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FCC-ID : R3ZRTX3371B
IC : 1231D-RTX3371B

Maximum Permissible Exposure calculation

Dear Madams/Sirs,

please find here our Maximum Permissible Exposure calculations for the RTX3371.
The RTX3371 integrates a Telit GSM module with following FCC ID: R3ZRTX3371V2
and IC 1231D-RTX3371V2.

Best Regards



Patrick Lomax



Maximum Permissible Exposure

(as specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure)

<i>Frequency range (MHz)</i>	<i>Power density (mW/cm²)</i>
300 – 1,500	f/1500
1,500 – 100,000	1.0

Calculations GSM 850 MHz band

Equivalent Isotropic Radiated Power (EIRP):

1740 mW (Reference: FCC ID: R3ZRTX3371V2)

Prediction distance **R**: 20 cm
Prediction frequency: 850 MHz
Prediction Antenna Gain **G***: 1.4 dBi = 1.32 (numeric)
* including cable loss

MPE limit **S_{limit}**: 0.566 mW/cm²

Equation OET bulletin 65, page 18, edition 97-01: $S = P \cdot G / (4\pi R^2)$

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

$$S_{850} = (1740 \times 1.32) / 4\pi(20)^2 = \underline{0.465 \text{ mW/cm}^2}$$

$$S_{850} \quad 0.456$$

$$\frac{\dots\dots\dots}{S_{\text{limit}}} = \frac{\dots\dots\dots}{0.566}$$



Calculations GSM 1900 MHz

Equivalent Isotropic Radiated Power (EIRP):

930 mW (Reference: FCC ID: R3ZRTX3371V2)

Prediction distance **R**: 20 cm

Prediction frequency: 1900 MHz

Prediction Antenna Gain **G**: 1.0 dBi = 1.260 (numeric)

MPE limit **S_{limit}**: 1 mW/cm²

Equation OET bulletin 65, page 18, edition 97-01: $S = P \cdot G / (4\pi R^2)$

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

$$S_{1900} = (355.63 \times 1.260) / 4\pi(20)^2 = \underline{0.2331 \text{ mW/cm}^2}$$

$$\frac{S_{1900}}{S_{\text{limit}}} = \frac{0.2331}{1}$$

Calculations Bluetooth

Equivalent Isotropic Radiated Power (EIRP):

4.93 mW (Reference: 7Layers AG Test Report: MDE_Tunst_1001_FCCd)

Prediction distance **R**: 20 cm
Prediction frequency: 2400 MHz
Prediction Antenna Gain **G**: 5.0 dBi = 3.162 (numeric)

MPE limit **S_{limit}**: 1 mW/cm²

Equation OET bulletin 65, page 18, edition 97-01: $S = P \cdot G / (4\pi R^2)$

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

$$S_{BT} = (4.93 \times 3.162) / 4\pi(20)^2 = \underline{0.001 \text{ mW/cm}^2}$$

$$\frac{S_{BT}}{S_{limit}} = \frac{0.001}{1}$$

Simultaneous Exposure

GSM 850 + Bluetooth

$$\frac{S_{850}}{S_{\text{limit}}} + \frac{S_{\text{BT}}}{S_{\text{limit}}} = \frac{0.456}{0.566} + \frac{0.001}{1} = \underline{\underline{0.806}} < 1 = \text{Compliant}$$

GSM 1900 + Bluetooth

$$\frac{S_{1900}}{S_{\text{limit}}} + \frac{S_{\text{BT}}}{S_{\text{limit}}} = \frac{0.2331}{1} + \frac{0.001}{1} = \underline{\underline{0.041}} < 1 = \text{Compliant}$$