The 'Notice' table lists several entries, with 'UPLINK' and 'Space Station Radiatio...' highlighted. A graph titled 'SPACE STATION RECEIVING CO-POLAR ANTENNA RADIATION PATTERN' shows Gain (dBi) vs Off-Axis Angle (degrees). The graph has a peak gain of approximately 20 dBi at 0 degrees. The interface also shows a menu bar with 'Diagram', 'GXT', 'Database', 'Edit', 'View', 'Capture', 'Tools', 'Window', 'Help', and 'ITU'. A red circle highlights the 'Diagram' menu item, and another red circle highlights the 'Non-geostationary Satellites' radio button. A third red circle highlights the 'UPLINK' and 'Space Station Radiatio...' entries in the 'Notice' table. A red arrow points from the 'UPLINK' entry to the graph.

Notice	Reason	Adm
1	A	SV
UPLINK		
Space Station Radiatio...		
DWNLINK		
Space Station Radiatio...		

000000001;A;TEST NGSO API ;SWZ;DWNLINK ;E;SSPAT;0;1
000000001:A;TEST NGSO API ;SWZ;UPLINK ;R;SSPAT;0;1

Please follow the online guides: <https://www.itu.int/en/ITU-R/space/Pages/API.aspx>



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



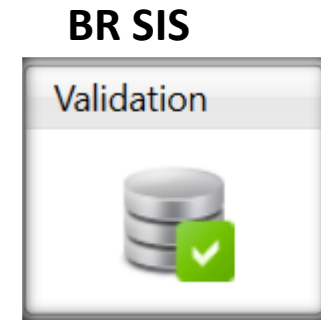
Notice Database (SNS database)



BRsoft V9.1



Appendix 4



No fatal error

Cross validation



For non-GSO

Reference Body



SECTION IV - Table 8: Code for the reference body(data item A.4.b.2)

TABLE 8

Code for the reference body (data item A.4.b.2)

Code	Reference body
T	Earth
L	Moon
M	Mars
J	Jupiter
V	Venus
S	Sun
D	Deep space (distance from the Earth equal to or greater than 2×10^6 km, see RR No. 1.177) when no appropriate reference body is found in this table
H	Mercury



Radiocommunication Sector (ITU-R)

RADIOCOMMUNICATION BUREAU

PREFACE

TO THE BR INTERNATIONAL FREQUENCY INFORMATION CIRCULAR
BR IFIC (Space Services)



Specific tips

Reference body = L (Moon)

- Noting that the reference body of the satellite network is the **Moon**, the Bureau would like to request your administration to provide a description on how the operation of this satellite network will comply with Nos. **22.22 - 22.25** concerning “**Radio astronomy in the shielded zone of the Moon**” for inclusion in the publication
- Further clarification required, 30 days for response



Section V – Radio astronomy in the shielded zone of the Moon

22.22 § 8 1) In the shielded zone of the Moon³¹ emissions causing harmful interference to radio astronomy observations³² and to other users of passive services shall be prohibited in the entire frequency spectrum except in the following bands:

22.23 a) the frequency bands allocated to the space research service using active sensors;

22.24 b) the frequency bands allocated to the space operation service, the Earth exploration-satellite service using active sensors, and the radiolocation service using stations on spaceborne platforms, which are required for the support of space research, as well as for radiocommunications and space research transmissions within the lunar shielded zone.

22.25 2) In frequency bands in which emissions are not prohibited by Nos. 22.22 to 22.24, radio astronomy observations and passive space research in the shielded zone of the Moon may be protected from harmful interference by agreement between administrations concerned.



Notice Level

SpaceCap Notice Tab

- **Mandatory** info after WRC-19 for all **non-GSO API** **not** subject to coordination:

AP4 item	Description	Key word	Type of submission	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 v9.1 (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 v9.1 (Notice TAB)
A.4.b.4.m	indicator of whether the space station uses sun-synchronous orbit or not	Sun-synchronous	Y/N	SpaceCap v9.1 (Orbital info)



Mandatory !!



EXAMPLE

SpaceCap Notice Tab

Forms of Notice Advance Publication

Notice | Beam

Notice Id: 122545229 Advance Publication 10/06/2020 Status: 01

Date: MM/DD/YY 09/06/2022 Administration Serial Nbr A

A1f1. Notifying Administration: [SCL] A1f2. Notice submitted on behalf of these administrations: []

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: []

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

A1a. Identity of the Network: [API TEST] A1g. Short Duration Mission: [N]

A4. Orbital Information

A4b1. Number of Orbital Planes: [4] A4b2. Reference body: [(T) Earth] A4b1a. Constellation: [Y]

A4b3a. Nbr of Satellites to NH: [2] A4b3b. Nbr of Satellites to SH: [2] A4b1b. Multi Configuration Type: [(S) Single]

A4b1c. No of sub-sets: [4]

Orbital information for satellite networks representing a constellation

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

Orbital Plane id	4a. Incln 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	4m. space station uses sun-synchronous orbit	4n. local time reference	4o. local time HH:mm:ss
1	53.24	1	0	1	30	275.00	0	275.00	0	275.00	0	no		
2	53.24	1	0	1	30	310.00	0	310.00	0	310.00	0	no		
3	53.24	1	0	1	32	400.00	0	400.00	0	400.00	0	no		
4	53.24	1	0	1	34	500.00	0	500.00	0	500.00	0	no		

SDM indicator

Sun-synch indicator

Constellation indicator

A4b1a. Constellation [Y]

A4b1b. Multi Configuration Type [(M) Multiple]

A4b1c. No of sub-sets [4]

A1g. Short Duration Mission [N]

A4b2. Reference body [(T) Earth]

4m. space station uses sun-synchronous orbit

4n. local time reference

4o. local time HH:mm:ss

Optional

A/D



Specific tips for API

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

Item A.4.b.1.a :

A4b1.a. Constellation
 (S) Single

A4b1.a. Constellation Y
 A4b1.b. Multi Configuration Type (M) Multiple
 A4b1.c. No of sub-sets 4

NEW

Orbital Plane id	1d. Orbital set id
1	1
3	2
4	3
5	4

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. 9.1 (Orbital info)
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. 9.1 (Orbital info)
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. 9.1 (Orbital info)

Mandatory !!



- Item **A4b4i** Argument of the Perigee: required only when Apogee \neq Perigee



Via SpaceCap, Notice Tab, there is a sub-tab for constellation

Constellation indicator = Y

A1a. Identity of the Network: API TEST
 A1g. Short Duration Mission: N

A4. Orbital Information

A4b1. Number of Orbital Planes: 4
 A4b2. Reference body: (T) Earth
 A4b1a. Constellation: Y
 A4b3a. Nbr of Satellites to NH: 2
 A4b3b. Nbr of Satellites to SH: 2
 A4b1b. Multi Configuration Type: (S) Single

NEW

Orbital information for satellite networks representing a constellation

A4b4. Orbital Parameters

Orbital Plane id	4b. Satellites in the plane	4i. Argument of the Perigee (degrees)	4j. Longitude ascending node
1	1	210.7	245.9
2	1	210.7	245.9
3	1	210.7	245.9
4	1	210.7	245.9

A4b4h/k/l. Phase Data for Orbital Plane number 1

Satellite Number	4h. Initial phase angle (Degrees)	4k. Reference Date MM/DD/YYYY	4l. Reference Time HH:mm:ss
1	0.3	12/08/2022	19:30:06

Select Date and Time for all satellites on all Orbital Planes:
 / / 00:00:00 Set

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

All satellites in all orbital planes must use the same values of A4b4k and A4b4l

SDM (short-duration mission)

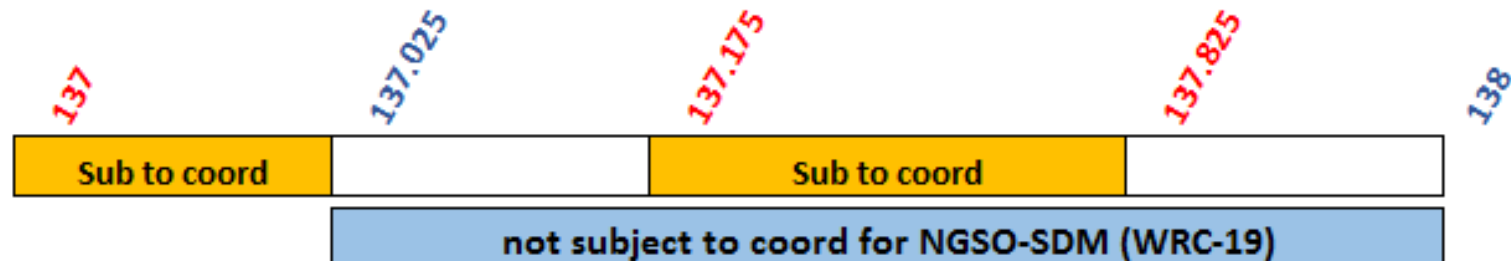
NGSO API

- Resolution **32 (WRC-19)**
 - Regulatory procedures for frequency assignments to **NGSO** networks or systems identified as **short-duration mission** not subject to the application of Section II of Article 9
- Frequency bands for **space operation service** for **NGSO-SDM** **exempt from coordination procedures** under Section II of Article 9 **but subject to new conditions** (Res32/Res660 (WRC-19))
 - 148-149.9 MHz uplink
 - 137.025-138 MHz downlink

EXAMPLE



ITUWRS
GENEVA2022



SDM (short-duration mission)

