EMC Test Report

Product Name: Ascend D1; HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth

Model Number:HUAWEI U9500, U9500, HUAWEI U9500-1, U9500-1, HUAWEI U9500-51, U9500-51

Report No:SYBH(Z-EMC)115022012-2

FCC ID:QISU9500

Reliability Laboratory of Huawei Technologies Co., Ltd.

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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.**
3. **The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-2.**
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8. **Normally, the test report is only responsible for the samples that have undergone the test.**
9. **Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the laboratory.**

Applicant:	Huawei Technologies Co., Ltd.
Address:	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
Date of Receipt Test Item:	Mar.15, 2012
Start Date of Test:	Mar.15, 2012
End Date of Test:	Mar.30, 2012
Test Result:	Pass

Approved By (Lab Manager)	**2012-04-16**	**Liuchunlin**	Liu Chunlin
	Date	**Name**	**Signature**
Operator	**2012-04-16**	**Daniel**	Daniel
	Date	**Name**	**Signature**

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	Ascend D1; HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth
Model Number	HUAWEI U9500, U9500, HUAWEI U9500-1, U9500-1, HUAWEI U9500-51, U9500-51
Serials Number	A9V7NA1231100095
TX Frequency	GSM850:824MHz To 849MHz; PCS1900:1850MHz To 1910MHz; WCDMA BAND II: 1850MHz To 1910MHz; WCDMA BAND IV: 1710 MHz To 1755MHz; WCDMA BAND V: 824MHz To 849MHz; Bluetooth: 2400MHz To 2483.5MHz; WIFI: 2400MHz To 2483.5MHz;
RX Frequency	GSM850:869MHz To 894MHz; PCS1900:1930MHz To 1990MHz WCDMA BAND II: 1930MHz To 1990MHz WCDMA BAND IV: 2110 MHz To 2155MHz; WCDMA BAND V: 869MHz To 894MHz; Bluetooth: 2400MHz To 2483.5MHz; WIFI: 2400MHz To 2483.5MHz; GPS: 1575.42MHz;
HW Version	Ver.B
SW Version	U9500-1V100R001CHNC00B200-WMC
EUT Accessory	
Data cable	Data Cable USB A Male to Micro Usb, Black
Adapter	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100E3W Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V ⎓ 1A Rated Power: 5W S/N:BYAAC4230004
Adapter	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100U3W Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V ⎓ 1A Rated Power: 5W S/N:BYAAC4160009
Adapter	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100B3W Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V ⎓ 1A Rated Power: 5W S/N:BYAAC41600014
Rechargeable Li-ion	Manufacturer: Huawei Technologies Co., Ltd. Battery Model: HB4Q1

	Rated capacity: 1670mAh Nominal Voltage: ⎓ +3.7V Charging Voltage: ⎓ +4.2V S/N: ALCBB216I4604898 S/N: GAGC213297609458

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~ Mode9	CLASS B	Pass	Site1
Conducted Emissions ☐DC Power Port ☒AC Power Port ☐Telecommunication Ports	Mode1~ Mode4 Mode9	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, ☒ The item has been tested; ☐ The item has not been tested.				

During the measurement, the environmental conditions complied with the range listed as below.

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

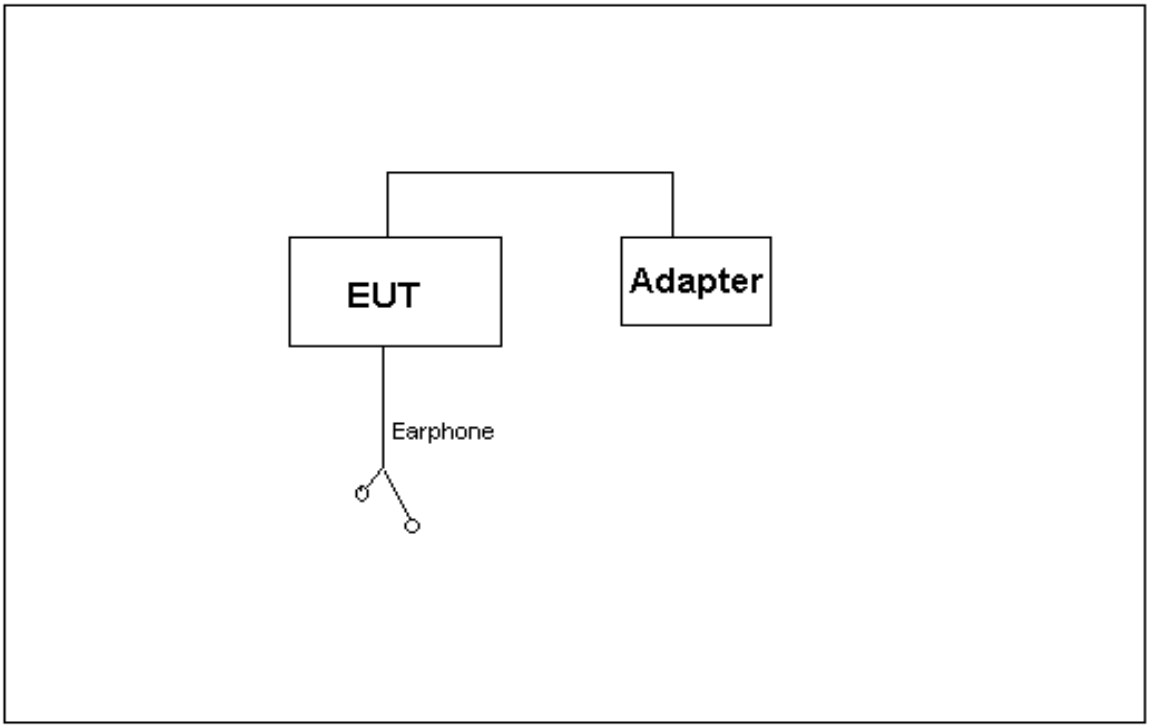
Huawei has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was in this test report and defined as:

