TESTING
No. L2264

Part 15B

TEST REPORT

Product Name	WiFi USB dongle
Model Name	SWM9001
FCC ID	A7N-SWM9001
Client	Suzhou-CAS Semiconductor Integrated Technology Co.,Ltd

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	WiFi USB dongle	**Model Name**	SWM9001
FCC ID	A7N-SWM9001		
Report No.	RZA1112-2067EMC01R1		
Client	Suzhou-CAS Semiconductor Integrated Technology Co.,Ltd		
Manufacturer	Suzhou-CAS Semiconductor Integrated Technology Co.,Ltd		
Reference Standard(s)	**FCC Code CFR47 Part15B (2010-12)** Radio frequency device. **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.		
Conclusion	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. General Judgment : **Pass** **(Stamp)** **Date of issue: February 14th,2012**		
Comment	The test result only responds to the measured sample.		

Approved by 韩伟中 Director **Revised by** 范广翔 EMC Manager **Performed by** 刘伟 EMC Engineer

TABLE OF CONTENT

1. General Information

1.1. Notes of the test report

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

1.2. Testing laboratory

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
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E-mail:	yangweizhong@ta-shanghai.com

1.3. Applicant Information

Company:	Suzhou-CAS Semiconductor Integrated Technology Co.,Ltd
Address:	9B, Science Plaza, 1355 JinJiHu Avenue, Suzhou Industrial Park
City:	Suzhou
Postal Code:	215021
Country:	P.R.China
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Telephone:	+86-512-62621949
Fax:	+86-512-62620027

1.4. Manufacturer Information

Company:	Suzhou-CAS Semiconductor Integrated Technology Co.,Ltd
Address:	9B, Science Plaza, 1355 JinJiHu Avenue, Suzhou Industrial Park
City:	Suzhou
Postal Code:	215021
Country:	P.R.China
Telephone:	+86-512-62621949
Fax:	+86-512-62620027

1.5. Information of EUT

General information

Name of EUT:	WiFi USB dongle
IMEI:	/
Hardware Version:	/
Software Version:	/
Antenna Type:	Internal Antenna

Auxiliary Equipment Details

AE1: Notebook PC

Model:	1310
Manufacturer:	DELL
S/N:	/

Equipment Under Test (EUT) is WiFi USB dongle. During the test, the EUT connect to the laptop DELL 1310.

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 February 5, 2012 to February 7, 2012.

2. Test Information

2.1. Summary of test results

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

2.2. Radiated Emission

Ambient condition

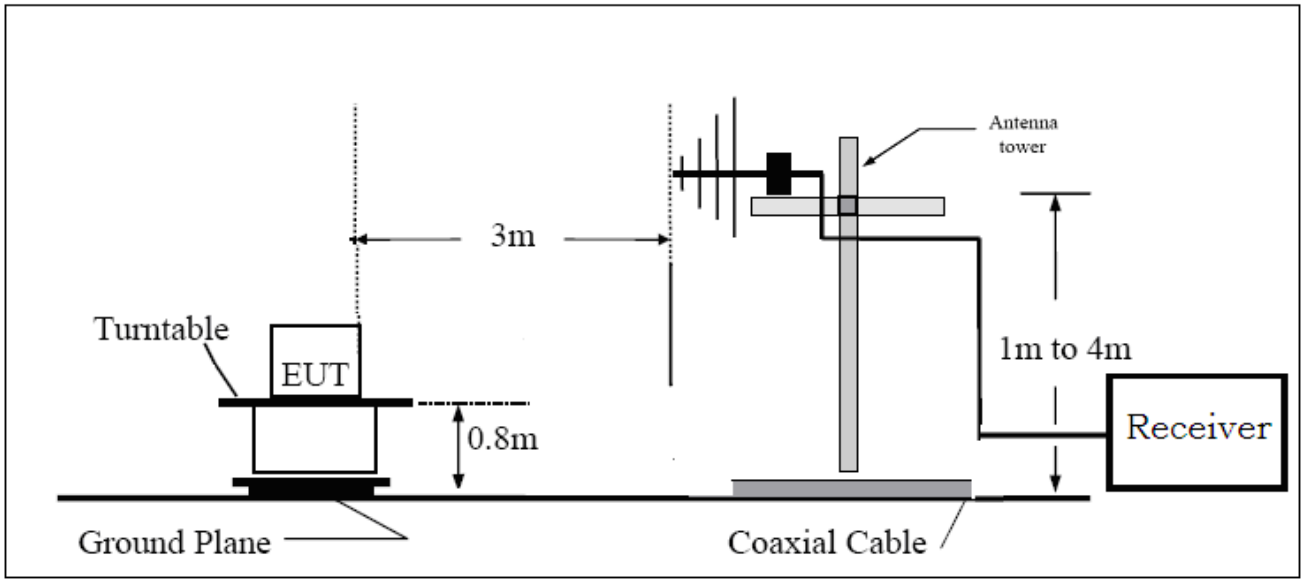
Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

