Your response

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Question 1: What interest do you have in deploying outdoor or standard power Wi-Fi or other licence exempt RLANs in the Lower 6 GHz band? Please provide details of the types of expected deployments.	Confidential? – N Meta is relying on Wi-Fi connectivity in the upper 6GHz band for its innovative AR/VR product roadmap as well as overall connectivity improvement for end users to access Meta's services. Meta is primarily focused on: • Very Low Power (VLP) to enable constellation of wearable devices such as smartglasses, headsets, smartwatches with personal area low power, low latency, high bandwidth connectivity. VLP is required both indoor and outdoor. Meta believes that wearables will be an increasingly important way for personal interaction with AI and connectivity in general. Meta recently announced[1] upgrades to our Ray-Ban Smartglasses for the UK which will allow users to interact with their surroundings by asking questions about what they can see and receiving smart, helpful answers. We will soon offer live translation, offering real-time speech translation. Meta anticipates that at least 4 x 160 MHz VLP channels across the whole 6 GHz band will be required to enable reliable and scalable communications. For very dense environments, more spectrum will be necessary. • Low Power Indoor (LPI) for indoor connectivity improvement and enabling users to truly leverage fibre connectivity throughout houses, workplaces, shops. • Standard Power can enable gigabit connectivity to local but outdoor places including university

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[1] See
https://about.fb.com/news/2025/04/hey-uk-your-ray-ban-meta-glasses-just-got-smarter-with-even-more-meta-ai-features/

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	campuses, shopping centres and hospital grounds. Such areas do require affordable gigabit connectivity both indoor and outdoor.
Question 2: Are you interested in providing or developing AFC databases for use in the Lower 6 GHz band in the UK?	N/A
Question 3: Do you have any views on the operational considerations of setting up and running AFC databases?	N/A
Question 4: Do you have any views on how we should manage the approval process for AFC databases and, in particular, whether we should rely on parts of the FCC process rather than requiring the whole process to be re-run in the UK?	N/A
Question 5: Please provide any other comments on our proposals for extending access to standard power Wi-Fi and outdoor use, including the overall approach, any details on technical parameters and the running of the AFC databases in this band.	N/A
Question 6: Do you have any comments on our proposal to use a "phased" approach, or on the alternative to wait for European harmonisation?	Meta strongly supports a phased approach. All proposals currently discussed at EU level consider that at least 160 MHz (6425-6585MHz) will be made available to WAS/RLAN. ECC Report 364 confirmed that the existing Wi-Fi regulatory framework applicable to 5945-6425 MHz is appropriate to open access to Wi-Fi in the 6425-6585 MHz band. Meta notes however that mixing narrowband and wideband terminals in 5945-6425 MHz led to unresolved challenges in drafting harmonised standards and suggests that narrowband devices should not be granted access to 6425-6585 MHz. Narrowband devices did not submit or demonstrate spectrum needs beyond the 2.4

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	and 5 GHz which already renders questionable their need to access the 5945-6425 MHz band. Expanding narrowband access to further spectrum bands would be problematic and undermine efficient use of spectrum, as standards keep on being delayed and wideband terminals would be prevented from truly leveraging the wider channels available in 6425-6585 MHz.
	Designating at least 6425-6585MHz for licence-exempt use permanently, with rules consistent with those for the 5925-6425 MHz frequency range would deliver immediate benefits to users, with a readily available ecosystem and significant capacity benefits (in particular enabling 4 channels of 160 MHz). Authorizing an additional 160 MHz now (or at least before the end of 2025) would enable Wi-Fi manufacturers to place equipment into the market in the short term without the need for future adjustments to spectrum access and will further support robust activity in the upper 6 GHz with immediate tangible benefits accruing to consumers, enterprises, and the UK economy.
Question 7: Do you have any comments on the above suggestion to manage any "legacy" Wi-Fi devices, or alternative suggestions?	Meta would like to draw Ofcom's attention to the constraints and requirements linked to the terminal ecosystem.
	While Wi-Fi Access Points (APs) may be more flexible in their design and may adopt UK specific mode of operation, terminals would greatly benefit from an EU-wide ecosystem. It is unclear whether a UK specific terminal ecosystem would be sustainable; and risks isolating UK manufacturers, by locking them out of supplying (or at the very least, making it more costly to supply terminals) to the EU market. Without appropriate terminal availability, any UK effort to achieve a "phased" approach would be significantly compromised, as users would not be able to leverage the new spectrum. Meta strongly recommends the UK to work with other European regulators to enable Wi-Fi terminals to operate in the full 6425-7125 MHz. Wi-Fi terminal operation would still be limited to authorized bands (such as a portion of the upper 6 GHz band) but could be expanded in the future if rules are changed. Such a measure is

