FCC
RF Test Report

Product Name: Smart Phone

Model Number: BLA-A09

Report No.: SYBH(Z-RF)011112017-2006

FCC ID：QISBLA-A09

Reliability Laboratory of Huawei Technologies Co., Ltd.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd)

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Tel: +86 755 28780808 Fax: +86 755 89652518

Notice

1. The laboratory has passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
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 recognized by the US Federal Communications Commission (FCC) to perform compliance testing subject to the Commission's Declaration Of Conformity (DOC) and Certification rules. The Designation Number is CN1173, and the Test Firm Registration Number is 294140.
4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1.
5. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named “Global Compliance and Testing Center of Huawei Technologies Co., Ltd”, the both names have coexisted since 2009.
6. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
7. The test report is invalid if there is any evidence of erasure and/or falsification.
8. The test report is only valid for the test samples.
9. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

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 Sample:	2017-11-13
Start Date of Test:	2017-11-13
End Date of Test:	2017-12-07
Test Result:	Pass

Approved by Senior Engineer:	2017-12-07	Roger zhang	Roger Zhang
	Date	Name	Signature
Prepared by:	2017-12-07	Hexiaolin	Hexiaolin
	Date	Name	Signature

Contents

1 General Information

1.1 Applied Standard	
Applied Rules:	47 CFR FCC Part 02 FCC Part 15 Subpart C (15.225)
1.2 Test Location	
Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
1.3 Test Environmental Condition	
Ambient Temperature:	20 – 25 °C
Ambient Relative Humidity:	45 – 55 %
Atmospheric Pressure:	101 kPa

2 Summary

FCC Part Section	IC Part Section	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE						
15.225 (a)		In-Band Emissions	15,848μV/m @ 30m 13.553 – 13.567 MHz	RADIATED	Pass	Section 5.2
2.1049		20 dB Bandwidth	N/A		Pass	Section 5.1
15.225(b)		In-Band Emissions	334μV/m @ 30m 13.410 – 13.553 MHz 13.567 – 13.710 MHz		Pass	Section 5.2
15.225(c)		In-Band Emissions	106μV/m @ 30m 13.110 – 13.410 MHz 13.710 – 14.010 MHz		Pass	Section 5.2
15.225(d) 15.209		Out-of-Band Emissions	Emissions outside of the specified band (13.110 – 14.010 MHz) must meet the radiated limits detailed in 15.209		Pass	Section 5.3
15.225(e)		Frequency Stability Tolerance	± 0.01% of Operating Frequency	Temperature Chamber	Pass	Section 5.4
15.207		AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 limits	LINE CONDUCTED	Pass	Section 5.5

3 Product Description

3.1 Product Information

3.1.1 General Description

BLA-A09 is subscriber equipment in the LTE/ WCDMA/GSM system. The LTE frequency band is Band 1,Band 2,Band 3,Band 4,Band 5, Band 7,Band 8, Band 12,Band14, Band 18 , Band 20, Band 28, Band 29, Band 30,Band 66,Band 46,and Band39. The HSUPA/HSDPA/UMTS frequency band is Band I, Band II, Band IV, Band V, and Band VIII,. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900,. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/ WCDMA /GSM protocol processing, voice, video, MMS service, GPS, NFC and WIFI etc. Externally it provides earphone port (to provide voice service) and dual USIM card interfaces. 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.

NOTE:Only NFC test data included in this report.

3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.2.1 Board

Board		
Description	Hardware Version	Software Version
Main Board	HL2BLAM	BLA-A09 8.0.0.55(SP10C07)

3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
Adapter	HW-050450U00	Huawei Technologies Co., Ltd.	Input Voltage: 100V-240V~50/60Hz, 0.75A Output Voltage: 5V ⎓ 2A OR4.5V ⎓ 5A OR 5V ⎓ 4.5A Rated Power：10W/22.5W
Battery	HB436486ECW	Huawei Technologies Co., Ltd.	Rated capacity: 3900mAh Nominal Voltage: ⎓ +3.82V Charging Voltage: ⎓ +4.4V