Methods of Measurement

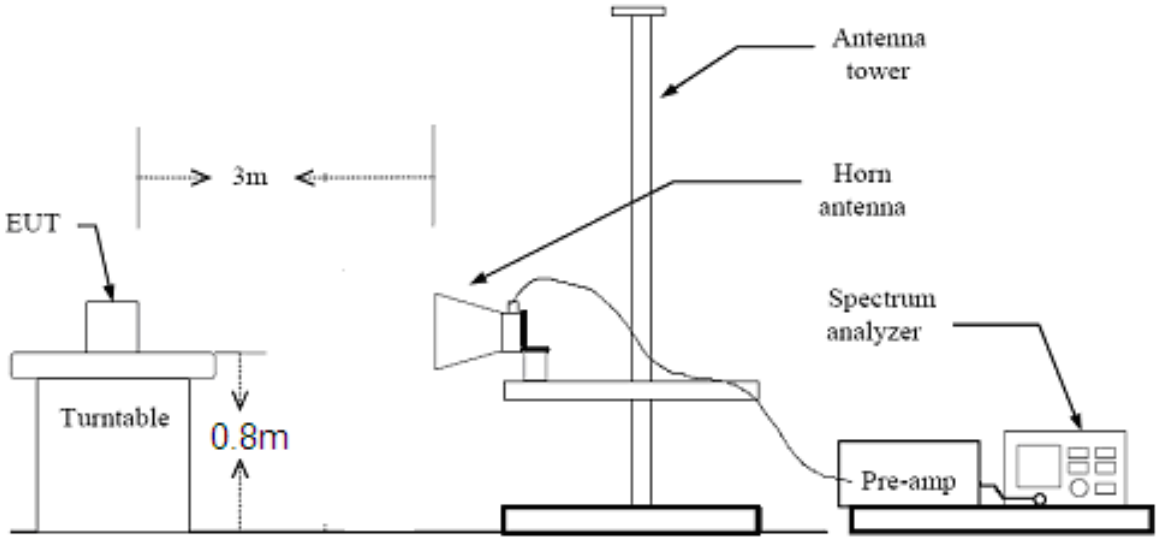
The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2009. Sweep the whole frequency band through the range from 30MHz to 10GHz. 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.
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. The following test plot including the maximum values combine horizontal with vertical polarization.

