

Consultation response form

Please complete this form in full and return via email to WRC-19@ofcom.org.uk or by post to:

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Consultation title	UK preparations for the World Radiocommunication Conference 2019 (WRC-19)
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Confidentiality

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Your details: We will keep your contact number and email address confidential. Is there anything else you want to keep confidential? Delete as appropriate.	Nothing
Your response: Please indicate how much of your response you want to keep confidential. Delete as appropriate.	None
For confidential responses, can Ofcom publish a reference to the contents of your response?	Yes

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? – N</p> <p>We agree with the prioritisation you have for the different Agenda Items.</p>
<p>Question 2: Ofcom is supporting the following three priority bands for IMT identification in the RRs:</p> <p style="padding-left: 40px;">24.25 – 27.5 GHz</p> <p style="padding-left: 40px;">40.5-43.5 GHz (as part of a wider global 37-43.5 GHz tuning range)</p> <p style="padding-left: 40px;">66 – 71 GHz</p> <p>If you don't agree with any of these bands, or think we should be promoting other bands, please provide justification for your views.</p>	<p>Confidential? – N</p> <ul style="list-style-type: none"> • Due to the following developments, IEEE 802 recommends that WRC-19 not consider 66-76 GHz for IMT identification. <ul style="list-style-type: none"> • On July 14, 2016, FCC published a Report and Order and Further Notice of Proposed Rulemaking (FCC 16-89) [https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-89A1.pdf] to adopt 64-71 GHz band for License Exempt operation. • In January 2018, the ITU-R published Recommendation M.2003-2 [https://www.itu.int/rec/R-REC-M.2003-2-201801-I/en] wherein this band was indicated for Multigigabit Wireless Systems. This facilitates the introduction of IEEE 802 technologies that are capable of supporting 5G use cases under the existing Mobile Allocation. • In February 2018, the Radio Spectrum Policy Group of the European Union (RSPG) published their Second Opinion on 5G [http://rspg-spectrum.eu/2018/02/] in which they recommended making this band available on a general authorized access basis. <p>We believe that a wide variety of 5G services and use-cases will be deployed in this band globally without the need for an IMT identification. In fact, IMT identification could bar some key 5G technologies from operating in this band.</p>

<p>Question 3: What are your views on the suitability of the currently identified bands for HAPs and do you think there is a requirement for additional spectrum? Recognising that we support 26 GHz as a global band for IMT under agenda item 1.13, what are your views on the bands currently under study for HAPs, both globally and in ITU-R Regions?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 4: What are your views on the bands within scope of Agenda Item 1.16 and their suitability for Wi-Fi and Wi-Fi like services? Do you agree that Ofcom should support the CEPT position of No Change? If not, please provide evidence to support your view.</p>	<p>Confidential? – N</p> <p>Since the 1990s, IEEE 802 has been actively developing standards for Wireless LAN technologies that operate in the 5 GHz bands. Among these is IEEE 802.11, which is the basis for Wi-Fi, the most successful, most used and most demanded 5 GHz wireless technology. IEEE 802.11 is carrying the vast majority of wireless internet traffic and is essential for commercial services, education, communications and social interactions, creating industries and providing jobs and economic growth around the world.</p> <p>IEEE 802 recommends that any regulatory action should not disadvantage any IEEE 802 standard or add any additional regulatory burdens for its use of the 5 GHz bands.</p>
<p>Question 5: Do you agree that UK support the inclusion of the updated Recommendation M.1849-1 (“Technical and operational aspects of ground-based meteorological radars”) in footnote No.5450A? What are your views on the requirement to include a reference to ITU-R Recommendation ITU R M.1638 1 in footnotes No.5447A and 5.450A and the potential impact upon Wi-Fi (and similar technologies)?</p>	<p>Confidential? – N</p> <p>For the first question on inclusion of M.1849-1 in foot note No.5450A, we disagree, see below.</p> <p>In preparation for WRC-15 and WRC-19, ITU-R carried out a significant amount of work to study coexistence between RLANs and new radar systems, such as bi-static and fast frequency-hopping radars. These studies confirm that the technical and regulatory impacts of requiring the mobile service to protect new radars types would impose undue constraints on RLAN operation in the 5250-5350 MHz and 5470-5725 MHz frequency ranges. The reference to ITU-R M.1638-0 should not be updated to ITU-R M.1638-1 in footnotes RR Nos. 5447F and 5.450A. Given that both ITU-R M.1638-0 and M.1849-1 Recommendations require essentially the same protection requirements, adding a new reference to ITU R M.1849-1 is redundant and unnecessary.</p>

