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| **Council 2018 Geneva, 17-27 April 2018** |  |
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| **Agenda item: ADM 1** | **Addendum 1 to Document C18/36-E** |
| **8 March 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 | |

As mentioned in section 2 of Document C18/36, the Radiocommunication Bureau supplements the description of the three procedures with examples and statistics as well as feedback on discussions within the Radio Regulations Board and ITU-R Working Parties.

Annexes: 2

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| **Radiocommunication Study Groups** |  |
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| Source: Documents 4A/TEMP/252 | **Annex 53 to Document 4A/675-E** |
| **8 March 2018** |
| **English only** |
| Annex 53 to Working Party 4A Chairman’s Report | |
| Note to the Director, Radiocommunication Bureau | |
| Cost recovery for non-GSO satellite systems | |

WP 4A thanks the Director of the Radiocommunication Bureau for bringing the subject of Cost Recovery for non-geostationary (non-GSO) satellite systems to the attention of Working Party 4A (WP 4A) in Documents [4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en) and [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en). The documents analyze various factors identified by the Radiocommunication Bureau that impact the processing time for non-GSO satellite systems, summarize comments from Working Parties and the Radio Regulations Board on this subject, provide relevant information from previous WRC and ITU Council discussions, and propose possible procedures to amend the Cost Recovery fee schedule for these systems, noting that decisions on Cost Recovery are the responsibility of the ITU Council.

In Document [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en), the Bureau proposes three possible procedures (A, B, and C) to amend the Cost Recovery fee schedule of non-GSO satellite systems. The procedures are independent and not mutually exclusive in that any one, two, or all three procedures could be implemented, no doubt with necessary amendments.

WP 4A believes there is merit to the Bureau’s proposed Procedure A (§ 6.1 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)) in that it maintains the regulatory integrity of the filing while allowing —in consultation with the notifying administration on the mutually exclusive configurations— a potentially more accurate Cost Recovery computation. WP 4A considers that at this stage Procedure A seems to have benefits that could be considered by ITU Council 2018.

The Bureau’s proposed Procedure B (§ 6.2 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)) increases the Cost Recovery fee of filings with more than a to-be-determined number of units (‘breakpoint’) by charging a supplemental fee for each unit more than the breakpoint. Under this proposal, the proposed Cost Recovery fee will increase with the number of units and is not bounded. WP 4A believes this proposal needs to be studied further but asks that the Bureau consider an upper bound on the Cost Recovery fee for filings having more than the breakpoint number of units.

With respect to the Bureau’s proposed Procedure C (§ 6.3 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)), WP 4A is of the view that before Council considers a decision on this topic more statistical information is required to be provided to Council by the BR. WP 4A is concerned that an ITU Council 2018 decision regarding Procedure C would appear to be premature at this point in time.

With respect to the Bureau’s proposed Procedures B and C, WP 4A believes it would be very helpful for the Bureau to provide ITU Council with as much data as possible so that ITU Council can make a decision on Cost Recovery. To that end, it may be useful to establish at ITU Council 2018 an ITU Council expert group that would include expert representatives from ITU-R membership to consider this issue as an urgent matter and report the results of their considerations to Council at an agreed time. The Annex to this Note provides further details of WP 4A’s views on Cost Recovery and the Bureau’s proposed procedures.

WP 4A requests that the Director transmit this Note together with its associated Annex to Council in its entirety.

**Annex:** 1

ANNEX

# 1 Introduction

WP 4A is of the view that the establishment of Cost Recovery charges applicable to non-GSO systems should be transparent and that such charges should ensure a fair and appropriate sharing of associated processing costs for various types of satellite networks. In particular, WP 4A believes it would be useful to have specific, quantitative documentation of how complex filings relate to increased costs to process filings. WP 4A would also like to emphasize that such overall costs should consider, *inter alia*, the actual time spent by ITU staff on processing filings.

