

Your response

Question	Your response
Question 1: Do you agree with the prioritisation of the agenda items, as shown in Annex 5, and if not why?	--
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?	--
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?	--
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?	--
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?	--
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?	--
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?	--

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?

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

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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

Please see APWPT's comment below

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?

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Question 9: Do you agree that the UK continues to support the maritime distance figure for ESIMs that work to nongeostationary 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?

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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?

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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

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continued use of PMSE for wireless cameras in the band 2010 – 2025 MHz?	
Question 12: What are your views on the proposed approach to this agenda item concerning the fixed satellite service in 17.317.7 GHz in Region 2?	--
Question 13a: On Topic B, what are your views on the post milestone procedures for non-geostationary satellite systems?	--
Question 13b: On Topic L, what are your views on regulatory conditions for Telemetry, Tracking and Command (TT&C) for NGSO inorbit servicing?	--
Question 13c: What are your views on the remaining topics currently listed for Agenda Item 7?	--
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?	--
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?	--
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?	--
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?	

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?

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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?

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Question 20: What are your views on Agenda Item 1.11 and the proposed UK position to support modernisation of GMDSS?

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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?

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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?

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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?

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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?

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Question 25: Do you agree that formal international recognition for Space Weather Sensors should be implemented in the Radio Regulations?

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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?

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<p>Question 27: Do you agree that the formalised time reference in common global use, is not a matter of spectrum regulation?</p>	<p>--</p>
<p>Question 28: Do you have any comments concerning the Standing Agenda Items, where not covered elsewhere in this document?</p>	<p>--</p>
<p>Question 29: Do you have a view on any of the footnotes to which UK is a party?</p>	<p>--</p>
<p>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?</p>	<p>--</p>
<p>Question 31: Do you have any comments on Agenda Item 9.3 considering Resolution 80?</p>	<p>--</p>
<p>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?</p>	<p>--</p>
<p>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?</p>	<p>--</p>



Response to Ofcom's Call for Input on UK preparations for WRC-23 – Agenda Item 1.5:

- to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15);

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?

The APWPT promotes on an international level the efficient and demand-driven provision and use of production frequencies for professional event productions as well as safeguarding such production frequencies for the users on the long run.

Programme Making and Special Events (PMSE, also known as SAB/SAP) is the term used to describe the wireless communication links that allow the creative industries to transport the captured audio and video content from performers and presenters on location to audiences, either at the venue, at home, or increasingly, on the move. PMSE is primarily divided into audio and video, and each has unique characteristics that need to be catered for.

Content created with PMSE is consumed all over the world on a multitude of platforms. It relates typically to televised sport, outdoor music events, theatre productions, television light entertainment, feature film production and live television news gathering. However, it also encompasses many other applications, for example PMSE is used at exhibitions, house of worships, conferences, and educational institutions. Especially streaming platforms created an increased demand on producing new content, requesting high quality, low latency PMSE applications.

Therefore, PMSE is essential for the social and cultural life and contributes with a high factor to the economy of UK.

Please see also ECC Report 323 'Spectrum use and future spectrum requirements for PMSE'¹.

¹ <https://docdb.cept.org/document/18490>

Specific comments on WRC23 AI 1.5

We appreciate that UK in addition to the majority of European countries are listed with ITU-R RR FN 5.296 allowing audio PMSE (SAB/SAP) access to the band 470 - 694 MHz as a land mobile service.

Access to sufficient interference-free radio frequencies remains essential for wireless PMSE equipment to meet the expectations of content production workflows. At the same time, not all frequency bands are technically equally suitable for specific PMSE applications as different frequency bands have different propagation characteristics which may or may not support production requirements such as mobility, indoor penetration, latency limits, range, etc.

The UHF band below 1 GHz is the core band for professional audio PMSE applications due to several reasons of that band. The combination of radio propagation characteristics (particularly, body absorption and operating range), a low level of existing man-made noise, favourable antenna length and predictable, stable interference scenarios allow to deploy high quality audio PMSE equipment.

PMSE applications such as audio capturing (wireless mics) and play-back (IEM) for live sound have such demanding requirements in terms of latency and reliability that operating in the UHF band below 1GHz is required.

High-quality audio PMSE applications have specific requirements in e.g., terms of latency, which cannot be achieved by existing standardized radio technologies. Therefore, many audio PMSE applications are implemented based on proprietary dedicated wireless solutions. Nevertheless, manufacturers are very innovative and continuously invest in the development of new technologies, e.g., wideband systems based on WMAS, DECT 2020 NR and 5G. It is worth noting however, that these technologies are still not available and even when they will become available, technological innovation will not eliminate the need of audio PMSE for dedicated interference-free frequency resources in the sub-1GHz UHF band.

The typical frequency spectrum requirement does vary for different use cases and applications. The report 'Report on spectrum requirements for Audio PMSE'² analyses the spectrum needs for audio PMSE. According to the results of this report the daily required spectrum for audio PMSE in the UHF-TV band today is in average 110 MHz. With this amount of spectrum, the requirement of the most of campus/venues and events can be fulfilled. Nevertheless, for major events the average of the required spectrum sums is 174 MHz, while the peak demand could require the whole available UHF-TV spectrum of 224 MHz (audio PMSE is deployed in between active TV transmitters).

² <https://apwpt.org/wp-content/uploads/2022/03/Report-PMSE-Audio-spectrum-requirement.pdf>

Please note that the demand for PMSE is growing (ECC Report 323), which, as consequence, requests access to the UHF-band below 1 GHz far beyond 2030.

APWPT's sharing analysis concludes that PMSE and IMT are not compatible and cannot share frequency bands. Any future access policy to the TV-UHF band must continue to support the future use of audio PMSE.

Additional comments: IMT mobile duplex centre gaps below 1 GHz

APWPT would like to request that the duplex centre gaps in the mobile IMT bands below 1 GHz are opened for audio-PMSE use. However, please note these bands are not sufficient for high professional audio PMSE applications, which require more frequency spectrum, which is clean and interference free from adjacent IMT services.

Summary

- PMSE is an essential service for social and cultural life contributing with a high factor to the economy.
- The TV - UHF band is the core band for audio PMSE and is an essential frequency resource.
- The band below 1 GHz is essential for physical and technical reasons. PMSE requirements are much different compared to other services, including IMT.
- The ITU-R RR FN 5.296 must continue supporting the access for PMSE. (ITU-R terminology: SAB/SAP; land mobile service).
- APWPT supports no change in relation to WRC-23 Agenda Item 1.5.

Yours sincerely
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