4 Main Test Instruments

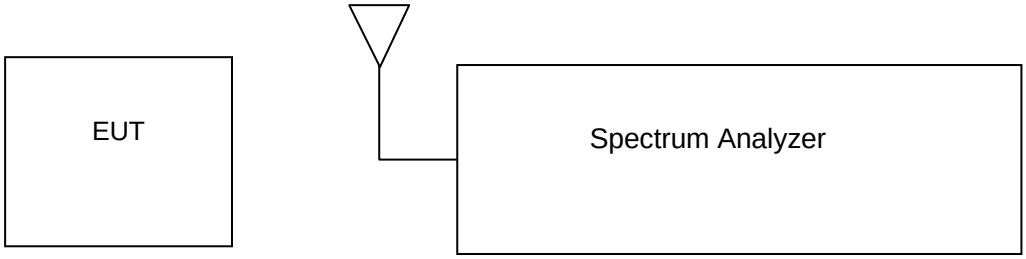
Main Test Equipments					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal- Due
Power supply	KEITHLEY	2303	000500E	2017/5/31	2018/5/30
Signal Analyzer	R&S	FSQ31	200021	2017/7/31	2018/7/30
Spectrum Analyzer	Agilent	N9030A	MY49431698	2017/7/31	2018/7/30
Temperature Chamber	WEISS	WKL64	56246002940010	2016/12/21	2017/12/20
Signal generator	Agilent	E8257D	MY49281095	2017/7/31	2018/7/30
Vector Signal Generator	R&S	SMU200A	104162	2017/7/31	2018/7/30
Test receiver	R&S	ESU26	100387	2017/2/21	2018/2/20
Test receiver	R&S	ESCI	101163	2017/2/21	2018/2/20
Spectrum analyzer	R&S	FSU3	200474	2017/2/21	2018/2/20
Spectrum analyzer	R&S	FSU43	100144	2017/2/21	2018/2/20
LOOP Antennas(9kHz-30MHz)	R&S	HFH2-Z2	100262	2017/4/25	2019/4/25
LOOP Antennas(9kHz-30MHz)	R&S	HFH2-Z2	100263	2017/4/25	2019/4/25
Trilog Broadband Antenna (30M~3GHz)	SCHWARZBECK	VULB 9163	9163-490	2017/3/29	2019/3/29
Trilog Broadband Antenna (30M~3GHz)	SCHWARZBECK	VULB 9163	9163-521	2017/4/9	2019/4/9
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100304	2017/5/27	2019/5/27
Pyramidal Horn Antenna(18GHz-26.5GHz)	ETS-Lindgren	3160-09	206665	2017/3/24	2018/3/23
Artificial Main Network	R&S	ENV4200	100134	2017/5/15	2018/5/14
Line Impedance Stabilization Network	R&S	ENV216	100382	2017/5/15	2018/5/14
Software Information					
Test Item	Software Name	Manufacturer			Version
RE	EMC32	R&S			V9.25.0
CE	EMC32	R&S			V9.25.0

