

UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR WRC-19

Agenda Item 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;

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

Background Information: WRC-19 agenda item 7, Issue B, proposes the introduction of the coordination arc with a value of 8 degrees as coordination criteria between fixed-satellite service (FSS) and mobile-satellite service (MSS) systems and between MSS systems, in the frequency bands 29.5-30 GHz (Earth-to-space)/19.7-20.2 GHz (space-to-Earth) in all 3 Regions. The introduction of an 8 degree coordination arc would serve as a substitution of the existing coordination trigger of $\Delta T/T > 6\%$. Currently, when determining whether coordination under RR No. **9.7** is required between FSS vs FSS satellite networks, a coordination arc of 8° is the coordination criteria applied in the frequency bands 29.5-30 GHz (Earth-to-space)/19.7-20.2 GHz (space-to-Earth). Results of ITU-R studies show that earth station terminals used in the MSS and FSS for these frequency bands are quite similar. Therefore, it could be considered that the coordination arc that currently triggers coordination between FSS systems could be applied to trigger coordination between MSS and FSS systems and between MSS systems.

Introduction of the coordination arc of 8 degrees would 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. In this proposal, it is proposed to implement the modifications to the Radio Regulations in accordance with Method B.

Proposal:

APPENDIX 5 (Rev.WRC-15)

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

MOD USA/AI7/1

TABLE 5-1 (Rev.WRC-15)

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	1) 3 400-4 200 MHz 5 725-5 850 MHz (Region 1) and 5 850-6 725 MHz 7 025-7 075 MHz	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		With respect to the space services listed in the threshold/condition column in the frequency bands in 1), 2), <i>2bis</i>), 3), <i>3bis</i>), 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,
		2) 10.95-11.2 GHz 11.45-11.7 GHz 11.7-12.2 GHz (Region 2) 12.2-12.5 GHz (Region 3) 12.5-12.75 GHz	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		

	between earth stations operating in the opposite direction of transmission	(Regions 1 and 3) 12.7-12.75 GHz (Region 2) and 13.75-14.8 GHz	proposed network in the FSS or BSS, not subject to a Plan iii) in the 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		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
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TABLE 5-1 (continued) (Rev.WRC-159)

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.)		2bis) 13.4-13.65 GHz (Region 1) 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	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 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		

		<p><u>3bis) 19.7-20.2 GHz and 29.5-30 GHz</u></p> <p>4) 17.3-17.7 GHz (Regions 1 and 2)</p>	<p>i) <u>Bandwidth overlap, and</u></p> <p>ii) any network in the FSS or in the MSS and any associated space operation functions (see No. 1.23) <u>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> <p>i) Bandwidth overlap, and</p> <p>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,</p> <p>or</p> <p>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</p>		
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TABLE 5-1 (continued) (Rev.WRC-159)

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.)		5) 17.7-17.8 GHz	<p>i) Bandwidth overlap, and</p> <p>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</p>		

			<p>proposed network in the BSS,</p> <p>or</p> <p>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</p> <p>NOTE – No. 5.517 applies in Region 2.</p>		
		6) 18.0-18.3 GHz (Region 2) 18.1-18.4 GHz (Regions 1 and 3)	<p>i) Bandwidth overlap, and</p> <p>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</p>		

TABLE 5-1 (continued) (Rev.WRC-159)

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.)		6bis) 21.4-22 GHz (Regions 1 and 3)	<p>i) Bandwidth overlap; and</p> <p>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)).</p>		No. 9.41 does not apply.

		<p>7) Bands above 17.3 GHz, except those defined in § 3), <i>3bis</i>) and 6)</p> <p>8) Bands above 17.3 GHz except those defined in § 4), 5) and <i>6bis</i>)</p>	<p>i) Bandwidth overlap, and</p> <p>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))</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>		
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TABLE 5-1 (continued) (Rev.WRC-159)

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.)		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 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	i) Bandwidth overlap, and ii) Value of $\Delta T/T$ exceeds 6%	Appendix 8	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 bands in 2) applies. 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 bands in 7) applies

Reasons: Extend the coordination arc to consider MSS in the frequency bands 29.5-30 GHz and 19.7-20.2 GHz.