



## SGS-CSTC Standards Technical Services Co., Ltd.

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Report No.: GZEM120800320301  
Page: 1 of 15  
FCC ID: OU9TMB1014BT

# TEST REPORT

Application No.:	GZEM1208003203ME
Applicant:	Zhongshan Transtek Electronics Co., Ltd.
FCC ID:	OU9TMB1014BT
Product Name:	Blood Pressure Monitor
Product Description:	Blood Pressure Monitor
Model No.:	TMB-1014-BT
Standards:	CFR 47 FCC PART 18:2011
Date of Receipt:	2012-08-07
Date of Test:	2012-09-06
Date of Issue:	2012-09-17
Test Result :	Pass*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Strong Yao  
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2012-09-17		Original

Authorized for issue by:			
Tested By	 (Rain Yuan) / Project Engineer	2012-09-06 Date	
Prepared By	 (Millie Li) / Clerk	2012-09-12 Date	
Checked By	 (Strong Yao) / Reviewer	2012-09-17 Date	



### 3 Test Summary

Electromagnetic Interference (EMI)				
Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (9 kHz to 30 MHz)	FCC PART 18	FCC OST/ MP-5:1986	18.305(b)	PASS
Radiated Emission (30 MHz to 400MHz)	FCC PART 18	FCC OST/ MP-5:1986	18.305(b)	PASS
<b>Remark :</b> <b>EUT:</b> In this whole report EUT means Equipment Under Test.				



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## 5 General Information

### 5.1 Client Information

Applicant: Zhongshan Transtek Electronics Co., Ltd.  
Address of Applicant: Jin'an Road, Minzhong, Zhongshan 528441, Guangdong, China

### 5.2 General Description of E.U.T.

Product Name: Blood Pressure Monitor  
Product Description: Blood Pressure Monitor  
Model No.: TMB-1014-BT

#### 5.1 Details of E.U.T.

Rated Supply (Voltage): DC 3V (2 x 1.5V size "AAA" battery)  
Power output Cable: N/A

#### 5.2 Description of Support Units

The EUT has been tested as an independent unit.

#### 5.3 Deviation from Standards

None.

#### 5.4 General Test Climate During Testing

Temperature: 15-30 °C Humidity: 30~70 %RH Atmospheric Pressure: 860-1060 mbar

#### 5.5 Abnormalities from Standard Conditions

None.

#### 5.6 Test Location

All tests were performed at:  
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663  
Tel: +86 20 82155555 Fax: +86 20 82075059  
No tests were sub-contracted.



## **5.7 Test Facility**

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK (Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services 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 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 61010-1:2006-10 and Rules of procedure IEC 61010-2:2006-10, and the relevant IEC 61010-2:2006-10 Operational documents.



## 6 Equipment Used during Test

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date	Calibration
					(YYYY-MM-DD)	
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-08-30	2Y
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2012-11-11	1Y
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2013-03-12	1Y
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2013-06-01	1Y
EMC2025	Trilog Broadband Antenna 30-3000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9163	9163-450	2012-10-20	1Y
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2012-11-28	1Y
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2012-11-28	1Y
EMC2026	Horn Antenna 1-18GHz	R&S	BBHA 9120D	9120D-841	2012-10-20	1Y
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2014-07-01	2Y
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2013-03-12	1Y
EMC0049	Amplifier	Agilent	8447D	2944A10862	2013-03-12	1Y
EMC0075	310N Amplifier	Sonoma	310N	272683	2013-03-12	1Y
EMC0523	Active Loop Antenna	EMCO	6502	42963	2012-11-17	1Y
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	9170-375	2014-06-01	3Y
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-04-27	2Y

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date	Calibration Interval
					(YYYY-MM-DD)	
EMC0006	DMM	Fluke	73	70681569	2012-11-14	1Y
EMC0007	DMM	Fluke	73	70671122	2012-11-14	1Y