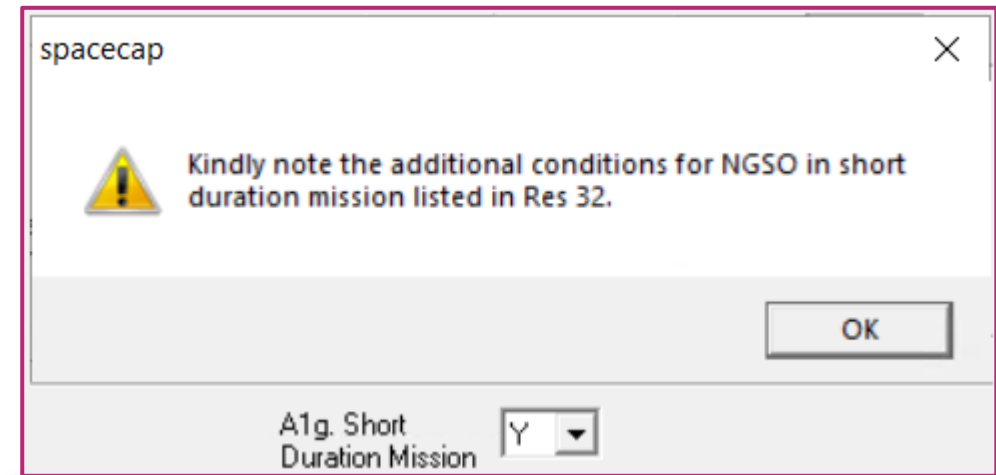
- Frequency band for space operation service for NGSO-SDM in the **downlink**
 - The use of SOS (space-to-Earth) for NGSO-SDM shall be limited to the band **137.025-138 MHz** and must comply with **Res 32** and **Res 660 (WRC-19)**
 - **NGSO-SDM** is **exempt from coordination** under **No.9.11A** for the band **137.175-137.825 MHz** (No. 5.209A)
 - **PFD** at any point on the earth's surface shall **not exceed $-140 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$**
 - **Occupied BW** including any offsets such as Doppler shift or frequency tolerances shall **not exceed the band allocated to SOS with SDM**
 - *These systems shall not cause harmful interference to, or claim protection from, the existing services to which the frequency band is allocated on a primary basis.* (No. 5.203C)

SDM (short-duration mission)

- Frequency band for space operation service for NGSO-SDM in the **uplink**
 - NGSO SDM must comply with **Res 32** (WRC-19) and No. **5.218A**
 - **Not** subject to coordination under No.9.11A
 - Nos.9.17 and 9.18 coordination applies
 - **shall not cause unacceptable interference to, or claim protection from,** existing primary services within this frequency band, **or impose additional constraints** on the space operation and mobile-satellite services
 - Earth stations in NGSO-SDM in the frequency band **148-149.9 MHz** shall ensure that the power flux-density does **not exceed $-149 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$** for more than **1%** of time at the border of the territory of the following countries
 - **If exceeded, agreement under No.9.21 is required** [CRC needed]

SDM (short-duration mission)

- Notifying administration **must identify** in the submission whether the NGSO network or system is operating as a short-duration mission (NGSO-SDM indicator under item A.1.g of AP 4)



- NGSO-SDM must meet the following criteria

Using bands **not** subject to coordination

total number of satellites ≤ 10

Period of validity ≤ 3 years, **no possibility of extension**, after which the recorded assignments shall be cancelled shall have the capability to cease transmitting immediately in order to eliminate harmful interference



- Date of Bringing Into Use

In the application of No. 11.44:

the date of BIU of a NGSO-SDM shall be defined as **the launch date of the first satellite**

SDM (short-duration mission)

- For API, submit the **orbital characteristics** (data item **A.4.b.4** of **AP 4**) planned at the early development stage of the satellite project
- **Notification** established in accordance with No. **9.1** and **can only be submitted after the launch of the first satellite, but not more than 2 months** after the date of bringing into use. (see **Rules of Procedure** on Res **32**)
- Characteristics and findings under No. **11.31** are published in the BR IFIC and on **BR website** within **no more than 4 months** from the **date of receipt of complete information of the Notification**
- **Nos. 11.43A, 11.43B and 11.49**, provisions relating to **modifications** of characteristics of recorded assignments and **suspension** of assignments, **cannot** be applied for NGSO-SDM
- **Comments to API/A** to be made promptly available **“as-received”**, on the ITU website (No. **9.3.1**)
- Additional **commitment** required for **Notification**
 - a commitment by the administration that, in the case that unacceptable interference caused by NGSO-SDM is not resolved, the administration shall undertake steps **to eliminate the interference or reduce it to an acceptable level** (data item **A.24.a** of **AP4**)



Specific tips

Not Allocated, Not Recommended !

- It is **not encouraged** to use bands where there is no allocation for the service
- If administration wish to do so, please request for **No. 4.4 / No. 8.4**
 - checkbox at the group tab via SpaceCap should be checked
- Administration should ensure that
 - It will **not cause harmful interference to and shall not claim protection from** the stations 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 / commitment** as mentioned above.
 - If the use of the frequency and service is subject to coordination, it should not be submitted in an API even with application of No.4.4
 - Even non-conforming assignments recorded under No. 8.4 (i.e. operating under No 4.4) shall also be notified with commitment under §1.6 to ROP related to No.4.4

Ensure Immediate Cessation !



Section I – Cessation of emissions

22.1 § 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.

- ❖ Kindly include the telecommand function (class of station ED) in the uplink of a satellite network.

Specific tips

Organize different allocations in different Groups

Different Region ↔ Different allocation ↔ Different Provision ↔ Different finding

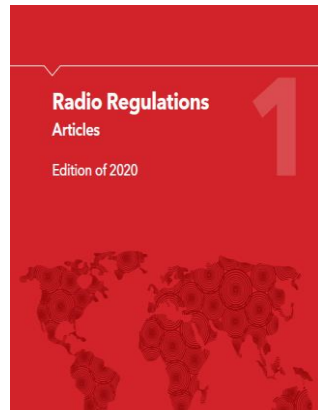
- Don't include different main services in the same group, such as :

- EC and ~~EI~~
- EH and EW

Due to the potentially **different findings** for **different allocations** in **different regions** under **different provisions** at the **notification stage**, one group may need to be split into multiple groups with individual main service separately

- Pay more attention of the sub-services, exclude the parts subject to coordination in API
e.g. $EI = EG + EU + EJ$; $EJ = E5 + E6$
 - Do not repeat in one group e.g. (EI & EG), should simply submit as EI or EG per group
 - If characteristics are different for the sub-service, submit in separate groups
 - If it's allocated to the sub-service, which is subject to coordination, capture the correct service precisely
 - ❖ For example, if it's allocated to EJ (aeronautical mobile-satellite service), don't submit as EI (mobile-satellite service)...

Amateur-satellite service (EA)



The use of the amateur-satellite service has **to be in accordance with** the definition of this service in **RR No. 1.56/1.57** , which state that the amateur-satellite service is a radiocommunication service using space stations on **earth satellites** for the purposes of **self-training, intercommunication and technical investigations carried out by amateurs**, that is, by duly authorized persons interested **in radio technique solely with a personal aim and without pecuniary interest**. Therefore, the amateur-satellite service shall be used in a **non-commercial** and **non-profit** manner.

1.56 *amateur service: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.*

1.57 *amateur-satellite service: A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.*

Amateur-satellite service (EA)

- Amateur-satellite service is exempted from cost recovery fee.
Noting that, for a filing to benefit from this fee exemption, there should be **only one main service (class of station EA)** in the filing without any other main space services being present.
- ITU-R **Circular Letter** related to Amateur-satellite service: [ITU-R CR/303](#)
- Support webpage: <http://www.itu.int/en/ITU-R/space/Pages/supportSmallSat.aspx>
- Handbooks:
 - [Amateur and Amateur-satellite service Handbook](#)
 - [Small Satellite Handbook \(under development\)](#)

25.11 § 7 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). (WRC-03)

Amateur-satellite service (EA)

- Satellite systems operating in amateur and amateur-satellite services are **not subject to coordination procedure** under Section II of Article **9** of the RR.
- For satellite networks operating in the amateur-satellite service, the operator or notifying administration should contact **the International Amateur Radio Union (IARU)** available at <https://www.iaru.org/reference/satellites/> for assistance in the frequency coordination process.



Space Operation Service / Functions

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**.



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space operation service: class of station ET

space operation functions: EK(space tracking), ER(space telemetry), ED(space telecommand)



Space Operation Service / Functions

Space operation: ET ≠ EK, ER, ED

For the frequency band where there is an **allocation** for the space operation service, please capture **ET** as the class of station.

For the frequency band where there is **no allocation** for the space operation service, please capture ED, EK or ER as space operation **functions** plus other **main space service**.

For notice where there is **only** space operation functions, please add ET as the main service or add other main space services.

In general, **ED** should be submitted for the **uplink** and **ER** for the **downlink**.
If not, please provide the reason.



ITUWRS
GENEVA2022

space operation service: class of station ET

space operation functions: EK(space tracking), ER(space telemetry), ED(space telecommand)



Space Operation Service / Functions

Application of **No. 9.3** of the Radio Regulations
in the bands **2 025-2 110** MHz (Earth-to-space)
and **2 200-2 290** MHz (space-to-Earth)

[CR/420 dated 31 August 2017](#)

- ❖ For NGSO SOS, Such use for space operations are in general
 - limited in duration
 - requires a very limited amount of bandwidth
 - a limited number of specific earth stations
- ❖ If specific and detailed information are submitted in an API, commenting and resolution of difficulties process under Nos. **9.3** and **9.4** can be reduced and focused on critical cases.

Bands 2 025-2 110 MHz (Earth-to-space) and 2 200-2 290 MHz (space-to-Earth) for **Non-GSO API**

- ❖ The Bureau invites administrations to **pay more attention to** the information provided for such operation at the **API** stage and
- **refrain to use generic parameters**, whenever possible;
 - Do **pre-coordination in advance** and **avoid filing for the entire bands**;
 - Be as **precise** as possible but also **faithfully represent the satellite project**;
 - **Avoid** submitting **global service** area with typical earth stations,
 - Identify **associated specific earth stations /specific locations** for space operations in the satellite network when possible.

