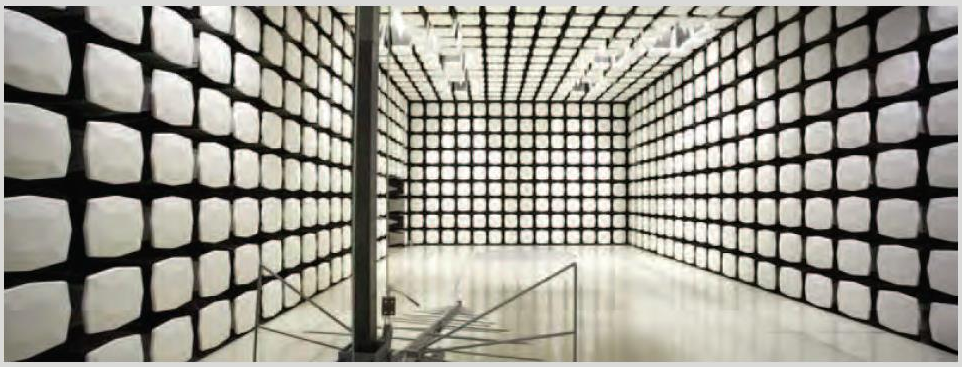
Inspire Medical Systems

Programmer Cable

FCC 15.209:2020

Inductive Radio

Report: INSP0011.4 Rev. 1, Issue Date: August 13, 2020



NVLAP LAB CODE: 200881-0

CERTIFICATE OF TEST

Last Date of Test: June 5, 2020
Inspire Medical Systems
EUT: Programmer Cable

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2020	ANSI C63.10:2013
FCC 15.209:2020	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.4	Field Strength of Fundamental	Yes	Pass	
6.4, 6.5	Spurious Radiated Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

David Schaefer, 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. 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
01	Added comment to Spurious Radiated Emissions, “Normal modulation is OOK.”	2020-08-13	19, 20
	Updated EUT name to “Programmer Cable.”	2020-08-13	1, 2, 8, 9, 12, 14, 17, 19, 20

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

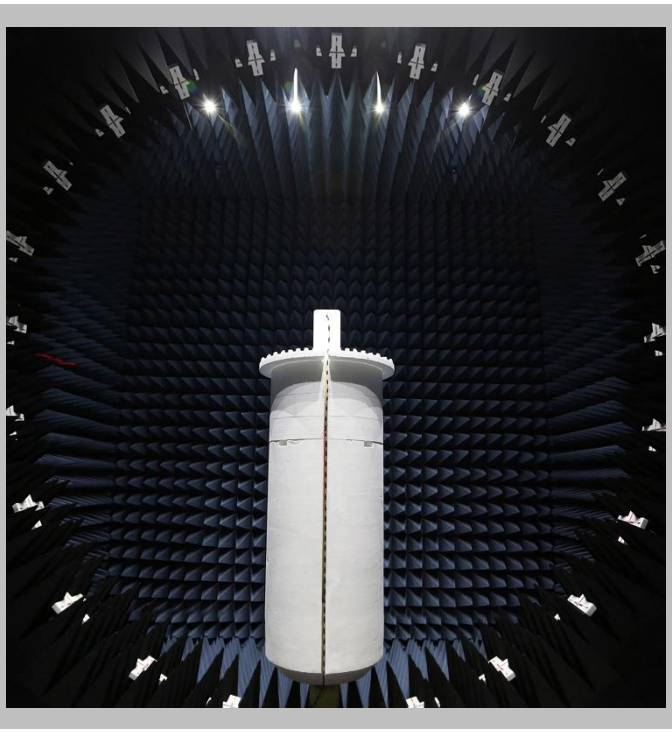
MIC – Recognized by MIC as a CAB for the acceptance of test data.

