

Masimo Corporation

RAD7A/Radical 7 V2

FCC 15.207:2014 FCC 15.407:2014

Report # MASI0233







CERTIFICATE OF TEST

Last Date of Test: August 25, 2014 Masimo Corporation Model: RAD7A/Radical 7 V2

Radio Equipment Testing

Standards

| Specification | Method |
|-----------------|------------------|
| FCC 15.207:2014 | ANSI C63.10:2009 |
| FCC 15.407:2014 | ANSI C63.10:2009 |

Results

| Method Clause | Test Description | Applied | Results | Comments |
|------------------|---|---------|---------|---|
| 6.2 | AC Powerline Conducted Emissions | Yes | Pass | |
| 6.5, 6.6 | Spurious Radiated Emissions | Yes | Pass | |
| 6.7 | Band Edge Compliance | No | N/A | Not required, 5GHz band (ch 100-140) not used |
| 6.8 | Frequency Stability | Yes | Pass | |
| 6.9.1 | Emission Bandwidth | Yes | Pass | |
| 6.10.3 | Peak Transmit Power | Yes | Pass | |
| 6.10.4 | Peak Excursion of the Modulation Envelope | Yes | Pass | |
| 6.11.1 | Peak Power Spectral Density | Yes | Pass | |
| 7.5 | Duty Cycle | Yes | Pass | |

Deviations From Test Standards

None

Approved By:

Victor Ratinoff, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Report No. MASI0233 2/61



REVISION HISTORY

| Revision Number | Description | Date | Page Number |
|--------------------|-------------|------|-------------|
| | | | |
| 00 | None | | |

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Report No. MASI0233 3/61



ACCREDITATIONS AND AUTHORIZATIONS

United States

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

A2LA - Accredited by A2LA to ISO / IEC 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

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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.

SCOPE

For details on the Scopes of our Accreditations, please visit: http://www.nwemc.com/accreditations/

Report No. MASI0233 4/61



MEASUREMENT UNCERTAINTY

Measurement Uncertainty

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is 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 |

Report No. MASI0233 5/61



FACILITIES

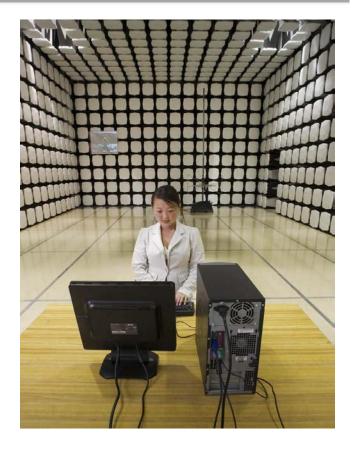




| Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066 | California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918 | New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796 | Minnesota Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281 | 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 | 2834F-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 | | | |







Report No. MASI0233 6/61



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: | RAD7A/Radical 7 V2 |
| First Date of Test: | January 29, 2014 |
| Last Date of Test: | August 25, 2014 |
| Receipt Date of Samples: | January 19, 2014 |
| Equipment Design Stage: | Production |
| Equipment Condition: | No Damage |

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The device is a Pulse Co-Oximeter incorporating an 802.11a wireless radio assembly. Masimo radio assembly part number = 24514.

Testing Objective:

To demonstrate compliance under FCC 15.407 for operation in the 5.2 GHz band(s).

Report No. MASI0233 7/61



CONFIGURATIONS

Configuration MASI0151-1

| EUT | | | | | | |
|-------------------|--------------------|-----------------------------|---------------|--|--|--|
| Description | Manufacturer | Model/Part Number | Serial Number | | | |
| Pulse Co-Oximeter | Masimo Corporation | RAD7A/Radical 7 V2 | 1000000349 | | | |
| Wireless Radio | Broadcom | BCM 4334/Azurewave AW-AH634 | 36235C | | | |

Configuration MASI0151-2

| EUT | | | | | | |
|-------------------|--------------------|-----------------------------|---------------|--|--|--|
| Description | Manufacturer | Model/Part Number | Serial Number | | | |
| Pulse Co-Oximeter | Masimo Corporation | RAD7A/Radical 7 V2 | 1000000349 | | | |
| Wireless Radio | Broadcom | BCM 4334/Azurewave AW-AH634 | 36235C | | | |

| Peripherals in test setup boundary | | | | | | |
|------------------------------------|--------------------|-------------------|---------------|--|--|--|
| Description | Manufacturer | Model/Part Number | Serial Number | | | |
| Charging and Docking Station | Masimo Corporation | RDS-1 | 147484 | | | |
| Finger Sensor | Masimo Corporation | DCI-DC12 | 9J042 | | | |

| Cables | | | | | |
|-----------------|--------|------------|---------|------------------------------|---------------|
| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
| AC Cable | No | 1.8m | No | Charging and Docking Station | AC Mains |
| RS 232 | No | 1.8m | Yes | Charging and Docking Station | Unterminated |
| Vue Link Cable | No | 1.8m | Yes | Charging and Docking Station | Unterminated |
| Nursecall Cable | No | 1.0m | Yes | Charging and Docking Station | Unterminated |
| Sp02 Cable | Yes | 3.0m | No | Pulse Co-Oximeter | Finger Sensor |
| Ground Cable | Yes | 1.8m | No | Charging and Docking Station | Ground |

Configuration MASI0151-3

| EUT | | | | | | |
|-------------------|--------------------|-----------------------------|---------------|--|--|--|
| Description | Manufacturer | Model/Part Number | Serial Number | | | |
| Pulse Co-Oximeter | Masimo Corporation | RAD7A/Radical 7 V2 | 1000000349 | | | |
| Wireless Radio | Broadcom | BCM 4334/Azurewave AW-AH634 | 24514 | | | |

Report No. MASI0233 8/61



MODIFICATIONS

Equipment Modifications

| Item | Date | Test | Modification | Note | Disposition of EUT |
|------|------------|---|--------------------------------------|---|---|
| 1 | 01/29/2014 | Emissions 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. |
| 2 | 01/29/2014 | Peak Excursion of the Modulation Envelope | 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 | 01/29/2014 | Peak Power Spectral Density | 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 | 01/29/2014 | 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. |
| 5 | 01/29/2014 | 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. |
| 6 | 02/07/2014 | AC Powerline 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. |
| 7 | 02/07/2014 | 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. |
| 8 | 08/25/2014 | Frequency Stability | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

Report No. MASI0233 9/61



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

Operating 802.11a: Channel 36, 5180MHz, 6Mbps Operating 802.11a: Channel 48, 5240MHz, 6Mbps

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0151 - 2

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

| | | | | | Interval |
|-------------|-----------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mo) |
| LISN | Solar | 9252-50-24-BNC | LIA | 6/3/2013 | 12 mo |
| Attenuator | Pasternack | 6N10W-20 | AWC | 1/3/2014 | 12 mo |
| HP Filter | TTE | H97-100K-50-720B | HFP | 3/1/2012 | 36 mo |
| OC06 Cables | N/A | Telecom Cables | OCP | 10/8/2013 | 12 mo |
| Receiver | Rohde & Schwarz | ESCI | ARF | 5/21/2013 | 12 mo |

MEASUREMENT BANDWIDTHS

| Frequency Range | Peak Data | Quasi-Peak Data | Average Data |
|-----------------|-----------|-----------------|--------------|
| (MHz) | (kHz) | (kHz) | (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.

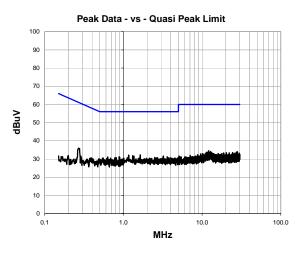
TEST DESCRIPTION

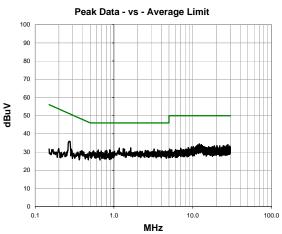
Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

Report No. MASI0233 10/61



| Woi | rk Order: | MASI0151 | Date: | 02/07/14 | | 11 | 2 |
|-------------|-----------|----------------------|-----------------------|-----------------|--------------|----------------------|------|
| | Project: | None | Temperature: | 21.8 °C | | 46 | 2/- |
| | Job Site: | OC06 | Humidity: | 39.8% RH | | | |
| Serial | Number: | 1000000349 | Barometric Pres.: | 1011 mbar | Т | ested by: Mark Bayta | n |
| | EUT: | RAD7A/Radical 7 V2 | | | | | |
| Config | guration: | 2 | | | | | |
| C | ustomer: | Masimo Corporation | | | | | |
| At | tendees: | Michael Clark | | | | | |
| EU | T Power: | 120VAC/60Hz | | | | | |
| Operation | ng Mode: | Operating 802.11a: C | hannel 36, 5180MHz, 6 | 6Mbps | | | |
| De | viations: | None | | | | | |
| Со | mments: | TX Power = 90 | | | | | |
| Test Specif | fications | | | Test Me | thod | | |
| FCC 15.207 | 7:2014 | | | ANSI C | 3.10:2009 | | |
| | | | | | | | |
| Run # | 7 | Line: | High Line | Ext. Attenuatio | 1: 20 | Results | Pass |





| Peak | Data - | vs - | Quasi | Peak | Limit |
|------|--------|------|-------|------|-------|
| | | | | | |

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted () | Spec. Limit () | Compared to Spec. (dB) |
|---------------|---------------------|----------------|----------------|-------------------|------------------------------|
| 1.632 | 12.2 | 20.1 | 32.3 | 56.0 | -23.7 |
| 1.168 | 12.1 | 20.1 | 32.2 | 56.0 | -23.8 |
| 1.312 | 11.7 | 20.1 | 31.8 | 56.0 | -24.2 |
| 3.224 | 11.6 | 20.1 | 31.7 | 56.0 | -24.3 |
| 1.360 | 11.5 | 20.1 | 31.6 | 56.0 | -24.4 |
| 0.883 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 3.600 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 0.633 | 11.0 | 20.1 | 31.1 | 56.0 | -24.9 |
| 0.804 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 0.900 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 2.504 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 0.269 | 15.9 | 20.1 | 36.0 | 61.1 | -25.1 |
| 0.550 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 2.656 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 3.760 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 3.952 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 3.952 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |

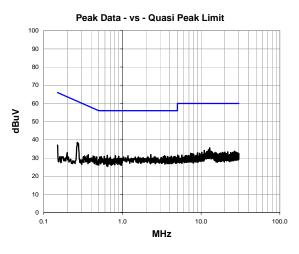
| Peak [| Data - vs | - Average | Limit |
|--------|-----------|-----------|-------|
| | | | |

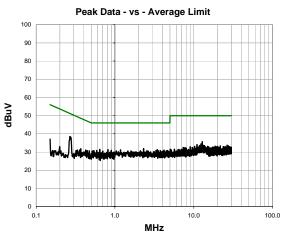
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted () | Spec. Limit | Compared to Spec. (dB) |
|---------------|---------------------|----------------|----------------|-------------|------------------------------|
| 1.632 | 12.2 | 20.1 | 32.3 | 46.0 | -13.7 |
| 1.168 | 12.1 | 20.1 | 32.2 | 46.0 | -13.8 |
| 1.312 | 11.7 | 20.1 | 31.8 | 46.0 | -14.2 |
| 3.224 | 11.6 | 20.1 | 31.7 | 46.0 | -14.3 |
| 1.360 | 11.5 | 20.1 | 31.6 | 46.0 | -14.4 |
| 0.883 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 3.600 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 0.633 | 11.0 | 20.1 | 31.1 | 46.0 | -14.9 |
| 0.804 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 0.900 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 2.504 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 0.269 | 15.9 | 20.1 | 36.0 | 51.1 | -15.1 |
| 0.550 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 2.656 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 3.760 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 3.952 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |

Report No. MASI0233 11/61



| Woi | rk Order: | MASI0151 | Date: | 02/07/14 | | 11 | |
|-------------|-----------|----------------------|-----------------------|----------------|------------|-----------------------|------|
| | Project: | None | Temperature: | 21.8 °C | | 146 | 5,1- |
| | Job Site: | OC06 | Humidity: | 39.8% RH | | | |
| Serial | Number: | 1000000349 | Barometric Pres.: | 1011 mbar | | Tested by: Mark Bayta | an |
| | EUT: | RAD7A/Radical 7 V2 | | | | | |
| | guration: | | | | | | |
| Cı | ustomer: | Masimo Corporation | | | | | |
| At | tendees: | Michael Clark | | | | | |
| EU' | T Power: | 120VAC/60Hz | | | | | |
| Operatir | ng Mode: | Operating 802.11a: C | hannel 36, 5180MHz, 6 | 6Mbps | | | |
| De | viations: | None | | | | | |
| Со | mments: | TX Power = 90 | | | | | |
| Test Specif | ications | | | Test M | ethod | | |
| FCC 15.207 | ':2014 | | | ANSI C | 63.10:2009 | | |
| | | | | | | | |
| Run # | 8 | Line: | Neutral | Ext. Attenuati | on: 20 | Results | Pass |





| Peak | Data | - VS - | Quasi | Peak | I imit |
|------|------|--------|-------|------|--------|

| | 1 Cak Bata V3 Quasi i Cak Elittit | | | | | | |
|---------------|-----------------------------------|----------------|--------------------|-----------------------|------------------------------|--|--|
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) | | |
| 0.267 | 18.4 | 20.1 | 38.5 | 61.2 | -22.7 | | |
| 2.304 | 11.8 | 20.1 | 31.9 | 56.0 | -24.1 | | |
| 12.840 | 15.0 | 20.6 | 35.6 | 60.0 | -24.4 | | |
| 0.645 | 11.4 | 20.1 | 31.5 | 56.0 | -24.5 | | |
| 0.815 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 | | |
| 3.448 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 | | |
| 1.176 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 | | |
| 4.192 | 10.9 | 20.1 | 31.0 | 56.0 | -25.0 | | |
| 0.900 | 10.9 | 20.1 | 31.0 | 56.0 | -25.0 | | |
| 0.585 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 | | |
| 3.320 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 | | |
| 3.752 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 | | |
| 4.640 | 10.7 | 20.2 | 30.9 | 56.0 | -25.1 | | |
| 3.536 | 10.7 | 20.1 | 30.8 | 56.0 | -25.2 | | |
| 0.536 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 | | |
| 2.544 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 | | |

