MDE_BLIP_0701

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Maximum Permissible Exposure calculation

Dear Mr. Brandhorst,

please find here our Maximum Permissible Exposure calculations for the BLIP Node L2i.

Best Regards

Carsten Steinröder

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 2400-2483.5 MHz band

Maximum peak output power at antenna input terminal for class 1 modules: 18.05 dBm (63.83 mW)

(see 7 layers test report MDE_BLIP_0701_FCCa)

Maximum peak output power at antenna input terminal for class 2 module: 2.61 dBm (1.82 mW)

(see 7 layers test report MDE_BLIP_0701_FCCa)

Maximum peak output power (all three modules transmitting):

21.122 dBm (129.48 mW)

Prediction distance **R**: 20 cm
Prediction frequency: 2440.09 MHz (Class 1 Modules)
2401.79 MHz (Class 2 Module)
Prediction Antenna Gain **G**: 1.0 dBi (Class 1 Modules)
1.9 dBi (Class 2 Module) (used for calculation)

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

Maximum permissible power density: **0.0399 mW/cm²**