For UNII-3 Band

4.9.3 802.11a Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Frequency Range	Refer to Plot	Limit (dBm)	Verdict
149	5745	5745MHz	Plot 4.9.3 A1	-27	PASS
		9KHz-30MHz	Plot 4.9.3 A2	-27	PASS
		30MHz-1GHz	Plot 4.9.3 A3	-27	PASS
		1GHz-8GHz	Plot 4.9.3 A4	-27	PASS
		8GHz-16GHz	Plot 4.9.3 A5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.3 A6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.3 A7	-27	PASS
157	5785	5785MHz	Plot 4.9.3 B1	-27	PASS
		9KHz-30MHz	Plot 4.9.3 B2	-27	PASS
		30MHz-1GHz	Plot 4.9.3 B3	-27	PASS
		1GHz-8GHz	Plot 4.9.3 B4	-27	PASS
		8GHz-16GHz	Plot 4.9.3 B5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.3 B6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.3 B7	-27	PASS
165	5825	5825MHz	Plot 4.9.3 C1	-27	PASS
		9KHz-30MHz	Plot 4.9.3 C2	-27	PASS
		30MHz-1GHz	Plot 4.9.3 C3	-27	PASS
		1GHz-8GHz	Plot 4.9.3 C4	-27	PASS
		8GHz-16GHz	Plot 4.9.3 C5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.3 C6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.3 C7	-27	PASS

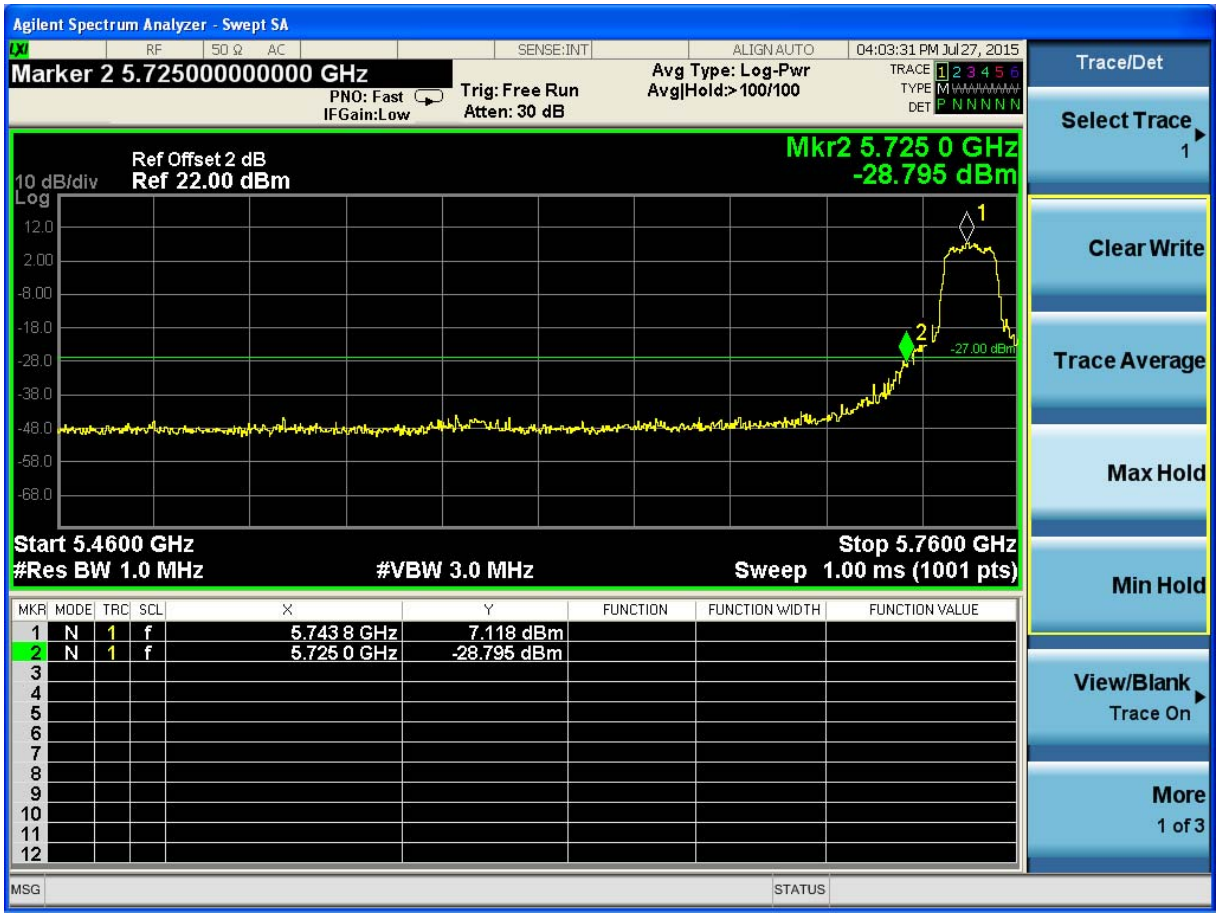
Note:
1. For 802.11a mode at finial test to get the worst-case emission at 6Mbps.
2. The test results including the cable lose.

4.9.4 802.11n HT20 Test Mode

A. Test Verdict

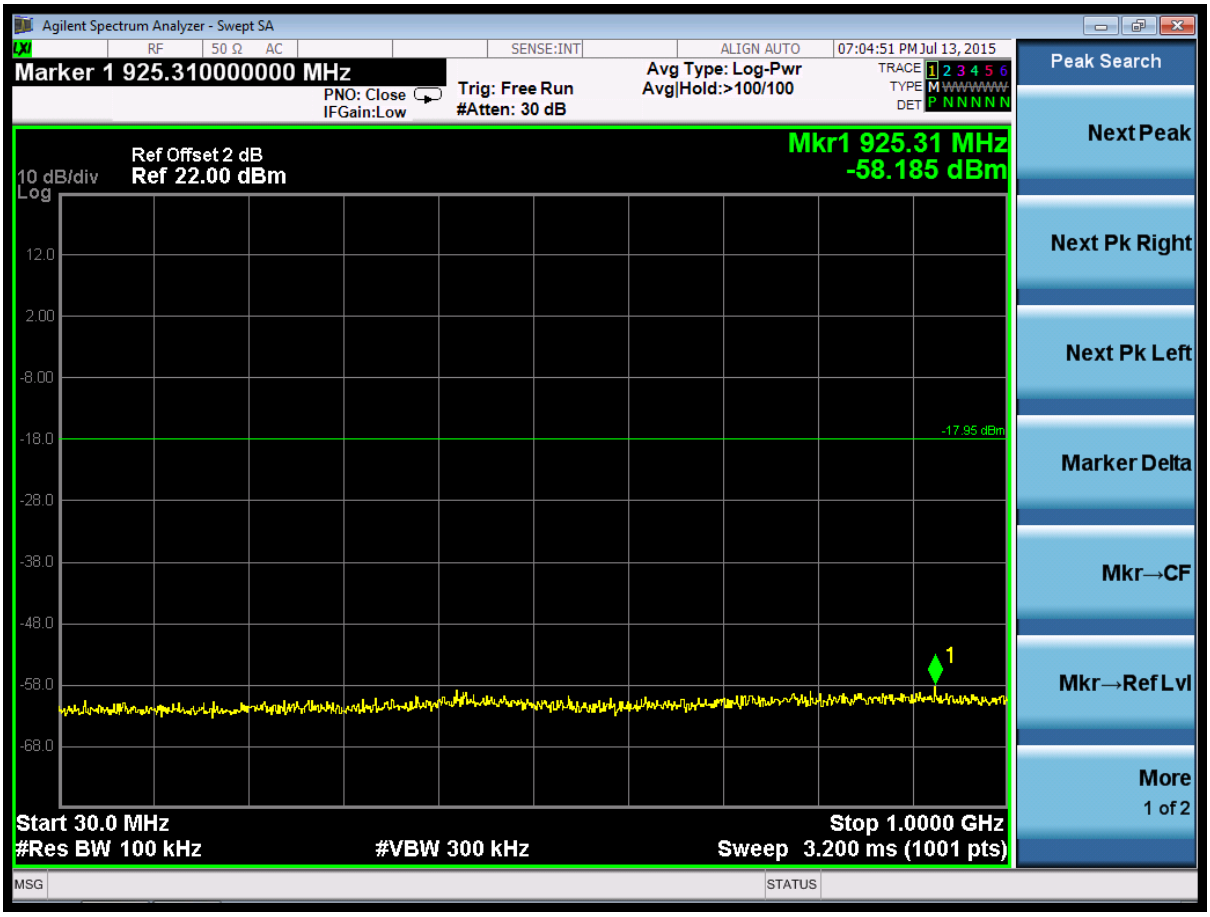
Channel	Frequency (MHz)	Frequency Range	Refer to Plot	Limit (dBm)	Verdict
149	5745	5745MHz	Plot 4.9.4 A1	-27	PASS
		9KHz-30MHz	Plot 4.9.4 A2	-27	PASS
		30MHz-1GHz	Plot 4.9.4 A3	-27	PASS
		1GHz-8GHz	Plot 4.9.4 A4	-27	PASS
		8GHz-16GHz	Plot 4.9.4 A5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.4 A6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.4 A7	-27	PASS
157	5785	5785MHz	Plot 4.9.4 B1	-27	PASS
		9KHz-30MHz	Plot 4.9.4 B2	-27	PASS
		30MHz-1GHz	Plot 4.9.4 B3	-27	PASS
		1GHz-8GHz	Plot 4.9.4 B4	-27	PASS
		8GHz-16GHz	Plot 4.9.4 B5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.4 B6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.4 B7	-27	PASS
165	5825	5825MHz	Plot 4.9.4 C1	-27	PASS
		9KHz-30MHz	Plot 4.9.4 C2	-27	PASS
		30MHz-1GHz	Plot 4.9.4 C3	-27	PASS
		1GHz-8GHz	Plot 4.9.4 C4	-27	PASS
		8GHz-16GHz	Plot 4.9.4 C5	-27	PASS
		16GHz-26.5GHz	Plot 4.9.4 C6	-27	PASS
		26.5GHz-40GHz	Plot 4.9.4 C7	-27	PASS

Note:
1. For 802.11n HT20 mode at finial test to get the worst-case emission at 6.5Mbps.
2. The test results including the cable lose.

