FCC Test Report

Product Name	FIELDBOOK
Model No	E1
FCC ID	XGIFBE1

Applicant	LOGIC INSTRUMENT S.A.
Address	43 Avenue de l’Europe, BP60012, 95330 DOMONT cedex, France.

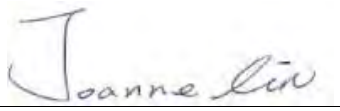
Date of Receipt	Jul. 04, 2013
Issued Date	Aug. 13, 2013
Report No.	137173R-RFUSP45V01
Report Version	V1.0

Test Report Certification

Issued Date: Aug. 13, 2013
Report No.: 137173R-RFUSP45V01

Product Name	FIELDBOOK
Applicant	LOGIC INSTRUMENT S.A.
Address	43 Avenue de l'Europe, BP60012, 95330 DOMONT cedex, France.
Manufacturer	Ubiqconn Technology,Inc.
Model No.	E1
FCC ID.	XGIFBE1
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	TETRA RUGGED COMPUTERS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2012 ANSI C63.4: 2003, , ANSI C63.10: 2009, FCC KDB-789033
Test Result	Complied

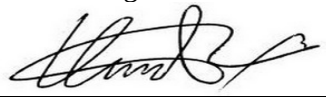
The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by TAF any agency of the U.S. Government

Documented By : 

(Senior Adm. Specialist / Joanne Lin)

Tested By : 

(Assistant Engineer / Nowal Kuo)

Approved By : 

(Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	FIELDBOOK
Trade Name	TETRA RUGGED COMPUTERS
FCC ID.	XGIFBE1
Model No.	E1
Frequency Range	802.11a/n-20MHz: 5180-5320MHz, 5500-5580MHz, 5660-5700MHz
Number of Channels	802.11a/n-20MHz: 16
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 72.2Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Power Adapter	MFR: ELEMENTECH, M/N: AU12412030 Input: AC 100-240V, 50/60Hz, 0.6A Output: DC 12V, 2A Cable Out: Non-Shielded, 1.6m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Ethertronics Inc.	5001510	PIFA Antenna	2.2dBi For 5.15~5.25GHz 2.1dBi For 5.25~5.35GHz 2.9dBi For 5.47~5.725GHz

Note: The antenna of EUT is conform to FCC 15.203

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

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

Note:

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

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

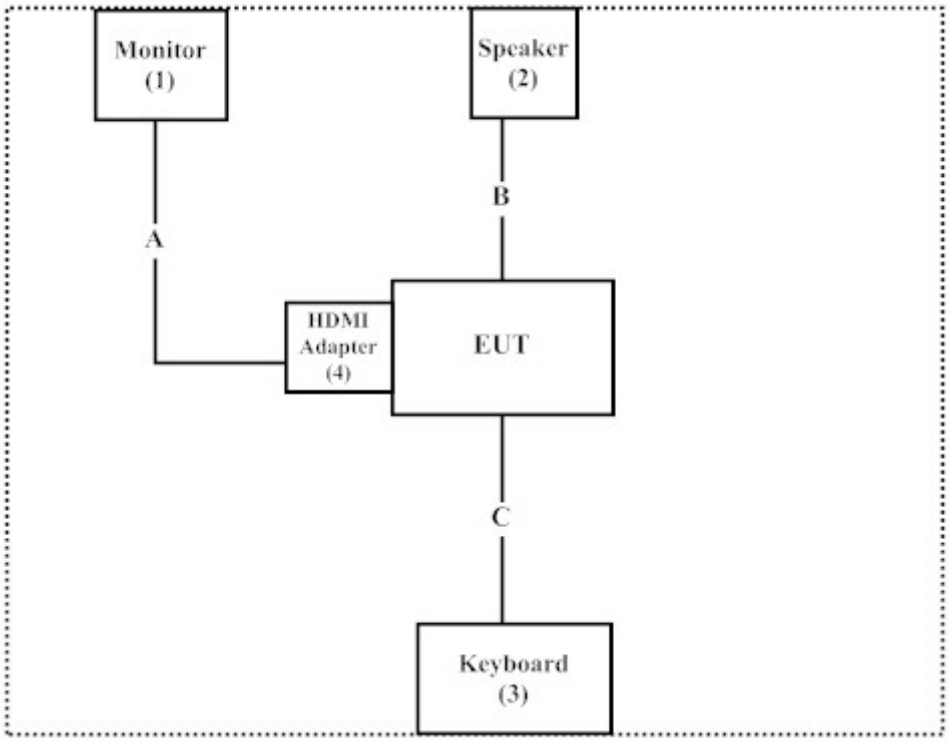
1.3. Tested System Datails

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	DELL	ST232029	N/A	N/A
2	Speaker	PHILIPS	SBP1100	HS1A0825057486	N/A
3	Keyboard	Logitech	Y-UR83	SY853UK	N/A
4	HDMI Adapter	Avier	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	HDMI Cable	Non-Shielded, 1.5m
B	Speaker Cable	Non-Shielded, 1.5m
C	Keyboard Cable	Non-Shielded, 1.2m

1.4. Configuration of tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4

(2) Execute program “Terminal Emulator v1.0.45” on the EUT.

(3) Configure the test mode, the test channel, and the data rate.

(4) Press “OK” to start the continuous Transmit.

(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Site Description: Accredited by TAF
Accredited Number: 0914

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng Linkou Dist., New Taipei City
24451, Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

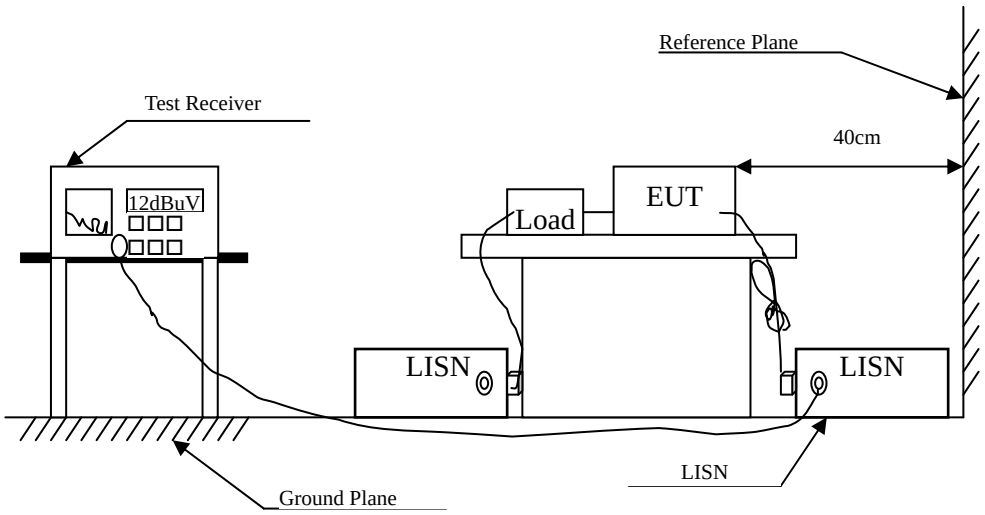
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2012	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2013	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2013	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2013	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2013	
	No.1 Shielded Room				

Note:

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

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency 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: 2009 on conducted measurement.

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

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

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.177	9.698	30.290	39.988	-25.241	65.229
0.197	9.699	26.520	36.219	-28.438	64.657
0.400	9.708	34.850	44.558	-14.299	58.857
0.830	9.727	20.150	29.877	-26.123	56.000
1.498	9.768	21.360	31.128	-24.872	56.000
18.873	9.910	12.960	22.870	-37.130	60.000
Average					
0.177	9.698	25.370	35.068	-20.161	55.229
0.197	9.699	12.930	22.629	-32.028	54.657
0.400	9.708	30.440	40.148	-8.709	48.857
0.830	9.727	14.190	23.917	-22.083	46.000
1.498	9.768	17.290	27.058	-18.942	46.000
18.873	9.910	8.640	18.550	-31.450	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 : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.162	9.677	29.740	39.417	-26.240	65.657
0.177	9.678	29.410	39.088	-26.141	65.229
0.412	9.688	32.450	42.138	-16.376	58.514
0.998	9.725	23.950	33.675	-22.325	56.000
2.603	9.800	22.960	32.760	-23.240	56.000
5.166	9.830	22.380	32.210	-27.790	60.000
Average					
0.162	9.677	5.270	14.947	-40.710	55.657
0.177	9.678	11.510	21.188	-34.041	55.229
0.412	9.688	27.450	37.138	-11.376	48.514
0.998	9.725	19.360	29.085	-16.915	46.000
2.603	9.800	18.360	28.160	-17.840	46.000
5.166	9.830	17.090	26.920	-23.080	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 : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.158	9.697	32.050	41.747	-24.024	65.771
0.177	9.698	29.810	39.508	-25.721	65.229
0.193	9.698	26.100	35.798	-28.973	64.771
0.205	9.699	26.400	36.099	-28.330	64.429
0.404	9.708	34.880	44.588	-14.155	58.743
0.798	9.726	20.770	30.496	-25.504	56.000
Average					
0.158	9.697	25.460	35.157	-20.614	55.771
0.177	9.698	16.870	26.568	-28.661	55.229
0.193	9.698	13.790	23.488	-31.283	54.771
0.205	9.699	22.740	32.439	-21.990	54.429
0.404	9.708	30.790	40.498	-8.245	48.743
0.798	9.726	15.130	24.856	-21.144	46.000

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 : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.173	9.677	28.930	38.607	-26.736	65.343
0.255	9.681	19.950	29.631	-33.369	63.000
0.392	9.687	33.360	43.047	-16.039	59.086
0.994	9.725	23.890	33.615	-22.385	56.000
2.322	9.790	22.470	32.260	-23.740	56.000
4.134	9.810	22.200	32.010	-23.990	56.000
Average					
0.173	9.677	26.250	35.927	-19.416	55.343
0.255	9.681	15.540	25.221	-27.779	53.000
0.392	9.687	27.140	36.827	-12.259	49.086
0.994	9.725	20.220	29.945	-16.055	46.000
2.322	9.790	17.870	27.660	-18.340	46.000
4.134	9.810	15.520	25.330	-20.670	46.000

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 : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.181	9.698	29.050	38.748	-26.366	65.114
0.205	9.699	26.220	35.919	-28.510	64.429
0.400	9.708	34.900	44.608	-14.249	58.857
0.810	9.726	20.750	30.476	-25.524	56.000
1.494	9.767	20.730	30.497	-25.503	56.000
4.220	9.820	16.010	25.830	-30.170	56.000
Average					
0.181	9.698	25.370	35.068	-20.046	55.114
0.205	9.699	22.950	32.649	-21.780	54.429
0.400	9.708	30.180	39.888	-8.969	48.857
0.810	9.726	15.760	25.486	-20.514	46.000
1.494	9.767	15.520	25.287	-20.713	46.000
4.220	9.820	10.690	20.510	-25.490	46.000

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 : FIELDBOOK
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.154	9.677	32.500	42.177	-23.709	65.886
0.170	9.677	28.370	38.047	-27.382	65.429
0.205	9.679	25.230	34.909	-29.520	64.429
0.400	9.688	33.780	43.468	-15.389	58.857
0.822	9.717	23.630	33.347	-22.653	56.000
5.384	9.830	21.360	31.190	-28.810	60.000
Average					
0.154	9.677	26.450	36.127	-19.759	55.886
0.170	9.677	10.260	19.937	-35.492	55.429
0.205	9.679	15.910	25.589	-28.840	54.429
0.400	9.688	27.450	37.138	-11.719	48.857
0.822	9.717	19.530	29.247	-16.753	46.000
5.384	9.830	16.540	26.370	-23.630	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

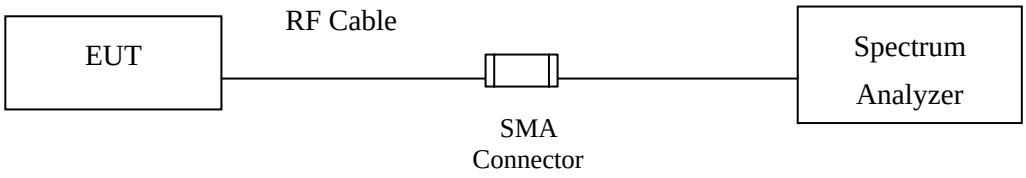
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note:

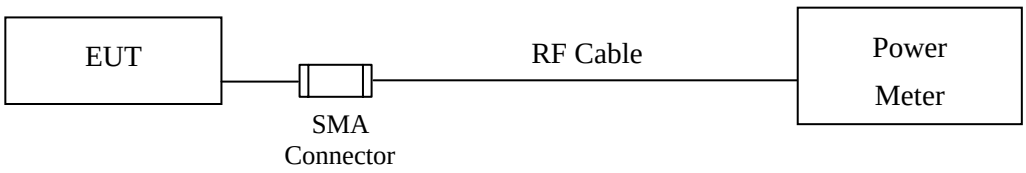
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



Conduction Power Measurement



3.3. Limits

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

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

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

3.4. Test Procedur

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

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Maximum conducted output power

Product : FIELDBOOK
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	12.18	--	--	--	--	--	--	--	<17dBm
44	5220	12.04	12.01	11.97	11.94	11.89	11.84	11.8	11.78	<17dBm
48	5240	12.48	--	--	--	--	--	--	--	<17dBm
52	5260	12.52	--	--	--	--	--	--	--	<24dBm
60	5300	12.69	12.65	12.58	12.51	12.48	12.41	12.28	12.19	<24dBm
64	5320	12.51	--	--	--	--	--	--	--	<24dBm
100	5500	12.52	--	--	--	--	--	--	--	<24dBm
116	5580	10.80	10.78	10.78	10.76	10.75	10.74	10.71	10.69	<24dBm
140	5700	11.27	--	--	--	--	--	--	--	<24dBm

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

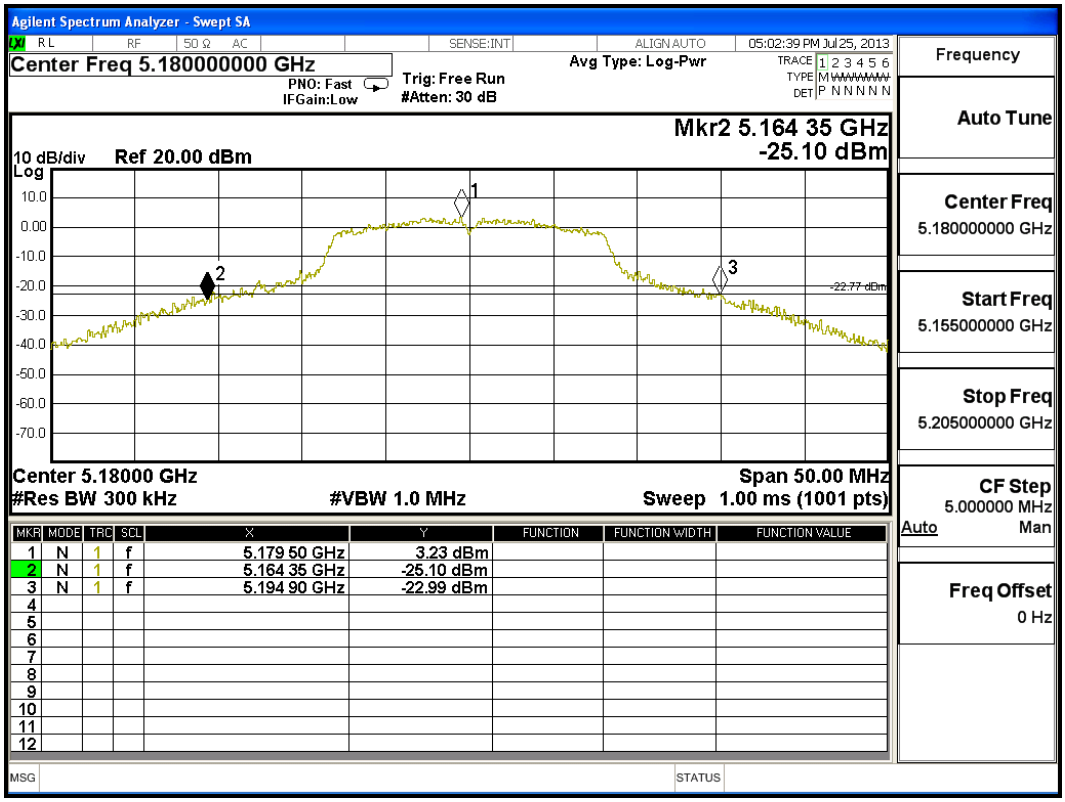
Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	30.55	12.18	17	18.85
44	5220	30.15	12.04	17	18.79
48	5240	30.65	12.48	17	18.86
52	5260	32.15	12.52	24	26.07
60	5300	31.35	12.69	24	25.96
64	5320	33.20	12.51	24	26.21
100	5500	32.70	12.52	24	26.15
116	5580	36.20	10.80	24	26.59
140	5700	35.25	11.27	24	26.47

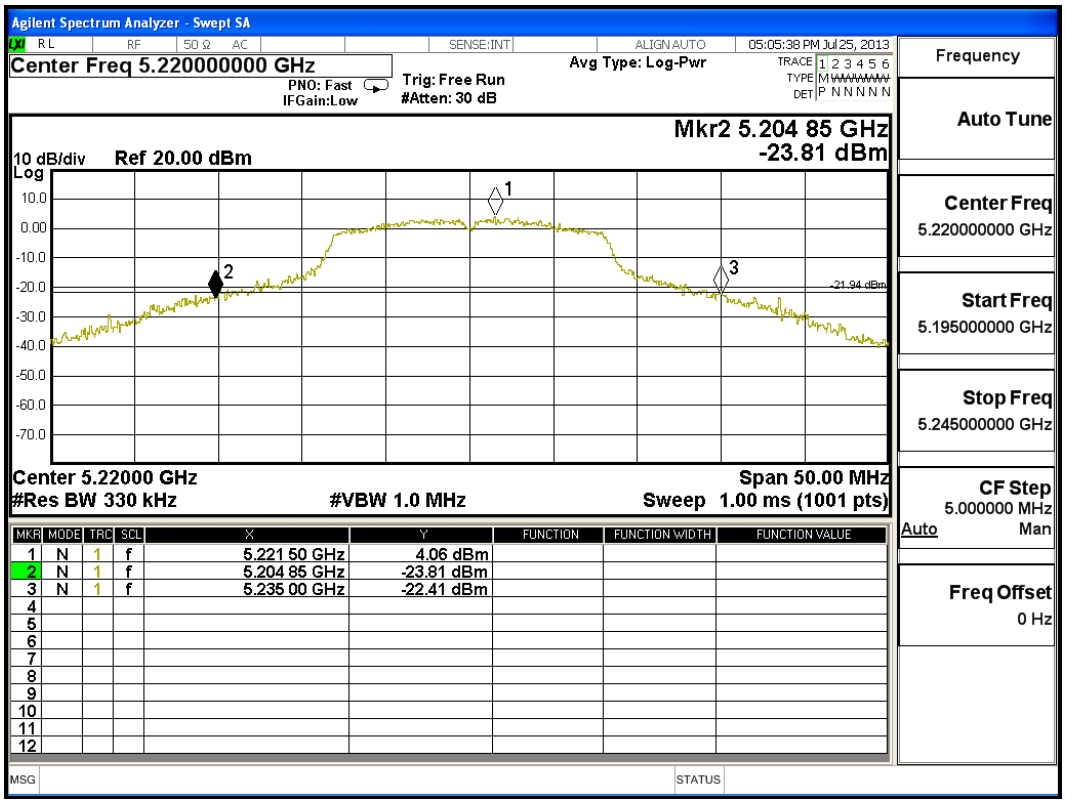
Note: Power Output Value =Reading value on average power meter + cable loss

26dBc Occupied Bandwidth:

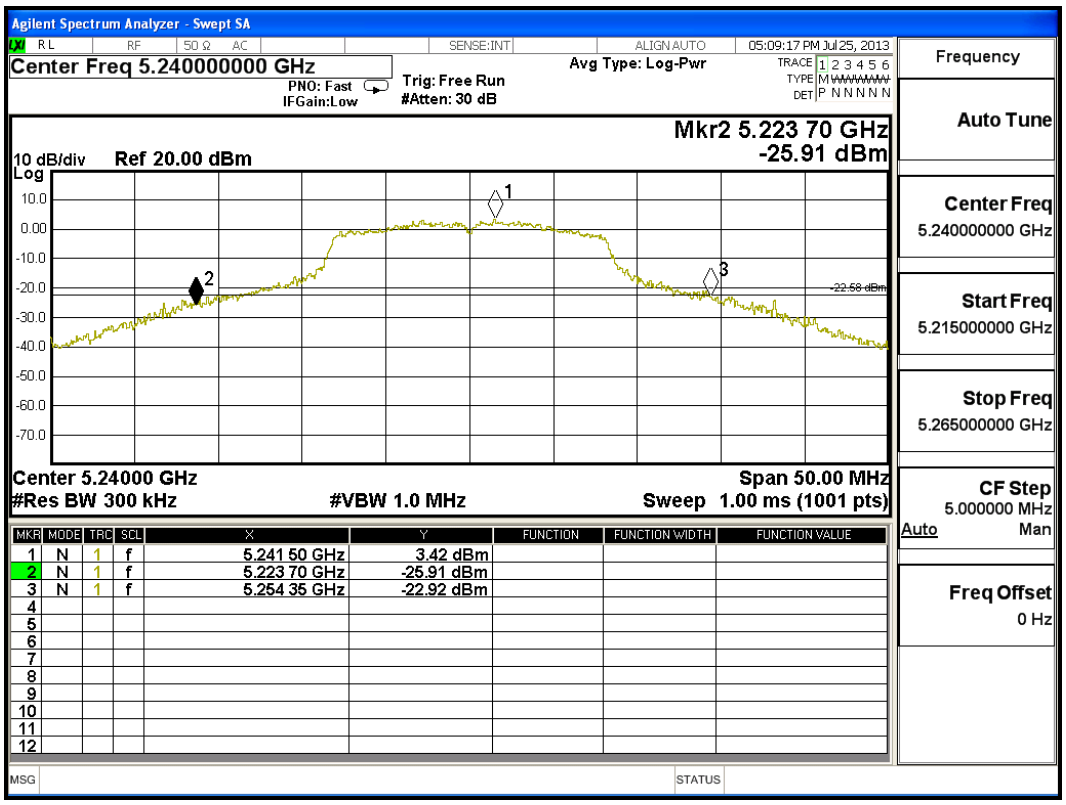
Channel 36



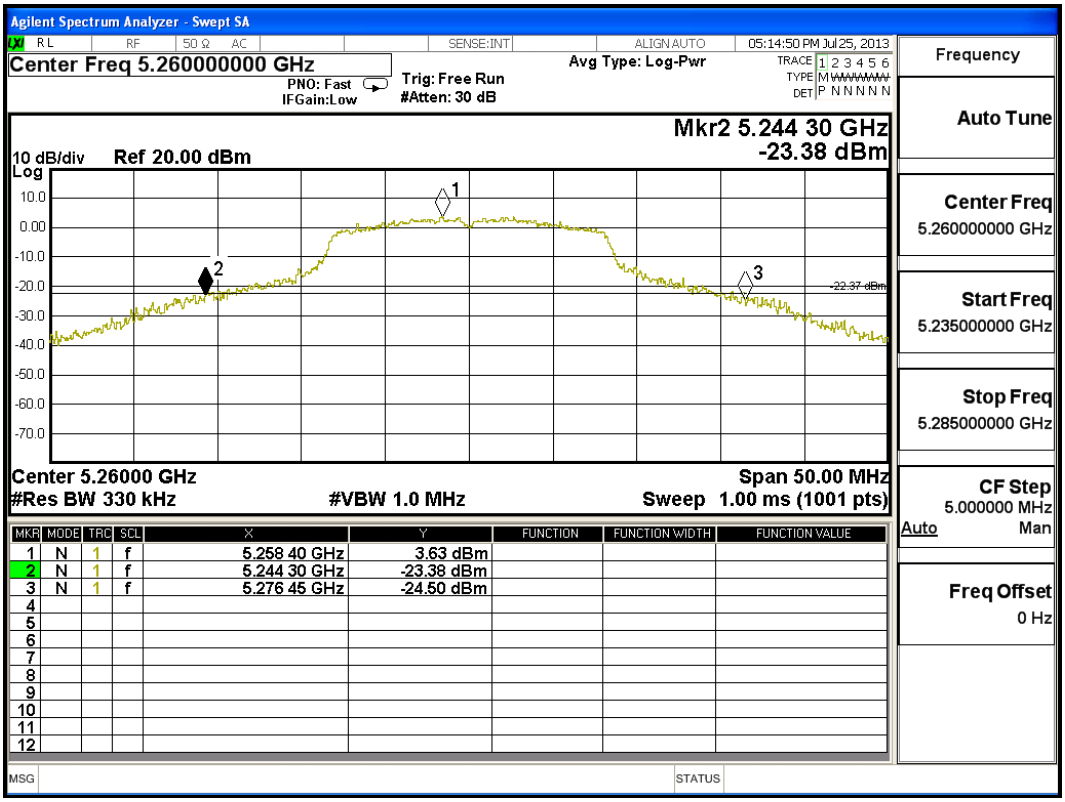
Channel 40



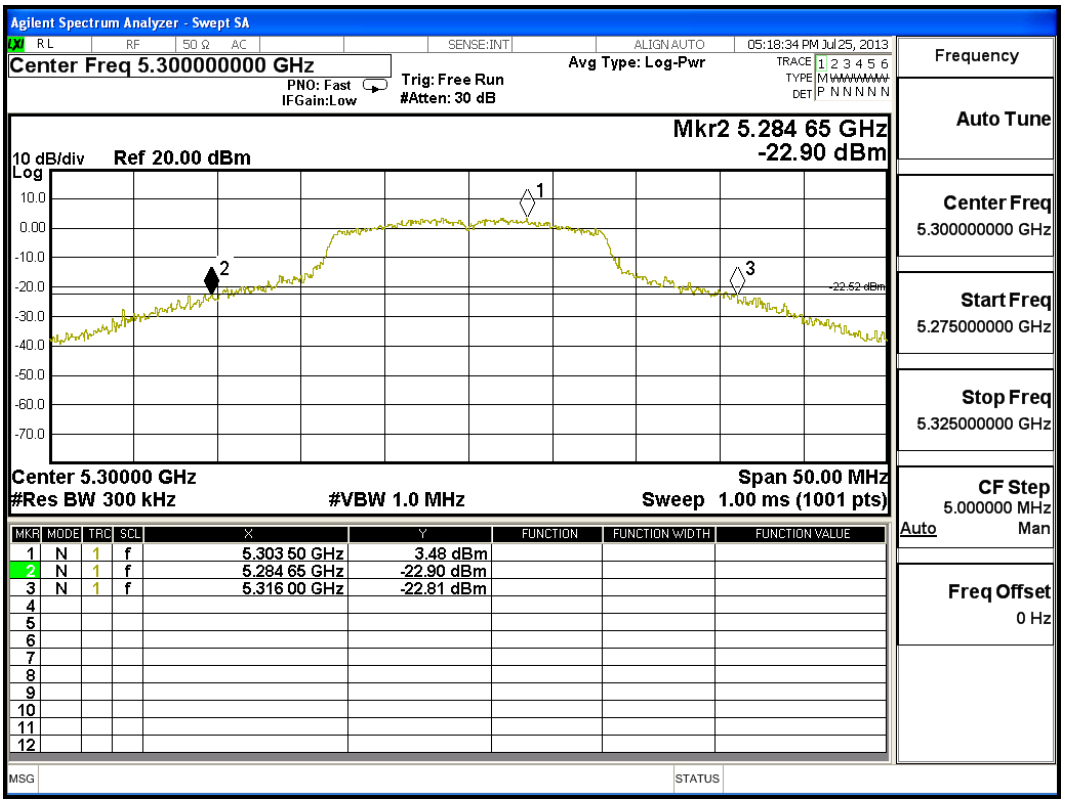
Channel 48



Channel 52



Channel 60



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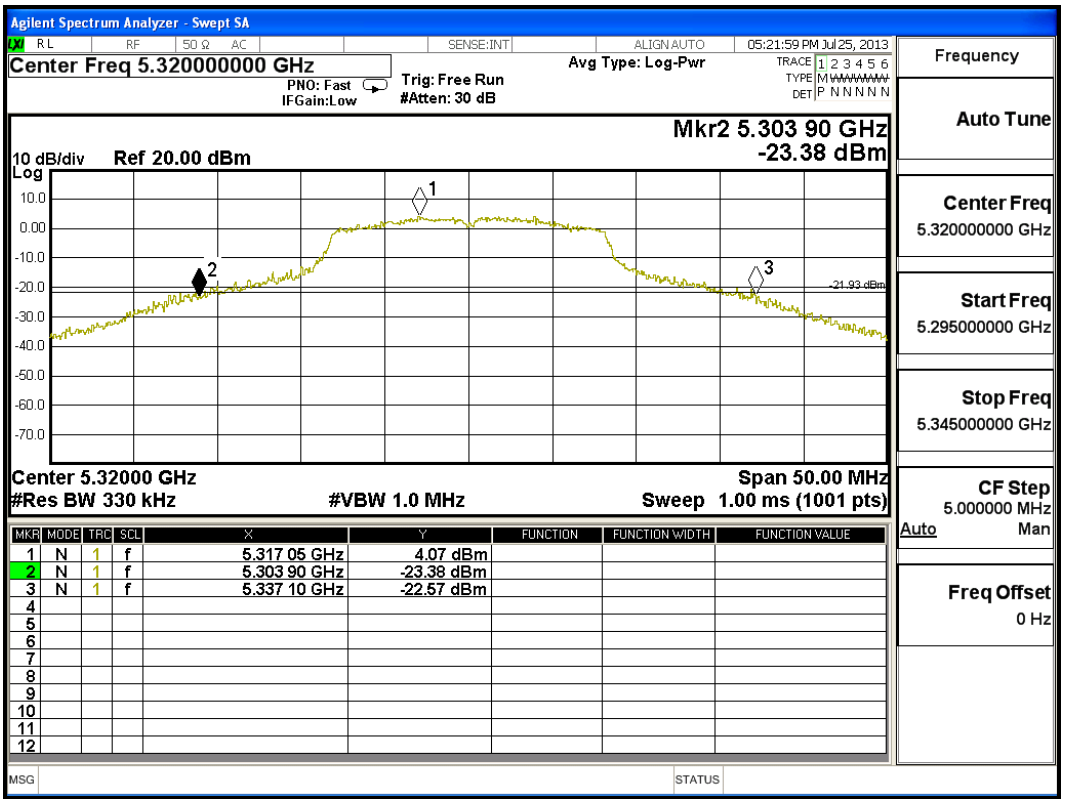
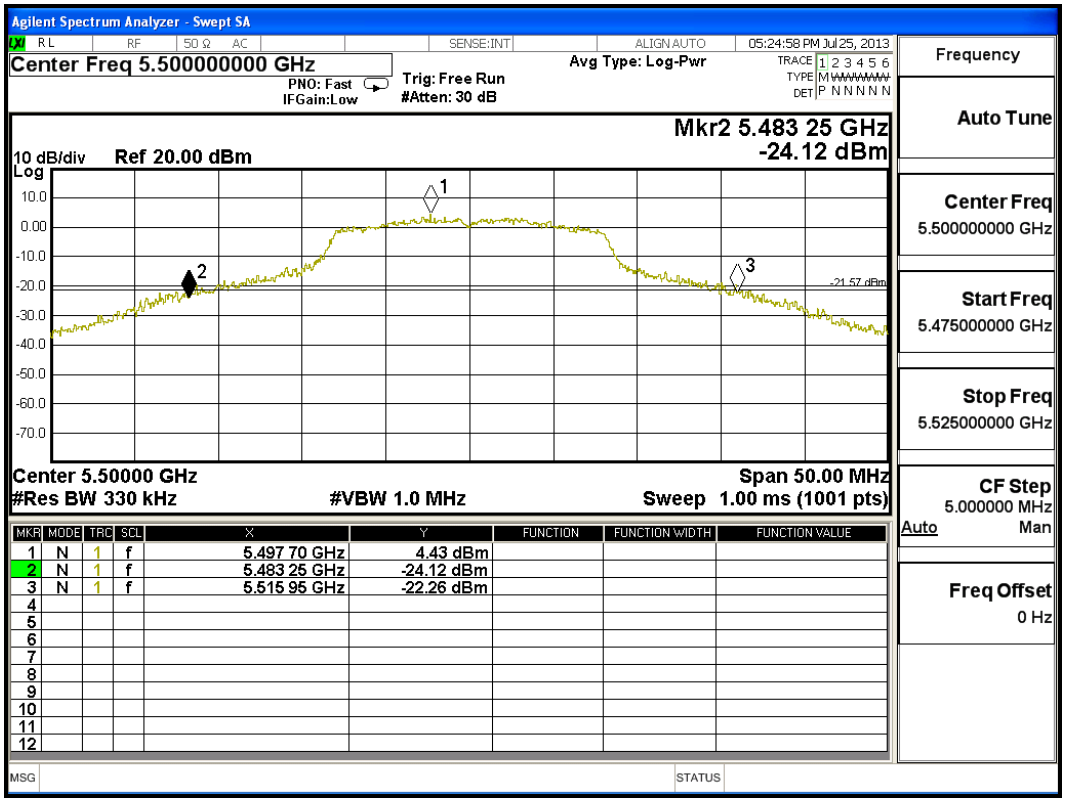
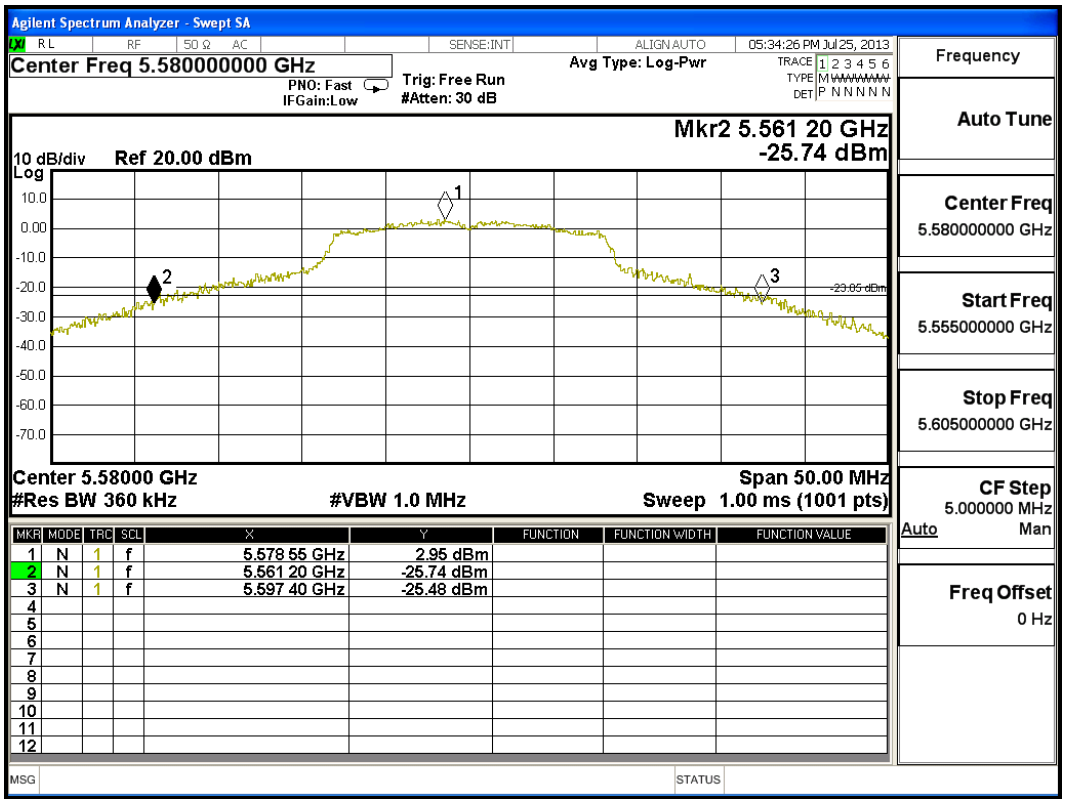


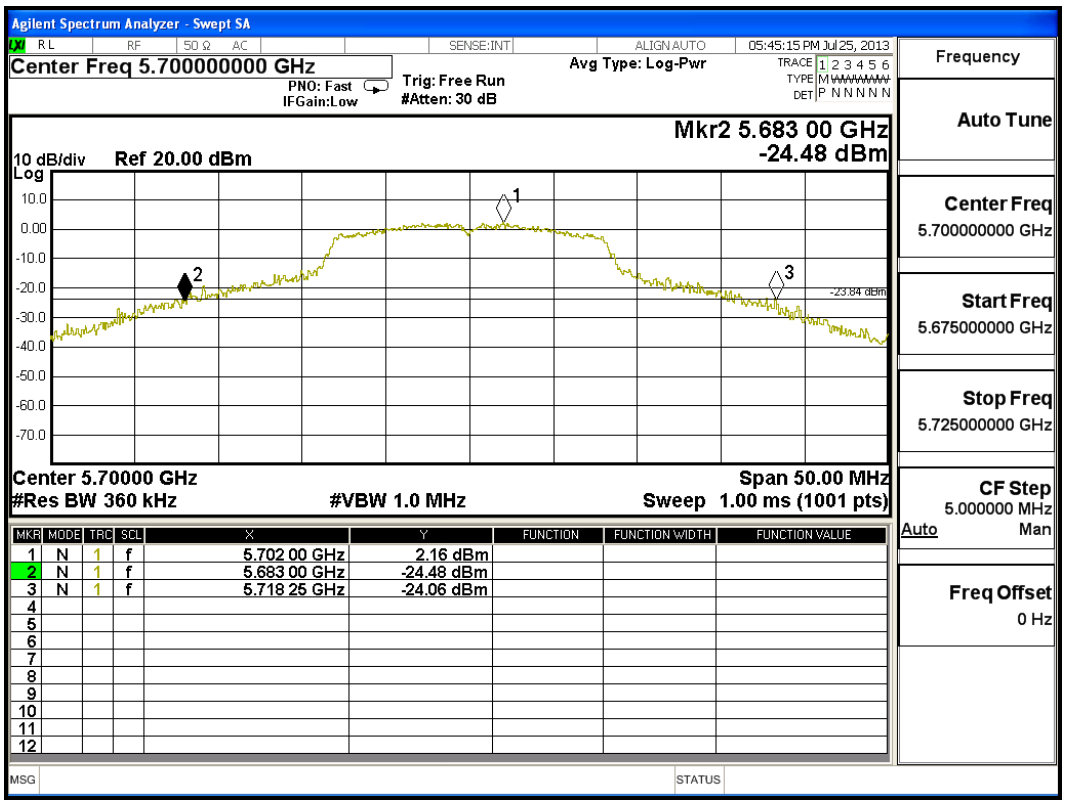
Channel 100



Channel 116



Channel 140


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
05:45:15 PM Jul 25, 2013
Center Freq 5.700000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr2 5.683 00 GHz
-24.48 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-23.84 dBm
Center 5.70000 GHz
#Res BW 360 kHz
#VBW 1.0 MHz
Span 50.00 MHz
Sweep 1.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.702 00 GHz 2.16 dBm
2 N 1 f 5.683 00 GHz -24.48 dBm
3 N 1 f 5.718 25 GHz -24.06 dBm
4
5
6
7
8
9
10
11
12
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.700000000 GHz
Start Freq
5.675000000 GHz
Stop Freq
5.725000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

Product : FIELDBOOK
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	12.29	--	--	--	--	--	--	--	<17dBm
44	5220	12.40	12.31	12.2	11.8	11.69	11.47	11.38	11.3	<17dBm
48	5240	12.62	--	--	--	--	--	--	--	<17dBm
52	5260	12.67	--	--	--	--	--	--	--	<24dBm
60	5300	12.61	12.48	12.29	12.07	11.82	11.75	11.6	11.66	<24dBm
64	5320	12.81	--	--	--	--	--	--	--	<24dBm
100	5500	12.55	--	--	--	--	--	--	--	<24dBm
116	5580	10.60	10.58	10.56	10.49	10.47	10.46	10.41	10.4	<24dBm
140	5700	11.35	--	--	--	--	--	--	--	<24dBm

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

Maximum conducted output power Measurement:

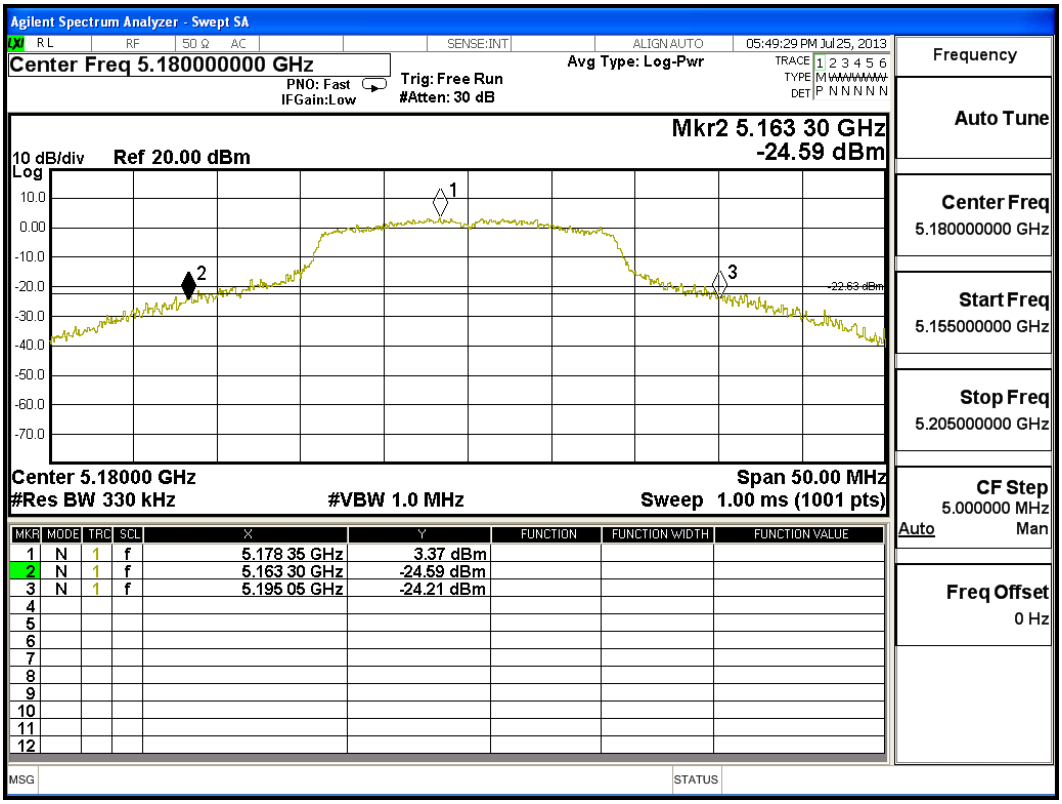
Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	31.75	12.29	17	19.02
44	5220	34.3	12.40	17	19.35
48	5240	31.4	12.62	17	18.97
52	5260	34.5	12.67	24	26.38
60	5300	34.2	12.61	24	26.34
64	5320	33.4	12.81	24	26.24
100	5500	38.6	12.55	24	26.87
116	5580	36.95	10.60	24	26.68
140	5700	35.9	11.35	24	26.55

Note:

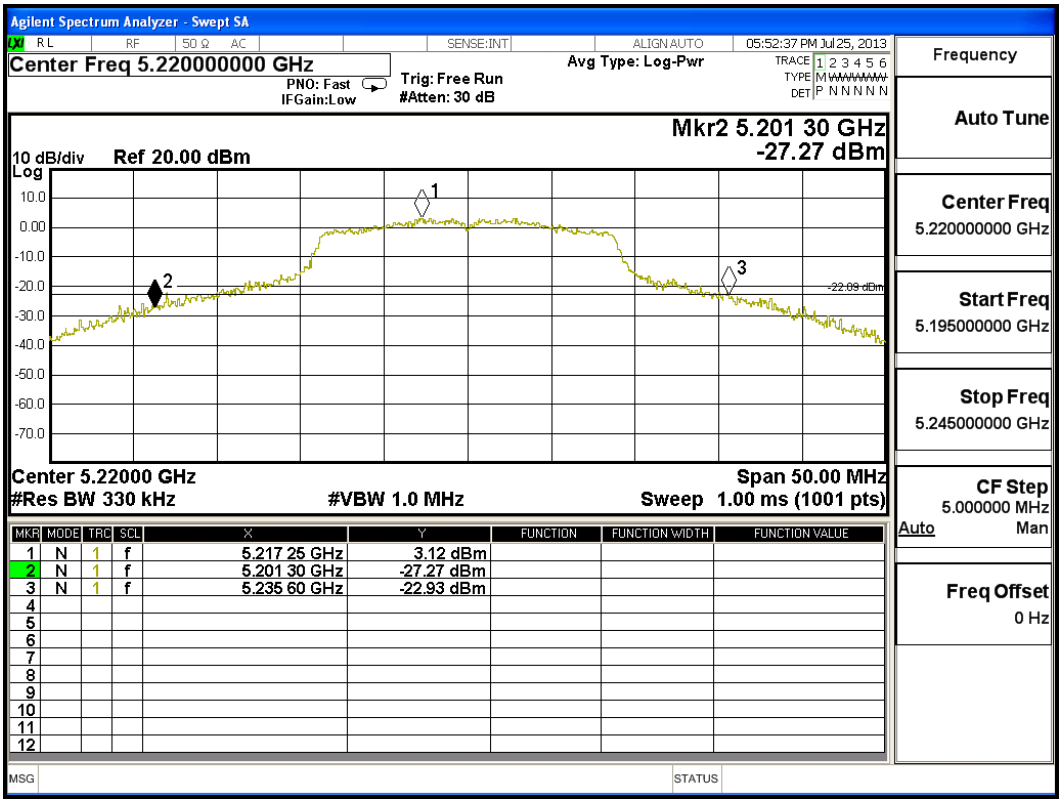
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10*LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

26dBc Occupied Bandwidth:

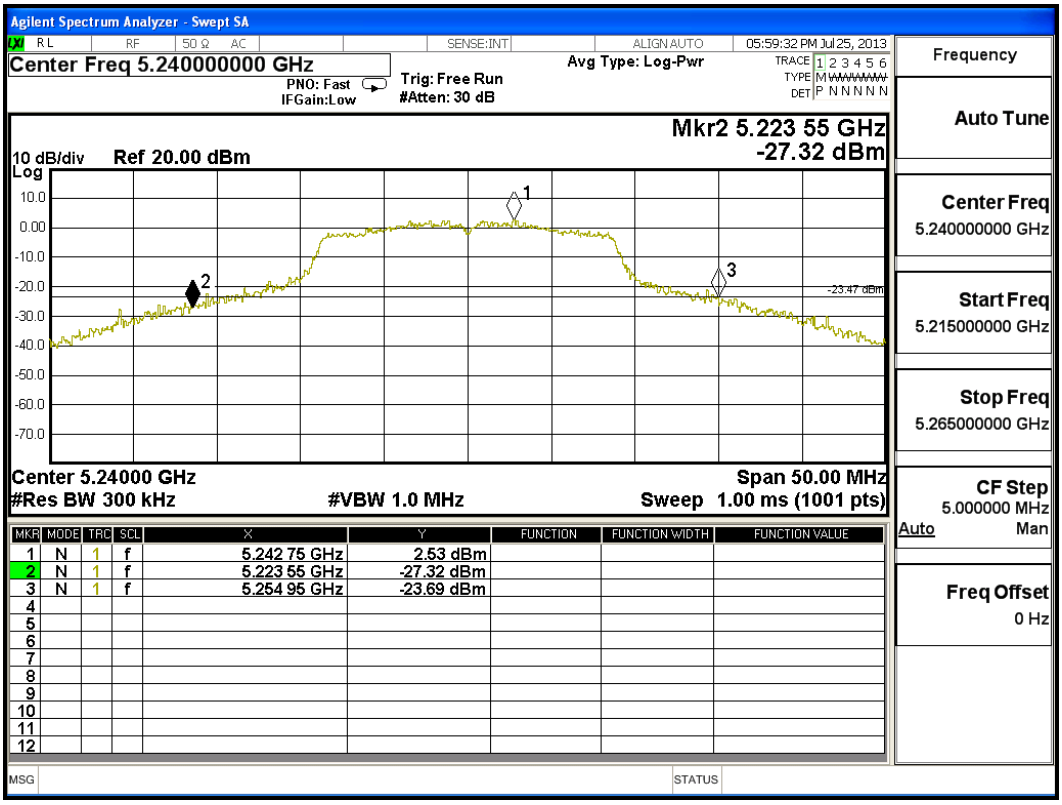
Channel 36



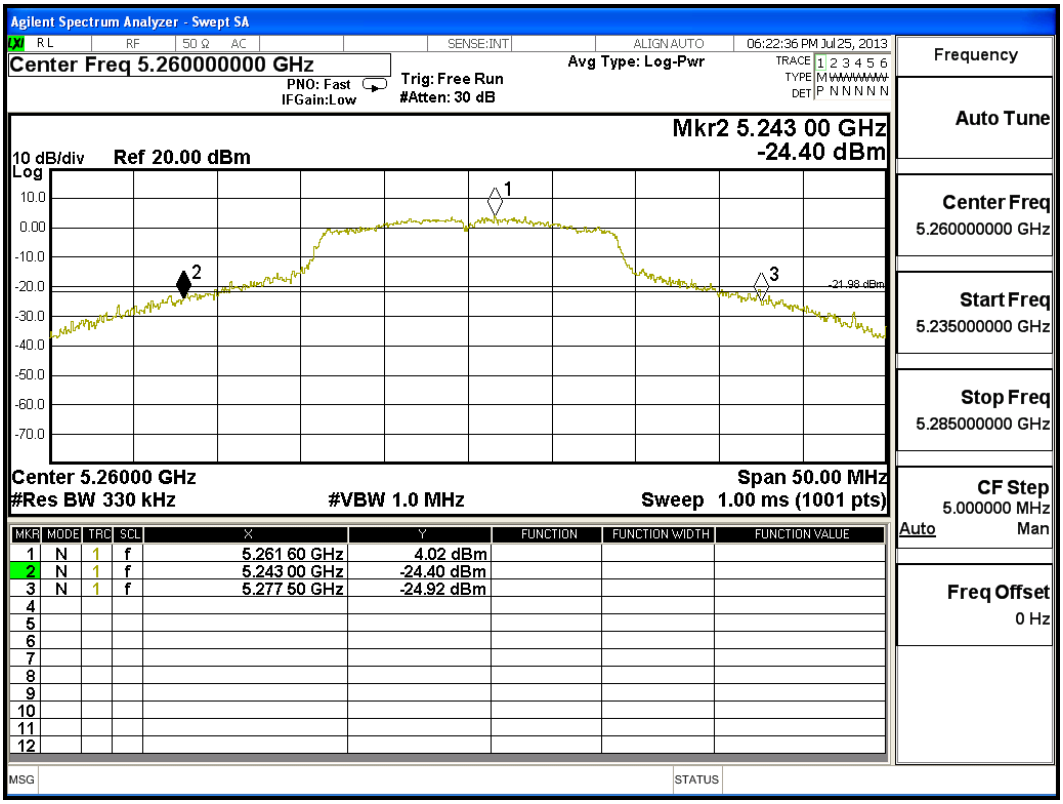
Channel 44



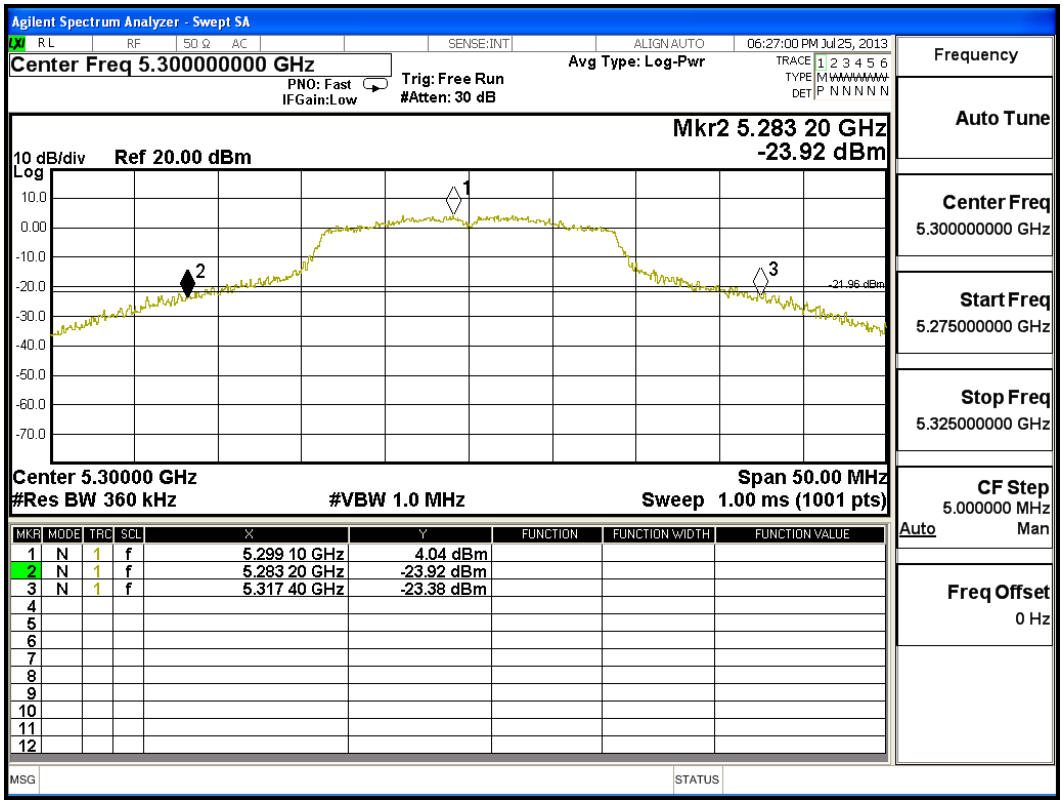
Channel 48



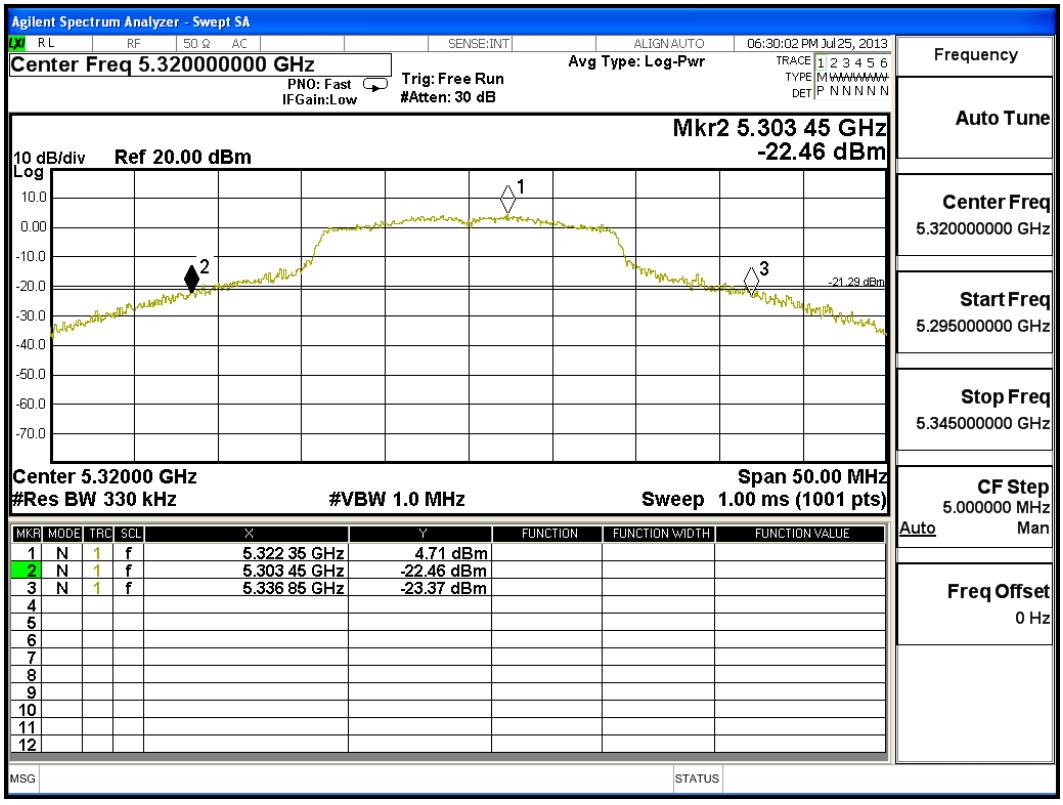
Channel 52



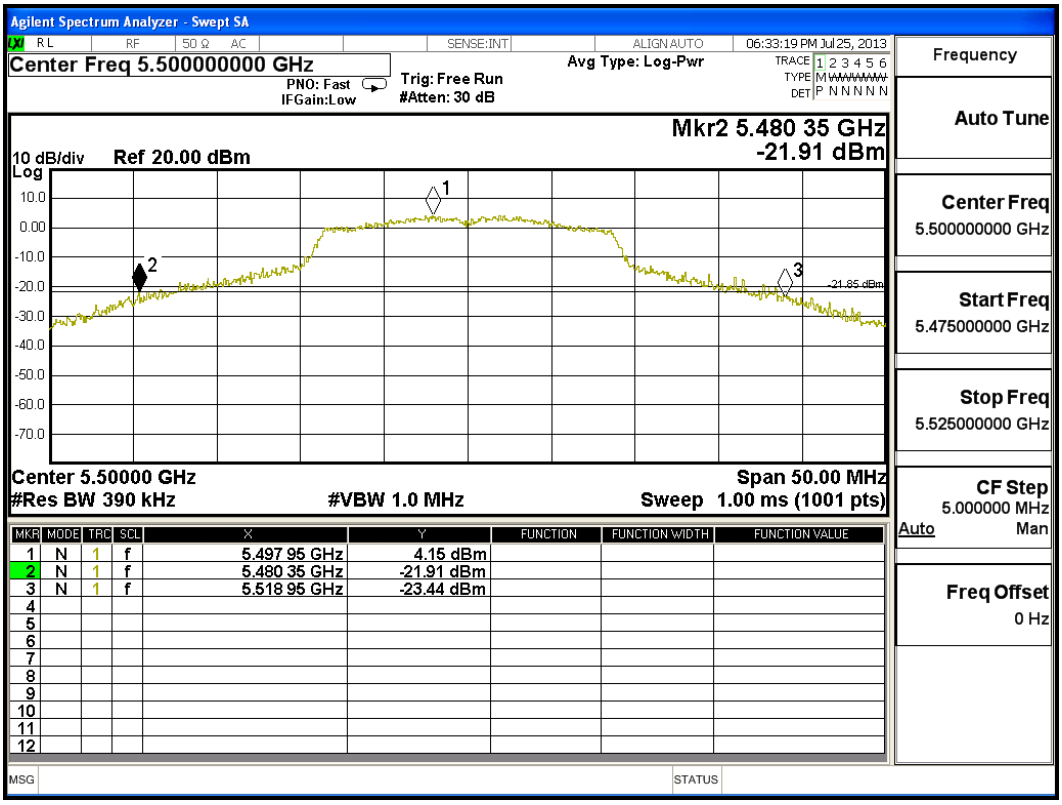
Channel 60



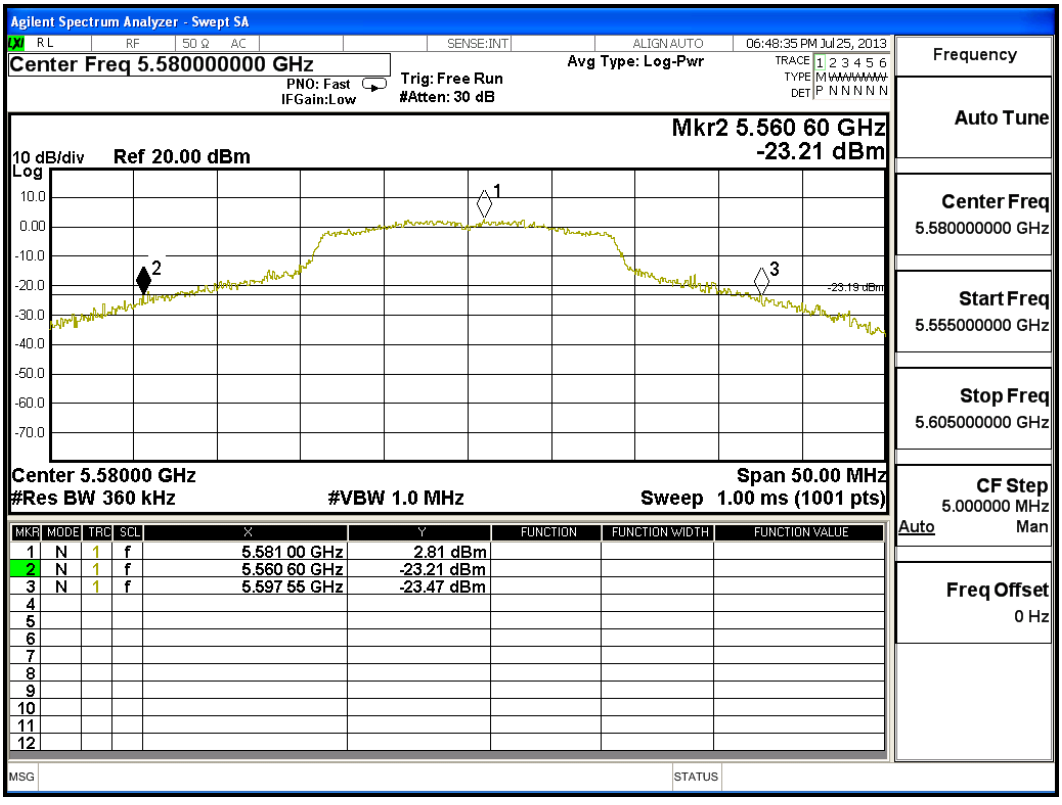
Channel 64



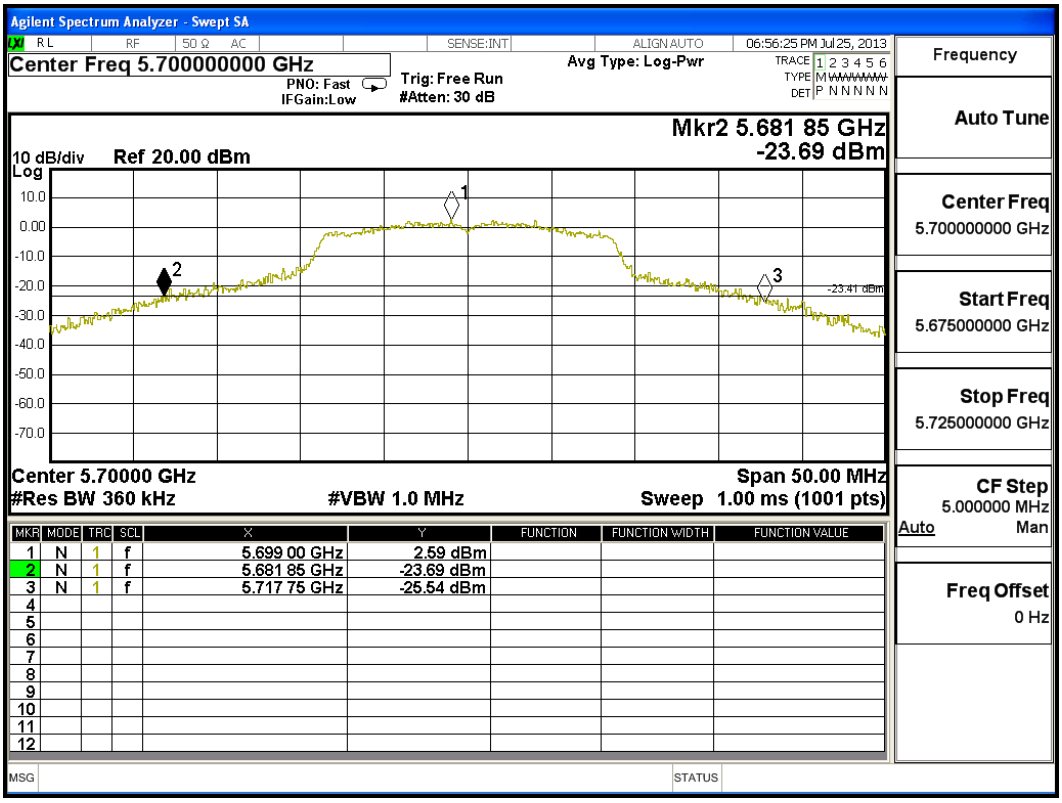
Channel 100



Channel 116



Channel 140


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:56:25 PM Jul 25, 2013
Center Freq 5.700000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr2 5.681 85 GHz
-23.69 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-23.41 dBm
Center 5.70000 GHz
#Res BW 360 kHz
#VBW 1.0 MHz
Span 50.00 MHz
Sweep 1.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.699 00 GHz 2.59 dBm
2 N 1 f 5.681 85 GHz -23.69 dBm
3 N 1 f 5.717 75 GHz -25.54 dBm
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.700000000 GHz
Start Freq
5.675000000 GHz
Stop Freq
5.725000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

4. Peak Power Spectral Density

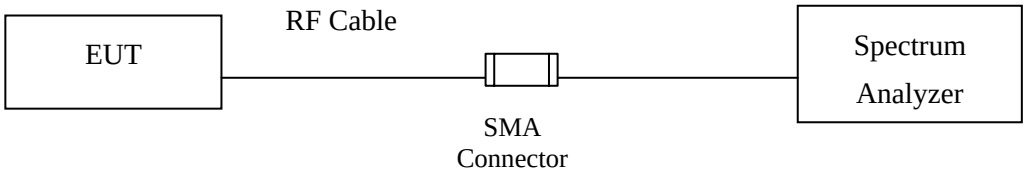
4.1. Test Equipment

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

Note:

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

4.2. Test Setup



4.3. Limits

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

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

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

4.4. Test Procedure

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

4.5. Uncertainty

± 1.27 dB

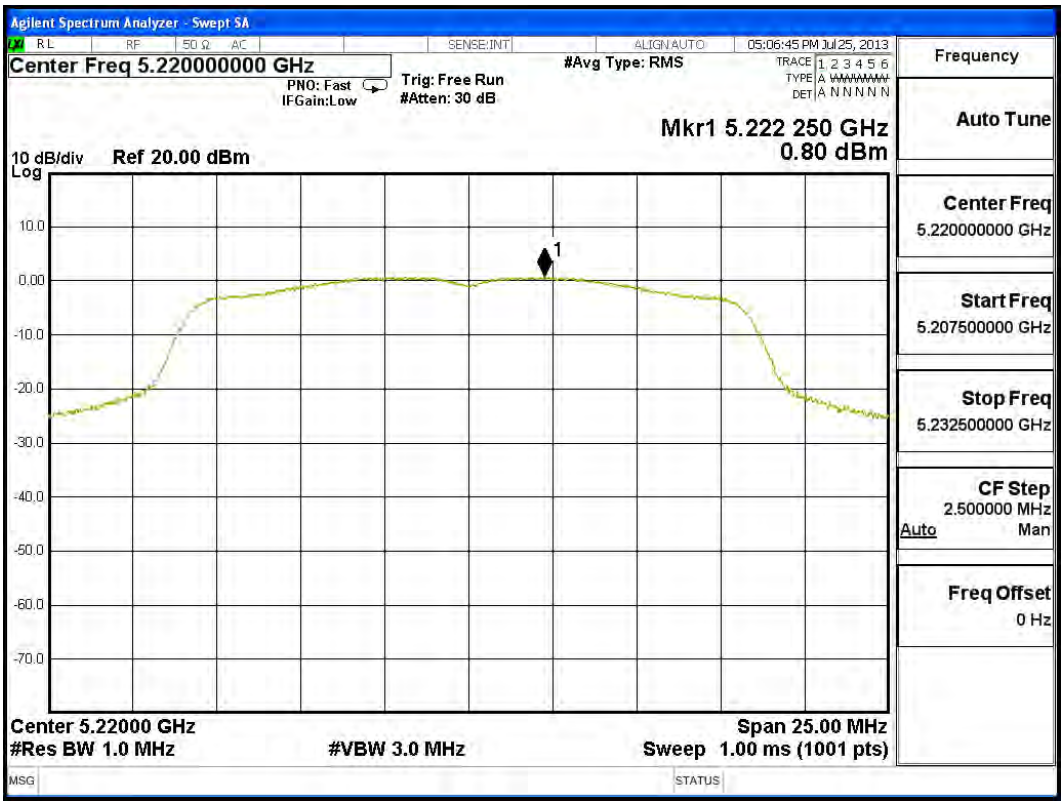
4.6. Test Result of Peak Power Spectral Density

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

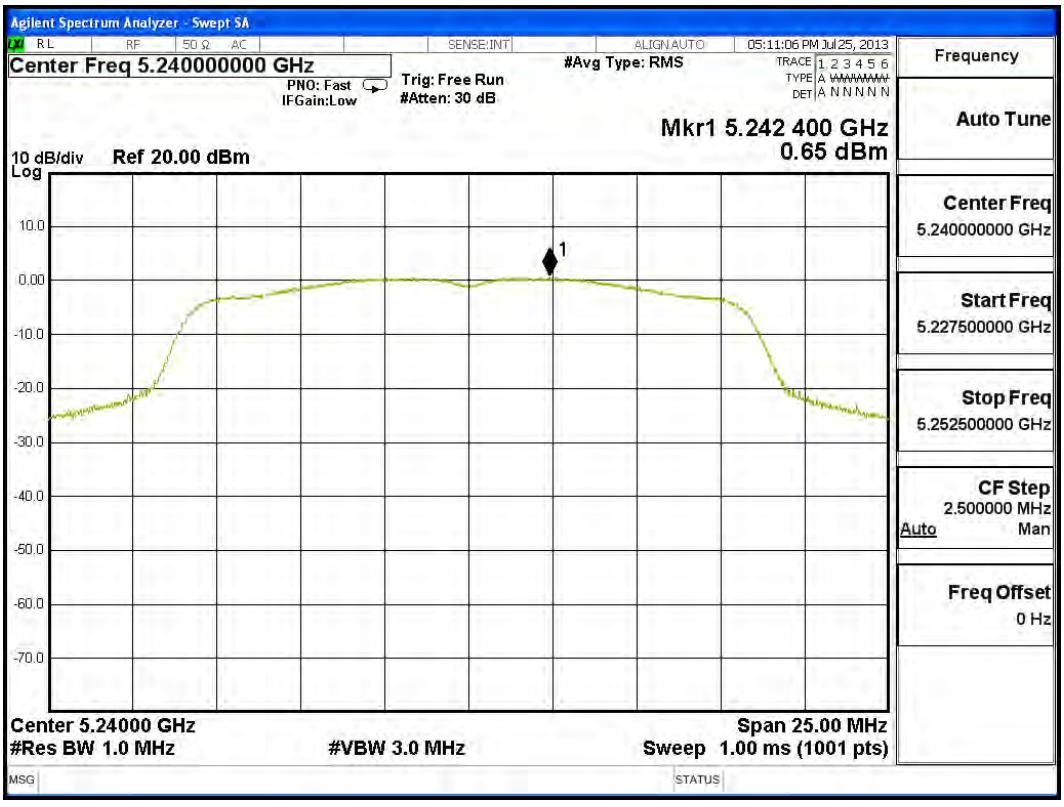
Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit	Result
36	5180	0.780	< 4dBm	Pass
44	5220	0.800	< 4dBm	Pass
48	5240	0.650	< 4dBm	Pass
52	5260	0.780	< 11dBm	Pass
60	5300	1.220	< 11dBm	Pass
64	5320	1.560	< 11dBm	Pass
100	5500	0.680	< 11dBm	Pass
116	5580	-0.270	< 11dBm	Pass
140	5700	-0.750	< 11dBm	Pass

Channel 36:

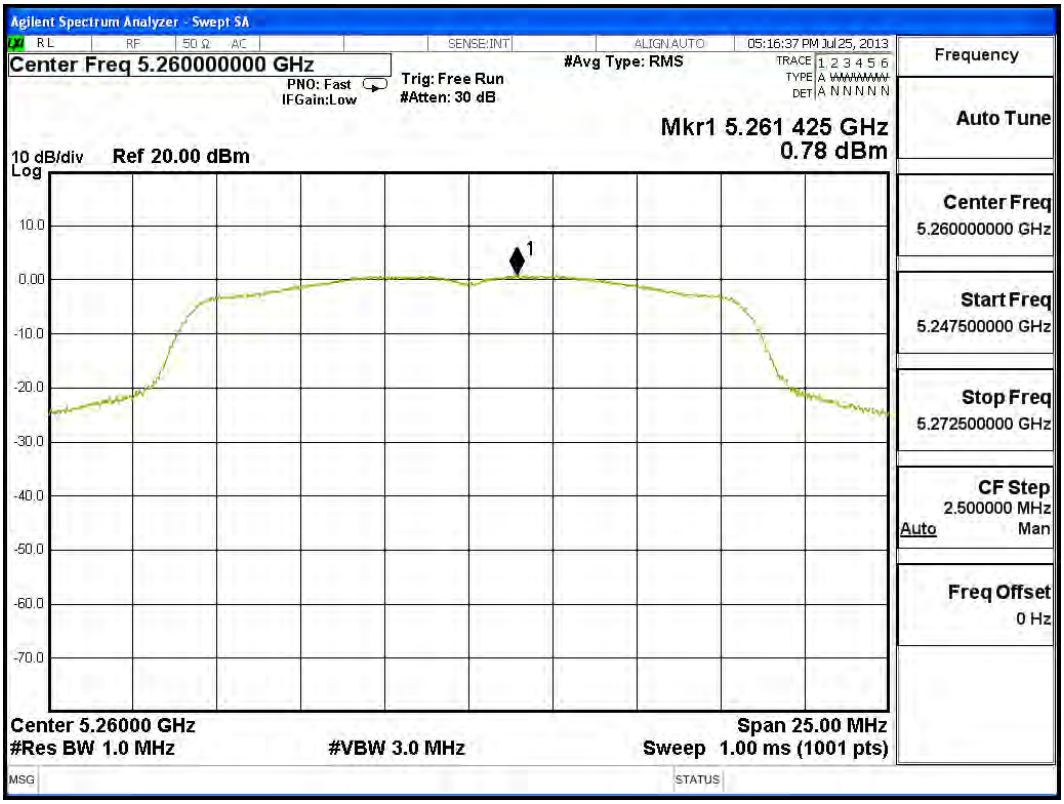
Channel 44:



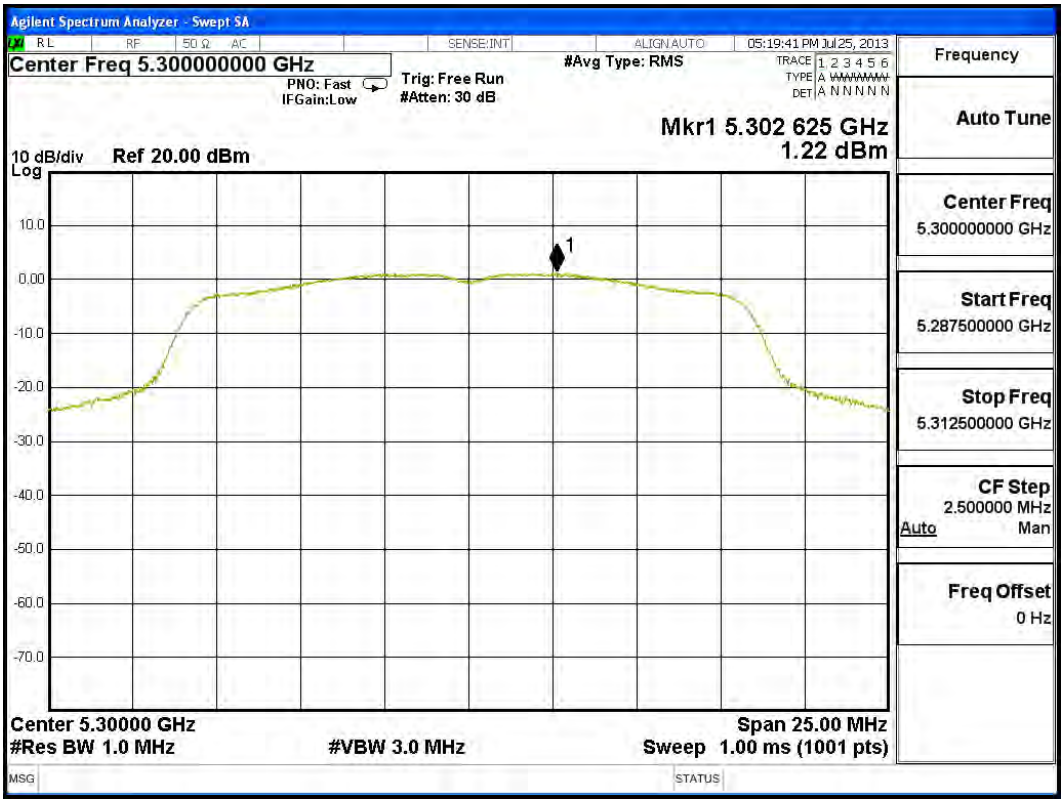
Channel 48:



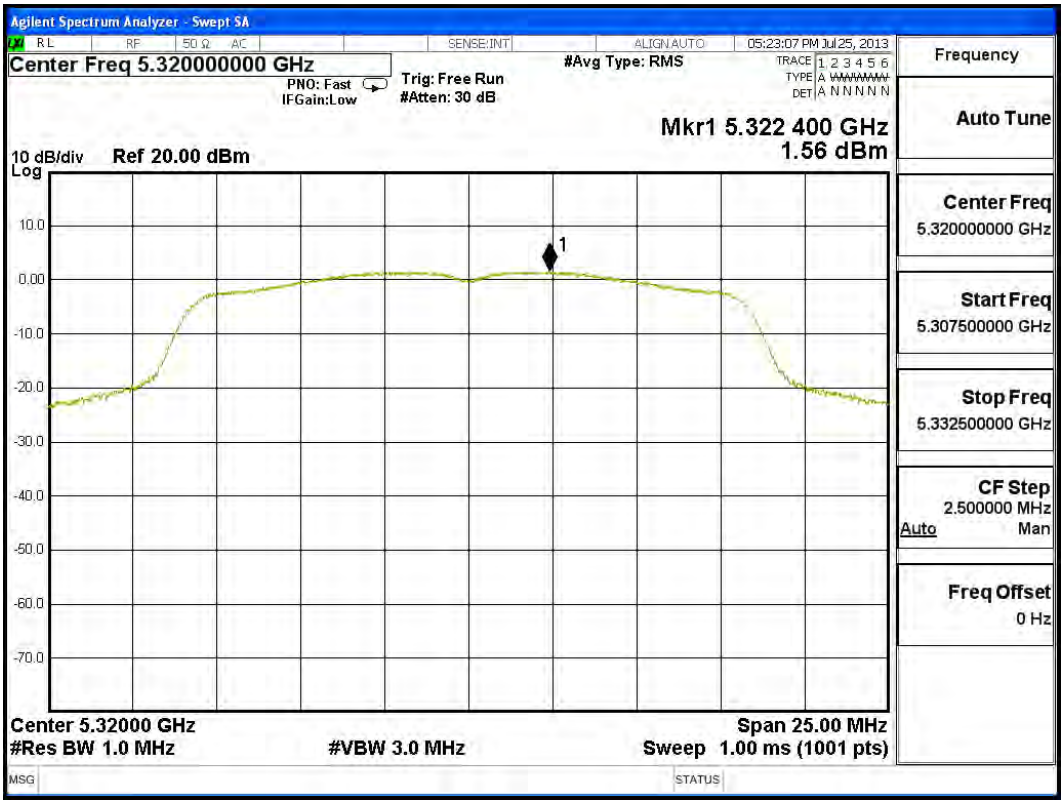
Channel 52:



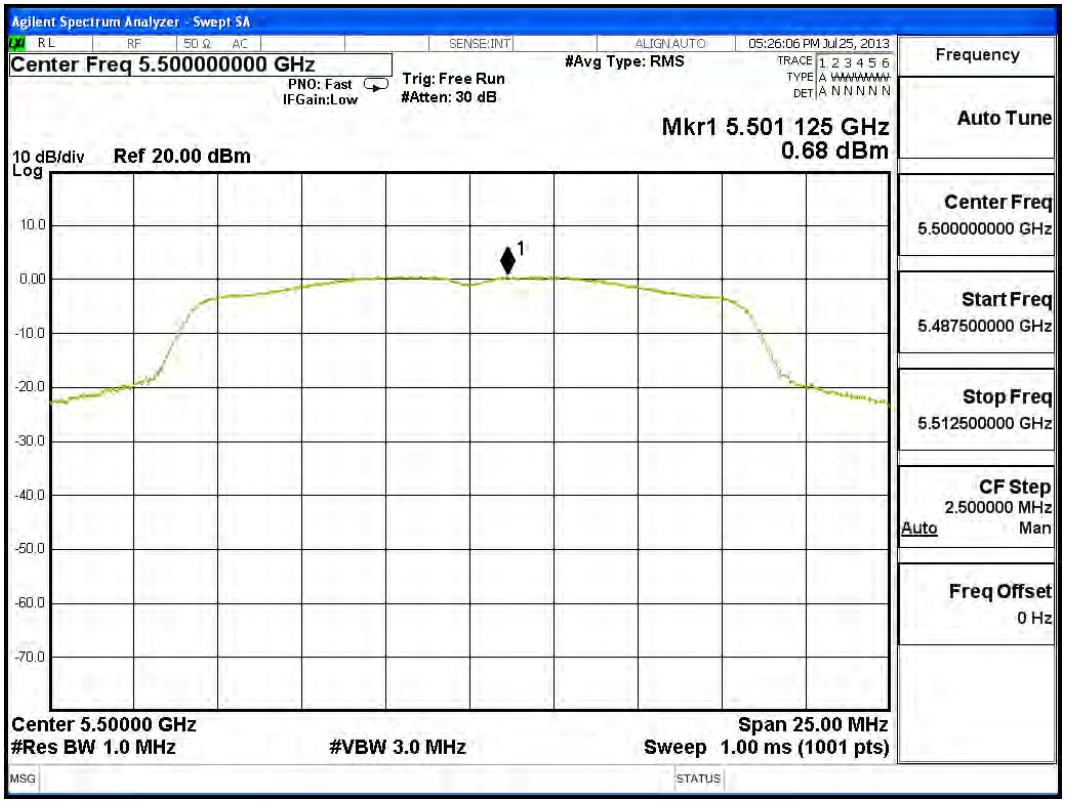
Channel 60:



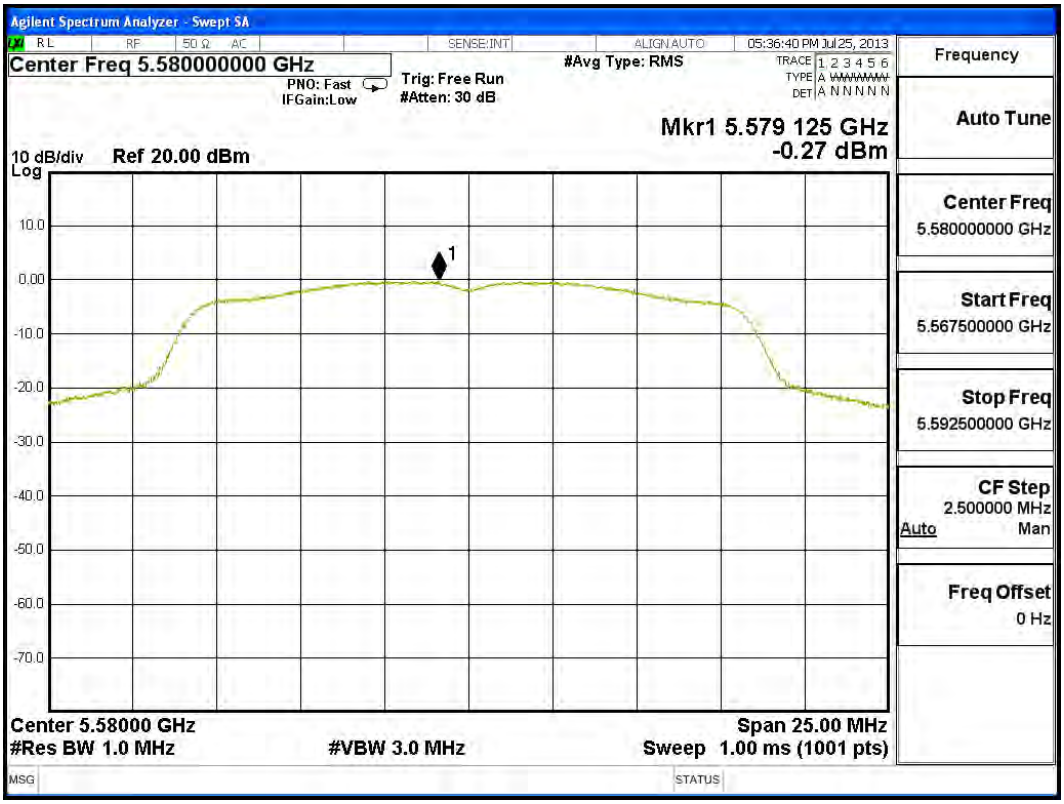
Channel 64:



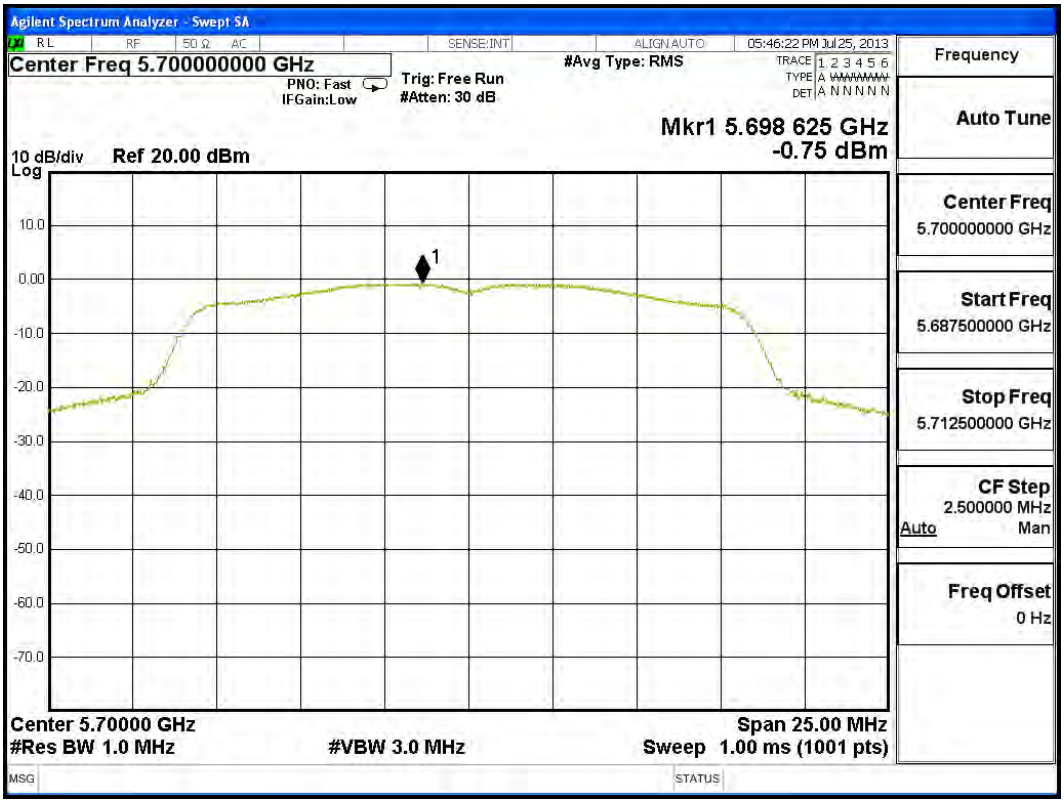
Channel 100:



Channel 116:



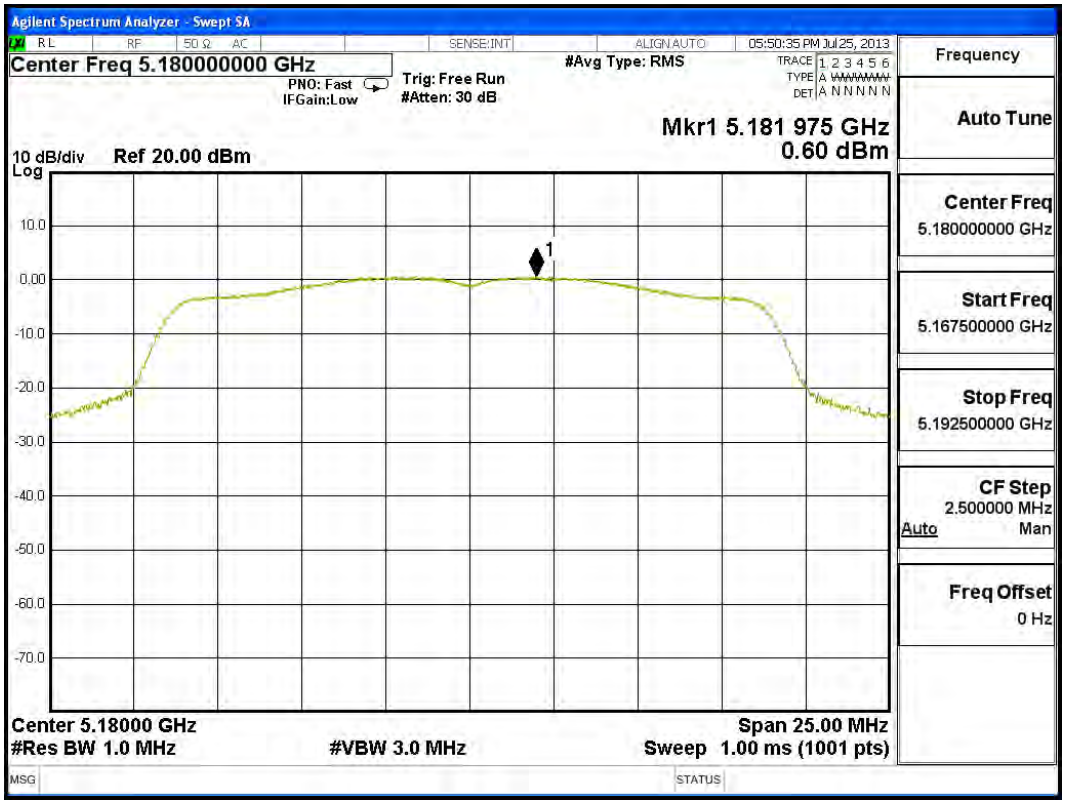
Channel 140:



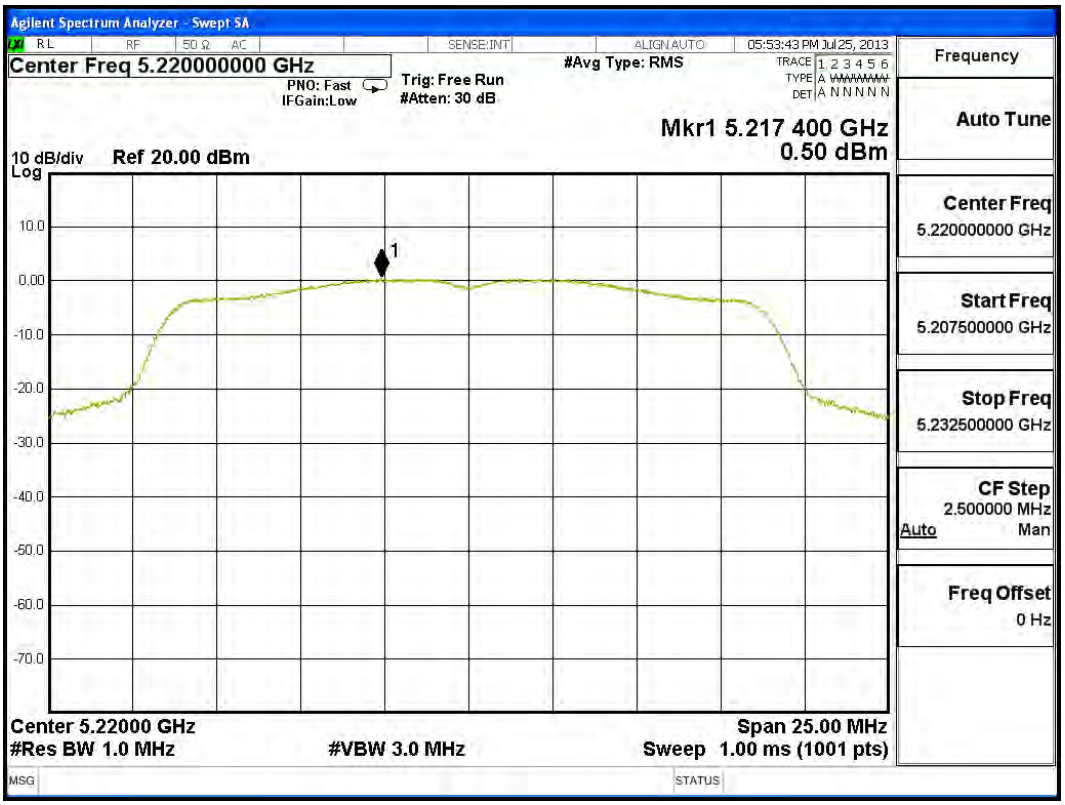
Product : FIELDBOOK
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit	Result
36	5180	0.600	< 4dBm	Pass
44	5220	0.500	< 4dBm	Pass
48	5240	0.020	< 4dBm	Pass
52	5260	0.600	< 11dBm	Pass
60	5300	1.020	< 11dBm	Pass
64	5320	1.360	< 11dBm	Pass
100	5500	0.350	< 11dBm	Pass
116	5580	-0.680	< 11dBm	Pass
140	5700	-0.880	< 11dBm	Pass

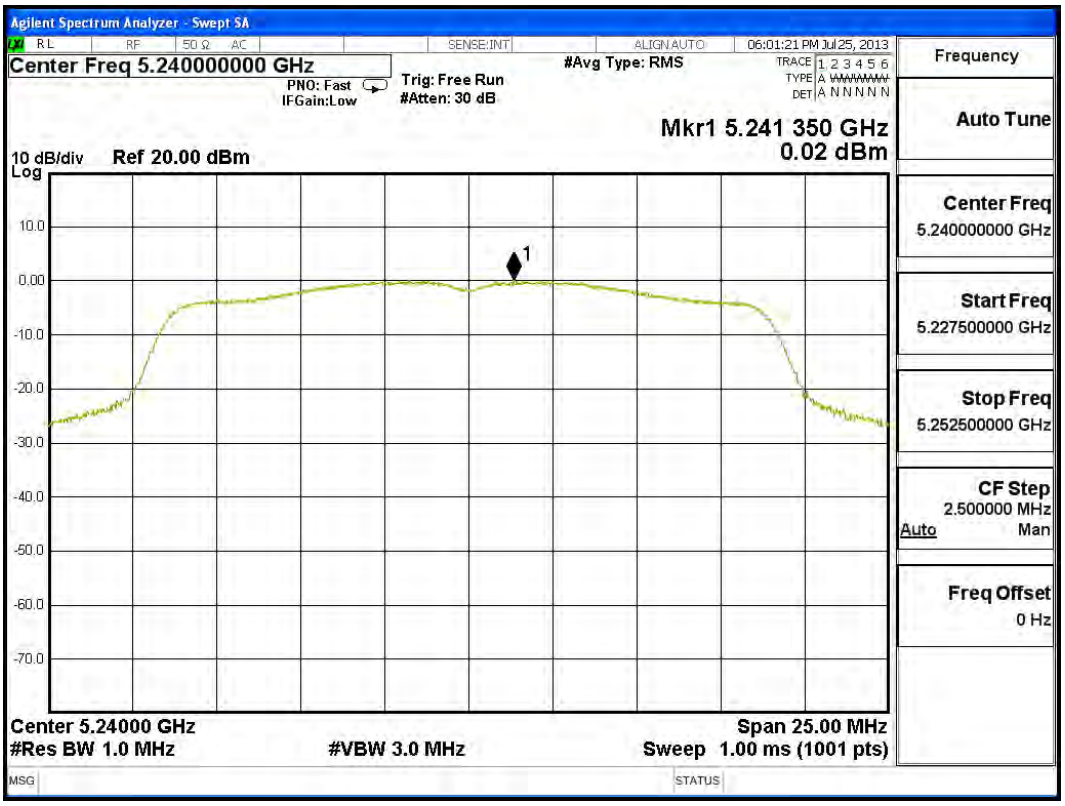
Channel 36



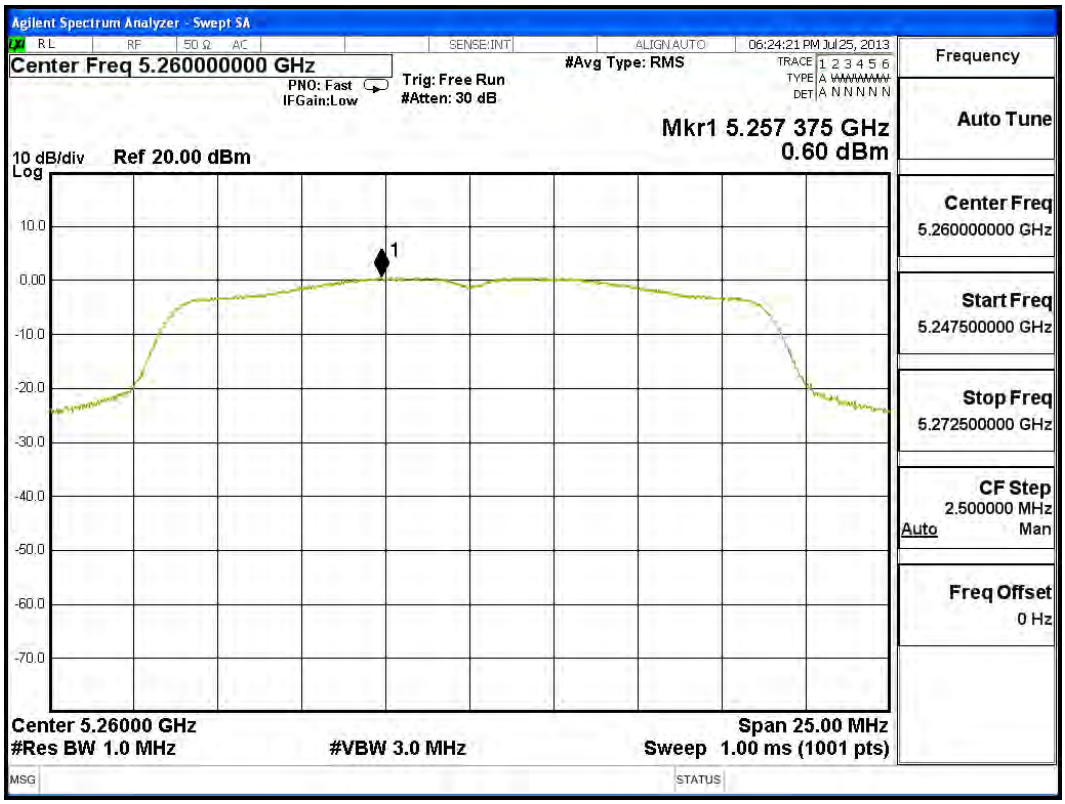
Channel 44



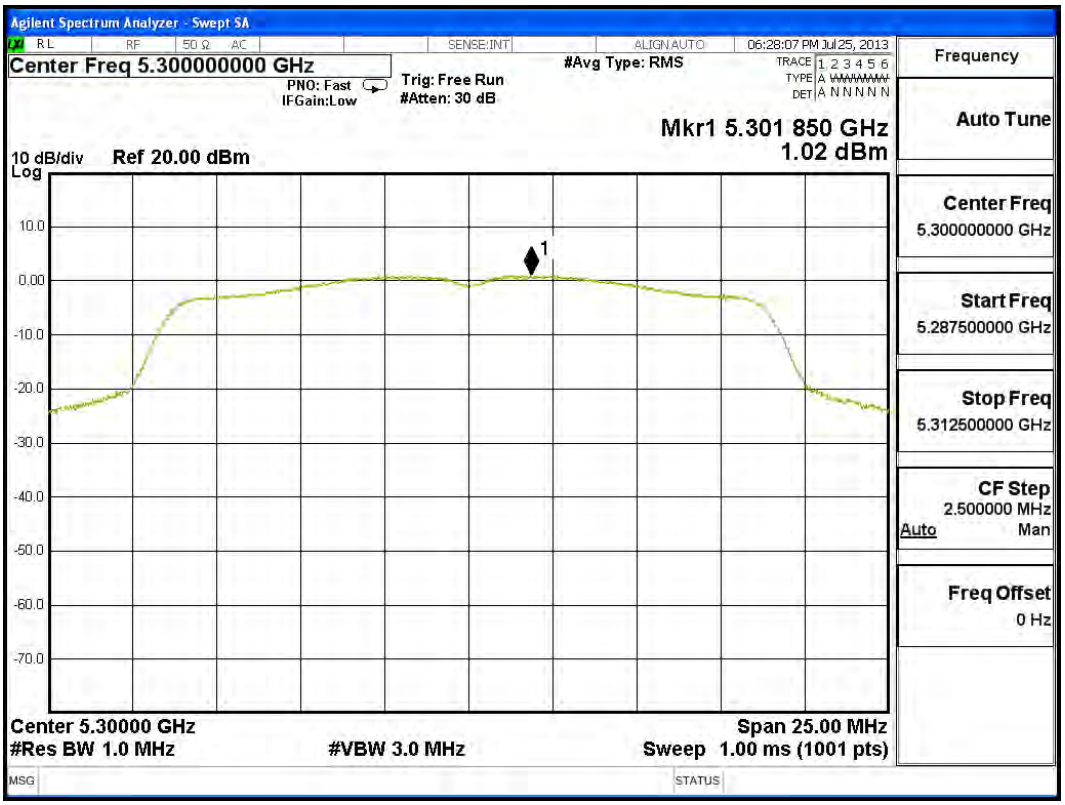
Channel 48



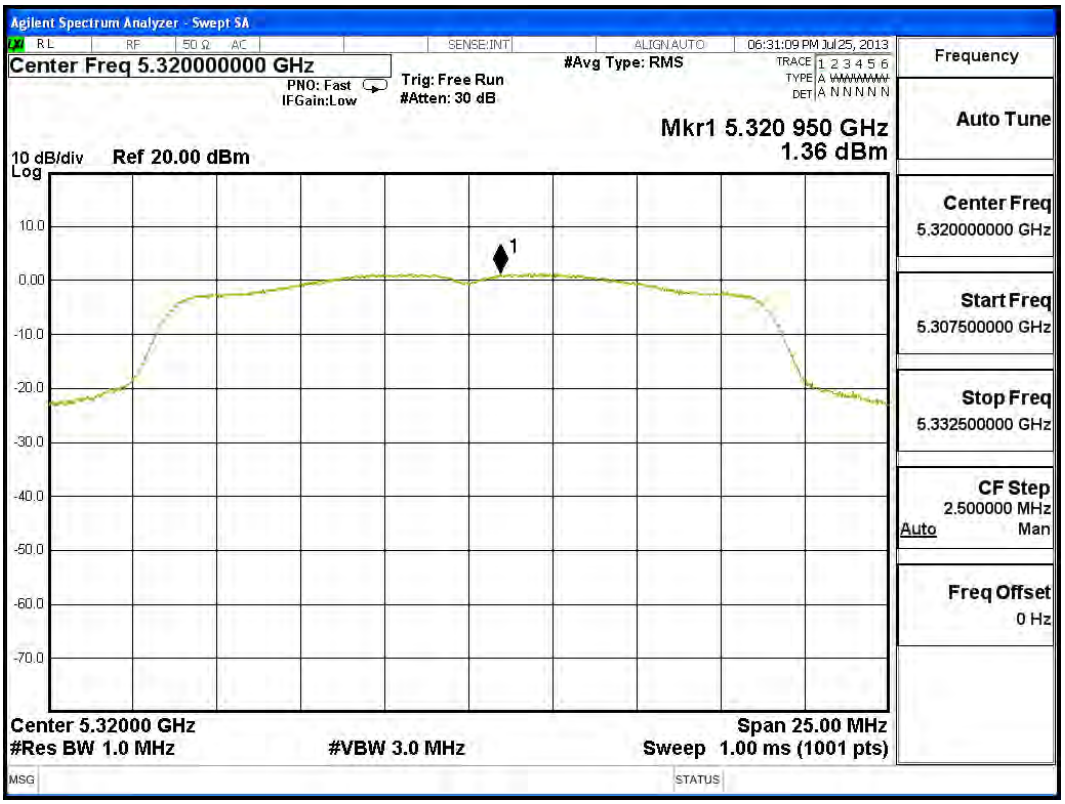
Channel 52



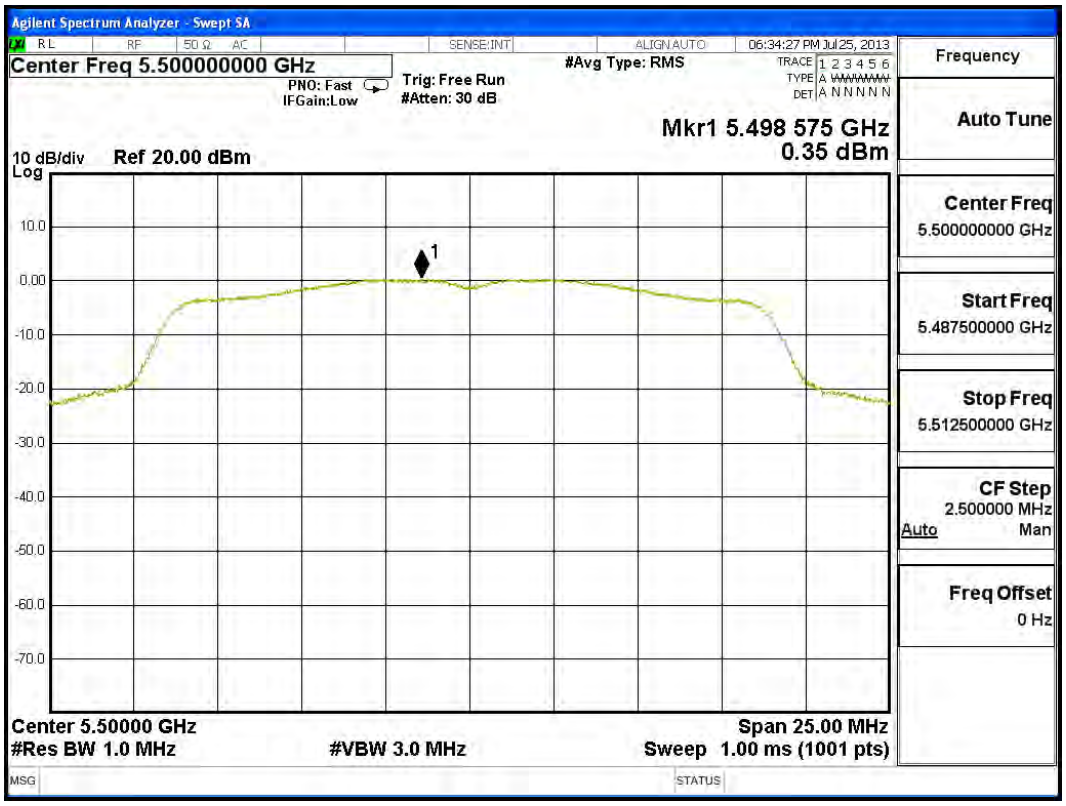
Channel 60



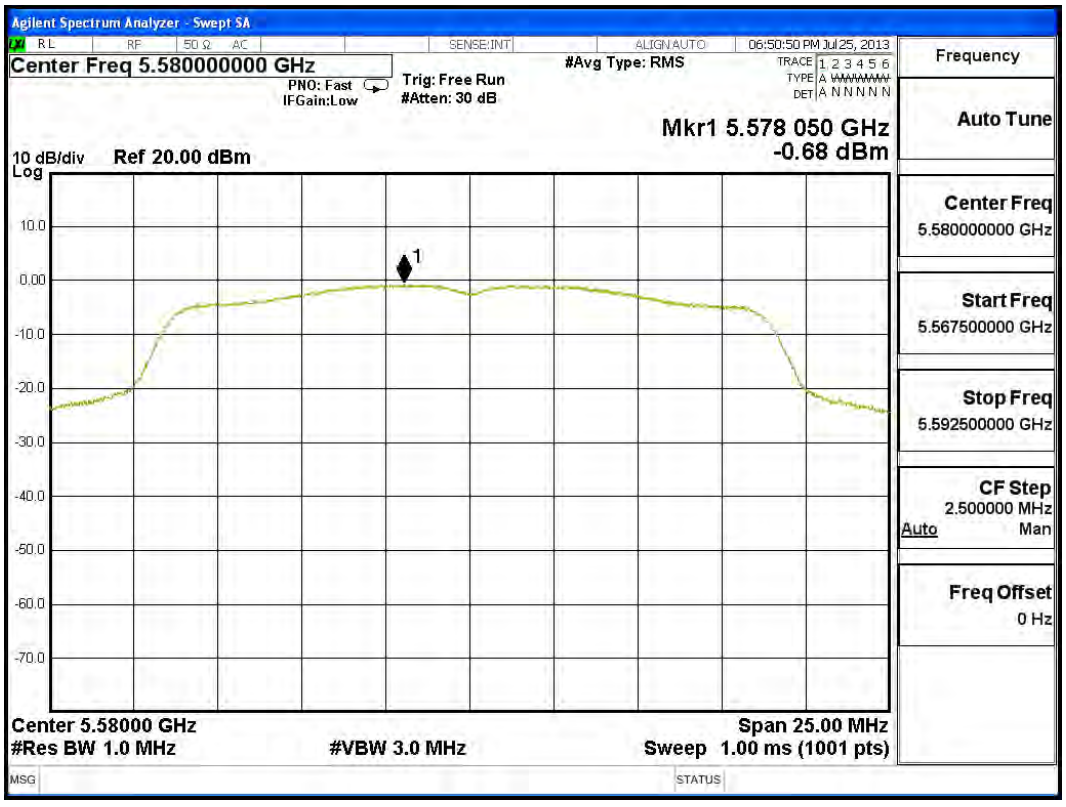
Channel 64



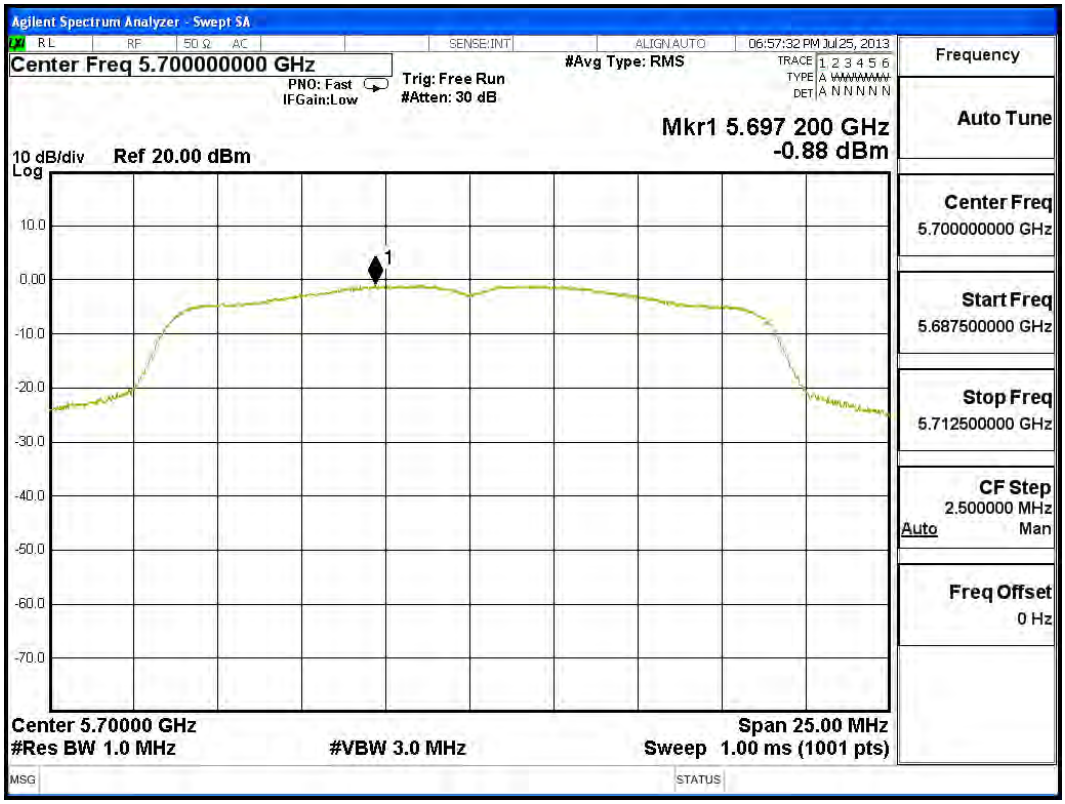
Channel 100



Channel 116



Channel 140


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:57:32 PM Jul 25, 2013
Center Freq 5.700000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET A N N N N N
Mkr1 5.697 200 GHz
-0.88 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
Center 5.70000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.700000000 GHz
Start Freq
5.687500000 GHz
Stop Freq
5.712500000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz

5. Peak Excursion

5.1. Test Equipment

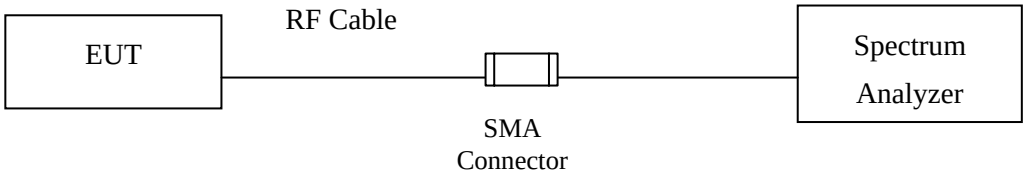
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note:

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

5.2. Test Setup

Conduction Power Measurement



5.3. Limits

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

5.4. Test Procedure

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

5.5. Uncertainty

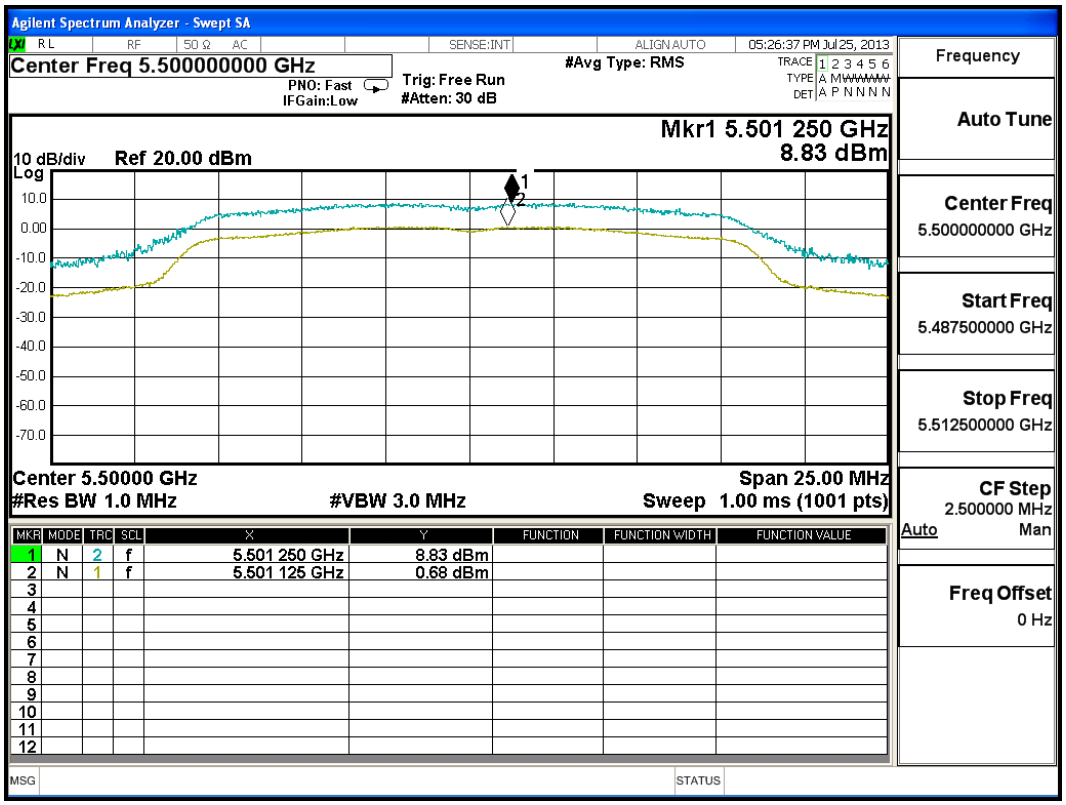
± 1.27 dB

5.6. Test Result of Peak Excursion

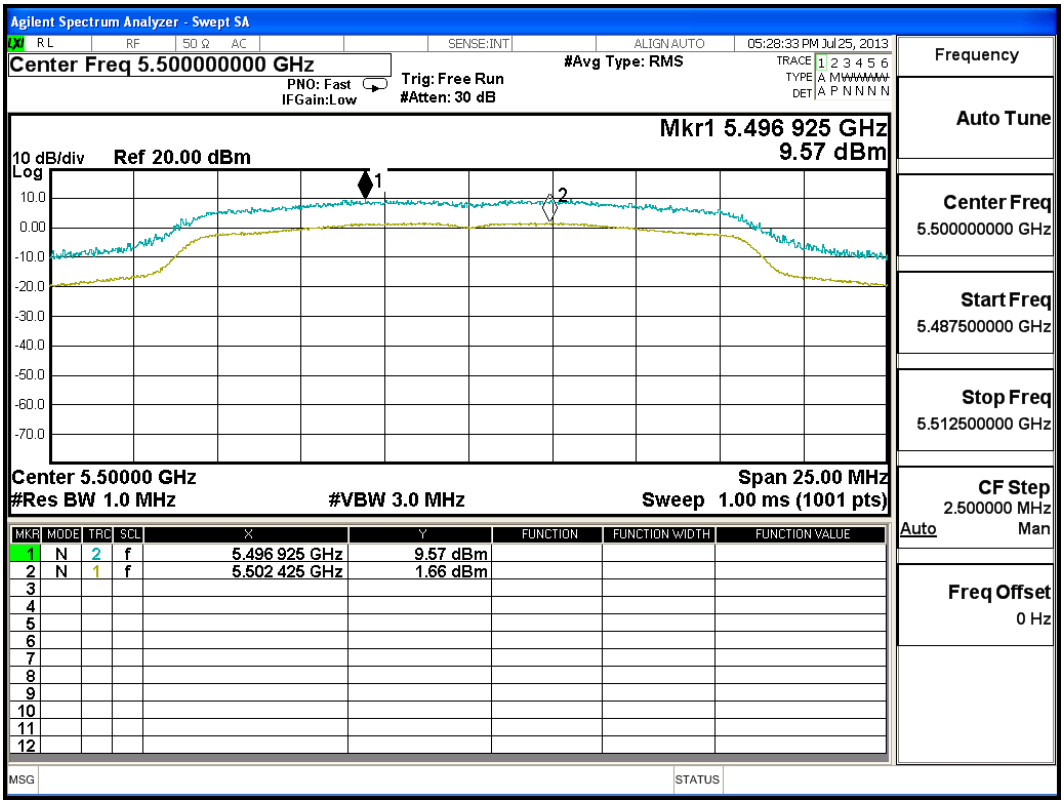
Product : FIELDBOOK
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dB)	Required Limit (dB)	Result
100	5500	MCS (0)	8.150	<13	Pass
		MCS (2)	7.910	<13	Pass
		MCS (4)	8.470	<13	Pass
		MCS (7)	9.180	<13	Pass

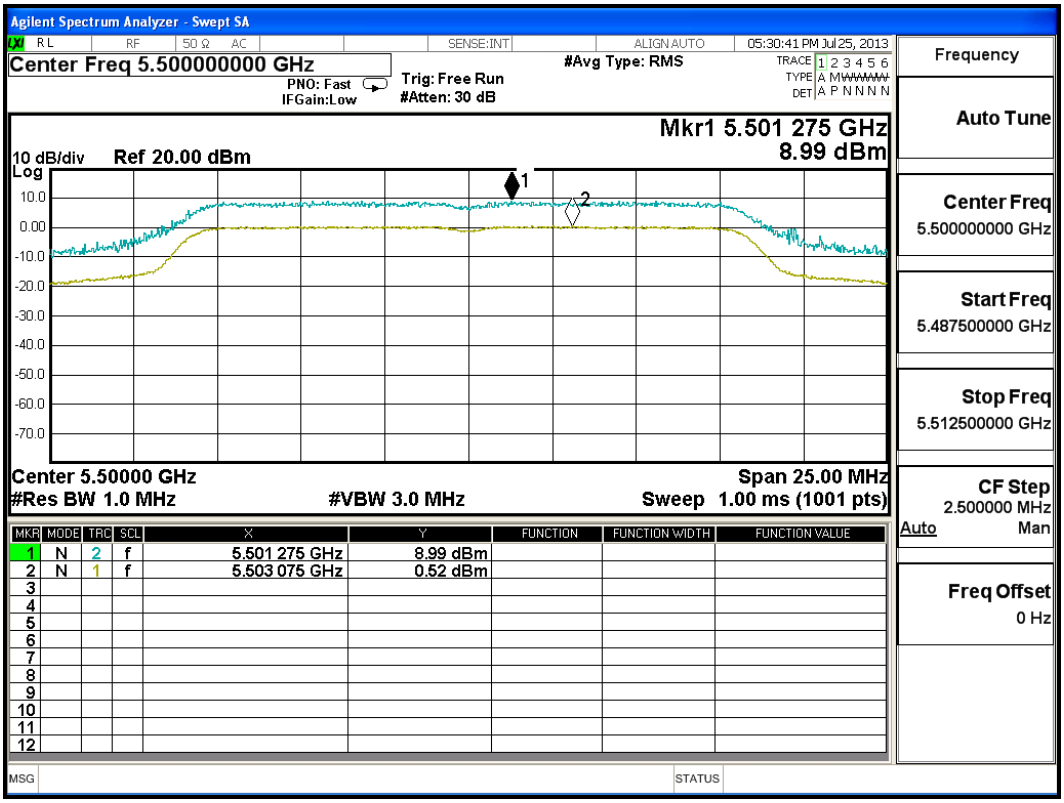
Channel 100:



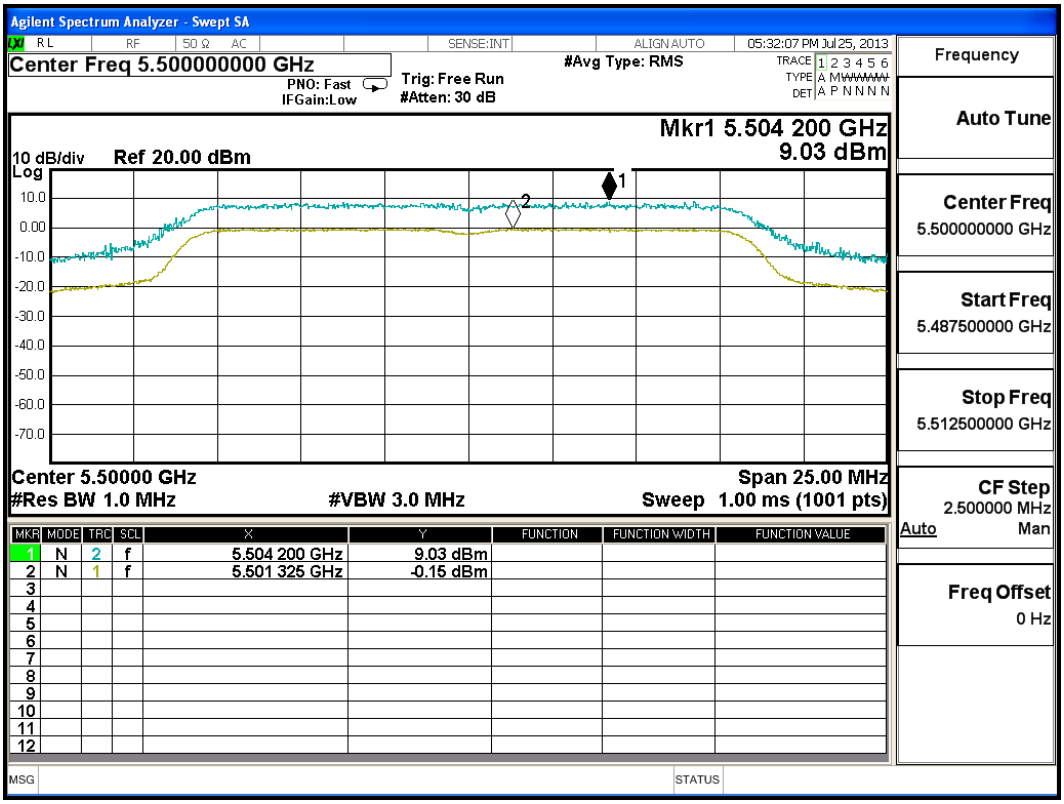
Channel 100:



Channel 100:



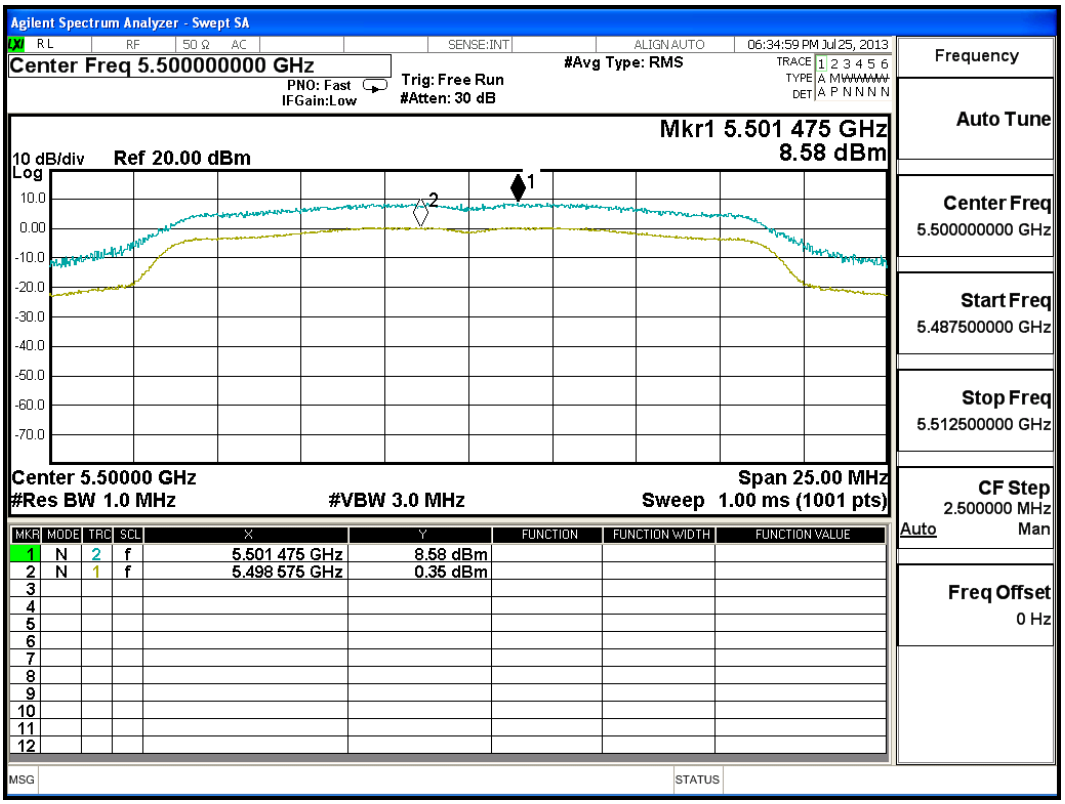
Channel 100:


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
05:32:07 PM Jul 25, 2013
Center Freq 5.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
TRACE 1 2 3 4 5 6
TYPE A MWWWWW
DET A P N N N N
Mkr1 5.504 200 GHz
9.03 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.50000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 2 f 5.504 200 GHz 9.03 dBm
2 N 1 f 5.501 325 GHz -0.15 dBm
3
4
5
6
7
8
9
10
11
12
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.500000000 GHz
Start Freq
5.487500000 GHz
Stop Freq
5.512500000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz

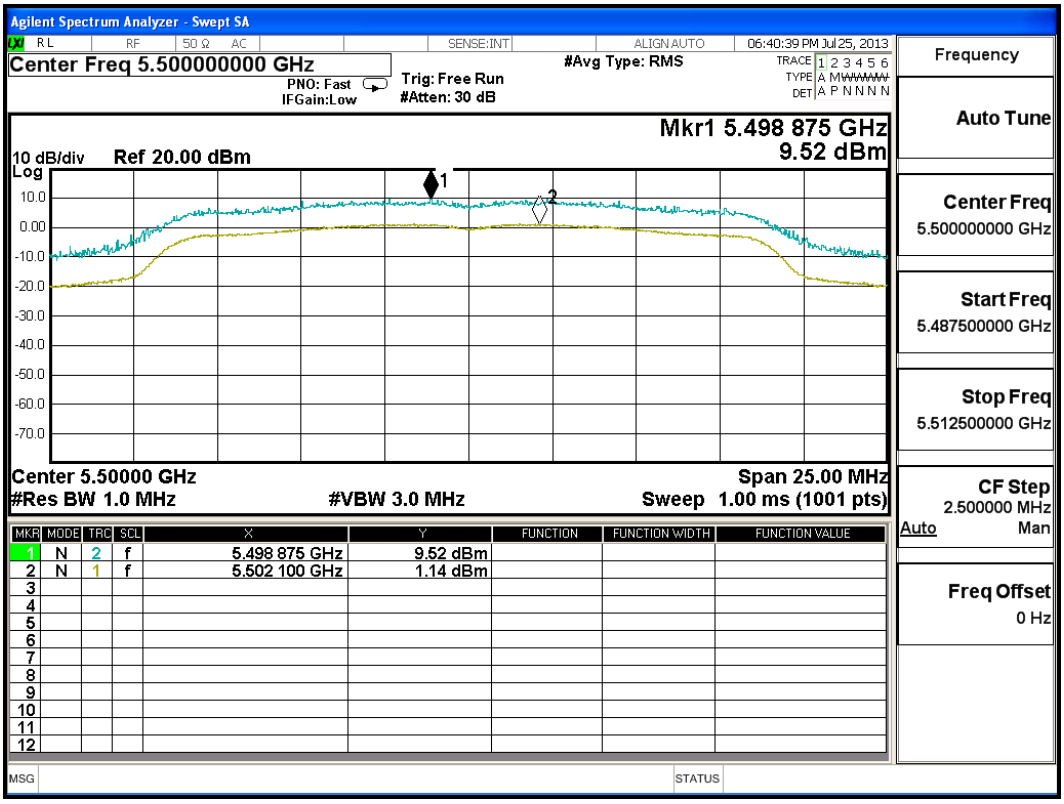
Product : FIELDBOOK
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dB)	Required Limit (dB)	Result
100	5500	MCS (0)	8.230	<13	Pass
		MCS (2)	8.380	<13	Pass
		MCS (4)	9.510	<13	Pass
		MCS (7)	9.190	<13	Pass

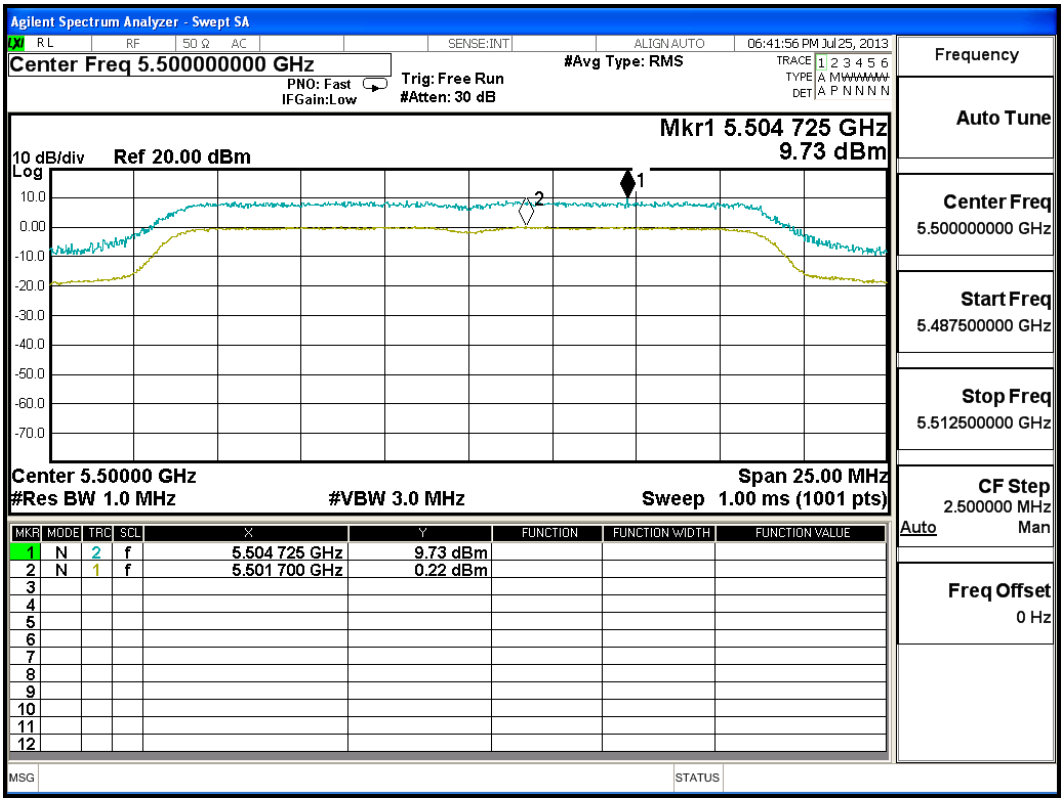
Channel 100:



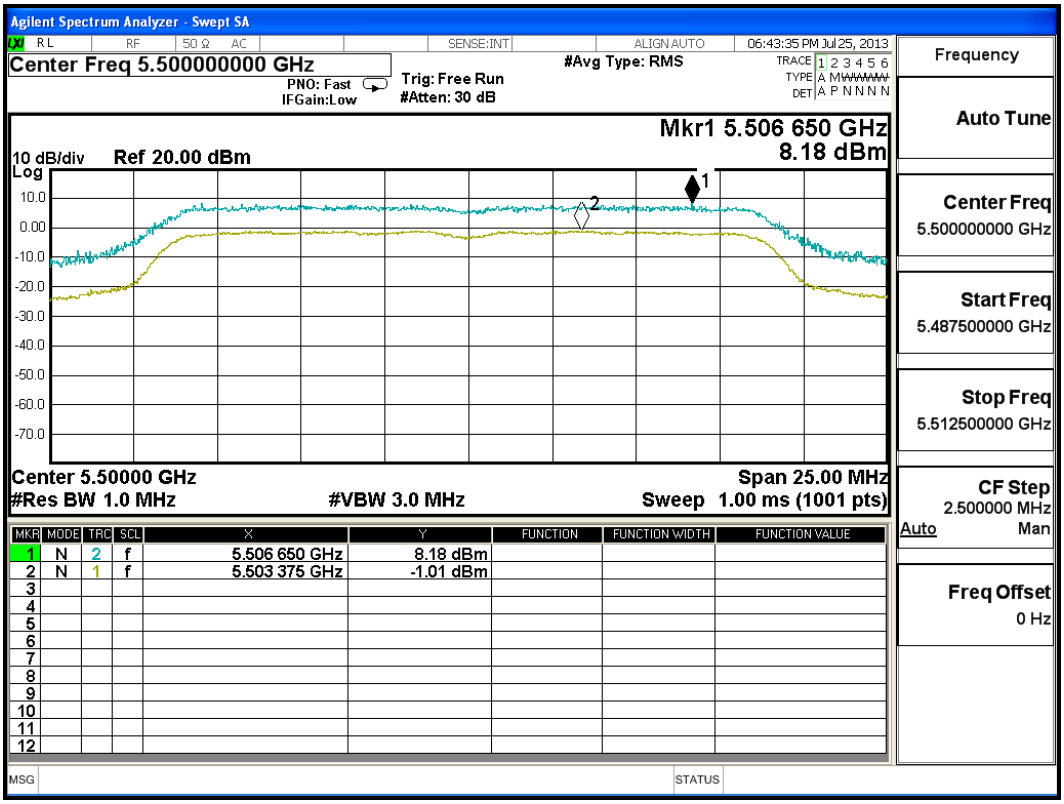
Channel 100:



Channel 100:



Channel 100:


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:43:35 PM Jul 25, 2013
Center Freq 5.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
TRACE 1 2 3 4 5 6
TYPE A MWWWWW
DET A P N N N N
Mkr1 5.506 650 GHz
8.18 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.50000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 2 f 5.506 650 GHz 8.18 dBm
2 N 1 f 5.503 375 GHz -1.01 dBm
3
4
5
6
7
8
9
10
11
12
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.500000000 GHz
Start Freq
5.487500000 GHz
Stop Freq
5.512500000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz

6. Radiated Emission

6.1. Test Equipment

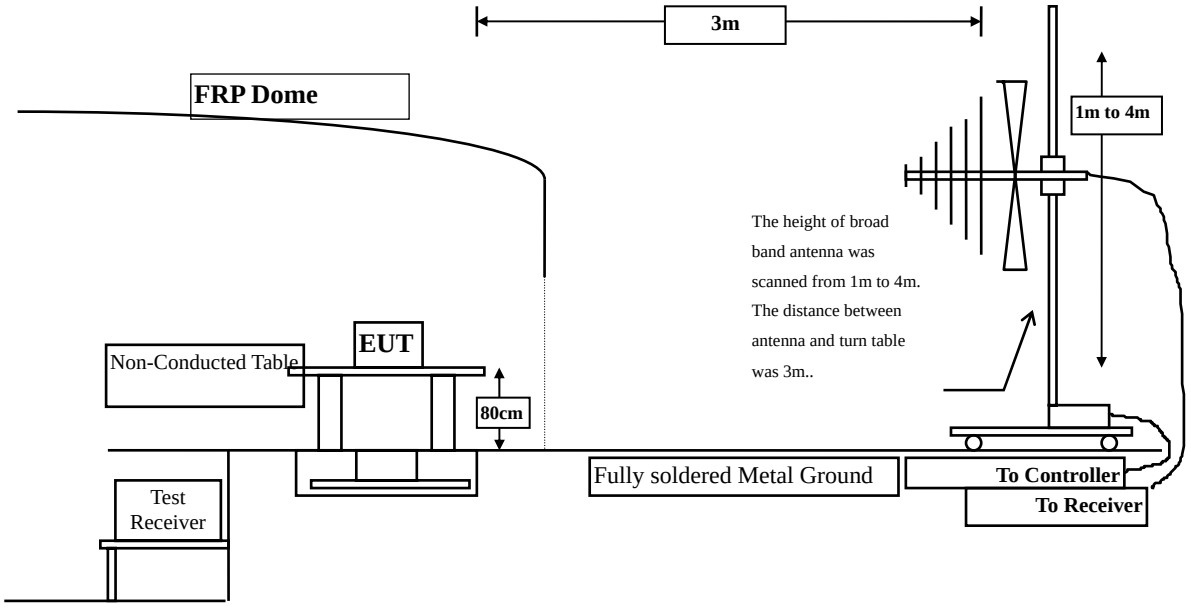
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2012
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2012
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2013
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

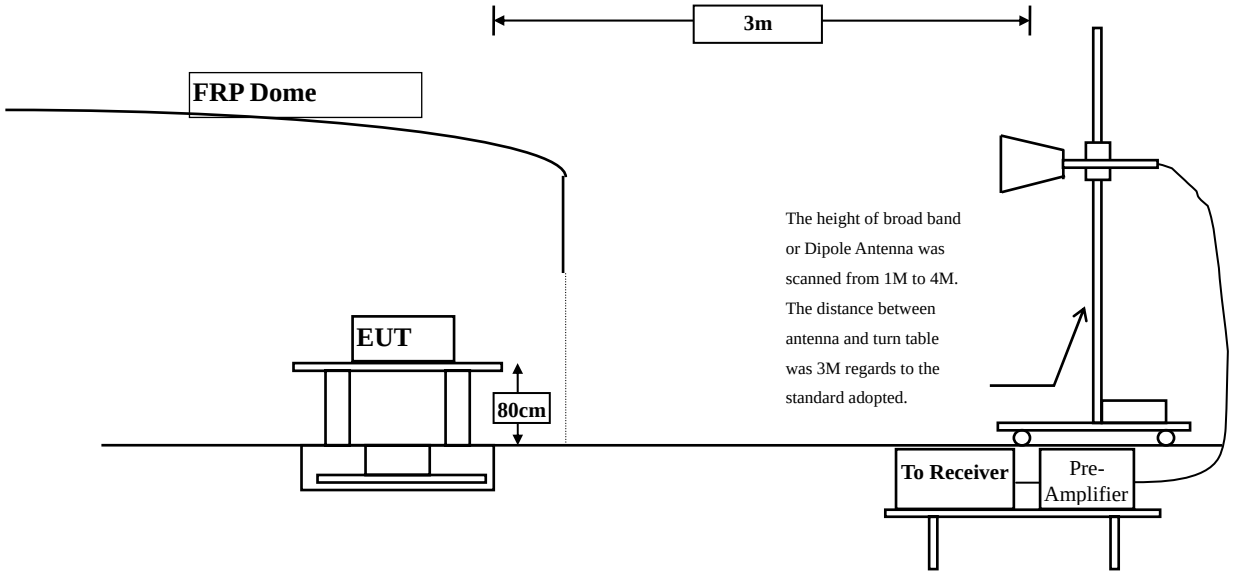
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

6.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (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 (dBuV/m) = 20 log E field strength (uV/m)

6.4. Test Procedure

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

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

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

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

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

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

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

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

6.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

6.6. Test Result of Radiated Emission

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10360.000	10.932	42.700	53.632	-20.368	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	12.436	39.150	51.585	-22.415	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10440.000	9.725	39.880	49.605	-24.395	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10440.000	11.505	40.310	51.815	-22.185	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10480.000	10.464	39.760	50.223	-23.777	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
10480.000	12.399	39.930	52.329	-21.671	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5260MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	11.531	38.980	50.511	-23.489	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
10520.000	13.441	38.850	52.291	-21.709	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10600.000	13.182	39.350	52.532	-21.468	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10600.000	14.717	38.720	53.437	-20.563	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	12.912	38.100	51.012	-22.988	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10640.000	14.585	37.880	52.465	-21.535	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5500MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11000.000	12.392	39.750	52.142	-21.858	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11000.000	14.514	39.060	53.574	-20.426	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11160.000	12.201	39.150	51.351	-22.649	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11160.000	14.445	39.180	53.625	-20.375	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5700MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11400.000	13.372	38.760	52.132	-21.868	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11400.000	14.922	38.240	53.162	-20.838	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10360.000	10.932	39.700	50.632	-23.368	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10360.000	12.436	39.100	51.535	-22.465	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10440.000	9.725	39.910	49.635	-24.365	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10440.000	11.505	39.730	51.235	-22.765	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10480.000	10.464	40.300	50.763	-23.237	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10480.000	12.399	40.500	52.899	-21.101	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5260MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10520.000	11.531	38.970	50.501	-23.499	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10520.000	13.441	39.500	52.941	-21.059	74.000
15780.000	*	*	*	*	74.000
21040.000	*	*	*	*	74.000
26300.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10600.000	13.182	38.600	51.782	-22.218	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10600.000	14.717	38.600	53.317	-20.683	74.000
15900.000	*	*	*	*	74.000
21200.000	*	*	*	*	74.000
26500.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10640.000	12.912	37.950	50.862	-23.138	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10640.000	14.585	38.400	52.985	-21.015	74.000
15960.000	*	*	*	*	74.000
21280.000	*	*	*	*	74.000
26600.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5500MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11000.000	12.392	40.650	53.042	-20.958	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	74.000
Average Detector:					
11000.000	16.399	24.910	41.309	-12.691	54.000
Vertical					
Peak Detector:					
11000.000	14.514	38.430	52.944	-21.056	74.000
16500.000	*	*	*	*	74.000
22000.000	*	*	*	*	74.000
27500.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11160.000	12.201	38.930	51.131	-22.869	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	74.000
Average Detector:					
11160.000	16.664	22.910	39.575	-14.425	54.000
Vertical					
Peak Detector:					
11160.000	14.445	38.580	53.025	-20.975	74.000
16800.000	*	*	*	*	74.000
22400.000	*	*	*	*	74.000
28000.000	*	*	*	*	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 : FIELDBOOK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5700MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11400.000	13.372	38.590	51.962	-22.038	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11400.000	14.922	38.730	53.652	-20.348	74.000
17100.000	*	*	*	*	74.000
22800.000	*	*	*	*	74.000
28500.000	*	*	*	*	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 : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
152.220	-7.926	38.546	30.620	-12.880	43.500
385.020	1.209	36.398	37.607	-8.393	46.000
460.680	4.030	27.890	31.920	-14.080	46.000
538.280	3.316	37.331	40.647	-5.353	46.000
844.800	6.442	28.651	35.093	-10.907	46.000
922.400	6.670	36.002	42.672	-3.328	46.000
Vertical					
Peak Detector					
152.220	-5.306	35.366	30.060	-13.440	43.500
307.420	-4.030	38.423	34.393	-11.607	46.000
385.020	-0.441	35.454	35.013	-10.987	46.000
538.280	1.996	32.466	34.462	-11.538	46.000
844.800	2.462	23.812	26.274	-19.726	46.000
922.400	3.200	27.699	30.899	-15.101	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 port.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
152.220	-7.926	38.946	31.020	-12.480	43.500
385.020	1.209	37.504	38.713	-7.287	46.000
460.680	4.030	28.646	32.676	-13.324	46.000
538.280	3.316	36.250	39.566	-6.434	46.000
844.800	6.442	29.400	35.842	-10.158	46.000
922.400	6.670	36.638	43.308	-2.692	46.000
Vertical					
Peak Detector					
152.220	-5.306	34.941	29.635	-13.865	43.500
307.420	-4.030	38.432	34.402	-11.598	46.000
385.020	-0.441	34.921	34.480	-11.520	46.000
538.280	1.996	32.609	34.605	-11.395	46.000
697.360	0.691	30.222	30.913	-15.087	46.000
922.400	3.200	29.124	32.324	-13.676	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 : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
260.860	-5.460	39.685	34.225	-11.775	46.000
385.020	1.209	37.293	38.502	-7.498	46.000
538.280	3.316	37.521	40.837	-5.163	46.000
769.140	5.118	30.232	35.350	-10.650	46.000
844.800	6.442	28.829	35.271	-10.729	46.000
922.400	6.670	36.459	43.129	-2.871	46.000
Vertical					
Peak Detector					
152.220	-5.306	34.464	29.158	-14.342	43.500
307.420	-4.030	38.364	34.334	-11.666	46.000
385.020	-0.441	33.154	32.713	-13.287	46.000
538.280	1.996	32.664	34.660	-11.340	46.000
844.800	2.462	23.404	25.866	-20.134	46.000
922.400	3.200	27.335	30.535	-15.465	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 : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
152.220	-7.926	39.184	31.258	-12.242	43.500
385.020	1.209	36.724	37.933	-8.067	46.000
538.280	3.316	37.615	40.931	-5.069	46.000
769.140	5.118	29.207	34.325	-11.675	46.000
844.800	6.442	27.606	34.048	-11.952	46.000
922.400	6.670	35.423	42.093	-3.907	46.000
Vertical					
Peak Detector					
152.220	-5.306	34.032	28.726	-14.774	43.500
307.420	-4.030	37.935	33.905	-12.095	46.000
385.020	-0.441	35.114	34.673	-11.327	46.000
538.280	1.996	32.543	34.539	-11.461	46.000
691.540	2.092	22.970	25.062	-20.938	46.000
922.400	3.200	28.379	31.579	-14.421	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 : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
385.020	1.209	36.905	38.114	-7.886	46.000
460.680	4.030	28.544	32.574	-13.426	46.000
538.280	3.316	36.458	39.774	-6.226	46.000
769.140	5.118	28.402	33.520	-12.480	46.000
844.800	6.442	28.642	35.084	-10.916	46.000
922.400	6.670	35.192	41.862	-4.138	46.000
Vertical					
Peak Detector					
152.220	-5.306	34.324	29.018	-14.482	43.500
307.420	-4.030	38.542	34.512	-11.488	46.000
385.020	-0.441	35.542	35.101	-10.899	46.000
538.280	1.996	33.430	35.426	-10.574	46.000
691.540	2.092	23.821	25.913	-20.087	46.000
922.400	3.200	28.402	31.602	-14.398	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 : FIELDBOOK
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
385.020	1.209	36.862	38.071	-7.929	46.000
460.680	4.030	27.073	31.103	-14.897	46.000
538.280	3.316	36.064	39.380	-6.620	46.000
769.140	5.118	29.142	34.260	-11.740	46.000
844.800	6.442	28.567	35.009	-10.991	46.000
922.400	6.670	36.027	42.697	-3.303	46.000
Vertical					
Peak Detector					
152.220	-5.306	38.060	32.754	-10.746	43.500
286.080	-5.409	36.197	30.788	-15.212	46.000
385.020	-0.441	36.862	36.421	-9.579	46.000
538.280	1.996	36.064	38.060	-7.940	46.000
844.800	2.462	28.567	31.029	-14.971	46.000
922.400	3.200	36.027	39.227	-6.773	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.

7. Band Edge

7.1. Test Equipment

RF Radiated Measurement:

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

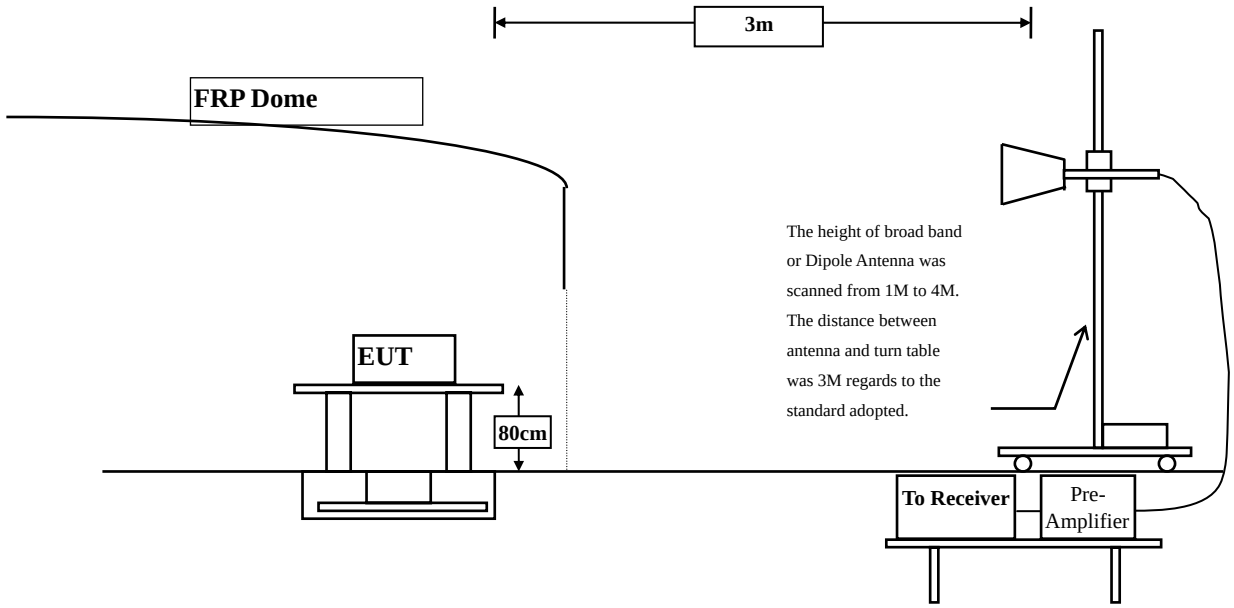
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2012
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2012
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2012
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar., 2013
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2012
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All instruments are calibrated every one year.

2. The test instruments marked by “X” are used to measure the final test results.

7.2. Test Setup

RF Radiated Measurement:



7.3. Limits

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.25 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBμV/m at 3 m distance).
For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.25–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBμV/m at 3 m distance).
For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBμV/m at 3 m distance).
The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

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

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

7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.
The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.
The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

7.6. Test Result of Band Edge

Product : FIELDBOOK
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 (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5148.600	3.345	57.319	60.664	74.00	54.00	Pass
	5148.600	3.345	57.319	60.664	68.23	--	Pass
36 (Peak)	5150.000	3.340	55.235	58.575	74.00	54.00	Pass
36 (Peak)	5178.000	3.240	97.133	100.374	--	--	Pass
36 (Average)	5148.600	3.345	40.913	44.258	74.00	54.00	Pass
36 (Average)	5150.000	3.340	41.246	44.586	74.00	54.00	Pass
36 (Average)	5182.000	3.227	86.473	89.700	--	--	Pass

Figure Channel 36: Horizontal (Peak)

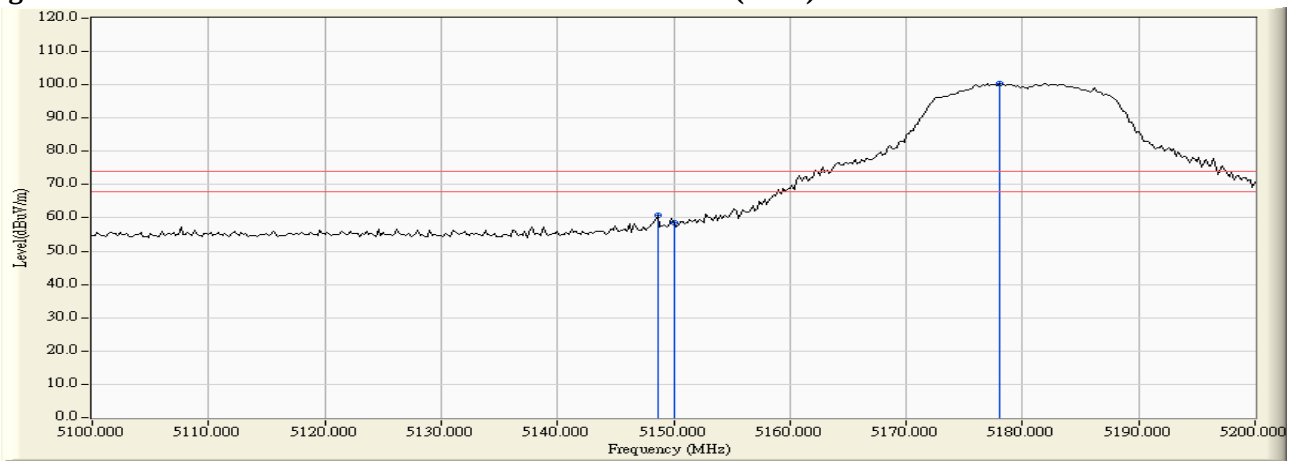
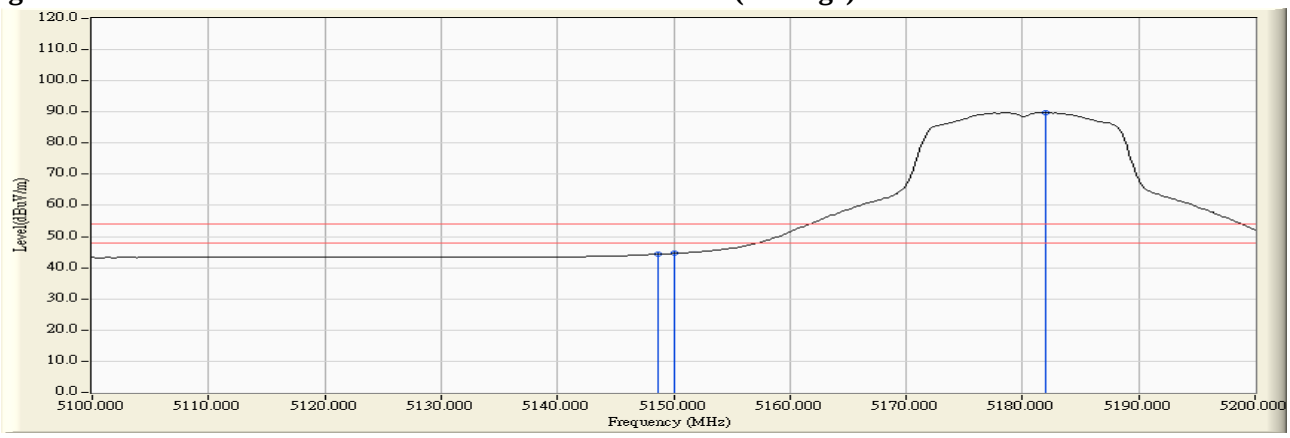


Figure Channel 36: Horizontal (Average)



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 : FIELDBOOK
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 (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5149.000	5.257	59.914	65.171	74.00	54.00	Pass
	5149.000	5.257	59.914	65.171	68.23	--	Pass
36 (Peak)	5150.000	5.260	59.397	64.657	74.00	54.00	Pass
36 (Peak)	5177.200	5.335	101.394	106.728	--	--	Pass
36 (Average)	5149.000	5.257	42.759	48.016	74.00	54.00	Pass
36 (Average)	5150.000	5.260	43.176	48.436	74.00	54.00	Pass
36 (Average)	5178.200	5.336	90.481	95.818	--	--	Pass

Figure Channel 36: Vertical (Peak)

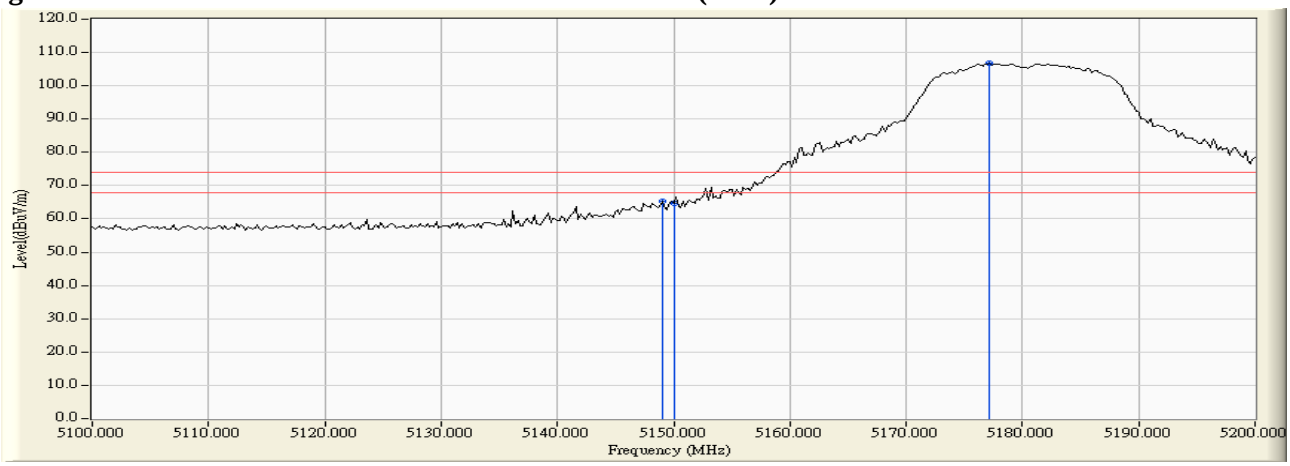
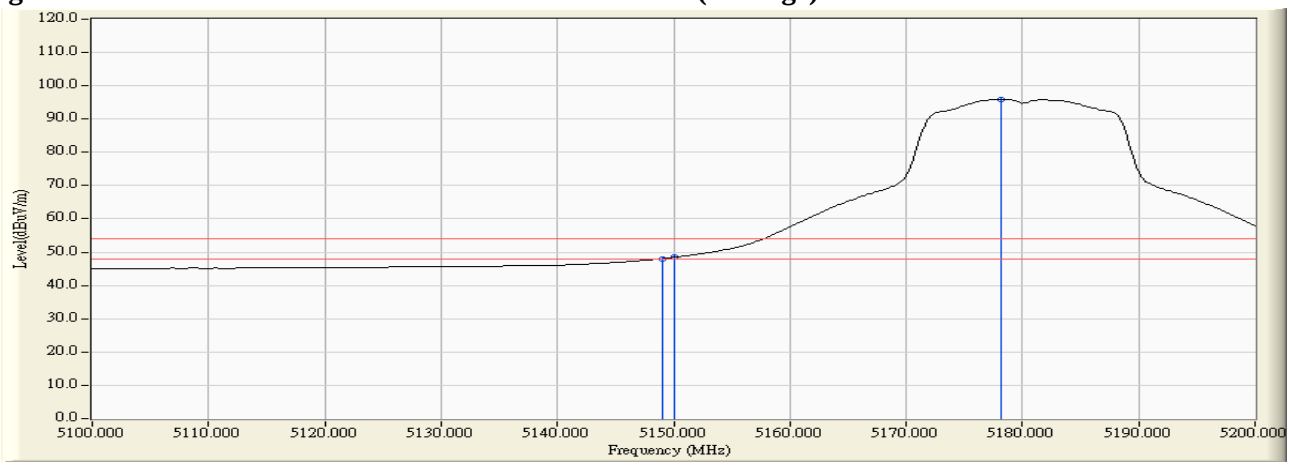


Figure Channel 36: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 64

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5317.800	3.819	96.899	100.718	--	--	Pass
64 (Peak)	5350.000	3.716	58.469	62.186	74.00	54.00	Pass
	5350.000	3.716	58.469	62.186	68.23	--	Pass
64 (Average)	5317.400	3.820	86.176	89.997	--	--	Pass
64 (Average)	5350.000	3.716	41.742	45.459	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)

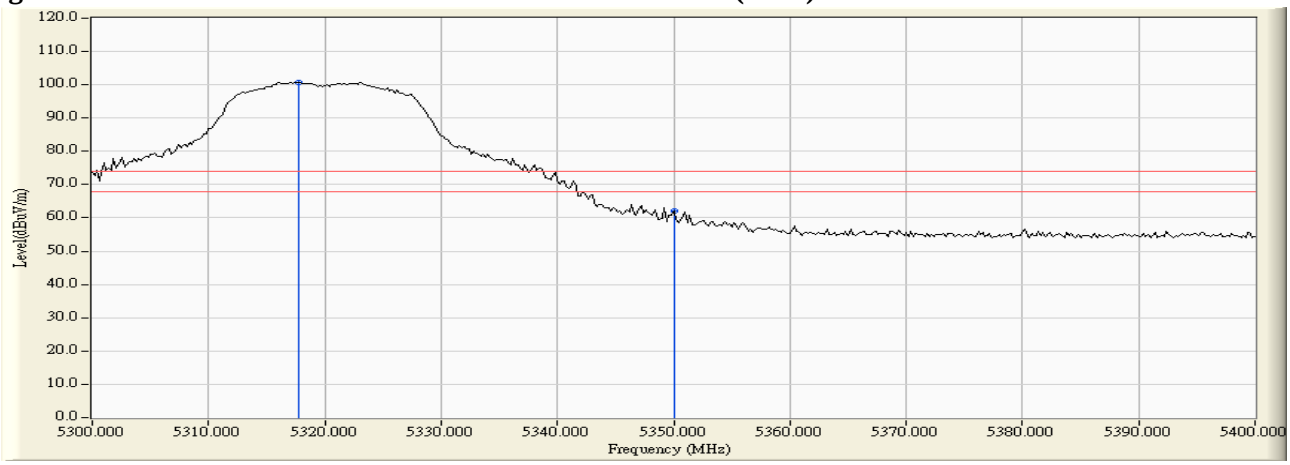
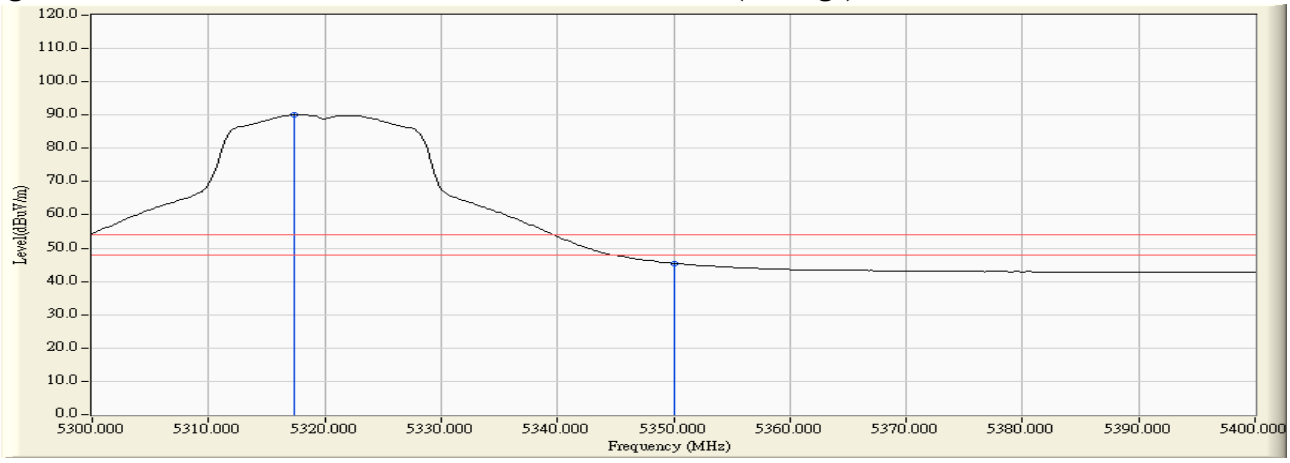