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
Mode 9	Adapter + HDMI + MHL + TV

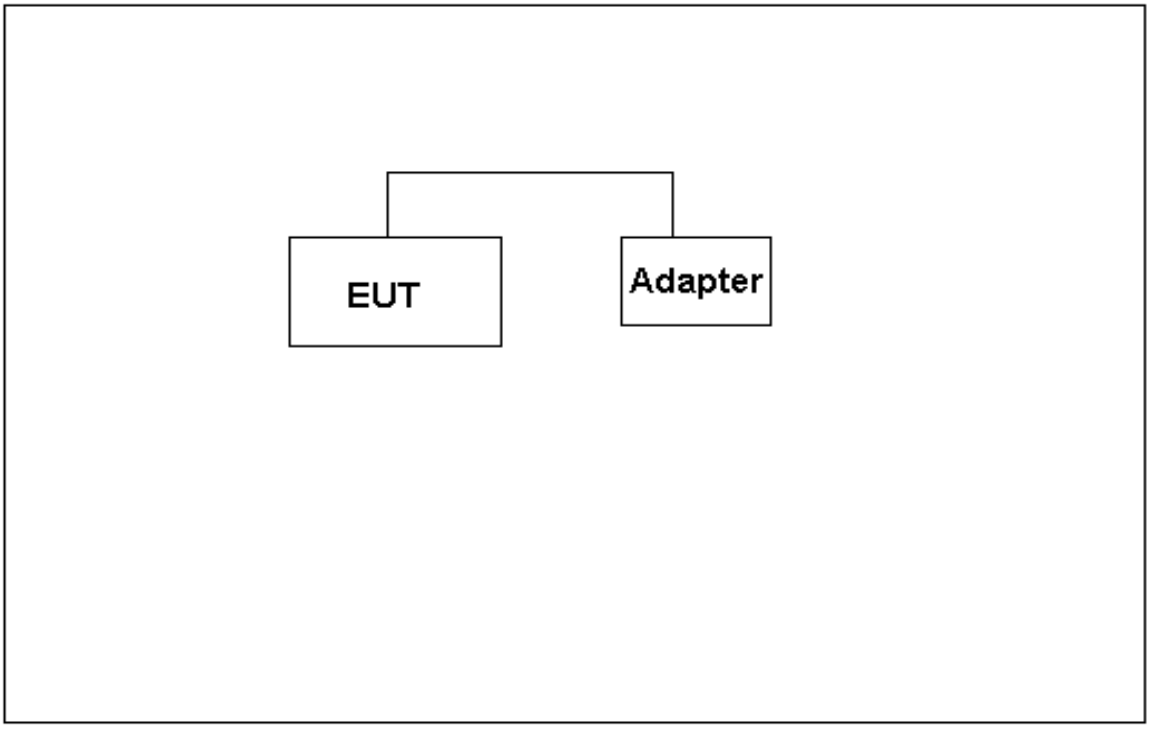
Remark：When the EUT have multiple adapters, need separate test with multiple adapters . All test modes are performed, only the worst cases are recorded in this report.

