

RF EXPOSURE

KDB447498 was used as the guidance.

SAR test exclusion considerations

Step.1 For 100 MHz to 6 GHz and test separation distances \leq 50 mm, the 1-g and 10-g SAR test exclusion threshold are determined by the following :

[f(GHz)] 3.0 for 1-g SAR, and 7.5 for 10-g extremity SAR

Step.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

Step.2-1 $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz

Step.2-2 $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for $>$ 1500 MHz and \leq 6 GHz

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 \leq 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.

SAR test exclusion considerations : Bluetooth

- Frequency Range : 2 402 MHz ~ 2 480 MHz
- Measured RF Maximum Output Power : 5.22 dBm
- Target Power & Tolerance 4.30 dBm & ± 1.00 dB
 (Maximum : 5.30 dBm & Minimum : 3.30 dBm)
- **Maximum Output Power for the Calculation : 5.30 dBm**

The EUT will only be used with a separation of 10 millimeters between the antenna and the body of the The MPE calculation for this exposure is shown below.

- P = <u>5.30</u> dBm = <u>3.39</u> mW	- NOTE P : Max tuneup Power (dBm)
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Power Density at the specific separation

- S = [(P(mW) / R)] X [√f(GHz)] = [(<u>3.39</u> / <u>10.00</u>)] X [√(<u>2.48</u>)] = <u>0.533 61</u> < <u>7.5</u>	- NOTE S : Maximum Estimated SAR P(mW) : Max tuneup Power (mW) R : Distance to the center of the radiation of the antenna (<u>10.00</u> mm) f(GHz) : the RF channel transmit frequency in GHz
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This device is intended to be used under limb exposure conditions. (≤ 7.5 for 10-g extremity SAR)

SAR test exclusion considerations : Bluetooth LE

- Frequency Range : 2 402 MHz ~ 2 480 MHz
- Measured RF Maximum Output Power : 1.19 dBm
- Target Power & Tolerance 1.00 dBm & ± 1.00 dB
 (Maximum : 2.00 dBm & Minimum : 0.00 dBm)
- **Maximum Output Power for the Calculation : 2.00 dBm**

The EUT will only be used with a separation of 10 millimeters between the antenna and the body of the The MPE calculation for this exposure is shown below.

- P = <u>2.00</u> dBm = <u>1.58</u> mW	- NOTE P : Max tuneup Power (dBm)
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Power Density at the specific separation

- S = [(P(mW) / R)] X [√f(GHz)] = [(<u>1.58</u> / <u>10.00</u>)] X [√(<u>2.48</u>)] = <u>0.249 59</u> < <u>7.5</u>	- NOTE S : Maximum Estimated SAR P(mW) : Max tuneup Power (mW) R : Distance to the center of the radiation of the antenna (<u>10.00</u> mm) f(GHz) : the RF channel transmit frequency in GHz
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This device is intended to be used under limb exposure conditions. (≤ 7.5 for 10-g extremity SAR)



SAR test exclusion considerations : 2.4 GHz WLAN

- Frequency Range : 2.412 MHz ~ 2.462 MHz
- Measured RF Maximum Output Power : 10.12 dBm
- Target Power & Tolerance 9.50 dBm & ± 1.00 dB
(Maximum : 10.50 dBm & Minimum : 8.50 dBm)
- **Maximum Output Power for the Calculation : 10.50 dBm**

The EUT will only be used with a separation of 10 millimeters between the antenna and the body of the The MPE calculation for this exposure is shown below.

- P = <u>10.50</u> dBm = <u>11.22</u> mW	- NOTE P : Max tuneup Power (dBm)
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Power Density at the specific separation

- S = [(P(mW) / R)] X [√f(GHz)] = [(<u>11.22</u> / <u>10.00</u>)] X [√(<u>2.462</u>)] = <u>1.76053</u> < <u>7.5</u>	- NOTE S : Maximum Estimated SAR P(mW) : Max tuneup Power (mW) R : Distance to the center of the radiation of the antenna (<u>10.00</u> mm) f(GHz) : the RF channel transmit frequency in GHz
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This device is intended to be used under limb exposure conditions. (≤ 7.5 for 10-g extremity SAR)

SAR test exclusion considerations

Estimated SAR at the specific separation(Bluetooth(FHSS)+2.4 GHz WLAN)

$\begin{aligned} -S &= (0.53 + 1.76) \\ &= \underline{2.29} < \underline{7.50} \end{aligned}$	<p>- NOTE</p> <p>Bluetooth(FHSS) + 2.4 GHz WLAN</p> <p>Bluetooth(FHSS) = 0.53</p> <p>2.4 GHz WLAN = 1.76</p>
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Estimated SAR at the specific separation(Bluetooth LE+2.4 GHz WLAN)

$\begin{aligned} -S &= (0.25 + 1.76) \\ &= \underline{2.01} < \underline{7.50} \end{aligned}$	<p>- NOTE</p> <p>Bluetooth LE + 2.4 GHz WLAN</p> <p>Bluetooth LE = 0.25</p> <p>2.4 GHz WLAN = 1.76</p>
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This device is intended to be used under limb exposure conditions. (≤ 7.5 for 10-g extremity SAR)