

RF Exposure / MPE Calculation

Applicant : JVC KENWOOD Corporation
Type of Equipment : GPS Navigation System
Model No. : ECI1-MC100K
FCC ID : IOMKC014

JVC KENWOOD Corporation declares that Model: ECI1-MC100K complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091 (for mobile).

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided with the “ECI1-MC100K” as calculated from (B) Limits for General Population / Uncontrolled Exposure of TABLE 1- LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE) of §1.1310 Radiofrequency radiation exposure limits.

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm² uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

$P =$ 7.18 mW (Maximum average output power)
☐ Time average was used for the above value in consideration of 6-minutes time-averaging
☒ Burst power average was used for the above value in consideration of worst condition.
 $G =$ 1.413 Numerical Antenna gain; equal to 1.5dBi
 $r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00202 \text{ mW/cm}^2$

Even taking into account the tolerance, this device can be satisfied with the limits.

As for the antenna gain, the worst rate power of Antenna terminal is Antenna 1. However, the value of antenna gain was adopted Antenna 2 which has higher antenna gain.

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