

MPE Calculations

The exposure condition of this device is compliant with FCC Rule.

Specification: Part 2.1091, Part 1.1310, KDB 447498 D01

Table 1—Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure				
Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm²)	Averageing time (minutes)
0.3 ~ 3.0	614	1.63	*100	6
3.0 ~ 30	1842/f	4.89/ f	*900/f ²	6
30 ~ 300	61.4	0.163	1.0	6
300 ~ 1,500	-	-	f/300	6
1,500 ~ 100,000	-	-	5.0	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*100	30
1.34 ~ 30	824/f	2.19/f	*180/f ²	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1,500	-	-	f/1500	30
1,500 ~ 100,000	-	-	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

● EUT Description

FCC ID : XXZ-OW7MP

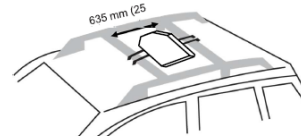
Model : OW7MP

Note: This device is supports the 14 ~ 14.5 GHz satellite communication.

And the device is intended to be installed either on the ground or on the roof of a vehicle.



(When installing on the ground)



(When installing on roof of a vehicle)

● MPE Calculation

The MPE calculation for this exposure is shown below.

$$S = \text{EIRP} / (4\pi R^2)$$

Where,

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna

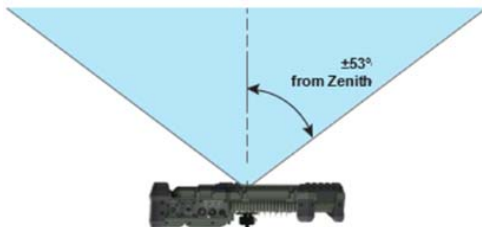
Frequency range (GHz)	Installation Condition	Separation distance (cm) ^{Note2}	Max tune-up Power(dBm) ^{Note1}	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requirement (mW/cm ²)
14.0 ~ 14.5	on the ground	380	12.0	50.5	62.5	1778279	0.980	1.0
14.0 ~ 14.5	on roof of a vehicle	20	12.0	19.41 ^{Note3}	31.41	1383	0.275	1.0

Note 1: Please refer to the tune-up procedure for Max tune-up power.

Note 2: When installed on a vehicle roof, the antenna shall be installed and operated with a minimum separation distance of 20 cm from the user's body to ensure compliance with RF exposure requirements.

When used outdoors, not on the vehicle, to ensure compliance with RF exposure requirements, the antenna must be installed and operated with a minimum separation distance of 380 cm from the user's body.

Note 3:



The antenna provides a maximum gain of 50.5 dBi within the angular region of ±53° from zenith.

The antenna maximum gain from other directions outside this range is as follows.

Maximum antenna gain from ± 53 degrees to ± 80 degrees: 46.33 dBi

Maximum antenna gain from ± 80 degrees to ± 180 degrees: 19.41 dBi

Since the device is installed on the roof of the vehicle, the effective gain of the antenna toward passengers and persons standing next to the vehicle is less than 19.41 dBi.