

# NORTHWEST EMC

**Boston Scientific Corporation**

**Model 3300**

**FCC 15.207:2016**

**FCC 15.249:2016**

**902 – 928 MHz Transceiver**

**Report # BSTN0663.16 Rev 01**



NVLAP Lab Code: 200881-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety*

# CERTIFICATE OF TEST

Last Date of Test: August 11, 2016  
Boston Scientific Corporation  
Model: 3300

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.207:2016	
FCC 15.249:2016	ANSI C63.10:2013

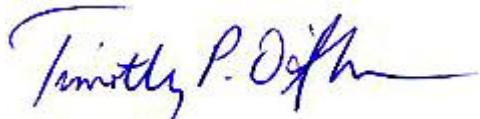
### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5	Field Strength of Fundamental	Yes	Pass	
6.5, 6.6	Field Strength of Harmonics and Spurious Radiated Emissions	Yes	Pass	

### Deviations from Test Standards

None

### Approved By:



Tim O'Shea, Operations 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.*

# REVISION HISTORY

Revision Number	Description	Date	Page Number
01	Added Test Setup Block Diagrams	5/11/17	7
01	Added Details for Configuration BSTN0663-14	5/11/17	11
01	Corrected Configuration Reference	5/11/17	13,14,16

# 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 Northwest EMC 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). Certification chambers and Open Area Test Sites are filed with ISED.

## European Union

**European Commission** – Validated by the European Commission as a Notified Body under the R&TTE Directive.

## Australia/New Zealand

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

## Korea

**MSIP / 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:

<http://www.nwemc.com/accreditations/>

<http://gsi.nist.gov/global/docs/cabs/designations.html>

# MEASUREMENT UNCERTAINTY

## 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 WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. 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 (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 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

# FACILITIES

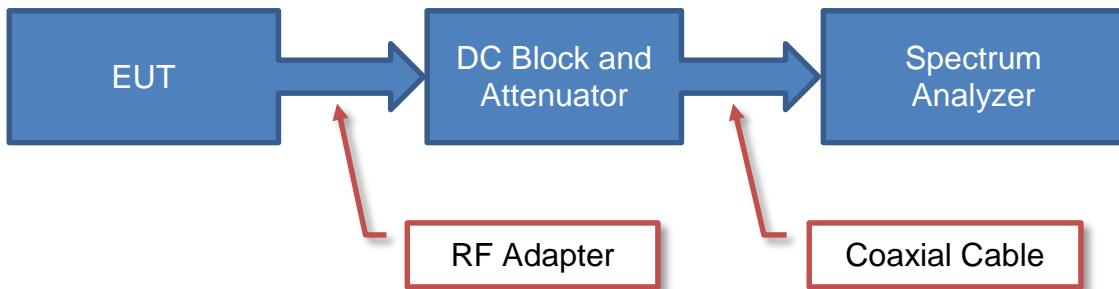


California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 98011 (425)984-6600
<b>NVLAP</b>					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code: 201049-0	NVLAP Lab Code: 200629-0
<b>Innovation, Science and Economic Development Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157

