



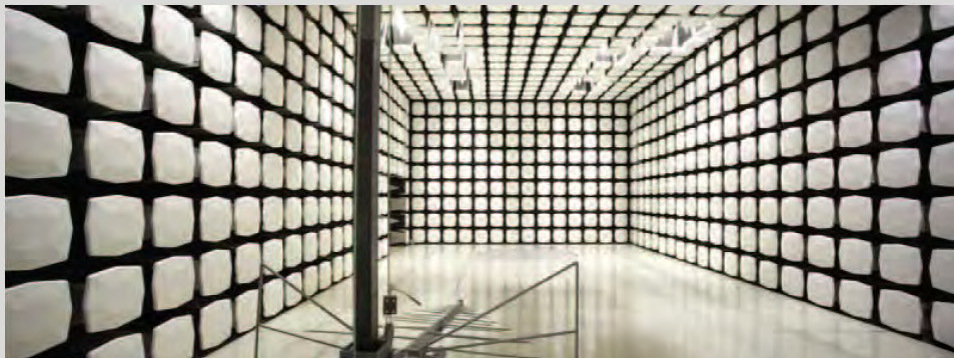
Masimo Corporation

Radical 7

FCC 15.247:2013

FCC 15.207:2013

Report #: MASI0142



Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

Last Date of Test: April 19, 2013
Masimo Corporation
Model: Radical 7

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2013	ANSI C63.10:2009	Pass
Dwell Time	FCC 15.247:2013	ANSI C63.10:2009	Pass
Number of Hopping Frequencies	FCC 15.247:2013	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2013	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2013	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2013	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2013	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2013	ANSI C63.10:2009	Pass
Band Edge Compliance- Hopping Mode	FCC 15.247:2013	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.207:2013	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:



Tim Oshea, Lab Manager



NVLAP Lab Code: 200676-0

Test Facility

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

Northwest EMC, Inc.
 41 Tesla Ave.
 Irvine, CA 92618
 Phone: (503) 844-4066 Fax: 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 #2834B-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
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

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

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.

SCOPE

For details on the Scopes of our Accreditations, please visit:

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

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.

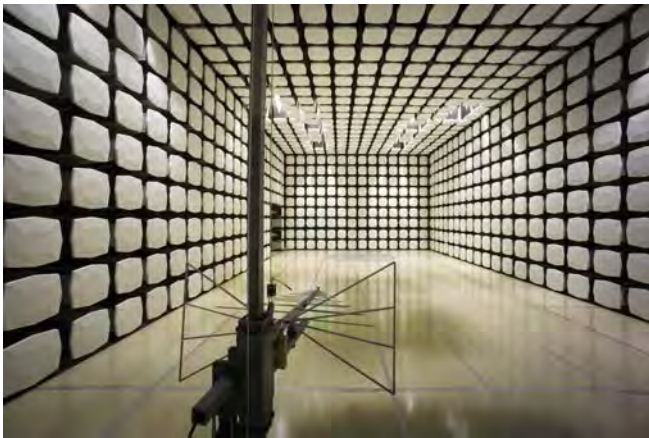
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement 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 16-4-1 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)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94	-2.94



Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Minnesota Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Washington Labs NC01-05, SU02, SU07 19201 120 th Ave. NE Bothell, WA 98011 (425) 984-6600
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
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0





WTD 12.5.23

PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Masimo Corporation
Address:	40 Parker
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Michael Clark
Model:	Radical 7
First Date of Test:	April 15, 2013
Last Date of Test:	April 19, 2013
Receipt Date of Samples:	April 15, 2013
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

A noninvasive monitoring platform enabling the assessment of multiple blood constituents and physiologic parameters that previously required invasive or complicated procedures. Standard wireless connectivity is provided from the integrated Bluetooth® technology in the handheld device.

Testing Objective:

To demonstrate compliance to FCC 15.247 requirements.

Configuration MASI0142- 1

Software/Firmware Running during test	
Description	Version
Tera Term	4.73
(Linux) Base	E 0.0.1.6

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radical 7	Masimo Corporation	Radical 7	113874

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Remote Laptop	Hewlett Packard	Compaq 6515b	CNU7300W4L

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	No	1.8m	No	Radical 7	AC Mains
USB Cable	No	1.8m	No	Radical 7	Remote Laptop

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Configuration MASI0142- 2

Software/Firmware Running during test	
Description	Version
Tera Term	4.73
(Linux) Base	E 0.0.1.6

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radical 7	Masimo Corporation	Radical 7	113874

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Remote Laptop	Hewlett Packard	Compaq 6515b	CNU7300W4L
Rainbow Patient Sensor	Masimo Corporation	DCI - DC12	9J042

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	No	1.8m	No	Radical 7	AC Mains
USB Cable	No	1.8m	No	Radical 7	Remote Laptop
Rainbow Patient Sensor Cable	No	3.5m	No	Radical 7	Rainbow Patient Sensor
RS-232 Cable	No	1.8m	Yes	Radical 7	Unterminated
DB-15 Cable	No	1.5m	Yes	Radical 7	Unterminated
SatShare Cable	No	1.0m	Yes	Radical 7	Unterminated

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	4/15/2013	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.
2	4/15/2013	Duty Cycle	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	4/15/2013	Number of Hopping Frequencies	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.
4	4/15/2013	Occupied Bandwidth	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.
5	4/15/2013	Dwell Time	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.
6	4/15/2013	Band Edge Compliance	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.
7	4/19/2013	Conducted Emissions from Digital Potion	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.
8	4/19/2013	Spurious Conducted 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.
9	4/19/2013	Band Edge Compliance-Hopping Mode	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.
10	4/19/2013	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Duty Cycle

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
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. 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 duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in the this report to only measure during the burst duration.



Duty Cycle

EUT: Radical 7	Work Order: MASI0142
Serial Number: 113874	Date: 04/19/13
Customer: Masimo Corporation	Temperature: 23.1°C
Attendees: None	Humidity: 24%
Project: None	Barometric Pres.: 1016
Tested by: Jaemi Suh	Power: 110VAC/60Hz
	Job Site: OC10

TEST SPECIFICATIONS	
FCC 15.207:2013	ANSI C63.10:2009
Test Method	

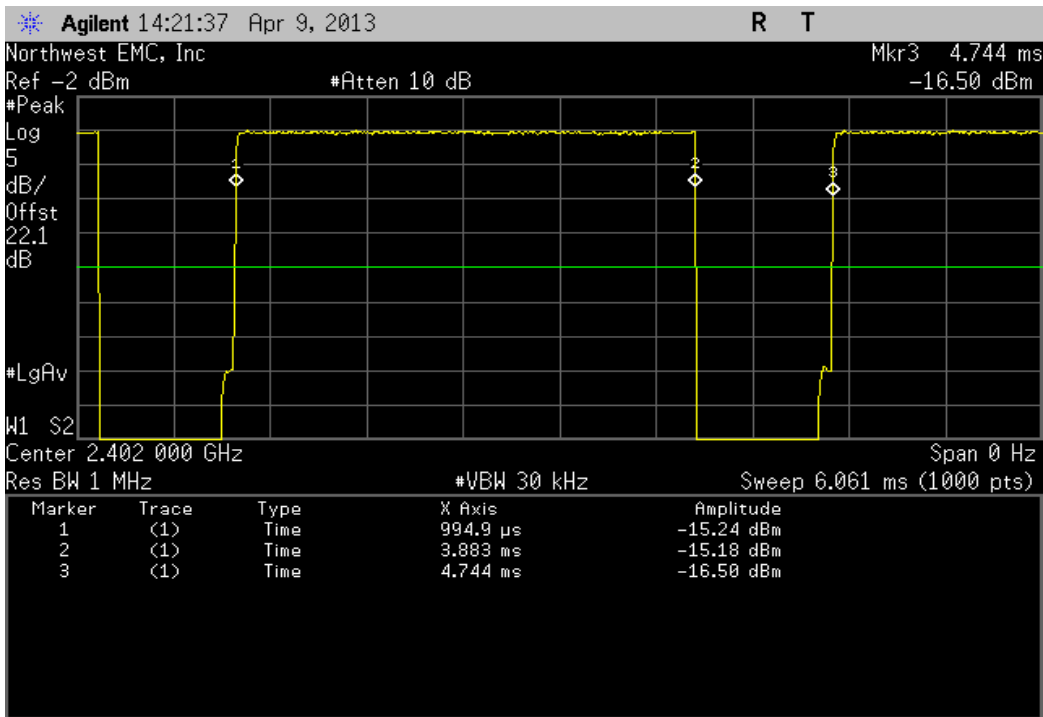
COMMENTS
DH5 Mode only.

DEVIATIONS FROM TEST STANDARD
None

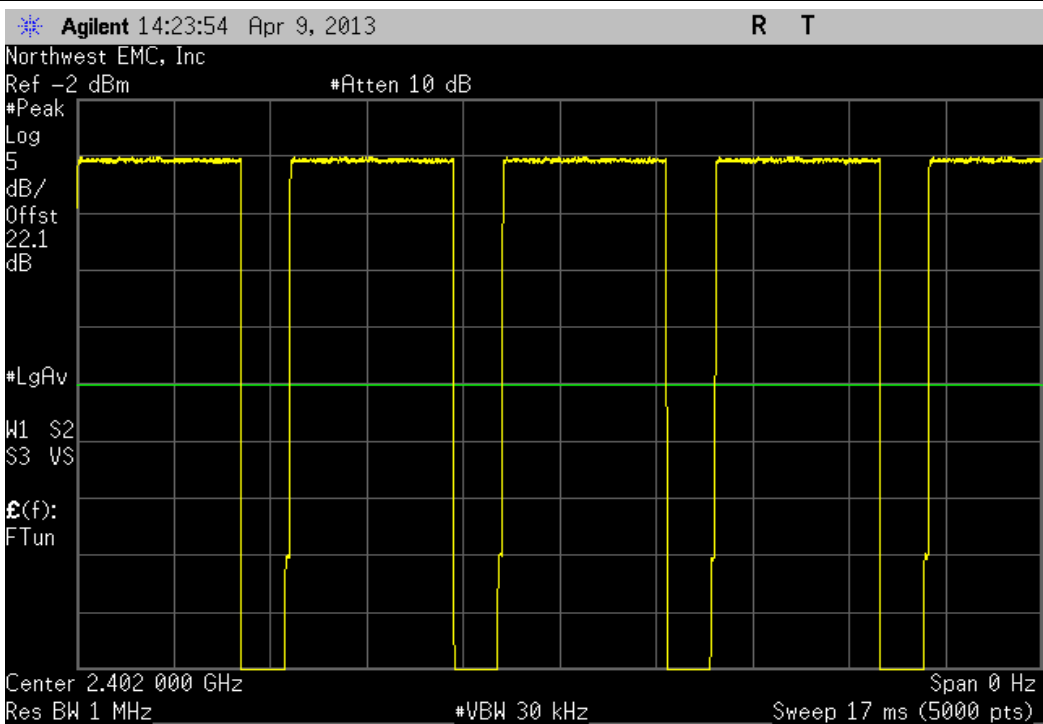
Configuration #	1	Signature 
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	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
DH5, GFSK						
Low Channel, 2402 MHz	2.888 mS	3.749 mS	1	77	N/A	N/A
Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, 2440 MHz	2.888 mS	3.749 mS	1	77	N/A	N/A
Mid Channel, 2440 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, 2480 MHz	2.882 mS	3.749 mS	1	76.9	N/A	N/A
High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A

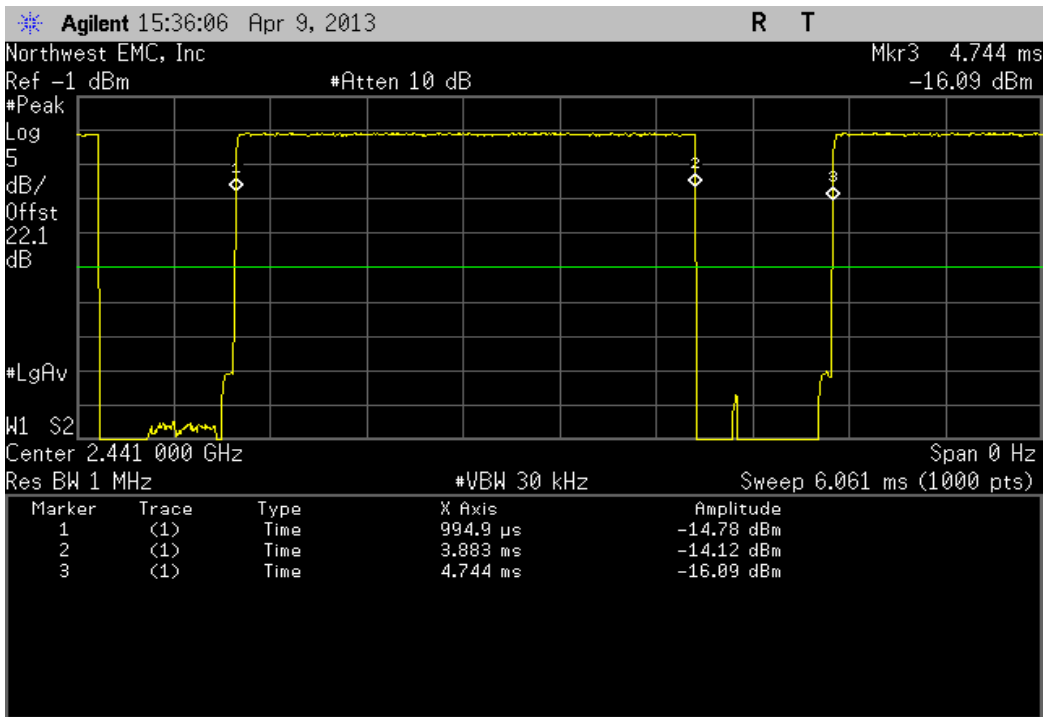
DH5, GFSK, Low Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
2.888 mS	3.749 mS	1	77	N/A	N/A	



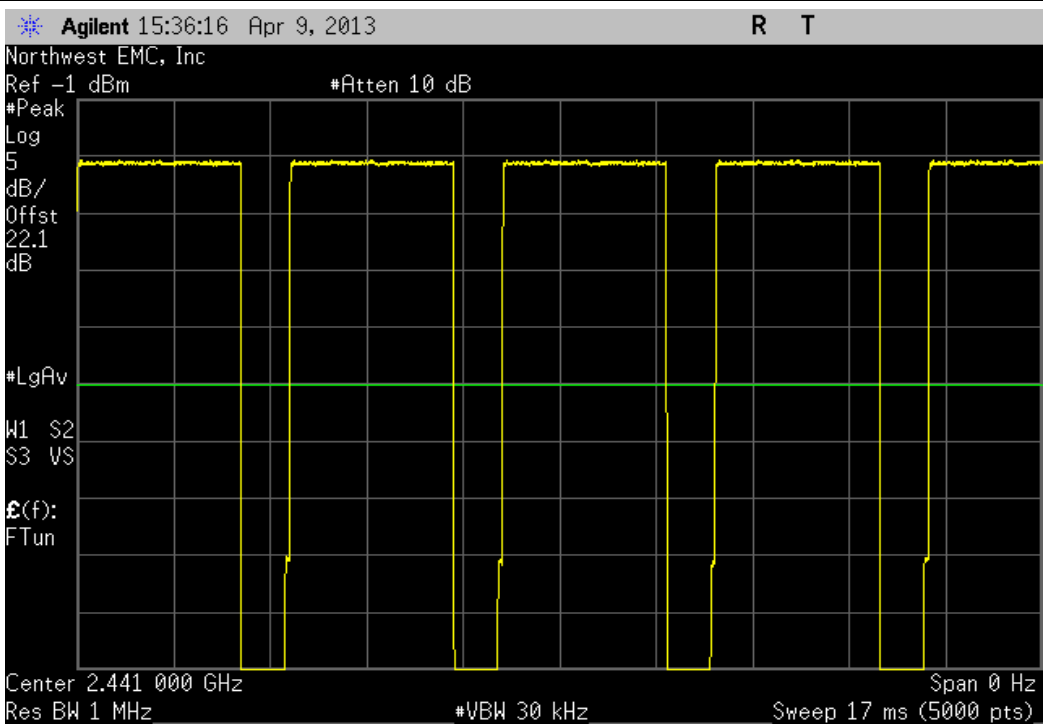
DH5, GFSK, Low Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
N/A	N/A	5	N/A	N/A	N/A	