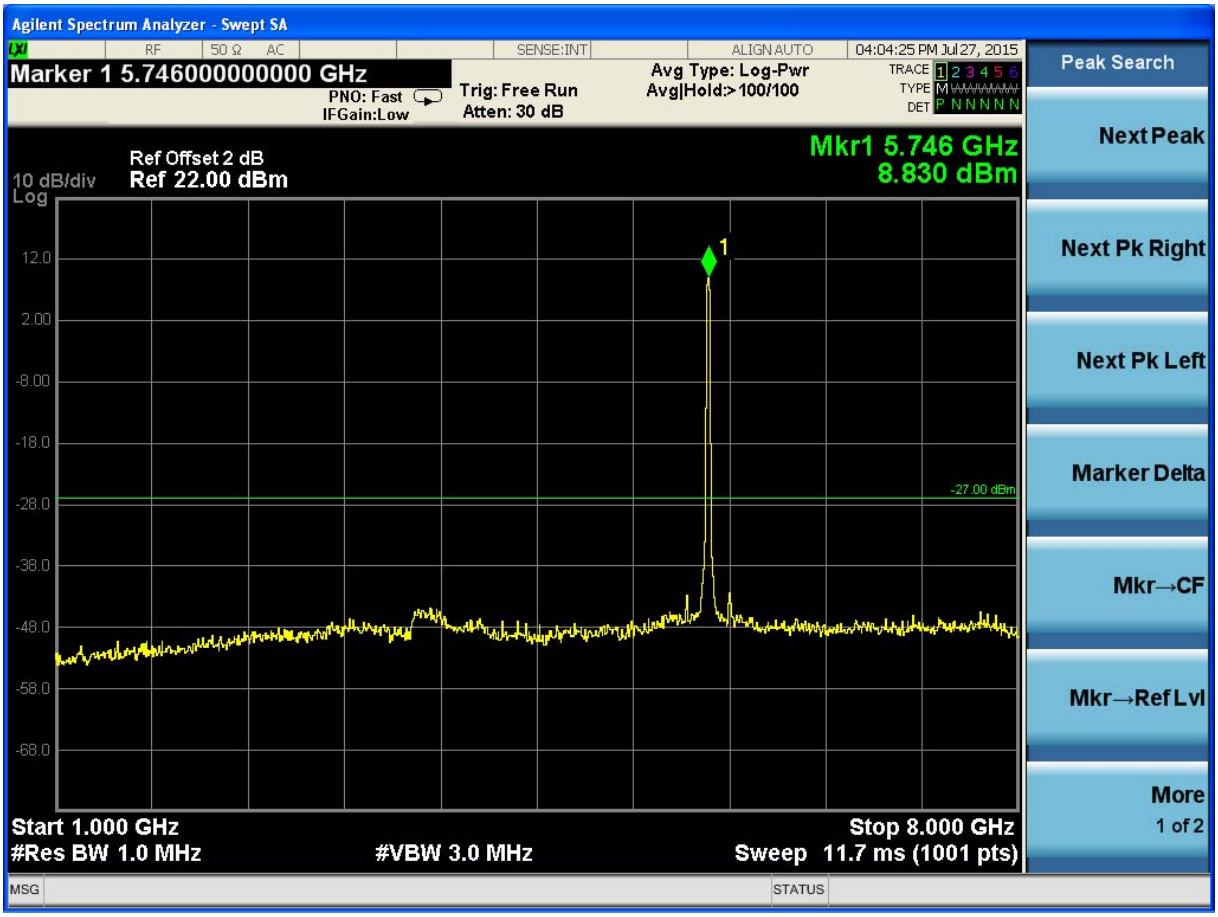


(Plot 4.9.3 A1: Channel 149: 5745MHz @ 802.11a)

(Plot 4.9.3 A2: Channel 149: 5745MHz @ 802.11a)



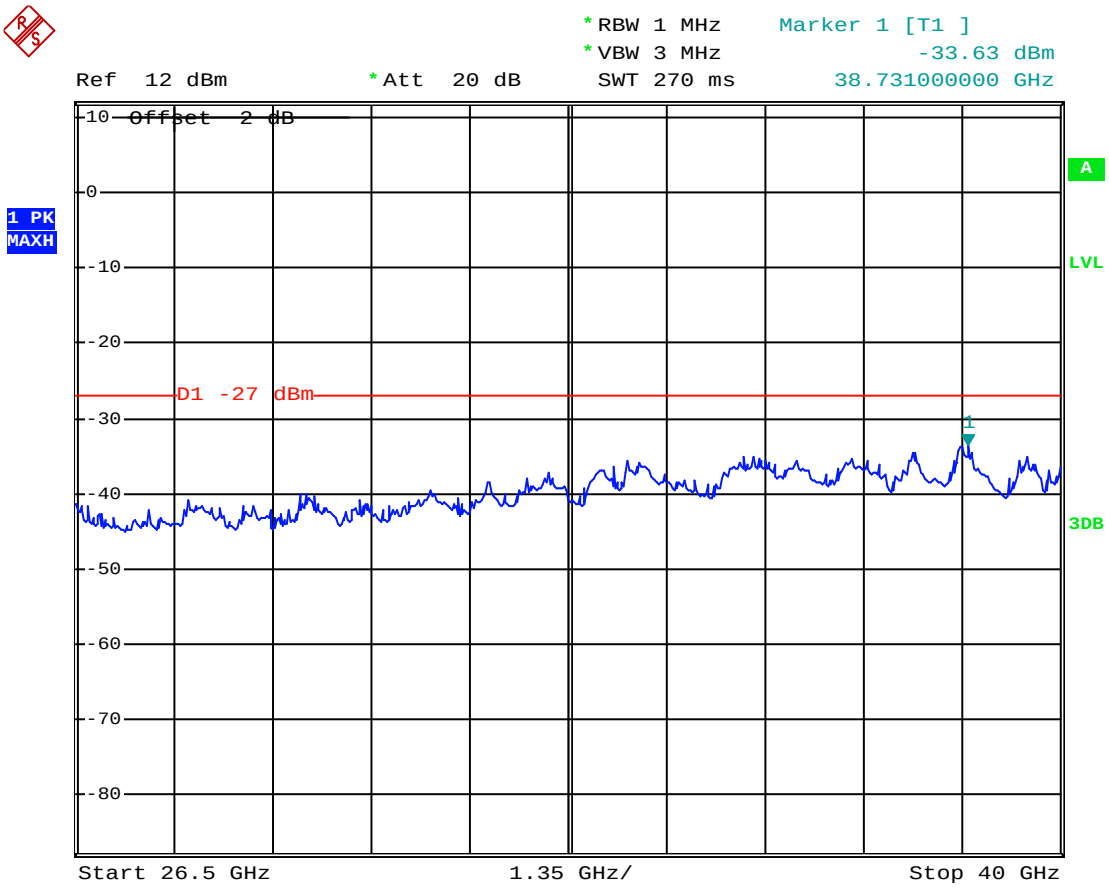
(Plot 4.9.3 A3: Channel 149: 5745MHz @ 802.11a)



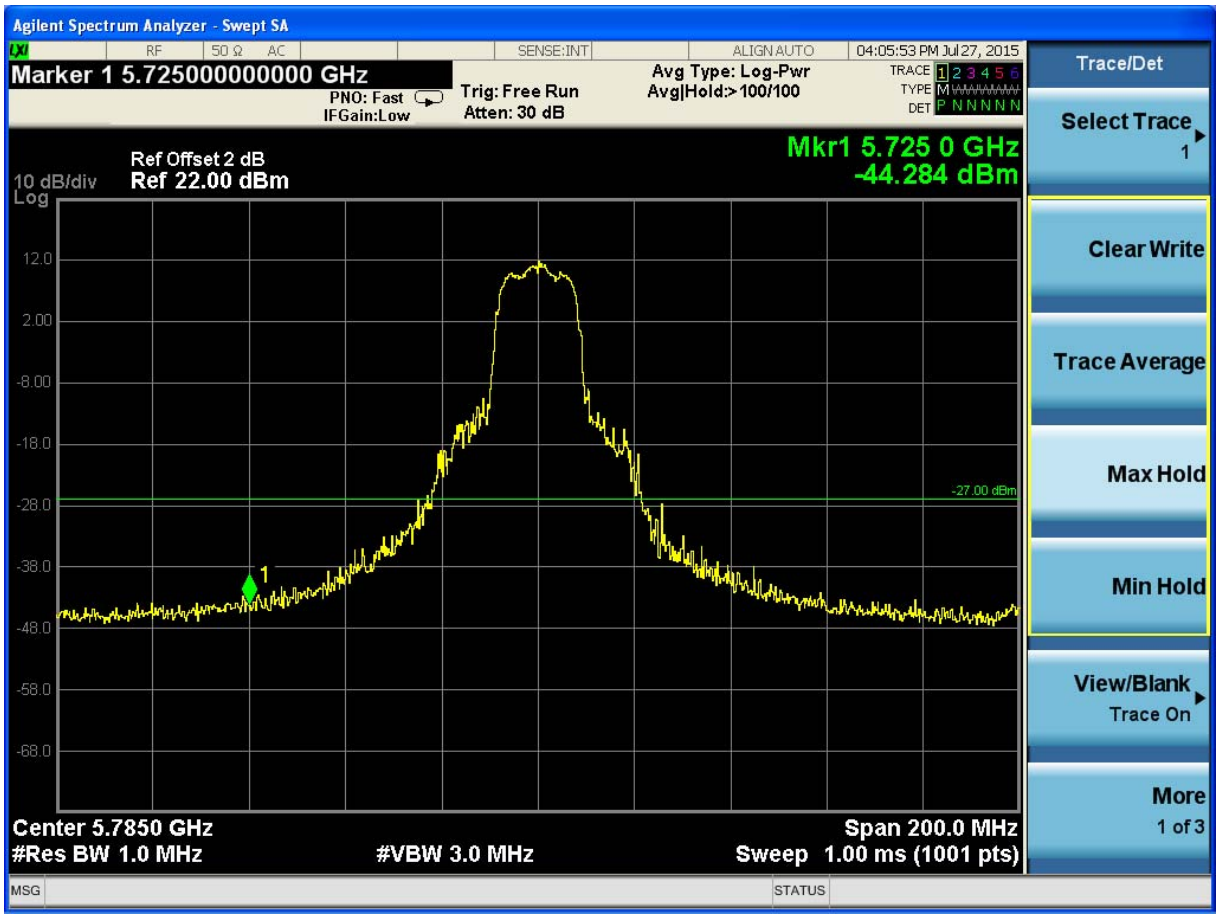
(Plot 4.9.3 A4: Channel 149: 5745MHz @ 802.11a)

(Plot 4.9.3 A5: Channel 149: 5745MHz @ 802.11a)

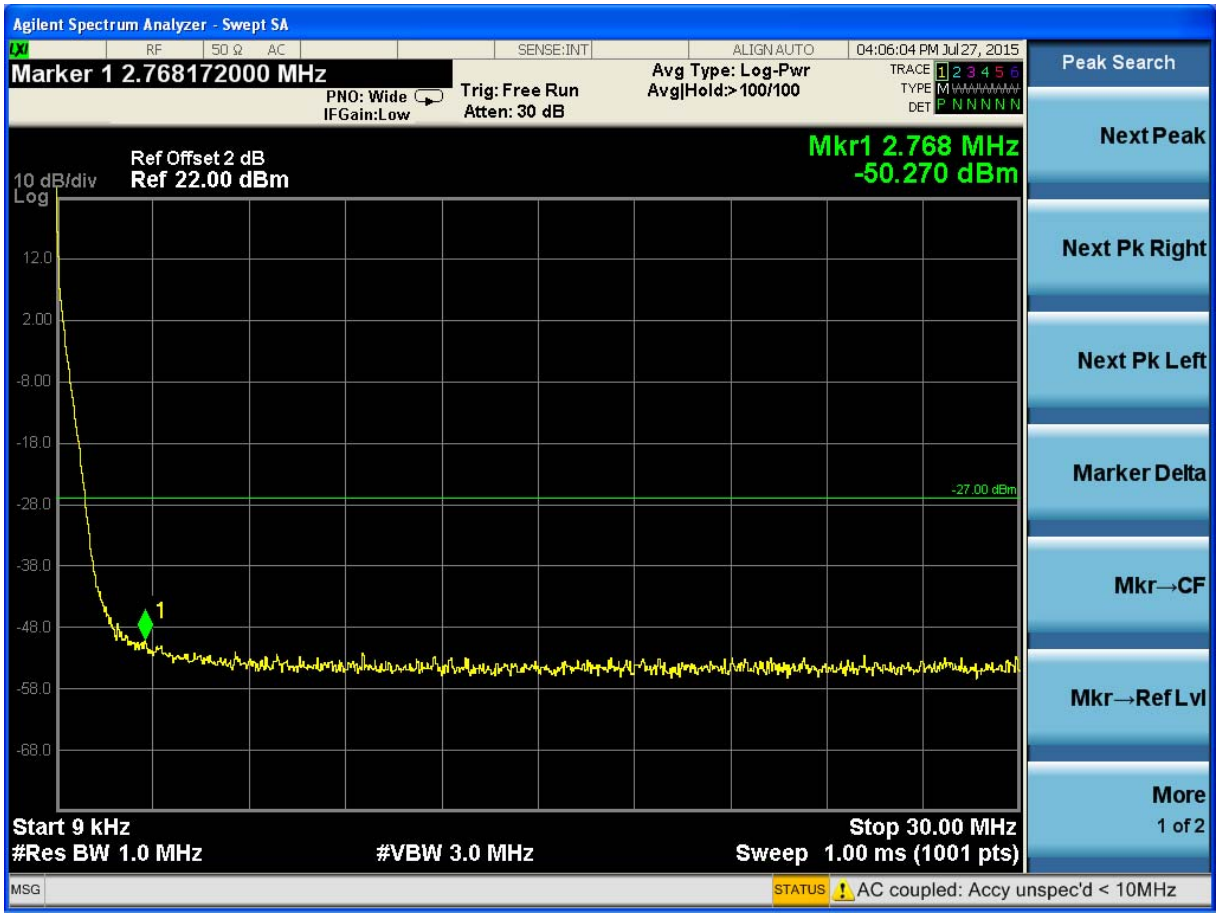
(Plot 4.9.3 A6: Channel 149: 5745MHz @ 802.11a)



