

FCC RF Exposure Requirements

General information:

FCCID: BBOMRF80

Device category: Mobile per Part 2.1091

Environment: Controlled (occupational) Exposure

Mobile devices that are authorized under part 80 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more. However, compliance with the power density limits of 1.1310 is required.

Antenna:

The manufacturer does not specify any antenna to be used with this device.

This device has provisions for operation in a boat.

Configuration	Antenna p/n	Type	Max. Gain (dBi)
Boat	Any	-	6 dBi (4 dBd)

Operating configuration and exposure conditions:

Part 2.1091 states that devices are excluded from routine evaluation if the EIRP is less than 2.46 Watts (or 1.5 WERP).

A 50% on time (3 minutes transmitting over a 6 minute period) is used to average over .

Boat Operation: Cable length = 32 ft exposed and 3 feet internal to radom = 35 ft. Total. 35 feet cable loss including connector insertion loss at 156 MHz is 2.5 dB. The maximum antenna gain that can be used is 6 dBi (4 dBd).

W := 25.0 power in Watts D := 1 Duty Factor in decimal % (1=100%)(FM)
 E := 15 exposure time in minutes U := 30 (use 6 for controlled and 30 for uncontrolled)

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

$$PC := \frac{E}{U}$$

PC = 0.5 percent on time

W_{exp} = 12.5 Watts

CL := 2.5 Coax loss in dB

Po := 12500 mWatts dBd := 6 antenna gain f := 158 Frequency in MHz

G := dBd + 2.15 - CL gain in dBi

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

S := 1 controlled below 300 MHz
mW per cm²

G_n = 3.673

S = 1

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

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

R = 60.444 distance in centimeters
required for compliance

R_{inches} = 23.797

Conclusion:

The device complies with the MPE requirements for a typical transceiver with 50 % transmit time by providing a safe separation distance of 60 cm between the antenna, including any radiating structure, and any persons when normally operated.