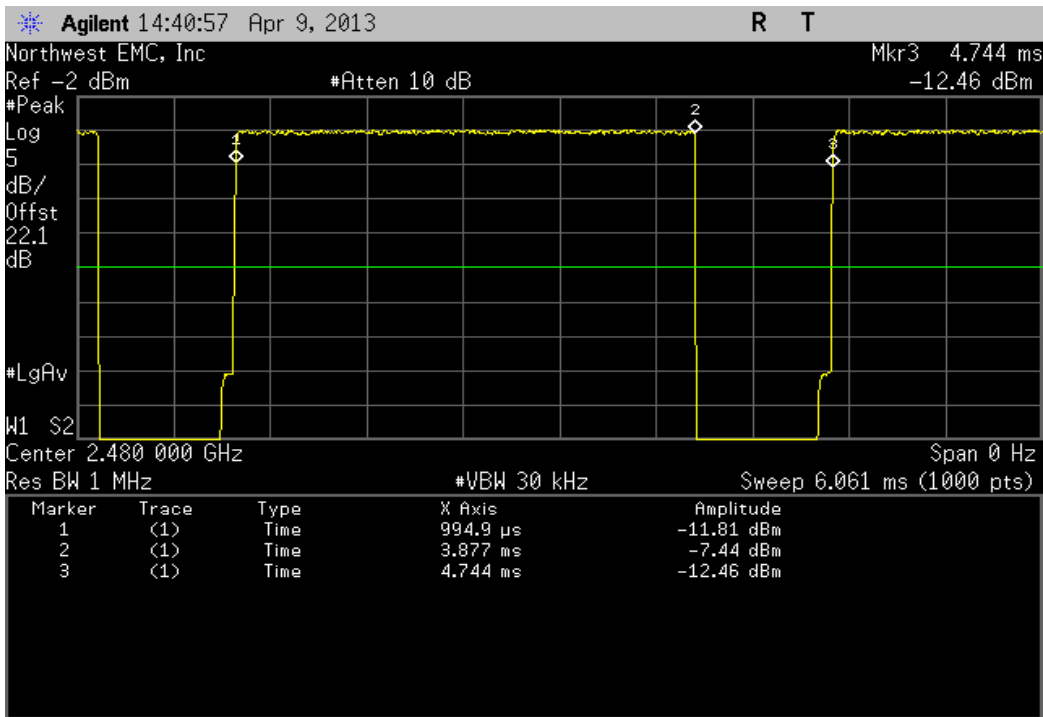
DH5, GFSK, Mid Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
2.888 mS	3.749 mS	1	77	N/A	N/A	



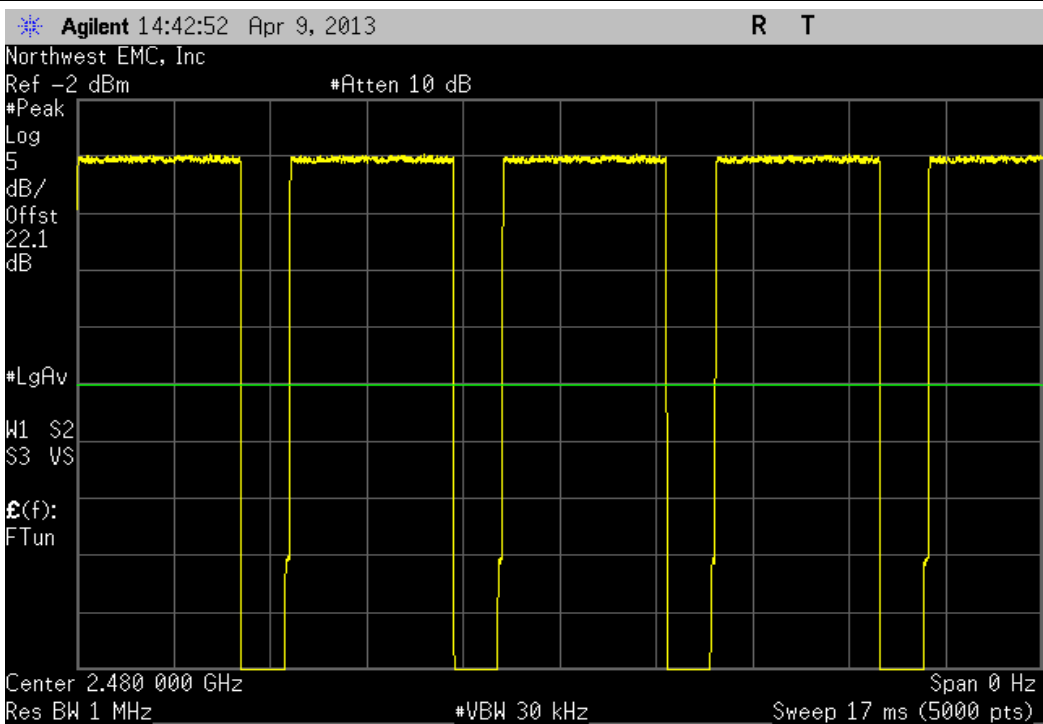
DH5, GFSK, Mid Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
N/A	N/A	5	N/A	N/A	N/A	



DH5, GFSK, High Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
2.882 mS	3.749 mS	1	76.9	N/A	N/A	



DH5, GFSK, High Channel						
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result	
N/A	N/A	5	N/A	N/A	N/A	



Dwell Time

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
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12

TEST DESCRIPTION

The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

The dwell time limit is based on the Number of Hopping Channels * 400 mS. For Bluetooth this would be 79 Channels * 400mS = 31.6 Sec.


On Time During 31.6 Sec = Pulse Width * Average Number of Pulses * Scale Factor

➤Average Number of Pulses is based on 4 samples.

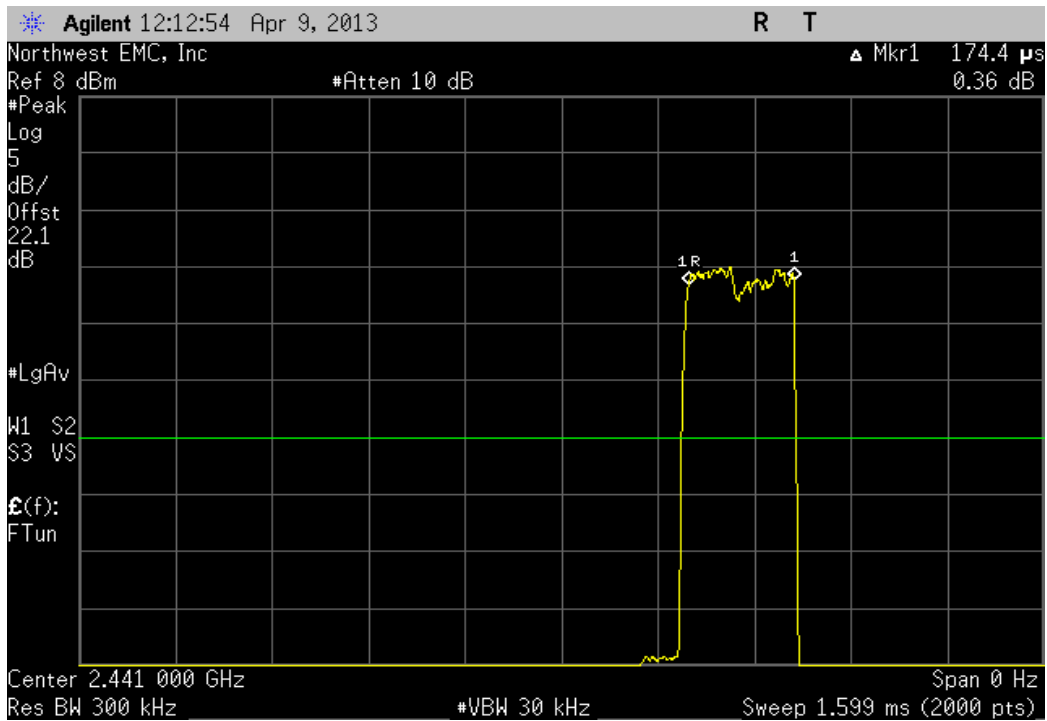
➤Scale Factor = 31.6 Sec / Screen Capture Sweep Time = 31.6 Sec / 6.32 Sec = 5



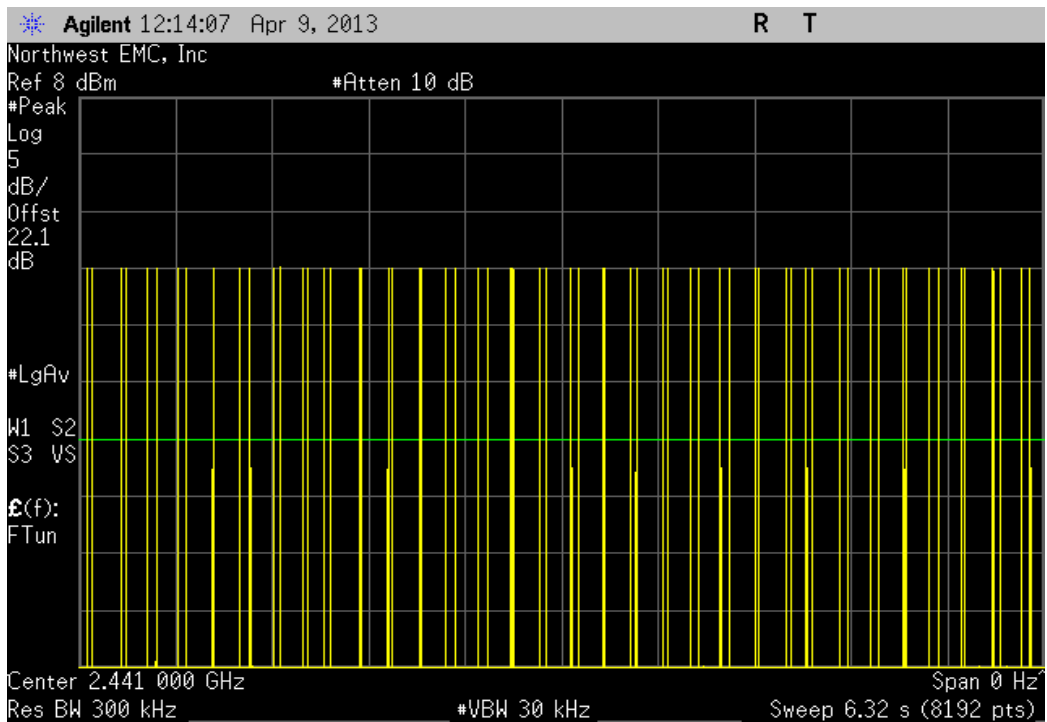
Dwell Time

EUT: Radical 7		Work Order: MASI0142						
Serial Number: 113874		Date: 04/19/13						
Customer: Masimo Corporation		Temperature: 24.5°C						
Attendees: None		Humidity: 23%						
Project: None		Barometric Pres.: 1013						
Tested by: Jaemi Suh		Power: 110VAC/60Hz						
		Job Site: OC10						
TEST SPECIFICATIONS		Test Method						
FCC 15.247:2013		ANSI C63.10:2009						
COMMENTS								
RADCA. All cables attached.								
DEVIATIONS FROM TEST STANDARD								
None								
Configuration #	1	Signature 						
		Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
Hopping Mode								
	DH5, GFSK							
	Mid Channel, 2441 MHz	0.174	N/A	N/A	N/A	N/A	N/A	N/A
	Mid Channel, 2441 MHz	N/A	64	N/A	N/A	N/A	N/A	N/A
	Mid Channel, 2441 MHz	N/A	64	N/A	N/A	N/A	N/A	N/A
	Mid Channel, 2441 MHz	N/A	64	N/A	N/A	N/A	N/A	N/A
	Mid Channel, 2441 MHz	N/A	64	N/A	N/A	N/A	N/A	N/A
	Mid Channel, 2441 MHz	0.174	N/A	64	5	55.68	400	Pass

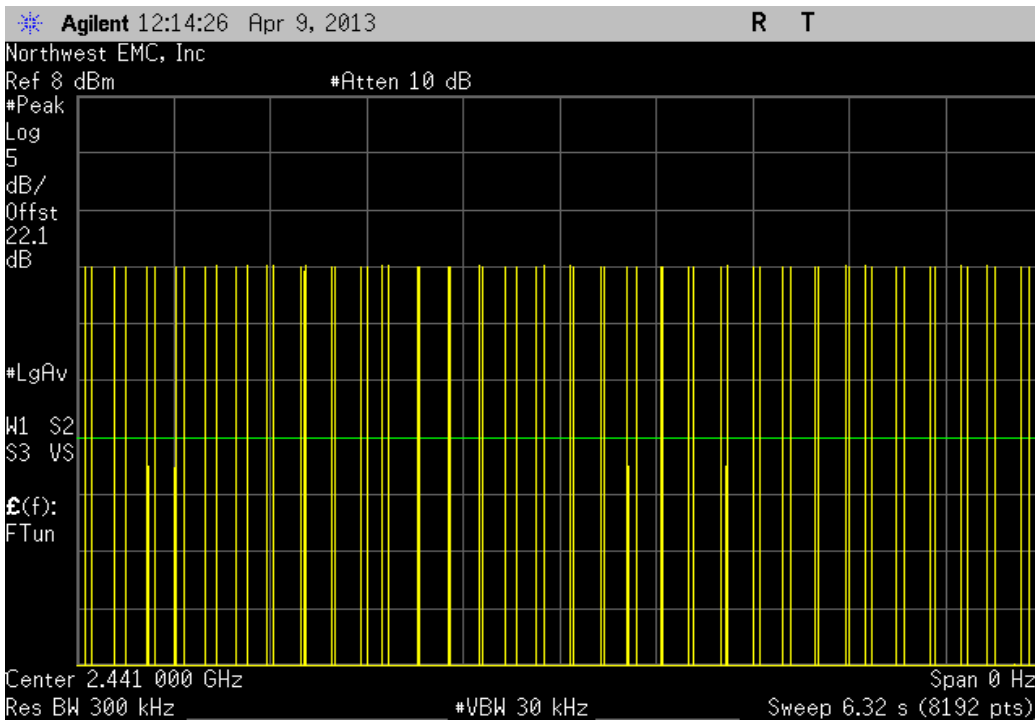
Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
0.174	N/A	N/A	N/A	N/A	N/A	N/A



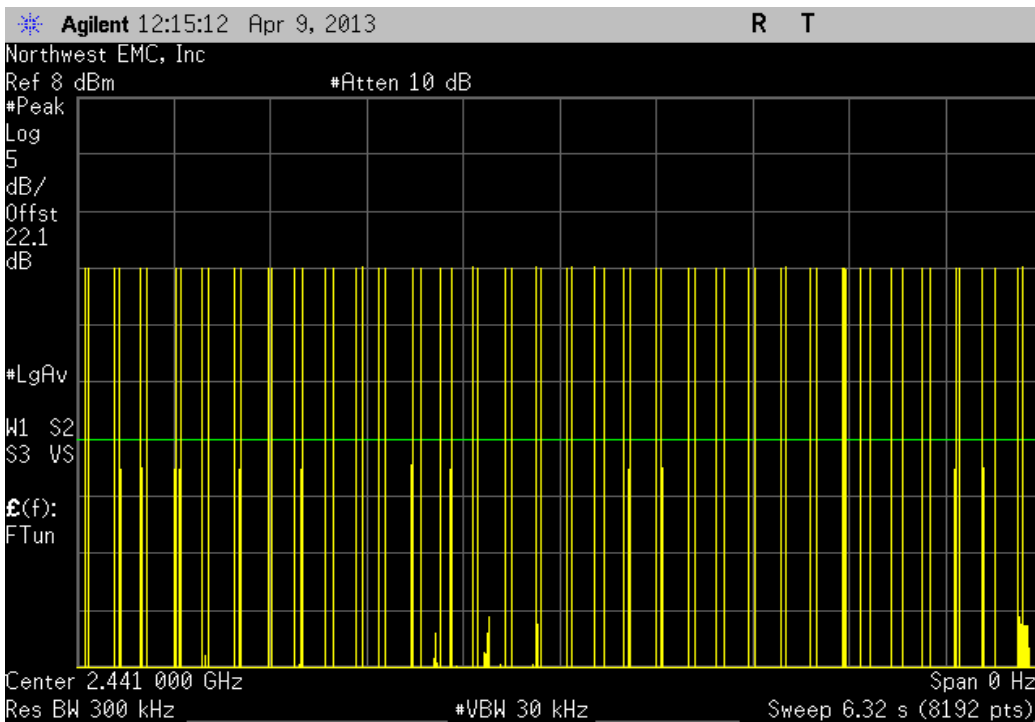
Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	64	N/A	N/A	N/A	N/A	N/A



