



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:

$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$	$\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$
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The limit for uncontrolled exposure environment below 300 MHz is 0.2 mW/cm².

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	$S := \frac{f}{1500}$	power density limit for uncontrolled exposure
$G1 := dBd + 2.15$	gain in dBi	$S = 0.2$	$\frac{mW}{cm^2}$
$G1 = 3$	dBi	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	
$CL := 1.0$	dB coax loss	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)	
$G := G1 - CL$			
$G_n := 10^{\frac{G}{10}}$	gain numeric		
$G_n = 1.585$			
$R := \sqrt{\frac{(P_o \cdot G_n)}{(4 \cdot \pi \cdot S)}}$		$inches := \frac{R}{2.54}$	
$R = 71.027$	distance in centimeters required for compliance	$inches = 27.963$	
		$ft := \frac{inches}{12}$	
		$ft = 2.33$	

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