FCC
EMC Test Report

Product Name:
HUAWEI IDEOS SERIES; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; IDEOS

Model Number:
HUAWEI U8150-B/U8150-B

Report No: SYBH(Z-EMC)024102010-2

FCC ID：QISU8150-B

Reliability Laboratory of Huawei Technologies Co., Ltd.

Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China

Tel: +86 755 28780808 Fax: +86 755 89652518

Notice 1
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-1.
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Notice 2

Modification Information:

Modification Information

Modification Information	1	
	2	
	3	Not Applicable!
	4	
	5	
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REPORT ON	**EMC TEST OF HUAWEI IDEOS SERIES; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; IDEOS**
	M/N: HUAWEI U8150-B/U8150-B
REGULATION	**FCC CFR47 Part 15: Subpart B;**
START OF TEST	**Oct.13, 2010**
END OF TEST	**Oct.19, 2010**
Final Judgement:	**Pass**

Approved By	**2010-11-03**	**Liuchunlin**	
	Date	**Name**	**Signature**
Reviewed By	**2010-11-03**	**Dailinjun**	
	Date	**Name**	**Signature**
Operator	**2010-11-03**	**Wenjianfeng**	
	Date	**Name**	**Signature**

REPORT BODY CONTENT

1 Status

1.1 Product Information

CLIENT:	Huawei Technologies Co., Ltd.
ADDRESS:	Bantian Longgang District Shenzhen, P.R. China
MANUFACTURING DESCRIPTION	HUAWEI IDEOS SERIES;HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; IDEOS
MANUFACTURERS MODEL NUMBER	HUAWEI U8150-B/U8150-B

1.2 Test Site

Site 1:
EMC LABORATORY OF RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD

1.3 Test environment condition

Ambient temperature	20~25°C
Relative humidity	40%~52%
Atmospheric pressure	101kPa

2 Summary of Results

Table below shows a brief summary of the results obtained.

Summary of results

EUT Classification：Wireless Terminal				
Test Items	**Test Configuration &Test Mode**	**Required Performance Criteria**	**Result**	**Site**
Radiated Emissions Enclosure Port	TC1 (TM13-TM24)	N/A	Pass	Site1
Conducted Emissions	TC1 (TM1-TM24)	N/A	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, TC = Test configuration				

3 Equipment Specification

3.1 General Description

HUAWEI IDEOS SERIES; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; IDEOS, U8150-B is subscriber equipment in the WCDMA/GSM system.
It supports GSM/GPRS/EDGE 850/900/1800/1900 and WCDMA/HSDPA 1900/850/2100/1700; But only GSM/GPRS/EDGE 900/850 and WCDMA 850/1900 can be used in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSDPA/UMTS and GSM/GPRS protocol processing, voice, video, MMS service, GPS, and WLAN etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and USIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices..

3.1.1 Main Equipment Technical Data

Description:	HUAWEI IDEOS SERIES;HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; IDEOS
Models:	HUAWEI U8150-B/U8150-B
Input Rated Voltage	3.7V
Extreme Voltage	3.6V and 4.2V
Dimensions	103mm (L)×55mm (W)×14mm (H)
Weight	<110g（with battery）

Sub-Assembly Identity

Mode		Work Frequency	
		Transmitt Frequency （MHz）	Receive Frequency （MHz）
GSM	GSM1900	1850-1910	1930-1990
	GSM850	824 - 849	869 - 894
WCDMA	WCDMA850	826- 846	871-891
	WCDMA1900	1852-1908	1932-1988
Bluetooth		2400-2483.5	
WLAN		2400-2483.5	

3.2 Sub-Assembly Identity

Sub-Assembly Identity

Board				
Model Name	Qty.		Serial	Description
HD1U815M	1		NG2AA11040102671	Main board of Mobile Phone
Accessory				
Name	Qty.	Manufacture	Serials number	Description
Adapter	1	Huawei Technologies Co., Ltd.	HKAA71556935	Adapter Model: HS-050040R6 Input Voltage : ~100-240V 50/60Hz 0.2A Output Voltage: ⎓ 5.0V 400mA Rated Power: 5W
Rechargeable Li-ion	1	Huawei Technologies Co., Ltd.	UNHA310VF1001637	Battery Model: HB4J1H Rated capacity: 1200mAh Nominal Voltage: ⎓ +3.7V Charging Voltage: ⎓ +4.2V

4 System Configuration during EMC Test

The Equipment under Test (EUT) was functioning correctly during all tests. The EUT was installed within the test site and was configured to simulate a typical user installation.