## 7 Emission Test Results

### 7.1 Radiated Emissions, 9 kHz to 30 MHz

Test Requirement: FCC Part 18  
Test Method: FCC OST/ MP-5  
Power Supply: DC 3V  
Test Date: 2012-09-06  
Frequency Range: 9 kHz to 30 MHz  
Measurement Distance: 10 m  
Detector: Peak for pre-scan, Average for the final result  
(200 Hz Resolution Bandwidth for 9 kHz to 150 kHz  
9 kHz Resolution Bandwidth for 150 kHz to 30 MHz)

Limit:

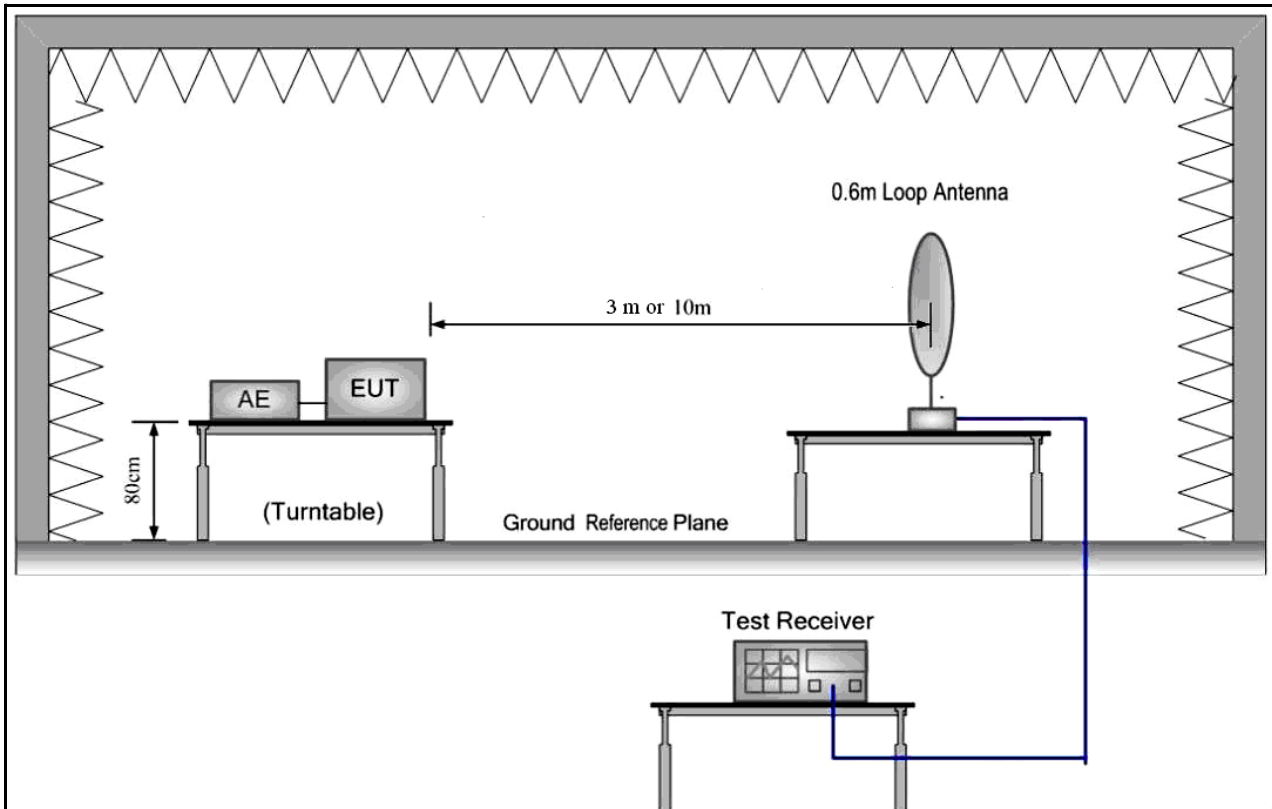
Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (μV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous).	Any ISM frequency	Below 500	25	300
		500 or more	25×SQRT(power/500)	300
	Any non-ISM frequency	Below 500	15	300
		500 or more	15×SQRT(power/500)	300
Note: For the RF power of Blood Pressure Monitor is below 500w, so the field strength limit is 15 μV/m@300m, i.e. <b>20lg (15)+20lg(300/10)=23.522+29.542≈53.10dBuV/m @ 10m distance.</b>				

#### 7.1.1 E.U.T. Operation

EUT Operation: Test the EUT in measuring mode.



