APPENDIX II
RADIO FREQUENCY EXPOSURE

LIMIT

EUT Specification

EUT	GSM HOME ALARM
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☒ Others: <u>1850.2 ~ 1909.8 MHz</u>
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
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	22.73 dBm (187.50mW)
Antenna gain (Max)	0.00 dBi (Numeric gain: 1.00)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Remark:
1. *The maximum output power is <u>22.73dBm (187.50mW)</u> at <u>1850.20MHz</u> (with <u>1.00 numeric 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.*

TEST RESULTS

No non-compliance noted.

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

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

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

Maximum Permissible Exposure

EUT output power = 187.50mW

Numeric Antenna gain = 1.00

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 / cm²
→ *Power density = 0.0373 mW / cm²*

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)