EMC Test Report

Product Name:Smart Phone

Model Number: HUAWEI Y336-A1, Y336-A1,

Report No: SYBH(Z-EMC)121032014-2

FCC ID: QISY336-A1

Reliability Laboratory of Huawei Technologies Co., Ltd.

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Notice

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2. **The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01.**
3. **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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Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Date of Receipt Test Item:	Apr.09,2014
Start Date of Test:	Apr.10,2014
End Date of Test:	Apr.23,2014
Test Result:	Pass

Liu Chunlin

Approved By (Lab Manager)	**2014-04-24**	**Liu Chunlin**	
	Date	**Name**	**Signature**

Wu Yafeng

Prepared by (Test Engineer)	**2014-04-24**	**Wu Yafeng**	
	Date	**Name**	**Signature**

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	Smart Phone
Model Number	HUAWEI Y336-A1, Y336-A1
Input voltage	DC 3.8V
TX Frequency	GSM850:824MHz to 849MHz GSM1900:1850MHz to 1910MHz WCDMA BAND II: 1850MHz to1910MHz WCDMA BAND IV: 1713 MHz to 1753MHz WCDMA BAND V: 824MHz to 849MHz BT: 2402MHz to 2480MHz WIFI: 2412MHz to 2462MHz
RX Frequency	GSM850:869MHz to 894MHz GSM1900:1930MHz to 1990MHz WCDMA BAND II: 1930MHz to 1990MHz WCDMA BAND IV: 2113MHz to 2153MHz WCDMA BAND V: 869MHz to 894MHz BT: 2402 MHz to 2480MHz WIFI: 2412MHz to 2462MHz GPS: 1575.42MHz
S/N	D5V0114320000484
HW Version	HD1H871GM
SW Version	Y336-A2V100R001C378B111
EUT Accessory	
Data cable	Data Cable USB A Male to Micro USB, Shielded
Adapter	Brand: HUAWEI Model: HW-050100U2W Input voltage: 100-240V 50/60Hz ,0.2A Output voltage: 5V ⎓ 1A Rated Power: 5W S/N: HWBYAAD80620678 S/N: HWHKAAD92515686
Rechargeable Li-ion	Brand: HUAWEI Battery Model: HB5V1HV Rated capacity: 1950mAh Nominal Voltage: ⎓ +3.8V Charging Voltage: ⎓ +4.35V S/N: YQCC8159169B0380 S/N:GAGC928ZXXX00102;

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

1.2 Test Site Information

Test Site:	RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD.
Test Site Location:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Applied Standards

APPLIED STANDARD

47 CFR FCC Part 15:2013, 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 Mode 4	CLASS B	Pass	Site1
Conducted Emissions ☐DC Power Port ☒AC Power Port ☐Telecommunication Ports	Mode 1-Mode 4	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 under normal operation, which were shown in this test report and defined as below:

Test Mode	
Mode 1:	Adapter + Earphone + Camera On + Idle
Mode 2:	Adapter + Earphone + Playing + Idle
Mode 3:	Adapter + Earphone +Traffic
Mode 4:	USB Copy(EUT with PC) + Earphone + Idle

Remark:

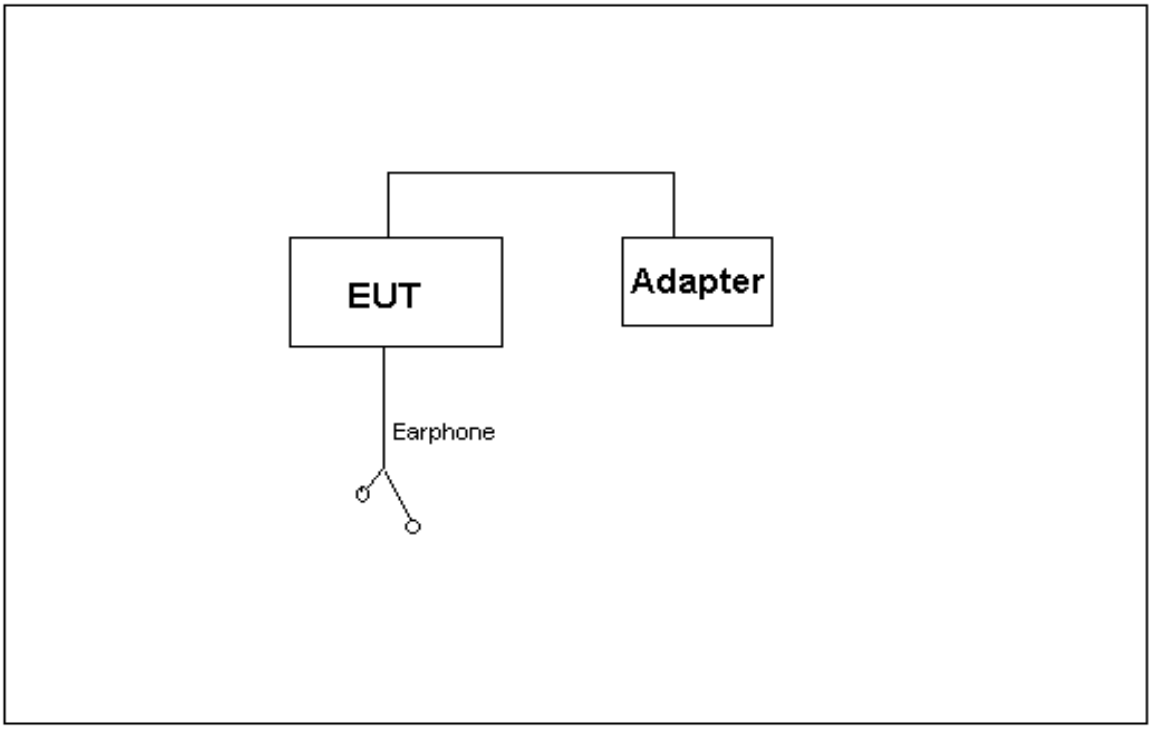
1) If there is one kind of accessories with different models, each one should be applied throughout the compliance test respectively, however, only the worst case will be recorded in this report.
2) If EUT has more than one typical operation, only the worst test mode will be recorded in this report.

Traffic Mode:
When the EUT state is switched on and with Radio Resource Control (RRC) connection established.

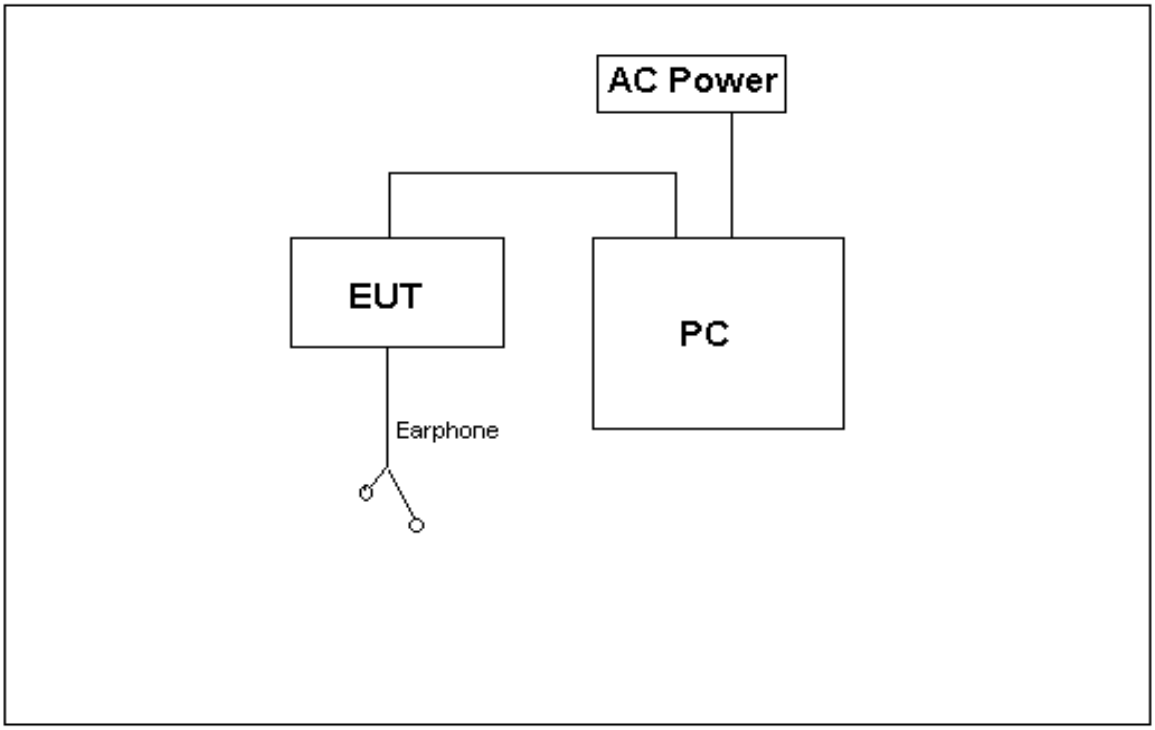
Idle Mode:
When the EUT state is switched on but without Radio Resource Control (RRC) connection.

