# 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**:

Services provided by aircraft earth stations (AES) operating to GSO satellite networks continue to grow with the increasing demand for Internet based applications for the aviation industry and their passengers. The availability of the band 12.75 – 13.25 GHz allocated to the fixed satellite service (FSS) for the use by AES would allow satellite network operators to provide additional capacity for the growing needs in this sector.

The frequency band 12.75-13.25 GHz is currently allocated on a primary basis to the fixed, fixed-satellite (Earth-to-space)[[1]](#footnote-1), and mobile services, and on a secondary basis to the Space research (deep space) (space-to-Earth) services.

Currently, satellite networks operating in this frequency band can provide services to earth stations while in motion only under No. **4.4**, which requires the associated transmissions not to cause harmful interference to, and not to claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention, and the Regulations.

WRC-15 adopted regulatory provisions to allow operation of earth stations in motion in the FSS in frequency band 29.5-30 GHz (Earth-to-space) via the adoption of footnote **5.527A** and Resolution **156 (WRC-15)**.

Additionally, WRC-03 adopted regulatory provisions to allow operation of AES in frequency band 14.0-14.5 GHz (Earth-to-space), where the same types of services with current allocation in the frequency band 12.75-13.25 GHz also operate.

Given the growing need for connectivity for aviation, it is proposed to study the viability of allowing the operation of AES in the FSS in the 12.75-13.25 GHz (Earth-to-space) frequency band, with the aim of developing regulatory means and associated conditions for this type of application.

Proposals

MOD USA/10/1

RESOLUTION 810 (WRC‑19)

**Agenda for the 2023 World Radiocommunication Conference**

The World Radiocommunication Conference (Sharm El Sheikh, 2019),

**Reasons:** To modify the agenda for WRC-23 to add a new item.

**ADD** USA/10/2

XX To develop regulatory means and associated conditions to allow the harmonized use and operation of aircraft earth stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space) in accordance with Resolution [USA/10/FSS 12.75-13.25 GHZ] (WRC-19).

**Reasons:** To extend to the frequency band 12.75-13.25 GHz of the FSS the possibility to operate aircraft earth stations as is currently the case in the 14.0-14.5 GHz and 29.5-30 GHz frequency bands.

**ADD** USA/10/3

DRAFT RESOLUTION [USA/10/FSS 12.75-13.25 ghZ] (WRC-19)

**Operation of aircraft earth stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space)**

The World Radiocommunication Conference (Geneva, 2015),

*considering*

*a)* that the frequency band 12.75-13.25 GHz is currently allocated on a primary basis to the fixed, mobile and fixed-satellite (Earth-to-space) services, and on a secondary basis to the space research (deep space) (space-to-Earth) services globally;

*b)* that fixed-satellite service (FSS) networks operating in this frequency band are also used for the provision of services to earth stations while in motion on a non-interference and non-protected basis, under No. **4.4**;

*c)* that earth stations in motion can operate in the FSS in frequency band 29.5-30 GHz (Earth-to-space);

*d)* that the advances in earth station technology has allowed more efficient use of spectrum in the 14.0-14.5 GHz and the 29.5-30.0 GHz bands by allowing for aircraft earth stations to share these bands with fixed earth stations operating in the FSS;

*e)* that it is desirable to extend to the FSS frequency band 12.75-13.25 GHz the possibility to operate aircraft earth stations as is currently the case for the 14.0-14.5 GHz and 29.5-30 GHz FSS frequency bands;

*f)* that the availability of the band 12.75 – 13.25 GHz for (Earth-to-space) links of aircraft earth stations operating to GSO FSS satellite networks will contribute to the efficient use of the spectrum and also to enhanced broadband communications for aircraft passengers, allowing administrations more flexibility to use their Appendix **30B** allotments;

*g)* that operations of aircraft earth stations should not jeopardize or cause harmful interference to currently allocated services or uses or constrain their future development;

*h)* that a consistent approach to deployment of these aircraft earth stations in motion will support growing need for inflight connectivity globally;

*i)* that aircraft earth stations comply with the technical requirements of fixed-satellite earth stations,

*recognizing*

*a)* that FSS satellite networks operating in the 12.75-13.25 GHz frequency band can currently provide services to earth stations in motion only under No. **4.4**, which requires the associated transmissions not to cause harmful interference to, and not to claim protection from harmful interference caused by, a station operating according to primary or secondary frequency allocations;

*b)* that Nos. **5.504B** and **5.504C** establish conditions for operation of aircraft earth stations in the FSS frequency band 14.0-14.5 GHz in accordance with No. **5.504A**;

*c)* that earth stations in motion can operate in the FSS in frequency band 29.5-30 GHz (Earth-to-space) in accordance with **5.527A**;

