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| **Council 2018Geneva, 17-27 April 2018** |  |
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| **Agenda item: ADM 1** | **Document C18/36-E** |
| **1 February 2018** |
| **Original: English** |
| Report by the Secretary-General |
| Study on the technical issues arising in connection with processing of complex non-geostationary satellite (non-GSO) network filing systems |

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| SummaryThis report contains: – the main conclusions of the study carried out by the Radiocommunication Bureau on the technical issues arising in connection with processing of complex non-geostationary satellite (non-GSO) systems; – an analysis of the main technical and regulatory issues associated with the proposal of splitting non-GSO filings containing non-homogeneous satellite orbits; and– a proposal for revising Decision 482 (modified 2017) based on three possible, non-mutually exclusive, procedures for improving the cost recovery scheme of non-GSO satellite systems.As requested by the Council, this document only addresses the case of non-geostationary satellite systems.Action requiredThe Council is invited to **review** the results of the study by the Radiocommunication Bureau and **consider the possible revision** ofDecision 482 (modified 2017) accordingly.\_\_\_\_\_\_\_\_\_\_\_\_References*Council* [*Decision 482 (modified 2017)*](https://www.itu.int/md/S17-CL-C-0135/en) |

**1. Background**

As noted in Revision 2 to [Document C17/79](https://www.itu.int/md/S17-CL-C-0079/en), since November 2014, the Bureau has received requests for coordination for non-geostationary satellite systems operating in the fixed-satellite service consisting of tens of thousands (from 70 000 to more than 230 000) of satellites in more than 1 000 orbit planes, as opposed to maximum values around 840 satellites when Decision 482 was initially agreed. According to Decision 482 (modified 2017), processing fees are calculated on the basis of the number of cost-recovery units and, in cases where the number of units exceeds 100, a flat fee is charged. For some of the abovementioned non-geostationary satellite networks, the number of units reaches up to 254 000 units.

The current structure of Decision 482 was essentially decided by Council 2005, on the basis of [Document C05/29](https://www.itu.int/md/S05-CL-C-0029/en) on cost recovery for the processing of satellite network filings that is referenced in the Decision (see *considering* *ebis*). According to this document, the introduction of a ceiling in the amount that can be invoiced for satellite cost recovery was mainly based on the fact that, in absence of a ceiling, “some specific satellite network filings would continue to give rise to large number of units, resulting in invoices of very important amount that administrations would keep on not paying; the increase of overdue payments and unpaid invoices result in shortfall of treasury for the Union to be covered by other sources of funding such as assessed contributions”.

However, at the time of Council 2005, available statistics for non-geostationary satellite systems were limited (31 filings with an average of 45 units per filing, the maximum number of units for a single filing being 576) therefore the flat fee above 100 units was understood as an average between satellite systems of similar complexity and was adopted based on the value chosen for geostationary satellite networks. Prior to the period 2013-2014, this assumption proved to be remarkably valid (in the period 2005-2012, there were 46 filings with an average of 53 units per filing, the maximum number of units for a single filing being 639). Council 2015 never envisioned the sharp increase in units occurring since 2013. Moreover, the extremely low ceiling on the processing fees encourages the unlimited creation of multiple system configurations. This raises the question whether, for non-geostationary satellite systems, Decision 482 (modified 2017) still meets the criteria which prompted its adoption, namely the need to combat paper filings and to transfer the cost of processing satellite filings to notifying administrations.

At its 2017 session, the Council instructed the Radiocommunication Bureau to submit a study on the technical issues arising in connection with processing of complex non-geostationary satellite (non-GSO) systems. In particular, it was requested to study whether there is a possibility for the individual non-GSO filings (API/coordination/notification) containing non-homogeneous satellite orbits with differing altitudes and inclinations, and/or different constellation configurations, to be separated into filings containing each individual constellation or individual types of satellite orbit, for the purposes of processing by the Bureau.

In response to the Council 2017 request, the Radiocommunication Bureau submitted a study, summarized in **Annex 1**, to the Radio Regulations Board (see Addendum 8 to [Document RRB17-3](https://www.itu.int/md/R17-RRB17.3-C-0002/en)) and to ITU-R Working Parties 4A (see [Document 4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en)), 4B (see [Document 4B/88](https://www.itu.int/md/R15-WP4B-C-0088/en)), 4C (see [Document 4C/256](https://www.itu.int/md/R15-WP4C-C-0256/en)), 7B (see [Document 7B/188](https://www.itu.int/md/R15-WP7B-C-0188/en)) and 7C (see [Document 7C/176](https://www.itu.int/md/R15-WP7C-C-0176/en)) for their consideration and comments. **Annex 2** answers to the specific request from the Council to analyse the technical and regulatory issues associated with the proposal of splitting non-GSO filings containing non-homogeneous satellite orbits. WRC-03 and WRC-15 already discussed these issues and concluded that it is not advisable to split systems using non-homogeneous satellite orbits. This conclusion however stems from a regulatory analysis, which does not hinder the Council to separately charge each mutually exclusive sub-sets of orbital characteristics from a cost-recovery point of view while keeping the regulatory unity of the filing, as decided by WRC-15.

