



TEST REPORT

Report No.: SRTC2013-H024-E0021

Product Name: Pulse Oximeter

Product Model: CMS50EW

Applicant: Contec Medical Systems Co.,Ltd.

Manufacturer: Contec Medical Systems Co.,Ltd.

Specification: FCC Part15B (Certification)

(October 1, 2009 edition)

FCC ID: 2ABOGCMS50EW

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

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1. General information

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
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City: Beijing
Country or Region: China
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1.3 Applicant's details

Company: Contec Medical Systems Co., Ltd.
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Development Zone, 066004
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1.4 Manufacturer's details

Company: Contec Medical Systems Co., Ltd.
Address: No.112 Qinhuang West Street, Economic & Technical
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Country or Region: P.R.China
Contacted person: Xiao Jie
Tel: +86-0335-8015489
Fax: +86-0335-8015490
Email: contecpinzhibu@163.com

1.5 Application details

Date of reception of test sample: 20th December 2013

Date of test: 5th January 2014 to 14th January 2014

1.6 Reference specification

FCC Part 15B October 1, 2009 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	Pulse Oximeter
FCC ID	2ABOGCMS50EW
Frequency Range	2.4GHz~2.4835GHz
Number of Channel	79
Modulation Type	GFSK
Duplex Mode	TDD
Channel Spacing	1MHz
Emission Designator	1M00Q1D
Data Rate	1Mbps
Equipment Class	Class B
Antenna Type	Fixed Internal
Power Supply	Battery or Charger
Rated Power Supply Voltage	3.7V
HW Version	ver 1.1
SW Version	ver 1.4

1.7.2 EUT details

Product Name	Product Model	Serial Number
Pulse Oximeter	CMS50EW	DX1210100341

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Charger

Equipment	Charger
Manufacturer	SHENZHEN KOSUN INDUSTRIAL CO.,LTD
Model Number	K669008ULR0200
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz


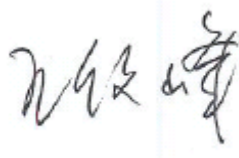

AE (Auxiliary Equipment) 2#: Battery

Equipment	Battery
Manufacturer	ShenZhen Rexpower Electronics CO.,LTD
Model Number	552540P
Capacity	480mAh
Rated Voltage	3.7V d.c.

2. Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	Conducted emissions	15.107	Pass
2	Radiated emissions	15.109	Pass

This Test Report Is Issued by: Mr. Song Qizhu Director of the test lab 	Checked by: Mr. Wang Junfeng Deputy director of the test lab 
Tested by: Mr. Dong Qifeng Test engineer 	Issued date: <p style="text-align: center;">2014.01.16</p>

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
21.4°C	32.8%	99.7kPa

Test Setup:

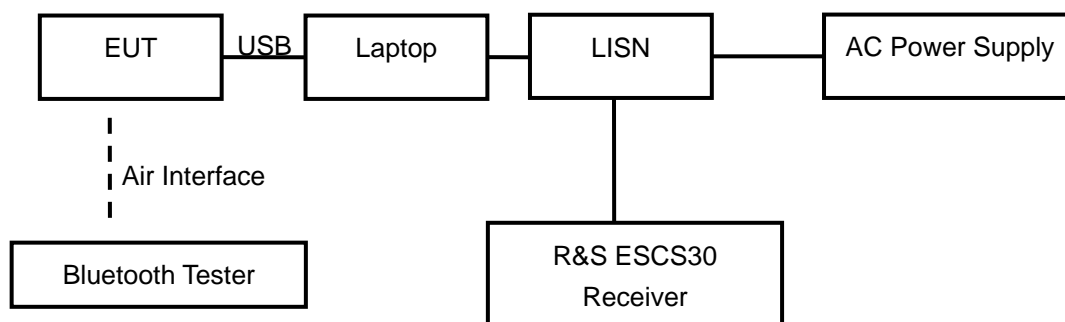


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.4m above the horizontal metal reference ground plane. The EUT connect with a laptop via the USB cable. The accessories of the EUT are connected with the EUT such as headset etc. During the test the data transferring via USB cable between EUT and laptop is maintained. The AC main power supply of the laptop is connected to LISN and LISN is connected to the reference ground. The test set-up and the test methods are performed according to ANSI C63.4:2009.

Then start the test software ES-K1. Sweep the whole frequency band through the range from 150 KHz to 30 MHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.

The data of cable loss has been calibrated in full testing frequency range before the testing.

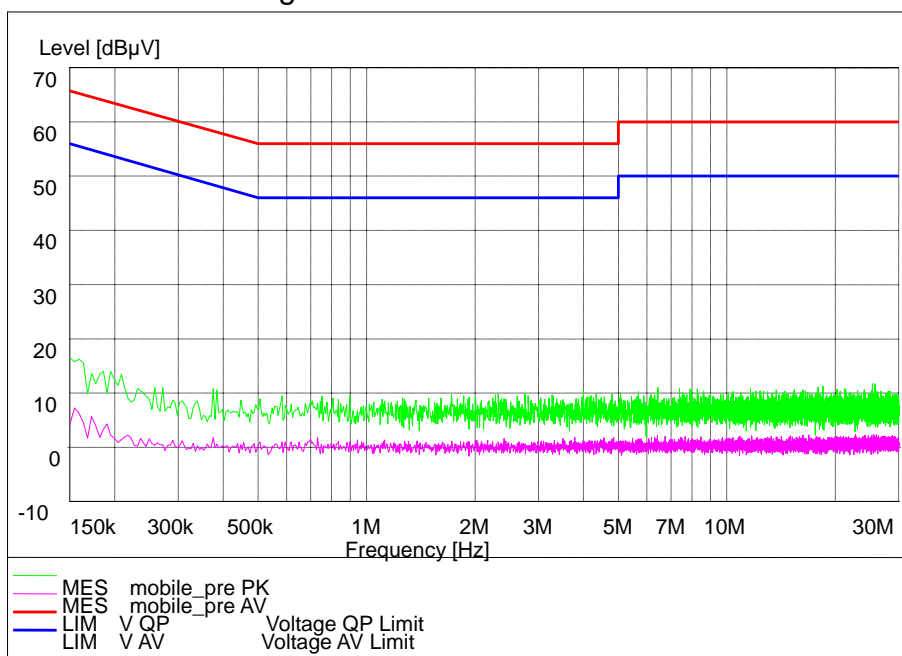
Limit:

Frequency of Emission(MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15~0.5	66 to 56*	56 to 46*
0.5~5	56	46
5~30	60	50

Note: * Decreases with the logarithm of the frequency

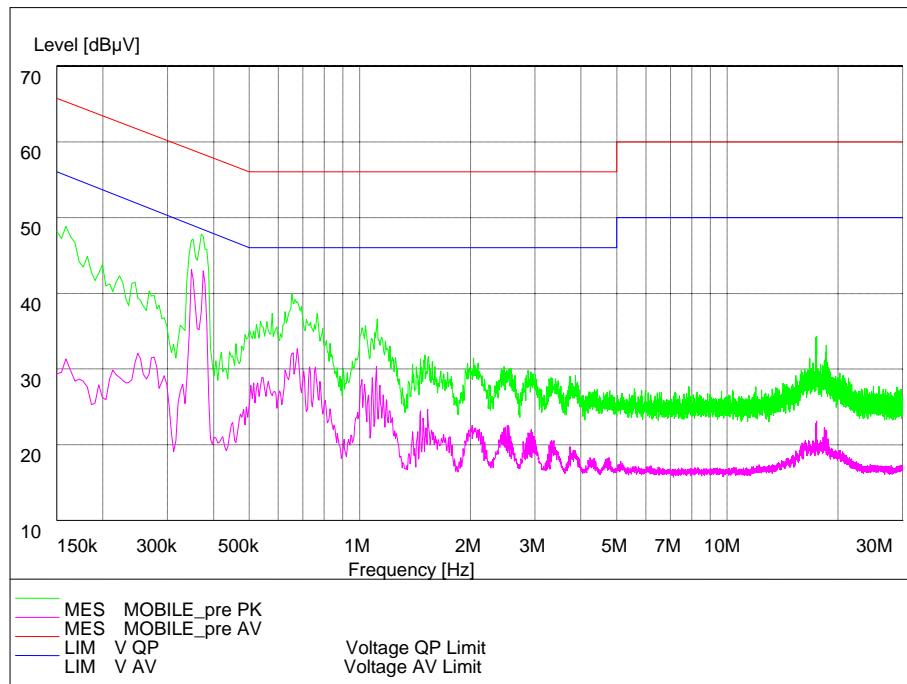
Test result:

Noise Level of The Measuring Instrument



L and N Line

Bluetooth Laptop+AE2#



L and N Line

MEASUREMENT RESULT: "PC_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.50	31.00	20.3	46	15.0	N	GND
0.74	34.20	20.3	46	11.8	N	GND
0.86	35.10	20.3	46	10.9	L	GND
0.88	34.30	20.3	46	11.7	L	GND
0.91	35.10	20.2	46	10.9	L	GND
1.01	34.10	20.2	46	11.9	L	GND

MEASUREMENT RESULT: "PC_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.45	43.60	20.3	57	13.2	N	GND
0.47	44.70	20.3	57	11.9	L	GND
0.48	45.20	20.3	56	11.2	N	GND
0.50	46.20	20.3	56	9.9	L	GND
0.88	41.40	20.3	56	14.6	L	GND
1.01	40.80	20.2	56	15.2	L	GND