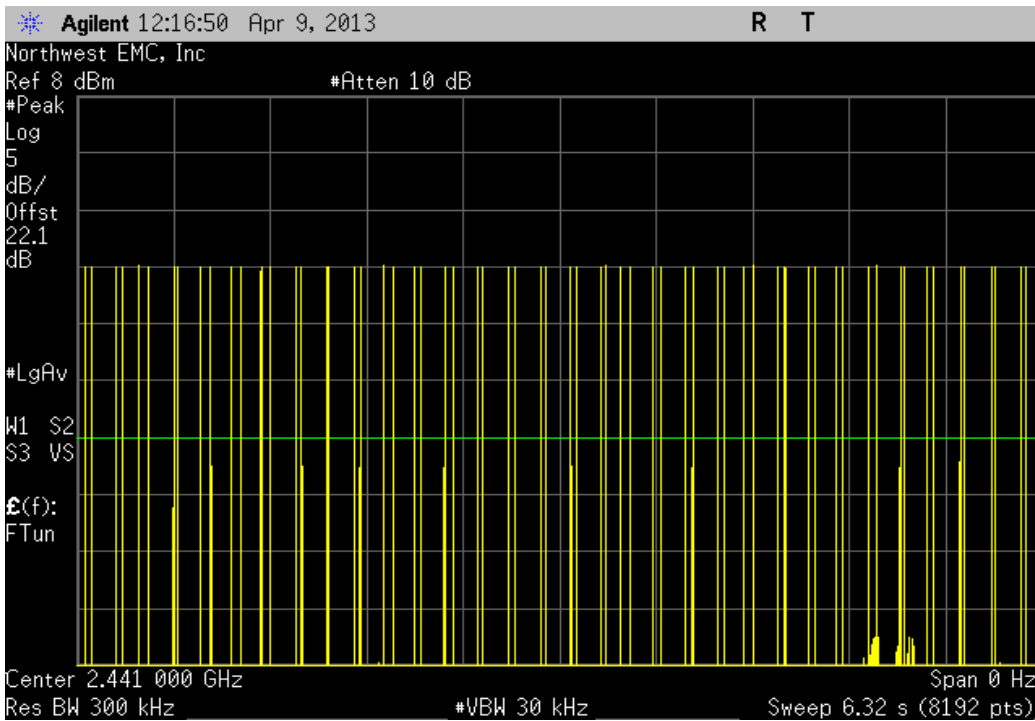
Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	64	N/A	N/A	N/A	N/A	N/A



Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	64	N/A	N/A	N/A	N/A	N/A



Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
N/A	64	N/A	N/A	N/A	N/A	N/A



Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 31.6 S	Limit (mS)	Result
0.174	N/A	64	5	55.68	400	Pass

Calculation Only

No Screen Capture Required

Number of Hopping Frequencies

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
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24


TEST DESCRIPTION

The number of hopping frequencies was measured across the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

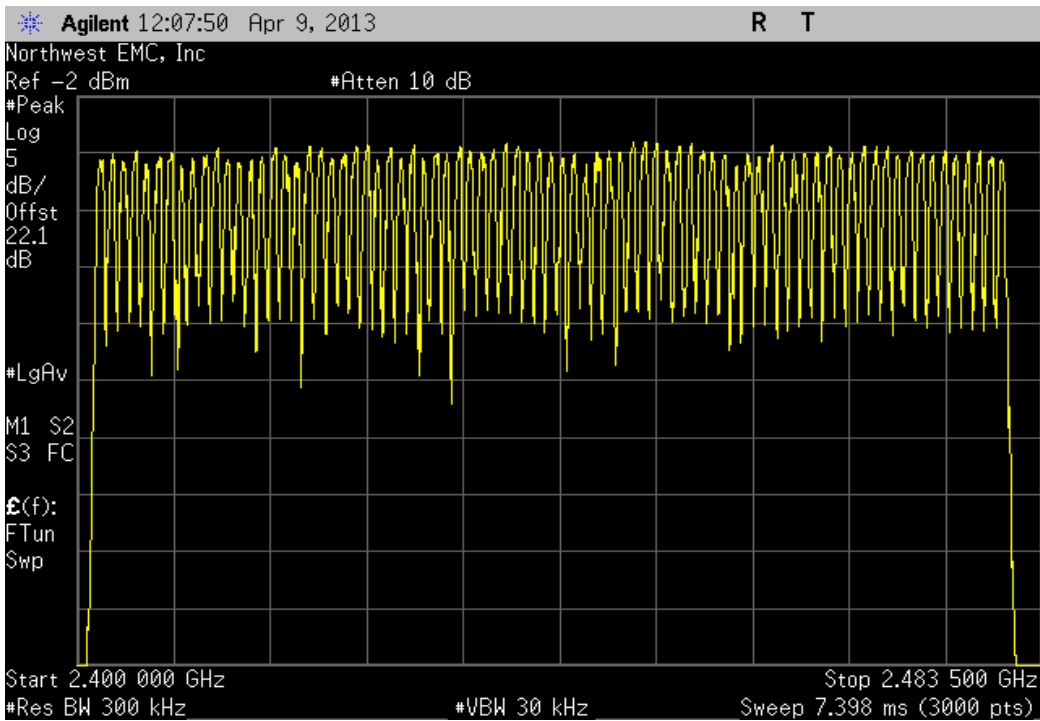


Number of Hopping Frequencies

XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7		Work Order: MASI0142	
Serial Number: 113874		Date: 04/19/13	
Customer: Masimo Corporation		Temperature: 24.4°C	
Attendees: None		Humidity: 21%	
Project: None		Barometric Pres.: 1012	
Tested by: Jaemi Suh		Power: 110VAC/60Hz	
		Job Site: OC10	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	
COMMENTS			
DH5			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Number of Channels	Limit
Hopping Mode			Result
DH5, GFSK			
Mid Channel, 2441 MHz		79	≥ 15
			Pass

Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz			
	Number of Channels	Limit	Result
	79	≥ 15	Pass



Occupied Bandwidth

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
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

TEST DESCRIPTION

The EUT was set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate listed in the datasheet.



Occupied Bandwidth

XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7		Work Order: MASI0142	
Serial Number: 113874		Date: 04/19/13	
Customer: Masimo Corporation		Temperature: 21.7°C	
Attendees: None		Humidity: 24%	
Project: None		Barometric Pres.: 1014	
Tested by: Jaemi Suh		Power: 110VAC/60Hz	
		Job Site: OC10	

TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	

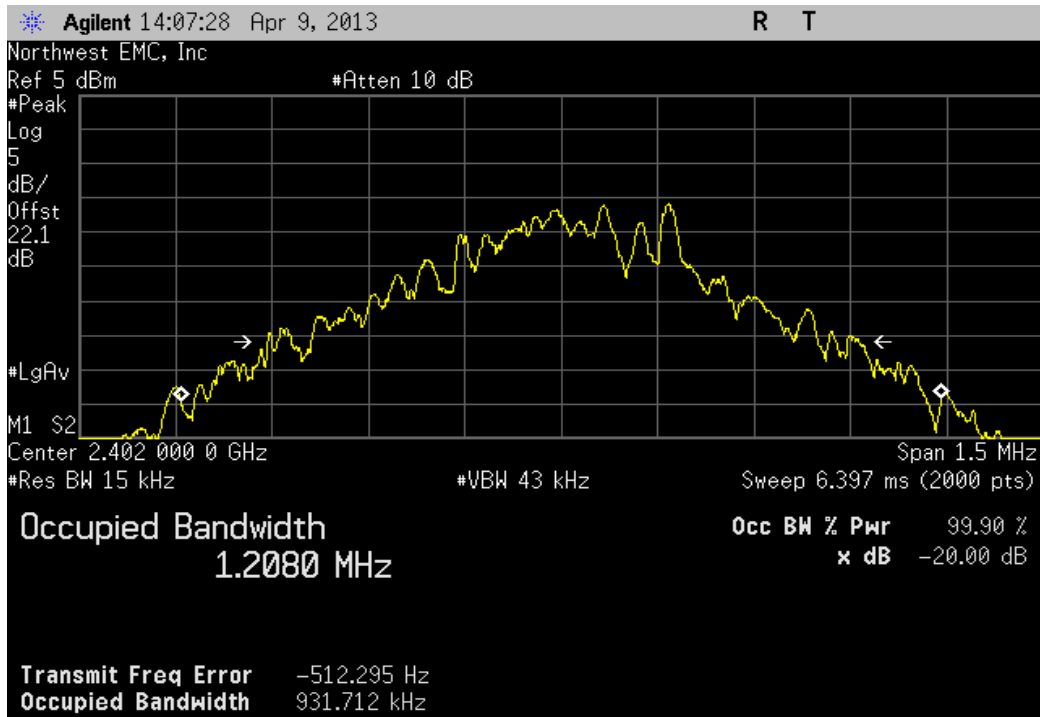
COMMENTS
DH5 Mode.

DEVIATIONS FROM TEST STANDARD
None

Configuration #	1	Signature 
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		Value	Limit	Result
DH5, GFSK				
	Low Channel	931.712 kHz	< 1.5 MHz	Pass
	Mid Channel	935.846 kHz	< 1.5 MHz	Pass
	High Channel	926.756 kHz	< 1.5 MHz	Pass

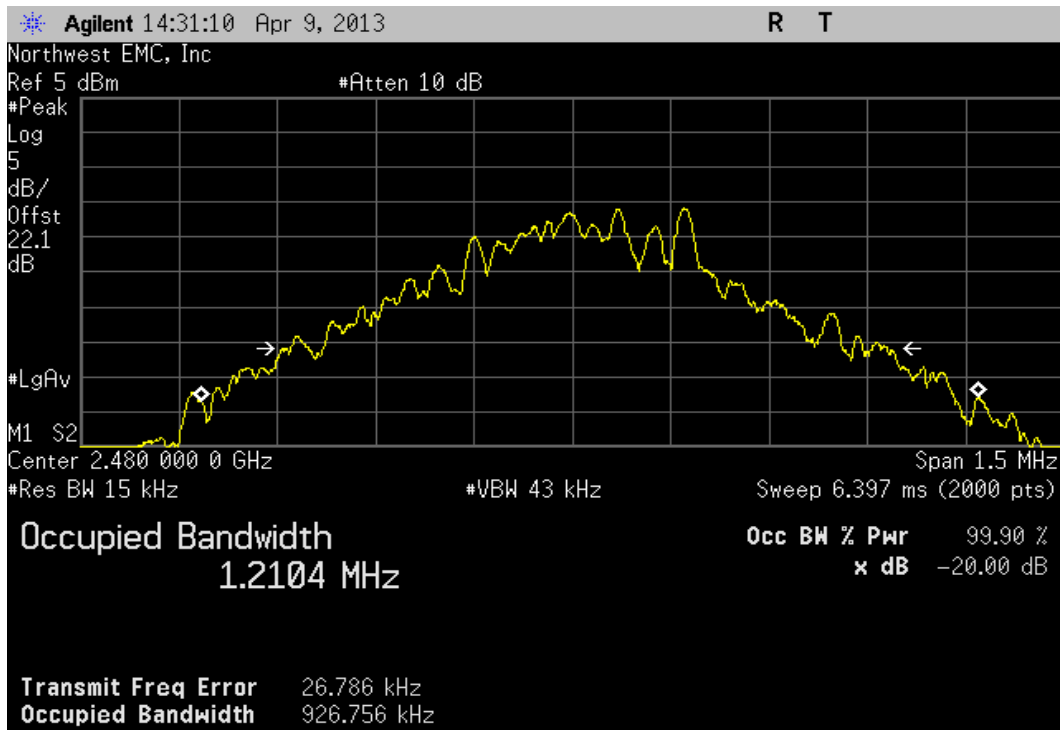
DH5, GFSK, Low Channel			
	Value	Limit	Result
	931.712 kHz	< 1.5 MHz	Pass



DH5, GFSK, Mid Channel			
	Value	Limit	Result
	935.846 kHz	< 1.5 MHz	Pass



DH5, GFSK, High Channel				
		Value	Limit	Result
		926.756 kHz	< 1.5 MHz	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
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

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.

Method Option 1 found in KDB 558074 DTS D01 Measurement Section 8.1.1 was used because the RBW on the analyzer was greater than the Emission Bandwidth of the radio.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36 dBm.



Output Power

XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7		Work Order: MASI0142	
Serial Number: 113874		Date: 04/19/13	
Customer: Masimo Corporation		Temperature: 21.7°C	
Attendees: None		Humidity: 24%	
Project: None		Barometric Pres.: 1014	
Tested by: Jaemi Suh		Power: 110VAC/60Hz	
		Job Site: OC10	

TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	

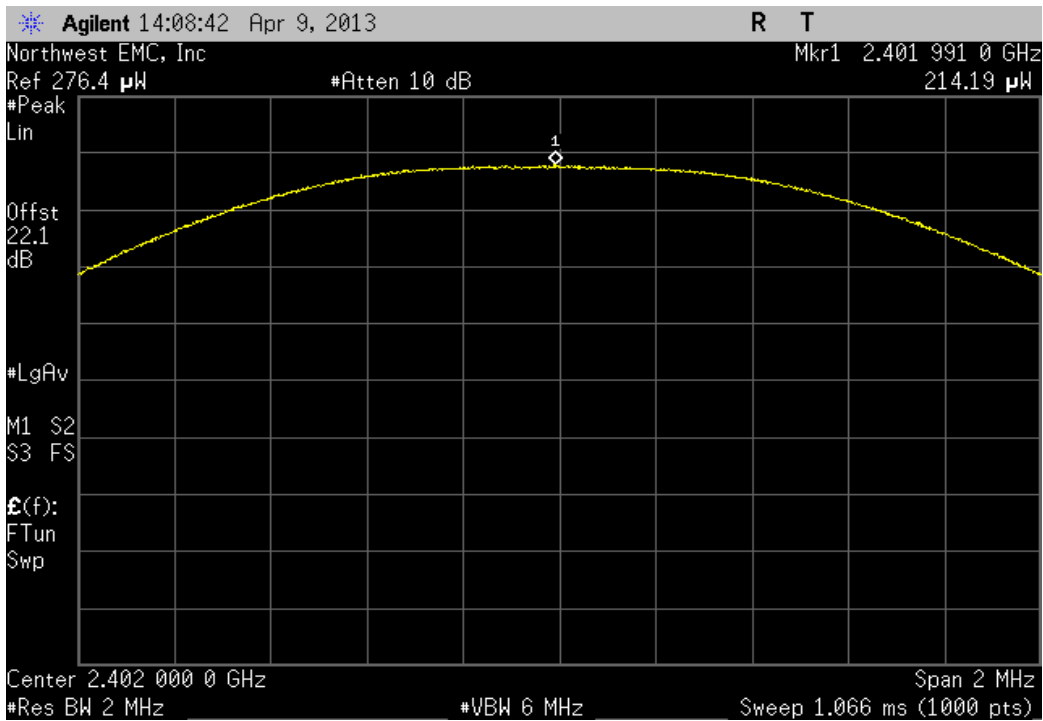
COMMENTS
DH5 Mode.

