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| **41 MEETING OF PERMANENT****CONSULTATIVE COMMITTEE II:****RADIOCOMMUNICATIONS****May 22 to 26, 2023****Mexico City, Mexico** | **OEA/Ser.L/XVII.4.2.41****CCP.II-RADIO /doc. /23****01 May 2023****Original: English** |
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|  | **PROPOSALS FOR THE WORK OF THE CONFERENCE****AGENDA ITEM 1.15** |  |
|  | **(Item on the Agenda: 3.1 (SGT-4))** |  |
|  | **(Document submitted by the administration of the United States of America)** |  |

**Impact on the sector:**

This document supports the work of CITEL’s PCC.II Working Group for WRC under 3.1 of the agenda.

**Executive Summary:**

The United States notes that studies under this agenda item have not fully demonstrated with certainty that the terrestrial services operating in the 12.75-13.25 GHz band would be fully protected from earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service. The As such, the United States proposes a No Change (NOC) to the Radio Regulations for WRC-23 agenda item 1.15 and suppression of Resolution **172 (WRC-19).**

**UNITED STATES OF AMERICA**

**PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.15**

**Agenda Item 1.15:** *to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution* ***172 (WRC-19)****;*

**Background:**

WRC-23 agenda item 1.15 calls for studies on the possible operation of aeronautical and maritime earth stations in motion (A-ESIM and M-ESIM) communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space). The use of the 12.75-13.25 GHz frequency band by geostationary-satellite networks in the fixed-satellite service is subject to RR Appendix **30B**, which contains a worldwide fixed-satellite service allotment Plan and assignments in the List and has its own regulatory procedures and technical criteria. The 12.75-13.25 GHz is also allocated globally to the fixed and mobile service on a primary basis.

ITU-R studies were conducted to consider the protection of stations operating in the terrestrial services from a possible new application of the fixed satellite service (FSS) ESIM operations. These studies include significant deficiencies such that it is impossible to conclude that protection of the current and planned systems of incumbent terrestrial services is ensured. The studies narrowly consider a single latitude of 51° N for operations of the terrestrial services, which combined with the satellite spacing and spot beam satellite coverage example, downwardly skews the number of visible GSO satellites and by association, the number of possible A-ESIM interference sources. Further decreasing this underestimation, the deployment density of A-ESIM is downwardly skewed by assuming the aircraft will be uniformly distributed across the satellite receive beam coverage and that the visible area of the terrestrial station will only marginally intersect with the satellite footprint at a ratio of approximately 1 to 8. Comparing to other frequency bands used for ESIMs (e.g. 29 GHz), at 12.75 GHz the path loss the interfering signal goes through is 6 dB less and therefore the range of its harmful impact on terrestrial increases accordingly. As seen in other ITU-R studies (e.g. WRC-19 agenda item 1.5 and WRC-23 agenda item 1.16), the case of airports and taxi/take off/landing is the limiting case which means the uniform distribution of ESIMs through the beam is not valid. The combination of these assumptions vastly underestimates the interference potential into terrestrial services. By way of comparison, these assumptions are inconsistent with studies conducted with other incumbent services under this Agenda item, like the aeronautical radionavigation service, which models the real-world behavior of the aircraft these A-ESIM seek to serve. For these reasons, the sharing studies have failed to demonstrate that protection is ensured for the current and planned systems of incumbent terrestrial services.

In the United States, the Federal Communications Commission (FCC) has opened a [Notice of Inquiry](https://www.fcc.gov/document/fcc-examine-127-ghz-band-next-gen-wireless-0) (NOI) exploring how to expand the use of 550 megahertz of mid-band spectrum between 12.7 – 13.25 GHz for mobile broadband use as well as considerations on how to facilitate the international harmonization of the band.

**Proposal**:

**NOC** USA/1.15/1

ARTICLES

**Reason**: In order to ensure the protection of incumbent terrestrial services and harmonize the 12.75-13.25 GHz band for mobile broadband operations.

**NOC** USA/1.15/2

APPENDICES

**Reason**: In order to ensure the protection of incumbent terrestrial services and harmonize the 12.75-13.25 GHz band for mobile broadband operations.

**SUP** USA/1.15/3

RESOLUTION 172 (WRC‑19)

Operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the
 frequency band 12.75-13.25 GHz (Earth-to-space)

**Reason**: Consequential action.

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