

FCC Test Report

Product Name	Notebook PC
Model No	T100T, H100T, R104T
FCC ID.	MSQT100T

Applicant	ASUSTeK COMPUTER INC.
Address	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

Date of Receipt	Aug. 12, 2013
Issue Date	Sep. 09, 2013
Report No.	138248R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation. This report must not be used to claim product endorsement by TAF or any agency of the U.S. Government.



Test Report Certification

Issue Date: Sep. 09, 2013

Report No.: 138248R-RFUSP42V01



Product Name	Notebook PC
Applicant	ASUSTeK COMPUTER INC.
тррпсан	ABOBICK COMI OTER IIVC.
Address	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Manufacturer	TECH-COM(SHANGHAI) COMPUTER CO. LTD
Model No.	T100T, H100T, R104T
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2012
	ANSI C63.4: 2003, ANSI C63.10: 2009, KDB 558074
Test Result	Complied

The test results relate only to the samples tested.

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Approved By :

(Manager / Vincent Lin)



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



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook PC		
Trade Name	ASUS		
Model No.	T100T, H100T, R104T		
FCC ID.	MSQT100T		
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz		
	802.11a/n-20MHz:5745-5825MHz ,802.11n-40MHz:5755-5795MHz		
Number of Channels	802.11b/g/n-20MHz: 11		
	802.11a/n-20MHz: 5, n-40MHz: 2		
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 150Mbps		
Channel separation	802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz		
	802.11n-40MHz: 40MHz		
Type of Modulation	802.11b:DSSS, DBPSK, DQPSK, CCK		
	802.11a/g/n: OFDM, BPSK, QPSK, 16QAM, 64QAM		
Antenna Type	PIFA Antenna		
Antenna Gain	Refer to the table "Antenna List"		
Channel Control	Auto		
USB Cable	Non-Shielded, 1.0m		
Power Adapter	MFR: ASUS, M/N: W12-010N3A		
	Input: 100-240V, 50-60Hz, 0.3A		
	Output: 5V, 2A		

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	INPAQ	WA-P-LB-02-083	PIFA	-0.60 dBi in 2.4GHz
				0.47 dBi in 5.725~5.850GHz

Note: The antenna of EUT is conform to FCC 15.203

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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 00.	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

Note:

- 1. This device is a Notebook PC with a built-in 2.4GHz and 5GHz WLAN transceiver.
- 2. The Hardware is identical for three models, the differences between the models is pre-reserved model name, provided for different sales channel.
- 3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
- 4. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 5. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps \ 802.11g is 6Mbps \ 802.11n(20M-BW) is 7.2Mbps and \ 802.11n(40M-BW) is 15Mbps).
- 6. 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.

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_7.2Mbps(2.4G Band)				
	Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)				
	Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band)				

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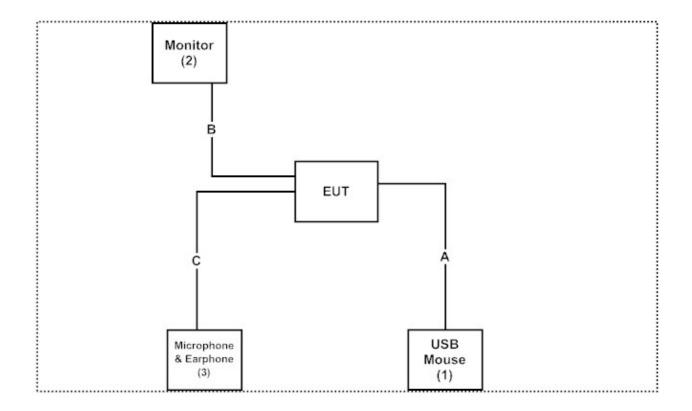
1.3. Tested System Details

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

Proc	luct	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
(1)	USB Mouse	Logitech	M-U0003	LZ024HR	DoC	N/A
(2)	Monitor	DELL	U2410	CN-0J257M-728 -01I-038L	DoC	Non-Shielded, 1.8m
(3)	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A	N/A

	Signal Cable Type	Signal cable Description
A	Mouse Cable	Non-Shielded, 1.8m
В	HDMI Cable	Non-Shielded, 1.8m
C	Microphone & Earphone Cable	Non-Shielded, 1.8m

1.4. Configuration of Tested System





1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Execute Telnet program on the EUT
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to 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

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E-Mail: service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

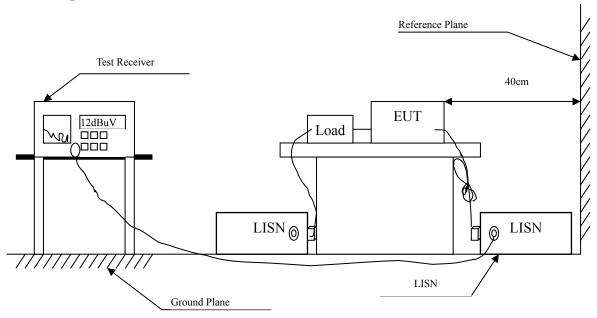
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2013	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2013	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2013	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2013	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2013	
	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	I	imits							
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 : Notebook PC

Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB dBuV		dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.185	9.698	26.090	35.788	-29.212	65.000
0.404	9.708	25.360	35.068	-23.675	58.743
1.310	9.759	12.870	22.629	-33.371	56.000
1.740	9.779	10.170	19.949	-36.051	56.000
5.064	9.830	15.970	25.800	-34.200	60.000
23.228	9.972	8.040	18.012	-41.988	60.000
Average					
0.185	9.698	13.420	23.118	-31.882	55.000
0.404	9.708	22.640	32.348	-16.395	48.743
1.310	9.759	10.410	20.169	-25.831	46.000
1.740	9.779	7.500	17.279	-28.721	46.000
5.064	9.830	10.820	20.650	-29.350	50.000
23.228	9.972	2.610	12.582	-37.418	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_7.2Mbps(2.4G Band) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Hz dB dBuV		dBuV	dB	dBuV
Line 2					_
Quasi-Peak					
0.150	9.676	30.660	40.336	-25.664	66.000
0.408	9.688	24.430	34.118	-24.511	58.629
0.591	9.696	14.670	24.366	-31.634	56.000
0.705	9.704	11.940	21.644	-34.356	56.000
1.310	9.739	10.800	20.539	-35.461	56.000
5.545	9.830	7.740	17.570	-42.430	60.000
Average					
0.150	9.676	19.290	28.966	-27.034	56.000
0.408	9.688	19.110	28.798	-19.831	48.629
0.591	9.696	12.620	22.316	-23.684	46.000
0.705	9.704	8.240	17.944	-28.056	46.000
1.310	9.739	8.710	18.449	-27.551	46.000
5.545	9.830	3.330	13.160	-36.840	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 6: Transmit - 802.11n-40BW_15Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.150	9.696	29.270	38.966	-27.034	66.000
0.400	9.708	24.670	34.378	-24.479	58.857
0.595	9.717	16.230	25.947	-30.053	56.000
1.712	9.777	12.060	21.837	-34.163	56.000
5.302	9.830	11.560	21.390	-38.610	60.000
21.482	9.940	9.620	19.560	-40.440	60.000
Average					
0.150	9.696	15.880	25.576	-30.424	56.000
0.400	9.708	22.110	31.818	-17.039	48.857
0.595	9.717	13.750	23.467	-22.533	46.000
1.712	9.777	9.610	19.387	-26.613	46.000
5.302	9.830	5.960	15.790	-34.210	50.000
21.482	9.940	4.730	14.670	-35.330	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 6: Transmit - 802.11n-40BW_15Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.150	9.676	30.680	40.356	-25.644	66.000
0.170	9.677	29.270	38.947	-26.482	65.429
0.388	9.687	23.230	32.917	-26.283	59.200
0.740	9.713	11.870	21.583	-34.417	56.000
1.337	9.740	10.540	20.280	-35.720	56.000
5.810	9.830	9.510	19.340	-40.660	60.000
Average					
0.150	9.676	19.540	29.216	-26.784	56.000
0.170	9.677	17.560	27.237	-28.192	55.429
0.388	9.687	17.690	27.377	-21.823	49.200
0.740	9.713	9.900	19.613	-26.387	46.000
1.337	9.740	8.310	18.050	-27.950	46.000
5.810	9.830	6.200	16.030	-33.970	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



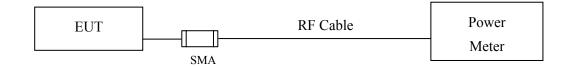
3. Peak Power Output

3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2013
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 peak power shall be less 1 Watt.

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 section 9.1.3 PKPM1 Peak power meter method.

3.5. Uncertainty

± 1.27 dB



3.6. Test Result of Peak Power Output

Product : Notebook PC

Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency	For d	•	e Power ata Rate (N	Лbps)	Peak Power	Required	Result
	(MHz)	1	2	5.5	11	1	Limit	
			Measur					
01	2412	15.48	-	-	-	19.19	<30dBm	Pass
06	2437	15.38	15.20	15.05	14.91	19.13	<30dBm	Pass
11	2462	15.34	-	-	-	19.08	<30dBm	Pass

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



Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps)

	Era guan av		Average Power Peak For different Data Rate (Mbps) Power									
Channel No	Frequency (MHz)	6	9	12	18	24	36	48	54	6	Required Limit	Result
			Measurement Level (dBm)									
01	2412	11.58	ı	ı	ı	ı	ı	ı	ı	21.82	<30dBm	Pass
06	2437	15.36	15.24	15.09	14.96	14.83	14.69	14.56	14.42	23.74	<30dBm	Pass
11	2462	11.40	-	-	-	-	-	-	-	21.42	<30dBm	Pass

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

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Test Item : Peak Power Output Data

Test Site : No.3 OATS

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

	Eraguanay		Average Power Peak For different Data Rate (Mbps) Power									
Channel No	Frequency (MHz)	6	9	12	18	24	36	48	54	6	Required Limit	Result
			Measurement Level (dBm)									
149	5745	11.67	-	I	-	I	I			20.72	<30dBm	Pass
157	5785	11.58	11.43	11.27	11.12	10.96	10.81	10.65	10.50	20.89	<30dBm	Pass
165	5825	11.62	-	1		- 1	ŀ			20.54	<30dBm	Pass

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



Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

			Average Power							Peak		
	Frequency		For different Data Rate (Mbps)							Power	Required	
Channel No	(MHz)	7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2	Limit	Result
			Measurement Level (dBm)									
01	2412	8.76	-	-	-	-	-	-	-	19.26	<30dBm	Pass
06	2437	15.49	15.27	15.1	14.90	14.70	14.51	14.31	14.12	23.59	<30dBm	Pass
11	2462	11.31	ı	-	-	1	ı	1	-	21.04	<30dBm	Pass

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



Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)

	Era guar av		Average Power For different Data Rate (Mbps)							Peak Power	Dagwirad	
Channel No	Frequency (MHz)	7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2	Required Limit	Result
			Measurement Level (dBm)									
149	5745	11.58	1	-		-	-	-	-	20.68	<30dBm	Pass
157	5785	11.41	11.25	11.02	10.84	10.64	10.45	10.25	10.06	20.69	<30dBm	Pass
165	5825	11.46								20.48	<30dBm	Pass

^{1.} Note: Peak Power Output Value = Reading value on power meter + cable loss

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Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band)

			Average Power						Peak			
Channel No	Eraguanav		For different Data Rate (Mbps)							Power	Required	
	Frequency (MHz)	15	30	45	60	90	120	135	150	15	Limit	Result
			Measurement Level (dBm)									
151	5755	11.74	11.66	11.48	11.37	11.24	11.11	10.98	10.85	20.76	<30dBm	Pass
159	5795	11.82	!							20.52	<30dBm	Pass

