



## RF EXPOSURE REPORT

Report Reference No. .... TRE1507003102

R/C.....: 89374

FCC ID. .... 2AAS7-BFZ

Applicant's name ..... Shenzhen Pump Medical System Co.,Ltd.

Address ..... 2/F West, M-7 Sinosteel Building, Maqueling Estate, Hi-Tech Industrial Park, Nanshan District, Shenzhen 518057, China

Manufacturer.....: Shenzhen Pump Medical System Co.,Ltd.

Address.....: 2/F West, M-7 Sinosteel Building, Maqueling Estate, Hi-Tech Industrial Park, Nanshan District, Shenzhen 518057, China

Test item description..... Arm Automatic Blood Pressure Monitor

Trade Mark..... -

Model/Type reference ..... BF1204B

Listed Model(s) ..... BF1100B,BF1110B,BF1102B,BF1112B,BF1205B,BF1215(0B), BF1206B,BF1216(0B), BF1207B,BF1217(0B),BF3203B,BF3213(0B), BF1214(0B),BF6004B,BF6104B, BF6002B,BF6102B,BF6023A, BF6123A,BF6023B,BF6123B,BF6025A,BF6125A, BF6025B, BF6125B,BF6026A,BF6126A,BF6026B,BF6126B,BF6027A, BF6127A, BF6027B,BF6127B,BF6028A,BF6128A,BF6028B, BF6128B, BF6032B,BF6132B, BF6032A,BF6132A,BF6033B,BF6133B,BF6033A,BF6133A,BF6042B,BF6142B,BF6042A, BF6142A,BF6043A,BF6143A,BF6043B,BF6143B, BF6012C,BF6112C,BF6012I,BF6112I, BF6015C,BF6115C, BF6015I,BF6115I,BF6018C,BF6118C,BF6018I,BF6118I,BF6019C, BF6119C,BF6019I,BF6119I,BF6022C,BF6122C,BF6022I,BF6122I, BF1115(0B), BF1113(0B),BF3201B,BF3211(0B),BF6024A,BF6124A,BF6024B,BF6124B,BF6039B, BF6139B,BF6039A,BF6139A,BA2311,BF6020I,BF6120I,BF6020C,BF6120C,BF6021I, BF6121I, BF6021C, BF6121C

Standard ..... FCC Per 47 CFR 2.1093(d)

Date of receipt of test sample ..... Aug 04, 2015

Date of testing ..... Aug 04, 2015- Aug 11, 2015

Date of issue... Aug 11, 2015

Result ..... PASS

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*The test report merely corresponds to the test sample.*

*It is not permitted to copy extracts of these test result without the written permission of the test laboratory.*

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## 1. SUMMARY

### 1.1. Client Information

Applicant:	Shenzhen Pump Medical System Co.,Ltd.
Address:	2/F West, M-7 Sinosteel Building, Maqueling Estate, Hi-Tech Industrial Park, Nanshan District, Shenzhen 518057, China
Manufacturer:	Shenzhen Pump Medical System Co.,Ltd.
Address:	2/F West, M-7 Sinosteel Building, Maqueling Estate, Hi-Tech Industrial Park, Nanshan District, Shenzhen 518057, China

### 1.2. Product Description

Name of EUT	Arm Automatic Blood Pressure Monitor
Trade Mark:	-
Model No.:	BF1204B
Listed Model(s):	BF1100B,BF1110B,BF1102B,BF1112B,BF1205B,BF1215(0B), BF1206B,BF1216(0B), BF1207B,BF1217(0B),BF3203B,BF3213(0B), BF1214(0B),BF6004B,BF6104B, BF6002B,BF6102B,BF6023A, BF6123A,BF6023B,BF6123B,BF6025A,BF6125A, BF6025B, BF6125B,BF6026A,BF6126A,BF6026B,BF6126B,BF6027A, BF6127A, BF6027B,BF6127B,BF6028A,BF6128A,BF6028B, BF6128B, BF6032B,BF6132B, BF6032A,BF6132A,BF6033B,BF6133B,BF6033A,BF6133A,BF6042B,BF6142B,BF6042A, BF6142A,BF6043A,BF6143A,BF6043B,BF6143B, BF6012C,BF6112C,BF6012I,BF6112I, BF6015C,BF6115C, BF6015I,BF6115I,BF6018C,BF6118C,BF6018I,BF6118I,BF6019C, BF6119C,BF6019I,BF6119I,BF6022C,BF6122C,BF6022I,BF6122I, BF1115(0B),BF1113(0B), BF3201B,BF3211(0B),BF6024A,BF6124A,BF6024B,BF6124B,BF6039B,BF6139B,BF6039A, BF6139A,BA2311,BF6020I,BF6120I,BF6020C,BF6120C,BF6021I,BF6121I,BF6021C, BF6121C
Power supply:	AC120V/60Hz
Adapter information:	Model:BPE001 Input:100-240Vac ,50/60Hz,400mA Output: 6.0Vd.c.,0.5A
<b>Bluetooth</b>	
Version:	Supported BT4.0+BLE
Modulation:	GFSK
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	Internal Antenna
Antenna gain:	1.60dBi

