

Product : MOXA IEEE 802.11 a/b/g/n PCI-e
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)

CHAIN A

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.05	--	--	--	--	--	--	--	<17dBm
46	5230	9.7	9.62	9.58	9.54	9.47	9.44	9.37	9.28	<17dBm
54	5270	9.6	--	--	--	--	--	--	--	<17dBm
62	5310	9.5	9.48	9.42	9.38	9.34	9.31	9.25	9.22	<24dBm
102	5510	10.05	--	--	--	--	--	--	--	<24dBm
118	5590	10.5	10.44	10.4	10.37	10.31	10.25	10.21	10.17	<24dBm
134	5670	10.7	--	--	--	--	--	--	--	<24dBm

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

CHAIN B

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.54	--	--	--	--	--	--	--	<17dBm
46	5230	10.5	10.42	10.37	10.31	10.27	10.21	10.17	10.12	<17dBm
54	5270	10.6	--	--	--	--	--	--	--	<17dBm
62	5310	10.4	10.35	10.33	10.28	10.24	10.2	10.17	10.16	<24dBm
102	5510	10.45	--	--	--	--	--	--	--	<24dBm
118	5590	10.4	10.37	10.34	10.31	10.28	10.24	10.21	10.17	<24dBm
134	5670	9.8	--	--	--	--	--	--	--	<24dBm

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

Peak Transmit Power Measurement:

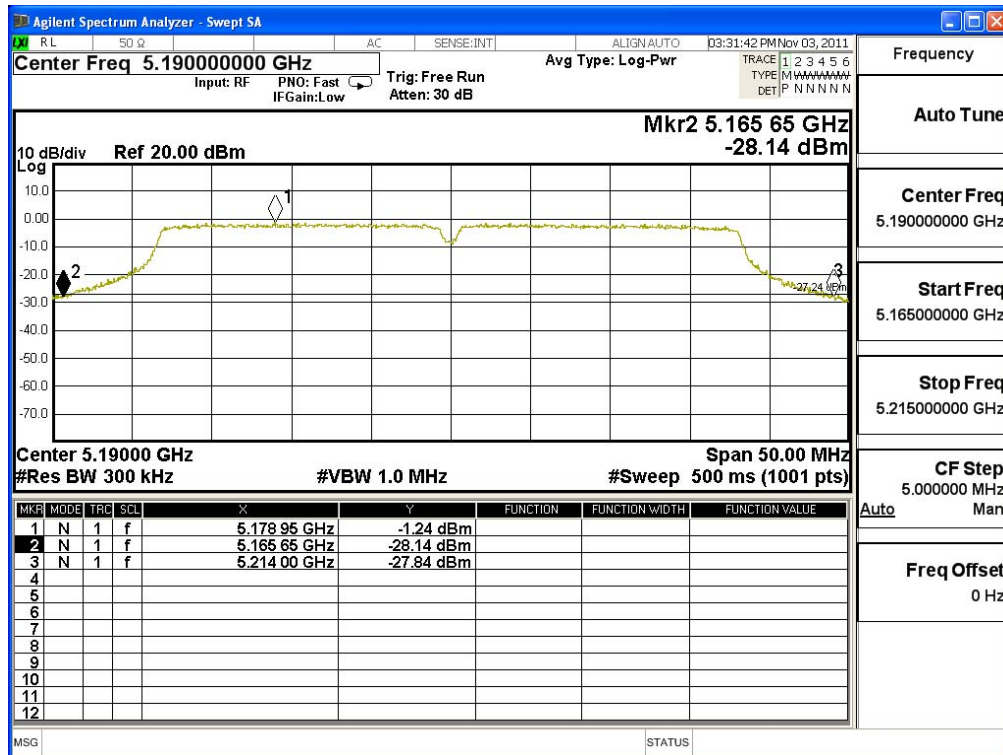
CHAIN A+B

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	48.350	10.05	10.54	13.31	17	20.84
46	5230	49.200	9.70	10.50	13.13	17	20.92
54	5270	48.450	9.60	10.60	13.14	24	27.85
62	5310	48.550	9.50	10.40	12.98	24	27.86
102	5510	48.400	10.05	10.45	13.26	24	27.85
118	5590	49.000	10.50	10.40	13.46	24	27.90
134	5670	48.300	10.70	9.80	13.28	24	27.84

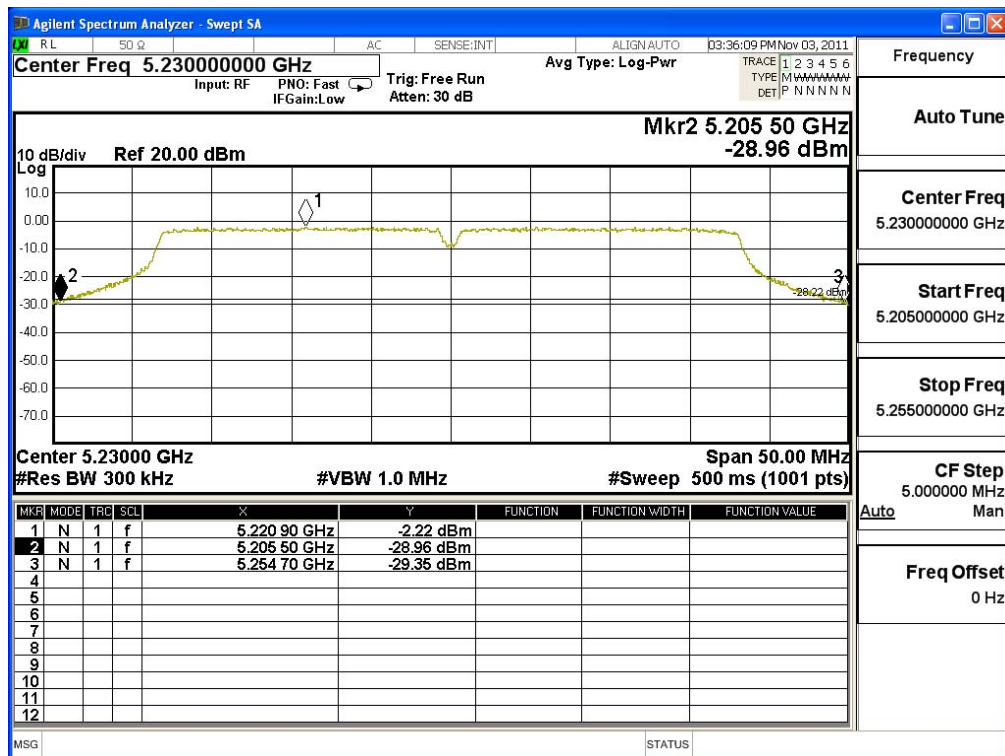
Note:

1. Power Output Value =Reading value on peak 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.

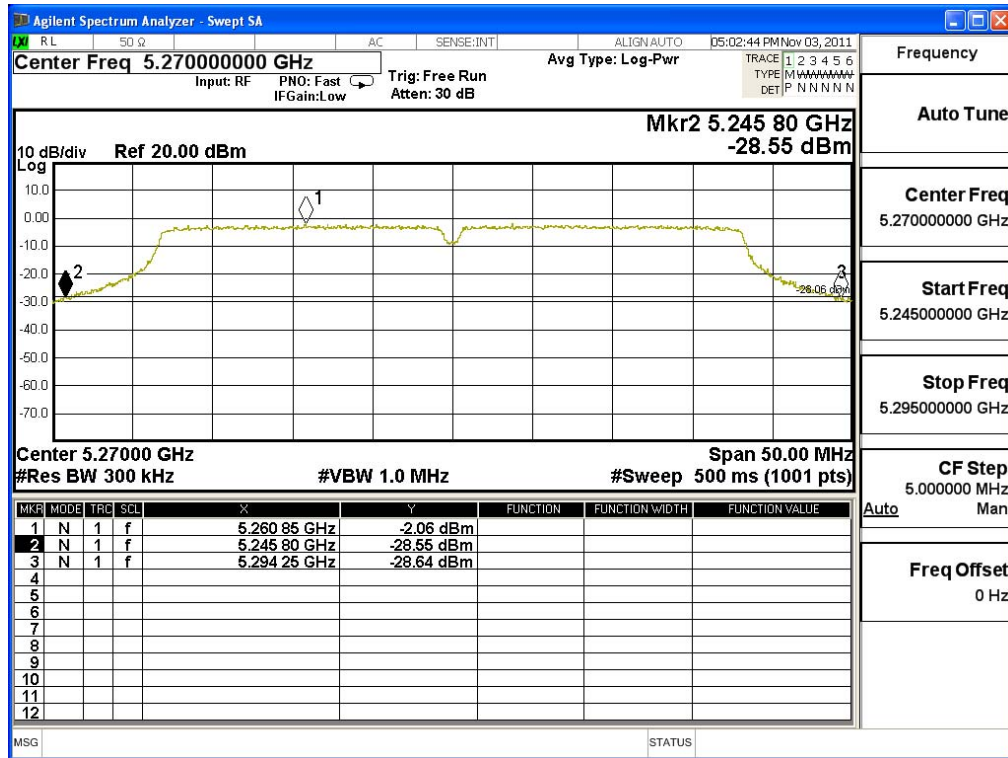
26dBc Occupied Bandwidth: Channel 38 – Chain A



