

RF exposure exhibit

FCC RF Exposure Requirements

General information:

FCCID: RFJCB-127

Modulation: CDMA

Device category: Mobile / Part 2.1091

Environment: General Population/Uncontrolled Exposure

Mobile devices that operate in the Cellular Radiotelephone Service and the Personal Communication Service authorized under subpart H of part 22 and subpart E of part 24 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 (2.46WEIRP) or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts (4.92WEIRP) or more.

Otherwise, 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 vehicle.

Configuration	Antenna p/n	Type	Max. Gain (dBi)
Passenger car	Any	-	3

Operating configuration and exposure conditions:

The conducted output power is 31.8dBm = 1.514 Watt for 800MHz band and 31.2dBm = 1.318Watt for the PCS band.

- Vehicle Operation: The maximum antenna gain that can be used is 3dBi. A coaxial cable of the type RG174 has a loss of 2.9dB at 850MHz and more at 1880MHz for a length of 10 feet. For such configuration the EIRP is 1.55Watt in the cellular band and 1.35Watt in the PCS band.

MPE Calculation:

The minimum separation distance is calculated as follows:

$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$	Power density: $P_d(mW/cm^2) = \frac{E^2}{3770}$
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The limit for general population/uncontrolled exposure environment is 0.57mW/cm² for the worst-case frequency below 1500MHz and 1mW/cm² above 1500MHz.

Channel Frequency: 849 MHz and 1880MHz

Power Density at 20 cm distance			Max. Antenna Gain (dBi) / Minimum Cable Loss (dB)		
			3dBi / 2.9dB	-	-
Freq (MHz)	Power EIRP (W)	Duty Cycle (%)	(mW/cm ²)	(mW/cm ²)	(mW/cm ²)
849	1.55	100 (CDMA)	0.31	-	-
1880	1.35	100 (CDMA)	0.27	-	-

Conclusion:

The device complies with the MPE requirements by providing a safe separation distance of 20 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:

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Vehicle – Antenna Installation:

- The antennas used for this transmitter must not exceed an antenna gain of 3 dBi with a minimum cable loss of 2.9dB.
- For rear deck trunk and roof top installations, the antenna must be located at least 20 cm away from rear-seat passengers and bystanders in order to comply with the FCC RF exposure requirements.

Failure to observe these restrictions will result in exceeding the FCC RF exposure limits.

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FYI - Draft/Grant notes – RF exposure: TCB **Section D:** Mobile transmitters identified in §2.1091 that satisfy Categorical Exclusion Requirements of §2.1091:

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The antenna installation and operating configurations of this transmitter, including any applicable source-based time-averaging duty factor, antenna gain and cable loss must satisfy MPE categorical Exclusion Requirements of §2.1091. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.