EMC Test Report

Product Name: HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;

Model Number: HUAWEI U8665, U8665

Report No:SYBH(Z-EMC)087042012-2
FCC ID: QISU8665

Reliability Laboratory of Huawei Technologies Co., Ltd.

Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China

Tel: +86 755 28780808 Fax: +86 755 89652518

Notice

1. **The laboratory has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L0310.**
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.**
4. **The test report is invalid if not marked with "exclusive stamp for the test report".**
5. **The test report is invalid if not marked with the stamps or the signatures of the persons responsible for performing, revising and approving the test report.**
6. **The test report is invalid if there is any evidence of erasure and/or falsification.**
7. **If there is any dissidence for the test report, please file objection to the test centre within 15 days from the date of receiving the test report.**
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:	Apr.23, 2012
Start Date of Test:	Apr.23, 2012
End Date of Test:	May.04, 2012
Test Result:	Pass

Approved By (Lab Manager)	**2012-05-23**	**Liuchunlin**	Liu Chunlin
	Date	**Name**	**Signature**

Operator	**2012-05-23**	**Daniel**	Daniel
	Date	**Name**	**Signature**

TABLE OF CONTENT

1 General Information 5
1.1 EUT Description 5
1.2 Test Site Information 6
1.3 Applied Standards 6
2 Summary of Results 7
3 System Configuration during EMC Test 8
3.1 Test Mode 8
3.2 Configurations of Test System 8
3.3 Cables Used during Test 11
3.4 Associated Equipment Used during Test 11
4 Electromagnetic Interference (EMI) 12
4.1 Radiated Disturbance 30MHz to 18GHz 12
4.2 Conducted Disturbance 0.15 MHz to 30MHz 14
5 Main Test Instruments 15
6 System Measurement Uncertainty 15
7 Graph and Data of Test 16
7.1 Radiated Disturbance 16
7.2 Conducted Disturbance 18

1 General Information

1.1 EUT Description

EUT Description	
Product Name	HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;
Model Number	HUAWEI U8665, U8665
Serials Number	L6X01A9232500312
TX Frequency	GSM850:824MHz To 849MHz; PCS1900:1850MHz To 1910MHz; WCDMA850: 824MHz To 849MHz WCDMA1900: 1850MHz To 1910MHz Bluetooth: 2400MHz To 2483.5MHz; WIFI: 2400MHz To 2483.5MHz;
RX Frequency	GSM850:869MHz To 894MHz; PCS1900:1930MHz To 1990MHz WCDMA850: 869MHz To 894MHz WCDMA1900: 1930MHz To 1990MHz Bluetooth: 2400MHz To 2483.5MHz; WIFI: 2400MHz To 2483.5MHz; GPS: 1574.4 MHz To 1576.44MHz;
HW Version	HD1U8655M
SW Version	U8666-51V100R001C00B878
EUT Accessory	
Data cable	Data Cable USB A Male to Micro USB, Black
Adapter	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100U1W Input voltage: ~100-240V 50/60Hz 0.2A Output voltage: 5V ⎓ 1A Rated Power: 5W S/N: HKBBB2225465 S/N: TPABC1333478
Rechargeable Li-ion	Manufacturer: Huawei Technologies Co., Ltd. Battery Model: HB5K1H Rated capacity: 1400mAh Nominal Voltage: ⎓ +3.7V Charging Voltage: ⎓ +4.2V S/N: UNDC306X03000328 S/N: UAIBC16X03002817 S/N: WHCC115691073262 S/N: MHCBB046I43T4211

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 15:2011, 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 Mode4 Mode6 Mode8~ Mode10	CLASS B	Pass	Site1
Conducted Emissions ☐DC Power Port ☒AC Power Port ☐Telecommunication Ports	Mode1~ Mode5	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

