TESTING
No. L2264

Part 15B

TEST REPORT

Product Name	PV GPRS Data Logger
Model Name	TK-G10-01,TK-G10-08,TK-G10-16,TK-G10-08S,TK-G10-16S
FCC ID	A69GPRS01
Client	Shanghai Taoke Network Co.,Ltd

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	PV GPRS Data Logger	**Model Name**	TK-G10-01,TK-G10-08,TK-G10-16,TK-G10-08S,TK-G10-16S
FCC ID	A69GPRS01		
Report No.	RZA1108-1392EMC01R2		
Client	Shanghai Taoke Network Co.,Ltd		
Manufacturer	Shanghai Taoke Network Co.,Ltd		
Reference Standard(s)	**FCC Code CFR47 Part15B (2010-12)** Radio frequency device. **ANSI C63.4 (2003)** Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz.		
Conclusion	Test results in Chapter 2 of this test report are below limits specified in the relevant standards. General Judgment : **Pass** **(Stamp)** **Date of issue: December 12th, 2011**		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中 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.

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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.
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City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Yang Weizhong
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	yangweizhong@ta-shanghai.com

1.3. Applicant Information

Company:	Shanghai Taoke Network Co.,Ltd
Address:	Room 201, Building.2, No.215, Rd Yaohua, Dist.Pudong
City:	Shanghai
Postal Code:	/
Country:	P.R.China
Contact:	Lu Jianzhou
Telephone:	+86 013916398386
Fax:	+86 21 60936519

1.4. Manufacturer Information

Company:	Shanghai Taoke Network Co.,Ltd
Address:	Room 201, Building.2, No.215, Rd Yaohua, Dist.Pudong
City:	Shanghai
Postal Code:	/
Country:	P.R.China
Telephone:	+86 013916398386
Fax:	+86 21 60936519

1.5. Information of EUT

General information

Name of EUT:	PV GPRS Data Logger
IMEI:	/
Hardware Version:	DAU-SPS-ENT V0.02
Software Version:	V1.00.ENT.002
Antenna Type:	External Antenna

Auxiliary Equipment Details

AE1: Charger	
Model:	YH-S15AV1201000
Manufacture:	Yuhang Electric Appliance Co.,Ltd.
S/N:	/
AE1: Notebook	
Model:	IBM T61
Manufacture:	Lenovo
S/N:	L3-C9644

Equipment Under Test (EUT) is PV GPRS Data Logger.

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 8, 2011 to September 9, 2011.

2. Test Information

2.1. Summary of test results

Number	Test Case	Clause in FCC Rules	Verdict
1	Radiated Emission	15.109, ANSI C63.4-2003	PASS
2	Conducted Emission	15.107, ANSI C63.4-2003	PASS

2.2. Radiated Emission

Ambient condition

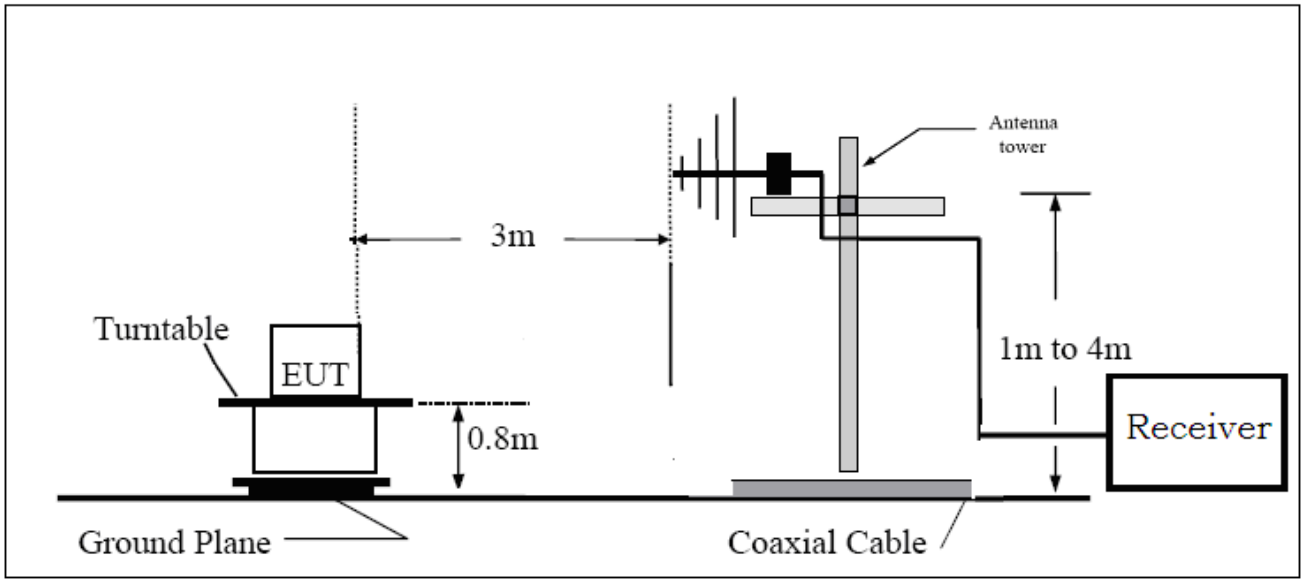
Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