3.2 Configurations of Test System

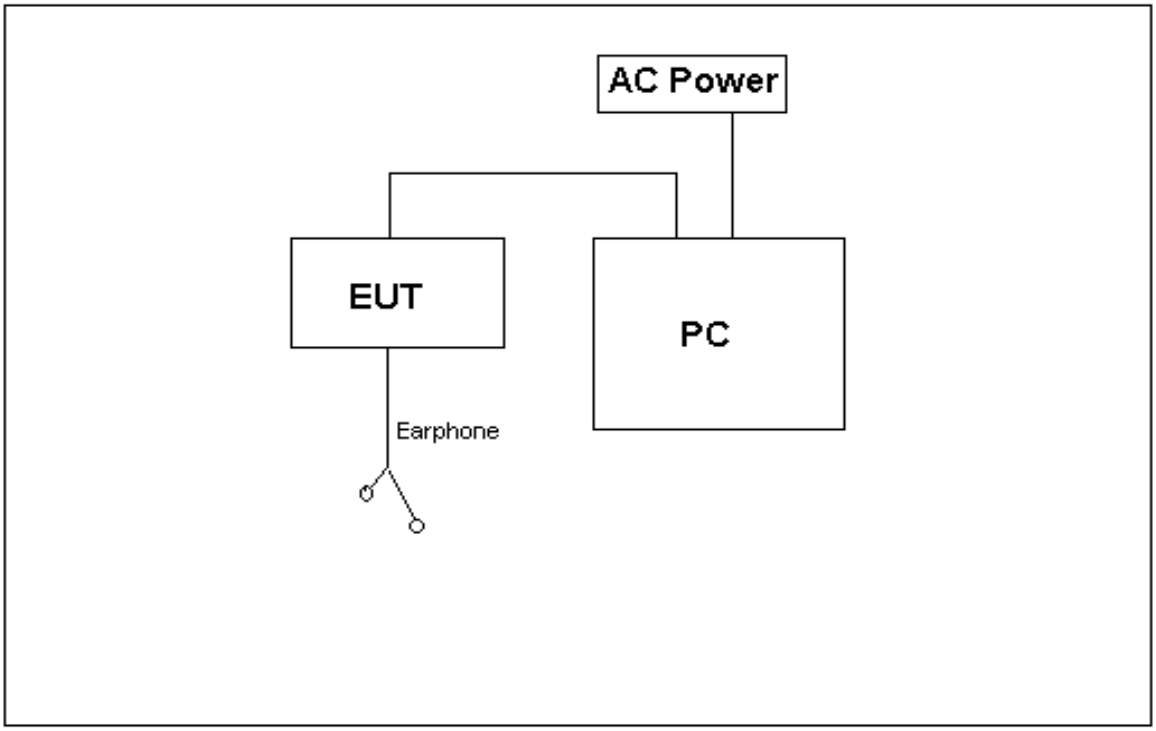
Connection Diagram (Mode 1~Mode 3)



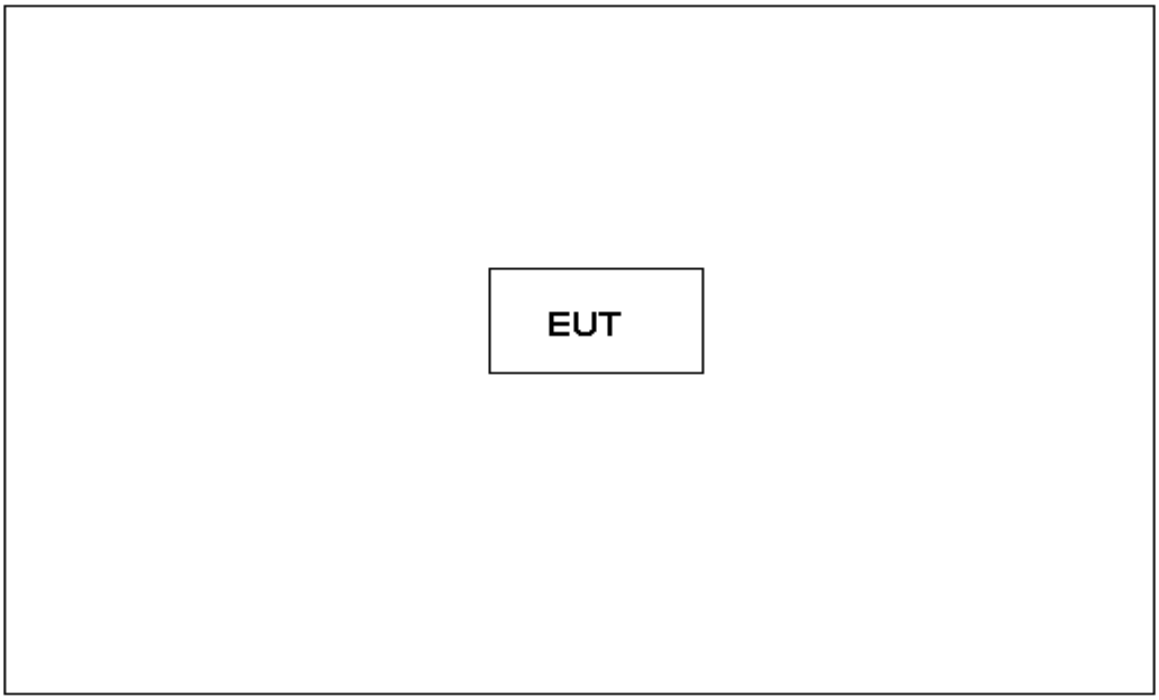
Connection Diagram (Mode 4)



