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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 | | **Doc. CPG(23)036 ANNEX V-04R1 Addendum 4 to Document 4795-E** | |
|  | | **1 May 2023** | |
|  | | **Original: English** | |
|  | | | |
| European 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 European Common Proposal is to propose regulatory provisions applying to high-altitude platform stations as IMT base stations (HIBS) in order to enable their use in the frequency bands 694-960 MHz, 1 710-1 885 MHz and 2 500-2 690 MHz while protecting other services and applications in these frequency bands as well as in the adjacent bands. Under the same line, the conditions pertaining to the IMT applications using high altitude platform stations (HAPS) as base stations as currently defined through RR No. **5.388A** and Resolution **221 (Rev. WRC-07)** are also proposed to be revised.

The regulatory provisions proposed by CEPT to ensure protection of other services are of three different nature applying, as appropriate, specific geographical coordination, in-band or adjacent band pfd masks and limitation of the HIBS emissions to a specific direction.

The use by HIBS of these bands should be on a non-protection basis, since studies have not addressed the risk that HIBS may require more protection than conventional IMT base stations.

It is proposed that the use of HIBS should be enabled at an altitude lower than 20 km, down to a minimum of 18 km, since ITU-R studies have confirmed that there is a negligible difference in terms of impact to other services.

CEPT is of the view that there needs to be a pfd limit for the protection of broadcasting and not a coordination trigger, since that would allow an alternative coordination procedure for the band 694‑960 MHz.

Proposals

ARTICLE 5

Frequency allocations

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

MOD EUR/XXXXA4/1

460-890 MHz

|  |  |  |  |
| --- | --- | --- | --- |
| Allocation to services | | | |
| Region 1 | Region 2 | Region 3 | |
| 470-694  BROADCASTING  5.149 5.291A 5.294 5.296  5.300 5.304 5.306 5.312 | 470-512  BROADCASTING  Fixed  Mobile  5.292 5.293 5.295 | 470-585  FIXED  MOBILE 5.296A  BROADCASTING  5.291 5.298 |
| 512-608  BROADCASTING  5.295 5.297 |
| 585-610  FIXED  MOBILE 5.296A  BROADCASTING  RADIONAVIGATION  5.149 5.305 5.306 5.307 |
| 608-614  RADIO ASTRONOMY  Mobile-satellite except aeronautical mobile-satellite (Earth-to-space) |
| 610-890  FIXED  MOBILE 5.296A 5.313A  5.317A ADD 5.A14  BROADCASTING |
| 614-698  BROADCASTING  Fixed  Mobile  5.293 5.308 5.308A 5.309 |
| 694-790  MOBILE except aeronautical mobile 5.312A 5.317A ADD 5.A14  BROADCASTING  5.300 5.312 |
| 698-806  MOBILE 5.317A ADD 5.A14  BROADCASTING  Fixed  5.293 5.309 |
| 790-862  FIXED  MOBILE except aeronautical mobile 5.316B 5.317A ADD 5.A14  BROADCASTING  5.312 5.319 |
| **806-890**  FIXED  MOBILE 5.317A ADD 5.A14  BROADCASTING |
| 862-890  FIXED  MOBILE except aeronautical mobile 5.317A ADD 5.A14  BROADCASTING 5.322 |
| 5.319 5.323 | 5.317 5.318 | 5.149 5.305 5.306 5.307 5.320 |

MOD EUR/XXXXA4/2

890-1 300 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 890-942  FIXED  MOBILE except aeronautical mobile 5.317A ADD 5.A14  BROADCASTING 5.322  Radiolocation  5.323 | 890-902  FIXED  MOBILE except aeronautical mobile 5.317A ADD 5.A14  Radiolocation  5.318 5.325 | 890-942  FIXED  MOBILE 5.317A ADD 5.A14  BROADCASTING  Radiolocation  5.327 |
| 902-928  FIXED  Amateur  Mobile except aeronautical mobile 5.325A ADD 5.A14  Radiolocation  5.150 5.325 5.326 |
| 928-942  FIXED  MOBILE except aeronautical mobile 5.317A ADD 5.A14  Radiolocation 5.325 |
| 942-960  FIXED  MOBILE except aeronautical mobile 5.317A ADD 5.A14  BROADCASTING 5.322  5.323 | 942-960  FIXED  MOBILE 5.317A ADD 5.A14 | 942-960  FIXED  MOBILE 5.317A ADD 5.A14  BROADCASTING  5.320 |

