TESTING
No. L2264

Part 15B

TEST REPORT

Product Name	CDMA/LTE Smart phone
Model Name	HUAWEI H882L,H882L,Marina,Y301-A3
FCC ID	QISH882L
Client	Huawei Technologies Co., Ltd.
Manufacturer	Huawei Technologies Co., Ltd.
Date of issue	March 4, 2013

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Reference Standard(s)	**FCC Code CFR47 Part15B (2012)** 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**
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

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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 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
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:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Techologies Co., Ltd., Bantian, Longgang District
City:	Shenzhen
Postal Code:	518129
Country:	P.R. China

1.4. Manufacturer Information

Company:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Techologies Co., Ltd., Bantian, Longgang District
City:	Shenzhen
Postal Code:	518129
Country:	P.R.China

1.5. Information of EUT

General information

Product Name:	CDMA/LTE Smart phone
IMEI:	99000298000363
Hardware Version:	HL1C8833LM
Software Version:	H882L V100R001C378B160
Antenna Type:	Internal Antenna
Used Host Product:	IBM T61

Auxiliary equipment details

AE1: Adapter 1	
Model:	HW-050100U2W
Manufacturer:	Huawei Technologies Co., Ltd.
S/N:	HWBYAAC71603712
AE2: Adapter 2	
Model:	HW-050100U2W
Manufacturer:	Huawei Technologies Co., Ltd.
S/N:	HWHKAACA2815804
AE3: Adapter 3	
Model:	HW-050100U1W
Manufacturer:	Huawei Technologies Co., Ltd.
S/N:	TPACB0219072
AE4: Adapter 4	
Model:	HW-050100U1W
Manufacturer:	Huawei Technologies Co., Ltd.
S/N:	HKAC10619057

Equipment Under Test (EUT) is CDMA/LTE Smart phone with internal antenna. During the test, the EUT connect to the laptop IBM T61.

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 25, 2013 to February 27, 2013.

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

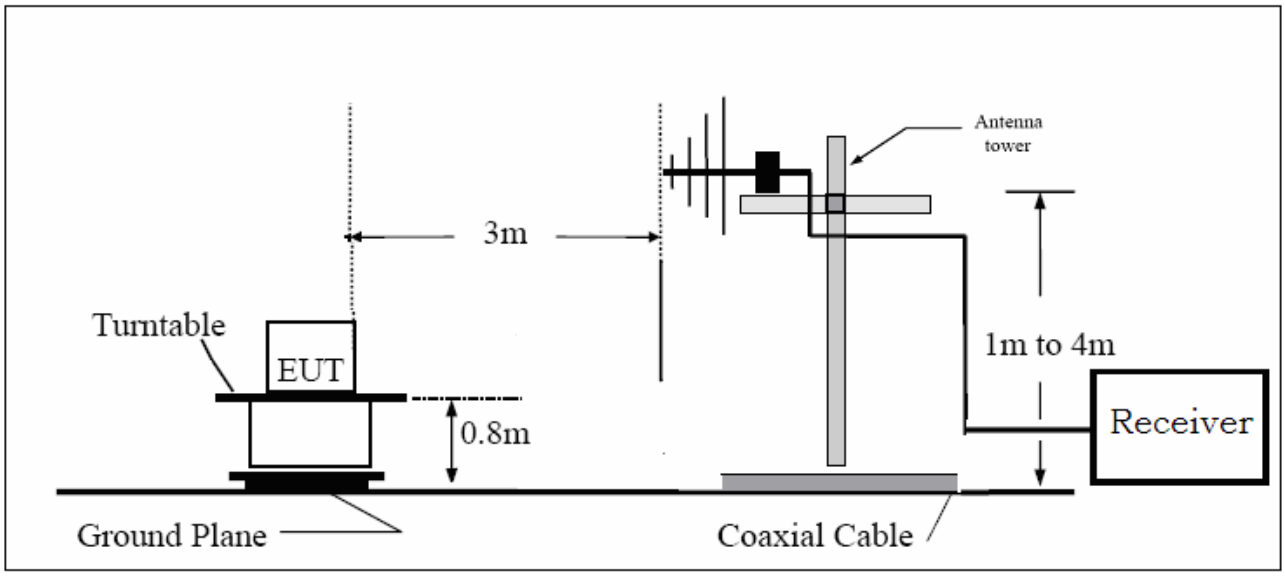
Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

