



ZOLL Medical Corporation
CP Board, X-Series

Report #: ZOLM0003 Rev. 1



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

Last Date of Test: August 10, 2012
ZOLL Medical Corporation
Model: CP Board

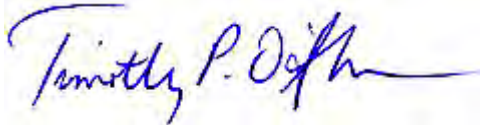
Emissions

Test Description	Specification	Test Method	Pass/Fail
Output Power	FCC 15.247:2012	ANSI C63.10:2009	Pass
Peak Transmit Power	FCC 15.407:2012	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager



NVLAP Lab Code: 200881-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
9349 West Broadway Ave
Brooklyn Park, MN 55445

Phone: (763)425-2281

Fax: (503)844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

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.

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. This Report may only be duplicated in its entirety. 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.

CERTIFICATE OF TEST

Last Date of Test: August 10, 2012
ZOLL Medical Corporation
Model: X-Series

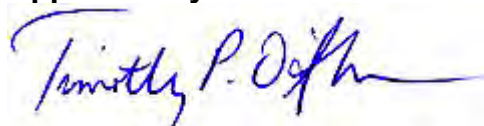
Emissions

Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.407:2012	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager



NVLAP Lab Code: 200881-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
9349 West Broadway Ave
Brooklyn Park, MN 55445

Phone: (763)425-2281

Fax: (503)844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

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.

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. This Report may only be duplicated in its entirety. 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.



Revision History

Revision Number	Description	Date	Page Number
01	Deleted data for the frequencies of 5260-5700 MHz.	7/25/2013	21, 23-25, 31-33

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 Guide 65 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. The scope includes radio, ITE, and medical standards from around the world. See: <http://www.nwemc.com/accreditations/>

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and 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

KCC / 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.

Hong Kong

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

Vietnam

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

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

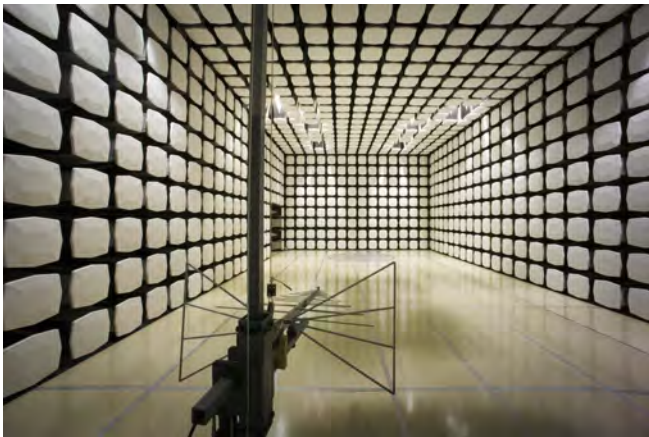


Locations

Revision 8/3/12



Oregon Labs EV01-EV12 22975 NW Evergreen Pkwy, #400 Hillsboro, OR 97124 (503) 844-4066	California Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918	New York Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Minnesota Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Washington Labs SU01-SU07 14128 339 th Ave. SE Sultan, WA 98294 (360) 793-8675
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1



Client and Equipment Under Test (EUT) Information

Company Name:	ZOLL Medical Corporation
Address:	269 Mill Road
City, State, Zip:	Chelmsford, MA 01824-4105
Test Requested By:	Tim Stever
Model:	CP Board, X-Series
First Date of Test:	August 10, 2012
Last Date of Test:	August 10, 2012
Receipt Date of Samples:	August 10, 2012
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
The CP board contains radio module and communication to the X-Series, which is the full patient system.
Clocks and Oscillators of the EUT:
None Provided
Testing Objective:
To demonstrate compliance to FCC 15.247 and FCC 15.407 requirements.

Configuration ZOLM0003- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
CP Board	Logic Product Development	1020246 rev D	LA171200475

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
CPC Adapter Board	ZOLL Medical Corporation	None	None
Debug Board	Logic Product Development	None	None
DC Power Supply	Agilent	E3620A	N10149
Laptop	DELL	Vostro	19397709721
Laptop Power Brick	DELL	LA65NE1-01	CN-05K74V-71615-02R-252D-A01

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.80 m	No	AC Mains	DC Power Supply
AC Power Cable	No	1.00 m	No	AC Mains	Laptop Power Brick
DC Power Cable	No	1.80 m	Yes	Laptop Power Brick	Laptop
DC Power Cable	No	0.50 m	No	DC Power Supply	CP Board
Serial Cable	Yes	2.0 m	No	Laptop	Debug Board
Ribbon Cable	No	0.13 m	No	CP Board	CPA Board
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration ZOLM0003- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
X-Series	ZOLL Medical Corporation	X-Series	AR11J000137
Propaq.MD Battery Pack	ZOLL Medical Corporation	8000-0580-01	AJ11AMV0121

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	DELL	Vostro	19397709721
Laptop Power Brick	DELL	LA65NE1-01	CN-05K74V-71615-02R-252D-A01
DC Power Supply	V Infinity	3A-1WP05	None
X-Series Power Brick	Propaq MD	8300-0004	4142F 0000657
Ethernet to USB Adapter	D-Link	DUB-E100	Q8031A9000586
X-Series USB Board	ZOLL Medical Corporation	None	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.00 m	No	AC Mains	Laptop Power Brick
DC Power Cable	No	1.80 m	Yes	Laptop Power Brick	Laptop
DC Power Cable	No	1.90m	No	X-Series Power Brick	X-Series
DC Power Cable	No	1.00m	Yes	DC Power Supply	X-Series USB Board
AC Power Cable	No	1.80m	No	AC Mains	X-Series Power Brick
3 ea. Invasive Pressure (8300-0787-01)	No	4.30m	No	X-Series	Self Terminated
Manual Defib.	No	2.40m	No	X-Series	Termination
2 ea. Temp. Leads, (11J40753 409B)	No	3.10m	No	X-Series	Self Terminated
USB	Yes	0.30m	No	X-Series	Unterminated
SpO2, (PS-10153D 0299)	No	0.95m	No	X-Series	Self Terminated
ECG, (8300-0789-01, Lot:58646)	No	3.10m	No	X-Series	Termination
Patient Leads, (8300-0790-01, Lot:57862)	No	0.80m	No	ECG, (8300-0789-01, Lot:58646)	Termination
USB	Yes	1.80m	No	X-Series USB Board	Laptop
Cat5 Ethernet	No	7.50m	No	Ethernet to USB Adapter	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	8/10/2012	Output Power	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	8/10/2012	Peak Transmit Power	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	8/10/2012	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Output Power

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +27dBm.



