

EMI / RFI

Laboratory tests performed by the Food and Drug Administration (FDA) have shown that radio waves can cause unintended motion of electric scooters. Radio waves are a form of electromagnetic energy (EM). When electromagnetic energy adversely affects the operation of an electrical device, that adverse effect is called *Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI)*.

EMI/RFI FREQUENTLY ASKED QUESTIONS (FAQs)

The following FAQs summarize what you should know about EMI/RFI. Use this information to minimize the risk that EMI/RFI will adversely affect your scooter.

Where do radio waves come from?

Radio waves are emitted from the antennas of cellular phones, mobile two-way radios (such as walkie-talkies and CBs), radio stations, TV stations, amateur radio (HAM) transmitters, wireless computer links, microwave sources, and paging transmitters. Radio waves are a form of EM. Because EM is more intense closer to transmitting antennas (sources of emission), the EM fields from two-way radios are of special concern to electric scooter users.

If EMI/RFI affects my scooter, what kind of motion should I expect?

This is difficult to predict. The answer would depend on a number of factors:

- The strength of the radio waves.
- The construction of your particular scooter.
- The location of your scooter (whether it is on level ground or on an incline).
- Whether or not your scooter is in motion.

The motion of any electric scooter affected by EMI/RFI can be erratic. The scooter may come to a sudden stop or move in an uncontrolled manner. Also, it is possible for EMI/RFI to release the brakes of an electric scooter. Some intense EMI/RFI can even damage the control system components of an electric scooter.

Is there any way to know for certain whether or not radio waves are the cause of any unintended motion of my scooter?

Unfortunately, EMI/RFI may be difficult to recognize, since the signals from radio sources are invisible and may be intermittent. However, the FDA recommends that you report all incidents of unintended motion or unintended brake release of your electric scooter to the scooter's manufacturer and, if possible, determine whether or not there was a radio wave source nearby at the time of the incident.

One precaution you can take against inadvertent motion of your scooter is to make certain that you or someone else is not the cause of the unintended motion.

- Turn off your scooter by removing the key from the key switch when you are getting on or off of your scooter.
- Never leave the key in the key switch of an unattended scooter.

By following these steps, you greatly reduce the risk of you or anyone else inadvertently bumping the throttle control levers and causing the scooter to move unintentionally.

Each make and model of electric scooter differs in its ability to resist EMI/RFI. That is, each scooter has a particular level of resistance to EMI/RFI. This resistance is measured in volts per meter (V/m). A higher resistance level offers greater protection against EMI/RFI. In other words, an electric scooter with a high resistance level is less likely to be affected by a strong radio source than is an electric scooter with a low resistance level.

What is the FDA doing about the problem?

The FDA has written to electric scooter manufacturers and requested that those manufacturers test their new models of scooters to be certain that they provide a reasonable degree of resistance against EMI/RFI. The FDA has stated that all newly manufactured models of electric scooters should have a resistance level of at least 20 V/m. This resistance level provides a reasonable degree of protection against the common sources of EMI/RFI.

The FDA has also requested or recommended that:

- Electric scooter manufacturers clearly label new products with that product's resistance level or state that the resistance level is not known.
- The labeling or informational material supplied with new electric scooters must explain what the resistance level means and warn users about the possibility of EMI/RFI and how to avoid it.
- Electric scooter manufacturers undertake an educational program to inform electrical scooter users and their caregivers about the problems associated with EMI/RFI and about the actions they can take to minimize the risk of EMI/RFI.
- While there is no exact way to tell if your scooter is totally safe, an immunity level of 20 V/m (May 1994) is generally achievable and useful. This product has been tested and passed at an immunity level of 20 V/m. Adding accessories and components or modifying the unit may change the susceptibility to EMI/RFI.

What can I do to find out if my scooter is likely to be affected by EMI/RFI?

If you have had your scooter for some time and have not experienced any unintended motion, it is not likely that you will have a problem in the future. However, it is always possible that EMI problems could arise if you are close to a source of radio waves. Therefore, it is very important for you to be alert to this possibility. The scooter scooter meets or exceeds a resistance level of at least 20 V/m.

What can I do to reduce the risk of my scooter being affected by EMI/RFI?

Here are some precautions you can take:

- Do not turn on or use hand-held personal communications devices, such as citizen's band (CB) radios and cellular phones, while your scooter is turned on.
- Be aware of nearby radio wave transmitters, such as radio or TV stations and hand-held or mobile two-way radios. Try not to operate your scooter too close to those transmitters. For example, if you are on an electric scooter with a resistance level of at least 20 V/m, you should remain at least three feet from a hand-held two-way radio and at least ten feet from a mobile two-way radio.
- Be aware that adding accessories and/or components, or modifying your scooter in anyway, may change its EMI/RFI resistance level and may make it more susceptible to interference from radio wave sources.

What should I do if my scooter moves unexpectedly?

If unintended motion or unintended brake release occurs, turn off your scooter (by removing key) as soon as it is safe to do so.

If my scooter moves unintentionally, where should I report the incident?

Call our headquarters at 1-800-800-8586 to report the incident.