5 Test Results

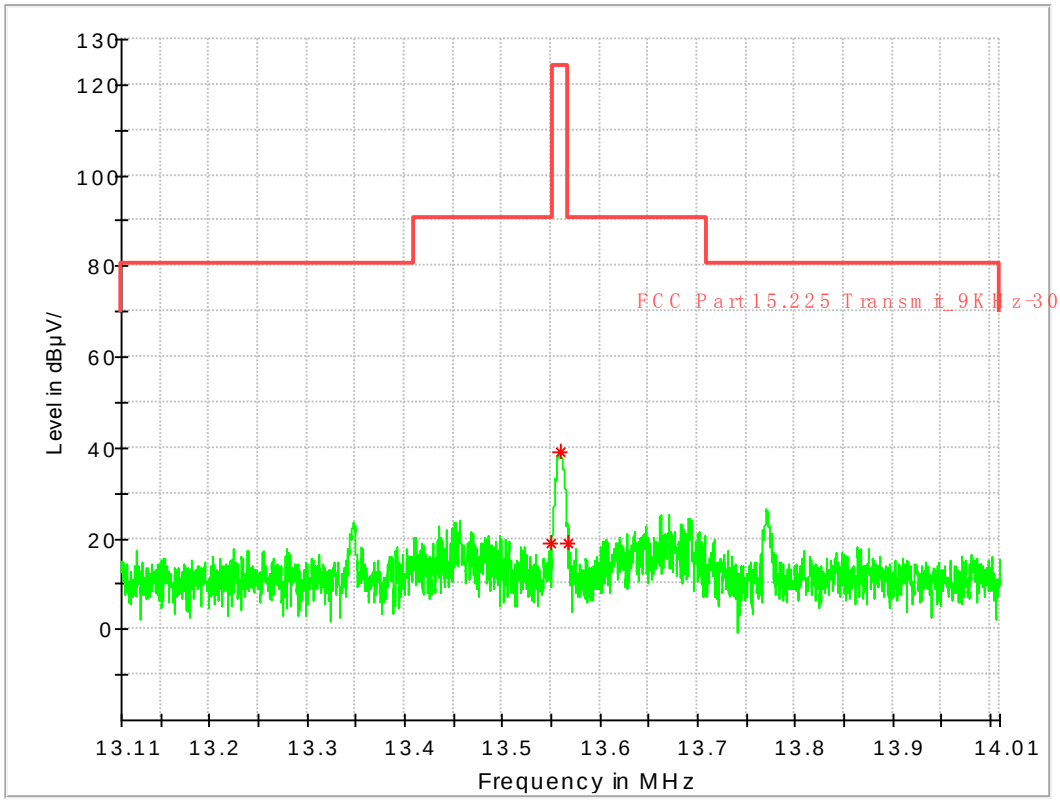
5.1 20dB Bandwidth Measurement

The 20dB bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

5.1.1 Test Setup



5.1.2 Test Result

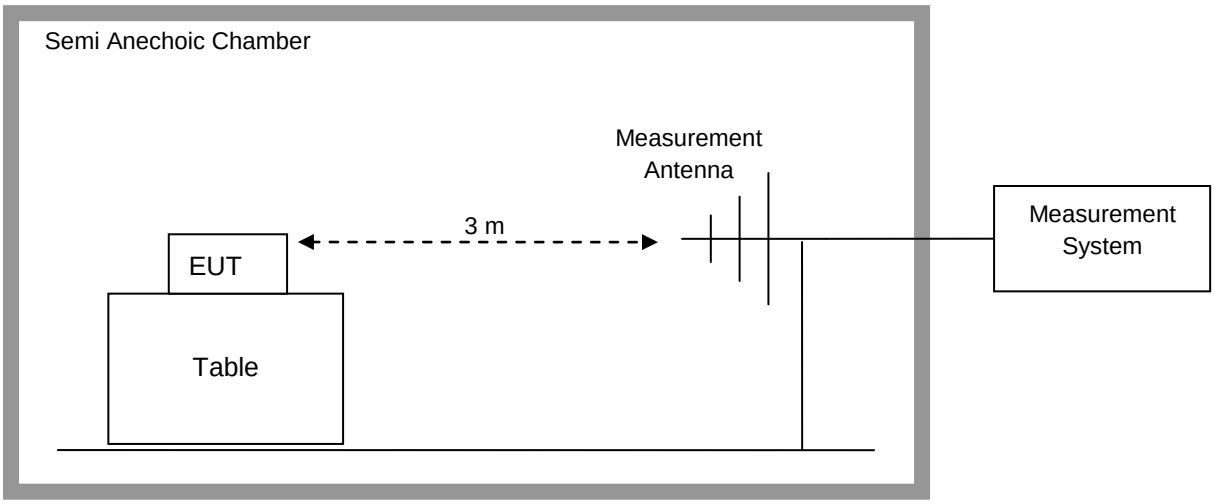


OBW (KHz)	FL@OBW (MHz)	FH@OBW (MHz)	Verdict
17.287	13.551315	13.568602	PASS

The result of the measurement is passed.