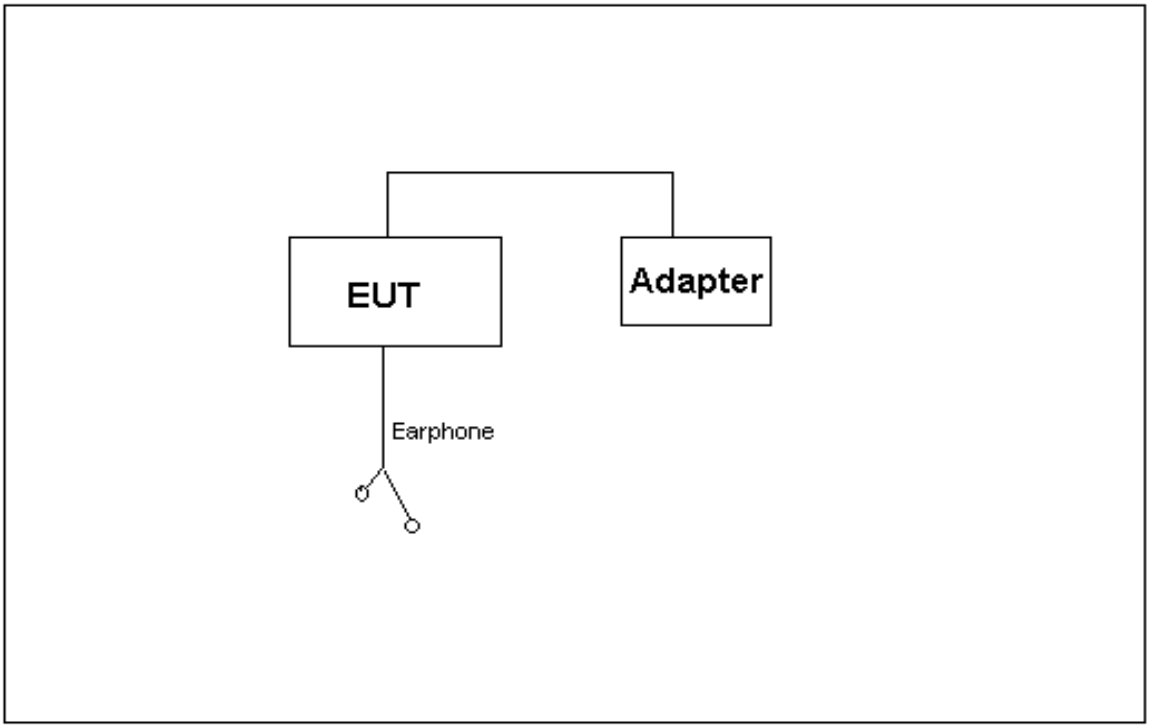
Huawei has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was in this test report and defined as:

Test Mode	
Mode 1:	Adapter + earphone + Camera On + Idle
Mode 2:	Adapter + earphone + MP3 + Idle
Mode 3:	Adapter + earphone +Traffic
Mode 4:	Adapter + earphone + FM + Idle
Mode 5:	Adapter +Traffic
Mode 6:	USB Copy(EUT with PC)+earphone +Idle
Mode 7:	Traffic
Mode 8:	Camera On + earphone + Idle
Mode 9:	Earphone + MP3+Idle
Mode 10:	Earphone + FM + Idle

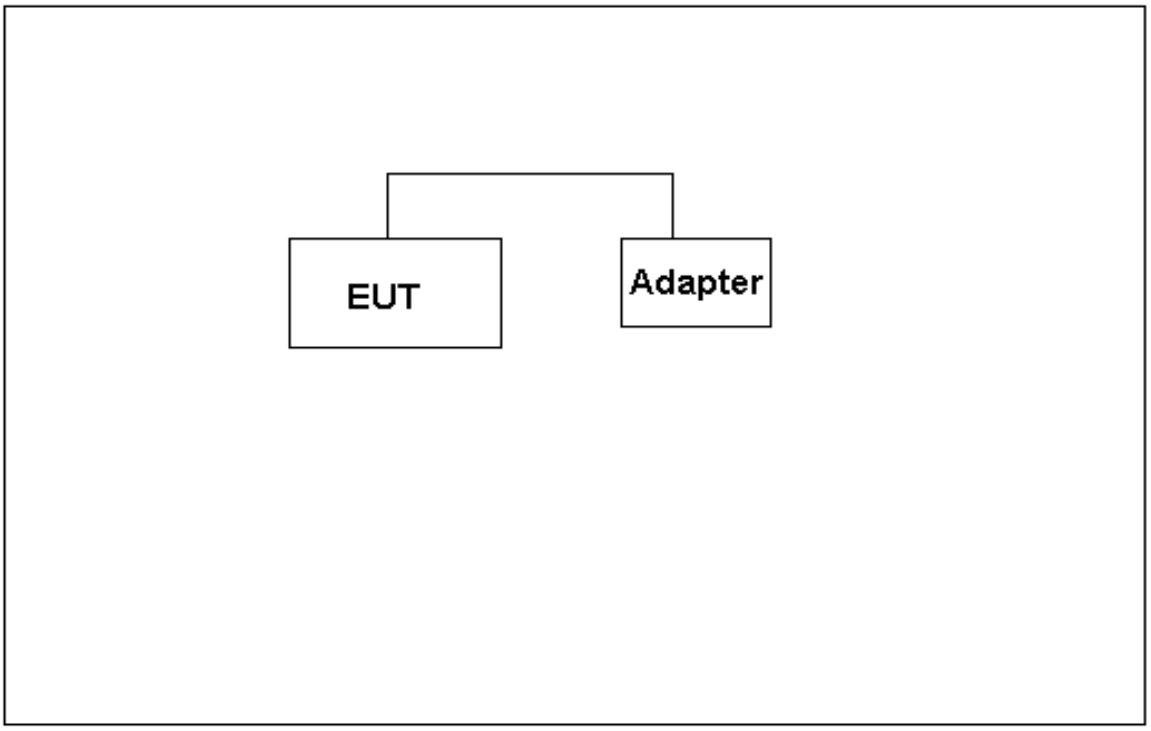
Remark：When the EUT have multiple adapters, need separate test with multiple adapters . All test modes are performed, only the worst cases are recorded in this report.

