
PLENARY MEETING

**Addendum 2 to
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Member States of the Inter-American Telecommunication Commission (CITEL)
PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 7(B)

7 to consider possible changes, and other options, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)**, in order to facilitate rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

7(B) Issue B - Application of coordination arc in the Ka-band, to determine coordination requirements between the FSS and other satellite services

BACKGROUND: During the study period leading to the 2019 World Radiocommunication Conference, the ITU performed various studies on the convergence between the Mobile-satellite (MSS) and the fixed-satellite (FSS) services in portions of the Ka-bands. In particular, the characteristics of the GSO MSS earth stations and those of the GSO FSS earth stations filed for the 29.5-30 GHz/19.7-20.2 GHz bands were compared especially in terms of antenna size and antenna patterns. Not only did these studies concluded that GSO MSS and GSO FSS earth stations are similar but they also revealed that most of the filing contained frequency assignments for both MSS and FSS in the same frequency ranges in the 29.5-30 GHz/19.7-20.2 GHz bands.

In view of these results and in particular the similarities between FSS and MSS frequency assignments to a GSO space station in the 29.5-30 GHz/19.7-20.2 GHz bands, it is justified to define a single coordination trigger for the identification of coordination requirements involving GSO FSS assignments, GSO MSS assignments or GSO FSS and GSO MSS assignments in the 29.5-30/19.7-20.2 GHz.

Under the current regulatory framework, the requirements for coordination of GSO FSS assignments in the band referred to above results from an orbital separation of less than ± 8 degrees between the GSO space stations of the respective systems while the coordination requirements for GSO MSS assignments or for GSO MSS versus GSO FSS assignments or vice versa are identified

based on the calculation of the anticipated increase of the noise temperature of a system due to the interference from the other system. It is proposed to modify Appendix 5 of the Radio Regulations to extend the use of the coordination arc approach (orbital separation of ± 8 degrees) for the identification of all the coordination requirements under No. **9.7** (GSO vs GSO) in the 29.5-30 GHz/19.7-20.2 GHz bands. The introduction of an 8 degree coordination arc would serve as a substitution of the existing coordination trigger of $\Delta T/T > 6\%$. It would also reduce the number of Administrations identified for coordination, thereby reducing the number of coordination processes and resulting in a reduction of required resources in Administrations, operators, and Bureau. Administrations will continue to have the possibility to request application of RR No. **9.41** for inclusion of additional affected satellite networks, taking into account the $\Delta T/T > 6\%$ criteria. These proposed modifications to Appendix 5 to the Radio Regulations are based on the single method of the CPM report on WRC-19 agenda item 7, Issue B.

APPENDIX 5 (REV.WRC-15)

Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9

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TABLE 5-1 (Rev.WRC-195)
Technical conditions for coordination
(see Article 9)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO	A station in a satellite network using the geostationary-satellite orbit (GSO), in any space radiocommunication service, in a frequency band and in a Region where this service is not subject to a Plan, in respect of any other satellite network using that orbit, in any space radiocommunication service in a frequency band and in a Region where this service is not subject to a Plan, with the exception of the coordination between earth stations operating in the opposite direction of transmission	1) 3 400-4 200 MHz 5 725-5 850 MHz (Region 1) and 5 850-6 725 MHz 7 025-7 075 MHz 2) 10.95-11.2 GHz 11.45-11.7 GHz (Region 2) 11.7-12.2 GHz (Region 3) 12.2-12.5 GHz (Regions 1 and 3) 12.5-12.75 GHz (Regions 1 and 3) 12.7-12.75 GHz (Region 2) and 13.75-14.8 GHz	i) Bandwidth overlap, and ii) any network in the fixed-satellite service (FSS) and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 7^\circ$ of the nominal orbital position of a proposed network in the FSS i) Bandwidth overlap, and ii) any network in the FSS or broadcasting-satellite service (BSS), not subject to a Plan, and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 6^\circ$ of the nominal orbital position of a proposed network in the FSS or BSS, not subject to a Plan iii) in the frequency band 14.5-14.8 GHz any network in the space research service (SRS) or FSS not subject to a Plan and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 6^\circ$ of the nominal orbital position of a proposed network in the SRS or FSS not subject to a Plan		With respect to the space services listed in the threshold/condition column in the frequency bands in 1), 2), 2bis), 3), 3bis) 4), 5), 6), 7) and 8), an administration may request, pursuant to No. 9.41, to be included in requests for coordination, indicating the networks for which the value of $\Delta T/T$ calculated by the method in § 2.2.1.2 and 3.2 of Appendix 8 exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to No. 9.42, the calculation method given in § 2.2.1.2 and 3.2 of Appendix 8 shall be used

