

# Standalone SAR test exclusion considerations

August 16, 2016

- Min. transmitting frequency = 2480 MHz
- Min. test separation distance = 40 mm
- Max. power with turn-up tolerance = 10 dBm = 10 mW

Note. 1Mbps

**Step 1) SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm = Used**

$$\begin{aligned}
 & [(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \\
 & = [10.00 / 40] \cdot [\sqrt{2.48}] \\
 & = 0.39 \leq 7.5, \text{ for 10g extrmity SAR} \quad \text{Thus SAR for this device is not required.}
 \end{aligned}$$

**Step 2-1) SAR test exclusion thresholds for 100 MHz to 1500 MHz at test separation distances  $> 50$  mm = N/A**

$$[\text{Threshold at 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$$

**Step 2-2) SAR test exclusion thresholds for 1500 MHz to 6 GHz at test separation distances  $> 50$  mm = N/A**

$$[\text{Threshold at 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$$

# Standalone SAR test exclusion considerations

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- Min. transmitting frequency = 2480 MHz
- Min. test separation distance = 40 mm
- Max. power with turn-up tolerance = 7 dBm = 6 mW

Note. 2&3Mbps

**Step 1) SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm = **Used****

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

$= [ 6.00 / 40 ] \cdot [ \sqrt{2.48} ]$

$= \mathbf{0.24} \leq 7.5, \text{ for } 10\text{g extrmity SAR} \quad \text{Thus SAR for this device is not required.}$

**Step 2-1) SAR test exclusion thresholds for 100 MHz to 1500 MHz at test separation distances  $> 50$  mm = **N/A****

$[\text{Threshold at } 50 \text{ mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$

**Step 2-2) SAR test exclusion thresholds for 1500 MHz to 6 GHz at test separation distances  $> 50$  mm = **N/A****

$[\text{Threshold at } 50 \text{ mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$

## Standalone SAR test exclusion considerations

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- Min. transmitting frequency = 927.25 MHz
- Min. test separation distance = 34 mm
- Max. power with turn-up tolerance = 18 dBm = 64 mW

Note. RFID

**Step 1) SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm = Used**

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

$= [ 64.00 / 34 ] \cdot [ \sqrt{0.92725} ]$

$= 1.81 \leq 7.5, \text{ for } 10\text{g extrmity SAR}$  Thus SAR for this device is not required.

**Step 2-1) SAR test exclusion thresholds for 100 MHz to 1500 MHz at test separation distances  $> 50$  mm = N/A**

$[\text{Threshold at } 50 \text{ mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)] \text{ mW}$

**Step 2-2) SAR test exclusion thresholds for 1500 MHz to 6 GHz at test separation distances  $> 50$  mm = N/A**

$[\text{Threshold at } 50 \text{ mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$

## RF Exposure Compliance for simultaneous operations

- Configurations for simultaneous operations

- Configuration 1: Bluetooth + RFID

- Result

RF function	Bluetooth		RFID	Total Power Density (mW/cm <sup>2</sup> )
MODE	1Mbps	2&3Mbps	900MHz	
Result	0.39	0.24	1.81	
Configuration 1	0.39		1.81	

Note 1: The maximum power density in each RF function was used for above table.

Step 1) SAR test exclusion thresholds for 100 MHz to 6 GHz at test separationn distances  $\leq 50$  mm = **N/A**

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

**2.20**  $\leq 7.5$ , for 10g extrmity SAR

Thus SAR for this device is not required.