



EMC Test Report

Product Name: cdma2000 Digital Mobile Phone

Model Number: HUAWEI M660, M660

Report No: SYBH(Z-EMC)076042012-2
FCC ID: QISM660

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Notice

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2. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
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4. The test report is invalid if not marked with "exclusive stamp for the test report".
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Applicant: Huawei Technologies Co., Ltd.
Address: Huawei Base, Bantian, Longgang District, Shenzhen
518129, P.R. China

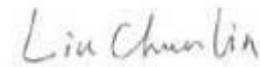
Date of Receipt Test Item: Apr.01, 2012
Start Date of Test: Apr.01, 2012
End Date of Test: Apr.10, 2012

Test Result: Pass

**Approved By
(Lab Manager)**

2012-04-27
Date

Liuchunlin
Name



Signature

Operator

2012-04-27
Date

Daniel
Name



Signature

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	cdma2000 Digital Mobile Phone
Model Number	HUAWEI M660, M660
IMEI Number	Z5W01A9230800236
TX Frequency	CDMA/EVDO 800: 824 MHz To 849MHz CDMA/EVDO 1900: 1850 MHz To 1910MHz CDMA/EVDO 1700: 1710 MHz To 1755MHz Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz
RX Frequency	CDMA/EVDO 800: 869 MHz To 894MHz CDMA/EVDO 1900: 1930 MHz To 1990MHz CDMA/EVDO 1700: 2110 MHz To 2155MHz Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz GPS: 1575.42MHz
HW Version	HC1M660M
SW Version	M660 V100R001C153B811SP01
EUT Accessory	
Data cable	Data Cable USB A Male to Micro USB
Adapter	Manufacturer: Huawei Technologies Co., Ltd. HW-050100U1W Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V  1A Rated Power: 5W S/N:HKAB51963998 S/N:TPAB82321495
Rechargeable Li-ion	Manufacturer: Huawei Technologies Co., Ltd. Battery Model: HB5N1H Rated capacity: 1500mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V S/N:UBDC204XXAS00793 S/N:MLCC205997530686

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.2 Test Site Information

Site 1:	RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD.
Test Site Location:	Bantian Longgang District Shenzhen, P.R. China

1.3 Applied Standards

APPLIED STANDARD

47 CFR FCC Part 15:2010, Subpart B

2 Summary of Results

Summary of Results				
Test Items	Test Mode	Performance Class & Required Performance Criteria	Result	Site
Radiated Emissions Enclosure Port	Mode1~ Mode2 Mode5 Mode7~ Mode8	CLASS B	Pass	Site1
Conducted Emissions <input checked="" type="checkbox"/> DC Power Port <input checked="" type="checkbox"/> AC Power Port <input type="checkbox"/> Telecommunication Ports	Mode1~ Mode4	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, <input checked="" type="checkbox"/> The item has been tested; <input type="checkbox"/> The item has not been tested.				

Test environment condition:

Item	Required
Ambient temperature	15°C ~ 35°C
Relative humidity	25% ~ 75%
Atmospheric pressure	86kPa ~ 106kPa

