

**COMPLIANCE WORLDWIDE INC.  
TEST REPORT 301-08**

In Accordance with the Requirements of  
Industry Canada RSS 210, Issue 7  
Federal Communications Commission CFR Title 47 Part 15.249, Subpart C  
Low Power License-Exempt Radio Communication Devices  
Intentional Radiators

Issued to


**Philips Medical Systems  
3000 Minuteman Drive  
Andover, MA 01810  
Tel: (978) 659-2800**

for

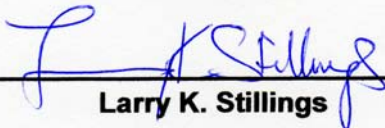
**Model M3814B  
Home Pulse Oximeter**

**FCC ID: PQCM3814B  
IC: 3549B-3814B**

**Report Issued on November 14, 2008**

  
\_\_\_\_\_  
**Brian F. Breault**

**Reviewed By**

  
\_\_\_\_\_  
**Larry K. Stillings**

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## 1. Scope

This test report certifies that the Philips Medical Systems Model M3814B Home Pulse Oximeter, as tested, meets the FCC Part 15, Subpart C and Industry Canada RSS 210, Issue 7 requirements. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

## 2. Product Details

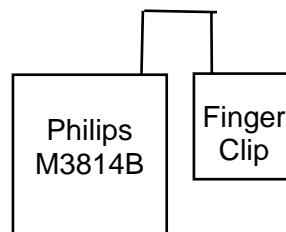
- 2.1. **Manufacturer:** Philips Medical Systems
- 2.2. **Model Number:** M3814B
- 2.3. **Serial Number:** US48400050
- 2.4. **Description:** The M3814B measures blood oxygen level and pulse rate. It has a plastic display case with a finger-clip sensor attached to it. This model has 2 LED displays
- 2.5. **Power Source:** 6 Volts DC (4 x AA batteries)
- 2.6. **EMC Modifications:** None

## 3. Product Configuration

### 3.1. Operational Characteristics & Software

For all measurements, the test sample Philips Medical Systems Model M3814B was forced into a full-time transmit mode.

### 3.2. Block Diagram



**4. Measurements Parameters**

**4.1. Measurement Equipment Used to Perform Test**

Device	Manufacturer	Model No.	Serial No.	Cal Due
Spectrum Analyzer	Hewlett Packard	8593E	3829A03887	3/07/2009
Spectrum Analyzer	Agilent	E4407B	MY45104493	7/9/2010
EMI Receiver	Hewlett Packard	8546A	3650A00360	3/14/2009
Bilog Antenna	Com-Power	AC220	25509	8/6/2009
Horn Antenna	Electro-Metrics	EM-6961	6337	7/22/2009
Microwave Preamp	Hewlett Packard	8449B	3008A01323	9/22/2010

**4.2. Measurement & Equipment Setup**

Test Date: 11/13/2008  
 Test Engineer: Larry Stillings  
 Normal Site Temperature (15 - 35°C): 21.6  
 Relative Humidity (20 -75%RH): 35  
 Frequency Range: 30 MHz to 9.6 GHz  
 Measurement Distance: 3 Meters  
 EMI Receiver IF Bandwidth: 100 kHz - 30 MHz to 1 GHz  
 1 MHz - Above 1 GHz  
 EMI Receiver Avg Bandwidth: 300 kHz - 30 MHz to 1 GHz  
 3 MHz - Above 1 GHz  
 Detector Function: Peak, Quasi-Peak & Average

**4.3. Measurement Procedure**

Test measurements were made in accordance FCC Part 15.249, IC RSS-210 Annex II: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz.

The test methods used to generate the data is this test report is in accordance with ANSI C63.4: 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

### 5. Measurement Summary

Test Requirement	FCC Rule Requirement	Test Report Section	Result	Comment
Antenna Requirement	15.203	N.A	Compliant	Unit has an internal PCB antenna.
Radiated Field Strength of Fundamental	15.249 (a)	6.1	Compliant	
Radiated Field Strength of Harmonics	15.249 (a)	6.2	Compliant	
Occupied Bandwidth	IC RSS-GEN	6.3	Compliant	
99% Bandwidth	IC RSS-GEN	6.4	Compliant	
Band Edge Measurements	15.249 (d), 15.209	6.5	Compliant	
Spurious Radiated Emissions	15.249 (d), 15.209	6.6	Compliant	No measurable spurious emissions.

