FCC PART 15 CLASS B

EMI MEASUREMENT AND TEST REPORT

For

ShenZhen Tangreat Technology Co.,Ltd.

4Floor, R&D Building, Dacheng Industry Jihua Road, Bantian, Shenzhen, 518129

FCCID: XRLTG-VIPJAMM

Oct.10, 2009

This Report Concerns: Original Report	Equipment Type： RF Jammer
Test Engineer:	Jack Liu
Report No.:	BST09093852620R-3
Receive EUT Date/Test Date:	Oct.10,2009/ Sep.20-Oct.10,2009
Reviewed By:	Christina
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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.

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.

Test Facility -
The test site used to collect the radiated data is located on the address of Solid Industrial Co., Ltd. (FCC Registered Test Site Number: 759397) on 333 Bulong Highway Buji, Longgang Shenzhen, Guangdong, China
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

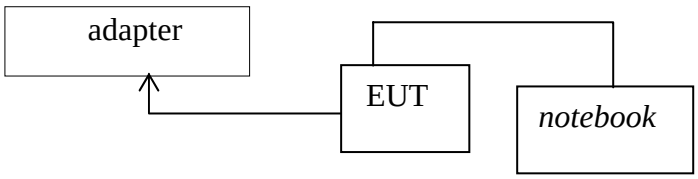
2.1. EUT Description

Description	:	RF Jammer
Applicant	:	ShenZhen Tangreat Technology Co.,Ltd. 4Floor, R&D Building, Dacheng Industry Jihua Road, Bantian, Shenzhen, 518129
Model Number	:	TG-VIPJAMM, TG-RFJAMM

Additonal Information

Power Supply	:	DC 5V Power supply by adapter
Antenna	:	N/A

2.2. Block Diagram of EUT Configuration



2.3. Support Equipment List

Adapter :
MODEL:HY-000405V12AS
INPUT:120V/60Hz
OUTPUT:5V

IBM notebook:
MODEL: T21

DELL notebook:
MODEL: a840

2.4. Test Conditions

Temperature: 23~25℃

Relative Humidity: 55~63 %

3. FCC ID LABEL

FCC ID: XRLTG-VIPJAMM

This device complies with Part 15 of the FCC Rules.Operation is subject to the following two conditions:1. This device may not cause harmful interference, and 2. This device must accept any interference received,including interference that may cause undesired operation.

Label Location on EUT

EUT Bottom View/ FCC ID Label Location

4. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	Pass
Radiated disturbance	Pass

Remark: “N/A” means “Not applicable.”

Modifications

No modification was made.

5. TEST EQUIPMENT USED

5.1. 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, 09	1 Year
2.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Jun. 01, 09	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Jun. 01, 09	1 Year
4.	Conical	Emtek	N/A	N/A	N/A	N/A
5.	Voltage Probe	Schwarzbeck	TK9416	N/A	Jun. 01.09	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6100214550	Jun. 01, 09	1 Year

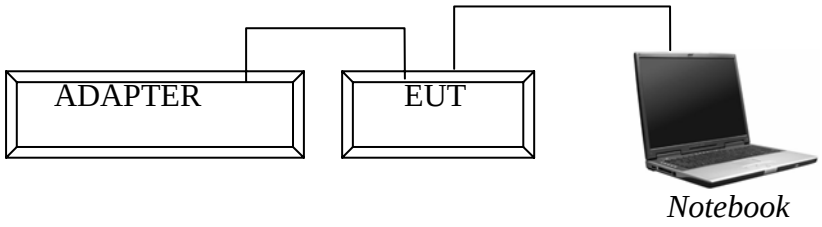
5.2. For Radiated Emission Measurement

Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Jun 01,09	1 Year
2.	Test Receiver	Rohde&Schwarz	ESC830	828982/018	Jun 01,09	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	Jun 01,09	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Jun 01,09	1 Year
5.	Cable	Schwarzbeck	AK9513	ACRX1	Jun 01,09	1 Year
6.	Cable	Rosenberger	N/A	FR2RX2	Jun 01,09	1 Year
7.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,09	1 Year
8.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,09	1 Year
9.	Single Phase Power Line Filter	MPE	23332C	N/A	Jun 01,09	1 Year
10.	Single Phase Power Line Filter	MPE	23333C	N/A	Jun 01,09	1 Year
11.	Signal Generator	HP	864A	3625U00573	Jun 01,09	1 Year