3.2 Configurations of Test System

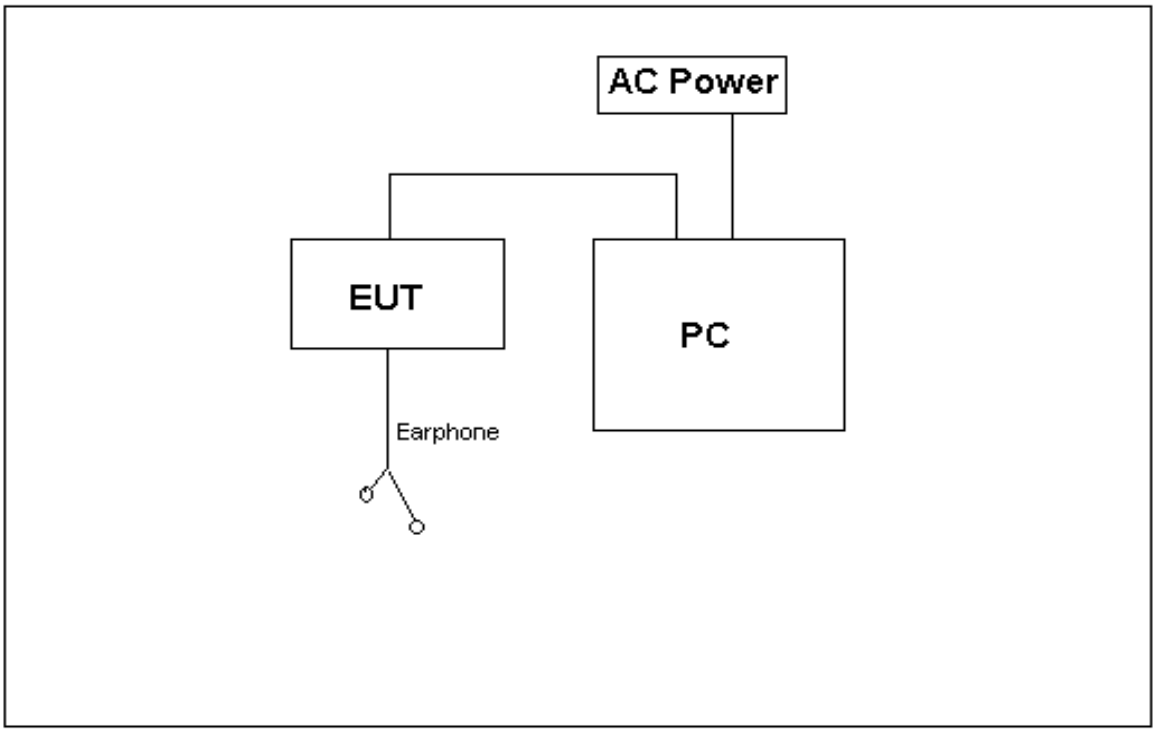
Connection Diagram (Mode 1~Mode 4)