## 7.1.2 Test Setup and Procedure



1. The magnetic emissions test was conducted in a semi-anechoic chamber.
2. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane; The mains cables shall drape to the ground reference plane.
3. The tabletop EUT was placed upon a non-metallic table 1 m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of magnetic emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum signature data plots of the EUT.

The frequencies of maximum emission were determined in the final magnetic emissions measurement, The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°, the antenna was supported in the vertical plane and be rotatable about a vertical axis. The antenna height was set at around 2 m above the ground reference plane.

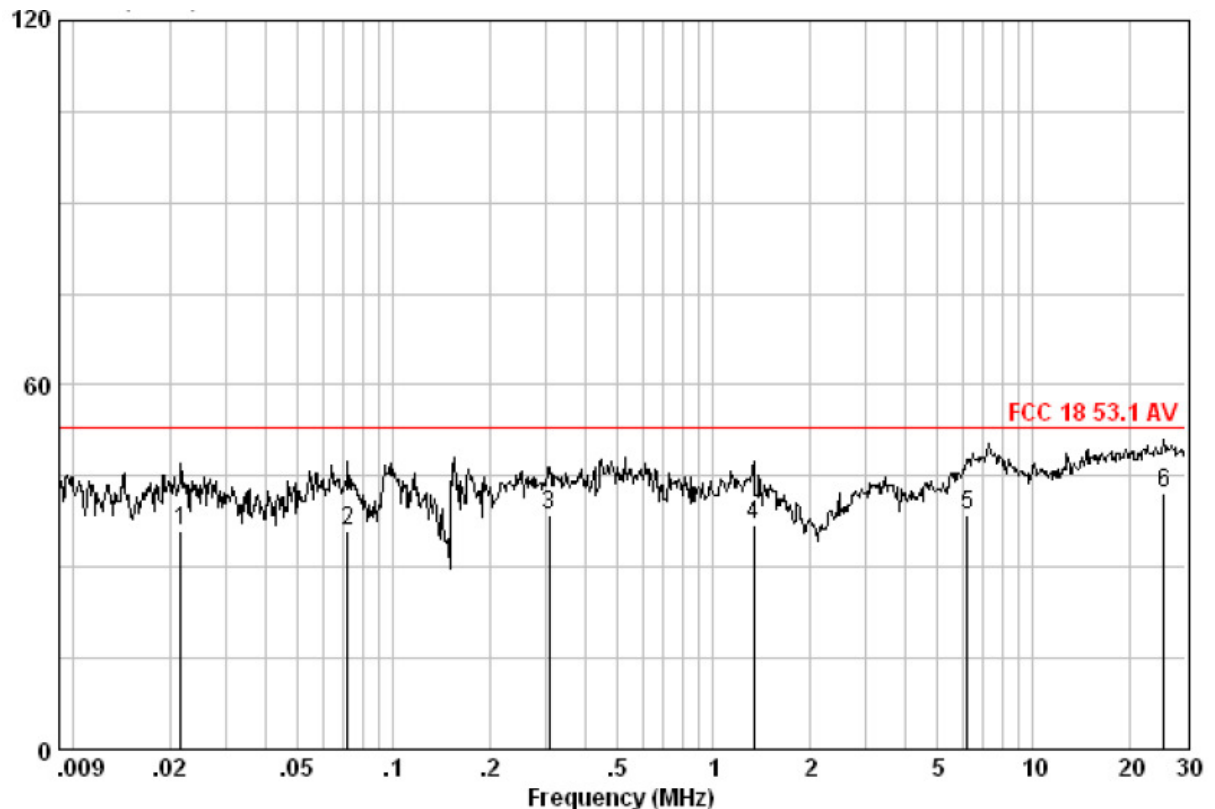


### 7.1.3 Measurement Data

Vertical:

Peak scan

Level: dBμV/m



Average measurement

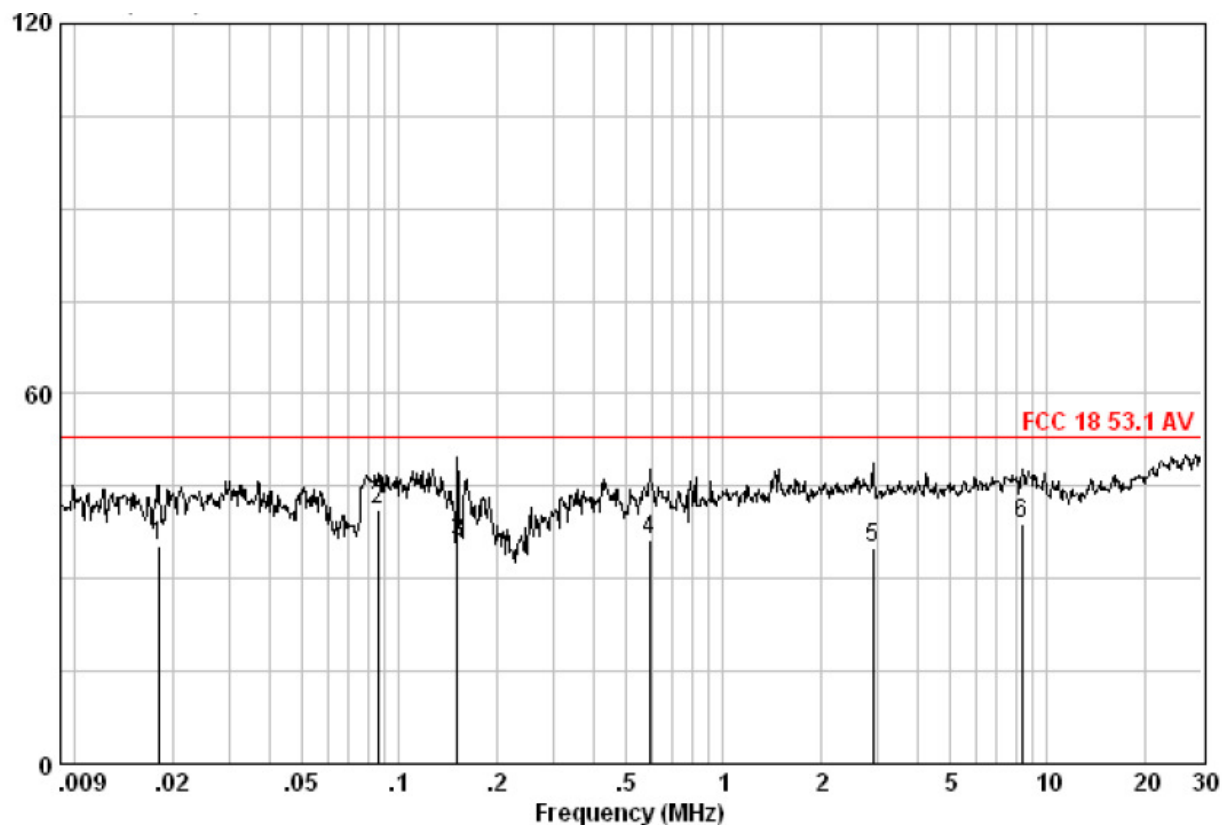
Frequency (MHz)	Transducer (dB)	Receiver AV Reading (dBμV)	AV Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.022	14.38	21.53	35.91	53.10	17.19
0.072	11.83	24.21	36.04	53.10	17.06
0.307	11.83	26.79	38.62	53.10	14.48
1.342	11.86	24.98	36.84	53.10	16.26
6.218	11.28	27.35	38.63	53.10	14.47
25.715	9.05	33.17	42.22	53.10	10.88



Horizontal:

Peak scan

Level: dB $\mu$ V/m



Average measurement

Frequency (MHz)	Transducer (dB)	Receiver AV Reading (dB $\mu$ V)	AV Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
0.018	15.22	19.98	35.20	53.10	17.90
0.086	11.85	29.46	41.31	53.10	11.79
0.151	11.87	24.00	35.87	53.10	17.23
0.592	11.80	24.34	36.14	53.10	16.96
2.901	11.72	23.17	34.89	53.10	18.21
8.395	10.98	27.97	38.95	53.10	14.15