*c)* that in the ITU Radio Regulations, the band 12.75-13.25 GHz is allocated on a worldwide and primary basis to the fixed service;

*d)* that the use of the band 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service is in accordance with the provisions of Appendix **30B** according to No. **5.441**,

*resolves to invite ITU-R*

1 to carry out studies on technical and operational characteristics and user requirements of aircraft earth stations that operate or plan to operate within geostationary FSS allocations in the frequency band 12.75-13.25 GHz;

2 to develop technical conditions and regulatory provisions for the operation of aircraft earth stations communicating with space stations of the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space) taking into account the current and planned use of these bands by the existing services and in particular without affecting any provisions of Appendix **30B**;

3 to complete studies in time for WRC‑23,

*resolves to invite WRC-23*

to review the results of these studies with a view to adopt regulatory means and associated conditions that allow the operation of aircraft earth stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space),

*invites administrations*

to participate actively in the studies by submitting contributions to ITU-R.

**ATTACHMENT**

**PROPOSAL FOR AN AGENDA ITEM FOR WRC-23 aiming at developing regulatory means and associated conditions that allow the operation of AIRCRAFT Earth stations IN the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space)**

**Subject:** Proposal for an Agenda Item for WRC-23 aiming at developing regulatory means and associated conditions that allow the operation of aircraft earth stations in the FSS in the frequency band 12.75-13.25 GHz (Earth-to-space)

**Origin**: United States of America

***Proposal:*** *To develop regulatory means and associated conditions that allow the operation of aircraft earth stations in the FSS in the frequency band 12.75-13.25 GHz in accordance with Resolution [USA/10/FSS 12.75-13.25 GHZ] (WRC-19).*

***Background/reason:*** According to the provisions of the Radio Regulations, FSS satellite networks operating in the 12.75-13.25 GHz frequency band can currently provide services to earth stations in motion only under No. **4.4.** This provision requires the associated transmissions not to cause harmful interference to, and not to claim protection from harmful interference caused by, a station operating according to primary or secondary frequency allocations. On the other hand, WRC-03 adopted regulatory provisions that allow operation of aircraft earth stations (AES) in the FSS in frequency band 14.0-14.5 GHz (Earth-to-space), where the same types of services with current allocation in the frequency band 12.75-13.25 GHz also operate. Additionally, WRC-15 adopted regulatory provisions to allow operation of earth stations in motion in the FSS in frequency band 29.5-30 GHz (Earth-to-space) via the adoption of footnote **5.527A** and Resolution **156 (WRC-15)**.

It may therefore be feasible to extend to the FSS frequency band 12.75-13.25 GHz (Earth-to-space) the possibility to operate AES as is currently the case for the 14.0-14.5 GHz FSS frequency band, which would allow more capacity for the provision of such services with additional regulatory certainty.

This harmonized use is not in contradiction with the Appendix **30B** allotments/assignments. The aircraft earth stations, similar to any other earth station operating in Appendix **30B** frequency assignments, are to be operated within the service area and with the characteristics notified for earth stations of the GSO FSS system (i.e. within the interference envelope established for earth stations of the GSO FSS system). Such operation therefore should not cause interference to other allotments/assignments of Appendix **30B**.

***Radiocommunication services concerned:*** FSS, FS, MS and SRS (deep space)

***Indication of possible difficulties:*** None foreseen

***Previous/ongoing studies on the issue:***

Studies conducted prior to WRC-03 resulted in an adoption of regulatory provisions allowing operation of AES in the FSS in the frequency band 14.0-14.5 GHz band (Earth-to-space) with similar services than in the 12.75-13.25 GHz band. More recently, WRC-15 also adopted regulatory provisions to allow operation of earth stations in motion in the FSS in frequency band 29.5-30 GHz (Earth-to-space) via the adoption of Resolution **156 (WRC-15)** and footnote **5.527A**.

One of the regional organizations of ITU-R Region 1 has conducted technical studies concluding with the derivation of a pfd mask on Earth to ensure the protection (long term and short-term criteria) of FS stations from the aggregated interference from AES operating with GSO and non-GSO FSS systems. Those can be taken into account as proof of concept regarding the potential AES usage in the band under consideration.

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| ***Studies to be carried out by:*** SG4 | ***with the participation of:*** |

***ITU-R Study Groups concerned:*** SG4, SG5 and SG7

***ITU resource implications, including financial implications (refer to CV126):***Minimal

***Common regional proposal:*** Yes/No ***Multicountry proposal:*** Yes/No

***Number of countries:***

***Remarks***

1. The use of the band 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service is in accordance with the provisions of Appendix **30B** according to No. **5.441**. [↑](#footnote-ref-1)