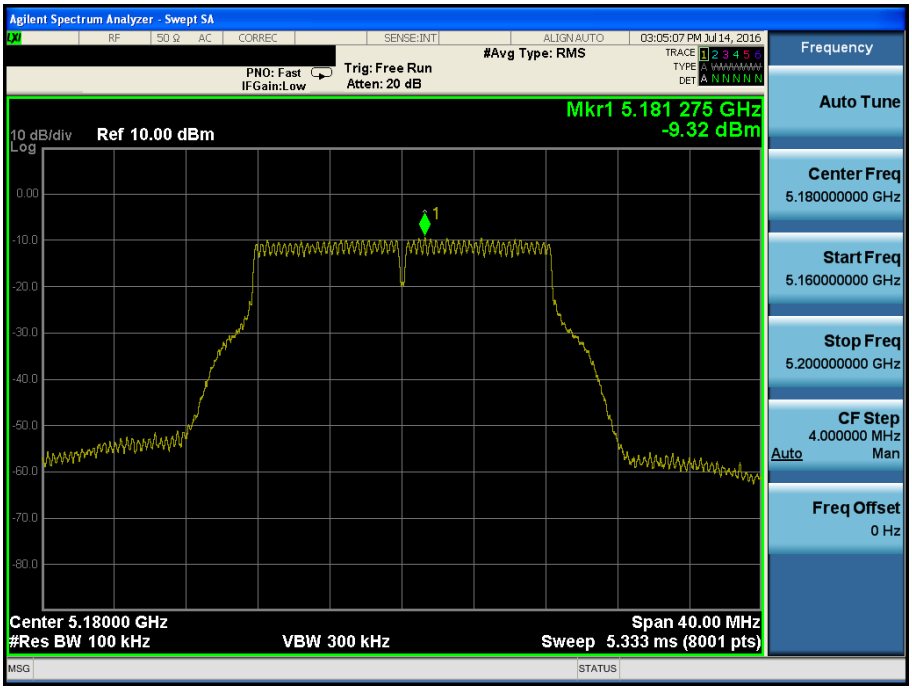
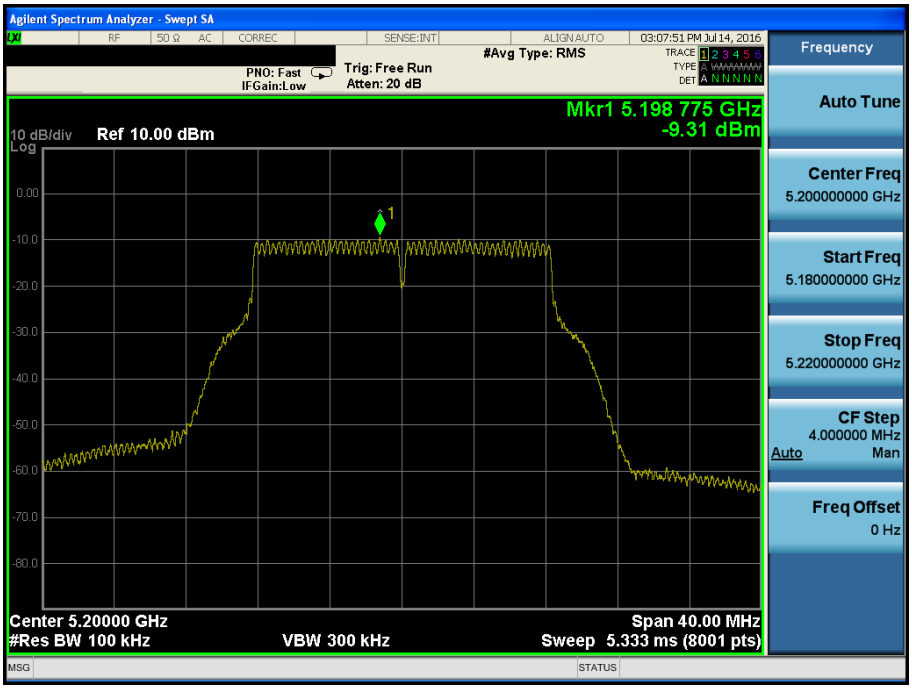
▣ RESULT PLOTS

Multiple Transmit

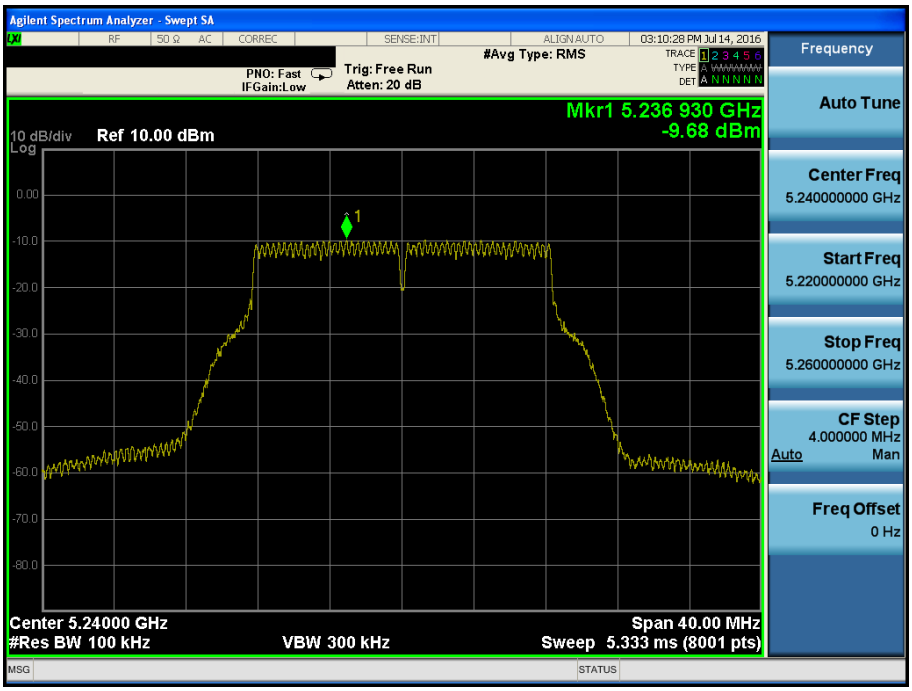
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.36



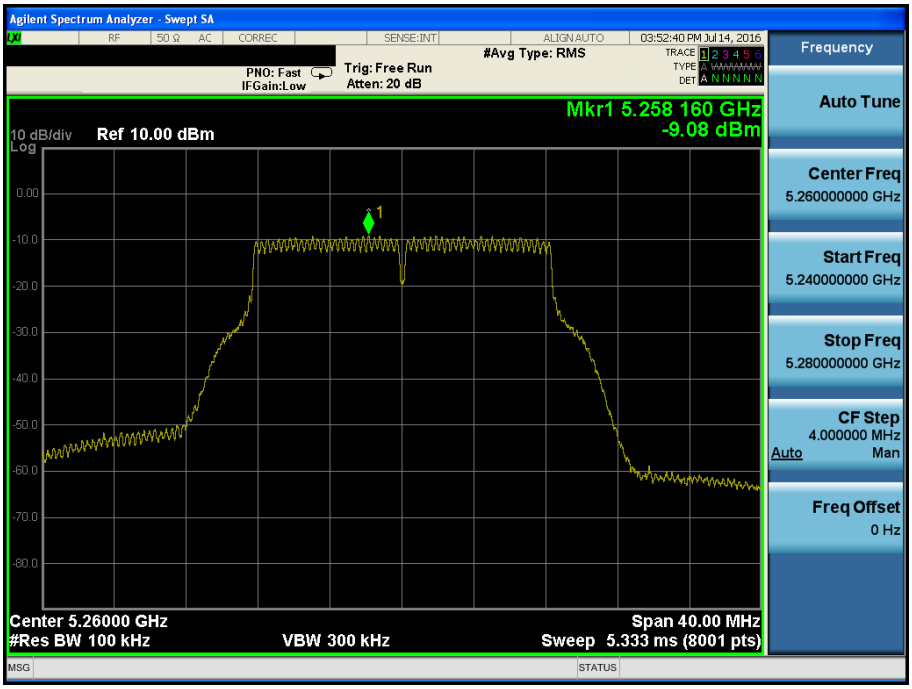
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.40



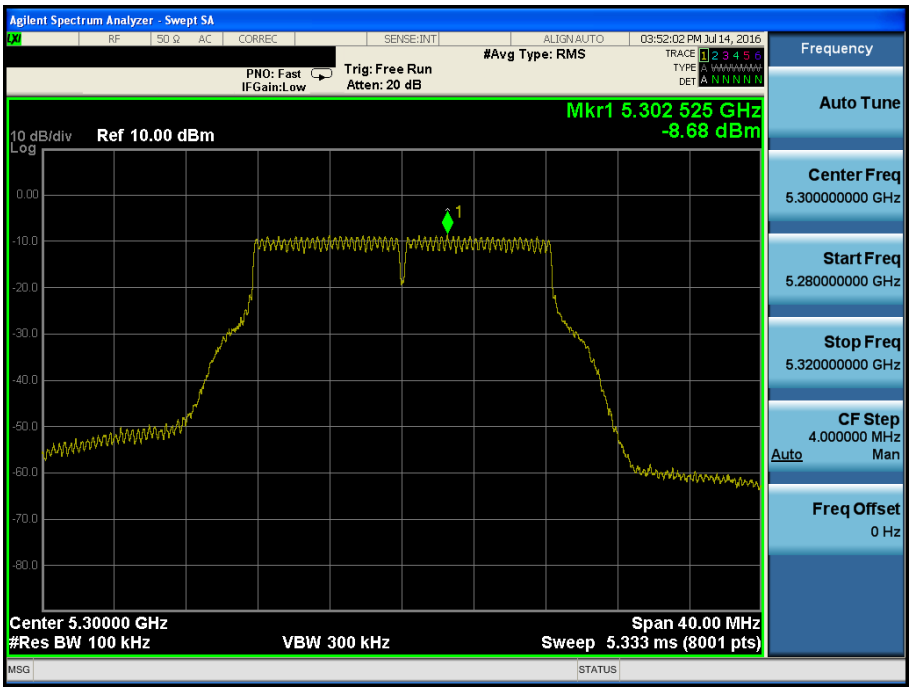
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.48



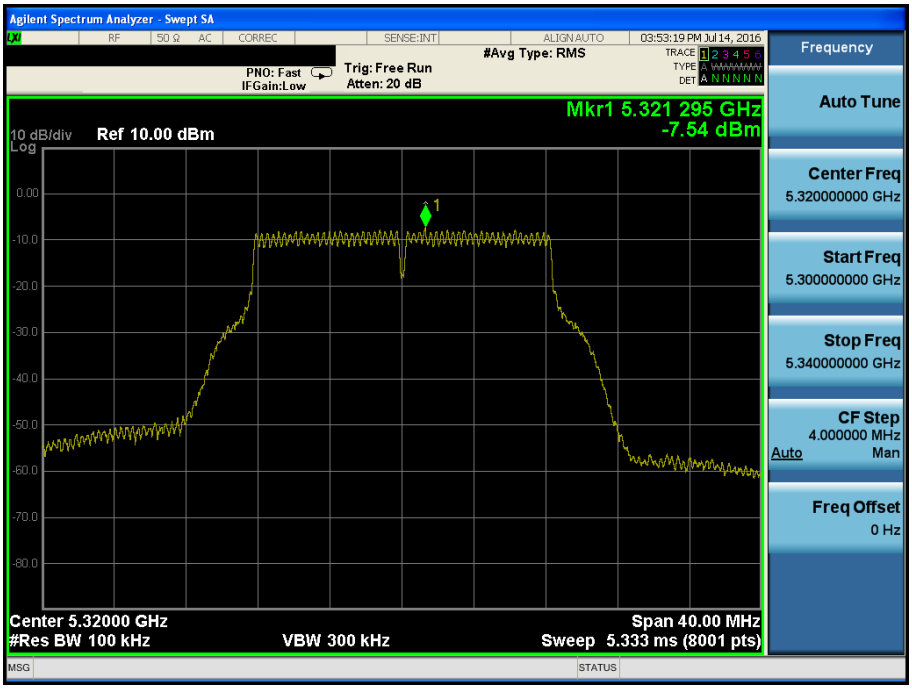
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.52



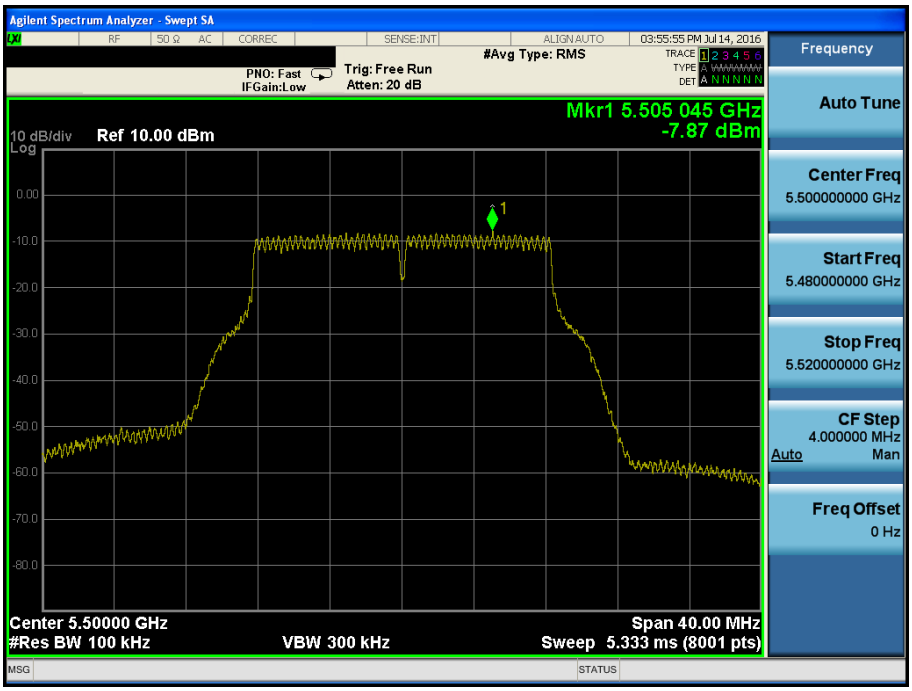
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.60



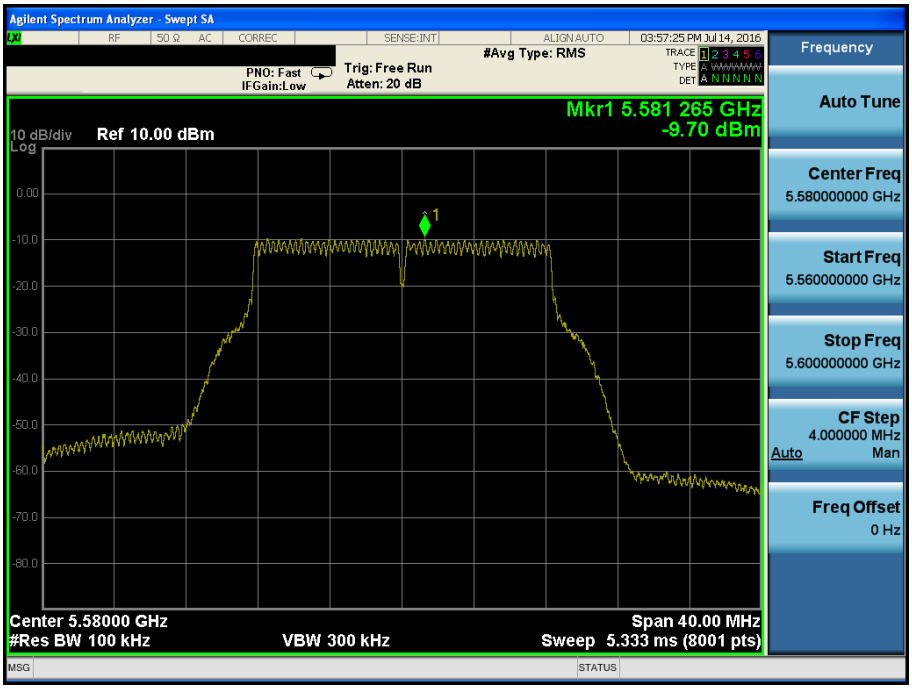
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.64



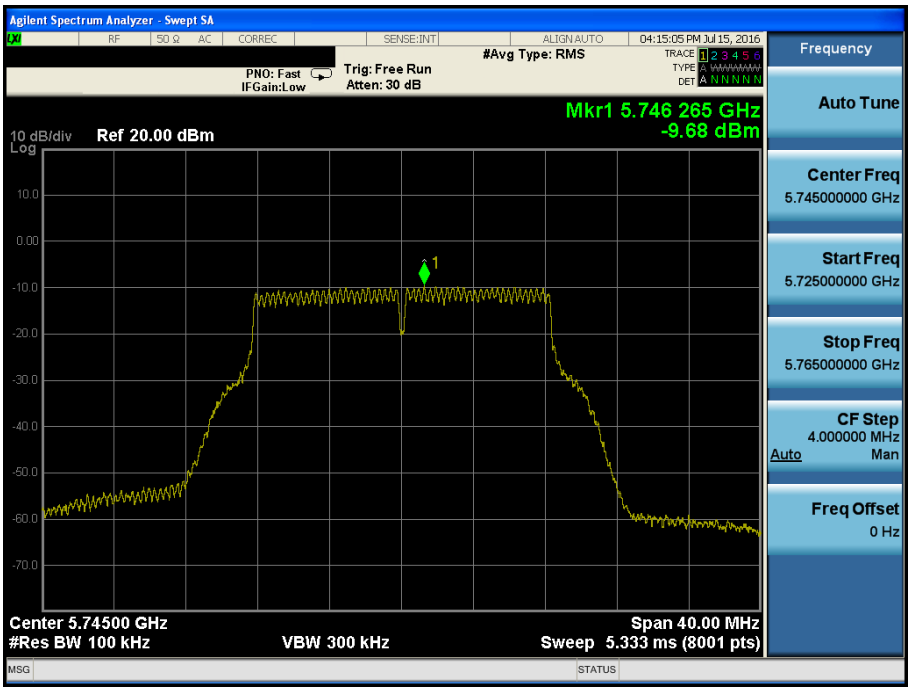
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.100



