

UK Preparations for the World Radiocommunication Conference (WRC-23)

techUK response to Ofcom's consultation submitted on
06 October 2022

About techUK

techUK is a membership organisation launched in 2013 to champion the technology sector and prepare and empower the UK for what comes next, delivering a better future for people, society, the economy and the planet.

It is the UK's leading technology membership organisation, with more than 850 members spread across the UK. We are a network that enables our members to learn from each other and grow in a way which contributes to the country both socially and economically.

By working collaboratively with government and others, we provide expert guidance and insight for our members and stakeholders about how to prepare for the future, anticipate change and realise the positive potential of technology in a fast-moving world.

Summary

techUK welcomes the opportunity to respond to Ofcom's consultation on UK preparations for WRC-23. We note the significant future implications for UK citizens and businesses by decisions made at WRC-23.

We only provide responses/comments on those WRC-23 agenda items or/and questions that are of potential relevance to our membership, including Wireless Broadband Connectivity, Broadcast TV and Support Applications, Satellites and Earth Station Connectivity and Future Agenda Items. Please note that none of our answers are confidential.

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

techUK members broadly agree with the prioritisation of agenda items as laid out in Annex 5. There are, however, a few exceptions, relating to the preliminary agenda for the 2027 World Radiocommunication Conference, as well as agenda item 1.15 and issues related to 21.5.

Our members recommend that Agenda Item 10 be elevated from “low” to “high” status. There are important UK interests at stake with this agenda item. Although specific proposals for WRC-27 agenda items are in the process of being developed, it is important for the UK to engage and assess the extent to which those proposals will have an impact on UK stakeholders.

techUK recognises that discussions on identifying the most suitable frequency bands to address the needs of expanded coverage and capacity for 5G/6G mobile networks have already started. The UK Spectrum Policy Forum has commissioned a study on the identification of current and expected level of future use by existing services in the 7-24 GHz band with the view of this being a key frequency range for providing the required coverage and capacity for efficient 6G network deployment.

Our membership notes that any consideration of new potential frequency bands for 6G and /or IMT identification should minimise any potential negative impact to incumbent services. Therefore, it is important to assess the extent to which those frequencies are used by existing services in the UK, to better inform the UK on the challenges and opportunities for potential sharing and coexistence. Given the significant UK interest in this agenda item this issue appears to fit in the “high” category.

Our satellite members also pointed out to two additional agenda items which they consider should be raised in priority (AI 1.15 & issues related to 21.5), as described below.

techUK would like to raise the priority of 1.15 to ‘high’. It is important to ensure that limits are adopted to ensure the protection for incumbent non-GSO systems from the impact of both maritime and aeronautical ESIM systems. Finally, issues related to 21.5 should also be set as ‘high’ for Ofcom.

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?

Within techUK membership, there are differing views on this agenda item depending on the balance of commercial interests and views of what is in the best interest of UK citizens and consumers. We set these out in the table below.

