

# STMicroelectronics answers to the TRAI consultation paper on assignment of the Microwave Spectrum in 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, 21 GHz Bands, E-Band, and V-Band

## **Context:**

STMicroelectronics is an IDM (Integrated Device Manufacturer) that designs and manufactures a range of silicon devices, including those for RF. Back in 2023, we answered the consultation on E&V band spectrum assignment. We are very enthusiastic to see that TRAI is pursuing this initiative in the form of a second consultation, named “**Consultation Paper No. 05/ 2025**”, dated 28<sup>th</sup> May 2025.

We would like to place on record our views for questions Q29 to Q34 in the **Section G, paragraph 3.79** of the above Consultation Paper addressing consumer-device-to-consumer-device data transfers based on low power, short distance (indoor and outdoor) usages of V-band on license-exempt basis.

We are developing a range of products, named ST60<sup>1</sup>, which are silicon Integrated Circuits, implementing short-range, high data-rate, device-to-device communication using V-Band.

These chipsets allow for innovative product designs, enabling the development of rugged and waterproof devices with fast connectivity for the benefit of the end users. Contactless communication also opens the door for communication where a rotation is involved or when it takes place in vibrating conditions. Since there are no contacts, there is no wear and tear either.

## **STMicroelectronics views on Q29 to Q34:**

**Q29. Whether it is feasible to allow low power indoor consumer device-to-consumer device usages on a license-exempt basis in the V-band in parallel to the use of the spectrum by telecom service providers for the establishment of terrestrial networks in a part or full V-band? Kindly provide a detailed response with justification and international scenario.**

**Answer to Q29:** Yes, the usage of low power indoor consumer device-to-consumer device usages on a license-exempt basis in the V-band in parallel to the use of the spectrum by telecom service providers for the establishment of terrestrial networks is feasible. The attenuation of the already low power signal due to rain and oxygen absorption guarantees that each communication will be restricted to short distances (say, few centimeters) and it will not interfere with others when these are separated by a reasonable distance. The co-existence with other usages is consequently ensured.

Many regions of the world have adopted a regulation for enabling Short Range Communication Devices (SRCD). Consumer devices are starting to flourish, leveraging on the innovation unleashed by the SCRD technology. They encounter a very high market

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<sup>1</sup> 60 GHz Contactless Products: <https://www.st.com/en/wireless-connectivity/60-ghz-contactless-products.html>.

traction and a huge customer satisfaction. This demonstrates that the coexistence of the two usages is not only feasible but also highly looked forward.

**Q30. In case it is decided to allow low power indoor consumer device-to-device usages on a license-exempt basis in the Vband (57-64/66 GHz), -**

**(a) Should it be permitted in the entire V-band or only in a portion of the V-band? If it should be permitted only in a portion of the V-band, please specify the frequency range.**

**Answer to Q30 (a):** In case it is decided to allow low power consumer device-to-device usages on a license-exempt basis, the entire V-band should be permitted because this band allows for transmission of high data-rates at multiple gigabits/s and a relatively wide band is required around the carrier frequency.

**(b) In case it is decided to permit low power indoor consumer device-to-device usages on a license-exempt basis in the entire V-band, whether the 57-64 GHz range, or the 57-66 GHz range should be considered for such usages?**

**Answer to Q30 (b):** The 57-66 GHz range would allow for best-in-class data-rates communications. A 9 GHz bandwidth allows for data-rates higher than those possible with a 7 GHz bandwidth, so even if the 57-64 GHz is the current common subset of the various regulations around the world and is already sufficient for such multiple gigabits communications, it would be more future proof to extend to the 57-66 GHz range. The United States of America through FCC and Japan through JRT have already adopted such an approach. Europe through ETSI is currently the only major region restricting the usage to the 57-64 GHz range, as per Decision (EU) 2025/105, band 74a<sup>2</sup>, as is also the case with the latest version of the ETSI norm, EN 305 550-5 addressing USRCD (Ultra Short-Range Communication Devices) and under approval.