Sensors

The following specific information is required for sensors:

❖ Active Sensors

- For **transmitting** beam
 - Mean peak power and mean power density
 - Pulse length and pulse repetition frequency
- For **receiving** beam
 - Receiver noise bandwidth
 - Noise temperature at output of signal processor
- For active sensor, please ensure that
 - the active sensor (class of station: E1 / E3) must be captured for both **transmitting and receiving beams** with the same beam name covering the **same frequency band**.

SpaceCap
Beam Tab

Notice Id: 122545229 Administration: SUI Satellite Network: API TEST

Characteristics of the Beam

B2. Receiving Beam Transmitting Beam

B1a. Beam Designation: DOWN B1b. Steerable Beam

Beam has Sensors

B1d1. Beam with Sensors Active Sensors Passive Sensors

Antenna Characteristics

B3a1. Maximum Isotropic Gain +/- dBi 8

B4a. Orbit Link

List of Available Groups Group 2

- To capture sensor information in SpaceCap, go to Beam tab, check the box “Beam has Sensors”

❖ Passive Sensors

- for **receiving beams only**
- Observed bandwidth
- Sensitivity

ISL (inter-satellite link)



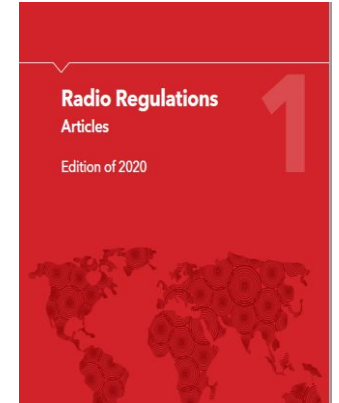
Related Definitions

RR No. 1.21 fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes **satellite-to-satellite links**, which may also be operated in the **inter-satellite service**; the fixed-satellite service may also include feeder links for other space radiocommunication services.

RR No. 1.22 inter-satellite service: A radiocommunication service providing links between artificial satellites.

RR No. 1.114 multi-satellite link: A radio link between a transmitting *earth station* and a receiving *earth station* through two or more *satellites*, without any intermediate *earth station*.

A multi-satellite link comprises one up-link, **one or more satellite-to-satellite links** and one down-link.



ISL (inter-satellite link)



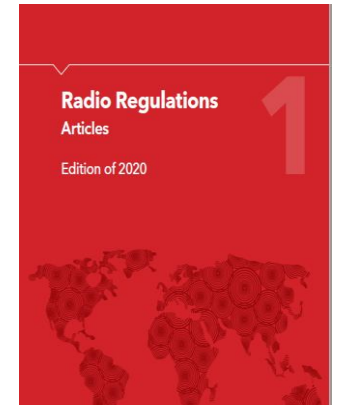
Related Definitions

e.g. RR No. 1.51 *Earth exploration-satellite service*:

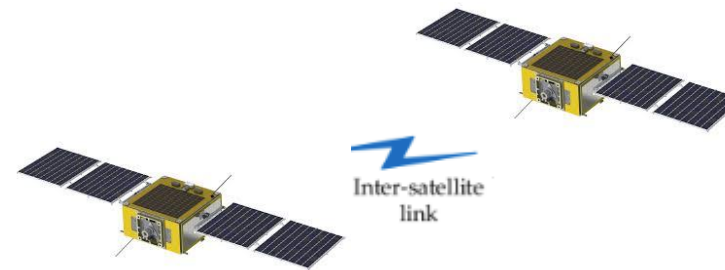
A radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which:

- information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from *active sensors* or *passive sensors* on Earth satellites;
- similar information is collected from airborne or Earth-based platforms;
- such information may be distributed to *earth stations* within the system concerned;
- platform interrogation may be included.

This service may also include *feeder links* necessary for its operation.



ISL (inter-satellite link)



Allocation

There are allocations for inter-satellite service, as shown here for examples, in accordance with the Table of Frequency Allocations under RR Article 5

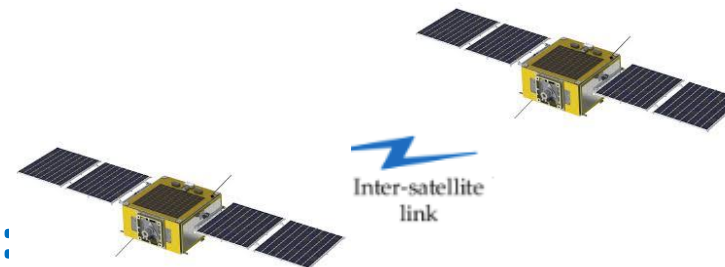
For example:

Allocation to services		
Region 1	Region 2	Region 3
22.55-23.15	FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH (Earth-to-space) 5.532A 5.149	
23.15-23.55	FIXED INTER-SATELLITE 5.338A MOBILE	
24.45-24.65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB	24.45-24.65 FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE 5.338A 5.532AB RADIONAVIGATION 5.533
24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB	24.65-24.75 FIXED 5.532AA INTER-SATELLITE MOBILE except aeronautical mobile 5.338A 5.532AB RADIOLOCATION- SATELLITE (Earth-to-space)	24.65-24.75 FIXED FIXED-SATELLITE (Earth-to-space) 5.532B INTER-SATELLITE MOBILE 5.338A 5.532AB

ISL (inter-satellite link)

Allocation

In addition to inter-satellite service, it is possible to use services allocated where there is an allocation in the “space-to-space” direction.

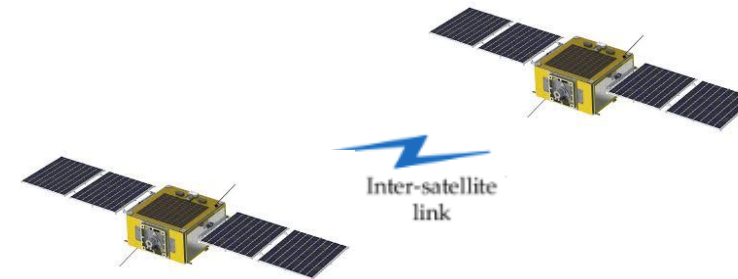


For example:

Allocation to services		
Region 1	Region 2	Region 3
1 164-1 215	AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A	
1 215-1 240	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	
1 240-1 300	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A	
2 025-2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	

ISL (inter-satellite link)

For example



- Pay attention to the relative specific footnotes of Article 5 if any

5.328B The use of the bands 1 164-1 300 MHz, 1 559-1 610 MHz and 5 010-5 030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9.12A and 9.13. Resolution 610 (WRC-03)* shall also apply; however, in the case of radionavigation-satellite service (space-to-space) networks and systems, Resolution 610 (WRC-03)* shall only apply to transmitting space stations. In accordance with No. 5.329A, for systems and networks in the radionavigation-satellite service (space-to-space) in the bands 1 215-1 300 MHz and 1 559-1 610 MHz, the provisions of Nos. 9.7, 9.12, 9.12A and 9.13 shall only apply with respect to other systems and networks in the radionavigation-satellite service (space-to-space). (WRC-07)

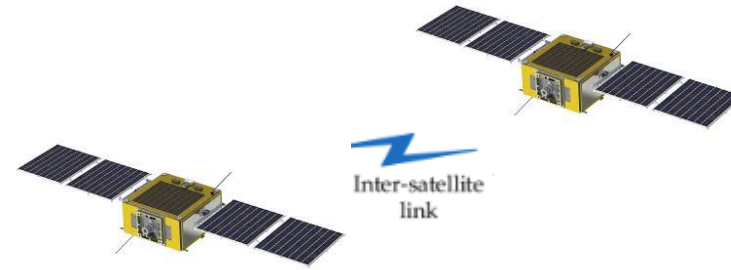
5.329 Use of the radionavigation-satellite service in the frequency band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. 5.331. Furthermore, the use of the radionavigation-satellite service in the frequency band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 (Rev.WRC-19) shall apply. (WRC-19)

5.329A Use of systems in the radionavigation-satellite service (space-to-space) operating in the bands 1 215-1 300 MHz and 1 559-1 610 MHz is not intended to provide safety service applications, and shall not impose any additional constraints on radionavigation-satellite service (space-to-Earth) systems or on other services operating in accordance with the Table of Frequency Allocations. (WRC-07)

5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2 025-2 110 MHz and 2 200-2 290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.



ISL (inter-satellite link)



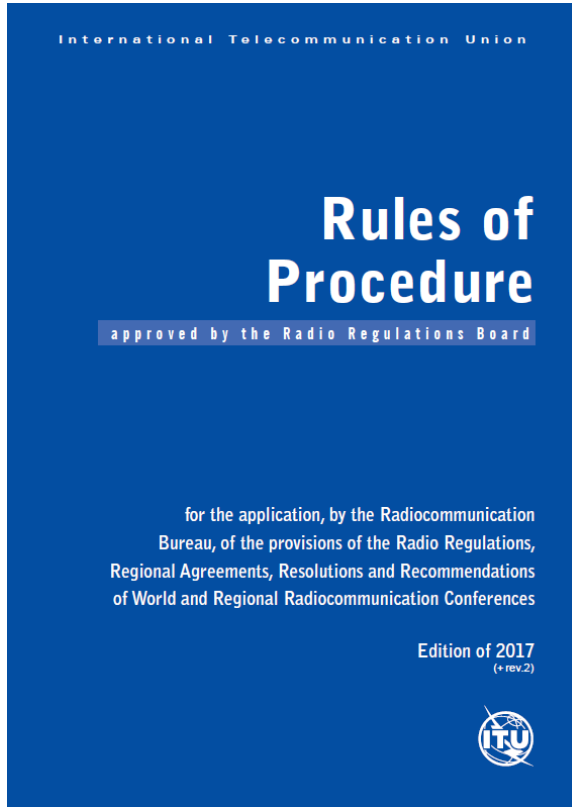
For example

RR No. 5.543 The band 29.95-30 GHz may be used for **space-to-space** links in the Earth exploration-satellite service for telemetry, tracking, and control purposes, on a **secondary basis**.