Methods of Measurement

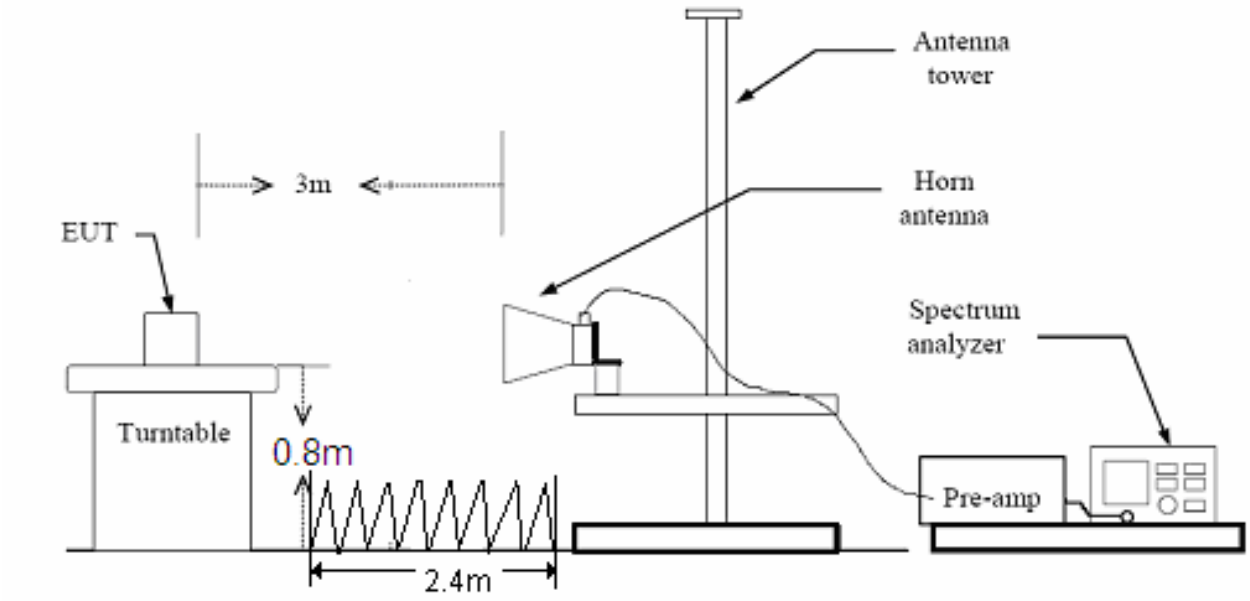
The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2009. Sweep the whole frequency band through the range from 30MHz to 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 IBM T61 8892-BAC and the serial number of laptop is L3-C9644.
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.

