



EMC Test Report

Product Name: HUAWEI MediaPad 7 Vogue

Model Number: S7-602u

Report No: SYBH(Z-EMC)107032013-2

FCC ID: QISS7-602U

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.
4. The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-2.
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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.23, 2013

Start Date of Test: Apr.23, 2013

End Date of Test: Apr.28, 2013

Test Result: Pass

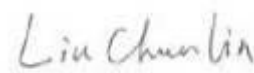
**Approved By
(Lab Manager)**

2013-04-28

Date

Liu Chunlin

Name



Signature

**Operator
(Test Engineer)**

213-04-28

Date

Liu Qingbin

Name



Signature

Modification Record

No.	Last Report No.	Modification Description
1	NA	First report

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	HUAWEI MediaPad 7 Vogue
Model Number	S7-602u
Serials Number	R4L01A9340500037
Working Voltage	5Vdc
TX Frequency	Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz GSM850:824MHz To 849 MHz GSM1900:1850 MHz To 1910 MHz WCDMA850: 824MHz To 849 MHz WCDMA1900: 1850 MHz To 1910 MHz
RX Frequency	Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz GPS: 1570MHz To 1580 MHz GSM850:869MHz To 894 MHz GSM1900:1930 MHz To 1990 MHz WCDMA850: 869MHz To 894 MHz WCDMA1900: 1930 MHz To 1990 MHz
HW Version	SH1S7601UM
SW Version	S7-602uV100R001C001
EUT Accessory	
Data cable	Data Cable USB A Male to Micro USB Male
Adapter	BRAND: HUAWEI Model: HW-050200U3W Input voltage: 100V-240V ~50-60Hz, 0.5A Output voltage: +5V $\overline{\text{---}}$ 2A S/N: HWHKAAD12704551

Remark: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.

1.2 Test Site Information

Test Site 1:	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 15:2012, Subpart B

2 Summary of Results

Summary of Results				
Test Items	Test Mode	Performance Class & Required Performance Criteria	Result	Site
<u>Radiated Emissions</u> Enclosure Port	Mode2 Mode3	CLASS B	Pass	Site1
<u>Conducted Emissions</u> ☒ DC Power Port ☒ AC Power Port ☐ Telecommunication Ports	Mode1 Mode2	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the uncertainty of test 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

The EUT was configured, installed, arranged and operated in a manner consistent with typical application; the following mode(s) were applied during the compliance test.

Test Mode	
Mode 1:	Adapter (charge) + TF Card +SIM card + earphone + Camera on +wireless service traffic mode
Mode 2:	Adapter (charge) + TF Card +SIM card + earphone + Camera on +wireless service IDLE mode
Mode 3:	PC (Power supply and USB xcopy) + TF card +SIM card + earphone + wireless service IDLE mode

Remark: If there is more than one adapter, each one should be applied throughout the compliance test respectively, however, only the worst case will be recorded in this report.

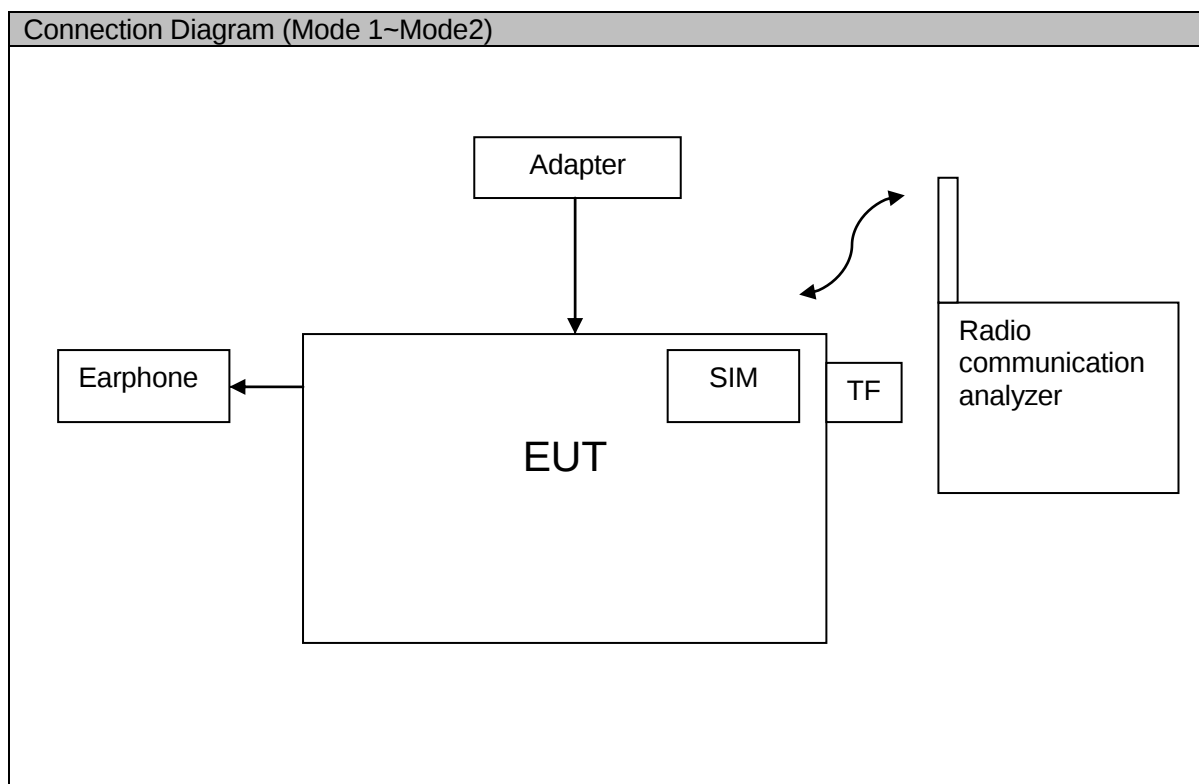
Traffic Mode:

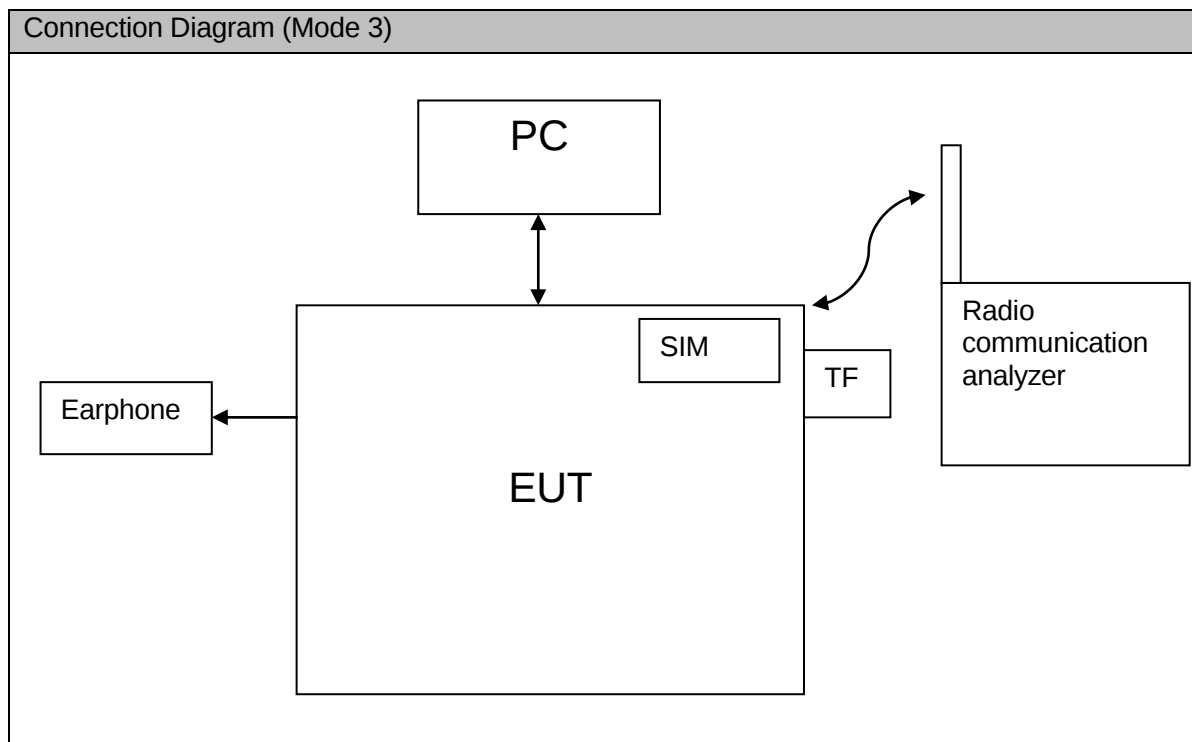
State of EUT when switched on and with Radio Resource Control (RRC) connection established

