

FCC Test Report

Product Name	Notebook
Model No	EF20EA
FCC ID	WL6-EF2BC40EA3

Applicant	ELITEGROUP COMPUTER SYSTEMS CO., LTD.
Address	No.239, Sec. 2, Ti Ding Blvd., Taipei, Taiwan

Date of Receipt	Sep. 01, 2015
Issued Date	Sep. 22, 2015
Report No.	1590121R-RFUSP44V00
Report Version	V1.0



The test results relate only to the samples tested.

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

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Test Report

Issued Date: Sep. 22, 2015

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Product Name	Notebook
Applicant	ELITEGROUP COMPUTER SYSTEMS CO., LTD.
Address	No.239, Sec. 2, Ti Ding Blvd., Taipei, Taiwan
Manufacturer	Elitegroup Computer Systems(SIP) CO., LTD.
Model No.	EF20EA
FCC ID.	WL6-EF2BC40EA3
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	ECS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.4: 2014, ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v01
Test Result	Complied

Documented By :

Leven Huang

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Tested By :

Nova chu

(Engineer / Nova Chu)

Approved By :

Vincent Lin

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook
Trade Name	ECS
FCC ID.	WL6-EF2BC40EA3
Model No.	EF20EA
Frequency Range	802.11a/n-20MHz: 5180-5240MHz, 5745-5825MHz 802.11n-40MHz: 5190-5230, 5755-5795MHz
Number of Channels	802.11a/n-20MHz: 9; 802.11n-40MHz: 4
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 150Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table "Antenna List"
Power Adapter	MFR: APD, M/N: WA-24Q12FU Input: AC 100-240V, 50-60Hz, 0.7A Output: DC 12V, 2A Cable Out: Non-Shielded, 1.5m
Contain Module	AMPAK / AP6234

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	JEM	13B130-FW4070 (Main)	PIFA Antenna	0.71dBi For 5.15~5.25GHz 1.03dBi For 5.725~5.825GHz
2	WGT	13B130-FW4050 (Main)	PIFA Antenna	2.62dBi For 5.15~5.25GHz 2.33dBi For 5.725~5.825GHz

Note:

1. The antenna of EUT conforms to FCC 15.203.
2. Only the higher gain antenna was tested and recorded in this report.

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

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz

Note:

1. This device is a Notebook with a built-in 5GHz WLAN and Bluetooth transceiver. this report for 5GHz 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-20BW is 7.2Mbps 、 802.11n-40BW is 15Mbps).
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.

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 2: Transmit (802.11n-20BW 7.2Mbps) Mode 3: Transmit (802.11n-40BW 15Mbps)
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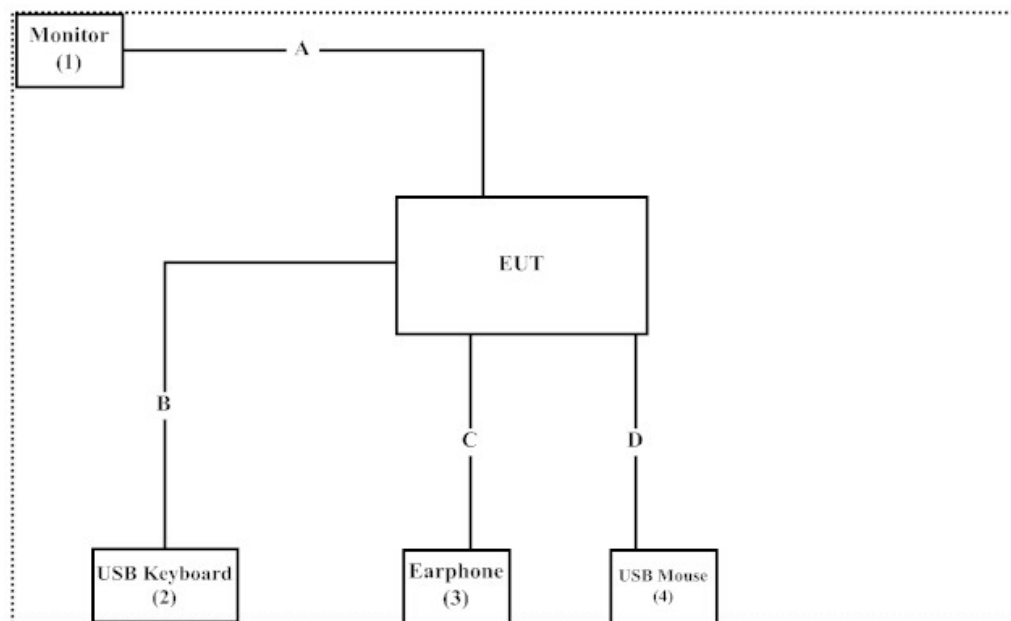
1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	DELL	U2410f	CN-082WXD-72872-2 3E-ACDL	Non-Shielded, 1.8m
2	USB Keyboard	Logitech	Y-UR83	SY853UK	N/A
3	Earphone	Dr.AV	CD-806B	N/A	N/A
4	USB Mouse	DELL	MO56UOA	G0Y02ERZ	N/A

Signal Cable Type	Signal cable Description
A HDMI Cable	Non-Shielded, 1.8m
B Keyboard Cable	Non-Shielded, 1.8m
C Earphone Cable	Non-Shielded, 1.2m
D Mouse Cable	Non-Shielded, 1.8m

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute “WL 1.0” program on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

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

QuieTek Corporation's Web Site: <http://www.quietek.com/chinese/about/certificates.aspx?bval=5>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site:

<http://www.quietek.com/>

Site Description: File on

Federal Communications Commission

FCC Engineering Laboratory

7435 Oakland Mills Road

Columbia, MD 21046

Registration Number: 92195

Site Name: Quietek Corporation

Site Address: No.5-22, 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

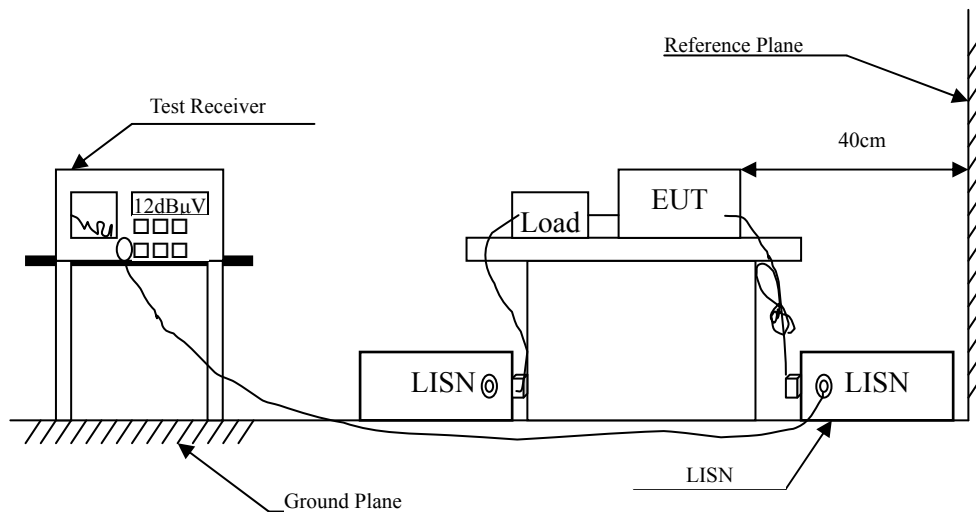
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2015	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2015	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2015	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2015	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2015	
	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 (dBμV) Limit		
Frequency MHz	Limits	
	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 C63.10:2013 on conducted measurement.

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

The EUT was setup to ANSI C63.10, 2013; tested to UNII 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 : Notebook
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5190MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.154	9.763	37.860	47.623	-18.263	65.886
0.373	9.768	32.830	42.598	-17.031	59.629
0.716	9.795	18.000	27.795	-28.205	56.000
4.627	9.983	23.770	33.753	-22.247	56.000
14.646	10.140	13.230	23.370	-36.630	60.000
27.748	10.188	13.040	23.228	-36.772	60.000
Average					
0.154	9.763	30.840	40.603	-15.283	55.886
0.373	9.768	31.520	41.288	-8.341	49.629
0.716	9.795	15.040	24.835	-21.165	46.000
4.627	9.983	15.520	25.503	-20.497	46.000
14.646	10.140	5.790	15.930	-34.070	50.000
27.748	10.188	3.140	13.328	-36.672	50.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5190MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.150	9.764	38.640	48.404	-17.596	66.000
0.365	9.767	34.070	43.837	-16.020	59.857
0.713	9.794	17.080	26.874	-29.126	56.000
4.880	9.986	23.260	33.246	-22.754	56.000
13.873	10.209	13.800	24.009	-35.991	60.000
27.724	10.408	13.340	23.748	-36.252	60.000
Average					
0.150	9.764	31.680	41.444	-14.556	56.000
0.365	9.767	27.380	37.147	-12.710	49.857
0.713	9.794	10.720	20.514	-25.486	46.000
4.880	9.986	14.740	24.726	-21.274	46.000
13.873	10.209	6.620	16.829	-33.171	50.000
27.724	10.408	3.250	13.658	-36.342	50.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.181	9.756	33.490	43.246	-21.868	65.114
0.365	9.767	32.720	42.487	-17.370	59.857
0.763	9.798	19.980	29.778	-26.222	56.000
4.607	9.976	23.500	33.476	-22.524	56.000
14.884	10.143	13.060	23.203	-36.797	60.000
27.716	10.188	13.220	23.408	-36.592	60.000
Average					
0.181	9.756	27.840	37.596	-17.518	55.114
0.365	9.767	27.670	37.437	-12.420	49.857
0.763	9.798	14.240	24.038	-21.962	46.000
4.607	9.976	15.510	25.486	-20.514	46.000
14.884	10.143	5.610	15.753	-34.247	50.000
27.716	10.188	3.070	13.258	-36.742	50.000

Note:

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

Product : Notebook
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.150	9.764	38.720	48.484	-17.516	66.000
0.369	9.768	35.190	44.958	-14.785	59.743
0.767	9.799	18.910	28.709	-27.291	56.000
4.580	9.982	23.510	33.492	-22.508	56.000
14.334	10.215	14.010	24.225	-35.775	60.000
28.005	10.412	12.990	23.402	-36.598	60.000
Average					
0.150	9.764	31.530	41.294	-14.706	56.000
0.369	9.768	32.940	42.708	-7.035	49.743
0.767	9.799	12.790	22.589	-23.411	46.000
4.580	9.982	15.360	25.342	-20.658	46.000
14.334	10.215	6.970	17.185	-32.815	50.000
28.005	10.412	3.350	13.762	-36.238	50.000

Note:

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

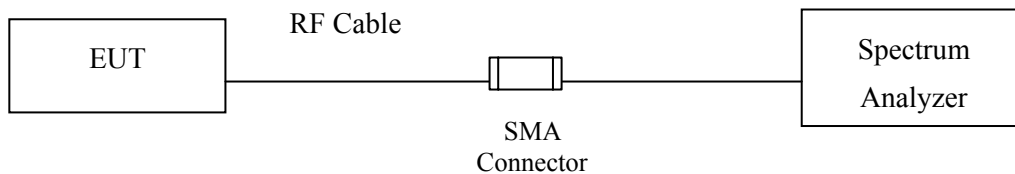
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2015
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

Note:

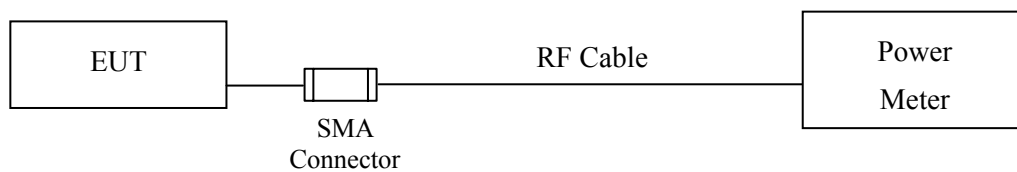
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

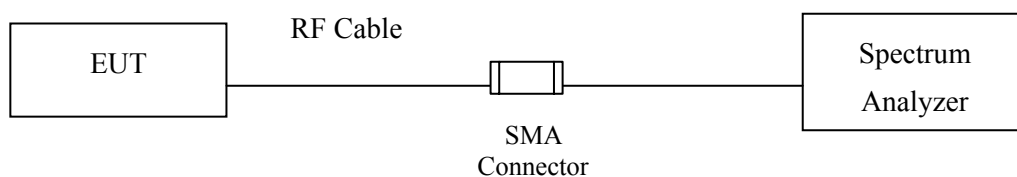
26dBc Occupied Bandwidth



Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac)



3.3. Limits

3.3.1. For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W, provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.3. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any

corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.4. Test Procedure

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 the 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.

802.11an (BW $\leq$ 40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Maximum conducted output power

Product : Notebook
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.62	--	--	--	--	--	--	--	<24dBm
44	5220	12.61	12.53	12.45	12.37	12.29	12.22	12.14	12.08	<24dBm
48	5240	12.62	--	--	--	--	--	--	--	<24dBm
149	5745	13.05	--	--	--	--	--	--	--	<30dBm
157	5785	13.07	12.99	12.9	12.82	12.74	12.68	12.61	12.53	<30dBm
165	5825	13.14	--	--	--	--	--	--	--	<30dBm

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

Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	--	12.62	24	--
44	5220	--	12.61	24	--
48	5240	--	12.62	24	--
149	5745	--	13.05	30	--
157	5785	--	13.07	30	--
165	5825	--	13.14	30	--

Note:

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

Product : Notebook
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								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	
		Measurement Level (dBm)								
36	5180	12.51	--	--	--	--	--	--	--	<24dBm
44	5220	12.42	12.35	12.28	12.21	12.13	12.04	11.97	11.91	<24dBm
48	5240	12.56	--	--	--	--	--	--	--	<24dBm
149	5745	14.16	--	--	--	--	--	--	--	<30dBm
157	5785	13.99	13.93	13.86	12.79	12.72	12.63	12.55	12.49	<30dBm
165	5825	14.11	--	--	--	--	--	--	--	<30dBm

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

Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	--	12.51	24	--
44	5220	--	12.42	24	--
48	5240	--	12.56	24	--
149	5745	--	14.16	30	--
157	5785	--	13.99	30	--
165	5825	--	14.11	30	--

Note:

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

Product : Notebook
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		15	30	45	60	90	120	135	150	
		Measurement Level (dBm)								
38	5190	12.52	12.45	12.37	12.31	12.23	12.16	12.08	11.99	<24dBm
46	5230	12.5	--	--	--	--	--	--	--	<24dBm
151	5755	13.96	13.88	13.81	13.74	13.68	13.6	13.53	13.47	<30dBm
159	5795	14.06	--	--	--	--	--	--	--	<30dBm

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

Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
38	5190	--	12.52	24	--
46	5230	--	12.5	24	--
151	5755	--	13.96	30	--
159	5795	--	14.06	30	--

Note:

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

4. Peak Power Spectral Density

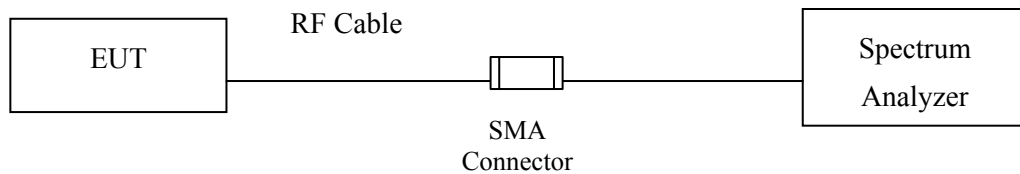
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2015

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

- (1) For the band 5.15-5.25 GHz,
 - (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
 - (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
 - (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems

employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.+

- (2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.4. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.

SA-1 method is selected to run the test.

For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500\text{ kHz}/100\text{ kHz}) = 6.98\text{ dB}$.

4.5. Uncertainty

$\pm 1.27\text{ dB}$

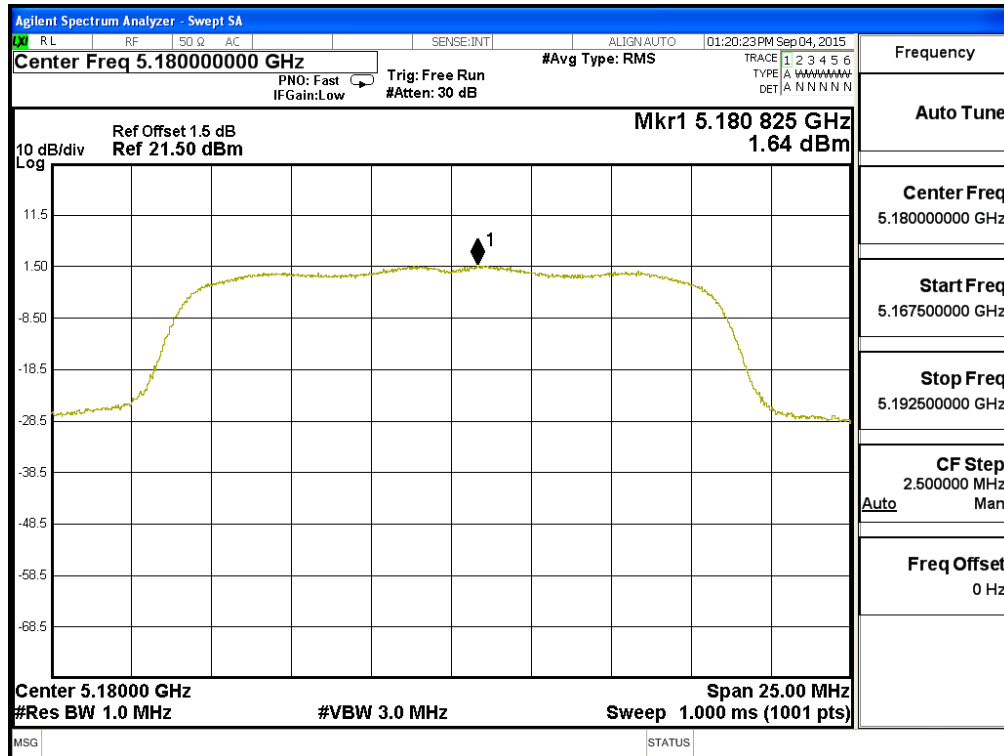
4.6. Test Result of Peak Power Spectral Density

