FCC Test Report

Product Name	TABLET PC
Model No	PM-521
FCC ID	2ABTU-PM-521

Applicant	RuggON Corporation
Address	3F., No.10, Ln. 181, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City, Taiwan

Date of Receipt	Jan. 06, 2015
Issued Date	Feb. 16, 2015
Report No.	1510151R-RFUSP49V00
Report Version	V1.0

Testing Laboratory
3023

Test Report

Issued Date: Feb. 16, 2015
Report No.: 1510151R-RFUSP49V00

Product Name	TABLET PC
Applicant	RuggON Corporation
Address	3F., No.10, Ln. 181, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City, Taiwan
Manufacturer	Ubiqconn Technology,Inc.
Model No.	PM-521
FCC ID.	2ABTU-PM-521
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	RuggON
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.4: 2014, ANSI C63.10: 2009 789033 D02 General UNII Test Procedures New Rules v01
Test Result	Complied

Documented By : Joanne Lin

(Senior Adm. Specialist / Joanne Lin)

Tested By : Alan Chen

(Engineer / Alan Chen)

Approved By :

(Director / Vincent Lin)

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Description Page

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	TABLET PC
Trade Name	RuggON
FCC ID.	2ABTU-PM-521
Model No.	PM-521
Frequency Range	802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz, 5755-5795MHz 802.11ac-20MHz: 5720, 802.11ac-40MHz: 5710 802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz, 5775MHz
Number of Channels	802.11a/n-20MHz: 24; 802.11n-40MHz: 11 802.11ac-20MHz: 1, 802.11ac-40MHz: 1, 802.11ac-80MHz: 6
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7MHz
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Power Adapter	MFR: FSP, M/N: FSP065-REB Input: AC 100-240V~1.5A, 50-60Hz Output: 19V⎓3.42A Cable Out: Shielded, 1.5m, with one ferrite core bonded.
Contain Module	Intel / 7260HMW

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ethertronics	5001791 (Main) 5001799 (Aux)	PIFA Antenna	3.8dBi for 2.4 GHz 5.1dBi For 5.15~5.25GHz 5.1dBi For 5.25~5.35GHz 4.2dBi For 5.47~5.725GHz 2.6dBi For 5.725~5.850GHz

Note: The antenna of EUT is conform to FCC 15.203

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz	Channel 149:	5745 MHz
Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz	Channel 165:	5825 MHz

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 54:	5270 MHz	Channel 62:	5310 MHz
Channel 102:	5510 MHz	Channel 110:	5550 MHz	Channel 118:	5590 MHz	Channel 126:	5630 MHz
Channel 134:	5670 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz		

802.11ac-20MHz Center Working Frequency of Each Channel:

Channel	Frequency
Channel 144:	5720 MHz

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

Channel	Frequency
Channel 142:	5710 MHz

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 42:	5210 MHz	Channel 58:	5290 MHz	Channel 106:	5530 MHz	Channel 122:	5610 MHz
Channel 138:	5690 MHz	Channel 155:	5775 MHz				

Note:

1. This device is a TABLET PC with a built-in 802.11a/b/g/n/ac WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11a is chain A)
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps、802.11n-20BW is 14.4Mbps、802.11n-40BW is 30Mbps and 802.11ac(80M-BW) is 65 Mbps)
5. 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.
6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 2: Transmit (802.11n-20BW 14.4Mbps) Mode 3: Transmit (802.11n-40BW 30Mbps) Mode 4: Transmit (802.11ac-20BW-7.2Mbps) Mode 5: Transmit (802.11ac-40BW-15Mbps) Mode 6: Transmit (802.11ac-80BW-65Mbps)

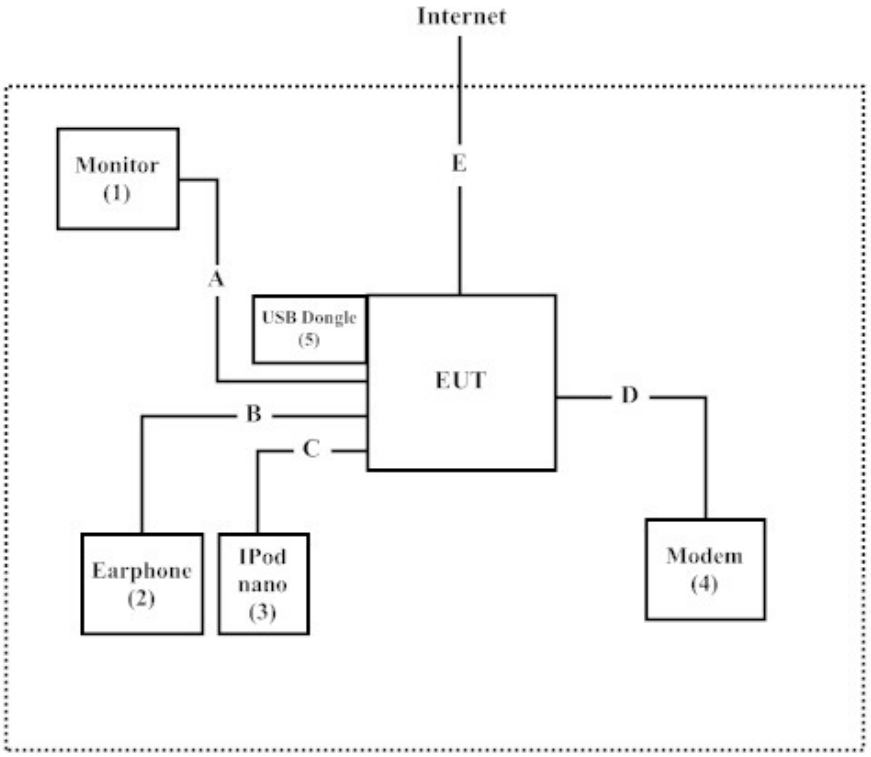
1.3. Tested System Datails

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	ST2320L	N/A	Non-Shielded, 1.8m
2	Earphone	AIWA	N/A	N/A	N/A
3	IPod nano	Apple	A1199	YM708A72VQ5	N/A
4	Modem	ACEEX	DM-1414	0102027553	N/A
5	USB Dongle	Transcend	JF V30	N/A	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	HDMI Cable	Shielded, 1.8m
B	Earphone Cable	Shielded, 1.8m
C	IPod Cable	Shielded, 1.2m
D	RS-232 Cable	Shielded, 1.8m
E	RJ45 Cable	Shielded, 2.0m

1.4. Configuration of tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown on 1.4
(2) Execute “DRTU-v1.7.3.859” program on the EUT.
(3) Configure the test mode, the test channel, and the data rate.
(4) Start the continuous transmission.
(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

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

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

FCC Accreditation Number: TW1014

2. Conducted Emission

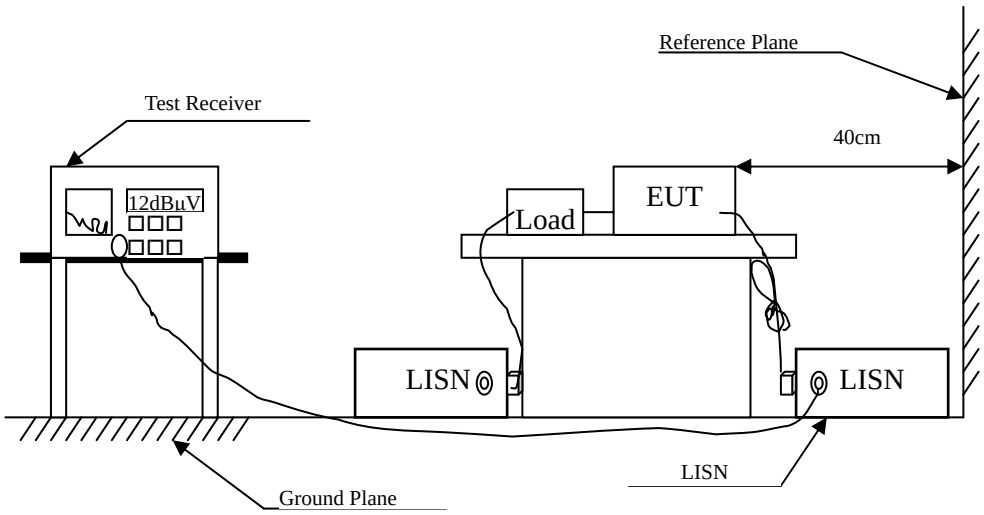
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2015	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2015	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar., 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2015	
	No.1 Shielded Room				

Note:

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

2.2. Test Setup



2.3. Limits

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

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

2.4. Test Procedure

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

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2009 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 UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.154	9.660	40.610	50.270	-15.616	65.886
0.209	9.651	33.060	42.711	-21.603	64.314
0.302	9.656	21.840	31.496	-30.161	61.657
0.603	9.672	25.770	35.442	-20.558	56.000
0.951	9.691	16.410	26.101	-29.899	56.000
3.212	9.813	24.650	34.463	-21.537	56.000
Average					
0.154	9.660	29.140	38.800	-17.086	55.886
0.209	9.651	23.020	32.671	-21.643	54.314
0.302	9.656	11.180	20.836	-30.821	51.657
0.603	9.672	5.860	15.532	-30.468	46.000
0.951	9.691	1.470	11.161	-34.839	46.000
3.212	9.813	14.430	24.243	-21.757	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.158	9.658	40.280	49.938	-15.833	65.771
0.212	9.661	32.170	41.831	-22.398	64.229
0.283	9.664	20.390	30.054	-32.146	62.200
0.603	9.672	24.340	34.012	-21.988	56.000
1.642	9.749	15.670	25.419	-30.581	56.000
20.002	10.211	20.770	30.981	-29.019	60.000
Average					
0.158	9.658	29.300	38.958	-16.813	55.771
0.212	9.661	21.770	31.431	-22.798	54.229
0.283	9.664	5.740	15.404	-36.796	52.200
0.603	9.672	5.080	14.752	-31.248	46.000
1.642	9.749	1.930	11.679	-34.321	46.000
20.002	10.211	13.940	24.151	-25.849	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5290MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.166	9.657	38.740	48.396	-17.147	65.543
0.205	9.651	32.720	42.371	-22.058	64.429
0.252	9.653	26.480	36.133	-26.953	63.086
0.584	9.671	23.570	33.241	-22.759	56.000
3.138	9.811	25.710	35.521	-20.479	56.000
19.892	10.180	20.720	30.900	-29.100	60.000
Average					
0.166	9.657	26.390	36.046	-19.497	55.543
0.205	9.651	21.910	31.561	-22.868	54.429
0.252	9.653	17.980	27.633	-25.453	53.086
0.584	9.671	14.260	23.931	-22.069	46.000
3.138	9.811	15.290	25.101	-20.899	46.000
19.892	10.180	13.310	23.490	-26.510	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5290MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.154	9.660	40.040	49.700	-16.186	65.886
0.212	9.661	31.830	41.491	-22.738	64.229
0.306	9.657	21.330	30.987	-30.556	61.543
0.623	9.673	23.920	33.593	-22.407	56.000
3.138	9.811	25.390	35.201	-20.799	56.000
20.021	10.211	20.440	30.651	-29.349	60.000
Average					
0.154	9.660	28.400	38.060	-17.826	55.886
0.212	9.661	21.530	31.191	-23.038	54.229
0.306	9.657	11.300	20.957	-30.586	51.543
0.623	9.673	4.960	14.633	-31.367	46.000
3.138	9.811	14.770	24.581	-21.419	46.000
20.021	10.211	13.850	24.061	-25.939	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5610MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.154	9.660	39.800	49.460	-16.426	65.886
0.209	9.651	32.390	42.041	-22.273	64.314
0.255	9.653	26.480	36.133	-26.867	63.000
0.611	9.673	21.230	30.903	-25.097	56.000
3.224	9.813	24.910	34.723	-21.277	56.000
20.459	10.183	18.190	28.373	-31.627	60.000
Average					
0.154	9.660	28.320	37.980	-17.906	55.886
0.209	9.651	22.240	31.891	-22.423	54.314
0.255	9.653	16.650	26.303	-26.697	53.000
0.611	9.673	2.680	12.353	-33.647	46.000
3.224	9.813	14.880	24.693	-21.307	46.000
20.459	10.183	11.370	21.553	-28.447	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5610MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.154	9.660	39.540	49.200	-16.686	65.886
0.177	9.659	33.060	42.719	-22.510	65.229
0.252	9.663	26.320	35.983	-27.103	63.086
0.607	9.673	20.930	30.603	-25.397	56.000
3.197	9.812	25.040	34.852	-21.148	56.000
19.877	10.210	20.680	30.890	-29.110	60.000
Average					
0.154	9.660	28.150	37.810	-18.076	55.886
0.177	9.659	21.490	31.149	-24.080	55.229
0.252	9.663	17.450	27.113	-25.973	53.086
0.607	9.673	2.380	12.053	-33.947	46.000
3.197	9.812	14.680	24.492	-21.508	46.000
19.877	10.210	13.890	24.100	-25.900	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 : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.158	9.747	34.680	44.427	-21.344	65.771
0.170	9.743	32.900	42.644	-22.785	65.429
0.212	9.739	28.440	38.179	-26.050	64.229
0.341	9.745	26.150	35.895	-24.648	60.543
0.505	9.753	33.100	42.853	-13.147	56.000
0.654	9.759	26.900	36.659	-19.341	56.000
Average					
0.158	9.747	26.160	35.907	-19.864	55.771
0.170	9.743	13.810	23.554	-31.875	55.429
0.212	9.739	20.420	30.159	-24.070	54.229
0.341	9.745	10.480	20.225	-30.318	50.543
0.505	9.753	21.420	31.173	-14.827	46.000
0.654	9.759	19.760	29.519	-16.481	46.000

Note:

4. All Reading Levels are Quasi-Peak and average value.
5. “ “ means the worst emission level.
6. Measurement Level = Reading Level + Correct Factor

Product : TABLET PC
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.166	9.747	33.830	43.577	-21.966	65.543
0.212	9.749	28.580	38.329	-25.900	64.229
0.373	9.747	28.450	38.197	-21.432	59.629
0.498	9.752	32.750	42.502	-13.555	56.057
7.912	9.920	27.580	37.500	-22.500	60.000
21.162	10.105	25.840	35.945	-24.055	60.000
Average					
0.166	9.747	28.500	38.247	-17.296	55.543
0.212	9.749	24.300	34.049	-20.180	54.229
0.373	9.747	15.410	25.157	-24.472	49.629
0.498	9.752	28.740	38.492	-7.565	46.057
7.912	9.920	22.630	32.550	-17.450	50.000
21.162	10.105	20.160	30.265	-19.735	50.000

Note:

4. All Reading Levels are Quasi-Peak and average value.
5. “ “ means the worst emission level.
6. Measurement Level = Reading Level + Correct Factor

3. Maximun conducted output power

3.1. Test Equipment

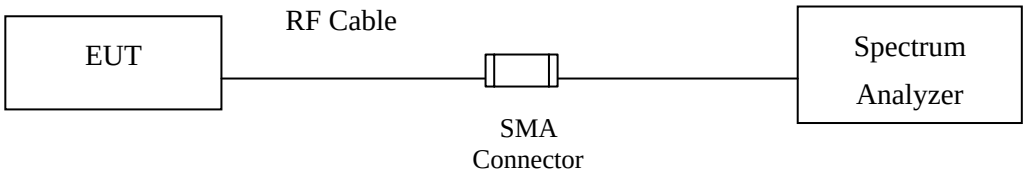
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

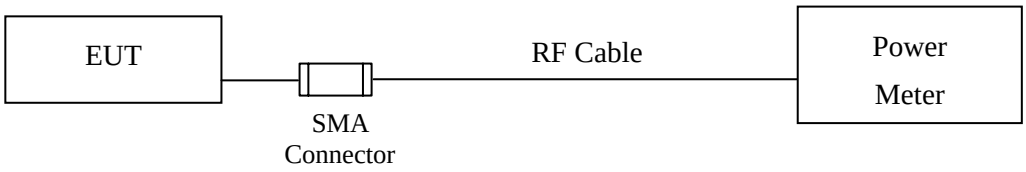
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

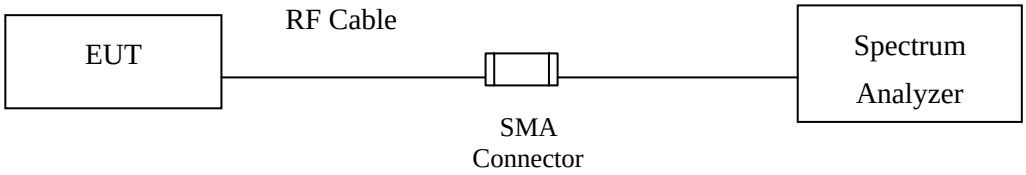
26dBc Occupied Bandwidth



Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac)



3.3. Limits

3.3.1. For the band 5.15-5.25 GHz,

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

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

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

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

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

3.3.3. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.4. Test Procedure

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

802.11an (BW≦40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)
Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

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

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

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Maximum conducted output power

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

Chain A

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	13.73	--	--	--	--	--	--	--	<24dBm
44	5220	14.65	14.62	14.59	14.56	14.53	14.5	14.47	14.44	<24dBm
48	5240	14.45	--	--	--	--	--	--	--	<24dBm
52	5260	12.56	--	--	--	--	--	--	--	<24dBm
60	5300	14.74	14.68	14.62	14.56	14.5	14.44	14.38	14.32	<24dBm
64	5320	11.68	--	--	--	--	--	--	--	<24dBm
100	5500	14.11	--	--	--	--	--	--	--	<24dBm
116	5580	16.98	16.92	16.86	16.8	16.74	16.68	16.62	16.56	<24dBm
140	5700	13.52	--	--	--	--	--	--	--	<24dBm
149	5745	18.38	--	--	--	--	--	--	--	<30dBm
157	5785	17.89	17.81	17.73	17.65	17.57	17.49	17.41	17.33	<30dBm
165	5825	19.11	--	--	--	--	--	--	--	<30dBm

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

Chain B

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	12.71	--	--	--	--	--	--	--	<24dBm
44	5220	15.09	15.02	14.95	14.88	14.81	14.74	14.67	14.6	<24dBm
48	5240	14.99	--	--	--	--	--	--	--	<24dBm
52	5260	13.06	--	--	--	--	--	--	--	<24dBm
60	5300	16.21	16.18	16.15	16.12	16.09	16.06	16.03	16.01	<24dBm
64	5320	11.99	--	--	--	--	--	--	--	<24dBm
100	5500	13.36	--	--	--	--	--	--	--	<24dBm
116	5580	17.16	17.11	17.06	17.01	16.96	16.91	16.86	16.81	<24dBm
140	5700	12.47	--	--	--	--	--	--	--	<24dBm
149	5745	16.54	--	--	--	--	--	--	--	<30dBm
157	5785	17.23	17.17	17.11	17.05	16.99	16.93	16.87	16.81	<30dBm
165	5825	17.97	--	--	--	--	--	--	--	<30dBm

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

Maximum conducted output power Measurement:

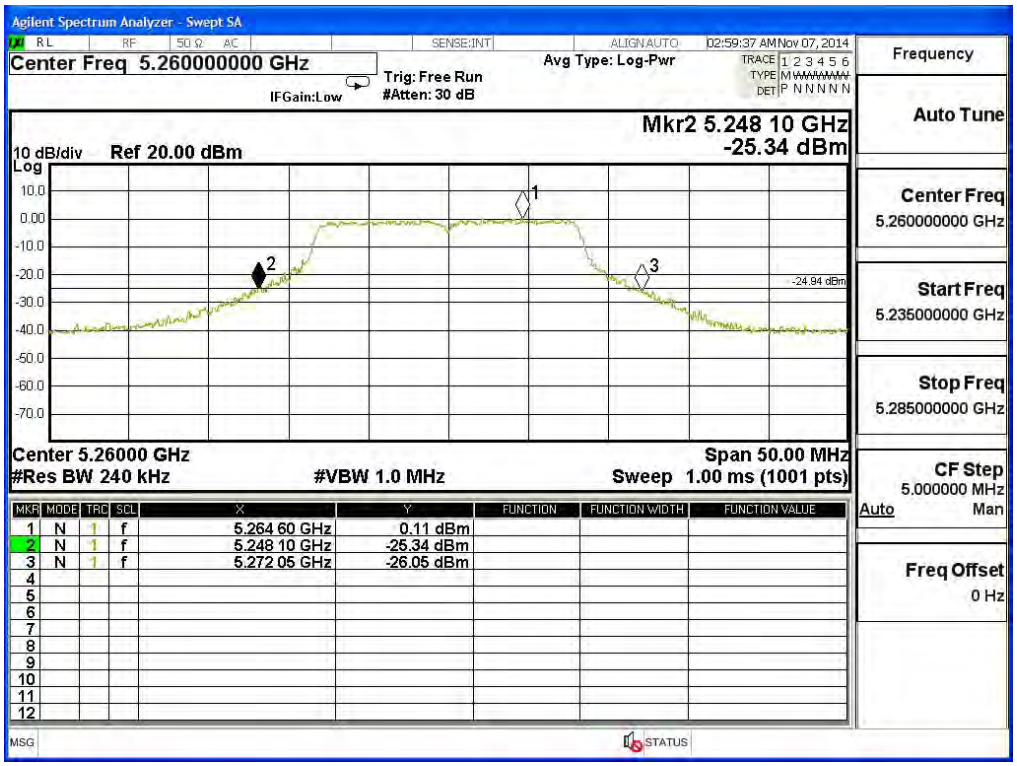
Chain B

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	--	13.73	24	--
44	5220	--	14.65	24	--
48	5240	--	14.45	24	--
52	5260	23.950	12.56	24	24.79
60	5300	24.650	14.74	24	24.92
64	5320	23.500	11.68	24	24.71
100	5500	25.100	14.11	24	25.00
116	5580	34.850	16.98	24	26.42
140	5700	24.750	13.52	24	24.94
149	5745	--	18.38	30	--
157	5785	--	17.89	30	--
165	5825	--	19.11	30	--

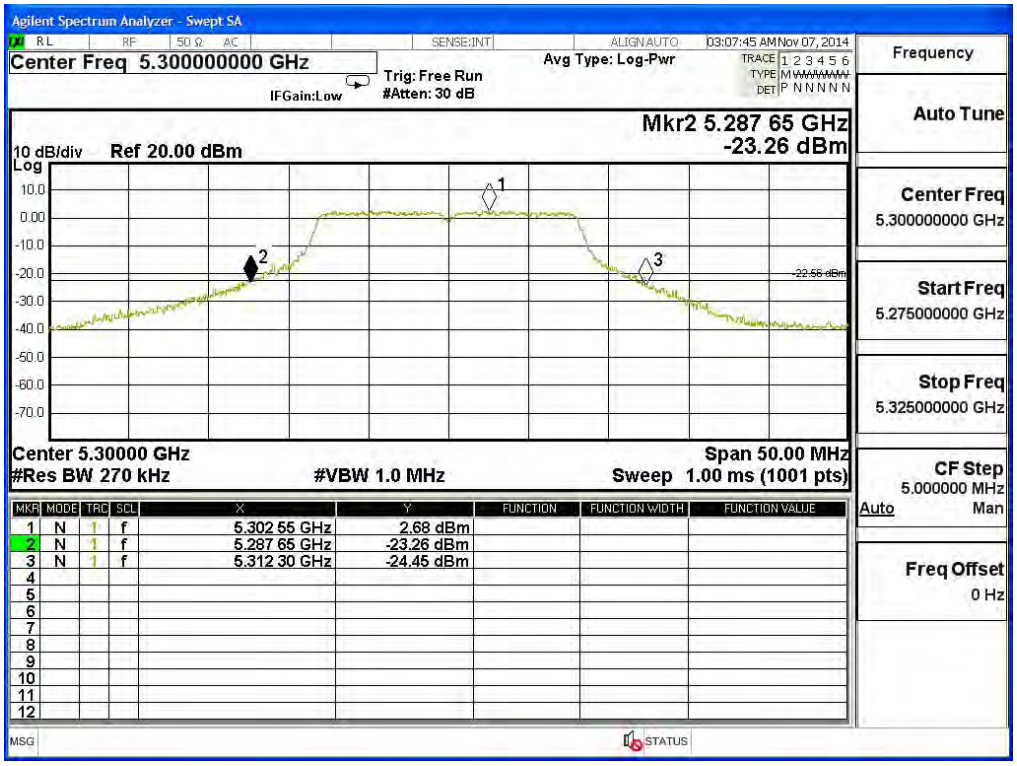
Note:
1. Power Output Value =Reading value on average power meter + cable loss
2. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

26dBc Occupied Bandwidth:

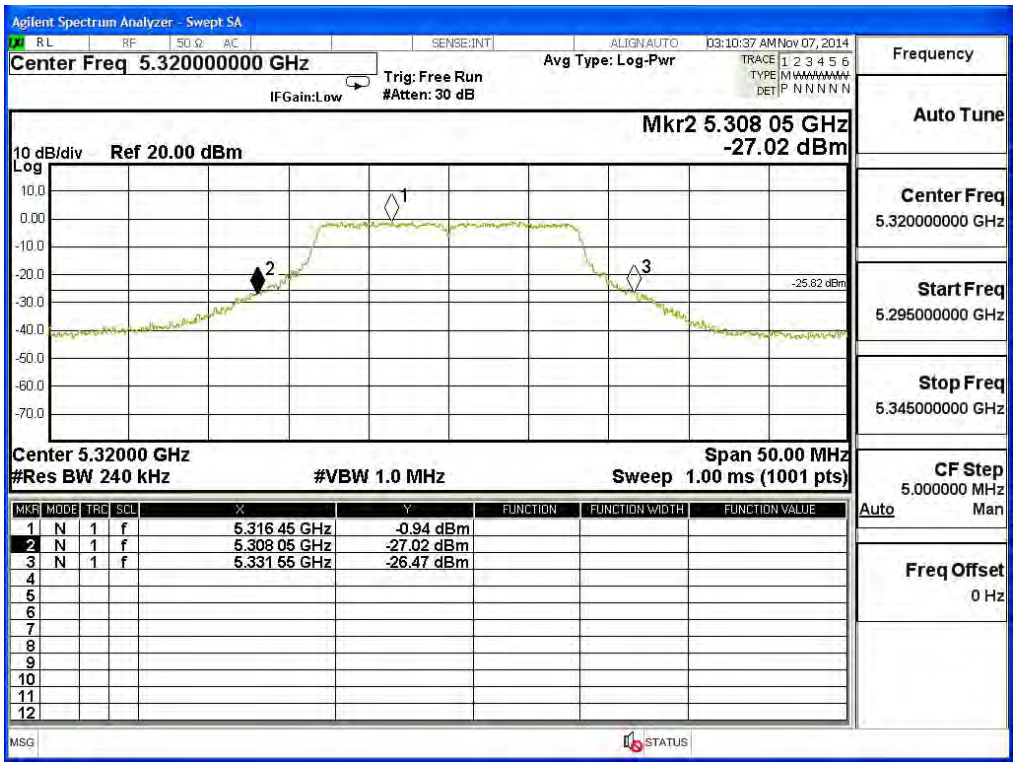
Channel 52:



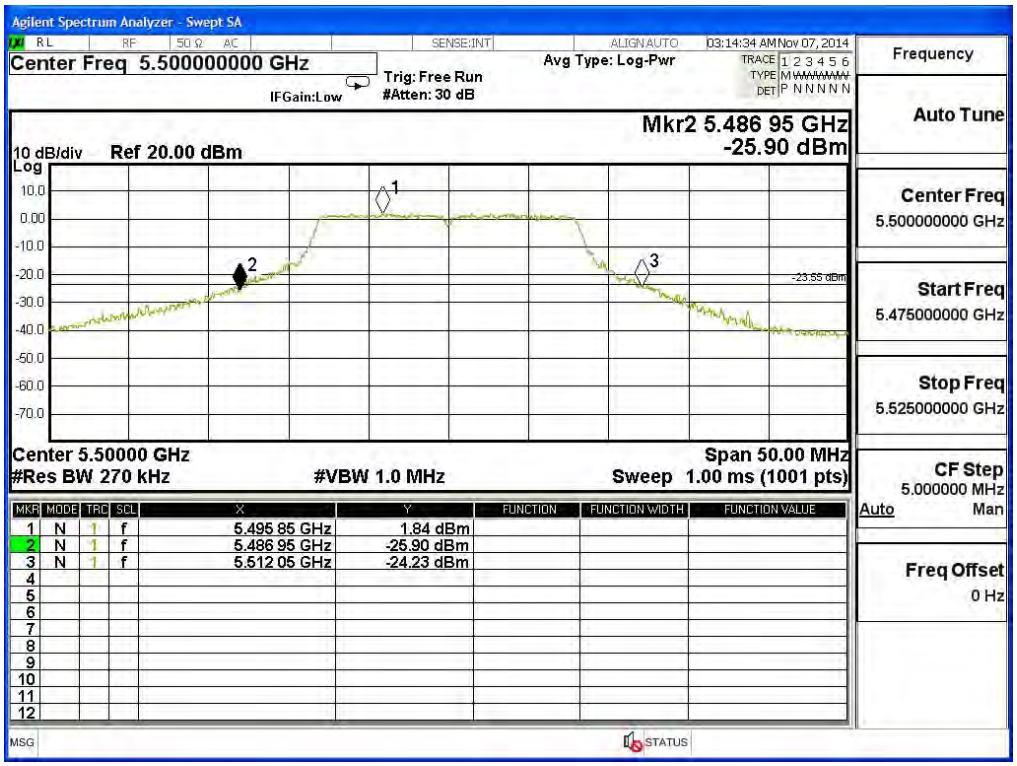
Channel 60:



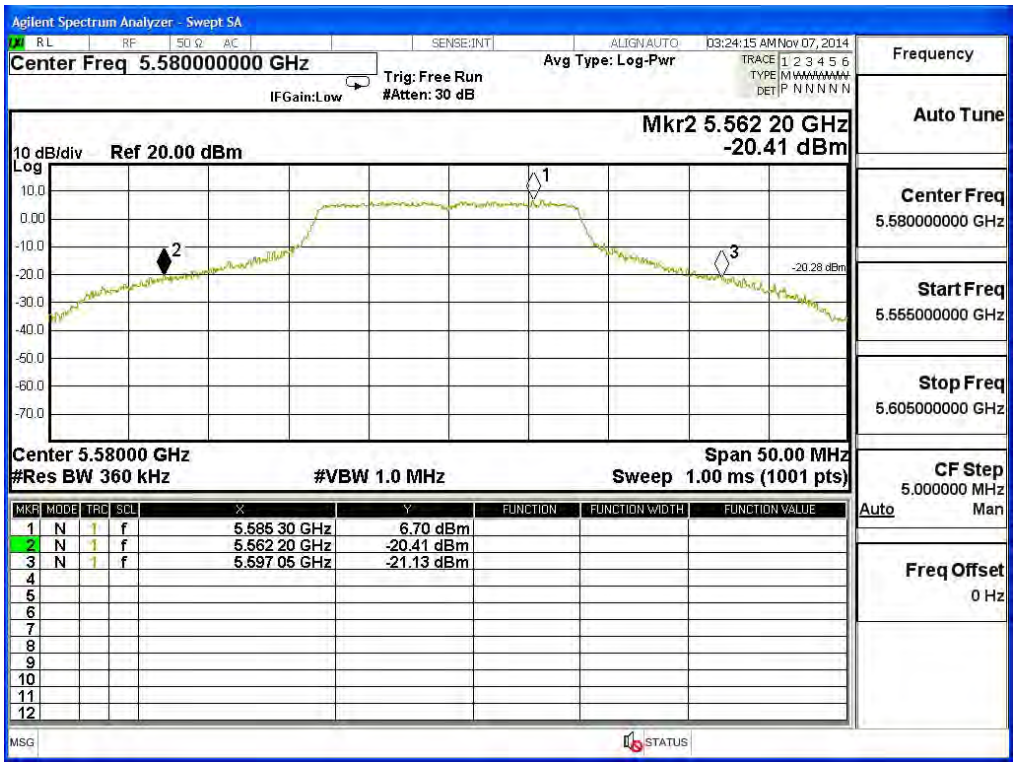
Channel 64:



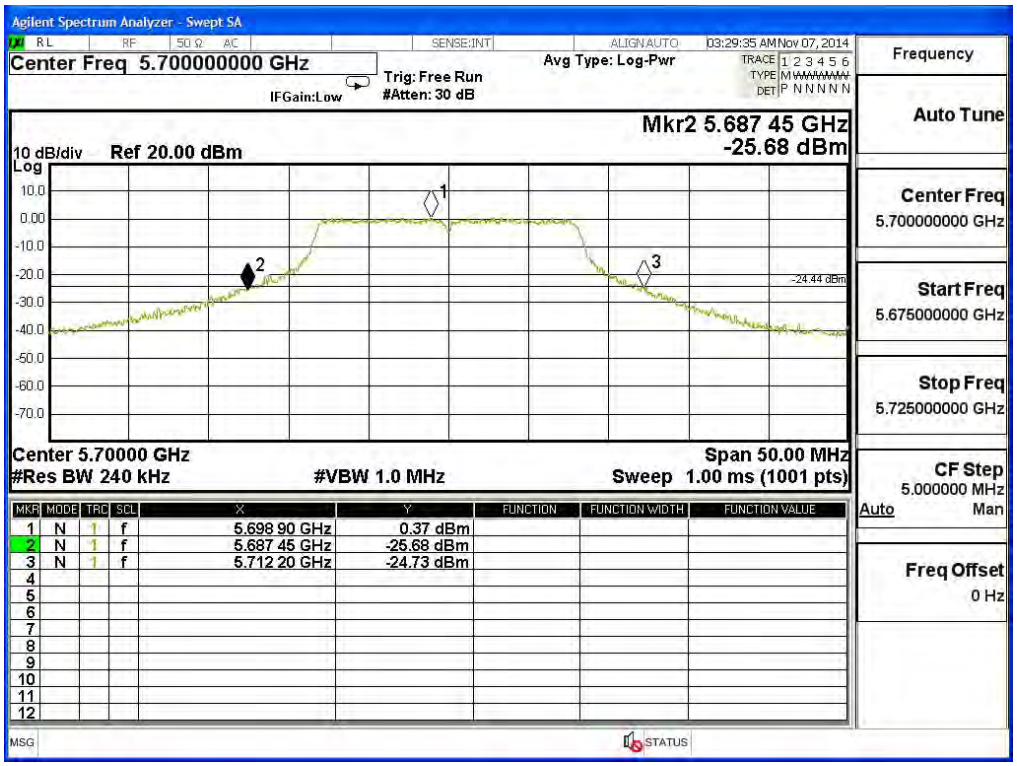
Channel 100:



Channel 116:



Channel 140:



Product : TABLET PC
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	10.48	--	--	--	--	--	--	--	<24dBm
44	5220	13.09	12.98	12.87	12.76	12.65	12.54	12.43	12.32	<24dBm
48	5240	12.16	--	--	--	--	--	--	--	<24dBm
52	5260	10.58	--	--	--	--	--	--	--	<24dBm
60	5300	12.87	12.84	12.81	12.78	12.75	12.72	12.69	12.66	<24dBm
64	5320	11.59	--	--	--	--	--	--	--	<24dBm
100	5500	10.53	--	--	--	--	--	--	--	<24dBm
116	5580	13.91	13.88	13.85	13.82	13.79	13.76	13.73	13.7	<24dBm
140	5700	10.69	--	--	--	--	--	--	--	<24dBm
149	5745	17.11	--	--	--	--	--	--	--	<30dBm
157	5785	17.74	17.69	17.64	17.59	17.54	17.49	17.44	17.39	<30dBm
165	5825	17.39	--	--	--	--	--	--	--	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	10.12	--	--	--	--	--	--	--	<24dBm
44	5220	13.09	13.01	12.93	12.85	12.77	12.69	12.61	12.53	<24dBm
48	5240	12.28	--	--	--	--	--	--	--	<24dBm
52	5260	10.57	--	--	--	--	--	--	--	<24dBm
60	5300	12.97	12.92	12.87	12.82	12.77	12.72	12.67	12.62	<24dBm
64	5320	11.36	--	--	--	--	--	--	--	<24dBm
100	5500	10.36	--	--	--	--	--	--	--	<24dBm
116	5580	13.68	13.61	13.54	13.47	13.4	13.33	13.26	13.19	<24dBm
140	5700	9.91	--	--	--	--	--	--	--	<24dBm
149	5745	15.41	--	--	--	--	--	--	--	<30dBm
157	5785	15.79	15.71	15.63	15.55	15.47	15.39	15.31	15.23	<30dBm
165	5825	15.23	--	--	--	--	--	--	--	<30dBm

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

Maximum conducted output power Measurement:

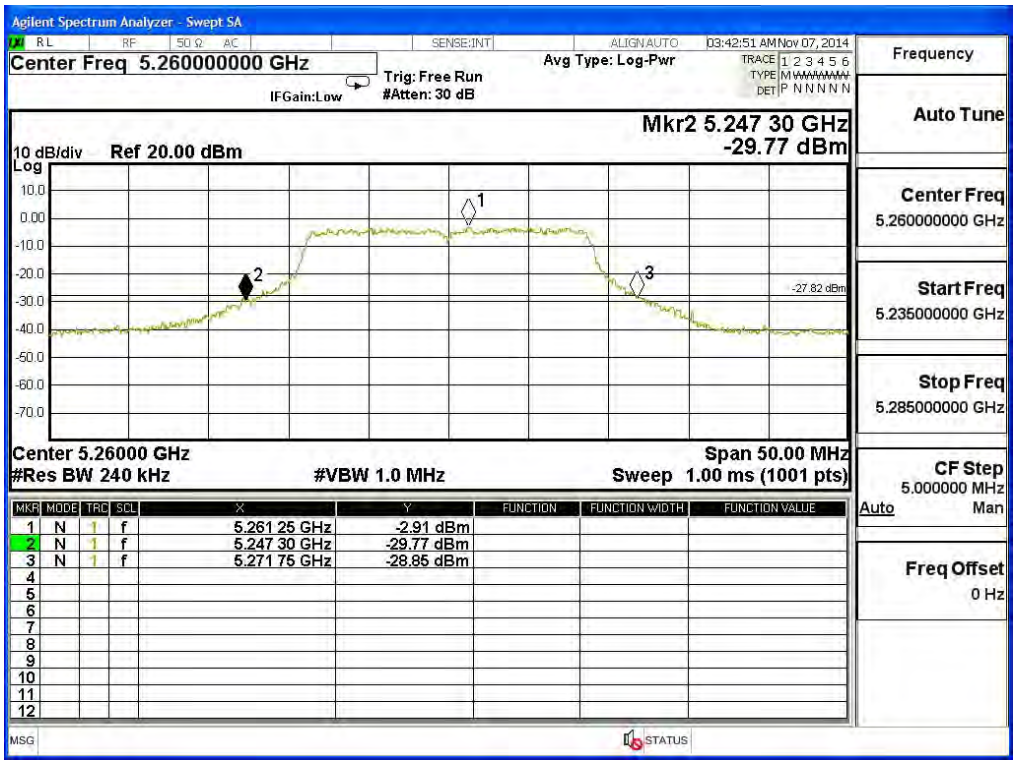
(Chain A+ B)

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	10.48	10.12	13.31	24	--
44	5220	--	13.09	13.09	16.10	24	--
48	5240	--	12.16	12.28	15.23	24	--
52	5260	23.850	10.58	10.57	13.59	24	24.77
60	5300	24.150	12.87	12.97	15.93	24	24.83
64	5320	23.150	11.59	11.36	14.49	24	24.65
100	5500	23.150	10.53	10.36	13.46	24	24.65
116	5580	21.750	13.91	13.68	16.81	24	24.37
140	5700	21.400	10.69	9.91	13.33	24	24.30
149	5745	--	17.11	15.41	19.35	30	--
157	5785	--	17.74	15.79	19.88	30	--
165	5825	--	17.39	15.23	19.45	30	--

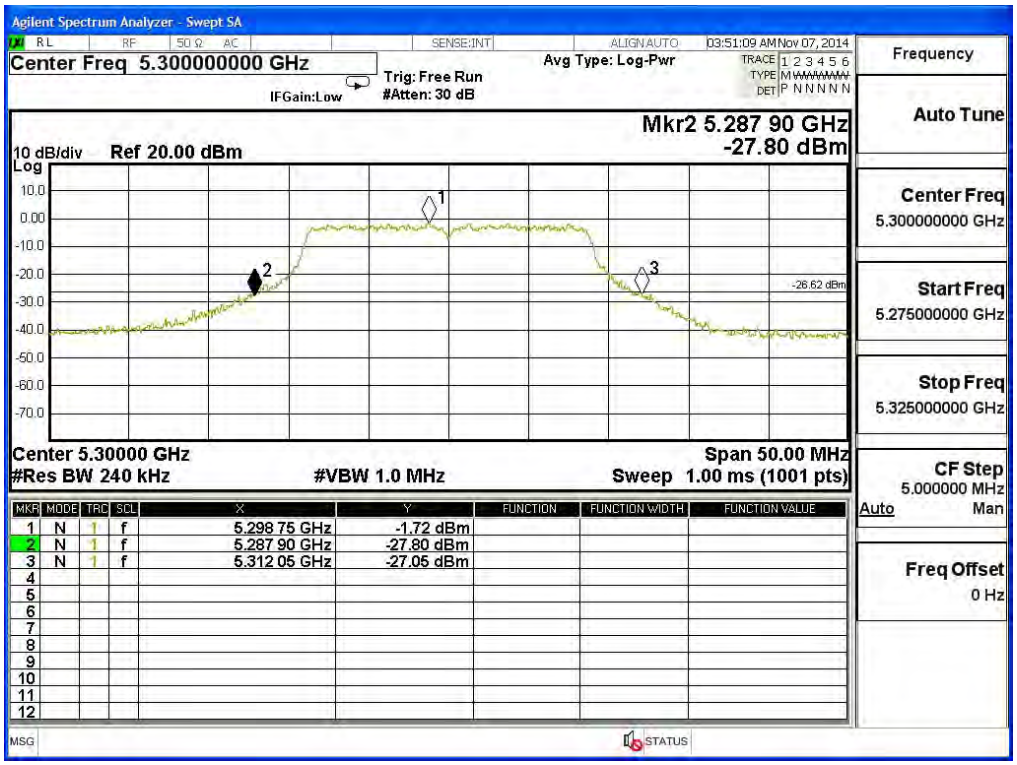
Note:

1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (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.

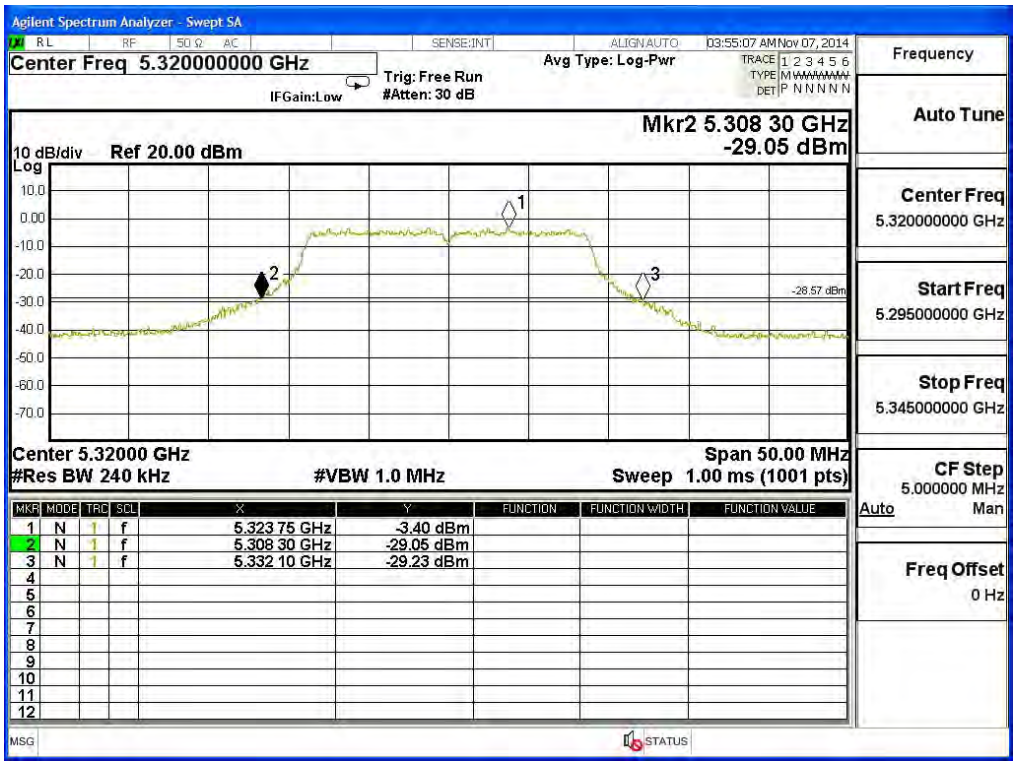
26dBc Occupied Bandwidth:
Channel 52 -Chain A



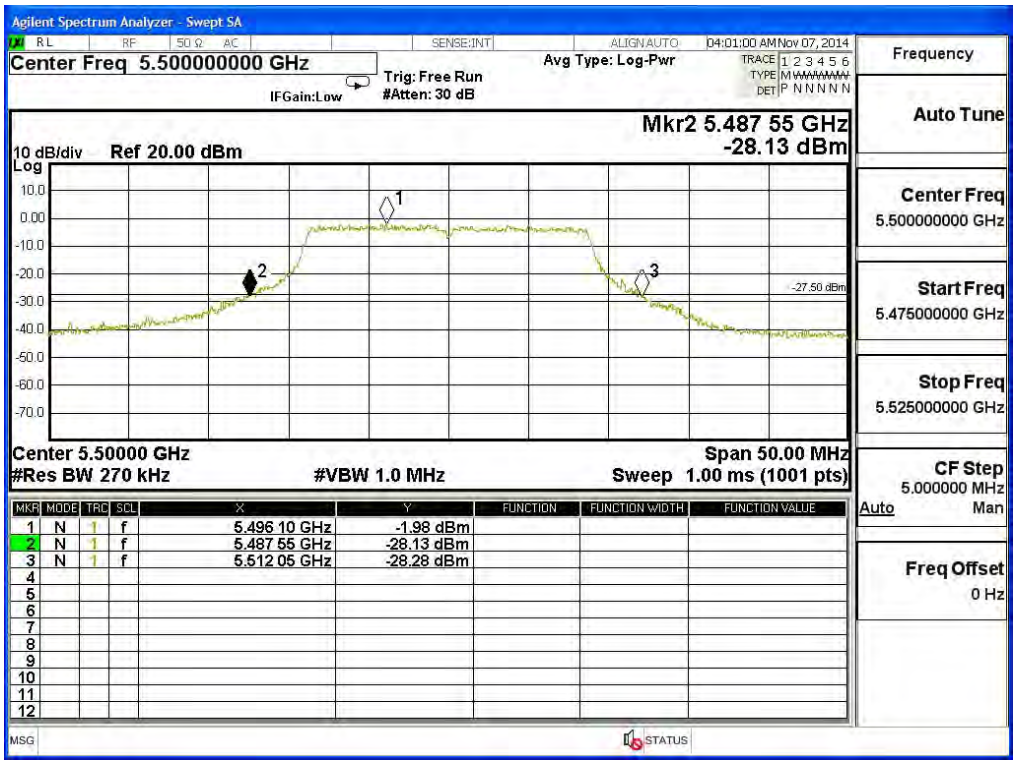
Channel 60 -Chain A



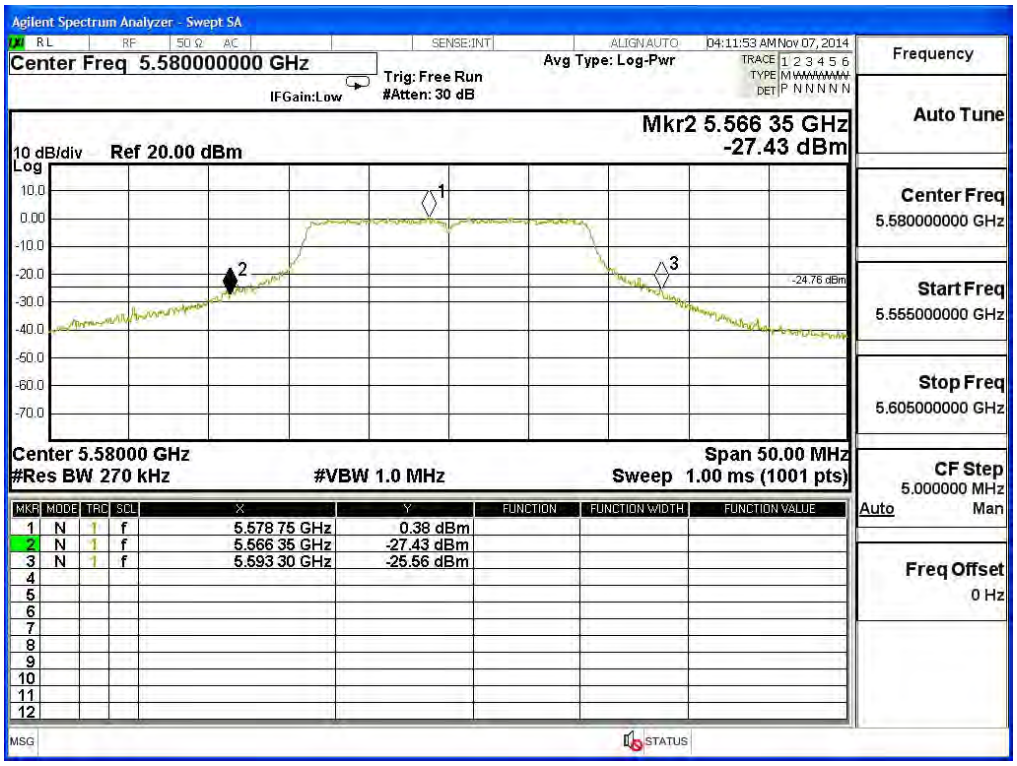
Channel 64 -Chain A



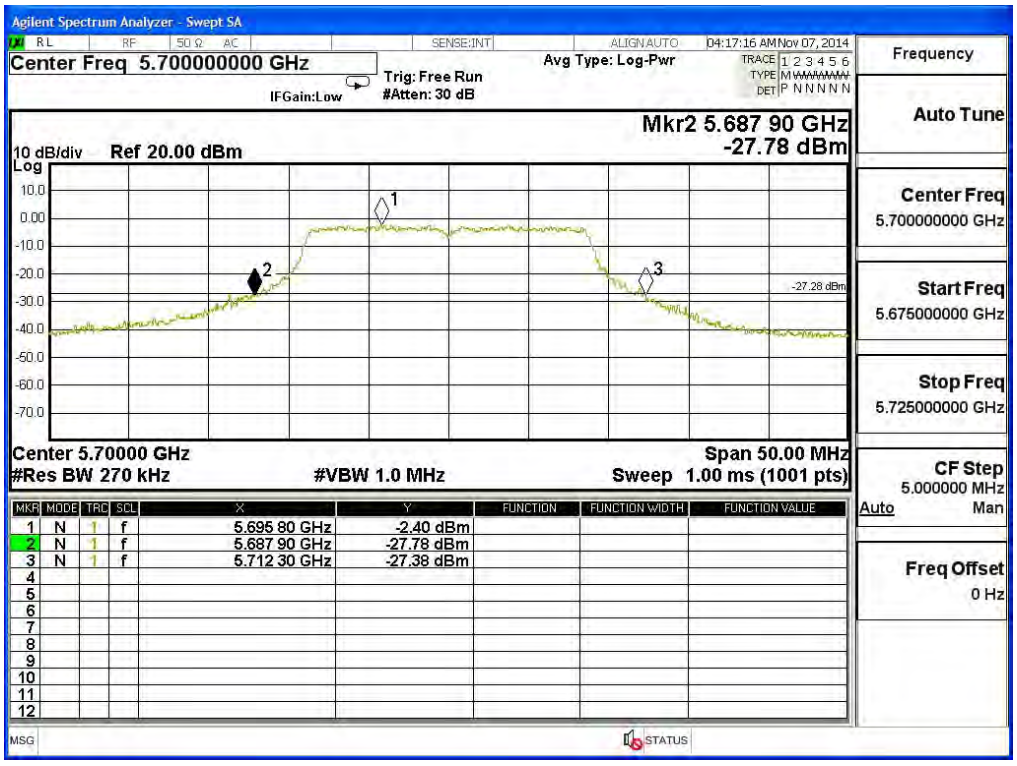
Channel 100 -Chain A



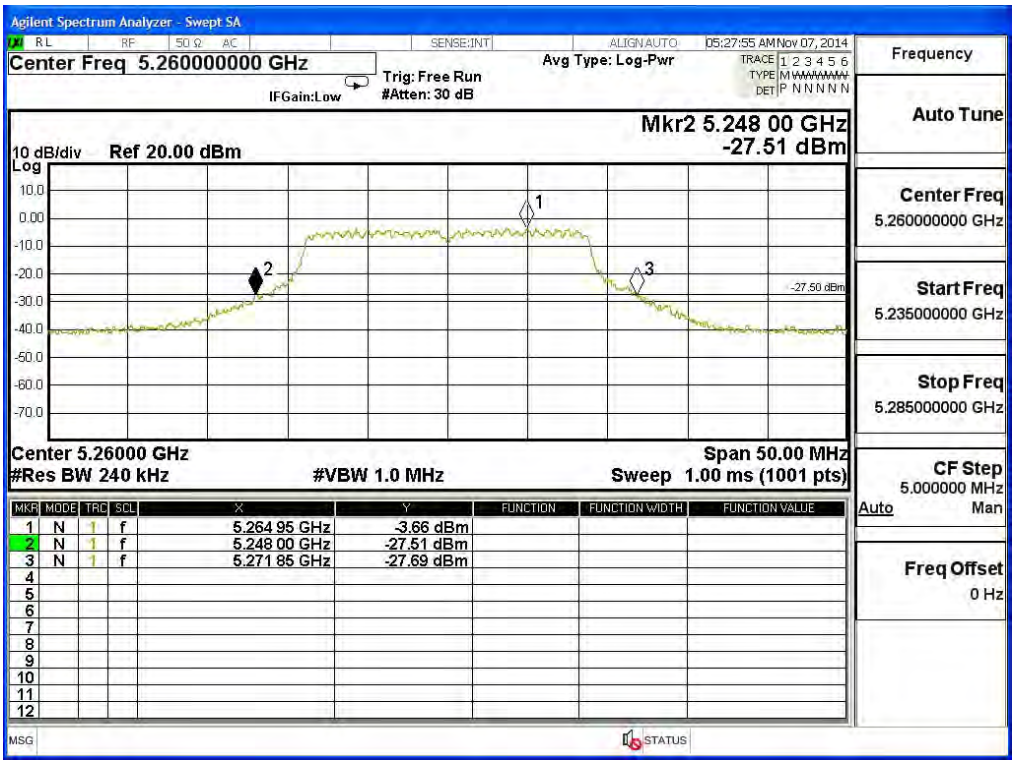
Channel 116 -Chain A



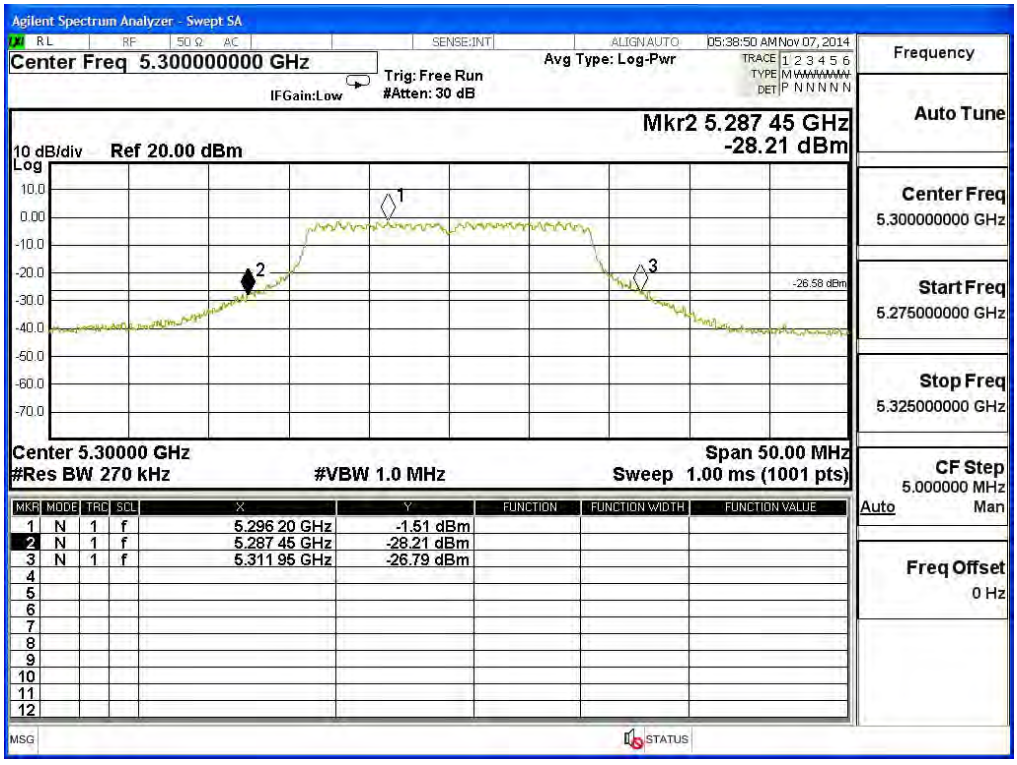
Channel 140 -Chain A



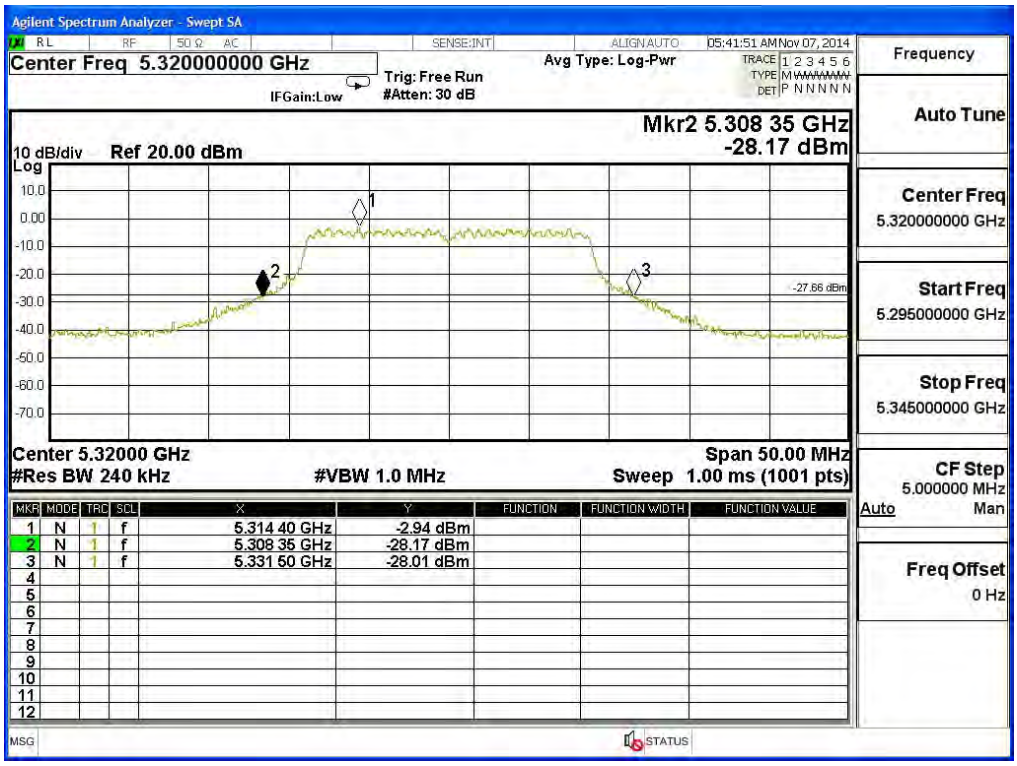
26dBc Occupied Bandwidth:
Channel 52 -Chain B



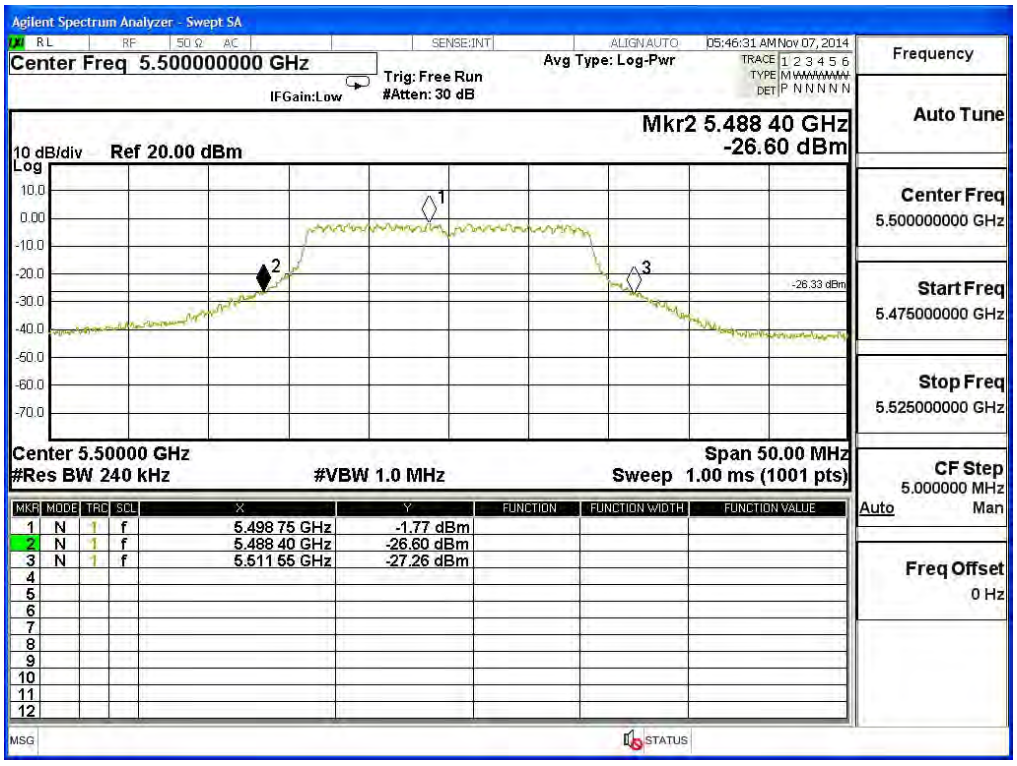
Channel 60 -Chain B



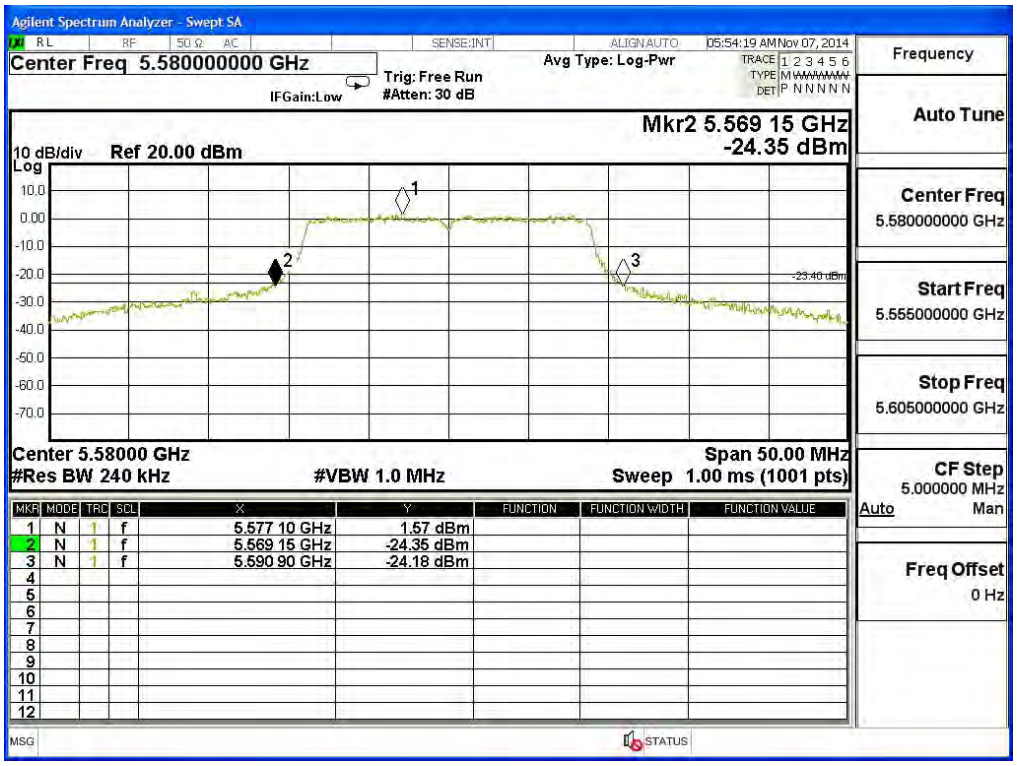
Channel 64 -Chain B



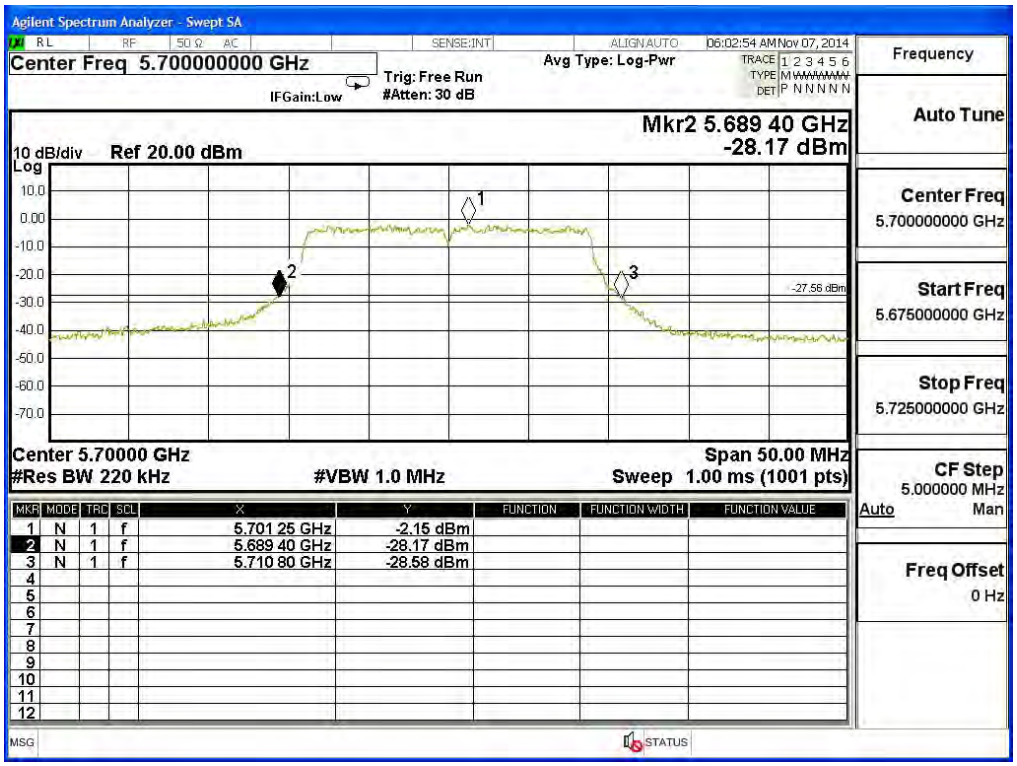
Channel 100 -Chain B



Channel 116 -Chain B



Channel 140 -Chain B



Product : TABLET PC
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	7.56	--	--	--	--	--	--	--	<24dBm
46	5230	12.39	12.31	12.23	12.15	12.07	11.99	11.91	11.83	<24dBm
54	5270	7.59	--	--	--	--	--	--	--	<24dBm
62	5310	8.58	8.51	8.48	8.42	8.36	8.3	8.24	8.18	<24dBm
102	5510	7.52	--	--	--	--	--	--	--	<24dBm
110	5550	13.17	13.13	13.09	13.05	13.01	12.97	12.93	12.89	<24dBm
134	5670	12.76	--	--	--	--	--	--	--	<24dBm
151	5755	18.45	--	--	--	--	--	--	--	<30dBm
159	5795	17.87	17.81	17.75	17.69	17.63	17.57	17.51	17.45	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	7.56	--	--	--	--	--	--	--	<24dBm
46	5230	12.37	12.31	12.25	12.19	12.13	12.07	12.01	11.95	<24dBm
54	5270	7.59	--	--	--	--	--	--	--	<24dBm
62	5310	8.49	8.41	8.33	8.25	8.17	8.09	8.01	7.93	<24dBm
102	5510	7.36	--	--	--	--	--	--	--	<24dBm
110	5550	13.38	13.31	13.24	13.17	13.1	13.03	12.96	12.89	<24dBm
134	5670	12.59	--	--	--	--	--	--	--	<24dBm
151	5755	16.08	--	--	--	--	--	--	--	<30dBm
159	5795	16.31	16.28	16.25	16.22	16.19	16.16	16.13	16.1	<30dBm