ADD EUR/XXXXA4/3

5.A14 The frequency band 694‑960 MHz, or portions thereof, may be used by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). The use by HIBS does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. HIBS shall not claim protection from existing primary services. No. **5.43A** does notapply. Resolution **[EUR-A14-HIBS 694-960 MHZ] (WRC‑23)** shall apply. Such use of HIBS in the frequency bands 694-728 MHz and 830-835 MHz is limited to reception by HIBS.     (WRC-23)

MOD EUR/XXXXA4/4

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  5.149 5.341 5.385 5.386 5.387 5.388 | | |

MOD EUR/XXXXA4/5

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 may be used by high altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). The use by HIBS 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.No. **5.43A** does notapply.     (WRC-23)

SUP EUR/XXXXA4/6

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d’Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lebanon, Libya, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, South Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT mobile stations, in their territories from co‑channel interference, a high altitude platform station (HAPS) operating as an IMT base station in neighbouring countries, in the frequency bands referred to in No. 5.388A, shall not exceed a co-channel power flux-density of −127 dB(W/(m2 · MHz)) at the Earth’s surface outside a country’s borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.    (WRC‑19)

MOD EUR/XXXXA4/7

2 170-2 520 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 2 500-2 520  FIXED 5.410  MOBILE except aeronautical mobile 5.384A ADD 5.B14 | 2 500-2 520  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.B14 | 2 500-2 520  FIXED 5.410  FIXED-SATELLITE (space-to-Earth) 5.415  MOBILE except aeronautical mobile 5.384A ADD 5.B14  MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A |
| 5.412 |  | 5.404 5.415A |

MOD EUR/XXXXA4/8

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.B14  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.B14  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.B14  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.B14  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.B14  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.B14  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.B14  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.B14  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 |

ADD EUR/XXXXA4/9

5.B14 The frequency band 2 500-2 690 MHz in Regions 1 and 2, and the frequency band 2 500‑2 655 MHz in Region 3 may be used by high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS). The use by HIBS 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 **[EUR-B14-HIBS 2 500-2 690 MHz] (WRC-23)** 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.No. **5.43A** does notapply.     (WRC-23)

ARTICLE 11

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

Section I − Notification

MOD EUR/XXXXA4/10

11.26A Notices relating to assignments for high-altitude platform stations as IMT base stations in the frequency bands identified in Nos. **5.A14**, **5.B14** and 5.388A shall reach the Bureau not earlier than three years before the assignments are brought into use.     (WRC‑23)

APPENDIX 4 (REV.WRC‑19)

Consolidated list and tables of characteristics for use in the  
application of the procedures of Chapter III

ANNEX 1

Characteristics of stations in the terrestrial services[[1]](#footnote-1)1

Footnotes to Tables 1 and 2

MOD EUR/XXXXA4/11

TABLE 2   (Rev.WRC-23)

Characteristics for high-altitude platform stations (HAPS) frequency assignments  
in the terrestrial services