3.2 Test System Configuration

Connection Diagram (Mode 1~Mode 3)



Connection Diagram (Mode 4)



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	Cal interval (month)
Radio Communication Tester	CMU200	R&S	3607033573	2014-10-14	12
Notebook	X200	ThinkPad	31090403588	/	/

4 Electromagnetic Interference (EMI)

4.1 Radiated Disturbance 30MHz to 18GHz

4.1.1 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 receiving antenna has two polarizations V and H.
Measurement bandwidth (RBW) for 30MHz to 1000 MHz: 120 kHz;
Measurement bandwidth (RBW) for 1000MHz to 18000 MHz: 1MHz;
EUT was configured in idle mode and the test performed at worst emission state.

4.1.2 Test setup

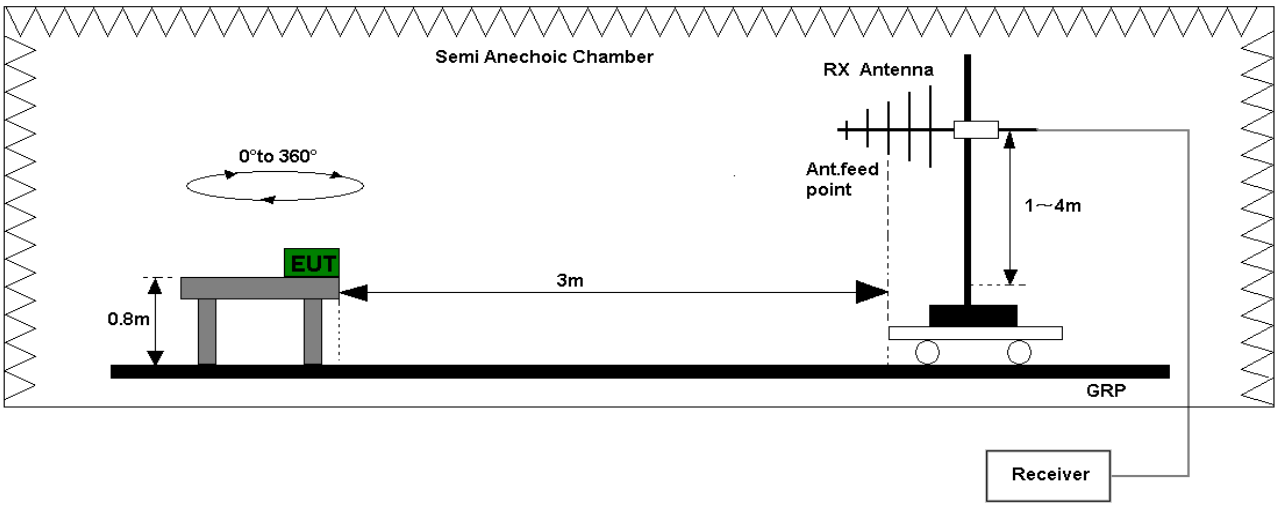


Figure 1.Test set-up of radiated disturbance(30MHz-1GHz)