DEVIATIONS FROM TEST STANDARD
None

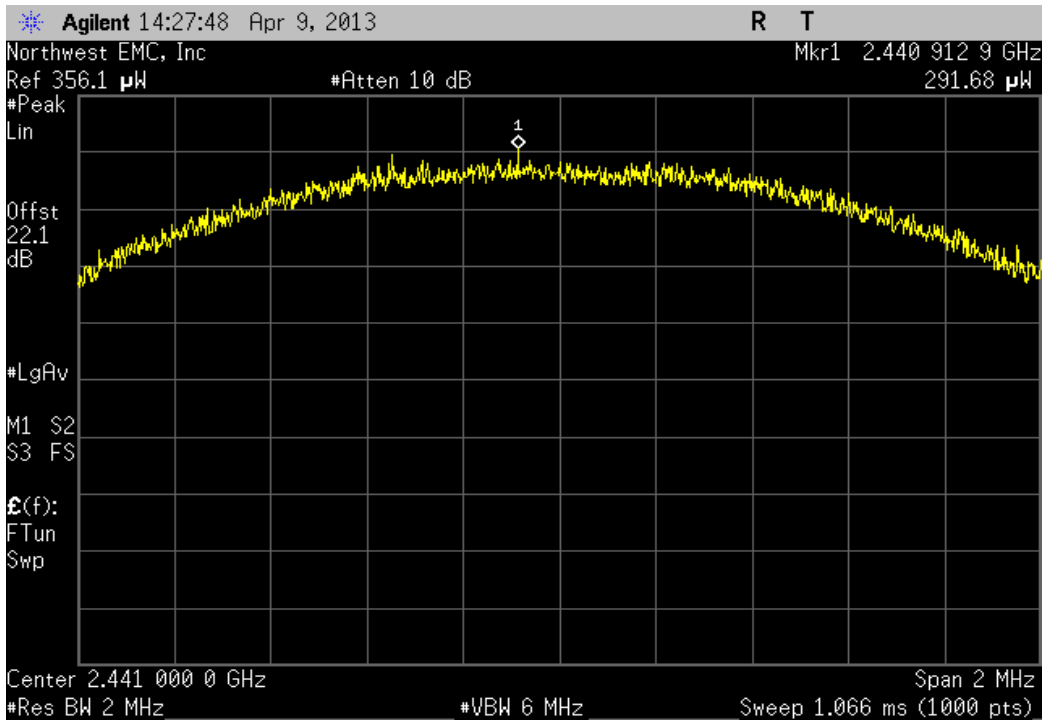
Configuration #	1	Signature 
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		Value	Limit	Result
DH5, GFSK				
	Low Channel	214.19 uW	< 125 mW	Pass
	Mid Channel	291.676 uW	< 125 mW	Pass
	High Channel	222.536 uW	< 125 mW	Pass

DH5, GFSK, Low Channel			
	Value	Limit	Result
	214.19 uW	< 125 mW	Pass

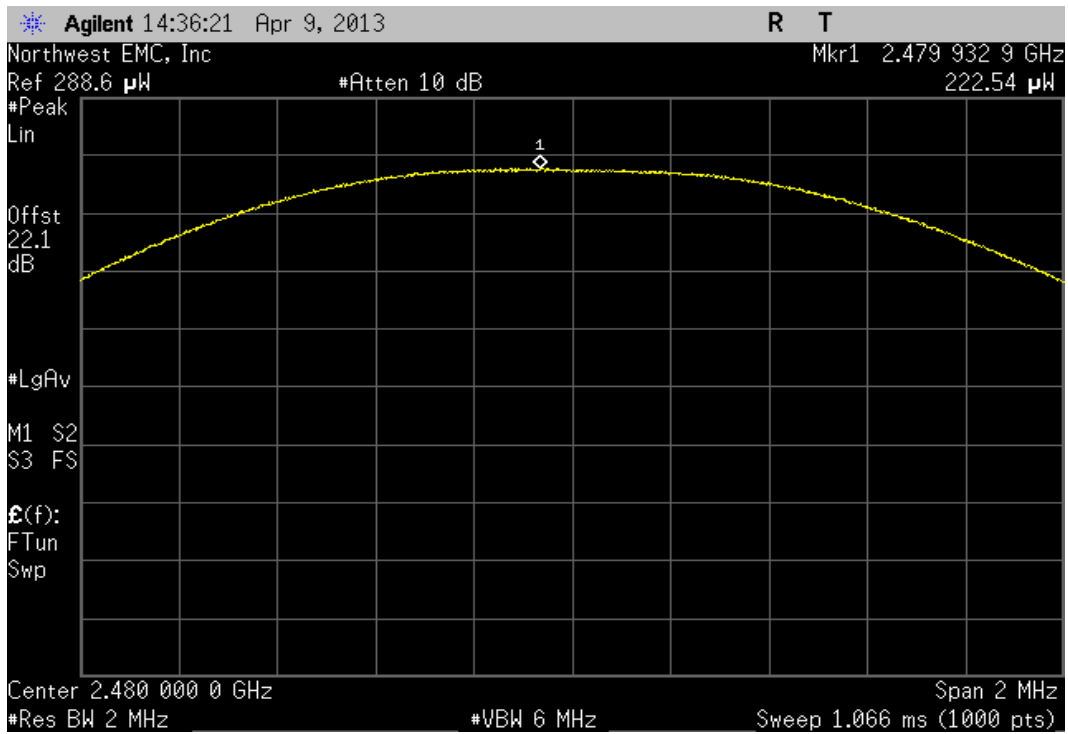


DH5, GFSK, Mid Channel			
	Value	Limit	Result
	291.676 uW	< 125 mW	Pass



DH5, GFSK, High Channel

				Value	Limit	Result
				222.536 uW	< 125 mW	Pass



Band Edge Compliance- Hopping Mode

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
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo-random hopping sequence. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.



Band Edge Compliance- Hopping Mode

XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7	Work Order: MASI0142
Serial Number: 113874	Date: 04/19/13
Customer: Masimo Corporation	Temperature: 21.7°C
Attendees: None	Humidity: 24%
Project: None	Barometric Pres.: 1014
Tested by: Jaemi Suh	Power: 110VAC/60Hz
	Job Site: OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

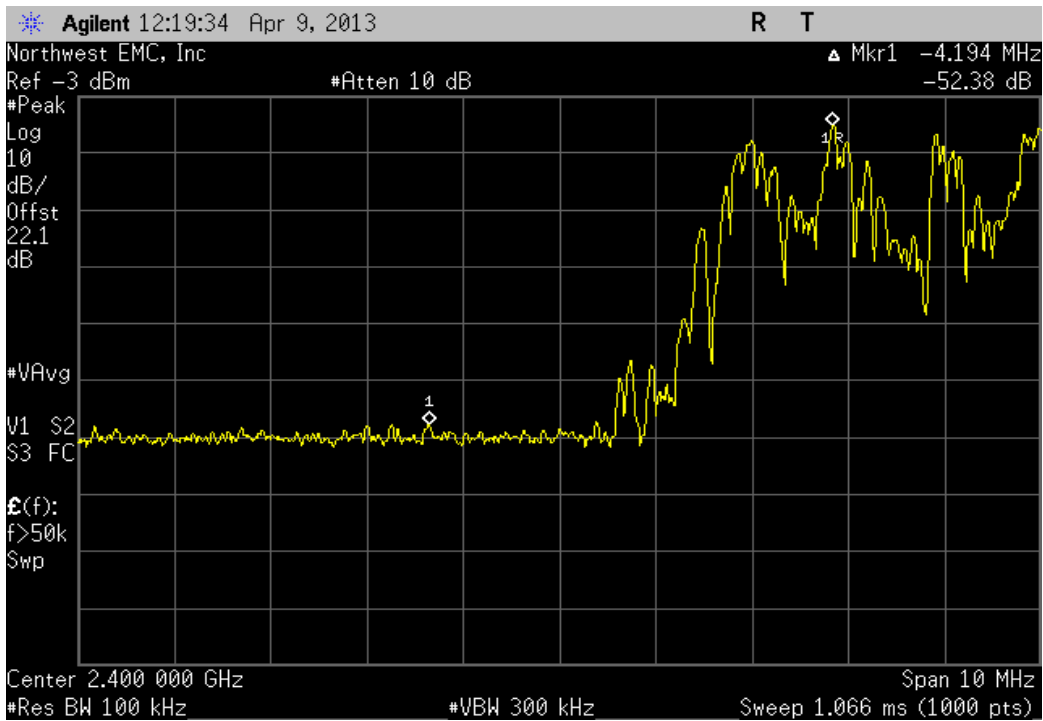
COMMENTS
DH5 Mode.

DEVIATIONS FROM TEST STANDARD
None

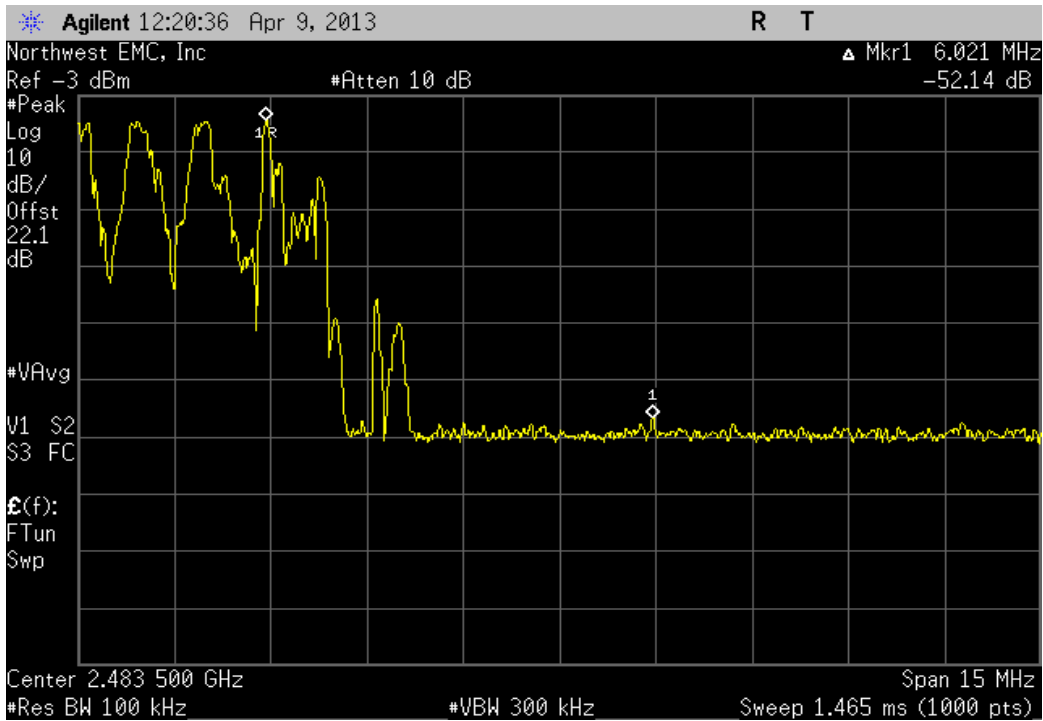
Configuration #	1	Signature 
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	Value	Limit	Result
Hopping Mode			
DH5, GFSK			
Low Channel, 2402 MHz	-52.38 dBc	≤ -20 dBc	Pass
High Channel, 2480 MHz	-52.14 dBc	≤ -20 dBc	Pass
2DH5, pi/4-DQPSK			
Low Channel, 2402 MHz	-50.06 dBc	≤ -20 dBc	Pass
High Channel, 2480 MHz	-49.21 dBc	≤ -20 dBc	Pass
3DH5, 8-DPSK			
Low Channel, 2402 MHz	-54.02 dBc	≤ -20 dBc	Pass
High Channel, 2480 MHz	-49.4 dBc	≤ -20 dBc	Pass

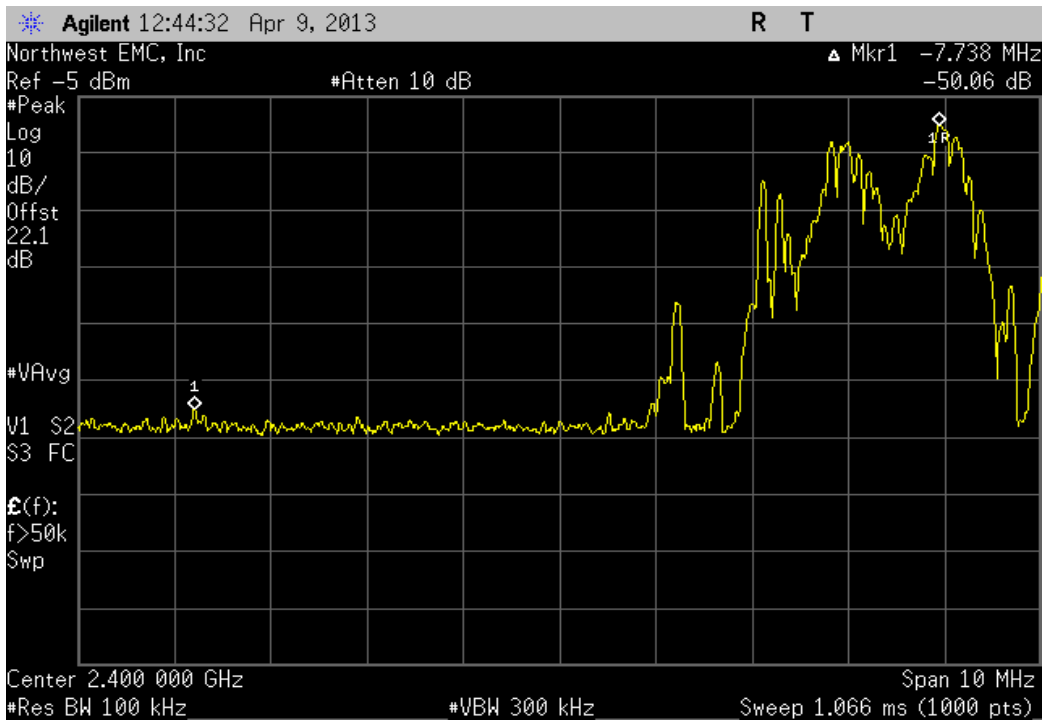
Hopping Mode, DH5, GFSK, Low Channel, 2402 MHz			
	Value	Limit	Result
	-52.38 dBc	≤ -20 dBc	Pass



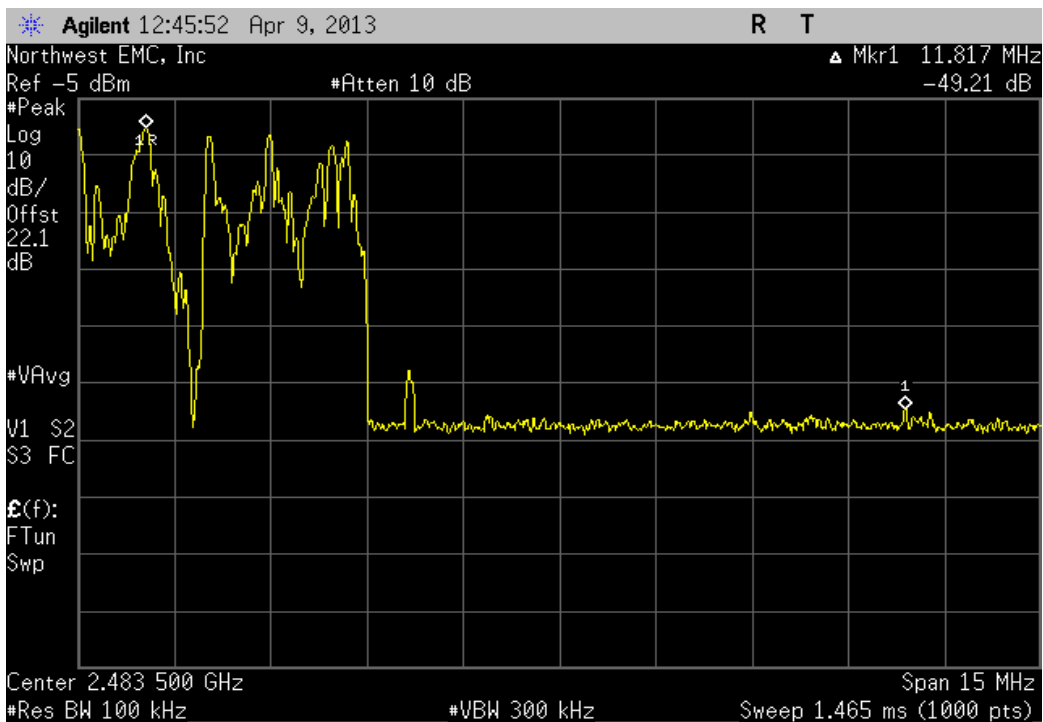
Hopping Mode, DH5, GFSK, High Channel, 2480 MHz			
	Value	Limit	Result
	-52.14 dBc	≤ -20 dBc	Pass



