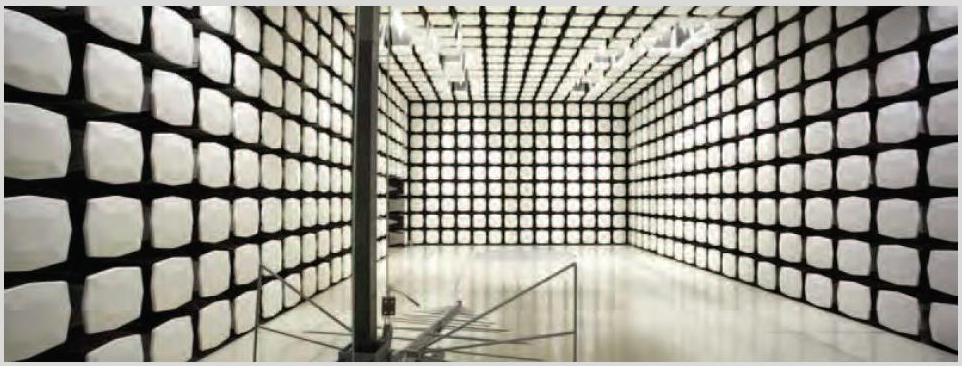
# Boston Scientific Corporation

**VISIONIST™**

**LP0002:2018**

**Inductive Radio**

**Report # BSTN0971**



NVLAP LAB CODE: 200881-0

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# CERTIFICATE OF TEST

**Last Date of Test: February 3, 2014**
**Boston Scientific Corporation**
**EUT: VISIONIST™**

## Radio Equipment Testing

### Standards

| Specification | Method |
|---|---|
| LP0002 2018[1] | LP0002 2018[1] |

**Note 1**: At the date of test, only LP0002 2011 was available. However, for this device, the technical requirements remain unchanged from the 2016 version to the current 2018 version. Therefore, the test lab determined that the original test data shows compliance with LP0002 2018.

### Results

| Method Clause | Test Description | Applied | Results | Comments |
|---|---|---|---|---|
| Appendix I, II.(II) | Powerline Conducted Emissions | No | N/A | Not required for a battery powered EUT. |
| Appendix I, II.(III, IV) | Field Strength of Fundamental | Yes | Pass | |
| Appendix I, II.(III, IV) | Spurious Radiated Emissions | Yes | Pass | |

### Deviations From Test Standards

None

On July 1, 2016, Northwest EMC was purchased by Element Materials Technology. All laboratory accreditations, designations, and recognitions were transferred from Northwest EMC to Element Materials Technology. No changes were made to the facilities, equipment, procedures, or personnel. This test report contains test data produced by Northwest EMC prior to the purchase on July 1, 2016, and by Element Materials Technology after that date. All the test data in this test report is accredited and maintains the same recognition as described herein.

### Approved By:

*Eric Brandon, Department Manager*

***Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.***

# REVISION HISTORY

| Revision Number | Description | Date (yyyy-mm-dd) | Page Number |
|---|---|---|---|
| 00 | None | | |

# ACCREDITATIONS AND AUTHORIZATIONS

## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

## Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

## European Union

**European Commission** – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

## Korea

**MSIT / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

## Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

## Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

## Vietnam

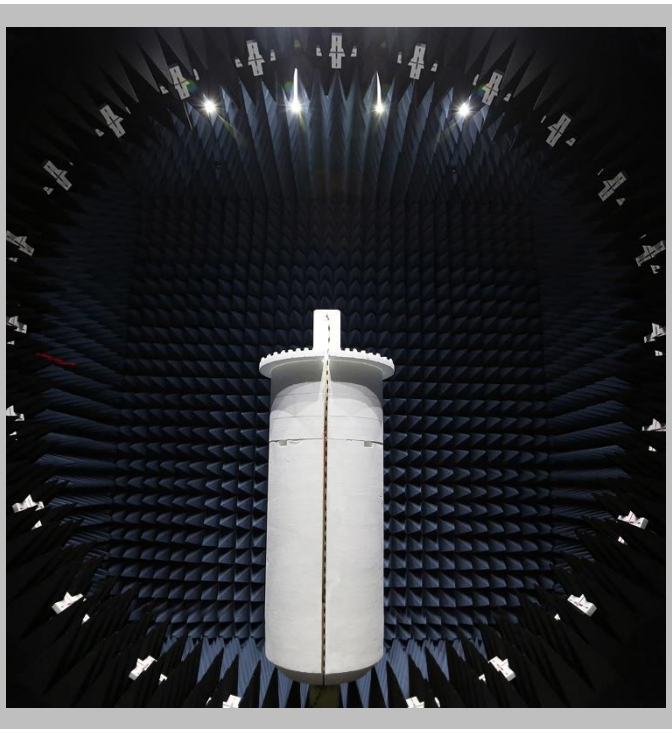
**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

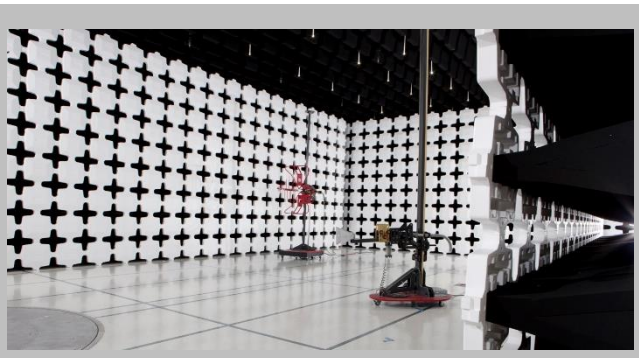
## SCOPE

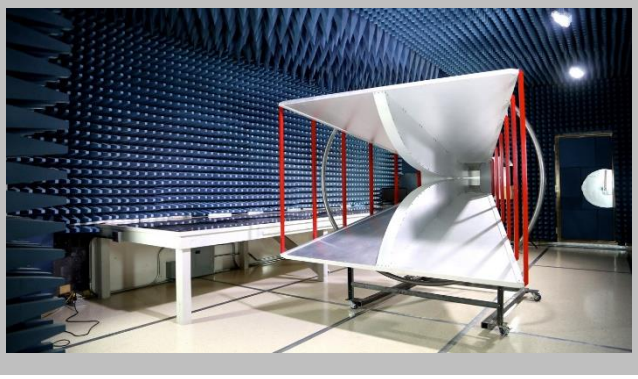
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

# FACILITIES

| California | Minnesota | Oregon | Texas | Washington |
|---|---|---|---|---|
| Labs OC01-17<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918 | Labs MN01-10<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612)-638-5136 | Labs EV01-12<br>6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | Labs TX01-09<br>3801 E Plano Pkwy<br>Plano, TX 75074<br>(469) 304-5255 | Labs NC01-05<br>19201 120th Ave NE<br>Bothell, WA 98011<br>(425)984-6600 |
| **NVLAP** | | | | |
| NVLAP Lab Code: 200676-0 | NVLAP Lab Code: 200881-0 | NVLAP Lab Code: 200630-0 | NVLAP Lab Code:201049-0 | NVLAP Lab Code: 200629-0 |
| **Innovation, Science and Economic Development Canada** | | | | |
| 2834B-1, 2834B-3 | 2834E-1, 2834E-3 | 2834D-1 | 2834G-1 | 2834F-1 |
| **BSMI** | | | | |
| SL2-IN-E-1154R | SL2-IN-E-1152R | SL2-IN-E-1017 | SL2-IN-E-1158R | SL2-IN-E-1153R |
| **VCCI** | | | | |
| A-0029 | A-0109 | A-0108 | A-0201 | A-0110 |
| **Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA** | | | | |
| US0158 | US0175 | US0017 | US0191 | US0157 |







# MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

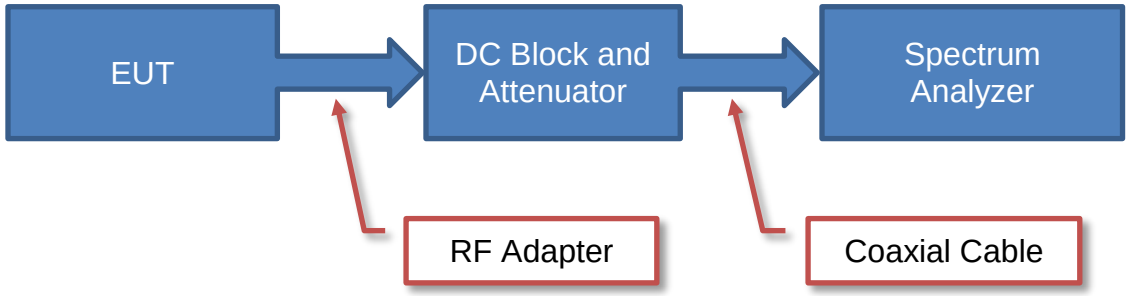
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

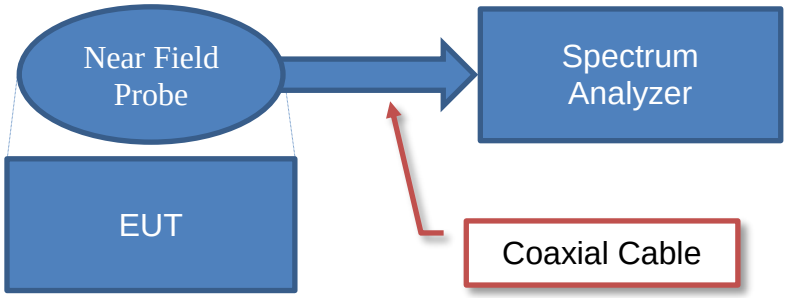
| Test | + MU | - MU |
|---|---|---|
| Frequency Accuracy | 0.0007% | -0.0007% |
| Amplitude Accuracy (dB) | 1.2 dB | -1.2 dB |
| Conducted Power (dB) | 1.2 dB | -1.2 dB |
| Radiated Power via Substitution (dB) | 0.7 dB | -0.7 dB |
| Temperature (degrees C) | 0.7°C | -0.7°C |
| Humidity (% RH) | 2.5% RH | -2.5% RH |
| Voltage (AC) | 1.0% | -1.0% |
| Voltage (DC) | 0.7% | -0.7% |
| Field Strength (dB) | 5.2 dB | -5.2 dB |
| AC Powerline Conducted Emissions (dB) | 2.4 dB | -2.4 dB |

