

FCC PART 15 CLASS B
EMI MEASUREMENT AND TEST REPORT
For

Joyplus International Enterprise Limited
805 Technology Building, Duoli Industrial Park, Shangmeilin, Meihua Road, Futian Dist.,
Shenzhen, China

FCC ID: Z4UTC891203

May 24, 2012

This Report Concerns: Original Report	Equipment Type: Tablet PC
Test Engineer:	Steven Fang 
Report No.:	BST12050220Y-1E-3-2
Receive EUT Date/Test Date:	May 10, 2012/ May 11-20, 2012
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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 SinTek Laboratory Co.,Ltd.

(FCC Registered Test Site Number: 963441) on

No.7, Xinshidai Industrial, Guantian Village, Shiyan Town, Baoan District, Shenzhen, Guangdong 518108, 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

Applicant	:	Joyplus International Enterprise Limited
Address	:	805 Technology Building, Duoli Industrial Park, Shangmeilin, Meihua Road, Futian Dist., Shenzhen, China
Manufacturer	:	Joyplus International Enterprise Limited
Address	:	805 Technology Building, Duoli Industrial Park, Shangmeilin, Meihua Road, Futian Dist., Shenzhen, China
EUT Description	:	Tablet PC
Trade Name	:	JOYPLUS
Model Number	:	M78, M78D
Power Supply	:	DC 5V (Powered by Adapter) or DC 3.7V (Li-ion battery)

2.2. Block Diagram of EUT Configuration

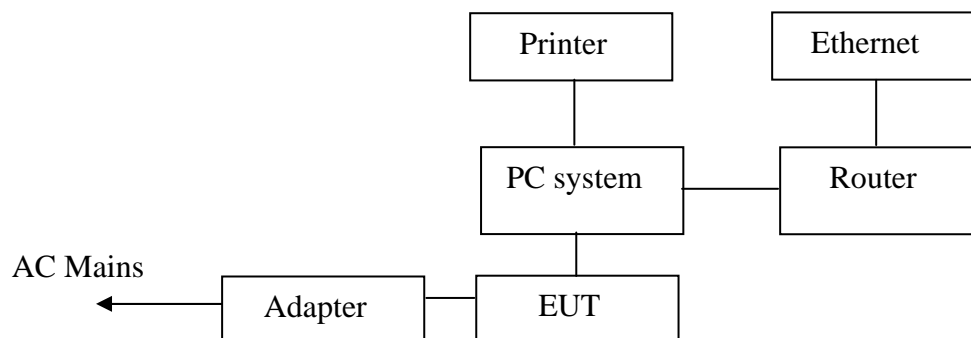


Figure 1 EUT Setup of Connect to PC mode

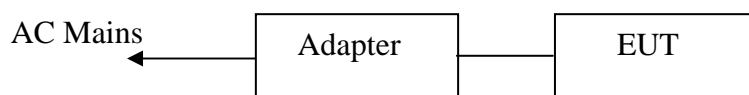


Figure 2 EUT Setup of Connect to Adapter mode

2.3. Support Equipment List

Name	Model No	S/N	Manufacturer	Used “ ”
Adapter Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 5V, 2000mA	HW222SL	--	--	
PC system	ST-PC-002	569787506	DeLUX	
Printer	HP930C	N/A	HP	
Router	TL-R402M	07115200391	TP-LINK	

2.4. Test Conditions

Temperature: 23~25

Relative Humidity: 50~63 %

3. FCC ID LABEL

FCC ID: Z4UTC891203

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 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

Equipment/Facilities	Manufacturer	Model #	Serial no.	Date of Cal.	Cal. Interval
Cable	Resenberger	N/A	NO.1	Mar 10 , 2012	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar 10 , 2012	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar 10 , 2012	1 Year
LISN	Rohde & Schwarz	ESH3-Z5	100305	Mar 10 , 2012	1 Year
50 Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar 10 , 2012	1 Year
EMI Test Receiver	Rohde & Schwarz	ESP13	100180	Oct.11,2011	1 Year
Spectrum Analyzer	Rohde & Schwarz	FSP40	100273	Sep.10,2011	1 Year
3m Semi-Anechoic Chamber	Albatross Projects	9m×6m×6m	N/A	Feb.20,2012	1 Year
Signal Generator	FLUKE	PM5418 + Y/C	LO747012	Feb.20,2012	1 Year
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.20,2012	1 Year
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan.30,2012	1 Year
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Sep.22,2011	1 Year
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-564	Sep.22,2011	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	208 279	May 12, 2012	1 Year
Ultra Broadband Antenna	Rohde & Schwarz	HL-562	100110	June.15,2011	1 Year
AMN	Rohde & Schwarz	ESH3-Z5	100196	Oct.11,2011	1 Year
AMN	Rohde & Schwarz	ESH3-Z5	100197	Oct.11,2011	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
Power Meter	Rohde & Schwarz	NRVD	100041	Feb.20,2012	1 Year
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	Feb.20,2012	1 Year
Coaxial Cable with N-connectors	SCHWARZBECK	AK9515H	95549	Sep.22,2011	1 Year
Radio Communication Test Set	Rohde & Schwarz	CMS 54	846621/024	Feb.20,2012	1 Year
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.20,2012	1 Year
Absorbing clamp	Rohde & Schwarz	MDS-21	N/A	Oct.11,2011	1 Year