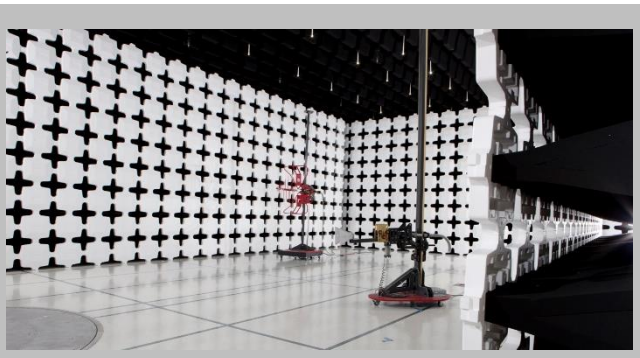
SCOPE

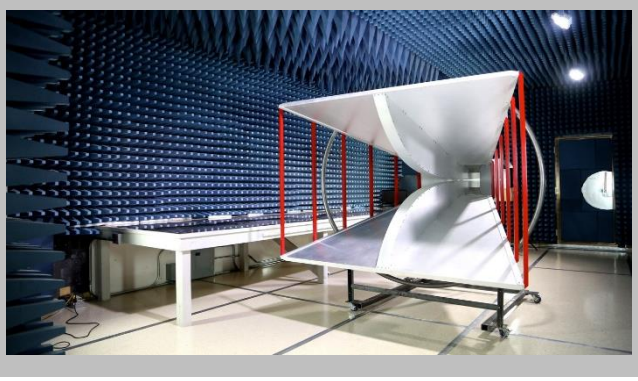
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (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.

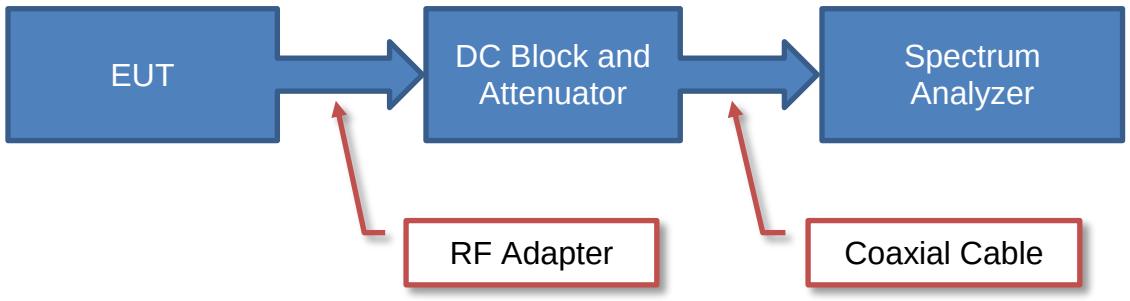
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable 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.

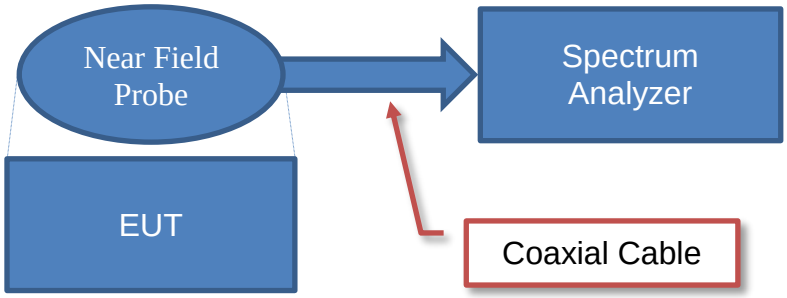
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

