

FCC Test Report

Product Name	TABLET PC
Model No	PA-301
FCC ID	2ABTU-PA-301

Applicant	ant RuggON Corporation		
Address	3F., No.129, Minquan Rd., Xindian Dist., New Taipei City		
	23141, Taiwan		

Date of Receipt	Feb. 11, 2014
Issued Date	Mar. 31, 2014
Report No.	1420115R-RFUSP05V00
Report Version	V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issued Date: Mar. 31, 2014

Report No.: 1420115R-RFUSP05V00



	T
Product Name	TABLET PC
Applicant	RuggON Corporation
Address	3F., No.129, Minquan Rd., Xindian Dist., New Taipei City 23141, Taiwan
Manufacturer	Ubiqconn Technology,Inc.
Model No.	PA-301
FCC ID.	2ABTU-PA-301
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	RuggON
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2012
	ANSI C63.10: 2009, FCC KDB-789033
Test Result	Complied

The Test Results relate only to the samples tested.

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Approved By :

(Director / 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	TABLET PC	
Trade Name	RuggON	
FCC ID.	2ABTU-PA-301	
Model No.	PA-301	
Frequency Range	802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz	
Number of Channels	802.11a/n-20MHz: 19	
Data Rate	802.11a: 6 - 54Mbps	
	802.11n: up to 72.2Mbps	
Channel Control	Auto	
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM	
Antenna Type	PIFA Antenna	
Antenna Gain	Refer to the table "Antenna List"	
Power Adapter	MFR: FSP, M/N: FSP065-RE8	
	Input: AC 100-240V, 50-60Hz, 1.5A	
	Output: DC 19V, 3.42A	
	Cable Out: Non-Shielded, 1.8m, with one ferrite core bonded.	

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Ethertronics	5001577	PIFA Antenna	3.1dBi For 5.15~5.25GHz
				3.2dBi For 5.25~5.35GHz
				1.9dBi For 5.47~5.725GHz

Note: The antenna of EUT is conform to FCC 15.203



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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz		

- 1. This device is a TABLET PC, Contains functions and so on WLAN Bluetooth NFC transceiver, This report for WLAN.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps \ 802.11n(20M-BW) is 72.2Mbps).
- 4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.
- 5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit (802.11a-6Mbps)
	Mode 2: Transmit (802.11n-20BW 7.2Mbps)



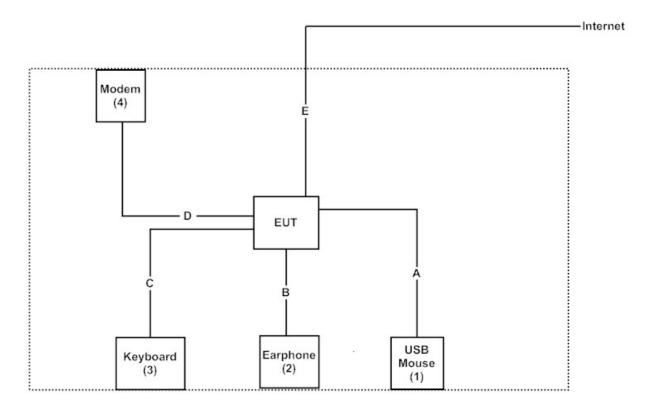
1.3. Tested System Datails

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

Pro	duct	Manufacturer	Model No.	Serial No.	Power Cord
1	USB Mouse	Logitech	M-UV83	HCB54904413	N/A
2	Earphone	Dr.AV	CD-806B	N/A	N/A
3	Keyboard	Dell	SK-8175	MY-0W217F-71619-092-0522-A01	N/A
4	Modem	ACEEX	DM-1414	0102027533	Non-Shielded, 1.8m

	Signal Cable Type	Signal cable Description
A	USB Cable	Non-Shielded, 1.8m
В	Earphone Cable	Non-Shielded, 1.8m
С	USB Cable	Non-Shielded, 1.8m, with one ferrite core bonded.
D	RS-232 Cable	Non-Shielded, 1.8
Е	RJ45 Cable	Non-Shielded, 5m

1.4. Configuration of tested System





1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute program "Terminal Emulator v1.0.45" on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to start the continuous Transmit.
- (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 Description: Accredited by TAF

Accredited Number: 0914

Site Name: Quietek Corporation

Site Address: No.5-22, Ruishukeng Linkou Dist., New Taipei City

24451, Taiwan, R.O.C.

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

E-Mail: service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

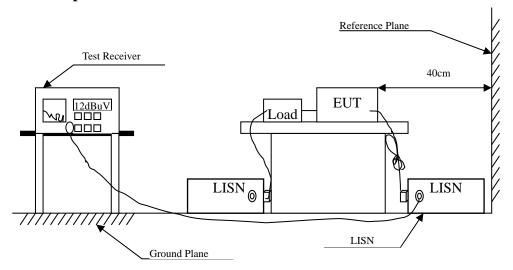
2.1. Test Equipment

	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., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

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

2.2. Test Setup





2.3. Limits

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

Remarks: In the above table, the tighter limit applies at the band edges.

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.

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB



2.6. Test Result of Conducted Emission

Product : TABLET PC

Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct	Reading	Reading Measurement		Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					_
Quasi-Peak					
0.158	9.747	41.100	50.847	-14.924	65.771
0.166	9.745	40.390	50.135	-15.408	65.543
0.209	9.739	32.280	42.019	-22.295	64.314
0.259	9.741	26.130	35.871	-27.015	62.886
0.673	9.760	25.780	35.540	-20.460	56.000
3.127	9.860	22.680	32.540	-23.460	56.000
Average					
0.158	9.747	19.050	28.797	-26.974	55.771
0.166	9.745	32.040	41.785	-13.758	55.543
0.209	9.739	11.650	21.389	-32.925	54.314
0.259	9.741	7.110	16.851	-36.035	52.886
0.673	9.760	10.330	20.090	-25.910	46.000
3.127	9.860	16.290	26.150	-19.850	46.000

^{1.} All Reading Levels are Quasi-Peak and average value.

^{2. &}quot;means the worst emission level.

^{3.} Measurement Level = Reading Level + Correct Factor



Test Item : Conducted Emission Test

Power Line : Line 2

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.166	9.747	40.350	50.097	-15.446	65.543
0.201	9.749	32.920	42.669	-21.874	64.543
0.212	9.749	31.850	41.599	-22.630	64.229
0.255	9.751	26.190	35.941	-27.059	63.000
0.478	9.751	24.570	34.321	-22.308	56.629
0.677	9.760	25.600	35.360	-20.640	56.000
Average					
0.166	9.747	30.000	39.747	-15.796	55.543
0.201	9.749	22.590	32.339	-22.204	54.543
0.212	9.749	25.280	35.029	-19.200	54.229
0.255	9.751	5.800	15.551	-37.449	53.000
0.478	9.751	19.080	28.831	-17.798	46.629
0.677	9.760	10.090	19.850	-26.150	46.000

- 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 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct	Reading	Reading Measurement		Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.162	9.746	41.260	51.006	-14.651	65.657
0.216	9.739	31.060	40.799	-23.315	64.114
0.255	9.741	26.190	35.931	-27.069	63.000
0.470	9.751	24.610	34.361	-22.496	56.857
0.744	9.763	22.090	31.853	-24.147	56.000
3.002	9.858	22.730	32.588	-23.412	56.000
Average					
0.162	9.746	25.870	35.616	-20.041	55.657
0.216	9.739	22.100	31.839	-22.275	54.114
0.255	9.741	15.570	25.311	-27.689	53.000
0.470	9.751	14.900	24.651	-22.206	46.857
0.744	9.763	8.560	18.323	-27.677	46.000
3.002	9.858	12.130	21.988	-24.012	46.000

- 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 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					_
Quasi-Peak					
0.158	9.747	41.100	50.847	-14.924	65.771
0.197	9.749	31.950	41.699	-22.958	64.657
0.220	9.750	28.780	38.530	-25.470	64.000
0.259	9.751	26.090	35.841	-27.045	62.886
0.658	9.759	24.590	34.349	-21.651	56.000
0.841	9.778	19.720	29.498	-26.502	56.000
Average					
0.158	9.747	33.490	43.237	-12.534	55.771
0.197	9.749	23.850	33.599	-21.058	54.657
0.220	9.750	2.580	12.330	-41.670	54.000
0.259	9.751	9.390	19.141	-33.745	52.886
0.658	9.759	10.100	19.859	-26.141	46.000
0.841	9.778	8.520	18.298	-27.702	46.000

- 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 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.158	9.747	41.120	50.867	-14.904	65.771
0.177	9.742	34.300	44.042	-21.187	65.229
0.205	9.739	32.760	42.499	-21.930	64.429
0.474	9.751	25.240	34.991	-21.752	56.743
0.689	9.761	24.890	34.651	-21.349	56.000
3.002	9.858	23.040	32.898	-23.102	56.000
Average					
0.158	9.747	18.270	28.017	-27.754	55.771
0.177	9.742	25.660	35.402	-19.827	55.229
0.205	9.739	26.230	35.969	-18.460	54.429
0.474	9.751	21.130	30.881	-15.862	46.743
0.689	9.761	12.890	22.651	-23.349	46.000
3.002	9.858	10.780	20.638	-25.362	46.000

- 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 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.158	9.747	41.140	50.887	-14.884	65.771
0.205	9.749	32.880	42.629	-21.800	64.429
0.255	9.751	26.270	36.021	-26.979	63.000
0.720	9.769	23.170	32.940	-23.060	56.000
2.873	9.850	22.640	32.490	-23.510	56.000
16.400	10.030	23.190	33.220	-26.780	60.000
Average					
0.158	9.747	34.410	44.157	-11.614	55.771
0.205	9.749	12.890	22.639	-31.790	54.429
0.255	9.751	17.810	27.561	-25.439	53.000
0.720	9.769	8.560	18.330	-27.670	46.000
2.873	9.850	9.060	18.910	-27.090	46.000
16.400	10.030	18.660	28.690	-21.310	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. Maximun conducted output power

3.1. Test Equipment

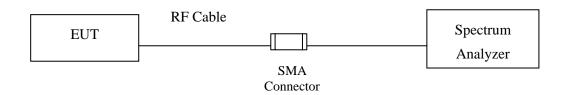
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note:

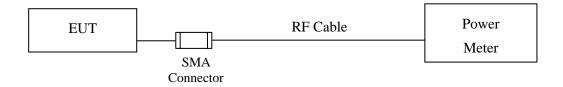
- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



