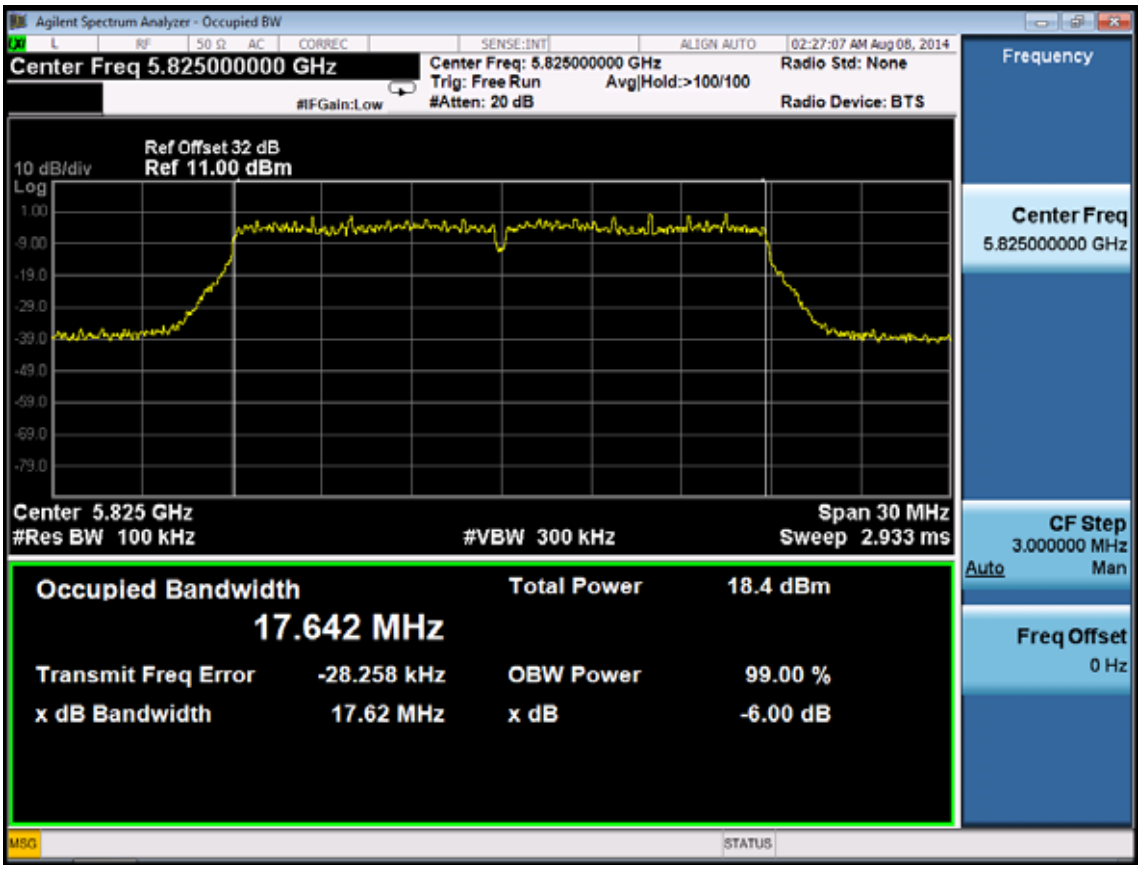
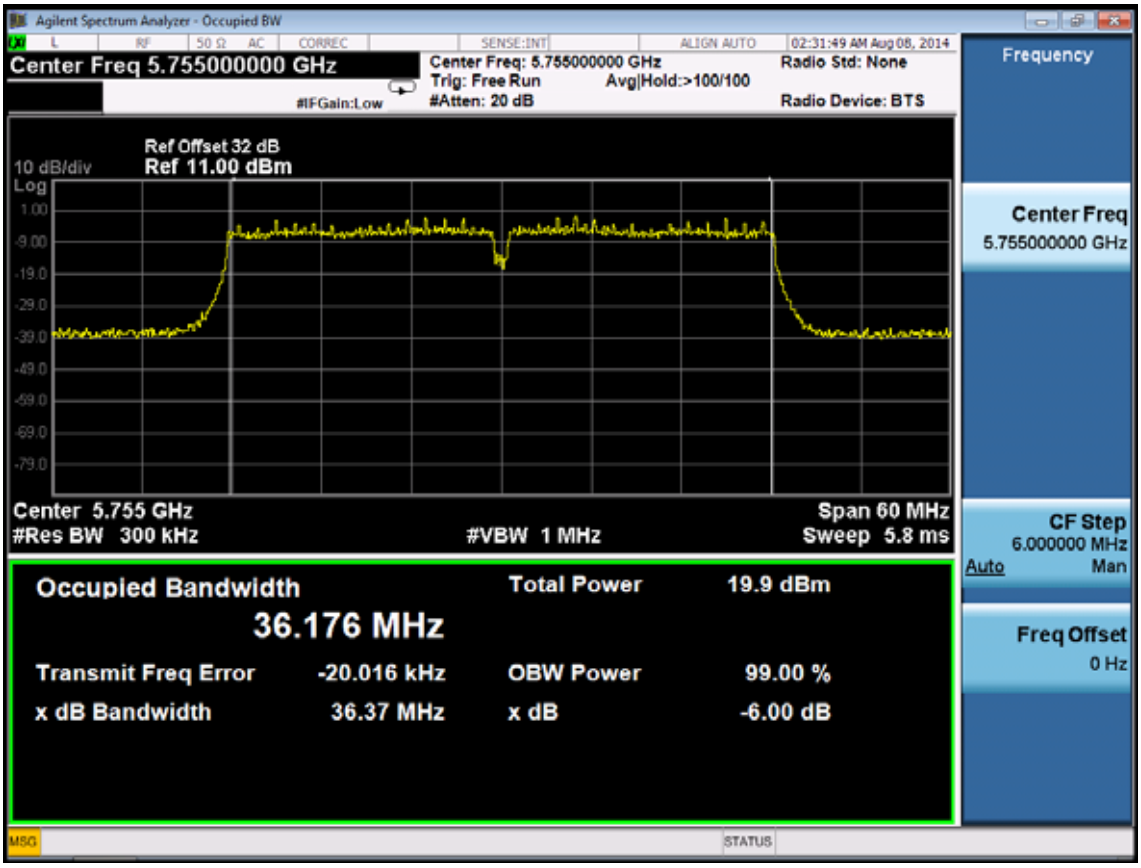
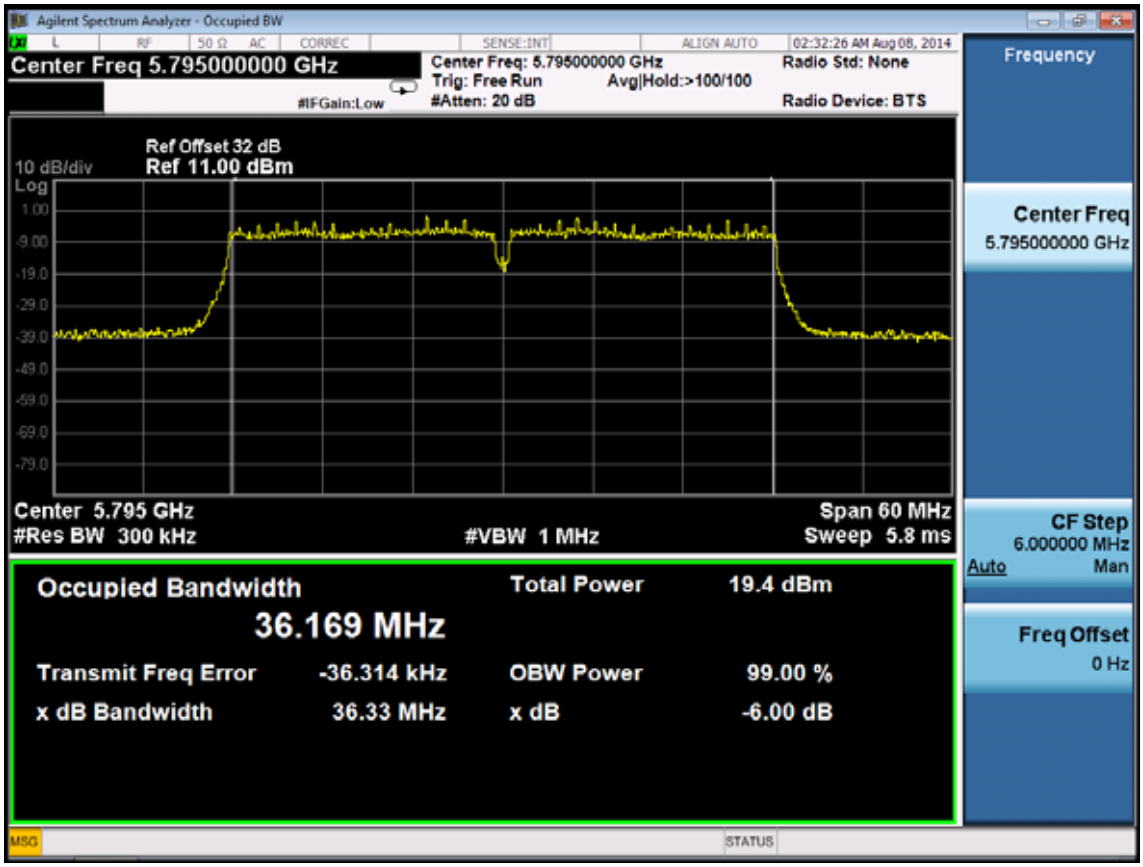
Test CH165: 5825MHz



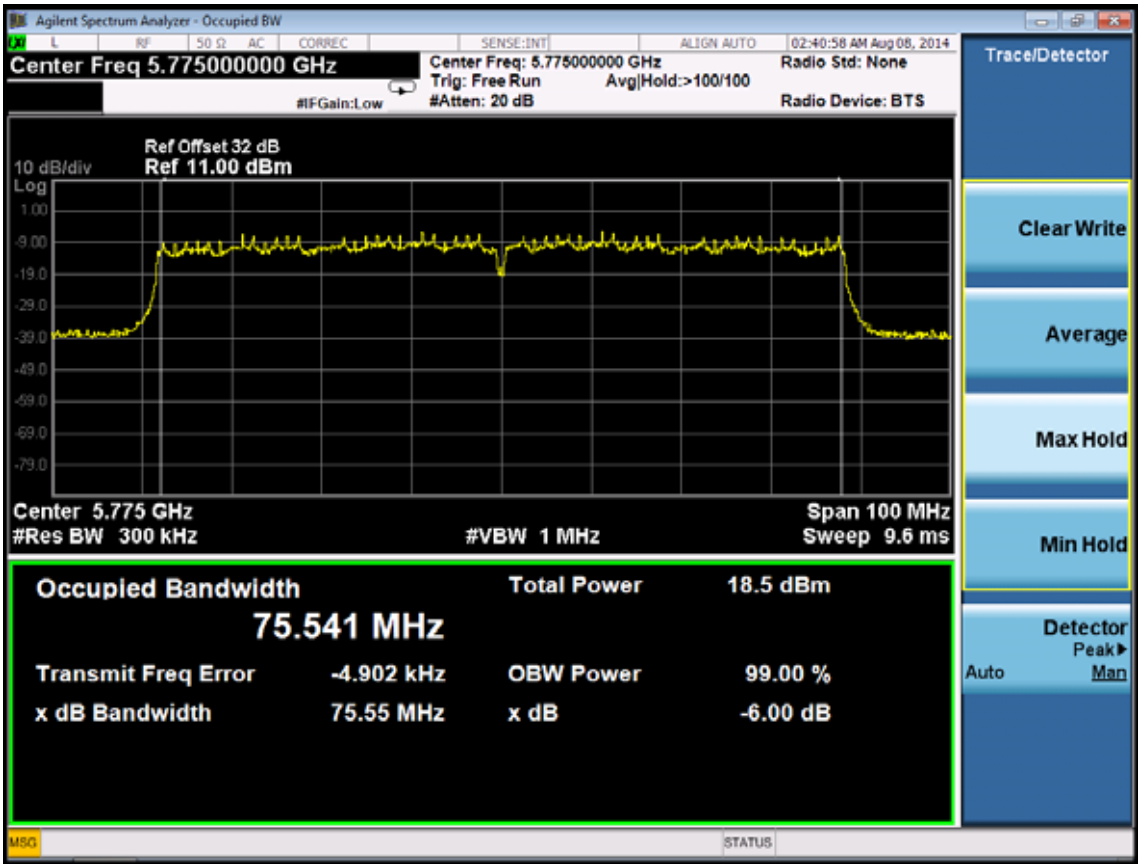
Test Mode: IEEE 802.11ac VHT40 TX
Test CH151: 5755MHz