Product : Notebook
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

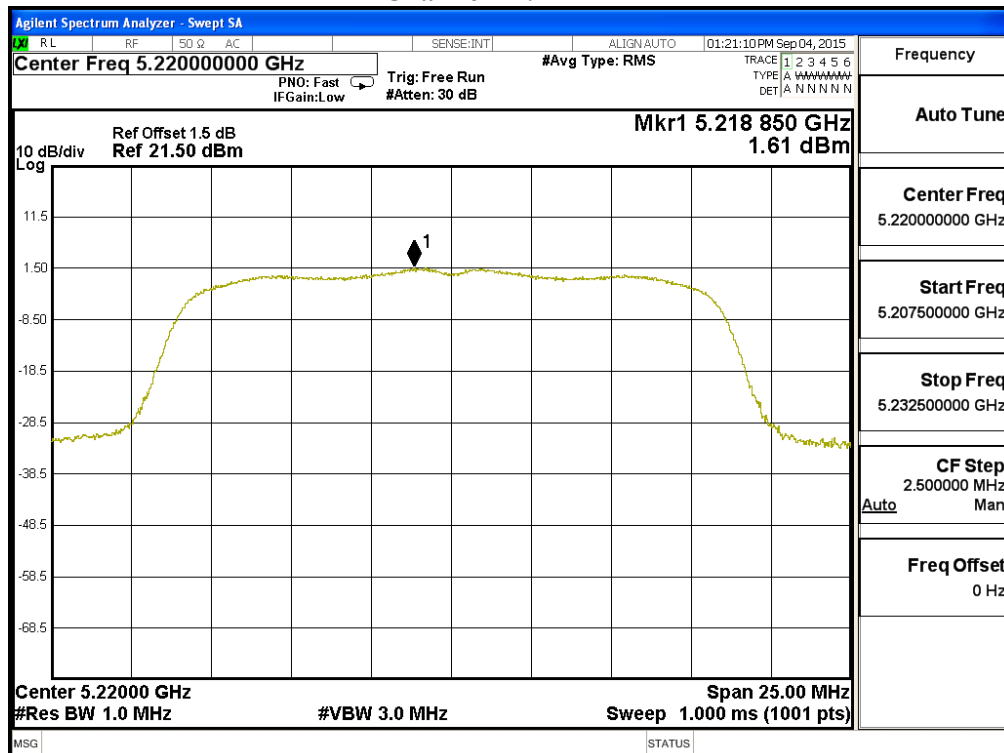
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	1.640	<11	Pass
44	5220	1.610	<11	Pass
48	5240	1.430	<11	Pass

Channel Number	Frequency (MHz)	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	-6.32	6.98	0.66	<30	Pass
157	5785	-6.77	6.98	0.21	<30	Pass
165	5825	-6.54	6.98	0.44	<30	Pass

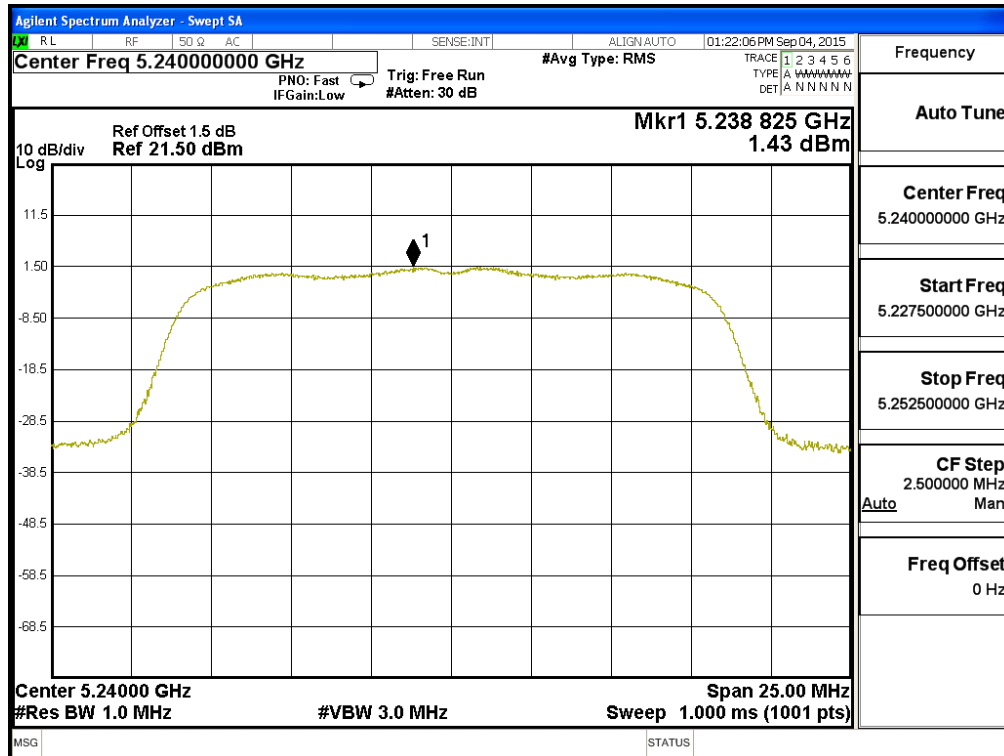
Channel 36:



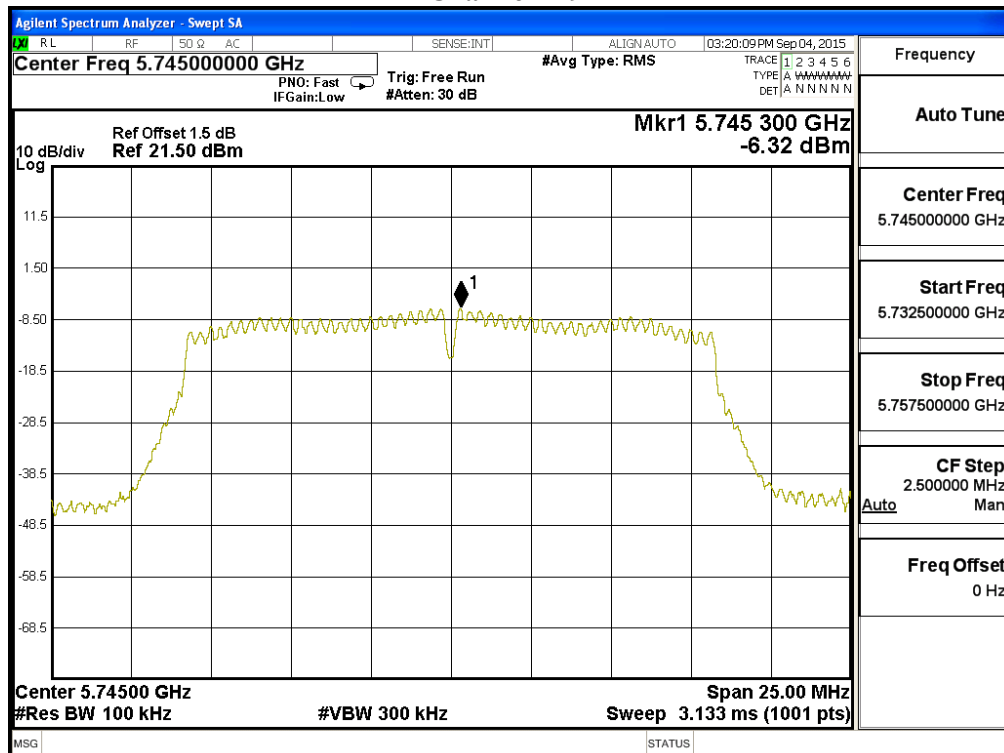
Channel 44:



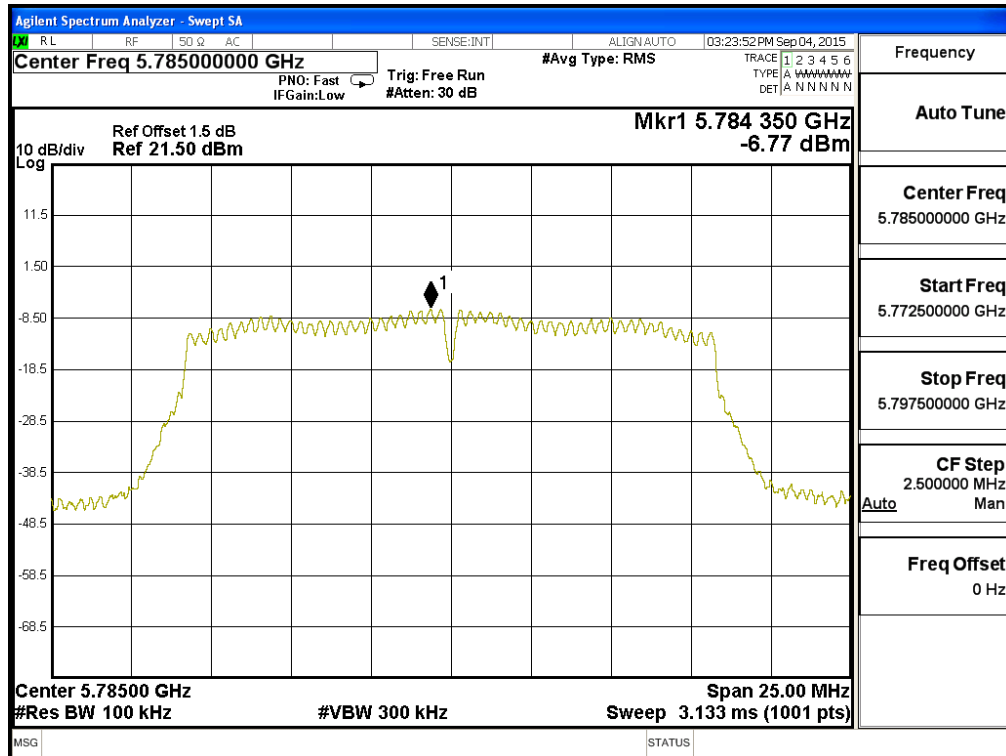
Channel 48:



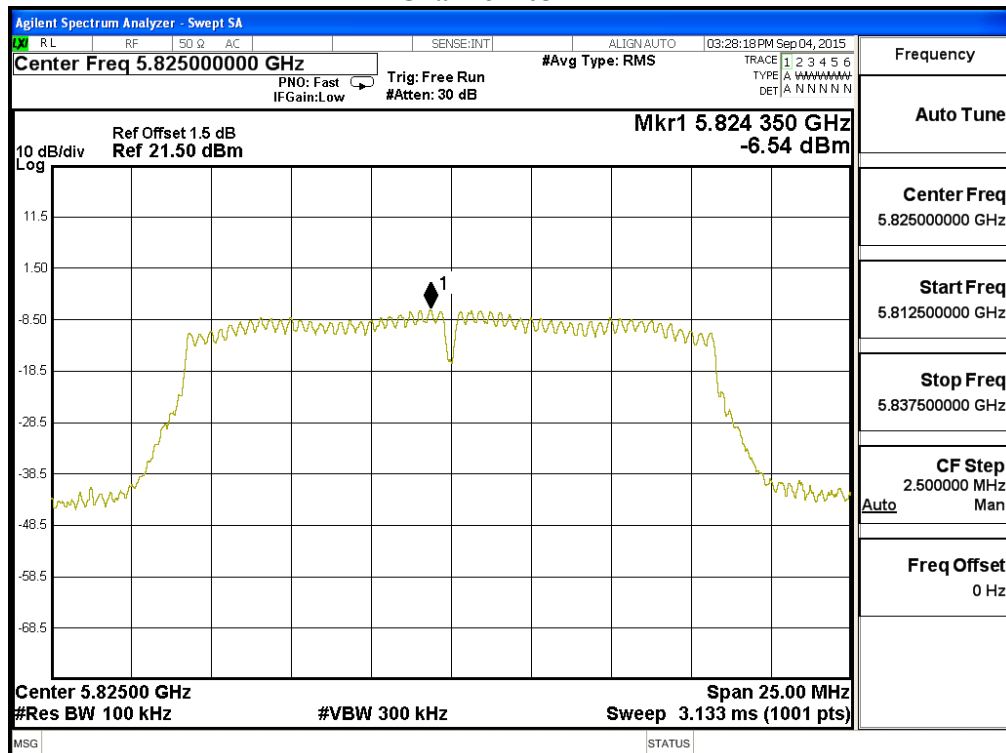
Channel 149



Channel 157



Channel 165

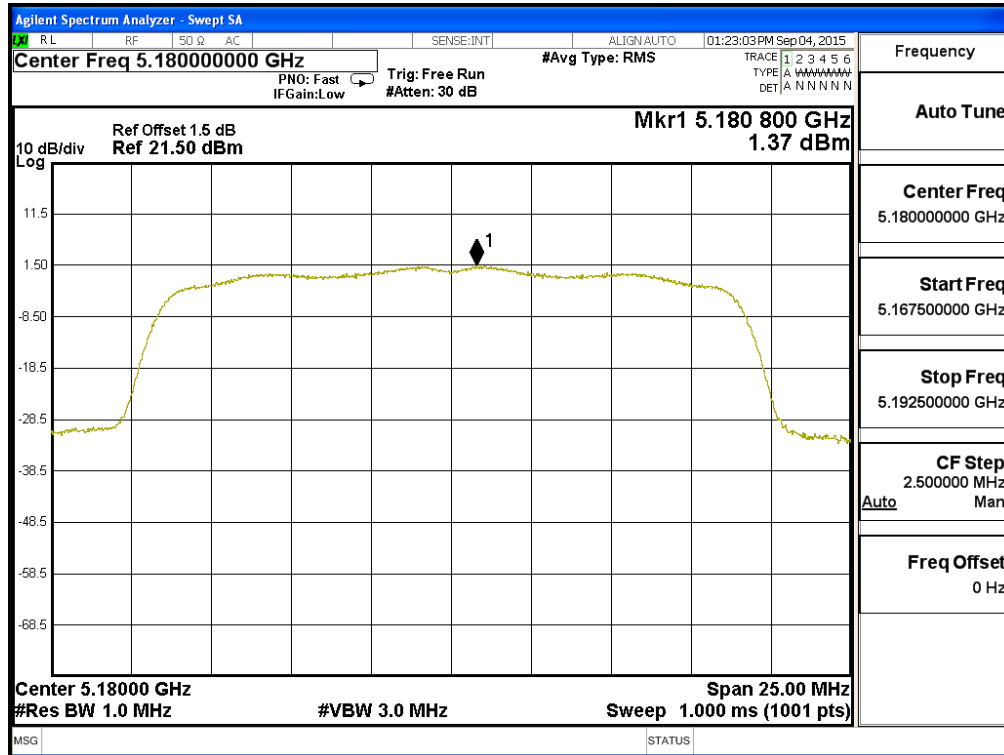


Product : Notebook
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

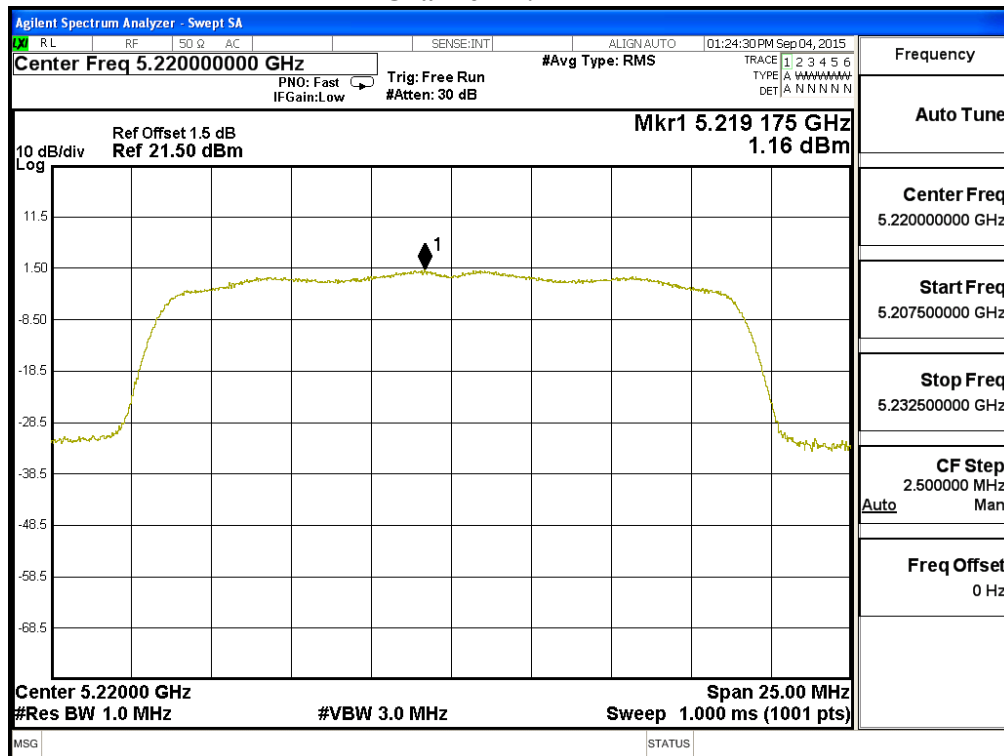
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	1.370	<11	Pass
44	5220	1.160	<11	Pass
48	5240	1.230	<11	Pass

Channel Number	Frequency (MHz)	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	-5.83	6.98	1.15	<30	Pass
157	5785	-6.36	6.98	0.62	<30	Pass
165	5825	-5.91	6.98	1.07	<30	Pass

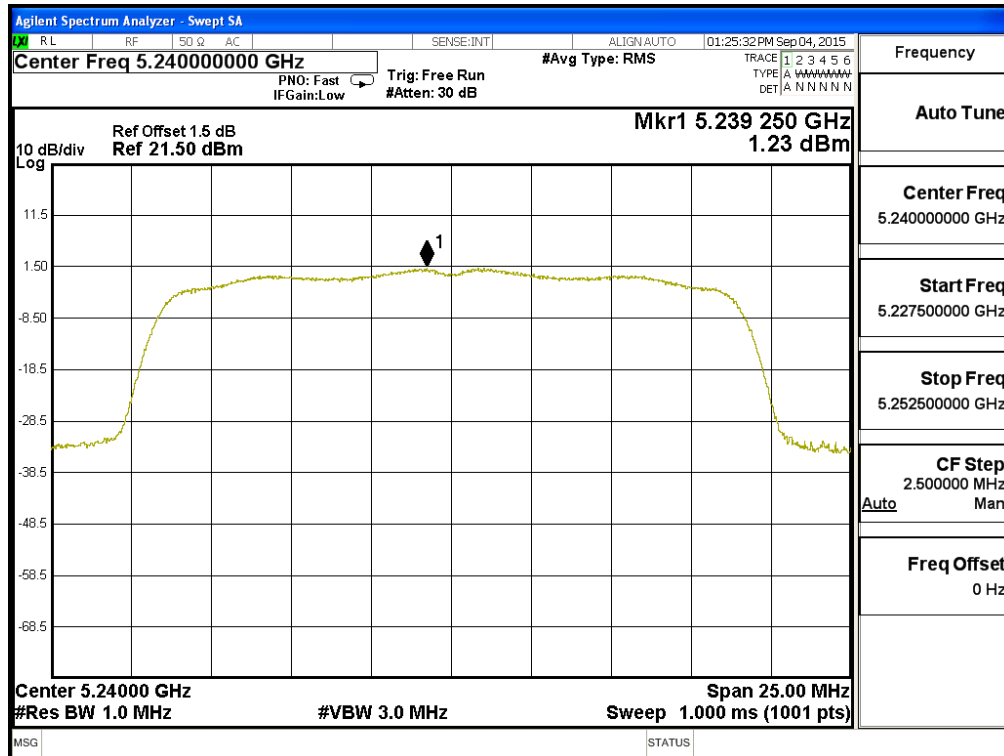
Channel 36:



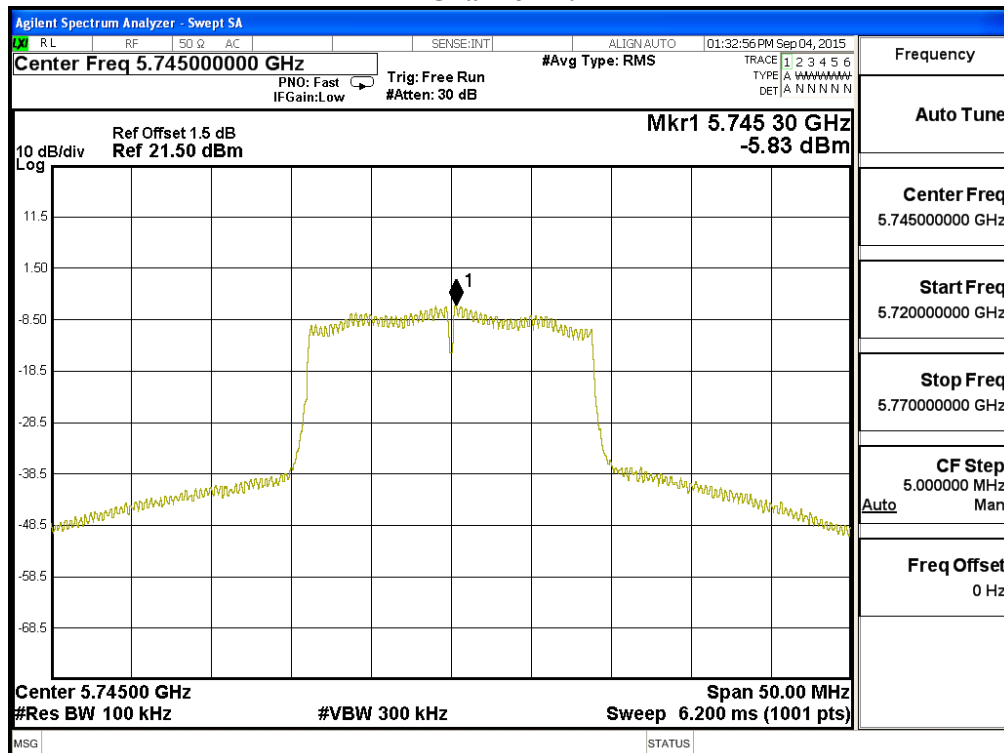
Channel 44:



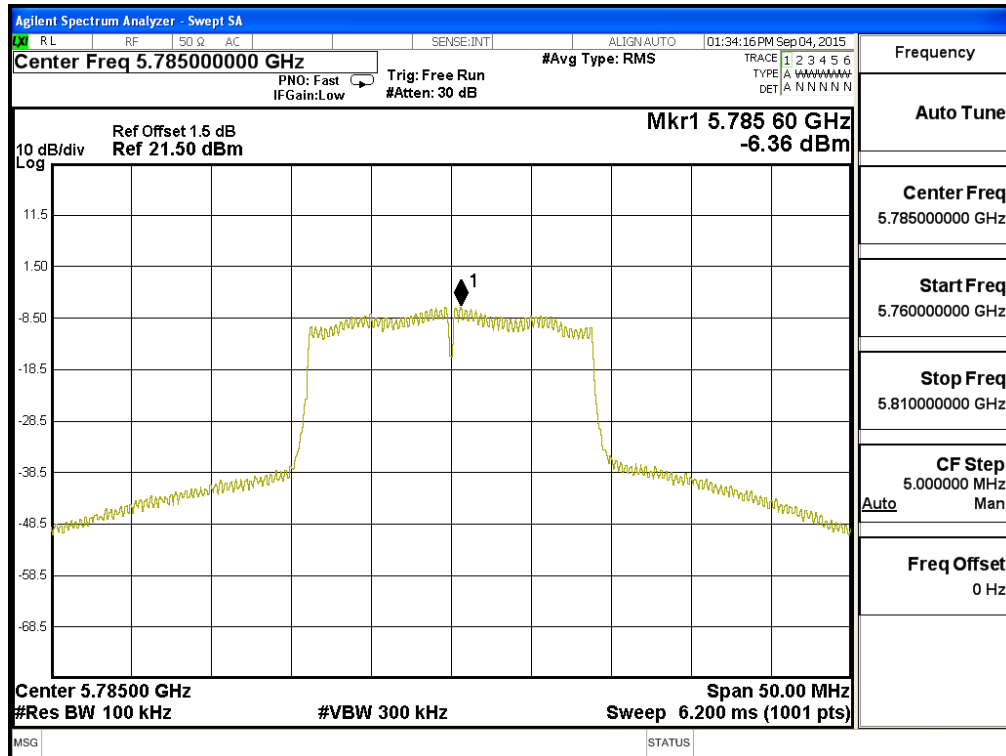
Channel 48:



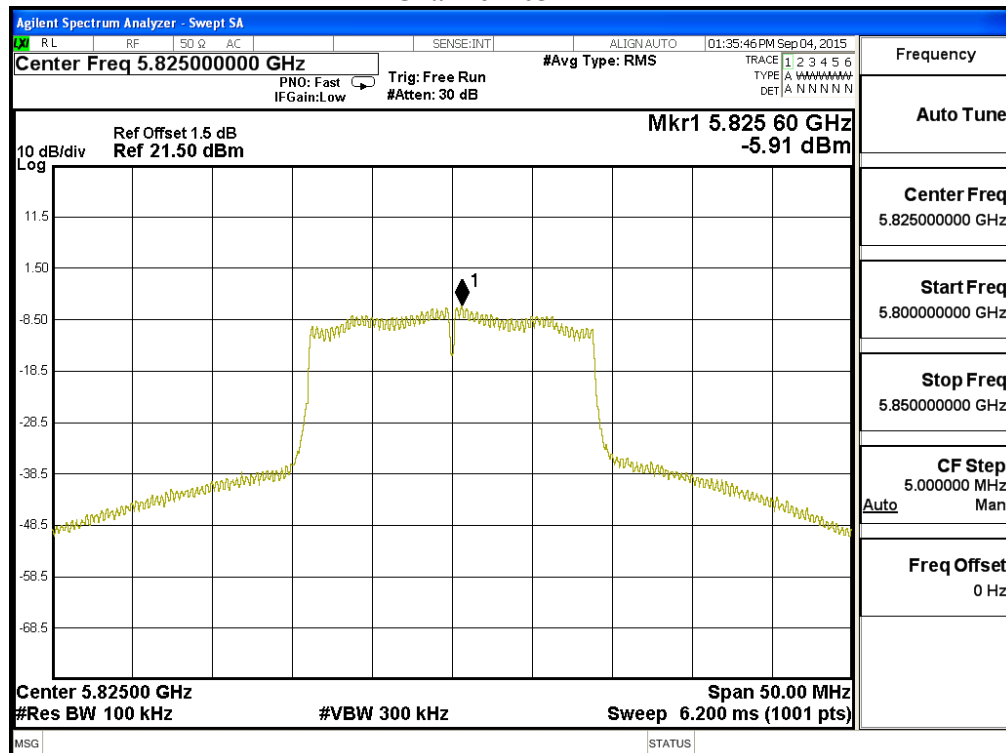
Channel 149



Channel 157



Channel 165

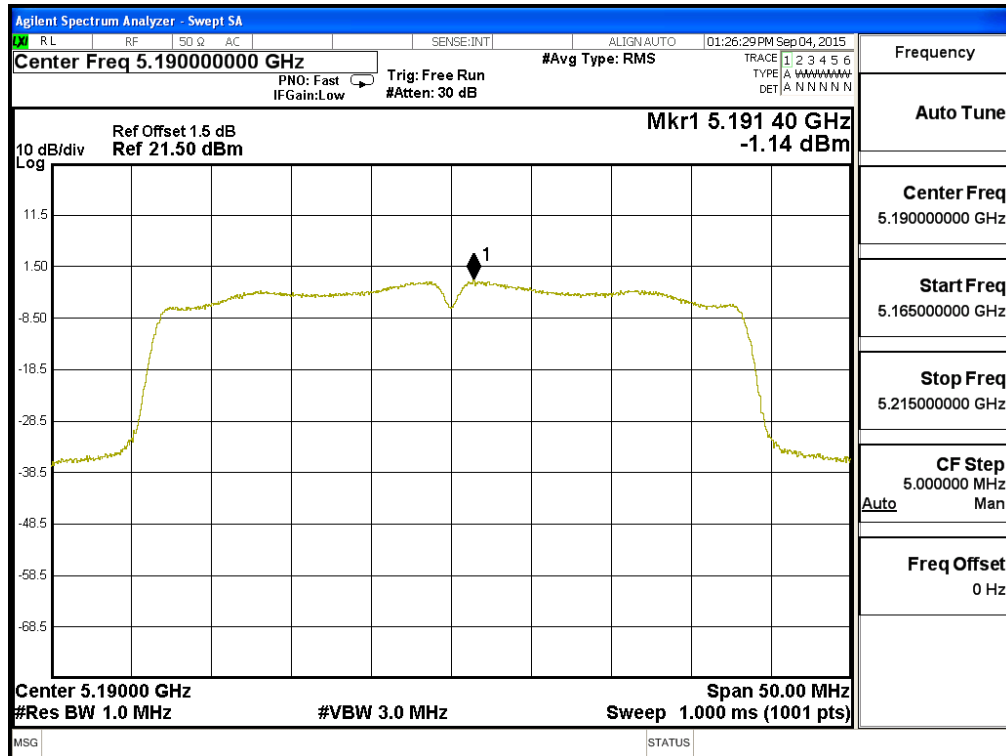


Product : Notebook
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)

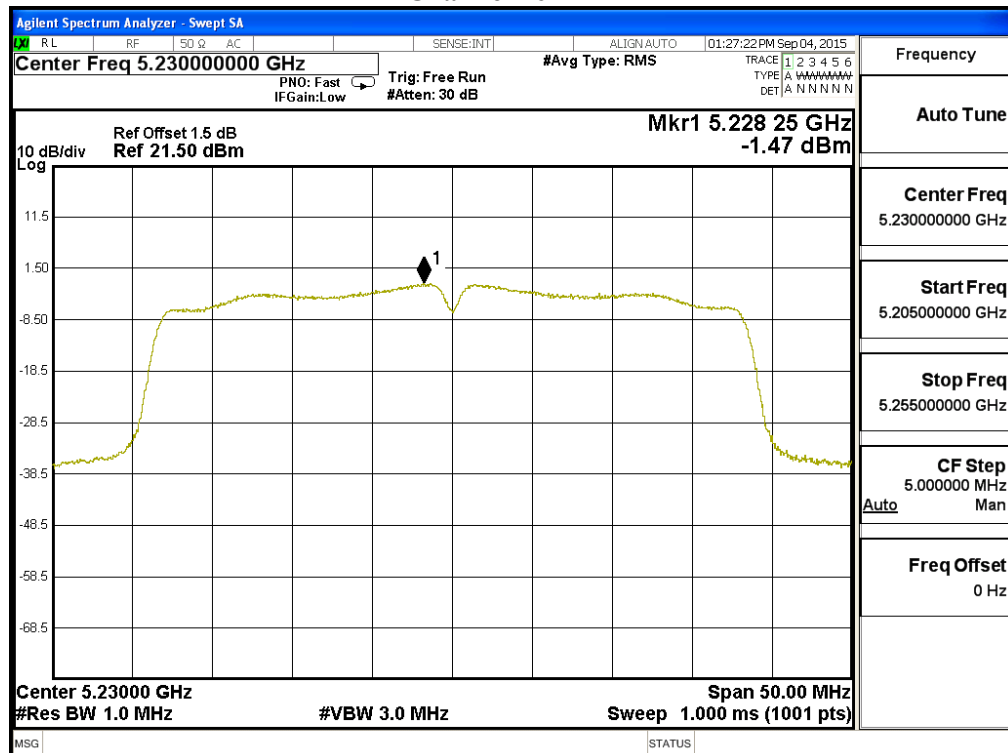
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
38	5190	-1.140	<11	Pass
46	5230	-1.470	<11	Pass

Channel Number	Frequency (MHz)	PPSD (dBm)	BWCF (dB)	Total PSD (dBm)	Required Limit (dBm)	Result
151	5755	-9.17	6.98	-2.19	<30	Pass
159	5795	-9.09	6.98	-2.11	<30	Pass

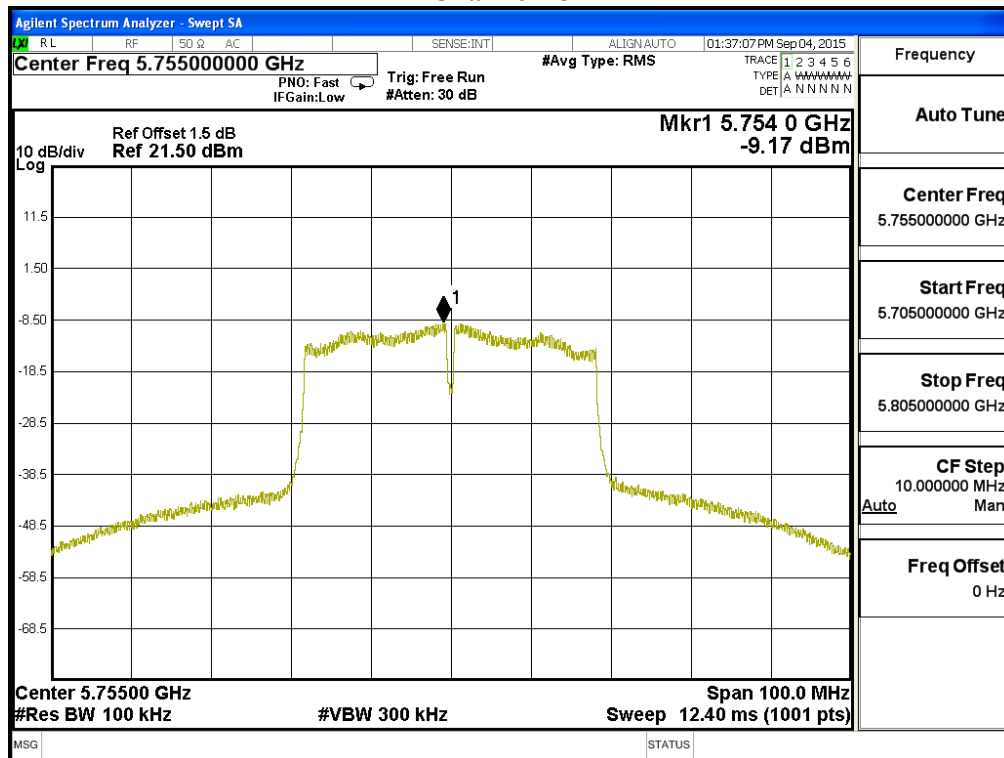
Channel 38



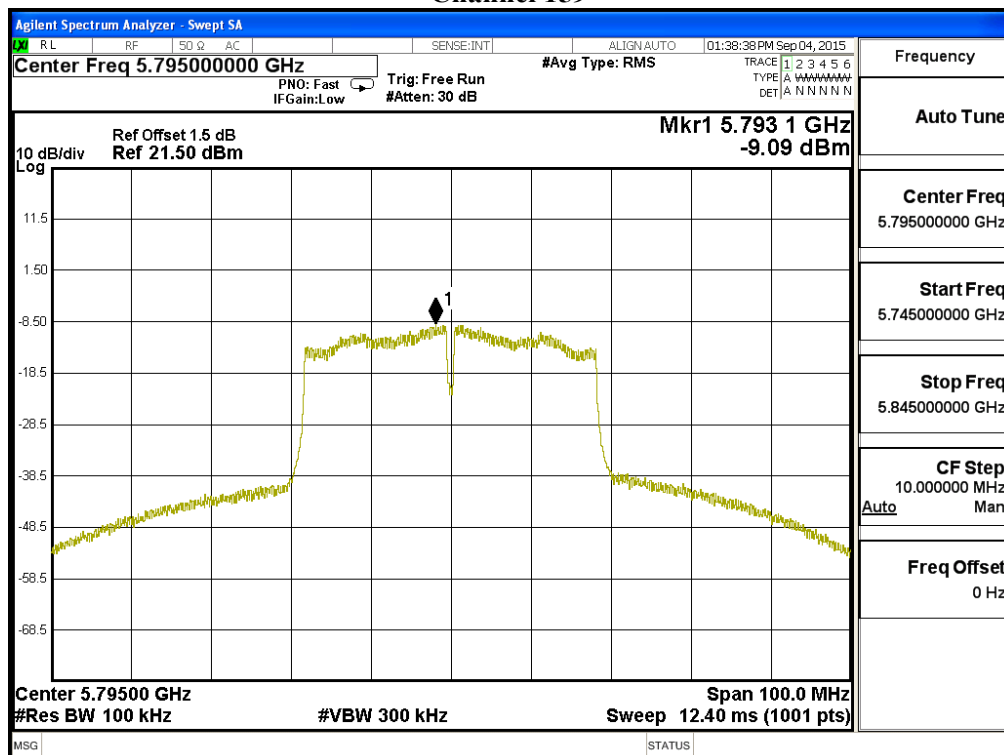
Channel 46



Channel 151



Channel 159



5. Radiated Emission

5.1. Test Equipment

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

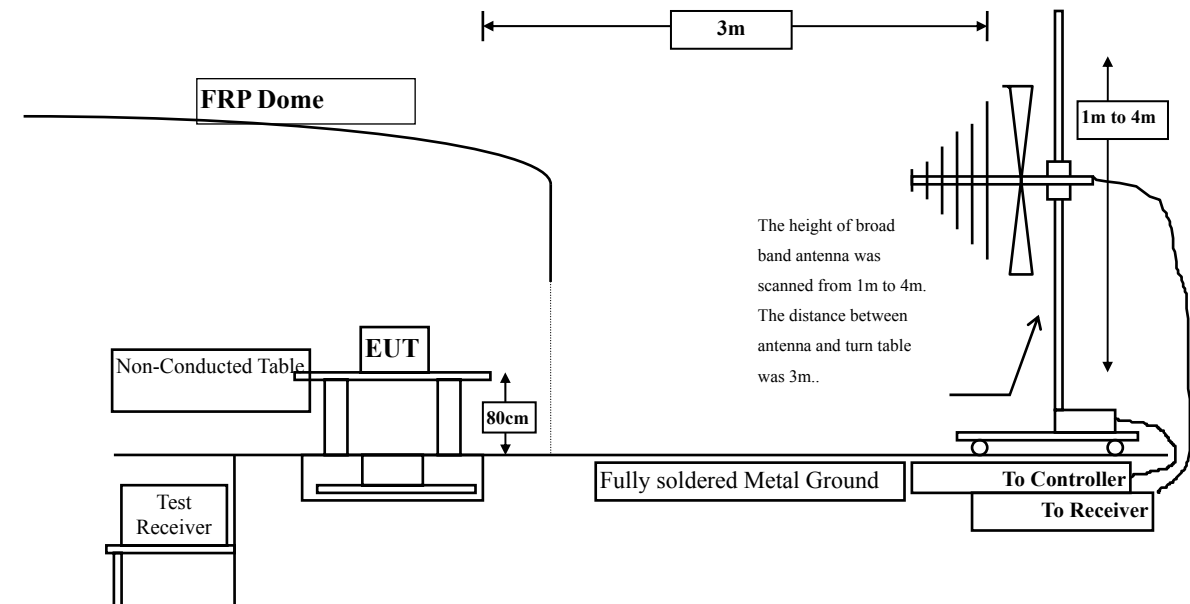
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Magnetic Loop Antenna	Teseq	HLA6121/ 37133	Sep, 2015
	X	Bilog Antenna	Schaffner Chase	CBL6112B/ 2707	Jun, 2015
	X	EMI Test Receiver	R&S	ESCS 30/838251/ 001	Jun, 2015
	X	Coaxial Cable	QTK(Arnist)	RG 214/ LC003-RG	Jun, 2015
	X	Coaxial signal switch	Arnist	MP59B/ 6200798682	Jun, 2015