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



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., 2013
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2013
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

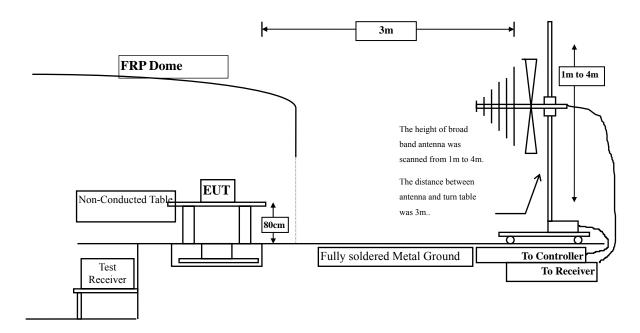
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

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

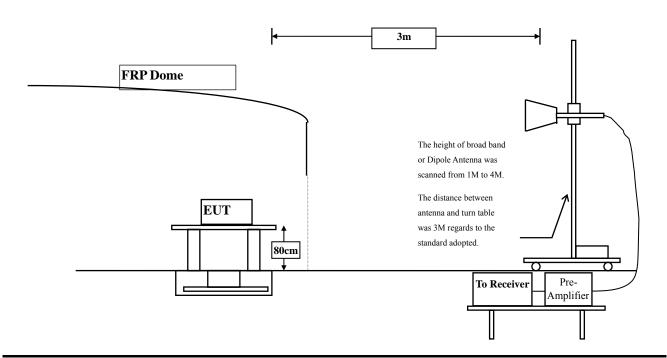


4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



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4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB 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	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 : Notebook PC

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	47.220	50.481	-23.519	74.000
7236.000	10.650	40.420	51.070	-22.930	74.000
9648.000	13.337	37.470	50.806	-23.194	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	46.100	52.521	-21.479	74.000
7236.000	11.495	39.920	51.415	-22.585	74.000
9648.000	13.807	37.410	51.216	-22.784	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)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
Peak Detector:					
4874.000	3.038	45.950	48.987	-25.013	74.000
7311.000	11.795	38.270	50.064	-23.936	74.000
9748.000	12.635	37.910	50.545	-23.455	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4874.000	5.812	44.020	49.831	-24.169	74.000
7311.000	12.630	38.840	51.469	-22.531	74.000
9748.000	13.126	37.580	50.706	-23.294	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) (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	44.080	46.937	-27.063	74.000
7386.000	12.127	36.540	48.668	-25.332	74.000
9848.000	12.852	37.230	50.083	-23.917	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	40.630	46.150	-27.850	74.000
7386.000	13.254	37.290	50.544	-23.456	74.000
9848.000	13.367	37.280	50.647	-23.353	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	45.770	49.031	-24.969	74.000
7236.000	10.650	38.900	49.550	-24.450	74.000
9648.000	13.337	37.100	50.436	-23.564	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	40.150	46.571	-27.429	74.000
7236.000	11.495	42.430	53.925	-20.075	74.000
9648.000	13.807	36.860	50.666	-23.334	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	44.670	47.707	-26.293	74.000
7311.000	11.795	37.220	49.014	-24.986	74.000
9748.000	12.635	37.430	50.065	-23.935	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4874.000	5.812	41.870	47.681	-26.319	74.000
7311.000	12.630	41.570	54.199	-19.801	74.000
9748.000	13.126	38.540	51.666	-22.334	74.000
Average					
Detector:					
7311.000	12.630	25.690	38.319	-15.681	54.000

- 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.



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	5.521	39.500	45.020	-28.980	74.000
7386.000	13.254	37.640	50.894	-23.106	74.000
9848.000	13.367	37.670	51.037	-22.963	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	38.370	43.890	-30.110	74.000
7386.000	13.254	35.610	48.864	-25.136	74.000
9848.000	13.367	36.380	49.747	-24.253	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	ncy Correct Reading Measurement		Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	36.430	53.537	-20.463	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11490.000	18.034	40.680	58.715	-15.285	74.000
Average					
Detector:					
11490.000	18.034	40.680	58.715	-15.285	74.000

- 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.



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	37.490	54.299	-19.701	74.000
Average					
Detector:					
11570.000	16.809	22.680	39.489	-14.511	54.000
Vertical					
Peak Detector:					
11570.000	17.698	41.370	59.068	-14.932	74.000
Average					
Detector:					
11570.000	17.698	26.930	44.628	-9.372	54.000

- 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.



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	36.510	52.668	-21.332	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11650.000	17.274	42.450	59.725	-14.275	74.000
Average					
Detector:					
11650.000	17.274	27.330	44.605	-9.395	54.000

- 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.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 7.2Mbps(2.4G Band) (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	45.020	48.281	-25.719	74.000
7236.000	10.650	42.270	52.920	-21.080	74.000
9648.000	13.337	37.140	50.476	-23.524	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	39.880	46.301	-27.699	74.000
7236.000	11.495	46.800	58.295	-15.705	74.000
9648.000	13.807	37.250	51.056	-22.944	74.000
Average					
Detector:					
7236.000	11.495	31.410	42.905	-11.095	54.000

- 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.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(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	43.600	46.637	-27.363	74.000
7311.000	11.795	40.370	52.164	-21.836	74.000
9748.000	12.635	37.930	50.565	-23.435	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	2.858	42.250	45.107	-28.893	74.000
7386.000	12.127	37.440	49.568	-24.432	74.000
9848.000	13.367	37.730	51.097	-2.903	54.000
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 4: Transmit - 802.11n-20BW 7.2Mbps(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	38.200	41.057	-32.943	74.000
7386.000	12.127	35.870	47.998	-26.002	74.000
9848.000	12.852	36.010	48.863	-25.137	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	38.570	44.090	-29.910	74.000
7386.000	13.254	38.510	51.764	-22.236	74.000
9848.000	13.367	37.380	50.747	-23.253	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_7.2Mbps(5G Band) (5745MHz)

Correct	Reading	Measurement	Margin	Limit
Factor	Level	Level		
dB	dBuV	dBuV/m	dB	dBuV/m
17.106	36.090	53.197	-20.803	74.000
18.034	39.060	57.095	-16.905	74.000
18.034	25.740	43.775	-10.225	54.000
	Factor dB 17.106	Factor Level dBuV 17.106 36.090 18.034 39.060	Factor dB Level dBuV Level dBuV/m 17.106 36.090 53.197 18.034 39.060 57.095	Factor Level Level dBuV/m dB 17.106 36.090 53.197 -20.803 18.034 39.060 57.095 -16.905

- 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_7.2Mbps(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	36.300	53.109	-20.891	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11570.000	17.698	41.180	58.878	-15.122	74.000
Average					
Detector:					
11570.000	17.698	26.750	44.448	-9.552	54.000

- 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.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW 7.2Mbps(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	35.920	52.078	-21.922	74.000
Average					
Detector:					

Vertical					
Peak Detector:					
11650.000	17.274	38.360	55.635	-18.365	74.000
Awaraga					
Average					
Detector:					
11650.000	17.274	24.340	41.615	-12.385	54.000

- 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.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW 15Mbps(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	36.080	53.204	-20.796	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11510.000	18.081	36.530	54.611	-19.389	74.000
Average					
Detector:					
11510.000	18.081	21.860	39.941	-14.059	54.000

- 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.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(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	35.690	52.390	-21.610	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11590.000	17.567	36.320	53.886	-20.114	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					
37.760	-2.539	35.689	33.151	-6.849	40.000
64.920	-12.587	40.203	27.616	-12.384	40.000
460.680	4.030	23.220	27.250	-18.750	46.000
594.540	3.555	25.539	29.094	-16.906	46.000
831.220	7.121	24.504	31.625	-14.375	46.000
885.540	6.542	23.382	29.924	-16.076	46.000
Vertical					
66.860	-12.435	44.440	32.005	-7.995	40.000
216.240	-6.051	34.380	28.329	-17.671	46.000
381.140	0.816	24.312	25.128	-20.872	46.000
544.100	1.503	23.359	24.862	-21.138	46.000
809.880	3.026	22.588	25.614	-20.386	46.000
934.040	2.986	23.670	26.656	-19.344	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					
39.700	-3.625	35.392	31.767	-8.233	40.000
66.860	-13.595	42.464	28.869	-11.131	40.000
460.680	4.030	23.115	27.145	-18.855	46.000
617.820	2.438	27.650	30.088	-15.912	46.000
755.560	5.039	23.792	28.831	-17.169	46.000
831.220	7.121	24.172	31.293	-14.707	46.000
932.100	7.270	23.515	30.785	-15.215	46.000
Vertical					
66.860	-12.435	43.955	31.520	-8.480	40.000
92.080	-5.373	38.919	33.546	-9.954	43.500
214.300	-5.859	32.886	27.027	-16.473	43.500
377.260	0.647	23.887	24.534	-21.466	46.000
804.060	3.371	23.343	26.714	-19.286	46.000
934.040	2.986	22.869	25.855	-20.145	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					
66.860	-13.595	43.369	29.774	-10.226	40.000
367.560	0.592	25.557	26.148	-19.852	46.000
509.180	2.974	25.100	28.074	-17.926	46.000
617.820	2.438	25.892	28.330	-17.670	46.000
831.220	7.121	25.279	32.400	-13.600	46.000
918.520	6.718	23.291	30.009	-15.991	46.000
Vertical					
68.800	-12.433	44.701	32.268	-7.732	40.000
222.060	-6.484	32.341	25.856	-20.144	46.000
365.620	0.282	24.548	24.830	-21.170	46.000
522.760	1.116	22.747	23.863	-22.137	46.000
676.020	0.451	23.874	24.326	-21.674	46.000
825.400	3.016	22.187	25.203	-20.797	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 7.2Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	-3.625	37.475	33.850	-6.150	40.000
66.860	-13.595	42.646	29.051	-10.949	40.000
119.240	-7.291	29.815	22.525	-20.975	43.500
350.100	-1.298	29.877	28.579	-17.421	46.000
460.680	4.030	23.383	27.413	-18.587	46.000
831.220	7.121	25.021	32.142	-13.858	46.000
Vertical					
68.800	-12.433	44.408	31.975	-8.025	40.000
150.280	-5.350	38.675	33.325	-10.175	43.500
365.620	0.282	26.076	26.358	-19.642	46.000
538.280	1.996	23.693	25.689	-20.311	46.000
598.420	1.114	25.026	26.140	-19.860	46.000
807.940	3.361	23.464	26.825	-19.175	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 7.2Mbps(5G Band) (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	-3.625	37.963	34.338	-5.662	40.000
64.920	-12.587	40.336	27.749	-12.251	40.000
468.440	3.544	23.137	26.681	-19.319	46.000
594.540	3.555	23.598	27.153	-18.847	46.000
831.220	7.121	22.128	29.249	-16.751	46.000
970.900	7.347	23.941	31.288	-22.712	54.000
Vertical					
66.860	-12.435	44.966	32.531	-7.469	40.000
214.300	-5.859	31.798	25.939	-17.561	43.500
375.320	0.388	25.119	25.507	-20.493	46.000
540.220	2.169	22.889	25.058	-20.942	46.000
788.540	2.714	23.182	25.896	-20.104	46.000
930.160	3.830	23.449	27.279	-18.721	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 15Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
66.860	-13.595	43.008	29.413	-10.587	40.000
229.820	-8.001	34.809	26.808	-19.192	46.000
419.940	-0.254	30.904	30.650	-15.350	46.000
679.900	2.823	26.103	28.926	-17.074	46.000
831.220	7.121	24.879	32.000	-14.000	46.000
986.420	8.189	22.665	30.854	-23.146	54.000
Vertical					
66.860	-12.435	42.256	29.821	-10.179	40.000
220.120	-6.543	31.826	25.283	-20.717	46.000
371.440	-0.310	26.047	25.737	-20.263	46.000
610.060	2.087	23.039	25.126	-20.874	46.000
837.040	1.606	25.524	27.130	-18.870	46.000
967.020	3.889	22.708	26.597	-27.403	54.000