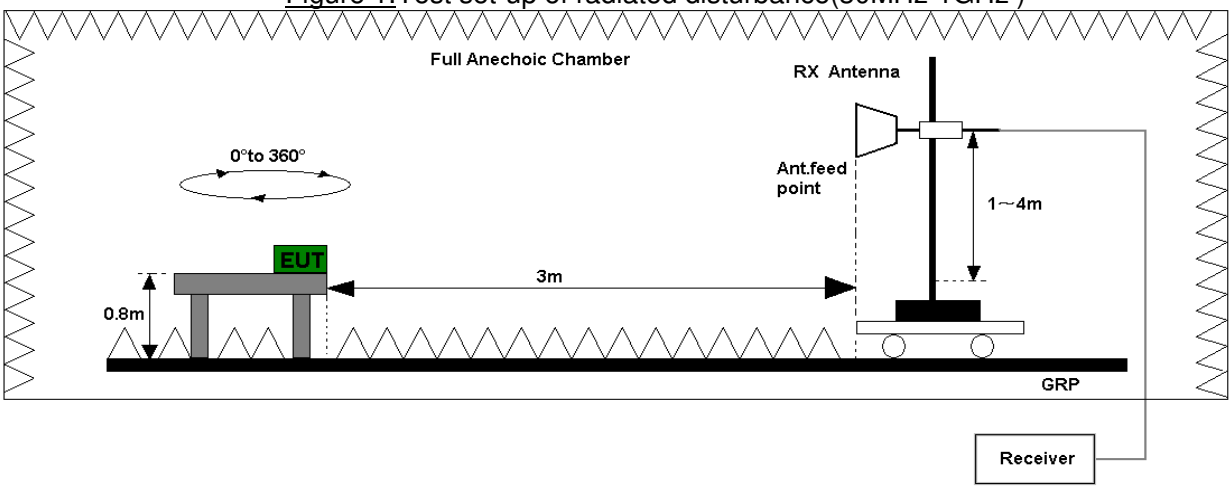


Figure 2.Test set-up of radiated disturbance(above 1GHz)

4.1.3 Test Results

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

Test Limits（Class B）				
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

4.2.1 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 150 kHz to 30 MHz: 9 kHz;
The EUT was set in the shielded chamber and operated under nominal conditions.

4.2.2 Test Setup

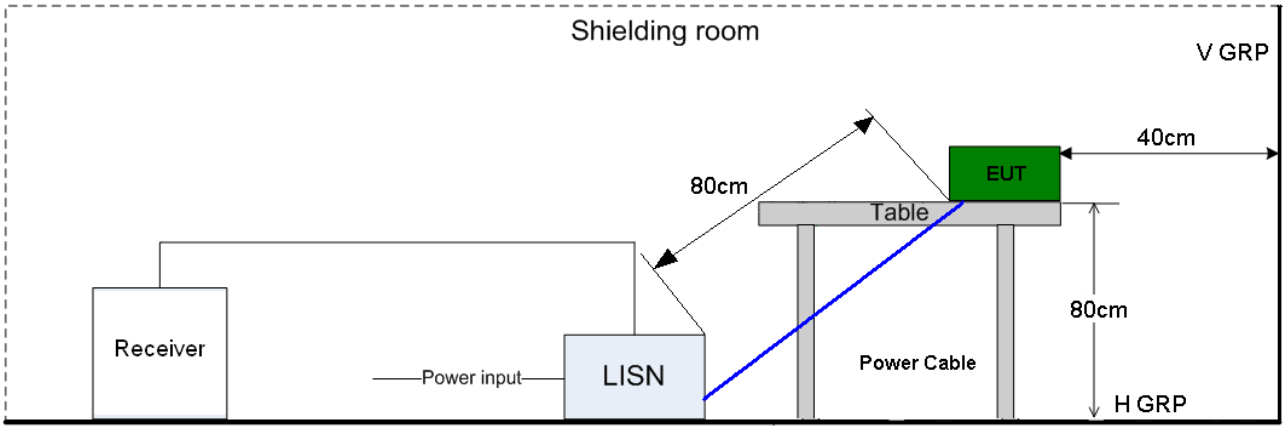


Figure 3.Test Set-up of conducted disturbance

4.2.3 Test Results

The EUT has met requirements for Conducted disturbance.
Refer to the section 7.2 of this report for test data.