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

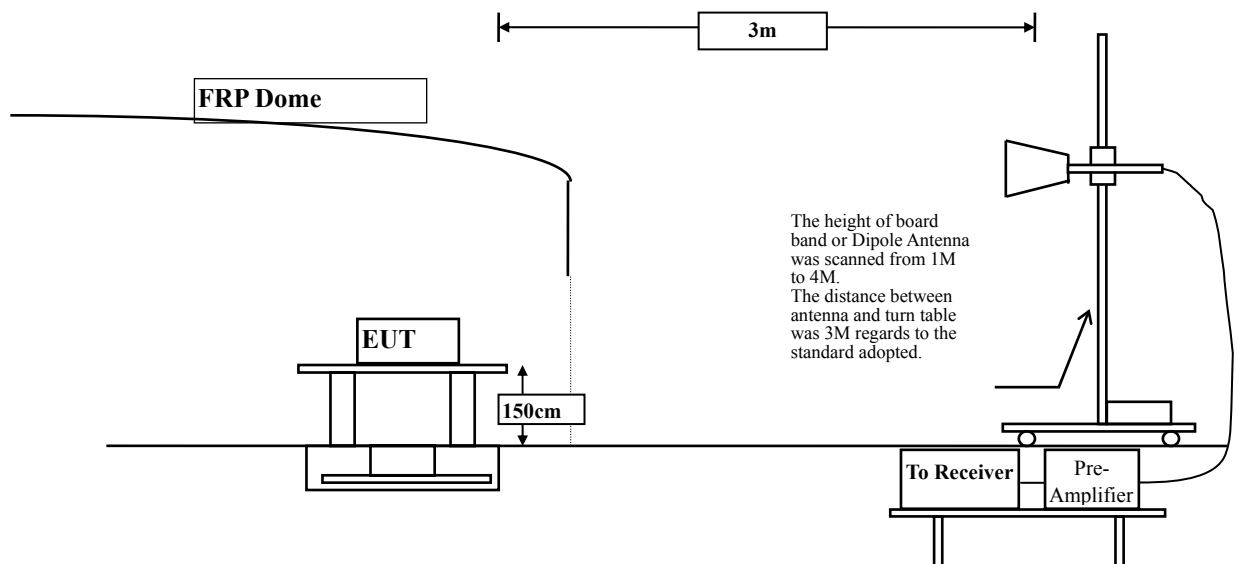
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

5.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



5.3. 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 (microvolts/meter)	Measurement distance (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 (dBμV/m) = 20 log E field strength (uV/m)

5.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 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 from 9kHz - 10th Harmonic of fundamental was investigated.

5.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

5.6. Test Result of Radiated Emission

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
10360.000	10.540	37.580	48.120	-25.880	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	12.044	36.407	48.450	-25.550	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
10440.000	9.649	37.745	47.393	-26.607	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	11.429	37.212	48.640	-25.360	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
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
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10480.000	10.166	38.984	49.150	-24.850	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	12.101	36.869	48.970	-25.030	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11490.000	14.326	35.787	50.112	-23.888	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11490.000	15.842	35.410	51.251	-22.749	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11570.000	14.849	35.356	50.205	-23.795	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11570.000	16.215	36.397	52.611	-21.389	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11650.000	13.179	37.017	50.196	-23.804	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11650.000	14.634	37.580	52.214	-21.786	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10360.000	10.540	38.414	48.954	-25.046	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	12.044	35.468	47.511	-26.489	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10440.000	9.649	39.964	49.612	-24.388	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	11.429	39.793	51.221	-22.779	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5240MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10480.000	10.166	39.795	49.961	-24.039	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	12.101	39.857	51.958	-22.042	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5745MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11490.000	14.326	36.717	51.042	-22.958	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11490.000	15.842	37.107	52.948	-21.052	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11570.000	14.849	35.513	50.362	-23.638	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11570.000	16.215	36.430	52.644	-21.356	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11650.000	13.179	36.788	49.967	-24.033	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11650.000	14.634	37.871	52.505	-21.495	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5190MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10380.000	10.164	39.454	49.618	-24.382	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	11.729	38.941	50.671	-23.329	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5230MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
10460.000	9.786	40.078	49.864	-24.136	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10460.000	11.644	39.661	51.305	-22.695	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11510.000	14.402	35.662	50.064	-23.936	74.000
17265.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11510.000	15.894	36.124	52.018	-21.982	74.000
17265.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5795MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11590.000	15.138	35.064	50.202	-23.798	74.000
17385.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11590.000	16.461	36.460	52.921	-21.079	74.000
17385.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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.

Product : Notebook
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
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
111.480	-7.489	33.949	26.461	-17.039	43.500
299.660	-4.751	31.223	26.472	-19.528	46.000
478.000	1.940	32.268	34.208	-11.792	46.000
608.120	3.925	26.155	30.080	-15.920	46.000
802.120	6.356	24.693	31.049	-14.951	46.000
984.480	8.098	30.014	38.112	-15.888	54.000
Vertical					
Peak Detector					
161.920	-4.964	30.887	25.923	-17.577	161.920
299.660	-4.061	25.895	21.834	-24.166	299.660
387.000	-0.708	35.224	34.515	-11.485	387.000
589.000	-2.192	36.357	34.165	-11.835	589.000
782.720	2.757	26.839	29.596	-16.404	782.720
970.900	2.967	31.051	34.018	-19.982	970.900

Note:

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.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
101.780	-9.100	35.071	25.970	-17.530	43.500
255.040	-5.409	25.873	20.464	-25.536	46.000
379.200	1.301	24.576	25.877	-20.123	46.000
487.840	1.400	22.566	23.965	-22.035	46.000
802.120	6.356	29.911	36.267	-9.733	46.000
899.120	5.717	23.472	29.189	-16.811	46.000
Vertical					
Peak Detector					
299.660	-4.061	28.486	24.425	-21.575	46.000
600.360	1.302	27.068	28.370	-17.630	46.000
728.400	-0.799	26.762	25.962	-20.038	46.000
802.120	2.966	27.587	30.553	-15.447	46.000
825.400	3.016	22.926	25.942	-20.058	46.000
961.200	3.310	27.423	30.733	-23.267	54.000

Note:

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.

Product : Notebook
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
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector					
111.480	-7.489	33.949	26.461	-17.039	43.500
299.660	-4.751	31.423	26.672	-19.328	46.000
404.420	0.889	24.721	25.610	-20.390	46.000
608.120	3.925	23.555	27.480	-18.520	46.000
802.120	6.356	28.293	34.649	-11.351	46.000
984.480	8.098	26.914	35.012	-18.988	54.000
Vertical					
Peak Detector					
161.920	-4.964	27.787	22.823	-20.677	43.500
299.660	-4.061	28.995	24.934	-21.066	46.000
431.580	-7.703	21.867	14.164	-31.836	46.000
600.360	1.302	26.467	27.769	-18.231	46.000
782.720	2.757	21.239	23.996	-22.004	46.000
970.900	2.967	27.651	30.618	-23.382	54.000

Note:

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.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
107.600	-7.597	34.528	26.931	-16.569	43.500
268.620	-5.522	27.783	22.261	-23.739	46.000
400.540	0.942	24.830	25.772	-20.228	46.000
637.220	1.572	23.971	25.543	-20.457	46.000
802.120	6.356	29.138	35.494	-10.506	46.000
879.720	6.618	23.631	30.249	-15.751	46.000
Vertical					
Peak Detector					
45.520	-10.625	37.718	27.093	-12.907	40.000
299.660	-4.061	28.498	24.437	-21.563	46.000
487.840	-2.290	22.148	19.857	-26.143	46.000
621.700	0.347	24.782	25.129	-20.871	46.000
778.840	2.580	23.867	26.447	-19.553	46.000
968.960	3.936	26.126	30.062	-23.938	54.000

Note:

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.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5190MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
105.660	-7.676	35.089	27.412	-16.088	43.500
268.620	-5.522	26.892	21.370	-24.630	46.000
375.320	0.918	25.530	26.448	-19.552	46.000
499.480	1.991	31.293	33.283	-12.717	46.000
639.160	1.046	25.142	26.188	-19.812	46.000
802.120	6.356	28.926	35.282	-10.718	46.000
Vertical					
Peak Detector					
161.920	-4.964	28.790	23.826	-19.674	43.500
278.320	-6.092	23.340	17.248	-28.752	46.000
499.480	-0.199	29.739	29.539	-16.461	46.000
685.720	2.254	22.463	24.717	-21.283	46.000
802.120	2.966	26.582	29.548	-16.452	46.000
949.560	3.156	28.938	32.094	-13.906	46.000

Note:

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.

Product : Notebook
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
39.700	-3.625	29.710	26.085	-13.915	40.000
154.160	-8.002	30.198	22.196	-21.304	43.500
460.680	4.030	23.444	27.474	-18.526	46.000
600.360	3.472	26.000	29.472	-16.528	46.000
800.180	6.417	30.250	36.667	-9.333	46.000
932.100	7.270	22.694	29.964	-16.036	46.000
Vertical					
Peak Detector					
99.840	-6.063	31.708	25.645	-17.855	43.500
299.660	-4.061	29.290	25.229	-20.771	46.000
365.620	0.282	24.747	25.029	-20.971	46.000
499.480	-0.199	28.328	28.128	-17.872	46.000
683.780	2.011	21.958	23.969	-22.031	46.000
802.120	2.966	26.800	29.766	-16.234	46.000

Note:

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.

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

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:

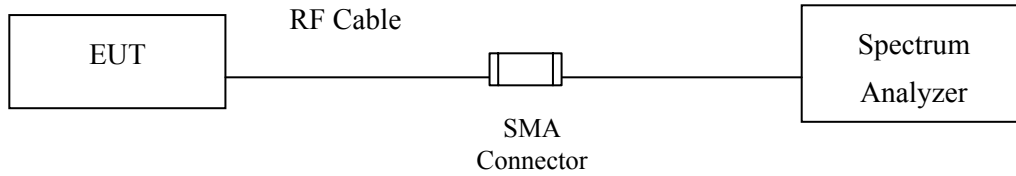
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

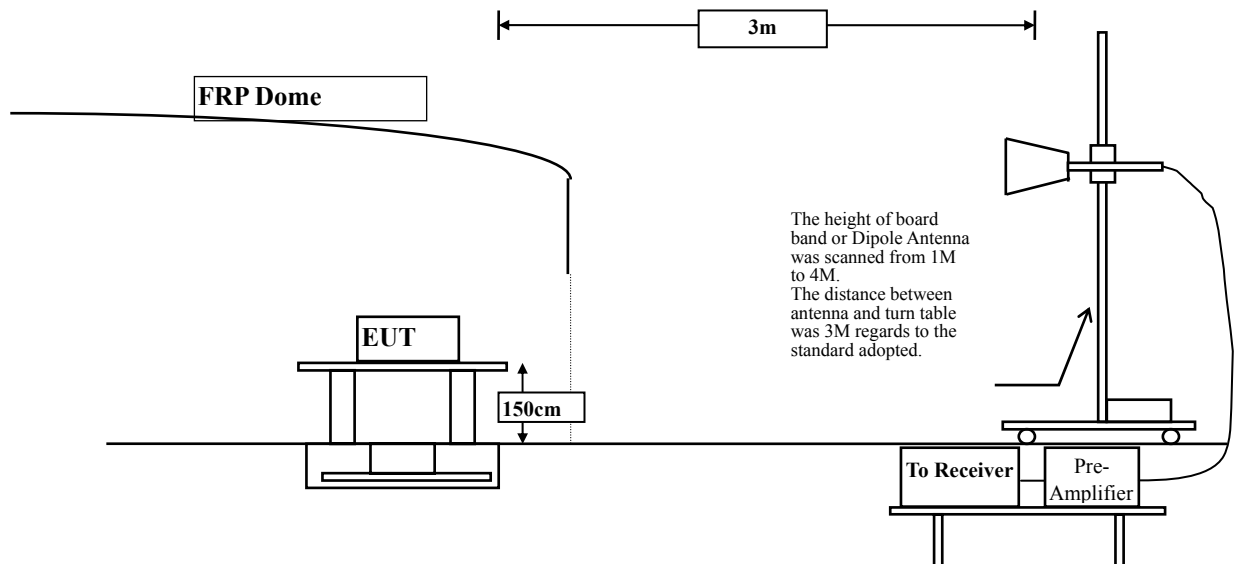
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



6.3. Limits

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	dBµV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks :

1. RF Voltage (dBµV) = 20 log RF 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.

6.4. Test Procedure

The EUT is placed on a turn table which is 1.5 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 C63.10:2013 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, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

6.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

6.6. Test Result of Band Edge

Product : Notebook
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 (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.400	3.342	59.101	62.444	74.00	54.00	Pass
36 (Peak)	5150.000	3.340	56.888	60.228	74.00	54.00	Pass
36 (Peak)	5180.200	3.233	98.288	101.521	--	--	--
36 (Average)	5150.000	3.340	37.926	41.266	74.00	54.00	Pass
36 (Average)	5179.200	3.237	83.379	86.616	--	--	--

Figure Channel 36: Horizontal (Peak)

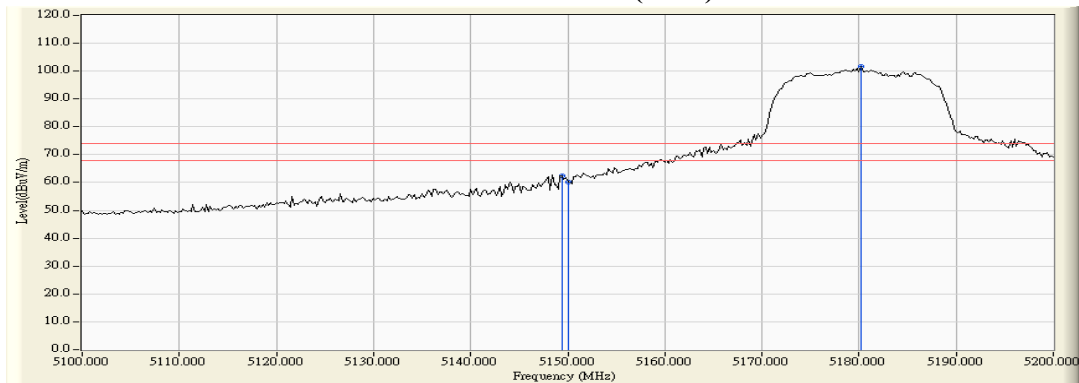
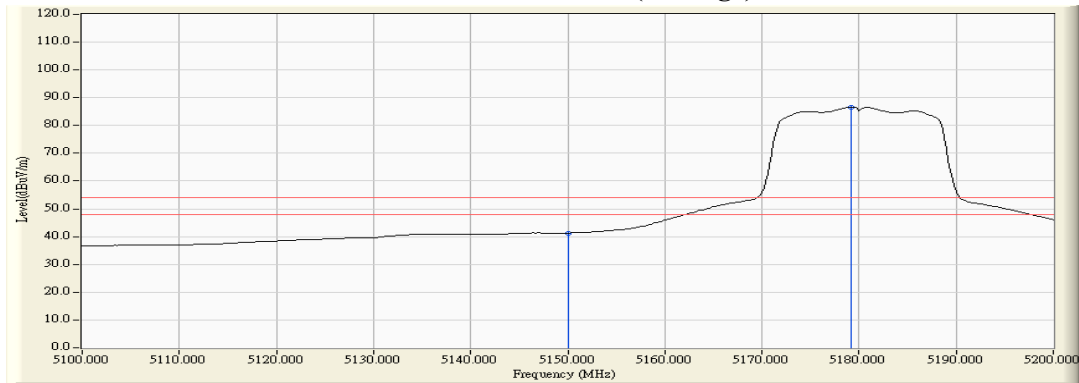


Figure Channel 36: Horizontal (Average)



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

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5150.000	5.260	56.530	61.790	74.00	54.00	Pass
36 (Peak)	5180.000	5.341	96.292	101.634	--	--	--
36 (Average)	5150.000	5.260	36.595	41.855	74.00	54.00	Pass
36 (Average)	5179.000	5.338	81.527	86.866	--	--	--

Figure Channel 36: Vertical (Peak)