AV Level = Receiver AV Reading+ Transducer



## 7.2 Radiated Emissions, 30 MHz to 400MHz

Test Requirement: FCC Part 18  
Test Method: FCC OST/ MP-5  
Power Supply: DC 3V  
Test Date: 2012-09-06  
Frequency Range: 30MHz to 400MHz  
Measurement Distance: 10 m  
Detector: Peak for pre-scan, Average for the final result  
(120 kHz Resolution Bandwidth for 30 MHz to 400 MHz)

Limit:

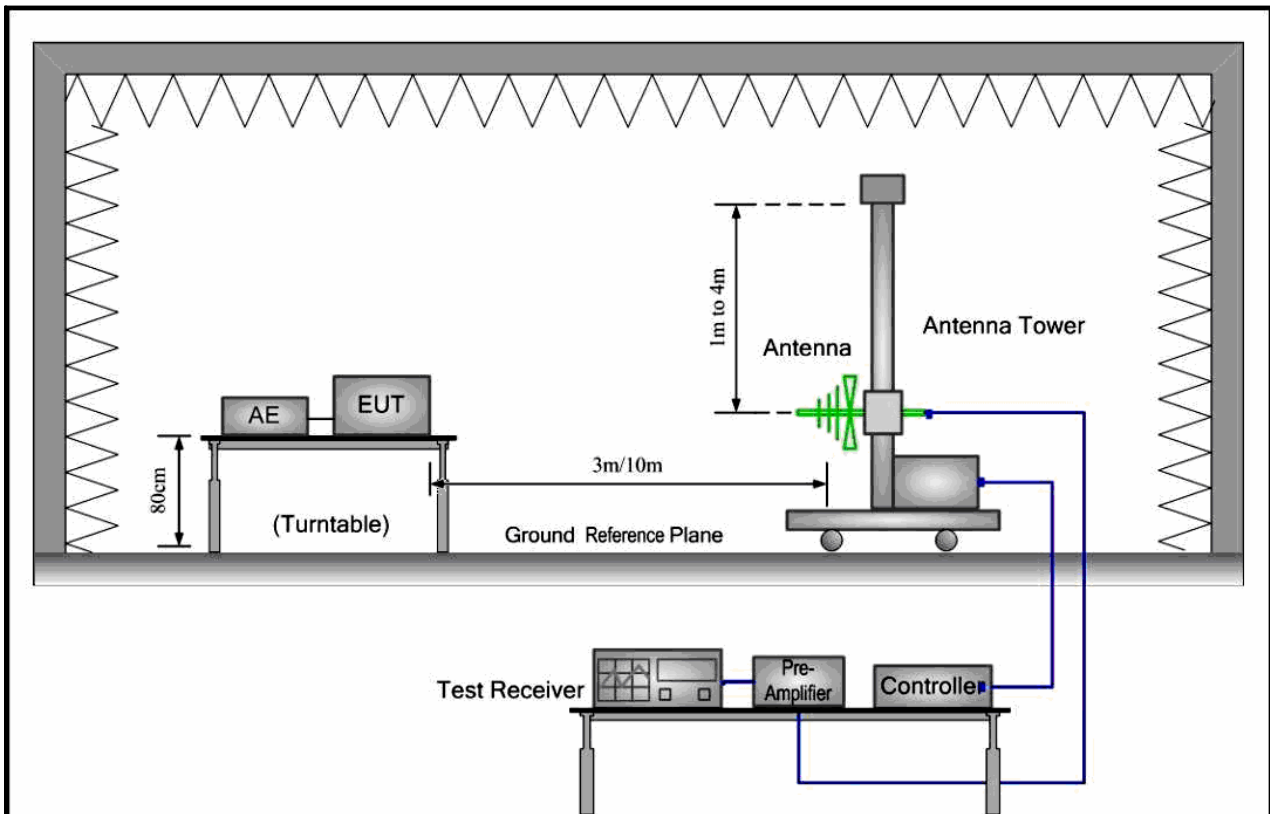
FCC Part 18				
Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (μV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous).	Any ISM frequency	Below 500	25	300
		500 or more	25×SQRT(power/500)	300
	Any non-ISM frequency	Below 500	15	300
		500 or more	15×SQRT(power/500)	300

Note:  
For the RF power of Oximeter is below 500w, so the field strength limit is 15 μV/m@300m, i.e. 20lg (15)+20lg(300/10)=23.522+29.542≈53.10dBuV/m @ 10m distance.

