FCC PART 15.209 TEST REPORT

Prepared For	Aaron & Andrew Design Inc
Product Name:	RF Receiver
Report No.:	PTS20120103-3F
Trade Name:	N/A
Model Name :	98801, 98801-A, 98801-B
FCC ID:	AG298801
Prepared By	DongGuan Precise Testing Service Co.,Ltd.
	F616A Room, 6th Floor, Meixin Business Center, Dongcheng Middle Road, Dongguan, Guangdong, China
Test Date:	Jan.03 ~ Jan.08, 2012
Date of Report :	Jan.08, 2011

VERIFICATION OF COMPLIANCE

Applicant:	Aaron & Andrew Design Inc
Address	2F, # 2, Alley 19, Section 1, Wan-Mei Street, Mu-Ga, Taipei, Taiwan
Manufacturer Name:	NINGBO SHENGYE ELECTRIC APPLIANCE CO.,LTD
Address:	North Guangming Road,Simen Town,Yuyao City,Zhejiang,China
Product Description:	RF Receiver
Brand Name:	N/A
Model Name:	98801, 98801-A, 98801-B
Model difference	All the same, Olny Led is difference.
Test procedure	ANSI C63.4 : 2003

Prepared by : Jones Song
Assistant

Reviewer : David Liu
Supervisor

Approved & Authorized Signer : Jacky Ou
Jack Ou / Manager

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

The EUT is a short rang, lower power, RF Receiver.

A major technical description of EUT is described as following:

Equipment Under Test:	RF Receiver
Power Supply	AC100-240V/50-60Hz
Receiving frequency:	315MHz(only one channel)
Housing Type:	Plastic
Description of EUT	It is only Receive, and isn't transmit
Antenna Type	Built-in Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	Built-in Antenna	N/A	0.78	N/A

1.2 TEST FACILITY

All measurement facilities used to collect the measurement data are located at

World Standardization Certification&TestingCO.,LTD

Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong,

China.
The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003.
FCC register No.: 131628

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements

1.3 PRODUCT INFORMATION

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
AC INPUT PORT	1	1	1
AC OUTPUT PORT	1	1	1

1.4SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
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**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

1.5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (if need).
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

2. FCC LINE CONDUCTED EMISSION TEST

2.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

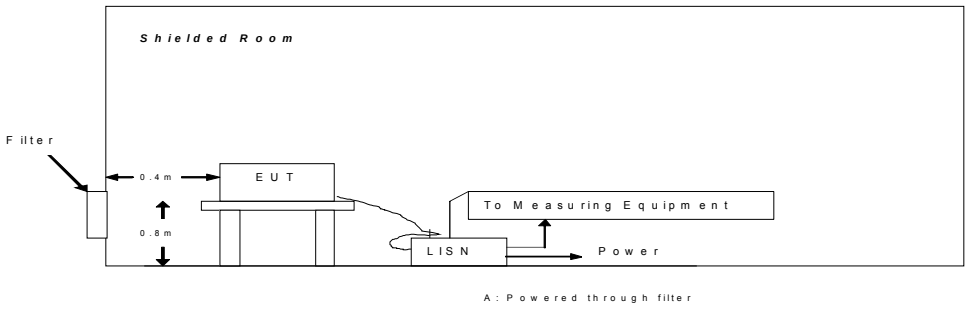
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/29/2011	06/28/2012
EMI Test Receiver	H.P.	8546A	N/A	06/29/2011	06/28/2012
LISN	EMCO	3825/2	N/A	06/29/2011	06/28/2012

2.2 .LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

2.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



2.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST

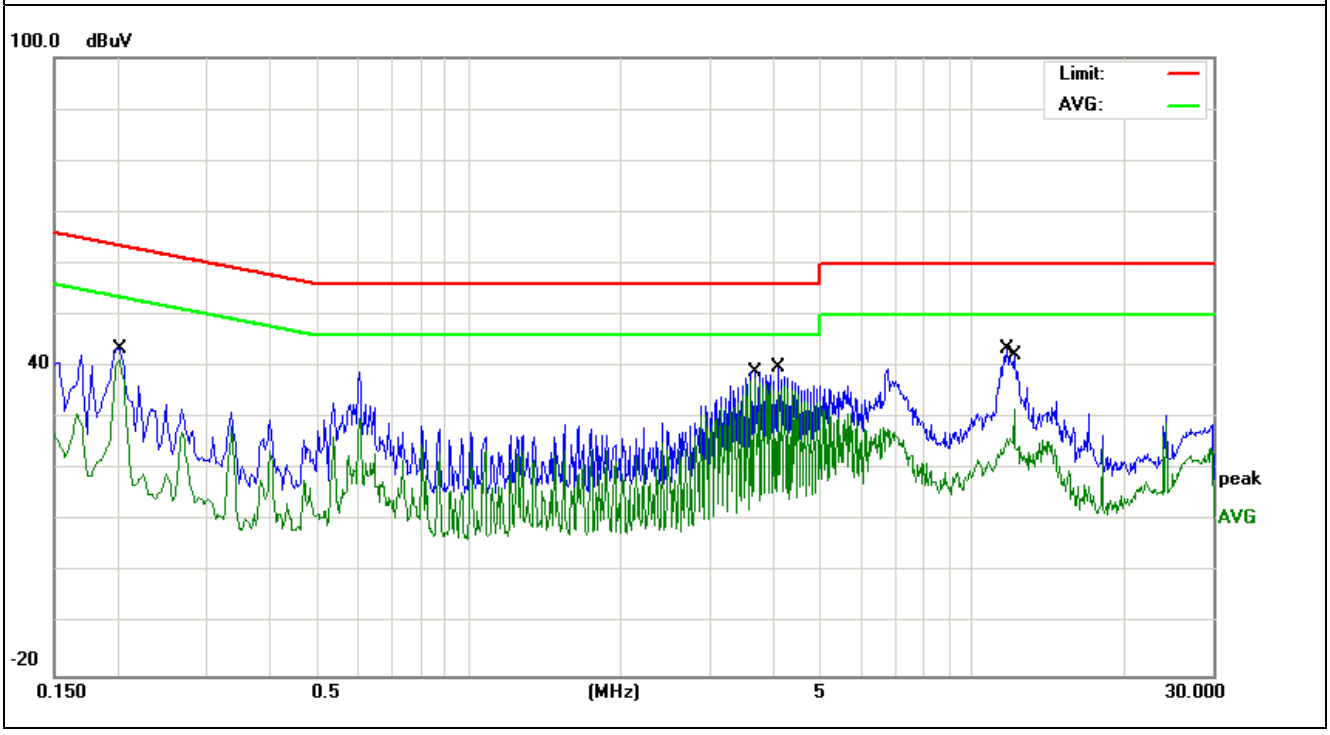
1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) The EUT received power through a Line Impedance Stabilization Network (LISN) that was grounded to the protect earth.
5) All support equipments received AC120V power from a second LISN, if any.
6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.
9) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
10) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
11) The test data of the worst case condition(s) was reported on the Summary Data page.

2.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

TEST RESULT OF LINE CONDUCTED EMISSION-L

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dbμv)	(dbμv)	(db)	
0.202	33.1	10.44	43.54	63.52	-19.98	QP
0.202	31.03	10.44	41.47	53.52	-12.05	AVG
3.698	27.24	10.62	37.86	46	-8.14	AVG
4.1019	29.13	10.62	39.75	56	-16.25	QP
11.7099	32.83	10.69	43.52	60	-16.48	QP
12.0819	21.05	10.69	31.74	50	-18.26	AVG