Test Setup

Below 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

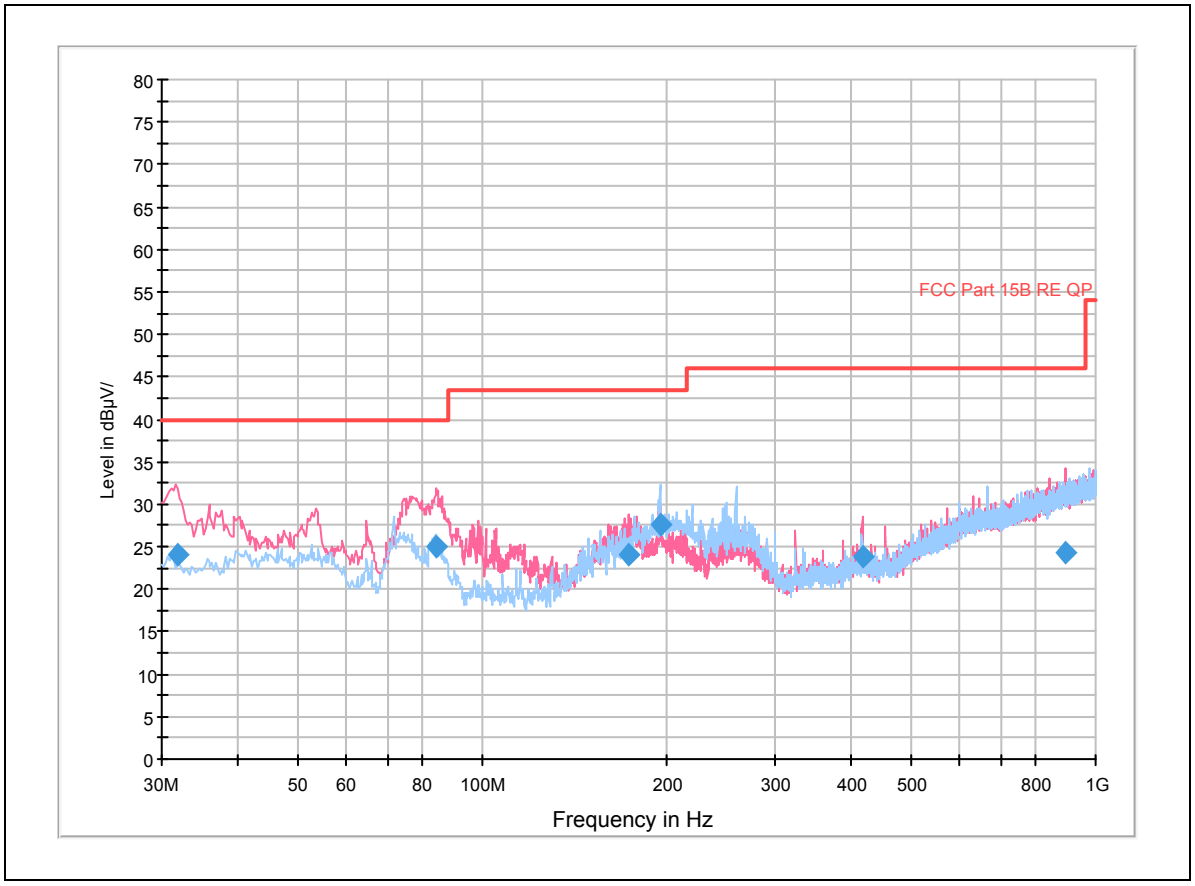
Frequency (MHz)	Field Strength (dBμV/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5th harmonic of the highest frequency or 40GHz,which is lower	54 74	Average Peak

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

USB Mode



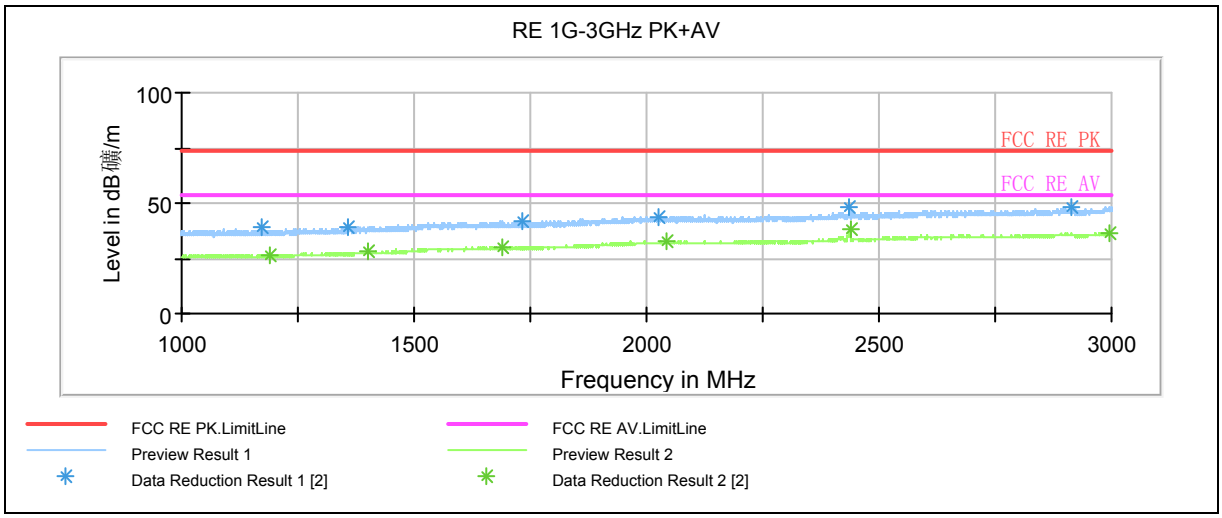
Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
31.897500	24.1	100.0	V	1.0	6.7	17.4	15.9	40.0
83.837500	25.0	125.0	V	358.0	14	11.0	15.0	40.0
173.275000	24.0	100.0	V	170.0	13	11.0	19.5	43.5
194.657500	27.6	175.0	H	87.0	15.1	12.5	15.9	43.5
416.262500	23.9	100.0	V	358.0	5.9	18.0	22.1	46.0
893.415000	24.3	125.0	V	35.0	-1.3	25.6	21.7	46.0