View of members who support “No Change” (NOC) and do not support adding an IMT identification in 6425 - 7125 MHz	View of members who support adding an IMT identification in 6425 - 7125 MHz
<p>techUK members that build and create most of the internet’s applications host most of its content, and lead in the development of AR/VR hardware, support “No Change” (NOC) because an IMT identification in 6425-7125 MHz will negatively impact UK broadband speeds and functionality.</p> <p>In addition, these members believe the UK should support NOC to maximise the economic and societal benefits derived from Wi-Fi and other technologies that extend the fixed broadband to consumers, enterprise and industry. Nearly every home and business in the UK relies on Wi-Fi for their indoor broadband connections.</p> <p>According to UKⁱ and Germanyⁱⁱ only 3% of broadband traffic is carried over mobile networks. Indoor Wi-Fi traffic consumption is increasing rapidly; forecasts estimate it will increase three-fold 2020-2025.ⁱⁱⁱ Today, in developed markets, roughly 97% of internet capacity is delivered by fixed broadband, and approximately 90% of that capacity is distributed to the end-user by Wi-Fi. IMT in the 6425-7125 MHz will add a trivial amount of total internet capacity while constraining the ability of consumers and businesses to benefit from the full functionality of broadband networks that will be capable of at least 20 Gb/s per connection over the coming decade.</p> <p>Numerous markets around the world, such as the US, Canada, Brazil, South Korea, among others, have already made the entire 6 GHz band available on a licence-exempt basis. 6425-7025 MHz cannot be globally harmonized for IMT because countries representing approximately 40%^{iv} of world’s GDP have already authorized the band for use by RLAN.</p> <p>Wi-Fi has become a key complementary technology for telecommunications networks and an essential part of enterprise and home networks. If countries were to open the full 6 GHz band, the annual \$3.3 trillion of value Wi-Fi added to the world’s economy in</p>	<p>Those techUK members – who collectively provide the country’s mobile infrastructure and provide the majority of UK fixed broadband connections and associated Wi-Fi terminal equipment – consider that an IMT identification of the upper 6 GHz band (6425 – 7125 MHz), and making the band available for mobile networks using IMT 5G NR, is in the best interests of citizens and consumers as it would achieve the most optimal and efficient use of this spectrum in the medium to long-term.</p> <p>Mobile capacity demand is projected to continue to grow rapidly to support emerging high-capacity/low-latency/wide-area mobile multimedia and AR/VR/XR use cases (e.g., for “Metaverse” applications) across cities and towns, automotive applications along major transport routes, fixed wireless access, as well as smart-city applications.</p> <p>These members see this band as the only realistic opportunity for the additional wide/contiguous mid-band spectrum that is needed to support the growth in capacity demand on public mobile networks in an economically viable manner. The alternative approach to increase capacity – namely, extreme network densification well beyond today’s already dense grid of city-wide base stations – will be impractical to deliver the growth in demand for mobile capacity, and would have unacceptable implications on network costs, energy consumption, and carbon footprint.</p> <p>These members note that in July 2020 Ofcom assigned an additional 500 MHz of spectrum in the lower 6 GHz band (5925-6425 MHz) for licence-exempt usage that is not yet widely used, and that when considering the significant amount of other spectrum at 2.4 GHz and 5 GHz that is already available for license-exempt usage, the lower 6 GHz band will be sufficient to deliver the capacity required in projected future WAS/RLAN scenarios in all but exceptional situations. Additionally, spectrum in the</p>

2021 will rise to \$4.9 trillion per year by 2025, according to research conducted by Wi-Fi Alliance.^v

Opening the entire 6 GHz band for licence-exempt use is the only viable option to fully leverage high-speed fixed networks, in particular fibre-to-the-home (FTTH), and advanced internet apps, which will be of critical importance for UK citizens and consumers.

Similarly, Wi-Fi will play a key role in the digitalisation of UK society – including transformations in public services, SMEs and larger industry. Due to its accessibility, Wi-Fi will support adoption of digital new applications and services across Industry 4.0, enterprise, and business in a wide range of domains. A broad range of Wi-Fi Alliance certified products are already available for the full 5925-7125 MHz band. In 2022, more than 350 million Wi-Fi 6E devices^{vi} will be shipped to consumers and businesses.

Some members argue that IMT identifications are associated with high-power outdoor deployments, thus sharing with incumbents (Fixed Satellite Service, Fixed Service) likely requires costly relocation and disruption to services, while a licence-exempt regulatory framework will allow them to continue and even extend their operation without restrictions. In addition, because of propagation issues, outdoor to indoor IMT operations in the 6 GHz band will require higher power levels that will undermine UK's sustainability goals. The combination of fibre and Wi-Fi, by contrast, utilises far lower power than mobile networks.

Finally, parts of the 6425-7125 MHz frequency band are currently in operation by fixed-satellite networks, including the feeder links of the Mobile Satellite Service on a global basis and require protection against interference from terrestrial services.

techUK satellite members also support NOC for this band. They consider that IMT deployment will cause harmful interference to satellite uplinks and hence shared use of satellite services and IMT is not possible.

57-71 GHz range, available in the UK on a licence-exempt basis, should be efficiently used to offload very high capacity needs in short-range scenarios.

For these members, there is a need for equilibrium in the provision of spectrum, with neither licensed nor licence-exempt spectrum users facing congestion. These consider there would be significant harm to future development of public mobile networks if the entirety of the 6 GHz spectrum band is subsequently allocated solely to local licence-exempt services.

They also point out that the favourable radio propagation conditions at mid-band spectrum are far better suited for wide-area macro-cellular mobile communications (IMT 5G NR) across cities than for short-range WAS/RLAN communications (Wi-Fi or 5G NR-U). The delivery of IMT-2020 requirements – should the upper 6 GHz not be used for IMT – would require extreme densification of mobile networks well beyond today's already dense grid of city-wide base stations. This approach is not realistic due to technical challenges (interference management), practical restrictions (lack or difficulties of obtaining new adequate sites) as well as economic feasibility and would have unacceptable implications on network costs and energy consumption. Thus, the benefits in licensed mobile use outweigh the benefits in licence-exempt use in the 6425-7125 MHz band. This view is supported by a number of studies commissioned by GSMA^{vii}.