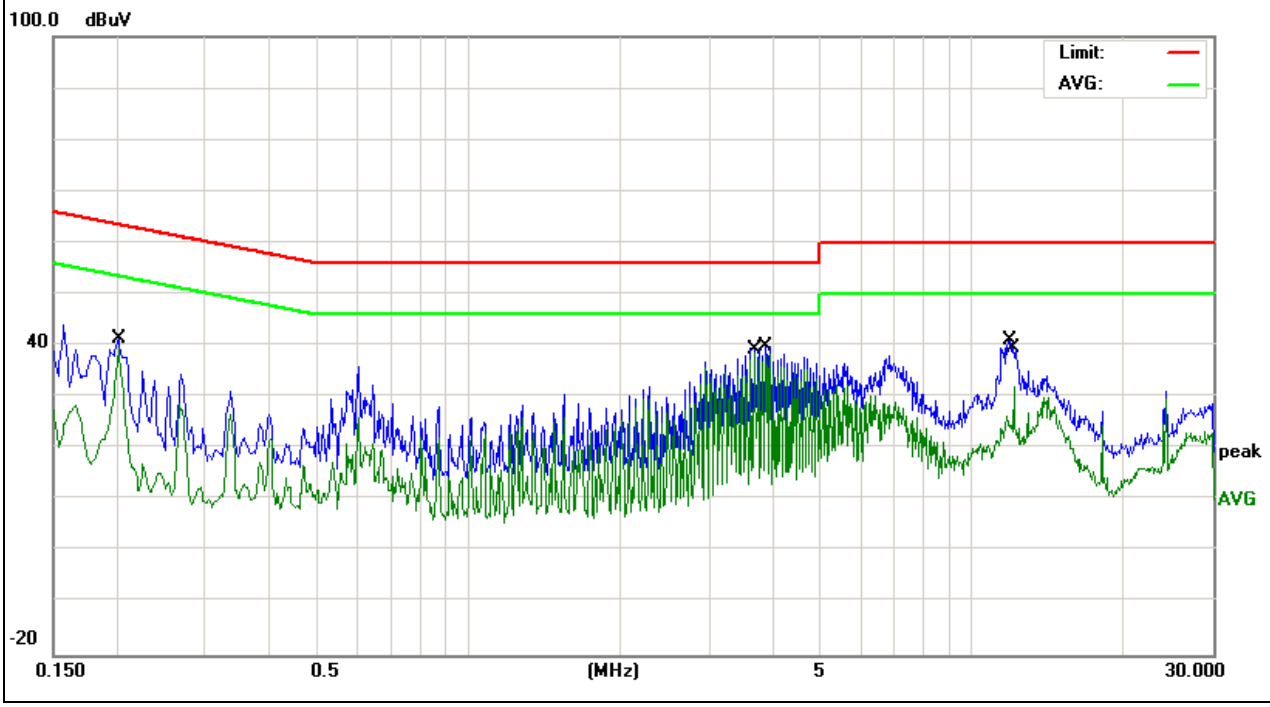
Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



TEST RESULT OF LINE CONDUCTED EMISSION-N

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dbμv)	(dbμv)	(db)	
0.202	31.07	10.43	41.5	63.52	-22.02	QP
0.202	29.13	10.43	39.56	53.52	-13.96	AVG
3.6979	27.93	10.65	38.58	46	-7.42	AVG
3.898	29.17	10.66	39.83	56	-16.17	QP
11.8899	30.47	10.71	41.18	60	-18.82	QP
12.0818	21.36	10.71	32.07	50	-17.93	AVG

Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



3. FCC RADIATED EMISSION TEST

3.1. TEST EQUIPMENT OF RADIATED EMISSION

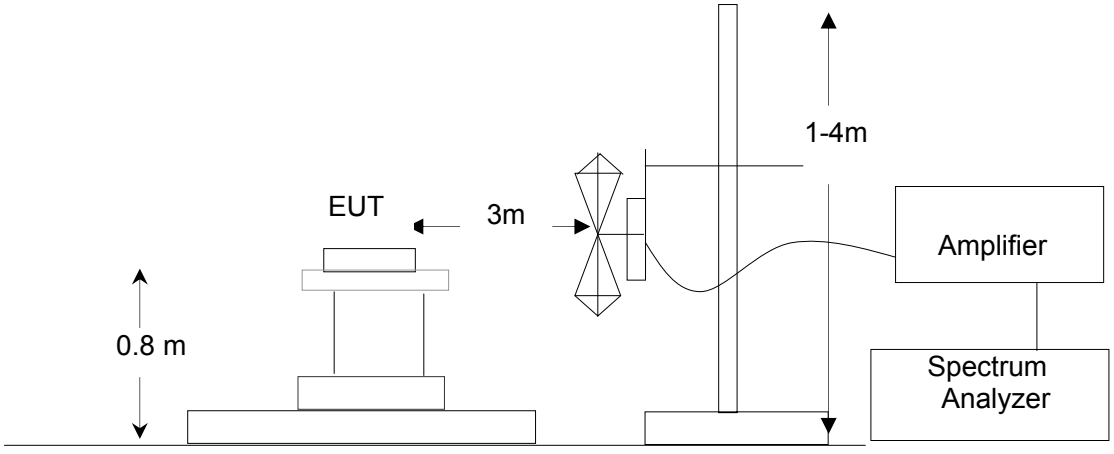
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI test receiver	H.P.	8546A	N/A	06/29/2011	06/28/2012
Amplifier	H.P.	8447D	N/A	06/29/2011	06/28/2012
Antenna	EMCO	85650A	N/A	06/29/2011	06/28/2012
CABLE	TIME MICROWAVE	LMR-400	N/A	06/29/2011	06/28/2012

