

SUMMARY

Electromagnetic Interference (EMI) is the disruption of normal operation of an electronic device when it is in the vicinity of an electromagnetic field created by another electronic device.

Polar heart rate monitors are commonly used to monitor heart rate during normal daily activity or during aerobic activities such as running and cycling. This article provides a brief overview of the Polar heart rate monitor components and describes the potential interaction between the monitor and Boston Scientific implantable pacemakers and defibrillators. It also provides suggestions to minimize potential interactions.

Products Referenced

All CRM ICDs, CRT-Ds, CRT-Ps,
and Pacing Systems

Products referenced herein may not be approved in all geographies. For comprehensive information on device operation and indications for use, reference the appropriate product labeling.

CRT-D: Cardiac Resynchronization Therapy Defibrillator
CRT-P: Cardiac Resynchronization Therapy Pacemaker
ICD: Implantable Cardioverter Defibrillator

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Polar Heart Rate Monitors and Implanted Medical Devices

Description

Polar wireless heart rate monitors are commercially available, non-prescription devices designed to monitor intrinsic heart rate. They are comprised of a transmitter (chest strap) and receiver (wristwatch). The chest strap, which includes two electrodes housed within an elastic band, is designed to detect each heartbeat and send a corresponding low-frequency electromagnetic signal directly to the wristwatch. The wristwatch then displays the current heart rate.

Polar heart rate monitor considerations

Occasionally, a pacemaker or defibrillator patient may wear a heart rate monitor to monitor their heart rate during exercise. Because the signals generated by the chest strap transmitter are very low energy, Polar heart rate monitors should not interfere with the functionality of Boston Scientific implantable pulse generators. However, as a precaution, Polar instructions for use state that persons who have an implanted medical device use the Polar heart rate monitor at their own risk. Polar recommends an exercise test under doctor's supervision to ensure the safety and reliability of the simultaneous use of the implanted device and the heart rate monitor.

It is possible that the heart rate monitor may report an inaccurate heart rate when the pulse generator delivers pacing pulses (stimuli). This can happen if the monitor detects stimuli in addition to heart activity. If the pulse generator is not delivering pacing stimuli, the heart rate monitor should function normally.

Minimizing potential interference

If an implanted pacemaker or defibrillator is suspected of interfering with the use of Polar heart rate monitors, Boston Scientific recommends that the electrodes within the heart rate monitor chest strap be placed on the side of the torso *opposite* the implant site.

NOTE: *Boston Scientific has not evaluated wireless heart rate monitors made by manufacturers other than Polar.*