



13. Radio Frequency Exposure

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1093)

LIMIT

KDB 447498 D01 § 4.3(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:

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

*f(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

*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 < 50 mm, a distance of 50 mm according to 4.1 f) is applied to determine SAR test exclusion

13.1 EUT Specification

Frequency band (Operating)	<input checked="" type="checkbox"/> 2.4G: 2404MHz ~ 2476MHz <input checked="" type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation)
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure <input checked="" type="checkbox"/> General Population/Uncontrolled exposure
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Evaluation applied	<input type="checkbox"/> MPE Evaluation* <input checked="" type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

Remark:

- For BT The maximum conducted output power is 11.38dBm (13.740 mW) at 2441MHz (with 2.28dBi antenna gain.)
- For 2.4G The maximum conducted output power is 4.84dBm (3.048 mW) at 2404MHz (with 2.90dBi antenna gain.)
- DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
- For mobile or fixed location transmitters, no SAR consideration applied.



13.2 TEST RESULTS

According to the KDB447498:

The SAR test exclusion thresholds Level:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * \text{sqrt}(\text{freq. in GHz}) < 3$$

Calculation

For 2.4G

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
2404-2476	4.84	5.34	3.42	50	96.00

For BT

Modulation Mode	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
GFSK	2402-2480	10.61	11.11	12.91	50	96.00
$\pi/4$ -DQPSK	2402-2480	11.32	11.82	15.21	50	96.00
8DPSK	2402-2480	11.38	11.88	15.42	50	96.00

Maximum Permissible Exposure (Co-location)

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)	MPE Ratio
GFSK (2Mbps)	2404-2476	4.84	5.34	3.42	50	96.00	0.036
8DPSK	2402-2480	11.38	11.88	15.42	50	96.00	0.161
Co-location Total							0.197
Σ MPE ratios Limit							1

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing

-----THE END OF REPORT-----