7 layers

4_SIEM_0706_UMTS

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FCC ID QIPHMS1 – predictions for Maximum Permissible Exposure

Dear Mr. Pfitzmann,

please find our Maximum Permissible Exposure calculations for the GSM module HMS1.

Best Regards

Sven Lüngen

registered in:

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)

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

Calculations 850 MHz band

Maximum peak output power at antenna input terminal: 31.5 dBm (1412,54 mW)
(see 7 layers test results – FCC ID QIPHMS1)

Prediction antenna gain **G**: 2,25 dBi
Prediction frequency: 836,4 MHz

MPE limit **S**: 0,5576 mW/cm²

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

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

Minimum permissible distance: **18,4 cm**

Prediction

The maximum allowed MPE value of 0,5576 mW/cm² will be reached with an antenna gain of 2,25 dBi in a distance of 18,4 cm. This means that the power density levels with an antenna gain of 2,25 dBi are in accordance with the FCC regulations as long as the distance is higher than 18,4 cm.

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Calculations 1900 MHz band

Maximum peak output power at antenna input terminal: 28.6 dBm (724,44 mW)
(see 7 layers test results – FCC ID QIPHMS1)

Prediction antenna gain **G**: 2,25 dBi
Prediction frequency: 1880 MHz

MPE limit **S**:   1 mW/cm²

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

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

Minimum permissible distance: **9,84 cm**

Prediction

The maximum allowed MPE value of 1 mW/cm² will be reached with an antenna gain of 2,25 dBi in a distance of 9,84 cm. This means that the power density levels with an antenna gain of 2,25 dBi are in accordance with the FCC regulations as long as the distance is higher than 9,84 cm.