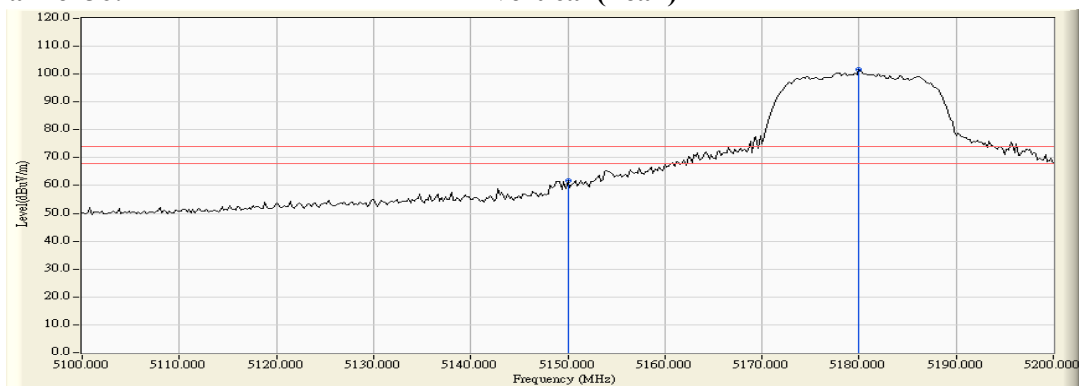
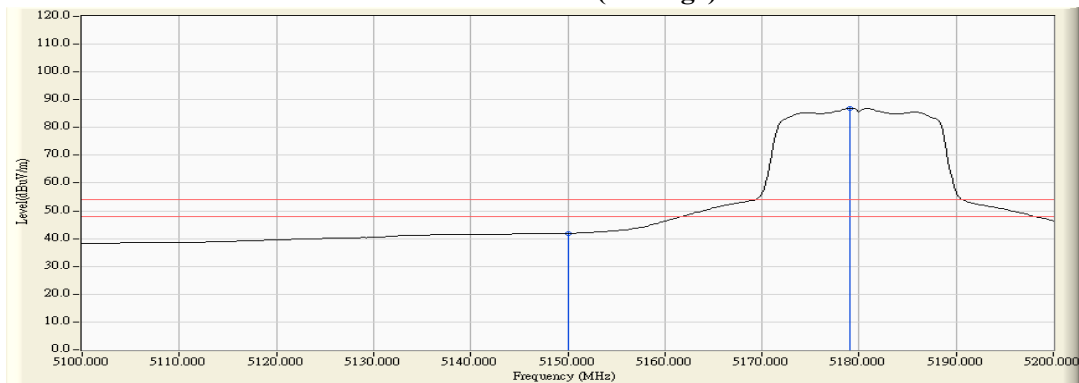


Figure Channel 36: Vertical (Average)



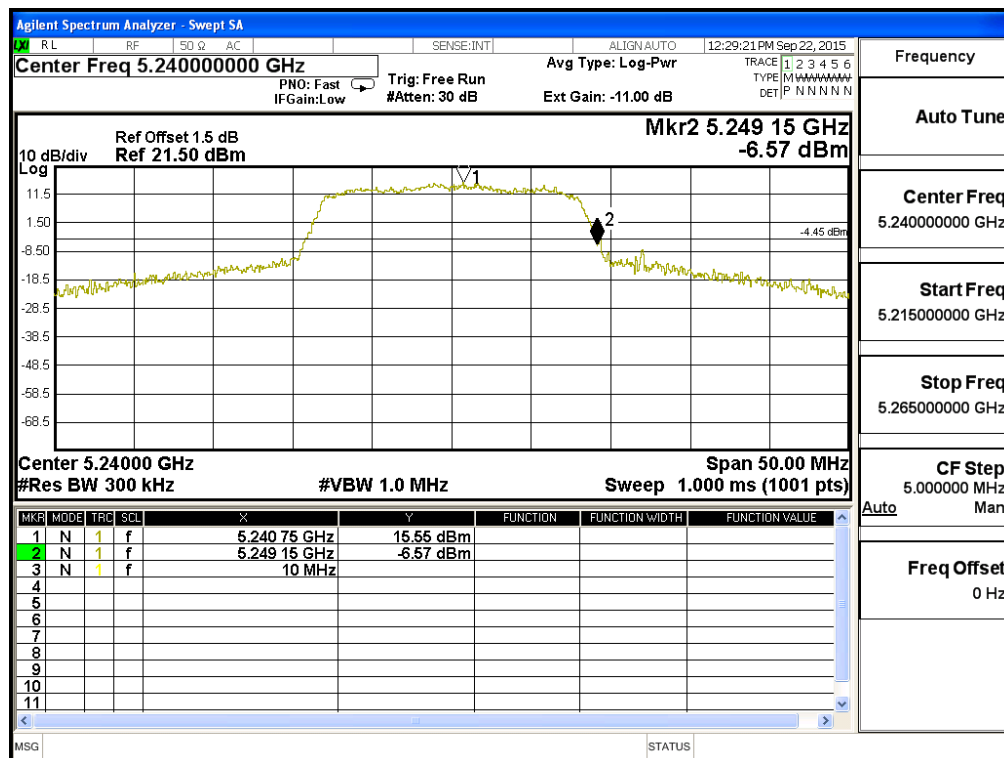
Note:

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

Product : Notebook
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 48

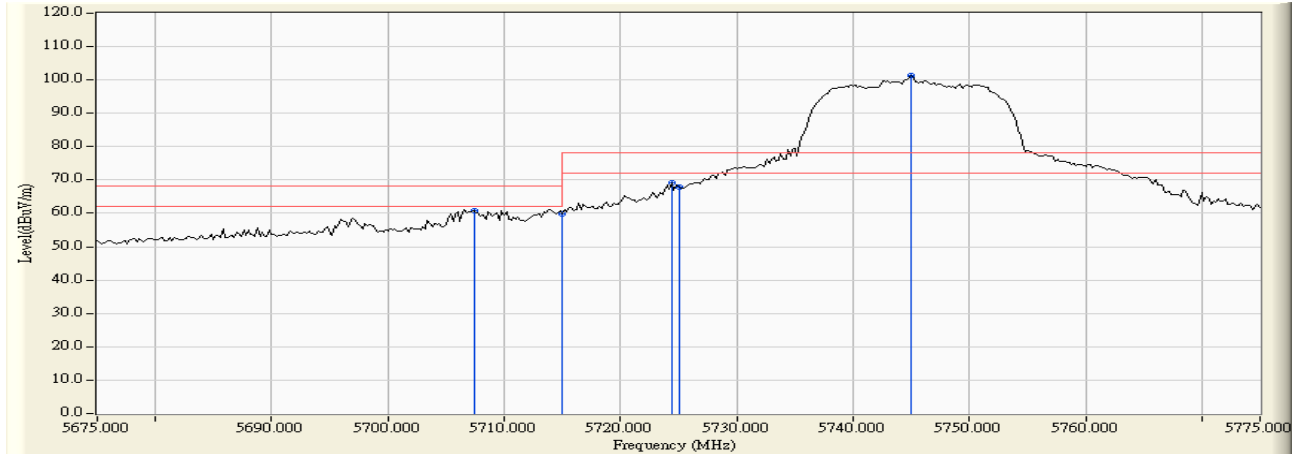
Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.15	<5250	PASS

NOTE: Accordance with 15.215 requirement.

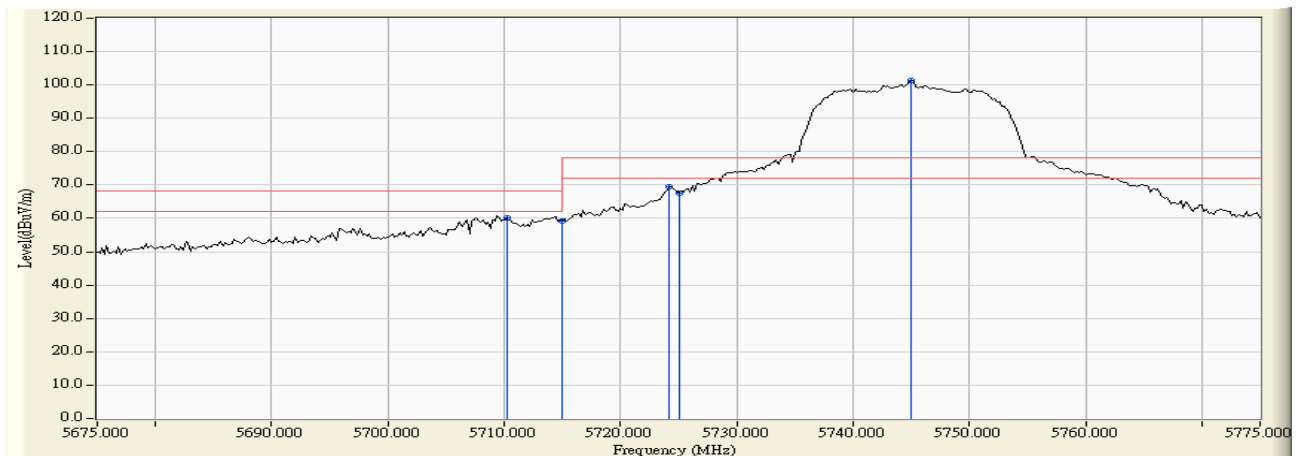


Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 149

RF Radiated Measurement:



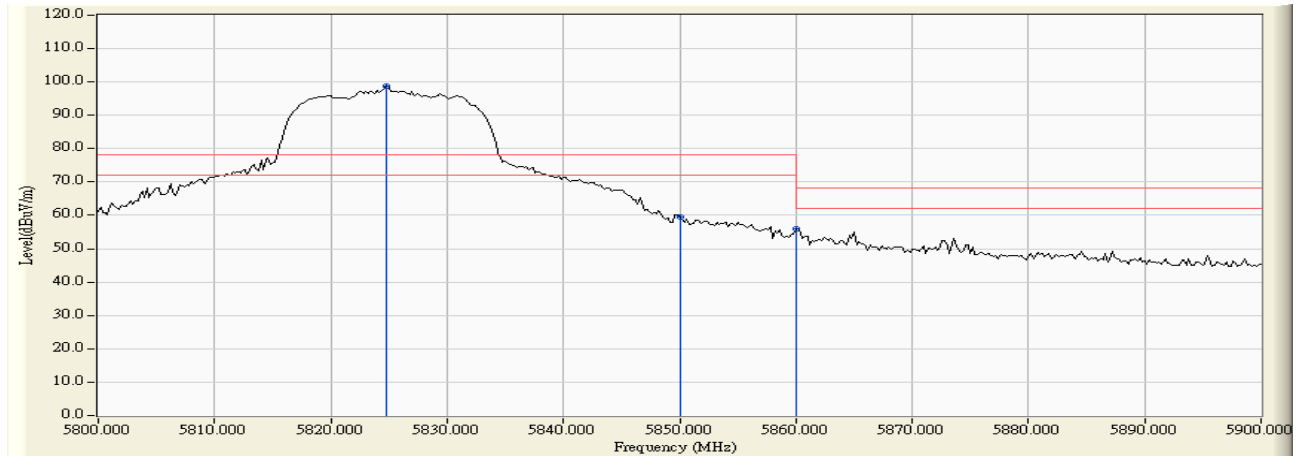
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5707.400	4.646	56.113	60.759	-7.461	68.220	Pass
Horizontal	5715.000	4.652	55.071	59.723	-8.497	68.220	Pass
Horizontal	5724.400	4.654	64.617	69.271	-8.949	78.220	Pass
Horizontal	5725.000	4.654	63.112	67.766	-10.454	78.220	Pass
Horizontal	5745.000	4.656	96.576	101.233	23.013	78.220	Pass



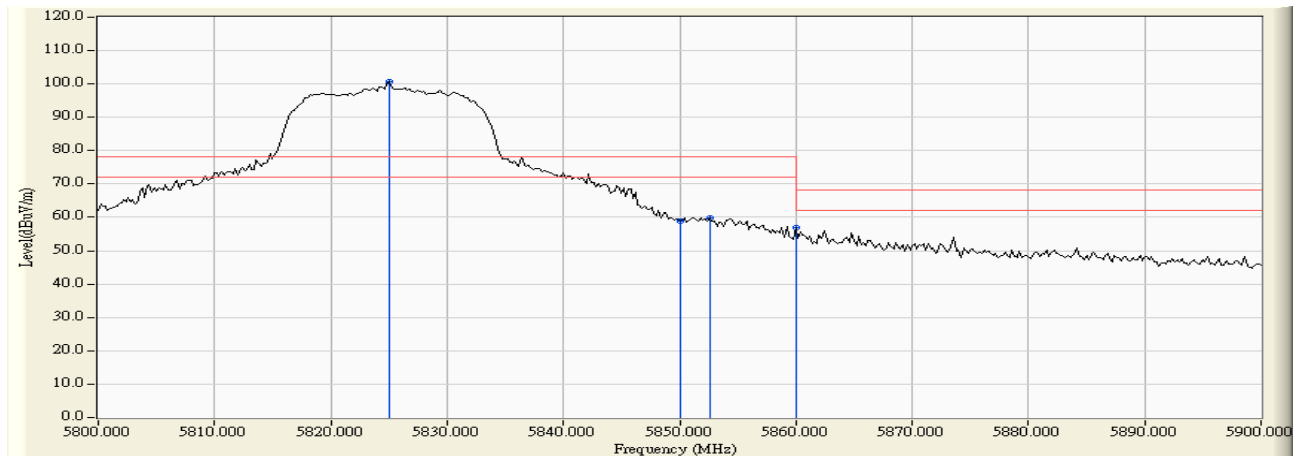
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5710.200	5.994	54.265	60.259	-7.961	68.220	Pass
Vertical	5715.000	5.994	53.310	59.304	-8.916	68.220	Pass
Vertical	5724.200	5.992	63.414	69.407	-8.813	78.220	Pass
Vertical	5725.000	5.992	61.421	67.414	-10.806	78.220	Pass
Vertical	5745.000	5.988	95.282	101.271	23.051	78.220	Pass

Product : Notebook
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 165

RF Radiated Measurement:



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5824.800	4.813	93.932	98.745	20.525	78.220	Pass
Horizontal	5850.000	4.964	54.552	59.516	-18.704	78.220	Pass
Horizontal	5860.000	5.023	50.817	55.840	-12.380	68.220	Pass



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5825.000	6.007	94.576	100.583	22.363	78.220	Pass
Vertical	5850.000	6.037	52.799	58.836	-19.384	78.220	Pass
Vertical	5852.600	6.039	53.859	59.898	-18.322	78.220	Pass
Vertical	5860.000	6.047	50.941	56.988	-11.232	68.220	Pass

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 36

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.600	3.342	59.799	63.141	74.00	54.00	Pass
36 (Peak)	5150.000	3.340	55.977	59.317	74.00	54.00	Pass
36 (Peak)	5179.000	3.237	97.422	100.660	--	--	--
36 (Average)	5150.000	3.340	37.690	41.030	74.00	54.00	Pass
36 (Average)	5179.400	3.236	82.829	86.065	--	--	--

Figure Channel 36: Horizontal (Peak)

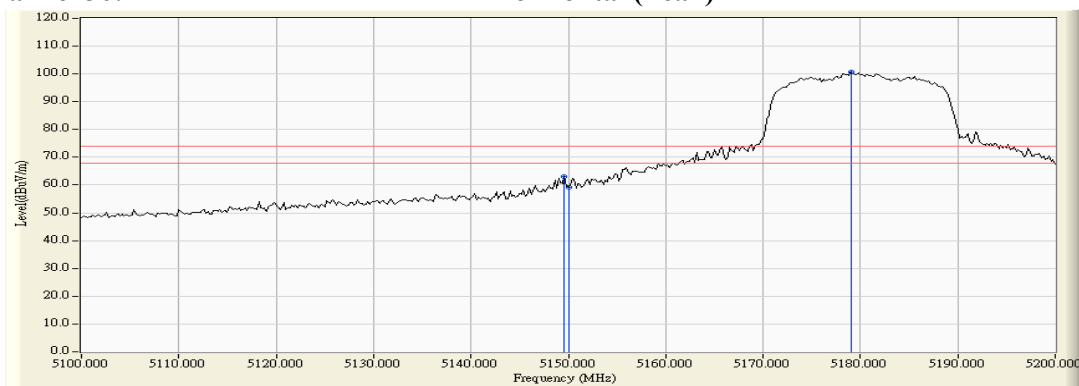
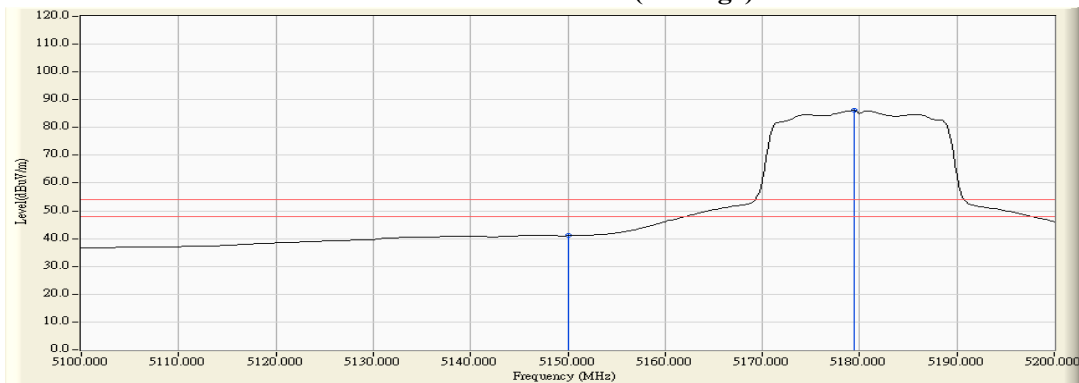


Figure Channel 36: Horizontal (Average)



Note:

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

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 36

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5150.000	5.260	53.388	58.648	74.00	54.00	Pass
36 (Peak)	5179.000	5.338	95.513	100.852	--	--	--
36 (Average)	5150.000	5.260	36.673	41.933	74.00	54.00	Pass
36 (Average)	5179.200	5.339	81.102	86.441	--	--	--

Figure Channel 36: Vertical (Peak)

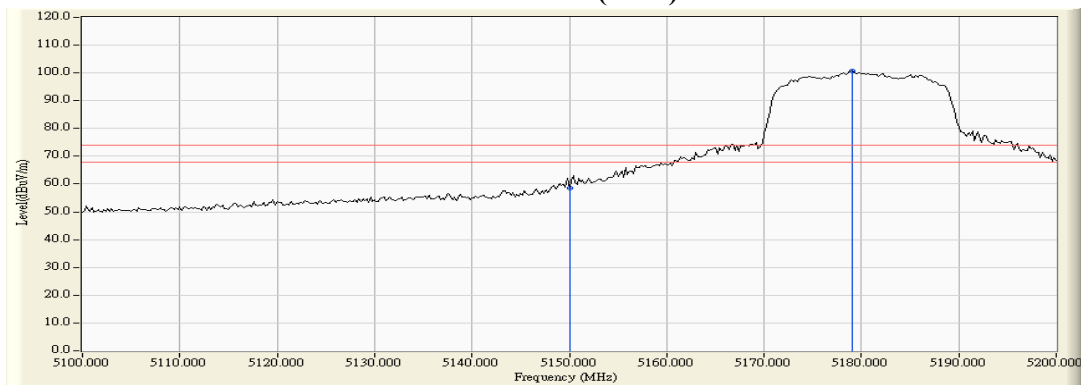
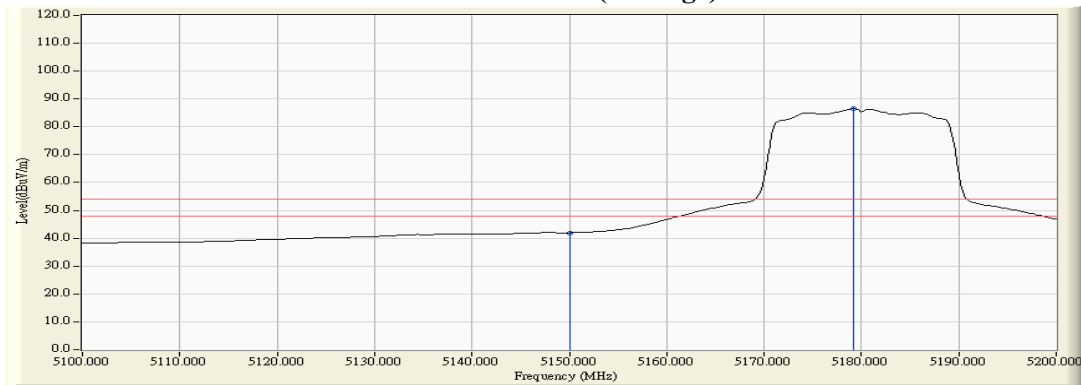