# Test Setup Block Diagrams

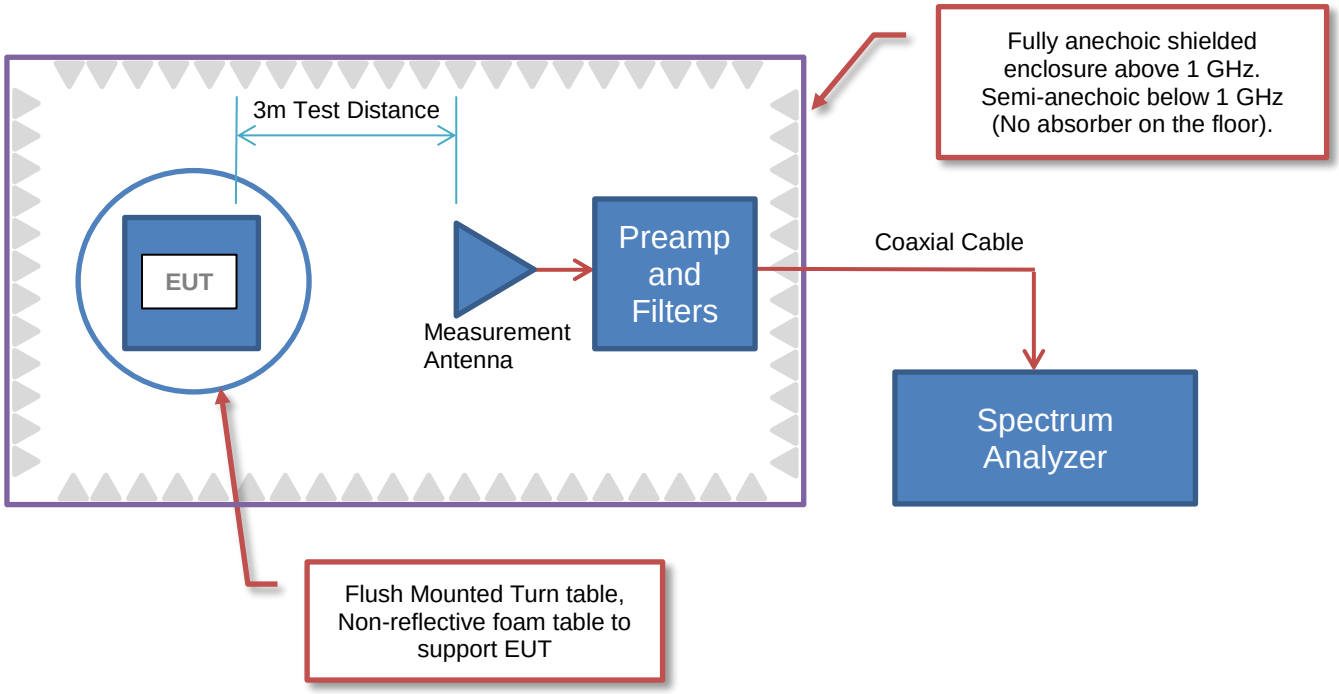
## Antenna Port Conducted Measurements




## Near Field Test Fixture Measurements




## Spurious Radiated Emissions



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

| | |
|---|---|
| **Company Name:** | Boston Scientific Corporation |
| **Address:** | 4100 Hamline Avenue |
| **City, State, Zip:** | St. Paul, MN 55014 |
| **Test Requested By:** | Jim Kippola |
| **EUT:** | VISIONIST™ |
| **First Date of Test:** | February 3, 2014 |
| **Last Date of Test:** | February 3, 2014 |
| **Receipt Date of Samples:** | February 3, 2014 |
| **Equipment Design Stage:** | Production |
| **Equipment Condition:** | No Damage |
| **Purchase Authorization:** | Verified |

## Information Provided by the Party Requesting the Test

| **Functional Description of the EUT:** |
|---|
| The VISIONIST ™ is an implantable Pacemaker that transmits in the MICS band of 402-405 MHz and has backup communication using inductive communications at 57kHz. |

| **Client Justification:** |
|---|
| All devices in these families incorporate the identical MedRadio design. |

| **Testing Objective:** |
|---|
| To demonstrate compliance of the inductive portion of the device to Taiwan specifications. |

# CONFIGURATIONS

## Configuration BSTN0453- 1

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Implant Inductive Radio | Boston Scientific Corporation | ACCOLADE / L331 | 417249 |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| IS1 Lead, Model: 4063, SN: 305813 | No | 45cm | No | Implant Inductive Radio | Tissue Simulant |
| IS1 Lead, Model: 45, SN: 28782266 | No | 44cm | No | Implant Inductive Radio | Tissue Simulant |
| **PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.** | | | | | |

# CONFIGURATIONS

## Configuration BSTN0453- 2

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Implant Inductive Radio | Boston Scientific Corporation | ACCOLADE / L331 | 417250 |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| IS1 Lead, Model: 4063, SN: 305813 | No | 45cm | No | Implant Inductive Radio | Tissue Simulant |
| IS1 Lead, Model: 45, SN: 28782266 | No | 44cm | No | Implant Inductive Radio | Tissue Simulant |
| **PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.** | | | | | |

# CONFIGURATIONS

## Configuration BSTN0453- 3

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Implant Inductive Radio | Boston Scientific Corporation | ACCOLADE / L331 | 417251 |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| IS1 Lead, Model: 4063, SN: 305813 | No | 45cm | No | Implant Inductive Radio | Tissue Simulant |
| IS1 Lead, Model: 45, SN: 28782266 | No | 44cm | No | Implant Inductive Radio | Tissue Simulant |
| **PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.** | | | | | |

# MODIFICATIONS

## Equipment Modifications

| Item | Date | Test | Modification | Note | Disposition of EUT |
|---|---|---|---|---|---|
| 1 | 2/3/2014 | Field Strength of Fundamental | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 2 | 2/3/2014 | Spurious Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

# FIELD STRENGTH OF FUNDAMENTAL

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

## MODES OF OPERATION

Transmitting inductive at 57 kHz, all ones (CW).

## POWER SETTINGS INVESTIGATED

Battery

## CONFIGURATIONS INVESTIGATED

BSTN0453 - 1
BSTN0453 - 2
BSTN0453 - 3

## FREQUENCY RANGE INVESTIGATED

| | | | |
|---|---|---|---|
| Start Frequency | 9 kHz | Stop Frequency | 490 kHz |

## SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

## TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Antenna, Loop | ETS Lindgren | 6502 | AOB | 2/20/2013 | 24 mo |
| MN04 Cables | ESM Cable Corp. | MN04 Horn Cables | MNE | 4/10/2013 | 12 mo |
| Spectrum Analyzer | Agilent | E4440A | AFG | 5/16/2012 | 24 mo |

## MEASUREMENT BANDWIDTHS

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

## TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal planes, the EUT and/or associated antenna is positioned in 3 orthogonal planes (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

As outlined in 15.209(e) and 15.31(f)(2), measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

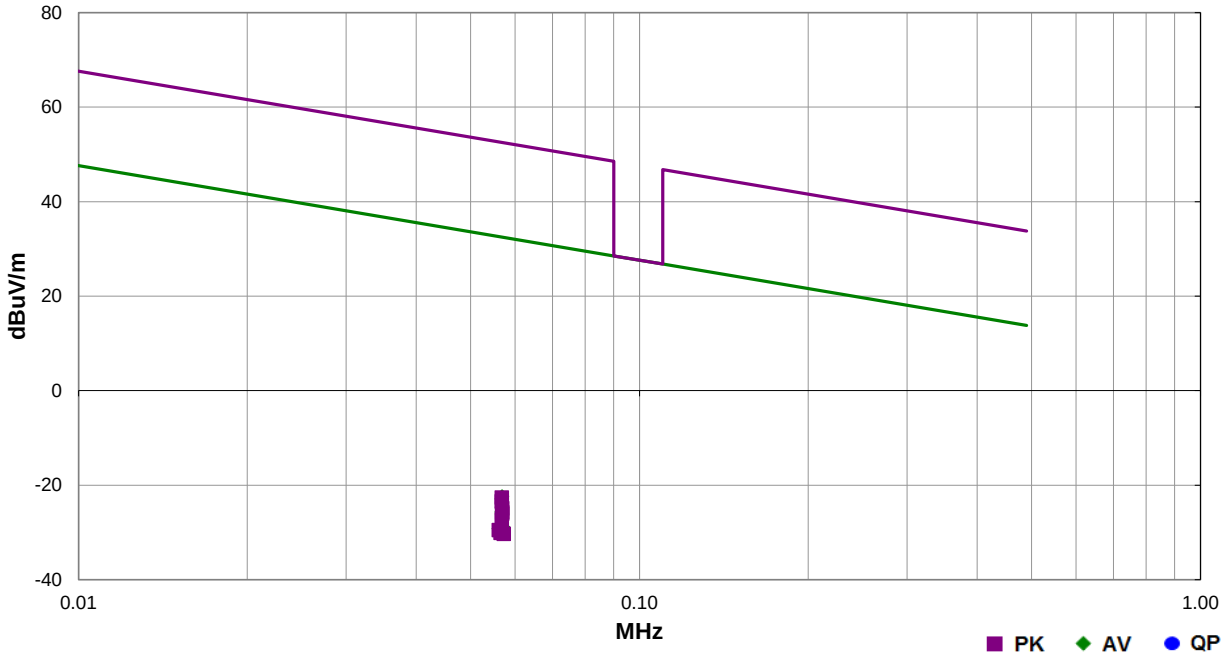
If there are no detectable emissions above the noise floor, the data included will show noise floor measurements for reference only.

# FIELD STRENGTH OF FUNDAMENTAL

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417249 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 1 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, all ones (CW). | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | None | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 1 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