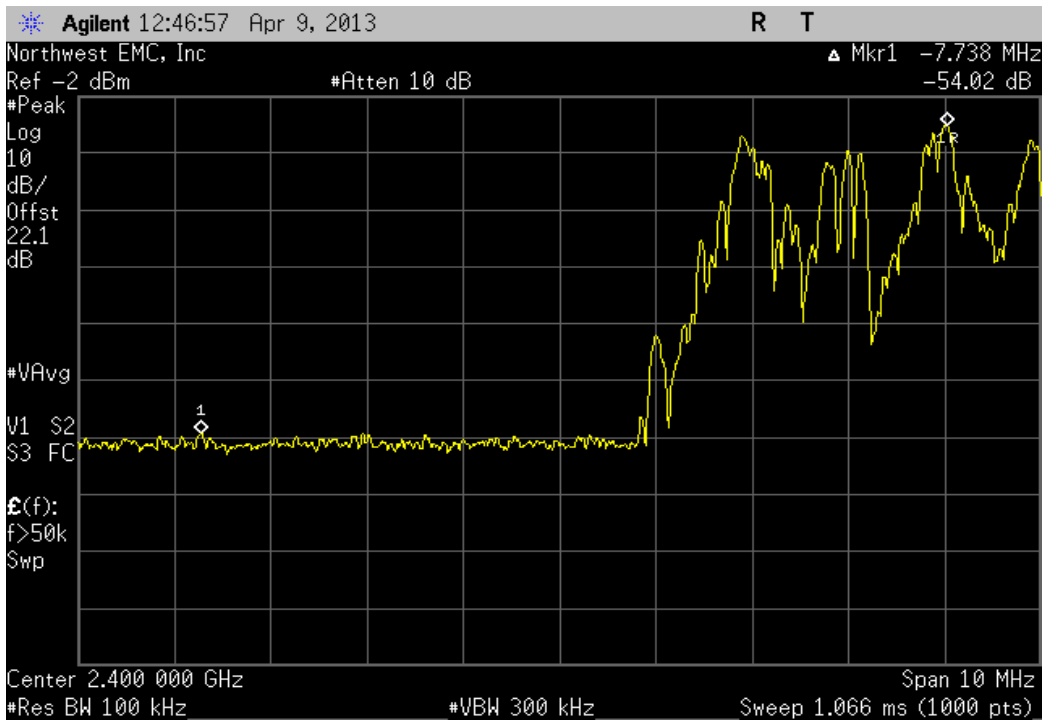
Hopping Mode, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz			
	Value	Limit	Result
	-50.06 dBc	≤ -20 dBc	Pass



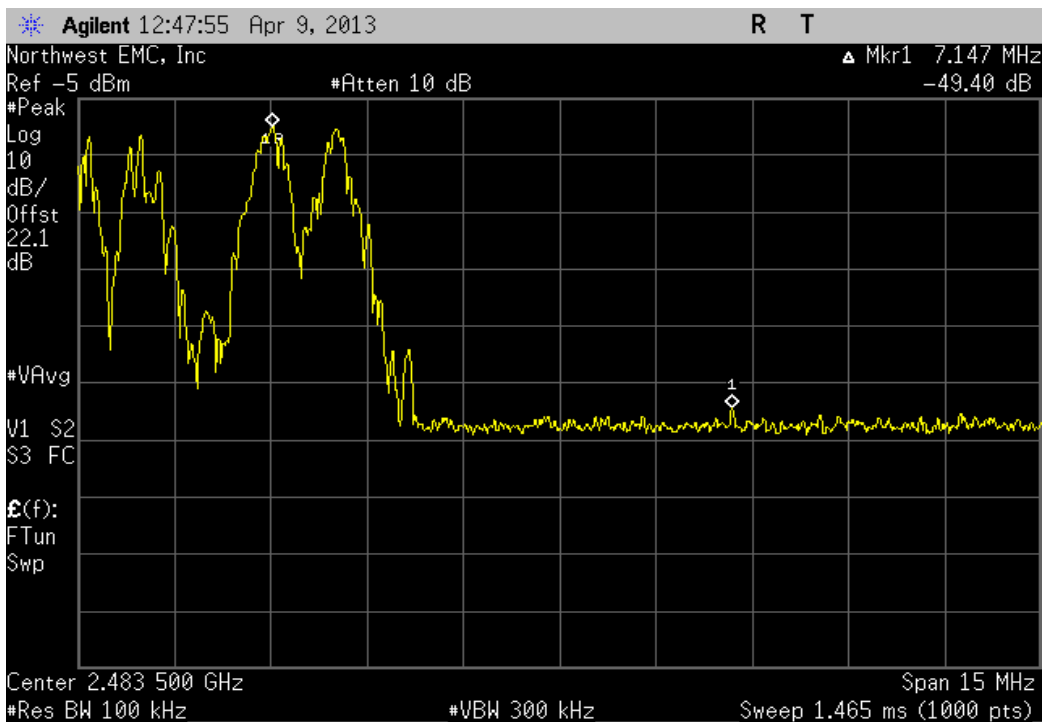
Hopping Mode, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz			
	Value	Limit	Result
	-49.21 dBc	≤ -20 dBc	Pass



Hopping Mode, 3DH5, 8-DPSK, Low Channel, 2402 MHz			
	Value	Limit	Result
	-54.02 dBc	≤ -20 dBc	Pass



Hopping Mode, 3DH5, 8-DPSK, High Channel, 2480 MHz			
	Value	Limit	Result
	-49.4 dBc	≤ -20 dBc	Pass



Band Edge Compliance

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
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

TEST DESCRIPTION


The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no hop mode. The channels closest to the band edges were selected.

The spectrum was scanned below the lower band edge and above the higher band edge.

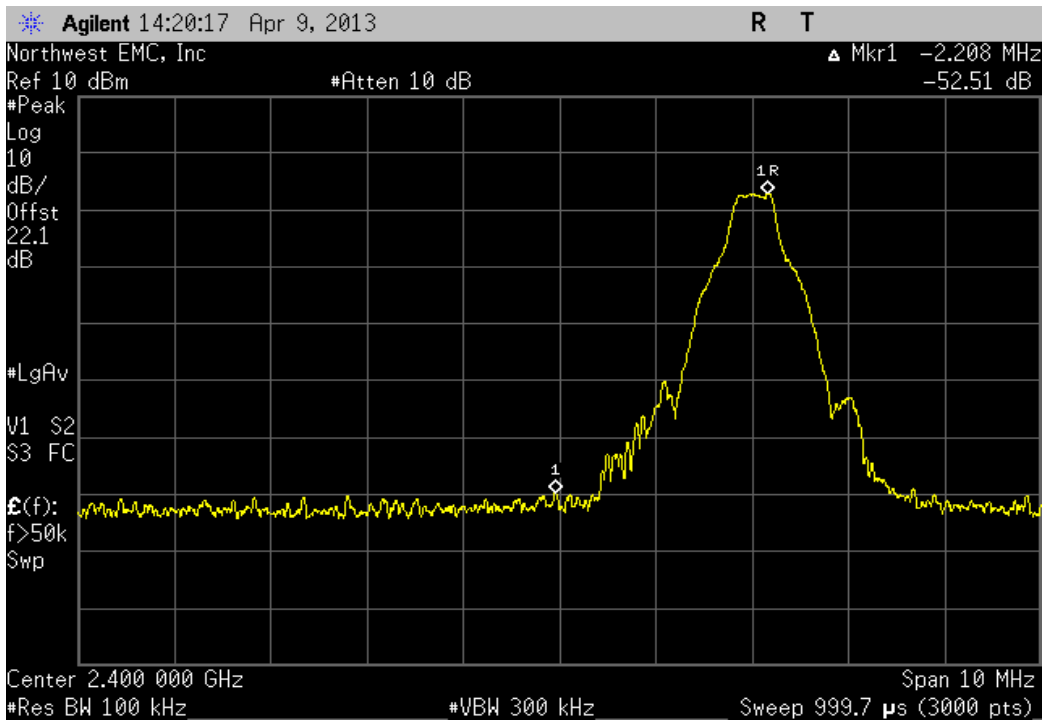


Band Edge Compliance

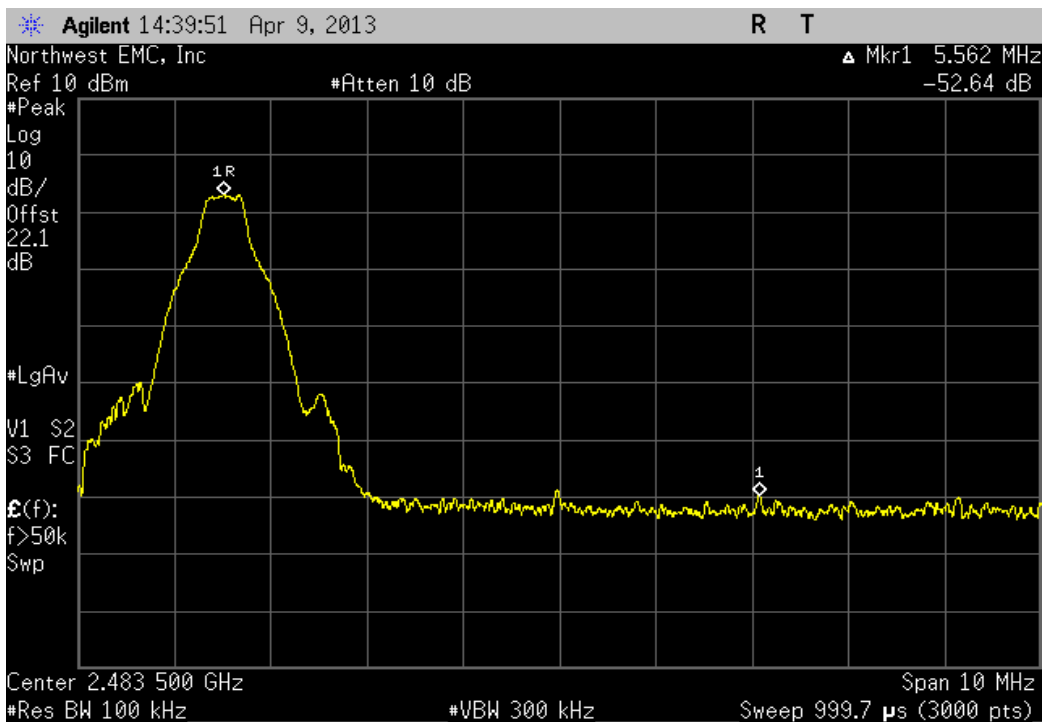
XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7		Work Order: MASI0142	
Serial Number: 113874		Date: 04/19/13	
Customer: Masimo Corporation		Temperature: 21.7°C	
Attendees: None		Humidity: 24%	
Project: None		Barometric Pres.: 1014	
Tested by: Jaemi Suh		Power: 110VAC/60Hz	
		Job Site: OC10	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	
COMMENTS			
DH5 Mode.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
DH5, GFSK			Result
Low Channel		-52.51 dBc	≤ -20 dBc Pass
High Channel		-52.64 dBc	≤ -20 dBc Pass

DH5, GFSK, Low Channel			
	Value	Limit	Result
	-52.51 dBc	≤ -20 dBc	Pass



DH5, GFSK, High Channel			
	Value	Limit	Result
	-52.64 dBc	≤ -20 dBc	Pass



Spurious Conducted 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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36
Spectrum Analyzer	Agilent	E4446A	AAY	2/22/2013	24

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.



Spurious Conducted Emissions

XMit 2013.02.28
PsaTx 2013.01.10

EUT: Radical 7	Work Order: MASI0142
Serial Number: 113874	Date: 04/19/13
Customer: Masimo Corporation	Temperature: 21.7°C
Attendees: None	Humidity: 24%
Project: None	Barometric Pres.: 1014
Tested by: Jaemi Suh	Power: 110VAC/60Hz
	Job Site: OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

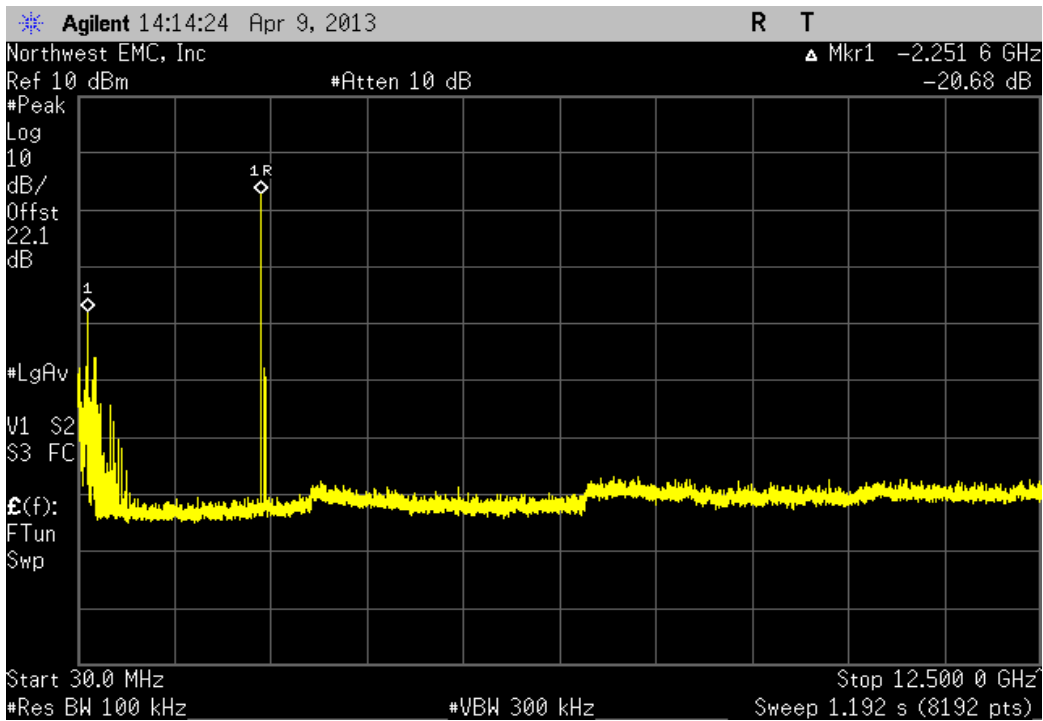
COMMENTS
DH5 Mode.

DEVIATIONS FROM TEST STANDARD
None

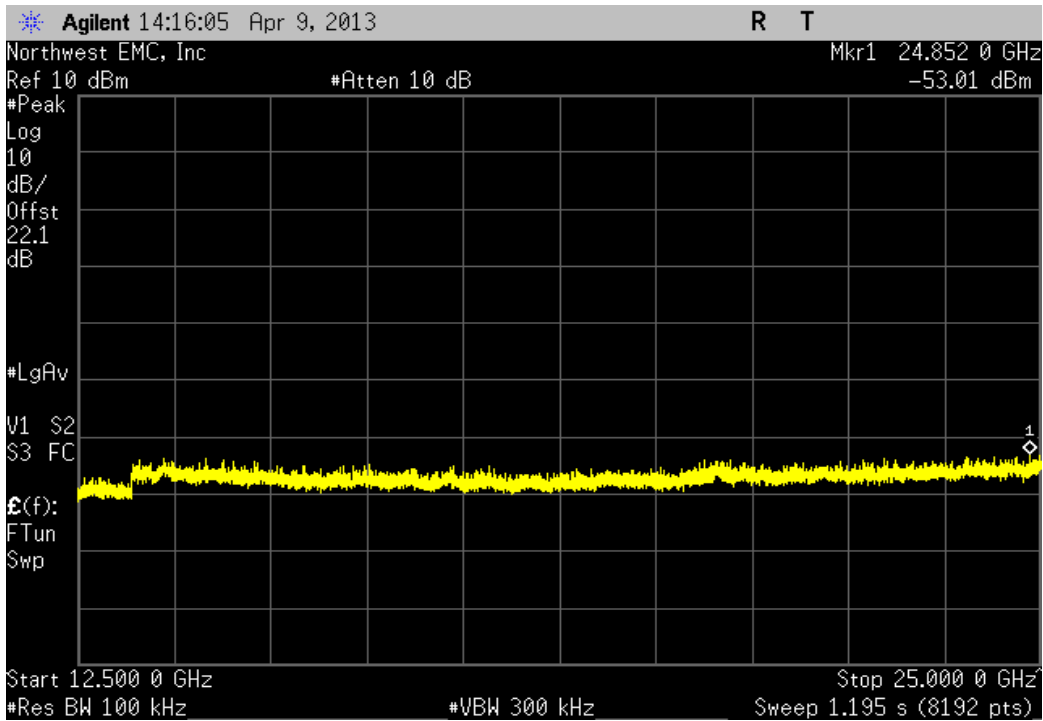
Configuration #	1	Signature 
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	Frequency Range	Value	Limit	Result
DH5, GFSK				
Low Channel, 2402 MHz	30 MHz - 12.5 GHz	-20.68 dBc	≤ -20 dBc	Pass
Low Channel, 2402 MHz	12.5 GHz - 25 GHz	-53.01 dBc	≤ -20 dBc	Pass
Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	-20.86 dBc	≤ -20 dBc	Pass
Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	-53.01 dBc	≤ -20 dBc	Pass
High Channel, 2480 MHz	30 MHz - 12.5 GHz	-20.28 dBc	≤ -20 dBc	Pass
High Channel, 2480 MHz	12.5 GHz - 25 GHz	-53.04 dBc	≤ -20 dBc	Pass