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	absolutely critical to increase the chance of success of a phased approach and should be acceptable to all EU regulators as it does not trigger risk of interference to a country that would not allow Wi-Fi APs in 6585-7125 MHz in the foreseeable future.
Question 8: Do you have a view on the amount of spectrum that should be prioritised for Wi-Fi under the prioritised spectrum split option? Please provide evidence for your view.	Meta has the following views: 1. At least 320 MHz for Wi-Fi 2. VLP in at least 160 MHz 3. Enterprise access to Wi-Fi across the full band, on a shared basis. Meta has also carefully studied the Wi-Fi spectrum needs for AR/VR use cases. The IEEE Study on AR/VR Spectrum Requirement for Wi-Fi 6E and Beyond[2] and subsequent Demonstration[3] and Trial Deployment at Ramathibodi Hospital in Thailand[4] show the benefit of having 7x 160 MHz channels, versus only the 3 that are available in the existing lower 6 GHz band. 1. Study This IEEE study quantifies the impact of spectrum scarcity on the feasibility of the AR/VR applications for e-education. Practically, it compares the maximum number of AR/VR devices supported in each classroom of a given school, depending on whether 500 MHz or 1200 MHz are available for unlicensed use cases. 2. Demonstration

[2] See M. Mehrnoush, C. Hu and C. Aldana, "AR/VR Spectrum Requirement for Wi-Fi 6E and Beyond," in IEEE Access, vol. 10, pp. 133016-133026, 2022, doi: 10.1109/ACCESS.2022.3231229.
keywords: {Wireless fidelity;Quality of service;Signal to noise ratio;IEEE 802.11ax Standard;Headphones;Wireless communication;Interchannel interference;AR/VR;6 GHz unlicensed band;Wi-Fi.}

[3] See https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-and-ramathibodi-hospital-demonstrate-advanced-6-ghz-healthcare

[4] See https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-and-faculty-of-medicine-ramathibodi-hospital-drive-6-ghz-wi-fi

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	A demonstration in July 2024 was conducted by Wi-Fi Alliance® with Ramathibodi Hospital, Mahidol University looking at AR/VR use cases for medical applications[5].
	The study highlighted two use cases using only the three 160 MHz channels available in the lower 500 MHz (lower 6 GHz band) versus the seven channels available in the full 1200 MHz of the 6 GHz band (full 6 GHz band). According to the authors, the demonstration underscored the criticality of the full 6 GHz band for maintaining an optimal user experience under high network loads.
	The demonstration highlighted the following key use cases:
	• Efficient use of AR/VR technologies for medical training: AR/VR technologies like immersive virtual anatomy visualization allows for in-depth analysis of the human anatomy, providing doctors and medical students with an immersive 3D view of the human body including skeletal, muscular, neural, and soft tissue structures. • Dense deployment streaming and file transfer: Next generation Wi-Fi supports the ability for every person in a 500-seat classroom to independently stream HD video, transfer files, or utilize 5 GHz and 6 GHz multi-layer network segmentation and deployment.
	3. Trial Deployment
	A 7-month long pilot between Wi-Fi Alliance® and Faculty of Medicine Ramathibodi Hospital, Mahidol University, was conducted, with results published in December 2024. Wi-Fi Alliance member partners who participated in this pilot, included Meta, as well as Hewlett Packard Enterprise, and Intel.
	The full 6 GHz band was used to enhance teaching and learning capabilities to doctors and medical students. The full band 6 GHz was fully integrated with the hospital's curriculum and offered performance insights from medical students and faculty that used advanced

[5] See https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-and-ramathibodi-hospital-demonstrate-advanced-6-ghz-healthcare

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	connectivity technologies in a dense environment for medical training and educational purposes.

