



13. Radio Frequency Exposure

13.1.Applicable Standards

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

13.2.EUT Specification

| | |
|--|---|
| Frequency band (Operating) | <input type="checkbox"/> WLAN: 2412MHz ~ 2462MHz <input checked="" type="checkbox"/> WLAN: 5150MHz ~ 5250MHz <input checked="" type="checkbox"/> WLAN: 5250MHz ~ 5350MHz <input checked="" type="checkbox"/> WLAN: 5470MHz ~ 5725MHz <input checked="" type="checkbox"/> WLAN: 5725MHz ~ 5850MHz <input type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz |
| Device category | <input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) |
| Exposure classification | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²) |
| Antenna diversity | <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 |
| Evaluation applied | <input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A |
| Remark: 1. The maximum conducted output power is <u>18.88dBm (77.268mW)</u> at <u>5825MHz</u> (with <u>4.60 dBi 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 ² even if the calculation indicates that the power density would be larger. | |

13.3.Test Results

No non-compliance noted.



13.4.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

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

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

**13.5.Maximum Permissible Exposure**

| Channel Frequency (MHz) | Max. Conducted output power(dBm) | Max. Tune up power (dBm) | Antenna Gain(dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
|-------------------------|----------------------------------|--------------------------|-------------------|---------------|-------------------------------------|-----------------------------|
| 5180-5240 | 18.80 | 20.80 | 4.6 | 20 | 0.069 | 1 |
| 5260-5320 | 18.80 | 20.80 | 4.6 | 20 | 0.069 | 1 |
| 5500-5700 | 18.57 | 20.57 | 4.6 | 20 | 0.065 | 1 |
| 5745-5825 | 18.88 | 20.88 | 4.6 | 20 | 0.070 | 1 |

Maximum Permissible Exposure (Co-location)

| Modulation Type | Channel Frequency (MHz) | Max. Conducted output power (dBm) | Max. Tune up power (dBm) | Antenna Gain(dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) | MPE Ratio |
|---------------------------|-------------------------|-----------------------------------|--------------------------|-------------------|---------------|-------------------------------------|-----------------------------|-----------|
| 11a | 5725-5850 | 18.88 | 20.88 | 4.6 | 20 | 0.070 | 1.000 | 0.070 |
| GFSK | 2402-2480 | 5.89 | 7.89 | 2.6 | 20 | 0.002 | 1.000 | 0.002 |
| Co-location Total | | | | | | | | 0.072 |
| Σ MPE ratios Limit | | | | | | | | 1 |