- 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

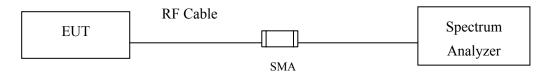
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. 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

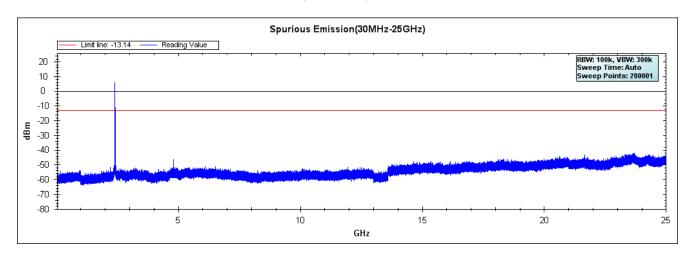
Product : Notebook PC

Test Item : RF antenna conducted test

Test Site : No.3 OATS

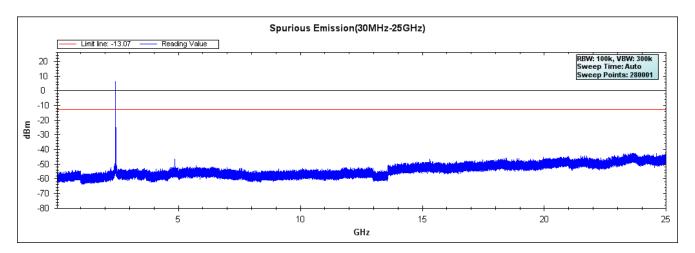
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz) 30MHz-25GHz

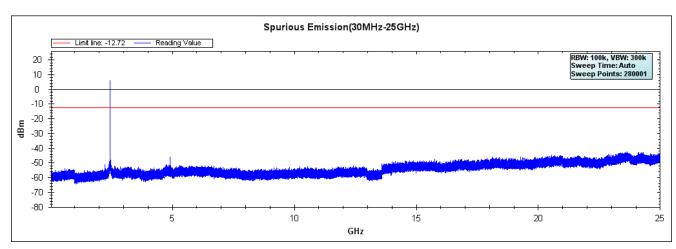




Channel 06 (2437MHz) 30MHz -25GHz



Channel 11 (2462MHz) 30MHz -25GHz



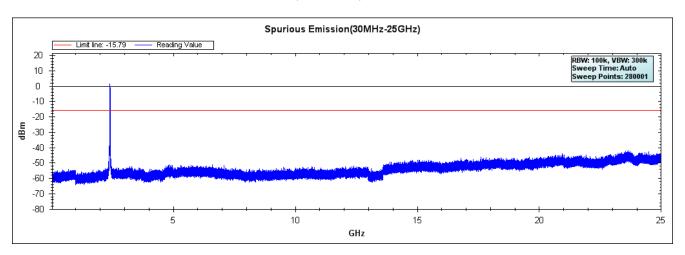


Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

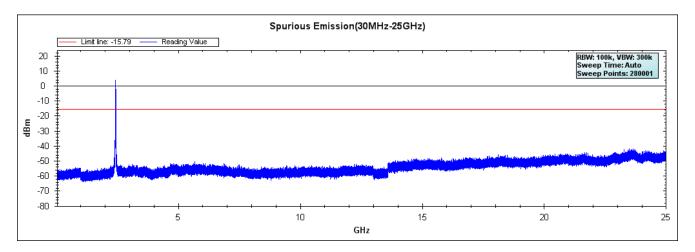
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz) 30MHz -25GHz

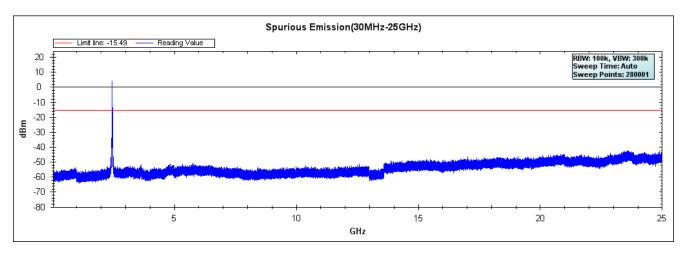




Channel 06 (2437MHz) 30MHz -25GHz



Channel 11 (2462MHz) 30MHz -25GHz



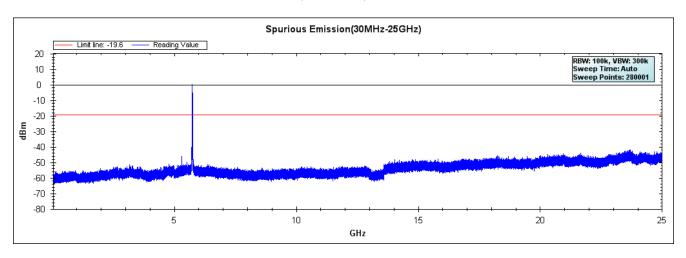


Test Item : RF Antenna Conducted Spurious

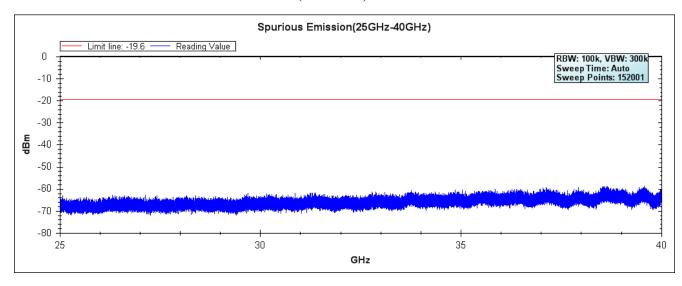
Test Site : No.3 OATS

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

Channel 149 (5745MHz) 30MHz -25GHz

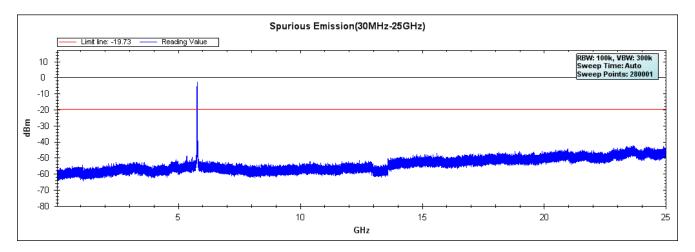


Channel 149 (5745MHz) 25GHz - 40GHz

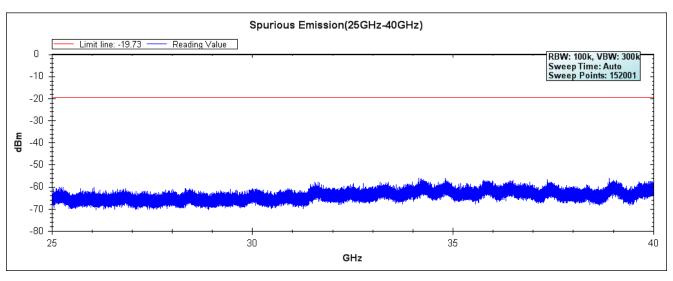




Channel 157 (5785MHz) 30MHz -25GHz

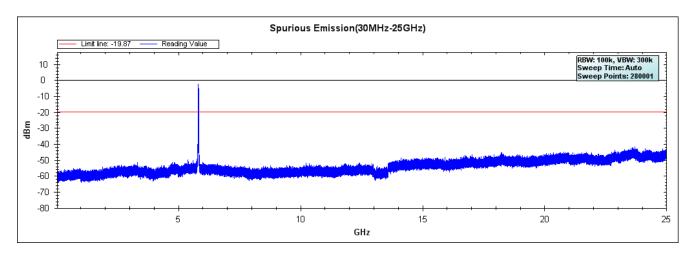


Channel 157 (5785MHz) 25GHz - 40GHz

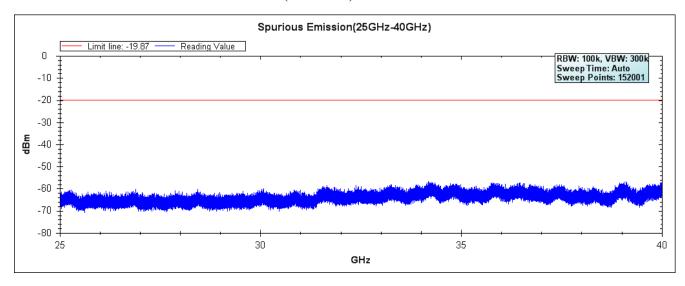




Channel 165 (5825MHz) 30MHz -25GHz



Channel 165 (5825MHz) 25GHz – 40GHz



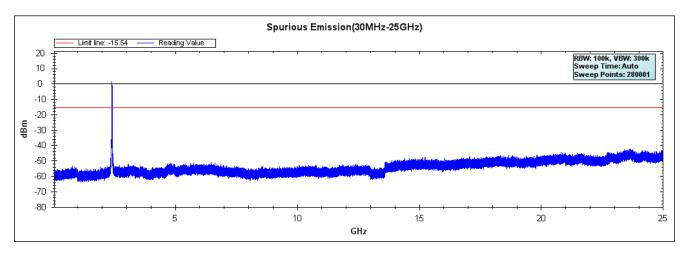


Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

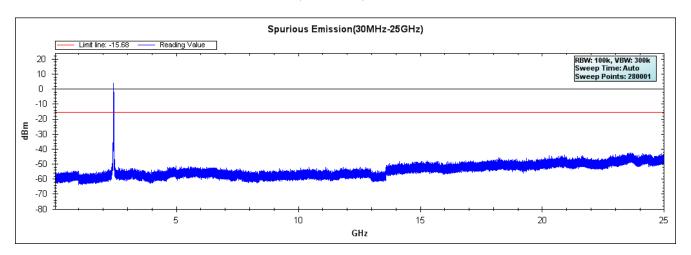
Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

Channel 01 (2412MHz) 30MHz -25GHz

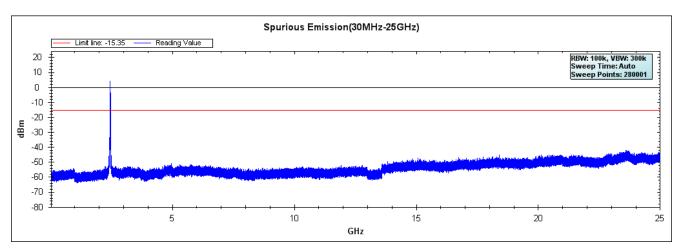




Channel 06 (2437MHz) 30MHz -25GHz



Channel 11 (2462MHz) 30MHz -25GHz



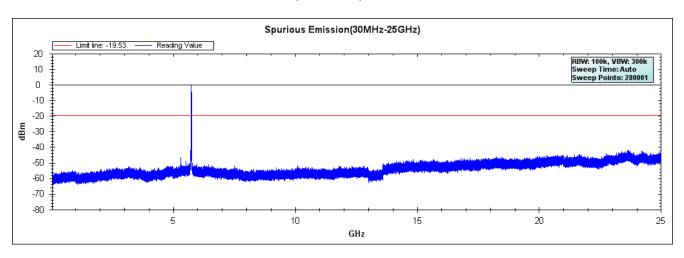


Test Item : RF Antenna Conducted Spurious

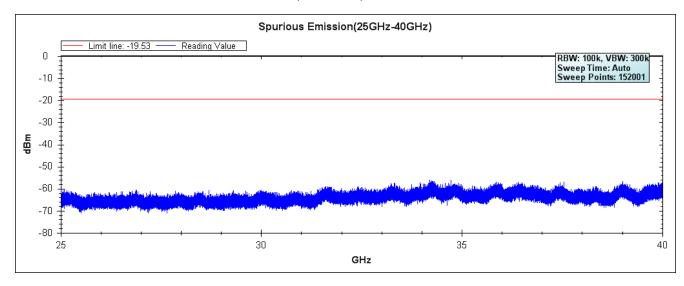
Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)

