

TEST NUMBER - 250-04

TEST REPORT TO

FEDERAL COMMUNICATIONS COMMISSION CFR 47 PART 15.249

Low Power License-Exempt Radio communication Devices
Transmitter

for

Philips Medical Systems
3000 Minuteman Drive M/S 335
Andover, MA 01810
978-659-2282

of

M3814A Home SPO2 device

FCC ID: PQCM3814A

on

5/17/2004

Tested by

Andrew Mertinooke

Reviewed by

Clifton P. Brick

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TEST DESCRIPTION

1. TEST OBJECTIVE

To test the M3814A Pulse Oximeter Part 15 Subpart C Rules and write a report.

2. E.U.T. DESCRIPTION

GENERAL

The M3814A Pulse Oximeter M3814A is home medical monitoring device that measures SPO2 and Pulse values from the patient and transmits the data approximately 2 times per day to a home "hub" base station, that then uses the telephone lines to send the information to the physician.

SERIAL NUMBERS:

US00000000

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TEST RESULTS AND CONCLUSIONS

PRODUCT TESTED - Pulse Oximeter

MODEL NUMBER - M3814A

RADIATED TEST RESULTS

The test results show that the emissions radiated from this equipment are in compliance with FCC Rules Part 15 Subpart C.

OCCUPIED BANDWIDTH & OUTPUT POWER

The test results show that the occupied bandwidth and output power of this equipment are in compliance with FCC Rules Part 15 Subpart B .

CONDUCTED TEST RESULTS

The test results show that the emissions conducted through the power line from this equipment are in compliance with FCC Rules Part 15 Subpart B.

ANALYSIS AND CONCLUSIONS

Based upon the radiated and conducted measurements we find that this equipment is within the limits of the FCC Rules Part 15 Subpart B. All results are based on a test of one sample, and represent other production units, only in as much as a 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.

NOTES (Special conditions unique to this test)

None

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TEST PROCEDURES

1. TEST EQUIPMENT

- A. HP 8546A (9 kHz - 6.5 GHz) EMI Receiver w/ RF Filter Section, S/N 3704A00323 / 3650A00360. Calibration Date 1-16-2004, calibrated annually.
- B. HP 8593E (9 kHz - 26.5 GHz) Spectrum Analyzer, S/N 3829A03887. Calibration Date 11-21-2003, calibrated annually.
- B. Com-Power Biconilog Antenna, Model AC220, S/N 25509. Calibration Date 7-17-2003, calibrated annually.
- E. Electro-Metrics Double Ridged Guide Antenna, Model EM-6961, S/N 6337. Calibration Date: 6-24-2003, calibrated annually.
- F. HP 1 - 26.5 GHz Preamplifier, Model 08449B, S/N 3008A01323. Calibration Date: 1-7-2004, calibrated annually.
- D. EMCO LISN, Model EM 3825/2, S/N 9109-1860. Calibration Date: 3-10-2004, calibrated annually.

2. FREQUENCY RANGE TO BE SCANNED.

- A. Radiated Test from 30 MHz to 40 GHz (or the 10th harmonic of the highest frequency whichever is lower).
- B. Conducted Test from 150 kHz to 30 MHz.

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3. TEST PROCEDURES.

Radiated test procedure:

The EUT, associated cables and peripheral devices are placed on the supporting table and any support equipment is placed off the site. The EUT is turned on and any necessary operating or test software installed and allowed to warm up. The EUT is pre-scanned in our ferrite tile lined chamber where it is rotated 360 degrees and examined in both horizontal and vertical polarization, all emission frequencies are identified and recorded. The EUT is then moved to the OATS and the frequency band from 30 MHz to 40 GHz is scanned, all frequencies identified in the chamber are investigated as well as harmonics of the EUT. When an emission is found the emission is maximized by varying the bundle position of the connecting cables, the antenna height, the antenna polarization (vertical and horizontal) and the table orientation (360 degrees). The maximum reading is recorded and the next signal is searched for.