| **Item identifier** | ***1 \_ GENERAL CHARACTERISTICS OF THE HAPS*** | **Transmitting station in the frequency bands listed in Nos. 5.A14, 5.B14 and 5.388A for the application of No. 11.2** | | **Receiving station in the frequency bands listed in Nos. 5.A14, 5.B14 and 5.388A for the application of No. 11.9** | | **Transmitting station in the frequency bands listed in Nos. 5.457, 5.537A****, 5.530E, 5.532AA, 5.534A, 5.543B, 5.550D and 5.552A for the application of No. 11.2** | | **Receiving station in the frequency bands listed in Nos.  5.457, 5.534A, 5.543B, 5.550D and 5.552A for the application of No. 11.9** | **Item identifier** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GENERAL INFORMATION** |  | | | | | | | | |
| … | … | **…** | | **…** | | **…** | | **…** | … | |
|  | **COMPLIANCE WITH TECHNICAL OR OPERATIONAL LIMITS** |  | | | | | | | | |
| 1.14.a | a commitment that, for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency band 694-960 MHz, the pfd level of ‑114 dB(W/(m2 · MHz)) from HAPS as IMT base stations (HIBS) produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-A14-HIBS-694-960-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.a | |
| 1.14.aa | a commitment that, for the purpose of protecting IMT base stations in the territory of other administrations in the frequency band 694-960 MHz, the pfd level of −136 + 0.21 (θ)2 dB(W/(m2 · MHz)) for angles of arrival between  0°and 8.3° and −121.8 + 0.08 (θ) dB(W/(m2 · MHz)) for angles of arrival between 8.3° < θ ≤ 90° from HAPS as IMT base stations (HIBS) produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-A14-HIBS-694-960-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.aa | |
| 1.14.ab | a commitment that, for the purpose of protecting radio astronomy stations in the frequency band 1 610.6‑1 613.8 MHz in the territory of other administrations in the frequency band 805.3-806.9 MHz, the pfd level of −194 dB(W/(m2 · 20 kHz)) from HAPS as IMT base stations (HIBS) produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-A14-HIBS-694-960-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.ab | |
| 1.14.b | a commitment that the HAPS does not exceed an out-of-band pfd of −165 dB(W/(m2 · 4 kHz)) at the Earth’s surface in the territory of other administrations in the bands 2 160-2 200 MHz in Region 2 and 2 170‑2 200 MHz in Regions 1 and 3 (see Resolution **221** **(Rev.WRC‑23)**) | **X** | |  | |  | |  | 1.14.b | |
| 1.14.ba | a commitment that, 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 pfd level of −111 dB(W/(m2 · MHz)) from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **221** **(Rev.WRC‑23)**) | **X** | |  | |  | |  | 1.14.ba | |
| 1.14.bb | a commitment that, for the purpose of protecting IMT base 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 pfd level of −142 dB(W/(m2 · MHz)) for angles of arrival between  0°and 11°, −142 + 0.45 (θ-11) dB(W/(m2 · MHz)) for angles of arrival between 11and 80° and −111 dB(W/(m2 · MHz)) for angles of arrival between 80° and 90°from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **221** **(Rev.WRC‑23)**) | **X** | |  | |  | |  | 1.14.bb | |
| 1.14.bc | a commitment that, 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 pfd level of −144 dB(W/(m2 · MHz)) for angles of arrival between 0° and 10°, −144 + 1.6 (θ − 10) dB(W/(m2 · MHz)) for angles of arrival between 10° and 25° and −120 dB(W/(m2 · MHz)) for angles of arrival between 25° and 90°; from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **221** **(Rev.WRC‑23)**) | **X** | |  | |  | |  | 1.14.bc | |
| 1.14.c | a commitment that, for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency band 2 500-2 690 MHz, the pfd level of −109 dB(W/(m2 · MHz)) from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.c | |
| 1.14.ca | a commitment that, for the purpose of protecting IMT base stations in the territory of other administrations in the frequency band 2 500-2 690 MHz, the pfd level of −142 dB(W/(m2 · MHz)) for angles of arrival between 0° and 11°, −142 + 0.45 (θ-11) dB(W/(m2 · MHz)) for angles of arrival between  11° and 80° and −111 dB(W/(m2 · MHz)) for angles of arrival between  80° and 90° from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.ca | |
| 1.14.cb | a commitment that, for the purpose of protecting fixed-service systems in the territory of other administrations in the frequency band 2 500-2 690 MHz, the pfd level of −135 dB(W/(m2 · MHz)) for angles of arrival between 0° and 20°, −135 + 0.7 (θ − 20) dB(W/(m2 · MHz)) for angles of arrival between 20° and 47° and −116 dB(W/(m2 · MHz)) for angles of arrival between 47° and 90° from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.cb | |
