

SAR EVALUATION

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

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 Exclusion Threshold condition, listed below, is satisfied.

Limits for SAR evaluation

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances

≤ 50 mm are determined by:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot$$

$$[\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation¹⁷
 - The result is rounded to one decimal place for comparison
- The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

Measurement Result**Test Model: MK13A**

Test Model: MKR10A							
Operation Mode: BLE	Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
				(dBm)	(mW)		
GFSK-1M	Lowest (2402MHz)	3.406	3±1	4	2.511	0.78	3.0
	Middle (2440MHz)	3.349	3±1	4	2.511	0.78	
	Highest (2480MHz)	3.239	3±1	4	2.511	0.79	
GFSK-2M	Lowest (2402MHz)	3.430	3±1	4	2.511	0.78	3.0
	Middle (2440MHz)	3.370	3±1	4	2.511	0.78	
	Highest (2480MHz)	3.233	3±1	4	2.511	0.79	
Conclusion: the calculated value ≤3.0, SAR is exempted.							

Test Model: MK13B

Operation Mode: BLE	Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
				(dBm)	(mW)		
GFSK-1M	Lowest (2402MHz)	3.144	3±1	4	2.511	0.78	3.0
	Middle (2440MHz)	3.057	3±1	4	2.511	0.78	
	Highest (2480MHz)	2.985	3±1	4	2.511	0.79	

GFSK-2M	Lowest (2402MHz)	3.172	3±1	4	2.511	0.78	3.0
	Middle (2440MHz)	3.114	3±1	4	2.511	0.78	
	Highest (2480MHz)	3.042	3±1	4	2.511	0.79	
Conclusion: the calculated value ≤3.0, SAR is exempted.							

Remark: The Max Conducted Peak Output Power data refer to report Report No.: 90112-23-72-23-PP002