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

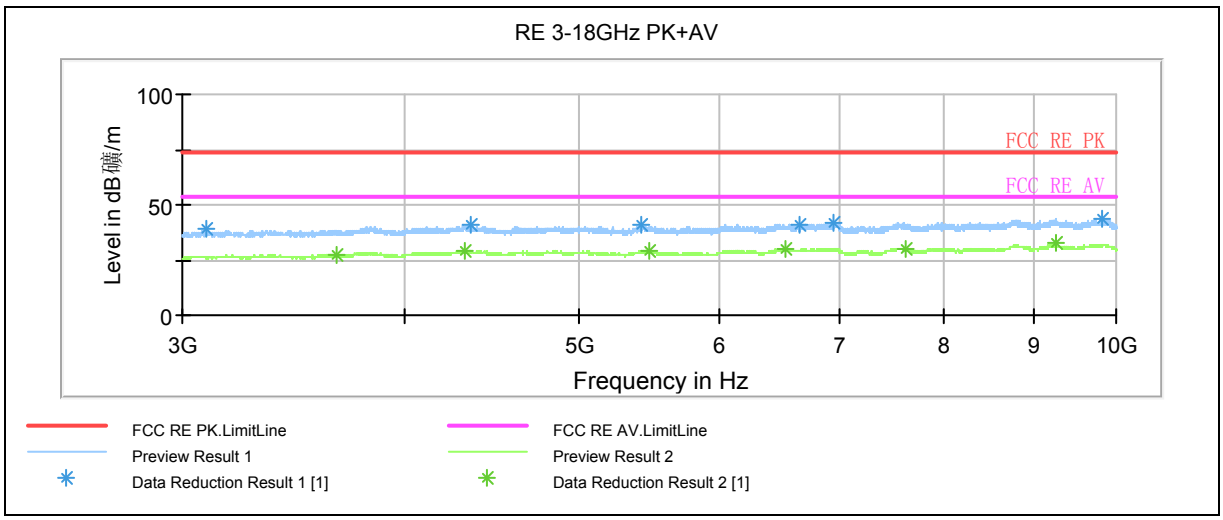
2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Note: 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 10GHz

2.3. Conducted Emission

Ambient condition

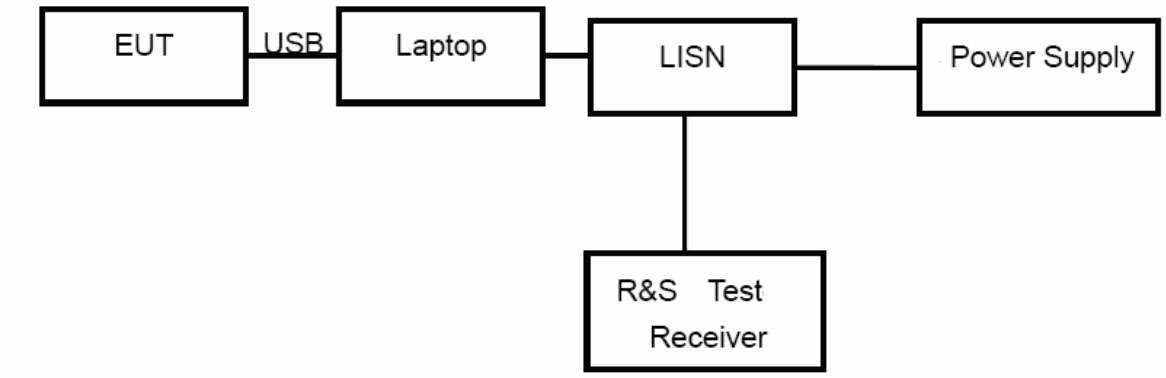
Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

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 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 IBM T61 8892-BAC and the serial number of laptop is L3-C9644.