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
21.2°C	34.7%	99.7kPa

Test Setup:

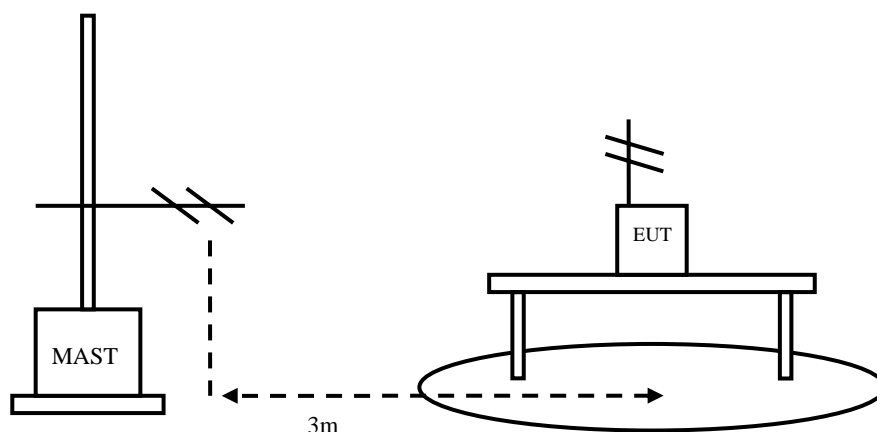


Figure 2

Test Procedure:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The accessories of the EUT are connected with the EUT such as headset etc. The test set-up and the test methods are performed according to ANSI C63.4:2009.

Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna HL562.

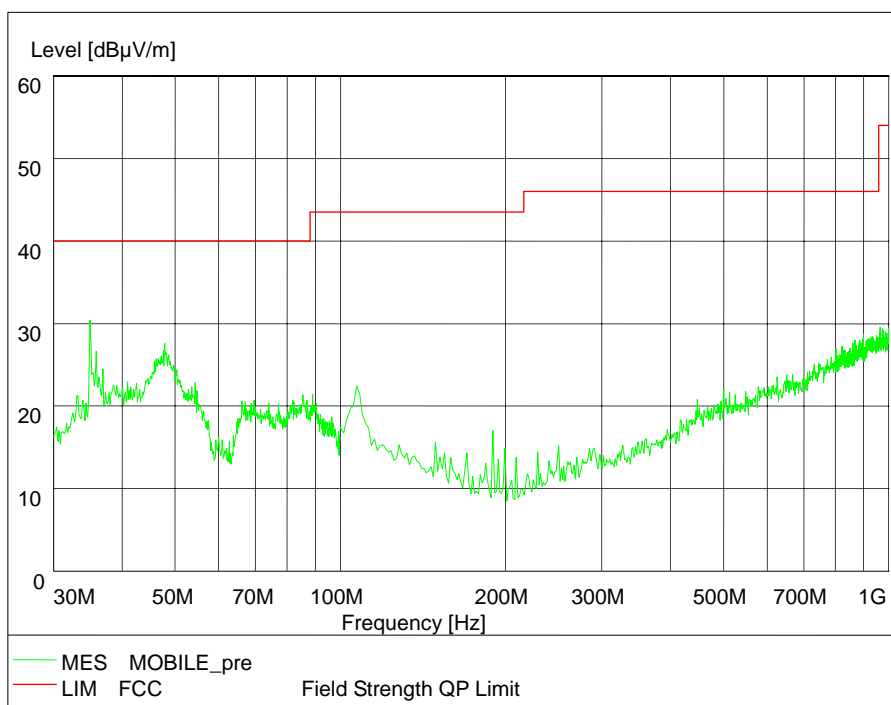
During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna.

The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing.

