



EMC Test Report

Product Name: Fixed Wireless Terminal

Model Number: F256VW

Report No: SYBH(Z-EMC)042072011-2

FCC ID: QISF256VW

Reliability Laboratory of Huawei Technologies Co., Ltd.

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Notice

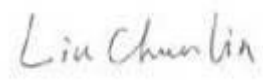
1. The laboratory has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L0310.
2. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions 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: July.26, 2011
Start Date of Test: July.26, 2011
End Date of Test: July.28, 2011

Test Result: Pass

Approved By 2011-07-29 Liuchunlin 
Date Name Signature

Reviewed By 2011-07-29 Dailinjun 
Date Name Signature

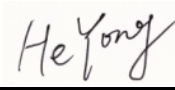
Operator 2011-07-29 Heyong 
Date Name Signature

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1 General Information

1.1 EUT Description

EUT Description	
Product Name	Fixed Wireless Terminal
Model Number	F256VW
Serials Number	H5F2A11162700185
TX Frequency	CDMA800: 824MHz To 849MHz CDMA1900: 1850MHz To 1910MHz
RX Frequency	CDMA800: 869MHz To 894MHz CDMA1900: 1930MHz To 1990MHz
HW Version	WL1FT2260I
SW Version	V001R001
EUT Accessory	
Adapter	Manufacture: Huawei Technologies Co., Ltd. Model: CNR2260&256 Input voltage: ~100-240V 50/60Hz 0.2A Output voltage:  12V 500mA Rated Power: 6W SN: MSAB423020489 SN: TPIB423053853
Rechargeable Ni-MH	Battery Model: HGB-15AAx3 Rated capacity: 1500mAh Nominal Voltage:  +3.6V Charging Voltage:  +4.2V

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 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	Mode2	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 measurement uncertainty of measurement system. 2, ☒ The item has been tested; ☐ The item has not been tested.				

3 System Configuration during EMC Test

3.1 Test Mode

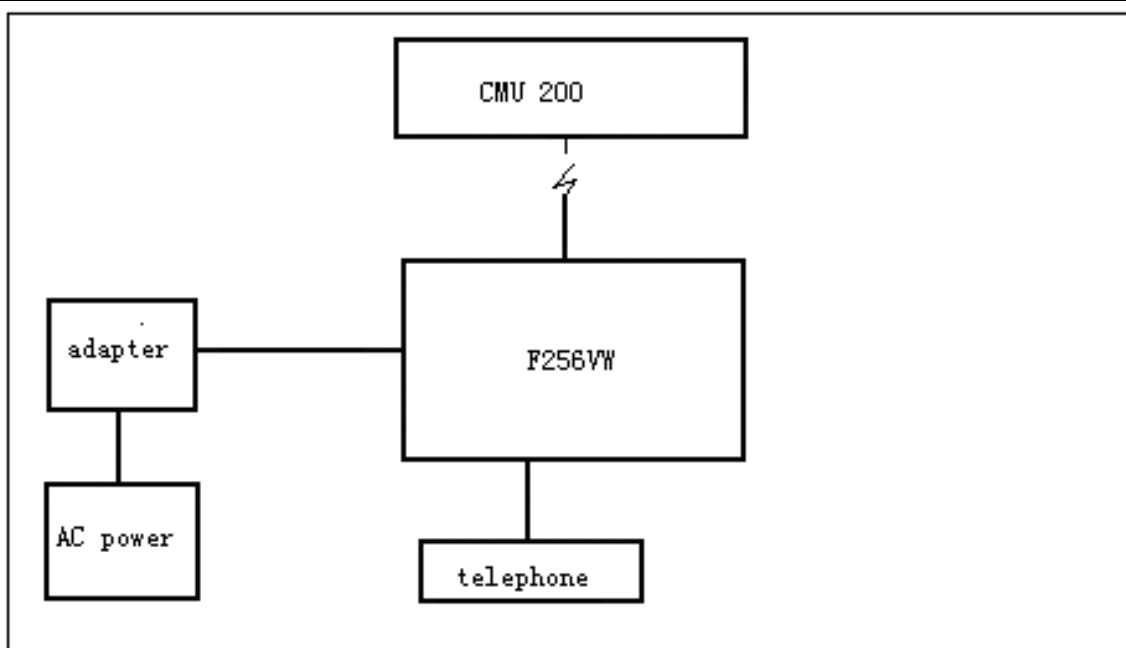
Huawei has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was in this test report and defined as:

Test Mode	
Mode 1:	adapter+telephone +Idle
Mode 2:	adapter+telephone +Traffic

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 (Mode1~2)



3.3 Cables Used during Test

Cable	Quantity	Length	Type of Cable
Telephone line	1	/	Unshielded

3.4 Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date
Radio Communication Tester	CMU200	R&S	1117385	2010-10-24
Notebook	T61	IBM	3108052508	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. 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.

