



**ADDENDUM TO MASIMO CORPORATION  
TEST REPORT FC07-076**

**FOR THE**

**RAD-87 PULSE CO-OXIMETER**

**FCC PART 15 SUBPART C  
SECTIONS 15.205, 15.209, 15.247 & 15.407**

**TESTING**

**DATE OF ISSUE: DECEMBER 3, 2007**

**PREPARED FOR:**

Masimo Corporation  
40 Parker  
Irvine, CA 92618

P.O. No.: 537577  
W.O. No.: 86964

**PREPARED BY:**

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Mariposa, CA 95338

Date of test: November 29-30, 2007

**Report No.: FC07-076A**

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** November 29-30, 2007

**DATE OF RECEIPT:** November 29, 2007

**REPRESENTATIVE:** George Pierpont

**MANUFACTURER:**

Masimo Corporation  
40 Parker  
Irvine, CA 92618

**TEST LOCATION:**

CKC Laboratories, Inc.  
110 Olinda Place  
Brea, CA 92823

**TEST METHOD:** FCC Part C Sections 15.205, 15.209, 15.247 & 15.407

**PURPOSE OF TEST:**

**Original Report:** To perform the testing of the RAD-87 Pulse CO-Oximeter with the requirements for FCC Part C Sections 15.207, 15.209, 15.247 & 15.407 and RSS-210 devices.

**Addendum A:** To perform the testing of the RAD-87 Pulse CO-Oximeter with the requirements for FCC Part C Sections 15.205, 15.209, 15.247 & 15.407 devices with a new antenna.

**APPROVALS**

**QUALITY ASSURANCE:**

Steve Behm, Director of Engineering Services

**TEST PERSONNEL:**



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Septimiu Apahidean, EMC Engineer

**CONDITIONS DURING TESTING**

Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. During previous testing of the antenna conducted spurious emissions, the transmitter had no measurable emissions passed the 3rd harmonic. This re-test is to demonstrate compliance for a passive internal antenna change with the same gain (+2dBi) as previously approved. Based on the previous antenna conducted and radiated emissions data, the retest of radiated emissions in the spectrum above 25 GHz was not investigated.

## SUMMARY OF RESULTS

Test	Specification/Method	Results
Radiated Emissions	FCC 15.205	Pass
Radiated Emissions	FCC 15.209	Pass
Radiated Emissions	FCC 15.247(d)	Pass
Undesirable Emissions Limits	FCC 15.407(b)(1)	Pass
Undesirable Emissions Limits	FCC 15.407(b)(4)	Pass

### FCC 15.33(a) Frequency Ranges Tested

15.205 Radiated Emissions: 2300 – 2500 MHz

15.209 Radiated Emissions: 9 kHz - 1000 MHz

15.247 Radiated Emissions: 1-25 GHz

15.407 Radiated Emissions: 1-25 GHz

### FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

### EUT Operating Frequency

The EUT was operating at 2.41-2.46 GHz, 5.18-5.24 GHz and 5.745-5.805 GHz.

### Temperature And Humidity During Testing

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The customer declares the EUT tested by CKC Laboratories was representative of a production unit. The EUT is a Pulse Oximeter with SpCO and SpMET.

The following model was tested by CKC Laboratories: **Pulse Rate Monitor, RAD-87**

The term "Pulse Rate Monitor" was an internal term used by CKC but it is not intended to be the actual description of the test. Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore meets the level of testing equivalent to the tested model name shown on the data sheets: **RAD-87 Pulse CO-Oximeter**.

## **EQUIPMENT UNDER TEST**

### **Pulse CO-Oximeter**

Manuf: Masimo Corp  
Model: RAD-87  
Serial: 083107.2  
FCC ID: VKF-RAD87  
CAN ID: 7362A-RAD87

## **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

### **Laptop**

Manuf: IBM  
Model: ThinkPAD 2366  
Serial: 99-TGPV9

## REPORT OF EMISSIONS MEASUREMENTS

### TESTING PARAMETERS

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

### CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

<b>SAMPLE CALCULATIONS</b>	
Meter reading	(dB $\mu$ V)
+ Antenna Factor	(dB)
+ Cable Loss	(dB)
- Distance Correction	(dB)
- Preamplifier Gain	(dB)
= Corrected Reading	(dB $\mu$ V/m)

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. The following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

## SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

### Peak

In this mode, the spectrum analyzer/receiver readings were recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

### Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.

## FCC 15.205 RADIATED EMISSIONS

### Test Setup Photos





## Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.205**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 16:24:49  
 Equipment: **Pulse Rate Monitor** Sequence#: 12  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

### Test Conditions / Notes:

EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite # 28A2024-0A0. 802.11G - Channel 11 at 6 Mbit. Frequency range tested - 2300 MHz - 2500 MHz. RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

### Transducer Legend:

T1=Preamp 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	

### Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	2483.600M	49.0	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	48.4	54.0	-5.6	Horiz
	Ave										
^	2483.600M	62.9	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	62.3	54.0	+8.3	Horiz
3	2389.956M	46.2	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	45.0	54.0	-9.0	Vert

4	2483.600M	45.3	-39.0	+0.6	+5.9	+3.2	+0.0	44.7	54.0	-9.3	Vert
	Ave		+28.7								
^	2483.600M	60.8	-39.0	+0.6	+5.9	+3.2	+0.0	60.2	54.0	+6.2	Vert
			+28.7								
6	2389.956M	45.6	-39.0	+0.6	+5.7	+3.2	+0.0	44.4	54.0	-9.6	Horiz
			+28.3								
7	2390.298M	46.5	-39.0	+0.6	+5.7	+3.2	+0.0	45.3	80.0	-34.7	Vert
			+28.3								
8	2390.298M	45.4	-39.0	+0.6	+5.7	+3.2	+0.0	44.2	80.0	-35.8	Horiz
			+28.3								

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.205**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 16:35:50  
 Equipment: **Pulse Rate Monitor** Sequence#: 13  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite # 28A2024-0A0. 802.11G - Channel 1 at 6 Mbit. Frequency range tested - 2300 MHz - 2500 MHz. RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	2389.956M Ave	54.3 +28.3	-39.0 +0.6	+0.6 +5.7	+5.7 +3.2	+3.2 +0.0	+0.0 53.1	53.1 54.0	54.0 -0.9	-0.9	Horiz
^	2389.956M	71.8 +28.3	-39.0 +0.6	+0.6 +5.7	+5.7 +3.2	+3.2 +0.0	+0.0 70.6	70.6 54.0	54.0 +16.6	+16.6	Horiz
3	2389.956M Ave	48.9 +28.3	-39.0 +0.6	+0.6 +5.7	+5.7 +3.2	+3.2 +0.0	+0.0 47.7	47.7 54.0	54.0 -6.3	-6.3	Vert
^	2389.956M	65.7 +28.3	-39.0 +0.6	+0.6 +5.7	+5.7 +3.2	+3.2 +0.0	+0.0 64.5	64.5 54.0	54.0 +10.5	+10.5	Vert
5	2483.600M	45.2 +28.7	-39.0 +0.6	+0.6 +5.9	+5.9 +3.2	+3.2 +0.0	+0.0 44.6	44.6 54.0	54.0 -9.4	-9.4	Horiz