Taking into account the results of this analysis and the comments expressed by the Radio Regulations Board and ITU-R Working Parties, three possible, non-mutually exclusive procedures for adapting cost recovery of non-GSO satellite systems are formulated in Section 2 below.

**2. Possible procedures for cost recovery of non-GSO satellite systems**

Three possible, non-mutually exclusive procedures for cost recovery of non-GSO satellite systems are proposed. As usual with any evolution of Decision 482, no retroactive application of these procedures is envisaged. **Annex 3** contains proposed modifications to Decision 482 (modified 2017) to implement the three procedures below.

In an addendum to this document, the Radiocommunication Bureau will supplement the description of the three procedures below with examples and statistics as well as feedback on discussions within the Radio Regulations Board and ITU-R Working Parties.

**2.1. Procedure A – Computing separately charges for mutually exclusive configurations and adding them**

As explained in **Annex 2**, in satellite systems where there is a clear indication that the different sub-sets of orbital characteristics would be mutually exclusive, each configuration represents one satellite system and the Bureau is required to examine them in practice as separate satellite systems. Noting the explicit regulatory decision of WRC-15,ProcedureA would maintainthe regulatory integrity of the filing but would require that fees for each mutually exclusive configuration are separately computed and then added. This approach maintains consistency with the regulatory decision by WRC-15, is simple, understandable and fully transparent, and does not affect smaller or simpler systems that only have one set of orbital characteristics.

Such a procedure can be implemented by a footnote to the Table contained in the Annex to Decision 482. Because this regulatory possibility is limited to the stage of coordination, the footnote would apply only to categories C1 to C3 (see Annex 3 for a proposal of such footnote).

**2.2. Procedure B – Limiting the flat fee to a maximum number of units**

As mentioned in section 1, at the time of Council 2005, available statistics for non-GSO satellite systems were limited and the flat fee above 100 units was understood as an average between satellite systems of similar complexity. However, Council 2005 never envisioned that there could be filings with up to 254 000 units. On this basis, Procedure B would limit the flat fee to a maximum number of units (e.g. 1000 if the pre-2013/2014 period is chosen as reference). Beyond this maximum number, any supplementary unit would be charged at a value equal to the flat fee divided by the maximum number of unit (e.g. 1000). Annex 3 proposes a footnote to implement such a procedure that would be applicable to categories C1 to C3 and N1 to N3.

**2.3. Procedure C – Introducing an additional fee for cases subject to Article 22 epfd limits**

At Council 2005, cost-recovery discussions were mainly related to geostationary satellite networks. Moreover, even if epfd limits were adopted in 2000, no epfd validation software was available. Consequently, no statistics of costs related to epfd examination were available and hence considered when establishing the various values contained in Decision 482. Now that an epfd validation software is available and that epfd examinations have started, the Bureau will be in a position to compute statistics of processing time of epfd examinations. However, to produce such statistics, additional examinations need to be completed in order to have a representative set of data. Nevertheless, if the processing time of epfd examinations is confirmed by such statistics as not strongly correlated with the number of units (see sections 2.8 and 3 of [Document 4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en) for an explanation of the reason why such a situation is likely to occur), a footnote applicable to categories C1, C2, C3, N1, N2, N3 and N4 could introduce a flat fee in cases where epfd examinations have to be performed (see Annex 3 for a proposal of such footnote).

Annex 1

Main findings of the initial study by the Radiocommunication Bureau

1. While the validation of data and examination of coordination requests of non-GSO satellite networks involves processes similar to GSO satellite networks, additional data items specific to non-GSO satellite networks are required in Appendix 4 of the Radio Regulations: orbital parameters, orientation angles of space station beam, satellite antenna gain and spreading loss as a function of elevation angle, maximum and average beam peak eirp, use of station-keeping to maintain a repeating ground track, time that it takes for the constellation to return to its starting position, specific precession rate, pfd/e.i.r.p. masks, information on the exclusion zone, etc. Along with these additional data requirements, notifying administrations often submit notes containing descriptions, clarifications and precisions, which the Bureau has to analyse, examine and translate for the publication in the special sections. This has an implication on the time required for the treatment for completeness of non-GSO satellite systems.

