



# EMC Test Report

**Product Name: HUAWEI MediaPad**

**Model Number: S7-301w**

**Report No: SYBH(Z-EMC) 132092011-2**

**FCC ID: QISS7-301W**

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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.
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## 1 General Information

### 1.1 EUT Description

EUT Description	
Product Name	HUAWEI MediaPad
Model Number	S7-301w
Serials Number	E3T6RD1190300079
Working Voltage	⎓ +3.7V
TX Frequency	Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz
RX Frequency	Bluetooth: 2400MHz To 2483.5MHz WIFI: 2400MHz To 2483.5MHz GPS:1575.42
HW Version	HIDS7PMA
SW Version	S7-301wV100R001C002
EUT Accessory	
Data cable	Manufacture: LIANSHENG Model: LSA00474
	Manufacture: LIANSHENG Model: LSA00350
	Manufacture: PENGYI Model: H09-000167
Adapter	Manufacture: SHENZHEN FRECOM Model:FM050020-US Input voltage: 100V-240V~50-60Hz, 0.6A Output voltage: +5V ⎓ 2A
Adapter	Manufacture: SHENZHEN FRECOM Model: FPS012USA-050200 Input voltage: 100V-240V~50-60Hz, 0.3A Output voltage: +5V ⎓ 2A
Li-ion	Manufacture: Huawei Technologies Co., Ltd. Model: HB3G1H Rated capacity:4000 mAh Nominal Voltage ⎓ +3.7V Charging Voltage ⎓ +4.2V
Earphone	Manufacture: QUANCHENGDIANZI Model: 1235#+3260# 3.5mm

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

Test Site:	RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD.
Test Site Location:	Bantian Longgang District Shenzhen, P.R. China

## 1.3 Applied Standard

APPLIED STANDARD

FCC 47 CFR FCC Part 15 SubpartB

## 2 Summary of Results

Summary of Results				
Test Items	Test Mode	Performance Class & Required Performance Criteria	Result	Site
<u>Radiated Emissions</u> Enclosure Port	Mode1	CLASS B	Pass	Site1
<u>Conducted Emissions</u> <input type="checkbox"/> DC Power Port <input checked="" type="checkbox"/> AC Power Port <input type="checkbox"/> Telecommunication Ports	Mode1 Mode2	CLASS B	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, <input checked="" type="checkbox"/> The item has been tested; <input type="checkbox"/> The item has not been tested.				

### 3 System Configuration during EMC Test

#### 3.1 Test Mode

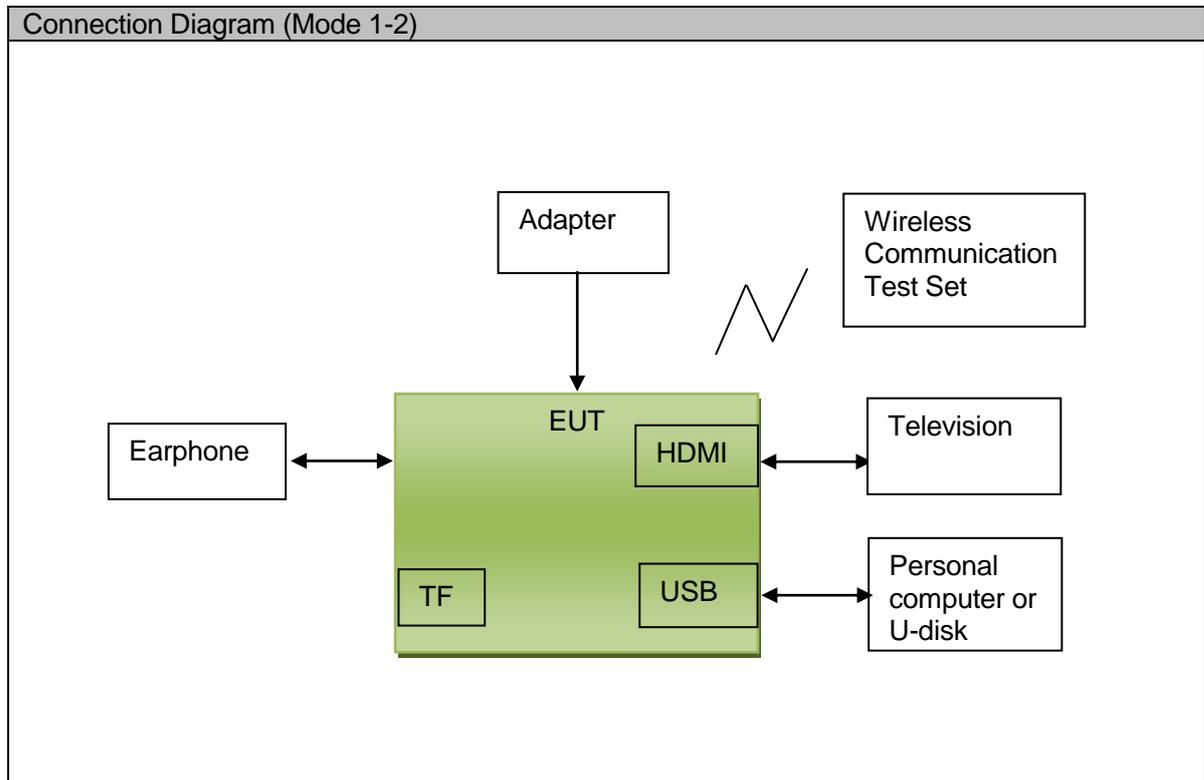
Huawei has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was in this test report and defined as:

Test Mode	
Mode 1:	Adapter + TF card + HDMI(TV) + Earphone + Camera on + USB(Data copy) + radio service in Idle mode
Mode 2:	Adapter + TF card + HDMI(TV) + Earphone + Camera on + USB(Data copy) + radio service in traffic mode

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

The solid ferrite is used adapter line and HDMI line during the test, the solid ferrite model is DYR-70-A.



### 3.3 Cables Used during Test

Cable	Quantity	Length	Type of Cable
AC Power	1	<3m	unshielded
HDMI	1	<3m	shielded
Earphone	1	<3m	unshielded
Data cable	1	<3m	shielded

### 3.4 Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date
Radio Communication Tester	CMU200	R&S	3607033573	2011-3-17
Notebook	D630	DELL	0W7349	NA
Television	KLV-20S400A	SONY	5017657	NA
U-disk	USM4GL	SONY	6939543906972	NA

## 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. The test distance was 3m. The set-up and test methods were according to ANSI C63.4.

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 receive antenna has two polarizations V and H.

EUT was configured in idle mode and the test performed at worst emission state.

#### 4.1.2 Test setup

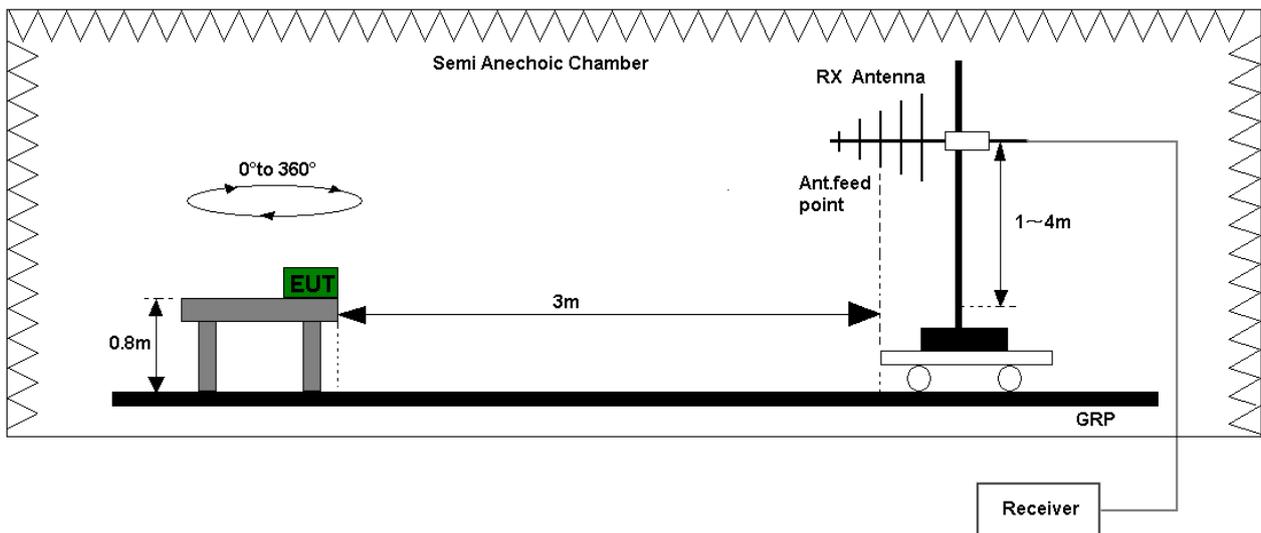


Figure 1. Test set-up of radiated disturbance(30MHz-1GHz)

