

Your response

Question	Your response
<p>Question 1: Do you agree with the prioritisation of the agenda items, as shown in Annex 5, and if not why?</p>	<p>Confidential? – Y / N</p>
<p>Question 2: What are your views on the continued need to protect global aeronautical and maritime services, in the 4.8 – 4.99 GHz band, under this agenda item?</p>	<p>Confidential? – Y / N</p>
<p>Question 3a: Do you agree that the UK interest in the bands 3 600-3 800 MHz and 3 300-3 400 MHz in Region 2 (North & South Americas) should be limited to any impacts on UK operational use in those areas?</p>	<p>Confidential? – Y / N</p>
<p>Question 3b: Do you agree that the UK should maintain its objections to changes to the regulatory environment for the band 3300-3400 MHz (in Region 1, Europe, Africa, Middle East), noting UK has interests in use of radar for both ground and airborne operations?</p>	<p>Confidential? – Y / N</p>
<p>Question 3c: What is your view on the use of 6425-7025 & 7025-7125 MHz, and what evidence do you have to support this view? How does that inform your views on a IMT identification in these bands?</p>	<p>Confidential? – Y / N</p>
<p>Question 3d: What are your thoughts on the current UK view that IMT should not be identified in Region 2 in the band 10-10.5 GHz in order to ensure the protection of the globally operating EESS (active) systems and airborne & vessel mounted radars?</p>	<p>Confidential? – Y / N</p>
<p>Question 4: Do you agree that, where no additional technical limitations are placed on mobile services, the UK can support an upgrading of the mobile allocation, in 3600 - 3800 MHz, from secondary to primary?</p>	<p>Confidential? – Y / N</p>

Question 5: What are your views on the development of regulatory conditions to facilitate deployment of high altitude IMT base stations in IMT identified bands below 2.7 GHz?

Confidential? – N

The HAPS Alliance is of the view that proper regulation is essential to take full advantage of these HIBS benefits.

As per RR **1.66A**, the term of “*high altitude platform station*” is defined as a station that is not attributed to the specific services.

In the current ITU-R study on WRC-23 Agenda Item 1.4, HIBS is still included in RR **1.66A** rather to create the new definition of HIBS, this means that HIBS is still addressed as a high altitude platform station. Therefore, RR **4.23** “*Transmissions to or from high altitude platform stations shall be limited to bands specifically identified in Article 5*” shall be applied.

In addition to identify the frequency bands, the regulations need to include specific conditions for the use of HIBS, especially the protection of other services in other countries. Regulatory approach that is similar to existing HIBS use, RR **5.388A** (identification) and Resolution **221** (conditions), is appropriate for this WRC-23 agenda item 1,4 as well. In fact, Methods A2, B2, C2 and D2 for the draft CPM text are under study based on this approach in ITU-R.

In addition to compliance with RR **4.23**, clarifying the conditions of use of HIBS through identification will contribute to the creation of a global ecosystem. This is similar to the IMT identification, and regional harmonization, including CEPT, should be important.

(Also see the embedded document)

[SEE BELOW]

Question 6: Do you agree that a formal modification to the Radio Regulations is not needed for fixed service applications that use IMT technologies?

Confidential? – Y / N

Question 7: What are your views on the proposed approach for 470-694 MHz, recognising the national decisions already in place and taken for DTT multiplex licensing in the band, and the additional and supplementary spectrum made available for UK PMSE usage?

Confidential? – Y / N

<p>Question 8: What are your views on the need to establish an international regulatory environment that provides adequate protection of UK fixed links from earth stations in motion, in the band 12.75 – 13.25 GHz, which is also practicable from an enforcement/implementation perspective?</p>	<p>Confidential? – Y / N</p>
<p>Question 9: Do you agree that the UK continues to support the maritime distance figure for ESIMs that work to non-geostationary satellites and to test the other conditions agreed at WRC-19 for ESIMs working to geostationary satellites to ascertain whether these remain appropriate for non-geostationary satellites?</p>	<p>Confidential? – Y / N</p>
<p>Question 10: What are your views on whether an allocation to inter satellite links is necessary for existing satellite allocated bands and whether this would provide benefits internationally?</p>	<p>Confidential? – Y / N</p>
<p>Question 11: What are your views on the need for additional satellite allocations in support of narrowband IoT “M2M” type applications, noting that there remains the continued use of PMSE for wireless cameras in the band 2010 – 2025 MHz?</p>	<p>Confidential? – Y / N</p>
<p>Question 12: What are your views on the proposed approach to this agenda item concerning the fixed satellite service in 17.3-17.7 GHz in Region 2?</p>	<p>Confidential? – Y / N</p>
<p>Question 13a: On Topic B, what are your views on the post milestone procedures for non-geostationary satellite systems?</p>	<p>Confidential? – Y / N</p>
<p>Question 13b: On Topic L, what are your views on regulatory conditions for Telemetry, Tracking and Command (TT&C) for NGSO in-orbit servicing?</p>	<p>Confidential? – Y / N</p>
<p>Question 13c: What are your views on the remaining topics currently listed for Agenda Item 7?</p>	<p>Confidential? – Y / N</p>