4.1 Cables Used during Test

Cable Used during Test

Cable	Quantity	Type of Cable
AC Power	1	Unshielded
USB	1	shielded
Earphone	1	Unshielded

4.2 Associated Equipment Used during Test

Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date
Radio Communication Tester	CMU200	R&S	3607111817	2010-7-23

4.3 Test Configurations and Test Mode

4.3.1 Test Configuration.

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

TC1:EUT powered with an adapter and connected to the test system (Base Station Simulator).

Configuration table

TC1	TM1~TM24

4.3.2 Test Mode

There were 24 test Modes. TM1 to TM24 were shown in the diagrams below:

TM1	operate in traffic mode GSM850;
TM2	operate in traffic mode GSM1900;
TM3	operate in traffic mode GPRS850;
TM4	operate in traffic mode GPRS 1900;
TM5	operate in traffic mode EDGE850;
TM6	operate in traffic mode EDGE1900;
TM7	operate in traffic mode WCDMA850;
TM8	operate in traffic mode WCDMA1900;
TM9	operate in traffic mode HADPA850;
TM10	operate in traffic mode HSDPA1900;
TM11	operate in traffic mode Bluetooth;
TM12	operate in traffic mode WLAN;
TM13	operate in idle mode GSM850;
TM14	operate in idle mode GSM1900;
TM15	operate in idle mode GPRS850;

TM16	operate in idle mode GPRS 1900;
TM17	operate in idle mode EDGE850;
TM18	operate in idle mode EDGE1900;
TM19	operate in idle mode WCDMA850;
TM20	operate in idle mode WCDMA1900;
TM21	operate in idle mode HSDPA850;
TM22	operate in idle mode HSDPA1900;
TM23	operate in idle mode Bluetooth;
TM24	operate in idle mode WLAN;

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

4.4 Test conditions and test Connections

4.4.1 Test Conditions

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

4.4.2 Test Connections

Traffic Mode:

The EUT is required to be in the traffic mode, a call is set up according to the generic call set up procedure and enter the EUT into loop back test mode.
For WCDMA, the following conditions shall also be met:
Logical Test Interface for details regarding generic call set-up procedure and BER, BLER test loop scenarios:
set and send continuously up power control commands to the UE;
The DTX shall be disabled;
Inner Loop Power Control shall be enabled;
transmitting and/or receiving (UL/DL) bit rate for reference test channel shall be 12.2 kbit / s.
The EUT shall be commanded to operate at maximum transmit power;

For EGSM and DCS, the following conditions shall also be met:
The EUT shall be commanded to operate at maximum transmit power;
The downlink RXQUAL shall be monitored.
Assign channel frequency to an appropriate channel number.

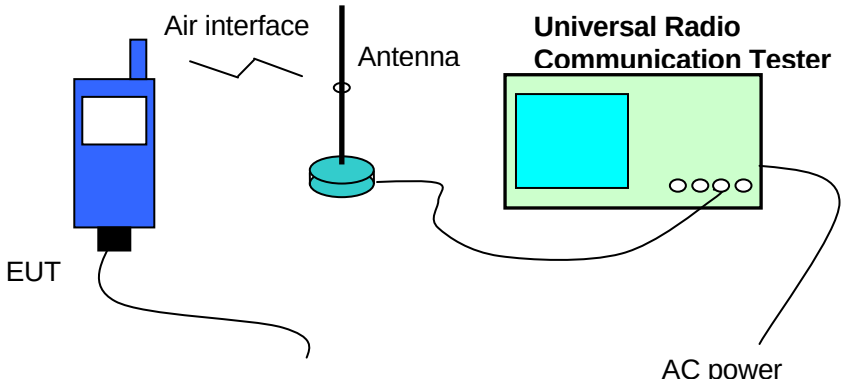


Figure 1.: Test Configuration

Idle Mode:

The EUT is required to be in the idle mode.

For WCDMA, the following conditions shall be met:
UE shall be camped on a cell;
UE shall perform Location Registration (LR) before the test, but not during the test;
UE's neighbour cell list shall be empty;
Paging repetition period and DRX cycle shall be set to minimum (shortest possible time interval).