Methods of Measurement

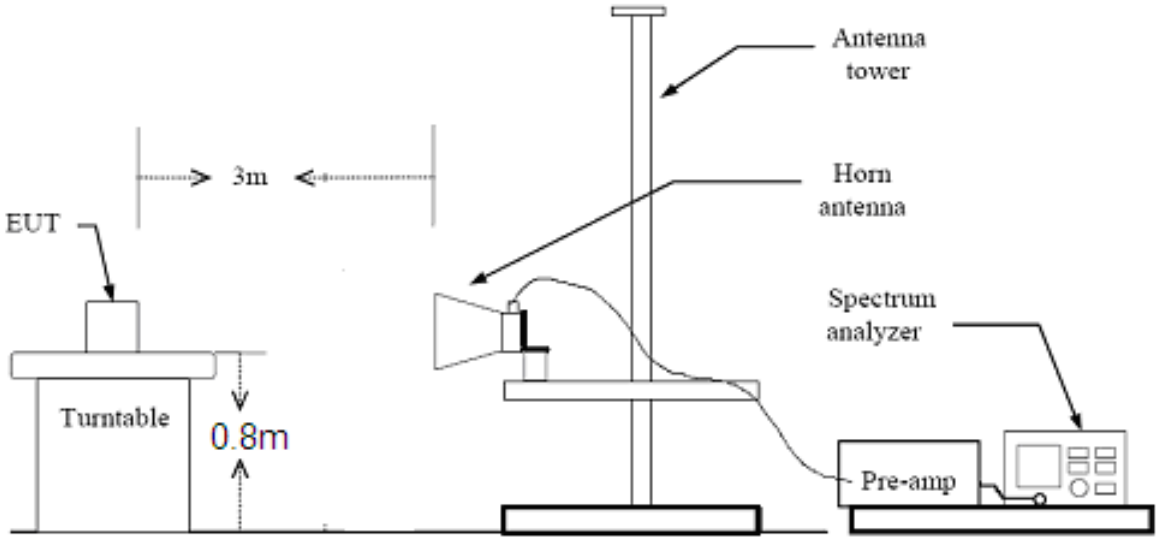
The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2003. Sweep the whole frequency band through the range from 30MHz to 10GHz. During the test, the height of receive antenna shall be moved from 30MHz to 5th harmonic of the highest frequency, 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.
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

