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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| COMMITTEE 5 | **Revision 2 to Document 119-E** |
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| Austria/Belgium/Denmark/Estonia (Republic of)/France/Italy/Latvia (Republic of)/Liechtenstein (Principality of)/Lithuania (Republic of)/Poland (Republic of)/ Romania/United Kingdom of Great Britain and Northern Ireland | |
| Proposals for the work of the conference | |
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| Agenda item 1.6 | |

1.6 to consider possible additional primary allocations:

1.6.1 to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;

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;

Introduction

The present proposal is in line with the objectives of the Multi-country proposal MCP [79] -Proposals for the work of the Conference - Agenda item 1.6 and is aimed to provide additional considerations to such document.

Studies of possible frequency bands for a new primary allocation of 250 MHz to the fixed-satellite service in the Earth-to-space direction within the 10-17 GHz frequency range in Region 1, and within the 13-17 GHz frequency range in Regions 2 and 3, were conducted and they included technical, operational and regulatory considerations on this topic, in accordance with Resolution 151 (WRC-12) and Resolution 152 (WRC-12). In particular:

• the final Report of the CPM to the WRC-15, in its:

– sub-chapter 4.1, section 4.1/1.6.1 (and following ones), concerning AI 1.6.1;

– sub-chapter 4.1, section 4.1/1.6.2 (and following ones), concerning AI 1.6.2;

• Report ITU-R S.2365 (Document 4/112) in its sections:

– 10.2.3 and 10.3 for what concerns the band 14.5-14.8 GHz;

– 11.2.3 and 11.3 for what concerns the band 14.8-15.35 GHz;

• the WP 4A DNR ITU-R S.[R2R3.FSS] (Document 4/115) in its sections:

− 8.2.3 and 8.3, for what concerns the band 14.5-14.8 GHz;

− 9.2.3 and 9.3 for what concerns the band 14.8-15.35 GHz,

show the results of these studies. In particular:

**1 For the band 14.5-14.8 GHz**

a) Eight studies were performed, discussed at CPM and WP 4A level and included in the relevant reports; the results from all studies show that interference from the FSS (Earth-to-space) into the AMS exceed the protection criterion depending on the distance between the AMS receiving station and the FSS earth station. Nevertheless, the AMS (aircraft and land) stations are mobile in nature; therefore, setting a minimum separation distance with respect to a transmitting FSS earth station is not possible in practice.

b) The studies have demonstrated that:

i) The protection of AMS systems can only be achieved when separation distances between the transmitting FSS earth station and the AMS aircraft station are 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. This implies a de facto exclusion of the possibility for the AMS aircraft station to operate in such zones.

ii) Imposing a minimum size to the FSS earth station antenna has no significant effects on protection of the AMS aircraft station.

iii) Considering an AMS aircraft station operating at altitudes between 1 000 m and 20 000 m, the probability that the interference from an FSS earth station exceeds the AMS protection criterion is between 24% and 32% when that AMS aircraft station is operating between 0 to 200 km from the FSS earth station. The results for this scenario do not depend on the AMS aeronautical land station position.

iv) When the I/N protection criterion is exceeded for an AMS aircraft station, a complete link recovery procedure must be initiated, i.e. the aircraft must reach a position outside the interference zone before the link is re-established. Considering various aircraft speeds (up to 200 m/s) and altitudes (3 000 m to 10 000 m) the link recovery procedure could imply a service interruption duration up to several minutes.

v) For the above, the installation of FSS earth stations operating in the bands 14.5‑14.8 GHz and 14.8-15.35 GHz would lead to the exclusion of large parts of territory (in the order of several thousand square kilometres) from the execution of aerial surveys using AMS services in these bands, with unacceptable operational impacts on these services.

c) The coordination distance required between FSS and AMS aircraft stations is in excess of 500 km. It should be noted that the consequent coordination procedure is impractical to implement given the ubiquitous nature of AMS networks. Indeed, the typical extension of an AMS operation area may reach hundreds of km and may need to be evaluated on a flight-by-flight basis; for these reasons there is a high probability that a high number of Administrations would be involved in a coordination process whose duration is not compatible with the AMS operational requirements.

d) Furthermore, it is essential to realize that although a coordination procedure is currently in place in Regions 2 and 3 for the coordination between FSS (Earth-to-space) feeder links and the MS/AMS, no FSS earth station is currently notified in this band and associated to an operational FSS space station in this band; in consequence, there is no evidence that the sharing situation is real and currently implemented. Moreover, in the case that non-notified FSS earth stations were in operation under this allocation, there is no evidence that they can effectively coexist with the AMS without imposing undue operational constraints to AMS systems.

e) The results of studies and the above considerations confirm that the sharing between the proposed FSS, in the Earth-to-space direction, and the incumbent AMS is not feasible.

**2 For the band 14.8-15.35 GHz**

The studies point out the same conclusions as for the 14.5-14.8 GHz band, so for this band the results of studies confirm that the sharing between the proposed FSS, in the Earth-to-space direction, and the incumbent AMS is not feasible.

Proposal

According to the previous considerations, Austria, Belgium, Denmark, Estonia (Republic of), France, Italy, Latvia (Republic of), Liechtenstein (Principality of), Lithuania (Republic of), Poland (Republic of), Romania and United Kingdom of Great Britain and Northern Ireland oppose to any additional primary allocation to the fixed-satellite service in the Earth-to-space direction, within the frequency range 14.5-15.35 GHz, in Regions 1, 2 and 3, due to significant interference into existing global services. This position is stated in the NOC multi-country proposal in WRC-15 Document 79.

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