



Part 15B

TEST REPORT

Product Name	AWP-AE80i
Model Name	AWP-AE80i
FCC ID	XYOAWPAE80I
Client	AsiaTelco Technologies Co
Manufacturer	AsiaTelco Technologies Co
Date of issue	October 28, 2013

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Reference Standard(s)	<p>FCC Code CFR47 Part15B (2012) Radio frequency device.</p> <p>ANSI C63.4 (2009) Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz.</p>
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment : Pass</p>
Comment	The test result only responds to the measured sample.

Approved by 杨伟中

Director

Revised by 范广伟

EMC Manager

Performed by 盛江鹏

EMC Engineer

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1. General Information

1.1. Notes of the test report

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 428261.

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 8510A.

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report can not be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electronic report is inconsistent with the printed one, it should be subject to the latter.

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1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.

Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong

City: Shanghai

Post code: 201201

Country: P. R. China

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Website: <http://www.ta-shanghai.com>

E-mail: yangweizhong@ta-shanghai.com

1.3. Applicant Information

Company: AsiaTelco Technologies Co

Address: #289 Bisheng Road, Building-8,3F,Zhangjiang Hi-Tech Park, Pudong, Shanghai
201204, China

City: Shanghai

Postal Code: 201204

Country: CHINA

1.4. Manufacturer Information

Company: AsiaTelco Technologies Co

Address: #289 Bisheng Road, Building-8,3F,Zhangjiang Hi-Tech Park, Pudong, Shanghai
201204, China

City: Shanghai

Postal Code: 201204

Country: CHINA

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1.5. Information of EUT

General information

Product IMEI:	358760029154413
Hardware Version:	P01
Software Version:	V01
Antenna Type:	External Antenna

Equipment Under Test (EUT) has an external antenna.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

1.6. Test Date

The test is performed from September 17, 2013 to September 18, 2013.

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2. Test Information

2.1. Summary of test results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	15.109, ANSI C63.4-2009	PASS
2	Conducted Emission	15.107, ANSI C63.4-2009	PASS

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2.2. Radiated Emission

Ambient condition

Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2009. Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. During the test, EUT is connected to a laptop via a USB cable in the case of USB mode. The EUT is used as the peripheral equipment of the PC. The model of laptop is Lenovo X61 and the serial number of laptop is L3-D1224.

