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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | |  |
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| PLENARY MEETING | | **Addendum 4 to Document 62-E** | |
|  | | **26 September 2023** | |
|  | | **Original: English** | |
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| Asia-Pacific Telecommunity Common Proposals | | | |
| PROPOSALS FOR THE WORK OF THE CONFERENCE | | | |
|  | | | |
| Agenda item 1.4 | | | |

1.4to consider, in accordance with Resolution **247 (WRC‑19)**, the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level;

Introduction

This document presents the APT Common Proposals for WRC-23 agenda item 1.4.

Proposal

Issue A (694-960 MHz)

• APT Members have not developed an ACP in this frequency band.

Issues B and C (1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz)

• APT Members support the use of HIBS in the frequency bands 1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, or portions thereof, globally through Methods B3 and C3 with the modification of Resolution **221**.

• In addition, APT Members have the following views on Examples under the respective conditions in Resolution **221 (Rev.WRC-23)** contained in the CPM Report.

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| Provisions |  | Supported Example |
| *resolves* 1.2 and 1.3 | Protection measures for IMT in the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz | Example 1 |
| *resolves* 1.5 | Protection measures for the fixed service in the adjacent frequency band 2 010-2 100 MHz | Example 1 |
| *resolves* 1.6 | Protection measures for the fixed service in the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz | Example |
| *resolves* 1.7 and 1.8 | Protection measures for the aeronautical mobile service in the frequency band 1 780-1850 MHz | Example 3 |

Issue D (2 500-2 690 MHz)

• APT Members support the use of HIBS in the frequency band 2 500-2 690 MHz, or portions thereof, globally through Method D3 with a new WRC Resolution.

• In addition, APT Members have the following views on examples under the respective conditions in Resolution **[B14-HIBS 2 500-2 690 MHz] (WRC‑23)** contained in the CPM Report.

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| Provisions |  | Supported Example |
| *resolves* 1.1 and 1.2 | Protection measures for IMT in the frequency band 2 500-2 690 MHz | Example 1 |
| *resolves* 1.3 | Protection measures for the fixed service in the frequency band 2 500-2 690 MHz | Example 1 |
| *resolves* 1.4 | Protection measures for the broadcasting satellite service in the frequency band 2 520-2630 MHz | Example 2 with some modifications |
| *resolves* 1.6 | Protection measures for the radiolocation service systems operating in accordance with No. 5.423, in the frequency band 2 700-2 900 MHz | Example 1 |
| *resolves* 1.7 and 1.8 | Protection measures for the radio astronomy service operating in the frequency band 2 690-2 700 MHz | Example 1 |
| *resolves* 1.9 | Protection measures for the radiodetermination satellite service (s-to-E) and the mobile satellite service (s-to-E) in the adjacent frequency band 2 483.5-2 500 MHz | Example 2 |

ARTICLE 5

Frequency allocations

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

MOD ACP/62A4/1#1442

1 710-2 170 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 1 710-1 930 FIXED  MOBILE 5.384A MOD 5.388A 5.388B  5.149 5.341 5.385 5.386 5.387 5.388 | | |
| 1 930-1 970  FIXED  MOBILE MOD 5.388A 5.388B | 1 930-1 970  FIXED  MOBILE MOD 5.388A 5.388B  Mobile-satellite (Earth-to-space) | 1 930-1 970  FIXED  MOBILE MOD 5.388A 5.388B |
| 5.388 | 5.388 | 5.388 |
| 1 970-1 980 FIXED  MOBILE MOD 5.388A 5.388B  5.388 | | |
| 1 980-2 010 FIXED  MOBILE  MOBILE-SATELLITE (Earth-to-space) 5.351A  5.388 5.389A 5.389B 5.389F | | |
| 2 010-2 025  FIXED  MOBILE MOD 5.388A 5.388B | 2 010-2 025  FIXED  MOBILE  MOBILE-SATELLITE (Earth-to-space) | 2 010-2 025  FIXED  MOBILE MOD 5.388A 5.388B |
| 5.388 | 5.388 5.389C 5.389E | 5.388 |
| 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 MOD 5.388A 5.388B  SPACE RESEARCH (deep space) (Earth-to-space)  5.388 | | |
| 2 120-2 160  FIXED  MOBILE MOD 5.388A 5.388B | 2 120-2 160  FIXED  MOBILE MOD 5.388A 5.388B  Mobile-satellite (space-to-Earth) | 2 120-2 160  FIXED  MOBILE MOD 5.388A 5.388B |
| 5.388 | 5.388 | 5.388 |
| 2 160-2 170  FIXED  MOBILE MOD 5.388A 5.388B | 2 160-2 170  FIXED  MOBILE  MOBILE-SATELLITE (space-to-Earth) | 2 160-2 170  FIXED  MOBILE MOD 5.388A 5.388B |
| 5.388 | 5.388 5.389C 5.389E | 5.388 |