2. Cost recovery units per notice have increased: prior to the 2013-2014 period, requests for coordination for non-GSO satellite networks had an average number of cost recovery units of less than 100. Since this period, the average number of cost recovery units of requests for coordination for such networks increased to more than 12 000 units, with one CR/C published with 254,000 units. The variable part of the cost recovery fee is capped to 100 units according to Council Decision 482.

3. The overall size of the non-GSO satellite systems has increased: since 2013, satellite systems consisting of tens of thousands of satellites (from 70 000 to more than 230 000 satellites) have been published in CR/C special sections. APIs for non-GSO satellite networks using frequency bands that are not subject to coordination and containing thousands of satellites have also been received.

4. The number of different orbital altitudes within the filing affects the number of pfd examinations to be performed: if a non-GSO satellite network has more than one altitude within its constellation, then pfd calculations need to be performed for each of the different altitudes. If there is pfd excess and an unfavourable finding is to be given, the beam would need to be firstly split in order to correctly represent the relationship between orbits and beams, followed by splitting on a group level in order to give findings to the frequency assignment accordingly. Furthermore, some of the larger non-GSO satellite networks received had an unprecedented scale of complexity in terms of varying altitude and beam configurations which went beyond the capacity of the database tables and had to be treated manually using other means, especially concerning modifications to coordination requests of non-GSO satellite networks. Prior to the 2013-2014 period, the number of different altitudes in a request for coordination for a non-GSO satellite network was 1, after that period, there are several non-GSO satellite networks that have multiple (up to 7) different altitudes.

5. The number of different orbit inclinations within the filing has also increased: in the period prior to 2013-2014, the number of unique inclination angles for a non-GSO satellite network was, on average, one. However, following this period, the number of unique inclination angles received went up to 20 for some non-GSO satellite networks. In order to identify the list of administrations for coordination and agreement seeking under Nos. 9.14 or 9.21/C, the visibility of the non-GSO satellite network in respect of terrestrial services has to be determined. This factor depends on the combination of inclination angle and the altitude of the non-GSO satellites. Hence, the increased number of unique inclination angles in combination with altitude contributed to the increased complexity in examination of non-GSO satellite networks.

6. Coordination requests for non-GSO satellite networks may contain more than one mutually exclusive configuration, i.e. set of orbital characteristics. The configuration that would finally be put into operation will be determined at the notification stage at the latest. This provides the notifying administration with the flexibility to coordinate the frequency assignments using different orbital configurations, while notifying and bringing into use only one configuration. However, this requires the Bureau to examine them in practice as separate satellite systems, especially in terms of epfd examination. Prior to the 2013/2014 period, all non-GSO satellite networks submitted to the Bureau contained only one configuration. Since then, Bureau has received non-GSO satellite networks with up to 10 mutually exclusive configurations. Even if WRC-15 endorsed the suggestion of the BR Director to limit the extent of acceptable flexibility for a request for coordination of a non-GSO satellite system only to either those where all frequency assignments are to be operated simultaneously or to those where there is a clear indication that the different sub-sets of orbital characteristics would be mutually exclusive (see §§ 1.39 to 1.42 of Document CMR15/505 – Minutes of the eighth plenary meeting), this endorsement was made from a regulatory point of view, noting that the Council is the only competent body to assess the financial consequences in terms of cost-recovery.

7. Equivalent power flux-density (epfd) examinations are specific to non-GSO satellite systems operating in the fixed-satellite service in certain frequency bands where provisions Nos. 22.5C, 22.5D, 22.5F, 9.7A or 9.7B apply. With the examination software recently made available to it, the Bureau has initiated the regulatory epfd examination. Beside running the software examination itself, the overall process involves several associated tasks: data completeness examination, XML mask validation, SNS Data Validation, epfd validation scenario preparation, result processing, additional workload relating to the examination of the cases requiring longer run-time, publication of epfd results, assistance to administrations, maintenance and technical support of epfd validation software, creation, maintenance and technical support of computer-aided tools. Factors affecting processing time for epfd examination include the total number of different scenarios, the number of applicable limits, the number of satellites used in each scenario and whether No. 9.7B applies or not.

8. To establish coordination requirements under No. 9.7B, the epfd validation software has to calculate epfd values for more than 40 very large earth stations. Since these earth stations have very large antennas (more than 10 meters in diameter) with antenna beam width of less than 0.2 degrees, the epfd algorithm requires a large amount of time steps in the calculations to make sure that in-line events are obtained. For large constellations, this requires a very significant time to complete, even longer than Article 22 calculations. No. 9.7A similarly requires calculation versus all existing non-GSO satellite networks.