WP 4A recognizes that the current methodology to calculate the fees is being reviewed to assess the impact of recently submitted non-GSO systems on the ITU assessment process. The complexity of those systems increases with the evolution of technological and computational means to design and optimize constellations. Consequently, a review of the cost recovery calculation should be performed taking into account up-to-date non-GSO submissions. A particular focus of the review is the possibility for the individual non‑GSO satellite system filings (Advance Publication, API/A / Coordination Request, CR/C / 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 determining Cost Recovery charges and processing by the Bureau.

Given that decisions on Cost Recovery are the responsibility of the ITU Council, WP 4A believes it would be very helpful for the Bureau to provide Council with as much data as possible so that Council can better understand and analyze the data. To that end, it may be useful to establish at ITU Council 2018 an ITU Council expert group that would include expert representatives from ITU-R membership to consider this issue as an urgent matter and report the results of their considerations to Council at an agreed time.

# 2 Discussion

WP 4A notes that ITU Council 2017 instructed the Bureau to prepare, by 31 January 2018, a study of Cost Recovery issues, in consultation with relevant Member States, Sector Members, ITU-R Study Groups, the Radio Regulations Board and expert stakeholders. WP 4A thanks the Bureau for developing the study in consultation with the various groups. However, WP 4A believes that the timelines have made it difficult for WP 4A participants to comprehensively examine the study, and consequently there is concern that ITU Council 2018 may modify Decision 482 without comprehensive examinations.

WP 4A would appreciate the following additional information to better understand the relationship between the increasing delay in processing times and the complexity of non-GSO filings.

– Additional explanation on the process carried out for the treatment of different stages of non-GSO submissions (API/A, CR/C, and Notification). For instance, section 2 of Document [4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en) presents these stages for the validation of data and examination of coordination requests provided. This kind of information is useful for the different stages of non-GSO submissions.

– Explanation on how the process described in the previous bullet is carried out for different examples of non-GSO systems and the degree of automation currently reached.

– Regarding the different processes considered above, a Table could be inserted to show sensitivity of each of these processes to the different parameters in sections 2.4 to 2.7 of Document [4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en). It would be useful to better understand how the complexity of analysis is a function of the filing stage (e.g., API/A, CR/C, Part I-S, etc.) and various filed parameters (e.g., number of orbital planes, number of altitudes, number of inclinations, number of satellites, etc*.*). For instance, if the process is the verification of RR Article **21** limits, it would be useful to show how many additional operations for verification are needed according to the number of different heights, of different inclination orbits, etc.

– In complement to Figure 1 from Document [4A/408](https://www.itu.int/md/R15-WP4A-C-0408/en), it would be relevant to have the number of filings received by the BR during the same time period. The reason is to analyse whether the delay dealt with in section 2.1 is due to the complexity of the non-GSO filings and not to an increased number of filings received.

– It is recognized that the number of filings for non-GSO networks has recently flourished to address important new services and that the complexities may require a short-term investment by the BR to adapt their work flow to better process the network filings. If the BR has information on the above, it would be useful to include it in its response.

– The standardization of the information required under RR Appendix **4** is essential to the efficient treatment of the submissions. The BR reported that many administrations provide additional information (last paragraph in section 2.2) which is labour intensive to process; it needs to be determined whether this data can be submitted to the BR in standard electronic form. One possible way to reach this standardization would be to ask the BR to report on efficiencies that would minimize their effort by introducing new RR Appendix **4** items to capture additional data typically provided by administrations. This leads to reducing the complexity of those submissions and making their evaluation more efficient and streamlined.

WP 4A understands and agrees with the principle that it is proposed not to make any change to the current Cost Recovery charges for API/As of non-GSO satellite systems not subject to coordination. WP 4A further understands this to mean that there will also be no change to the Cost Recovery charges for Notifications associated with API/As of non-GSO satellite systems not subject to coordination.

