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|  | ASIA-PACIFIC TELECOMMUNITY | Document No: |
| **The 4th Meeting of the APT Conference Preparatory****Group for WRC-19 (APG19-4)** | **APG19-4/OUT-17** |
| 7 – 12 January 2019, Busan, Republic of Korea | 12 January 2019 |

Working Party 1

**PRELIMINARY VIEWs on WRC-19 agenda item 1.14**

**Agenda Item 1.14:**

*To consider, on the basis of ITU R studies in accordance with Resolution* ***160 (WRC 15)****, appropriate regulatory actions for high-altitude platform stations (HAPS), within existing fixed-service allocations*

**1. Background**

**1.1 Resolution 160 (WRC-15)**

“Facilitating access to broadband applications delivered by high-altitude platform stations”

resolves to invite ITU‑R

1. to study additional spectrum needs for gateway and fixed terminal links for HAPS to provide broadband connectivity in the fixed service taking into account:
* the existing identifications and deployments of HAPS systems;
* the deployment scenarios envisioned for HAPS broadband systems and related requirements such as in remote areas;
* the technical and operational characteristics of HAPS systems, including the evolution of HAPS through advances in technology and spectrally-efficient techniques, and their deployment;
1. to study the suitability of using the existing identifications in recognizing c), on a global or regional level, taking into account the regulatory provisions, such as geographical and technical restrictions associated with existing HAPS identifications based on the study performed in resolves to invite ITU‑R 1;
2. to study appropriate modifications to the existing footnotes and associated resolutions in the identifications in recognizing c) in order to facilitate the use of HAPS links on a global or regional level, limited to the currently identified frequency bands and, where the use of an identification is not technically feasible for HAPS use, the possible removal of the unsuitable identification;
3. to study, in order to meet any spectrum needs which could not be satisfied under resolves to invite ITU‑R 1 and 2, for the use of gateway and fixed terminal links for HAPS, the following frequency bands already allocated to the fixed service on a primary basis, not subject to Appendices **30**, **30A**, and **30B** in any region:
* on a global level: 38-39.5 GHz, and
* on a regional level: in Region 2, 21.4-22 GHz and 24.25-27.5 GHz,

further resolves

1. that the studies referred to in *resolves to invite ITU‑R* 3 and 4 include sharing and compatibility studies to ensure protection of existing services allocated in the frequency ranges identified and, as appropriate, adjacent band studies, taking into account studies already performed in ITU‑R;
2. that modifications studied under *resolves to invite ITU‑R* 3 shall not consider the use of HAPS links in the frequency bands subject to Appendix **30B**;
3. to develop ITU‑R Recommendations and Reports, as appropriate, on the basis of the studies called for in *resolves to invite ITU‑R*1, 2, 3, and 4 above,

…

resolves to invite the 2019 World Radiocommunication Conference

to consider the results of the above studies and take necessary regulatory actions, as appropriate, provided that the results referred to in *resolves to invite ITU‑R* are complete and agreed by ITU-R study groups.

**1.2. Relevant ITU-R studies**

* Preliminary draft new Report ITU-R F.[HAPS-21GHz] on sharing and compatibility studies of HAPS systems in the 21.4-22 GHz frequency range, as contained in Document [5C/617 Annex 16](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0617%21N16%21MSW-E.docx);
* Preliminary draft new Report ITU-R F.[HAPS-25GHz] on sharing and compatibility studies of HAPS systems in the 24.25-27.5 GHz frequency range, as contained in Document [5C/617 Annex 17](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0617%21N17%21MSW-E.docx);
* [Preliminary] draft new Report ITU-R F.[HAPS-31GHz] on sharing and compatibility studies of HAPS systems in the 27.9-28.2 GHz and 31.0-31.3 GHz frequency ranges, as contained in Document [5C/617 Annex 18](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0617%21N18%21MSW-E.docx);
* Preliminary draft new Report F.[HAPS-39GHz] on sharing and compatibility studies of HAPS systems in the 38-39.5 GHz frequency range, as contained in Document [5C/617 Annex 19](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0617%21N19%21MSW-E.docx);
* Preliminary draft new Report F.[HAPS-47GHz] on sharing and compatibility studies of HAPS systems in the 47.2-47.5 GHz and 47.9-48.2 GHz frequency ranges, as contained in Document [5C/617 Annex 20](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0617%21N20%21MSW-E.docx).