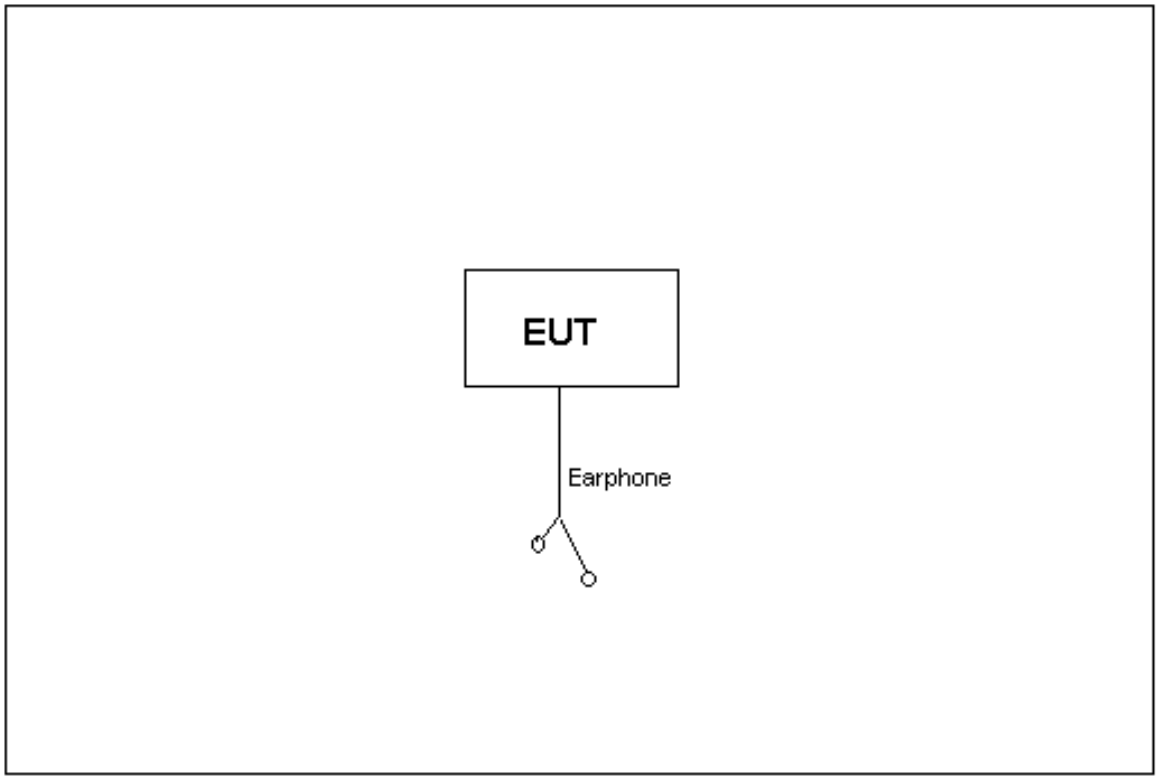
Connection Diagram (Mode 5)



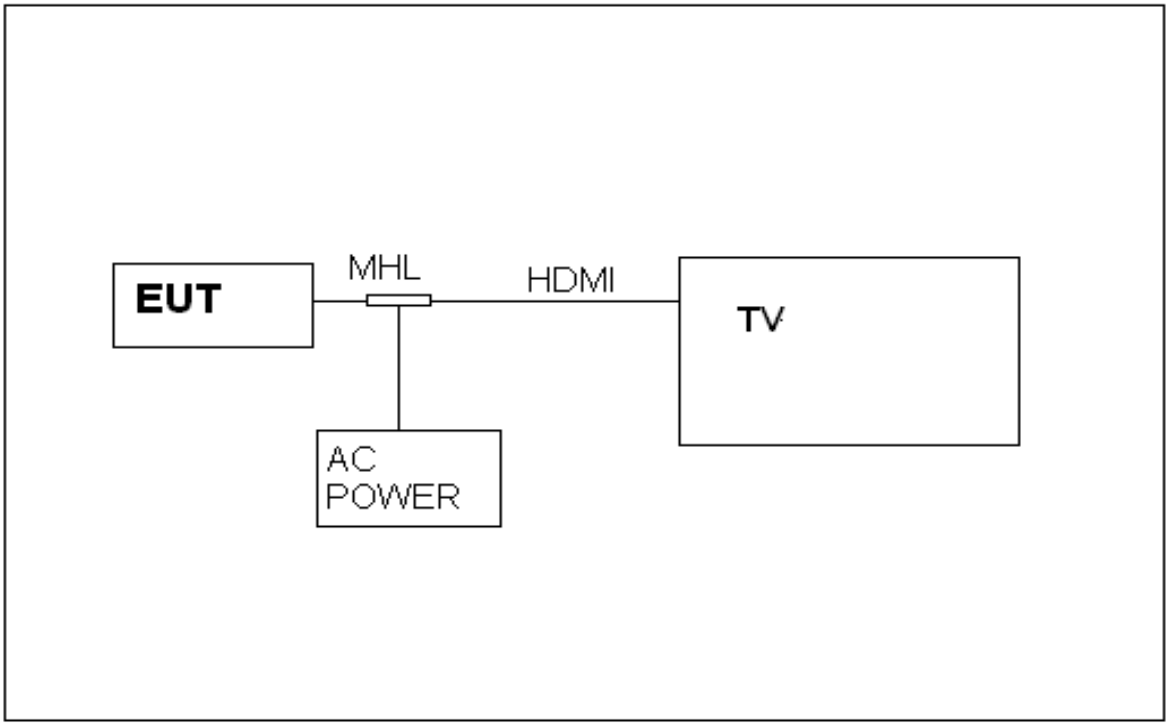
Connection Diagram (Mode 6)