Test Setup

Below 1GHz



Above 1GHz



Limits

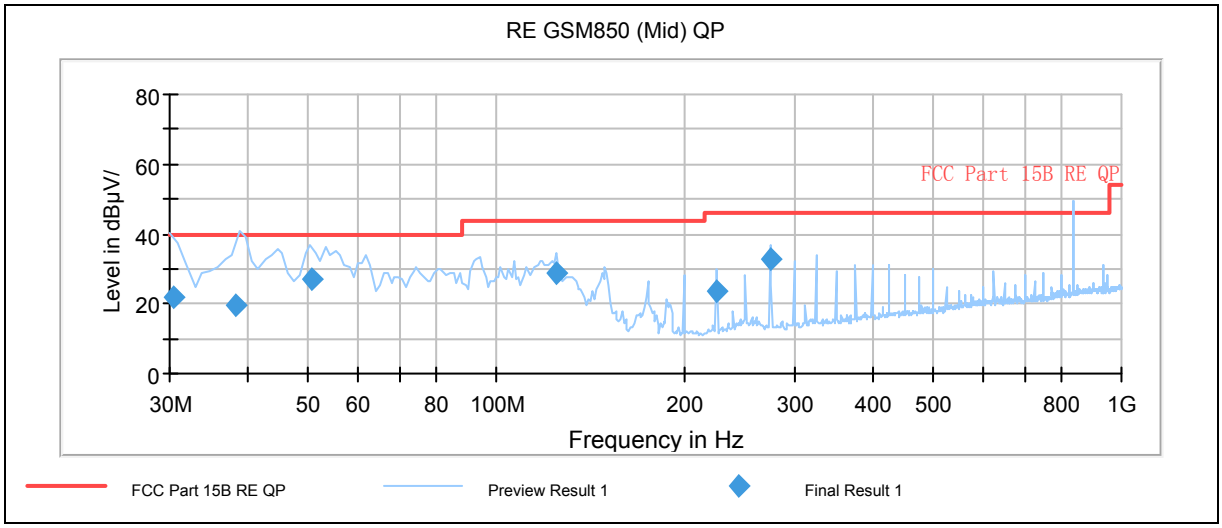
Frequency (MHz)	Field Strength (dBμV/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5th harmonic of the highest frequency or 40GHz,which is lower	54 74	Average Peak

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

GSM 850



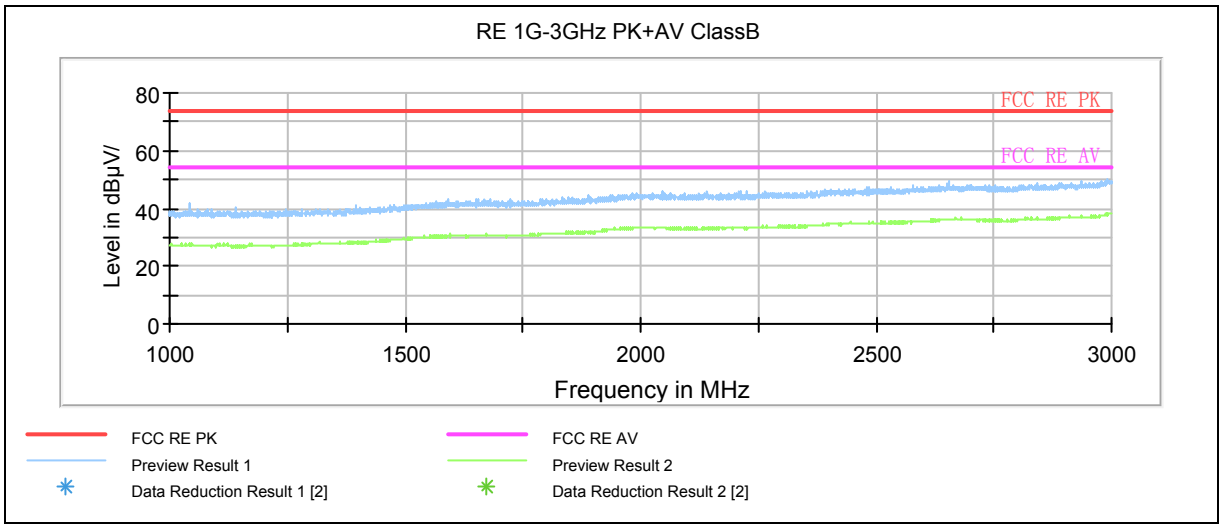
Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
30.520000	21.9	100.0	V	103.0	45.9	-24.0	18.1	40.0
38.370000	19.8	117.0	V	107.0	44.2	-24.4	20.2	40.0
50.690000	27.0	100.0	V	116.0	52.8	-25.8	13.0	40.0
125.020000	28.7	100.0	V	318.0	60.1	-31.4	11.3	40.0
225.050000	23.7	100.0	V	46.0	53	-29.3	16.3	40.0
275.040000	32.7	100.0	V	78.0	60.5	-27.8	14.3	47.0

