

🦠 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE180605203

FCC REPORT

Applicant: Sun Cupid Technology (HK) Ltd.

Address of Applicant: 16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan,

Kowloon, Hong Kong.

Equipment Under Test (EUT)

Product Name: LTE mobile phone

Model No.: N5501L, A5L

Trade mark: NUU

FCC ID: 2ADINN5501L

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 20 Jun., 2018

Date of Test: 20 Jun., to 16 Jul., 2018

Date of report issued: 25 Jul., 2018

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	25 Jul., 2018	Original

Tested by: Date: 25 Jul., 2018

Test Engineer

Reviewed by: Date: 25 Jul., 2018

Project Engineer



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Test Summary

Section in CFR 47	Result	
15.203 & 15.247 (c)	Pass	
15.207	Pass	
15.247 (b)(3)	Pass	
15.247 (a)(2)	Pass	
15.247 (e)	Pass	
15.247 (d)	Pass	
15.205 & 15.209	Pass	
	15.203 & 15.247 (c) 15.207 15.247 (b)(3) 15.247 (a)(2) 15.247 (e) 15.247 (d)	

N/A: Not Applicable.





5 General Information

5.1 Client Information

Applicant:	Sun Cupid Technology (HK) Ltd.
Address:	16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer:	Sun Cupid Technology (HK) Ltd.
Address:	16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong.
Factory:	SUNCUPID (ShenZhen) Electronic Ltd
Address:	Baolong Industrial City, Longgang District, Shenzhen Hi-Tech Road, Building 1, A 7, China.

5.2 General Description of E.U.T.

Product Name:	LTE mobile phone
Model No.:	N5501L, A5L
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g/802.11(H20) 7 for 802.11n(H40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Internal Antenna
Antenna gain:	-1.74dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-2650mAh
AC adapter:	Adapter(1) Model: HNBL050100UX Input: AC100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1.0A Adapter(2) Model: HJ-0501000E1-US Input: AC100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1.0A Adapter(3) Model: HJ-0501000B3-EU Input: AC100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1.0A
Remark:	1. The No.: N5501L, A5L were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference



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being model name and trademark.
2. adapter (1) have different pins and the internal structure is the same,
so there is no need to do the difference test.

Operation Fr	Operation Frequency each of channel for 802.11b/g/n(H20)								
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency		
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz		
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz		
3	2422MHz	6	2437MHz	9	2452MHz				

Note:

- 1. For 802.11n-HT40 mode, the channel number is from 3 to 9;
- 2. Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel, Channel; 3, 6 & 9 selected for 802.11n-HT40 as Lowest, Middle and Highest channel, Channel.

5.3 Test environment and test mode

Operating Environment:		
Temperature:	24.0 °C	
Humidity:	54 % RH	
Atmospheric Pressure:	1010 mbar	
Test mode:		

Transmitting mode Keep the EUT in continuous transmitting with modulation

The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

We have verified the construction and function in typical operation. All the test modes were carried out with

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate, the follow list were the worst case.				
Mode Data rate				
802.11b	1Mbps			
802.11g	6Mbps			
802.11n(H20)	6.5Mbps			
802.11n(H40)	13.5Mbps			

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Expanded Uncertainty		
±2.22 dB (k=2)		
±2.76 dB (k=2)		
±4.28 dB (k=2)		
±5.72 dB (k=2)		
±2.88 dB (k=2)		

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China

Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366



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5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC - Registration No.: 727551

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

• IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

• CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.8 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-16-2018	03-15-2019
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2018	03-15-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	03-07-2018	03-06-2019
Pre-amplifier	CD	PAP-1G18	11804	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2018	03-06-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2018	03-06-2019
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2018	03-06-2019
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2018	03-06-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2018	03-06-2019





Conducted Emission:							
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)		
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2018	03-06-2019		
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2018	03-06-2019		
LISN	CHASE	MN2050D	1447	03-19-2018	03-18-2019		
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2018	07-20-2019		
Cable	HP	10503A	N/A	03-07-2018	03-06-2019		
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A		



6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:

FCC Part 15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The WiFi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is -1.74 dBi.







6.2 Conducted Emission

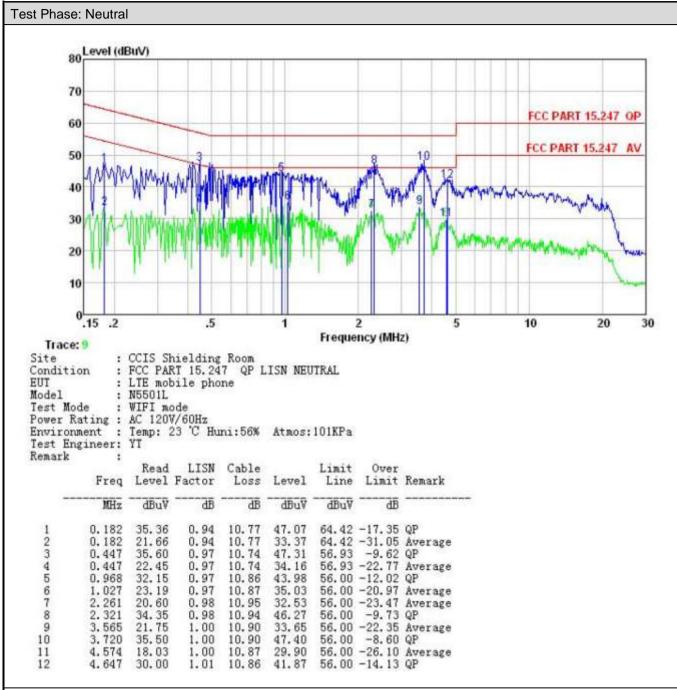
Test Requirement:	FCC Part 15 C Section 1	5.207			
Test Method:	ANSI C63.10: 2013	ANSI C63.10: 2013			
Test Frequency Range:	150 kHz to 30 MHz	150 kHz to 30 MHz			
Class / Severity:	Class B				
Receiver setup:	RBW=9 kHz, VBW=30 k	Hz			
Limit:	Frequency range	Limit (rs are connected to the main power through a tion network (L.I.S.N.), which provides a needlance for the measuring equipment. are also connected to the main power through 00hm/50uH coupling impedance with 500hm er to the block diagram of the test setup and are checked for maximum conducted find the maximum emission, the relative and all of the interface cables must be changed 4: 2014 on conducted measurement.		
	(MHz)				
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5				
	5-30		50		
	* Decreases with the log				
Test procedure	line impedance stab 50ohm/50uH couplin 2. The peripheral device a LISN that provides termination. (Please photographs). 3. Both sides of A.C. li interference. In order	illization network (L.I.S.N.) ing impedance for the measures are also connected to the above as a 500hm/50uH coupling it is refer to the block diagram are checked for maximum entitient and all of the interface	which provides a suring equipment. The main power through mpedance with 500hm of the test setup and the conducted ssion, the relative cables must be changed		
Test setup:	AUX Equipment Test table/Insula Remark E.U.T. Equipment Under LISN Line impedence St. Test table height=0.8m	E.U.T EMI Receiver			
Test Instruments:	Refer to section 5.8 for d	etails			
Test mode:	Refer to section 5.3 for d	etails			
Test results:	Passed				





Adapter (1)

Measurement Data:

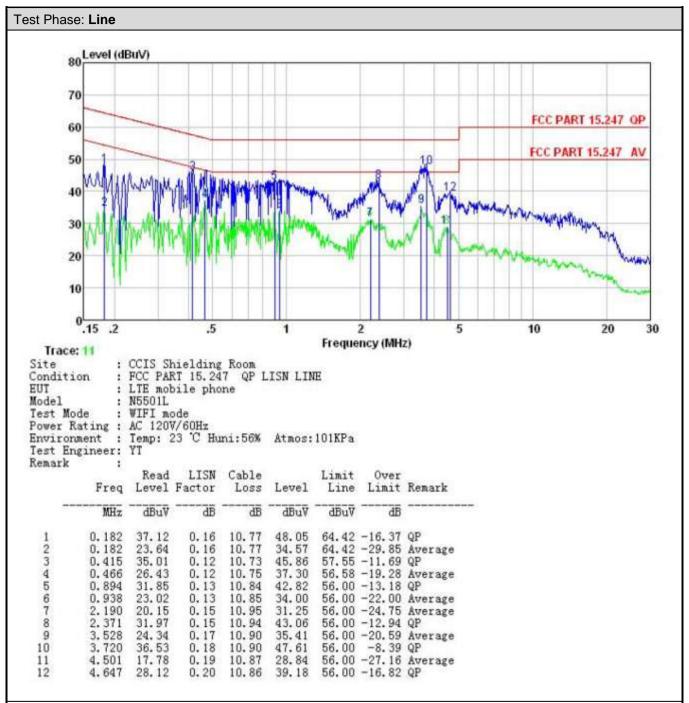


Notes

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level =Receiver Read level + LISN Factor + Cable Loss.







Notes:

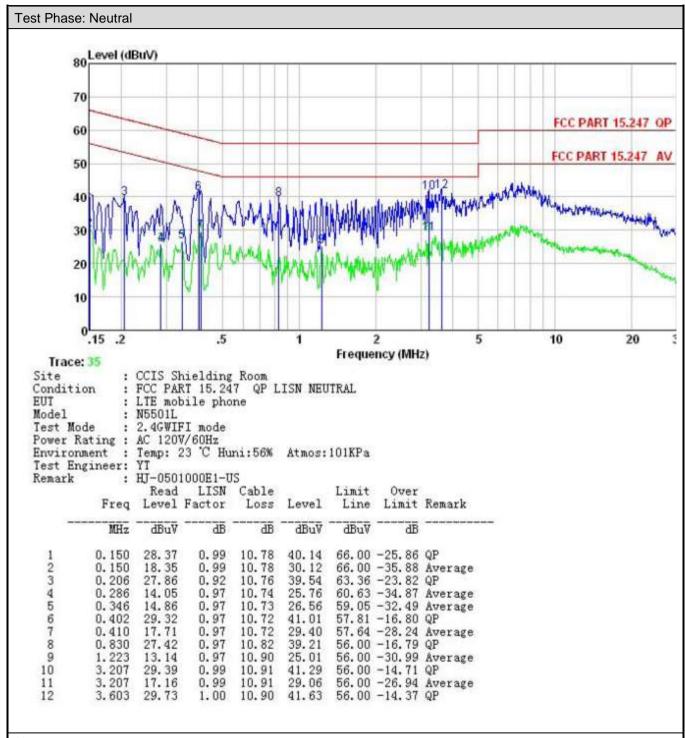
- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level =Receiver Read level + LISN Factor + Cable Loss.