<p>Question 14: Noting that any UK position will be developed only after the ITU Plenipotentiary Conference, do you have any comments relating to the use of Article 48 that may be addressed at WRC-23?</p>	<p>Confidential? – Y / N</p>
<p>Question 15: What are your views on the need to establish an international regulatory environment for sub-orbital vehicles, which at the same time does not limit flexibility of spectrum options, and retains international safety considerations?</p>	<p>Confidential? – Y / N</p>
<p>Question 16: Do agree that where the adjacent band compatibility issues are addressed and ICAO coordination processes are not compromised, that the addition of an aeronautical satellite (AMS(R)S) allocation to the band can be supported?</p>	<p>Confidential? – Y / N</p>
<p>Question 17: Do agree that functions related to international aviation safety are a matter for ICAO? On this basis, and absent any contrary information from ICAO, should the UK support the development of an international spectrum regulatory framework for UA use of FSS that would support efficient use of spectrum?</p>	<p>Confidential? – Y / N</p>
<p>Question 18: Recognising the recent diminishing industry interest in this item relating to possible modification of the aeronautical HF assignment plan, and the general lack of global interest, do you agree that UK move towards a No Change proposal under this agenda item?</p>	<p>Confidential? – Y / N</p>
<p>Question 19: What are your views on the need for additional spectrum, specifically in the 15 and 22 GHz bands, for non-safety aeronautical use?</p>	<p>Confidential? – Y / N</p>
<p>Question 20: What are your views on Agenda Item 1.11 and the proposed UK position to support modernisation of GMDSS?</p>	<p>Confidential? – Y / N</p>

<p>Question 21: What are your views on the approach to the review of 1240-1300 MHz, recognising that discussions concerning future satellite navigational needs for the UK are a matter for Government?</p>	<p>Confidential? – Y / N</p>
<p>Question 22: What are your views on a new spectrum allocation in the 40-50 MHz range to support and enhance climate monitoring, such as, environmental shifts in ice sheets?</p>	<p>Confidential? – Y / N</p>
<p>Question 23: What are your views on upgrading the Space Research Service allocation, from secondary to primary, in the 14.8-15.35 GHz band?</p>	<p>Confidential? – Y / N</p>
<p>Question 24: What are your views on the potential for defragmentation in this band to facilitate both EESS (passive) use and provide for larger contiguous blocks for fixed & mobile allocations?</p>	<p>Confidential? – Y / N</p>
<p>Question 25: Do you agree that formal international recognition for Space Weather Sensors should be implemented in the Radio Regulations?</p>	<p>Confidential? – Y / N</p>
<p>Question 26: What are your views on the limits proposed to protect EESS (passive) under Agenda Item 9.1 topic d) and do you have any views on which of these limits might be accommodated in the Radio Regulations and how?</p>	<p>Confidential? – Y / N</p>
<p>Question 27: Do you agree that the formalised time reference in common global use, is not a matter of spectrum regulation?</p>	<p>Confidential? – Y / N</p>
<p>Question 28: Do you have any comments concerning the Standing Agenda Items, where not covered elsewhere in this document?</p>	<p>Confidential? – Y / N</p>

Question 29: Do you have a view on any of the footnotes to which UK is a party?	Confidential? – Y / N
Question 30: Are you aware of any specific issues, not covered elsewhere in this document, which are likely to be raised in this part of the Director’s Report and of which you think Ofcom should be aware?	Confidential? – Y / N
Question 31: Do you have any comments on Agenda Item 9.3 considering Resolution 80?	Confidential? – Y / N
Question 32: What changes to the Radio Regulations have you identified that would benefit from action at a WRC and why? Do you have any proposals regarding UK positions for future WRC agenda items or suggestions for other agenda items, needing changes to the Radio Regulations, that you would wish to see addressed by a future WRC?	Confidential? – Y / N
Question 33: What are your views on the use of IMT stations that use antennas that consists of an array of active elements, in bands shared with satellite services?	Confidential? – Y / N

Please complete this form in full and return to wrc-23.respond@ofcom.org.uk.

The HAPS Alliance is an industry association composed of world-leading telecommunications, technology, aviation, and aerospace companies that are united in promoting the use of high altitude vehicles in the Earth's stratosphere to eliminate the digital divide and bring connectivity to more people, places, and things worldwide. Our goals are to advocate for sensible communications and safety regulations, provide thought leadership and education on HAPS, promote cross-industry collaboration, and accelerate commercial adoption of HAPS.