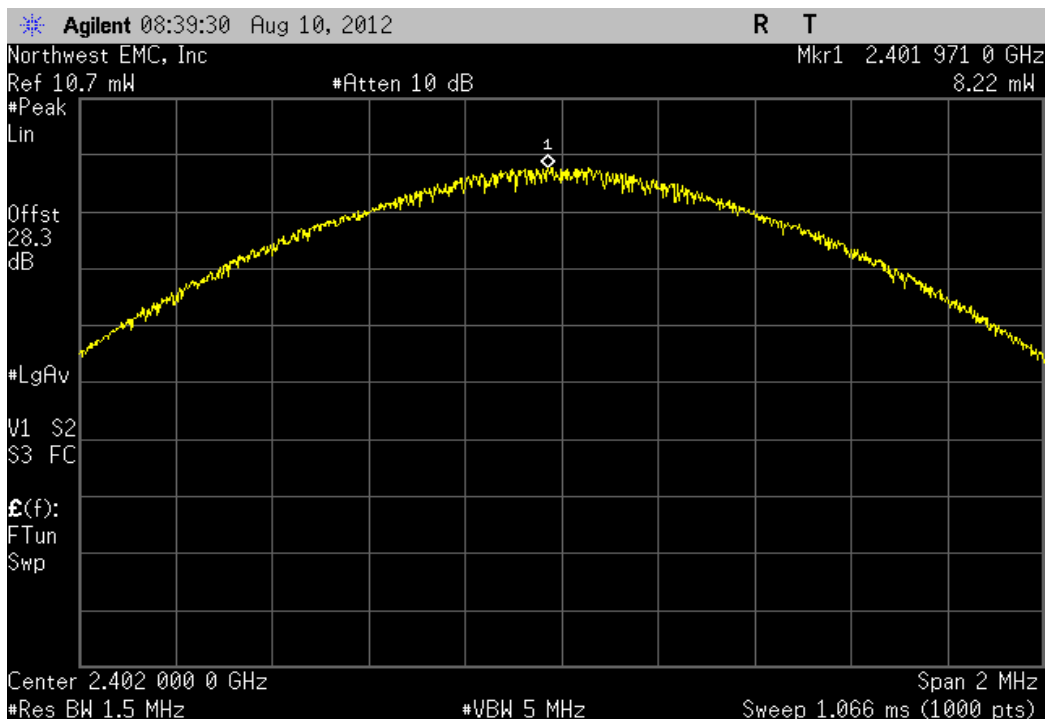
Output Power

XMit 2012.07.31
PsaTx 2012.08.02

EUT: CP Board		Work Order: ZOLM0003	
Serial Number: LA171200475		Date: 08/10/12	
Customer: ZOLL Medical Corporation		Temperature: 23.17°C	
Attendees: None		Humidity: 48%	
Project: None		Barometric Pres.: 1021.2	
Tested by: Trevor Buls		Power: 15 VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
3DH5, 8-DPSK			Result
Low Channel		8.217 mW	< 125 mW Pass
Mid Channel		9.131 mW	< 125 mW Pass
High Channel		9.669 mW	< 125 mW Pass

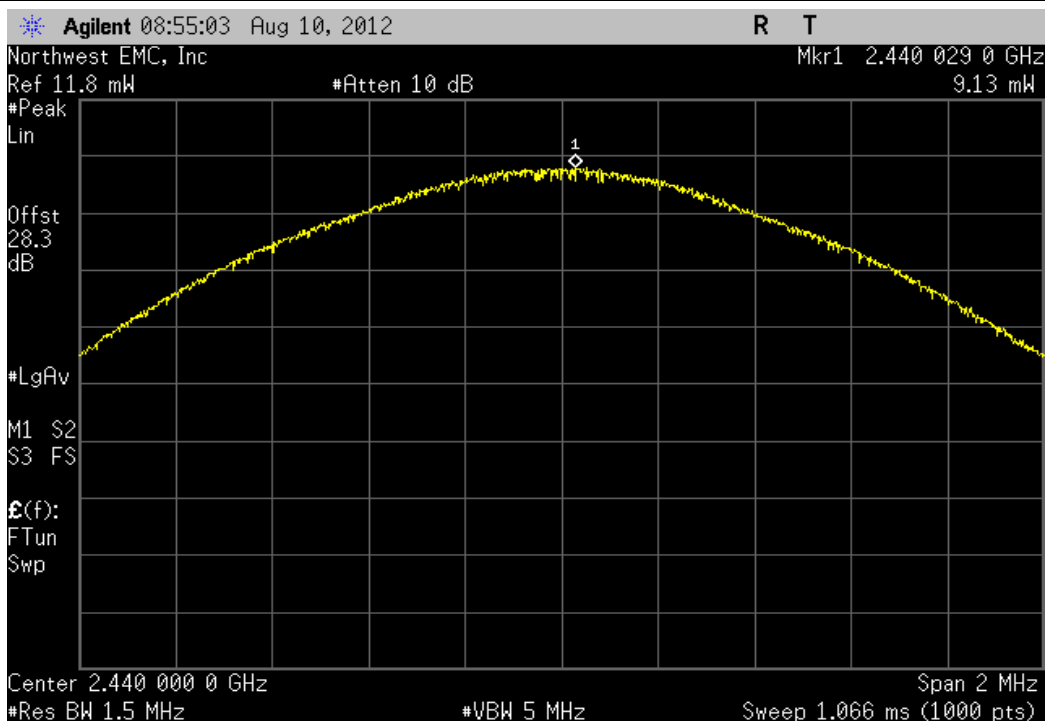
3DH5, 8-DPSK, Low Channel

Value	Limit	Result
8.217 mW	< 125 mW	Pass



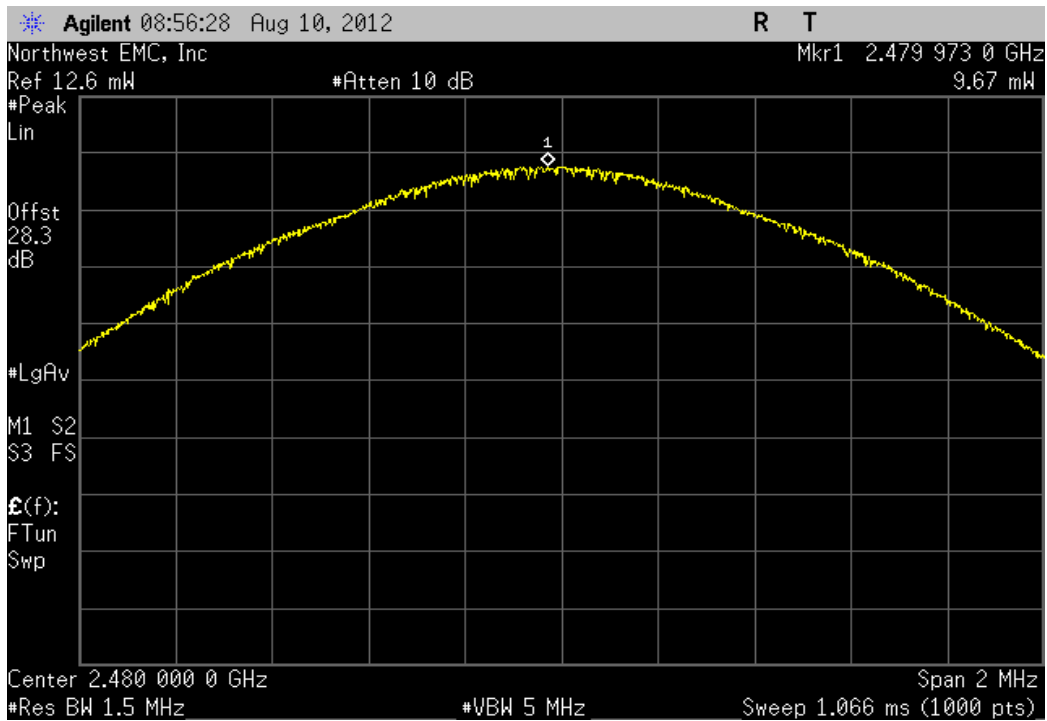
3DH5, 8-DPSK, Mid Channel

Value	Limit	Result
9.131 mW	< 125 mW	Pass



3DH5, 8-DPSK, High Channel

Value	Limit	Result
9.669 mW	< 125 mW	Pass



Output Power

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

Method PK2 found in KDB 558074 DTS D01 Measurement Section 5.2.1.2 was used because the Emission Bandwidth was greater than the largest RBW on the analyzer.

The spectrum analyzer settings were as follows:

- The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- The RBW = 1 MHz, VBW = 3 MHz.
- Sample detector mode because the bin width (span / number of spectral points) < 0.5 RBW.
- Power was integrated across "B", by using the channel power function of the analyzer.



