



TEST REPORT

Application No.: SHEM1203000320IT

Applicant: Beijing Choice Electronic Technology Co., Ltd.

FCC ID: WWIMD100E-B

Equipment Under Test (EUT):

NOTE: The following sample(s) submitted was/were identified on behalf of the client as

Product Name: Handheld ECG Monitor

Brand Name: Not supplied by the client

Model Name: MD100E-B

Standards: FCC PART 15: 2011 Subpart B

Date of Receipt: Mar. 20, 2012

Date of Test: Mar. 24, 2012 to Oct 30, 2012

Date of Issue: Oct 30, 2012

Test Result :	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

E&E Section Head
SGS-CSTC(Shanghai) Co., Ltd.

E&E Project Engineer
SGS-CSTC(Shanghai)Co.,Ltd

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2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission 30MHz-1GHz	FCC Part 15.109	ANSI C63.4: 2009	Class B	PASS
Conducted Emission 150KHz-30MHz	FCC Part 15.107	ANSI C63.4: 2009	Class B	PASS

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4 General Information

4.1 Client Information

Applicant:	Beijing Choice Electronic Technology Co., Ltd.
Address of Applicant:	Bailangyuan Building B, Rm. 1127-1128, Fuxing Road A36, 100039 Beijing, PEOPLE'S REPUBLIC OF CHINA
Manufacturer:	Beijing Choice Electronic Technology Co., Ltd.
Address of Manufacturer:	No.9 Shuangyuan Rd., Badachu Hi-tech Zone, Shijingshan District, 100041 Beijing, PEOPLE'S REPUBLIC OF CHINA
Factory:	Beijing Choice Electronic Technology Co., Ltd.
Address of Factory:	No.9 Shuangyuan Rd., Badachu Hi-tech Zone, Shijingshan District, 100041 Beijing, PEOPLE'S REPUBLIC OF CHINA

4.2 General Description of EUT

Product Name:	Handheld ECG Monitor
Model No.(EUT):	MD100E-B
Add Model No.:	N/A
Model Difference:	N/A
Trade Mark:	Not supplied by the client

4.3 Details of EUT

Technical Specifications:

Frequency Range:	2402MHz to 2480MHz
Bluetooth Version:	2.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK
Number of Channels:	79
Dwell time:	Per channel is less than 0.4s.
Equipment classification:	Equipment for portable use
Antenna Type:	Integral
Antenna Gain:	0.5 dBi

Power Supply:

Rated Input:	DC 3.0V	
Battery:	Battery Type:	Alkaline dry battery
	Technical Spec.:	AA R6 1.5V
	Battery quantity:	2

4.4 Details of Test Mode

Test Mode	Description of Test Mode
Exchange data mode:	Keep the EUT exchange data with other Bluetooth device.
Monitor mode:	Keep EUT on monitoring the human heart rate and blood pressure.
Standby mode:	Keep the EUT in standby mode.

4.5 Description of Support Units / Associated Equipments (AE)

Support equipments / Associated Equipments:

The EUT has been tested with support equipments as below.

Description	Manufacturer	Model No.	Serial No.	Supplied by Client or SGS?
Laptop	Lenovo	ThinkPad X100e	N/A	SGS
Adapter for Laptop	92p1154	92p1154	N/A	SGS
MOUSE	Lenovo	M-UAE119	N/A	SGS
KEYBOARD	Lenovo	KU-0225	N/A	SGS
Monitor	Lenovo	9227-AE1	N/A	SGS

Cable List:

START		END		Cable Spec.		
Description	I/O Port	Description	I/O Port	Length (m)	Shield (Y/N)	Ferrite (Y/N)
Adapter for Laptop	AC IN	AC Source	AC OUT	1.0	N	N
Adapter for Laptop	DC OUT	Laptop	DC IN	0.8	N	N
Mouse	Cable OUT	Laptop	Cable IN	0.8	N	N
KEYBOARD	Cable OUT	Laptop	Cable IN	0.8	N	N
Laptop	VGA OUT	Monitor	VGA IN	0.8	N	N

Support Software:

Description	Manufacturer	Software name	Supplied by Client or SGS?
Exchange data	Beijing Choice	Keep-it-Easy ECG System(Bluetooth)	Supplied by Client

4.6 Standards Applicable for Testing

The standards used were FCC Part 15B:

Table 1 : Tests Carried Out Under FCC Part 15B :

Standard		Status
FCC Part 15 Subpart B	Radiated Emission	√
FCC Part 15 Subpart B	Conducted Emission	×

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.7 Test Location

All the tests were performance at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5655

4.8 Test Confident level

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

4.9 Measurement Uncertainty

According to CISPR 16-4-2.