Test Setup

Below 1GHz



Above 1GHz



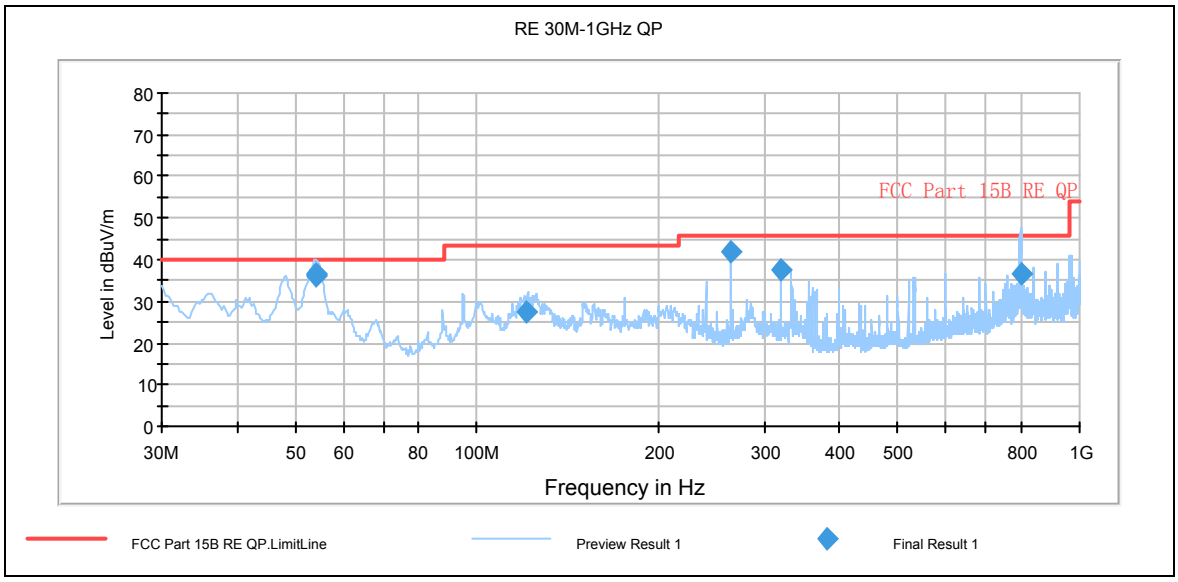
Limits

Frequency (MHz)	Field Strength (dBμV/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
1000-5th 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.

Test Results



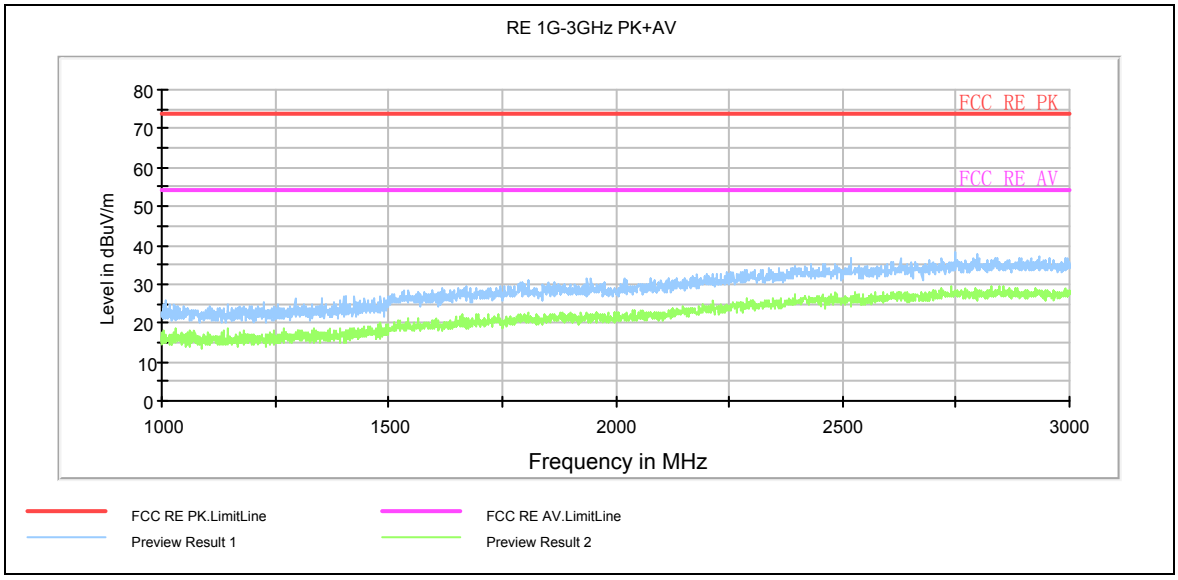
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
53.899413	36.4	100.0	V	128.0	61.2	-24.8	3.6	40.0
54.142519	36.0	100.0	V	75.0	60.9	-24.9	4.0	40.0
121.158944	27.3	100.0	V	270.0	56.9	-29.6	16.2	43.5
263.992500	42.0	100.0	H	257.0	68.8	-26.8	4.0	46.0
319.990000	37.6	125.0	V	22.0	63.1	-25.5	8.4	46.0
799.402500	36.5	100.0	V	293.0	53.6	-17.1	9.5	46.0