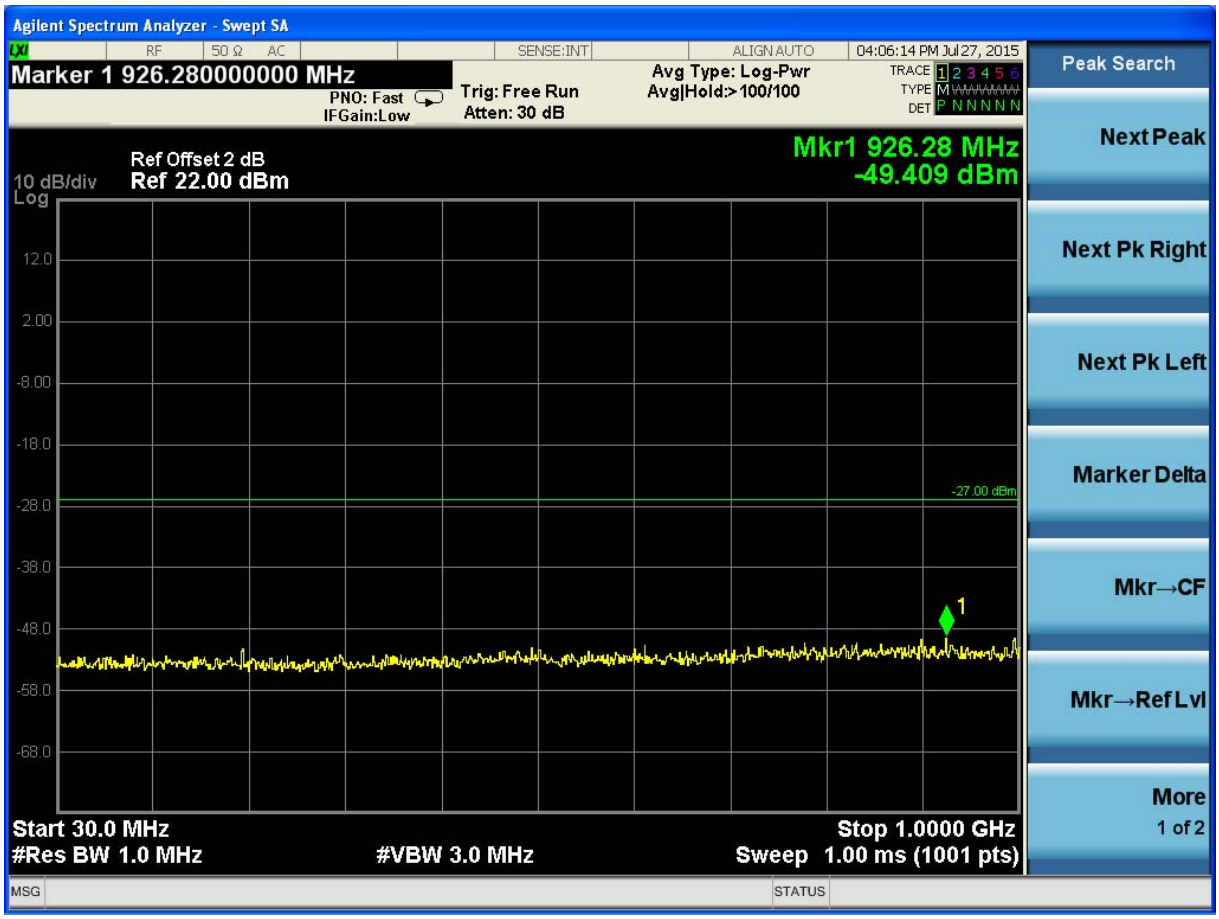
(Plot 4.9.3 A7: Channel 149: 5745MHz @ 802.11a)



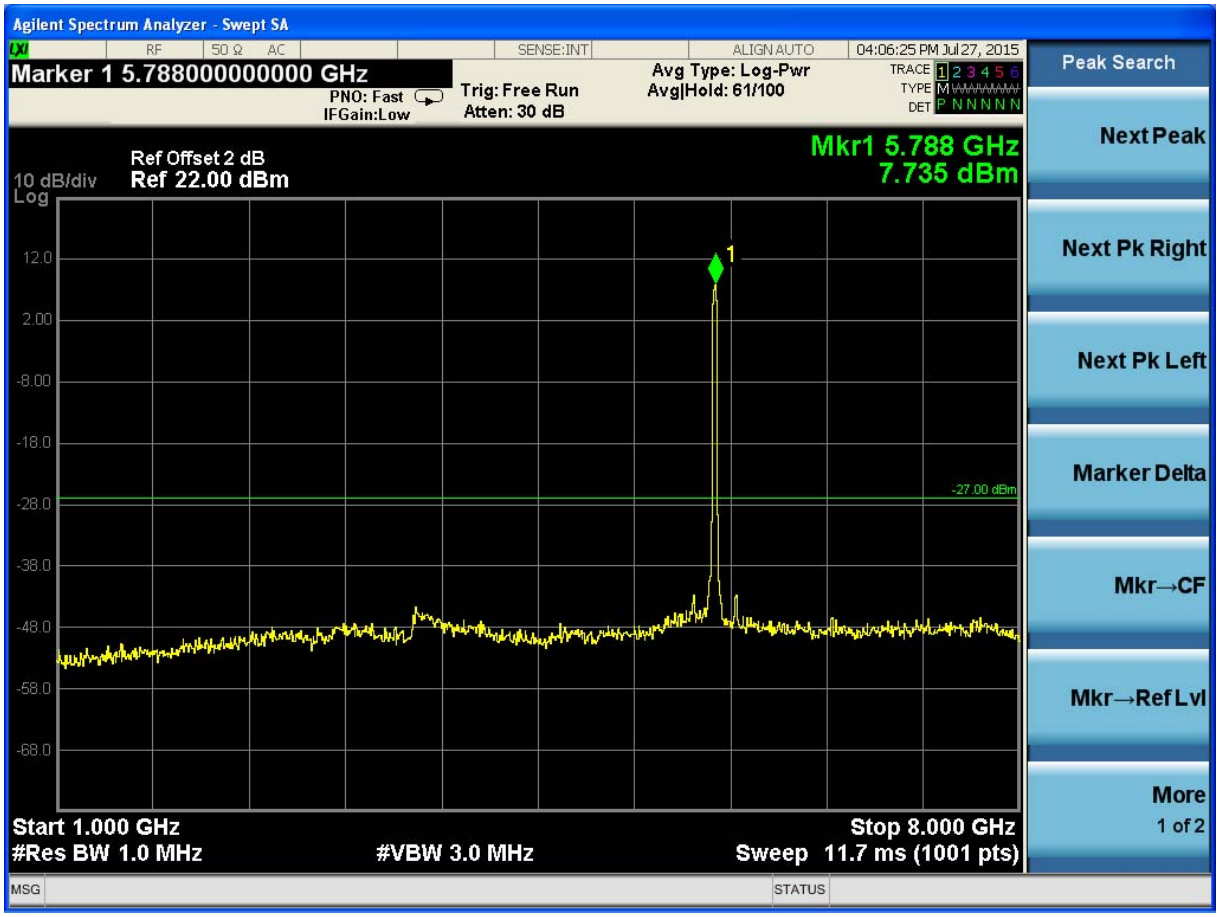
(Plot 4.9.3 B1: Channel 157: 5785MHz @ 802.11a)



(Plot 4.9.3 B2: Channel 157: 5785MHz @ 802.11a)



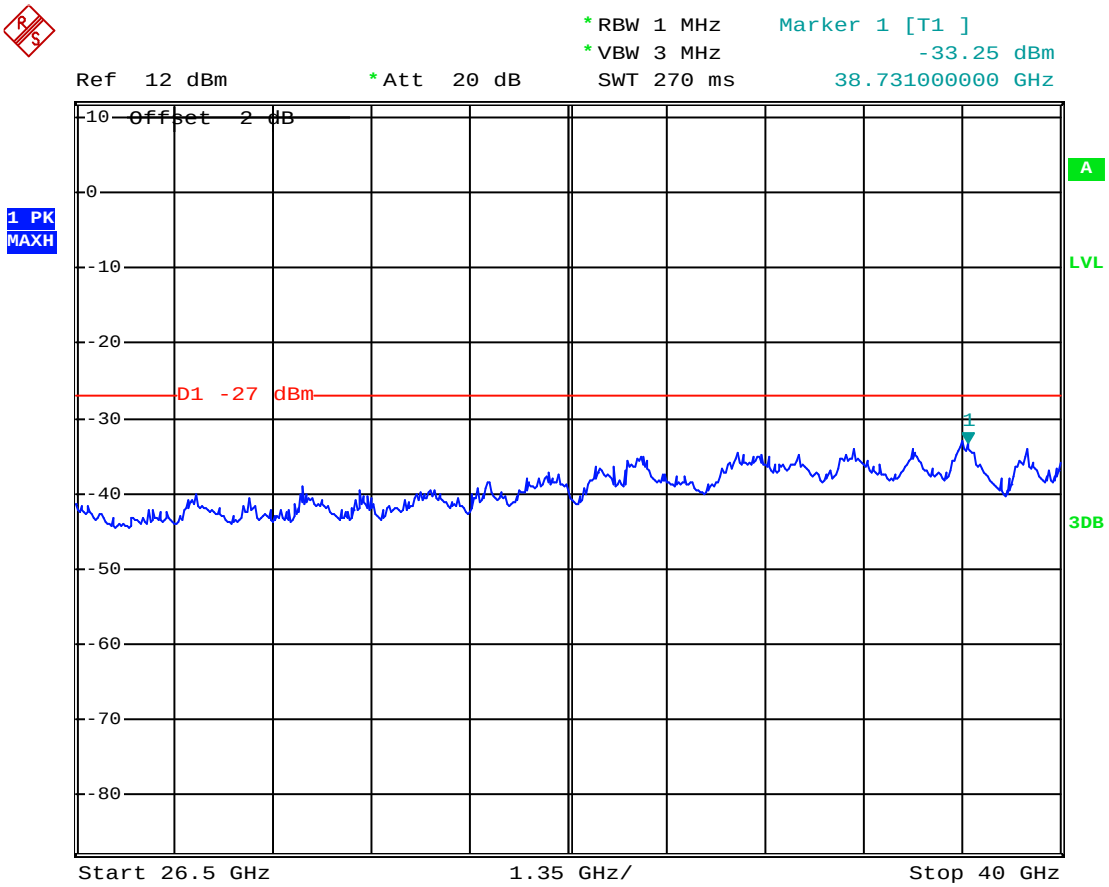
(Plot 4.9.3 B3: Channel 157: 5785MHz @ 802.11a)



