

Engineering Analysis of MPE for RTK Radio 450 (440-450 MHz)

FCC ID: OV5-RTK450

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FCC OET Bulletin 65 “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”.

- The RTK Radio 450 will be mounted and used as described in the users/installation manual.
- This device will only be operated according to the exposure conditions described in this application.
- End users and installers will be provided with antenna installation and transmitter operating conditions for satisfying RF exposure compliance.

The maximum allowed erp of 2 watts was used for evaluation.

Limit for exemption from routine SAR/MPE evaluation for the higher of the conducted or radiated (EIRP) source-based time-averaged output power, (Appendix A: TCB Exclusions List, General Population):

See the below calculation for maximum eirp limit of 2 watts.

Prediction of MPE limit at a given distance



Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density

P = power input to the antenna

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

R = distance to the center of radiation of the antenna

Maximum peak erp: 33.0 dBm

Maximum peak erp: 1995.3 mW

Time Averaging: 100 %

Prediction distance: 23 cm

Prediction frequency: 450 MHz

FCC MPE limit for uncontrolled exposure at prediction frequency: 0.30 mW/cm²

Power density at prediction frequency: 0.30 mW/cm²