6. CONDUCTED EMISSION TEST

6.1. Block Diagram of Test Setup

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

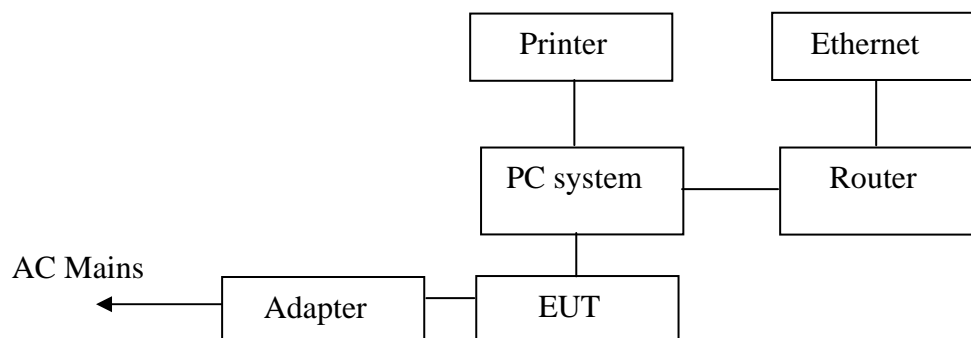


Figure 1 EUT Setup of Connect to PC mode

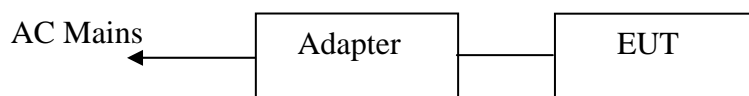
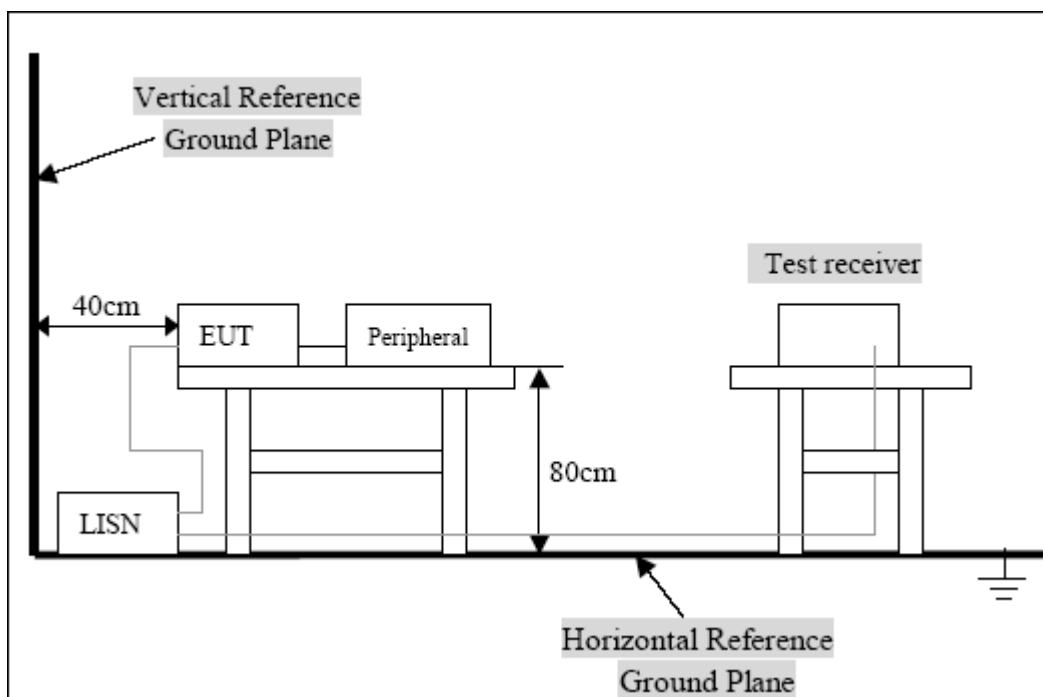