The ITU has published the following Recommendations on HAPS usage in 47.2–47.5 GHz and 47.9‑48.2 GHz bands: [F.1500](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1500), [F.1501](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1501), [F.1608](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1608), [F.1764](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1764), [F.1819](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1819), [F.1820](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1820), [P.1409](http://www.itu.int/rec/R-REC-p/recommendation.asp?lang=en&parent=R-REC-P.1409), [SF.1481](http://www.itu.int/rec/R-REC-SF/recommendation.asp?lang=en&parent=R-REC-SF.1481), [SF.1843](http://www.itu.int/rec/R-REC-SF/recommendation.asp?lang=en&parent=R-REC-SF.1843).

The ITU has published the following Recommendations on HAPS usage in the 27.9-28.2 GHz and 31.0-31.3 GHz band: [F.1569](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1569), [F.1570](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1570), [F.1607](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1607), [F.1609](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1609), [F.1612](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1612), [F.1764](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1764), [P.1409](http://www.itu.int/rec/R-REC-p/recommendation.asp?lang=en&parent=R-REC-P.1409), [SF.1601](http://www.itu.int/rec/R-REC-SF/recommendation.asp?lang=en&parent=R-REC-SF.1601).

The ITU has published the following Reports and Recommendations on HAPS usage in the 6 440‑6 520 MHz (HAPS-ground) and 6 560-6 640 MHz (ground-HAPS) band: [F.2240](http://www.itu.int/pub/R-REP-F/publications.aspx?lang=en&parent=R-REP-F.2240), [F.1764](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1764), [F.1891](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.1891), [F.2011](http://www.itu.int/rec/R-REC-F/recommendation.asp?lang=en&parent=R-REC-F.2011), [P.1409](http://www.itu.int/rec/R-REC-p/recommendation.asp?lang=en&parent=R-REC-P.1409), F.2437.

The ITU has publish the following Reports on HAPS usage in sharing and compatibility studies: F.2438, F.2439.

**1.3. Methods to satisfy the Agenda Item**

The following methods are outlined in the draft CPM Report to satisfy WRC-19 agenda item 1.14 for the nine corresponding frequency bands under study:

**Method A** No change to the Radio Regulation where the existing provisions in the Radio Regulation remain unchanged in the corresponding frequency band

**Method B** Designation of bands, in accordance with Resolution **160 (WRC-15)** with options:

**Method B1** Revision of the regulatory provisions for HAPS in the fixed service with a primary status in bands already designated for HAPS

**Method B2** Add new designation(s) for HAPS in bands already allocated to the fixed service with a primary status

**Method B3** Add a primary allocation to the FS and a new designation for HAPS in the band 24.25-25.25 GHz (Region 2) not already allocated to the fixed service

**Method C** Suppress the existing HAPS designation, pursuant to *resolves* 3 of Resolution **160 (WRC-15)**

Table 1/1.14/4 in Draft CPM Report

**Summary of methods to satisfy the agenda item and associated frequency bands**

| **No.** | **Frequency Bands** | **Methods and Options** |
| --- | --- | --- |
| **Method A** | **Method B** | **Method C** |
| 1 | 6 440-6 520 MHz | √ | B1 | √ |
| 2 | 6 560-6 640 MHz | √ | Not proposed | √ |
| 3 | 21.4-22 GHz (R2 only) | √ | B2 | N/A |
| 4 | 24.25-25.25 GHz (R2 only) | √ | B3 | N/A |
| 5 | 25.25-27.5 GHz (R2 only) | √ | B2 | N/A |
| 6 | 27.9-28.2 GHz | √ | B1 | √ |
| 7 | 31.0-31.3 GHz | √ | B1 | √ |
| 8 | 38-39.5 GHz | √ | B2 | N/A |
| 9 | 47.2-47.5 GHz / 47.9-48.2 GHz | √ | B1 | √ |