Test Item	Frequency Range	Measurement Uncertainty	U _{cispr}
Conducted Emission at mains port using AMN	150kHz-30MHz	2.6dB	3.4dB
Radiated Emission	30MHz-1000MHz	4.3dB	6.3dB
Radiated Emission	1GHz-18GHz	4.5dB	5.2dB(1GHz-6GHz)
			5.5dB(6GHz-18GHz)
Remark: AMN – Artificial Mains Network VP – Voltage Probe ANN – Asymmetric Artificial Network			

5 Equipment Used during Test

Radiated Emission

Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-03	2013-06-01
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2011-10-28	2012-10-26
3	CONTROLLER	INNCO	CO200	474	/	/
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2011-10-28	2012-10-26
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2011-10-28	2012-10-26

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-04-13	2013-04-12
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-03-15	2013-03-14
3	Line impedance stabilization network	ETS	3816/2	00034161	2012-03-15	2013-03-14

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Digital pressure meter	YONGZHI	DYM3-01	101012	2011-11-18	2012-11-17
2	Digital Multimeter	FLUKE	17B	10560713	2012-08-24	2013-08-22
3	Temperature& humidity recorder	ShangHai weather meter work	ZJ 1-2B	0805126	2012-07-25	2013-07-23

6 Emission Test Results

6.1 Radiated Emissions

Test Requirement:	FCC Part 15.109
Test Method:	ANSI C63.4:2009
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Detector:	Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz).
Result:	PASS

6.1.1 E.U.T. Operation

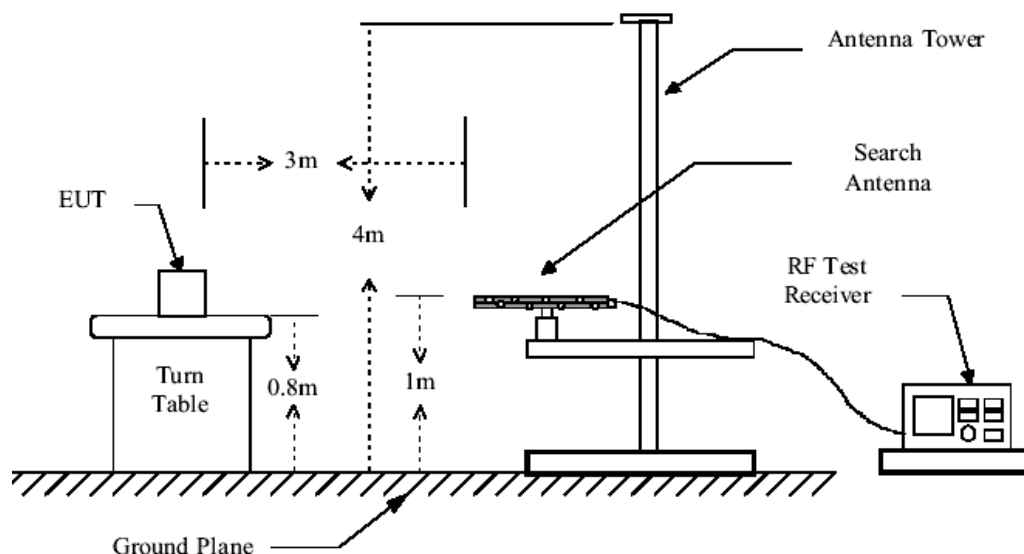
Operating Environment:

Temperature: 23.0 °C

Humidity: 56 % RH Atmospheric Pressure: 101.1 kPa

EUT Operation:

6.1.2 Test setup:



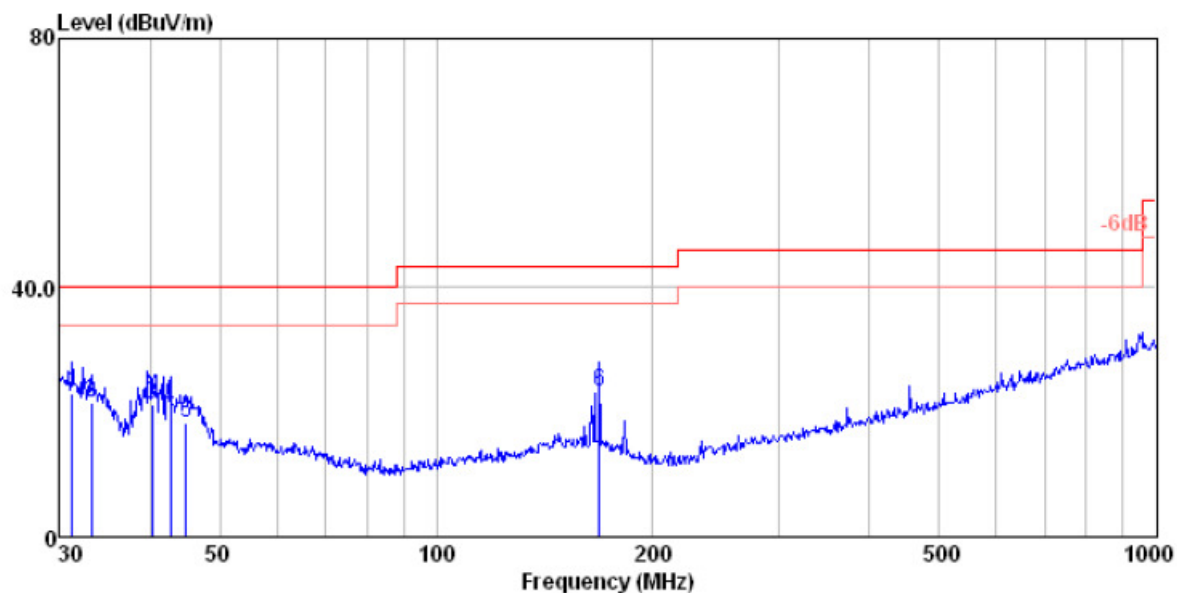
6.1.3 Measurement Data:

Remark: Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

Test Mode: Monitor mode

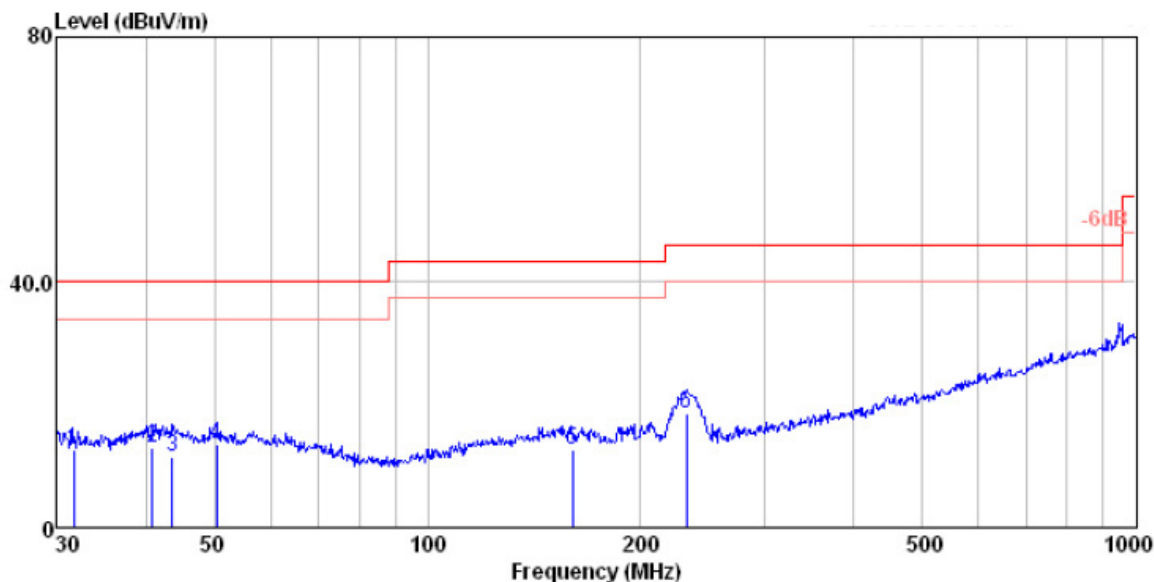
30MHz to 1GHz:

Vertical:



		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	q	31.24	35.26	12.17	0.44	24.70	23.17	40.00	QP
2		33.21	33.50	12.29	0.46	24.70	21.55	40.00	QP
3		40.23	32.05	13.29	0.56	24.70	21.20	40.00	QP
4		42.75	31.58	13.19	0.58	24.70	20.65	40.00	QP
5		44.86	29.32	13.11	0.60	24.70	18.33	40.00	QP
6		168.52	34.25	12.34	1.35	24.61	23.33	43.50	QP

Horizontal:



		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	31.65	24.68	12.20	0.44	24.70	12.62	40.00	-27.38 QP
2	40.85	23.95	13.27	0.57	24.70	13.09	40.00	-26.91 QP
3	43.66	22.52	13.15	0.59	24.70	11.56	40.00	-28.44 QP
4 q	50.32	24.86	12.78	0.65	24.70	13.59	40.00	-26.41 QP
5	160.30	23.43	12.59	1.32	24.70	12.64	43.50	-30.86 QP
6	231.72	32.01	9.49	1.65	24.58	18.57	46.00	-27.43 QP

6.2 Conducted Emissions

Test Requirement: FCC part 15.107
Test Method: ANSI C63.4:2009
Frequency Range: 150kHz to 30MHz
Class: Class B
Limit:

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

Result: **PASS**

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0°C Humidity: 54% RH Atmospheric Pressure: 101.1 kPa

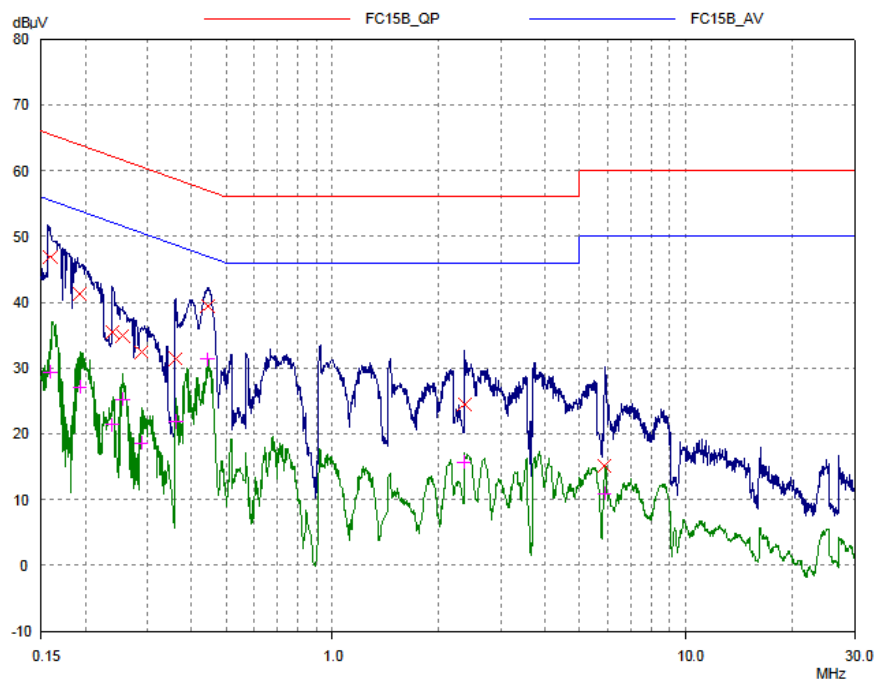
EUT Operation: The EUT on data exchanging mode.