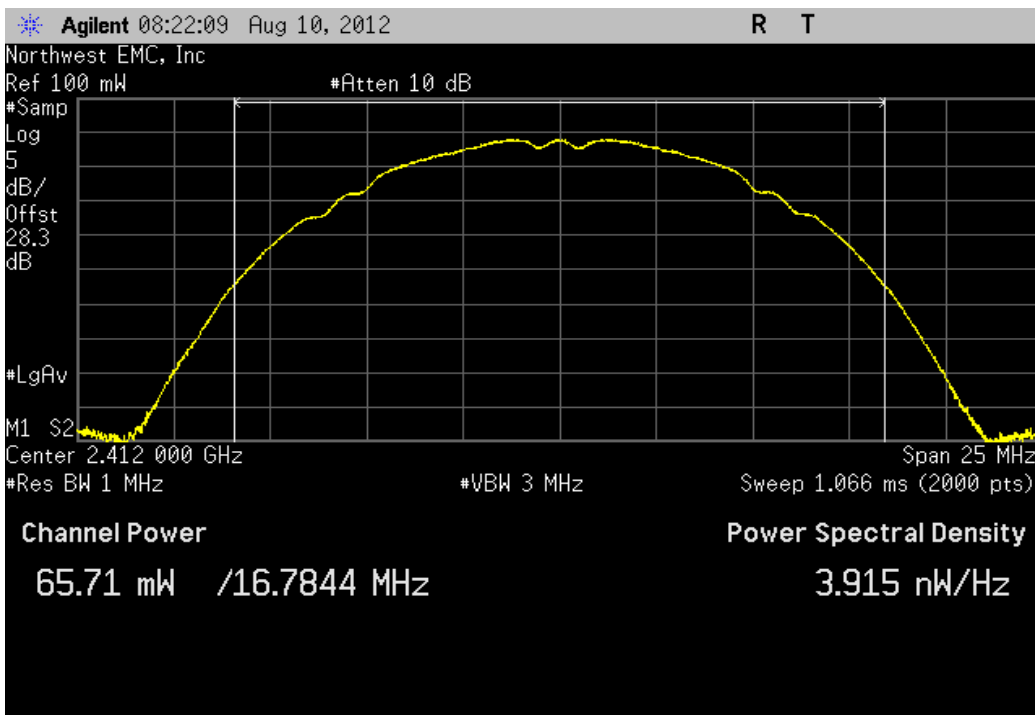
Output Power

XMit 2012.07.31
PsaTx 2012.08.02

EUT: CP Board		Work Order: ZOLM0003	
Serial Number: LA171200475		Date: 08/10/12	
Customer: ZOLL Medical Corporation		Temperature: 23.17°C	
Attendees: None		Humidity: 48%	
Project: None		Barometric Pres.: 1021.2	
Tested by: Trevor Buls		Power: 15 VDC	
Job Site: MN08			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		65.712 mW	< 1 W
Mid Channel 6, 2437 MHz		71.223 mW	< 1 W
High Channel 11, 2462 MHz		73.589 mW	< 1 W
5725 MHz - 5850 MHz Band			
802.11(a) 6 Mbps			
Low Channel 149, 5745 MHz		24.048 mW	< 1 W
Mid Channel 157, 5785 MHz		21.255 mW	< 1 W
High Channel 165, 5825 MHz		22.997 mW	< 1 W

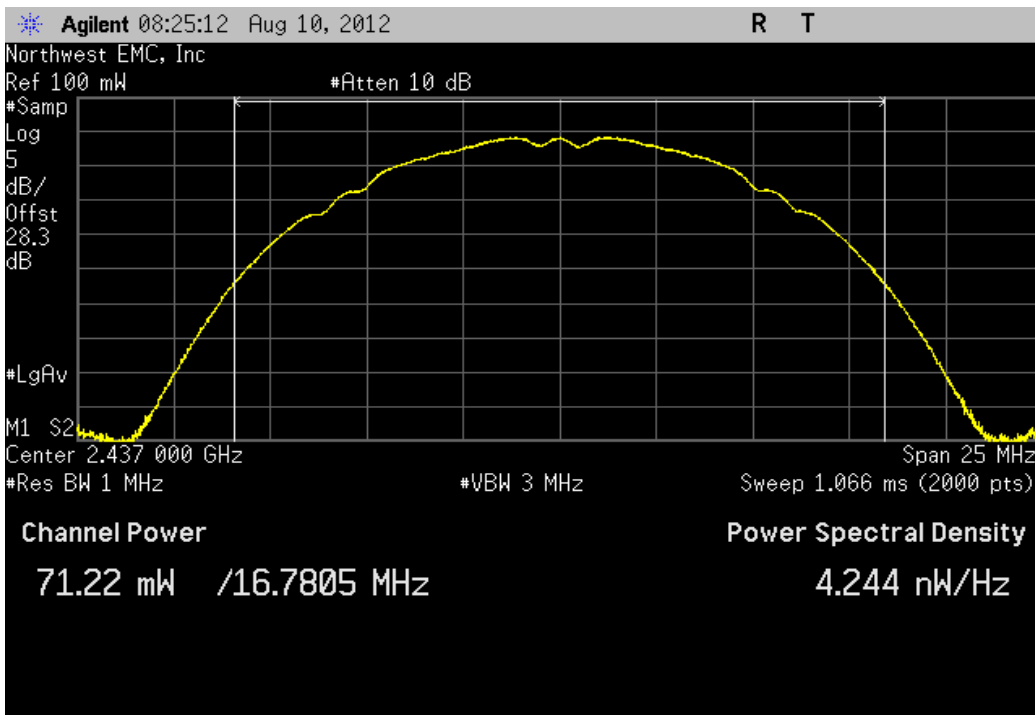
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Value	Limit	Result
65.712 mW	< 1 W	Pass



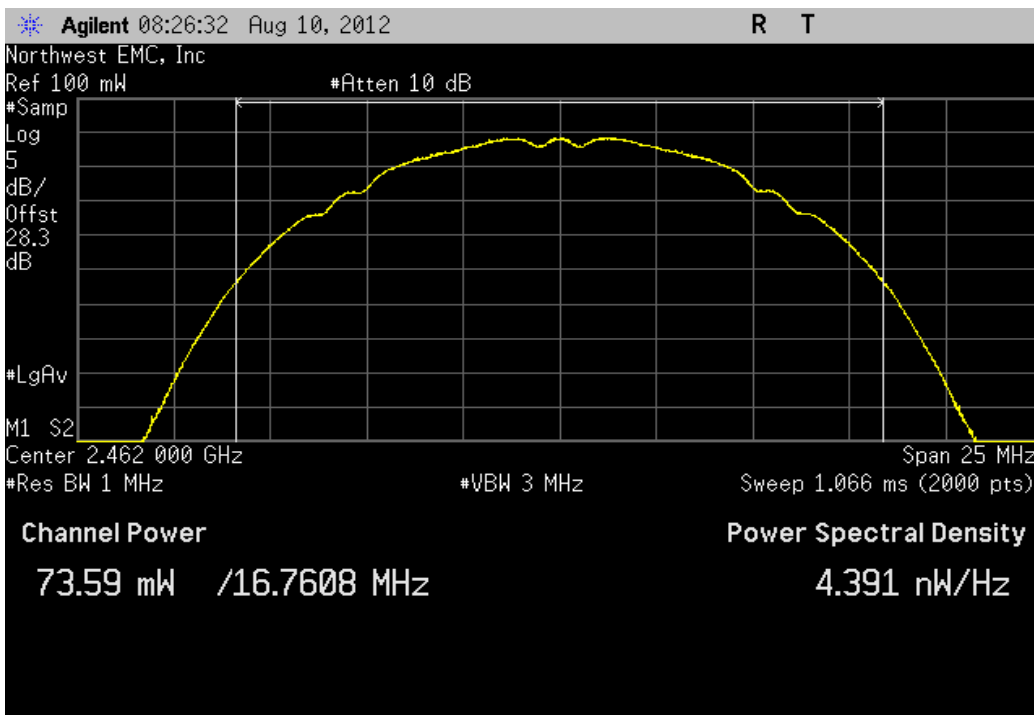
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