Test Setup Block Diagrams

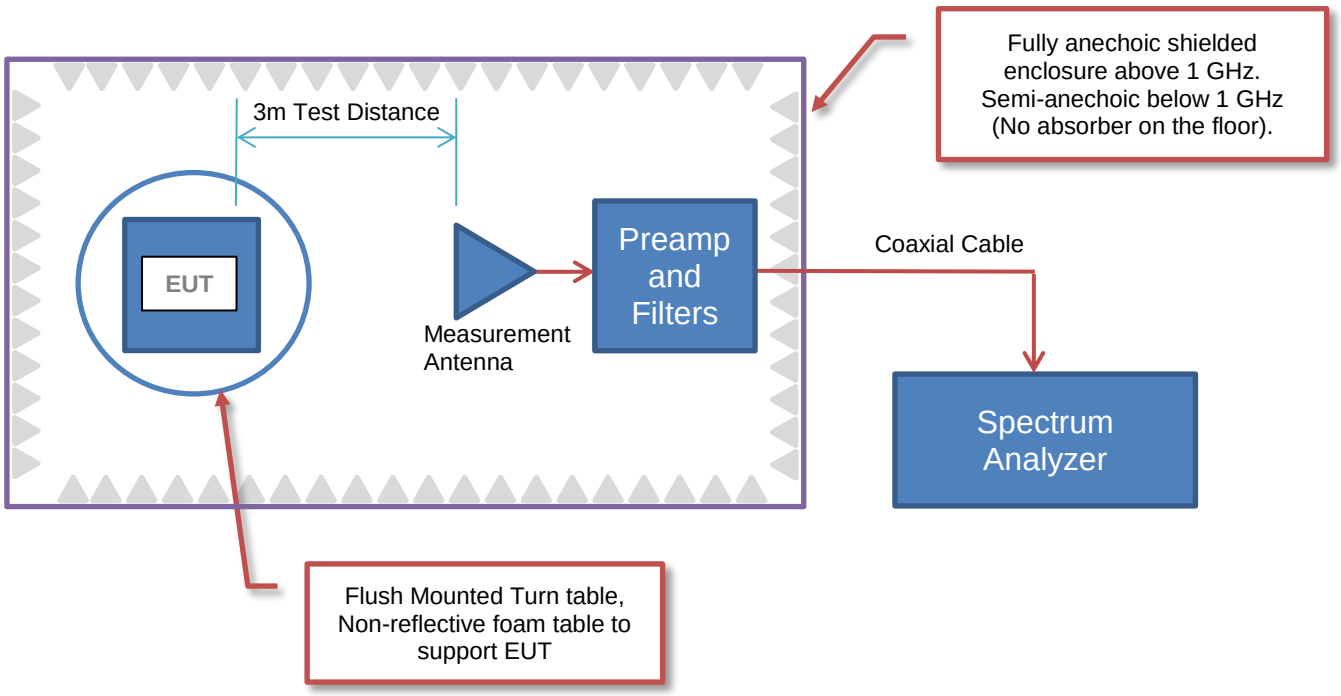
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Inspire Medical Systems
Address:	1600 Wayzata Blvd, Suite 1600
City, State, Zip:	Golden Valley, MN 55416
Test Requested By:	Jordan McIver
EUT:	Programmer Cable
First Date of Test:	June 4, 2020
Last Date of Test:	June 5, 2020
Receipt Date of Samples:	May 26, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Attachment for the tablet programmer containing inductive and Bluetooth Low Energy and 802.11bgn (2.4 GHz only) radios.

Testing Objective:
To demonstrate compliance of the inductive portion of the device to FCC Part 15.209 specifications.

CONFIGURATIONS

Configuration INSP0011- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Programmer Cable	Inspire Medical Systems	2740	P000051

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	GlobTek, Inc.	TR9CE1500CCP-IMR6B	020056138/18

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Programmer Cable	No	2.1 m	No	Power Supply	Wand
AC Cable	No	2.4 m	No	AC Mains	Power Supply
DC Cable	No	1.2 m	No	Power Supply	Programmer Cable

Configuration INSP0011- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Programmer Cable	Inspire Medical Systems	2740	P000028

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	GlobTek, Inc.	TR9CE1500CCP-IMR6B	020056138/18
IPG	Inspire Medical Systems	3028	AIR304151C

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Programmer Cable	No	2.1 m	No	Power Supply	Wand
AC Cable	No	2.4 m	No	AC Mains	Power Supply
DC Cable	No	1.2 m	No	Power Supply	Programmer Cable

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-06-04	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2020-06-04	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2020-06-05	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

element
WTD.2020.03.25.0

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
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	2020-03-15	2021-03-15
Receiver	Rohde & Schwarz	ESR7	ARI	2019-07-08	2020-07-08
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, TYK	MNCA	2020-03-11	2021-03-11

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.6 dB	-2.6 dB

CONFIGURATIONS INVESTIGATED

INSP0011-3

MODES INVESTIGATED

Transmitting on Inductive mode, communicating with IPG device, modulated signal

POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

EUT:	Programmer Cable	Work Order:	INSP0011
Serial Number:	P000028	Date:	2020-06-05
Customer:	Inspire Medical Systems	Temperature:	24.1°C
Attendees:	Charlie Kellerman	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	William Hoffa, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	INSP0011-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