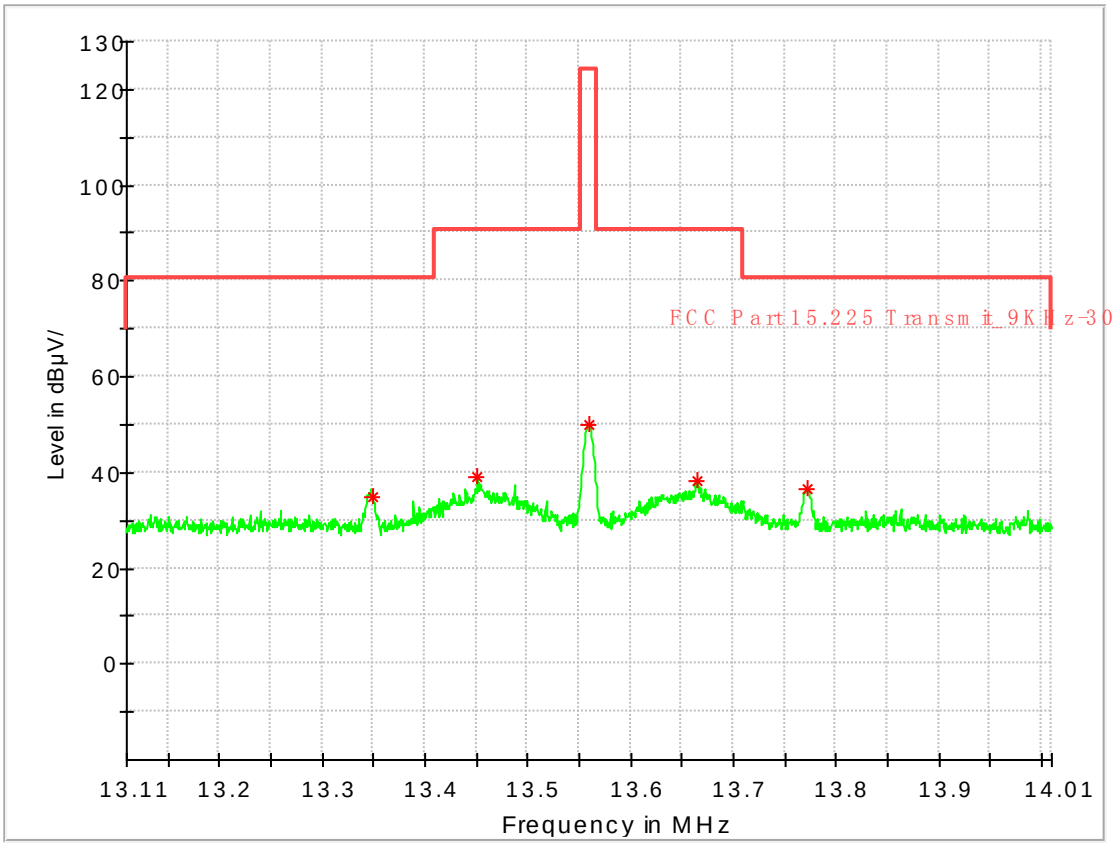
5.2 In-Band Radiated Spurious Emission Measurements

5.2.1 Test Setup



Measurement parameters	
Detector:	Quasi Peak
Sweep time:	-/-
Resolution bandwidth:	10 kHz
Video bandwidth:	10 kHz
Span:	-/-
Trace-Mode:	Max Hold

5.2.2 Test Result



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)	Transd (dB)
13.344672	35.72	80.50	44.78	275.0	-51.4
13.453773	39.92	90.50	50.58	184.0	-51.4
13.558724	49.92	124.00	74.08	171.0	-51.4
13.664331	38.20	90.50	52.30	181.0	-51.4
13.771646	37.48	80.50	43.02	255.0	-51.4