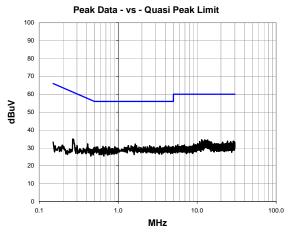
| Peak Data - vs | Average Limit |
|----------------|-----------------------------------|
| | |

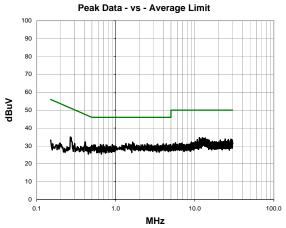
| | | K Data V3 | /wcrage i | | |
|---------------|---------------------|----------------|--------------------|-----------------------|------------------------------|
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
| 0.267 | 18.4 | 20.1 | 38.5 | 51.2 | -12.7 |
| 2.304 | 11.8 | 20.1 | 31.9 | 46.0 | -14.1 |
| 12.840 | 15.0 | 20.6 | 35.6 | 50.0 | -14.4 |
| 0.645 | 11.4 | 20.1 | 31.5 | 46.0 | -14.5 |
| 0.815 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 3.448 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 1.176 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 4.192 | 10.9 | 20.1 | 31.0 | 46.0 | -15.0 |
| 0.900 | 10.9 | 20.1 | 31.0 | 46.0 | -15.0 |
| 0.585 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 3.320 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 3.752 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 4.640 | 10.7 | 20.2 | 30.9 | 46.0 | -15.1 |
| 3.536 | 10.7 | 20.1 | 30.8 | 46.0 | -15.2 |
| 0.536 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 2.544 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |

Report No. MASI0233 12/61



| Worl | k Order: | MASI0151 | Date: | 02/07/14 | 11 | 99 50 | |
|---------------|-----------|--------------------|-----------------------|------------------|-----------|----------------|------|
| | Project: | None | Temperature: | 21.8 °C | -4 | 46 | 4 |
| J | lob Site: | OC06 | Humidity: | 39.8% RH | | | |
| Serial N | Number: | 1000000349 | Barometric Pres.: | 1011 mbar | Tested k | y: Mark Baytan | |
| | EUT: | RAD7A/Radical 7 V2 | | | | | |
| Config | uration: | 2 | | | | | |
| Cu | stomer: | Masimo Corporation | | | | | |
| Att | endees: | Michael Clark | | | | | |
| EUT | Power: | 120VAC/60Hz | | | | | |
| | | | nannel 48, 5240MHz, 6 | Mbps | | | |
| Dev | viations: | None | | | | | |
| Cor | nments: | TX Power = 90 | | | | | |
| Test Specific | cations | | | Test Met | hod | | |
| FCC 15.207:2 | 2014 | | | ANSI C63 | 3.10:2009 | | |
| | | | | | | | |
| Run # | 9 | Line: | High Line | Ext. Attenuation | 20 | Results | Pass |





| Peak [| າata - | VS - | Ouasi | Peak | I imit |
|--------|--------|-------------|-------|------|--------|

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---------------|---------------------|----------------|--------------------|-----------------------|------------------------------|
| 1.640 | 12.1 | 20.1 | 32.2 | 56.0 | -23.8 |
| 1.344 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 |
| 1.704 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 |
| 2.496 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 |
| 1.464 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 4.000 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 4.360 | 11.0 | 20.2 | 31.2 | 56.0 | -24.8 |
| 3.400 | 10.9 | 20.1 | 31.0 | 56.0 | -25.0 |
| 0.641 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 3.352 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 0.697 | 10.7 | 20.1 | 30.8 | 56.0 | -25.2 |
| 4.896 | 10.6 | 20.2 | 30.8 | 56.0 | -25.2 |
| 0.906 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 2.624 | 10.6 | 20.1 | 30.7 | 56.0 | -25.3 |
| 0.410 | 12.2 | 20.1 | 32.3 | 57.6 | -25.3 |
| 0.541 | 10.5 | 20.1 | 30.6 | 56.0 | -25.4 |
| 2.088 | 10.5 | 20.1 | 30.6 | 56.0 | -25.4 |

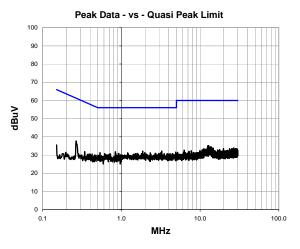
| Peak | Data - vs | s - Averag | je Limit |
|------|-----------|------------|----------|
| | | | |

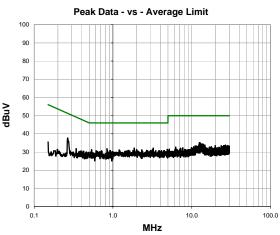
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---------------|---------------------|----------------|--------------------|-----------------------|------------------------------|
| 1.640 | 12.1 | 20.1 | 32.2 | 46.0 | -13.8 |
| 1.344 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 1.704 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 2.496 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 1.464 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 4.000 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 4.360 | 11.0 | 20.2 | 31.2 | 46.0 | -14.8 |
| 3.400 | 10.9 | 20.1 | 31.0 | 46.0 | -15.0 |
| 0.641 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 3.352 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 0.697 | 10.7 | 20.1 | 30.8 | 46.0 | -15.2 |
| 4.896 | 10.6 | 20.2 | 30.8 | 46.0 | -15.2 |
| 0.906 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 2.624 | 10.6 | 20.1 | 30.7 | 46.0 | -15.3 |
| 0.410 | 12.2 | 20.1 | 32.3 | 47.6 | -15.3 |
| 0.541 | 10.5 | 20.1 | 30.6 | 46.0 | -15.4 |
| 2.088 | 10.5 | 20.1 | 30.6 | 46.0 | -15.4 |

Report No. MASI0233 13/61



| Work O | Order: | MASI0151 | Date: | 02/07/1 | 4 | | 11 | | 7 |
|------------------------|--------|----------------------|---------------------|------------|----------|---------|------------|-------------|------|
| Pro | oject: | None | Temperature: | 21.8 °C | | | 4 | | >/ |
| Job | Site: | OC06 | Humidity: | 39.8% F | RH. | | | | |
| Serial Nur | mber: | 1000000349 | Barometric Pres.: | 1011 mb | ar | | Tested by: | Mark Baytaı | า |
| | EUT: | RAD7A/Radical 7 V2 | | | | | | | |
| Configura | | | | | | | | | |
| Custo | omer: | Masimo Corporation | | | | | | | |
| Attend | dees: | Michael Clark | | | | | | | |
| EUT Po | ower: | 120VAC/60Hz | | | | | | | |
| Operating N | Mode: | Operating 802.11a: C | hannel 48, 5240MHz, | 6Mbps | | | | | |
| Deviat | tions: | None | | | | | | | |
| Comm | | TX Power = 90 | | | | | | | |
| Test Specificat | tions | | | Te | st Metho | od | | | |
| FCC 15.207:20° | 14 | | | AN | ISI C63. | 10:2009 | | | |
| | | | | | | | | | |
| Run # 1 | 10 | Line: | Neutral | Ext. Atten | uation: | 20 | | Results | Pass |





| Peak | Data | - VS - | Quasi | Peak | I imit |
|------|------|--------|-------|------|--------|

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---------------|---------------------|----------------|--------------------|-----------------------|------------------------------|
| 0.266 | 17.6 | 20.1 | 37.7 | 61.3 | -23.6 |
| 1.864 | 12.1 | 20.1 | 32.2 | 56.0 | -23.8 |
| 3.248 | 12.1 | 20.1 | 32.2 | 56.0 | -23.8 |
| 0.840 | 11.7 | 20.1 | 31.8 | 56.0 | -24.2 |
| 4.888 | 11.3 | 20.2 | 31.5 | 56.0 | -24.5 |
| 1.992 | 11.3 | 20.1 | 31.4 | 56.0 | -24.6 |
| 0.534 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 |
| 3.176 | 11.2 | 20.1 | 31.3 | 56.0 | -24.7 |
| 1.200 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 2.320 | 11.1 | 20.1 | 31.2 | 56.0 | -24.8 |
| 12.550 | 14.6 | 20.6 | 35.2 | 60.0 | -24.8 |
| 12.800 | 14.5 | 20.6 | 35.1 | 60.0 | -24.9 |
| 1.584 | 10.9 | 20.1 | 31.0 | 56.0 | -25.0 |
| 2.680 | 10.9 | 20.1 | 31.0 | 56.0 | -25.0 |
| 0.929 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| 2.992 | 10.8 | 20.1 | 30.9 | 56.0 | -25.1 |
| | | | | | |

| Peak | Data - | vs - | Average | Limit |
|------|--------|------|---------|-------|
| | | | | |

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---------------|---------------------|----------------|--------------------|-----------------------|------------------------------|
| 0.266 | 17.6 | 20.1 | 37.7 | 51.3 | -13.6 |
| 1.864 | 12.1 | 20.1 | 32.2 | 46.0 | -13.8 |
| 3.248 | 12.1 | 20.1 | 32.2 | 46.0 | -13.8 |
| 0.840 | 11.7 | 20.1 | 31.8 | 46.0 | -14.2 |
| 4.888 | 11.3 | 20.2 | 31.5 | 46.0 | -14.5 |
| 1.992 | 11.3 | 20.1 | 31.4 | 46.0 | -14.6 |
| 0.534 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 3.176 | 11.2 | 20.1 | 31.3 | 46.0 | -14.7 |
| 1.200 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 2.320 | 11.1 | 20.1 | 31.2 | 46.0 | -14.8 |
| 12.550 | 14.6 | 20.6 | 35.2 | 50.0 | -14.8 |
| 12.800 | 14.5 | 20.6 | 35.1 | 50.0 | -14.9 |
| 1.584 | 10.9 | 20.1 | 31.0 | 46.0 | -15.0 |
| 2.680 | 10.9 | 20.1 | 31.0 | 46.0 | -15.0 |
| 0.929 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| 2.992 | 10.8 | 20.1 | 30.9 | 46.0 | -15.1 |
| | | | | | |

Report No. MASI0233 14/61



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

CHANNELS TESTED

Channel 36 (5180MHz)

Channel 48 (5240 MHz)

MODES OF OPERATION

802.11a: 6Mbps

802.11a: 36Mbps

802.11a: 54Mbps

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0151 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 40000 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|-------------------------------------|-----------------|------------------------|------------|-------------------------|----------|
| BP Filter | Micro-Tronics | BRC50705 | HFQ | 7/26/2012 | 36 mo |
| BP Filter | Micro-Tronics | BRC50704 | HGB | 7/26/2012 | 36 mo |
| 5.15-5.35 Notch Filter | Micro-Tronics | BRC50703 | HGH | 6/13/2013 | 24 mo |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 4/28/2014 | 12 mo |
| Pre-Amplifier | Miteq | JSW45-26004000-40-5P | AVQ | 1/10/2014 | 12 mo |
| Antenna, Horn | ETS | 3160-10 | AIX | NCR | 0 mo |
| Cable | ESM Cable Corp. | KMKM-72 | OC1 | 1/9/2014 | 12 mo |
| Pre-Amplifier | Miteq | AMF-6F-18002650-25-10P | AOI | 1/10/2014 | 12 mo |
| Antenna, Horn | EMCO | 3160-09 | AHN | NCR | 0 mo |
| OC floating Cable | N/A | 18-26GHz RE Cables | OCK | 2/6/2014 | 12 mo |
| OC07 Cables | ESM Cable Corp. | 8-18GHz cables | OCY | 3/27/2014 | 12 mo |
| Pre-Amplifier | Miteq | AMF-6F-12001800-30-10P | AVP | 10/24/2013 | 12 mo |
| Antenna, Horn | EMCO | 3160-08 | AHK | NCR | 0 mo |
| Pre-Amplifier | Miteq | AMF-6F-08001200-30-10P | AVL | 10/24/2013 | 12 mo |
| Antenna, Horn | ETS | 3160-07 | AHX | NCR | 0 mo |
| OC07 Cables | ESM Cable Corp. | 1-8GHz cables | OCX | 3/27/2014 | 12 mo |
| Pre-Amplifier | Miteq | AMF-3D-00100800-32-13P | AVJ | 10/24/2013 | 12 mo |
| Antenna, Horn | ETS | 3117 | AHQ | 9/12/2012 | 36 mo |
| OC07 Cables | ESM Cable Corp. | 30-1GHz cables | OCW | 7/15/2014 | 12 mo |
| Pre-Amplifier | Miteq | AM-1402 | AOZ | 7/15/2014 | 12 mo |
| Antenna, Biconilog | EMCO | 3142 | AXA | 11/25/2013 | 24 mo |
| Spectrum Analyzer | Agilent | N9010A | AFJ | 7/10/2013 | 24 mo |
| Pre-Amplifier Antenna, Biconilog | Miteq EMCO | AM-1402 3142 | AOZ AXA | 7/15/2014 11/25/2013 | |

Report No. MASI0233 15/61

MEASUREMENT BANDWIDTHS

| Frequency Range | Peak Data | Quasi-Peak Data | Average Data |
|-----------------|-----------|-----------------|--------------|
| (MHz) | (kHz) | (kHz) | (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 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.