None

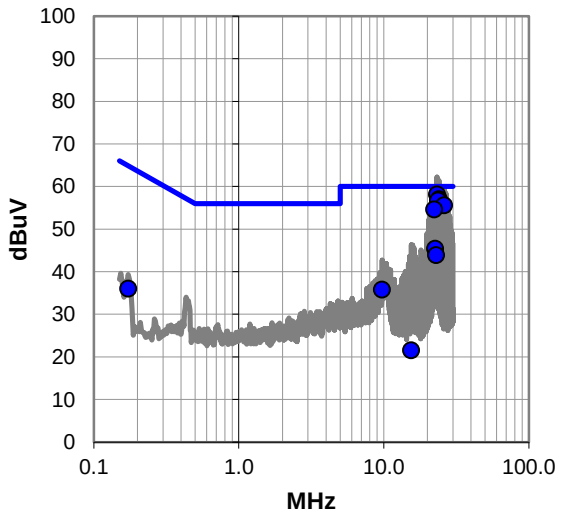
EUT OPERATING MODES

Transmitting on Inductive mode, communicating with IPG device, modulated signal

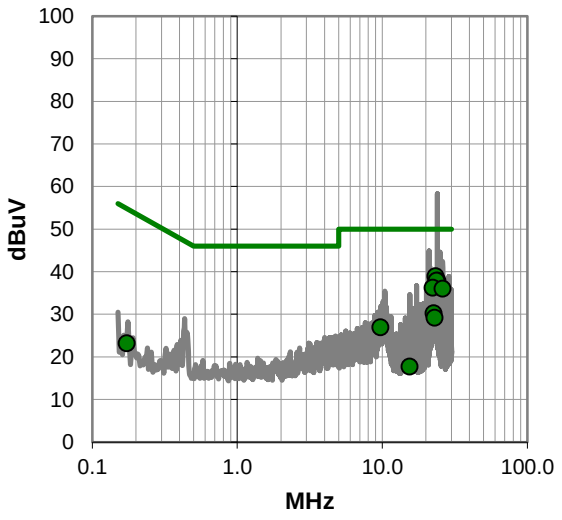
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.304	36.8	21.3	58.1	60.0	-1.9
23.999	35.7	21.3	57.0	60.0	-3.0
23.654	35.4	21.3	56.7	60.0	-3.3
26.086	34.3	21.3	55.6	60.0	-4.4
22.261	33.4	21.2	54.6	60.0	-5.4
22.602	24.2	21.2	45.4	60.0	-14.6
22.949	22.6	21.3	43.9	60.0	-16.1
9.738	14.9	20.9	35.8	60.0	-24.2
0.173	15.2	20.8	36.0	64.8	-28.8
15.421	0.4	21.1	21.5	60.0	-38.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.304	17.6	21.3	38.9	50.0	-11.1
23.999	16.6	21.3	37.9	50.0	-12.1
23.654	16.6	21.3	37.9	50.0	-12.1
22.261	15.0	21.2	36.2	50.0	-13.8
26.086	14.7	21.3	36.0	50.0	-14.0
22.602	9.0	21.2	30.2	50.0	-19.8
22.949	7.9	21.3	29.2	50.0	-20.8
9.738	6.0	20.9	26.9	50.0	-23.1
0.173	2.4	20.8	23.2	54.8	-31.6
15.421	-3.4	21.1	17.7	50.0	-32.3

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

EUT:	Programmer Cable	Work Order:	INSP0011
Serial Number:	P000028	Date:	2020-06-05
Customer:	Inspire Medical Systems	Temperature:	24.1°C
Attendees:	Charlie Kellerman	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	William Hoffa, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	INSP0011-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	16	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

None

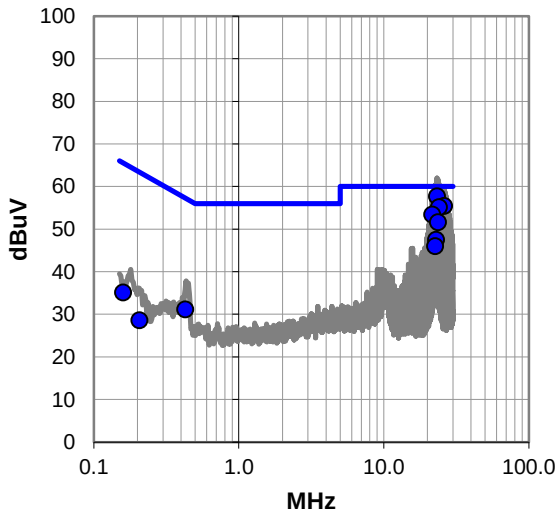
EUT OPERATING MODES

Transmitting on Inductive mode, communicating with IPG device, modulated signal

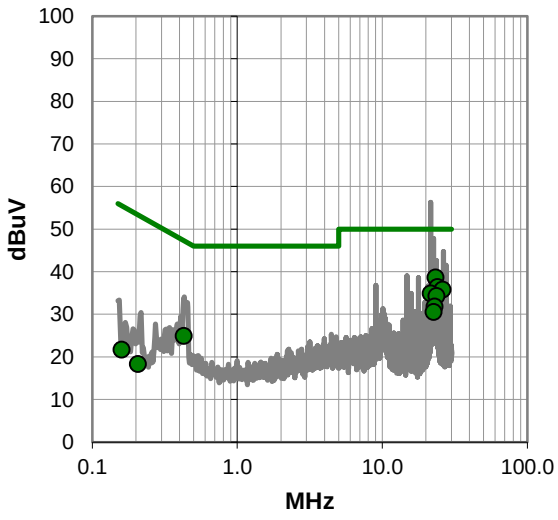
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