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

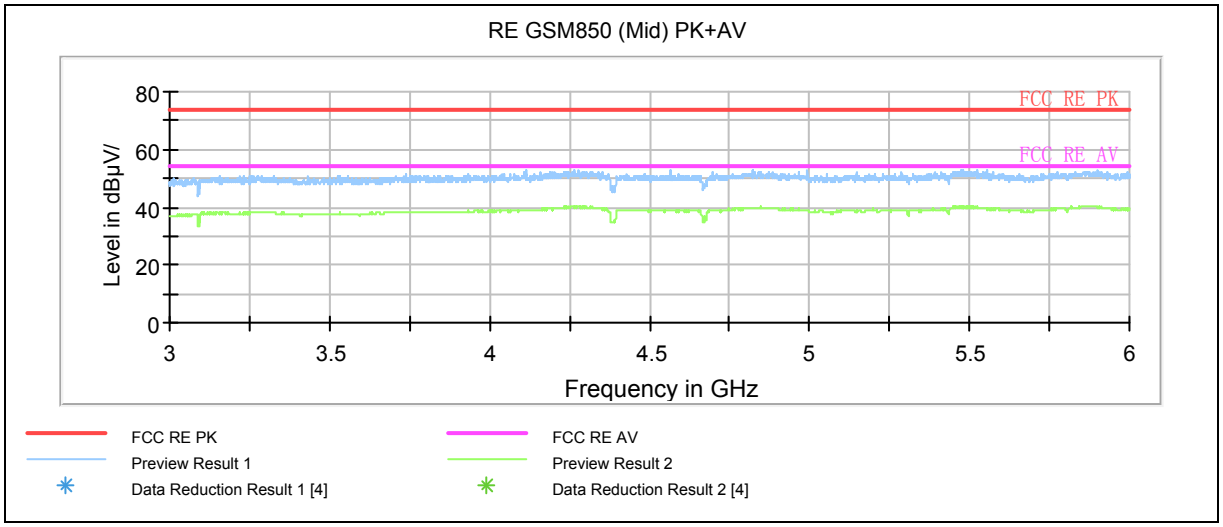
2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



