

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

FCC ID: OV5-RTK450

| | |
|--------------|--|
| Company name | Deere & Company |
| Address | One John Deere Place, Moline, IL 61265 USA |

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/cm ² |
| Power density at prediction frequency: | 0.30 mW/cm ² |