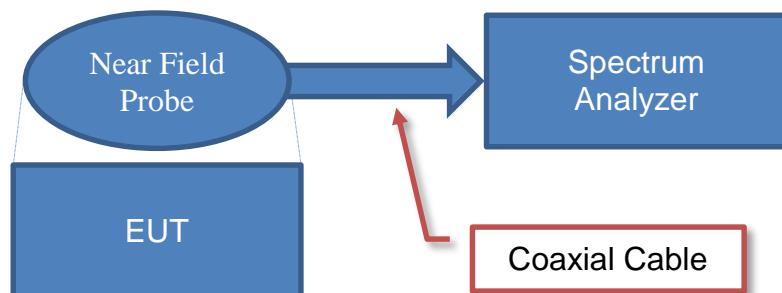


# Test Setup Block Diagrams

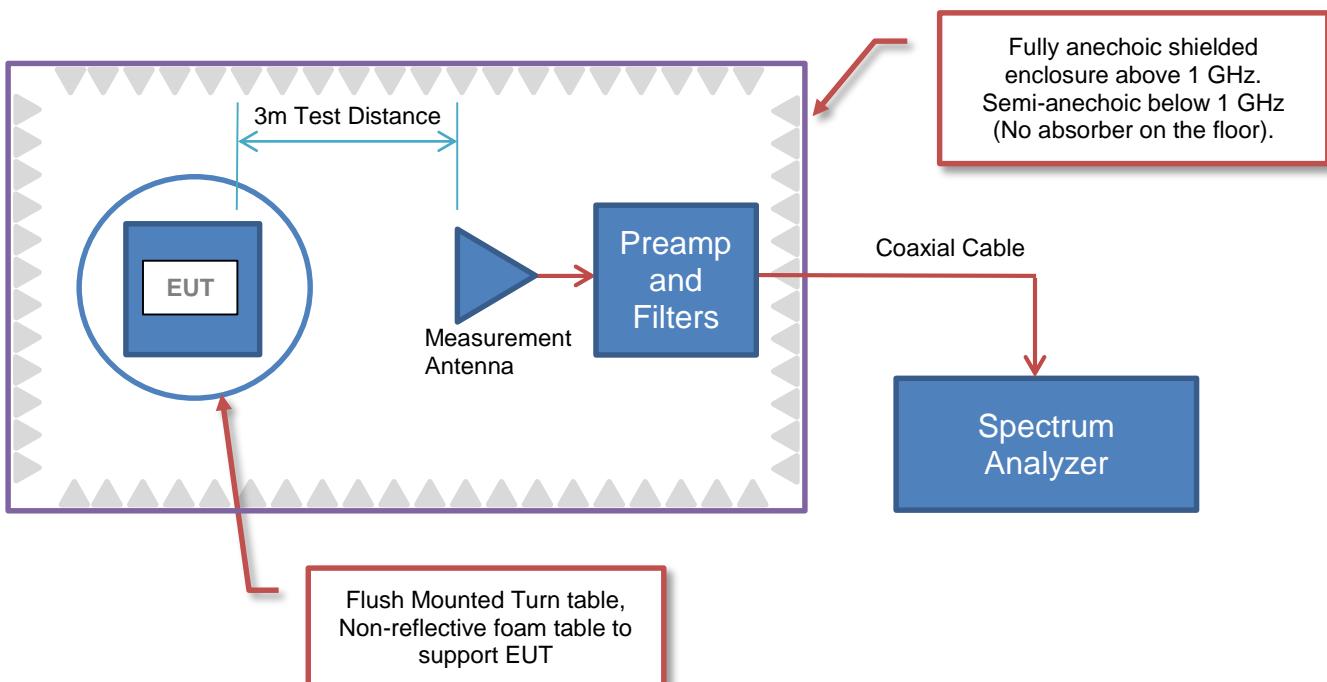
## Antenna Port Conducted Measurements



## Near Field Test Fixture Measurements



## Spurious Radiated Emissions



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Boston Scientific Corporation
<b>Address:</b>	4100 Hamline Avenue North
<b>City, State, Zip:</b>	St. Paul, MN 55112-5798
<b>Test Requested By:</b>	Pete Musto
<b>Model:</b>	Model 3300
<b>First Date of Test:</b>	July 14, 2016
<b>Last Date of Test:</b>	August 11, 2016
<b>Receipt Date of Samples:</b>	July 14, 2016
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

The Boston Scientific Model 3300 Latitude Programmer (PRM) is a device that is used to interrogate and program Boston Scientific PGs and defibrillators. PG specific software applications are loaded into the PRM and communicate with the implanted device. The telemetry communications allow the physician the ability to program the PG or query the PG for historical data or operating parameters. The PRM allows other external instruments or equipment to be connected, including printers, network connections, external display monitors, USB data storage devices, and cellular adapters. The PRM also provides a Pacing Systems Analyzer for implant lead evaluation and diagnostics.

### Testing Objective:

Seeking to demonstrate compliance of the low powered telemetry radio to FCC 15.249 for operation in the 902-928 MHz band.

# CONFIGURATIONS

## Configuration BSTN0663- 1

Software/Firmware Running during test	
Description	Version
MTI	1.3-1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Latitude Vision Programmer	Boston Scientific Corporation	3300	097

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
AC/DC Adapter	GlobTek, Inc	GTM41133-9016-1.0-T3A	None	
External Antenna	Boston Scientific Corporation	3203	None	
USB Cellular Adapter	Boston Scientific Corporation	6295	085	
USB Memory Feature Key	Boston Scientific Corporation	None	043	
USB Memory MTI	Kingston	DTSE9 G2	None	
Inductive Telemetry Wand	Boston Scientific Corporation	6395	117	
Latitude Vision Stand	Boston Scientific Corporation	6755	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	Yes	2.5m	No	AC/DC Adapter	AC Mains
DC Cable	No	2m	Yes	AC/DC Adapter	Programmer
2.3/1.0 External Ant Cable	Yes	3m	No	External Antenna	Programmer
USB Cable	Yes	15 cm	Yes	USB Cellular Adapter	Programmer
Inductive Telemetry Wand Cable	Yes	3m	No	Inductive Telemetry Wand	Programmer
Display Port	Yes	2m	Yes	Programmer	Not Terminated
USB Cable	Yes	2m	Yes	Programmer	Not Terminated
Ethernet Cable	No	3m	No	Programmer	Terminated
Non Disposable PSA x2	Yes	2.5m	Yes	Programmer	Not Terminated
ECG Cable	Yes	3.5m	No	Programmer	Not Terminated
Conducted Telemetry Cable	Yes	2.5m	Yes	Programmer	Not Terminated

# CONFIGURATIONS

## Configuration BSTN0663- 3

Software/Firmware Running during test	
Description	Version
MTI	2.0-7

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Latitude Vision Programmer	Boston Scientific Corporation	3300	097