The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

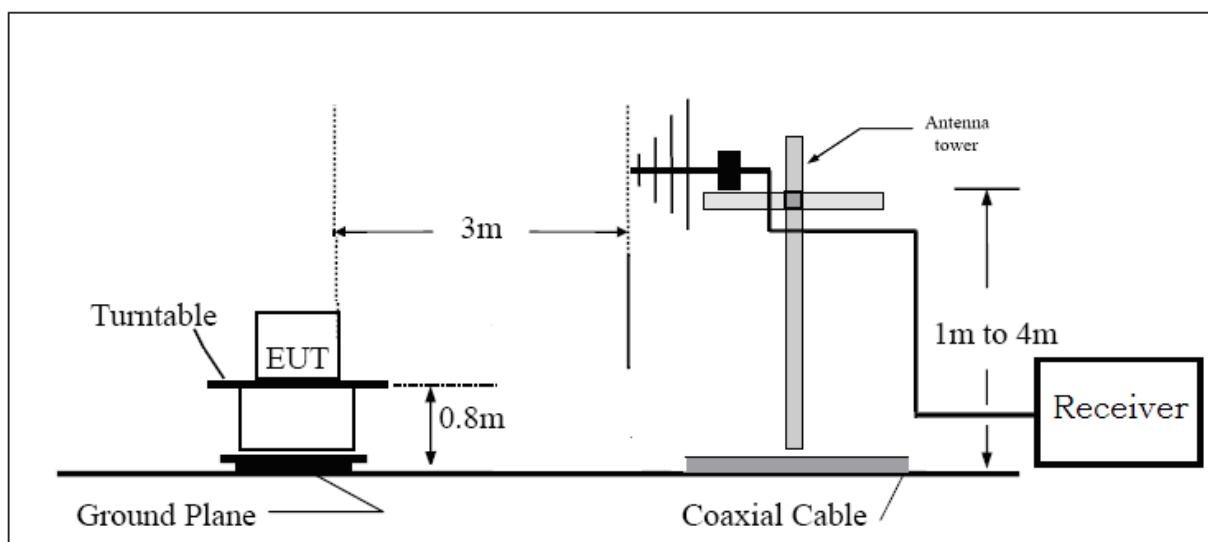
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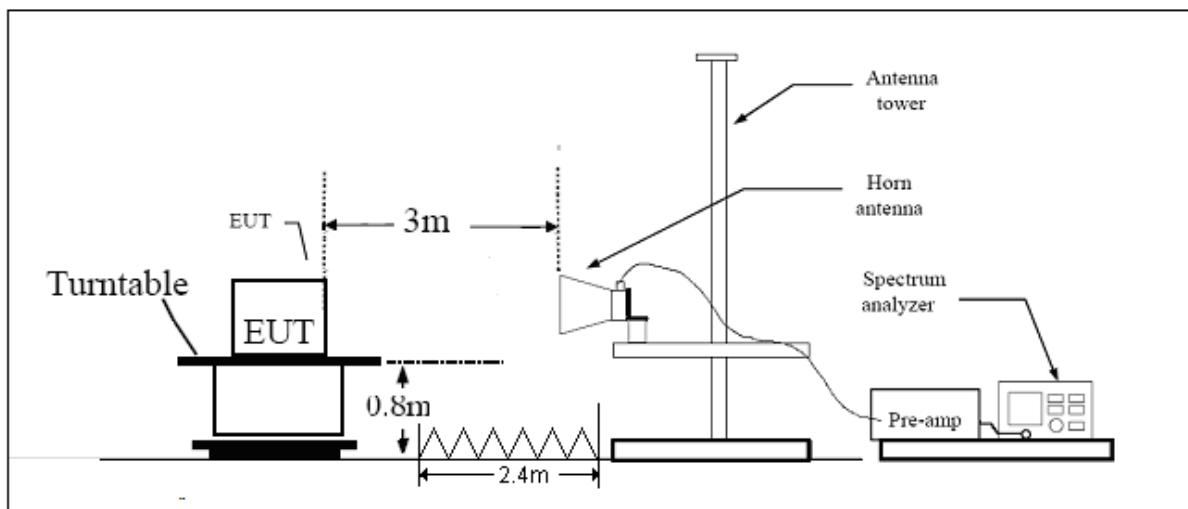
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Test Setup

Below 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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Limits

Frequency (MHz)	Field Strength (dB μ V/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5 th harmonic of the highest frequency or 40GHz,which is lower	54 74	Average Peak

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 3.92$ dB.

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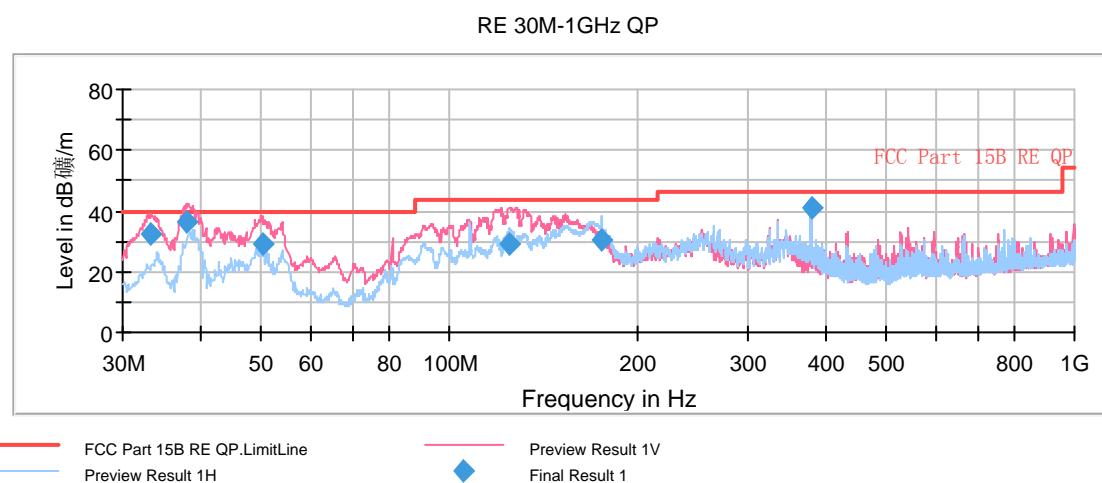
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Test Results