Figure Channel 36: Vertical (Average)



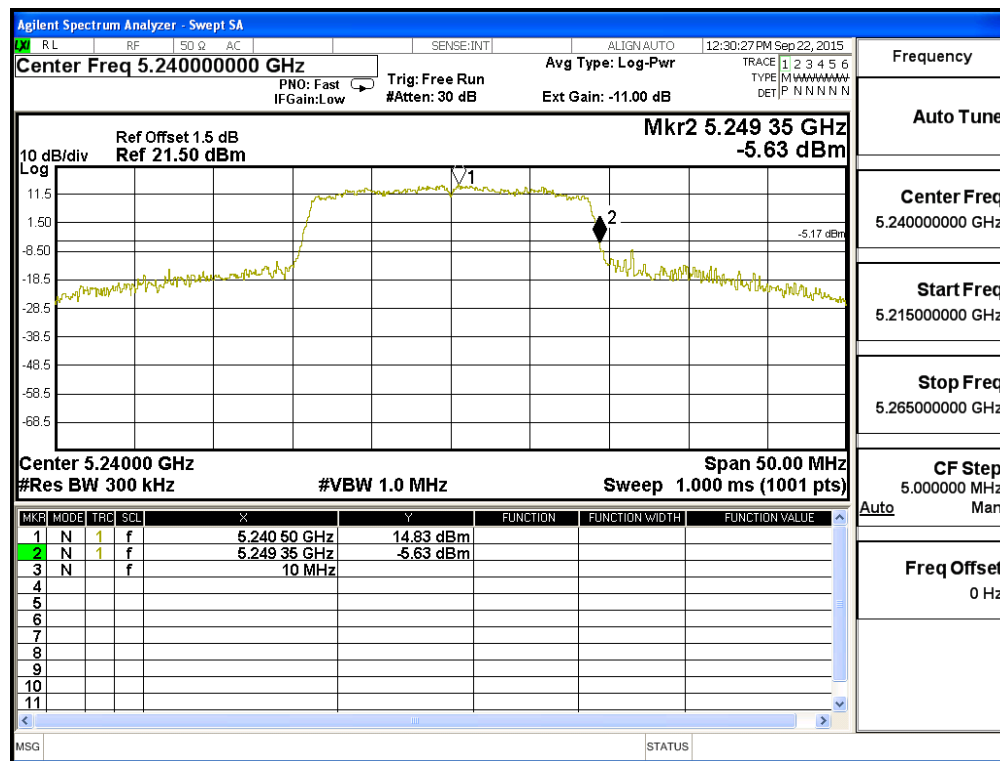
Note:

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

Product : Notebook
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) Channel 48

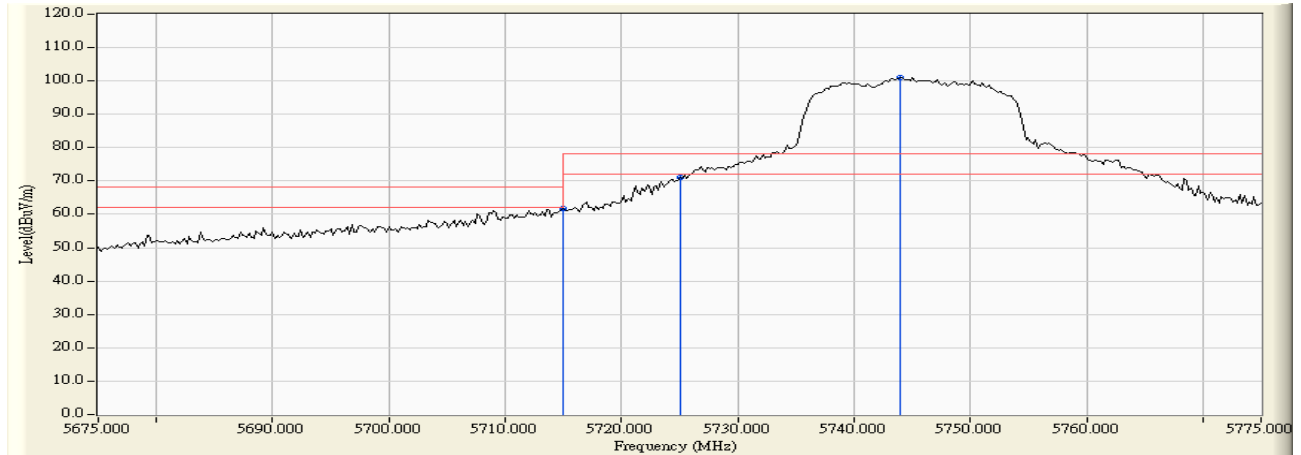
Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.35	<5250	PASS

NOTE: Accordance with 15.215 requirement.

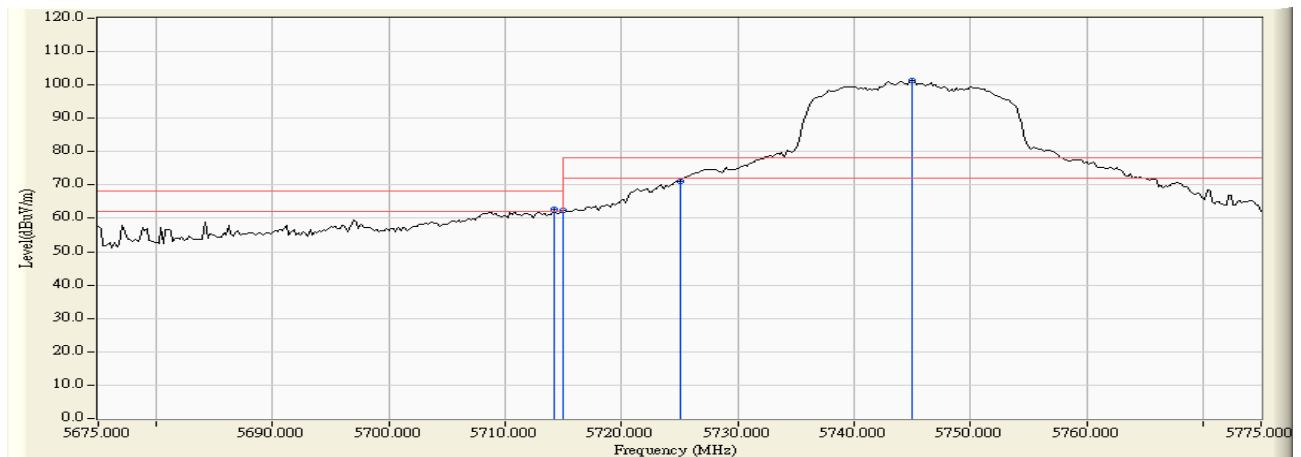


Product : Notebook
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 149

RF Radiated Measurement:



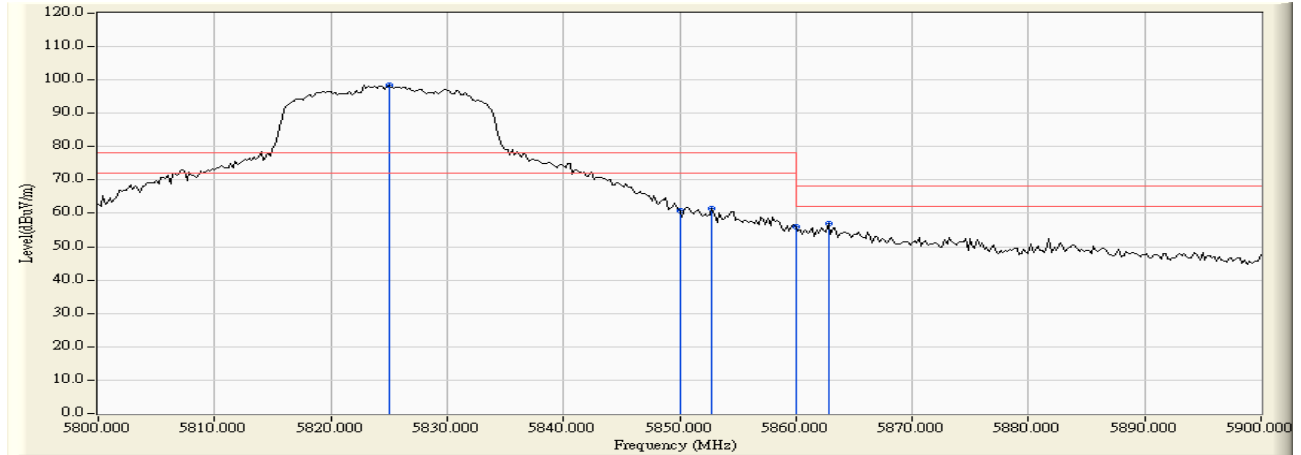
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5715.000	4.652	57.231	61.883	-6.337	68.220	Pass
Horizontal	5725.000	4.654	66.354	71.008	-7.212	78.220	Pass
Horizontal	5744.000	4.656	96.513	101.170	22.950	78.220	Pass



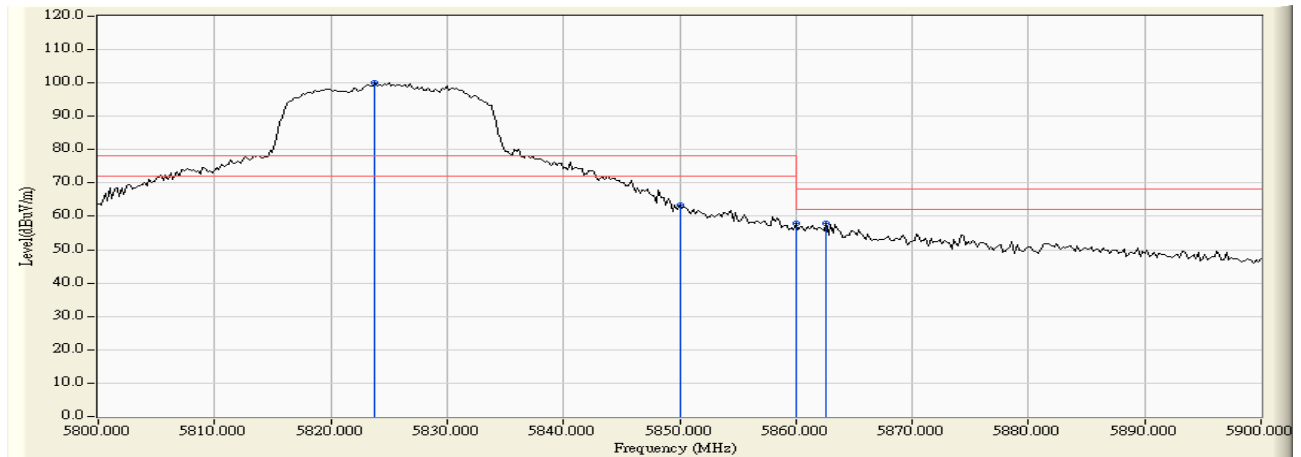
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5714.200	5.994	56.729	62.723	-5.497	68.220	Pass
Vertical	5715.000	5.994	56.275	62.269	-5.951	68.220	Pass
Vertical	5725.000	5.992	65.200	71.193	-7.027	78.220	Pass
Vertical	5745.000	5.988	95.339	101.328	23.108	78.220	Pass

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 165

RF Radiated Measurement:



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5825.000	4.813	93.674	98.488	20.268	78.220	Pass
Horizontal	5850.000	4.964	55.912	60.876	-17.344	78.220	Pass
Horizontal	5852.800	4.980	56.555	61.535	-16.685	78.220	Pass
Horizontal	5860.000	5.023	50.970	55.993	-12.227	68.220	Pass
Horizontal	5862.800	5.039	51.959	56.998	-11.222	68.220	Pass



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5823.800	6.006	94.145	100.151	21.931	78.220	Pass
Vertical	5850.000	6.037	57.261	63.298	-14.922	78.220	Pass
Vertical	5860.000	6.047	51.754	57.801	-10.419	68.220	Pass
Vertical	5862.600	6.050	51.909	57.959	-10.261	68.220	Pass

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)-Channel 38

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5148.400	3.346	58.970	62.316	74.00	54.00	Pass
38 (Peak)	5150.000	3.340	58.770	62.110	74.00	54.00	Pass
38 (Peak)	5191.600	3.189	94.921	98.110	--	--	--
38 (Average)	5150.000	3.340	40.019	43.359	74.00	54.00	Pass
38 (Average)	5188.400	3.204	77.763	80.967	--	--	--

Figure Channel 38: Horizontal (Peak)

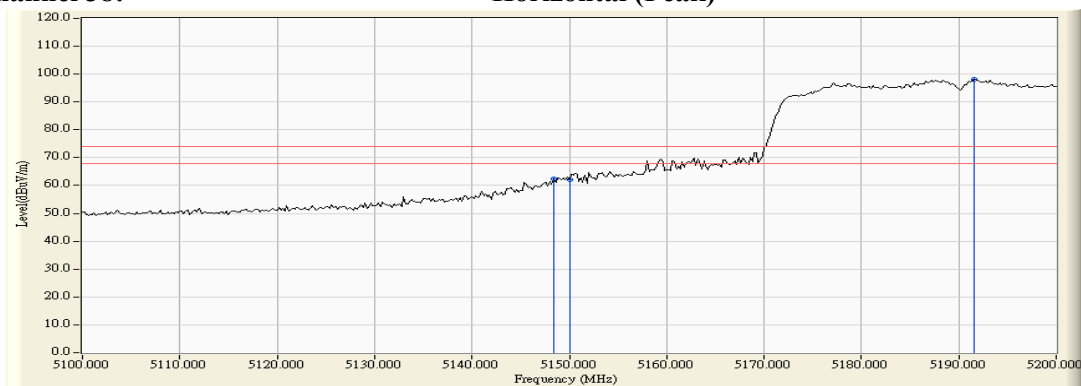
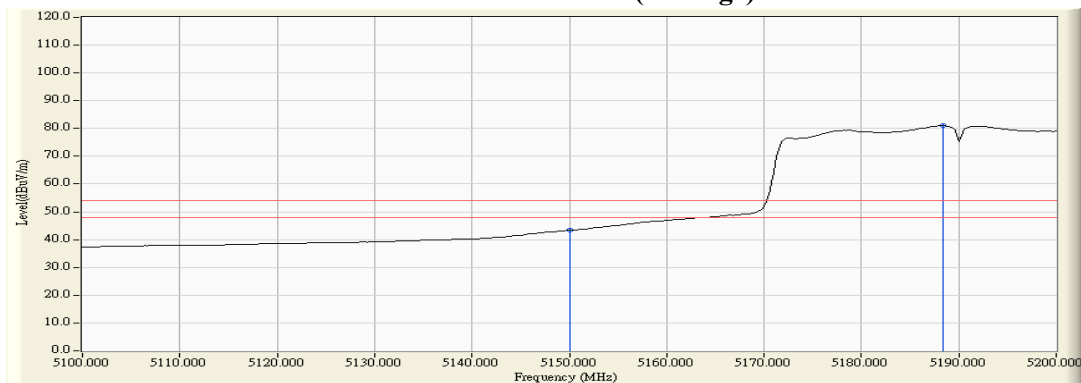


Figure Channel 38: Horizontal (Average)



Note:

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

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)-Channel 38

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5150.000	5.260	57.971	63.231	74.00	54.00	Pass
38 (Peak)	5187.400	5.362	93.000	98.362	--	--	--
38 (Average)	5150.000	5.260	38.699	43.959	74.00	54.00	Pass
38 (Average)	5188.400	5.364	76.017	81.381	--	--	--

Figure Channel 38: Vertical (Peak)

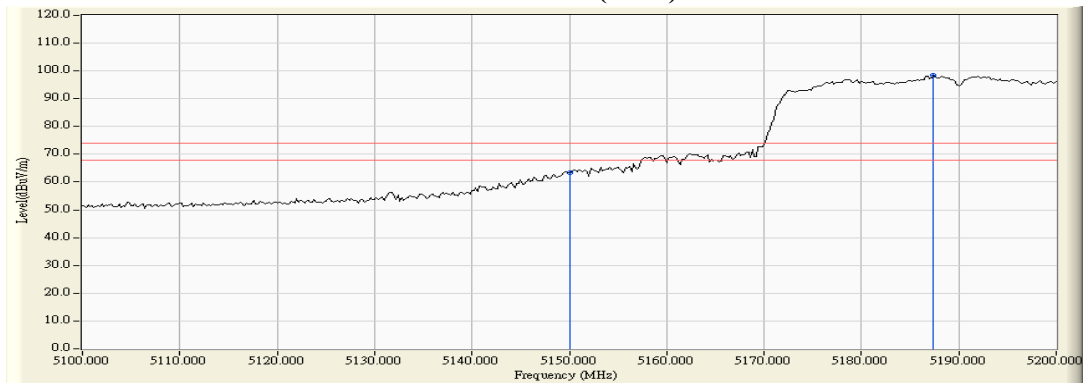
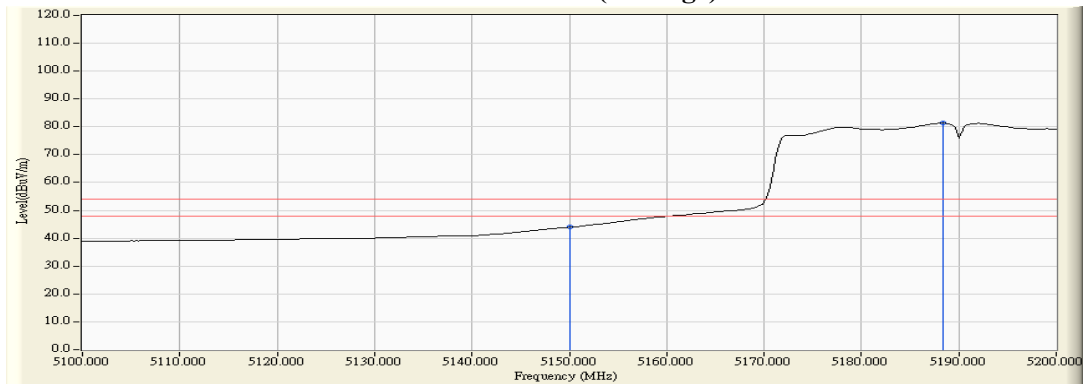