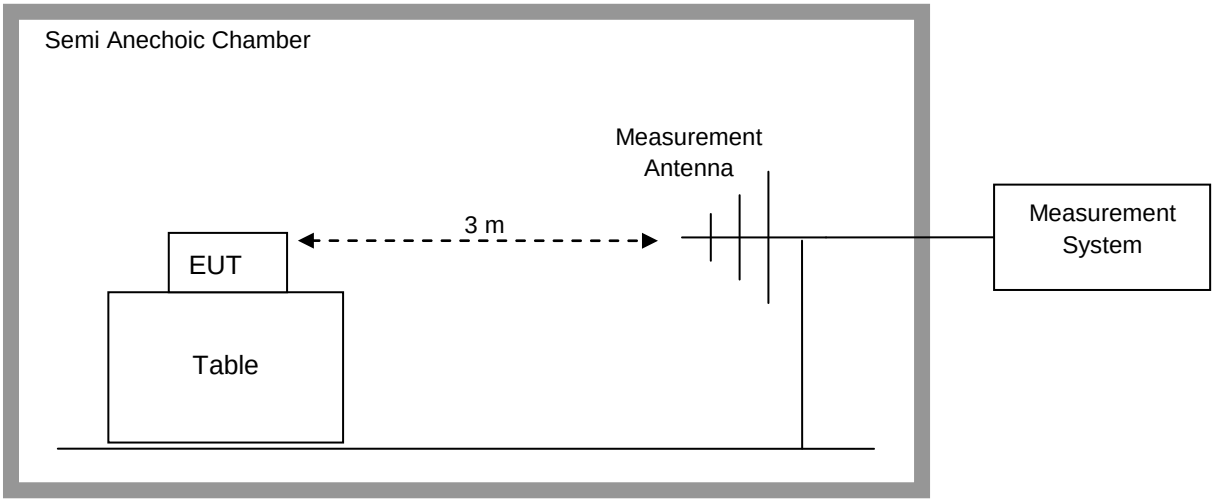
NOTES:

1. All measurements were performed using a loop antenna. The antenna was positioned in three orthogonal positions (X front, Y side, Z top) and the position with the highest emission level was recorded.
2. Measurements were performed at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2). Extrapolation Factor = 20 log10(30/3)2 = 40dB
3. All measurements were recorded using a spectrum analyzer employing a quasi-peak detector.
4. 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.
5. Margin=Limit - Level

The result of the measurement is passed.