Channel 49 (5745MHz) 30MHz -25GHz

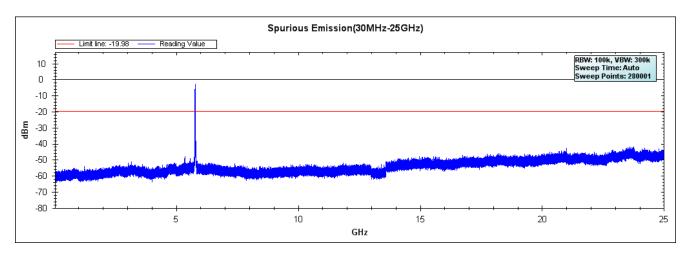


Channel 49 (5745MHz) 25GHz – 40GHz

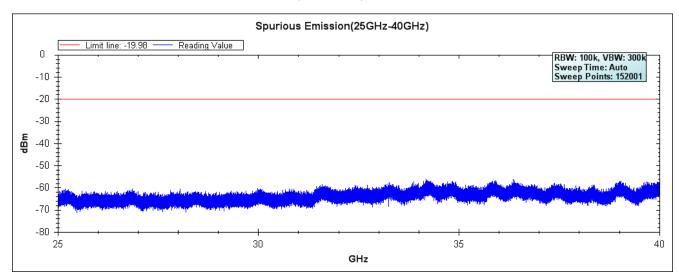




Channel 157 (5785MHz) 30MHz -25GHz

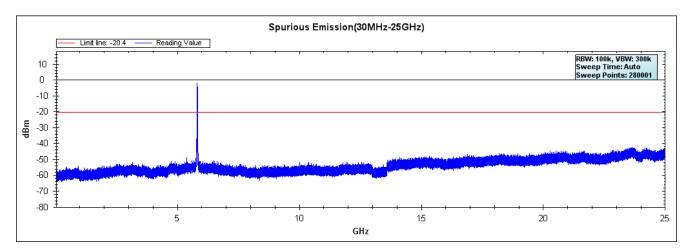


Channel 157 (5785MHz) 25GHz – 40GHz

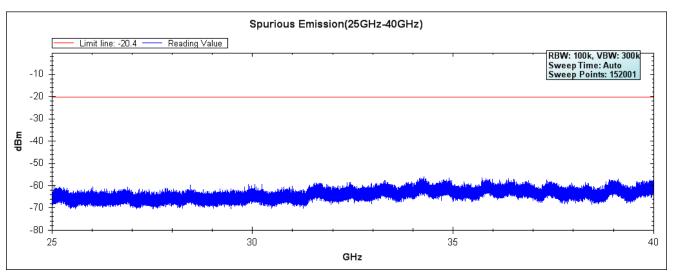




Channel 165 (5825MHz) 30MHz -25GHz



Channel 165 (5825MHz) 25GHz – 40GHz



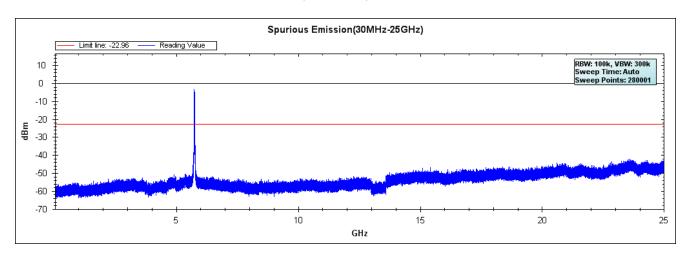


Test Item : RF Antenna Conducted Spurious

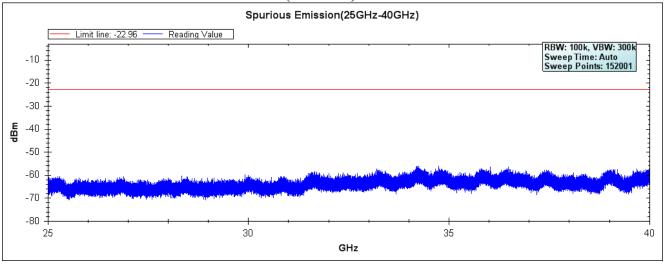
Test Site : No.3 OATS

Test Mode: Mode 6: Transmit - 802.11n-40BW 15Mbps(5G Band)

Channel 151 (5755MHz) 30MHz -25GHz

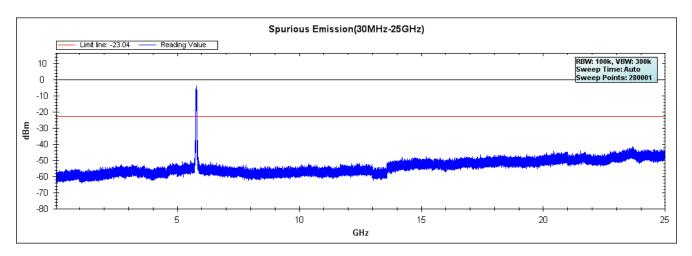


Channel 151 (5755MHz) 25GHz - 40GHz

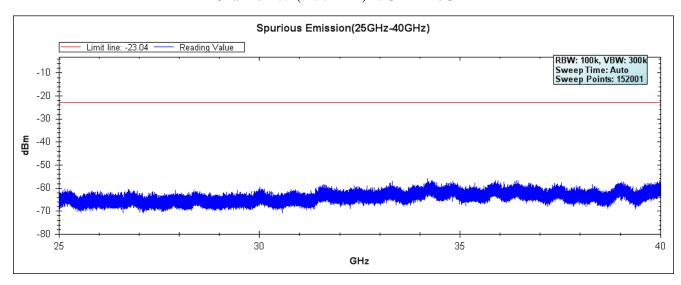




Channel 159 (5795MHz) 30MHz -25GHz



Channel 159 (5795MHz) 25GHz - 40GHz





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, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013
	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2013

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:

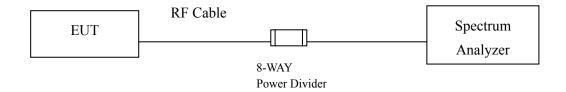
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3	Bilog Antenna		Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X Pre-Amplifier		QTK	AP-180C / CHM_0906076	Sep., 2013
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2013
	X Spectrum Analyzer		Agilent	E4407B / US39440758	May, 2013
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	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.

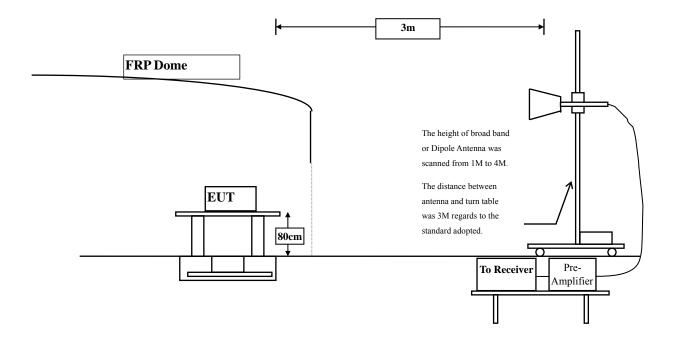


6.2. Test Setup

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 20dB 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 Notebook PC Test Item Band Edge Test Site No.3 OATS

Test Mode Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Chainlei No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Kesuit
01 (Peak)	2361.700	6.900	51.650	58.550	74.00	54.00	Pass
01 (Peak)	2384.200	6.782	51.563	58.346	74.00	54.00	Pass
01 (Peak)	2390.000	6.803	49.487	56.290	74.00	54.00	Pass
01 (Peak)	2411.000	6.876	101.893	108.769			
01 (Average)	2367.100	6.908	40.361	47.268	74.00	54.00	Pass
01 (Average)	2385.800	6.788	40.143	46.931	74.00	54.00	Pass
01 (Average)	2390.000	6.803	38.874	45.677	74.00	54.00	Pass
01 (Average)	2411.300	6.877	98.962	105.839			

Figure Channel 01:

Horizontal (Peak)

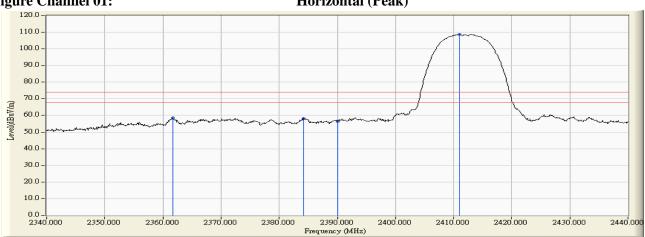
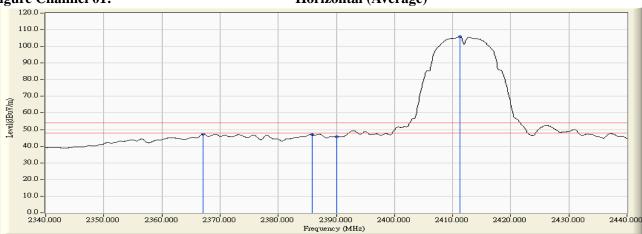


Figure Channel 01:

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.



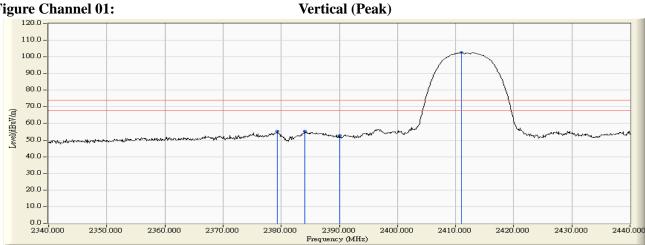
Notebook PC Product Test Item Band Edge Test Site No.3 OATS

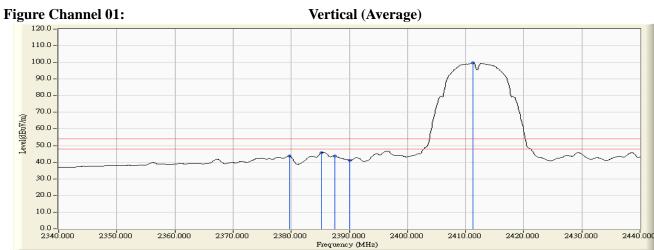
Test Mode Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency		Reading Level	Emission Level		Average Limit	Result
Chamici 140.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2379.300	6.816	48.432	55.248	74.00	54.00	Pass
01 (Peak)	2384.100	6.782	48.408	55.190	74.00	54.00	Pass
01 (Peak)	2390.000	6.803	46.041	52.844	74.00	54.00	Pass
01 (Peak)	2411.000	6.876	95.800	102.676			
01 (Average)	2379.700	6.813	36.916	43.729	74.00	54.00	Pass
01 (Average)	2385.200	6.786	38.973	45.759	74.00	54.00	Pass
01 (Average)	2387.500	6.794	37.044	43.838	74.00	54.00	Pass
01 (Average)	2390.000	6.803	34.421	41.224	74.00	54.00	Pass
01 (Average)	2411.300	6.877	92.955	99.832			









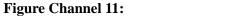
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = 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)	2461.000	6.962	101.026	107.987			
11 (Peak)	2483.500	7.235	47.721	54.956	74.00	54.00	Pass
11 (Peak)	2488.600	7.281	50.697	57.978	74.00	54.00	Pass
11 (Peak)	2494.700	7.290	48.795	56.085	74.00	54.00	Pass
11 (Average)	2461.200	6.964	98.168	105.132			
11 (Average)	2483.500	7.235	36.949	44.184	74.00	54.00	Pass
11 (Average)	2489.900	7.293	38.594	45.886	74.00	54.00	Pass



Horizontal (Peak)

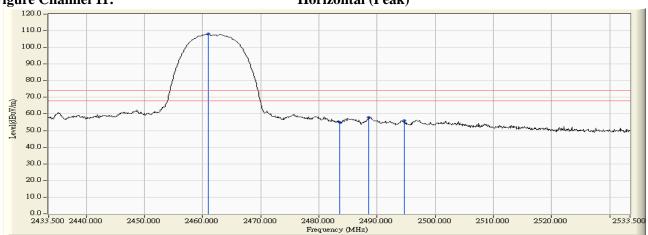
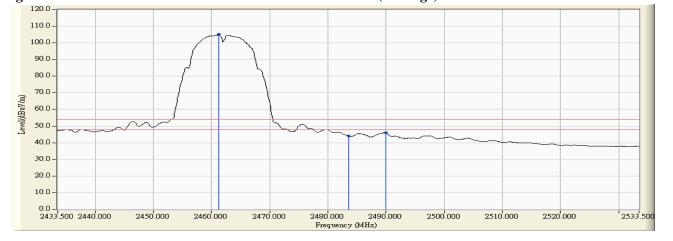


Figure Channel 11:

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.

