



12. Radio Frequency Exposure

12.1 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

12.2 EUT Specification

Frequency band (Operating)	☒ WLAN: 2412MHz ~ 2462MHz ☒ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☒ WLAN: 5725MHz ~ 5850MHz ☐ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure ($S = 5\text{mW}/\text{cm}^2$) ☒ General Population/Uncontrolled exposure ($S=1\text{mW}/\text{cm}^2$)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: 1. The maximum output power is <u>24.36dBm (272.734mW)</u> at <u>2437MHz</u> (with <u>numeric 4 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 $1.0\text{ mW}/\text{cm}^2$ even if the calculation indicates that the power density would be larger.	



12.3 Test Results

No non-compliance noted.

12.4 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:

$P \text{ (mW)} = P \text{ (W)} / 1000$ 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 / cm²



12.5 Maximum Permissible Exposure

Max. output power	802.11b: 15.69 dBm (37.068mW) 802.11g: 22.10 dBm (16.2.181mW) 802.11n HT20: 24.36 dBm (272.734mW) 802.11n HT40: 20.81 dBm (120.515mW)
Antenna gain (Max)	2.4GHz: 802.11b/g: ANT B: 4 dBi 802.11n: ANT A: 4 dBi; ANT B: 4 dBi 5GHz: 802.11a: ANT A: 5 dBi; 802.11 n: ANT A: 5 dBi; ANT B: 5 dB

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
11b	2412-2462	15.69	4	20	0.0185	1
11g	2412-2462	22.10	4	20	0.0810	1
11n HT20	2412-2462	24.36	4	20	0.1363	1
11n HT40	2422-2452	20.81	4	20	0.0602	1