



Radiocommunication Bureau (BR)

Circular Letter
CR/411

1st December 2016

To the Administrations of ITU Member States

Subject: **Submission of Appendix 4 information for space services to the Radiocommunication Bureau and update of related BR space software and databases**

Reference: **Appendix 4 to the Radio Regulations as revised by WRC-15 (Geneva, 2015)**

1 Introduction

1.1 The World Radiocommunication Conference (Geneva, 2015) (WRC-15) revised Appendix 4 to the Radio Regulations, with application as from 1 January 2017.

1.2 The Radiocommunication Bureau is pleased to inform your administration that a restructured Space Network System database version 8.0 (SNS 8.0) and an accompanying software package of updated electronic notification, examination and commenting software applications (Space Applications Manager (SAM), SpaceCap, SpaceQry, SRSConvert, GIBC, SpacePub, SpaceCom and SpaceVal of BRsoft 8.0), fully reflecting all the modifications and additions made by WRC-15 to Appendix 4, are now available for testing purposes on the ITU website <https://www.itu.int/ITU-R/go/space-software/en> and on the DVD version of BR IFIC (Space services) 2833/22.11.2016 and subsequent issues.

1.3 As from 1 January 2017, administrations are required to use the new BRsoft 8.0 when submitting notices for space services to the Bureau under RR Articles 9 and 11, Appendices 30, 30A and 30B and Resolutions 49 (Rev.WRC-15), 552 (Rev.WRC-15) and 553 (Rev.WRC-15).

1.4 The purpose of this circular letter is to provide administrations and other users with information and guidance on BRsoft 8.0 relating to space services.

2 Description

2.1 As from 1 January 2017, administrations are requested to use the new BRsoft 8.0 when submitting to the Bureau all notices under Articles 9 and 11, Appendices 30, 30A and 30B and Resolutions 49 (Rev.WRC-15), 552 (Rev.WRC-15) and 553 (Rev.WRC-15) in application of the procedures of the Radio Regulations in force relating to space services.

2.2 The new version of the SpaceCap 8.0 software application includes all new and modified Appendix 4 data items as revised by WRC-15. It will enable administrations to submit all notices to the Bureau as referred to in §2.1 above.

2.3 The new validation software application SpaceVal 8.0 carries out checks on the Appendix 4 data as revised by WRC-15. It can be used in stand-alone mode to validate any relevant electronic Appendix 4 filing that is in the SNS 8.0 MS-Access database format, or within SpaceCap 8.0. As from 1 January 2017, SpaceVal 8.0 or a later version will be the validation software used by the Bureau when assessing the completeness of Appendix 4 notices.

2.4 As noted in §3.4 of the rules of procedure on the receivability of space service notices, administrations are encouraged to run the validation software (SpaceVal 8.0) themselves prior to submitting electronic Appendix 4 notices to the Bureau in order to identify and resolve any difficulties in the notices before they are submitted. In this respect, the cross-validation option should be selected in order to run a validation of the SNS format database against the GIMS format database.

2.5 If any difficulties are encountered in the use of the SpaceVal software, particularly involving any unresolved "fatal" error messages in the validation report, administrations are encouraged to report them to the Bureau in their covering letter when submitting the electronic notice.

2.6 Administrations not using BRsoft to prepare their filings should ensure that the resulting database conforms to the format published in Section III, Chapter 1, of the Preface (Space services). Electronic notices submitted to the Bureau that do not conform to the SNS 8.0 structure will be returned to the notifying administrations.

2.7 The Bureau is adjusting its internal procedures and software in order to publish special sections and other filings in the BR IFIC (Space services) on DVD in SNS 8.0 format. As from and including BR IFIC (Space services) 2836/10.01.2017, the IFICXXX.mdb, SPS_ALL_IFICXXX.mdb and 30B_XXXX.mdb will be made available in SNS 8.0 format.

2.8 The Bureau's software application for submitting comments, Spacecom 8.0, will work only with databases in SNS 8.0 format. Since the IFICXXX.mdb for special sections published up to BR IFIC 2835/20.12.2016 is distributed in SNS 7.0 format, and comments on those special sections are to be provided within 4 months as from the date of publication of the respective BR IFICs, administrations should use SpaceCom 7.0 to prepare their comments on the version 7.0 database.

2.9 Administrations are advised to use the BRsoft conversion tool SRSCovert as necessary during the transition period. This SNS database conversion program is a software utility that allows the user to convert the data contained in an existing SNS 7.0 database into the new SNS 8.0 format. This conversion is valid for any SNS 7.0 database produced by SpaceCap, as well as the SRS database (SRSxxxx.mdb) and Space IFIC databases (IFICxxxx.mdb, SPS_ALL_IFICxxxx.mdb and 30B_XXXX.mdb) supplied by the Bureau.