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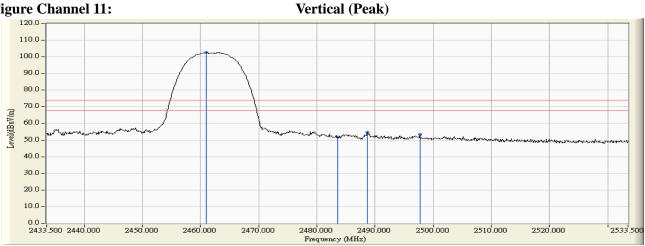


Test Mode Mode 1: Transmit (802.11b 1Mbps)

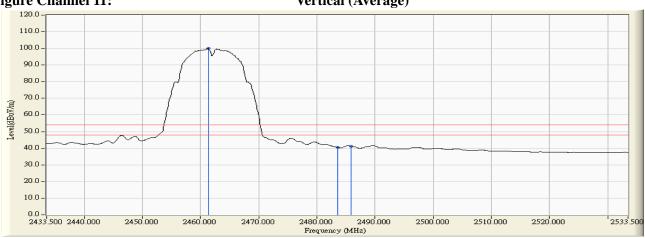
RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Chainlei No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Kesuit
11 (Peak)	2461.000	6.962	95.796	102.757			
11 (Peak)	2483.500	7.235	44.502	51.737	74.00	54.00	Pass
11 (Peak)	2488.700	7.282	47.285	54.567	74.00	54.00	Pass
11 (Peak)	2497.700	7.267	45.988	53.255	74.00	54.00	Pass
11 (Average)	2461.300	6.965	92.937	99.903			
11 (Average)	2483.500	7.235	33.289	40.524	74.00	54.00	Pass
11 (Average)	2485.800	7.255	34.035	41.290	74.00	54.00	Pass











- 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.

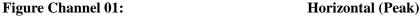
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Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channal No	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	6.803	65.941	72.744	74.00	54.00	Pass
01 (Peak)	2409.000	6.869	102.508	109.377			
01(Average)	2390.000	6.803	44.665	51.468	74.00	54.00	Pass
01(Average)	2415.500	6.889	88.813	95.702	-		



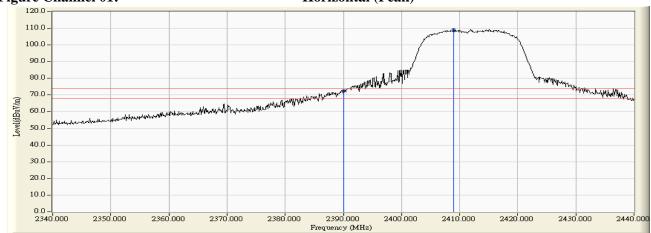
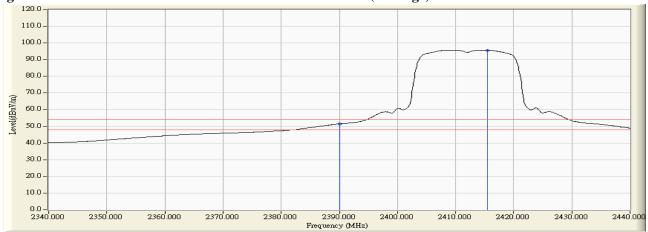


Figure Channel 01: Horizontal (Average)





- 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.

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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	Dagult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	6.803	61.274	68.077	74.00	54.00	Pass
01 (Peak)	2409.200	6.870	96.027	102.897			
01 (Average)	2390.000	6.803	40.685	47.488	74.00	54.00	Pass
01 (Average)	2408.400	6.867	83.086	89.953			



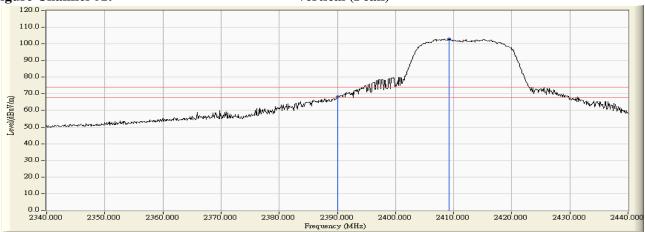
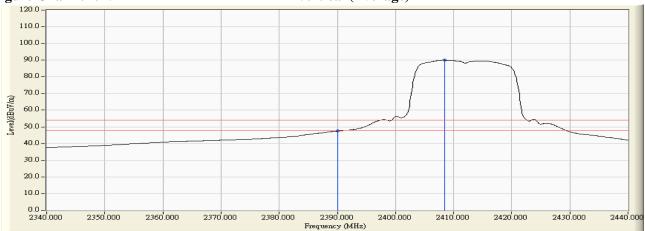


Figure Channel 01: Vertical (Average)





- 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.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	D agult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2459.200	6.934	101.283	108.217	-		
11 (Peak)	2483.500	7.235	64.326	71.561	74.00	54.00	Pass
11 (Average)	2458.300	6.920	88.098	95.018			
11 (Average)	2483.500	7.235	37.081	44.316	74.00	54.00	Pass



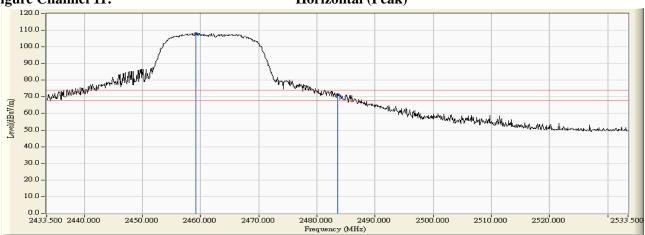
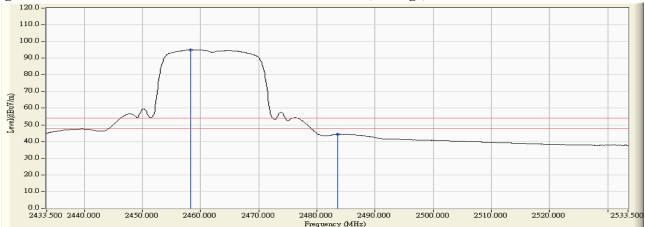


Figure Channel 11: Horizontal (Average)





- 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.

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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	D agult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2458.900	6.930	93.304	100.233	-		1
11 (Peak)	2483.500	7.235	57.336	64.571	74.00	54.00	Pass
11 (Average)	2459.400	6.937	79.856	86.793			
11 (Average)	2483.500	7.235	32.957	40.192	74.00	54.00	Pass



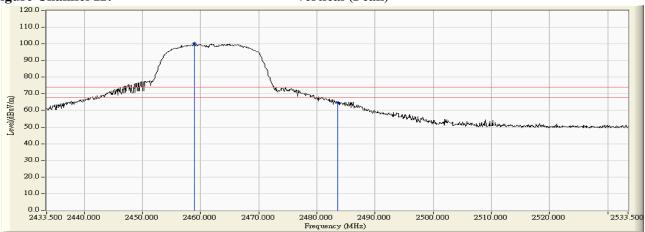


Figure Channel 11: Vertical (Average)





- 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_7.2Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dagult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2389.600	6.801	64.994	71.796	74.00	54.00	Pass
01 (Peak)	2390.000	6.803	63.432	70.235	74.00	54.00	Pass
01 (Peak)	2410.100	6.873	99.549	106.422	-		
01 (Average)	2390.000	6.803	42.023	48.826	74.00	54.00	Pass
01 (Average)	2408.700	6.868	85.449	92.317			



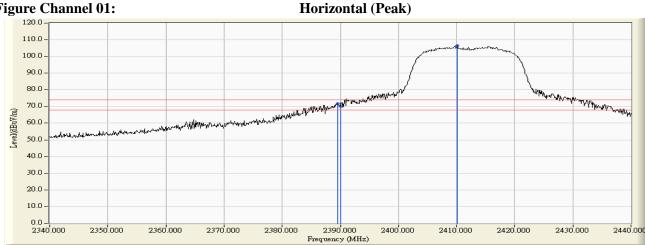
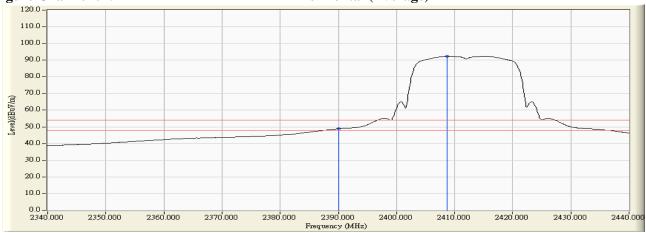


Figure Channel 01: Horizontal (Average)





- 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_7.2Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Chamiei No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2389.600	6.801	60.627	67.429	74.00	54.00	Pass
01 (Peak)	2390.000	6.803	56.963	63.766	74.00	54.00	Pass
01 (Peak)	2410.000	6.873	93.766	100.639			
01 (Average)	2390.000	6.803	38.378	45.181	74.00	54.00	Pass
01 (Average)	2408.400	6.867	79.982	86.849			



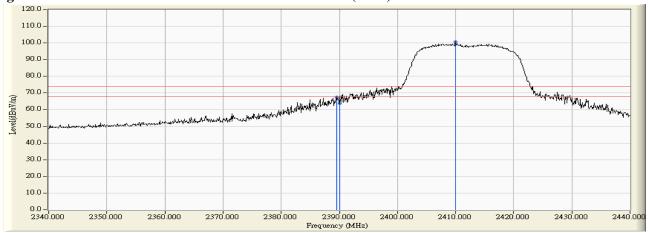


Figure Channel 01: Vertical (Average)





- 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.