IDLE Mode:

State of EUT when switched on but with no Radio Resource Control (RRC) connection

3.2 Test System Configuration





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 dateline	Cal interval (month)
Radio Communication Tester	CMU200	R&S	112347	2013-5-10	12
Notebook	X200	Lenovo	3108052581	/	/
SD Card	2G	Kingdon	1040RE5672k	/	/

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 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 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

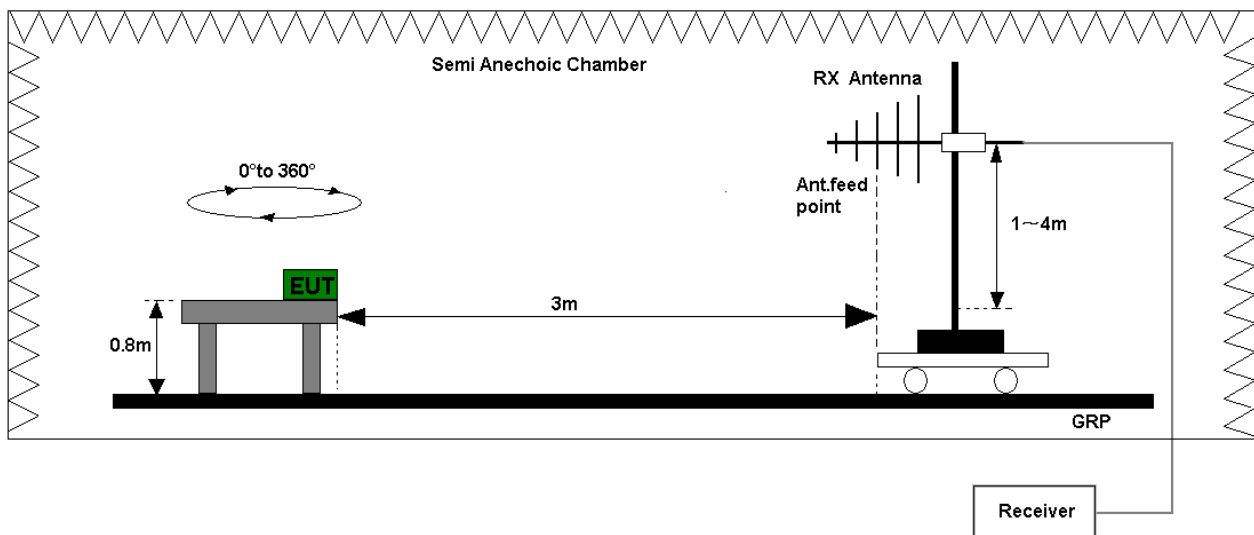


Figure 1. Test set-up of radiated disturbance(30MHz-1GHz)

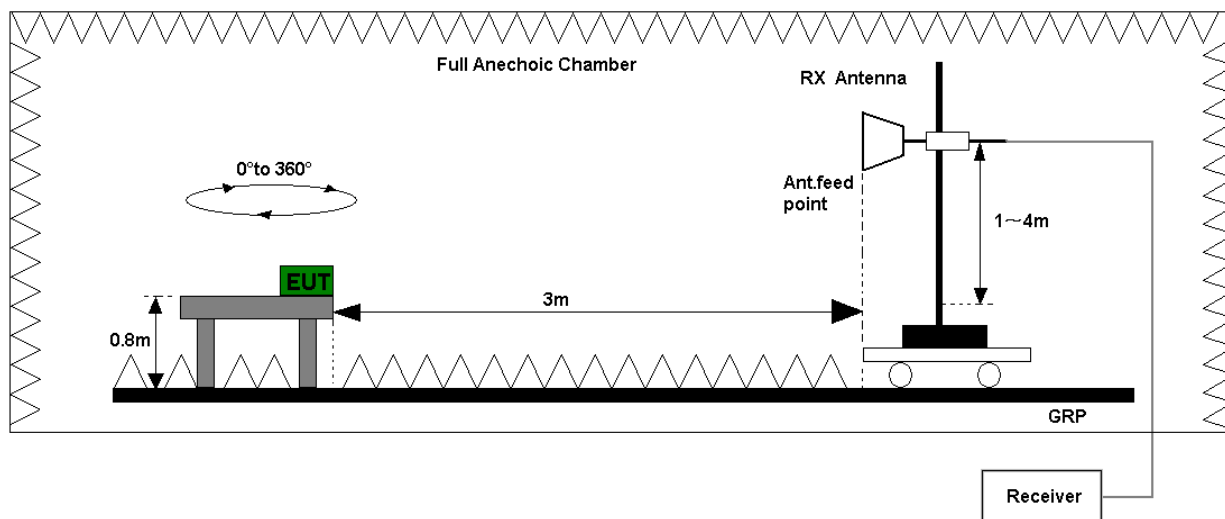


Figure 2. Test set-up of radiated disturbance(above 1GHz)