<p>Question 6: Do you agree that UK support a position of not making changes to the Radio Regulations to reference specific bands for M2M/IoT usage?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 7: What are your views on the potential removal of the limitations listed above?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 8: What are your views on the approach we are proposing to take in respect of ESIMs and are there any additional factors that you think we should take into account?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 9: What are your views on the establishment of regulatory provisions, in Article 22, that cover non-GSO operation between 37.5 and 51.4 GHz?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 10: What are your views on the various issues under consideration under Agenda Item 7, particularly in respect of the bringing into use of non-geostationary satellite networks (i.e. Issue A)?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 11: What are your views on Agenda Item 9.1.1?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 12: What are your views on the potential establishment of satellite pfd limits, in the 1 452 – 1 492 MHz band, to protect terrestrial use?</p>	<p>Confidential? – N</p> <p>No Comment.</p>

<p>Question 13: Do you have any views on the bands being studied and are there any other considerations which you think should be taken into account? What are your views on the appropriateness of the current emission limits in the band 3 700 – 4 200 MHz?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 14: Do you agree that no changes to the RRs are required, under Agenda Item 9.1.7, and that managing the unauthorised operation of earth station terminals (deployed within its territory) should be addressed by the national administration concerned?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 15: What are your views on the need for additional fixed satellite service allocations in the band 51.4 – 52.4 GHz?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 16: What are your views on Agenda Item 1.8, particularly the need to enhance maritime safety, set against the need to respect the international spectrum allocations and the protection of passive services in adjacent bands?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 17: What are your views on Agenda Item 1.9.1, particularly the need to respect the current integrity of the AIS?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 18: What are your views on Agenda Item 1.9.2, particularly the need to take into account current national users in the bands defined by RR Appendix 18?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 19: What are your views on Agenda Item 1.10 and do you think that any changes to the Radio Regulations may be necessary?</p>	<p>Confidential? – N</p> <p>No Comment.</p>

<p>Question 20: What are your views on Agenda Item 1.11, and do you agree that no specific identification for rail communications is required in the Radio Regulations?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 21: What are your views on Agenda Item 1.12 and do you agree that there is no requirement for specific identification to ITS in the Radio Regulations?</p>	<p>Confidential? – N</p> <p>We agree there is no requirement needed.</p> <p>IEEE 802.11 has provided the wireless standard (IEEE Std 802.11p-2010) that provides the basis for much of the Intelligent Transport Systems (ITS) Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) technologies being deployed today. We believe that this technology is capable of sharing the 5850-5925 MHz band with other unlicensed applications. We also understand that global harmonization of the technology is a notable effort that would enable technology improvements and cost reductions to better address rapid adoption to meet the ITS safety goals, an effort we would support.</p>
<p>Question 22: What are your views on Agenda Item 9.1.4 concerning radiocommunications for sub-orbital vehicles?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 23: What are your views on Agenda Item 1.1, recognising that licensed amateur operators in the UK already have access to parts of the 50 – 54 MHz band?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 24: What are your views on Agenda Item 1.2 concerning power limits for MetSat, Mobile Satellite and EESS, and the linkage to agenda item 1.7?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 25: What are your views on Agenda Item 1.3, particularly on any limits required to protect terrestrial use?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 26: What are your views on Agenda Item 1.7 considering spectrum needs for short duration satellites, noting also the potential linkages to Agenda Item 1.2?</p>	<p>Confidential? – N</p> <p>No Comment.</p>

Question 27: What are your views on Agenda Item 1.15, particularly on the protection needs of passive services?