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Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2459.800	6.943	100.667	107.610			
11 (Peak)	2483.500	7.235	64.627	71.862	74.00	54.00	Pass
11 (Average)	2458.300	6.920	86.498	93.418			
11 (Average)	2483.500	7.235	35.926	43.161	74.00	54.00	Pass



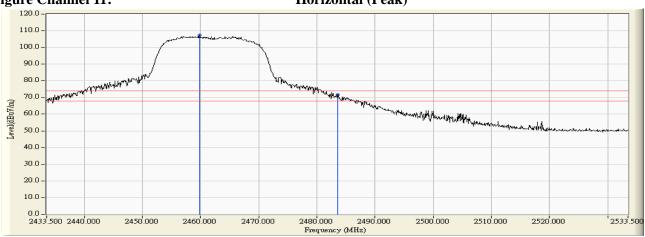


Figure Channel 11: Horizontal (Average)





- 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_7.2Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

Channel No	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	D agult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2460.000	6.946	91.402	98.348			
11 (Peak)	2483.500	7.235	57.719	64.954	74.00	54.00	Pass
11 (Average)	2465.200	7.023	77.847	84.870			
11 (Average)	2483.500	7.235	32.223	39.458	74.00	54.00	Pass



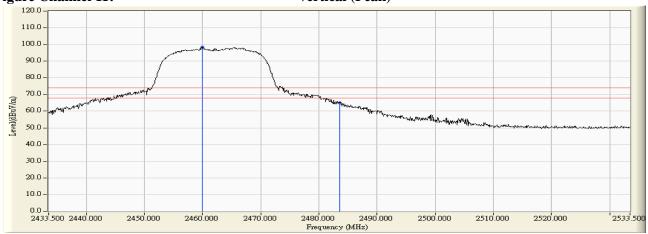


Figure Channel 11: Vertical (Average)



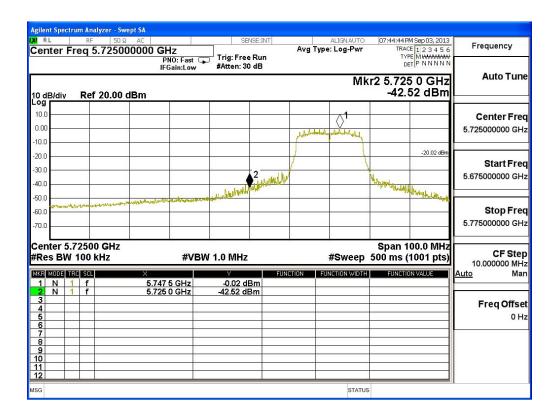


- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = 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

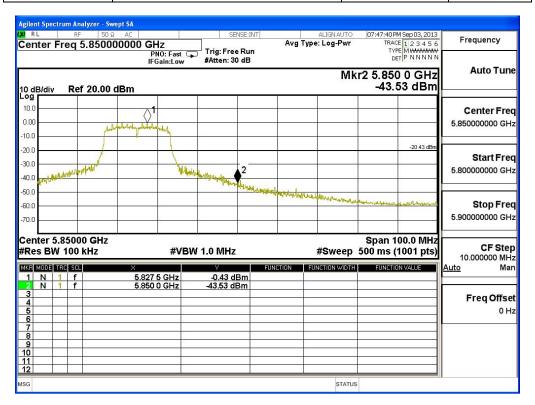
Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5745	42.54	>20	PASS





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

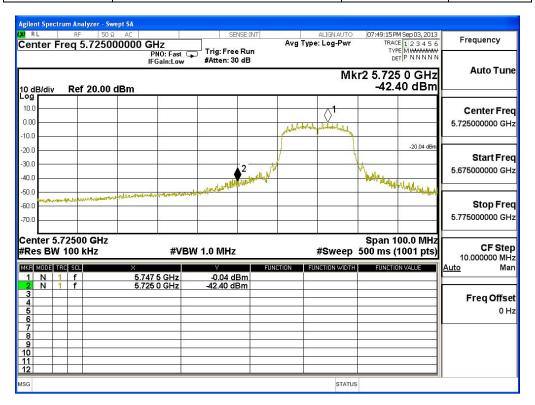
Test Frequency	Measurement Level	Limit	Result
(MHz)	Δ (dB)	Δ (dB)	
5825	43.96	>20	PASS





Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)

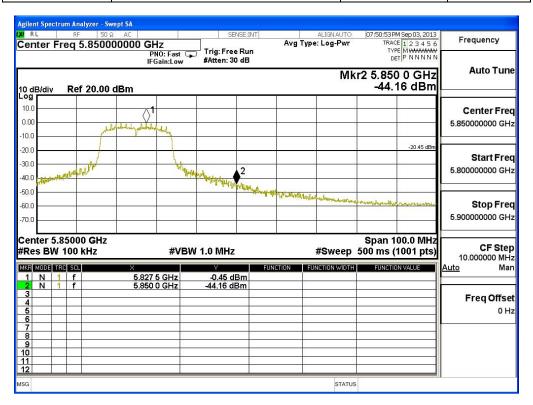
Test Frequency	Measurement Level	Limit	Result
(MHz)	MHz) Δ (dB)		
5745	42.44	>20	PASS





Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)

Test Frequency	Measurement Level	Limit	Result
(MHz)	(Hz) $\Delta (dB)$		
5825	5825 44.61		PASS





Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band)

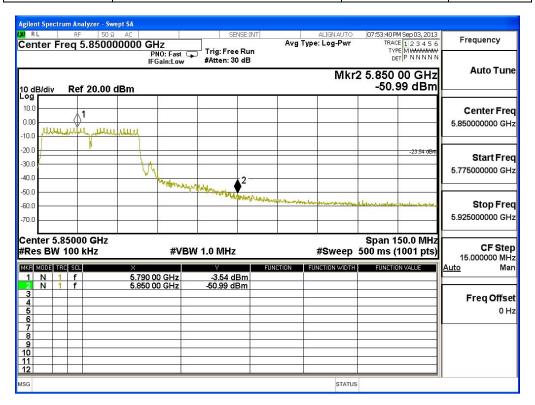
Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta (dB)$		
5755	5755 45.18		PASS





Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band)

Test Frequency	t Frequency Measurement Level		Result
(MHz)	(MHz) Δ (dB)		
5795	5795 54.53		PASS





7. Occupied Bandwidth

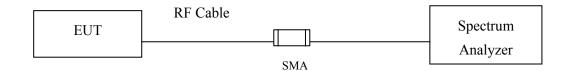
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

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.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

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

7.5. Uncertainty

 \pm 150Hz



7.6. Test Result of Occupied Bandwidth

Product : Notebook PC

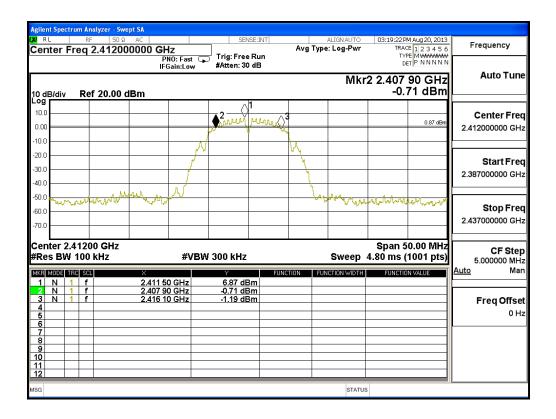
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	8200	>500	Pass

Figure Channel 1:





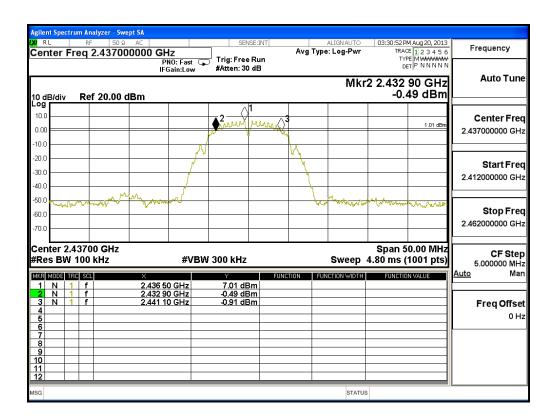
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	8200	>500	Pass

Figure Channel 6:





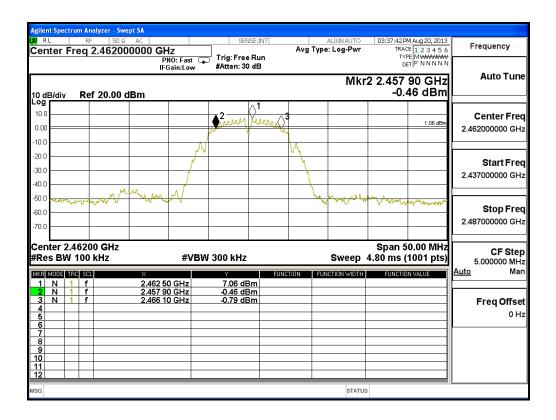
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	8200	>500	Pass

Figure Channel 11:





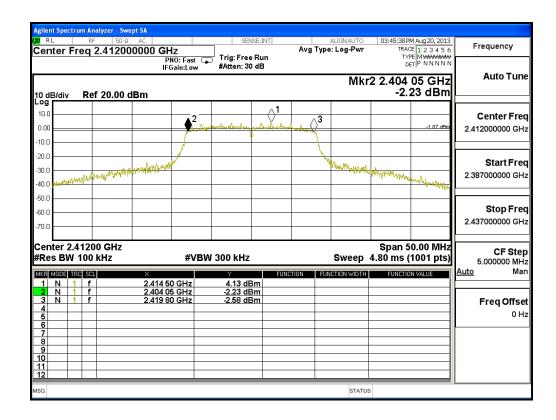
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	15750	>500	Pass

Figure Channel 1:





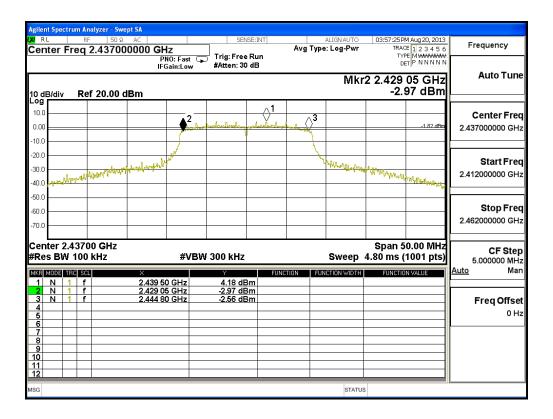
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	15750	>500	Pass

Figure Channel 6:





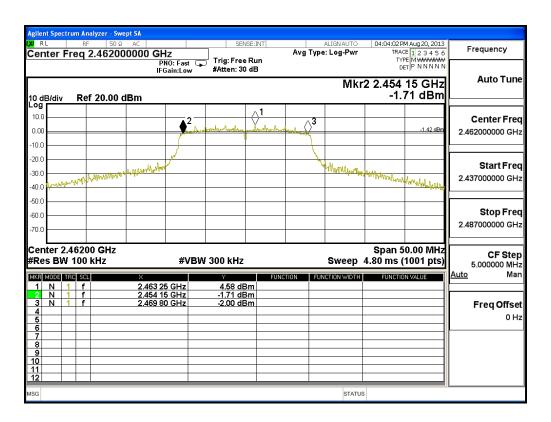
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	15650	>500	Pass

Figure Channel 11:





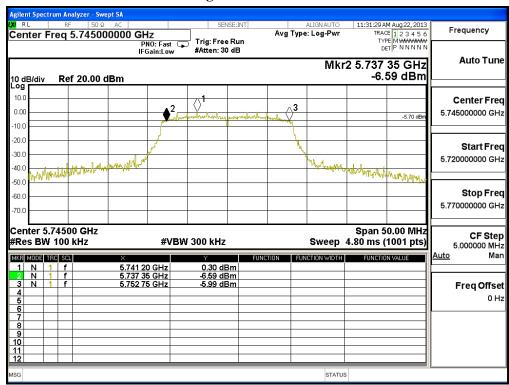
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15400	>500	Pass