Value	Limit	Result
71.223 mW	< 1 W	Pass



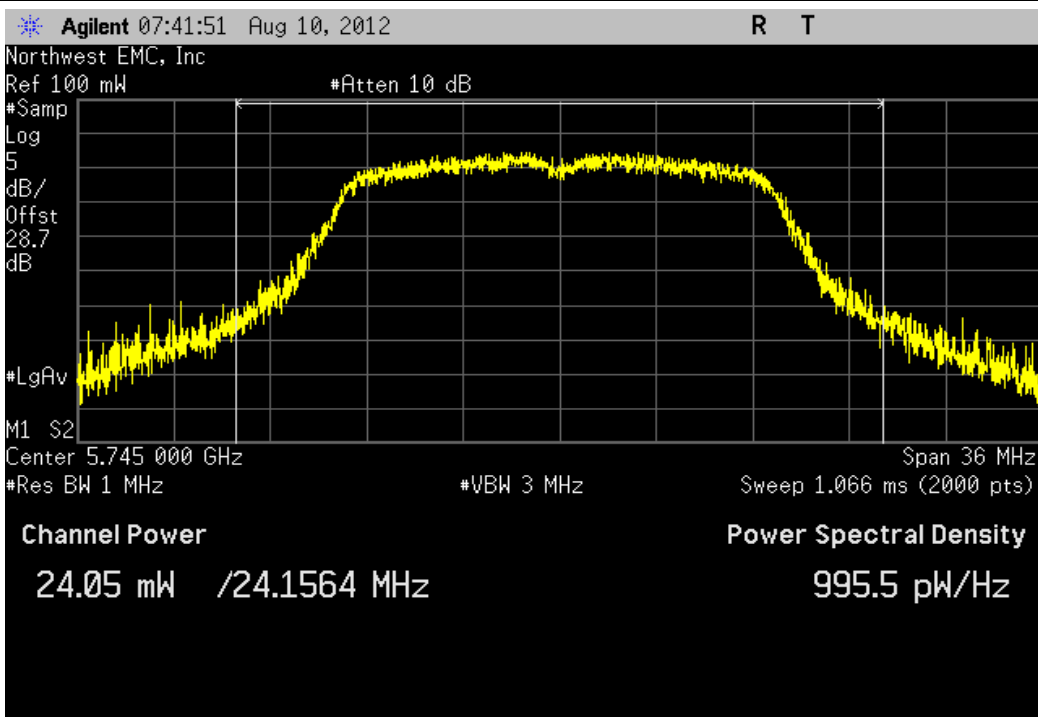
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

Value	Limit	Result
73.589 mW	< 1 W	Pass



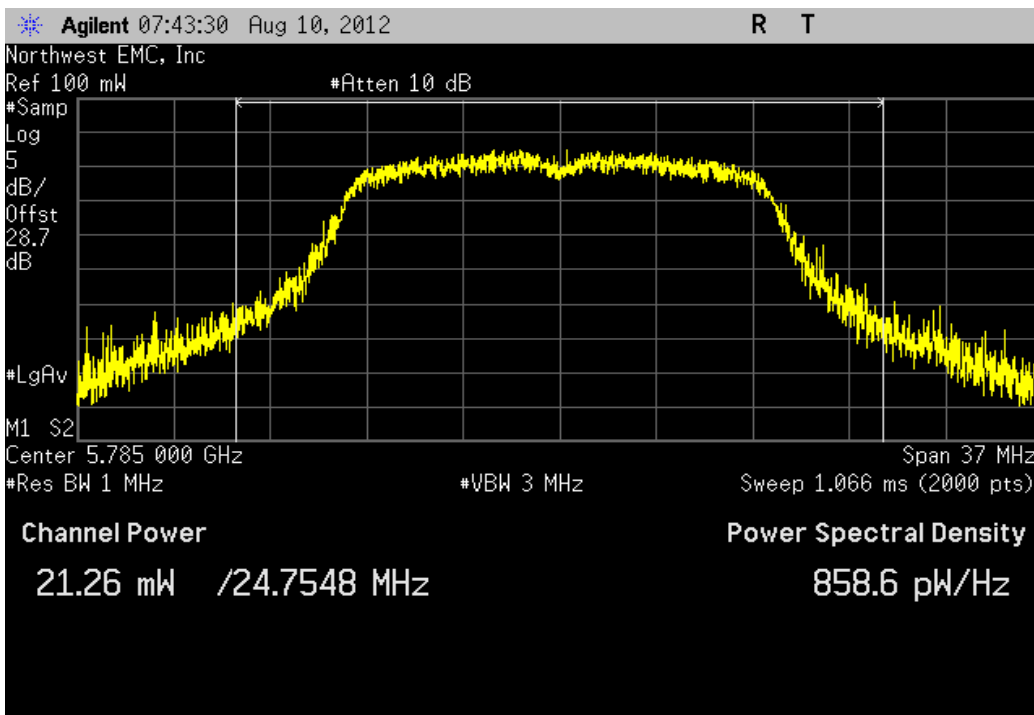
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz

Value	Limit	Result
24.048 mW	< 1 W	Pass



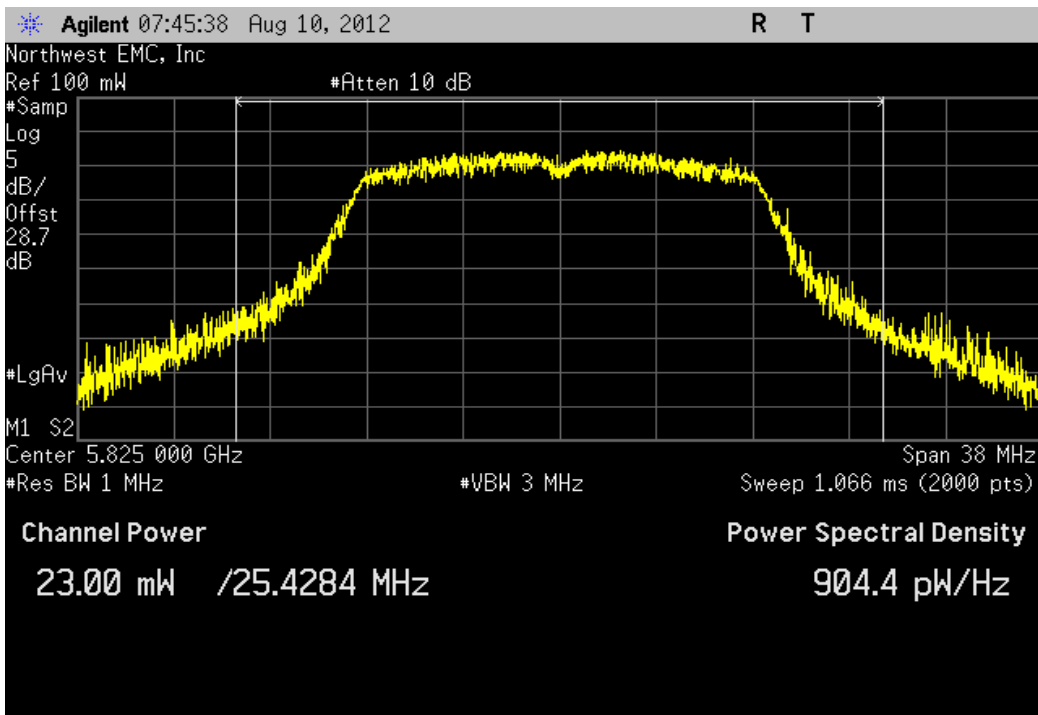
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz

				Value	Limit	Result
				21.255 mW	< 1 W	Pass



5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz

				Value	Limit	Result
				22.997 mW	< 1 W	Pass



Peak Transmit Power

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section C was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep) was used for this test.

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RBW = 1 MHz, VBW = 3 MHz
- Sample Detector
- The number of points was set to 601. This satisfied the requirement of being $> 2 * \text{span} / \text{RBW}$
- Trace average 100 traces in power averaging mode.
- Power was integrated across "B", by using the channel power function of the analyzer.



