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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| COMMITTEE 5 | **Revision 2 to Document 71-E** |
|  | **12 November 2015** |
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| Bahamas (Commonwealth of the)/Belize/Canada/Costa Rica/Ecuador/ United States of America/Jamaica/Paraguay (Republic of) | |
| Proposals for the work of the conference | |
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| Agenda item 1.6.2 | |

1.6 to consider possible additional primary allocations:

1.6.2 to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz;

and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU‑R studies, in accordance with Resolutions **151 (WRC‑12)** and **152 (WRC‑12)**, respectively;

Background

The bands between 13 and 17 GHz have allocations to a variety of services with worldwide applications, including Earth exploration-satellite, space research, aeronautical radionavigation, fixed, mobile and aeronautical mobile services, representing significant and, in many cases global commitments by administrations. Efforts to rectify previous WRC agreements that created imbalances between fixed-satellite service (FSS) up and downlinks in the frequency range 13-17 GHz need to ensure the protection of vital incumbent operations. CITEL submitted separate NOC proposals covering 13.25-13.4 GHz, 13.4-13.75 GHz, 15.4-17.0 GHz. This proposal presents an NOC proposal covering the 14.5-15.35 GHz. The countries signatory to this document do not support an additional primary allocation to the FSS (Earth-to-space) in the frequency range 14.5-15.35 GHz in either Region 2 or 3 due to interference into existing global services.

The 14.5-15.35 GHz frequency range has allocations to the fixed and mobile services on a primary basis in all three ITU Regions. The 14.5-14.8 GHz frequency band also has an allocation to the FSS on a primary basis in all three ITU Regions subject to Radio Regulation No. 5.510. No. 5.510 limits FSS use to feeder links for the broadcasting-satellite service outside Europe, which are subject to the Appendix 30A Broadcast Satellite Plan and associated procedures. The space research service has an allocation on a secondary basis in the frequency range 14.5-15.35 GHz in all three regions. Aeronautical mobile data links currently operate in the 14.5-15.35 GHz range under the mobile service (MS) allocation, the parent service to aeronautical mobile service (AMS).

Many administrations have implemented fixed links supporting the national telecommunications backbone infrastructure and other essential operations, such as the relay of air traffic control radar data. ITU studies have shown that interference from FSS (Earth-to-space) into the FS may exceed the protection criteria at hundreds of kilometers without careful siting of stations, off-axis antenna gains of both systems, shielding, and avoidance of overlapping channels. The satellite industry has expressed a desire for ubiquitous FSS use, e.g., dense deployments of Very Small Aperture Terminal (VSAT) operations. Implementation of satellite uplinks will hinder operation of the fixed service.

Many administrations operate many critical aeronautical mobile systems (uplink, downlink and air-air) on a 24/7 basis around the world to support coordinated security, law enforcement, and humanitarian assistance efforts throughout the 14.5-15.35 GHz frequency range that cannot afford disruptions. In addition to the studies conducted in the ITU-R, additional analysis were performed of possible approaches to facilitate sharing, e.g., via minimum FSS antenna size-restrictions, PFD limits, and/or other mitigation techniques that could be utilized by FSS providers. However, in each case, studies concluded that interference to aeronautical mobile operations would still occur over large distances and that implementation of proposed mitigation techniques was not practical. While larger antennas are likely to decrease the density of FSS deployments and narrow the beams through which aeronautical systems might fly, even signals from low densities of high-gain FSS antennas would frequently exceed airborne receiver thresholds and at greater levels and distances than those resulting from small dishes. Sharing studies show that in order to protect the AMS receivers operating in the range 14.5-15.35 GHz, there is a required separation distance in the range of 400-575 km for aircraft altitude of 19 km and in the range of 150-180 km for aircraft altitude of 2.4 km.

It is important to note that the band 14.5-14.8 GHz is allocated to the FSS (Earth-to-space), limited to feeder links for the broadcasting-satellite service (BSS) outside Europe. Such planned bands anticipate the future needs of developing countries. Despite some satellites currently recorded in the Master International Frequency Register, no typical or specific earth stations have been notified for this band. The limitation to FSS feeder links for BSS, while not ensuring protection of all AMS operations, minimizes the potential conflict.

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

NOC BAH/BLZ/CAN/CTR/EQA/USA/JMC/PRG/71/1

14-15.4 GHz

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| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 14.5-14.8 FIXED  FIXED-SATELLITE (Earth-to-space) 5.510  MOBILE  Space research | | |
| 14.8-15.35 FIXED  MOBILE  Space research  5.339 | | |

**Reasons:** ITU-R studies indicate a potential for interference into existing FS, MS and AMS systems.

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