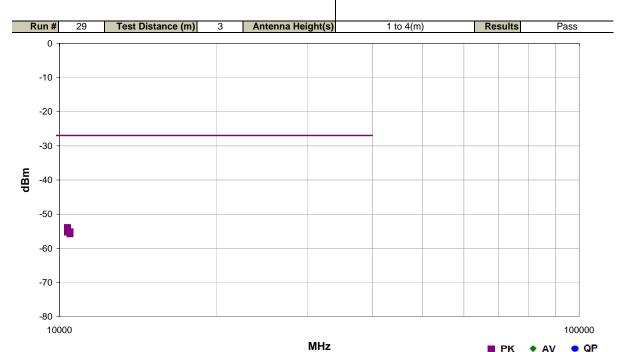
Report No. MASI0233 16/61



| Work Order: | MASI0151 | Date: | 09/22/14 | 11 2 |
|---------------------|----------------------|-----------------------|----------------------|------------------------|
| Project: | None | Temperature: | 22.42 °C | 146,4 |
| Job Site: | OC10 | Humidity: | 41.21% RH | |
| Serial Number: | 1000000349 | Barometric Pres.: | 1011 mbar | Tested by: Mark Baytan |
| EUT: | RAD7A/Radical 7 V2 | | | |
| Configuration: | 2 | | | |
| Customer: | Masimo | | | |
| Attendees: | Michael Clark | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Operating 802.11a: C | hannel 36 (5180MHz) a | and Channel 48 (524) | DMHz) |
| Deviations: | None | | | |
| Comments: | TX Power = 90 | | | |
| Test Specifications | | | Test Meth | ood |

 Test Specifications
 Test Method

 FCC 15.407:2014
 ANSI C63.10:2009



| | | | | | | | | | TIN VAN OU |
|---------------|-------------------------|-------------------|---------------------------------|----------|-----------------|---------------|----------------------|------------------------------|------------------|
| Freq (MHz) | Antenna Height (meters) | Azimuth (degrees) | Polarity/ Transducer Type | Detector | EIRP (Watts) | EIRP (dBm) | Spec. Limit (dBm) | Compared to Spec. (dB) | Comments |
| 10361.410 | 1.0 | 3.0 | Vert | PK | 4.01E-09 | -54.0 | -27.0 | -27.0 | Low Ch, 6 Mbps |
| 10359.990 | 1.0 | 360.0 | Vert | PK | 3.57E-09 | -54.5 | -27.0 | -27.5 | Low Ch, 36 Mbps |
| 10358.580 | 1.0 | 230.0 | Horz | PK | 3.49E-09 | -54.6 | -27.0 | -27.6 | Low Ch, 6 Mbps |
| 10361.180 | 1.0 | 360.0 | Vert | PK | 3.26E-09 | -54.9 | -27.0 | -27.9 | Low Ch, 54 Mbps |
| 10359.810 | 1.0 | 95.0 | Horz | PK | 3.11E-09 | -55.1 | -27.0 | -28.1 | Low Ch, 54 Mbps |
| 10479.380 | 1.0 | 152.0 | Horz | PK | 3.03E-09 | -55.2 | -27.0 | -28.2 | High Ch, 54 Mbps |
| 10360.220 | 1.0 | 317.0 | Horz | PK | 2.97E-09 | -55.3 | -27.0 | -28.3 | Low Ch, 36 Mbps |
| 10480.290 | 1.0 | 349.0 | Vert | PK | 2.64E-09 | -55.8 | -27.0 | -28.8 | High Ch, 54 Mbps |

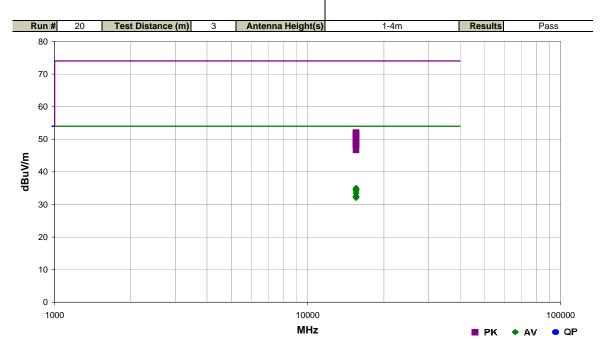
Report No. MASI0233 17/61



| Work Order: | MASI0151 | Date: | 02/05/14 | 11 0 |
|---------------------|-----------------------|----------------------|-----------|----------------------|
| Project: | None | Temperature: | 22.42 °C | Mr Syt- |
| Job Site: | OC07 | Humidity: | 41.21% RH | |
| Serial Number: | 1000000349 | Barometric Pres.: | 1012 mbar | Tested by: Jaemi Suh |
| EUT: | RAD7A/Radical 7 V2 | | | |
| Configuration: | 1 | | | |
| Customer: | Masimo Corporation | | | |
| Attendees: | Michael Clark | | | |
| EUT Power: | 120VAC/60Hz | | | |
| | Operating 802.11a: Cl | nannel 36 (5180 MHz) | | |
| Deviations: | None | | | |
| Comments: | TX Power = 90 | | | |
| Test Cassifications | 1 | | Took Mad | had |

Test Specifications
FCC 15.407:2014

Test Method ANSI C63.10:2009



| 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 |
|---------------|---------------------|----------------|-------------------------|-------------------|---------------------------|---------------------------------|---------------------------------|----------|--------------------------------|----------------------|-------------------------|------------------------------|-------------------------------------|
| 15540.130 | 30.0 | 5.0 | 1.0 | 227.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 35.0 | 54.0 | -19.0 | EUT Vert, Channel 36, 6 Mbps |
| 15540.000 | 29.9 | 5.0 | 1.2 | 227.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 34.9 | 54.0 | -19.1 | EUT Vert, Channel 36, 36 Mbps |
| 15539.820 | 29.6 | 5.0 | 1.0 | 321.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 34.6 | 54.0 | -19.4 | EUT on its side, Channel 36, 6 Mbps |
| 15539.860 | 29.5 | 5.0 | 1.0 | 25.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 34.5 | 54.0 | -19.5 | EUT on its side, Channel 36, 6 Mbps |
| 15540.080 | 29.2 | 5.0 | 1.2 | 227.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 34.2 | 54.0 | -19.8 | EUT Vert, Channel 36, 54 Mbps |
| 15540.130 | 28.4 | 5.0 | 1.1 | 163.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 33.4 | 54.0 | -20.6 | EUT Horizontal, Channel 36, 6 Mbps |
| 15540.170 | 27.5 | 5.0 | 1.0 | 79.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 32.5 | 54.0 | -21.5 | EUT Vert, Channel 36, 6 Mbps |
| 15540.110 | 27.5 | 5.0 | 1.0 | 221.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 32.5 | 54.0 | -21.5 | EUT Vert, Channel 36, 6 Mbps |
| 15540.000 | 27.2 | 5.0 | 1.0 | 221.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 32.2 | 54.0 | -21.8 | EUT Vert, Channel 36, 54 Mbps |
| 15540.220 | 27.1 | 5.0 | 1.0 | 114.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 32.1 | 54.0 | -21.9 | EUT Horizontal, Channel 36, 6 Mbps |
| 15541.420 | 47.0 | 5.0 | 1.2 | 227.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 52.0 | 74.0 | -22.0 | EUT Vert, Channel 36, 36 Mbps |
| 15538.430 | 46.7 | 5.0 | 1.2 | 227.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 51.7 | 74.0 | -22.3 | EUT Vert, Channel 36, 54 Mbps |
| 15538.340 | 46.4 | 5.0 | 1.0 | 25.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 51.4 | 74.0 | -22.6 | EUT on its side, Channel 36, 6 Mbps |
| 15540.730 | 46.0 | 5.0 | 1.0 | 227.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 51.0 | 74.0 | -23.0 | EUT Vert, Channel 36, 6 Mbps |
| 15540.130 | 45.7 | 5.0 | 1.0 | 321.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 50.7 | 74.0 | -23.3 | EUT on its side, Channel 36, 6 Mbps |
| 15537.830 | 44.2 | 5.0 | 1.1 | 163.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 49.2 | 74.0 | -24.8 | EUT Horizontal, Channel 36, 6 Mbps |
| 15540.310 | 43.9 | 5.0 | 1.0 | 79.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 48.9 | 74.0 | -25.1 | EUT Vert, Channel 36, 6 Mbps |
| 15540.630 | 43.6 | 5.0 | 1.0 | 221.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 48.6 | 74.0 | -25.4 | EUT Vert, Channel 36, 54 Mbps |
| 15542.370 | 43.3 | 5.0 | 1.0 | 221.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 48.3 | 74.0 | -25.7 | EUT Vert, Channel 36, 6 Mbps |
| 15542.450 | 41.7 | 5.0 | 1.0 | 114.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 46.7 | 74.0 | -27.3 | EUT Horizontal, Channel 36, 6 Mbps |

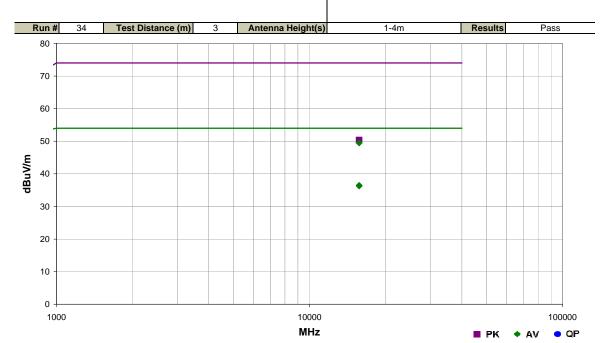
Report No. MASI0233 18/61



| Work Order: | MASI0151 | Date: | 02/06/14 | 11 |
|-----------------|-----------------------|----------------------|-----------|----------------------|
| Project: | None | Temperature: | 22.2 °C | 146,4 |
| Job Site: | OC07 | Humidity: | 41.2% RH | |
| Serial Number: | 1000000349 | Barometric Pres.: | 1013 mbar | Tested by: Jaemi Suh |
| EUT: | RAD7A/Radical 7 V2 | | | |
| Configuration: | 1 | | | |
| Customer: | Masimo Corporation | | | |
| Attendees: | Michael Clark | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Operating 802.11a: Ch | nannel 48 (5240 MHz) | | |
| Deviations: | None | | | |
| Comments: | TX Power = 90 | | | |
| | | | | |

Test Specifications
FCC 15.407:2014

Test Method ANSI C63.10:2009

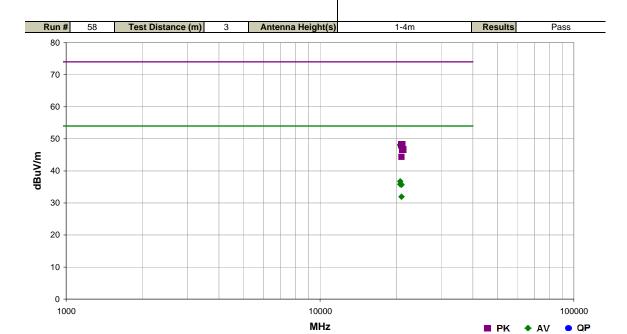


| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---------------|---------------------|----------------|-------------------------|-------------------|---------------------------|---------------------------------|---------------------------------|----------|--------------------------------|----------------------|-------------------------|------------------------------|----------------------------------|
| 15720.170 | 31.9 | 4.5 | 1.0 | 158.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 36.4 | 54.0 | -17.6 | EUT Vertical, Channel 48, 6 Mbps |
| 15720.170 | 31.7 | 4.5 | 2.0 | 240.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 36.2 | 54.0 | -17.8 | EUT Vertical, Channel 48, 6 Mbps |
| 15720.480 | 45.8 | 4.5 | 1.0 | 158.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 50.3 | 74.0 | -23.7 | EUT Vertical, Channel 48, 6 Mbps |
| 15721.310 | 44.9 | 4.5 | 2.0 | 240.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 49.4 | 74.0 | -24.6 | EUT Vertical, Channel 48, 6 Mbps |

Report No. MASI0233 19/61



| Work Order: | MASI0151 | Date: | 02/07/14 | 11. 0 |
|---------------------|-----------------------|-------------------------|-------------------|----------------------|
| Project: | None | Temperature: | 22.12 °C | Mr Syt |
| Job Site: | OC07 | Humidity: | 41.1% RH | |
| Serial Number: | 1000000349 | Barometric Pres.: | 1012 mbar | Tested by: Jaemi Suh |
| EUT: | RAD7A/Radical 7 V2 | | | |
| Configuration: | 1 | | | |
| Customer: | Masimo Corporation | | | |
| Attendees: | Michael Clark | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Operating 802.11a: Ch | nannel 36 (5180MHz), Ch | annel 48 (5240 MH | z) |
| Deviations: | None | | | |
| | TX Power = 90 | | | |
| Comments: | | | | |
| Toot Considerations | | | Test Meth | and and |
| Test Specifications | | | | |
| FCC 15.407:2014 | | | ANSI C63 | 3.10:2009 |
| | | | | |
| | | | | |



| 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 |
|---------------|---------------------|-------------|-------------------------|----------------------|---------------------------|---------------------------------|---------------------------------|----------|--------------------------------|----------------------|-------------------------|------------------------------|------------------------------------|
| 20720.1 | 80 39.4 | -2.7 | 0.0 | 215.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 36.7 | 54.0 | -17.3 | EUT Horizontal, Channel 36, 6 Mbps |
| 20720.1 | 80 38.5 | -2.7 | 0.0 | 187.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 35.8 | 54.0 | -18.2 | EUT Horizontal, Channel 36, 6 Mbps |
| 20960.1 | 80 38.1 | -2.4 | 0.0 | 201.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 35.7 | 54.0 | -18.3 | EUT Horizontal, Channel 48, 6 Mbps |
| 20960.1 | 80 34.4 | -2.4 | 0.0 | 15.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 32.0 | 54.0 | -22.0 | EUT Horizontal, Channel 48, 6 Mbps |
| 20720.1 | 90 50.9 | -2.7 | 0.0 | 215.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 48.2 | 74.0 | -25.8 | EUT Horizontal, Channel 36, 6 Mbps |
| 20720.1 | 40 50.6 | -2.7 | 0.0 | 187.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 47.9 | 74.0 | -26.1 | EUT Horizontal, Channel 36, 6 Mbps |
| 20960.0 | 60 49.4 | -2.4 | 0.0 | 201.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 47.0 | 74.0 | -27.0 | EUT Horizontal, Channel 48, 6 Mbps |
| 20958.2 | 90 46.8 | -2.4 | 0.0 | 15.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 44.4 | 74.0 | -29.6 | EUT Horizontal, Channel 48, 6 Mbps |

