



SHENZHEN JUMAOYUAN SCIENCE & TECHNOLOGY CO., LTD.

FCC REPORT

Prepared For :	SHENZHEN JUMAOYUAN SCIENCE & TECHNOLOGY CO., LTD. Floor 6, Bld. G, No.1 Guanlong Industrial Zone, Xili Town, Nanshan District, Shenzhen, Guangdong, China
Product Name :	WOOD MOISTURE METER
Trade Name:	BENETECH
Model :	GM610, GM605, GM611, GM620, GM630, GM640
Prepared By :	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China
Test Date :	Oct. 08-10, 2016
Date of Report :	Oct. 10, 2016
Report No.:	BSTDG1610696850001ER-3



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TEST REPORT DECLARATION

Applicant	:	SHENZHEN JUMAOYUAN SCIENCE & TECHNOLOGY CO., LTD.
Address	:	Floor 6, Bld. G, No.1 Guanlong Industrial Zone, Xili Town, Nanshan District, Shenzhen, Guangdong, China
EUT Description	:	WOOD MOISTURE METER
Trade Name	:	BENETECH
Model Number	:	GM610, GM605, GM611, GM620, GM630, GM640 (Note: The series products have the same circuit diagram, PCB layout and functionality. The differences are the model name and appearance, so, we select GM610 to test.)

Test Standards:

FCC Part 15:2016

The EUT described above is tested by US to determine the maximum emission levels emanating from the EUT, the maximum emission levels are compared to the FCC Part 15 Subpart Class B limits. The measurement results are contained in this test report. and Shenzhen BST Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen BST Technology Co., Ltd.

Prepared by :

Grace

Assistant

Tested by:

Jane.zhu

Test Engineer

Reviewer :

Ding

Supervisor

Approved & Authorized Signer :



Andrew. Shu / Manager



1. GENERAL INFORMATION

1.1. Report information

- 1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

1.2. Measurement Uncertainty

Available upon request.

1.3. Test Facility

Site Description

EMC Lab.	:	Certificated by FCC
Name of Firm	:	Shenzhen BST Technology Co., Ltd.
Site Location	:	Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China

1.4. Test Uncertainty

Conducted Emission Uncertainty	=	$\pm 2.66\text{dB}$
Radiated Emission Uncertainty	=	$\pm 4.26\text{dB}$



2. PRODUCT DESCRIPTION

2.1.EUT Description

Description	:	WOOD MOISTURE METER
Applicant	:	SHENZHEN JUMAOYUAN SCIENCE & TECHNOLOGY CO., LTD. Floor 6, Bld. G, No.1 Guanlong Industrial Zone, Xili Town, Nanshan District, Shenzhen, Guangdong, China
Manufacturer	:	SHENZHEN JUMAOYUAN SCIENCE & TECHNOLOGY CO., LTD. Floor 6, Bld. G, No.1 Guanlong Industrial Zone, Xili Town, Nanshan District, Shenzhen, Guangdong, China
Model Number	:	GM610, GM605, GM611, GM620, GM630, GM640

2.2.Test Conditions

Temperature: 23~25℃

Relative Humidity: 55~63 %



3. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	N.A
Radiated disturbance	Pass

Remark: "N/A" means "Not applicable."



4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Jun. 01, 16	1 Year
2.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Jun. 01, 16	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Jun. 01, 16	1 Year
4.	Conical	Emtek	N/A	N/A	N/A	N/A
5.	Voltage Probe	Schwarzbeck	TK9416	N/A	Jun. 01, 16	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6100214550	Jun. 01, 16	1 Year

4.2. For Radiated Emission Measurement

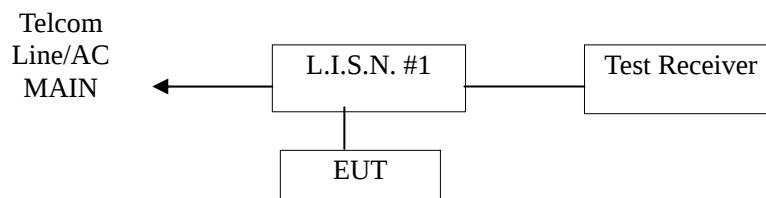
Semi-Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Jun 01,16	1 Year
2.	Test Receiver	Rohde&Schwarz	ESC830	828982/018	Jun 01,16	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	Jun 01,16	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Jun 01,16	1 Year
5.	Cable	Schwarzbeck	AK9513	ACRX1	Jun 01,16	1 Year
6.	Cable	Rosenberger	N/A	FR2RX2	Jun 01,16	1 Year
7.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,16	1 Year
8.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,16	1 Year
9.	Single Phase Power Line Filter	MPE	23332C	N/A	Jun 01,16	1 Year
10.	Single Phase Power Line Filter	MPE	23333C	N/A	Jun 01,16	1 Year
11.	Signal Generator	HP	864A	3625U00573	Jun 01,16	1 Year



5. CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



(EUT: WOOD MOISTURE METER)

5.2. Test Standard

FCC Part 15: 2016

5.3. Conducted Emission Limit(Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.4.1. EUT Information

Model Number : GM610
Serial Number : N/A

5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT Working) and test it.



