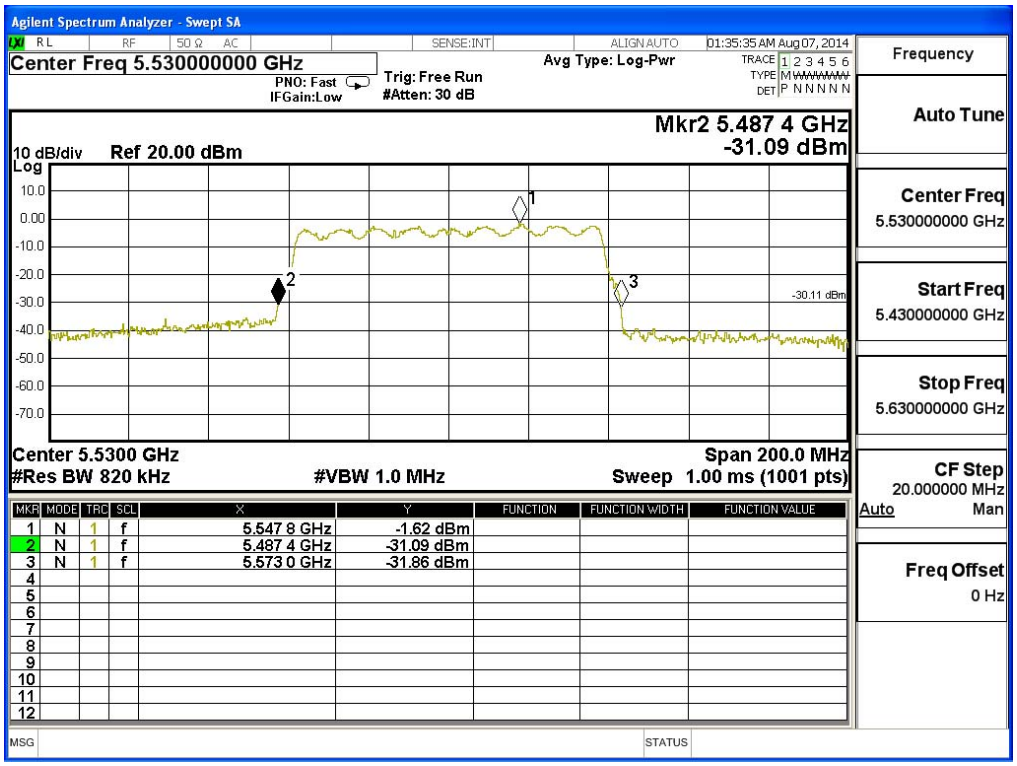
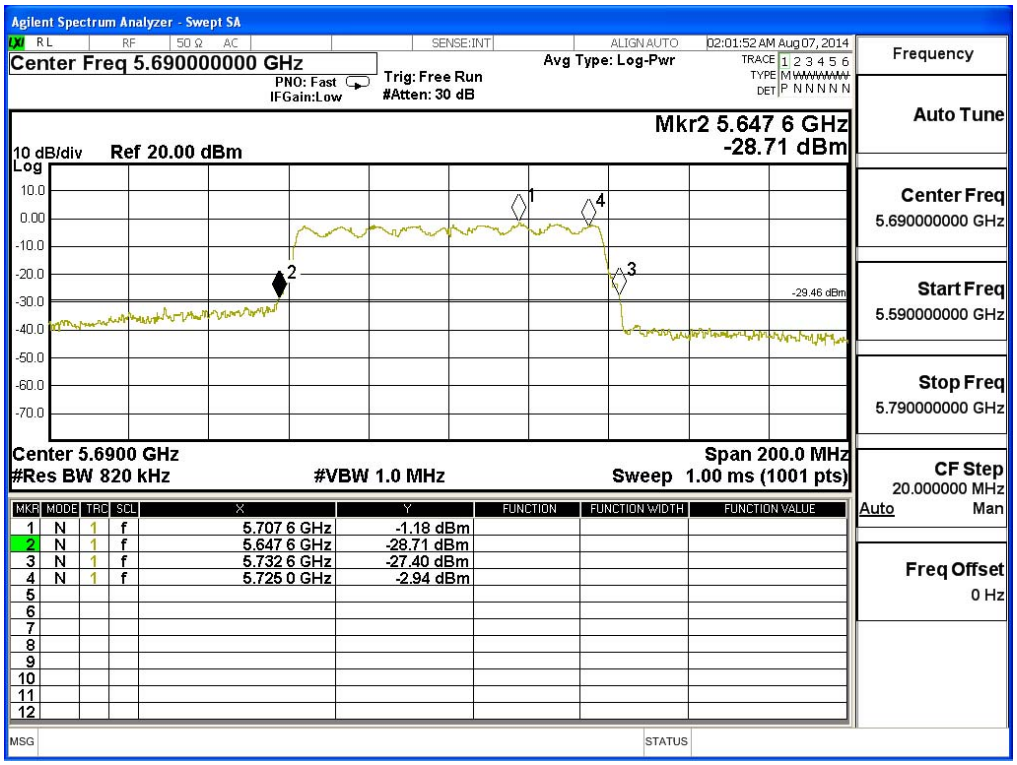
Channel 106

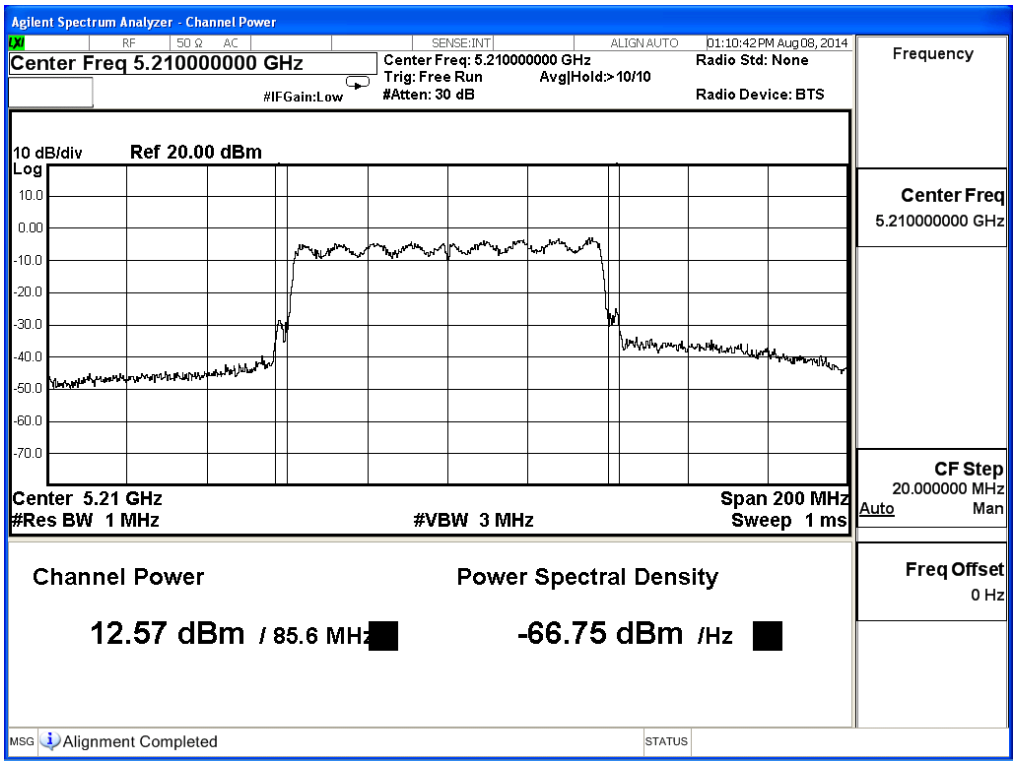


Channel 138



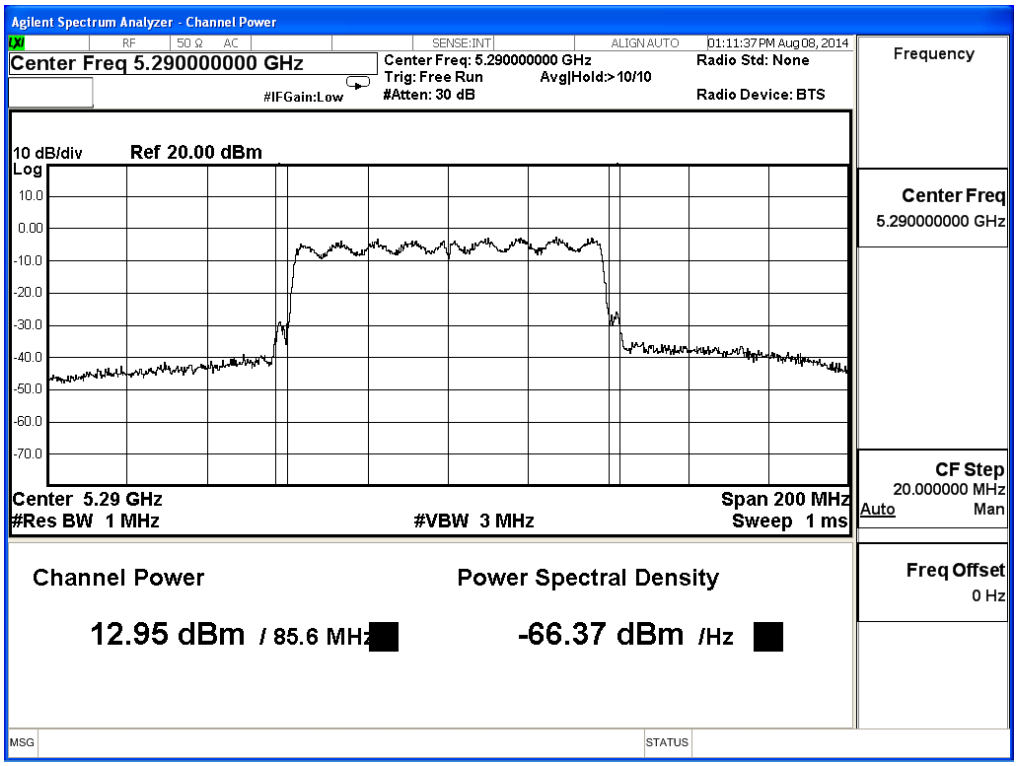
Maximum conducted output power:

Channel 42



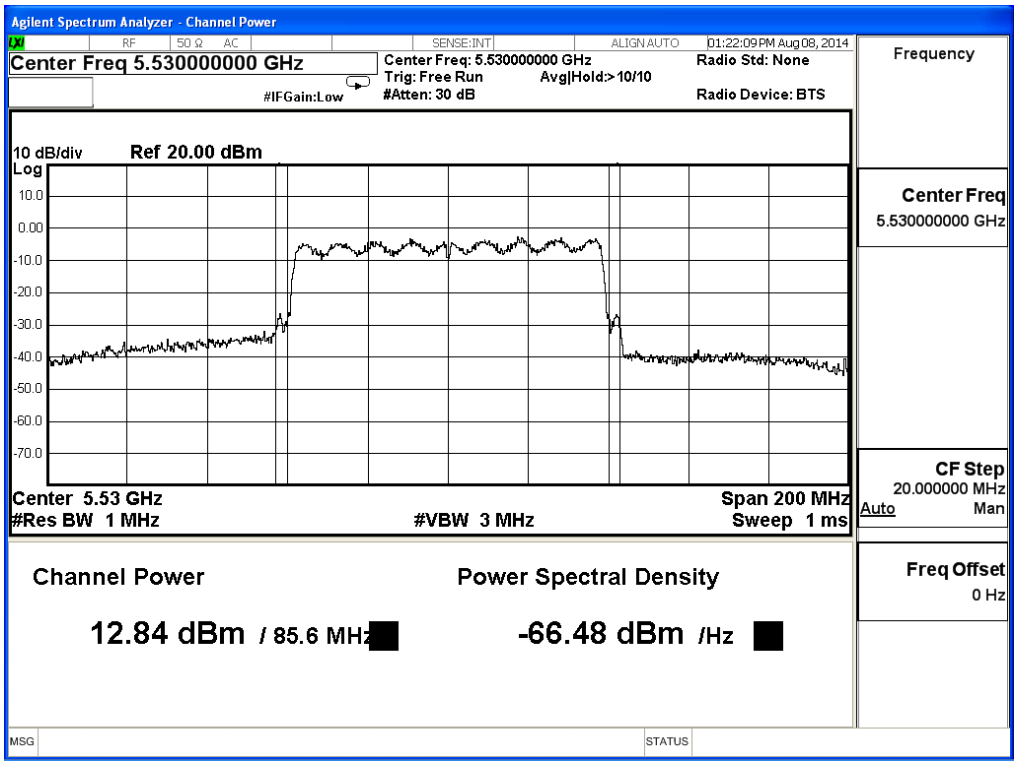
Maximum conducted output power:

Channel 58



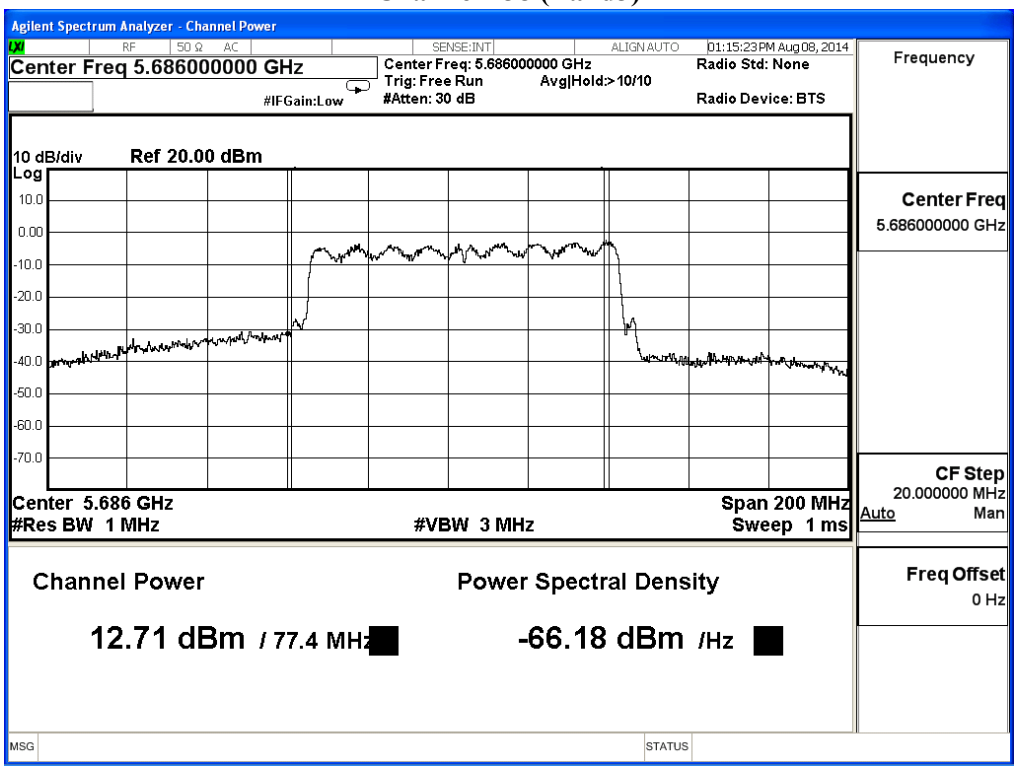
Maximum conducted output power:

Channel 106



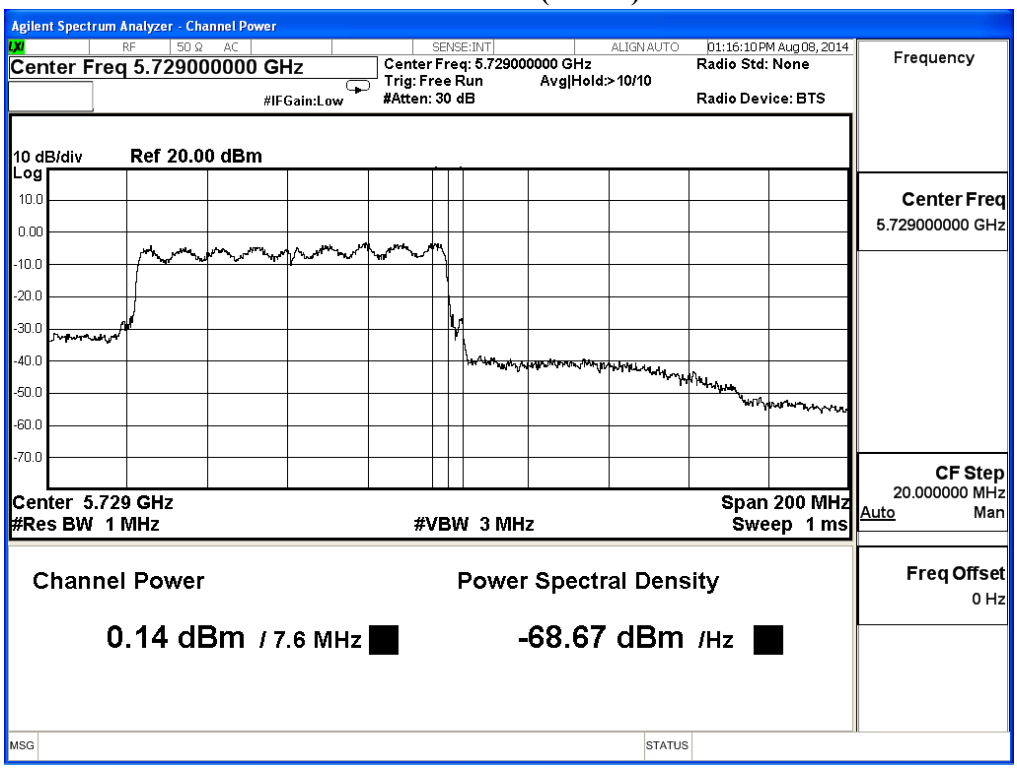
Maximum conducted output power:

Channel 138 (Band3)



Maximum conducted output power:

Channel 138 (Band4)



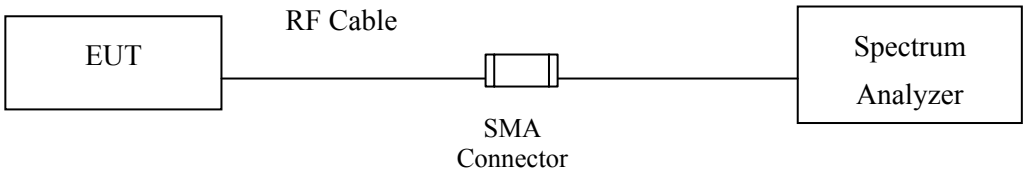
4. Peak Power Spectral Density

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

(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.
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.

4.5. Uncertainty

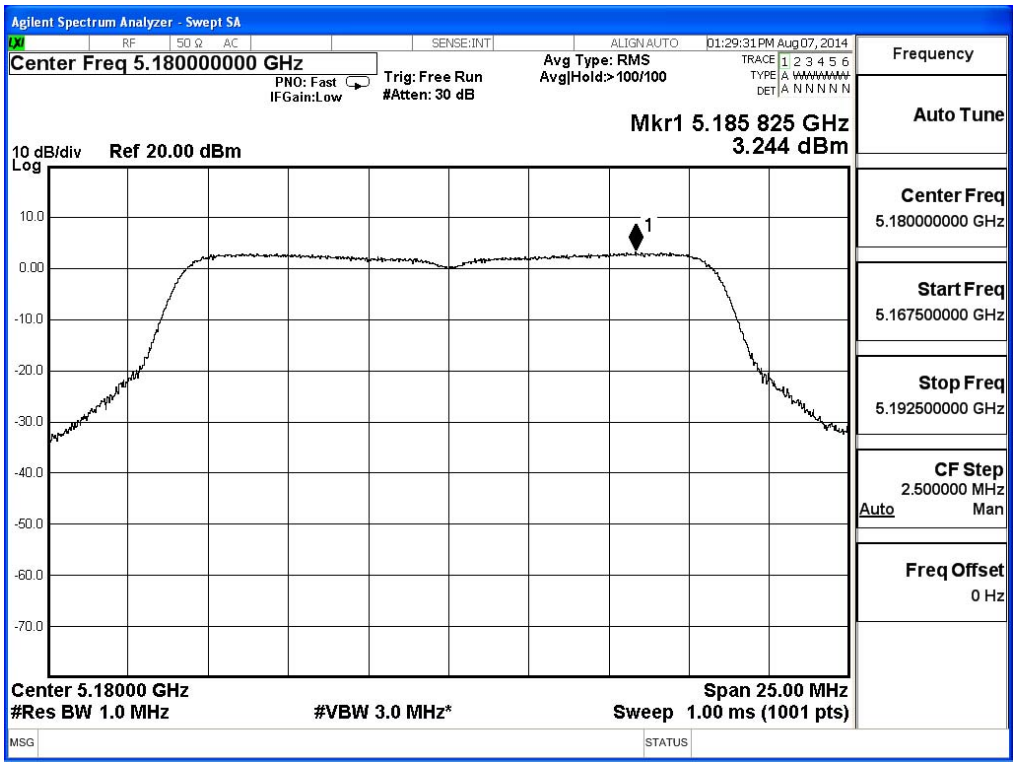
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

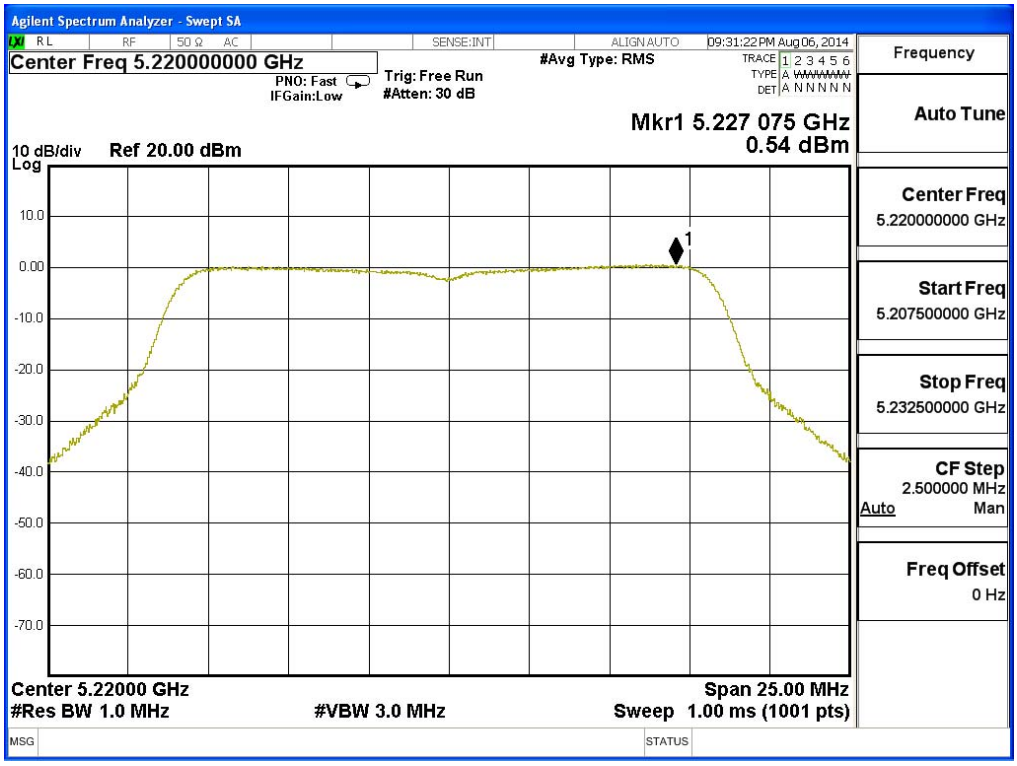
Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	3.244	<4	Pass
44	5220	0.540	<4	Pass
48	5240	2.480	<4	Pass
52	5260	2.170	<11	Pass
60	5300	0.790	<11	Pass
64	5320	1.050	<11	Pass
100	5500	0.880	<11	Pass
116	5580	1.250	<11	Pass
140	5700	2.000	<11	Pass

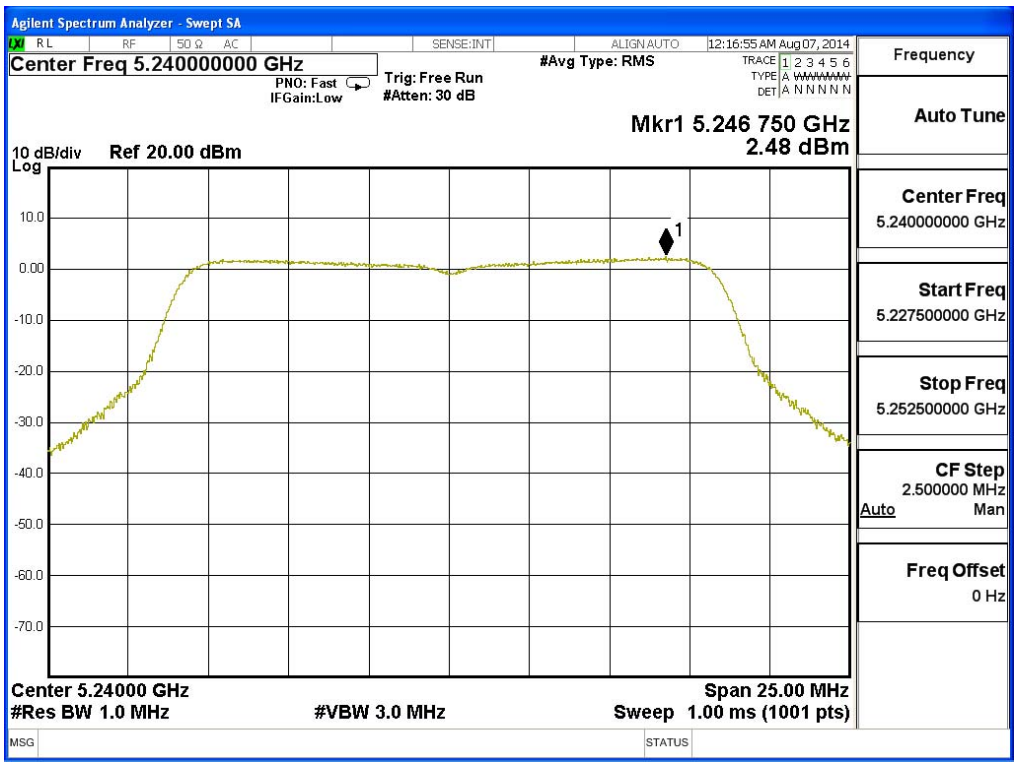
Channel 36:



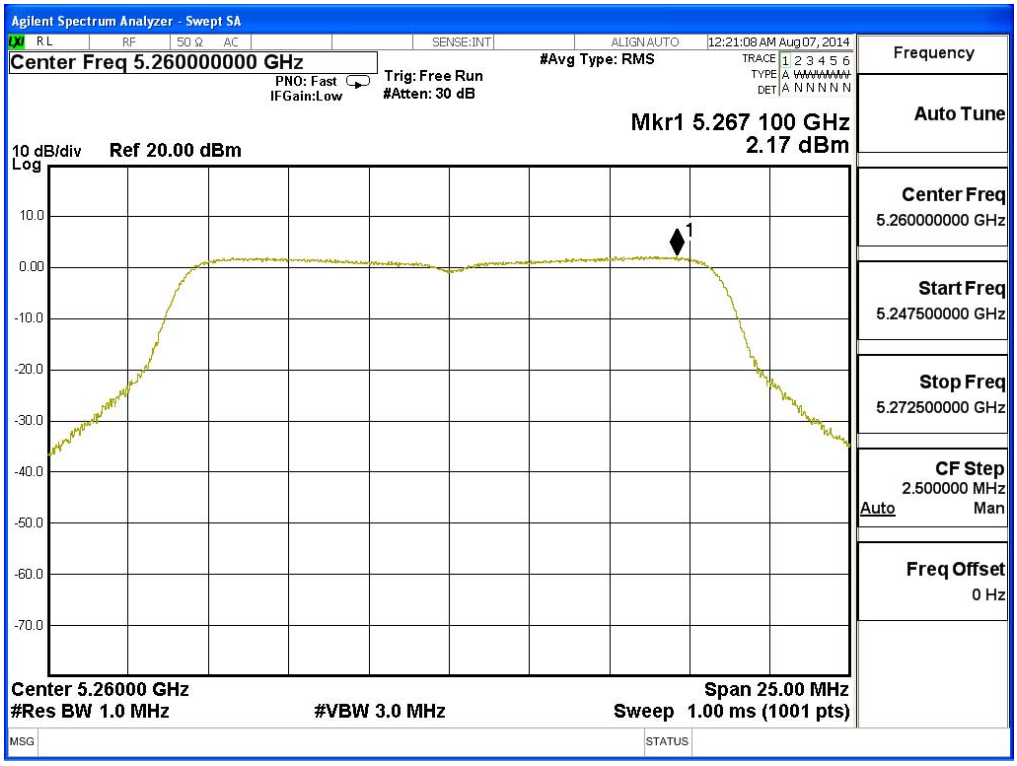
Channel 44:



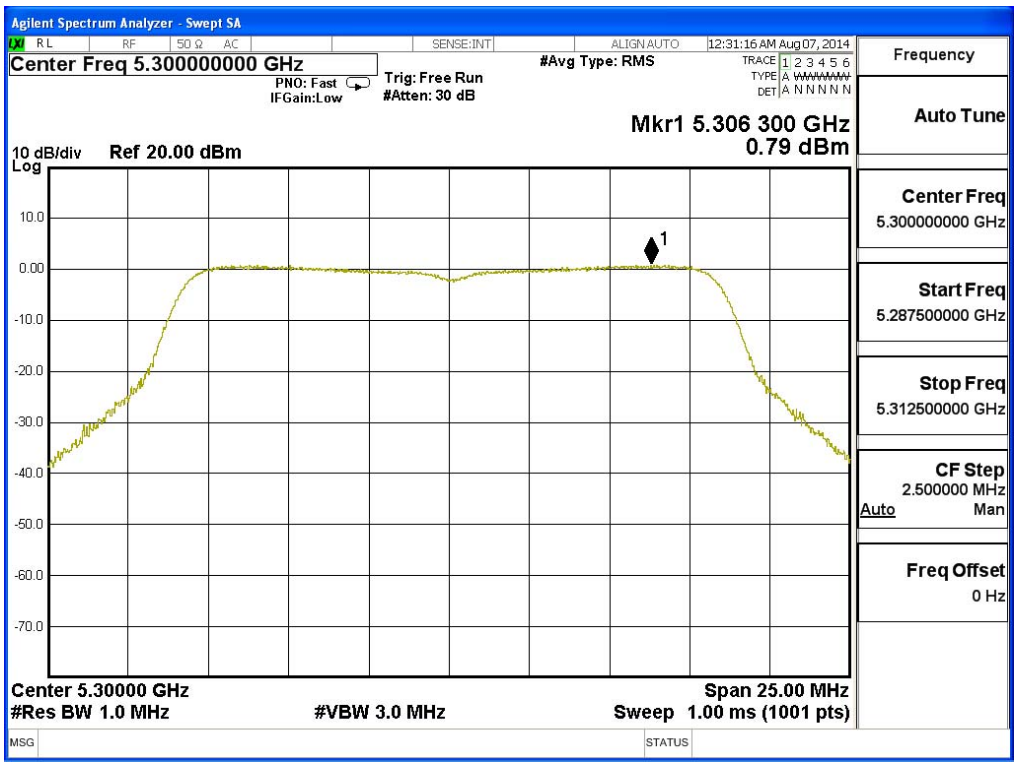
Channel 48:



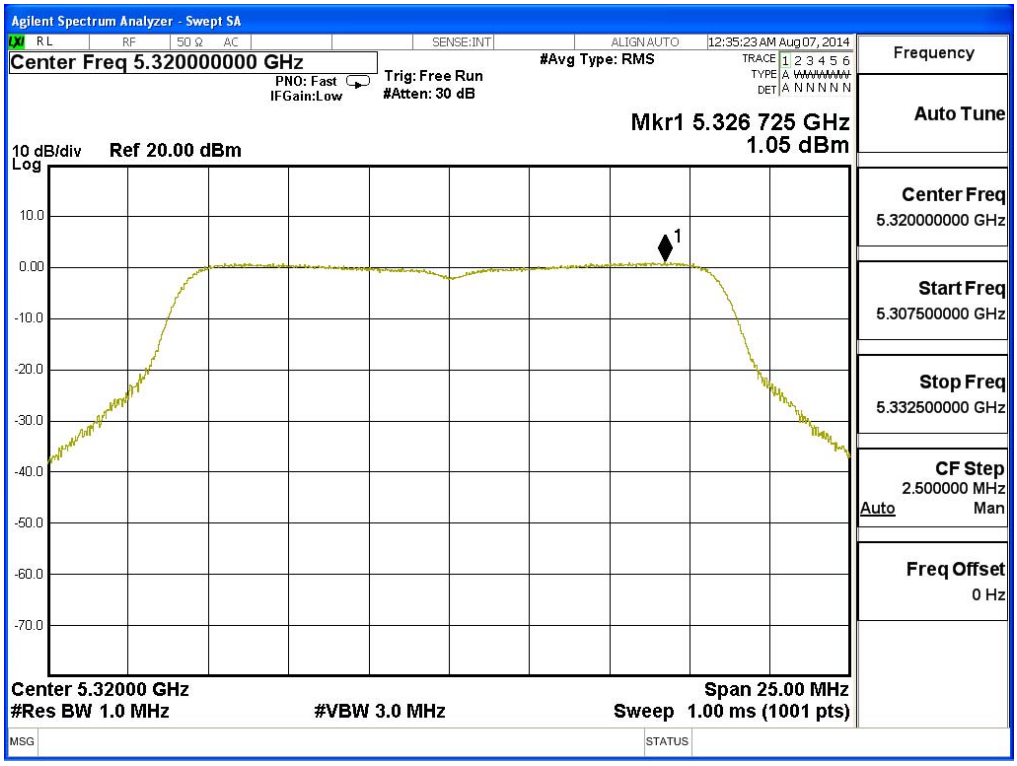
Channel 52:



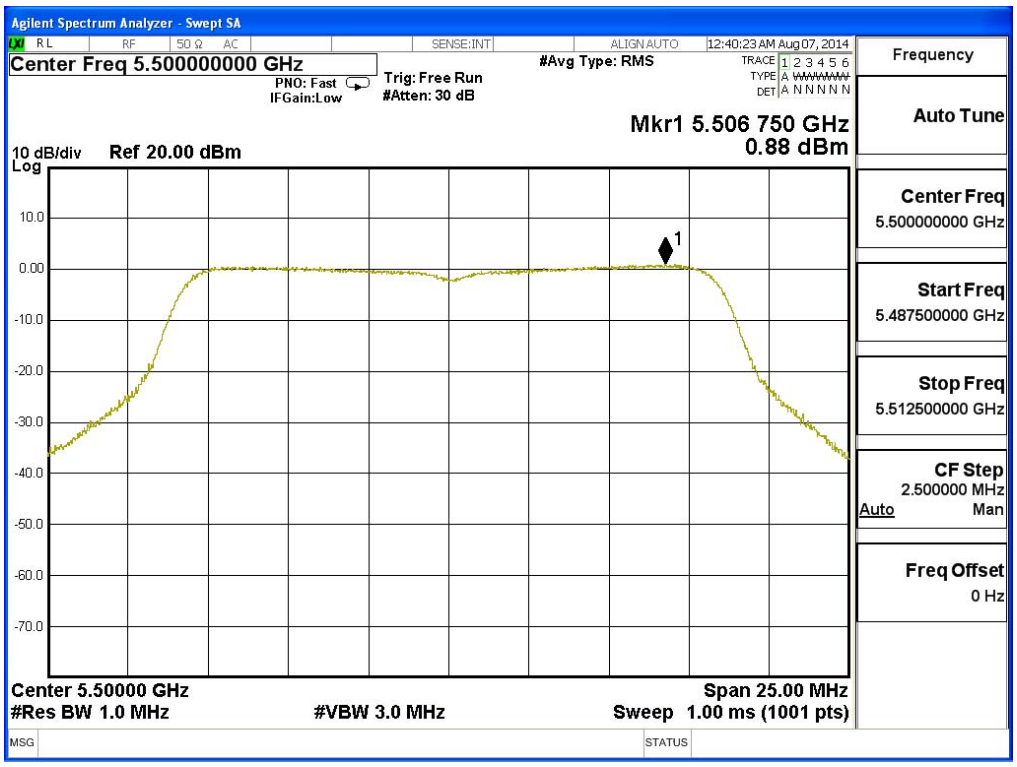
Channel 60:



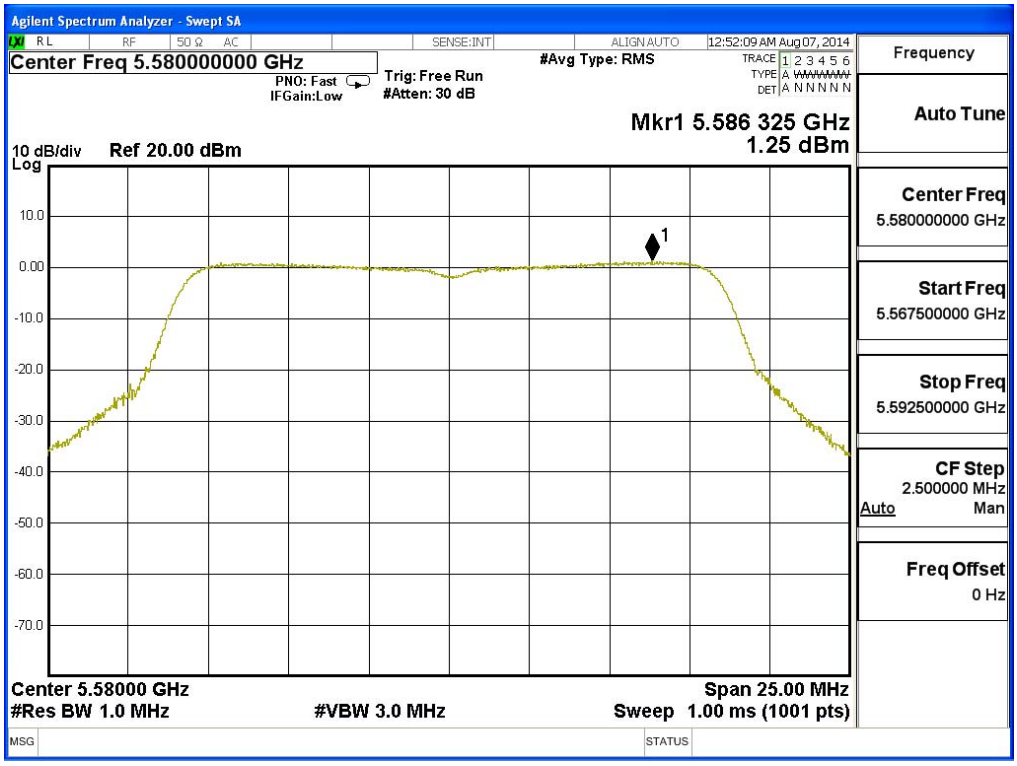
Channel 64:



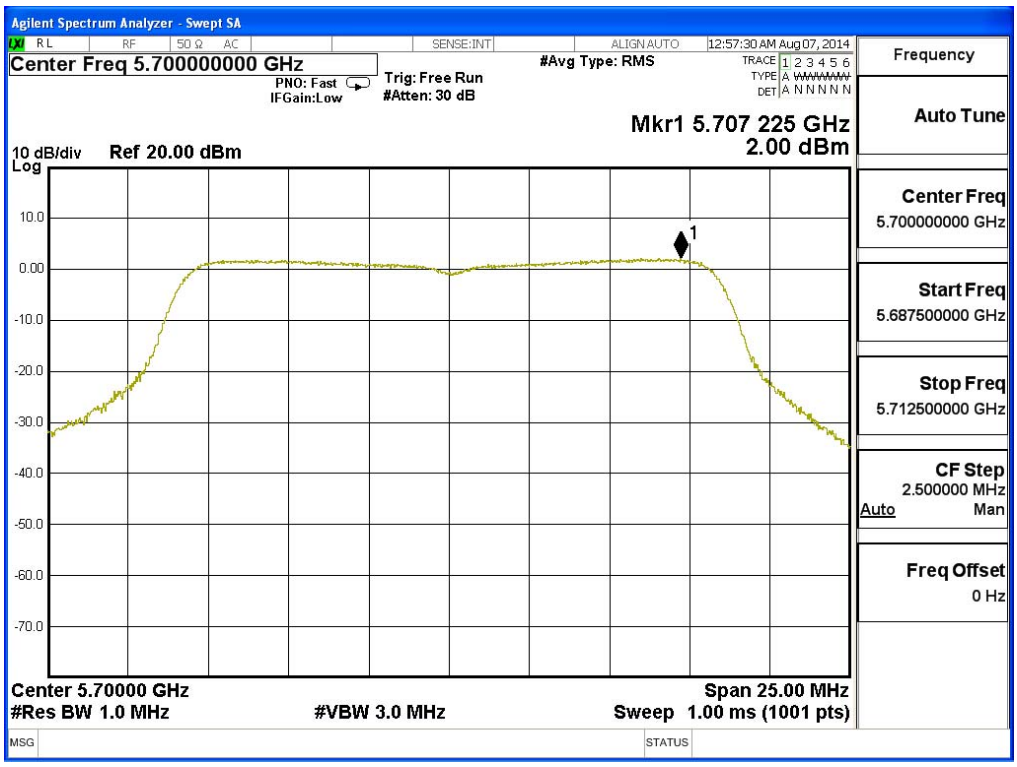
Channel 100:



Channel 116:



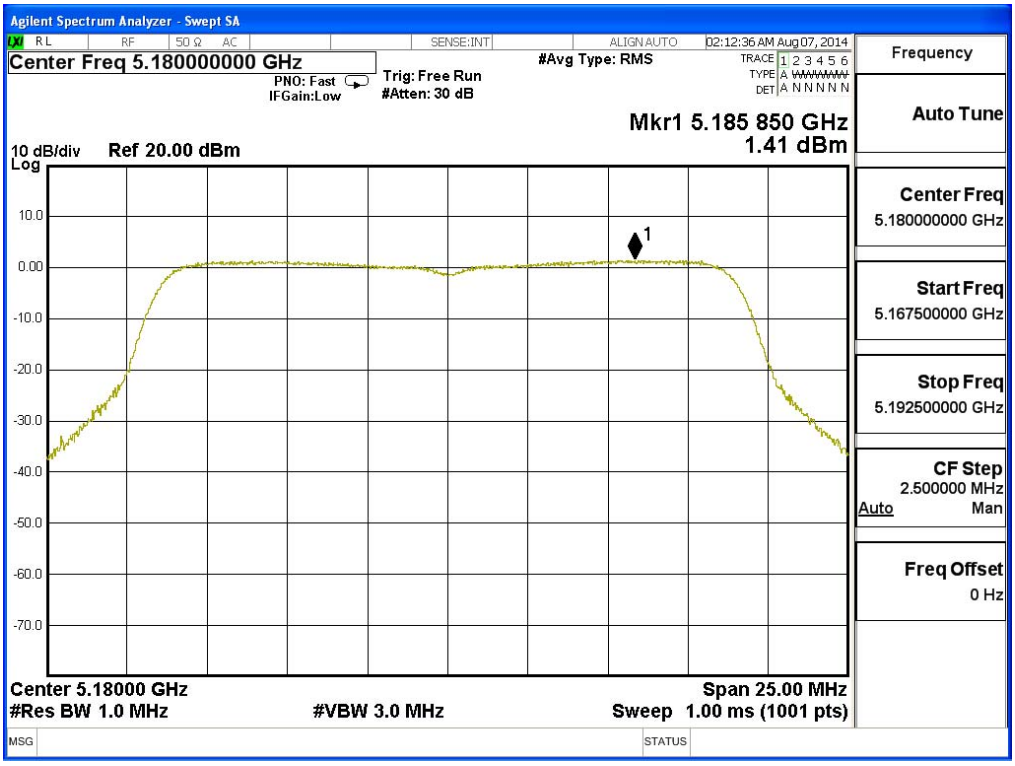
Channel 140:



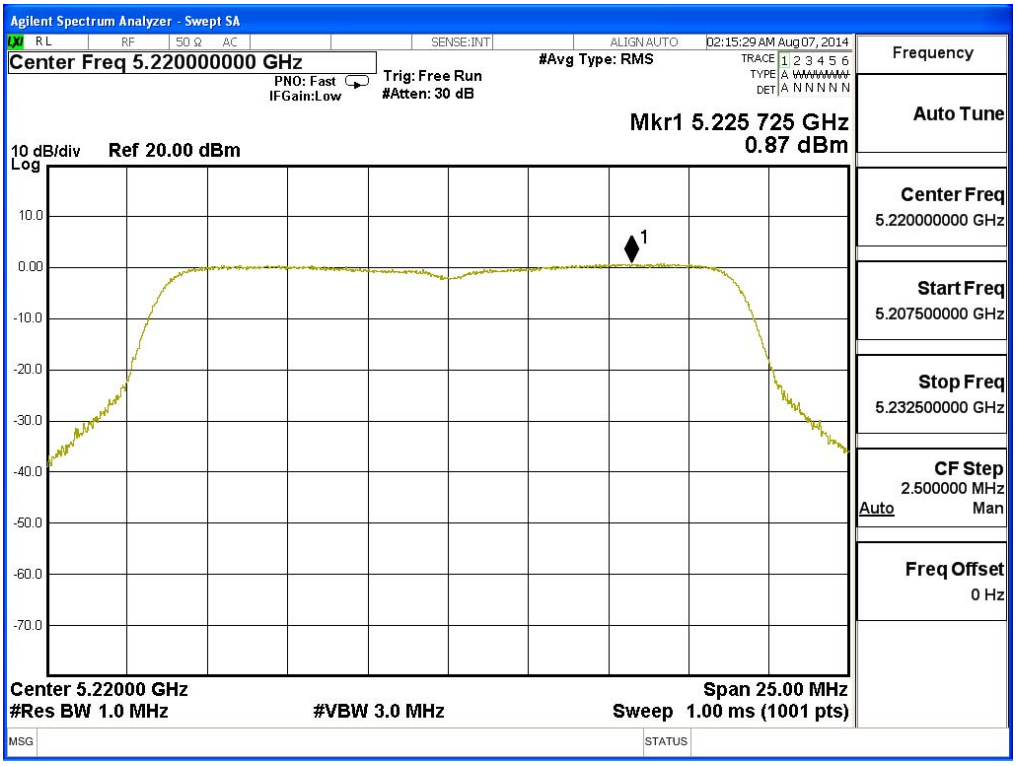
Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	1.410	<4	Pass
44	5220	0.870	<4	Pass
48	5240	1.470	<4	Pass
52	5260	1.380	<11	Pass
60	5300	1.240	<11	Pass
64	5320	3.777	<11	Pass
100	5500	0.810	<11	Pass
116	5580	1.310	<11	Pass
140	5700	2.220	<11	Pass