6	2390.298M	71.3	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	70.1	80.0	-9.9	Horiz
7	2483.600M	42.7	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	42.1	54.0	-11.9	Vert
8	2390.298M	66.2	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	65.0	80.0	-15.0	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.205**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 16:13:49  
 Equipment: **Pulse Rate Monitor** Sequence#: 11  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite # 28A2024-0A0. 802.11B - Channel 11 at 1 Mbit. Frequency range tested - 2300 MHz - 2500 MHz. RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	2483.600M	48.3	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	47.7	54.0	-6.3	Vert
2	2389.956M	48.1	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	46.9	54.0	-7.1	Vert
3	2389.956M	47.7	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	46.5	54.0	-7.5	Horiz

4	2483.600M	38.0	-39.0	+0.6	+5.9	+3.2	+0.0	37.4	54.0	-16.6	Horiz
	Ave		+28.7								
^	2483.600M	50.6	-39.0	+0.6	+5.9	+3.2	+0.0	50.0	54.0	-4.0	Horiz
			+28.7								
6	2390.498M	47.4	-39.0	+0.6	+5.7	+3.2	+0.0	46.2	80.0	-33.8	Horiz
			+28.3								
7	2390.498M	46.9	-39.0	+0.6	+5.7	+3.2	+0.0	45.7	80.0	-34.3	Vert
			+28.3								

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112  
 Customer: **Masimo Corporation**  
 Specification: **FCC 15.205**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 15:55:23  
 Equipment: **Pulse Rate Monitor** Sequence#: 10  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87 S/N: 083107.2

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite # 28A2024-0A0. 802.11B - Channel 1 at 1 Mbit. Frequency range tested - 2300 MHz - 2500 MHz. RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	

**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
			T5								Ant
1	2389.956M	49.4	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	48.2	54.0	-5.8	Vert
2	2483.500M	47.9	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	47.3	54.0	-6.7	Horiz
3	2389.956M	47.9	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	46.7	54.0	-7.3	Horiz
4	2483.500M	42.8	-39.0 +28.7	+0.6	+5.9	+3.2	+0.0	42.2	54.0	-11.8	Vert
5	2390.498M	50.7	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	49.5	80.0	-30.5	Vert
6	2390.498M	49.7	-39.0 +28.3	+0.6	+5.7	+3.2	+0.0	48.5	80.0	-31.5	Horiz

## FCC 15.209 RADIATED EMISSIONS

### Test Setup Photos





## Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.209**  
 Work Order #: **86964** Date: 12/5/2007  
 Test Type: **Radiated Scan** Time: 10:47:03  
 Equipment: **Pulse Rate Monitor** Sequence#: 3  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Bilog Antenna	2629	02/02/2006	02/02/2008	00851
Preamp to SA Cable (3 feet)	Cable #22	08/09/2006	08/09/2008	P05555
Pre-amp	2727A05392	06/06/2006	06/06/2008	00010
Loop Antenna	2014	06/14/2006	06/14/2008	00314

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

### Test Conditions / Notes:

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 9 kHz to 1000 MHz. 802.11G - Channel 1 at 6 Mbit. AC 120V 60Hz, 19°C, 35% relative humidity.

### Transducer Legend:

T1=84' Heliax Cable P04382	T2=48' Heliax Cable 091808 P05563
T3=Bilog AN00851 020208 Chase	T4=Preamp 8447D Asset 00010
T5=Cable #22 Preamp to SA 081008	T6=Active loop antenna 061408

### Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m		
	MHz	dB $\mu$ V	dB	dB	dB	dB				dB	Ant
1	203.743M	56.0	+1.4	+1.0	+9.0	-26.7	+0.0	40.9	43.5	-2.6	Vert
	QP		+0.2	+0.0							
^	203.725M	59.0	+1.4	+1.0	+9.0	-26.7	+0.0	43.9	43.5	+0.4	Vert
			+0.2	+0.0							
3	70.900M	55.3	+0.9	+0.4	+6.2	-27.1	+0.0	35.8	40.0	-4.2	Vert
			+0.1	+0.0							

4	208.600M	51.1	+1.4 +0.2	+1.0 +0.0	+9.4	-26.7	+0.0	36.4	43.5	-7.1	Vert
5	157.927M	50.7	+1.1 +0.2	+0.9 +0.0	+10.3	-26.9	+0.0	36.3	43.5	-7.2	Vert
6	203.190M	50.3	+1.4 +0.2	+1.0 +0.0	+9.0	-26.7	+0.0	35.2	43.5	-8.3	Horiz
7	206.703M	49.6	+1.4 +0.2	+1.0 +0.0	+9.2	-26.7	+0.0	34.7	43.5	-8.8	Horiz
8	207.725M	49.4	+1.4 +0.2	+1.0 +0.0	+9.3	-26.7	+0.0	34.6	43.5	-8.9	Horiz
9	130.900M	47.0	+1.1 +0.2	+0.8 +0.0	+11.4	-27.0	+0.0	33.5	43.5	-10.0	Vert
10	436.700M	41.9	+2.2 +0.4	+1.5 +0.0	+16.7	-27.2	+0.0	35.5	46.0	-10.5	Vert
11	360.576M	42.4	+2.0 +0.3	+1.3 +0.0	+14.8	-26.9	+0.0	33.9	46.0	-12.1	Horiz
12	358.889M	40.9	+2.0 +0.3	+1.3 +0.0	+14.7	-26.9	+0.0	32.3	46.0	-13.7	Vert
13	332.930M	41.0	+1.9 +0.3	+1.3 +0.0	+14.1	-26.7	+0.0	31.9	46.0	-14.1	Vert
14	71.096M	44.9	+0.9 +0.1	+0.4 +0.0	+6.3	-27.1	+0.0	25.5	40.0	-14.5	Horiz
15	316.200M	38.5	+1.8 +0.3	+1.2 +0.0	+13.6	-26.6	+0.0	28.8	46.0	-17.2	Vert
16	25.124M	47.1	+0.6 +0.1	+0.2 +9.7	+21.6	-27.2	+0.0	52.1	69.5	-17.4	Paral
17	829.700M	26.1	+3.2 +0.5	+1.9 +0.0	+22.9	-27.5	+0.0	27.1	46.0	-18.9	Vert

