

# 🧲 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE170903304

# **FCC REPORT**

(WIFI)

Applicant: NEXUS TELECOM SERVICES (HK) LIMITED

Address of Applicant: R112, 11/F Hollywood Plaza, Mangkok, Kowloon Hong Kong

**Equipment Under Test (EUT)** 

Product Name: Smart Phone

Model No.: GO1402S

Trade mark: GO-Mobile

FCC ID: 2AHDFGO1402S

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

Date of sample receipt: 30 Jun., 2017

**Date of Test:** 30 Jun., to 07 Jul., 2017

Date of report issued: 08 Jul., 2017

Test Result: PASS\*

#### 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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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.





### 2 Version

Version No.	Date	Description
00	08 Jul., 2017	Original

Tested by:

Zora Lee Date: 08 Jul., 2017

Test Engineer

Reviewed by: Date: 08 Jul., 2017

**Project Engineer** 



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# 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Conducted and Radiated Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.





## 5 General Information

### **5.1 Client Information**

Applicant:	NEXUS TELECOM SERVICES (HK) LIMITED
Address of Applicant:	R112, 11/F Hollywood Plaza, Mangkok, Kowloon Hong Kong
Manufacturer:	CHINO-E TECHNOLOGY (HONG KONG) CO., LTD.
Address of Manufacturer:	ROOM 1907 19/F DOMINION CETRE 43-59 QUEEN'S ROAD EAST, WAN CHAI, HONG KONG
Factory:	Shenzhen Shenan Times Electronic Co.,Ltd.
Address of Factory:	FLOOR 2-4, BLDG B, Chunyang Industrial park, Zhugushi Road, Wulian Street, Longgang District, Shenzhen, China

# 5.2 General Description of E.U.T.

Product Name:	Smart Phone
Model No.:	GO1402S
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 dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-1700mAh
AC adapter:	Model: GO1402S Input: AC100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1000mAh





Operation	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		

Operation Frequency each of channel For 802.11n(H40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
		4	2427MHz	7	2442MHz		
		5	2432MHz	8	2447MHz		
3	2422MHz	6	2437MHz	9	2452MHz		

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

### 802.11b/802.11g/802.11n (H20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

### 802.11n (H40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz



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### 5.3 Test environment and mode

Operating Environment:			
Temperature:	24.0 °C		
Humidity:	54 % RH		
Atmospheric Pressure:	1010 mbar		
Test mode:			
Operation 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 the EUT in transmitting operation, which was shown in this test report and defined as follows:

### Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate	
802.11b	1Mbps	
802.11g	6Mbps	
802.11n(H20)	6.5Mbps	
802.11n(H40)	13.5Mbps	

#### **Final Test Mode:**

According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40). Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

# 5.4 Measurement Uncertainty

Items	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

# 5.5 Laboratory Facility

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

#### • FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

### • 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.

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 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

Website: http://www.ccis-cb.com

Tel: +86-755-23118282 Fax: +86-755-23116366 Email: info@ccis-cb.com

### 5.7 Test Instruments list

Radia	ated Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	07-22-2017	07-21-2020
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	02-25-2017	02-24-2018
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
6	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	02-25-2017	02-24-2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	02-25-2017	02-24-2018
8	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018
9	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
10	Loop antenna	Laplace instrument	RF300	EMC0701	02-25-2017	02-24-2018
11	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
12	Coaxial Cable	N/A	N/A	CCIS0018	02-25-2017	02-24-2018
13	Coaxial Cable	N/A	N/A	CCIS0020	02-25-2017	02-24-2018

Cond	Conducted Emission:									
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)				
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	07-22-2017	07-21-2020				
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018				
3	LISN	CHASE	MN2050D	CCIS0074	02-25-2017	02-24-2018				
4	Coaxial Cable	CCIS	N/A	CCIS0086	02-25-2017	02-24-2018				
5	EMI Test Software	AUDIX	E3	N/A	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 dBi.





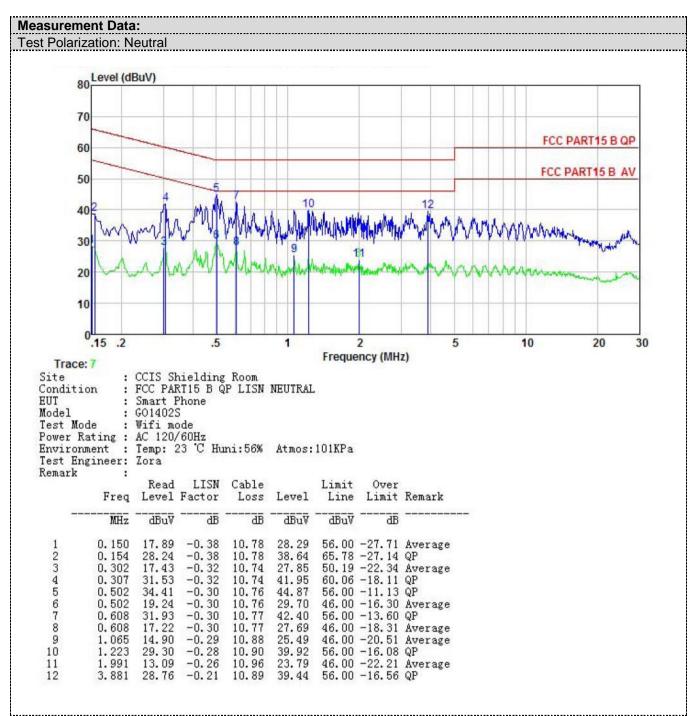


### 6.2 Conducted Emission

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					
Class / Severity:	Class B					
Receiver setup:	RBW=9 kHz, VBW=30 k	 Hz				
Limit:	Frequency range	Limit (	dBuV)			
Ziiiii.	(MHz)	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
	* Decreases with the log	arithm of the frequency.				
Test procedure	line impedance stab 50ohm/50uH coupling 2. The peripheral device a LISN that provides termination. (Please photographs).  3. Both sides of A.C. light interference. In order positions of equipments	plators are connected to the pilization network (L.I.S.N.) and impedance for the measures are also connected to the associated to the set of the block diagram are checked for maximum enter to find the maximum emit and all of the interface 263.4: 2014 on conducted	which provides a suring equipment. the main power through mpedance with 50ohm of the test setup and the conducted sission, the relative cables must be changed			
Test setup:	AUX Equipment  Test table/Insula	E.U.T EMI	ilter — AC power			
Test Instruments:	Remark: E.U.T: Equipment Under LISN: Line Impedence St. Test table height=0.8m  Refer to section 5.6 for d	abilization Network				
Test mode:	Refer to section 5.3 for d	etalis				
Test results:	Passed					





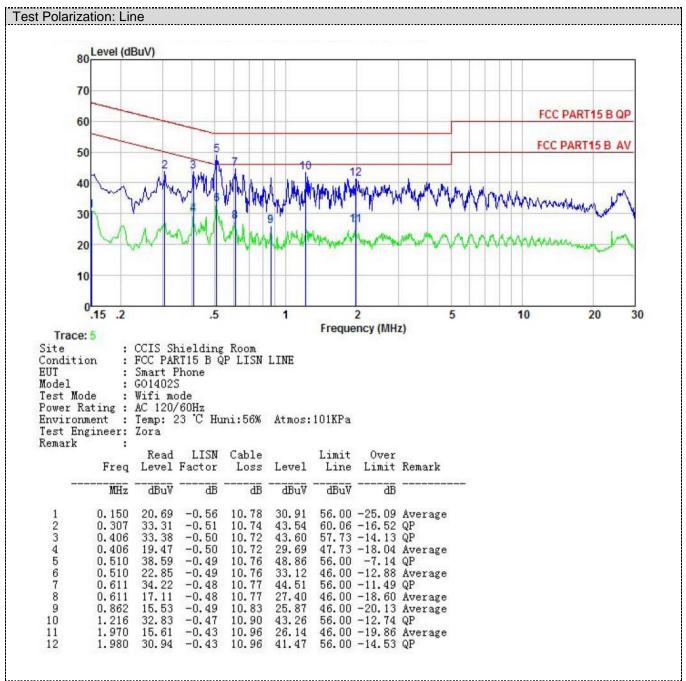


#### Notes:

- 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.