3 System Configuration during EMC Test

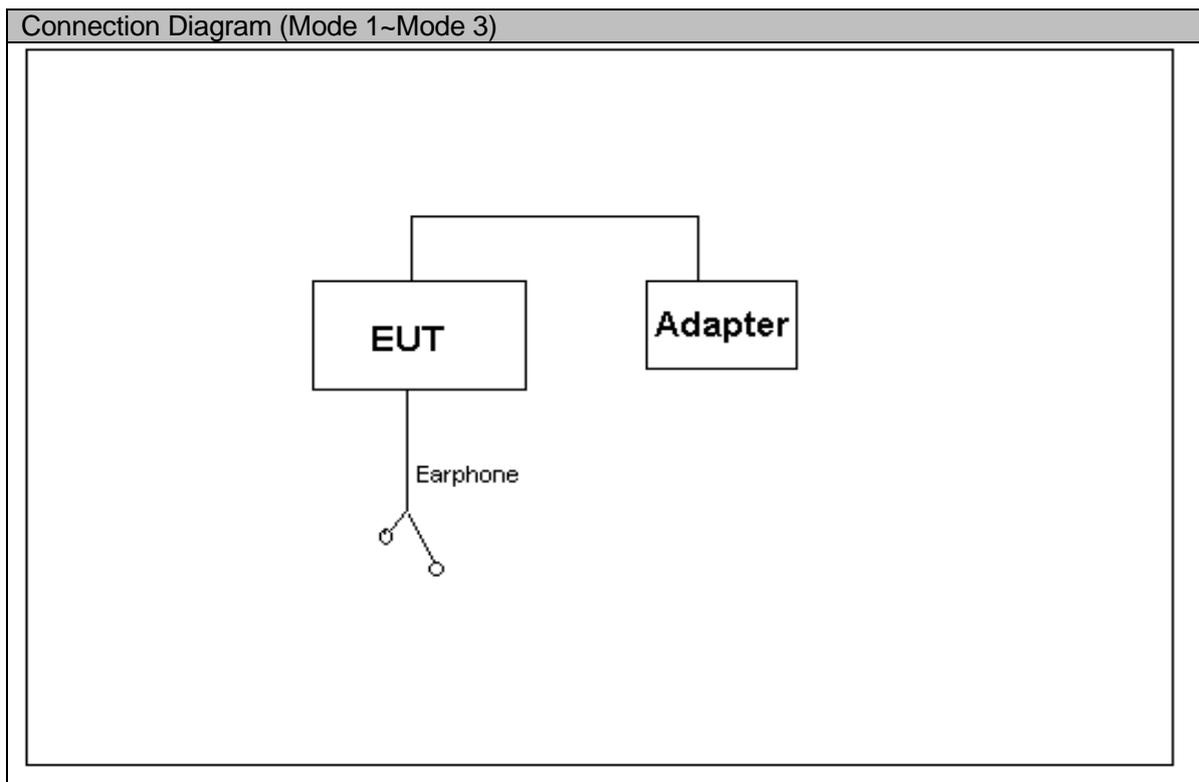
3.1 Test Mode

Huawei has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was in this test report and defined as:

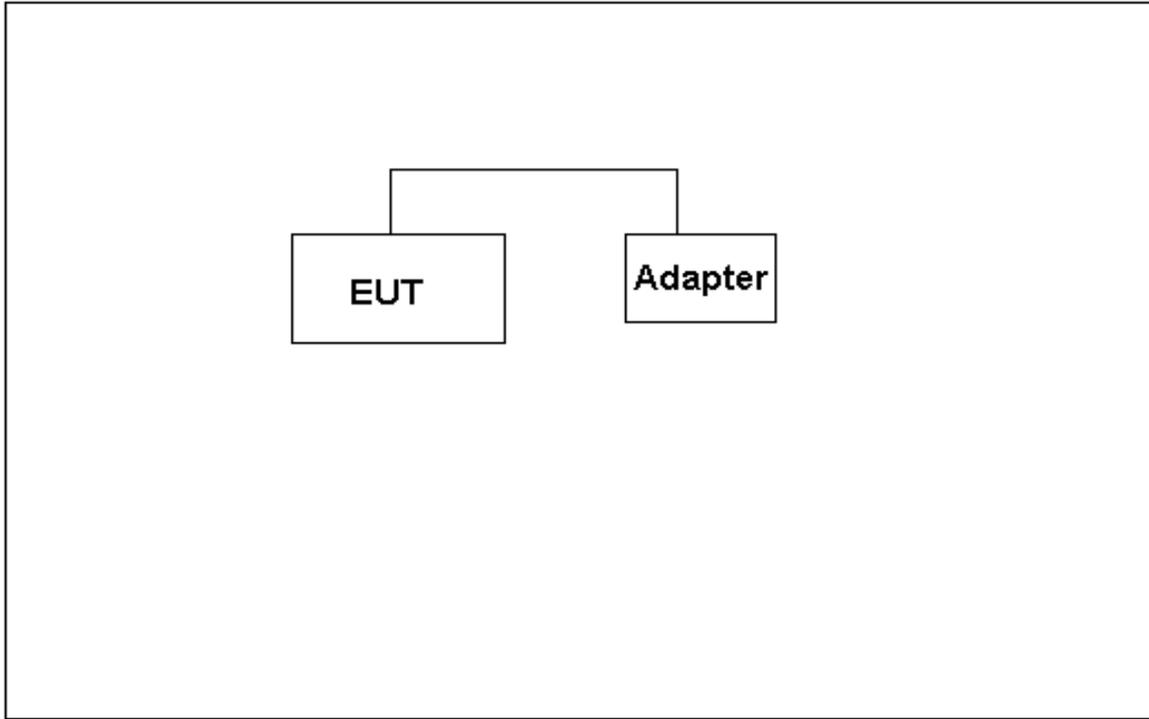
Test Mode	
Mode 1:	adapter+earphone+Camera On +Idle
Mode 2:	adapter+earphone+MP3 +Idle
Mode 3:	adapter+earphone+Traffic
Mode 4:	adapter+Traffic
Mode 5:	USB Copy(EUT with PC)+earphone +Idle
Mode 6:	Traffic
Mode 7:	Camera On+earphone+Idle
Mode 8:	earphone+MP3+Idle

Remark: When the EUT have multiple adapters, need separate test with multiple adapters . All test modes are performed, only the worst cases are recorded in this report.