Conduction Power Measurement





3.3. Limits

- (1) For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (2) For the band 5.25-5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1W or 17 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

3.4. Test Procedur

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

3.5. Uncertainty

± 1.27 dB



3.6. Test Result of Maximum conducted output power

Product : TABLET PC

Test Item : Maximum conducted output power

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Cable	e loss=1dB	Maximum conducted output power								
				Γ	ata Rat	e (Mbps	s)			
Channel No.	Frequency (MHz)	6	9	12	18	24	36	48	54	Required Limit
				Measi	ırement	Level (dBm)			
36	5180	13.98			1	1		1	1	<17dBm
44	5220	14.08	13.88	13.69	13.54	13.42	13.35	13.24	13.11	<17dBm
48	5240	14.29			1	1		1	1	<17dBm
52	5260	14.40			1	1		1	1	<24dBm
60	5300	14.42	14.35	14.26	14.14	14.06	13.97	13.82	13.77	<24dBm
64	5320	14.38			1	1		1	1	<24dBm
100	5500	14.13							-	<24dBm
116	5580	14.25	14.16	14.08	13.97	13.82	13.73	13.6	13.57	<24dBm
140	5700	14.33								<24dBm

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



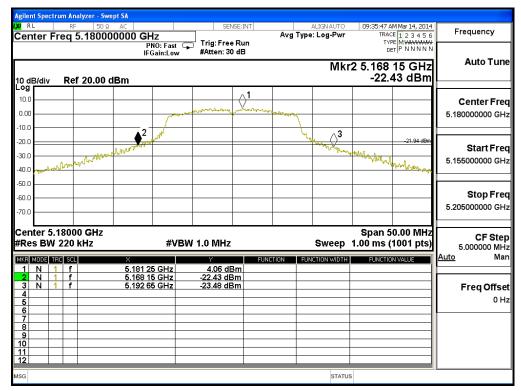
Maximum conducted output power Measurement:

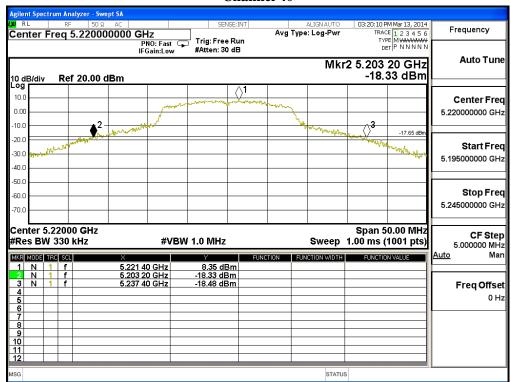
Channel Number	Frequency	26dB Bandwidth	Output Power	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	dBm+10log(BW)
36	5180	24.50	13.98	17	17.89
44	5220	34.20	14.08	17	19.34
48	5240	32.35	14.29	17	19.10
52	5260	32.20	14.4	24	26.08
60	5300	34.80	14.42	24	26.42
64	5320	34.70	14.38	24	26.40
100	5500	33.45	14.13	24	26.24
116	5580	35.30	14.25	24	26.48
140	5700	29.85	14.33	24	25.75

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

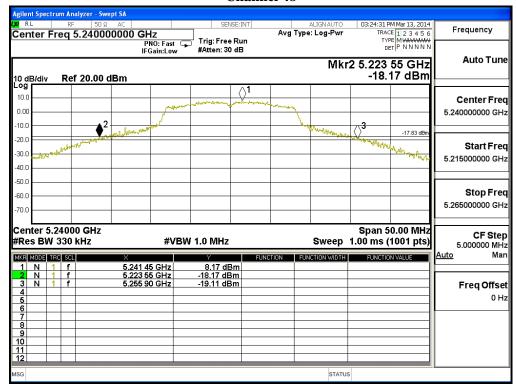


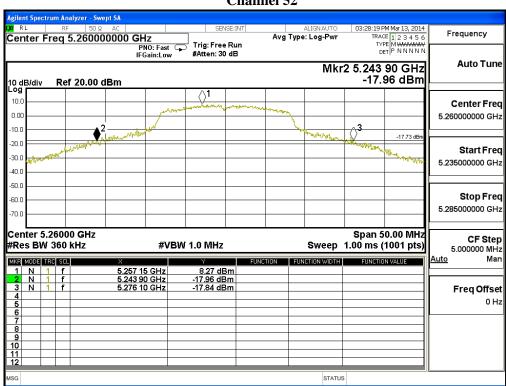
26dBc Occupied Bandwidth: Channel 36









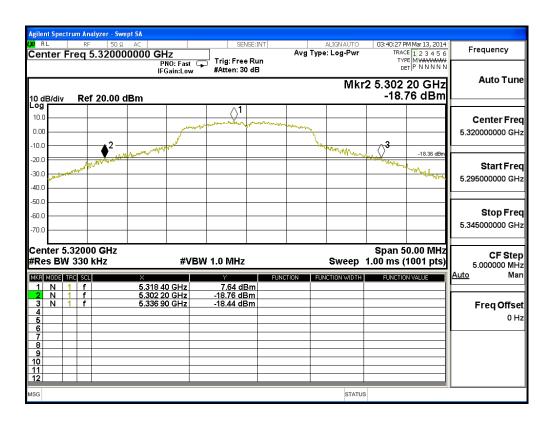




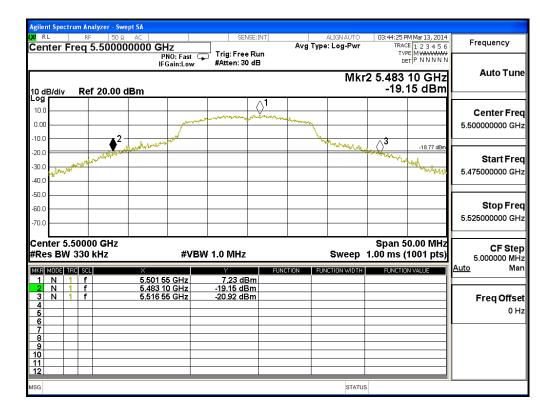
Channel 60 ent Spectrum Analyzer - Swept SA 03:37:44 PM Mar 13, 2014 TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P N N N N N ALIGNAUTO Avg Type: Log-Pwr Center Freq 5.30000000000 GHz Frequency PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB Mkr2 5.282 20 GHz -19.03 dBm **Auto Tune** Ref 20.00 dBm 10 dB/div Log 10.0 Center Freq 0.00 5.300000000 GHz , while have -18.11 dE -20.0 Start Freq 30.0 5.275000000 GHz 40.0 50.0 Stop Freq -60.0 5.325000000 GHz -70.C Center 5.30000 GHz Span 50.00 MHz **CF Step** 5.000000 MHz #Res BW 360 kHz **#VBW 1.0 MHz** Sweep 1.00 ms (1001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH FUNCTION VALUE <u>Auto</u> Man 7.89 dBm -19.03 dBm -20.32 dBm 5.282 20 GHz 5.317 00 GHz Freq Offset 0 Hz

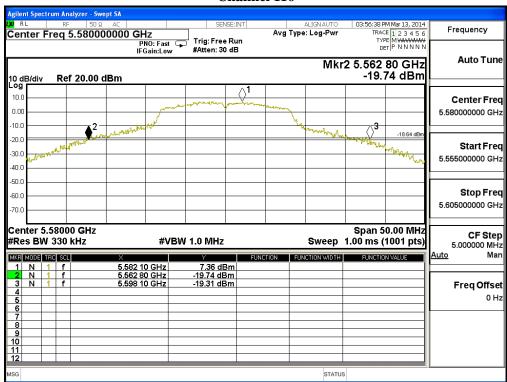
Channel 64

STATUS

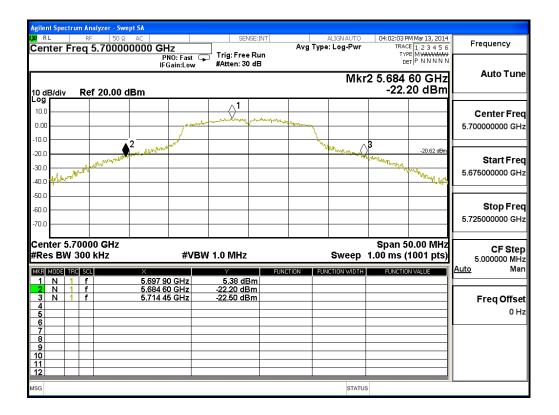














Test Item : Maximum conducted output power

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Cable loss=1dB		Maximum conducted output power								
		Data Rate (Mbps)								
Channel No.	Frequency (MHz)	7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	Required Limit
	Measurement Level (dBm)									
36	5180	13.29								<17dBm
44	5220	13.54	13.38	13.27	13.16	13.08	12.94	12.86	12.72	<17dBm
48	5240	13.86								<17dBm
52	5260	13.88								<24dBm
60	5300	13.98	13.83	13.78	13.64	13.54	13.49	13.3	13.22	<24dBm
64	5320	13.95		-				-	-	<24dBm
100	5500	13.66		1	1	1		1	1	<24dBm
116	5580	13.76	13.67	13.54	13.38	13.44	13.21	13.14	13.03	<24dBm
140	5700	13.94								<24dBm

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



Maximum conducted output power Measurement:

Channel Number	Frequency	26dB Bandwidth	Output Power	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	dBm+10log(BW)
36	5180	30.50	13.29	17	18.84
44	5220	35.05	13.72	17	19.45
48	5240	33.35	13.86	17	19.23
52	5260	33.60	13.88	24	26.26
60	5300	34.45	13.98	24	26.37
64	5320	36.75	13.95	24	26.65
100	5500	34.85	13.66	24	26.42
116	5580	36.30	13.76	24	26.60
140	5700	32.15	13.94	24	26.07

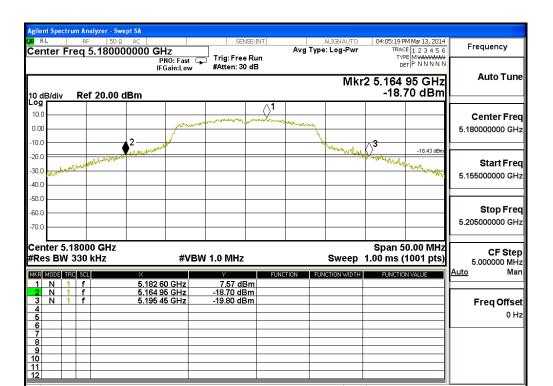
Note:

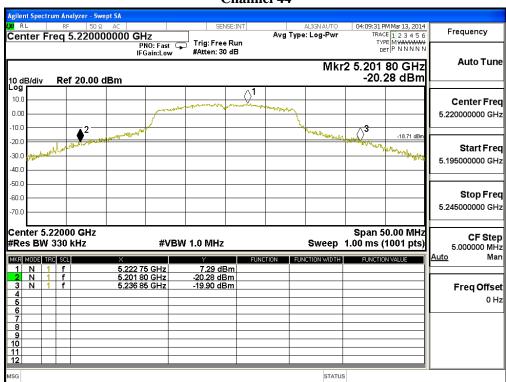
1. Power Output Value = Reading value on average power meter + cable loss

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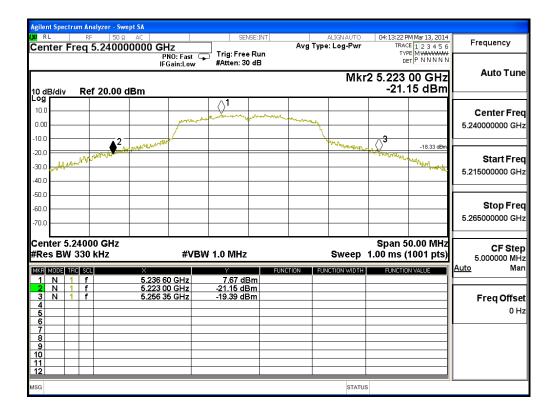


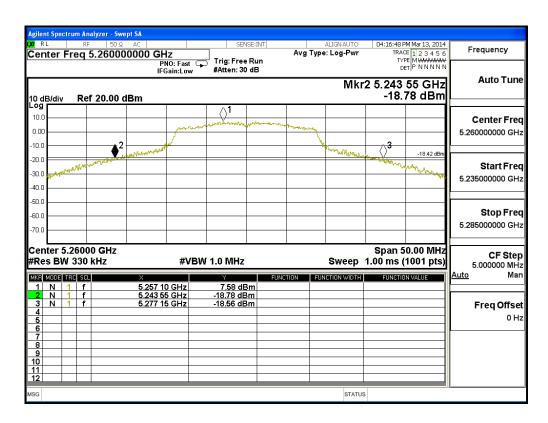
26dBc Occupied Bandwidth: Channel 36



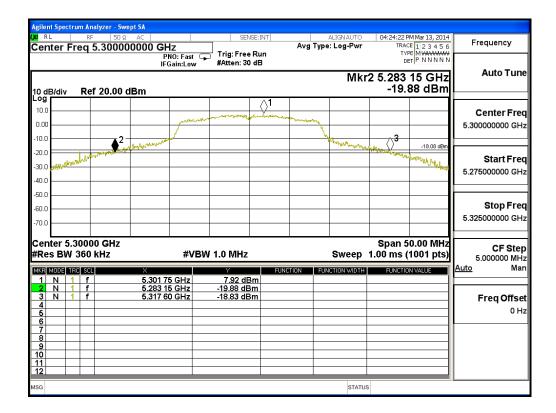


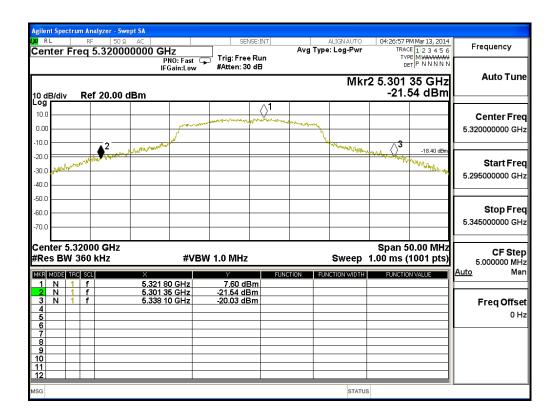




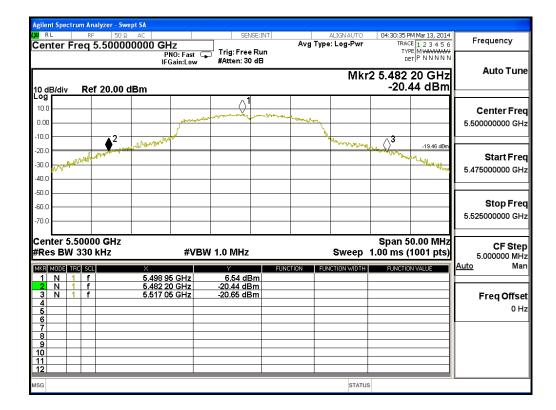


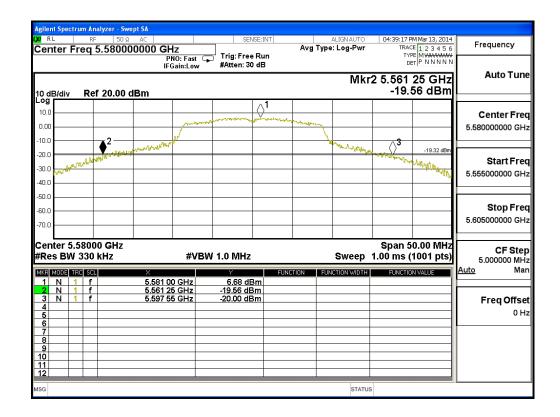




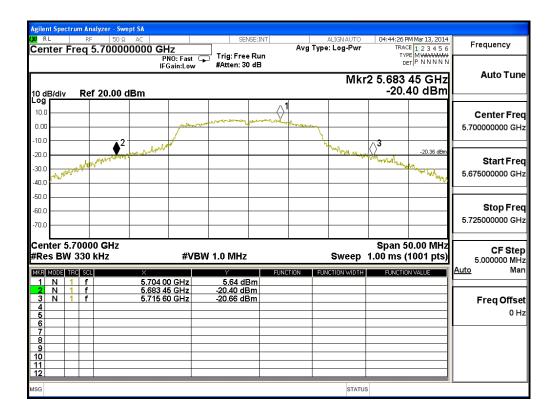














4. Peak Power Spectral Density

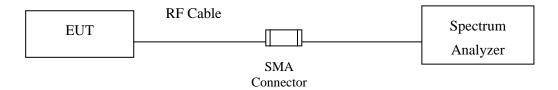
4.1. Test Equipment

	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.

4.2. Test Setup



4.3. Limits

- (4) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (5) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (6) For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.



4.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

4.5. Uncertainty

± 1.27 dB



4.6. Test Result of Peak Power Spectral Density

Product : TABLET PC

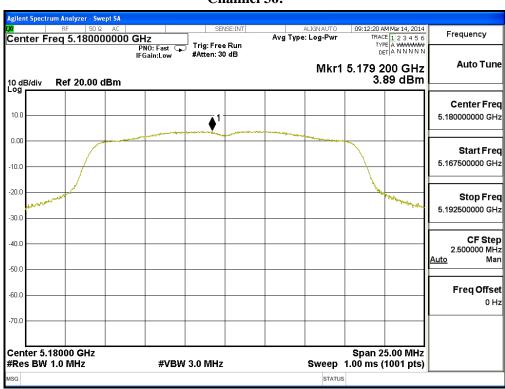
Test Item : Peak Power Spectral Density

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps)

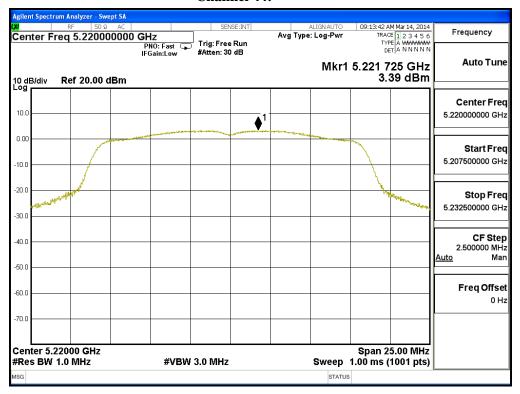
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit	Result
36	5180	3.890	< 4dBm	Pass
44	5220	3.390	< 4dBm	Pass
48	5240	3.910	< 4dBm	Pass
52	5260	4.530	< 11dBm	Pass
60	5300	4.580	< 11dBm	Pass
64	5320	4.840	< 11dBm	Pass
100	5500	3.910	< 11dBm	Pass
116	5580	4.370	< 11dBm	Pass
140	5700	2.280	< 11dBm	Pass

Channel 36:

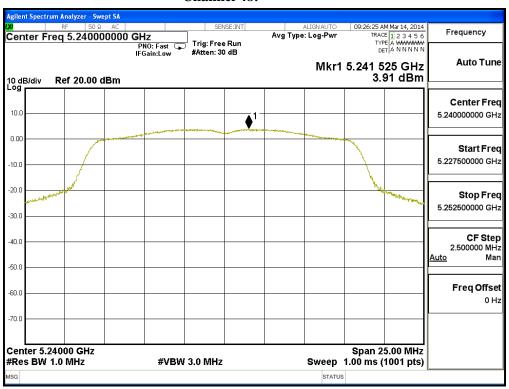




Channel 44:

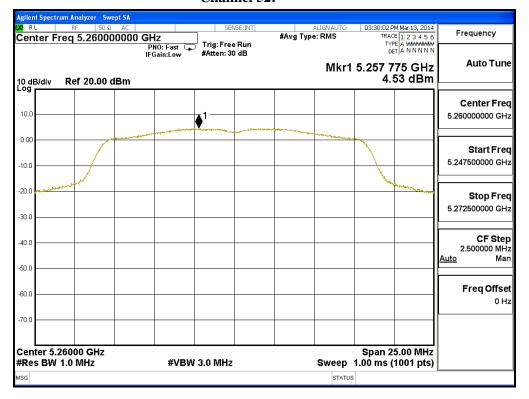


Channel 48:

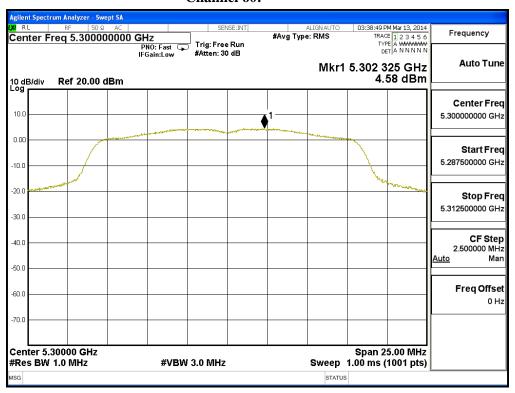




Channel 52:

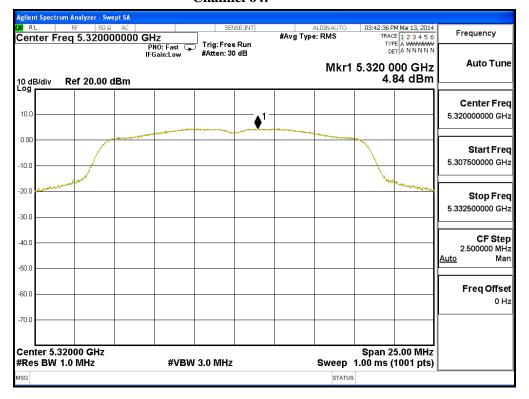


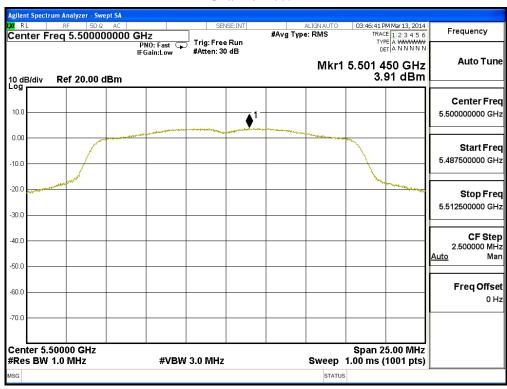
Channel 60:





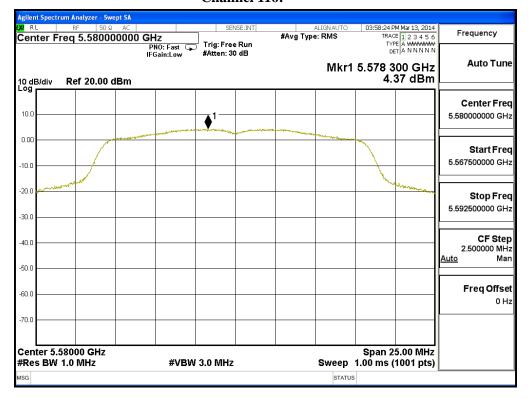
Channel 64:

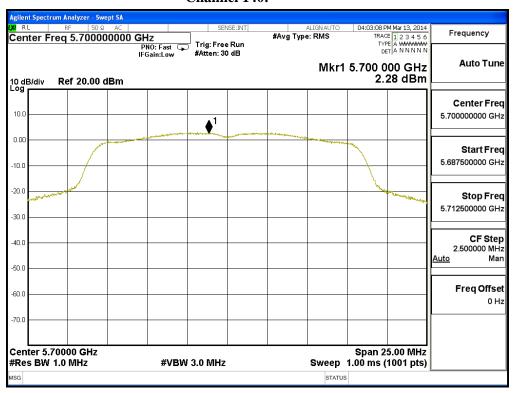






Channel 116:







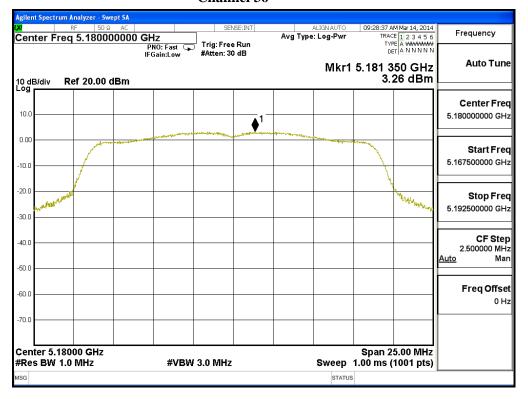
Test Item : Peak Power Spectral Density

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

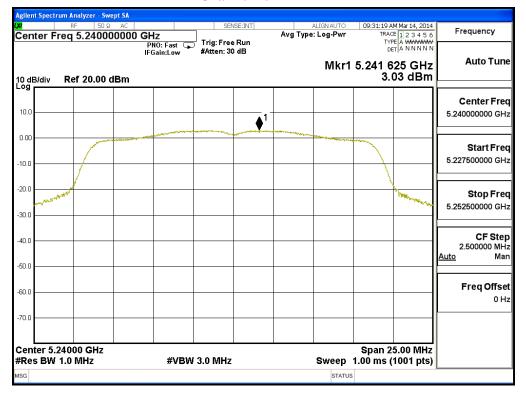
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit	Result
36	5180	3.260	< 4dBm	Pass
44	5220	3.900	< 4dBm	Pass
48	5240	3.030	< 4dBm	Pass
52	5260	4.210	< 11dBm	Pass
60	5300	4.140	< 11dBm	Pass
64	5320	4.240	< 11dBm	Pass
100	5500	3.460	< 11dBm	Pass
116	5580	3.780	< 11dBm	Pass
140	5700	2.660	< 11dBm	Pass

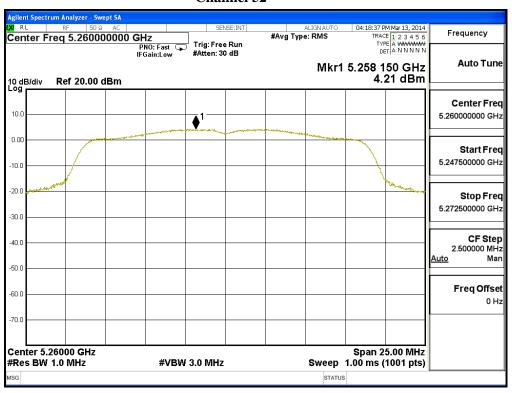




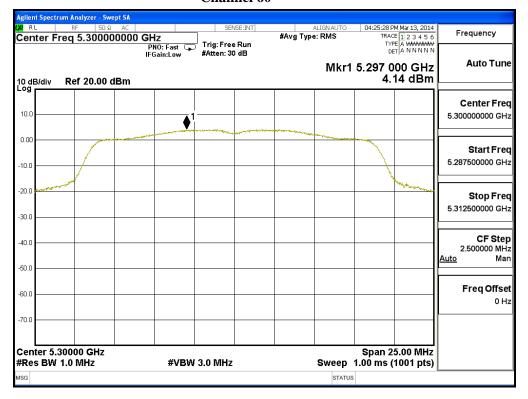


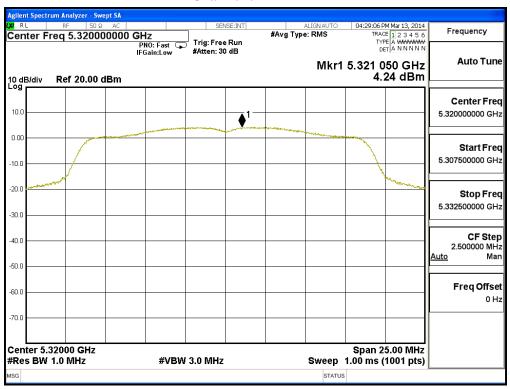




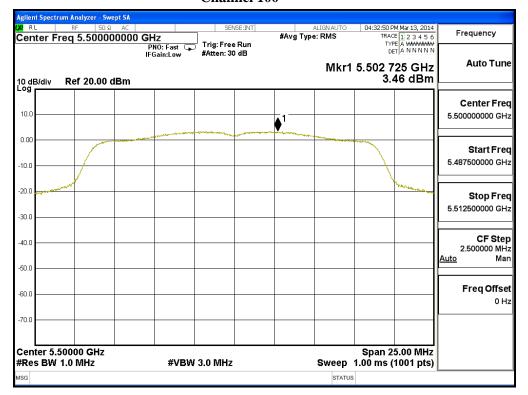


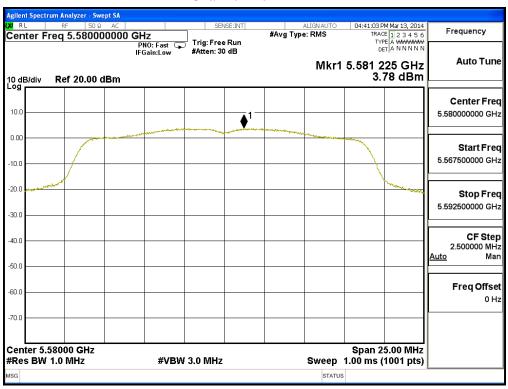




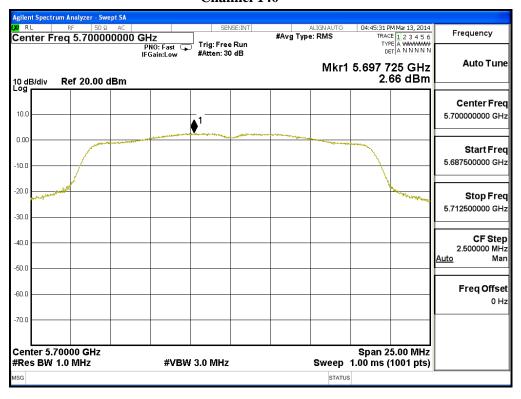














5. Peak Excursion

5.1. Test Equipment

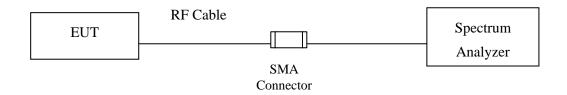
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013	
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013	
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013	

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.