Test CH159: 5795MHz



Test Mode: IEEE 802.11ac VHT80 TX
Test CH155: 5775MHz



8. OUTPUT POWER TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.31, 13	1Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr. 28,14	1Year
3.	Power sensor	Anritsu	MA2491A	0033005	Apr. 28,14	1Year
4.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	Apr. 28,14	1Year

8.2.Limit (FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, 5725-5850MHz, The Peak out put Power shall not exceed 1W(30dBm)

8.3.Test Procedure

1, Connected the EUT's antenna port to measure device by 26dB attenuator.

2, For IEEE 802.11b/g and IEEE802.11n HT20 mode, use a PK power meter which's bandwidth is 20MHz and above 26dB bandwidth of signal to measure out each test modes' PK output power.

3, For IEEE802.11n HT40&802.11nVHT40&VHT80 mode, because the signal's bandwidth is about 40MHz and above 20MHz bandwidth of power sensor ML2491A. So use the test method described in KDB558074 clause 9.1.2.

1) Set the RBW=1MHz and VBW =3MHz
2) Set the span to a value that is 5-30% greater than EBW
3) Detector = peak
4) Sweep time = auto couple
5) Trace Mode = max hold
6) allow trace to fully stabilize
7) use the spectrum amalyser's integrated band power measurement function with band limits set equal to the EBW band edges.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

8.4.Test Results

2.4G:

EUT:AC1750 Wireless Dual Band DOCSIS 3.0 Cable Modem Router		
M/N:Archer CR700		
Test date: 2014-09-04	Pressure: 101.1±1.0 kpa	Humidity: 50.2±3.0%
Tested by: Kevin_Hu	Test site: RF site	Temperature:22.4±0.6 ℃

Cable loss: 1 dB		Attenuator loss: 20 dB				
Test Mode	CH	Peak output Power (dBm)				Limit (dBm)
		ANT0	ANT1	ANT2	Total	
11b	CH1	22.46	22.49	23	27.43	30
	CH6	21.65	21.83	22.83	26.91	30
	CH11	23.53	23.56	23.82	28.41	30
11g	CH1	23.42	24.5	23.05	28.47	30
	CH6	24.8	24.7	24.76	29.52	30
	CH11	23.54	24.28	23.28	28.49	30
11n HT20	CH1	24.34	24.32	24.62	29.20	30
	CH6	24.35	24.15	24.74	29.19	30
	CH11	23.44	24.23	23.15	28.40	30
11n HT40	CH1	22.14	23	22.11	27.21	30
	CH4	24.98	24.84	25.04	29.73	30
	CH7	23.15	23	22.05	27.53	30
Conclusion: PASS						

Note: 1. Correlated signal type for 11a,11n and 11ac mode are CDD.
2. 11b/g/n working at CDD mode which described in KDB662911.
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4

UNII Band4:

EUT:AC1750 Wireless Dual Band DOCSIS 3.0 Cable Modem Router		
M/N:Archer CR700		
Test date:2014-09-05	Pressure: 101.2±1.0 kpa	Humidity: 52.1±3.0%
Tested by: Kevin_Hu	Test site: RF site	Temperature:22.8±0.6 ℃

Cable loss: 2 dB		Attenuator loss: 20 dB				
Test Mode	Frequency (MHz)	Peak Output Power (dBm)				Limit (dBm)
		ANT0	ANT1	ANT2	Total	
11a	5745	24.13	24.87	24.91	29.42	30
	5785	24	25	24.83	29.40	30
	5825	24.32	25.15	25.18	29.67	30
11n HT20	5745	23.7	25.01	24.8	29.31	30
	5785	23.74	25.01	24.58	29.25	30
	5825	23.33	24.87	24.7	29.12	30
11n HT40	5755	23.81	25.07	24.65	29.31	30
	5795	23.38	25.21	24.62	29.24	30
11ac VHT20	5745	23.88	24.89	25.19	29.46	30
	5785	23.44	24.92	24.52	29.11	30
	5825	24.62	25.19	24.94	29.69	30
11ac VHT40	5755	23.37	25.1	24.7	29.22	30
	5795	23.43	25.11	24.19	29.07	30
11ac VHT80	5775	23.4	25.02	24.4	29.09	30
Conclusion: PASS						

Note: 1.Correlated signal type for 11a,11n and 11ac mode are CDD.
2. 11a/n/ac working at CDD mode which described in KDB662911.
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$

9. POWER SPECTRAL DENSITY TEST

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.31, 13	1Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
3	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	Apr. 28,14	1 Year

9.2.Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

9.3.Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.

2. Set the test frequency as center frequency,Set RBW=3KHz,VBW=10KHz,Span large enough capture the entire frequency,Read out maximum peak leval frequency

3. Set the frequency read from produce 2 as center frequency,then set the span= 300KHz, Sweep time=Span/RBW,Then Max hold,read out each mode and each ANT's Power density.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude

9.4.Test Results

2.4G:

EUT:AC1750 Wireless Dual Band DOCSIS 3.0 Cable Modem Router		
M/N:Archer CR700		
Test date: 2014-07-24	Pressure: 101.2±1.0 kpa	Humidity:51.5±3.0%
Tested by:Kevin_Hu	Test site: RF Site	Temperature:22.3±0.6℃

Cable loss: 1 dB		Attenuator loss: 20 dB				
Test Mode	CH	Power density（dBm/3KHz）				Limit (dBm/3KHz)
		ANT0	ANT1	ANT2	Total	
11b	CH1	-4.120	-6.001	-4.271	0.05	8
	CH6	-4.221	-4.383	-4.328	0.46	8
	CH11	-1.393	-1.095	-1.204	3.54	8
11g	CH1	-9.530	-8.789	-9.777	-4.57	8
	CH6	-10.265	-9.304	-9.991	-5.06	8
	CH11	-9.522	-9.161	-9.799	-4.71	8

Test Mode	CH	Power density（dBm/3KHz）				Limit (dBm/3KHz)
		ANT0	ANT1	ANT2	Total	
11n HT20	CH1	-8.856	-9.543	-8.794	-4.28	8
	CH6	-10.118	-10.328	-10.378	-5.50	8
	CH11	-9.033	-9.792	-9.852	-4.77	8
11n HT40	CH1	-12.300	-12.963	-14.196	-8.31	8
	CH4	-12.636	-12.854	-12.787	-7.99	8
	CH7	-11.678	-12.605	-12.529	-7.48	8

Conclusion：PASS

NOTE: 11b/g/n working at CDD mode which described in KDB662911.
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$

UNII Band4:

EUT:AC1750 Wireless Dual Band DOCSIS 3.0 Cable Modem Router		
M/N:Archer CR700		
Test date: 2014-08-01	Pressure: 101.4±1.0 kpa	Humidity:52.6±3.0%
Tested by:Kevin_Hu	Test site: RF site	Temperature:22.1±0.6 ℃

Cable loss: 1 dB				Attenuator loss: 30 dB		
Test Mode	Frequency (MHz)	Power Density (dBm/3KHz)				Limit (dBm/3KHz)
		ANT0	ANT1	ANT2	Total	
11a	5745	-10.578	-7.815	-11.667	-4.93	8
	5785	-10.964	-7.911	-11.287	-5.00	8
	5825	-11.295	-9.051	-12.124	-5.85	8
11n HT20	5745	-12.182	-11.145	-10.610	-6.49	8
	5785	-10.212	-7.903	-9.232	-4.24	8
	5825	-11.910	-9.781	-10.633	-5.92	8
11n HT40	5755	-9.739	-9.101	-10.652	-5.01	8
	5795	-10.258	-7.899	-11.601	-4.87	8
11ac VHT20	5745	-12.368	-8.108	-11.183	-5.40	8
	5785	-12.963	-9.748	-9.962	-5.89	8
	5825	-12.599	-10.082	-13.180	-6.96	8
11ac VHT40	5755	-18.969	-14.089	-16.348	-11.26	8
	5795	-17.639	-14.469	-17.320	-11.46	8
11ac VHT80	5775	-23.885	-20.017	-22.212	-16.98	8

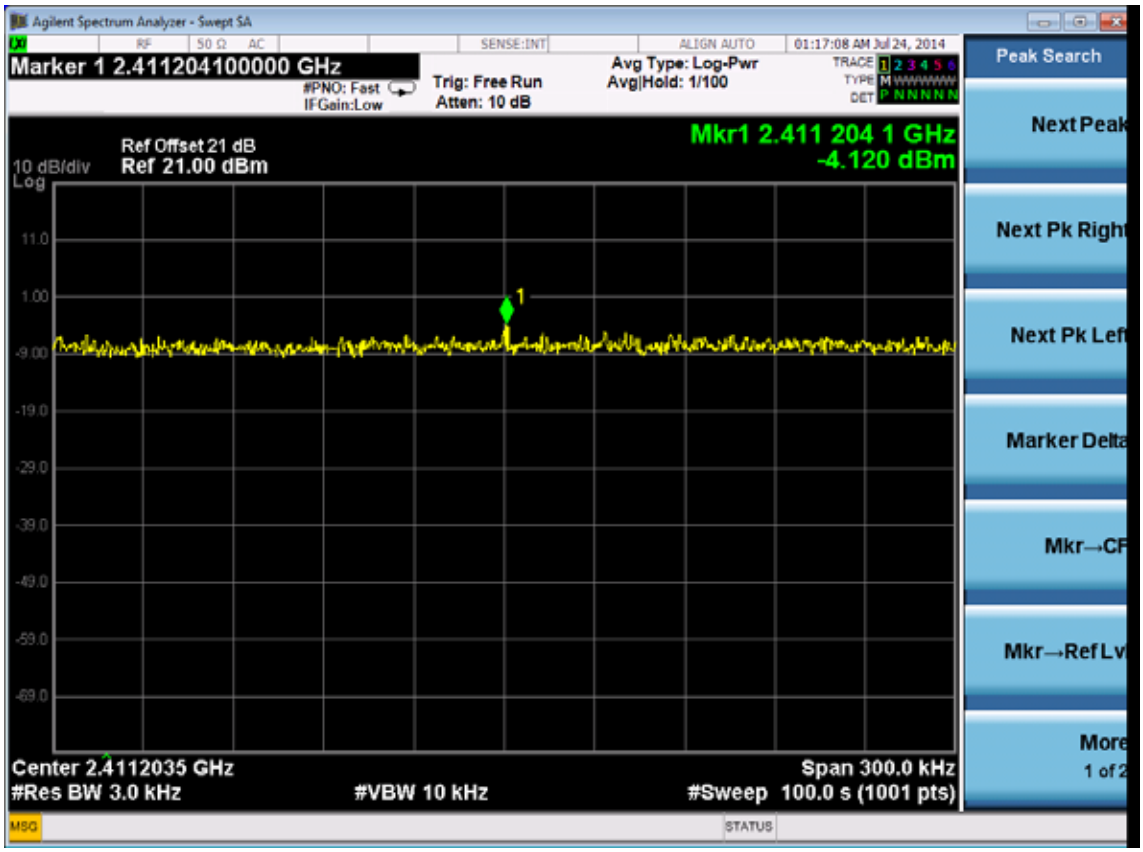
Conclusion: PASS
NOTE: 11a/n/ac working at CDD mode which described in KDB662911.
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$

