

# FCC REPORT (UNII)

**Applicant:** Shenzhen Gotron Electronic CO., LTD.  
**Address of Applicant:** 518, 5F, R&D building, Tsinghua Hi-Tech park, Nanshan district, Shenzhen 518057 P.R. China

## Equipment Under Test (EUT)

Product Name: Mobile Phone  
Model No.: GQ3060  
Trade mark: ulefone

**FCC ID:** 2AOWK3060

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart E Section 15.407

**Date of sample receipt:** 01 Jun., 2018

**Date of Test:** 05 Jun., to 31 Jul., 2018

**Date of report issued:** 1 Aug., 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.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## 3 Contents

	Page
<b>1 COVER PAGE.....</b>	<b>1</b>
<b>2 VERSION.....</b>	<b>2</b>
<b>3 CONTENTS.....</b>	<b>3</b>
<b>4 TEST SUMMARY.....</b>	<b>4</b>
<b>5 GENERAL INFORMATION.....</b>	<b>5</b>
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF E.U.T.....	5
5.3 TEST ENVIRONMENT AND TEST MODE.....	7
5.4 DESCRIPTION OF SUPPORT UNITS.....	8
5.5 MEASUREMENT UNCERTAINTY.....	8
5.6 RELATED SUBMITTAL(S) / GRANT (S).....	8
5.7 LABORATORY FACILITY.....	8
5.8 LABORATORY LOCATION.....	8
5.9 TEST INSTRUMENTS LIST.....	9
<b>6 TEST RESULTS AND MEASUREMENT DATA.....</b>	<b>10</b>
6.1 ANTENNA REQUIREMENT.....	10
6.2 CONDUCTED EMISSION.....	11
6.3 CONDUCTED OUTPUT POWER.....	14
6.4 OCCUPY BANDWIDTH.....	16
6.5 6.5POWER SPECTRAL DENSITY.....	26
6.6 BAND EDGE.....	32
6.7 SPURIOUS EMISSION.....	40
6.7.1 Restricted Band.....	40
6.7.2 Unwanted Emissions out of the Restricted Bands.....	47
6.8 FREQUENCY STABILITY.....	57
<b>7 TEST SETUP PHOTO.....</b>	<b>59</b>
<b>8 EUT CONSTRUCTIONAL DETAILS.....</b>	<b>60</b>

## 4 Test Summary

Test Item	Section in CFR 47	Test Result
Antenna requirement	15.203 & 15.407 (a)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.407 (a) (1) (iv) & (a) (3)	Pass
26dB Occupied Bandwidth	15.407 (a) (5)	Pass
6dB Emission Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407 (a) (1) (iv) & (a) (3)	Pass
Band Edge	15.407(b)	Pass
Spurious Emission	15.407 (b) & 15.205 & 15.209	Pass
Frequency Stability	15.407(g)	Pass
<i>Pass: The EUT complies with the essential requirements in the standard.</i> <i>N/A: N/A: Not Applicable.</i>		

## 5 General Information

### 5.1 Client Information

Applicant:	Shenzhen Gotron Electronic CO., LTD.
Address:	518, 5F, R&D building, Tsinghua Hi-Tech park, Nanshan district, Shenzhen 518057 P.R. China
Manufacturer	Shenzhen Gotron Electronic CO., LTD.
Address:	518, 5F, R&D building, Tsinghua Hi-Tech park, Nanshan district, Shenzhen 518057 P.R. China

### 5.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	GQ3060
Operation Frequency:	Band 1: 5150MHz-5250MHz Band 4: 5725MHz-5825MHz
Channel numbers:	Band 1: 802.11a/802.11n20: 4, 802.11n40: 2 Band 4: 802.11a/802.11n20: 5, 802.11n40: 2
Channel separation:	802.11a/802.11n20: 20MHz, 802.11n40: 40MHz
Modulation technology (IEEE 802.11a):	BPSK, QPSK, 16-QAM, 64-QAM
Modulation technology (IEEE 802.11n):	BPSK, QPSK, 16-QAM, 64-QAM
Modulation technology (IEEE 802.11ac):	BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Data speed (IEEE 802.11a):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n20):	MCS0: 6.5Mbps, MCS1:13Mbps, MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps
Data speed (IEEE 802.11n40):	MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps
Data speed (IEEE 802.11ac):	Up to 433.3Mbps
Antenna Type:	Internal Antenna
Antenna gain:	2.5 dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-10300mAh
AC adapter:	Model: APS-KI018WU-G Input: AC100-240V, 50/60Hz 0.5A MAX Output: DC 5V/7V/9V, 2.0A; 12V, 1.5A.

Operation Frequency each of channel			
Band 1			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz
40	5200MHz	46	5230MHz
44	5220MHz		
48	5240MHz		
Band 4			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz
153	5765MHz	159	5795MHz
157	5785MHz		
161	5805MHz		
165	5825MHz		

**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:

Band 1			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
Lowest channel	5180MHz	Lowest channel	5190MHz
Middle channel	5200MHz	Highest channel	5230MHz
Highest channel	5240MHz		
Band 4			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
Lowest channel	5745MHz	Lowest channel	5755MHz
Middle channel	5785MHz	Highest channel	5795MHz
Highest channel	5825MHz		

### 5.3 Test environment and test mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
<b>Test mode:</b>	
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.
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:	
<b>Per-scan all kind of data rate, and found the follow list were the worst case.</b>	
Mode	Data rate
802.11a	6 Mbps
802.11n20	6.5 Mbps
802.11n40	13.5 Mbps

## 5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	PC	OPTIPLEX745	N/A	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
FLY POWER	Switching Adapter	PS24A120K2000UD	N/A	N/A

## 5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±2.22 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.28 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±2.88 dB (k=2)

## 5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

## 5.7 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>

## 5.8 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



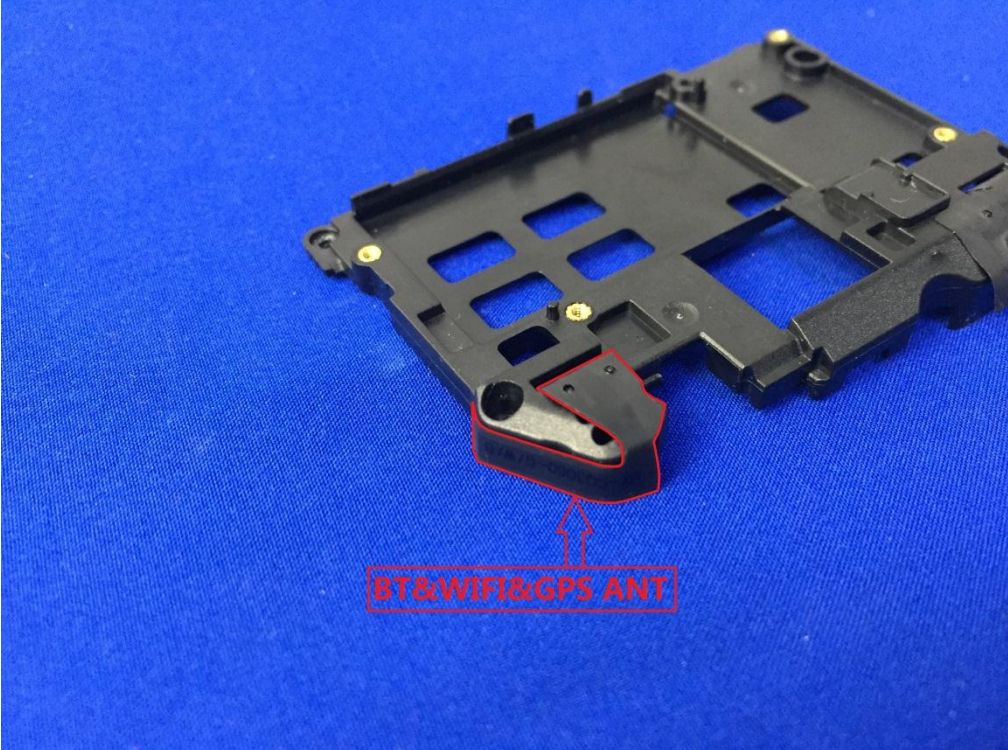
## 5.9 Test Instruments list

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
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	21-11-2017	20-11-2018
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
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	21-11-2017	20-11-2018
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	07-21-2017	07-20-2018
				07-20-2018	07-19-2019
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

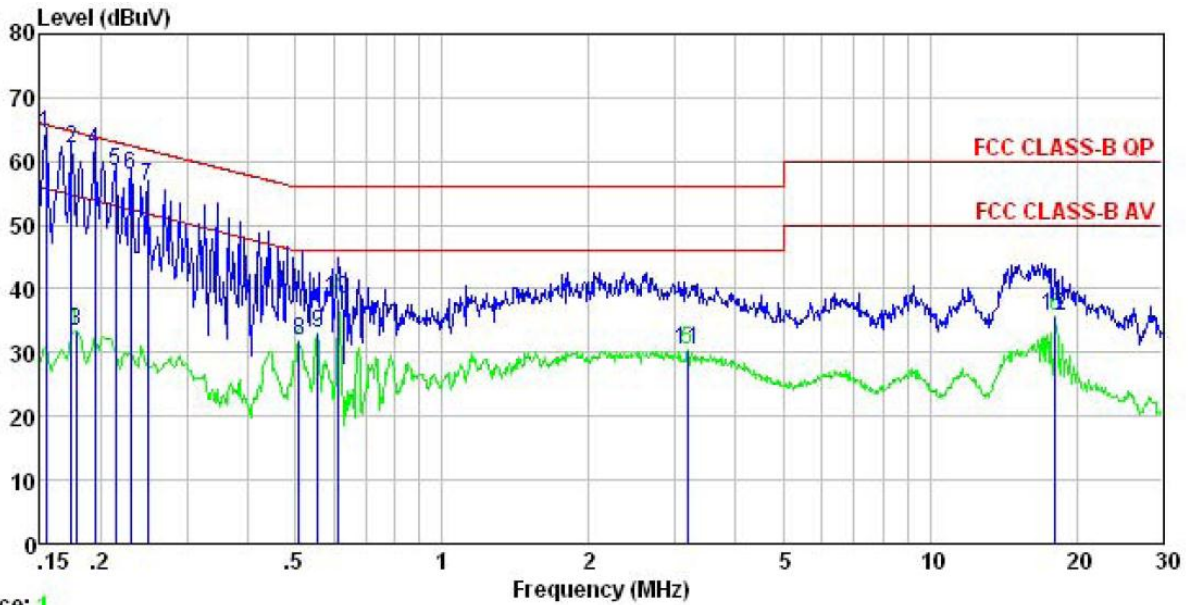
<b>Standard requirement:</b>	FCC Part15 E Section 15.203 /407(a)
<p>15.203 requirement:            An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna 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.            This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>	
<b>E.U.T Antenna:</b>	
<p>The WiFi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is 2.5 dBi.</p>	
	

## 6.2 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
	0.15-0.5	Quasi-peak	
		66 to 56*	0.15-0.5
	0.5-5	56	0.5-5
	5-30	60	5-30
* Decreases with the logarithm of the frequency.			
Test procedure	<ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>		
Test setup:	<p><i>Remark:</i>  E.U.T: Equipment Under Test  LISN: Line Impedance Stabilization Network  Test table height=0.8m</p>		
Test Instruments:	Refer to section 5.9 for details		
Test mode:	Refer to section 5.3 for details.		
Test results:	Passed		

**Measurement Data:**

Test Phase: Line



Trace: 1

Site : CCIS Shielding Room  
 Condition : FCC CLASS-B QP LISN LINE  
 EUT : Mobile Phone  
 Model : GQ3060  
 Test Mode : 5G-WIFI mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23.5°C Humi:57% Atmos:101KPa  
 Test Engineer: Carey  
 Remark :