According to the study, key takeaways from the pilot trial included:

- Using the full band 6 GHz, hospitals and healthcare facilities can reduce network congestion and support advanced AR/VR technologies while ensuring stable and fast connections crucial for real-time medical applications and data-intensive training.
- The full band 6 GHz is critical for maintaining an optimal user experience for high network loads.
- Unlicensed use of the full 6 GHz band for Wi-Fi was needed for Ramathibodi Hospital – and the Thailand healthcare industry overall – to maintain a leadership position in medical education and care in Southeast Asia.
- The latest Wi-Fi innovations in Wi-Fi 6E and Wi-Fi 7 are fully capable of delivering efficient, robust, and reliable service across diverse market segments, provided regulatory decisions enable this critical spectrum access.

Meta understands that for a variety of considerations, Ofcom does not intend to authorize the full 6 GHz band exclusively for license-exempt use.

However, Meta encourages Ofcom to review the above studies, and to assess how to enable such deployments, possibly on a local licensing basis.

Meta further notes that the portion of a band split open to Wi-Fi should not be "prioritised to Wi-Fi", but simply open to Wi-Fi, including VLP.

In particular, VLP devices are expected to deliver many significant new and innovative services enabled by the 6GHz band. VLP devices operate both indoor and outdoor. Meta expects VLP devices to operate everywhere on the territory. While the aforementioned studies were performed using VR headsets as LPI clients connected to LPI Access Points, Meta believes the conclusions translate to Wearable devices performing similar applications operating under VLP rules. The VLP |

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	would benefit from additional spectrum in the form of lower latency and increased battery life.
	While the aforementioned studies only consider 3 versus 7 channels, we expect there is no "opportunistic IMT access" to the Wi-Fi portion of a band split that would justify denying the benefits of VLP to UK users.
	Meta plans to provide Ofcom further analysis on the incremental benefit of 4, 5, 6 and 7 channels for VLP.
Question 9: Do you have any comments on our plan for a "phase 1" when Wi-Fi will be introduced?	Ofcom seems to prioritise LPI in phase 1 of their proposed approach due to their interest for an indoor/outdoor split option. Meta considers that such indoor /outdoor split is technically feasible. However, Meta notes that many stakeholders and some EU countries seem to oppose indoor / outdoor split. Therefore, Meta recommends Ofcom to take into account that an indoor / outdoor solution is only realistic if it remains compatible with the overall EU regulatory framework and ecosystem in the upper 6GHz band.
Question 10: One variation on "phase 1" would be to only authorise Wi-Fi in client devices to "seed" the market. Would you have any views on this, or suggestions for other variations?	Meta suggests Ofcom to consider that terminals operating under the control of an AP would enable the following benefits. 1) The EU terminal ecosystem could support this functionality on a harmonised basis with no reduction of the flexibility available to regulators on a later basis. 2) Early and harmonised market seeding would greatly increase the users' benefit of any phased or national approach granting additional Wi-Fi access to the upper 6GHz band. 3) Should the respective demand for IMT and Wi-Fi spectrum prove to be very country specific, such an approach would enable a harmonised terminal ecosystem and flexibility for national regulatory authorities (NRAs) to adopt the spectrum use model most corresponding to their national needs.
	Meta does not see such a measure as simply seeding the market, since countries like the UK would then be empowered to adopt their own phase approach and fully reap the economic benefits of such innovation.

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Question 11: Do you have any comments on our plan for a "phase 2" when mobile will be introduced?	The demand for mobile in this band is currently unsubstantiated and many developments may render this demand obsolete. Similar to the demand for mmW bands before 2020, the demand for the 6GHz band seems to be linked with post-2030 traffic projections which are highly volatile given the uncertainties surrounding 5G and 6G, both in terms of spectrum demand and spectrum availability. The upper 6GHz band is mostly adequate for additional outdoor 5G capacity, which would not lead to innovation or additional revenues for the mobile network operators (MNOs)[6]. Meta recommends Ofcom to wait at least for the WRC-2027 before assessing the exact spectrum needs related to additional mobile broadband outdoor capacity.
Question 12: Do you have a view on the amount of spectrum that should be prioritised for mobile under the prioritised spectrum split option? Please provide evidence for your view.	The studies in DRAFT ECC Report 366 and related field trials demonstrate that the upper 6GHz band can support outdoor mobile broadband capacity with slightly less coverage and spectrum efficiency than the 3400-3800 MHz band. Given that the 3400-3800 MHz is still sparsely used throughout Europe[7], it seems evident that doubling the capacity for such mobile broadband service would respond to the spectrum demand for the foreseeable future.
Question 13: Do you have any evidence or views about the geographical extent of mobile networks' likely deployment in Upper 6 GHz?	N/A
Question 14: Do you have any comments on our proposed phased approach to authorisation of both Wi-Fi and mobile in the Upper 6 GHz band?	Apart from the 6425-6585 MHz band, Meta recommends Ofcom to focus on the economic benefits that can be enabled in the upper 6GHz band. Local stakeholders (e.g. universities, hospitals, factories) and MNOs are best placed to estimate the economic benefits that would be related to access to a sub-band. Enabling arbitrage on a