9. The study concluded by presenting a possible cost recovery scheme for non-GSO satellite systems, which was based on the various elements that may impact the processing time of a submission. This scheme was based on a new calculation mechanism for the units and new categories of submissions in Decision 482.

Annex 2

Issues associated with splitting non-GSO filings
containing non-homogeneous satellite orbits

1. Council 2017 requested to study in particular whether there is a possibility for the individual non-GSO filings (API/coordination/notification) containing non-homogeneous satellite orbits with differing altitudes and inclinations, and/or different constellation configurations, to be separated into filings containing each individual constellation or individual types of satellite orbit, for the purposes of processing by the Bureau.

2. Care should be exercised when analysing this possibility because “international rights and obligations of administrations in respect of their own and other administrations’ frequency assignments shall be derived from the recording of those assignments in the Master International Frequency Register (…)”. (see No. **8.1** of the Radio Regulations). Moreover, No. **8.1.1** explains that the expression “frequency assignment” shall be associated with § A.4 of Annex 2 to Appendix **4** (“Orbital Information”) wherever this expression relates to a geostationary or non-geostationary space station.

As mentioned in Annex 1, WRC-15 endorsed the suggestion of the BR Director to limit the extent of acceptable flexibility for a request for coordination of a non-GSO satellite system only to either those where all frequency assignments are to be operated simultaneously or to those where there is a clear indication that the different sub-sets of orbital characteristics would be mutually exclusive. Therefore individual non-GSO satellite systems containing non-homogeneous satellite orbits with differing altitudes and inclinations, and/or different constellation configurations could be considered under two categories:

– Systems using non-homogeneous satellite orbits where all frequency assignments are to be operated simultaneously: in accordance with No. **8.1** of the Radio Regulations, frequency assignments to such systems should not be split because they reflect the actual operations of the planned systems. Moreover, depending on the characteristics of the system, splitting it could introduce additional difficulties if inter-satellite links are implemented to communicate within the system between different types of orbits. Finally, for such systems subject to epfd limits in Article **22**, such split would raise the issue of a possible misapplication of single-entry epfd limits. This issue was on the agenda of WRC-03 as agenda item 1.19: “to consider regulatory provisions to avoid misapplication of the non-GSO FSS single-entry limits in Article 22 based on the results of ITU-R studies carried out in accordance with Resolution 135 (WRC-2000)”. This Resolution resolved “that misapplication of the single-entry limits in Article 22, either by artificial splitting or by combining of non-GSO systems, shall not be permitted.” Moreover, Annex 1 to Resolution 135 (WRC-2000) contained a process to be followed by the Radiocommunication Bureau in developing and implementing procedures to avoid misapplication of non-GSO FSS single-entry limits in Article 22. Section 3.1 of Chapter 3 of the CPM report on WRC-03 agenda item 1.19 explains that “the only reason for misapplication of these single entry epfd limits by artificially splitting or combining non-GSO FSS systems, will be to lower the epfd levels and therefore to get a favourable finding status as a result of this regulatory examination.” The CPM report therefore concluded that the “problem raised by Resolution **135 (WRC-2000)** is not new or specific to certain non-GSO FSS systems. No difficulties have been experienced so far with similar limits, which could be similarly misapplied. The current Radio Regulations are adequate. No further studies are required therefore insofar as “invite ITU-R” section of Resolution **135 (WRC-2000)** is concerned the Resolution may be suppressed.” Noting the conclusions of the ITU-R studies and based on the proposals submitted by Administrations, WRC-03 decided to entirely suppress Resolution **135 (WRC-2000)**. It is however important to note that ITU-R did not conclude that the *resolves* part of the Resolution was inappropriate. **It is therefore not advisable to split systems using non-homogeneous satellite orbits where all frequency assignments are to be operated simultaneously, especially when they contain frequency assignments subject to epfd limits set forth in Article 22 of the Radio Regulations, in order to avoid to purposefully create situations that were feared and prohibited at the time of adoption of the epfd limits.**

– Systems where there is a clear indication that the different sub-sets of orbital characteristics would be mutually exclusive: such situation will only occur at coordination stage (it may not appear at API stage because no detailed regulatory examination is performed at this stage) since there is a requirement to choose only one configuration at notification stage. In effect, each configuration represents one satellite system and should correspond to one separate satellite filing, which tends to advocate for the possibility to split these systems according to their submitted configurations, but WRC-15 added a regulatory nuance that may prove particularly useful during the complex and likely challenging coordination process of these large non-GSO satellite systems: mutually exclusive configurations provide an additional information to other administrations involved in the coordination process because they know that only one configuration will be possibly brought into use. **Noting the explicit decision of WRC-15, it is not advisable to split systems using non-homogeneous satellite orbits where there is a clear indication that the different sub-sets of orbital characteristics would be mutually exclusive. However, this conclusion stems from a regulatory analysis, which does not hinder the Council to separately charge each mutually exclusive configurations from a cost-recovery point of view while keeping the regulatory unity of the filing, as decided by WRC-15.**

