

FCC Test Report

Product Name	Nexus Player
Model No	TV500I
FCC ID.	MSQ-TV500I

Applicant	ASUSTeK COMPUTER INC.		
Address	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan		

Date of Receipt	Aug. 20, 2014
Issue Date	Oct. 09, 2014
Report No.	1480461R-RFUSP25V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of QuieTek Corporation.



Test Report

Issue Date: Oct. 09, 2014

Report No.: 1480461R-RFUSP25V00



Product Name	Nexus Player
Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer	Digitek (Chongqing) Limited
Model No.	TV500I
EUT Rated Voltage	AC 100-240V, 50/60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	nexus; ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2013
	ANSI C63.10: 2009, KDB 558074 D01 DTS Meas Guidance v03r02
Test Result	Complied

Documented By: Dita Huang

(Senior Adm. Specialist / Rita Huang)

Jack

Tested By

(Engineer / Jack Hsu)

Approved By :

(Director / Vincent Lin)



TABLE OF CONTENTS

De	scription	Page
1.	GENERAL INFORMATION	
1.1.	EUT Description	
1.2.	Operational Description	
1.3.	Tested System Details	
1.4.	Configuration of Tested System	
1.5.	EUT Exercise Software	
1.6.	Test Facility	
2.	Conducted Emission	10
2.1.	Test Equipment	10
2.2.	Test Setup	10
2.3.	Limits	11
2.4.	Test Procedure	11
2.5.	Uncertainty	
2.6.	Test Result of Conducted Emission	
3.	Maximum Conducted Power	16
3.1.	Test Equipment	16
3.2.	Test Setup	16
3.3.	Limits	16
3.4.	Test Procedure	10
3.5.	Uncertainty	
3.6.	Test Result of Maximum Conducted Power	
4.	Radiated Emission	25
4.1.	Test Equipment	25
4.2.	Test Setup	26
4.3.	Limits	27
4.4.	Test Procedure	
4.5.	Uncertainty	
4.6.	Test Result of Radiated Emission	
5.	RF Antenna conducted test	54
5.1.	Test Equipment	
5.2.	Test Setup	
5.3.	Limits	
5.4.	Test Procedure	
5.5.	Uncertainty	55
5.6.	Test Result of RF antenna conducted test	56
6.	Band Edge	75
6.1.	Test Equipment	
6.2.	Test Setup	
6.3.	Limits	
6.4.	Test Procedure	
6.5.	Uncertainty	
6.6.	Test Result of Band Edge	78



7.	Occupied Bandwidth	102
7.1.	Test Equipment	102
7.2.	Test Setup	
7.3.	Limits	
7.4.	Test Procedure	102
7.5.	Uncertainty	102
7.6.	Test Result of Occupied Bandwidth	103
8.	Power Density	121
8.1.	Test Equipment	121
8.2.	Test Setup	
8.3.	Limits	
8.4.	Test Procedure	
8.5.	Uncertainty	121
8.6.	Test Result of Power Density	
9.	EMI Reduction Method During Compliance Testing	140

Attachment 1: EUT Test Photographs
Attachment 2: EUT Detailed Photographs



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Nexus Player
Trade Name	nexus; ASUS
Model No.	TV500I
FCC ID.	MSQ-TV500I
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz
	802.11a/n-20MHz:5745-5825MHz ,802.11n-40MHz:5755-5795MHz
	802.11ac-80MHz: 5775MHz
Number of Channels	802.11b/g/n-20MHz: 11
	802.11a/n-20MHz: 5, n-40MHz: 2, ac-80MHz: 1
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 300Mbps
	802.11ac: up to 866.7Mbps
Channel separation	802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz
	802.11n-40MHz: 40MHz, 802.11ac-80MHz: 80MHz
Type of Modulation	802.11b:DSSS, DBPSK, DQPSK, CCK
	802.11a/g/n/ac: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256AM
Antenna Type	Printed on PCB Antenna
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto
Power Adapter	MFR: PIE, M/N: AD2036321
	Input: 100-240V, 50/60Hz 0.5A
	Output: 12V==1.5A
	Cable out: Shielded, 1.8m
Contain Module	Broadcom / BCM4354XKUBG

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Digitek	N/A (Main).	Printed on PCB Antenna	3.86dBi for 2.4GHz
		N/A (Aux)		2.38dBi for 5.725~5.850GHz

Note: The antenna of EUT is conform to FCC 15.203



802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

802.11n-40MHz (5G Band) Center Working Frequency of Each Channel:

Channel Frequency Channel Frequency Channel 151: 5755 MHz Channel 159: 5795 MHz

802.11ac-80MHz Center Working Frequency of Each Channel:

Channel Frequency
Channel 155: 5775 MHz

- 1. This device is a Nexus Player with a built-in 802.11a/b/g/n/ac WLAN transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps \cdot 802.11a/g is 6Mbps \cdot 802.11n(20M-BW) is 14.4Mbps \cdot 802.11n(40M-BW) is 30Mbps and 802.11ac(80M-BW) is 65 Mbps).
- 4. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11b is chain A \cdot 802.11g is chain A \cdot 802.11a is chain A)
- 5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11a/b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit - 802.11b 1Mbps				
	Mode 2: Transmit - 802.11g 6Mbps				
	Mode 3: Transmit - 802.11a 6Mbps				
	Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)				
	Mode 5: Transmit - 802.11n-20BW_14.4Mbps(5G Band)				
	Mode 6: Transmit - 802.11n-40BW_30Mbps(5G Band)				
	Mode 7: Transmit - 802.11ac-80BW-65Mbps				



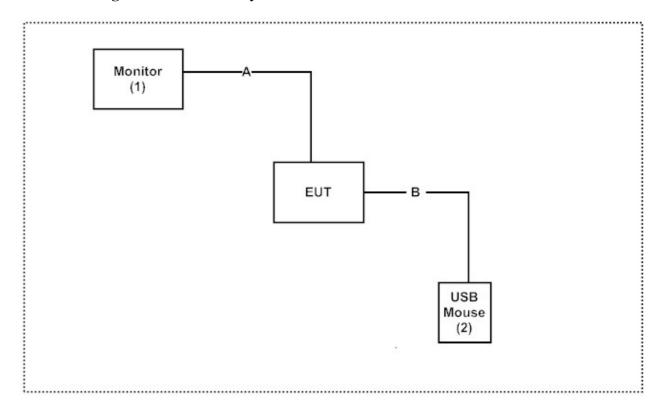
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	DELL	ST2320LF	N/A	Non-Shielded, 1.8m
2	USB Mouse	Logitech	M-BE58	LZE11405266	N/A

Signa	al Cable Type	Signal cable Description
A	HDMI Cable	Shielded, 1.8m
В	Mouse Cable	Shielded, 1.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute "WLAN RF Test" program on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.



1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from

QuieTek Corporation's Web Site: http://www.quietek.com/tw/ctg/cts/accreditations.htm

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web

site: http://www.quietek.com/

Site Description: File on

Federal Communications Commission

FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046

Registration Number: 92195

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,

Lin-Kou Shiang, Taipei,

Taiwan, R.O.C.

TEL: 886-2-8601-3788 / FAX: 886-2-8601-3789

E-Mail : <u>service@quietek.com</u>

FCC Accreditation Number: TW1014



2. Conducted Emission

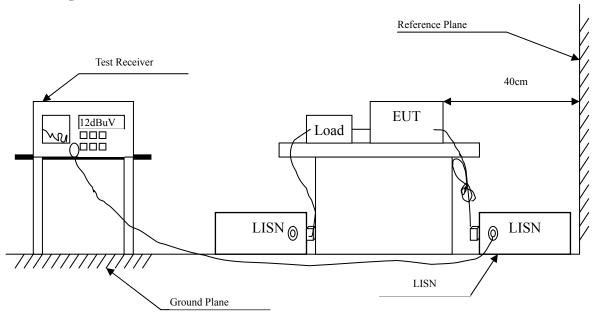
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room		•		

Note:

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup





2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit									
Frequency	Limits								
MHz	QP	AVG							
0.15 - 0.50	66-56	56-46							
0.50-5.0	56	46							
5.0 - 30	60	50							

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

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: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB



2.6. Test Result of Conducted Emission

Product : Nexus Player

Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437MHz)

Frequency	Correct	Reading	Measurement Margin		Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.162	9.657	33.110	42.767	-22.890	65.657
0.185	9.651	30.000	39.651	-25.349	65.000
0.365	9.659	36.670	46.329	-13.528	59.857
0.666	9.676	24.730	34.406	-21.594	56.000
1.107	9.700	24.160	33.860	-22.140	56.000
9.134	9.963	32.230	42.193	-17.807	60.000
Average					
0.162	9.657	23.870	33.527	-22.130	55.657
0.185	9.651	21.800	31.451	-23.549	55.000
0.365	9.659	29.520	39.179	-10.678	49.857
0.666	9.676	17.070	26.746	-19.254	46.000
1.107	9.700	17.440	27.140	-18.860	46.000
9.134	9.963	24.890	34.853	-15.147	50.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



Test Item : Conducted Emission Test

Power Line : Line 2

Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.162	9.658	33.900	43.558	-22.099	65.657
0.181	9.659	30.440	40.099	-25.015	65.114
0.373	9.660	34.930	44.590	-15.039	59.629
0.591	9.672	25.290	34.962	-21.038	56.000
0.884	9.698	21.290	30.988	-25.012	56.000
11.021	10.020	28.540	38.560	-21.440	60.000
Average					
0.162	9.658	22.730	32.388	-23.269	55.657
0.181	9.659	17.660	27.319	-27.795	55.114
0.373	9.660	28.530	38.190	-11.439	49.629
0.591	9.672	16.760	26.432	-19.568	46.000
0.884	9.698	14.920	24.618	-21.382	46.000
11.021	10.020	21.330	31.350	-18.650	50.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps (5775MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.189	9.650	34.940	44.590	-20.296	64.886
0.236	9.652	37.590	47.242	-16.301	63.543
0.341	9.658	26.870	36.528	-24.015	60.543
0.455	9.664	27.700	37.364	-19.922	57.286
0.564	9.670	16.790	26.460	-29.540	56.000
20.306	10.182	21.100	31.282	-28.718	60.000
Average					
0.189	9.650	21.070	30.720	-24.166	54.886
0.236	9.652	24.510	34.162	-19.381	53.543
0.341	9.658	9.200	18.858	-31.685	50.543
0.455	9.664	12.320	21.984	-25.302	47.286
0.564	9.670	0.840	10.510	-35.490	46.000
20.306	10.182	13.050	23.232	-26.768	50.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



Test Item : Conducted Emission Test

Power Line : Line 2

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps (5775MHz)

Frequency	Correct	Reading	Reading Measurement		Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					_
Quasi-Peak					
0.193	9.660	34.170	43.830	-20.941	64.771
0.216	9.661	31.130	40.791	-23.323	64.114
0.228	9.662	39.860	49.522	-14.249	63.771
0.388	9.661	31.660	41.321	-17.879	59.200
0.548	9.669	18.400	28.069	-27.931	56.000
20.732	10.224	21.650	31.874	-28.126	60.000
Average					
0.193	9.660	22.200	31.860	-22.911	54.771
0.216	9.661	17.170	26.831	-27.283	54.114
0.228	9.662	28.450	38.112	-15.659	53.771
0.388	9.661	17.640	27.301	-21.899	49.200
0.548	9.669	2.100	11.769	-34.231	46.000
20.732	10.224	14.050	24.274	-25.726	50.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



3. Maximum Conducted Power

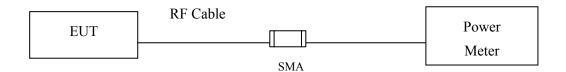
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2014
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limits

The maximum average power shall be less 1 Watt. (Section 15.247 (b)(3))

3.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 D01 DTS Meas Guidance v03r02 section 9.1.2 PKPM1 Peak power meter methodfor for 802.11a/b/g/n, section 9.2.2 Measurement using a spectrum analyzer (SA) for 802.11ac.