5.3 Radiated Spurious Emission Measurements, Out-of-Band

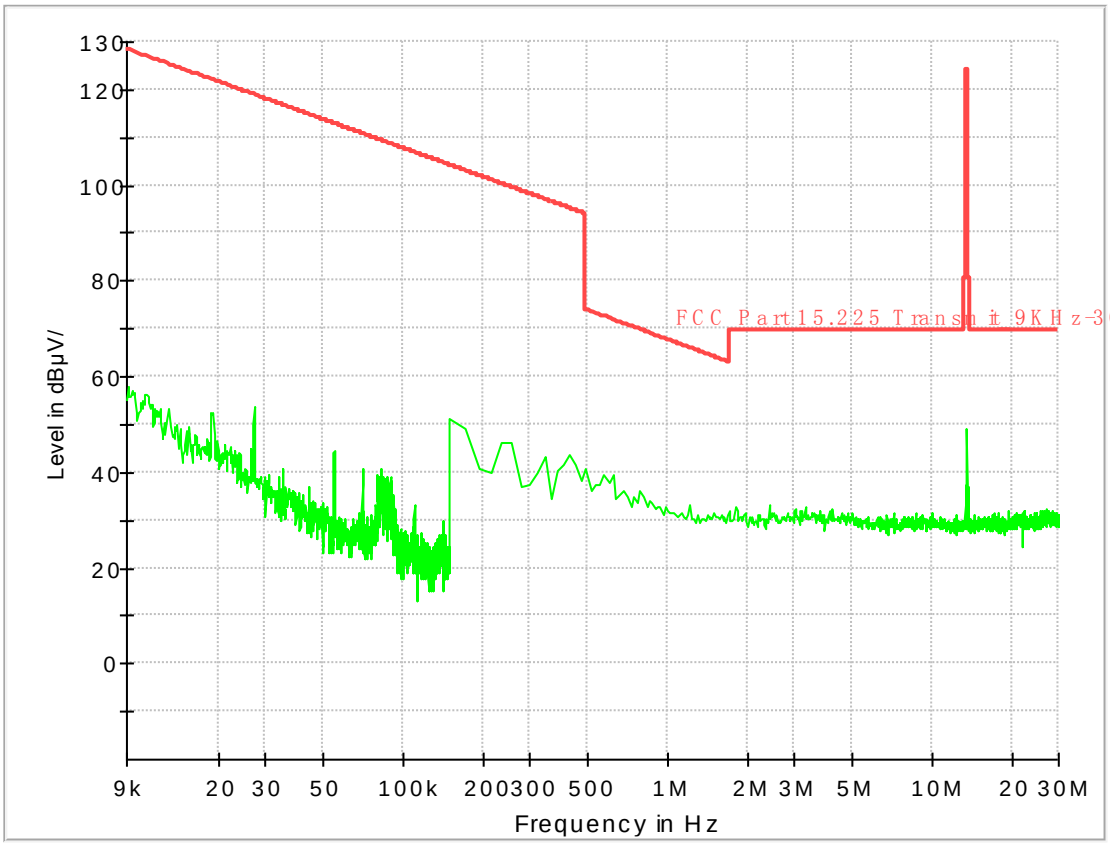
5.3.1 Test Setup



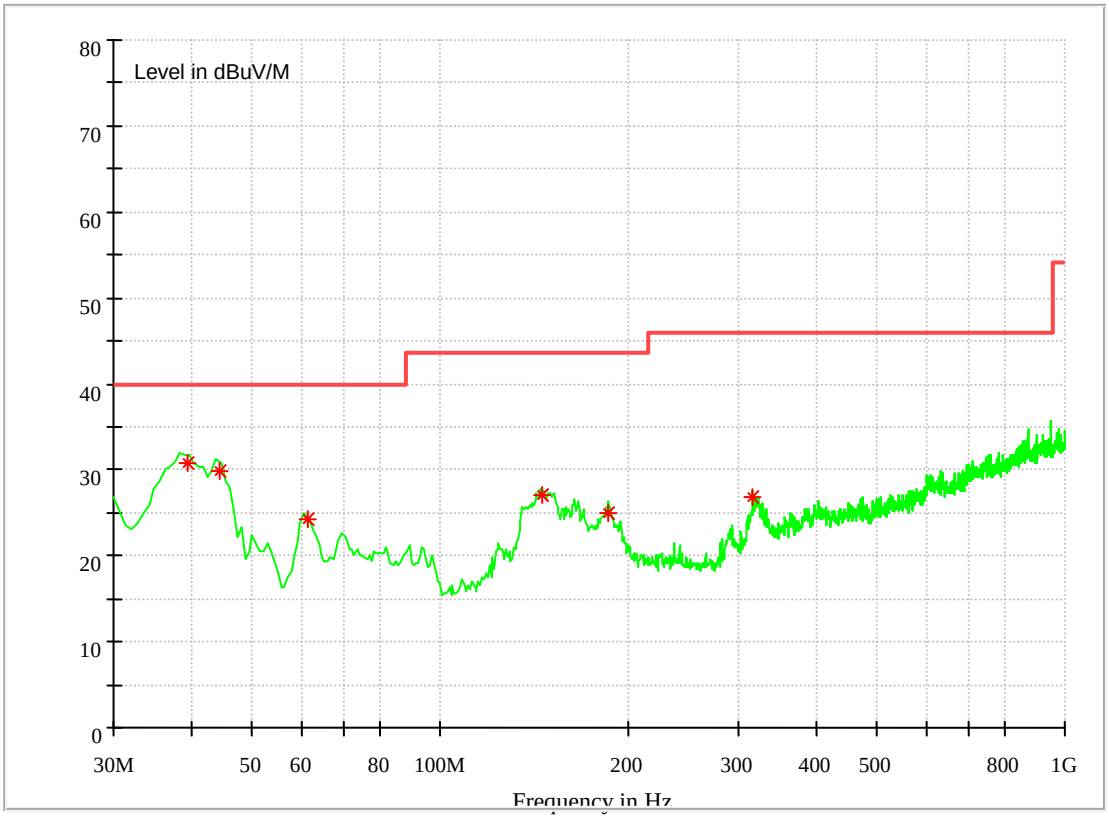
Measurement parameters	
Detector:	Quasi Peak
Sweep time:	Auto
Resolution bandwidth:	9 kHz – 150 kHz: 200 Hz 150 kHz – 30 MHz: 9 kHz 30 MHz – 1000 MHz: 100 kHz
Video bandwidth:	9 kHz – 150 kHz: 200 Hz 150 kHz – 30 MHz: 9 kHz 30 MHz – 1000 MHz: 100 kHz
Span:	See Plots
Trace-Mode:	Max Hold