# **6.3 Conducted Output Power**

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)				
Test Method:	ANSI C63.10: 2013 and KDB558074 D01 DTS Meas Guidance v04 section 9.2.2.2				
Limit:	30dBm				
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane				
Test Instruments:	Refer to section 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				

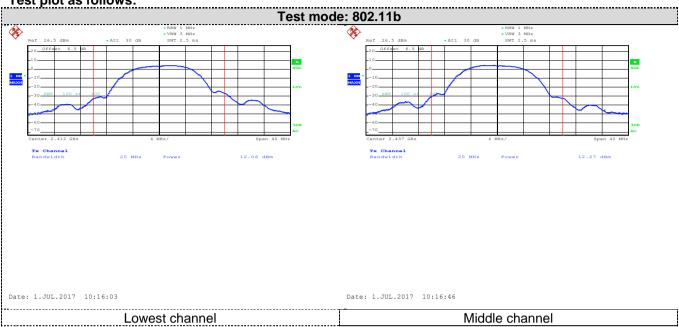
### **Measurement Data:**

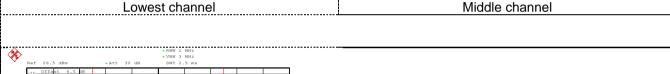
Test CH	Maximum C	onducted Outpu	t Power (dBm)	Limit(dBm)	Result	
1631 011	802.11b	802.11g	802.11n(H20)			
Lowest	12.06	11.49	11.63			
Middle	12.27	11.72	11.81	30.00	Pass	
Highest	15.61	14.44	14.32			

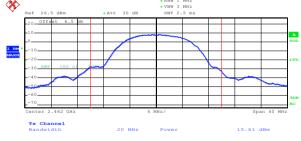




Test plot as follows:





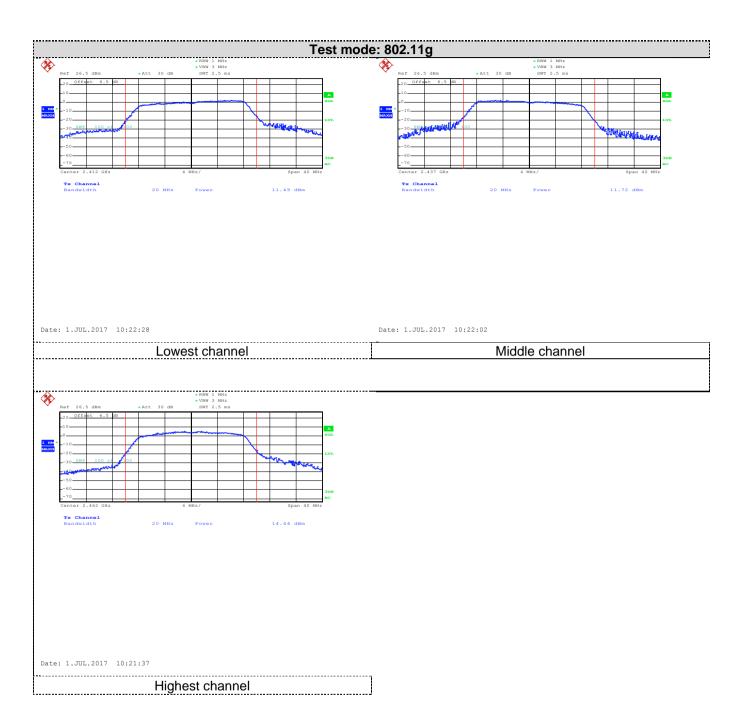


Date: 1.JUL.2017 10:18:47

Highest channel

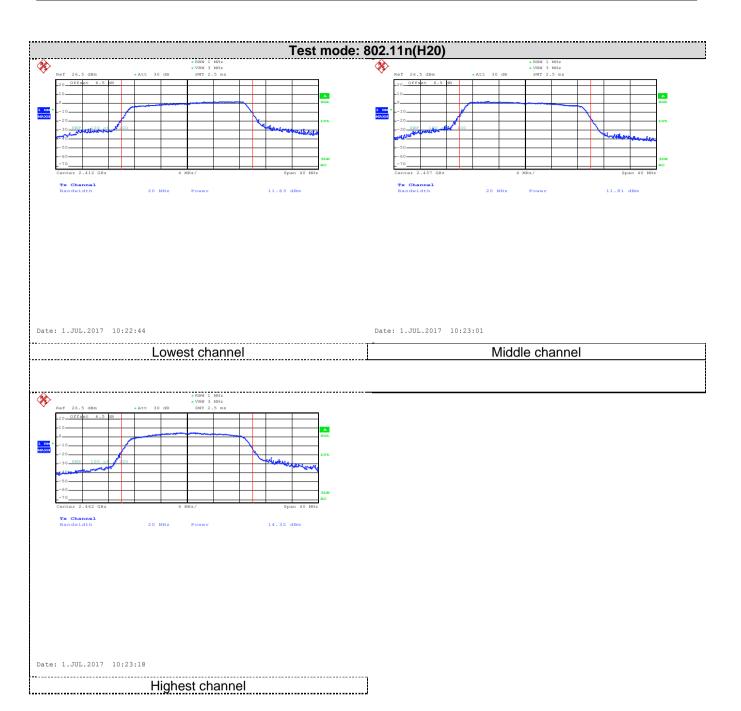














### 6.4 Occupy Bandwidth

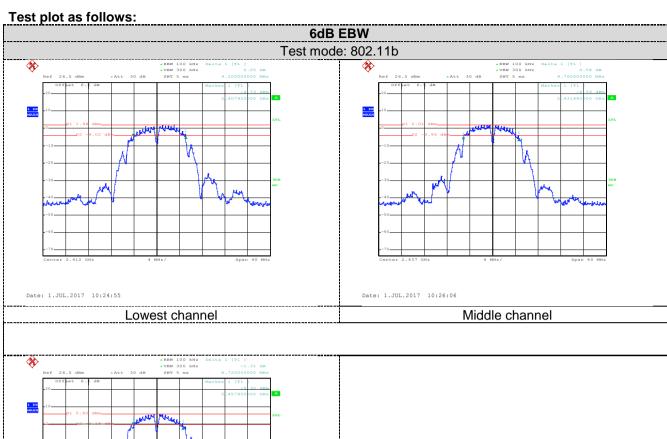
Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)		
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 8.1		
Limit:	>500kHz		
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane		
Test Instruments:	Refer to section 5.6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

#### **Measurement Data:**

Test CH	6dB E	mission Bandwid	dth (MHz)	Limit(kHz)	Result	
1031 011	802.11b	802.11g	802.11n(H20)	Liiiii(Ki iz)	Nosuit	
Lowest	9.20	15.92	16.56			
Middle	9.76	15.92	16.56	>500	Pass	
Highest	8.72	15.28	15.28			
Test CH	99% (	Occupy Bandwid	upy Bandwidth (MHz)		Result	
1031 011	802.11b	802.11g	802.11n(H20)	Limit(kHz)	result	
Lowest	11.36	16.64	17.68			
Middle	11.36	16.56	17.60 N/A		N/A	
Highest	10.96	16.40	17.52			