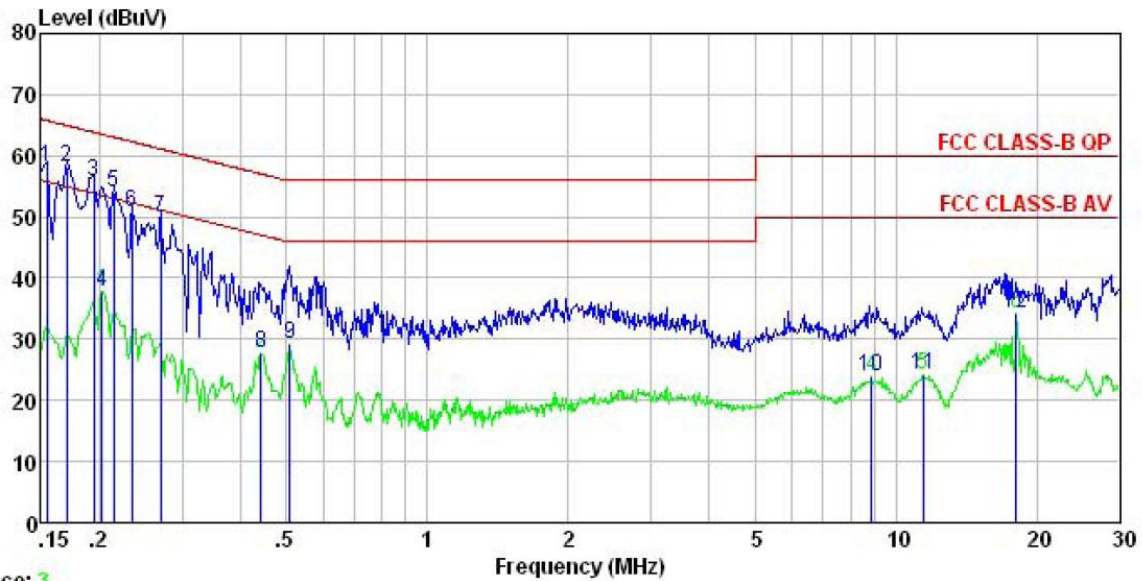
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	53.34	0.18	10.78	64.30	65.78	-1.48	QP
2	0.174	51.12	0.16	10.77	62.05	64.77	-2.72	QP
3	0.178	21.73	0.95	10.77	33.45	54.59	-21.14	Average
4	0.194	50.78	0.15	10.76	61.69	63.84	-2.15	QP
5	0.214	47.57	0.15	10.76	58.48	63.05	-4.57	QP
6	0.230	46.92	0.14	10.75	57.81	62.44	-4.63	QP
7	0.249	45.06	0.14	10.75	55.95	61.78	-5.83	QP
8	0.510	20.15	0.97	10.76	31.88	46.00	-14.12	Average
9	0.555	21.22	0.97	10.76	32.95	46.00	-13.05	Average
10	0.614	26.59	0.97	10.77	38.33	46.00	-7.67	Average
11	3.190	18.61	0.99	10.91	30.51	46.00	-15.49	Average
12	18.039	23.95	0.77	10.92	35.64	50.00	-14.36	Average

**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.



Test Phase: Neutral



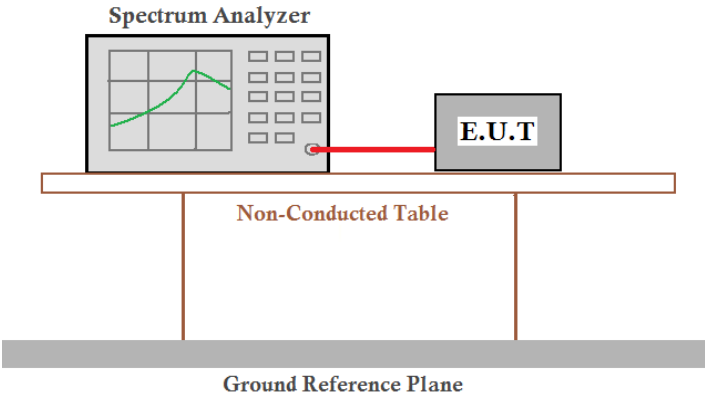
Trace: 3  
 Site : CCIS Shielding Room  
 Condition : FCC CLASS-B QP LISN NEUTRAL  
 EUT : Mobile Phone  
 Model : GQ3060  
 Test Mode : 5G-WIFI mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23.5°C Humi:57% Atmos:101KPa  
 Test Engineer: Carey  
 Remark :

	Read Freq	Level	LISN Factor	Cable Loss	Level	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	46.39	0.98	10.78	58.15	65.78	-7.63	QP
2	0.170	46.28	0.96	10.77	58.01	64.94	-6.93	QP
3	0.194	44.20	0.93	10.76	55.89	63.84	-7.95	QP
4	0.202	26.19	0.92	10.76	37.87	53.54	-15.67	Average
5	0.214	42.41	0.93	10.76	54.10	63.05	-8.95	QP
6	0.234	39.20	0.94	10.75	50.89	62.30	-11.41	QP
7	0.270	38.29	0.96	10.75	50.00	61.12	-11.12	QP
8	0.442	16.02	0.97	10.74	27.73	47.02	-19.29	Average
9	0.510	17.60	0.97	10.76	29.33	46.00	-16.67	Average
10	8.869	12.13	1.02	10.89	24.04	50.00	-25.96	Average
11	11.438	12.17	0.98	10.93	24.08	50.00	-25.92	Average
12	18.039	22.48	0.77	10.92	34.17	50.00	-15.83	Average

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

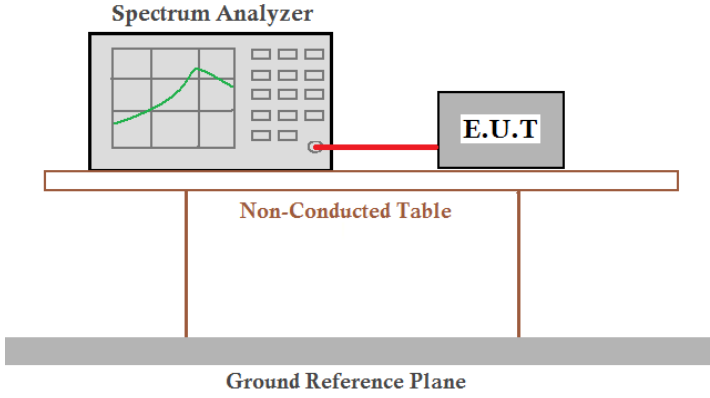
Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) & (a) (3)
Test Method:	ANSI C63.10: 2013, KDB789033
Limit:	Band 1: 24dBm Band 4: 30dBm
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Data:**

Band 1				
Mode	Test CH	Conducted Output power (dBm)	Limit (dBm)	Result
802.11a	Lowest	6.84	24.00	Pass
	Middle	6.70		
	Highest	6.23		
802.11n20	Lowest	6.46	24.00	Pass
	Middle	6.22		
	Highest	6.01		
802.11n40	Lowest	5.86	24.00	Pass
	Highest	5.70		

Band 4				
Mode	Test CH	Conducted Output power (dBm)	Limit (dBm)	Result
802.11a	Lowest	6.49	30.00	Pass
	Middle	6.56		
	Highest	6.28		
802.11n20	Lowest	5.94	30.00	Pass
	Middle	5.48		
	Highest	5.72		
802.11n40	Lowest	5.09	30.00	Pass
	Highest	5.61		

## 6.4 Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407 (a) (5) and Section 15.407 (e)
Test Method:	ANSI C63.10:2013 and KDB 789033
Limit:	Band 1//4: N/A (26dB Emission Bandwidth and 99% Occupy Bandwidth) Band 4: >500kHz (6dB Bandwidth)
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

### Measurement Data:

#### Band 1:

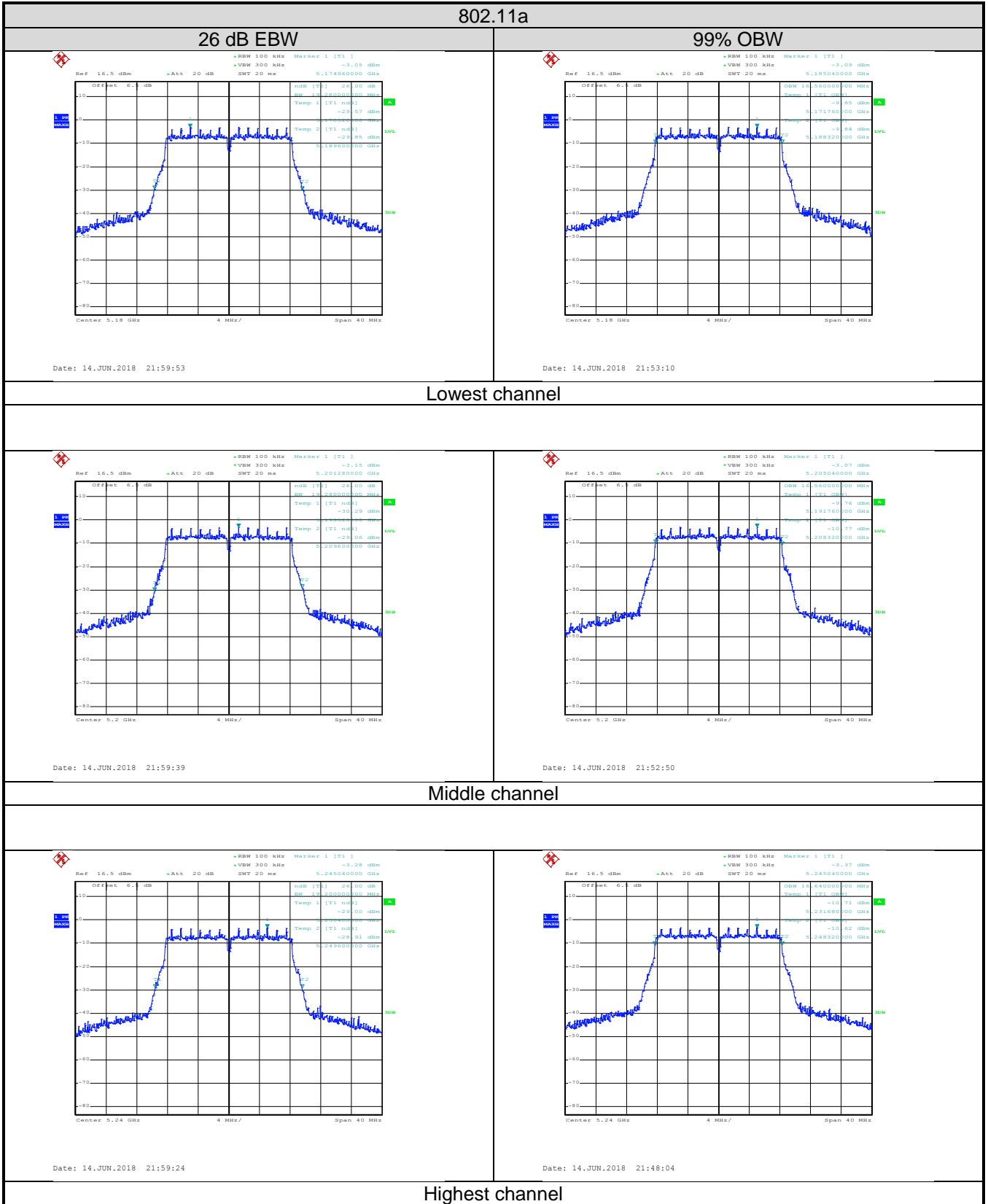
Test Channel	26dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n (HT20)	802.11n (HT40)		
Lowest	19.28	19.68	38.72	N/A	PASS
Middle	19.28	19.68	---		
Highest	19.20	19.52	38.56		
Test Channel	99% Occupy Bandwidth (MHz)			Limit	Result
	802.11a	802.11n (HT20)	802.11n (HT40)		
Lowest	16.56	17.68	36.16	N/A	PASS
Middle	16.56	17.76	---		
Highest	16.64	17.76	36.16		