Adapter (2)

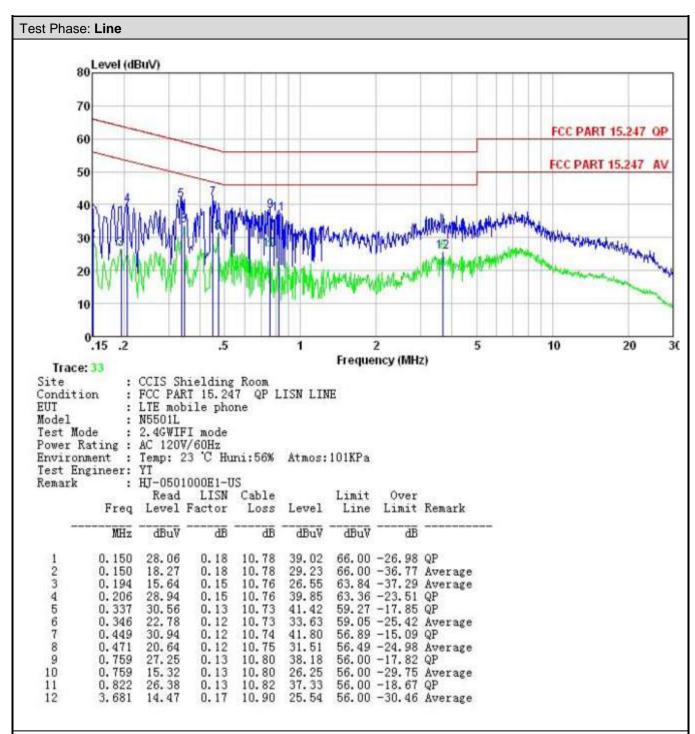
Measurement Data:



Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.





Notes

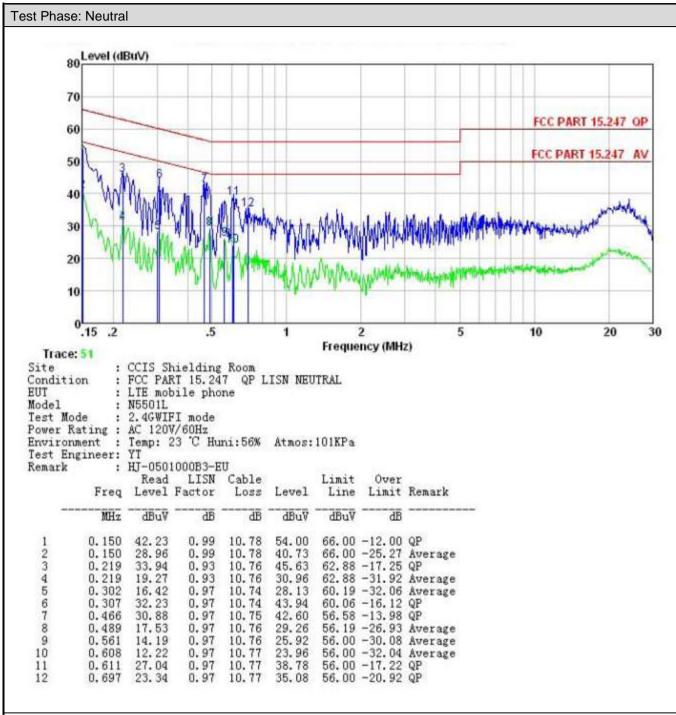
- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.





Adapter (3)

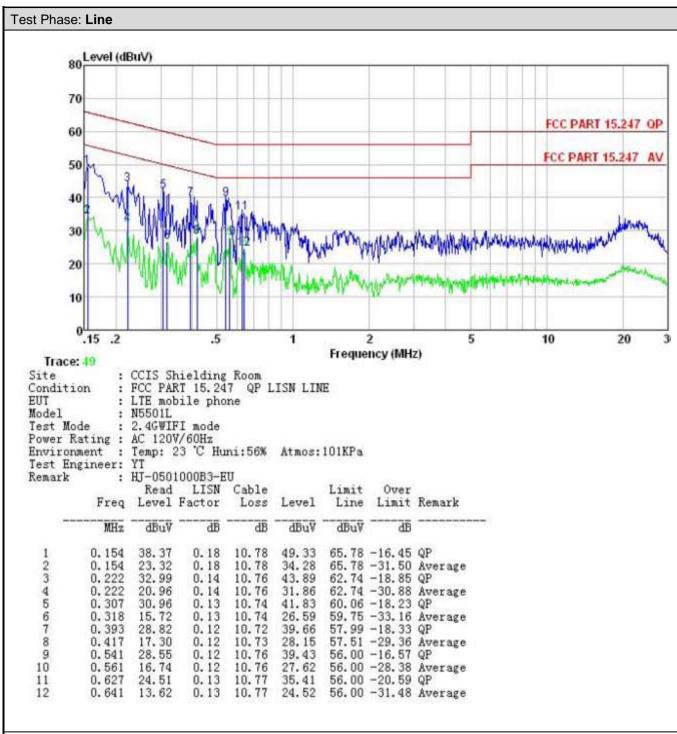
Measurement Data:



Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.



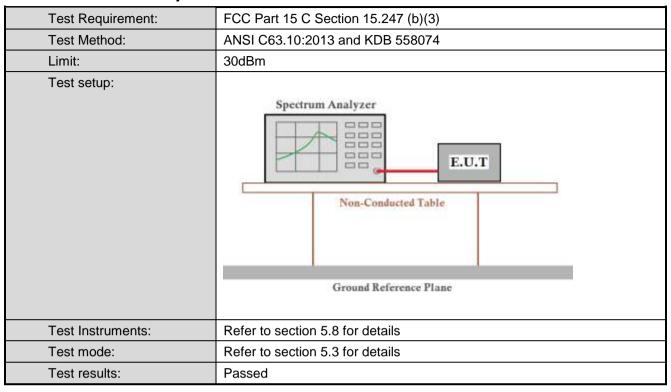


Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level =Receiver Read level + LISN Factor + Cable Loss.



6.3 Conducted Output Power

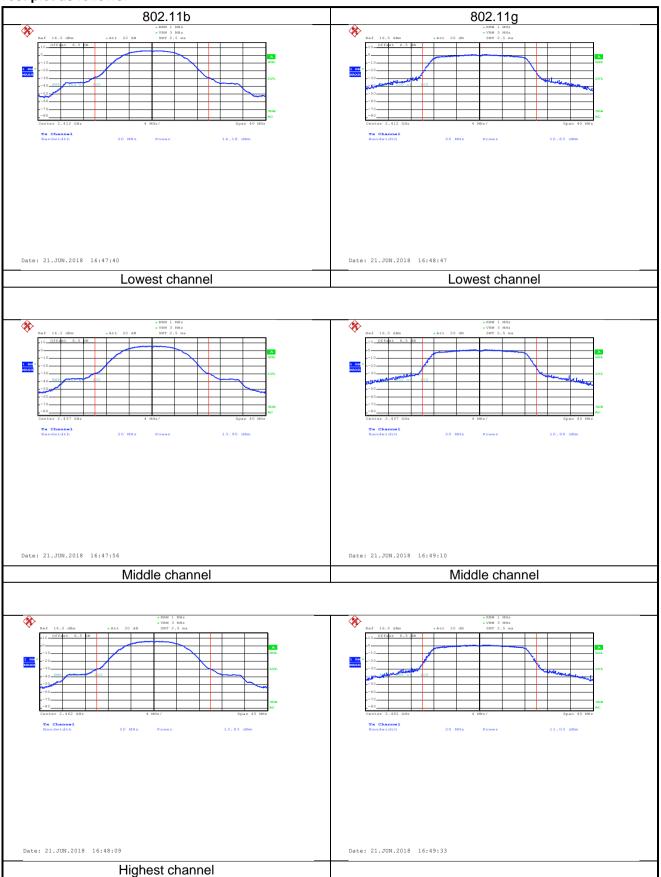


Measurement Data:

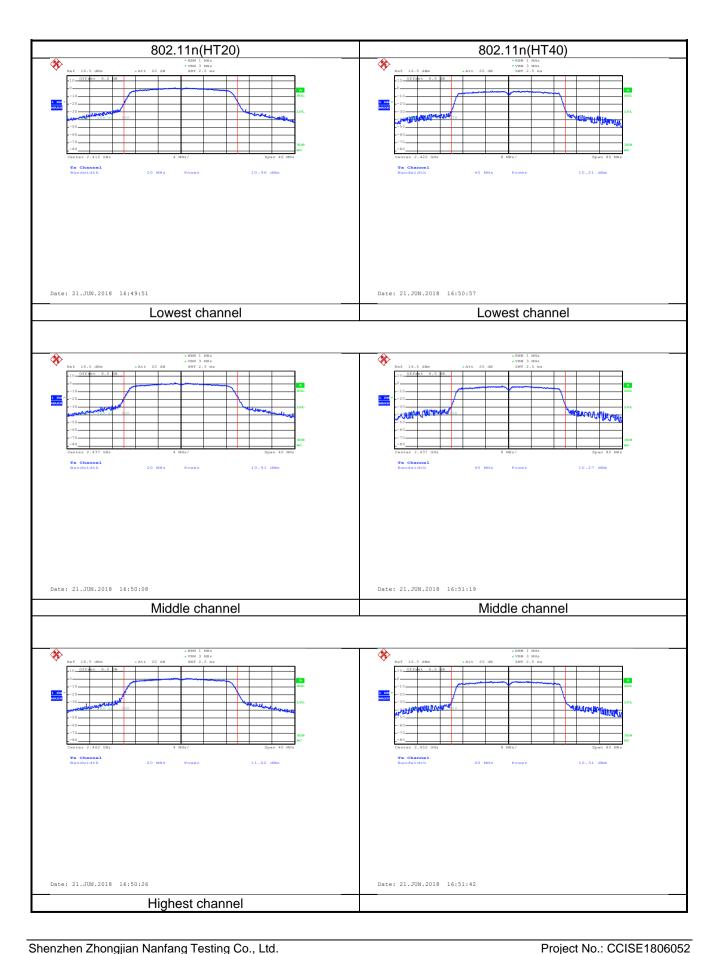
Toot CU	Max	ximum Conducte	d Output Power (d	Bm)	Limit(dDm)	Dogult
Test CH	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(dBm)	Result
Lowest	14.18	10.83	10.96	10.21		
Middle	13.90	10.99	10.91	10.27	30.00	Pass
Highest	13.93	11.03	11.02	10.31		