Conducted test procedure:

The power line of the EUT is connected to the LISN (Line Impedance Stabilization Network). A measurement of the emissions are made from the power line for both phase and neutral on the analyzer in the frequency range from 150 kHz to 30 MHz. The maximum readings are recorded for each phase.

All measurements are made according to the procedures defined in: "ANSI C63.4-1992 Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz, American National Standard for (ISBN 1-55937-215-5).

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TEST LIMITS

1. FCC Part 15 Radiation Limits (Quasi-Peak):

Frequency MHz	Distance meters	Limit dBµV/m	Limit µV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
902 - 928	3	94.0	50,000
216 - 960	3	46.0	200
960 - 1000	3	54.0	500
1000 - 40000	3	54.0*	500*

*NOTE: Average Limits

2. FCC Part 15 Conduction Limits (Quasi-Peak)

Frequency MHz	Quasi-Peak Limit dBµV	Average Limit dBµV
0.150 - 0.500	66 to 56	56 to 46
0.500 - 5.0	56	46
5.0 - 30.0	60	50

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TEST FACILITY DESCRIPTION

Compliance Worldwide is located on 357 Main Street in Sandown, New Hampshire. The conducted and radiated test sites, located at C.W. are used for Federal Communications Commission (FCC) testing and Industry Canada Testing. A site description is on file with the FCC in Columbia, MD USA. Site information is also on file with Industry Canada, anyone wishing to review this Test Facility Description is referred to file number **IC 3023**. This is currently on file at Industry Canada, 1241 Clyde Avenue, Ottawa, ON K2C 1Y3.

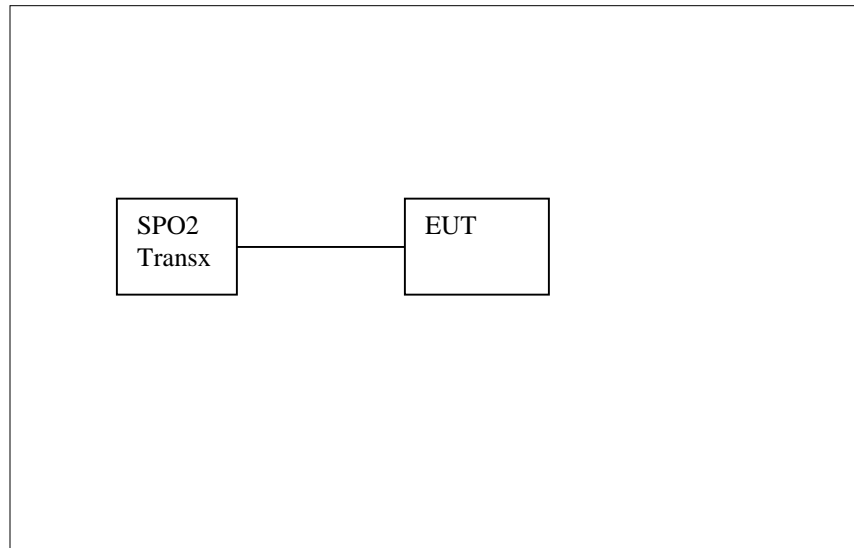
The radiated site is a 3/10 meter indoor site with an enclosure for the product and a basement for the personnel, support equipment and test equipment.

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

Both sites are designed to test products or systems 1.5 meter x 1.0 meter, floor standing or table top.

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**TEST SET UP
AND
PERIPHERAL CONNECTION INFORMATION**



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PLEASE NOTE - EUT (equipment under test) is M3814A Pulse Oximeter.

The cables directly connected to this equipment are listed below. Please see below for a complete list of FCC ID's etc. on the supporting equipment.