3.5. Uncertainty

± 1.27 dB



3.6. Test Result of Maximum Conducted Power

Product : Nexus Player

Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps

CHAIN A

Channel No.	Frequency	For d	· ·	e Power ata Rate (N	Лbps)	Peak Power	Required	Result
Channel No	(MHz)	1	2	5.5	11	1	Limit	Result
			Measur	ement Lev	vel (dBm)			
01	2412	15.05				18.32	<30dBm	Pass
06	2437	15.03	14.98	14.93	14.88	18.73	<30dBm	Pass
11	2462	15.47	1	1	1	18.26	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

Channel No	Frequency	For d	Average	Required	D a gult			
	(MHz)	1	2	5.5	11	1	Limit	Result
			Measur					
01	2412	15.01				18.25	<30dBm	Pass
06	2437	14.98	14.94	14.9	14.86	18.68	<30dBm	Pass
11	2462	15.38				18.21	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss



Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps

CHAIN A

			Average Power Peak									
	Frequency		F	or diffe	erent Da	ata Rate	e (Mbps	s)		Power	Required	
Channel No	(MHz)	6	9	12	18	24	36	48	54	6	Limit	Result
				N	Measure	ement L	evel (d	Bm)				
01	2412	14.09								20.90	<30dBm	Pass
06	2437	14.32	14.26	14.2	14.14	14.08	14.02	13.96	13.9	21.08	<30dBm	Pass
11	2462	14.35								21.10	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

CIMIL	1-											
	Fraguanay		F		Average erent Da			s)		Peak Power	Paguirad	
Channel No	Frequency (MHz)	6	9	12	18	24	36	48	54	6	Required Limit	Result
				N	Measure	ement L	Level (d	Bm)				
01	2412	14.04		-		1			I	20.87	<30dBm	Pass
06	2437	14.28	14.21	14.14	14.07	14	13.93	13.86	13.79	20.97	<30dBm	Pass
11	2462	14.24							-	20.85	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss



Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - 802.11a 6Mbps

CHAIN A

					•	e Power				Peak		
Channel No	Frequency			or diffe				ĺ	<i>7.4</i>	Power	Required	Result
	(MHz)	6	9	12	18	24	36	48	54	6	Limit	
			ı	N	Aeasure	ement L	Level (d	Bm)				
149	5745	12.61		-	-					19.74	<30dBm	Pass
157	5785	12.61	12.54	12.47	12.4	12.33	12.26	12.19	12.12	19.74	<30dBm	Pass
165	5825	12.72		I	1					19.78	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

	1 2											
					•	e Power				Peak		
	Fraguenov		F	or diffe	erent Da	ata Rate	e (Mbps	s)		Power	Required	
Channel No	Frequency (MHz)	6	9	12	18	24	36	48	54	6	Limit	Result
				N	/leasure	ement L	Level (d	Bm)				
149	5745	12.58		-	-				1	19.68	<30dBm	Pass
157	5785	12.57	12.48	12.39	12.3	12.21	12.12	12.03	11.94	19.64	<30dBm	Pass
165	5825	12.68		-					1	19.62	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss



Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 14.4Mbps(2.4G Band)

CHAIN A

					Peak					
	Frequency			Power						
Channel No	(MHz)	14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4
					Mea	suremen	t Level ((dBm)		
01	2412	11.37	-	-			-	-	-	18.97
06	2437	11.72	11.63	11.41	11.28	11.12	10.97	10.81	10.66	19.05
11	2462	11.92		-		-				19.51

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

				Peak						
	Frequency			Power						
Channel No	(MHz)	14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4
					Mea	suremen	t Level ((dBm)		
01	2412	11.67			1	-	1	1		19.12
06	2437	11.98	11.77	11.61	11.42	11.23	11.05	10.86	10.68	19.05
11	2462	11.82								19.50

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency	Data Rata	Chain A Power	Chain B Power	Chain A+B Power	Limit	Result
	(MHz)	(Mbps)	(dBm)	(dBm)	(dBm)	(dBm)	
1	2412	14.4	18.97	19.12	22.06	<30dBm	Pass
6	2437	14.4	19.05	19.05	22.06	<30dBm	Pass
11	2462	14.4	19.51	19.50	22.52	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))



Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

CHAIN A

					Peak					
	Eraguanav				Power					
Channel No	Frequency (MHz)	14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4
149	5745	11.91	1	-	-	-	-	-	-	19.51
157	5785	11.94	11.81	11.69	11.56	11.44	11.31	11.19	11.06	19.75
165	5825	12.01	1							19.44

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

				Peak Power								
Channel No	Frequency (MHz)	14.4	28.9	14.4								
			Measurement Level (dBm)									
149	5745	10.95	-	1	18.45							
157	5785	10.94	10.82	10.71	10.59	10.48	10.36	10.25	10.13	18.75		
165	5825	10.88				-			-	18.69		

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency	Data Rata	Chain A Power	Chain B Power	Chain A+B Power	Limit	Result
	(MHz)	(Mbps)	(dBm)	(dBm)	(dBm)	(dBm)	
149	5745	14.4	19.51	18.45	22.02	<30dBm	Pass
157	5785	14.4	19.75	18.75	22.29	<30dBm	Pass
165	5825	14.4	19.44	18.69	22.09	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))



Test Item : Maximum Conducted Power

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band)

CHAIN A

					Average	e Power				Peak		
	Frequency		For different Data Rate (Mbps)							Power		
Channel No	(MHz)	30	60	90	120	180	240	270	300	30		
			Measurement Level (dBm)									
151	5755	11.41								17.57		
159	5795	11.21	11.07	10.98	10.86	10.74	10.63	10.51	10.40	17.64		

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

					Average	e Power				Peak		
	Frequency		For different Data Rate (Mbps)							Power		
Channel No	(MHz)	30	60	90	120	180	240	270	300	30		
			Measurement Level (dBm)									
151	5755	10.00								17.91		
159	5795	10.21	10.08	9.91	9.77	9.62	9.47	9.32	9.17	18.04		

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN A+B

Channel	Frequency	Data Rata	Chain A Power	Chain B Power	Chain A+B Power	Limit	Result
	(MHz)	(Mbps)	(dBm)	(dBm)	(dBm)	(dBm)	
151	5755	30	19.83	17.91	21.99	<30dBm	Pass
159	5795	30	19.74	18.04	21.98	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))



Test Item : Maximum conducted output power

Test Site : No.3 OATS

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps

CHAIN A

Cable lo			M	aximum	conduc	ted outp	ut powe	r		
Chanal Na		Data Rate (Mbps)					Required			
Channel No	(MHz)	VTH0	VTH0 VTH1 VTH2 VTH3 VTH4 VTH5 VTH6 VTH7 VTH8 VTH9						Limit	
155	5775	9.83	0.83 9.71 9.54 9.40 9.26 9.11 8.97 8.82 8.68 8.53						<30dBm	

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

CHAIN B

Cable loss=1dB Maxin				aximum	conduc	ted outp	ut powe	r				
Cl 1N		Data Rate (Mbps)					Required					
Channel No	(MHz)	VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	Limit
155	5775	8.64	8.52	8.36	8.23	8.09	7.95	7.81	7.67	7.53	7.39	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

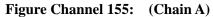
Maximum conducted output power Measurement:

(CHAIN A+ B)

CHAINATI	J)				
Channel	Frequency	Chain A	Chain B	Output	Output Power
Number		Power	Power	Power	Limit
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
155	5775	9.83	8.64	12.29	30

- 1. Power Output Value = Reading value on channel power of spectrum analyzer + cable loss
- 2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))





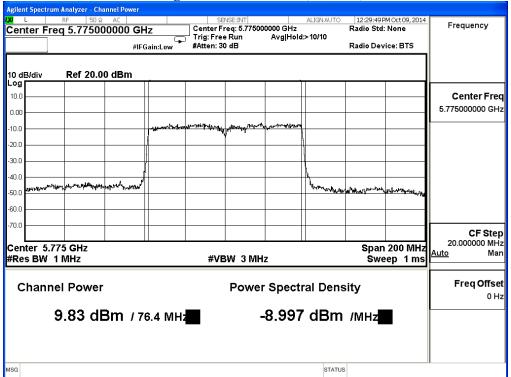
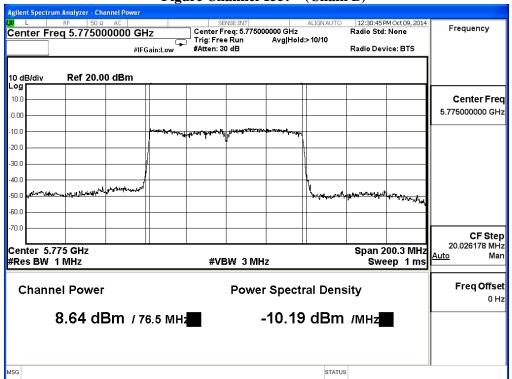


Figure Channel 155: (Chain B)





4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2014
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

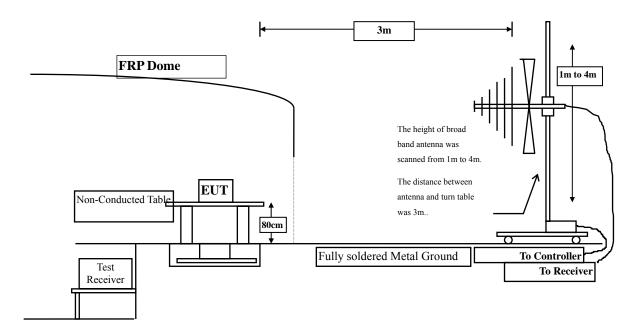
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

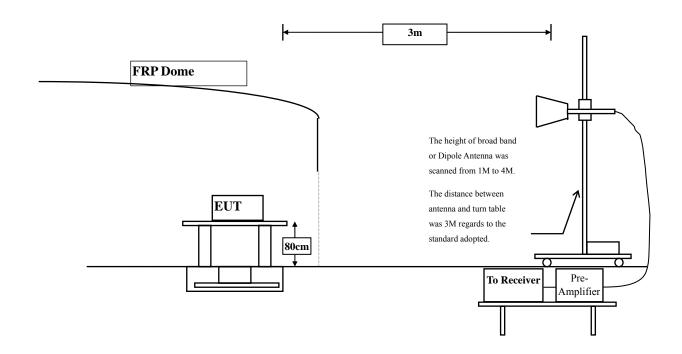


4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz





4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 30dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits							
Frequency MHz	Field strength	Measurement distance					
IVIIIZ	(microvolts/meter)	(meter)					
0.009-0.490	2400/F(kHz)	300					
0.490-1.705	24000/F(kHz)	30					
1.705-30	30	30					
30-88	100	3					
88-216	150	3					
216-960	200	3					
Above 960	500	3					

