

RF Exposure Evaluation

According to *KDB 447498 D01 General RF Exposure Guidance v06* and part 2.1093, Unless specifically required by the *published RF exposure KDB procedures*, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding *SAR Test Exclusion Threshold* condition(s), listed below, is (are) satisfied.

For 100 MHz to 6 GHz and test separation distances ≤ 5 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR, where

$f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

Here,

2.4G								
RF Chip #1: LR1121								
Mode	Frequency (MHz)	Max Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Max Power (mW)	Min. Distance (mm)	Calc. thresholds	limit
ANT_L GFSK	2402	-2.52	-2 ± 1.0	-1.0	0.7943	5.00	0.2462	3.0

2.4G								
RF Chip #2: LR1121								
Mode	Frequency (MHz)	Max Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Max Power (mW)	Min. Distance (mm)	Calc. thresholds	limit
ANT_R GFSK	2402	-0.24	0 ± 1.0	1	1.2589	5.00	0.3902	3.0

WIFI 2.4G								
RFchip: ESP32-PICO-D4								
Mode	Frequency (MHz)	Max Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Max Power (mW)	Min. Distance (mm)	Calc. thresholds	limit
ANT1 802.11n40	2437	5.35	5 ± 1.0	6.0	3.9811	5.00	1.2430	3.0

WIFI 2.4G								
RFchip: ESP32-C3FH4								
Mode	Frequency (MHz)	Max Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Max Power (mW)	Min. Distance (mm)	Calc. thresholds	limit
ANT2 802.11n40	2437	5.36	5 ± 1.0	6.0	3.9811	5.00	1.2430	3.0
ANT3 802.11n40	2452	5.08	5 ± 1.0	6.0	3.9811	5.00	1.2468	3.0
Remark: The device does not support MIMO mode.								

Remark:

1. Only the worst case recorded.
2. Four independent 2.4G RF modules are implemented in this remote controller. only one module transmits at any time without concurrent multi-module transmission
So a SAR test is not required