USB Mode



Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB _u V/m)	Reading value (dB _u V/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dB _u V/m)
33.230566	32.2	50.9	175.0	V	44.0	-18.7	7.8	40.0
38.028440	36.5	55.8	100.0	V	0.0	-19.3	3.5	40.0
50.242181	29.1	50.8	100.0	V	172.0	-21.7	10.9	40.0
124.787350	29.2	57.4	100.0	V	63.0	-28.2	14.3	43.5
174.577462	30.4	58.4	175.0	H	6.0	-28.0	13.1	43.5
378.809250	40.8	62.2	100.0	H	248.0	-21.4	5.2	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

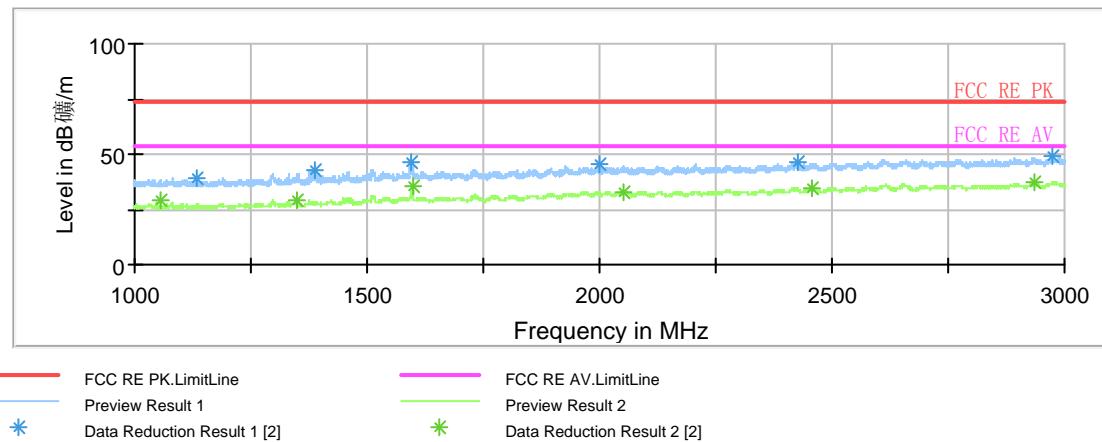
3. Margin = Limit – Quasi-Peak

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RE 1G-3GHz PK+AV



Note: Blue trace uses the peak detection Green trace uses the average detection

Radiated Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1133.750000	39.1	48.8	100.0	V	164.0	-9.7	34.9	74
1390.000000	42.5	50.8	200.0	V	69.0	-8.3	31.5	74
1596.750000	46.8	53.5	200.0	V	106.0	-6.7	27.2	74
1998.250000	45.2	48.2	200.0	V	245.0	-3.0	28.8	74
2426.250000	46.0	47.3	100.0	H	81.0	-1.3	28.0	74
2975.250000	48.7	47.5	200.0	V	4.0	1.2	25.3	74

Frequency (MHz)	Average (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1055.750000	28.8	38.7	100.0	V	222.0	-9.9	25.2	54
1349.250000	29.3	38.2	200.0	V	0.0	-8.9	24.7	54
1597.000000	35.7	42.4	200.0	V	222.0	-6.7	18.3	54
2052.000000	33.1	36.1	100.0	H	112.0	-3.0	20.9	54
2457.750000	34.6	35.8	200.0	V	121.0	-1.2	19.4	54
2934.000000	37.4	36.8	100.0	H	0.0	0.6	16.6	54

Remark:

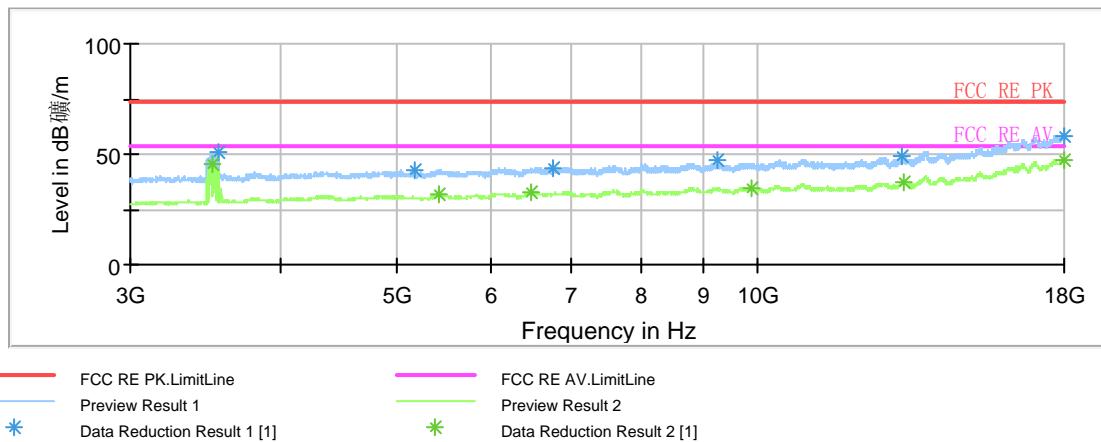
1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Peak= Reading value + Correction factor
3. Average= Reading value + Correction factor

