

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

Radar Type: RA42C
FCC ID: O5VRB716A
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	4kW (4000W)
Repetition Frequency	600Hz
Pulse Width	0.8 us (0.0000008s)
Average Output Power	= 4000(W) x 600(Hz) x 0.0000008(s) = 1.92 (W)
Horizontal Beam Width	1.8 deg. (Continuously Rotating with 360 deg.)
Pav	= 1.92 x 1.8/360 = <u>0.0096</u> (W)

(2) Antenna Gain (Ga) 28.0dB (631)

(3) Wave Length (Lw) 0.0319 (m)

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

$$\begin{aligned}\text{Range of Limits (m)} &= ((P_{av} \times G_a \times L_w^2) / (4 \pi^2 \times P_{lim})) \\ &= ((0.0096 \times 631 \times (0.0319)^2) / (4 \pi^2 \times 50)) \\ &= \mathbf{0.00088 (m)}\end{aligned}$$

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