


FCC PART 15 CLASS B
EMI MEASUREMENT AND TEST REPORT
For
PEGA LIMITED

Unit 10A, 12/F, Tower 2, China Hong Kong City, No.33 Canton Road, Tsim Sha Tsui, Hong Kong

FCC ID: OF5PG-IH119TX

July 6, 2012

This Report Concerns: Original Report	Equipment Type: 2.4G Wireless Home Theater Audio and Charger Dock (TX)
Test Engineer:	Eric Li <i>Eric Li</i>
Report No.:	BST12060250Y-1ER-3-2
Receive EUT Date/Test Date:	June 29, 2012/ July 2-5, 2012
Reviewed By:	Christina Deng <i>Christina Deng</i>
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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

Shenzhen Certification Technology Service Co., Ltd

(FCC Registered Test Site Number: 197647) on

2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road,

Bao'an District, shenzhen 518126, China

The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

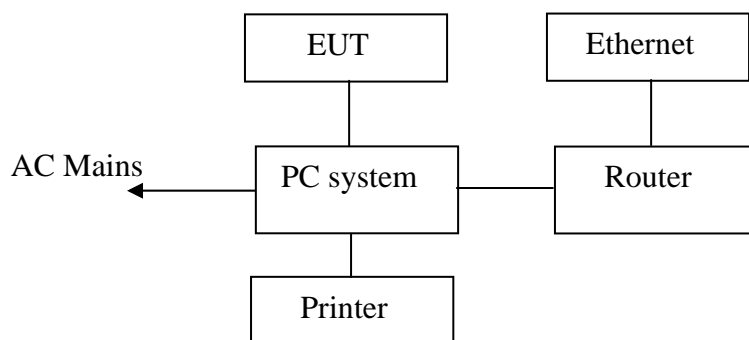
Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant : PEGA LIMITED
 Address : Unit 10A, 12/F, Tower 2, China Hong Kong City, No.33 Canton Road, Tsim Sha Tsui, Hong Kong
 Manufacturer : PEGA LIMITED
 Address : Haibin Industrial Zone, Xinye Road, 65TH Block Xixiang Town, Bao'an District, ShenZhen City, China
 EUT Description : 2.4G Wireless Home Theater Audio and Charger Dock (TX)
 Trade Name : iPega, Promate
 Model Number : PG-IH119, proCube
 Power Supply : DC 5V

2.2. Block Diagram of EUT Configuration



2.3. Support Equipment List

Name	Model No	S/N	Manufacturer	Used “ ”
PC system	AM1830	N/A	Acer	
Printer	HP1020	N/A	HP	
Router	TL-R402M	07115200391	TP-LINK	

2.4. Test Conditions

Temperature: 20~25

Relative Humidity: 50~63 %

3. FCC ID LABEL

FCC ID: OF5PG-IH119TX

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

Statement: All testing was performed using the test procedures found in ANSI C63.4-20003.

Modifications

No modification was made.