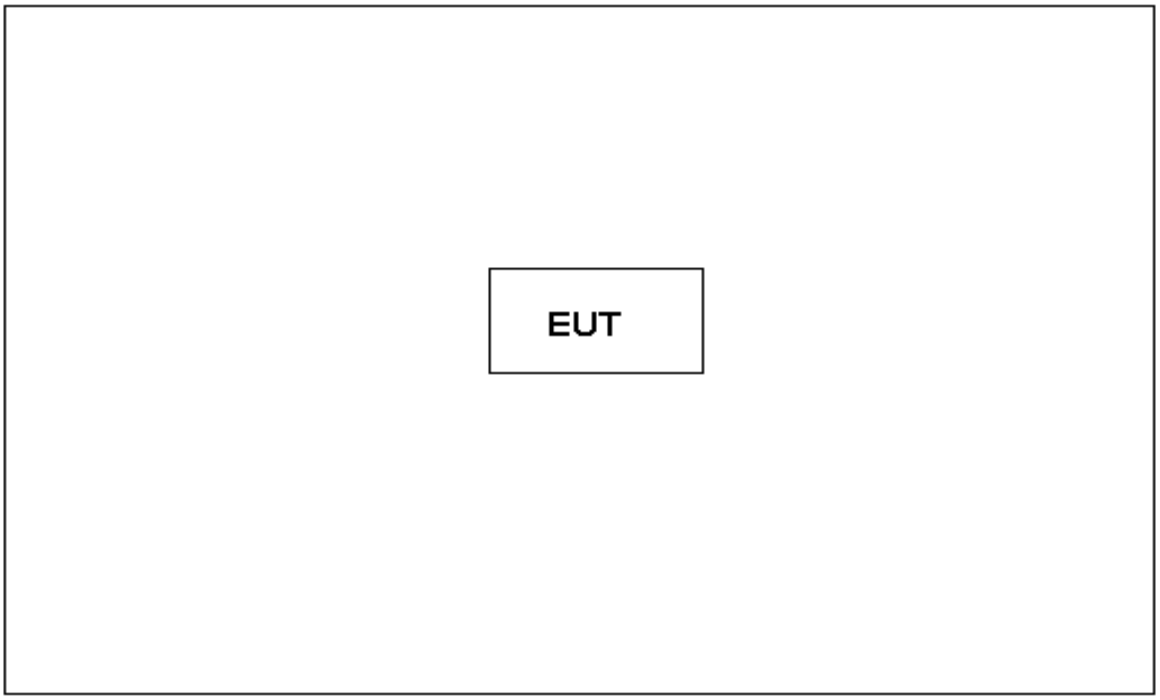
Connection Diagram (Mode 5)



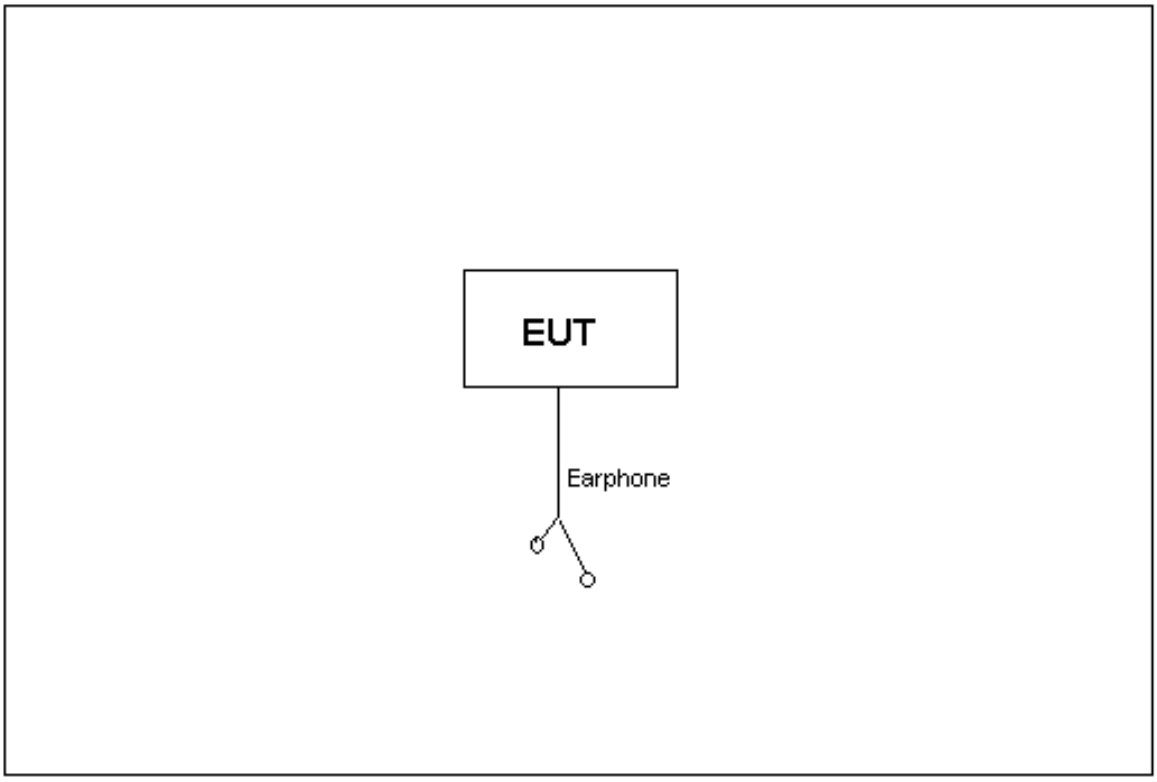
Connection Diagram (Mode 6)