Test plot as follows:









6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	>500kHz
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

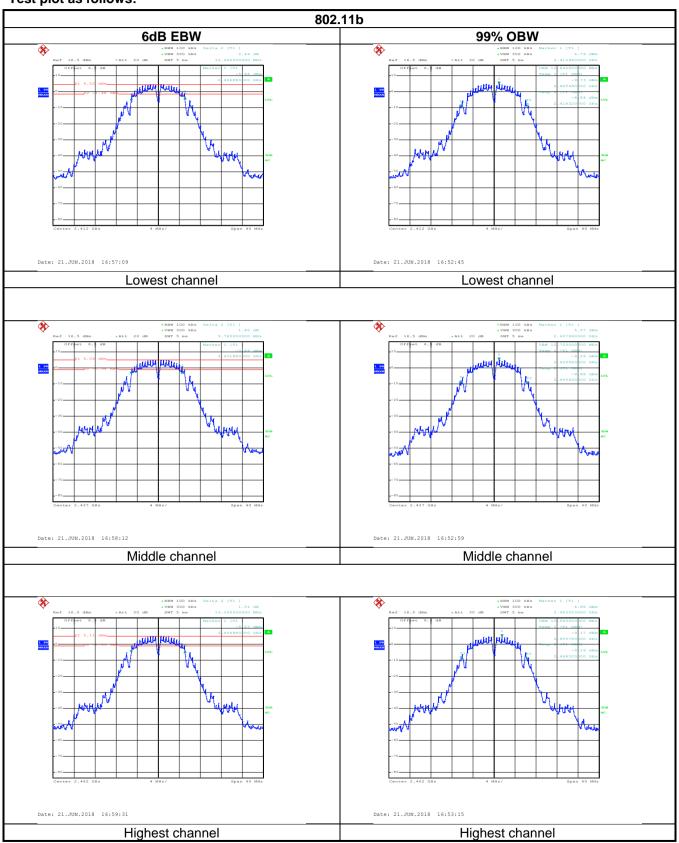
Measurement Data:

Toot CU	Test CH	6dB Emission Bandwidth (MHz)		Limit/k∐¬\	Result	
Test CH	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(kHz)	Result
Lowest	10.24	15.36	16.32	35.68		
Middle	9.76	15.28	15.36	35.52	>500	Pass
Highest	10.24	15.28	16.24	35.52		
Test CH	99% Occupy Bandwidth (MHz)			Limit/kU=\	Result	
Test CH	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(kHz) Res	Result
Lowest	12.64	16.48	17.60	36.00		
Middle	12.72	16.48	17.60	35.84	N/A	N/A
Highest	12.56	16.40	17.60	35.84		



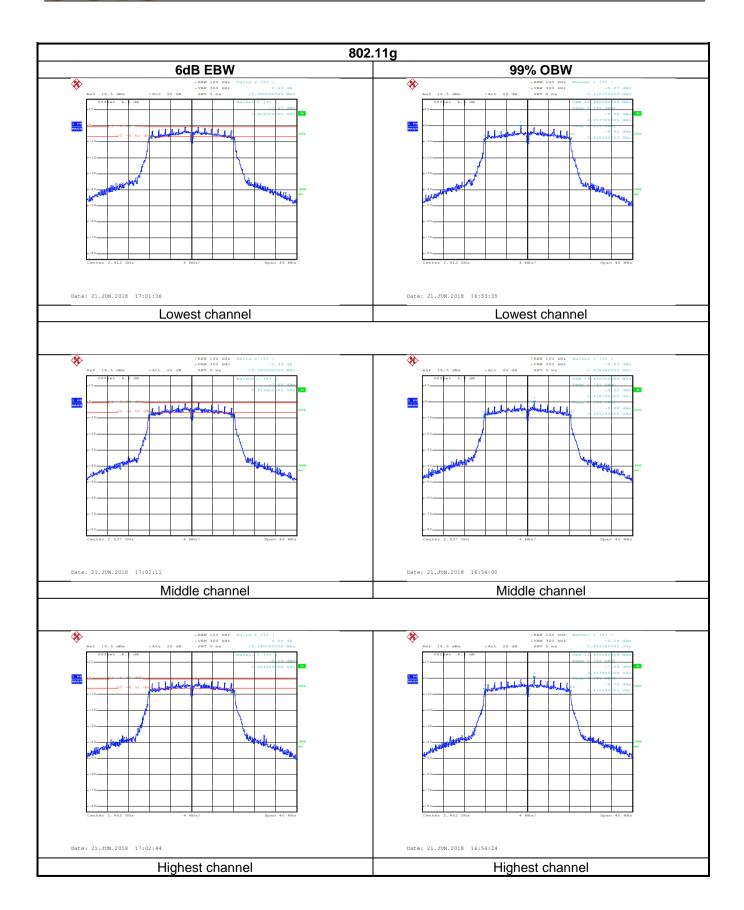


Test plot as follows:



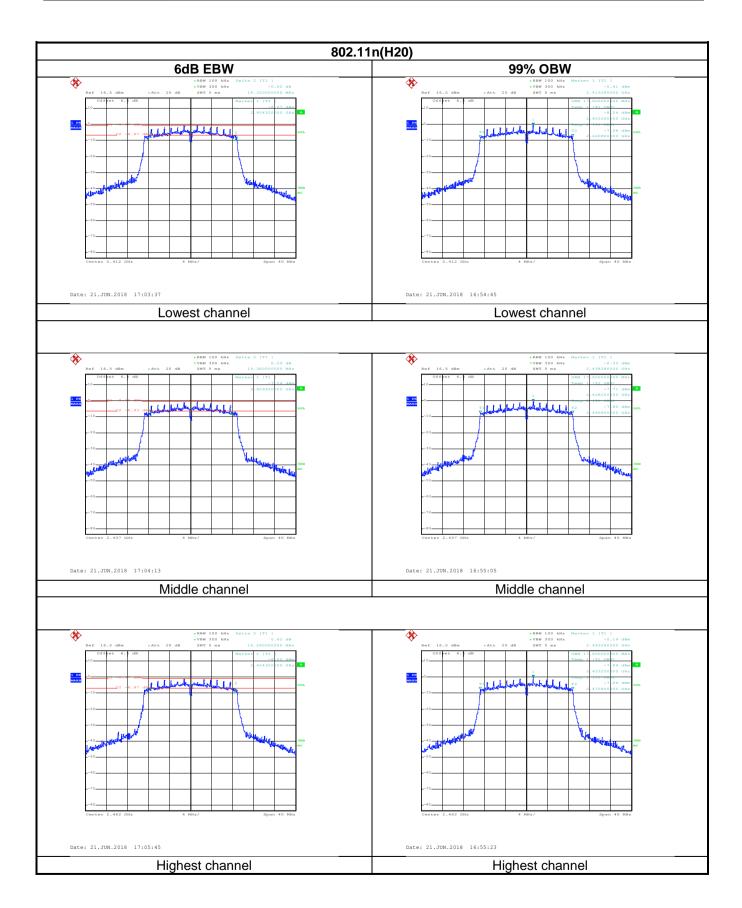




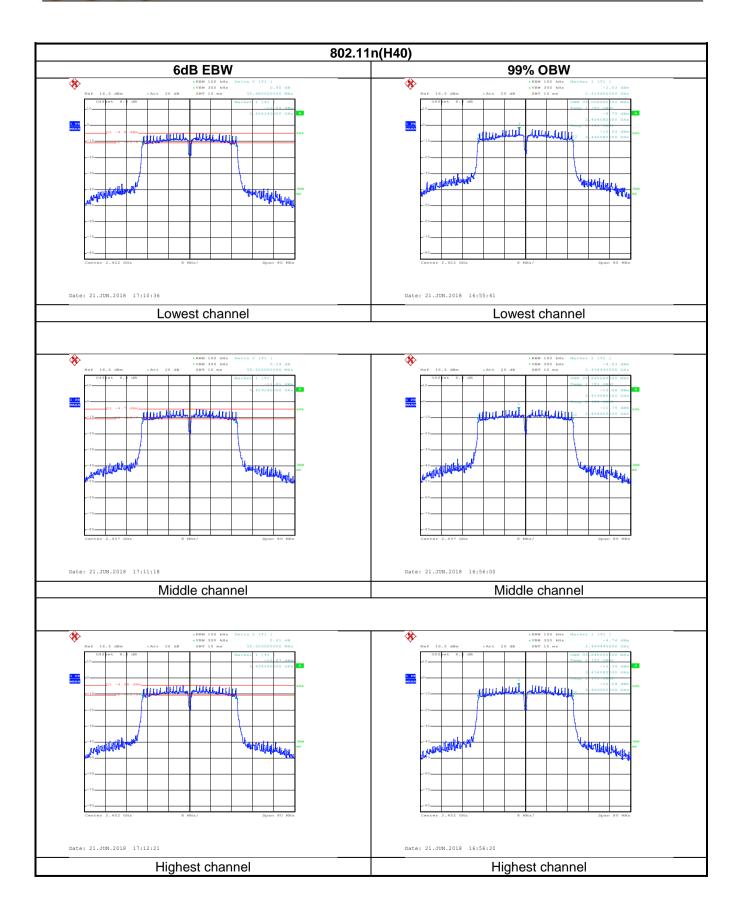














6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)		
Test Method:	ANSI C63.10:2013 and KDB 558074		
Limit:	8dBm		
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