6. Measurement Data

6.1. Radiated Field Strength of Fundamental (15.249, Section (a)), IC RSS-210 A2.9

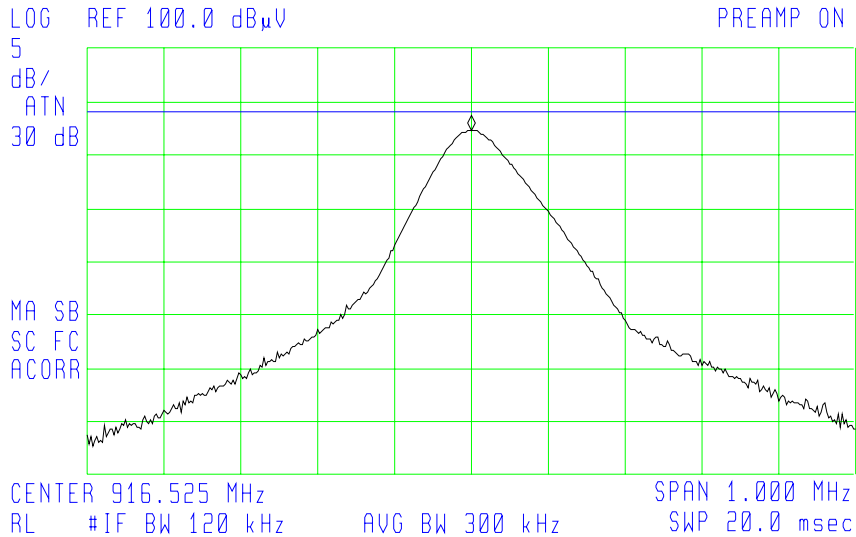
Requirement: The 3 meter field strength of the fundamental emissions from intentional radiators operated within the 902-928 MHz frequency bands shall comply with the following requirement: 50 millivolts/meter (94 dB $\mu$ V/m), quasi-peak mode measurement.

Frequency (MHz)	Amplitude (dB $\mu$ V/m)		Q-Peak Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Q-Peak						
916.5	92.8	92.5	94.0	-1.5	H	100	324	Passed

6.1.1. Radiated Field Strength of Fundamental

11:44:51 NOV 13, 2008 PHILIPS M3814B OUTPUT PWR  
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B

FREQ 916.5 MHz  
PEAK 92.8 dB $\mu$ V  
QP 92.5 dB $\mu$ V  
AVG NOT SELECTED



**6. Measurement Data (continued)**

**6.2. Radiated Field Strength of Harmonics (15.249, Section (a)), IC RSS-210 A2.9**

Requirement: The 3 meter field strength of the harmonic emissions from intentional radiators operated within the 902-928 MHz frequency bands shall comply with the following: 500 microvolts/meter (54 dBµV/m), average mode measurement. Peak field strength may not be greater than 20 dB above the average limit (74 dBµV/m).

Frequency (MHz)	Amplitude <sup>1</sup> (dBµV Peak)	Peak Limit	Amplitude <sup>1</sup> (dBµV Avg)	Average Limit	Ave Margin (dB)	Ant Pol H/V	Ant Ht (cm)	TT Pos (Deg)	Result
1833.0	50.0	74	24.0	54	-16.5	H	100	38	Passed
1833.0	53.1	74	40.3	54	-13.7	V	100	178	Passed
2749.8 <sup>2</sup>	48.2	74	36.1	54	-17.9	H	100	0	Passed
3666.4 <sup>2</sup>	45.8	74	32.5	54	-21.5	Noise Floor		Passed	
4583.0 <sup>2</sup>	45.1	74	33.1	54	-20.9	Noise Floor		Passed	
5500.0 <sup>2</sup>	48.2	74	36.2	54	-17.8	Noise Floor		Passed	
6416.0	47.1	74	36.8	54	-17.2	Noise Floor		Passed	
7332.8 <sup>2</sup>	50.0	74	38.9	54	-19.1	Noise Floor		Passed	
8249.4 <sup>2</sup>	52.3	74	40.7	54	-13.3	Noise Floor		Passed	
9166.0 <sup>2</sup>	53.0	74	42.0	54	-12.0	Noise Floor		Passed	

<sup>1</sup> Value includes all correction factors.