(Plot 4.9.3 B4: Channel 157: 5785MHz @ 802.11a)

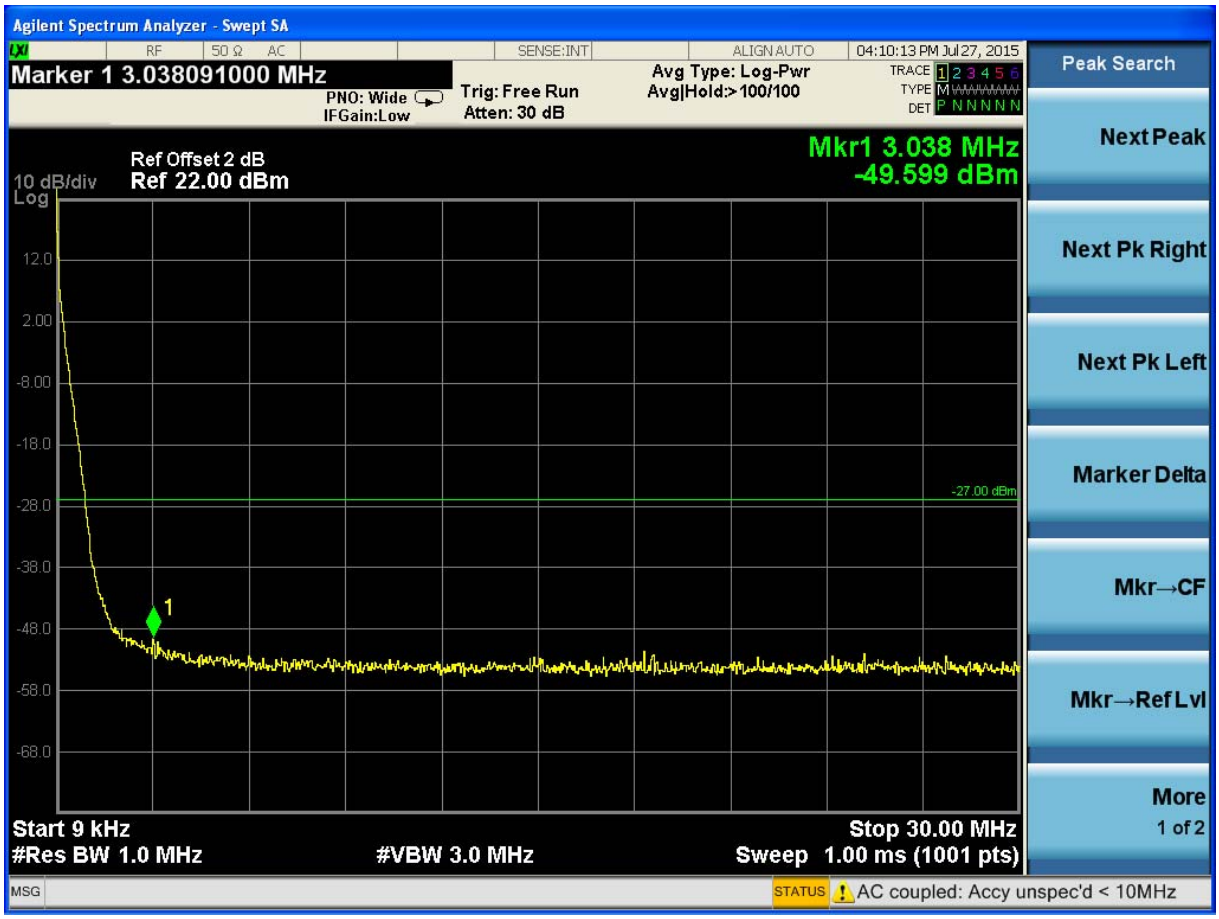
(Plot 4.9.3 B5: Channel 157: 5785MHz @ 802.11a)

(Plot 4.9.3 B6: Channel 157: 5785MHz @ 802.11a)

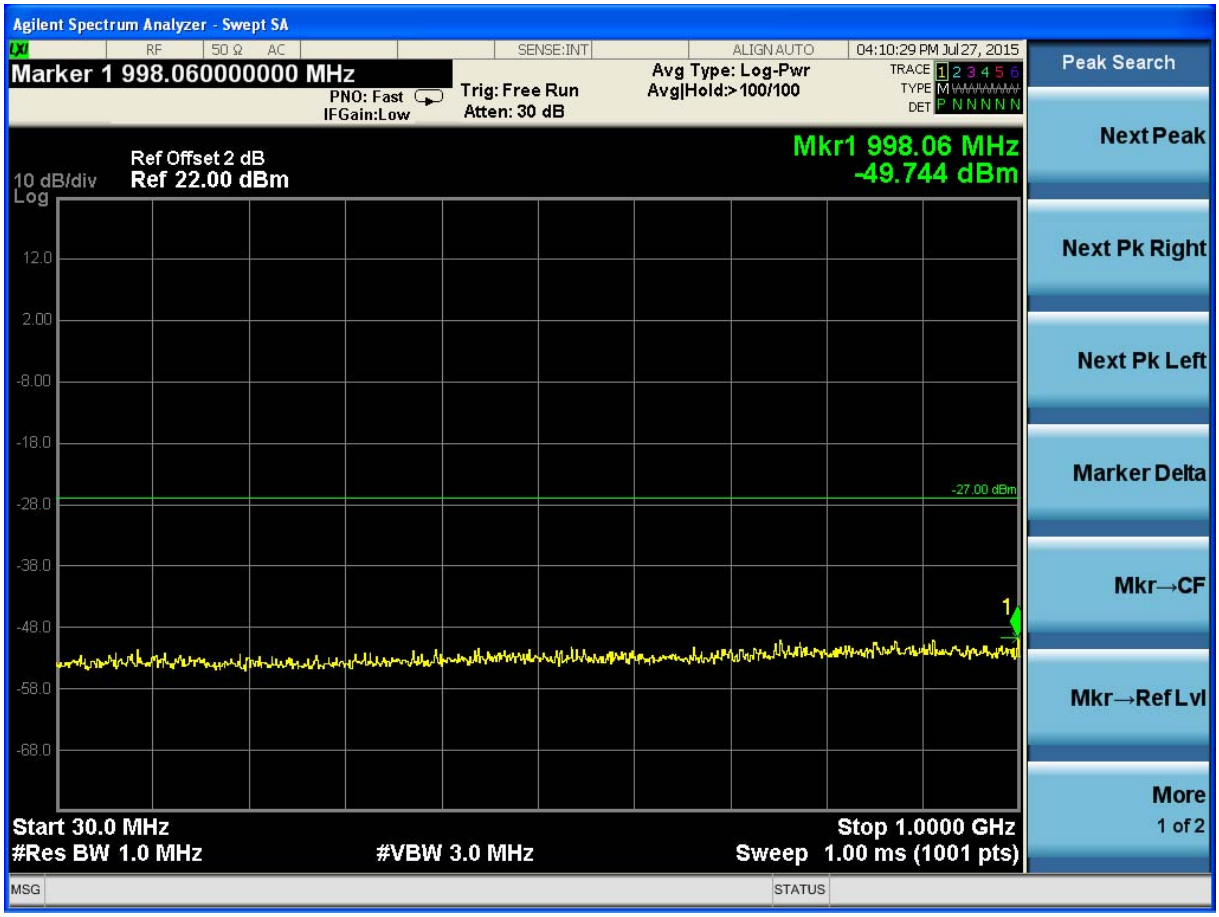


(Plot 4.9.3 B7: Channel 157: 5785MHz @ 802.11a)

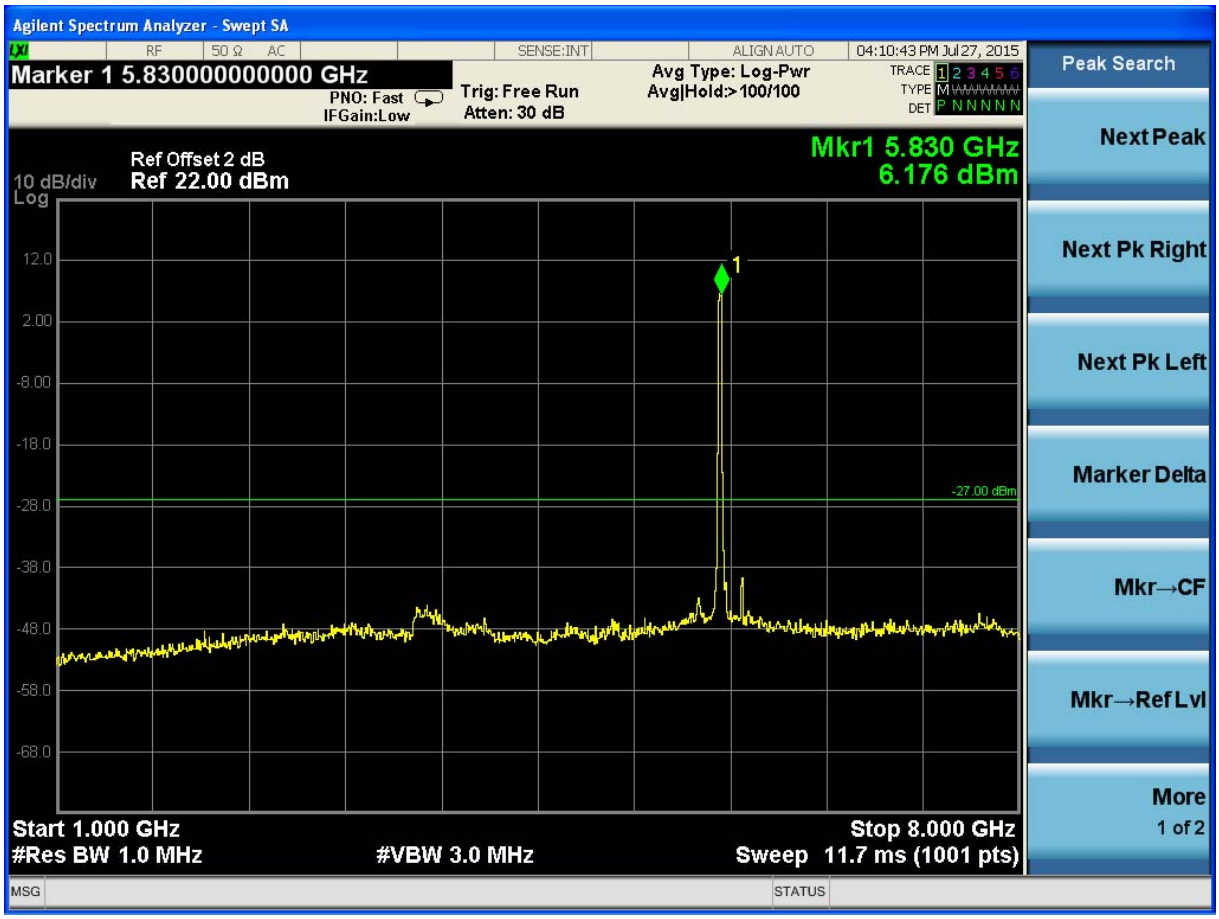
(Plot 4.9.3 C1: Channel 165: 5825MHz @ 802.11a)



(Plot 4.9.3 C2: Channel 165: 5825MHz @ 802.11a)