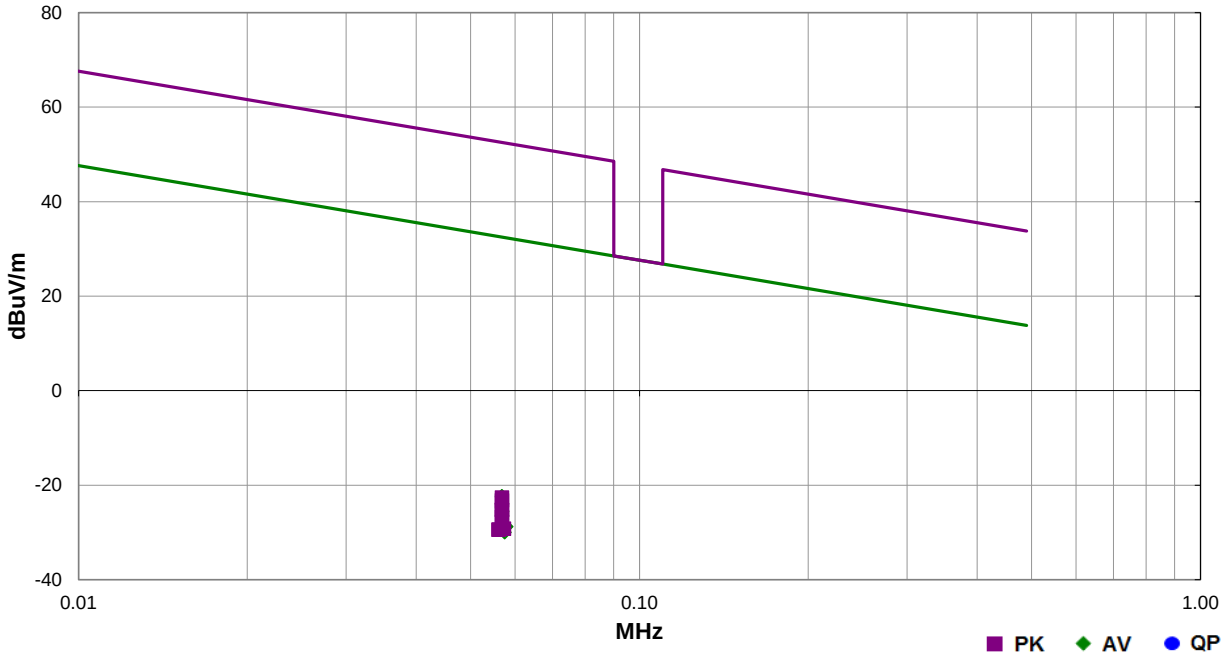

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.057 | 45.1 | 12.5 | 1.0 | 11.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -22.4 | 32.5 | -54.9 | EUT on Side |
| 0.057 | 44.6 | 12.5 | 1.0 | 169.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -22.9 | 32.5 | -55.4 | EUT Vertical |
| 0.057 | 42.6 | 12.5 | 1.0 | 96.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -24.9 | 32.5 | -57.4 | EUT on Side |
| 0.057 | 41.9 | 12.5 | 1.0 | 58.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -25.6 | 32.5 | -58.1 | EUT Horizontal |
| 0.057 | 41.8 | 12.5 | 1.0 | 40.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -25.7 | 32.5 | -58.2 | EUT Vertical |
| 0.057 | 41.1 | 12.5 | 1.0 | 88.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -26.4 | 32.5 | -58.9 | EUT Horizontal |
| 0.057 | 38.5 | 12.5 | 1.0 | 58.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -29.0 | 32.4 | -61.4 | EUT Horizontal |
| 0.057 | 38.4 | 12.5 | 1.0 | 354.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -29.1 | 32.5 | -61.6 | EUT Vertical |
| 0.056 | 38.3 | 12.5 | 1.0 | 312.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -29.2 | 32.6 | -61.8 | EUT on Side |
| 0.057 | 44.9 | 12.5 | 1.0 | 11.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -22.6 | 52.5 | -75.1 | EUT on Side |
| 0.057 | 44.1 | 12.5 | 1.0 | 169.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -23.4 | 52.5 | -75.9 | EUT Vertical |
| 0.057 | 42.6 | 12.5 | 1.0 | 96.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -24.9 | 52.5 | -77.4 | EUT on Side |
| 0.057 | 41.8 | 12.5 | 1.0 | 40.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -25.7 | 52.5 | -78.2 | EUT Vertical |
| 0.057 | 41.5 | 12.5 | 1.0 | 58.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -26.0 | 52.5 | -78.5 | EUT Horizontal |
| 0.057 | 40.2 | 12.5 | 1.0 | 88.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -27.3 | 52.5 | -79.8 | EUT Horizontal |
| 0.056 | 38.0 | 12.5 | 1.0 | 312.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -29.5 | 52.6 | -82.1 | EUT on Side |
| 0.057 | 37.4 | 12.5 | 1.0 | 354.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -30.1 | 52.5 | -82.6 | EUT Vertical |
| 0.057 | 37.2 | 12.5 | 1.0 | 58.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -30.3 | 52.4 | -82.7 | EUT Horizontal |

# FIELD STRENGTH OF FUNDAMENTAL

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417250 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, all ones (CW). | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | None | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 7 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



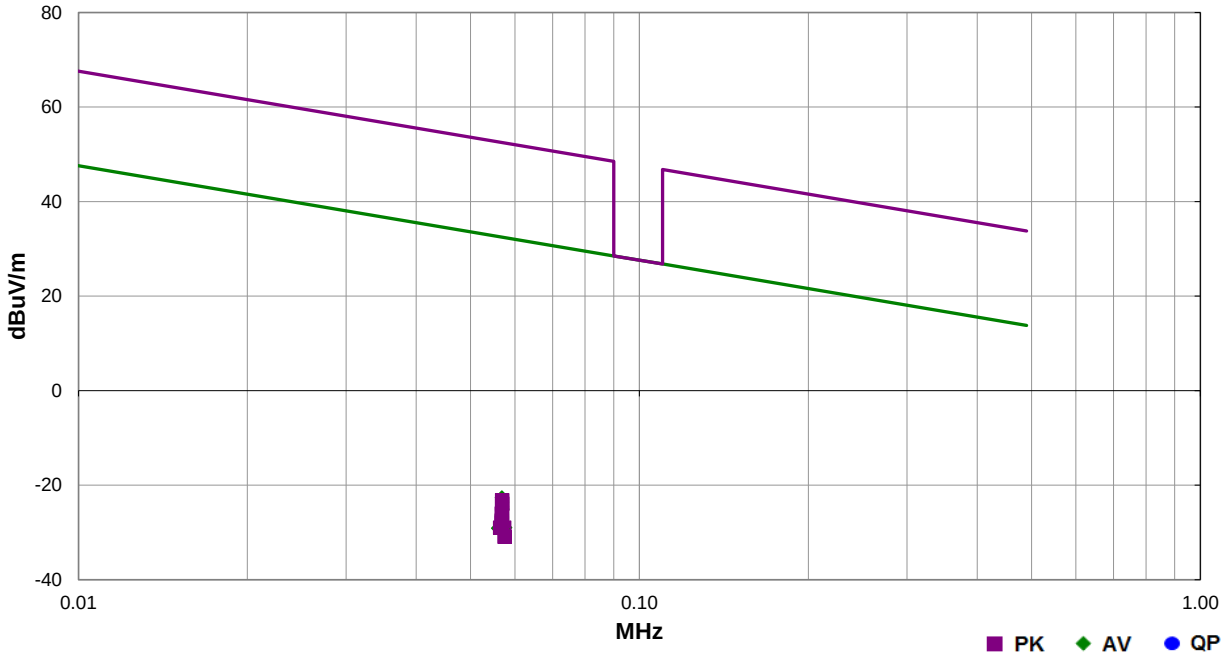

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.057 | 45.2 | 12.5 | 1.0 | 196.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -22.3 | 32.5 | -54.8 | EUT on Side |
| 0.057 | 45.0 | 12.5 | 1.0 | 4.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -22.5 | 32.5 | -55.0 | EUT Vertical |
| 0.057 | 42.8 | 12.5 | 1.0 | 265.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -24.7 | 32.5 | -57.2 | EUT on Side |
| 0.057 | 42.6 | 12.5 | 1.0 | 86.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -24.9 | 32.5 | -57.4 | EUT Vertical |
| 0.057 | 41.9 | 12.5 | 1.0 | 160.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -25.6 | 32.5 | -58.1 | EUT Horizontal |
| 0.057 | 41.0 | 12.5 | 1.0 | 2.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -26.5 | 32.5 | -59.0 | EUT Horizontal |
| 0.057 | 38.9 | 12.5 | 1.0 | 341.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -28.6 | 32.4 | -61.0 | EUT Horizontal |
| 0.058 | 38.7 | 12.5 | 1.0 | 202.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -28.8 | 32.3 | -61.1 | EUT Vertical |
| 0.058 | 37.5 | 12.5 | 1.0 | 54.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -30.0 | 32.4 | -62.4 | EUT on Side |
| 0.057 | 44.9 | 12.5 | 1.0 | 4.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -22.6 | 52.5 | -75.1 | EUT Vertical |
| 0.057 | 44.3 | 12.5 | 1.0 | 196.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -23.2 | 52.5 | -75.7 | EUT on Side |
| 0.057 | 42.3 | 12.5 | 1.0 | 86.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -25.2 | 52.5 | -77.7 | EUT Vertical |
| 0.057 | 42.3 | 12.5 | 1.0 | 265.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -25.2 | 52.5 | -77.7 | EUT on Side |
| 0.057 | 40.8 | 12.5 | 1.0 | 160.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -26.7 | 52.5 | -79.2 | EUT Horizontal |
| 0.057 | 39.7 | 12.5 | 1.0 | 2.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -27.8 | 52.5 | -80.3 | EUT Horizontal |
| 0.057 | 38.3 | 12.5 | 1.0 | 202.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -29.2 | 52.4 | -81.6 | EUT Vertical |
| 0.056 | 38.1 | 12.5 | 1.0 | 341.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -29.4 | 52.6 | -82.0 | EUT Horizontal |
| 0.056 | 38.1 | 12.5 | 1.0 | 54.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -29.4 | 52.6 | -82.0 | EUT on Side |

# FIELD STRENGTH OF FUNDAMENTAL

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417251 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 3 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, all ones (CW). | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | None | | | | |

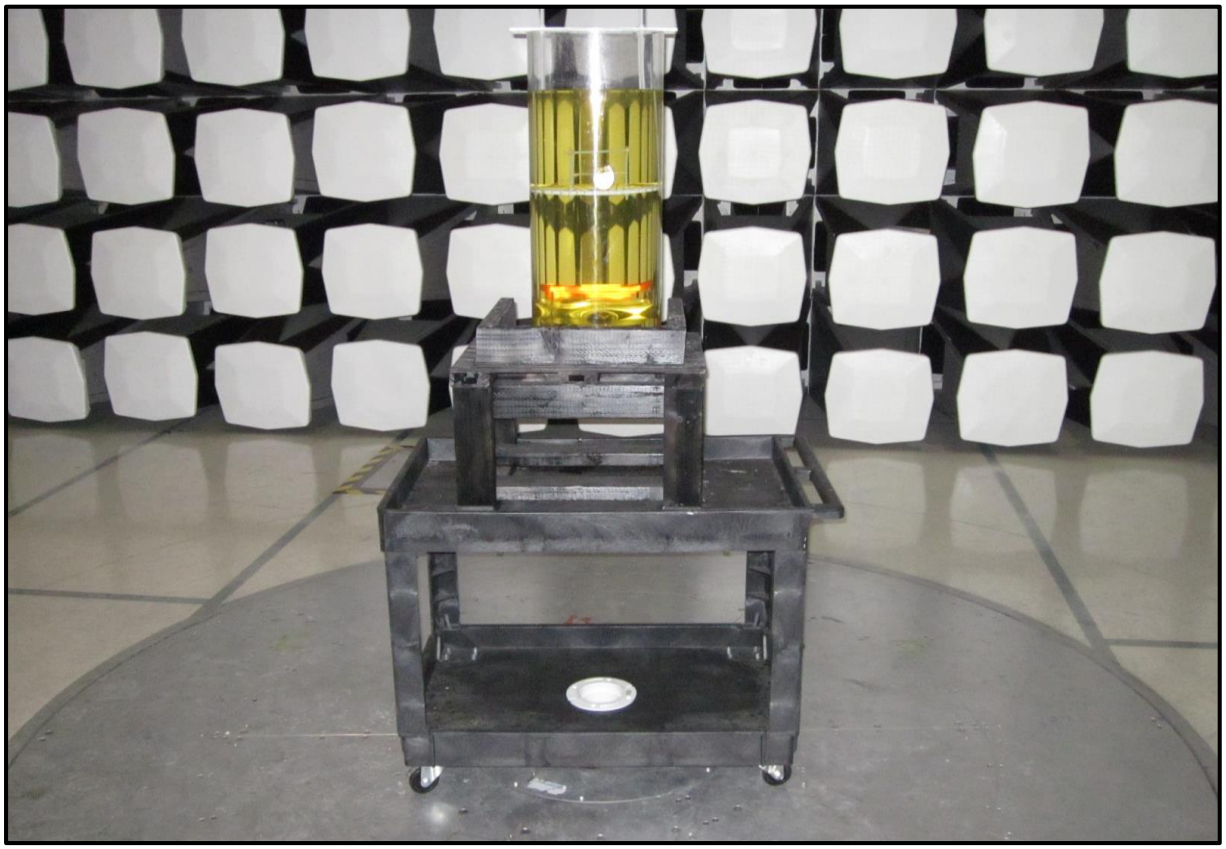
| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