Annex 3

Proposed revision of Decision 482

DECISION 482 (modified 2018)

Implementation of cost recovery for satellite network filings

The Council,

considering

*a)* Resolution 88 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference on the implementation of cost recovery for satellite network filings;

*b)* Resolution 91 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference on cost recovery for some products and services of ITU;

*c)* Council Resolution 1113, on cost recovery for the processing by the Radiocommunication Bureau of space notifications;

*d)* Document [C99/68](http://www.itu.int/itudoc/gs/council/c99/docs/docs1/068.html) reporting on the Council Working Group on implementation of cost recovery for satellite network filings;

*e)* Document [C99/47](http://www.itu.int/itudoc/gs/council/c99/docs/docs1/047.html) on cost recovery for some ITU products and services;

*ebis)* Document [C05/29](http://www.itu.int/md/S05-CL-C-0029/en) on cost recovery for the processing of satellite network filings;

*f)* that WRC-03 and WRC-07 adopted provisions referring to Council Decision 482, as amended, under which a satellite network filing is cancelled if payment is not received in accordance with the provisions of this decision;

*g)* that WRC-07 significantly revised the regulatory procedures associated to the fixed-satellite service Plan contained in Appendix 30B that entered into force as of 17 November 2007;

*h)* that the date of entry into force of Decision 482 (modified 2005) was 1 January  2006,

recognizing

the practical experience of the Radiocommunication Bureau in implementing cost-recovery filing charges and the methodology as reported to the Council at its 2001 to 2007 sessions in accordance with Decision 482 as revised by the Council,

decides

1 that all satellite network filings concerning advance publication, their associated requests for coordination or agreement (Article 9 of the Radio Regulations (RR), Article 7 of Appendices 30/30A to the RR, Resolution 539 (Rev.WRC-03)), the use of the guardbands (Article 2A to Appendices 30/30A to the RR), requests for modification of the space service plans and lists (Article 4 of Appendices 30 and 30A to the RR), requests for the implementation of the fixed-satellite service plan (former Sections IB and II of Article 6 of Appendix 30B to the RR up to 16 November 2007), and requests for the conversion of an allotment into an assignment with modification which is beyond the envelop characteristics of the initial allotment, the introduction of an additional system, modification of the characteristics of an assignment in the List of Appendix 30B to the RR (Article 6 of Appendix 30B to the RR as from 17 November 2007) shall be subject to cost-recovery charges if, and only if, they have been received by the Radiocommunication Bureau on or after 8 November 1998;

1*bis* that all satellite network filings concerning notification for recording of frequency assignments in the Master International Frequency Register (Article 11 of the RR, Article 5 of Appendices 30/30A to the RR and Article 8 of Appendix 30B to the RR) received by the Radiocommunication Bureau on or after 1 January 2006 shall be subject to cost-recovery charges if, and only if, they refer to advance publication or modification of the space service plans or lists (Part A), requests for the implementation of the fixed-satellite service plan or requests for the conversion of an allotment into an assignment with modification which is beyond the envelop characteristics of the initial allotment, the introduction of an additional system, the modification of the characteristics of an assignment in the List of Appendix 30B to the RR, as appropriate, received on or after 19 October 2002;

1*ter* that all requests for the implementation of the fixed-satellite service plan (former Sections IA and III of Article 6 of Appendix 30B to the RR) shall be subject to cost-recovery charges if, and only if, they have been received by the Radiocommunication Bureau on or after 1 January 2006;

1*quater* that all requests for consolidation of frequency assignments in the MIFR of different GSO networks submitted by an administration (or an administration acting on behalf of a group of named administrations)at the same orbital position into frequency assignments of a single satellite network received by the Radiocommunication Bureau on or after 1 July 2013, shall be subject to cost recovery charges,