Figure Channel 64: Horizontal (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 64

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5321.800	5.727	101.415	107.142	--	--	Pass
64 (Peak)	5350.000	5.691	61.032	66.724	74.00	54.00	Pass
	5350.000	5.691	61.032	66.724	68.23	--	Pass
64 (Average)	5317.600	5.732	90.725	96.457	--	--	Pass
64 (Average)	5350.000	5.691	44.589	50.281	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)

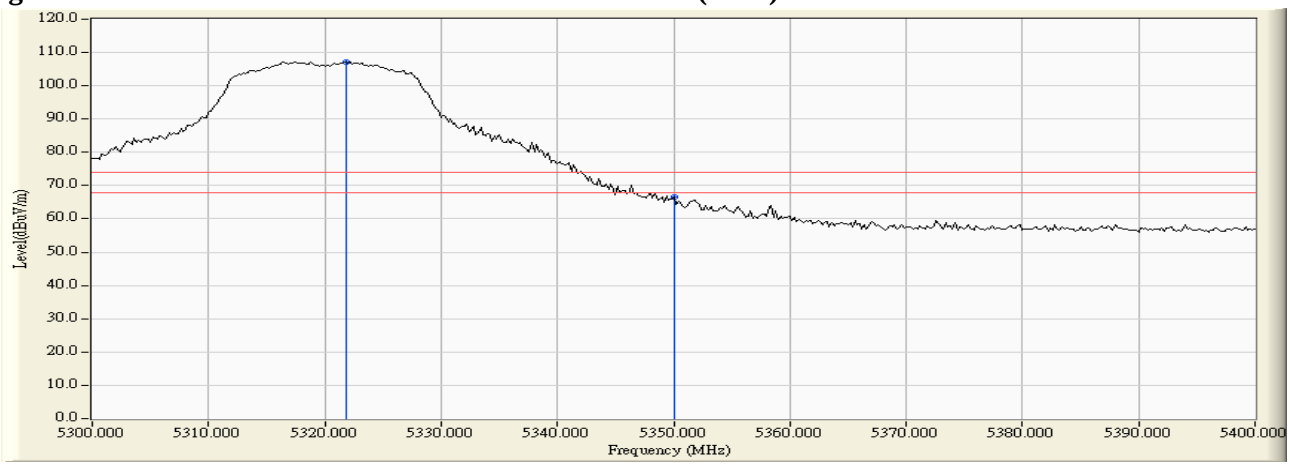
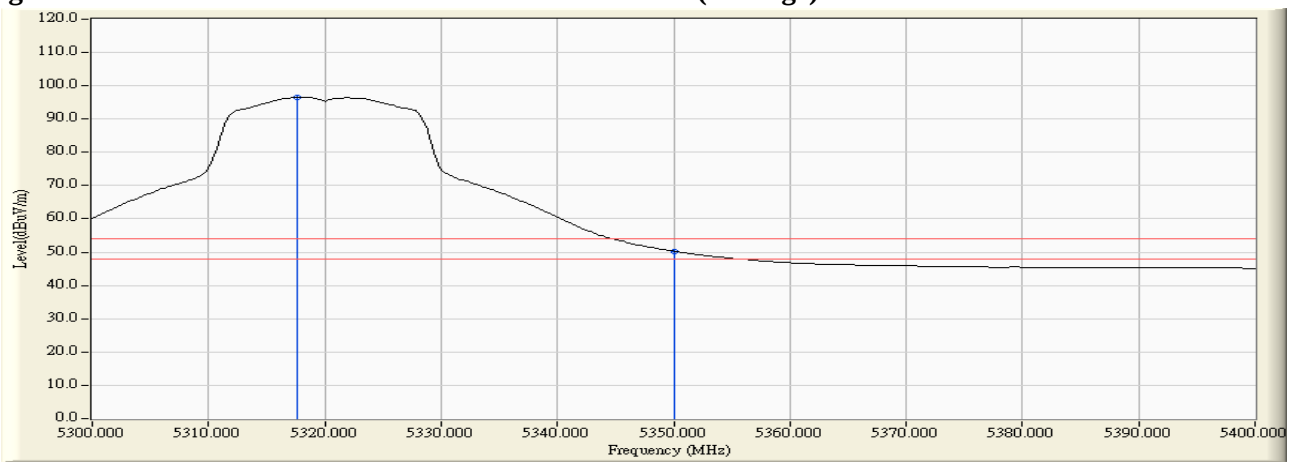


Figure Channel 64: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
100 (Peak)	5456.800	3.713	62.152	65.865	74.00	54.00	Pass
100 (Peak)	5460.000	3.775	59.758	63.533	74.00	54.00	Pass
100 (Peak)	5503.200	4.522	104.070	108.592	--	--	Pass
100 (Average)	5456.800	3.713	42.574	46.287	74.00	54.00	Pass
100 (Average)	5460.000	3.775	43.680	47.455	74.00	54.00	Pass
100 (Average)	5502.400	4.512	92.899	97.410	--	--	Pass

Figure Channel 100: Horizontal (Peak)

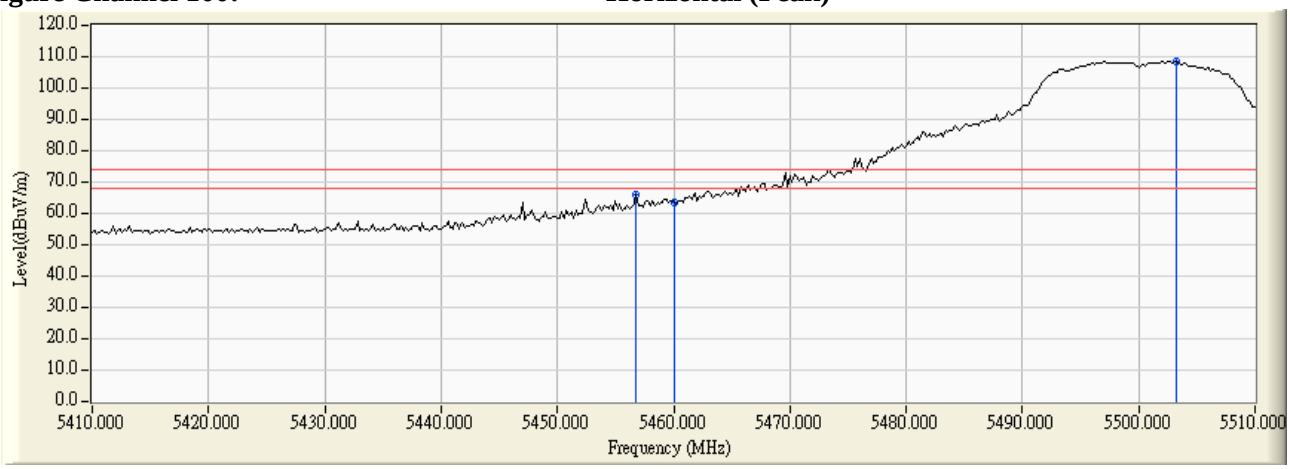
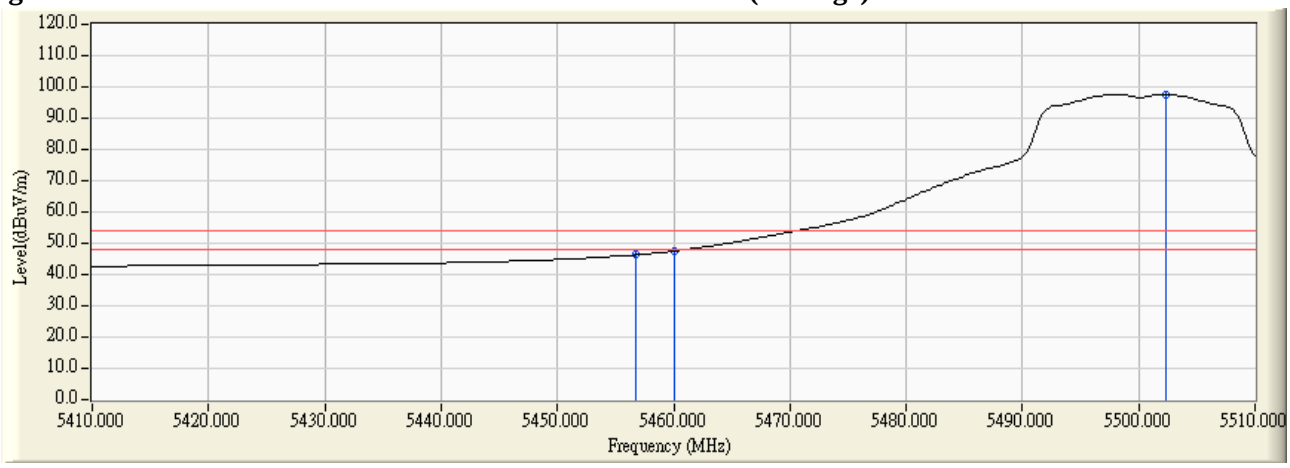


Figure Channel 100: Horizontal (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
100 (Peak)	5452.600	3.841	60.849	64.690	74.00	54.00	Pass
100 (Peak)	5460.000	3.934	60.676	64.611	74.00	54.00	Pass
100 (Peak)	5503.200	4.493	103.928	108.421	--	--	Pass
100 (Average)	5452.600	3.841	41.194	45.035	74.00	54.00	Pass
100 (Average)	5460.000	3.934	42.910	46.845	74.00	54.00	Pass
100 (Average)	5502.000	4.480	92.782	97.262	--	--	Pass

Figure Channel 100: Vertical (Peak)

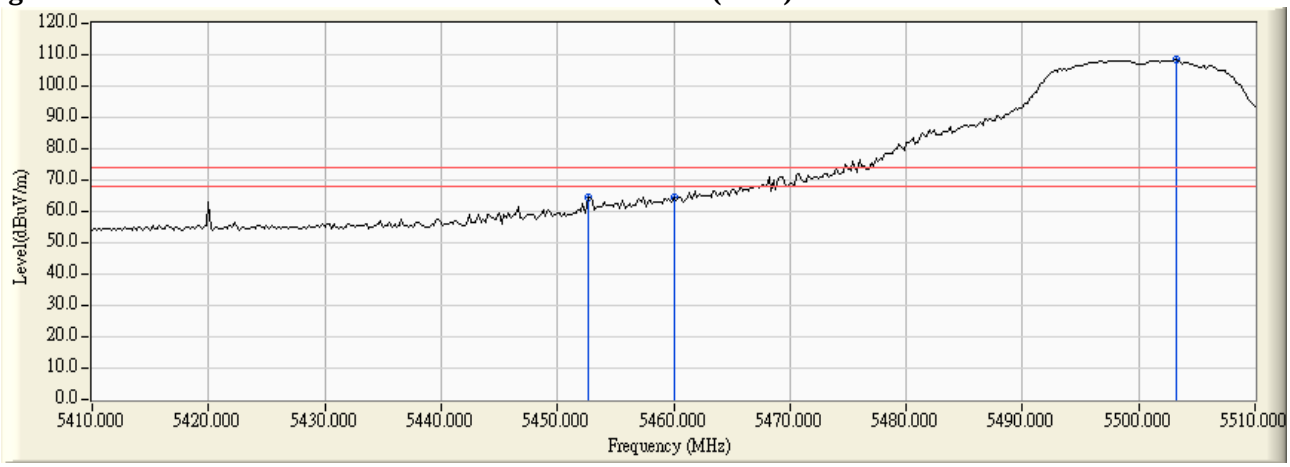
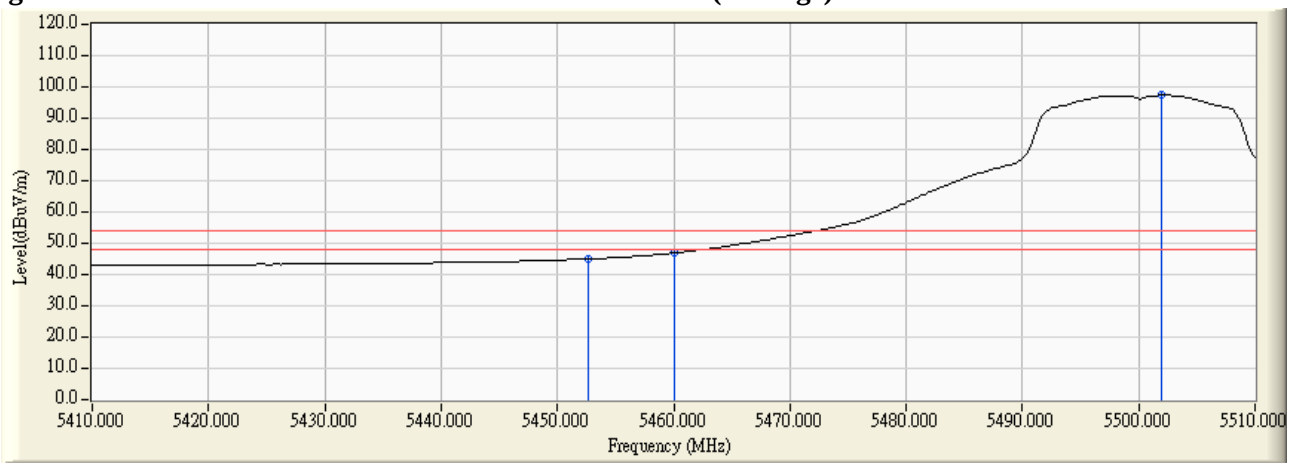


Figure Channel 100: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	13.958	-67.010	-53.052	-26.052	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	14.324	-62.090	-47.766	-20.766	-27.000	Pass

Product : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 140

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	12.135	-63.810	-51.675	-24.675	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	12.243	-62.120	-49.877	-22.877	-27.000	Pass

Product : FIELDBOOK
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 (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5148.200	3.347	57.648	60.995	74.00	54.00	Pass
	5148.200	3.347	57.648	60.995	68.23	--	Pass
36 (Peak)	5150.000	3.340	56.869	60.209	74.00	54.00	Pass
36 (Peak)	5179.400	3.236	97.496	100.732	--	--	Pass
36 (Average)	5148.200	3.347	41.213	44.560	74.00	54.00	Pass
36 (Average)	5150.000	3.340	41.681	45.021	74.00	54.00	Pass
36 (Average)	5181.600	3.229	86.408	89.636	--	--	Pass

Figure Channel 36: Horizontal (Peak)

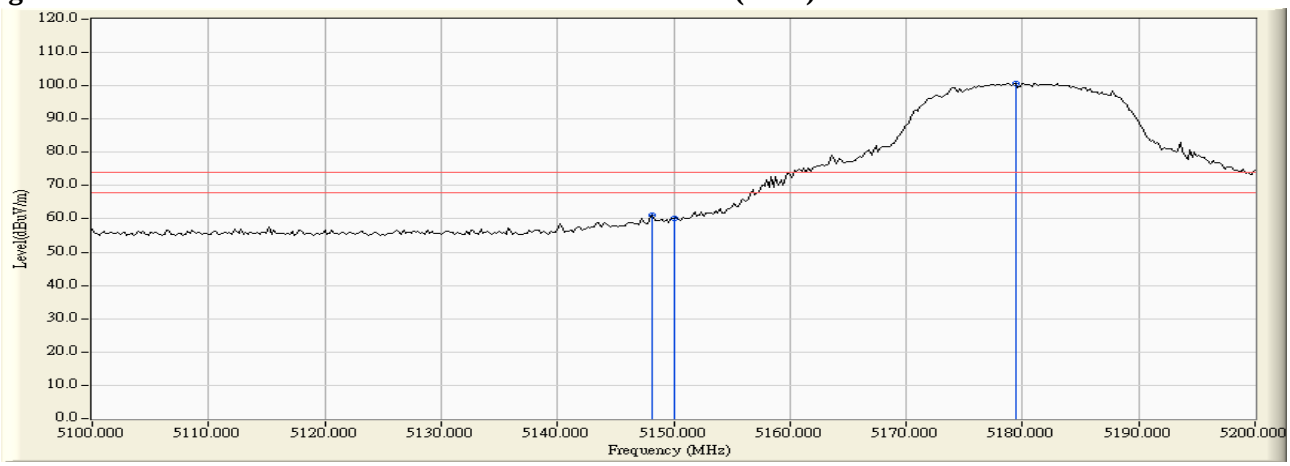
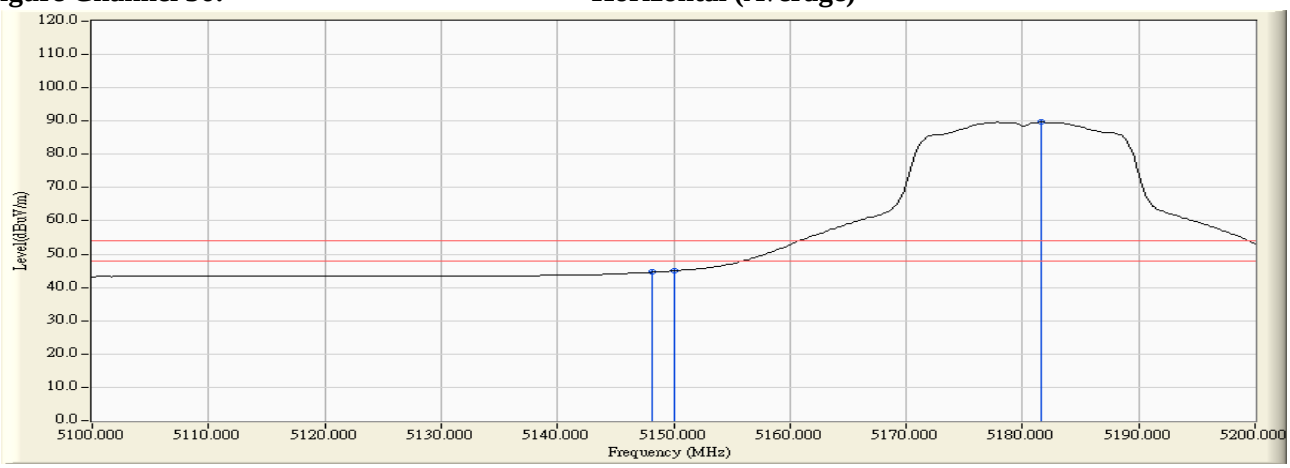


Figure Channel 36: Horizontal (Average)



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 : FIELDBOOK
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 (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
36 (Peak)	5147.400	5.253	60.149	65.402	74.00	54.00	Pass
36 (Peak)	5150.000	5.260	59.135	64.395	--	--	Pass
	5181.000	5.344	100.860	106.204	68.23	--	Pass
36 (Average)	5147.400	5.253	42.618	47.871	74.00	54.00	Pass
36 (Average)	5150.000	5.260	43.510	48.770	--	--	Pass
36 (Average)	5177.800	5.335	89.928	95.264	--	--	Pass

Figure Channel 36: Vertical (Peak)

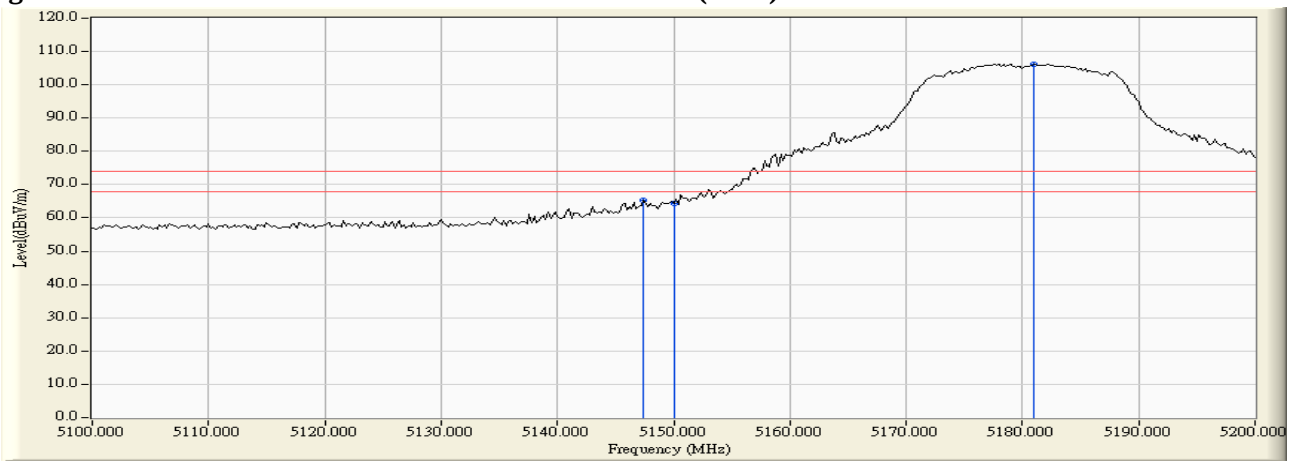
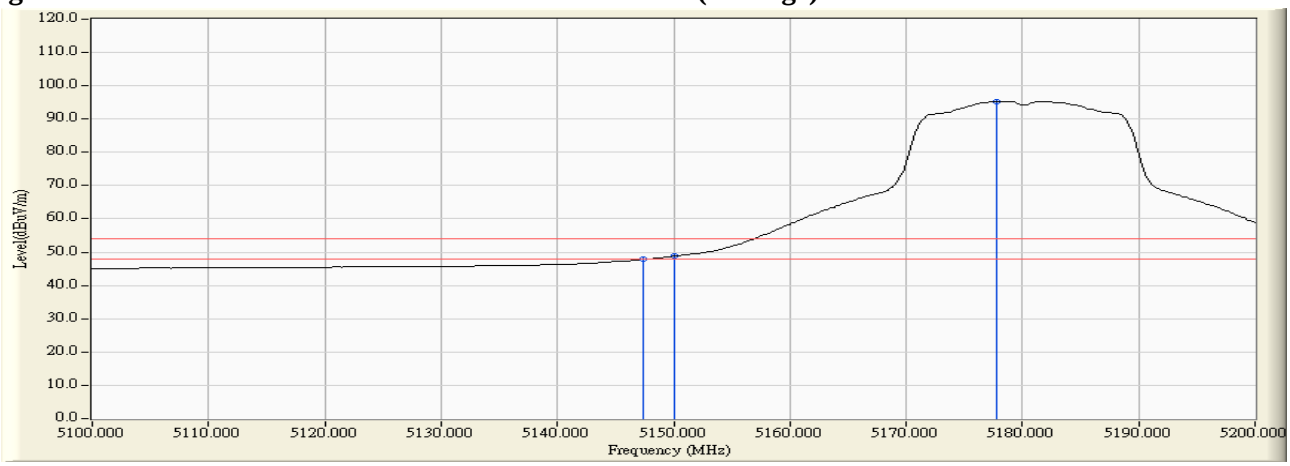


Figure Channel 36: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 64

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5317.000	3.821	96.712	100.534	--	--	Pass
64 (Peak)	5350.000	3.716	56.071	59.788	74.00	54.00	Pass
64 (Peak)	5351.400	3.712	56.126	59.838	74.00	54.00	Pass
	5351.400	3.712	56.126	59.838	68.23	--	Pass
64 (Average)	5317.400	3.820	85.967	89.788	--	--	Pass
64 (Average)	5350.000	3.716	42.061	45.778	74.00	54.00	Pass
64 (Average)	5351.400	3.712	41.548	45.260	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)

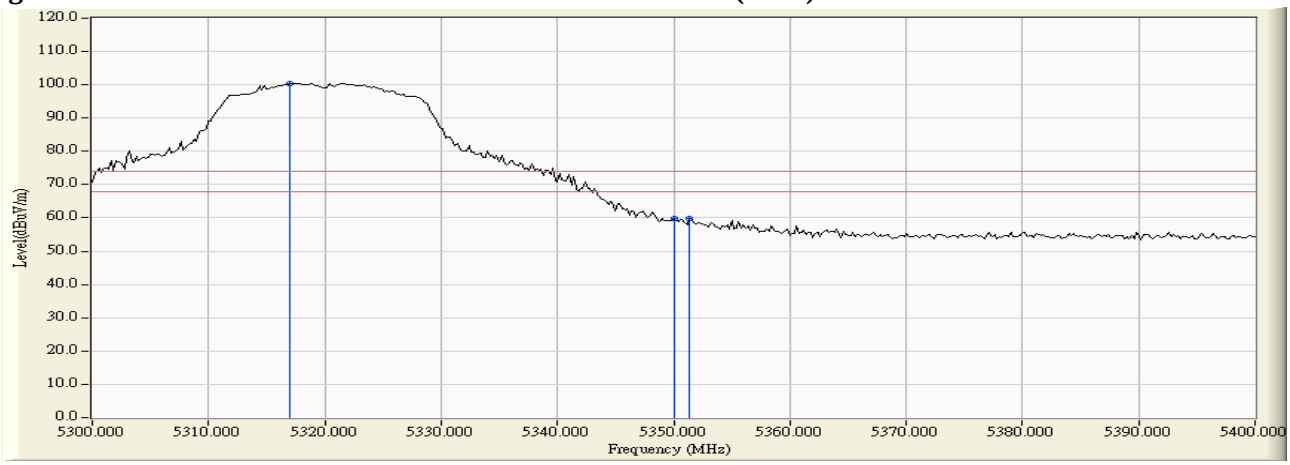
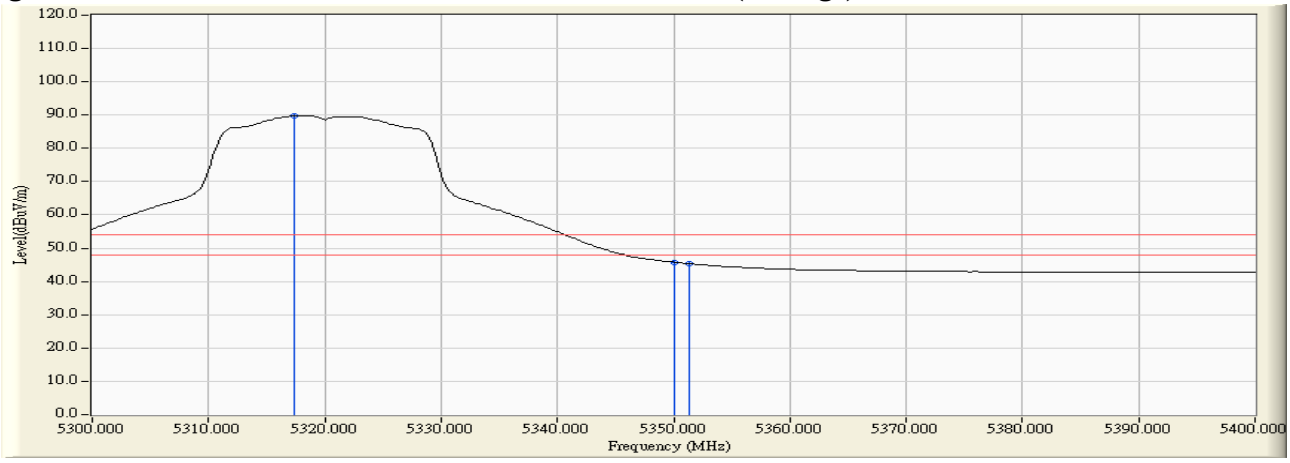


Figure Channel 64: Horizontal (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 64

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
64 (Peak)	5318.600	5.731	100.896	106.627	--	--	Pass
64 (Peak)	5350.000	5.691	59.798	65.490	74.00	54.00	Pass
	5350.000	5.691	59.798	65.490	68.23	--	Pass
64 (Average)	5317.800	5.732	90.193	95.925	--	--	Pass
64 (Average)	5350.000	5.691	44.713	50.405	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)