For GSM850 and PCS1900, the following conditions shall be met::
When the EUT is required to be in the idle mode, the test system shall simulate a Base Station (BS) with Broadcast Control Channel/Common Control Channel (BCCH/CCCH) on one carrier. The EUT shall be synchronized to the BCCH, listening to the CCCH and able to respond to paging messages. Periodic Location Updating shall be disabled.

Please refer to following figure:

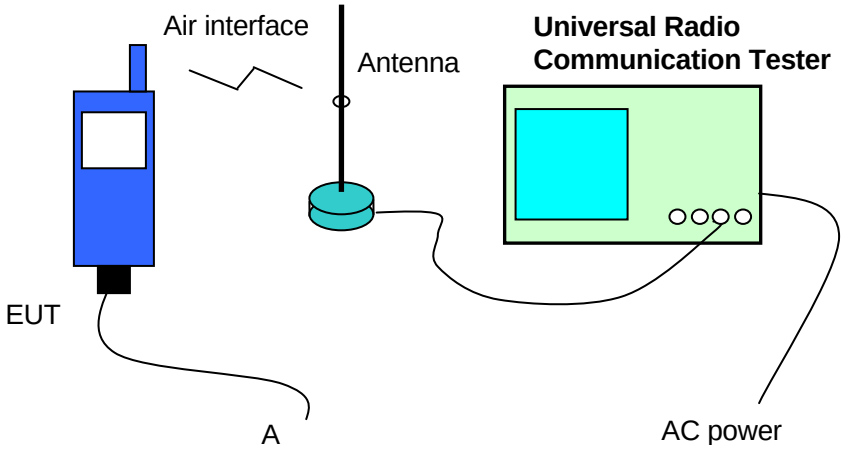


Figure 2. Test Configuration

5 Electromagnetic Interference (EMI)

5.1 Radiated Disturbance 30MHz to 18GHz

5.1.1 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 to18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV 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.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 k Hz

Measurement bandwidth: 1GHz – 18GHz: 1MHz

Test set up figure:

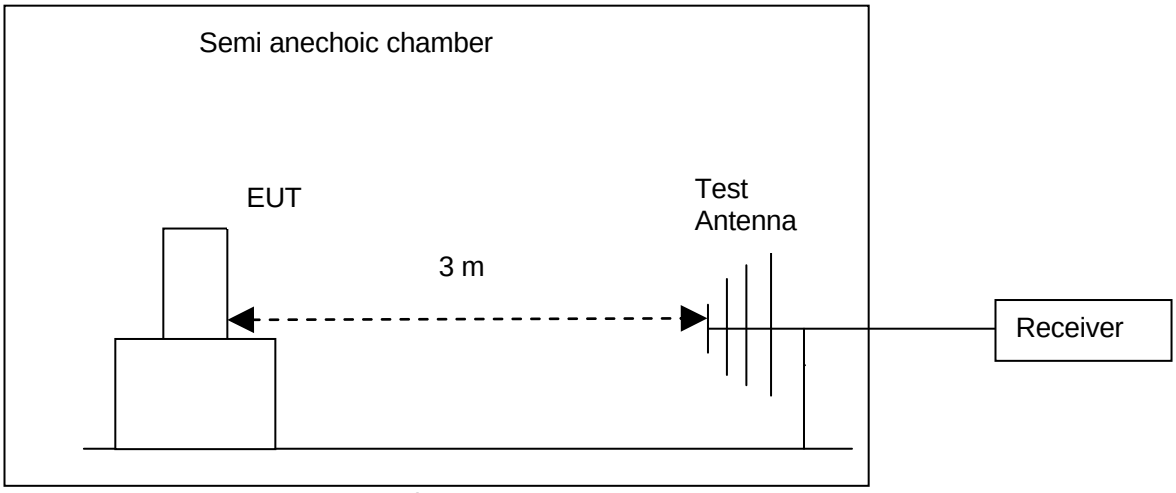


Figure 3. Test set-up

5.1.2 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.