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

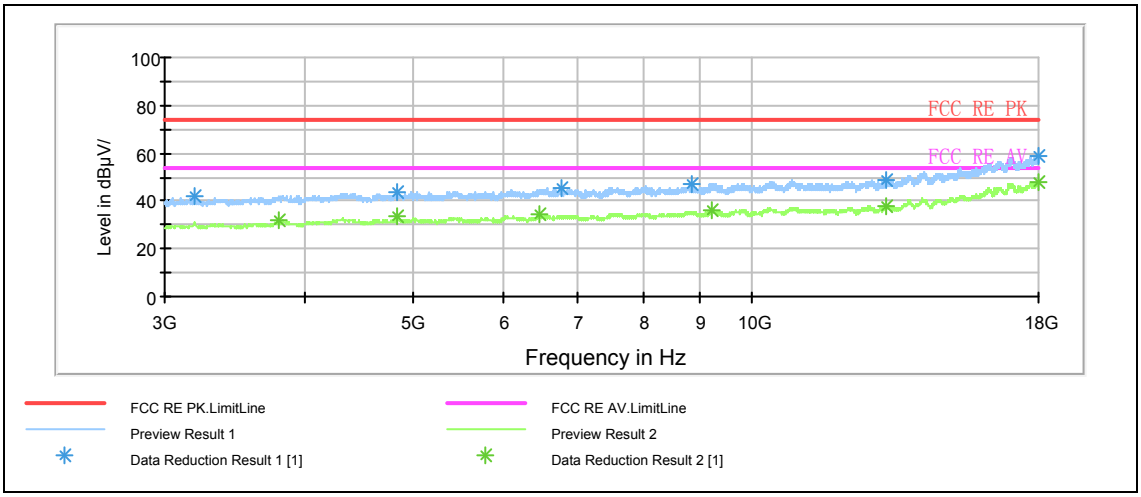
2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

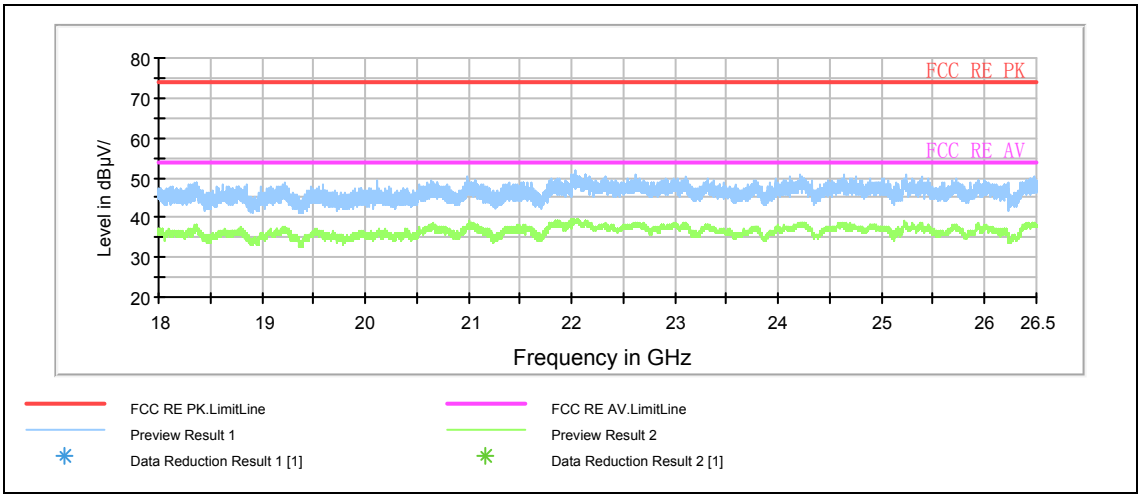


Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 3GHz



Radiates Emission from 3GHz to 18GHz



Radiates Emission from 18GHz to 26.5GHz

2.3. Conducted Emission

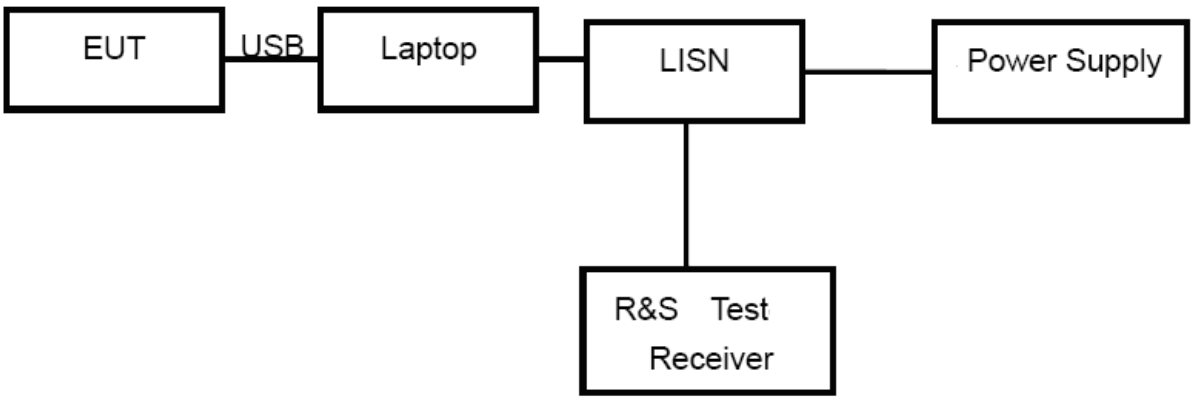
Ambient condition

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 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. During the test, EUT is connected to a laptop. The EUT is worked at maximum output power.