**2. Documents**

* Input Documents: APG19-4/INP-15 (AUS), INP-22 (NZL), INP-29 (THA), INP-37 (VTN), INP-57 (Mongolia); INP-59 (JAPAN); INP-73 (KOR), INP-83 (IRN), INP-100 (CHN); INP-108 (BGD), INP-117 (IND), INP-118 (INS).
* Information Documents:APG19-4/INF-2 (WMO), NF-04 (ICAO), INF-09 (GSA), INF-23 (CEPT), INF-22 (CITEL), INF-24 (RCC), INF-25(NEPAL), APG19-4/INP-9R1(APG Chair).

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Australia-Document APG19-4/INP-15**

Australia supports consideration of use of gateway and fixed terminal links for HAPS in the frequency band 38-39.5 GHz on a global basis. Noting this band is already allocated to the fixed service on a primary basis, not subject to Appendices **30**, **30A**, and **30B** in any region. This is addressed by Method B Option B2.

Acceptance of an identification for HAPS in the above band is subjectto ITU-R sharing and compatibility studies ensuring protection and no additional constraints on existing services allocated in the frequency ranges identified and, as appropriate, adjacent bands, taking into account studies already performed in ITU‑R.

**3.1.2 New Zealand-Document APG19-4/INP-22**

New Zealand supports the need to review existing HAPS designations that have not been fully utilised before designating any possible new HAPS frequency bands.

**3.1.3 Thailand-Document APG19-4/INP-29**

Since sharing and compatibility studies in some bands have not been concluded as indicated in the draft CPM report and some of the frequency bands under consideration are overlapping with other WRC-19 agenda items, notably agenda items 1.5 and 1.13, Thailand is of the view that any regulatory actions for HAPS should take into account other services and their future developments.

**3.1.4 Vietnam-Document APG19-4/INP-37**

Viet Nam proposes to consider carefully the addition of the frequency bands 38-39.5 GHz and 24.25-27.5 GHz that are currently under consideration for IMT in WRC-19 agenda item 1.13.

**3.1.5 Mongolia-Document APG19-4/INP-57**

HAPS is appropriate to provide broadband coverage in rural and isolated areas and could be best backhaul infrastructure and backup system. Mongolian point of view existing services and applications should be protected from new frequencies are identified for HAPS.

**3.1.6 Japan-Document APG19-4/INP-59**

Japan is of the view that the adequate protection of existing services is necessary. Japan supports the studies being conducted in ITU-R in accordance with Resolution **160 (WRC-15)**.

**3.1.7 Korea-Document APG19-4/INP-73**

APT Members support the ITU-R studies undertaken in accordance with Resolution **160 (WRC-15)** on spectrum needs for HAPS, taking into account existing frequency bands that have already been identified for HAPS in the Radio Regulations, and appropriate regulatory actions.

APT Members also support sharing and compatibility studies between HAPS and other services to ensure protection of the services to which frequency bands are allocated and their future developments.

Based on these ITU-R studies, APT Members are of view that the appropriate methods and options as well as regulatory and procedural action should be considered in order to ensure protection of all existing services and their future development in accordance with Resolution **160 (WRC-15)**.

**3.1.8 Iran-Document APG19-4/INP-83**

This Administration is in the opinion that the spectrum requirement for the HAPS should be justified prior to any new identification or revision of the existing regulatory provisions and any additional identification for the HAPS links should be based on sufficient ITU-R sharing studies and real need of spectrum for specific applications taking into account the suitability of existing identifications for new spectrum accommodation.

Furthermore, appropriate technical and regulatory provisions should be provided to enable the countries for inclusion or exclusion of their territory from the coverage of the HAPS systems. Meanwhile the studies shall ensure the protection of the existing services and their future developments without any constraint.

**3.1.9 China-Document APG19-4/INP-100**

China recognizes the capabilities of HAPS technologies to provide broadband connectivity and telecommunication services in rural and remote areas short of terrestrial telecommunication infrastructure, and as backup system to provide emergency communication service in case of other traditional communication system were failed. Thus, China supports necessary regulatory actions to facilitate the global and regional HAPS deployment.

