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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 6 to Document 61-E** |
|  | **14 October 2015** |
|  | **Original: English** |
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| Iran (Islamic Republic of) | |
| 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;

Background

In order to fulfil agenda item 1.6.1, ITU-R has undertaken studies of possible bands for new primary allocations to the fixed-satellite service (FSS) in the Earth-to-space and space-to-Earth directions within the frequency range 10-17 GHz in ITU Region 1. Studies were performed in 11 different sub-bands from 10 to 17 GHz, and the analysis of the results of the studies and the methods to satisfy the agenda item can be found in section 4.1/1.6.1/4 and section 4.1/1.6.1/5 of the CPM Report, respectively. Also ITU-R has undertaken studies of possible bands for new primary allocations to the FSS in the Earth to-space direction within the frequency range 13‑17 GHz in ITU Regions 2 and 3. Studies were performed in 8 different sub-bands from 13 to 17 GHz, and the analysis of the results of the studies and the methods to satisfy the agenda item can be found in section 4.1/1.6.2/4 and section 4.1/1.6.2/5 of the CPM Report respectively.

According to this Report, the existing unplanned FSS bands in the 13-17 GHz range in all Regions are used extensively for a large variety of applications. Growth in demand for these applications has triggered a rapid rise in the demand for the spectrum. Moreover, as satellite traffic is typically symmetrical in a large variety of applications, similar amounts of Earth‑to‑Space (uplink) and space-to-Earth (downlink) traffic are transmitted.

WRC-12 adopted WRC-15 agenda item 1.6 to consider additional primary allocations to the FSS and a review of regulatory provisions for existing FSS allocations, taking into account ITU-R studies in accordance with Resolution152 (WRC-12).

Discussion

According to breakdown which has been done for possible candidate bands for a new primary allocation to the fixed-satellite service, some sub-bands has been proposed for each agenda item (1.6.1 and 1.6.2) and sharing studies for each sub-band has been carried out based on peculiarities of each specific service. Variety of services including ARNS, AMS, BSS, MS, EESS, FS, SRS are allocated in each frequency band. Some of these services such as ARNS and AMS have played a vital role in human life. BSS is another major service which has had priority because of its importance for large public audiences.

One of the candidate bands for both 1.6.1 and 1.6.2 agenda items is the band 14.5-14.8 GHz which is already allocated to AMS and BSS services is some regions. Although Study Group 4 (WP 4A) completed its study to find possible additional primary allocation for FSS and considered all sharing scenarios between incoming FSS and other available services, some concerns are existing in the band 14.5-14.8 GHz.

Today, with respect to the RR No. 5.510, usage of this band is limited to BSS feeder links, outside Europe. ITU-R data base indicates that there are 22 Plan assignments, 16 List assignments and 106 filing yet to be coordinated in this band. Also the Director's Report (Document CPM15-2/41-E) about change in the Reference Situation (EPM) between WRC-2000 and March 2015 for Regions 1 and 3 Plan Beams in Appendices 30 and 30A addresses significant decrease in EPM values of some Networks of some countries in 14 GHz band with currently negative value for EPM for BSS Plan assignments of at least two countries. Lower EPM cause many unfavourable effects in BSS networks. The current situation reflected in the Director’s Report, has happened despite the limited use of this band according to the RR No. 5.510provision. Undoubtedly, by removing these limitations, the cumulative negative effect caused by new incoming FSS earth stations will be increased.

Consequently, the problem of administrations responsible for BSS applications becomes more complicated comparing to the past and the cumulative effect of individually insignificant cases of unsolved problems, will become more and more significant.

Moreover, right now sharing scenario between BSS and MS, in particular AMS, is already formulated in RR and both services are working together without any major difficulty. This situation stems from the nature of BSS service. The number of Uplink earth stations in this band for BSS application are much fewer than that of FSS earth stations which possibly will be used if the limitations are removed. Therefore, it is not possible to extend sharing studies between BSS and a certain service to FSS and that service.