5.2. Test Setup

Conduction Power Measurement



5.3. Limits

The ratio of the peak excursion of the modulation envelope (measured suing a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

5.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

5.5. Uncertainty

± 1.27 dB

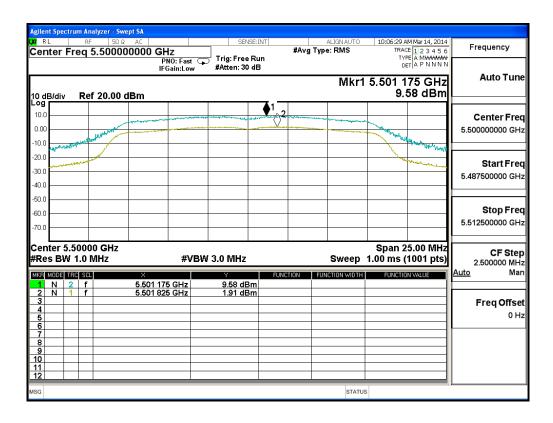


5.6. Test Result of Peak Excursion

Product : TABLET PC
Test Item : Peak Excursion
Test Site : No.3 OATS

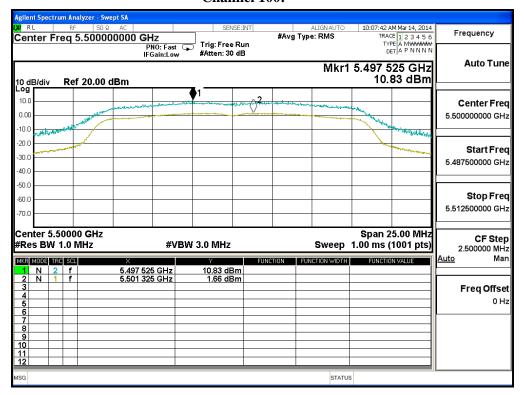
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

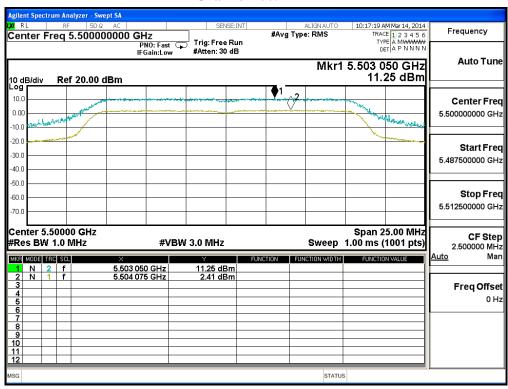
Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
100	5500(MCS0)	7.670	<13	Pass
100	5500(MCS2)	9.170	<13	Pass
100	5500(MCS4)	8.840	<13	Pass
100	5500(MCS7)	9.270	<13	Pass



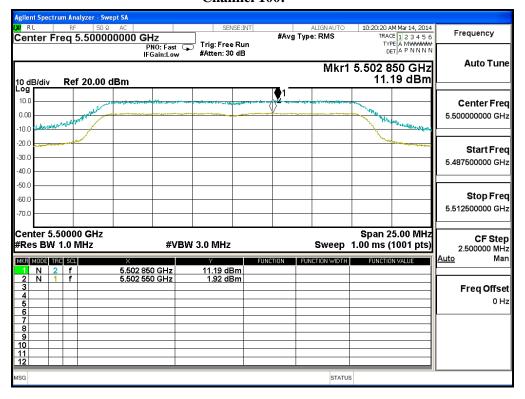


Channel 100:







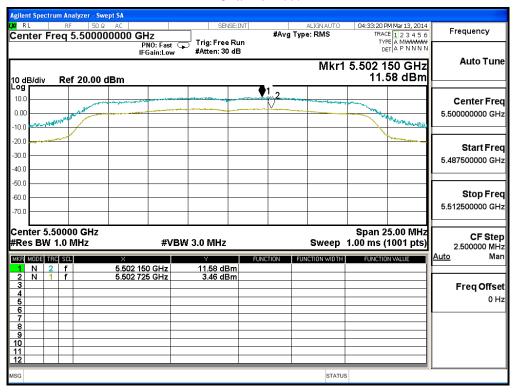




Product : TABLET PC
Test Item : Peak Excursion
Test Site : No.3 OATS

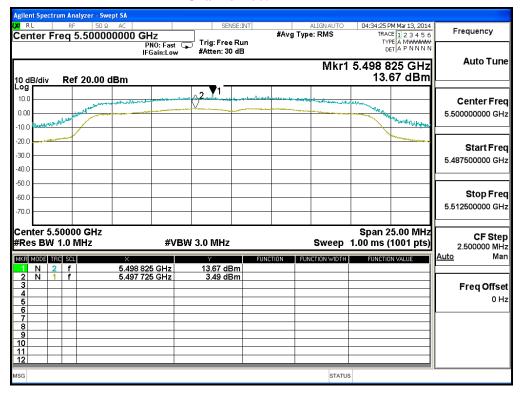
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

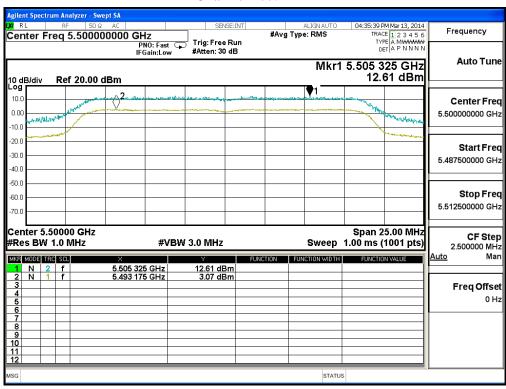
Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
100	5500(MCS0)	8.120	<13	Pass
100	5500(MCS2)	10.480	<13	Pass
100	5500(MCS4)	9.540	<13	Pass
100	5500(MCS7)	9.050	<13	Pass



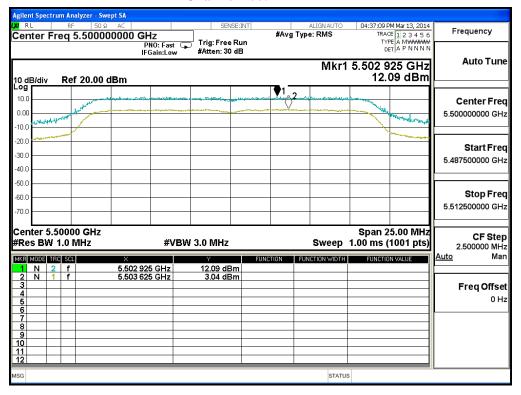


Channel 100:











6. Radiated Emission

6.1. Test Equipment

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

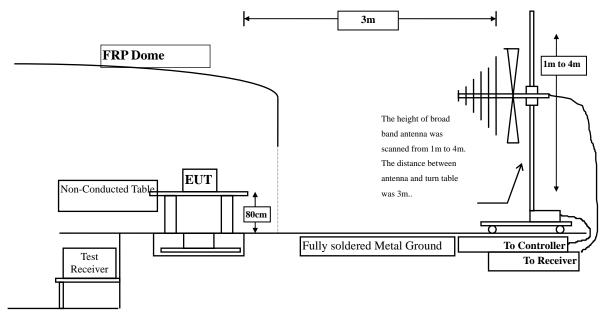
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2013
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X	Pre-Amplifier	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, 2014
	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., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

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

6.2. Test Setup

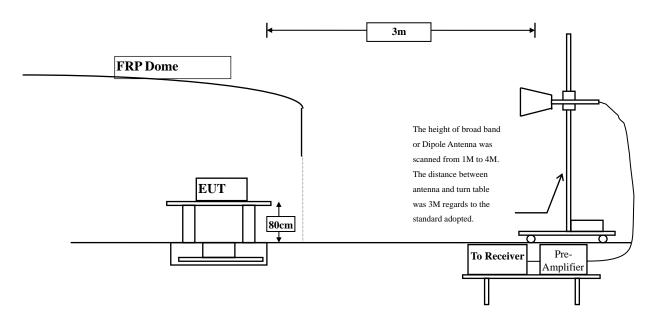
Radiated Emission Below 1GHz



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Radiated Emission Above 1GHz



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.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits						
Frequency MHz	Field strength	Measurement distance				
	(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)



6.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15.407 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.

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.

6.5. Uncertainty

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



6.6. Test Result of Radiated Emission

Product : TABLET PC

Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10360.000	12.930	36.560	49.490	-24.510	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10360.000	12.930	36.560	49.490	-24.510	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	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 (802.11a-6Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10440.000	13.322	36.060	49.382	-24.618	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10440.000	14.245	37.680	51.925	-22.075	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	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 (802.11a-6Mbps) (5240MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10480.000	13.693	35.930	49.624	-24.376	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10480.000	14.620	36.930	51.551	-22.449	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	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 (802.11a-6Mbps) (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	14.015	36.820	50.835	-23.165	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10520.000	14.818	37.070	51.888	-22.112	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	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 (802.11a-6Mbps) (5300MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10600.000	14.550	36.260	50.809	-23.191	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10600.000	14.881	36.460	51.341	-22.659	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	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 (802.11a-6Mbps) (5320MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	14.690	35.990	50.680	-23.320	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10640.000	15.083	36.530	51.613	-22.387	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	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 (802.11a-6Mbps) (5500MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11000.000	16.399	36.350	52.749	-21.251	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11000.000	17.132	36.270	53.402	-20.598	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	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 (802.11a-6Mbps) (5580MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11160.000	16.664	35.910	52.575	-21.425	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11160.000	17.643	36.120	53.763	-20.237	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	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 (802.11a-6Mbps) (5700MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11400.000	16.530	35.420	51.951	-22.049	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11400.000	17.138	35.420	52.558	-21.442	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Peak Detector:					
10360.000	12.930	35.940	48.870	-25.130	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10360.000	13.724	36.620	50.344	-23.656	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MII-				.ID	1DX//
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10440.000	13.322	36.050	49.372	-24.628	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10440.000	14.245	37.120	51.365	-22.635	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10480.000	13.693	36.070	49.764	-24.236	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
Vertical					
Peak Detector:					
10480.000	14.620	37.070	51.691	-22.309	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5260MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	14.015	36.420	50.435	-23.565	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000 Average	*	*	*	*	74.000
Detector:					
Vertical					
Peak Detector:					
10520.000	14.818	37.560	52.378	-21.622	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct	Reading Level	Measurement Level	Margin	Limit
	Factor				15. **/
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10600.000	14.550	36.100	50.649	-23.351	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10600.000	14.881	36.760	51.641	-22.359	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	14.690	36.150	50.840	-23.160	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
10640.000	15.083	37.320	52.403	-21.597	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5500MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MIL				ДD	dD.vV/m
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11000.000	16.399	35.900	52.299	-21.701	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11000.000	17.132	36.340	53.472	-20.528	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11160.000	16.664	35.220	51.885	-22.115	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11160.000	17.643	35.860	53.503	-20.497	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	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 (802.11n-20BW 7.2Mbps) (5700MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
M				1D	ID 177
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11400.000	16.530	35.040	51.571	-22.429	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	74.000
Average					
Detector:					
Vertical					
Peak Detector:					
11400.000	16.530	35.040	51.571	-22.429	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	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 : General Radiated Emission

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
299.660	-3.585	44.994	41.409	-4.591	46.000
458.740	0.833	26.516	27.349	-18.651	46.000
619.760	2.441	31.828	34.269	-11.731	46.000
712.880	3.569	30.761	34.330	-11.670	46.000
848.680	5.776	28.777	34.552	-11.448	46.000
922.400	6.334	33.341	39.675	-6.325	46.000
Vertical					
Peak Detector					
200.720	-7.835	45.372	37.537	-5.963	43.500
348.160	-3.458	31.882	28.424	-17.576	46.000
418.000	-8.544	44.395	35.851	-10.149	46.000
485.900	-3.204	36.518	33.314	-12.686	46.000
641.100	-3.972	36.498	32.526	-13.474	46.000
792.420	2.889	33.712	36.601	-9.399	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 port.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.



