



## Product Safety and RF Exposure for Mobile Two-Way Radios Installed in Vehicles or as Fixed Site Control Stations



Caution

**BEFORE USING THIS RADIO, READ THIS BOOKLET WHICH CONTAINS IMPORTANT OPERATING INSTRUCTIONS FOR SAFE USAGE AND RF ENERGY AWARENESS AND CONTROL INFORMATION FOR COMPLIANCE WITH RF ENERGY EXPOSURE LIMITS IN APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS.**

The information provided in this document supersedes the general safety information contained in user guides published prior to February 2002.

### Compliance with RF Energy Exposure Standards

**NOTICE:** This radio is intended for use in occupational/controlled applications where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.

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English

## Federal Communication Commission Regulations

The FCC has established limits for safe exposure to radio frequency (RF) emissions from mobile two-way radios. The FCC requires manufacturers to demonstrate compliance with RF exposure limits before mobile two-way radios can be marketed in the U.S. When two-way radios are approved for occupational/controlled environment exposure limits, the FCC requires users to be fully aware of, and exercise control over, their exposure. Awareness and control of RF exposure can be accomplished by education or training through appropriate means such as information and instructions in user manuals or safety booklets, or other appropriate means. This user safety booklet includes useful information about RF exposure and helpful instructions on how to control your RF exposure.

Your Motorola two-way radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) regarding human exposure to radio frequency electromagnetic energy. **This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at usage factors of up to 50% talk–50% listen.** In terms of measuring RF energy for compliance with FCC exposure guidelines, **your radio radiates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.**

**Your Motorola two-way radio complies with the following RF energy exposure standards and guidelines:**

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard, 2001
- ANATEL, Brasil Regulatory Authority, Resolution 256 (April 11, 2001)  
"additional requirements for SMR, cellular and PCS product certification."

## Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed in Vehicles

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures:

- **To transmit (talk), push the Push-To-Talk (PTT) button; to receive, release the PTT button. Transmit only when people outside the vehicle are at least the minimum lateral distance away** (as shown in the table below) from a properly installed, externally-mounted antenna and from the vehicle body.

The table below lists the minimum lateral distance for bystanders in an uncontrolled environment from the transmitting antenna and the vehicle body at several different ranges of rated radio power for mobile radios installed in a vehicle.

Mobile Radio Model	Minimum Lateral Distance from Transmitting Antenna	Minimum Lateral Distance from Vehicle Body
Less than 7 watts	8 inches (20 centimeters)	8 inches (20 centimeters)
7 to 15 watts	1 foot (30 centimeters)	8 inches (20 centimeters)
16 to 39 watts	2 feet (60 centimeters)	8 inches (20 centimeters)
40 to 110 watts	3 feet (90 centimeters)	8 inches (20 centimeters)

- **Install mobile antennas at the center of the roof or the center of the trunk deck per specific guidelines and instructions in the Radio Installation Manual. These mobile antenna installation guidelines are limited to metal body vehicles.**

**Use only the Motorola-approved, supplied antenna or a Motorola-approved replacement antenna.** Use of non-Motorola-approved antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

- **For a list of Motorola-approved antennas, visit the following web site:** <http://www.motorola.com/cqiss/index.shtml>.

**For additional information on exposure requirements or other training information, visit <http://www.motorola.com/rfhealth>.**

## **Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed as Fixed Site Control Stations**

If mobile radio equipment is installed at a fixed location and operated as a control station or as a fixed unit, the antenna installation must comply with the following requirements in order to ensure optimal performance and compliance with the RF energy exposure limits in the standards and guidelines listed on page 3:

- The antenna should be mounted outside the building on the roof or a tower if at all possible.
- As with all fixed site antenna installations, it is the responsibility of the licensee to manage the site in accordance with applicable regulatory requirements and may require additional compliance actions such as site survey measurements, signage, and site access restrictions in order to ensure that exposure limits are not exceeded.

## Electromagnetic Interference/Compatibility

**NOTE:** Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility. It may be necessary to conduct compatibility testing to determine if any electronic equipment used in or around vehicles or near fixed site antenna is sensitive to external RF energy or if any procedures need to be followed to eliminate or mitigate the potential for interaction between the radio transmitter and the equipment or device.

### Facilities

To avoid electromagnetic interference and/or compatibility conflicts, **turn off your radio in any facility where posted notices instruct you to do so.** Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

### Vehicles

To avoid possible interaction between the radio transmitter and any vehicle electronic control modules, for example, ABS, engine, or transmission controls, the radio should be installed only by an experienced installer and that the following precautions be used when installing the radio:

1. Refer to the manufacturer's instructions or other technical bulletins for recommendations on radio installation.
2. Before installing the radio, determine the location of the electronic control modules and their harnesses in the vehicle.
3. Route all radio wiring, including the antenna transmission line, as far away as possible from the electronic control units and associated wiring.

## Driver Safety

Check the laws and regulations on the use of radios in the area where you drive. Always obey them.

### **When using your radio while driving, please:**

- Give full attention to driving and to the road.
- Pull off the road and park before making or answering a call if driving conditions so require.

## Operational Warnings



WARNING

### **For Vehicles with an Air Bag**

**Do not mount or place a mobile radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.**

### **Potentially Explosive Atmospheres**

**Turn off your radio prior to entering any area with a potentially explosive atmosphere. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.**

**The areas with potentially explosive atmospheres include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles such as grain, dust or metal powders. Areas with potentially explosive atmospheres are often, but not always, posted.**



## **Blasting Caps and Blasting Areas**

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: “Turn off two-way radio.” Obey all signs and instructions.

For radios installed in vehicles fueled by liquefied petroleum gas, refer to the (U.S.) National Fire Protection Association standard, NFPA 58, for storage, handling, and/or container information. For a copy of the LP-gas standard, NFPA 58, contact the National Fire Protection Association, One Battery Park, Quincy, MA.