



# EMC Test Report

**Product Name: HUAWEI MediaPad 10 FHD**

**Model Number: S10-102u**

**Report No: SYBH(Z-EMC)049072012-2**

**FCC ID: QISS10-102U**

**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:** Jul.13, 2012  
**Start Date of Test:** Aug.07, 2012  
**End Date of Test:** Aug.10, 2012  
**Test Result:** Pass

**Approved By  
(Lab Manager)**

2012-08-14  
Date

Liuchunlin  
Name

Signature

**Operator**

2012-08-14  
Date

Liuqingbin  
Name

Signature



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**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 10 FHD
Model Number	S10-102u
Serials Number	G9K6RA9251100197
Working Voltage	5Vdc
TX Frequency	GSM 850: 824MHz To 849 MHz GSM 1900: 1850 MHz To 1910 MHz WCDMA BAND II: 1850 MHz To 1910 MHz WCDMA BAND V: 824MHz To 849 MHz Bluetooth: 2400MHz To 2473MHz WIFI: 2400MHz To 2473MHz
RX Frequency	GSM 850: 869 MHz To 894 MHz GSM 1900: 1930 MHz To 1990 MHz WCDMA BAND II: 1930 MHz To 1990 MHz WCDMA BAND V: 869 MHz To 894 MHz Bluetooth: 2400MHz To 2473MHz WIFI: 2400MHz To 2473MHz GPS: 1575.42MHz
HW Version	SH4101UM and SH3101UI
SW Version	S10-102uV100R001C001
EUT Accessory	
Data cable	Brand: Huawei Technologies Co., Ltd. Data Cable HML Male to USB Male,Black,
Adapter 1	Brand: HUAWEI Model:HW-050200U3W Input voltage: 100V-240V~50/60Hz, 0.5A MAX Output voltage: 5V <sup>---</sup> 2A S/N:HWHKAAC50900587; HWXQAAC21402791
Li-ion	Brand: HUAWEI Battery Model: HB3S1 Rated capacity: 6400mAh Nominal Voltage: $\overset{\text{---}}{\text{---}}$ +3.7V Charging Voltage: $\overset{\text{---}}{\text{---}}$ +4.2V

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



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## 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 15:2011, 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> <input checked="" type="checkbox"/> DC Power Port <input checked="" type="checkbox"/> AC Power Port <input type="checkbox"/> Telecommunication Ports	Mode1	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the uncertainty of test system. 2, <input checked="" type="checkbox"/> The item has been tested; <input type="checkbox"/> 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.

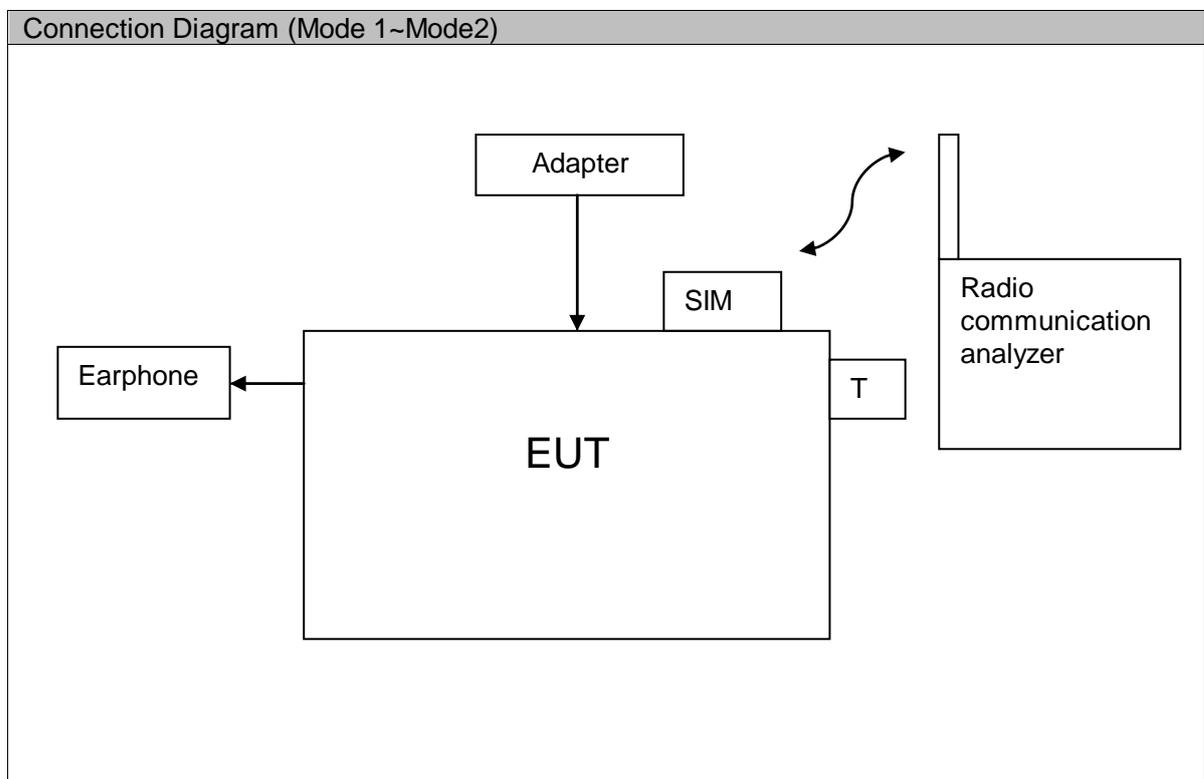
Traffic Mode:

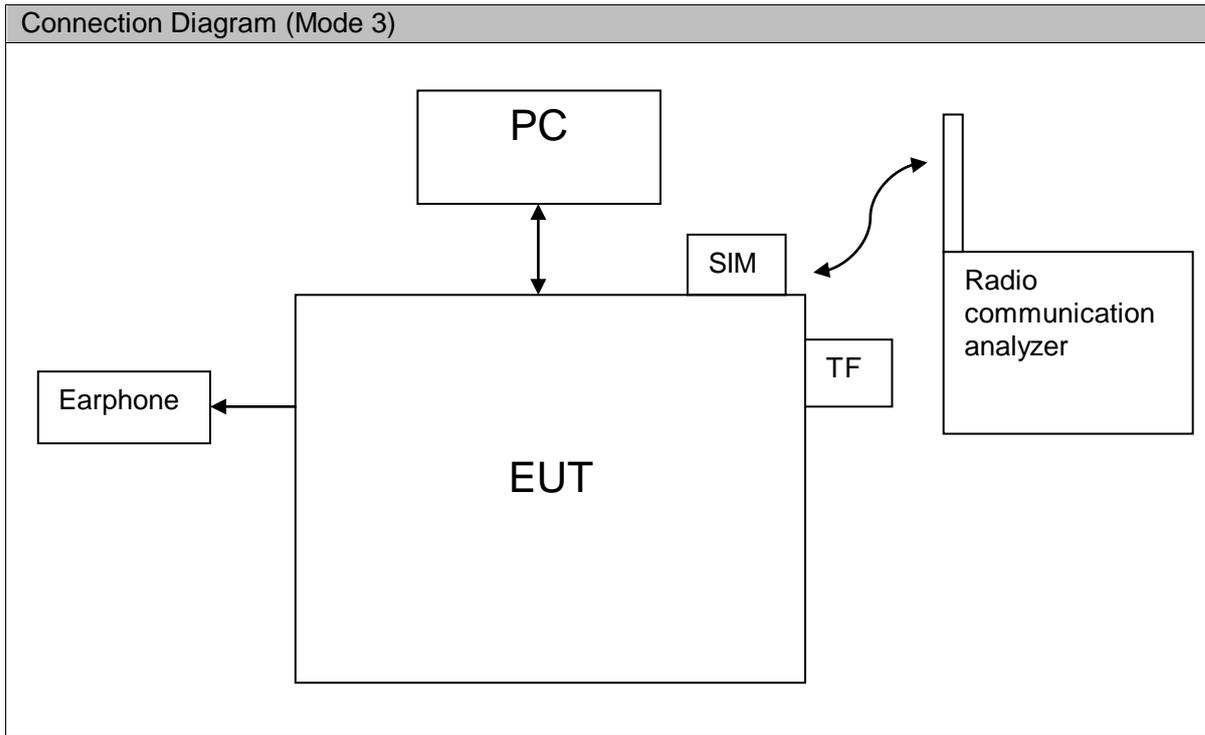
State of EUT when switched on and with Radio Resource Control (RRC) connection established

IDLE Mode:

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

#### 3.2 Configurations of Test System





### 3.3 Cables Used during Test

Cable	Quantity	Length	Type of Cable
MHL	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	1117057	2012-9-2	12
Notebook	X200	Lenovo	3108052581	/	/