2.4G:

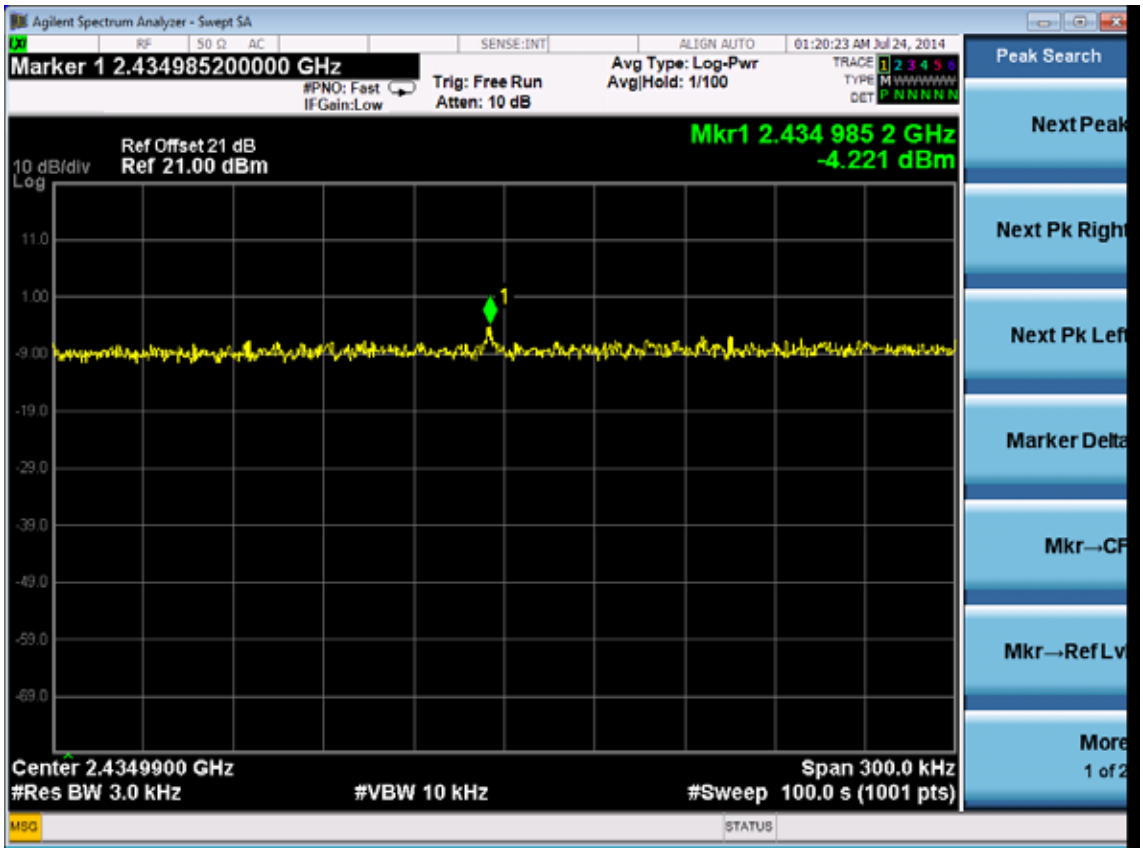
ANT 0:

Test Mode: IEEE 802.11b TX

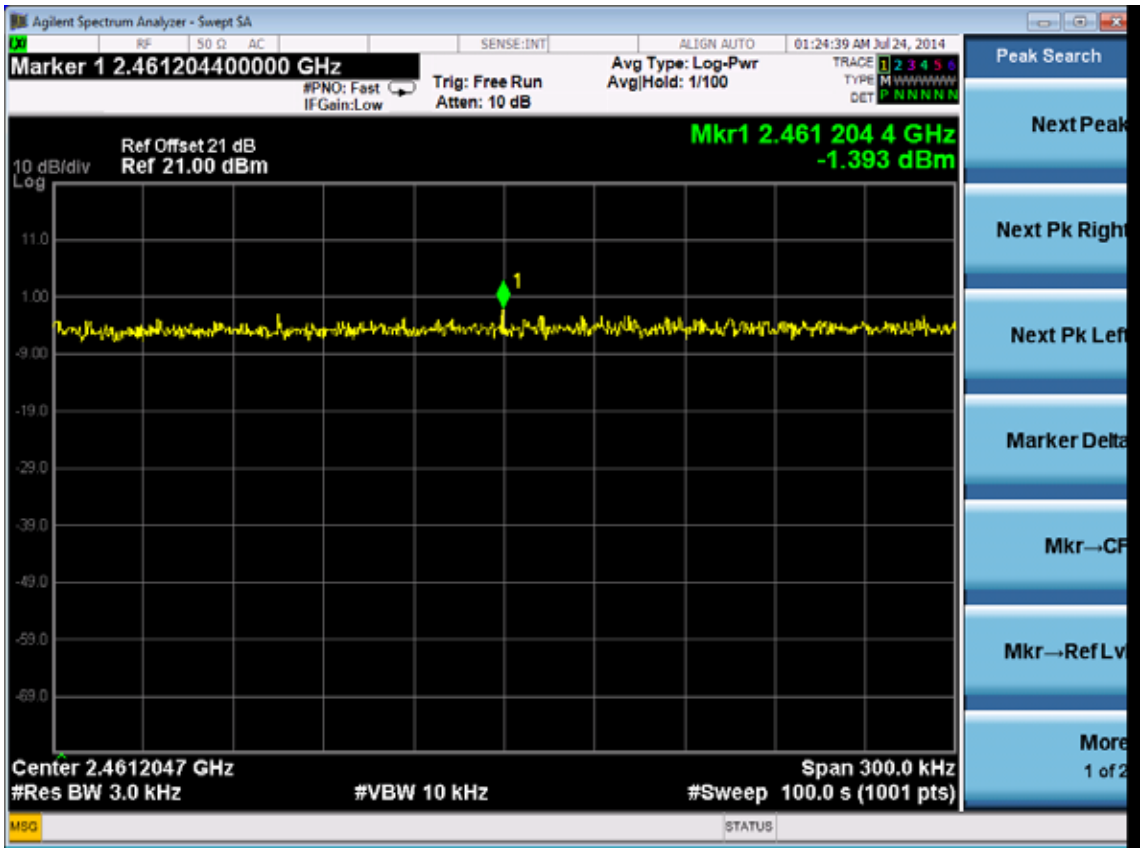
Test CH1: 2412MHz



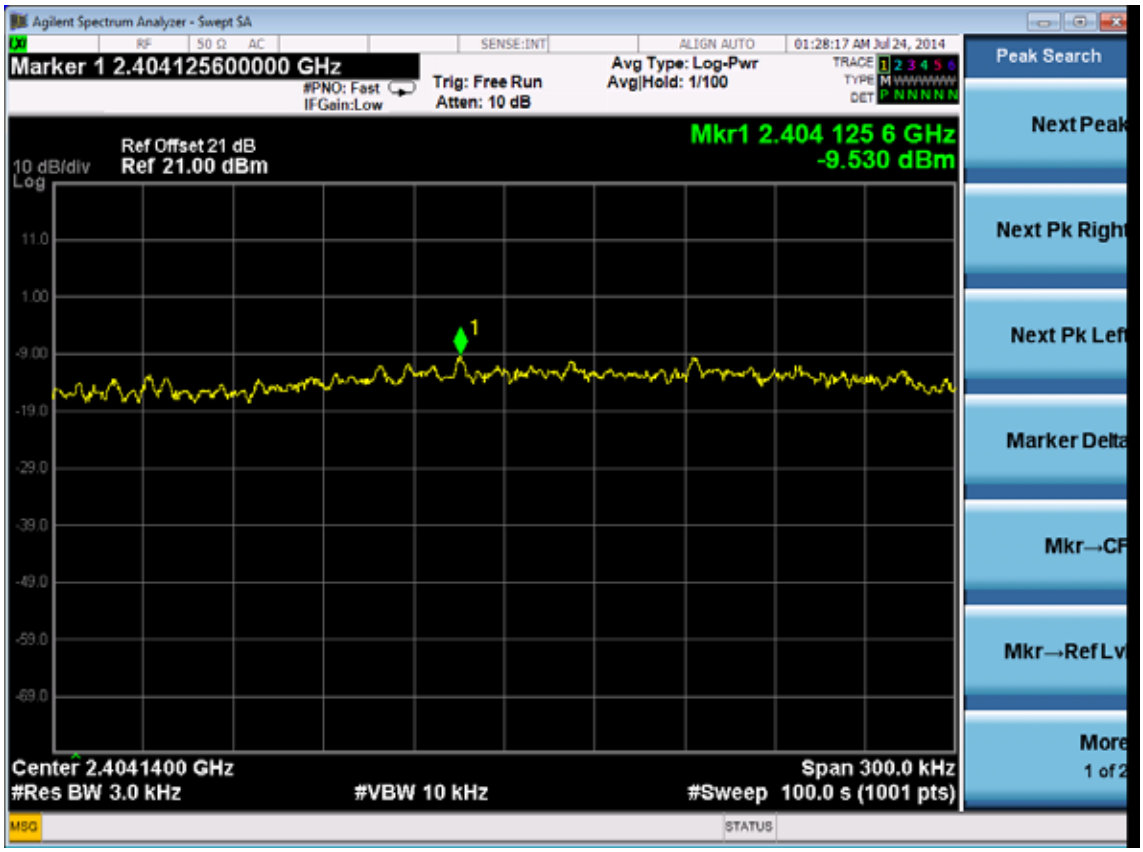
Test CH6: 2437MHz



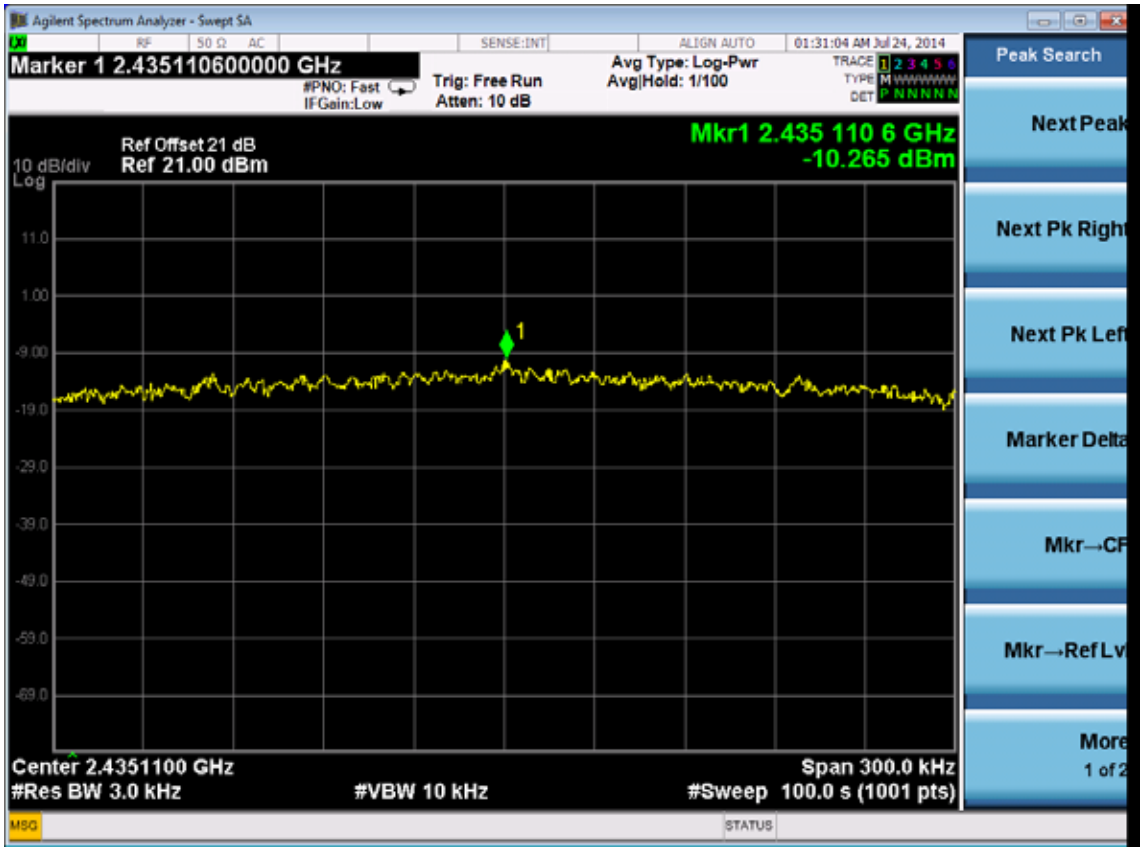
Test CH11: 2462MHz



Test Mode: IEEE 802.11g TX
