



Effects of Cell Phones and Cell Towers on Abbott Implantable Cardiac Rhythm Devices

Background

Abbott pacemakers (PMs) and implantable cardioverter defibrillators (ICDs) have been tested for compatibility with handheld wireless transmitters in accordance with requirements of ISO 14117. Based on the results of this testing, cellular phones should not interfere with Abbott's PMs and ICDs utilized in accordance with their Instructions for Use. Patients should not carry a cellular phone in a breast pocket or place directly over the pulse generator.

Cell phones may incorporate and generate magnetic fields. Abbott PMs and ICDs are designed to ignore magnetic fields < 10 gauss or 1mT , as is the industry standard for all manufacturers (ISO 14117). This is true for all manufacturers that produce devices subject this standard. Newer cell phones, such as the iPhone 12 are incorporating larger magnets and if brought in close proximity with an ICD or PM may trigger magnet mode. This is consistent with expected behavior of magnetic field interaction with device operation if placed directly over the implanted ICD or PM device.

Abbott PMs and ICDs at default settings are designed to enter magnet mode as part of the device's normal operation. Magnet Mode is a programmable setting (On, Off/Ignore) that designates how the device will respond when exposed to a strong enough magnetic field. During the continuous application of a magnet, ICDs will inhibit tachyarrhythmia detection and suspend HV therapy. PMs will pace asynchronously (VOO/DOO) while a magnet is applied. Upon magnet removal, the PM/ICD will immediately return to normal operation.

Cellular towers used for the transmission of cell phone signals are regularly spaced throughout the world. These towers are typically 30 or more feet above ground and produce approximately 1-30 Watts of power. Interference from these low transmitting power towers is unlikely and no interference has been reported.

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Potential Effects

A summary of potential effects is provided in the table below and is based on device testing at Abbott, clinical experience and/or a review of the scientific literature.

Potential Effects	Estimated Frequency	
	Pacemakers	ICDs
CELLULAR TOWERS: No Interference	N/A	N/A
CELLULAR COMMUNICATION: No Interference**	N/A	N/A
MAGNETIC FIELD: ICD – Inhibition of HV therapy	N/A	Uncommon
MAGNETIC FIELD: PG – Asynchronous pacing/EGM trigger	Uncommon	N/A

**Microny/Regency PM: Asynchronous pacing/inhibition possible if < 6" (Uncommon)

Recommendations

Abbott PMs/ICDs have safeguards and are tested in accordance with ISO standards to allow for normal use of cellular phones and electronic devices. Cellular phones and other electronic devices should not be placed directly over the PM/ICD such as in a shirt or jacket pocket and should be kept at least 6 inches away from the implanted device. This is consistent with the guidance in the Instructions For Use for Abbott devices. Abbott's recommendations remain unchanged.

If you have any questions about this information, please contact Technical Services.

REFERENCE:

Life Saving Therapy Inhibition by Phones Containing Magnets. Greenberg JC, Altawil MR, Singh G. Heart Rhythm 2021 Jan 5;S1547-5271(20)31227-3. doi: 10.1016/j.hrthm.2020.12.032

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