3.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

3.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST



3.4 PROCEDURE OF RADIATED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) . All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The test mode(s) were scanned during the test:
8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

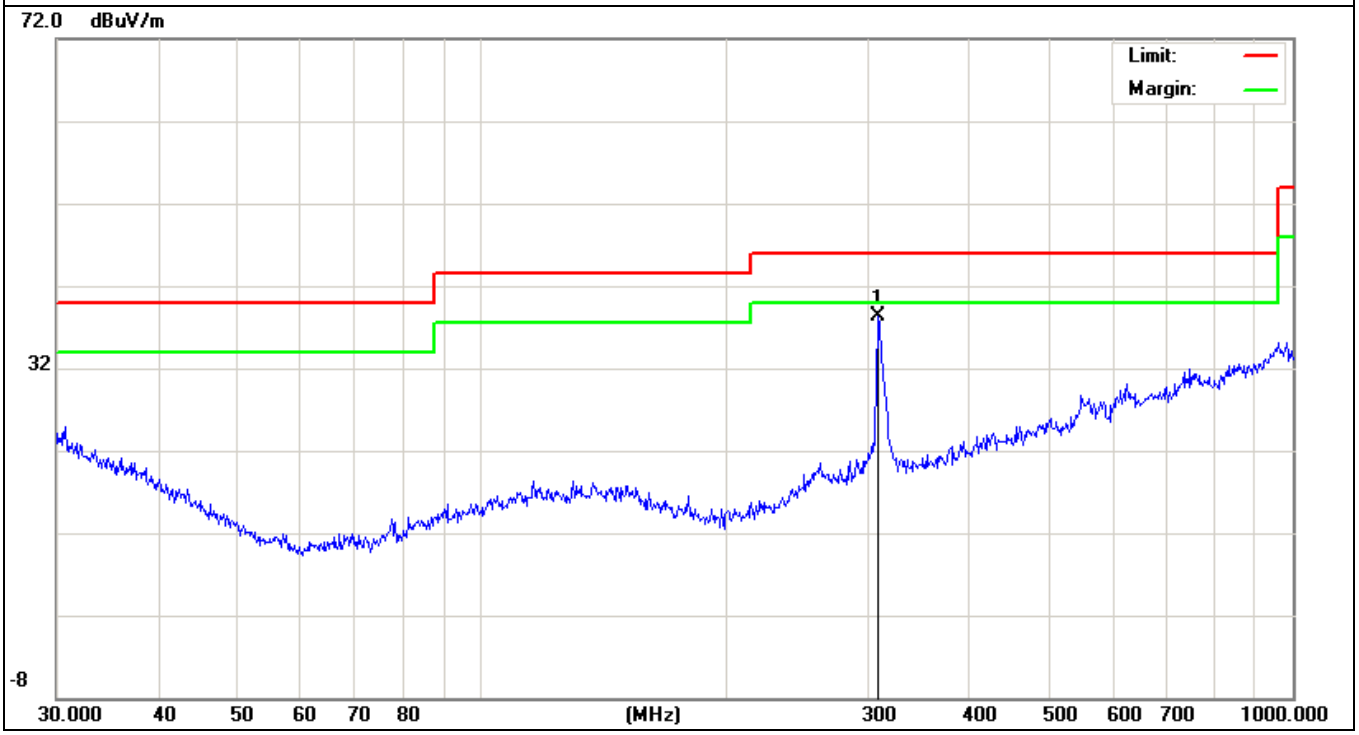
The test data of the worst case condition(s) was reported on the Summary Data page.

3.5 TEST RESULT OF RADIATED EMISSION TEST

TEST RESULT OF RADIATED EMISSION - HORIZONTAL

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dBμv/m)	(dBμv/m)	(db)	
308.9126	23.77	14.59	38.36	46	-7.64	peak