Test CH1: 2412MHz

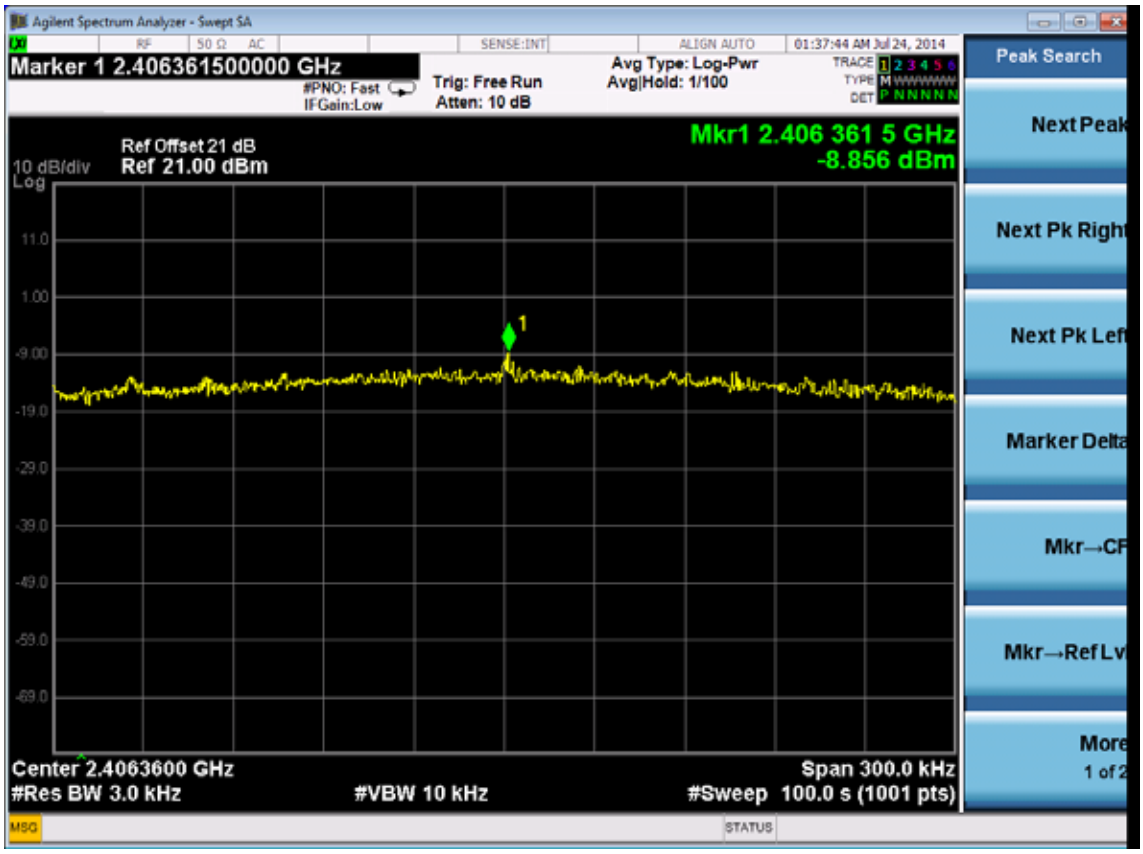


Test CH6: 2437MHz

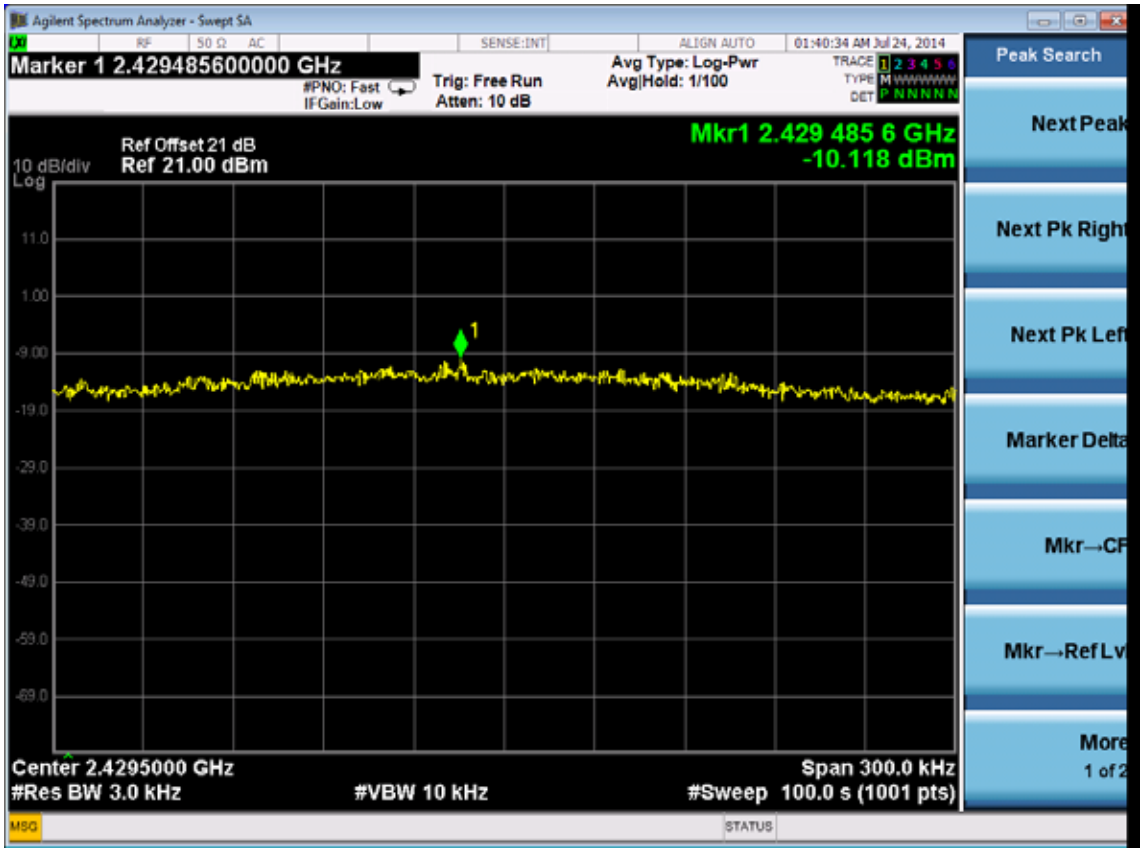


Test CH11: 2462MHz

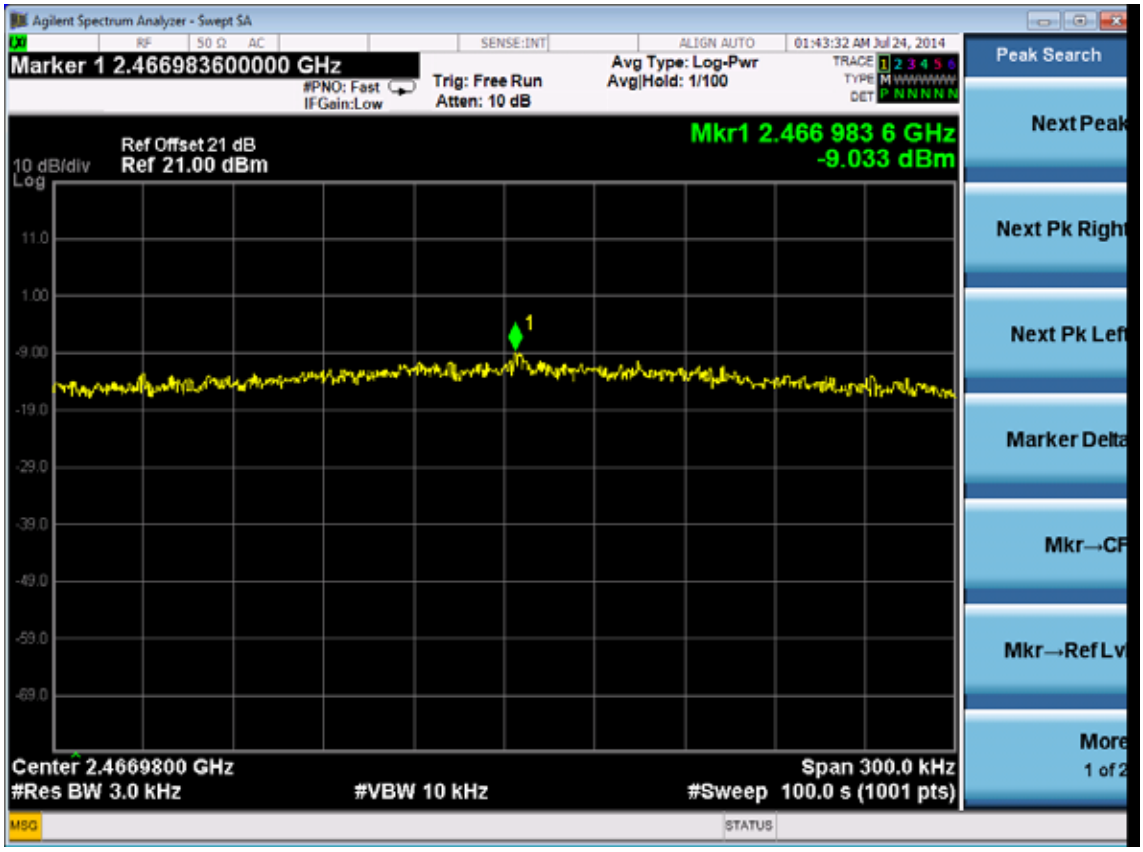
Test Mode: IEEE 802.11n HT20 TX
Test CH1: 2412MHz