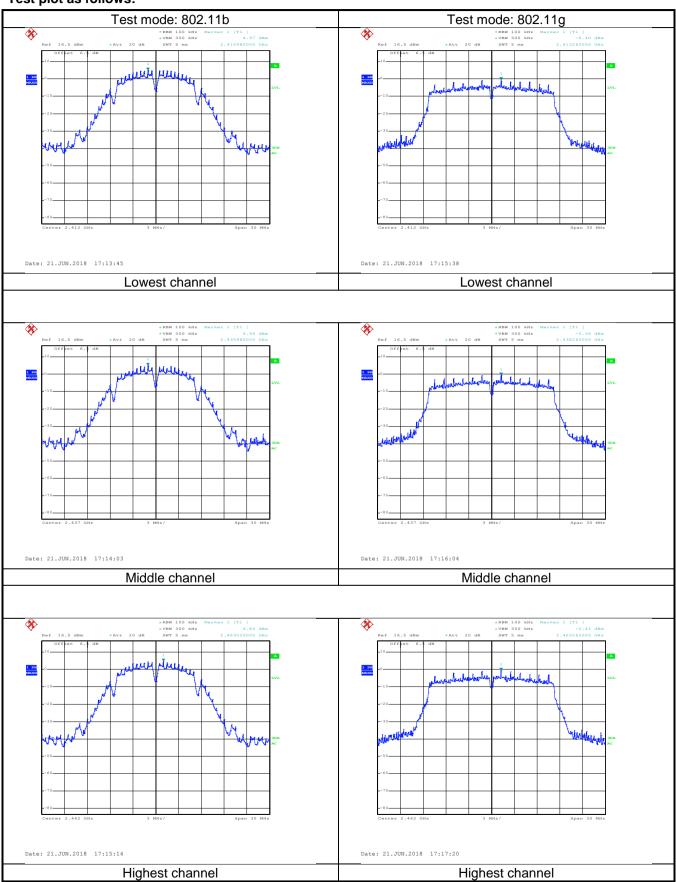
Measurement Data:

Toot CU		Power Spectra	al Density (dBm)		Limit(dBm)	Result
Test CH	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(abm)	Result
Lowest	4.97	-0.40	-0.76	-4.51		
Middle	4.99	-0.36	-0.85	-4.67	8.00	Pass
Highest	4.84	-0.41	-0.86	-4.88		



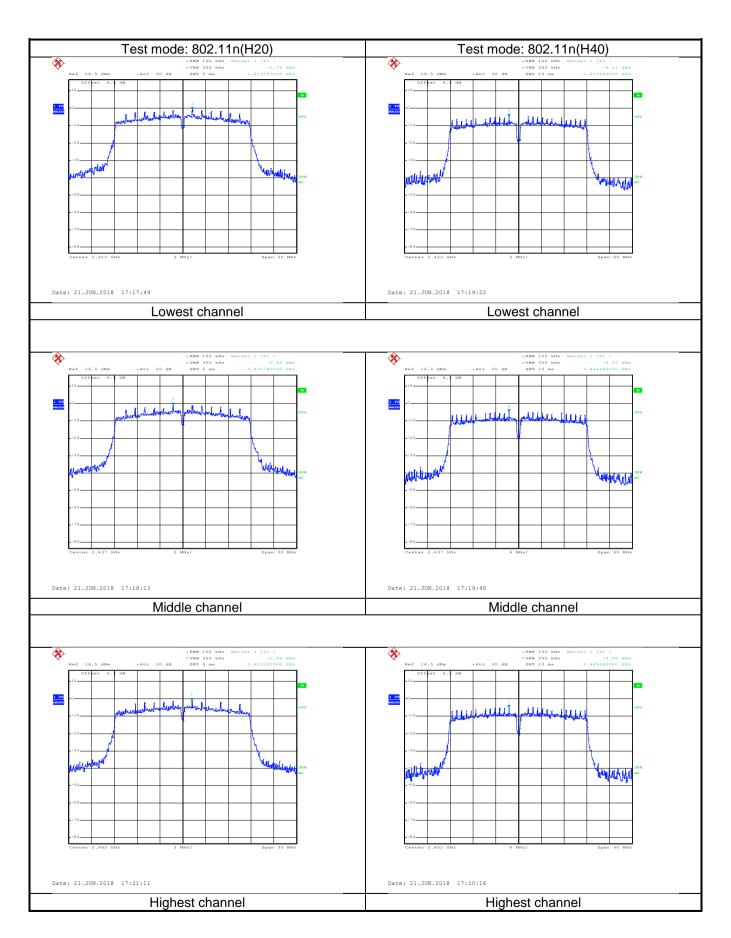


Test plot as follows:













6.6 Band Edge

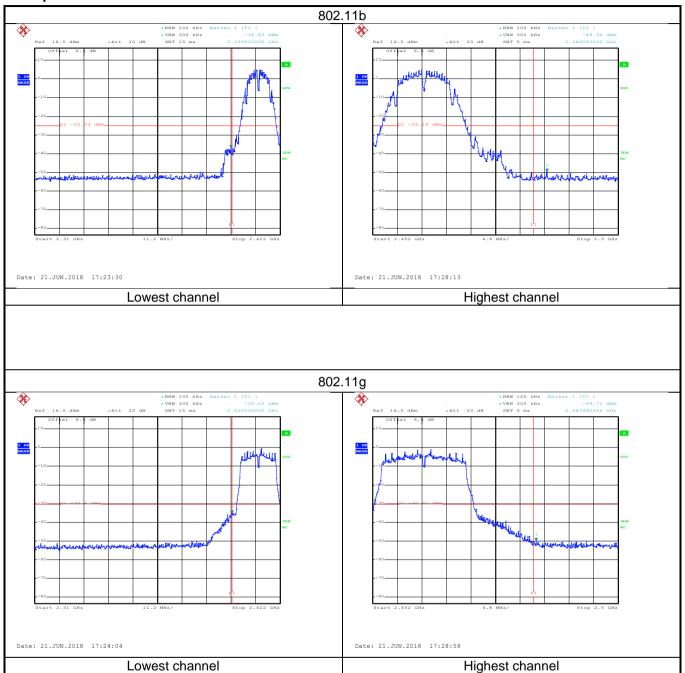
6.6.1 Conducted Emission Method

0.0.1 Conducted Linission	inctiou .
Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed



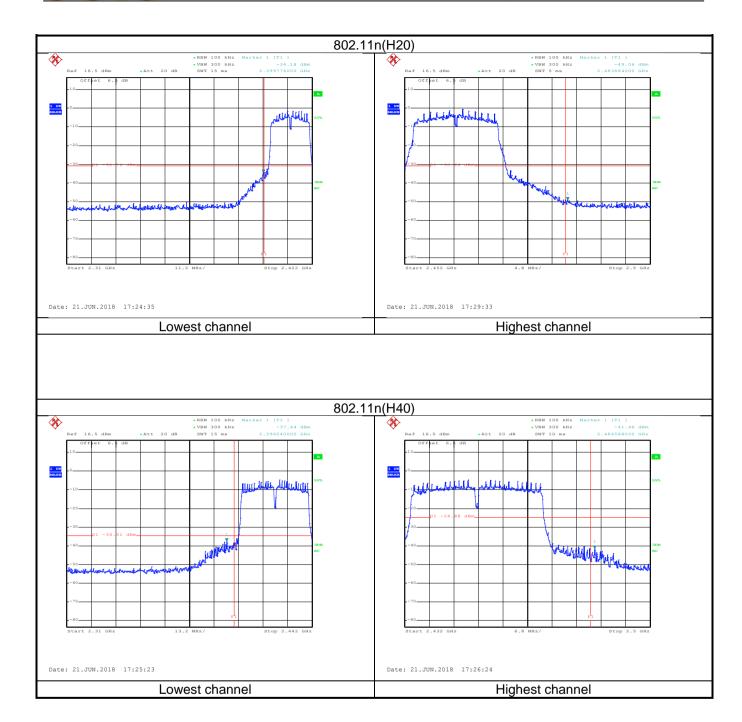


Test plot as follows:











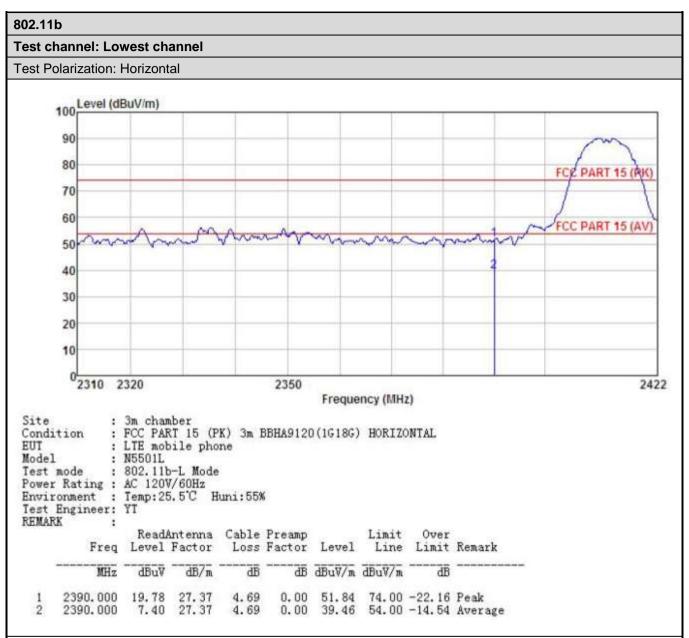


6.6.2 Radiated Emission Method

tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to a meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower that the limit specified, then testing could be stopped and the peak valof the EUT would be reported. Otherwise the emissions that did in have 10dB margin would be re-tested one by one using peak, quality.						
Test Distance: Test Distance: 3m	FCC Part 15 C Section 15.209 and 15.205					
Test Distance: Receiver setup: Frequency Detector RBW VBW Remark	ANSI C63.10: 2013 and KDB 558074					
Receiver setup: Frequency Detector RBW VBW Remark	2.3GHz to 2.5GHz					
Above 1GHz Peak 1MHz 3MHz Peak Value RMS 1MHz 3MHz Average Value	3m					
Limit: Frequency						
Limit: Frequency Limit (dBuV/m @3m) Remark Above 1GHz 54.00 Average Value Test Procedure: 1. The EUT was placed on the top of a rotating table 1.5 meters aboth the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antertower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.						
Test Procedure: 1. The EUT was placed on the top of a rotating table 1.5 meters about the ground at a 3 meter camber. The table was rotated 360 degree to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height anter tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was turned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower that the limit specified, then testing could be stopped and the peak val of the EUT would be reported. Otherwise the emissions that did nhave 10dB margin would be re-tested one by one using peak, que peak or average method as specified and then reported in a data sheet.	value					
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the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antertower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to a meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower that the limit specified, then testing could be stopped and the peak val of the EUT would be reported. Otherwise the emissions that did in have 10dB margin would be re-tested one by one using peak, quapeak or average method as specified and then reported in a data sheet.	201/0					
Test setup:	 to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data 					
Horn Anienna Tower Ground Reference Plane Test Receiver Pace Amplifer Controller						
Test Instruments: Refer to section 5.8 for details						
Test mode: Refer to section 5.3 for details						
Test results: Passed	Passed					



