AGENDA 1.13

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IAFI[1]

CONSIDERATIONS TO PROTECT TERRESTRIAL IMT SYSTEMS UNDER WRC-27 AGENDA ITEM 1.13

1 Introduction

Working Party 5D has initiated the consideration of the regulatory provisions with a view to protect terrestrial IMT systems from the MSS network/systems (Document 5D/TEMP/258 of the WP5D#51). For this purpose, it is necessary to analyse the factors impacting the aggregate interference from the envisaged MSS systems providing the direct connectivity to IMT user equipment (UE). In this context, we propose some considerations to protect terrestrial IMT systems under WRC-27 agenda item 1.13.

2 Proposals

The proposals below provide some regulatory provisions with a view to protect terrestrial IMT systems from the MSS network/systems:

2.1 Proposed division of the frequency range 694/698 MHz and 2.7 GHz into 5 issues

As WRC-27 agenda item 1.13 covers a wide frequency range, we support subdividing the frequency range into five separate ranges and propose considering methods to satisfy this agenda item for each sub-frequency range as five distinct issues as below:

Frequency band(s)	Issue
694/698-960 MHz	Issue 1
1 427-1 518MHz	Issue 2
1 710-2 200 MHz	Issue 3
2 300-2 400 MHz	Issue 4
2 500-2 690 MHz	Issue 5

2.2 Methods to protect terrestrial IMT systems under WRC-27 agenda item 1.13

In order to ensure continued protection of IMT systems, we propose that the allocation to the Mobile-Satellite Service be made on a secondary basis for use by DC-MSS-IMT systems. This

[1] IAFI is a sector Member of ITU-R. For more details, please see https://iafi.in.

allocation could be made through a new footnote for each band which should clearly laydown the principles **to protect terrestrial IMT systems under WRC-27 agenda item 1.13**

In addition, it is also critical to have one common accompanying WRC Resolution to set the pfd limits and other conditions for protection of the terrestrial IMT stations will be necessary.We do not support separate Resolution for each band or sub band.

2.3 Draft of the proposed Footnote

The draft of the proposed footnote against each secondary MSS allocation included in the table of allocations to protect terrestrial IMT systems under WRC-27 agenda item 1.13 should contain the following text:

"The frequency band XXX is allocated to the Mobile Satellite service on a secondary basis for direct connectivity between Mobile satellite service space stations and International Mobile Telecommunications (IMT) terrestrial terminals (DC-MSS-IMT) to complement terrestrial IMT coverage. This identification does not preclude the use of these frequency bands by any application of other services to which the band is allocated and does not establish priority in the Radio Regulations. DC-MSS-IMT space stations shall not claim protection from stations operating in in accordance with the RR. Resolution **[A1-DC-MSS-IMT] (WRC-27)** shall apply. "The use of the frequency bands identified for International Mobile Telecommunications (IMT) by the mobile-satellite service (MSS) is limited to direct connectivity between MSS space stations and IMT stations (DC-MSS-IMT). DC-MSS-IMT operations shall not cause harmful interference to, nor claim protection from, stations operating under the mobile services, including IMT systems."

2.4 Elements of the Regulatory provisions to protect terrestrial IMT systems under WRC-27 agenda item 1.13

These elements include items on the role of DC-MSS-IMT being complementary, frequency arrangements, agreement between MNO & SNO being in place, limits to protect IMT and enable DC-MSS-IMT, cross border limits could be relaxed subject to bilateral agreements, placeholder for notification/verification/compliance measures. For this following considerings, notings and recognisings need to be included as the Regulatory provisions to protect terrestrial IMT systems under WRC-27 agenda item 1.13 in the resolution developed for this agenda:

2.4.1 considerings

a) that there is growing demand for access to mobile broadband, requiring more flexibility in the approaches to expand the capacity and coverage provided by International Mobile Telecommunications (IMT) systems;

b) that direct connectivity between Mobile satellite service space stations and International Mobile Telecommunications (IMT) user terminals would complement the terrestrial IMT networks, to provide mobile-broadband connectivity to underserved communities, and in rural and remote areas;

c) that DC-MSS-IMT would offer a new means of providing IMT services with minimal network infrastructure as they are capable of providing service to a large footprint together with a dense coverage;

d) that DC-MSS-IMT stations could use the same frequency bands as ground-based IMT base stations in order to provide mobile-broadband connectivity to complement the terrestrial IMT networks

e) that the operation of DC-MSS-IMT in the same geographical area with existing services in the same and adjacent may create incompatibility and interference issues;

f) that it is necessary to adequately protect existing services and their development in these frequency bands,

g) that the user equipment to be served, whether by DC-MSS-IMT or ground-based IMT base stations, is the same, and currently supports a variety of the frequency bands identified for IMT;

h) that ITU-R has addressed sharing and compatibility between DC-MSS-IMT and existing systems of primary allocated services, and adjacent services in the frequency bands in the frequency range 694-2 690 MHz;

i) that administrations planning to implement DC-MSS-IMT may need to exchange information, on a bilateral basis, with other concerned administrations, including data items describing the DC-MSS-IMT characteristics, and whether flexibility on the DC-MSS-IMT platform altitude has been permitted by the administration;

2.4.2 recognizings

a) that, in Article **5** of the Radio Regulations, the frequency bands or parts of these frequency bands, within the frequency range 694-2 960 MHz, , are allocated, and are used on a primary and secondary basis, to various services;

c) that the use of spectrum for different services should take into account the need for sharing studies;

d) that the Radio Regulations provide that the identification of a given frequency band for DC-MSS-IMT does not preclude the use of that frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations;

h) that these bands are allocated to the fixed and mobile services on a co-primary basis,

2.4.3 *notings*

a) that DC-MSS-IMT operations are capable of providing mobile broadband connectivity directly from space to standard un-modified IMT user equipment providing complementary services to terrestrial IMT networks,

b) that, when the DC-MSS-IMT systems are deployed in the same frequency band, or in adjacent frequency bands, technical or operational measures are needed in order to avoid harmful interference;

2.4.3 *resolves*

1 that DC-MSS-IMT space stations authorized to operate within the territory of an administration shall communicate only with authorised IMT user equipment and that IMT user equipment shall transmit to DC-MSS-IMT space stations only where authorised;

2 that the operation of DC-MSS-IMT within the territory of an administration shall operate only with the explicit agreement between the Satellite Network Operator (SNO) and the terrestrial Mobile Network Operator (MNO).

3 that, for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency range 694-2690 MHz, the power flux-density (pfd) level per DC-MSS-IMT produced at the surface of the Earth in the territory of other administrations shall not exceed the following limit, unless explicit agreement of the affected administration is provided:

Aggregate PFD limit [per system][per satellite] for protection of IMT UE (Note 1, 2)

Frequency range	694/698-960 MHz	1 427-1 518 MHz	1 710-2 200 MHz
Aggregate PFD limit per system dB(W/(m²·.MHz))	X1[TBD]	X2[TBD]	X3[TBD]

Note 1: The pfd values per system considers 3 dB multi-system aggregation factor

Note 2: The values consider protection of FWA CPE

4 that any explicit bilateral or multilateral agreement(s) allowing the application of limits less stringent than those specified in this Resolution shall not adversely affect administrations that are not party to such agreement,