

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)
(B) Limits for General Population/Uncontrolled Exposures
1500-100,000MHz 1mW/cm²

Calculation:

(1) Average Output Power (Pav)

-1 Pulse duty factor

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)
Po	= 0.928 (W)

-2 Mechanical scanning duty factor

Horizontal Beam Width	6 deg. (Continuously Rotating with 360 deg.)
Pav	= Po x 6(deg.) / 360(deg.)
	= 0.928 x 6 / 360
	= <u>0.0155</u> (W)

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

(3) Power Density Limit (Plim) 10 (W) ; 1mW/cm² = 10W/m²

(4) K (Factor of ground reflection) 4

$$\begin{aligned}\text{Range of Limits (m)} &= ((P_{av} \times G_a \times K) / (4 \times \pi \times P_{lim})) \\ &= ((0.0155 \times 166 \times 4) / (4 \times \pi \times 10)) \\ &= \mathbf{0.286 (m)}\end{aligned}$$

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