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

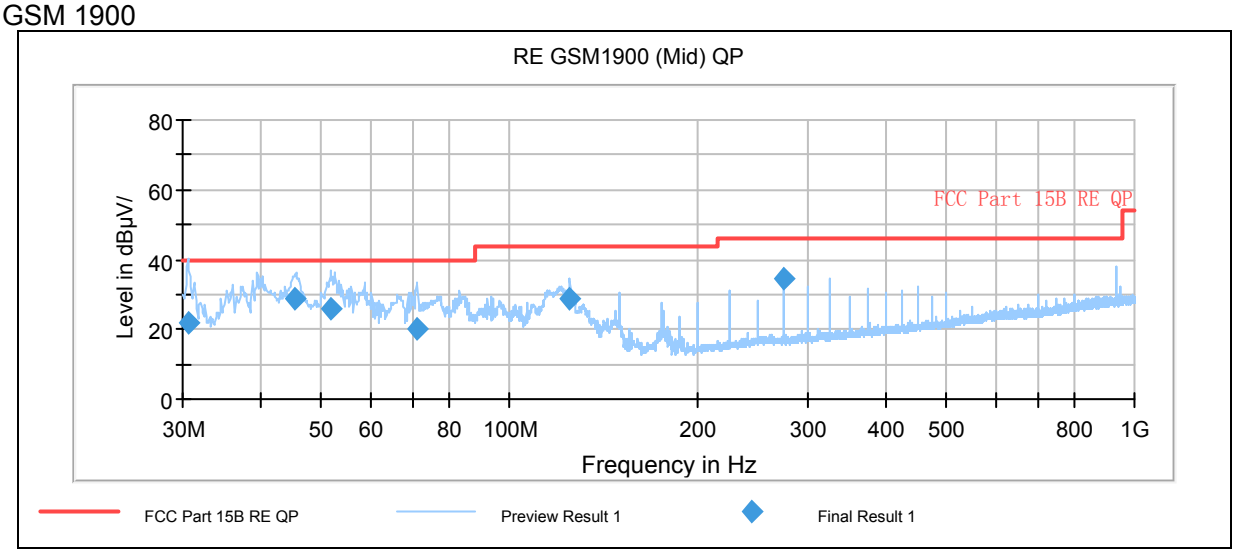
Radiated Emission from 1GHz to 3GHz



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

Radiated Emission from 3GHz to 6GHz

GSM 1900



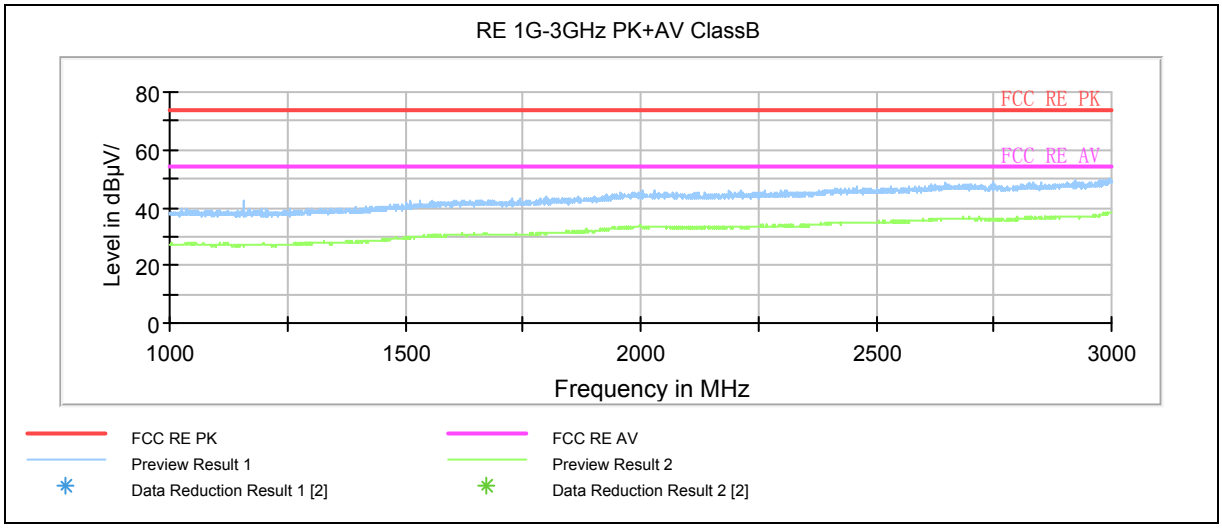
Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
30.590500	21.6	100.0	V	139.0	45.6	-24.0	18.4	40.0
45.199500	28.9	100.0	V	31.0	53.9	-25.0	11.1	40.0
51.668250	25.7	127.0	V	145.0	51.6	-25.9	14.3	40.0
71.101125	20.4	207.0	V	163.0	52	-31.6	19.6	40.0
125.022125	28.5	100.0	V	340.0	59.9	-31.4	11.5	40.0
275.045500	34.3	121.0	H	64.0	62.1	-27.8	12.7	47.0