| 1.14.cd | a commitment that, 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 pfd level of −130.5 dB(W/(m2 · MHz)) for angles of arrival between 0° and 20° and −139.8 dB(W/(m2 ·MHz)) for angles of arrival between 20° and 90° from HIBS produced at the surface of the Earth in the territory of other administrations is not exceeded, unless explicit agreement of the affected administration is provided (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.cd | |
| 1.14.ce | a commitment that the HAPS as IMT base station does not exceed the out-of-band pfd limits of −156.2 dB(W/(m2 · MHz)) for angles of arrival (θ) less than 7° above the horizontal plane, −163 + 15 · *log10* (θ − 4) dB(W/(m2 · MHz)) for angles of arrival between 7° and 30.5,° −141 + 2.7 · *log10* (θ − 4) dB(W/(m2 · MHz)) for angles of arrival equal to 30.5°, −157 + 14 · *log10* (θ − 4) dB(W/(m2 · MHz)) for angles of arrival between 30.5° and 40.5 and −101.5 dB(W/(m2 · MHz)) for angles of arrival more than 40.5° in the territory of other administrations in the frequency band 2 700-2 900 MHz (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**) | **X** | |  | |  | |  | 1.14.ce | |
| 1.14.cea | a commitment that the HAPS as IMT base station does not exceed the out-of-band pfd limits of −165.6 dB(W/(m2 · MHz)) for angles of arrival (θ) less than or equal to 37° above the horizontal plane, −165.6 + 5.5 (θ − 37) dB(W/(m2 · MHz)) for angles of arrival between 37° and 45° and −121.6 + (θ − 45) / 3 dB(W/(m2 · MHz)) for angles of arrival between 45° and 90° (inclusive) in the territory of other administrations in the frequency band 2 700-2 900 MHz (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)**)] | **X** | |  | |  | |  | 1.14.cea | |
| 1.14.cf | a commitment that the HAPS as IMT base station does not exceed the out-of-band pfd limits of −177 dB(W/(m2 · 10 MHz)) at any radio astronomy observatory site operating in the frequency band 2 690-2 700 MHz (see Resolution **[EUR-B14-HIBS-2500-2690-MHz] (WRC‑23)** | **X** | |  | |  | |  | 1.14.cf | |
| … | … | **…** | | **…** | | **….** | | **…** | … | |
|  | **IDENTIFICATION AND DIRECTION OF THE HAPS ANTENNA BEAM** |  | | | | | | | | |
| … | … | **…** | **…** | | **…** | | **…** | | | … |
|  | **ANTENNA CHARACTERISTICS** |  | | | | | | | | |
| 2.9.e | the height of the antenna above ground level, in metres, in the case of a HAPS transmitting ground station  Required for an assignment in the frequency bands shared with space services (space-to-Earth) |  |  | |  | | **+** | | | 2.9.e |
| 2.9.f | antenna diameter, in metres, in the case of a HAPS transmitting ground station  Required in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz |  |  | |  | | **+** | | | 2.9.f |
| … | … | **…** | **…** | | **…** | | **…** | | | … |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item identifier** | ***3 \_ CHARACTERISTICS TO BE PROVIDED FOR EACH FREQUENCY ASSIGNMENT FOR EACH INDIVIDUAL OR COMPOSITE HAPS ANTENNA BEAM*** | **Transmitting station in the frequency bands listed in Nos. 5.A14, 5.B14 and 5.388A for the application of No. 11.2** | **Receiving station in the frequency bands listed in Nos. 5.A14, 5.B14 and 5.388A for the application of No. 11.9** | **Transmitting station in the frequency bands listed in Nos. 5.457, 5.537A, 5.530E, 5.532AA, 5.534A, 5.543B, 5.550D and 5.552A for the application of No. 11.2** | **Receiving station in the frequency bands listed in Nos.  5.457, 5.534A, 5.543B, 5.550DB and 5.552A for the application of No. 11.9** | **Item identifier** |
|  | **ASSIGNED FREQUENCY** |  | | | | |
| … | … | **…** | **…** | **…** | **…** | … |
|  | **LOCATION OF THE ASSOCIATED ANTENNA(S)** |  | | | | |
| 3.5.c | the geographical coordinates of the ground station(s) in the fixed service  Required in the frequency bands 6 560-6 640 MHz and 25.25-27 GHz, 31-31.3 GHz, and 38-39.5 GHz;  Required in the other frequency bands, if neither the geographical coordinates of a given zone (3.c.a) nor a geographical area (3.5.d) nor a circular area (3.5.e and 3.5.f) are provided |  |  | **+** | **+** | 3.5.c |
|  | **For an area in which associated transmitting/receiving ground station(s) operate:** |  |  |  |  |  |