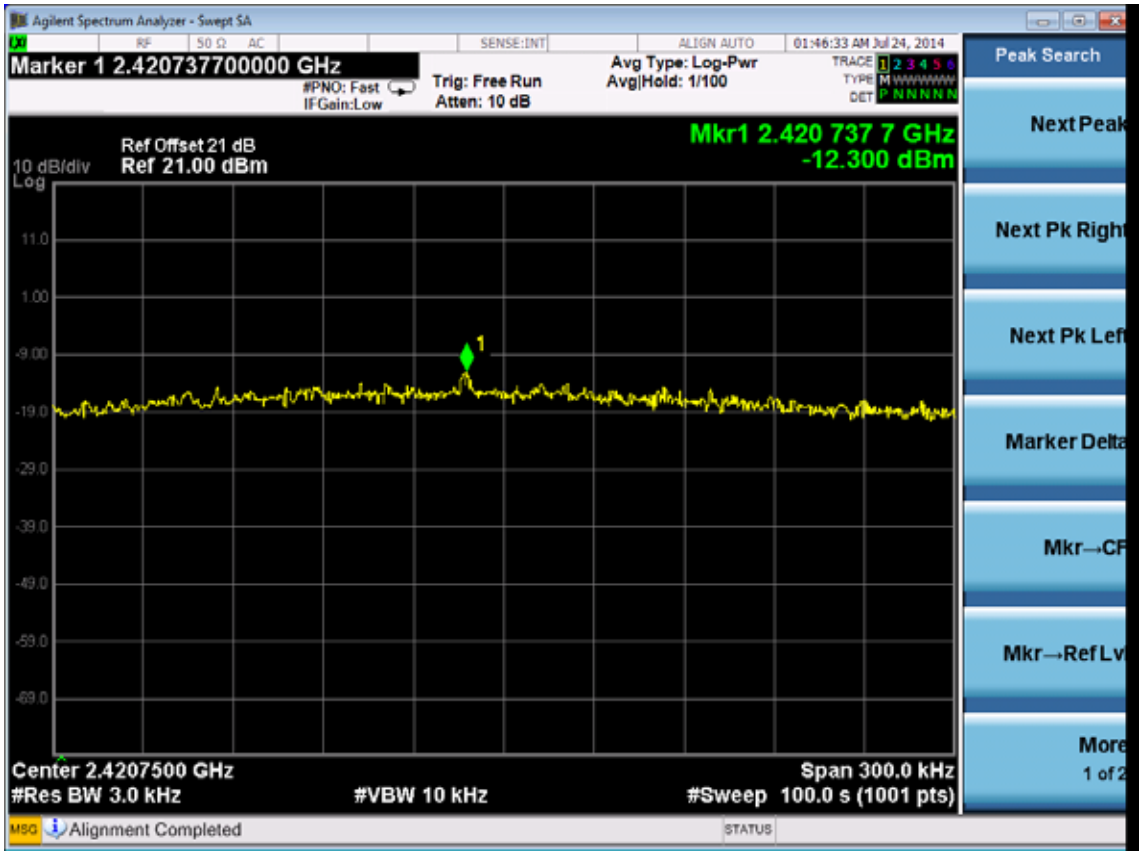
Test CH6: 2437MHz



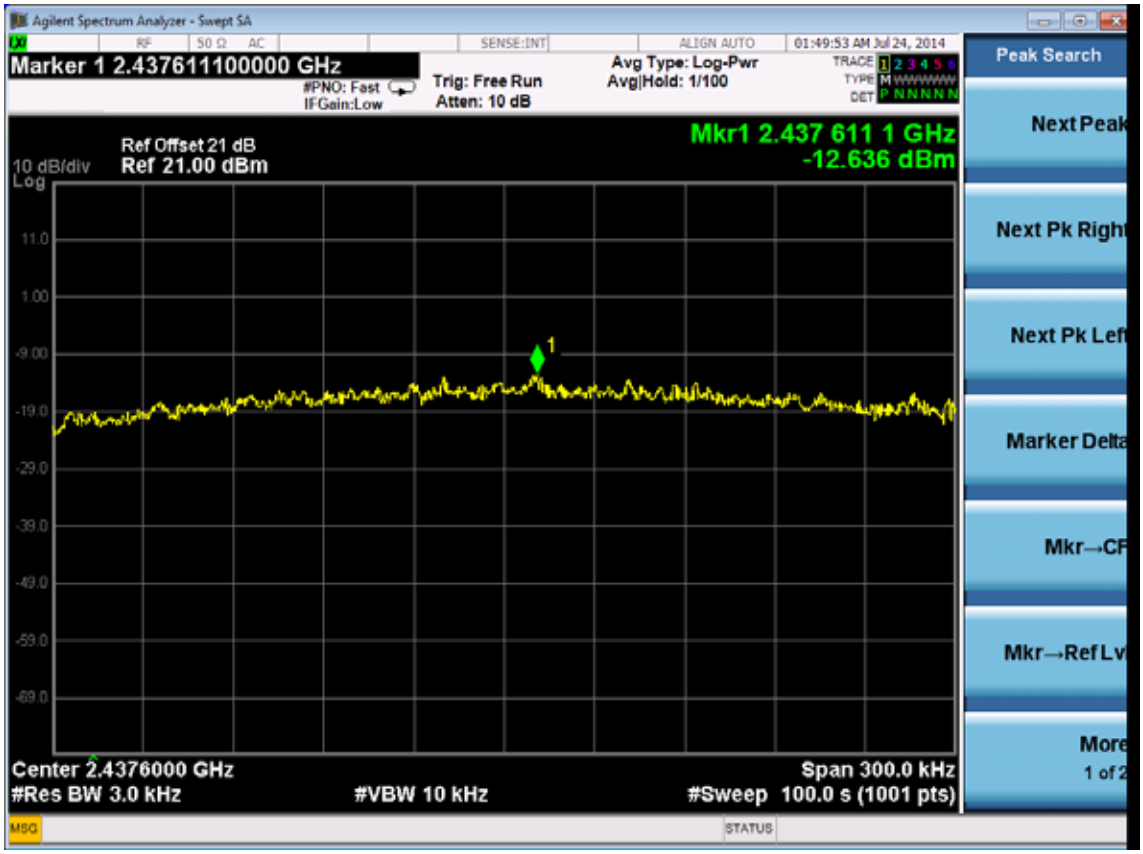
Test CH11: 2462MHz



Test Mode: IEEE 802.11n HT40 TX
Test CH1: 2422MHz

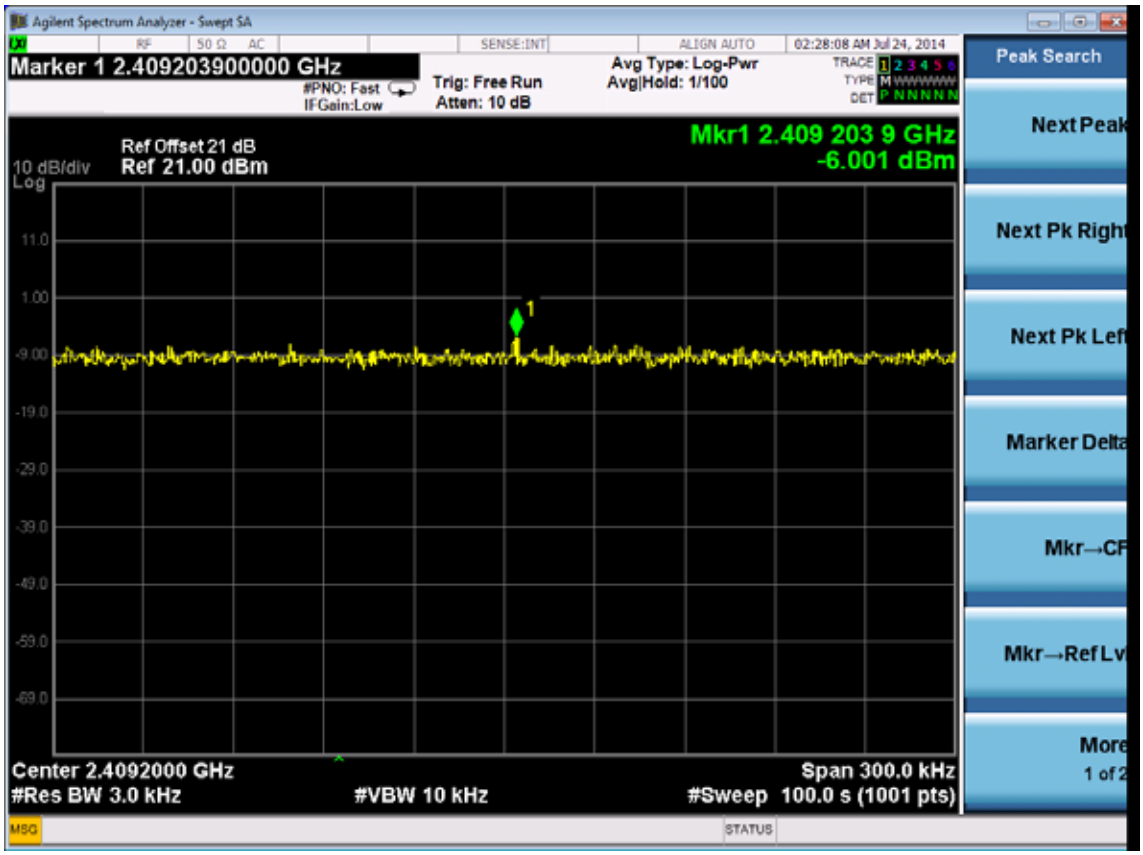


Test CH4: 2437MHz

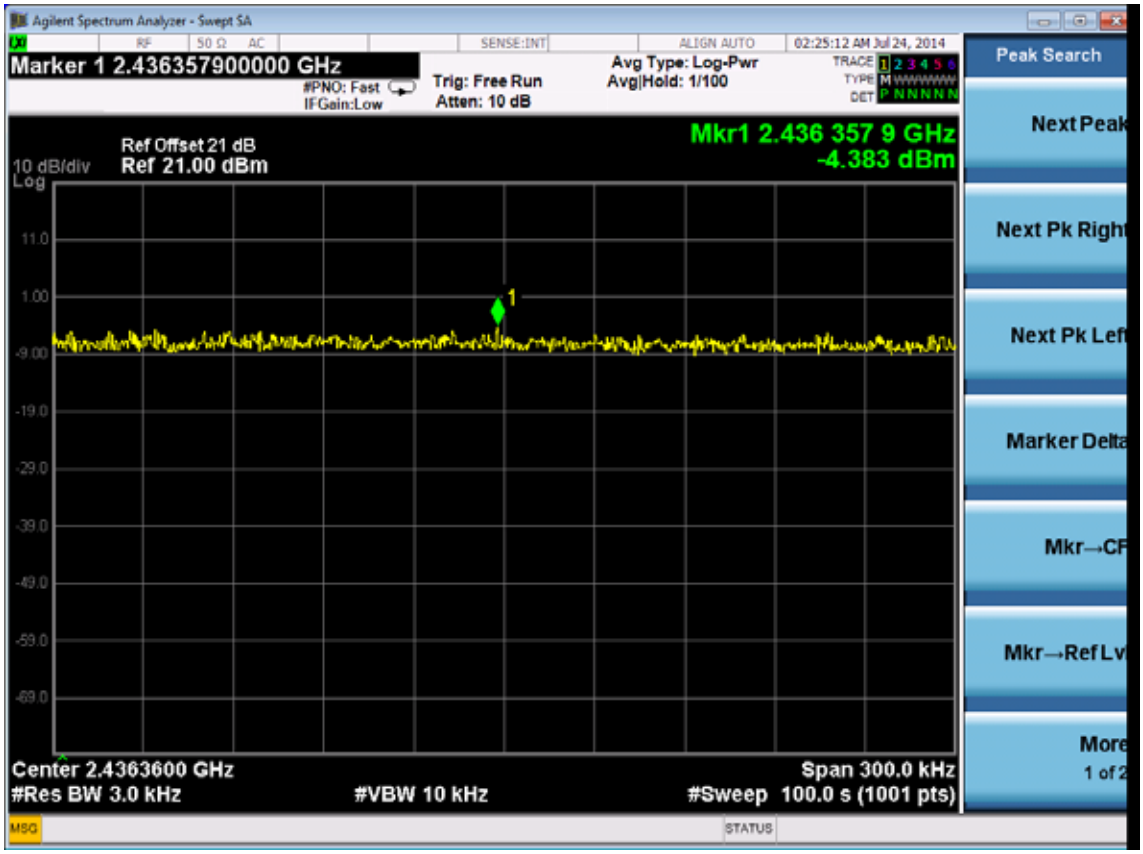


Test CH7: 2452MHz

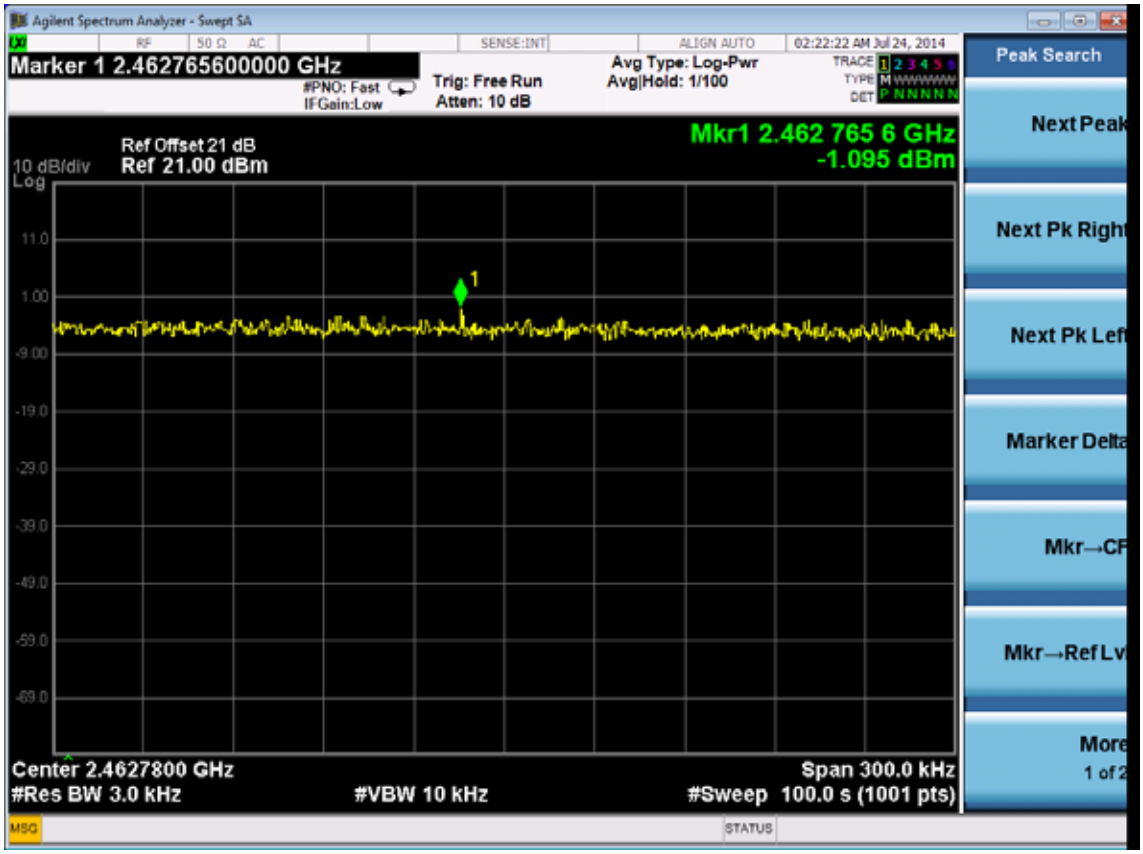
ANT 1:
Test Mode: IEEE 802.11b TX
Test CH1: 2412MHz



