



11. Radio Frequency Exposure

11.1 Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091) KDB 447498

11.2 EUT Specification

Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2412MHz ~ 2462MHz <input type="checkbox"/> WLAN: 5150MHz ~ 5250MHz <input type="checkbox"/> WLAN: 5250MHz ~ 5350MHz <input type="checkbox"/> WLAN: 5470MHz ~ 5725MHz <input 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 type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A
Remark:	
<ol style="list-style-type: none"> The maximum output power is <u>23.11dBm (0.0525mW)</u> at <u>2412MHz</u> (with <u>numeric 1.1 antenna gain.</u>) DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger. 	



11.3 Test Results

No non-compliance noted.

11.4 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:

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(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 / cm²



11.5 Maximum Permissible Exposure

Max. output power	Band: 2412MHz ~ 2462MHz 1TX: 802.11b: 15.31 dBm (0.0087mW) 802.11g: 21.12 dBm (0.0332mW) 802.11n HT20: 20.92 dBm (0.0317mW) 2TX: 802.11g: 23.11 dBm (0.0525mW) 802.11n HT20: 22.28 dBm (0.0433mW)
Antenna gain (Max)	1TX: ANT B: 1.1dBi 2TX: ANT A: 0.9dBi, ANT B: 1.1dBi

Maximum Permissible Exposure

Test Mode: 1TX

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
802.11b	2412-2462	15.31	1.1	20	0.0087	1
802.11g	2412-2462	21.12	1.1	20	0.0332	1
802.11n HT20	2412-2462	20.92	1.1	20	0.0317	1

Test Mode: 2TX

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
802.11g	2412-2462	23.11	1.1	20	0.0525	1
802.11n HT20	2412-2462	22.28	1.1	20	0.0433	1