In June 2022, 3GPP finalised the 5G NR band n104 technical specifications as part of 3GPP Release 17 for the licensed use of the upper 6 GHz band (6425-7125 MHz), and equipment will be available to deploy in the 6 to 12 months following initial assignments to mobile use. Members that support an IMT identification note that the band would be important to meet projected demand in the 2025-2030 timeframe.

Finally, these techUK members consider that coexistence studies at ITU-R have indicated that sharing between IMT networks and existing services (including the Fixed Satellite Service and the Fixed

<p>On the other hand, shared use between satellite and Wi-Fi offers realistic opportunity for coexistence, under the same conditions as those currently adopted for the band 5 925-6 425 MHz.</p>	<p>Service) is feasible in the upper 6GHz band, and that coordination is a practical proposition within a toolbox of options available to administrations to address coexistence in the case of fixed links.</p>
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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?

techUK supports the principle that the UK can support an upgrading of the mobile allocation, in 3600 - 3800 MHz, from secondary to primary, where no additional technical limitations are placed on mobile services and with adequate protection to other services

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

techUK supports the CEPT position^{viii} according to which the usage of IMT systems in the fixed service is not compliant with the Radio Regulations. CEPT supports suppression of Resolution 175 (WRC-19) and opposes any other changes to the Radio Regulations in response to WRC-23 Agenda item 9.1, topic c. Further discussions on fixed wireless broadband applications that use IMT technologies, as well as any other technologies, should take place in ITU-R WPs 5A and 5C (not other ITU-R WPs) to avoid fragmentation of work and to ensure efficient working within ITU-R. No further action at WRC-27 is required.

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?

Within techUK's membership, there are two different views on this topic - a view in support of No Change (NOC) and a view in support of co-primary allocation. We set these out in summary in the table below.

View of members who support NOC in 470-694 MHz	View of members who support adding a Primary Mobile allocation in 470-694 MHz
<p>To some members, Ofcom correctly identifies that a “No Change” decision on agenda item 1.5 would meet the UK's interests. Current arrangements for the 407-694 MHz band are essential for the ongoing success of DTT - a service used by over 16 million households^{ix} across the UK for access to high-quality</p>	<p>Some techUK members argue that the UK should pursue a primary mobile allocation in the 470-694 MHz band at WRC-23 to provide greatest flexibility and support an eventual migration of the band (or parts thereof) from broadcasting to other uses, with the principal new application being mobile services.</p>

and diverse free-to-air and public service broadcasting programming that entertains, informs, and brings communities together.

The current arrangements also ensure that PMSE equipment integral to content creation and live programming continues to operate. The UK Creative industries (which contribute £113 bn to the UK) rely on the PMSE sector via content creation, capture and delivery. Theatre, TV, film, live music, and other special events for which PMSE equipment is used generate billions in the UK every year. The “airband” spectrum provided by Ofcom to compensate for the re-allocation of the 700 MHz band does not have the capacity to replace a further loss of UHF spectrum and Ofcom has offered no alternatives in this regard.

To safeguard both DTT and PMSE, some techUK members consider that it is vital that Ofcom strongly defends a ‘No Change’ position and engages with international groups, including CEPT, to secure this outcome.

A No Change decision would align with Government policy on DTT, with the Government having recently extended DTT multiplex licences until at least 2034 and noting that the renewals “recognise our commitment to the DTT platform.”^x Members expressed concerns over Ofcom indicating it would be open to proposals for “greater flexibility” for several reasons, including that there is no evidence a co-primary mobile allocation would enable flexibility due to the need to manage interference risks, and that a co-primary outcome would undermine the viability and potential of DTT and PMSE.

A co-primary decision would likely result in the UK’s neighbours, who are less dependent on DTT, using the band for mobile services. Technical studies and experiences through the 700 MHz band clearance have shown that mobile and DTT cannot operate within the same band over large distances; in some instances, several hundred kilometres.^{xi} Notwithstanding the higher power of DTT signals, the UK’s TV signals would still be at risk of interference

This 600 MHz band represents high value spectrum that is used for mobile elsewhere in the world. There is already IMT equipment ecosystem available in the 600 MHz band today (3GPP n71 2x35 MHz). 3GPP is also working on a band plan of 2x40 MHz for this range. If 600 MHz is for mobile in the UK, it would provide very substantial additional capacity in places where higher frequencies do not cover well, such as in buildings and at the edge of rural cells.