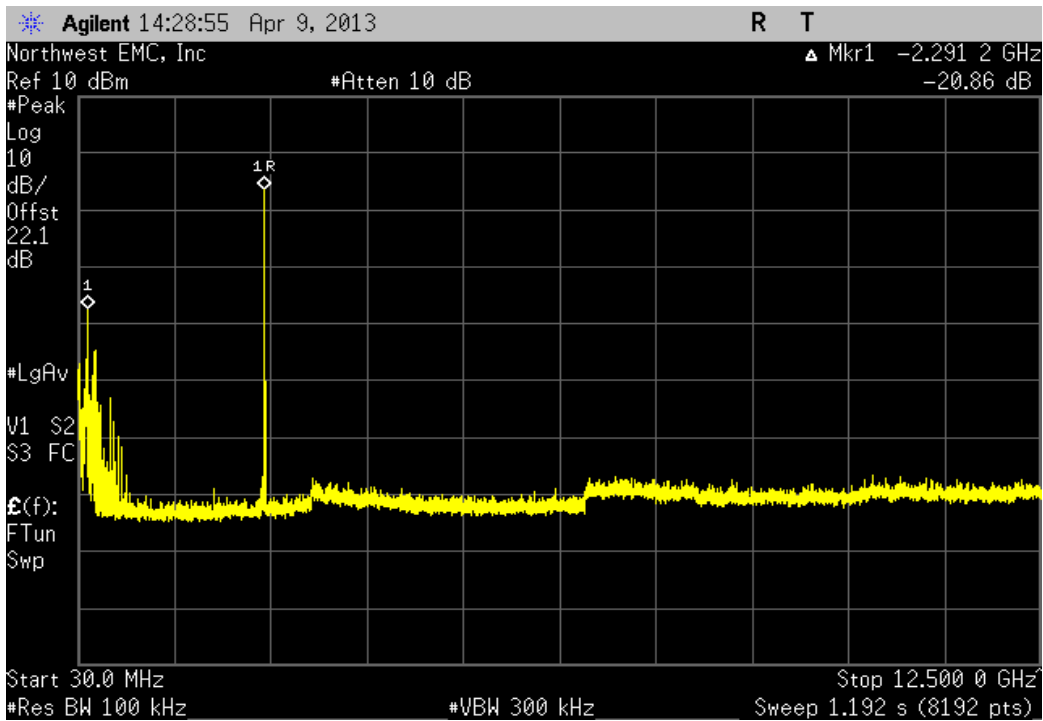
DH5, GFSK, Low Channel			
Frequency Range	Value	Limit	Result
30 MHz - 12.5 GHz	-20.68 dBc	≤ -20 dBc	Pass



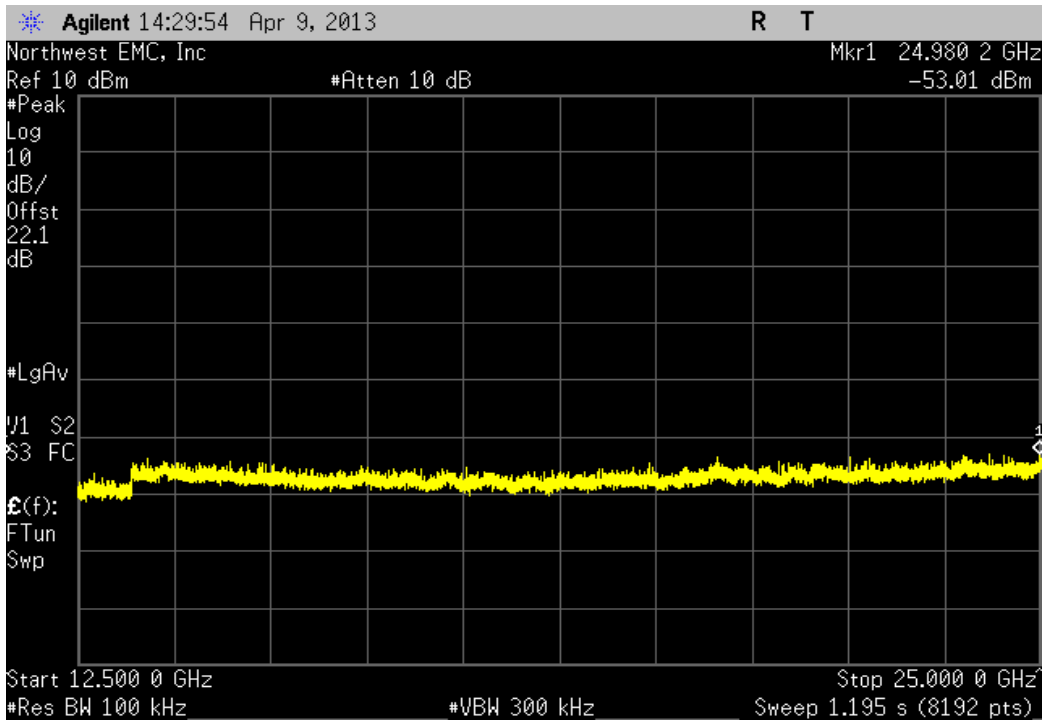
DH5, GFSK, Low Channel			
Frequency Range	Value	Limit	Result
12.5 GHz - 25 GHz	-53.01 dBc	≤ -20 dBc	Pass



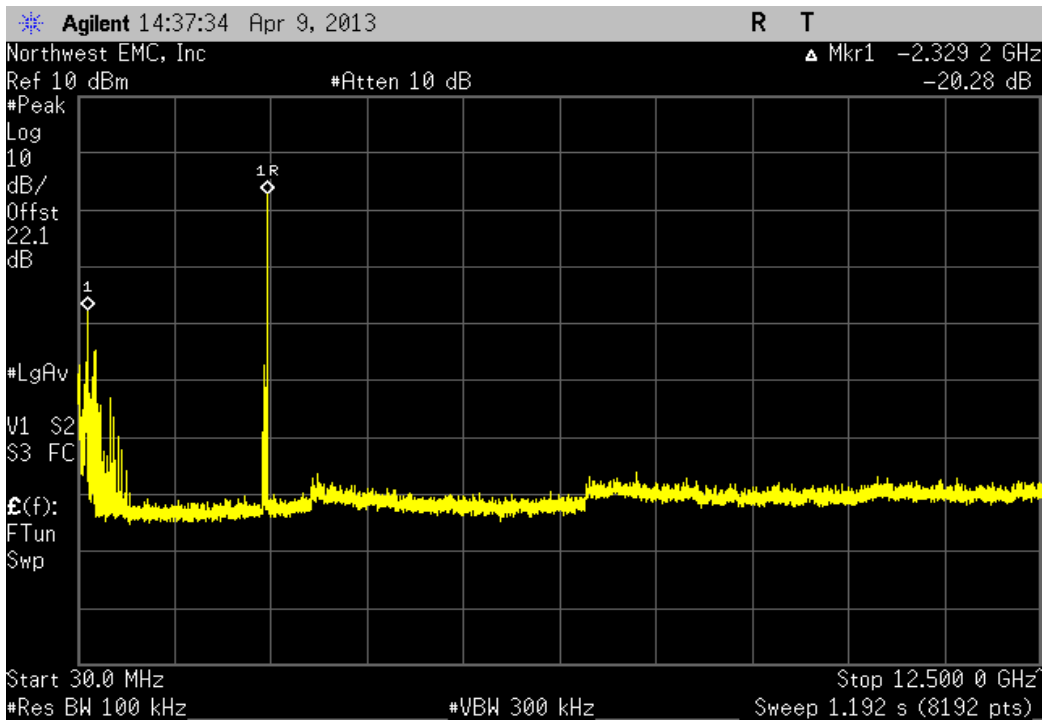
DH5, GFSK, Mid Channel			
Frequency Range	Value	Limit	Result
30 MHz - 12.5 GHz	-20.86 dBc	≤ -20 dBc	Pass



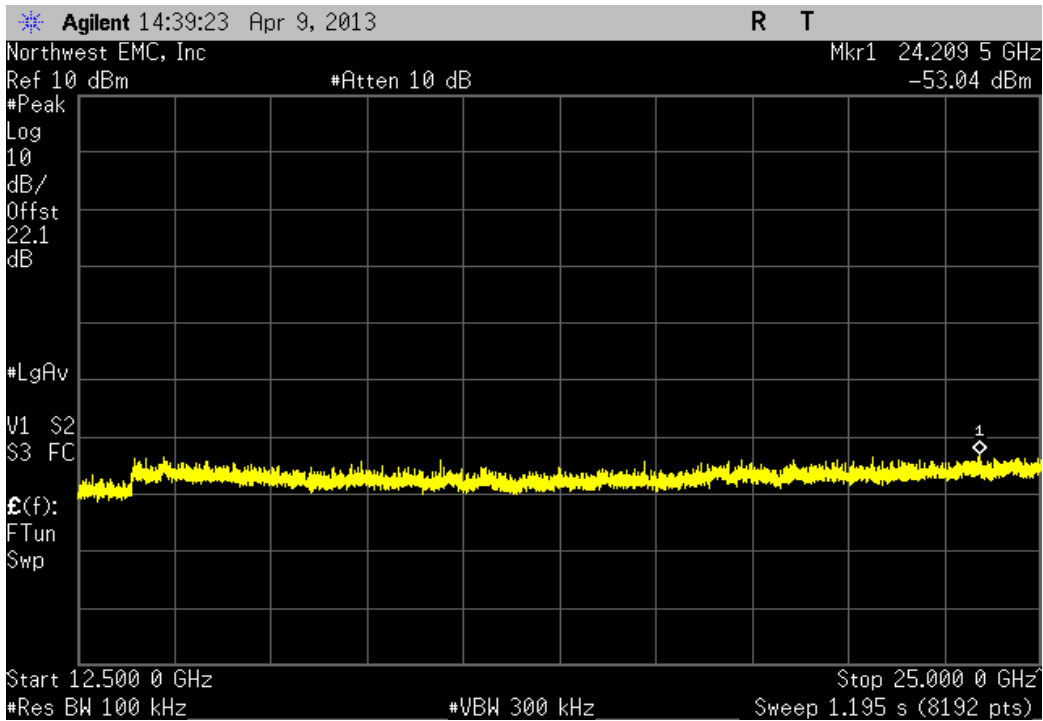
DH5, GFSK, Mid Channel			
Frequency Range	Value	Limit	Result
12.5 GHz - 25 GHz	-53.01 dBc	≤ -20 dBc	Pass



DH5, GFSK, High Channel			
Frequency Range	Value	Limit	Result
30 MHz - 12.5 GHz	-20.28 dBc	≤ -20 dBc	Pass



DH5, GFSK, High Channel			
Frequency Range	Value	Limit	Result
12.5 GHz - 25 GHz	-53.04 dBc	≤ -20 dBc	Pass



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 in Bluetooth Mode, DH5. Low Channel 2402 MHz, Mid Channel 2441 MHz, High Channel 2480 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0142 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency | 30 MHz | Stop Frequency | 26 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
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	4/27/2012	12 mo
Antenna, Horn	EMCO	3160-09	AHN	NCR	0 mo
OC floating Cable	N/A	18-26GHz RE Cables	OCK	4/27/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	11/21/2012	12 mo
Antenna, Horn	ETS	3160-08	AHT	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	11/21/2012	12 mo
Antenna, Horn	ETS	3160-07	AHR	NCR	0 mo
OC 10 Cables	N/A	8-18GHz RE Cables	OCO	10/10/2012	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	6/7/2012	12 mo
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36 mo
High Pass Filter	Micro-Tronics	HPM50111	HFM	4/2/2012	24 mo
Pre-Amplifier	Miteq	AM-1064-9079	AOO	6/7/2012	12 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/10/2012	12 mo
Antenna, Biconilog	EMCO	3142	AXB	6/14/2012	12 mo
OC10 Cables	N/A	10kHz-1GHz RE Cables	OCH	6/7/2012	12 mo
Spectrum Analyzer	Agilent	E4440A	AFG	5/16/2012	24 mo


MEASUREMENT BANDWIDTHS

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

TEST DESCRIPTION

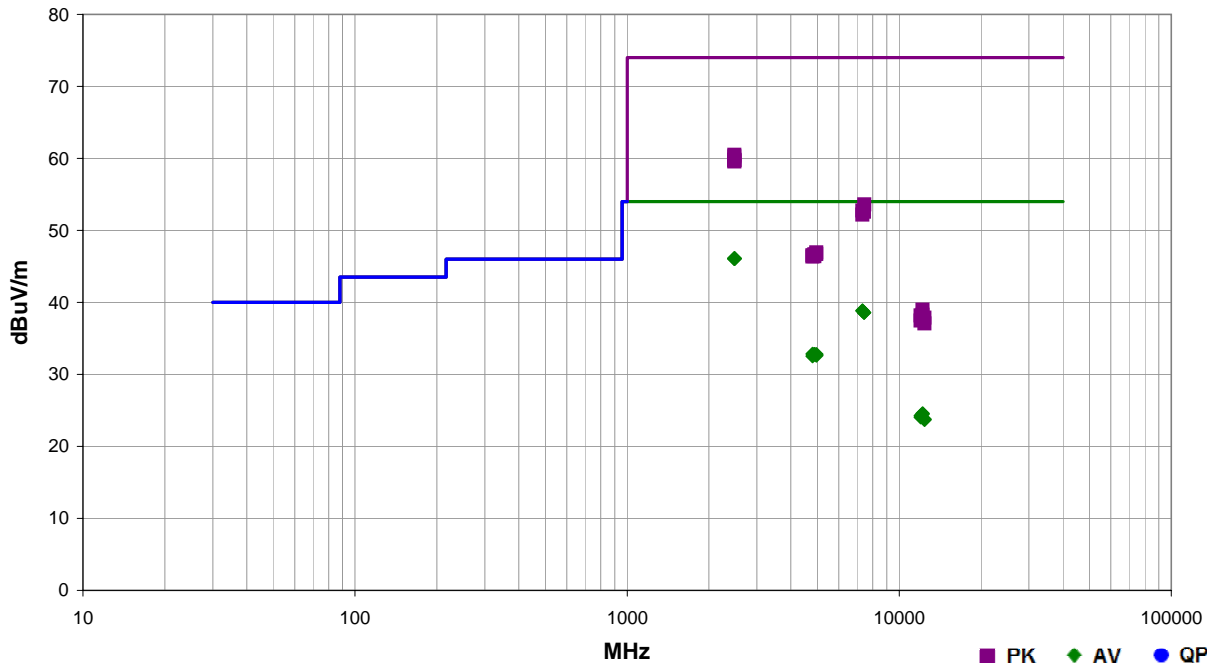
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and 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 were used for this test in order to provide sufficient measurement sensitivity. Only one mode of modulation was available on this unit, DH5.

Spurious Radiated Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.6 °C	
Job Site:	OC11	Humidity:	41.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. DH5 Mode Only.			
Deviations:	None			
Comments:	RADC7A. All cables attached.			