6. CONDUCTED EMISSION TEST

6.1. Block Diagram of Test Setup



6.2. Test Standard

FCC Part 15.107

6.3. 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.

6.4. 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.

6.4.1.EUT Information

Model Number : **TG-VIPJAMM**
Serial Number : **N/A**

6.5. Operating Condition of EUT

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

6.5.2.Turn on the power of all equipments.

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

6.6. 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. and all the scanning waveform are attached within **Appendix I**.

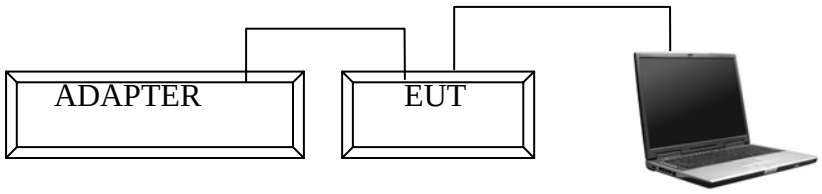
6.7. Test Result

PASS

7. RADIATED EMISSION MEASUREMENT

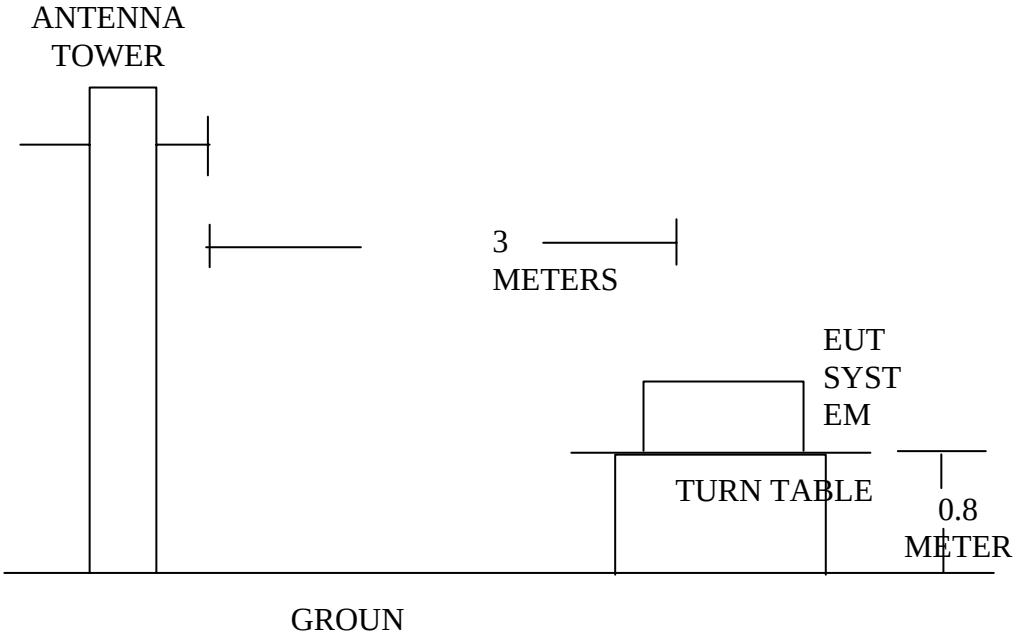
7.1. Block Diagram of EUT Configuration

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



Notebook

7.1.2.Anechoic Chamber Test Setup Diagram



7.2. Test Standard

FCC Part 15.109

7.3. Radiated Emission Limit(Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/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.