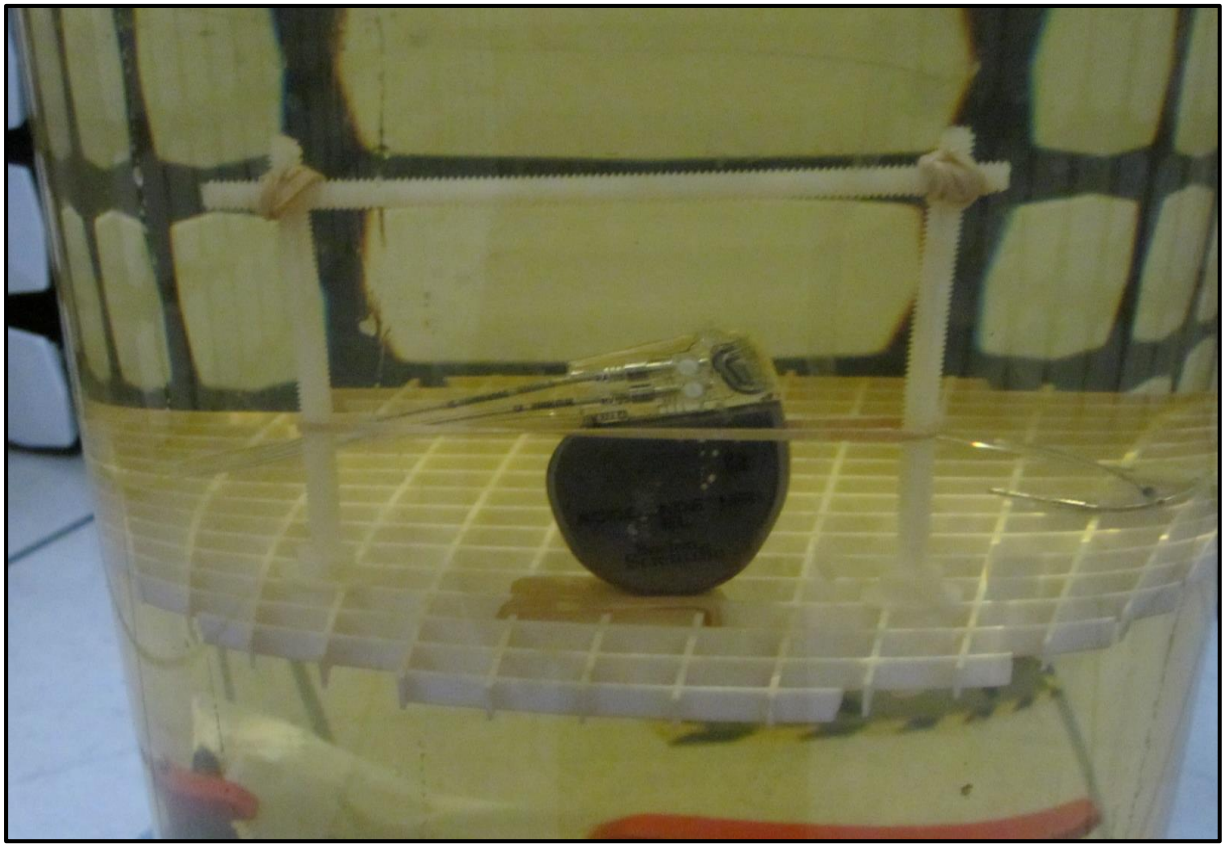
| **Run #** | 11 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



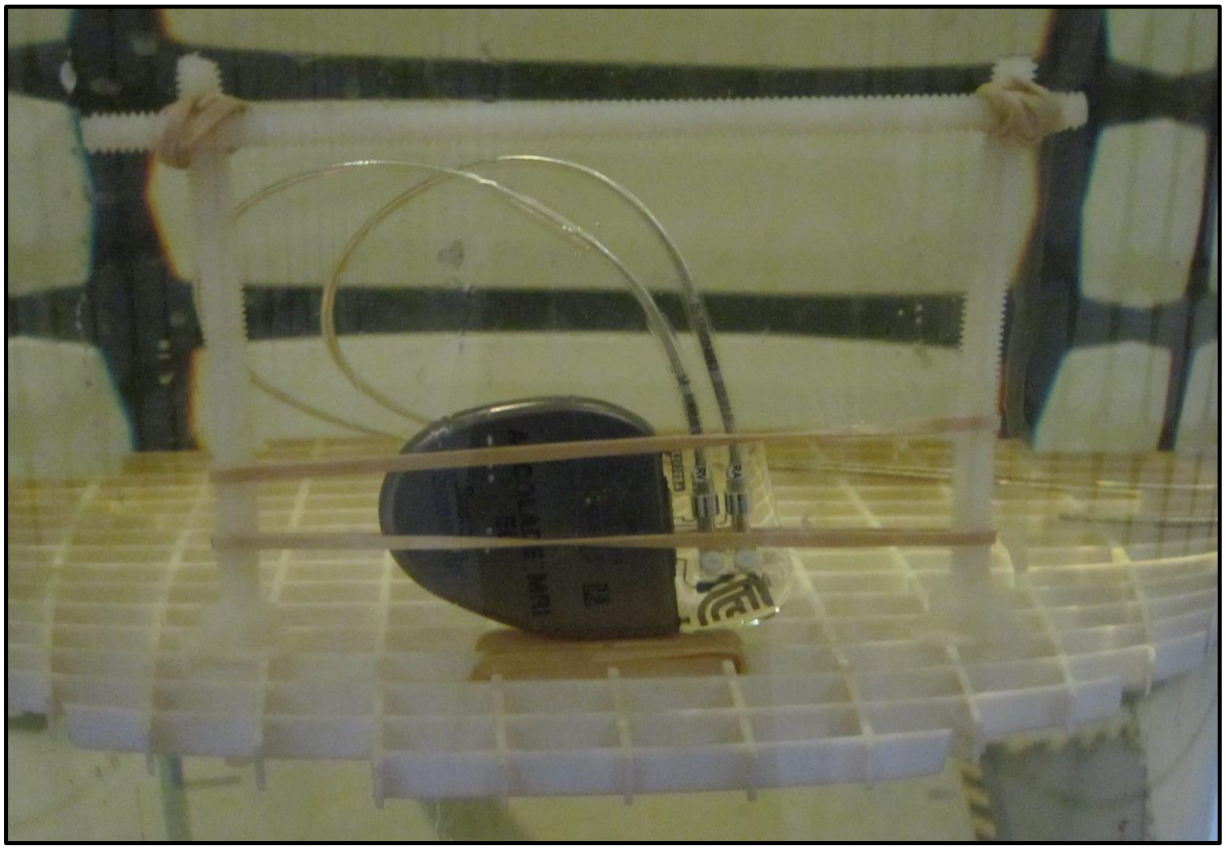

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.057 | 44.9 | 12.5 | 1.0 | 1.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -22.6 | 32.5 | -55.1 | EUT on Side |
| 0.057 | 43.9 | 12.5 | 1.0 | 183.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -23.6 | 32.5 | -56.1 | EUT Vertical |
| 0.057 | 42.4 | 12.5 | 1.0 | 287.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -25.1 | 32.5 | -57.6 | EUT Vertical |
| 0.057 | 42.1 | 12.5 | 1.0 | 86.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -25.4 | 32.5 | -57.9 | EUT on Side |
| 0.057 | 41.5 | 12.5 | 1.0 | 86.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -26.0 | 32.5 | -58.5 | EUT on Side |
| 0.057 | 41.1 | 12.5 | 1.0 | 329.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -26.4 | 32.5 | -58.9 | EUT Horizontal |
| 0.057 | 40.1 | 12.5 | 1.0 | 269.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -27.4 | 32.5 | -59.9 | EUT Horizontal |
| 0.058 | 38.5 | 12.5 | 1.0 | 104.0 | 3.0 | 0.0 | Perp to GND | AV | -80.0 | -29.0 | 32.4 | -61.4 | EUT Horizontal |
| 0.057 | 38.5 | 12.5 | 1.0 | 325.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -29.0 | 32.5 | -61.5 | EUT on Side |
| 0.056 | 38.4 | 12.5 | 1.0 | 112.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -29.1 | 32.6 | -61.7 | EUT Vertical |
| 0.057 | 38.2 | 12.5 | 1.0 | 325.0 | 3.0 | 0.0 | Par to GND | AV | -80.0 | -29.3 | 32.5 | -61.8 | EUT on Side |
| 0.057 | 44.3 | 12.5 | 1.0 | 1.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -23.2 | 52.5 | -75.7 | EUT on Side |
| 0.057 | 43.6 | 12.5 | 1.0 | 183.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -23.9 | 52.5 | -76.4 | EUT Vertical |
| 0.057 | 41.5 | 12.5 | 1.0 | 287.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -26.0 | 52.5 | -78.5 | EUT Vertical |
| 0.057 | 40.0 | 12.5 | 1.0 | 329.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -27.5 | 52.5 | -80.0 | EUT Horizontal |
| 0.057 | 39.5 | 12.5 | 1.0 | 269.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -28.0 | 52.5 | -80.5 | EUT Horizontal |
| 0.056 | 38.5 | 12.5 | 1.0 | 112.0 | 3.0 | 0.0 | Par to GND | PK | -80.0 | -29.0 | 52.6 | -81.6 | EUT Vertical |
| 0.057 | 36.6 | 12.5 | 1.0 | 104.0 | 3.0 | 0.0 | Perp to GND | PK | -80.0 | -30.9 | 52.4 | -83.3 | EUT Horizontal |