Remarks: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)



4.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9KHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz



4.6. Test Result of Radiated Emission

Product : Nexus Player

Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	40.830	44.091	-29.909	74.000
7236.000	10.650	38.150	48.800	-25.200	74.000
9648.000	13.337	36.260	49.596	-24.404	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	40.440	46.861	-27.139	74.000
7236.000	11.495	36.620	48.115	-25.885	74.000
9648.000	13.807	36.490	50.296	-23.704	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps (2437 MHz)

Correct	Reading	Measurement	Margin	Limit
Factor	Level	Level		
dB	dBuV	dBuV/m	dB	dBuV/m
3.038	39.230	42.267	-31.733	74.000
11.795	37.630	49.424	-24.576	74.000
12.635	36.210	48.845	-25.155	74.000
5.812	40.770	46.581	-27.419	74.000
12.630	36.130	48.759	-25.241	74.000
13.126	35.930	49.056	-24.944	74.000
	Factor dB 3.038 11.795 12.635	Factor Level dBuV 3.038 39.230 11.795 37.630 12.635 36.210 5.812 40.770 12.630 36.130	Factor dB Level dBuV Level dBuV/m 3.038 39.230 42.267 11.795 37.630 49.424 12.635 36.210 48.845 5.812 40.770 46.581 12.630 36.130 48.759	Factor dB dBuV dBuV/m dB 3.038 39.230 42.267 -31.733 11.795 37.630 49.424 -24.576 12.635 36.210 48.845 -25.155 5.812 40.770 46.581 -27.419 12.630 36.130 48.759 -25.241

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
Peak Detector:					
4924.000	2.858	41.190	44.047	-29.953	74.000
7386.000	12.127	37.860	49.988	-24.012	74.000
9848.000	12.852	36.930	49.783	-24.217	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	42.660	48.180	-25.820	74.000
7386.000	13.254	36.820	50.074	-23.926	74.000
9848.000	13.367	36.010	49.377	-24.623	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	38.490	41.751	-32.249	74.000
7236.000	10.650	40.470	51.120	-22.880	74.000
9648.000	13.337	36.090	49.426	-24.574	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	38.730	45.151	-28.849	74.000
7236.000	11.495	38.400	49.895	-24.105	74.000
9648.000	13.807	36.330	50.136	-23.864	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	38.030	41.067	-32.933	74.000
7311.000	11.795	38.080	49.874	-24.126	74.000
9748.000	12.635	36.010	48.645	-25.355	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4874.000	5.812	38.600	44.411	-29.589	74.000
7311.000	12.630	36.840	49.469	-24.531	74.000
9748.000	13.126	36.250	49.376	-24.624	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	38.470	41.327	-32.673	74.000
7386.000	12.127	40.400	52.528	-21.472	74.000
9848.000	12.852	35.970	48.823	-25.177	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	39.190	44.710	-29.290	74.000
7386.000	13.254	38.250	51.504	-22.496	74.000
9848.000	13.367	36.110	49.477	-24.523	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	35.240	52.347	-21.653	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11490.000	45.506	35.240	52.347	-21.653	74.000
Average					
Dotootom					

Detector:

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	16.809	34.830	51.639	-22.361	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11570.000	17.698	34.560	52.258	-21.742	74.000
Average					

Note:

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item Harmonic Radiated Emission Data

Test Site No.3 OATS

Test Mode Mode 3: Transmit - 802.11a 6Mbps (5825 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	16.158	34.550	50.708	-23.292	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11650.000	17.274	35.300	52.575	-21.425	74.000
Average					
Dotootom					

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 14.4Mbps(2.4G Band) (2412MHz)

Correct	Reading	Measurement	Margin	Limit
Factor	Level	Level		
dB	dBuV	dBuV/m	dB	dBuV/m
3.261	38.880	42.141	-31.859	74.000
10.650	35.620	46.270	-27.730	74.000
13.337	36.840	50.176	-23.824	74.000
6.421	38.480	44.901	-29.099	74.000
11.495	35.900	47.395	-26.605	74.000
13.807	36.330	50.136	-23.864	74.000
	Factor dB 3.261 10.650 13.337 6.421 11.495	Factor Level dBuV 3.261 38.880 10.650 35.620 13.337 36.840 6.421 38.480 11.495 35.900	Factor Level Level dBuV/m 3.261 38.880 42.141 10.650 35.620 46.270 13.337 36.840 50.176 6.421 38.480 44.901 11.495 35.900 47.395	Factor Level Level dBuV/m dB 3.261 38.880 42.141 -31.859 10.650 35.620 46.270 -27.730 13.337 36.840 50.176 -23.824 6.421 38.480 44.901 -29.099 11.495 35.900 47.395 -26.605

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	38.730	41.767	-32.233	74.000
7311.000	11.795	35.260	47.054	-26.946	74.000
9748.000	12.635	35.920	48.555	-25.445	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4874.000	5.812	38.190	44.001	-29.999	74.000
7311.000	12.630	35.220	47.849	-26.151	74.000
9748.000	13.126	35.800	48.926	-25.074	74.000
Average					
Detector:					
2000001					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 14.4Mbps(2.4G Band) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	38.750	41.607	-32.393	74.000
7386.000	12.127	35.080	47.208	-26.792	74.000
9848.000	12.852	35.760	48.613	-25.387	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	38.250	43.770	-30.230	74.000
7386.000	13.254	35.650	48.904	-25.096	74.000
9848.000	13.367	35.900	49.267	-24.733	74.000
Average					
Detector:					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_14.4Mbps(5G Band) (5745MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	35.760	52.867	-21.133	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11490.000	18.034	35.900	53.935	-20.065	74.000

Average

Detector:

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_14.4Mbps(5G Band) (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	16.809	36.030	52.839	-21.161	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11570.000	17.698	36.080	53.778	-20.222	74.000
Average					

Note:

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band) (5825 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	16.158	35.630	51.788	-22.212	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11650.000	17.274	36.470	53.745	-20.255	74.000
Average					

Note:

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11510.000	17.124	35.310	52.434	-21.566	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11510.000	18.081	35.860	53.941	-20.059	74.000

Average

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_30Mbps(5G Band) (5795 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11590.000	16.701	35.270	51.970	-22.030	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11590.000	17.567	35.530	53.096	-20.904	74.000
Average					

Note:

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps (5775 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11550.000	16.914	34.830	51.744	-22.256	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11550.000	17.826	35.020	52.845	-21.155	74.000
Average					

Note:

Detector:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
145.430	-7.730	38.022	30.292	-13.208	43.500
288.990	-5.513	36.097	30.584	-15.416	46.000
445.160	-0.432	38.015	37.583	-8.417	46.000
593.570	3.492	35.958	39.450	-6.550	46.000
741.980	3.892	33.904	37.796	-8.204	46.000
890.390	6.515	30.195	36.710	-9.290	46.000
Vertical					
43.580	-10.919	42.248	31.329	-8.671	40.000
216.240	-6.051	36.878	30.827	-15.173	46.000
375.320	0.388	25.615	26.003	-19.997	46.000
614.910	1.701	28.629	30.330	-15.670	46.000
741.980	-0.358	31.143	30.785	-15.215	46.000
891.360	0.905	29.558	30.463	-15.537	46.000
Vertical 43.580 216.240 375.320 614.910 741.980	-10.919 -6.051 0.388 1.701 -0.358	42.248 36.878 25.615 28.629 31.143	31.329 30.827 26.003 30.330 30.785	-8.671 -15.173 -19.997 -15.670 -15.215	40.000 46.000 46.000 46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
145.430	-7.730	37.302	29.572	-13.928	43.500
241.460	-6.590	36.286	29.696	-16.304	46.000
445.160	-0.432	38.256	37.824	-8.176	46.000
593.570	3.492	33.861	37.353	-8.647	46.000
741.980	3.892	33.574	37.466	-8.534	46.000
890.390	6.515	29.260	35.775	-10.225	46.000
Vertical					
105.660	-4.576	33.082	28.505	-14.995	43.500
216.240	-6.051	36.402	30.351	-15.649	46.000
351.070	-1.376	30.239	28.863	-17.137	46.000
614.910	1.701	28.549	30.250	-15.750	46.000
741.980	-0.358	33.305	32.947	-13.053	46.000
891.360	0.905	28.087	28.992	-17.008	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
126.030	-7.349	40.179	32.831	-10.669	43.500
330.700	-4.284	24.534	20.251	-25.749	46.000
445.160	-0.432	38.172	37.740	-8.260	46.000
593.570	3.492	31.934	35.426	-10.574	46.000
741.980	3.892	33.221	37.113	-8.887	46.000
998.060	8.838	32.217	41.055	-12.945	54.000
Vertical					
103.720	-5.090	33.110	28.019	-15.481	43.500
216.240	-6.051	38.517	32.466	-13.534	46.000
376.290	0.523	24.553	25.076	-20.924	46.000
614.910	1.701	26.944	28.645	-17.355	46.000
741.980	-0.358	28.559	28.201	-17.799	46.000
939.860	3.400	25.580	28.980	-17.020	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 14.4Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
126.030	-7.349	37.988	30.640	-12.860	43.500
351.070	-1.296	30.405	29.109	-16.891	46.000
445.160	-0.432	37.745	37.313	-8.687	46.000
593.570	3.492	35.712	39.204	-6.796	46.000
741.980	3.892	33.674	37.566	-8.434	46.000
891.360	6.265	29.689	35.954	-10.046	46.000
Vertical					
110.510	-3.383	31.937	28.554	-14.946	43.500
216.240	-6.051	36.659	30.608	-15.392	46.000
377.260	0.647	25.539	26.186	-19.814	46.000
593.570	-0.388	31.332	30.944	-15.056	46.000
741.980	-0.358	31.896	31.538	-14.462	46.000
891.360	0.905	25.993	26.898	-19.102	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band) (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
216.240	-10.271	39.798	29.527	-16.473	46.000
288.990	-5.513	37.766	32.253	-13.747	46.000
445.160	-0.432	34.423	33.991	-12.009	46.000
593.570	3.492	33.664	37.156	-8.844	46.000
741.980	3.892	30.349	34.241	-11.759	46.000
890.390	6.515	29.022	35.537	-10.463	46.000
Vertical					
161.920	-4.964	38.486	33.522	-9.978	43.500
216.240	-6.051	43.942	37.891	-8.109	46.000
351.070	-1.376	31.655	30.279	-15.721	46.000
593.570	-0.388	33.537	33.149	-12.851	46.000
741.980	-0.358	30.859	30.501	-15.499	46.000
890.390	1.095	28.774	29.869	-16.131	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
161.920	-10.074	40.386	30.312	-13.188	43.500
216.240	-10.271	43.816	33.545	-12.455	46.000
445.160	-0.432	37.042	36.610	-9.390	46.000
593.570	3.492	36.017	39.509	-6.491	46.000
741.980	3.892	33.051	36.943	-9.057	46.000
891.360	6.265	32.585	38.850	-7.150	46.000
Vertical					
161.920	-4.964	38.628	33.664	-9.836	43.500
216.240	-6.051	44.518	38.467	-7.533	46.000
351.070	-1.376	32.173	30.797	-15.203	46.000
614.910	1.701	29.522	31.223	-14.777	46.000
741.980	-0.358	30.422	30.064	-15.936	46.000
890.390	1.095	32.238	33.333	-12.667	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps (5775MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
115.360	-7.390	36.958	29.569	-13.931	43.500
241.460	-6.590	37.016	30.426	-15.574	46.000
445.160	-0.432	37.791	37.359	-8.641	46.000
593.570	3.492	35.133	38.625	-7.375	46.000
742.950	3.904	28.758	32.662	-13.338	46.000
891.360	6.265	29.464	35.729	-10.271	46.000
Vertical					
84.320	-4.204	37.629	33.425	-6.575	40.000
216.240	-6.051	37.646	31.595	-14.405	46.000
373.380	0.043	33.354	33.397	-12.603	46.000
445.160	-6.402	37.791	31.389	-14.611	46.000
593.570	-0.388	35.133	34.745	-11.255	46.000
741.980	-0.358	34.265	33.907	-12.093	46.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



5. RF Antenna conducted test

5.1. Test Equipment

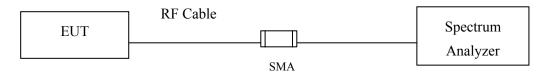
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).



