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IAFI[1]

UPDATES TO THE WORKING DOCUMENT TOWARDS DRAFT CPM TEXT FOR WRC-27 AGENDA ITEM 1.13

1 Introduction

Working Party (WP) 4C started work on the draft CPM Report during the last WP 4C meeting. Annex 11 to WP 4C Chair's Report "Working document towards draft CPM text for WRC-27 agenda item 1.13" contains only the basic structure without substantive content. The document was marked as "not discussed" in the notes and attached to the Chair's Report.

In this context, we propose preliminary text for the working document toward the draft CPM text, based on Resolution **253 (WRC-23)**, as shown in the attachment to this document.

2 Discussions

The attachment below is based on the working document that was prepared in the last meeting of WP 4C and attached with the Chair's Report as Annex 11 to WP 4C Chair's Report and includes following proposals:

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

Based on this subdivision, subsections in section 4 of the CPM text are proposed to be established for each issue.

2.2 Methods to Satisfy the agenda item

[1] ITU-APT Foundation of India (IAFI) is a sector member of ITU-R, ITU-D, ITU-T.

Based on the discussions during the last WP 4C meeting, we support one or two methods for each issue; Depending on the frequency band, we propose either a “No change to the Radio Regulations,” or “to allocate the band to Mobile-Satellite Service on a secondary basis for use by DC-MSS-IMT systems” or both. In addition, we have also proposed an accompanying WRC Resolution to set the pfd limits and other conditions for working of the DC-MSS-IMT and for protection of the terrestrial IMT stations.

2.3 Draft of the proposed Footnote

The footnote against each secondary MSS allocation included in the table of allocations is proposed as:

“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 for a draft new resolution

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.

3 Proposal

Based on the above discussions, we propose that the draft of the working document toward the draft CPM text in the attachment for consideration and further discussions during the WP 4C meeting.

Attachment: Working document.

ATTACHMENT

Working document towards draft CPM text for WRC-27 agenda item 1.13

CHAPTER 3

Mobile-satellite issues

(Agenda items 1.11, 1.12, 1.13, 1.14)

Agenda item 1.13

(WP 4C[2*] / WP 3L, WP 3M, WP 4A, WP 4B, WP 5A, WP 5B, WP 5C, WP 5D[*], WP 6A, WP 7B, WP 7C, WP 7D)

*1.13 to consider studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage, in accordance with Resolution **253 (WRC-23)**;*

Resolution **253 (WRC-23)** – *Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage*

3/1.13/1 Executive summary

[Executive summary to describe briefly the purpose of the agenda item, summarize the results of the studies carried out and, most importantly, provide a brief description of the method(s) identified that may satisfy the agenda item; should be limited to no more than half a page of text (see also §§ A2.1, A2.3 , A2.5 and A2.6 of Annex 2 to Resolution ITU-R 2-9)]

[2*] Working Party 4C will carry out the studies on possible allocations to the MSS in the frequency bands between 694/698 MHz and 2.7 GHz provided by input contributions, including those from WP 5D based on the IMT frequency arrangements contained in the most recent version of Recommendation ITU-R M.1036.

Working Party 4C, in close collaboration with WP 5D, will conduct studies referred to in the resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference 2.

Working Party 4C will carry out the studies requested in the further resolves 1 and 2. Working Party 5D is expected to provide studies which include regulatory considerations on the protection of terrestrial component of IMT.

Working Party 4C should take the lead in developing the draft CPM text by including the WP 5D's results on the regulatory considerations on the protection of terrestrial component of IMT. To facilitate the work, the Chairs of both WPs should coordinate the schedule of WPs meetings, as appropriate, and provide a note to both WPs in this regard.

3/1.13/2 Background

[Background section[31] to provide general information in a concise manner, in order to describe the rationale of the agenda items (or issue(s)) (see also §§ A2.2, A2.3, A2.5 and A2.6 of Annex 2 to Resolution ITU-R 2-9)]

3/1.13/3 Summary and analysis of the results of ITU-R studies

[Summary of the technical and operational studies, including a list of relevant ITU-R Recommendations, and analysis of the results of studies relating to the possible methods of satisfying the agenda item (see §§ A2.3, A2.5 and A2.6 of Annex 2 to Resolution ITU-R 2-9)]

3/1.13/3.1 Results of studies on possible description and functionality of DC-MSS-IMT systems

[Editor's note: This section is a place holder for a summary of 4C/356 Annex 6.]

3/1.13/3.2 Results of sharing and compatibility studies

[Editor's note: This section is a place holder for a summary of 4C/356 Annex 7.]