## 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

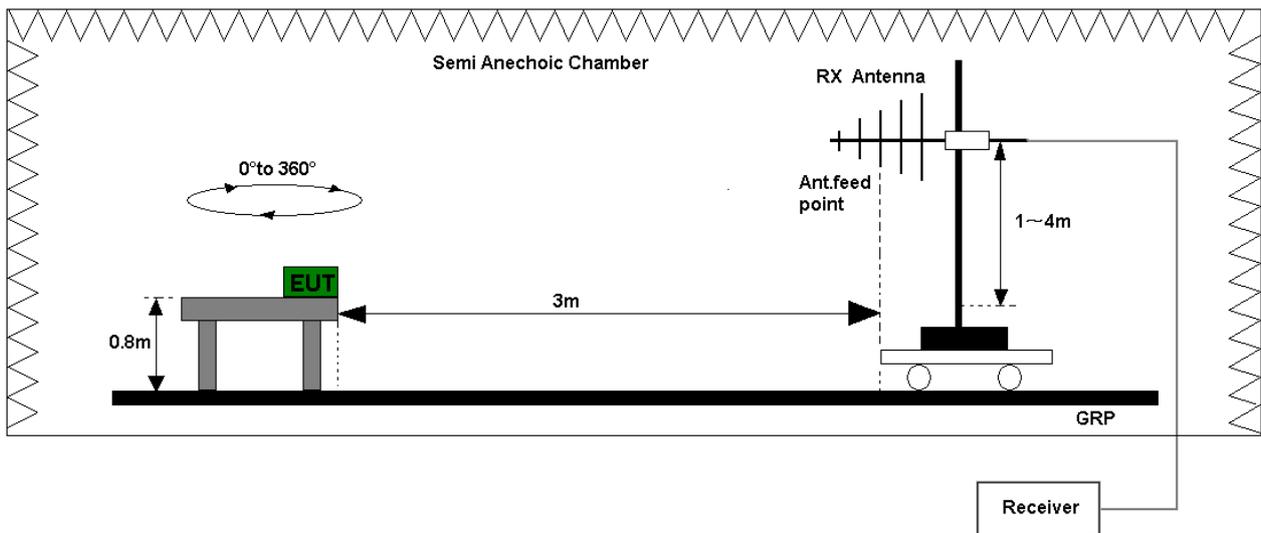


Figure 1. Test set-up of radiated disturbance(30MHz-1GHz )

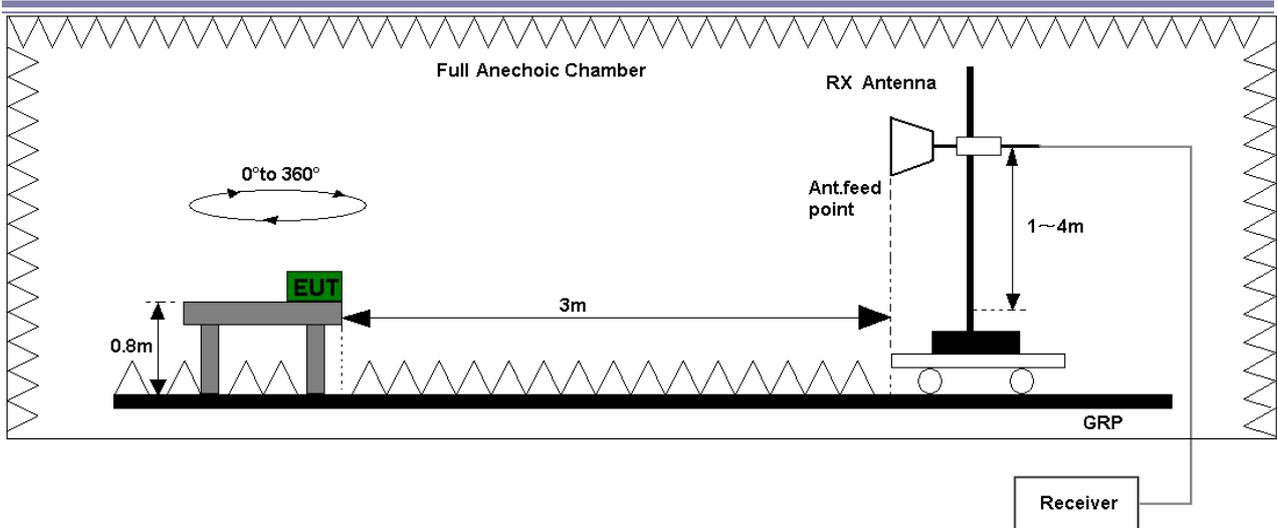


Figure 2. Test set-up of radiated disturbance(above 1GHz)

#### 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( $\mu\text{V}/\text{m}$ )		Unit( $\text{dB}\mu\text{V}/\text{m}$ )	
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.