| 3.5.c.a | the geographical coordinates of a given zone  A minimum of six geographical coordinates are required, in degrees, minutes and seconds  *Note* – For the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz the geographical coordinates are provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU‑R F.1500)  Required if neither a circular area (3.5.e and 3.5.f) nor a geographical area (3.5.d) are provided | **+** | **+** | **+** | **+** | 3.5.c.a |
| 3.5.d | the code of the geographical area (see the Preface)  *Note* – For the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz separate geographical areas are provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU‑R F.1500)  Required if neither a circular area (3.5.e and 3.5.f) nor the geographical coordinates of a given zone (3.5.c.a) are provided | **+** | **+** | **+** | **+** | 3.5.d |
| **Item identifier** | ***3 \_ CHARACTERISTICS TO BE PROVIDED FOR EACH FREQUENCY ASSIGNMENT FOR EACH INDIVIDUAL OR COMPOSITE HAPS ANTENNA BEAM*** | **Transmitting station in the bands listed in No. 5.388A for the application of No. 11.2** | **Receiving station in the bands listed in No. 5.388A for the application of No. 11.9** | **Transmitting station in the bands listed in Nos. 5.457, 5.537A, 5.530E, 5.532AA, 5.534A, 5.543B, 5.550D and 5.552A for the application of No. 11.2** | **Receiving station in the bands listed in Nos.  5.457, 5.534A, 5.543B, 5.550DB and 5.552A for the application of No. 11.9** | **Item identifier** |
| 3.5.e | the geographical coordinates of the centre of the circular area in which the associated ground station(s) are operating  The latitude and longitude are provided in degrees, minutes and seconds  *Note* – For the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz different centres of the circular area may be provided for the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU‑R F.1500)  Required if neither a geographical area (3.5.d) or geographical coordinates of a given zone (3.5.c.a) are provided | **+** | **+** | **+** | **+** | 3.5.e |
| 3.5.f | the radius, in km, of the circular area  *Note* – For the fixed service in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz, a separate radius is provided for each of the UAC, SAC and if applicable RAC (see the most recent version of Recommendation ITU‑R F.1500)  Required if neither a geographical area (3.5.d) nor geographical coordinates of a given zone (3.5.c.a) are provided | **+** | **+** | **+** | **+** | 3.5.f |
| … | … | **…** | **…** | **…** | **…** | … |
|  | **POWER CHARACTERISTICS OF THE TRANSMISSION** |  | | | | |
| 3.8 | the symbol (X, Y or Z, as appropriate) describing the type of power (see Article **1**) corresponding to the class of emission | **X** | **X** | **X** | **X** | 3.8. |
| 3.8b | the radiated power, in dBW, in one of the forms described in Nos. **1.161** to **1.163**  *Note* – For a receiving HAPS, the radiated power refers to the associated transmitting mobile station(s) |  | **X** |  |  | 3.8b |
| 3.8.aa | the power delivered to the antenna, in dBW, excluding the level of power control in 3.8.BA under clear-sky conditions  *Note* – For a receiving HAPS, the power delivered to the antenna refers to the associated transmitting ground station(s) | **X** |  | **X** | **X** | 3.8.aa |
| 3.8.AB | the power density1 averaged over the worst 1 MHz band delivered to the antenna under clear-sky conditions | **X** |  | **X** |  | 3.8AB |
| 3.8.BA | the range of power control, in dB  *Note* – For a receiving HAPS, the power control refers to its use by the associated transmitting ground station(s)  In the case of a transmitting HAPS, required in the frequency bands, 21.4-22 GHz, 24.25-25.25 GHz, 27-27.5 GHz, 31-31.3 GHz, 38-39.5 GHz, 47.2-47.5 GHz and 47.9-48.2 GHz  In the case of a receiving HAPS, required in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz | **X** |  | **+** | **+** | 3.8.BA |
|  | **POLARIZATION AND RECEIVING SYSTEM NOISE TEMPERATURE** |  | | | | |
| 3.9.d | the code indicating the type of polarization (see the Preface) | **X** | **X** | **X** | **X** | 3.9.d |
| 3.9.j | the reference radiation pattern of the associated ground station(s)  Required in the frequency bands 47.2-47.5 GHz and 47.9‑48.2 GHz |  |  | **+** | **+** | 3.9.j |
| 3.9.k | the lowest total receiving system noise temperature, in kelvins, referred to the output of the receiving antenna |  | **X** |  | **X** | 3.9.k |
|  | **HOURS OF OPERATION** |  | | | | |
| 3.10.b | the regular hours of operation (in hours and minutes from ... to ...) of the frequency assignment, in UTC | **X** | **X** | **X** | **X** | 3.10.b |