3/1.13/3.3 Results of regulatory considerations to protect terrestrial IMT systems

[Editor's note: This section is a placeholder for summary of studies in WP5D.]

3/1.13/4 Methods to satisfy the agenda item

Two methods to satisfy the agenda item are proposed for each sub band; one is a NOC Method (no change to Radio Regulation), and the other is to allocate the Mobile-Satellite Service on a secondary basis for use by DC-MSS-IMT systems in Article 5 of the Radio Regulations.

The Frequency Range 694/698-2 690 MHz is divided into 5 bands, and each sub band is treated as a separate issue as shown in the table below:

Frequency band(s)	Issues	Methods to satisfy agenda item	
		No change to the Radio Regulations (RR)	Allocation of the mobile satellite service on a secondary basis for use by DC-MSS-IMT systems along with an accompanying WRC Resolution
694/698-960 MHz	1	1A	1B
1 427-1 518MHz	2	2A	2B
1 710-2 200 MHz	3	3A	3B
2 300-2 400 MHz	4	4A	4B
2 500-2 690 MHz	5	5A	4C

[31] It shall not include advertisement, promotional and commercial information.

3/1.13/4.1 Issue 1: DC-MSS-IMT in the frequency band 694/698-960 MHz

3/1.13/4.1.1 Method 1A - NOC

3/1.13/4.1.2 Method 1B – This method proposes a secondary allocation with an associated footnote for DC-MSS-IMT in the frequency band 694/698-960 MHz or parts thereof. The footnote against each secondary MSS allocation included in the table of allocations is proposed as "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 in accordance with Resolution B-XX."

3/1.13/4.2 Issue 2: DC-MSS-IMT in the frequency band 1 427-1 518 MHz

3/1.13/4.2.1 Method 2A - NOC

3/1.13/4.2.2 Method 2B – This method proposes a secondary allocation with an associated footnote for DC-MSS-IMT in the frequency band 1 427-1 518 MHz or parts thereof.. The footnote against each secondary MSS allocation included in the table of allocations is proposed as "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 in accordance with Resolution B-XX."

3/1.13/4.3 Issue 3: DC-MSS-IMT in the frequency bands 1 710-2 025 MHz and 2 110-2 200 MHz

3/1.13/4.3.1 Method 3A - NOC

3/1.13/4.3.2 Method 3B – This method proposes a secondary allocation with an associated footnote for DC-MSS-IMT in the frequency band 1 710-2 025 MHz or parts thereof. The footnote against each secondary MSS allocation included in the table of allocations is proposed as "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 in accordance with Resolution B-XX."

3/1.13/4.4 Issue 4: DC-MSS-IMT in the frequency band 2 300-2 400 MHz

3/1.13/4.4.1 Method 4A – NOC

3/1.13/4.4.2 Method 4B – This method proposes a secondary allocation with an associated footnote for DC-MSS-IMT in the frequency band 2 300 -2 400 MHz or parts thereof. The footnote against each secondary MSS allocation included in the table of allocations is proposed as "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 in accordance with Resolution B-XX."

3/1.13/4.5 Issue 5: DC-MSS-IMT in the frequency band 2 500-2 690 MHz

3/1.13/4.5.1 Method 5A – NOC

3/1.13/4.5.2 Method 5B – This method proposes a secondary allocation with an associated footnote for DC-MSS-IMT in the frequency band 2500 - 2690 MHz or parts thereof. The footnote against each secondary MSS allocation included in the table of allocations is proposed as "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 in accordance with Resolution B-XX."

3/1.13/5 Regulatory and procedural considerations

[Example(s) of regulatory text relating to the Method(s) to satisfy the agenda item (see §§ A2.3, A2.4.6 and A2.5 of Annex 2 to Resolution ITU-R 2-9)]

1/1.13/5.1 For Issue 1 : DC-MSS-IMT in the frequency band 694/698-960 MHz

1/1.13/5.1.1 Method 1A

NOC to Vols. I and II of the Radio Regulations, the regulatory text below applies.

NOC

ARTICLES

NOC

APPENDICES

SUP

RESOLUTION 253 (WRC-23)

Resolution 253 (WRC-23) – Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage

1/1.13/5.1.2 Method 1B

Changes to the Radio Regulations, the regulatory text below applies.

