# UNITED STATES OF AMERICA

# DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

**AGENDA ITEM 10**: *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention;*

**BACKGROUND INFORMATION**:

Article **1.22** of the Radio Regulations defines *fixed-satellite service* (FSS) as follows:

A *radiocommunication service* between *earth stations* at given positions, when one or more *satellites* are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the *inter-satellite service*; the fixed-satellite service may also include *feeder links* for other *space radiocommunication services*.

The “some cases” in which satellite-to-satellite links are included in the FSS are not defined. Further, while several allocations to the FSS are designated in the Table of Allocations for “space-to-Earth” or “Earth-to-space” transmissions, none are designated for “space-to-space” transmissions.

Because frequency bands allocated to the fixed-satellite service are used for links between space stations and earth stations, it is necessary to analyze the use of the same bands for satellite-to-satellite links to ensure compatibility and avoid harmful interference. The sharing scenario is likely to differ as the orbital characteristics of the linked satellites vary; links between satellites in geostationary orbit (GSO) will differ in geometry and impact when compared to links between links between satellites in non-geostationary orbit (NGSO), or links between a satellite in NGSO and a satellite in GSO.

Preliminary ITU-R studies have identified factors to be considered in assessing the compatibility of NGSO satellite-to-GSO satellite links with other operations in the 27.5 – 30 GHz FSS allocation. These studies should be further developed to include further potentially suitable frequency bands and the cases of GSO-to-GSO and NGSO-to-NGSO satellite links. Continued development and completion of these studies will permit the development of appropriate ITU-R regulatory text to define the cases in which satellite-to-satellite links may be included within the fixed-satellite service, as opposed to the inter-satellite service.

**Proposals:**

**MOD USA/10/[SAT-TO-SAT-1]**

RESOLUTION 810 (WRC‑19)

**Agenda for the 2023 World Radiocommunication Conference**

The World Radiocommunication Conference (Sharm-el-Sheikh, 2019),

\* \* \*

*resolves to give the view*

that the following items should be included in the agenda for WRC-23:

\* \* \*

2 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-19, to consider and take appropriate action in respect of the following items:

\* \* \*

* 1. to define the cases and conditions under which satellite-to-satellite links may be accommodated in the fixed-satellite service, as opposed to the inter-satellite service in other frequency bands, taking into account the necessary protection of Earth-to-space and space to-Earth links in the fixed-satellite service, in accordance with Resolution **[A10-SAT-TO-SAT] (WRC-19)**;

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**ADD USA/10/[SAT-TO-SAT-2]**

draft new RESOLUTION [A10-SAT-TO-SAT] (WRC‑19)

**Study of cases in which satellite-to-satellite links may be performed in frequencies allocated to the fixed-satellite service**

The World Radiocommunication Conference (Sharm-el-Sheikh, 2019),

*considering*

*a)* that No. 1.22 of the Radio Regulations defines the fixed-satellite service as “A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services”;

*b)* that the “some cases” in which satellite-to-satellite links are included in the fixed-satellite service are not defined in the Radio Regulations or other ITU-R texts;

*c)* that frequency bands allocated to the fixed-satellite service are used for links between space stations and earth stations;

*d)* that satellite-to-satellite links may be operated in the inter-satellite service;

*e)* that while several allocations to the fixed-satellite service are designated in the Table of Allocations for “space-to-Earth” or “Earth-to-space” transmissions, none are designated for “space-to-space” transmissions,

*recognizing*

*a)* that it is necessary to analyze the use of the same bands for satellite-to-satellite links to ensure compatibility with satellite-to-Earth station links and avoid harmful interference;

*b)* that the sharing scenario is likely to differ as the orbital characteristics of the satellites vary;

*c)* that links between satellites in geostationary orbit will differ in geometry and impact when compared to links between links between satellites in non-geostationary orbit, or links between a satellite in geostationary orbit and a satellite in non-geostationary orbit;

*d)* that while satellite-to-satellite links may be operated in the inter-satellite service, satellite-to-Earth station links may not,

*noting*

*a)* that preliminary ITU-R studies have identified factors to be considered in assessing the compatibility of non-geostationary satellite to-geostationary satellite links with Earth-to-space and space-to-Earth links in the 27.5 – 30 GHz frequency band;

*b)* that further development of these studies, including study of links between geostationary satellites and between non-geostationary satellites, may identify and define the cases in which use of fixed-satellite service allocations are suitable for satellite-to-satellite links, as well as identify cases where use of fixed-satellite service allocations would be incompatible with satellite-to-Earth station links,

*resolves to invite ITU-R*

1 to conduct studies to determine cases and conditions under which satellite-to-satellite links may be accommodated in the fixed-satellite service taking into account the necessary protection of Earth-to-space and space to-Earth links in the fixed-satellite service;

2 to develop technical conditions and regulatory provisions for the operation of satellite-to-satellite links among geostationary satellite networks, among non-geostationary satellite systems, and among both non-geostationary systems and geostationary satellite networks all operating in the fixed-satellite service;

3 to complete these studies by the 2023 World Radiocommunication Conference,

*invites administrations*

to participate in the studies and to provide input contributions,

*resolves to invite the 2023 World Radiocommunication Conference*

to consider the results of the above studies and take necessary regulatory actions, as appropriate.

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