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[6] See
https://api.cept.org/documents/ecc-pt1/81128/ecc-pt1-24-005_telefonica-6-ghz-stuttgart-coverage-test-results

[7] See https://5gobservatory.eu/observatory-overview/interactive-5g-scoreboard/

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	local basis (one building, one factory, on university campus) would (in our view) lead to efficient use of spectrum.
Question 15: Do you have any comments on our proposal to not include very low power portable devices in the Upper 6 GHz band at this stage, but to keep this under review?	Meta recommends Ofcom to open the 6425-6585 MHz to VLP in phase 1 of their phased approach. Meta underlines both that VLP use cases are likely to correspond to most of the Wi-Fi innovation in the upper 6GHz band and that the terminal ecosystem typically requires scales much larger than the UK market. Meta recommends Ofcom to consider how their proposed regulatory framework can be supported by the EU harmonised terminal ecosystem. Meta has submitted a study to CEPT PT-1 regarding VLP coexistence with MFCN for inclusion in ECC Report 366 (referred to as C10). Meta is working on follow-on analysis to incorporate the impact of LBT and clustered distributions and will share with Ofcom when available[8].
Question 16: Do you have any comments on our proposal to authorise the use of low-power indoor Wi-Fi access points and client devices to use 6425–7125 MHz?	Meta understands that Ofcom's assessment of the Wi-Fi/Radioastronomy coexistence situation is not aligned with the understanding that both Wi-Fi and RAS proponents share. Wi-Fi does not need to puncture 6645-6685 MHz to protect RAS. LPI devices are not expected to create interference to RAS. VLP devices can typically use geolocation to puncture 6645-6685 MHz on a local basis, while maintaining the option for devices that do not have access to geolocation to puncture 6645-6685 MHz. Standard Power devices under the control of an AFC can readily be coordinated with RAS. Significantly, Wi-Fi/RAS coexistence would lead to much higher spectrum efficient use than IMT/RAS coexistence. IMT terminals operate at 23dBm outdoor (compared to 14dBm for VLP) leading to exclusion zones 9dB larger for IMT than for VLPs. Furthermore, while IMT BS may be

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[8] See ECC PT1(24)_CG6GHz070 available at
https://cept.org/documents/ecc-pt1/86417/ecc-pt1-24-_cg6ghz070_ecc-pt1-24-_cg6ghz070_vlpstudy

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	able to coordinate their location, the e.i.r.p. levels currently discussed in the CEPT would lead to extremely large separation distances for deployment of IMT networks. It is not straightforward to avoid AAS beams pointing towards an RAS station and would significantly increase the cost and complexity of operation of IMT networks co-channel with RAS. Meta does not see the benefit of restricting the Wi-Fi use of the 6425-7125 MHz to indoor devices. We consider that restricting the use of the band to indoor devices: ● reduces benefits to Wi-Fi users, ● does not protect IMT future services unless Ofcom is explicitly discarding the request by IMT proponents to adopt a regulatory framework compatible with indoor IMT coverage from outdoor base stations, ● is unlikely to lead to harmonisation of the UK and EU ecosystems, in particular for terminals. Authorising terminals on an EU basis under the explicit requirement to operate under the control of an AP brings significant benefits compared with restricting terminals to indoor operation.
Question 17: Do you have any comments on the proposed technical conditions?	Meta approves Ofcom's focus on wide channel bandwidth, which are only available in the 6GHz band. Given ● support for large channels (160 and 320 MHz) is only available in the 6GHz band, ● the ample spectrum availability in the 2.4 and 5 GHz bands for narrowband devices, ● the loss of spectrum efficiency that would be linked with mixing narrowband and wideband devices in the upper 6GHz band. As discussed above in response to Question 6, Meta recommends Ofcom not to open the band to narrowband devices.
Question 18: Do you have any comments on the proposed VNS draft?	Meta recommends Ofcom to assess whether a VNS is likely to support the wide availability of terminals supporting the band.