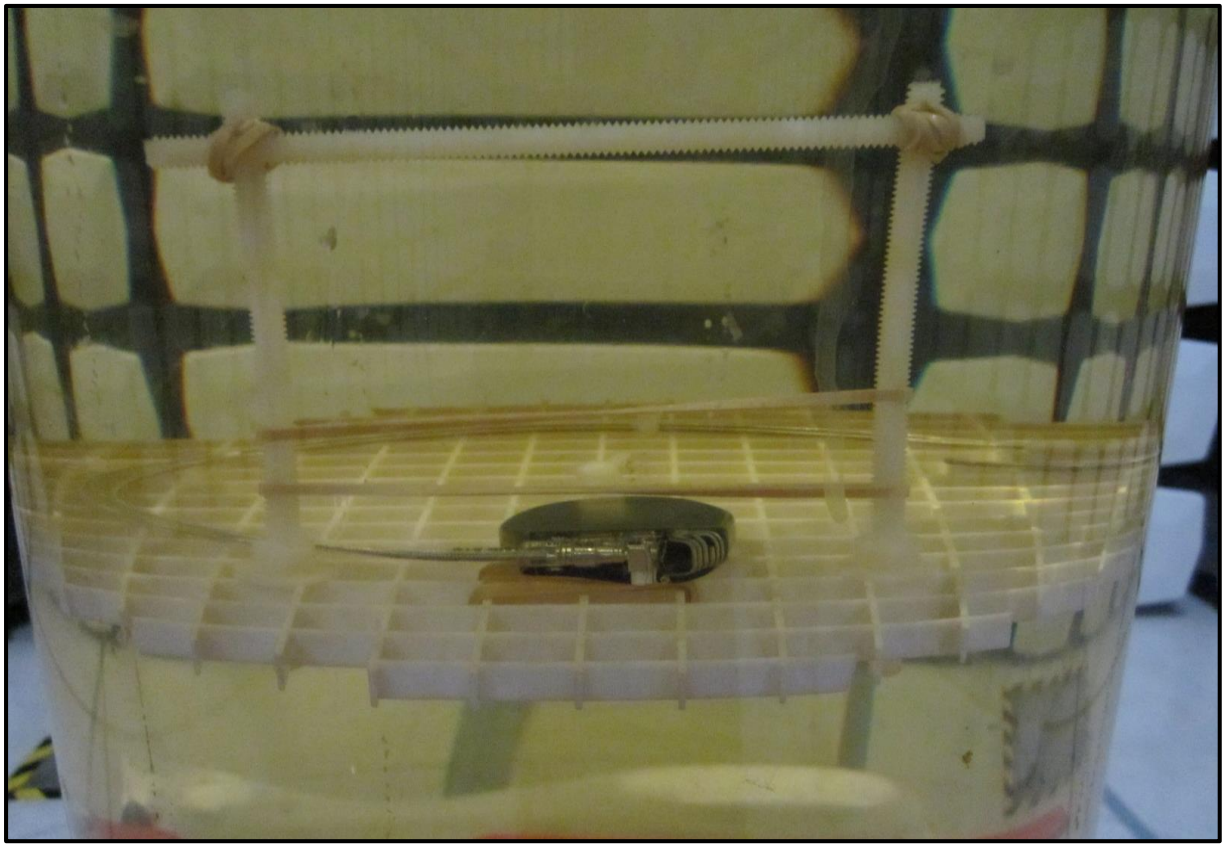
# FIELD STRENGTH OF FUNDAMENTAL





# FIELD STRENGTH OF FUNDAMENTAL





# SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

## MODES OF OPERATION

Transmitting inductive at 57 kHz, Pseudorandom.

## POWER SETTINGS INVESTIGATED

Battery

## CONFIGURATIONS INVESTIGATED

BSTN0453 - 1
BSTN0453 - 2
BSTN0453 - 3

## FREQUENCY RANGE INVESTIGATED

| | | | |
|---|---|---|---|
| Start Frequency | 9 kHz | Stop Frequency | 1000 MHz |

## SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

## TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Antenna, Bilog | Teseq | CBL 6141B | AYD | 12/17/2013 | 12 mo |
| Pre-Amplifier | Miteq | AM-1616-1000 | PAD | 5/20/2013 | 12 mo |
| MN05 Cables | ESM Cable Corp. | Bilog Cables | MNH | 5/20/2013 | 12 mo |
| Spectrum Analyzer | Agilent | N9010A | AFI | 1/27/2013 | 24 mo |
| Antenna, Loop | ETS Lindgren | 6502 | AOB | 2/20/2013 | 24 mo |
| MN04 Cables | ESM Cable Corp. | MN04 Horn Cables | MNE | 4/10/2013 | 12 mo |
| Spectrum Analyzer | Agilent | E4440A | AFG | 5/16/2012 | 24 mo |

## MEASUREMENT BANDWIDTHS

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

## TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal planes, the EUT and/or associated antenna is positioned in 3 orthogonal planes (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

For measurements below 30 MHz, as outlined in 15.209(e) and 15.31(f)(2), measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

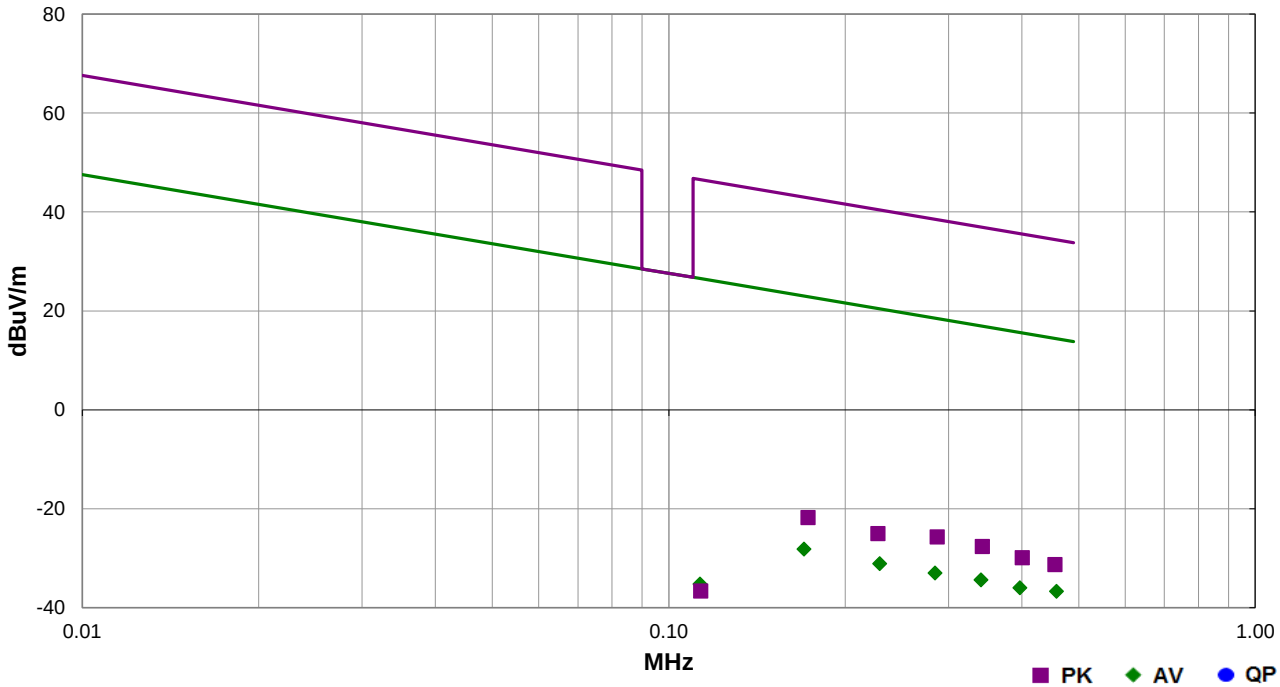
If there are no detectable emissions above the noise floor, the data included will show noise floor measurements for reference only.

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417249 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 1 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 3 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