Rules of Procedure relating to inter-satellite link

No. 5.543

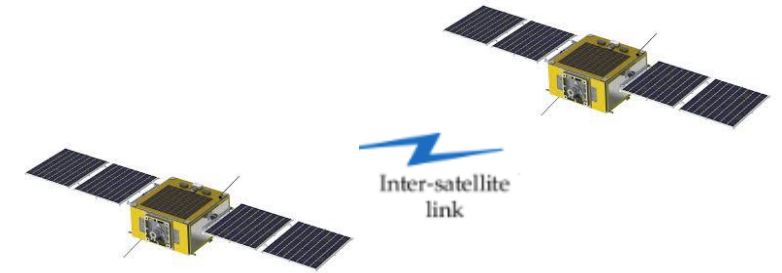
- The Board concluded that this provision is an additional allocation to the Earth exploration-satellite
- Service for inter-satellite links. **The use of the words “telemetry, tracking, and control purposes” leads the Board to understand that the use is limited to space operation.**



ISL (inter-satellite link)

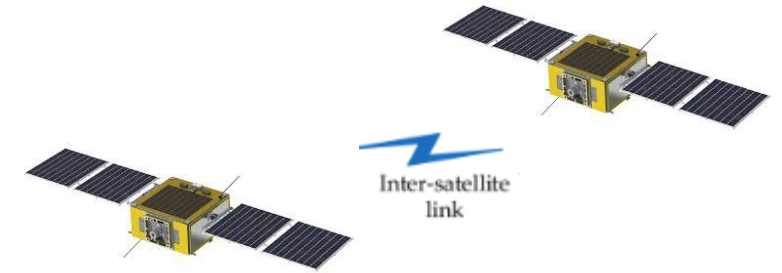
To capture a group for ISL via SpaceCap:

- There is no space-to-space direction
- transmitting and receiving should be separated in different beams
- at least one associated space station is captured for the ISL group
- no associated earth station required in the ISL group
- there should not be both associated earth station and associated space station in the same group, they must be separated into different groups for different purpose
- Antenna pattern is required for space station (beam level) only
- service area is not required



ISL (inter-satellite link)

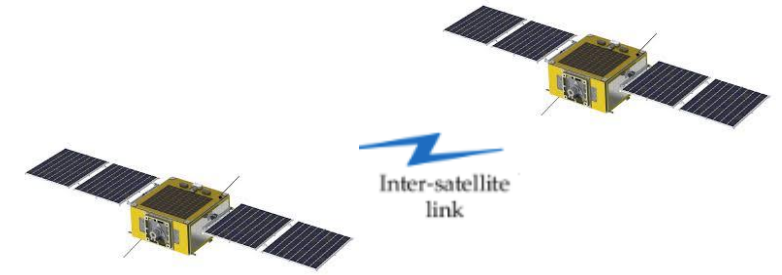
Co-polar Antenna radiation patterns for **GSO** satellite network with inter-satellite link



- ❖ **Item B.3.c.1 of Appendix 4** *In the case of geostationary space stations required only for an antenna radiation beam that is directed towards another satellite*
 - Specifically, for **GSO inter-satellite link**, if it's GSO corresponding with NGSO which are not subject to coordination, then the antenna radiation pattern for space station is required for API, and have to be provided as either the **pattern ID** or as an **attachment**, which **cannot be captured in the Gims**.
 - If it's provided as **equations, formulae or a table** describing all parts of the pattern, the Bureau will then **assign the pattern ID** in the Antenna Pattern Library, available at <http://www.itu.int/en/ITU-R/software/Pages/ant-pattern.aspx>, and capture the pattern ID in the notice database, when possible, for publication.
 - Please check the **condition online** for more details: <https://www.itu.int/en/ITU-R/space/Pages/API.aspx>

ISL (inter-satellite link)

Some specific AP4 information in group level via SpaceCap:



For transmitting beam:

- **C.8.f.1** the space station's nominal equivalent isotopically radiated power(s) (e.i.r.p.) on the beam axis

Beam Id

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

For receiving beam:

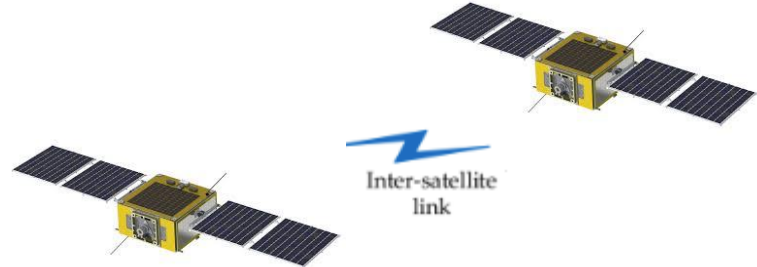
- **C.8.f.2** the **associated** space station's nominal equivalent isotopically radiated power(s) (e.i.r.p.) on the beam axis

Beam Id

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

Some **specific Appendix 4 information** required for an **associated space station**:

- **C.10.a** For an associated space station:
 - o **C.10.a.1** the identity of the station
 - o **C.10.a.2** if the associated space station is in the geostationary orbit, its nominal longitude



Forms of Notice Advance Publication

Notice	Beam	Group	Emissions	Frequencies
Assoc Earth Station	Assoc Space Station			

Notice Id: 122545232 Adm: | Satellite Network: API TEST 2 Beam Id: ISL R Group Id: 22

Add/Mod/Sup	C10a. Assoc Space Station Name	Station Type	Nominal Longitude	E/W	Beam Name
A	JUNO	N			KADRA
M	TDRS 167.5W	G	-167.5	W	KAFR

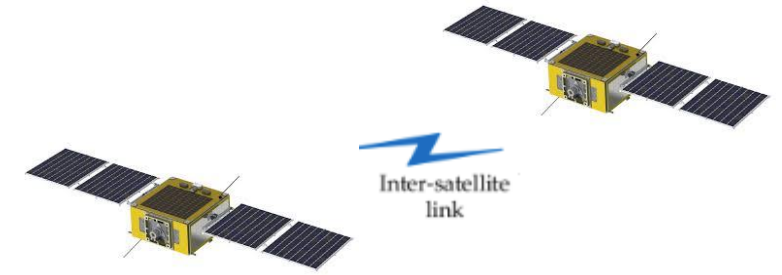


New function for MOD groups



Some **specific Appendix 4 information** required for an **associated space station**:

- **C.10.a** For an associated space station:
 - **C.10.a.1** the identity of the station
 - **C.10.a.2** if the associated space station is in the geostationary orbit, its nominal longitude



Name of associated space station

- ❖ In an API or Coordination request, it is acceptable to have an associated space station which has not yet been submitted, but may be submitted later in another filing.
- ❖ In a notification notice, the associated space station must already have been submitted as an API, coordination request.
- ❖ Only names of satellite networks registered in the ITU database is acceptable. Commercial names of the satellite system (e.g. Iridium, Globalstar, GPS) are not acceptable.
- ❖ If the communication of inter-satellite link is within the same constellation system, it can be captured as the same name of the satellite network for the constellation system.

Notification

What needs to be notified?

- As specified in Nos. **11.2 - 11.9**, any frequency assignment to transmitting and receiving stations shall be notified to the Bureau:
 - a) if the use of that assignment is *capable of causing harmful interference to any service of another administration; or*
 - b) if the assignment is to be used *for international radiocommunication; or*
 - c) if that assignment is subject to a world or regional frequency allotment or assignment plan which does not have its own notification procedure; or
 - d) if that assignment is *subject to the coordination procedure of Article 9 or involved in such a case; or*
 - e) if it is desired *to obtain international recognition for that assignment; or*
 - f) if it is a *non-conforming assignment under No. 8.4 and if the administration wishes to have it recorded for information*

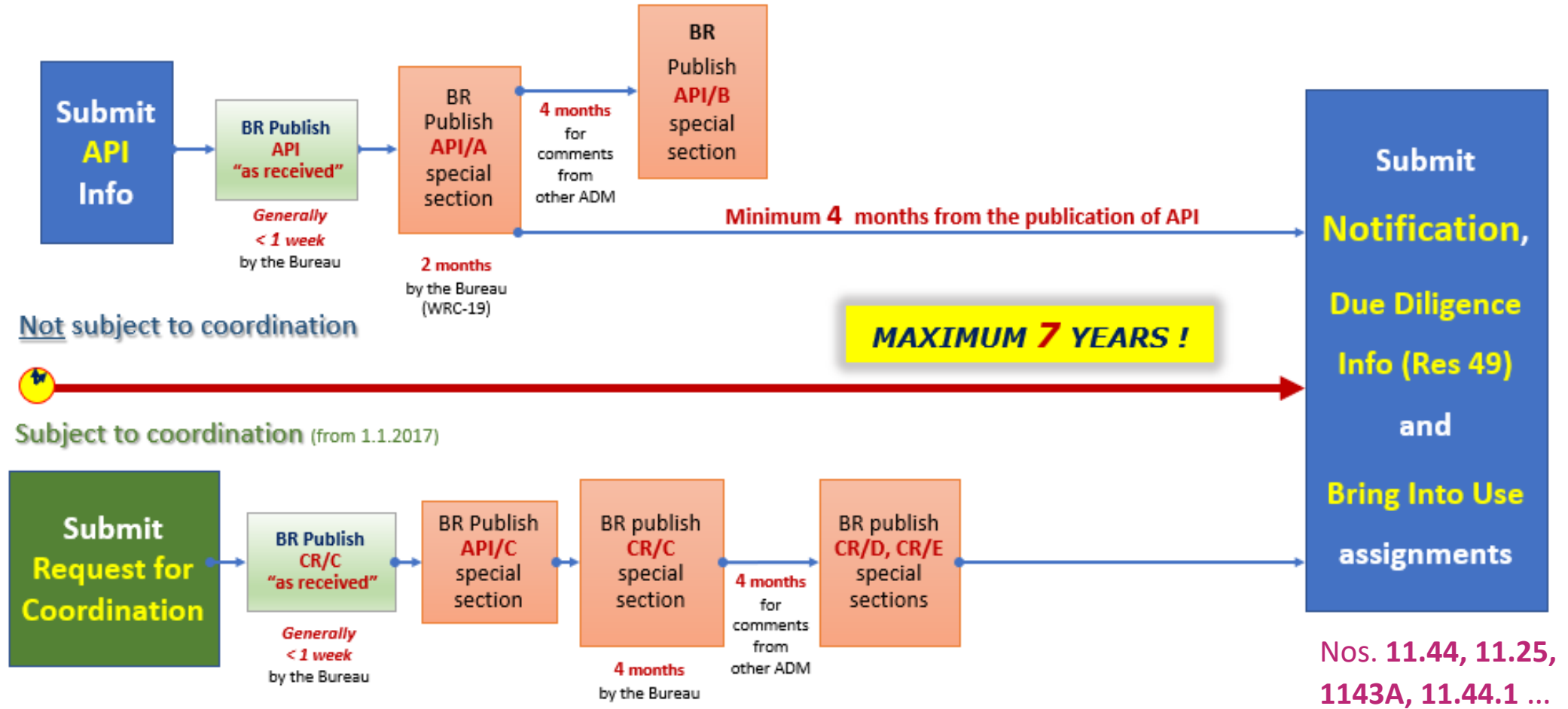
Notification

for frequencies and services not subject to coordination

When to initiate the notification procedure?