### 7.2.1 E.U.T. Operation

EUT Operation: Test the EUT in measuring mode.

## 7.2.2 Test Setup and Procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

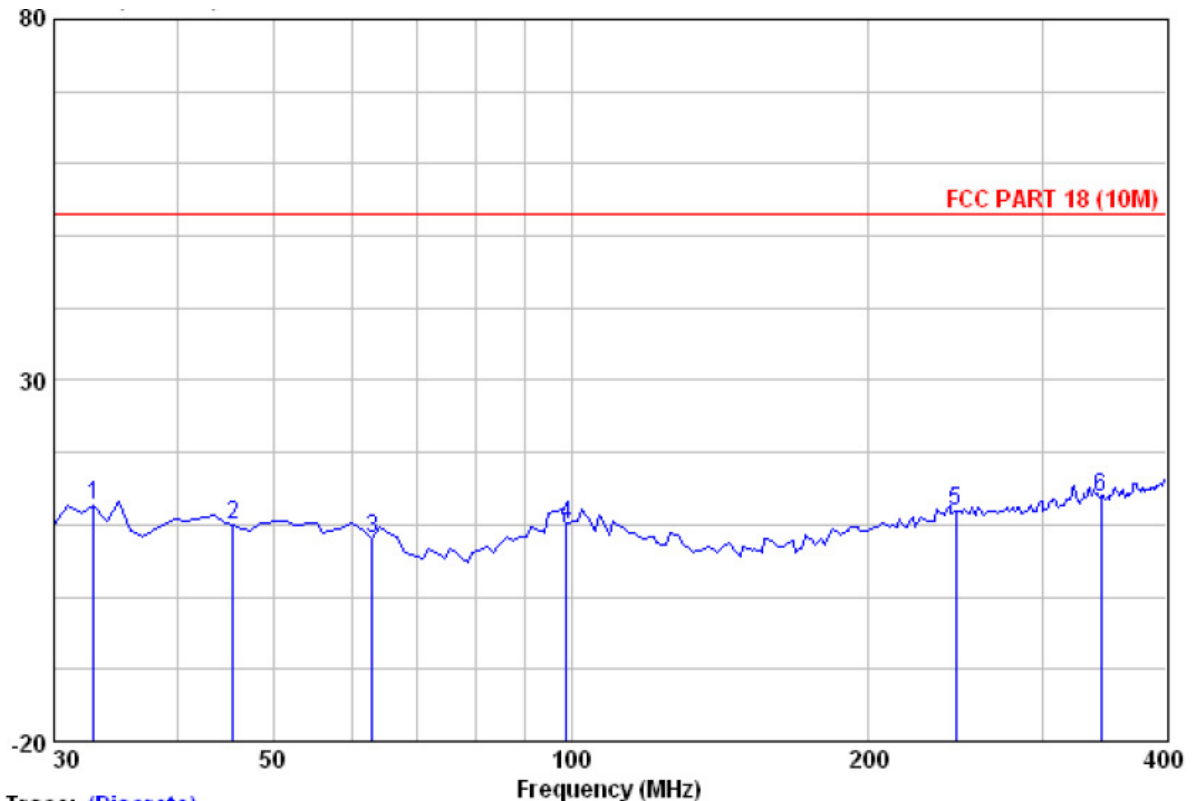


### 7.2.3 Measurement Data

Vertical:

Peak scan

Level (dB $\mu$ V/m)



Average measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
MHz	dB $\mu$ V	dB/m	dB	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB	
32.910	29.90	11.46	0.72	29.50	12.59	53.10	-40.51	AVERAGE
45.520	25.87	12.66	0.91	29.50	9.94	53.10	-43.16	AVERAGE
62.980	25.95	10.65	1.03	29.57	8.06	53.10	-45.04	AVERAGE
98.870	26.14	12.24	1.21	29.70	9.89	53.10	-43.21	AVERAGE
245.340	27.50	12.11	1.89	29.55	11.95	53.10	-41.15	AVERAGE
343.310	26.83	14.48	2.19	29.60	13.90	53.10	-39.20	AVERAGE