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**	**Cal interval (month)**
RE	EMI Test receiver	ESU26	100150	R&S	May.14, 2014	12
	Broadband Antenna	VULB 9163	9163-520	SCHWARZBECK	Dec.20 2015	24
	Horn Antenna	HF906	100683	R&S	Feb.01, 2015	24
CE	EMI Test receiver	ESCI	101163	R&S	Dec. 23, 2014	12
	Artificial Mains Network	ENV216	100382	R&S	Dec. 23, 2014	12
Software Information						
Test Item	Software Name		Manufacturer		Version	
RE	ES-K1		R&S		1.7.1	
CE	EMC32		R&S		V8.40.0	

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:

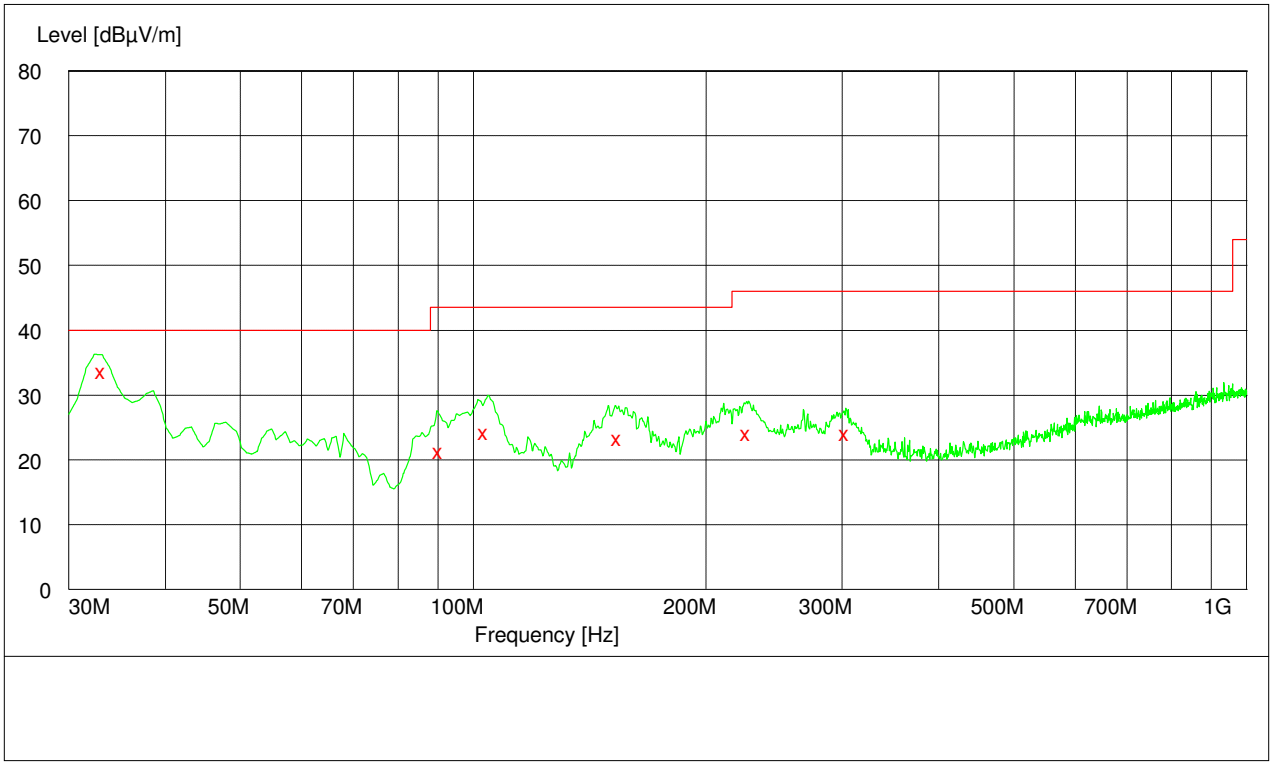
System Measurement Uncertainty		
Items		**Extended Uncertainty**
RE(30MHz-1GHz)	Field strength (dBμV/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dBμV/m)	U=5.1dB; k=2
CE	Disturbance Voltage (dBμV)	U=2.6dB; k=2

7 Test Data and Graph

Only the worst test result was shown in this report.