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

Maximum conducted output power Measurement:

(Chain A+ B)

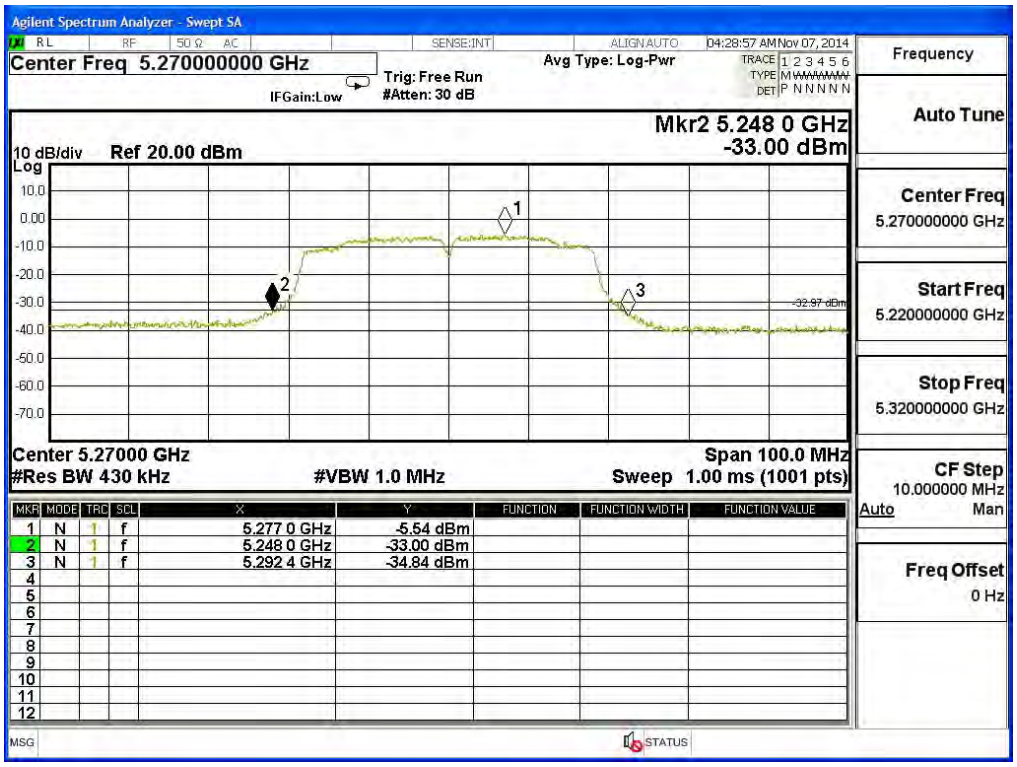
Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
38	5190	--	7.56	7.56	10.57	24	--
46	5230	--	12.39	12.37	15.39	24	--
54	5270	40.700	7.59	7.59	10.60	24	27.10
62	5310	40.000	8.58	8.49	11.55	24	27.02
102	5510	40.200	7.52	7.36	10.45	24	27.04
110	5550	41.000	13.17	13.38	16.29	24	27.13
134	5670	47.200	12.76	12.59	15.69	24	27.74
151	5755	--	18.45	16.08	20.44	30	--
159	5795	--	17.87	16.31	20.17	30	--

Note:

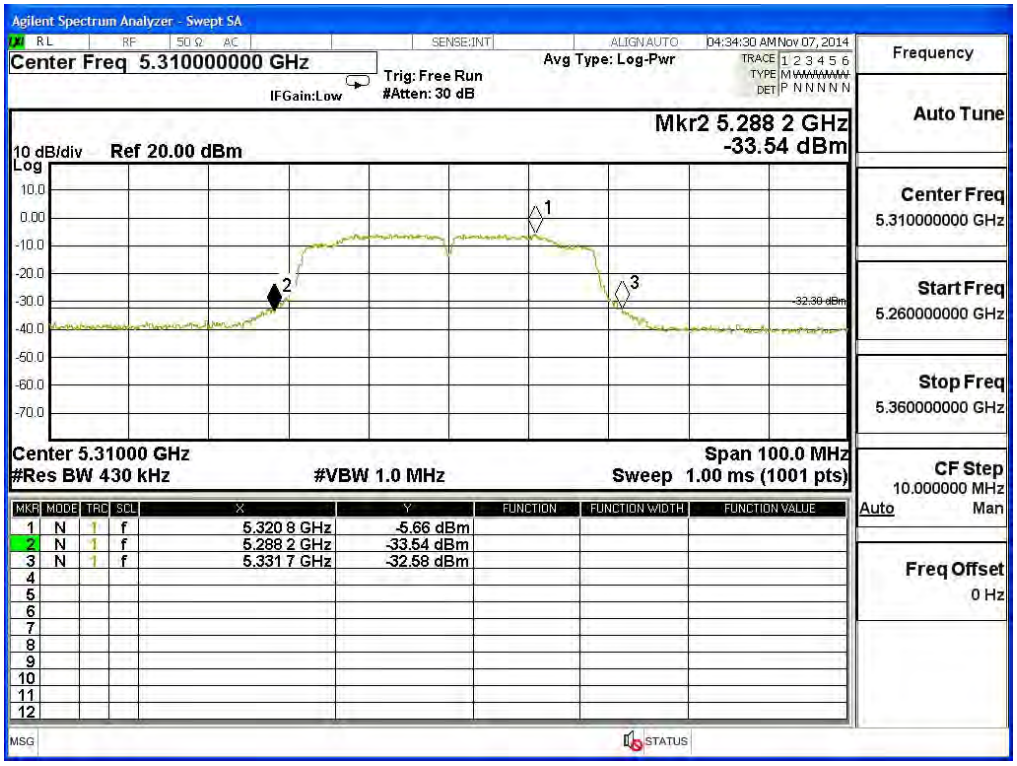
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

26dBc Occupied Bandwidth:

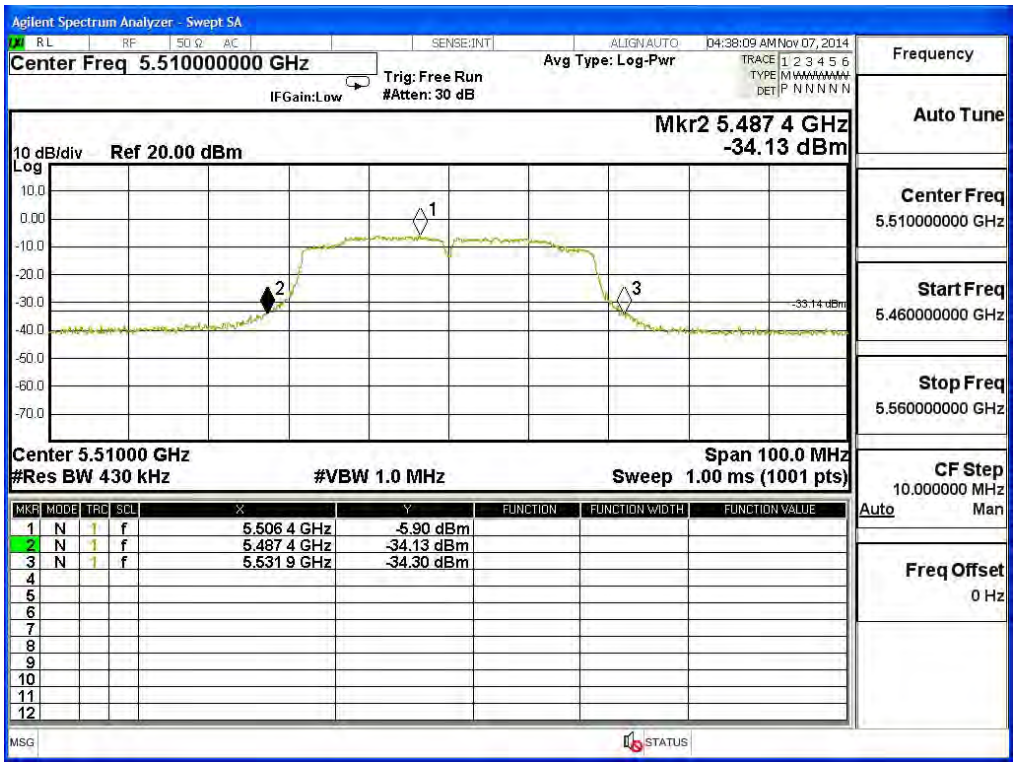
Channel 54 – Chain A



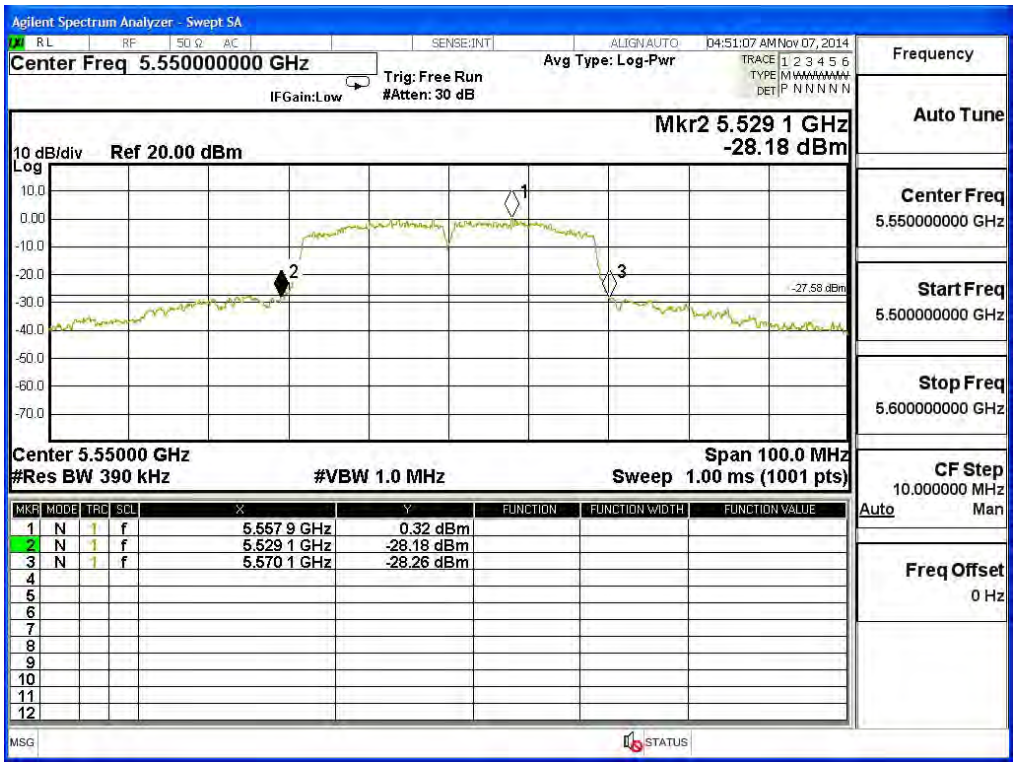
Channel 62 – Chain A



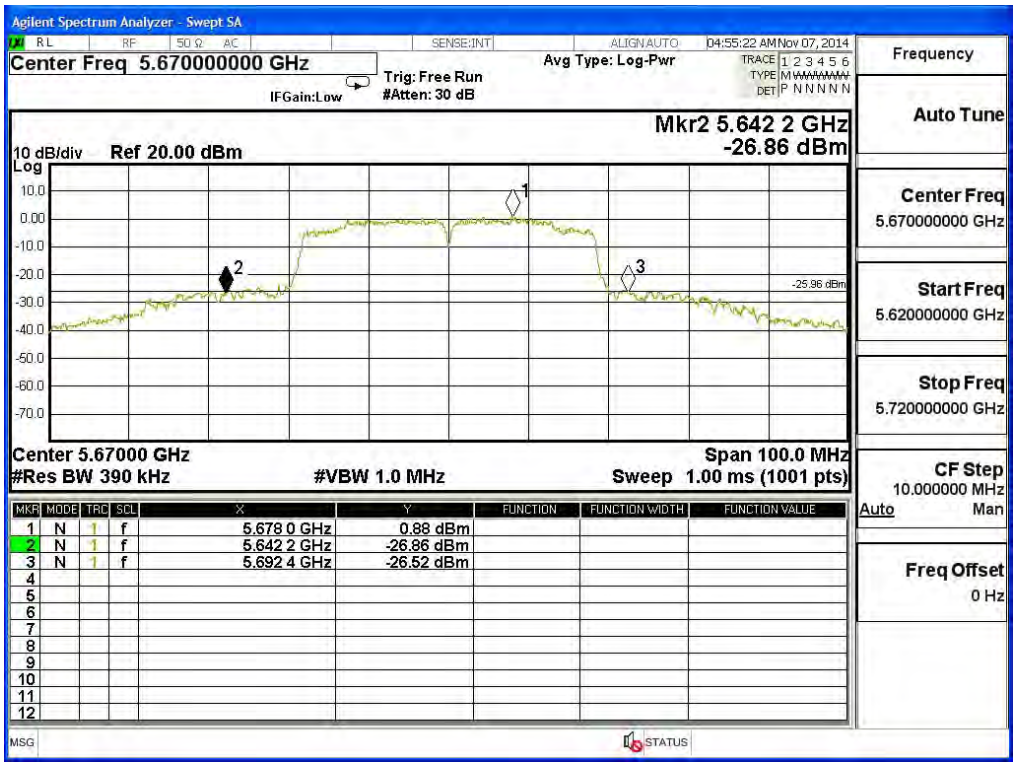
Channel 102 – Chain A



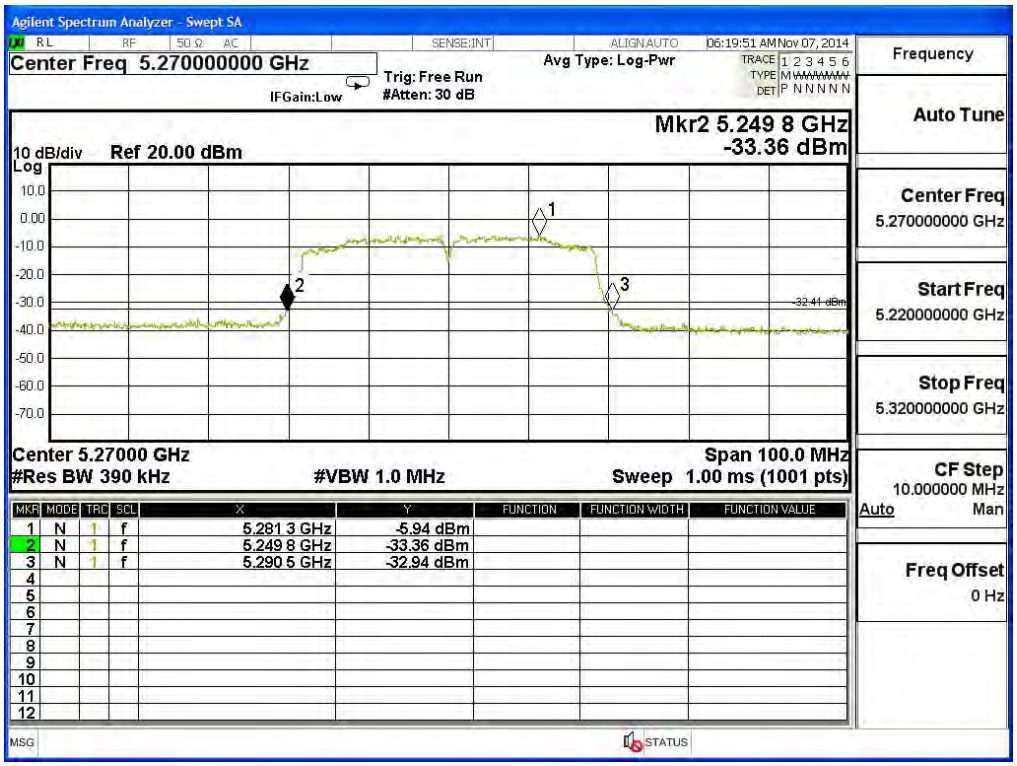
Channel 110 – Chain A



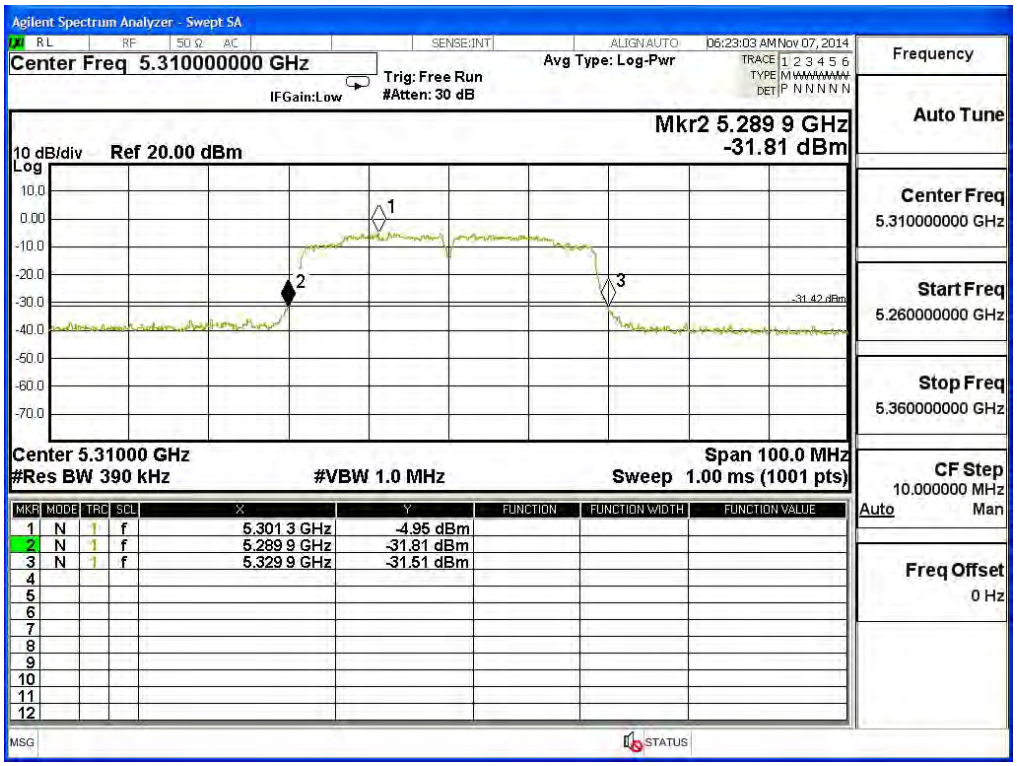
Channel 134 – Chain A



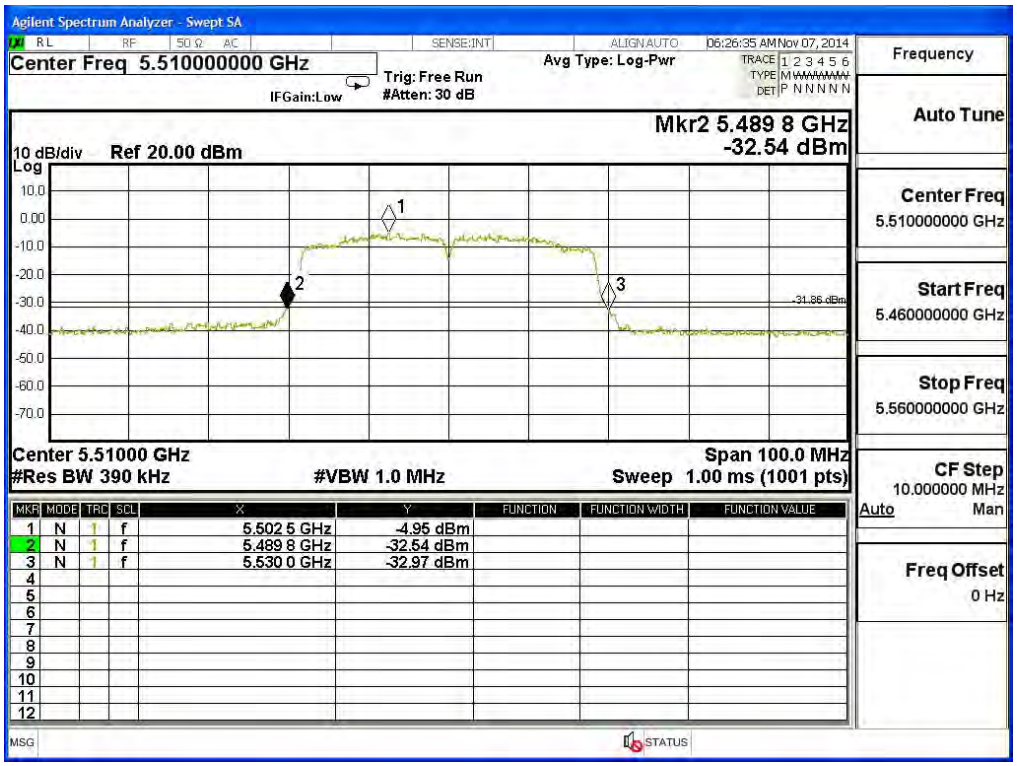
26dBc Occupied Bandwidth:
Channel 54 – Chain B



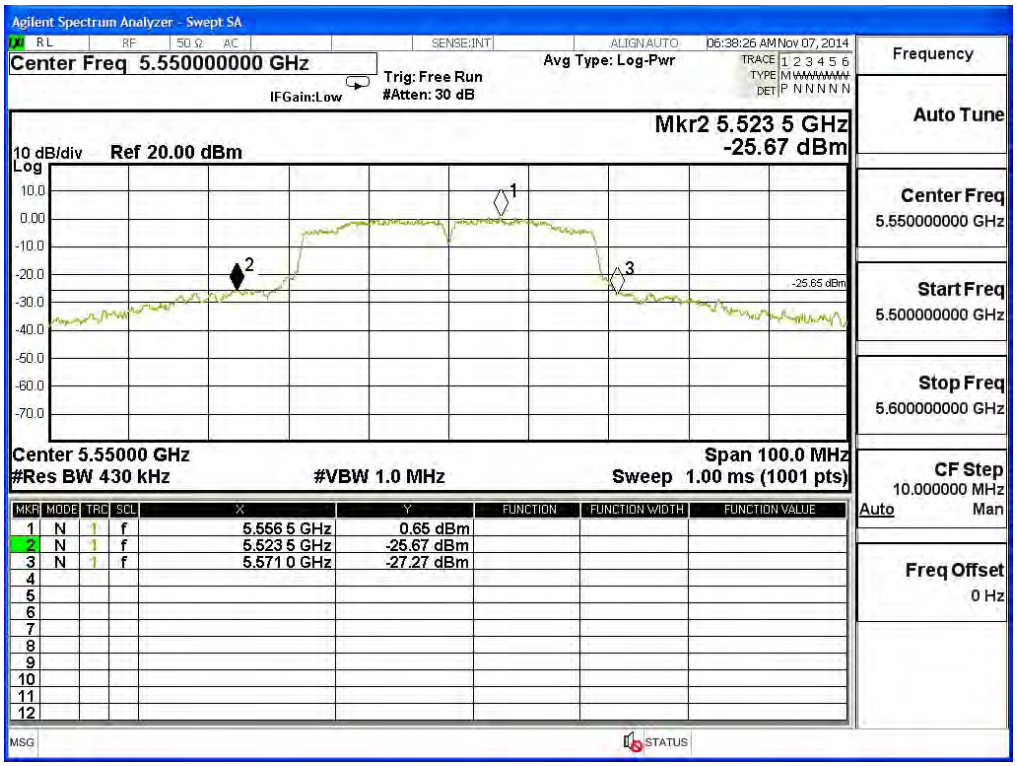
Channel 62 – Chain B



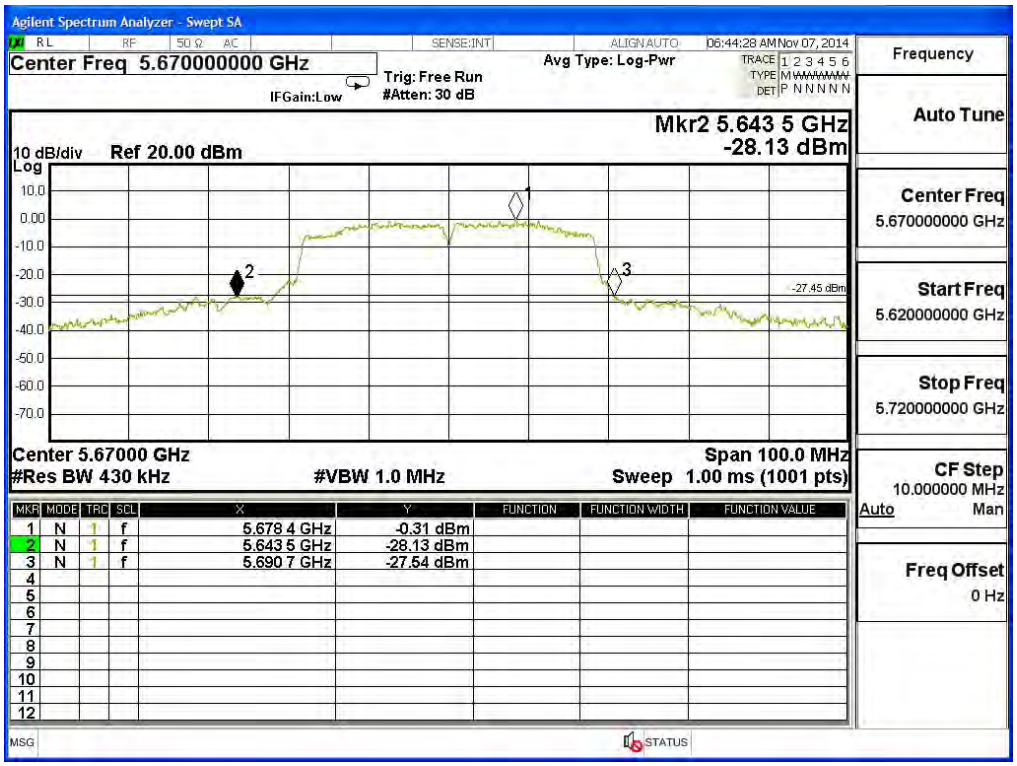
Channel 102 – Chain B



Channel 110 – Chain B



Channel 134 – Chain B



Product : TABLET PC
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-20BW-7.2Mbps)

Chain A

Cable loss=1dB		Maximum conducted output power									
Channel No.	Frequency (MHz)	Data Rate (Mbps)									Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	
		Measurement Level (dBm)									
144 **(**Band3)	5720	7.4	7.34	7.28	7.22	7.16	7.1	7.04	6.98	6.92	<24dBm
144 (Band4)	5720	1.35	1.29	1.23	1.17	1.11	1.05	0.99	0.93	0.87	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power									
Channel No.	Frequency (MHz)	Data Rate (Mbps)									Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	
		Measurement Level (dBm)									
144 **(**Band3)	5720	7.32	7.29	7.26	7.23	7.2	7.17	7.14	7.11	7.08	<24dBm
144 (Band4)	5720	1.23	1.19	1.15	1.11	1.07	1.03	0.99	0.95	0.91	<30dBm

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

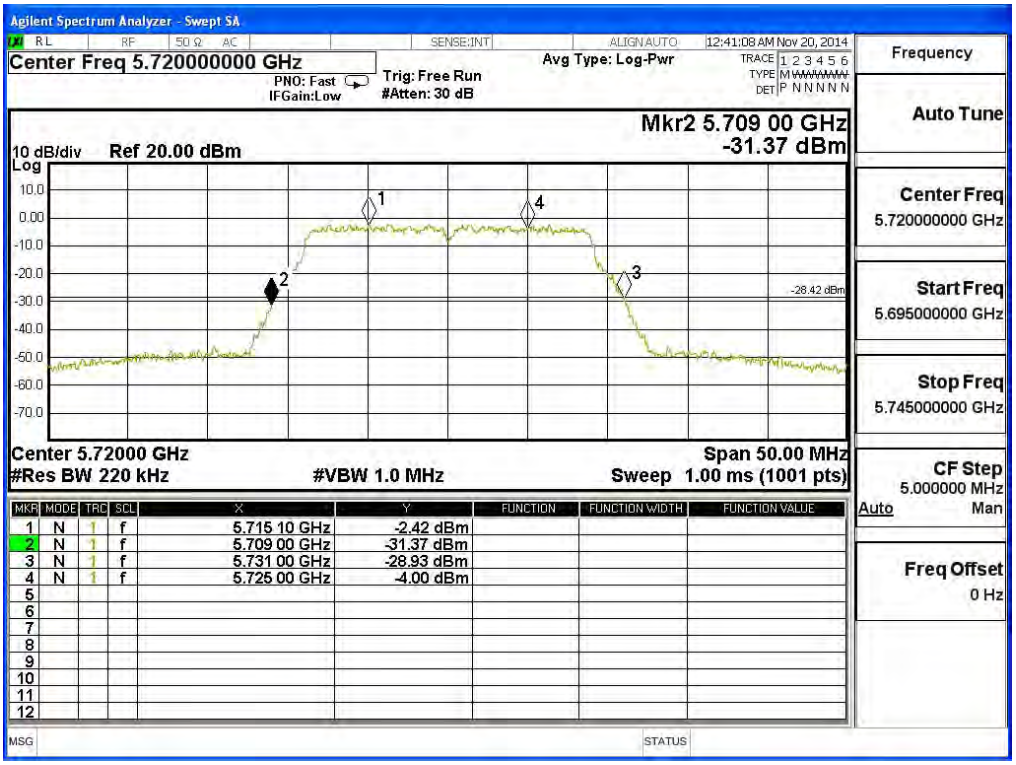
Maximum conducted output power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
144(Band3)	5720	15.900	7.40	7.32	10.37	24	23.01	Pass
144(Band4)	5720	6.000	1.35	1.23	4.30	30	18.78	Pass