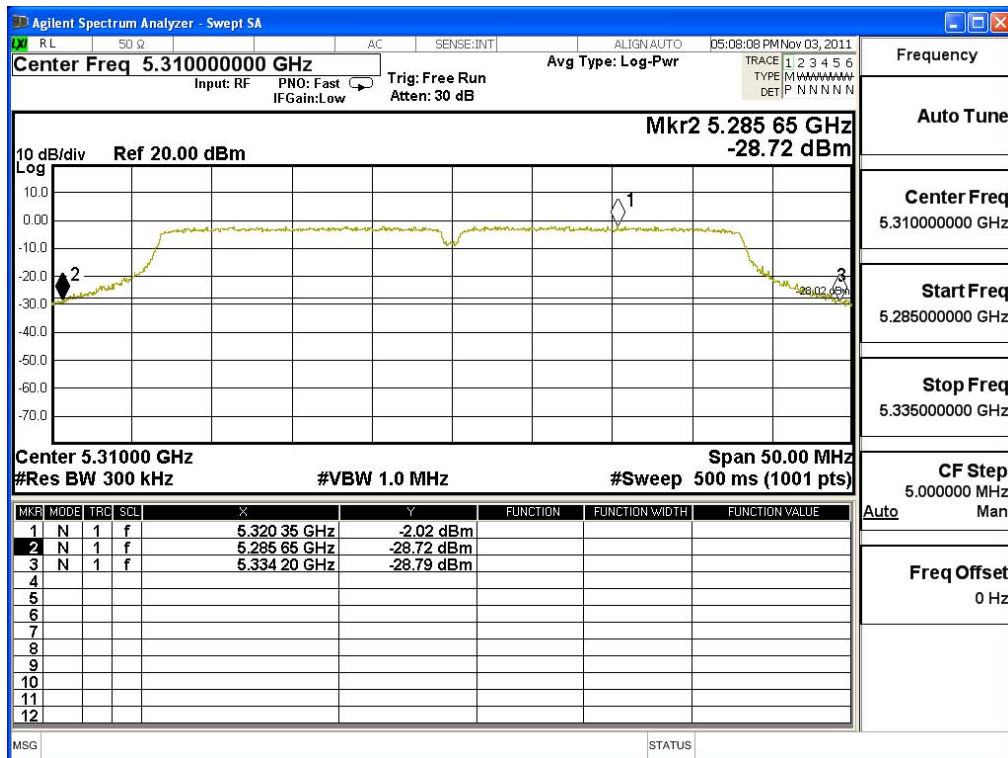
Channel 46 – Chain A



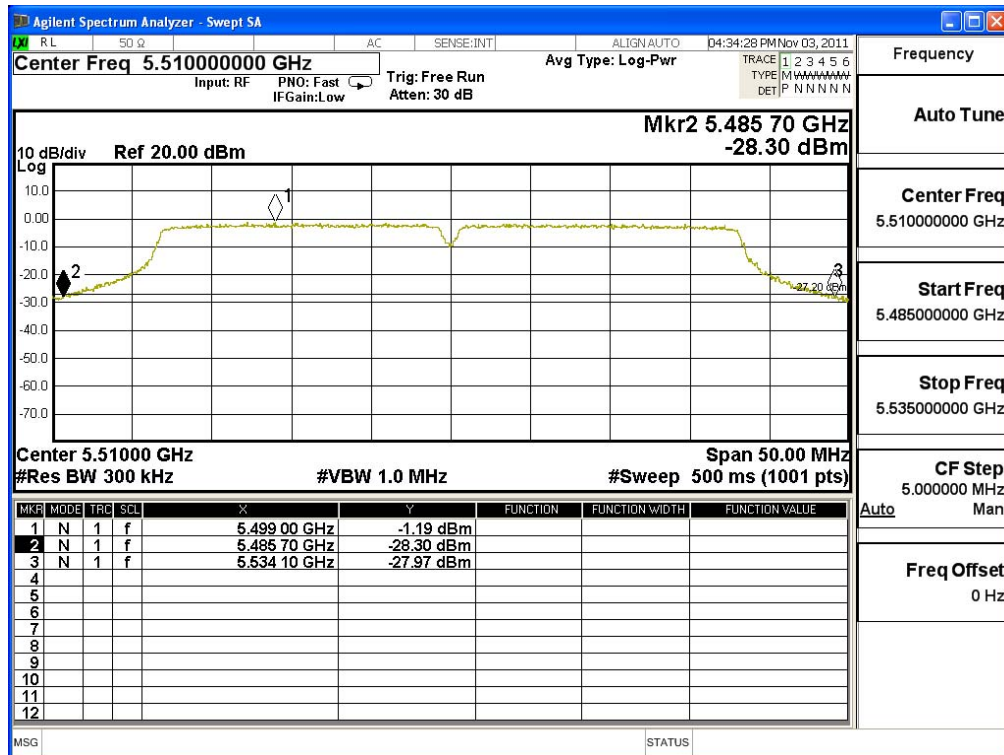
Channel 54 – Chain A



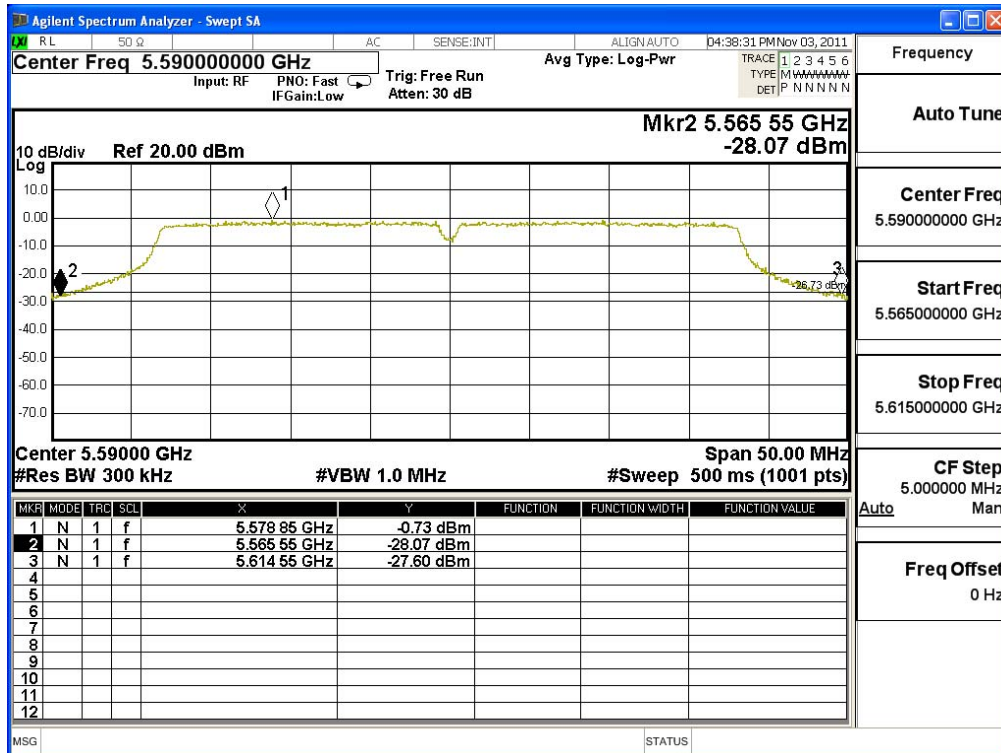
Channel 62 – Chain A



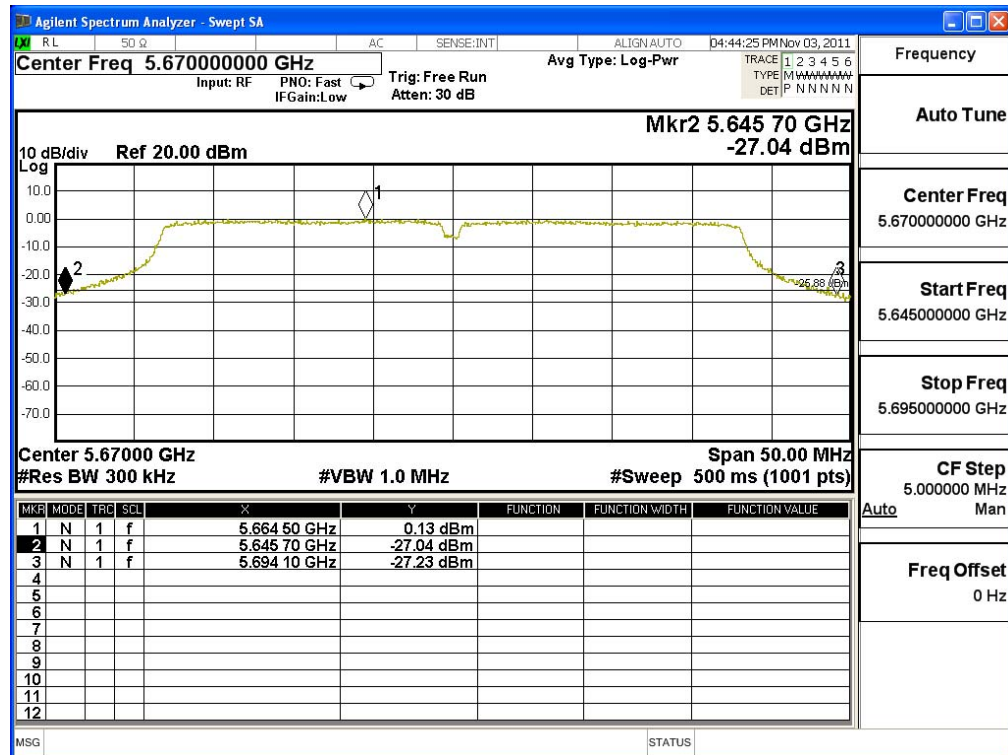
Channel 102 – Chain A



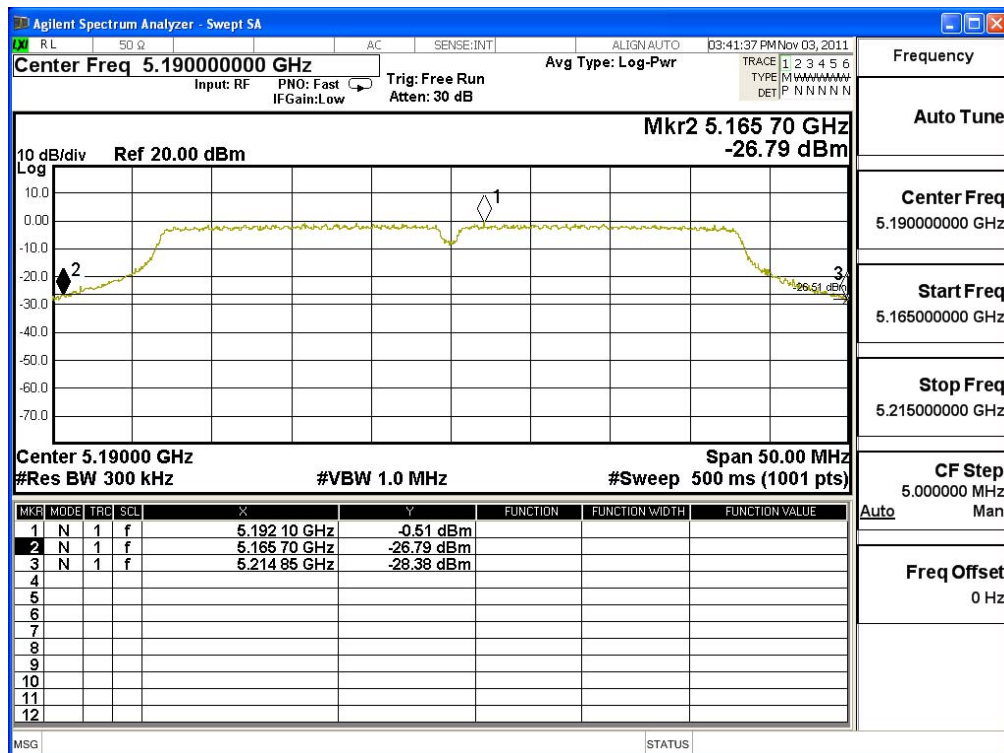
Channel 118 – Chain A



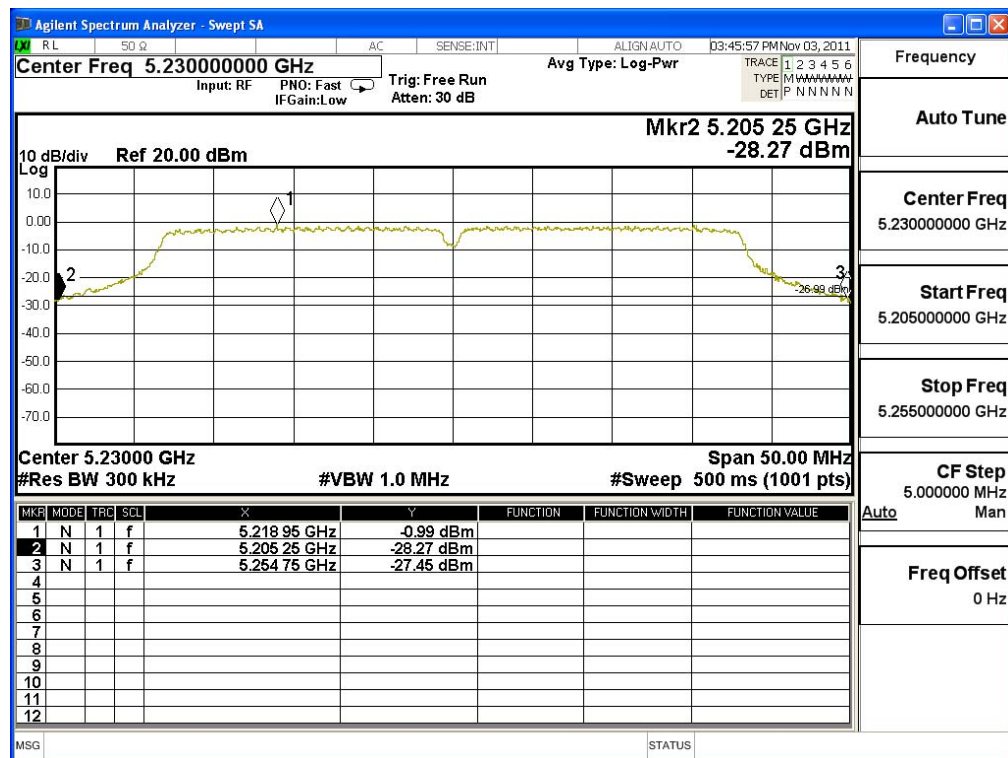
Channel 134 – Chain A



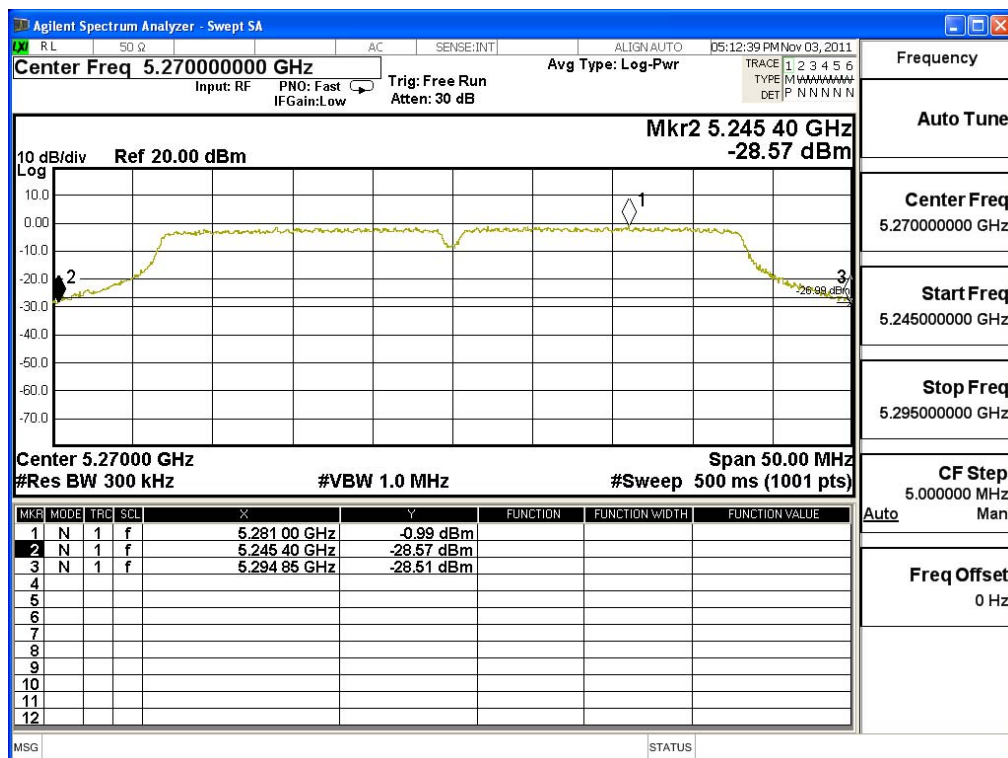
Channel 38 – Chain B



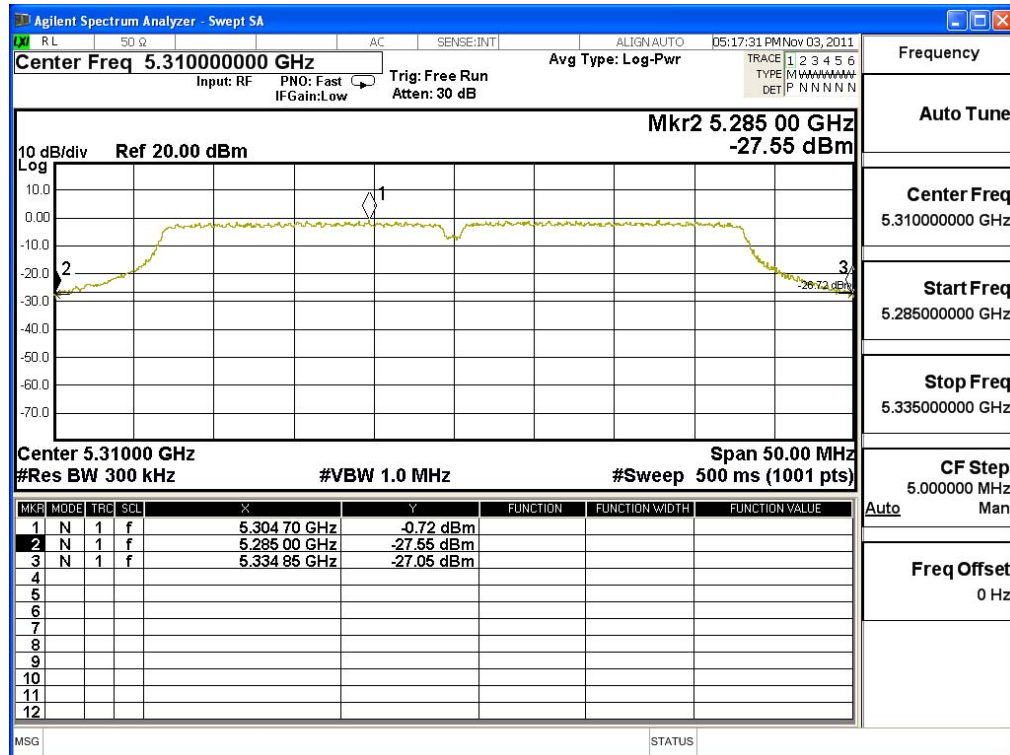