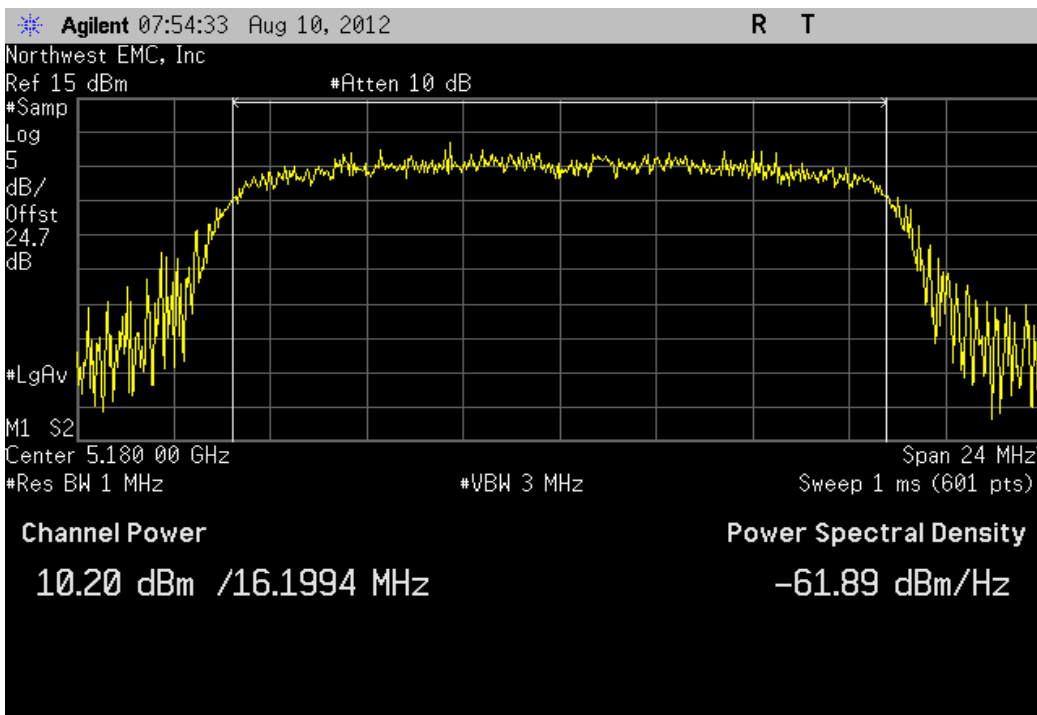
Peak Transmit Power

XMit 2012.07.31
PsaTx 2012.08.02

EUT: CP Board		Work Order: ZOLM0003	
Serial Number: LA171200475		Date: 08/10/12	
Customer: ZOLL Medical Corporation		Temperature: 23.17°C	
Attendees: None		Humidity: 48%	
Project: None		Barometric Pres.: 1021.2	
Tested by: Trevor Buls		Power: 15 VDC	
Job Site: MN08			
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2012		ANSI C63.10:2009	
COMMENTS			
Customer provided additional cable loss factor for antenna cable that is not present in the setup.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
802.11(a) 36 Mbps			Result
5150 - 5250 MHz Band			
Channel 36, Low Channel		10.202 dBm	< 17 dBm
Channel 48, High Channel		10.003 dBm	< 17 dBm
			Pass
			Pass

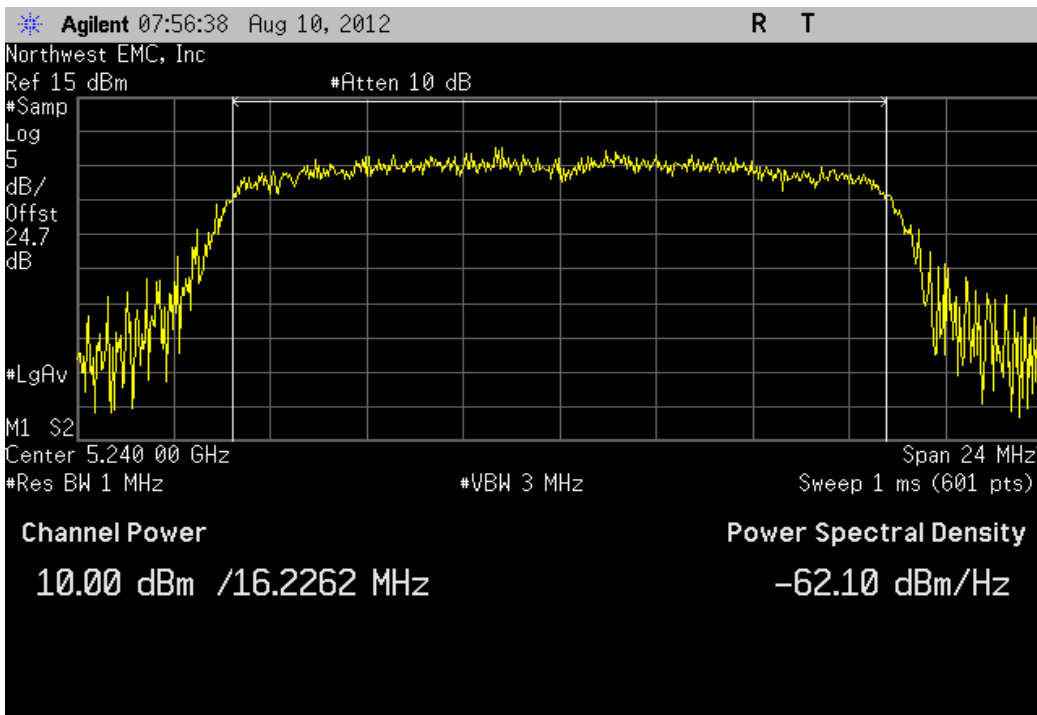
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

Value	Limit	Result
10.202 dBm	< 17 dBm	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

Value	Limit	Result
10.003 dBm	< 17 dBm	Pass



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 BT Mid, High Channel, DH5, 3DH5 (See comments).

POWER SETTINGS INVESTIGATED

15 VDC

CONFIGURATIONS INVESTIGATED

ZOLM0003 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	25 GHz
-----------------	--------	----------------	--------

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
High Pass Filter	Micro-Tronics	HPM50111	HGQ	6/1/2012	24 mo
Low Pass Filter	Micro-Tronics	LPM50004	HGK	5/31/2012	24 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2/6/2012	12 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	EVD	2/6/2012	12 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	5/31/2012	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	5/31/2012	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/19/2011	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

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.



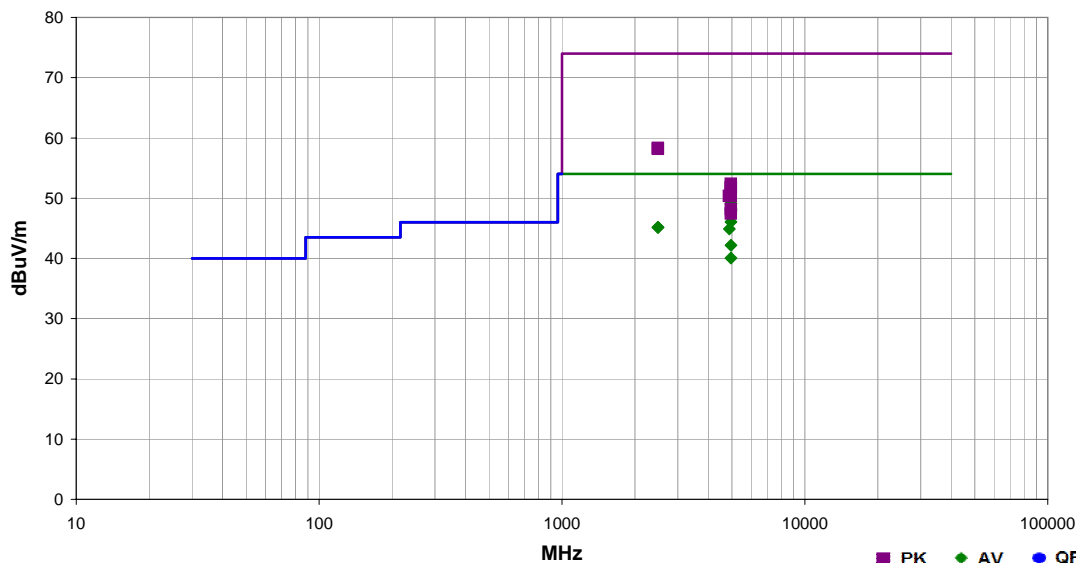
Spurious Radiated Emissions

PSA-ESCI 2012.08.08
PSA-ESCI Version 2011.12.21

Work Order:	ZOLM0003	Date:	08/10/12	Trevor Buls	
Project:	None	Temperature:	23.17 °C		
Job Site:	MN05	Humidity:	48% RH		
Serial Number:	AR11J000137	Barometric Pres.:	1021.2 mbar	Tested by:	Trevor Buls
EUT:	X-Series				
Configuration:	2				
Customer:	ZOLL Medical Corporation				
Attendees:	None				
EUT Power:	15 VDC				
Operating Mode:	Transmitting BT Mid, High Channel, DH5, 3DH5 (See comments).				
Deviations:	None				
Comments:	None				