The GSMA has estimated^{xv} that 2x35-40 MHz of mobile spectrum could boost capacity in such places by 30-50% and could improve the economics of rural deployments by c. 33%. Thus, availability for mobile would bring substantial benefits to UK consumers.

The prospect of reducing the spectrum required for terrestrial broadcasting in the longer term is a reflection of the steadily declining number of households that rely on DTT as the only means of TV consumption (currently 4.4m households in UK according to Ofcom^{xvi} and the increasing availability and use of other methods of TV consumption, notably IPTV.

Some members believe that the Government has recognised the declining demand for DTT and the potential for longer term reduction in spectrum dedicated to broadcasting in its decision to renew multiplex licences until 2034 but to include provision in licences for the possibility of early termination from 2030.

Even though it is recognised that any reduction in TV spectrum use would only be in the longer term, a decision at WRC-23 is important to provide regulatory underpinning for possible future changes and to afford maximum flexibility to the UK in the future use of the band.

It would not harm existing or future broadcasting use as the primary allocation would remain, it would however support development of a mobile ecosystem and support mobile deployments at the time when the UK is ready. It is recognised that different countries

<p>from mobile networks, particularly in France, Belgium, the Netherlands, and Ireland. To ensure decisions rest with the UK authorities and avoid the risk of the UK being pressured to change its use of the band when this is not in its interests, Ofcom should strongly advocate for NOC.’</p> <p>Further, a co-primary mobile allocation signals uncertainty for DTT’s future spectrum arrangements. DTT’s success is the result of the participation of various market players, including device manufacturers and broadcasters. The uncertainty created by a co-primary mobile allocation could deter investment in the DTT ecosystem, such as in new TV sets or content created for free-to-air distribution.</p> <p>Some members believe mobile does not require additional spectrum to meet demand. This was highlighted in a recent Ofcom discussion paper^{xii}. Mobile has been awarded significant spectrum over the past decade, much of which has yet to be fully used. While it has been argued that additional low band spectrum could increase capacity in rural areas, additional capacity could instead be achieved through investment in mobile infrastructure. Undermining the DTT platform would impact viewers, particularly those most reliant on DTT including the elderly, rural audiences, and lower-income households.^{xiii} Recent research has confirmed that DTT is highly valued, with 90% of adults in Great Britain wanting to see continued support for broadcast services.^{xiv}</p>	<p>will have different timescales, with countries such as Switzerland already having ceased DTT. A decision at WRC-23 to make a primary allocation to mobile in Region 1 could be utilised at a later date in the UK.</p>
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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?

techUK agrees with Ofcom that there is a need for an international regulatory environment to provide adequate protection of UK fixed links from earth stations in motion. It also agrees

on being concerned over the question that if the protection limit set on in the Decision 19(04) will be sufficient protection to the NGSO as the PFD in the Decision is only with respect to the GSO ESIMs. Proposed EIRP density limitations with detailed supporting technical studies have been included under the WP4A.

These studies were used to develop a compromise solution at the September Working Party 4A meeting in the draft CPM text for EIRP density limits to enable GSO ESIMs operations while providing protection to NGSO satellite reception.

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?

techUK supports the adoption of technical conditions that the protection of terrestrial services based on the results of sharing studies. techUK notes that the sharing studies concluded similar conditions as those in Resolution 169 would also protect terrestrial stations from non-GSO ESIM.

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?

techUK supports allowing satellite-to-satellite operation through a fixed-satellite service (space-to-space) allocation through the ‘within the cone’ concept, as detailed in method B1 of the Agenda Item 1.17 Conference Preparatory Meeting (CPM) text^{xvii}. This allocation should neither interfere nor impose additional constraints to existing users in these bands.

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?

techUK members consider there is a need for additional spectrum for Mobile Satellite Service on a global basis, although any spectrum allocation for specific applications or limited to the exclusive use of operators providing narrowband IoT “M2M” type applications must not be considered. Our members support allocation of regular MSS spectrum that can be used by a variety of applications.

WRC-19 Agenda Item 1.18 was impeded to make progress due to the ambiguity of the language included in the Resolution 248 (WRC-19) and the limits included in its recognising c text. There was no agreement for the technical parameters and the operational characteristics, leading to the lack of studies completed on time to protect incumbent services.

techUK supports No Change and suppression of the Resolution 248 (WRC-19) for WRC-19 Agenda Item 1.18

Question I2: 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?

techUK supports allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2 and the proposed approaches to this agenda item.

