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DRAFT CEPT BRIEF ON AGENDA ITEM 9.1 – ISSUE 9.1.2 – RESOLUTION 756 (WRC-12)

# ISSUE

Resolution 756 (WRC-12) “Studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7”

“resolves to invite ITU-R

1. to carry out studies to examine the effectiveness and appropriateness of the current criterion (ΔT/T > 6%) used in the application of No. 9.41 and consider any other possible alternatives (including the alternatives outlined in Annexes 1 and 2 to this Resolution), as appropriate, for the bands referred to in recognizing e);
2. to study whether additional reductions in the coordination arcs in RR Appendix 5 (Rev.WRC-12) are appropriate for the 6/4 GHz and 14/10/11/12 GHz frequency bands, and whether it is appropriate to reduce the coordination arc in the 30/20 GHz band,”

# Preliminary CEPT position

CEPT will actively participate to the ITU-R studies called by this Resolution with a view of improving the satellite coordination process.

Regarding the resolves 1 of the Resolution 756, CEPT supports retaining the current provision RR No. 9.41 but replacing the ∆T/T criterion by a C/I ratio criterion in applying RR No. 9.41 in all FSS bands, in the same manner as currently done in No. 11.32A.

CEPT is of the view that the C/I ratio criterion in both Nos. 9.41 and 11.32A should be derived in accordance with the current Section B3 of Part B of the Rules of Procedure, i.e. by taking as a basis for computing the required C/I ratio (C/Irequired = C/Nrequired – I/Nrequired), using the filed C/N ratio or the calculated C/N ratio, whichever is lower.

Regarding the required I/N value to be applied for GSO FSS-GSO FSS coordination, CEPT is of the view that a higher value than the one applied today (which is based on ΔT/T = 6%) is justified. The determination of this value needs further studies.

In addition, CEPT is considering to support introducing pfd levels in C- and Ku-bands that, if met, lead to a favourable finding under No. 11.32A noting that existing systems having technical parameters that may be more sensitive to interference may require the development of separate, dedicated pfd levels. Hence, this is still subject to further studies, including agreeing on the actual pfd levels to be applied.

Regarding the resolves 2 of the Resolution 756, CEPT supports reducing the coordination arc for coordination between geostationary FSS networks to ±6° in C-band and to ±5° in Ku-band. In Ka-band, CEPT still needs further studies before adopting a preliminary position.

# Background

During the study cycle leading up to WRC-12, studies were performed within CEPT in order to facilitate coordination between geostationary FSS networks in the congested C- and Ku-bands.

CEPT submitted the following proposals under WRC-12 agenda item 7:

* To reduce the coordination arc from 10 to 6 degrees in C-band and from 9 to 5 degrees in Ku-band;
* To replace the ∆T/T criterion by a C/I ratio criterion in applying RR No. 9.41;
* To introduce pfd levels that, if not exceeded, lead to a favourable finding under No. 11.32A. In particular, CEPT developed pfd masks for C and Ku bands, which were based on a set of receiver parameters (both space and earth stations).

Several regional organisations supported a reduction of the coordination in these congested bands and the WRC-12 decided to reduce the coordination arc by 2 degrees in the targeted bands, resulting in 8 degrees in C-band and 7 degrees in Ku-band.

As many administrations felt that additional reductions were warranted, WRC-12 also adopted Resolution 756 (WRC-12) calling for further studies to clarify if it would be appropriate to introduce additional reductions in the coordination arcs in the above mentioned C- and Ku-bands, as well as introducing reductions in Ka-band (30/20 GHz). In addition, other alternatives to the T/T criteria to trigger coordination (C/I or pfd) in the application of RR No. 9.41 are to be evaluated.

On the basis of Resolution 756, studies and discussions has taken place in WP 4A and to a minor extent at the Working Party of the Special Committee (SC-WP). As a result of several input documents from various countries, including one from a number of CEPT countries, four Working Documents are attached to the WP 4A Chairman’s Report from the WP 4A February 2014 meeting (Annexes 7, 32, 33 and 37). At the next WP 4A meeting in July 2014, the draft CPM text will need to be finalized.