The HAPS Alliance recognizes that HAPS is a commercially viable technology today, and the HAPS market would significantly growth as indicated by the following projections¹:

- The HAPS market is gaining traction with a steady increase of in-service units, from 310 in 2019 reaching 710 by 2029, growing at an annual rate of 8.7%;
- HAPS technology is developing, generating new market demand and disrupting the current landscape, providing new business potential for companies in the HAPS ecosystem;
- By 2029 the HAPS market is expected to generate \$4 billion, driven by market demand and a rise in scientific research and funding from business, university and government space agencies.

HAPS is expected to be a solution to the following issues by taking advantage of its characteristics:

- Connecting the unconnected
 - Over 40% of the world's population remains unconnected, without access to the internet, especially in remote areas where there is a lack of stable power.
 - We are living in an increasingly virtual world, which has become smaller thanks to the digital age.
 - HAPS offers a capability to provide internet connection in locations unserved by legacy telecommunications networks, offering persistent communications. HAPS will close the digital divide, providing network latency comparable to that of terrestrial cellular towers but with wider geographic coverage.
- Help for the natural disaster recovery
 - During 2020, there were 416 natural disasters worldwide². Natural disasters have significant impacts, often disrupting communication systems on the ground, which debilitates essential emergency and military communication.
 - Being based in the Stratosphere and above air traffic and weather events, HAPS is unaffected by disasters on the ground, enabling sufficient freedom of movement and the ability to assist rescue and recovery efforts during times of disaster. If a ground gateway is damaged, HAPS can provide connectivity by relaying network coverage from a working ground gateway to enable humanitarian assistance with critical data in near real-time.
- Responding to incidents triggered by climate change
 - Climate change has been a key factor in increasing the risk and extent of wildfires.

¹ Market Source NSR, *High Altitude Platforms 4th Edition, 2020* <https://www.nsr.com/?research=high-altitude-platforms-4th-edition>

² Statista <https://www.statista.com/statistics/510959/number-of-natural-disasters-events-globally/>

- HAPS offers a solution to enable response latency by providing real time situational awareness and communication to emergency responders. HAPS lets responders analyze risks prior to the spread of raging wildfires. Solutions enable the improvement of mission prioritization, deployment of fire fighters, and increasing decision making in areas where rescue and evacuation missions are required.
- HAPS offers opportunities to tap into new market demand and enter markets that were once deemed unobtainable from the Stratosphere.

High-altitude platform station as IMT base stations (HIBS) can provide those solutions which relate to connectivity above, without having to change current user's cell phone terminals. This is based on the use of HIBS as a method of area expansion (base station deployment) by existing MNO and as temporary base stations in the event of natural disasters. In other words, HIBS will be a part of the existing MNO's network.

HIBS is also included as one of the technology enablers for IMT systems toward 2030 based on the latest ITU-R study³. In addition, ITU-R is currently studying for the framework and overall objectives of the future development of IMT for 2030 including ubiquitous coverage and sustainability as user and application trends and capability⁴ which are suitable for HIBS use. Therefore, the HAPS Alliance believes that HIBS is expected to be one of the key factors in the next generation IMT system.

The HAPS Alliance is of the view that proper regulation is essential to take full advantage of these HIBS benefits.

As per RR **1.66A**, the term of *"high altitude platform station"* is defined as a station that is not attributed to the specific services. In the current ITU-R study on WRC-23 Agenda Item 1.4, HIBS is still included in RR 1.66A rather to create the new definition of HIBS, this means that HIBS is still addressed as a high altitude platform station. Therefore, RR **4.23** *"Transmissions to or from high altitude platform stations shall be limited to bands specifically identified in Article 5"* shall be applied. In addition to identify the frequency bands, the regulations need to include specific conditions for the use of HIBS, especially the protection of other services in other countries. Regulatory approach that is similar to existing HIBS use, RR **5.388A** (identification) and Resolution **221** (conditions), is appropriate for this WRC-23 agenda item 1,4 as well. In fact, Methods A2, B2, C2 and D2 for the draft CPM text are under study based on this approach in ITU-R⁵. In addition to compliance with RR **4.23**, clarifying the conditions of use of HIBS through identification will contribute to the creation of a global ecosystem. This is similar to the IMT identification, and regional harmonization, including CEPT, should be important.

³ Draft new Report ITU-R M.[IMT.FUTURE TECHNOLOGY TRENDS OF TERRESTRIAL IMT SYSTEMS TOWARDS 2030 AND BEYOND] - Future Technology Trends of Terrestrial IMT Systems towards 2030 and beyond <https://www.itu.int/md/R19-SG05-C-0085/en>

⁴ Working document towards a preliminary draft new Recommendation ITU-R M.[IMT.VISION 2030 AND BEYOND] - IMT Vision - Framework and overall objectives of the future development of IMT for 2030 and beyond https://www.itu.int/dms_ties/itu-r/md/19/wp5d/c/R19-WP5D-C-1361!H3-N3.06!MSW-E.docx

⁵ Working document towards draft CPM Text on WRC-23 agenda item 1.4 https://www.itu.int/dms_ties/itu-r/md/19/wp5d/c/R19-WP5D-C-1361!H4-N4.28!MSW-E.docx