Report No. MASI0233 20/61



| | MASI0151 | Date: | 09/22/14 | 11 - |
|-----------------|----------------------|---------------------|-----------|------------------------|
| Project: | None | Temperature: | 22.42 °C | 146,4 |
| Job Site: | OC10 | Humidity: | 41.21% RH | |
| Serial Number: | 1000000349 | Barometric Pres.: | 1011 mbar | Tested by: Mark Baytan |
| EUT: | RAD7A/Radical 7 V2 | | | |
| Configuration: | 2 | | | |
| Customer: | Masimo | | | |
| Attendees: | Michael Clark | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Operating 802.11a: C | hannel 36 (5180MHz) | | |
| Deviations: | None | | | |
| Comments: | TX Power = 90. Band | Edge. | | |

Test Specifications

FCC 15.407:2014

Test Method ANSI C63.10:2009



MHz ■ PK ◆ AV • QP

| 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 |
|---------------|---------------------|----------------|----------------------------|-------------------|---------------------------|---------------------------------|---------------------------------|----------|--------------------------------|----------------------|-------------------------|------------------------------|---------------------|
| 5149.790 | 16.4 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 52.5 | 54.0 | -1.5 | EUT Vert, 54 Mbps |
| 5149.917 | 16.3 | 36.1 | 1.0 | 318.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Vert, 36 Mbps |
| 5149.543 | 16.3 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Vert, 6 Mbps |
| 5148.977 | 16.3 | 36.1 | 1.0 | 252.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Vert, 6 Mbps |
| 5148.440 | 16.3 | 36.1 | 1.0 | 314.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Horz, 6 Mbps |
| 5148.407 | 16.3 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Vert, 36 Mbps |
| 5148.343 | 16.3 | 36.1 | 1.0 | 294.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT Horz, 6 Mbps |
| 5148.333 | 16.3 | 36.1 | 1.0 | 138.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT on Side, 6 Mbps |
| 5148.123 | 16.3 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 52.4 | 54.0 | -1.6 | EUT on Side, 6 Mbps |
| 5148.637 | 16.2 | 36.1 | 1.0 | 318.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 52.3 | 54.0 | -1.7 | EUT Vert, 54 Mbps |
| 5149.660 | 33.0 | 36.1 | 1.0 | 314.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 69.1 | 74.0 | -4.9 | EUT Vert, 6 Mbps |
| 5148.240 | 32.6 | 36.1 | 1.0 | 318.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 68.7 | 74.0 | -5.3 | EUT Vert, 36 Mbps |
| 5148.727 | 32.5 | 36.1 | 1.0 | 318.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 68.6 | 74.0 | -5.4 | EUT Vert, 54 Mbps |
| 5149.593 | 32.4 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 68.5 | 74.0 | -5.5 | EUT Vert, 36 Mbps |
| 5148.833 | 32.4 | 36.1 | 1.0 | 294.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 68.5 | 74.0 | -5.5 | EUT Horz, 6 Mbps |
| 5148.333 | 32.4 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 68.5 | 74.0 | -5.5 | EUT on Side, 6 Mbps |
| 5148.623 | 32.1 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 68.2 | 74.0 | -5.8 | EUT Vert, 6 Mbps |
| 5148.013 | 32.1 | 36.1 | 1.0 | 138.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 68.2 | 74.0 | -5.8 | EUT on Side, 6 Mbps |
| 5149.190 | 32.0 | 36.1 | 1.0 | 214.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 68.1 | 74.0 | -5.9 | EUT Vert, 54 Mbps |
| 5149.813 | 31.9 | 36.1 | 1.0 | 252.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 68.0 | 74.0 | -6.0 | EUT Horz, 6 Mbps |

Report No. MASI0233 21/61



FREQUENCY STABILITY

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

| | | | | | Interval |
|---------------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| MultiMeter | Fluke | 79 III | MMD | 2/4/2013 | 36 |
| Power Meter | Amplifier Research | PM2002 | SQA | 3/14/2014 | 12 |
| Power Sensor | Hewlett Packard | 8481 | SQP | 3/3/2014 | 12 |
| Signal Generator | Agilent | E8257D | TGU | 2/1/2012 | 36 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 4/28/2014 | 12 |
| Attenuator 20 dB, SMA M/F 26GHz | S.M. Electronics | SA26B-20 | AUY | 7/30/2014 | 12 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |

TEST DESCRIPTION

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50 ° C) and at 10 °C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

Report No. MASI0233 22/61

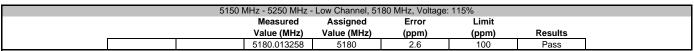


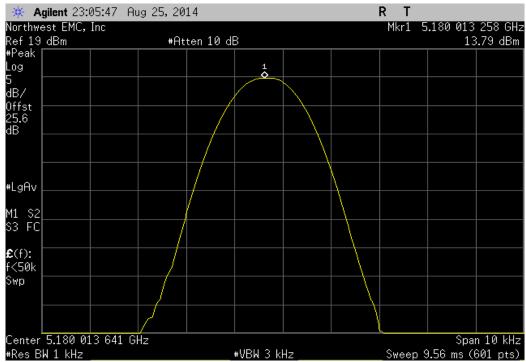
FREQUENCY STABILITY

| | : RAD7A/Radical 7 V2 | | | | | | | | Work Order: | | |
|----------------------|--|------------|-----------|---|--------|------------------|--|---|---|--|--|
| Serial Number: | | | | | | | | | | 08/25/14 | |
| | : Masimo Corporation | | | | | | | | Temperature: | | |
| | : Michael Clark | | | | | | | | Humidity: | | |
| Project: | | | | | | | | E | Barometric Pres.: | | |
| | : Mark Baytan | | | | Power: | 110VAC/60Hz | | | Job Site: | OC13 | |
| EST SPECIFICAT | TONS | | | | | Test Method | | | | | |
| CC 15.407:2014 | | | | | | ANSI C63.10:2009 | | | | | |
| | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | |
| X Power = 30 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | M TEST STANDARD | | | | | | | | | | |
| | | | | | | | | | | | |
| None | | | | | | | | | | | |
| | | | | 1 | 1 | | | | | | |
| None Configuration # | 3 | | | ~ | 146 | 3,+- | | | | | |
| | 3 | | Signature | ~ | 146 | 5, | | | | | |
| | 3 | | Signature | 1 | 146 | 3,+ | Measured | Assigned | Error | Limit | |
| Configuration # | | | Signature | 1 | 1-46 | 3,+ | Measured Value (MHz) | Assigned Value (MHz) | Error (ppm) | Limit (ppm) | Results |
| Configuration # | IHz - Low Channel, Ch. 36 | , 5180 MHz | Signature | 1 | 126 | 3,+- | Value (MHz) | Value (MHz) | (ppm) | (ppm) | |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% | , 5180 MHz | Signature | 1 | 1-6 | 3,+- | Value (MHz) 5180.013258 | Value (MHz) | (ppm) 2.6 | (ppm) | Pass |
| onfiguration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% | , 5180 MHz | Signature | 1 | 1-1-6 | Sy+ | Value (MHz) 5180.013258 5180.013141 | Value (MHz) 5180 5180 | (ppm) 2.6 2.5 | (ppm) 100 100 | Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% | , 5180 MHz | Signature | 1 | 146 | 5,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 | 5180 5180 5180 5180 | (ppm) 2.6 2.5 2.4 | (ppm) 100 100 100 | Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +50° | , 5180 MHz | Signature | 1 | 1. | 3,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 5180.010461 | Value (MHz) 5180 5180 5180 5180 | 2.6 2.5 2.4 2 | (ppm) 100 100 100 100 | Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +50° Temperature: +40° | , 5180 MHz | Signature | 1 | 1-1-6 | 5,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 | Value (MHz) 5180 5180 5180 5180 5180 | (ppm) 2.6 2.5 2.4 2 1.7 | (ppm) 100 100 100 100 100 | Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +40° Temperature: +30° | , 5180 MHz | Signature | 1 | 1-1-6 | 5,+- | 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 | 5180 5180 5180 5180 5180 5180 5180 | (ppm) 2.6 2.5 2.4 2 1.7 1.7 | (ppm) 100 100 100 100 100 100 100 | Pass Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +50° Temperature: +40° Temperature: +20° Temperature: +20° | , 5180 MHz | Signature | 1 | 1-16 | 5,+ | 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 5180.01606 | Value (MHz) 5180 5180 5180 5180 5180 5180 5180 518 | (ppm) 2.6 2.5 2.4 2 1.7 1.7 3.1 | (ppm) 100 100 100 100 100 100 100 100 | Pass Pass Pass Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +40° Temperature: +30° Temperature: +20° Temperature: +10° | , 5180 MHz | Signature | ~ | 1-6 | 5,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 5180.01606 5180.02165 | Value (MHz) 5180 5180 5180 5180 5180 5180 5180 518 | (ppm) 2.6 2.5 2.4 2 1.7 1.7 3.1 4.2 | (ppm) 100 100 100 100 100 100 100 100 100 1 | Pass Pass Pass Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +40° Temperature: +30° Temperature: +20° Temperature: +10° Temperature: 0° | , 5180 MHz | Signature | ~ | 1 k E | 3,+- | 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 5180.01606 | 5180 5180 5180 5180 5180 5180 5180 5180 | (ppm) 2.6 2.5 2.4 2 1.7 1.7 3.1 | (ppm) 100 100 100 100 100 100 100 100 | Pass Pass Pass Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +30° Temperature: +20° Temperature: +10° Temperature: +10° Temperature: 10° Temperature: 10° | , 5180 MHz | Signature | ~ | 1-1-6 | 5,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 5180.02165 5180.021231 5180.020549 | Value (MHz) 5180 5180 5180 5180 5180 5180 5180 5180 5180 5180 5180 | (ppm) 2.6 2.5 2.4 2 1.7 1.7 3.1 4.2 | (ppm) 100 100 100 100 100 100 100 100 100 1 | Pass Pass Pass Pass Pass Pass Pass Pass |
| Configuration # | IHz - Low Channel, Ch. 36 Voltage: 115% Voltage: 100% Voltage: 85% Temperature: +40° Temperature: +30° Temperature: +20° Temperature: +10° Temperature: 0° | , 5180 MHz | Signature | 1 | 1 + 6 | 5,+ | Value (MHz) 5180.013258 5180.013141 5180.012506 5180.010461 5180.008757 5180.008724 5180.01606 5180.02165 5180.021231 | 5180 5180 5180 5180 5180 5180 5180 5180 | 2.6 2.5 2.4 2 1.7 1.7 3.1 4.2 4.1 | (ppm) 100 100 100 100 100 100 100 100 100 1 | Pass Pass Pass Pass Pass Pass Pass Pass |

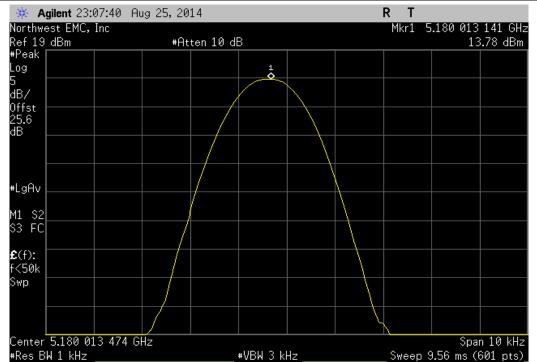
Report No. MASI0233 23/61





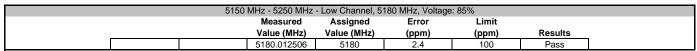


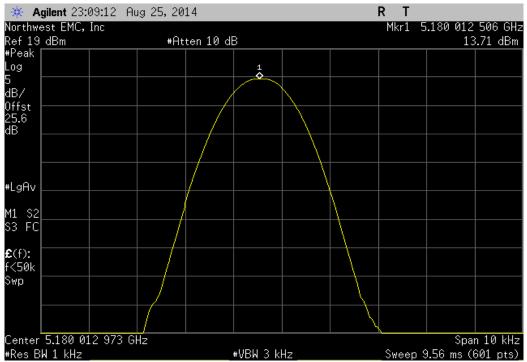
| | 5150 N | /IHz - 5250 MHz - | Low Channel, 51 | 80 MHz, Voltage: | 100% | |
|--|--------|-------------------|-----------------|------------------|-------|---------|
| | | Measured | Assigned | Error | Limit | |
| | | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| | | 5180.013141 | 5180 | 2.5 | 100 | Pass |