DEVELOPMENT OF THE DRAFT CPM TEXT

At every WP 4A meeting, the complexity of the Issue 9.1.2, and its several sub-issues, is acknowledged and it is recognized that there is an interconnection between the issue of reducing the coordination arc and increasing the coordination trigger level of interference, and therefore the implications of this interconnection should be considered while deciding on these issues.

At the latest WP 4A February 2014 meeting, two of the Working Documents annexed to the WP 4A Chairman’s report 4A/468 (Annex 7 and 33) use the same overall structure, including addressing resolves 1 and resolves 2 of Resolution 756 (WRC-12) separately in different sections. The Working Document towards a preliminary draft new report ITU-R S.[Res756] captured in Annex 7 to 4A/468 to portrays the following structure:

The resolves 1 section is divided in the following sub-sections:

* Which frequency bands are to be considered?
* What representative range of technical parameters to use when determining coordination triggering interference levels?
* What interfering level should trigger coordination?
* What are the optional types of coordination trigger / protection criteria?

In addition, the Working Documents towards draft CPM text in Annex 33 to 4A/468 also has another section:

* Use of Provision RR No. 9.41

While the resolves 2 of Resolution 756 invites the ITU-R to study two issues related to the coordination arc:

* Whether additional reductions in the C- and Ku-band coordination arcs in RR Appendix 5 are appropriate; and
* Whether it is appropriate to reduce the coordination arc in the 30/20 GHz band.

# List of relevant documents

ITU-Documentation (Recommendations, Reports, other)

* At the last WP 4A meeting in February 2014 the following Working Documents were carried forward in the WP 4A Chairman’s Report 4A/468:
* Annex [7](https://www.itu.int/md/dologin_md.asp?lang=en&id=R12-WP4A-C-0468!N07!MSW-E) – Working Document towards a preliminary draft new Report ITU-R S.[RES756] - Studies on possible reduction of the coordination arc and technical criteria used in application of RR No. 9.41 in respect of coordination under RR No. 9.7, compiling the content of a number of different input documents.
* Annex 32 – Working Document presenting the agreed work plan ahead
* Annex [37](https://www.itu.int/md/dologin_md.asp?lang=en&id=R12-WP4A-C-0468!N37!MSW-E) – Elements for future discussion and development of 9.1.2, summarizing the key elements of the considerable discussion during the WP 4A May meeting generated by the different input documents.
* Annex [33](https://www.itu.int/md/dologin_md.asp?lang=en&id=R12-WP4A-C-0468!N33!MSW-E) – Working Document towards draft CPM text on Agenda item 9, Issue 9.1.2. Further development of the text will be required in order to finalize this text at the next meeting of WP 4A before taking any decision on these matters.
* At the Working Party of the Special Committee (SC-WP) meeting in December 2013, Issue 9.1.2 was briefly addressed in the [SC-WP Chairman’s Report SC-WP/34](https://www.itu.int/md/dologin_md.asp?lang=en&id=R12-SCWP-C-0034!!MSW-E), concluding that RR No. 9.41 applies not only to geostationary satellites and that provisions allowing administrations to request to be included in the coordination, similar to the current RR No. 9.41, existed even before the introduction of the coordination arc and that removal of the whole text of this provision could have undesirable consequences.
* Updated information/documentation on the ITU-R Preparatory Studies for WRC-15 is available at:

http://www.itu.int/ITU-R/go/rcpm-wrc-15-studies

CEPT and/or ECC Documentation (Decisions, Recommendations, Reports)

CEPT documents from the previous WRC study cycle in Agenda item 7:

* The ECP submitted as the WRC-12 document 05; Addendum 6 to Addendum 28, also recognised as the ECC/CPG12(2011) 041 Annex 5 Revised draft ECP AI 7 Subpart B Issue 2A
* CEPT Brief on Agenda item 7, page 14-17, regarding Subpart B Issue 2A.