Channel 46 – Chain B



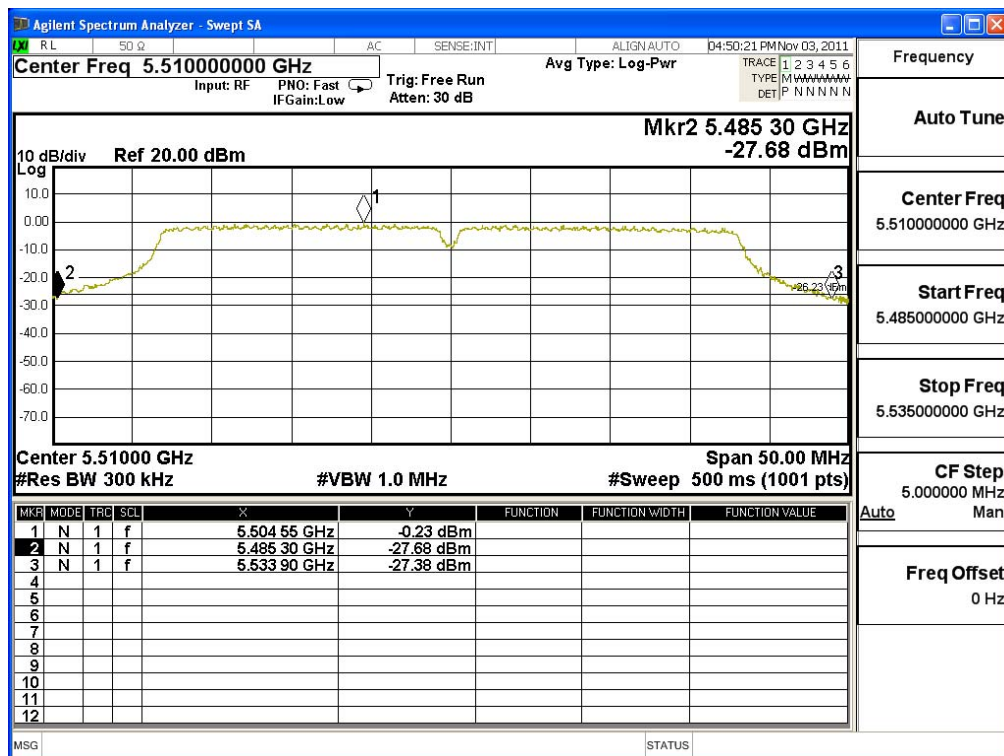
Channel 54 – Chain B



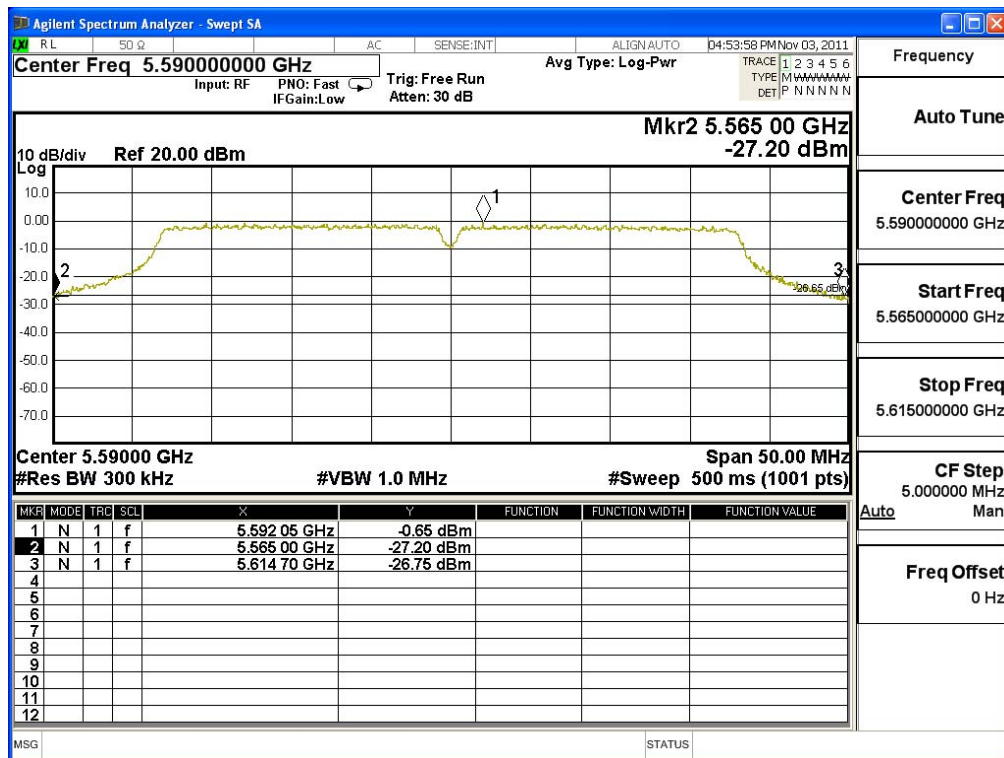
Channel 62 – Chain B



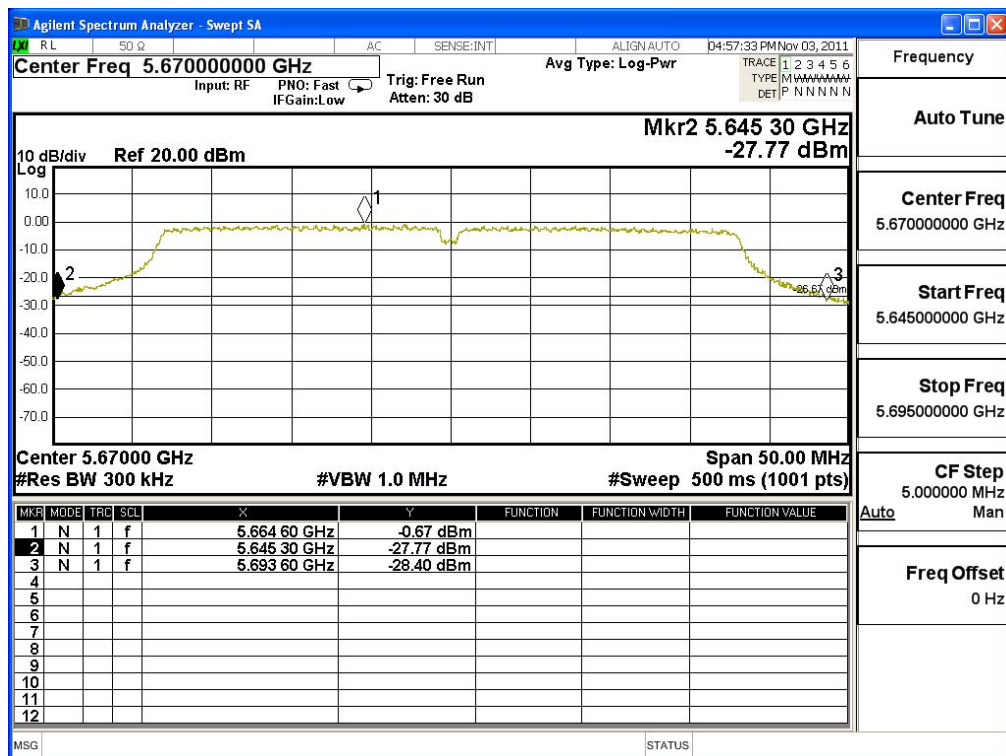
Channel 102 – Chain B



Channel 118 – Chain B



Channel 134 – Chain B



4. Peak Power Spectral Density

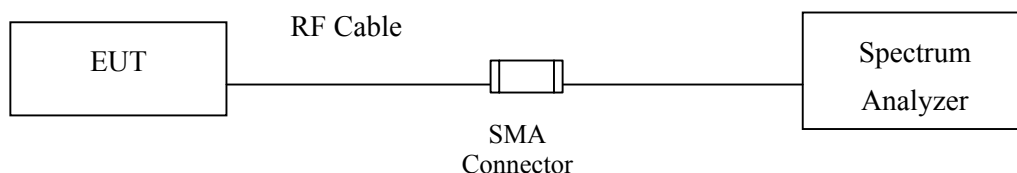
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2011

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 C63.4, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