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(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

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

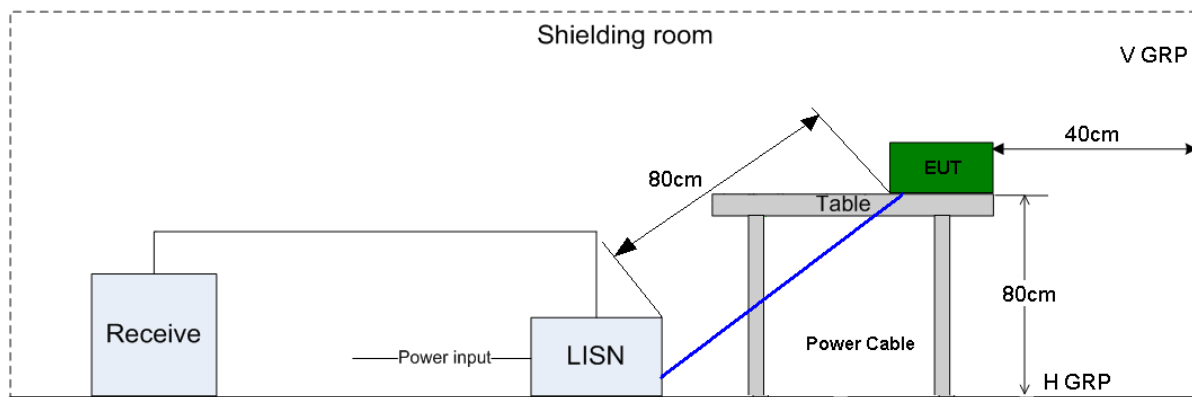


Figure 3. Test Set-up of conducted disturbance

4.2.3 Test Results

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

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 (dBμV)	AV (dBμV)
0.15MHz~0.5MHz	66-56	56-46
0.5MHz-5MHz	56	46
5MHz~30MHz	60	50

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.27, 2013	12
	Broadband Antenna	VULB 9163	9163-941	SCHWARZBECK	Feb.21, 2015	24
	Horn Antenna	HF906	100683	R&S	Feb.01, 2015	24
CE	EMI Test receiver	ESCI	101163	R&S	Jan.28, 2014	12
	Artificial Mains Network	ENV216	100382	R&S	Jan.28, 2014	12
Software Information						
Test Item	Software Name	Manufacturer		Version		
RE	EMC32	R&S		V8.50.10		
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:

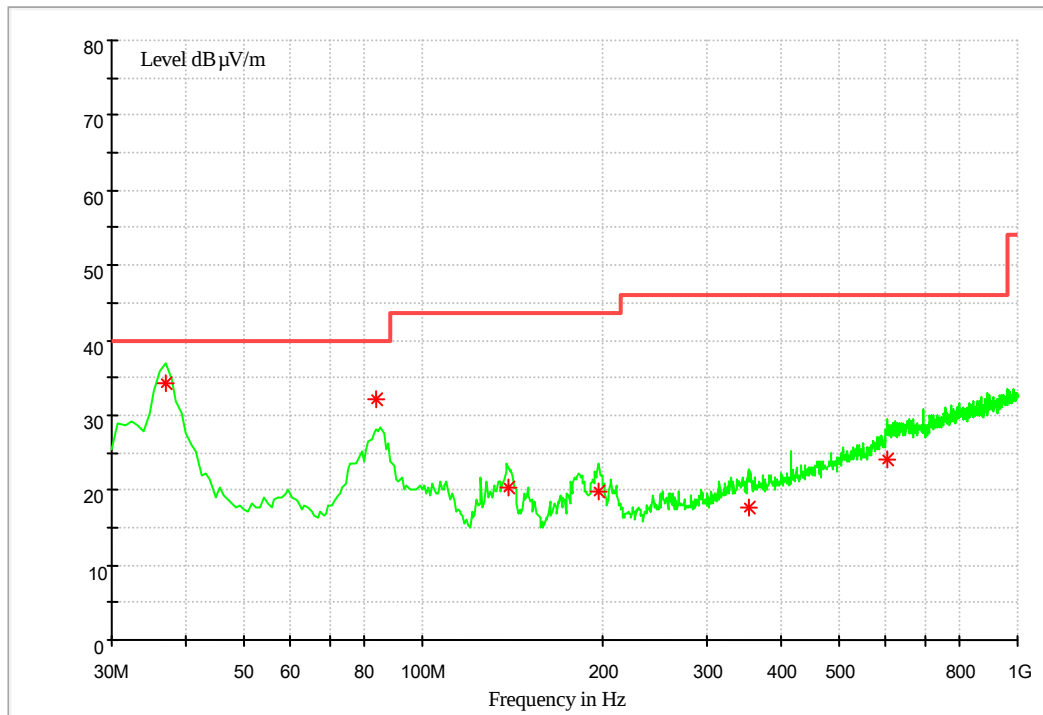
System Measurement Uncertainty		
Items		Extended Uncertainty
RE(30MHz-1GHz)	Field strength (dB μ V/m)	U=4.2dB; k=2
RE(1GHz-18GHz)	Field strength (dB μ V/m)	U=5.3dB; k=2
CE	Disturbance Voltage (dB μ V)	U=2.6dB; k=2