Connection Descriptions

1. SPO2 Finger Sensor Cable 4 conductor
(description)

SPO2 Sensor
(from device)

EUT
(to device)

CABLE LENGTH 1' (S) SHIELDED or (U) UNSHIELDED S

2. N/A
(description)

(from device)

(to device)

CABLE LENGTH (S) SHIELDED or (U) UNSHIELDED

3. N/A
(description)

(from device)

(to device)

CABLE LENGTH (S) SHIELDED or (U) UNSHIELDED

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RADIATED OUTPUT POWER & OCCUPIED BANDWIDTH TEST RESULTS

Frequency Range: 902 - 928 MHz.
Measurement Distance: 3.0 Meters.
Bandwidth: As Noted, Per ANSI C63.4-1992.
Detector Functions: Peak, Quasi Peak, Average.
Video Filter: 300 kHz
Table Height: 0.8 meters
Antenna Height Variation: 1 - 4 Meters.
Horizontal and Vertical Polarization Measurements Taken, Worst Case Reported.

PLEASE SEE NEXT PAGE(S) FOR OCCUPIED BANDWIDTH RADIATED TEST DATA

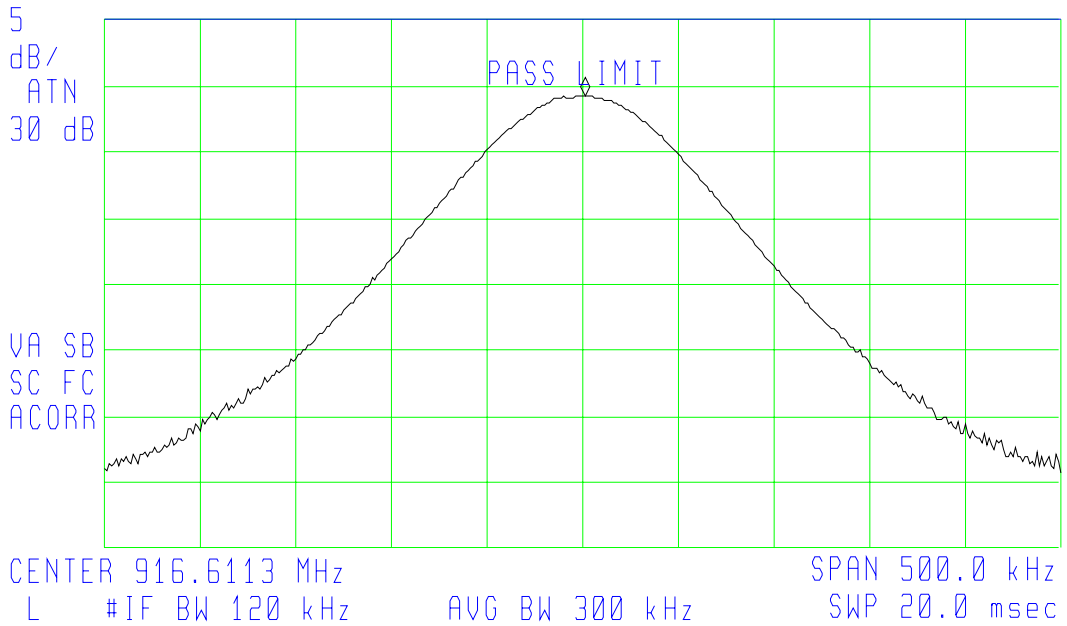
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Worst Case Output Field Strength Data

