

Standalone SAR test exclusion considerations

April 27, 2017

- Device category = ☒ Portable device ☐ Mobile device
- Transmitting mode = ☒ Single Transmitting ☐ Simultaneous Transmitting
- Max. transmitting frequency = 2480 MHz
- Min. test separation distance = 30 mm
- Max. Antenna Gain = 0.535 dBi
- Max. power with turn-up tolerance = 7.50 dBm = 5.7 mW (Typical Power = Max. 7.50 dBm)

Note. Bluetooth _ Module0

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 mm

$$\left[\left(\text{max. power of channel, including tune-up tolerance, mW} \right) / \left(\text{min. test separation distance, mm} \right) \right] \cdot \left[\sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1g SAR and } \leq 7.5 \text{ for 10g extremity SAR}$$
$$= \left[\left(5.7\text{mW} / 30\text{mm} \right) \right] \times \left[\sqrt{2.48\text{GHz}} \right] = 0.3$$

Note. The calculation result was rounded to one decimal place for comparison.

→ SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.

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Note. Bluetooth LE_ Module0

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 mm

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

$$= [(5.7\text{mW} / 30\text{mm})] \times [\sqrt{2.48\text{GHz}}] = 0.3$$

Note. The calculation result was rounded to one decimal place for comparison.

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- Device category = ☒ Portable device ☐ Mobile device
- Transmitting mode = ☒ Single Transmitting ☐ Simultaneous Transmitting
- Max. transmitting frequency = **2480** MHz
- Min. test separation distance = **30** mm
- Max. Antenna Gain = **1.2** dBi
- Max. power with turn-up tolerance = **17.00** dBm = **50.2** mW (Typical Power = **Max. 17.00** dBm)

Note. Bluetooth _ Module1

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 mm

$$\left[\left(\text{max. power of channel, including tune-up tolerance, mW} \right) / \left(\text{min. test separation distance, mm} \right) \right] \cdot \left[\sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1g SAR and } \leq 7.5 \text{ for 10g extremity SAR}$$
$$= \left[\left(50.2\text{mW} / 30\text{mm} \right) \right] \times \left[\sqrt{2.48\text{GHz}} \right] = 2.6$$

Note. The calculation result was rounded to one decimal place for comparison.

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- Device category = ☒ Portable device ☐ Mobile device
- Transmitting mode = ☒ Single Transmitting ☐ Simultaneous Transmitting
- Max. transmitting frequency = **2480** MHz
- Min. test separation distance = **30** mm
- Max. Antenna Gain = **1.2** dBi
- Max. power with turn-up tolerance = **1.00** dBm = **1.3** mW (Typical Power = **Max. 1.00** dBm)

Note. Bluetooth LE_ Module1

KDB 447498 D01 clause 4.3.1 Step 1) SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50 mm

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

$$= [(1.3\text{mW} / 30\text{mm})] \times [\sqrt{2.48\text{GHz}}] = 0.1$$

Note. The calculation result was rounded to one decimal place for comparison.

→ SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.