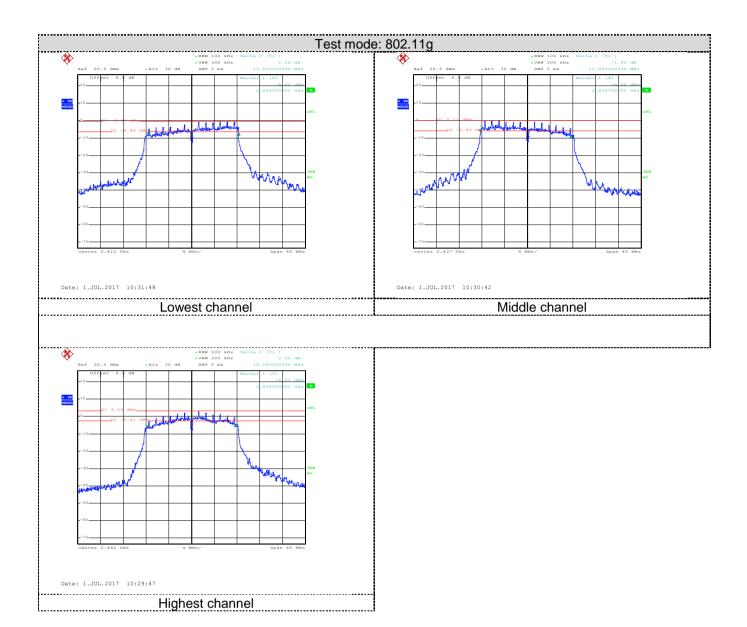






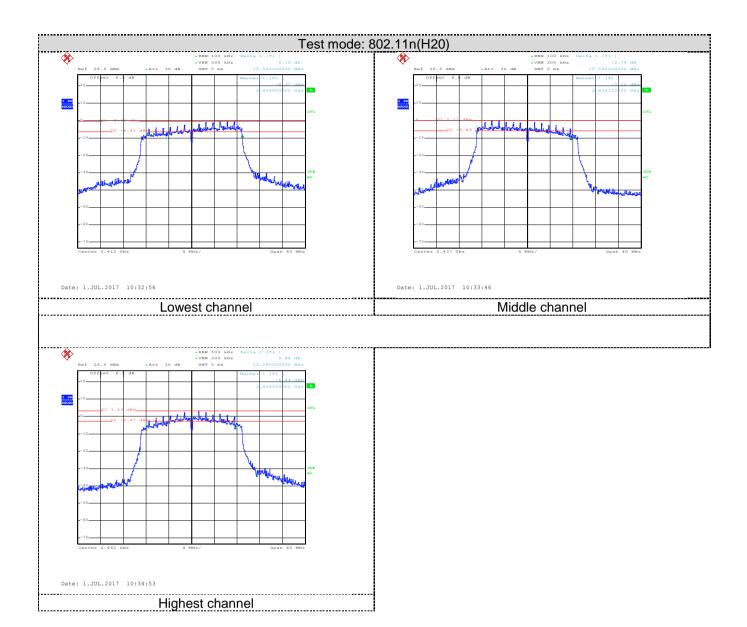






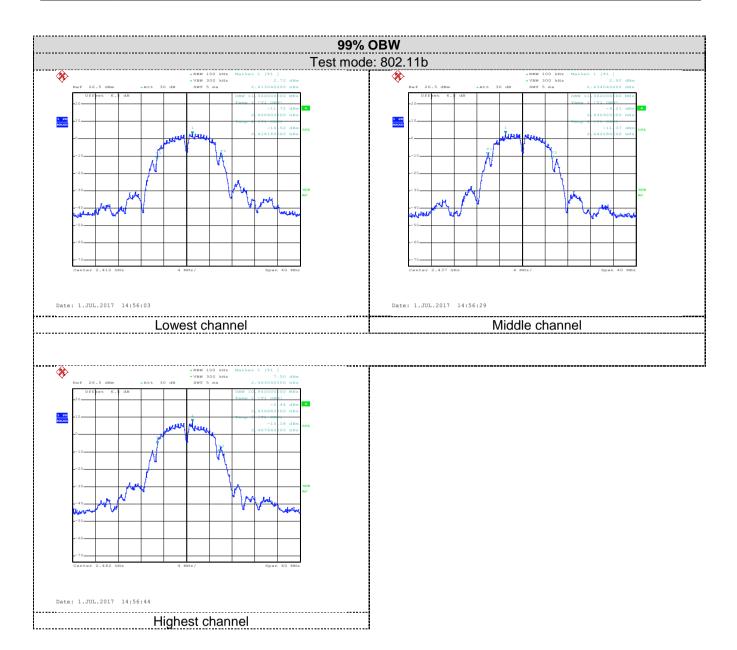






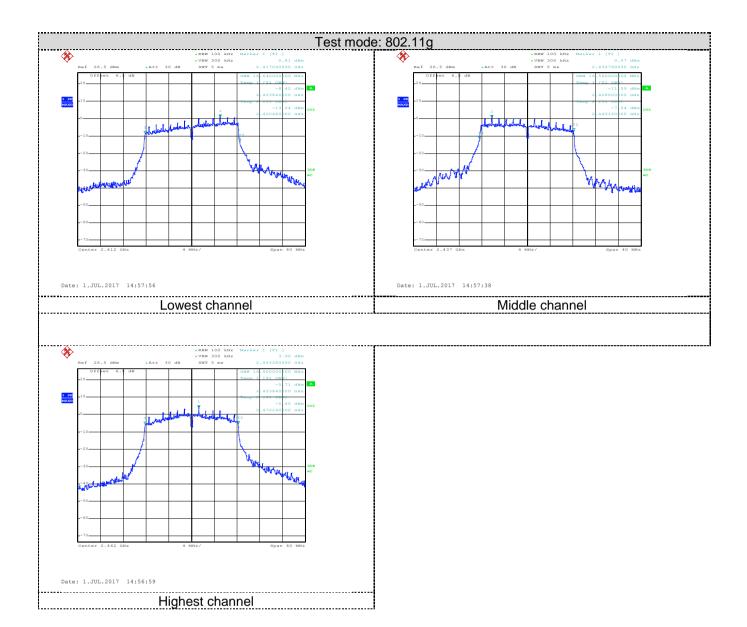






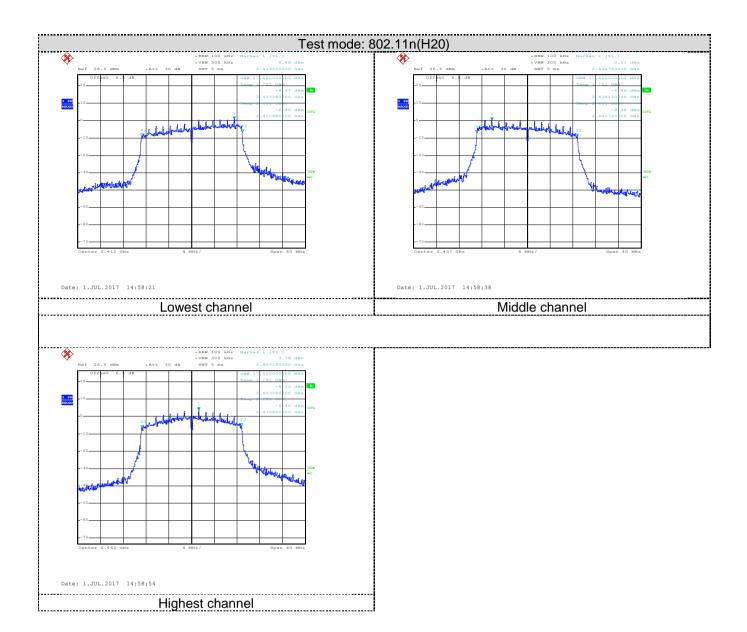














# 6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 10.2
Limit:	8dBm
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

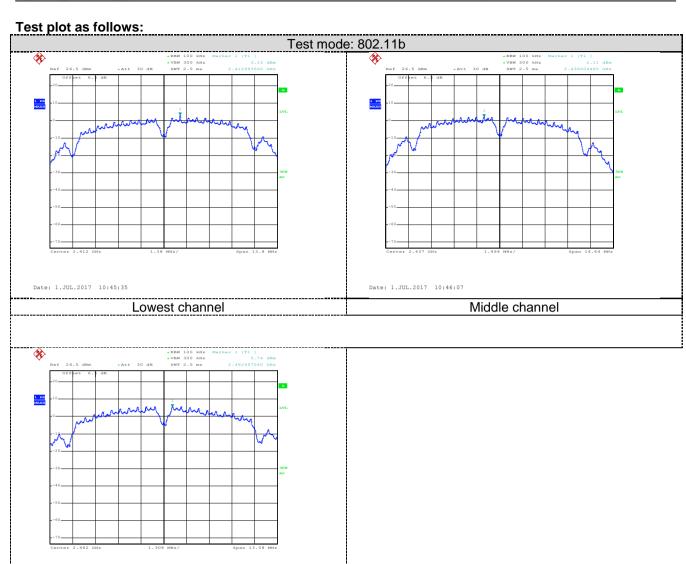
### **Measurement Data:**

Test CH	Power	Spectral Dens	sity (dBm)	Limit(dBm)	Result	
1031 011	802.11b	802.11g	802.11n(H20)	Ell'Ill(GBIII)	Nesan	
Lowest	3.15	-0.47	-0.51			
Middle	2.11	-0.50	-0.81	8.00	Pass	
Highest	5.74	3.34	3.33			





