

**EN**

Product Safety and RF Exposure Manual for  
Portable Two-way Radios

**DE**

Produktsicherheit und HF-Strahlenschutzbedingungen  
für Handfunkgeräte

**FR**

Brochure de sécurité et d'exposition aux fréquences radio  
pour portatifs émetteurs-récepteurs

**IT**

Folletto de seguridad del producto e información sobre la exposición a  
la radiofrecuencia para transceptores bidireccionales portátiles

**ES**

Manuale per la sicurezza del prodotto e l'esposizione all'energia di  
radiofrequenza (RF) per le radio ricetrasmittenti portatili

**PR**

Folheto relativo à segurança do produto e à exposição à RF para  
rádios bidireccionais portáteis

**NL**

Productveiligheid en blootstelling aan radiogolven voor draagbare  
zendontvangers

**RU**

Абiт ђрђа i i аађi i аn i нe e аi ђаeнoаeр eђeо÷ааi i e  
ђааeи ÷аnоi оi i e y i ађаeè аeу i i ђoаeаi uо ђааeи нoаi oèe

**PL**

Broszura dotycz<sup>1</sup>ca bezpieczeñstwa i narażenia na dzia³anie promieniowania  
o czêstotliwoœci radiowej (energii RF) dla Radiotelefonów Przenoœnych

**TU**

Ürün Güvenliđi ve RF Enerji Yayılım Kitapçığı Telsizler içindir.





**MOTOROLA**

## **RF ENERGY EXPOSURE AND PRODUCT SAFETY GUIDE PORTABLE TWO WAY RADIOS, GENERAL POPULATION AND UNCONTROLLED ENVIRONMENTS**

**ATTENTION!** before using this radio, read this guide which contains important operating instructions for safe usage and rf energy awareness and control for compliance with applicable standards and regulations.

### **RF Energy Exposure Awareness and Control Information and Operational Instructions for Use**

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses radio frequency (RF) energy or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, sunlight and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which when used improperly, can cause biological damage. Very high levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards

for safe exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection.

All Motorola two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:

<http://www.fcc.gov/oet/rfsafety/rf-faqs.html>  
[www.who.int/en/](http://www.who.int/en/)  
[www.motorolasolutions.com/rfhealth](http://www.motorolasolutions.com/rfhealth)

### **Federal Communication Commission (FCC) Regulations (US Markets Only)**

Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Motorola two-way radio has a RF Exposure Product Label. Also, your Motorola user manual, or separate safety booklet includes information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

## Compliance with RF Exposure Standards

Your Motorola two-way radio is designed and tested to comply with a number of national and International standards and guidelines (listed below) for human exposure to radio frequency electromagnetic energy.

**This radio complies with the IEEE (FCC) and ICNIRP exposure limits for general population/uncontrolled RF exposure environments at operating duty factors of up to 50% talk-50% listen.** In terms of measuring RF energy for compliance with these exposure guidelines, **your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.**

**Note:** The approved batteries, supplied with this radio, are rated for a 5-5-90 duty factor (5% talk-5% listen-90% standby) even though this radio complies with FCC general population/uncontrolled exposure limits and may operate at duty factors of up to 50% talk.

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

- United States Federal Communications Commission (FCC), Code of Federal Regulations; 47 CFR et seq. & FCC, OET Bulletin 65
- Institute of Electrical and Electronic Engineers (IEEE) C95.1
- International Commission on Non-Ionizing Radiation Protection (ICNIRP)
- Ministry of Health (Canada) Safety Code 6 & Industry Canada RSS-102
- Australian Communications Authority Radiocommunications Standard et seq.
- ANATEL ANNEX to Resolution No. 303 et seq.

## RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations

To control your exposure and ensure compliance with the general population/uncontrolled environments exposure limits, always adhere to the following guidelines:

- User awareness instructions should accompany device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.

### Two-Way Radio Operation

- Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. Transmitting 50% of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance).
- In front of the face. Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keeping the radio at a proper distance is important to ensure compliance.



**Note:** RF exposures decrease with increasing distance from the antenna.

- Body Worn Operation. When worn on the body, always place the radio in a Motorola-approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of non-Motorola-approved accessories may result in exposure levels, which exceed the general

population/uncontrolled environment RF exposure limits.