Test Specifications	Test Method
FCC 15.247:2013	ANSI C63.10:2009

Run #	2	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
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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
2483.500	24.0	2.1	1.0	268.0	3.0	20.0	Vert	AV	0.0	46.1	54.0	-7.9	High Ch. 2480, X-Axis
2483.500	24.0	2.1	2.5	276.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	High Ch. 2480, X-Axis
2483.500	24.0	2.1	1.0	284.0	3.0	20.0	Vert	AV	0.0	46.1	54.0	-7.9	High Ch. 2480, Y-Axis
2483.500	24.0	2.1	1.0	128.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	High Ch. 2480, Y-Axis
2483.500	24.0	2.1	1.0	31.0	3.0	20.0	Vert	AV	0.0	46.1	54.0	-7.9	High ch. 2480, Z-Axis
2483.500	24.0	2.1	1.0	334.0	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	High ch. 2480, Z-Axis
2483.500	38.4	2.1	2.5	276.0	3.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	High Ch. 2480, X-Axis
2483.500	38.2	2.1	1.0	284.0	3.0	20.0	Vert	PK	0.0	60.3	74.0	-13.7	High Ch. 2480, Y-Axis
2483.500	37.7	2.1	1.0	268.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	High Ch. 2480, X-Axis
2483.500	37.7	2.1	1.0	31.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	High ch. 2480, Z-Axis
2483.500	37.6	2.1	1.0	334.0	3.0	20.0	Horz	PK	0.0	59.7	74.0	-14.3	High ch. 2480, Z-Axis
2483.500	37.5	2.1	1.0	128.0	3.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	High Ch. 2480, Y-Axis
7320.020	23.0	15.9	1.0	272.0	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	Mid Ch. 2441, X-Axis
7319.987	23.0	15.9	2.4	28.0	3.0	0.0	Horz	AV	0.0	38.9	54.0	-15.1	Mid Ch. 2441, X-Axis
7438.800	22.6	16.0	1.0	253.0	3.0	0.0	Vert	AV	0.0	38.6	54.0	-15.4	High Ch. 2480, X-Axis
7438.220	22.6	16.0	2.7	29.0	3.0	0.0	Horz	AV	0.0	38.6	54.0	-15.4	High Ch. 2480, X-Axis
7438.933	37.6	16.0	2.7	29.0	3.0	0.0	Horz	PK	0.0	53.6	74.0	-20.4	High Ch. 2480, X-Axis
4803.920	22.6	10.2	1.0	82.0	3.0	0.0	Vert	AV	0.0	32.8	54.0	-21.2	Low Ch. 2402, X-Axis

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
4960.020	22.2	10.6	1.0	253.0	3.0	0.0	Horz	AV	0.0	32.8	54.0	-21.2	High Ch. 2480, X-Axis
4879.653	22.4	10.4	1.0	75.0	3.0	0.0	Horz	AV	0.0	32.8	54.0	-21.2	Mid Ch. 2441, X-Axis
4878.347	22.4	10.4	2.7	307.0	3.0	0.0	Vert	AV	0.0	32.8	54.0	-21.2	Mid Ch. 2441, X-Axis
7319.880	36.9	15.9	2.4	28.0	3.0	0.0	Horz	PK	0.0	52.8	74.0	-21.2	Mid Ch. 2441, X-Axis
4959.607	22.0	10.6	3.3	29.0	3.0	0.0	Vert	AV	0.0	32.6	54.0	-21.4	High Ch. 2480, X-Axis
7438.300	36.6	16.0	1.0	253.0	3.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	High Ch. 2480, X-Axis
4805.620	22.3	10.3	2.8	62.0	3.0	0.0	Horz	AV	0.0	32.6	54.0	-21.4	Low Ch. 2402, X-Axis
7321.127	36.3	15.9	1.0	272.0	3.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	Mid Ch. 2441, X-Axis
4961.220	36.3	10.6	1.0	253.0	3.0	0.0	Horz	PK	0.0	46.9	74.0	-27.1	High Ch. 2480, X-Axis
4960.113	36.1	10.6	3.3	29.0	3.0	0.0	Vert	PK	0.0	46.7	74.0	-27.3	High Ch. 2480, X-Axis
4880.820	36.3	10.4	1.0	75.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Mid Ch. 2441, X-Axis
4803.713	36.3	10.2	1.0	82.0	3.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	Low Ch. 2402, X-Axis
4878.087	36.0	10.4	2.7	307.0	3.0	0.0	Vert	PK	0.0	46.4	74.0	-27.6	Mid Ch. 2441, X-Axis
4803.833	36.1	10.2	2.8	62.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Low Ch. 2402, X-Axis
12199.850	33.6	-9.0	1.0	280.0	3.0	0.0	Vert	AV	0.0	24.6	54.0	-29.4	Mid Ch. 2441, X-Axis
12200.580	33.5	-9.0	1.0	259.0	3.0	0.0	Horz	AV	0.0	24.5	54.0	-29.5	Mid Ch. 2441, X-Axis
12008.070	33.5	-9.2	1.0	345.0	3.0	0.0	Vert	AV	0.0	24.3	54.0	-29.7	Low Ch. 2402, X-Axis
12008.050	33.3	-9.2	1.0	359.0	3.0	0.0	Horz	AV	0.0	24.1	54.0	-29.9	Low Ch. 2402, X-Axis
12399.810	32.6	-8.8	1.0	136.0	3.0	0.0	Vert	AV	0.0	23.8	54.0	-30.2	High Ch. 2480, X-Axis
12399.910	32.5	-8.8	1.5	209.0	3.0	0.0	Horz	AV	0.0	23.7	54.0	-30.3	High Ch. 2480, X-Axis
12199.110	48.0	-9.0	1.0	280.0	3.0	0.0	Vert	PK	0.0	39.0	74.0	-35.0	Mid Ch. 2441, X-Axis
12199.630	47.3	-9.0	1.0	259.0	3.0	0.0	Horz	PK	0.0	38.3	74.0	-35.7	Mid Ch. 2441, X-Axis
12011.520	47.4	-9.2	1.0	345.0	3.0	0.0	Vert	PK	0.0	38.2	74.0	-35.8	Low Ch. 2402, X-Axis
12398.530	46.7	-8.8	1.0	136.0	3.0	0.0	Vert	PK	0.0	37.9	74.0	-36.1	High Ch. 2480, X-Axis
12008.990	46.7	-9.2	1.0	359.0	3.0	0.0	Horz	PK	0.0	37.5	74.0	-36.5	Low Ch. 2402, X-Axis
12397.620	45.9	-8.8	1.5	209.0	3.0	0.0	Horz	PK	0.0	37.1	74.0	-36.9	High Ch. 2480, X-Axis

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.

MODES OF OPERATION

Transmitting in Bluetooth Mode. High Channel, 2480 MHz, DH5

Transmitting in Bluetooth Mode. Mid Channel, 2440 MHz, DH5

Transmitting in Bluetooth Mode. Low Channel, 2402, DH5

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0142 - 1

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-24-BNC	LIA	6/4/2012	12 mo
Attenuator	Pasternack	6N10W-20	AWC	2/28/2013	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HFP	3/1/2012	24 mo
OC06 Cables	N/A	Telecom Cables	OCP	4/5/2013	12 mo
Receiver	Rohde & Schwarz	ESCI	ARF	4/26/2012	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

Measurements were made using the bandwidths and detectors specified. No video filter was used.

TEST DESCRIPTION

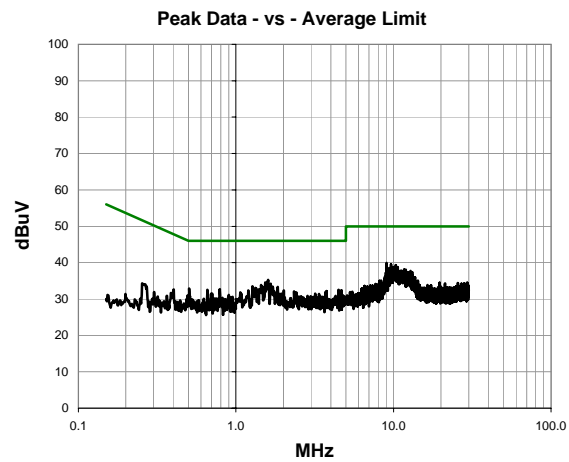
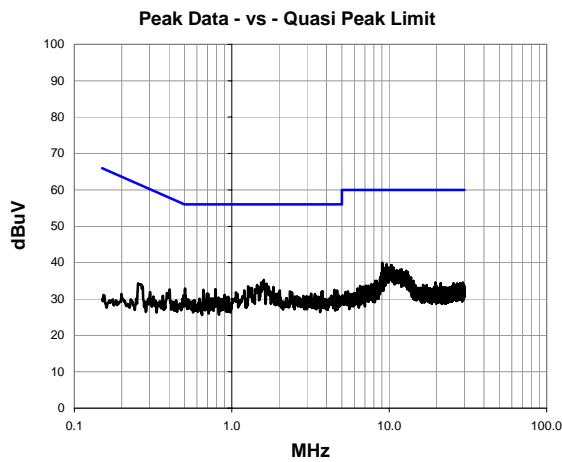
The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. Low Channel, 2402, DH5			
Deviations:	None			
Comments:	RADC7A. All cables attached.			

Test Specifications	FCC 15.207:2013	Test Method	ANSI C63.4:2009
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Run #	3	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	19.4	20.5	39.9	60.0	-20.1
9.640	19.0	20.5	39.5	60.0	-20.5
1.600	15.2	20.1	35.3	56.0	-20.7
10.340	18.7	20.6	39.3	60.0	-20.7
9.970	18.2	20.5	38.7	60.0	-21.3
10.650	18.1	20.6	38.7	60.0	-21.3
9.360	18.0	20.5	38.5	60.0	-21.5
9.900	17.9	20.5	38.4	60.0	-21.6
1.664	14.1	20.1	34.2	56.0	-21.8
9.240	17.7	20.5	38.2	60.0	-21.8
11.990	17.4	20.7	38.1	60.0	-21.9
9.860	17.6	20.5	38.1	60.0	-21.9
11.700	17.4	20.7	38.1	60.0	-21.9
1.448	13.8	20.1	33.9	56.0	-22.1
11.180	17.2	20.6	37.8	60.0	-22.2
9.450	17.3	20.5	37.8	60.0	-22.2
12.820	16.9	20.8	37.7	60.0	-22.3
11.020	17.1	20.6	37.7	60.0	-22.3
11.110	17.0	20.6	37.6	60.0	-22.4
9.150	17.1	20.5	37.6	60.0	-22.4

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	19.4	20.5	39.9	50.0	-10.1
9.640	19.0	20.5	39.5	50.0	-10.5
1.600	15.2	20.1	35.3	46.0	-10.7
10.340	18.7	20.6	39.3	50.0	-10.7
9.970	18.2	20.5	38.7	50.0	-11.3
10.650	18.1	20.6	38.7	50.0	-11.3
9.360	18.0	20.5	38.5	50.0	-11.5
9.900	17.9	20.5	38.4	50.0	-11.6
1.664	14.1	20.1	34.2	46.0	-11.8
9.240	17.7	20.5	38.2	50.0	-11.8
11.990	17.4	20.7	38.1	50.0	-11.9
9.860	17.6	20.5	38.1	50.0	-11.9
11.700	17.4	20.7	38.1	50.0	-11.9
1.448	13.8	20.1	33.9	46.0	-12.1
11.180	17.2	20.6	37.8	50.0	-12.2
9.450	17.3	20.5	37.8	50.0	-12.2
12.820	16.9	20.8	37.7	50.0	-12.3
11.020	17.1	20.6	37.7	50.0	-12.3
11.110	17.0	20.6	37.6	50.0	-12.4
9.150	17.1	20.5	37.6	50.0	-12.4

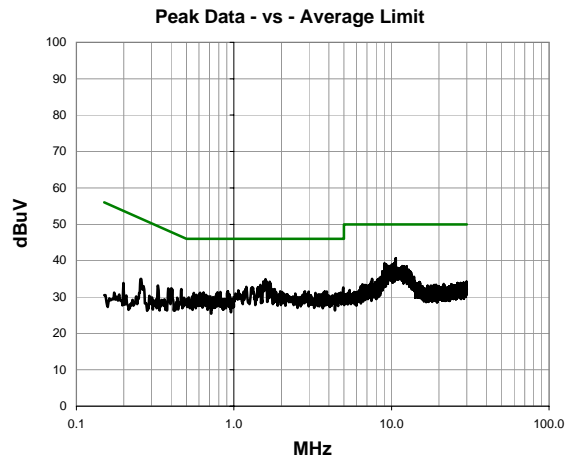
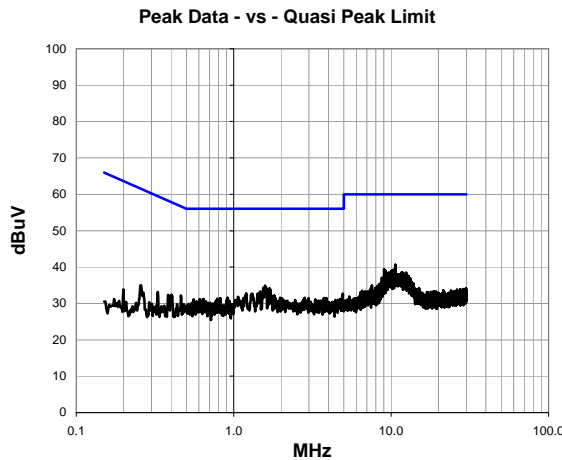


AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
Tested by: Jaemi Suh				
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. Low Channel, 2402, DH5			
Deviations:	None			
Comments:	RADC7A. All cables attached.			

Test Specifications	Test Method
FCC 15.207:2013	ANSI C63.4:2009

Run #	4	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
10.640	20.0	20.6	40.6	60.0	-19.4
10.450	18.8	20.6	39.4	60.0	-20.6
9.020	18.8	20.5	39.3	60.0	-20.7
10.280	18.5	20.6	39.1	60.0	-20.9
9.250	18.5	20.5	39.0	60.0	-21.0
10.040	18.4	20.5	38.9	60.0	-21.1
1.584	14.8	20.1	34.9	56.0	-21.1
9.950	18.1	20.5	38.6	60.0	-21.4
10.540	18.0	20.6	38.6	60.0	-21.4
9.650	18.0	20.5	38.5	60.0	-21.5
11.660	17.8	20.7	38.5	60.0	-21.5
12.470	17.7	20.8	38.5	60.0	-21.5
11.970	17.7	20.7	38.4	60.0	-21.6
1.688	14.1	20.1	34.2	56.0	-21.8
10.360	17.5	20.6	38.1	60.0	-21.9
11.450	17.4	20.7	38.1	60.0	-21.9
10.950	17.4	20.6	38.0	60.0	-22.0
9.360	17.5	20.5	38.0	60.0	-22.0
10.210	17.4	20.6	38.0	60.0	-22.0
12.860	16.7	20.8	37.5	60.0	-22.5

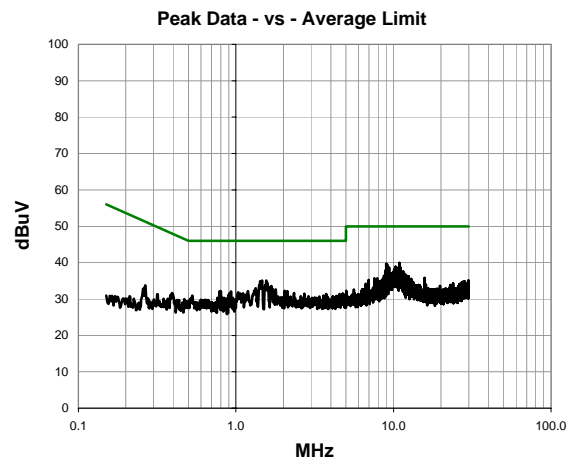
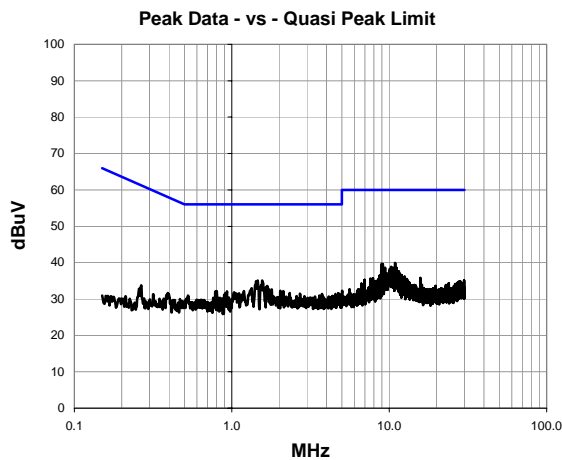
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
10.640	20.0	20.6	40.6	50.0	-9.4
10.450	18.8	20.6	39.4	50.0	-10.6
9.020	18.8	20.5	39.3	50.0	-10.7
10.280	18.5	20.6	39.1	50.0	-10.9
9.250	18.5	20.5	39.0	50.0	-11.0
10.040	18.4	20.5	38.9	50.0	-11.1
1.584	14.8	20.1	34.9	46.0	-11.1
9.950	18.1	20.5	38.6	50.0	-11.4
10.540	18.0	20.6	38.6	50.0	-11.4
9.650	18.0	20.5	38.5	50.0	-11.5
11.660	17.8	20.7	38.5	50.0	-11.5
12.470	17.7	20.8	38.5	50.0	-11.5
11.970	17.7	20.7	38.4	50.0	-11.6
1.688	14.1	20.1	34.2	46.0	-11.8
10.360	17.5	20.6	38.1	50.0	-11.9
11.450	17.4	20.7	38.1	50.0	-11.9
10.950	17.4	20.6	38.0	50.0	-12.0
9.360	17.5	20.5	38.0	50.0	-12.0
10.210	17.4	20.6	38.0	50.0	-12.0
12.860	16.7	20.8	37.5	50.0	-12.5

AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. Mid Channel, 2440 MHz, DH5			
Deviations:	None			
Comments:	RAD7A. All cables attached.			