5.3.2 Test Result

9k~30MHz



30M~1GHz



Frequency (MHz)	Level (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
39.438857	30.81	40.00	9.19	101.0	V	345.0	17.0
44.500000	29.79	40.00	10.21	111.0	V	75.0	16.6
61.505714	24.31	40.00	15.69	109.0	V	306.0	11.5
145.266286	27.11	43.50	16.39	100.0	V	316.0	12.9
185.608286	24.92	43.50	18.58	100.0	V	268.0	12.0
316.962857	26.76	46.00	19.24	100.0	H	327.0	17.0

NOTES:

1. All measurements were recorded using a spectrum analyzer employing a quasi-peak detector for emissions below 960MHz.
2. Both Vertical and Horizontal polarities of the receive antenna were evaluated with the worst case emissions being reported. Below 30MHz the Loop antenna was positioned in 3 separate radials.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.

5. 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.
6, Margin=Limit - Level

The result of the measurement is passed.

5.4 Frequency Stability

5.4.1 Test Setup

The EUT was placed in a Climatic Chamber. A small whip antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer. Measurement performed without modulation on TX.

5.4.2 Test Result

VOLTAGE (%)	POWER Battery	TEMP (ºC)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100%		-20	13559982	-18	-0.0000013274336
100%		-10	13559983	-17	-0.0000012536873
100%		0	13560016	16	0.0000011799410
100%		10	13560016	16	0.0000011799410
100%		20	13560009	9	0.0000006637168
100%		30	13560017	17	0.0000012536873
100%		40	13560015	15	0.0000011061947
100%		50	13559986	-14	-0.0000010324484
Battery End Point	3.6	20	13560015	15	0.0000011061947
115%	4.35	20	13559986	-14	-0.0000010324484

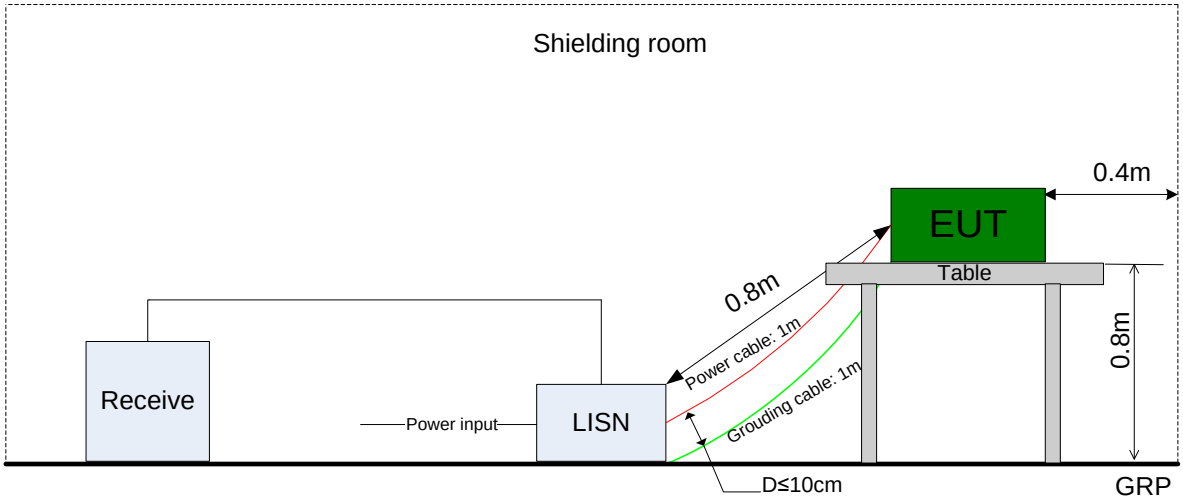
The result of the measurement is passed.

5.5 AC Power Line Conducted Emissions

5.5.1 Test Setup

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.