**FCC 15.247(d) RADIATED EMISSIONS**

**Test Setup Photos**





## Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: 11/29/2007  
 Test Type: **Radiated Scan** Time: 14:36:02  
 Equipment: **Pulse Rate Monitor** Sequence#: 3  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25GHz. 802.11B - Channel 11 at 1 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Horn AN02112 18-26

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.				Test Distance: 3 Meters				
			T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	
1	4923.800M	40.5 +0.8	-39.4	+8.5	+4.9	+33.3	+0.0	48.6	54.0	-5.4	Horiz
2	4923.400M	40.1 +0.8	-39.4	+8.5	+4.9	+33.3	+0.0	48.2	54.0	-5.8	Vert
3	8148.800M	30.1 +1.0	-39.6	+11.7	+6.5	+37.0	+0.0	46.7	54.0	-7.3	Vert
4	7257.800M	32.0 +1.0	-39.7	+11.1	+6.0	+35.8	+0.0	46.2	54.0	-7.8	Vert
5	2220.000M	47.9 +0.5	-38.9	+5.6	+3.1	+27.5	+0.0	45.7	54.0	-8.3	Horiz
6	2318.800M	47.0 +0.5	-39.0	+5.6	+3.2	+28.0	+0.0	45.3	54.0	-8.7	Horiz
7	4898.270M	36.9 +0.8	-39.4	+8.5	+4.9	+33.3	+0.0	45.0	54.0	-9.0	Horiz
8	7554.800M	29.9 +1.0	-39.8	+11.1	+6.1	+36.5	+0.0	44.8	54.0	-9.2	Vert
9	1009.400M	48.8 +0.4	-40.6	+3.4	+2.1	+24.7	+0.0	38.8	54.0	-15.2	Horiz
10	1199.800M	47.2 +0.4	-39.8	+3.8	+2.2	+24.8	+0.0	38.6	54.0	-15.4	Horiz
11	1599.800M	42.6 +0.5	-38.8	+4.4	+2.6	+25.2	+0.0	36.5	54.0	-17.5	Horiz
12	6840.650M	35.5 +0.9	-39.5	+10.7	+6.0	+34.8	+0.0	48.4	80.0	-31.6	Vert
13	2545.600M	47.3 +0.6	-39.0	+5.9	+3.2	+29.0	+0.0	47.0	80.0	-33.0	Horiz
14	4426.600M	38.9 +0.8	-39.4	+8.1	+4.6	+32.4	+0.0	45.4	80.0	-34.6	Horiz
15	1626.550M	48.3 +0.5	-38.8	+4.5	+2.7	+25.3	+0.0	42.5	80.0	-37.5	Vert
16	2429.600M	48.0 +0.6	-39.0	+5.8	+3.2	+28.5	+0.0	47.1	100.0	-52.9	Horiz

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: **11/29/2007**  
 Test Type: **Radiated Scan** Time: **13:49:36**  
 Equipment: **Pulse Rate Monitor** Sequence#: **2**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25Ghz. 802.11B - Channel 7 at 1 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m		
1	2341.800M	49.6	-39.0 +0.5	+5.6	+3.2	+28.1	+0.0	48.0	54.0	-6.0	Vert
2	2245.800M	49.4	-39.0 +0.5	+5.6	+3.1	+27.6	+0.0	47.2	54.0	-6.8	Vert
3	4883.115M	38.9	-39.4 +0.8	+8.5	+4.9	+33.3	+0.0	47.0	54.0	-7.0	Horiz
4	4884.000M	38.7	-39.4 +0.8	+8.5	+4.9	+33.3	+0.0	46.8	54.0	-7.2	Vert

5	7274.160M	32.1	-39.7 +1.0	+11.1	+6.0	+35.9	+0.0	46.4	54.0	-7.6	Vert
6	1046.900M	43.4	-40.4 +0.4	+3.4	+2.1	+24.7	+0.0	33.6	54.0	-20.4	Horiz
7	6887.800M	34.8	-39.5 +1.0	+10.8	+6.0	+34.9	+0.0	48.0	80.0	-32.0	Vert
8	6489.600M	36.7	-39.5 +0.9	+9.9	+5.7	+34.2	+0.0	47.9	80.0	-32.1	Vert
9	2532.655M	47.1	-39.0 +0.6	+5.9	+3.2	+28.9	+0.0	46.7	80.0	-33.3	Horiz
10	5994.600M	35.5	-39.5 +0.9	+9.8	+5.6	+34.1	+0.0	46.4	80.0	-33.6	Vert
11	5697.600M	35.8	-39.4 +0.9	+9.3	+5.4	+34.2	+0.0	46.2	80.0	-33.8	Vert
12	2532.600M	46.5	-39.0 +0.6	+5.9	+3.2	+28.9	+0.0	46.1	80.0	-33.9	Vert
13	2182.540M	46.7	-38.9 +0.5	+5.6	+3.1	+27.3	+0.0	44.3	80.0	-35.7	Horiz
14	2182.800M	46.5	-38.9 +0.5	+5.6	+3.1	+27.3	+0.0	44.1	80.0	-35.9	Vert
15	3112.275M	41.0	-39.1 +0.6	+6.6	+3.8	+30.7	+0.0	43.6	80.0	-36.4	Horiz
16	2585.500M	43.4	-39.0 +0.6	+6.0	+3.3	+29.1	+0.0	43.4	80.0	-36.6	Vert
17	3317.100M	39.8	-39.3 +0.7	+7.0	+3.9	+31.1	+0.0	43.2	80.0	-36.8	Vert
18	3113.100M	40.2	-39.1 +0.6	+6.6	+3.8	+30.7	+0.0	42.8	80.0	-37.2	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: **11/29/2007**  
 Test Type: **Radiated Scan** Time: **12:11:37**  
 Equipment: **Pulse Rate Monitor** Sequence#: **1**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25GHz. 802.11B - Channel 1 at 1 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Filter 3GHz HPF AN02744
T7=Horn AN02112 18-26	

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7		Table	dB $\mu$ V/m	dB $\mu$ V/m		
	MHz	dB $\mu$ V	dB	dB	dB	dB				dB	Ant
1	7274.050M	33.3	-39.7	+11.1	+6.0	+35.9	+0.0	47.7	54.0	-6.3	Vert
			+1.0	+0.1							
2	2336.850M	48.7	-39.0	+5.6	+3.2	+28.1	+0.0	47.1	54.0	-6.9	Vert
			+0.5	+0.0							
3	2333.900M	47.7	-39.0	+5.6	+3.2	+28.1	+0.0	46.1	54.0	-7.9	Horiz
			+0.5	+0.0							
4	7274.150M	31.5	-39.7	+11.1	+6.0	+35.9	+0.0	45.9	54.0	-8.1	Horiz
			+1.0	+0.1							

