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
IEEE C95.1:2005

11.2 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 = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/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>17.71dBm (59.02mW)</u> at <u>2437MHz</u> (with <u>numeric 3.78 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.	

11.3 Test Results

No non-compliance noted.

11.4 Calculation

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

Where $\quad$ E = Field strength in Volts / meter

$\qquad$ P = Power in Watts
$\qquad$ G = Numeric antenna gain

$\qquad$ d = Distance in meters

$\qquad$ 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

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

Where $\quad$ d = Distance in cm
$\qquad$ P = Power in mW
$\qquad$ G = Numeric antenna gain
$\qquad$ S = Power density in mW / cm^2

11.5 Maximum Permissible Exposure

Max. output power	Band: 2412MHz ~ 2462MHz 802.11b: 17.71dBm (59.02mW) 802.11g: 17.47dBm (55.79mW) 802.11n HT20: 17.41dBm (55.08mW) 802.11n HT40: 15.49dBm (35.37mW)
Antenna gain (Max)	ANT A: 3.78dBi; ANT B: 2.41dBi

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm2)	Limit (mW/cm2)
802.11b	2412-2462	17.71	3.78	20	0.0280	1
802.11g	2412-2462	17.47	3.78	20	0.0265	1
802.11n HT20	2412-2462	17.41	3.78	20	0.0262	1
802.11n HT40	2412-2452	15.49	3.78	20	0.0168	1