APPENDIX I
RADIO FREQUENCY EXPOSURE

LIMIT

According to RSS-Gen §5.5, before equipment certification is granted, the applicable requirements of RSS-102 shall be met.

EUT Specification

EUT	Data Collection PC
Frequency band (Operating)	☐ Bluetooth: 2.402GHz ~ 2.480GHz ☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.745GHz ~ 5.825GHz
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
Max. output power	IEEE 802.11a mode: 21.86 dBm (153.5mW) IEEE 802.11n HT 20 MHz mode: 24.02dBm (252.2mW) IEEE 802.11n HT 40 MHz mode: 23.56 dBm (226.8mW)
Antenna gain (Max)	PIFA Antenna / Gain: 5.36 dBi (Numeric gain: 3.43) MIMO: 5.36 dBi + 10 log (2) = 8.37 dBi (Numeric gain: 6.87)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: *The maximum output power is 24.02dBm (252.2mW) at 5785Hz (with 6.87 numeric antenna gain.)*	

TEST RESULTS

No non-compliance noted.

Calculation

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

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 (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 / cm^2

Maximum Permissible Exposure

EUT output power = 252.2mW

Numeric antenna gain = 6.87

Substituting the MPE safe distance using d = 20 cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

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

→ Power density = 0.00257 mW / cm^2

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.