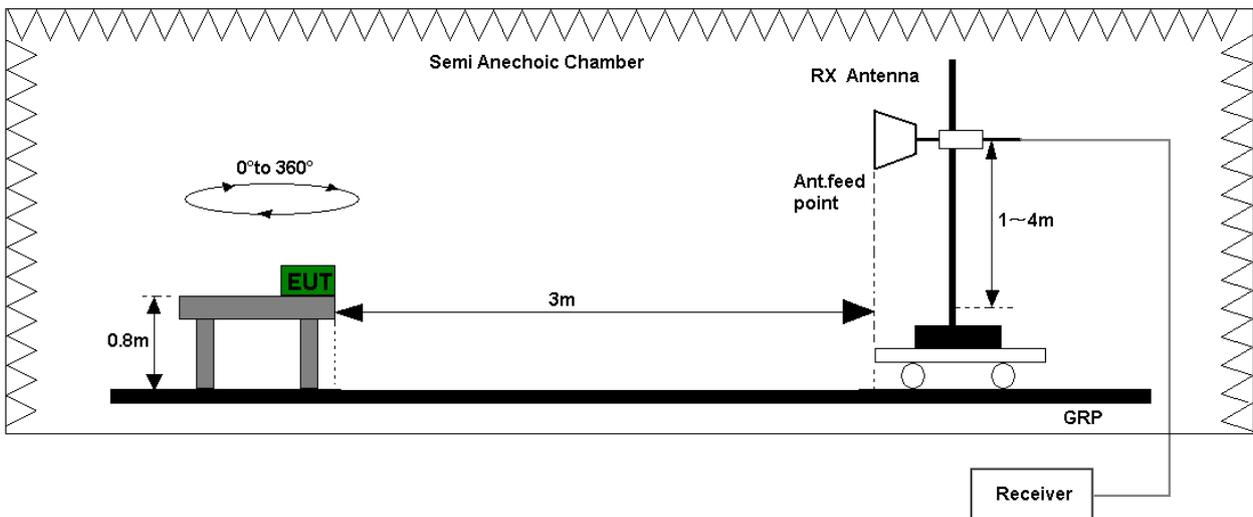


Figure 2. Test set-up of radiated disturbance(above 1GHz)

### 4.1.3 Test Results

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

Test Limits				
Frequency of Emission (MHz)	Radiated Limit			
	Unit( $\mu$ V/m)		Unit(dB $\mu$ 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

Test environment condition:

Performed Item	Item	Required	Actual
Radiated Emission	Ambient temperature	15°C ~ 35°C	21°C
	Relative humidity	25% ~ 75%	54%
	Atmospheric pressure	86kPa ~ 106kPa	100kPa

## 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 from LISN. The set-up and test methods were according to ANSI C63.4.

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.

Huawei Mobile Station was communicated with the BTS simulator through Air interface, the BTS simulator controls the Mobile Station to transmitter the maximum power which defined in specification of product. The Mobile Station operated on the typical channel.

Measurement bandwidth (RBW) for 150kHz to 30 MHz: 9 kHz;