China supports appropriate modifications to the existing footnotes and associated resolutions in the identifications to meet the HAPS frequency demand, considering the current identification are not fully utilized in fact and the frequency need can be satisfied by the existing identifications in some cases described in DNR ITU-R F.[HAPS-SPECTRUM-NEEDS].

China supports that if regulatory actions were necessarily taken, the existing services and their applications shall be protected from HAPS applications in an operational way and no undue constraints shall be imposed on the future development of existing services by HAPS.

In the frequency band 27.9-28.2GHz and 31-31.3GHz, The sharing and compatibility study results in the PDNR ITU-R F.[HAPS-31GHz] ([Annex 18](https://www.itu.int/dms_ties/itu-r/md/15/wp5c/c/R15-WP5C-C-0531%21N18%21MSW-E.docx) to Document 5C/617) show the feasibility to deploy HAPS in this band with an operational protection to the existing services. Thus, China supports Method B1 option1 for band 27.9-28.2GHz and Method B1 option 1a for band 31-31.3GHz, and with an appropriate modification to the example Resolution text.

In the frequency band 38-39.5GHz, The sharing and compatibility study results in the PDNR ITU-R F.[HAPS-39GHz] (Annex 19 to Document 5C/617) show the difficulty for deploying HAPS in this frequency band. Meanwhile, considering the potential identification of this frequency bands for both IMT and small earth station in FSS/BSS/MSS, China does not support to identify the 38-39.5 GHz bands for HAPS under WRC-19 agenda item 1.14. Thus, it is recommended to and apply Method A (NOC) for this frequency band.

**3.1.10 Bangladesh-Document APG19-4/INP-108**

Bangladesh recognizes the potential of HAPS as a technology for delivering broadband connectivity and better communications integration throughout South Asia and to all un-served and underserved communities as an effective complement to terrestrial and satellite services and supports consideration of use of gateway and fixed terminal links for HAPS in the frequency band 38-39.5 GHz on a global basis that is addressed by Method B Option B2. In addition, Bangladesh also supports frequency bands 38-39.5 GHz and 24.25-27.5 GHz are also use for IMT in WRC-19 agenda item 1.13 by using the sharing terminology and ensuring the incumbent and potential incoming services.

**3.1.11 India-Document APG19-4/INP-117**

India proposes Method A No Change to RR and supports existing provisions in the Radio Regulation remain unchanged in the corresponding frequency bands for HAPS.

**3.1.12 Indonesia-Document APG19-4/INP-118**

Indonesia is of the view to follow the progress of ITU-R WP 5C for HAPS and waiting to the relevant study is finished.

Some of the frequency bands under consideration are overlapping with other WRC-19 agenda items, notably agenda items 1.6 (37.5-39.5 GHz in space-to-Earth direction) and 1.13 (37-40.5 GHz), Indonesia is of the view that any regulatory actions for HAPS in the band 38-39.5 GHz should ensure the protection of the existing services and their future developments.

Moreover, Indonesia supports the need to review existing HAPS designations that have not been fully utilised before designating any possible new HAPS frequency bands.

**3.1.13 Nepal-Document APG19-4/INF-25**

Nepal recognizes the potential of HAPS as a technology for delivering broadband connectivity and better communications integration throughout Nepal considering mountainous topography to all un-served and underserved communities.

Nepal supports the ITU-R studies undertaken in accordance with Resolution **160 (WRC-15)** on spectrum needs for HAPS, taking into account existing frequency bands that have already been identified for HAPS in the Radio Regulations, and appropriate regulatory actions

Nepal also supports sharing and compatibility studies between HAPS and other services to ensure protection of the services to which frequency bands are allocated and their future developments

**4. APT Preliminary Views**

Noting that the spectrum needs for HAPS is in the range from 396 MHz to 2 969 MHz for the uplink and from 324 MHz to 1 505 MHz for downlink, and that amount for the frequency bands designated to HAPS in Radio Regulations is 600 MHz for global and 1200 or 1360 MHz for some administrations in Region 1 and 3, according to the Report ITU-R F.2438-0. APT Members support the development of necessary regulatory procedures, taking into account existing frequency bands that have already been designated for HAPS in the Radio Regulations.