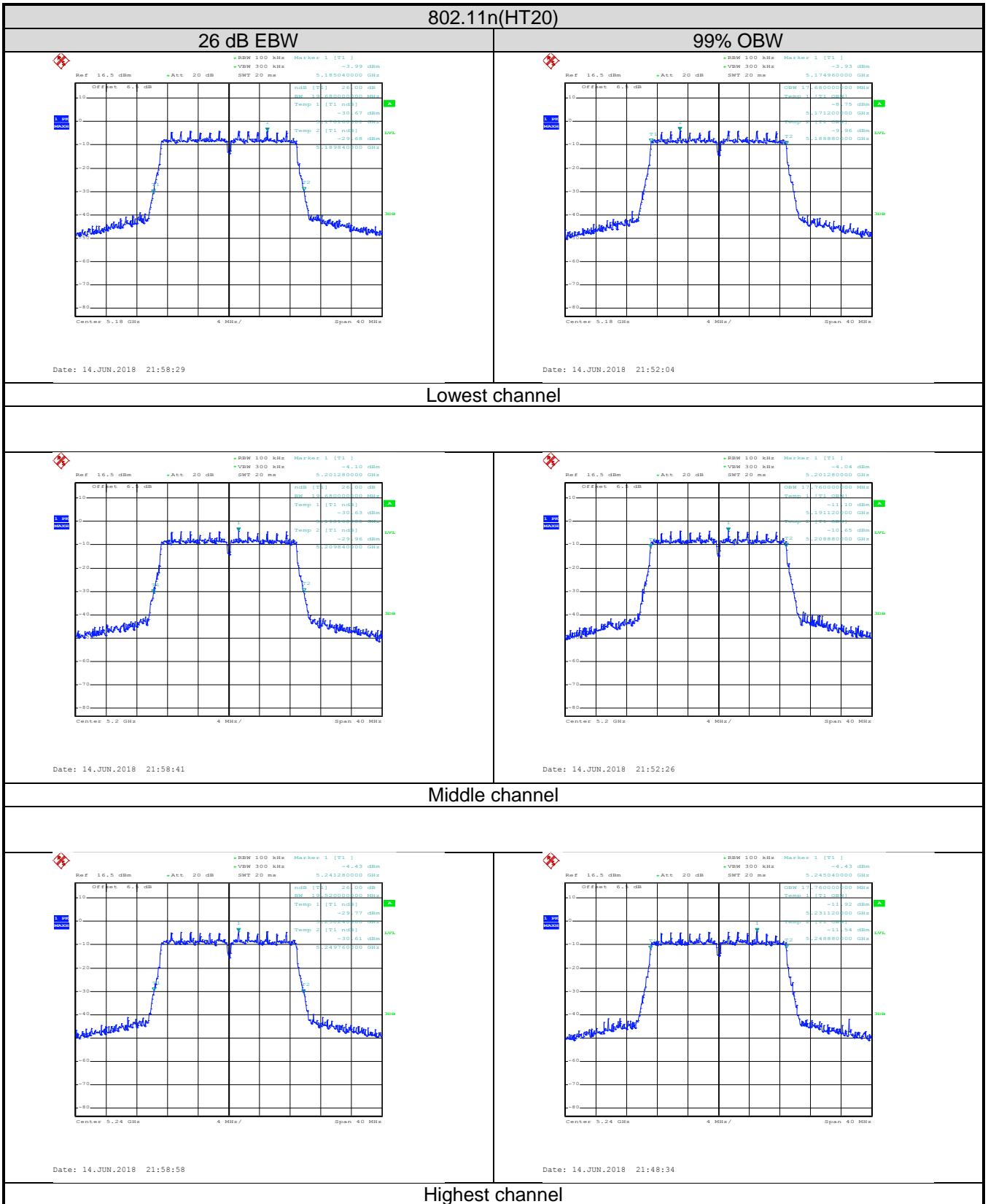


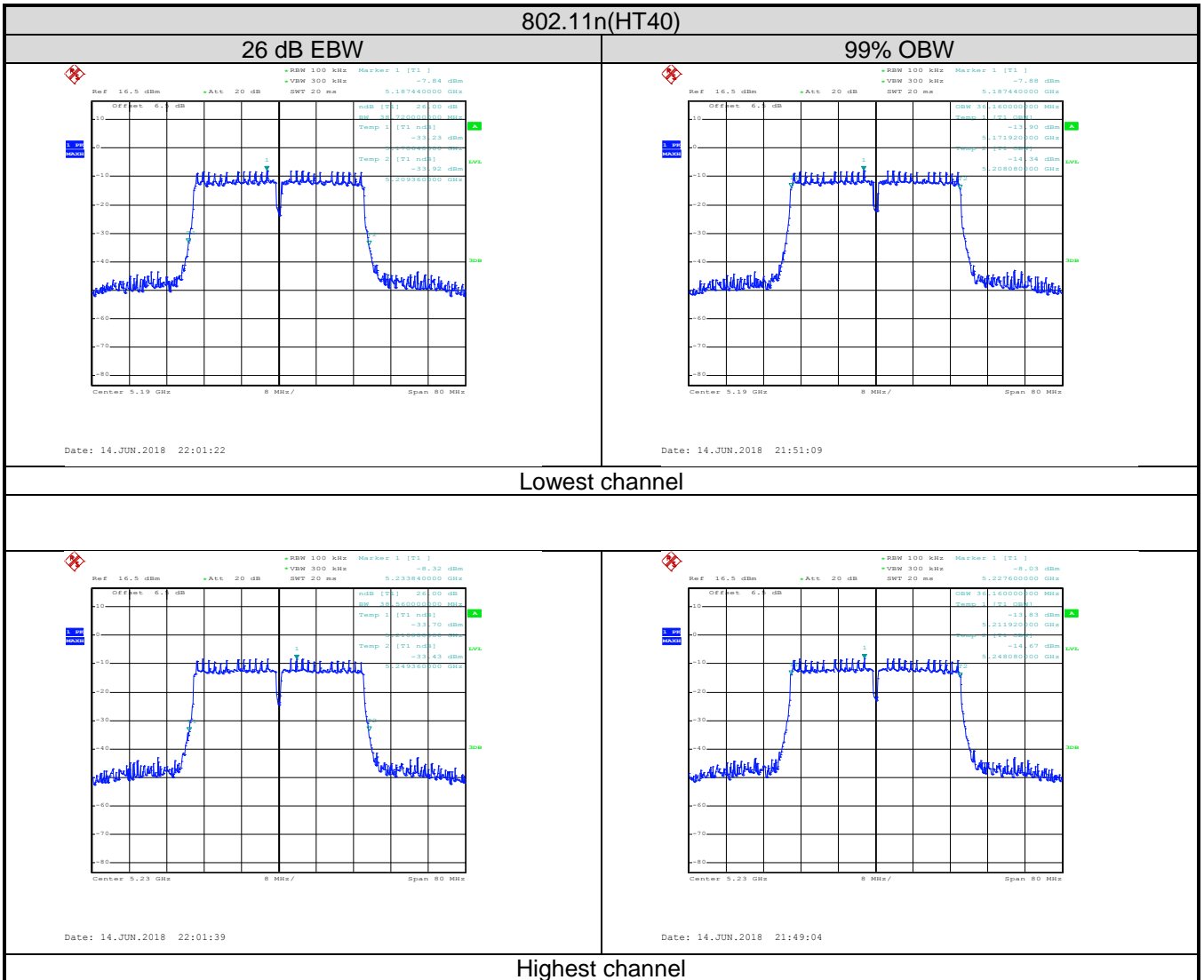
**Band 4:**

Test Channel	26dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n (HT20)	802.11n (HT40)		
Lowest	19.28	19.68	38.72	N/A	PASS
Middle	19.20	19.52	---		
Highest	19.28	19.60	38.72		
Test Channel	99% Occupy Bandwidth (MHz)			Limit	Result
	802.11a	802.11n (HT20)	802.11n (HT40)		
Lowest	16.56	17.68	36.16	N/A	PASS
Middle	16.56	17.68	---		
Highest	16.56	17.68	36.16		
Test Channel	6dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n (HT20)	802.11n (HT40)		
Lowest	16.56	17.76	36.64	>500kHz	PASS
Middle	16.56	17.76	---		
Highest	16.56	17.76	36.64		

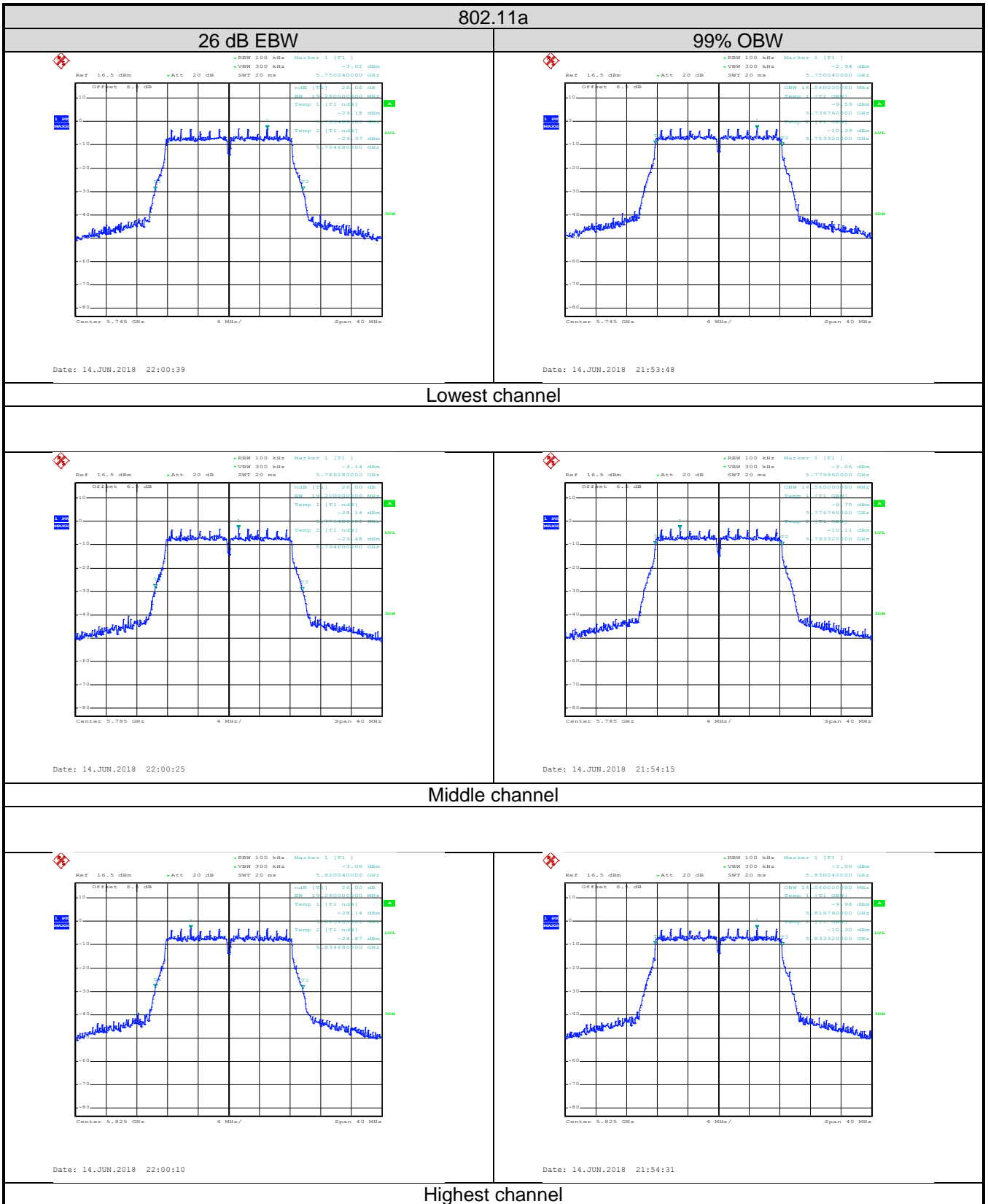
Test plot as follows:  
Band 1:

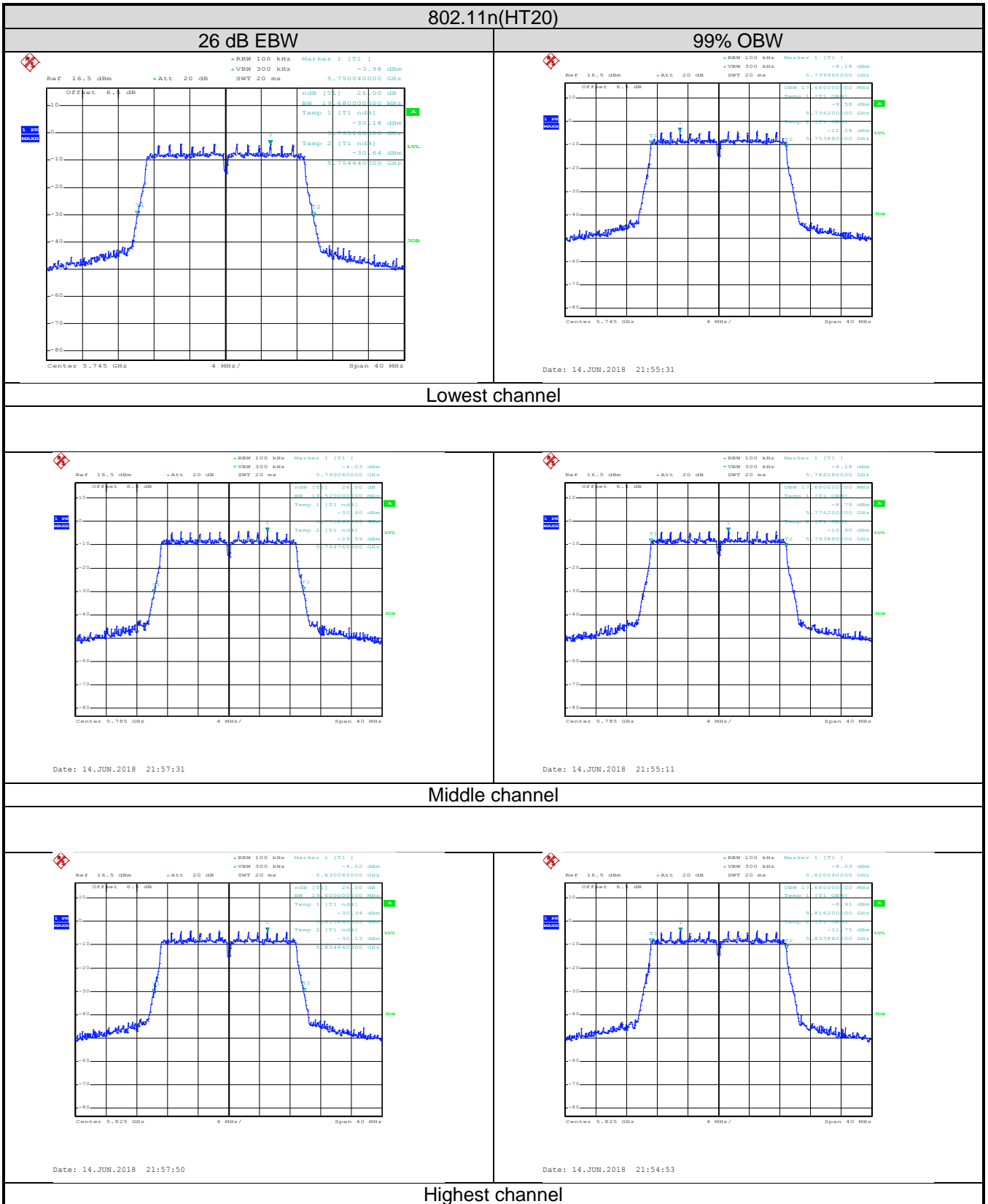


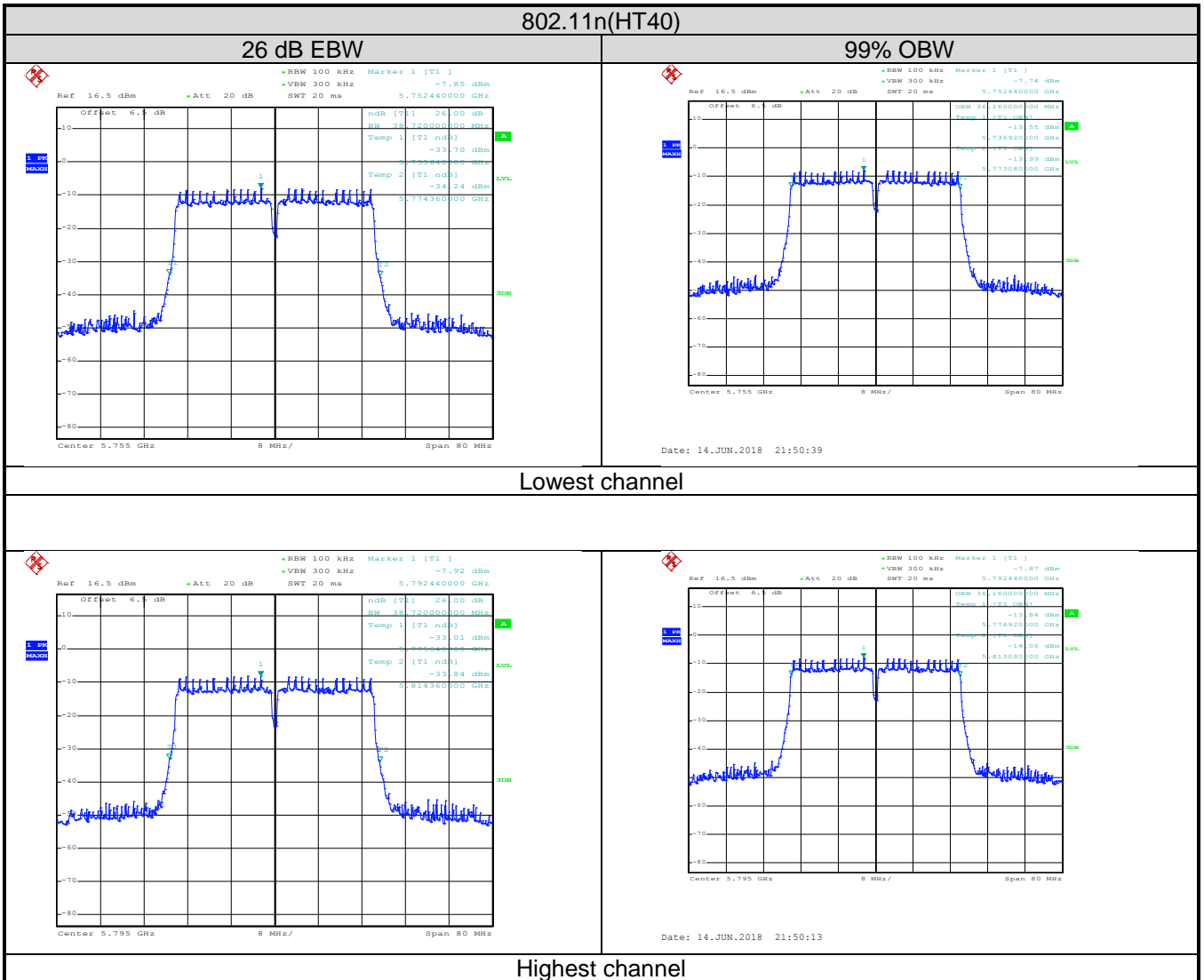


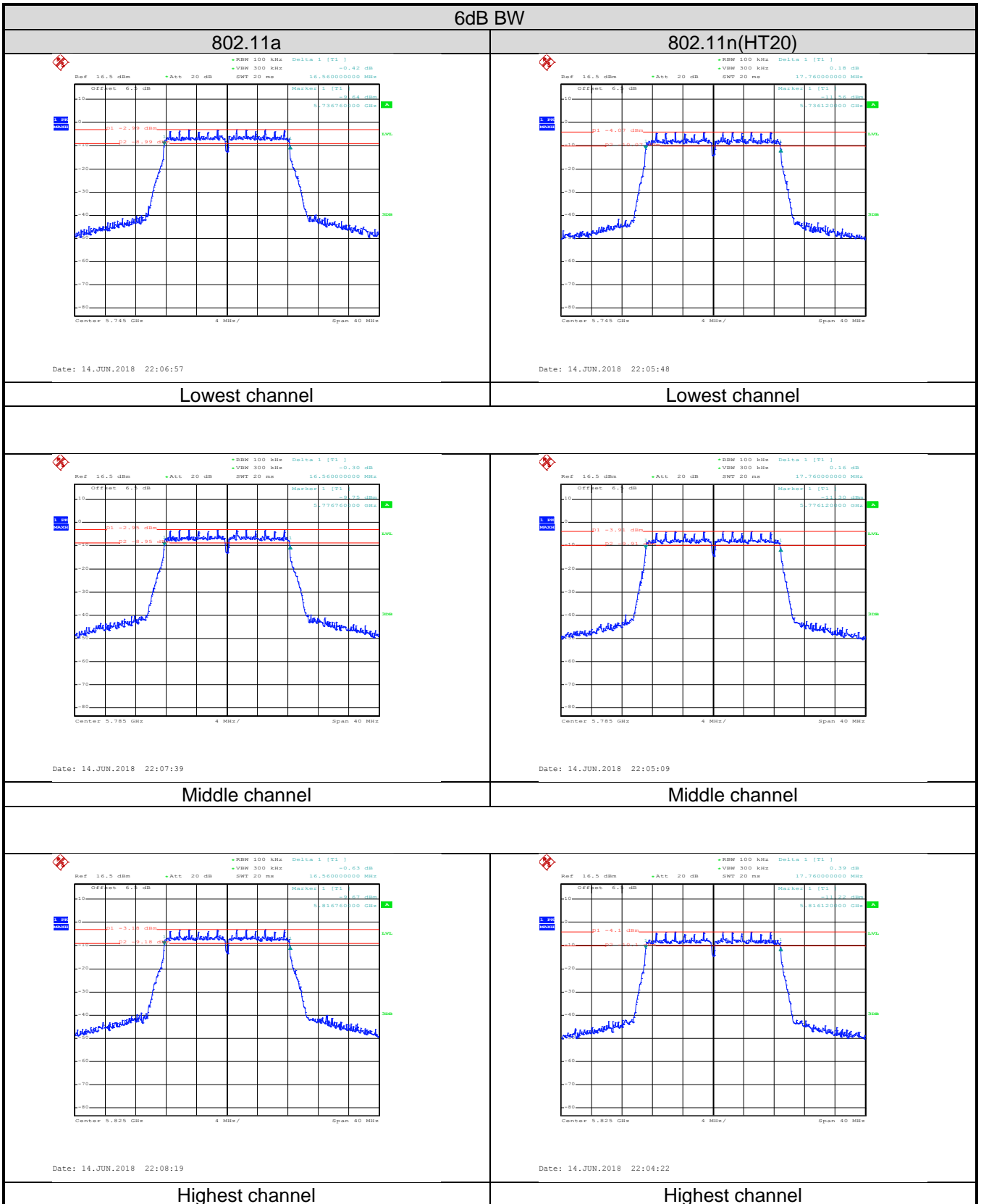


**Band 4:**

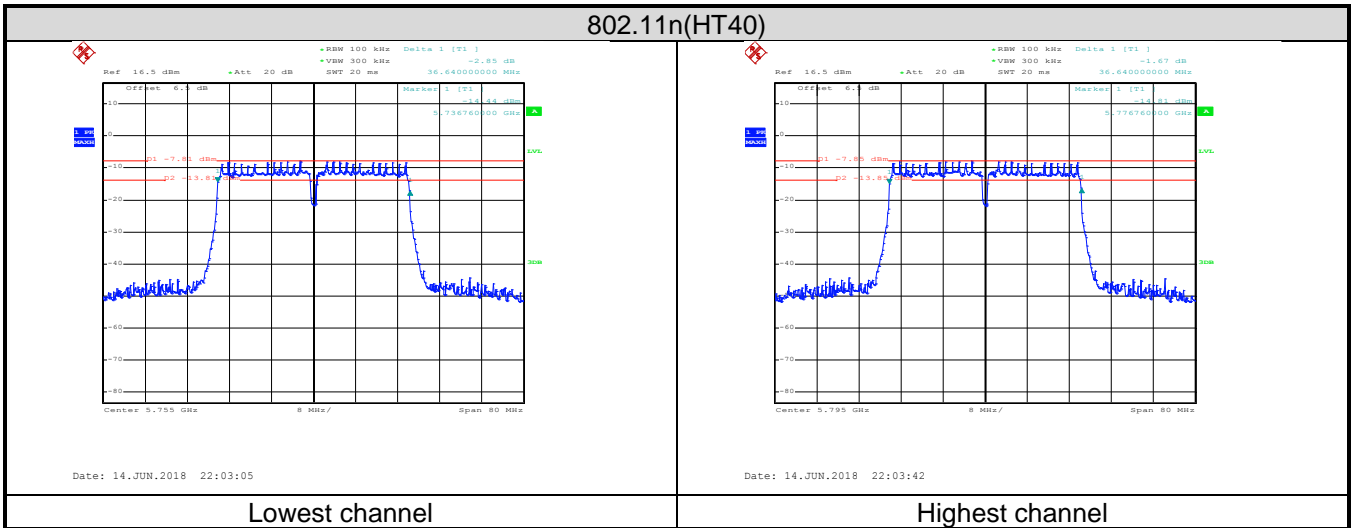




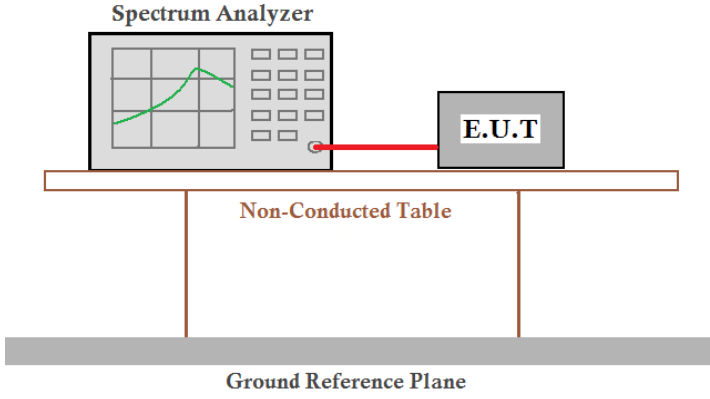








## 6.5 Power Spectral Density

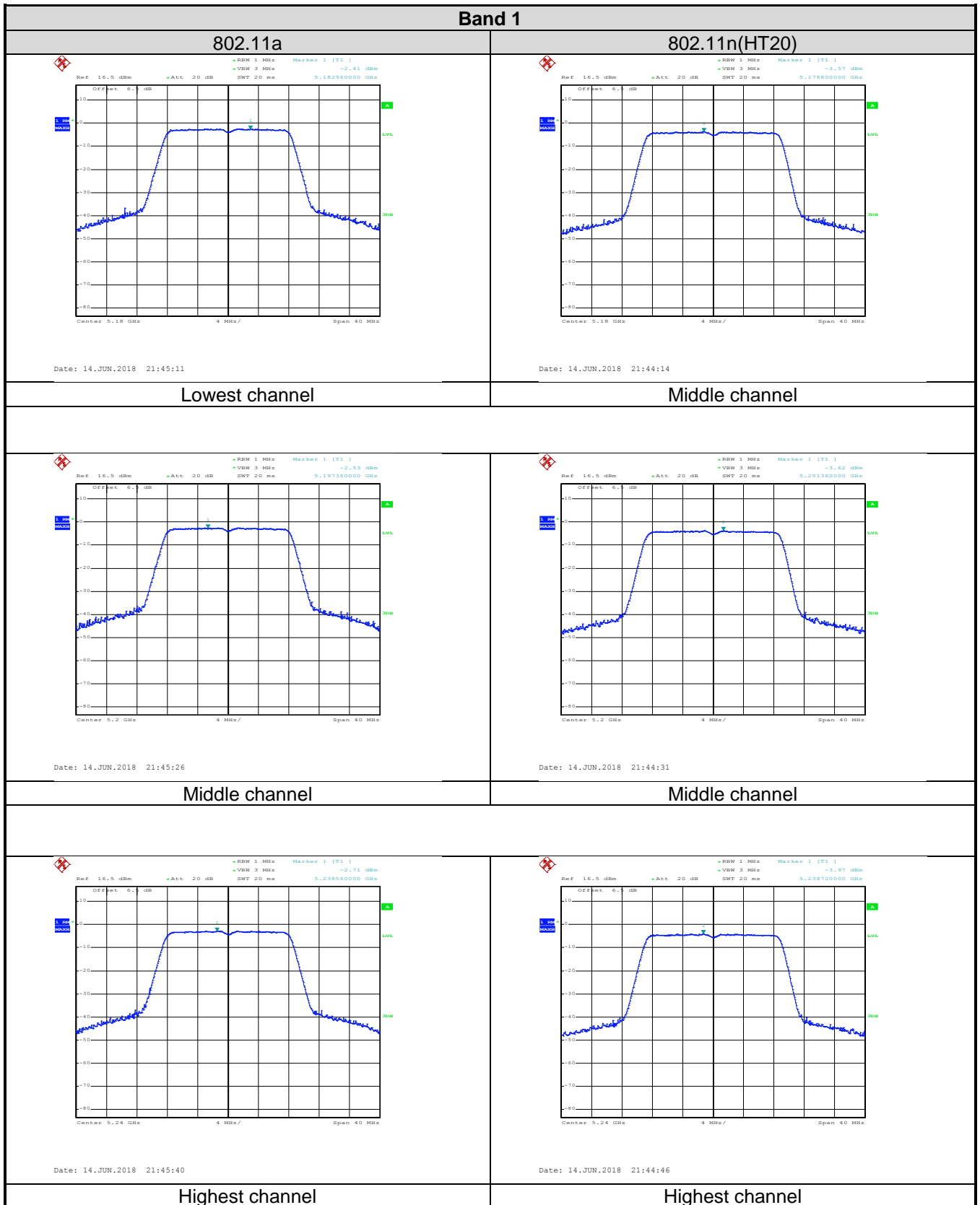
Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) & (a)(3)
Test Method:	ANSI C63.10:2013, KDB 789033