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

### 4.2.2 Test Setup

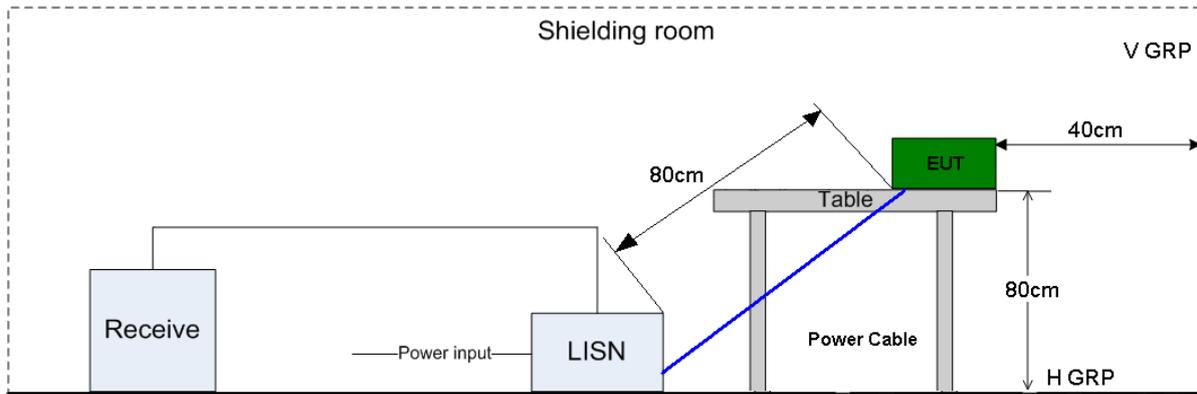


Figure 3. Test Set-up of conducted disturbance

### 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 (dB $\mu$ V)	AV (dB $\mu$ V)
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	9163-491	SCHWAR ZBECK	Dec.08, 2013	24
	Horn Antenna	HF906	10084	R&S	May.15,2013	24
CE	EMI Test receiver	ESCI	101163	R&S	Mar.05, 2013	12
	Artificial Mains Network	ENV216	100382	R&S	Mar.21, 2013	12
Software Information						
Test Item	Software Name		Manufacturer		Version	
RE	ES-K1		R&S		V1.7.1	
CE	EMC 32		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 $\mu$ V/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dB $\mu$ V/m)	U=5.1dB; k=2
CE	Disturbance Voltage (dB $\mu$ V)	U=2.6dB; k=2