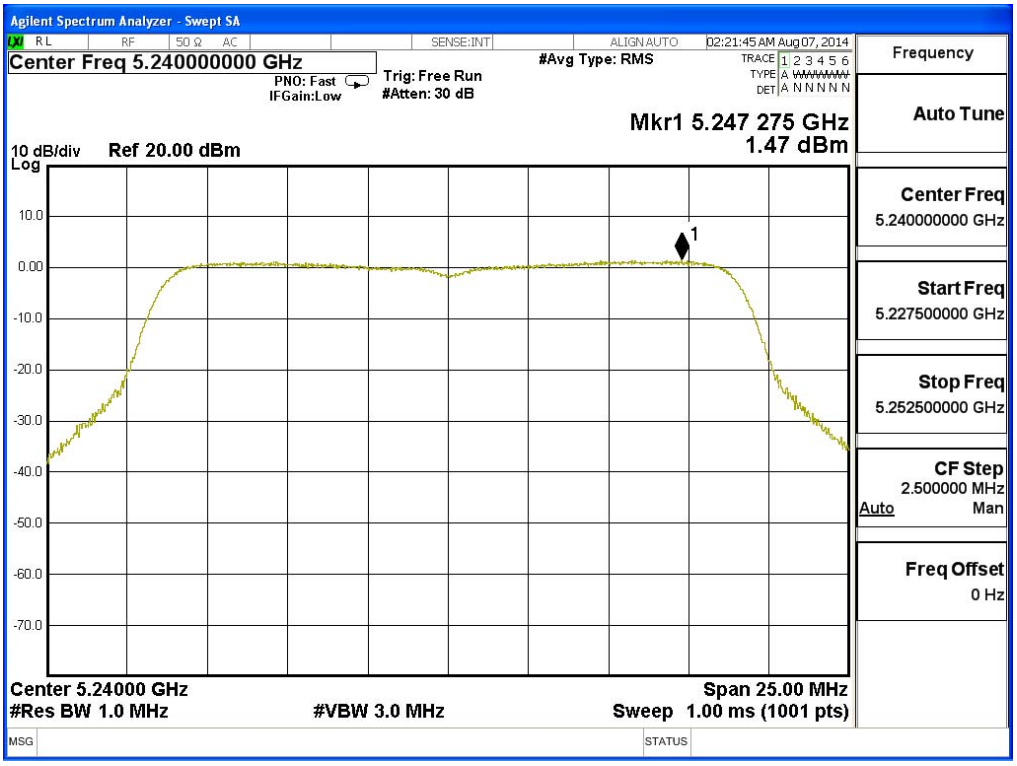
Channel 36



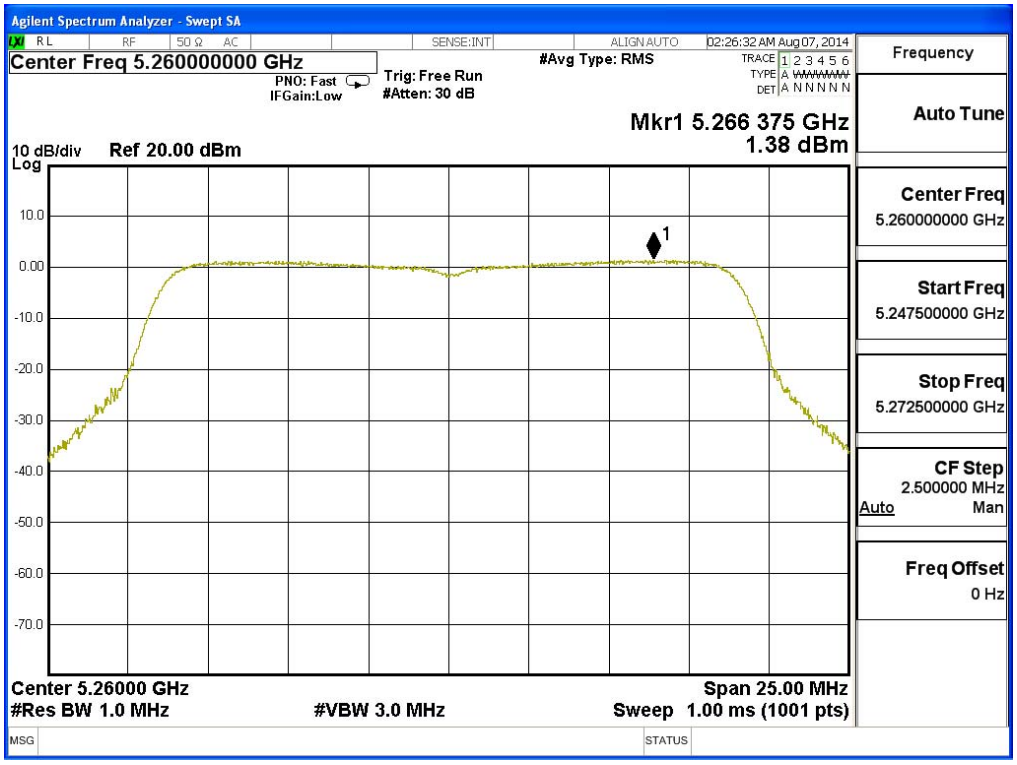
Channel 44



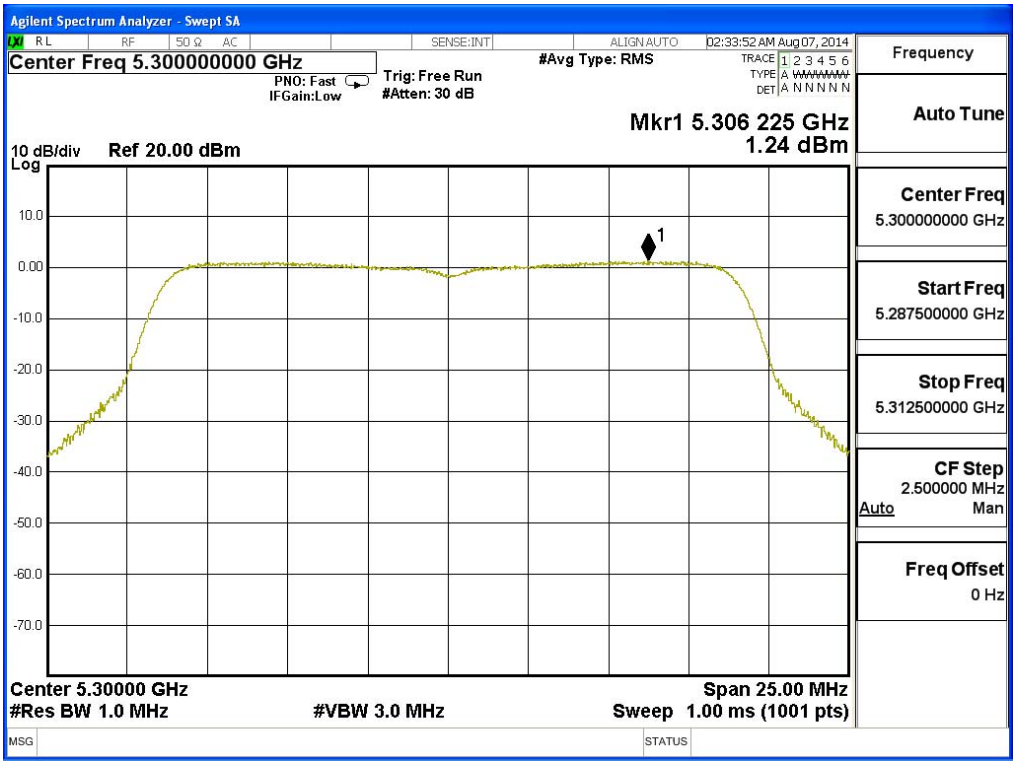
Channel 48



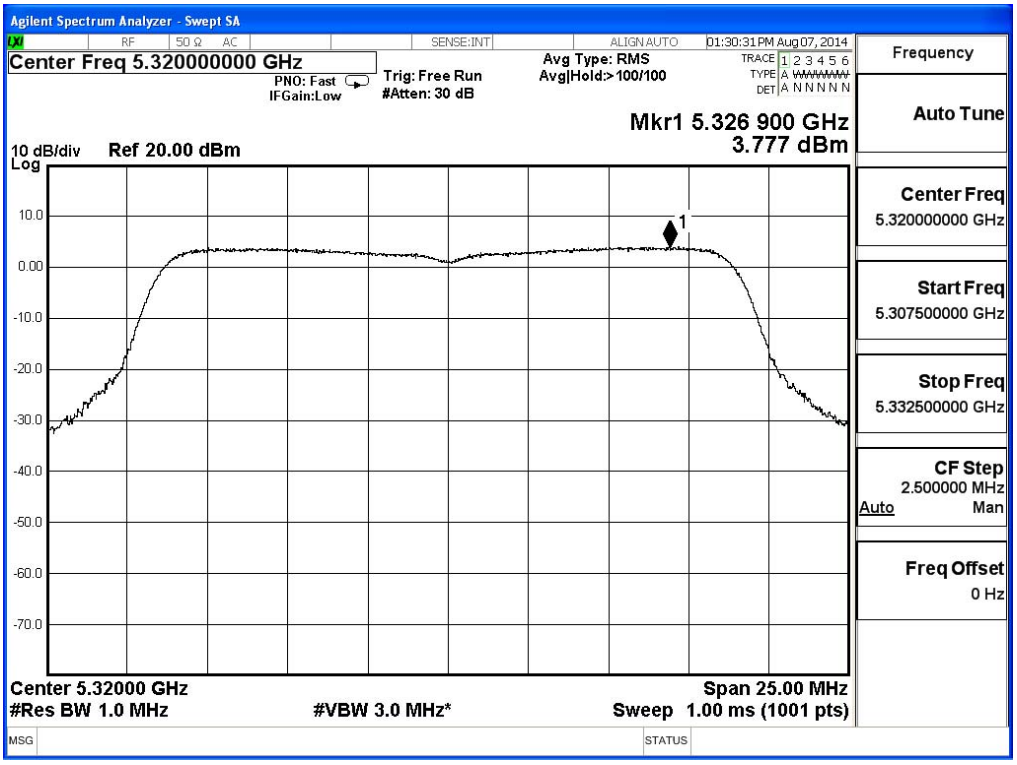
Channel 52



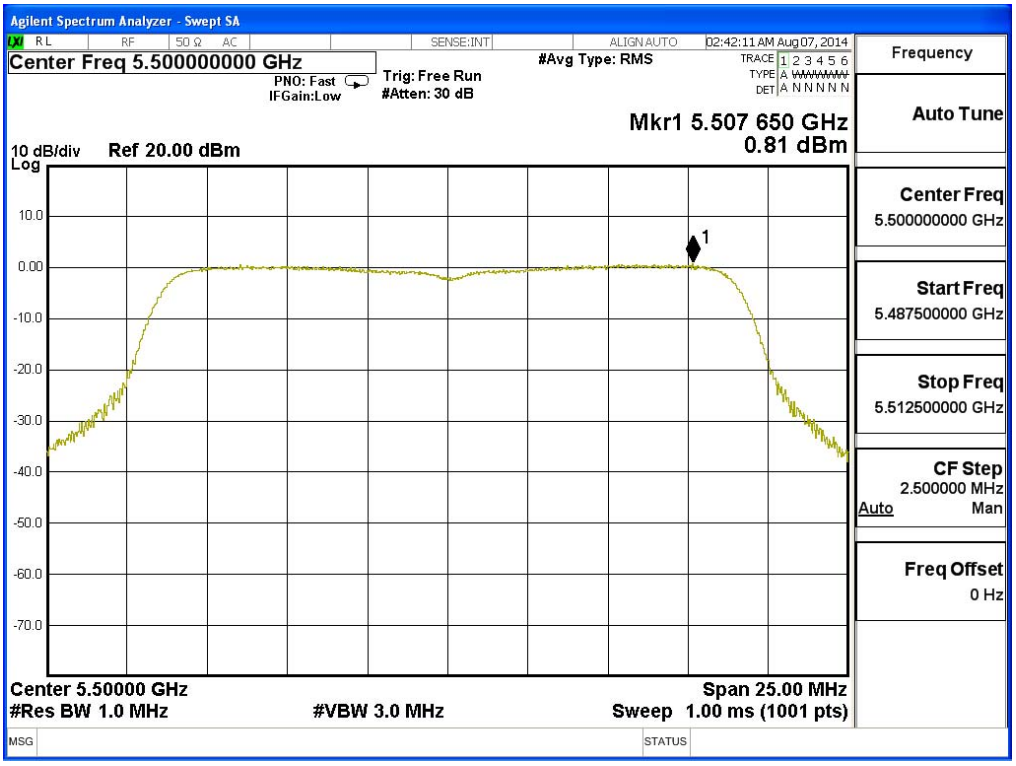
Channel 60



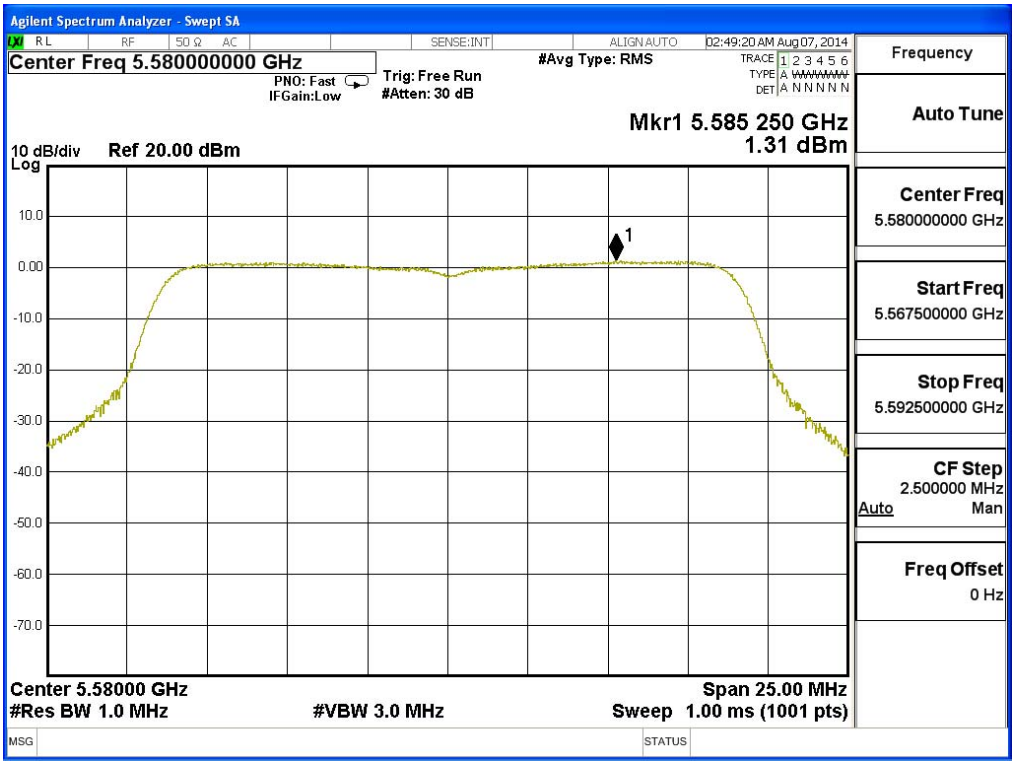
Channel 64



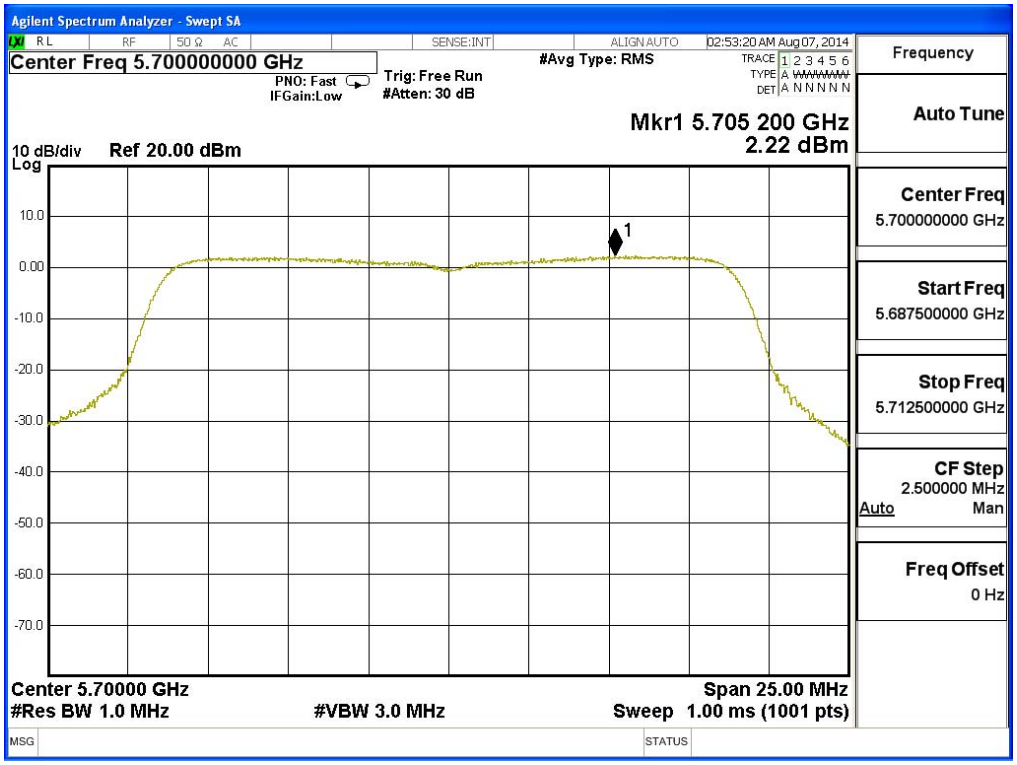
Channel 100



Channel 116



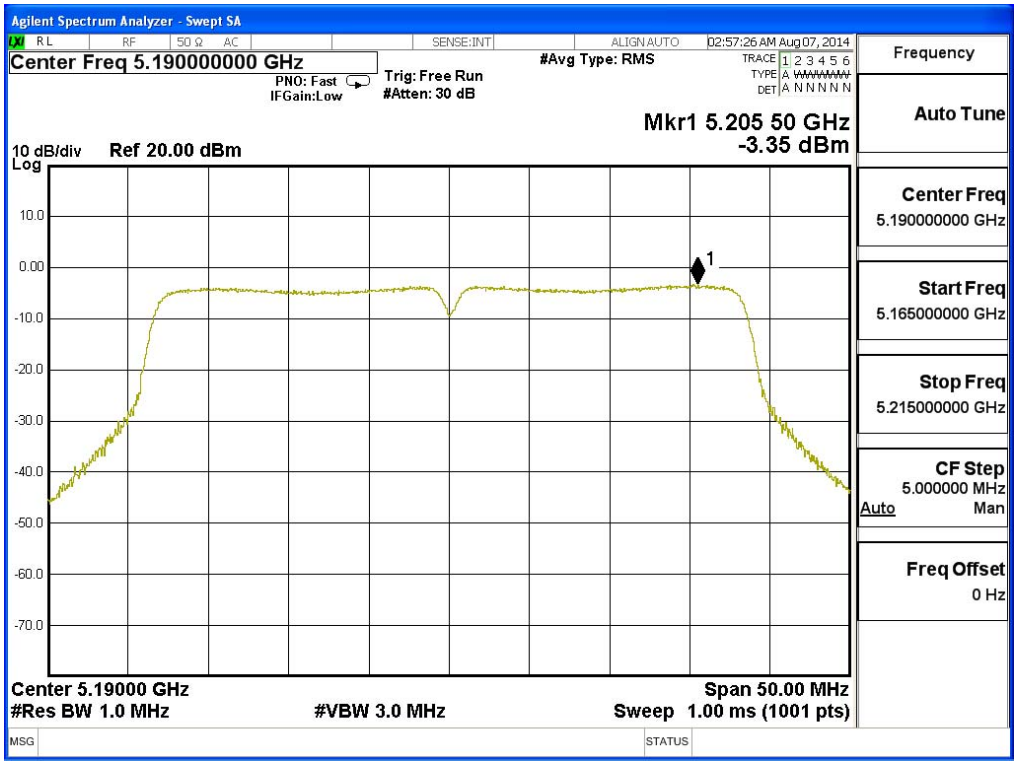
Channel 140


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.700000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
02:53:20 AM Aug 07, 2014
Mkr1 5.705 200 GHz
2.22 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 5.70000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
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