Question I3a: On Topic B, what are your views on the post milestone procedures for non-geostationary satellite systems?

While techUK recognises the need in the future for such post milestone procedure, it suggests that experience be gained first with application of the Resolution 35 milestone procedure before adoption of post milestone procedures. The first milestone for the first NGSO systems subject to the Resolution 35 regime occurs in January 2023, with the second milestone occurring in 2026 and the third milestone in 2028 (see *resolves 8* of Resolution 35). As a result, techUK members propose waiting until WRC-27 to take on this issue once greater experience is gained with Resolution 35.

Question I3b: On Topic L, what are your views on regulatory conditions for Telemetry, Tracking and Command (TT&C) for NGSO in-orbit servicing?

techUK is generally supportive of the need to provide for NGSO in-orbit servicing, as an important alternative to address satellites that may contribute to orbital debris when other solutions are not available. However, it recognizes and respects that concerns have arisen with respect to use of agenda item 7 to address issues that may be considered allocation matters.

Question I3c: What are your views on the remaining topics currently listed for Agenda Item 7?

techUK membership supports a flexible approach to control key orbital parameters to provide sufficient margin for NGSO operations, while protecting incumbent services.

In addition, some techUK members do have some topics under this agenda item (AI 7) that they would like to comment on:

- Regarding **topic A** the tolerances for NGSO orbital characteristics, techUK supports efforts to define tolerances for the four orbital characteristics identifying a “notified orbital plane” and believes that the ultimate tolerances defined need to provide adequate flexibility for NGSO systems to deploy as planned. Further, providing adequate flexibility would enable NGSO operators to accommodate new systems without having a negative impact on the status of their ITU filing. Some of our members also recommend a different percentage for each of the characteristics based on the orbit altitude. This is because the same percentage for all orbits will cause a huge difference between a 10% of GSO from a 10% of LEO.

- For **topic J**, techUK believes that a critical first step to addressing this issue is finalizing a Recommendation on the accurate determination of the aggregate epfd produced by multiple co-frequency operation NGSO systems. Should any consultation procedures be adopted at WRC-23, it is important that only operational systems with a sufficient number of operational satellites be taken into account in the aggregate epfd calculations and in addressing any epfd exceedances.
- **Topic D2.** Our members support the improvement of Recommendation S.1503 to accurately model NGSO systems while ensuring the Article 22 epfd limits are met to protect GSO systems. The current version (S.1503-3) does not adequately model interference from NGSO systems and leads to design constraints on NGSO systems. It supports the completion of S.1503-4 to ensure efficient use of spectrum. Issue D2 will allow the associated necessary updates to the Appendix 4 data items at WRC-23 to gather the necessary information for the foreseen updates to S.1503.
- **Topic D3.** techUK supports additional reminders from the BR to support administrations in maintaining their ITU filings. Under this Topic, BR reminders would be sent with respect to the need to confirm the bringing into use or bringing back into use of satellite networks.

Question I5: 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?

Agenda item 1.6 aims to respond to the communication requirements for suborbital vehicles, which include satellite launch vehicles, rockets for sub-orbital space tourism and space planes. These applications have a wide range of communication requirements that are not able to be accommodated by the current Radio Regulations, in particular because suborbital vehicles may be both space stations and terrestrial stations, and do not fit within the current regulatory framework for satellite or terrestrial systems.

An internationally agreed regulatory framework would support the development of UK proposed launch operations.

techUK therefore supports Ofcom's proposed approach, to support the creation of an international regulatory environment. This should be sufficiently flexible to cover a wide range of categories of suborbital vehicle, including space launch vehicles and vehicles which may or may not operate in shared airspace with conventional aircraft.

Question I9: What are your views on the need for additional spectrum, specifically in the 15 and 22 GHz bands, for non-safety aeronautical use?

Some of satellite members note that sharing difficulties could arise in bands shared with the fixed-satellite service (e.g., 17.3-21.2 GHz).

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

techUK concurs with Ofcom in supporting the ongoing work towards the modernisation of GMDSS. As identified by Ofcom, one of the issues currently under discussion relates to the future use of the band 1645.5-1646.5 MHz, which is no longer required for satellite EPIRBs, following a recent decision by the IMO to remove them from the GMDSS. techUK recommends that this band, which is allocated to the MSS (Earth-to-space) should continue to be available to support maritime satellite communication requirements. techUK supports this band continues to be identified for GMDSS communications requirements, and to ensure efficient use of spectrum, be also available for general maritime communications from earth stations on ships provided that such earth stations also support GMDSS communications.

