



## 13. Radio Frequency Exposure

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091)

KDB 447498

IEEE C95.1:2005

### 13.1 EUT Specification

<b>Frequency band (Operating)</b>	<input type="checkbox"/> WLAN: 2412MHz ~ 2462MHz <input checked="" type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure <input checked="" type="checkbox"/> General Population/Uncontrolled exposure
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A
<b>Remark:</b>  1. The maximum conducted output power is <u>9.98dBm (9.954mW)</u> at <u>2441MHz</u> (with <u>2.3dBi antenna gain</u> .) 2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. 3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm <sup>2</sup> even if the calculation indicates that the power density would be larger.	



### 13.2 Test Results

No non-compliance noted.

### 13.3 Calculation

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>



### 13.4 Maximum Permissible Exposure

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GFSK	2402-2480	9.98	2.3	20	0.003	1
$\pi/4$ -DQPSK	2402-2480	9.52	2.3	20	0.003	1
8DPSK	2402-2480	9.90	2.3	20	0.003	1

#### Maximum Permissible Exposure(Co-location)

##### BT+Wifi 2.4G

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	MPE Ratio
GFSK	2402-2480	9.98	2.3	20	0.003	1.00	0.003
11n HT20	2412-2462	27.47	2.38	20	0.192	1.00	0.192
Co-location Total							0.195
$\Sigma$ MPE ratios Limit							1

##### BT+Wifi 5G

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	MPE Ratio
GFSK	2402-2480	9.98	2.3	20	0.003	1.00	0.003
11ac VHT40	5500-5700	21.48	2	20	0.044	1.00	0.044
Co-location Total							0.047
$\Sigma$ MPE ratios Limit							1