4.5. Uncertainty

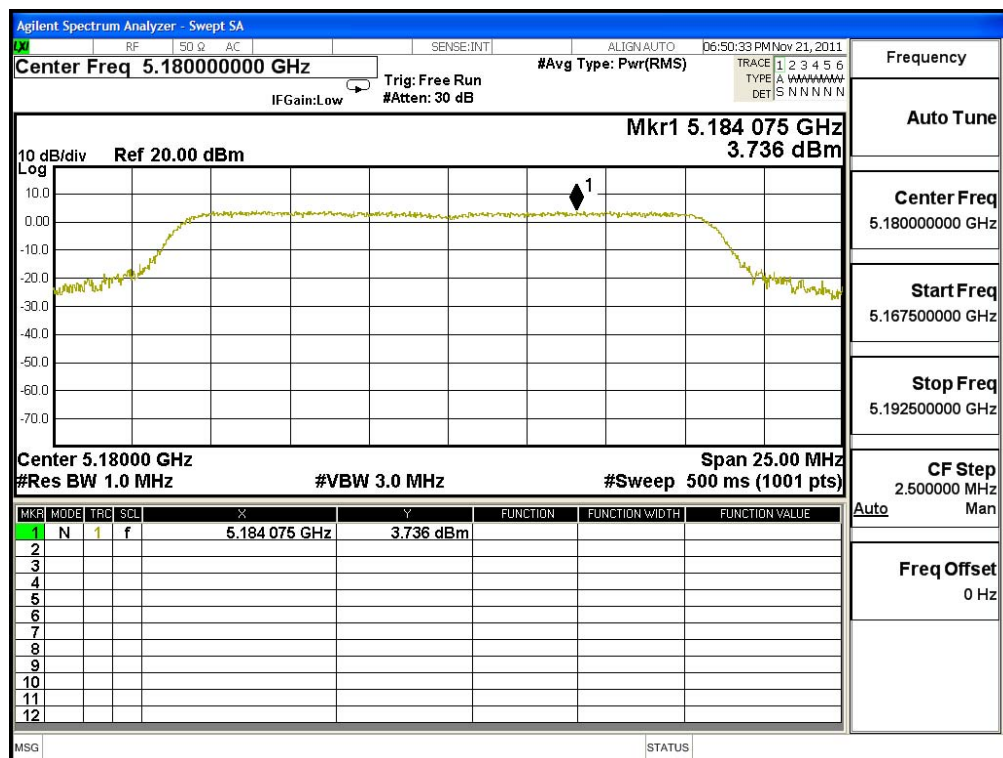
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

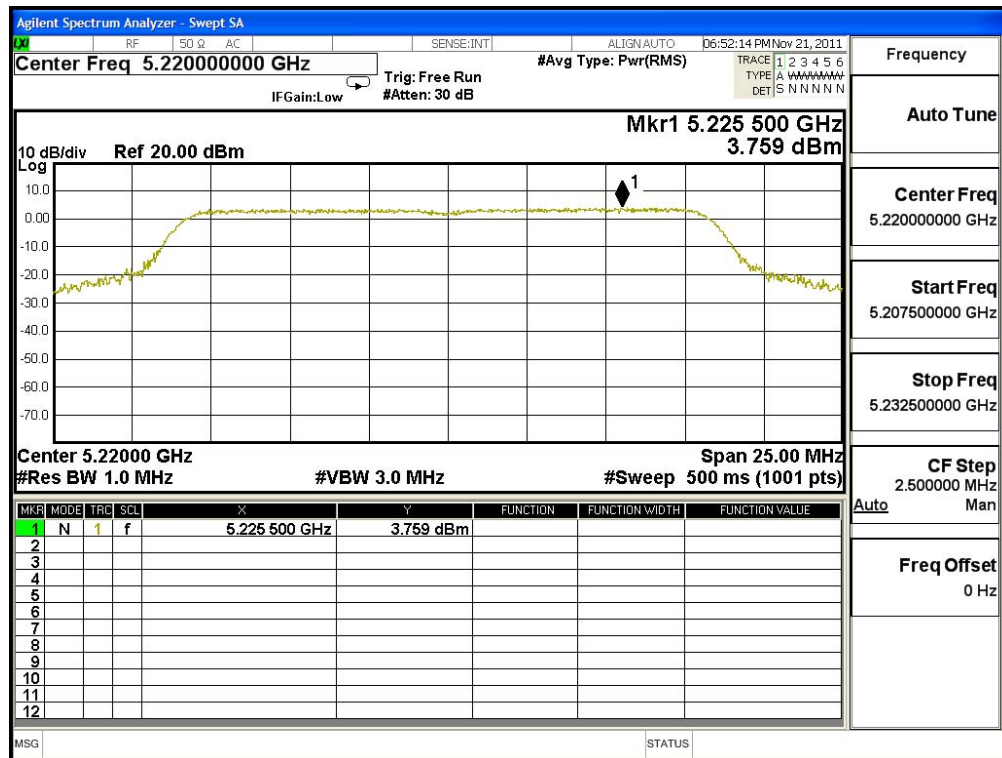
Product	:	MOXA IEEE 802.11 a/b/g/n PCI-e
Test Item	:	Peak Power Spectral Density
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	3.736	<4	Pass
44	5220	3.783	<4	Pass
48	5240	3.759	<4	Pass
52	5260	7.010	<11	Pass
60	5300	6.930	<11	Pass
64	5320	6.630	<11	Pass
100	5500	6.640	<11	Pass
120	5600	6.420	<11	Pass
140	5700	0.010	<11	Pass

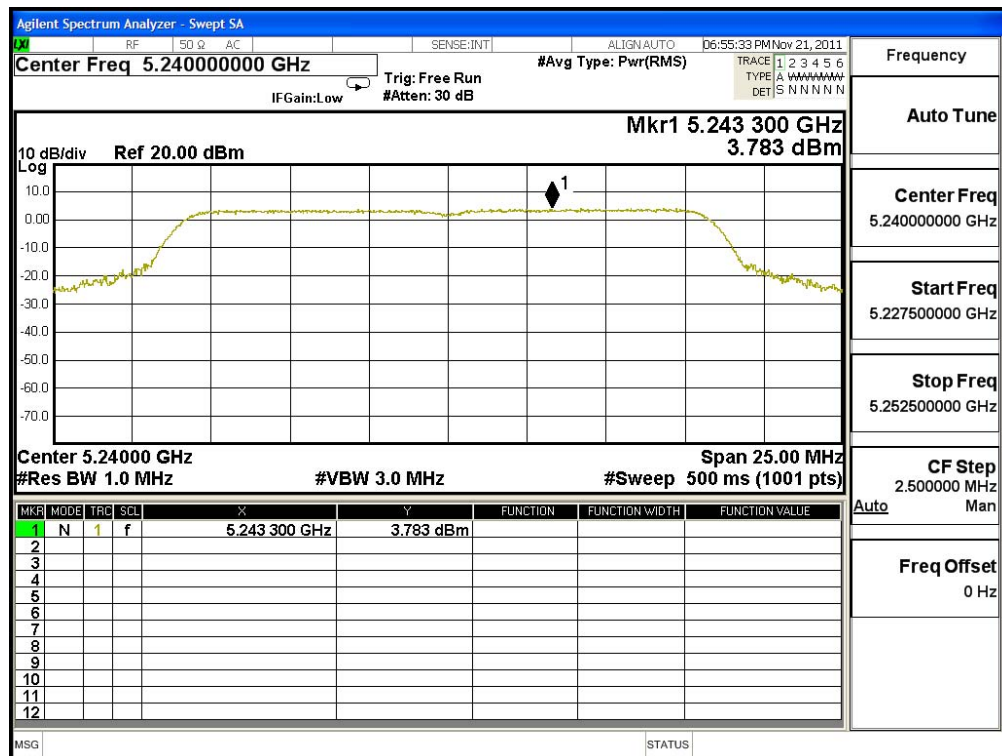
Channel 36:



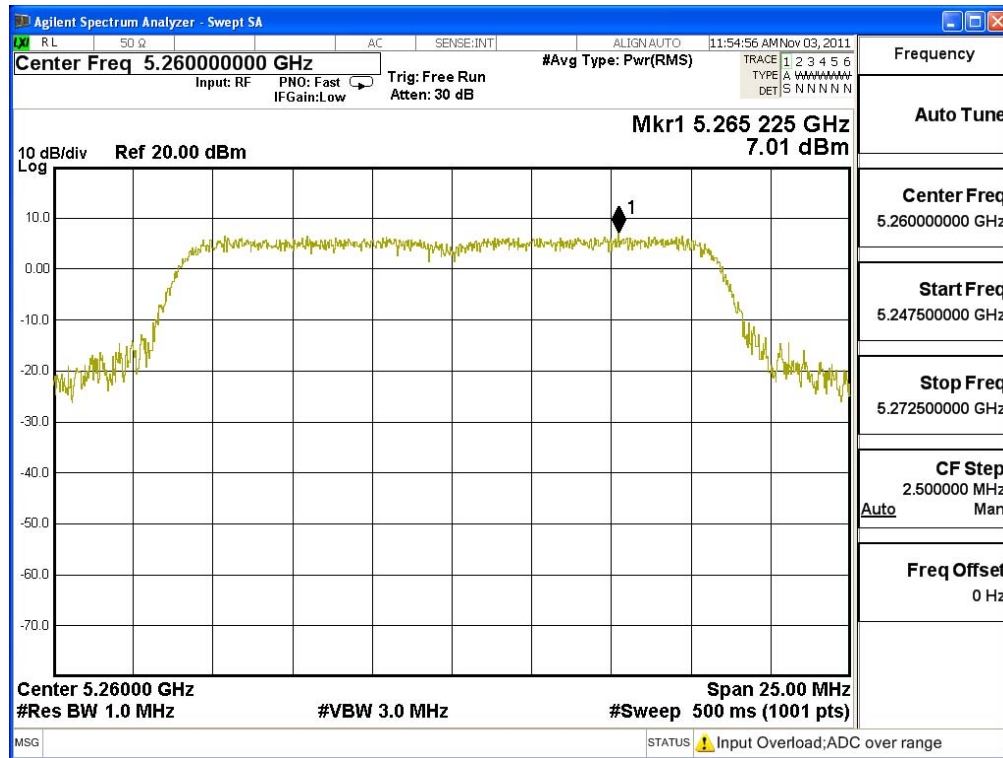
Channel 44:



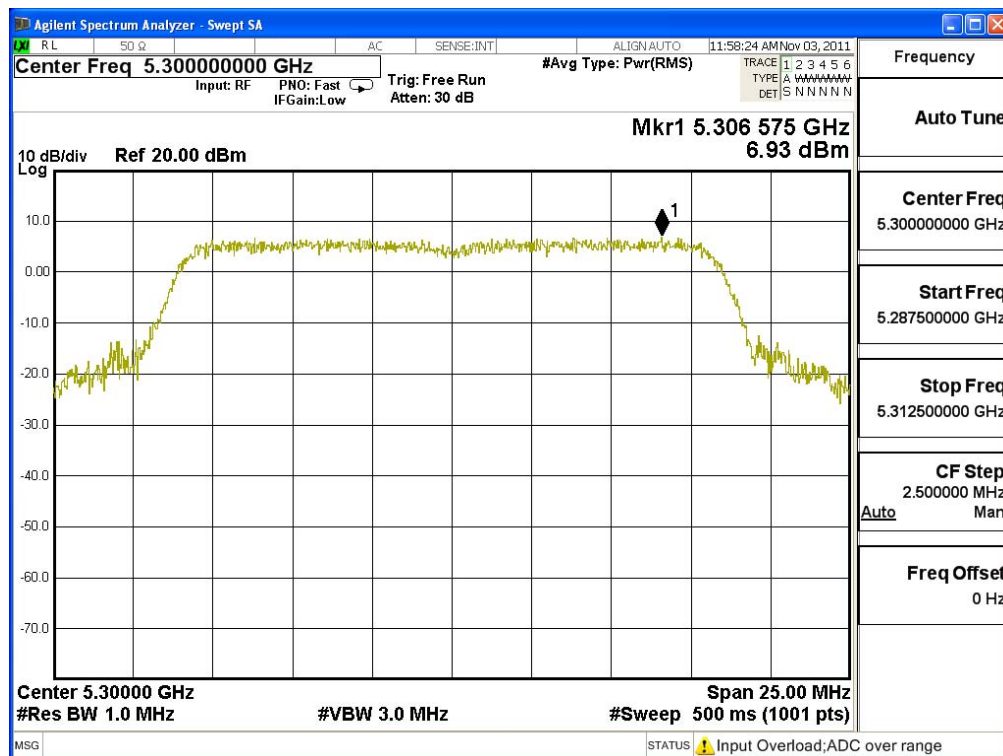
Channel 48:



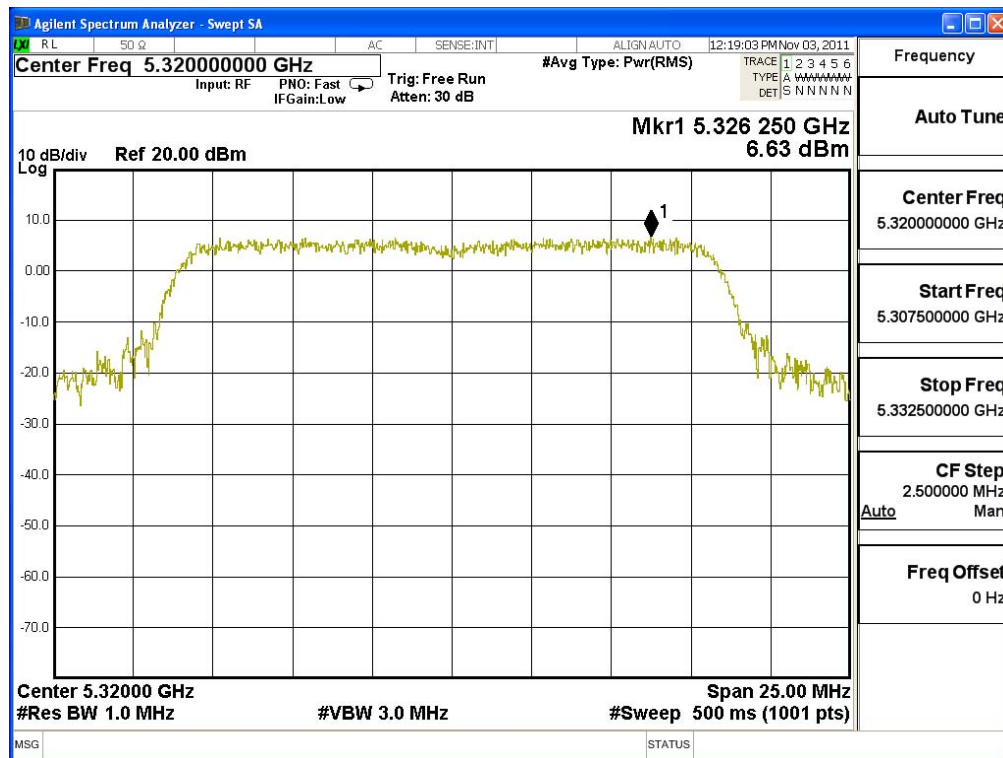
Channel 52:



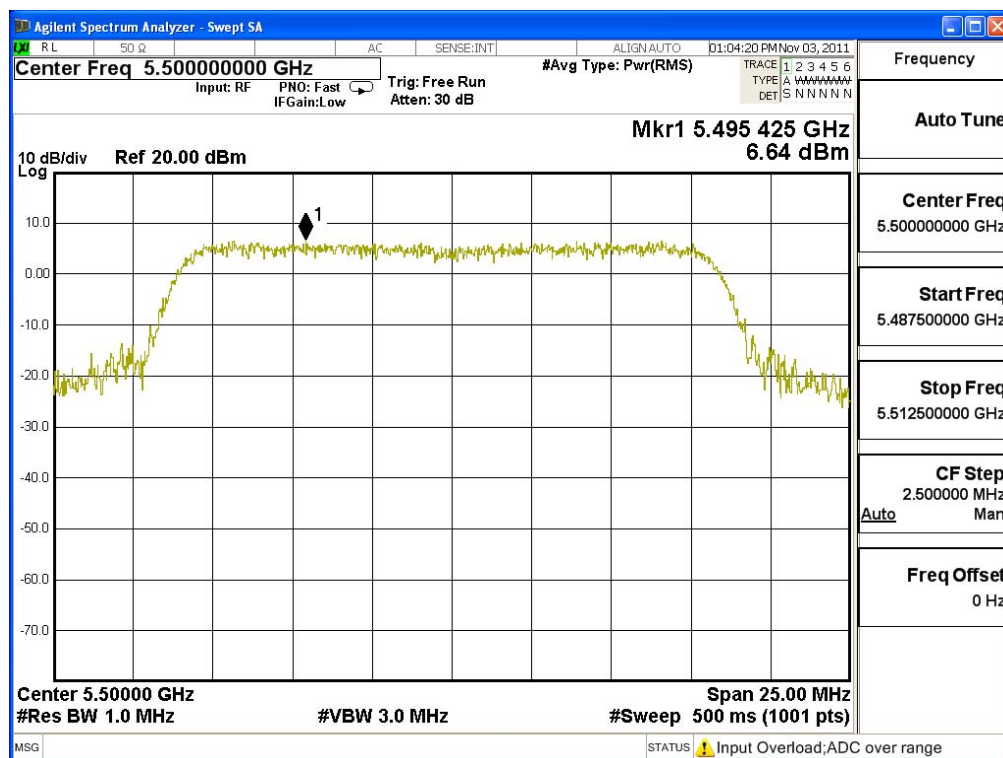
Channel 60:



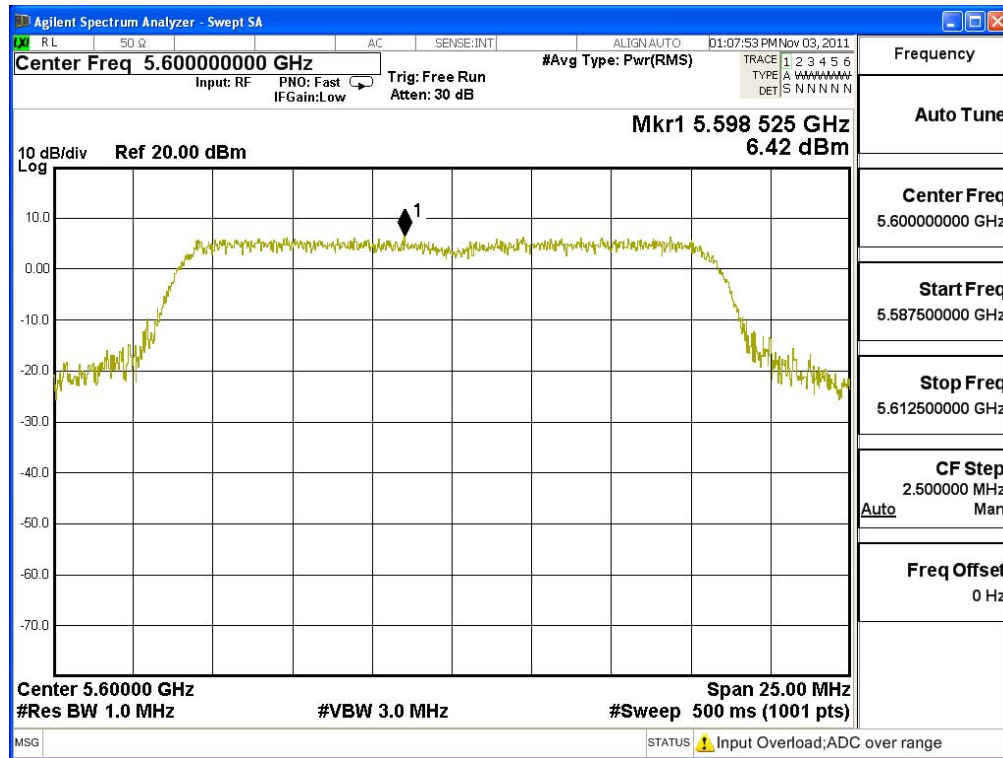
Channel 64:



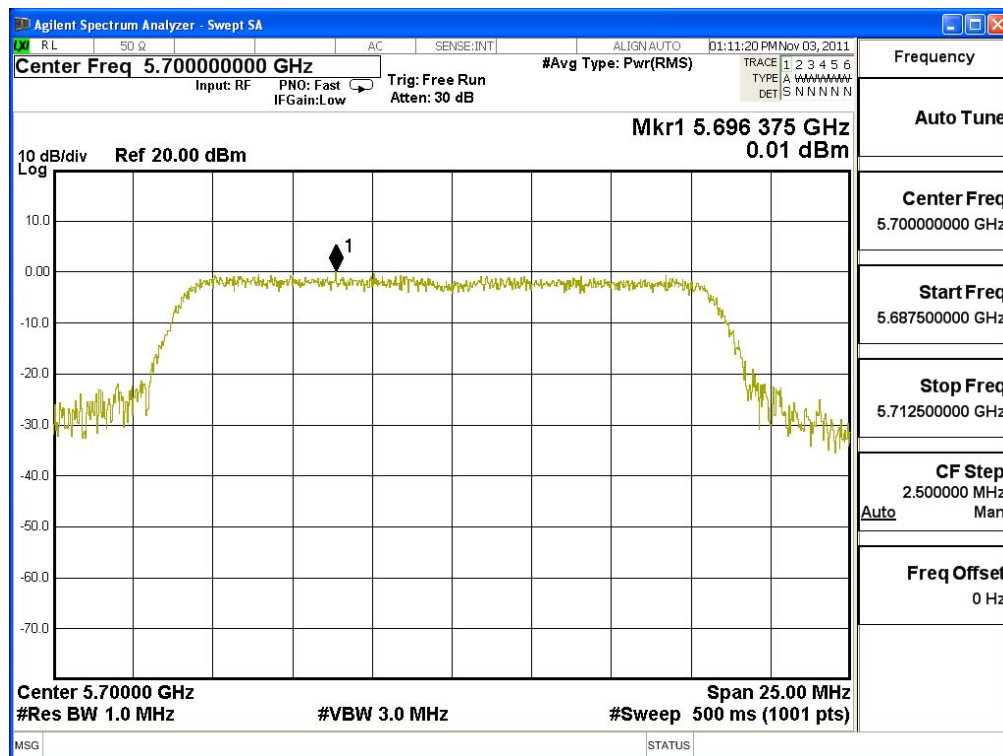
Channel 100:



Channel 120:



Channel 140:



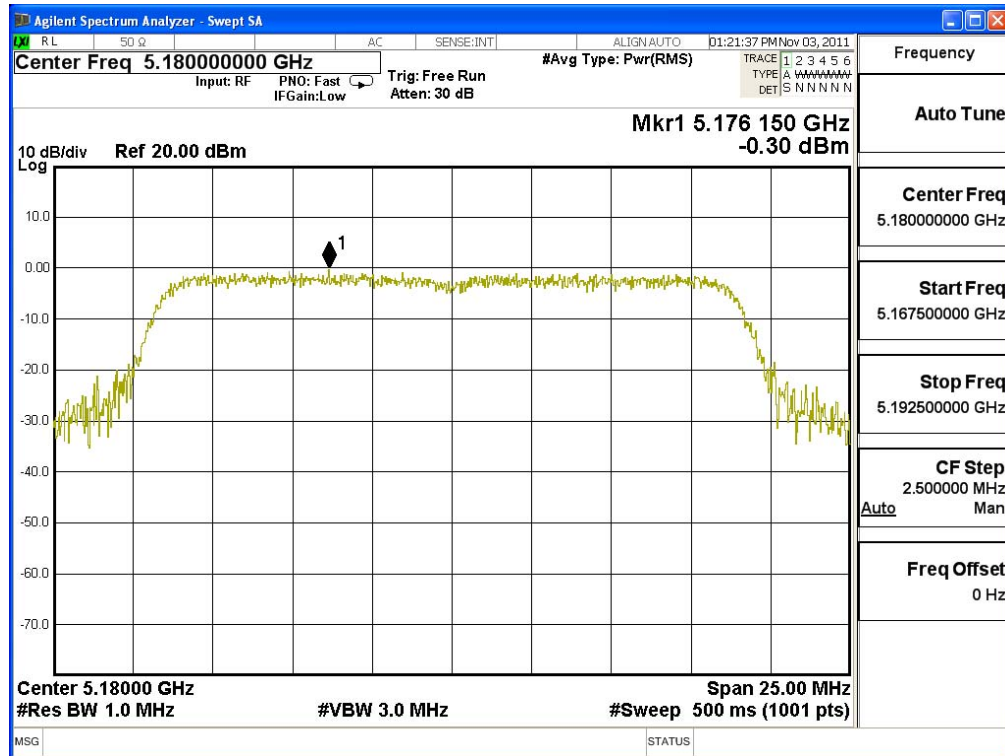
Product : MOXA IEEE 802.11 a/b/g/n PCI-e
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Required Limit (dBm)	Result
36	5180	-0.300	-1.010	2.370	<4	Pass
44	5220	-1.170	-0.380	2.253	<4	Pass
48	5240	-1.220	-0.410	2.214	<4	Pass
52	5260	-1.150	-0.810	2.034	<11	Pass
60	5300	-0.950	-0.220	2.441	<11	Pass
64	5320	-0.340	-0.330	2.675	<11	Pass
100	5500	-0.700	-0.030	2.658	<11	Pass
120	5600	0.190	0.140	3.175	<11	Pass
140	5700	0.330	-1.110	2.680	<11	Pass