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RE 3-18GHz PK+AV



Note: Blue trace uses the peak detection

Green trace uses the average detection

Radiated Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3551.250000	50.5	52.6	100.0	V	24.0	-2.1	23.5	74
5171.250000	43.0	41.3	100.0	V	233.0	1.7	31.0	74
6740.625000	44.1	39.7	100.0	V	266.0	4.4	29.9	74
9245.625000	47.3	38.5	98.0	H	123.0	8.8	26.7	74
13205.625000	49.0	36.3	200.0	H	0.0	12.7	25.0	74
17968.125000	58.5	35.1	200.0	V	230.0	23.4	15.5	74

Frequency (MHz)	Average (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3508.125000	45.1	47.2	200.0	V	208.0	-2.1	8.9	54
5428.125000	31.8	29.0	200.0	H	284.0	2.8	22.2	54
6466.875000	32.7	28.0	200.0	H	0.0	4.7	21.3	54
9896.250000	34.9	25.1	200.0	V	300.0	9.8	19.1	54
13215.000000	36.9	24.2	200.0	V	266.0	12.7	17.1	54
17998.125000	47.3	23.8	98.0	H	0.0	23.5	6.7	54

Remark:

1. Correction Factor = Antenna factor + Insertion loss (cable loss + amplifier gain)
2. Peak= Reading value + Correction factor
3. Average= Reading value + Correction factor

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2.3. Conducted Emission

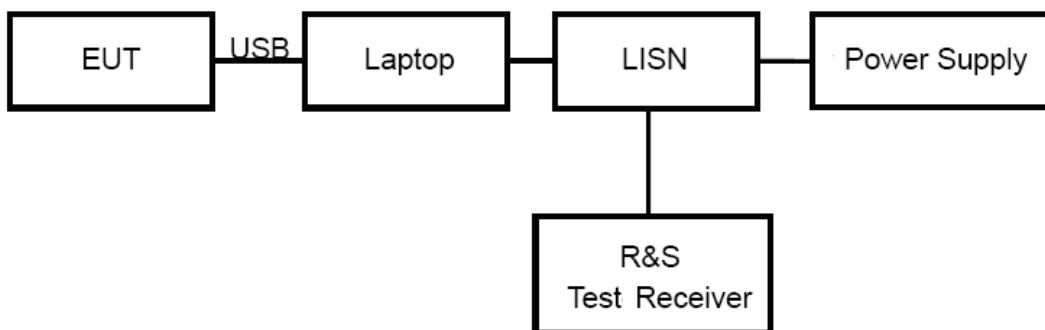
Ambient condition

Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2009. Connect the AC power line of the EUT adapter to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage from 220V/50Hz to 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 [*]	56 to 46 [*]
0.5 - 5	56	46
5 - 30	60	50

^{*}: Decreases with the logarithm of the frequency.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 2.69$ dB.