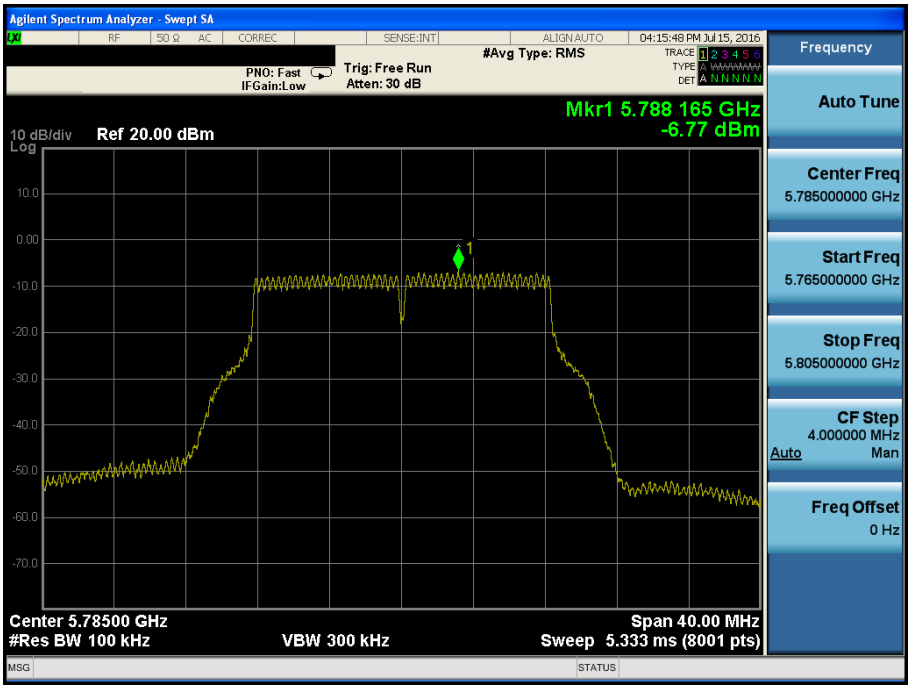
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.116



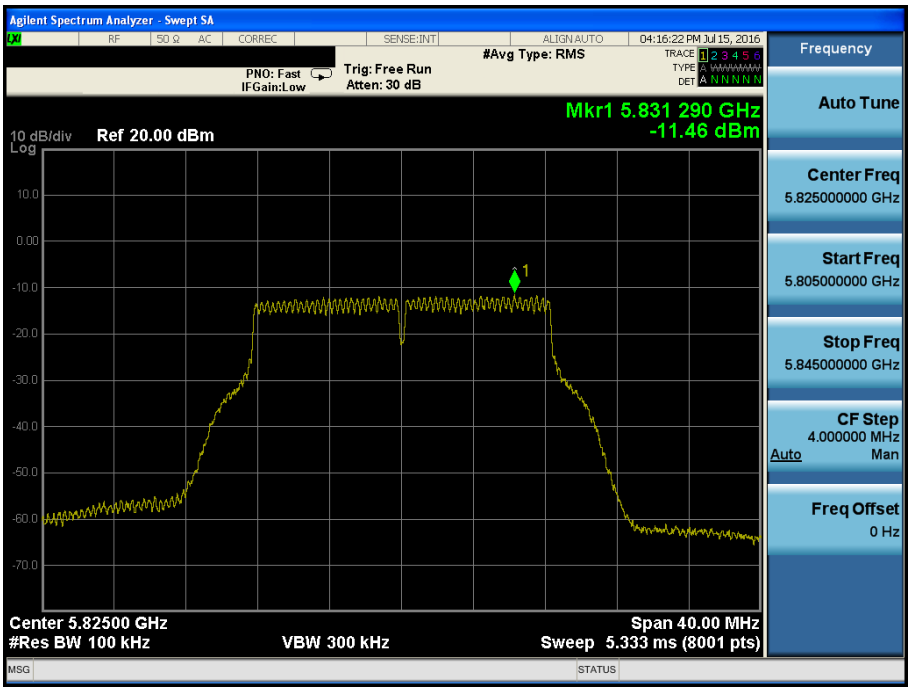
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.149



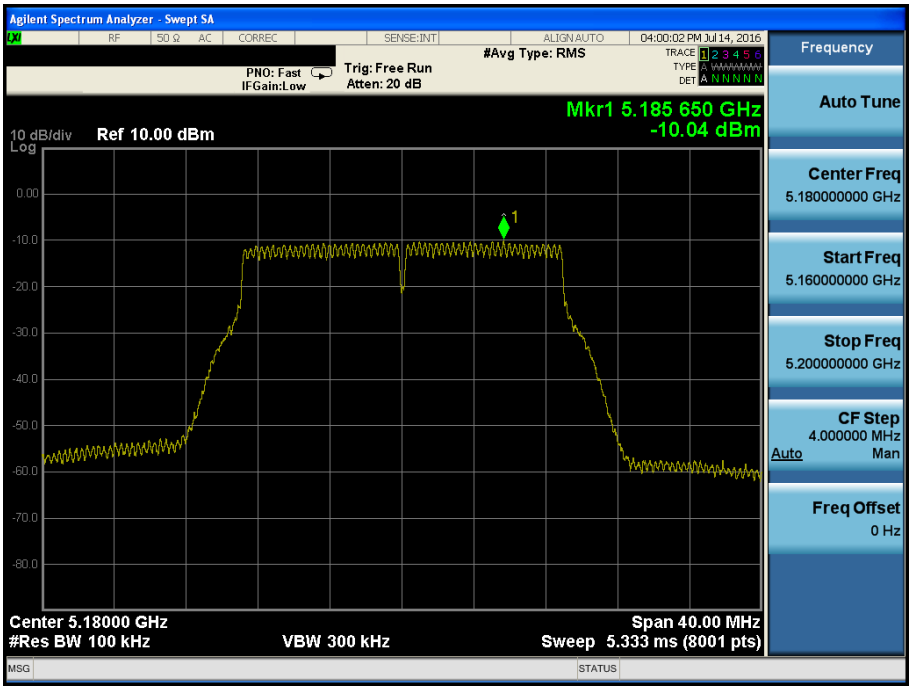
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.157



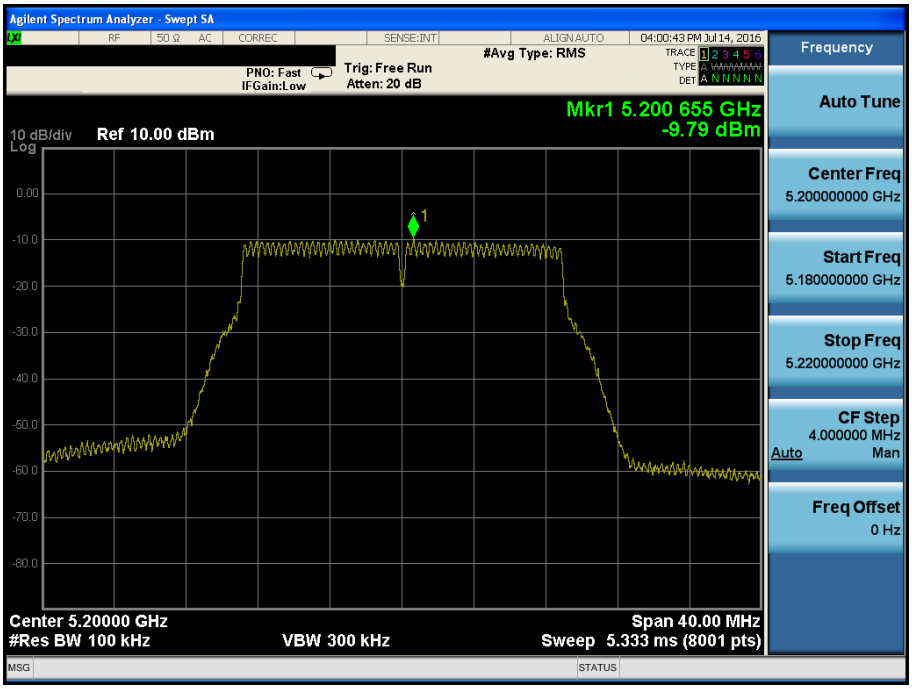
Maximum Power Spectral Density Test Mode: 802.11a & ANT 1 & Ch.165



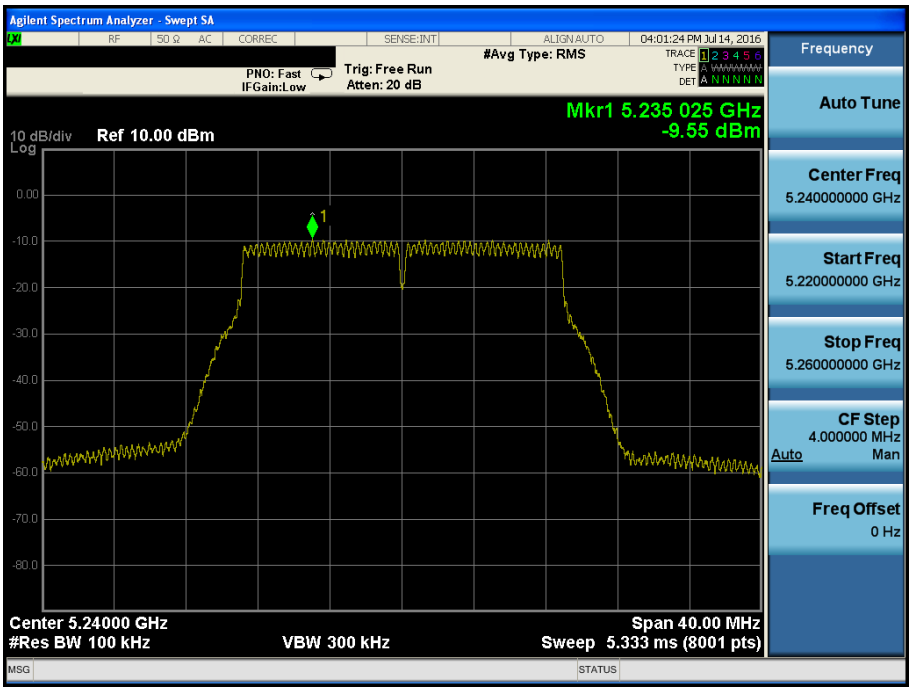
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.36



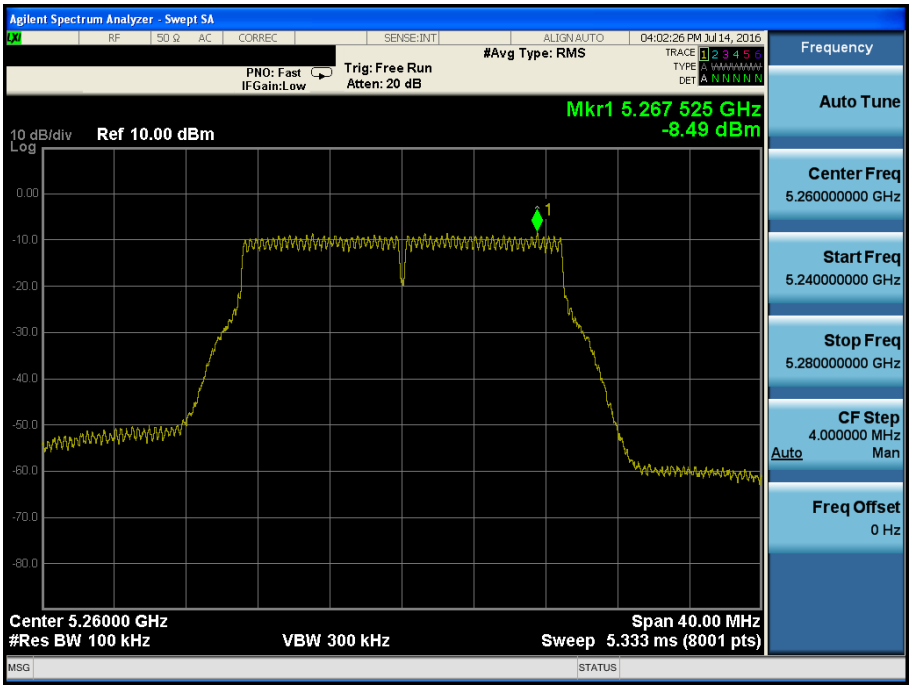
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.40



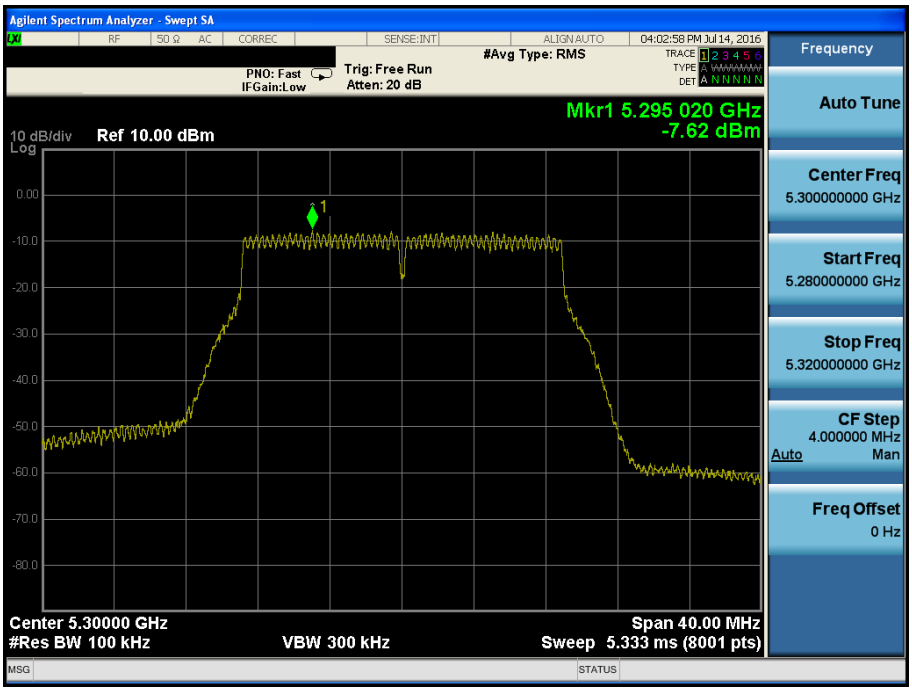
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.48



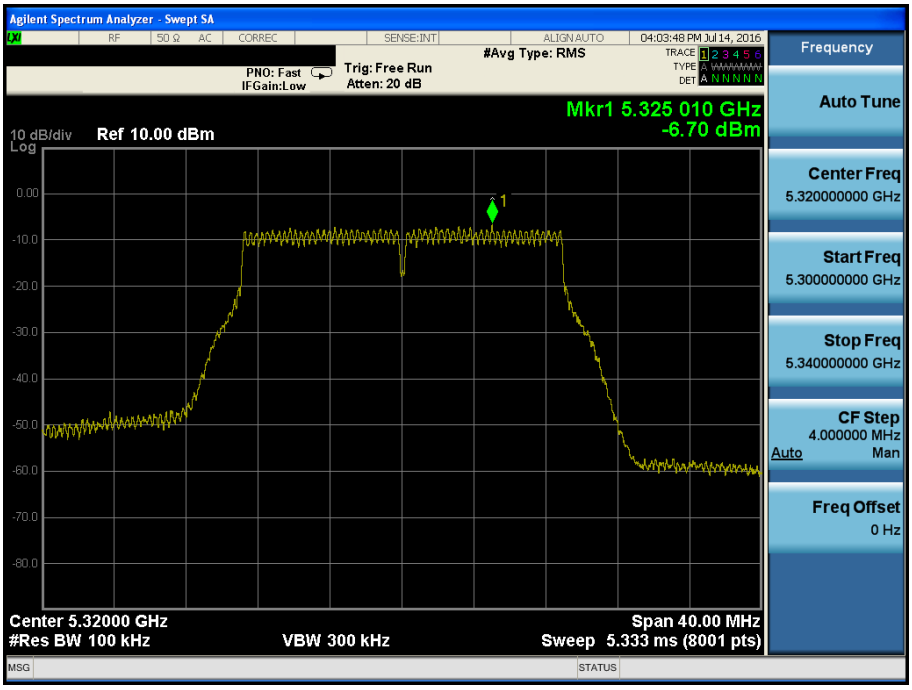
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.52