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?

If there is a proven need then techUK will support guaranteeing spectrum for monitoring climate across the proposed bands.

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?

No.

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?

Please also see our previous answer to Question 1 with regards to our recommendation that Agenda Item 10 be elevated from "low" to "high" status, in light of ongoing work by ITU-R on developing a vision for IMT-2030, and early discussions in various forums on identifying the most suitable frequency bands to address future needs. We consider it is important for Ofcom to actively engage in these discussions to ensure that the outcome is favourable for UK stakeholders.

However, some members note that before proposals under Agenda Item 10 on future spectrum requirements for 6G/IMT-2030 can be considered it is desirable to obtain clarification on the definition of 6G.

If 6G is defined as more than just IMT-2030 air interfaces, it will be important to ensure any new frequency range(s) have a Mobile allocation, but an IMT identification may not always be necessary or desirable. If 6G includes only those air interfaces within IMT-2030 then

equal consideration should be given on the spectrum needs for those other technologies, e.g., those from IEEE and 3GPP, that are not IMT-2030.

Other members point out that it is the definition of IMT-2030 – and not “6G” – that is relevant and of primary importance towards WRC-27. This is because ITU-R and WRC are responsible for the definition of the technical performance of IMT systems and it is up to industry to propose their technologies for inclusion as part of IMT-2030.

It should be emphasised that ITU is concerned with the definition of IMT-2030 which is a technology neutral term, in the sense that any technology which satisfies specific requirements can qualify as IMT-2030. These members encourage the UK to secure access to spectrum for IMT and to further analyse the suitable frequency bands within the essential 7-15/20 GHz range and the complementary sub-THz range.

ⁱ Communications Market Report 2021, UK Ofcom

ⁱⁱ Tätigkeitsbericht Telekommunikation 2020/2021, BNetzA

ⁱⁱⁱ TV and Video Will Triple Average Home Monthly Internet Usage to Beyond 1 TB By 2025

^{iv} The figure is based on the number of countries that have made positive announcements and the map under the following URL was used to determine the value. <https://6ghz.info> <https://6ghz.info/wp-content/uploads/2022/07/6GHz-map-12-July.pdf>

^v https://www.wi-fi.org/download.php?file=/sites/default/files/private/Global_Economic_Value_of_Wi-Fi_2021-2025_202109.pdf

^{vi} <https://www.globenewswire.com/en/news-release/2022/05/11/2440742/0/en/Wi-Fi-6-and-Wi-Fi-6E-drive-global-market-opportunities.html#:~:text=More%20than%202.3%20billion%20Wi,best%20deliver%20advanced%20use%20cases>

^{vii} <https://6ghzopportunity.com/>

^{viii} https://www.itu.int/dms_pub/itu-r/oth/0A/0A/ROA0A0000150001PDFE.pdf

^{ix} <https://www.ofcom.org.uk/research-and-data/tv-radio-and-on-demand/media-nations-reports/media-nations-2022/media-nations-2022-interactive-report>

^x <https://www.gov.uk/government/consultations/consultation-on-the-renewal-of-digital-terrestrial-television-dtt-multiplex-licences-expiring-in-2022-and-2026#:~:text=Detail%20of%20outcome&text=After%20carefully%20considering%20all%20of,a%20further%20period%20until%202034.>

^{xi} <https://www.itu.int/pub/R-REP-BT.2301-3-2021>

^{xii} <https://www.ofcom.org.uk/consultations-and-statements/category-3/discussion-paper-meeting-future-demand-for-mobile-data>

^{xiii} See Openreach response to the Lords Communications and Digital Committee’s hearings on BBC future funding. House of Lords Communications and Digital Committee, 1st Report of Session 2022-23, *Licence to change: BBC future funding*, <https://committees.parliament.uk/publications/23091/documents/169130/default/>.

^{xiv} https://www.arqiva.com/Importance_of_Broadcast.pdf

^{xv} <https://www.gsma.com/spectrum/wp-content/uploads/2022/07/Low-Band-Spectrum-for-5G.pdf>

^{xvi} https://www.ofcom.org.uk/data/assets/pdf_file/0016/242701/media-nations-report-2022.pdf

^{xvii} <https://www.itu.int/en/ITU-R/study-groups/rcpm/Pages/wrc-23-studies.aspx>