5	4390.500M	39.3	-39.4 +0.8	+8.1 +0.0	+4.6	+32.4	+0.0	45.8	54.0	-8.2	Horiz
6	4824.800M	36.6	-39.4 +0.8	+8.4 +0.3	+4.9	+33.1	+0.0	44.7	54.0	-9.3	Horiz
7	4111.185M	38.0	-39.5 +0.7	+7.7 +0.3	+4.5	+32.6	+0.0	44.3	54.0	-9.7	Horiz
8	2234.900M	46.1	-38.9 +0.5	+5.6 +0.0	+3.1	+27.6	+0.0	44.0	54.0	-10.0	Horiz
9	4824.050M	35.4	-39.4 +0.8	+8.4 +0.3	+4.9	+33.1	+0.0	43.5	54.0	-10.5	Vert
10	3949.500M	36.4	-39.5 +0.7	+7.5 +0.0	+4.4	+32.5	+0.0	42.0	54.0	-12.0	Horiz
11	4111.200M	32.5	-39.5 +0.7	+7.7 +0.3	+4.5	+32.6	+0.0	38.8	54.0	-15.2	Vert
12	1046.900M	43.4	-40.4 +0.4	+3.4 +0.0	+2.1	+24.7	+0.0	33.6	54.0	-20.4	Horiz
13	2506.700M	47.5	-39.0 +0.6	+5.9 +0.0	+3.2	+28.8	+0.0	47.0	80.0	-33.0	Horiz
14	2605.700M	45.5	-39.0 +0.6	+6.0 +0.0	+3.3	+29.2	+0.0	45.6	80.0	-34.4	Horiz

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: **11/29/2007**  
 Test Type: **Radiated Scan** Time: **15:17:46**  
 Equipment: **Pulse Rate Monitor** Sequence#: **4**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25GHz. 802.11G - Channel 1 at 6 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m		
	MHz	dB $\mu$ V	dB	dB	dB	dB					
1	4389.000M	39.3	-39.4 +0.8	+8.1	+4.6	+32.4	+0.0	45.8	54.0	-8.2	Horiz
2	7639.850M	30.0	-39.7 +1.0	+11.2	+6.2	+36.6	+0.0	45.3	54.0	-8.7	Vert
3	2253.000M	46.6	-39.0 +0.5	+5.6	+3.2	+27.7	+0.0	44.6	54.0	-9.4	Horiz
4	3640.450M	39.9	-39.5 +0.7	+7.2	+4.1	+31.8	+0.0	44.2	54.0	-9.8	Vert

5	1600.600M	47.9	-38.8 +0.5	+4.4	+2.6	+25.2	+0.0	41.8	54.0	-12.2	Horiz
6	1599.900M	47.6	-38.8 +0.5	+4.4	+2.6	+25.2	+0.0	41.5	54.0	-12.5	Vert
7	1199.500M	49.5	-39.8 +0.4	+3.8	+2.2	+24.8	+0.0	40.9	54.0	-13.1	Vert
8	1359.900M	47.9	-39.2 +0.4	+4.1	+2.3	+24.9	+0.0	40.4	54.0	-13.6	Vert
9	1598.350M	46.5	-38.8 +0.5	+4.4	+2.6	+25.2	+0.0	40.4	54.0	-13.6	Vert
10	1440.050M	45.1	-39.0 +0.4	+4.2	+2.3	+24.9	+0.0	37.9	54.0	-16.1	Horiz
11	1439.900M	44.2	-39.0 +0.4	+4.2	+2.3	+24.9	+0.0	37.0	54.0	-17.0	Vert
12	6879.850M	34.2	-39.5 +1.0	+10.8	+6.0	+34.9	+0.0	47.4	80.0	-32.6	Vert
13	2554.200M	46.9	-39.0 +0.6	+6.0	+3.3	+29.0	+0.0	46.8	80.0	-33.2	Horiz
14	5739.000M	35.5	-39.4 +0.9	+9.4	+5.4	+34.2	+0.0	46.0	80.0	-34.0	Horiz
15	7799.850M	30.3	-39.7 +1.0	+11.2	+6.3	+36.7	+0.0	45.8	80.0	-34.2	Vert
16	8889.000M	25.4	-39.5 +1.1	+12.8	+6.6	+37.9	+0.0	44.3	80.0	-35.7	Horiz
17	3240.450M	41.0	-39.3 +0.6	+6.9	+3.9	+31.0	+0.0	44.1	80.0	-35.9	Vert
18	2598.900M	43.8	-39.0 +0.6	+6.0	+3.3	+29.1	+0.0	43.8	80.0	-36.2	Vert
19	5199.000M	34.8	-39.4 +0.8	+8.7	+5.0	+33.8	+0.0	43.7	80.0	-36.3	Horiz
20	2081.550M	45.3	-38.9 +0.5	+5.4	+3.0	+26.8	+0.0	42.1	80.0	-37.9	Vert
21	2040.200M	42.9	-38.9 +0.5	+5.3	+2.9	+26.6	+0.0	39.3	80.0	-40.7	Horiz
22	1275.800M	44.5	-39.5 +0.4	+4.0	+2.3	+24.8	+0.0	36.5	80.0	-43.5	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: **11/29/2007**  
 Test Type: **Radiated Scan** Time: **16:08:00**  
 Equipment: **Pulse Rate Monitor** Sequence#: **5**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25GHz. 802.11G - Channel 7 at 6 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m		
1	2222.900M	48.7	-38.9 +0.5	+5.6	+3.1	+27.5	+0.0	46.5	54.0	-7.5	Horiz
2	2208.000M	48.1	-38.9 +0.5	+5.6	+3.1	+27.5	+0.0	45.9	54.0	-8.1	Vert
3	4968.000M	36.8	-39.4 +0.8	+8.5	+5.0	+33.4	+0.0	45.1	54.0	-8.9	Horiz
4	3840.000M	39.0	-39.5 +0.7	+7.4	+4.4	+32.3	+0.0	44.3	54.0	-9.7	Vert