5.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Uncertainty

The measurement uncertainty

Conducted is defined as \pm 1.27dB



5.6. Test Result of RF antenna conducted test

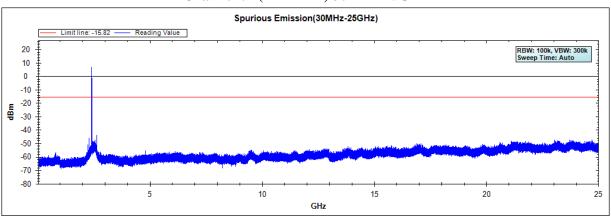
Product : Nexus Player

Test Item : RF antenna conducted test

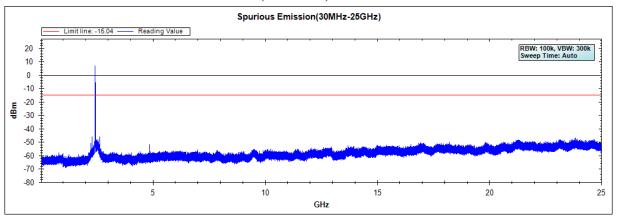
Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps

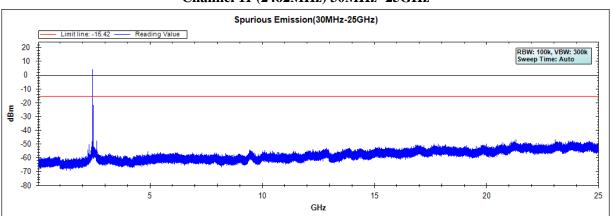
Channel 01 (2412MHz) 30MHz-25GHz



Channel 06 (2437MHz) 30MHz -25GHz



Channel 11 (2462MHz) 30MHz -25GHz



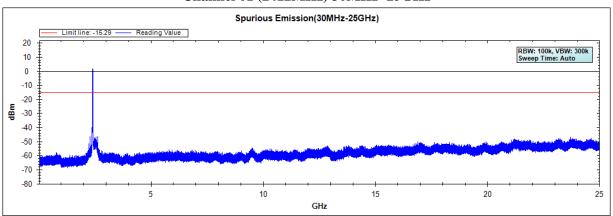


Test Item : RF Antenna Conducted Spurious

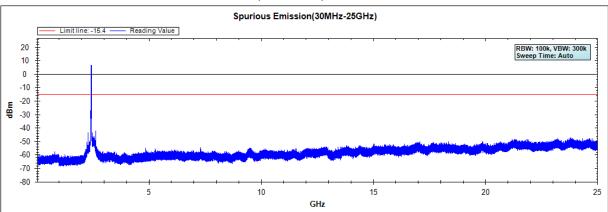
Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 802.11g 6Mbps

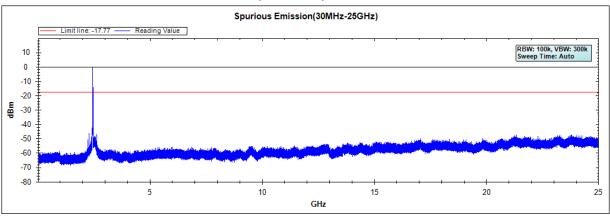
Channel 01 (2412MHz) 30MHz -25GHz



Channel 06 (2437MHz) 30MHz -25GHz



Channel 11 (2462MHz) 30MHz -25GHz



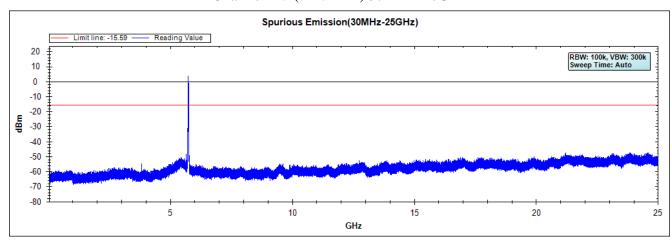


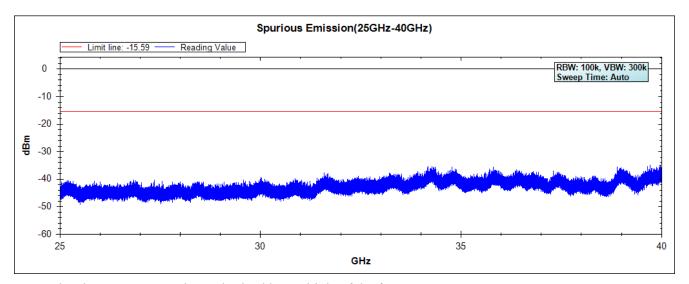
Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - 802.11a 6Mbps

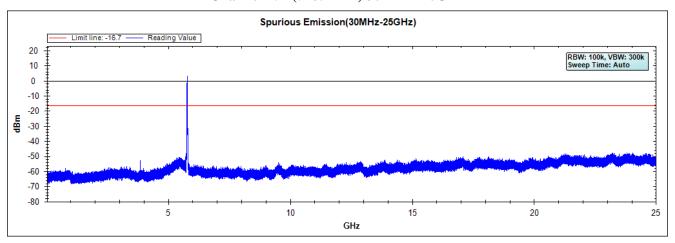
Channel 149 (5745MHz) 30MHz -40GHz

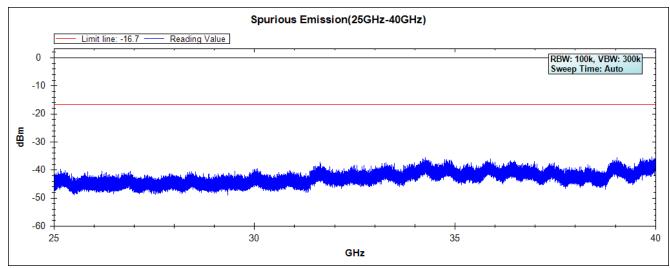






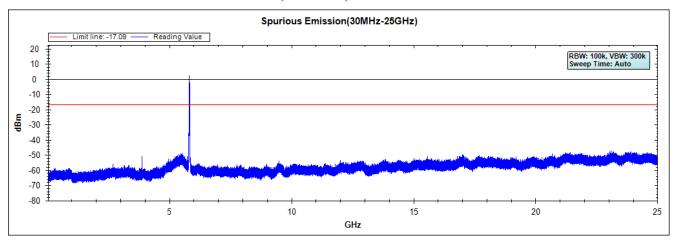
Channel 157 (5785MHz) 30MHz -40GHz

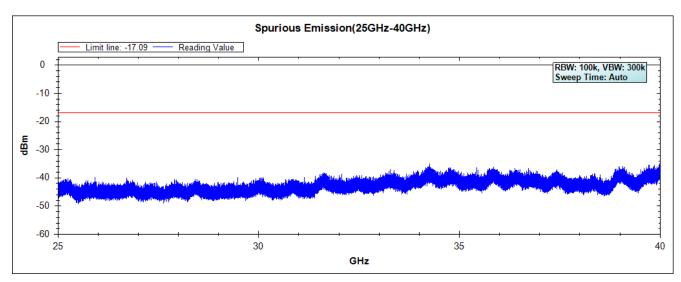






Channel 165 (5825MHz) 30MHz -40GHz





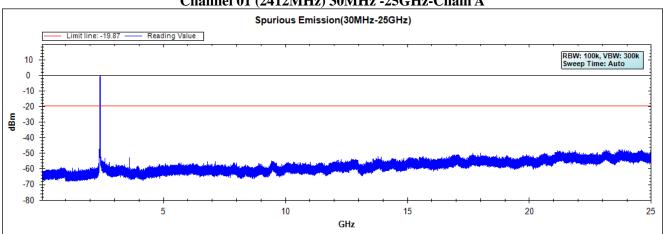


Test Item RF Antenna Conducted Spurious

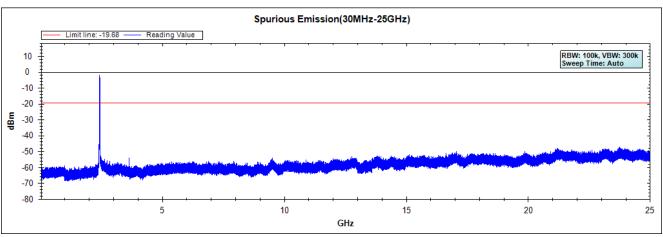
Test Site No.3 OATS

Test Mode Mode 4: Transmit - 802.11n-20BW 14.4Mbps(2.4G Band)

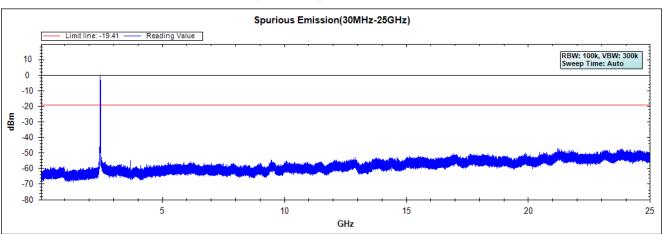
Channel 01 (2412MHz) 30MHz -25GHz-Chain A