6.2.2 Test Result and Measurement Data

Note: Blue limit line - AV limit, Red limit line - Quasi-peak limit;

Blue plots - Peak detector scan plots, Green plots - AV detector scan plots.

L Line:

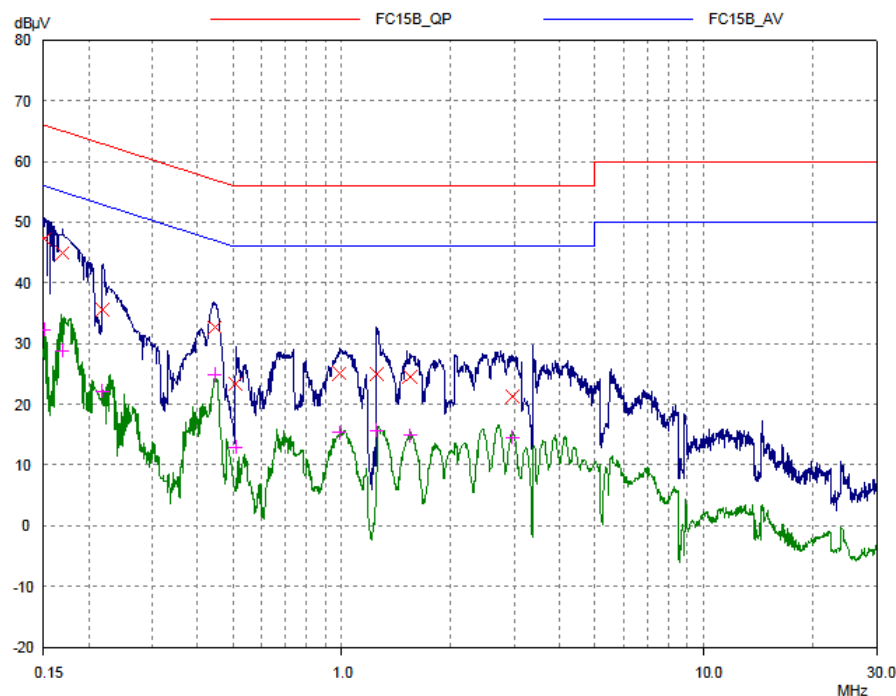


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB
0.15894	46.88	65.52	18.64
0.19294	41.29	63.91	22.62
0.23845	35.47	62.15	26.68
0.25521	34.98	61.59	26.61
0.28829	32.37	60.57	28.20
0.36131	31.38	58.70	27.32
0.44299	39.45	57.01	17.56
2.36345	24.48	56.00	31.52
5.86624	15.10	60.00	44.90

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB
0.15894	29.25	55.52	26.27
0.19294	27.13	53.91	26.78
0.23845	21.42	52.15	30.73
0.25521	25.29	51.59	26.30
0.28829	18.63	50.57	31.94
0.36131	21.80	48.70	26.90
0.44299	31.33	47.01	15.68
2.36345	15.66	46.00	30.34
5.86624	10.90	50.00	39.10

N Line:



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB
0.1506	47.31	65.97	18.66
0.1691	44.97	65.00	20.03
0.21838	35.56	62.88	27.32
0.44565	32.61	56.96	24.35
0.50847	23.32	56.00	32.68
0.98511	25.08	56.00	30.92
1.24702	25.05	56.00	30.95
1.54426	24.57	56.00	31.43
2.95618	21.29	56.00	34.71

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB
0.1506	32.25	55.97	23.72
0.1691	28.81	55.00	26.19
0.21838	22.20	52.88	30.68
0.44565	24.79	46.96	22.17
0.50847	12.99	46.00	33.01
0.98511	15.31	46.00	30.69
1.24702	15.71	46.00	30.29
1.54426	14.92	46.00	31.08
2.95618	14.62	46.00	31.38



7 Test Setup Photographs

Refer to the < Appendix A MD100E-B_Test Setup photos>.

8 EUT Constructional Details

Refer to the < Appendix B MD100E-B_External Photos > & <Appendix C MD100E-B_Internal Photos >.

The End of Report