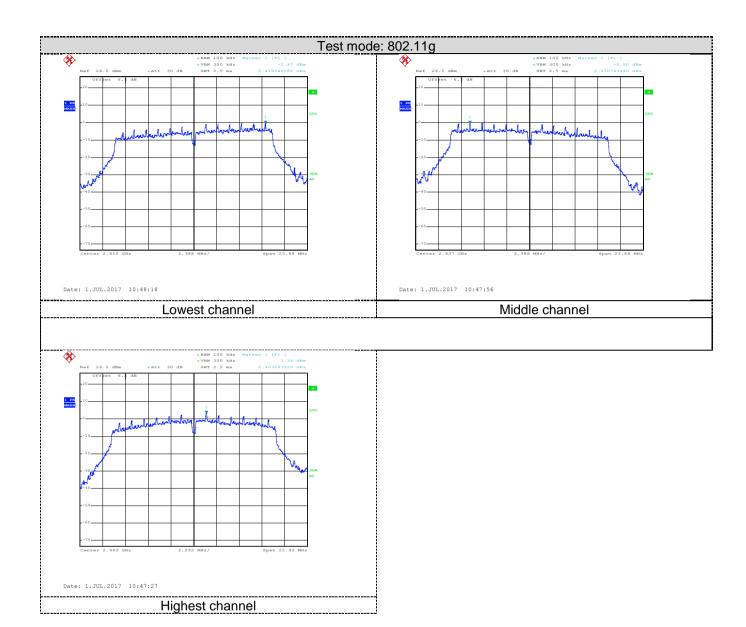
Date: 1.JUL.2017 10:46:34



Highest channel

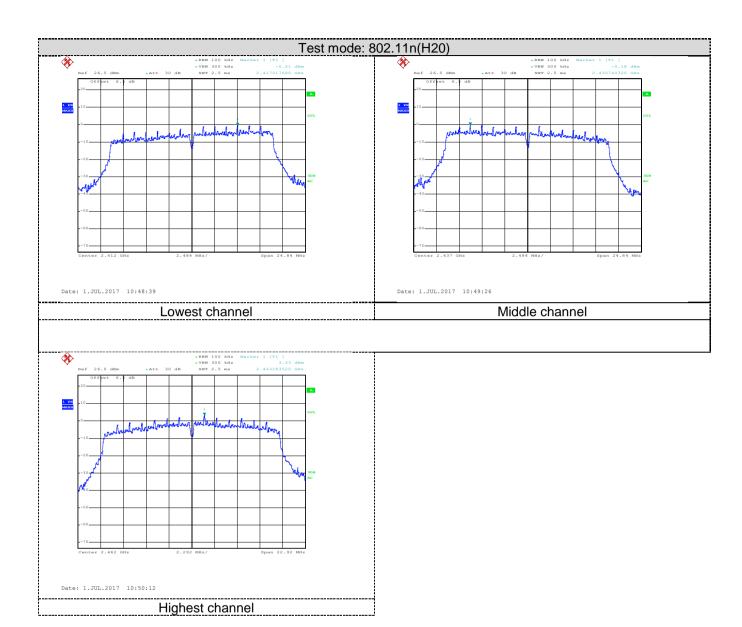














### 6.6 Band Edge

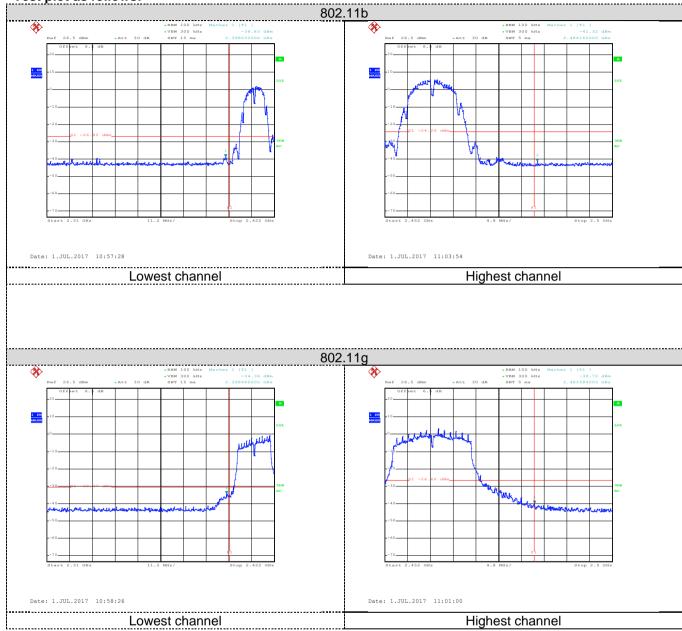
### 6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)				
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 13				
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 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				