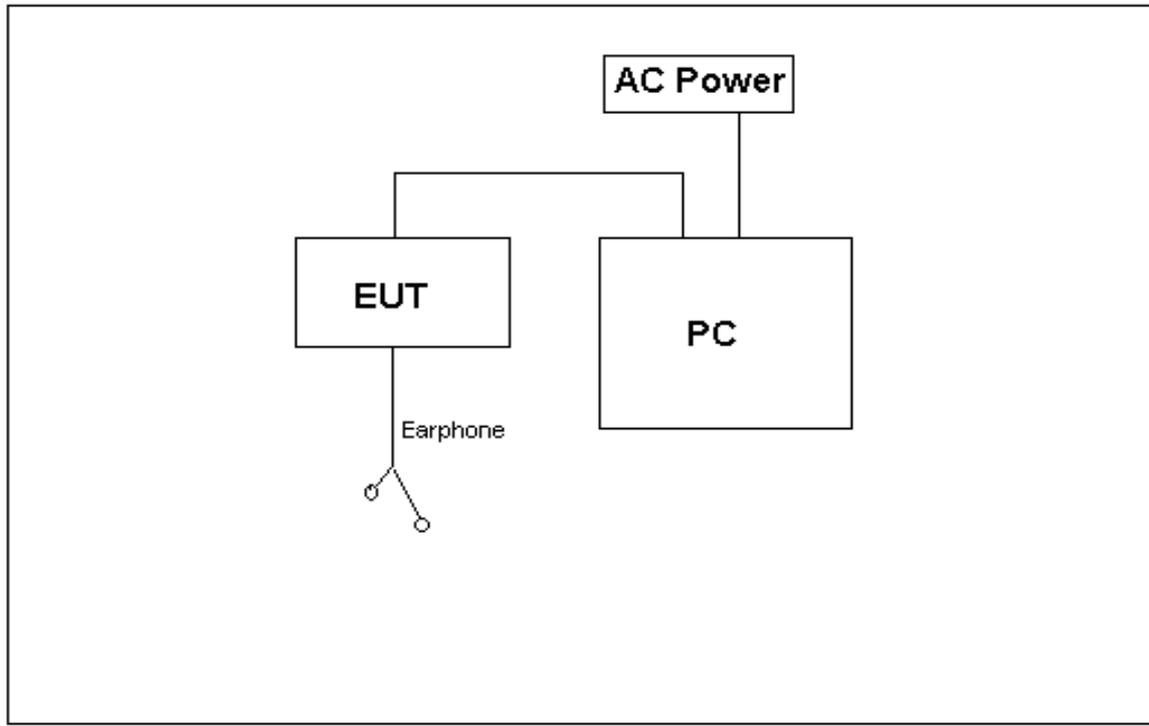
3.2 Configurations of Test System



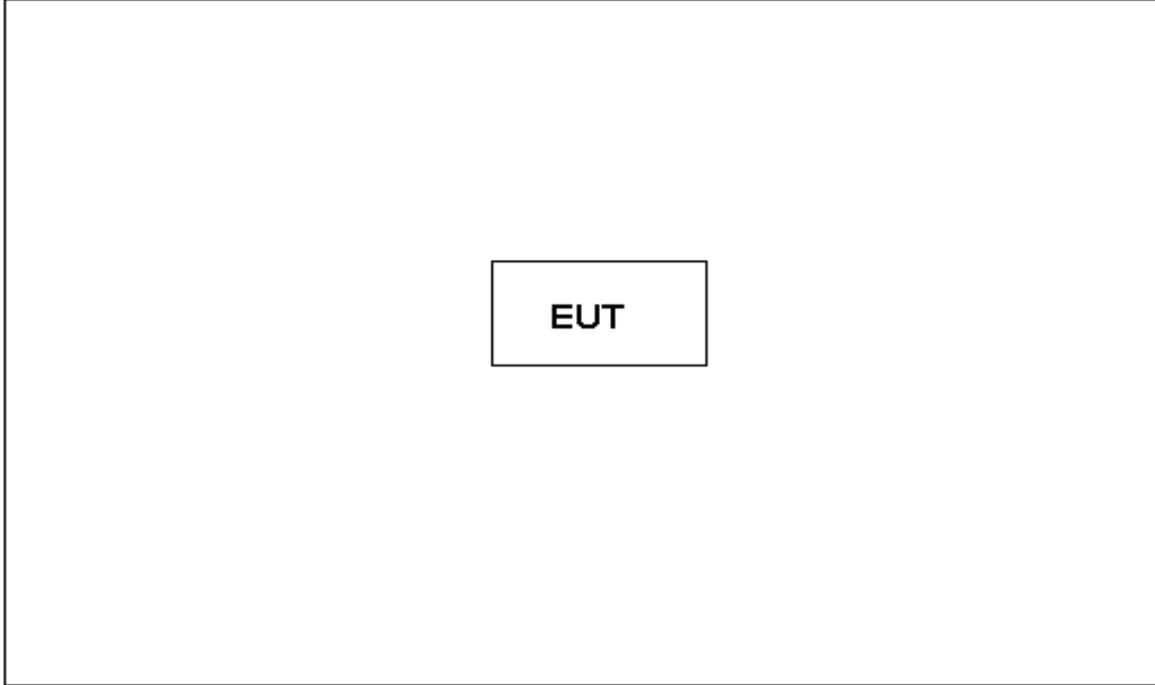
Connection Diagram (Mode 4)