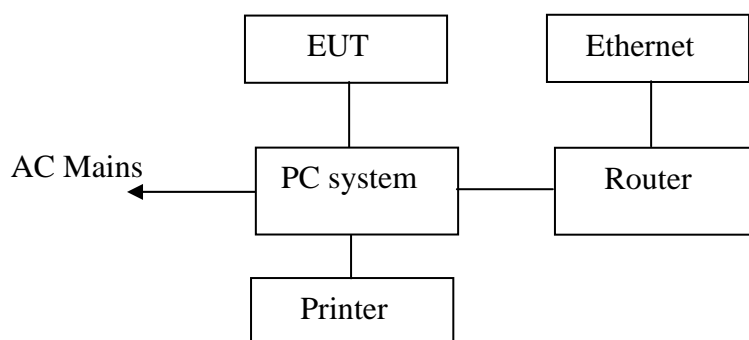
5. TEST EQUIPMENT USED

Equipment/Facilities	Manufacturer	Model #	serial no.	Last Calibrated	Calibrated until
Cable	Resenberger	N/A	NO.1	Mar 10 , 2012	Mar 10 , 2013
Cable	SCHWARZBECK	N/A	NO.2	Mar 10 , 2012	Mar 10 , 2013
Cable	SCHWARZBECK	N/A	NO.3	Mar 10 , 2012	Mar 10 , 2013
LISN	Rohde & Schwarz	ESH3-Z5	100305	Mar 10 , 2012	Mar 10 , 2013
50 Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar 10 , 2012	Mar 10 , 2013
EMI Test Receiver	Rohde & Schwarz	ESP13	100180	Oct.11,2011	Oct.11,2012
Spectrum Analyzer	Rohde & Schwarz	FSP40	100273	Sep.10,2011	Sep.10,2012
3m Semi-Anechoic Chamber	Albatross Projects	9m×6m×6m	N/A	Feb.20,2012	Feb.20,2013
Signal Generator	FLUKE	PM5418 + Y/C	LO747012	Feb.20,2012	Feb.20,2013
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.20,2012	Feb.20,2013
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan.30,2012	Jan.30,2013
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Sep.22,2011	Sep.22,2012
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-564	Sep.22,2011	Sep.22,2012
Ultra Broadband Antenna	Rohde & Schwarz	HL-562	100110	June.15,2012	June.15,2013
AMN	Rohde & Schwarz	ESH3-Z5	100196	Oct.11,2011	Oct.11,2012
AMN	Rohde & Schwarz	ESH3-Z5	100197	Oct.11,2011	Oct.11,2012
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
Power Meter	Rohde & Schwarz	NRVD	100041	Feb.20,2012	Feb.20,2013
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	Feb.20,2012	Feb.20,2013
Coaxial Cable with N-connectors	SCHWARZBECK	AK9515H	95549	Sep.22,2011	Sep.22,2012
Radio Communication Test Set	Rohde & Schwarz	CMS 54	846621/024	Feb.20,2012	Feb.20,2013
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.20,2012	Feb.20,2013
Absorbing clamp	Rohde & Schwarz	MDS-21	N/A	Oct.11,2011	Oct.11,2012