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

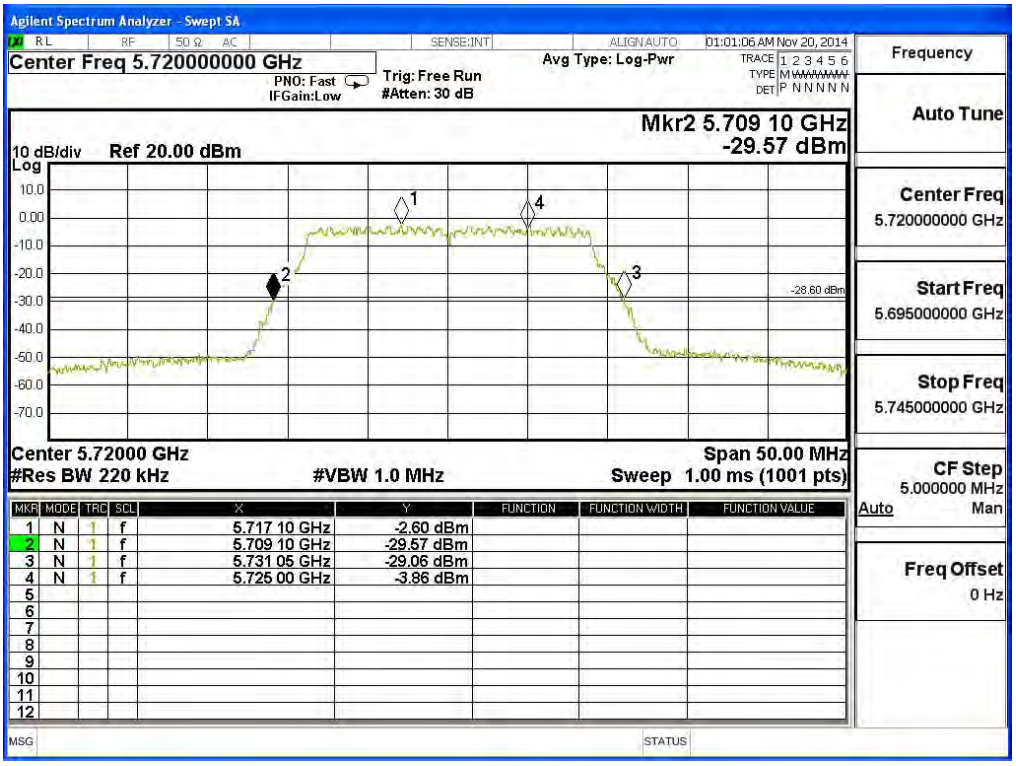
26dBc Occupied Bandwidth:

Channel 144 – Chain A



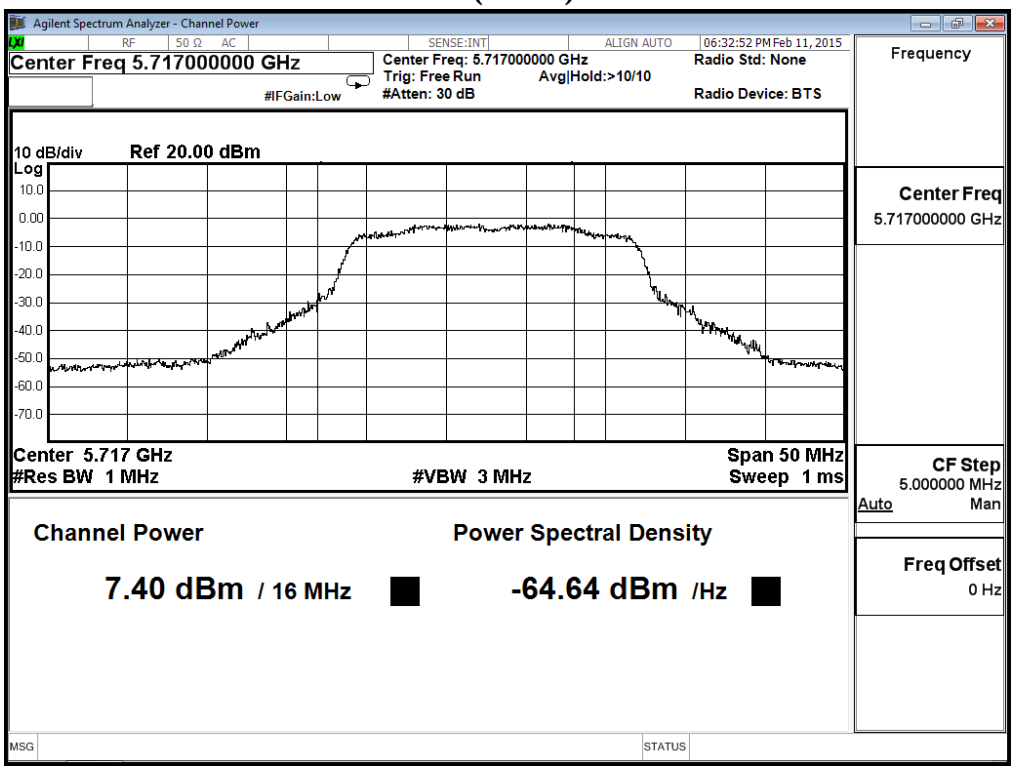
26dBc Occupied Bandwidth:

Channel 144 – Chain B

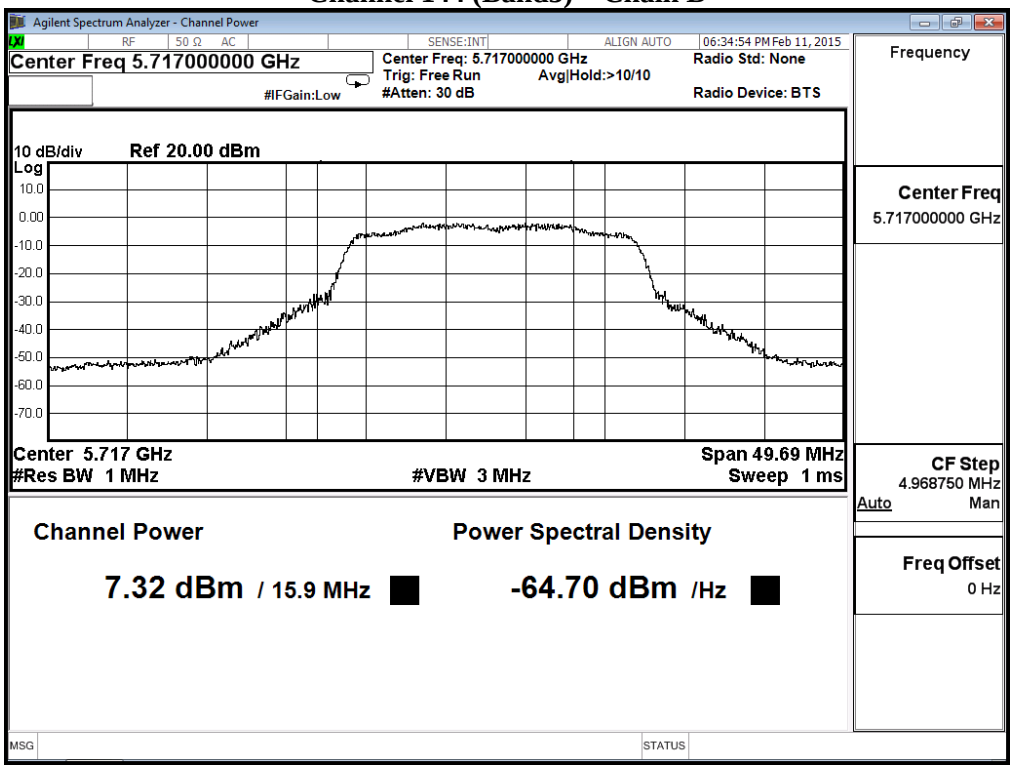


Maximum conducted output power:

Channel 144 (Band3) – Chain A

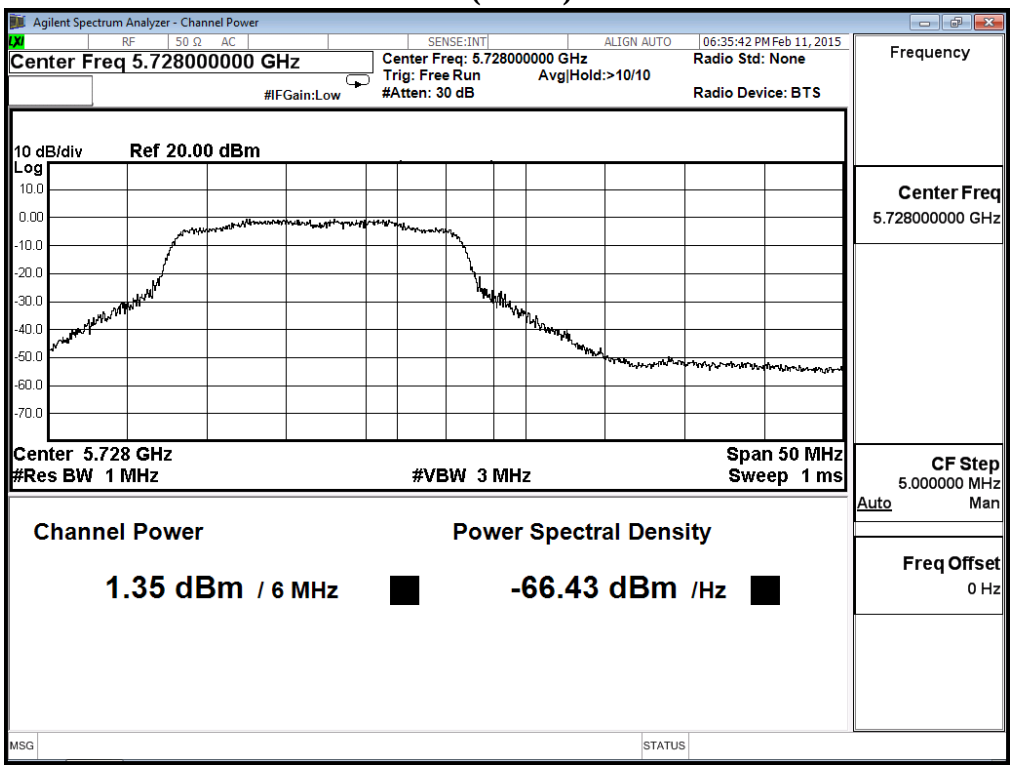


Channel 144 (Band3) – Chain B

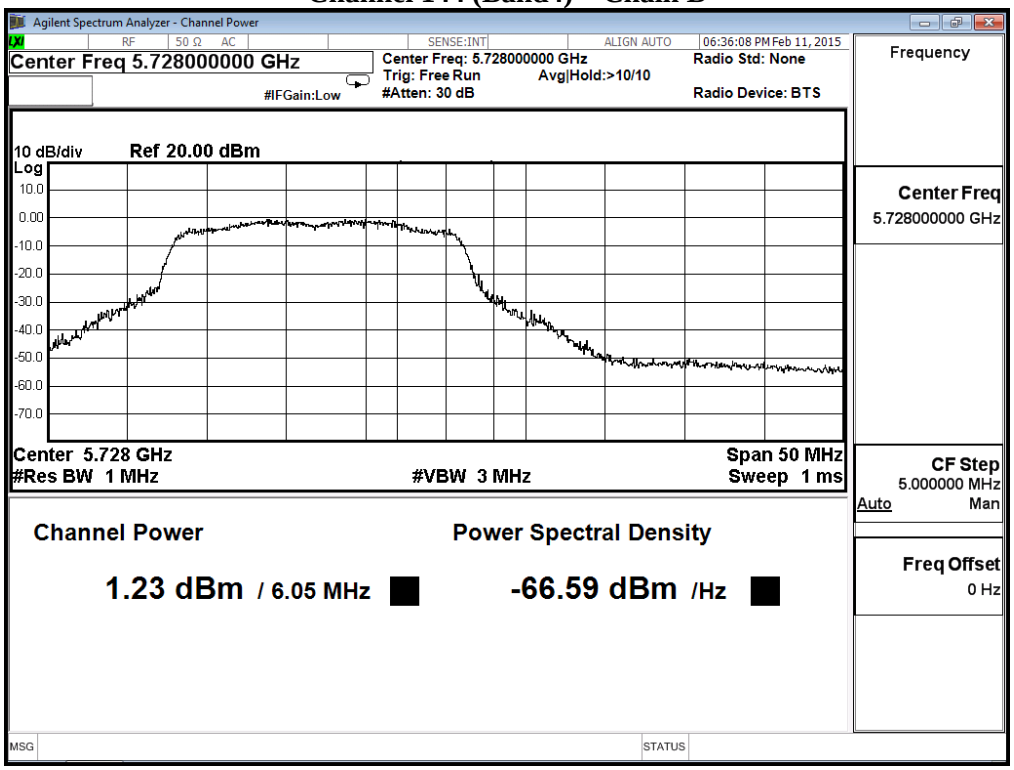


Maximum conducted output power:

Channel 144 (Band4) – Chain A



Channel 144 (Band4) – Chain B



Product : TABLET PC
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11ac-40BW-15Mbps)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
142F(Band3)	5710	7.22	7.09	7.04	6.99	6.94	6.89	6.84	6.79	6.74	6.69	<24dBm
142F(Band4)	5710	1.07	0.99	0.96	0.93	0.9	0.87	0.84	0.81	0.78	0.75	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
142F(Band3)	5710	6.73	6.68	6.63	6.58	6.53	6.48	6.43	6.38	6.33	6.28	<24dBm
142F(Band4)	5710	1.72	1.68	1.64	1.6	1.56	1.52	1.48	1.44	1.4	1.36	<30dBm

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

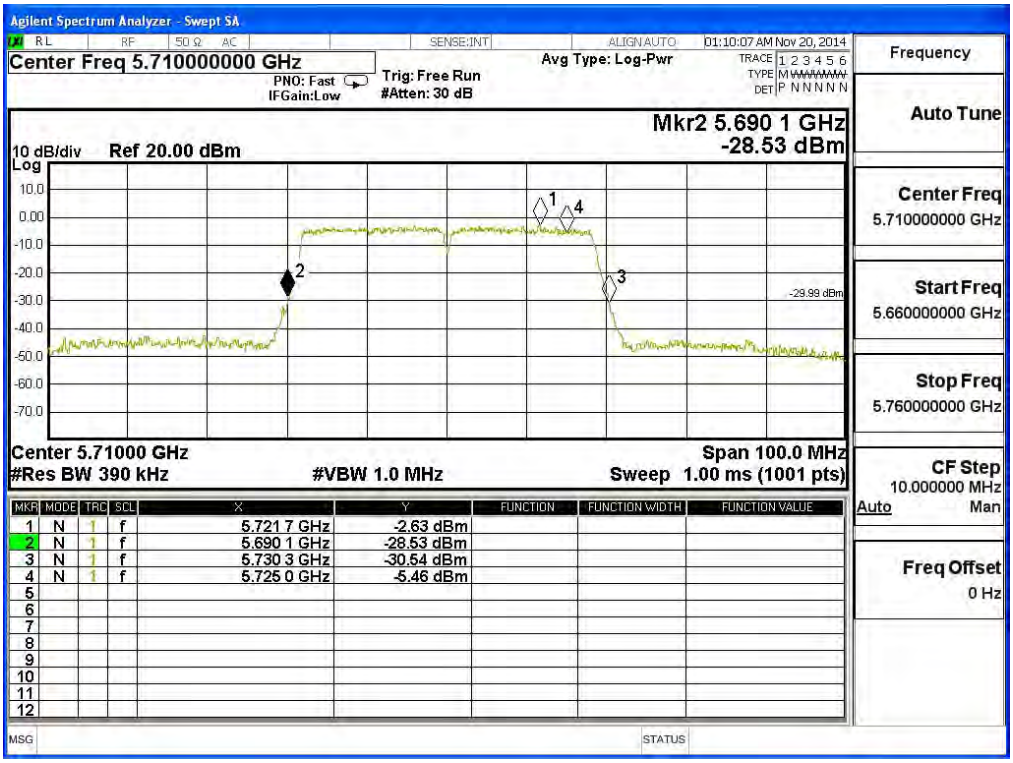
Maximum conducted output power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
142F(Band3)	5710	34.700	7.22	6.73	9.99	24	26.40	Pass
142F(Band4)	5710	4.900	1.07	1.72	4.42	30	17.90	Pass

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

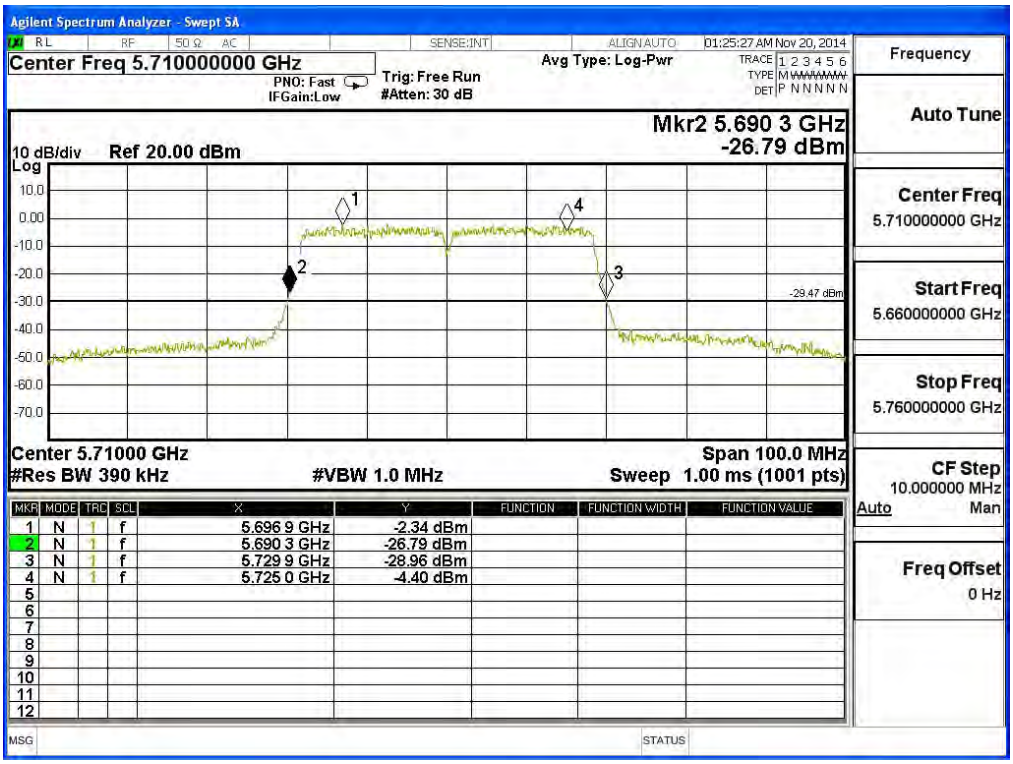
26dBc Occupied Bandwidth:

Channel 142 – Chain A



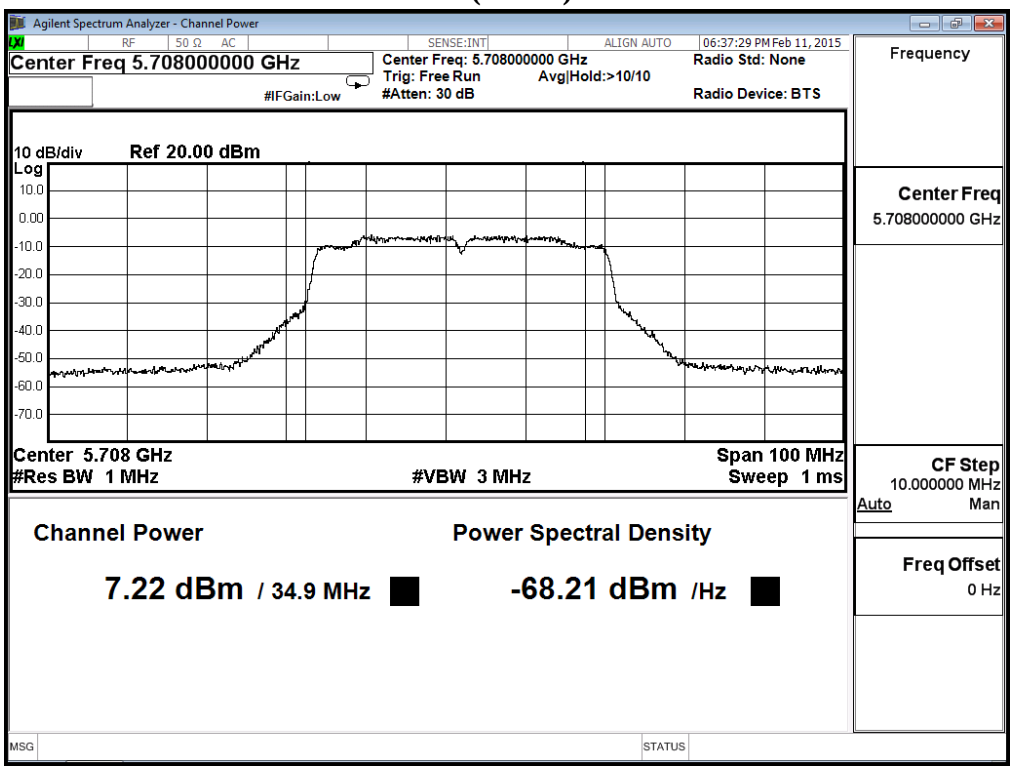
26dBc Occupied Bandwidth:

Channel 142 – Chain B

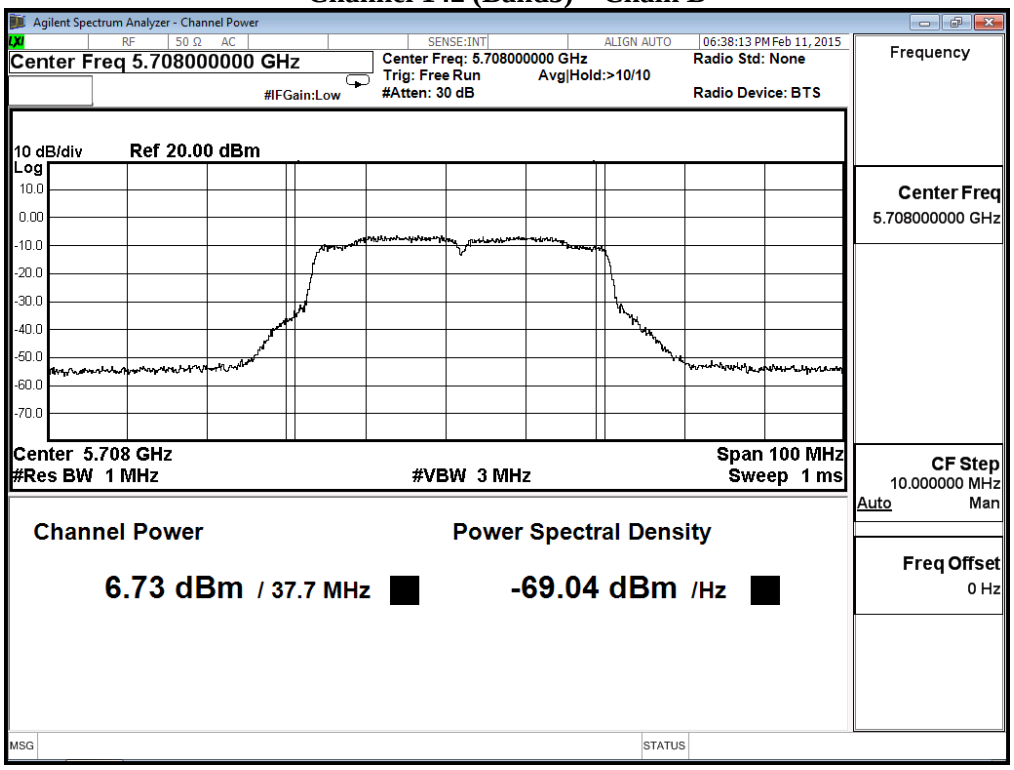


Maximum conducted output power:

Channel 142 (Band3) – Chain A

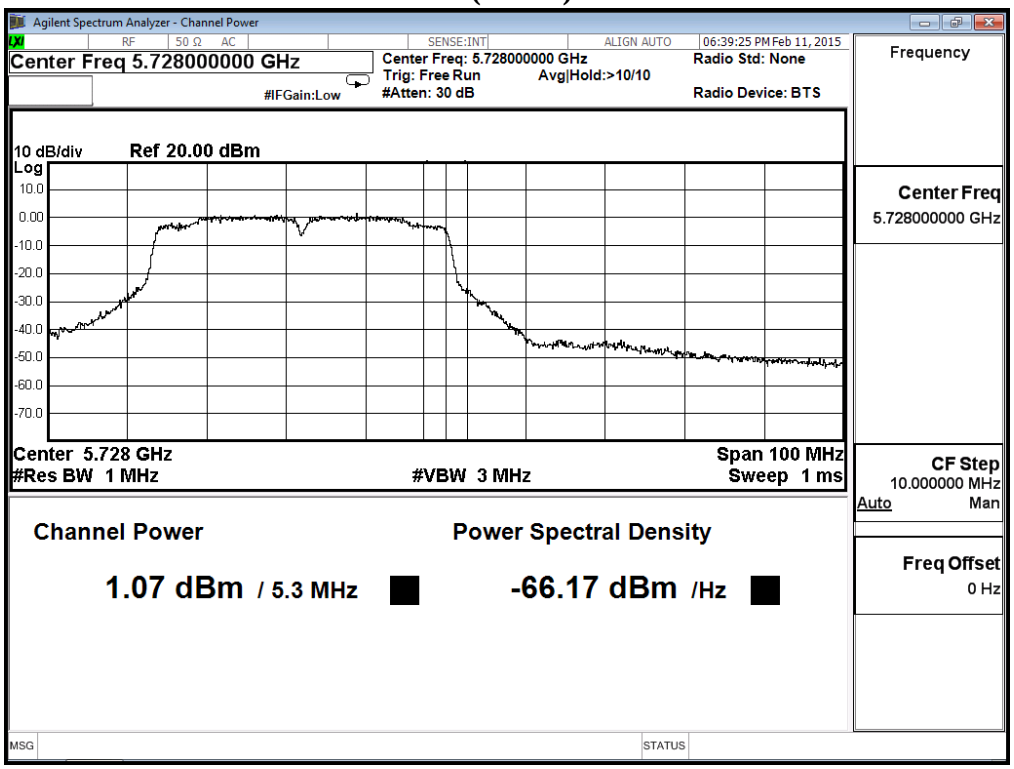


Channel 142 (Band3) – Chain B

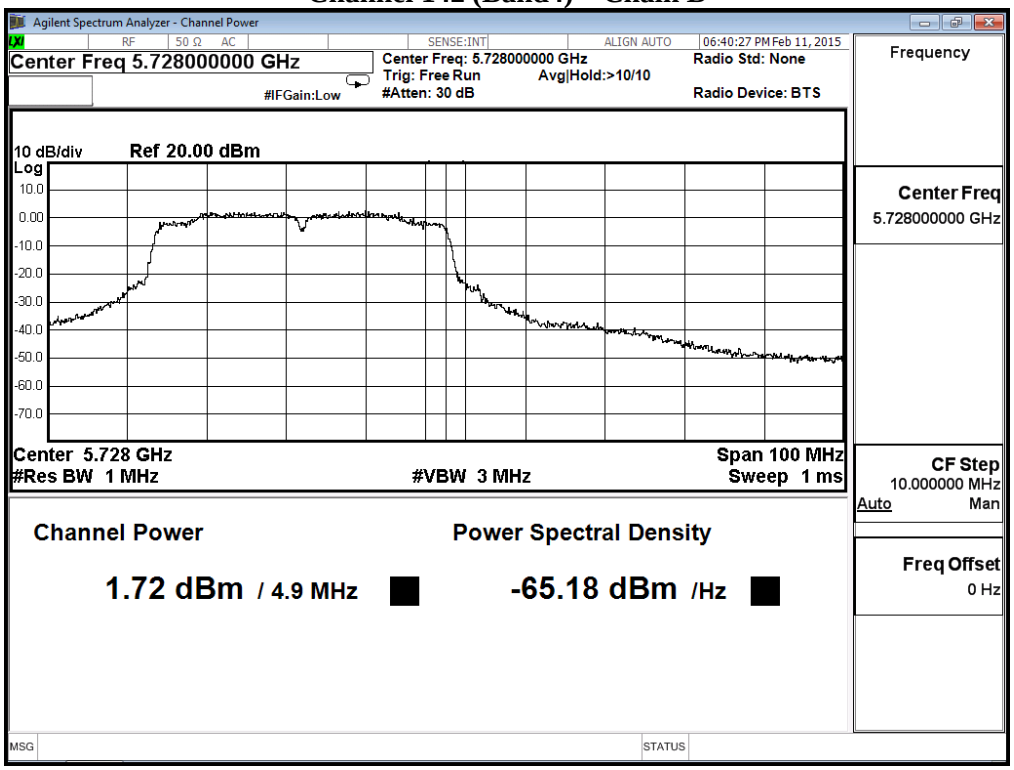


Maximum conducted output power:

Channel 142 (Band4) – Chain A



Channel 142 (Band4) – Chain B



Product : TABLET PC
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	7.27	7.22	7.17	7.12	7.07	7.02	6.97	6.92	6.87	6.82	<24dBm
58	5290	7.75	7.71	7.67	7.63	7.59	7.55	7.51	7.47	7.43	7.39	<24dBm
106	5530	7.75	7.69	7.63	7.57	7.51	7.45	7.39	7.33	7.27	7.21	<24dBm
122	5610	8.52	8.49	8.46	8.43	8.4	8.37	8.34	8.31	8.28	8.25	<24dBm
138(Band3)	5690	7.95	7.89	7.83	7.77	7.71	7.65	7.59	7.53	7.47	7.41	<24dBm
138(Band4)	5690	1.3	1.27	1.24	1.21	1.18	1.15	1.12	1.09	1.06	1.03	<30dBm
155	5775	7.44	7.41	7.36	7.32	7.26	7.24	7.20	7.15	7.12	7.07	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	7.3	7.27	7.24	7.21	7.18	7.15	7.12	7.09	7.06	7.03	<24dBm
58	5290	7.85	7.81	7.77	7.73	7.69	7.65	7.61	7.57	7.53	7.49	<24dBm
106	5530	7.29	7.22	7.15	7.08	7.01	6.94	6.87	6.8	6.73	6.66	<24dBm
122	5610	7.56	7.52	7.48	7.44	7.4	7.36	7.32	7.28	7.24	7.2	<24dBm
138(Band3)	5690	7.62	7.58	7.54	7.5	7.46	7.42	7.38	7.34	7.3	7.26	<24dBm
138(Band4)	5690	1.72	1.69	1.66	1.63	1.6	1.57	1.54	1.51	1.48	1.45	<30dBm
155	5775	7.46	7.42	7.38	7.34	7.30	7.26	7.22	7.18	7.14	7.10	<30dBm

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

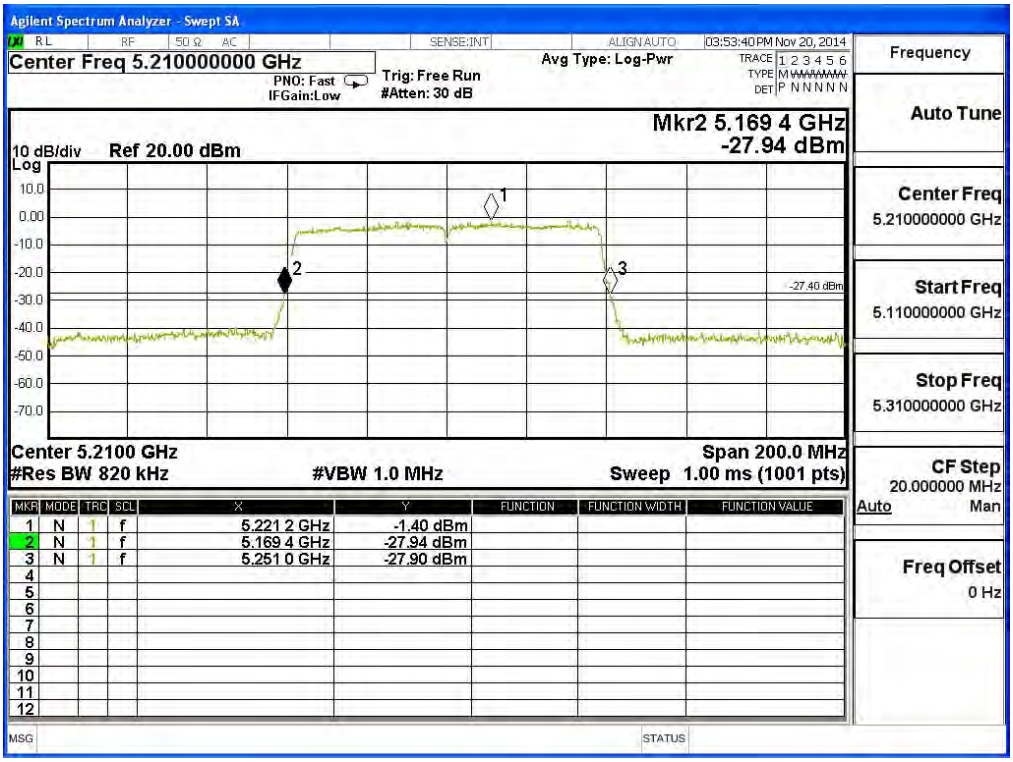
Maximum conducted output power Measurement