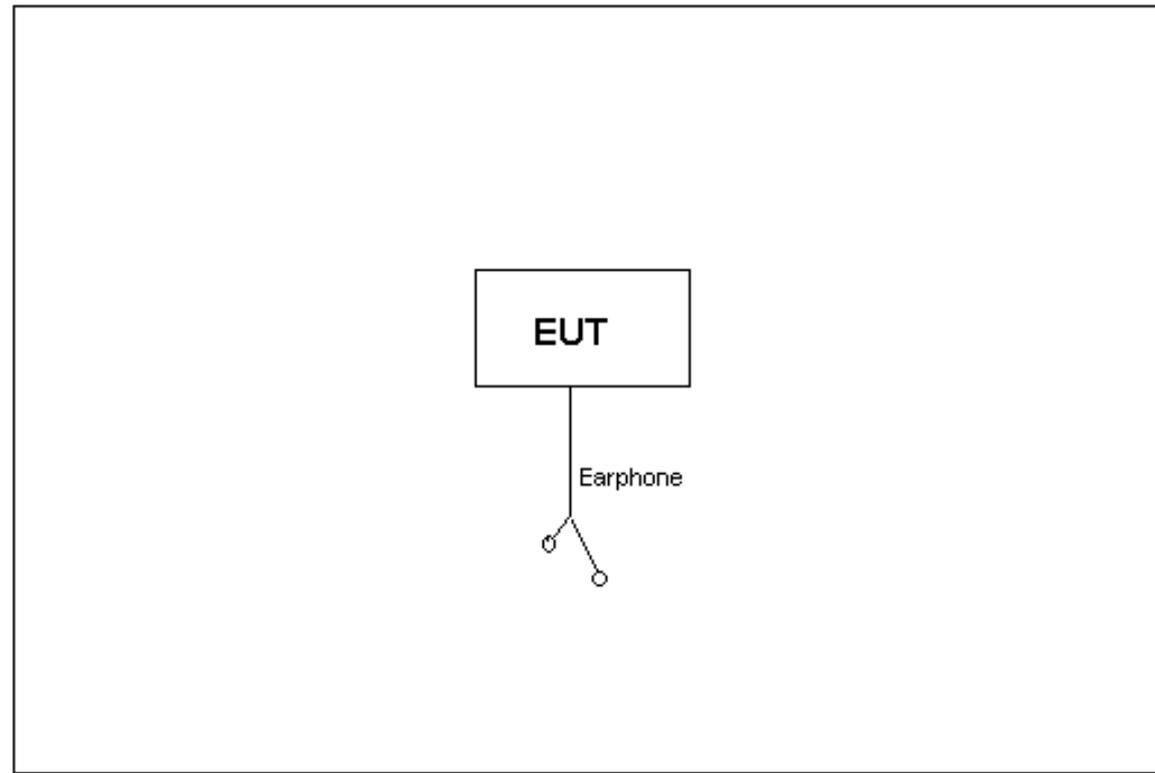
Connection Diagram (Mode 5)



Connection Diagram (Mode 6)



Connection Diagram (Mode 7~Mode 8)



3.3 Cables Used during Test

Cable	Quantity	Length	Type of Cable
USB	1	<3m	shielded
Earphone	1	<3m	Unshielded

3.4 Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Calibrated Deadline
Radio Communication Tester	CMU200	R&S	3608105673	2012-11-06
Notebook	T61	IBM	3108052508	N/A

