Your response

Question	Your response
Question 1: Hybrid sharing could mean that the upper 6 GHz band will be used for mobile outdoors and Wi-Fi indoors. What are your views on the priorities for each of these two services, assuming that suitable coexistence mechanisms are developed?	*Is this response confidential? – N* Proposed framework: Mobile Service could be prioritized outdoors and RLAN (e.g. Wi-Fi) service could be prioritized indoors. In such a framework, outdoor Mobile Service could be prioritized with higher allowable transmit power. Mobile Service devices operating indoors should defer to prioritized RLAN devices. Indoor RLAN devices could be prioritized indoors when these devices satisfy LPI requirements. Non-prioritized RLAN devices deployed outdoors, such as Very Low Power (VLP) should be required to defer to Mobile Service.
Question 2(a): Hybrid sharing could mean that the upper 6 GHz ban will be used for mobile in some locations, and Wi-Fi in others. We would like feedback on the priorities for each of these two services, assuming that suitable coexistence mechanisms are developed. From the point of view of mobile, is the upper 6 GHz band most useful to provide outdoor coverage, or indoor coverage? Is it most useful in urban areas, or in those base stations that are currently carrying more traffic, or some other split?	*Is this response confidential? –N* Proposed framework: A) From Mobile Service point of view, upper 6GHz could serve as a wide area coverage band. The band could be useful for both outdoor and indoor coverage. Urban areas typically carry more traffic and spectrum needs are greater. B) From RLAN deployment point of view, indoor coverage is most useful using Low Power Indoor (LPI) devices, although, there are use cases for deploying VLP devices outdoor as well.
Question 2(b): Similarly, what are the priorities from the point of view of Wi-Fi deployments?	*Is this response confidential? – Y / N (delete as appropriate)*
Question 3: What are your views on a modified AFC or SAS-type approach to enable hybrid sharing? What additional work do you think would be required?	*Is this response confidential? – N*

	AFC or SAS-type approach could be used to deal with situations where indoor and outdoor are poorly defined such as in open-roof stadiums and highly dense public venues. AFC or SAS could also be levered for the development of new coexistence mechanisms.
Question 4: How could existing access protocols and sensing mechanisms be leveraged (i.e., those in Wi-Fi or 5G NR-U) to enable hybrid sharing?	*Is this response confidential? – N* Mobile Service should be deployed using the 802.11 channelization plan. Mobile Service may utilize existing Wi-Fi control frames to achieve service priority and time-sharing of a channel in an overlapping geographical area. Scheduled indoor Mobile Service devices should also sense the channel to defer to prioritized indoor RLAN service.
Question 5: What mechanisms could potentially enable device-to-device connectivity?	*Is this response confidential? – N* RLAN device-to-device communication should be allowed. RLAN Client to Client (C2C) C2C devices that remain indoors may leverage the same hybrid sharing mechanisms utilized to ensure RLAN LPI service priority. RLAN VLP devices should be considered non-prioritized RLAN devices. Mobile Service may be prioritized by transmission of WiFi control signals or implementation of another adequate coexistence mechanisms by RLAN VLP devices.
Question 6: If hybrid sharing is eventually adopted, and requires licensed mobile to operate at medium power, in what way would mobile networks use the upper 6 GHz band?	*Is this response confidential? – N* Economic deployment of Mobile Service in upper 6GHz band requires adequate power suitable for reusing existing 5G gNB deployments. The existing 5G deployments in midband spectrum rely on Massive Multi-Input Multi Output (M-MIMO) technology to achieve desirable coverage and capacity. Practical deployments utilize antenna arrays with up to 256 elements to ensure suitable capacity and coverage utilizing relatively narrow focused beams Compared to 3.5 GHz, conducted power in the upper 6 GHz band can remain the same and still maintain similar coverage. For roughly