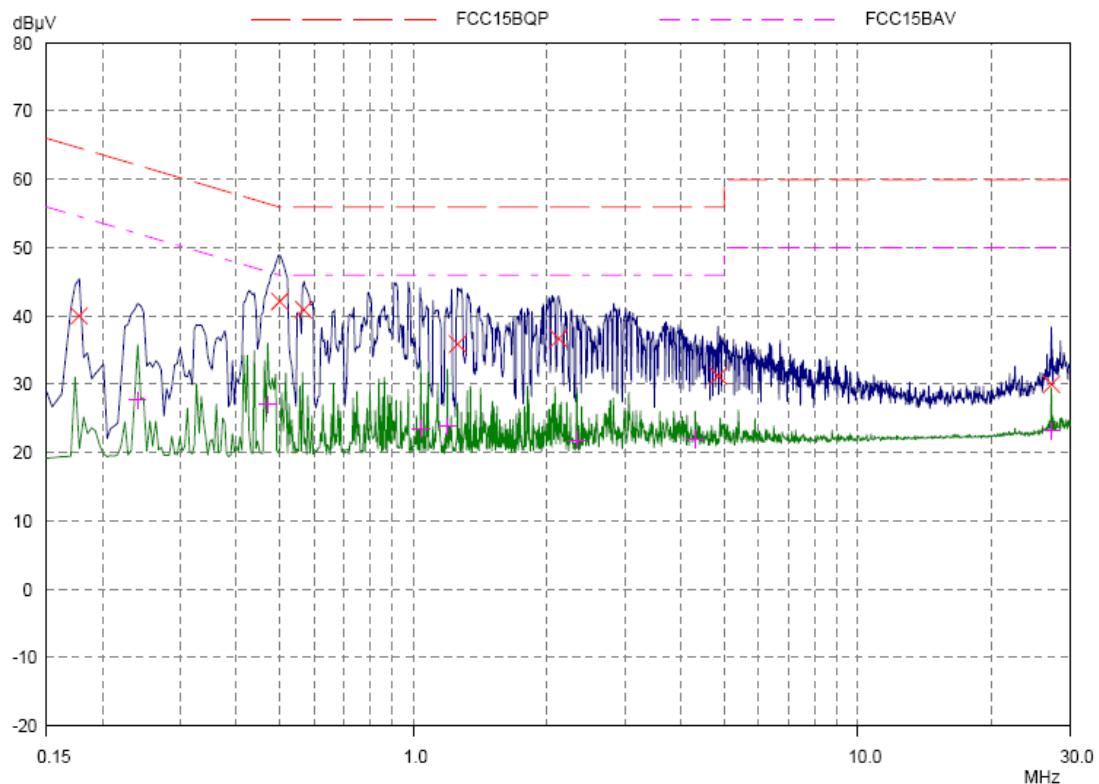
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Test Results

USB Mode



Final Measurement Results

Frequency MHz	QP Level dB μ V	QP Limit dB μ V	QP Delta dB	Phase	PE
0.17734	40.00	64.61	24.61	L1	gnd
0.50156	42.13	56.00	13.87	L1	gnd
0.56796	40.90	56.00	15.10	L1	gnd
1.25937	35.89	56.00	20.11	L1	gnd
2.12265	36.66	56.00	19.34	L1	gnd
4.84531	31.24	56.00	24.76	L1	gnd
27.24375	30.00	60.00	30.00	L1	gnd

Frequency MHz	AV Level dB μ V	AV Limit dB μ V	AV Delta dB	Phase	PE
0.23984	27.63	52.10	24.47	L1	gnd
0.47031	27.00	46.51	19.51	L1	gnd
1.04062	23.47	46.00	22.53	L1	gnd
1.19296	23.85	46.00	22.15	L1	gnd
2.33359	21.83	46.00	24.17	L1	gnd
4.31015	21.97	46.00	24.03	L1	gnd
27.24375	23.16	50.00	26.84	L1	gnd