ARTICLE 5

Frequency allocations

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

MOD

460-890 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr>
<td>470-694
BROADCASTING
5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.312

694-790
MOBILE except aeronautical mobile 5.312A 5.317A
BROADCASTING
5.300 5.312

790-862
FIXED
MOBILE except aeronautical mobile 5.316B 5.317A
BROADCASTING
5.312 5.319

862-890
FIXED
MOBILE except aeronautical mobile 5.317A
BROADCASTING 5.322
5.319 5.323</td>
<td>470-512
BROADCASTING
Fixed
Mobile
5.292 5.293 5.295

512-608
BROADCASTING
5.295 5.297

608-614
RADIO ASTRONOMY
Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)

614-698
BROADCASTING
Fixed
Mobile
5.293 5.308 5.308A 5.309

698-806
MOBILE 5.317A
BROADCASTING
Fixed
5.293 5.309

806-890
FIXED
MOBILE 5.317A
BROADCASTING
5.317 5.318</td>
<td>470-585
FIXED
MOBILE 5.296A
BROADCASTING
5.291 5.298

585-610
FIXED
MOBILE 5.296A
BROADCASTING
RADIONAVIGATION
5.149 5.305 5.306 5.307

610-890
FIXED
MOBILE 5.296A 5.313A 5.317A
BROADCASTING
5.149 5.305 5.306 5.307 5.320</td>
</tr>
</table>

MOD

890-1 300 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="3">890-942
FIXED
MOBILE except aeronautical mobile 5.317A
BROADCASTING 5.322
Radiolocation

5.323</td><td>890-902
FIXED
MOBILE except aeronautical mobile 5.317A
Radiolocation

5.318 5.325</td><td rowspan="3">890-942
FIXED
MOBILE 5.317A
BROADCASTING
Radiolocation

5.327</td></tr>
<tr><td>902-928
FIXED
Amateur
Mobile except aeronautical mobile 5.325A
Radiolocation

5.150 5.325 5.326</td></tr>
<tr><td>928-942
FIXED
MOBILE except aeronautical mobile 5.317A
Radiolocation
5.325</td></tr>
<tr><td>942-960
FIXED
MOBILE except aeronautical mobile 5.317A
BROADCASTING 5.322

5.323</td><td>942-960
FIXED
MOBILE 5.317A ADD 5.1B4</td><td>942-960
FIXED
MOBILE 5.317A ADD 5.1B4
BROADCASTING

5.320</td></tr>
</table>

ADD

5.1B The frequency band 698-960 MHz, in Regions 2 and 3 and the frequency band 694-960 MHz, in Region 1, 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. (WRC-27)

1/1.13/5.2 For Issue 2: DC-MSS-IMT in the frequency band 1 427-1 518 MHz

1/1.13/5.2.1 Method 2A

NOC to Vols. I and II of the Radio Regulations, the regulatory text below applies.

NOC

ARTICLES

NOC

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RESOLUTION 253 (WRC-23)

Resolution 253 (WRC-23) – Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage

1/1.13/5.2.2 Method 2B

Changes to the Radio Regulations, the regulatory text below applies.

ARTICLE 5

Frequency allocations

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

MOD

1 300-1 525 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 300-1 350	RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A	

1 350-1 400 FIXED MOBILE RADIOLOCATION 5.149 5.338 5.338A 5.339	**1 350-1 400** RADIOLOCATION 5.338A 5.149 5.334 5.339	
1 400-1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
1 427-1 429	SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341A 5.341B 5.341C 5.338A 5.341	
1 429-1 452 FIXED MOBILE except aeronautical mobile 5.341A 5.338A 5.341 5.342	**1 429-1 452** FIXED MOBILE 5.341B 5.341C 5.343 5.338A 5.341	
1 452-1 492 FIXED MOBILE except aeronautical mobile 5.346 BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.342 5.345	**1 452-1 492** FIXED MOBILE 5.341B 5.343 5.346A BROADCASTING BROADCASTING-SATELLITE 5.208B 5.341 5.344 5.345	
1 492-1 518 FIXED MOBILE except aeronautical mobile 5.341A 5.341 5.342	**1 492-1 518** FIXED MOBILE 5.341B 5.343 5.341 5.344	**1 492-1 518** FIXED MOBILE 5.341C 5.341
1 518-1 525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.342	**1 518-1 525** FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341 5.344	**1 518-1 525** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A 5.341

ADD

5.2B The frequency band 1427-1518 MHz, 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. (WRC-27)

1/1.13/5.3 For Issue 3: DC-MSS-IMT in the frequency band 1 710-2 200 MHz

1/1.13/5.3.1 For Method 3A: NOC to Vols. I and II of the Radio Regulations

NOC

ARTICLES

NOC

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SUP

RESOLUTION 253 (WRC-23)