As mentioned before, BSS is one of the affected services in the band 14.5-14.8 GHz and there are other important services which are affected as a result of dedicating this band to the purpose of agenda item 1.6.1 and 1.6.2. The studies done by WP 4A and reported to CPM, confirms this issue. As an example, it is indicated in the CPM Report, section 4.1/1.6.1/4.6.3:

***Quote***

*“Study #1 (static analysis) showed that VSAT FSS earth stations exceed the AMS aircraft station protection criterion at distances up to 575 km when the aircraft station operates at 19 km in altitude”*

***Unquote***

The same issue can be deduced for the 1.6.2 agenda item. As it is evident from the aforementioned study, allocation of this band is very hard due to the peculiarity of FSS earth stations and their number.

Table 1 below shows all possible candidates for the agenda items 1.6.1 and 1.6.2. As it is evident from the table, there are other candidate band which can be used for the purpose of these two agenda items.

Table-1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Usage (Up/Down) | Abbreviation stands for | Services | Sub-band (GHz) | No. |
| U/D (Active) | Earth Exploration-Satellite Service | EESS | **13.25-13.4** | **1** |
| U/D | Aeronautical Radio Navigation Service | ARNS |
| U/D (Active) | Space Research Service | SRS |
| U/ D | Fixed Service | FS |
| U/D | Earth Exploration-Satellite Service | EESS | **13.4-13.75** | **2** |
| U/D | Space Research Service | SRS |
| U/D | Radiolocation Service | RLS |
| U/D | Radio Navigation Service | RNS |
| U/D | Fixed Service | FS |
| U/D | Mobile Service | MS |
| U/D | Standard Frequency and Time Signal-Satellite Service | SFTSSS |
| U ( Plan, List) | Broadcasting-Satellite Service | BSS | **14.5-14.8** | **3** |
| U/D | Fixed Service | FS |
| U/D | Mobile Service/Aeronautical Mobile Service | MS/AMS |
| U/D | Space Research Service | SRS |
| Adjacent RAS band  (15.35-15.40 GHz) | Radio Astronomy Service | RAS |
| U/D | Mobile Service/Aeronautical Mobile Service | MS/AMS | **14.8-15.35** | **4** |
| U/D | Fixed Service | FS |
| U/D | Space Research Service | SRS |
| The frequency band 15.35-15.4 GHz was excluded from consideration of possibility to allocate additionally spectrum for GSO FSS in accordance with Resolution **151 (WRC-12)** | | | **15.35-15.4** | **5** |
| U/D | Radiolocation Service | RLS | **15.4-15.7** | **6** |
| U | Aeronautical Radionavigation Service | ARNS |
| U/D | Radiolocation Service | RLS | **15.7-16.6** | **7** |
| U/D | Radiolocation Service | RLS | **16.6-17** | **8** |

Iran's Proposals on agenda items 1.6.1 and 1.6.2

This administration followed the activities of ITU-R SG 4 and CPM15-2 and is of the view that:

– The 14.5-14.8 GHz band is now used for feeder links of the BSS Regions 1 and 3 Plan, Except Europe. (See Doc. CPM15-2/41-E).

– The current EPM values of Plan assignment for some countries in the 14.5-14.8 GHz band has degraded and any further decrease in EPM values may lead to non-practicable Networks which is against Planning concept. (See Doc. CPM15-2/41-E).

– The feasibility studies done by ITU-R do not show any complete compatibility for sharing this band with FSS Feeder link (e.g. AMS sharing case described hereinabove).

– Due to large number of FSS Feeder links, the cumulative interfering effect of adding FSS to this band may be far more than the limited number of stations considered in studies (e.g. 1 to 6 operating FSS Feeder Links).

Therefore, this Administration supports Method F1 (NOC) for the 14.5-14.8 GHz band, for the agenda items 1.6.1 and 1.6.2.

Proposals

ARTICLE 5

Frequency allocations

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

NOC IRN/61A6/1

14-15.4 GHz

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

**Reasons:** Each FSS earth station creates a volume where the AMS protection criterion is exceeded, as indicated in the studies. Such volume may extend to several hundreds of kilometres in latitude and longitude and preclude the AMS operations.

NOC IRN/61A6/2

14-15.4 GHz

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

**Reasons:** Each FSS earth station creates a volume where the AMS protection criterion is exceeded, as indicated in the studies. Such volume may extend to several hundreds of kilometres in latitude and longitude and preclude the AMS operations.

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