Test setup

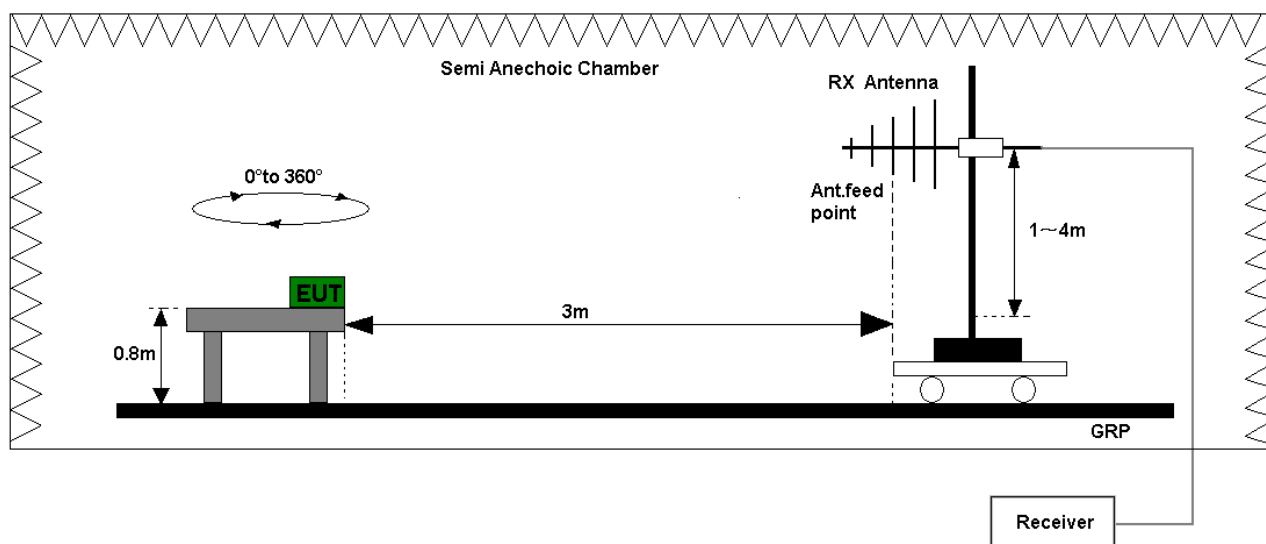


Figure 1. Test set-up of radiated disturbance(30MHz-1GHz)

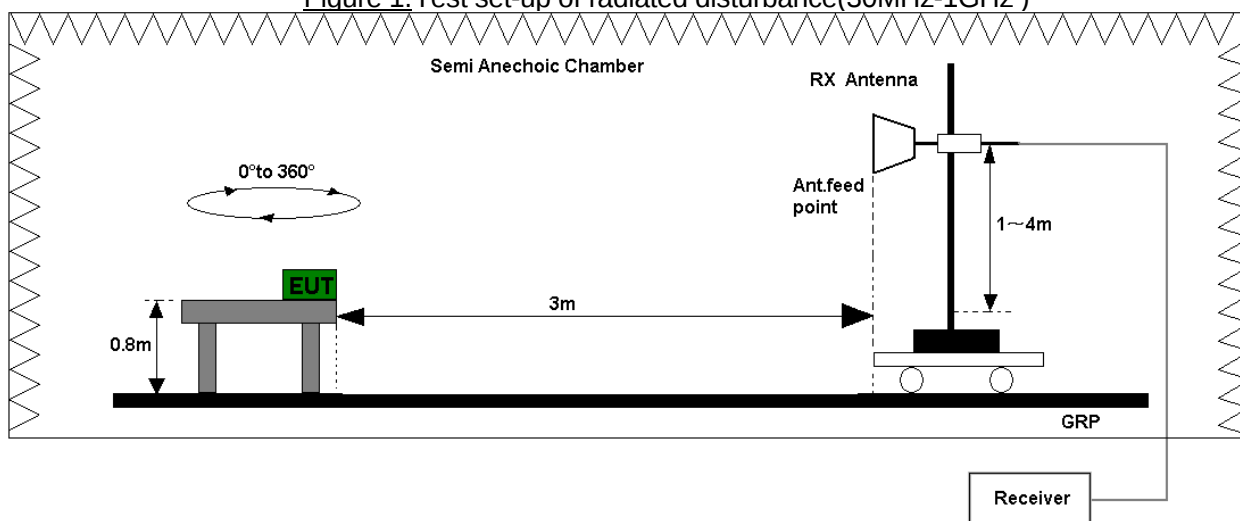


Figure 2. Test set-up of radiated disturbance(above 1GHz)

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(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

Test environment condition:

Performed Item	Item	Required	Actual
Radiated Emission	Ambient temperature	15°C~35°C	24°C
	Relative humidity	25%~75%	50%
	Atmospheric pressure	86 kPa~106kPa	100kPa

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 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.