TABLE 5-1 (continued) (Rev.WRC-195)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)		<p><i>2bis</i>) 13.4-13.65 GHz (Region 1)</p> <p>3) 17.7-19.720.2 GHz, (Regions 2 and 3), 17.3-19.720.2 GHz (Region 1) and 27.5-29.530 GHz</p> <p>3bis) 19.7-20.2 GHz, and 29.5-30 GHz</p>	<p>i) Bandwidth overlap, and ii) any network in the space research service (SRS) or any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 6^\circ$ of the nominal orbital position of a proposed network in the FSS or SRS</p> <p>i) Bandwidth overlap, and ii) <u>any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS</u></p> <p>i) <u>Bandwidth overlap, and</u> ii) <u>any network in the FSS or in the MSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS or in the MSS.</u></p>		

TABLE 5-1 (continued) (Rev.WRC-195)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)		4) 17.3-17.7 GHz (Regions 1 and 2) 5) 17.7-17.8 GHz	i) Bandwidth overlap, and ii) a) any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the BSS, or b) any network in the BSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS i) Bandwidth overlap, and ii) a) any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the BSS, or b) any network in the BSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS NOTE – No. 5.517 applies in Region 2.		

TABLE 5-1 (continued) (Rev.WRC-195)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)		6) 18.0-18.3 GHz (Region 2) 18.1-18.4 GHz (Regions 1 and 3)	i) Bandwidth overlap, and ii) any network in the FSS or meteorological-satellite service and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS or the meteorological-satellite service		No. 9.41 does not apply.
		6bis) 21.4-22 GHz (Regions 1 and 3)	i) Bandwidth overlap; and ii) any network in the BSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 12^\circ$ of the nominal orbital position of a proposed network in the BSS (see also Resolutions 554 (WRC-12) and 553 (WRC-12)).		
		7) Bands above 17.3 GHz, except those defined in § 3), 3bis) and 6)	i) Bandwidth overlap, and ii) any network in the FSS and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 8^\circ$ of the nominal orbital position of a proposed network in the FSS (see also Resolution 901 (Rev.WRC-07))		

TABLE 5-1 (continued) (Rev.WRC-195)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. 9.7 GSO/GSO (cont.)		<p>8) Bands above 17.3 GHz except those defined in § 4), 5) and 6bis)</p> <p>9) All frequency bands, other than those in 1), 2), 2bis), 3), 3bis), 4), 5), 6), 6bis), 7) and 8), allocated to a space service, and the frequency bands in 1), 2), 2bis), 3), 3bis), 4), 5), 6), 6bis), 7) and 8) where the radio service of the proposed network or affected networks is other than the space services listed in the threshold/condition column, or in the case of coordination of space stations operating in the opposite direction of transmission</p>	<p>i) Bandwidth overlap, and</p> <p>ii) any network in the FSS or BSS, not subject to a Plan, and any associated space operation functions (see No. 1.23) with a space station within an orbital arc of $\pm 16^\circ$ of the nominal orbital position of a proposed network in the FSS or BSS, not subject to a Plan, except in the case of a network in the FSS with respect to a network in the FSS (see also Resolution 901 (Rev.WRC-07))</p> <p>i) Bandwidth overlap, and</p> <p>ii) Value of $\Delta T/T$ exceeds 6%</p>	Appendix 8	<p>In application of Article 2A of Appendix 30 for the space operation functions using the guardbands defined in § 3.9 of Annex 5 of Appendix 30, the threshold/condition specified for the FSS in the frequency bands in 2) applies.</p> <p>In application of Article 2A of Appendix 30A for the space operation functions using the guardbands defined in § 3.1 and 4.1 of Annex 3 of Appendix 30A, the threshold/condition specified for the FSS in the frequency bands in 7) applies</p>

Reasons: *Extend the application of the coordination arc approach based on ± 8 orbital separation to MSS frequency assignments to a GSO space station in the 29.5-30/19.7-30 GHz bands.*