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

### 4.2.2 Test Setup

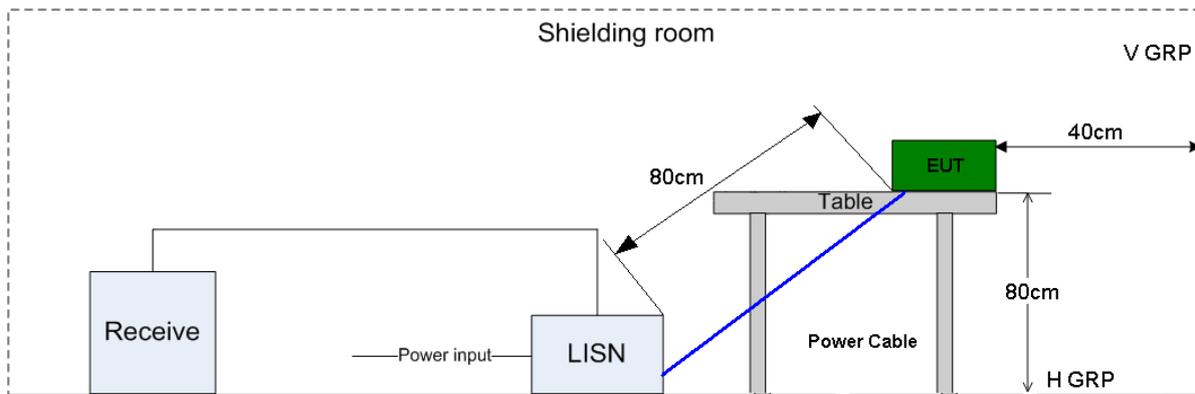


Figure 3. Test Set-up of conducted disturbance

### 4.2.3 Test Results

The EUT has met requirements for Conducted disturbance of power lines.  
The test data see section 7.2 of this report.

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

Test environment condition:

Performed Item	Item	Required	Actual
Conducted Disturbance	Ambient temperature	15°C ~ 35°C	21°C
	Relative humidity	25% ~ 75%	54%
	Atmospheric pressure	86kPa ~ 106kPa	100kPa

## 5 Main Test Instruments

Main Test Equipments					
Test item	Test Instrument	Model	Manufacturer	Cal-Date	Cal Interval (month)
RE/CE	EMI Test receiver	ESU26	R&S	May.30, 2011	12
	Broadband Antenna	VULB 9163	SCHWARZBECK	May.16, 2011	12
	Horn Antenna	HF906	R&S	May.16, 2011	12
	Artificial Mains Network	ENV216	R&S	May.30, 2011	12
Software Information					
Test Item	Software Name	Manufacturer		Version	
RE/CE	ES-K1	R&S		1.7.1	

## 6 System Measurement Uncertainty

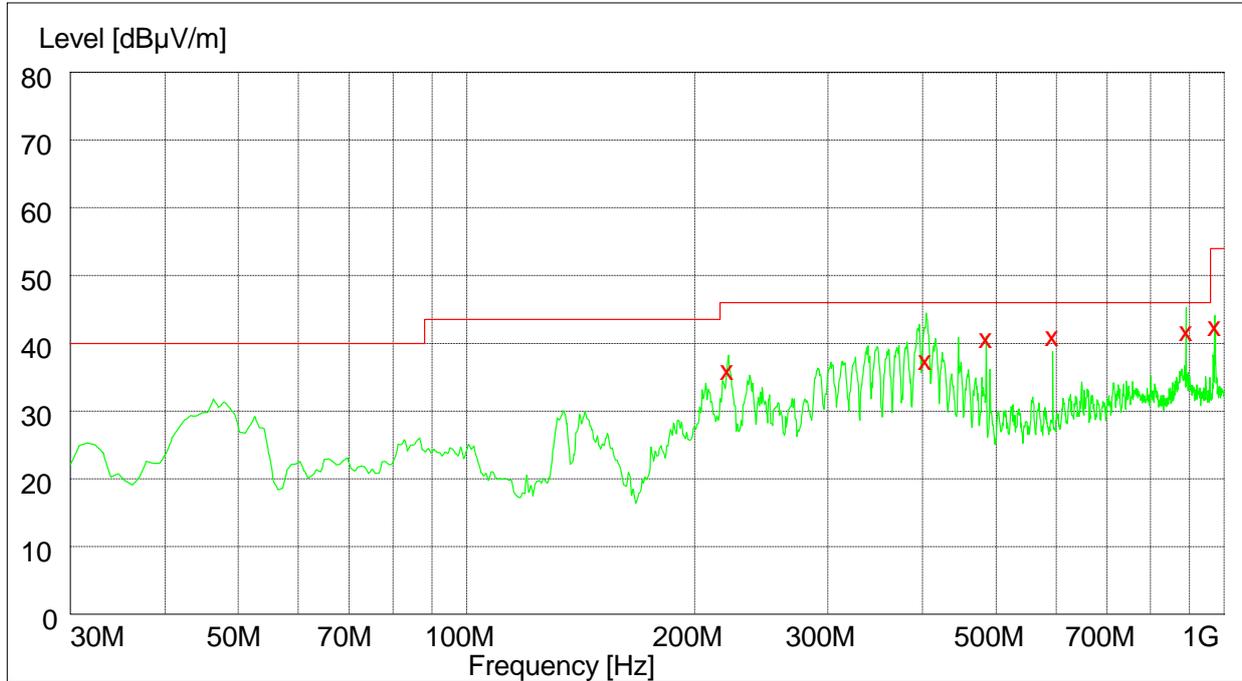
For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