Figure Channel 149:





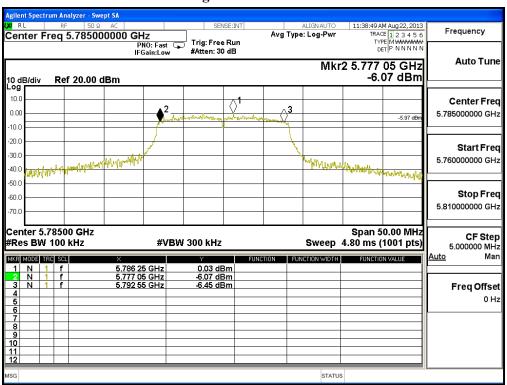
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15500	>500	Pass

Figure Channel 157:





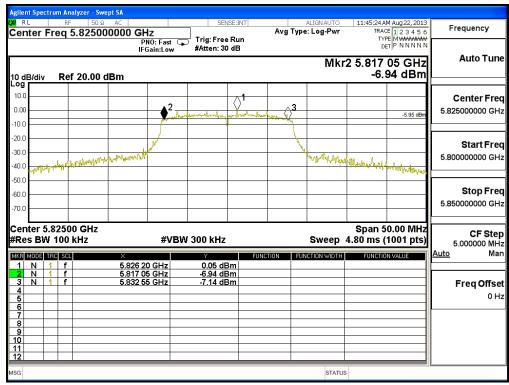
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	15500	>500	Pass

Figure Channel 165:





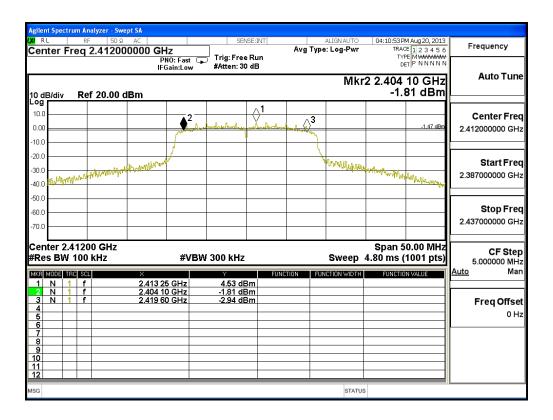
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	15500	>500	Pass

Figure Channel 1:





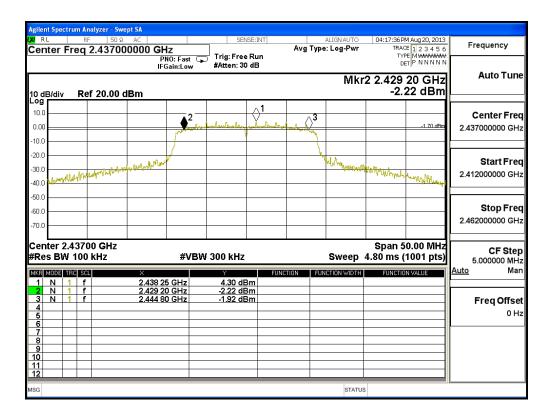
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 7.2Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	15600	>500	Pass

Figure Channel 6:





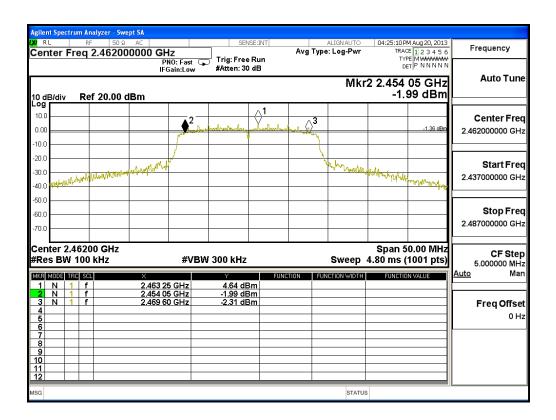
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	15550	>500	Pass

Figure Channel 11:





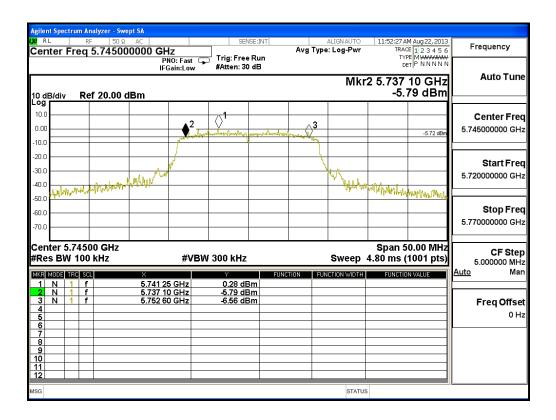
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15500	>500	Pass

Figure Channel 149:





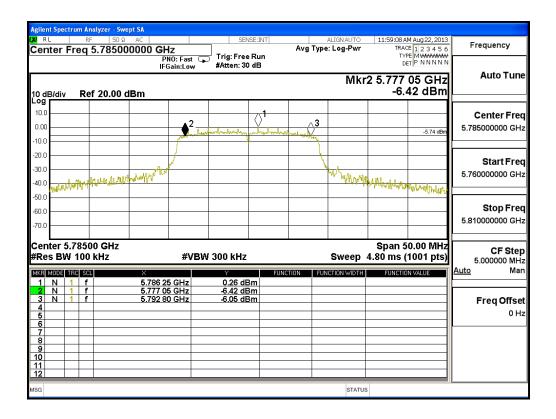
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW 7.2Mbps(5G Band) (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15750	>500	Pass

Figure Channel 157:





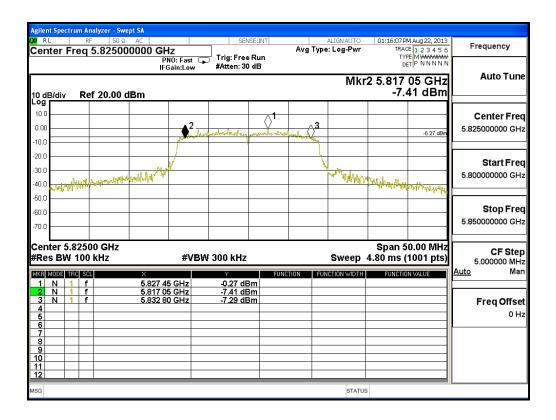
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	15750	>500	Pass

Figure Channel 165:





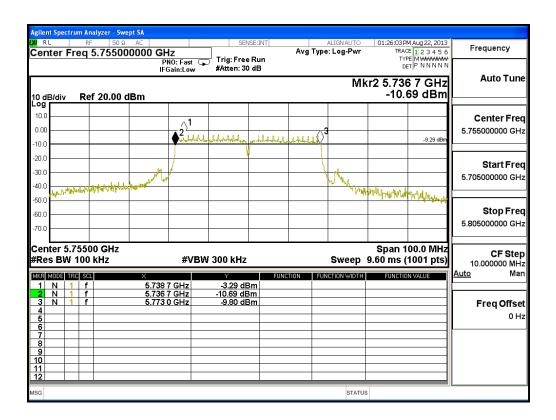
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) (5755MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	36300	>500	Pass

Figure Channel 151:





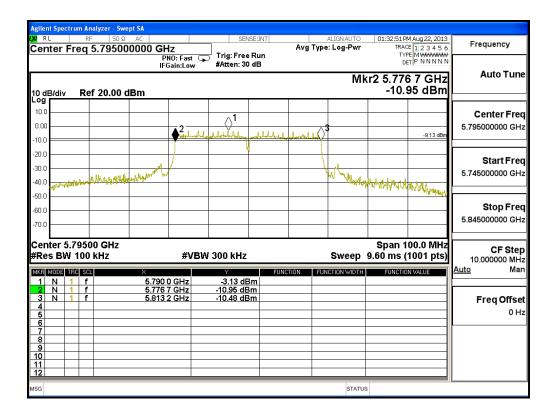
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) (5795MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	36500	>500	Pass

Figure Channel 159:





8. Power Density

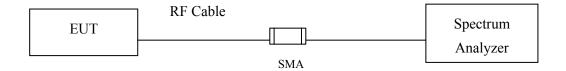
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013	_
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013	
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013	

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.

8.2. Test Setup



8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.5. Uncertainty

± 1.27 dB



8.6. Test Result of Power Density

Product : Notebook PC

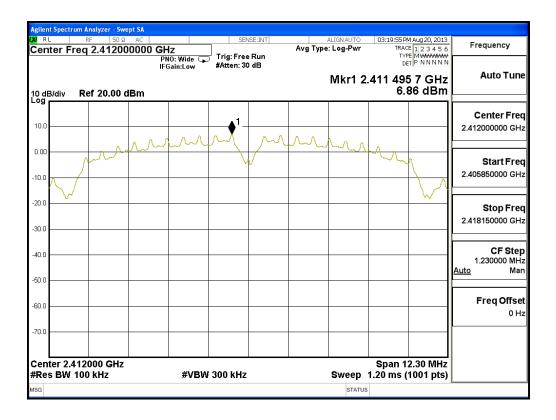
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	6.86	< 8dBm	Pass

Figure Channel 1:





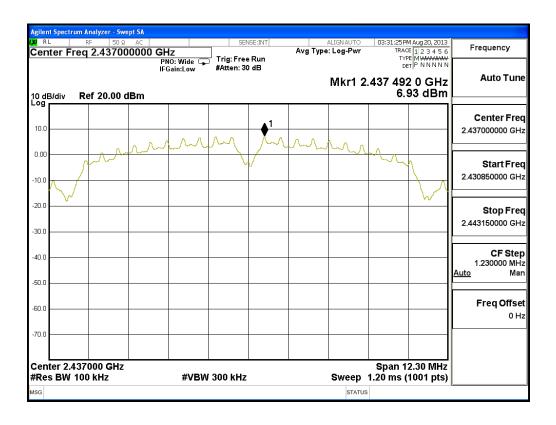
Test Item : Power Density Data

Test Site : No.3OATS

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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	6.93	< 8dBm	Pass

Figure Channel 6:





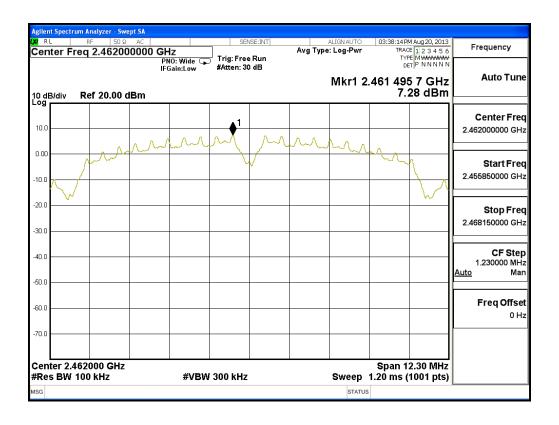
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	7.28	< 8dBm	Pass

Figure Channel 11:





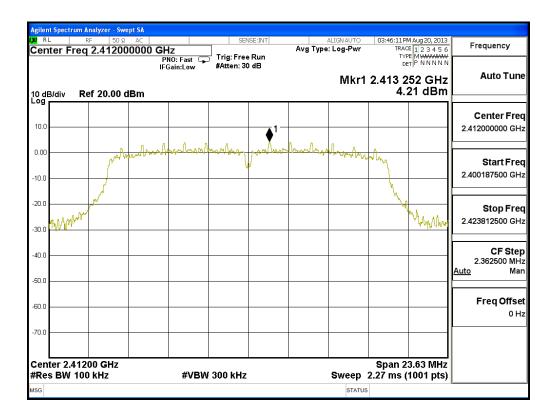
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	4.21	< 8dBm	Pass