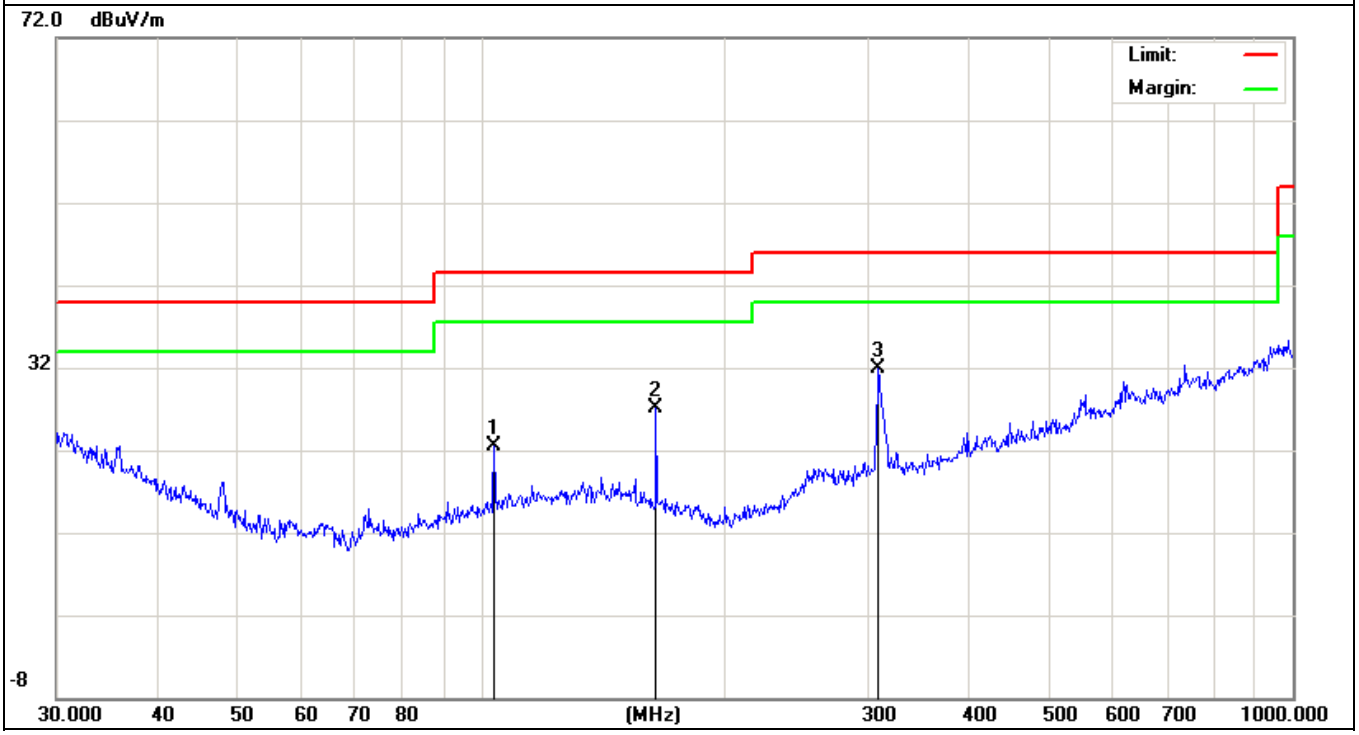
Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



TEST RESULT OF RADIATED EMISSION –VERTICAL

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dBμv/m)	(dBμv/m)	(db)	
103.8055	11.6	10.87	22.47	43.5	-21.03	peak
164.3301	16.55	10.47	27.02	43.5	-16.48	peak
308.9126	17.28	14.59	31.87	46	-14.13	peak