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Question 19: Do you have any suggestions for an appropriate mechanism for enhanced sensing, or comments on the proposed solution above?	Meta underlines that the proposal for IMT base stations to indicate channel occupation to Wi-Fi APs through 802.11bc messages was proposed by multiple studies and contributions and is not restricted to a single proposal or proponent. Meta agrees that the proposed approach would adequately protect IMT deployment from Wi-Fi interference. Meta underlines that enhanced sensing mechanisms that cannot be supported by the existing Wi-Fi ecosystem – for example, should an EU specific chipset be required, or should additional terminal technology licensing cost be involved – would severely reduce the market addressable by such technology. The benefits of Wi-Fi devices and technologies are linked to affordable connectivity and are not compatible with EU hardware specific requirements.
Question 20: Do you agree with our proposal to restrict Wi-Fi from transmitting in the 6650-6675.2 MHz band to protect the radio astronomy service? Please provide any technical evidence to support your view.	Meta strongly disagrees with Ofcom's assessment of Wi-Fi/RAS compatibility. Please see our above response to Question 16. In particular, Meta considers that Ofcom's assessment disregards key parameters of the studies, such as the distribution of LPI/VLP terminals and the fact that VLP terminals can typically get access to geolocation. From the assessment, it seems Ofcom did not consider the use of AFC to address Wi-Fi/RAS coexistence. Critically, Meta notes that Wi-Fi and RAS coexist in practice without issue in the USA, Canada, Saudi Arabia, South Korea, and all markets that opened the full 6GHz band to Wi-Fi. As coexistence is readily proven in real world commercial deployments, it is unclear why Ofcom would consider such coexistence to be difficult, let alone impossible. Meta furthermore underlines that administrations are currently considering IMT/RAS coexistence, which is indisputably orders of magnitude more difficult to achieve than Wi-Fi/RAS coexistence.
Question 21: Do you agree with our assessment of Wi-Fi coexistence with	Meta agrees with Ofcom's assessment.

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existing users of the band? If not, please provide details.	
Question 22: Do you have any evidence about the costs to operators of moving fixed links in and around "high density" areas (such as urban centres) to other bands?	N/A
Question 23: Do you have any comments on our initial assessment of our likely approach to coexistence between future mobile use and current users in the Upper 6 GHz band?	The studies currently conducted by ECC suggest that IMT proponents expect that the band will be cleared of incumbents and reassigned exclusively to IMT. Coexistence studies submitted in preparation of the WRC-23 cycle were already suggesting that significant separation distances were required between IMT and incumbent services. Post WRC-23, IMT stakeholders amended their proposed deployment parameters, leading to a significant increase in coexistence challenges: ● IMT proponents are requesting EIRP levels at least 10 dB higher than the levels considered during the WRC-23 studies, ● IMT proponents propose to focus on the reuse of existing 3.5GHz base station sites, leading to the vast majority of base stations operating above rooftops. Such configuration significantly increases the separation distance required to protect incumbents, compared with the studies conducted for WRC23, ● IMT proponents request being allowed to provide indoor coverage. In any urban area, this leads to terminals being distributed vertically within buildings, with a non-negligible percentage of users located above the serving base station. IMT AAS antennas are not capable of targeting a user in a high floor without also emitting side lobes at significant EIRP level towards or above the horizon, on each side and above the building where the user is located. Given the significant differences between the IMT parameter and deployment models considered during the WRC-23 studies and the actual deployment models

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	considered by IMT proponents, Meta recommends Ofcom to carefully assess the coexistence conditions between IMT and incumbents.
Question 24: Do you have any other comments on our policy proposals or any of the issues raised in this document?	Meta recommends Ofcom to consider initiatives that can deliver early benefits to users. In particular, opening the 6425-6585 MHz seems to enable immediate and significant benefits to Wi-Fi users. Meta recommends Ofcom to take into account the requirement for the terminal ecosystem to address large markets. Meta further recommends Ofcom to assess whether the regulatory options considered are likely to be compatible with an EU harmonised ecosystem, including during a phased approach. Meta does believe that it is possible to enable an EU-wide ecosystem during phase 1, as long as such terminals cannot create interference in countries deciding not to enter such phase 1.