Test Specifications	Test Method
FCC 15.247:2012	ANSI C63.10:2009

Run #	6	Test Distance (m)	3	Antenna Height(s)	1-4m	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
4960.053	44.6	4.6	1.0	219.0	3.0	0.0	Vert	AV	0.0	49.2	54.0	-4.8	EUT Face Down, High Ch, DH5
4960.028	43.6	4.6	1.0	244.0	3.0	0.0	Horz	AV	0.0	48.2	54.0	-5.8	EUT Horz, High Ch, DH5
4960.028	43.4	4.6	1.0	166.0	3.0	0.0	Horz	AV	0.0	48.0	54.0	-6.0	EUT Face Down, High Ch, DH5
4960.028	41.5	4.6	1.0	9.0	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	EUT on Side, High Ch, DH5
2483.550	28.9	-3.8	1.0	139.0	3.0	20.0	Horz	AV	0.0	45.1	54.0	-8.9	EUT Horz, High Ch, 3DH5, Old Highest
2483.542	28.9	-3.8	3.6	211.0	3.0	20.0	Vert	AV	0.0	45.1	54.0	-8.9	EUT Horz, High Ch, 3DH5, Old Highest
4880.025	40.6	4.3	1.1	238.0	3.0	0.0	Horz	AV	0.0	44.9	54.0	-9.1	EUT Horz, Mid Ch, DH5, Old Highest
4960.028	37.6	4.6	1.0	2.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	EUT on Side, High Ch, DH5
4960.036	35.5	4.6	1.0	355.0	3.0	0.0	Vert	AV	0.0	40.1	54.0	-13.9	EUT Horz, High Ch, DH5
2484.750	42.1	-3.8	1.0	139.0	3.0	20.0	Horz	PK	0.0	58.3	74.0	-15.7	EUT Horz, High Ch, 3DH5, Old Highest
2488.075	41.9	-3.7	3.5	211.0	3.0	20.0	Vert	PK	0.0	58.2	74.0	-15.8	EUT Horz, High Ch, 3DH5, Old Highest
4960.153	47.8	4.6	1.0	219.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	EUT Face Down, High Ch, DH5
4959.736	47.3	4.6	1.0	244.0	3.0	0.0	Horz	PK	0.0	51.9	74.0	-22.1	EUT Horz, High Ch, DH5
4959.569	47.1	4.6	1.0	166.0	3.0	0.0	Horz	PK	0.0	51.7	74.0	-22.3	EUT Face Down, High Ch, DH5
4879.525	46.1	4.3	1.1	238.0	3.0	0.0	Horz	PK	0.0	50.4	74.0	-23.6	EUT Horz, Mid Ch, DH5, Old Highest
4959.611	45.8	4.6	1.0	9.0	3.0	0.0	Vert	PK	0.0	50.4	74.0	-23.6	EUT on Side, High Ch, DH5
4960.244	43.6	4.6	1.0	2.0	3.0	0.0	Horz	PK	0.0	48.2	74.0	-25.8	EUT on Side, High Ch, DH5
4960.128	42.9	4.6	1.0	355.0	3.0	0.0	Vert	PK	0.0	47.5	74.0	-26.5	EUT Horz, High Ch, DH5

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 802.11 Channel 1, 11, Modulated (See comments)

POWER SETTINGS INVESTIGATED

15 VDC

CONFIGURATIONS INVESTIGATED

ZOLM0003 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 25 GHz

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
Low Pass Filter	Micro-Tronics	LPM50004	HGK	5/31/2012	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	5/31/2012	12 mo
High Pass Filter	Micro-Tronics	HPM50111	HGQ	6/1/2012	24 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2/6/2012	12 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	EVD	2/6/2012	12 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	5/30/2012	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/19/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	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

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.



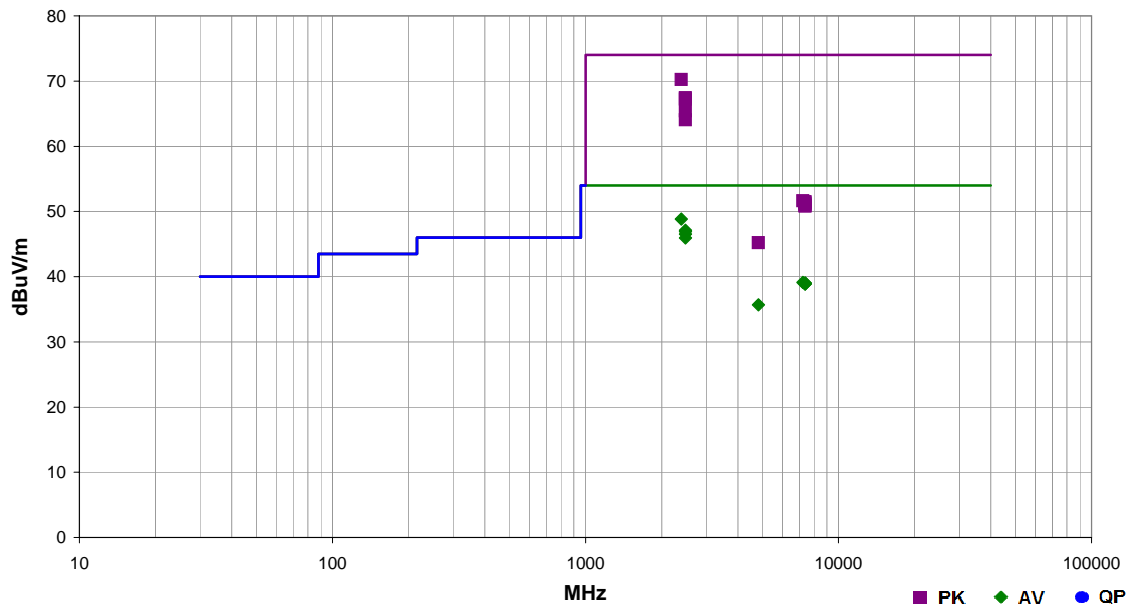
Spurious Radiated Emissions

PSA-ESCI 2012.08.08
PSA-ESCI Version 2011.12.21

Work Order:	ZOLM0003	Date:	08/10/12	<i>Trevor Buls</i>
Project:	None	Temperature:	23.17 °C	
Job Site:	MN05	Humidity:	48% RH	
Serial Number:	AR11J000137	Barometric Pres.:	1021.2 mbar	
Tested by: Trevor Buls				
EUT:	X-Series			
Configuration:	2			
Customer:	ZOLL Medical Corporation			
Attendees:	None			
EUT Power:	15 VDC			
Operating Mode:	Transmitting 802.11 Channel 1, 11, Modulated (See comments)			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2012	ANSI C63.10:2009

