

### Environmental Assessment

Applicant's Name (company): Amphitech Systems dba FLIR Radars

### Expected Use of Equipment

The R20SS radar will be used as a mobile demonstration asset. The Experimentation proposed is to demonstrate the R20SS radar capabilities in various areas in the USA. Demonstrations will typically be conducted for 1 to 4 hours at a time. Frequency of the demonstrations is expected to be in the order of 1 or 2 demonstrations per month.

### Equipment Setup

To conduct demonstrations, the R20SS radar will be installed on a tripod set to a height of 3 to 6 meters above ground or above of an existing structure. No structure(s) will be built for the purpose of conducting demonstrations under the license being applied for.

### Safety Distance

The R20SS radar emission characteristics are as follows:

| Parameter             | Value                                                  | Comment                                                                                               |
|-----------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Tx Center frequency   | 9250 MHz<br>or<br>9350 MHz<br>or<br>9450 MHz           | The radar can be configured to operate in any of 3 channels. Operation is on one channel at any time. |
| Bandwidth             | 100 MHz (short-range mode)<br>50 MHz (long-range mode) |                                                                                                       |
| RF Output Power       | 10 W peak<br>8 W average                               |                                                                                                       |
| Modulation            | Linear FMCW                                            |                                                                                                       |
| Tx Antenna Gain       | 16 dBi                                                 |                                                                                                       |
| Tx Antenna Beamwidths | 90 deg azimuth<br>5.5 deg elevation                    | Half power                                                                                            |
| Polarization          | Linear Horizontal                                      |                                                                                                       |

Using the limits for Maximum Permissible Exposure for Occupational/Controlled exposure of 5 mW/cm<sup>2</sup>, the safe distance is calculated as follows:

$$R_s = \sqrt{\frac{P G}{4 \pi S}} = 79.8 \text{ cm}$$

Where

S = Power Density ( 5 mW/cm<sup>2</sup> )  
P = Power Input to Antenna ( 10000 mW )  
G = Power Gain of Antenna ( 40 )  
R<sub>s</sub> = Safe distance to center of Antenna

#### Conclusion

Given that the antenna will be mounted on a tripod 3 to 6 meters above ground or structure, it can be concluded that the RF emissions will not cause safety hazard for personnel in terms of radiation exposure, the safe distance being calculated at 79.8 cm.

Since the radar is a mobile equipment, no structure or tower will be built and there shall be no environmental impact due to construction.

With the safe distance being under 1 meter and the expected usage being 2 to 8 hours per month, no significant environmental impact on wildlife is expected from the use of the R20SS radar as a mobile demonstration asset.