- The notification procedures of space station generally can be initiated **upon the completion of the API** for assignments which do not require coordination procedure.
- The first notification for recording the space station frequency assignments must be carried out **before the end of 7 years** from the date of receipt of the API.
- The provision No. **9.1** allows the notification information to be communicated at the same time as the advance publication procedure. In such cases, the date of receipt of the notification information shall be considered as having been received by the Bureau **not earlier than 4 months** after the date of **publication** of the API.

Overall ITU regulatory procedures



Checklist for Notification

for frequencies and services not subject to coordination

Ensure mandatory information is:

- **complete** and **correct** (Use BR SIS Validation software)
- and where required, accurate references to relevant publications are made; **special section number** for publication (API/CR) need to be captured via SpaceCap
- Check if the **relevant API exists** for the assignments being notified
- Check that the notified frequency ranges are **covered by the API**
- Ensure the **time limits** specified in Nos. **11.44**, **11.25**, **11.43A** and **11.44.1** are complied

Check assignment for conformity with:

- Article **5** (e.g. assigned frequency or bandwidth is not out-of-band, station is located in area where frequency band is allocated, footnotes limits are complied, etc.)
- Articles **21**, **22** ...

- **Assigned frequencies, assigned freq. bandwidth, date of bring into use, max total peak power ...** need to be captured in the notification notice database via SpaceCap
- **NEW** All graphical data, including service areas, need to be captured in **GIMS DB**

- Ensure the specific earth station is inside the service area of the associated space station, if any

Specific tips for Notification

- **Non-GSO SDM** needs to be notified with **commitment** under **No. A.24.a**
- **Cases under No. 4.4** needs to be notified with **commitment** under **Rules of Procedure concerning No. 4.4 (§ 1.6)**

SpaceCapture v9.1.14 BETA

File Edit Tools View Window Help

CR/NOTIF API RAST PLAN RS49/552

NonGeoStationary Notice:1

Notice Station Beam

Notice Id: 1 Administration: 1 Status: 01 Date: 10/11/2022

A1a. Identity of the Satellite Network
API TEST 2

A1g. Short Duration Mission Y

A4b1. Number of Orbital Planes 4 A4b2. Reference body (T) Earth A4b1a. Constellation Y

A4b3a. Nbr of Satellites to NH 3 A4b3b. Nbr of Satellites to SH 8

Orbital information Orb. info. for sat. networks representing a constellation Orb. info. for sat. networks subject to No. 22.5 C, D, F, L

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	4m. space station uses sun-synchronous orbit	4n. local time reference	4o. local time HH:mm:ss
1	53.24	1	0	1	30	275.00	0	275.00	0	275.00	0	yes		
2	53.24	1	0	1	34	500.00	0	500.00	0	500.00	0	no		
3	53.24	1	0	1	30	310.00	0	310.00	0	310.00	0	no		
4	53.24	1	0	1	32	400.00	0	400.00	0	400.00	0	no		

List of Available Beams

- Beam ISL
- Beam SENSOR
- Beam UP
- Beam UPUHF
- Beam DOWN
- Beam DOWNUHF
- Beam ISL
- Beam SENSOR

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

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

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

BR104. Commitment under resolves 3 of Res 770 [applicable bands 37.5-42.5 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz] Yes No

A24a. Commitment "SDM" Res 32 Yes No

A23a. Commitment stating that the characteristics as modified will not cause more interference or require more protection than the characteristics provided in the latest notification information published in Part I-5 of the BR IFIC for the frequency assignments to the non-geostationary-satellite system Yes No

BR109. Confirmation that the frequency assignments which operate under No. 4.4 will meet the conditions referred to in RoP 4.4 §1.6 a) and that measures have been identified to avoid harmful interference and to immediately eliminate such in case of a complaint Yes No

A.17b,d,e Compliance with PFD or EPFD limits Enter PFD or EPFD values



Examination by the Bureau

for Notification not subject to coordination

- ❖ Technical / regulatory examination under **No.11.31** and findings will be given for **Notification**:
 - Favourable – recorded in the Master Register
 - Unfavourable – returned to the administration under **No.11.36**
(for example, due to non-conformity with Table of frequency allocation or PFD exceedance)
- ❖ **Notes for satellite networks not subject to coordination :**
 - Examination under **No.11.32** i.e. verification of completion of coordination is **not conducted**
 - Due diligence under **Resolution 49** is **not required**
 - **Resubmission** under **No.11.46** is **not applicable**

Specific tips

For NGSO FSS in band 3400-4200 MHz



Item **A.4.b.3** of AP 4 is **mandatory** for both **API** and **Notification** in the space-to-Earth direction



A.4.b.3	For space stations of a non-geostationary fixed-satellite service system operating in the frequency band 3 400-4 200 MHz:
A.4.b.3.a	the maximum number of space stations (N_N) in a non-geostationary-satellite system simultaneously transmitting on a co-frequency basis in the fixed-satellite service in the Northern Hemisphere
A.4.b.3.b	the maximum number of space stations (N_S) in a non-geostationary-satellite system simultaneously transmitting on a co-frequency basis in the fixed-satellite service in the Southern Hemisphere

NGSO FSS frequency ranges **3700-4200** MHz, **5925-6725** MHz

Not subject to coordination procedure

But subject to **EPFD** limit at the notification stage

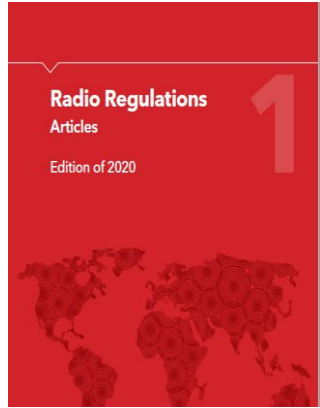


TABLE 22-1E (WRC-03)

Limits to the $epfd_{\downarrow}$ radiated by non-geostationary-satellite systems in the fixed-satellite service in certain frequency bands

Frequency band (MHz)	$epfd_{\downarrow}$ (dB(W/m ²))	Percentage of time during which $epfd_{\downarrow}$ may not be exceeded	Reference bandwidth (kHz)	Reference antenna diameter and reference radiation pattern (m)
3 700-4 200	-195.4	100	4	1.8 ¹³
	-197.9	100	4	2.4 ¹³
	-201.6	100		
	-203.3	100		
	-204.5	100		
	-207.5	100		
	-208.5	100		
	-212.0	100		



Space-to-Earth



TABLE 22-2 (WRC-03)

Limits to the $epfd_{\uparrow}$ radiated by non-geostationary-satellite systems in the fixed-satellite service in certain frequency bands¹⁵

Frequency band	$epfd_{\uparrow}$ (dB(W/m ²))	Percentage of time $epfd_{\uparrow}$ level may not be exceeded	Reference bandwidth (kHz)	Reference antenna beamwidth and reference radiation pattern ¹⁶
5 925-6 725 MHz	-183.0	100	4	1.5° Recommendation ITU-R S.672-4, $L_s = -20$



Earth-to-space



Cost Recovery

for satellite networks not subject to coordination

- API: 570 CHF (Category **A1**)

- Notification: 7 030 CHF (Category **N4**)

❖ Note that if the payment is not received by the due date, the filing will be cancelled, and the invoice continues to be payable!

❖ Check **ITU Council Decision 482** (Modified)

- Implementation of cost recovery for satellite network filings for more details



Modification of characteristics



- According to **No. 9.2**, for satellite network/system **not** subject to coordination, 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 parameter, service area, earth station etc.
- This will provide other administrations/operators the chance to submit comments before the modifications are notified for recording in the Master Register.
- For **notification**, if 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, 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
- For **associated earth stations** or **associated space stations**, remove those not concerned by the modification, verify the intention and capture manually the action codes **(add, mod, sup)**
- For those who wish to totally replace all the earth stations, please indicate in your letter.