Figure Channel 1:





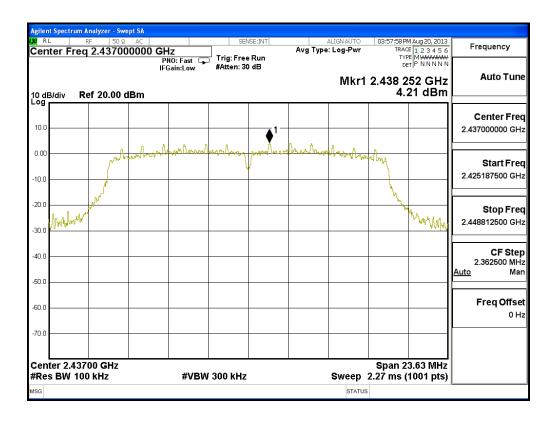
Test Item : Power Density Data

Test Site : No.3OATS

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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	4.21	< 8dBm	Pass

Figure Channel 6:





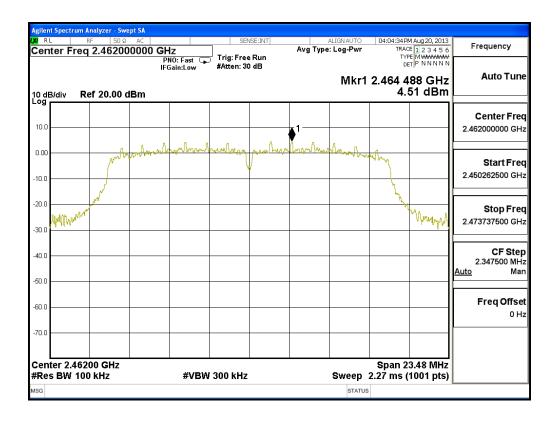
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	4.51	< 8dBm	Pass

Figure Channel 11:





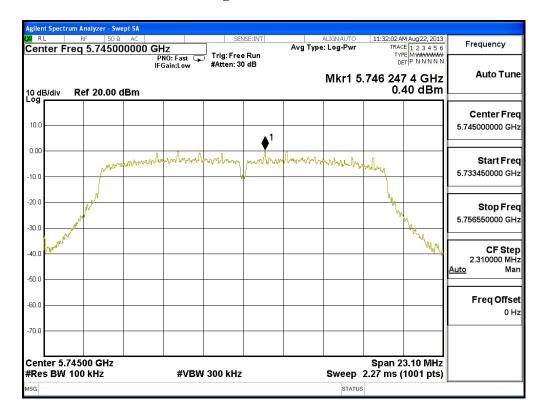
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745.000	0.40	< 8dBm	Pass

Figure Channel 149:





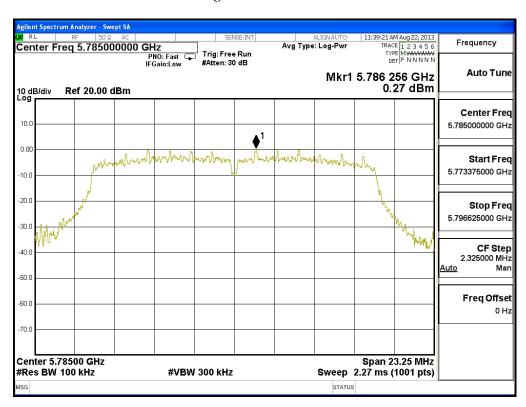
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
157	5785.000	0.27	< 8dBm	Pass

Figure Channel 157:





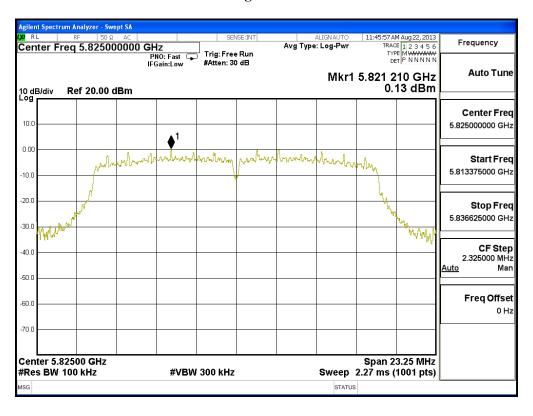
Test Item : Power Density Data

Test Site : No.3 OATS

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

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
165	5825.000	0.13	< 8dBm	Pass

Figure Channel 165:





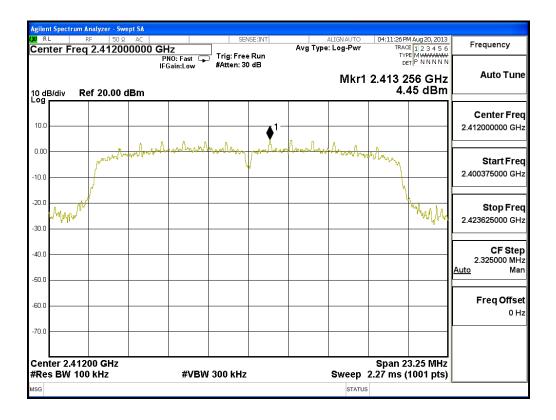
Product : Notebook PC
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	4.45	< 8dBm	Pass

Figure Channel 1:





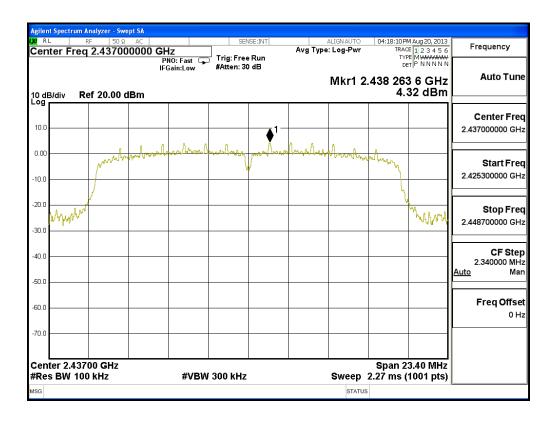
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW 7.2Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	4.32	< 8dBm	Pass

Figure Channel 6:





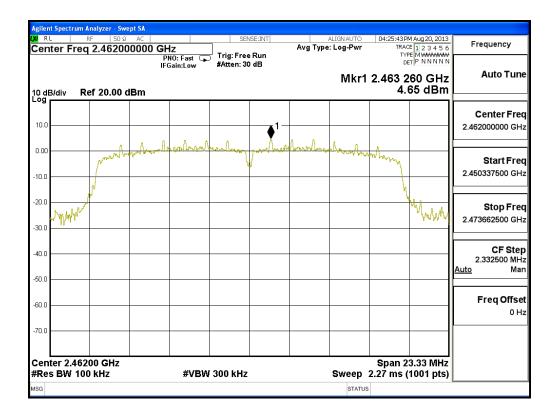
Product : Notebook PC
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	4.65	< 8dBm	Pass

Figure Channel 11:





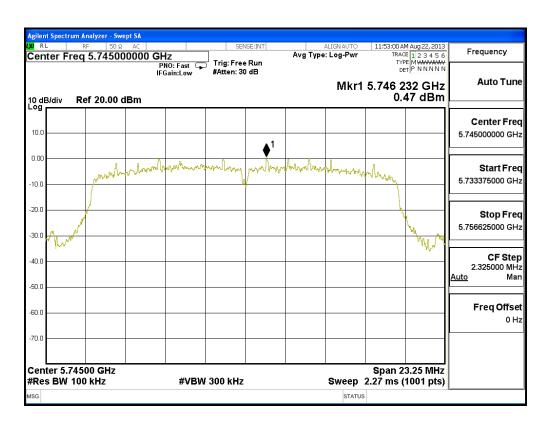
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) (5745MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745.00	0.47	< 8dBm	Pass

Figure Channel 149:





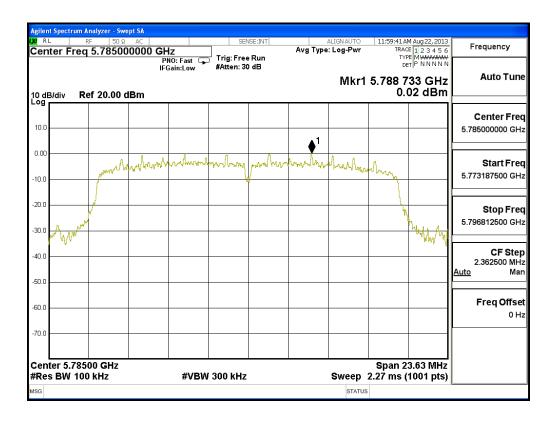
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW 7.2Mbps(5G Band) (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
157	5785.000	0.02	< 8dBm	Pass

Figure Channel 157:





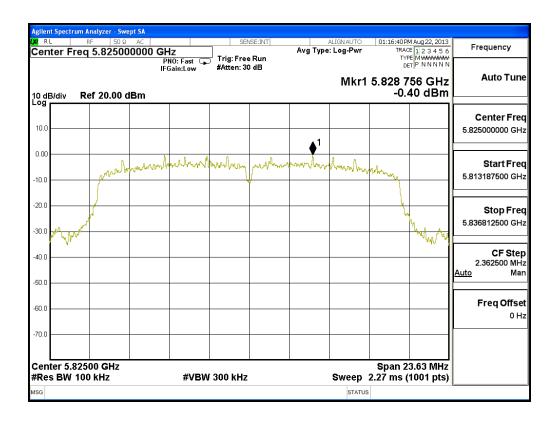
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
165	5825.00	-0.40	< 8dBm	Pass

Figure Channel 165:





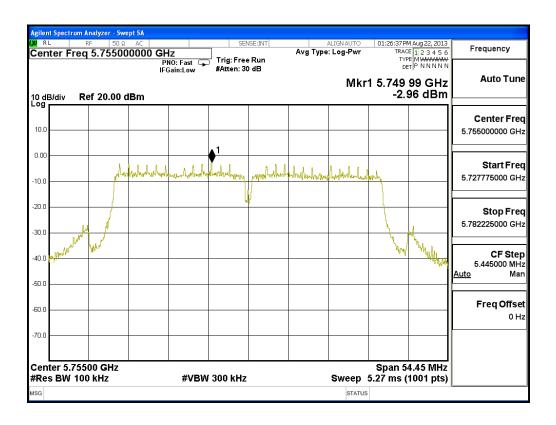
Product : Notebook PC
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) (5755MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755.00	-2.96	< 8dBm	Pass

Figure Channel 151:





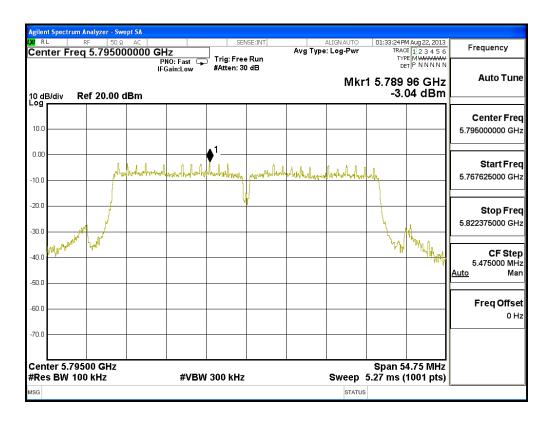
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 6: Transmit - 802.11n-40BW 15Mbps(5G Band) (5795MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
159	5795.000	-3.04	< 8dBm	Pass

Figure Channel 159:





9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

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Attachment 1: EUT Test Photographs



Attachment 2: EUT Detailed Photographs