Figure 2 EUT Setup of Connect to Adapter mode

6.1.2. Test Setup Diagram



6.2. Test Standard

FCC Part 15 CLASS B

ANSI C63.4 2003

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 FCC Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

6.5. Operating Condition of EUT

6.5.1. Setup the EUT and simulators as shown in Section 6.1.

6.5.2. Turn on the power of all equipments.

6.5.3. Let the EUT work in test modes (Connect to PC, Connect to Adapter) and test it.

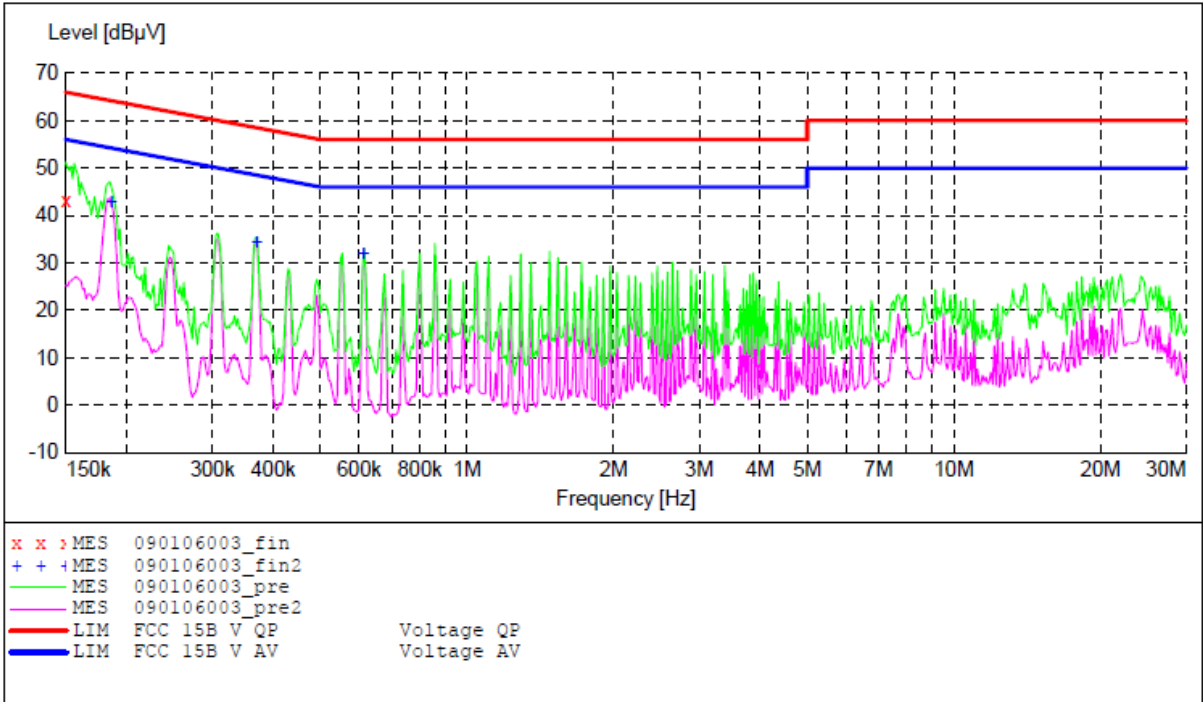
6.6. Test Procedure

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 is used to test the emissions from both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