Connection Diagram (Mode 7)



Connection Diagram (Mode 8~Mode 10)



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	D630	DELL	3108060273	N/A

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

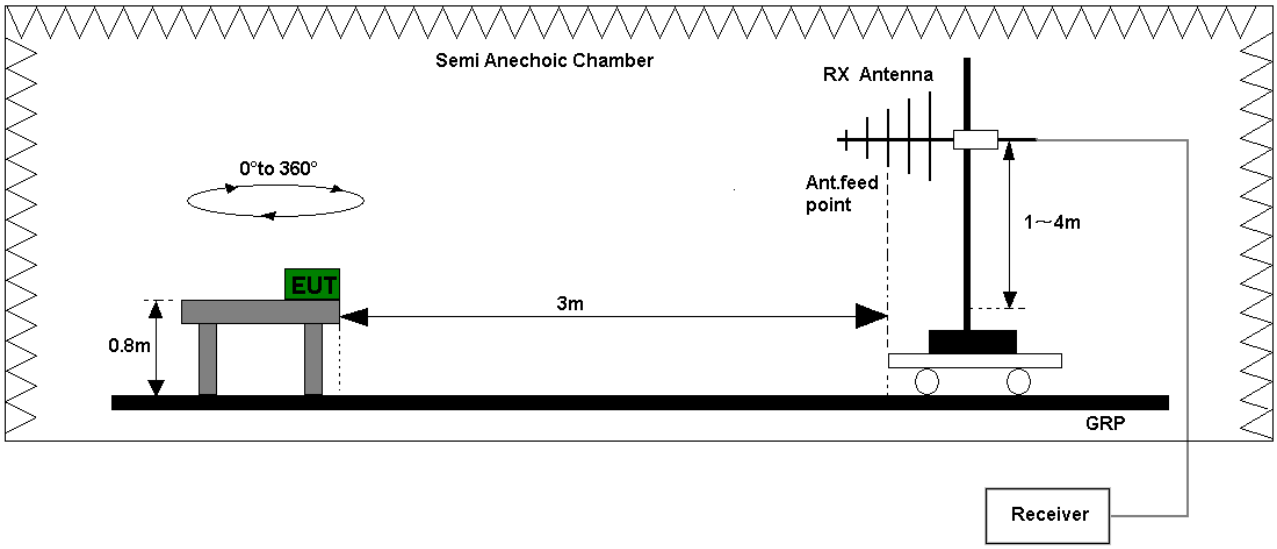
Test Procedure

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.

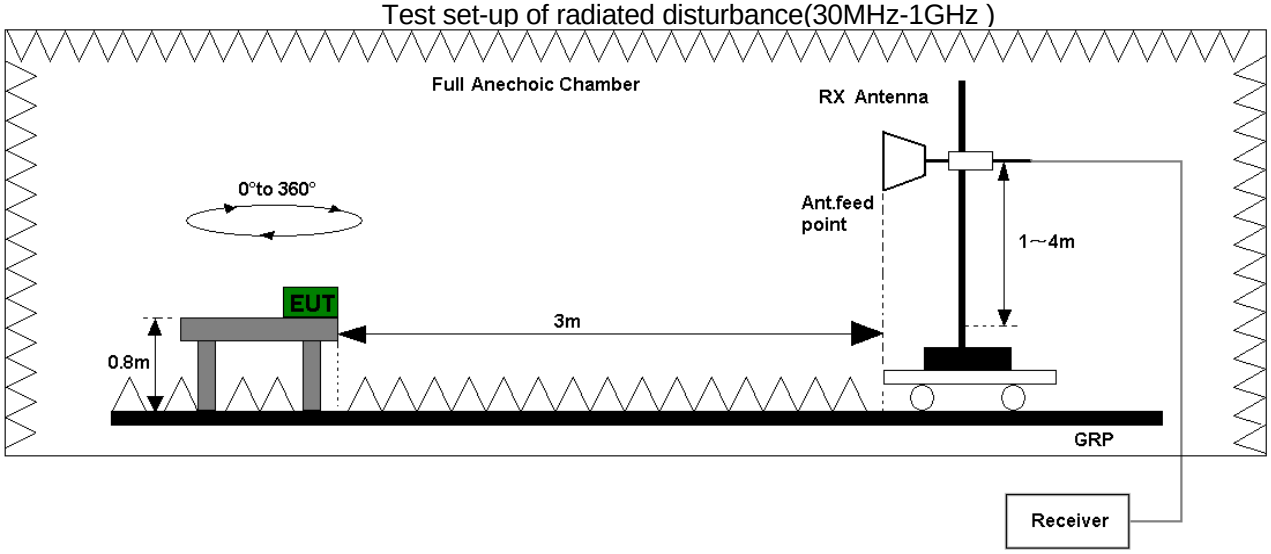
A preliminary scan and a final scan of the emissions were made from 30 MHz to18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV/PK detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation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