Test Setup

USB Mode



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

Limits

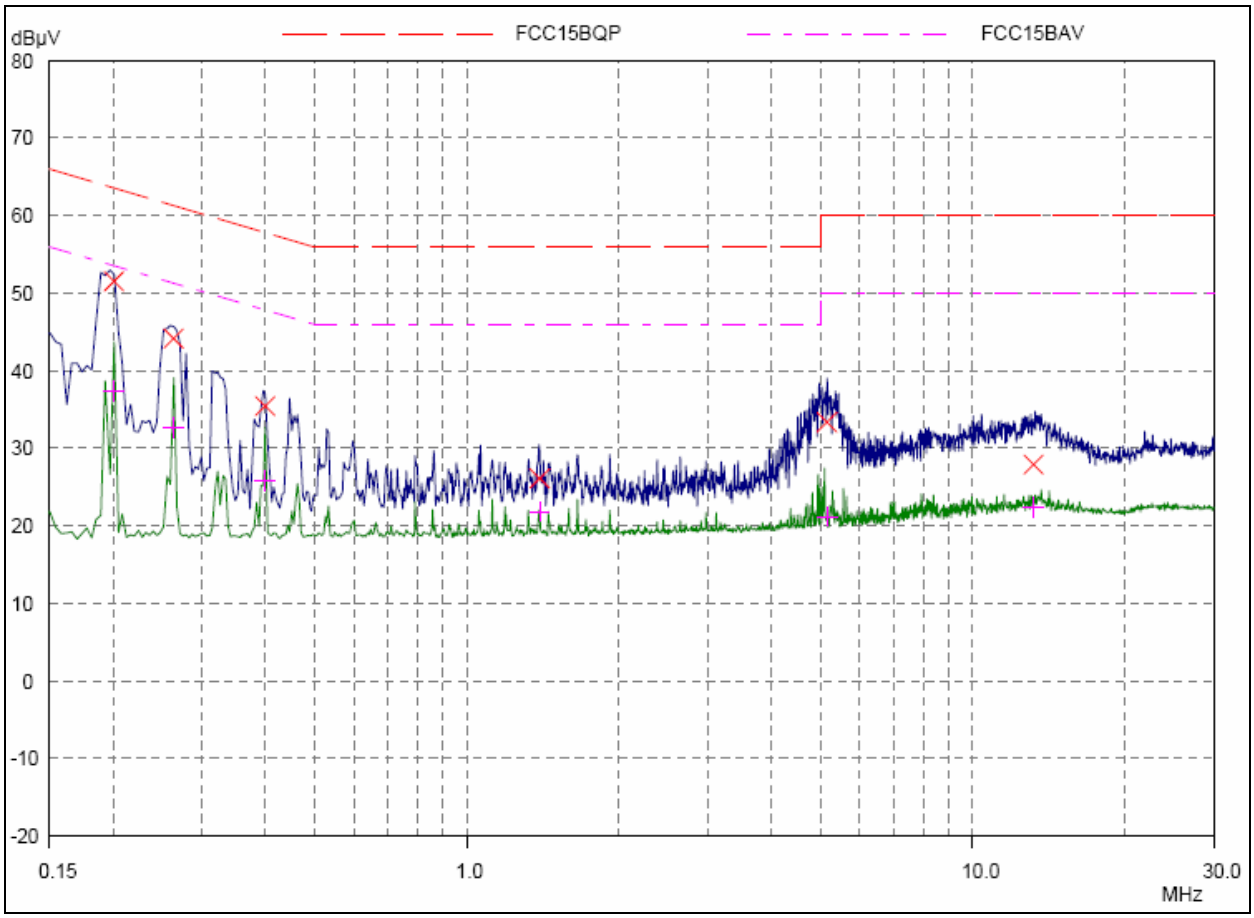
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