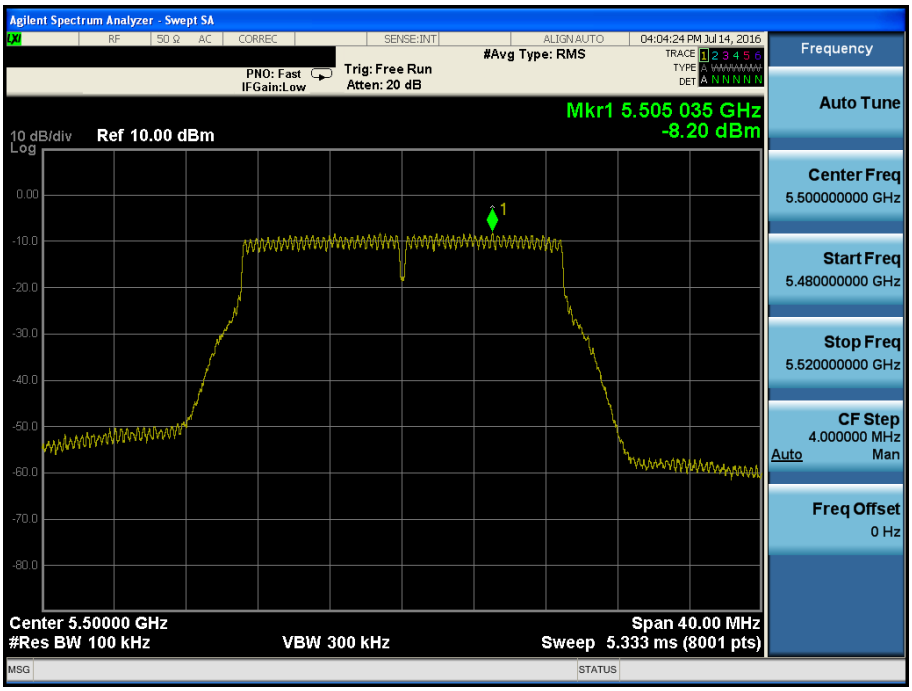
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.60



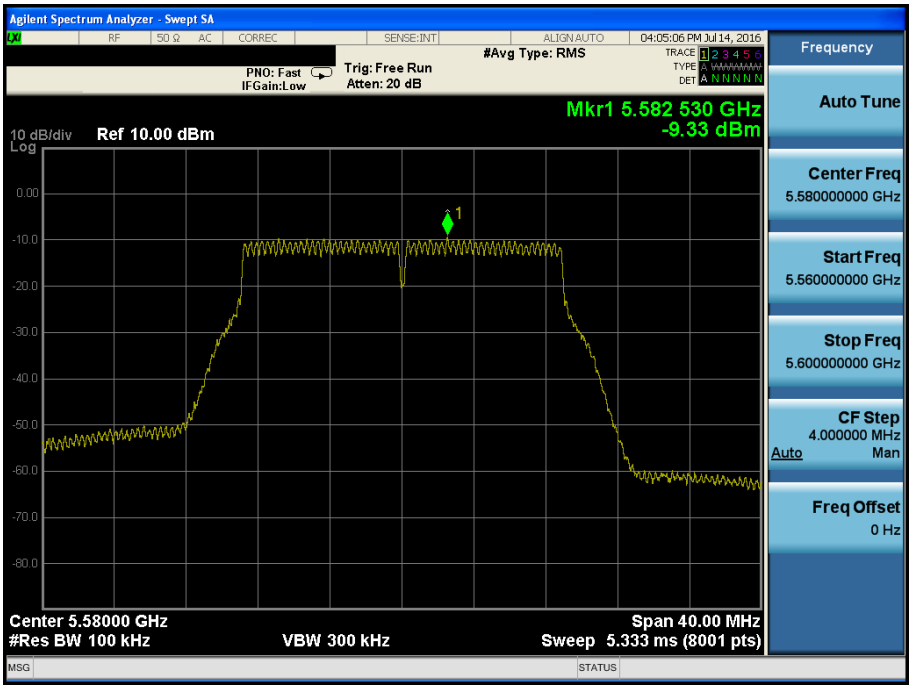
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.64



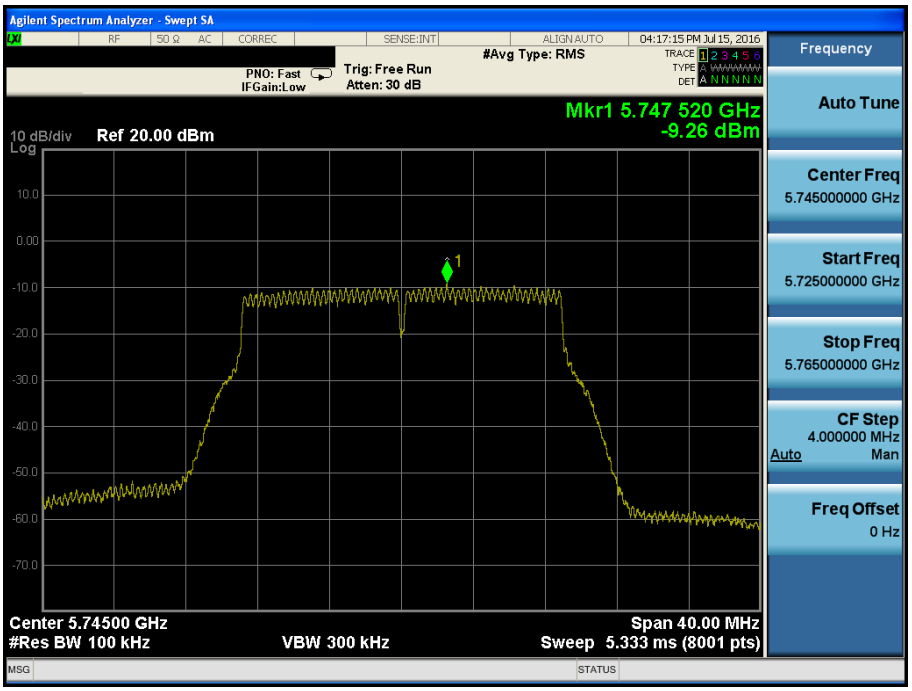
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.100



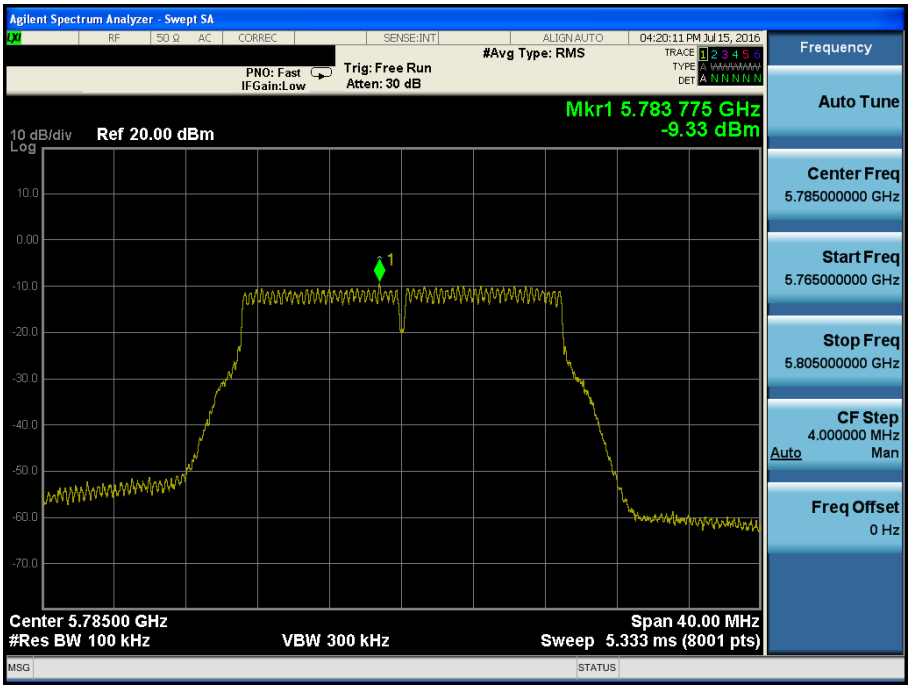
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.116



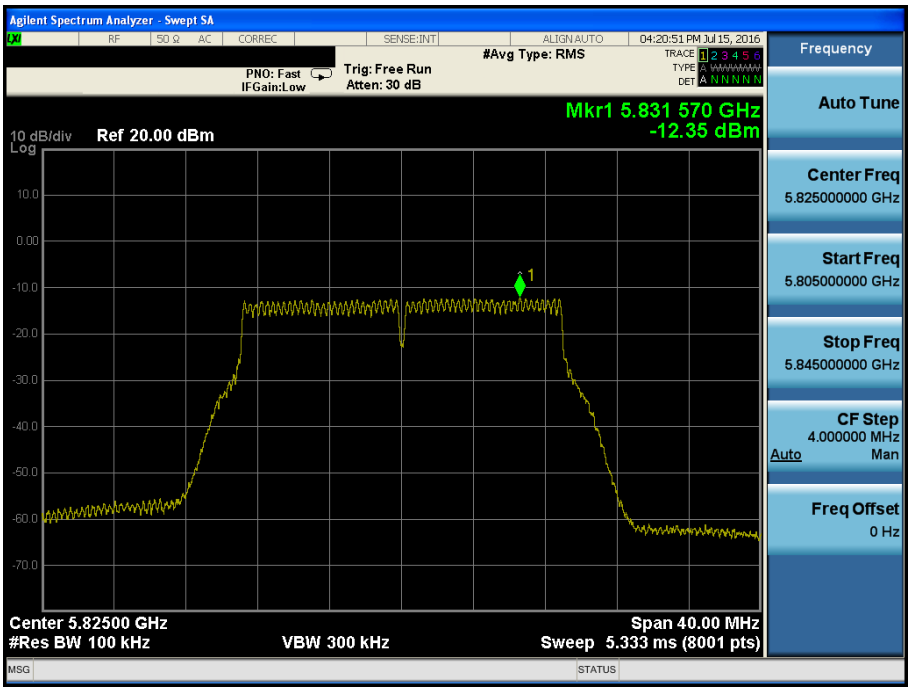
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.149



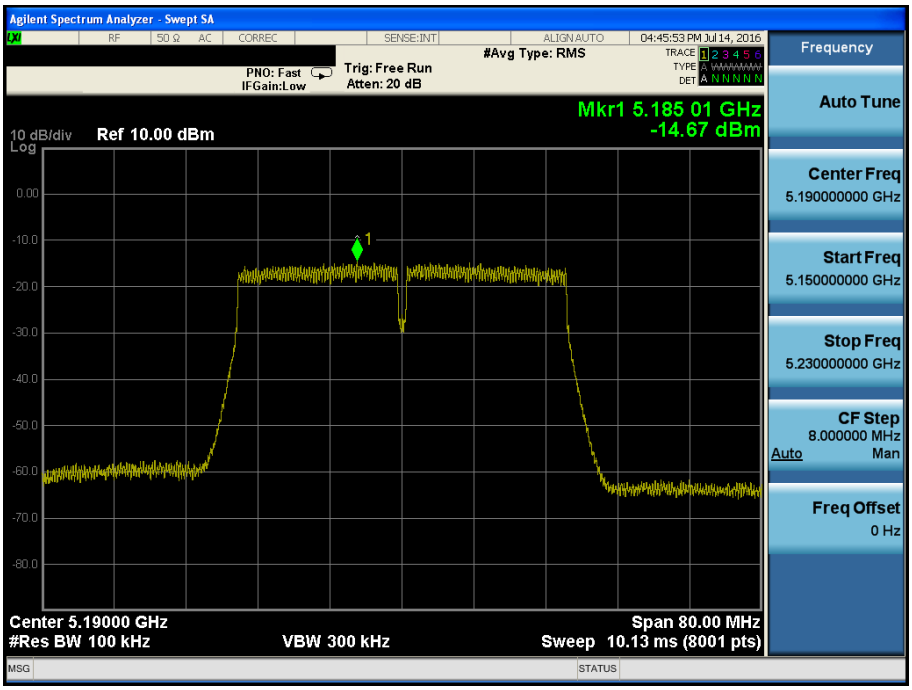
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.157



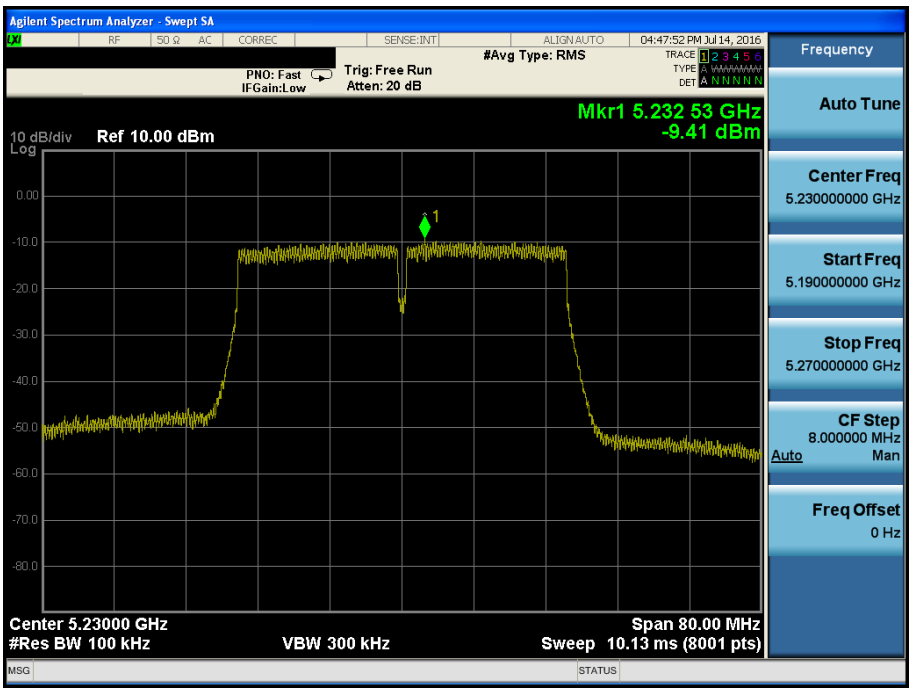
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 1 & Ch.165



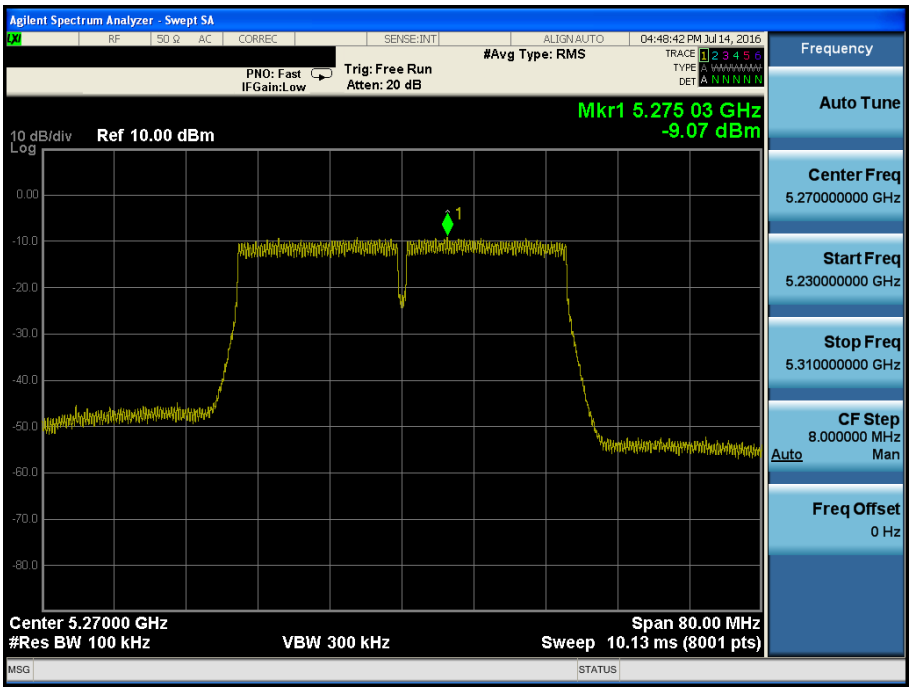
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.38



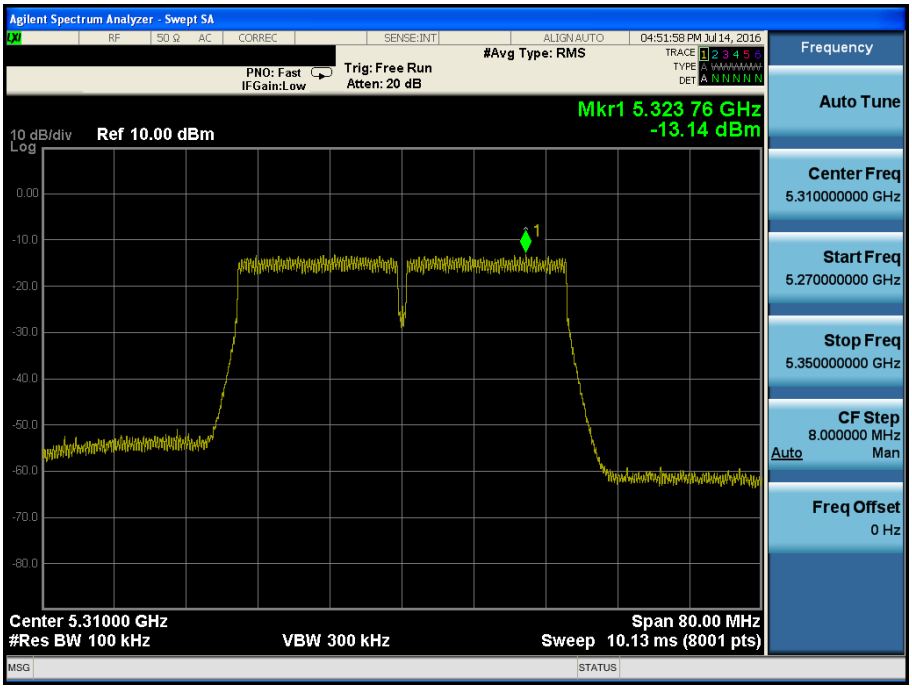
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.46