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency bands 1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, on a global level, based on Methods B3 and C3 in the CPM Report.

MOD ACP/62A4/2#1430

5.388A The frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3, and the frequency bands 1 710-1 980 MHz and 2 110-2 160 MHz in Region 2, are identified for use by high altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **221 (Rev.WRC‑23)** shall apply. Such use of HIBS in the frequency bands 1 710-1 785 MHz in Regions 1 and 2, and 1 710-1 815 MHz in Region 3 is limited to reception by HIBS, and in the frequency band 2 110-2 170 MHz is limited to transmission from HIBS. HIBS shall not claim protection from existing primary services. The notifying administration of HIBS at the time of submission of the Appendix **4** information shall send an objective, measurable and enforceable commitment undertaking that in case unacceptable interference is caused it shall immediately reduce the interference to the acceptable level or cease the emission.     (WRC‑23)

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency bands 1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, on a global level, based on Methods B3 and C3 in the CPM Report.

MOD ACP/62A4/3#1451

2 170-2 520 MHz

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| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 2 500-2 520  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.M14 | 2 500-2 520  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14 | 2 500-2 520  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14  MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A |
| 5.412 |  | 5.404 5.415A |

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency band 2 500-2 690 MHz, on a global level, based on Method D3 in the CPM Report.

MOD ACP/62A4/4#1452

2 520-2 700 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 2 520-2 655  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.413 5.416 | 2 520-2 655  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.413 5.416 | 2 520-2 535  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.413 5.416 |
|  |  | 5.403 5.414A 5.415A |
|  |  | 2 535-2 655  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.413 5.416 |
| 5.339 5.412 5.418B 5.418C | 5.339 5.418B 5.418C | 5.339 5.418 5.418A 5.418B 5.418C |
| 2 655-2 670  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.208B 5.413 5.416  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) | 2 655-2 670  FIXED 5.410  FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14  BROADCASTING-SATELLITE 5.413 5.416  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) | 2 655-2 670  FIXED 5.410  FIXED-SATELLITE (Earth-to-space) 5.415  MOBILE except aeronautical mobile 5.384A  BROADCASTING-SATELLITE 5.208B 5.413 5.416  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) |
| 5.149 5.412 | 5.149 5.208B | 5.149 5.420 |
| 2 670-2 690  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.M14  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) | 2 670-2 690  FIXED 5.410  FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.M14  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) | 2 670-2 690  FIXED 5.410  FIXED-SATELLITE (Earth-to-space) 5.415  MOBILE except aeronautical mobile 5.384A  MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419  Earth exploration-satellite (passive)  Radio astronomy  Space research (passive) |
| 5.149 5.412 | 5.149 | 5.149 |
| 2 690-2 700 EARTH EXPLORATION-SATELLITE (passive)  RADIO ASTRONOMY  SPACE RESEARCH (passive)  5.340 5.422 | | |

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency band 2 500-2 690 MHz, on a global level, based on Method D3 in the CPM Report.

ADD ACP/62A4/5#1453

5.M14The frequency band 2 500-2 690 MHz in Regions 1 and 2, and the frequency band 2 500-2 655 MHz in Region 3 are identified for use by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. Resolution **[ACP-B14-HIBS 2 500-2 690 MHz]** shallapply. Such use of HIBS in the frequency bands 2 500-2 510 MHz in Regions 1 and 2, and 2 500-2 535 MHz in Region 3 is limited to reception by HIBS. HIBS shall not claim protection from existing primary services.The notifying administration of HIBS at the time of submission of the Appendix**4** information shall send an objective, measurable and enforceable commitment undertaking that in case unacceptable interference is caused it shall immediately reduce the interference to the acceptable level or cease the emission.     (WRC‑23)

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency band 2 500-2 690 MHz, on a global level, based on Method D3 in the CPM Report.

