

Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation

Radar Type: RA40C
FCC ID: O5VRB714A
Manufacturer: Kodan Electronics Co., Ltd

Reference:

Sec. 1.1310 Radio frequency radiation exposure limits

Table 1--Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposures

1500-100,000MHz 5mW/cm²

Calculation:

(1) Average Output Power (Pav)

Peak Output Power	2kW (2000W)
Repetition Frequency	580Hz
Pulse Width	0.8 us (0.0000008s)
Average Output Power	= 2000(W) x 580(Hz) x 0.0000008(s) = 0.928 (W)
Horizontal Beam Width	6 deg. (Continuously Rotating with 360 deg.)
Pav	= 0.928 x 6/360 = <u>0.0155</u> (W)

(2) Antenna Gain (Ga) 22.2dB (166)

(3) Wave Length (Lw) 0.0317 (m)

(4) Power Density Limit (Plim) 50 (W) ; 5mW/cm² = 50W/m²

$$\begin{aligned}\text{Range of Limits (m)} &= \sqrt{((P_{av} \times G_a \times L_w^2) / ((4 \times \pi)^2 \times P_{lim}))} \\ &= \sqrt{((0.0155 \times 166 \times (0.0317)^2) / ((4 \times \pi)^2 \times 50))} \\ &= \mathbf{0.00057 (m)}\end{aligned}$$

According to above calculation, this radar is comply with " Sec. 1.1310 Radio frequency radiation exposure limits ".