To Whom It May Concern:

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Maximum Permissible Exposure - according to FCC -
Bluetooth Module – FCC-ID: A269ZUA140

Dear Sirs,

please find our Maximum Permissible Exposure calculations for the Alpine bluetooth module.

Best Regards

Imad Hjije

Maximum Permissible Exposure

Frequency range (MHz)	Power density (mW/cm²)
400 – 1500	f/2000
1500 - 100000	1 mW/cm²

Calculations 2.4 GHz band

Maximum peak output power at antenna input terminal: 1.06 dBm

Prediction distance **R**:   20 cm
Prediction frequency: 2441 MHz

MPE limit **S**:   1 mW/cm²

Equation $S = P*G / (4\pi R^2)$

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 antenna gain: **-1.6 dBi**

power density reached value: **0.0002 mW/cm²**

Prediction

The maximum allowed MPE value of 1 mW/cm² will not be reached in a distance of 20 cm in case that an antenna with an antenna gain of -1.6 dBi would be used. This means that the power density levels in a distance of 20 cm are in accordance with the FCC regulations as long as the used antenna has a gain below -1.6 dBi.