Connection Diagram (Mode 7~Mode 8)



Connection Diagram (Mode9)



3.3 Cables Used during Test

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

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
LCD Colour TV	KLV-22BX205	SONY	6005726	N/A

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

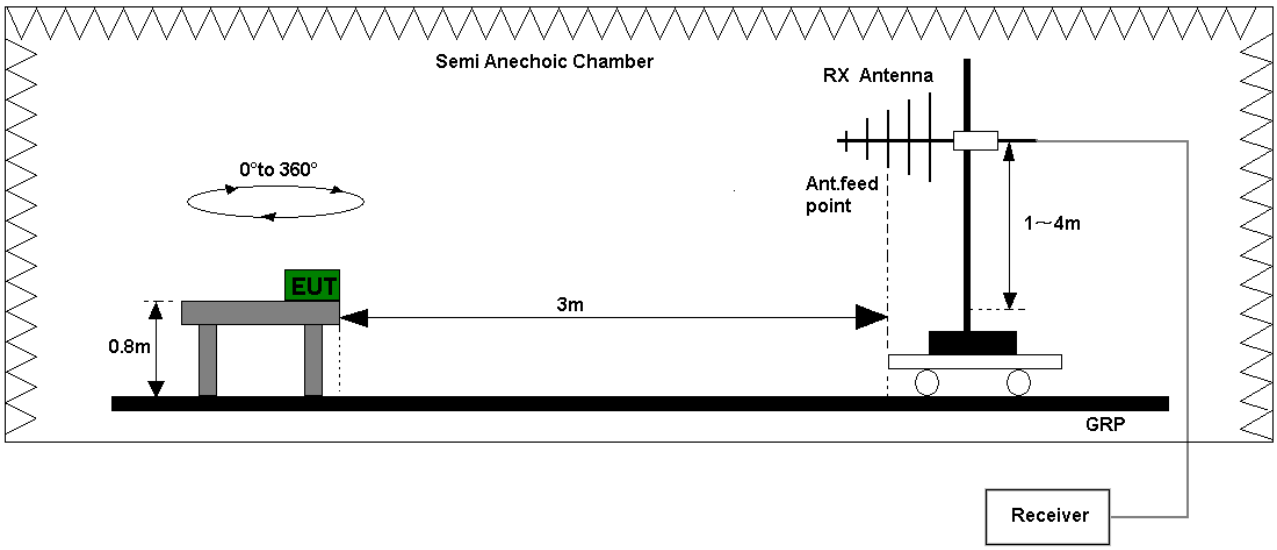
Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4-2003. The test distance was 3m.The set-up and test methods were according to ANSI C63.4-2003.