Note:

1. Measurement Level (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))

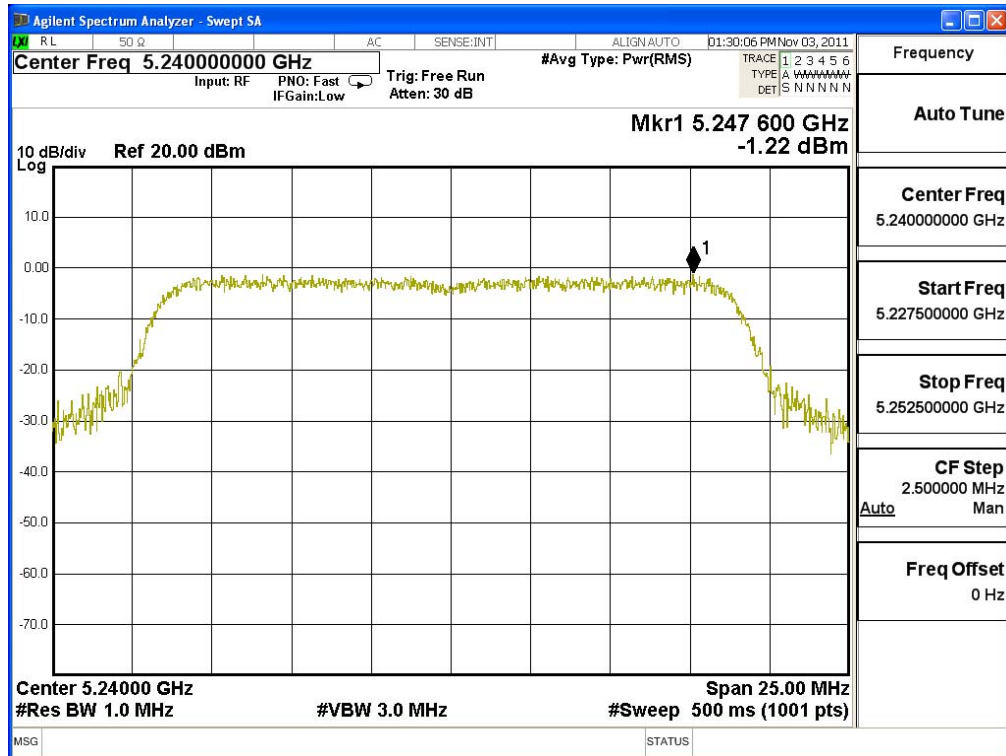
Channel 36 – Chain A



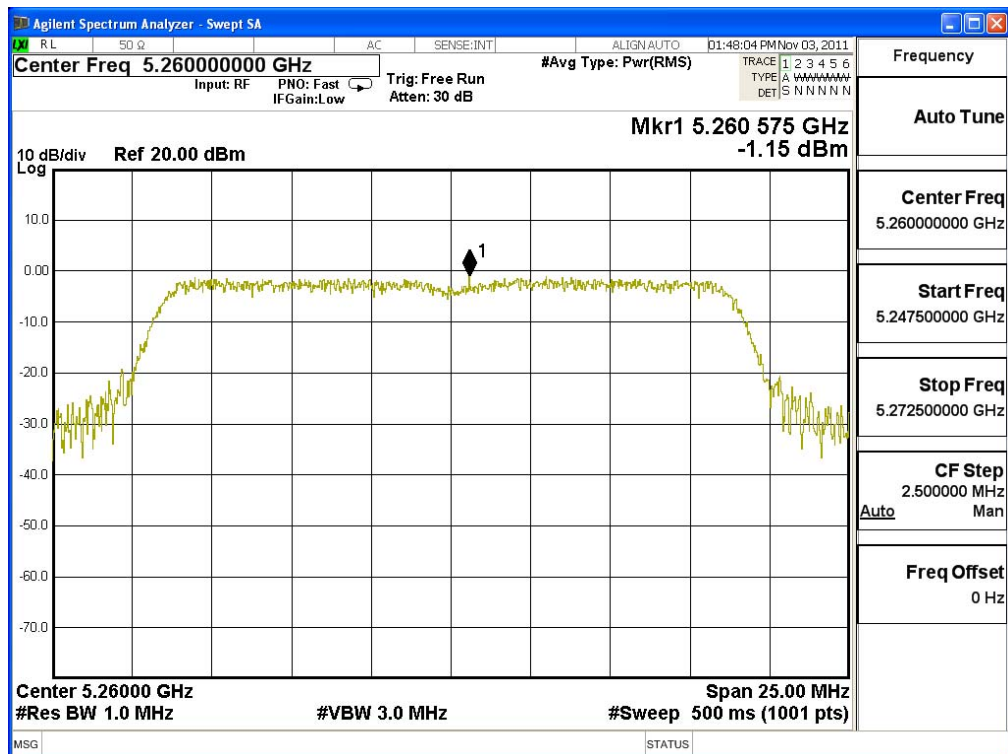
Channel 44 – Chain A



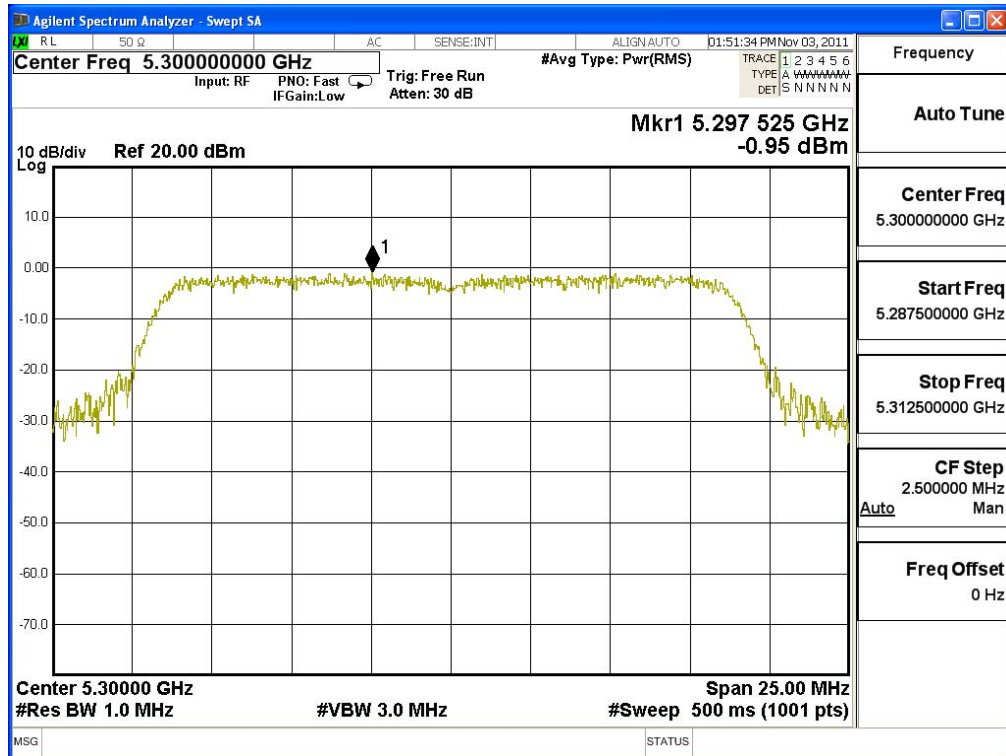
Channel 48 – Chain A



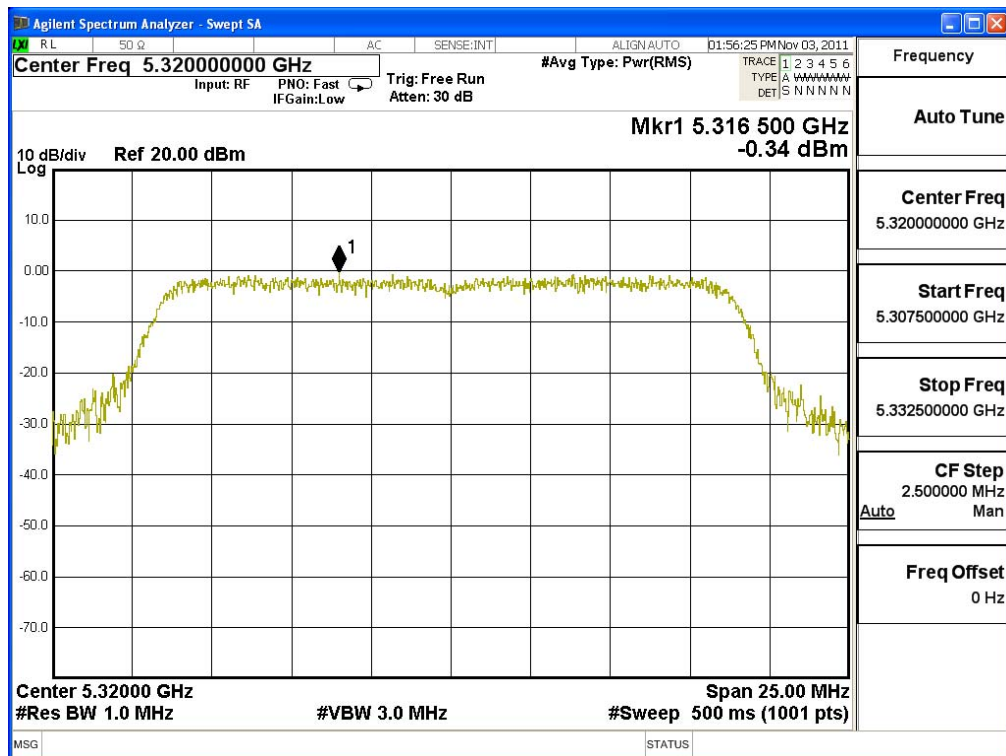
Channel 52 – Chain A



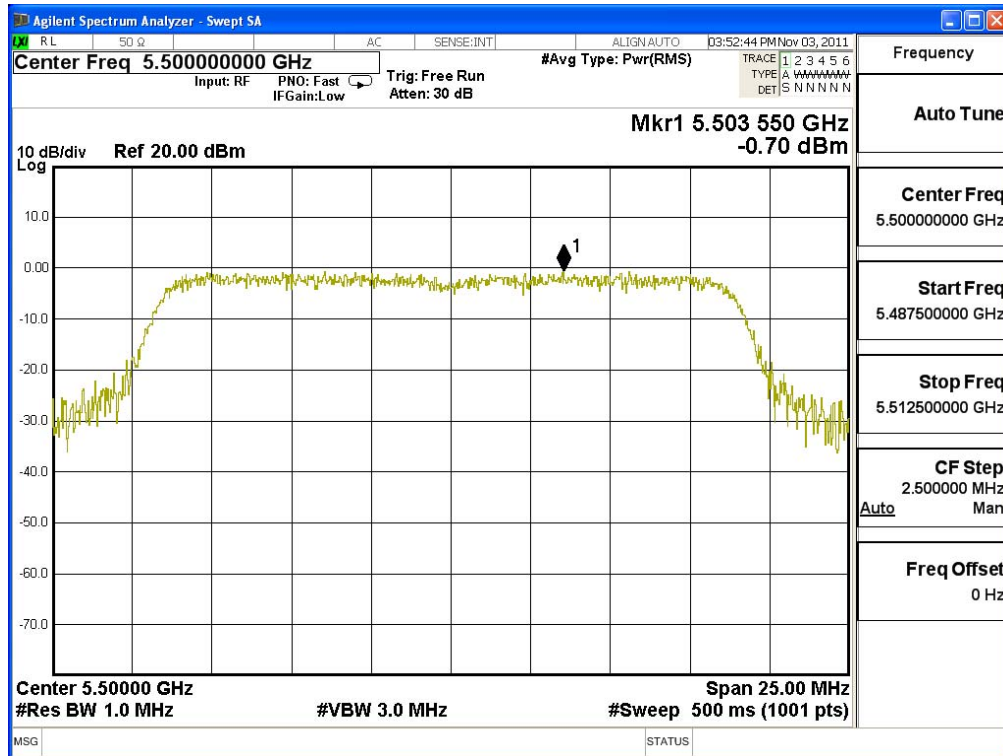