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
AC/DC Adapter	GlobTek, Inc	GTM41133-9016-1.0-T3A	None	
External Antenna	Boston Scientific Corporation	3203	None	
USB Cellular Adapter	Boston Scientific Corporation	6295	085	
USB Memory Feature Key	Boston Scientific Corporation	None	043	
USB Memory MTI	Kingston	DTSE9 G2	None	
Inductive Telemetry Wand	Boston Scientific Corporation	6395	117	
Latitude Vision Stand	Boston Scientific Corporation	6755	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	Yes	2.5m	No	AC/DC Adapter	AC Mains
DC Cable	No	2m	Yes	AC/DC Adapter	Programmer
2.3/1.0 External Ant Cable	Yes	3m	No	External Antenna	Programmer
USB Cable	Yes	15 cm	Yes	USB Cellular Adapter	Programmer
Inductive Telemetry Wand Cable	Yes	3m	No	Inductive Telemetry Wand	Programmer
Display Port	Yes	2m	Yes	Programmer	Not Terminated
USB Cable	Yes	2m	Yes	Programmer	Not Terminated
Ethernet Cable	No	3m	No	Programmer	Terminated
Non Disposable PSA x2	Yes	2.5m	Yes	Programmer	Not Terminated
ECG Cable	Yes	3.5m	No	Programmer	Not Terminated
Conducted Telemetry Cable	Yes	2.5m	Yes	Programmer	Not Terminated

# CONFIGURATIONS

## Configuration BSTN0663- 14

Software/Firmware Running during test	
Description	Version
MTI	1.3-1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Latitude Vision Programmer	Boston Scientific Corporation	3300	097

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
AC/DC Adapter	GlobTek, Inc	GTM41133-9016-1.0-T3A	None	
External Antenna	Boston Scientific Corporation	3203	None	
USB Cellular Adapter	Boston Scientific Corporation	6295	085	
USB Memory Feature Key	Boston Scientific Corporation	None	043	
USB Memory MTI	Kingston	DTSE9 G2	None	
Inductive Telemetry Wand	Boston Scientific Corporation	6395	117	
Latitude Vision Stand	Boston Scientific Corporation	6755	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	Yes	2.5m	No	AC/DC Adapter	AC Mains
DC Cable	No	2m	Yes	AC/DC Adapter	Programmer
2.3/1.0 External Ant Cable	Yes	3m	No	External Antenna	Programmer
USB Cable	Yes	15 cm	Yes	USB Cellular Adapter	Programmer
Inductive Telemetry Wand Cable	Yes	3m	No	Inductive Telemetry Wand	Programmer
Display Port	Yes	2m	Yes	Programmer	Not Terminated
USB Cable	Yes	2m	Yes	Programmer	Not Terminated
Non Disposable PSA x2	Yes	2.5m	Yes	Programmer	Not Terminated
ECG Cable	Yes	3.5m	No	Programmer	Not Terminated
Conducted Telemetry Cable	Yes	2.5m	Yes	Programmer	Not Terminated

# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	7/14/2016	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	7/21/2016	Field Strength of Harmonics and Spurious Radiated Emissions	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.
3	8/11/2016	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

# POWERLINE CONDUCTED EMISSIONS

## TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically, those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR7	ARI	6/14/2016	6/14/2017
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	3/21/2016	3/21/2017
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, TYK	MNCA	1/29/2016	1/29/2017

## MEASUREMENT UNCERTAINTY

Description	Expanded k=2	2.4 dB	-2.4 dB

## CONFIGURATIONS INVESTIGATED

BSTN0663-14

## MODES INVESTIGATED

Transmitting 916.5 MHz ISM

# POWERLINE CONDUCTED EMISSIONS

EUT:	Model 3300	Work Order:	BSTN0663
Serial Number:	097	Date:	08/11/2016
Customer:	Boston Scientific Corporation	Temperature:	23.5°C
Attendees:	None	Relative Humidity:	58.7%
Customer Project:	Laramie Vision	Bar. Pressure:	1013 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	BSTN0663-14

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	11	Line:	High Line	Add. Ext. Attenuation (dB):	0
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## COMMENTS

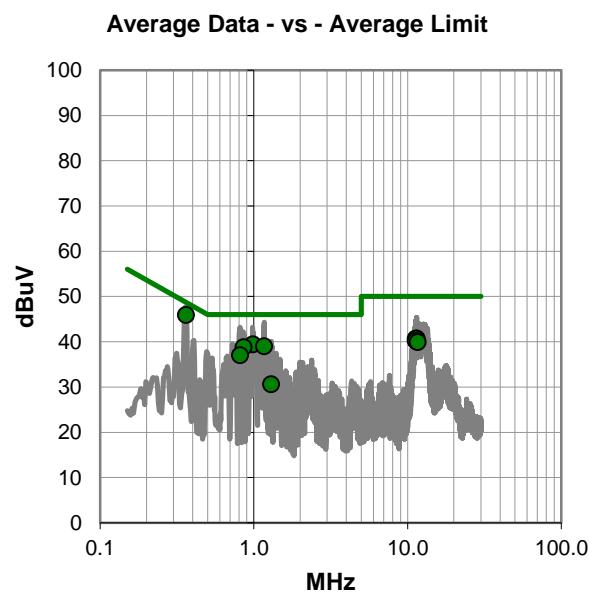
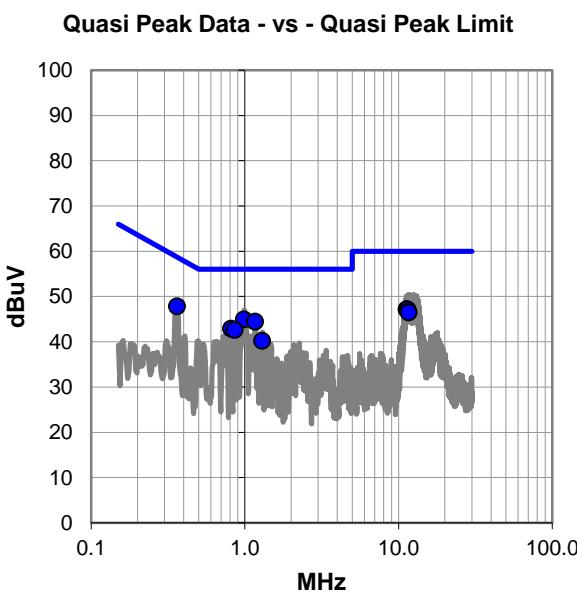
Antenna port A