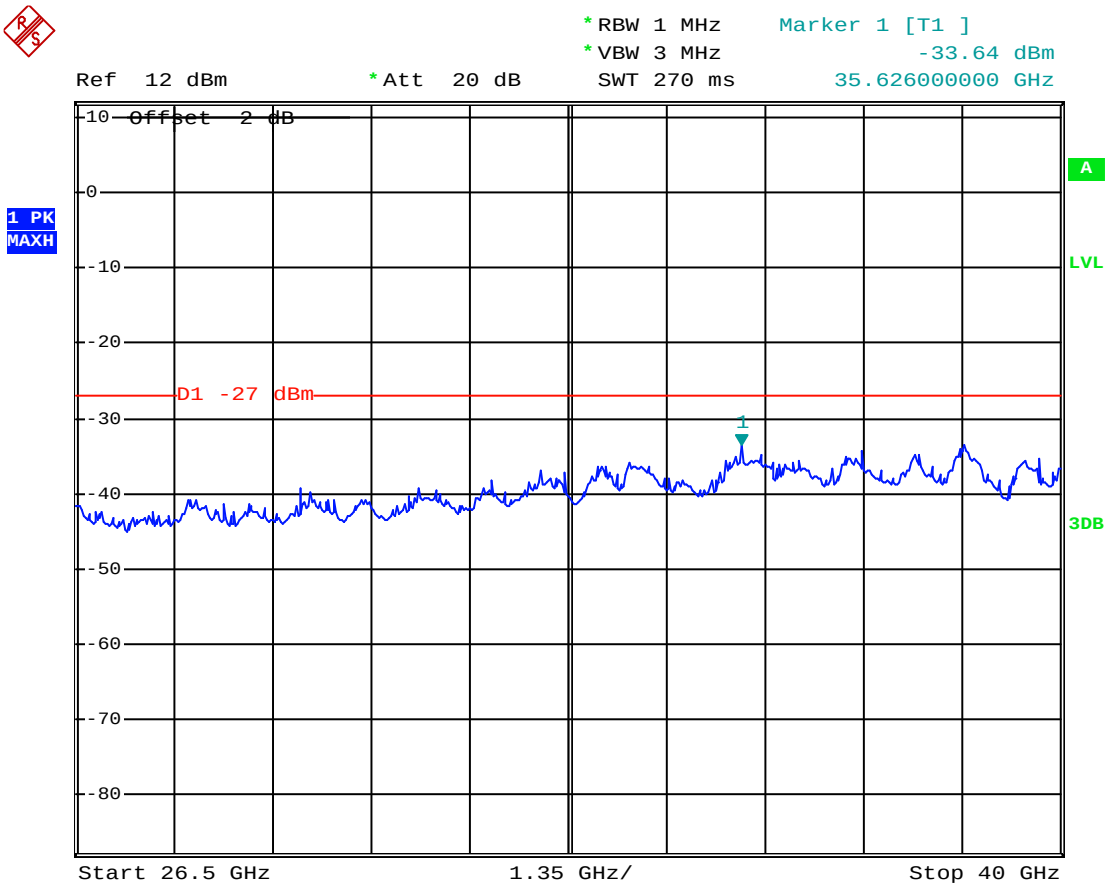
(Plot 4.9.3 C3: Channel 165: 5825MHz @ 802.11a)



(Plot 4.9.3 C4: Channel 165: 5825MHz @ 802.11a)

(Plot 4.9.3 C5: Channel 165: 5825MHz @ 802.11a)

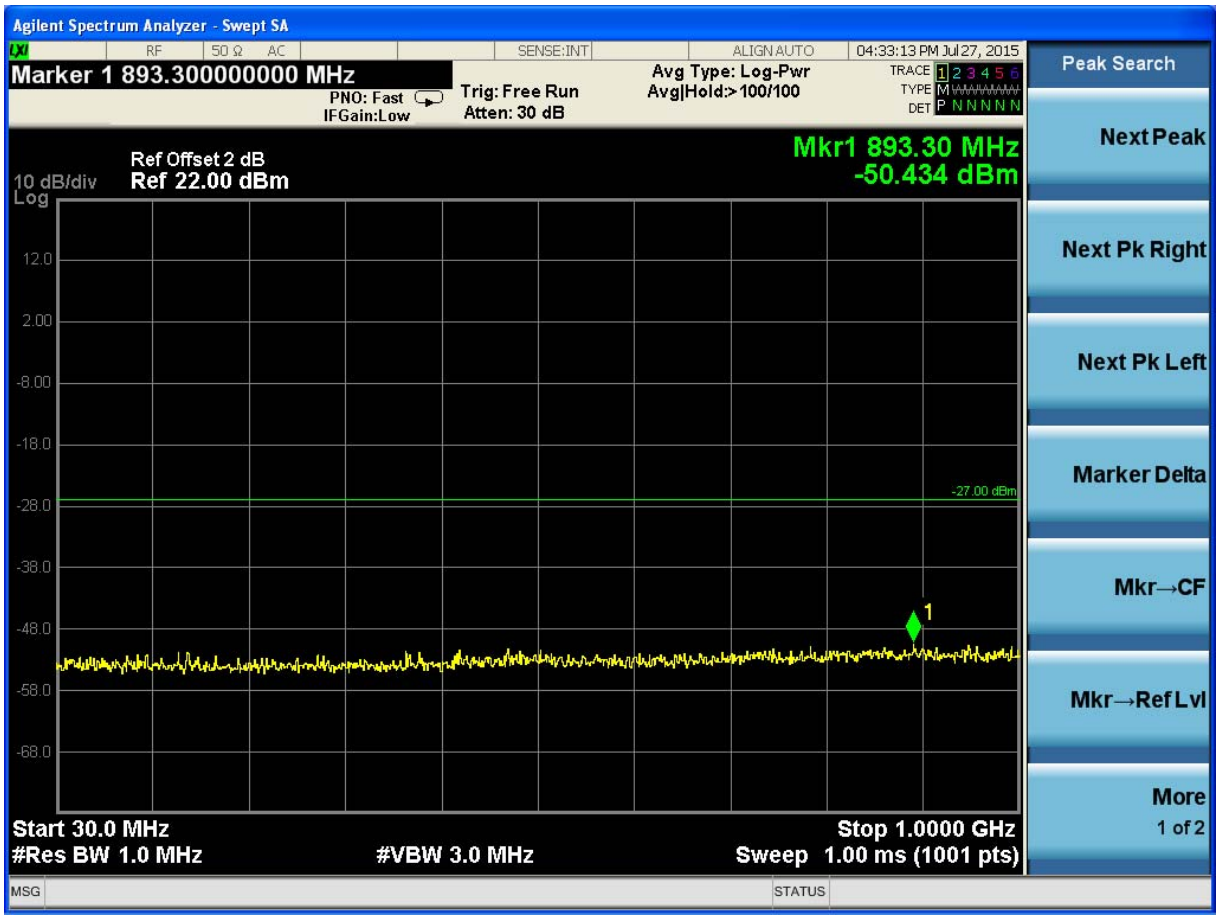
(Plot 4.9.3 C6: Channel 165: 5825MHz @ 802.11a)



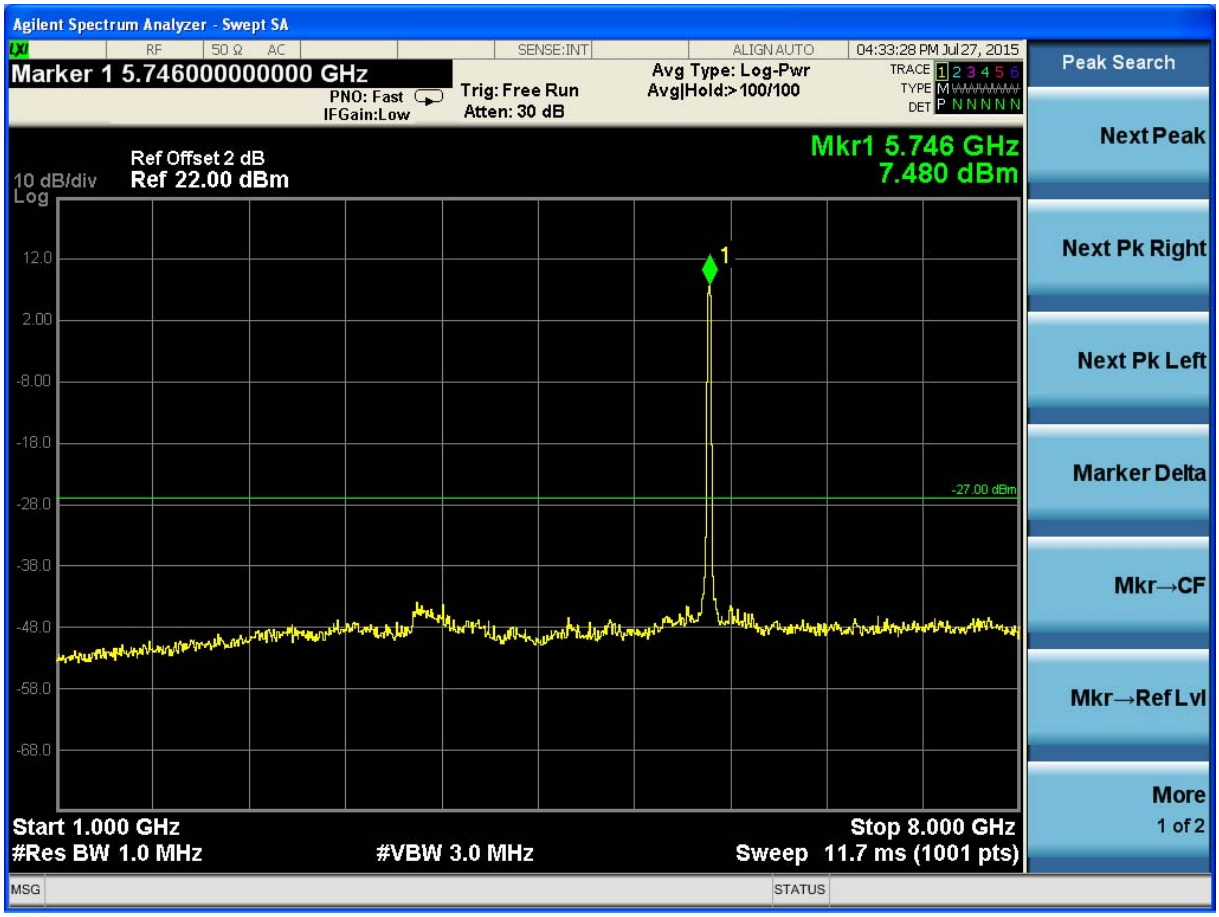
(Plot 4.9.3 C7: Channel 165: 5825MHz @ 802.11a)

(Plot 4.9.4 A1: Channel 149: 5745MHz @ 802.11n HT20)

(Plot 4.9.4 A2: Channel 149: 5745MHz @ 802.11n HT20)