Test Setup

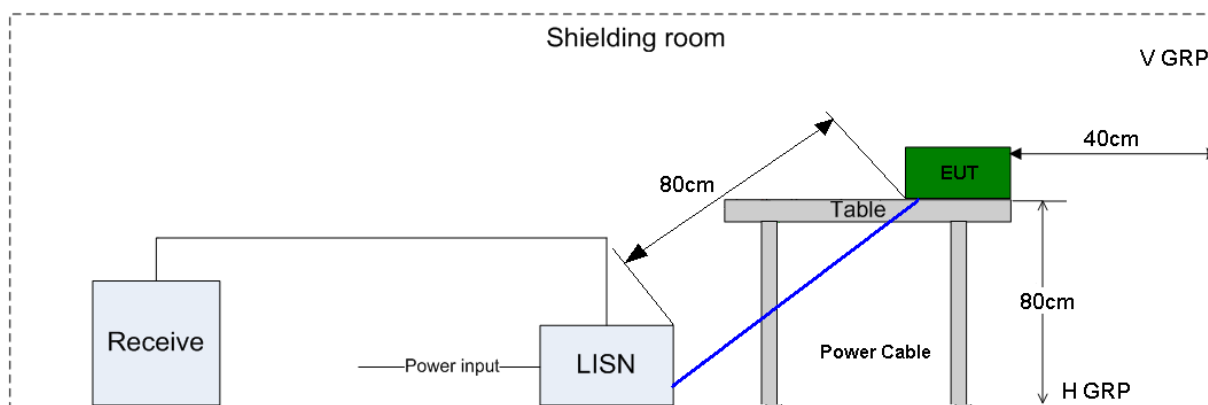


Figure 3. Test Set-up of conducted disturbance

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

Test environment condition:

Performed Item	Item	Required	Actual
Conducted Disturbance	Ambient temperature	15°C~35°C	24°C
	Relative humidity	25%~75%	50%
	Atmospheric pressure	86 kPa~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

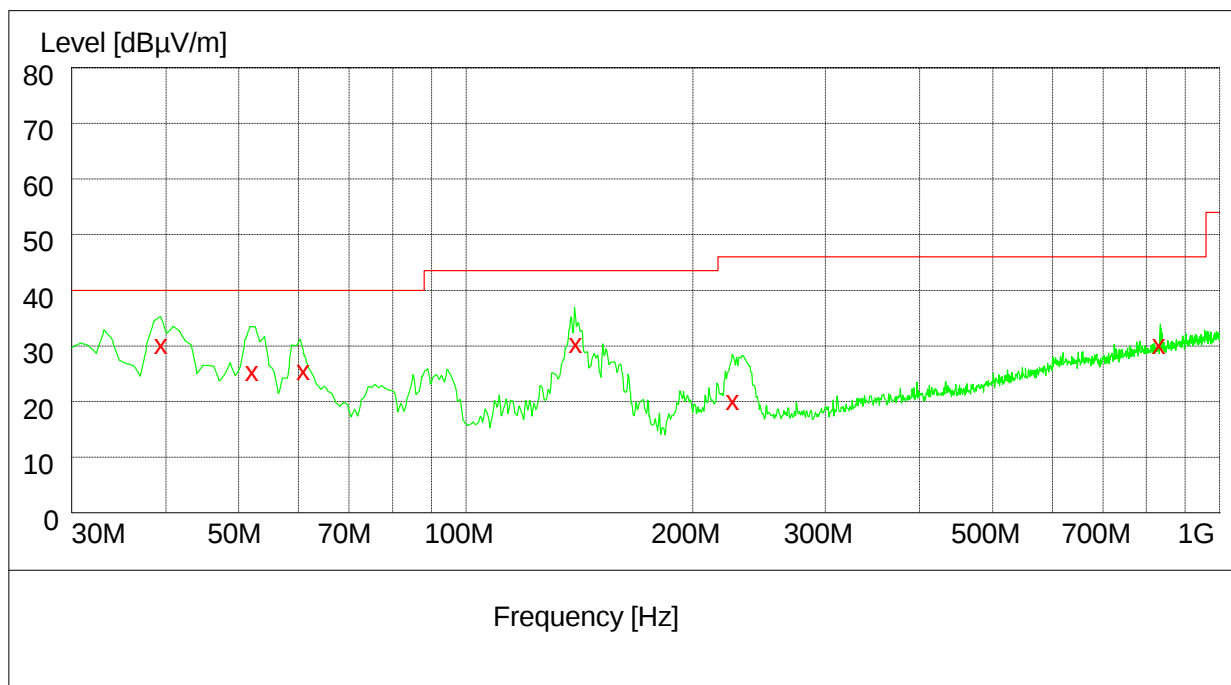
For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty		
Items		Extended Uncertainty
RE(30MHz-1GHz,)	Field strength (dB μ V/m)	U=4.1dB; k=2
RE(1GHz-18GHz)	Field strength (dB μ V/m)	U=4.1dB; k=2
CE	Disturbance Voltage (dB μ V)	U=3.4dB; k=2

