

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

Radar Type: RA41C
FCC ID: O5VRB715A
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	4kW (4000W)
Repetition Frequency	600Hz
Pulse Width	0.8 us (0.0000008s)
Average Output Power	= 4000(W) x 600(Hz) x 0.0000008(s)
Po	= 1.92 (W)

-2 Mechanical scanning duty factor

Horizontal Beam Width	3.9 deg. (Continuously Rotating with 360 deg.)
Pav	= Po x 3.9(deg.) / 360(deg.)
	= 1.92 x 3.9 / 360
	= <u>0.0208</u> (W)

(2) Antenna Gain (Ga) 24.1dB (257)

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

(4) K (Factor of Ground Reflection) 4

$$\begin{aligned}\text{Range of Limits (m)} &= \sqrt{((P_{av} \times G_a \times K) / (4 \times \pi \times P_{lim}))} \\ &= \sqrt{((0.0208 \times 257 \times 4) / (4 \times \pi \times 10))} \\ &= \mathbf{0.413 (m)}\end{aligned}$$

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