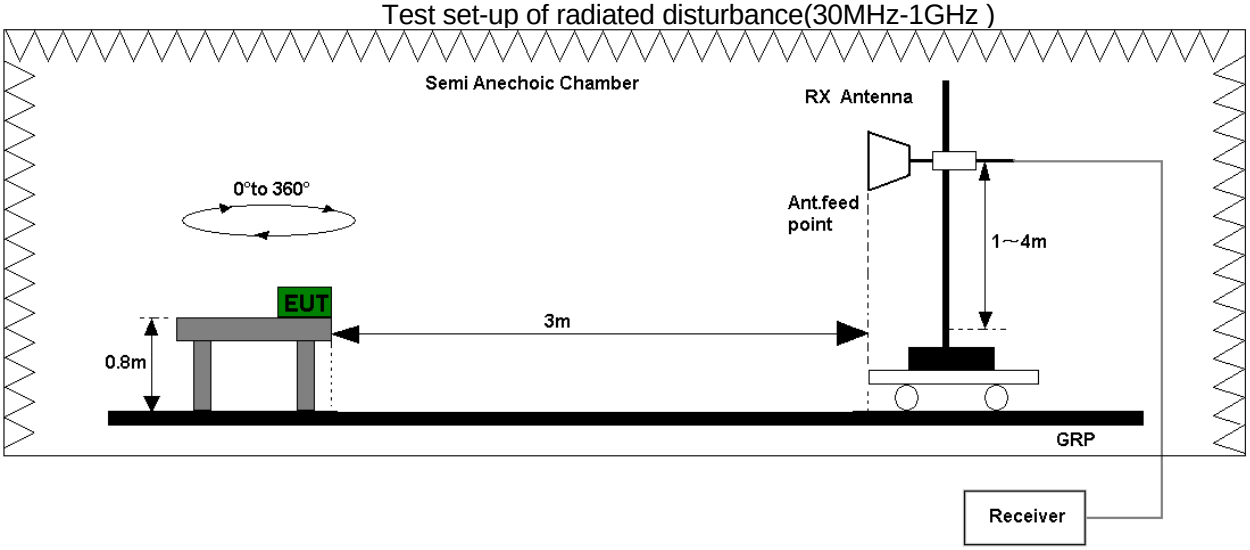
A preliminary scan and a final scan of the emissions were made from 30 MHz to18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation 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.

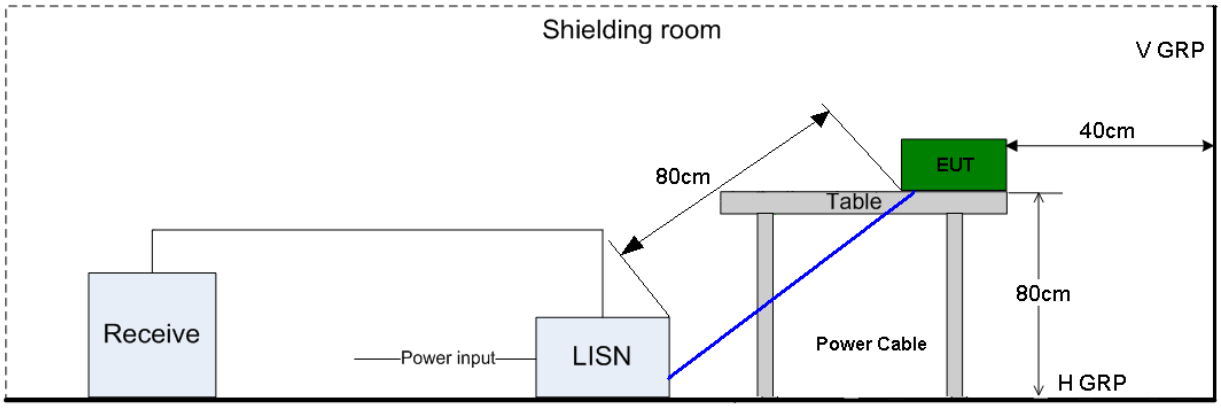
Test Limits				
Frequency of Emission (MHz)	Radiated Limit			
	Unit(μV/m)		Unit(dBμV/m)	
30-88	100		40	
88-216	150		43.5	
216-960	200		46	
Above 960	500		54	
Above 1000	AV	PK	AV	PK
	500	5000	54	74

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 C63.4-2003.
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 150kz 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	SCHWARZBECK	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	V8.52.0

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:

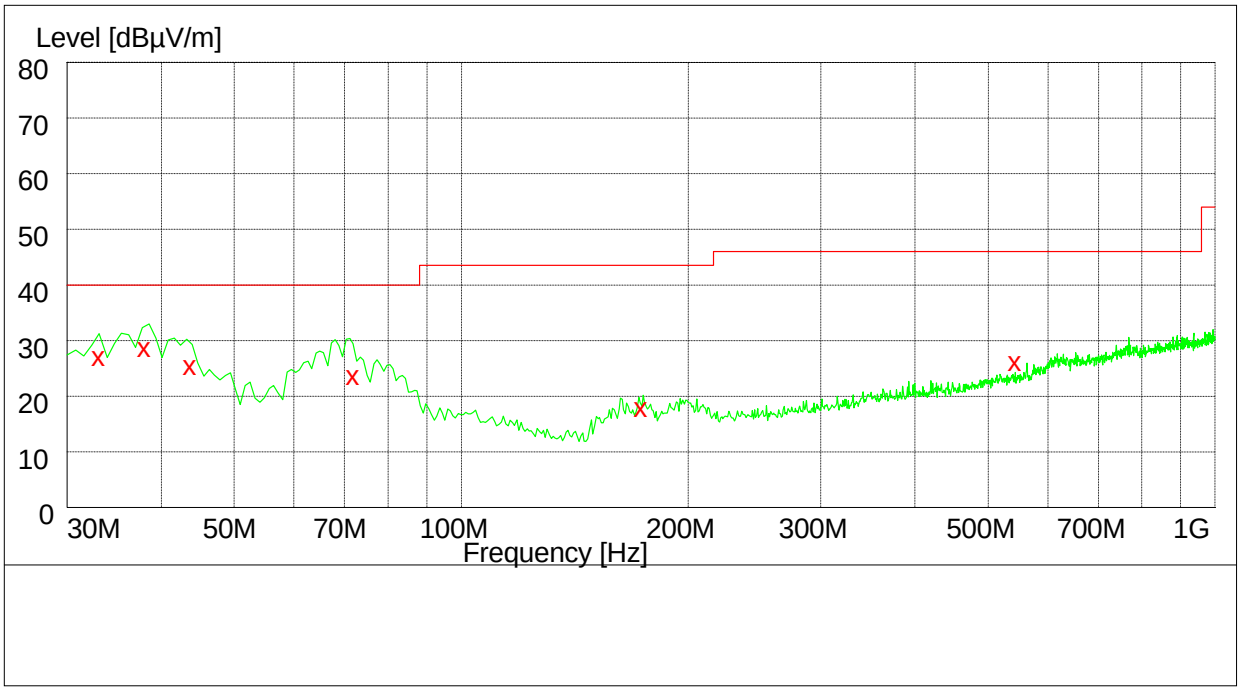
System Measurement Uncertainty		
Items		**Extended Uncertainty**
RE(30MHz-1GHz)	Field strength (dBμV/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dBμV/m)	U=5.0dB; k=2
CE	Disturbance Voltage (dBμV)	U=2.6dB; k=2

7 Graph and Data of Test

Only the worst test result was shown in this report.

7.1 Radiated Disturbance

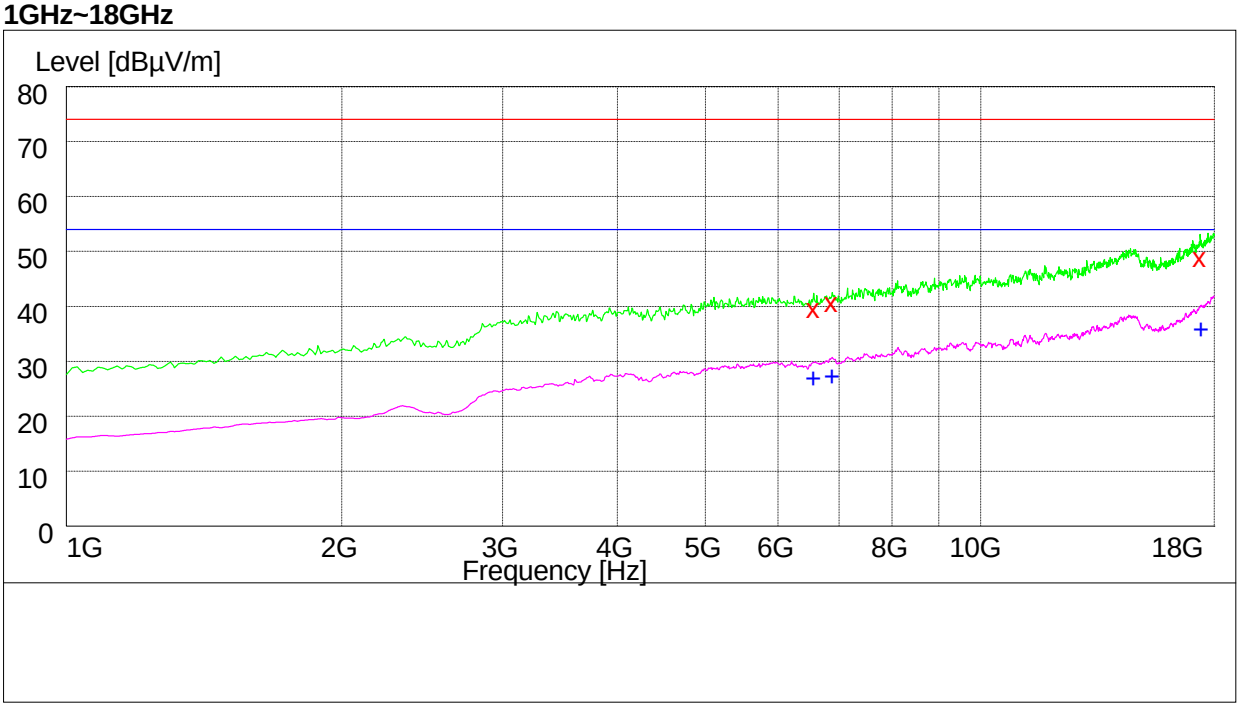
30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.060000	28.00	14.8	40.0	12.0	100.0	135.00	VERTICAL
38.040000	29.80	15.2	40.0	10.2	103.0	253.00	VERTICAL
43.680000	26.40	15.1	40.0	13.6	100.0	342.00	VERTICAL
72.000000	24.70	10.7	40.0	15.3	112.0	173.00	VERTICAL
173.520000	19.00	10.8	43.5	24.5	103.0	226.00	VERTICAL
543.540000	27.20	19.8	46.0	18.8	114.0	327.00	HORIZONTAL