Confidential? – N

The recently published Std. IEEE 802.15.3d-2017 targets point-to-point links in the frequency range of 252 to 325 GHz. All technical and operational parameters for LMS and FS have been sent to ITU-R WP 5A and 5C and are considered in the reports ITU-R F.2416 and M.2417 for AI 1.15.

Within IEEE 802 no sharing or compatibility studies between the LMS/FS and the EESS/RAS have been discussed in preparation of AI 1.15. In June 18, WP 1A finished the draft CPM text for AI1.15:

- Four methods propose the identification the bands 275-296, 306-313, 320-330 and 356-450 GHz for LMS and FS.
- Two of these also propose 318-333 GHz for LMS and FS.
- One method proposes the identification of 275-296, 306-313, 319-325 GHz for FS and 275-325 GHz for LMS (not excluding the frequencies above 325 GHz).

With a look at the preliminary study results in the PDNR ITU-R SM.[275-450GHZ_SHARING], our understanding is:

- Sharing with the RAS is possible (maybe with exclusion zones or avoidance angles in the vicinity of a RAS site).
- FS operating in the bands 296-306, 313-318 and 333-356 GHz would cause harmful interference to the EESS.
- For LMS, one study shows harmful interference to the EESS in the bands 296-306, 313-320 and 330-356 GHz. Another study shows compatibility of CPMS with EESS in the range 275-325 GHz.

Taking this into account, we believe that the identification (by a new footnote or modification of the existing one) of at least the bands 275-296, 306-313, 320-330 and 356-450 GHz for LMS and FS will provide proper protection of the passive services. As an improvement to the current situation, this identification will provide clear guidance to manufactures and administrations which bands should not be used to protect the passive services.

Depending on the final results of the studies, perhaps the whole frequency range 275-450 GHz can be considered for the identification of LMS applications, providing huge spectrum resources to support existing and new applications/services.

We believe that the identification of these bands is very important today for backhaul and fronthaul links supporting 100+ Gbit/s for 5G and enables future applications such as kiosk downloading, reconfigurable wireless links for data centres in addition to fibers and intra-device communications. However, IEEE 802 will revise Std. IEEE 802.15.3d-2017 according to the outcome of WRC-19 if necessary and maybe also develop a standard for bands above 325 GHz which were less promising in 2014 when the development of the standard was initiated.

<p>Question 28: What are your views on Agenda Item 9.1.6, particularly on the categorisation of WPT and whether WRC action is required?</p>	<p>Confidential? – N</p> <p>No Comment.</p>
<p>Question 29: Do you have any comments concerning the Standing Agenda Items, where not covered elsewhere in this document?</p>	<p>Confidential? – N</p> <p>No Comment.</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>Confidential? – N</p> <p>No Comment.</p>
<p>Question 31: Do you have any comments on Agenda Item 9.3 considering Resolution 80?</p>	<p>Confidential? – N</p> <p>No Comment.</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>Confidential? – N</p> <p>There is an interest from regulators and other stake holders to provide cost-effective broadband connectivity to their masses. Problems are especially severe in Rural Areas.</p> <p>TV White Spaces based communications may be used to connect the un-connected due to their favorable propagation characteristics.</p> <p>The TV White Space eco-system would like to initiate a study at the WRC-19 to investigate if the Radio Regulations can accommodate:</p> <ul style="list-style-type: none"> • 55-88 MHz, 173-216 MHz, 470-585 MHz for terrestrial broadcast services with secondary operation by whitespace devices on a non-interfering basis, • Or Co-primary use of terrestrial TV Broadcast services with whitespace devices.

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