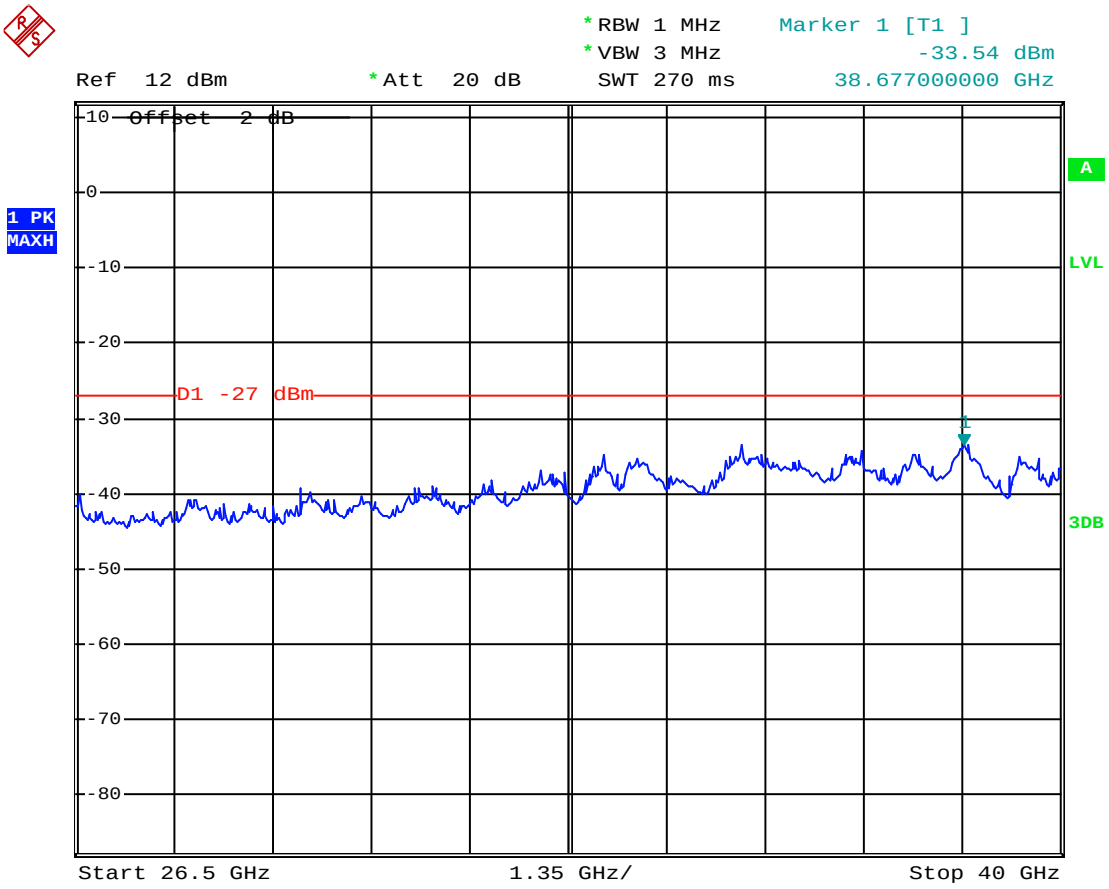
(Plot 4.9.4 A3: Channel 149: 5745MHz @ 802.11n HT20)



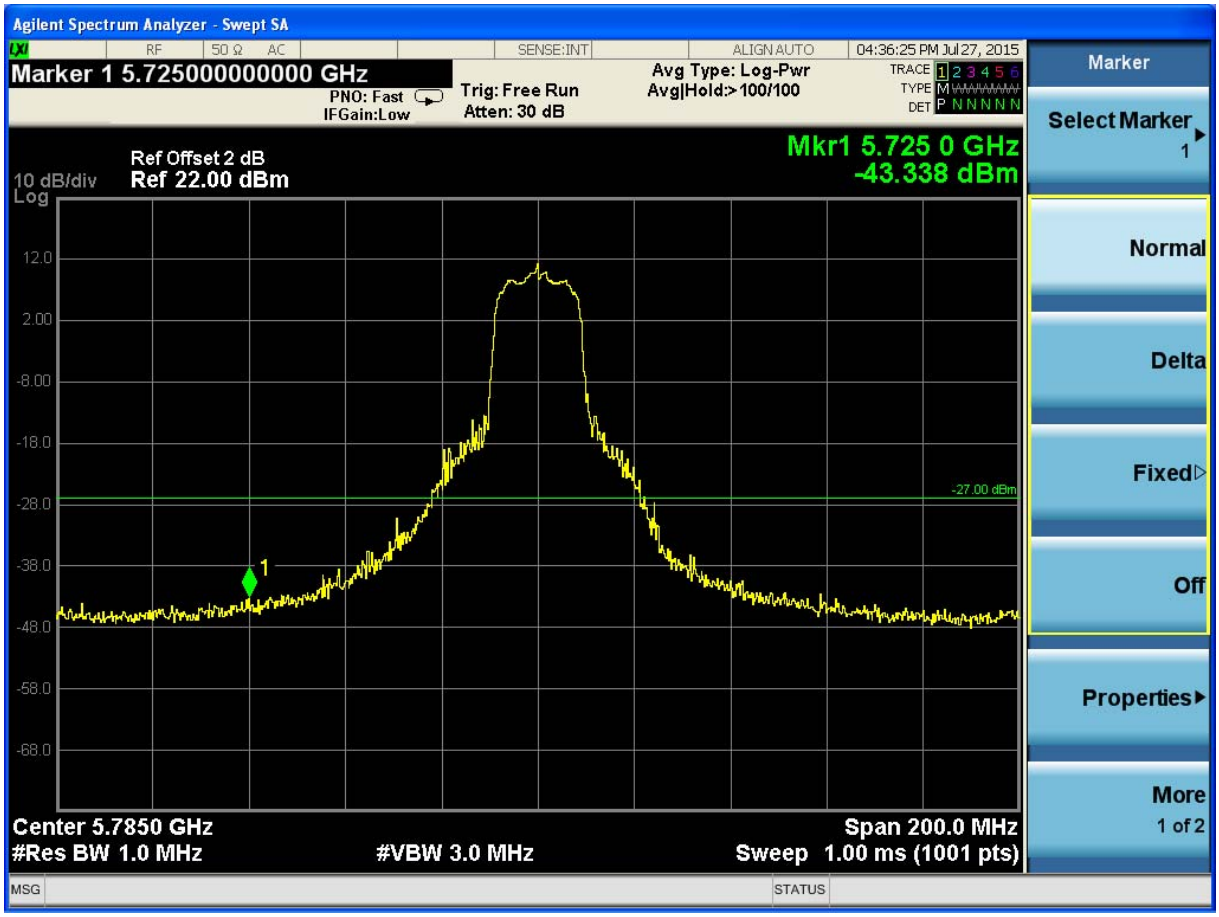
(Plot 4.9.4 A4: Channel 149: 5745MHz @ 802.11n HT20)

(Plot 4.9.4 A5: Channel 149: 5745MHz @ 802.11n HT20)

(Plot 4.9.4 A6: Channel 149: 5745MHz @ 802.11n HT20)

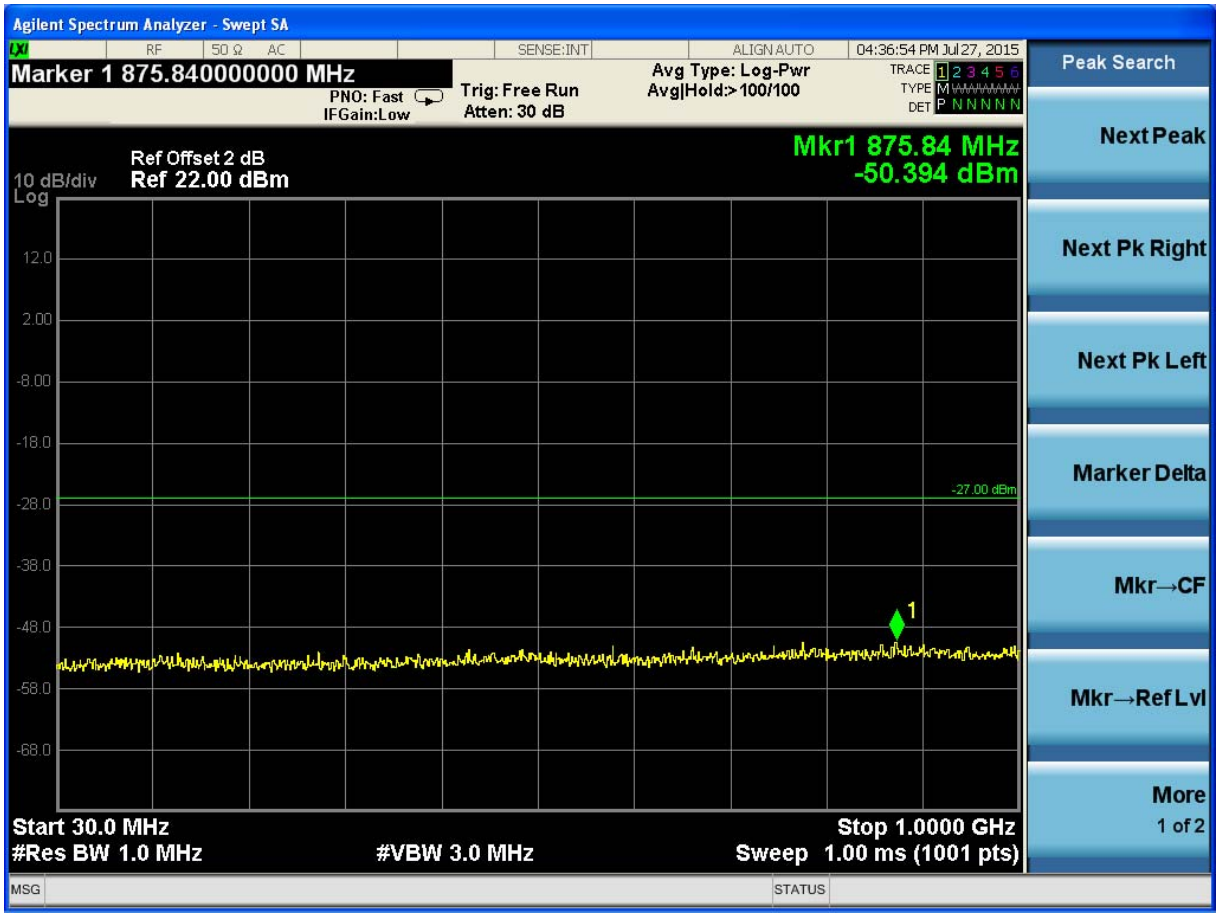


(Plot 4.9.4 A7: Channel 149: 5745MHz @ 802.11n HT20)