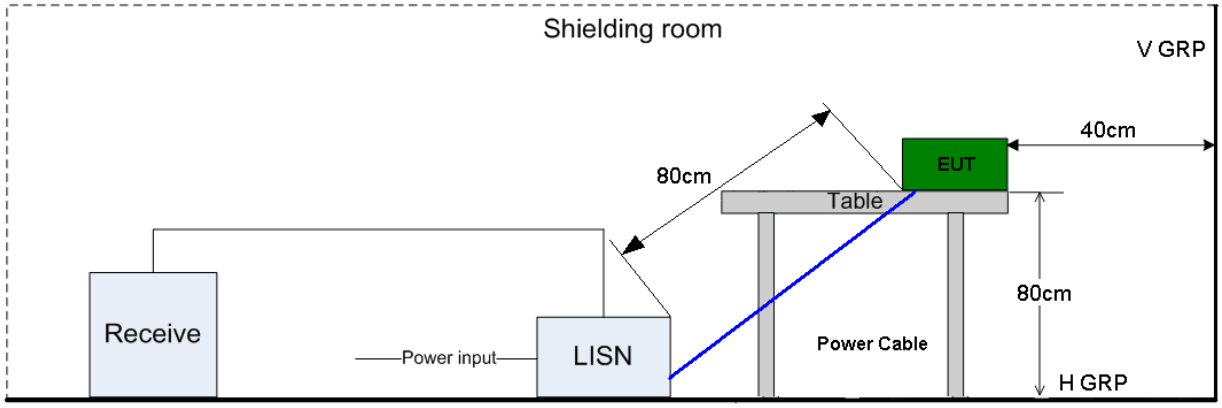
Test Limits				
Frequency of Emission (MHz)	Radiated Limit			
	Unit(μV/m)		Unit(dBμV/m)	
30-88	100		40	
88-216	150		43.5	
216-960	200		46	
Above 960	500		54	
Above 1000	AV	PK	AV	PK
	500	5000	54	74

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 away 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 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:

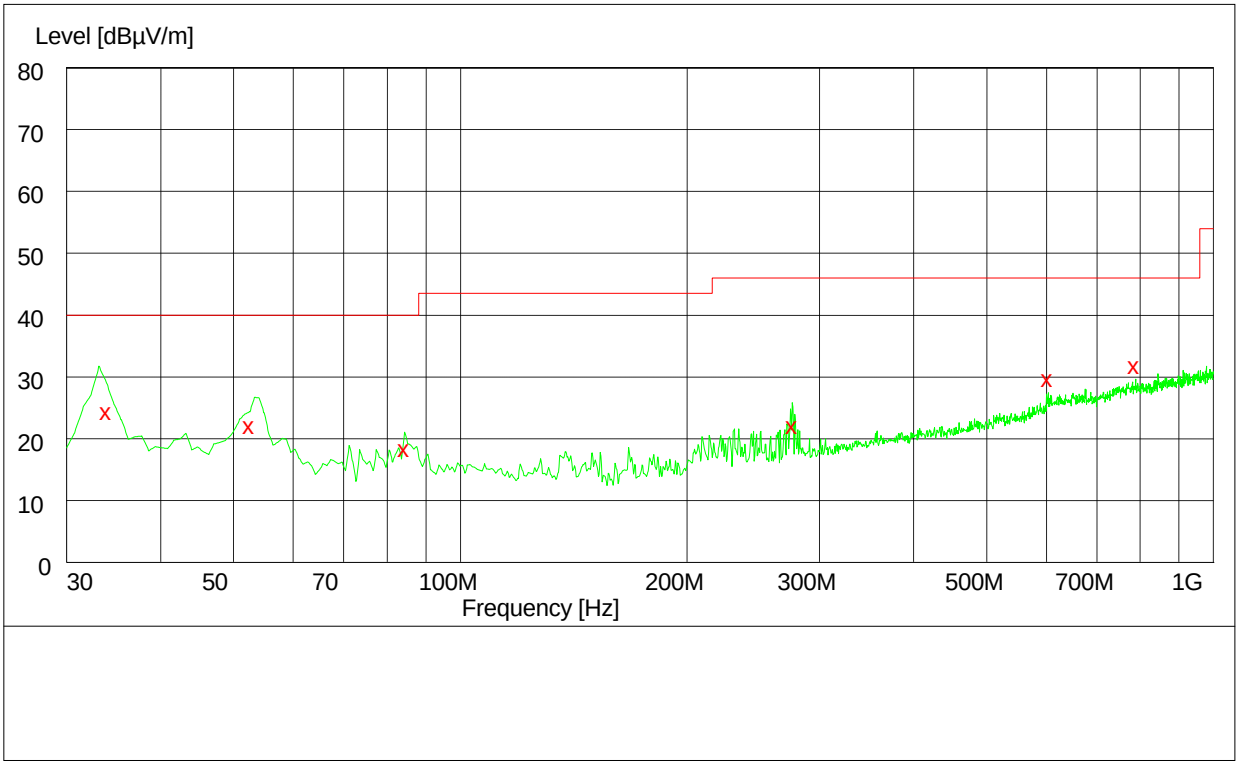
System Measurement Uncertainty		
Items		**Extended Uncertainty**
RE(30MHz-1GHz)	Field strength (dBμV/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dBμV/m)	U=5.1dB; k=2
CE	Disturbance Voltage (dBμV)	U=2.6dB; k=2