Channel 60 – Chain A



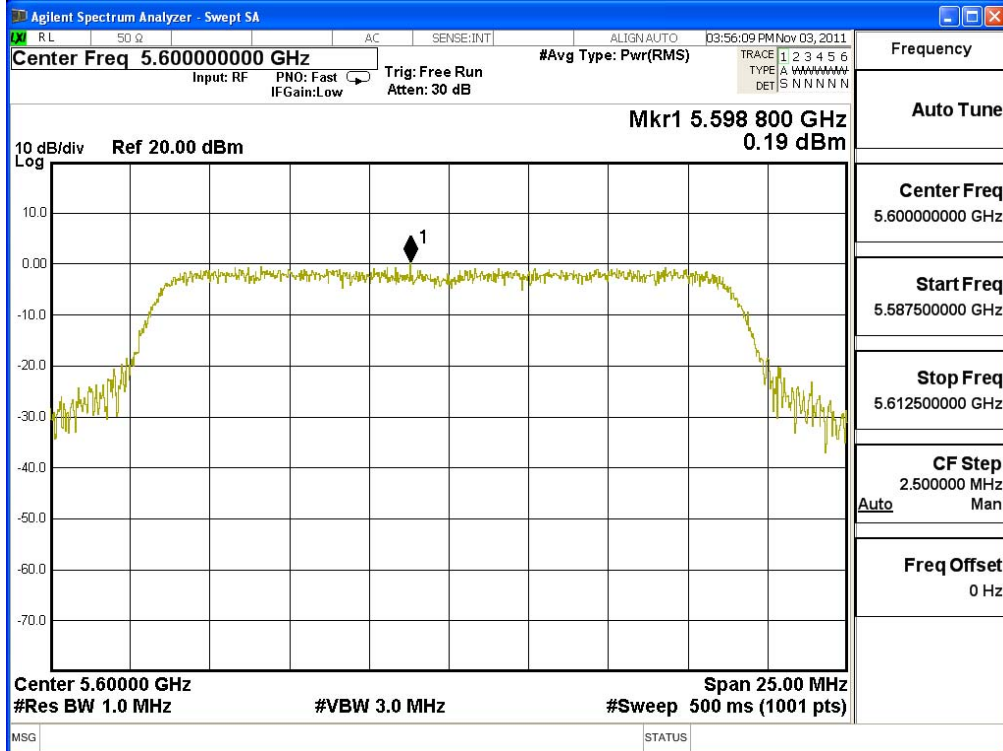
Channel 64 – Chain A



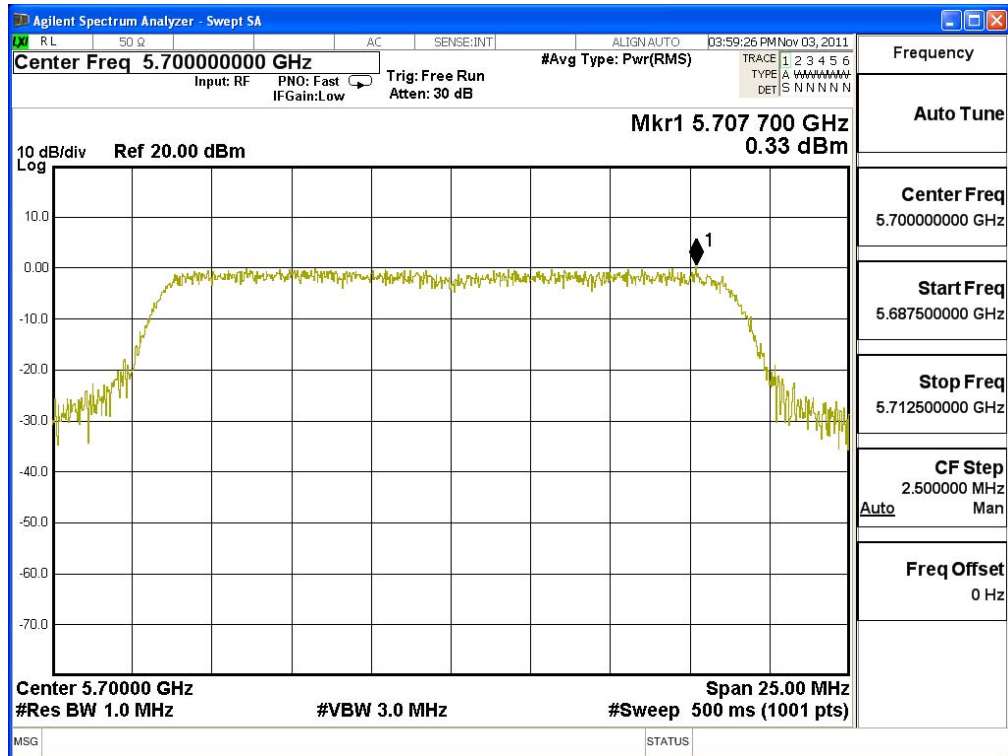
Channel 120 – Chain A



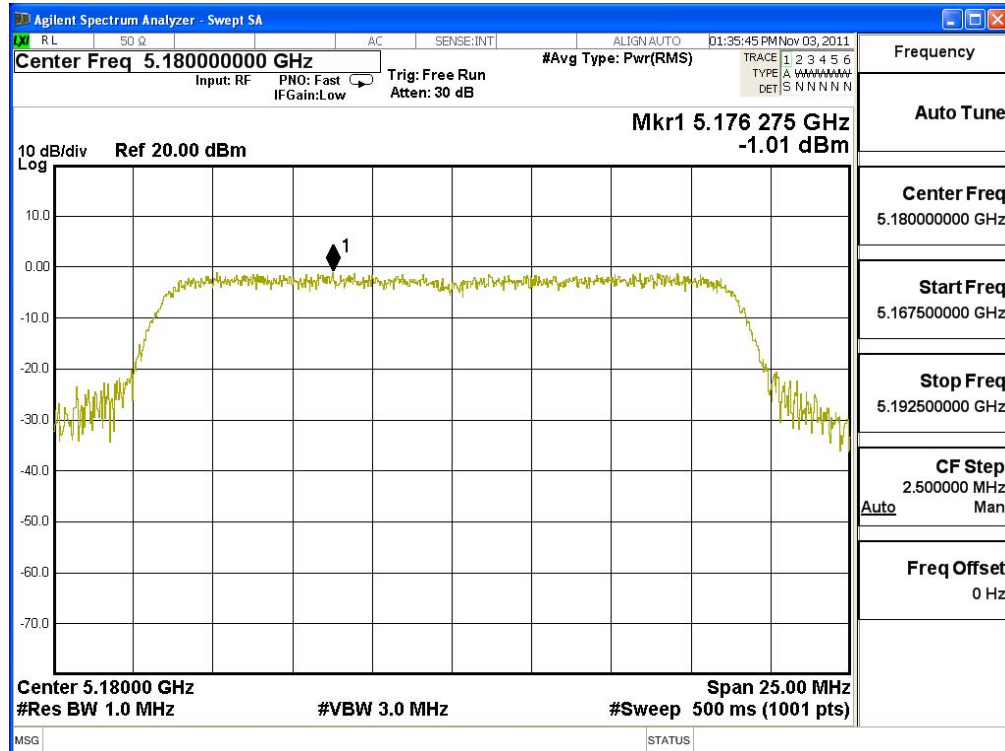
Channel 120 – Chain A



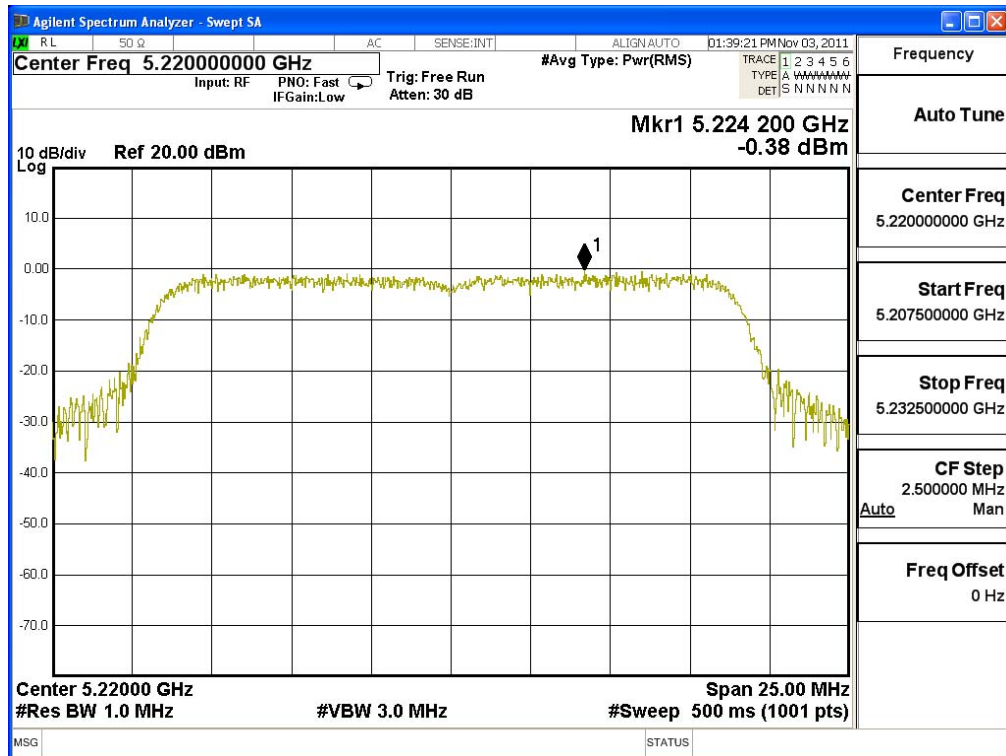
Channel 140 – Chain A



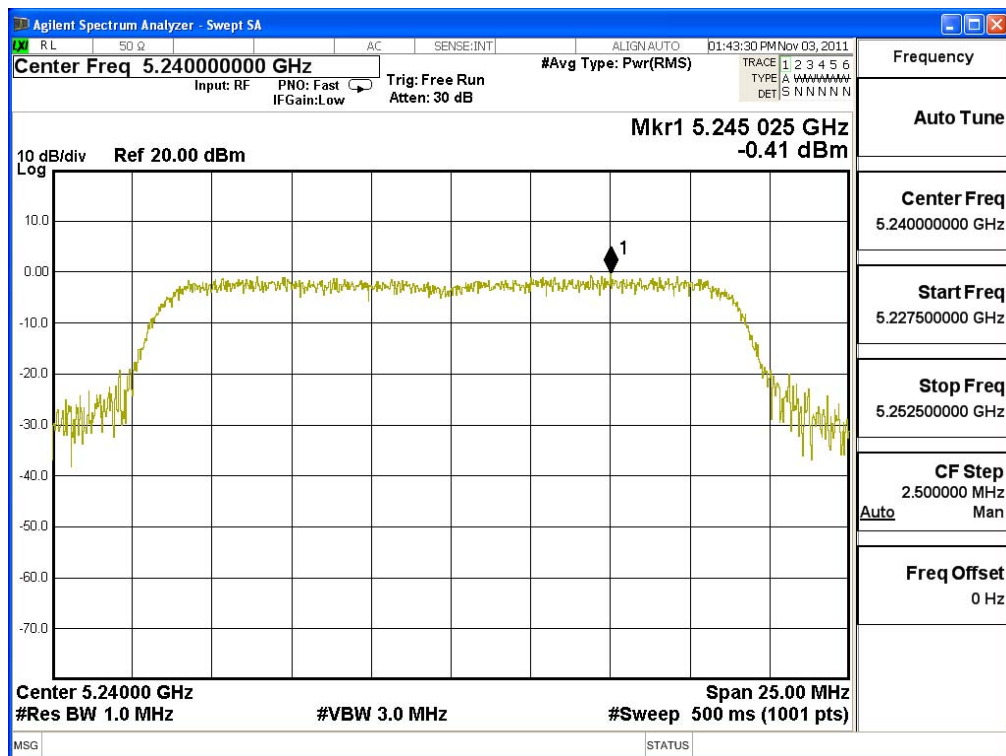
Channel 36 – Chain B