1GHz~18GHz



MEASUREMENT RESULT: PK Detector

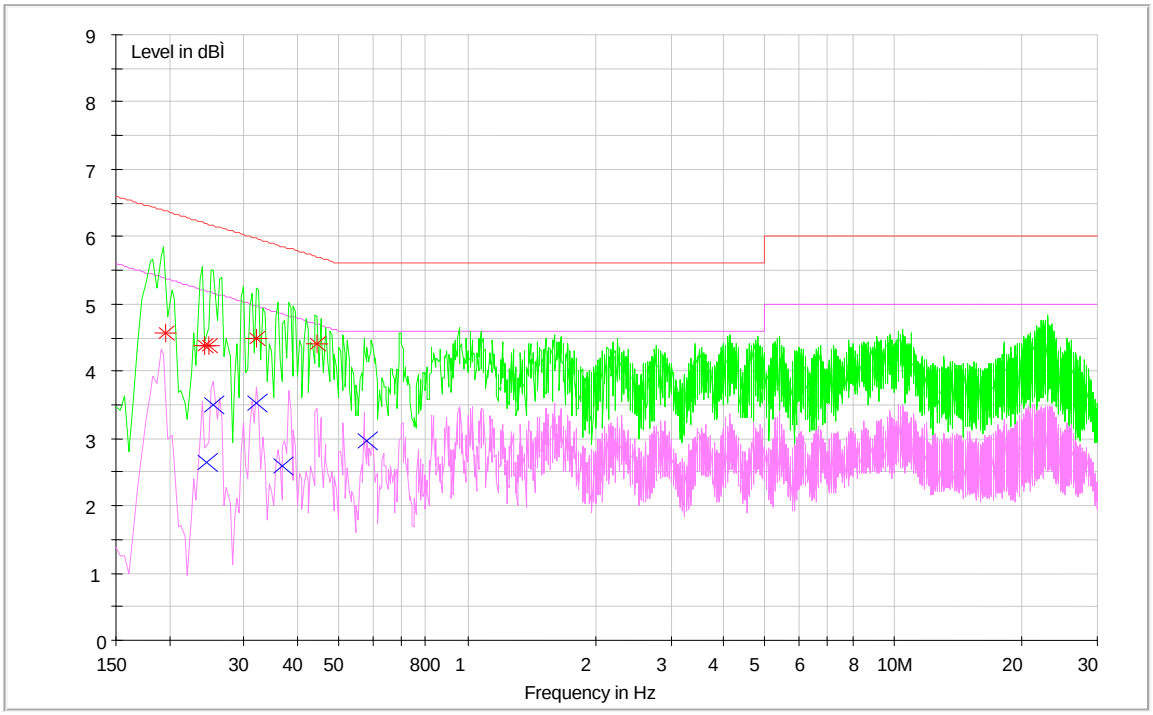
Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
6566.500000	41.00	0.9	74.0	33.0	200.0	5.00	HORIZONTAL
6866.000000	42.10	2.2	74.0	31.9	161.0	194.00	HORIZONTAL
17372.000000	50.20	16.9	74.0	23.8	200.0	344.00	HORIZONTAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
6555.000000	28.20	0.9	54.0	25.8	200.0	63.00	HORIZONTAL
6869.000000	28.50	2.2	54.0	25.5	100.0	11.00	VERTICAL
17387.000000	37.20	17.0	54.0	16.8	158.0	146.00	HORIZONTAL

7.2 Conducted Disturbance

AC Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.196211	45.7	9.7	63.8	18.1	L1	FLO
0.241032	43.8	9.7	62.1	18.3	L1	FLO
0.247478	43.9	9.7	61.8	17.9	N	FLO
0.319526	45.0	9.7	59.7	14.7	L1	FLO
0.445451	44.1	9.7	57.0	12.9	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.244935	26.6	9.7	51.9	25.3	L1	FLO
0.254262	35.1	9.7	51.6	16.5	N	FLO
0.319163	35.1	9.7	49.7	14.6	N	FLO
0.366466	25.8	9.7	48.6	22.8	N	FLO
0.580541	29.7	9.7	46.0	16.3	N	FLO

----------END----------