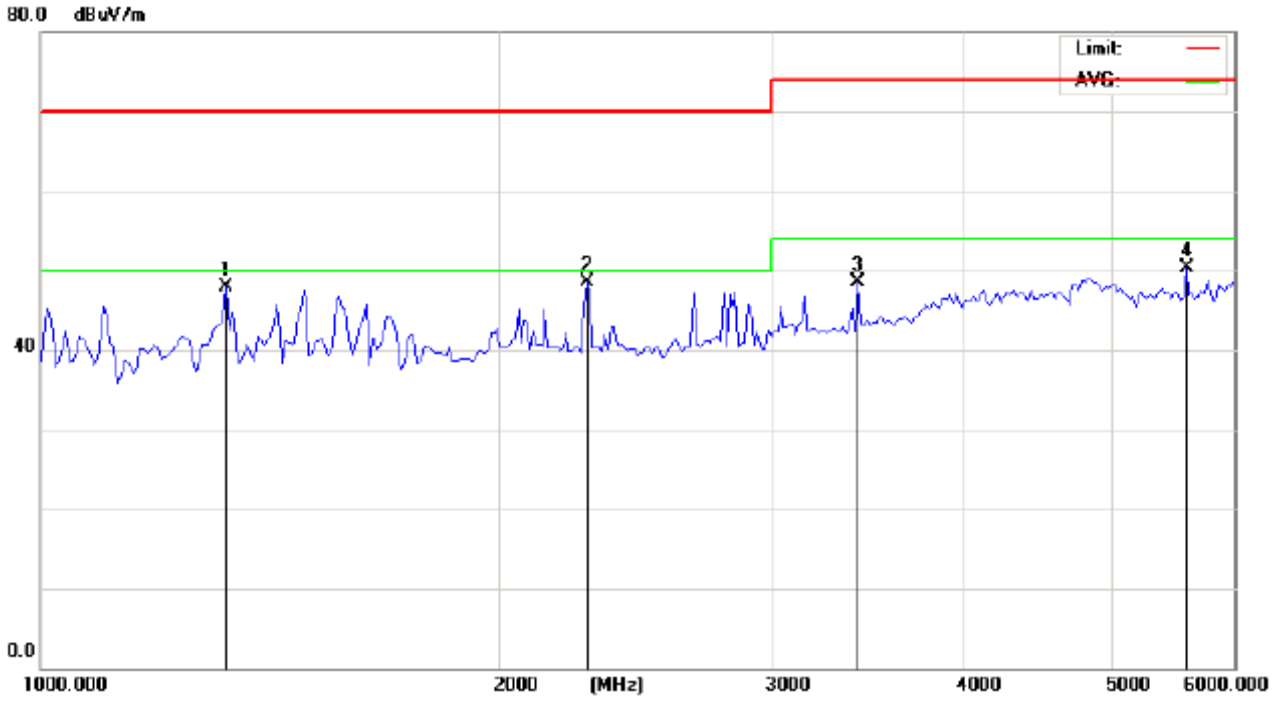
Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



TEST RESULT OF RADIATED EMISSION - HORIZONTAL
(1GHZ TO 6GHZ)

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dBμv/m)	(dBμv/m)	(db)	
1325	65.57	-17.63	47.94	70	-22.06	peak
2275	61.28	-12.87	48.41	70	-21.59	peak
3412.5	58.49	-9.99	48.5	74	-25.5	peak
5600	54.36	-4.07	50.29	74	-23.71	peak

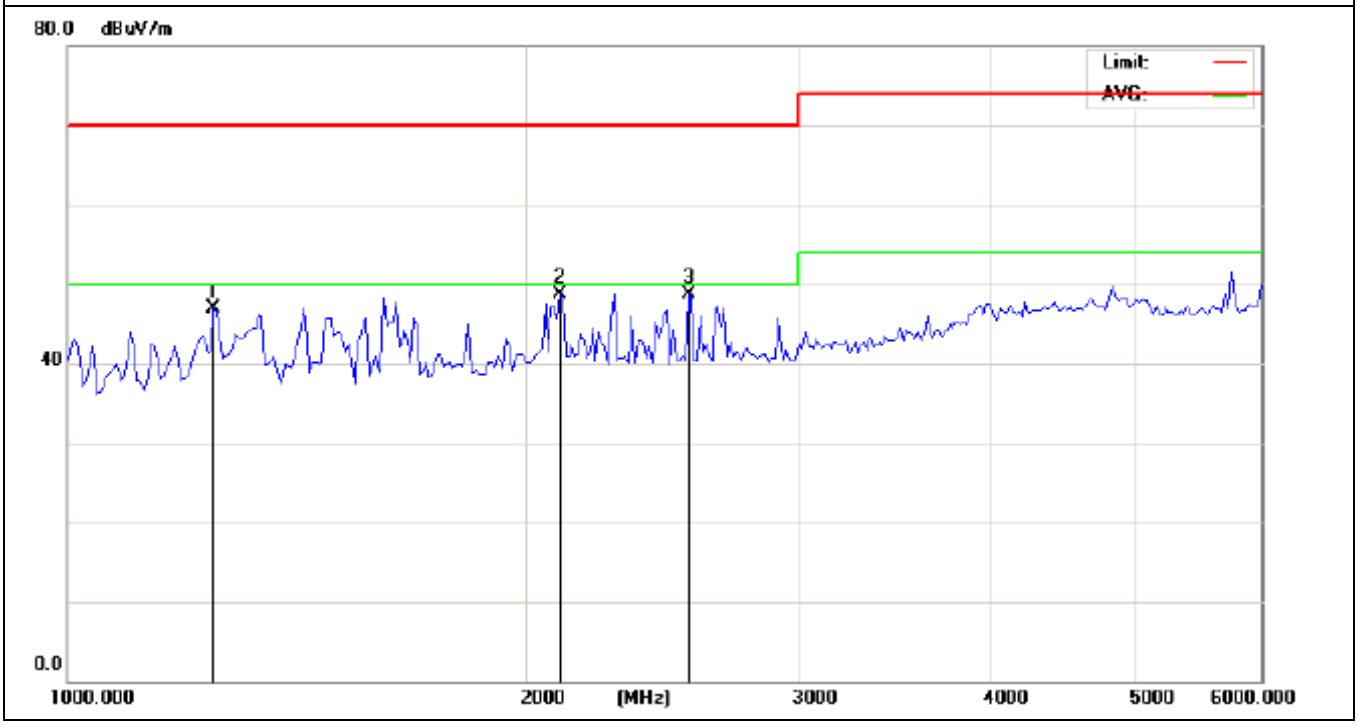
Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