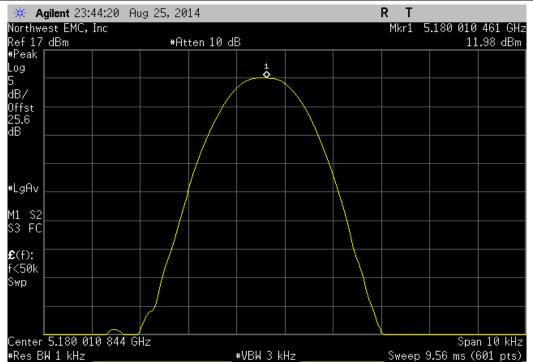
Report No. MASI0233 24/61





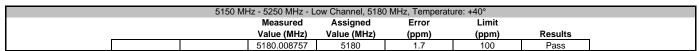


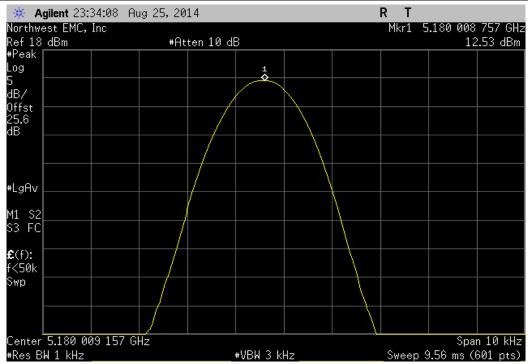
| | 5150 MHz - 5250 MHz - | Low Channel, 518 | 0 MHz, Temperatı | ure: +50° | |
|--|-----------------------|------------------|------------------|-----------|---------|
| | Measured | Assigned | Error | Limit | |
| | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| | 5180.010461 | 5180 | 2 | 100 | Pass |



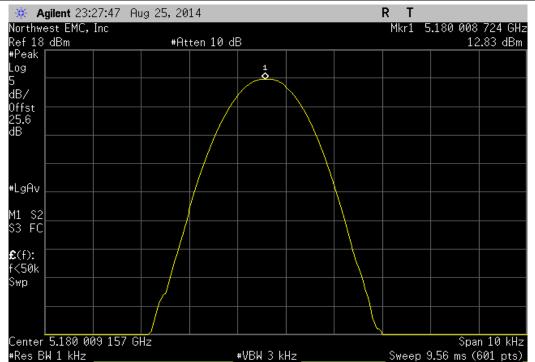
Report No. MASI0233 25/61







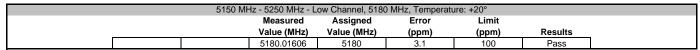
| | 5150 MF | lz - 5250 MHz - L | ow Channel, 5180 |) MHz, Temperatı | ıre: +30° | |
|--|---------|-------------------|------------------|------------------|-----------|---------|
| | | Measured | Assigned | Error | Limit | |
| | | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| | | 5180.008724 | 5180 | 1.7 | 100 | Pass |

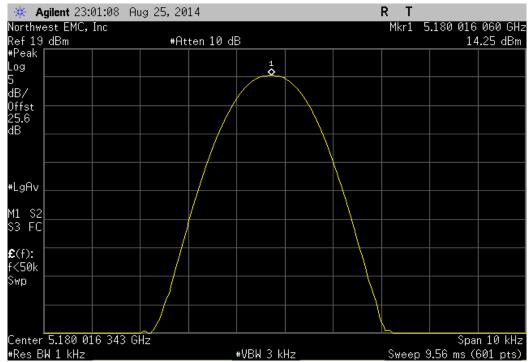


Report No. MASI0233 26/61

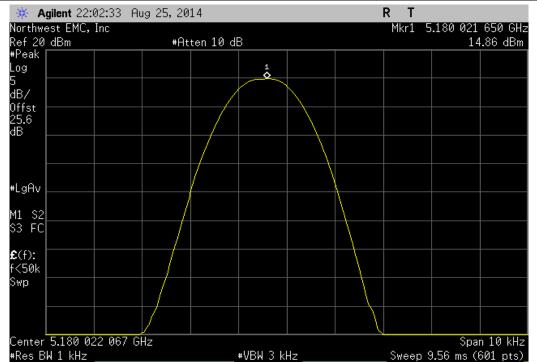
FREQUENCY STABILITY





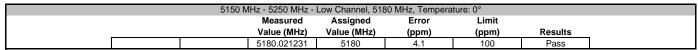


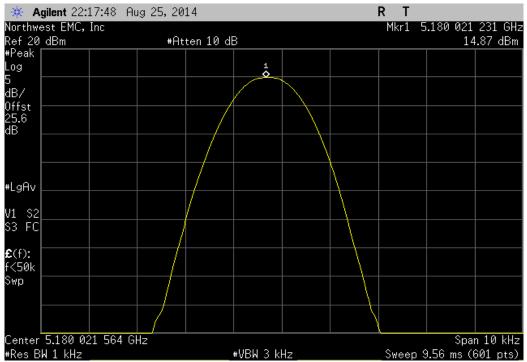
| | 5150 MHz | - 5250 MHz - L | ow Channel, 5180 |) MHz, Temperatu | ure: +10° | |
|--|----------|----------------|------------------|------------------|-----------|---------|
| | | Measured | Assigned | Error | Limit | |
| | | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| | | 5180.02165 | 5180 | 4.2 | 100 | Pass |



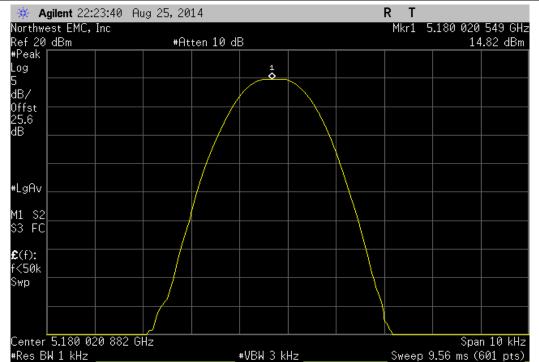
Report No. MASI0233 27/61





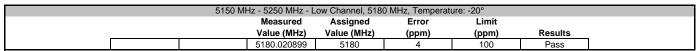


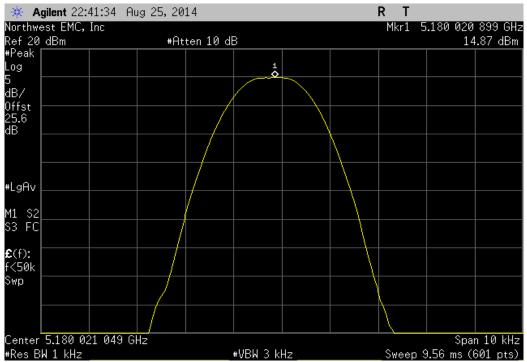
| | 5150 Mi | Hz - 5250 MHz - L | ow Channel, 518 | D MHz, Temperati | ure: -10° | |
|--|---------|-------------------|-----------------|------------------|-----------|---------|
| | | Measured | Assigned | Error | Limit | |
| | | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| | | 5180.020549 | 5180 | 4 | 100 | Pass |



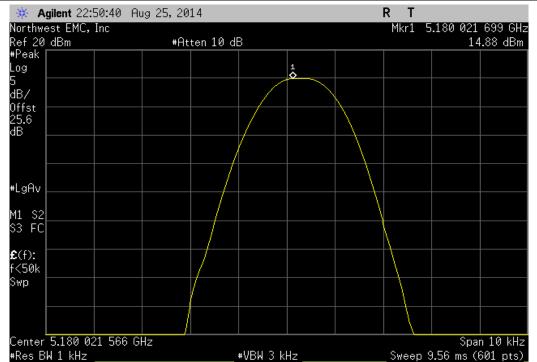
Report No. MASI0233 28/61







| | 5150 MF | 1z - 5250 MHz - L | ow Channel, 518 | 0 MHz, Temperati | ure: -30° | |
|---|---------|-------------------|-----------------|------------------|-----------|---------|
| | | Measured | Assigned | Error | Limit | |
| | | Value (MHz) | Value (MHz) | (ppm) | (ppm) | Results |
| 1 | | 5180.021699 | 5180 | 4.2 | 100 | Pass |



Report No. MASI0233 29/61



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

| | | | | | Interval |
|-------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 6/7/2013 | 12 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 5/16/2013 | 12 |
| 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 |

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures were followed.

The transmit frequencies and data rates listed in the datasheet were measured in each band utilized by the radio. 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.

The spectrum analyzer settings were as follows:

>RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

>VBW= > RBW

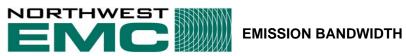
➤A peak detector was used

>Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure 26 dB emission bandwidth.

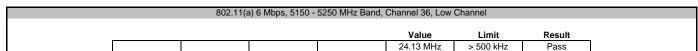
There is no required limit to be met in the rule part for this test. The purpose of the test is to both report the results as required by the KDB, and to utilize the emission bandwidth for setting the channel power integration bandwidth during conducted output

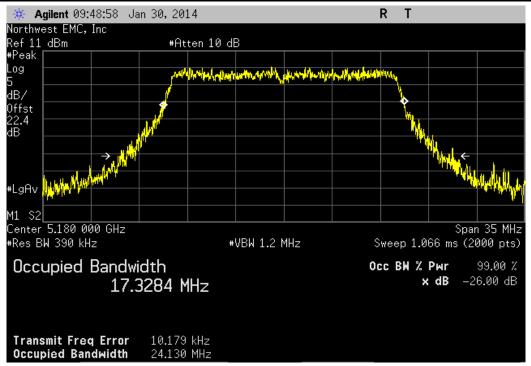
Report No. MASI0233 30/61



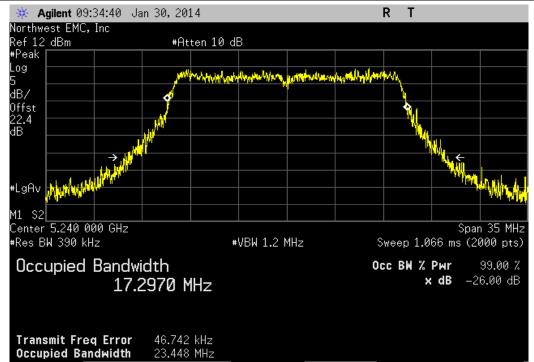
| FUT | RAD7A/Radical 7 V2 | | | | Work Order: | MASI0151 | |
|-----------------------------------|--|---|--------|------------------|--|--|------------------------------|
| Serial Number | | | | | | 01/29/14 | |
| | r: Masimo Corporation | | | | Temperature: | | |
| | Mike Clark | | | | Humidity: | | |
| | t: None | | | | Barometric Pres.: | | |
| | /: Jaemi Suh | | Power | r: Battery | Job Site: | OC13 | |
| TEST SPECIFICAT | TIONS | | | Test Method | | | |
| FCC 15.407:2014 | | | | ANSI C63.10:2009 | | | |
| | | | | | | | |
| COMMENTS | | | | | | | |
| Channel 36/48 pov | wer level is set to 30. | | | | | | |
| • | | | | | | | |
| | | | | | | | |
| | M TEST STANDARD | | | | | | |
| | | | | | | | |
| None | | | | | | | |
| | | | | | | | |
| None Configuration # | 1 | | Chan | 5 | | | |
| | 1 | Signature | Jan | 5- | | | |
| | 1 | Signature | Char | 5 | Value | Limit | Result |
| Configuration # | 1 | Signature | Cho. | 5 | Value | Limit | Result |
| | 1 5150 - 5250 MHz Band | Signature | Jho. | 5 | Value | Limit | Result |
| Configuration # | 1 5150 - 5250 MHz Band Channel 36, I | • | Char | 5 | Value 24.13 MHz | Limit | Result |
| Configuration # | | _ow Channel | fhor | 5 | | | |
| Configuration # | Channel 36, I Channel 48, I | _ow Channel | Shor | | 24.13 MHz | > 500 kHz | Pass |
| Configuration # 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band | Low Channel High Channel | June | 5 | 24.13 MHz 23.448 MHz | > 500 kHz > 500 kHz | Pass Pass |
| Configuration # 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band Channel 36, I | Low Channel High Channel Low Channel | flor | | 24.13 MHz 23.448 MHz 22.193 MHz | > 500 kHz > 500 kHz > 500 kHz | Pass Pass Pass |
| 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band Channel 36, I Channel 48, I | Low Channel High Channel Low Channel | Geor | | 24.13 MHz 23.448 MHz | > 500 kHz > 500 kHz | Pass Pass |
| Configuration # 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band Channel 36, I Channel 48, I | Low Channel High Channel Low Channel | fhor . | | 24.13 MHz 23.448 MHz 22.193 MHz | > 500 kHz > 500 kHz > 500 kHz | Pass Pass Pass |
| 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band Channel 36, I Channel 48, I | Low Channel digh Channel Low Channel digh Channel | Jhor | | 24.13 MHz 23.448 MHz 22.193 MHz 22.33 MHz | > 500 kHz > 500 kHz > 500 kHz > 500 kHz | Pass Pass Pass Pass |
| 302.11(a) 6 Mbps | Channel 36, I Channel 48, I 5150 - 5250 MHz Band Channel 36, I Channel 48, I | Low Channel High Channel Low Channel High Channel Low Channel | Jeon | | 24.13 MHz 23.448 MHz 22.193 MHz | > 500 kHz > 500 kHz > 500 kHz | Pass Pass Pass |