Figure Channel 38: Vertical (Average)



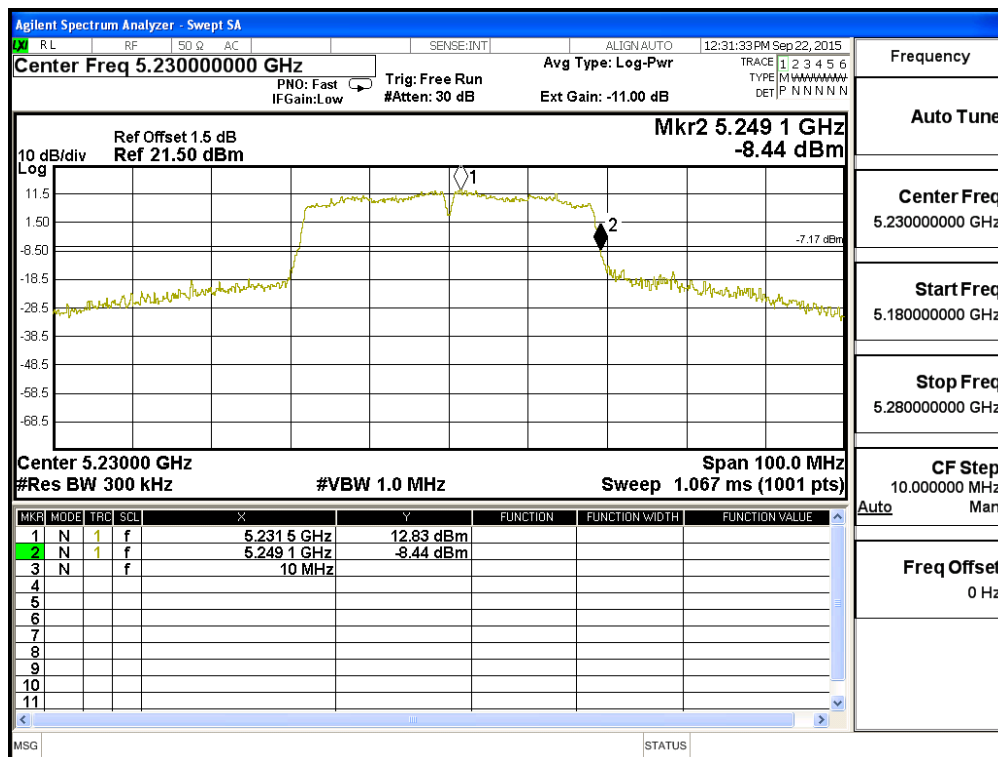
Note:

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

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)-Channel 46

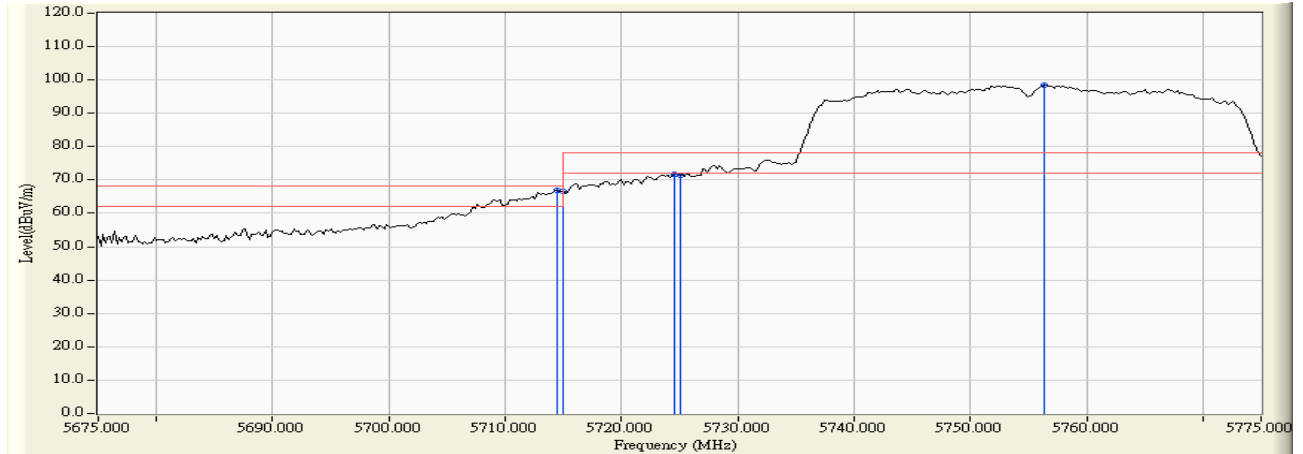
Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5230	5249.10	<5250	PASS

NOTE: Accordance with 15.215 requirement.

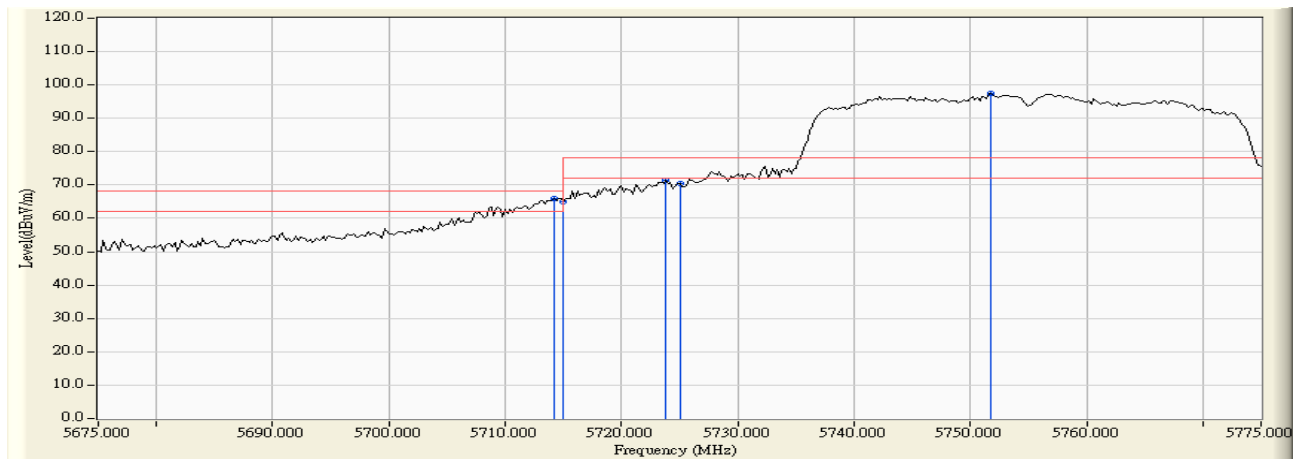


Product : Notebook
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) -Channel 151

RF Radiated Measurement :



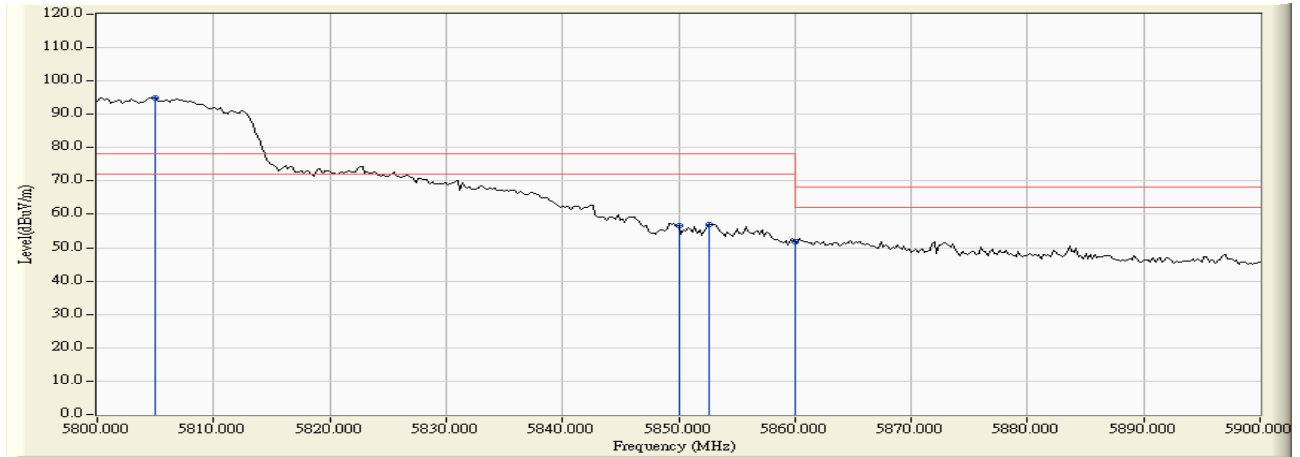
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5714.400	4.651	62.268	66.920	-1.300	68.220	Pass
Horizontal	5715.000	4.652	61.959	66.611	-1.609	68.220	Pass
Horizontal	5724.600	4.655	67.124	71.778	-6.442	78.220	Pass
Horizontal	5725.000	4.654	66.906	71.560	-6.660	78.220	Pass
Horizontal	5756.400	4.659	93.855	98.514	20.294	78.220	Pass



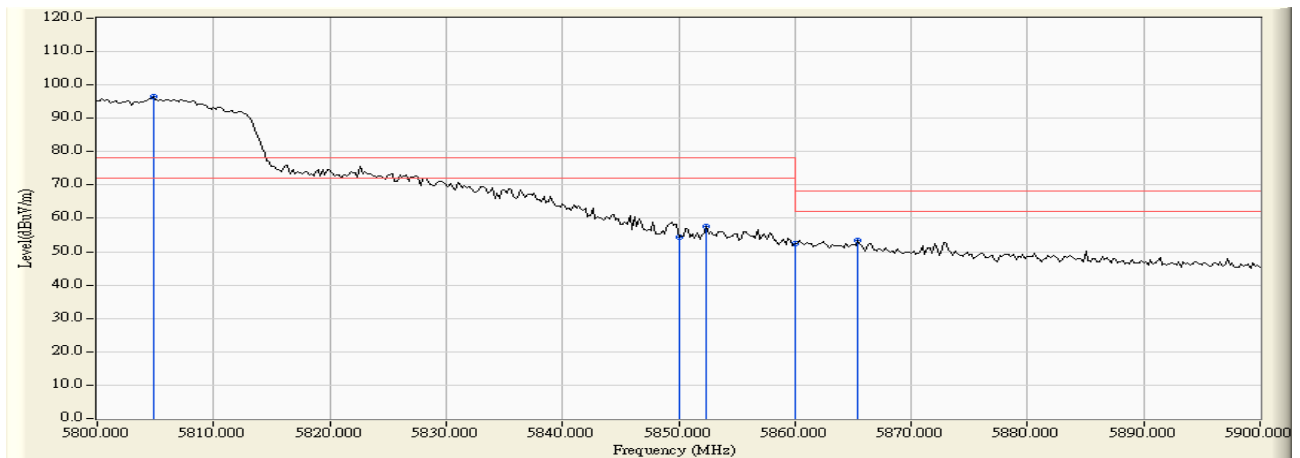
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5714.200	5.994	60.050	66.044	-2.176	68.220	Pass
Vertical	5715.000	5.994	58.914	64.908	-3.312	68.220	Pass
Vertical	5723.800	5.993	65.316	71.309	-6.911	78.220	Pass
Vertical	5725.000	5.992	64.490	70.483	-7.737	78.220	Pass
Vertical	5751.800	5.988	91.601	97.588	19.368	78.220	Pass

Product : Notebook
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)-Channel 159

RF Radiated Measurement:



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5805.000	4.706	90.283	94.988	16.768	78.220	Pass
Horizontal	5850.000	4.964	51.500	56.464	-21.756	78.220	Pass
Horizontal	5852.600	4.978	51.808	56.787	-21.433	78.220	Pass
Horizontal	5860.000	5.023	46.820	51.843	-16.377	68.220	Pass



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5804.800	5.984	90.591	96.576	18.356	78.220	Pass
Vertical	5850.000	6.037	48.448	54.485	-23.735	78.220	Pass
Vertical	5852.400	6.040	51.531	57.570	-20.650	78.220	Pass
Vertical	5860.000	6.047	46.461	52.508	-15.712	68.220	Pass
Vertical	5865.400	6.052	47.197	53.250	-14.970	68.220	Pass

7. Occupied Bandwidth

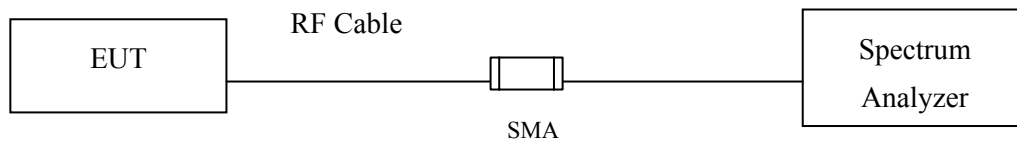
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

Note:

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

7.2. Test Setup



7.3. Limits

For the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz

7.4. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.5. Uncertainty

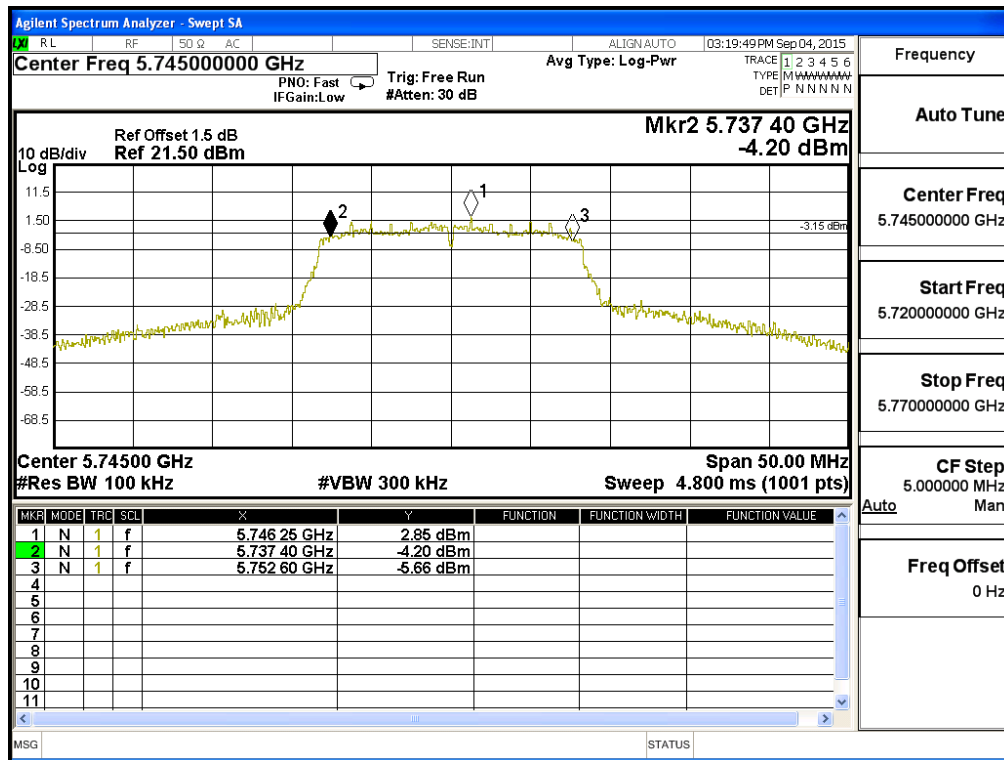
$\pm 150\text{Hz}$

7.6. Test Result of Occupied Bandwidth

Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15200	>500	Pass

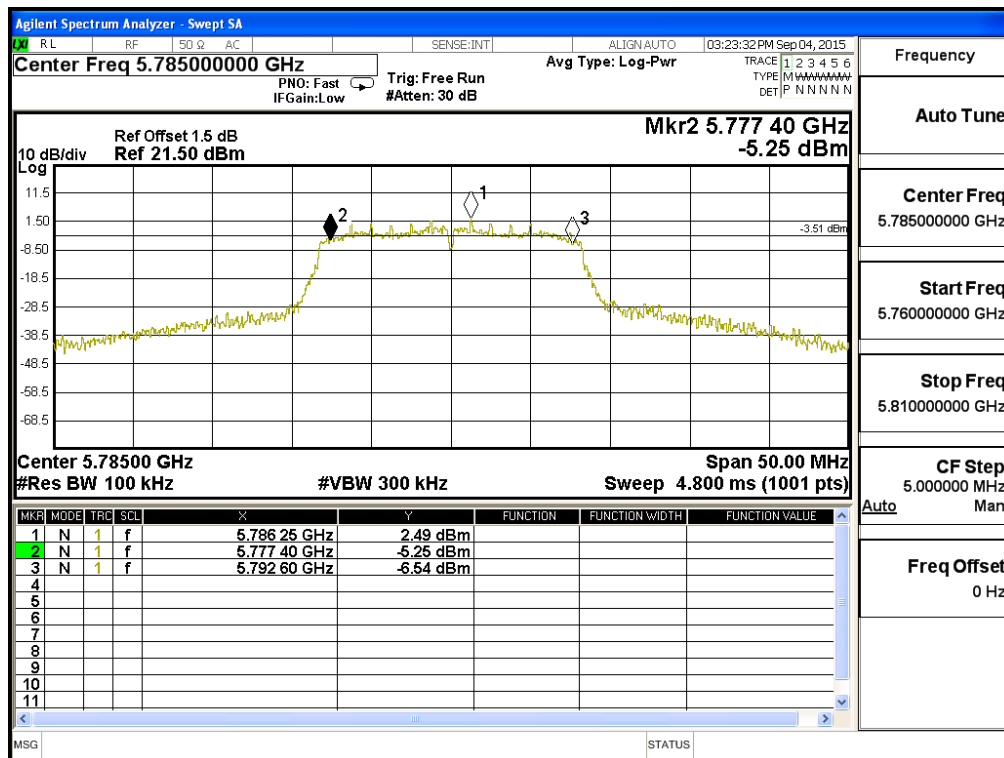
Figure Channel 149:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15200	>500	Pass