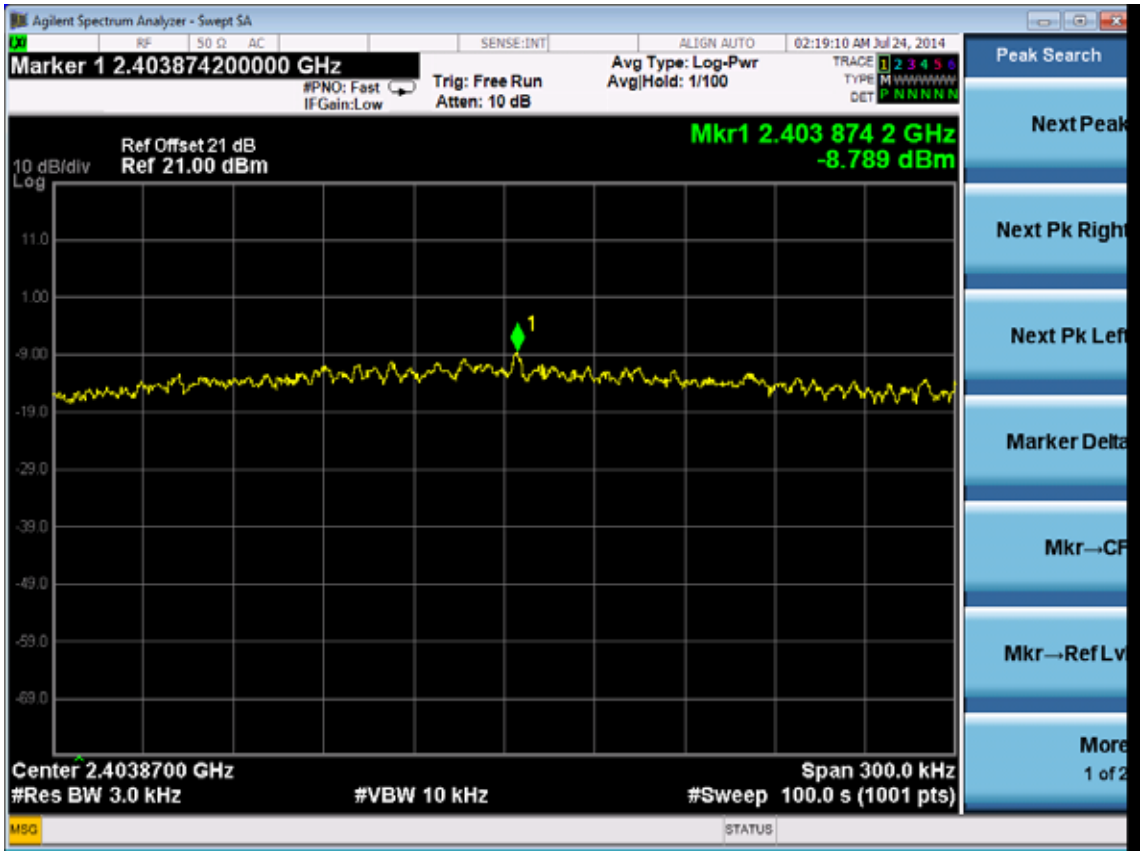
Test CH6: 2437MHz



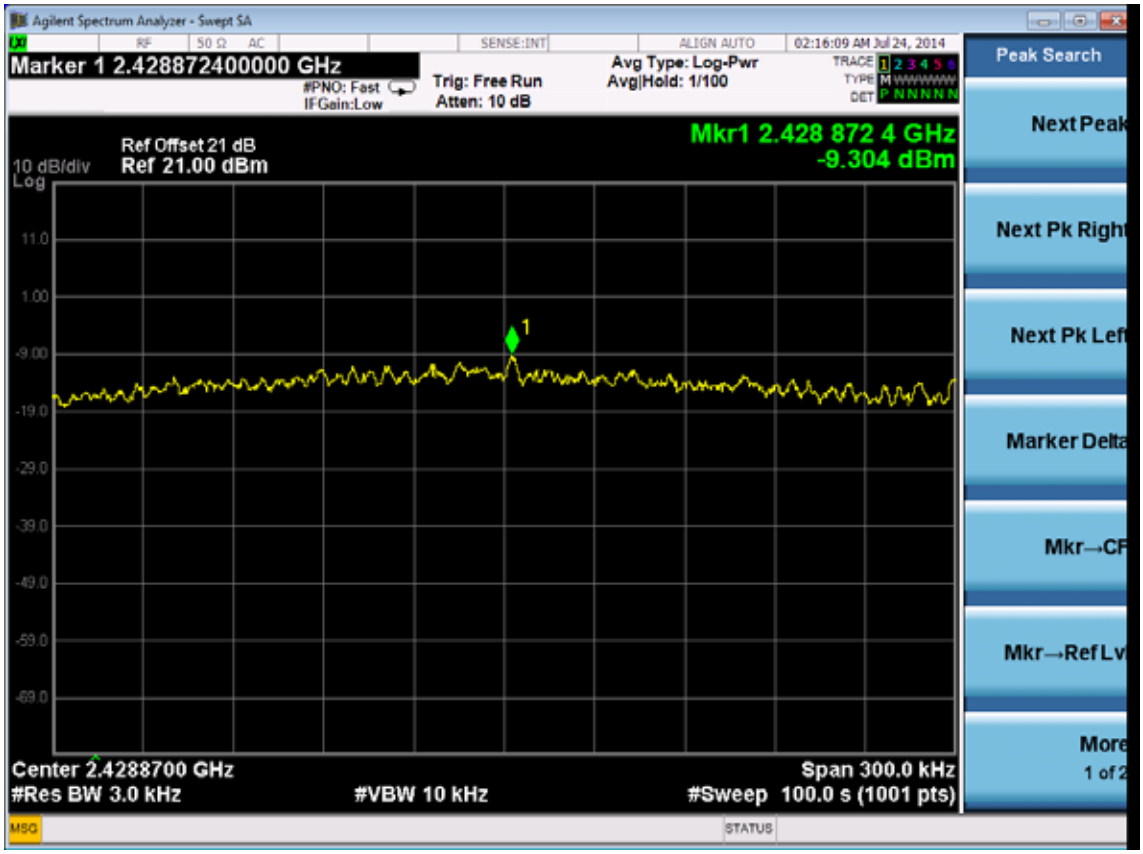
Test CH11: 2462MHz



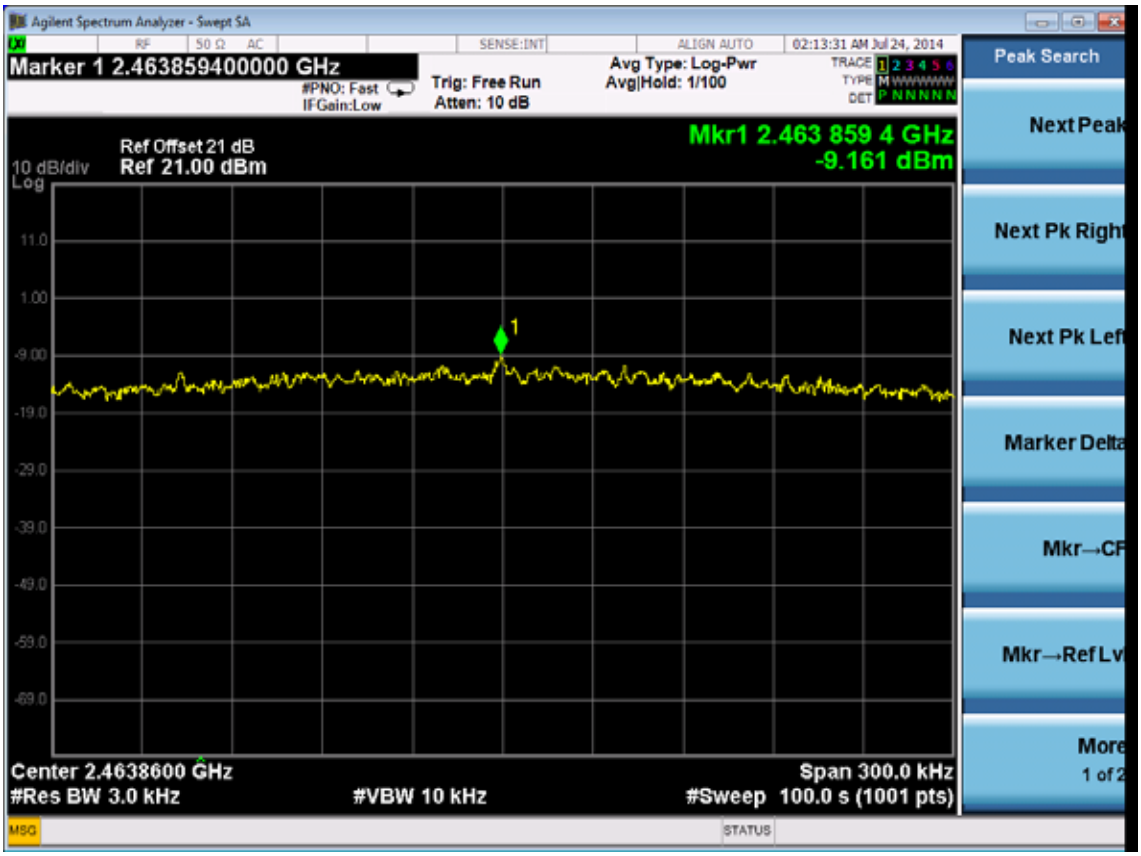
Test Mode: IEEE 802.11g TX
Test CH1: 2412MHz