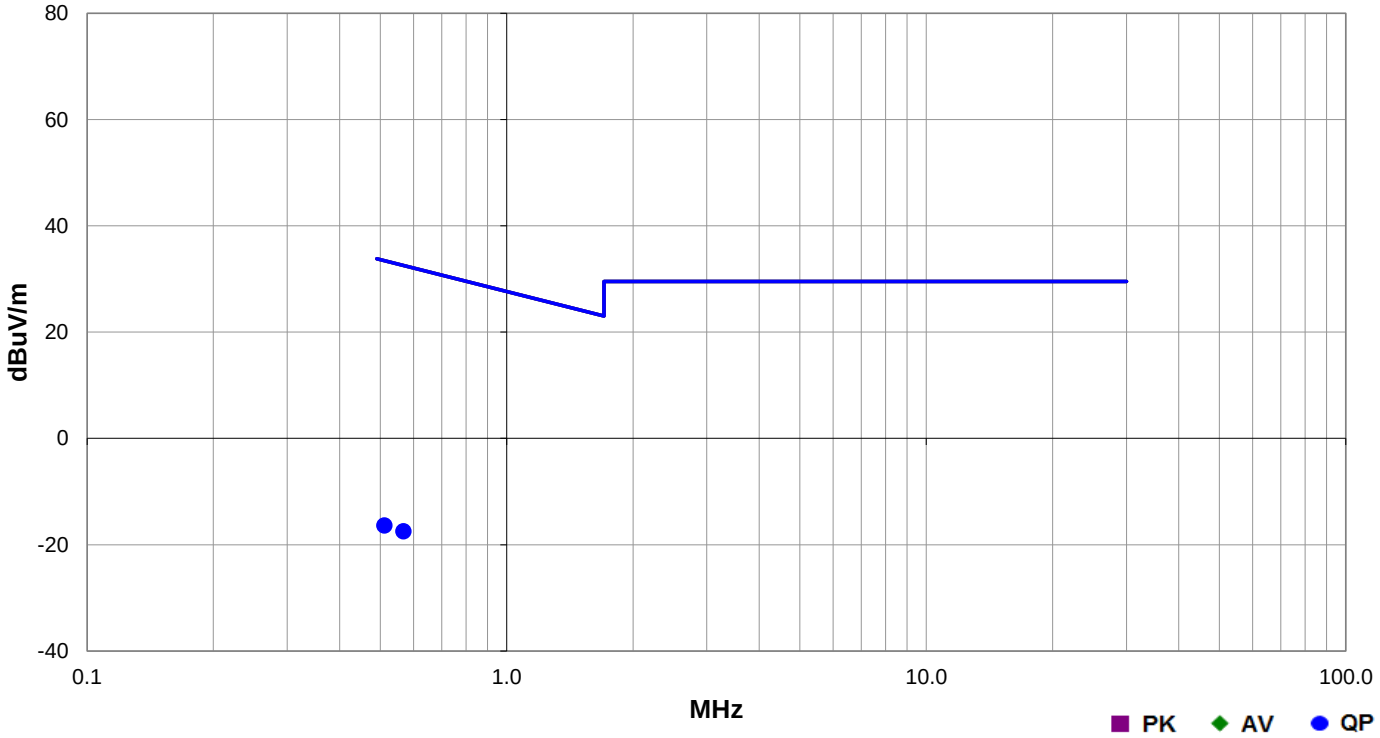

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.458 | 31.6 | 11.7 | 1.0 | 270.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -36.7 | 14.4 | -51.1 |
| 0.170 | 40.2 | 11.6 | 1.0 | 33.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -28.2 | 23.0 | -51.2 |
| 0.341 | 34.0 | 11.6 | 1.0 | 96.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -34.4 | 17.0 | -51.4 |
| 0.229 | 37.3 | 11.6 | 1.0 | 22.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -31.1 | 20.4 | -51.5 |
| 0.284 | 35.4 | 11.6 | 1.0 | 177.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -33.0 | 18.5 | -51.5 |
| 0.397 | 32.4 | 11.6 | 1.0 | 219.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -36.0 | 15.6 | -51.6 |
| 0.113 | 33.1 | 11.7 | 1.0 | 110.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -35.2 | 26.6 | -61.8 |
| 0.287 | 42.7 | 11.6 | 1.0 | 177.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -25.7 | 38.5 | -64.2 |
| 0.343 | 40.8 | 11.6 | 1.0 | 96.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -27.6 | 36.9 | -64.5 |
| 0.173 | 46.6 | 11.6 | 1.0 | 33.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -21.8 | 42.9 | -64.6 |
| 0.401 | 38.5 | 11.6 | 1.0 | 219.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -29.9 | 35.6 | -65.5 |
| 0.227 | 43.4 | 11.6 | 1.0 | 22.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -25.0 | 40.5 | -65.5 |
| 0.455 | 37.0 | 11.7 | 1.0 | 270.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -31.3 | 34.4 | -65.7 |
| 0.113 | 31.7 | 11.7 | 1.0 | 110.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -36.6 | 46.5 | -83.2 |

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417249 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 1 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 4 | **Test Distance (m)** | 1 | **Antenna Height(s)** | 1.5m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



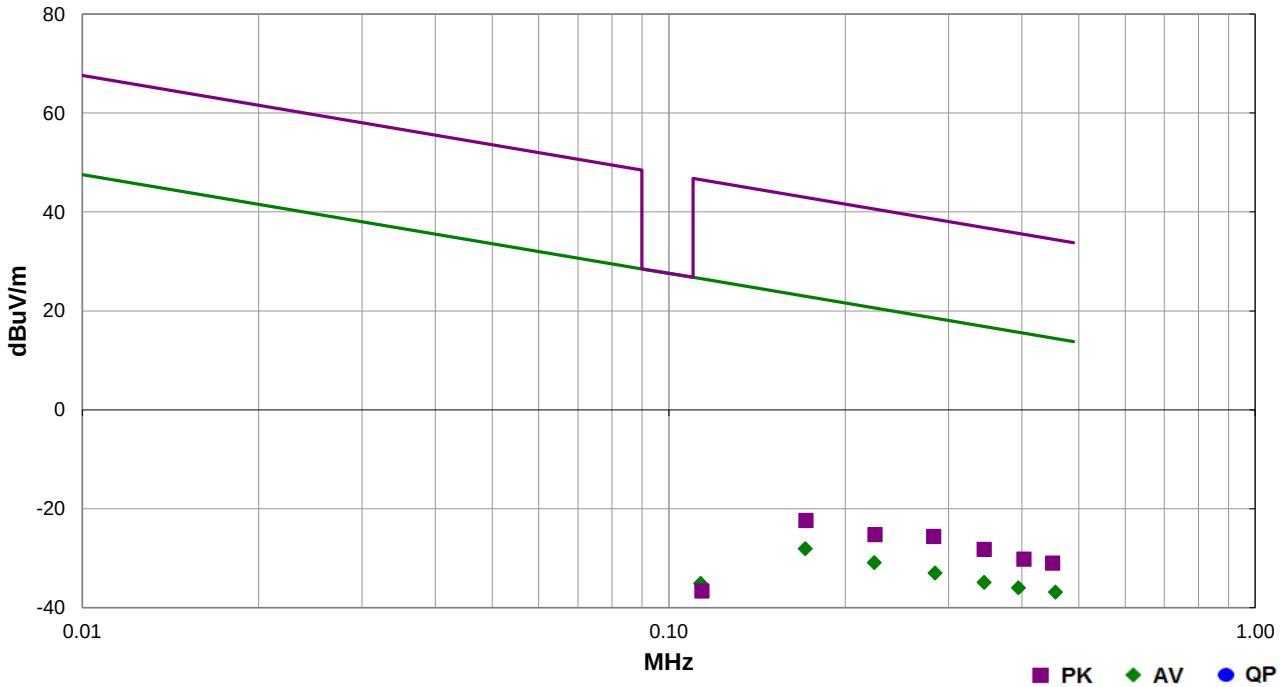

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.511 | 30.9 | 11.8 | 1.5 | 44.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -16.4 | 33.4 | -49.8 |
| 0.567 | 29.8 | 11.8 | 1.5 | 358.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -17.5 | 32.5 | -50.0 |

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417250 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 8 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



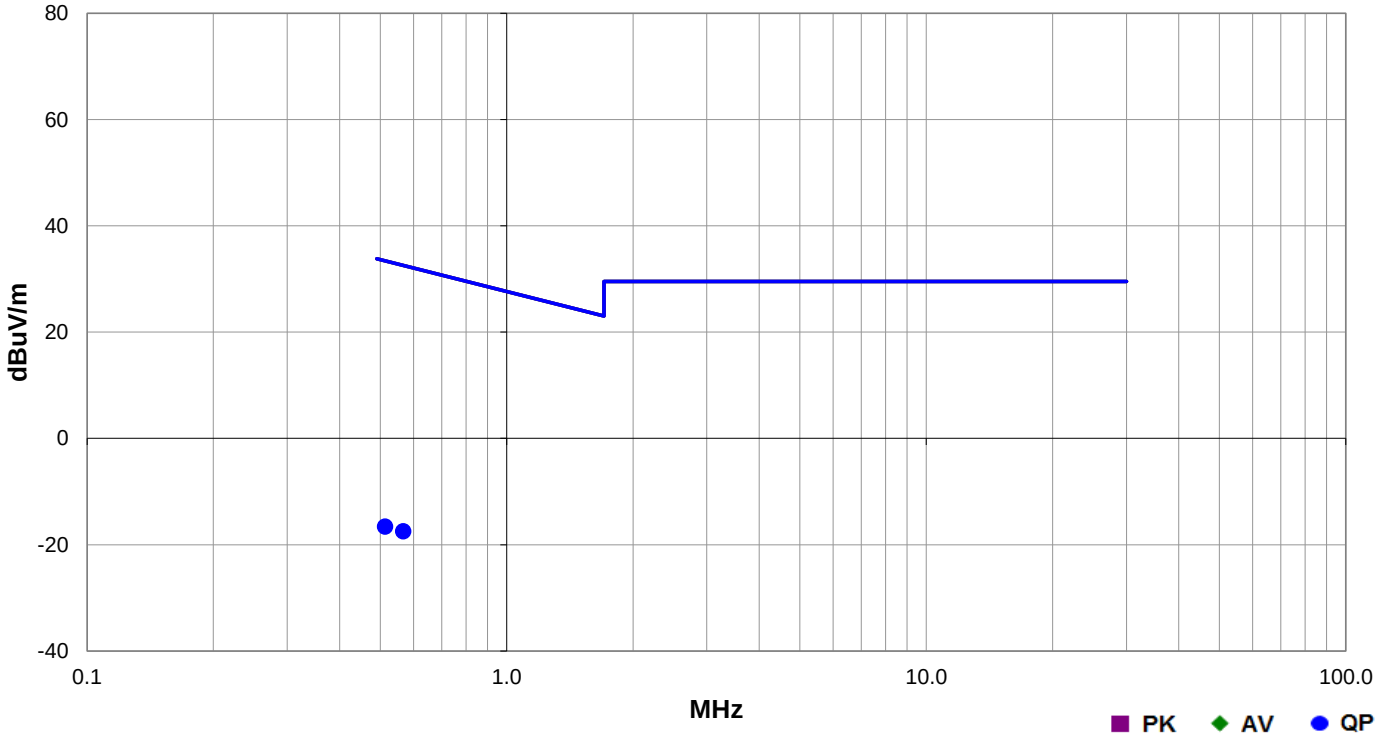

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.171 | 40.3 | 11.6 | 1.0 | 38.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -28.1 | 23.0 | -51.0 |
| 0.457 | 31.4 | 11.7 | 1.0 | 110.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -36.9 | 14.4 | -51.3 |
| 0.224 | 37.5 | 11.6 | 1.0 | 80.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -30.9 | 20.6 | -51.5 |
| 0.285 | 35.4 | 11.6 | 1.0 | 157.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -33.0 | 18.5 | -51.5 |
| 0.395 | 32.4 | 11.6 | 1.0 | 37.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -36.0 | 15.7 | -51.7 |
| 0.345 | 33.5 | 11.6 | 1.0 | 155.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -34.9 | 16.9 | -51.8 |
| 0.113 | 33.2 | 11.7 | 1.0 | 0.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -35.1 | 26.5 | -61.6 |
| 0.283 | 42.8 | 11.6 | 1.0 | 157.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -25.6 | 38.6 | -64.2 |
| 0.345 | 40.2 | 11.6 | 1.0 | 155.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -28.2 | 36.9 | -65.1 |
| 0.171 | 46.0 | 11.6 | 1.0 | 38.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -22.4 | 42.9 | -65.3 |
| 0.451 | 37.3 | 11.7 | 1.0 | 110.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -31.0 | 34.5 | -65.5 |
| 0.403 | 38.2 | 11.6 | 1.0 | 37.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -30.2 | 35.5 | -65.7 |
| 0.225 | 43.2 | 11.6 | 1.0 | 80.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -25.2 | 40.6 | -65.8 |
| 0.114 | 31.7 | 11.7 | 1.0 | 0.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -36.6 | 46.5 | -83.1 |

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417250 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 9 | **Test Distance (m)** | 1 | **Antenna Height(s)** | 1.5m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