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=5

122545229 [A]	N	SUI/	1	API TEST	9/6/2022	01
---------------	---	------	---	----------	----------	----

Control Box

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

Target Database

Access Ingres **3** **Set Target Db**

Keep History **4**

Group Ids

Renumber Group Ids Keep Group Ids of the source

Notice Already in Target database

Give a new Notice Id Replace Notice in Target Do not export

5 **Run Export** Cancel

 Capture

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
122545229[A]	N	SUI/		API TEST	9/6/2022	01

Count=5

Control Box

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

Clone Dialog

Clone Parameters

Clone ID: 2

Date of Receipt: 10/11/2022

Notice Status: 01

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: Yes No

Ok Cancel

Capture



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	SUI/		API TEST	10/11/2022	01

List of notices Count=6

- Beam id: UP [M]
 - Group id: 38 [M] {tgt_id=1}
- Beam id: DOWN [M]
 - Group id: 37 [M] {tgt_id=2}

Action codes

Target group IDs

- Work on the new notice you just created
- Remove the original one you exported
- One notice / one database for submission

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=6						
000000002 [M]	N	SUI/		API TEST	10/11/2022	01
<ul style="list-style-type: none"> Beam id: UP [M] <ul style="list-style-type: none"> Group id: 38 [M] {tgt_id=1} Beam id: DOWN [M] <ul style="list-style-type: none"> Group id: 37 [M] {tgt_id=2} 						

Control Box

- Show
- Clone
- Export
- Delete
- To SNS

You can clone or delete beams/group..., modify action codes, rename beam to have a new beam, then modify the detail characteristics by click "show" in detail tabs...

Right click to get the menu

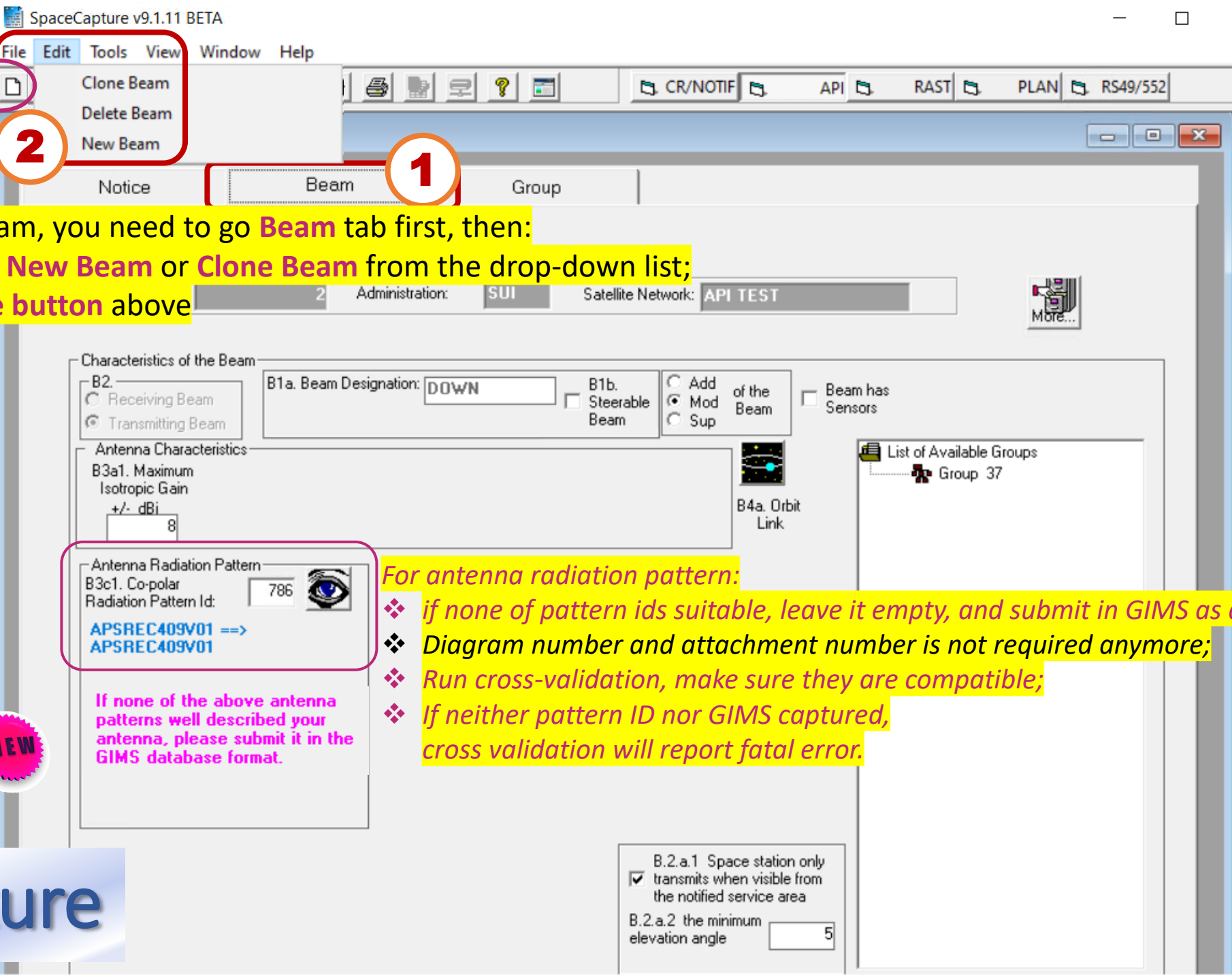
- Open Notice
- Show Selected Entity
- View History
- Print Notice
- Export Notice(s)
- Clone
- Delete
- Rename Beam
- Modify Beam Action Code
- Delete Notice and Grp Links
- Create Notice Links
- Create Grp Links
- Create Regulatory Dates

Question

What is the new Action Code? (. A, M or S)

OK Cancel





Beam level:



2

1

❖ To capture a new beam, you need to go **Beam** tab first, then:

- click **Edit** menu, select **New Beam** or **Clone Beam** from the drop-down list;
- or click the **blank page button** above

Characteristics of the Beam

B2. Receiving Beam Transmitting Beam


B1a. Beam Designation: 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 

List of Available Groups

- Group 37

Antenna Radiation Pattern

B3c1. Co-polar Radiation Pattern Id: 

[APSREC409V01 ==>](#)
[APSREC409V01](#)

If none of the above antenna patterns well described your antenna, please submit it in the GIMS database format.

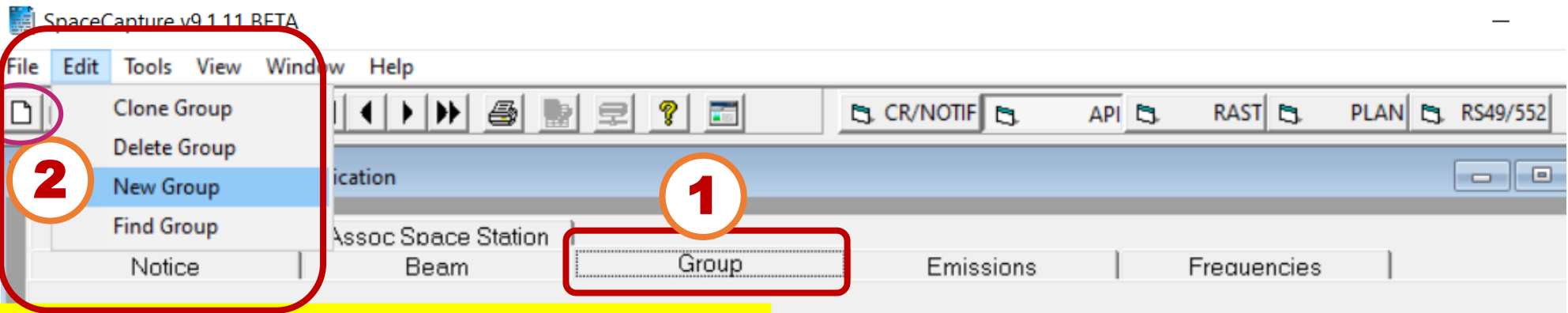
For antenna radiation pattern:

- ❖ if none of pattern ids suitable, leave it empty, and submit in GIMS as diagrams;
- ❖ Diagram number and attachment number is not required anymore;
- ❖ Run cross-validation, make sure they are compatible;
- ❖ If neither pattern ID nor GIMS captured, cross validation will report fatal error.

NEW

Capture





Group level:

- ❖ To capture a new group, you need to go **Group** tab first, then:
 - click **Edit** menu, select **New Group** or **Clone Group**;
 - or click the **blank page button** above

work: Beam Id: Group Id: Split Grp Id:

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

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

Service Area No. (diag provided in Gims)

C4a. Cls Stn	C4b. Nat Srv
EA	CV
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

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

C5a. Receiving System Noise Temperature: Kelvins

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

Remarks:

Limit to 4 class of stations

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



Clone Group
Delete Group
New Group
Find Group

CR/NOTIF API RAST PLAN RS49/552

Assoc Space Station
Notice Beam **Group** Emissions Frequencies

Group level:

Notice 122545229 Satellite Network: API TEST Beam Id UP 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

No Sensors
 Active Sensors
 Passive Sensors

C4a. Cls Stn	C4b. Nat Srv
EA	CV

C2c. Frequency assignments are filed under No.4.4

C6. Polarization
Type CR Circular Direct Polarization
If linear, provide angle °:

C5a. Receiving System
Noise 280 Kelvins
Temperature

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

C11a. Service Area as List of Countries or Geographic designations
+XAA
-MEX
NEW
x

Service Area No. (diag provided in Gims)

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 don't add other country codes, because they are included, similarly e.g. don't capture XR3 + CHN
- You can **exclude service area** by using the "minus" button
- Don't use the remarks here, if so wish, provide in notes
- The service area number is used to link with the diagrams captured in GIMS DB Remarks



Notice 122545229 Satellite Network: API TEST Beam Id UP 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**

A2b. Period of Validity 22 Years

A3a. Operating Agency

132 ... D-ORBIT SPA

A3b. Responsible Administration

A ... MINISTERO DELLO SVILUPPO ECONOMICO - DIPARTIMENTO

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

Group level:**EXAMPLE**

For operating agency:

- The operating agency code is indicated in **Tables 12A/12B** of the **Preface** to the BRIFIC (Space Services).
- If there is no existing symbol corresponding to the operating agency or company, please **provide the name of the agency concerned** and the Bureau will assign a new symbol and update it in the Preface.