	the same antenna aperture size, the number antenna elements can quadruple and compensate for the higher propagation losses. The added benefit of large antenna arrays is that even larger antenna arrays can be leveraged to create even narrower beams and utilize the technology minimize interference to in indoor devices. Power limits more restrictive than the limits for the existing 5G gNB licensed midband deployments would confine Mobile Service to hot spots. If the deployment scenarios are limited to hot spots there will be negative impact to the economy of scale and ultimately the success of hybrid sharing framework.
Question 7: How would you suggest that the mechanisms presented here can be used, enhanced, or combined to enable hybrid sharing or are there any other mechanisms that would be suitable that we have not addressed?	*Is this response confidential? – N* Mobile Service could align to the Wi-Fi channel plan and use Wi-Fi signaling to address fair coexistence between Mobile Service and RLAN devices. Mobile Service base stations could leverage large antenna arrays to create narrow beams to improve reuse of spectrum in overlapping geographical areas. If necessary, the industry has an opportunity to develop suitable new time-sharing signaling in 3GPP and/or IEEE to improve service quality and/or better satisfy priority requirements. New coexistence mechanisms could account for synchronous outdoor licensed deployments. WiFi procedures to improve both services under hybrid sharing framework in overlapping geographical areas.
Question 8(a): Assuming the future of the band includes indoor use for Wi-Fi and outdoors use for mobile: How could this be achieved without creating or suffering interference?	*Is this response confidential? – N* Mechanisms described under question 7 could be utilized to minimize interference between indoor RLAN and outdoor Mobile Service. Databases could be considered to further enhance flexibility of those mechanisms
Question 8(b): Could there be a combination of technical adjustments such as power limits and other mechanisms (including databases or sensing mechanisms)?	*Is this response confidential? – Y / N (delete as appropriate)*

Question 9(a): We are interested in input about the importance of the upper 6 GHz band for its incumbent users, and on the potential impact of hybrid sharing of the band. What evidence do you have on whether incumbents are likely to coexist with hybrid sharing of the band with mobile and Wi-Fi? Are there unique advantages of the upper 6 GHz band for these uses?	*Is this response confidential? – N* Mobile Service could utilize large antenna arrays which will significantly reduce the interference in unwanted directions and allow meeting EIRP elevation masks requirements that protect satellite service. From Mobile Service perspective, it is best if Fixed Links could be relocated. Existing studies indicate that sharing between RLAN and all incumbents is feasible.
Question 9(b): What are your views on the initial analysis we have conducted around hybrid sharing and coexistence with incumbents?	*Is this response confidential? – Y / N (delete as appropriate)*
Question 9(c): For any incumbent uses that you view as unlikely to be able to coexist, what alternatives are there? What are the barriers that might prevent those alternatives?	*Is this response confidential? – Y / N (delete as appropriate)*
Question 10: Do you have any other thoughts that you would like to share about hybrid sharing in the upper 6 GHz band, or about hybrid sharing more generally and its potential for applications in other bands?	*Is this response confidential? – N* Hybrid sharing framework that prioritizes RLAN service indoors implies that Mobile Service indoors cannot be guaranteed. Because of modest expected return on investment due to inability to guarantee service indoor, it is unlikely that such framework would justify large capital investment associated with the outdoor Mobile Service network upgrade. The economic deployment of Mobile Service may be conditioned on the availability of exclusively licensed spectrum in the band adjacent or within a tuning range of the hybrid sharing band. In this scenario, exclusively licensed spectrum may justify capital investment into the new network radio components that then could be reused for hybrid sharing. Outdoor Mobile Service may also utilize Sub Band Full Duplex (SBFD) operation, currently studied in 3GPP. Use of SBFD would lead to new coexistence scenarios. In one part of the band, hybrid sharing could be between RLAN service and Mobile Service base station transmissions. In the other parts of the band, hybrid sharing could be between RLAN service and Mobile Service mobile terminal transmissions.

	Hybrid sharing framework could be appliable in other bands, where opportunity for such sharing exists.
Question 11: Do you have any other comments to make on these proposals or on the future use of the upper 6 GHz band?	*Is this response confidential? – N* Deployment density for both services, including the use of repeaters and relays should be considered when adopting rules for hybrid sharing.

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