5	8108.500M	27.6	-39.6 +1.0	+11.6	+6.5	+37.0	+0.0	44.1	54.0	-9.9	Horiz
6	8202.500M	26.9	-39.6 +1.0	+11.8	+6.5	+37.1	+0.0	43.7	54.0	-10.3	Horiz
7	4066.700M	37.4	-39.5 +0.7	+7.7	+4.5	+32.6	+0.0	43.4	54.0	-10.6	Horiz
8	4336.700M	36.6	-39.4 +0.7	+8.0	+4.6	+32.5	+0.0	43.0	54.0	-11.0	Horiz
9	3854.500M	37.5	-39.5 +0.7	+7.5	+4.4	+32.3	+0.0	42.9	54.0	-11.1	Horiz
10	1199.250M	50.2	-39.8 +0.4	+3.8	+2.2	+24.8	+0.0	41.6	54.0	-12.4	Horiz
11	1199.400M	49.3	-39.8 +0.4	+3.8	+2.2	+24.8	+0.0	40.7	54.0	-13.3	Vert
12	8058.500M	23.9	-39.6 +1.0	+11.5	+6.5	+36.9	+0.0	40.2	54.0	-13.8	Vert
13	1200.000M	48.4	-39.8 +0.4	+3.8	+2.2	+24.8	+0.0	39.8	54.0	-14.2	Vert
14	7213.500M	32.1	-39.6 +1.0	+11.1	+6.0	+35.7	+0.0	46.3	80.0	-33.7	Horiz
15	4422.900M	39.3	-39.4 +0.8	+8.1	+4.6	+32.4	+0.0	45.8	80.0	-34.2	Horiz
16	4409.800M	39.2	-39.4 +0.8	+8.1	+4.6	+32.4	+0.0	45.7	80.0	-34.3	Vert
17	2504.500M	45.4	-39.0 +0.6	+5.9	+3.2	+28.8	+0.0	44.9	80.0	-35.1	Horiz
18	3125.300M	42.0	-39.1 +0.6	+6.7	+3.8	+30.7	+0.0	44.7	80.0	-35.3	Vert
19	7163.500M	30.6	-39.6 +1.0	+11.1	+6.0	+35.6	+0.0	44.7	80.0	-35.3	Vert
20	6299.800M	33.6	-39.5 +0.9	+9.8	+5.6	+34.2	+0.0	44.6	80.0	-35.4	Vert
21	6853.500M	31.7	-39.5 +0.9	+10.7	+6.0	+34.8	+0.0	44.6	80.0	-35.4	Horiz
22	3134.500M	39.4	-39.1 +0.6	+6.7	+3.8	+30.7	+0.0	42.1	80.0	-37.9	Horiz
23	1850.600M	45.6	-38.9 +0.5	+4.9	+2.8	+26.0	+0.0	40.9	80.0	-39.1	Horiz
24	2120.600M	43.2	-38.9 +0.5	+5.4	+3.0	+27.0	+0.0	40.2	80.0	-39.8	Horiz
25	1246.100M	46.3	-39.6 +0.4	+3.9	+2.2	+24.8	+0.0	38.0	80.0	-42.0	Vert
26	1260.200M	45.2	-39.6 +0.4	+3.9	+2.3	+24.8	+0.0	37.0	80.0	-43.0	Horiz
27	2480.700M	48.0	-39.0 +0.6	+5.9	+3.2	+28.7	+0.0	47.4	100.0	-52.6	Horiz

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.247 (d) (FCC 15.205 restricted band)**  
 Work Order #: **86964** Date: **11/29/2007**  
 Test Type: **Radiated Scan** Time: **16:54:13**  
 Equipment: **Pulse Rate Monitor** Sequence#: **5**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table. Connected to the unit are a nurse cable, a serial cable and the finger sensor probe. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Unit is placed vertically on the table. Nurse call cable and RS232 cable have a Ferrite #28A2024-0A0. Frequency range of tests is 1-25GHz. 802.11G - Channel 11 at 6 Mbit. Frequency 1000 MHz-25,000 MHz RBW=1 MHz, VBW=1 MHz. AC 120V 60Hz, 19°C, 35% relative humidity. Channel 1 2.41GHz, Channel 7 2.44GHz, Channel 11 2.46GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=84' Heliax Cable P04382
T3=48' Heliax Cable 091808 P05563	T4=Horn 01646_062908
T5=CAB-ANP02946091807	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin.

Test Distance: 3 Meters

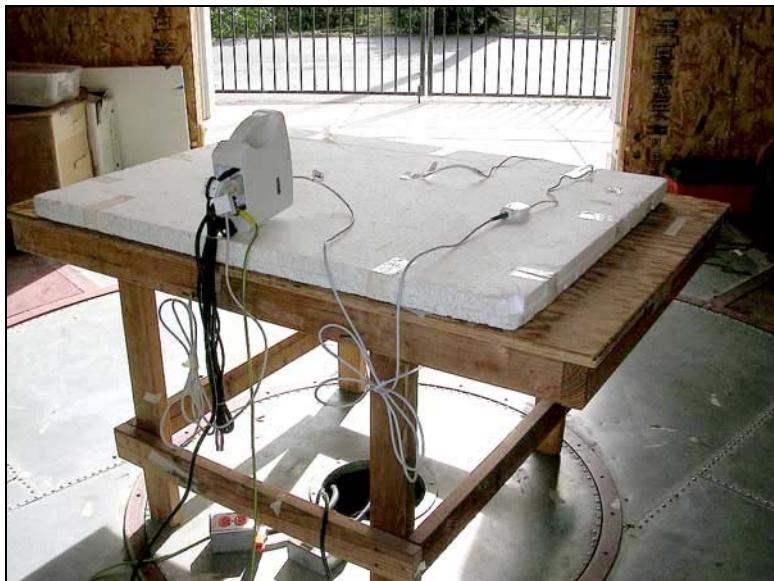
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m		
1	4908.600M	40.6	-39.4 +0.8	+8.5	+4.9	+33.3	+0.0	48.7	54.0	-5.3	Vert
2	2206.300M	48.0	-38.9 +0.5	+5.6	+3.1	+27.5	+0.0	45.8	54.0	-8.2	Vert
3	7338.600M	30.3	-39.7 +1.0	+11.1	+6.0	+36.1	+0.0	44.8	54.0	-9.2	Vert
4	2296.300M	46.3	-39.0 +0.5	+5.6	+3.2	+27.9	+0.0	44.5	54.0	-9.5	Vert