General Characteristics

A2b. Period of Validity Years

A3a. Operating Agency

A3b. Responsible Administration

**You have selected an Operating Agency that is not in our reference database.
Please send the details of the new Operating Agency to the Bureau as an attachment to this filing.**

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

- Generally, one operating agency for one satellite network. If it's multiple, kindly confirm in your letter for submission that you are intended to include **different operating agency symbols for the respective frequency assignment groups.**

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

1

2

Notice Id: 122545229 Adm: SUI Satellite Network: API TEST Beam Id: UPR Group Id: 1

Emissions of the Associated Transmitting Stations												
	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. Attach No. Pep	C8c3. Minimum Power Density	C8c4. Attach No. Mpd	C8e1. C/N objective (total - clear sky) (dB)	C8e2. Attach No. C/N	C9 Modulation Char	seq
▶	500KG1D--	20.0	-37.0	<input type="checkbox"/>	5.0		-52.0		1.0		Click here	
				<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

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
1M30G1D--	1
500KG1D--	2

C7b. Carrier Frequency MHz	seq_emiss
2405.00000	1

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

C1. Frequency Range

Freq From	Sym	Freq To	Sym
2404	M	2406	M

To add additional frequency range, please clone the group.

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

Frequency From	k/M/GHz	Frequency To	k/M/GHz
2404	M	2406	M

- 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 bands overlapping partially with previously submitted or published bands when possible

Associated Earth Station

Forms of Notice Advance Publication

Notice: Assoc Earth Station | Beam: Assoc Space Station | **Group** | Emissions | Frequencies

Notice Id: 122545229 | Adm: SUI | Satellite Network: API TEST | Beam Id: UPR | Group Id: 1

C10b2. Type of Station: Typical Specific

C10b1. Associated Earth Station Name: IT01-01

of the station: Add Mod Sup

C10d1. Cls Stn	C10d2. Nat Srv
TT	CV

C10c2. Country: []

C10c1. Geographical Coordinates:

Longitude				Latitude			
Degrees	E/W	Min	Sec	Degrees	N/S	Min	Sec
9	E	21	44	45	N	35	36

C10d. Antenna Characteristics:

3. Maximum Isotropic Gain: 33.8 +/- dBi | 4. Beamwidth: 3.2 Degrees

Antenna Radiation Pattern: C10d5a1. Co-polar Radiation Pattern Id: 602
REC-465-5 ==> APEREC013V01

or diagram no in Gims database:

For specific earth station, make sure the geographical coordinates define a location in the country captured in item C10c2 of AP 4

- The action code for an assoc earth station depends on the action codes of notice/beam/group
- If the beam/group are ADD, no action code for E/S
- If the group is MOD, capture action code for E/S

Capture



File Edit Tools View Window Help

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

To create a new associated earth station

Forms of Notice Advance Publication

Notice

Beam

Group

Emissions

Frequencies

Assoc Earth Station

Assoc Space Station

Notice Id: 122545229 Adm: SUI Satellite Network API TEST Beam Id: UPR Group Id: 1

C10b2. Type of Station

 Typical Specific

C10b1. Associated Earth Station Name

IT01-01

of the station

 Add
 Mod
 Sup

C10d1. Cls Stn	C10d2. Nat Srv
TT	CV

C10c2. Country

I

C10c1. Geographical Coordinates

Longitude Latitude
Degrees E/W Min Sec Degrees N/S Min Sec
9 E 21 44 45 N 35 36

C10d. Antenna Characteristics

3. Maximum Isotropic Gain 4. Beamwidth
33.8 +/- dBi 3.2 Degrees

Antenna Radiation Pattern

C10d5a1. Co-polar Radiation Pattern Id: 602

REC-465-5 ==> APEREC013V01

or diagram no in Gims database

To capture a new earth station, you need to use the blank page button above or to click the Edit menu, select Clone or New Assoc Earth Station from the drop-down list

Associated Space Stations

SpaceCapture v9.1.11 BETA

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**

Notice Id: 122545232 Adm: 1 Satellite Network: API TEST 2 Beam Id: ISL/B Group Id: 22

Add/Mod/Sup	C10a. Assoc Space Station Name	Station Type	Nominal Longitude	E/W	Beam Name
▶ A	JUNO	N			KADRA
M	TDRS 167.5W	G	-167.5 W		KAFR

NEW

For space-to-space service:

- You can select the space station name from the drop-down list, you can type in also as you wish
- 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.
- The action code for assoc. S/S depends on the action codes of notice/beam/group.

BR SIS Validation

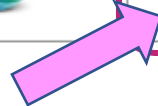


Space Information System (SNS v9.1)



Selected task:

CFEX 	FindCap 	PCom 	Publication
SpaceQry 	SRS Convert 	Validation ¹ 	



+ New Window

Start

Quit

Selected database:

Run **Cross Validation** via BR SIS

Selected task

Selected database

wangxi



BR SIS Validation



Space Information System (SNS v9.1)



Selected task: Validation

Validation

- Version: 9.1.7 [\(what's new?\)](#)
- Description: Validate electronic submissions
- Contact: sandrine.moret@itu.int
- Validation Rules: [Satellites](#) [Earth Stations](#) [Plans](#)

CFEX

FindCap

PCom

+ New Window

3

Start

Quit

Selected task

Selected database

wangxi

Selected database: ITU-R WRS 2022_API TEST_8 new.mdb

Ingres Production

Ingres Development

Microsoft Access

M:\BRSSD\SPR\API\BR soft checking\V9.1.11 BETA\ITU-R WRS 2022

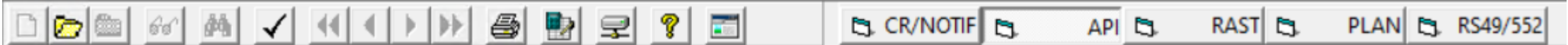
Browse



Cross_Validation via SpaceCap

SpaceCapture v9.1.11 BETA - [Set Notice Template]

File Edit Tools Template Window Help



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=5						
122545232[A]	N	I /	1	API TEST 2	10/11/2022	01
Beam id: ISL						
Beam id: SENSOR						
Beam id: UP						
Beam id: UPUHF						
Beam id: DOWN						
Beam id: DOWNUHF						
Beam id: ISL						
Beam id: SENSOR						

Control Box

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

Run (Cross) Validation via SpaceCap



Cross_Validation

BRSIS - Validation v9.1.7 - BETA

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

1

Notice Id.

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

Validation

Run as external user

Graphical data cross validation
GIMS Database (.mdb)

ITU internal options

API check Run SRSFix Partial merge option

2

5

Select a GIMS Database

Create a new empty database:

Location: ...

Name: .mdb

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

Open an existing file

Clear List

3

4

Info

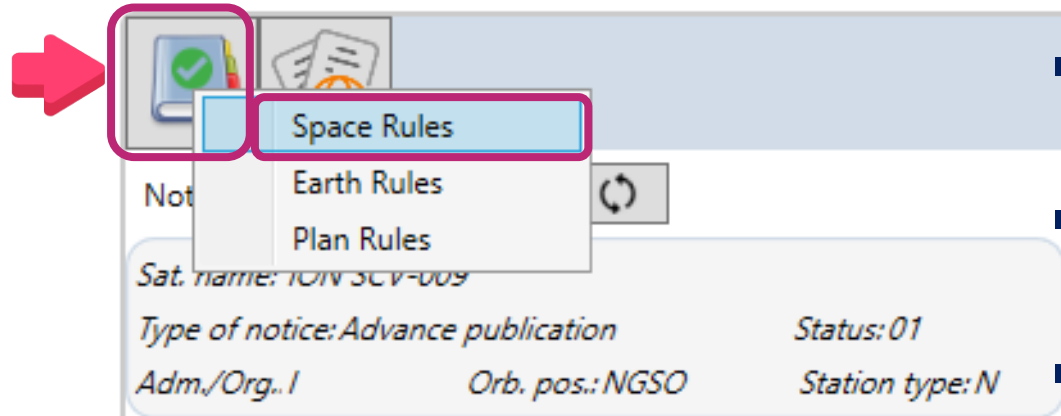
Validation completed;

6



Check both Validation report and SRSFIX report

BRSIS - Validation v9.1.7 - BETA



Space Rules
Earth Rules
Plan Rules

Sat. name: 101V SCV-009
Type of notice: Advance publication Status: 01
Adm./Org.: Orb. pos.: NGSO Station type: N

- Make sure that **validation completed**
- Make sure there is **no fatal error**. If there is, fix before submitting
- If really cannot fix, explain in the cover letter or ADM notes for your submission
- Check also the **SRSFIX report**, if any
- Check **Space Rules** for more details

Validation

Reports

created on 12/10/2022 - start time: 17:28:20 - duration: 0min. 14sec. by user WANGXI using version: 9.1.7.5
Validation options : ApiCheck:False, SRSFix:True, partial merge:False, brUser:True, gims:False

Validation: 13 Errors

SRSFIX: no error

NEW

VALIDATION RESULT: Fatal Errors:10 Warnings:3

Export



Summary

Drag a column header here to group by that column

Beam	E/R	Grp Id	Table	Field	Value	Row	Valerr	Rule	F/W	Ap4 Ref	Error Message
UPUHF	R	3	grp	area_no			647	3	F	C.11.a	This item and srv_area.ctr are both empty or both provided



Conversion from API to Notification



SpaceCapture v9.1.12 BETA - [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

Start Page - AP4/II and AP4/III

Transaction Id:

NEW

Wizards for Notification of Space Stations

Create First Notification

Create Resubmission of Notification

To convert an API into Notification, please select the CR/NOTIF tab first, then click "Create First Notification" from the Wizards below

Conversion from API to Notification

Creating First Notification Wizard

1 > Specify Provision Type 2 > Retrieve Notice For First Notif. 3 > Create New Database

Subject to Coordination Under Sect. II of Art.9

- 11.32
- 11.32 + 11.32A

4 Not Subject to Coordination (create notification from API)

5

Conversion from API to Notification

Creating First Notification Wizard

1 > Specify Provision Type

2 > Retrieve Notice For First Notif.