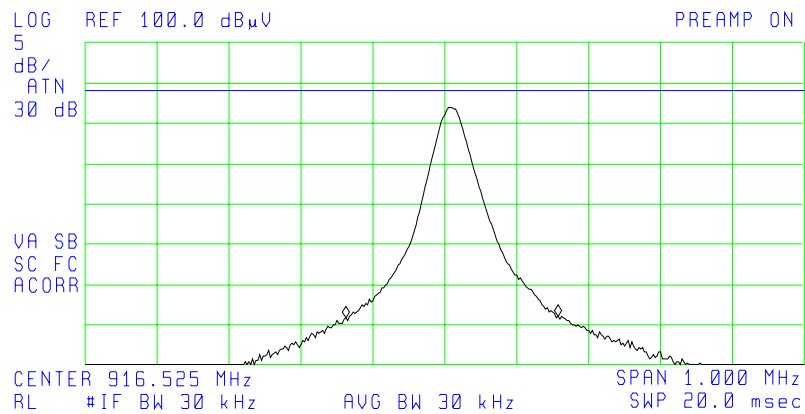
<sup>2</sup> Frequency falls within the restricted bands of operation. See FCC Part 15, Section 15.205 for additional information.

6. Measurement Data (continued)

6.3 Occupied (-26 dB) Bandwidth = 295 kHz

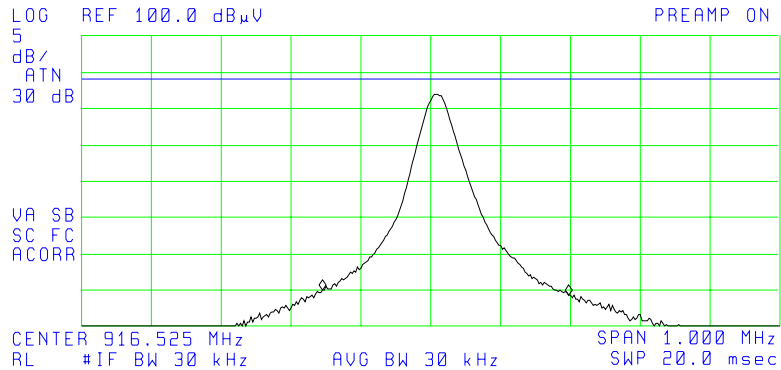
Requirement: The occupied bandwidth measurements on an intentional radiator shall be made in accordance with the requirements outlined in ANSI C63.4-2003, Section 13.1.7.

11:50:06 NOV 13, 2008 PHILIPS M3814B 26 dB BW  
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B  
ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKRΔ 295 kHz  
.14 dB



6.4. 99% Bandwidth = 353 kHz

11:53:16 NOV 13, 2008 PHILIPS M3814B 99% BW  
3-Meter Radiated Emissions, 30 - 1000 MHz, FCC B  
ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKRΔ 353 kHz  
-.71 dB





## 6. Measurement Data (continued)

### 6.5. Band Edge Measurements

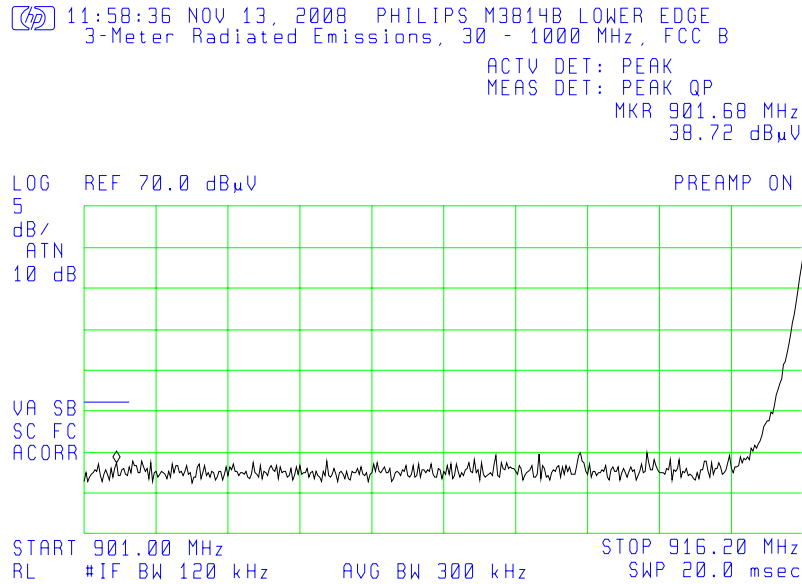
Requirement: Emissions radiated outside of the specified frequency band of 902 MHz to 928 MHz, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Band Edge (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)	Margin (dB)	Result
	Freq MHz	Peak	Q-Peak	Deg	
916.6	901.68	38.72	46.0	-7.28	Passed
	928.20	37.67	46.0	-8.33	Passed