RESULTS - Run #16

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.305	36.4	21.3	57.7	60.0	-2.3
26.087	34.1	21.3	55.4	60.0	-4.6
23.998	33.8	21.3	55.1	60.0	-4.9
21.565	32.2	21.2	53.4	60.0	-6.6
23.657	30.3	21.3	51.6	60.0	-8.4
22.951	26.2	21.3	47.5	60.0	-12.5
22.615	24.8	21.2	46.0	60.0	-14.0
0.427	10.6	20.5	31.1	57.3	-26.2
0.159	14.2	20.9	35.1	65.5	-30.4
0.207	7.9	20.7	28.6	63.3	-34.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.305	17.3	21.3	38.6	50.0	-11.4
23.998	15.1	21.3	36.4	50.0	-13.6
26.087	14.5	21.3	35.8	50.0	-14.2
21.565	13.7	21.2	34.9	50.0	-15.1
23.657	13.0	21.3	34.3	50.0	-15.7
22.951	10.5	21.3	31.8	50.0	-18.2
22.615	9.3	21.2	30.5	50.0	-19.5
0.427	4.4	20.5	24.9	47.3	-22.4
0.159	0.8	20.9	21.7	55.5	-33.8
0.207	-2.4	20.7	18.3	53.3	-35.0

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL

PSA-ESCI 2020.04.03.0

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 CW at 175 kHz, CW is the worst case modulation

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INSP0011 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	10 kHz	Stop Frequency	30 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
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFG	2019-07-11	12 mo
Cable	ESM Cable Corp.	Antenna Loop Cable	MNE	2020-02-19	12 mo
Antenna - Loop	ETS Lindgren	6502	AOB	2019-05-21	24 mo

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

The fundamental carrier of the EUT was maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna polarization (per ANSI C63.10). A calibrated active loop antenna was used for this test in order to provide sufficient measurement sensitivity. The reference point of the loop antenna was maintained at 1m above the ground plane during the testing.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

As outlined in 15.209(e), 15.31(f)(2), and RSS-GEN, 6.5, 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.

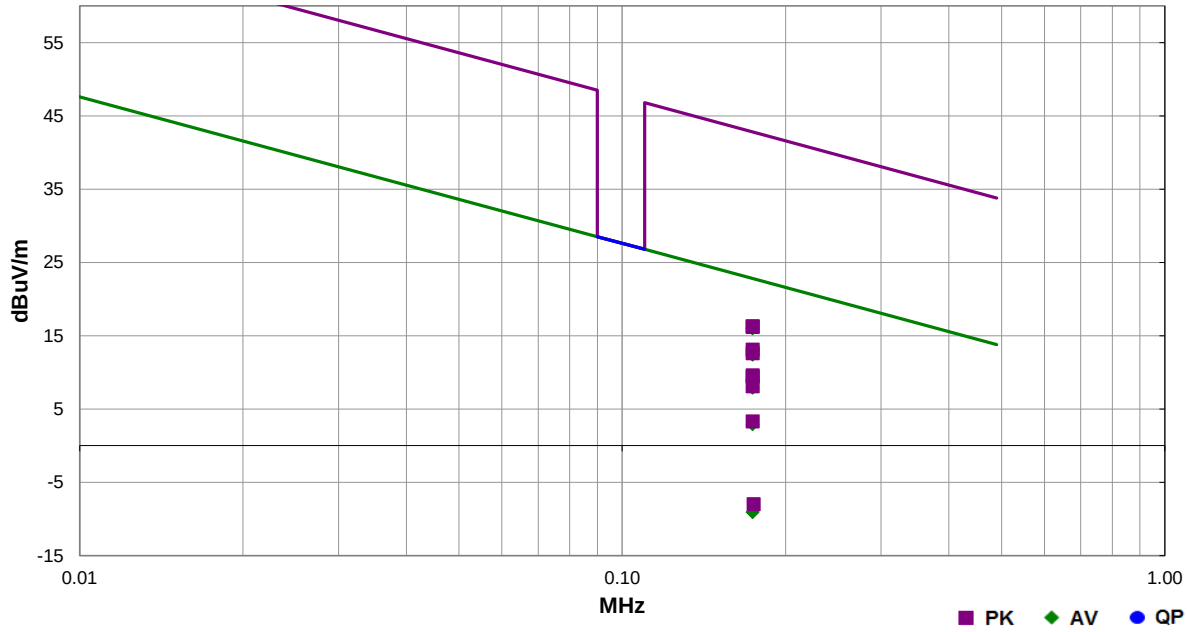
FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2020.04.20.0 PSA-ESCI 2020.04.03.0