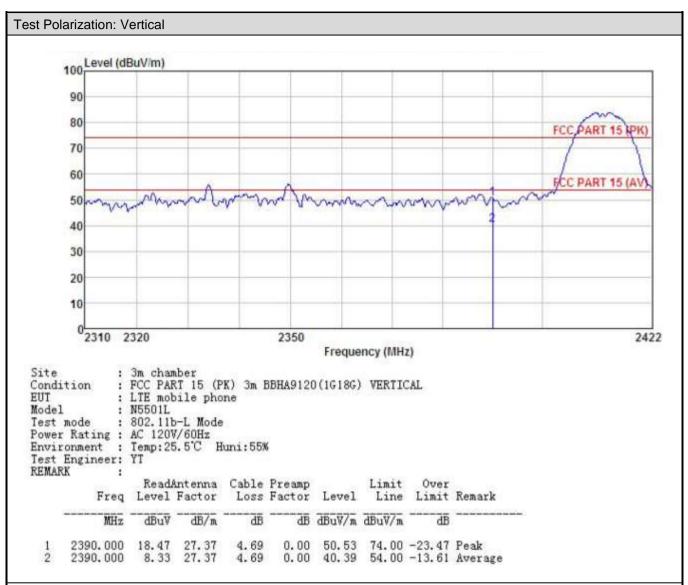




- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



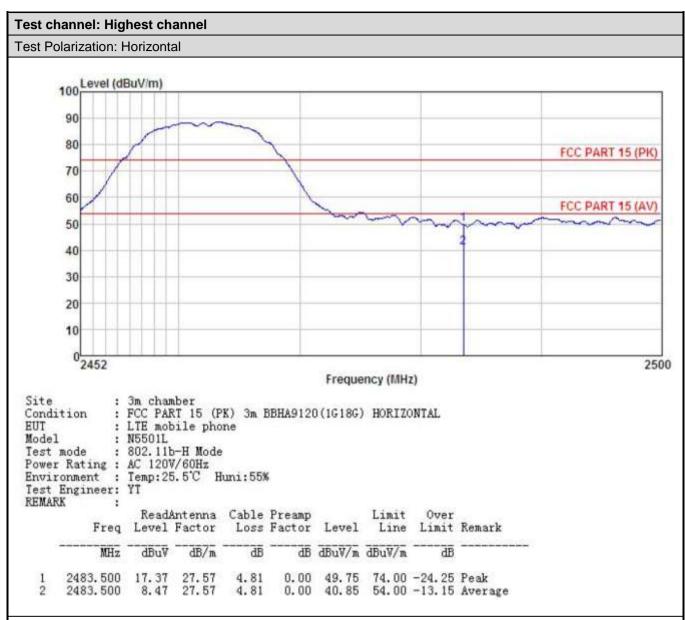




- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





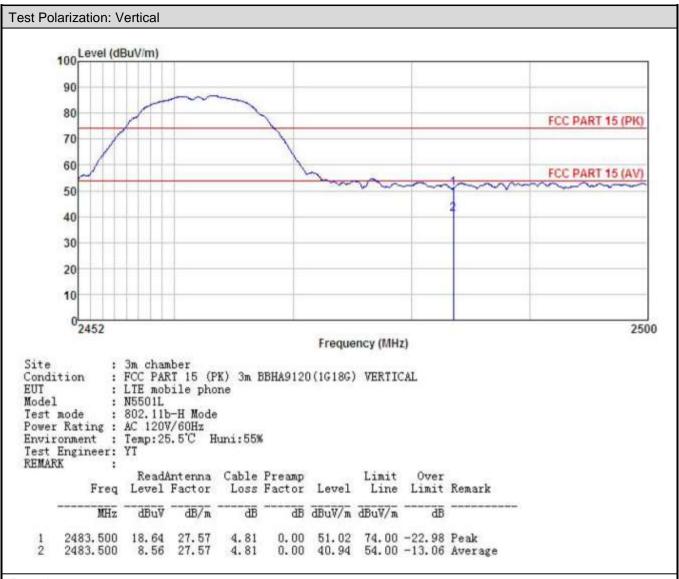


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





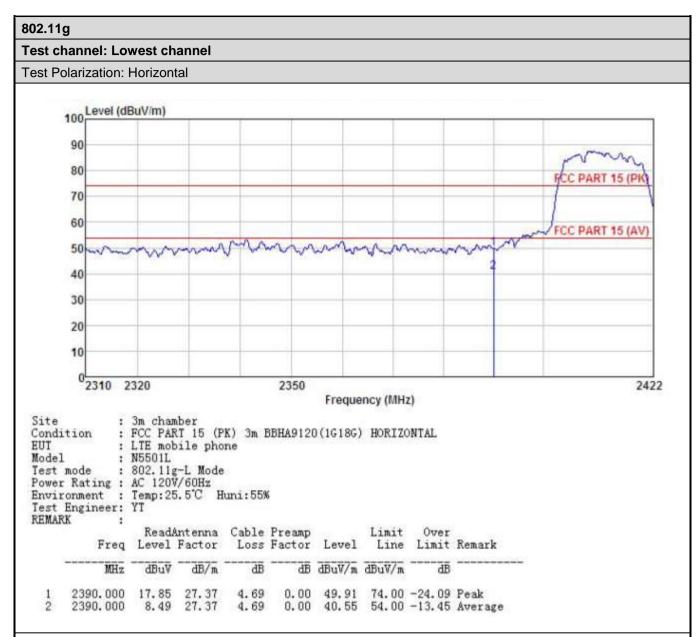


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





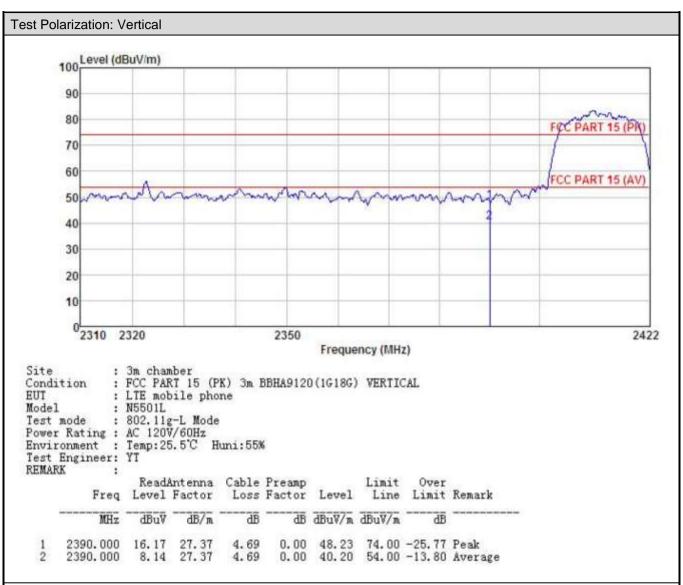


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.