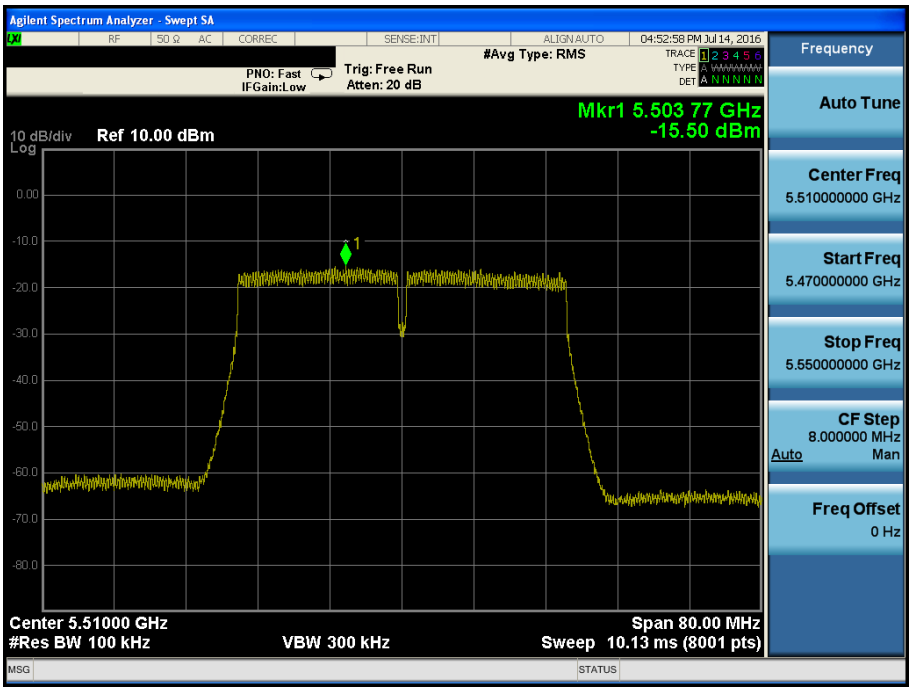
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.54



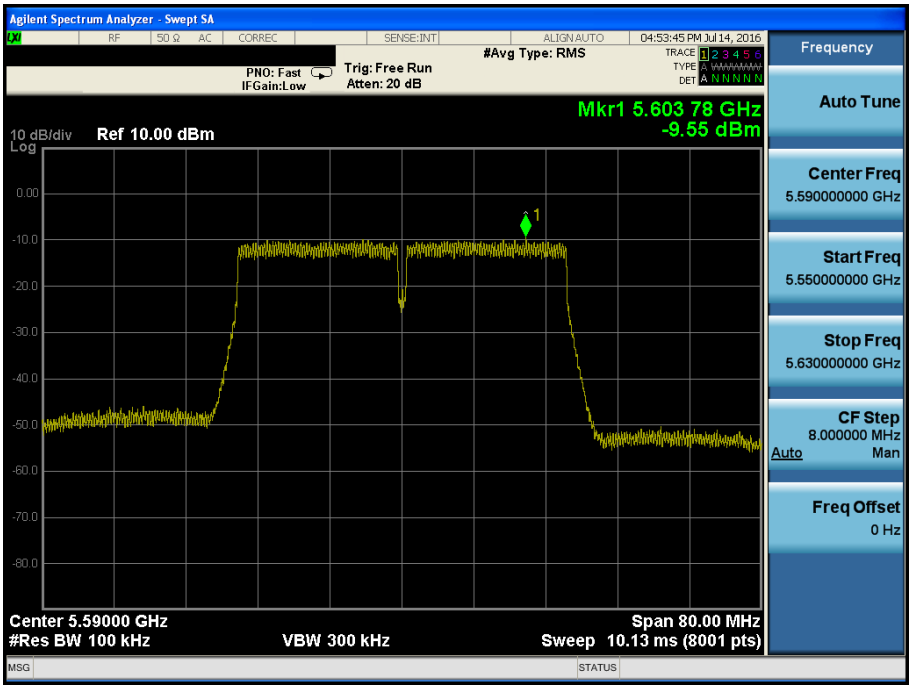
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.62



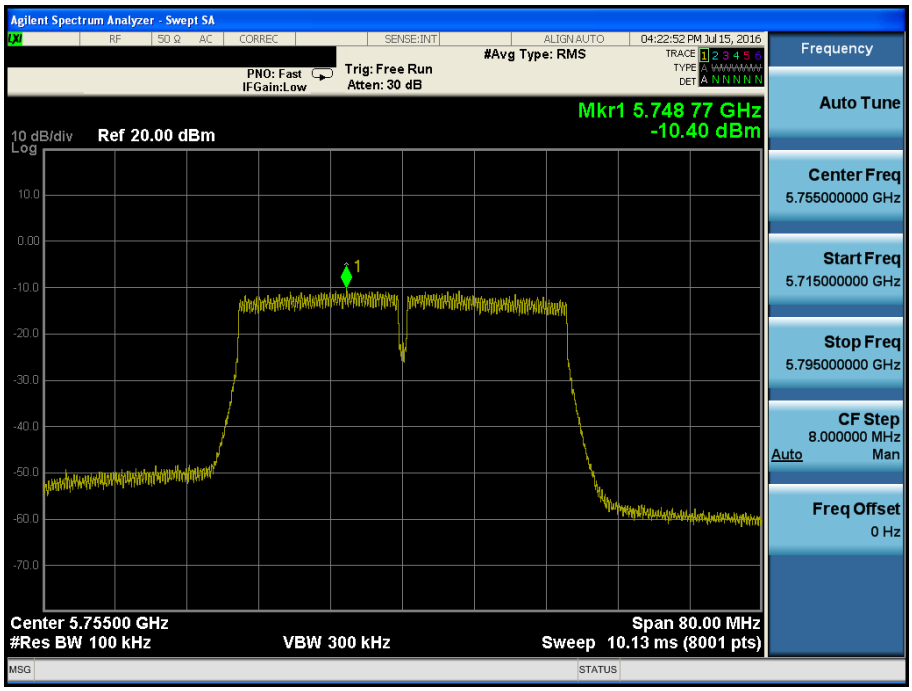
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.102



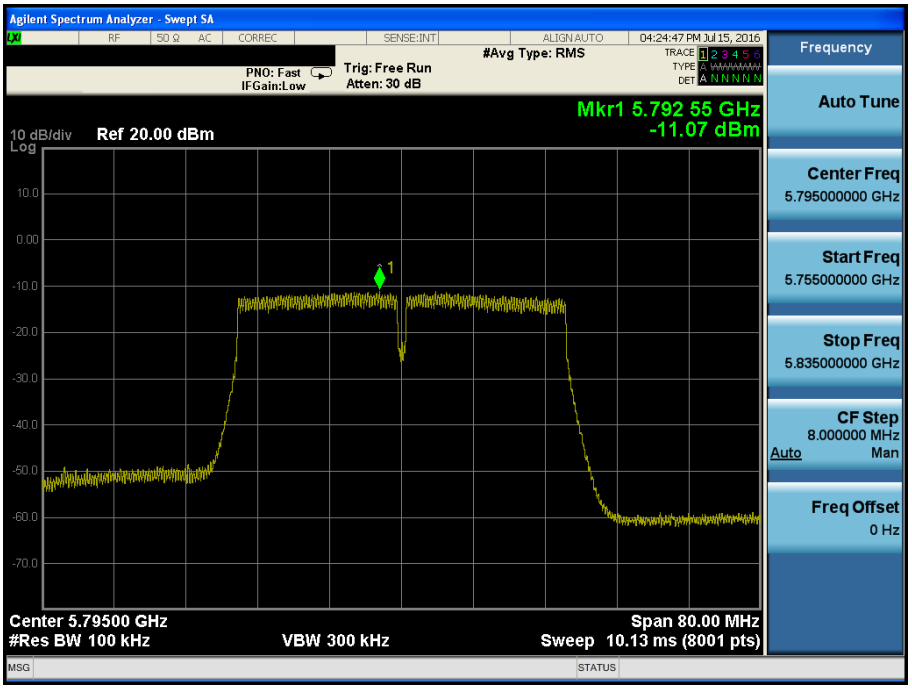
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.118



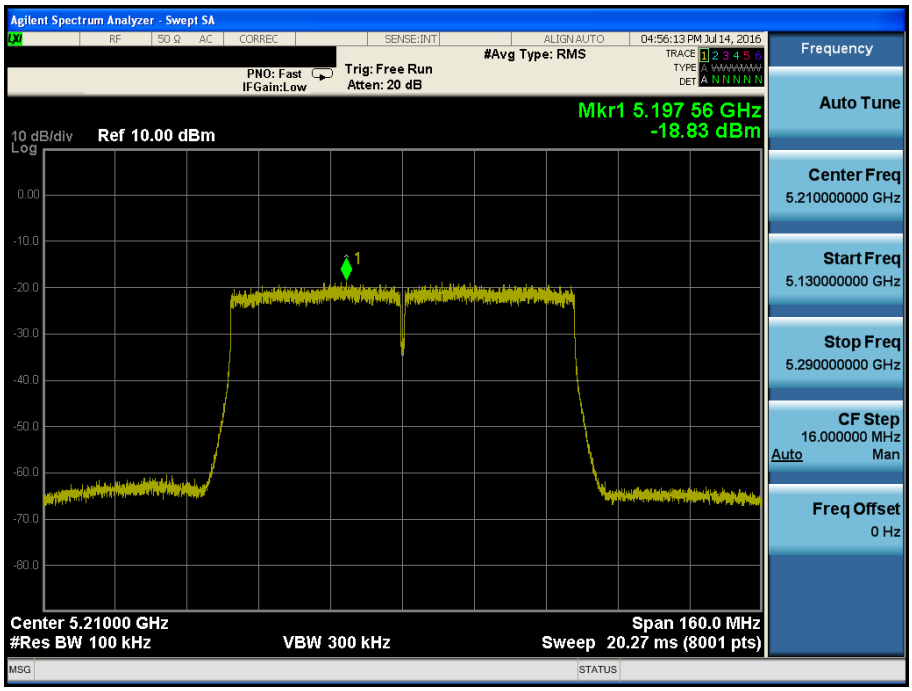
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.151



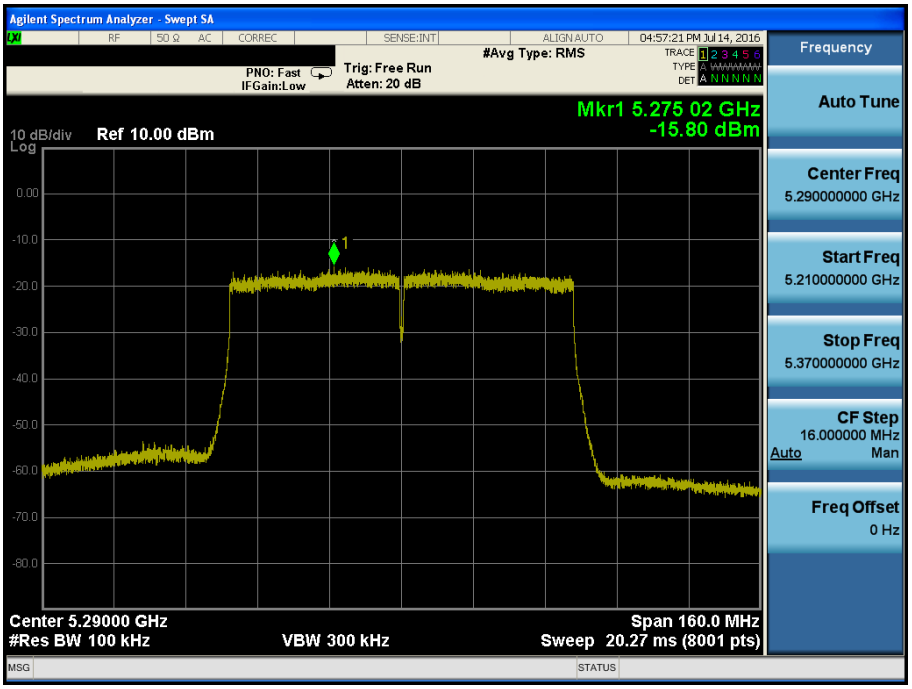
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.159



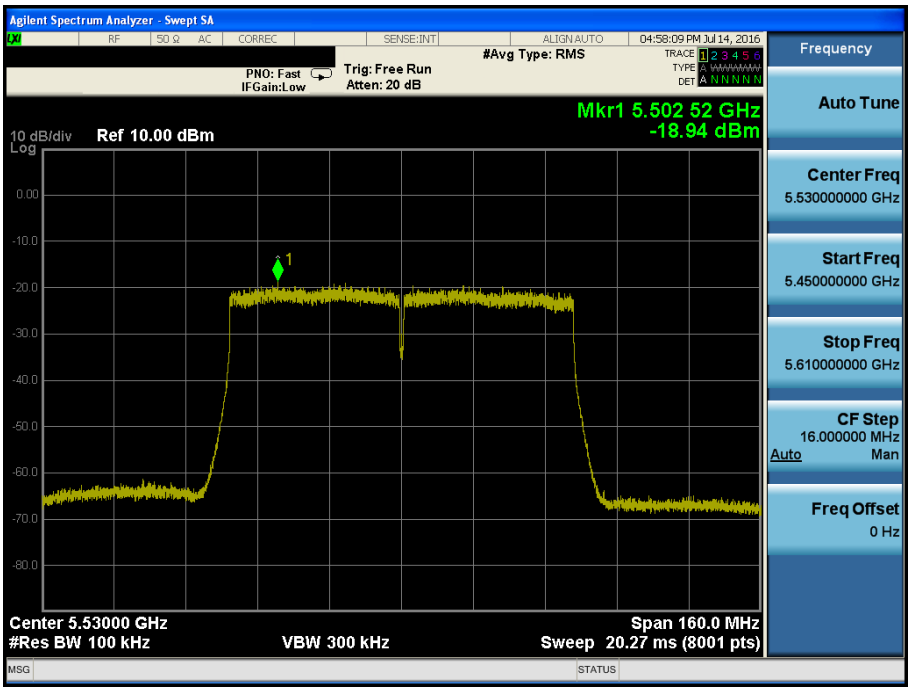
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 1 & Ch.42



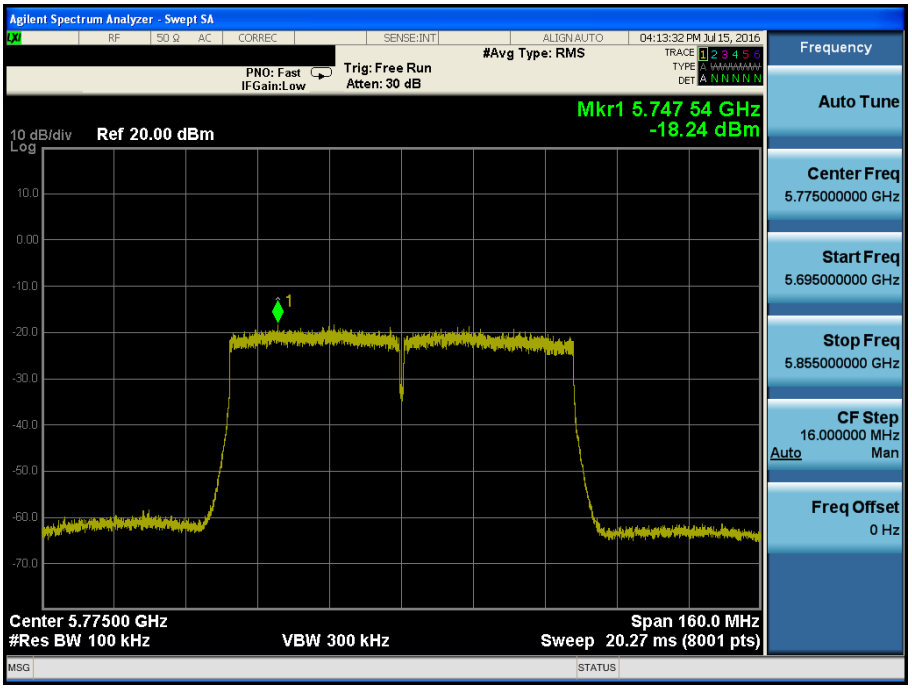
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 1 & Ch.58



Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 1 & Ch.106

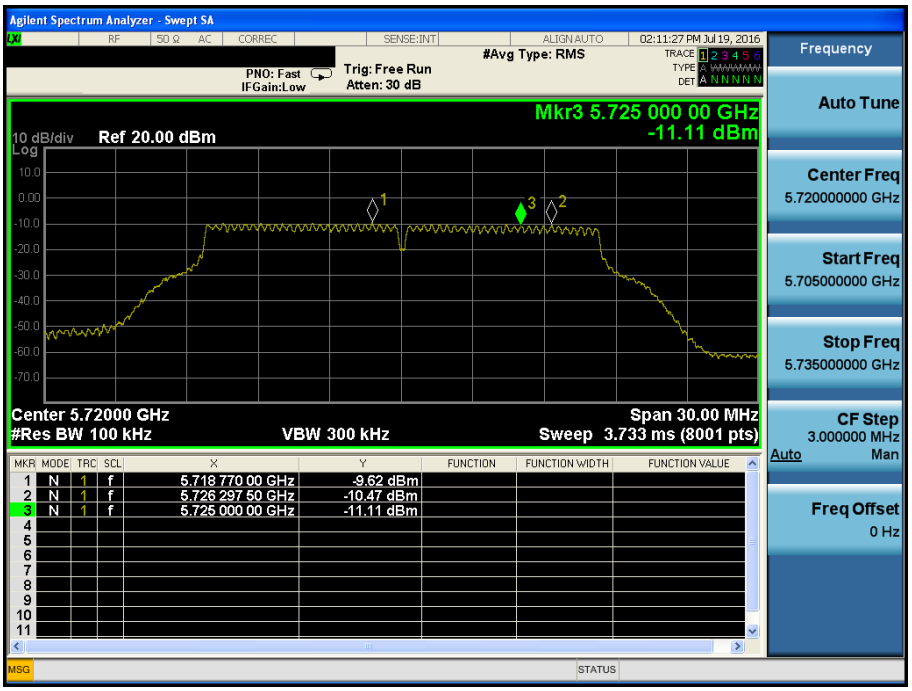


Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 1 & Ch.155



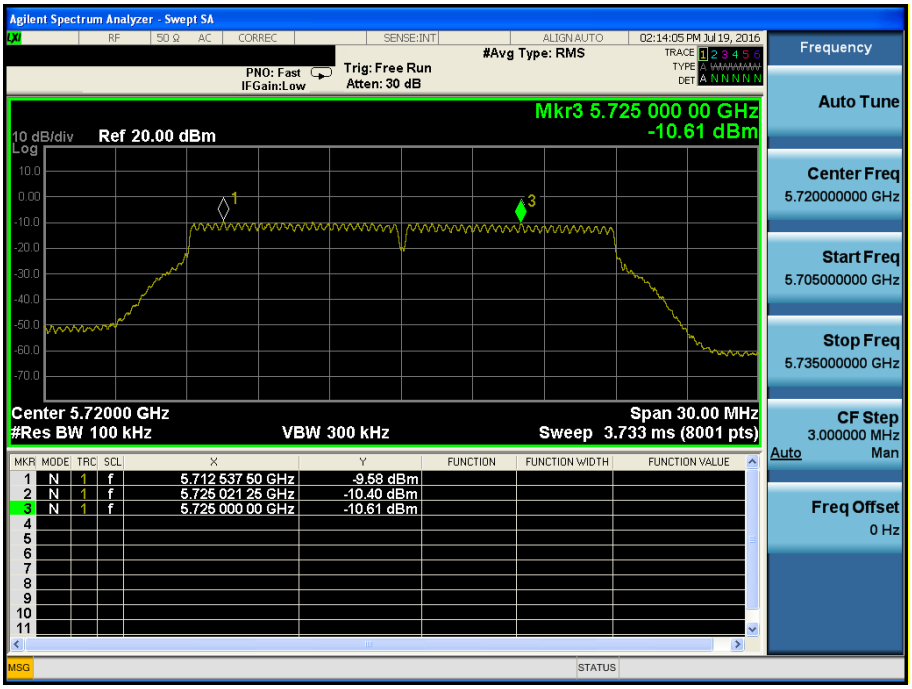
Maximum Power Spectral Density

Test Mode: 802.11a & & ANT 1 & Ch.144

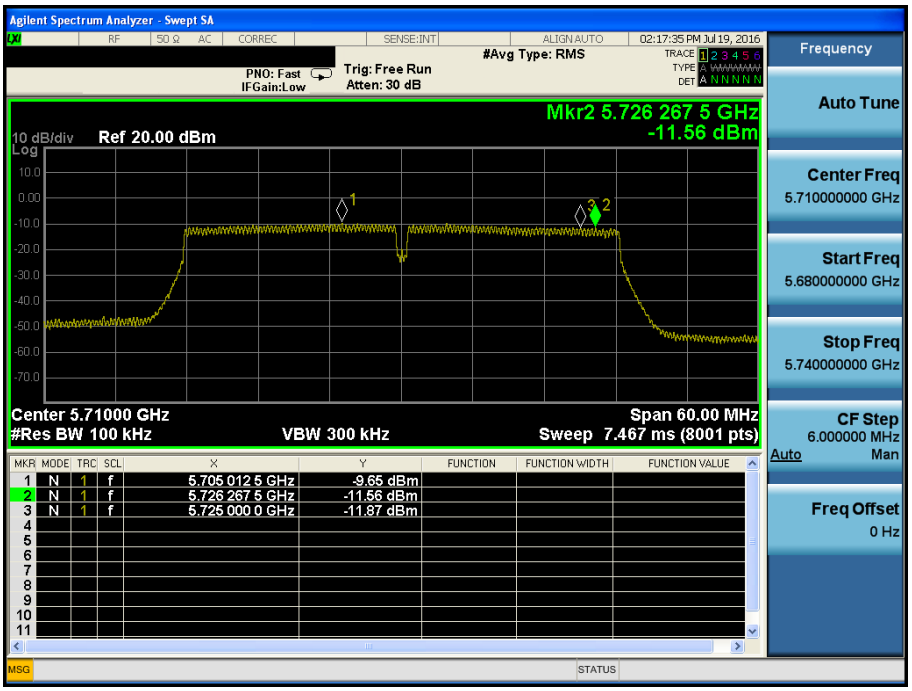


Maximum Power Spectral Density

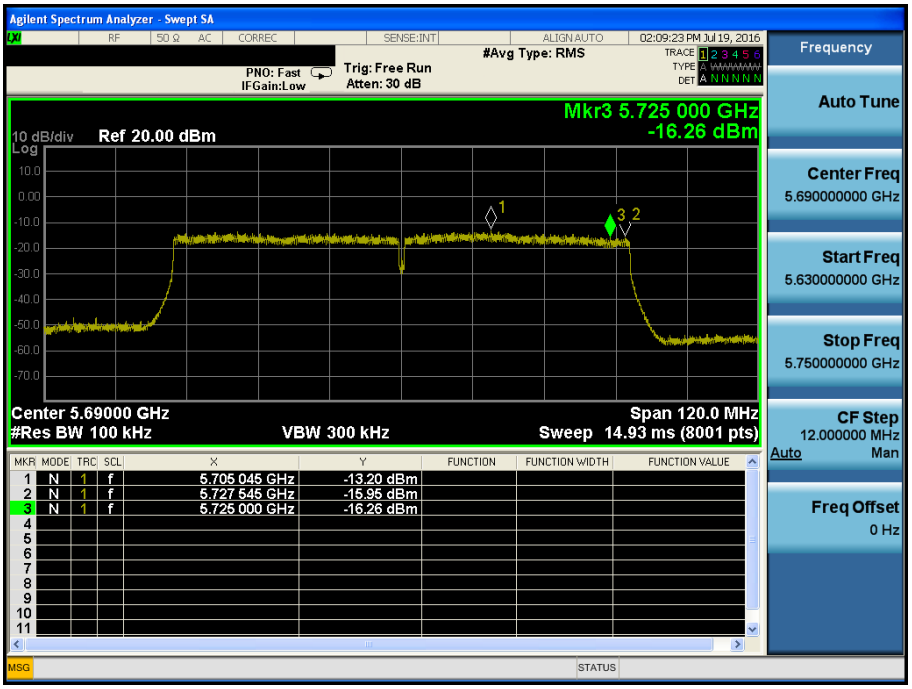
Test Mode: 802.11ac VHT20 & & ANT 1 & Ch.144



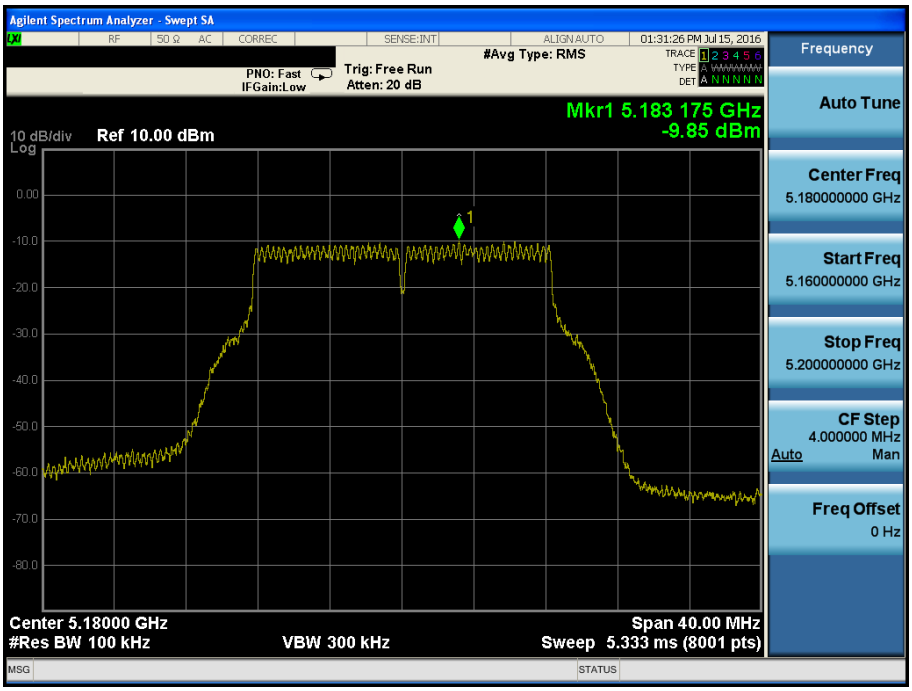
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 1 & Ch.142



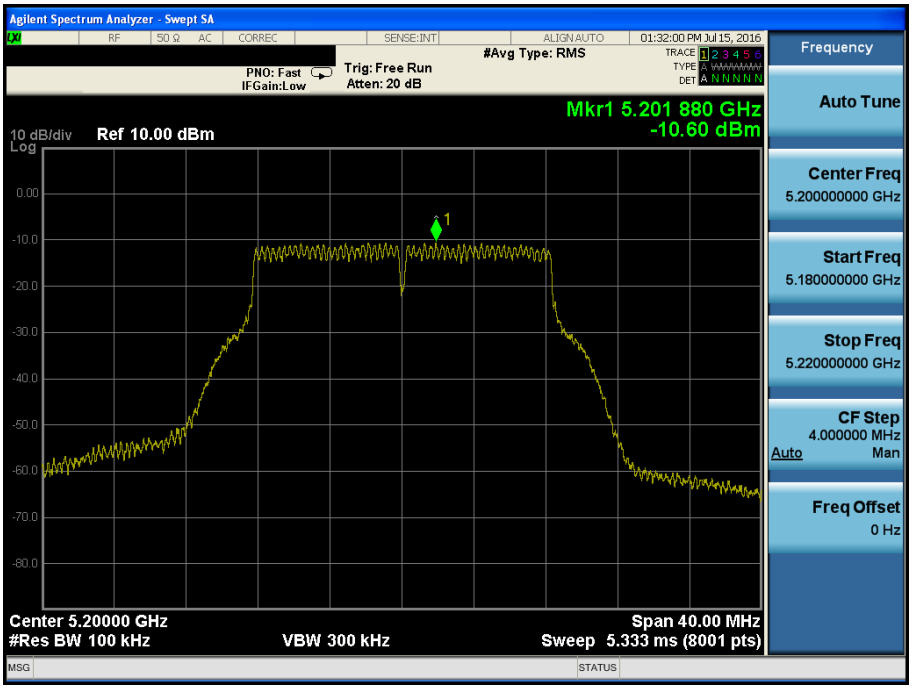
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 1 & Ch.138



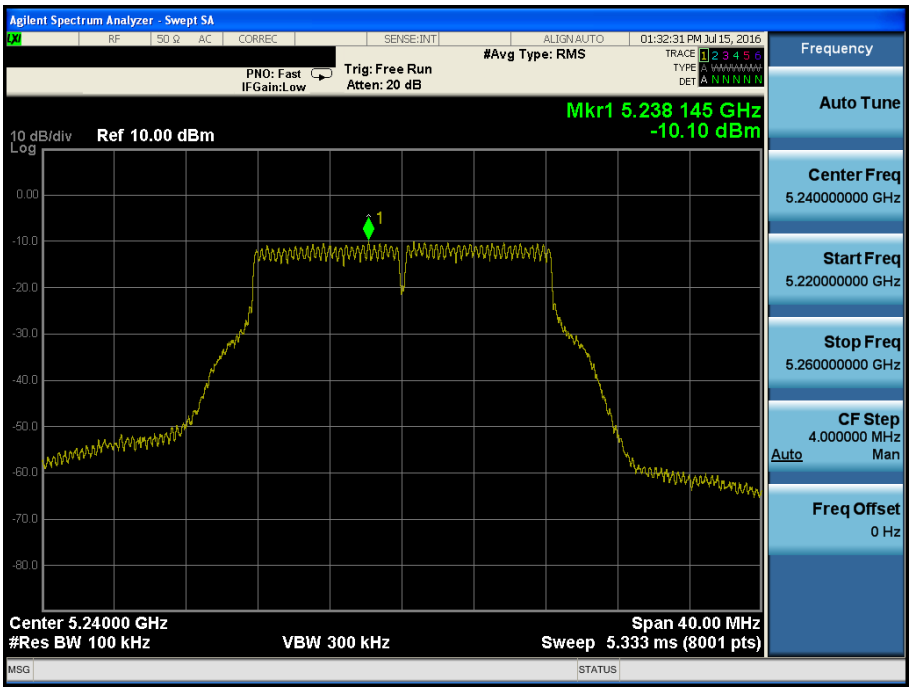
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.36



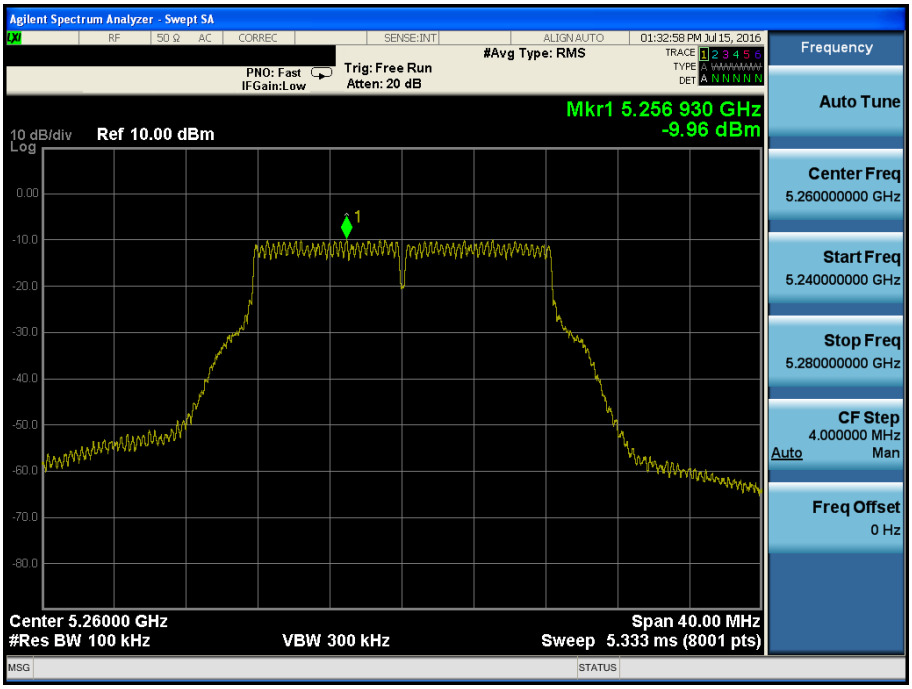
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.40