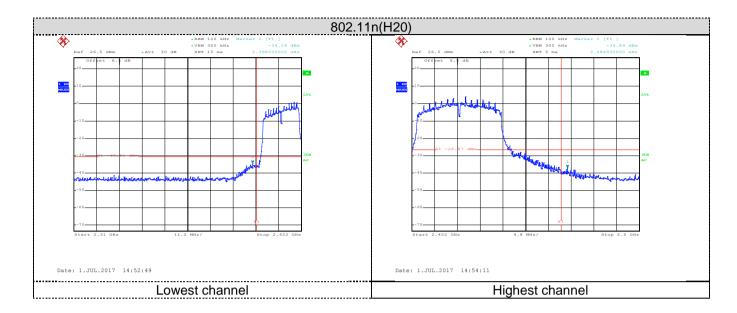












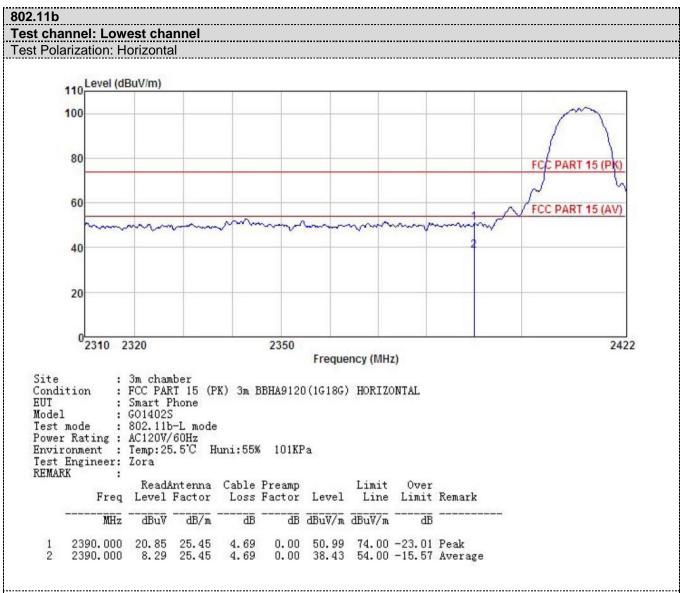


### 6.6.2 Radiated Emission Method

Emit:    Frequency   Limit (GBUV/m @3m)   Remark	2 Nadiated Emission Method								
Section 12.1  Test Frequency Range: 2.3GHz to 2.5GHz  Test site: Measurement Distance: 3m  Receiver setup: Frequency Detector RBW VBW Remark Above 1GHz Peak 1MHz 3MHz Peak Value  Limit: Frequency Limit (dBuV/m @ 3m) Remark Above 1GHz 74.00 Peak Value  Test Procedure: 1. The EUT was placed on the top of a rotating table 1.5 meters and the rotation of the highest radiation.  2. The EUT was selaced on the top of a rotating table 1.5 meters along the determine the position of the highest radiation.  2. The EUT was selaced on the top of a variable-height antens 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 natenna was tuned to heights from 1 meter to 4 meters and the rota table was tuned 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 than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quate peak or average method as specified and then reported in a data sheet.  Test setup:	Test Requirement:								
Test site: Measurement Distance: 3m  Receiver setup: Frequency Detector RBW VBW Remark Above 1 GHz Peak 1 MHz 3MHz Peak Value RMS 1 MHz 3MHz Average Value RMS 1 MHz 3MHz Average Value RMS 1 MHz 3MHz Average Value RMS 1 MHz Above 1 GHz Frequency Limit (dBuV/m @3m) Remark Above 1 GHz 54.00 Average Value Above 1 GHz 74.00 Peak Value  Test Procedure: 1. The EUT was placed on the top of a rotating table 1.5 meters above 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 antent 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 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 than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-dested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:	Test Method:								
Receiver setup:    Frequency	Test Frequency Range:	2.3GHz to 2.5G	Hz						
Above 1GHz   Peak   1MHz   3MHz   Peak Value   RMS   1MHz   3MHz   Average Value   Frequency   Limit (dBuV/m @3m)   Remark   Above 1GHz   Fat.00   Average Value   Above 1GHz   Fat.00   Peak Value   Above 1GHz   Fat.00   Peak Value   Test Procedure:  1. The EUT was placed on the top of a rotating table 1.5 meters above 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 antent 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 from 0 degrees to 360 degree to find the maximum reading.  5. The test-receiver system was set to Peak Detect Function and Specified Bandvidth with Maximum Hold Mode.  6. 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 no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:  Test Instruments: Refer to section 5.6 for details  Refer to section 5.3 for details	Test site:	Measurement D	istance: 3	3m					
Above 1GHz Peak 1MHz 3MHz Average Valie RMS 1MHz 3MHz Average Valie Frequency Limit (dBuV/m @3m) Remark Above 1GHz 74.00 Peak Value 74.00 Peak Value 1. The EUT was placed on the top of a rotating table 1.5 meters above 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 antent 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 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 than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:  Test Instruments: Refer to section 5.6 for details  Refer to section 5.3 for details	Receiver setup:								
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 above 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 antenn 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 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 than the limit specified, then testing could be stopped and the peak valu of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.									
Test Procedure:  1. The EUT was placed on the top of a rotating table 1.5 meters abov 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 antent 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 usspected 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.  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 than the limit specified, then testing could be stopped and the peak valu of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:  Refer to section 5.6 for details  Refer to section 5.3 for details									
Test Procedure:  1. The EUT was placed on the top of a rotating table 1.7 meters above the ground at a 3 meter camber. The table was rotated 360 degret 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 antent 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 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 than the limit specified, then testing could be stopped and the peak valu of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:  Refer to section 5.6 for details  Refer to section 5.3 for details	Limit:	· · · · · · · · · · · · · · · · · · ·							
Test Procedure:  1. The EUT was placed on the top of a rotating table 1.5 meters above 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 antent 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 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 than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet.  Test setup:  Test Instruments:  Refer to section 5.6 for details  Refer to section 5.3 for details		Above 1Gł	Above 1GHz						
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 antent 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 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 than the limit specified, then testing could be stopped and the peak valu of the EUT would be reported. Otherwise the emissions that did no have 10dB margin would be re-tested one by one using peak, quast peak or average method as specified and then reported in a data sheet.  Test setup:  Refer to section 5.6 for details  Refer to section 5.3 for details		4 The FUT		م م		tatina			
Test Instruments:  Refer to section 5.6 for details  Test mode:  Refer to section 5.3 for details		<ol> <li>the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>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.</li> <li>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.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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, quasi-</li> </ol>							
Test mode: Refer to section 5.3 for details	Test setup:	150cm			3m  Ground Reference Plane			Ner Control of the Co	
Test mode: Refer to section 5.3 for details	Test Instruments:	Refer to section	5.6 for de	etails	<u> </u>				
T									
l est results: Passed	Test results:	Passed							