7 Graph and Data of Emission Test

7.1 Radiated Disturbance

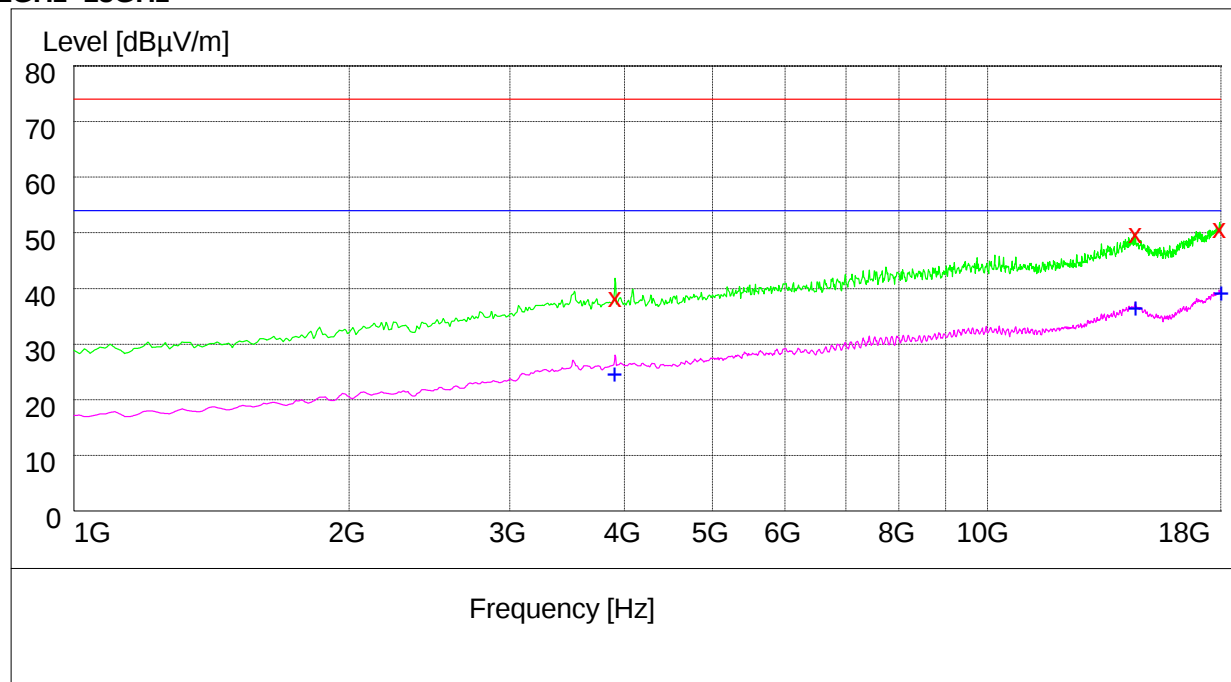
30MHz~1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
39.480000	30.80	12.9	40.0	9.2	100.0	146.00	VERTICAL
52.140000	26.70	12.8	40.0	13.3	100.0	251.00	VERTICAL
61.020000	26.90	11.9	40.0	13.1	200.0	189.00	HORIZONTAL
140.160000	30.90	8.7	43.5	12.6	100.0	274.00	VERTICAL
226.440000	20.90	13.3	46.0	25.1	100.0	299.00	HORIZONTAL
833.160000	30.50	25.3	46.0	15.5	100.0	246.00	HORIZONTAL