Channel 06 (2437MHz) 30MHz -25GHz-Chain A

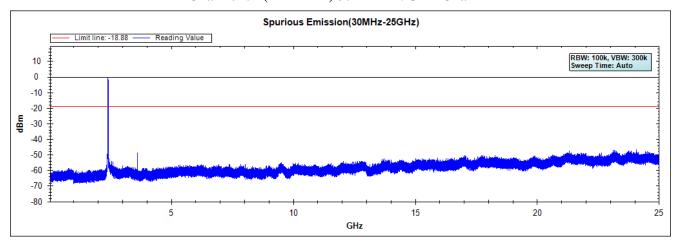


Channel 11 (2462MHz) 30MHz -25GHz-Chain A

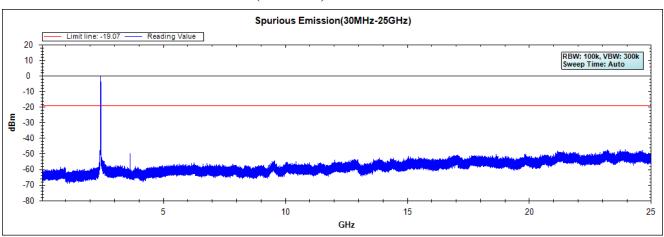




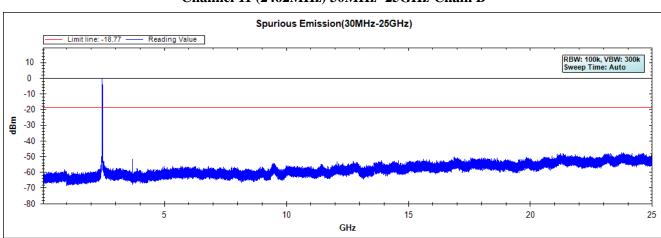
Channel 01 (2412MHz) 30MHz -25GHz-Chain B



Channel 06 (2437MHz) 30MHz -25GHz-Chain B



Channel 11 (2462MHz) 30MHz -25GHz-Chain B



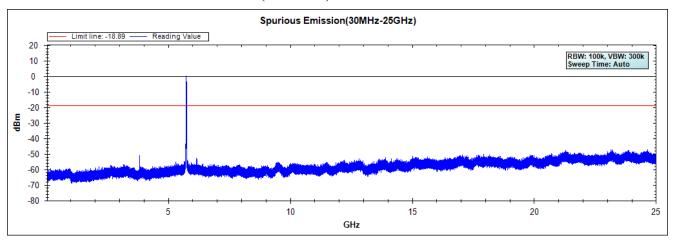


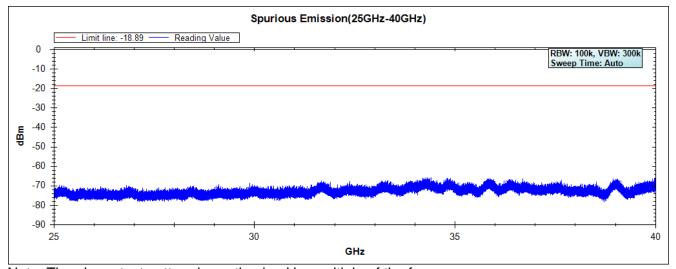
Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

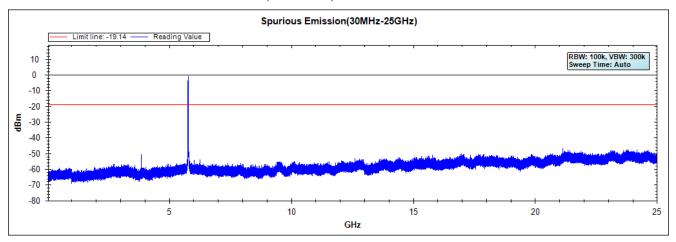
Channel 49 (5745MHz) 30MHz -40GHz-Chain A

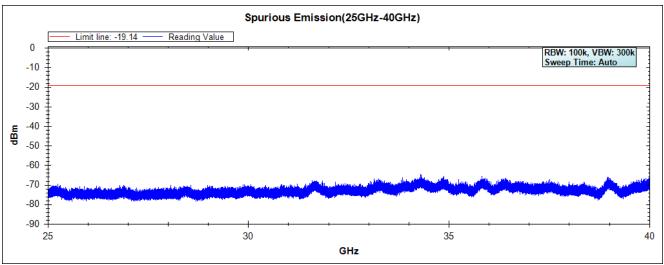






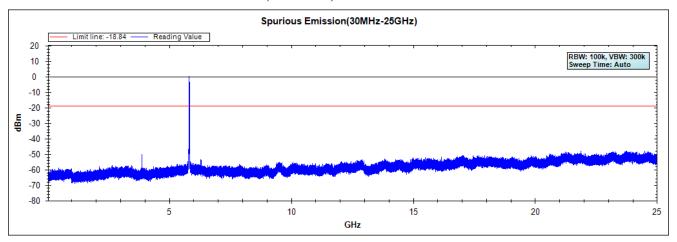
Channel 157 (5785MHz) 30MHz -40GHz-Chain A

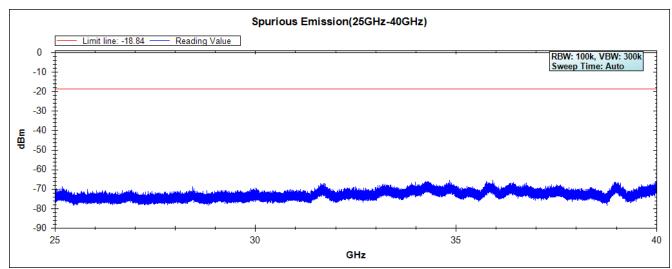






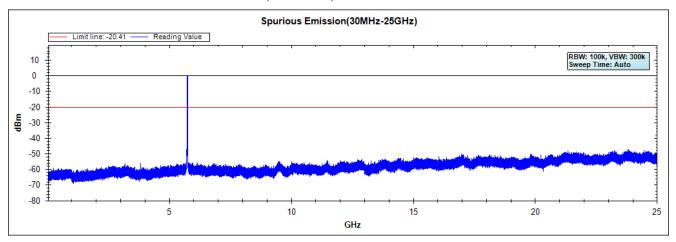
Channel 165 (5825MHz) 30MHz -40GHz-Chain A

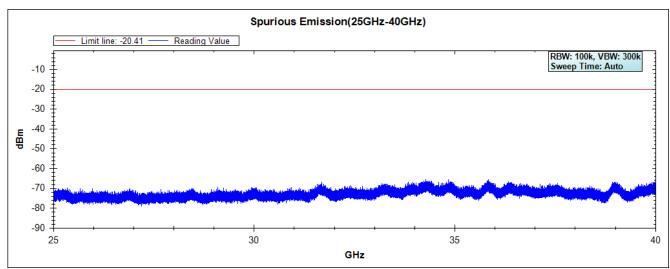






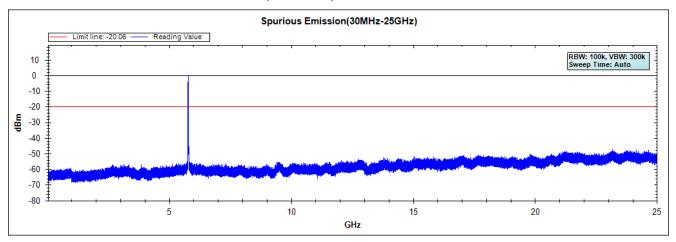
Channel 149 (5745MHz) 30MHz -40GHz-Chain B

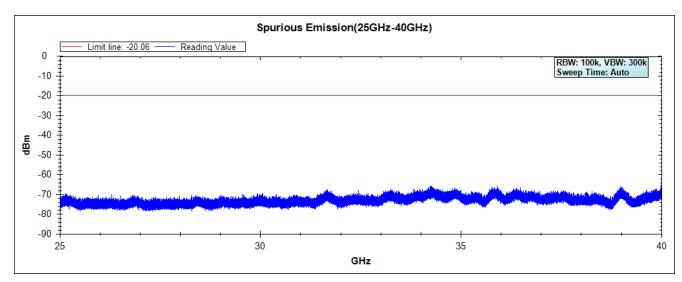






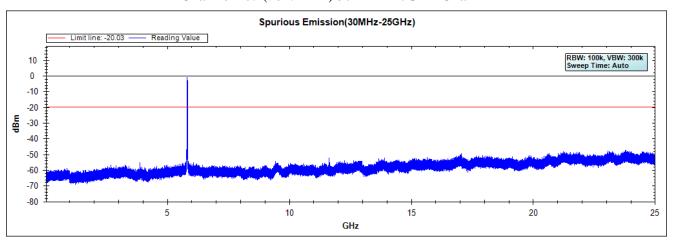
Channel 157 (5785MHz) 30MHz -40GHz-Chain B

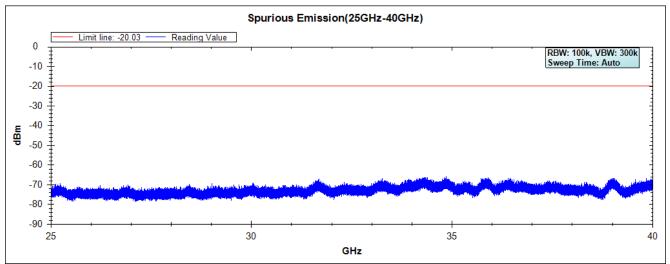






Channel 165 (5825MHz) 30MHz -40GHz-Chain B





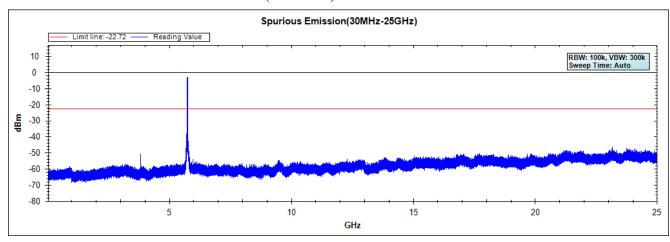


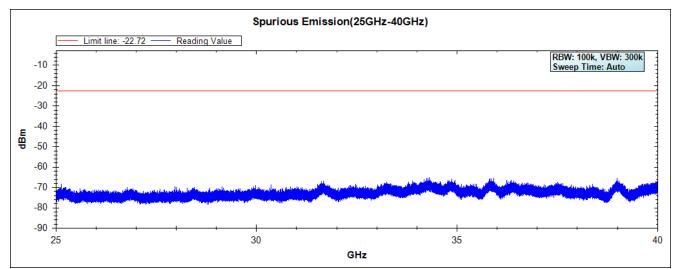
Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

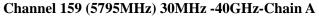
Test Mode : Mode 6: Transmit - 802.11n-40BW_30Mbps(5G Band)

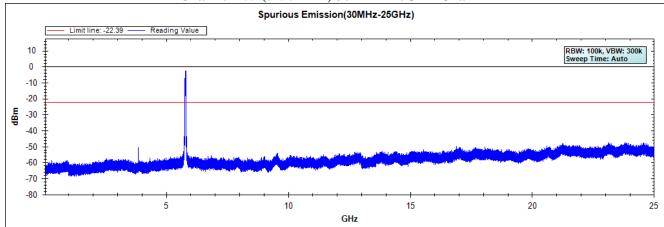
Channel 151 (5755MHz) 30MHz -40GHz-Chain A