7 Test Data and Graph

Only the worst test results were shown

7.1 Radiated Disturbance

7.1.1 30MHz~1GHz



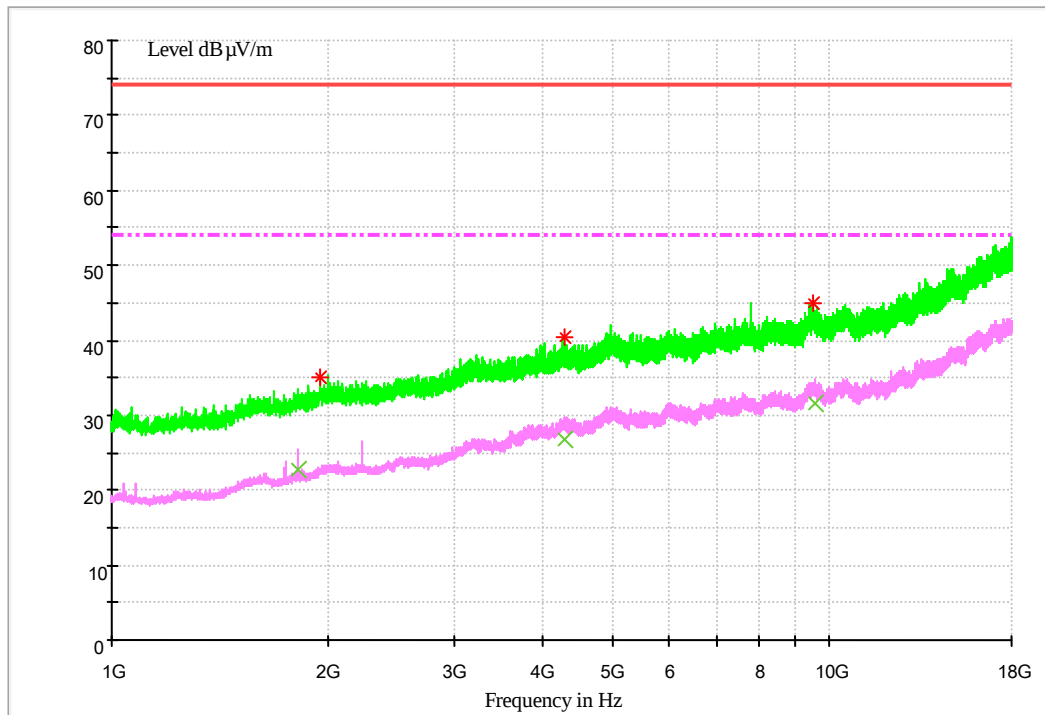
MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBμV/m	Transducer dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
37.106880	34.2	12.5	40.0	5.8	100.0	160.0	VERTICAL
83.779840	32.2	10.0	40.0	7.8	214.0	109.0	HORIZONTAL
139.198720	20.3	9.2	43.5	23.2	100.0	58.0	VERTICAL
196.922880	19.9	12.2	43.5	23.6	100.0	11.0	VERTICAL
352.414720	17.7	17.4	46.0	28.3	100.0	112.0	HORIZONTAL
604.356800	24.0	23.2	46.0	22.0	114.0	36.0	VERTICAL

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.