6.7. Test Result

Pass

Test mode: Connect to PC N Line



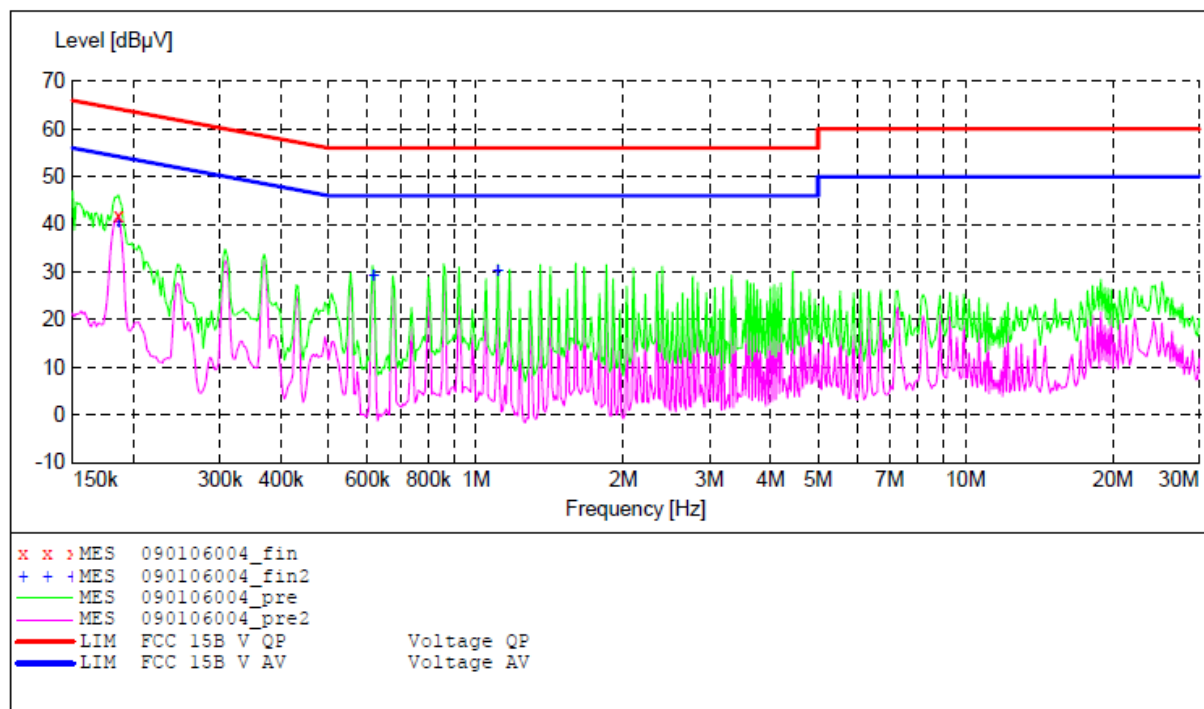
MEASUREMENT RESULT: "090106003_fin"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	43.10	11.0	66	22.9	QP	N	GND

MEASUREMENT RESULT: "090106003_fin2"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.186000	42.90	11.2	54	11.3	AV	N	GND
0.370500	34.50	11.8	49	14.0	AV	N	GND
0.613500	32.00	12.0	46	14.0	AV	N	GND

Test mode: Connect to PC L Line



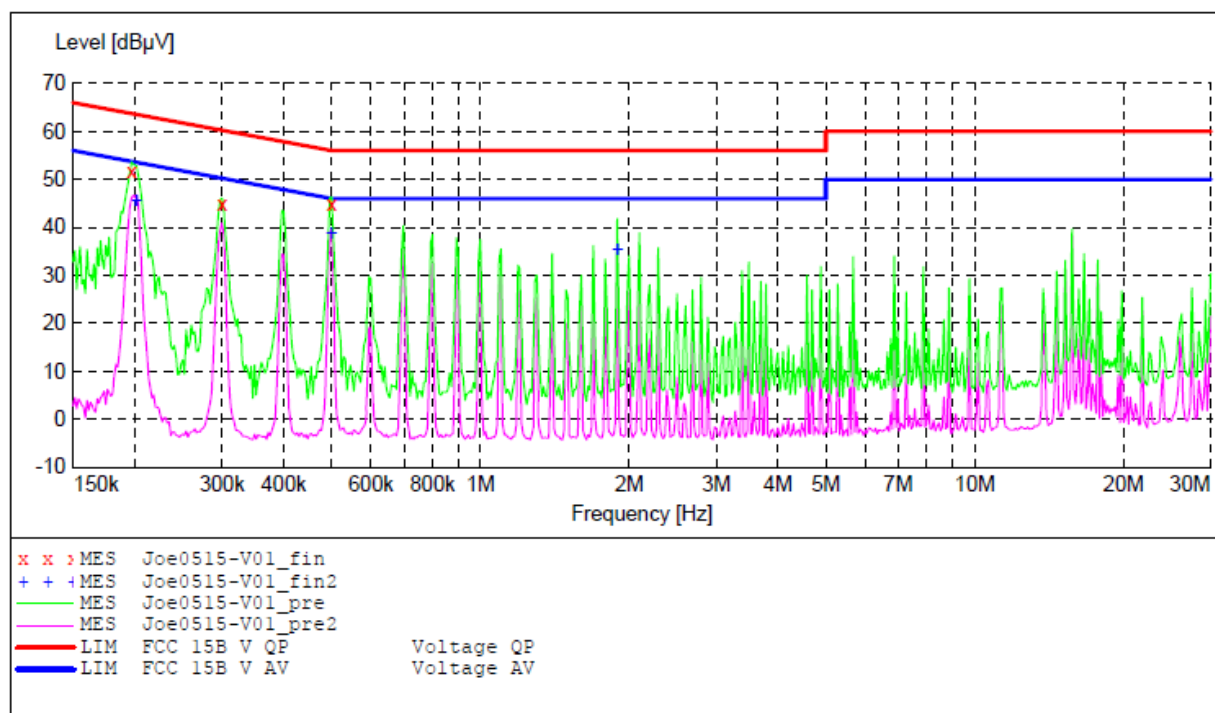
MEASUREMENT RESULT: "090106004_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.186000	41.70	11.2	64	22.5	QP	L1	GND