## EUT OPERATING MODES

Transmitting 916.5 MHz ISM

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.362	27.6	20.2	47.8	58.7	-10.9
0.988	24.8	20.1	44.9	56.0	-11.1
1.168	24.3	20.1	44.4	56.0	-11.6
11.301	26.5	20.7	47.2	60.0	-12.8
11.326	26.4	20.7	47.1	60.0	-12.9
11.468	26.3	20.7	47.0	60.0	-13.0
0.816	22.8	20.1	42.9	56.0	-13.1
0.860	22.5	20.1	42.6	56.0	-13.4
11.655	25.8	20.7	46.5	60.0	-13.5
1.296	20.1	20.1	40.2	56.0	-15.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.362	25.7	20.2	45.9	48.7	-2.8
0.988	19.3	20.1	39.4	46.0	-6.6
1.168	18.9	20.1	39.0	46.0	-7.0
0.860	18.7	20.1	38.8	46.0	-7.2
0.816	16.9	20.1	37.0	46.0	-9.0
11.468	20.0	20.7	40.7	50.0	-9.3
11.326	20.0	20.7	40.7	50.0	-9.3
11.301	19.5	20.7	40.2	50.0	-9.8
11.655	19.2	20.7	39.9	50.0	-10.1
1.296	10.5	20.1	30.6	46.0	-15.4

## CONCLUSION

Pass



Tested By

# POWERLINE CONDUCTED EMISSIONS

EUT:	Model 3300	Work Order:	BSTN0663
Serial Number:	097	Date:	08/11/2016
Customer:	Boston Scientific Corporation	Temperature:	23.5°C
Attendees:	None	Relative Humidity:	58.7%
Customer Project:	Laramie Vision	Bar. Pressure:	1013 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	BSTN0663-14

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	12	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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## COMMENTS

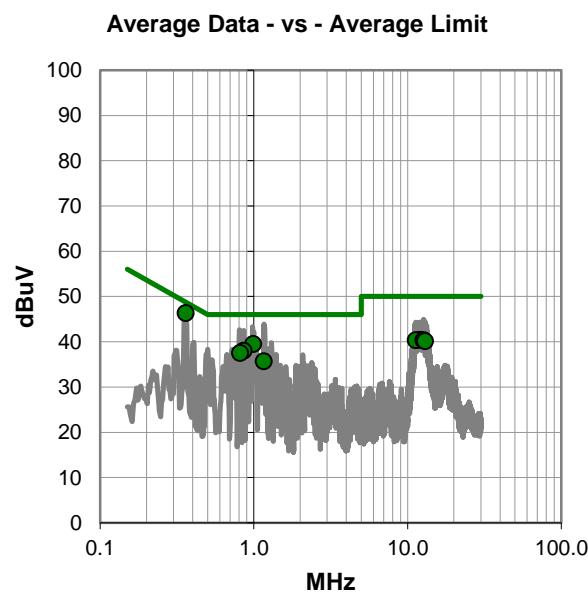
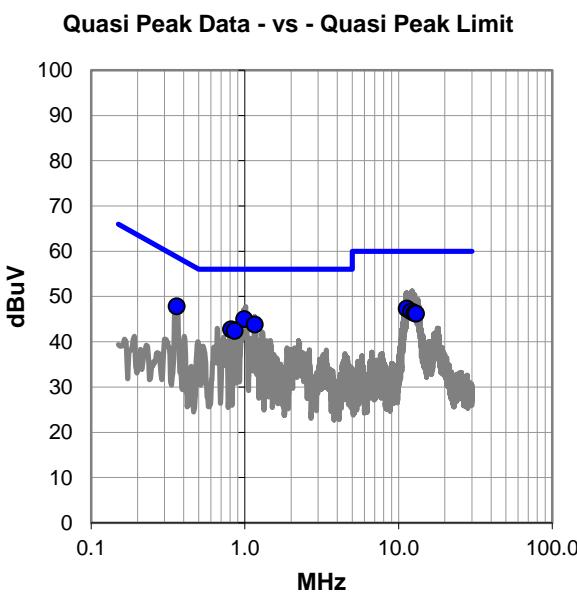
Antenna port A