Test Setup



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

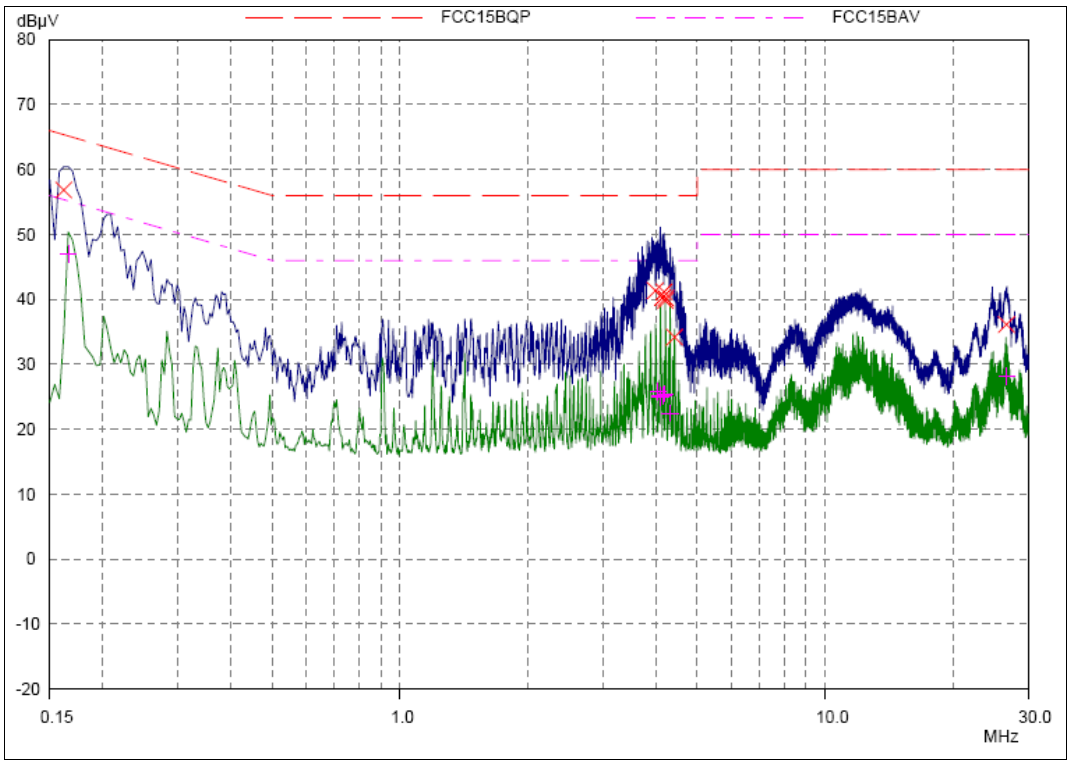
Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	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.