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
42	5210	81.200	7.27	7.30	10.30	24	30.10	Pass
58	5290	81.600	7.75	7.85	10.81	24	30.12	Pass
106	5530	82.200	7.75	7.29	10.54	24	30.15	Pass
122	5610	81.900	8.52	7.56	11.08	24	30.13	Pass
138(Band3)	5690	75.200	7.95	7.62	10.80	24	29.76	Pass
138(Band4)	5690	5.800	1.30	1.72	4.53	30	24.63	Pass
155	5775	82.400	7.44	7.46	10.46	30	36.16	Pass

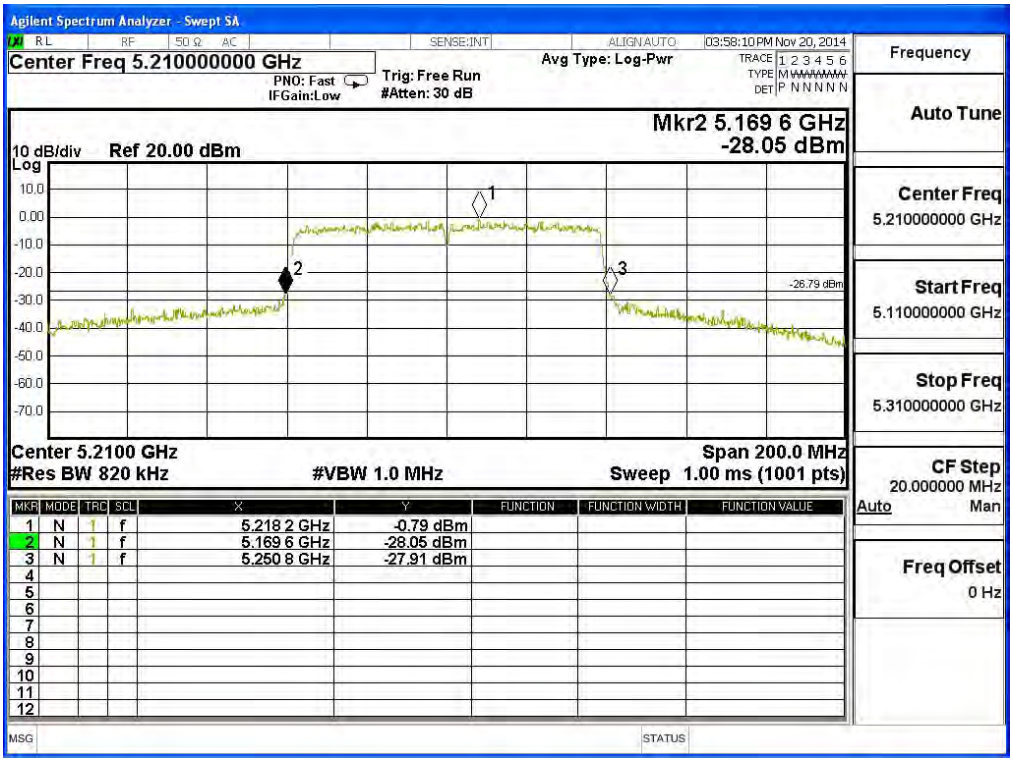
Note: Power Output Value =Reading value on average power meter + cable loss

26dBc Occupied Bandwidth:

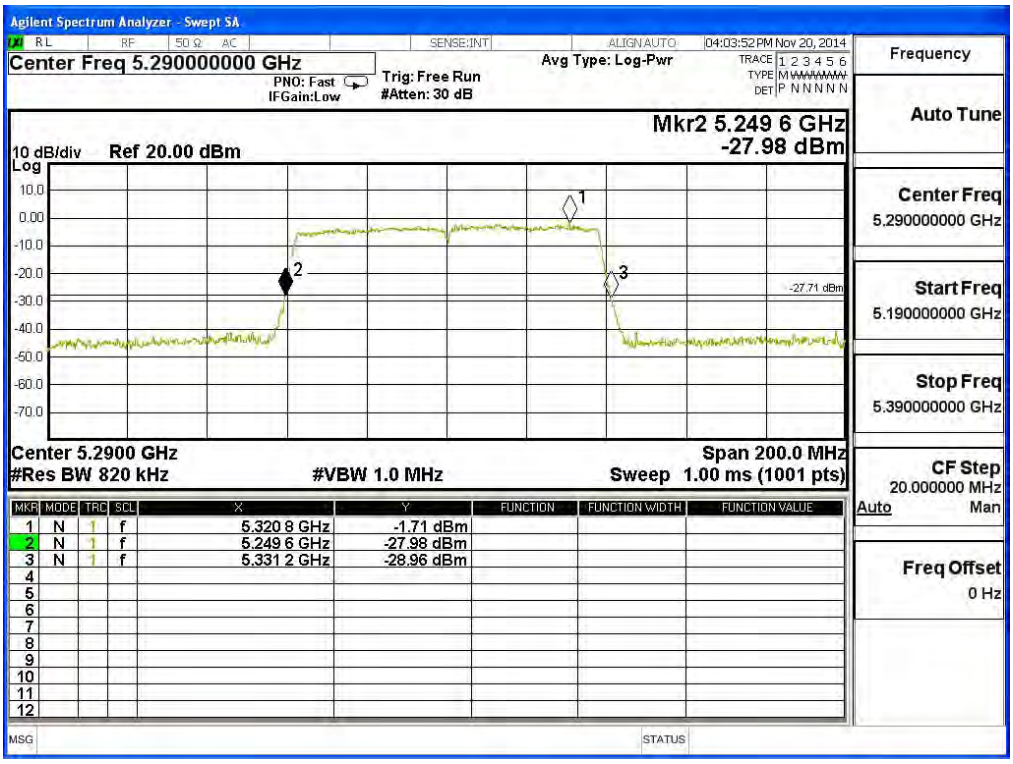
Channel 42 – Chain A



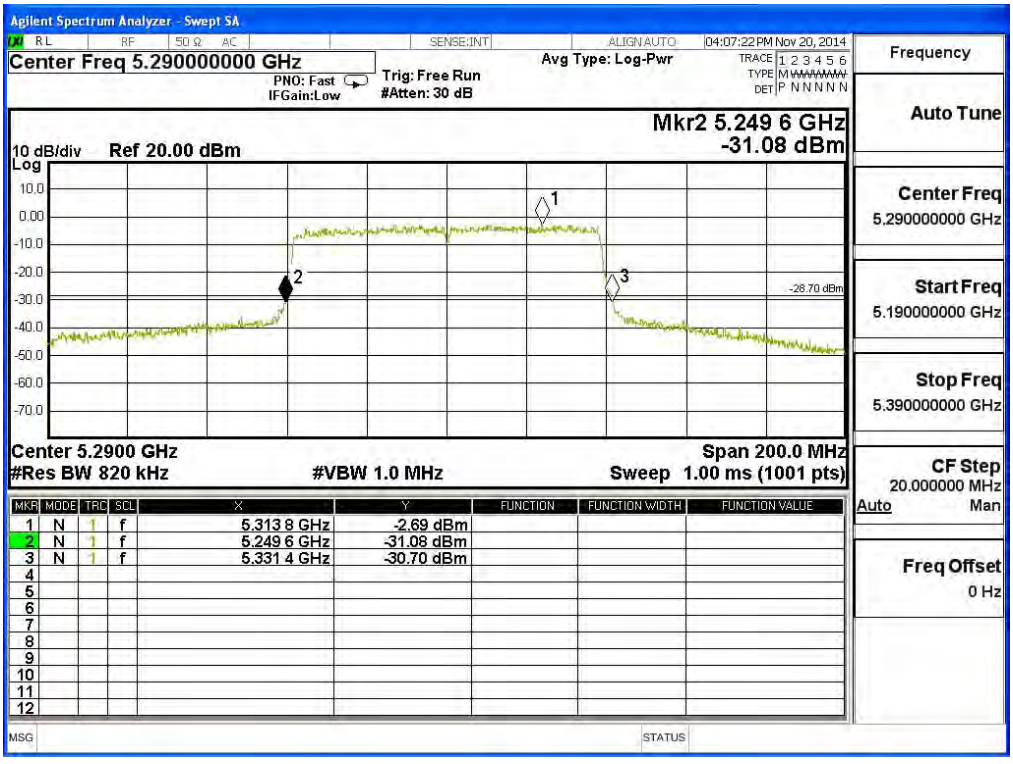
Channel 42 – Chain B



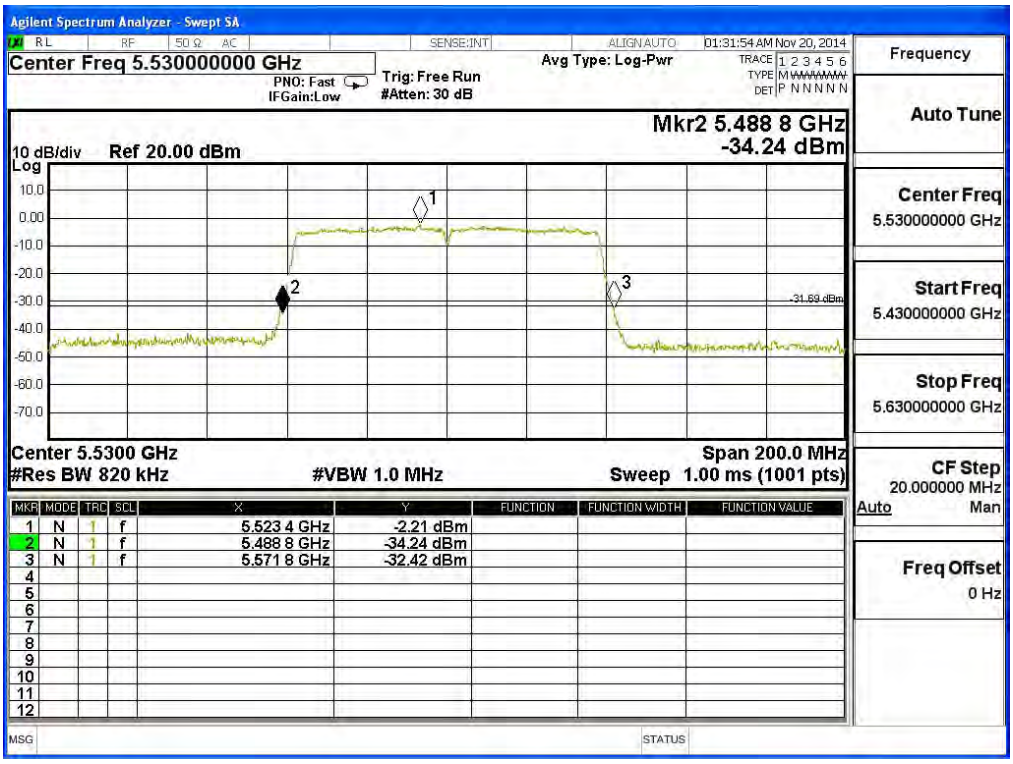
Channel 58 – Chain A



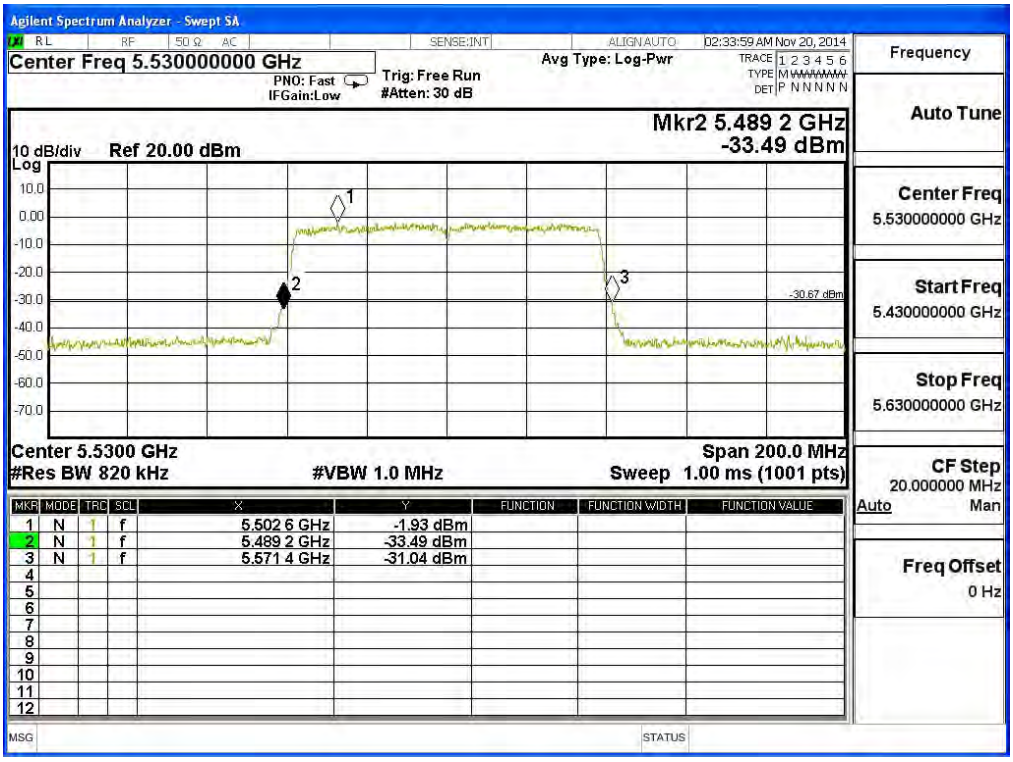
Channel 58 – Chain B



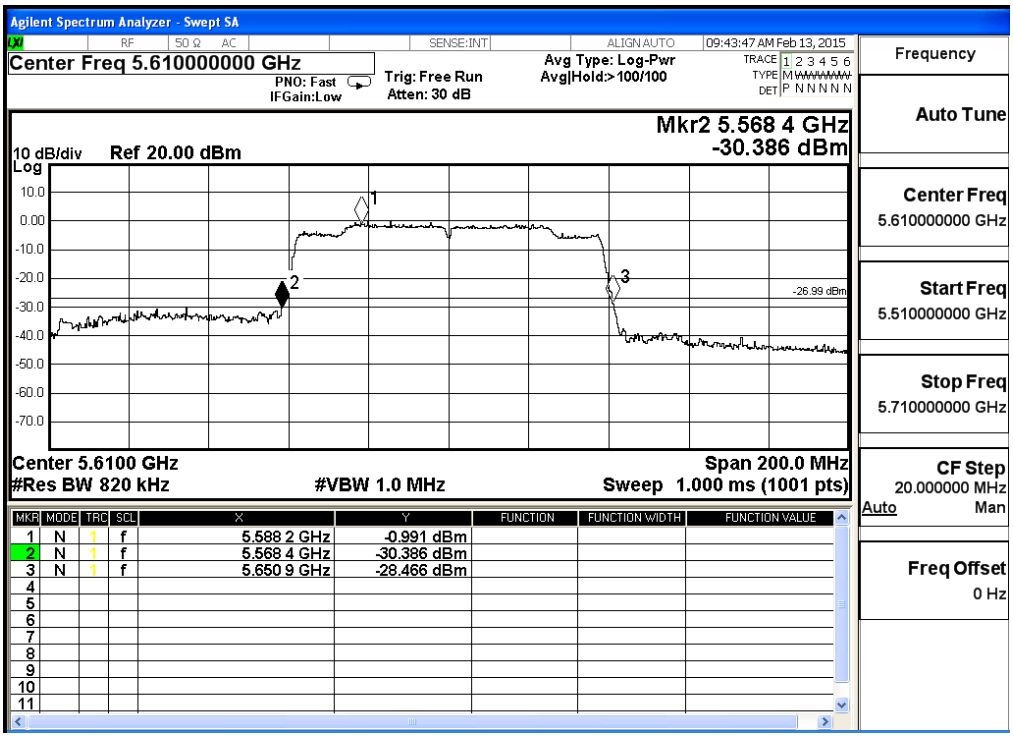
Channel 106 – Chain A



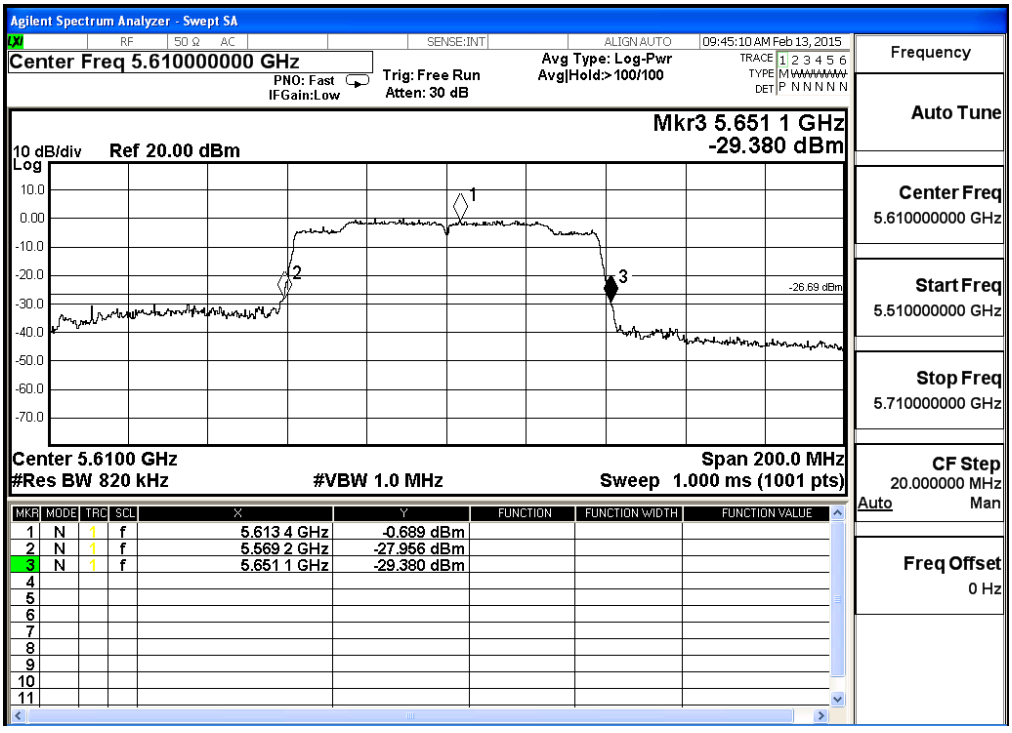
Channel 106 – Chain B



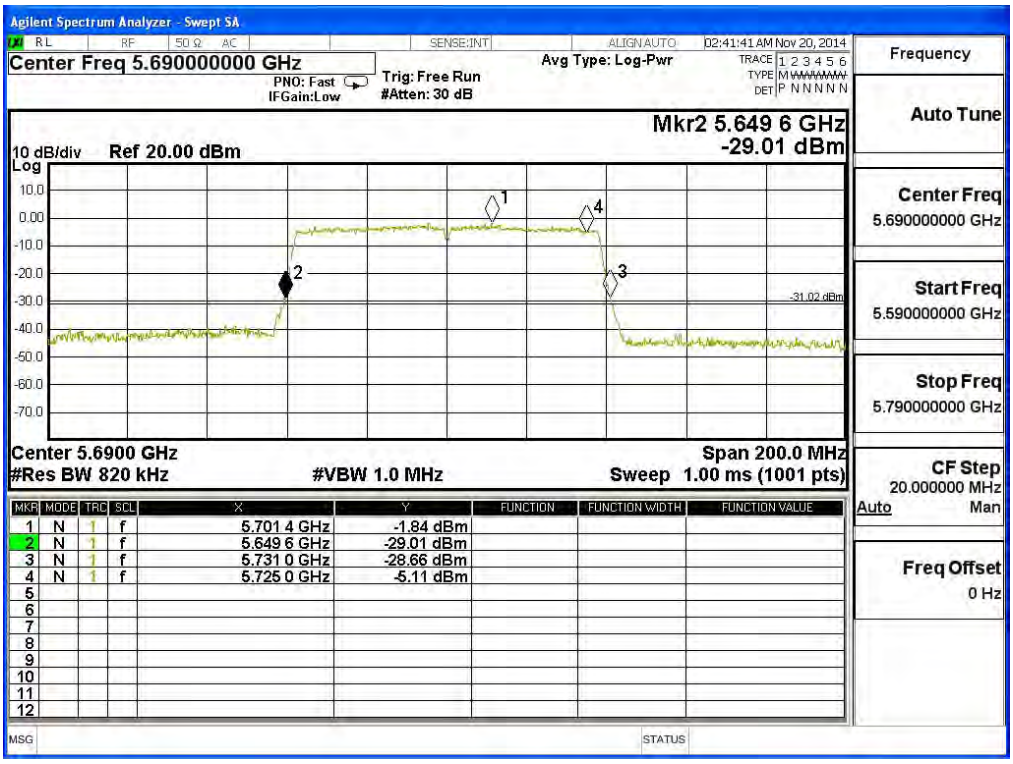
Channel 122 – Chain A



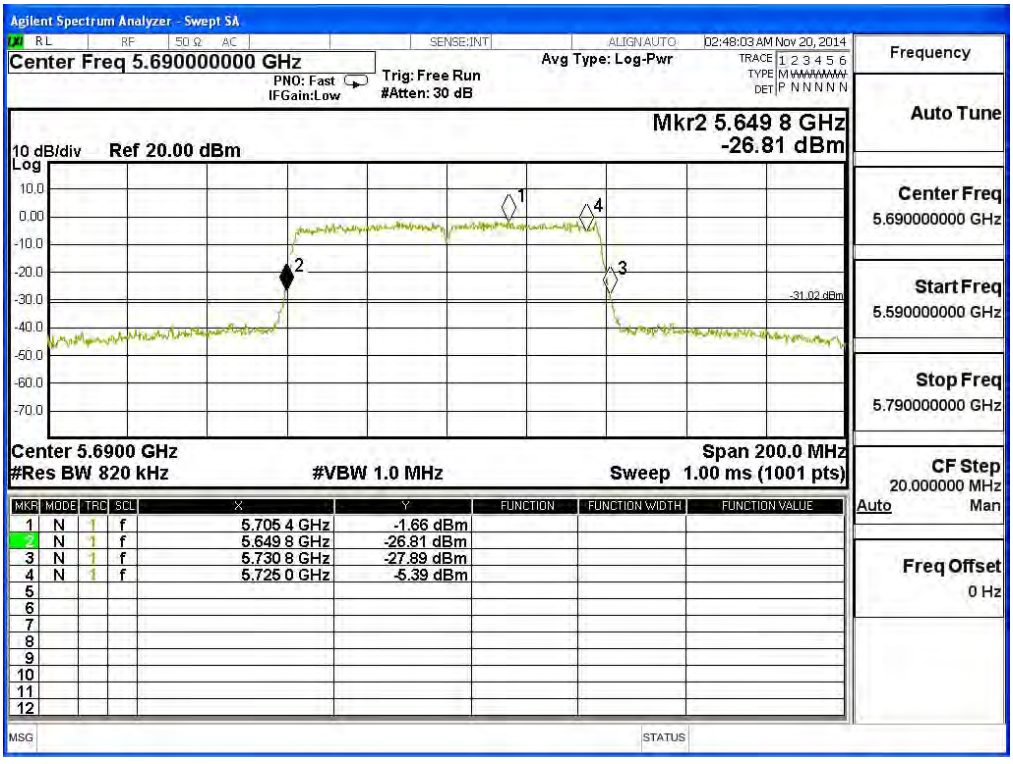
Channel 122 – Chain B



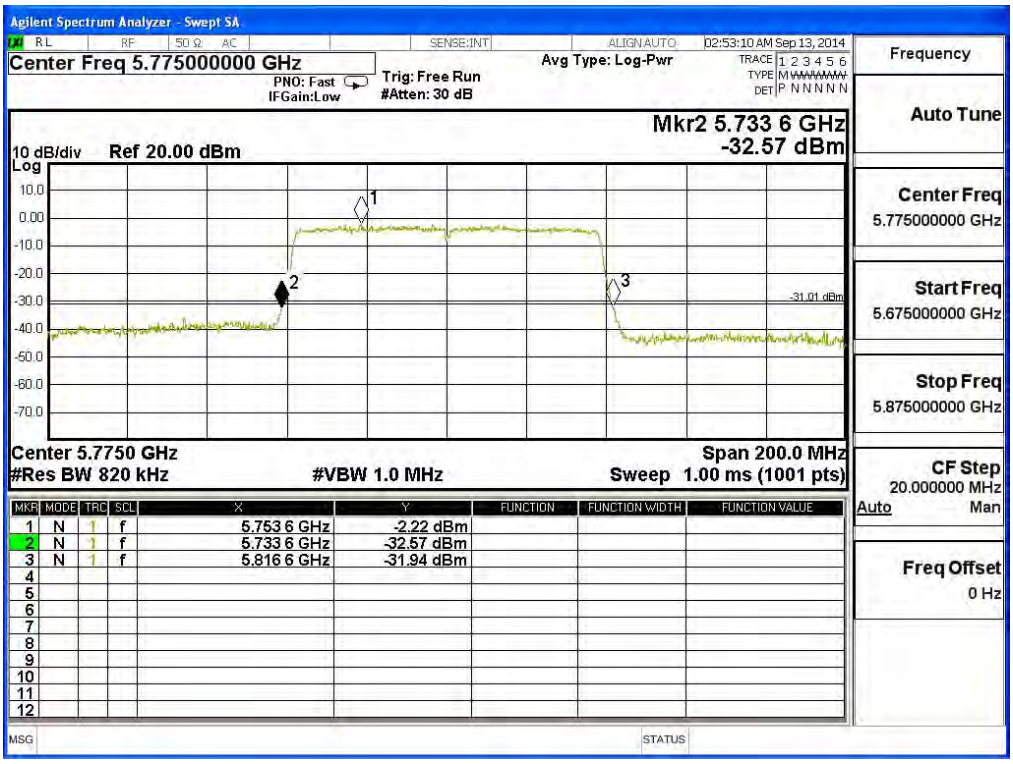
Channel 138 – Chain A



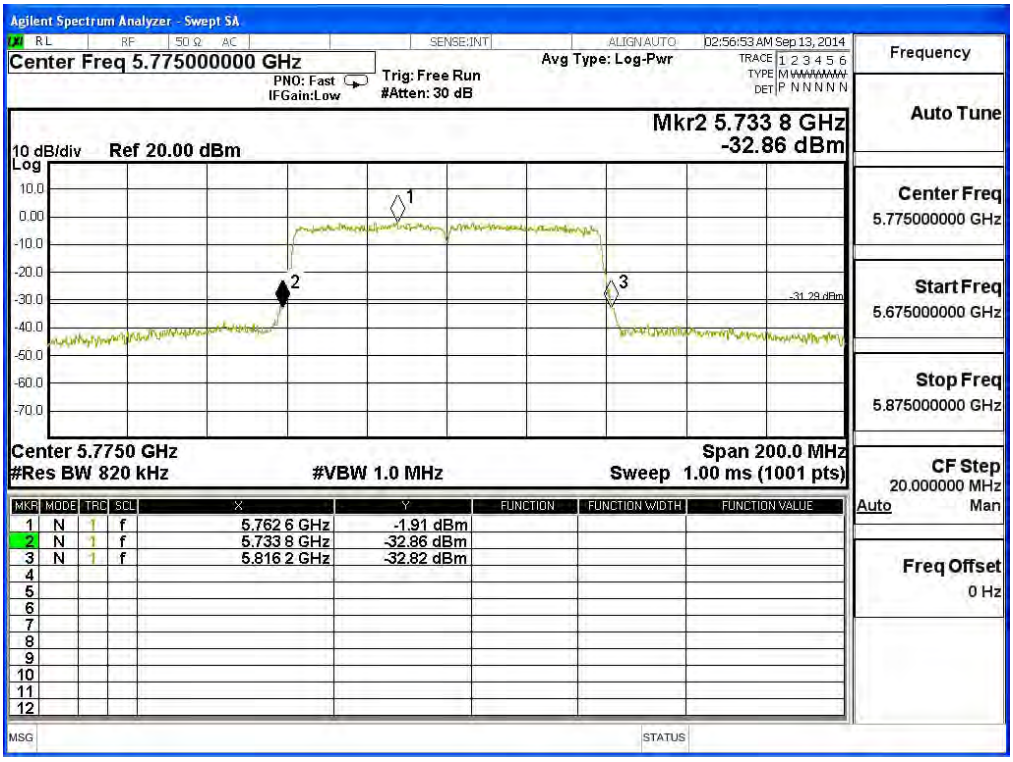
Channel 138 – Chain B



Channel 155 – Chain A

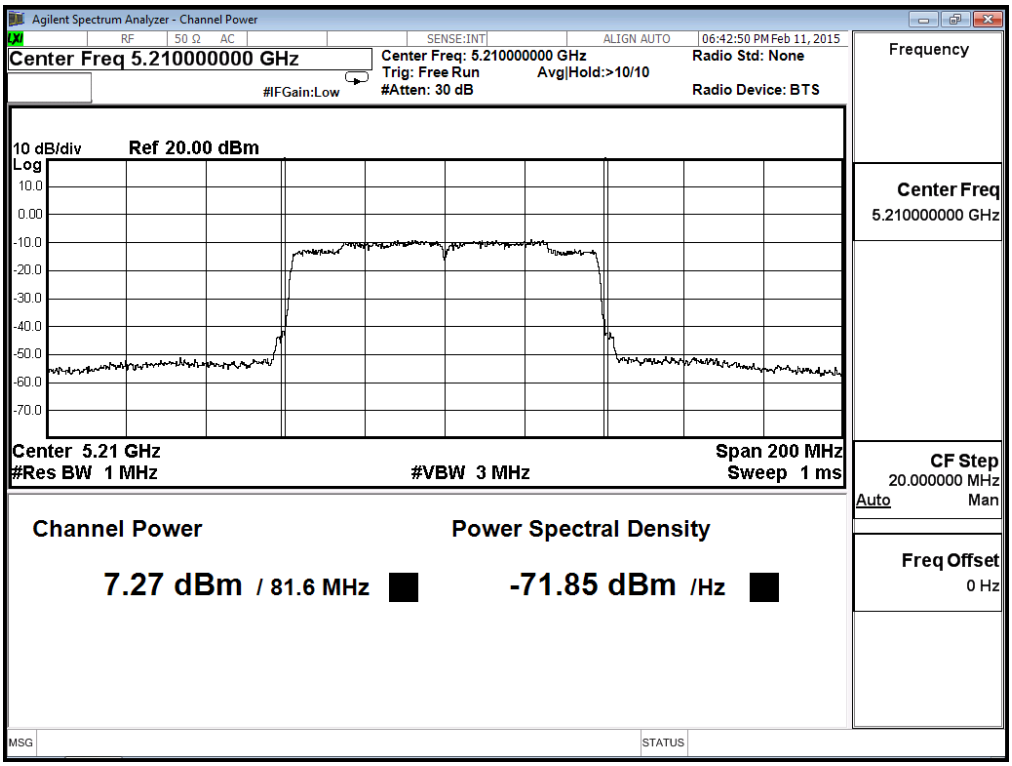


Channel 155 – Chain B

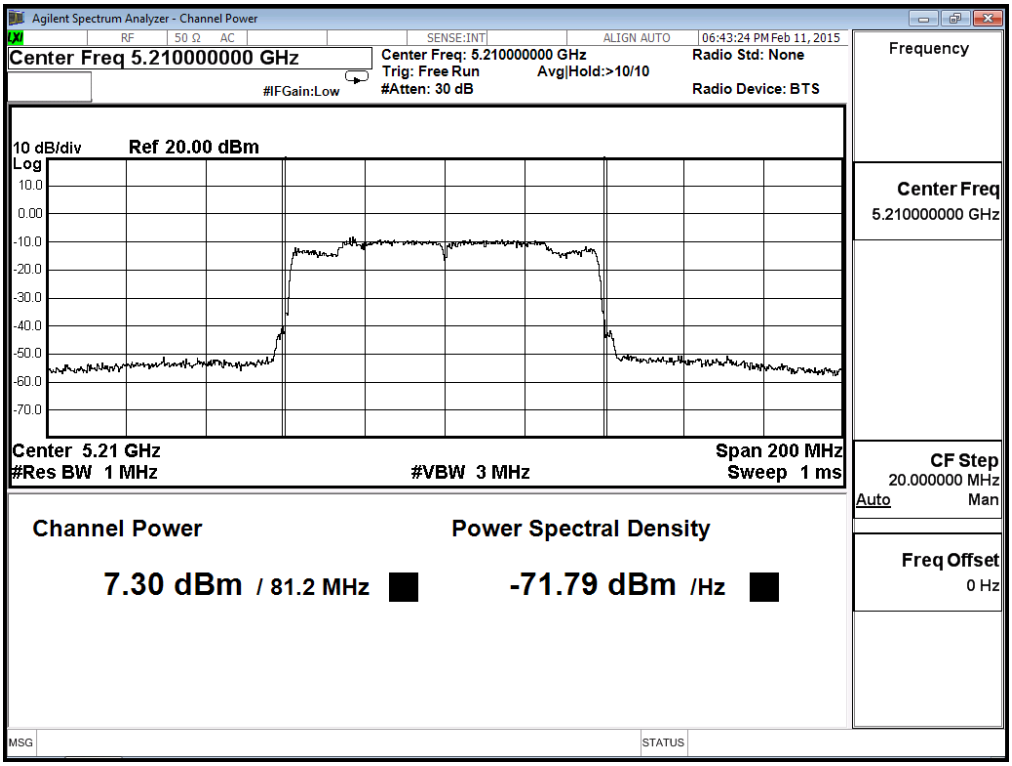


Maximum conducted output power:

Channel 42 – Chain A

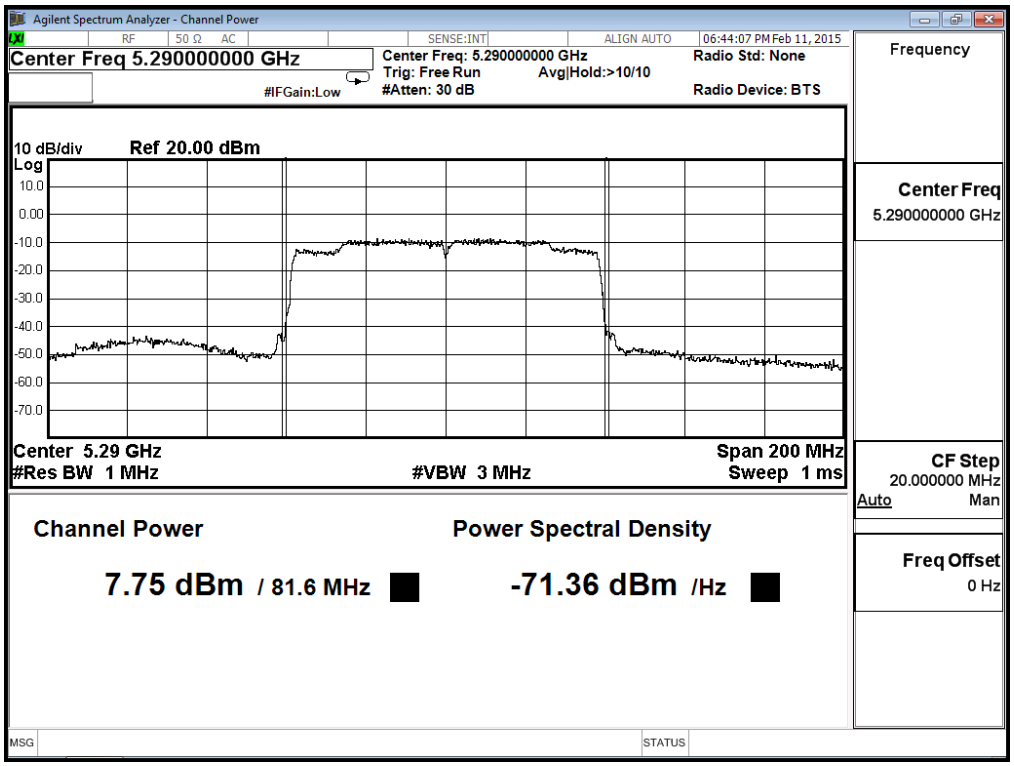


Channel 42 – Chain B

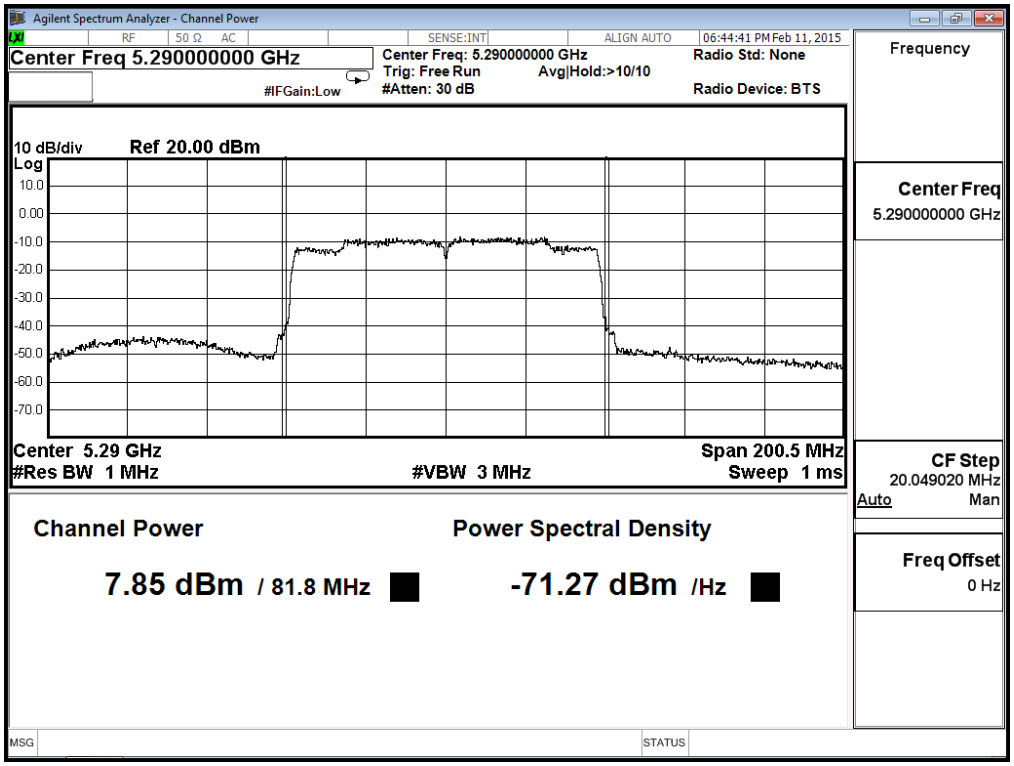


Maximum conducted output power:

Channel 58 – Chain A

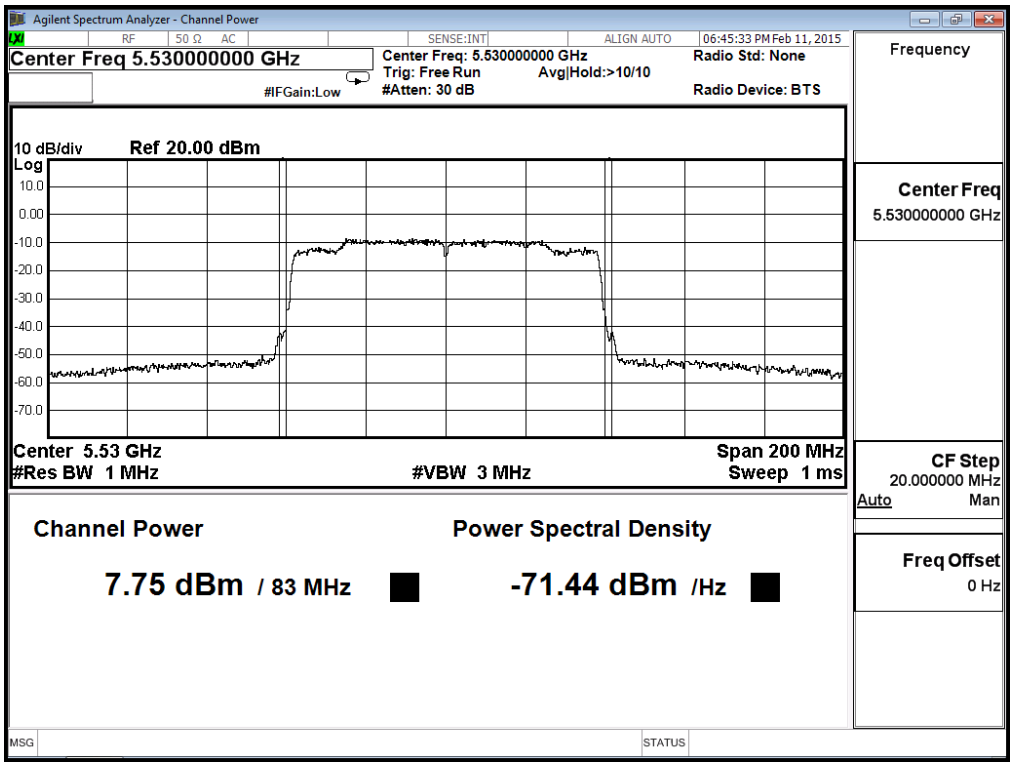


Channel 58 – Chain B

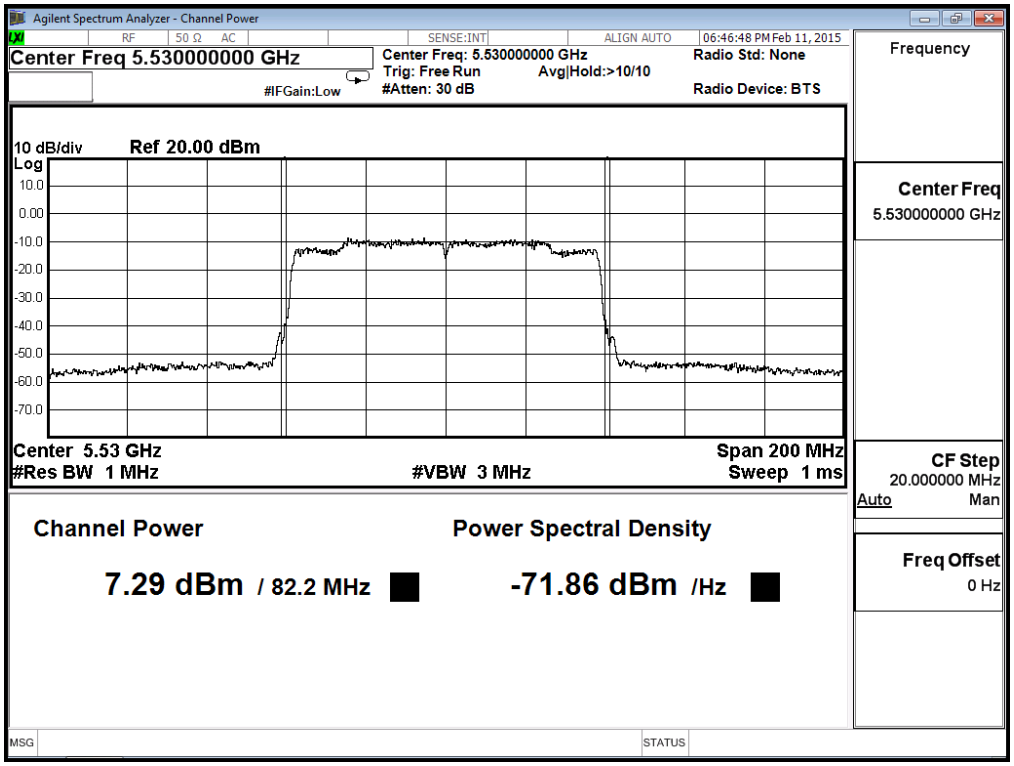


Maximum conducted output power:

Channel 106 – Chain A

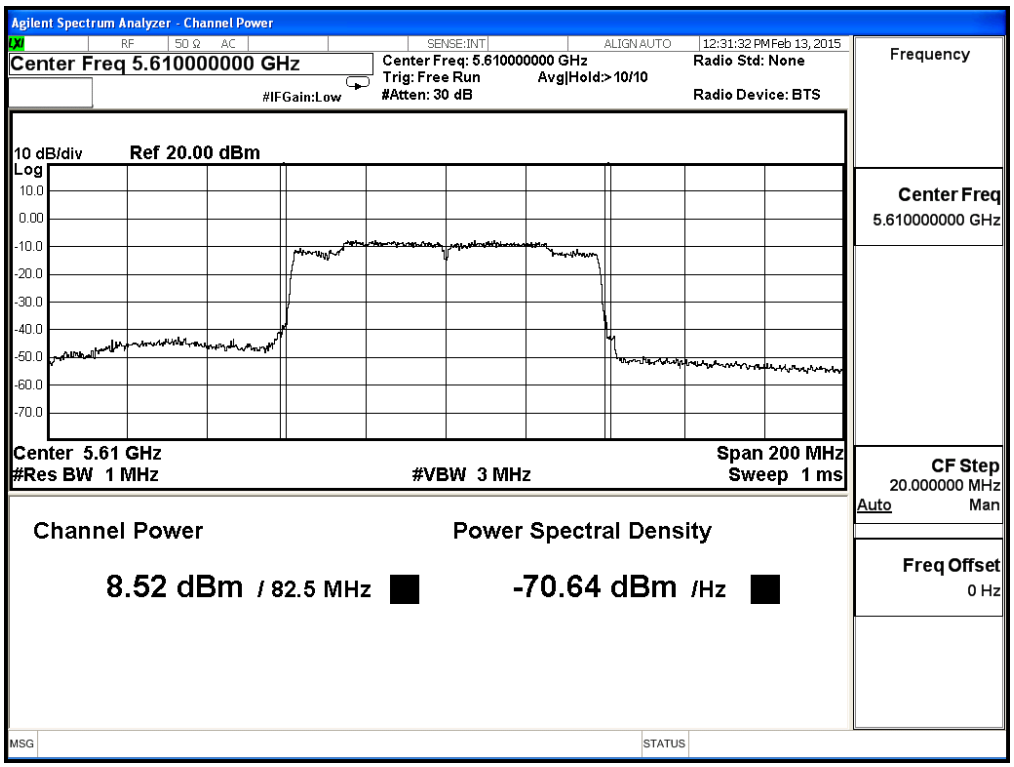


Channel 106 – Chain B

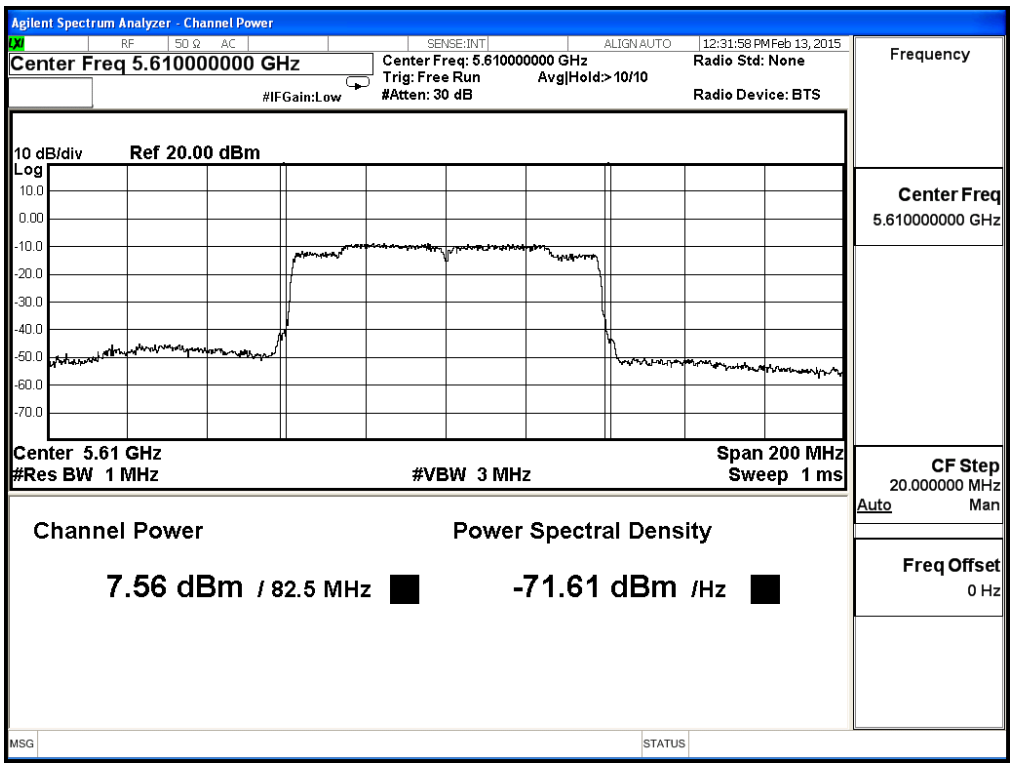


Maximum conducted output power:

Channel 122 – Chain A

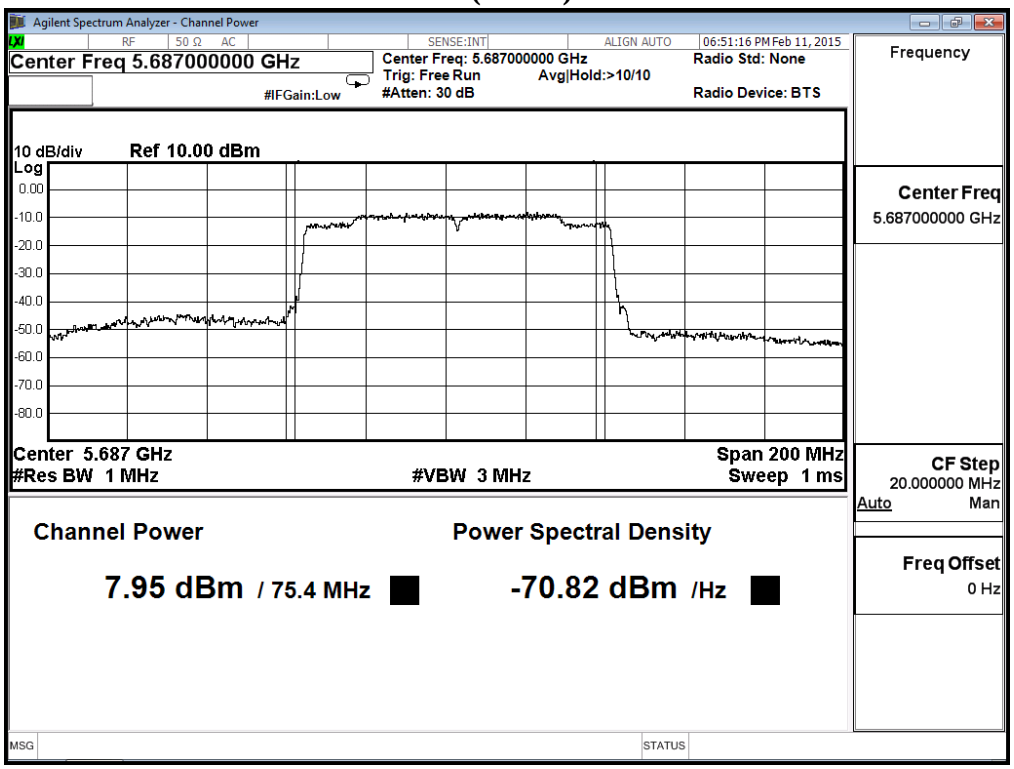


Channel 122 – Chain B

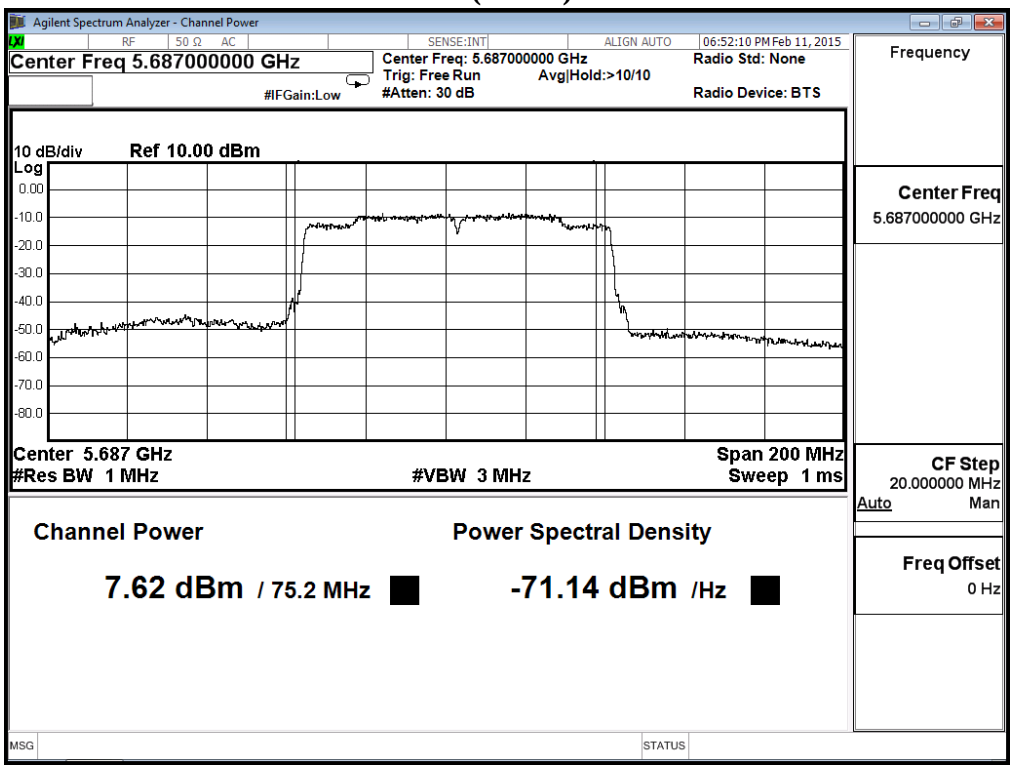


Maximum conducted output power:

Channel 138 (Band3) – Chain A

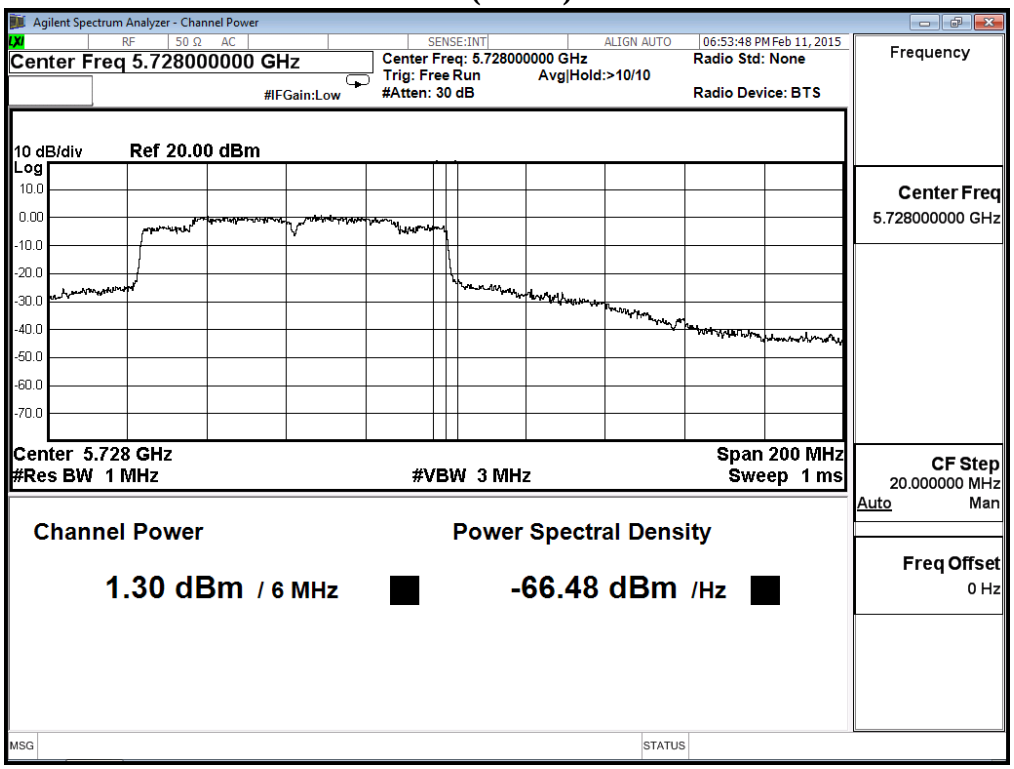


Channel 138 (Band3) – Chain B

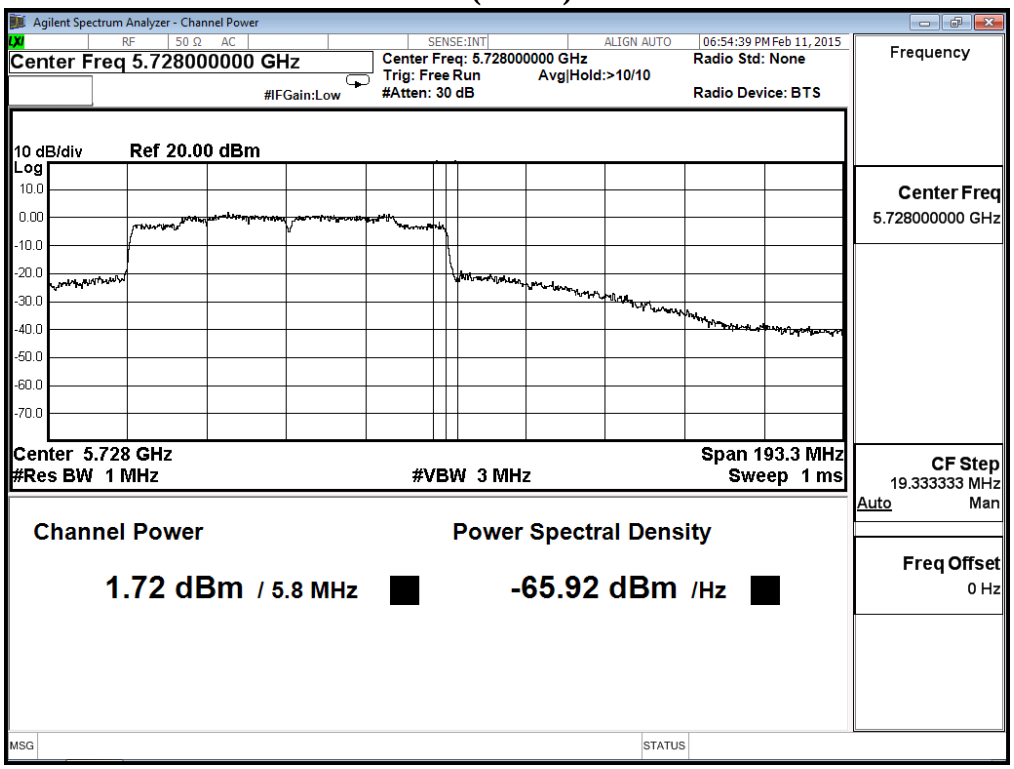


Maximum conducted output power:

Channel 138 (Band4) – Chain A

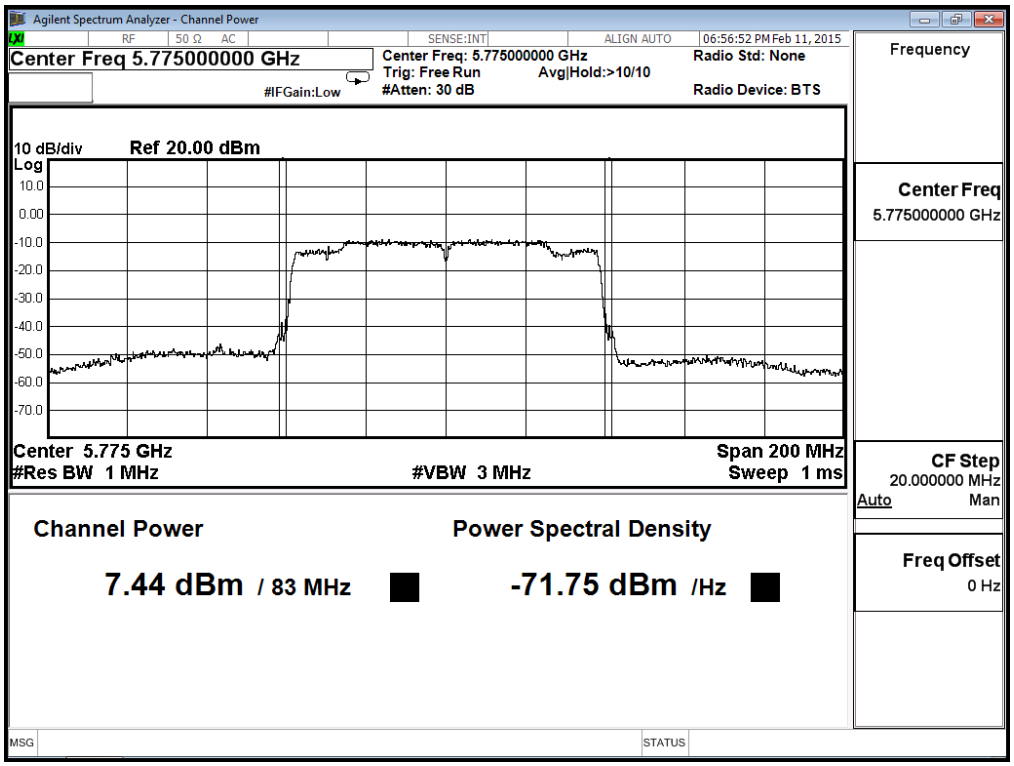


Channel 138 (Band4) – Chain B

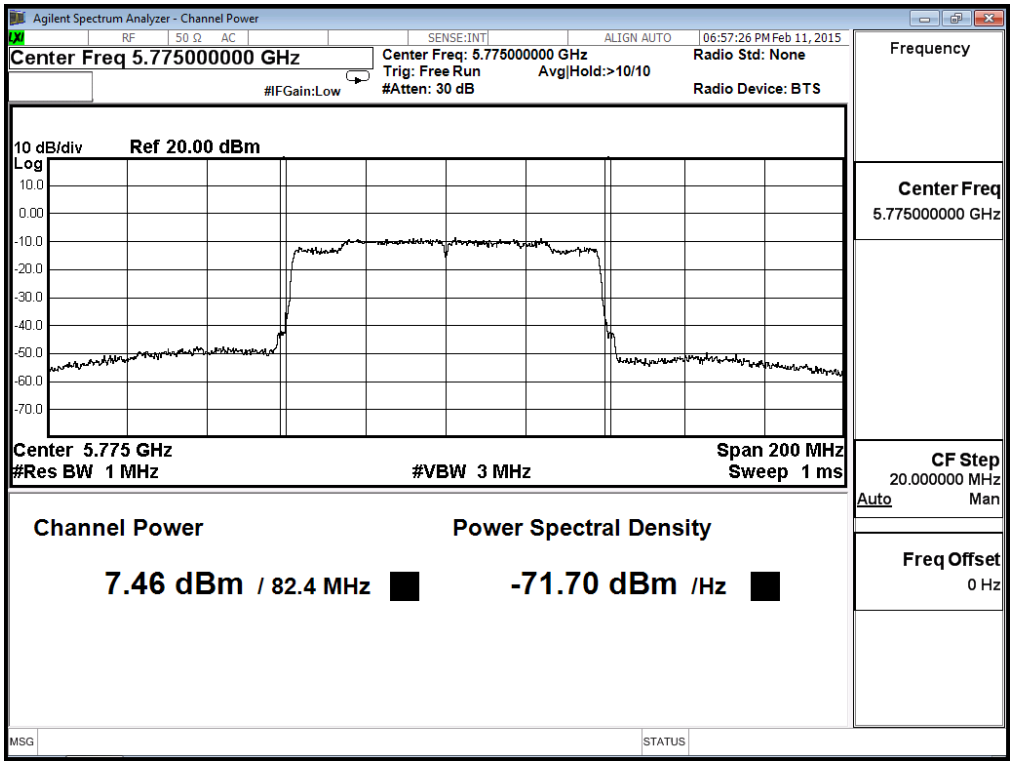


Maximum conducted output power:

Channel 155 – Chain A



Channel 155 – Chain B



4. Peak Power Spectral Density

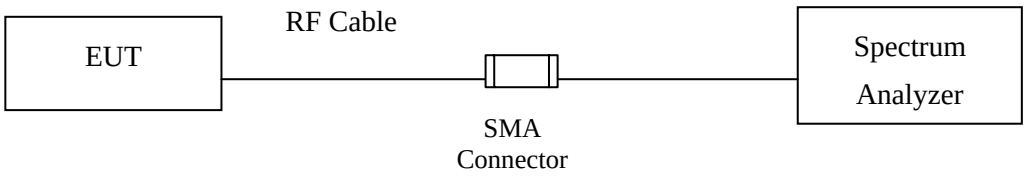
4.1. Test Equipment

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

Note:

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

4.2. Test Setup



4.3. Limits

(1) For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

4.4. Test Procedure

The EUT was setup to ANSI C63.10:2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.
The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.
SA-1 method is selected to run the test.
For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (500 kHz/100 kHz) = 6.98 dB.