MEASUREMENT RESULT: "090106004_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.186000	40.40	11.2	54	13.8	AV	L1	GND
0.618000	29.20	11.9	46	16.8	AV	L1	GND
1.108500	30.30	11.8	46	15.7	AV	L1	GND

Test mode: Connect to Adapter N Line

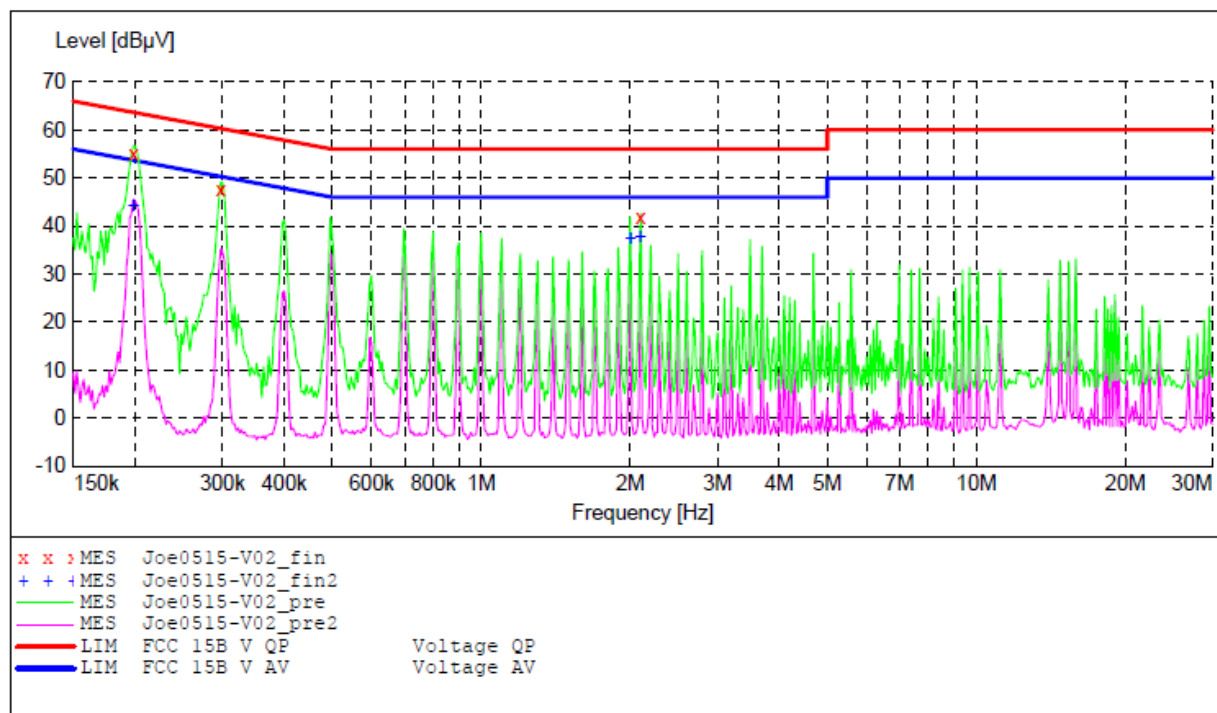
**MEASUREMENT RESULT: "Joe0515-V01_fin"**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.196675	51.70	11.2	64	12.0	QP	N	GND
0.300025	44.80	11.6	60	15.4	QP	N	GND
0.499611	44.90	12.0	56	11.1	QP	N	GND

MEASUREMENT RESULT: "Joe0515-V01_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.201433	45.70	11.2	54	7.9	AV	N	GND
0.499611	38.80	12.0	46	7.2	AV	N	GND
1.890342	35.20	11.7	46	10.8	AV	N	GND

Test mode: Connect to Adapter L Line



MEASUREMENT RESULT: "Joe0515-V02_fin"