Limit:	Band 1: 11 dBm/MHz Band 4: 30 dBm/500kHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

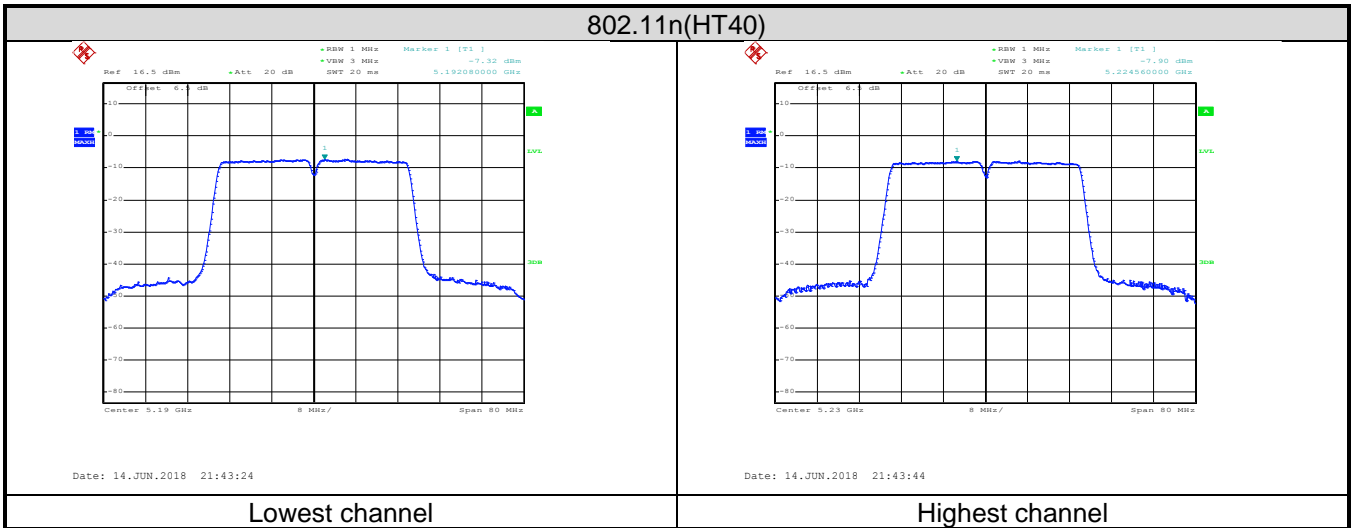
**Measurement Data:**

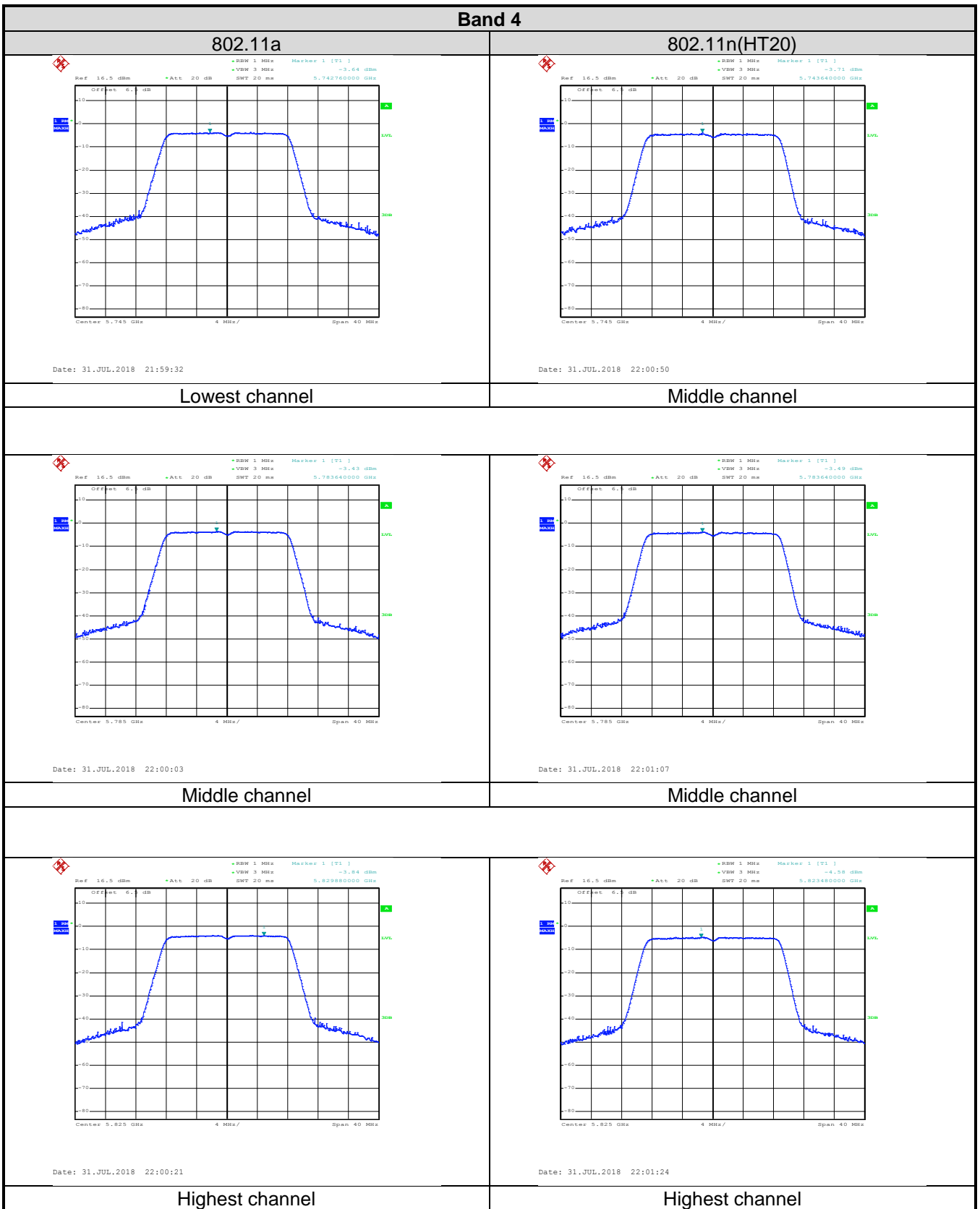
Band 1				
Mode	Test CH	PSD (dBm)	Limit (dBm)	Result
802.11a	Lowest	-2.41	11.00	Pass
	Middle	-2.53		
	Highest	-2.71		
802.11n(HT20)	Lowest	-3.57	11.00	Pass
	Middle	-3.62		
	Highest	-3.97		
802.11n(HT40)	Lowest	-7.32	11.00	Pass
	Highest	-7.90		