4.5. Uncertainty

± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

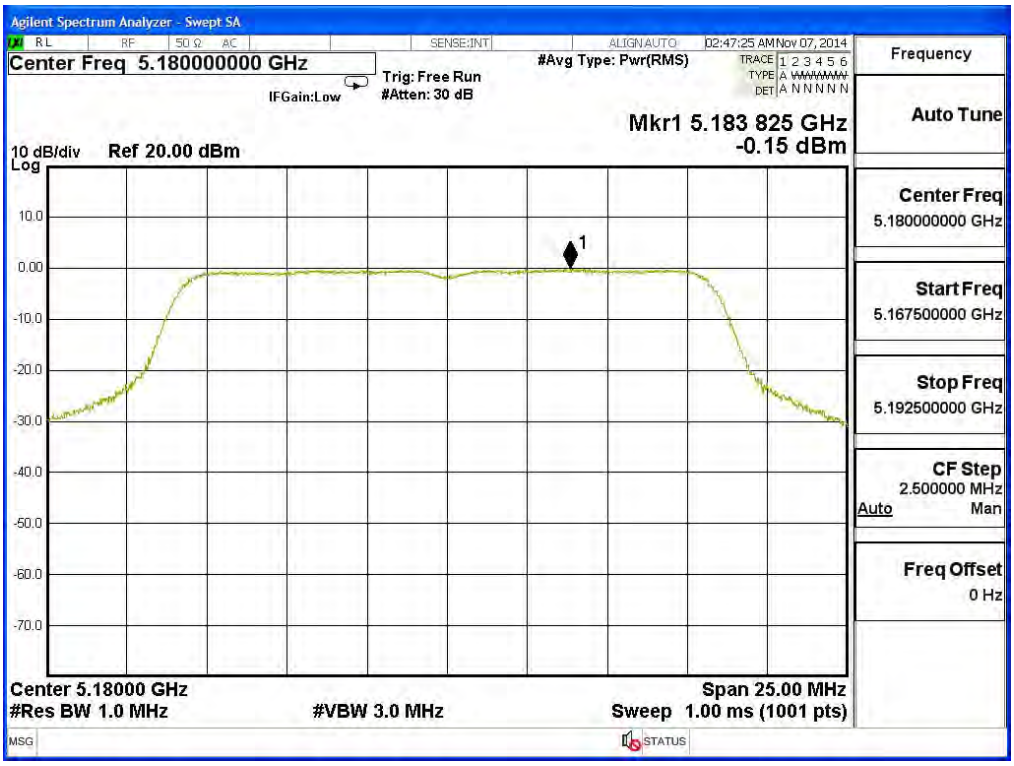
Product : TABLET PC
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel Number	Frequency (MHz)	Data Rata (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	6	-0.150	11	Pass
44	5220	6	0.040	11	Pass
48	5240	6	-0.560	11	Pass
52	5260	6	-4.180	11	Pass
60	5300	6	-1.940	11	Pass
64	5320	6	-3.150	11	Pass
100	5500	6	-0.480	11	Pass
116	5580	6	2.440	11	Pass
140	5700	6	-1.740	11	Pass

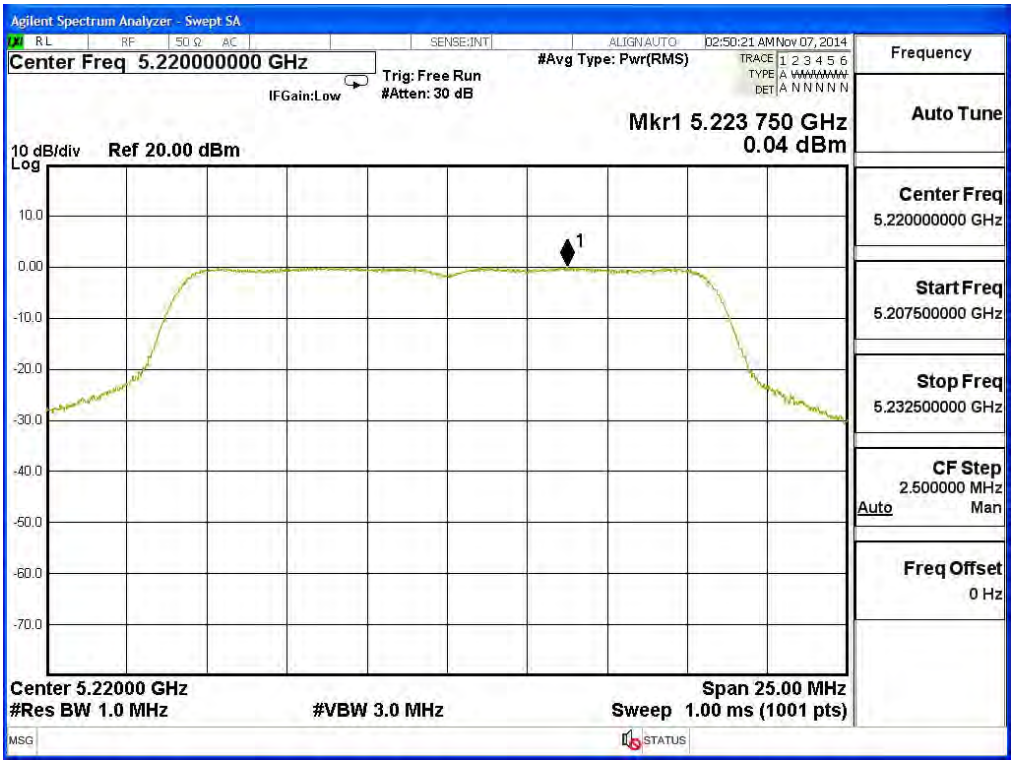
Channel Number	Frequency (MHz)	Data Rata (Mbps)	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)1	Required Limit (dBm)	Result
149	5745	6	3.360	6.980	13.350	<30	Pass
157	5785	6	3.160	6.980	13.150	<30	Pass
165	5825	6	2.750	6.980	12.740	<30	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

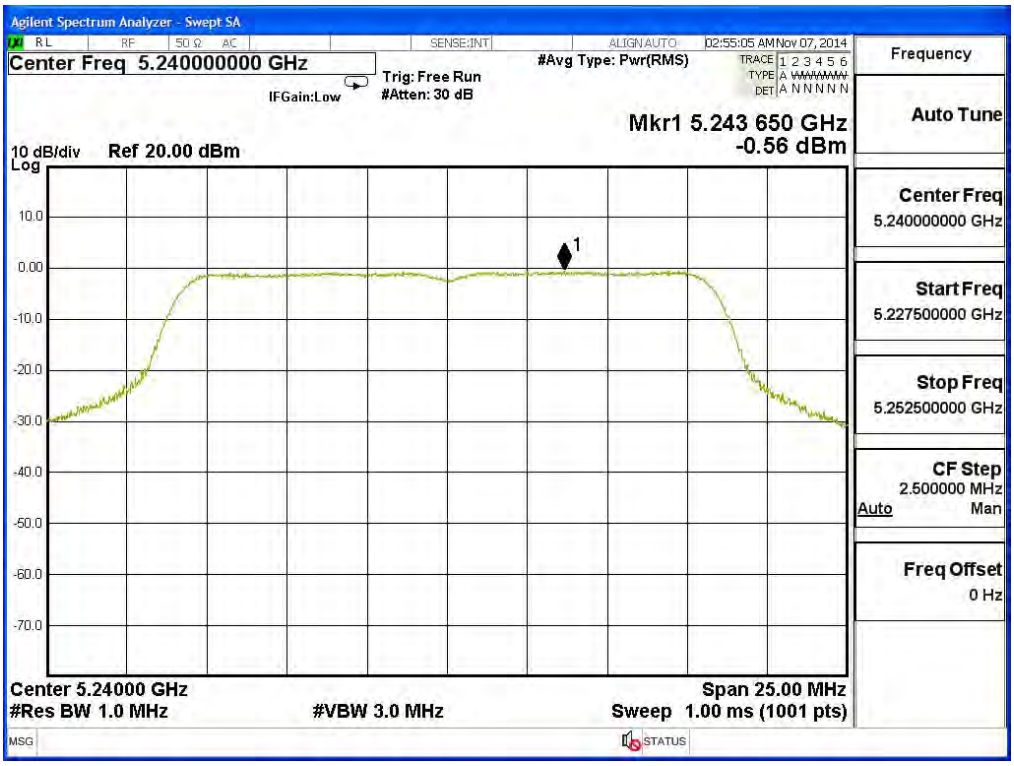
Channel 36:



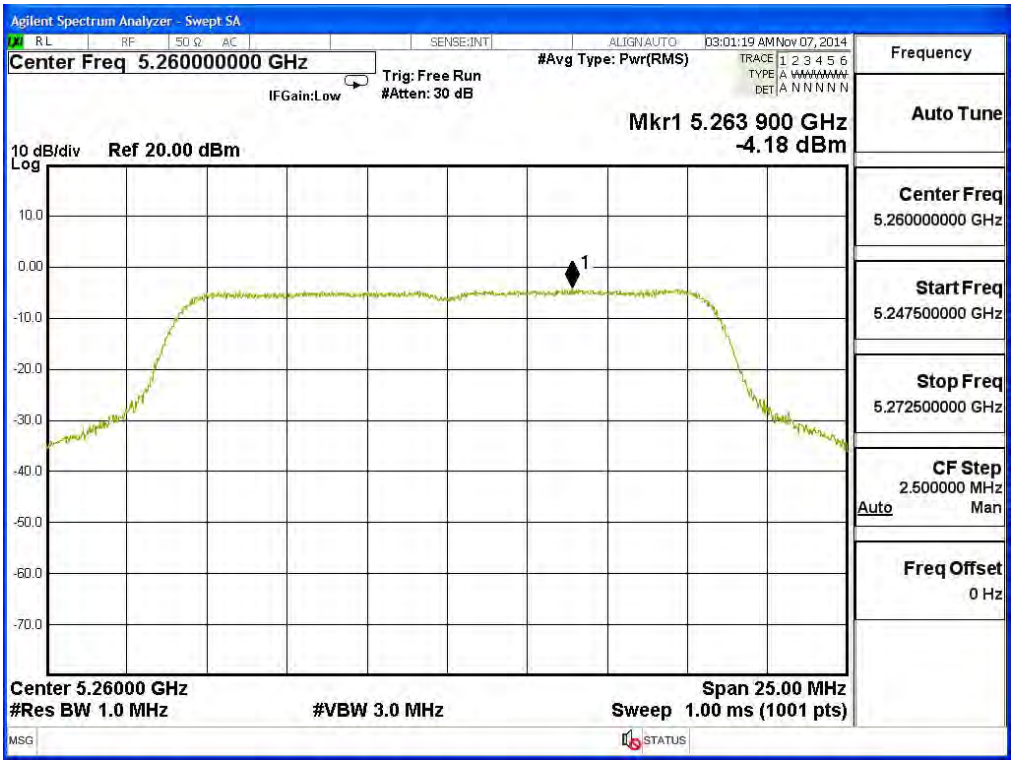
Channel 44:



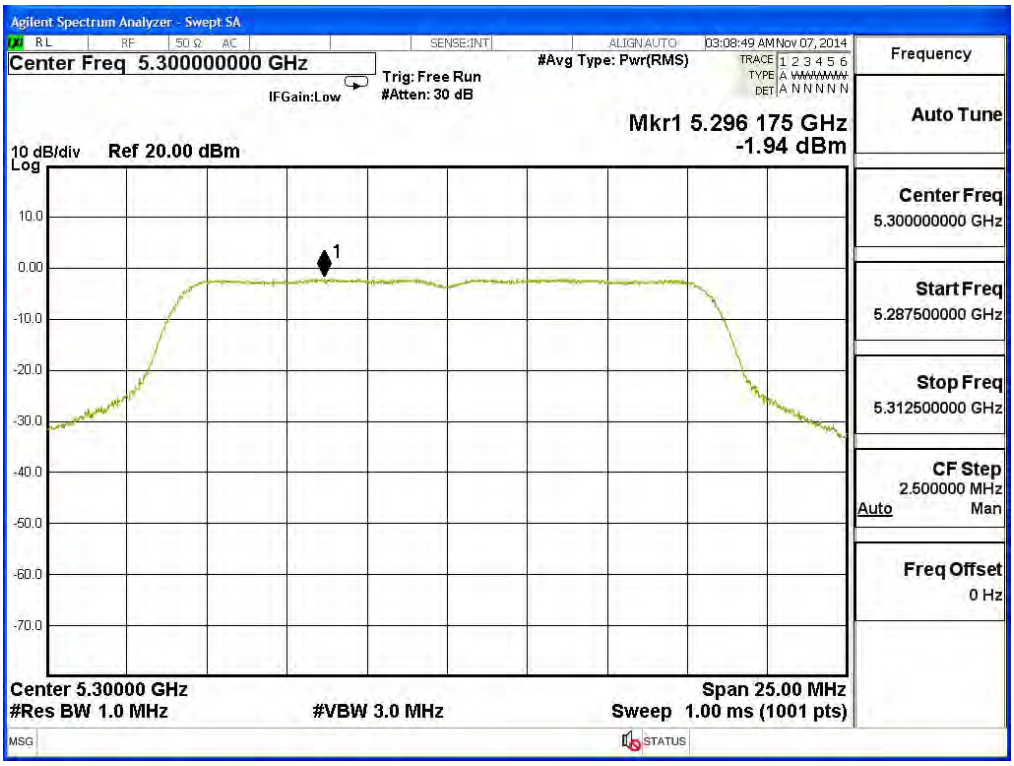
Channel 48:



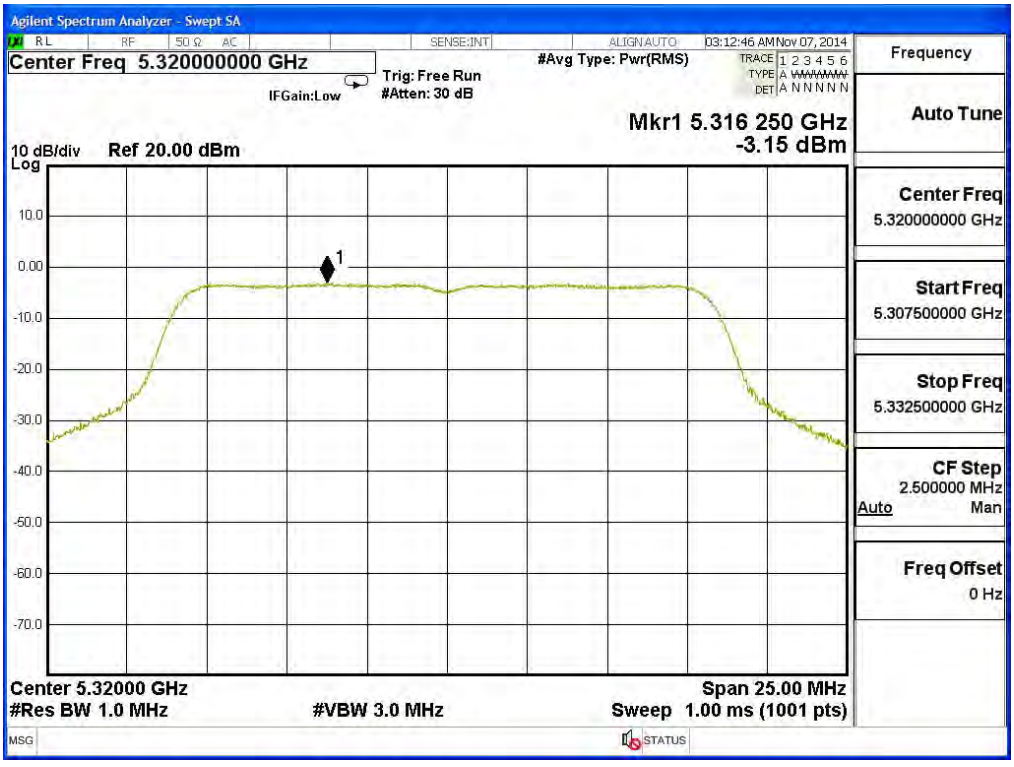
Channel 52:



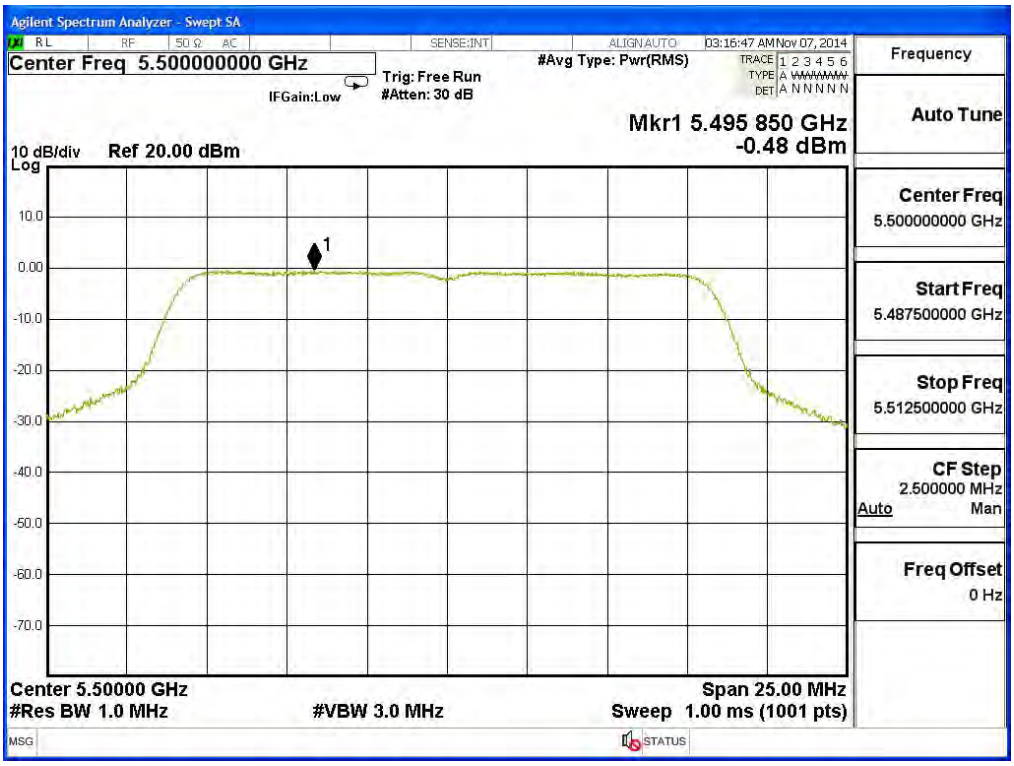
Channel 60:



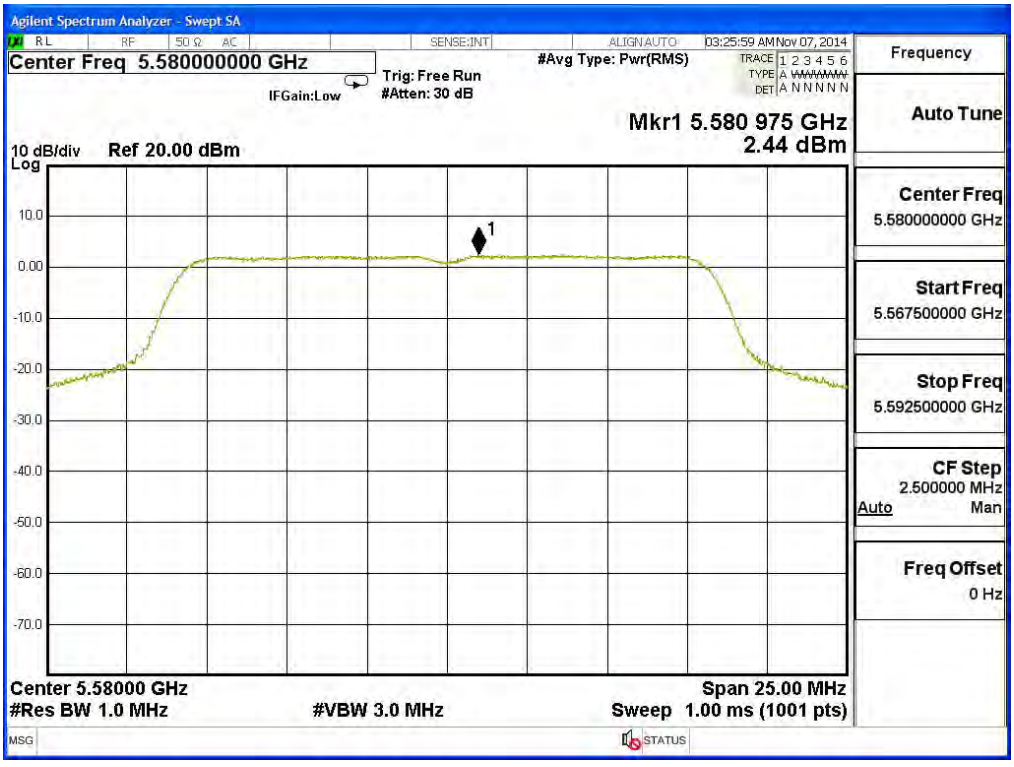
Channel 64:



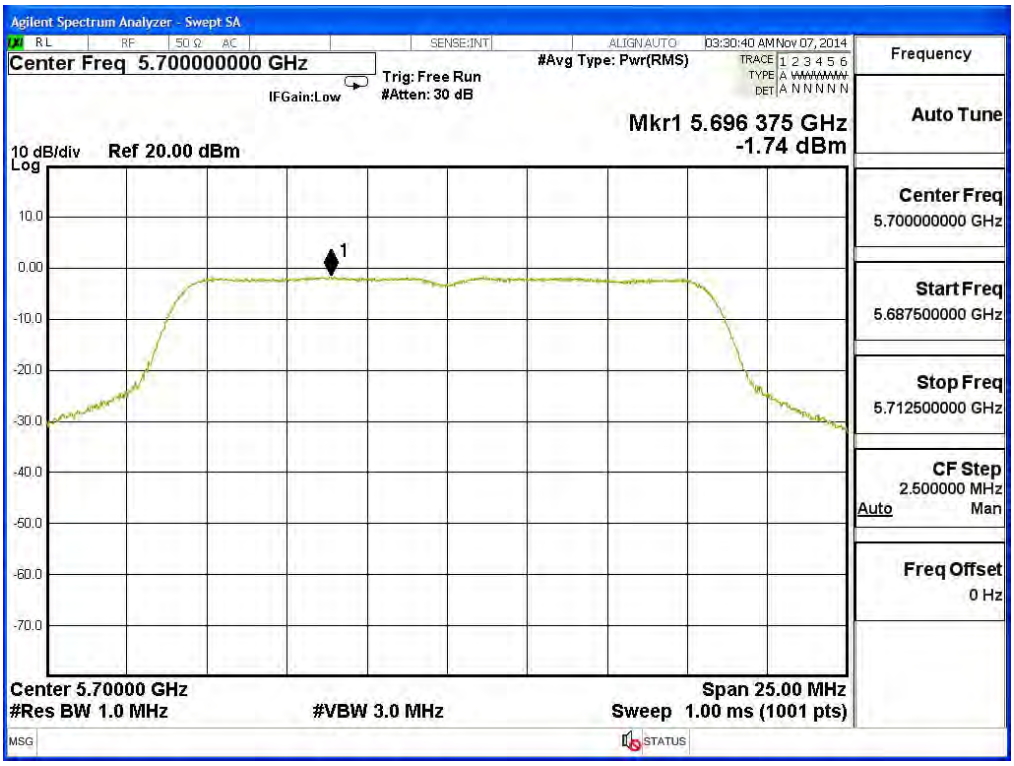
Channel 100:



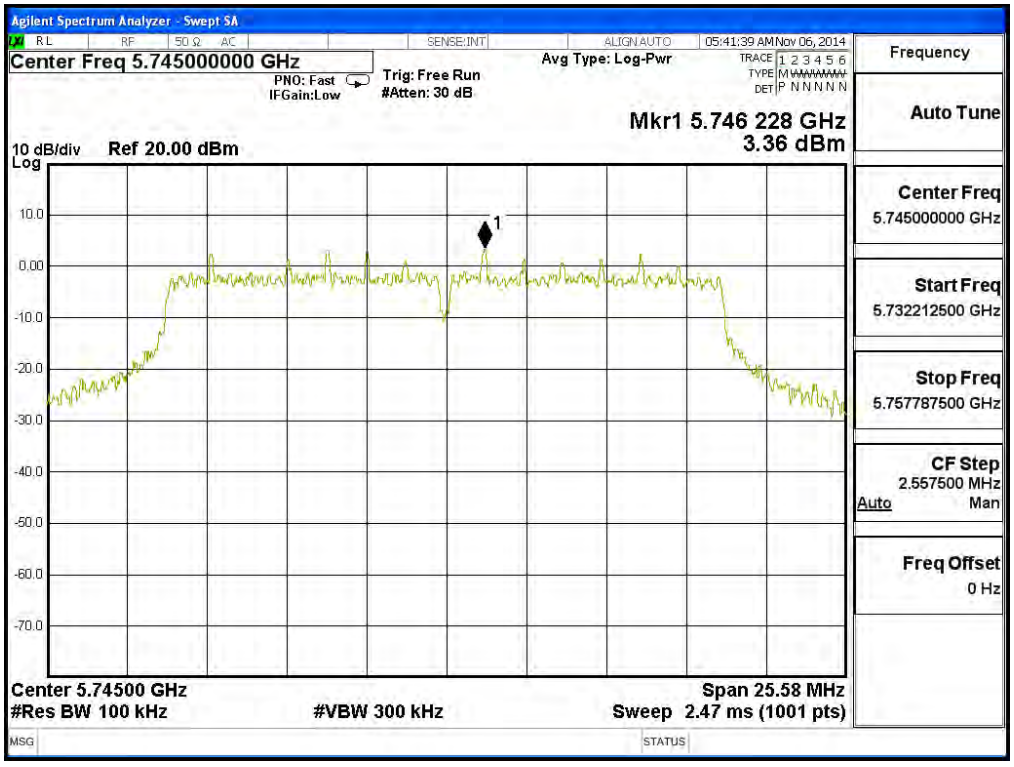
Channel 116:



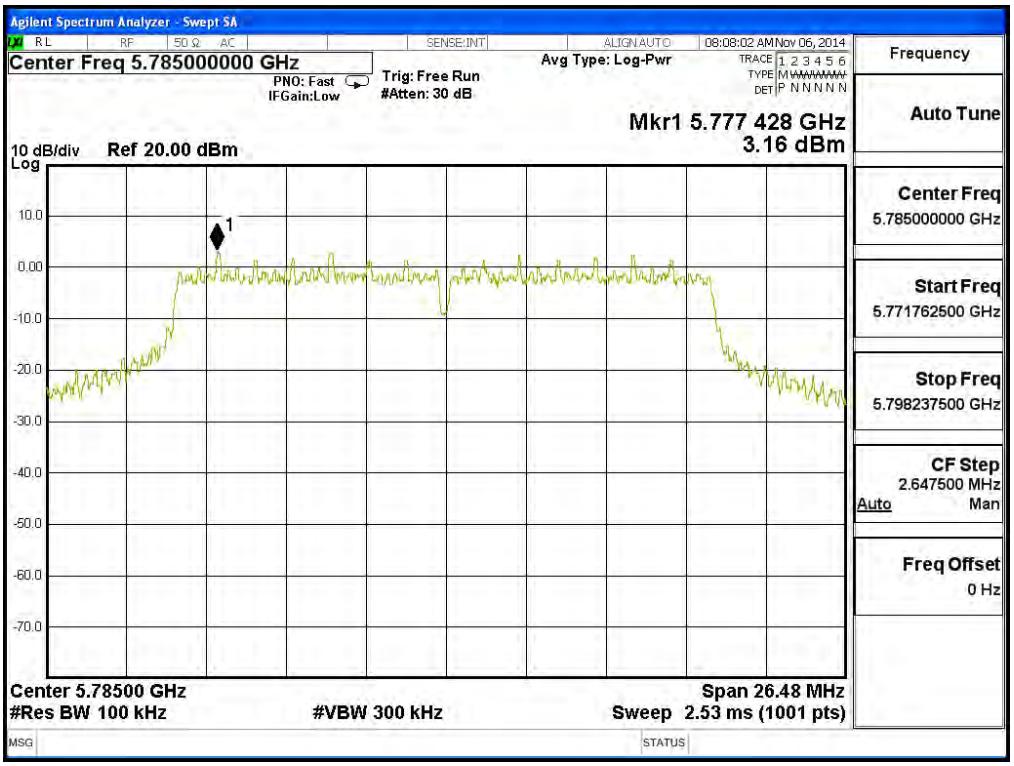
Channel 140:



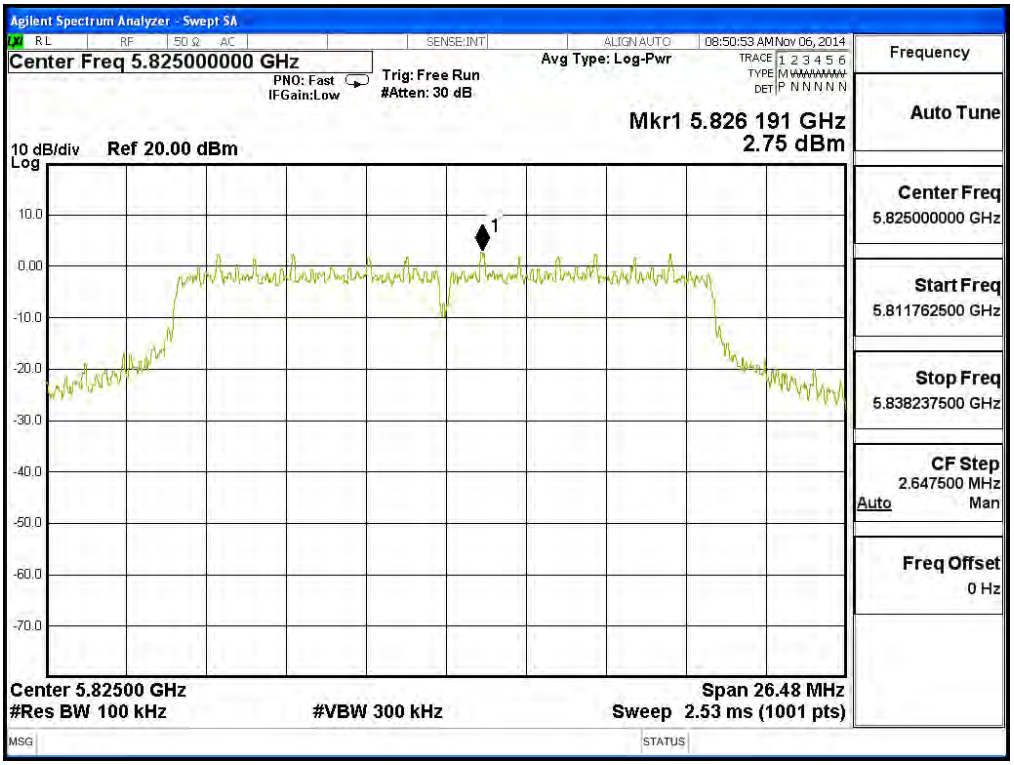
Channel 149



Channel 157



Channel 165



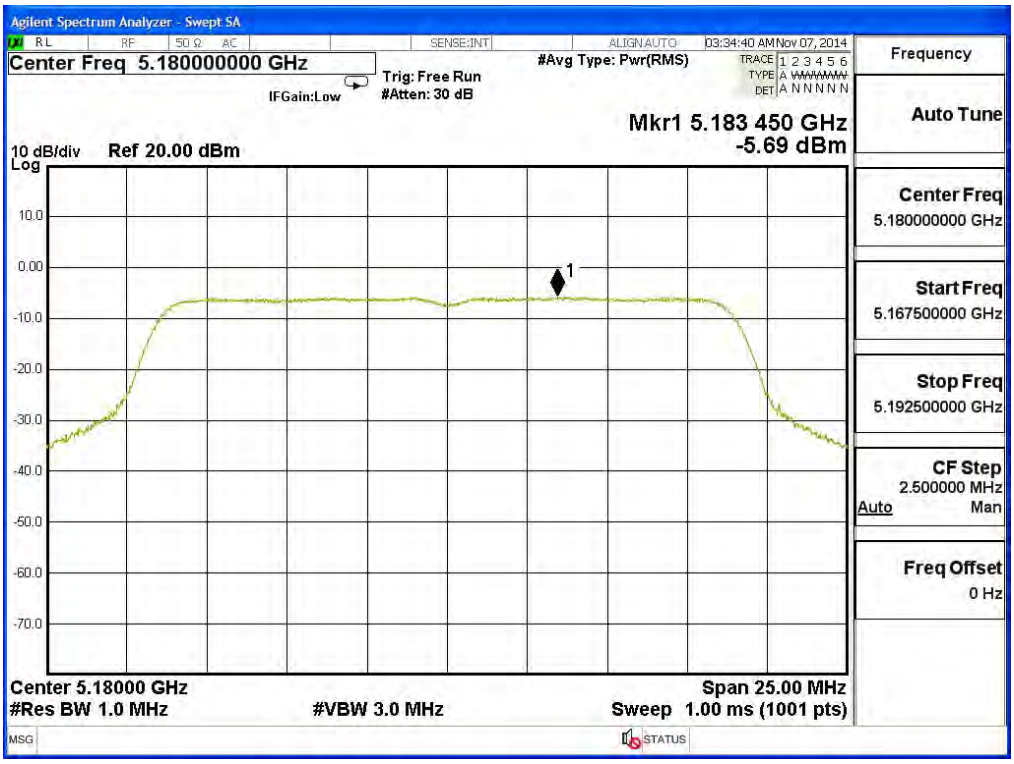
Product : TABLET PC
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	-5.690	-2.680	11	Pass
		B	-6.060	-3.050	11	Pass
44	5220	A	-5.760	-2.750	11	Pass
		B	-5.760	-2.750	11	Pass
48	5240	A	-6.000	-2.990	11	Pass
		B	-6.020	-3.010	11	Pass
52	5260	A	-5.690	-2.680	11	Pass
		B	-6.320	-3.310	11	Pass
60	5300	A	-4.360	-1.350	11	Pass
		B	-5.000	-1.990	11	Pass
64	5320	A	-6.240	-3.230	11	Pass
		B	-8.210	-5.200	11	Pass
100	5500	A	-6.640	-3.630	11	Pass
		B	-4.520	-1.510	11	Pass
116	5580	A	-2.840	0.170	11	Pass
		B	-2.130	0.880	11	Pass
140	5700	A	-5.370	-2.360	11	Pass
		B	-5.270	-2.260	11	Pass