7.1 Radiated Disturbance

30MHz~1GHz

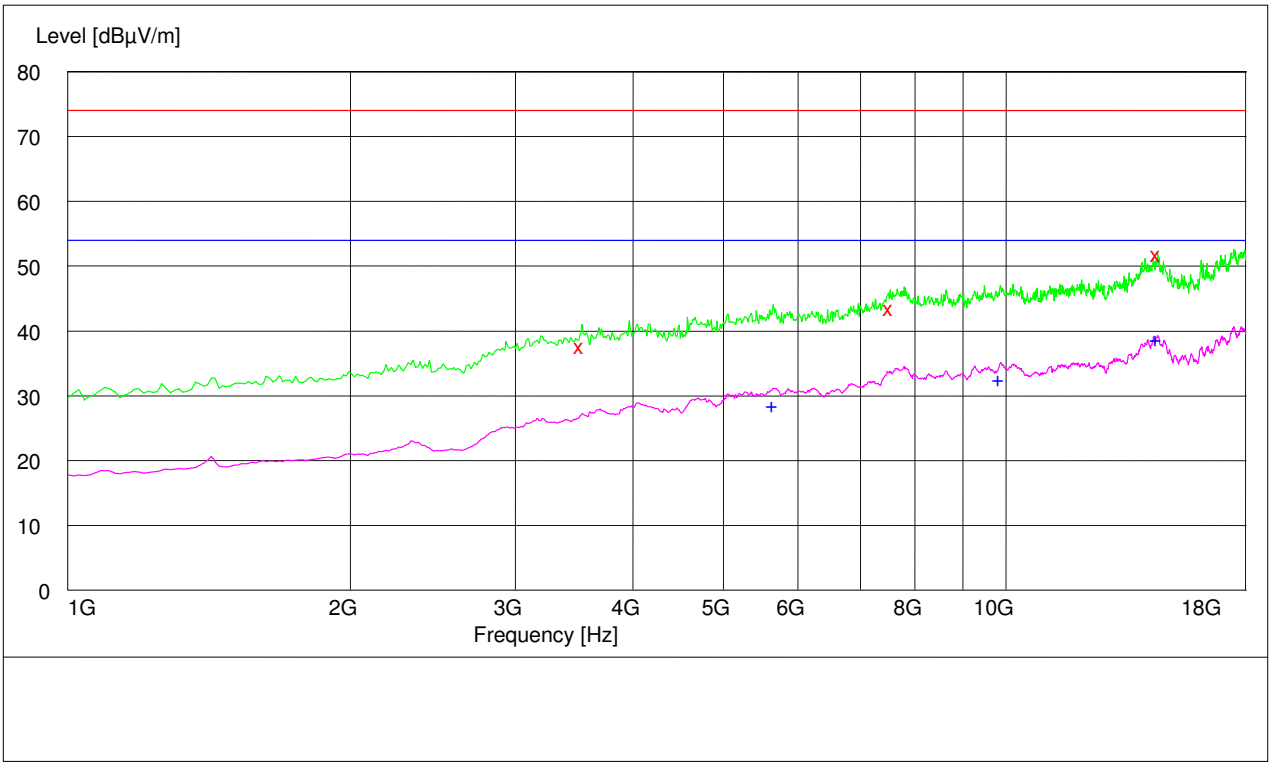


MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.180000	33.80	14.2	40.0	6.2	100.0	360.00	VERTICAL
90.600000	21.50	11.9	43.5	22.0	143.0	102.00	VERTICAL
103.680000	24.50	13.2	43.5	19.0	100.0	44.00	VERTICAL
154.260000	23.50	10.1	43.5	20.0	100.0	98.00	VERTICAL
226.620000	24.20	13.2	46.0	21.8	143.0	124.00	HORIZONTAL
303.600000	24.30	15.3	46.0	21.7	100.0	111.00	HORIZONTAL