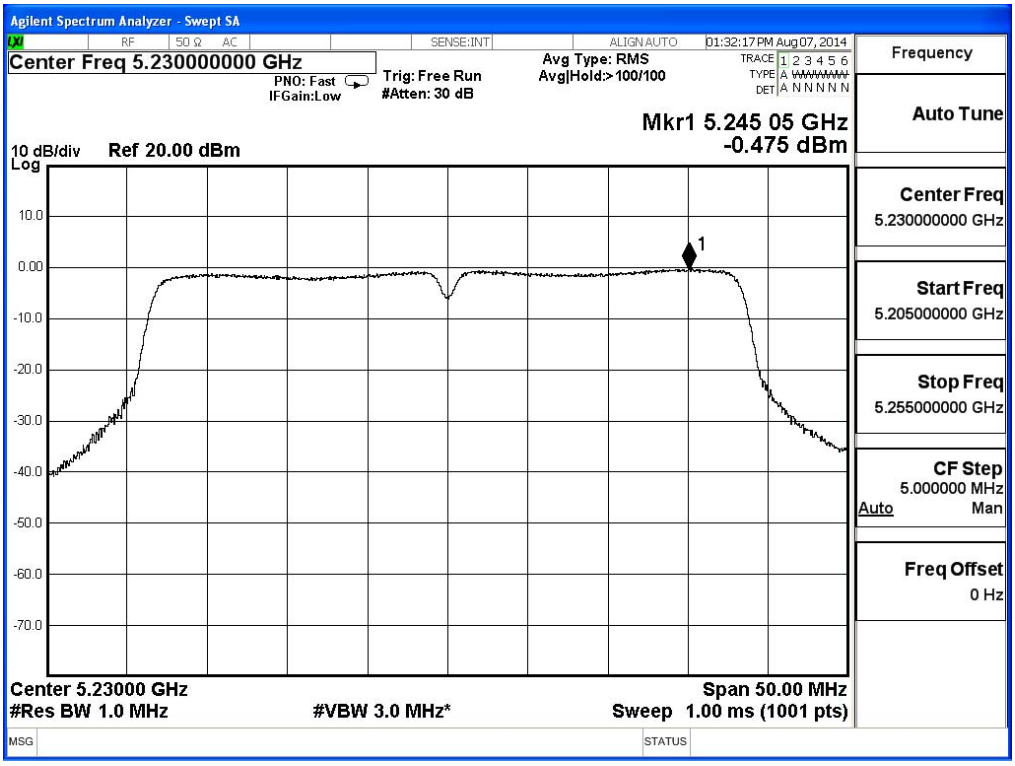
Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
38	5190	-3.350	<4	Pass
46	5230	-0.475	<4	Pass
54	5270	-3.920	<11	Pass
62	5310	-4.220	<11	Pass
102	5510	-1.286	<11	Pass
110	5550	-0.510	<11	Pass
134	5670	-4.750	<11	Pass