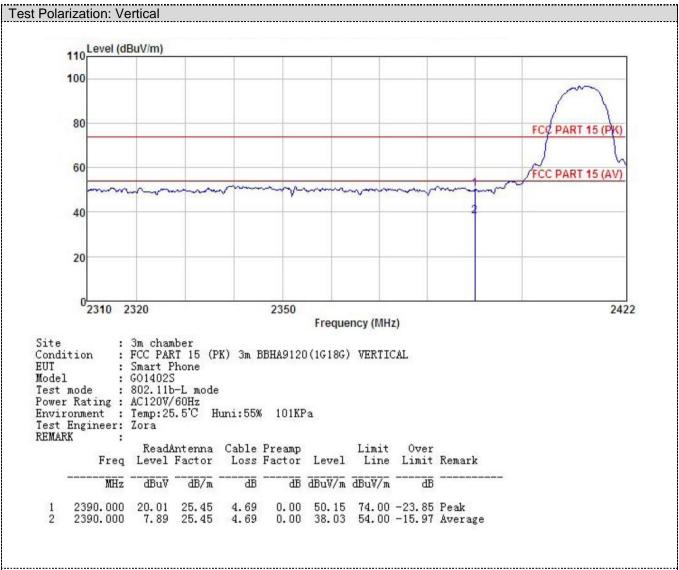




- Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



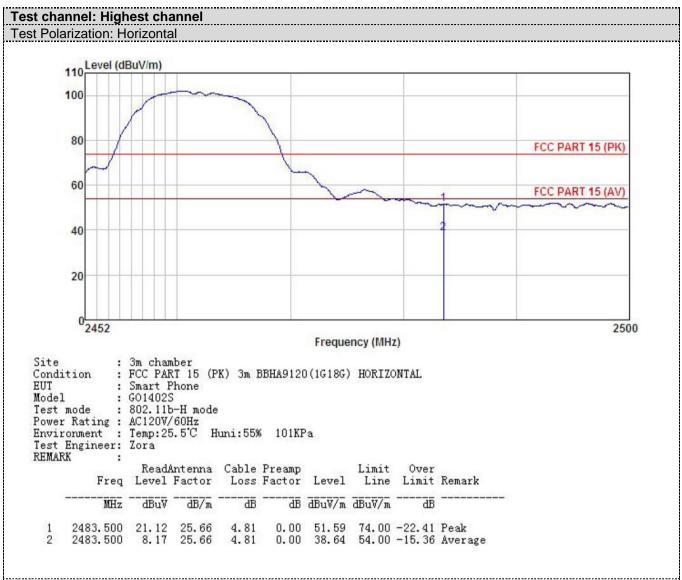




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



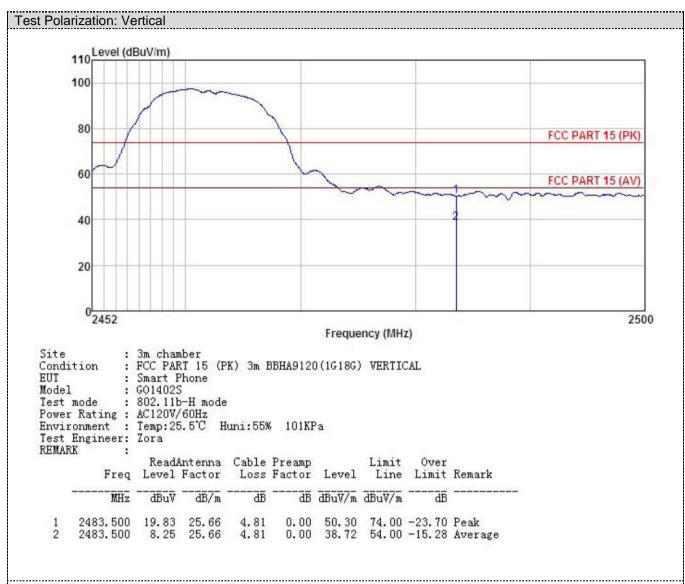




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



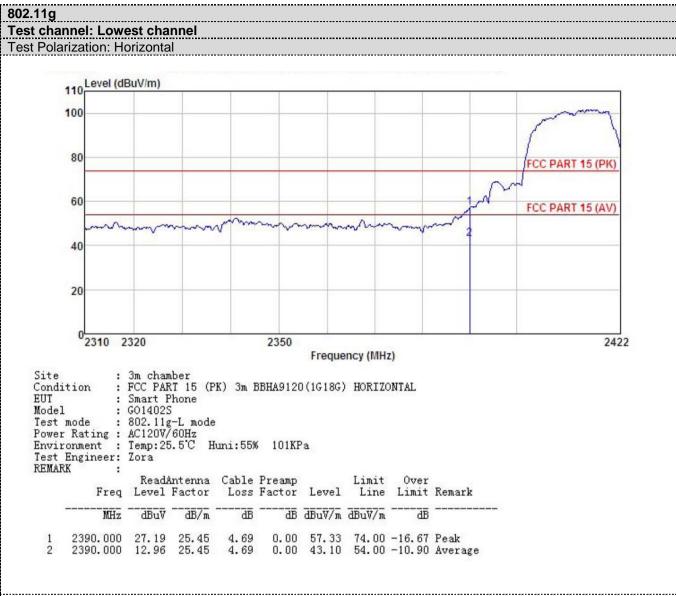




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



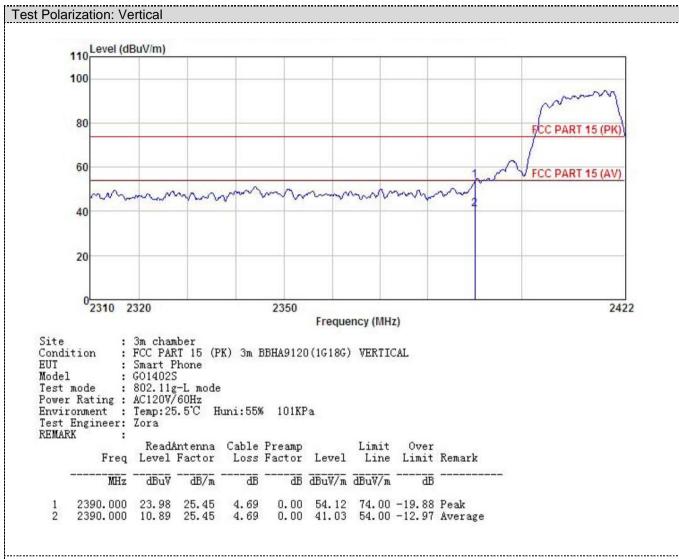




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



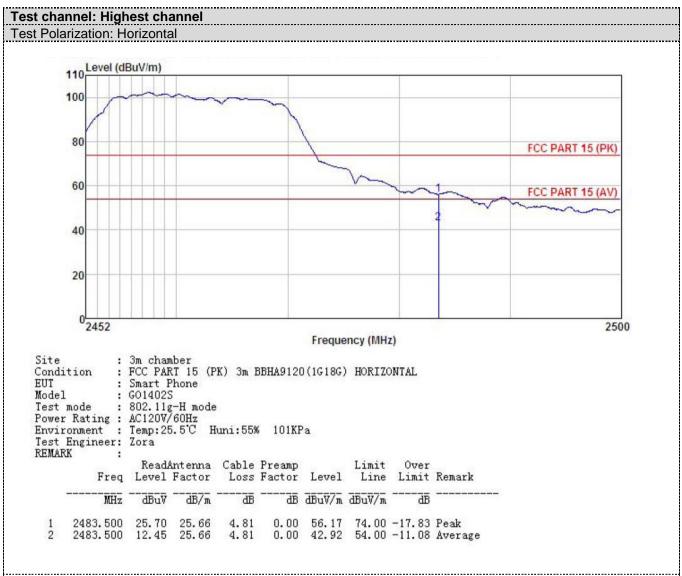




- Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



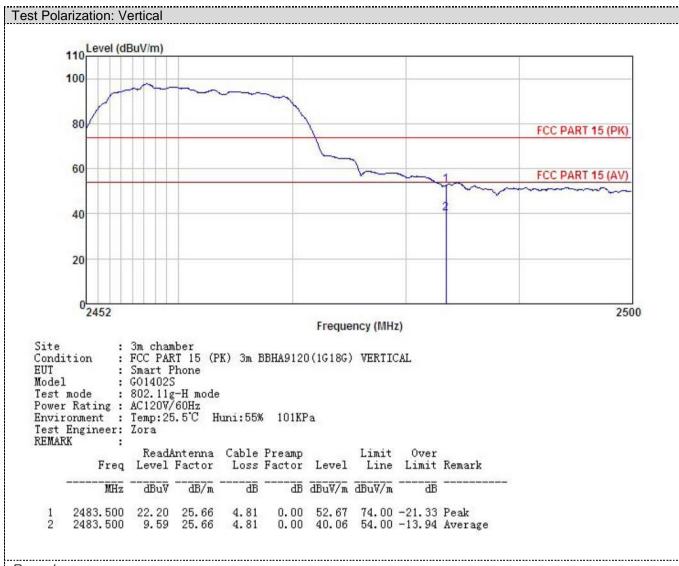




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



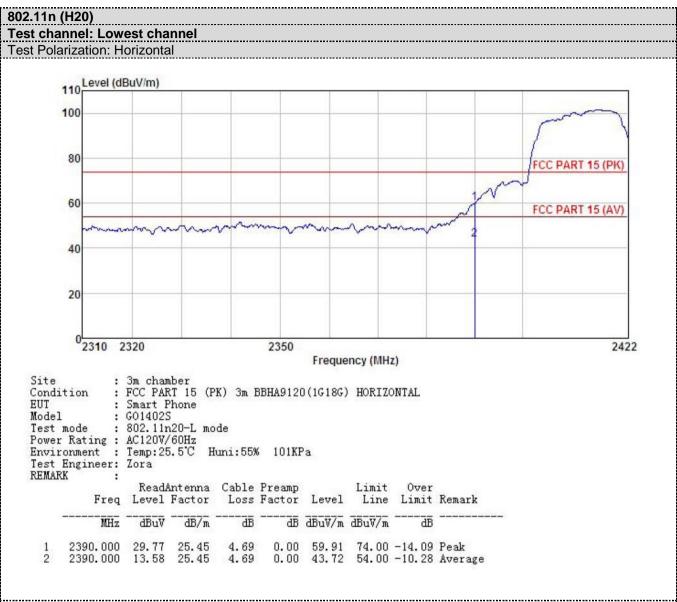




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



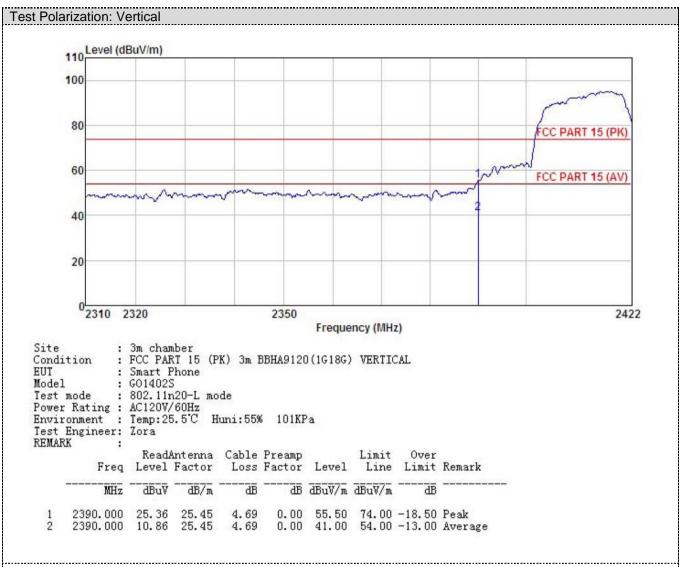




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



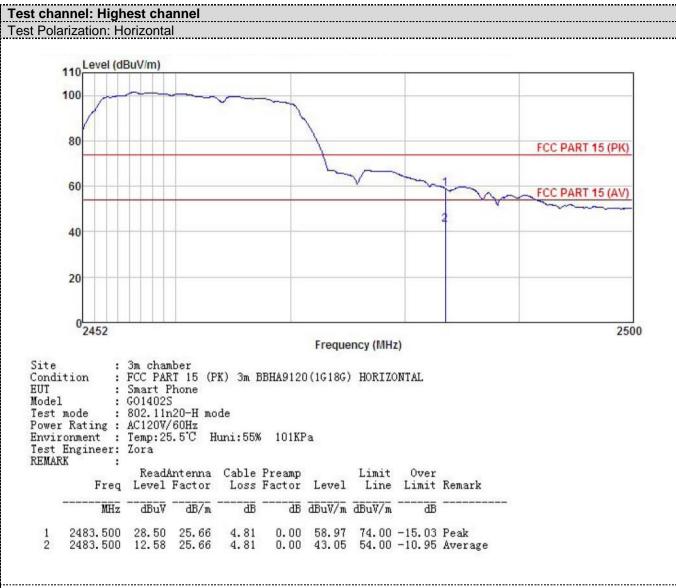




- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



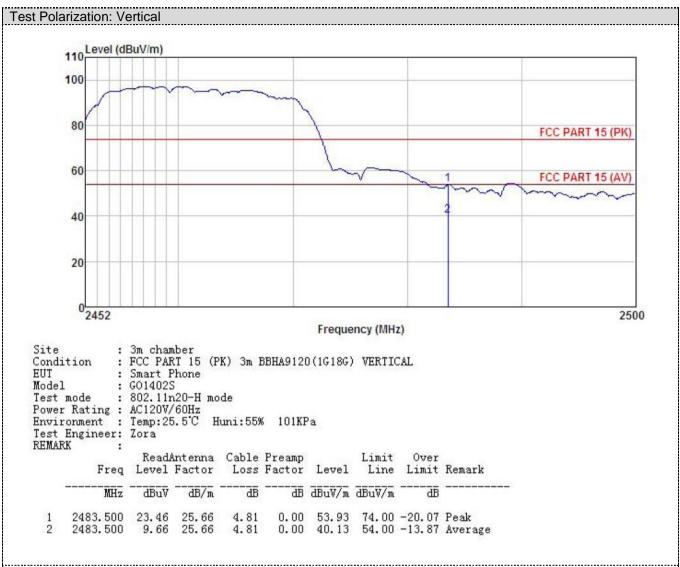




- Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.