Note: Blue trace uses the peak detection Green trace uses the average detection

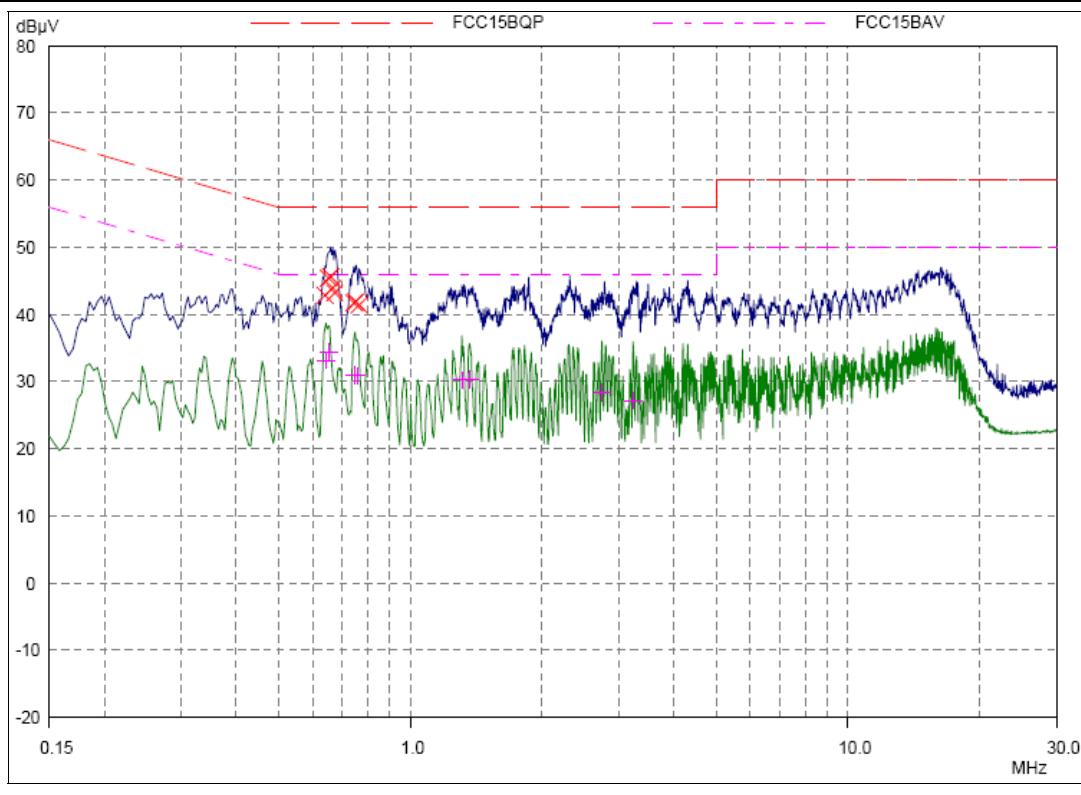
L line

Conducted Emission from 150 KHz to 30 MHz

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N line

Final Measurement Results				
Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase
0.63828	42.86	56.00	13.14	N
0.65	45.39	56.00	10.61	N
0.65781	45.61	56.00	10.39	N
0.66562	43.93	56.00	12.07	N
0.67343	43.23	56.00	12.77	N
0.74375	41.71	56.00	14.29	N
0.75156	41.91	56.00	14.09	N
0.76328	41.40	56.00	14.60	N
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase
0.64218	33.15	46.00	12.85	N
0.65	34.39	46.00	11.61	N
0.74765	31.00	46.00	15.00	N
0.75546	30.93	46.00	15.07	N
1.31015	30.24	46.00	15.76	N
1.36875	30.39	46.00	15.61	N
2.74375	28.42	46.00	17.58	N
3.22812	27.21	46.00	18.79	N

Note: Blue trace uses the peak detection Green trace uses the average detection
 N line
 Conducted Emission from 150 KHz to 30 MHz

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3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	EMI Test Receiver	ESCI	R&S	100948	2013-06-29	One year
02	Trilog Antenna	VULB 9163	SCHWARZB ECK	9163-201	2013-06-19	Three years
03	Signal Analyzer	FSV30	R&S	100815	2013-06-29	One year
04	Horn Antenna	HF907	R&S	100126	2012-07-01	Three years
05	Horn Antenna	3160-09	ETS-Lindgren	00102643	2012-07-01	Three years
06	EMI Test Receiver	ESCS30	R&S	100138	2013-01-15	One year
07	LISN	ENV216	R&S	101171	2013-04-15	One year

*****END OF REPORT BODY*****

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ANNEX A: The EUT Appearance and Test Setup

