ATTACHMENT FCC ID: RQKTITANT8

** MPE Calculations for GSM 850 **

The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G EIRP = 32.07dBm + 0dBi EIRP = 32.07dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (1610.65*1.00) / (4 * 20^2 * \pi)$ $S = 0.3204\ mW/cm^2$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density does not exceed the 1 mW/cm^2 limit.

Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(1610.65*1.58/ 4\pi)}$ R = 14.23Cm	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

$G = Log^{-1}$ (0 / 10)

G = 1.00

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** MPE Calculations for GSM 1900 **

The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G EIRP = 29.26 dBm + 0dBi EIRP = 29.26 dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (843.33*1.00) / (4 * 20^2 * \pi)$ $S = 0.1678$ mW/cm^2	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density does not exceed the 1 mW/cm^2 limit.

Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(843.33*1.00/ 4\pi)}$ R = 8.19Cm	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

$G = Log^{-1}$ (0 / 10)

G = 1.00

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** MPE Calculations for WLAN (2.4GHz) **

**2.4GHz Bands Worst Case of 802.11n(20MHz)

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G EIRP = 19.11dBm + 0dBi EIRP = 19.11dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (81.47* 1.00) / (4 * 20^2 * \pi)$ $S = 0.0162 mW/cm^2$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density at 20cm does not exceed the 1 mW/cm^2 limit. Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(81.47* 1.00/ 4\pi)}$ R = 2.55Cm	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

G = Log-1 (0 / 10)

G = 1.00

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** MPE Calculations for WLAN (5GHz) **

**5.0GHz Bands Worst Case of 802.11an(20MHz)

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G EIRP = 15.98 dBm + 0dBi EIRP = 15.98dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (39.63 * 1.00) / (4 * 20^2 * \pi)$ $S = 0.0079\ mW/cm^2$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density at 20cm does not exceed the 1 mW/cm^2 limit. Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(39.63 * 1.00 / 4\pi)}$ R = 1.78Cm	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

G = Log-1 (0 / 10)

G = 1.00