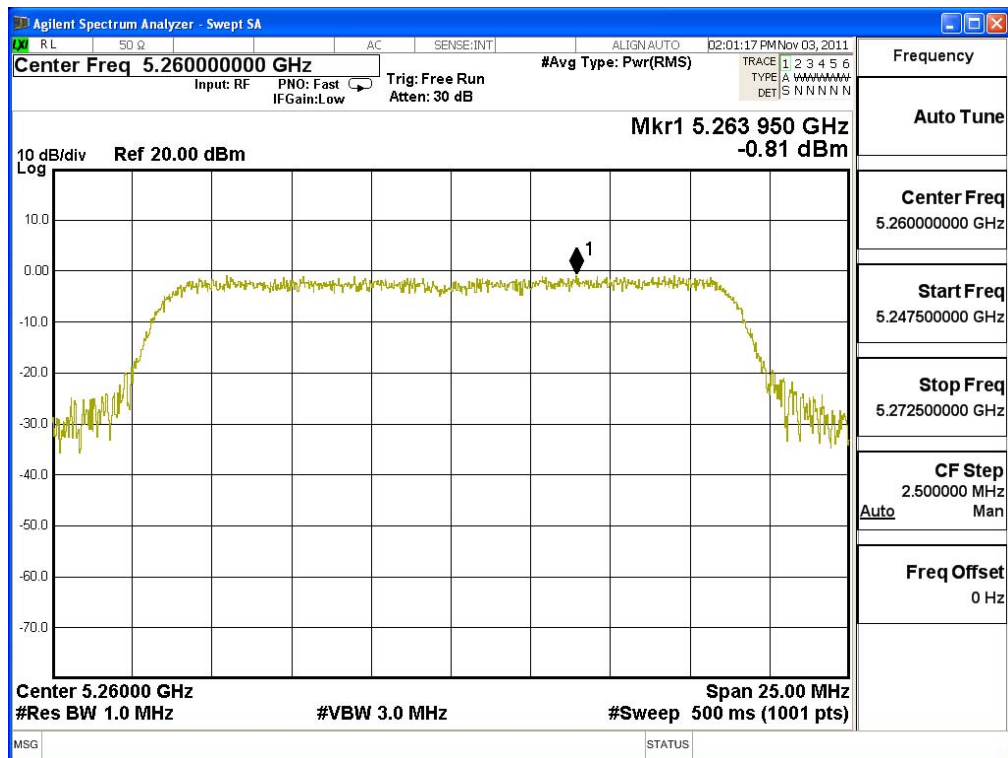
Channel 44 – Chain B



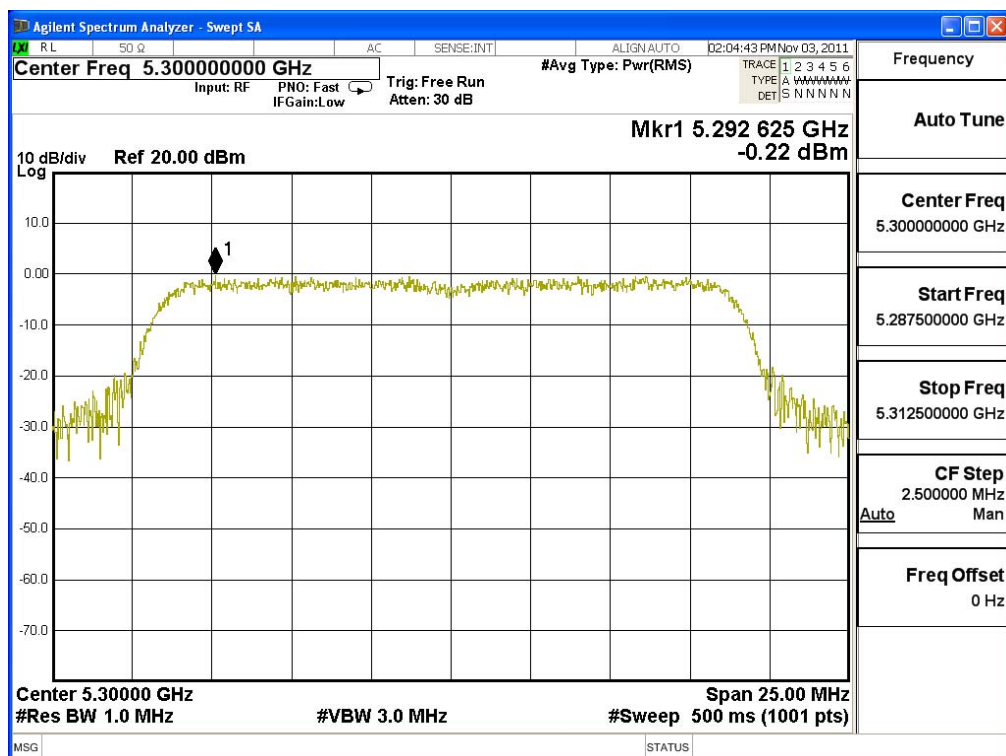
Channel 48 – Chain B



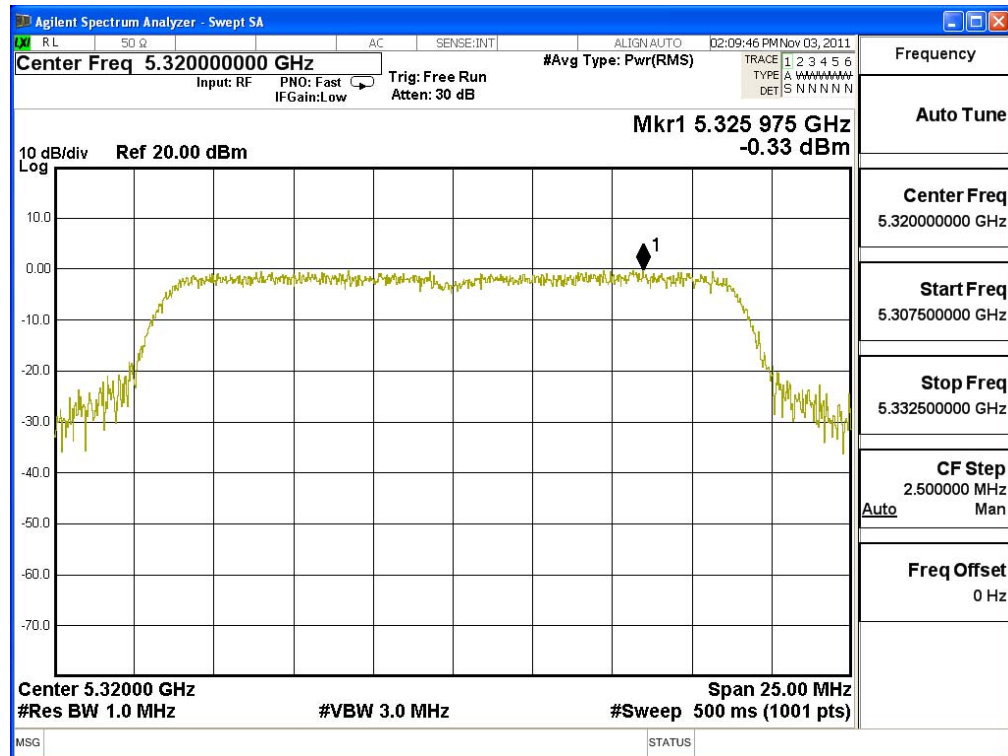
Channel 52 – Chain B



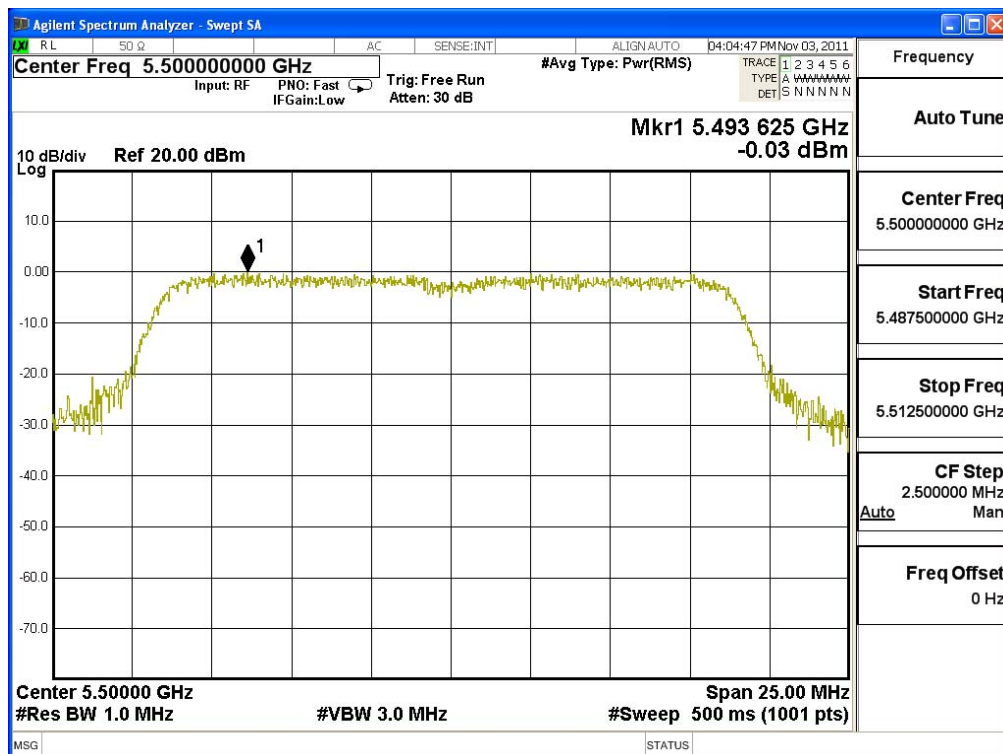
Channel 60 – Chain B



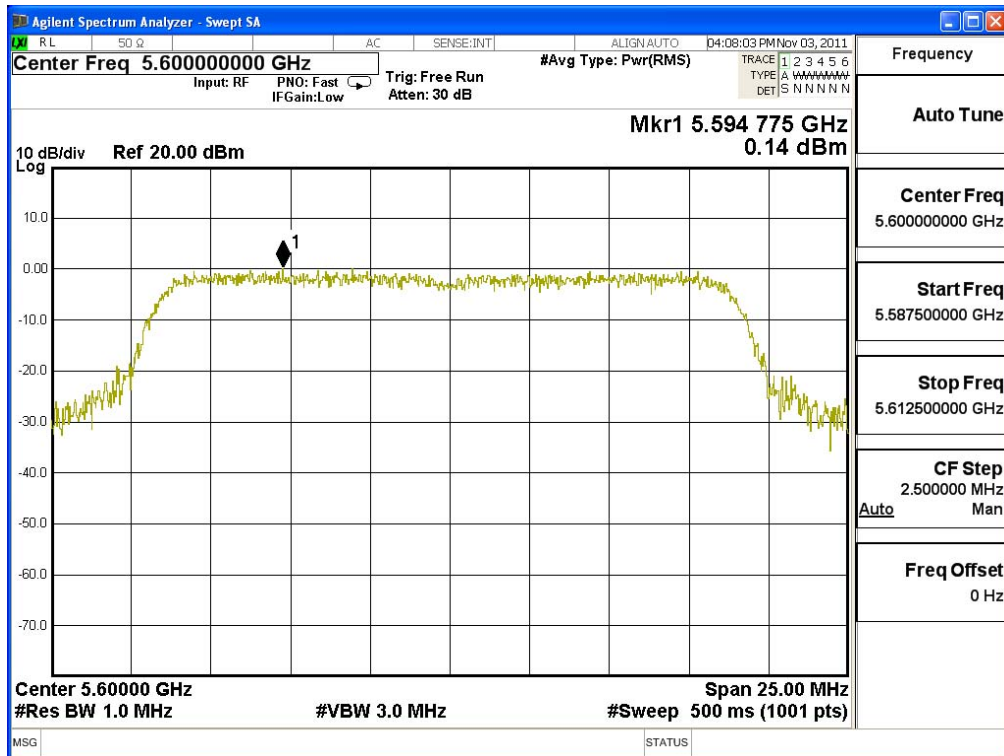
Channel 64 – Chain B



Channel 120 – Chain B



Channel 120 – Chain B



Channel 140 – Chain B