- 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

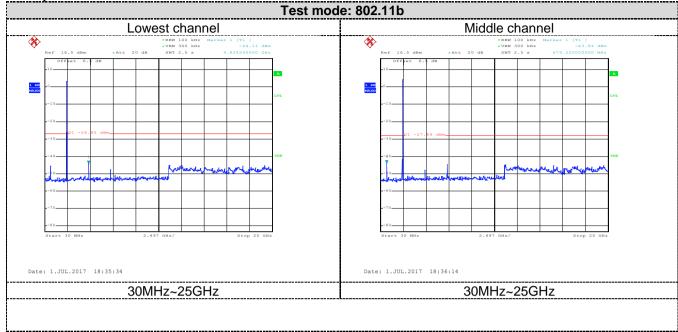
# 6.7.1 Conducted Emission Method

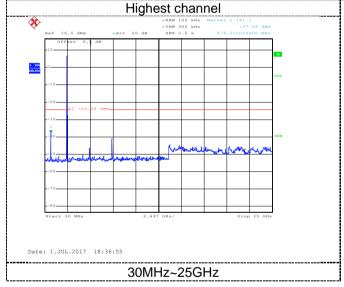
Test Requirement:	FCC Part 15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 11					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced 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 5.6 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					





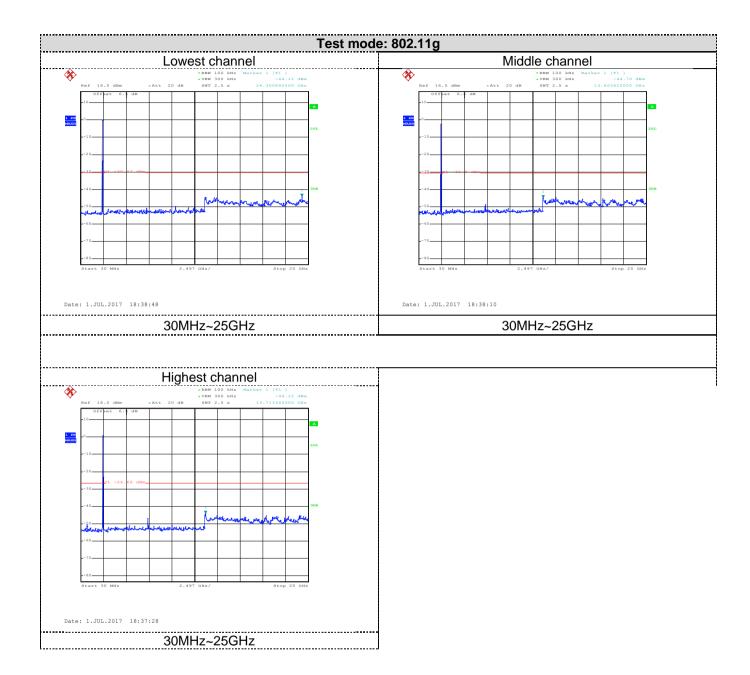
Test plot as follows:





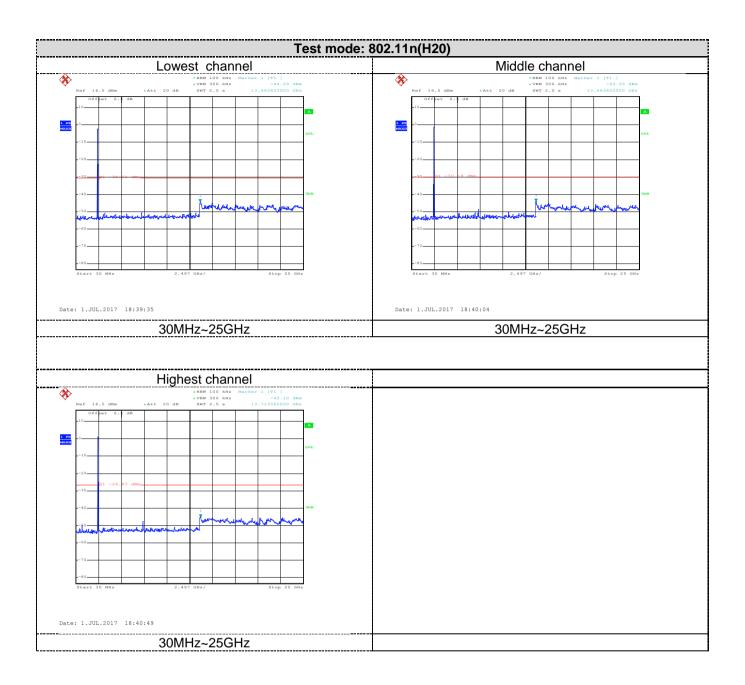














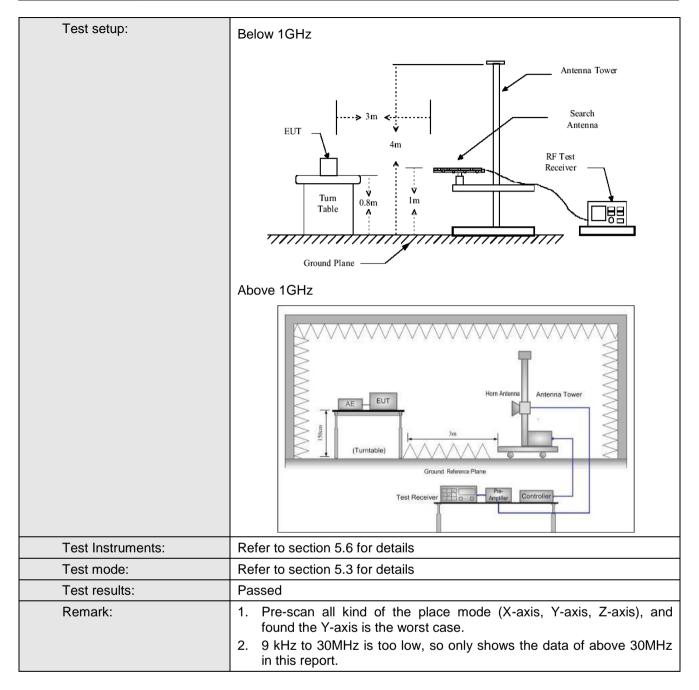


# 6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C S	ection 15.2	209 and 15.205			
Test Method:	ANSI C63.10:201	13				
Test Frequency Range:	9kHz to 25GHz					
Test site:	Measurement Dis	stance: 3m	1			
Receiver setup:	Frequency	Detecto	r RBW	VI	BW	Remark
·	30MHz-1GHz	Quasi-pea	ak 120KHz	300	)KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz		ИHz	Peak Value
		RMS	1MHz		ЛHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3r	m)		Remark
	30MHz-88MH		40.0			uasi-peak Value
	88MHz-216MH		43.5			uasi-peak Value
	216MHz-960M		46.0			uasi-peak Value
	960MHz-1GH	Z	54.0			uasi-peak Value
	Above 1GHz 54.0 Average Value					
Test Procedure:			74.0 on the top of a rota	- 1"	1-1-1-0	Peak Value
	The table was highest radia 2. The EUT was antenna, who tower.  3. The antennathe ground to Both horizon make the med.  4. For each suscase and the meters and the meters and the meters and the find the meters. Specified Bases.  6. If the emission the limit specifies and the limit specifies are specified bases.	as rotated 3 ation. Its set 3 me ich was mo height is voo determinatal and vere easurements pected en the ante eiver system in level of cified, then would be renargin wou	varied from one note the maximum varical polarizations ont.  mission, the EUT enna was tuned to ble was turned from eading.  em was set to Peadith Maximum Hole the EUT in peak on testing could be exported. Otherwis	ne into of a neter value s of the was a being om 0 of a mode stopped the ne by	erferent variable to four of the four of the four enter anter arrange this fro degree tect Furde. e was 1 ped and emissione us	e position of the ace-receiving le-height antenna meters above field strength. Enna are set to led to its worst m 1 meter to 4 s to 360 degrees anction and lodB lower than d the peak values ions that did not sing peak, quasi-