APT Members also support sharing and compatibility studies between HAPS and other services to ensure protection of the services to which frequency bands are allocated and their future developments. Based on these ITU-R studies, appropriate methods and options as well as regulatory procedures should be considered in order to ensure protection of all existing services and their future development in accordance with Resolution **160 (WRC-15)**.

APT Members support the need to review existing HAPS designations that have not been utilised before designating any possible new HAPS frequency bands.

Regarding the overlapping issues of the frequency bands within the scope of agenda item 1.14 and agenda items 1.5, 1.6 and 1.13, and various sharing study results in the preliminary draft new Report ITU-R F.[HAPS-39GHz] and the preliminary draft new report ITU-R F.[HAPS-31GHz], APT Members are of the view that these issues need to be handled by WRC-19 before any new designations.

APT Members are of the view that any consideration of the frequency band 24.25-27.5 GHz in Region 2 under this agenda item should not limit the possibility to identify the band for IMT on a global level under Agenda item 1.13.

**5. Other Views from APT Members**

Some APT Members support consideration of use of gateway and fixed terminal links for HAPS in the frequency band 38-39.5GHz on the global level.

Some APT Members support Method A No Change to Radio Regulations and support existing provisions in the Radio Regulation remain unchanged in the corresponding frequency bands for HAPS.

Some APT Members support Method B1 option1 for band 27.9-28.2GHz and Method B1 option 1a for band 31-31.3GHz, and with an appropriate modification to the example Resolution text.

**6. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to contribute to the next APG meeting on the agenda item 1.14, taking into account the outcome of CPM 19-2, APG 19-4 and the results of ITU-R studies.

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 CEPT– Document APG19-4/INF-23**

CEPT supports, while ensuring protection of existing services and their future development including other applications of the fixed service (in accordance with Resolution **160 (WRC-15)**) and subject to the conclusions of the ongoing sharing and coexistence studies for the bands mentioned below and, as appropriate, in the adjacent bands:

* Worldwide designations for transmissions from high altitude platform stations (in the downlink direction) in the bands 6 440- 6 520 MHz, 27.9-28.2 GHz.
* Worldwide designations for transmissions to and from high altitude platform stations (in the uplink and downlink directions) in the bands 31-31.3 GHz and 38-39.5 GHz.

For the bands 6 440-6 520 MHz, 27.9-28.2 GHz, 31- 31.3 GHz, 38-39.5 GHz, 47.2-47.5 GHz and 47.9-48.2 GHz, CEPT is supporting new footnotes and associated resolutions and/or appropriate modifications to the existing footnotes and associated resolutions.

CEPT is of the view that any consideration of the frequency bands 21.4-22 GHz and 24.25-27.5 GHz in Region 2 under this agenda item shall by accompanied by appropriate protection of: ISS in the band 24.45-24.75 GHz, ISS in the band 25.25-27.5 GHz, EESS (passive) in the bands 21.2-21.4 GHz, 22.21-22.5 GHz and 23.6-24 GHz, EESS and SRS (space-to-Earth) in the band 25.5-27 GHz and FSS in the bands 24.75-25.25 GHz and 27-27.5 GHz. This includes the appropriate protection of the mobile service in the band 24.25-27.50 GHz as results of consideration under WRC-19 agenda item 1.13.

CEPT is of the view that any consideration of the frequency band 24.25-27.5 GHz in Region 2 under this agenda item should not limit the possibility to identify the band for IMT on a global level under agenda item 1.13.

**7.1.2 CITEL– Document APG19-4/INF-22**

Various proposals are under consideration.