Test Specifications	FCC 15.207:2013	Test Method	ANSI C63.4:2009
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Run #	5	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
10.900	19.3	20.6	39.9	60.0	-20.1
8.990	19.2	20.5	39.7	60.0	-20.3
9.020	19.1	20.5	39.6	60.0	-20.4
9.100	19.0	20.5	39.5	60.0	-20.5
1.464	15.0	20.1	35.1	56.0	-20.9
1.560	15.0	20.1	35.1	56.0	-20.9
10.300	18.3	20.6	38.9	60.0	-21.1
11.060	18.1	20.6	38.7	60.0	-21.3
9.390	18.1	20.5	38.6	60.0	-21.4
10.560	18.0	20.6	38.6	60.0	-21.4
11.110	17.8	20.6	38.4	60.0	-21.6
10.100	17.7	20.6	38.3	60.0	-21.7
10.240	17.4	20.6	38.0	60.0	-22.0
8.890	17.4	20.5	37.9	60.0	-22.1
10.530	17.3	20.6	37.9	60.0	-22.1
10.200	17.3	20.6	37.9	60.0	-22.1
10.450	17.2	20.6	37.8	60.0	-22.2
10.500	17.1	20.6	37.7	60.0	-22.3
1.680	13.5	20.1	33.6	56.0	-22.4
11.510	16.9	20.7	37.6	60.0	-22.4

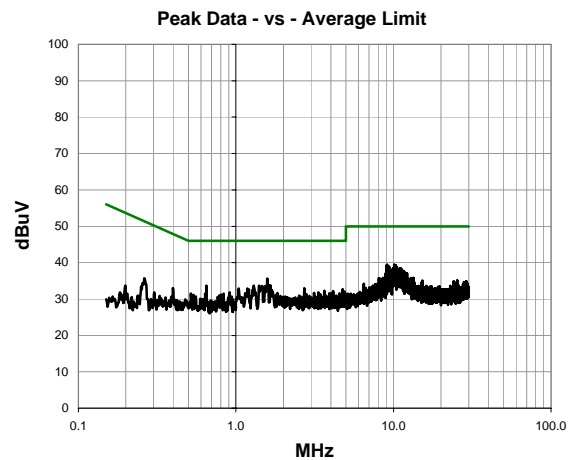
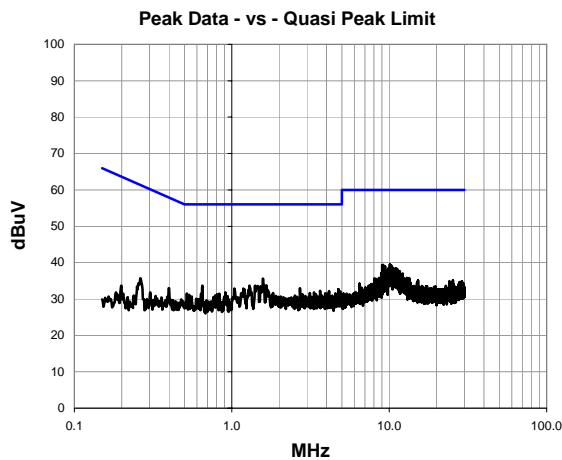
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
10.900	19.3	20.6	39.9	50.0	-10.1
8.990	19.2	20.5	39.7	50.0	-10.3
9.020	19.1	20.5	39.6	50.0	-10.4
9.100	19.0	20.5	39.5	50.0	-10.5
1.464	15.0	20.1	35.1	46.0	-10.9
1.560	15.0	20.1	35.1	46.0	-10.9
10.300	18.3	20.6	38.9	50.0	-11.1
11.060	18.1	20.6	38.7	50.0	-11.3
9.390	18.1	20.5	38.6	50.0	-11.4
10.560	18.0	20.6	38.6	50.0	-11.4
11.110	17.8	20.6	38.4	50.0	-11.6
10.100	17.7	20.6	38.3	50.0	-11.7
10.240	17.4	20.6	38.0	50.0	-12.0
8.890	17.4	20.5	37.9	50.0	-12.1
10.530	17.3	20.6	37.9	50.0	-12.1
10.200	17.3	20.6	37.9	50.0	-12.1
10.450	17.2	20.6	37.8	50.0	-12.2
10.500	17.1	20.6	37.7	50.0	-12.3
1.680	13.5	20.1	33.6	46.0	-12.4
11.510	16.9	20.7	37.6	50.0	-12.4

AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. Mid Channel, 2440 MHz, DH5			
Deviations:	None			
Comments:	RAD7A. All cables attached.			

Test Specifications	Test Method
FCC 15.207:2013	ANSI C63.4:2009

Run #	6	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Peak Data - vs - Quasi Peak Limit

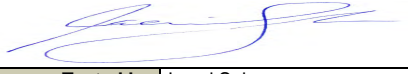
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.576	15.5	20.1	35.6	56.0	-20.4
10.090	18.9	20.6	39.5	60.0	-20.6
9.130	18.9	20.5	39.4	60.0	-20.6
9.020	18.8	20.5	39.3	60.0	-20.7
10.300	18.7	20.6	39.3	60.0	-20.7
10.200	18.6	20.6	39.2	60.0	-20.8
9.400	18.5	20.5	39.0	60.0	-21.0
10.390	18.2	20.6	38.8	60.0	-21.2
10.500	18.1	20.6	38.7	60.0	-21.3
9.290	18.1	20.5	38.6	60.0	-21.4
11.110	17.8	20.6	38.4	60.0	-21.6
9.910	17.9	20.5	38.4	60.0	-21.6
10.930	17.7	20.6	38.3	60.0	-21.7
10.750	17.7	20.6	38.3	60.0	-21.7
10.980	17.5	20.6	38.1	60.0	-21.9
10.160	17.5	20.6	38.1	60.0	-21.9
11.310	17.4	20.7	38.1	60.0	-21.9
9.090	17.5	20.5	38.0	60.0	-22.0
1.656	13.7	20.1	33.8	56.0	-22.2
9.800	17.3	20.5	37.8	60.0	-22.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.576	15.5	20.1	35.6	46.0	-10.4
10.090	18.9	20.6	39.5	50.0	-10.6
9.130	18.9	20.5	39.4	50.0	-10.6
9.020	18.8	20.5	39.3	50.0	-10.7
10.300	18.7	20.6	39.3	50.0	-10.7
10.200	18.6	20.6	39.2	50.0	-10.8
9.400	18.5	20.5	39.0	50.0	-11.0
10.390	18.2	20.6	38.8	50.0	-11.2
10.500	18.1	20.6	38.7	50.0	-11.3
9.290	18.1	20.5	38.6	50.0	-11.4
11.110	17.8	20.6	38.4	50.0	-11.6
9.910	17.9	20.5	38.4	50.0	-11.6
10.930	17.7	20.6	38.3	50.0	-11.7
10.750	17.7	20.6	38.3	50.0	-11.7
10.980	17.5	20.6	38.1	50.0	-11.9
10.160	17.5	20.6	38.1	50.0	-11.9
11.310	17.4	20.7	38.1	50.0	-11.9
9.090	17.5	20.5	38.0	50.0	-12.0
1.656	13.7	20.1	33.8	46.0	-12.2
9.800	17.3	20.5	37.8	50.0	-12.2

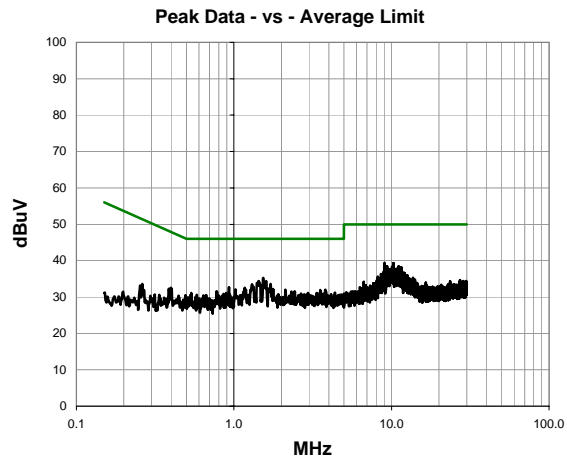
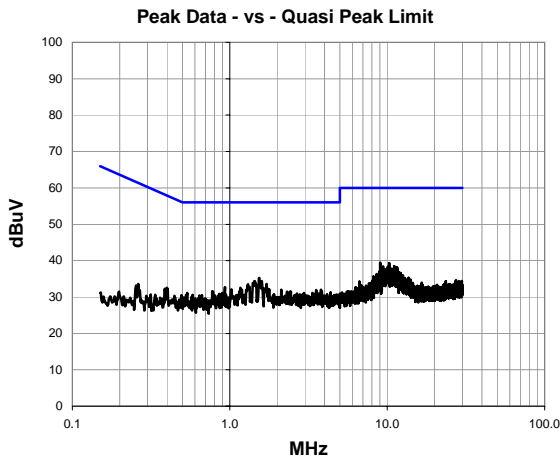


AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. High Channel, 2480 MHz, DH5			
Deviations:	None			
Comments:	RAD7A. All cables attached.			

Test Specifications	Test Method
FCC 15.207:2013	ANSI C63.4:2009

Run #	7	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	18.9	20.5	39.4	60.0	-20.6
1.536	15.2	20.1	35.3	56.0	-20.7
10.290	18.7	20.6	39.3	60.0	-20.7
11.100	17.8	20.6	38.4	60.0	-21.6
1.432	14.3	20.1	34.4	56.0	-21.6
9.390	17.9	20.5	38.4	60.0	-21.6
10.090	17.8	20.6	38.4	60.0	-21.7
11.350	17.5	20.7	38.2	60.0	-21.8
11.570	17.4	20.7	38.1	60.0	-21.9
10.910	17.2	20.6	37.8	60.0	-22.2
10.620	17.1	20.6	37.7	60.0	-22.3
11.470	17.0	20.7	37.7	60.0	-22.3
1.712	13.5	20.1	33.6	56.0	-22.4
9.090	17.1	20.5	37.6	60.0	-22.4
9.600	17.1	20.5	37.6	60.0	-22.4
9.720	17.1	20.5	37.6	60.0	-22.4
10.210	17.0	20.6	37.6	60.0	-22.4
10.770	16.9	20.6	37.5	60.0	-22.5
1.304	13.4	20.1	33.5	56.0	-22.5
9.900	16.6	20.5	37.1	60.0	-22.9

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	18.9	20.5	39.4	50.0	-10.6
1.536	15.2	20.1	35.3	46.0	-10.7
10.290	18.7	20.6	39.3	50.0	-10.7
11.100	17.8	20.6	38.4	50.0	-11.6
1.432	14.3	20.1	34.4	46.0	-11.6
9.390	17.9	20.5	38.4	50.0	-11.6
10.090	17.8	20.6	38.4	50.0	-11.7
11.350	17.5	20.7	38.2	50.0	-11.8
11.570	17.4	20.7	38.1	50.0	-11.9
10.910	17.2	20.6	37.8	50.0	-12.2
10.620	17.1	20.6	37.7	50.0	-12.3
11.470	17.0	20.7	37.7	50.0	-12.3
1.712	13.5	20.1	33.6	46.0	-12.4
9.090	17.1	20.5	37.6	50.0	-12.4
9.600	17.1	20.5	37.6	50.0	-12.4
9.720	17.1	20.5	37.6	50.0	-12.4
10.210	17.0	20.6	37.6	50.0	-12.4
10.770	16.9	20.6	37.5	50.0	-12.5
1.304	13.4	20.1	33.5	46.0	-12.5
9.900	16.6	20.5	37.1	50.0	-12.9

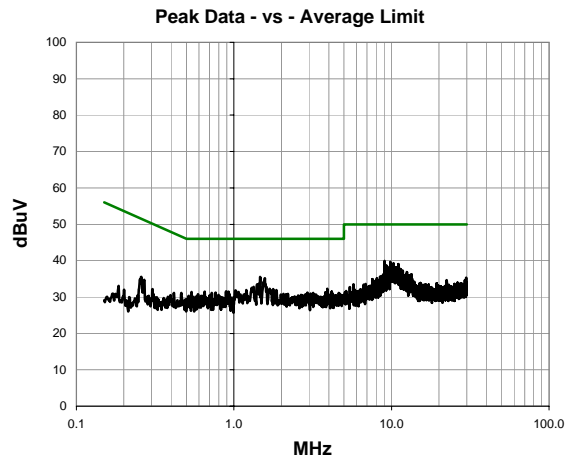
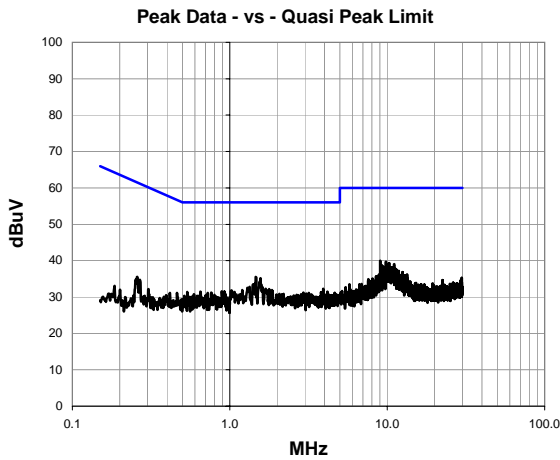


AC Powerline Conducted Emissions

Work Order:	MASI0142	Date:	04/15/13	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC12	Humidity:	47.5% RH	
Serial Number:	113874	Barometric Pres.:	1016 mbar	
EUT:	Radical 7			
Configuration:	1			
Customer:	Masimo Corporation			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting in Bluetooth Mode. High Channel, 2480 MHz, DH5			
Deviations:	None			
Comments:	RAD7A. All cables attached.			

Test Specifications	Test Method
FCC 15.207:2013	ANSI C63.4:2009

Run #	8	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	19.4	20.5	39.9	60.0	-20.1
9.810	19.2	20.5	39.7	60.0	-20.3
1.464	15.4	20.1	35.5	56.0	-20.5
10.280	18.7	20.6	39.3	60.0	-20.7
1.568	15.1	20.1	35.2	56.0	-20.8
11.060	18.4	20.6	39.0	60.0	-21.0
10.090	18.4	20.6	39.0	60.0	-21.1
9.290	18.1	20.5	38.6	60.0	-21.4
9.490	17.8	20.5	38.3	60.0	-21.7
10.690	17.6	20.6	38.2	60.0	-21.8
10.490	17.4	20.6	38.0	60.0	-22.0
10.010	17.4	20.5	37.9	60.0	-22.1
9.090	17.4	20.5	37.9	60.0	-22.1
11.300	17.1	20.7	37.8	60.0	-22.2
10.990	17.1	20.6	37.7	60.0	-22.3
9.380	17.2	20.5	37.7	60.0	-22.3
10.850	17.0	20.6	37.6	60.0	-22.4
10.610	17.0	20.6	37.6	60.0	-22.4
10.200	17.0	20.6	37.6	60.0	-22.4
11.480	16.9	20.7	37.6	60.0	-22.4

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
9.020	19.4	20.5	39.9	50.0	-10.1
9.810	19.2	20.5	39.7	50.0	-10.3
1.464	15.4	20.1	35.5	46.0	-10.5
10.280	18.7	20.6	39.3	50.0	-10.7
1.568	15.1	20.1	35.2	46.0	-10.8
11.060	18.4	20.6	39.0	50.0	-11.0
10.090	18.4	20.6	39.0	50.0	-11.1
9.290	18.1	20.5	38.6	50.0	-11.4
9.490	17.8	20.5	38.3	50.0	-11.7
10.690	17.6	20.6	38.2	50.0	-11.8
10.490	17.4	20.6	38.0	50.0	-12.0
10.010	17.4	20.5	37.9	50.0	-12.1
9.090	17.4	20.5	37.9	50.0	-12.1
11.300	17.1	20.7	37.8	50.0	-12.2
10.990	17.1	20.6	37.7	50.0	-12.3
9.380	17.2	20.5	37.7	50.0	-12.3
10.850	17.0	20.6	37.6	50.0	-12.4
10.610	17.0	20.6	37.6	50.0	-12.4
10.200	17.0	20.6	37.6	50.0	-12.4
11.480	16.9	20.7	37.6	50.0	-12.4