3 > Create New Database

Selected Provision : Not Subject to Coordination (create notification from API)

Current DB : M:\BRSSD\SPR\API\BR soft checking\W9.1.11 BETA\ITU-R WRS 2022_API TEST_7 test.mdb

6

Select different database

Retrieve an Advance Publication(API) notice to create the first notification:

Filter:

122545232 - API TEST 2

Do not include groups with No. 11.31 unfavourable findings

7

< Previous

Next >

Conversion from API to Notification

Creating First Notification Wizard

1 > Specify Provision Type

2 > Retrieve Notice For First Notif.

3 > Create New Database

Selected Notice: 122545232 - API TEST 2

Provision Type : Not Subject to Coordination (create notification from API)

8

Select Target Path for First Notification DB

Target Database : M:\BRSSD\SPR\API\BR soft checking\V9.1.11 BETA\FirstNtf. API TEST 2

spacecap



Create first notification to a new database:
'M:\BRSSD\SPR\API\BR soft checking\V9.1.11 BETA\FirstNtf. API TEST 2 - 20221012181018.mdb'
Do you want to create it ?

9

Yes

No

10

< Previous

Finish




Conversion from API to Notification



Make sure to provide the missing mandatory information for notification



First Notification Wizard: Successfully Completed

 First notification database created successfully!
The database will be loaded automatically and the notice will be displayed at the Notice tab level.

Please ensure to capture the following information before submission

A2a Date of bringing into use	-Group tab
C3a Assigned frequency bandwidth	-Group tab
C11a Service Area number (noting that SA diagrams have to be captured in GIMS DB)	-Group tab
C2a1 Assigned frequencies	-Frequencies tab
A131 Publication Special Section (API/CRC)	-Special Section tab

11

OK

- ❖ To manually capture also the max total peak envelop power, commitments related with SDM, No. 4.4 etc.

To sum up:

- Capture both notice database and GIMS database
- Validation well
- notes or attachments ready when needed

Appendix 4

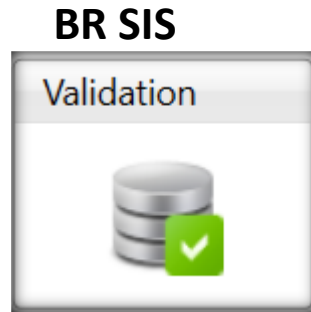


Notice Database



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

Appendix 4



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**

Where to go for submission?



E-Submission of satellite network filings

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

recorded on the **actual date of receipt**

telefax, mail, cover letter from ADM are **not** required

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

E-mail BRmail@itu.int

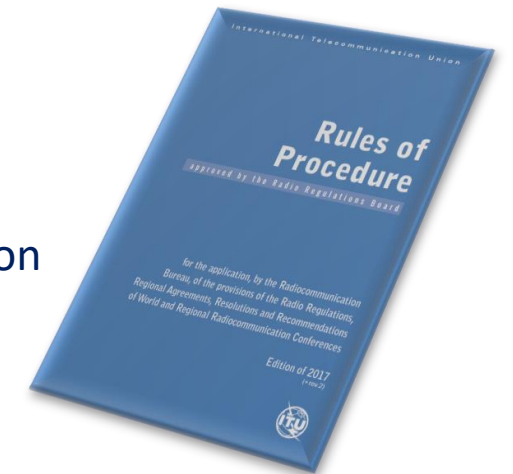
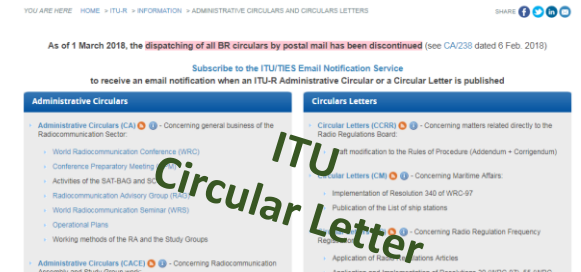
recorded as received on the **actual date of receipt**

generally used for correspondence or response of BR communication

Postal Mail (not recommended)

recorded on the **first working day** following the period of closure

Administrative Circulars and Circulars Letters



RR (Edition of 2020); RoP (Edition of 2021 Rev.2); RES 55, RES 908 (Rev.WRC-15); CR/464(2020)



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 send like a new submission**
 - ✓ submit via the **e-Communications** system
 - ✓ <https://www.itu.int/ITU-R/go/space-communications>
 - ✓ submit via the **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-e-submission>
- ✓ also possible to send a reply by **e-mail** to the BRmail@itu.int

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>

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** <https://www.itu.int/en/ITU-R/space>
- **API support** <https://www.itu.int/en/ITU-R/space/Pages/API.aspx>
 - [PDF GUIDE TO CAPTURE OF DIAGRAMS AND ATTACHMENTS FOR NON-GSO SATELLITE NETWORKS](#)

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**

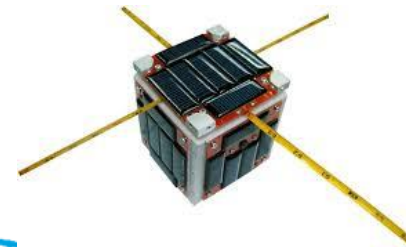
<https://www.itu.int/en/publications/ITU-R/Pages/publications.aspx?lang=en&media=electronic&parent=R-HDB-45-2017>

- **Handbook for space research service**

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



Annex 12 of Doc 856 Working Party 4A Chairman's Report



Working document on developing the **ITU-R SMALL Satellite Handbook**

Radiocommunication Study Groups



Source: Document 4A/TEMP/272

Subject: Small Satellite Handbook

**Annex 12 to
Document 4A/856-E
30 September 2022
English only**

- **WP4A Chairman's Report:**
<https://www.itu.int/md/R19-WP4A-C-0856/en>
- **SSHB online:** <https://www.itu.int/en/ITU-R/space/support/smallsat/sshandbook/Pages/default.aspx>
- Plan to be finalized by next **SG4 / WP 4A** in **June/July 2023**

Annex 12 to Working Party 4A Chairman's Report

WORKING DOCUMENT ON DEVELOPING AN ITU-R SMALL SATELLITE HANDBOOK

During its last meeting in May 2022, Working Party (WP) 4A revised the working document on the Small Satellite Handbook as carried forward in Annex 17 to Document [4A/691](#), the Working Party 4A Chairman's Report.

At this September 2022 WP 4A meeting, four contributions were received and the working document on the Small Satellite Handbook was updated, with the following observations, action items as well as call for contributions to some sections of the Small Satellite Handbook:

CONTRIBUTIONS are welcomed!



Thanks for your support!



Thank you!



THANKS



ITU – Radiocommunication Bureau
Questions to brmail@itu.int or xiuqi.wang@itu.int



Hands On

30TH WORLD RADIOCOMMUNICATION SEMINAR

24 – 28 October 2022

Geneva, Switzerland



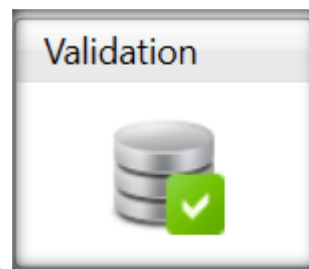
Capture

via SpaceCap



Validation

via BRSIS Validation



Conversion

from API to Notification

Via the Wizards

for satellite networks **not** subject to coordination



www.itu.int/go/wrs-22

#ITUWRS



Forms of Notice Advance Publication

Notice

Beam

Group

Notice Id: 1 Administration: SUI Satellite Network: TEST NGSO API



Characteristics of the Beam

B2. Receiving Beam Transmitting Beam

B1a. Beam Designation: **DWNLINK**

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:



ND-SPACE ==> APSND_499V01

List of Available Groups

Group 3

B.2.a.1 Space station only transmits when visible from the notified service area
B.2.a.2 the minimum elevation angle

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

C11a. Service Area as List of Countries or Geographic designations

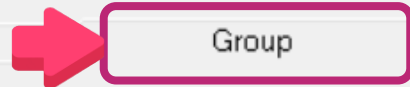
Service Area No. (diag provided in Gims)

C6. Polarization
Type
If linear, provide angle

C5a. Receiving System
Noise Temperature Kelvins

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

Remarks



Practice to include or exclude service areas





Assoc Space Station

Notice

Beam

Group

Emissions

Frequencies

Assoc Earth Station

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

Emissions of the Associated Transmitting Stations

	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. Attch No. Pep	C8c3. Minimum Power Density	C8c4. Attch No. Mpd	C8e1. C/N objective (total - clear sky) (dB)	C8e2. Attch No. C/N	C9 Modulation Char	seq
▶	30K0V8WV	10.0	-40.0	<input type="checkbox"/>	10.0		-40.0		10.0		Click here	
	20K0F1D--	19.0	-25.0	<input type="checkbox"/>	3.0		-41.0		12.0		Click here	
				<input type="checkbox"/>								
*				<input type="checkbox"/>								

Please specify carrier frequencies for each emission here.

Carrier Frequencies



Assoc Space Station | Notice | Beam | Group | Emissions | Frequencies | **Assoc Earth Station**

Notice Id: 1 Adm: SUI Satellite Network: TEST NGSO API **Beam Id: DW/NLINK E** Group Id: 3


C10b2. Type of Station: Typical Specific
C10b1. Associated Earth Station Name: TYPICAL ES
of the station
 Add Mod Sup

C10d1. Cls Stn	C10d2. Nat Srv
▶ TA	CR

C10d. Antenna Characteristics

3. Maximum Isotropic Gain: 10 +/- dBi
4. Beamwidth: 50 Degrees

6. Receiving System Noise Temperature: 500

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

or diagram no in Gims database: 1



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for satellite networks **not** subject to coordination



Thanks for your support !



Thank you!



THANKS



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Questions to brmail@itu.int or xiuqi.wang@itu.int