Work Order:	INSP0011	**Date:**	2020-06-04		
Project:	None	**Temperature:**	25.1 °C		
Job Site:	MN04	**Humidity:**	46.4% RH		
Serial Number:	P000051	**Barometric Pres.:**	1011 mbar	**Tested by:**	Andrew Rogstad
EUT:	Programmer Cable				
Configuration:	1				
Customer:	Inspire Medical Systems				
Attendees:	Charlie Kellerman				
EUT Power:	120VAC/60Hz				
Operating Mode:	Transmitting CW at 175 kHz, CW is the worst case modulation				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.209:2020	ANSI C63.10:2013

Run #	15	**Test Distance (m)**	3	**Antenna Height(s)**	1(m)	**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
0.174	84.6	11.5	1.0	359.0	3.0	0.0	Para EUT	AV	-80.0	16.1	22.8	-6.7	EUT on side
0.174	84.5	11.5	1.0	348.0	3.0	0.0	Para EUT	AV	-80.0	16.0	22.8	-6.8	EUT vert
0.174	81.4	11.5	1.0	273.0	3.0	0.0	Perp EUT	AV	-80.0	12.9	22.8	-9.9	EUT vert
0.174	80.9	11.5	1.0	263.0	3.0	0.0	Perp EUT	AV	-80.0	12.4	22.8	-10.4	EUT on side
0.174	77.9	11.5	1.0	180.0	3.0	0.0	Para GND	AV	-80.0	9.4	22.8	-13.4	EUT on side
0.174	77.7	11.5	1.0	190.0	3.0	0.0	Para GND	AV	-80.0	9.2	22.8	-13.6	EUT vert
0.174	76.4	11.5	1.0	12.0	3.0	0.0	Para GND	AV	-80.0	7.9	22.8	-14.9	EUT horz
0.174	71.4	11.5	1.0	344.0	3.0	0.0	Para EUT	AV	-80.0	2.9	22.8	-19.9	EUT horz
0.174	84.8	11.5	1.0	359.0	3.0	0.0	Para EUT	PK	-80.0	16.3	42.8	-26.5	EUT on side
0.174	84.7	11.5	1.0	348.0	3.0	0.0	Para EUT	PK	-80.0	16.2	42.8	-26.6	EUT vert
0.174	81.6	11.5	1.0	273.0	3.0	0.0	Perp EUT	PK	-80.0	13.1	42.8	-29.7	EUT vert
0.174	81.1	11.5	1.0	263.0	3.0	0.0	Perp EUT	PK	-80.0	12.6	42.8	-30.2	EUT on side
0.174	59.4	11.5	1.0	71.0	3.0	0.0	Perp EUT	AV	-80.0	-9.1	22.8	-31.9	EUT horz
0.174	78.1	11.5	1.0	180.0	3.0	0.0	Para GND	PK	-80.0	9.6	42.8	-33.2	EUT on side
0.174	77.9	11.5	1.0	190.0	3.0	0.0	Para GND	PK	-80.0	9.4	42.8	-33.4	EUT vert
0.174	76.6	11.5	1.0	12.0	3.0	0.0	Para GND	PK	-80.0	8.1	42.8	-34.7	EUT horz
0.174	71.8	11.5	1.0	344.0	3.0	0.0	Para EUT	PK	-80.0	3.3	42.8	-39.5	EUT horz
0.175	60.5	11.5	1.0	71.0	3.0	0.0	Perp EUT	PK	-80.0	-8.0	42.8	-50.8	EUT horz

SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2020.04.03.0

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 CW at 175 kHz, CW is the worst case modulation

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INSP0011 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	10 kHz	Stop Frequency	30 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
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFG	2019-07-11	12 mo
Cable	ESM Cable Corp.	Antenna Loop Cable	MNE	2020-02-19	12 mo
Antenna - Loop	ETS Lindgren	6502	AOB	2019-05-21	24 mo

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height (where applicable) and polarization (per ANSI C63.10). A calibrated active loop antenna was used for this test in order to provide sufficient measurement sensitivity. The reference point of the loop antenna was maintained at 1m above the ground plane during the testing.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

As outlined in 15.209(e), 15.31(f)(2), and RSS-GEN, 6.5, 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.

