

LoRa Transmitter Exclusion

The LoRa transmitter can operate at a maximum duty cycle of 250mS per minute. This results in average transmitter power being reduced by operating only 250 in 60,000 ms which equates to 0.00417 duty cycle. 30mw with duty cycle correction equates to 30×0.00417 which equates to average power of 0.12510 mW.

FCC IC SAR Exclusion

4.3.1. Standalone SAR test exclusion considerations

100 MHz to 6 GHz at separation distance less than or equal to 50 mm

SAR Test Exclusion Calculator

Insert values in yellow highlighted boxes to determine SAR Exclusion

Max Power **0.1251** mW

Min Separation **5** mm

Frequency **0.917** GHz

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Answer 0.0 Must be less than or equal to 3.0 for SAR Exclusion

KDB 628591 D01 TCB Exclusion List v14

TCBs are excluded from granting if:

General Population: The Answer is equal to or greater than 24 (8x threshold)

Controlled Use: The Answer is equal to or greater than 60 (20x threshold) and, when published RF exposure KDB procedures are not established for SAR testing or when SAR data is not provided to support compliance.

Please also note the following: [FCC KDB quote] These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface. [End quote]

BLE Transmitter Exclusion

FCC IC SAR Exclusion

4.3.1. Standalone SAR test exclusion considerations

100 MHz to 6 GHz at separation distance less than or equal to 50 mm

SAR Test Exclusion Calculator

Insert values in yellow highlighted boxes to determine SAR Exclusion

Max Power **3.5** mW

Min Separation **5** mm

Frequency **2.4** GHz

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Answer 1.1 Must be less than or equal to 3.0 for SAR Exclusion

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW