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)

13.1 EUT Specification

Frequency band (Operating)	☐ WLAN: 2412MHz ~ 2462MHz ☒ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure ☒ General Population/Uncontrolled exposure

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 conducted output power is <u>9.81dBm (9.572mW)</u> at <u>2480MHz</u> (with <u>1dBi 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.	

13.2 Test Results

No non-compliance noted.

13.3 Calculation

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

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 (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

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

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm²

13.4 Maximum Permissible Exposure

Modulation Mode	Channel Frequency (MHz)	Max. Conducted output power(dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
GFSK	2402-2480	7.19	1	20	0.001	1
π/4-DQPSK	2402-2480	9.36	1	20	0.002	1
8DPSK	2402-2480	**9.81**	1	20	0.002	1

(Co-location)

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	MPE Ratio
11n HT40	2412-2462	23.55	4	20	0.113	1.000	0.113
11ac VHT40	5150-5250	28.18	4	20	0.329	1.000	0.329
8DPSK	2402-2480	9.81	1	20	0.002	1.000	0.002
Co-location Total							0.444
ΣMPE ratios Limit							1