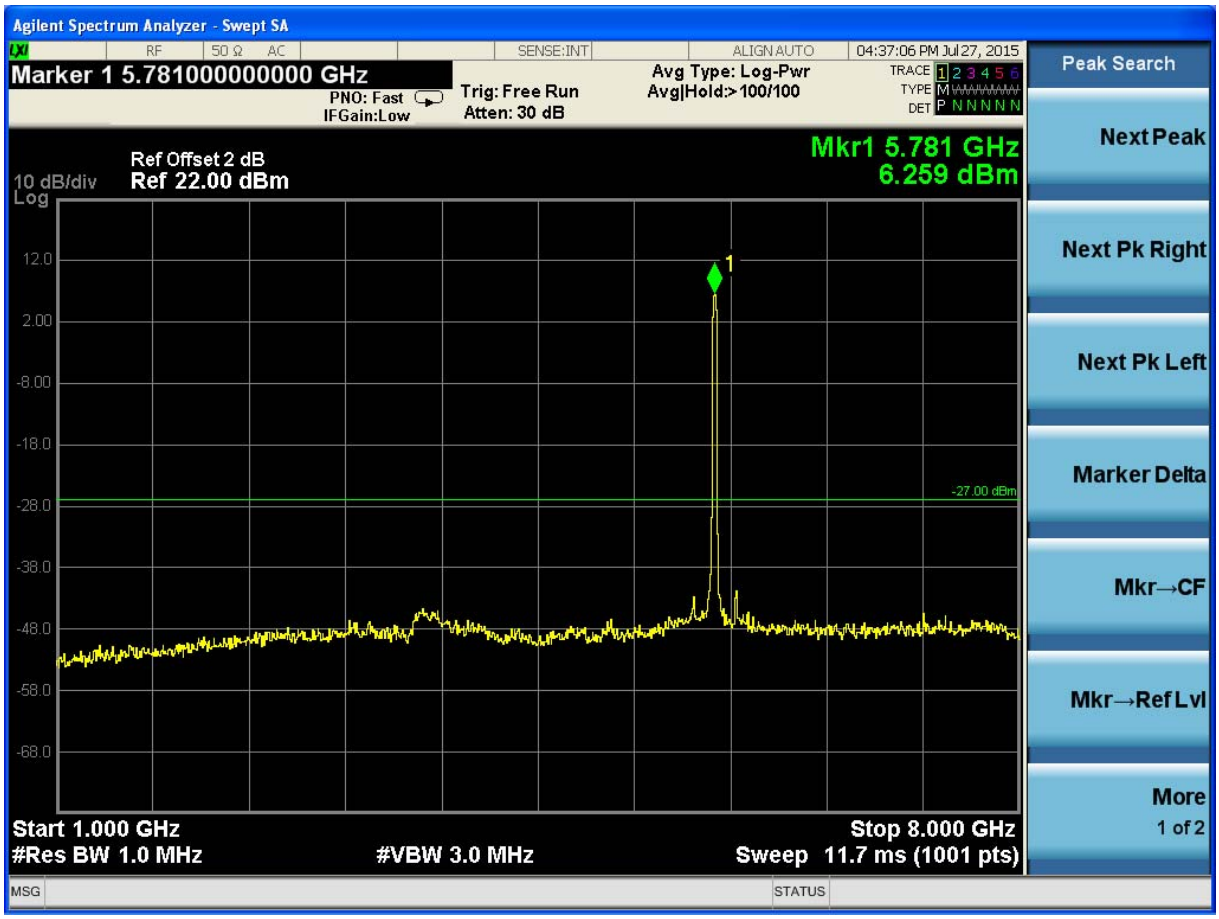


(Plot 4.9.4 B1: Channel 157: 5785MHz @ 802.11n HT20)

(Plot 4.9.4 B2: Channel 157: 5785MHz @ 802.11n HT20)



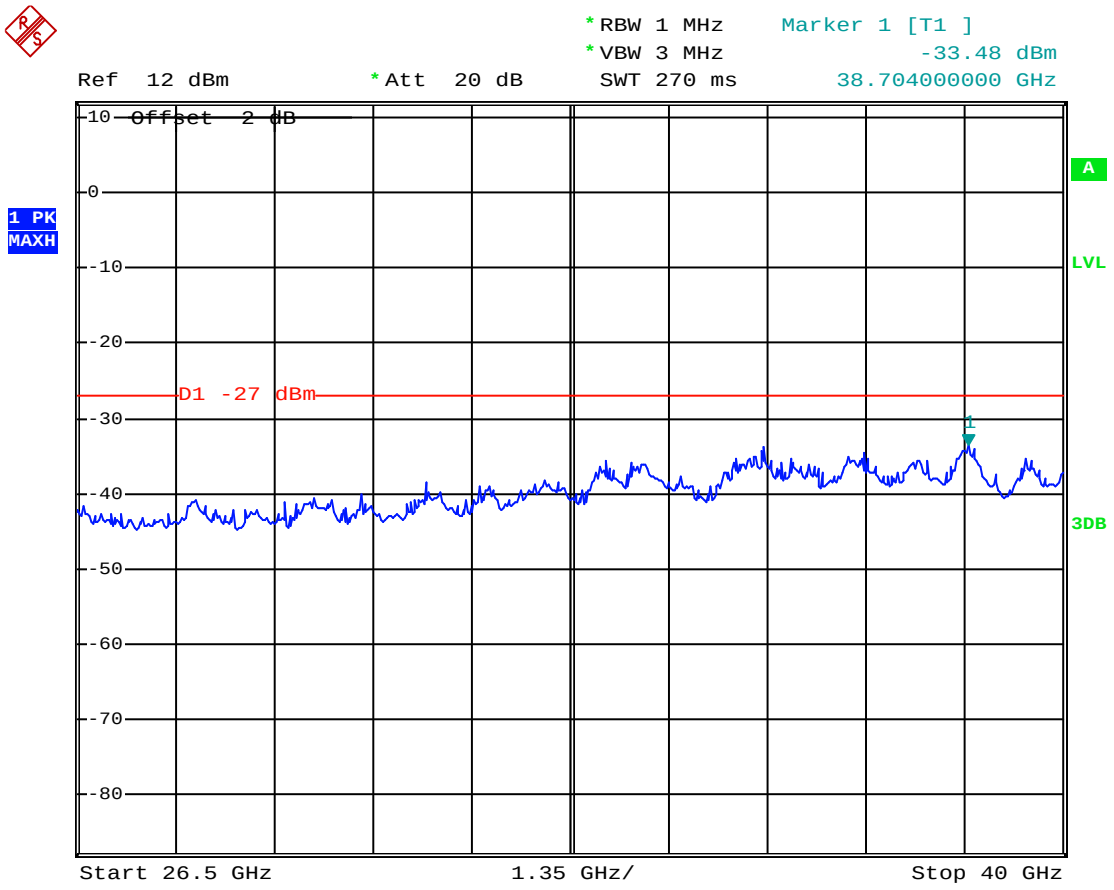
(Plot 4.9.4 B3: Channel 157: 5785MHz @ 802.11n HT20)



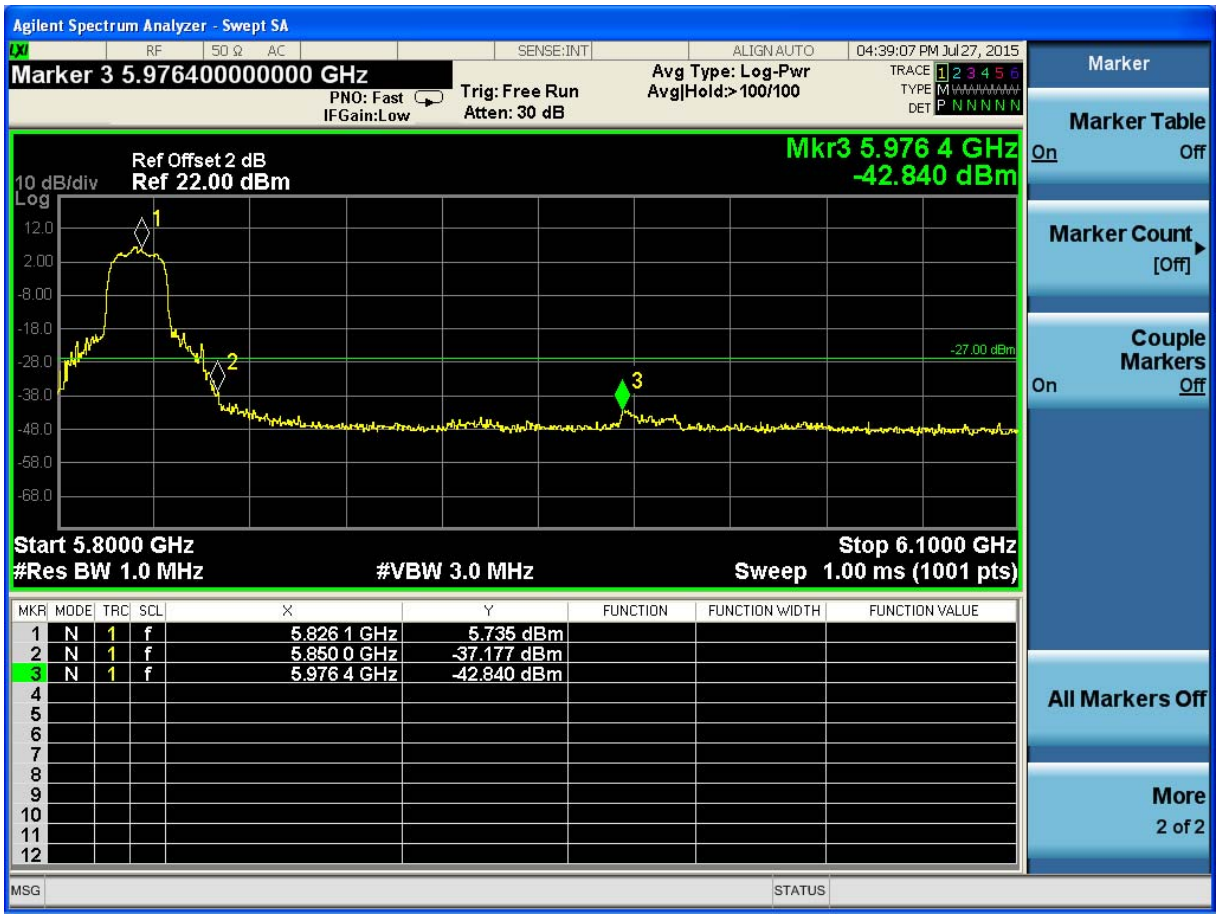
(Plot 4.9.4 B4: Channel 157: 5785MHz @ 802.11n HT20)

(Plot 4.9.4 B5: Channel 157: 5785MHz @ 802.11n HT20)

(Plot 4.9.4 B6: Channel 157: 5785MHz @ 802.11n HT20)

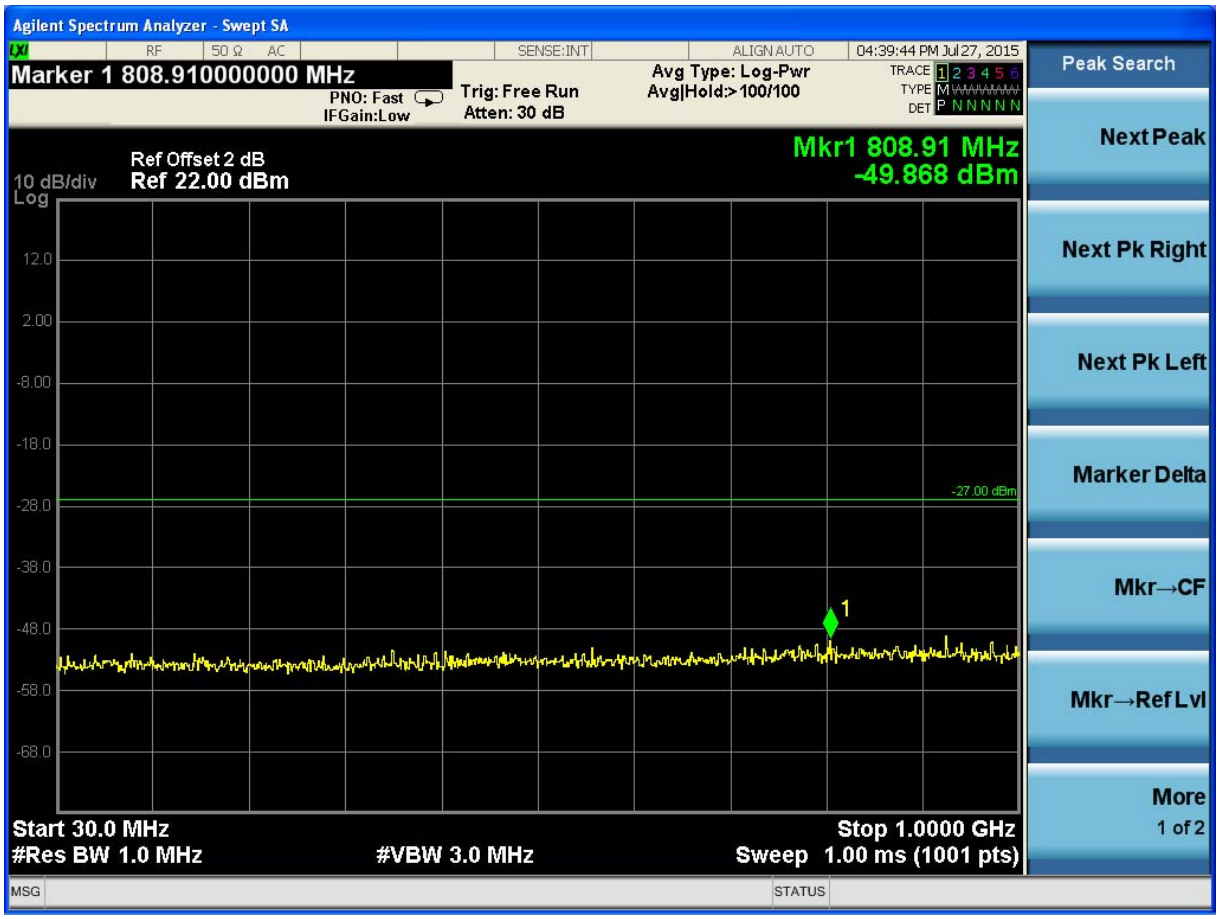


(Plot 4.9.4 B7: Channel 157: 5785MHz @ 802.11n HT20)

