

RF Exposure Compliance Requirement

Standard Requirement

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

KDB447498D01 clause 4.3.1.a:

- a) For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR,}^{30} \text{ where}$$

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

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 according to 4.1 f) is applied to determine SAR test exclusion.

KDB447498D01 clause 4.3.1.b:

- b) For 100 MHz to 6 GHz and *test separation distances* > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):³²

- 1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f_{(\text{MHz})}/150)]\}$ mW, for 100 MHz to 1500 MHz
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz



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EUT RF Exposure

The Max Conducted Peak Output Power is **22.12dBm** in lowest channel(**2.412GHz**);
22.12dBm logarithmic terms convert to numeric result is nearly **162.93mW**.

(1): The Power allowed at numeric threshold for 50 mm in step a:

Based on below formula:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \times [\sqrt{f(\text{GHz})}] \leq 3.0.$$

When: $f(\text{GHz})=2.412\text{Ghz}$. test separation distance=50cm.

max. power of channel, including tune-up tolerance should be: **≤96.59 mW**

(2): For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$\{[\text{Power allowed at numeric threshold for 50 mm in step a}] + [(\text{test separation distance} - 50 \text{ mm}) (f(\text{MHz})/150)]\} \text{ mW}$$

Here:

Power allowed at numeric threshold for 50 mm in step a: **96.59 mW**

Test separation distance: **6cm**

$f(\text{MHz})/150$: $2412\text{Mhz}/150=16.08$

the test exclusion thresholds is: **96.59 mW+ (60mm - 50mm) * 16.08=257.39mw.**

the max output power of EUT is **22.12dBm =162.93 mW** < test exclusion thresholds **257.39mw.**

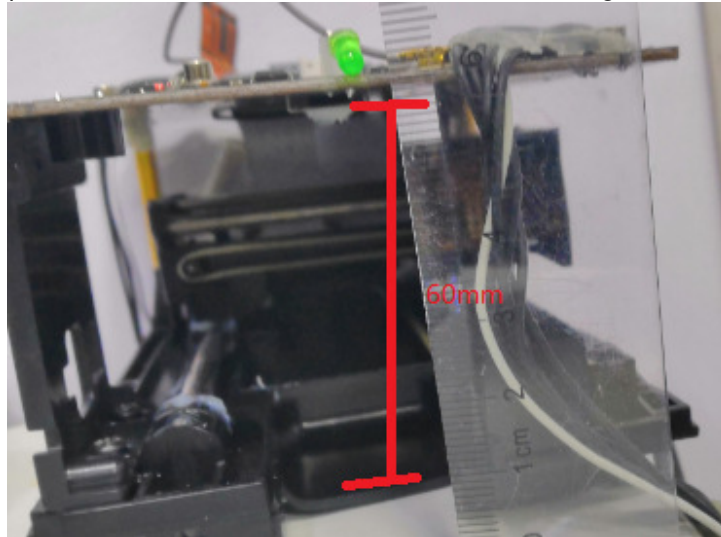
the SAR test report is not required.



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Test separation distance: The product belongs to portable device

The worst-case test separation distance between antenna and human finger is **60mm**.



Conclusion:

The device meet the General SAR test exclusion limit and not need SAR test.



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