Test Item : General Radiated Emission

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5300MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
Peak Detector					
191.020	-10.040	46.565	36.525	-6.975	43.500
414.120	-3.242	34.693	31.451	-14.549	46.000
495.600	-0.535	30.005	29.470	-16.530	46.000
524.700	1.801	32.430	34.231	-11.769	46.000
646.920	1.793	28.021	29.814	-16.186	46.000
961.200	6.450	25.004	31.454	-22.546	54.000
Vertical					
Peak Detector					
47.460	-5.701	38.190	32.490	-7.510	40.000
412.180	-7.225	35.230	28.005	-17.995	46.000
623.640	-2.631	26.294	23.663	-22.337	46.000
695.420	1.878	23.082	24.960	-21.040	46.000
780.780	3.060	23.972	27.032	-18.968	46.000
926.280	5.821	23.492	29.313	-16.687	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

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5580MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					_
Peak Detector					
130.880	-10.159	47.159	37.000	-6.500	43.500
433.520	-1.972	40.411	38.439	-7.561	46.000
493.660	-0.536	27.240	26.704	-19.296	46.000
602.300	4.287	23.754	28.041	-17.959	46.000
745.860	3.308	24.012	27.320	-18.680	46.000
881.660	6.307	23.461	29.768	-16.232	46.000
Vertical					
Peak Detector					
200.720	-7.835	46.267	38.432	-5.068	43.500
268.620	-8.842	49.323	40.481	-5.519	46.000
433.520	-9.082	40.411	31.329	-14.671	46.000
544.100	-0.688	25.077	24.389	-21.611	46.000
687.660	2.444	22.788	25.232	-20.768	46.000
961.200	7.260	26.824	34.084	-19.916	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.



Test Item : General Radiated Emission

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
239.520	-6.851	35.572	28.722	-17.278	46.000
441.280	-2.294	27.604	25.310	-20.690	46.000
565.440	1.611	32.910	34.521	-11.479	46.000
577.080	3.169	34.991	38.160	-7.840	46.000
724.520	3.485	23.263	26.748	-19.252	46.000
961.200	6.450	27.131	33.581	-20.419	54.000
Vertical					
Peak Detector					
268.620	-8.842	41.491	32.649	-13.351	46.000
398.600	-4.678	41.231	36.553	-9.447	46.000
485.900	-3.204	43.112	39.908	-6.092	46.000
532.460	-0.563	33.973	33.410	-12.590	46.000
648.860	-4.832	34.880	30.048	-15.952	46.000
926.280	5.821	23.170	28.991	-17.009	46.000
648.860	-4.832	34.880	30.048	-15.952	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

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
103.720	-6.751	29.358	22.606	-20.894	43.500
348.160	-2.268	29.999	27.731	-18.269	46.000
441.280	-2.294	28.634	26.340	-19.660	46.000
546.040	3.570	24.670	28.239	-17.761	46.000
780.780	4.230	24.559	28.789	-17.211	46.000
961.200	6.450	26.307	32.757	-21.243	54.000
Vertical					
Peak Detector					
103.720	-0.151	29.358	29.206	-14.294	43.500
348.160	-3.458	29.999	26.541	-19.459	46.000
485.900	-3.204	44.789	41.585	-4.415	46.000
538.280	0.020	35.905	35.925	-10.075	46.000
689.600	2.538	23.223	25.761	-20.239	46.000
780.780	3.060	24.559	27.619	-18.381	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

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
208.480	-11.062	47.225	36.162	-7.338	43.500
295.780	-3.655	40.780	37.125	-8.875	46.000
375.320	-1.209	33.985	32.776	-13.224	46.000
449.040	-2.238	35.519	33.281	-12.719	46.000
516.940	1.654	36.159	37.813	-8.187	46.000
582.900	3.445	35.048	38.493	-7.507	46.000
Vertical					
Peak Detector					
268.620	-8.842	42.973	34.131	-11.869	46.000
348.160	-3.458	43.688	40.230	-5.770	46.000
427.700	-10.022	42.757	32.735	-13.265	46.000
528.580	-0.462	34.153	33.691	-12.309	46.000
722.580	-0.114	30.863	30.749	-15.251	46.000
959.260	6.964	26.451	33.415	-12.585	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.



7. Band Edge

7.1. 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

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:

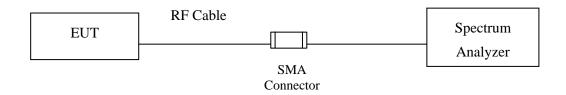
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar., 2014
	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., 2014
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

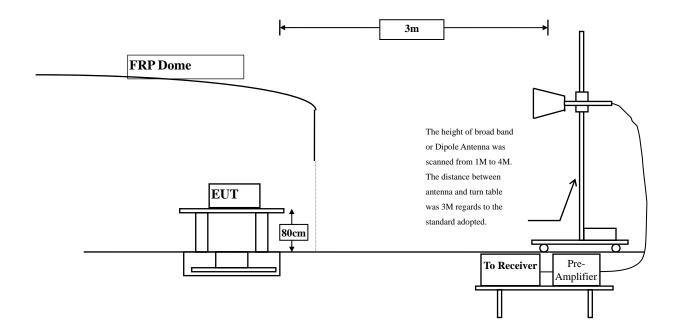


7.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:





7.3. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits							
Frequency MHz	uV/m @3m	dBuV/m@3m					
30-88	100	40					
88-216	150	43.5					
216-960	200	46					
Above 960	500	54					

- Remarks: 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
 - 2. In the Above Table, the tighter limit applies at the band edges.
 - 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

7.4. **Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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 can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.5. Uncertainty

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



7.6. Test Result of Band Edge

Product **TABLET PC** Test Item Band Edge Data Test Site No.3 OATS

Test Mode Mode 1: Transmit (802.11a-6Mbps)-Channel 36

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
36 (Peak)	5149.200	3.343	59.130	62.473	74.00	54.00	Pass
36 (Peak)	5150.000	3.340	57.832	61.172	74.00	54.00	Pass
36 (Peak)	5178.800	3.238	101.126	104.364			Pass
36 (Average)	5150.000	3.340	39.789	43.129	74.00	54.00	Pass
36 (Average)	5177.800	3.242	89.527	92.769			Pass

Figure Channel 36:

Horizontal (Peak)



Figure Channel 36:

Horizontal (Average)



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

- Measurement Level = Reading Level + Correct Factor.
- The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36

RF Radiated Measurement (Vertical):

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
36 (Peak)	5149.200	5.258	61.171	66.429	74.00	54.00	Pass
36 (Peak)	5150.000	5.260	60.271	65.531	74.00	54.00	Pass
36 (Peak)	5182.000	5.347	103.632	108.979			Pass
36 (Average)	5150.000	5.260	42.411	47.671	74.00	54.00	Pass
36 (Average)	5177.800	5.335	92.608	97.944			Pass



Vertical (Peak)

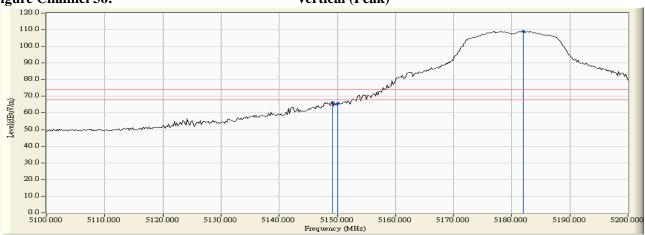


Figure Channel 36:

Vertical (Average)



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



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 64

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
64 (Peak)	5317.800	3.819	100.376	104.195			Pass
64 (Peak)	5350.000	3.716	63.578	67.295	74.00	54.00	Pass
64 (Average)	5317.400	3.820	89.130	92.951			Pass
64 (Average)	5350.000	3.716	43.671	47.388	74.00	54.00	Pass

Figure Channel 64:

Horizontal (Peak)

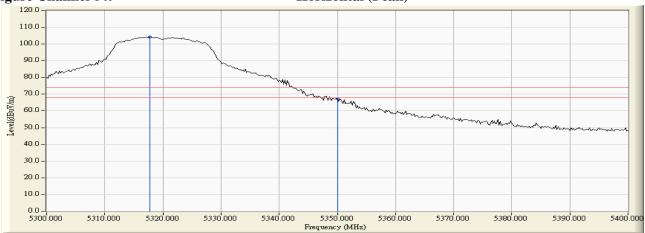
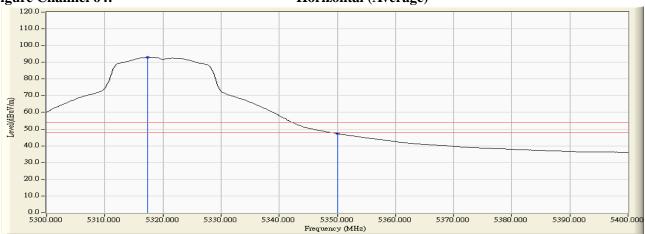


Figure Channel 64:

Horizontal (Average)



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



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 64

RF Radiated Measurement (Vertical):

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
64 (Peak)	5316.600	5.733	103.002	108.735	1		Pass
64 (Peak)	5350.000	5.691	62.582	68.274	74.00	54.00	Pass
64 (Peak)	5350.600	5.690	65.158	70.849	74.00	54.00	Pass
64 (Average)	5317.200	5.732	91.811	97.544	-		Pass
64 (Average)	5350.000	5.691	46.258	51.950	74.00	54.00	Pass



Vertical (Peak)

