

MPE Calculations for GSM 850

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 (ERP) was tested according to ANSI/TIA/EIA-603-C-2004.

The maximum peak radiated output power (ERP) is recorded and EIRP is calculated as follows.

$$\begin{aligned}\text{ERP} &= 33.44\text{dBm}(2206\text{mW}) \\ \text{EIRP} &= \text{ERP} + 2.15\text{dB} = 33.44 + 2.15 = 35.59(3622\text{mW})\end{aligned}$$

Power density at the specific separation:

$S = (\text{EIRP} * \text{Duty Cycle}) / (4R^2\pi)$ $S = (3622 * 0.5) / (4 * 20^2 * \pi)$ $S = 0.360 \text{ mW/cm}^2$	<p>Where,</p> <p>S = Maximum power density (mW/cm²)</p> <p>EIRP = Maximum Peak radiated output power(mW)</p> <p>R = Distance to the center of the radiation of the antenna (20cm)</p> <p>Duty Cycle(the worst case) = Duty Cycle is 0.5 for GPRS multislot class 12 operation supporting 4 uplink transmission time slots.</p>
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Conclusion:

The Maximum permissible exposure (MPE) for the general Population/Uncontrolled is **0.55 mW/cm²** (=f/1500=824/1500). The power density at 20cm does not exceed the 0.55 mW/cm².

Therefore, the exposure condition of this EUT is compliant with FCC rules.

MPE Calculations for GSM 1900

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) was tested according to ANSI/TIA/EIA-603-C-2004.

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

$$\text{EIRP} = 29.58\text{dBm}(908\text{mW})$$

Power density at the specific separation:

$S = (\text{EIRP} * \text{Duty Cycle}) / (4R^2\pi)$ $S = (908 * 0.5) / (4 * 20^2 * \pi)$ $S = 0.090 \text{ mW/cm}^2$	<p>Where,</p> <p>S = Maximum power density (mW/cm²)</p> <p>EIRP = Maximum Peak radiated output power(mW)</p> <p>R = Distance to the center of the radiation of the antenna (20cm)</p> <p>Duty Cycle(the worst case) = Duty Cycle is 0.5 for GPRS multislot class 12 operation supporting 4 uplink transmission time slots.</p>
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Conclusion:

The Maximum permissible exposure (MPE) for the general Population/Uncontrolled is **1 mW/cm²**.

The power density at 20cm does not exceed the 1 mW/cm².

Therefore, the exposure condition of this EUT is compliant with FCC rules.

MPE Calculations for WCDMA 850

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 (ERP) was tested according to ANSI/TIA/EIA-603-C-2004.

The maximum peak radiated output power (ERP) is recorded and EIRP is calculated as follows.

$$\begin{aligned}\text{ERP} &= 26.38\text{dBm}(2206\text{mW}) \\ \text{EIRP} &= \text{ERP} + 2.15\text{dB} = 26.38 + 2.15 = 28.53(713\text{mW})\end{aligned}$$

Power density at the specific separation:

$S = (\text{EIRP}) / (4R^2\pi)$ $S = (713) / (4 * 20^2 * \pi)$ $S = 0.142 \text{ mW/cm}^2$	<p>Where,</p> <p>S = Maximum power density (mW/cm²)</p> <p>EIRP = Maximum Peak radiated output power(mW)</p> <p>R = Distance to the center of the radiation of the antenna (20cm)</p>
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Conclusion:

The Maximum permissible exposure (MPE) for the general Population/Uncontrolled is

0.55 mW/cm² (=f/1500=824/1500). The power density at 20cm does not exceed the 0.55 mW/cm².

Therefore, the exposure condition of this EUT is compliant with FCC rules.

MPE Calculations for WCDMA 1900

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) was tested according to ANSI/TIA/EIA-603-C-2004.

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

$$\mathbf{EIRP = 23.45dBm(221mW)}$$

Power density at the specific separation:

$S = (EIRP)/(4R^2\pi)$ $S = (221) / (4 * 20^2 * \pi)$ $\mathbf{S = 0.044 \text{ mW/cm}^2}$	<p>Where,</p> <p>S = Maximum power density (mW/cm²)</p> <p>EIRP = Maximum Peak radiated output power(mW)</p> <p>R = Distance to the center of the radiation of the antenna (20cm)</p>
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Conclusion:

The Maximum permissible exposure (MPE) for the general Population/Uncontrolled is **1 mW/cm²**.

The power density at 20cm does not exceed the 1 mW/cm².

Therefore, the exposure condition of this EUT is compliant with FCC rules.