A.1 EUT Appearance



a: EUT



b: Battery

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c: charge

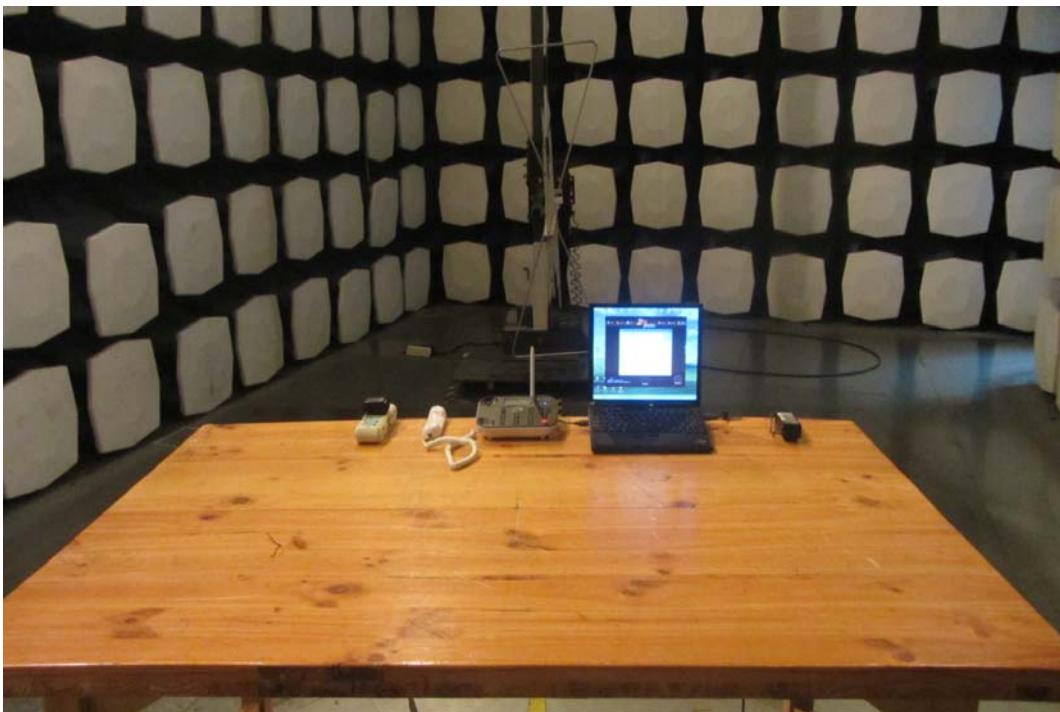
Picture 1 EUT

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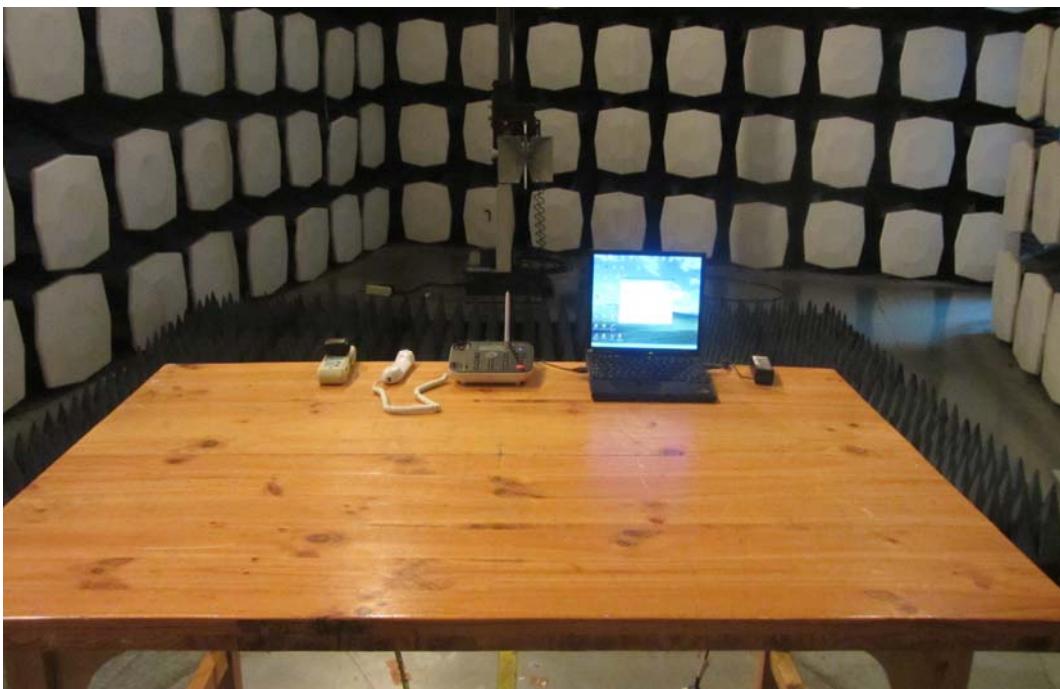
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A.2 Test Setup



a: Below 1GHz



b: Above 1GHz

Picture 2 Radiated Emission Test Setup

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Picture 3 Conducted Emission Test Setup