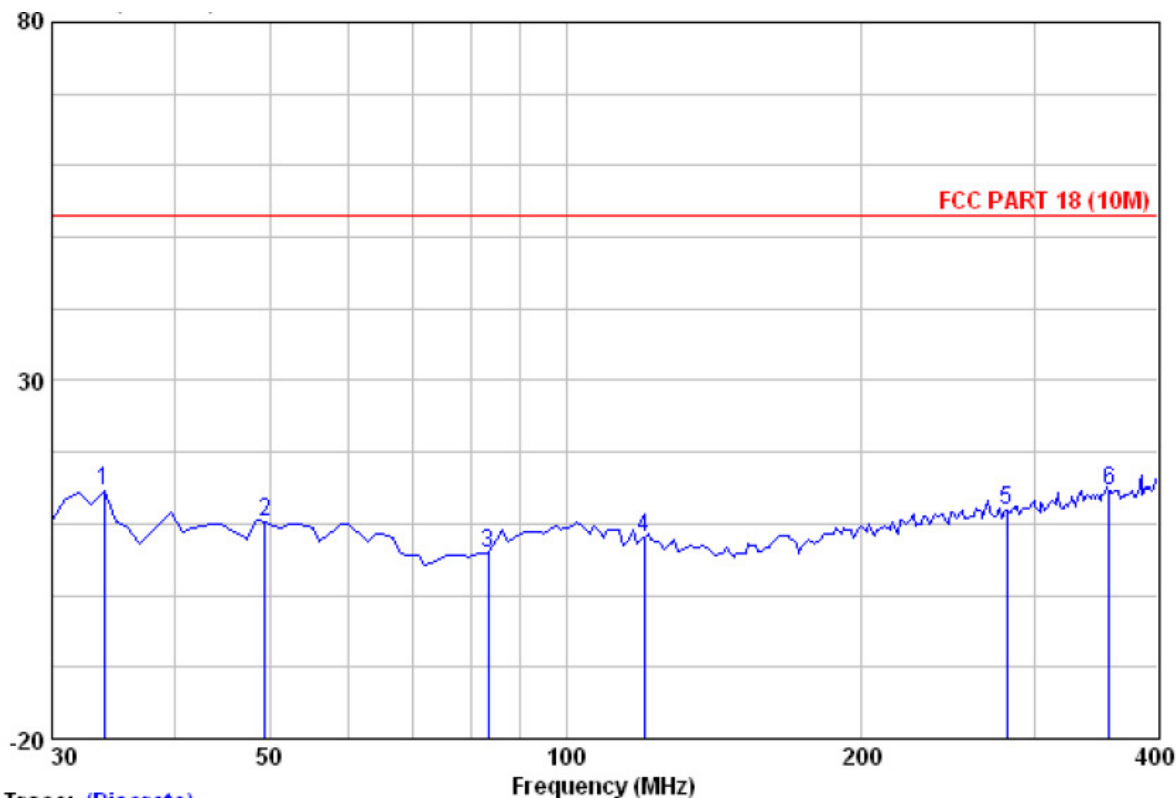
Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



**Horizontal:**

Peak scan

Level (dBμV/m)



Trace: (Discrete)

Average measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over	Remark
MHz	dBμV	dB/m	dB	dB	dBμV/m	dBμV/m	dB	
33.880	31.86	11.46	0.74	29.50	14.55	53.10	-38.55	AVERAGE
49.400	26.25	12.43	0.97	29.50	10.15	53.10	-42.95	AVERAGE
83.350	25.53	8.86	1.13	29.65	5.88	53.10	-47.22	AVERAGE
120.210	26.86	9.62	1.35	29.70	8.13	53.10	-44.97	AVERAGE
281.230	26.55	12.84	2.01	29.58	11.82	53.10	-41.28	AVERAGE
356.890	27.39	14.71	2.23	29.60	14.73	53.10	-38.37	AVERAGE

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

--End of Report--