ARTICLE 11

Notification and recording of frequency   
assignments1, 2, 3, 4, 5, 6, 7    (WRC‑19)

Section I − Notification

MOD ACP/62A4/6#1460

11.26ANotices relating to assignments for high altitude platform stations as IMT base stations in the frequency bands identified in Nos. **5.M14** and **5.388A** shall reach the Bureau not earlier than three years before the assignments are brought into use.     (WRC‑23)

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency bands 1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz, 2 110-2 170 MHz and 2 500-2 690 MHz, on a global level, based on Methods B3, C3 and D3 in the CPM Report.

MOD ACP/62A4/7#1436

RESOLUTION 221 (Rev.WRC‑23)

Use of high altitude platform stations as International Mobile Telecommunications base stations (HIBS) in the frequency bands 1 710‑1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz

The World Radiocommunication Conference (Dubai, 2023),

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 high-altitude platform stations as IMT base stations (HIBS) would be used as part of terrestrial IMT networks, and may use the same frequency bands as ground-based IMT base stations in order to provide mobile-broadband connectivity to underserved communities, and in rural and remote areas;

*c)* that HIBS 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 the use of HIBS is optional for administrations, and that such use should not have any priority over other terrestrial IMT use;

*e)* that the mobile station to be served, whether by HIBS or ground-based IMT base stations, is the same, and currently supports a variety of the frequency bands identified for IMT;

*f)* that, under certain deployment scenarios, HIBS could operate at an altitude down to 18 km;

*g)* that some sensitivity studies have shown that the difference of interference from HIBS at altitudes between 18 km and 20 km would be negligible;

*h)* that ITU‑R has addressed sharing and compatibility between HIBS and existing systems of primary allocated services, and adjacent services in the frequency bands 1 710-2 025 MHz and 2 110-2 200 MHz;

*i)* that the conclusion of the compatibility studies between HIBS operating above 1 710 MHz and meteorological satellite (MetSat) operations in the adjacent frequency band 1 670-1 710 MHz has been assuming that the use of HIBS in the frequency band 1 710-1 785 MHz is limited to reception by HIBS;

*j)* that spectrum needs, usage and deployment scenarios, and typical technical and operational characteristics for HIBS are provided in the WDPDN Report ITU‑R M.[HIBS-CHARACTERISTICS];

*k)* that the conclusion of the compatibility studies between HIBS operating above 2 110 MHz and SRS/SOS/EESS operations in the adjacent frequency band 2 025-2 110 MHz and the conclusion of the sharing studies between HIBS and SRS in the frequency band 2 110-2 120 MHz have both been assuming that the use of HIBS in the frequency band 2 110-2 170 MHz is limited to transmission from HIBS,

recognizing

*a)* that a high-altitude platform station (HAPS) is defined in No. **1.66A** as a station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth;

*b)* that in Regions 1 and 3, the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the frequency bands 1 710-1 980 MHz and 2 110-2 160 MHz are included in No. **5.388A** for the use of HIBS;

*c)* that the frequency bands 1 710‑1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, or parts thereof, are identified for IMT in accordance with Nos. **5.384A** and **5.388**;

*d)* that these frequency bands are allocated to the fixed and mobile services on a co‑primary basis,

resolves

1 that administrations wishing to implement HIBS shall comply with the following:

1.1 in some countries (see No. **5.388B**), for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co-channel interference caused by HIBS in accordance with No. **5.388A** in neighbouring countries, the limits of No. **5.388B** shall apply;

1.2 for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, the power flux-density (pfd) level per a single HIBS station 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:

−111 dB(W/(m2 · MHz)) for 0° < θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.3 for the purpose of protecting IMT base stations in the territory of other administrations in the frequency bands 1 850-1 880 MHz, 1 920-1 980 MHz and 2 010-2 025 MHz, the power flux-density (pfd) level per a single HIBS station 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:

