

Radiofrequency Ablation and Implantable Device Systems

BACKGROUND INFORMATION

Radiofrequency (RF) ablation is a minimally invasive treatment method in which a physician uses a small amount of RF current to damage or destroy selected tissue areas within the body. RF ablation is often used to treat cardiac arrhythmias, chronic pain and benign or cancerous tumors.

High frequency signals generated by RF ablation equipment may interact with implanted pacemakers or defibrillators. This article describes potential interactions between RF ablation and Boston Scientific implantable pacemakers and defibrillators, and provides suggestions to minimize potential interactions.

ICD: Implantable Cardioverter Defibrillator

CRT-D: Cardiac Resynchronization Therapy Defibrillator

CRT-P: Cardiac Resynchronization Therapy Pacemaker

CRM PRODUCTS REFERENCED*

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

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

CRM CONTACT INFORMATION

Technical Services – U.S.
1.800.CARDIAC (227.3422)
Tech.Services@bsci.com

Technical Services – Europe
+32 2 416 7222
eurtechservice@bsci.com

LATITUDE Clinician Support
1.800.CARDIAC (227.3422)
latitude@bsci.com

Patient Services
1.866.484.3268 – U.S. and Canada
001.651.582.4000 – International

Listed below are potential interactions, programming mitigations, and methods for minimizing interactions whenever RF ablation is used with pacemaker and/or defibrillator patients.

Products	Potential interactions	Programming mitigations
ICDs and CRT-Ds	<ul style="list-style-type: none"> ▪ Asynchronous pacing ▪ Inhibition of pacing ▪ Inappropriate shock therapy ▪ Changes in pacing thresholds 	<ul style="list-style-type: none"> ▪ Deactivate tachy therapy. <ul style="list-style-type: none"> ➢ Program the device Tachy Mode to Electrocautery Protection Mode or to Off-Electrocautery, if available. In this mode, tachy detection and therapy features are deactivated, and the pacing mode switches to VOO, AOO, or DOO. or ➢ Program the device Tachy Mode to Off <i>or</i> place a magnet over the device to temporarily inhibit or deactivate tachy therapy.^a The brady pacing mode remains as programmed.
Pacemakers and CRT-Ps	<ul style="list-style-type: none"> ▪ Asynchronous pacing ▪ Inhibition of pacing ▪ Pacemaker reset ▪ Ventricular pacing up to the Maximum Tracking Rate (MTR) ▪ Changes in pacing thresholds 	<ul style="list-style-type: none"> ▪ A magnet can be placed over the device to pace asynchronously at the magnet rate.^b or ▪ The device can be programmed to an asynchronous mode (AOO/VOO/DOO).
<p>^aUse of a magnet depends on feature availability and device programming. For additional information, refer to the A Closer Look articles entitled <i>Using a Magnet to Suspend or Deactivate Tachy Therapy in ICDs and CRT-Ds</i> and <i>Programming a Boston Scientific Defibrillator to Inhibit Tachy Therapy Using a Magnet</i>.</p> <p>^bThe following Intermedics pacemakers remain in magnet mode for only 64 full pacing cycles: COSMOS, DART, DASH, GALAXY, MARATHON, MOMENTUM®, NOVA, QUANTUM® II/III, RELAY, STRIDE®, SUPRIMA, and UNITY.</p>		

Precautions for RF ablation:

- Prepare/program the pulse generator appropriately for the use of RF ablation (see Table).
- Monitor the patient and have temporary pacing equipment, external defibrillation equipment, and knowledgeable medical personnel available.
- Avoid direct contact between the ablation catheter and the implanted device and lead(s).
- Keep the current path (electrode tip to ground plate) as far away from the implanted device and lead(s) as possible.
- Consider the use of external pacing support for pacemaker-dependent patients (i.e., using internal or external support methods).
- Verify lead integrity by comparing pre- and post-ablation measurements for sensing threshold, pacing threshold, and impedance.
- If any programming changes were made, the pulse generator should be reprogrammed back to the desired settings following the procedure. **Remember to reactivate the Tachy Mode on ICDs and CRT-Ds.**