5/15/2010 8:54AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.198248	55.00	11.2	64	8.7	QP	L1	GND
0.297644	47.50	11.6	60	12.8	QP	L1	GND
2.096657	41.70	11.6	56	14.3	QP	L1	GND

MEASUREMENT RESULT: "Joe0515-V02_fin2"

5/15/2010 8:54AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.198248	44.10	11.2	54	9.6	AV	L1	GND
1.998776	37.50	11.7	46	8.5	AV	L1	GND
2.096657	37.90	11.6	46	8.1	AV	L1	GND

7. RADIATED EMISSION MEASUREMENT

7.1. Block Diagram of EUT Configuration

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

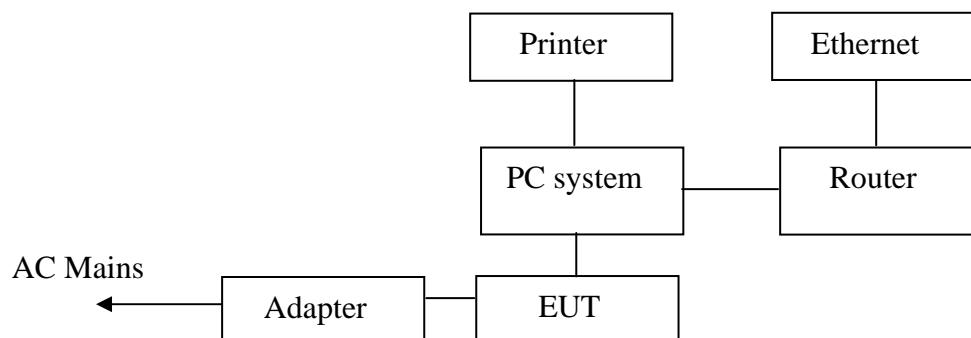


Figure 1 EUT Setup of Connect to PC mode

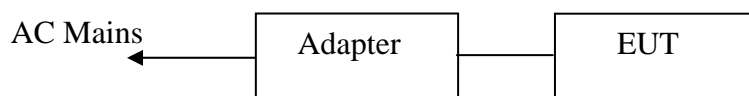
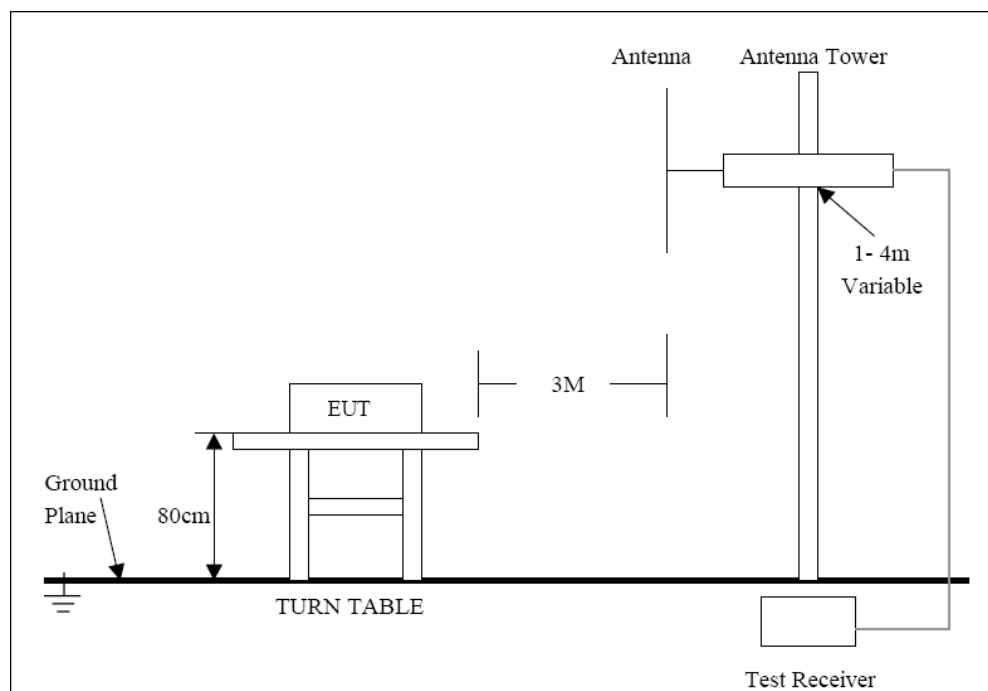


Figure 2 EUT Setup of Connect to Adapter mode

7.1.2. Semi-anechoic Chamber Test Setup Diagram



7.2. Test Standard

FCC Part 15 CLASS B
ANSI C63.4 2003

7.3. 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
Above 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 7.1

7.5.2.Turn on the power of all equipments.