Report No. MASI0233 31/61



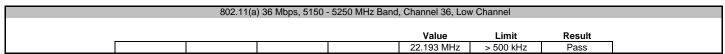


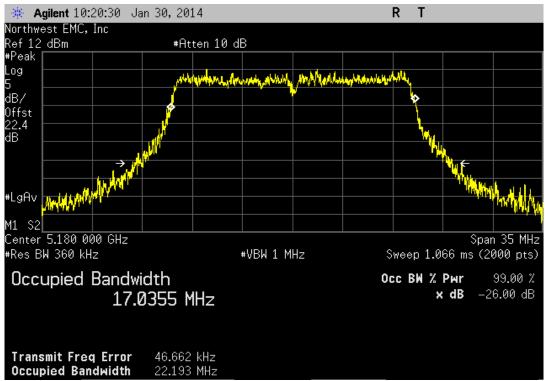
| | 802.11(a | a) 6 Mbps, 5150 - (| 5250 MHz Band, (| Channel 48, High | Channel | |
|--|----------|---------------------|------------------|------------------|-----------|--------|
| | | | | | | |
| | | | | Value | Limit | Result |
| | | | | 23.448 MHz | > 500 kHz | Pass |



Report No. MASI0233 32/61

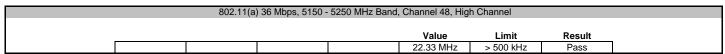


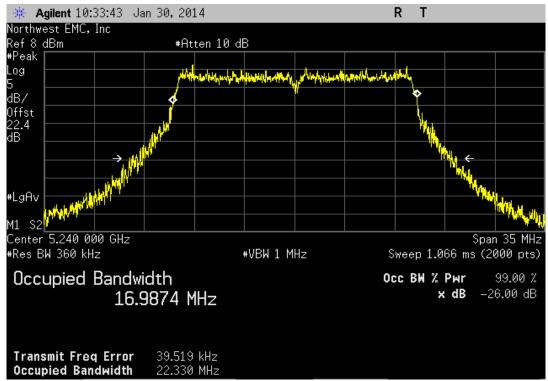




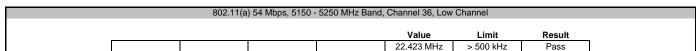
Report No. MASI0233 33/61

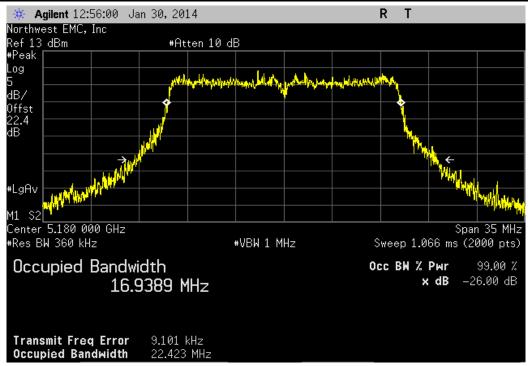


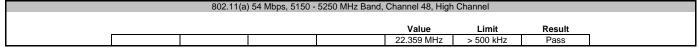


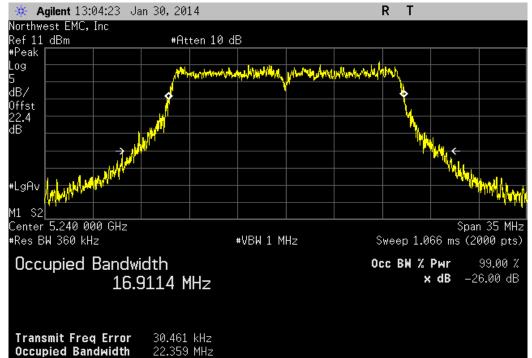


Report No. MASI0233 34/61









Report No. MASI0233 35/61



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

| | | | | | Interval |
|-------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 6/7/2013 | 12 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 5/16/2013 | 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 |

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 * span / RBW
- >Trace average 100 traces in power averaging mode.
- ▶ Power was integrated across "B", by using the channel power function of the analyzer.

Report No. MASI0233 36/61

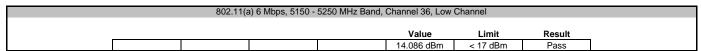


PEAK TRANSMIT POWER

| EU | JT: RAD7A/Radical 7 V2 | | | | Work Order: | MASI0151 | |
|---|--|--------------------------------------|-----------|-----------------|--|--|------------------------------|
| Serial Numb | er: 1000000349 | | | | Date: | 01/29/14 | |
| Custom | er: Masimo Corporation | | | | Temperature: | 24.3°C | |
| Attende | es: Mike Clark | | | | Humidity: | | |
| Proje | ct: None | | | | Barometric Pres.: | 1011 | |
| Tested I | by: Jaemi Suh | | Power: 1: | 20 VAC | Job Site: | OC13 | |
| TEST SPECIFICA | ATIONS | | | est Method | | | |
| FCC 15.407:2014 | 4 | | A | NSI C63.10:2009 | | | |
| | | | | | | | |
| COMMENTS | | | | | | | |
| Channel 36/48 p | ower level is set to 30. | | | | | | |
| • | | | | | | | |
| | | | | | | | |
| DEVIATIONS FR | OM TEST STANDARD | | | | | | |
| | | | | | | | |
| None | | | | | | | |
| None | | | | | | | |
| None Configuration # | 1 | | fler. | 5 | | | |
| | 1 | Signature | fler. | 5= | | | |
| | 1 | Signature | floor | 5 | | | |
| | 1 | Signature | floor | | Value | Limit | Result |
| | | Signature | floring | <i>S</i> = | Value | Limit | Result |
| Configuration # | s 5150 - 5250 MHz Band | <u> </u> | flori | 5 | | | |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C | hannel | for | 5 | 14.086 dBm | < 17 dBm | Pass |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High (| hannel | for | | | | |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 | hannel | Char | 5 | 14.086 dBm | < 17 dBm | Pass |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 | hannel rhannel | Joseph | | 14.086 dBm 14.286 dBm | < 17 dBm < 17 dBm | Pass Pass |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 | hannel rhannel | fice | | 14.086 dBm | < 17 dBm | Pass |
| Configuration # 802.11(a) 6 Mbps 302.11(a) 36 Mbp | 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 S 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 1 | hannel hannel hannel | from | | 14.086 dBm 14.286 dBm | < 17 dBm < 17 dBm | Pass Pass |
| Configuration # | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 05 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 | hannel hannel hannel | Joseph | | 14.086 dBm 14.286 dBm 13.322 dBm | < 17 dBm < 17 dBm | Pass Pass Pass |
| Configuration # 802.11(a) 6 Mbps 302.11(a) 36 Mbp | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High (08 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High (08 5150 - 5250 MHz Band | hannel hannel hannel hannel | from | | 14.086 dBm 14.286 dBm 13.322 dBm 10.663 dBm | < 17 dBm < 17 dBm < 17 dBm < 17 dBm | Pass Pass Pass Pass |
| Configuration # 802.11(a) 6 Mbps 302.11(a) 36 Mbp | 5 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 05 5150 - 5250 MHz Band Channel 36, Low C Channel 48, High 0 | hannel hannel hannel hannel | for | | 14.086 dBm 14.286 dBm 13.322 dBm | < 17 dBm < 17 dBm | Pass Pass Pass |

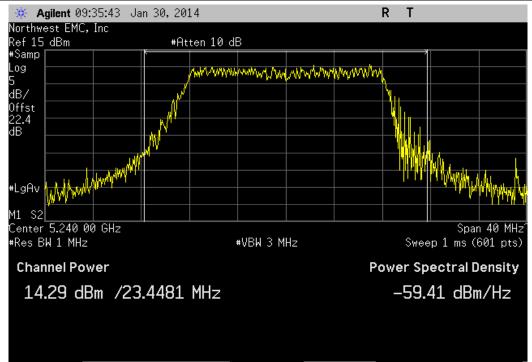
Report No. MASI0233 37/61







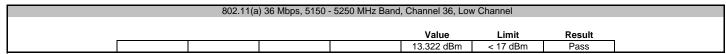
| | 802.11(a | ı) 6 Mbps, 5150 - (| 5250 MHz Band, (| Channel 48, High | Channel | | |
|--|----------|---------------------|------------------|------------------|----------|--------|--|
| | | | | | | | |
| | | | | Value | Limit | Result | |
| | | | | 14.286 dBm | < 17 dBm | Pass | |



Report No. MASI0233 38/61



PEAK TRANSMIT POWER

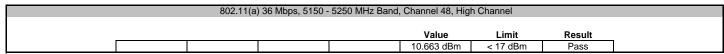




Report No. MASI0233 39/61



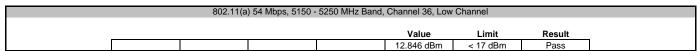
PEAK TRANSMIT POWER

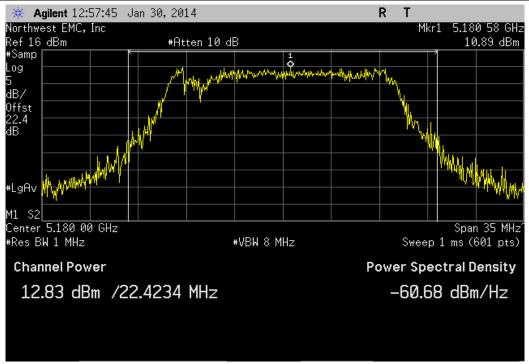




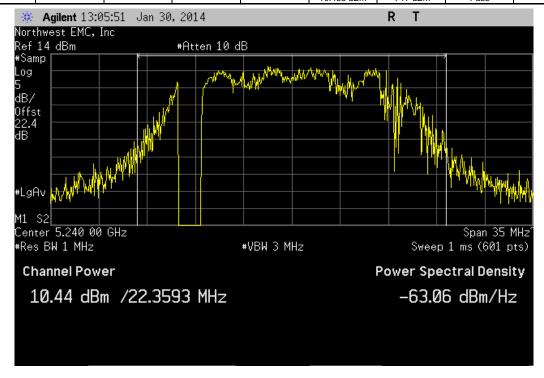
Report No. MASI0233 40/61







| | 802.11(a) | 54 Mbps, 5150 - | 5250 MHz Band, | Channel 48, High | Channel | |
|--|-----------|-----------------|----------------|------------------|----------|--------|
| | | | | | | |
| | | | | Value | Limit | Result |
| | | | | 10.438 dBm | < 17 dBm | Pass |



Report No. MASI0233 41/61



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

| | | | | | Interval |
|-------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 6/7/2013 | 12 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 5/16/2013 | 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 |

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section F was followed to show that the radio of the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dBm.

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.

The spectrum analyzer settings were as follows:

Span set to encompass the entire emission bandwidth (B), centered on the transmit channel.

Using the marker delta function, the largest difference between the following two traces was measured:

>1st Trace: RBW = 1 MHz, VBW >= 3 MHz with peak detector and trace max-hold..

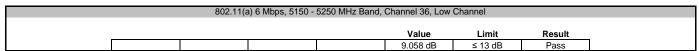
▶2nd Trace: The same procedure and settings as was used for peak power spectral density

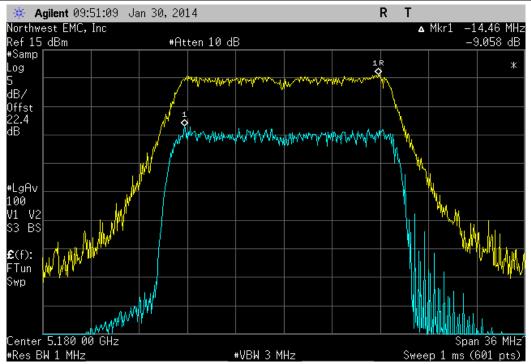
Report No. MASI0233 42/61



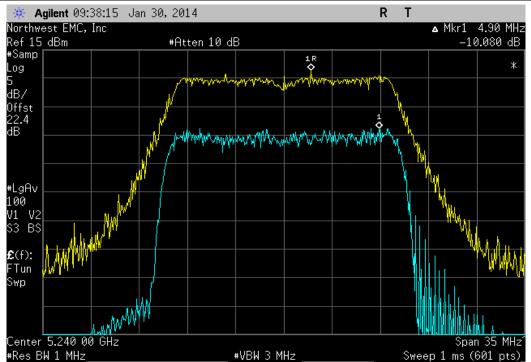
| | RAD7A/Radical 7 V2 | | | | | Work Order: | | |
|-------------------|------------------------|--------------|--------|------------------|----|------------------|----------|--------|
| Serial Number | r: 1000000349 | | | | | Date: | 01/29/14 | |
| Customer | r: Masimo Corporation | | | | | Temperature: | 24.3°C | |
| Attendees | s: Mike Clark | | | | | Humidity: | 41% | |
| Project | t: None | | | | Ba | arometric Pres.: | 1011 | |
| | y: Jaemi Suh | | Power: | Battery | | Job Site: | OC13 | |
| TEST SPECIFICAT | TIONS | | | Test Method | | | | |
| FCC 15.407:2014 | | | | ANSI C63.10:2009 | | | | |
| | | | | | | | | |
| COMMENTS | | | | | | | | |
| Channel 36/48 por | wer level is set to 30 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | M TEST STANDARD | | | | | | | |
| None | | | | | | | | |
| | | | Cho. | | | | | |
| Configuration # | 1 | | | | | | | |
| | | Signature | - | | | | | |
| | | | | | | | | |
| | | | | | | Value | Limit | Result |
| 802.11(a) 6 Mbps | | | | | | | | |
| | 5150 - 5250 MHz Band | | | | | | | |
| | Channel 36, I | | | | | 9.058 dB | ≤ 13 dB | Pass |
| | | High Channel | | | | 10.08 dB | ≤ 13 dB | Pass |
| 802.11(a) 36 Mbps | | | | | | | | |
| | 5150 - 5250 MHz Band | | | | | | | |
| | Channel 36, I | | | | | 9.959 dB | ≤ 13 dB | Pass |
| | | High Channel | | | | 7.919 dB | ≤ 13 dB | Pass |
| 802.11(a) 54 Mbps | | | | | | | | |
| | 5150 - 5250 MHz Band | | | | | | | |
| | Channel 36, I | | | | | 9.255 dB | ≤ 13 dB | Pass |
| | | | | | | | | |
| | Channel 48, I | High Channel | | | | 7.377 dB | ≤ 13 dB | Pass |