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

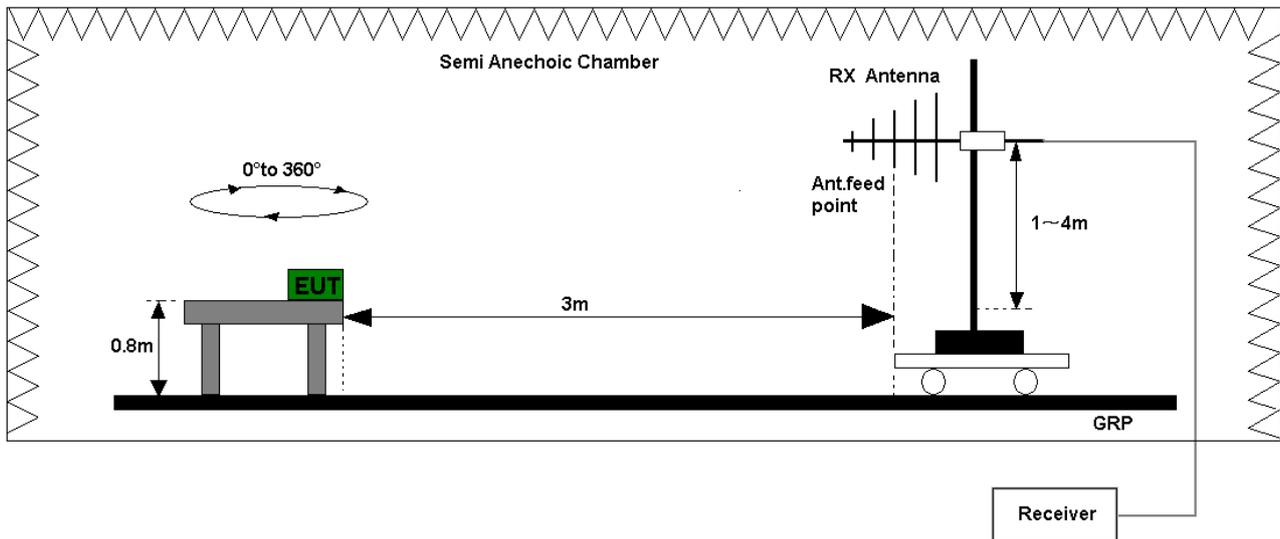
Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4-2009. The test distance was 3m. The set-up and test methods were according to ANSI C63.4-2009.

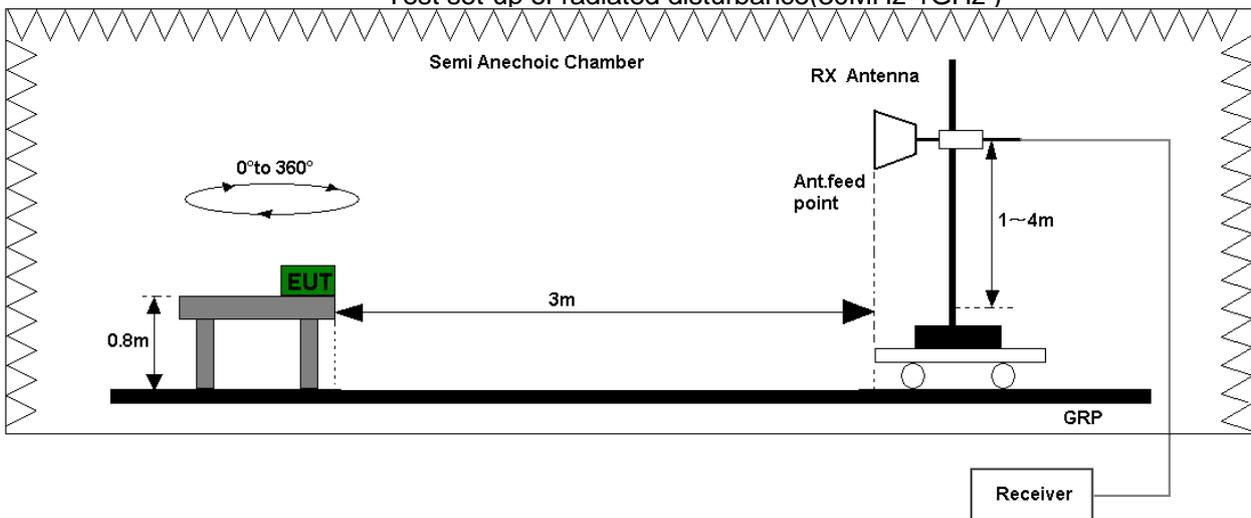
A preliminary scan and a final scan of the emissions were made from 30 MHz to 18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°, The receive antenna has two polarizations V and H.

EUT was configured in idle mode and the test performed at worst emission state.

Test setup



Test set-up of radiated disturbance(30MHz-1GHz)



Test set-up of radiated disturbance(above 1GHz)

Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.
The test data see section 7.1 of this report.

Test Limits				
Frequency of Emission (MHz)	Radiated Limit			
	Unit(μ V/m)		Unit(dB μ V/m)	
30-88	100		40	
88-216	150		43.5	
216-960	200		46	
Above 960	500		54	
Above 1000	AV	PK	AV	PK
	500	5000	54	74

4.2 Conducted Disturbance 0.15 MHz to 30MHz

Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4-2009.