(72) 08:31:03 MAY 17, 2004 FEILD STRENGTH
250-04 PHILIPS M3B14A PULSE OXIMETER TX

FREQ	916.6 MHz
PEAK	88.5 dB μ V
QP	88.3 dB μ V
AVG	88.3 dB μ V

LOG REF 94.0 dB μ V PREAMP ON



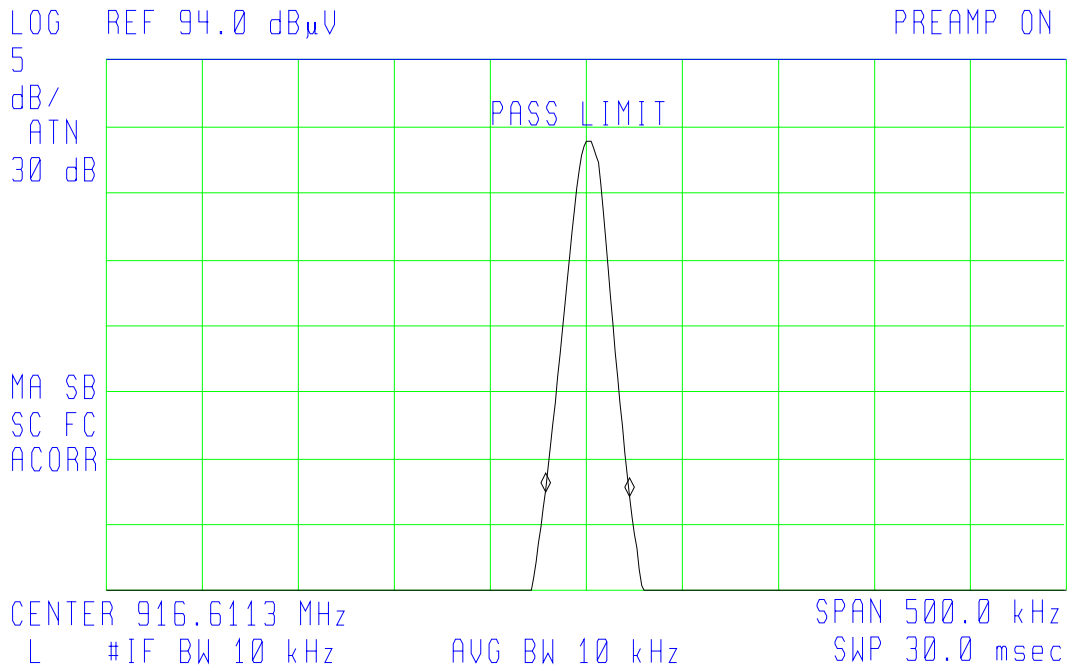
Frequency (MHz)	Peak Amplitude (dBuV/m)	QP Limit (dBuV/m)	Peak Margin (dBuV/m)
916.6	88.3	94.0	-5.7

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99% Power Bandwidth Data

(h) 08:41:25 MAY 17, 2004 26DB BANDWIDTH
250-04 PHILIPS M3814A PULSE OXIMETER TX

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 43.8 kHz
-.21 dB



99% Power Bandwidth = 43.8 kHz

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RADIATED TEST RESULTS

Frequency Range: 30 - 9280 MHz.
Measurement Distance: 3.0 Meters.
Bandwidth: 120 kHz, Per ANSI C63.4-1992.*
Detector Functions: Peak, Quasi Peak, Average
Video Filter: 300 kHz
Table Height: 0.8 meters
Antenna Height Variation: 1 - 4 Meters.
Horizontal and Vertical Polarization Measurements Taken.

*Measurement Bandwidth is 1 MHz above 1 GHz

PLEASE SEE NEXT PAGE FOR RADIATED TEST DATA

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Worst Case Spurious Radiated Tabular Data

Pol. (H/V)	Frequency (MHz)	Peak Amplitude (dBuV/m)	Avg Limit (dBuV/m)	Margin (dBuV/m)
H	1.8332GHz	46.2	54	-7.8
H	2.7498GHz	36.3	54	-17.7
H	3.6664GHz	31.4	54	-22.6
H	4.5831GHz	31.8	54	-22.2

6th Through the 10th harmonic, all are greater than 15 dB below limit.

No other signals were found from 30MHz to 9.3GHz within 15 dB of the FCC Class B radiated limits.

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CONDUCTED TEST RESULTS

Frequency Range: 150 kHz to 30.0 MHz.
Bandwidth: 9 kHz per ANSI C63.4-1992.
Detector Functions: Peak, Quasi-Peak, Average
Table Height: 0.8 meters
Video Bandwidth: 30 kHz.

Phase and Neutral Measurements Taken.

PLEASE SEE NEXT PAGE FOR CONDUCTED TEST DATA

Conducted limits do not apply, there is no AC mains connection to the EUT.

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NOTES AND COMMENTS

(Special conditions unique to this test)

None.