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

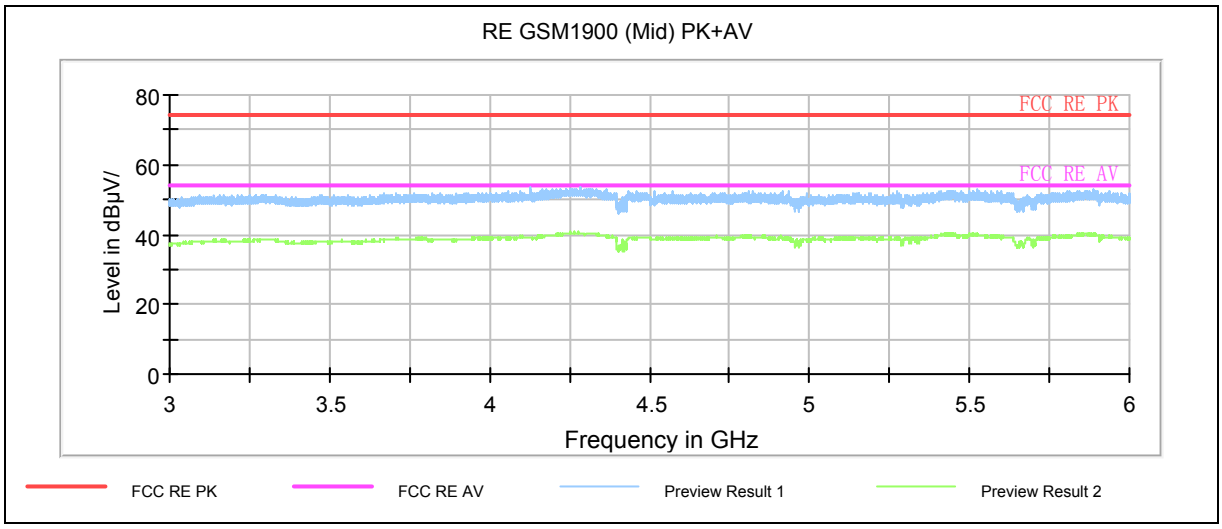
2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



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

Radiated Emission from 1GHz to 3GHz



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

Radiated Emission from 3GHz to 6GHz

2.3. Conducted Emission

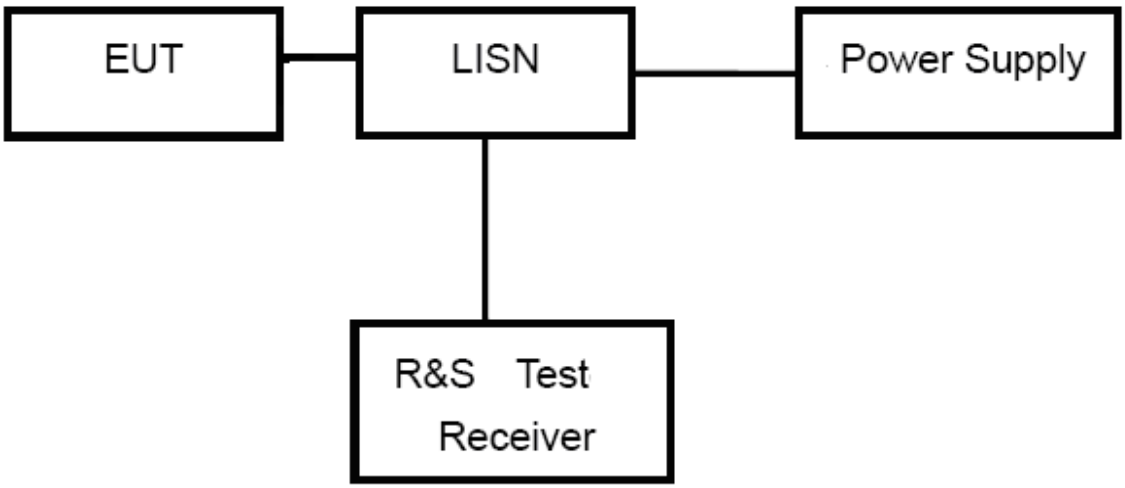
Ambient condition

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 C63.4-2003. 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, and 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.