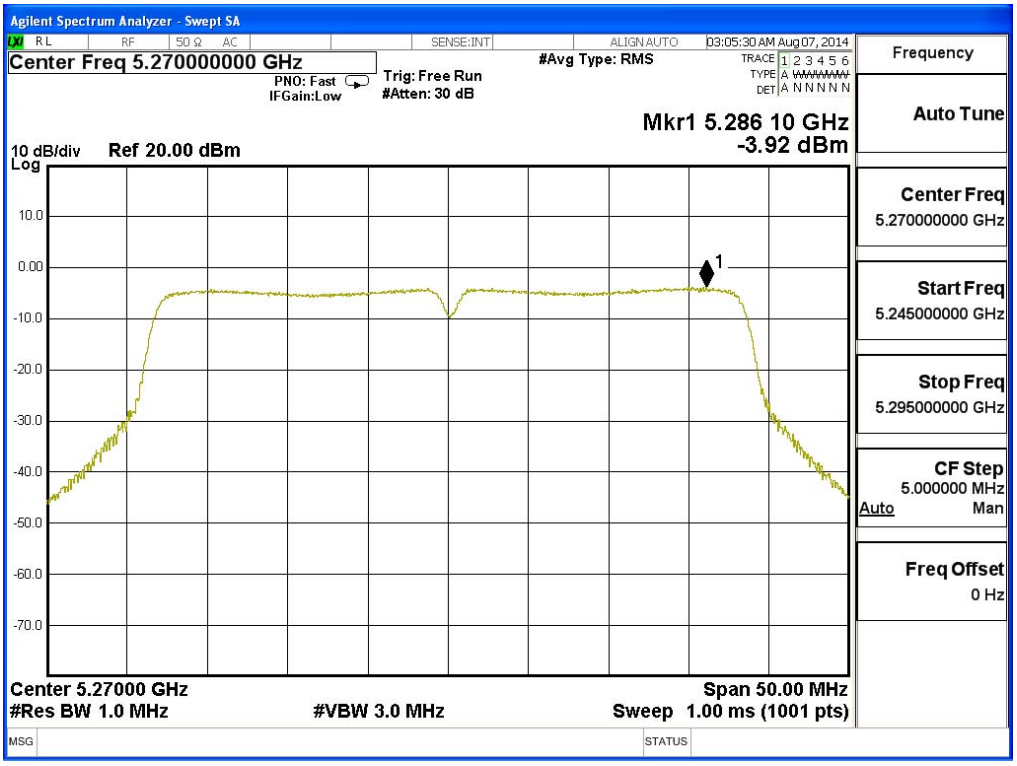
Channel 38



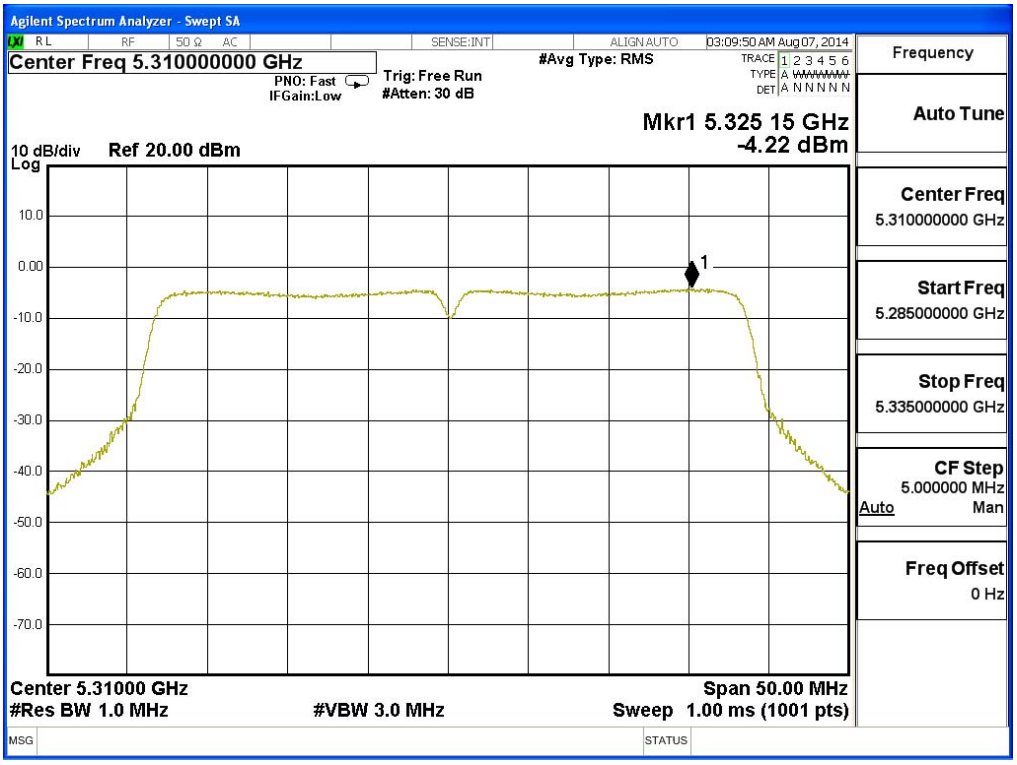
Channel 46



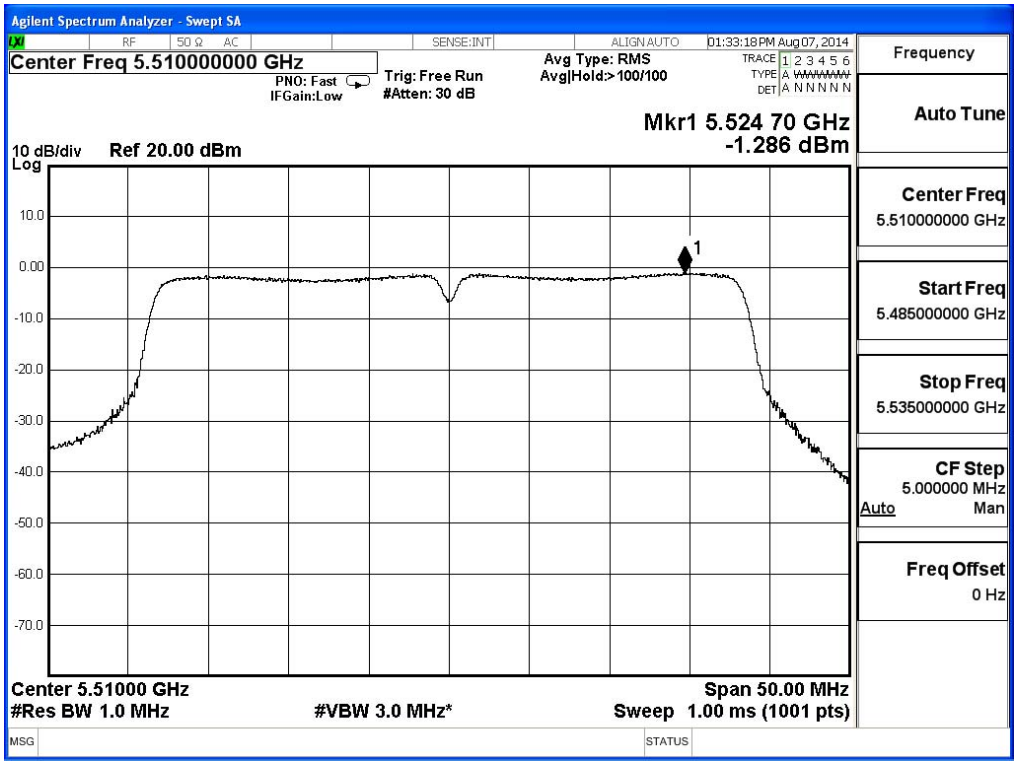
Channel 54



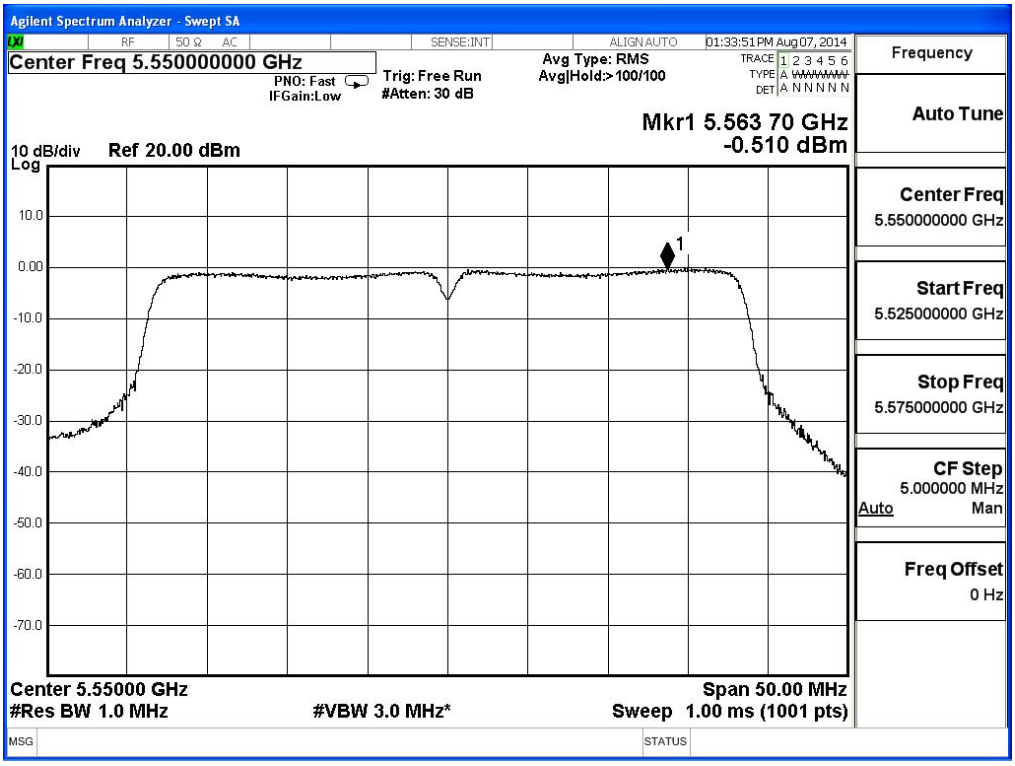
Channel 62



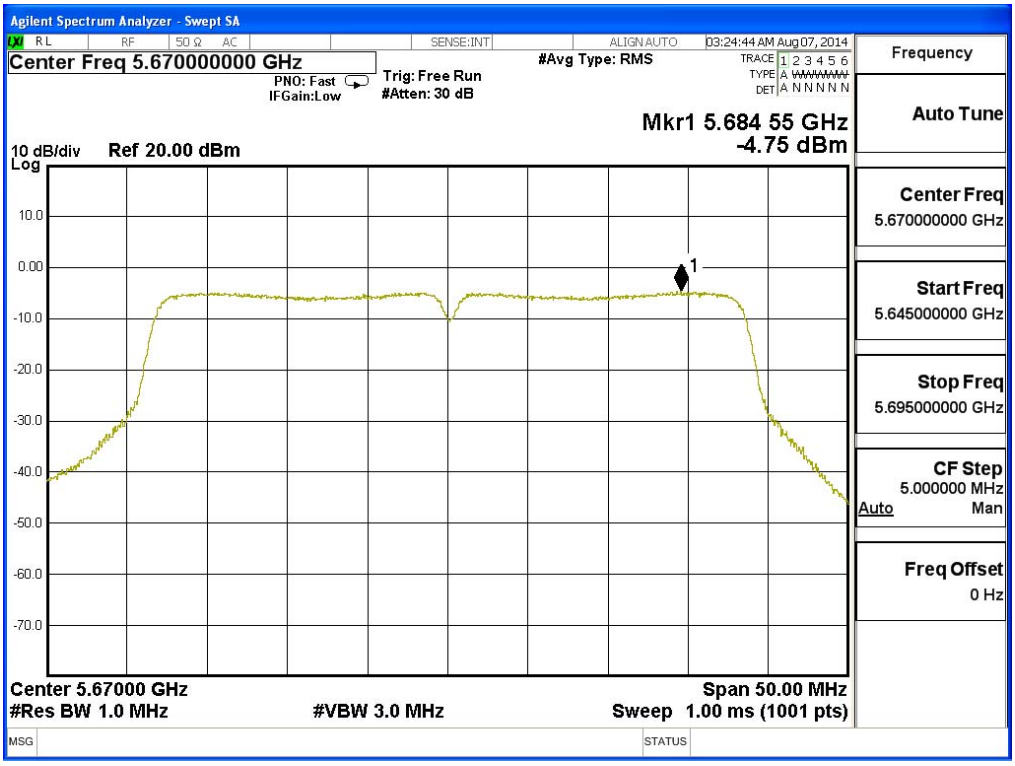
Channel 102



Channel 110



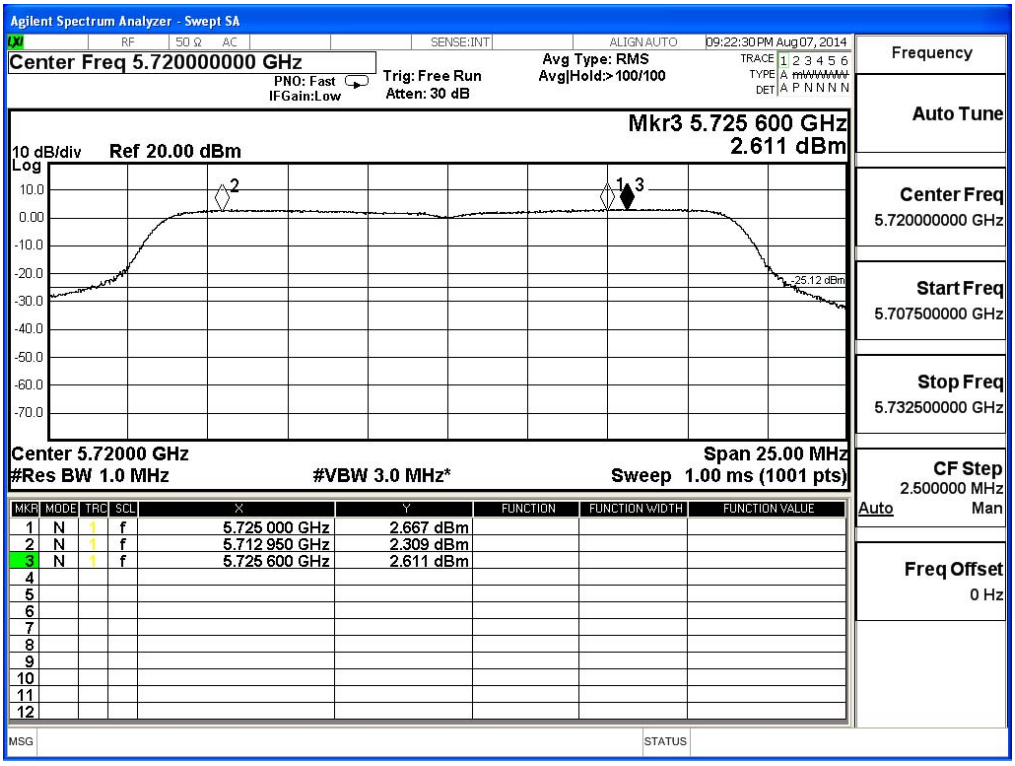
Channel 134


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.670000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
03:24:44 AM Aug 07, 2014
Mkr1 5.684 55 GHz
-4.75 dBm
10 dB/div
Log
Ref 20.00 dBm
Center 5.67000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 50.00 MHz
Sweep 1.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
5.670000000 GHz
Start Freq
5.645000000 GHz
Stop Freq
5.695000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz

Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-20BW-7.2Mbps)

Channel Number	Frequency (MHz)	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)[1]	Required Limit (dBm)	Result
144	5720(Band3)	3.460	3.460	<11	Pass
	5720(Band4)	3.240	3.240	<17	Pass

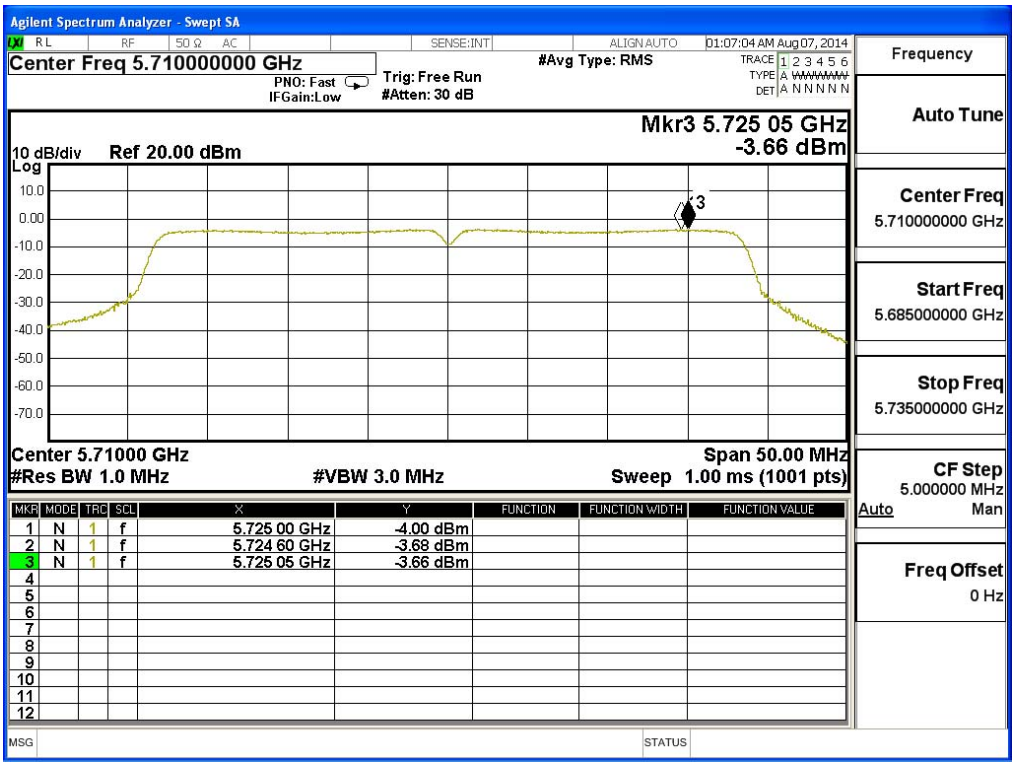
Channel 144



Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11ac-40BW-15Mbps)

Channel Number	Frequency (MHz)	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)[1]	Required Limit (dBm)	Result
142	5710(Band3)	1.180	1.180	<11	Pass
	5710(Band4)	-2.130	-2.130	<17	Pass

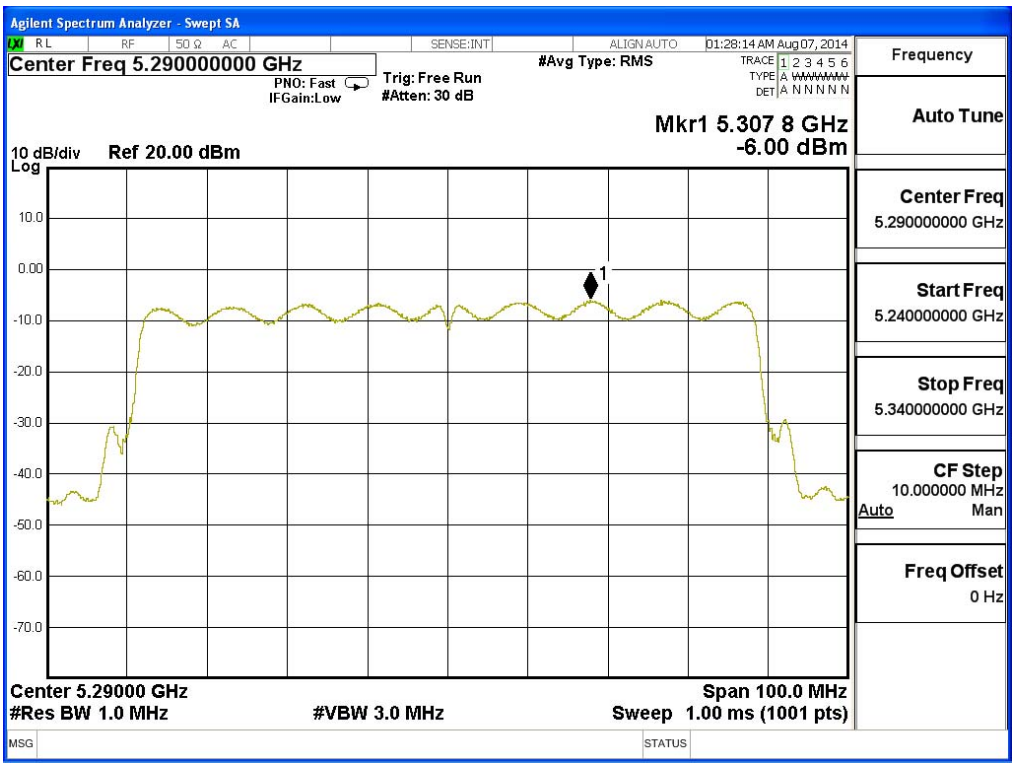
Channel 142



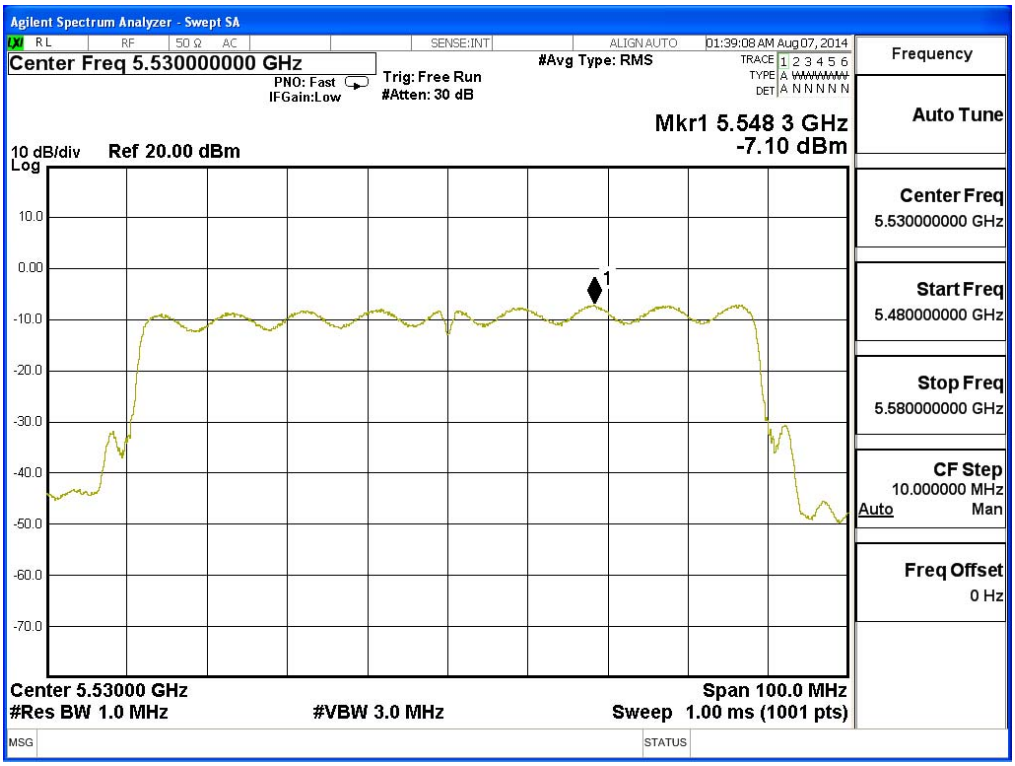
Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11ac-40BW-15Mbps)

Channel Number	Frequency (MHz)	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)[1]	Required Limit (dBm)	Result
42	5210	-8.660	-8.660	<4	Pass
58	5290	-6.920	-6.920	<4	Pass
106	5530	-7.890	-7.890	<11	Pass
138	5690 (Band3)	-3.190	-3.190	<11	Pass
138	5690 (Band4)	-8.110	-8.110	<17	Pass