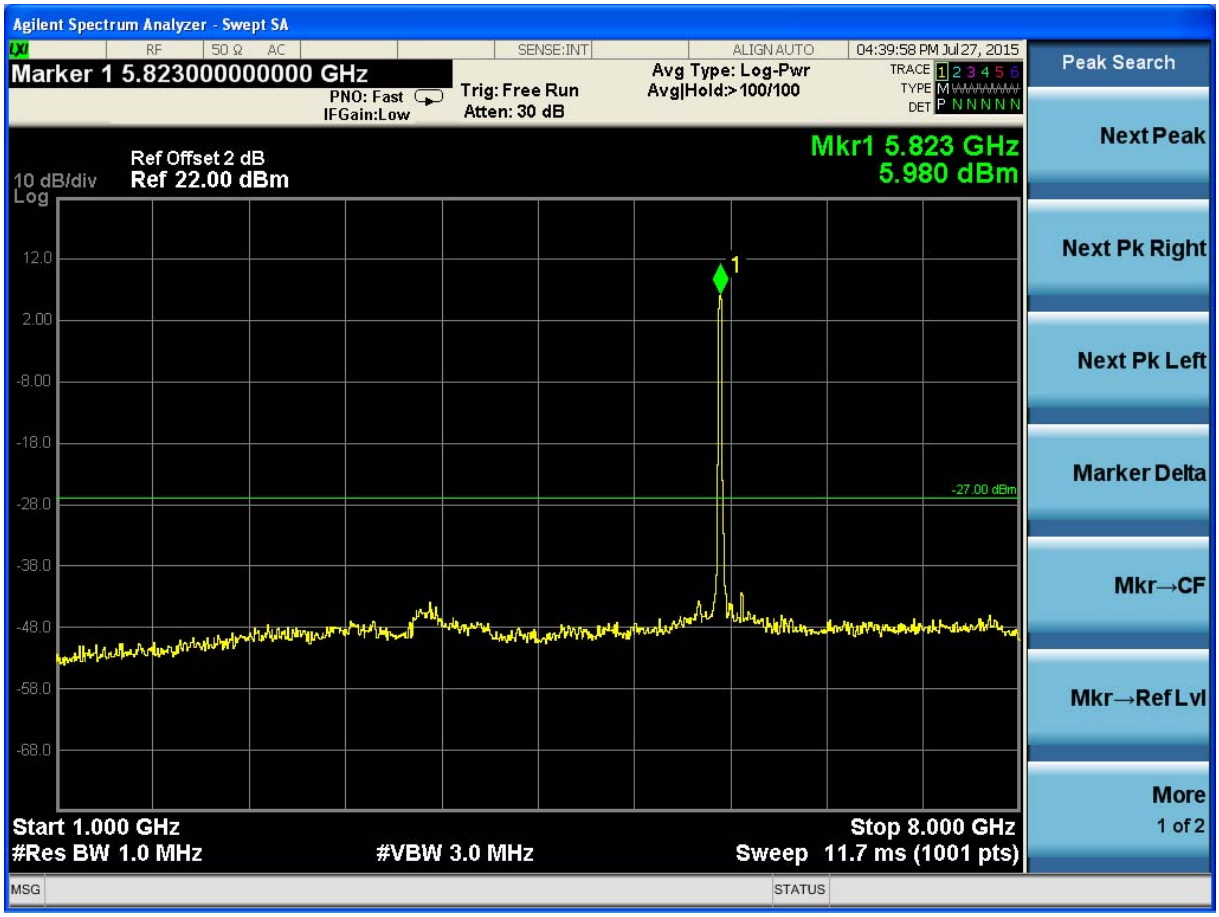


(Plot 4.9.4 C1: Channel 165: 5825MHz @ 802.11n HT20)

(Plot 4.9.4 C2: Channel 165: 5825MHz @ 802.11n HT20)



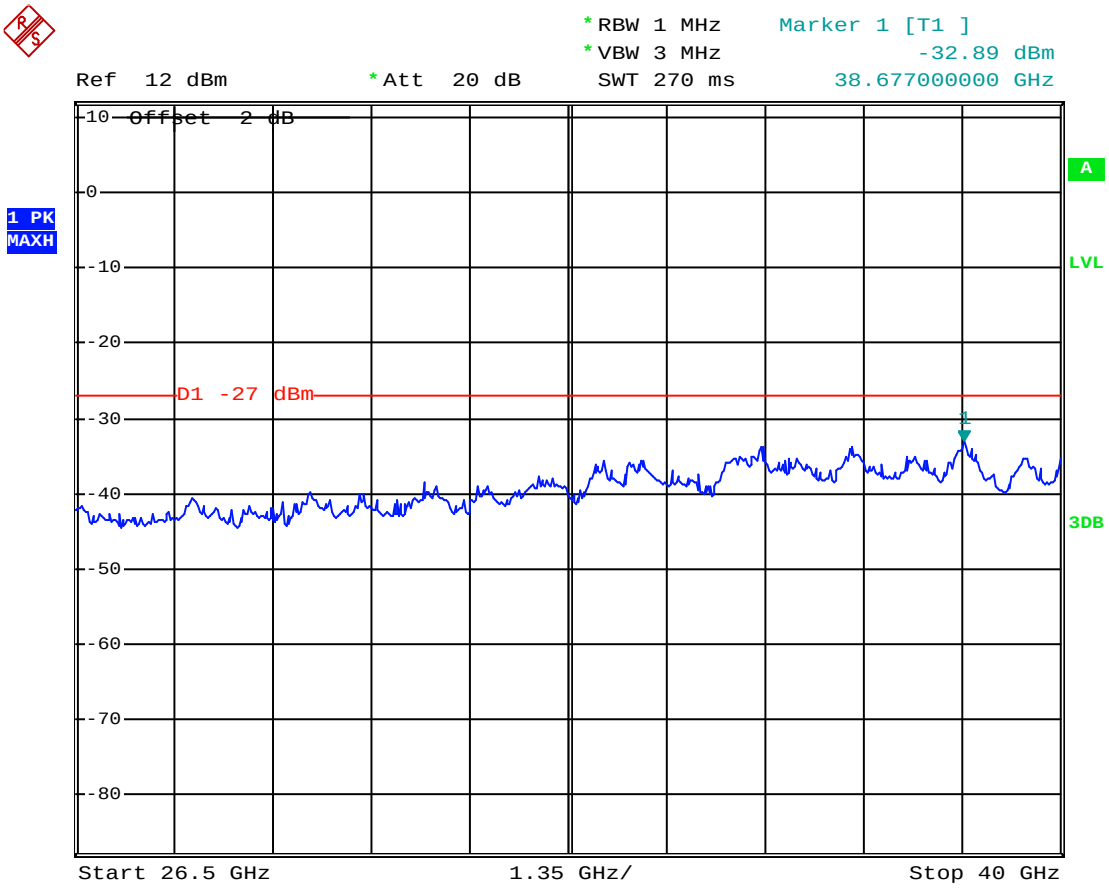
(Plot 4.9.4 C3: Channel 165: 5825MHz @ 802.11n HT20)



(Plot 4.9.4 C4: Channel 165: 5825MHz @ 802.11n HT20)

(Plot 4.9.4 C5: Channel 165: 5825MHz @ 802.11n HT20)

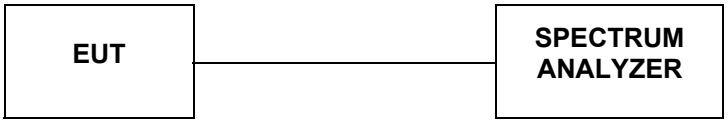
(Plot 4.9.4 C6: Channel 165: 5825MHz @ 802.11n HT20)



(Plot 4.9.4 C7: Channel 165: 5825MHz @ 802.11n HT20)

4.10. Frequency Stability

TEST CONFIGURATION



TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port
b. Spectrum setting as follows:
RBW=10KHz
VBW=30KHz
Span= Entire absence of modulation emissionsbandwidth
Sweep Time= Auto
Attenuation= Auto
c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
d. User manual temperature is-10°C~55°C.

LIMIT

Frequency Range (MHz)	Limit
5150-5250	Specifiedin the user's manual
5250-5350	
5470-5725	
5725-5850	

TEST RESULTS

For UNII-1 Band

Voltage vs. Frequency Stability

Voltage (V)	Measurement Frequency (MHz)
132	5180.0000
120	5180.0000
108	5180.0000
Maximum Deviation (MHz)	0.0000
Maximum Deviation (ppm)	0.0000

Temperature vs. Frequency Stability

Temperature (℃)	Measurement Frequency (MHz)
-10	5180.0000
5	5180.0000
15	5180.0000
25	5180.0000
35	5180.0000
45	5180.0000
55	5180.0000
Maximum Deviation (MHz)	0.0000
Maximum Deviation (ppm)	0.0000

For UNII-3 Band

Voltage vs. Frequency Stability

Voltage (V)	Measurement Frequency (MHz)
132	5745.0000
120	5745.0000
108	5745.0000
Maximum Deviation (MHz)	0.0000
Maximum Deviation (ppm)	0.0000

Temperature vs. Frequency Stability

Temperature (℃)	Measurement Frequency (MHz)
-10	5745.0000
5	5745.0000
15	5745.0000
25	5745.0000
35	5745.0000
45	5745.0000
55	5745.0000
Maximum Deviation (MHz)	0.0000
Maximum Deviation (ppm)	0.0000

4.11. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Measurement

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.For normal WLAN devices, the IEEE 802.11a mode is used.

Measurement parameters

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1MHz
Video bandwidth:	3MHz
Trace-Mode:	Max hold

Limits

FCC	IC
Antenna Gain	
6 dBi	

Results

For UNII-1 Band

T_{nom}	V_{nom}	Lowest Channel 5180 MHz	Middle Channel 5200 MHz	Highest Channel 5240 MHz
Conducted power [dBm] Measured with IEEE 802.11a		9.921	10.062	9.739
Radiated power [dBm] Measured with IEEE 802.11a		7.645	8.237	7.418
Gain [dBi] Calculated		-2.276	-1.825	-2.321
Measurement uncertainty		± 0.6 dB (cond.) / ± 2.56 dB (rad.)		

For UNII-3 Band

T_{nom}	V_{nom}	Lowest Channel 5745 MHz	Middle Channel 5785 MHz	Highest Channel 5825 MHz
Conducted power [dBm] Measured with IEEE 802.11a		11.312	9.981	11.766
Radiated power [dBm] Measured with IEEE 802.11a		9.026	7.755	8.837
Gain [dBi] Calculated		-2.286	-2.226	-2.929
Measurement uncertainty		± 0.6 dB (cond.) / ± 2.56 dB (rad.)		

.....End of Report.....