2.10 Administrations may keep both the BRsoft 7.0 and BRsoft 8.0 software for the purposes of updating their local databases and for querying and printing the information published in the BR IFIC (Space services) on DVD during the transition period. Version 7.0 and version 8.0 of SAM, SpaceCap, SpacePub, SpaceVal and SpaceCom may co-exist on the same PC without any interference.

2.11 BRsoft 8.0 software packages are being made available to administrations and other users for testing purposes in November 2016 on the ITU website <https://www.itu.int/ITU-R/go/space-software/en> and on the DVD version of BR IFIC (Space services) 2833/22.11.2016 and subsequent issues.

2.12 Some of the main changes in SNS version 8.0 and BRsoft 8.0 are described in Annex 1 to this letter.

2.13 Administrations are reminded that the Bureau maintains an up-to-date support website with useful information and "Frequently Asked Questions" in order to assist users in successfully validating their notices, at <http://www.itu.int/ITU-R/go/space-support/en>.

2.14 The Bureau is available to assist administrations in submitting Appendix 4 notices. Queries of a general nature relating to submissions and validation rules may be addressed to the ITU contact person, Mr Attila Matas, telephone: +41 22 730 6105, fax: +41 22 730 57 85, e-mail: attila.matas@itu.int.

Queries relating to the software's installation and functionality may be addressed to the ITU contact person, Miroslav Ćosić, telephone: +41 22 730 5789, fax: +41 22 730 62 60, e-mail: brsas@itu.int.


for / François Rancy
Director

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Annex 1

Main changes in the SNS version 8.0 database and BRsoft version 8.0

1. Frequency assignments for use in accordance with Resolution 163 (WRC-15) and Resolution 164 (WRC-15)

For frequency assignment groups used in accordance with Resolution 163 (WRC-15) in the frequency band 14.5-14.75 GHz or Resolution 164 (WRC-15) in the frequency band 14.5-14.8 GHz not for feeder links for the broadcasting-satellite service, it is necessary to check the box labelled "BR98 For use in accordance with Resolution 163/164" (corresponding to the new field `grp.f_nfd_lnk`) in the "group" tab in SpaceCap.

When this box is checked, SpaceVal will verify that the AP4 data items *A.16.c commitment by administration that the earth station associated with the filed system will meet the separation distance as specified in No. 5.509E and the power flux-density limits that are specified in No. 5.509D* (new field `geo.f_pfd_sep`) and *C.10.d.7 antenna diameter* have been provided.

This box should not be checked if the frequency assignment group does not contain the 14.5-14.75 GHz or 14.5-14.8 GHz band, or if it does not involve use in accordance with Resolution 163 or 164.

For creating the service area, users can select to create a service Region in the GIMS software in accordance with Resolution 163 or 164, and all the countries listed in the relevant resolution that are visible from the current satellite position will be added to the service Region created.

2. Commitment under *resolves 1.5* of Resolution 156 (WRC-15)

As indicated in Circular Letter CR/393, a new class of station "UF" has been created for earth stations in motion in accordance with Resolution 156 (WRC-15). For notices that include this type of earth station, users should check the box labelled "BR 96 Commitment under resolves 1.5 of Res 156" (corresponding to the new field `geo.f_esim`) in the "station" tab in SpaceCap to indicate their commitment as required under *resolves 1.5* of Resolution 156.

3. Description of method to meet PFD limits for steerable beams

WRC-15 added the reference to the rule of procedure (RoP) on No. **21.16** in the description of AP4 data item B.3.b.1. For steerable beams, the RoP requires that administrations state that PFD limits will be met by applying a method, the description of which should be submitted to the Bureau.

The Bureau has revised the database and capture software to facilitate the capture of this information in the electronic notice. For a transmitting beam that is marked "steerable", if users wish to capture the information that the PFD limits will be met by applying the method described in Annex 1 to the RoP on No. **21.16**, they should ensure that the box labelled "B3b1b Method required in ROP 21.16, applicable PFD will be met by applying the method in Annex 1 of ROP" (corresponding to the new field `f_pfd_steer_default`) in the "beam" tab in SpaceCap is checked. By checking this box, the administration states that the PFD limits will be met by applying the method described in Annex 1 to the RoP on No. **21.16**. If users wish to provide their own notes regarding compliance with this RoP, this box should be unchecked, an attachment number should be entered in the field labelled "Enter the attachment number" (new field `s_beam.attch_pfd_steer`) and the statement of PFD compliance and a description of the method to meet the PFD limits should be provided in a separate attachment.

4. Attachment numbers for graphical diagrams for geostationary satellite networks

For new filings for geostationary satellite networks, it is mandatory to submit diagrams for antenna gain contours (B.3.b.1) and diagrams for gain towards the GSO arc (B.3.e) in GIMS mdb format. Similarly, it is mandatory to provide service area diagrams (C.11.a) in the GIMS mdb file if the service areas are not captured as country names in the SNS format database.