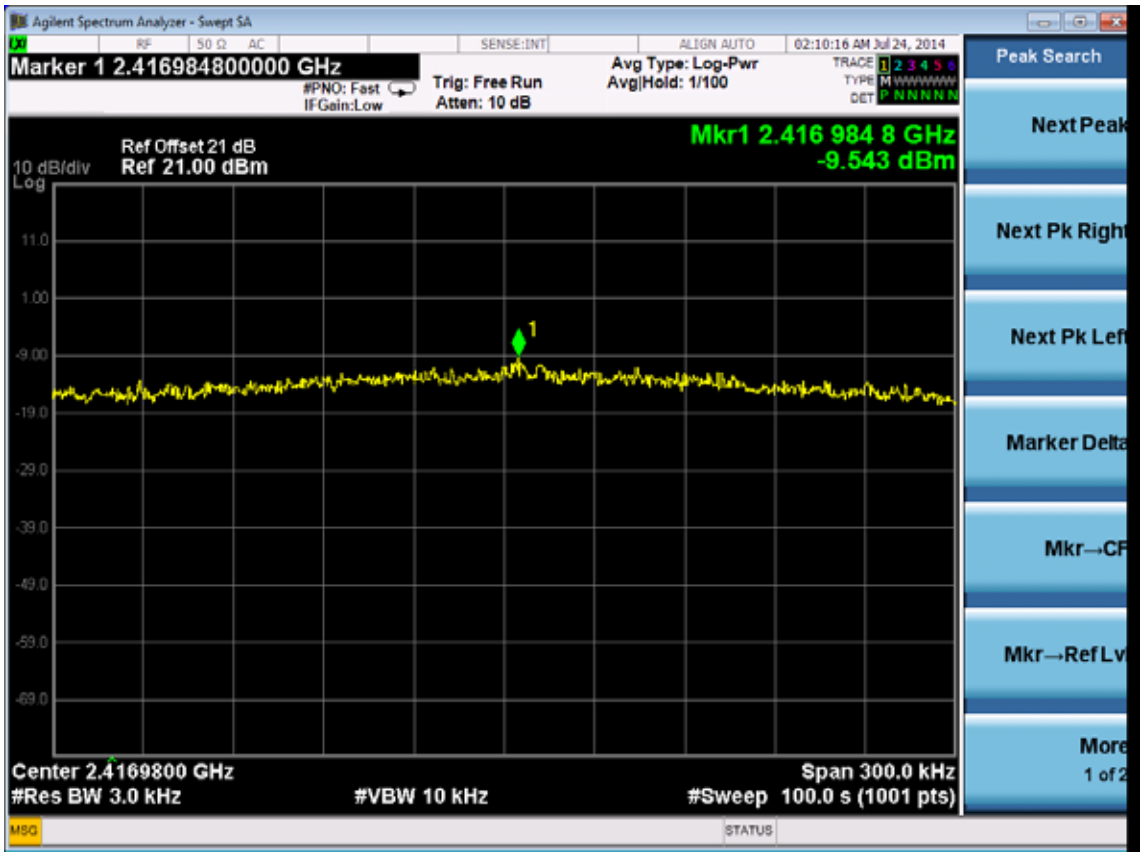
Test CH6: 2437MHz



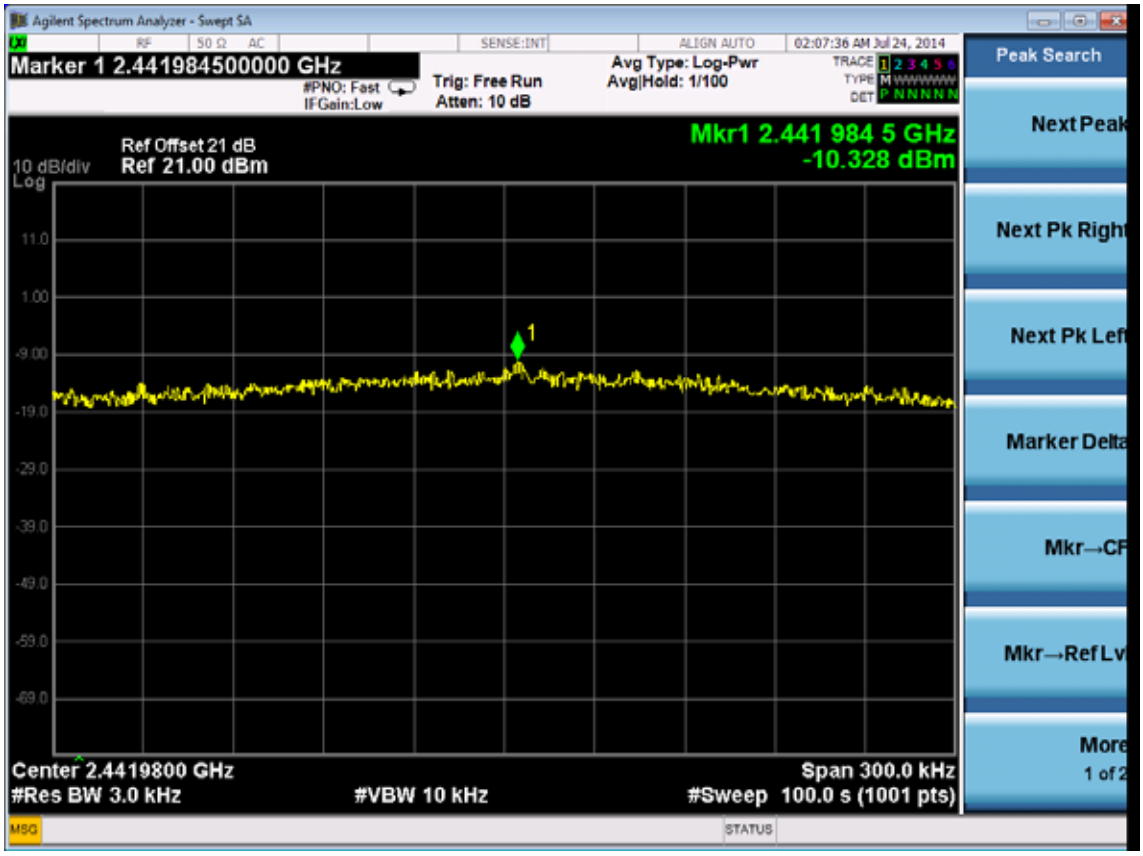
Test CH11: 2462MHz



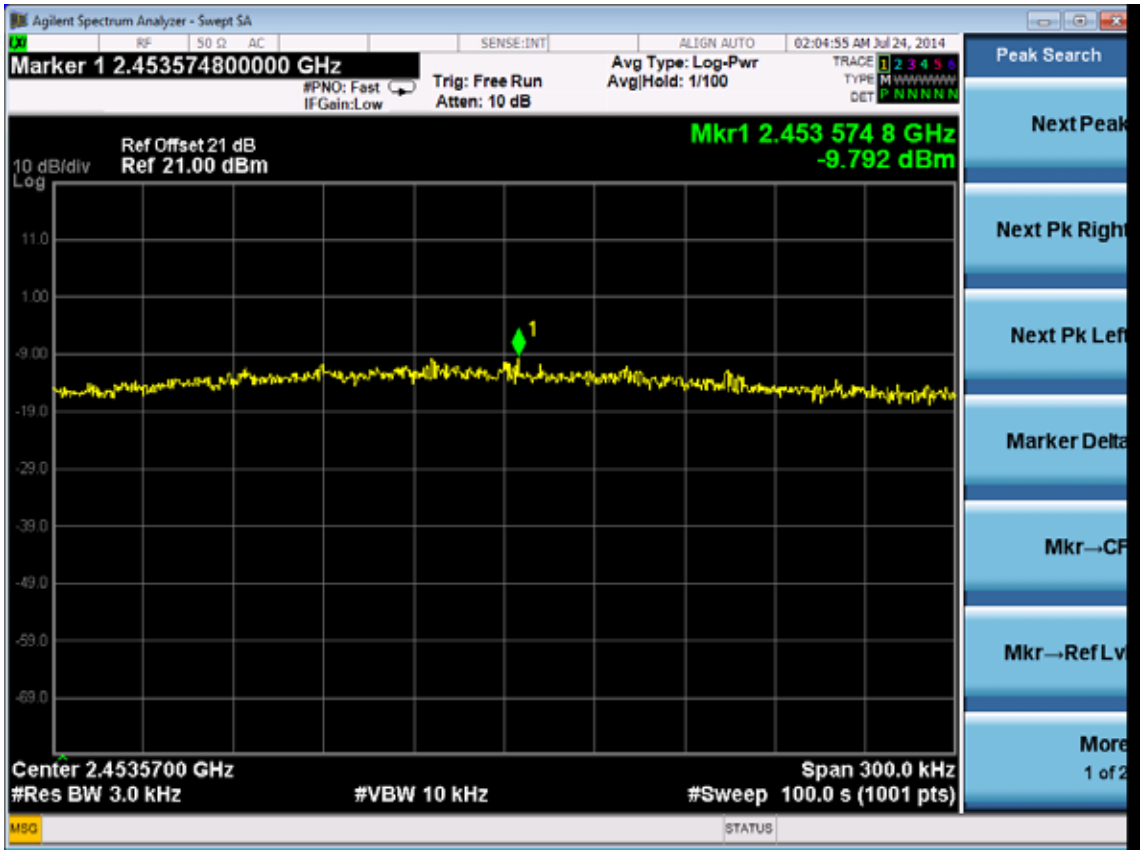
Test Mode: IEEE 802.11n HT20 TX
Test CH1: 2412MHz



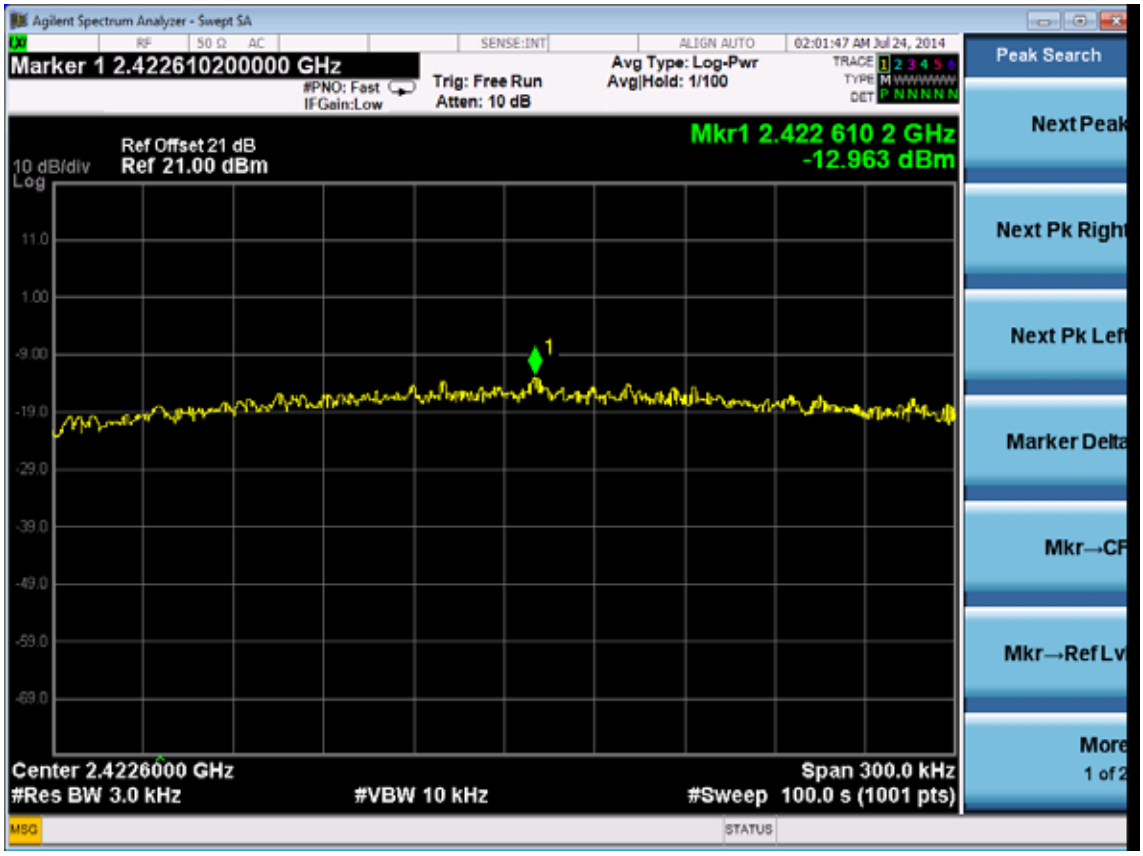
Test CH6: 2437MHz



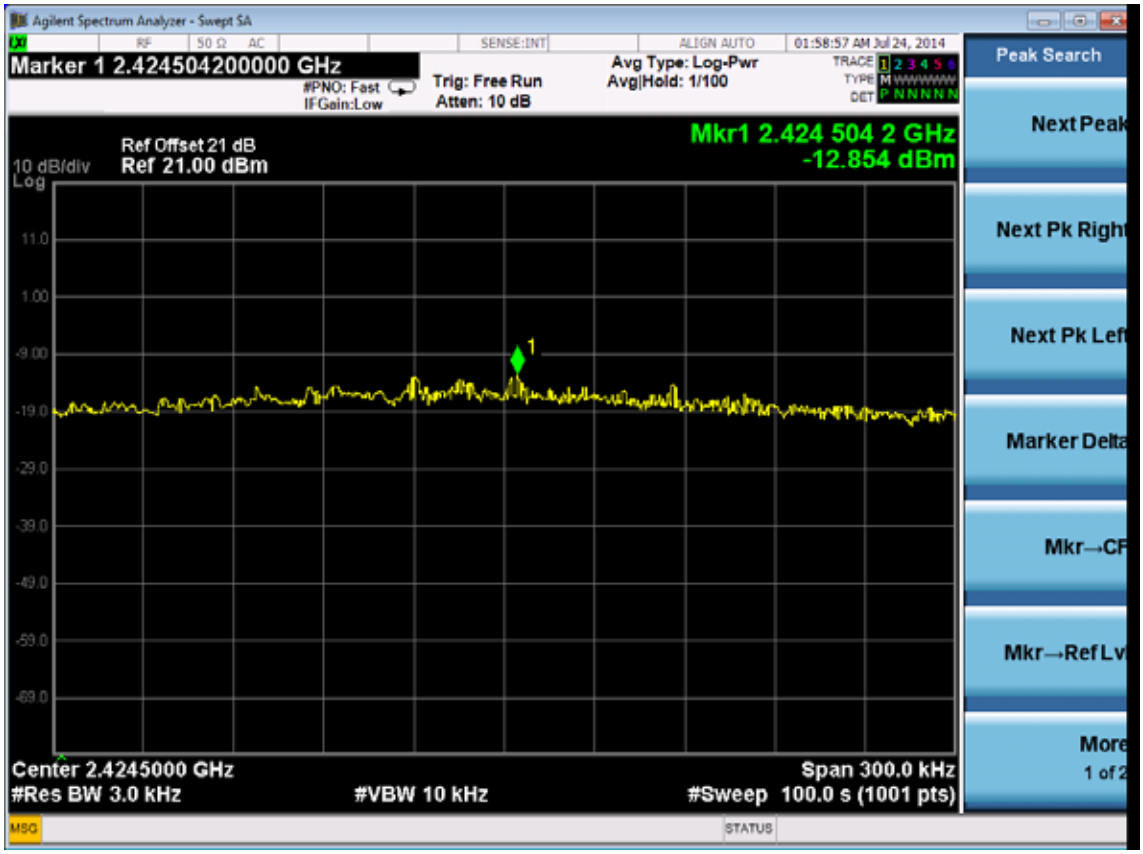
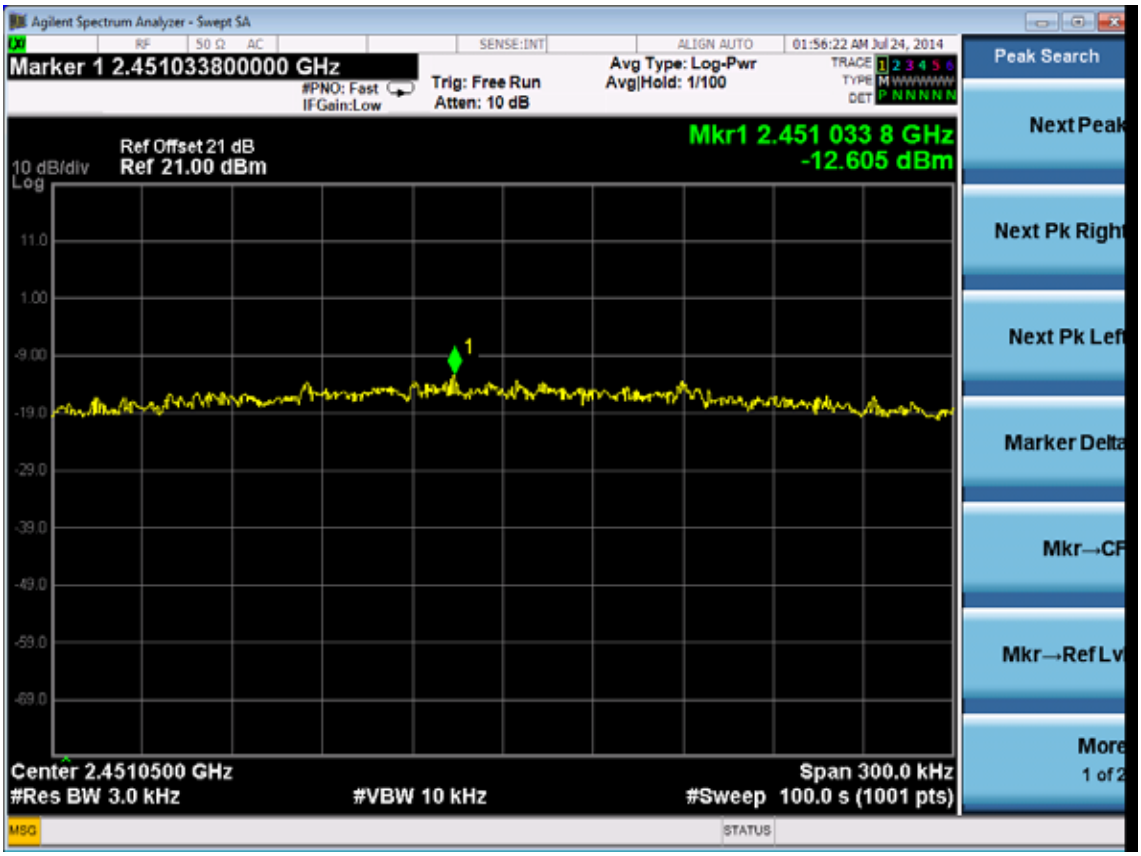
Test CH11: 2462MHz



Test Mode: IEEE 802.11n HT40 TX
Test CH1: 2422MHz



Test CH4: 2437MHz



Test CH7: 2452MHz