7.5.3.Let the EUT work in test modes (Connect to PC, Connect to Adapter) and measure it.

7.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

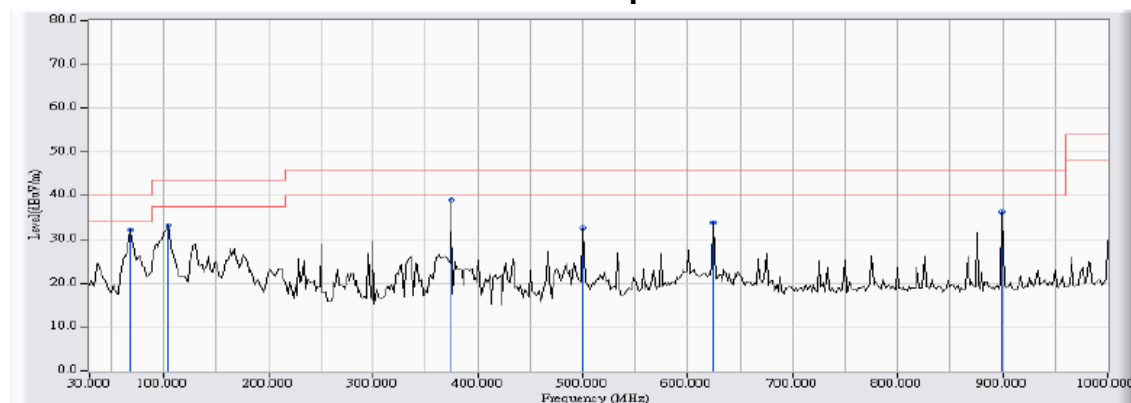
The frequency range from 9kHz to 1000MHz is checked.All the test results are listed in Section 7.7.

7.7. Test Result

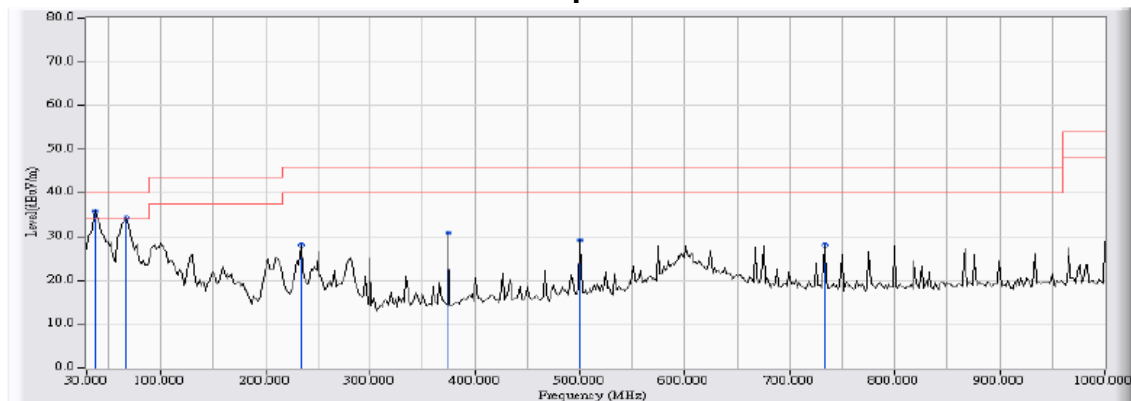
PASS

The frequency range from 9kHz to 6GHz is checked. The measurements greater than 20dB below the limit are not report.

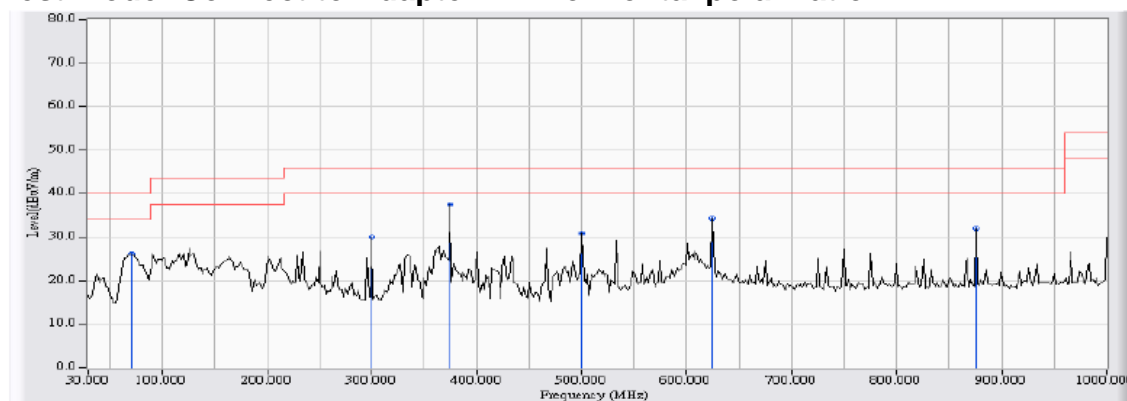
The final measurement in band 9-90kHz, 110-490kHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

