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)

12.2 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 7.01dBm (5.023mW) at 2480MHz (with 0dBi antenna gain.)*
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.*

12.3 Test Results

No non-compliance noted.

12.4 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:

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

Changing to units of mW and cm, using:

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

Yields

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

> Where d = Distance in cm
> P = Power in mW
> G = Numeric antenna gain
> S = Power density in mW / cm^2

12.5 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)
2402-2480	7.01	9.01	0	20	0.002	1