Report No. MASI0233 43/61



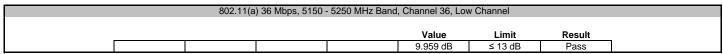


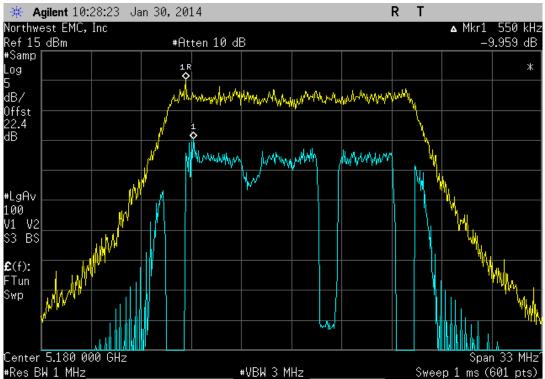
| | 802.11(a) | 6 Mbps, 5150 - 8 | 5250 MHz Band, (| Channel 48, High | Channel | | |
|--|-----------|------------------|------------------|------------------|---------|--------|--|
| | | | | | | | |
| | | | | Value | Limit | Result | |
| | | | | 10.08 dB | ≤ 13 dB | Pass | |



Report No. MASI0233 44/61

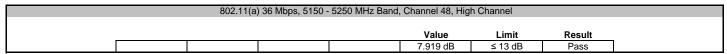


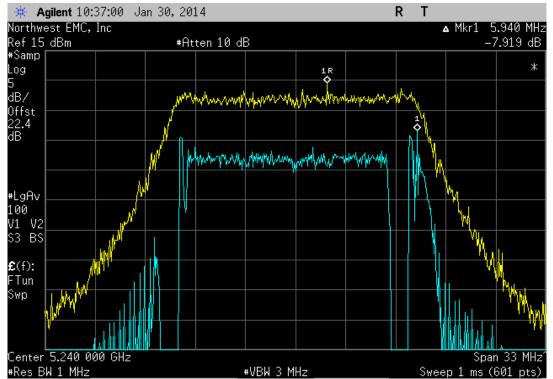




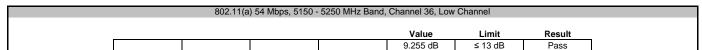
Report No. MASI0233 45/61

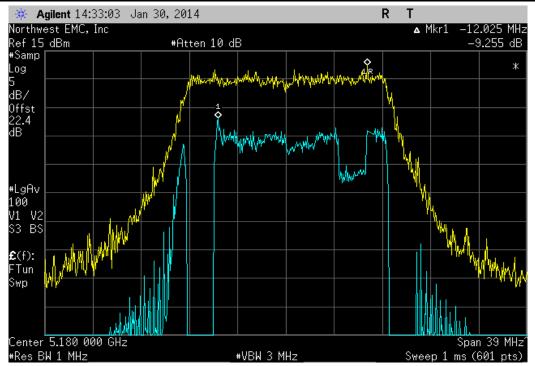






Report No. MASI0233 46/61





| | 802.11(a) | 54 Mbps, 5150 - | 5250 MHz Band, | Channel 48, High | n Channel | | |
|--|-----------|-----------------|----------------|------------------|-----------|--------|--|
| | | | | | | | |
| | | | | Value | Limit | Result | |
| | | | | 7.377 dB | ≤ 13 dB | Pass | |



Report No. MASI0233 47/61



PEAK POWER SPECTRAL DENSITY

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

| | | | | | Interval |
|-------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 6/7/2013 | 12 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 5/16/2013 | 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 |

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section E was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The data rate(s) listed in the datasheet were tested. 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 power spectral density, the transmission pulse duration (T) was measured. The transmission pulse duration and the associated data are found elsewhere in this test report.

The spectrum analyzer settings were as follows:

- >The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- >RBW = 1 MHz. VBW ≥ 3 MHz
- >Sample detector was used because Method SA-1 Alternate was used to measure the Maximum Conducted Output Power.
- >Trace average 100 traces in power averaging mode (not video averaging).

The peak power spectral density (PPSD) was determined to be the highest level found across the emission in any 1 MHz band after 100 sweeps of power averaging (not video averaging).

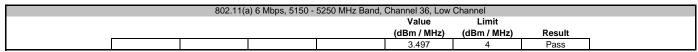
Report No. MASI0233 48/61

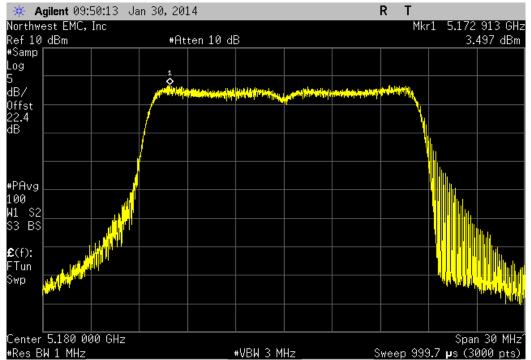


| FUT | D A D 7 A /D!!! 7 \/O | | | | | | M/- al- Oad-a | MA 0104 E4 | |
|--|--|--|---|-------|------------------|---|-------------------------------|----------------------|----------------------|
| Serial Number | RAD7A/Radical 7 V2 | | | | | | Work Order: | 01/29/14 | |
| | r: Masimo Corporation | | | | | | Temperature: | | |
| | s: Mike Clark | | | | | | Humidity: | | |
| | t: None | | | | | | Barometric Pres.: | | |
| | /: Jaemi Suh | | | D. | ower: 3.7 VDC | | Job Site: | | |
| EST SPECIFICAT | | | | FC | Test Method | | Job Site. | 10013 | |
| CC 15.407:2014 | 110110 | | | | ANSI C63.10:2009 | | | | |
| CC 15.407.2014 | | | | | ANGI C03.10.2003 | | | | |
| COMMENTS | | | | | | | | | |
| | wer level is set to 30. | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | M TEST STANDARD | | | | | | | | |
| DEVIATIONS FRO | OM TEST STANDARD | | | | | | | | |
| None | OM TEST STANDARD | | | Chan | | | | | |
| | 1 | Olematum | | Jan | -5 | | | | |
| None | 1 | Signature | | Jan | 5 | | Value | Limit | |
| None | M TEST STANDARD | Signature | | Jan- | | - | Value | Limit | Pocult |
| None | M TEST STANDARD | Signature | | Jan- | 5 | | Value (dBm / MHz) | Limit (dBm / MHz) | Result |
| lone Configuration # | 1 | Signature | _ | Jan | 5 | | | | Result |
| lone Configuration # | 1 5150 - 5250 MHz Band | · · | | Jan | | | (dBm / MHz) | | |
| None | 1 5150 - 5250 MHz Band Channel 36, | ow Channel | | floor | 5 | | (dBm / MHz) 3.497 | | Pass |
| Configuration # | 1 5150 - 5250 MHz Band Channel 36, Channel 48, | ow Channel | | Jan | | | (dBm / MHz) | | |
| Configuration # | 1 5150 - 5250 MHz Band Channel 36, Channel 48, | ow Channel | | Jan | | | (dBm / MHz) 3.497 | | Pass |
| Configuration # | 5150 - 5250 MHz Band Channel 36, Channel 48, | ow Channel ligh Channel | | Cher | | | (dBm / MHz) 3.497 | | Pass |
| Configuration # 02.11(a) 6 Mbps 02.11(a) 36 Mbps | 5150 - 5250 MHz Band Channel 36, Channel 48, 1 5150 - 5250 MHz Band Channel 36, Channel 48, 1 | .ow Channel ligh Channel .ow Channel | | Jhon | | | (dBm / MHz) 3.497 3.299 | (dBm / MHz) 4 4 | Pass Pass |
| Configuration # i02.11(a) 6 Mbps i02.11(a) 36 Mbps | 5150 - 5250 MHz Band Channel 36, Channel 48, 1 5150 - 5250 MHz Band Channel 36, Channel 48, 1 | .ow Channel ligh Channel .ow Channel | | fee | | | 3.497 3.299 | (dBm / MHz) 4 4 | Pass Pass Pass |
| Configuration # i02.11(a) 6 Mbps i02.11(a) 36 Mbps | 5150 - 5250 MHz Band Channel 36, Channel 48, 1 5150 - 5250 MHz Band Channel 36, Channel 48, 1 | .ow Channel ligh Channel .ow Channel | | flee | | | 3.497 3.299 | (dBm / MHz) 4 4 | Pass Pass Pass |
| None | 5150 - 5250 MHz Band Channel 36, Channel 48, 5150 - 5250 MHz Band Channel 36, Channel 48, | .ow Channel digh Channel Low Channel digh Channel | | Jhon | | | 3.497 3.299 | (dBm / MHz) 4 4 | Pass Pass Pass |

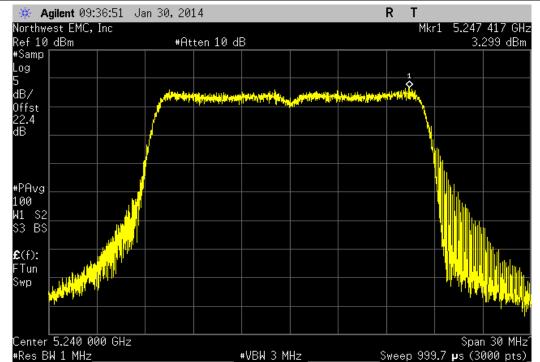
Report No. MASI0233 49/61







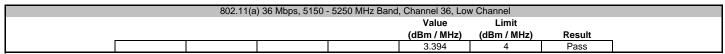
| | 802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel | | | | | | | | | |
|---|--|--|--|--|-------------|-------------|--------|--|--|--|
| | | | | | Value | Limit | | | | |
| | | | | | (dBm / MHz) | (dBm / MHz) | Result | | | |
| i | | | | | 3.299 | 4 | Pass | | | |

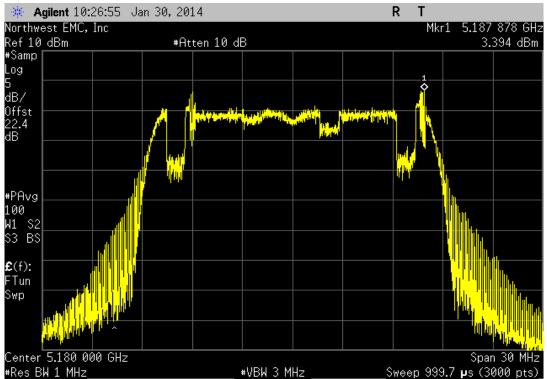


Report No. MASI0233 50/61



PEAK POWER SPECTRAL DENSITY

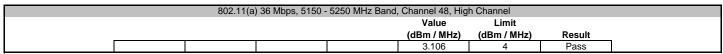


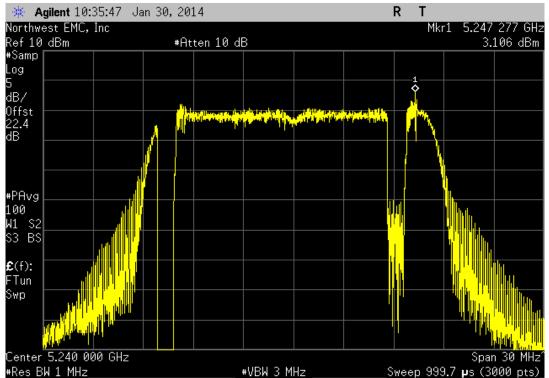


Report No. MASI0233 51/61



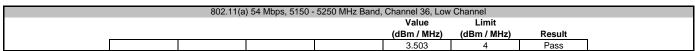
PEAK POWER SPECTRAL DENSITY

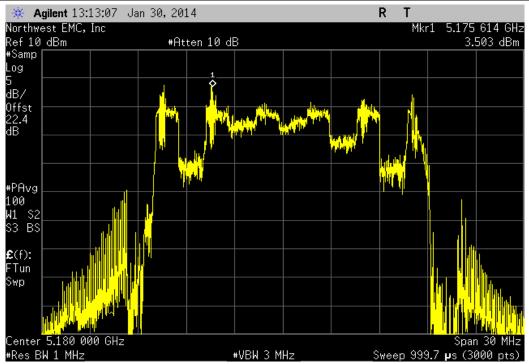




Report No. MASI0233 52/61







| 802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel | | | | | | | | |
|---|--|--|--|-------------|-------------|--------|--|--|
| | | | | Value | Limit | | | |
| | | | | (dBm / MHz) | (dBm / MHz) | Result | | |
| | | | | 3.791 | 4 | Pass | | |



Report No. MASI0233 53/61



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

| | | | | | Interval |
|-------------------------|--------------------|------------------|-----|-----------|----------|
| Description | Manufacturer | Model | ID | Last Cal. | (mos) |
| Spectrum Analyzer | Agilent | E4446A | AAY | 2/22/2013 | 24 |
| OC13 Cables | Fairview Microwave | SCA1814-0101-120 | OCZ | NCR | 0 |
| Attenuator, 20db, 'SMA' | Weinschel Corp | 4H-20 | AWB | 6/7/2013 | 12 |
| 40GHz DC Block | Miteq | DCB4000 | AMD | 5/16/2013 | 12 |
| 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 |

TEST DESCRIPTION

The transmission pulse duration (T) and Duty Cycle (x) were measured for each of the EUT operating modes per the FCC KDB 789033 D01 General UNII Test Procedures.