2 that for each satellite network[[1]](#footnote-1) filing communicated to the Radiocommunication Bureau, the following charges [[2]](#footnote-2)shall apply:

a) for filings received up to and including 29 June 2001, Decision 482 (C-99) applies; these filings are charged at publication in accordance with the fee schedule in force at the date of publication;

b) for filings received on or after 30 June 2001, but before 1 January 2002, Decision 482 (C-01) applies; these filings are charged at publication with a flat fee in accordance with the fee schedule in force at the date of receipt, and an additional fee (if any) according to the fee schedule in force at the date of publication;

c) for filings received on or after 1 January 2002, but before 4 May 2002, Decision 482 (C-01) applies; the flat fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice, and the additional fee (if any), calculated in accordance with the fee schedule in force at the date of publication, is payable after publication of the notice;

d) for filings received on or after 4 May 2002, but before 31 December 2004, Decision 482 (C-02) applies; the flat fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice, and the additional fee (if any), calculated in accordance with the fee schedule in force at the date of receipt, is payable after publication of the notice;

e) for filings received on or after 31 December 2004 but before 1 January 2006, Decision 482 (C-04) applies; the flat fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice, and the additional fee (if any), calculated in accordance with the fee schedule in force at the date of receipt, is payable after publication of the notice;

f) for filings received on or after 1 January 2006 but before 1 January 2009 except those received under Appendix 30B as from 17 November 2007, Decision 482 (C-05) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice;

g) for filings received on or after 1 January 2009, including those received under Appendix 30B as from 17 November 2007, but before 14 July 2012, Decision 482 (C-08) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice;

h) for filings received on or after 14 July 2012, but before 1 July 2013, Decision 482 (C-12) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice;

i) for filings received on or after 1 July 2013, Decision 482 (C-13) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice;

j) for filings received on or after 1 July 2017, Decision 482 (C-17) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice;

k) for filings received on or after 1 July 2018, Decision 482 (C-18) applies; the fee, calculated in accordance with the fee schedule in force at the date of receipt, is payable after receipt of the notice,

3 that the fee shall be regarded as a charge for a satellite network filing. There will be no charge for modifications which do not result in further technical or regulatory examination by the Radiocommunication Bureau, except modifications under 1*quater* above, including but not limited to the name of the satellite/earth station and its associated satellite name, name of the beam, responsible administration, operating agency, date of bringing into use, period of validity, associated satellite (and beam) or earth station name;

4 that each Member State shall be entitled to the publication of special sections or parts of the BR IFIC (space services) for one satellite network filing each year without the charges referred to above. Each Member State in its role as the notifying administration may determine which network shall benefit from the free entitlement;[[3]](#footnote-3)

5 that the nomination of the free entitlement for the calendar year of receipt by the Bureau of the satellite network filing based on the formal date of receipt of the filing shall be made by the Member State no later than the end of the period for payment of the invoice in *decides* 9 below. The free entitlement cannot be applied to a filing previously cancelled for non-payment;

6 that for any satellite network for which the advance publication information (API) was received prior to 8 November 1998, there will be no cost-recovery charges for the first coordination request referring to that API, regardless of when the Radiocommunication Bureau receives it. Any modifications received on or after 1 January 2006 shall be subject to a charge in accordance with *decides* 2 above;

7 that there will be no cost-recovery charges for any Part A submission involving the application of Article 4 of Appendices 30/30A received by the Bureau prior to 8 November 1998 or Part B submission involving the application of Article 4 of Appendices 30/30A where the associated Part A was received prior to 8 November 1998. Any request for publication in Part A received after 7 November 1998 under §4.3.5 up to 2 June 2000 and then §4.1.3 or §4.2.6 of Appendices 30/30A and corresponding Part B submitted under §4.3.14 up to 2 June 2000 and the §4.1.12 or §4.2.16 of Appendices 30/30A shall be subject to a charge in accordance with *decides* 2 above;

7*bis* that there will be no cost-recovery charges for any submission under §6.17 of Article 6 of Appendix 30B where the associated submission under §6.1 of that Article was received prior to 17 November 2007;

8 that the Annex (Schedule of processing charges) to this decision should be reviewed periodically by the Council;

9 that the payment of charges shall be made on the basis of an invoice issued upon receipt of the filing by the Radiocommunication Bureau and sent to the notifying administration or, at the request of that administration, to the satellite network operator in question within a period of a maximum of six months after issue of the invoice;

10 that any subsequent cancellation received by the Radiocommunication Bureau within 15 days of the date of receipt of the filing shall remove the obligation to pay the fee;

11 that publication of special sections or parts of the BR IFIC (space services) for the amateur-satellite service, the notification for recording of frequency assignments for earth stations, for the conversion of an allotment into an assignment in accordance with the procedure of former Section I of Article 6 of Appendix 30B, the addition of a new allotment to the plan for a new Member State of the Union in accordance with the procedure of Article 7 of Appendix 30B and submissions under resolves 3 and 4 of Resolution 555 (WRC-12) shall be exempt from any charges;

12 that the date of entry into force of Decision 482 (modified 2018) shall be 1 July 2018;