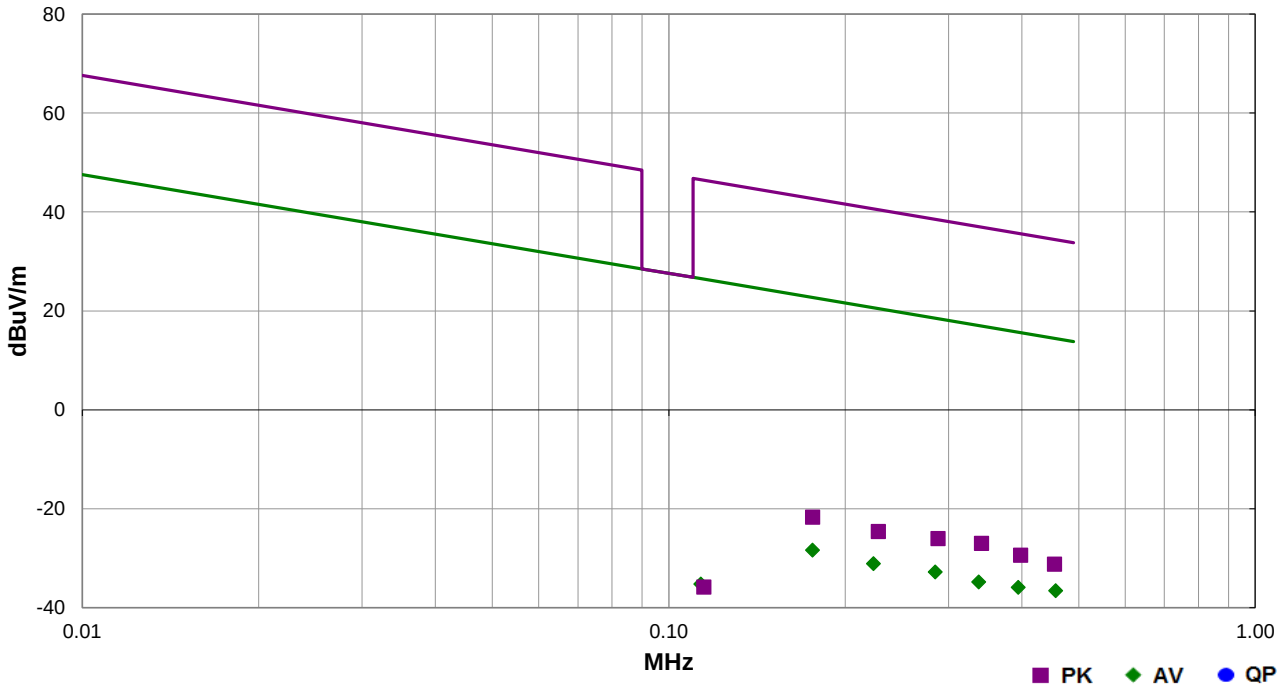

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.513 | 30.7 | 11.8 | 1.5 | 197.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -16.6 | 33.4 | -50.0 |
| 0.567 | 29.8 | 11.8 | 1.5 | 304.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -17.5 | 32.5 | -50.0 |

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417251 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 3 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

| **Run #** | 12 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1m | **Results** | Pass |
|---|---|---|---|---|---|---|---|



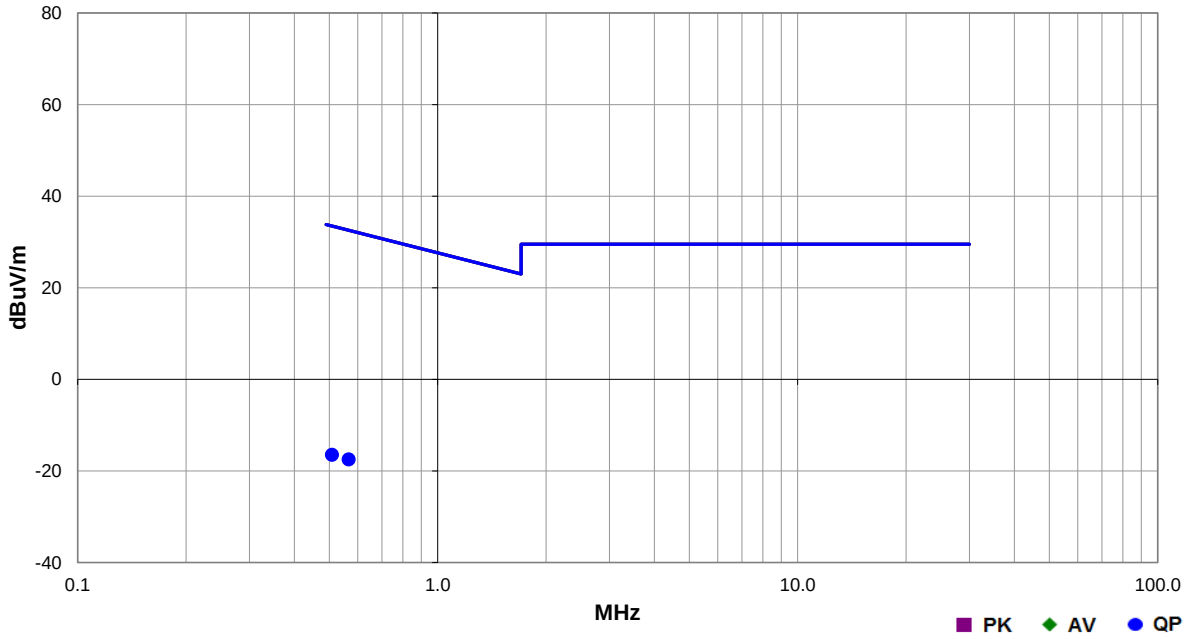

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.457 | 31.7 | 11.7 | 1.0 | 118.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -36.6 | 14.4 | -51.0 |
| 0.176 | 40.0 | 11.6 | 1.0 | 290.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -28.4 | 22.7 | -51.1 |
| 0.285 | 35.6 | 11.6 | 1.0 | 283.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -32.8 | 18.5 | -51.3 |
| 0.394 | 32.5 | 11.6 | 1.0 | 309.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -35.9 | 15.7 | -51.6 |
| 0.223 | 37.3 | 11.6 | 1.0 | 79.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -31.1 | 20.6 | -51.7 |
| 0.338 | 33.6 | 11.6 | 1.0 | 188.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -34.8 | 17.0 | -51.8 |
| 0.113 | 33.1 | 11.7 | 1.0 | 49.0 | 3.0 | 0.0 | Par to EUT | AV | -80.0 | -35.2 | 26.5 | -61.7 |
| 0.341 | 41.4 | 11.6 | 1.0 | 188.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -27.0 | 36.9 | -63.9 |
| 0.176 | 46.7 | 11.6 | 1.0 | 290.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -21.7 | 42.7 | -64.4 |
| 0.288 | 42.4 | 11.6 | 1.0 | 283.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -26.0 | 38.4 | -64.4 |
| 0.398 | 39.0 | 11.6 | 1.0 | 309.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -29.4 | 35.6 | -65.0 |
| 0.228 | 43.8 | 11.6 | 1.0 | 79.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -24.6 | 40.5 | -65.1 |
| 0.455 | 37.1 | 11.7 | 1.0 | 118.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -31.2 | 34.4 | -65.6 |
| 0.115 | 32.5 | 11.7 | 1.0 | 49.0 | 3.0 | 0.0 | Par to EUT | PK | -80.0 | -35.8 | 46.4 | -82.2 |

# SPURIOUS RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | BSTN0453 | **Date:** | 02/03/14 | Trevor Buls | |
| **Project:** | None | **Temperature:** | 22.6 °C | | |
| **Job Site:** | MN04 | **Humidity:** | 8.9% RH | | |
| **Serial Number:** | 417251 | **Barometric Pres.:** | 1024.4 mbar | **Tested by:** | Trevor Buls |
| **EUT:** | L331 | | | | |
| **Configuration:** | 3 | | | | |
| **Customer:** | Boston Scientific Corporation | | | | |
| **Attendees:** | Daniel Landherr | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting inductive at 57 kHz, Pseudorandom. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | EUT on Side | | | | |

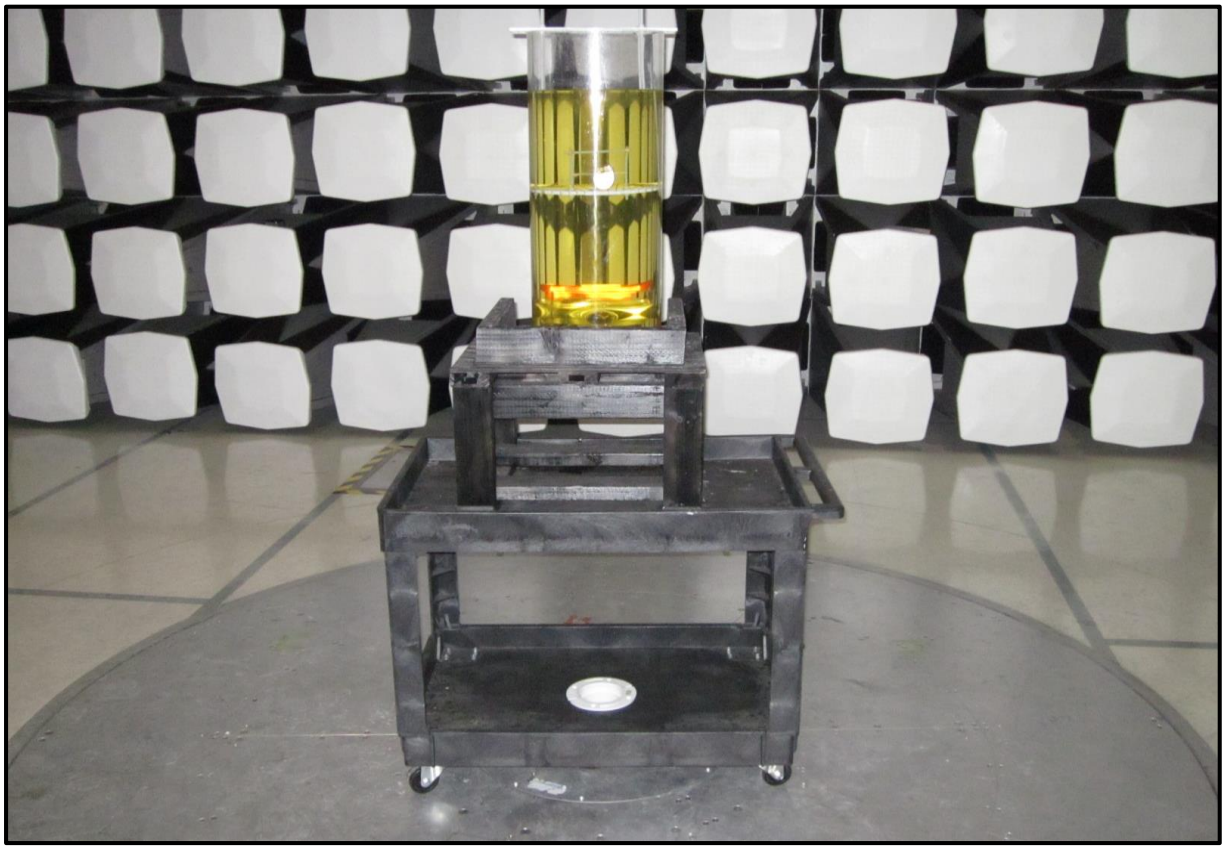
| **Test Specifications** | **Test Method** |
|---|---|
| LP0002 June 2011 | LP0002 June 2011 |