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 this report only measure during the burst duration.

Report No. MASI0233 54/61

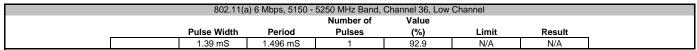


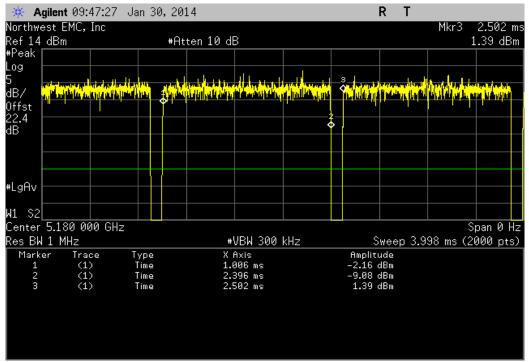
DUTY CYCLE

| | RAD7A/Radical 7 V2 | | | | | | Work Order: | | |
|----------------------|--|-----------|-------|------------------|-------------------|-----------|-------------------|------------|------------|
| Serial Number | | | | | | | | 01/29/14 | |
| | : Masimo Corporation | | | | | | Temperature: | | |
| | : Mike Clark | | | | | | Humidity: | | |
| Project | | | | | | | Barometric Pres.: | | |
| | : Jaemi Suh | | | Battery | | | Job Site: | OC13 | |
| TEST SPECIFICAT | TIONS | | | Test Method | | | | | |
| FCC 15.407:2014 | | | | ANSI C63.10:2009 | | | | | |
| | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| Channel 36/48 pov | ver level is set to 30. | | | | | | | | |
| | | | | | | | | | |
| | M TEST STANDARD | | | | | | | | |
| None | | | | | | | | | |
| | | | Chan: | 5 | - | | | | <u></u> |
| Configuration # | 1 | | | | | | | | |
| | | Signature | | | | | | | |
| | | | | | | Number of | Value | | |
| | | | | Pulse Width | Period | Pulses | (%) | Limit | Result |
| 802.11(a) 6 Mbps | 5450 5050 MH- D | | | | | | | | |
| | 5150 - 5250 MHz Band | | | 4.00 0 | 4 400 0 | | 00.0 | NI/A | NI/A |
| | Channel 36, Low Cha Channel 36, Low Cha | | | 1.39 mS N/A | 1.496 mS N/A | 1 6 | 92.9 N/A | N/A N/A | N/A N/A |
| | Channel 48, High Cha | | | 1.388 mS | 1.494 mS | 4 | 92.9 | N/A N/A | N/A N/A |
| | Channel 48, High Ch | | | 1.300 HIS N/A | 1.494 IIIS N/A | 5 | 92.9 N/A | N/A N/A | N/A N/A |
| 802.11(a) 36 Mbps | | iiiiGi | | IN/A | IN/A | Ü | IN/A | IN/A | IN/A |
| 002. 1 1(a) 30 Wibps | 5150 - 5250 MHz Band | | | | | | | | |
| | Channel 36. Low Cha | nnel | | 245 uS | 350 uS | 1 | 70 | N/A | N/A |
| | Channel 36, Low Cha | | | N/A | N/A | 5 | N/A | N/A | N/A |
| | Channel 48, High Cha | | | 245 uS | 350 uS | 1 | 70 | N/A | N/A |
| | Channel 48, High Cha | | | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(a) 54 Mbps | | | | | | - | | | |
| () | 5150 - 5250 MHz Band | | | | | | | | |
| | Channel 36, Low Cha | nnel | | 168 uS | 274 uS | 1 | 61.3 | N/A | N/A |
| | Channel 36, Low Cha | | | N/A | N/A | 5 | N/A | N/A | N/A |
| | Channel 48, High Cha | | | 167 uS | 274 uS | 1 | 60.9 | N/A | N/A |
| | Channel 48, High Cha | | | N/A | N/A | 5 | N/A | N/A | N/A |
| | | • | | | | - | | | |

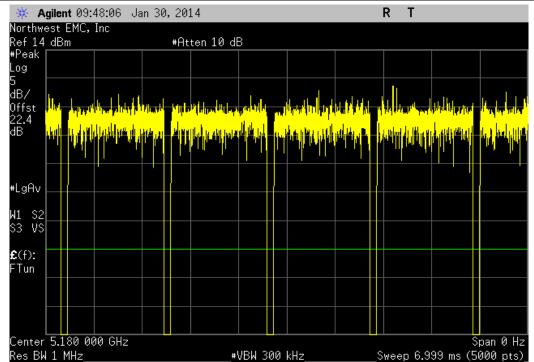
Report No. MASI0233 55/61





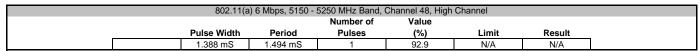


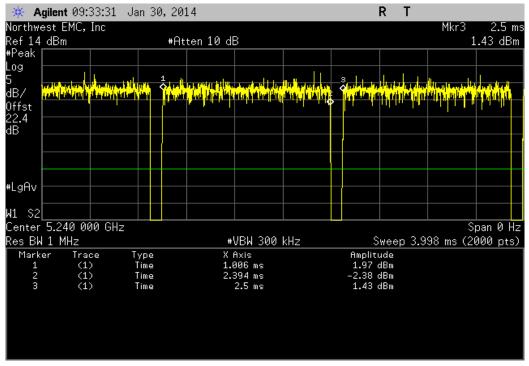
| 802.11(| a) 6 Mbps, 5150 - | 5250 MHz Band, | Channel 36, Low | Channel | |
|-------------|-------------------|----------------|-----------------|---------|--------|
| | | Number of | Value | | |
| Pulse Width | Period | Pulses | (%) | Limit | Result |
| N/A | N/A | 6 | N/A | N/A | N/A |



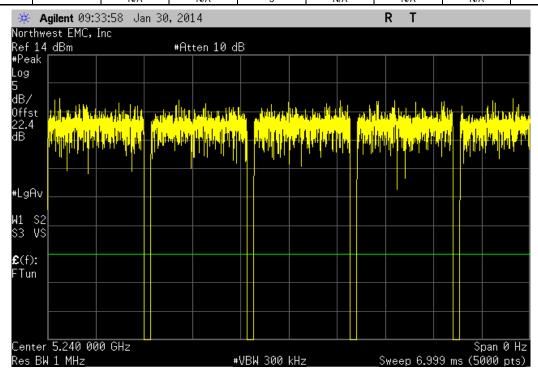
Report No. MASI0233 56/61





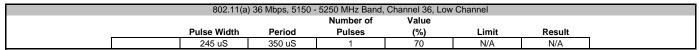


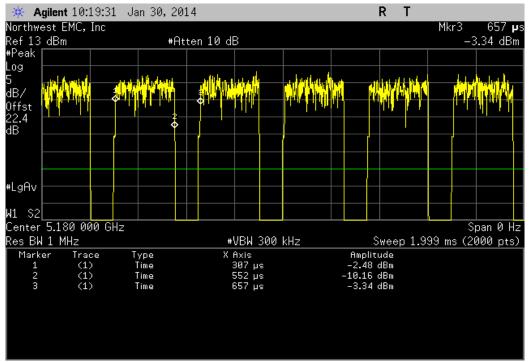
| | 802.11(a |) 6 Mbps, 5150 - | 5250 MHz Band, | Channel 48, High | Channel | |
|--|-------------|------------------|----------------|------------------|---------|--------|
| | | | Number of | Value | | |
| | Pulse Width | Period | Pulses | (%) | Limit | Result |
| | N/A | N/A | 5 | N/A | N/A | N/A |



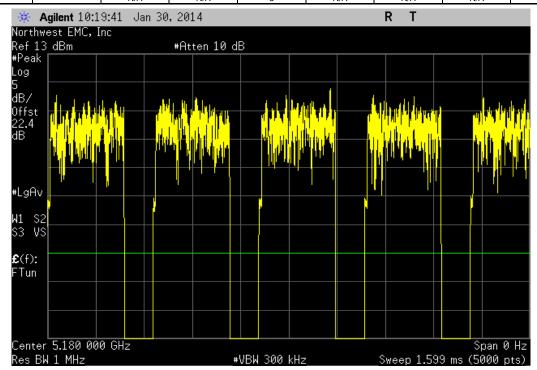
Report No. MASI0233 57/61





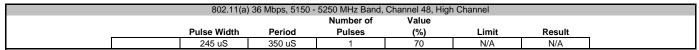


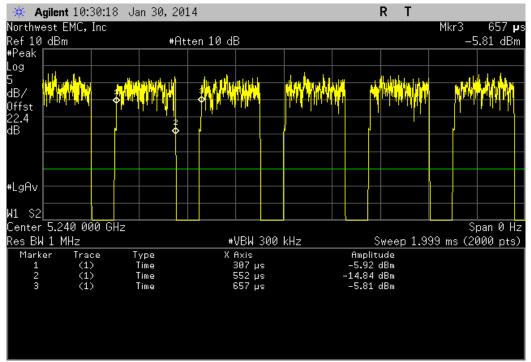
| | 802.11(a | 36 Mbps, 5150 - | 5250 MHz Band, | Channel 36, Low | Channel | |
|--|-------------|-----------------|----------------|-----------------|---------|--------|
| | | | Number of | Value | | |
| | Pulse Width | Period | Pulses | (%) | Limit | Result |
| | N/A | N/A | 5 | N/A | N/A | N/A |



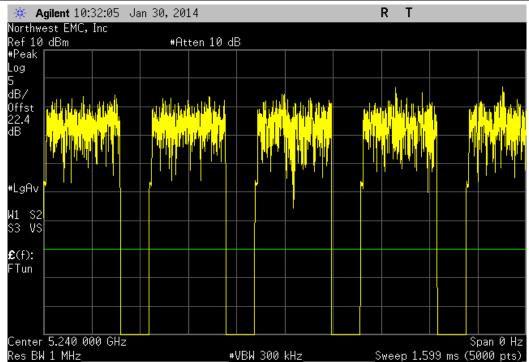
Report No. MASI0233 58/61





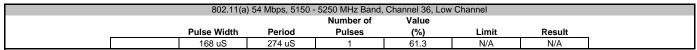


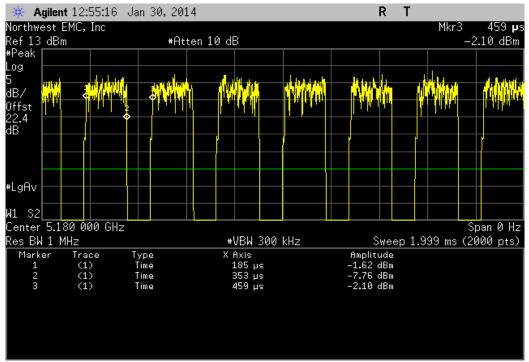
| 802.1 | 1(a) 36 Mbps, 5150 | 5250 MHz Band, | Channel 48, High | n Channel | |
|------------|--------------------|------------------------------------|------------------|-----------|--------|
| | | Number of | Value | | |
| Pulse Widt | h Period | Pulses | (%) | Limit | Result |
| N/A | N/A | 5 | N/A | N/A | N/A |



Report No. MASI0233 59/61





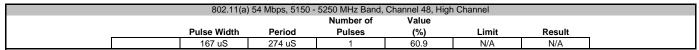


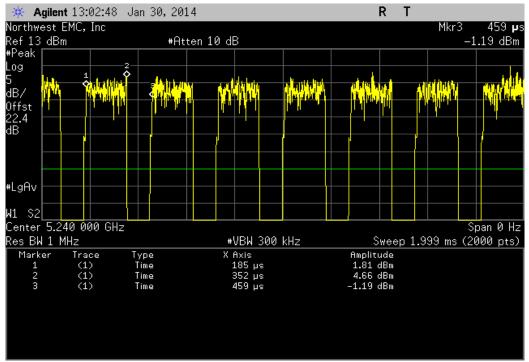
| | 802.11(a |) 54 Mbps, 5150 - | 5250 MHz Band, | Channel 36, Low | Channel | |
|--|-------------|-------------------|----------------|-----------------|---------|--------|
| | | | Number of | Value | | |
| | Pulse Width | Period | Pulses | (%) | Limit | Result |
| | N/A | N/A | 5 | N/A | N/A | N/A |



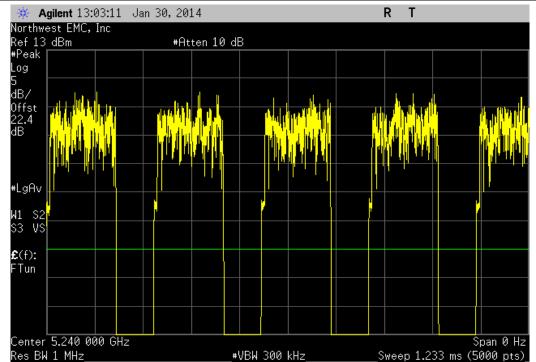
Report No. MASI0233 60/61







| 802.11(a | a) 54 Mbps, 5150 - | · 5250 MHz Band, | Channel 48, High | n Channel | |
|-------------|--------------------|------------------|------------------|-----------|--------|
| | | Number of | Value | | |
| Pulse Width | Period | Pulses | (%) | Limit | Result |
| N/A | N/A | 5 | N/A | N/A | N/A |



Report No. MASI0233 61/61