Resolution 253 (WRC-23) – Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage

1/1.13/5.3.2 For Method 3B: DC-MSS-IMT in 1 710-2 200 MHz

ARTICLE 5

Frequency allocations

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

MOD

1 710-2 170 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
1 710-1 930	FIXED MOBILE 5.384A 5.388 5.388A 5.149 5.341 5.385 5.386 5.387	

1 930-1 970 FIXED MOBILE 5.388 5.388A	**1 930-1 970** FIXED MOBILE 5.388 5.388A Mobile-satellite (Earth-to-space)	**1 930-1 970** FIXED MOBILE 5.388 5.388A
1 970-1 980	FIXED MOBILE 5.388 5.388A	
1 980-2 010	FIXED MOBILE 5.388 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.389A 5.389B 5.389F	
2 010-2 025 FIXED MOBILE 5.388 5.388A	**2 010-2 025** FIXED MOBILE 5.388 MOBILE-SATELLITE (Earth-to-space) 5.389C 5.389E	**2 010-2 025** FIXED MOBILE 5.388 5.388A
2 025-2 110	SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392	
2 110-2 120	FIXED MOBILE 5.388 5.388A SPACE RESEARCH (deep space) (Earth-to-space)	
2 120-2 160 FIXED MOBILE 5.388 5.388A	**2 120-2 160** FIXED MOBILE 5.388 5.388A Mobile-satellite (space-to-Earth)	**2 120-2 160** FIXED MOBILE 5.388 5.388A
2 160-2 170 FIXED MOBILE 5.388 5.388A	**2 160-2 170** FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.389C 5.389E	**2 160-2 170** FIXED MOBILE 5.388 5.388A

2 170-2 200	FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A 5.389F

ADD

5.3B The frequency band 1 710 -2 200 MHz 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. (WRC-27)

1/1.13/5.4 For Issue 4: DC-MSS-IMT in the frequency band 2 200 – 2 300 MHz

1/1.13/5.4.1 Method 4A: NOC to Vols. I and II of the Radio Regulations

NOC

ARTICLES

NOC

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RESOLUTION 253 (WRC-23)

Resolution 253 (WRC-23) – Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage

1/1.13/5.5 For Issue 5: DC-MSS-IMT in the frequency band 2 500 – 2 690 MHz

1/1.13/5.5.1 For Method 5A: NOC to Vols. I and II of the Radio Regulations

NOC

ARTICLES

NOC

APPENDICES

SUP

RESOLUTION 253 (WRC-23)

Resolution 253 (WRC-23) – Studies on possible new allocations to the mobile-satellite service for direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment to complement terrestrial IMT network coverage

1/1.13/5.6 For Issues 1, 2 and 3 : DC-MSS-IMT in the frequency band 694/698-2 690 MHz, or portions thereof

1/1.13/5.6.1 For Methods 1B, 2B, and 3B

ADD

RESOLUTION [A1-DC-MSS-IMT] (WRC-27)

Use of direct connectivity between Mobile satellite service space stations and International Mobile Telecommunications (IMT) (DC-MSS-IMT) in the frequency band 694/698-2 690 MHz, or portions thereof

The World Radiocommunication Conference (Shanghai, 2027),

considering

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;

recognizing

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,

noting

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;

resolves

1 that DC-MSS-IMT systems shall operate under the same frequency arrangements as the terrestrial IMT systems, as listed in the table below:

Frequency range	**Transmitting frequency bands of IMT user equipment (Earth-to-space)**	**Transmitting frequency bands of space stations in MSS (space-to-Earth)**	**Duplex mode**	**Relevant frequency arrangements in Rec. ITU-R M.1036-7**
694/698-960 MHz	824-844 MHz	869-889 MHz	FDD	A1*
	890-915 MHz	935-960 MHz	FDD	A2*
	703-748 MHz	758-803 MHz	FDD	A5
1 427-1 518 MHz	1 427-1 470 MHz	1 475-1 518 MHz	FDD	G2

1 710-2 200 MHz	1 920-1 980 MHz	2 110-2 170 MHz	FDD	B1
	1 710-1 785 MHz	1 805-1 880 MHz	FDD	B2
	1 850-1 920 MHz	1 930-2 000	FDD	B3

*Note: Some countries have implemented both A1 and A2 arrangements differently in the band 694/698-960 MHz; that is 824-849 MHz (Uplink) paired with 869-894 MHz (Downlink) and 880-915 MHz ((Uplink) paired with 925-960 MHz (Downlink).

2 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;

3 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).

4 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

5 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,

invites administrations

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.