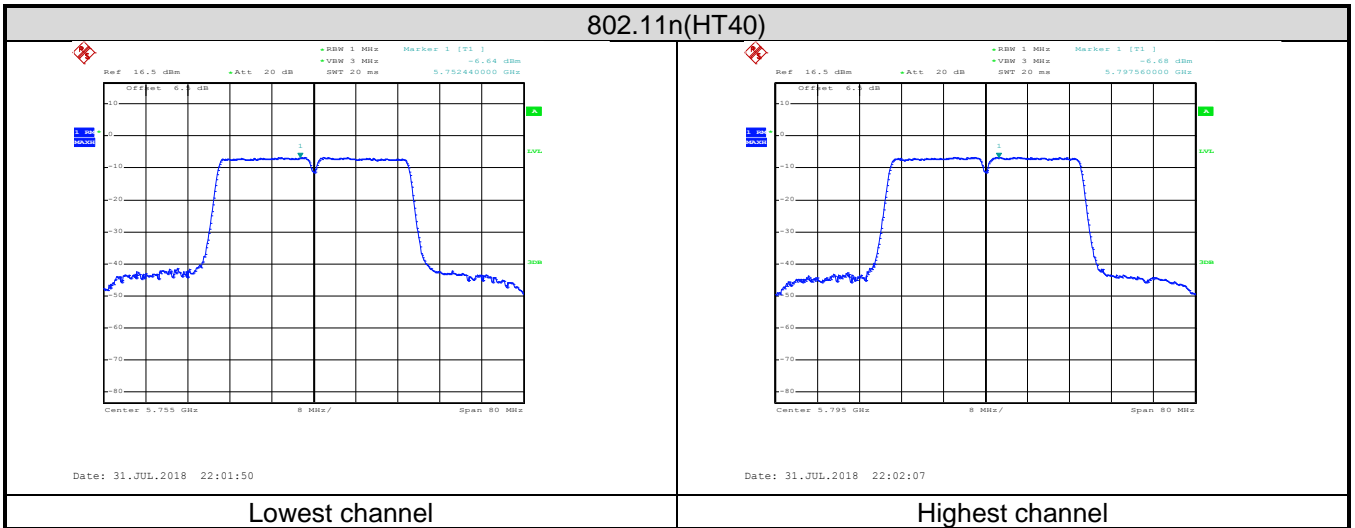
Band 4				
Mode	Test CH	PSD (dBm)	Limit (dBm)	Result
802.11a	Lowest	-3.64	30.00	Pass
	Middle	-3.43		
	Highest	-3.84		
802.11n20	Lowest	-3.71	30.00	Pass
	Middle	-3.49		
	Highest	-4.58		
802.11n40	Lowest	-6.64	30.00	Pass
	Highest	-6.68		

Test plot as follows:





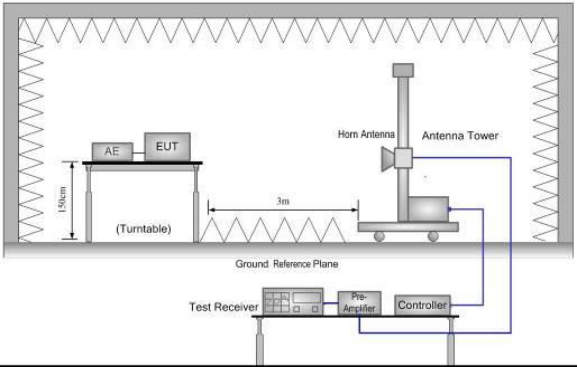




## 6.6 Band Edge

Test Requirement:	FCC Part 15 E Section 15.407 (b)			
Test Method:	ANSI C63.10:2013 , KDB 789033			
Receiver setup:	Detector	RBW	VBW	Remark
	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	RMS	1MHz	3MHz	Average Value
Limit:	Band	Limit (dBuV/m @3m)		Remark
	Band 1/2/3	68.20		Peak Value
		54.00		Average Value
	Band 4	78.20		Peak Value
		54.00		Average Value
<p>Band 4 limit:                      For transmitters operating in the 5.725-5.85 GHz band:                      All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p> <p>Remark:                      1. Band 1/2/3 limit:  <math>E[dB\mu V/m] = EIRP[dBm] + 95.2 = 68.2 \text{ dBuV/m}</math>, for <math>EIPR[dBm] = -27 \text{ dBm}</math>.                      2. Band 4 limit:  <math>E[dB\mu V/m] = EIRP[dBm] + 95.2 = 68.2 \text{ dBuV/m}</math>, for <math>EIPR[dBm] = -27 \text{ dBm}</math>.  <math>E[dB\mu V/m] = EIRP[dBm] + 95.2 = 105.2 \text{ dBuV/m}</math>, for <math>EIPR[dBm] = 10 \text{ dBm}</math>.  <math>E[dB\mu V/m] = EIRP[dBm] + 95.2 = 110.8 \text{ dBuV/m}</math>, for <math>EIPR[dBm] = 15.6 \text{ dBm}</math>.  <math>E[dB\mu V/m] = EIRP[dBm] + 95.2 = 122.2 \text{ dBuV/m}</math>, for <math>EIPR[dBm] = 27 \text{ dBm}</math>.</p>				
Test Procedure:	<ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8 meters above 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 rotatable 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-peak or average method as specified and then reported in a data sheet.</li> </ol>			



<p>Test setup:</p>	
<p>Test Instruments:</p>	<p>Refer to section 5.9 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Passed</p>

**Measurement Data (worst case):**

**Band 1:**

Band 1 – 802.11a								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	48.01	31.38	7.05	41.93	47.87	68.20	-20.33	Horizontal
5150.00	47.80	31.38	7.05	41.93	47.66	68.20	-20.54	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	37.68	31.38	7.05	41.93	37.54	54.00	-16.46	Horizontal
5150.00	37.75	31.38	7.05	41.93	37.61	54.00	-16.39	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.32	30.82	7.11	41.89	46.74	68.20	-21.46	Horizontal
5350.00	47.68	30.82	7.11	41.89	47.10	68.20	-21.10	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.96	30.82	7.11	41.89	37.38	54.00	-16.62	Horizontal
5350.00	37.72	30.82	7.11	41.89	37.14	54.00	-16.86	Vertical
<i>Remark:</i>								
1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.</i>								
2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

Band 1 – 802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	47.73	31.38	7.05	41.93	47.59	68.20	-20.61	Horizontal
5150.00	47.86	31.38	7.05	41.93	47.72	68.20	-20.48	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	37.24	31.38	7.05	41.93	37.10	54.00	-16.90	Horizontal
5150.00	37.18	31.38	7.05	41.93	37.04	54.00	-16.96	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.27	30.82	7.11	41.89	46.69	68.20	-21.51	Horizontal
5350.00	47.64	30.82	7.11	41.89	47.06	68.20	-21.14	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.82	30.82	7.11	41.89	37.24	54.00	-16.76	Horizontal
5350.00	37.84	30.82	7.11	41.89	37.26	54.00	-16.74	Vertical
<b>Remark:</b> 1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor.</i> 2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

Band 1 – 802.11n(HT40)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	47.97	31.38	7.05	41.93	47.83	68.20	-20.37	Horizontal
5150.00	47.73	31.38	7.05	41.93	47.59	68.20	-20.61	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	37.75	31.38	7.05	41.93	37.61	54.00	-16.39	Horizontal
5150.00	37.74	31.38	7.05	41.93	37.60	54.00	-16.40	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.31	30.82	7.11	41.89	46.73	68.20	-21.47	Horizontal
5350.00	47.48	30.82	7.11	41.89	46.90	68.20	-21.30	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.75	30.82	7.11	41.89	37.17	54.00	-16.83	Horizontal
5350.00	37.36	30.82	7.11	41.89	36.78	54.00	-17.22	Vertical
<b>Remark:</b> 1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor.</i> 2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

**Band 4:**

Band 4 – 802.11a								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	45.36	34.65	7.69	41.94	45.76	78.20	-32.44	Horizontal
5725.00	45.84	34.65	7.69	41.94	46.24	78.20	-31.96	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	35.41	34.65	7.69	41.94	35.81	54.00	-18.19	Horizontal
5725.00	35.96	34.65	7.69	41.94	36.36	54.00	-17.64	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	45.39	34.63	7.90	42.03	45.89	78.20	-32.31	Horizontal
5850.00	45.27	34.63	7.90	42.03	45.77	78.20	-32.43	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	35.59	34.63	7.90	42.03	36.09	54.00	-17.91	Horizontal
5850.00	35.27	34.63	7.90	42.03	35.77	54.00	-18.23	Vertical
<i>Remark:</i> 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report.								

Band 4 – 802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	45.92	34.65	7.69	41.94	46.32	78.20	-31.88	Horizontal
5725.00	45.65	34.65	7.69	41.94	46.05	78.20	-32.15	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	35.37	34.65	7.69	41.94	35.77	54.00	-18.23	Horizontal
5725.00	35.36	34.65	7.69	41.94	35.76	54.00	-18.24	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	45.46	34.63	7.90	42.03	45.96	78.20	-32.24	Horizontal
5850.00	45.96	34.63	7.90	42.03	46.46	78.20	-31.74	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	35.59	34.63	7.90	42.03	36.09	54.00	-17.91	Horizontal
5850.00	35.36	34.63	7.90	42.03	35.86	54.00	-18.14	Vertical
<b>Remark:</b> 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.								