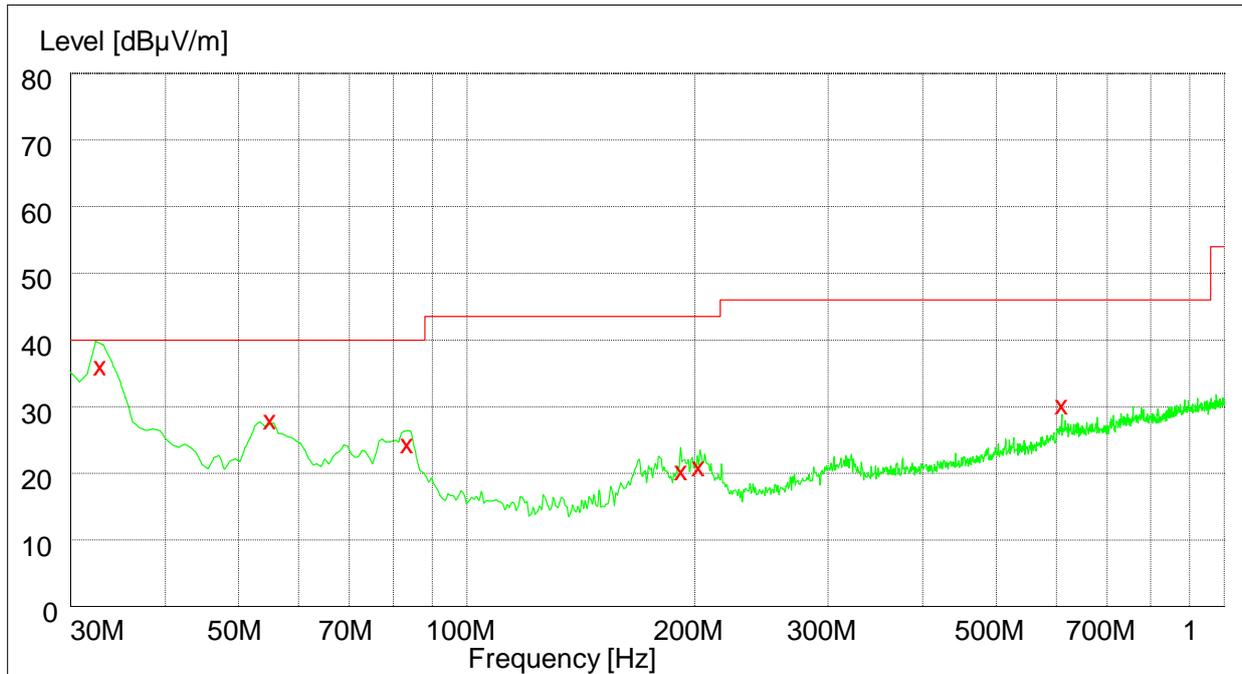


## 7 Test Data and Graph

Only the worst test results were shown

### 7.1 Radiated Disturbance

#### 7.1.1 30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
32.820000	36.00	14.8	40.0	4.0	100.0	184.00	VERTICAL
55.080000	27.70	14.6	40.0	12.3	300.0	177.00	VERTICAL
83.460000	23.40	10.9	40.0	16.6	206.0	315.00	HORIZONTAL
192.000000	20.40	12.1	43.5	23.1	100.0	332.00	VERTICAL
202.260000	19.90	12.4	43.5	23.6	100.0	342.00	VERTICAL
610.200000	29.40	21.5	46.0	16.6	158.0	0.00	VERTICAL

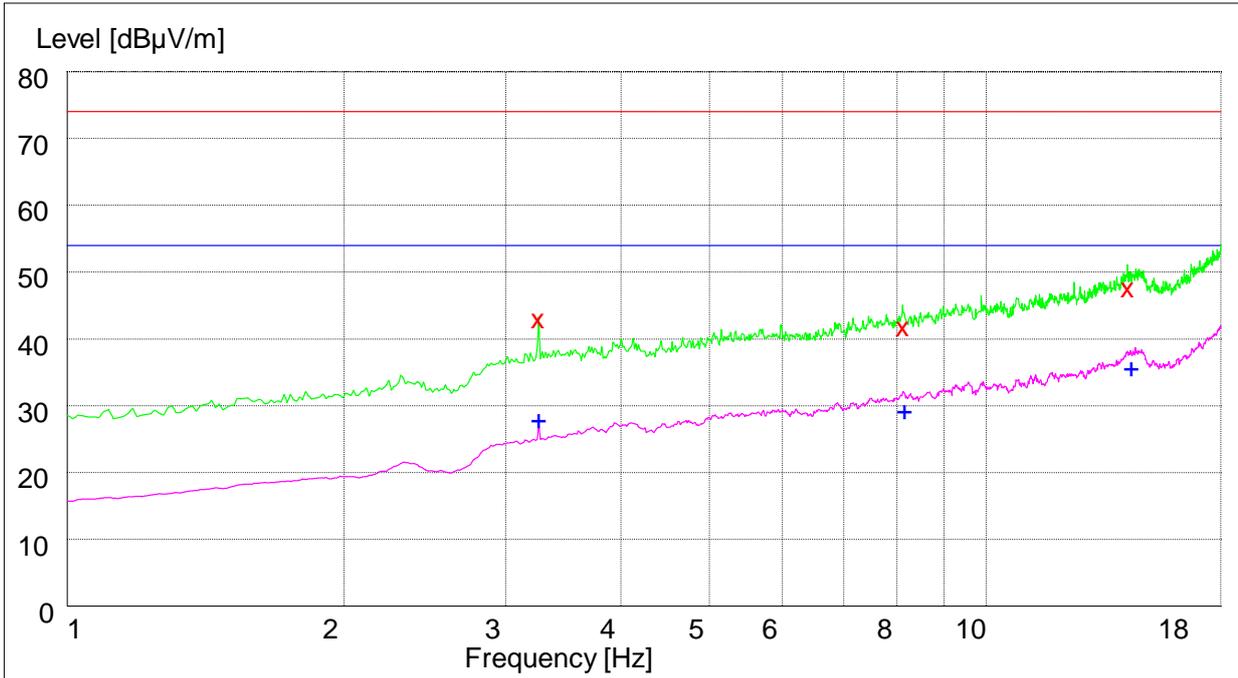
Note:

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

The reading level is used to calculate 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	
3256.100000	44.00	-7.2	74.0	30.0	100.0	138.00	VERTICAL
8112.800000	42.80	4.9	74.0	31.2	200.0	359.00	HORIZONTAL
14240.400000	48.60	14.1	74.0	25.4	159.0	68.00	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency	Level	Transducer	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
3256.100000	28.90	-7.2	54.0	25.1	100.0	140.00	VERTICAL
8136.000000	29.80	5.1	54.0	24.2	200.0	300.00	VERTICAL
14345.600000	35.30	14.8	54.0	18.7	200.0	172.00	VERTICAL

Note:

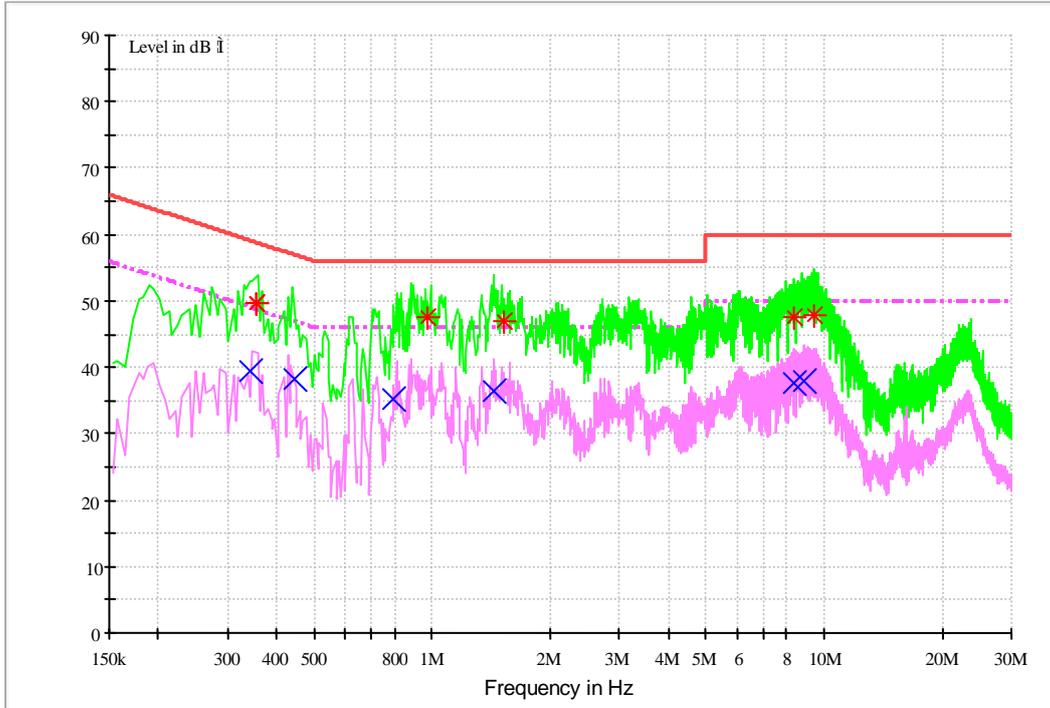
Level= Reading level+ Transducer (cable loss + correction factor)

The reading level is used to calculate 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 MHz	Level dBμV	Transducer dB	Limit dBμV	Margin dB	Line	PE
0.353580	49.7	9.7	58.9	9.2	N	FLO
0.354180	49.8	9.7	58.9	9.1	N	FLO
0.967882	47.7	9.7	56.0	8.3	N	FLO
1.520194	47.1	9.7	56.0	8.9	N	FLO
8.397675	47.6	9.9	60.0	12.4	N	FLO
9.463890	47.9	9.9	60.0	12.1	N	FLO

#### MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBμV	Transducer dB	Limit dBμV	Margin dB	Line	PE
0.343436	39.4	9.7	49.1	9.7	N	FLO
0.443592	38.3	9.7	47.0	8.7	N	FLO
0.796252	35.4	9.7	46.0	10.6	N	FLO
1.434806	36.5	9.7	46.0	9.5	N	FLO
8.400701	37.6	9.9	50.0	12.4	N	FLO
8.909385	38.1	9.9	50.0	11.9	N	FLO



Note:

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

The reading level is used to calculate by software which is not shown in the sheet.

-----**END**-----

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