- Use only Motorola-approved supplied or replacement antennas, batteries, and audio accessories. Use of non-Motorola-approved antennas, batteries, and accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or FCC).
- For a list of Motorola-approved accessories for your radio model, visit the following website: <http://www.motorolasolutions.com/governmentandenterprise>

## **Electromagnetic Interference/Compatibility**

**Note:** Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

### **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.

### **Aircraft**

When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

### **Medical Devices**

#### ***Pacemakers***

The Advanced Medical Technology Association (AdvaMed) recommends that a minimum separation of 6 inches (15 centimeters) be maintained between a

handheld wireless radio and a pacemaker. These recommendations are consistent with those of the U.S. Food and Drug Administration.

#### **Persons with pacemakers should:**

- ALWAYS keep the radio more than 6 inches (15 centimeters) from their pacemaker when the radio is turned ON.
- Not carry the radio in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference.
- Turn the radio OFF immediately if there is any reason to suspect that interference is taking place.

#### ***Hearing Aids***

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

#### ***Other Medical Devices***

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

## **Use of Communication Devices While Driving**

Always check the laws and regulations on the use of radios in the areas where you drive.

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call, if driving conditions or regulations so require.

## Acoustic Safety

Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.

To protect your hearing:

- Use the lowest volume necessary to do your job.
- Turn up the volume only if you are in noisy surroundings.
- Turn down the volume before adding headset or earpiece.
- Limit the amount of time you use headsets or earpieces at high volume.

When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear.

## OPERATIONAL WARNINGS



WARNING

**For Vehicle With Air Bags:**  
Refer to vehicle manufacturer's manual prior to installation of electronic equipment to avoid interference with air bag wiring.

**DO NOT** place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a portable 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.

## OPERATIONAL WARNINGS (CONTINUED)



**Potentially Explosive Atmospheres**  
(Explosive atmospheres refers to hazard classified locations that may contain hazardous gas, vapors, or dusts.)

Turn off your radio prior to entering any area with a potentially explosive atmosphere unless it is a portable radio type especially qualified for use in such areas as Intrinsically Safe (for example, Factory Mutual, CSA, UL, or CENELEC). DO NOT remove, install, or charge batteries in such areas. 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 referred to above 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.

## Operational Cautions



Caution

### Antennas

DO NOT use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

### Batteries

All batteries can cause property damage and/or bodily injury, such as burns, if a conductive material such as jewelry, keys, or beaded chains touches exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

## Repair



WARNING

### REPAIRS FOR MOTOROLA PRODUCTS WITH INTRINSICALLY SAFE APPROVAL ARE THE RESPONSIBILITY OF THE USER.

Repairs to a Motorola FM approved radio product should only be done at a location that has been FM audited under the FM 3605 repairs and service standard. Contact Motorola for assistance regarding repairs and service of Motorola intrinsically safe equipment.

A repair constitutes something done internally to the unit that would bring it back to its original condition.

Items not considered as repairs are those in which an action is performed on a unit which does not require the outer casing of the unit to be opened in a manner that exposes the internal electrical circuits of the unit.

#### ***Do Not Substitute Options or Accessories***

The Motorola communications equipment certified as intrinsically safe by the approving agency, (FM, UL, CSA, CENELEC) is tested as a complete system which consists of the listed agency Approved portable, Approved battery, and Approved accessories or options, or both. This Approved portable and battery combination must be strictly observed. There must be no substitution of items, even if the substitute has been previously Approved with a different Motorola communications equipment unit. Approved configurations are listed by the Approving Agency (FM, UL, CSA, CENELEC).

The Intrinsically Safe Approval Label affixed to radio refers to the intrinsically safe classification of that radio product, and the approved batteries that can be used with that system.

The manual PN referenced on the Intrinsically Safe Approval Label identifies the approved Accessories and or options that can be used with that portable radio unit.

Using a non-Motorola-intrinsically-safe battery and or accessory with the Motorola approved radio unit will void the intrinsically safe approval of that radio unit.



#### **European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive**

The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trashbin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trashbin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste. Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.