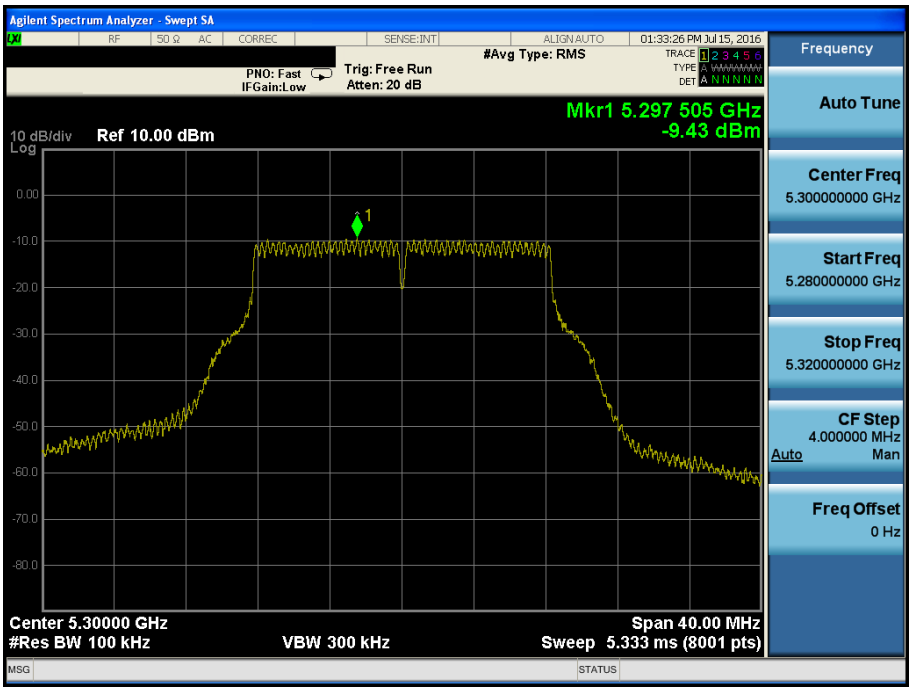
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.48



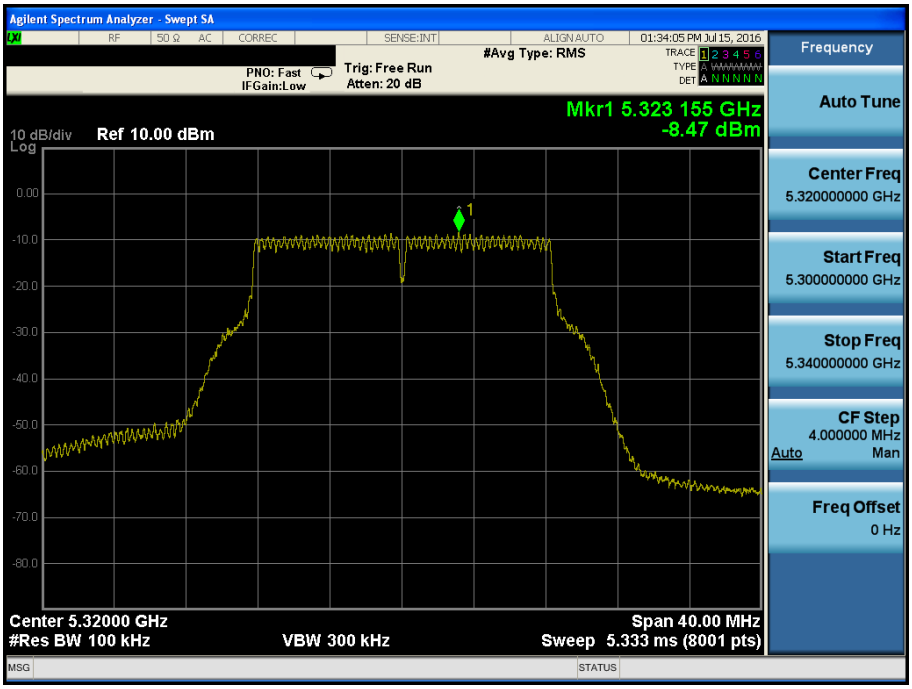
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.52



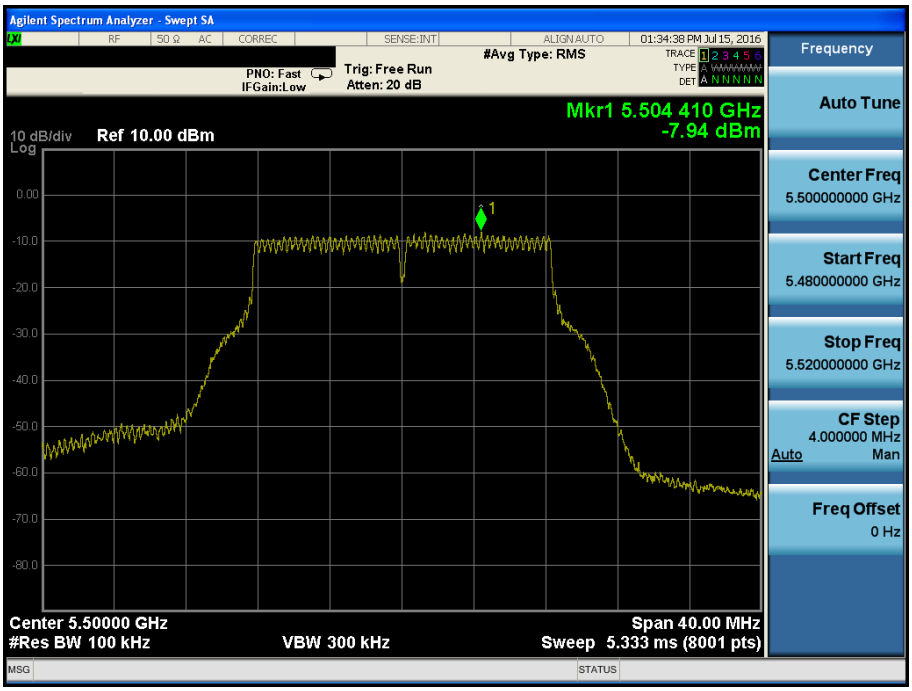
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.60



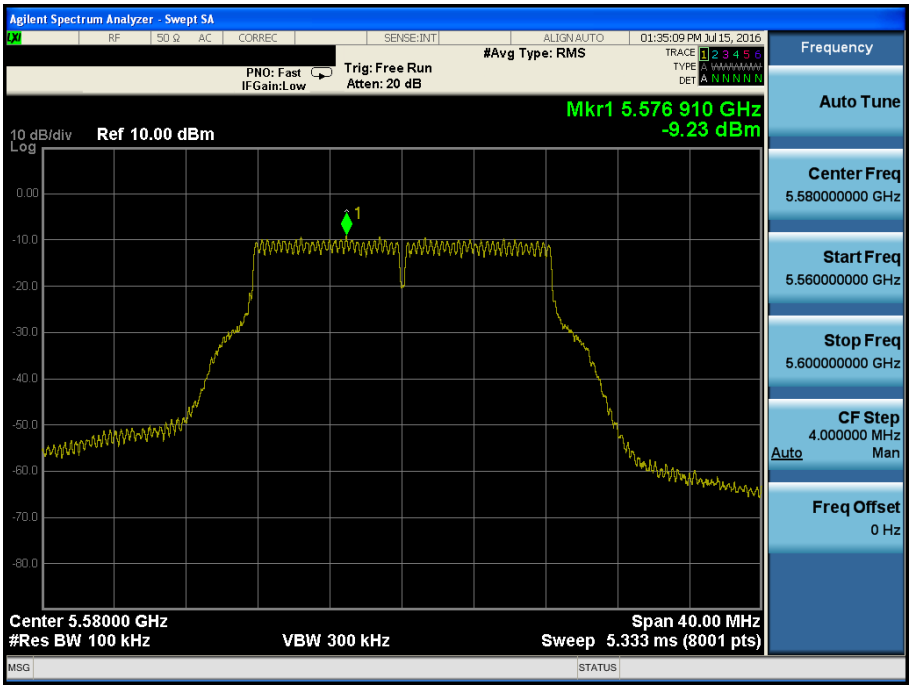
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.64



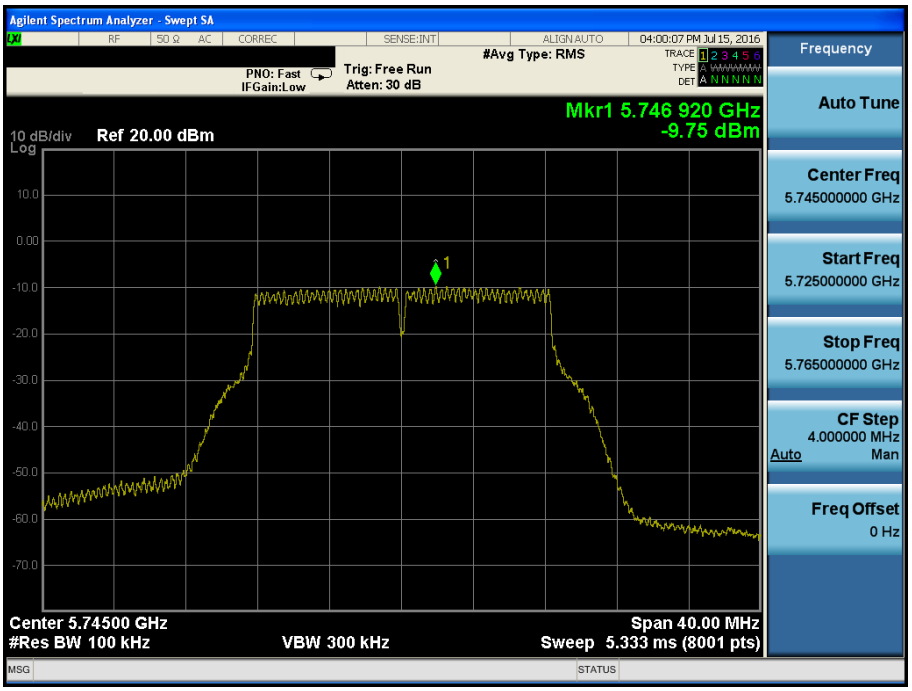
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.100



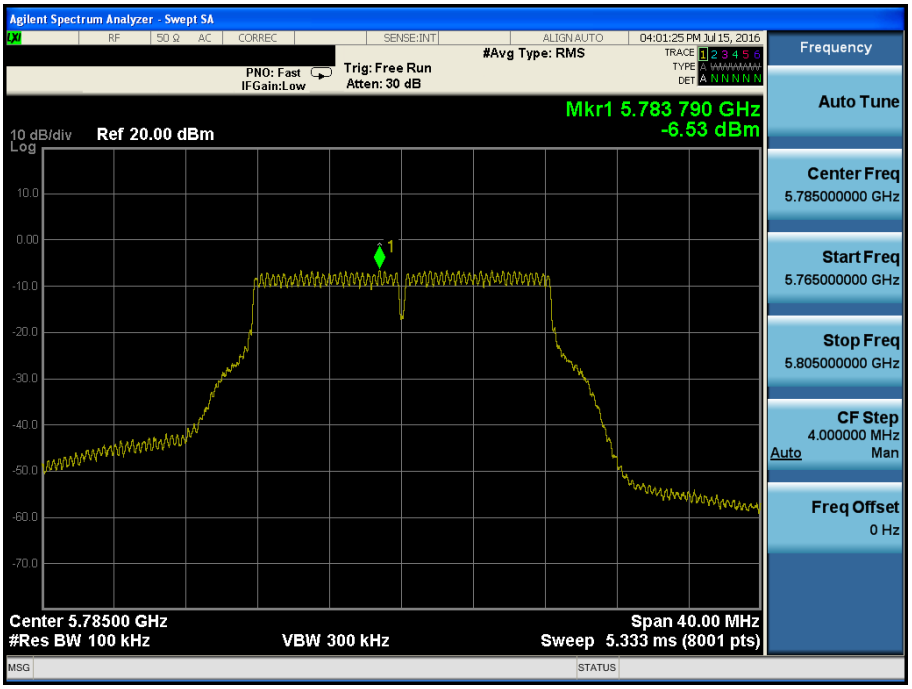
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.116



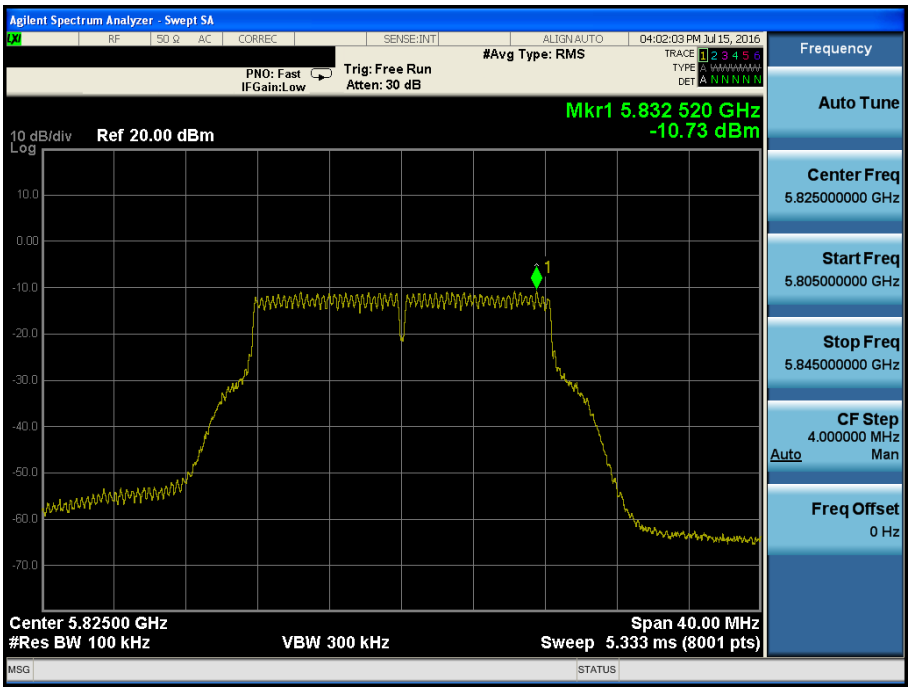
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.149



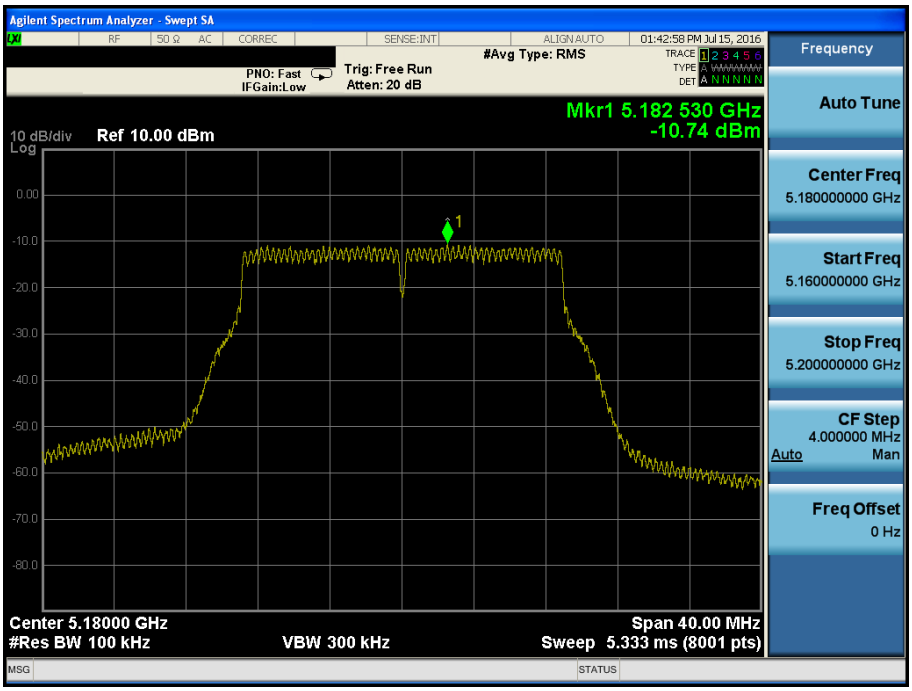
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.157



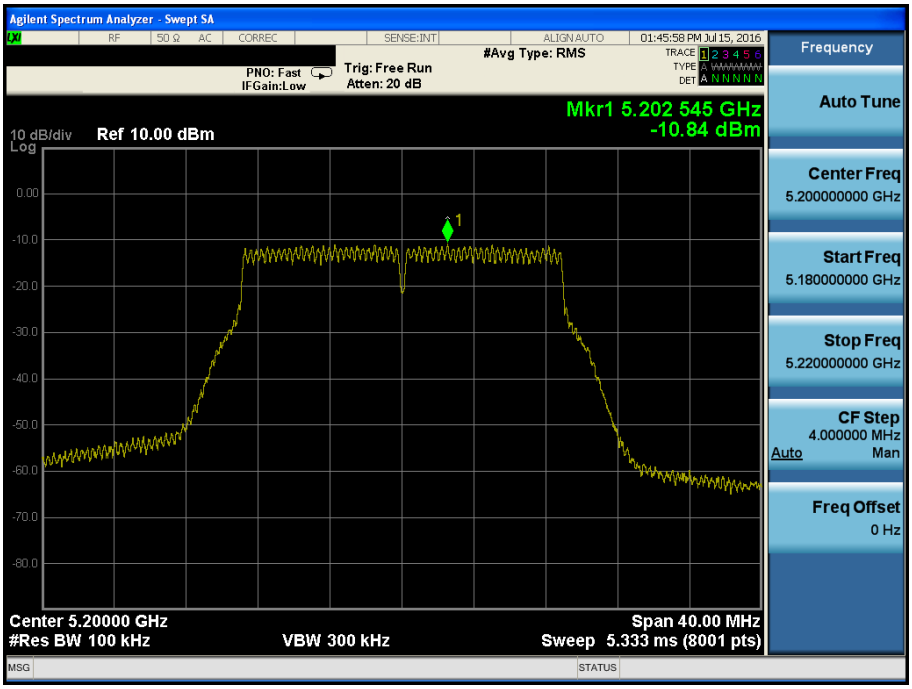
Maximum Power Spectral Density Test Mode: 802.11a & ANT 2 & Ch.165