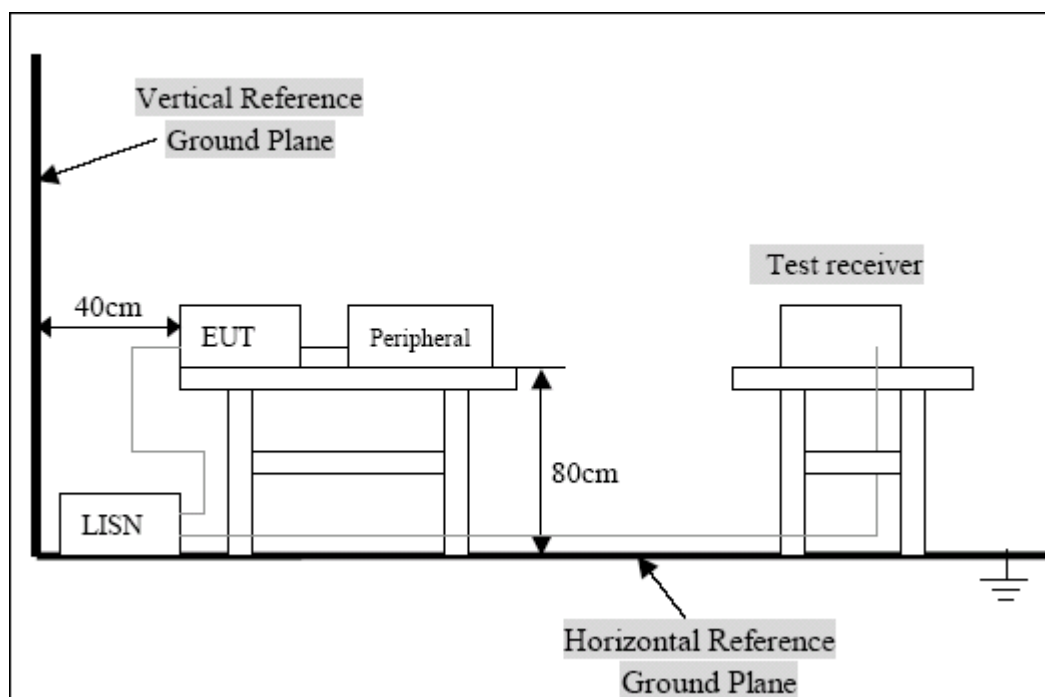
6. CONDUCTED EMISSION TEST

6.1. Block Diagram of Test Setup

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



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.

6.4.1.EUT Information

Model Number: PG-IH119, proCube
Serial Number: N/A

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 mode (Connect to PC) and test it.

6.6. Test Procedure

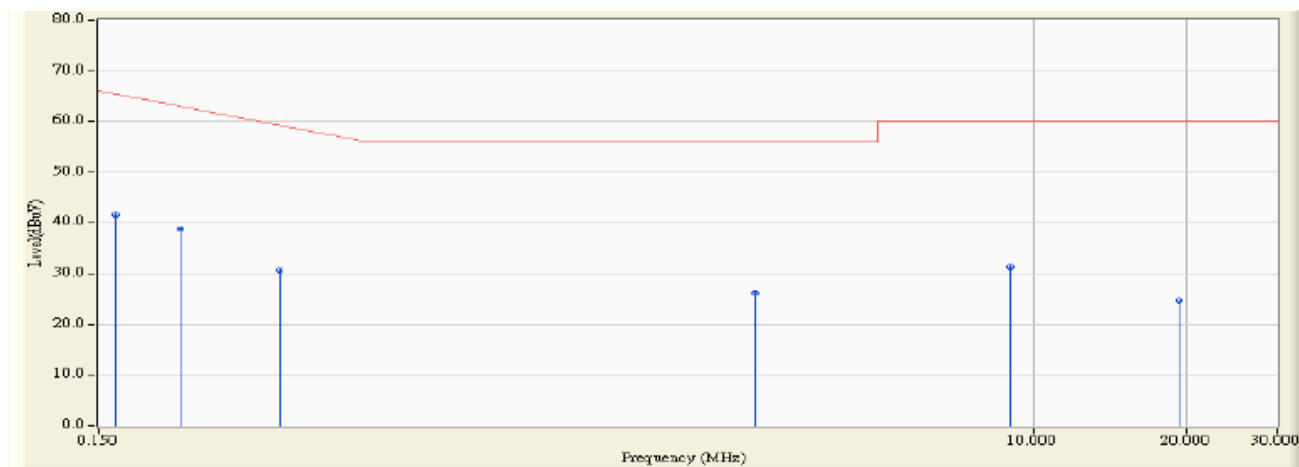
The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30)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

6.7. Test Result

Pass

Date of Test:	July 3, 2012	Temperature:	25oC
EUT:	2.4G Wireless Home Theater Audio and Charger Dock (TX)	Humidity:	53%
Model No.:	PG-IH119, proCube	Power Supply:	DC 5V power by PC USB port PC power: AC120V/60Hz
Test Mode:	Connect to PC	Test Engineer:	Eric Li