7.4. 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.

7.5. Operating Condition of EUT

7.5.1.Setup the EUT as shown on Section 6.1.2

7.5.2.Turn on the power of all equipments.

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

7.6. 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 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 II**.

7.7. Test Result

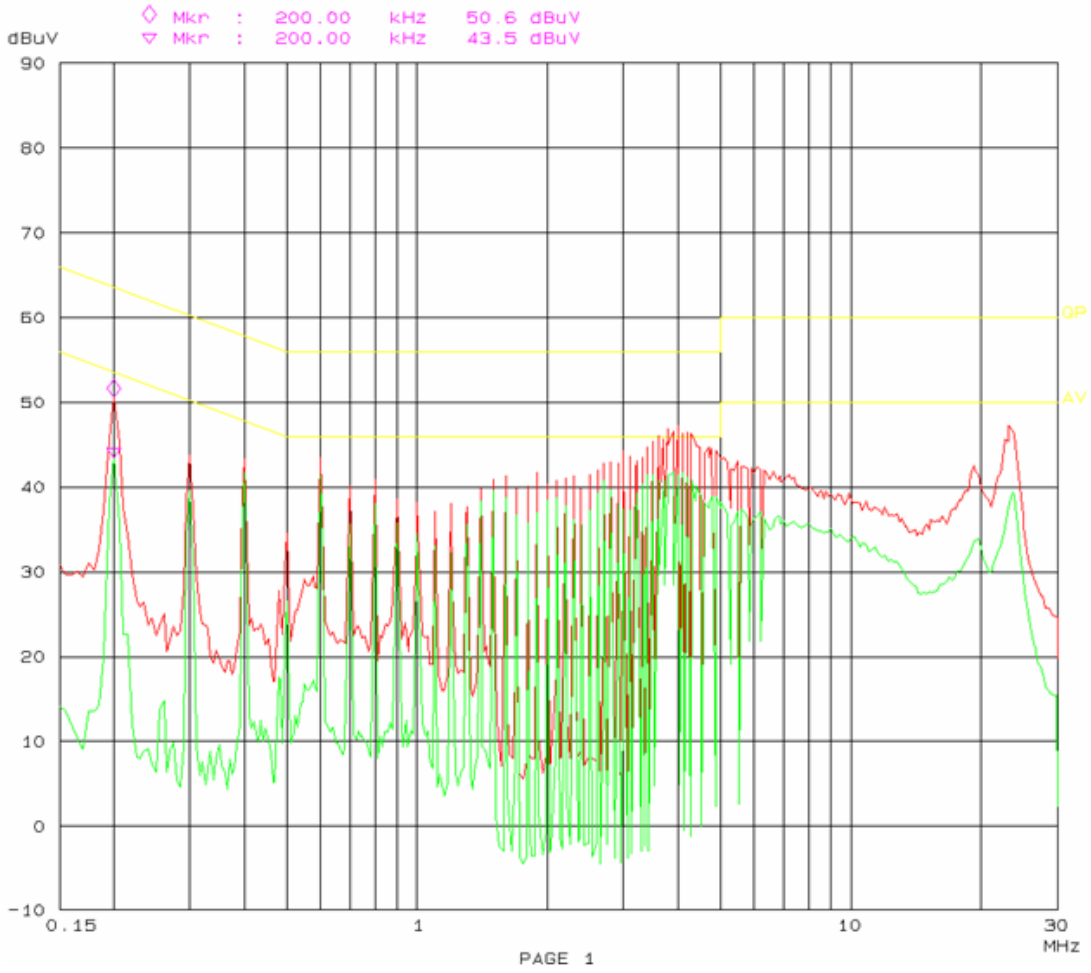
PASS

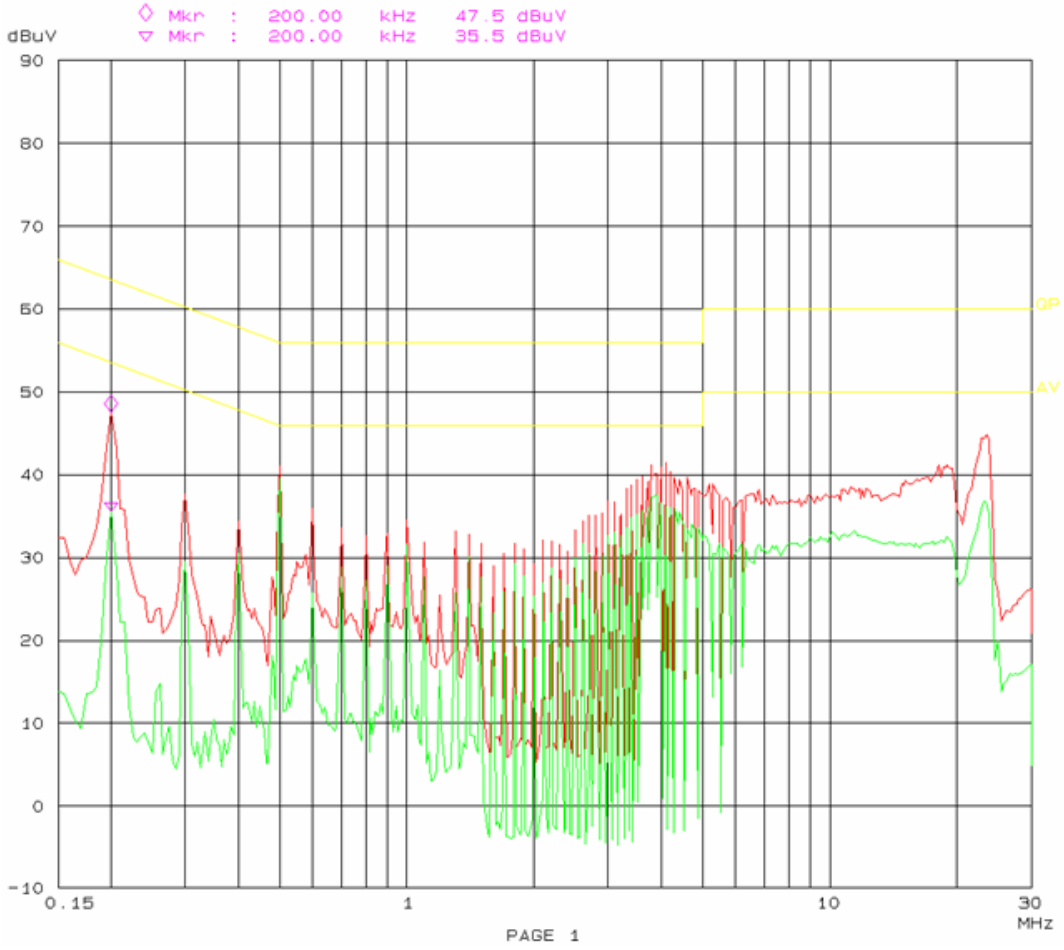
APPENDIX I

Test Mode: operating

Line Conducted Emissions				FCC Part 15 CLASS B	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Conductor (Hot/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
3.801	41.200	AV	Hot	46.00	4.80
0.402	41.800	AV	Hot	47.85	6.05