## EUT OPERATING MODES

Transmitting 916.5 MHz ISM

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.360	27.6	20.2	47.8	58.7	-10.9
0.991	24.9	20.1	45.0	56.0	-11.0
1.163	23.7	20.1	43.8	56.0	-12.2
11.311	26.6	20.7	47.3	60.0	-12.7
0.816	22.6	20.1	42.7	56.0	-13.3
12.097	25.9	20.8	46.7	60.0	-13.3
0.859	22.3	20.1	42.4	56.0	-13.6
12.716	25.4	20.9	46.3	60.0	-13.7
13.003	25.3	20.9	46.2	60.0	-13.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.360	26.1	20.2	46.3	48.7	-2.4
0.991	19.4	20.1	39.5	46.0	-6.5
0.859	17.9	20.1	38.0	46.0	-8.0
0.816	17.4	20.1	37.5	46.0	-8.5
12.097	19.6	20.8	40.4	50.0	-9.6
11.311	19.6	20.7	40.3	50.0	-9.7
12.716	19.4	20.9	40.3	50.0	-9.7
13.003	19.2	20.9	40.1	50.0	-9.9
1.163	15.6	20.1	35.7	46.0	-10.3

## CONCLUSION

Pass



Tested By

# 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

Transmit 916.5 MHz, ASK

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

BSTN0663 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency	916.5 MHz	Stop Frequency	916.5 MHz
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## 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
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/7/2015	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2016	12 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

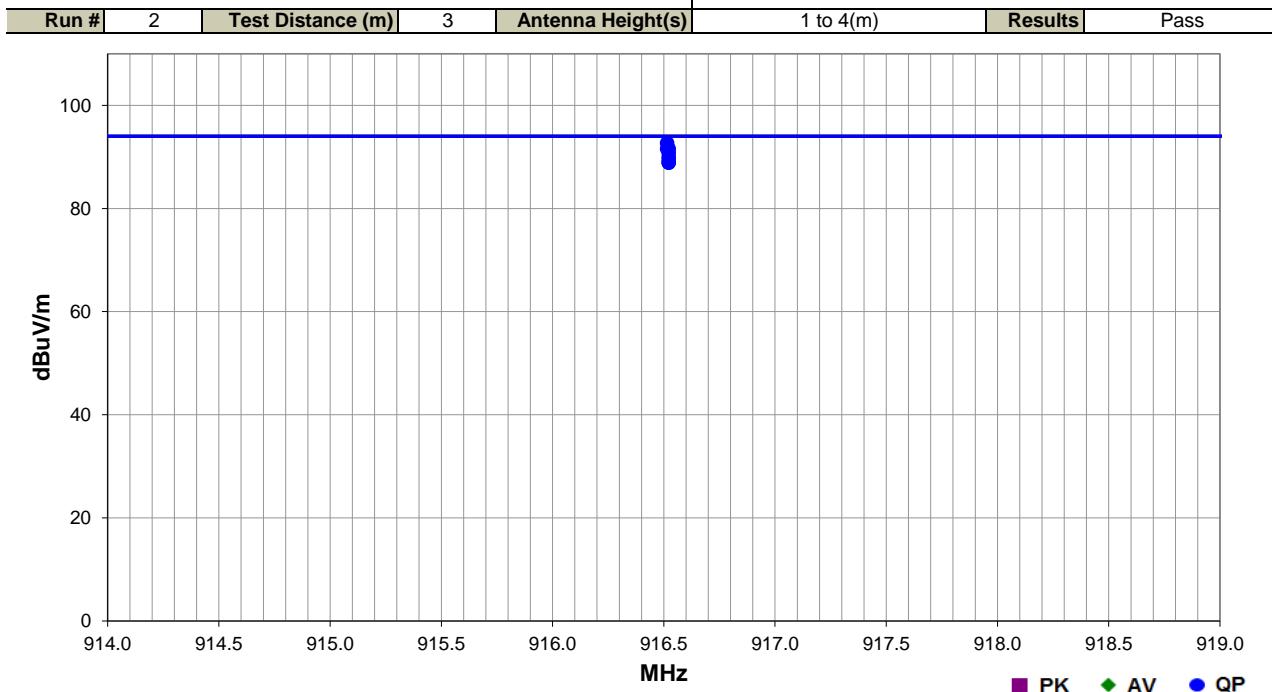
The antennas to be used with the EUT were tested. The EUT was transmitting. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT and EUT antenna in 3 orthogonal planes.

# FIELD STRENGTH OF FUNDAMENTAL

NORTHWEST  
**EMC**  
PSA-ESCI 2016.04.26.1  
EmiR5 2016.04.26.1

<b>Work Order:</b>	BSTN0663	<b>Date:</b>	07/14/16	 <b>Tested by:</b> Jared Ison	
<b>Project:</b>	Laramie Vision	<b>Temperature:</b>	22.2 °C		
<b>Job Site:</b>	MN05	<b>Humidity:</b>	51.2% RH		
<b>Serial Number:</b>	097	<b>Barometric Pres.:</b>	1015 mbar		
<b>EUT:</b>	Model 3300				
<b>Configuration:</b>	1				
<b>Customer:</b>	Boston Scientific Corporation				
<b>Attendees:</b>	Pete Musto				
<b>EUT Power:</b>	110VAC/60Hz				
<b>Operating Mode:</b>	Transmit unmodulated (CW)				
<b>Deviations:</b>	None.				
<b>Comments:</b>	None.				