5.6.Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz.

5.7.Test Result

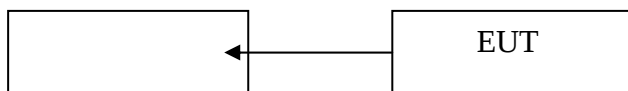
N.A



6. RADIATED EMISSION MEASUREMENT

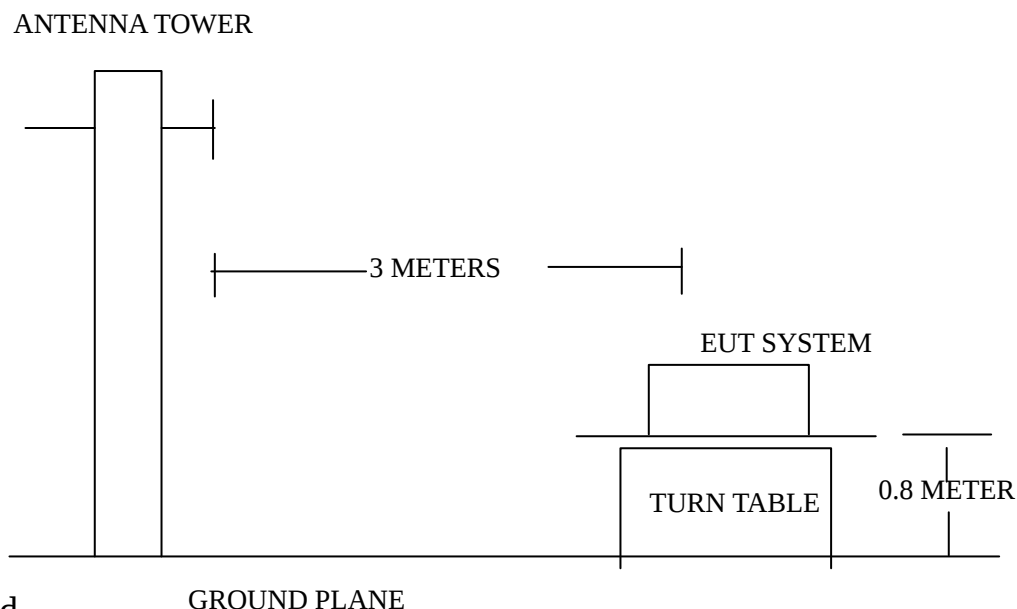
6.1. Block Diagram of EUT Configuration

6.1.1. Block Diagram of connection between the EUT and the simulators



(EUT: WOOD MOISTURE METER)

6.1.2. Semi-Anechoic Chamber Test Setup Diagram



6.2. Test Standard

FCC Part 15: 2016

6.3. Radiated Emission Limit(Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB μ V/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

Note:(1) The smaller limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or system.



6.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

6.5.Operating Condition of EUT

6.5.1.Setup the EUT as shown on Section 6.1.2

6.5.2.Turn on the power of all equipments.

6.5.3.Let the EUT work in test mode(EUT working) and measure it.