13 that the provisions of this decision need to be revised when further data from time recording are available,

recommends

that should Council[[4]](#footnote-4)\* revise the schedule in the Annex, any credits that may arise should be applied by the Bureau to subsequent invoices as requested by administrations,

encourages Member States

to develop domestic policies that will minimize the occurrence of non-payment and consequential revenue loss to ITU,

instructs the Director of the Radiocommunication Bureau

1 to enhance the Radiocommunication Bureau's electronic notice form software (SpaceCap) in order to enable the calculation of the best estimated charges associated with a satellite network filing of any type prior to its submission to ITU;

2 to submit an annual report to the Council on the implementation of this decision, including analyses of:

a) the cost of the different steps of the procedures;

b) the impact of the electronic submission of information;

c) enhancement in quality of service, including, among others, reduction of the backlog;

d) the costs of validating filings and requesting corrective action thereto; and

e) difficulties encountered in applying the provisions of this decision,

3 to inform the Member States of any practice used by the Radiocommunication Bureau to implement the provisions of this decision and the rationale for that practice.

ANNEX

**Schedule of processing charges to be applied to satellite network filings
received by the Radiocommunication Bureau on or after 1 July 2017**

| **Type** | **Category** | **Flat fee per filing (in CHF)( 100 units, if applicable)e)** | **Start fee per filing (in CHF)(< 100 units)** | **Fee per unit (in CHF)(< 100 units)** | **Cost-recovery unit** |
| --- | --- | --- | --- | --- | --- |
| 1 | Advance publication (A) | A1 | Advance publication of a non-geostationary-satellite network not subject to coordination under Sub-Section **IA** of Article **9**; Advance publication of inter-satellite links of a geostationary-satellite space station communicating with a non-geostationary space station provisionally not subject to coordination in accordance with the Rule of Procedure on No. **11.32**, §6 (MOD RRB04/35).Note: Advance publication also includes the application of No. **9.5** (API/B special section) and will not be separately charged. | 570 | Not applicable |
| 2 | Coordination (C) f) | C1\* | Coordination request for a satellite network in accordance with No. **9.6** along with one or more of Nos.  **9.7**, **9.7A, 9.7B**, **9.11, 9.11A, 9.12, 9.12A, 9.13, 9.14** and **9.21** of Section **II** of Article **9**, §**7.1** of Article **7** of Appendix **30**, §**7.1** of Article **7** of Appendix **30A**, Resolution **33** (Rev. WRC-03) and Resolution **539** (Rev. WRC-03).Note: Coordination also includes the application of, Nos. **9.1A**, **9.53A** (CR/D special section) and **9.41**/**9.42** and will not be separately charged.[Procedure A] Note: For coordination requests of a non-geostationary satellite network where the notifying administration has indicated that the different sub-sets of orbital characteristics would be mutually exclusive, the processing charges are separately computed for each of the sub-sets and thereafter added to produce the processing charge of the satellite network. | 20 560 | 5 560 | 150 | Product of the number of frequency assignments, number of classes of station and the number of emissions, summed up for all frequency assignment groups |
| C2\* | 24 620 | 9 620 |
| C3\* | 33 467 | 18 467 |
| 3 | Notification (N)a), f) | N1\*d) | Notification for recording in the MIFR of frequency assignments to a satellite network subject to coordination under Section **II** of Article **9** (with the exception of non-geostationary-satellite network subject to No. **9.21** only).Note: Notification also includes the application of Resolutions **4** and **49**, Nos. **11.32A** (see footnote a), **11.41**, **11.47**, **11.49**, Sub‑section IID of Article **9**, Sections 1 and 2 of Article **13**, Article **14** and will not be separately charged.  | 30 910 | 15 910 |
| 57 920 | 42 920 |
| N2\* |
| 57 920 | 42 920 |
| N3\* |
|  |  | N4 | Notification for recording in the MIFR of frequency assignments to a non-geostationary-satellite network not subject to coordination under Section **II** of Article **9,** or subject to No. **9.21** only. | 7 030 | Not applicable |
| 4 | Plans (P) | P1 | Part A Special Section for a proposed new or modified assignment in the Regions 1 and 3 List or feeder-link Lists of additional uses under §**4.1.5** or proposed modification to the Region 2 Plans under §**4.2.8** of Appendices **30** or **30A**; or Part B Special Section for a proposed new or modified assignment in the Regions 1 and 3 List or feeder-link Lists of additional uses under §**4.1.15** (except Part B special section related to the application of Resolution **548** (WRC-03)) or proposed modification to the Region 2 Plans under **4.2.19** of Appendices **30** or **30A**b). | 28 870 | Not applicable |
| P2d) | Notification for recording in the MIFR of frequency assignments to space stations in the broadcasting-satellite service and its associated feeder-link in Regions 1 and 3 or Region 2 under Article **5** of Appendices **30** or **30A**b). | 11 550 |
| P3 | Coordination request in accordance with Article **2A** of Appendices **30** and **30A**. | 12 000 |
| P4 | Request for the conversion of an allotment into an assignment with modification which is beyond the envelop characteristics of the initial allotment, or for the introduction of an additional system, or for the modification of an assignment in the List in accordance with §6.1 of Article 6 of Appendix **30B**; or request for inclusion of assignments into the List for converted allotment with modification which is beyond the envelop characteristics of the initial allotment, or for an additional system or for modified assignments in the List in accordance with §6.17 of Article 6 of Appendix **30B**c). | 25 350 |
| P5d) | Notification for recording in the MIFR of frequency assignments to space stations in the fixed satellite service under Article **8** of Appendix **30B**. | 20 280 |