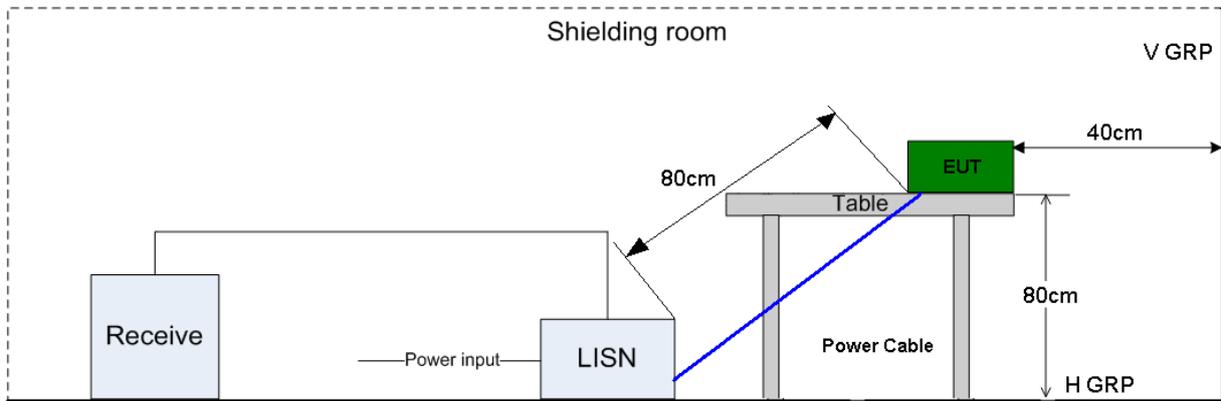
Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

EUT was communicated with the simulator through Air interface, the simulator controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operated on the typical channel.

Measurement bandwidth (RBW) for 150kHz to 30 MHz: 9 kHz;

The EUT was setup in the shielded chamber and operated under nominal conditions.

Test Setup



Test Set-up of conducted disturbance

Test Results

The EUT has met requirements for Conducted disturbance of power lines.

The test data see section 7.2 of this report.

Test Limit of AC Power Port		
Frequency range	150kHz ~ 30MHz	
Frequency	Voltage limits	
	QP	AV
0.15MHz~0.5MHz	66-56dBμV	56-46 dBμV
0.5MHz-5MHz	56dBμV	46 dBμV
5MHz~30MHz	60dBμV	50 dBμV

5 Main Test Instruments

Main Test Equipments					
Test item	Test Instrument	Model	S/N	Manufacturer	Calibrated Deadline
RE	EMI Test receiver	ESU26	100150	R&S	May.29, 2012
	Broadband Antenna	VULB 9163	9163-941	SCHWARZBEC K	May.15, 2012
	Horn Antenna	HF906	100683	R&S	May.15, 2012
CE	EMI Test receiver	ESCI	101163	R&S	Mar. 05, 2013
	Artificial Mains Network	ENV216	100382	R&S	May.29, 2012
Software Information					
Test Item	Software Name	Manufacturer		Version	
RE	ES-K1	R&S		1.7.1	
CE	EMC32	R&S		8.52.0	