Test mode: Connect to PC Horizontal polarization

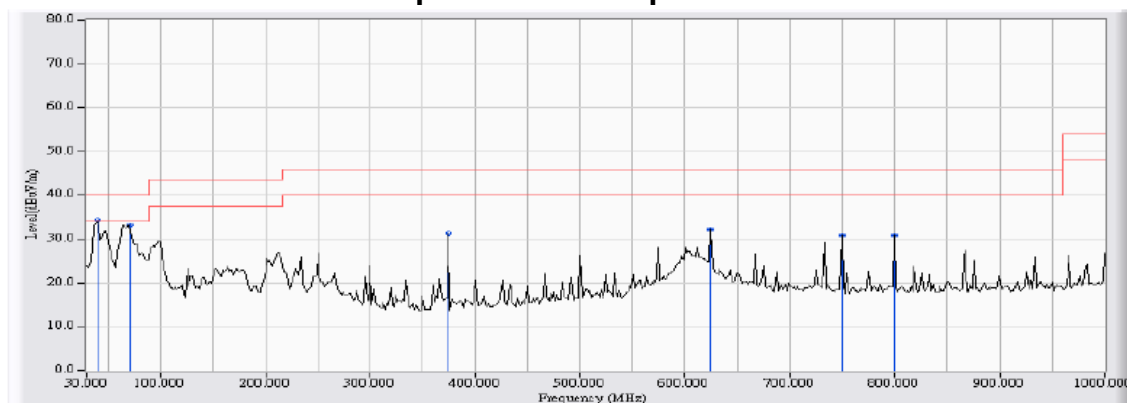
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	68.800	-18.159	50.419	32.259	-7.741	40.000	QUASIPeAK
2	104.367	-13.545	46.786	33.241	-10.259	43.500	QUASIPeAK
3	* 374.350	-8.586	47.658	39.073	-6.927	46.000	QUASIPeAK
4	500.450	-6.072	38.580	32.509	-13.491	46.000	QUASIPeAK
5	624.933	-4.882	38.689	33.807	-12.193	46.000	QUASIPeAK
6	899.767	-2.911	39.053	36.142	-9.858	46.000	QUASIPeAK

Test mode: Connect to PC Vertical polarization

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	* 38.083	-12.172	47.901	35.730	-4.270	40.000	QUASIPeAK
2	67.183	-18.166	52.578	34.412	-5.588	40.000	QUASIPeAK
3	233.700	-12.656	40.724	28.068	-17.932	46.000	QUASIPeAK
4	374.350	-8.586	39.418	30.833	-15.167	46.000	QUASIPeAK
5	500.450	-6.072	35.193	29.122	-16.878	46.000	QUASIPeAK
6	733.250	-4.139	32.224	28.085	-17.915	46.000	QUASIPeAK

Test mode: Connect to Adapter Horizontal polarization


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		70.417	-18.120	44.381	26.261	-13.739	40.000	QUASIPeAK
2		299.983	-10.671	40.734	30.063	-15.937	46.000	QUASIPeAK
3	*	374.350	-8.586	46.075	37.490	-8.510	46.000	QUASIPeAK
4		500.450	-6.072	36.994	30.923	-15.077	46.000	QUASIPeAK
5		624.933	-4.882	39.286	34.404	-11.596	46.000	QUASIPeAK
6		875.517	-3.015	34.927	31.912	-14.088	46.000	QUASIPeAK

Test mode: Connect to Adapter Vertical polarization


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	39.700	-12.668	46.909	34.241	-5.759	40.000	QUASIPeAK
2		70.417	-18.120	51.440	33.320	-6.680	40.000	QUASIPeAK
3		374.350	-8.586	39.958	31.373	-14.627	46.000	QUASIPeAK
4		624.933	-4.882	36.984	32.102	-13.898	46.000	QUASIPeAK
5		749.417	-3.947	34.740	30.794	-15.206	46.000	QUASIPeAK
6		799.533	-3.355	34.146	30.791	-15.209	46.000	QUASIPeAK