Run #	3	Test Distance (m)	3	Antenna Height(s)	1-4m	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
2389.933	54.3	-4.0	1.0	44.0	3.0	20.0	Horz	PK	0.0	70.3	74.0	-3.7	EUT Horz, Ch 1, MCS0, Old Highest
2389.983	32.9	-4.0	1.0	44.0	3.0	20.0	Horz	AV	0.0	48.9	54.0	-5.1	EUT Horz, Ch 1, MCS0, Old Highest
2483.683	51.2	-3.8	1.5	352.0	3.0	20.0	Horz	PK	0.0	67.4	74.0	-6.6	EUT Horz, Ch 11, 6 Mbit
2484.020	51.0	-3.8	1.5	354.0	3.0	20.0	Horz	PK	0.0	67.2	74.0	-6.8	EUT Horz, Ch 11, MCS0, Old Highest
2483.500	30.9	-3.8	1.5	354.0	3.0	20.0	Horz	AV	0.0	47.1	54.0	-6.9	EUT Horz, Ch 11, MCS0, Old Highest
2483.500	30.7	-3.8	1.5	352.0	3.0	20.0	Horz	AV	0.0	46.9	54.0	-7.1	EUT Horz, Ch 11, 6 Mbit
2483.500	30.3	-3.8	1.0	345.0	3.0	20.0	Vert	AV	0.0	46.5	54.0	-7.5	EUT Horz, Ch 11, 6 Mbit
2483.558	29.7	-3.8	1.0	241.0	3.0	20.0	Vert	AV	0.0	45.9	54.0	-8.1	EUT Horz, Ch 11, MCS0, Old Highest
2483.900	49.2	-3.8	1.0	345.0	3.0	20.0	Vert	PK	0.0	65.4	74.0	-8.6	EUT Horz, Ch 11, 6 Mbit
2483.608	47.8	-3.8	1.0	241.0	3.0	20.0	Vert	PK	0.0	64.0	74.0	-10.0	EUT Horz, Ch 11, MCS0, Old Highest
7231.521	27.6	11.5	3.6	251.0	3.0	0.0	Horz	AV	0.0	39.1	54.0	-14.9	EUT Horz, Ch 1, 1 Mbps, Old Highest
7388.354	26.6	12.4	3.2	19.0	3.0	0.0	Vert	AV	0.0	39.0	54.0	-15.0	EUT Horz, Ch 11, 1 Mbps
7385.636	26.6	12.4	1.4	106.0	3.0	0.0	Horz	AV	0.0	39.0	54.0	-15.0	EUT Horz, Ch 11, 1 Mbps
7388.371	26.5	12.4	1.2	135.0	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	EUT Face Down, Ch 11, 1 Mbps
7388.247	26.5	12.4	1.0	232.0	3.0	0.0	Horz	AV	0.0	38.9	54.0	-15.1	EUT Face Down, Ch 11, 1 Mbps
7387.814	26.5	12.4	1.6	140.0	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	EUT on Side, Ch 11, 1 Mbps
7384.524	26.5	12.4	2.8	214.0	3.0	0.0	Horz	AV	0.0	38.9	54.0	-15.1	EUT on Side, Ch 11, 1 Mbps
4824.030	31.6	4.1	1.0	291.0	3.0	0.0	Horz	AV	0.0	35.7	54.0	-18.3	EUT Horz, Ch 1, 1 Mbps, Old Highest
7232.098	40.1	11.5	3.5	251.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	EUT Horz, Ch 1, 1 Mbps, Old Highest
7386.749	39.1	12.4	1.4	106.0	3.0	0.0	Horz	PK	0.0	51.5	74.0	-22.5	EUT Horz, Ch 11, 1 Mbps

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 802.11 Channel 36, 64, 100, 6 Mbps, MCS0 (See Comments)

POWER SETTINGS INVESTIGATED

15 VDC

CONFIGURATIONS INVESTIGATED

ZOLM0003 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 40 GHz

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, Horn	ETS	3115	AJA	5/13/2011	24 mo
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24 mo
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12 mo
5G Notch Filter	Micro-Tronics	BRC50703	HHB	6/2/2011	24 mo
Low Pass Filter	Micro-Tronics	LPM50004	HGK	5/31/2012	24 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	10/12/2011	12 mo
26-40GHz Cable	N/A	TTBJ141-KMKM-72	EVX	10/12/2011	12 mo
Antenna, Horn	ETS	3160-10	AIC	NCR	0 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	EVD	2/6/2012	12 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2/6/2012	12 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	5/31/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/19/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	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

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT were tested. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to satisfy the three requirements of 47 CFR 15.407: Field strength under 1GHz, Restricted Bands of 47 CFR 15.205, and EIRP of 47 CFR 15.407.

While scanning, 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 and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.



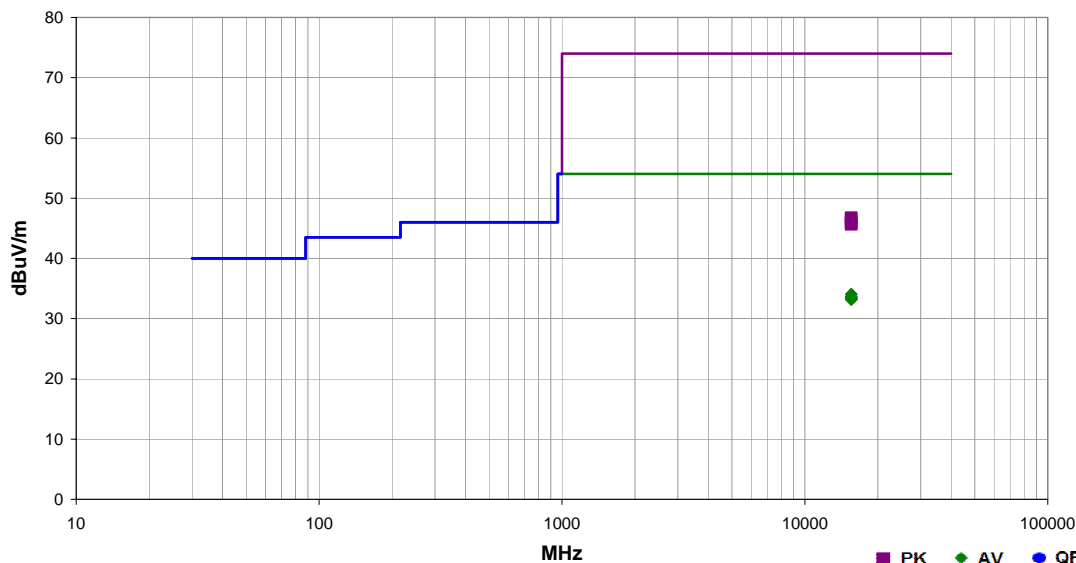
Spurious Radiated Emissions

PSA-ESCI 2012.08.08
PSA-ESCI Version 2011.12.21

Work Order:	ZOLM0003	Date:	08/10/12	<i>Trevor Buls</i>	
Project:	None	Temperature:	23.17 °C		
Job Site:	MN05	Humidity:	48% RH		
Serial Number:	AR11J000137	Barometric Pres.:	1021.2 mbar		
EUT:	X-Series			Tested by:	Trevor Buls
Configuration:	2				
Customer:	ZOLL Medical Corporation				
Attendees:	None				
EUT Power:	15 VDC				
Operating Mode:	Transmitting 802.11 Channel 36 (See Comments)				
Deviations:	None				
Comments:	None				

Test Specifications	Test Method
FCC 15.407:2012	ANSI C63.10:2009

Run #	11	Test Distance (m)	3	Antenna Height(s)	1-4m	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
15540.330	30.8	3.2	1.3	38.0	3.0	0.0	Vert	AV	0.0	34.0	54.0	-20.0	EUT on Side, Ch 36, 6 Mbit
15540.150	30.4	3.2	1.0	303.0	3.0	0.0	Horz	AV	0.0	33.6	54.0	-20.4	EUT Horz, Ch 36, 6 Mbit
15540.670	30.3	3.2	1.0	347.0	3.0	0.0	Horz	AV	0.0	33.5	54.0	-20.5	EUT on Side, Ch 36, 6 Mbit
15539.670	30.1	3.2	3.6	228.0	3.0	0.0	Vert	AV	0.0	33.3	54.0	-20.7	EUT Face Down Ch 36, 6 Mbit
15541.430	30.0	3.2	1.0	107.0	3.0	0.0	Vert	AV	0.0	33.2	54.0	-20.8	EUT Horz, Ch 36, 6 Mbit
15540.120	30.0	3.2	1.0	208.0	3.0	0.0	Horz	AV	0.0	33.2	54.0	-20.8	EUT Face Down Ch 36, 6 Mbit
15538.030	43.5	3.2	1.0	347.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	EUT on Side, Ch 36, 6 Mbit
15539.050	43.4	3.2	1.3	38.0	3.0	0.0	Vert	PK	0.0	46.6	74.0	-27.4	EUT on Side, Ch 36, 6 Mbit
15539.920	43.0	3.2	1.0	303.0	3.0	0.0	Horz	PK	0.0	46.2	74.0	-27.8	EUT Horz, Ch 36, 6 Mbit
15540.780	42.6	3.2	1.0	107.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	EUT Horz, Ch 36, 6 Mbit
15538.470	42.6	3.2	3.6	228.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	EUT Face Down Ch 36, 6 Mbit
15538.950	42.4	3.2	1.0	208.0	3.0	0.0	Horz	PK	0.0	45.6	74.0	-28.4	EUT Face Down Ch 36, 6 Mbit