L Line

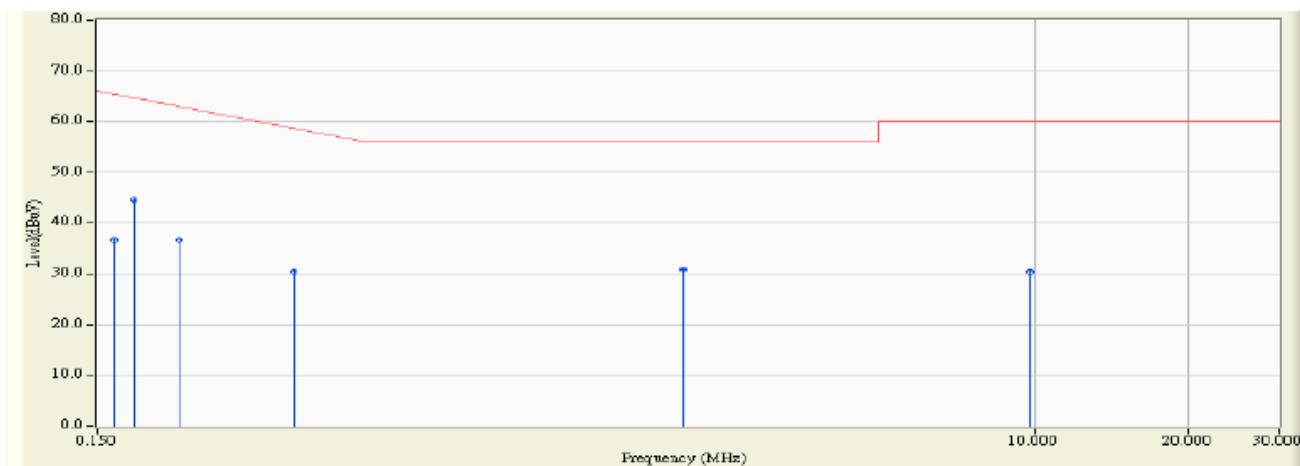


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.162	0.141	41.440	41.581	-24.076	65.657	QUASIPeAK
2		0.216	0.159	38.710	38.869	-25.245	64.114	QUASIPeAK
3		0.339	0.190	30.450	30.640	-29.960	60.600	QUASIPeAK
4		2.864	0.410	25.850	26.260	-29.740	56.000	QUASIPeAK
5		9.060	0.590	30.690	31.280	-28.720	60.000	QUASIPeAK
6		19.298	0.900	23.670	24.570	-35.430	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak, The average measurement was not performed when the Quasi-Peak measured data under the limit of average detection.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

N Line



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV)	Margin (dB)	Limit (dBμV)	Detector Type
1		0.162	0.141	36.470	36.611	-29.046	65.657	QUASIPeAK
2	*	0.177	0.146	44.540	44.686	-20.543	65.229	QUASIPeAK
3		0.216	0.159	36.600	36.759	-27.355	64.114	QUASIPeAK
4		0.361	0.190	30.180	30.370	-29.601	59.971	QUASIPeAK
5		2.068	0.390	30.450	30.840	-25.160	56.000	QUASIPeAK
6		9.850	0.713	29.720	30.433	-29.567	60.000	QUASIPeAK

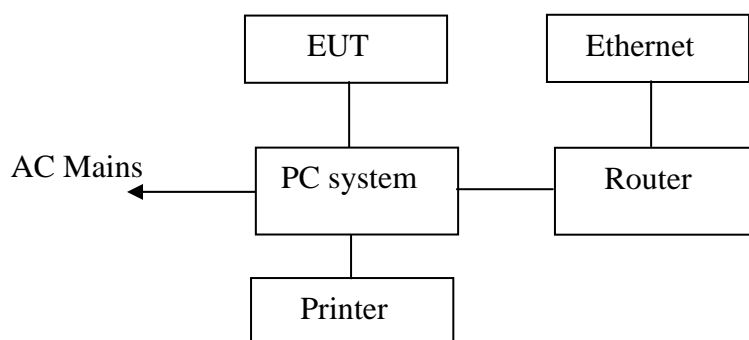
Note:

1. All Reading Levels are Quasi-Peak, The average measurement was not performed when the Quasi-Peak measured data under the limit of average detection.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

