

APPENDIX B: FCC PART 1.1307, 1.1310, 2.1091, 2.1093: RF EXPOSURE

Please refer to the MPE Evaluations that follow.



Electronics

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Mobile Radio MPE Evaluation Report
(One antenna)

Declaration of Compliance

FCC Rule Part:	47 CFR §90; §2.1091; §1.1310
Device Classification:	Licensed Non-Broadcast Station Transmitter (TNB)
Device Type:	Mobile UHF PTT Radio Transceiver with Motorcycle Mounted Antenna
FCC ID:	OWDTR-0020-E
Model Name:	M7100 (IP)
Modulation:	FM
Tx Frequency Range:	378 - 430 MHz
Max. RF Conducted Power:	50 W
Power Supply:	12 VDC
Antenna Type:	Quarter wave vertical (P/N LE-OM420BKTNC)
Antenna Gain:	5.5 dbi
Minimum Antenna Distance:	71.03 cm Limits for Occupational/Controlled Exposure. 158.8 cm Limits for General Population/Uncontrolled Exposure.

Calculation

$$S = \frac{PG}{4\pi R^2} \quad \text{therefore: } R = \sqrt{\frac{PG}{4\pi S}}$$

Where: S – power density (mW/cm²; as defined in 47 CFR § 1.1310), P – power input to antenna at 50% duty cycle (in mW), G – power gain of the antenna relative to isotropic (numeric value, not db), R – distance to center of antenna (result in cm).

S = 1.4/.28 (Controlled/Uncontrolled) at Tx frequency 420 MHz (frequency when applicable).

Calculated controlled distance: 71.03 cm

Calculated uncontrolled distance: 158.8 cm

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Device Type:	Mobile UHF PTT Radio Transceiver with Motorcycle Mounted Antenna
FCC ID:	OWDTR-0020-E
Model Name:	M7100 (IP)
Modulation:	FM
Tx Frequency Range:	378 - 430 MHz
Max. RF Conducted Power:	50 W
Power Supply:	12 VDC
Antenna Type:	Quarter wave vertical (P/N LE-OM406BKTNC)
Antenna Gain:	5.5 dbi
Minimum Antenna Distance:	74.87 cm Limits for Occupational/Controlled Exposure. 167.4 cm Limits for General Population/Uncontrolled Exposure.

Calculation

$$S = \frac{PG}{4\pi R^2} \quad \text{therefore: } R = \sqrt{\frac{PG}{4\pi S}}$$

Where: S – power density (mW/cm²; as defined in 47 CFR § 1.1310), P – power input to antenna at 50% duty cycle (in mW), G – power gain of the antenna relative to isotropic (numeric value, not db), R – distance to center of antenna (result in cm).

S = 1.26/.252 (Controlled/Uncontrolled) at Tx frequency 378 MHz (frequency when applicable).

Calculated controlled distance: 74.87 cm

Calculated uncontrolled distance: 167.4 cm

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Declaration of Compliance

FCC Rule Part:	47 CFR §90; §2.1091; §1.1310
Device Classification:	Licensed Non-Broadcast Station Transmitter (TNB)
Device Type:	Mobile UHF PTT Radio Transceiver with Vehicle Rooftop Antenna
FCC ID:	OWDTR-0020-E
Model Name:	M7100 (IP)
Modulation:	FM
Tx Frequency Range:	378 - 420 MHz
Max. RF Conducted Power:	50 W
Power Supply:	12 VDC
Antenna Type:	Quarter wave vertical (P/N AN102800V1)
Antenna Gain:	2.15 dbi
Minimum Antenna Distance:	50.89 cm Limits for Occupational/Controlled Exposure. 113.79 cm Limits for General Population/Uncontrolled Exposure.

Calculation

$$S = \frac{PG}{4\pi R^2} \quad \text{therefore: } R = \sqrt{\frac{PG}{4\pi S}}$$

Where: S – power density (mW/cm²; as defined in 47 CFR § 1.1310), P – power input to antenna at 50% duty cycle (in mW), G – power gain of the antenna relative to isotropic (numeric value, not db), R – distance to center of antenna (result in cm).

S = 1.26/.252 (Controlled/Uncontrolled) at Tx frequency 378 MHz (frequency when applicable).

Calculated controlled distance: 50.89 cm

Calculated uncontrolled distance: 113.79 cm



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