TEST RESULT OF RADIATED EMISSION -VERTICAL
(1GHZ TO 6GHZ)

Frequency	Reading level	Correct factor	Measure-ment	Limits	Margin	Detector type
(Mhz)	(dbμv)	(db)	(dBμv/m)	(dBμv/m)	(db)	
1250	64.69	-17.74	46.95	70	-23.05	peak
2100	60.64	-11.84	48.8	70	-21.2	peak
2550	61.69	-12.92	48.77	70	-21.23	peak

Remark:
1. All readings are quasi-peak and average values.
2. Factor = insertion loss + cable loss.



4 ANTENNA REQUIREMENT

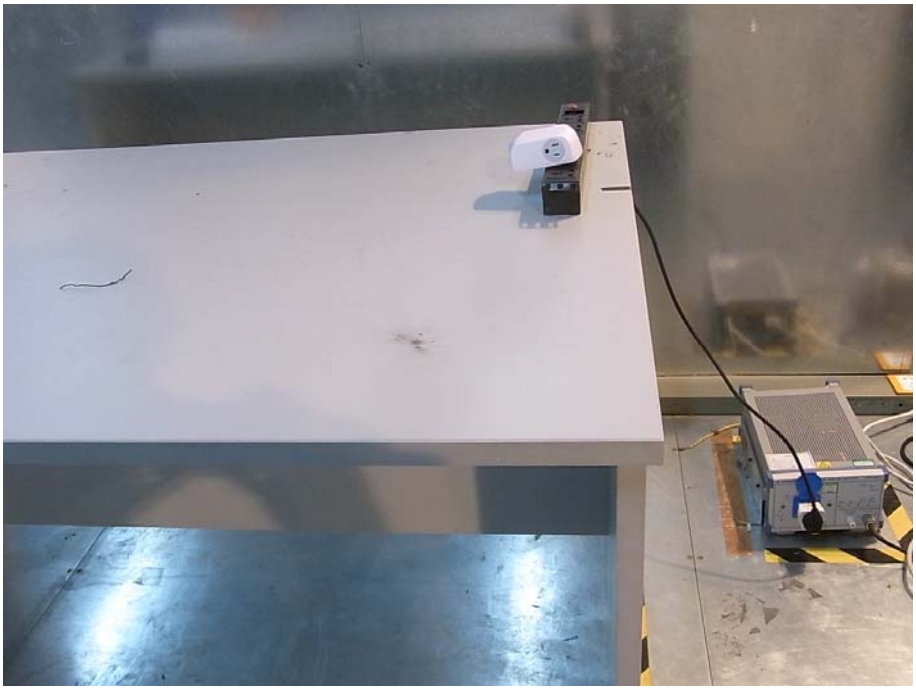
4.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