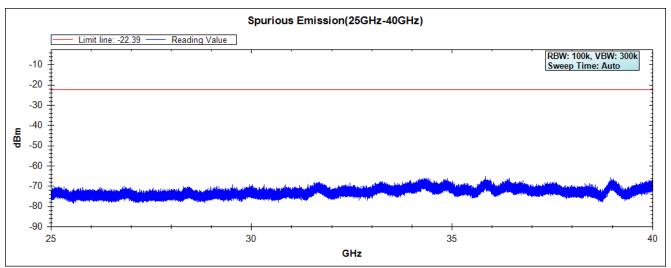






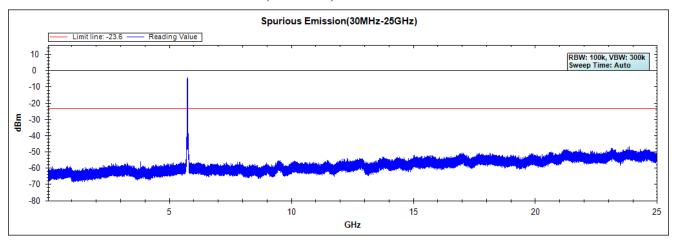


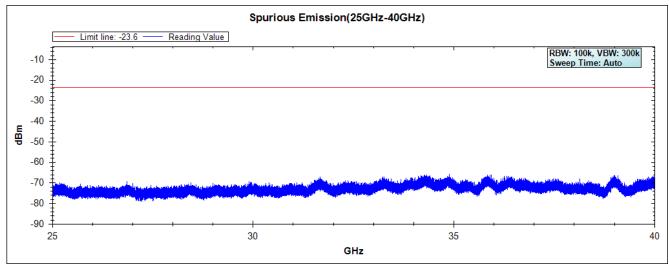






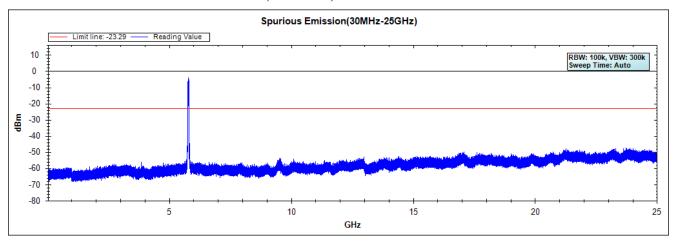
Channel 151 (5755MHz) 30MHz -40GHz-Chain B

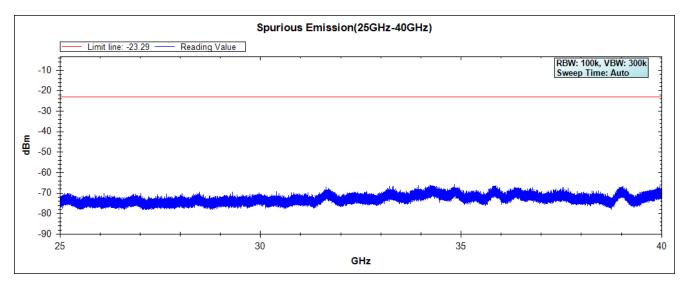






Channel 159 (5795MHz) 30MHz -40GHz-Chain B





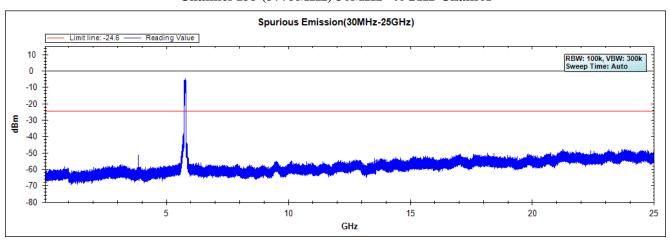


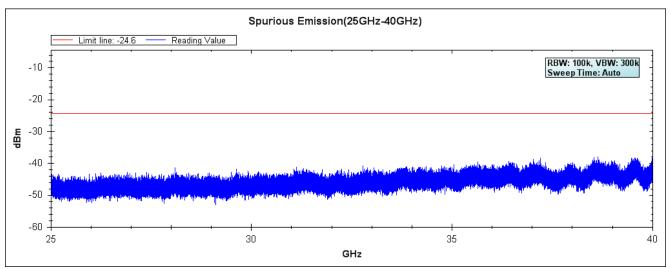
Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps

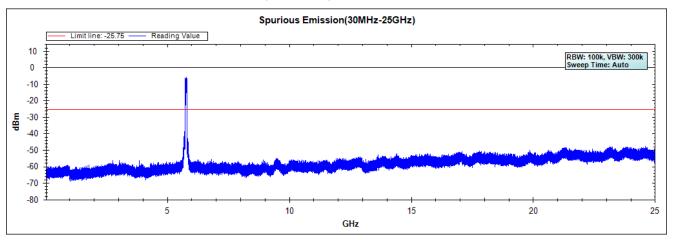
Channel 155 (5775MHz) 30MHz -40GHz-Chain A

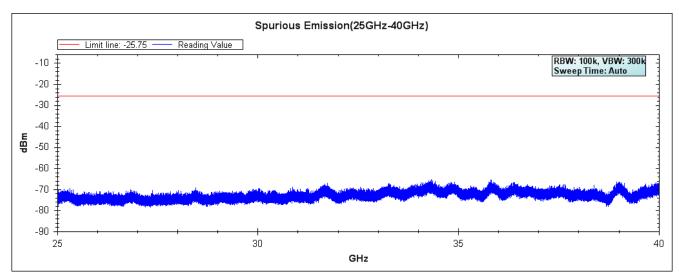






Channel 155 (5775MHz) 30MHz -40GHz-Chain B





Note: The above test pattern is synthesized by multiple of the frequency range.



6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
'	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

RF Radiated Measurement:

The following test equipments are used during the band edge tests:

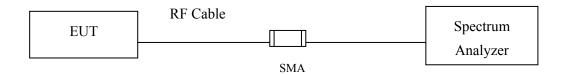
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	Pre-Amplifier		QTK	QTK-AMP-03 / 0003	May, 2014
	X Pre-Amplifier		QTK	AP-180C / CHM_0906076	Sep., 2014
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	X Controller		QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

- 1. All instruments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

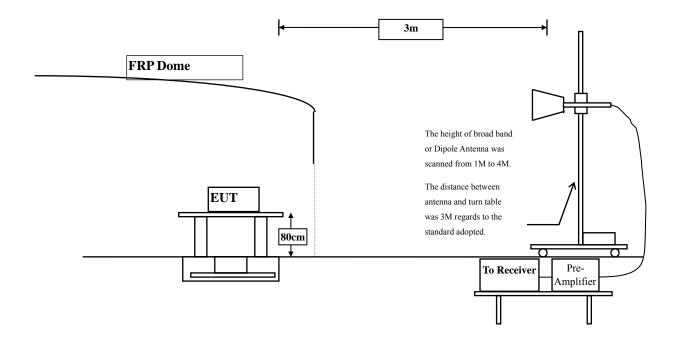


6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:





6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 30dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2009 on radiated measurement.

6.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz



6.6. Test Result of Band Edge

Product : Nexus Player
Test Item : Band Edge
Test Site : No.3 OATS

Test Mode : Mode 1: Transmit - 802.11b 1Mbps

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	25.370	56.879	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	28.697	60.258			
01 (Peak)	2413.000	31.646	68.317	99.963			
01 (Average)	2390.000	31.509	15.043	46.552	74.00	54.00	Pass
01 (Average)	2400.000	31.561	20.990	52.551			
01 (Average)	2412.800	31.645	64.104	95.748			

Figure Channel 01:

Horizontal (Peak)

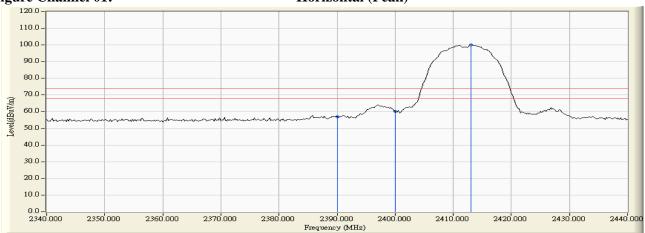


Figure Channel 01:

Horizontal (Average)



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 - 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 - 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
 - 4. "*", means this data is the worst emission level.
 - 5. Measurement Level = Reading Level + Correct Factor.
 - 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1: Transmit - 802.11b 1Mbps

RF Radiated Measurement (Vertical):

Channel No.	1 -	Correct Factor	_	Emission Level		_	Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
01 (Peak)	2386.200	30.933	28.503	59.436	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	27.289	58.204	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	32.659	63.571			-
01 (Peak)	2413.200	30.957	74.955	105.912			
01 (Average)	2390.000	30.915	18.061	48.976	74.00	54.00	Pass
01 (Average)	2400.000	30.912	26.042	56.954			1
01 (Average)	2412.800	30.955	70.532	101.487			

Figure Channel 01:

Vertical (Peak)

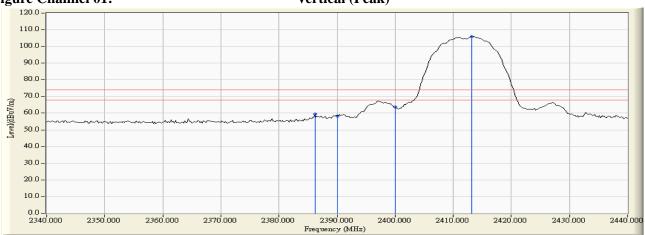


Figure Channel 01:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1: Transmit - 802.11b 1Mbps

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.900	32.026	67.693	99.719			
11 (Peak)	2483.500	32.182	24.482	56.664	74.00	54.00	Pass
11 (Peak)	2486.900	32.208	25.527	57.735	74.00	54.00	Pass
11 (Average)	2461.300	32.014	63.589	95.603			
11 (Average)	2483.500	32.182	14.647	46.829	74.00	54.00	Pass



Horizontal (Peak)

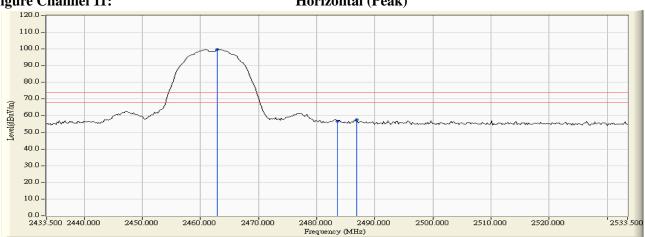
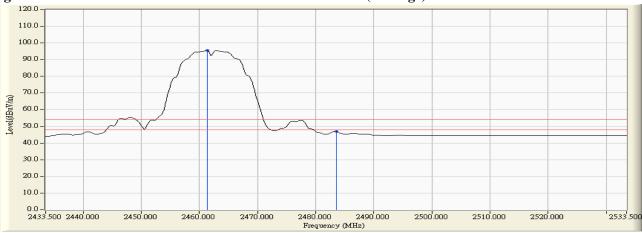


Figure Channel 11:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1: Transmit - 802.11b 1Mbps

RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Resuit
11 (Peak)	2463.100	31.298	75.375	106.673	-		-
11 (Peak)	2483.500	31.435	28.233	59.668	74.00	54.00	Pass
11 (Average)	2461.100	31.285	71.117	102.401			
11 (Average)	2483.500	31.435	19.371	50.806	74.00	54.00	Pass



Vertical (Peak)