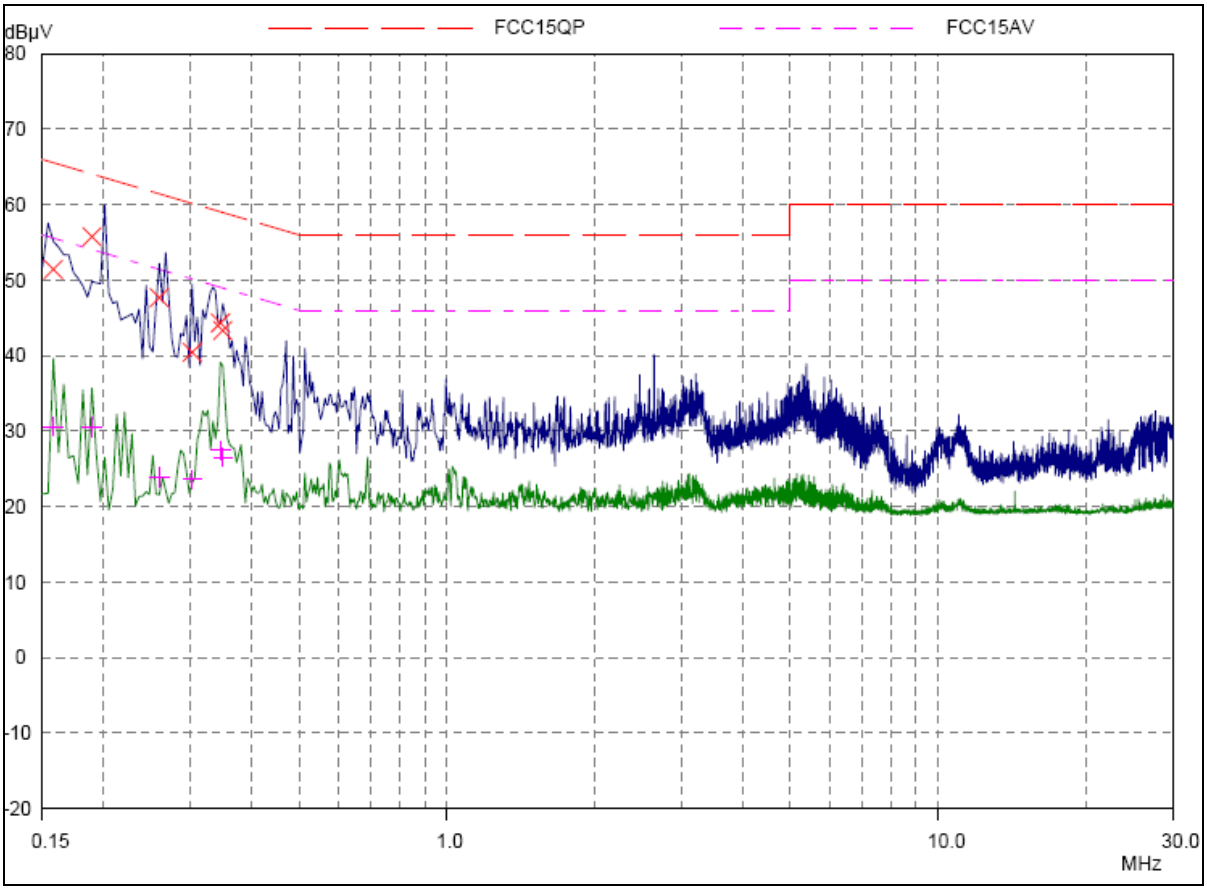
Limits

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

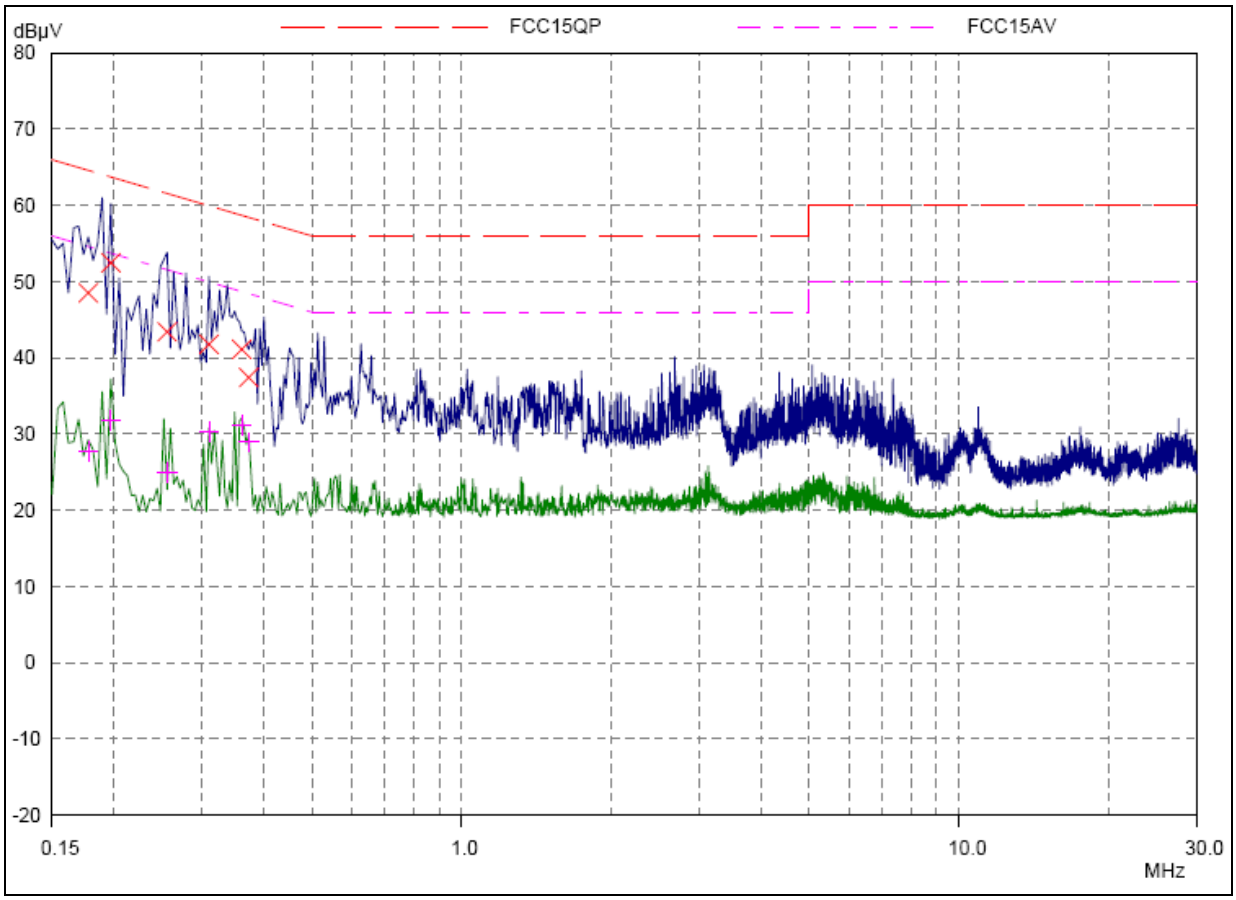


L line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.15781	51.44	65.58	14.14	L1
0.18906	55.76	64.08	8.32	L1
0.25937	47.70	61.45	13.75	L1
0.30234	40.44	60.18	19.74	L1
0.34531	44.34	59.07	14.73	L1
0.34921	43.32	58.98	15.66	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.15781	30.62	55.58	24.96	L1
0.18906	30.54	54.08	23.54	L1
0.25937	23.96	51.45	27.49	L1
0.30234	23.60	50.18	26.58	L1
0.34531	27.47	49.07	21.60	L1
0.34921	26.53	48.98	22.45	L1



N line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.17734	48.54	64.61	16.07	N
0.19687	52.48	63.74	11.26	N
0.25546	43.42	61.58	18.16	N
0.31015	41.80	59.97	18.17	N
0.36093	41.12	58.71	17.59	N
0.37265	37.44	58.44	21.00	N

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.17734	27.76	54.61	26.85	N
0.19687	31.86	53.74	21.88	N
0.25546	24.93	51.58	26.65	N
0.31015	30.29	49.97	19.68	N
0.36093	31.18	48.71	17.53	N
0.37265	28.94	48.44	19.50	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*******