13. Radio Frequency Exposure

13.1 Applicable Standards

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

13.2 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 ☒ 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>10.50dBm (11.220mW)</u> at <u>2480MHz</u> (with <u>6.4dBi 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.*

13.3 Test Results

No non-compliance noted.

13.4 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:

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

Changing to units of mW and cm, using:

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

Yields

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

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

13.5 Maximum Permissible Exposure

Modulation Mode	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)
GFSK	2402-2480	10.50	11.00	6.40	20	0.011	1
π/4-DQPSK	2402-2480	8.31	8.81	6.40	20	0.007	1
8DPSK	2402-2480	8.45	8.95	6.40	20	0.007	1

Maximum Permissible Exposure (Co-location)

Modulation Type	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)	MPE Ratio
ASK	13.56	0.21	0.71	0	20	0.000234	0.979	0.0002
GFSK	2480	10.5	11	6.4	20	0.010933	1.000	0.0109
Co-location Total								0.0111
ΣMPE ratios Limit								1

----------THE END OF REPORT----------

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Page No.   : 63 of 63
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