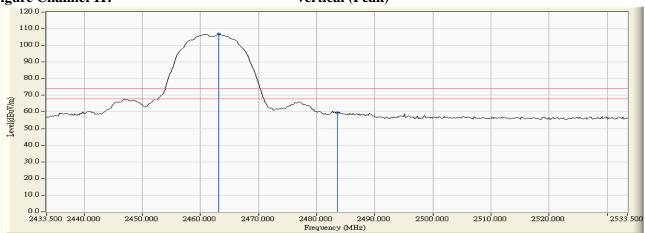
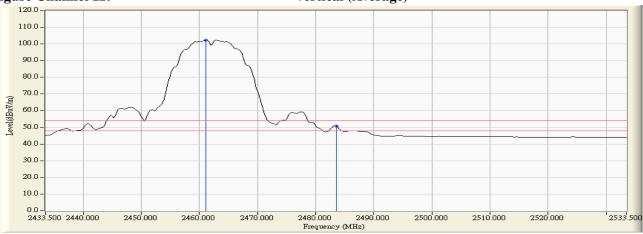


Figure Channel 11:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2: Transmit - 802.11g 6Mbps

RF Radiated Measurement (Horizontal):

Channal Na	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	D 1
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	31.509	28.780	60.289	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	38.191	69.752			
01 (Peak)	2414.800	31.660	69.085	100.745			
01(Average)	2390.000	31.509	15.294	46.803	74.00	54.00	Pass
01(Average)	2400.000	31.561	20.717	52.278	-		
01(Average)	2414.200	31.655	56.204	87.859			

Figure Channel 01:

Horizontal (Peak)

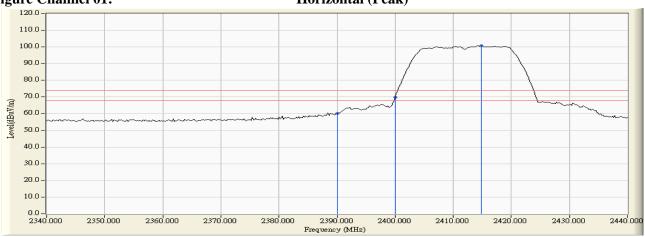
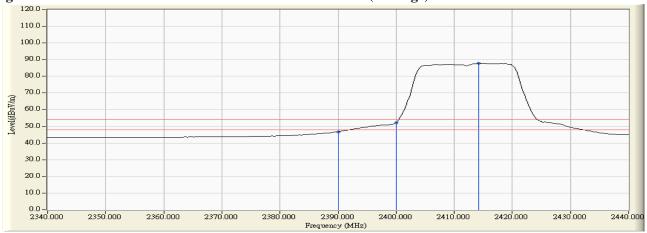


Figure Channel 01:

Horizontal (Average)



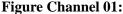
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2: Transmit - 802.11g 6Mbps

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	33.118	64.033	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	44.481	75.393			
01 (Peak)	2414.800	30.968	75.723	106.691			
01 (Average)	2390.000	30.915	19.639	50.554	74.00	54.00	Pass
01 (Average)	2400.000	30.912	26.114	57.026			
01 (Average)	2415.800	30.975	62.206	93.181			





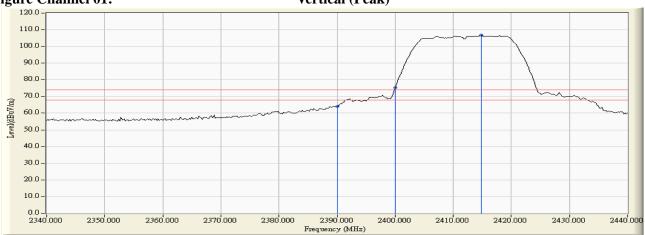
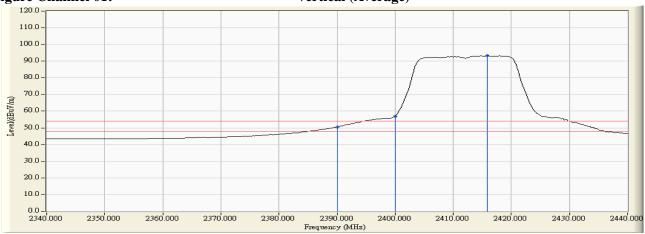


Figure Channel 01:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2: Transmit - 802.11g 6Mbps

RF Radiated Measurement (Horizontal):

Channel No.	1 -		_	Emission Level		_	Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	TCSuit
11 (Peak)	2460.300	32.006	68.668	100.675			
11 (Peak)	2483.500	32.182	28.853	61.035	74.00	54.00	Pass
11 (Peak)	2484.100	32.186	29.586	61.773	74.00	54.00	Pass
11 (Average)	2463.900	32.033	55.932	87.966			
11 (Average)	2483.500	32.182	15.313	47.495	74.00	54.00	Pass



Horizontal (Peak)

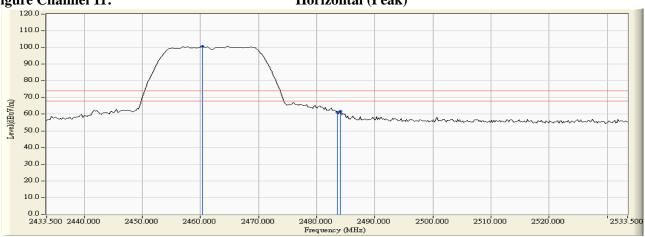
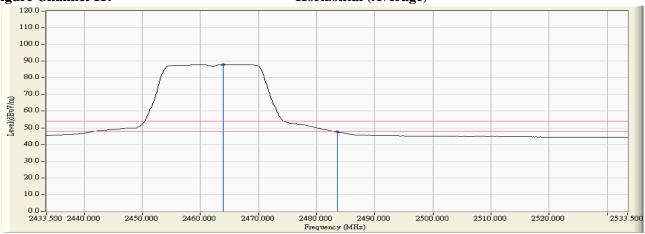


Figure Channel 11:

Horizontal (Average)



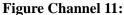
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2: Transmit - 802.11g 6Mbps

RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2460.300	31.278	69.501	100.780			
11 (Peak)	2483.500	31.435	28.636	60.071	74.00	54.00	Pass
11 (Average)	2459.300	31.272	56.617	87.889			
11 (Average)	2483.500	31.435	14.740	46.175	74.00	54.00	Pass



Vertical (Peak)

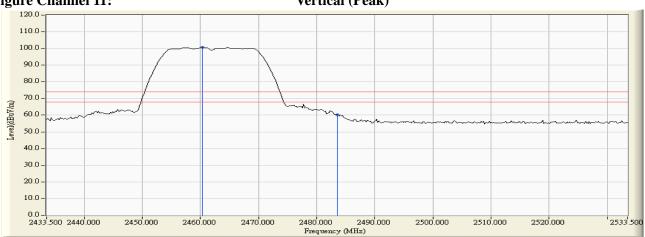
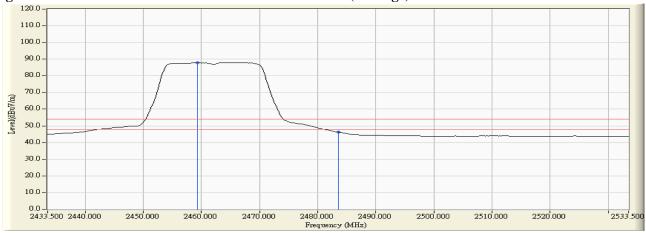


Figure Channel 11:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	1 -		_	Emission Level		_	Result
Chamier 110.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	TCSuit
01 (Peak)	2390.000	31.509	34.966	66.475	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	41.655	73.216	-		
01 (Peak)	2415.200	31.662	74.167	105.830			
01 (Average)	2390.000	31.509	18.125	49.634	74.00	54.00	Pass
01 (Average)	2400.000	31.561	25.536	57.097	-		
01 (Average)	2417.800	31.683	59.735	91.418			

Figure Channel 01:

Horizontal (Peak)

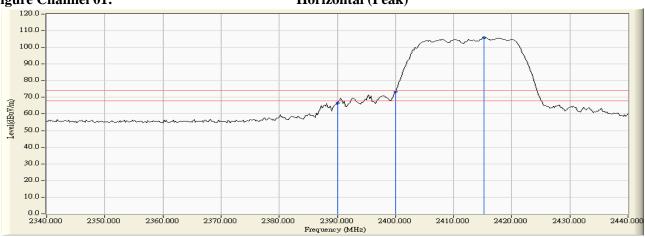


Figure Channel 01:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.		Correct Factor		Emission Level			Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
01 (Peak)	2389.800	30.916	37.151	68.067	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	35.819	66.734	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	43.505	74.417			
01 (Peak)	2415.400	30.972	76.227	107.199			
01 (Average)	2390.000	30.915	18.603	49.518	74.00	54.00	Pass
01 (Average)	2400.000	30.912	26.284	57.196			
01 (Average)	2415.600	30.973	61.737	92.711			



Vertical (Peak)

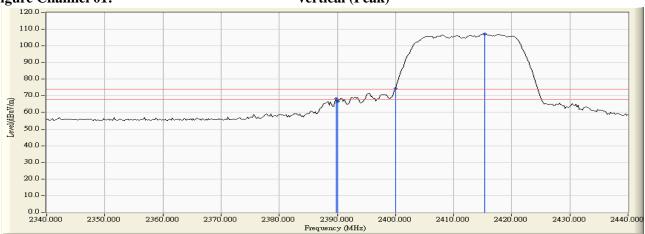
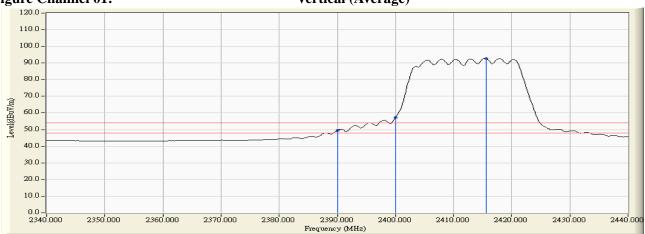


Figure Channel 01:

Vertical (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Chamici No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2465.500	32.046	74.911	106.957			
11 (Peak)	2483.500	32.182	27.852	60.034	74.00	54.00	Pass
11 (Peak)	2485.300	32.196	29.109	61.305	74.00	54.00	Pass
11 (Average)	2467.900	32.064	60.710	92.774			
11 (Average)	2483.500	32.182	15.420	47.602	74.00	54.00	Pass



Horizontal (Peak)

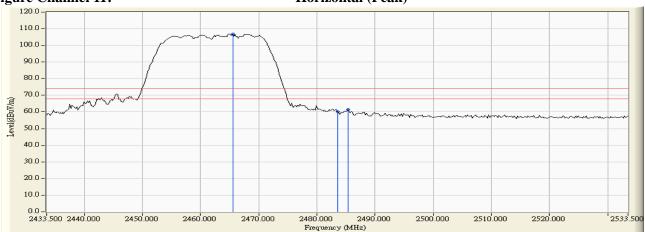
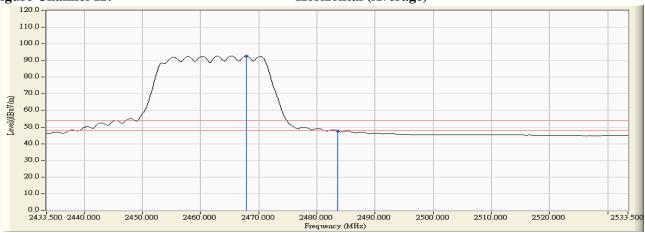