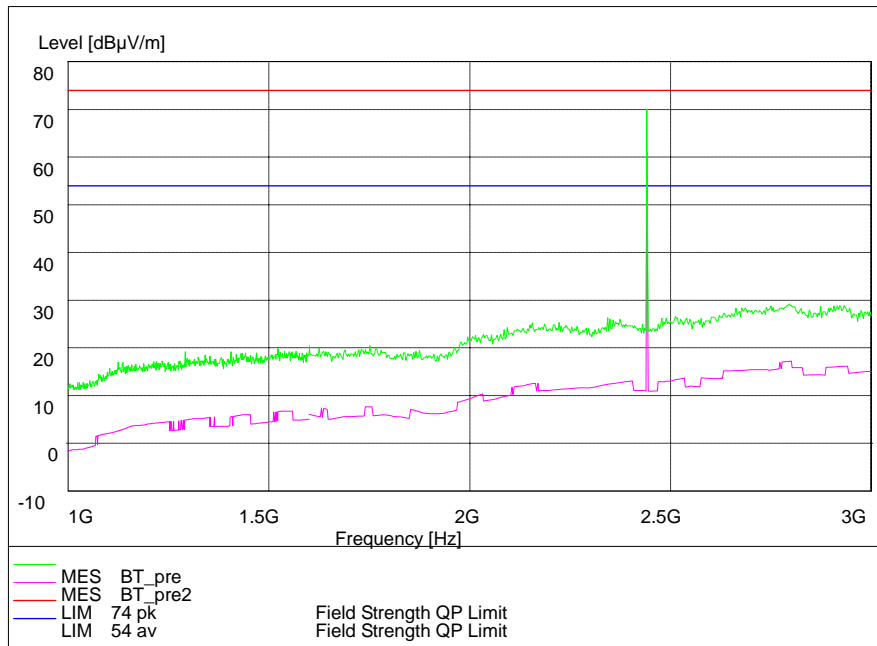
Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dB μ V/m)
30~88	Quasi-peak	40
88~216	Quasi-peak	43.5
216~960	Quasi-peak	46
960~1000	Quasi-peak	54
1000~5th harmonic of the highest frequency or 40GHz, whichever is lower	Average	54.0
	Peak	74.0

Test result:

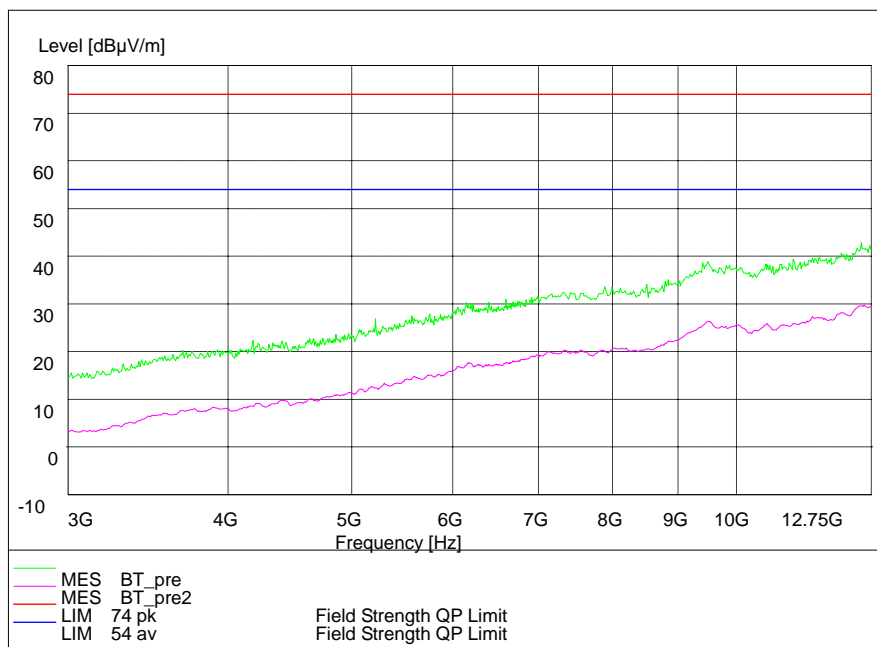


Bluetooth Laptop+AE2# (30MHz – 1GHz)



Bluetooth Laptop+AE2# (1GHz – 3GHz)

NOTE: The Signals which overtop the limit line in the figures at the frequencies around 2400MHz are the carrier waves of the EUT both on the Bluetooth downlink and uplink.



Bluetooth Laptop+AE2# (3GHz – 12.75GHz)

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date
1	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	-----	19 th Aug. 2014
2	ESI 40 EMI test receiver	R&S	100015	19 th Aug. 2014
3	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	19 th Aug. 2014
4	ESCS30 EMI test receiver	R&S	100029	19 th Aug. 2014
5	HL562 Ultra log test antenna	R&S	100016	19 th Aug. 2014
6	ESH3-Z2 Pulse limiter	R&S	10002	19 th Aug. 2014
7	ESH3-Z5 Attenuator	R&S	100020	19 th Aug. 2014
8	ESH2Z11 LISN	R&S	50FH-020-10	19 th Aug. 2014
9	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	19 th Aug. 2014
10	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	19 th Aug. 2014
11	PS2000 Turn Table	FRANKONIA	-----	19 th Aug. 2014
12	MA260 Antenna Master	FRANKONIA	-----	19 th Aug. 2014
13	ES-K1EMI test software	R&S	-----	19 th Aug. 2014
14	HL562 Receive antenna	R&S	100167	19 th Aug. 2014

Appendix

Appendix1 Test Setup