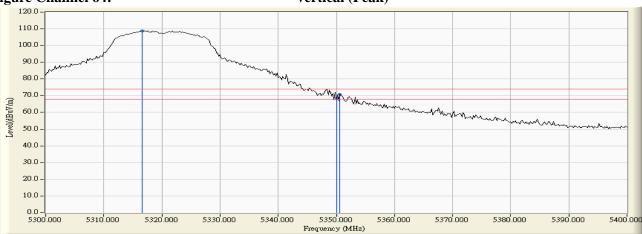
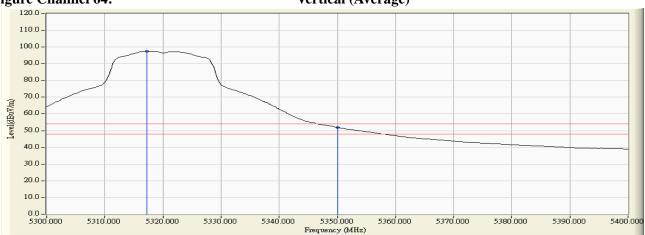


Figure Channel 64:

Vertical (Average)



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



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

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
100 (Peak)	5458.400	4.332	56.366	60.698	74.00	54.00	Pass
100 (Peak)	5460.000	4.354	54.656	59.010	74.00	54.00	Pass
100 (Peak)	5497.200	4.795	100.604	105.399			Pass
100 (Average)	5460.000	4.354	41.149	45.503	74.00	54.00	Pass
100 (Average)	5497.800	4.799	89.346	94.145			Pass

Figure Channel 100:

Horizontal (Peak)

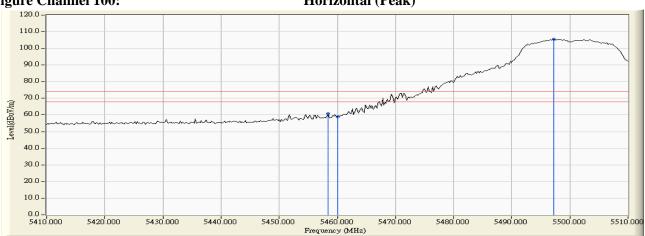
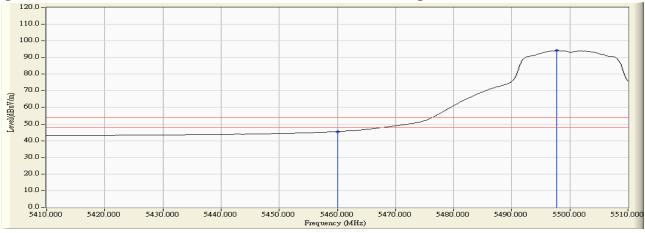


Figure Channel 100:

Horizontal (Average)



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



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Chamilei No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
100 (Peak)	5460.000	36.194	56.857	62.898	74.00	54.00	Pass
100 (Peak)	5498.000	36.404	102.835	109.104			Pass
100 (Average)	5460.000	6.041	42.489	48.530	74.00	54.00	Pass
100 (Average)	5497.800	6.268	91.874	98.142			Pass



Vertical (Peak)

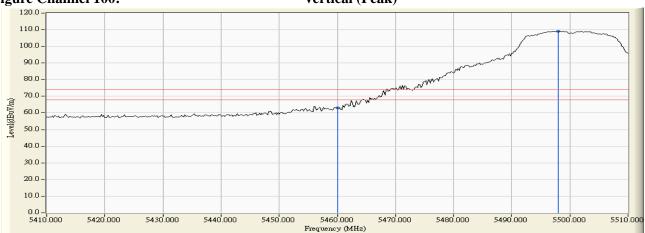
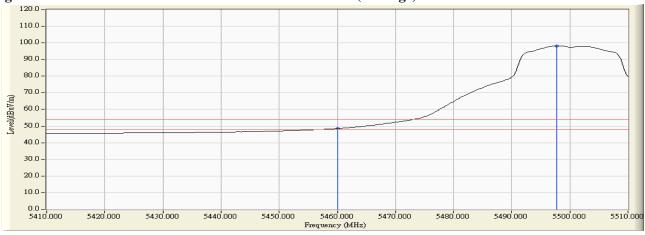


Figure Channel 100:

Vertical (Average)



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



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	13.958	-62.850	-48.892	-21.892	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	14.324	-60.380	-46.056	-19.056	-27.000	Pass



Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 140

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	12.135	-72.440	-60.305	-33.305	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	12.243	-67.610	-55.367	-28.367	-27.000	Pass



Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 36

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
36 (Peak)	5150.000	3.340	59.449	62.789	74.00	54.00	Pass
36 (Peak)	5178.800	3.238	100.407	103.645			Pass
36 (Average)	5150.000	3.340	41.124	44.464	74.00	54.00	Pass
36 (Average)	5177.800	3.242	89.115	92.357			Pass

Figure Channel 36:

Horizontal (Peak)

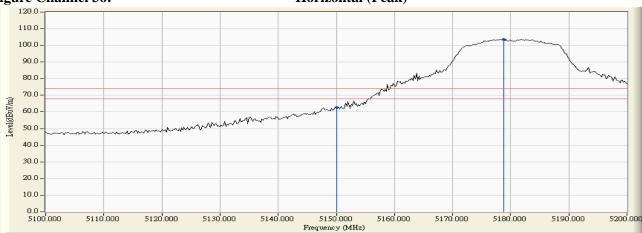
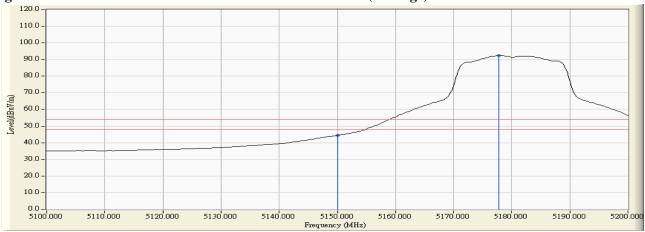


Figure Channel 36:

Horizontal (Average)



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



Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 36

RF Radiated Measurement (Vertical):

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
36 (Peak)	5150.000	5.260	62.168	67.428	74.00	54.00	Pass
36 (Peak)	5181.000	5.344	103.467	108.811			Pass
36 (Average)	5150.000	5.260	42.398	47.658	74.00	54.00	Pass
36 (Average)	5182.800	5.349	91.975	97.324			Pass



Vertical (Peak)

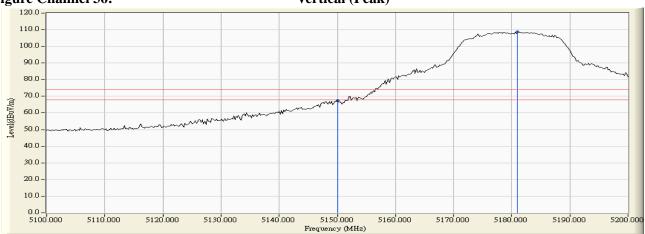
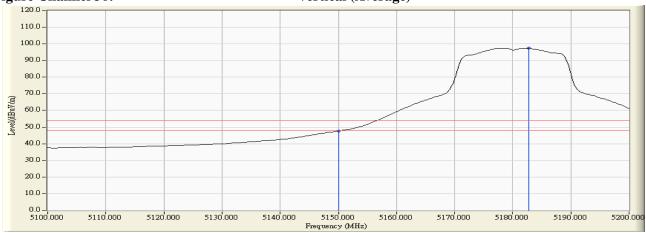


Figure Channel 36:

Vertical (Average)



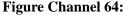
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = 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 (802.11n-20BW 7.2Mbps) -Channel 64

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
64 (Peak)	5317.800	3.819	100.852	104.671	-		Pass
64 (Peak)	5350.000	3.716	62.049	65.766	74.00	54.00	Pass
64 (Average)	5318.000	3.819	89.527	93.346			Pass
64 (Average)	5350.000	3.716	44.190	47.907	74.00	54.00	Pass



Horizontal (Peak)

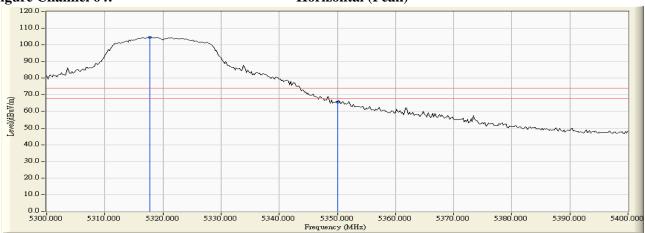
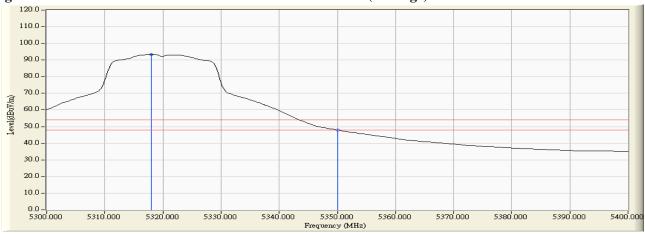


Figure Channel 64:

Horizontal (Average)



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



Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 64

RF Radiated Measurement (Vertical):

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
64 (Peak)	5318.200	5.731	103.111	108.842	1		Pass
64 (Peak)	5350.000	5.691	64.238	69.930	74.00	54.00	Pass
64 (Peak)	5350.600	5.690	65.380	71.071	74.00	54.00	Pass
64 (Average)	5317.800	5.732	91.937	97.669	-		Pass
64 (Average)	5350.000	5.691	46.254	51.946	74.00	54.00	Pass



Vertical (Peak)

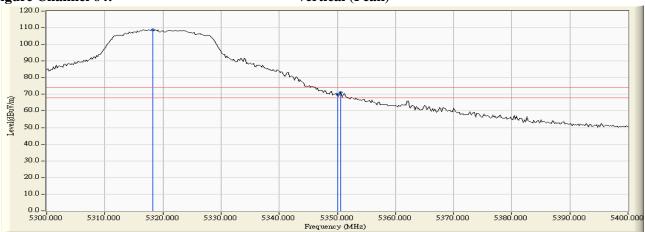
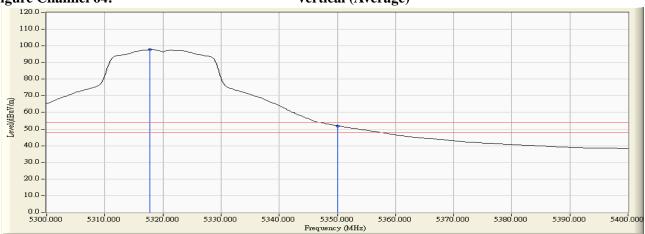


Figure Channel 64:

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 (802.11n-20BW 7.2Mbps) -Channel 100