ADD EUR/XXXXA4/12

Draft New Resolution [EUR-A14-HIBS-694-960-MHz] (WRC-23)

Use of high-altitude platform stations as International Mobile Telecommunications base stations (HIBS) in the frequency   
band 694-960 MHz, or portions thereof

The World Radiocommunication Conference (Dubai, 2023),

considering

*a)* that the favourable propagation characteristics of the frequency band 694-960 MHz are beneficial to provide cost-effective solutions for coverage, including large areas of low population density;

*b)* that the operation of high-altitude platform stations as International Mobile Telecommunications (IMT) base stations (HIBS) in the same geographical area with existing services may create compatibility issues;

*c)* that it is necessary to adequately protect existing services in this frequency band;

*d)* that there is growing demand for access to mobile broadband, requiring more flexibility in the approaches to expand the capacity and coverage provided by IMT systems;

*e)* that 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;

*f)* 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;

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

*h)* that the user equipment 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;

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

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

*k)* 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 694-960 MHz;

*l)* 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],

recognizing

*a)* that, in Article **5** of the Radio Regulations, the frequency band 694-960 MHz, or parts thereof, is allocated on a primary basis to various services;

*b)* that the use of the frequency band 470-862 MHz by the broadcasting service and other primary services in Region 1 (except Mongolia) and the Islamic Republic of Iran is covered by the GE06 Agreement;

*c)* that 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;

*d)* that the frequency band 694-960 MHz, or parts thereof, are identified for IMT in accordance with Nos. **5.313A** and **5.317A**;

*e)* that these frequency bands are allocated to the fixed and mobile services on a co-primary basis;

*f)* that second harmonics of the HIBS downlink transmissions at 805.3-806.9 MHz may cause harmful interference to radio astronomy observations in the frequency band 1 610.6-1 613.8 MHz*,*

emphasizing

that the requirements of the different services to which the frequency band is allocated, including the mobile, aeronautical radionavigation (in accordance with Nos. **5.312** and **5.323**), fixed and broadcasting services, shall be taken into account,

resolves

1 that, in the frequency band 694-862 MHz and based on the criteria contained in Annex 1 to this Resolution, administrations implementing HIBS shall seek agreement under No. **9.21** with respect to the aeronautical radionavigation service in the countries mentioned in No. **5.312** of the Radio Regulations;

2 that, in the frequency band 862-960 MHz and based on the criteria contained in Annex 2 to this Resolution, administrations implementing HIBS shall seek agreement under No. **9.21** with respect to the aeronautical radionavigation service in the countries mentioned in No. **5.323** of the Radio Regulations;

3 that HIBS operating in the frequency band 694/698-862 MHz shall not cause harmful interference to nor claim protection from the broadcasting service referred to in *recognizing a)* and*b)* above, and, as such, the power flux-density (pfd) level per HIBS produced in the territory of other administrations, at the highest of the clutter height or 10 m, shall not exceed the limit of −135.8 dB(W/(m2 · MHz));

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

4.1 for the purpose of protecting IMT mobile stations in the territory of other administrations in the frequency band 694-960 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:

−114 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;

4.2 for the purpose of protecting IMT base stations in the territory of other administrations in the frequency band 694-960 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:

−136 + 0.21 (θ)2 dB(W/(m2 · MHz)) for  0° ≤ θ ≤ 8.3°

−121.8 + 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;

5 for the purpose of protecting radio astronomy stations in the frequency band 1 610.6-1 613.8 MHz, the power flux-density (pfd) of HIBS downlinks operating in the frequency band 805.3-806.9 MHz shall not exceed the following value in the frequency band 1 610.6-1 613.8 MHz at any radio astronomy site notified before the date of receipt of the complete Appendix **4** information for the HIBS system without the explicit agreement of the affected administrations:

−194 dB(W/(m2 · 20 kHz));

6 that administrations intending to implement HIBS 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

that, HIBS may operate in the frequency band 694-960 MHz with an altitude down to 18 km, in derogation to No. **1.66A**,

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.

Annex 1 to DRAFT NEW RESOLUTION [EUR-A14-HIBS-694-960-MHZ] (WRC‑23)

The criteria for identifying potentially affected administrations with respect to the aeronautical radionavigation service in countries listed in No. 5.312

To identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** by HIBS in the mobile service with respect to the affected aeronautical radionavigation service (ARNS) station operating in countries mentioned in No. **5.312**, the coordination distances (between a HIBS in the mobile service and a potentially affected ARNS station) indicated below should be used.

