



**General information:**

APPLICANT: AVIDYNE CORPORATION  
FCC ID: RZYIFDXXXV

Device category: Mobile per Part 2.1091  
Environment: Controlled Exposure

Mobile devices that operate under Part 87 of this chapter are subject to evaluation for RF exposure prior to equipment authorization.

**Antenna:**

The manufacturer does not specify an antenna for this device and the device is fixed mounted for use in aircraft only.

| Configuration | Antenna p/n | Type | Max. Gain (dBi) |
|---------------|-------------|------|-----------------|
| Fixed         | Any         | omni | 3               |
|               |             |      |                 |

**Operating configuration and exposure conditions:**

The conducted output power is 16 Watts. In typical use the duty cycle is 50 %. The general population limit will be used as exposure is usually not controlled.

A coaxial cable of the type RG 58 has a loss of 1dB for a length of 30 feet. A typical installation would have at least 30 ft of coaxial cable.

**MPE Calculation:**

The minimum separation distance is calculated as follows:

|                                                  |                                                          |
|--------------------------------------------------|----------------------------------------------------------|
| $E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$ | $\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$ |
|--------------------------------------------------|----------------------------------------------------------|

The limit for uncontrolled exposure environment below 300 MHz is 0.2 mW/cm<sup>2</sup>.

Channel frequency: 118-138 MHz  
 The conducted power output is: 16 Watts  
 The coax loss was taken as: 1 dB.  
 Antenna gain was taken as: 3 dBi  
 50% talk time in 30 minutes

$W := 16$  power in Watts

$D := 1$  Duty Factor in decimal % (1=100%)

1 for FM  
 0.6 for SSB

$E := 15$  exposure time in minutes

$U := 30$  (use 6 for controlled and 30 for uncontrolled)

$$W_{exp} := W \cdot D \cdot \left( \frac{E}{U} \right)$$

$$PC := \left( \frac{E}{U} \right) \cdot 100$$

$W_{exp} = 8$  Watts

$PC = 50$  % on time

$P_o := 8000$  mWatts

$f := 300$  Frequency in MHz

$dBd := .85$  antenna gain in dBd

$$S := \frac{f}{1500} \text{ power density limit for uncontrolled exposure}$$

$G1 := dBd + 2.15$  gain in dBi

$G1 = 3$  dBi

$CL := 1.0$  dB coax loss

$$S = 0.2 \frac{mW}{cm^2}$$

$G := G1 - CL$

General population

S is 1 between 1500 and 100k MHz

S is  $f/1500$  for 300 to 1500 MHz

S is 0.2 between 30 and 300 MHz

$$G_n := 10^{\frac{G}{10}} \text{ gain numeric}$$

Occupational

S is 1 between 30 and 300 MHz

S is  $f/300$  between 300 and 1500 MHz

S is 5 between 1500 and 100k MHz

(See 47 CFR 1.1310)

$$R := \sqrt{\frac{(P_o \cdot G_n)}{(4 \cdot \pi \cdot S)}}$$

$$\text{inches} := \frac{R}{2.54}$$

$R = 71.027$  distance in centimeters  
 required for compliance

$\text{inches} = 27.963$

$$\text{ft} := \frac{\text{inches}}{12}$$

$\text{ft} = 2.33$

**CONCLUSION:**

The device complies with the MPE requirements by providing a safe separation distance of 71 cm between the antenna, including any radiating structure, and any persons when normally operated.

**PROPOSED RF EXPOSURE SAFETY INFORMATION TO INCLUDE IN USER'S MANUAL:**

“FCC RF EXPOSURE REQUIREMENTS:

**CAUTION:**

**This transmitter must be restricted to work related operations in a Controlled RF exposure environment. All qualified end-users of this device must have the knowledge to control their exposure conditions and/or duration, and the exposure conditions and/or duration of their passengers and bystanders, to comply with the General Population / Uncontrolled MPE limit and requirements.**

**The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 0.71m (2.33 ft) from all persons.**



Nam Nguyen  
Engineering Project Manager