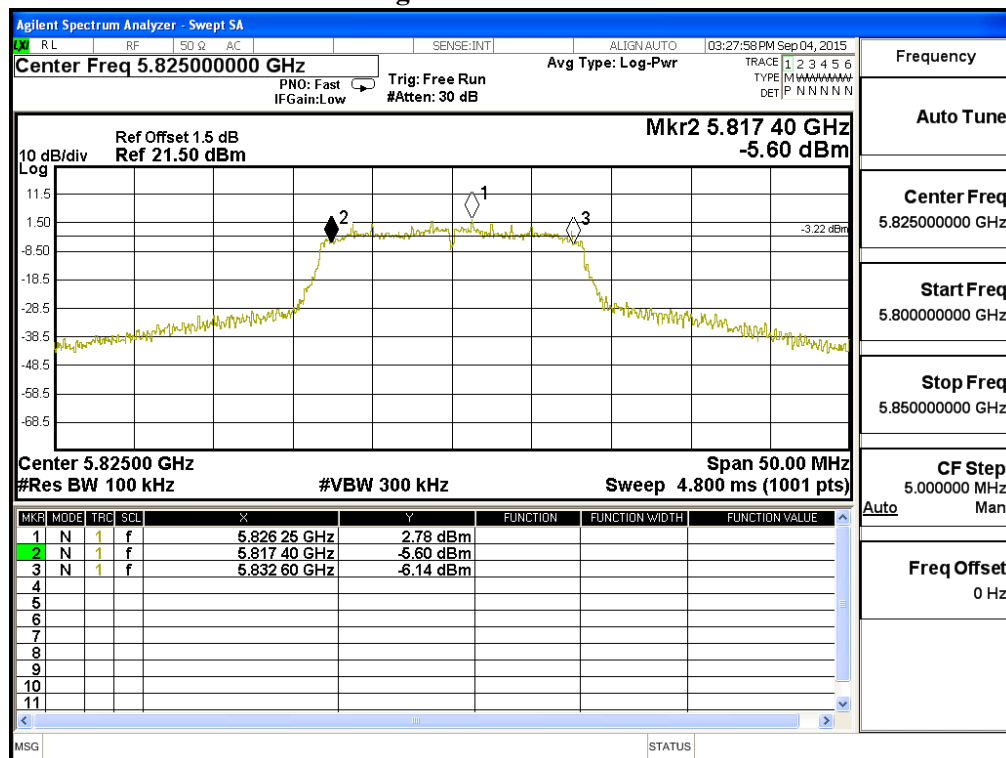
Figure Channel 157:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	15200	>500	Pass

Figure Channel 165:

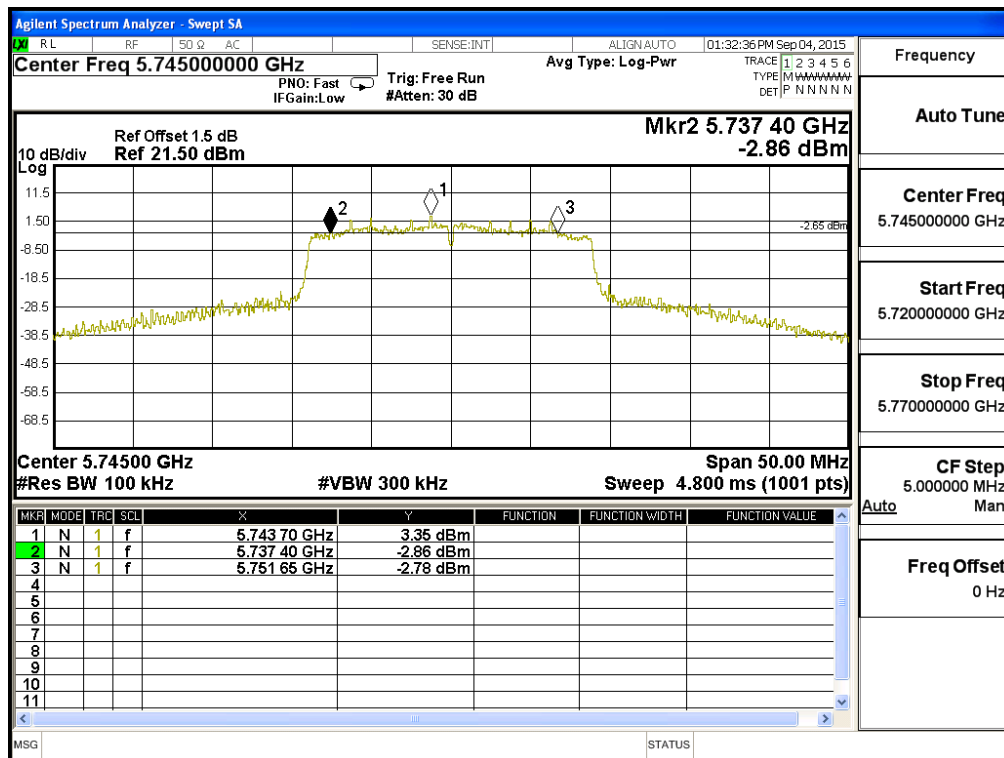


Frequency
Auto Tune
Center Freq 5.825000000 GHz
Start Freq 5.800000000 GHz
Stop Freq 5.850000000 GHz
CF Step 5.000000 MHz Auto Man
Freq Offset 0 Hz

Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	14250	>500	Pass

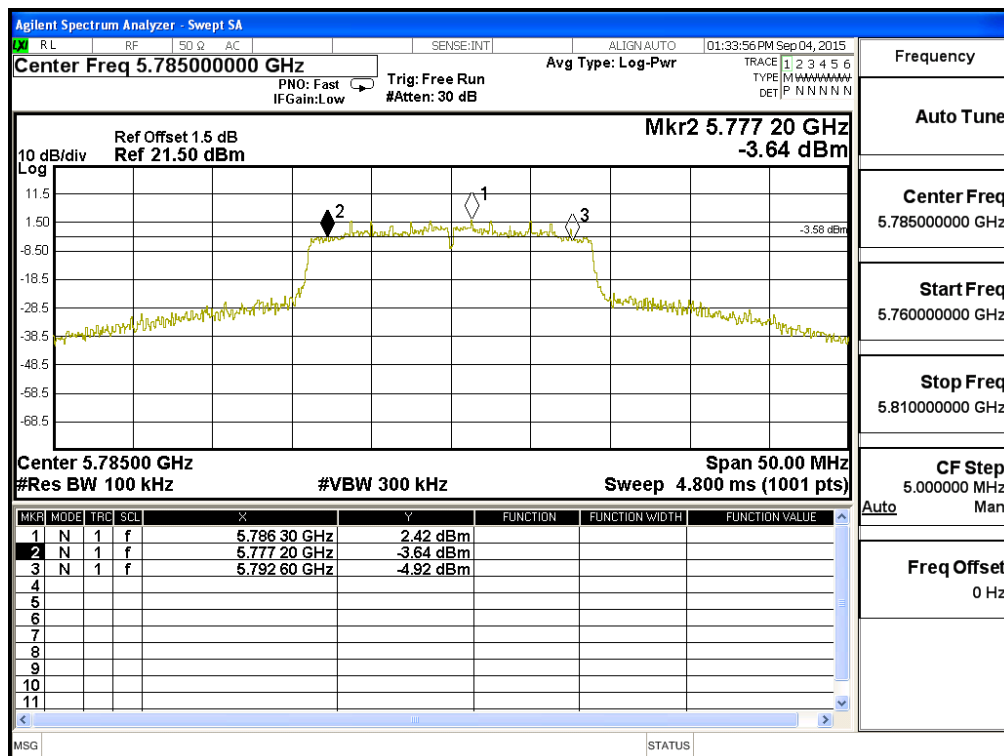
Figure Channel 149:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15400	>500	Pass

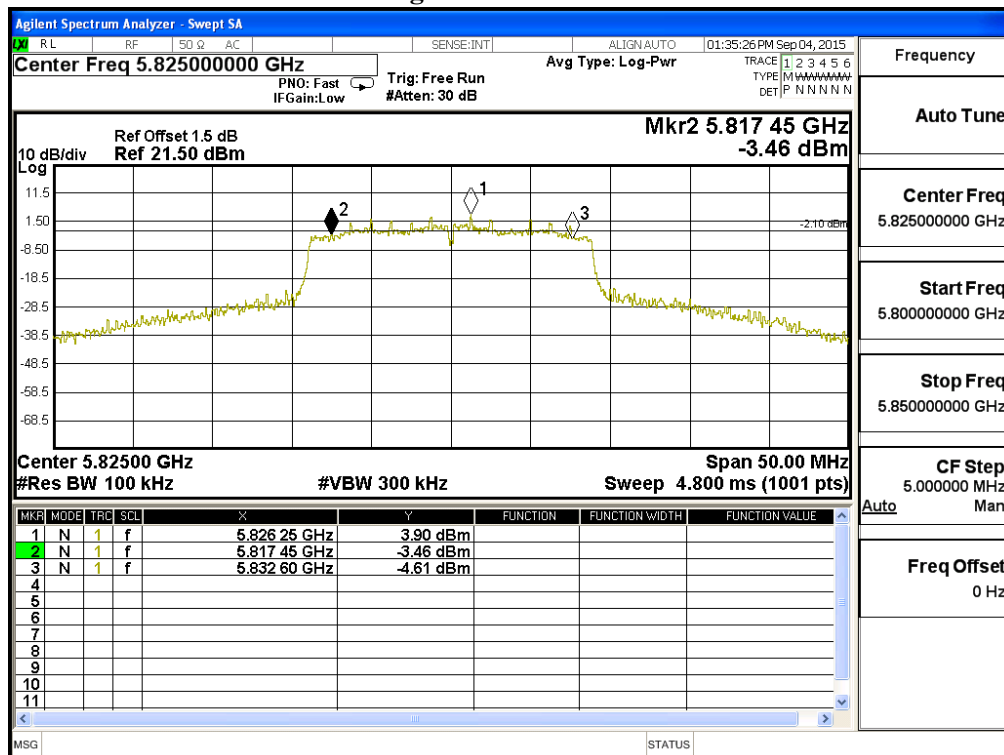
Figure Channel 157:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	15150	>500	Pass

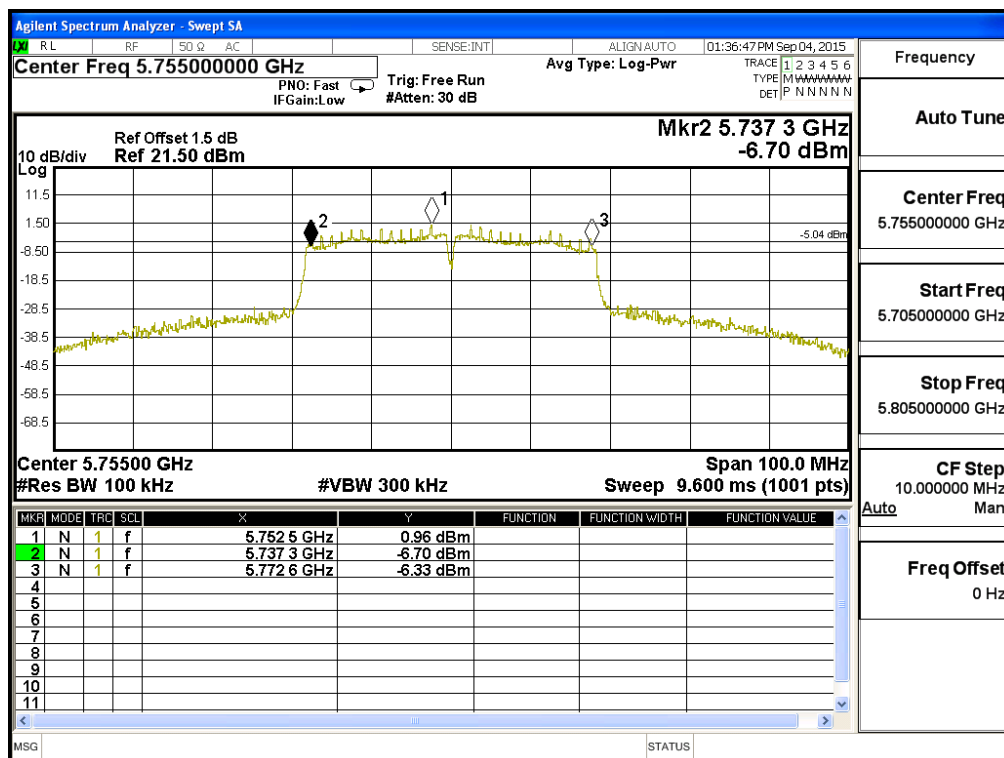
Figure Channel 165:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5755MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	35300	>500	Pass

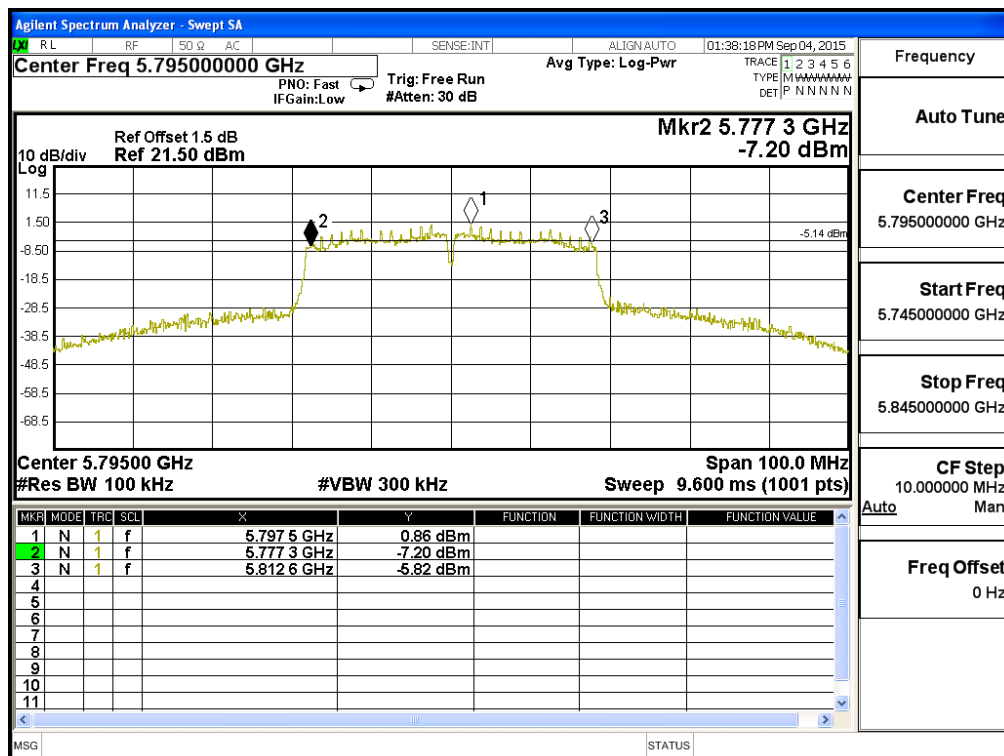
Figure Channel 151:



Product : Notebook
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5795MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	35300	>500	Pass

Figure Channel 159:



8. Frequency Stability

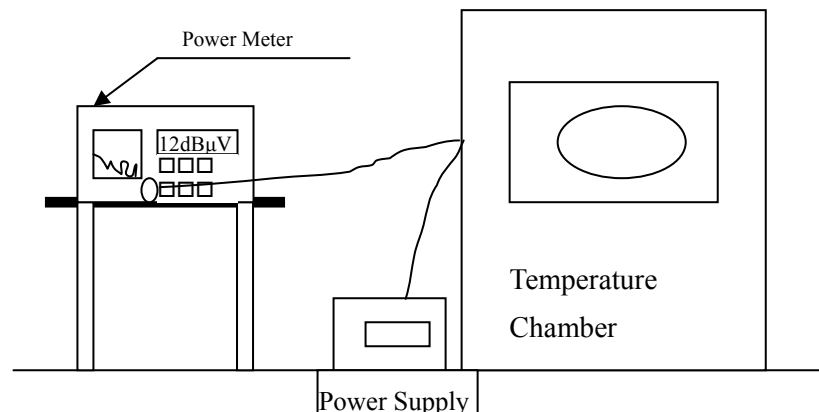
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

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, 2013; tested to UNII 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 : Notebook
Test Item : Frequency Stability
Test Site : Temperature Chamber
Test Mode : Carrier Wave

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\triangle F$ (MHz)
Tnom (20) oC	Vnom (120)V	36	5180.0000	5180.0068	-0.0068
		38	5190.0000	5190.0043	-0.0043
		44	5220.0000	5220.0082	-0.0082
		46	5230.0000	5230.0069	-0.0069
		48	5240.0000	5240.0077	-0.0077
		149	5745.0000	5745.0049	-0.0049
		151	5755.0000	5755.0054	-0.0054
		157	5785.0000	5785.0089	-0.0089
		159	5795.0000	5795.0082	-0.0082
		165	5825.0000	5825.0059	-0.0059
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\triangle F$ (MHz)
Tnom (50) oC	Vnom (138)V	36	5180.0000	5180.0070	-0.0070
		38	5190.0000	5190.0040	-0.0040
		44	5220.0000	5220.0080	-0.0080
		46	5230.0000	5230.0070	-0.0070
		48	5240.0000	5240.0071	-0.0071
		149	5745.0000	5745.0061	-0.0061
		151	5755.0000	5755.0049	-0.0049
		157	5785.0000	5785.0068	-0.0068
		159	5795.0000	5795.0069	-0.0069
		165	5825.0000	5825.0089	-0.0089

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (50) oC	Vnom (102)V	36	5180.0000	5180.0044	-0.0044
		38	5190.0000	5190.0074	-0.0074
		44	5220.0000	5220.0051	-0.0051
		46	5230.0000	5230.0071	-0.0071
		48	5240.0000	5240.0051	-0.0051
		149	5745.0000	5745.0036	-0.0036
		151	5755.0000	5755.0014	-0.0014
		157	5785.0000	5785.0032	-0.0032
		159	5795.0000	5795.0056	-0.0056
		165	5825.0000	5825.0063	-0.0063
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (-10) oC	Vnom (138)V	36	5180.0000	5180.0066	-0.0066
		38	5190.0000	5190.0062	-0.0062
		44	5220.0000	5220.0066	-0.0066
		46	5230.0000	5230.0066	-0.0066
		48	5240.0000	5240.0066	-0.0066
		149	5745.0000	5745.0051	-0.0051
		151	5755.0000	5755.0031	-0.0031
		157	5785.0000	5785.0096	-0.0096
		159	5795.0000	5795.0056	-0.0056
		165	5825.0000	5825.0061	-0.0061
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (-10) oC	Vnom (102)V	36	5180.0000	5180.0066	-0.0066
		38	5190.0000	5190.0062	-0.0062
		44	5220.0000	5220.0066	-0.0066
		46	5230.0000	5230.0066	-0.0066
		48	5240.0000	5240.0066	-0.0066
		149	5745.0000	5745.0051	-0.0051
		151	5755.0000	5755.0031	-0.0031
		157	5785.0000	5785.0096	-0.0096
		159	5795.0000	5795.0056	-0.0056
		165	5825.0000	5825.0061	-0.0061

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.