5	1343.700M	50.4	-39.3 +0.4	+4.1	+2.3	+24.8	+0.0	42.7	54.0	-11.3	Horiz
6	1600.100M	48.0	-38.8 +0.5	+4.4	+2.6	+25.2	+0.0	41.9	54.0	-12.1	Vert
7	4924.200M	32.8	-39.4 +0.8	+8.5	+4.9	+33.3	+0.0	40.9	54.0	-13.1	Horiz
8	1370.100M	44.9	-39.2 +0.4	+4.1	+2.3	+24.9	+0.0	37.4	54.0	-16.6	Vert
9	2221.800M	34.1	-38.9 +0.5	+5.6	+3.1	+27.5	+0.0	31.9	54.0	-22.1	Horiz
10	8778.600M	28.7	-39.5 +1.1	+12.6	+6.7	+37.8	+0.0	47.4	80.0	-32.6	Vert
11	9937.100M	26.4	-39.5 +1.1	+13.8	+7.4	+38.0	+0.0	47.2	80.0	-32.8	Vert
12	9758.100M	26.8	-39.5 +1.1	+13.7	+7.2	+37.9	+0.0	47.2	80.0	-32.8	Vert
13	7968.600M	30.1	-39.6 +1.0	+11.4	+6.5	+36.9	+0.0	46.3	80.0	-33.7	Vert
14	9848.100M	25.2	-39.5 +1.1	+13.7	+7.3	+37.9	+0.0	45.7	80.0	-34.3	Vert
15	10117.100M	24.3	-39.5 +1.1	+13.9	+7.5	+38.0	+0.0	45.3	80.0	-34.7	Vert
16	2632.800M	43.7	-39.0 +0.6	+6.0	+3.3	+29.3	+0.0	43.9	80.0	-36.1	Vert
17	6967.100M	27.9	-39.5 +1.0	+11.0	+6.0	+35.0	+0.0	41.4	80.0	-38.6	Horiz
18	1273.300M	48.6	-39.5 +0.4	+3.9	+2.3	+24.8	+0.0	40.5	80.0	-39.5	Vert
19	6368.400M	27.6	-39.5 +0.9	+9.8	+5.6	+34.2	+0.0	38.6	80.0	-41.4	Horiz
20	2621.200M	36.7	-39.0 +0.6	+6.0	+3.3	+29.2	+0.0	36.8	80.0	-43.2	Horiz
21	4440.900M	28.2	-39.4 +0.8	+8.1	+4.6	+32.4	+0.0	34.7	80.0	-45.3	Horiz
22	5648.400M	24.4	-39.4 +0.9	+9.2	+5.3	+34.2	+0.0	34.6	80.0	-45.4	Horiz
23	2401.800M	41.3	-39.0 +0.6	+5.7	+3.2	+28.4	+0.0	40.2	100.0	-59.8	Horiz

**FCC 15.407(b)(1) UNDESIRABLE EMISSIONS LIMITS**

**Test Setup Photos**





## Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(1) 5.2GHz**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 10:47:10  
 Equipment: **Pulse Rate Monitor** Sequence#: 15  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 083107.2

### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

### Test Conditions / Notes:

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A 1 RBW MHz, VBW 1MHz. Low CH 36 6Mbit. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range): Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

### Transducer Legend:

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=Horn 01646_062908	T4=48' Heliax Cable 091808 P05563
T5=84' Heliax Cable P04382	T6=Horn AN02112 18-26

### Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	Ant	
1	9997.295M	28.6	-39.5 +13.8	+1.1	+38.0	+7.5	+0.0	49.5	54.0	-4.5	Horiz
2	5350.295M	39.9	-39.4 +8.9	+0.8	+34.0	+5.1	+0.0	49.3	54.0	-4.7	Vert
3	5149.915M	39.8	-39.4 +8.7	+0.8	+33.7	+5.0	+0.0	48.6	54.0	-5.4	Vert
4	11997.710M	22.3	-39.4 +15.3	+1.3	+39.1	+8.6	+0.0	47.2	54.0	-6.8	Horiz

5	4662.713M	39.8	-39.4 +8.3	+0.8	+32.8	+4.7	+0.0	47.0	54.0	-7.0	Horiz
6	5149.915M	35.3	-39.4 +8.7	+0.8	+33.7	+5.0	+0.0	44.1	54.0	-9.9	Horiz
^	5149.915M	48.7	-39.4 +8.7	+0.8	+33.7	+5.0	+0.0	57.5	54.0	+3.5	Horiz
8	11999.620M	19.0	-39.4 +15.3	+1.3	+39.1	+8.6	+0.0	43.9	54.0	-10.1	Vert
9	5350.150M	34.1	-39.4 +8.9	+0.8	+34.0	+5.1	+0.0	43.5	54.0	-10.5	Horiz
^	5350.150M	47.2	-39.4 +8.9	+0.8	+34.0	+5.1	+0.0	56.6	54.0	+2.6	Horiz
11	4665.213M	36.2	-39.4 +8.3	+0.8	+32.8	+4.7	+0.0	43.4	54.0	-10.6	Vert
12	9999.795M	21.8	-39.5 +13.8	+1.1	+38.0	+7.5	+0.0	42.7	54.0	-11.3	Vert
13	1011.839M	46.6	-40.5 +3.4	+0.4	+24.7	+2.1	+0.0	36.7	54.0	-17.3	Horiz
14	1014.339M	45.5	-40.5 +3.4	+0.4	+24.7	+2.1	+0.0	35.6	54.0	-18.4	Vert
15	5150.415M	48.8	-39.4 +8.7	+0.8	+33.7	+5.0	+0.0	57.6	94.0	-36.4	Horiz
16	5349.920M	47.0	-39.4 +8.9	+0.8	+34.0	+5.1	+0.0	56.4	94.0	-37.6	Horiz
17	5150.415M	40.7	-39.4 +8.7	+0.8	+33.7	+5.0	+0.0	49.5	94.0	-44.5	Vert
18	5349.580M	39.5	-39.4 +8.9	+0.8	+34.0	+5.1	+0.0	48.9	94.0	-45.1	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(1) 5.2GHz**  
 Work Order #: **86964** Date: **11/30/2007**  
 Test Type: **Radiated Scan** Time: **11:29:45**  
 Equipment: **Pulse Rate Monitor** Sequence#: **16**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A 1 RBW MHz, VBW 1MHz. High CH 48 6Mbit. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range): Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant
1	9995.300M	25.7	-39.5 +38.0	+1.1	+13.8	+7.5	+0.0	46.6	54.0	-7.4	Vert
2	9997.800M	23.6	-39.5 +38.0	+1.1	+13.8	+7.5	+0.0	44.5	54.0	-9.5	Horiz
3	5149.830M Ave	35.5	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	44.3	54.0	-9.7	Horiz
^	5149.830M	46.6	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	55.4	54.0	+1.4	Horiz
5	4677.365M	36.8	-39.4 +32.8	+0.8	+8.3	+4.7	+0.0	44.0	54.0	-10.0	Vert

6	4677.465M	36.8	-39.4 +32.8	+0.8	+8.3	+4.7	+0.0	44.0	54.0	-10.0	Horiz
7	5350.095M	34.3	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	43.7	54.0	-10.3	Horiz
^	5350.095M	46.8	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	56.2	54.0	+2.2	Horiz
9	1024.765M	51.1	-40.5 +24.7	+0.4	+3.4	+2.1	+0.0	41.2	54.0	-12.8	Horiz
10	5350.105M	29.3	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	38.7	54.0	-15.3	Vert
^	5350.105M	42.7	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	52.1	54.0	-1.9	Vert
12	5149.705M	29.4	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	38.2	54.0	-15.8	Vert
^	5149.705M	42.3	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	51.1	54.0	-2.9	Vert
14	1022.405M	46.1	-40.5 +24.7	+0.4	+3.4	+2.1	+0.0	36.2	54.0	-17.8	Vert
15	5150.380M	47.8	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	56.6	94.0	-37.4	Horiz
16	5349.770M	45.9	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	55.3	94.0	-38.7	Horiz
17	5151.455M	40.8	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	49.6	94.0	-44.4	Vert
18	5349.810M	40.0	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	49.4	94.0	-44.6	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(1) 5.2GHz**  
 Work Order #: **86964** Date: **11/30/2007**  
 Test Type: **Radiated Scan** Time: **12:02:26**  
 Equipment: **Pulse Rate Monitor** Sequence#: **17**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **804173**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	804173