1.503	39.500	AV	Hot	46.00	6.50
3.801	37.200	AV	Neutral	46.00	8.80
0.200	43.500	AV	Hot	53.61	10.11
23.591	39.400	AV	Hot	50.00	10.60
3.802	45.000	QP	Hot	56.00	11.00
0.200	50.600	QP	Hot	63.61	13.01
23.391	36.700	AV	Neutral	50.00	13.30
23.582	46.600	QP	Hot	60.00	13.40
0.200	39.500	AV	Neutral	53.61	14.11
7.492	35.700	AV	Hot	50.00	14.30
1.001	31.500	AV	Neutral	46.00	14.50
0.401	43.300	QP	Hot	57.85	14.55
0.502	41.100	QP	Neutral	56.00	14.90
1.501	40.900	QP	Hot	56.00	15.10
23.480	44.800	QP	Neutral	60.00	15.20
3.802	40.000	QP	Neutral	56.00	16.00
0.200	47.500	QP	Neutral	63.61	16.11
2.200	28.700	AV	Neutral	46.00	17.30
0.200	35.500	AV	Neutral	53.61	18.11
7.491	40.300	QP	Hot	60.00	19.70
1.002	34.600	QP	Neutral	56.00	21.40
2.200	32.000	QP	Neutral	56.00	24.00