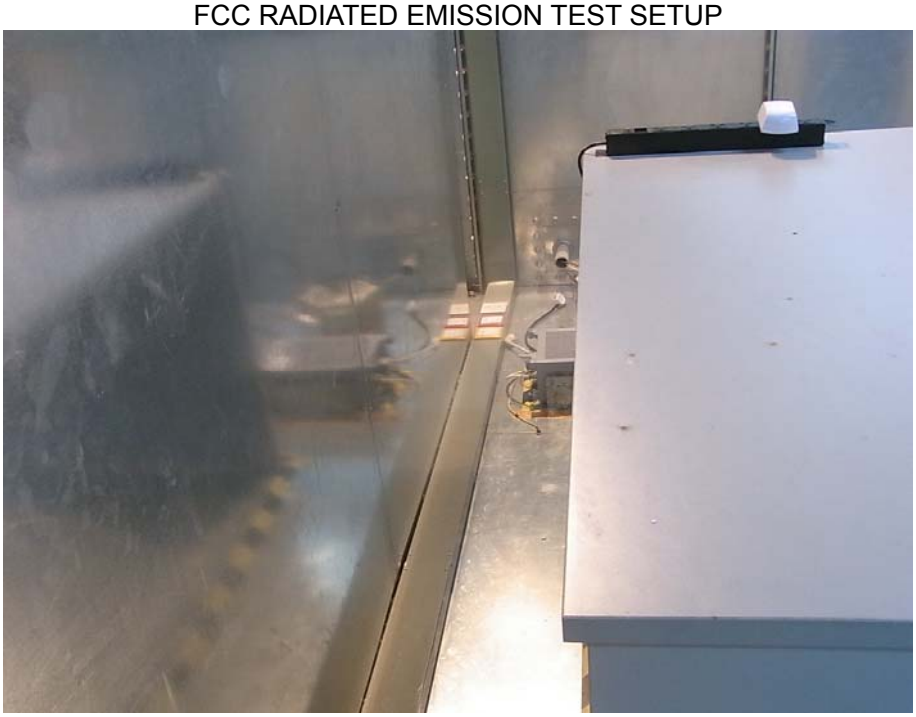
4.2 EUT ANTENNA

The EUT antenna is integral Antenna. It comply with the standard requirement.

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP
FCC LINE CONDUCTED EMISSION TEST SETUP



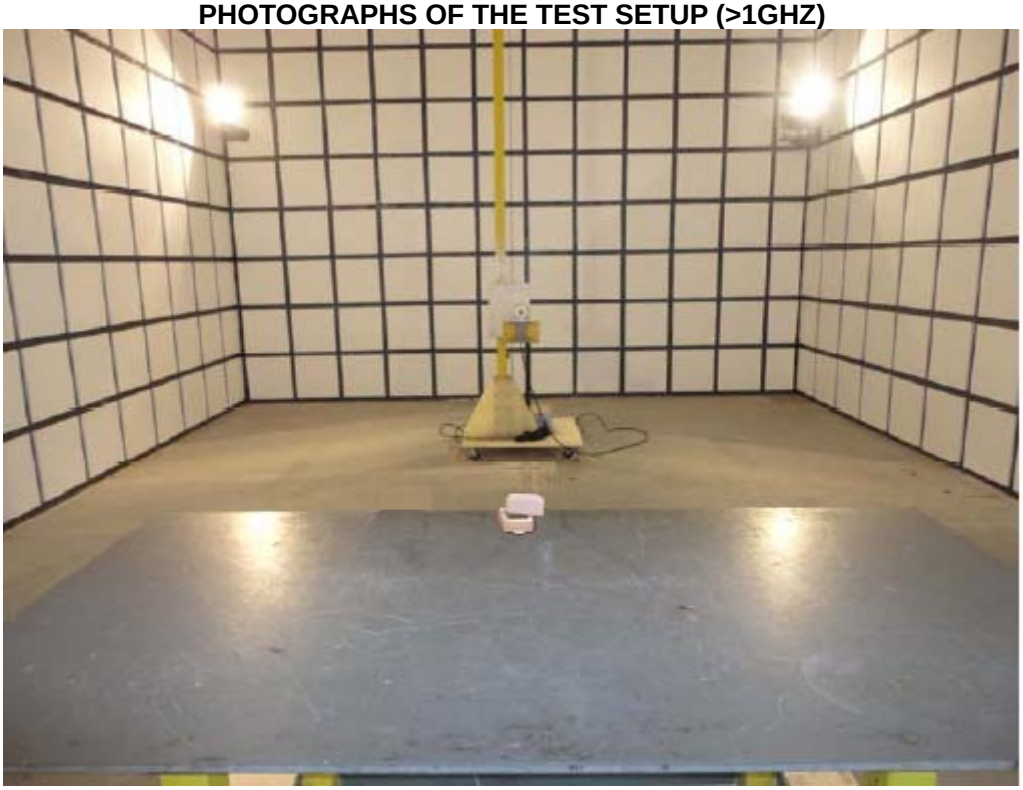
FCC RADIATED EMISSION TEST SETUP



PPENDIX 1

PHOTOGRAPHS OF THE TEST SETUP

PHOTOGRAPHS OF THE TEST SETUP (>1GHZ)



---- **END OF REPORT** ----