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A - RBW 1 MHz, VBW 1MHz. Mid CH 44 6Mbit. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range): Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant
1	9995.270M	28.0	-39.5 +38.0	+1.1	+13.8	+7.5	+0.0	48.9	54.0	-5.1	Horiz
2	9997.600M	27.7	-39.5 +38.0	+1.1	+13.8	+7.5	+0.0	48.6	54.0	-5.4	Vert
3	4667.565M	39.7	-39.4 +32.8	+0.8	+8.3	+4.7	+0.0	46.9	54.0	-7.1	Vert
4	4667.920M	39.6	-39.4 +32.8	+0.8	+8.3	+4.7	+0.0	46.8	54.0	-7.2	Horiz

5	5149.785M	34.5	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	43.3	54.0	-10.7	Horiz
^	5149.785M	47.3	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	56.1	54.0	+2.1	Horiz
7	5351.470M	33.8	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	43.2	54.0	-10.8	Horiz
^	5351.470M	47.7	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	57.1	54.0	+3.1	Horiz
^	5351.470M	47.7	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	57.1	54.0	+3.1	Horiz
10	1000.390M	48.6	-40.6 +24.7	+0.4	+3.4	+2.1	+0.0	38.6	54.0	-15.4	Horiz
11	5149.850M	29.6	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	38.4	54.0	-15.6	Vert
^	5149.850M	41.9	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	50.7	54.0	-3.3	Vert
13	5350.160M	28.4	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	37.8	54.0	-16.2	Vert
^	5350.160M	43.3	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	52.7	54.0	-1.3	Vert
15	1014.990M	46.1	-40.5 +24.7	+0.4	+3.4	+2.1	+0.0	36.2	54.0	-17.8	Vert
16	5150.935M	47.4	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	56.2	94.0	-37.8	Horiz
17	5349.960M	45.3	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	54.7	94.0	-39.3	Horiz
18	5349.955M	41.4	-39.4 +34.0	+0.8	+8.9	+5.1	+0.0	50.8	94.0	-43.2	Vert
19	5150.250M	41.3	-39.4 +33.7	+0.8	+8.7	+5.0	+0.0	50.1	94.0	-43.9	Vert

**FCC 15.407(b)(4) UNDESIRABLE EMISSIONS LIMITS**

**Test Setup Photos**





## Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(4) 5.8GHz**  
 Work Order #: **86964** Date: 11/30/2007  
 Test Type: **Radiated Scan** Time: 13:25:58  
 Equipment: **Pulse Rate Monitor** Sequence#: 18  
 Manufacturer: Masimo Corp Tested By: Sep Apahidean  
 Model: RAD-87  
 S/N: 804173

### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	804173

### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

### Test Conditions / Notes:

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A 1 RBW MHz, VBW 1MHz. Low CH 149 - 6Mbit. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range): Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

### Transducer Legend:

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	T6=Horn AN02112 18-26

### Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB				Ant	
1	5825.000M	39.2	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	49.7	54.0	-4.3	Horiz
2	9140.500M	29.3	-39.5 +38.0	+1.1	+13.2	+6.7	+0.0	48.8	54.0	-5.2	Horiz
3	9138.000M	29.1	-39.5 +38.0	+1.1	+13.2	+6.7	+0.0	48.6	54.0	-5.4	Vert

4	5715.000M	33.7	-39.4	+0.9	+9.3	+5.4	+0.0	44.1	54.0	-9.9	Horiz
	Ave		+34.2								
^	5715.000M	48.6	-39.4	+0.9	+9.3	+5.4	+0.0	59.0	54.0	+5.0	Horiz
			+34.2								
6	5715.000M	31.5	-39.4	+0.9	+9.3	+5.4	+0.0	41.9	54.0	-12.1	Vert
	Ave		+34.2								
^	5715.000M	44.1	-39.4	+0.9	+9.3	+5.4	+0.0	54.5	54.0	+0.5	Vert
			+34.2								
8	5835.000M	30.6	-39.5	+0.9	+9.5	+5.5	+0.0	41.1	54.0	-12.9	Horiz
	Ave		+34.1								
^	5835.000M	44.2	-39.5	+0.9	+9.5	+5.5	+0.0	54.7	54.0	+0.7	Horiz
			+34.1								
10	5835.000M	29.5	-39.5	+0.9	+9.5	+5.5	+0.0	40.0	54.0	-14.0	Vert
	Ave		+34.1								
^	5835.000M	40.9	-39.5	+0.9	+9.5	+5.5	+0.0	51.4	54.0	-2.6	Vert
			+34.1								
12	2487.025M	39.1	-39.0	+0.6	+5.9	+3.2	+0.0	38.5	54.0	-15.5	Horiz
			+28.7								
13	5825.000M	27.6	-39.5	+0.9	+9.5	+5.5	+0.0	38.1	54.0	-15.9	Vert
	Ave		+34.1								
^	5825.000M	40.6	-39.5	+0.9	+9.5	+5.5	+0.0	51.1	54.0	-2.9	Vert
			+34.1								
15	1246.995M	44.5	-39.6	+0.4	+3.9	+2.2	+0.0	36.2	54.0	-17.8	Horiz
			+24.8								
16	1244.495M	44.2	-39.6	+0.4	+3.9	+2.2	+0.0	35.9	54.0	-18.1	Vert
			+24.8								
17	2484.525M	34.7	-39.0	+0.6	+5.9	+3.2	+0.0	34.1	54.0	-19.9	Vert
			+28.7								
18	5725.000M	64.1	-39.4	+0.9	+9.4	+5.4	+0.0	74.6	137.0	-62.4	Horiz
			+34.2								
19	5725.000M	61.2	-39.4	+0.9	+9.4	+5.4	+0.0	71.7	137.0	-65.3	Vert
			+34.2								

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(4) 5.8GHz**  
 Work Order #: **86964** Date: **11/30/2007**  
 Test Type: **Radiated Scan** Time: **13:49:51**  
 Equipment: **Pulse Rate Monitor** Sequence#: **19**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A 1 RBW MHz, VBW 1MHz. Mid CH 157 - 6Mbits. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range): Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant
1	5825.028M	37.8	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	48.3	54.0	-5.7	Vert
2	10995.040M	24.0	-39.4 +38.1	+1.2	+14.8	+7.7	+0.0	46.4	54.0	-7.6	Horiz
3	10997.540M	22.6	-39.4 +38.1	+1.2	+14.8	+7.7	+0.0	45.0	54.0	-9.0	Vert
4	5715.000M Ave	32.9 +34.2	-39.4 +34.2	+0.9	+9.3	+5.4	+0.0	43.3	54.0	-10.7	Horiz
^	5715.000M	44.4	-39.4 +34.2	+0.9	+9.3	+5.4	+0.0	54.8	54.0	+0.8	Horiz