**(c) What should be the carrier size/ channel bandwidth?**

**Answer to Q30 (c):** The specificity of the communications in the V-band is that they allow for multiple gigabits data-rates with relatively simple modulations and straightforward implementations. The communication may be established using a single carrier frequency around the middle of the spectrum to occupy the allocated bandwidth, without interfering with communications outside of the V-Band. So, a single centered carrier with a large bandwidth of 9 GHz (or at minimum 7GHz) is the preferred option.

**(d) What should be the definition of indoor usages?**

**Answer to Q30 (d):** As answered to Q31 below, we believe that there is no need to distinguish between indoor and outdoor usage. Establishing a definition of indoor usage is not required in this respect.

**(e) What technical parameters should be prescribed, including EIRP limits for low power indoor consumer device-to-device usages? Kindly provide a detailed response with justifications and international scenario.**

**Answer to Q30 (e):** EIRP is the main limitation that could be imposed. A threshold of 20 dBm to 40 dBm seems to be the consensus worldwide. 20 dBm is largely sufficient for short distance device to device communications. The other technical parameters such as

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<sup>2</sup> Decision (EU) 2025/105, band 74a.

Occupied Bandwidth, Power Spectral Density, Unwanted Out of Band and Spurious emissions should also be set in line with FCC and ETSI regulations. These two regulations are already used as references by many other countries around the world.

This will ensure that devices built in accordance with these technical parameters will also be compatible with the future Indian regulation, in the greater public interest of Indian consumers who will enjoy access to those innovative Short Range Communication Devices. Moreover, having unrestricted access to V-band for short range usage would provide a level playing field to the manufacturing / ESDM companies in India to produce products for the entire world, and address the local market without additional efforts.

**Q31. Whether there is a need for permitting “outdoor” usages of Vband on a license-exempt basis? Kindly provide a detailed response with justification and international scenario.**

**Answer to Q31:** Yes, there is a need for permitting outdoor usages. The consumer devices that benefit from multiple gigabits communications in the V-band are mostly wearables or portable devices, it would be difficult to monitor and restrict the usages to indoor conditions. Moreover, thanks to the support of rotation without wear and tear and the ability to operate in harsh environments, devices such as robots and drones benefit from unprecedented reliability. Allowing outdoor usage multiplies the opportunities for these and other innovative solutions to improve the experience of the customers.

**Q32. If the response to the Q31 is in the affirmative, whether it is feasible to allow outdoor usages on a license-exempt basis in the V-band in parallel to the use of the spectrum by telecom service providers for the establishment of terrestrial networks in a part or full V-band? Kindly provide a detailed response with justification and international scenario.**

**Answer to Q32:** The low-power restriction and the natural attenuation of the signals in the V-band ensures interoperability under all conditions and implies that there is no need to distinguish between indoor and outdoor usage.

**Q33. In case it is decided to allow outdoor usages on a license exempt basis in the V-band (57-64/ 66 GHz), -**

**(a) Should it be permitted in the entire V-band or only in a portion of the V-band? If it should be permitted only in a portion of the V-band, please specify the frequency range.**

**Answer to Q33 (a):** because we consider that there is no need to distinguish between indoor and outdoor usages, we have the same answer than for Q30 (a).

**(b) In case it is decided to permit outdoor usages on a license-exempt basis in the entire V-band, whether the 57-64 GHz range, or the 57-66 GHz range should be considered for such usages?**

**Answer to Q33 (b):** because we consider that there is no need to distinguish between indoor and outdoor usages, we have the same answer than for Q30 (b).

**(c) What should be the carrier size/ channel bandwidth?**

**Answer to Q33 (c):** because we consider that there is no need to distinguish between indoor and outdoor usages, we have the same answer than for Q30 (c).

**(d) What technical parameters should be prescribed, including EIRP limits for low power indoor consumer device-to-device usages? Kindly provide a detailed response with justifications and international scenario.**

**Answer to Q33 (d):** because we consider that there is no need to distinguish between indoor and outdoor usages, we have the same answer than for Q30 (e).

**Q34. Any other suggestions relevant to the assignment of the spectrum in E-band (71-76/ 81-86 GHz) and V-band (57-64/66 GHz) may kindly be made with detailed justifications.**

**Answer to Q34:** We do not have any other suggestions.