

MPE Estimates for Co-located Device

Compliance with 47 CFR 15.247(i)

“Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b) (1) of this chapter.”

The EUT will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b). Calculations are provided for each radio transmitting through its own internal antenna and optional external antenna.

The total transmit power is less than 1.5 W (ERP), therefore the EUT is categorically excluded from routine environmental evaluation per 47 CFR 2.1091(c).

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population. The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm²)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power densities 20 cm from the transmitting antennas are summarized in the tables on the following pages:

MPE Estimates for Co-located Device

FCC ID: KBCIX-512AN				Host PC: GD8000 in GD8000 Vehicle Mount				
Model: IX-512AN, WLAN, IEEE 802.11 (a) (b) (g) (n)								
Antenna Type	Antenna Part No.	Transmit Frequency	Max. Peak Conducted Output Power	Ant. Gain	Min. Antenna Cable Loss	Power Density @ 20 cm	General Population Exposure Limit from 1.1310	Ratio of Power Density to the Exposure Limit
		(MHz)	(mW)	(dBi)	(dB)	(mW/cm ²)	(mW/cm ²)	
GD8000 in GD8000 Vehicle Mount with the Magnetic Mount External 2.4 GHz MaxRad Antenna.								
External MaxRad	MAXC24505	2462	91.2	5	4.4	0.0208	1	0.0208
GD8000 Stand Alone								
GD8000 MAIN - R13M (Right Side of Display)	TW13MWIPI02+C	2412 - 2460	91.2	-2.31	*-Inc.-	0.0106	1	0.0106
GD8000 MAIN - R13M (Right Side of Display)	TW13MWIPI02+C	5745 - 5825	20.9	2.40	*-Inc.-	0.0072	1	0.0072
GD8000 MAIN - R13M (Right Side of Display)	TW13MWIPI02+C	5180 - 5320	27.5	1.22	*-Inc.-	0.0072	1	0.0072
GD8000 MAIN - R13M (Right Side of Display)	TW13MWIPI02+C	5500 - 5700	53.7	1.24	*-Inc.-	0.0142	1	0.0142
GD8000 AUX - R13M (Left side of Display)	TW13MWIPI01+C	2412 - 2460	91.2	-2.13	*-Inc.-	0.0111	1	0.0111
GD8000 AUX - R13M (Left side of Display)	TW13MWIPI01+C	5745 - 5825	20.9	3.2	*Inc.	0.0087	1	0.0087
GD8000 AUX - R13M (Left side of Display)	TW13MWIPI01+C	5180 - 5320	27.5	4.55	*Inc.	0.0156	1	0.0156
GD8000 AUX - R13M (Left side of Display)	TW13MWIPI01+C	5500 - 5700	53.7	2.66	*Inc.	0.0197	1	0.0197
Worst Case IX-512AN, WLAN from above added to Worst Case IX-WT11, Bluetooth for Co-located Worst Case								
GD8000 AUX - R13M (Left side of Display)	TW13MWIPI01+C	5500 - 5700	53.7	2.66	*Inc.	0.0197	1	0.0197
IX-WT11, Internal PIFA	TWR12BLPI01A	2402	21.75	-2.86	*Inc.	0.0024	1	0.0024
							1	0.0221
Ratio of Power Density to the Exposure Limit Co-located total =								0.0221
* Included in antenna factor								
Worst Case Co-located Ratio of Power Density to the Exposure Limit = 0.0221								

This transmitter complies with Part 15.407(f). The U-NII device is subject to and complies with the general population uncontrolled, radio frequency radiation exposure requirements of CFR 47 Parts 1.1307, 2.1091 for both the fundamental and unwanted emissions.