Test Limits

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

5.2 Conducted Disturbance 0.15 MHz to 30MHz

5.2.1 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 150kz to 30 MHz: 9 kHz;

Test Set-up figure:

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

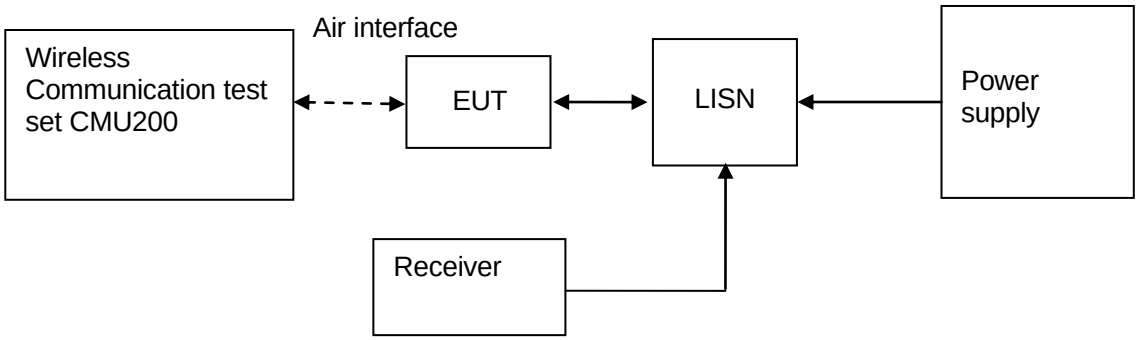


Figure 4. Test Set-up

5.2.2 Test Results

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

Test Limit of DC&AC Power Port

Frequency range	150kHz~ 30MHz	
Classification	Class B	
Limit(Class B)	Voltage limits	
	QP	AV
0.15MHz~0.5MHz	66~56 dBμV	56~46 dBμV
0.5MHz~5MHz	56 dBμV	46 dBμV
5MHz~30MHz	60 dBμV	50 dBμV

6 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	Jun.25, 2010	12
	Broadband Antenna	VULB 9163	SCHWARZBECK	May.15, 2010	12
	Horn Antenna	HF906	R&S	May.15, 2010	12
	LISN	ENV216	R&S	Jun.25.2010	12
Software Information					
Test Item	Software Name	Manufacturer	Version		
RE/CE	ES-K1	R&S	1.7.1		

7 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

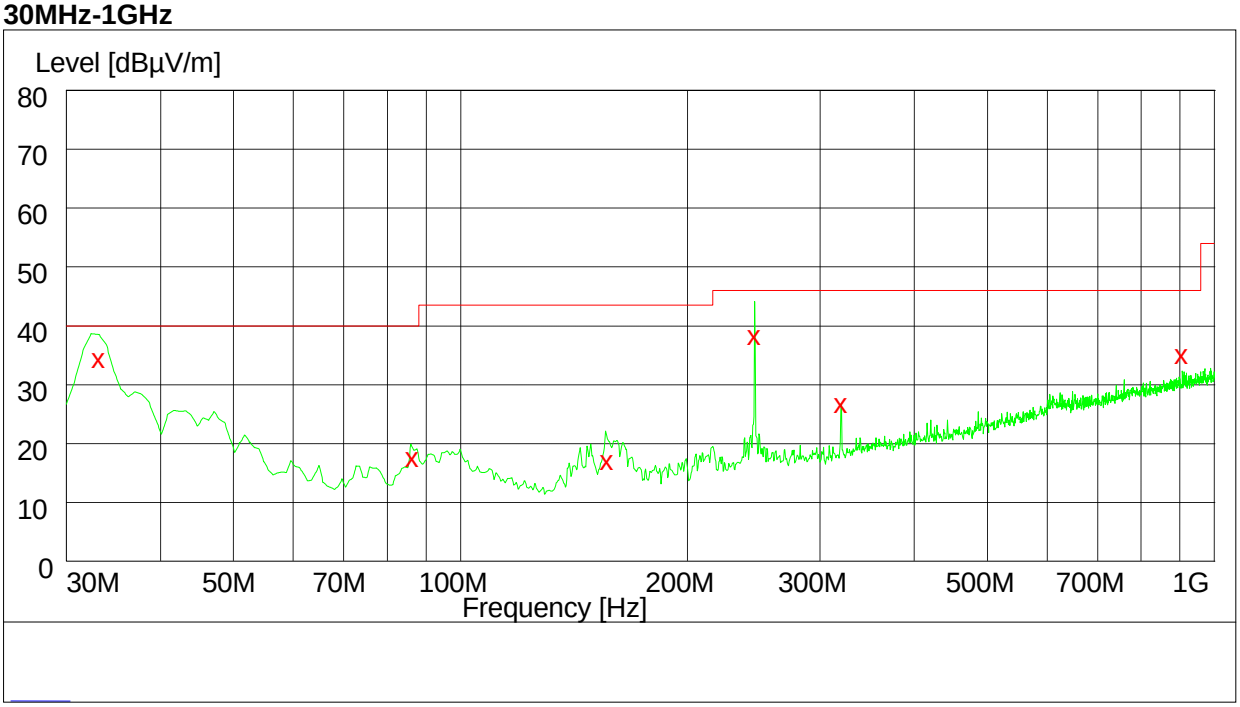
Items		Extended Uncertainty
RE	Field strength (dBμV/m)	U=4.1dB; k=2(30MHz-1GHz)
RE	Field strength (dBμV/m)	U=4.1dB; k=2(1GHz-18GHz)
CE	Disturbance Voltage (dBμV)	U=3.4dB; k=2