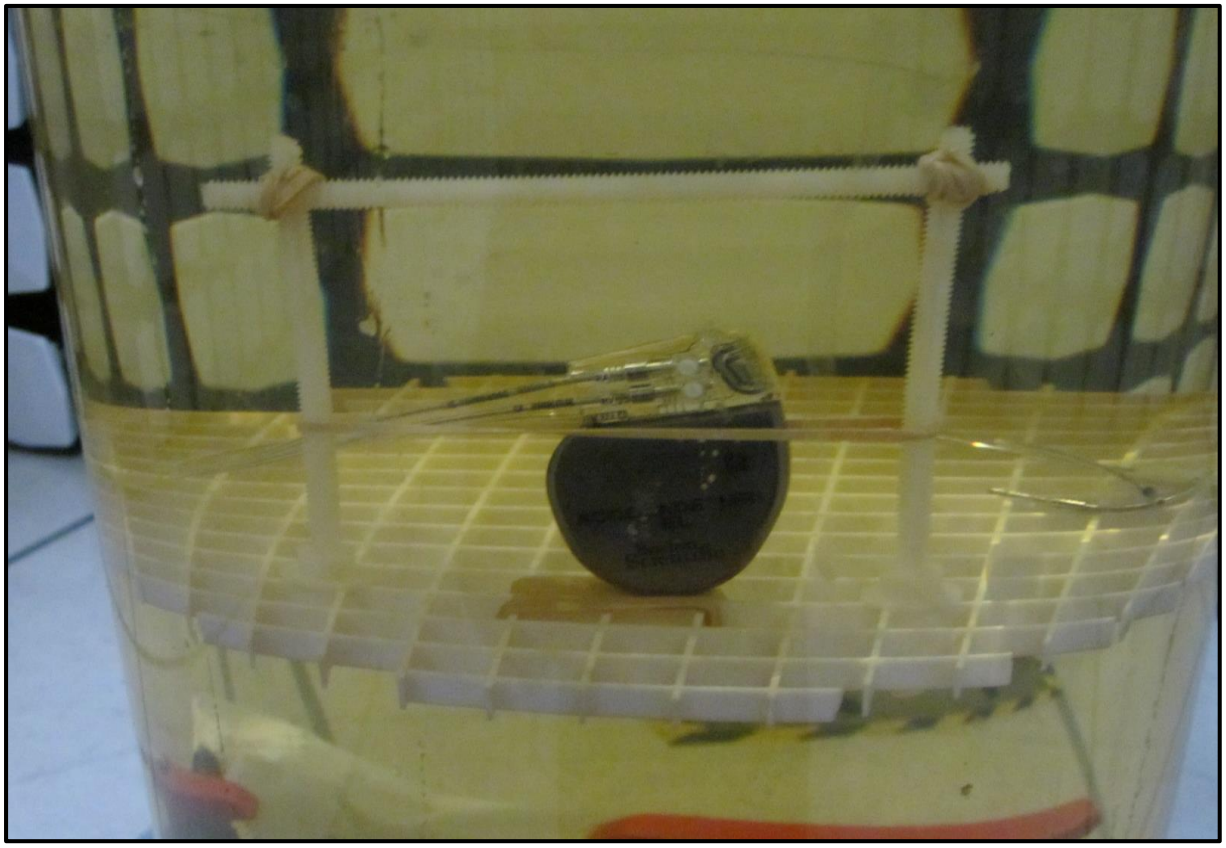
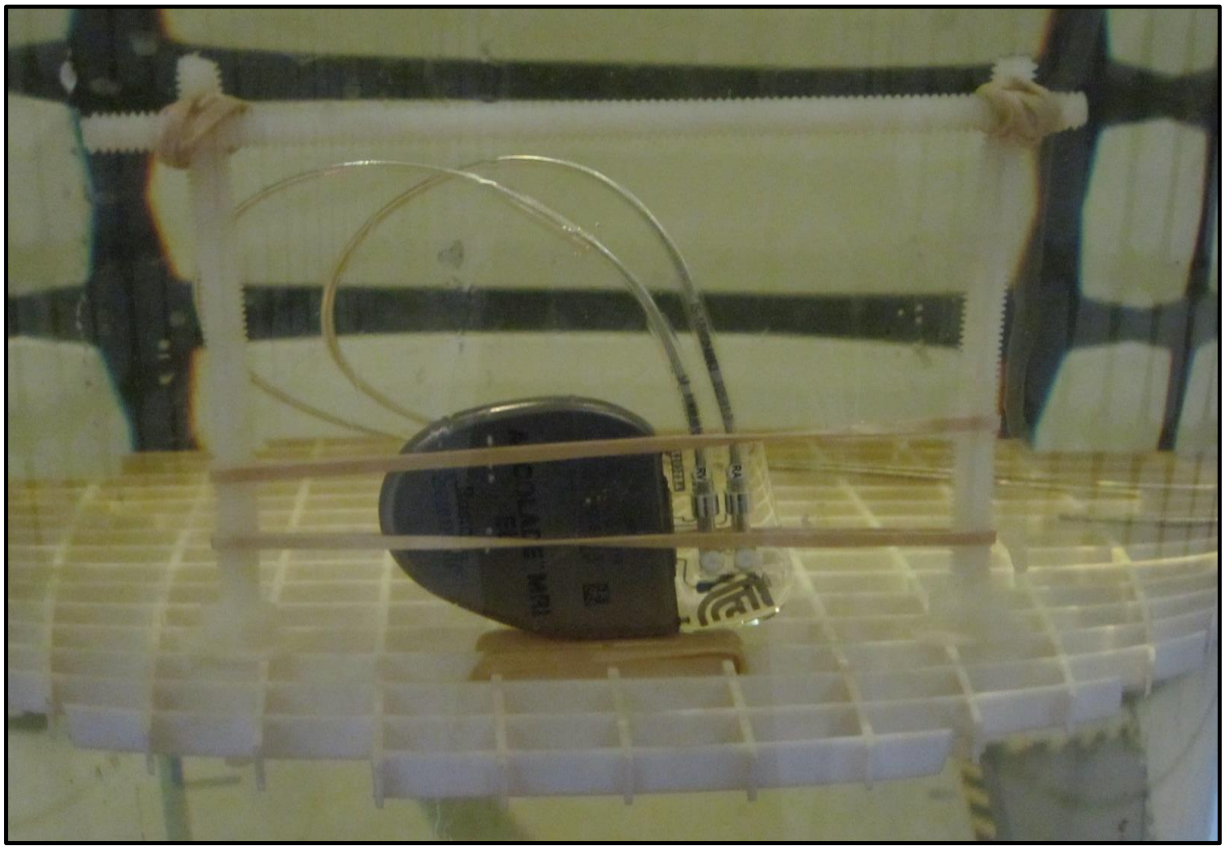
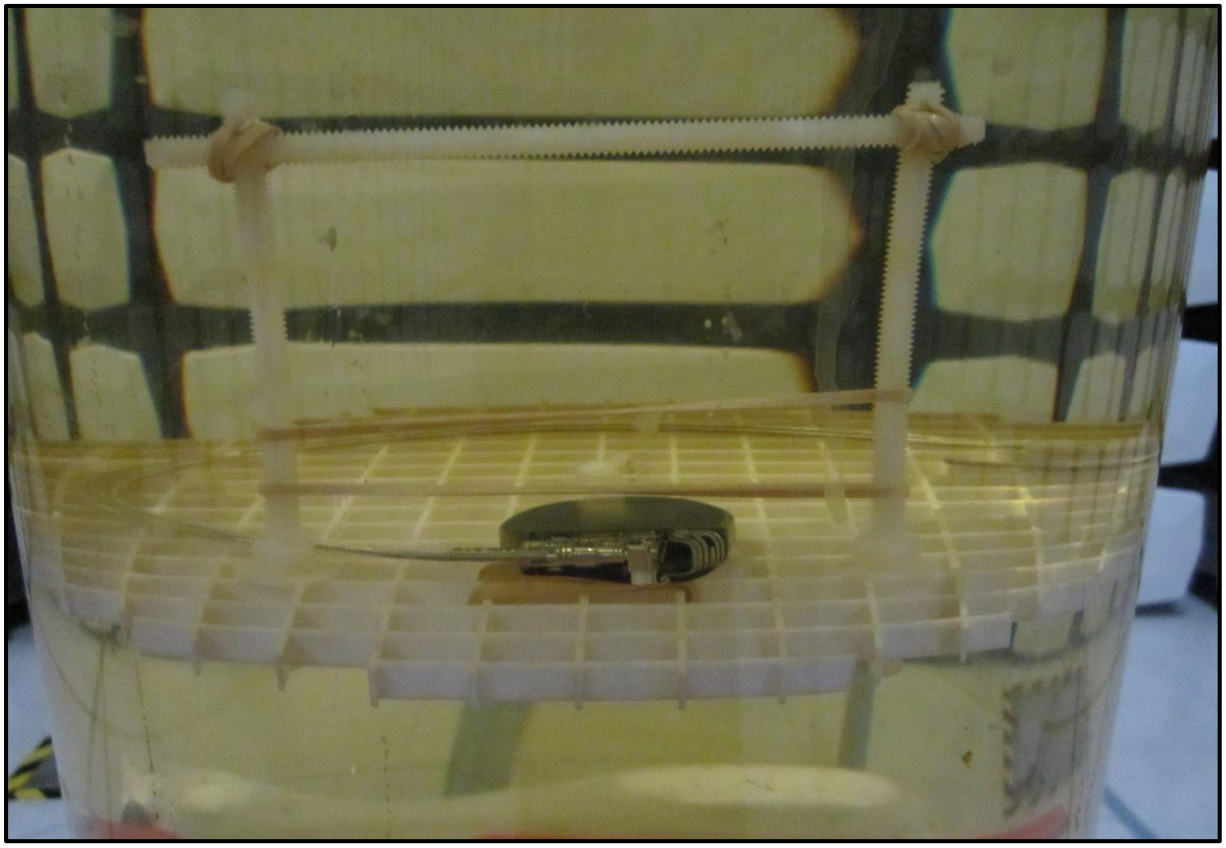
| **Run #** | 13 | **Test Distance (m)** | 1 | **Antenna Height(s)** | 1.5m | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.508 | 30.8 | 11.8 | 1.5 | 115.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -16.5 | 33.5 | -50.0 | |
| 0.566 | 29.8 | 11.8 | 1.5 | 48.0 | 1.0 | 0.0 | Par to EUT | QP | -59.1 | -17.5 | 32.6 | -50.0 | |

# SPURIOUS RADIATED EMISSIONS





# SPURIOUS RADIATED EMISSIONS