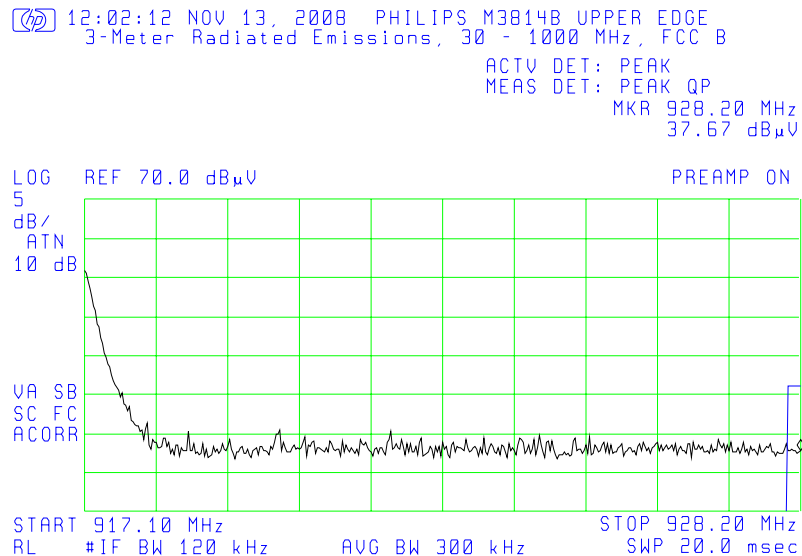
6. Measurement Data (continued)

6.5. Band Edge Measurements (continued)

6.5.1. Measurement Results – Lower Band Edge



6.5.2. Measurement Results – Upper Band Edge



**6. Measurement Data (continued)**

**6.6. Spurious Radiated Emissions, 30 MHz to EUT 10<sup>th</sup> Harmonic (15.249, Section (d)), IC RSS-GEN**

Requirement: Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

6.6.1. Regulatory Limit: FCC Part 209, Quasi-Peak & Average

Frequency Range (MHz)	Distance (Meters)	Limit (dBµV/m)
30 to 88	3	40.0
88 to 216	3	43.5
216 to 960	3	46.0
Above 960	3	54.0

6.6.2. Measurement & Equipment Setup

Test Date: 11/14/2008  
 Test Engineer: Brian Breault  
 Site Temperature (°C): 21.0  
 Relative Humidity (%RH): 36  
 Frequency Range: 30 MHz to 1 GHz  
     EMI Receiver IF Bandwidth : 120 kHz  
     EMI Receiver Avg Bandwidth: 300 kHz  
     Detector Functions: Peak and Quasi-Peak  
 Frequency Range: 1 GHz to 10<sup>th</sup> Harmonic  
     EMI Receiver IF Bandwidth : 1 MHz  
     EMI Receiver Avg Bandwidth: 3 MHz  
     Detector Functions: Peak and Average  
 Antenna Height: 1 to 4 meters  
 Measurement Distance: 3 Meters

6.6.3. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz. The unit was prescreened in a compact Semi-Anechoic 3 Meter Chamber.

6.6.4. Test Results

There were no measurable emissions except the emissions tabled in section 6.2.

## **7. Test Site Description**

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with Federal Communications Commission (FCC) and Industry Canada standards. A description of the test sites is on file with the FCC (registration number **96392**) and Industry Canada (file number **IC 3023A-1**).

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane required by EN 55022.

Both sites are designed to test products or systems 1.5 meter W x 1.5 meter L x 2.0 meter H, floor standing or table top.