8 Graph and Data of Emission Test

8.1 Radiated Disturbance

This test was carried out in all the test modes, Here only the worst test result was shown.

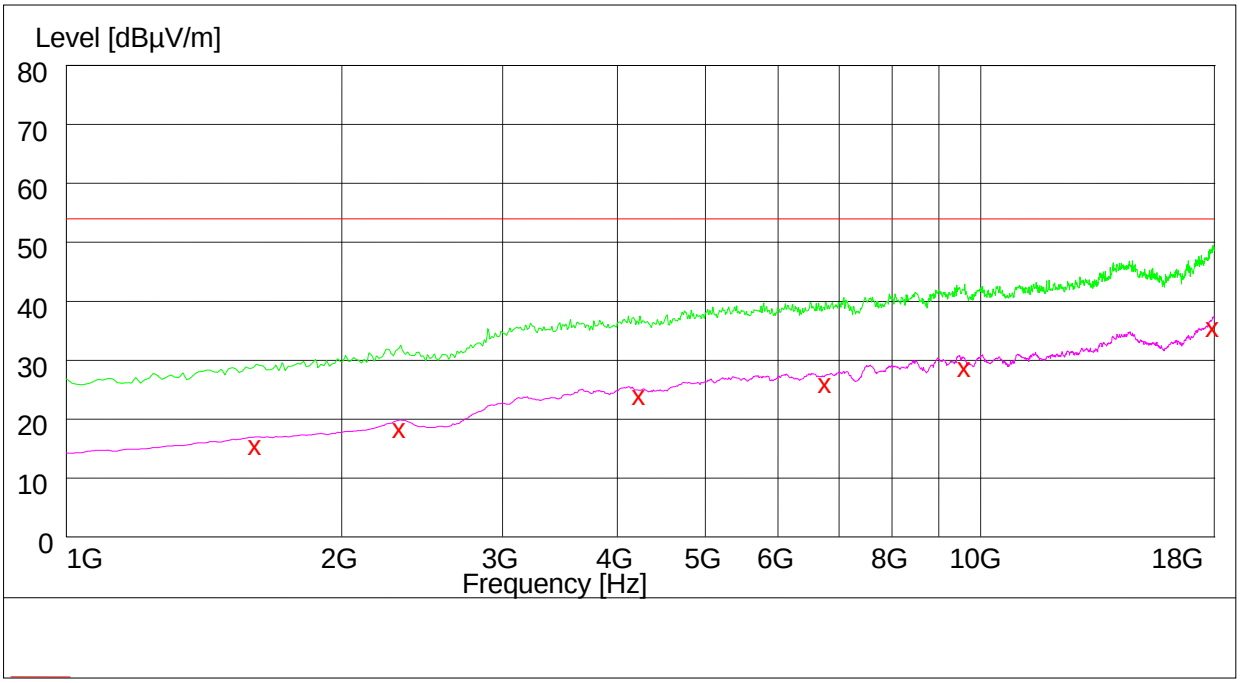
30MHz-1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.120000	35.60	11.7	40.0	4.4	100.0	41.00	VERTICAL
86.400000	18.80	10.6	40.0	21.2	127.0	103.00	VERTICAL
156.600000	18.40	9.4	43.5	25.1	100.0	108.00	VERTICAL
245.760000	38.40	14.1	46.0	7.6	146.0	83.00	HORIZONTAL
319.980000	27.20	16.0	46.0	18.8	118.0	179.00	HORIZONTAL
906.240000	34.20	26.2	46.0	11.8	102.0	249.00	VERTICAL