7.1.2 1GHz~18GHz



MEASUREMENT RESULT: PK Detector

Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBμV/m	dB	dBμV/m	dB	cm	deg	
1950.182666	35.0	-9.6	74.0	39.0	120.0	245.0	VERTICAL
4272.136667	40.5	-0.8	74.0	33.5	100.0	214.0	VERTICAL
9538.804666	45.0	8.7	74.0	29.0	278.0	312.0	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBμV/m	dB	dBμV/m	dB	cm	deg	
1824.674000	22.8	-10.7	54.0	31.2	100.0	341.0	VERTICAL
4274.404667	26.8	-0.8	54.0	27.2	100.0	198.0	HORIZONTAL
9596.436000	31.5	8.7	54.0	22.5	100.0	252.0	HORIZONTAL

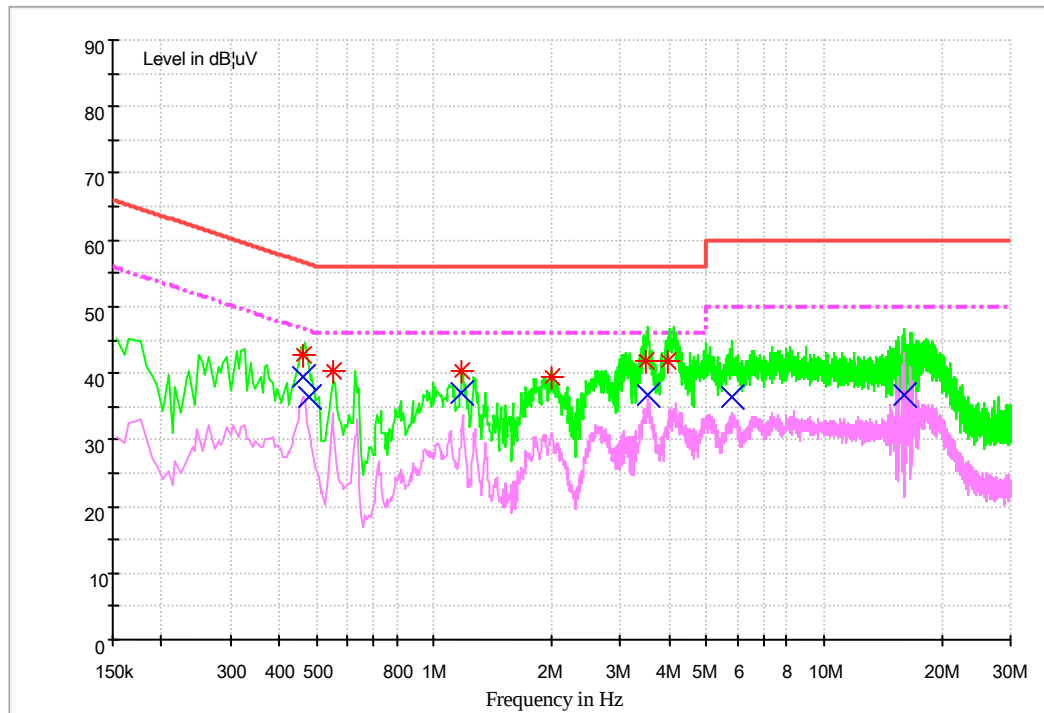
Note:

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

7.2.1 AC Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency	Level	Transducer	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.462184	42.7	9.7	56.7	14.0	N	FLO
0.550628	40.3	9.7	56.0	15.7	N	FLO
1.181058	40.2	9.7	56.0	15.8	L1	FLO
1.997419	39.5	9.7	56.0	16.5	L1	FLO
3.491542	41.7	9.7	56.0	14.3	N	FLO
3.976695	41.9	9.8	56.0	14.1	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency	Level	Transducer	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.461108	39.5	9.7	46.7	7.2	N	FLO
0.479314	36.5	9.7	46.4	9.9	L1	FLO
1.178606	37.0	9.7	46.0	9.0	L1	FLO
3.507948	36.7	9.7	46.0	9.3	N	FLO
5.785954	36.4	9.8	50.0	13.6	L1	FLO
16.010478	36.6	10.0	50.0	13.4	L1	FLO

Note:

Level= Reading level+ Transd (cable loss + correction factor)

The reading level is calculated by software which is not shown in the sheet.

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