Test Specifications	Test Method
FCC 15.249:2016	ANSI C63.10:2013



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
916.515	60.1	32.6	1.2	36.0	3.0	0.0	Vert	QP	0.0	92.7	94.0	-1.3	Ant A, EUT Vert
916.522	59.0	32.6	1.7	183.0	3.0	0.0	Vert	QP	0.0	91.6	94.0	-2.4	Ant B, EUT Horz
916.515	59.0	32.6	2.5	112.1	3.0	0.0	Horz	QP	0.0	91.6	94.0	-2.4	Ant A, EUT Vert
916.522	58.2	32.6	1.0	165.0	3.0	0.0	Vert	QP	0.0	90.8	94.0	-3.2	Ant B, EUT Vert
916.522	57.4	32.6	1.0	261.0	3.0	0.0	Vert	QP	0.0	90.0	94.0	-4.0	Ant A, EUT Horz
916.522	56.9	32.6	2.7	318.1	3.0	0.0	Horz	QP	0.0	89.5	94.0	-4.5	Ant A, EUT Horz
916.522	56.3	32.6	1.0	93.0	3.0	0.0	Horz	QP	0.0	88.9	94.0	-5.1	Ant B, EUT Horz
916.522	56.3	32.6	1.7	325.9	3.0	0.0	Horz	QP	0.0	88.9	94.0	-5.1	Ant B, EUT Vert

# FIELD STRENGTH OF HARMONICS AND 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

Transmit, 916.5 MHz, ASK Modulation

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

BSTN0663 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	12400 MHz
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## 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
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	3/1/2016	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	12/7/2015	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIB	8/12/2014	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	12/10/2015	12 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	12/7/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	3/1/2016	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/7/2015	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50108	LFM	10/21/2015	12 mo
Attenuator	Fairview Microwave	SA18E-20	TWZ	10/21/2015	12 mo
Filter - Low Pass	Micro-Tronics	LPM50003	LFJ	10/21/2015	12 mo
Attenuator	Fairview Microwave	SA18E-10	TYA	10/21/2015	12 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

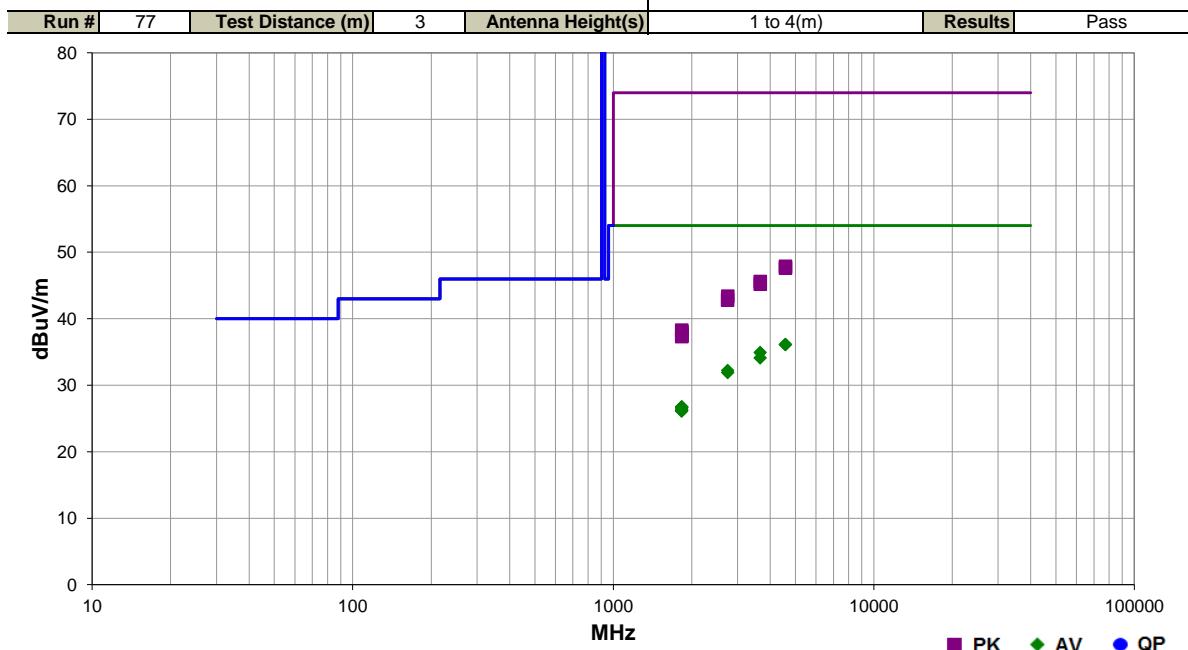
The antennas to be used with the EUT were tested. The EUT was transmitting and receiving while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal plane. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