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=4.1dB; k=2
CE	Disturbance Voltage (dB $\mu$ V)	U=3.4dB; k=2

## 7 Graph and Data of Emission Test

### 7.1 Radiated Disturbance

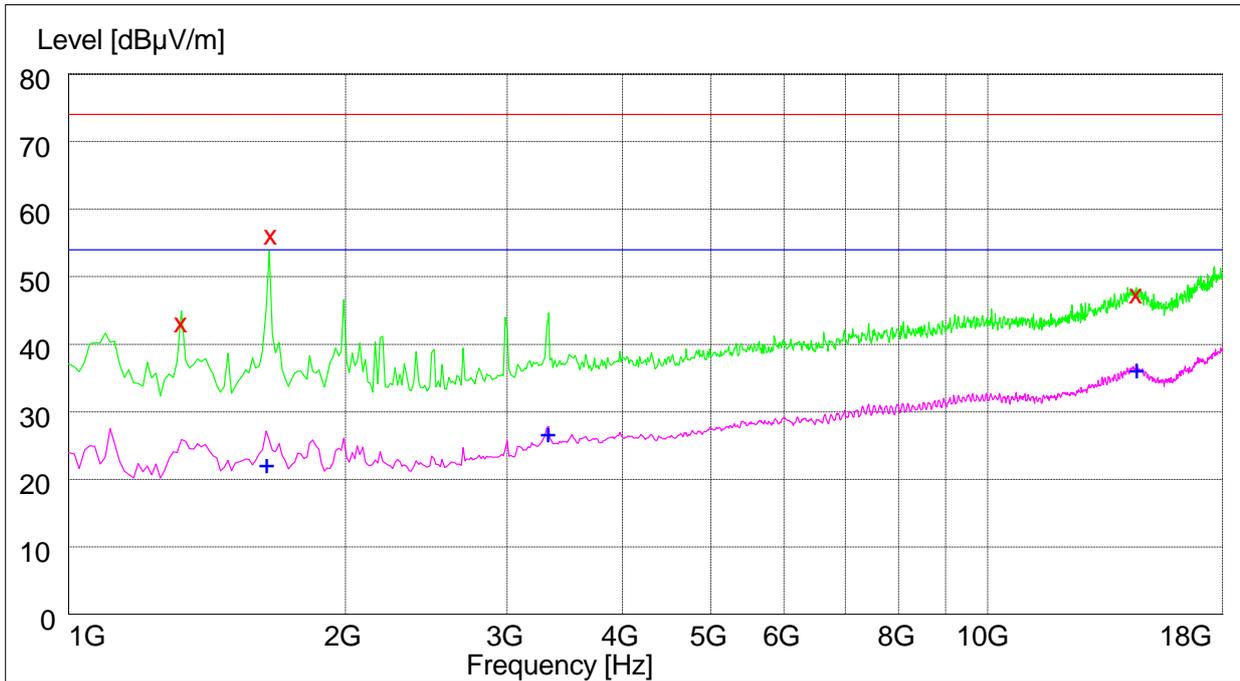
#### 7.1.1 30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
220.980000	36.90	13.0	46.0	9.1	100.0	55.00	HORIZONTAL
403.380000	38.20	18.2	46.0	7.8	100.0	187.00	HORIZONTAL
485.160000	41.60	19.8	46.0	4.4	100.0	173.00	HORIZONTAL
594.060000	41.80	22.4	46.0	4.2	107.0	53.00	HORIZONTAL
891.120000	42.60	26.1	46.0	3.4	107.0	73.00	HORIZONTAL
972.000000	43.30	26.9	54.0	10.7	100.0	48.00	HORIZONTAL