a) Fees for Categories N1, N2 and N3 are applicable to the first notification of assignments that also contains a request to apply No. **11.32A**. If the application of No. **11.32A** is not requested, 70% of the indicated fees will apply, with the remaining 30% to be charged to a subsequent request, if any, for application of No. **11.32A**.

b) Under this category, taking account that a filing for the broadcasting-satellite service and its associated feeder link in Region 2 includes both the downlink (AP30) and the feeder link (AP30A), which are examined and published together, the total fee application to such filing shall be twice the fee indicated in the column “Flat fee per filing”.

c) Fees for a request in accordance with §6.17 of Article 6 of Appendix **30B**also contains a possible subsequent request (resubmission) in accordance with §6.25. A request in accordance with §6.17 of Article 6 of Appendix **30B** for a submission treated as that under §6.1 in accordance with §7.7 of Article 7 shall not be charged.

d) For cases of consolidation of frequency assignments in the MIFR of different GSO networks submitted by an administration (or an administration acting on behalf of a group of named administrations) under Article 11 of the Radio Regulations, category N1 shall apply, for cases submitted under Appendices 30 or 30A, category P2 shall apply, and for cases submitted under Appendix 30B, category P5 shall apply.

e) [Procedure B] For non-geostationary satellite networks, the flat fee for categories C1, C2, C3, N1, N2 and N3 is applicable from 100 units to [1000] units. Above [1000] units, the fee per additional unit is equal to the flat fee divided by [1000].

f) [Procedure C] For non-geostationary satellite networks subject to Nos. **22.5C, 22.5D, 22.5F** of Article 22 or to No. **9.7B** of Section II of Article 9, the processing charges of categories C1, C2, C3, N1, N2, N3 and N4 are increased by [y] CHF.

**\* Definition of category for coordination (C) and notification (N)**

The category for coordination (C1, C2, C3) and for notification (N1, N2, N3) is related to the number of forms of coordination applicable to a particular satellite network coordination request or notification submission, as follows:

• C1 and N1 correspond to a satellite network filing referring to only one cost-recovery form of coordination (A, B, C, D, E or F). Both categories also include cases for which no form of coordination applies as a result of unfavourable finding under No. 11.31 of the Radio Regulations for all frequency assignments of the submitted filing, or cases including frequency assignments published for information only.

• C2 and N2 correspond to a satellite network filing referring to any two or three cost‑recovery forms of coordination amongst A, B, C, D, E or F.

• C3 and N3 correspond to a satellite network filing referring to any four or more cost‑recovery forms of coordination amongst A, B, C, D, E or F.

|  |  |
| --- | --- |
| **Cost-recovery form of coordination** | **Individual Radio Regulations forms of coordination** |
| A | No. 9.7, RS33.3 |
| B | AP30 7.1, AP30A 7.1 |
| C | No. 9.11, RS33 2.1, RS539 |
| D | Nos. 9.7B, 9.11A, 9.12, 9.12A, 9.13, 9.14 |
| E | No. 9.7A[[5]](#footnote-5) |
| F | No. 9.21 |

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1. In this decision, the term “satellite network” refers to any space system in accordance with No. 1.110 of the Radio Regulations. [↑](#footnote-ref-1)
2. The fee per “unit” (see Annex) shall not be understood as a tax imposed on spectrum users. It is used here as a driver for the calculation of cost recovery relating to publication of satellite systems. [↑](#footnote-ref-2)
3. A submission of filings under Article 4 of Appendix 30 and Appendix 30A in the Regions 1 and 3 Plans, referring to a single orbital position with the same satellite name and received on the same date shall be considered as one “satellite network” filing for the purpose of free entitlement. [↑](#footnote-ref-3)
4. \* *Editorial amendment made by the secretariat* [↑](#footnote-ref-4)
5. Cost recovery for category C1 only. See also *decides* 11. [↑](#footnote-ref-5)