Test Results

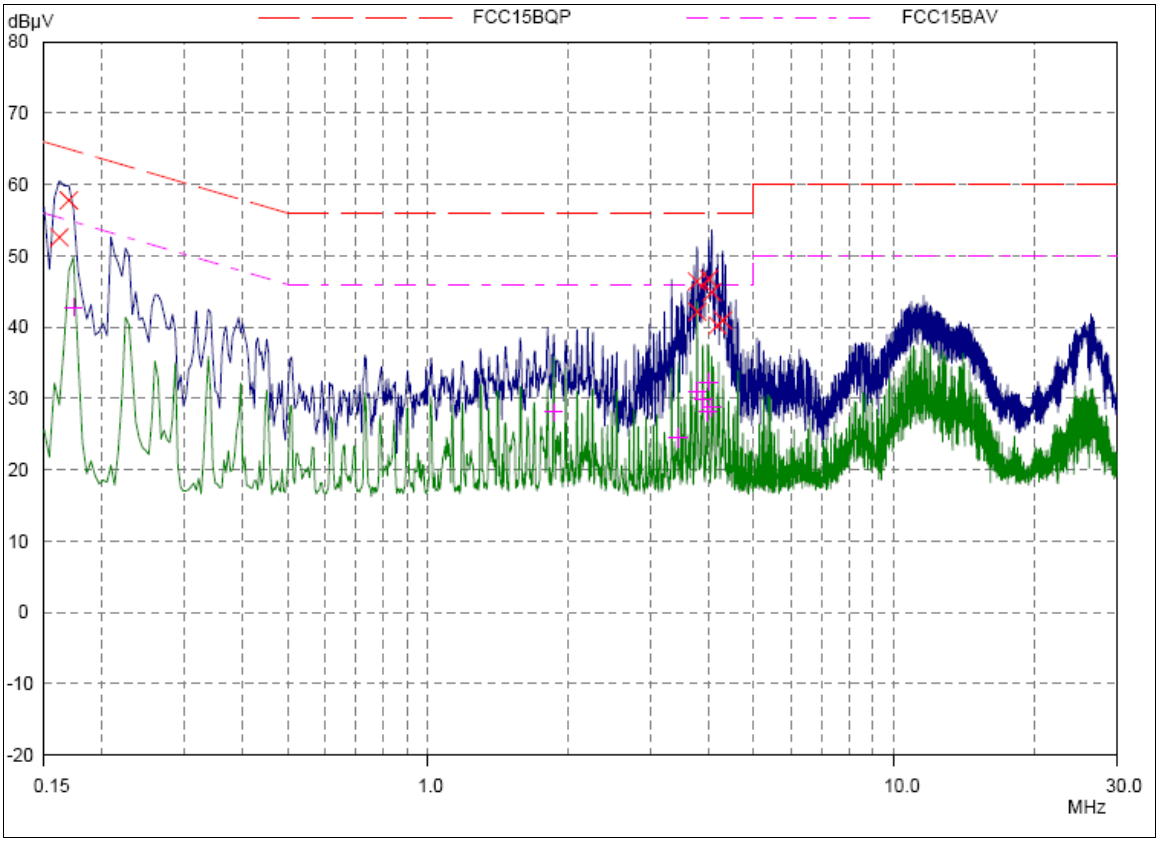


L Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.16171	56.86	65.38	8.52	L1
3.98593	41.36	56.00	14.64	L1
4.14217	40.30	56.00	15.70	L1
4.17342	41.16	56.00	14.84	L1
4.20468	39.80	56.00	16.20	L1
4.2125	40.22	56.00	15.78	L1
4.41953	34.18	56.00	21.82	L1
26.66953	36.14	60.00	23.86	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.16562	47.05	55.18	8.13	L1
4.04453	25.84	46.00	20.16	L1
4.0914	25.24	46.00	20.76	L1
4.0953	24.93	46.00	21.07	L1
4.15	25.16	46.00	20.84	L1
4.19296	25.47	46.00	20.53	L1
4.31406	22.51	46.00	23.49	L1
26.732	28.21	50.00	21.79	L1



N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.16171	52.60	65.38	12.78	N
0.16953	57.80	64.98	7.18	N
3.775	46.42	56.00	9.58	N
3.78281	42.16	56.00	13.84	N
4.00546	46.78	56.00	9.22	N
4.06405	44.94	56.00	11.06	N
4.18125	40.28	56.00	15.72	N
4.29062	40.98	56.00	15.02	N

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.17343	42.83	54.79	11.96	N
1.86093	28.10	46.00	17.90	N
3.44296	24.52	46.00	21.48	N
3.775	31.03	46.00	14.97	N
3.88828	29.85	46.00	16.15	N
3.98203	28.21	46.00	17.79	N
4.00155	32.34	46.00	13.66	N
4.06405	28.79	46.00	17.21	N

3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	Signal Analyzer	FSV	R&S	100815	2011-06-27	One year
02	EMI Test Receiver	ESCI	R&S	100948	2011-06-30	One year
03	Trilog Antenna	VULB 9163	SCHWARZBECK	9163-201	2011-06-29	Two years
04	Horn Antenna	HF907	R&S	100126	2011-07-01	Two years
05	EMI Test Receiver	ESCS30	R&S	100138	2011-01-17	One year
06	LISN	ENV216	R&S	101171	2010-04-16	Two years
07	Semi-Anechoic Chamber	9.6*6.7*6.6m	ETS-Lindgren	NA	NA	NA
08	EMI test software	ES-K1	R&S	NA	NA	NA

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

ANNEX A： The EUT Appearance and Test Setup

A.1 EUT Appearance

a: EUT

Picture 1 EUT

A.2 Test Setup

a: Below 1GHz

b: Above 1GHz

Picture 2 Radiated Emission Test Setup

Picture 3 Conducted Emission Test Setup