# FIELD STRENGTH OF HARMONICS AND SPURIOUS RADIATED EMISSIONS

**NORTHWEST**  
**EMC**  
PSA-ESCI 2016.04.26.1  
EmiR5 2016.04.26.1

Work Order:	BSTN0663	Date:	07/21/16	
Project:	Laramie Vision	Temperature:	23.1 °C	
Job Site:	MN05	Humidity:	64.4% RH	
Serial Number:	097	Barometric Pres.:	1016 mbar	
Tested by: Jared Ison				
EUT: Model 3300				
Configuration: 1				
Customer: Boston Scientific Corporation				
Attendees: None				
EUT Power: 110VAC/60Hz				
Operating Mode: Transmit Modulated				
Deviations: None				
Comments: None				

Test Specifications	Test Method
FCC 15.249:2016	ANSI C63.10:2013



Freq (MHz)	Amplitude (dB)	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
4584.975	31.6	4.5	1.0	167.1	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	916.5 MHz, Ant B, EUT Vert
4584.750	31.6	4.5	1.0	22.1	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	916.5 MHz, Ant B, EUT Vert
3666.050	33.6	1.3	1.4	71.0	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	916.5 MHz, Ant B, EUT Vert
3666.192	32.8	1.3	1.2	42.0	3.0	0.0	Vert	AV	0.0	34.0	54.0	-19.9	916.5 MHz, Ant B, EUT Vert
2750.283	34.7	-2.5	1.0	166.1	3.0	0.0	Vert	AV	0.0	32.2	54.0	-21.8	916.5 MHz, Ant B, EUT Vert
2750.383	34.4	-2.5	1.0	56.0	3.0	0.0	Horz	AV	0.0	31.9	54.0	-22.1	916.5 MHz, Ant B, EUT Vert
4583.425	43.4	4.5	1.0	167.1	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	916.5 MHz, Ant B, EUT Vert
4584.942	43.1	4.5	1.0	22.1	3.0	0.0	Vert	PK	0.0	47.6	74.0	-26.4	916.5 MHz, Ant B, EUT Vert
1833.255	32.2	-5.5	1.1	218.0	3.0	0.0	Horz	AV	0.0	26.7	54.0	-27.3	916.5 MHz, Ant B, EUT Vert
1833.970	32.2	-5.5	1.0	98.1	3.0	0.0	Vert	AV	0.0	26.7	54.0	-27.3	916.5 MHz, Ant B, EUT Vert
1832.570	32.2	-5.5	1.0	216.0	3.0	0.0	Horz	AV	0.0	26.7	54.0	-27.3	916.5 MHz, Ant A, EUT Vert
1832.680	32.2	-5.5	1.0	215.0	3.0	0.0	Horz	AV	0.0	26.7	54.0	-27.3	916.5 MHz, Ant A, EUT Horz
1831.730	31.9	-5.5	1.0	72.0	3.0	0.0	Horz	AV	0.0	26.4	54.0	-27.6	916.5 MHz, Ant B, EUT Horz
1832.105	31.8	-5.5	1.0	153.1	3.0	0.0	Vert	AV	0.0	26.3	54.0	-27.7	916.5 MHz, Ant B, EUT Horz
1832.050	31.7	-5.5	1.0	32.0	3.0	0.0	Vert	AV	0.0	26.2	54.0	-27.8	916.5 MHz, Ant A, EUT Vert
1832.920	31.6	-5.5	1.0	272.9	3.0	0.0	Vert	AV	0.0	26.1	54.0	-27.9	916.5 MHz, Ant A, EUT Horz
3664.892	44.3	1.3	1.4	71.0	3.0	0.0	Horz	PK	0.0	45.6	74.0	-28.4	916.5 MHz, Ant B, EUT Vert
3665.700	43.9	1.3	1.2	42.0	3.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	916.5 MHz, Ant B, EUT Vert
2750.783	45.9	-2.5	1.0	166.1	3.0	0.0	Vert	PK	0.0	43.4	74.0	-30.6	916.5 MHz, Ant B, EUT Vert
2749.108	45.3	-2.5	1.0	56.0	3.0	0.0	Horz	PK	0.0	42.8	74.0	-31.2	916.5 MHz, Ant B, EUT Vert
1831.890	43.8	-5.5	1.0	72.0	3.0	0.0	Horz	PK	0.0	38.3	74.0	-35.7	916.5 MHz, Ant B, EUT Horz
1834.170	43.5	-5.5	1.0	98.1	3.0	0.0	Vert	PK	0.0	38.0	74.0	-36.0	916.5 MHz, Ant B, EUT Vert