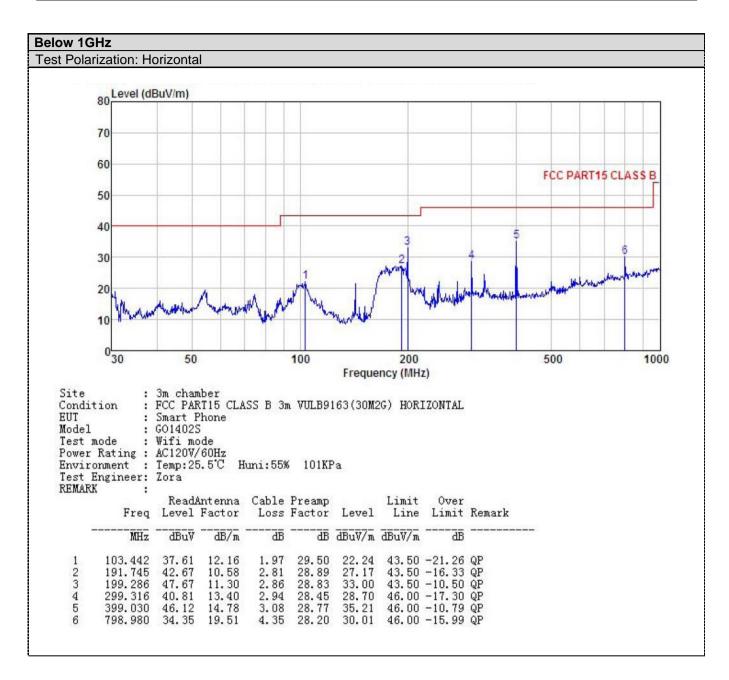






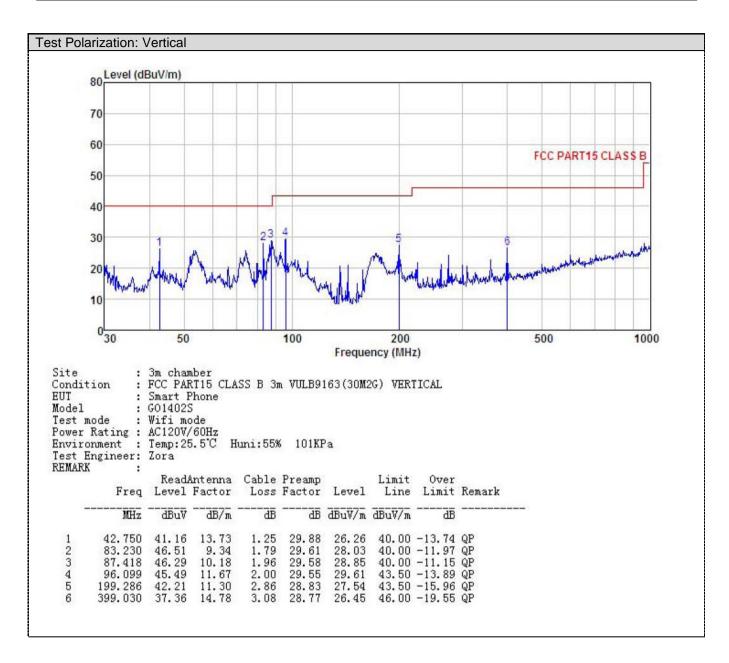














## **Above 1GHz**

Test mode: 802.11b								
			Test char	nnel: Lowest	channel			
				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)	Polar.
4824.00	48.18	36.06	6.81	41.82	49.23	74.00	-24.77	Vertical
4824.00	48.03	36.06	6.81	41.82	49.08	74.00	-24.92	Horizontal
			А	verage 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)	Polar.
4824.00	39.65	36.06	6.81	41.82	40.70	54.00	-13.30	Vertical
4824.00	39.23	36.06	6.81	41.82	40.28	54.00	-13.72	Horizontal
	132 133 1 3332 1 3332 1 3332 1 3332							

	Test channel: Middle channel							
				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)	Polar.
4874.00	46.39	36.32	6.85	41.84	47.72	74.00	-26.28	Vertical
4874.00	46.11	36.32	6.85	41.84	47.44	74.00	-26.56	Horizontal
			А	verage 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)	Polar.
4874.00	37.92	36.32	6.85	41.84	39.25	54.00	-14.75	Vertical
4874.00	37.41	36.32	6.85	41.84	38.74	54.00	-15.26	Horizontal

	Test channel: Highest channel							
				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)	Polar.
4924.00	46.40	36.58	6.89	41.86	48.01	74.00	-25.99	Vertical
4924.00	46.88	36.58	6.89	41.86	48.49	74.00	-25.51	Horizontal
			А	verage 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)	Polar.
4924.00	37.52	36.58	6.89	41.86	39.13	54.00	-14.87	Vertical
4924.00	38.24	36.58	6.89	41.86	39.85	54.00	-14.15	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.



Test mode: 802.11g								
	Test channel: Lowest channel							
			F	Peak Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4824.00	47.85	36.06	6.81	41.82	48.90	74.00	-25.10	Vertical
4824.00	47.74	36.06	6.81	41.82	48.79	74.00	-25.21	Horizontal
			Av	erage Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4824.00	39.65	36.06	6.81	41.82	40.70	54.00	-13.30	Vertical
4824.00	39.48	36.06	6.81	41.82	40.53	54.00	-13.47	Horizontal

	Test channel: Middle channel							
			F	Peak Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	46.41	36.32	6.85	41.84	47.74	74.00	-26.26	Vertical
4874.00	46.76	36.32	6.85	41.84	48.09	74.00	-25.91	Horizontal
			Av	verage Value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	38.15	36.32	6.85	41.84	39.48	54.00	-14.52	Vertical
4874.00	37.77	36.32	6.85	41.84	39.10	54.00	-14.90	Horizontal

	Test channel: Highest channel							
			F	Peak Value				
Fraguenay	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
Frequency	Level	Factor	Loss	Factor			Limit	Polar.
(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4924.00	46.79	36.58	6.89	41.86	48.40	74.00	-25.60	Vertical
4924.00	47.26	36.58	6.89	41.86	48.87	74.00	-25.13	Horizontal
			Av	erage Value				
Fraguenay	Read	Antenna	Cable	Preamp	Lovol	Limit Lina	Over	
Frequency	Level	Factor	Loss	Factor	Level	Limit Line	Limit	Polar.
(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4924.00	38.11	36.58	6.89	41.86	39.72	54.00	-14.28	Vertical
4924.00	37.86	36.58	6.89	41.86	39.47	54.00	-14.53	Horizontal

- 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.



			Test m	ode: 802.11n	(H20)			
			Test char	nnel: Lowest	channel			
				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)	Polar.
4824.00	47.55	36.06	6.81	41.82	48.60	74.00	-25.40	Vertical
4824.00	47.26	36.06	6.81	41.82	48.31	74.00	-25.69	Horizontal
			А	verage Value	<del>)</del>			
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)	Polar.
4824.00	38.75	36.06	6.81	41.82	39.80	54.00	-14.20	Vertical
4824.00	38.47	36.06	6.81	41.82	39.52	54.00	-14.48	Horizontal
			Test cha	nnel: Middle Peak Value	channel			
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)	Polar.
4874.00	46.77	36.32	6.85	41.84	48.10	74.00	-25.90	Vertical
4874.00	46.65	36.32	6.85	41.84	47.98	74.00	-26.02	Horizontal
			А	verage 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)	Polar.
4874.00	37.76	36.32	6.85	41.84	39.09	54.00	-14.91	Vertical
4874.00	37.22	36.32	6.85	41.84	38.55	54.00	-15.45	Horizontal
				nnel: Highest	channel			
			1	Peak Value				1
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	

Factor

(dB)

41.86

41.86

Preamp

Factor

(dB)

41.86

41.86

Average Value

(dBuV/m)

48.17

47.99

Level

(dBuV/m)

39.06

39.23

Limit Line

(dBuV/m)

74.00

74.00

Limit Line

(dBuV/m)

54.00

54.00

RA	ma	rk

Frequency

(MHz)

4924.00

4924.00

Frequency

(MHz)

4924.00

4924.00

Level

(dBuV)

46.56

46.38

Read

Level

(dBuV)

37.45

37.62

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

Loss

(dB)

6.89

6.89

Cable

Loss

(dB)

6.89

6.89

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

Factor

(dB/m)

36.58

36.58

Antenna

Factor

(dB/m)

36.58

36.58

Project No.: CCISE1709033

Polar.

Vertical

Horizontal

Polar.

Vertical

Horizontal

Limit

(dB)

-25.83

-26.01

Over

Limit

(dB)

-14.94

-14.77