Note:
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

1GHz~18GHz



MEASUREMENT RESULT: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3525.100000	37.80	-5.1	74.0	36.2	126.0	73.00	HORIZONTAL
7529.000000	43.60	3.8	74.0	30.4	105.0	28.00	VERTICAL
14502.900000	52.00	17.4	74.0	22.0	117.0	312.00	HORIZONTAL

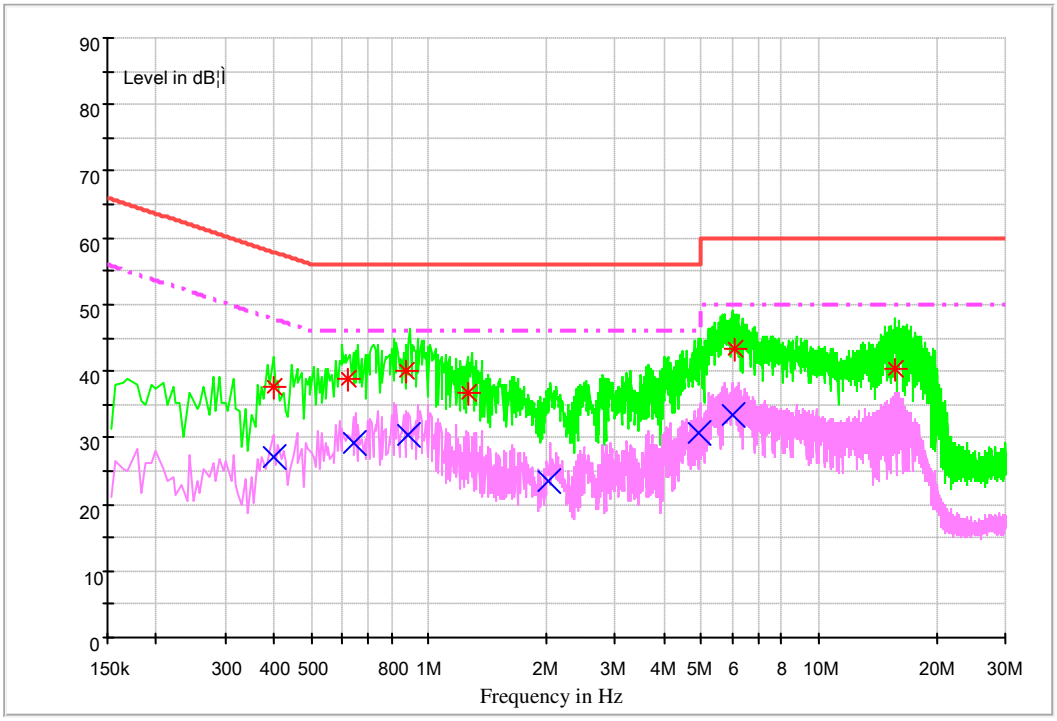
MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
5649.000000	28.90	0.4	54.0	25.1	133.0	293.00	HORIZONTAL
9844.900000	32.80	6.1	54.0	21.2	126.0	115.00	VERTICAL
14493.400000	39.00	17.4	54.0	15.0	100.0	263.00	HORIZONTAL

Note:
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is calculated by software which is not shown in the sheet.

7.2 Conducted Disturbance

AC Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Line	Transd dB	Margin dB	Limit dBµV	PE
0.399949	37.5	N	9.7	20.4	57.9	FLO
0.616488	38.9	L1	9.7	17.1	56.0	FLO
0.876765	40.1	N	9.7	15.9	56.0	FLO
1.256936	36.6	L1	9.7	19.4	56.0	FLO
6.046440	43.2	L1	9.8	16.8	60.0	FLO
15.648697	40.5	N	10.1	19.5	60.0	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Line	Transd dB	Margin dB	Limit dBµV	PE
0.401419	27.0	L1	9.7	20.8	47.8	FLO
0.641138	29.2	N	9.7	16.8	46.0	FLO
0.881504	30.4	N	9.7	15.6	46.0	FLO
2.026928	23.4	N	9.7	22.6	46.0	FLO
4.904134	30.7	L1	9.8	15.3	46.0	FLO
6.027968	33.4	L1	9.8	16.6	50.0	FLO

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is calculated by software which is not shown in the sheet.

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