WP 4A notes its concern that the impact to the Cost Recovery of non-GSO satellite systems arising from its work on WRC-19 agenda item 7, Issue A, concerning the Bringing Into Use of non-GSO satellite systems. However, this is not related to processing of API, CR/C and notification filings and such impacts could be identified after WRC-19 takes a decision on this Issue. As such, WP 4A believes that additional study, if any, could be required after decisions on agenda item 7, Issue A, by WRC-19. At the same time, WP 4A noted that Resolution **49 (Rev.WRC-15)**, Resolution **40 (WRC-15)**, and Resolution **552 (WRC-15)** dealing with the Bringing Into Use of GSO satellite networks do not affect the Cost Recovery charges for non-GSO satellite systems.

WP 4A believes there is merit to the Bureau’s proposed Procedure A (§ 6.1 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)) in that it maintains the regulatory integrity of the filing while allowing —in consultation with the notifying administration on the mutually exclusive configurations— a potentially more accurate Cost Recovery computation. WP 4A considers that at this stage Procedure A seems to have benefits that could be considered by ITU Council 2018.

The Bureau’s proposed Procedure B (§ 6.2 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)) increases the Cost Recovery fee of filings with more than a to-be-determined number of units (‘breakpoint’) by charging a supplemental fee for each unit more than the breakpoint. Under this proposal, the proposed Cost Recovery fee will not change for filings with fewer units than the breakpoint. For filings of 1 to 100 units, the Cost Recovery fee will be the start fee plus the number of units multiplied by the fee per unit. For filings with more than 101 units, but less than the breakpoint, the Cost Recovery fee will be the flat fee. Filings with more units than the breakpoint will be charged the flat fee plus a supplemental fee for each unit more than the breakpoint. Under this proposal, the proposed Cost Recovery fee will increase with the number of units and there is no upper bound. WP 4A believes this proposal needs to be studied further but asks that the Bureau consider a new mechanism to limit the Cost Recovery fee as the number of units becomes very large. This new mechanism should take into account the actual time spent by Bureau staff on processing filings. WP 4A notes the usefulness of the existing flat fee, while recognizing filings with a large number of units pay the flat fee. The Bureau provided the average trend in filed units prior to and following the 2013/2014 period; however, WP 4A believes other statistics (e.g., median, standard deviation) should also be used to evaluate the effect of filings containing a large number of units on the average. The aggregated / averaged data provided makes it difficult to analyze the relative impact of the larger filings. It would be useful to understand recent trends of the vast majority of filings, by presenting subsets of data that exclude the filings containing a large number of units. Without commenting on underlying aspects of this proposal (the start fee, the fee per unit, the flat fee at 100 units, the breakpoint, and the unit supplemental fee), the Bureau may wish to consider a new second breakpoint number of units, where filings with more units than this new second breakpoint number do not incur any further increases in their Cost Recovery fee, in order to provide the similar benefits to the filing administrations as the current flat fee at 100 units provides. A graphical comparison of the current Cost Recovery, Procedure B, and WP 4A’s new second breakpoint are shown below in Figure 1.

Figure 1

Graphical Comparison of Cost Recoveries

100

flat

fee

Units

CR Fee

start

fee

Now

break

point

100

flat

fee

Units

CR Fee

start

fee

Procedure B

corresponding

new upper

bound

CR Fee

Units

WP 4A

new second

breakpoint

With respect to an additional fee for cases subject to RR Article **22** epfd limits (§ 6.3 of Doc. [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en)), WP 4A is of the view that before Council considers a decision on this topic more statistical information is required to be provided to Council by the BR. WP 4A is concerned that an ITU Council 2018 decision regarding Procedure C would appear to be premature at this point in time.

The Bureau’s cost recovery analysis provided to the last WP 4A meeting appeared to show that the complexity of analysis only increased when the variety of orbital parameters and number of satellites in each orbital plane increased greatly. At the SG 4 meeting in October 2017, the Director stated that the Bureau had acquired increased computing capability that enabled it to efficiently process all but two systems (presumably the largest two filings). These factors should be considered further as an alternative to simply basing the charges on a count of parameter units.