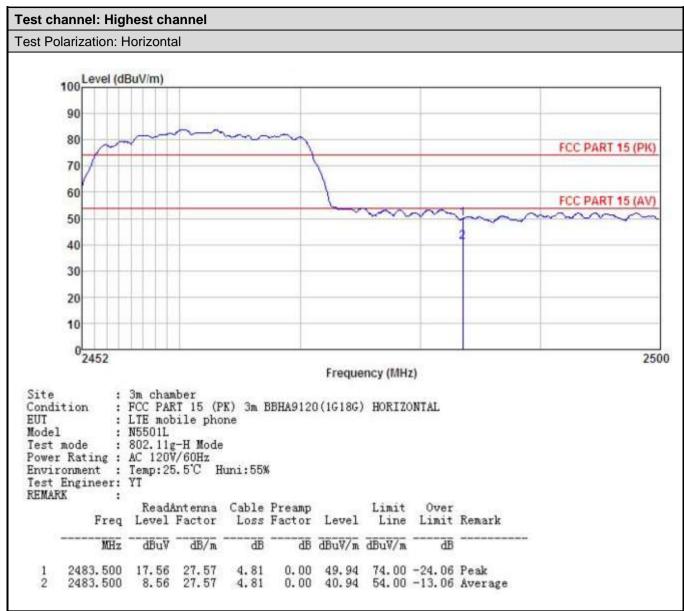




- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





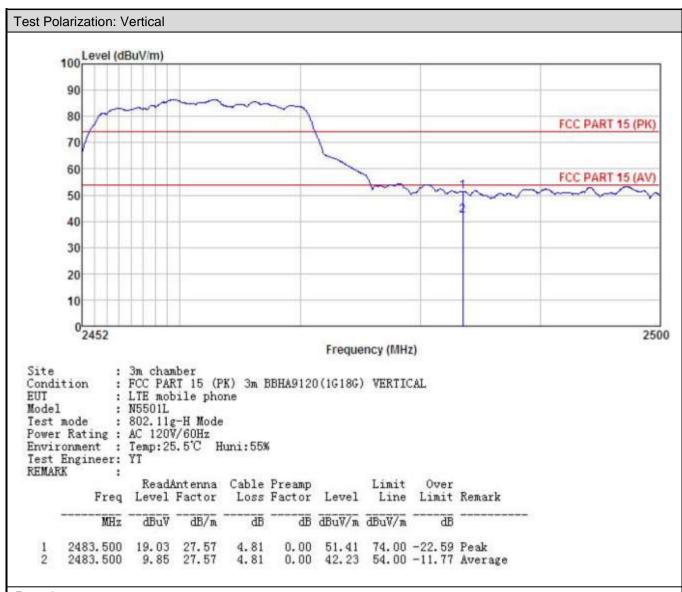


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





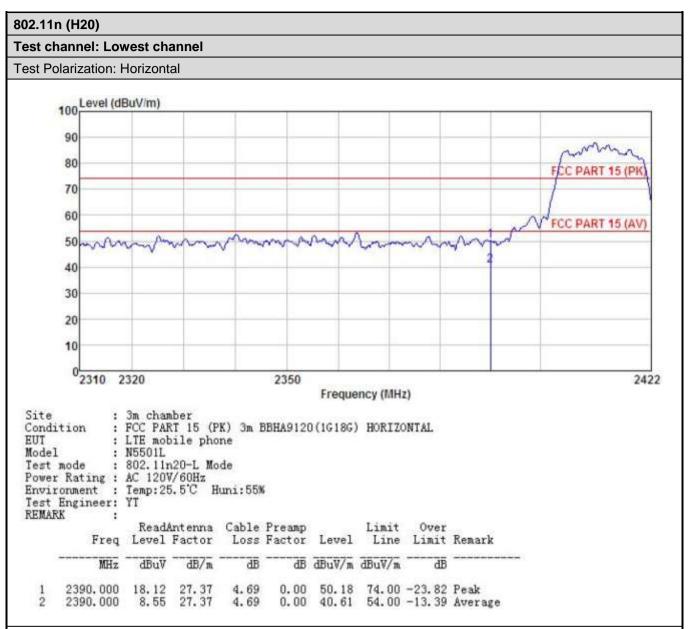


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





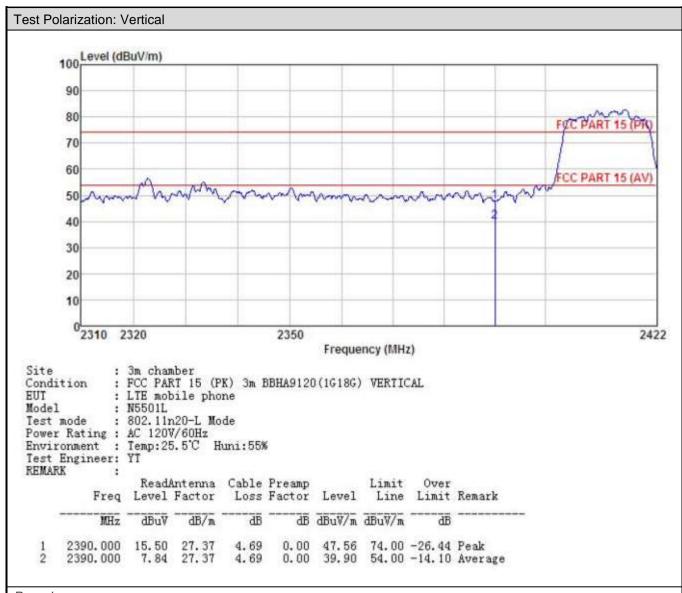


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





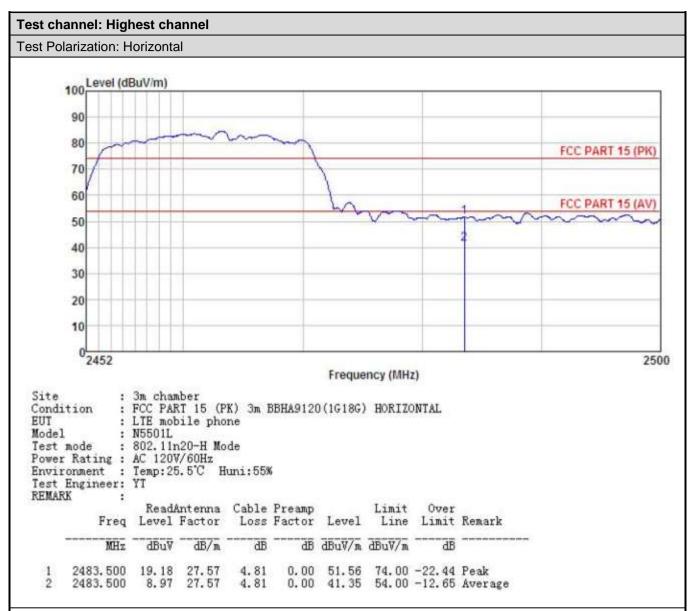


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





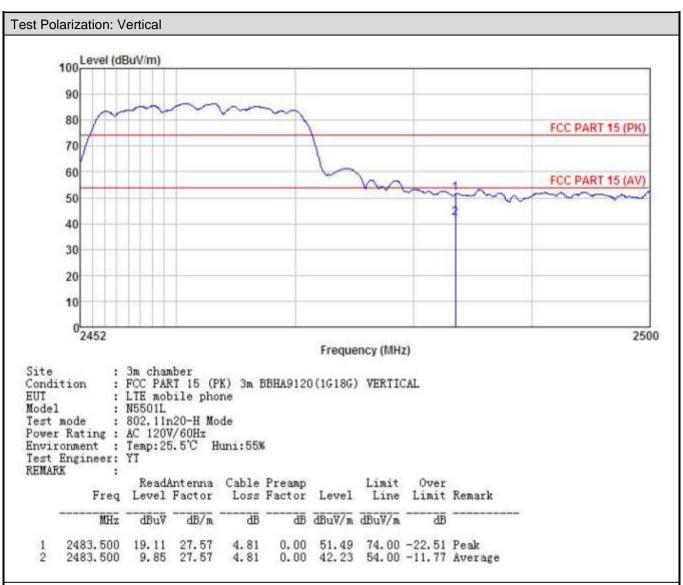


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





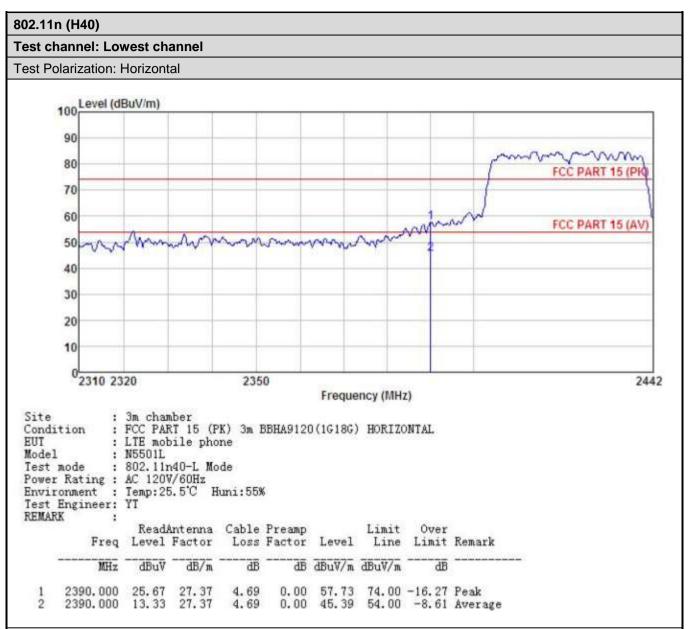


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





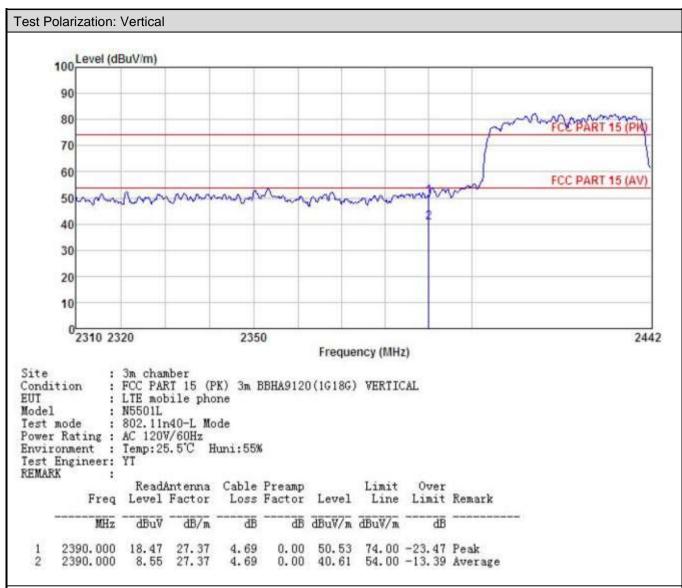


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





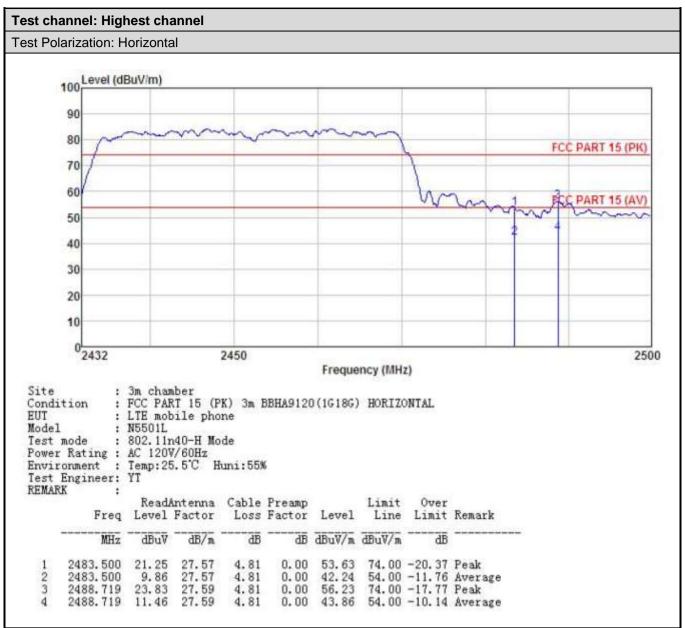


1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.



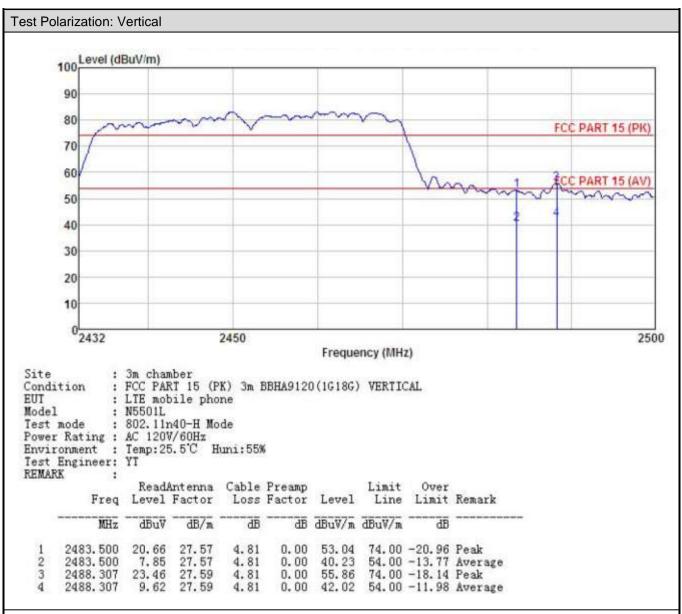




- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.







- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



6.7 Spurious Emission

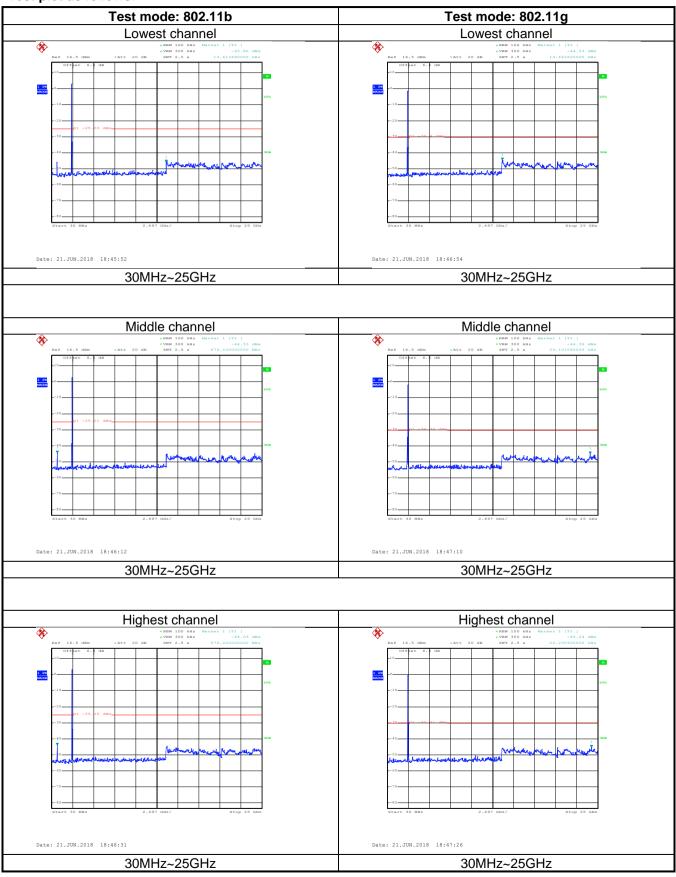
6.7.1 Conducted Emission Method

<u> </u>	Obliqueted Ellission Method							
	Test Requirement:	FCC Part 15 C Section 15.247 (d)						
	Test Method:	ANSI C63.10:2013 and KDB 558074						
	Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.						
	Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
	Test Instruments:	Refer to section 5.8 for details						
	Test mode:	Refer to section 5.3 for details						
	Test results:	Passed						



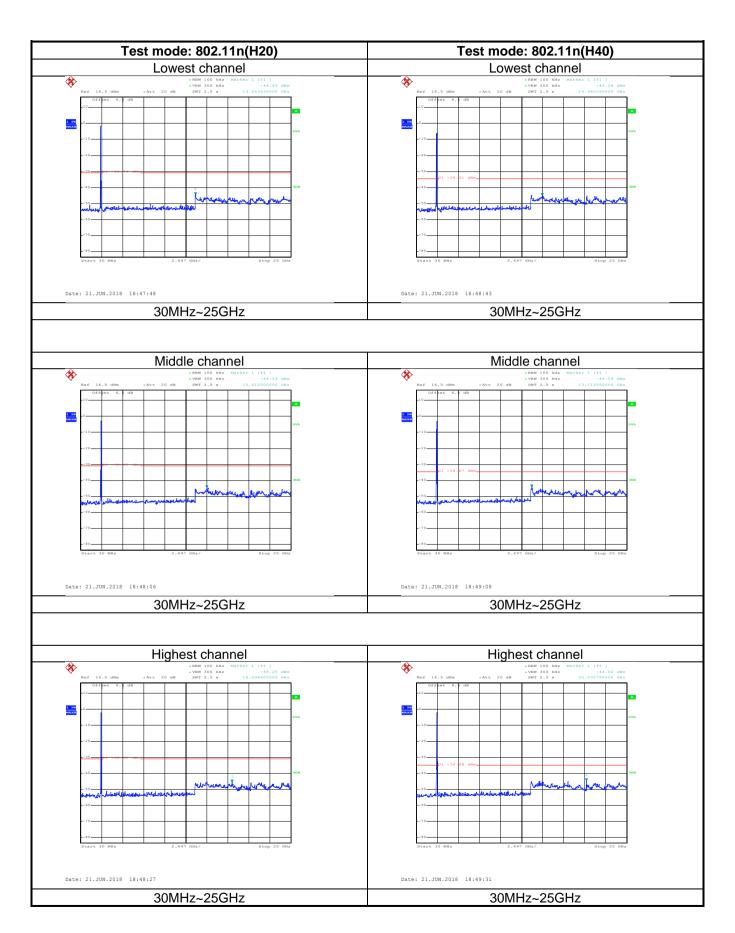


Test plot as follows:













6.7.2 Radiated Emission Method

6.7.2	2 Radiated Emission Method									
	Test Requirement:	FCC Part 15 C Section 15.209 and 15.205								
	Test Method:	ANSI C63.10:2013								
	Test Frequency Range:	9kHz to 25GHz								
	Test Distance:	3m								
	Receiver setup:	Frequency	Detect	ector RBW		VBW		Remark		
	•	30MHz-1GHz	Quasi-p	eak	120KHz	300KHz		Quasi-peak Value		
		Above 1GHz	Peak		1MHz	3MHz		Peak Value		
	1 toute.		RMS		1MHz : (dBuV/m @3r		/lHz	Average Value		
	Limit:	Frequency 30MHz-88MH	7	LITTIII	40.0	11)	Oı	Remark uasi-peak Value		
		88MHz-216MH			43.5			uasi-peak Value		
		216MHz-960MI			46.0			uasi-peak Value		
		960MHz-1GH			54.0			uasi-peak Value		
		Above 1GHz			54.0		I	Average Value		
	Test Procedure:				74.0 e top of a rota			Peak Value		
		 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antentower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data 								
	Test setup:	Below 1GHz EUT Turn Table Ground P	0.8m	4m			_			





	Above 1GHz
	Horn Anlanna Antenna Tower Ground Reference Plane Test Receiver Test Receiver Controller
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	 Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 9 kHz to 30MHz is too low, so only shows the data of above 30MHz in this report.

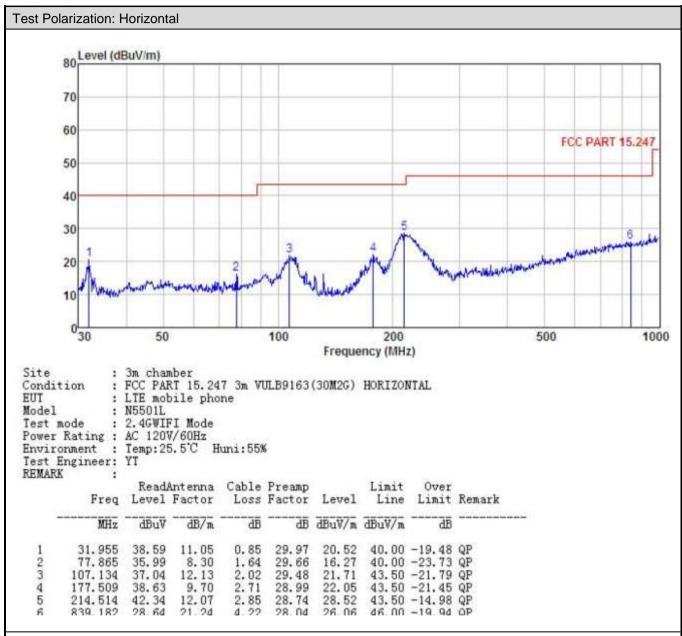




Adapter(1)

Measurement Data (worst case):

Below 1GHz:

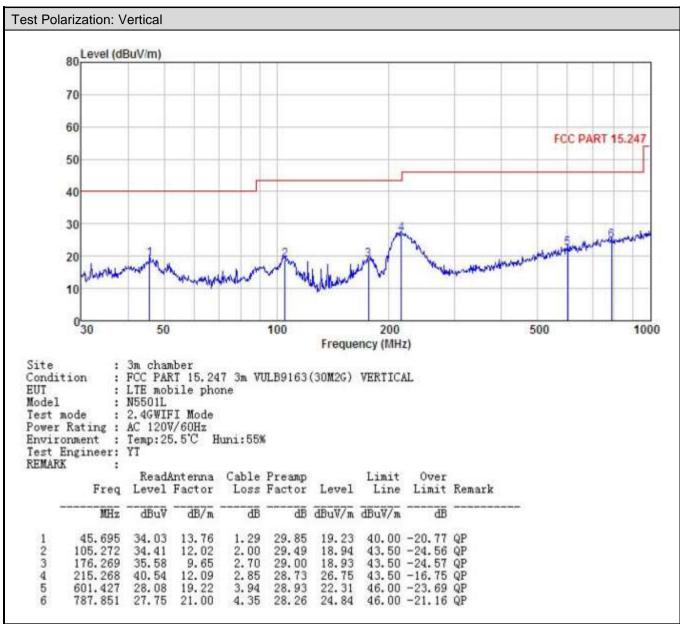


Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.







- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.

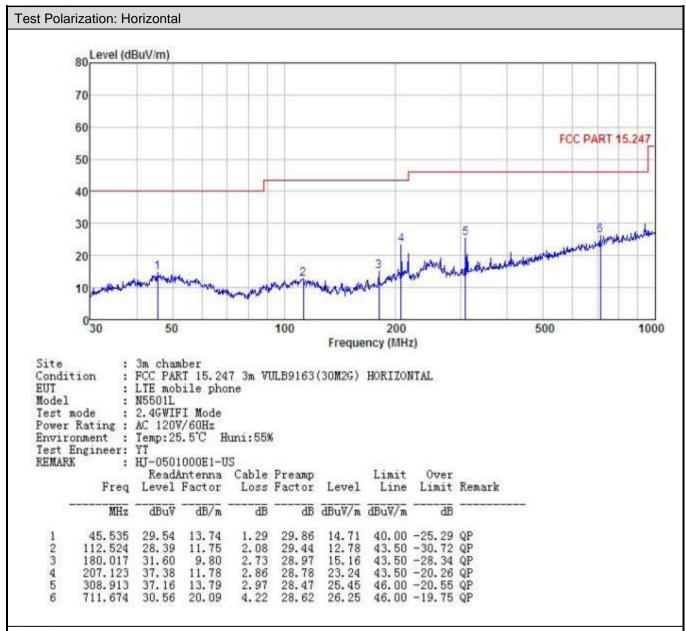




Adapter (2)

Measurement Data (worst case):

Below 1GHz:



Remark:

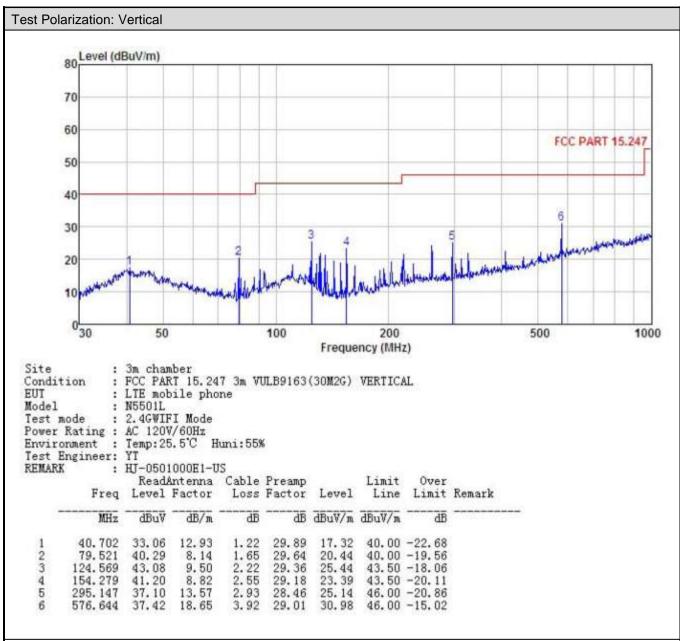
Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366







1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.