−131 + 0.21 (θ)2 dB(W/(m2 · MHz)) for  0° ≤ θ ≤ 8.3°

−116.8 + 0.08 (θ) dB(W/(m2 · MHz)) for 8.3° < θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.4 for the purpose of protecting mobile earth stations within the satellite component of IMT operating in the territory of other administrations in the frequency bands 2 160-2 200 MHz in Region 2, and 2 170-2 200 MHz in Regions 1 and 3, the power flux-density (pfd) level per a single HIBS station operating in the frequency bands 2 110-2 160 MHz in Region 2 and 2 110-2 170 MHz in Regions 1 and 3 produced at the surface of the Earth in the territory of other administrations shall not exceed the following out-of-band limit:

−165 dB(W/(m2 · 4 kHz));

1.5 for the purpose of protecting fixed-service systems in the territory of other administrations in the frequency bands 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, the power flux-density (pfd) level per a single HIBS station produced at the surface of the Earth in the territory of other administrations shall not exceed the following limits, unless explicit agreement of the affected administration is provided:

−144 dB(W/(m2 · MHz)) for 0° < θ ≤ 10°

−144 + 1.6 (θ − 10) dB(W/(m2 · MHz)) for 10° < θ ≤ 25°

−120 dB(W/(m2 · MHz)) for 25° < θ ≤ 90°;

2 that administrations intending to implement HIBS system shall notify, in accordance with Article **11**, the frequency assignments to transmitting and receiving HIBS stations by submitting all mandatory elements of Appendix 4 to the Radiocommunication Bureau for the examination of compliance with the conditions specified in the *resolves* above,

resolves further

1 that administrations intending to operate HIBS below 20 km shall send a commitment to Appendix **4** information submitted to the Radiocommunication Bureau indicating that they will operate in accordance with No. **4.4**, taking into account the RRB Report to WRC‑23 under Resolution **80 (Rev.WRC‑07)**;

2 that the compliance with this Resolution does in no way whatsoever release the notifying administration(s) from its obligation not to cause unacceptable interference nor claim protection from the incumbent services as indicated in the Resolution,

invites administrations

to adopt appropriate frequency arrangements for HIBS in order to consider the benefits of harmonized utilization of the spectrum for HIBS and protection of existing services and systems operating on a primary basis taking into account the *resolves* above and the relevant ITU‑R Recommendations and Reports,

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency bands 1 710-1 885 MHz, 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz, on a global level, based on Methods B3 and C3 in the CPM Report.

ADD ACP/62A4/8#1459

Draft New Resolution [ACP-B14-HIBS-2 500-2 690 MHz] (WRC‑23)

Use of high-altitude platform stations as International Mobile Telecommunications base stations (HIBS) in the frequency   
band 2 500-2 690 MHz, or portions thereof

The World Radiocommunication Conference (Dubai, 2023),

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 high-altitude platform stations as IMT base stations (HIBS) would be used as part of terrestrial IMT networks, and may use the same frequency bands as ground-based IMT base stations in order to provide mobile-broadband connectivity to underserved communities, and in rural and remote areas;

*c)* that HIBS 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 the use of HIBS is optional for administrations, and that such use should not have any priority over other terrestrial IMT use;

*e)* that the IMT mobile station to be served, whether by HIBS or ground-based IMT base stations, is the same, and currently supports a variety of the frequency bands identified for IMT;

*f)* that, under certain deployment scenarios, HIBS could operate at an altitude down to 18 km;

*g)* that some sensitivity studies have shown that the difference of interference from HIBS at altitudes between 18 km and 20 km would be negligible;

*h)* that the ITU Radiocommunication Sector (ITU‑R) has addressed sharing and compatibility between HIBS and existing systems of primary allocated services, and adjacent services in the frequency band 2 500-2 690 MHz;

*i)* that spectrum needs, usage and deployment scenarios, and typical technical and operational characteristics for HIBS are provided in the WDPDN Report ITU‑R M.[HIBS-CHARACTERISTICS];

*j)* that the frequency band 2 690-2 700 MHz is allocated to the Earth exploration-satellite service (EESS) (passive), the space research service (SRS) (passive) and the radio astronomy service (RAS), and that No. **5.340** applies in this frequency band;