Band 4 – 802.11n(HT40)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	45.84	34.65	7.69	41.94	46.24	78.20	-31.96	Horizontal
5725.00	45.06	34.65	7.69	41.94	45.46	78.20	-32.74	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	35.33	34.65	7.69	41.94	35.73	54.00	-18.27	Horizontal
5725.00	35.36	34.65	7.69	41.94	35.76	54.00	-18.24	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	45.39	34.63	7.90	42.03	45.89	78.20	-32.31	Horizontal
5850.00	45.45	34.63	7.90	42.03	45.95	78.20	-32.25	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	35.41	34.63	7.90	42.03	35.91	54.00	-18.09	Horizontal
5850.00	35.98	34.63	7.90	42.03	36.48	54.00	-17.52	Vertical
<b>Remark:</b> 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 Restricted Band

Test Requirement:	FCC Part15 E Section 15.407(b)				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak RMS	1MHz 1MHz	3MHz 3MHz	Peak Value Average Value
Limit:	Frequency	Limit (dBuV/m @3m)		Remark	
	Above 1GHz	74.00 54.00		Peak Value Average Value	
Test Procedure:	<ol style="list-style-type: none"> <li>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 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-peak or average method as specified and then reported in a data sheet.</li> </ol>				
Test setup:					
Test Instruments:	Refer to section 5.9 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				



**Measurement Data (worst case):**

**Band 1:**

Band 1 – 802.11a								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	47.37	29.30	6.80	42.05	44.71	74.00	-29.29	Horizontal
4500.00	47.65	29.30	6.80	42.05	44.99	74.00	-29.01	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	37.68	29.30	6.80	42.05	35.02	54.00	-18.98	Horizontal
4500.00	37.32	29.30	6.80	42.05	34.66	54.00	-19.34	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	46.18	30.54	7.18	41.85	45.44	74.00	-28.56	Horizontal
5460.00	46.76	30.54	7.18	41.85	46.02	74.00	-27.98	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	36.47	30.54	7.18	41.85	35.73	54.00	-18.27	Horizontal
5460.00	36.01	30.54	7.18	41.85	35.27	54.00	-18.73	Vertical

**Remark:**

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

Band 1 – 802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	47.68	29.30	6.80	42.05	45.02	74.00	-28.98	Horizontal
4500.00	47.79	29.30	6.80	42.05	45.13	74.00	-28.87	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	37.86	29.30	6.80	42.05	35.20	54.00	-18.80	Horizontal
4500.00	37.11	29.30	6.80	42.05	34.45	54.00	-19.55	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	46.85	30.54	7.18	41.85	46.11	74.00	-27.89	Horizontal
5460.00	46.95	30.54	7.18	41.85	46.21	74.00	-27.79	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	36.95	30.54	7.18	41.85	36.21	54.00	-17.79	Horizontal
5460.00	36.29	30.54	7.18	41.85	35.55	54.00	-18.45	Vertical
<b>Remark:</b> 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.								

Band 1 – 802.11n(HT40)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	47.71	29.30	6.80	42.05	45.05	74.00	-28.95	Horizontal
4500.00	47.47	29.30	6.80	42.05	44.81	74.00	-29.19	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	37.23	29.30	6.80	42.05	34.57	54.00	-19.43	Horizontal
4500.00	37.26	29.30	6.80	42.05	34.60	54.00	-19.40	Vertical
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	46.82	30.54	7.18	41.85	46.08	74.00	-27.92	Horizontal
5460.00	46.85	30.54	7.18	41.85	46.11	74.00	-27.89	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	36.22	30.54	7.18	41.85	35.48	54.00	-18.52	Horizontal
5460.00	36.48	30.54	7.18	41.85	35.74	54.00	-18.26	Vertical
<b>Remark:</b> 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.								

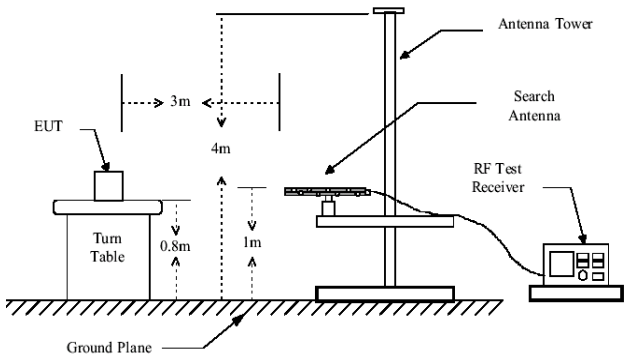
**Band 4:**

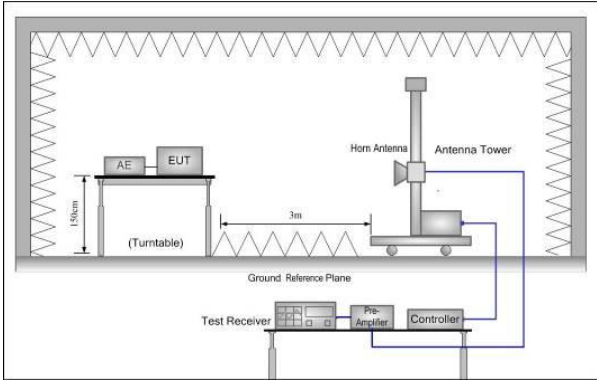
Band 4 – 802.11a								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.36	35.37	7.11	41.89	47.95	74.00	-26.05	Horizontal
5350.00	47.65	35.37	7.11	41.89	48.24	74.00	-25.76	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.65	35.37	7.11	41.89	38.24	54.00	-15.76	Horizontal
5350.00	37.63	35.37	7.11	41.89	38.22	54.00	-15.78	Vertical
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	47.33	34.90	7.18	41.85	47.56	74.00	-26.44	Horizontal
5460.00	47.31	34.90	7.18	41.85	47.54	74.00	-26.46	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	37.36	34.90	7.18	41.85	37.59	54.00	-16.41	Horizontal
5460.00	37.83	34.90	7.18	41.85	38.06	54.00	-15.94	Vertical
<i>Remark:</i>								
1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.</i>								
2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

Band 4 – 802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.49	35.37	7.11	41.89	48.08	74.00	-25.92	Horizontal
5350.00	47.72	35.37	7.11	41.89	48.31	74.00	-25.69	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.15	35.37	7.11	41.89	37.74	54.00	-16.26	Horizontal
5350.00	37.63	35.37	7.11	41.89	38.22	54.00	-15.78	Vertical
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	47.67	34.90	7.18	41.85	47.90	74.00	-26.10	Horizontal
5460.00	47.58	34.90	7.18	41.85	47.81	74.00	-26.19	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	37.14	34.90	7.18	41.85	37.37	54.00	-16.63	Horizontal
5460.00	37.95	34.90	7.18	41.85	38.18	54.00	-15.82	Vertical
<b>Remark:</b> 1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor.</i> 2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

Band 4 – 802.11n(HT40)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.48	35.37	7.11	41.89	48.07	74.00	-25.93	Horizontal
5350.00	47.76	35.37	7.11	41.89	48.35	74.00	-25.65	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.58	35.37	7.11	41.89	38.17	54.00	-15.83	Horizontal
5350.00	37.35	35.37	7.11	41.89	37.94	54.00	-16.06	Vertical
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	47.72	34.90	7.18	41.85	47.95	74.00	-26.05	Horizontal
5460.00	47.41	34.90	7.18	41.85	47.64	74.00	-26.36	Vertical
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	37.46	34.90	7.18	41.85	37.69	54.00	-16.31	Horizontal
5460.00	37.59	34.90	7.18	41.85	37.82	54.00	-16.18	Vertical
<b>Remark:</b> 1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.</i> 2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								

## 6.7.2 Unwanted Emissions out of the Restricted Bands

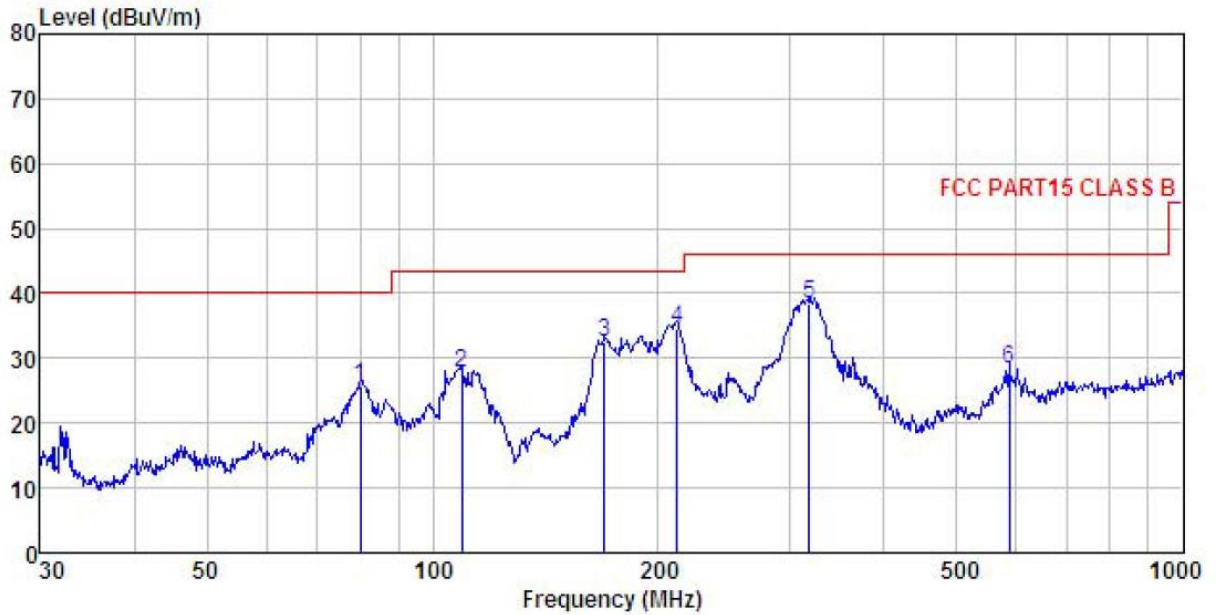
Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
RMS		1MHz	3MHz	Average Value	
Limit:	Frequency	Limit (dBuV/m @3m)		Remark	
	30MHz-88MHz	40.0		Quasi-peak Value	
	88MHz-216MHz	43.5		Quasi-peak Value	
	216MHz-960MHz	46.0		Quasi-peak Value	
	960MHz-1GHz	54.0		Quasi-peak Value	
	Above 1GHz	68.20		Peak Value	
54.00		Average Value			
<i>Remark:</i> <i>Above 1GHz limit:</i> $E[dBuV/m] = EIRP[dBm] + 95.2 = 68.2 \text{ dBuV/m, for } EIRP[dBm] = -27dBm.$					
Test Procedure:	<ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above 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-peak or average method as specified and then reported in a data sheet.</li> </ol>				
Test setup:	Below 1GHz 				

	<p>Above 1GHz</p> 
<p>Test Instruments:</p>	<p>Refer to section 5.9 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Passed</p>



**Measurement Data (worst case):  
Below 1GHz**

Test Polarization: Horizontal



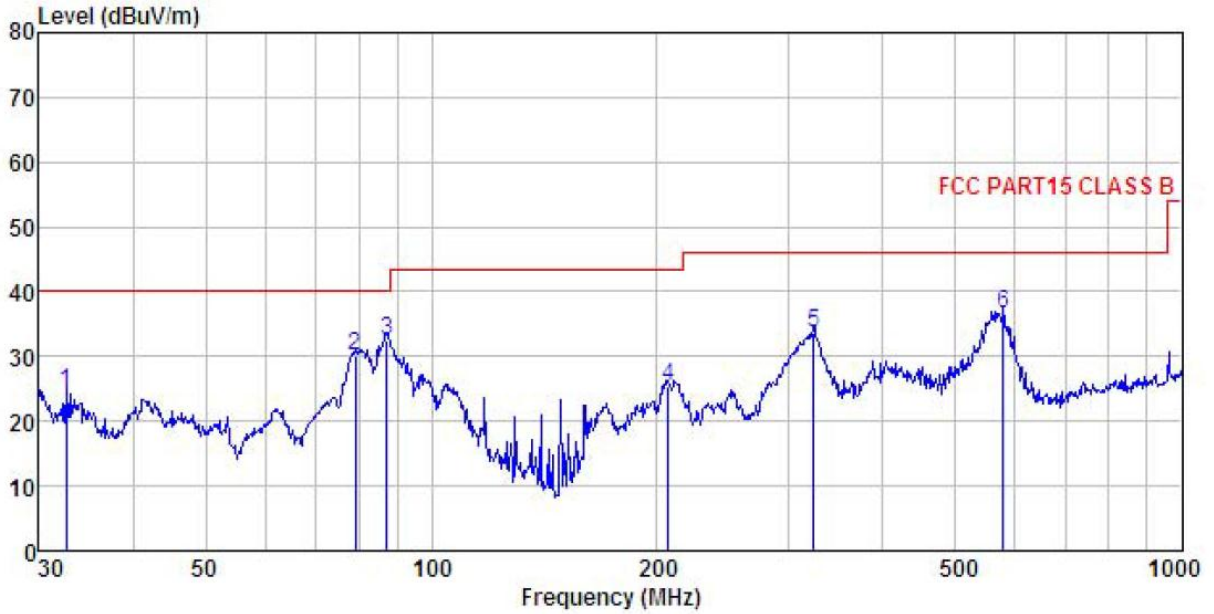
Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL  
 EUT : Mobile Phone  
 Model : GQ3060  
 Test mode : 5G WIFI mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Carey  
 Remark :