7 Graph and Data of Test

Only the worst test result was shown in this report.

7.1 Radiated Disturbance

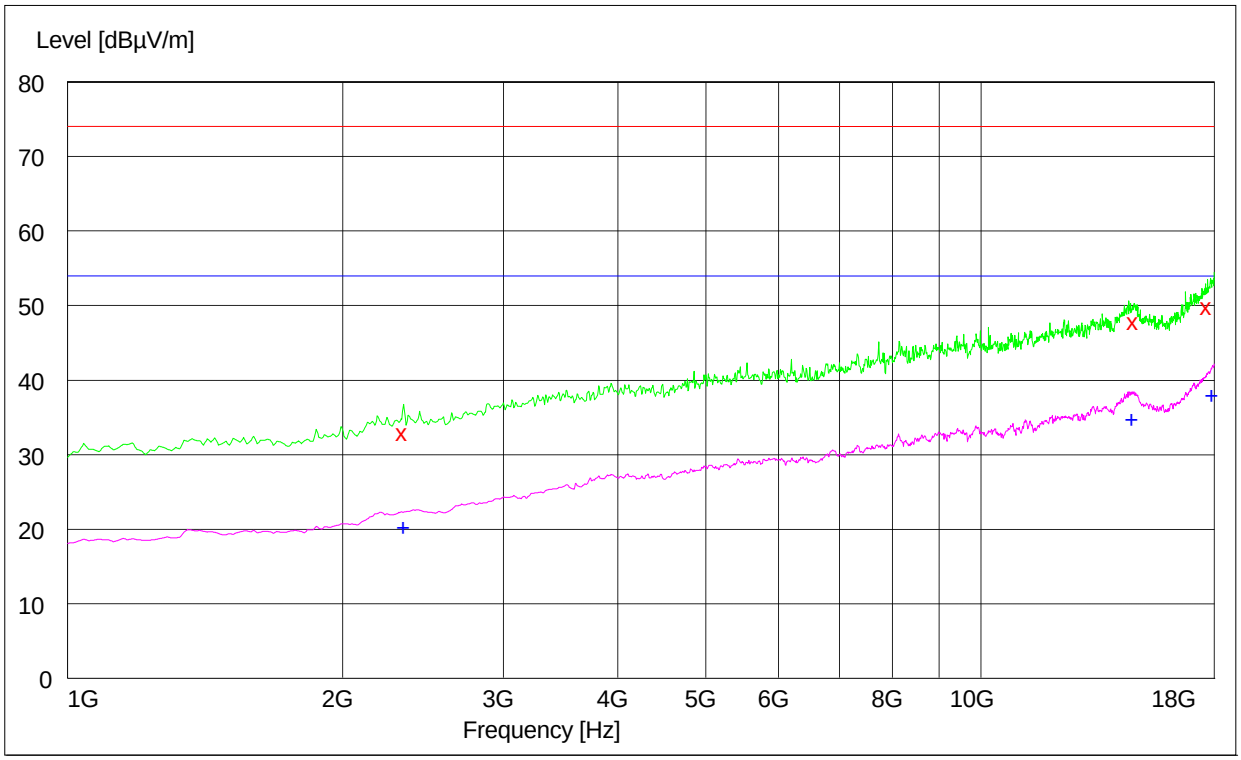
30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.960000	24.00	14.8	40.0	16.0	100.0	189.00	HORIZONTAL
52.560000	21.70	14.8	40.0	18.3	100.0	279.00	HORIZONTAL
84.480000	18.00	11.0	40.0	22.0	137.0	95.00	HORIZONTAL
276.600000	21.70	14.5	46.0	24.3	121.0	104.00	VERTICAL
604.260000	29.30	21.4	46.0	16.7	182.0	181.00	VERTICAL
788.100000	31.50	23.4	46.0	14.5	199.0	166.00	HORIZONTAL