With the submission of all graphical diagrams in a single GIMS mdb file and the availability of the cross-validation feature in SpaceVal which can validate whether all required diagrams have been submitted, there is no longer any need to indicate the attachment number of a diagram in the SNS format database. Attachment numbers are therefore no longer required in the SNS database for geostationary satellite networks.

For the modification of filings for geostationary satellite networks, if any of the GIMS diagrams are modified vis-à-vis diagrams published previously, it is necessary to indicate that the diagrams are modified in SpaceCap (the concerned new fields are s_beam.f_co_change, s_beam.f_aggso_change and grp.sa_change).

For non-geostationary satellite networks, however, attachment numbers continue to be required since the diagrams are not provided in a GIMS mdb file.

5. Non-geostationary satellite network filings

As described in the Director's report to WRC-15, and as endorsed by WRC-15, for non-geostationary satellite networks with multiple sets of orbital parameters the Bureau asks for clarification from the notifying administration as to whether frequency assignments will be operated simultaneously with the different sets of orbital parameters. For this purpose, administrations submitting coordination requests or the notification of non-geostationary satellite networks containing more than one orbital plane should provide an indication as to whether the frequency assignments will be operated simultaneously with the different sets of orbital parameters, and enter the attachment number in the field labelled "BR43 Description on whether all satellites in the satellite network will be operational at the same time" in the "station" tab in SpaceCap.

6. Treatment of the 21.4-22 GHz portion of a request for coordination

Following Circular Letter CR/336, in order to deal with the possibility of submissions for the special procedure under Resolution 553, the Bureau has been removing the 21.4-22 GHz portion of a request for coordination and treating it in a separate notice with the satellite name appended with "_1". This has resulted in some confusion, with one part of the satellite network having one name and the other part having another name, even though both are submitted on the same date and are examined under the same procedure. The ITU Council also decided that this separated part of the network shall not incur a separate cost recovery charge in addition to that charged for the rest of the notice.

The Bureau is pleased to inform administrations that the practice of separating the 21.4-22 GHz portion into a separate notice will cease for all coordination requests received after 1 January 2017; in other words the request for coordination will be treated and published in its entirety in a CR/C special section.

In this regard, in order to facilitate the submission of modifications to requests for coordination as well as notification notices, for all requests for coordination submitted since 2012 for which the 21.4-22 GHz portion was published separately from the main notice, the Bureau will merge the data for the 21.4-22 GHz portion with the data for the main notice in the SRS database as from BR IFIC 2836/10.01.2017. In this way, any administration wishing to modify a satellite network

including the 21.4-22 GHz band will simply need to use the main notice in the SRS database to prepare the modification for submission to the Bureau.

However, for a request for coordination in which the special procedure under Resolution 553 has been requested, it will still be treated independently and will be published in a CR/F special section.

7. Co-polar antenna pattern for an associated earth station

In the past when the measured co-polar radiation pattern of the antenna or the co-polar reference radiation pattern (C.10.d.5.a) of an associated earth station was submitted in graphical format, it was published as an attachment to a satellite network filing. In such a case, when the frequency assignment is examined with a view to determining coordination requirements or identifying the potential for harmful interference under No. **11.32A**, the absence of mathematical representation of the antenna pattern leads to the default antenna pattern of RR Appendix 8, Annex III, being used instead.

In order to avoid such situations, whenever an antenna pattern is submitted in graphical format, the Bureau is now requesting administrations to submit antenna patterns that are either taken from the standard antenna pattern library or in the form of gain pattern equations that can be incorporated into the Bureau's examination software.

For more information on the antenna pattern library (APL), please consult the Bureau's webpage: <http://www.itu.int/en/ITU-R/software/Pages/ant-pattern.aspx>

8. GIMS software: capture of graphical information

It is now possible to capture gain contour and other diagrams in GIMS using the mouse as the input device, without the need for a digitizer. More information including training videos on this new feature is available at http://www.itu.int/en/ITU-R/software/Pages/gims_tutorial.aspx.

9. Decimal places for certain fields for space Plans

For the following fields relating to power: `emiss.pep_max`, `emiss.pwr_ds_max`, `emiss.pwr_ds_nbw` and `emiss.pwr_ds_nbc`, the number of decimal places applicable has been increased from 1 to 2 for all notices submitted under Articles 4 and 5 of AP30/30A and under Articles 6 and 8 of AP30B, in order to be in line with the number of decimal places taken into account in the criteria for determining affected assignments or allotments. For satellite networks submitted under Articles 9 and 11, these fields continue to require precision to one decimal place in view of the precision of the criteria and limits for non-Plan services.

In the technical and regulatory examinations carried out by the Bureau, the calculation tolerances are generally considered to an additional decimal place compared with the input values and hard limits against which they are measured. However, no calculation tolerance is applied when the calculated values are compared with trigger thresholds and calculated criteria or limits.