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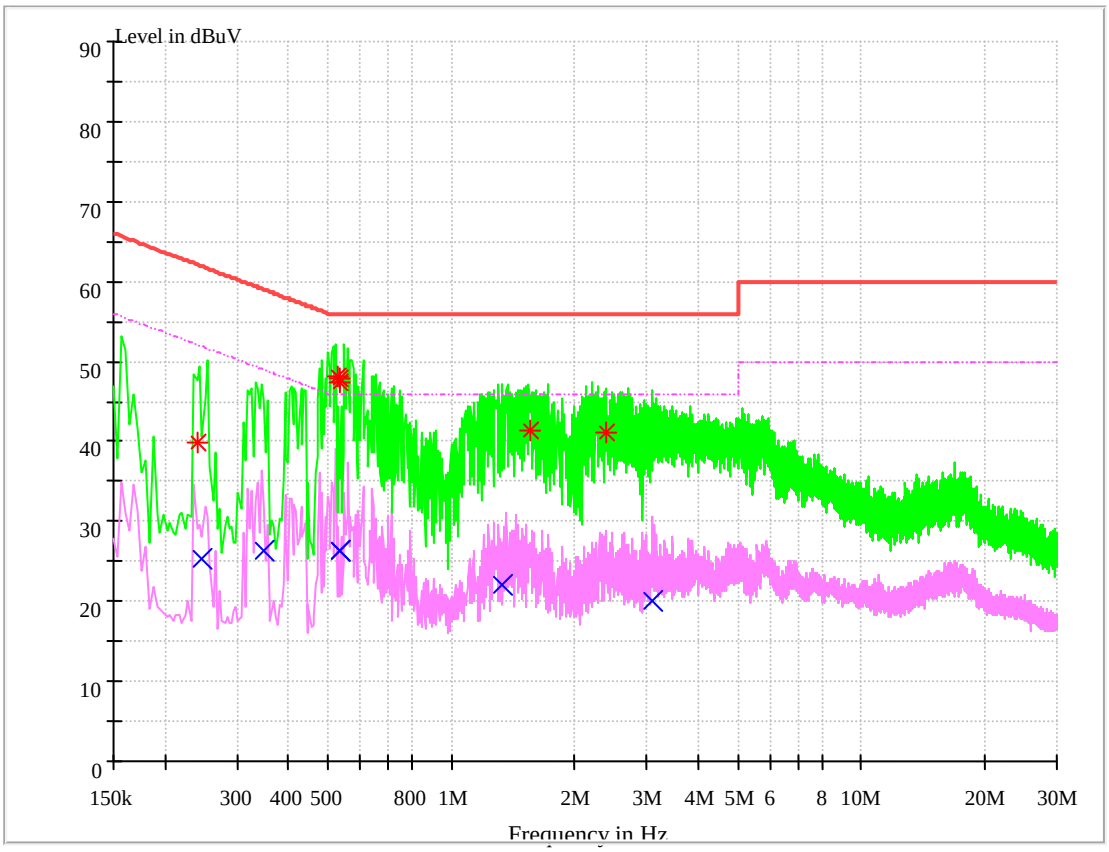
5.5.2 Test Result



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dBμ V)	Limit (dBμ V)	Transd. (dB)	Margin (dB)	Line	PE
0.246950	25.24	51.86	9.7	26.62	L1	FLO
0.350451	26.33	48.95	9.7	22.62	N	FLO
0.533405	26.32	46.00	9.7	19.68	L1	FLO
0.533539	26.24	46.00	9.7	19.76	L1	FLO
1.328889	22.01	46.00	9.7	23.99	N	FLO
3.083494	20.11	46.00	9.7	25.89	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμ V)	Limit (dBμ V)	Transd. (dB)	Margin (dB)	Line	PE
0.239794	39.82	62.10	9.7	22.28	N	FLO
0.530991	48.09	56.00	9.7	7.91	N	FLO
0.532858	47.27	56.00	9.7	8.73	L1	FLO
0.533442	47.78	56.00	9.7	8.22	N	FLO
1.551011	41.36	56.00	9.7	14.64	N	FLO
2.377731	41.02	56.00	9.7	14.98	N	FLO

Note1:

1, 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.

2, Margin=Limit - Level

The result of the measurement is passed.

----------The END----------