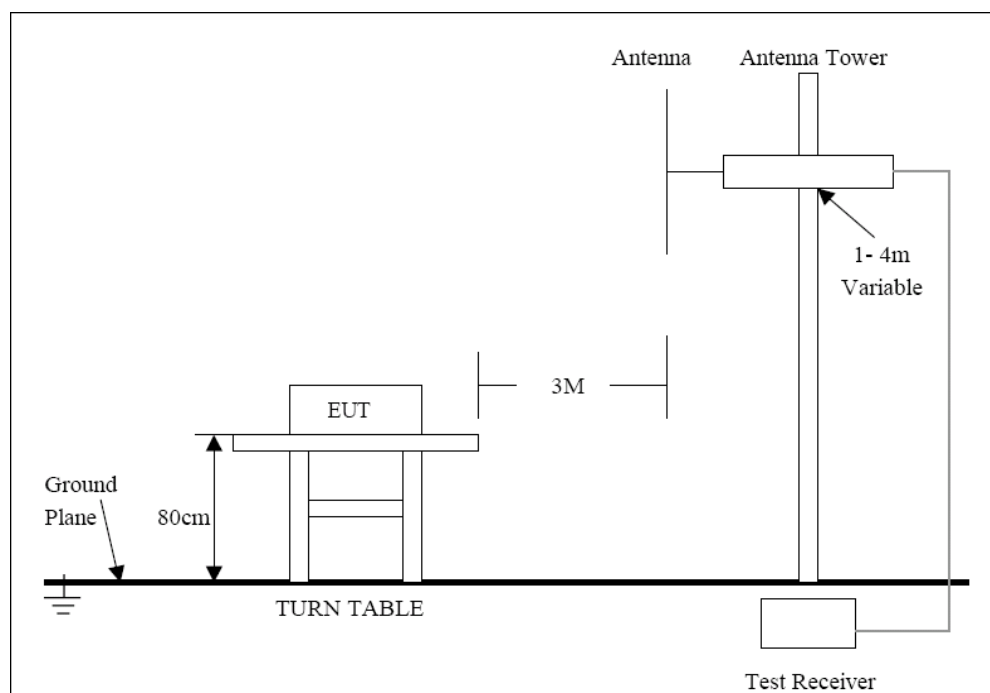
7. RADIATED EMISSION MEASUREMENT

7.1. Block Diagram of EUT Configuration

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



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)	Limit			The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dB μ V/m)	Measurement distance (m)	
0.009 - 0.490	2400/F(kHz)	/	300	
0.490 - 1.705	24000/F(kHz)	/	30	
1.705-30	30	29.5	30	
30 - 88	100	40	3	
88 - 216	150	43.5	3	
216 - 960	200	46	3	
Above 960	500	54	3	

Note: (1) RF Voltage (dBuV)=20 log Voltage(uV)

(2) In the Above Table,the tighter limit applies at the band edges.

(3) Distancce refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device 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 mode (Connect to PC) 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 and 1000kHz in above 1G.

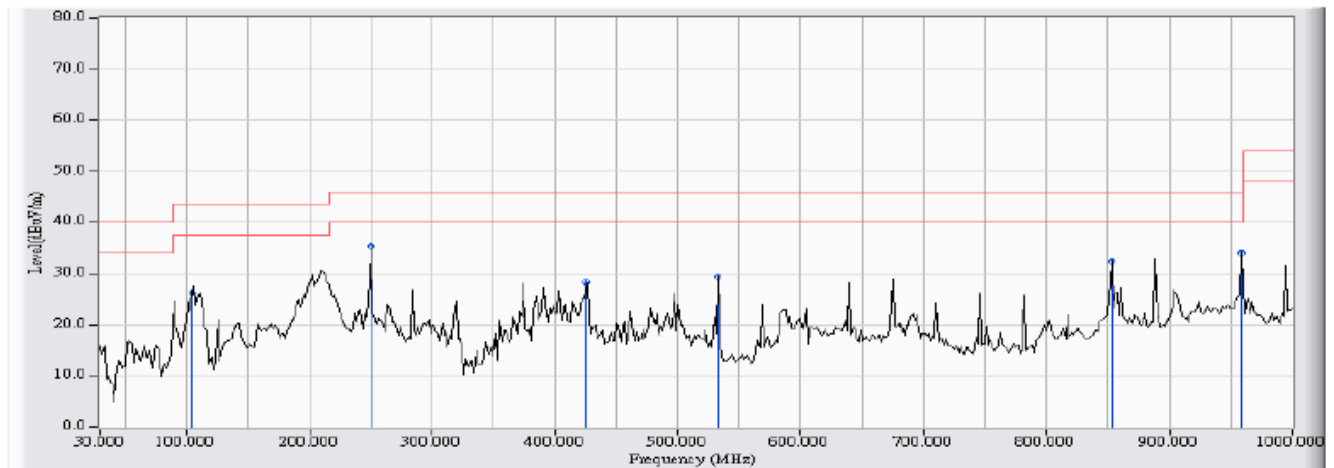
The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The measurements greater than 20dB below the limit are not report.