Figure Channel 11:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.500	31.294	74.083	105.377			
11 (Peak)	2483.500	31.435	26.775	58.210	74.00	54.00	Pass
11 (Peak)	2487.900	31.465	28.358	59.823	74.00	54.00	Pass
11 (Average)	2465.300	31.313	60.004	91.317			
11 (Average)	2483.500	31.435	15.224	46.659	74.00	54.00	Pass



Vertical (Peak)

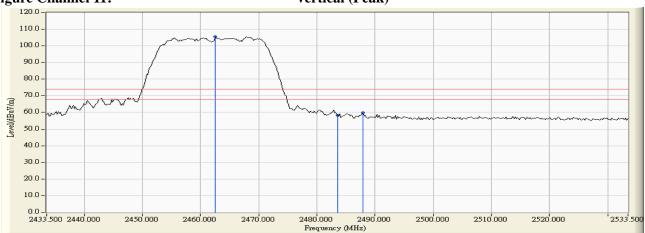
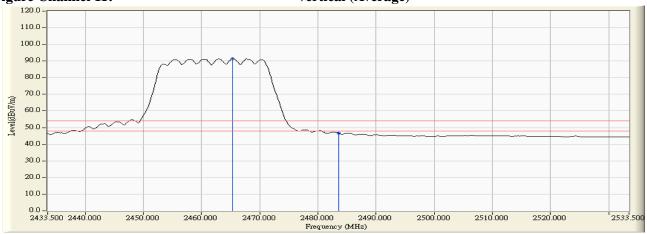


Figure Channel 11:

Vertical (Average)

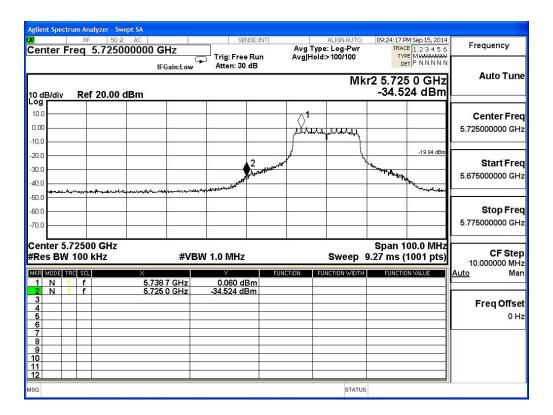


- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3: Transmit - 802.11a 6Mbps

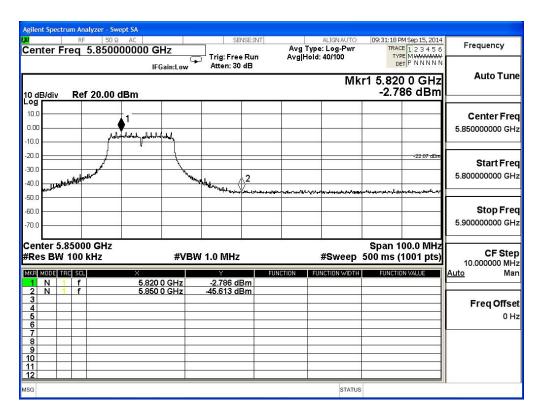
Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta (\mathrm{dB})$	Δ (dB)	
5745	34.464	>20	PASS





Test Mode : Mode 3: Transmit - 802.11a 6Mbps

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta (\mathrm{dB})$	Δ (dB)	
5825	48.399	>20	PASS

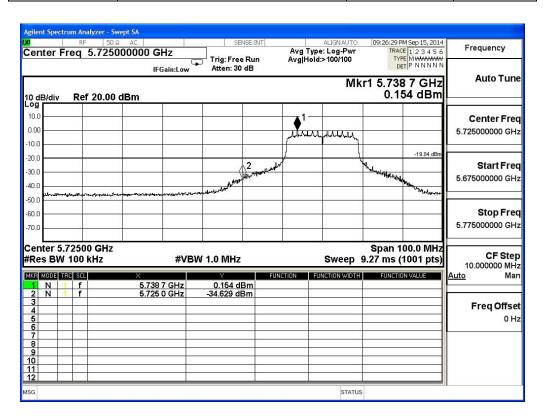




Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band)

Chain A

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5745	34.475	>20	PASS

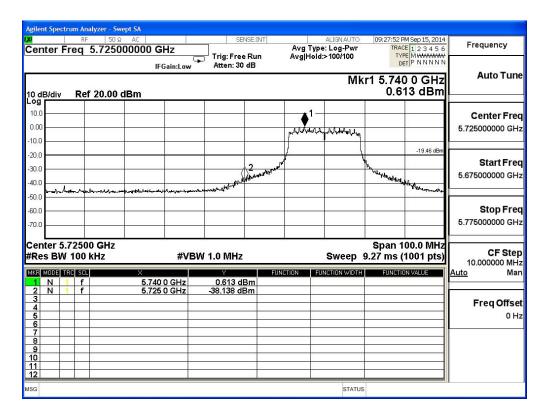




Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band)

Chain B

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta (dB)$	Δ (dB)	
5745	37.525	>20	PASS

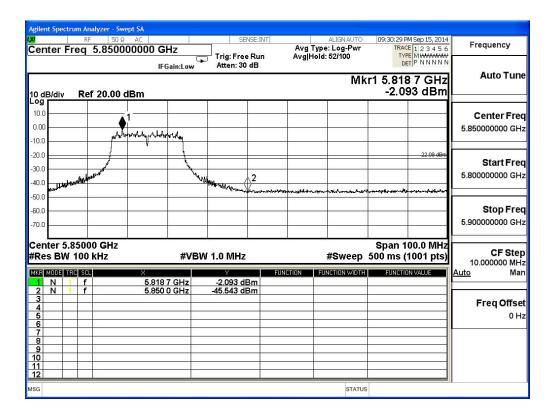




Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band)

Chain A

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5825	47.636	>20	PASS

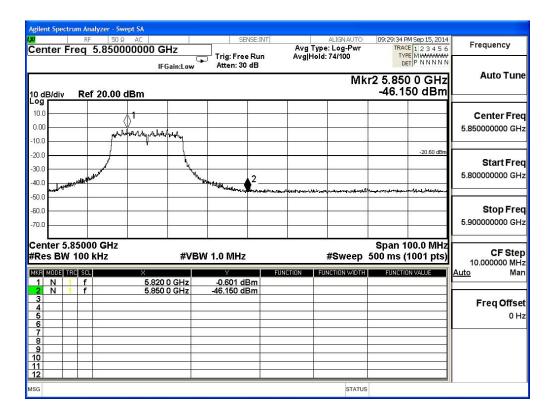




Test Mode : Mode 5: Transmit - 802.11n-20BW 14.4Mbps(5G Band)

Chain B

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5825	46.751	>20	PASS

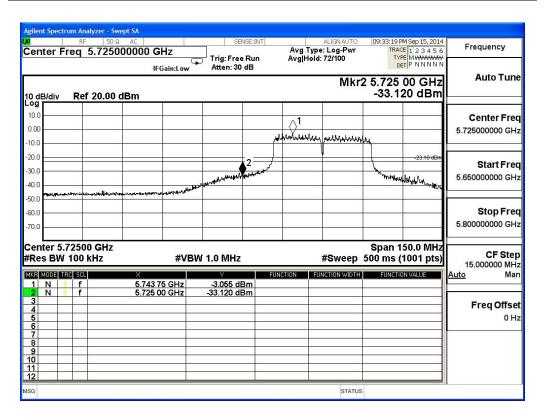




Test Mode : Mode 6: Transmit - 802.11n-40BW_30Mbps(5G Band)

Chain A

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5755	36.175	>20	PASS

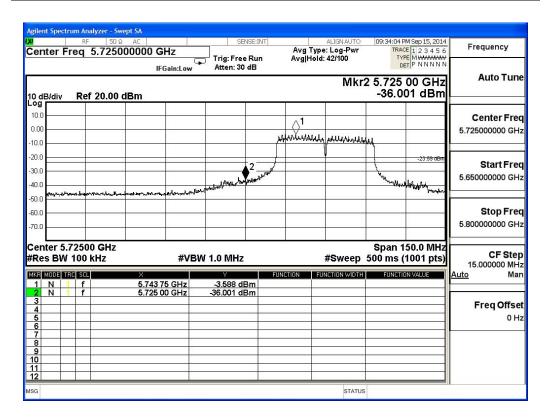




Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band)

Chain B

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5755	39.589	>20	PASS

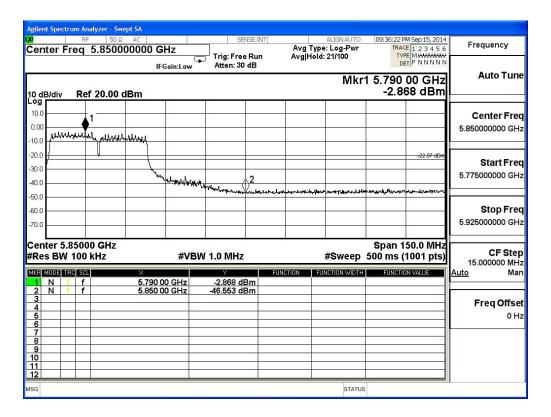




Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band)

Chain A

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5795	49.421	>20	PASS

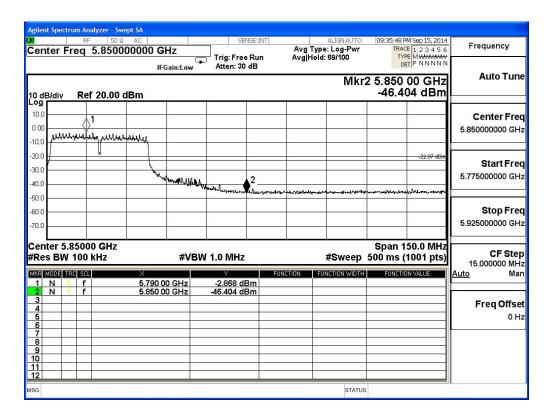




Test Mode : Mode 6: Transmit - 802.11n-40BW 30Mbps(5G Band)

Chain B

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5795	49.272	>20	PASS

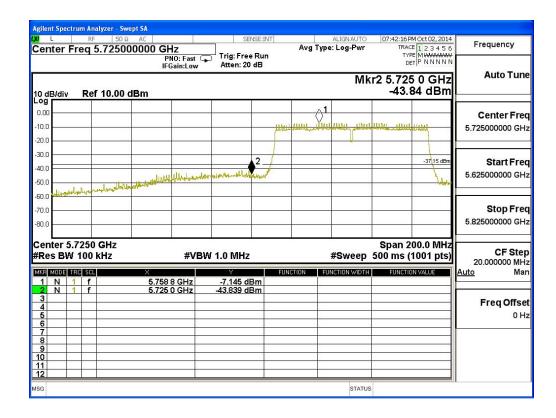




Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps

Chain A

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5775	50.984	>30	PASS





Test Mode : Mode 7: Transmit - 802.11ac-80BW-65Mbps

Chain B

Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5775	55.28	>30	PASS