WP 4A understands there are capital investments associated with future improvements in the Bureau’s software and hardware resources, but believes such investments will improve the processing time of filings, especially of the larger systems. The Bureau should keep the ITU Council (and other interested parties) informed of these improvements, and provide information as to the alignment of Cost Recovery charges to the Bureau’s actual costs to process the filings.

WP 4A is of the view that any changes to Cost Recovery charges should apply only to CR/Cs with a date of receipt after the effective date of approved changes, and to Notifications which are associated with CR/Cs with a date of receipt after the effective date of approved changes. (As previously noted, WP 4A understands there will be no change to the Cost Recovery charges for Notifications associated with API/As of non-GSO satellite systems not subject to coordination.) This appears consistent with the current practice document in Council Decision 482.

# 3 Conclusion

WP 4A is of the view that Cost Recovery charges applicable to various types of non-GSO satellite systems should be transparent, reviewed with care, ensure a fair and appropriate sharing of associated processing costs, and reflect the actual and demonstrable costs by the Bureau to process the filings taking into account that the purpose of cost recovery is not revenue creation but purely recovery of actual cost. WP 4A recognizes that the current methodology to calculate the fees is being reviewed to assess the impact of recently submitted non-GSO systems on the ITU assessment process. The complexity of those systems increases with the evolution of technological and computational means to design and optimize constellations. With respect to the Bureau’s proposed procedures in Document [4A/542](https://www.itu.int/md/R15-WP4A-C-0542/en), WP 4A considers that at this stage Procedure A seems to have benefits that could be considered by ITU Council 2018. With respect to the Bureau’s proposed Procedures B and C, WP 4A believes further study is necessary; and it would be very helpful for the Bureau to provide ITU Council with as much data as possible so that ITU Council can make a decision on Cost Recovery. The aggregated/averaged data provided makes it difficult to analyze the relative impact of the larger filings. WP 4A also believes it would be useful to have specific, quantitative documentation of how complex filings relate to increased costs to process filings. Hence, WP 4A encourages the Bureau to continue to develop the revised cost recovery model in consultation with the relevant ITU-R Working Parties before ITU Council considers modification to the Decision 482. WP 4A notes that one way to accelerate such studies could be to establish at ITU Council 2018 an ITU Council expert group that would include expert representatives from ITU-R membership to consider this issue as an urgent matter and report the results of their considerations to Council at an agreed time. Finally, WP 4A would be pleased to be kept informed of the progress on this study which is very important for Working Parties dealing with non-GSO satellite systems.

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| **Radiocommunication Study Groups** |  |
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| Source: Document 4C/TEMP/124 | **Annex 17 to Document 4C/343-E** |
| **6 March 2018** |
| **English only** |
| Annex 17 to Working Party 4C Chairman’s Report | |
| Note from Chairman of Working party 4C to the Director, Radiocommunication Bureau  (copy for information to RAG and  Working Parties 4A, 4B, 5A, 7B, 7C) | |
| Cost recovery for non-GSO satellite systems | |

During its February 2018 meeting, WP 4C received from the Director of the Radiocommunication Bureau Document [4C/286](https://www.itu.int/md/R15-WP4C-C-0286/en) which provides a detailed analysis of the cost recovery issue for non‑GSO satellite systems. It is noted that this analysis was submitted to the Council on 31 January 2018.

While initial comments from WPs 4A, 4C, 7B and 7C are compiled in section 3 of Document 4C/286, WP 4C is of the view that more technical in-depth studies based on a larger statistics data collected from various sources would be required in order to properly evaluate the proposed three “procedures”.

Due to heavy workload and time constraint, WP 4C was not in a position to study the proposed “procedures” outlined in Document 4C/286. Thus, WP 4C was unable to comment on their application and on whether or not the concerns raised earlier by the membership would be met.

One way to accelerate such studies could be to create a Council expert group composed of experts from the membership.

WP 4C would be pleased to be kept informed of the progress on this study which is very important for Working Parties dealing with non-GSO satellite systems.