When applying the procedure for seeking agreement under No. **9.21**, notifying administrations may indicate in the notice sent to BR the list of administrations with which bilateral agreement has already been reached. BR shall take this into account in determining the administrations with which coordination under No. **9.21** is required.

|  |  |  |
| --- | --- | --- |
| ARNS type | System type code | Coordination distance between nadir of HIBS and ARNS station |
| RSBN | AA8 | 325 km |
| RLS 2 (Type 2) (airborne receiver) | BC | 100 km |
| RLS 2 (Type 2) (ground receiver) | AA2 | 584 km |
| RLS 1 (Type 1 and 2) | AB | 597 km |

ANNEX 2 to DRAFT NEW RESOLUTION [EUR-A14-HIBS-694-960-MHZ] (WRC‑23)

The criteria for identifying potentially affected administrations with respect to the aeronautical radionavigation service in countries listed in No. 5.323

To identify potentially affected administrations when applying the procedure for seeking agreement under No. **9.21** by HIBS in the mobile service with respect to the affected aeronautical radionavigation service (ARNS) station operating in countries mentioned in No. **5.323**, the coordination distances (between a HIBS in the mobile service and a potentially affected ARNS station) indicated below should be used.

When applying the procedure for seeking agreement under No. **9.21**, notifying administrations may indicate in the notice sent to BR the list of administrations with which bilateral agreement has already been reached. BR shall take this into account in determining the administrations with which coordination under No. **9.21** is required.

|  |  |  |
| --- | --- | --- |
| ARNS type | System type code | Coordination distance between nadir of HIBS and ARNS station |
| RSBN | AA8 | 325 km |
| RLS 2 (Type 2) (airborne receiver) | BC | 100 km |
| RLS 2 (Type 2) (ground receiver) | AA2 | 584 km |
| RLS 1 (Type 1 and 2) | AB | 597 km |

MOD EUR/XXXXA4/13

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 user equipment 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 by 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 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 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:

−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;

1.2 for the purpose of protecting IMT base 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 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:

−142 dB(W/(m2 · MHz)) for 0° ≤ θ < 11°

−142 + 0.45 (θ-11) dB(W/(m2 · MHz)) for 11° < θ ≤ 80°

−111 dB(W/(m2 · MHz)) for 80° < 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 mobile earth stations 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) of the unwanted emissions per HIBS produced at the surface of the Earth in the territory of other administrations shall not exceed the following limit:

−165 dB(W/(m2 · 4 kHz));

1.4 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 HIBS 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°

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

2 that administrations intending to implement HIBS 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

that HIBS may operate in the frequency bands 1 710‑1 980 MHz, 2 010-2 025 MHz and 2 110‑2 170 MHz with an altitude down to 18 km, in derogation to No. **1.66A**,

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.

ADD EUR/XXXXA4/14

Draft New Resolution [EUR-B14-HIBS-2500-2690-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 user equipment 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.B14**,

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.B14** for the use by 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 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:

−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 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:

−142 dB(W/(m2 · MHz)) for 0° ≤ θ < 11°

−142 + 0.45 (θ-11) dB(W/(m2 · MHz)) for 11° < θ ≤ 80°

−111 dB(W/(m2 · MHz)) for 80° < 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 HIBS 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°

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

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;

1.5 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 HIBS 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 · *log10* (θ − 4) dB(W/(m2 · MHz)) for  7° < θ < 30.5°

−141 + 2.7 · *log10* (θ − 4) dB(W/(m2 · MHz)) for   θ = 30.5°

−157 + 14 · *log10* (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 (see No. **5.423)** systems in the territory of other administrations in the frequency band 2 700-2 900 MHz, the power flux-density (pfd) level from HIBS 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 HIBS operating in the frequency band 2 500-2 690 MHz produced at any radio astronomy observatory site notified before the date of receipt of the complete Appendix **4** information for the HIBS system 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 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;

2 that administrations intending to implement HIBS 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

that HIBS may operate in the frequency band 2 500-2 690 MHz with an altitude down to 18 km, in derogation to No. **1.66A**,

instructs the Director of the Radiocommunication Bureau

to take all necessary measures to implement this Resolution.

SUP EUR/XXXXA4/15

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

1. 1 The Radiocommunication Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. Additional information on the items listed in this Annex together with an explanation of the symbols is to be found in the Preface to the BR IFIC (Terrestrial Services). [↑](#footnote-ref-1)