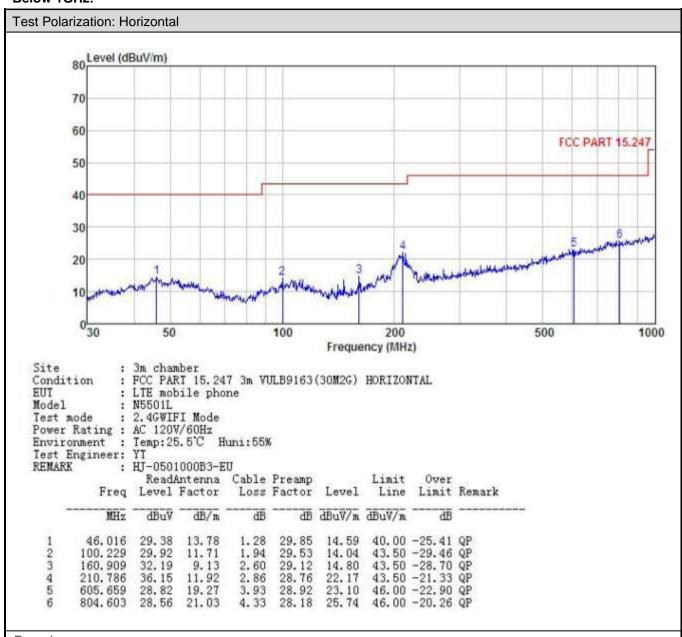




Adapter (3)

Measurement Data (worst case):

Below 1GHz:



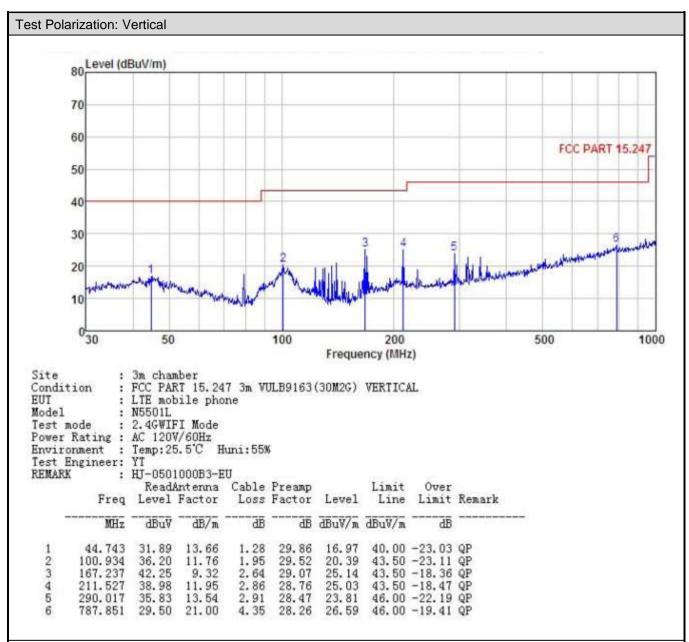
Remark:

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.







- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Above 1GHz

Above 1GHz										
				802.11b						
Test channel: Lowest channel										
			De	tector: Peak	Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4824.00	46.25	30.94	6.81	41.82	42.18	74.00	-31.82	Vertical		
4824.00	45.26	30.94	6.81	41.82	41.19	74.00	-32.81	Horizontal		
Detector: Average Value										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4824.00	36.64	30.94	6.81	41.82	32.57	54.00	-21.43	Vertical		
4824.00	37.77	30.94	6.81	41.82	33.70	54.00	-20.30	Horizontal		
			Test ch	annel: Midd	le channel					
			De	tector: Peak	Value		l			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4874.00	47.61	31.20	6.85	41.84	43.82	74.00	-30.18	Vertical		
4874.00	49.62	31.20	6.85	41.84	45.83	74.00	-28.17	Horizontal		
			Dete	ctor: Averaç	ge Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4874.00	36.25	31.20	6.85	41.84	32.46	54.00	-21.54	Vertical		
4874.00	38.46	31.20	6.85	41.84	34.67	54.00	-19.33	Horizontal		
				annel: Highe						
ı		T T		tector: Peak	Value		T			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4924.00	46.10	31.46	6.89	41.86	42.59	74.00	-31.41	Vertical		
4924.00	47.70	31.46	6.89	41.86	44.19	74.00	-29.81	Horizontal		
			Dete	ctor: Averaç	ge Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4924.00	35.61	31.46	6.89	41.86	32.10	54.00	-21.90	Vertical		
4924.00 Remark:	37.49	31.46	6.89	41.86	33.98	54.00	-20.02	Horizontal		

Remark

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.





				802.11g					
			Test ch	annel: Lowe	est channel				
			De	tector: Peak	Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4824.00	48.62	30.94	6.81	41.82	44.55	74.00	-29.45	Vertical	
4824.00	49.22	30.94	6.81	41.82	45.15	74.00	-28.85	Horizontal	
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4824.00	39.62	30.94	6.81	41.82	35.55	54.00	-18.45	Vertical	
4824.00	40.10	30.94	6.81	41.82	36.03	54.00	-17.97	Horizontal	
			Test ch	annel: Mido	lle channel				
			De	tector: Peak	Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4874.00	47.64	31.20	6.85	41.84	43.85	74.00	-30.15	Vertical	
4874.00	49.13	31.20	6.85	41.84	45.34	74.00	-28.66	Horizontal	
			Dete	ctor: Averaç	ge Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4874.00	38.62	31.20	6.85	41.84	34.83	54.00	-19.17	Vertical	
4874.00	39.14	31.20	6.85	41.84	35.35	54.00	-18.65	Horizontal	
			Test ch	annel: Highe	est channel				
			De	tector: Peak	Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4924.00	48.62	31.46	6.89	41.86	45.11	74.00	-28.89	Vertical	
4924.00	49.51	31.46	6.89	41.86	46.00	74.00	-28.00	Horizontal	
			Dete	ctor: Averaç	ge Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4924.00	39.62	31.46	6.89	41.86	36.11	54.00	-17.89	Vertical	
4924.00	40.19	31.46	6.89	41.86	36.68	54.00	-17.32	Horizontal	
Remark:								·	

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.





				802.11n(HT	20)				
				annel: Lowe	•				
				tector: Peak					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4824.00	48.92	36.06	6.81	41.82	49.97	74.00	-24.03	Vertical	
4824.00	49.55	36.06	6.81	41.82	50.60	74.00	-23.40	Horizontal	
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4824.00	39.62	36.06	6.81	41.82	40.67	54.00	-13.33	Vertical	
4824.00	38.77	36.06	6.81	41.82	39.82	54.00	-14.18	Horizontal	
			Test ch	annel: Mido	le channel				
			De	tector: Peak	Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4874.00	49.21	36.32	6.85	41.84	50.54	74.00	-23.46	Vertical	
4874.00	48.15	36.32	6.85	41.84	49.48	74.00	-24.52	Horizontal	
			Dete	ctor: Averaç	ge Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4874.00	39.62	36.32	6.85	41.84	40.95	54.00	-13.05	Vertical	
4874.00	40.12	36.32	6.85	41.84	41.45	54.00	-12.55	Horizontal	
			Test ch	annel: Highe	est channel				
			De	tector: Peak	Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4924.00	49.62	36.58	6.89	41.86	51.23	74.00	-22.77	Vertical	
4924.00	48.15	36.58	6.89	41.86	49.76	74.00	-24.24	Horizontal	
			Dete	ctor: Averaç	e Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4924.00	39.62	36.58	6.89	41.86	41.23	54.00	-12.77	Vertical	
4924.00	40.23	36.58	6.89	41.86	41.84	54.00	-12.16	Horizontal	
Remark [,]									

Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.





				802.11n(HT	(40)					
				annel: Lowe						
				tector: Peak						
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4844.00	48.59	36.06	6.81	41.82	49.64	74.00	-24.36	Vertical		
4844.00	49.22	36.06	6.81	41.82	50.27	74.00	-23.73	Horizontal		
	Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4844.00	39.62	36.06	6.81	41.82	40.67	54.00	-13.33	Vertical		
4844.00	38.52	36.06	6.81	41.82	39.57	54.00	-14.43	Horizontal		
			Test ch	annel: Midd	lle channel					
			De	tector: Peak	Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4874.00	49.61	36.32	6.85	41.84	50.94	74.00	-23.06	Vertical		
4874.00	48.74	36.32	6.85	41.84	50.07	74.00	-23.93	Horizontal		
			Dete	ctor: Averaç	ge Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4874.00	39.62	36.32	6.85	41.84	40.95	54.00	-13.05	Vertical		
4874.00	38.29	36.32	6.85	41.84	39.62	54.00	-14.38	Horizontal		
			Test ch	annel: Highe	est channel					
			De	tector: Peak	Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4904.00	49.62	36.45	6.87	41.85	51.09	74.00	-22.91	Vertical		
4904.00	48.29	36.45	6.87	41.85	49.76	74.00	-24.24	Horizontal		
			Dete	ctor: Averaç	ge Value					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
4904.00	39.62	36.45	6.87	41.85	41.09	54.00	-12.91	Vertical		
4904.00	38.25	36.45	6.87	41.85	39.72	54.00	-14.28	Horizontal		
Remark:										

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.