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| **Frequency Band** | **Identification** | **NOC** |
| **6 440- 6 520 MHz** | **PP** based on 1B1 option 1 | **PP** |
| **6 560- 6 640 MHz** |  | **PP** |
| **21.4-22 GHz** | **DIAP** based on 3B2 option 1; and **PP** for 21.5-22 GHz only |  |
| **24.25-25.25 GHz** | **DIAP** based on 4B3 option 1 | **PP** |
| **25.25-27.5 GHz** | **DIAP** based on 5B2 option 1 + HAPS UL in the band 25.25-27 GHz; and **PP** with different conditions |  |
| **27.9-28.2 GHz** | **PP** based on 6B1 option 1 |  |
| **31.0-31.3 GHz** | **PP** based on 7B1 options 1A+1B  |  |
| **38-39.5 GHz** | **DIAP** based on 8B2 option 1A; and **PP** with different conditions  |  |
| **47.2-47.5 GHz / 47.9-48.2 GHz** | **DIAP** based 9B1 Resolution example 2; and **PP** with different conditions |  |

* PRELIMINARY PROPOSAL (**PP**): a proposal by a CITEL Member State that has not been supported by another Member State.
* DRAFT INTER-AMERICAN PROPOSAL (**DIAP**): PP that has been supported by at least one other Member State.
* INTER-AMERICAN PROPOSAL (**IAP**): DIAP supported by at least six Members States and not opposed by more than 50% of the number of supports obtained.

**7.1.3 RCC– Document APG19-4/INF-24**

The RCC Administrations consider that in the case of modification to conditions for use of frequency bands authorized for HAPS or identification of new frequency bands for gateway and user links for HAPS, the protection and the possibility of further development shall be ensured for existing services, including other applications of fixed service, having allocations in these and adjacent frequency bands.

The RCC Administrations consider that a HAPS should not claim more protection from other stations of existing services than that provided in the Radio Regulations for the terrestrial stations in the fixed service, while ensuring the same level of protection for stations of the existing services as the terrestrial stations in the fixed service provide.

**7.1.4 ASMG – Document APG19-4/INP-9\_rev1**

ASMG Position is to support:

* On preliminary basis, no new frequency identifications for HAPS.
* Following-up the on-going studies in ITU-R.

Emphasizing on the necessity of:

* clarifying of technical and operational characteristics of HAPS.
* providing clear technical solutions for protecting the existing allocations from potential interference caused by HAPS.
* studying the appropriateness of the previously identified frequency bands to the HAPS applications.

**7.1.5 ATU – Document APG19-4/INP-9\_rev1**

ATU support Method B1/B2 which provides for the designation of certain fixed service bands for HAPS, in accordance with Resolution **160 (WRC-15)** with options.

* Method B1 – an amended footnote for a worldwide identification of 27.9 - 28.2GHz and 31-31.3GHz, and an updated Resolution **122** to facilitate the use for HAPS in 47.2 - 47.5 GHz and 47.9-48.2 GHz.
* Method B2 – Add new designation(s) for HAPS in bands (38 - 39.5 GHz) already allocated to the FS with a primary status on a worldwide basis.

**7.2 International Organisations**

**7.2.1 ICAO– Document APG19-4/INF-04**

If agreed ITU-R studies demonstrate there is no adverse impact on aeronautical systems including those used for the safe operation of the platform on which the HAPS resides, then support the use of fixed service allocations for HAPS provided that any regulatory actions taken within the existing allocations to the fixed service noted in Resolution **160 (WRC-15)** do not constrain the potential future use of those HAPS fixed links as part of aeronautical communication systems (e.g. VSAT enhancement).

**7.2.2. WMO** **Document APG19-4/INF-02**

WMO does not oppose new HAPS band identifications provided that studies show a need for identification of additional spectrum for HAPS and that protection of EESS (space-to-Earth) and EESS (passive) is ensured.

WMO requests that the long-term usage and future deployment of receiving EESS Earth stations (in particular in the 25.5-27 GHz band) should not be constrained by the HAPS usage.

WMO also requests that the necessary HAPS unwanted emission limits be established to ensure the protection of all current and future EESS (passive) sensors and included in table 1 of Resolution **750 (rev. WRC-15)**.

Furthermore, WMO would appreciate the development of a solution to ensure the continued operation of the ground-based radiometers in the 24.25-27.5 GHz frequency band.

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