

IRT-4200 Radiation Hazard Assessment

FCC ID: AJK8223587

This exhibit affirms compliance with respect to controlled and uncontrolled exposure limits for MPE/SAR.

Requirements:

The rules concerning RF radiation exposure are covered in 47 CFR §1.1306, §1.1307, §1.1310, §2.1091 and §2.1093.

The IRT-4200 is licensed under 47 CFR Part 87 and therefore falls under 47 CFR §1.1306 which states:

“(a) Except as provided in § 1.1307 (c) and (d), Commission actions not covered by §1.1307 (a) and (b) are deemed individually and cumulatively to have no significant effect on the quality of the human environment and are categorically excluded from environmental processing.”

An Environmental Assessment (EA) is not required for the IRT-4200, however a short Radiation Hazard Assessment is provided below.

Radiation Hazard Assessment:

The IRT-4200 may be evaluated against 47 CFR §1.1310, Table 1, which defines the Maximum Permissible Exposure (MPE) power density limits for 1030 MHz which falls in the frequency range from 1,500 to 100,000 MHz as follows:

- (A) Occupational/Controlled Exposures 5 mW/cm² over 6 min
- (B) General Population/Uncontrolled Exposure 1 mW/cm² over 30 min

The IRT-4200 system antennas are mounted along the fuselage of commercial aircraft. These locations are highly restricted to only airport maintenance personnel and are off limits to the general population. These limited access restrictions place the IRT-4200 under the definition of (A) Occupational/Controlled Exposures which requires a MPE power density limit of 5 mW/cm² averaged over a 6 minute time period. The minimum safe operating distance required to meet this limit is calculated below. The IRT-4200 uses an omni-directional radiation pattern. A duty factor scaling is included based on a maximum transmit period of 32 ms in every 90 ms TDMA frame.

$$R = \sqrt{\frac{P_t \times DF \times 10^{\frac{G_t}{10}}}{4 \times \pi \times P_D}} = 9.53cm = 3.75in$$

Where:	Peak Transmit Power	$P_t = 10.0 \text{ W (40.0 dBm)}$
	Duty Factor	$DF = 36\%$
	Antenna Gain	$G_t = 2 \text{ dB (Includes aircraft cable loss)}$
	Power Density Limit	$PD = 5 \text{ mW/cm}^2$

Compliance Statement:

The IRT-4200 does not exceed the Minimum Permissible Exposure (MPE) limits of 5 mW/cm² contained in FCC Section 1.1310, Table 1, when the minimum safe operating distance is observed.