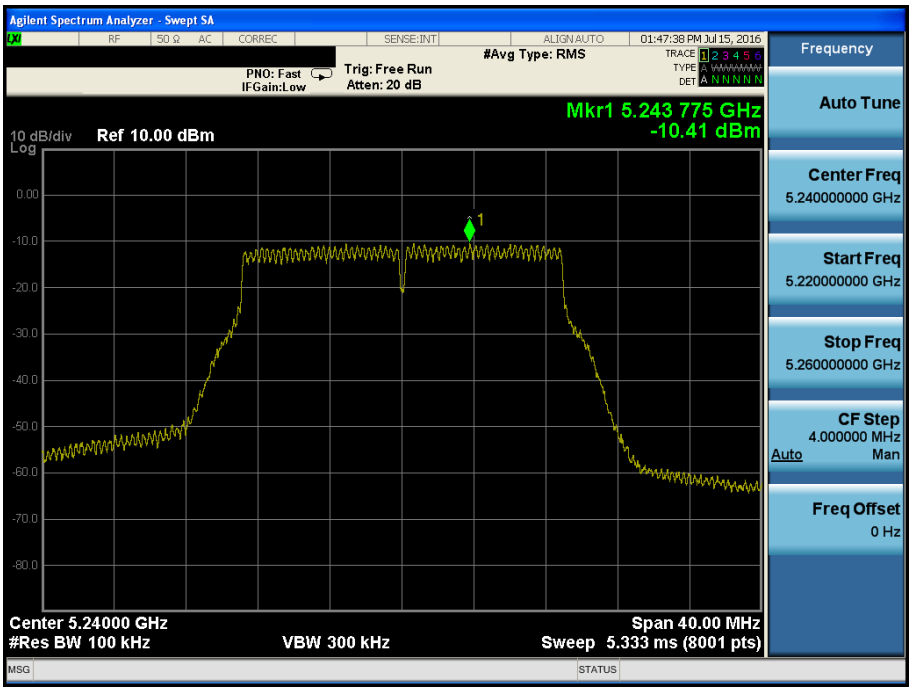
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.36



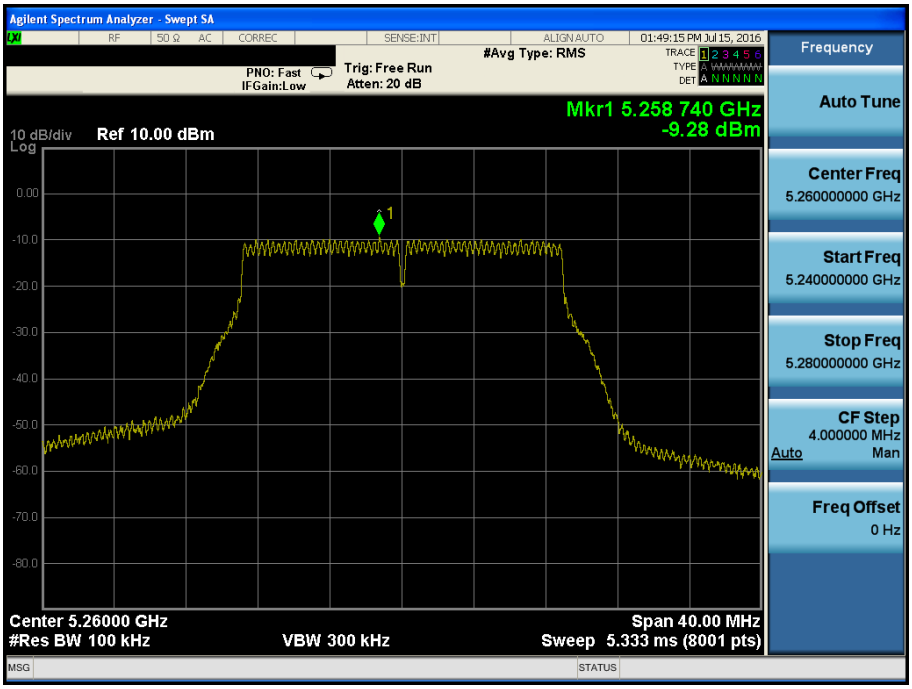
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.40



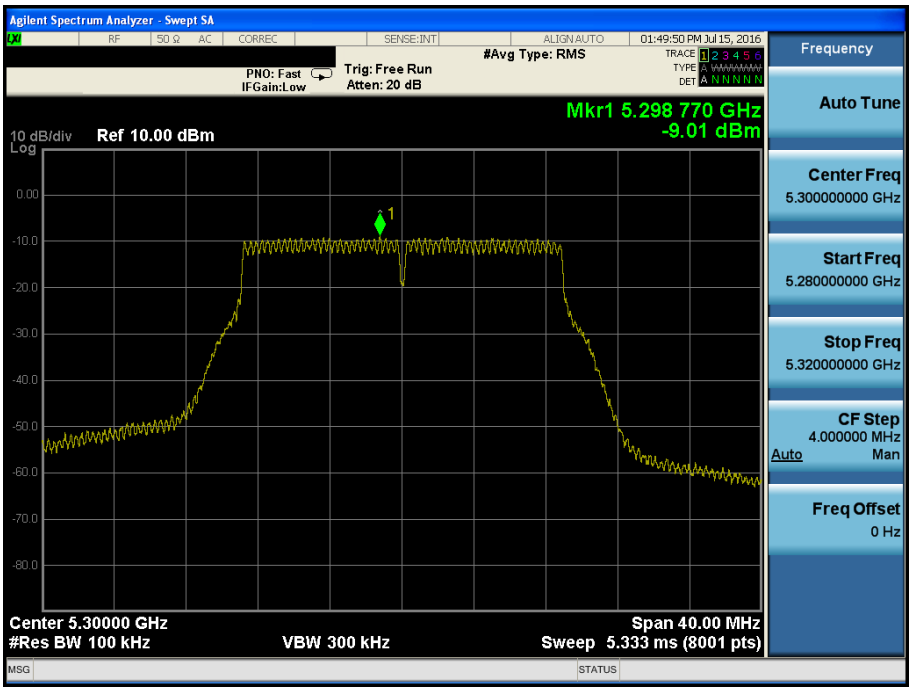
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.48



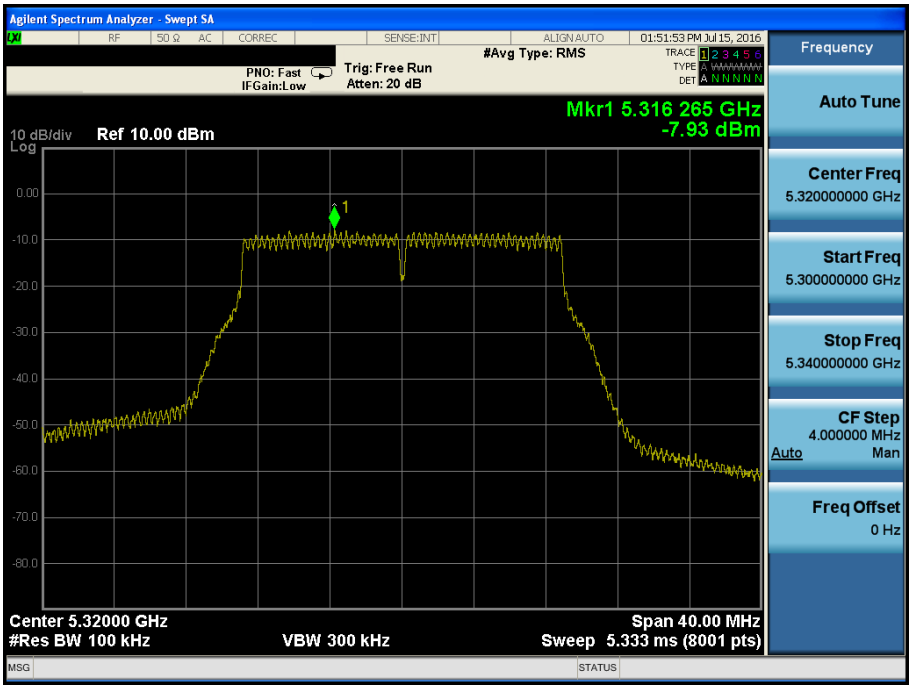
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.52



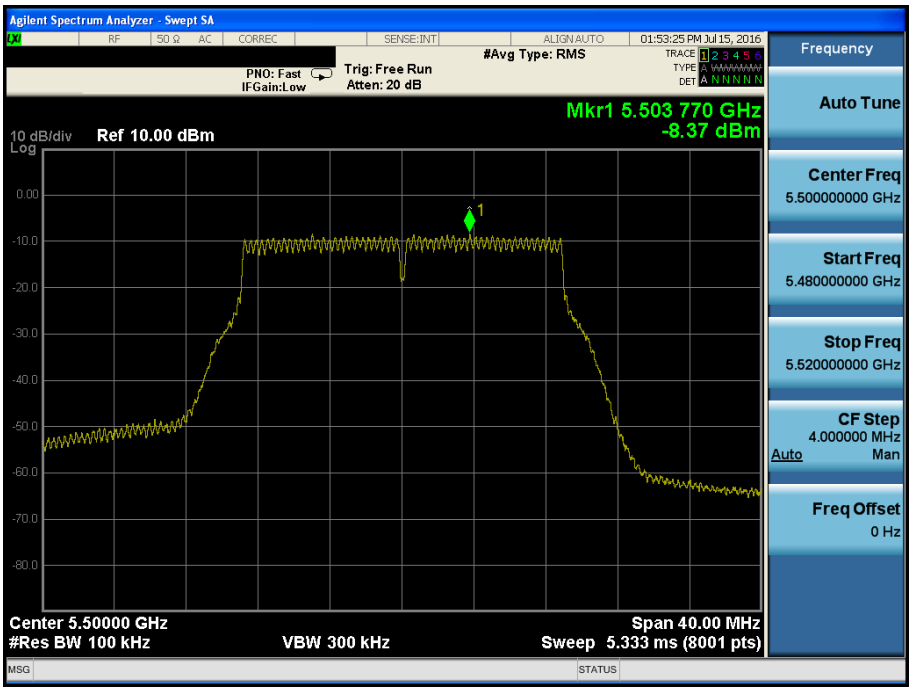
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.60



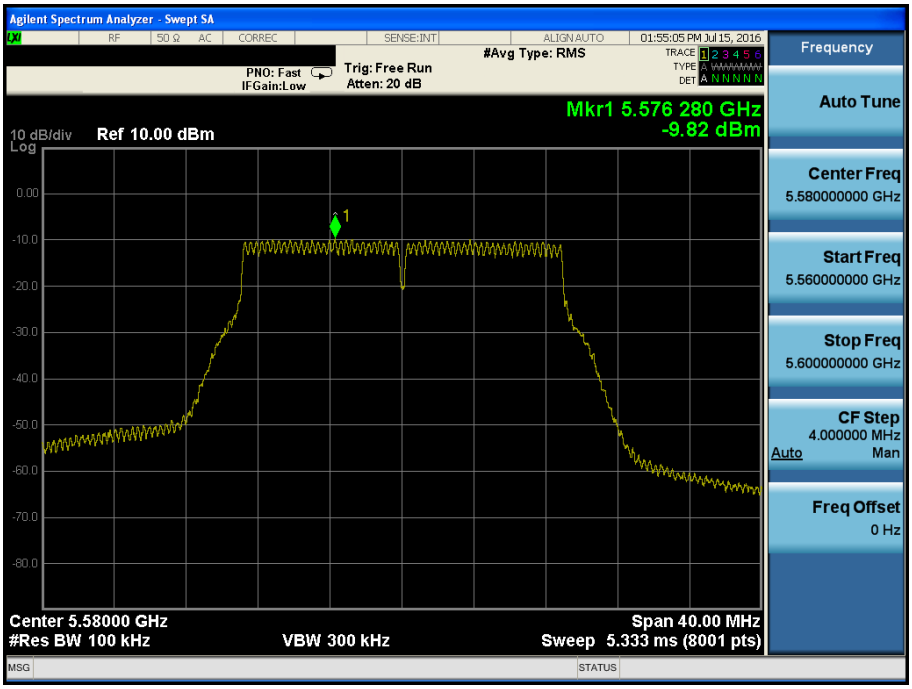
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.64



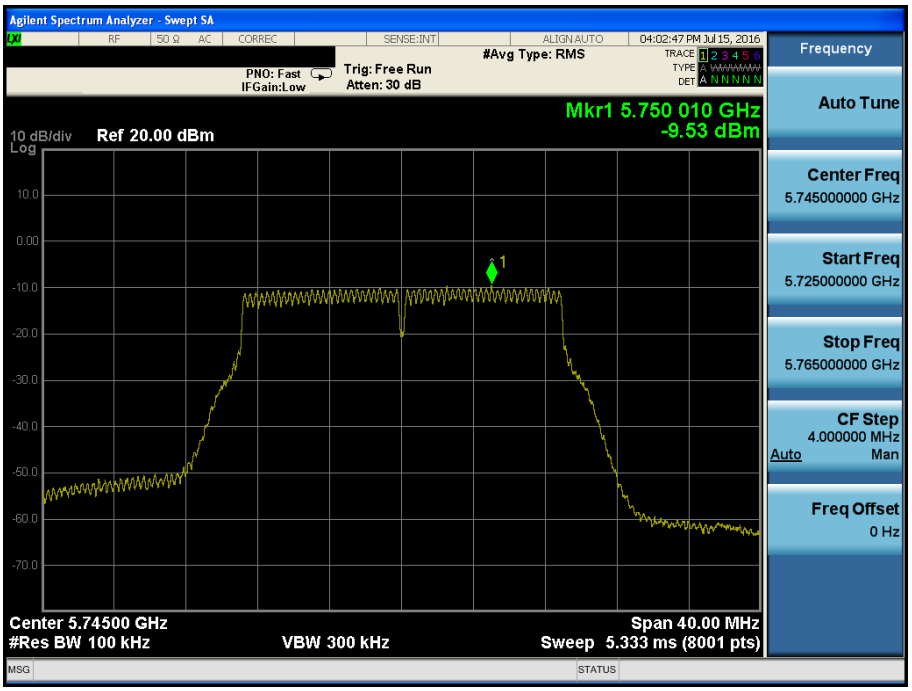
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.100



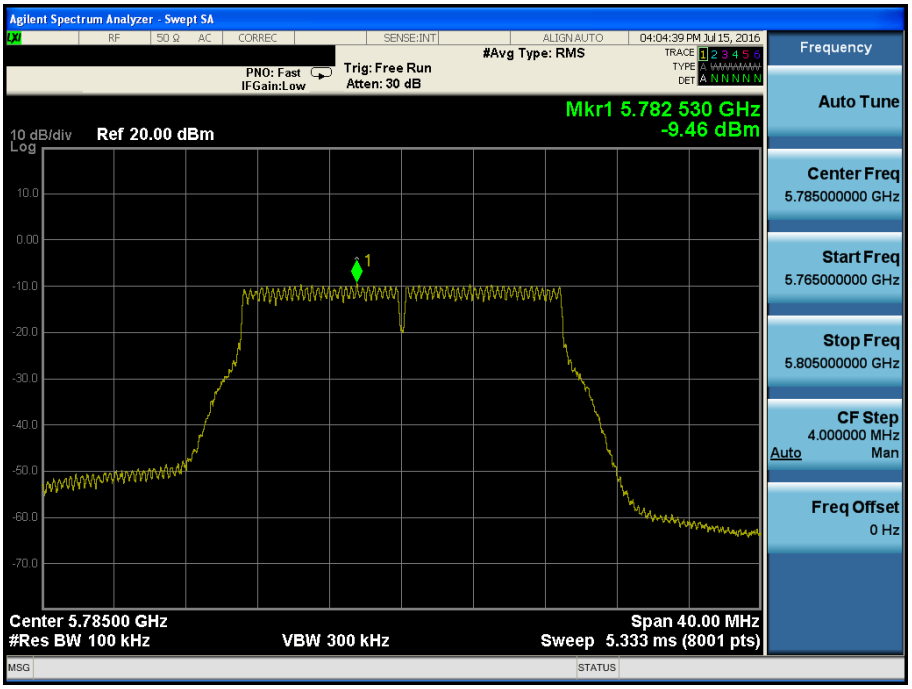
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.116



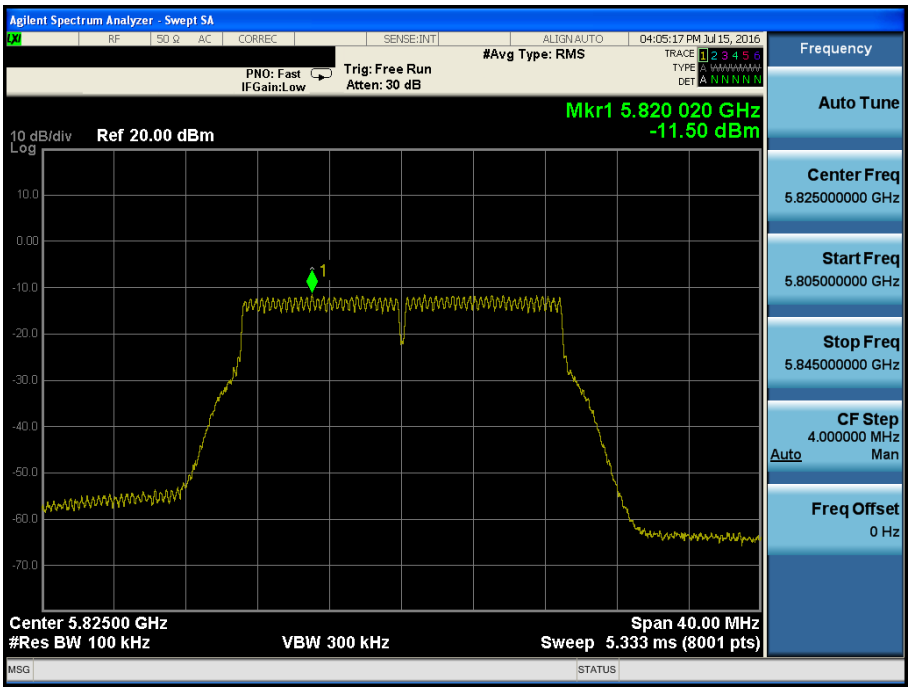
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.149



