

## Standalone SAR test exclusion considerations(Bluetooth)

March 15, 2018

- Max. transmitting frequency = 2441 MHz
- Max. test separation distance = 30 mm
- Max. power with turn-up tolerance = 17.50 dBm
- Maximum antenna peak gain: 0.52 dBi

**Maximum output power for the calculation: 17.50 dBm**

Note. The minimum separation distance between antenna and user is 30mm.

Exact antenna dimensions and separation distances are shown in the "Attestation letter" in the IC filing.

Please refer to the operation description for Max.tune-up power.

**SAR test exclusion EIRP for 2450MHz at separation distances of 30 mm : 83 mW**

$$\begin{aligned}
 \text{EIRP} &= P + G \\
 &= 17.50 \text{ dBm} + 0.52 \text{ dBi} \\
 &= \mathbf{18.02 \text{ dBm}} = \mathbf{63.387 \text{ mW}} \leq \mathbf{83 \text{ mW (Exemption Limits(mW))}} \quad \text{Thus SAR for this device is not required.}
 \end{aligned}$$

\* Note : P = Power input to the antenna(dBm)

G = Power gain of the antenna(dBi)

## Standalone SAR test exclusion considerations(BLE)

March 15, 2018

- Max. transmitting frequency = 2480 MHz
- Max. test separation distance = 30 mm
- Max. power with turn-up tolerance = 3.00 dBm
- Maximum antenna peak gain: 0.52 dBi

**Maximum output power for the calculation: 3.00 dBm**

Note. The minimum separation distance between antenna and user is 30mm.

Exact antenna dimensions and separation distances are shown in the "Attestation letter" in the IC filing.

Please refer to the operation description for Max.tune-up power.

### SAR test exclusion EIRP for 2450MHz at separation distances of 30 mm : 83 mW

$$\begin{aligned}
 \text{EIRP} &= P + G \\
 &= 3.00 \text{ dBm} + 0.52 \text{ dBi} \\
 &= \mathbf{3.52 \text{ dBm}} = \mathbf{2.25 \text{ mW}} \leq \mathbf{83 \text{ mW (Exemption Limits(mW))}} \quad \text{Thus SAR for this device is not required.}
 \end{aligned}$$

\* Note : P = Power input to the antenna(dBm)

G = Power gain of the antenna(dBi)