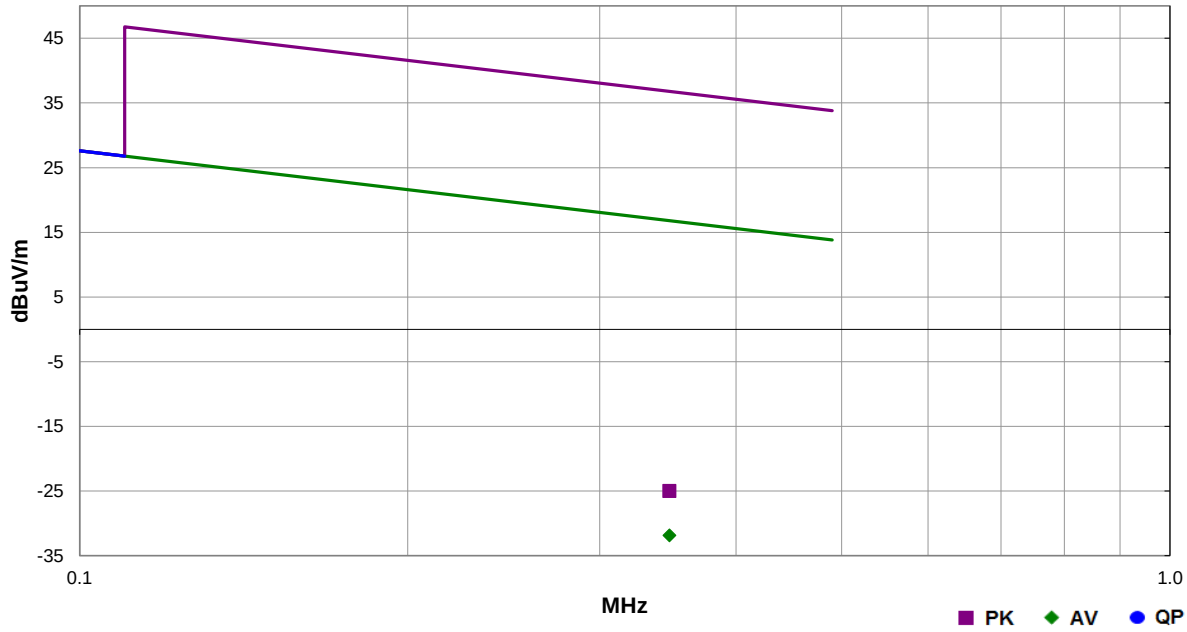
SPURIOUS RADIATED EMISSIONS

EmiR5 2020.04.20.0 PSA-ESCI 2020.04.03.0

Work Order:	INSP0011	**Date:**	2020-06-04		
Project:	None	**Temperature:**	25.1 °C		
Job Site:	MN04	**Humidity:**	46.4% RH		
Serial Number:	P000051	**Barometric Pres.:**	1011 mbar	**Tested by:**	Andrew Rogstad
EUT:	Programmer Cable				
Configuration:	1				
Customer:	Inspire Medical Systems				
Attendees:	Charlie Kellerman				
EUT Power:	120VAC/60Hz				
Operating Mode:	Transmitting CW at 175 kHz, CW is the worst case modulation; Normal modulation is OOK				
Deviations:	None				
Comments:	See data comments for receive antenna orientation and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.209:2020	ANSI C63.10:2013

Run #	16	**Test Distance (m)**	3	**Antenna Height(s)**	1(m)	**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
0.348	36.6	11.5	1.0	329.0	3.0	0.0	Para EUT	AV	-80.0	-31.9	16.8	-48.7	EUT on side
0.347	43.5	11.5	1.0	329.0	3.0	0.0	Para EUT	PK	-80.0	-25.0	36.8	-61.8	EUT on side