1GHz~18GHz



MEASUREMENT RESULT: PK Detector

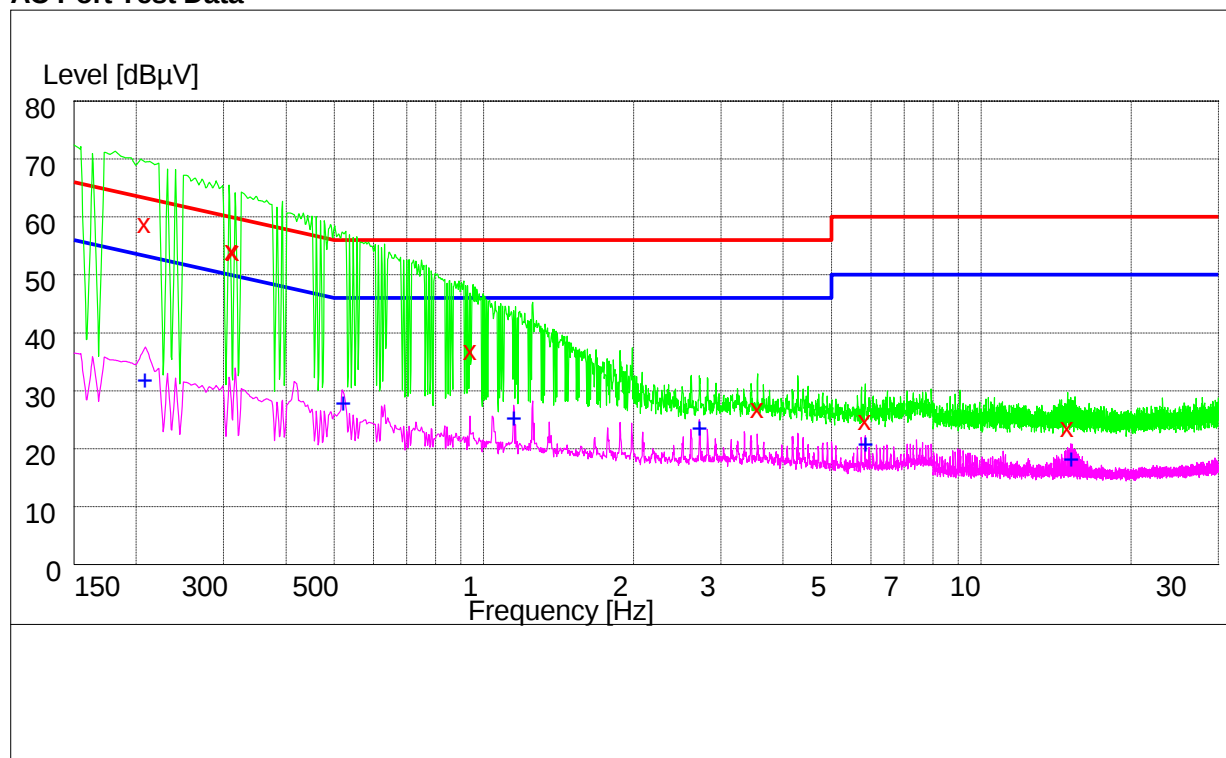
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3917.500000	39.00	-5.1	74.0	35.0	101.0	217.00	HORIZONTAL
14525.000000	50.10	14.8	74.0	23.9	112.0	19.00	VERTICAL
17949.000000	51.50	19.1	74.0	22.5	110.0	49.00	VERTICAL

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3904.500000	25.80	-5.1	54.0	28.2	101.0	128.00	HORIZONTAL
14517.000000	37.00	14.9	54.0	17.0	101.0	17.00	HORIZONTAL
17999.000000	39.30	19.5	54.0	14.7	108.0	245.00	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
0.208000	59.10	10.0	63	3.9	L1	FLO
0.312000	55.50	10.0	60	4.5	L1	FLO
0.314000	55.30	10.0	60	4.7	L1	FLO
0.940000	38.10	10.1	56	17.9	L1	FLO
3.552000	28.10	10.2	56	27.9	L1	FLO
5.848000	26.10	10.2	60	33.9	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.208000	32.90	10.0	53	20.1	L1	FLO
0.522000	29.10	10.1	46	16.9	L1	FLO
1.148000	26.50	10.1	46	19.5	L1	FLO
2.716000	24.70	10.2	46	21.3	L1	FLO
5.850000	22.00	10.2	50	28.0	L1	FLO
15.148000	19.30	10.3	50	30.7	L1	FLO

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