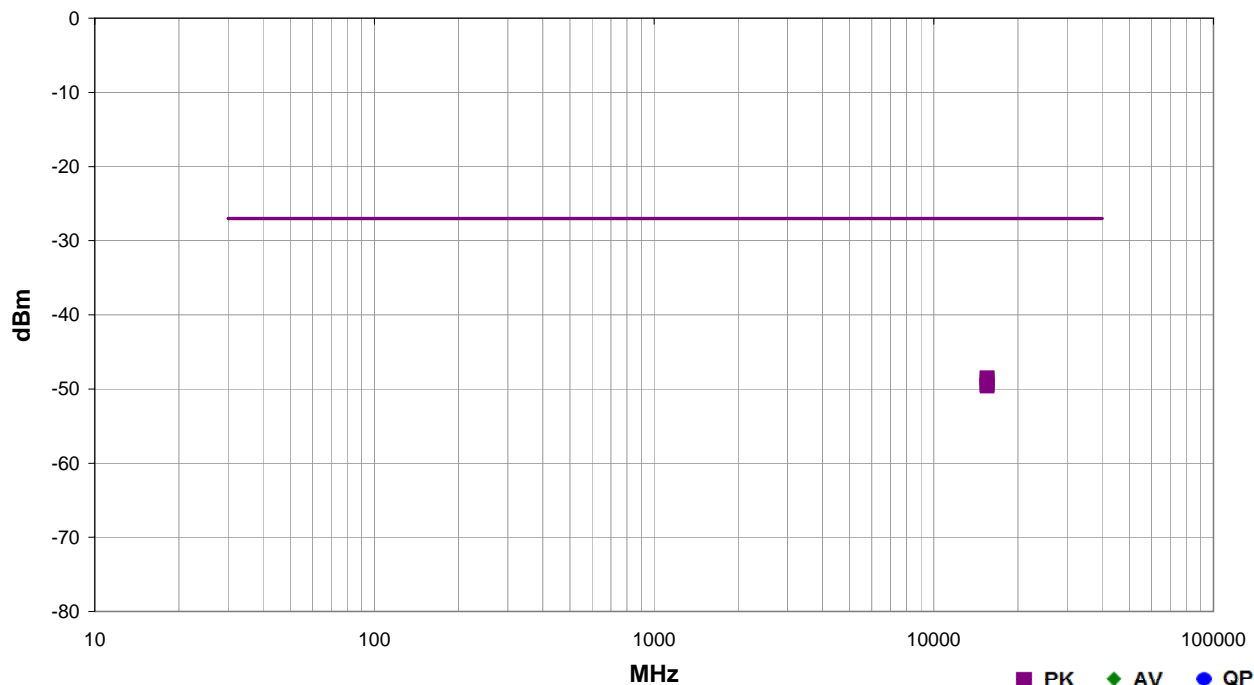


Spurious Radiated Emissions

Work Order:	ZOLM0003	Date:	08/10/12	<i>Trevor Buls</i>
Project:	None	Temperature:	23.17 °C	
Job Site:	MN05	Humidity:	48% RH	
Serial Number:	AR11J000137	Barometric Pres.:	1021.2 mbar	
EUT:	X-Series			
Configuration:	2			
Customer:	ZOLL Medical Corporation			
Attendees:	None			
EUT Power:	15 VDC			
Operating Mode:	Transmitting 802.11 Channel 36 (See Comments)			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.407:2012	ANSI C63.10:2009

Run #	11	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
-------	----	-------------------	---	-------------------	------	---------	------



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	15538.030	1.0	347.0	Horz	PK	1.41E-08	-48.5	-27.0	-21.5	EUT on Side, Ch 36, 6 Mbit
	15539.050	1.3	38.0	Vert	PK	1.38E-08	-48.6	-27.0	-21.6	EUT on Side, Ch 36, 6 Mbit
	15539.920	1.0	303.0	Horz	PK	1.26E-08	-49.0	-27.0	-22.0	EUT Horz, Ch 36, 6 Mbit
	15540.780	1.0	107.0	Vert	PK	1.15E-08	-49.4	-27.0	-22.4	EUT Horz, Ch 36, 6 Mbit
	15538.470	3.6	228.0	Vert	PK	1.15E-08	-49.4	-27.0	-22.4	EUT Face Down Ch 36, 6 Mbit
	15538.950	1.0	208.0	Horz	PK	1.09E-08	-49.6	-27.0	-22.6	EUT Face Down Ch 36, 6 Mbit



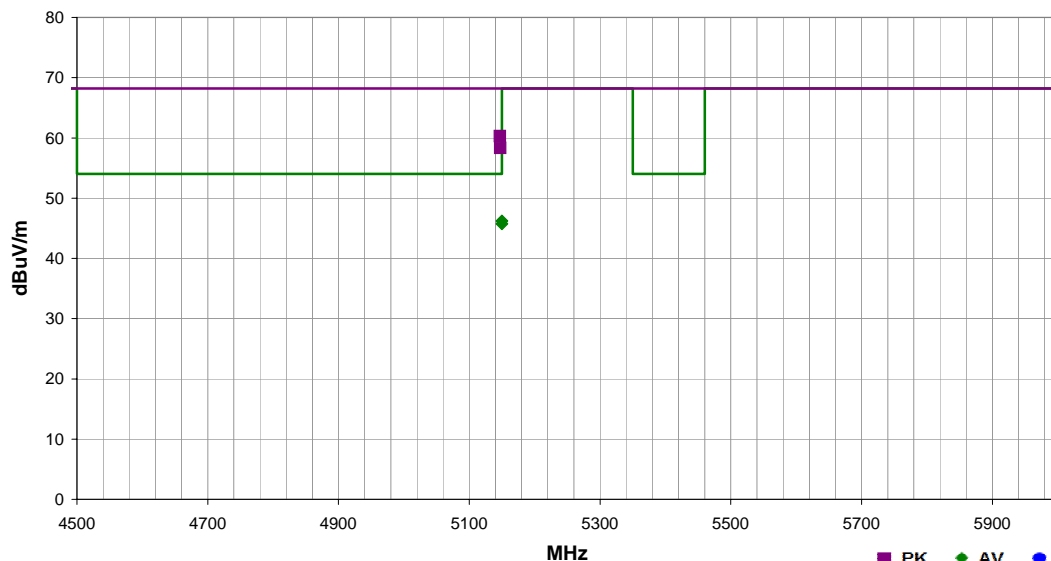
Spurious Radiated Emissions

PSA-ESCI 2012.08.08
PSA-ESCI Version 2011.12.21

Work Order:	ZOLM0003	Date:	08/10/12	<i>Trevor Buls</i>
Project:	None	Temperature:	23.17 °C	
Job Site:	MN05	Humidity:	48% RH	
Serial Number:	AR11J000137	Barometric Pres.:	1021.2 mbar	
EUT:	X-Series			
Configuration:	2			
Customer:	ZOLL Medical Corporation			
Attendees:	None			
EUT Power:	15 VDC			
Operating Mode:	Transmitting 802.11 Channel 36 (See Comments)			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.407:2012	ANSI C63.10:2009

Run #	19	Test Distance (m)	1	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
5149.725	20.6	35.2	1.0	0.0	1.0	0.0	Horz	AV	-9.5	46.2	54.0	-7.8	EUT on Side, Ch 36, 6 Mbit
5146.842	34.7	35.1	1.0	0.0	1.0	0.0	Horz	PK	-9.5	60.3	68.2	-7.9	EUT on Side, Ch 36, 6 Mbit
5149.992	20.1	35.2	1.0	0.0	1.0	0.0	Vert	AV	-9.5	45.7	54.0	-8.3	EUT on Side, Ch 36, 6 Mbit
5147.692	32.7	35.2	1.0	0.0	1.0	0.0	Vert	PK	-9.5	58.3	68.2	-9.9	EUT on Side, Ch 36, 6 Mbit