6 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

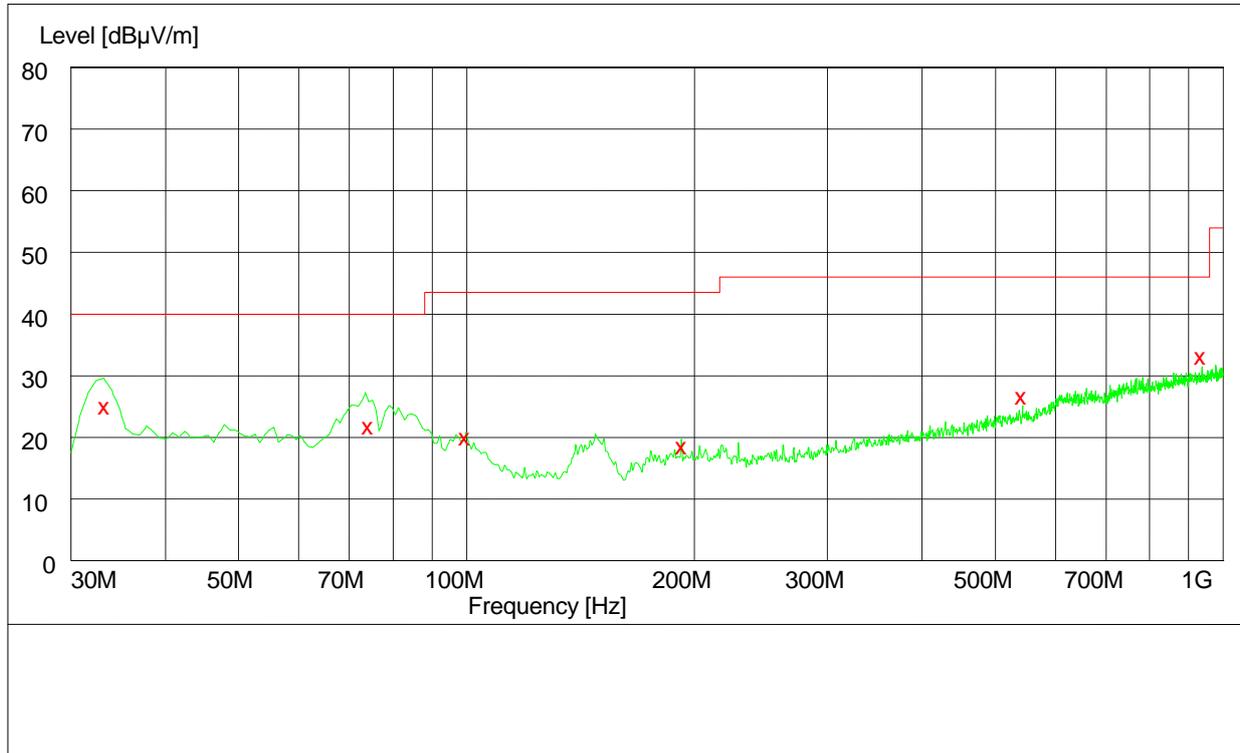
System Measurement Uncertainty		
Items	Extended Uncertainty	
RE(30MHz-1GHz)	Field strength (dB μ V/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dB μ V/m)	U=5.1dB; k=2
CE	Disturbance Voltage (dB μ V)	U=2.6dB; k=2

7 Graph and Data of Test

Only the worst test result was shown in this report.

7.1 Radiated Disturbance

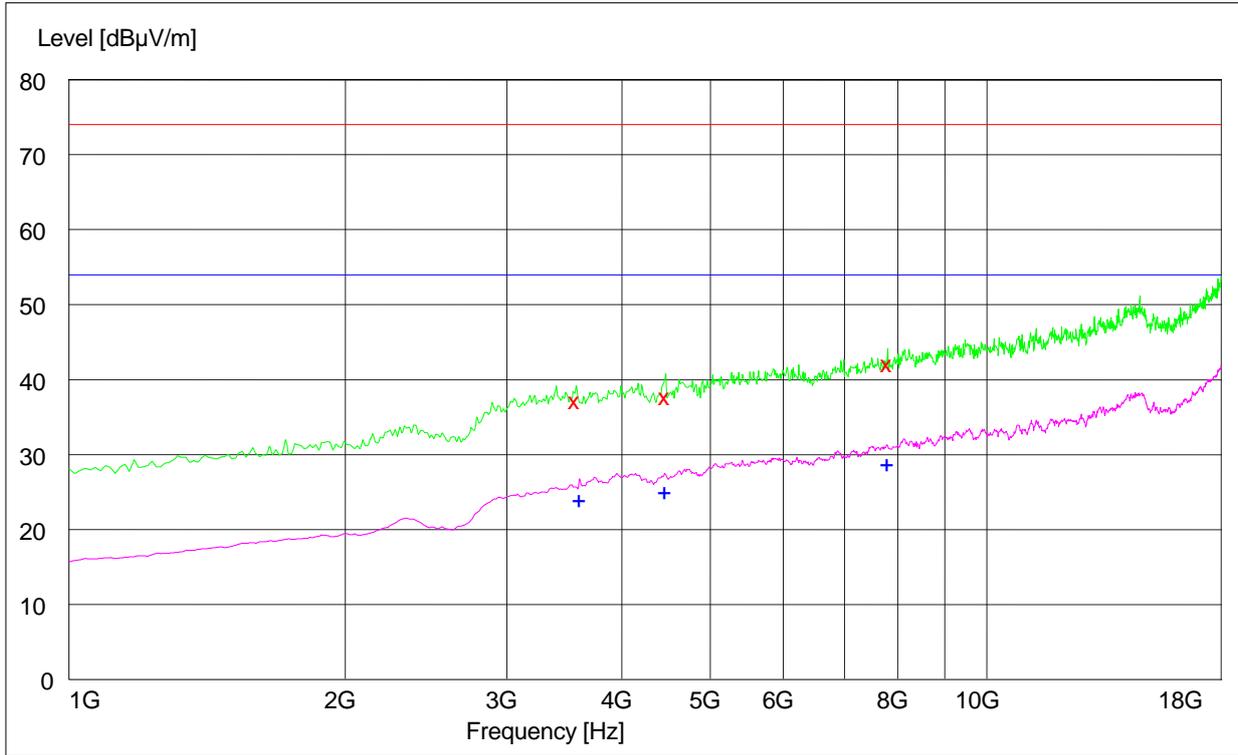
30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.360000	25.60	14.8	40.0	14.4	100.0	77.00	VERTICAL
74.340000	22.40	10.6	40.0	17.6	138.0	93.00	VERTICAL
99.900000	20.70	13.4	43.5	22.8	100.0	174.00	VERTICAL
192.900000	19.10	12.1	43.5	24.4	187.0	216.00	HORIZONTAL
542.460000	27.20	19.8	46.0	18.8	123.0	137.00	VERTICAL
936.540000	33.70	25.1	46.0	12.3	136.0	115.00	HORIZONTAL