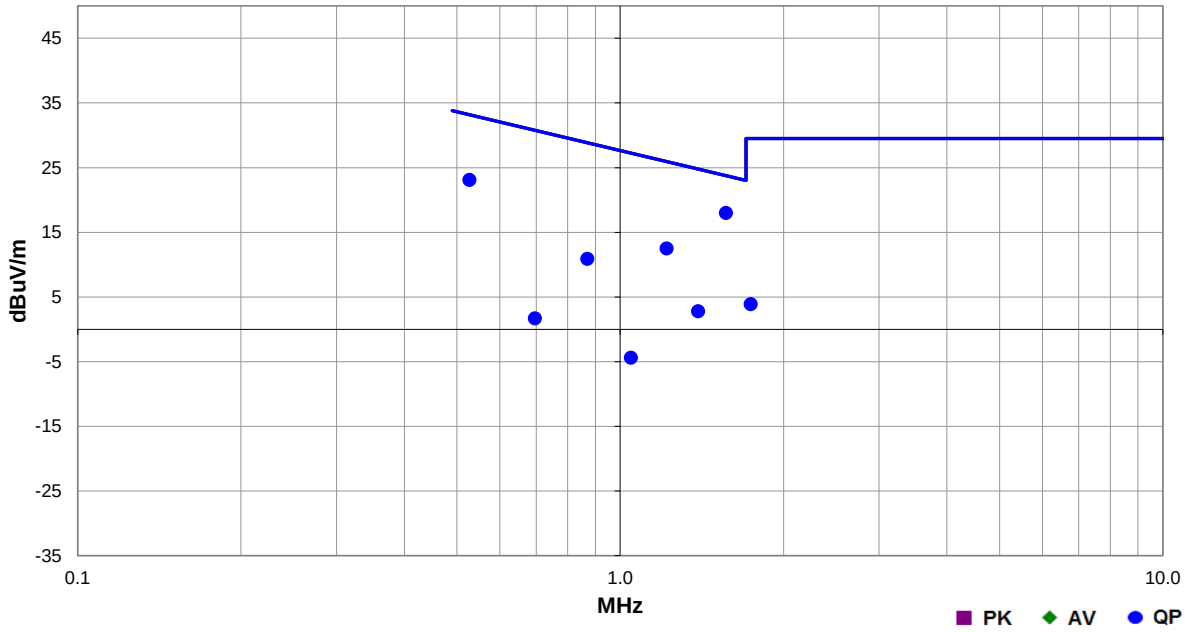
SPURIOUS RADIATED EMISSIONS

EmiR5 2020.04.20.0 PSA-ESCI 2020.04.03.0

Work Order:	INSP0011	**Date:**	2020-06-04		
Project:	None	**Temperature:**	25.1 °C		
Job Site:	MN04	**Humidity:**	46.4% RH		
Serial Number:	P000051	**Barometric Pres.:**	1011 mbar	**Tested by:**	Andrew Rogstad
EUT:	Programmer Cable				
Configuration:	1				
Customer:	Inspire Medical Systems				
Attendees:	Charlie Kellerman				
EUT Power:	120VAC/60Hz				
Operating Mode:	Transmitting CW at 175 kHz, CW is the worst case modulation; Normal modulation is OOK				
Deviations:	None				
Comments:	See data comments for receive antenna orientation and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.209:2020	ANSI C63.10:2013

Run #	18	**Test Distance (m)**	3	**Antenna Height(s)**	1(m)	**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
1.565	46.0	12.0	1.0	167.0	3.0	0.0	Para EUT	QP	-40.0	18.0	23.7	-5.7	EUT on side
0.527	51.4	11.7	1.0	168.0	3.0	0.0	Para EUT	QP	-40.0	23.1	33.2	-10.1	EUT on side
1.217	40.5	12.0	1.0	167.0	3.0	0.0	Para EUT	QP	-40.0	12.5	25.9	-13.4	EUT on side
0.870	39.1	11.8	1.0	181.0	3.0	0.0	Para EUT	QP	-40.0	10.9	28.8	-17.9	EUT on side
1.391	30.8	12.0	1.0	171.0	3.0	0.0	Para EUT	QP	-40.0	2.8	24.8	-22.0	EUT on side
1.739	31.9	12.0	1.0	182.0	3.0	0.0	Para EUT	QP	-40.0	3.9	29.5	-25.6	EUT on side
0.696	30.0	11.7	1.0	178.0	3.0	0.0	Para EUT	QP	-40.0	1.7	30.8	-29.1	EUT on side
1.046	23.6	12.0	1.0	151.0	3.0	0.0	Para EUT	QP	-40.0	-4.4	27.2	-31.6	EUT on side