

4.8 RF Exposure Evaluation	
<b>Reference Standard(s):</b>	<input checked="" type="checkbox"/> KDB 447498 RF Exposure Guidance v06 <input type="checkbox"/> KDB 447498 Interim RF Exposure Guidance v01 <input checked="" type="checkbox"/> RSS 102, Issue 5 <input type="checkbox"/> <input type="checkbox"/> MPE <input type="checkbox"/> SAR Evaluation <input checked="" type="checkbox"/> SAR Test Exclusion
<b>Frequency Range(s):</b>	<input checked="" type="checkbox"/> 911-918.5MHz <input checked="" type="checkbox"/> 2402-2480.0MHz <input type="checkbox"/>
<b>Antenna Separation Distance:</b> >8mm	
<b>RF Exposure Conditions:</b> Portable (Body-worn)	
<b>2.4GHz Antenna Gain:</b> 2.3dBi	
<b>BT EDR the source-based output power:</b>	6.9mW(8.4dBm)*0.7(FHSS worst case duty cycle)=4.8mW(6.8dBm)
<b>BT EDR EIRP/ERP output power:</b>	<b>EIRP</b> =6.8dBm + 2.3dBi=9.1dBm, <b>ERP</b> =9.1dBm - 2.15dB=6.95dBm(4.95mW)
<b>The estimated 1-g SAR Value of the BT EDR transmitter:</b>	$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$ , for test separation distances $\leq 50 \text{ mm}$ ; where $x = 7.5$ for 1-g SAR $(4.95\text{mW}/8\text{mm}) \cdot (\sqrt{2.45/7.5}) = (0.62) \cdot (1.57/7.5) = 0.13 \text{ W/Kg}$
<b>BLE the source-based output power:</b>	0.65mw(-1.9dBm)*0.85(worst case duty cycle)=0.55mW(-2.6dBm)
<b>BLE EIRP/ERP output power:</b>	<b>EIRP</b> =-6.2dBm + 2.3dBi= -0.3dBm, <b>ERP</b> =-0.3dBm - 2.15dB= -2.45dBm(0.57mW)
<b>The estimated 1-g SAR Value of the BT EDR transmitter:</b>	$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$ , for test separation distances $\leq 50 \text{ mm}$ ; where $x = 7.5$ for 1-g SAR $(0.57\text{mW}/8\text{mm}) \cdot (\sqrt{0.915/7.5}) = 0.005 \text{ W/Kg}$
<b>ISRD Band Maximum Output Power:</b>	EIRP= 0.3mW and ERP= 0.18mW (estimated from the field strength)
The estimated 1-g SAR Value of the ISM transmitter:	$(0.3\text{mW}/8\text{mm}) \cdot (\sqrt{0.915/7.5}) = 0.008 \text{ W/Kg}$
<b>The sum of ratios for all simultaneously transmitting BT and ISRD</b>	$4.95/10+0.57/10+0.3/10=0.582$ (sum of ratio is < 1.0)
The sum of ratios (1-g SAR value) for all simultaneously transmitting BT and ISRD antennas incorporated in a radio:	$(\text{SAR value of BT EDR Transmitter/SAR limit}) + (\text{SAR value of ISRD Transmitter/SAR limit}) + (\text{SAR value of BT EDR Transmitter/SAR limit})$ $= (0.13/1.6) + (0.005/1.6) + (0.008/1.6) = 0.09 < 1$
<b>The SAR Exclusion Threshold Level</b>	
<b>FCC Part 2.1093</b>	10mW<5mm @2.45GHz
<b>FCC Part 2.1093</b>	16mW<5mm @900MHz
<b>RSS 102, Issue 5</b>	6.1mW>8mm @2.45GHz

<b>Note:</b>	
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