7.7. Test Result

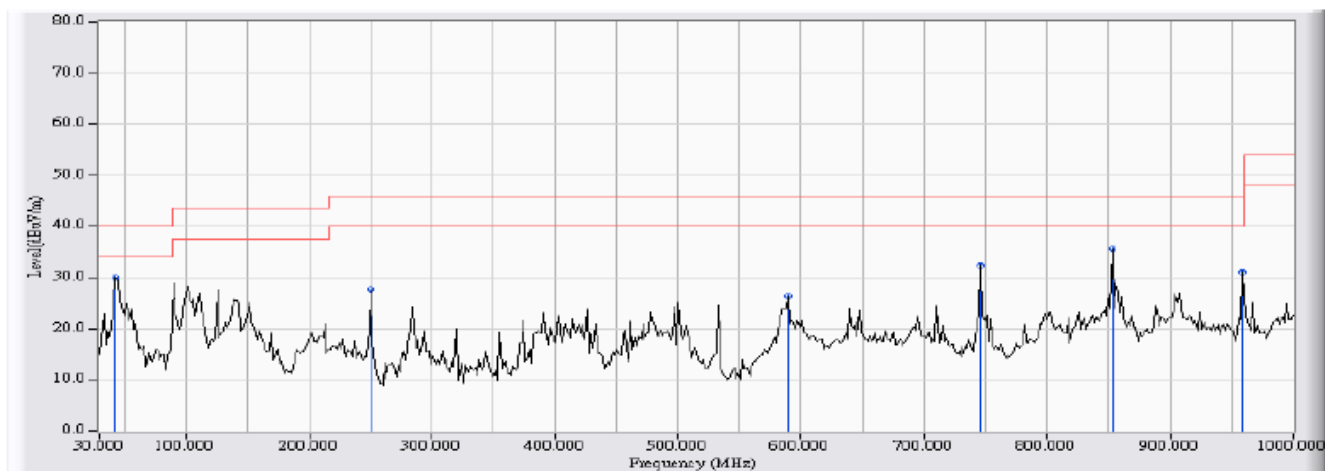
PASS

Horizontal polarization



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		104.367	-15.488	41.565	26.077	-17.423	43.500	QUASIPeAK
2	*	249.867	-13.345	48.698	35.353	-10.647	46.000	QUASIPeAK
3		426.083	-5.040	33.280	28.240	-17.760	46.000	QUASIPeAK
4		532.783	-8.888	38.257	29.369	-16.631	46.000	QUASIPeAK
5		852.883	-0.749	33.168	32.419	-13.581	46.000	QUASIPeAK
6		959.583	1.179	32.975	34.154	-11.846	46.000	QUASIPeAK

Vertical polarization



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	42.933	-11.665	41.639	29.974	-10.026	40.000	QUASIPeAK
2		249.867	-14.145	41.815	27.670	-18.330	46.000	QUASIPeAK
3		589.367	-4.433	30.800	26.368	-19.632	46.000	QUASIPeAK
4		746.183	-5.396	37.740	32.344	-13.656	46.000	QUASIPeAK
5		852.883	-2.700	38.197	35.496	-10.504	46.000	QUASIPeAK
6		959.583	-5.055	36.252	31.197	-14.803	46.000	QUASIPeAK