	Read	Antenna	Cable	Preamp	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	80.081	45.58	8.12	1.65	29.64	25.71	40.00	-14.29 QP
2	109.412	42.79	12.27	2.04	29.46	27.64	43.50	-15.86 QP
3	169.599	49.40	9.39	2.66	29.05	32.40	43.50	-11.10 QP
4	211.527	48.53	11.95	2.86	28.76	34.58	43.50	-8.92 QP
5	317.701	49.86	13.97	3.00	28.49	38.34	46.00	-7.66 QP
6	586.844	34.52	18.89	3.93	28.98	28.36	46.00	-17.64 QP

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 Polarization: Vertical



Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL  
 EUT : Mobile Phone  
 Model : GQ3060  
 Test mode : 5G WIFI mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Carey  
 Remark :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	32.634	42.23	11.20	0.91	29.96	24.38	40.00	-15.62	QP
2	79.243	49.97	8.17	1.65	29.65	30.14	40.00	-9.86	QP
3	87.112	50.61	9.47	1.91	29.59	32.40	40.00	-7.60	QP
4	207.123	39.55	11.78	2.86	28.78	25.41	43.50	-18.09	QP
5	323.320	44.99	14.09	3.02	28.50	33.60	46.00	-12.40	QP
6	578.670	42.95	18.70	3.92	29.01	36.56	46.00	-9.44	QP

Remark:

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

Above 1GHz:  
Band 1:

Band 1 – 802.11a									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	48.89	36.95	9.82	5.31	41.97	59.00	68.20	-9.20	Vertical
10360.00	47.86	36.95	9.82	5.31	41.97	57.97	68.20	-10.23	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	38.18	36.95	9.82	5.31	41.97	48.29	54.00	-5.71	Vertical
10360.00	37.64	36.95	9.82	5.31	41.97	47.75	54.00	-6.25	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	48.18	36.96	9.85	5.33	41.95	58.37	68.20	-9.83	Vertical
10400.00	47.41	36.96	9.85	5.33	41.95	57.60	68.20	-10.60	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	38.31	36.96	9.85	5.33	41.95	48.50	54.00	-5.50	Vertical
10400.00	37.97	36.96	9.85	5.33	41.95	48.16	54.00	-5.84	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	48.26	37.00	9.96	5.37	41.88	58.71	68.20	-9.49	Vertical
10480.00	47.68	37.00	9.96	5.37	41.88	58.13	68.20	-10.07	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	38.63	37.00	9.96	5.37	41.88	49.08	54.00	-4.92	Vertical
10480.00	37.82	37.00	9.96	5.37	41.88	48.27	54.00	-5.73	Horizontal

Remark:

- 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.

Band 1 – 802.11802.11n(HT20)									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	47.46	36.95	9.82	5.31	41.97	57.57	68.20	-10.63	Vertical
10360.00	47.51	36.95	9.82	5.31	41.97	57.62	68.20	-10.58	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	37.61	36.95	9.82	5.31	41.97	47.72	54.00	-6.28	Vertical
10360.00	37.41	36.95	9.82	5.31	41.97	47.52	54.00	-6.48	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	47.85	36.96	9.85	5.33	41.95	58.04	68.20	-10.16	Vertical
10400.00	47.93	36.96	9.85	5.33	41.95	58.12	68.20	-10.08	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	37.98	36.96	9.85	5.33	41.95	48.17	54.00	-5.83	Vertical
10400.00	37.95	36.96	9.85	5.33	41.95	48.14	54.00	-5.86	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	47.80	37.00	9.96	5.37	41.88	58.25	68.20	-9.95	Vertical
10480.00	47.05	37.00	9.96	5.37	41.88	57.50	68.20	-10.70	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	37.62	37.00	9.96	5.37	41.88	48.07	54.00	-5.93	Vertical
10480.00	37.53	37.00	9.96	5.37	41.88	47.98	54.00	-6.02	Horizontal
<b>Remark:</b>									
3. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.									
4. The emission levels of other frequencies are very lower than the limit and not show in test report.									

Band 1 – 802.11802.11n(HT40)									
Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	47.46	36.96	9.85	5.32	41.95	57.64	68.20	-10.56	Vertical
10380.00	47.11	36.96	9.85	5.32	41.95	57.29	68.20	-10.91	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	37.06	36.96	9.85	5.32	41.95	47.24	54.00	-6.76	Vertical
10380.00	37.62	36.96	9.85	5.32	41.95	47.80	54.00	-6.20	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	47.96	36.97	9.89	5.34	41.93	58.23	68.20	-9.97	Vertical
10460.00	47.97	36.97	9.89	5.34	41.93	58.24	68.20	-9.96	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	37.14	36.97	9.89	5.34	41.93	47.41	54.00	-6.59	Vertical
10460.00	37.85	36.97	9.89	5.34	41.93	48.12	54.00	-5.88	Horizontal
<b>Remark:</b> 5. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.</i> 6. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>									

**Band 4:**

Band 4 – 802.11a								
Test channel: Lowest channel								
Detector: 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
11490.00	47.51	41.50	10.81	42.29	57.53	74.00	-16.47	Vertical
11490.00	47.82	41.50	10.81	42.29	57.84	74.00	-16.16	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
11490.00	37.53	41.50	10.81	42.29	47.55	54.00	-6.45	Vertical
11490.00	37.67	41.50	10.81	42.29	47.69	54.00	-6.31	Horizontal
Test channel: Middle channel								
Detector: 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
11570.00	47.15	41.38	10.78	42.27	57.04	74.00	-16.96	Vertical
11570.00	47.88	41.38	10.78	42.27	57.77	74.00	-16.23	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
11570.00	37.76	41.38	10.78	42.27	47.65	54.00	-6.35	Vertical
11570.00	37.25	41.38	10.78	42.27	47.14	54.00	-6.86	Horizontal
Test channel: Highest channel								
Detector: 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
11650.00	47.68	41.26	10.76	42.26	57.44	74.00	-16.56	Vertical
11650.00	47.92	41.26	10.76	42.26	57.68	74.00	-16.32	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
11650.00	37.39	41.26	10.76	42.26	47.15	54.00	-6.85	Vertical
11650.00	37.96	41.26	10.76	42.26	47.72	54.00	-6.28	Horizontal
<b>Remark:</b>								
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.								

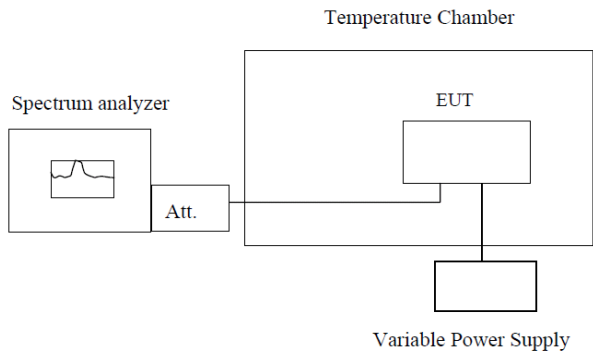


Band 4 – 802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	47.25	41.50	10.81	42.29	57.27	74.00	-16.73	Vertical
11490.00	47.82	41.50	10.81	42.29	57.84	74.00	-16.16	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
11490.00	37.37	41.50	10.81	42.29	47.39	54.00	-6.61	Vertical
11490.00	37.41	41.50	10.81	42.29	47.43	54.00	-6.57	Horizontal
Test channel: Middle channel								
Detector: 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
11570.00	47.87	41.38	10.78	42.27	57.76	74.00	-16.24	Vertical
11570.00	47.68	41.38	10.78	42.27	57.57	74.00	-16.43	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
11570.00	37.51	41.38	10.78	42.27	47.40	54.00	-6.60	Vertical
11570.00	37.94	41.38	10.78	42.27	47.83	54.00	-6.17	Horizontal
Test channel: Highest channel								
Detector: 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
11650.00	47.96	41.26	10.76	42.26	57.72	74.00	-16.28	Vertical
11650.00	47.25	41.26	10.76	42.26	57.01	74.00	-16.99	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
11650.00	37.76	41.26	10.76	42.26	47.52	54.00	-6.48	Vertical
11650.00	37.62	41.26	10.76	42.26	47.38	54.00	-6.62	Horizontal
<b>Remark:</b> 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.								

Band 4 – 802.11n(HT40)								
Test channel: Lowest channel								
Detector: 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
11510.00	47.88	41.50	10.81	42.29	57.90	74.00	-16.10	Vertical
11510.00	47.63	41.50	10.81	42.29	57.65	74.00	-16.35	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
11510.00	37.11	41.50	10.81	42.29	47.13	54.00	-6.87	Vertical
11510.00	37.63	41.50	10.81	42.29	47.65	54.00	-6.35	Horizontal
Test channel: Highest channel								
Detector: 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
11590.00	47.51	41.32	10.77	42.27	57.33	74.00	-16.67	Vertical
11590.00	47.69	41.32	10.77	42.27	57.51	74.00	-16.49	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
11590.00	37.11	41.32	10.77	42.27	46.93	54.00	-7.07	Vertical
11590.00	37.66	41.32	10.77	42.27	47.48	54.00	-6.52	Horizontal
<b>Remark:</b> 1. <i>Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.</i> 2. <i>The emission levels of other frequencies are very lower than the limit and not show in test report.</i>								



## 6.8 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)
Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
Test setup:	 <p style="text-align: center;">Temperature Chamber</p> <p style="text-align: center;">Spectrum analyzer      Att.      EUT</p> <p style="text-align: center;">Variable Power Supply</p> <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. The EUT is installed in an environment test chamber with external power source.</li> <li>2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.</li> <li>3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.</li> <li>4. When temperature is stabled, measure the frequency stability.</li> <li>5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.</li> </ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Data (the worst channel):**

**Band 1:**

**Voltage vs. Frequency Stability (Lowest channel=5180MHz)**

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(dc)		
20	3.50V	5179.997643	0.45
	3.80V	5179.974779	4.87
	4.35V	5179.963951	6.96

**Temperature vs. Frequency Stability (Lowest channel=5180MHz)**

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(dc)	Temp(°C)		
3.80V	-20	5179.987033	2.50
	-10	5179.995377	0.89
	0	5179.968421	6.10
	10	5179.987556	2.40
	20	5179.996681	0.64
	30	5179.974290	4.96
	40	5179.963775	6.99
	50	5179.974929	4.84

**Band 4:**

**Voltage vs. Frequency Stability (Lowest channel=5745MHz)**

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(dc)		
20	3.50V	5744.974766	4.39
	3.80V	5744.993381	1.15
	4.35V	5744.998588	0.25

**Temperature vs. Frequency Stability (Lowest channel=5745MHz)**

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(dc)	Temp(°C)		
3.80V	-20	5744.994798	0.91
	-10	5744.993693	1.10
	0	5744.994771	0.91
	10	5744.985355	2.55
	20	5744.993864	1.07
	30	5744.994481	0.96
	40	5744.999347	0.11
	50	5744.992458	1.31