6.6.Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

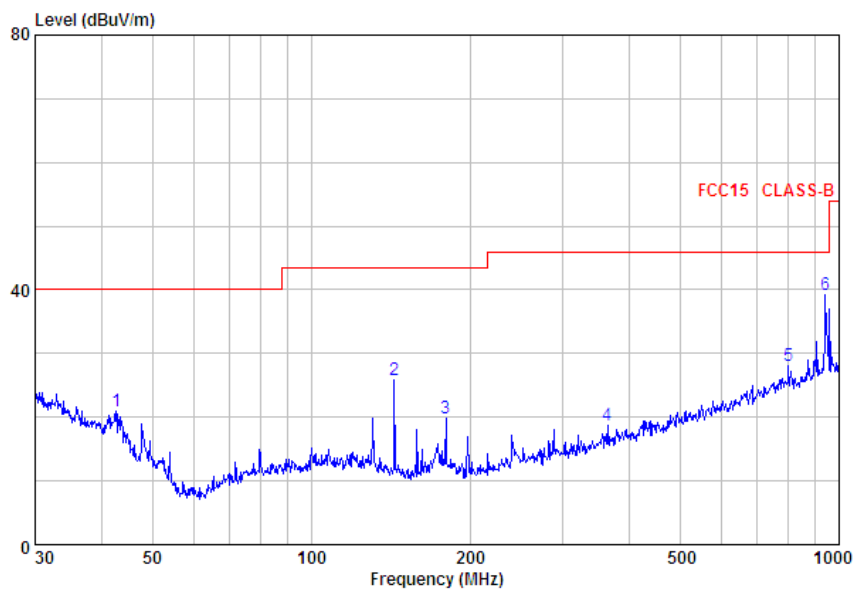
The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS20) is 120 KHz. The EUT is tested in Semi-Anechoic Chamber. The frequency range from 30MHz to 1000 MHz is checked.All the test results are listed in Section 6.7. and all the scanning waveform are attached within **Appendix I**.

6.7.Test Result

PASS



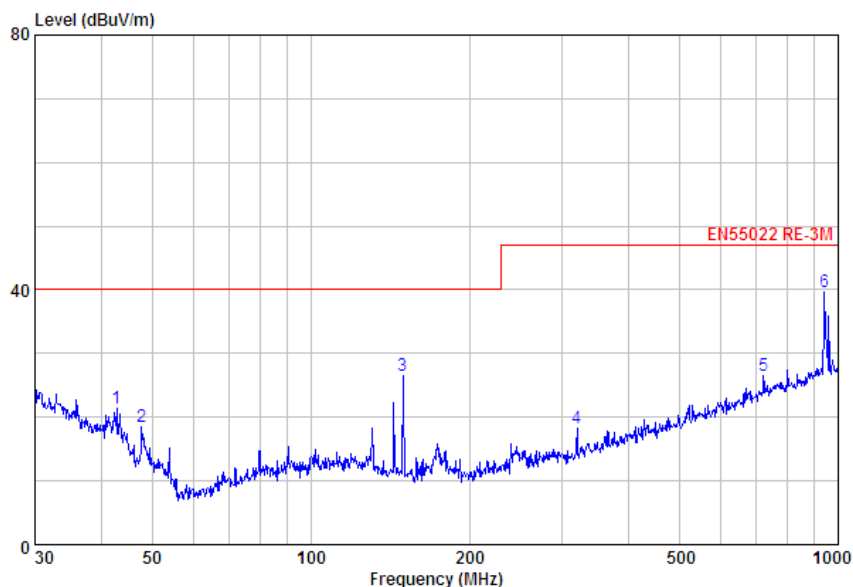
APPENDIX I Test Curves



Condition : FCC15 CLASS-B 3m HORIZONTAL

: RBW:120.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Remark	Pol/Phase	Limit	Over
	MHz	dBuV/m			dBuV/m	dB
1	42.750	20.9	Peak	HORIZONTAL	40.0	-19.1
2	143.830	25.9	Peak	HORIZONTAL	43.5	-17.6
3	180.017	19.8	Peak	HORIZONTAL	43.5	-23.7
4	364.260	18.7	Peak	HORIZONTAL	46.0	-27.3
5	801.786	28.0	Peak	HORIZONTAL	46.0	-18.0
6 max	942.131	39.2	Peak	HORIZONTAL	46.0	-6.8



Condition : EN55022 RE-3M 3m VERTICAL
: RBW:120.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Remark	Pol/Phase	Limit	Over
	MHz	dBuV/m			dBuV/m	dB
1	42.900	21.3	Peak	VERTICAL	40.0	-18.7
2	47.826	18.5	Peak	VERTICAL	40.0	-21.5
3	149.486	26.5	Peak	VERTICAL	40.0	-13.5
4	319.937	18.2	Peak	VERTICAL	47.0	-28.8
5	721.726	26.5	Peak	VERTICAL	47.0	-20.5
6 max	942.131	39.6	Peak	VERTICAL	47.0	-7.4



APPENDIX II

(Photos of the EUT)



Photo 1 General Appearance of the EUT



Photo 2 General Appearance of the EUT





Photo 3 General Appearance of the EUT



Photo 4 General Appearance of the EUT





Photo 5 General Appearance of the EUT



Photo 6 General Appearance of the EUT





Photo 7 General Appearance of the EUT



Photo 8 Test scene