6	1247.305M	50.6	-39.6 +24.8	+0.4	+3.9	+2.2	+0.0	42.3	54.0	-11.7	Vert
7	5835.000M Ave	31.6	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	42.1	54.0	-11.9	Horiz
^	5835.000M	45.4	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	55.9	54.0	+1.9	Horiz
9	5715.000M Ave	29.7	-39.4 +34.2	+0.9	+9.3	+5.4	+0.0	40.1	54.0	-13.9	Vert
^	5715.000M	42.1	-39.4 +34.2	+0.9	+9.3	+5.4	+0.0	52.5	54.0	-1.5	Vert
11	2489.395M	38.6	-39.0 +28.8	+0.6	+5.9	+3.2	+0.0	38.1	54.0	-15.9	Horiz
12	2489.040M	38.2	-39.0 +28.8	+0.6	+5.9	+3.2	+0.0	37.7	54.0	-16.3	Vert
13	1244.805M	45.0	-39.6 +24.8	+0.4	+3.9	+2.2	+0.0	36.7	54.0	-17.3	Horiz
14	5835.000M Ave	25.5	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	36.0	54.0	-18.0	Vert
^	5835.028M	39.5	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	50.0	54.0	-4.0	Vert
16	5725.000M	45.4	-39.4 +34.2	+0.9	+9.4	+5.4	+0.0	55.9	137.0	-81.1	Horiz
17	5725.000M	42.5	-39.4 +34.2	+0.9	+9.4	+5.4	+0.0	53.0	137.0	-84.0	Vert

Test Location: CKC Laboratories, Inc. • 110 N Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Masimo Corporation**  
 Specification: **FCC 15.407(b)(4) 5.8GHz**  
 Work Order #: **86964** Date: **11/30/2007**  
 Test Type: **Radiated Scan** Time: **14:36:52**  
 Equipment: **Pulse Rate Monitor** Sequence#: **20**  
 Manufacturer: **Masimo Corp** Tested By: **Sep Apahidean**  
 Model: **RAD-87**  
 S/N: **083107.2**

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	MY46186290	02/12/2007	02/12/2009	02869
Horn Antenna	9603-4683	06/29/2006	06/29/2008	01646
Microwave Pre-amp	3123A00282	06/05/2007	06/05/2009	00787
Antenna Cable	Hi Freq	09/18/2006	09/18/2008	P05563
3'-40GHz cable	NA	09/18/2007	09/18/2009	P02946
Antenna cable	Cable#17	09/19/2006	09/19/2008	P04382
18-26GHz Horn	3643A00027	11/27/2006	11/27/2008	02112

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Pulse Rate Monitor*	Masimo Corp	RAD-87	083107.2

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	IBM	ThinkPAD 2366	99-TGPV9

**Test Conditions / Notes:**

The EUT was set on the table; connected to the unit are all the probes and cables. Connected to the Serial cable is the laptop computer, used to change the TX characteristics. Test Range 1-25GHz. 802.11A 1 RBW MHz, VBW 1MHz. High CH 161 - 6Mbits. 802-11 A (5.2GHz range): Channel 36 5.18GHz, Channel 44 5.22GHz, Channel 48 5.24GHz. 802-11 A (5.8GHz range) Channel 149 5.74GHz, Channel 157 5.78GHz, Channel 161 5.80GHz.

**Transducer Legend:**

T1=Preamplifier 83017A 00787	T2=CAB-ANP02946091807
T3=84' Heliax Cable P04382	T4=48' Heliax Cable 091808 P05563
T5=Horn 01646_062908	T6=Horn AN02112 18-26

**Measurement Data:** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant
1	10997.500M	22.8	-39.4 +38.1	+1.2	+14.8	+7.7	+0.0	45.2	54.0	-8.8	Horiz
2	10997.500M	22.5	-39.4 +38.1	+1.2	+14.8	+7.7	+0.0	44.9	54.0	-9.1	Vert
3	5835.000M	33.2	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	43.7	54.0	-10.3	Horiz
^	5835.000M	46.4	-39.5 +34.1	+0.9	+9.5	+5.5	+0.0	56.9	54.0	+2.9	Horiz

5	5715.000M	32.4	-39.4	+0.9	+9.3	+5.4	+0.0	42.8	54.0	-11.2	Horiz
	Ave		+34.2								
^	5715.000M	46.8	-39.4	+0.9	+9.3	+5.4	+0.0	57.2	54.0	+3.2	Horiz
			+34.2								
7	5353.435M	31.8	-39.4	+0.8	+8.9	+5.1	+0.0	41.2	54.0	-12.8	Horiz
	Ave		+34.0								
8	5835.000M	30.3	-39.5	+0.9	+9.5	+5.5	+0.0	40.8	54.0	-13.2	Vert
	Ave		+34.1								
^	5835.000M	43.4	-39.5	+0.9	+9.5	+5.5	+0.0	53.9	54.0	-0.1	Vert
			+34.1								
10	5715.000M	29.9	-39.4	+0.9	+9.3	+5.4	+0.0	40.3	54.0	-13.7	Vert
	Ave		+34.2								
^	5715.000M	43.0	-39.4	+0.9	+9.3	+5.4	+0.0	53.4	54.0	-0.6	Vert
			+34.2								
12	1247.210M	48.4	-39.6	+0.4	+3.9	+2.2	+0.0	40.1	54.0	-13.9	Horiz
			+24.8								
13	5350.640M	29.7	-39.4	+0.8	+8.9	+5.1	+0.0	39.1	54.0	-14.9	Vert
	Ave		+34.0								
^	5350.640M	43.1	-39.4	+0.8	+8.9	+5.1	+0.0	52.5	54.0	-1.5	Vert
			+34.0								
15	2488.954M	39.2	-39.0	+0.6	+5.9	+3.2	+0.0	38.7	54.0	-15.3	Horiz
			+28.8								
16	2486.454M	36.0	-39.0	+0.6	+5.9	+3.2	+0.0	35.4	54.0	-18.6	Vert
			+28.7								
17	1244.710M	43.4	-39.6	+0.4	+3.9	+2.2	+0.0	35.1	54.0	-18.9	Vert
			+24.8								
18	5725.000M	45.6	-39.4	+0.9	+9.4	+5.4	+0.0	56.1	137.0	-80.9	Horiz
			+34.2								
19	5725.000M	41.9	-39.4	+0.9	+9.4	+5.4	+0.0	52.4	137.0	-84.6	Vert
			+34.2								