1GHz-18GHz



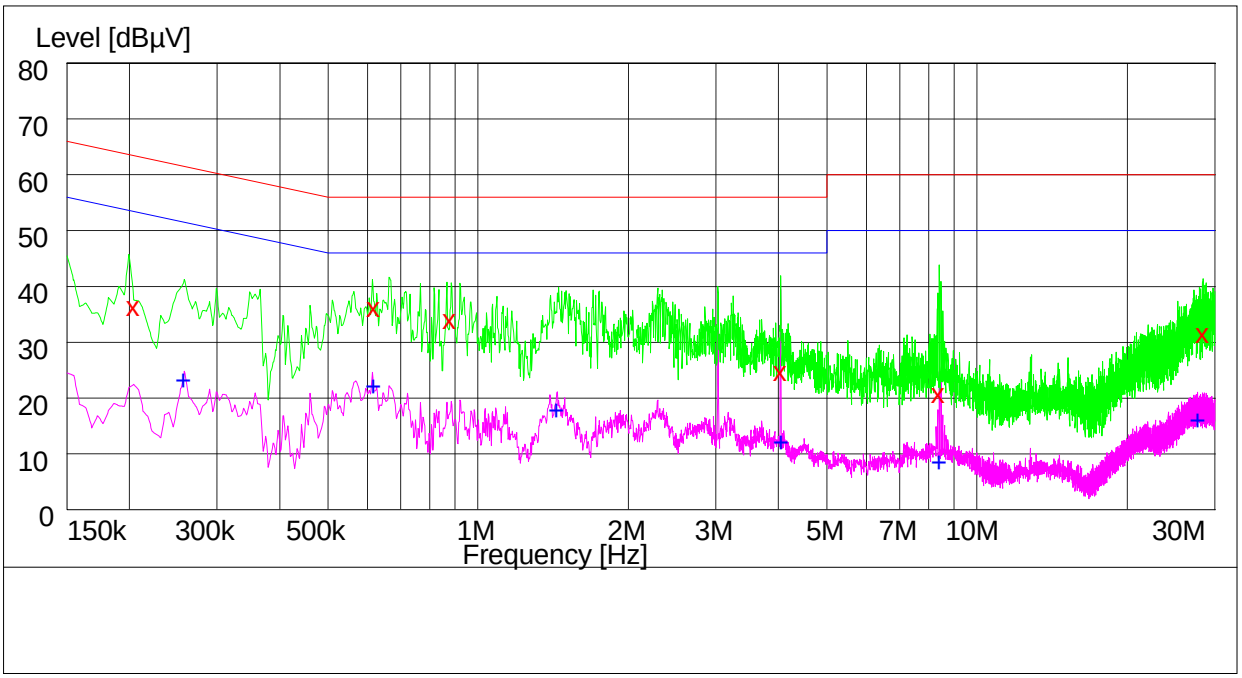
MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1611.000000	16.70	-14.3	54.0	37.3	138.0	243.00	VERTICAL
2316.500000	19.60	-11.7	54.0	34.4	137.0	268.00	VERTICAL
4236.000000	25.10	-5.3	54.0	28.9	122.0	87.00	HORIZONTAL
6765.000000	27.20	-0.5	54.0	26.8	123.0	314.00	VERTICAL
9609.500000	29.90	5.1	54.0	24.1	200.0	137.00	VERTICAL
17940.500000	36.60	16.9	54.0	17.4	199.0	287.00	VERTICAL

8.2 Conducted Disturbance

This test was carried out in all the test modes, Here only the worst test result was shown.

AC Power Port Test Data



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.204000	37.70	10.1	63	25.3	N	FLO
0.620000	37.50	10.1	56	18.5	N	FLO
0.878000	34.60	10.1	56	21.4	N	FLO
4.048000	24.90	10.2	56	31.1	N	FLO
8.378000	20.70	10.2	60	39.3	N	FLO
28.438000	31.80	10.4	60	28.2	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.256000	23.10	10.0	52	28.9	N	FLO
0.616000	22.30	10.1	46	23.7	N	FLO
1.434000	19.10	10.1	46	26.9	N	FLO
4.044000	12.60	10.2	46	33.4	N	FLO
8.386000	9.80	10.2	50	40.2	N	FLO
27.716000	17.30	10.4	50	32.7	N	FLO

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