### 7.1.2 1GHz~18GHz



#### MEASUREMENT RESULT: PK Detector

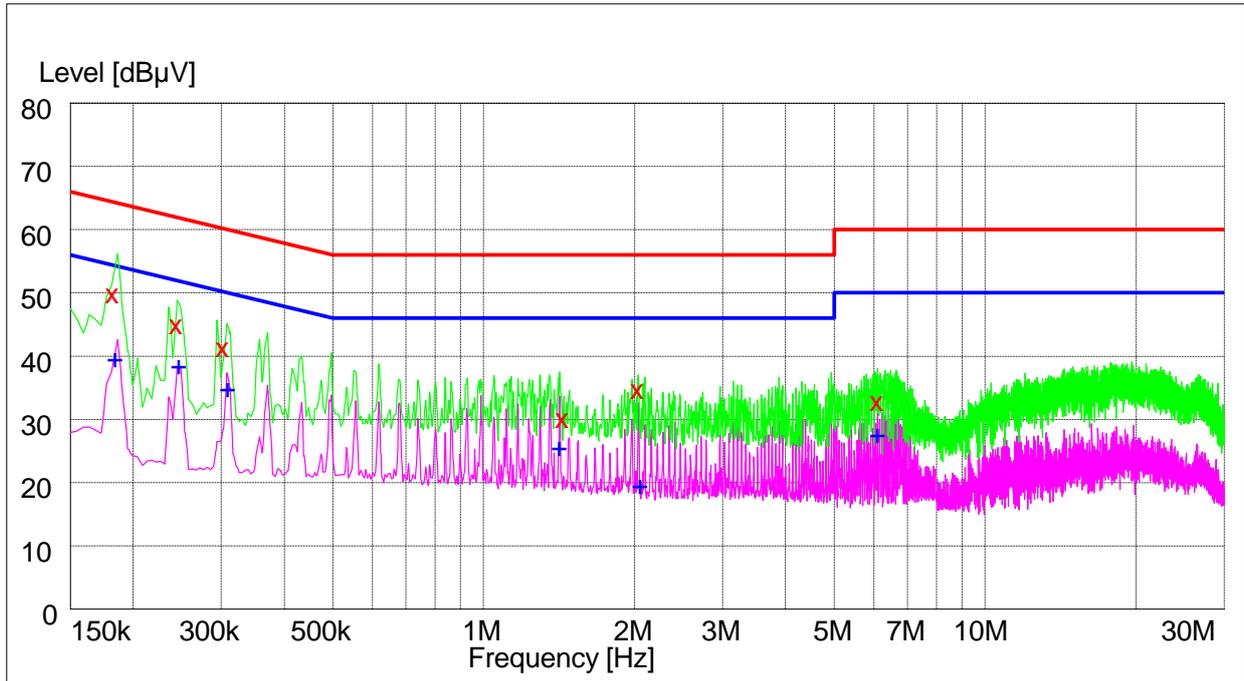
Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
1326.500000	44.00	-15.2	74.0	30.0	104.0	240.00	HORIZONTAL
1660.000000	57.00	-13.5	74.0	17.0	100.0	32.00	VERTICAL
14518.000000	48.20	14.9	74.0	25.8	135.0	102.00	VERTICAL

#### MEASUREMENT RESULT: AV Detector

Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
1641.500000	23.10	-13.5	54.0	30.9	101.0	262.00	VERTICAL
3325.000000	27.50	-5.8	54.0	26.5	157.0	168.00	HORIZONTAL
14518.000000	37.00	14.9	54.0	17.0	190.0	200.00	HORIZONTAL

## 7.2 Conducted Disturbance

### 7.2.1 AC Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.182000	50.80	10.1	64	13.2	N	FLO
0.244000	45.90	10.0	62	16.1	N	FLO
0.302000	42.40	10.0	60	17.6	L1	FLO
1.440000	31.10	10.1	56	24.9	N	FLO
2.028000	35.60	10.1	56	20.4	N	FLO
6.094000	33.80	10.2	60	26.2	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.184000	40.50	10.1	54	13.5	L1	FLO
0.246000	39.40	10.0	52	12.6	N	FLO
0.308000	35.90	10.0	50	14.1	L1	FLO
1.412000	26.50	10.1	46	19.5	L1	FLO
2.046000	20.60	10.1	46	25.4	N	FLO
6.086000	28.60	10.2	50	21.4	L1	FLO

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