Plot(s) of Test Data is presented hereinafter as reference.




Mkr : 200.00 kHz 47.5 dBuV
Mkr : 200.00 kHz 35.5 dBuV
dBuV
90
80
70
60
50
40
30
20
10
0
-10
0.15
1
10
30
MHz
QP
AV
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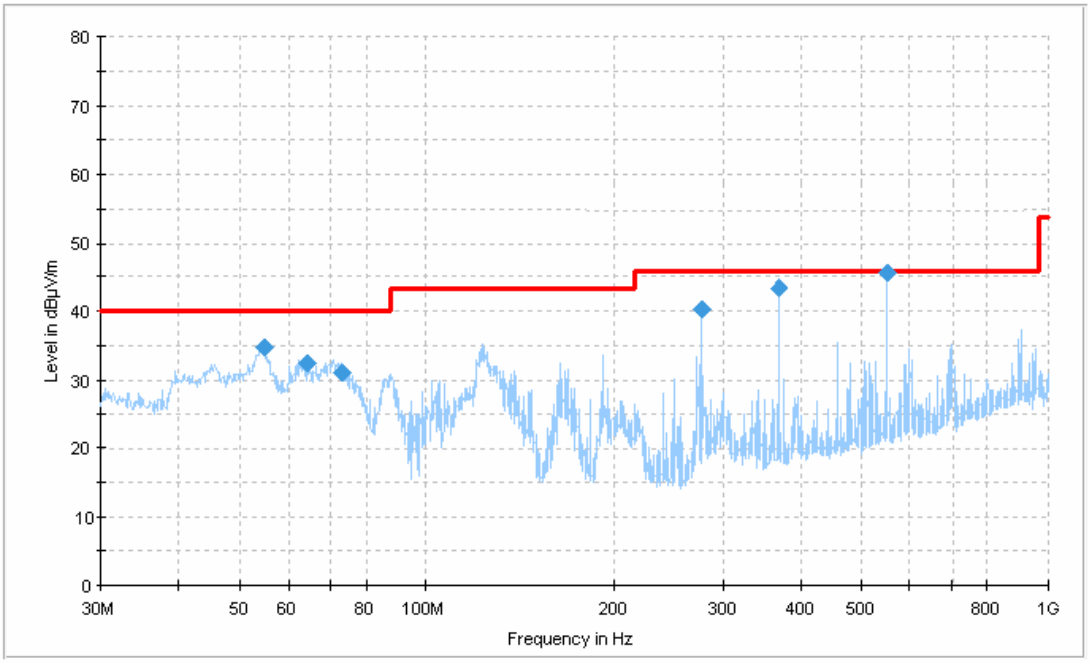
APPENDIX II

Test Mode: *operating*



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
551.995324	44.3	178.0	H	2.0	-5.8	46.0	1.7*
368.002211	43.1	105.0	H	269.0	-9.2	46.0	2.9*
54.949347	34.2	105.0	V	147.0	-17.7	40.0	5.8
276.007264	40.1	106.0	H	243.0	-11.1	46.0	5.9
64.167164	32.3	104.0	V	125.0	-17.1	40.0	7.7
73.188562	31.0	103.0	V	0.0	-16.9	40.0	9.0