**Test Frequency:**

Channel	Frequency (MHz)
00	2402
01	2404
⋮	⋮
19	2440
⋮	⋮
38	2478
39	2480

Note:In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above gray bottom.

**1.3. EUT operation mode**

The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Test mode:GFSK Modulation

**1.4. EUT configuration**

**The following peripheral devices and interface cables were connected during the measurement:**

● - supplied by the manufacturer

○ - supplied by the lab

<input type="radio"/>	Power Cable	Length (m) :	/
<input type="radio"/>		Shield :	/
<input type="radio"/>		Detachable :	/
<input type="radio"/>	Multimeter	Manufacturer :	/
<input type="radio"/>		Model No. :	/

**1.5. Modifications**

No modifications were implemented to meet testing criteria.

## **2. TEST ENVIRONMENT**

### **2.1. Address of the test laboratory**

Laboratory:Shenzhen Huatongwei International Inspection Co., Ltd. (Gongming)  
Address: Bldg3, Hongfa Hi-tech Industrial Park, Genyu Road, Shenzhen, China  
Phone: 86-755-26748019 Fax: 86-755-26748089

### **2.2. Test Facility**

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

#### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: February 28, 2015.. Valid time is until February 27, 2018.

#### **A2LA-Lab Cert. No. 2243.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept 30, 2015.

#### **FCC-Registration No.: 662850**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date April. 24,2015, valid time is until April. 24,2018

#### **FCC-Registration No.: 317478**

Shenzhen Huatongwei International Inspection Co., Ltd. (Gongming EMC Laboratory) has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 317478, Renewal date July 18, 2014, valid time is until July. 18, 2017.

#### **IC-Registration No.: 5377A**

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec. 31, 2013, valid time is until Dec. 31, 2016.

#### **IC-Registration No.: 5377B**

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. (Gongming EMC Laboratory) has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B on September 3, 2014, valid time is until September 3, 2017.

#### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

#### **VCCI**

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.:R-2484. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 29, 2015.

Radiated disturbance above 1GHz measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2013. Valid time is until Dec. 23, 2016.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

#### **DNV**

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

### 2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

### 2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	1.60 dB	(1)
Radiated spurious emission 9KHz-40 GHz	2.20 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

### **3. Method of measurement**

#### **3.1. Applicable Standard**

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310,KDB447498 and §2.1093 RF exposure is required.

OET Bulletin 65 Supplement C [June 2001]: Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields

### 3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

\*=Plane-wave equivalent power density

### 3.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

### 3.4. TEST RESULTS

For BT4.0+BLE

Test Frequency (MHz)	Minimum Separation Distance (cm)	Output Power (dBm)	Tolerance (dB)	Max Output Power (dBm)	Max Output Power (mW)	Antenna Gain (Numeric)	Power Density At 20 cm (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )	Test Results
2402	20	-6.83	1.00	-5.83	0.2612	1.4454	0.000075	1	PASS
2440	20	-6.91	1.00	-5.91	0.2564	1.4454	0.000074	1	PASS
2480	20	-6.19	1.00	-5.19	0.3027	1.4454	0.000087	1	PASS

## 4. Conclusion

So standalone SAR measurements are not required for both head and body.

.....End of Report.....