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
1832.370	43.5	-5.5	1.0	215.0	3.0	0.0	Horz	PK	0.0	38.0	74.0	-36.0	916.5 MHz, Ant A, EUT Horz
1833.535	43.1	-5.5	1.0	216.0	3.0	0.0	Horz	PK	0.0	37.6	74.0	-36.4	916.5 MHz, Ant A, EUT Vert
1833.635	43.1	-5.5	1.0	153.1	3.0	0.0	Vert	PK	0.0	37.6	74.0	-36.4	916.5 MHz, Ant B, EUT Horz
1832.125	43.0	-5.5	1.1	218.0	3.0	0.0	Horz	PK	0.0	37.5	74.0	-36.5	916.5 MHz, Ant B, EUT Vert
1833.345	42.9	-5.5	1.0	272.9	3.0	0.0	Vert	PK	0.0	37.4	74.0	-36.6	916.5 MHz, Ant A, EUT Horz
1833.020	42.8	-5.5	1.0	32.0	3.0	0.0	Vert	PK	0.0	37.3	74.0	-36.7	916.5 MHz, Ant A, EUT Vert

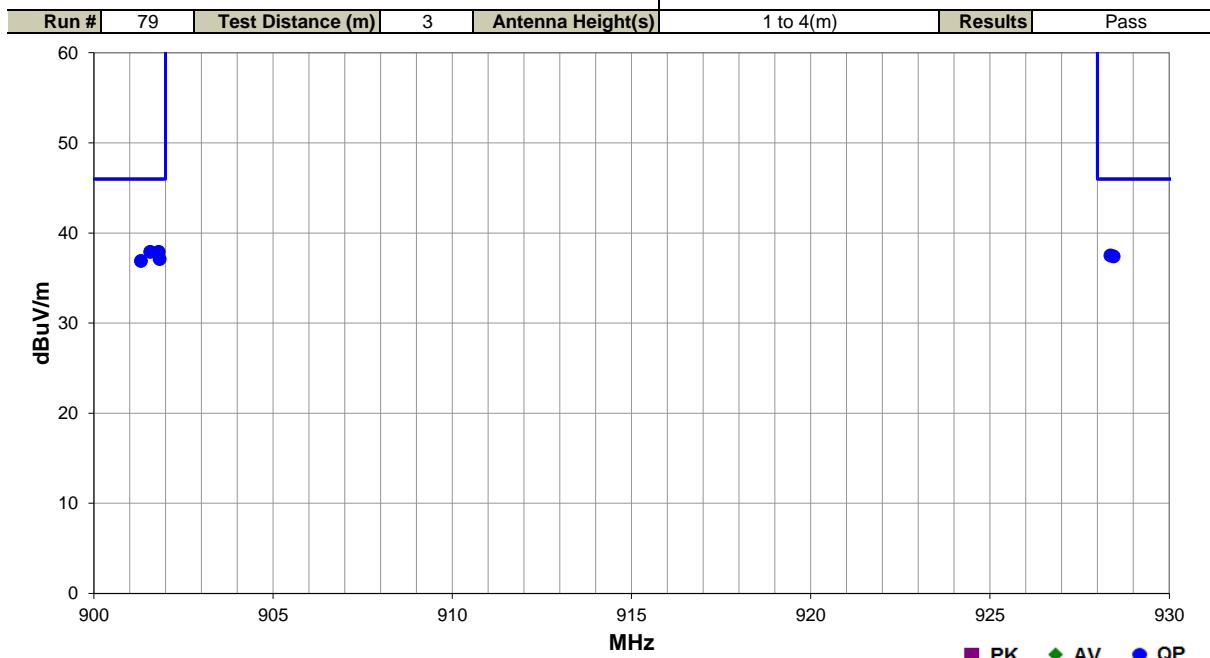
# FIELD STRENGTH OF HARMONICS AND SPURIOUS RADIATED EMISSIONS

**NORTHWEST**  
**EMC**

PSA-ESCI 2016.04.26.1  
EmiR5 2016.04.26.1

Work Order:	BSTN0663	Date:	07/21/16	
Project:	Laramie Vision	Temperature:	23.1 °C	
Job Site:	MN05	Humidity:	64.4% RH	
Serial Number:	097	Barometric Pres.:	1016 mbar	Tested by: Jared Ison
EUT:	Model 3300			
Configuration:	1			
Customer:	Boston Scientific Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmit Modulated			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.249:2016	ANSI C63.10:2013



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
901.570	16.5	11.4	2.2	36.0	3.0	10.0	Vert	QP	0.0	37.9	46.0	-8.1	916.5 MHz, Ant A, EUT Vert
901.810	16.5	11.4	1.0	187.0	3.0	10.0	Vert	QP	0.0	37.9	46.0	-8.1	916.5 MHz, Ant B, EUT Horz
928.358	15.4	12.1	1.0	229.9	3.0	10.0	Vert	QP	0.0	37.5	46.0	-8.5	916.5 MHz, Ant A, EUT Vert
928.448	15.3	12.1	1.0	253.9	3.0	10.0	Horz	QP	0.0	37.4	46.0	-8.6	916.5 MHz, Ant A, EUT Vert
901.835	15.7	11.4	2.7	15.1	3.0	10.0	Horz	QP	0.0	37.1	46.0	-8.9	916.5 MHz, Ant A, EUT Vert
901.310	15.5	11.4	4.0	257.0	3.0	10.0	Vert	QP	0.0	36.9	46.0	-9.1	916.5 MHz, Ant B, EUT Vert