IRT-4400 Radiation Hazard Assessment
FCC ID: AJK8223586

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-4400 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-4400, however a short Radiation Hazard Assessment is provided below.

Radiation Hazard Assessment:

The IRT-4400 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-4400 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-4400 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. A worst case scenario is used where the antenna beam from the directional antenna is always pointed in the same direction. In normal operation, the selected beam will vary versus time as the low-earth orbit satellites move overhead. A duty factor scaling is included based on a maximum transmit period of 32 ms in every 90 ms TDMA frame.

$$R = \sqrt{\frac{P_t \times DF \times 10^{\frac{G_t}{10}}}{4 \times \pi \times P_D}} = 19.46cm = 7.66in$$

Where:	Peak Transmit Power	P_t = 20.9 W (43.2 dBm)
	Duty Factor	DF = 36%
	Antenna Gain	G_t = 5 dB (Includes aircraft cable loss)
	Power Density Limit	PD = 5 mW/cm2

Compliance Statement:

The IRT-4400 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.