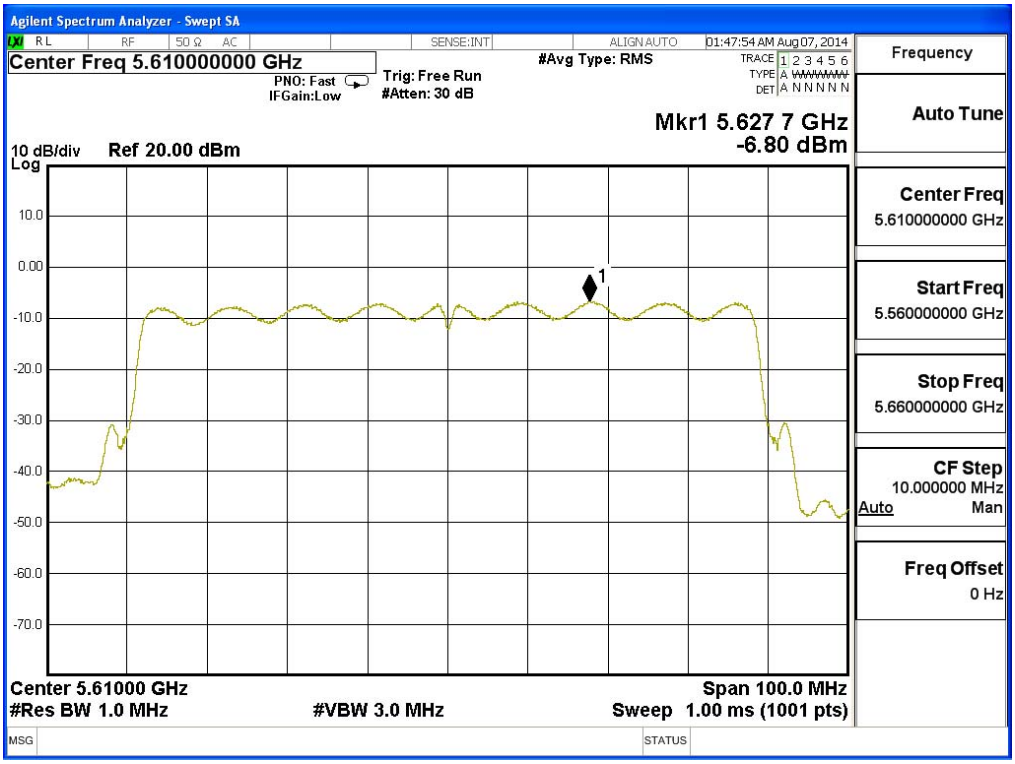
Channel 42



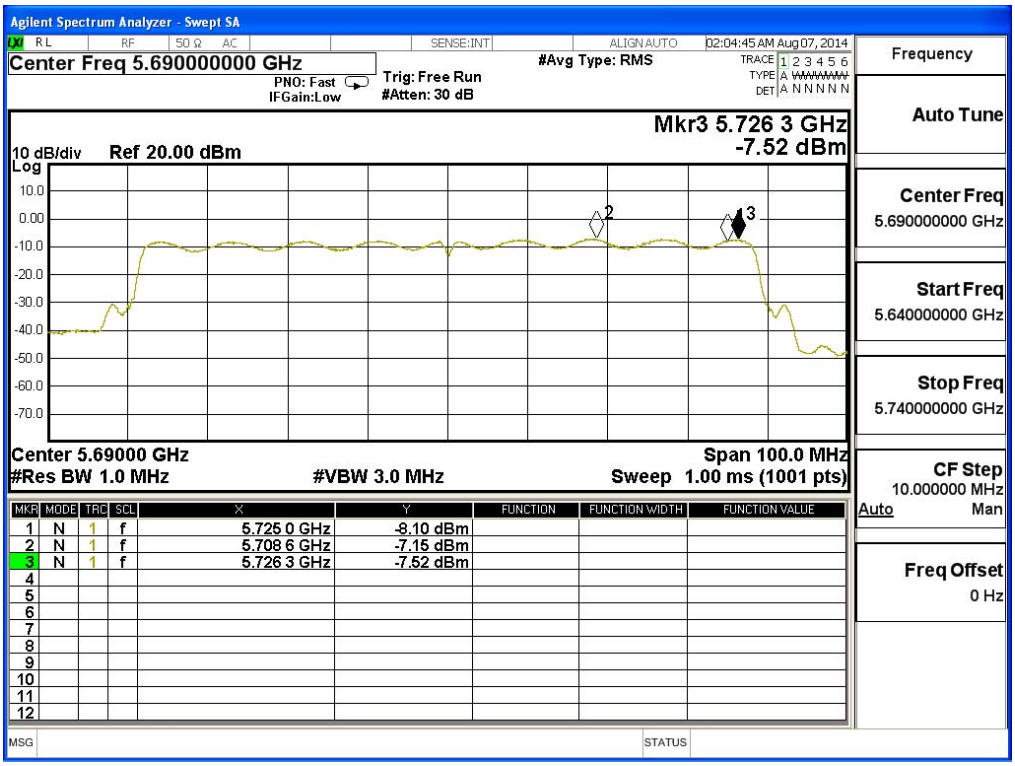
Channel 58



Channel 106



Channel 138


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.690000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
02:04:45 AM Aug 07, 2014
Mkr3 5.726 3 GHz
-7.52 dBm
10 dB/div
Ref 20.00 dBm
Log
Center 5.69000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 100.0 MHz
Sweep 1.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.725 0 GHz -8.10 dBm
2 N 1 f 5.708 6 GHz -7.15 dBm
3 N 1 f 5.726 3 GHz -7.52 dBm
Frequency
Auto Tune
Center Freq
5.690000000 GHz
Start Freq
5.640000000 GHz
Stop Freq
5.740000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

5. Peak Excursion

5.1. Test Equipment

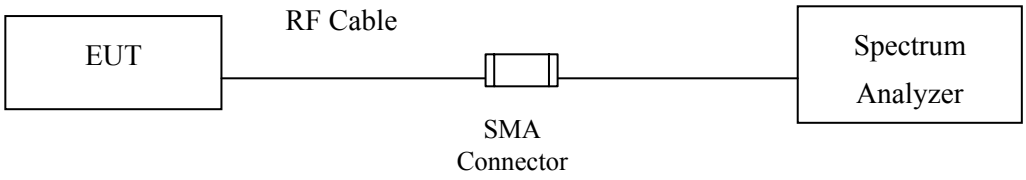
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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.

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.

Step 1: Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.

Step 2: Find the maximum of the peak-max-hold spectrum.

(Set RBW = 1 MHz, VBW ≥ 3 MHz, Detector = peak, Trace mode = max-hold, Allow the sweeps to continue until the trace stabilizes,Use the peak search function to find the peak of the spectrum.)

Step 3: Use the procedure found under KDB-789033 F) to measure the PPSD.

Step 4: Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

5.5. Uncertainty

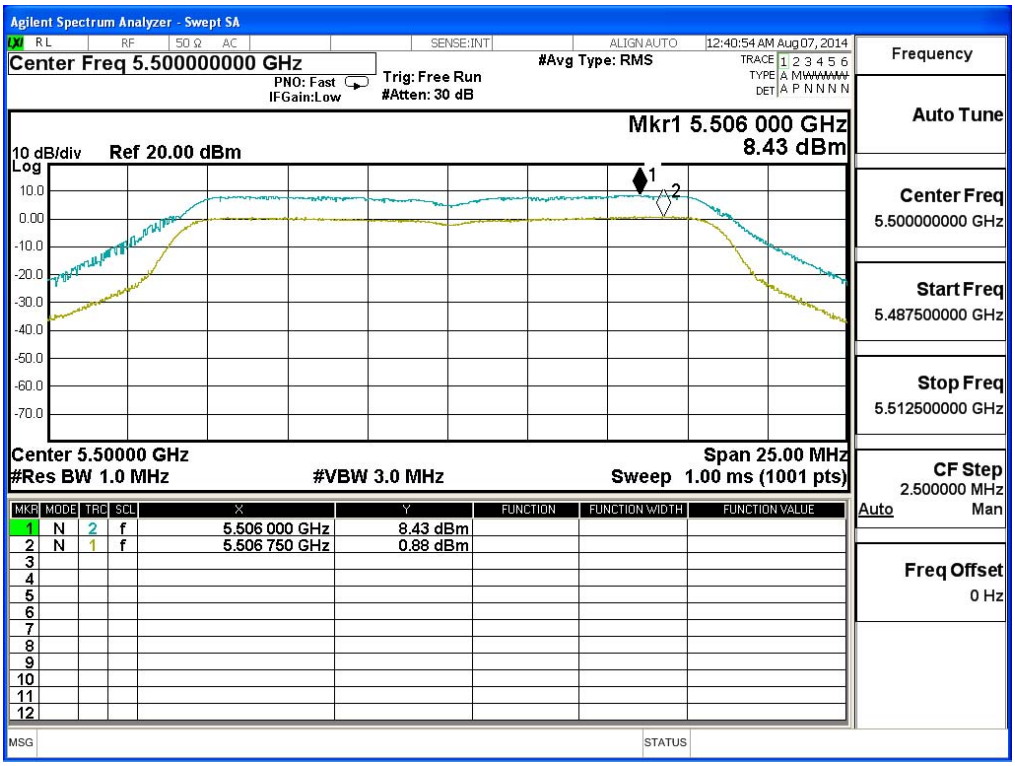
± 1.27 dB

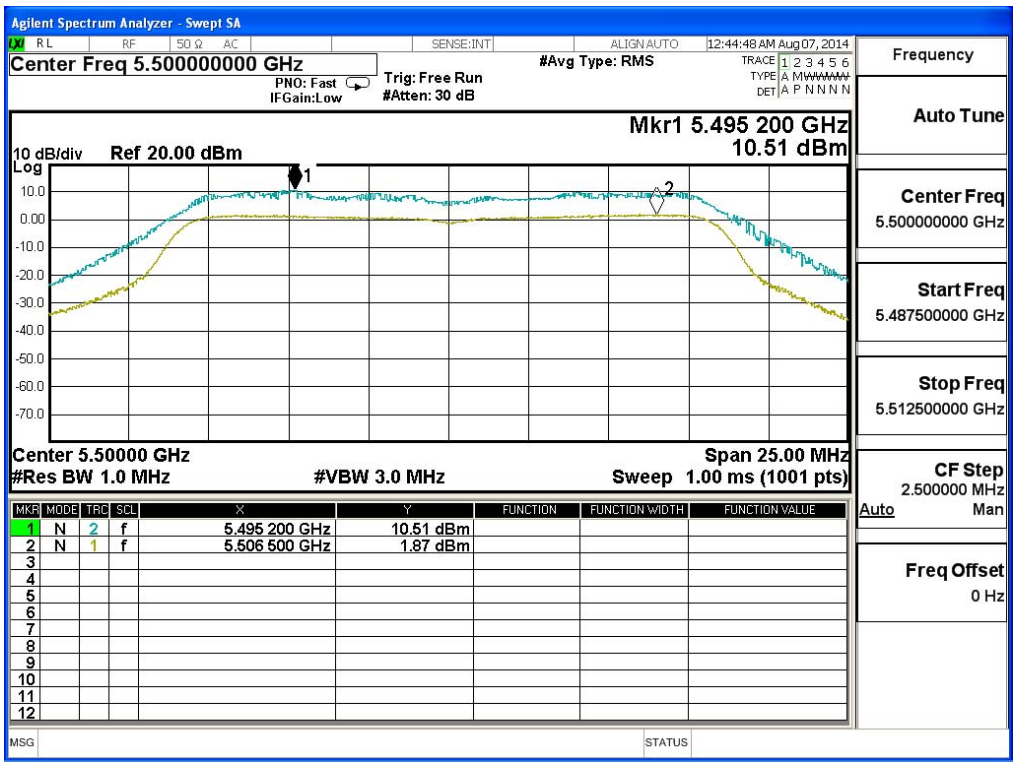
Test Result of Peak Excursion

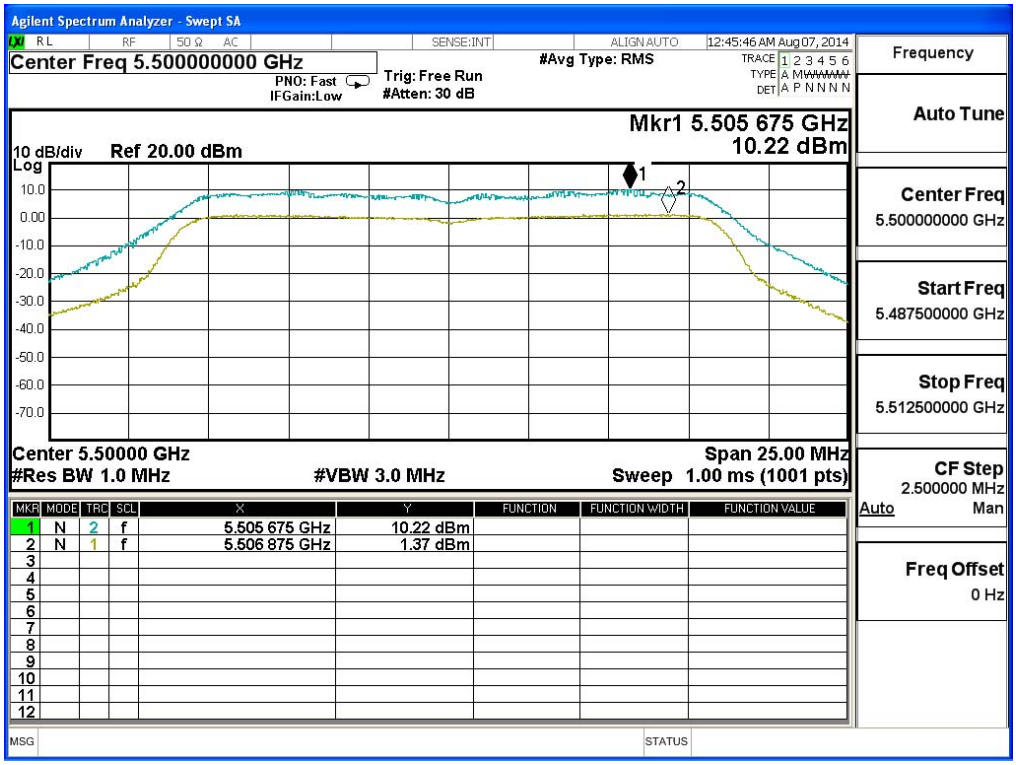
Product : 802.11A/B/G/N/AC 1T1R WLAN USB Dongle
Test Item : Peak Excursion
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dB)	Required Limit (dB)	Result
100	5500	6	7.660	<13	Pass
		12	8.640	<13	Pass
		24	8.850	<13	Pass
		54	8.530	<13	Pass

Channel 100:




Agilent Spectrum Analyzer - Swept SA
Center Freq 5.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
12:44:48 AM Aug 07, 2014
Mkr1 5.495 200 GHz
10.51 dBm
10 dB/div Ref 20.00 dBm
Center 5.50000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
1 N 2 f 5.495 200 GHz 10.51 dBm
2 N 1 f 5.506 500 GHz 1.87 dBm
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


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
12:45:46 AM Aug 07, 2014
Mkr1 5.505 675 GHz
10.22 dBm
10 dB/div Ref 20.00 dBm
Center 5.50000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 25.00 MHz
Sweep 1.00 ms (1001 pts)
1 N 2 f 5.505 675 GHz 10.22 dBm
2 N 1 f 5.506 875 GHz 1.37 dBm
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