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

USB Mode

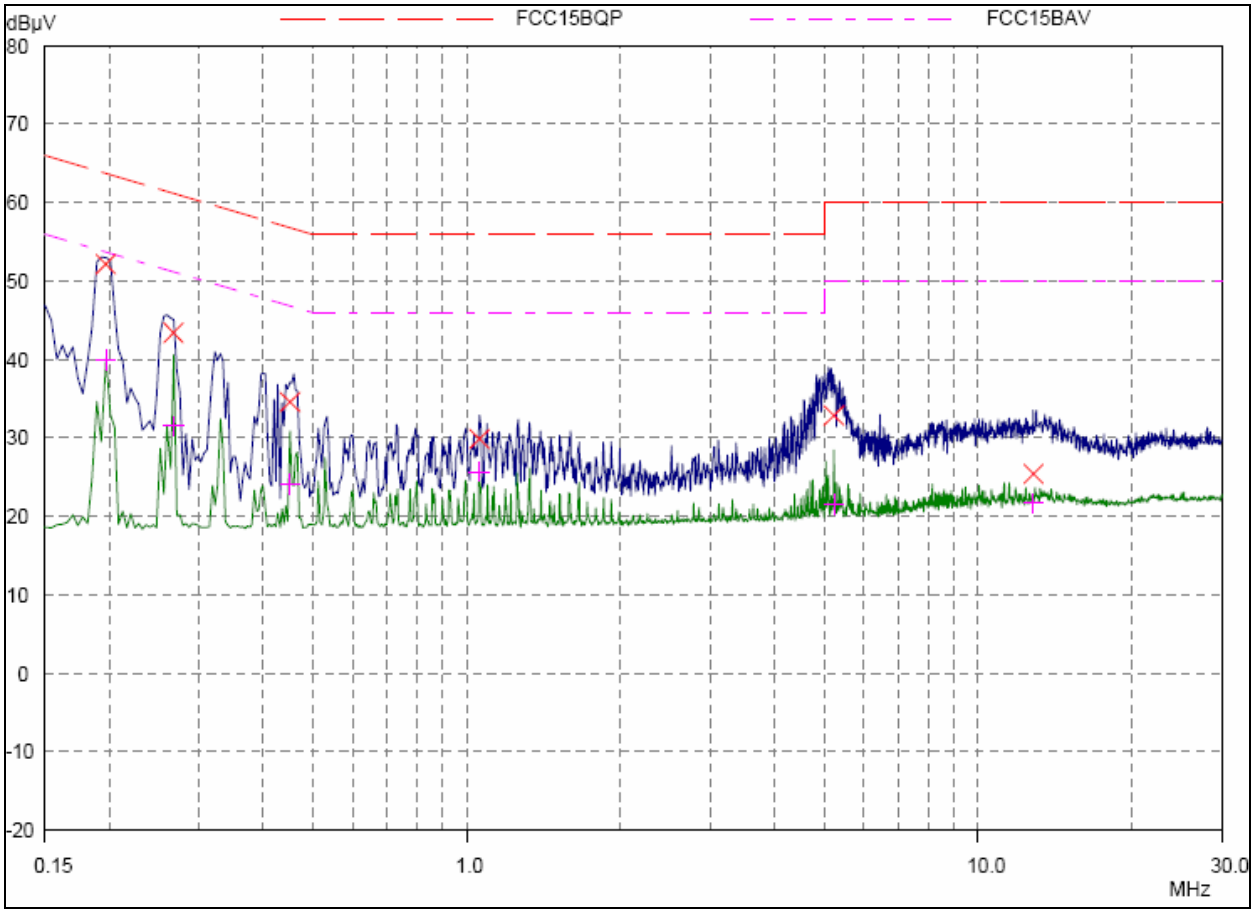


L line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.20078	51.56	63.58	12.02	L1
0.26328	44.14	61.33	17.19	L1
0.4	35.42	57.85	22.43	L1
1.39218	26.11	56.00	29.89	L1
5.16171	33.39	60.00	26.61	L1
13.20859	27.91	60.00	32.09	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.20078	37.44	53.58	16.14	L1
0.26328	32.72	51.33	18.61	L1
0.4	25.82	47.85	22.03	L1
1.39218	21.79	46.00	24.21	L1
5.16171	21.23	50.00	28.77	L1
13.20859	22.42	50.00	27.58	L1



N line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.19687	52.15	63.74	11.59	N
0.26718	43.42	61.21	17.79	N
0.45078	34.59	56.86	22.27	N
1.06015	29.91	56.00	26.09	N
5.23203	32.84	60.00	27.16	N
12.82968	25.41	60.00	34.59	N

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.19687	39.97	53.74	13.77	N
0.26718	31.56	51.21	19.65	N
0.45078	24.03	46.86	22.83	N
1.06015	25.72	46.00	20.28	N
5.23203	21.59	50.00	28.41	N
12.82968	21.65	50.00	28.35	N

3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	EMI Test Receiver	ESCI	R&S	100948	2012-06-30	One year
02	Trilog Antenna	VULB 9163	SCHWARZBECK	9163-201	2010-06-20	Three years
03	Signal Analyzer	FSV30	R&S	100815	2012-06-30	One year
04	Horn Antenna	HF907	R&S	100126	2012-07-01	Three years
05	EMI Test Receiver	ESCS30	R&S	100138	2013-01-15	One year
06	LISN	ENV216	R&S	101171	2010-04-16	Three years

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