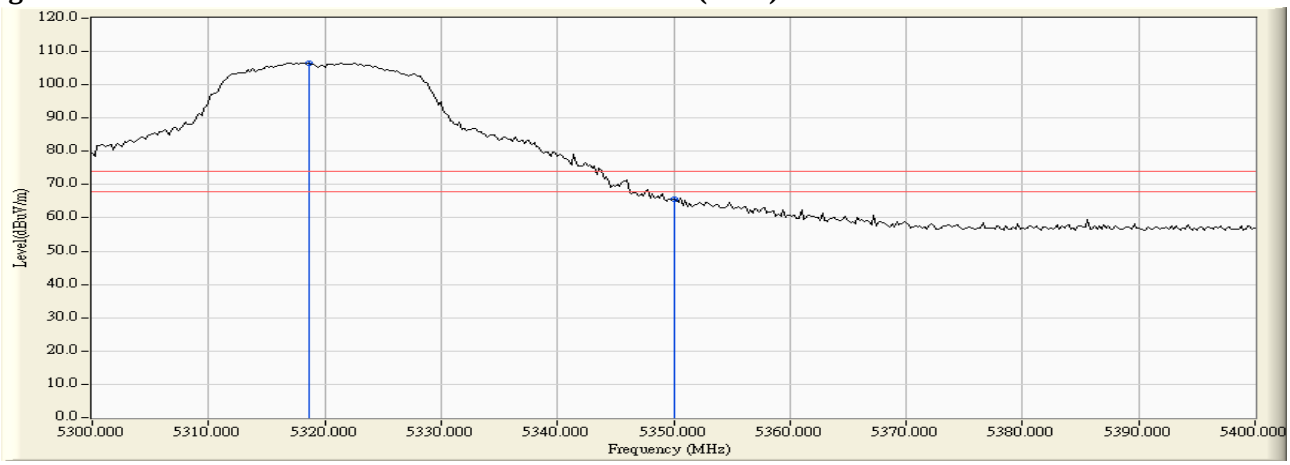
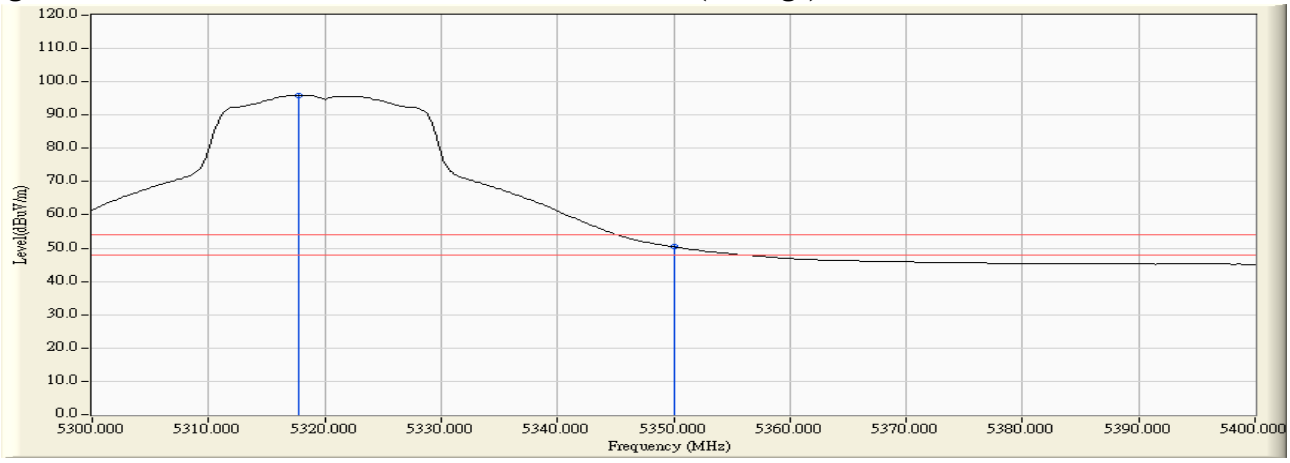


Figure Channel 64: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 100

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
100 (Peak)	5454.000	3.659	61.931	65.590	74.00	54.00	Pass
100 (Peak)	5460.000	3.775	60.139	63.914	74.00	54.00	Pass
100 (Peak)	5502.600	4.513	103.556	108.070	--	--	Pass
100 (Average)	5454.000	3.659	42.034	45.693	74.00	54.00	Pass
100 (Average)	5460.000	3.775	43.854	47.629	74.00	54.00	Pass
100 (Average)	5497.600	4.446	92.689	97.135	--	--	Pass

Figure Channel 100: Horizontal (Peak)

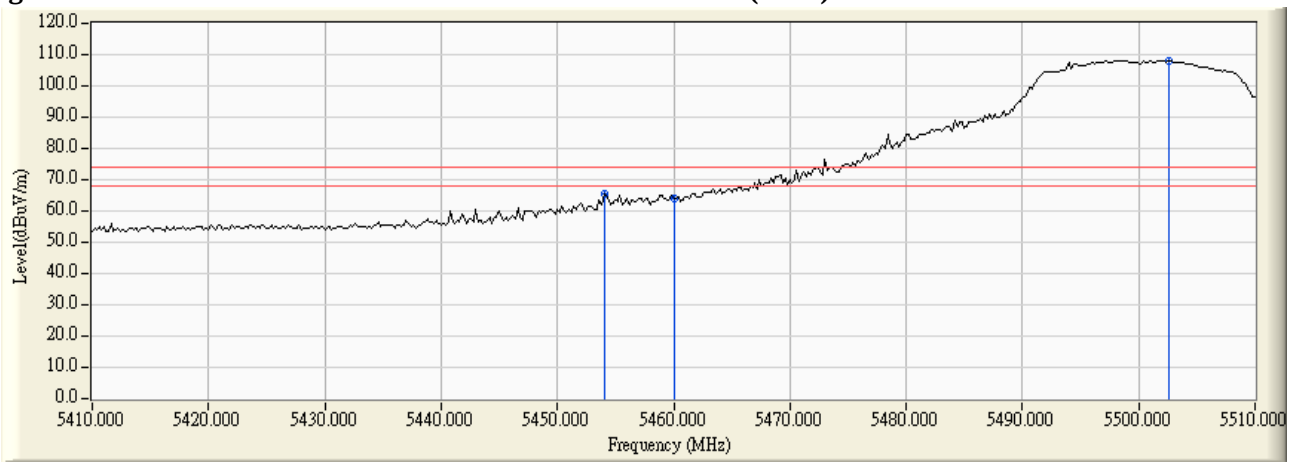
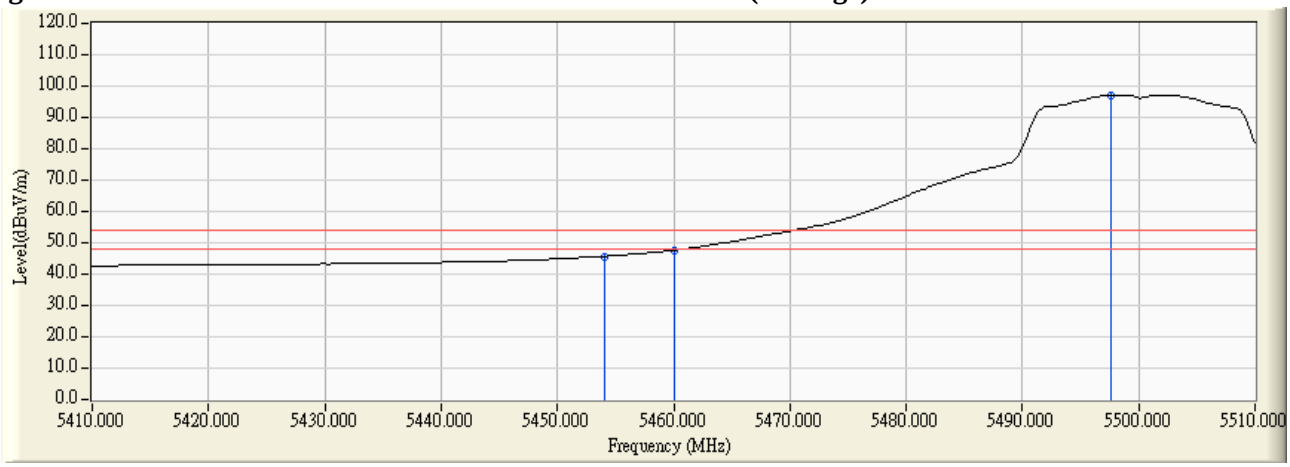


Figure Channel 100: Horizontal (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 100

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
100 (Peak)	5460.000	3.934	60.880	64.815	74.00	54.00	Pass
100 (Peak)	5502.000	4.480	102.711	107.191	--	--	Pass
100 (Average)	5460.000	3.934	43.970	47.905	74.00	54.00	Pass
100 (Average)	5502.200	4.483	91.803	96.285	--	--	Pass

Figure Channel 100: Vertical (Peak)

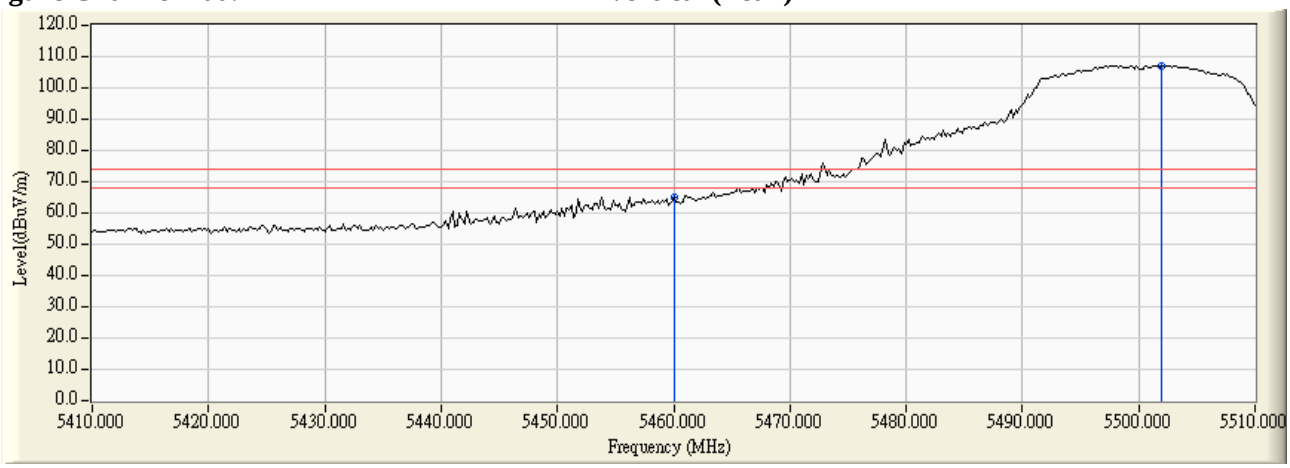
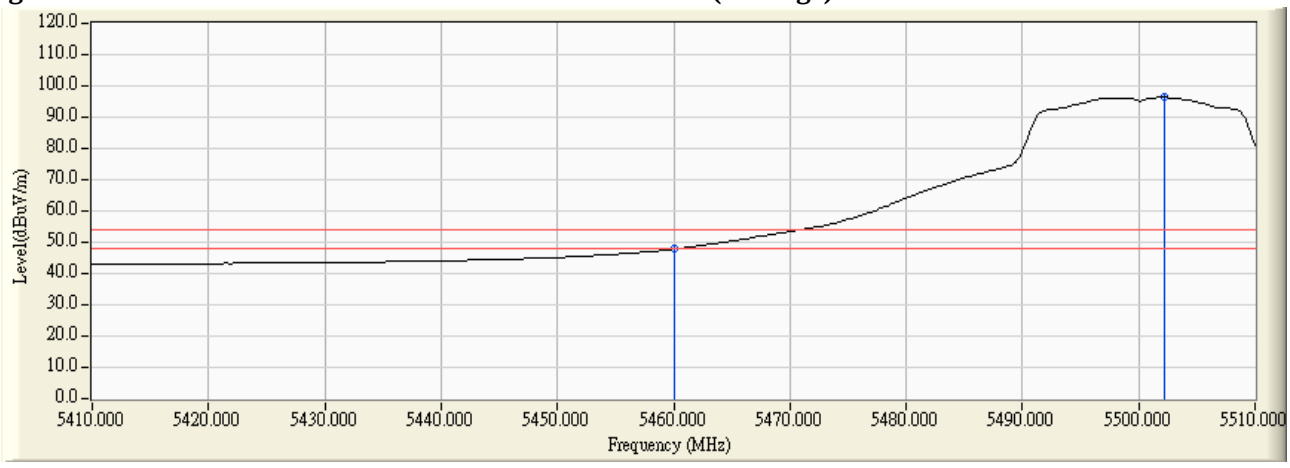


Figure Channel 100: Vertical (Average)



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 : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 100

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	13.958	-63.650	-49.692	-22.692	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	14.324	-60.840	-46.516	-19.516	-27.000	Pass

c : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) -Channel 140

RF Radiated Measurement:

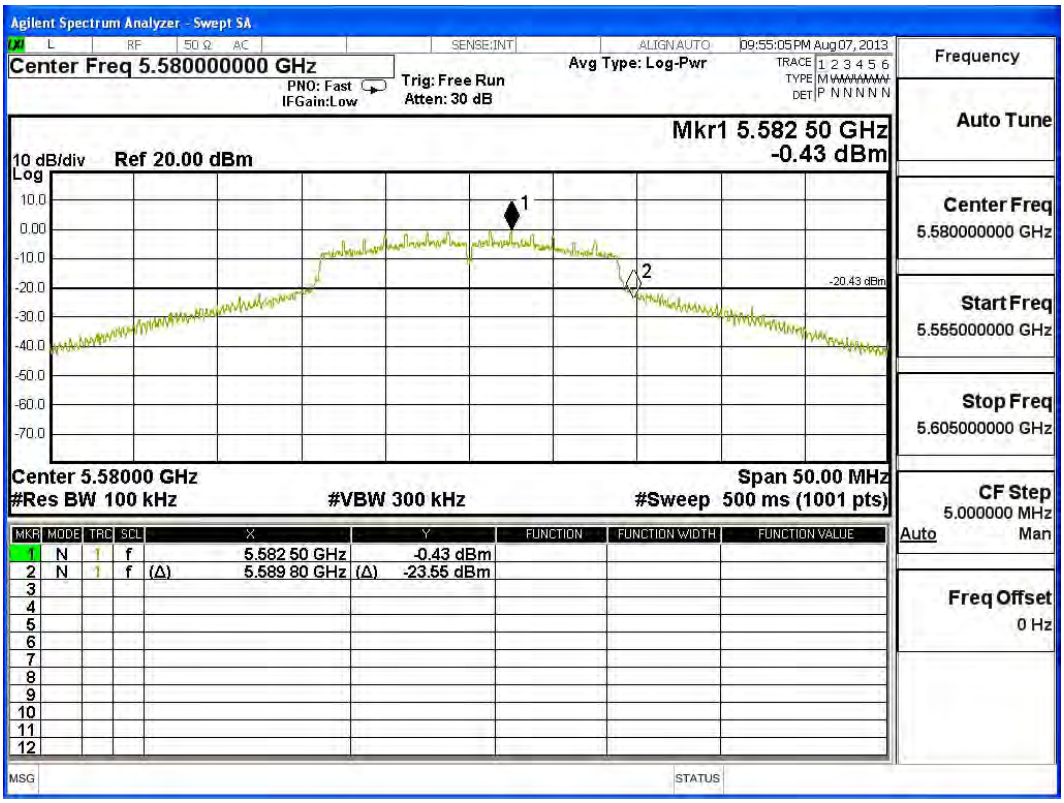
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	12.135	-62.490	-50.355	-23.355	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	4.162	-60.240	-56.078	-130.078	-27.000	Pass

Product : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 116

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

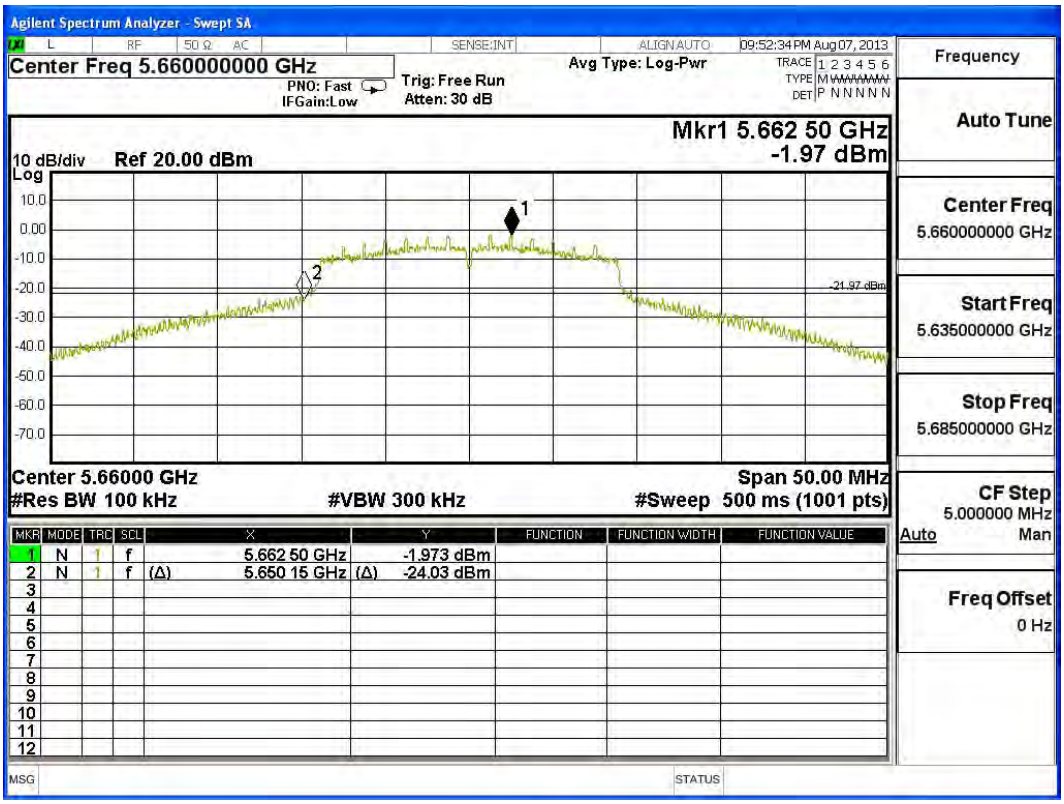
NOTE: The 5600~5650MHz band is not used in accordance with 15.215 requirement.



Product : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 132

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

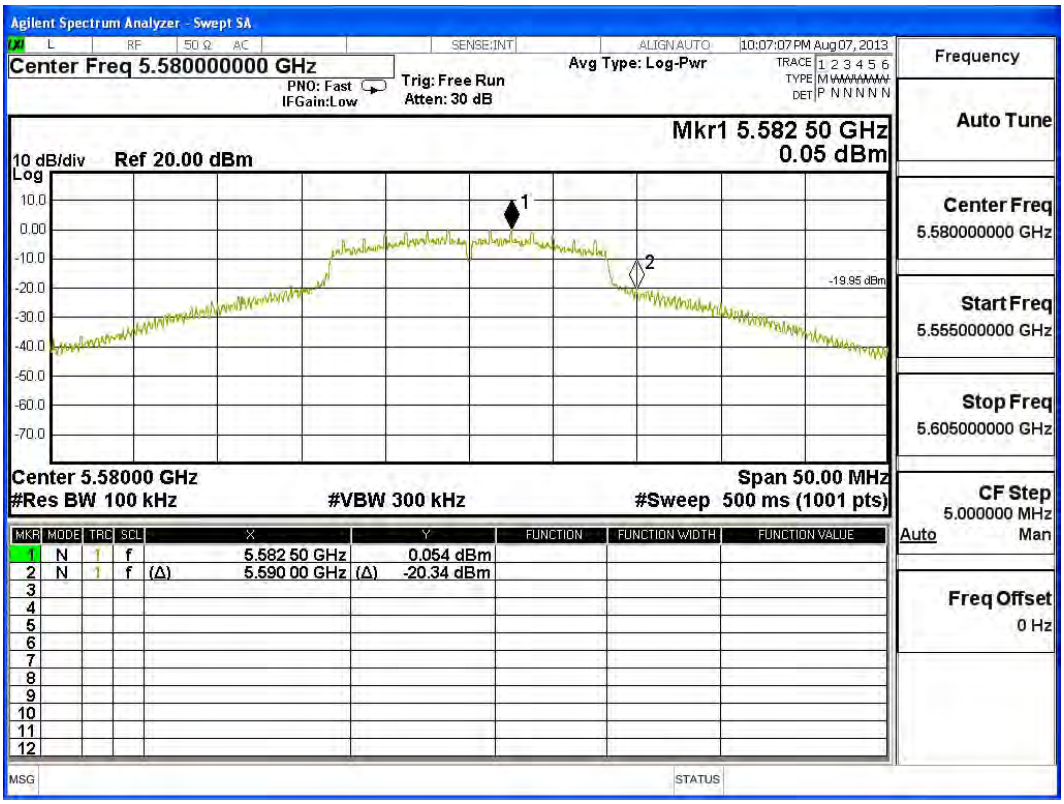
NOTE: The 5600~5650MHz band is not used in accordance with 15.215 requirement.



Product : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 116

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

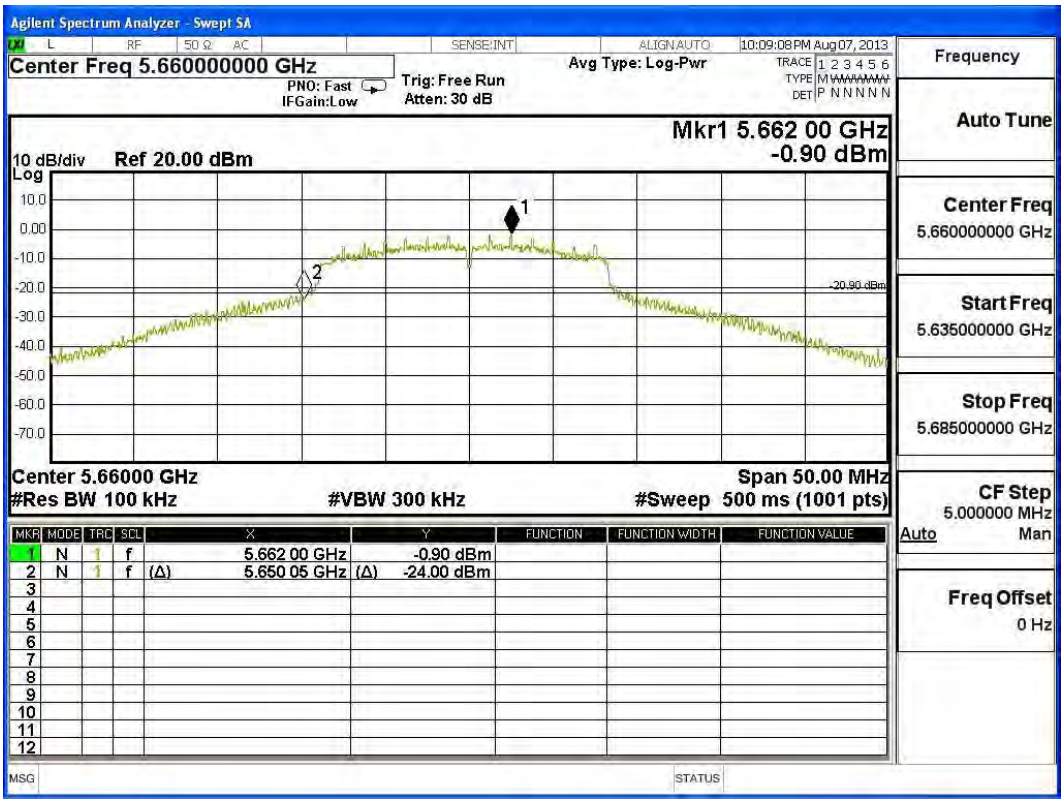
NOTE: The 5600~5650MHz band is not used in accordance with 15.215 requirement.



Product : FIELDBOOK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)-Channel 132

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

NOTE: The 5600~5650MHz band is not used in accordance with 15.215 requirement.



8. Frequency Stability

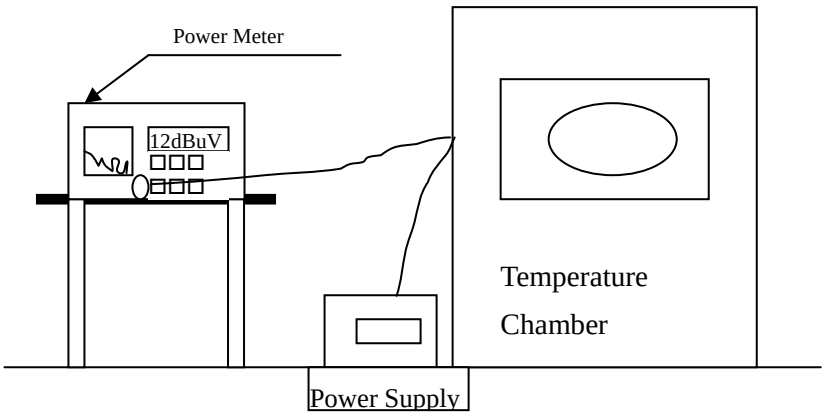
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note:

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

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedure

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

8.5. Uncertainty

± 150 Hz

8.6. Test Result of Frequency Stability

Product : FIELDBOOK
Test Item : Frequency Stability
Test Site : Temperature Chamber
Test Mode : Carrier Wave

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (20) °C	Vnom (120)V	36	5180.0000	5180.0065	-0.0065
		44	5220.0000	5220.0098	-0.0098
		48	5240.0000	5240.0101	-0.0101
		52	5260.0000	5260.0086	-0.0086
		60	5300.0000	5300.0090	-0.0090
		64	5320.0000	5320.0102	-0.0102
		100	5500.0000	5500.0098	-0.0098
		116	5580.0000	5580.0102	-0.0102
		140	5700.0000	5700.0097	-0.0097

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmax (50) °C	Vmax (138)V	36	5180.0000	5180.0058	-0.0058
		44	5220.0000	5220.0095	-0.0095
		48	5240.0000	5240.0098	-0.0098
		52	5260.0000	5260.0085	-0.0085
		60	5300.0000	5300.0085	-0.0085
		64	5320.0000	5320.0100	-0.0100
		100	5500.0000	5500.0068	-0.0068
		116	5580.0000	5580.0087	-0.0087
		140	5700.0000	5700.0095	-0.0095
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmax (50) °C	Vmin (102)V	36	5180.0000	5180.0063	-0.0063
		44	5220.0000	5220.0101	-0.0101
		48	5240.0000	5240.0103	-0.0103
		52	5260.0000	5260.0089	-0.0089
		60	5300.0000	5300.0089	-0.0089
		64	5320.0000	5320.0100	-0.0100
		100	5500.0000	5500.0099	-0.0099
		116	5580.0000	5580.0104	-0.0104
		140	5700.0000	5700.0098	-0.0098

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmin (0) °C	Vmax (138)V	36	5180.0000	5180.0059	-0.0059
		44	5220.0000	5220.0098	-0.0098
		48	5240.0000	5240.0100	-0.0100
		52	5260.0000	5260.0086	-0.0086
		60	5300.0000	5300.0086	-0.0086
		64	5320.0000	5320.0102	-0.0102
		100	5500.0000	5500.0070	-0.0070
		116	5580.0000	5580.0100	-0.0100
		140	5700.0000	5700.0097	-0.0097
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tmin (0) °C	Vmin (102)V	36	5180.0000	5180.0100	-0.0100
		44	5220.0000	5220.0095	-0.0095
		48	5240.0000	5240.0094	-0.0094
		52	5260.0000	5260.0085	-0.0085
		60	5300.0000	5300.0089	-0.0089
		64	5320.0000	5320.0100	-0.0100
		100	5500.0000	5500.0093	-0.0093
		116	5580.0000	5580.0097	-0.0097
		140	5700.0000	5700.0095	-0.0095

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.