EU Documentation (Directives, Decisions, Recommendations, other), if applicable

# Actions to be taken

1. Define the most appropriate values for the coordination arc in Ka-band, taking into account the studies performed during the previous WRC study cycle in AI 7 and including the consideration of alternative ways to achieve coordination efficiencies in Ka-band.
2. Define the most appropriate values for the C/I ratio criterion when applying both RR No. 9.41 and RR No. 11.32A, taking into account the studies performed during the previous WRC study cycle in AI 7 and the input contribution PTB(2014)012.
3. Investigate the most appropriate values for the pfd levels to be used under No. 11.32A taking into account the studies performed during the previous WRC study cycle in AI 7 and the input contribution PTB(2014)012.
4. Define appropriate provisions for protection of existing sensitive networks.
5. Define if and in that case which representative range of technical parameters to use when determining coordination triggering interference levels.
6. Develop a draft European Common Proposal (ECP) for the WRC-15.

# Relevant information from outside CEPT (examples of these are below)

## European Union (date of proposal)

## Regional telecommunication organisations

APT (December 2013)

APT supports the continuing studies within the ITU-R on the possible reduction of the size of the coordination arc used in application of No. 9.7, and a review of technical criteria used in application of No. 9.41, in accordance with Resolution 756 (WRC-12).

ATU (date of proposal)

Arab Group (December 2013)

Follow up the current studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7.

CITEL (December 2013)

Preliminary Views

Canada/United States:

To reduce the number of unnecessary coordination requirements the BR identifies when applying the current technical conditions specified in Table 5-1 of Appendix 5, the coordination arcs for GSO satellite networks in the 6/4 GHz and 14/10/11/12 GHz bands (Items 1 and 2 of the frequency column in Table 5-1 of Appendix 5) should be reduced to 6º and 5º respectively.

United States:

Supports continued studies on the necessity for reducing the coordination arc in the 27.5-30.0 GHz/17.7-20.2GHz FSS allocations. However, since in the 30/20 GHz bands there is a lower density of deployment and fewer coordination requests than in other FSS bands, it may not be necessary to reduce the coordination arc in the 30/20 GHz bands as was done at WRC-12 for the 6/4 and 14/10/11/12 GHz band FSS allocations.

RCC (December 2013)

1. Application of C/I criterion.The RCC Administrations support the use of C/I criterion instead of the ΔT/T criterion when justifying the inclusion of networks outside the coordination arc in the list of affected administrations when applying RR No.9.41 and in application of RR No 9.7 in cases when the criterion of coordination arc is not used.
2. Change of the ΔТ/Т criterion value and corresponding change of the С/I criterion. The RCC Administrations propose to determine the value of C/I single entry interference criterion taking into account the value of ΔТ/Т increased up to 12-20%. New values of the C/I criterion is proposed to be applied in relation to new networks notified after the end of WRC-15:

* when applying RR No 9.41;
* when BR identifies affected administrations according to RR No 9.7 and in cases when the coordination arc criterion is not used
* when applying RR No. 11.32А;
* during coordination by administrations.

1. Application of permissible pfd mask. The RCC Administrations object to application of the pfd mask-based method since the proposed pfd mask does not protect network that are more sensitive to interference, than typical one, and does not exclude specific calculations in respect to the affected networks.
2. Reducing of the coordination arc size. The RCC Administrations consider it necessary to continue to study a reasonability of the further reduction of the coordination arc (for frequency bands 4/6 GHz from ±8 to ±6 degrees, 11/12/13/14 GHz from ±7 to ±5 degrees and 20/30/40 GHz from ±8 to ±7 degrees) and proposals from other countries concerning the reduction of the coordination arc. Any way the position is in favour of retaining RR No 9.41 as it is)

## International organisations

IATA (date of proposal)

ICAO (date of proposal)

IMO (date of proposal)

NATO (date of proposal)

SFCG (date of proposal)

WMO (December 2013)

WMO supports studies on possible reduction of the coordination arc and technical criteria used in application of RR No. 9.41 in respect of coordination under RR No. 9.7 until they provide adequate protection and reduce unjustified restrictions for coordination of meteorological and Earth observation-satellite systems

## Regional organisations

ESA (date of proposal)

EUMETNET (date of proposal)

Eurocontrol (date of proposal)