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
100 (Peak)	5460.000	4.354	55.923	60.277	74.00	54.00	Pass
100 (Peak)	5499.200	4.810	99.812	104.621	1		Pass
100 (Average)	5460.000	4.354	41.207	45.561	74.00	54.00	Pass
100 (Average)	5497.800	4.799	88.951	93.750			Pass

Figure Channel 100:

Horizontal (Peak)

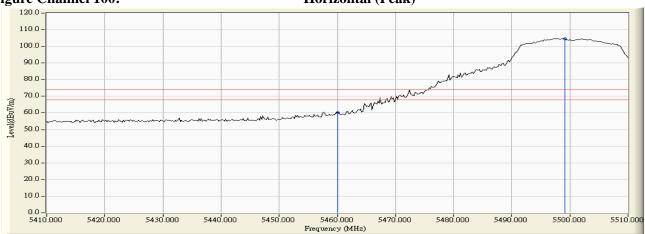
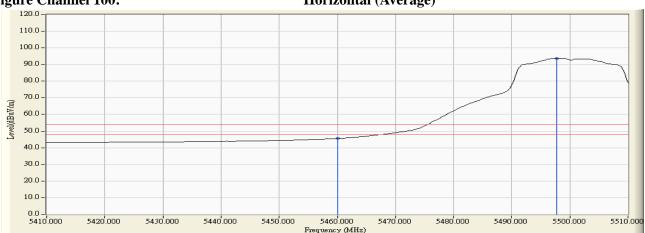


Figure Channel 100:

Horizontal (Average)



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



Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 100

RF Radiated Measurement (Vertical):

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
100 (Peak)	5459.800	6.040	60.256	66.295	74.00	54.00	Pass
100 (Peak)	5460.000	6.041	58.031	64.072	74.00	54.00	Pass
100 (Peak)	5501.800	6.281	102.949	109.229	-		Pass
100 (Average)	5460.000	6.041	42.903	48.944	74.00	54.00	Pass
100 (Average)	5497.800	6.268	91.644	97.912			Pass



Vertical (Peak)

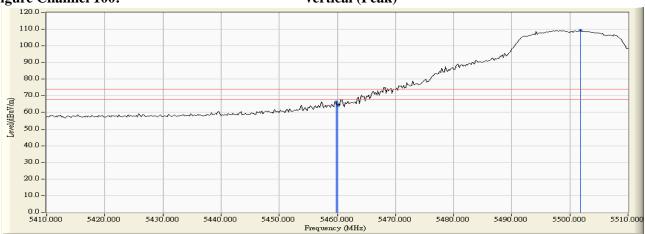
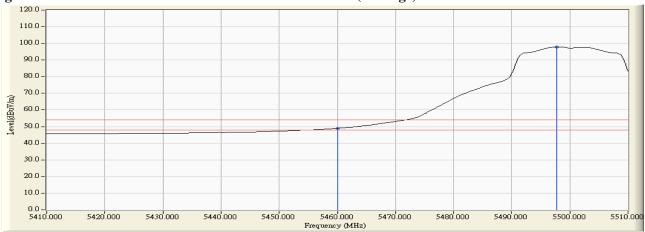


Figure Channel 100:

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 (802.11n-20BW 7.2Mbps) -Channel 100

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	13.958	-62.790	-48.832	-21.832	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	14.324	-60.390	-46.066	-19.066	-27.000	Pass



Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 140

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	12.135	-70.520	-58.385	-31.385	-27.000	Pass

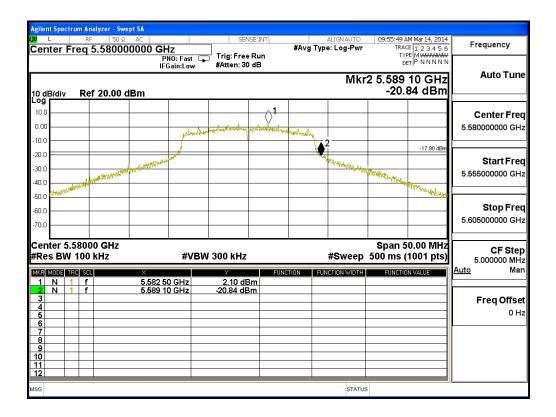
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	12.243	-65.810	-53.567	-26.567	-27.000	Pass

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Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 116

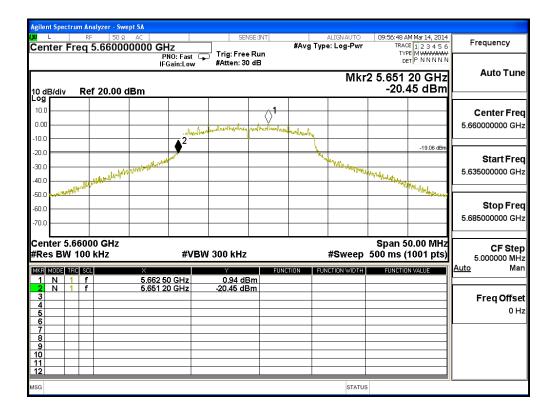
Test Frequency	Measurement Level (20dB BW)	Limit	Result
(MHz)	(MHz)	(MHz)	
5580	5582.50	< 5600	PASS





Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 132

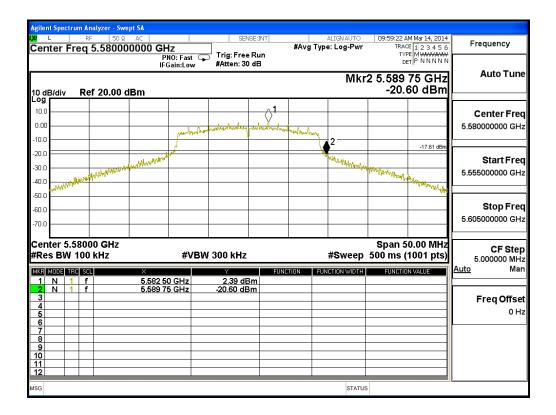
Test Frequency	Measurement Level (20dB BW)	Limit	Result
(MHz)	(MHz)	(MHz)	
5660	5650.15	>5650	PASS





Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 116

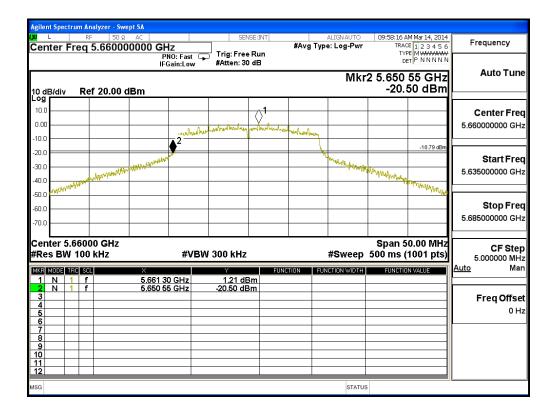
Test Frequency	Measurement Level (20dB BW)	Limit	Result
(MHz)	(MHz)	(MHz)	
5580	5582.50	< 5600	PASS





Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 132

Test Frequency	Measurement Level (20dB BW)	Limit	Result
(MHz)	(MHz)	(MHz)	
5660	5650.05	>5650	PASS





8. Frequency Stability

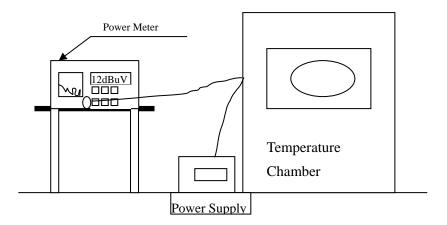
8.1. Test Equipment

	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

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

8.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

8.5. Uncertainty

± 150 Hz



8.6. Test Result of Frequency Stability

Product : TABLET PC

Test Item : Frequency Stability
Test Site : Temperature Chamber

Test Mode : Carrier Wave

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (20) °C	Vnom (120)V	36	5180.0000	5180.0070	-0.0070
		44	5220.0000	5220.0080	-0.0080
		48	5240.0000	5240.0071	-0.0071
		52	5260.0000	5260.0083	-0.0083
		60	5300.0000	5300.0062	-0.0062
		64	5320.0000	5320.0073	-0.0073
		100	5500.0000	5500.0074	-0.0074
		116	5580.0000	5580.0094	-0.0094
		140	5700.0000	5700.0077	-0.0077

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Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmax (50) °C	Vmax (138)V	36	5180.0000	5180.0069	-0.0069
		44	5220.0000	5220.0077	-0.0077
		48	5240.0000	5240.0064	-0.0064
		52	5260.0000	5260.0078	-0.0078
		60	5300.0000	5300.0060	-0.0060
		64	5320.0000	5320.0069	-0.0069
		100	5500.0000	5500.0071	-0.0071
		116	5580.0000	5580.0093	-0.0093
		140	5700.0000	5700.0074	-0.0074
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmax (50) °C	Vmin (102)V	36	5180.0000	5180.0069	-0.0069
		44	5220.0000	5220.0088	-0.0088
		48	5240.0000	5240.0066	-0.0066
		52	5260.0000	5260.0079	-0.0079
		60	5300.0000	5300.0086	-0.0086
		64	5320.0000	5320.0074	-0.0074
		100	5500.0000	5500.0073	-0.0073
		116	5580.0000	5580.0101	-0.0101
		140	5700.0000	5700.0080	-0.0080

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Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmin (0) °C	Vmax (138)V	36	5180.0000	5180.0059	-0.0059
		44	5220.0000	5220.0098	-0.0098
		48	5240.0000	5240.0100	-0.0100
		52	5260.0000	5260.0086	-0.0086
		60	5300.0000	5300.0086	-0.0086
		64	5320.0000	5320.0102	-0.0102
		100	5500.0000	5500.0070	-0.0070
		116	5580.0000	5580.0100	-0.0100
		140	5700.0000	5700.0097	-0.0097
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmin (0) °C	Vmin (102)V	36	5180.0000	5180.0064	-0.0064
		44	5220.0000	5220.0094	-0.0094
		48	5240.0000	5240.0082	-0.0082
		52	5260.0000	5260.0076	-0.0076
		60	5300.0000	5300.0084	-0.0084
		64	5320.0000	5320.0100	-0.0100
		100	5500.0000	5500.0067	-0.0067
		116	5580.0000	5580.0094	-0.0094
		140	5700.0000	5700.0086	-0.0086



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

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Attachment 1: EUT Test Photographs

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Attachment 2: EUT Detailed Photographs

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