1GHz~18GHz



MEASUREMENT RESULT: PK Detector

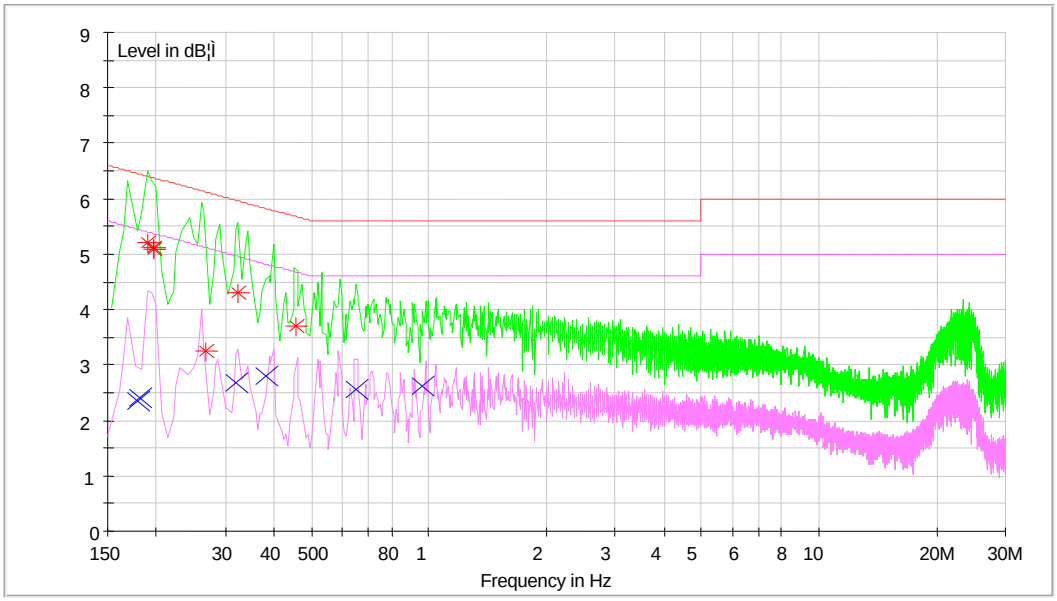
Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2330.000000	33.20	-10.8	74.0	40.8	135.0	360.00	VERTICAL
14715.000000	48.10	14.3	74.0	25.9	100.0	329.00	VERTICAL
17703.000000	50.00	18.2	74.0	24.0	178.0	31.00	HORIZONTAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transducer dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2336.000000	20.40	-10.8	54.0	33.6	200.0	11.00	VERTICAL
14649.000000	34.90	14.3	54.0	19.1	100.0	182.00	HORIZONTAL
17922.000000	38.10	19.0	54.0	15.9	200.0	16.00	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
0.189736	52.2	9.7	64.0	11.8	L1	FLO
0.195964	51.3	9.7	63.8	12.5	L1	FLO
0.196179	50.9	9.7	63.8	12.9	L1	FLO
0.268196	32.5	9.7	61.2	28.7	L1	FLO
0.323156	43.0	9.7	59.6	16.6	L1	FLO
0.455686	37.0	9.7	56.8	19.8	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.180124	23.4	9.7	54.5	31.1	L1	FLO
0.181636	24.0	9.7	54.4	30.4	L1	FLO
0.320322	26.8	9.7	49.7	22.9	L1	FLO
0.383014	28.1	9.7	48.2	20.1	L1	FLO
0.650546	25.5	9.7	46.0	20.5	N	FLO
0.962543	26.1	9.7	46.0	19.9	N	FLO

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