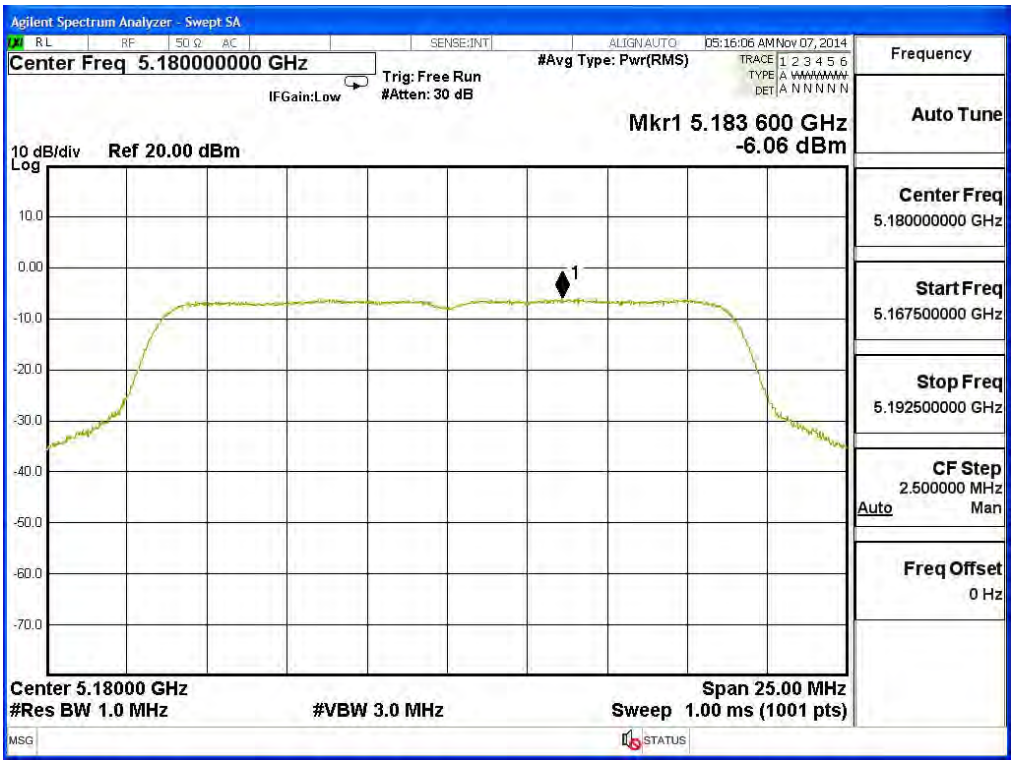
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)[1]	Required Limit (dBm)	Result
149	5745	A	3.230	6.980	13.220	<30	Pass
		B	3.360	6.980	13.350	<30	Pass
157	5785	A	4.090	6.980	14.080	<30	Pass
		B	3.160	6.980	13.150	<30	Pass
165	5825	A	3.510	6.980	13.500	<30	Pass
		B	2.750	6.980	12.740	<30	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

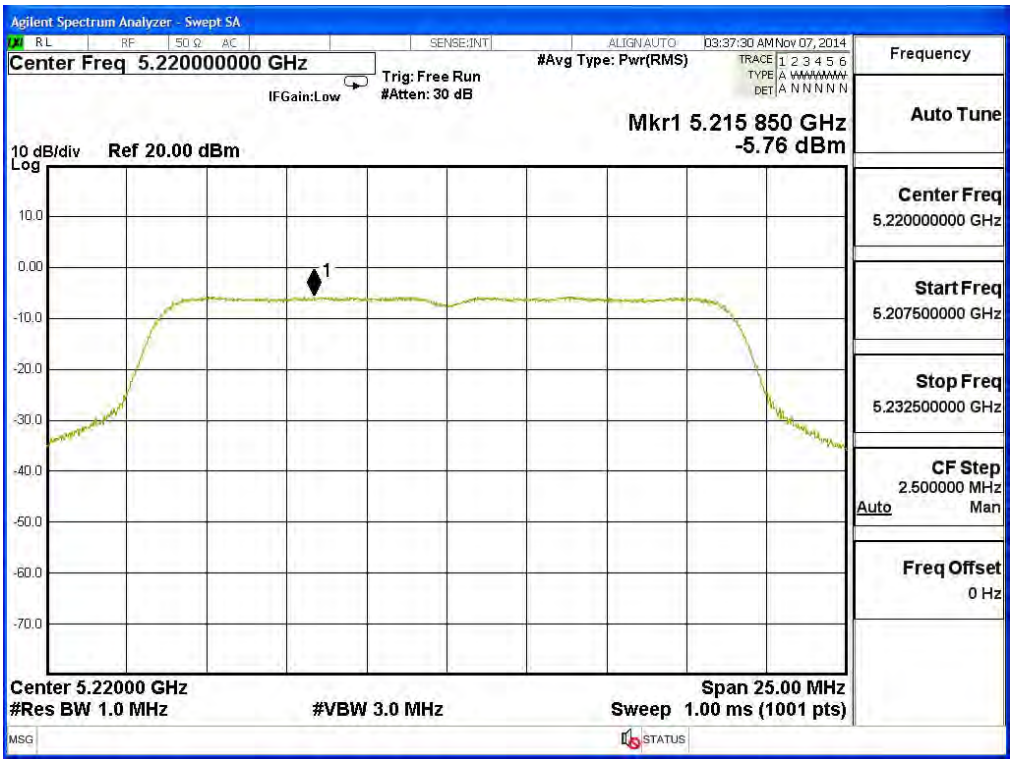
Channel 36 – Chain A



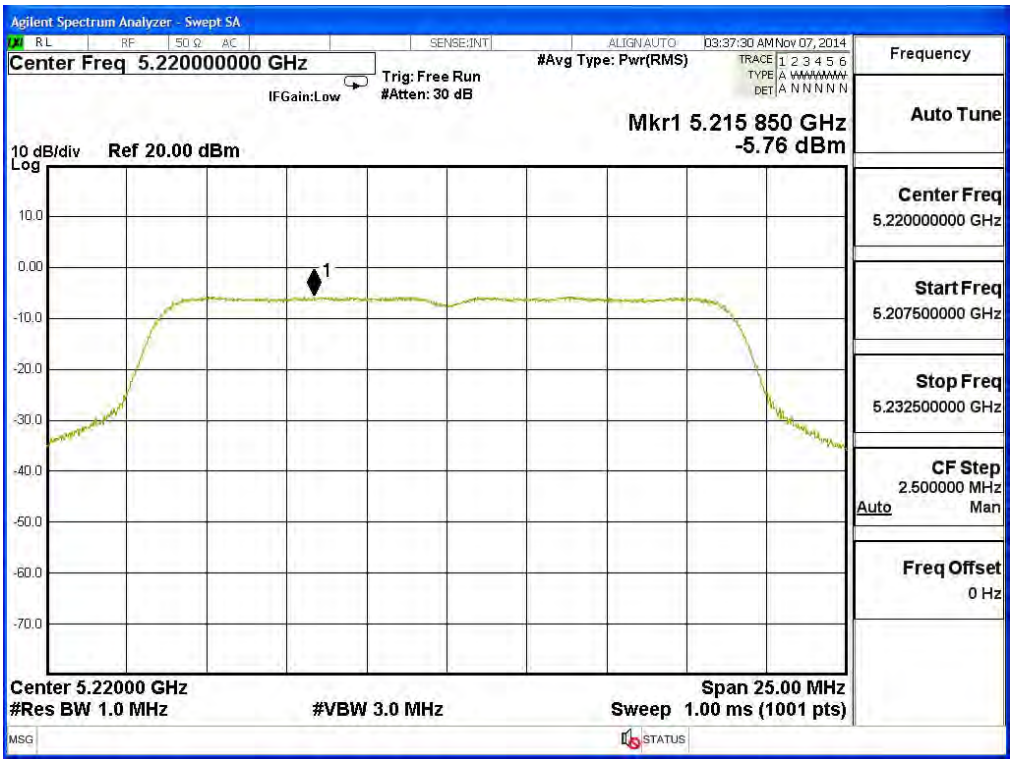
Channel 36 – Chain B



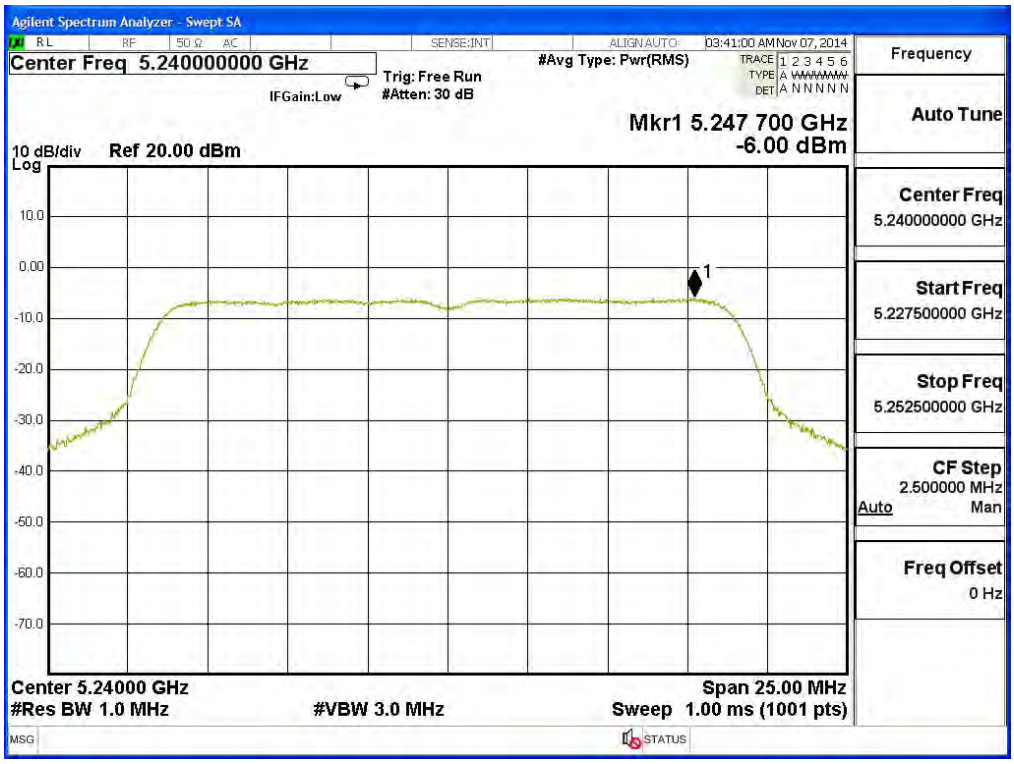
Channel 44 – Chain A



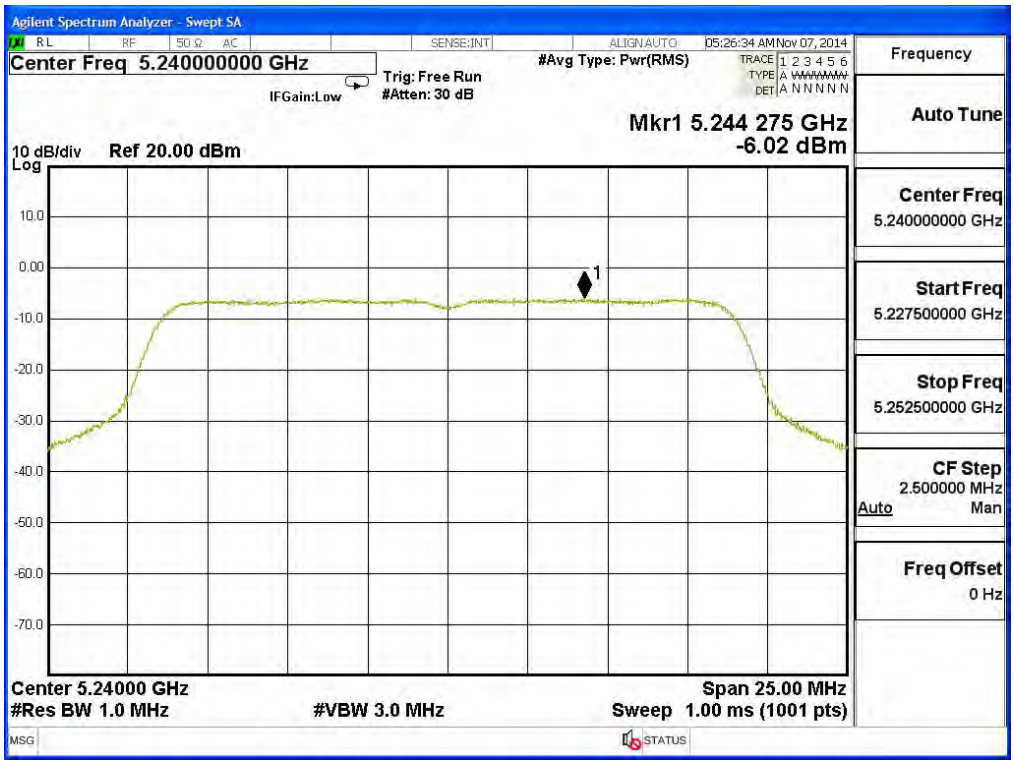
Channel 44 – Chain B



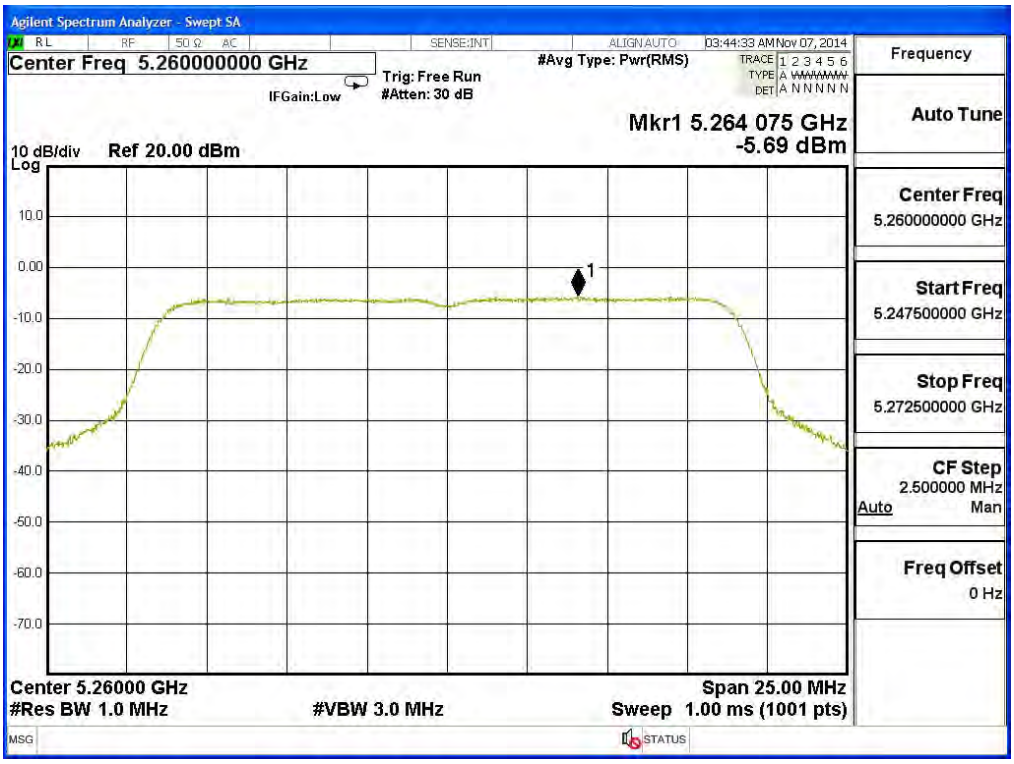
Channel 48 – Chain A



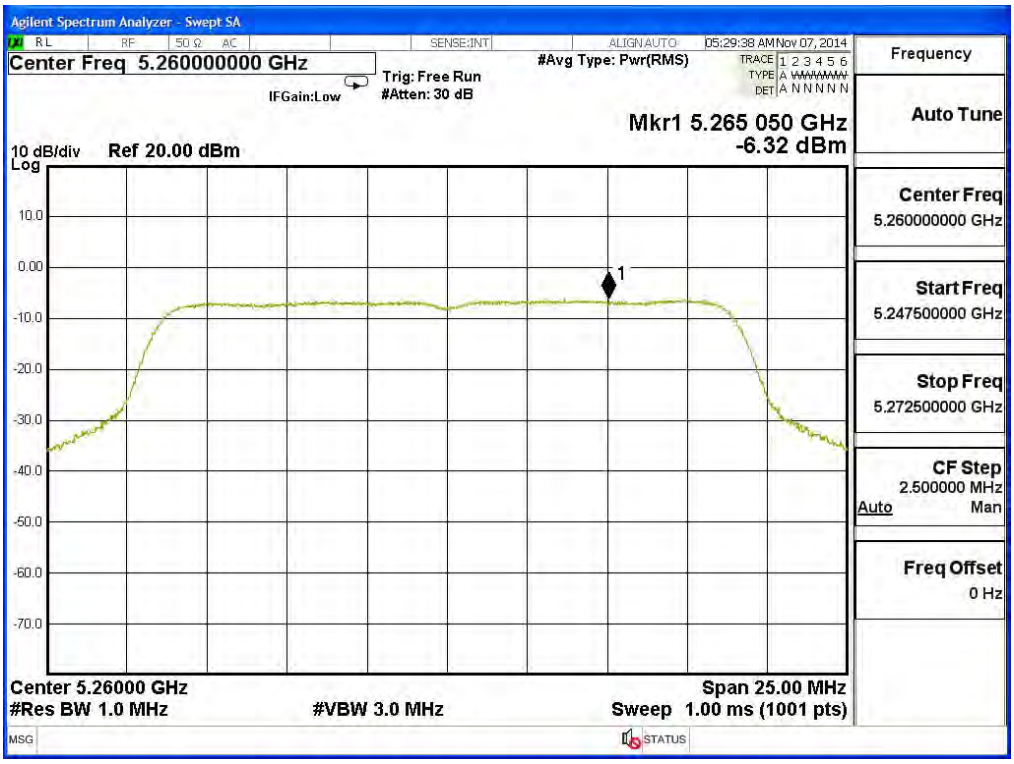
Channel 48 – Chain B



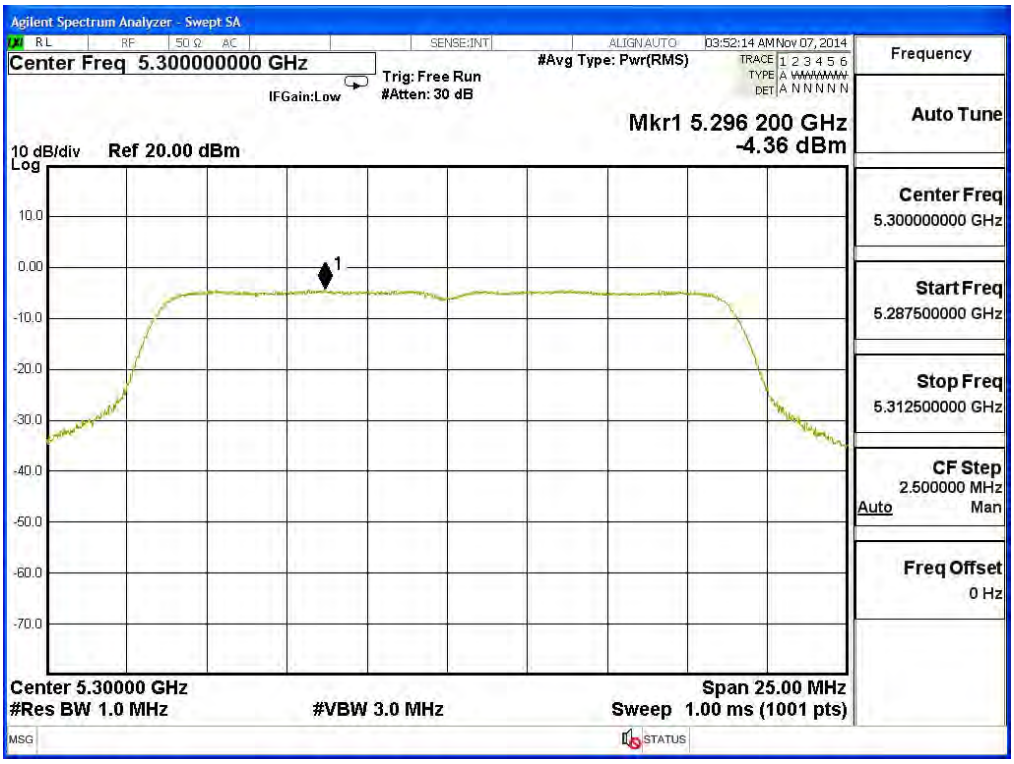
Channel 52 – Chain A



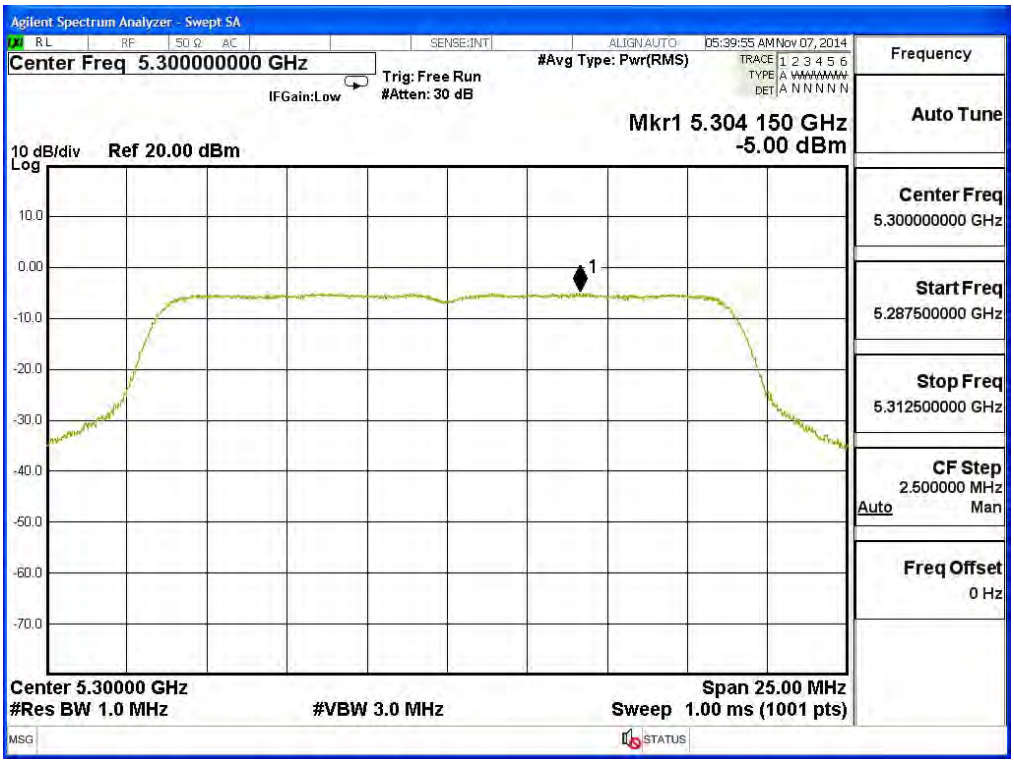
Channel 52 – Chain B



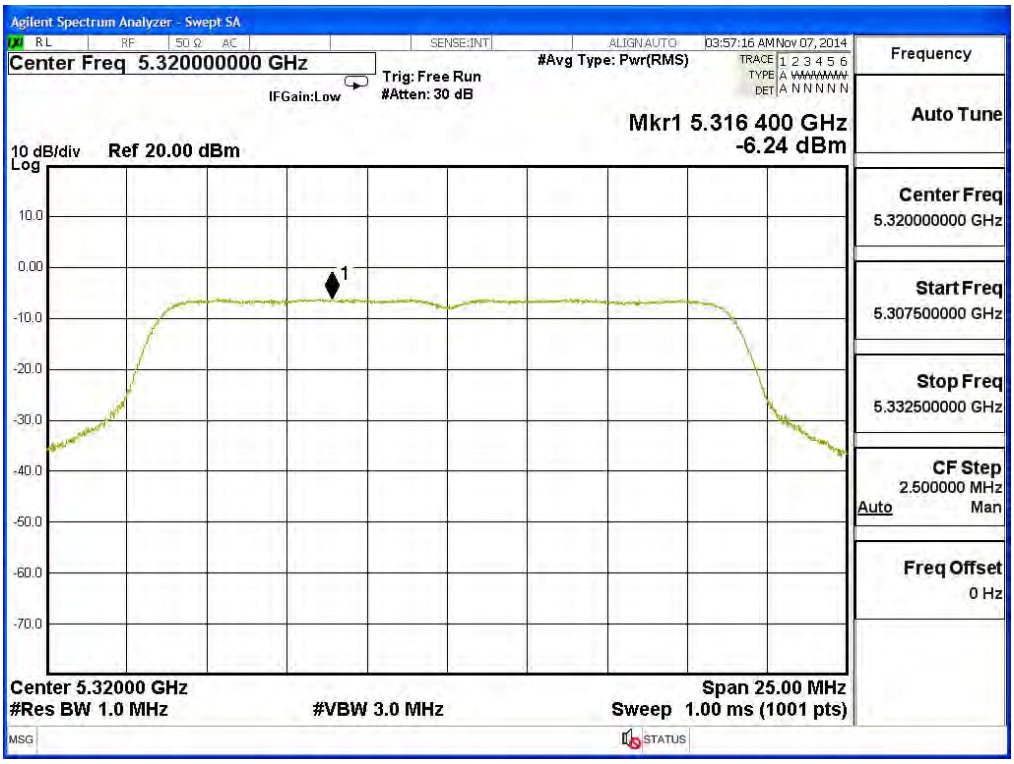
Channel 60 – Chain A



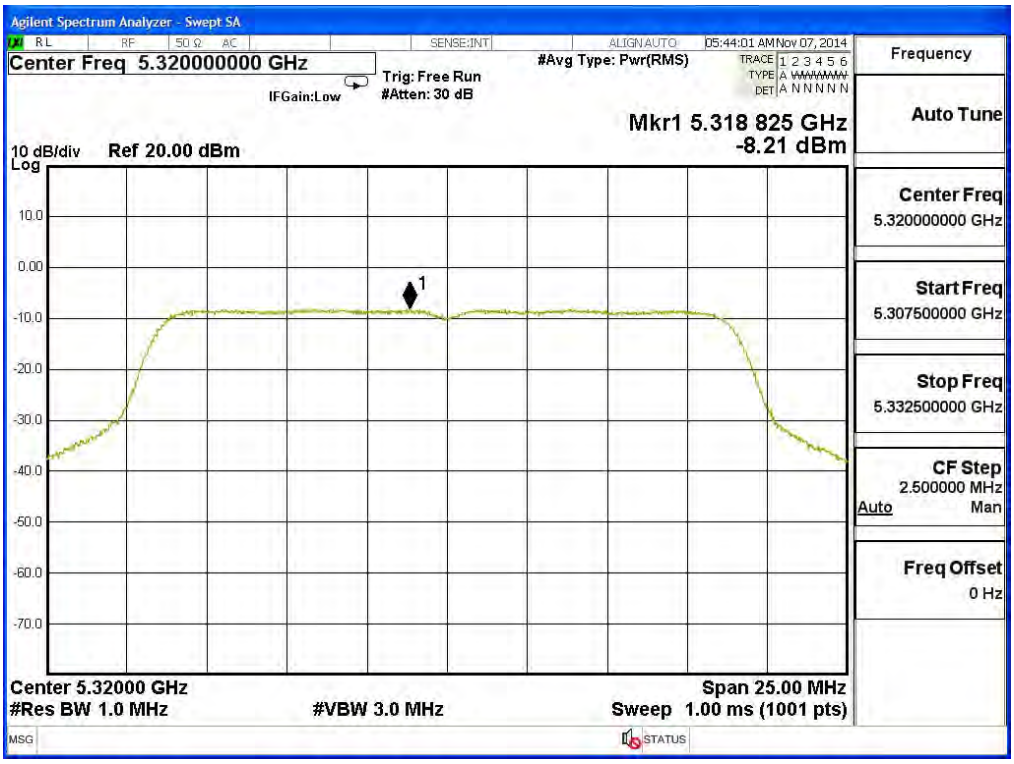
Channel 60 – Chain B



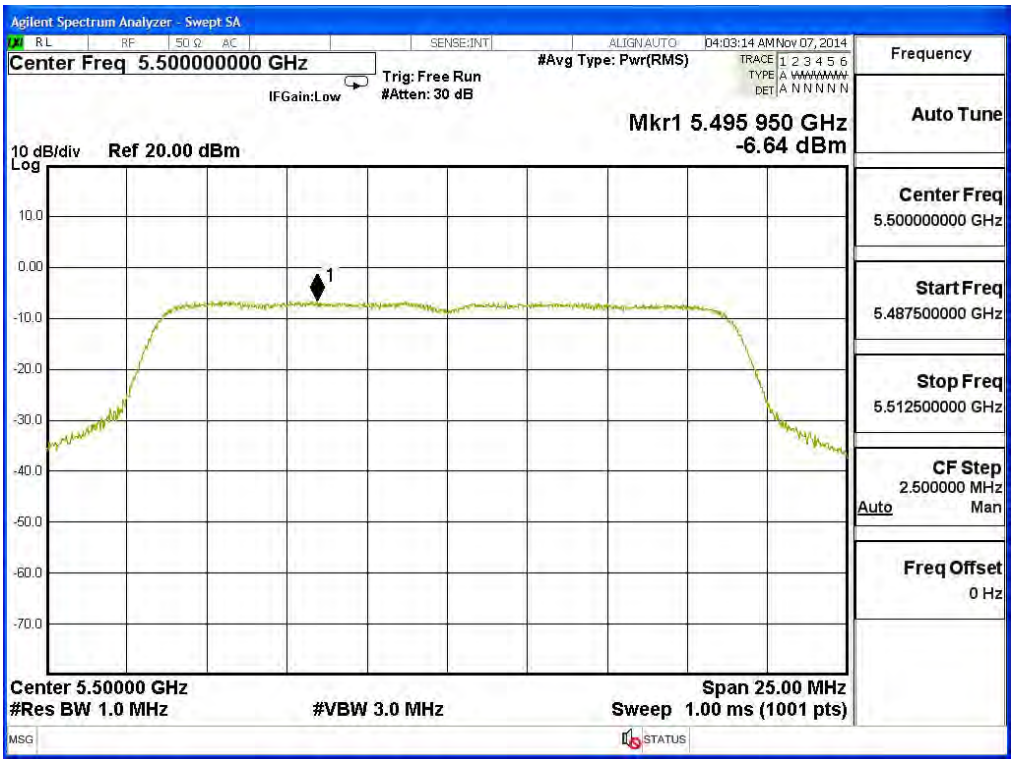
Channel 64 – Chain A



Channel 64 – Chain B



Channel 100 – Chain A



Channel 100 – Chain B