

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 ≤ 50 mm = **Used**

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

$= [10.00 / 40] \cdot [\sqrt{ 2.48 }]$

$= 0.39 \leq 7.5, \text{ for } 10\text{g extrmity SAR}$ 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**

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

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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 ≤ 50 mm = **Used**

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

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

= **0.24** ≤ 7.5 , for 10g 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**

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

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

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

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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 ≤ 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** ≤ 7.5 , for 10g 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**

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

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

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

RF Exposure Compliance for simultaneous operations

- **Configurations for simultaneous operations**

- **Configuration 1:** Bluetooth + RFID

- **Result**

RF function	Bluetooth		RFID	Total Power Density (mW/cm ²)
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 ≤ 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 ≤ 7.5, for 10g extrmity SAR

Thus SAR for this device is not required.