1GHz~18GHz



MEASUREMENT RESULT: PK Detector

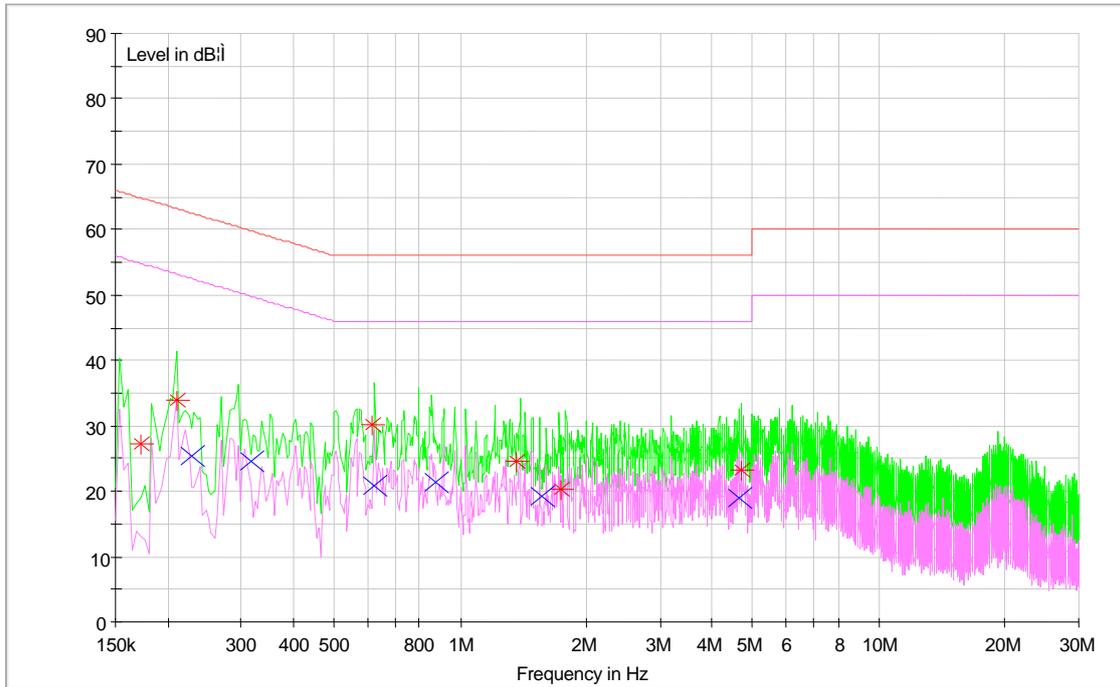
Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3565.000000	37.40	-5.9	74.0	36.6	100.0	331.00	VERTICAL
4469.000000	37.90	-3.9	74.0	36.1	100.0	302.00	VERTICAL
7802.000000	42.30	4.2	74.0	31.7	100.0	235.00	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3601.500000	24.20	-5.6	54.0	29.8	100.0	231.00	VERTICAL
4462.500000	25.30	-3.8	54.0	28.7	100.0	263.00	VERTICAL
7796.000000	29.00	4.2	54.0	25.0	100.0	284.00	VERTICAL

7.2 Conducted Disturbance

AC Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.172923	27.3	9.7	64.8	37.5	N	FLO
0.210672	33.8	9.7	63.2	29.4	L1	FLO
0.618064	30.2	9.7	56.0	25.8	N	FLO
1.364628	24.6	9.7	56.0	31.4	N	FLO
1.731139	20.3	9.7	56.0	35.7	L1	FLO
4.706824	23.3	9.8	56.0	32.7	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.229098	25.5	9.7	52.5	27.0	N	FLO
0.316425	24.5	9.7	49.8	25.3	N	FLO
0.620022	20.9	9.7	46.0	25.1	N	FLO
0.871800	21.3	9.7	46.0	24.7	N	FLO
1.563953	19.1	9.7	46.0	26.9	N	FLO
4.623432	19.0	9.8	46.0	27.0	N	FLO

-----END-----