*k)* that, in Regions 1 and 2, the use of the frequency band 2 500-2 510 MHz is limited to reception by HIBS, in accordance with No. **5.L14**,

recognizing

*a)* that a high-altitude platform station (HAPS) is defined in No. **1.66A** as a station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth;

*b)* that, in Regions 1 and 2, the frequency band 2 500-2 690 MHz (2 500-2 510 MHz is limited to reception by HIBS in Regions 1 and 2), and in Region 3, the frequency band 2 500-2 655 MHz (2 500-2 535 MHz is limited to reception by HIBS in Region 3) are included in No. **5.L14** for the use of HIBS;

*c)* that the frequency band 2 500-2 690 MHz, or parts thereof, is identified for IMT in accordance with No. **5.384A**;

*d)* that this frequency band is allocated to the fixed and mobile services on a co-primary basis;

*e)* that, in the frequency band 2 700-2 900 MHz, ground-based meteorological radar stations under the radiolocation service are authorized to operate on a basis of equality with stations of the aeronautical radionavigation service per No. **5.423**,

resolves

1 that administrations wishing to implement HIBS shall comply with the following:

1.1 for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency band 2 500-2 690 MHz, the power flux-density (pfd) level per a single HIBS station 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:

−109 dB(W/(m2 · MHz)) for 0° < θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.2 for the purpose of protecting IMT base stations in the territory of other administrations in the frequency band 2 500-2 690 MHz, the power flux-density (pfd) level per a single HIBS station 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:

−131 + 0.21 (θ)2 dB(W/(m2 · MHz)) for 0° ≤ θ ≤ 8.3°

−116.8 + 0.08 (θ) dB(W/(m2 · MHz)) for 8.3° < θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.3 for the purpose of protecting fixed-service systems in the territory of other administrations in the frequency band 2 500-2 690 MHz, the power flux-density (pfd) level per a single HIBS station produced at the surface of the Earth in the territory of other administrations shall not exceed the following limits, unless explicit agreement of the affected administration is provided:

−135 dB(W/(m2 · MHz)) for 0° < θ ≤ 20°

−135 + 0.7 (θ − 20) dB(W/(m2 · MHz)) for 20° < θ ≤ 47°

−116 dB(W/(m2 · MHz)) for 47° < θ ≤ 90°

1.4 for the purpose of protecting the broadcasting-satellite services in the territory of other administrations in the frequency band 2 520-2 630 MHz, the power flux-density (pfd) level per HIBS 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:

−130.5 dB(W/(m2 · MHz)) for 0° < θ ≤ 20°

−139.8 dB(W/(m2 · MHz)) for 20° < θ < 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.4.1 in addition, in Regions 1 and 3, in the frequency band 2 520-2 690 MHz, the use of HIBS shall not cause unacceptable interference nor claim protection from the broadcasting-satellite service operating in Region 3; upon receipt of a report of unacceptable interference, the notifying administration of HIBS shall immediately eliminate or reduce interference to an acceptable level;

1.4.2 for the implementation of *resolves* 1.4 above:

*a)* the notifying administrations of HIBS at the time of submission of Appendix **4** information to the Radiocommunication Bureau (BR) shall also submit an objective, measurable and enforceable commitment that, in case of causing unacceptable interference, it shall immediately cease emission or reduce the interference to an acceptable level;

*b)* as for enforceability referred to in this *resolves*, should the interference not be ceased or reduced to acceptable level, the assignments in question shall be submitted by the administration to the Bureau and the Bureau shall send a reminder to that administration requesting to comply with the requirements referred to in the commitment;

*c)* should the interference persist, 30 days after the dispatch date of the above-mentioned reminder, the Bureau shall submit the case to the subsequent meeting of the Radio Regulations Board to review for necessary action, as appropriate;

1.5 for the purpose of protecting aeronautical-radionavigation service systems in the territory of other administrations in the frequency band 2 700-2 900 MHz, the power flux-density (pfd) level from a single HIBS station operating in the frequency band 2 500-2 690 MHz produced at the surface of the Earth in the territory of other administrations shall not exceed the following unwanted emissions limit, unless explicit agreement of the affected administration is provided:

−156.2 dB(W/(m2 · MHz)) for θ ≤ 7°

−163 + 15 · *log*10 (θ − 4) dB(W/(m2 · MHz)) for 7° < θ < 30.5°

−141 + 2.7 · *log*10 (θ − 4) dB(W/(m2 · MHz)) for θ = 30.5°

−157 + 14 · *log*10 (θ − 4) dB(W/(m2 · MHz)) for 30.5° < θ ≤ 40.5°

−101.5 dB(W/(m2 · MHz)) for θ > 40.5°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.6 for the purpose of protecting radiolocation service systems in the territory of other administrations, in particular those systems operating in accordance with No. **5.423**, in the frequency band 2 700-2 900 MHz, the power flux-density (pfd) level from a single HIBS station operating in the frequency band 2 500-2 690 MHz produced at the surface of the Earth in the territory of other administrations shall not exceed the following unwanted emissions limit, unless explicit agreement of the affected administration is provided:

−165.6 dB(W/(m2 · MHz)) for θ ≤ 37°

−165.6 + 5.5 (θ − 37) dB(W/(m2 · MHz)) for  37° < θ < 45°

−121.6 + (θ − 45) / 3 dB(W/(m2 · MHz)) for  45° < θ ≤ 90°

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees;

1.7 for the purpose of protecting radio astronomy service stations in the frequency band 2 690-2 700 MHz, the power flux-density (pfd) level of a single HIBS station operating in the frequency band 2 500-2 690 MHz produced at any radio astronomy observatory site shall not exceed the following unwanted emissions limit, unless explicit agreement of the affected administration is provided:

−177 dB(W/(m2 · 10 MHz))

1.8 that *resolves* 1.7 applies at any radio astronomy station that was in operation prior to XX November 2023 and has been notified to the Radiocommunication Bureau (BR) in the frequency band 2 690-2 700 MHz before XX May 2024, or at any radio astronomy station that was notified before the date of receipt of the complete Appendix 4 information for notification, for the HIBS system to which *resolves* 1.7 applies; radio astronomy stations notified after this date need to seek an agreement with administrations that have notified HIBS;

1.9 for the purpose of protecting MSS (space-to-Earth) and RDSS (space-to-Earth) in the frequency band 2 483.5-2 500 MHz, the use of HIBS platform in the frequency band 2 500-2 690 MHz shall comply with an unwanted emission limit of −30 dBm/MHz in the frequency band 2 483.5-2 500 MHz;

1.10 for the purpose of protecting MSS (Earth-to-space) in the frequency band 2 655-2 690 MHz in Region 3, the notifying administrations of HIBS shall ensure an enforceable commitment that, in case of causing unacceptable interference, it undertakes to immediately cease emission or reduce the interference to an acceptable level;

2 that administrations intending to implement HIBS system shall notify, in accordance with Article **11**, the frequency assignments to transmitting and receiving HIBS stations by submitting all mandatory elements of Appendix 4 to the Radiocommunication Bureau for the examination of compliance with the conditions specified in the *resolves* above,

resolves further

1 that administrations intending to operate HIBS below 20 km shall send a commitment to Appendix 4 information submitted to the Radiocommunication Bureau indicating that they will operate in accordance with No. **4.4**, taking into account the RRB Report to WRC‑23 under Resolution **80 (Rev.WRC‑07)**;

2 that the compliance with this Resolution does in no way whatsoever release the notifying administration(s) from its obligation not to cause unacceptable interference nor claim protection from the incumbent services as indicated in the Resolution,

invites administrations

to adopt appropriate frequency arrangements for HIBS in order to consider the benefits of harmonized utilization of the spectrum for HIBS and protection of existing services and systems operating on a primary basis taking into account the *resolves* above and the relevant ITU‑R Recommendations and Reports,

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.

**Reasons:** It is proposed that the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in the frequency band 2 500-2 690 MHz, on a global level, based on Method D3 in the CPM Report.

SUP ACP/62A4/9#1462

RESOLUTION 247 (WRC-19)

Facilitating mobile connectivity in certain frequency bands below 2.7 GHz   
using high-altitude platform stations as International Mobile Telecommunications base stations

**Reasons:** No longer necessary after WRC-23.

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