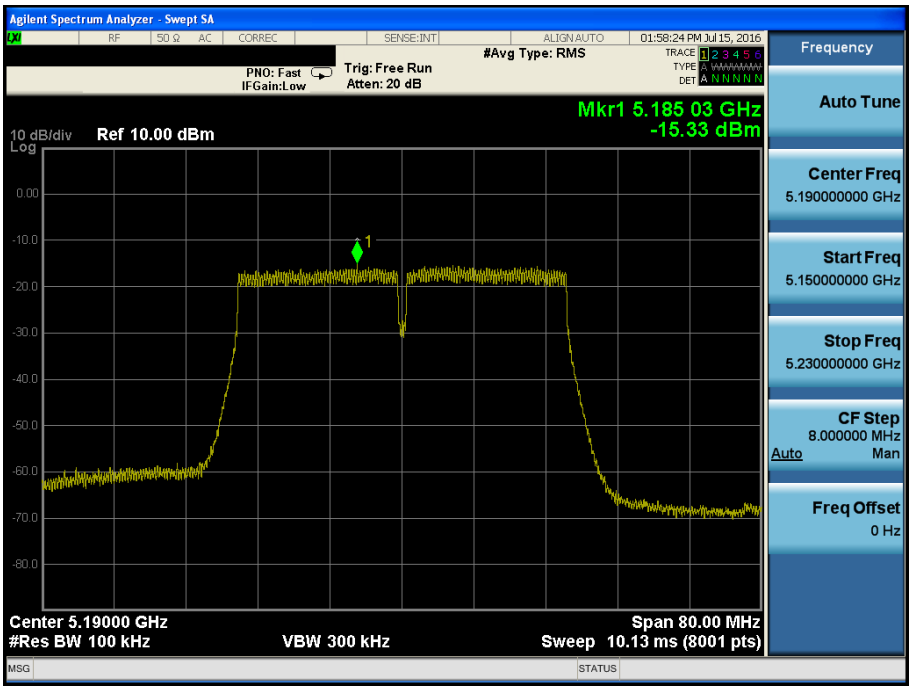
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.157



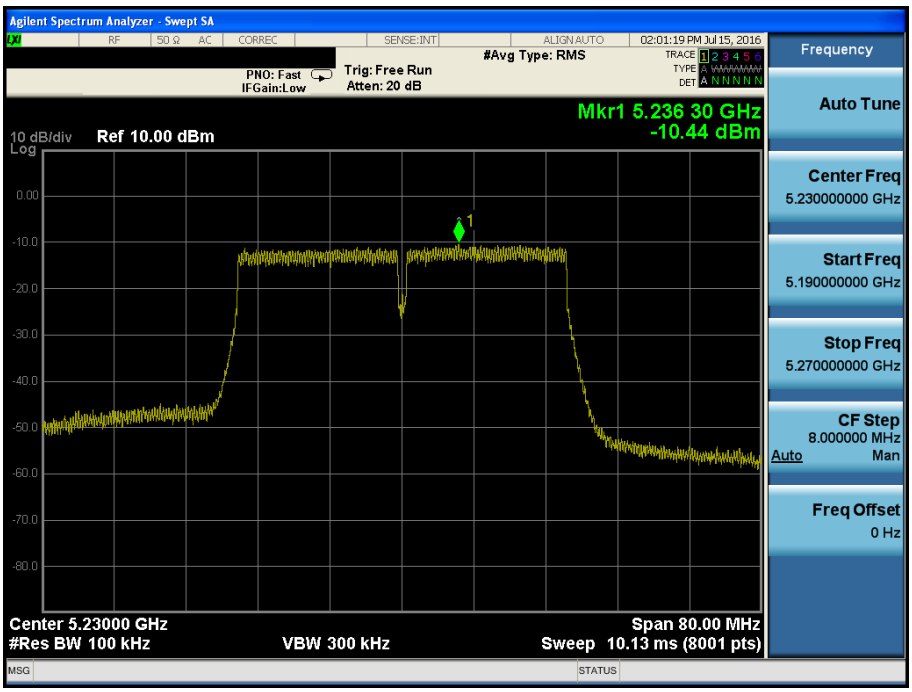
Maximum Power Spectral Density Test Mode: 802.11n HT20 & ANT 2 & Ch.165



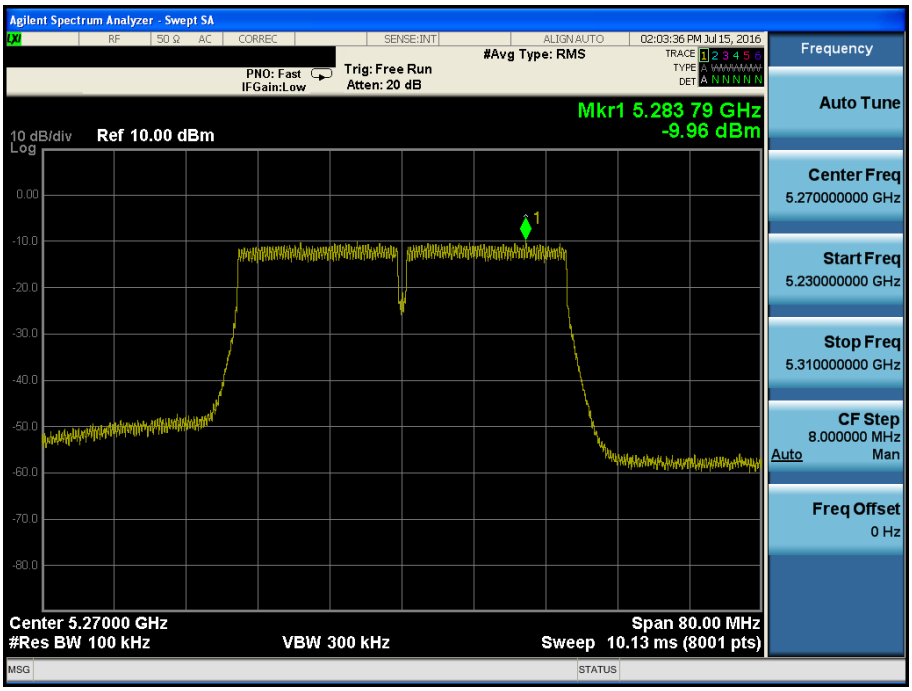
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.38



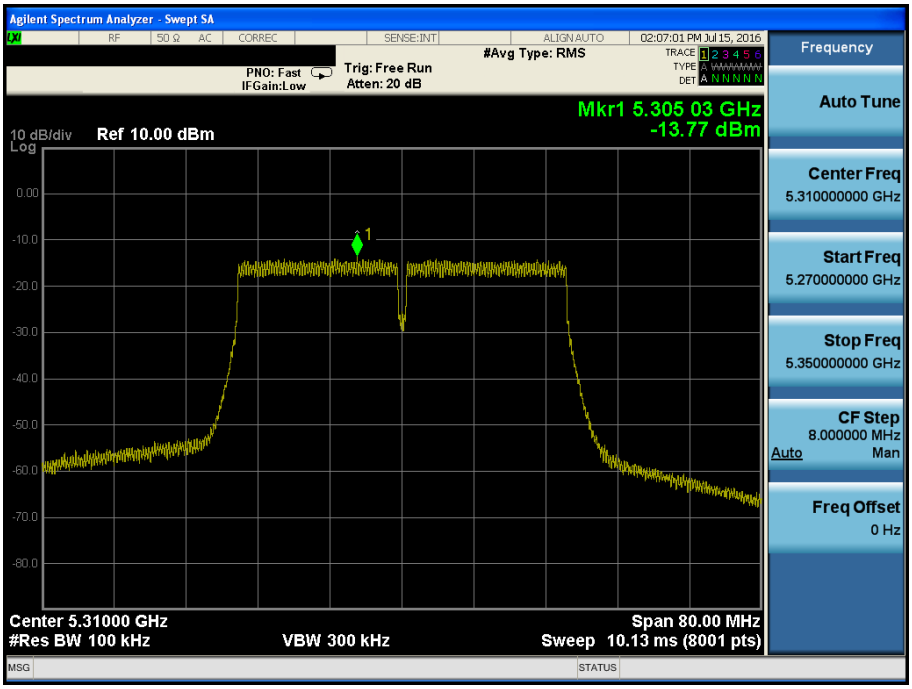
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.46



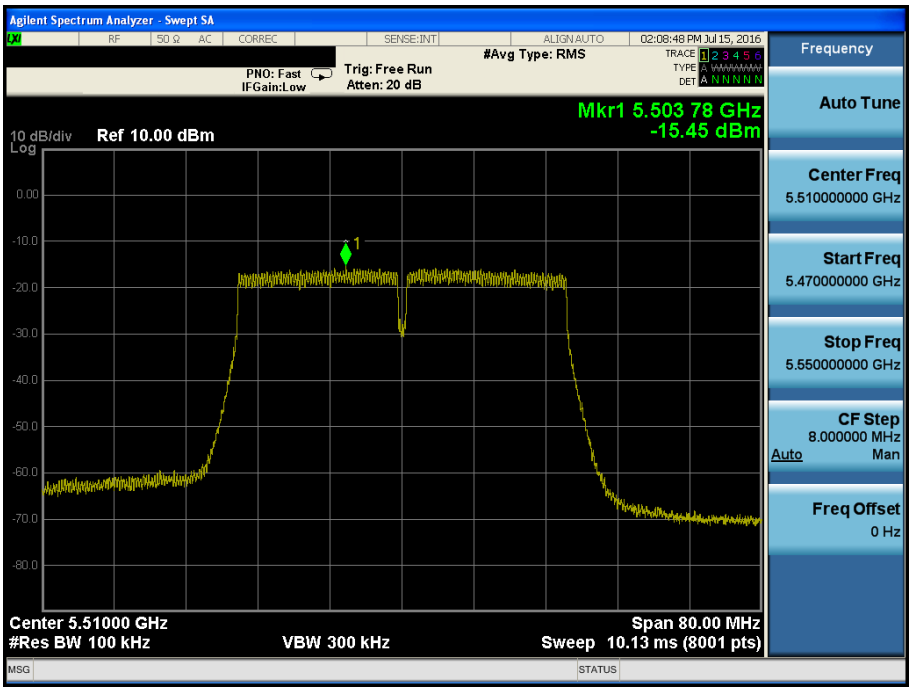
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.54



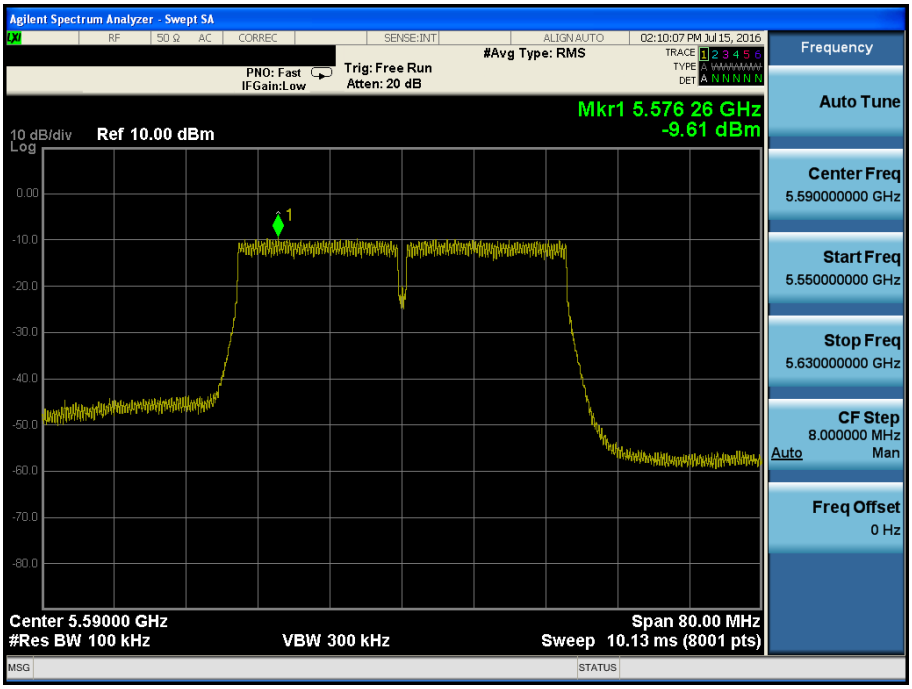
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.62



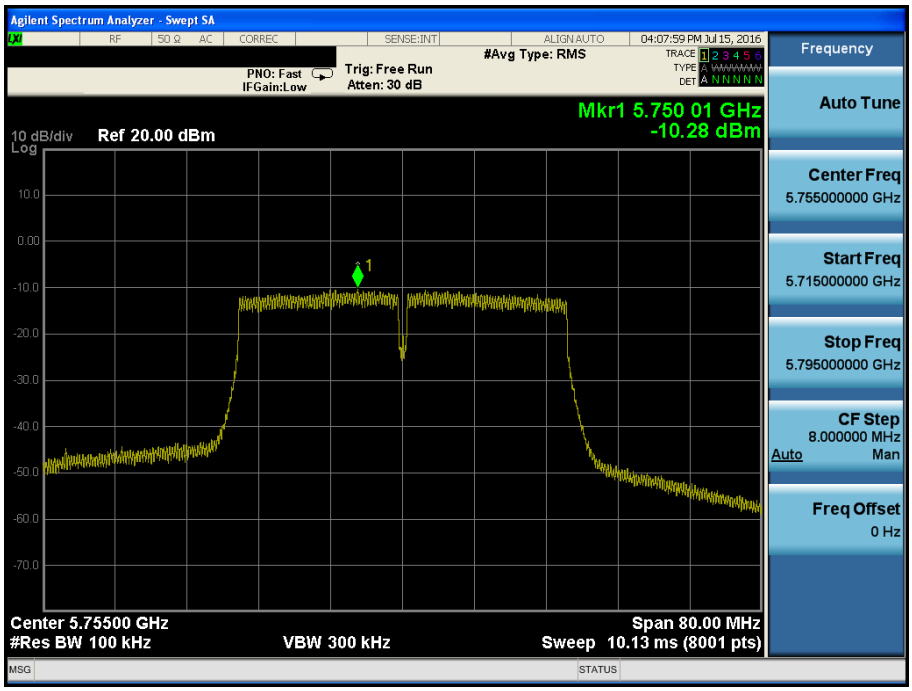
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.102



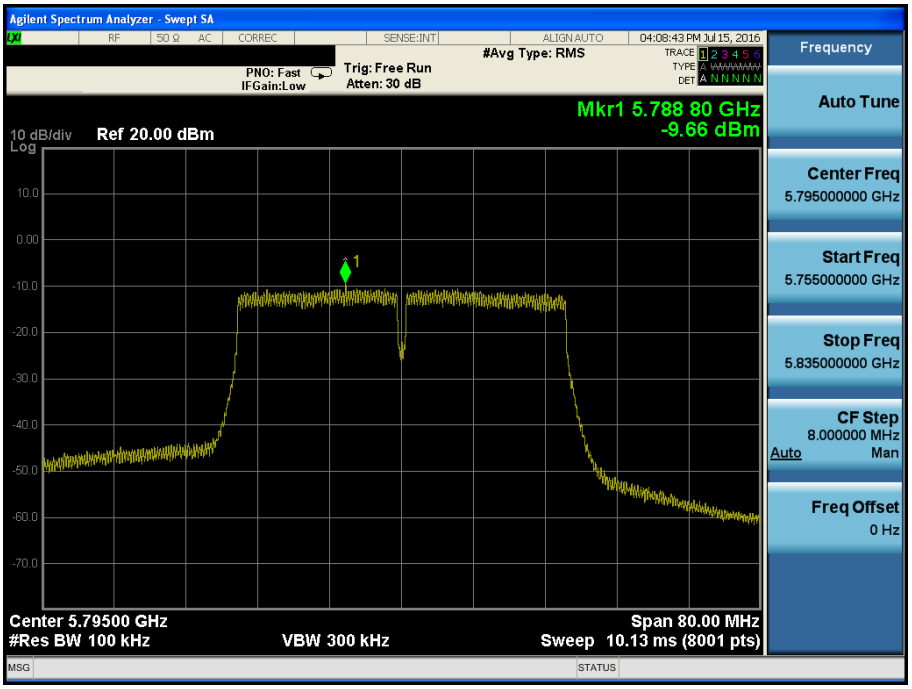
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.118



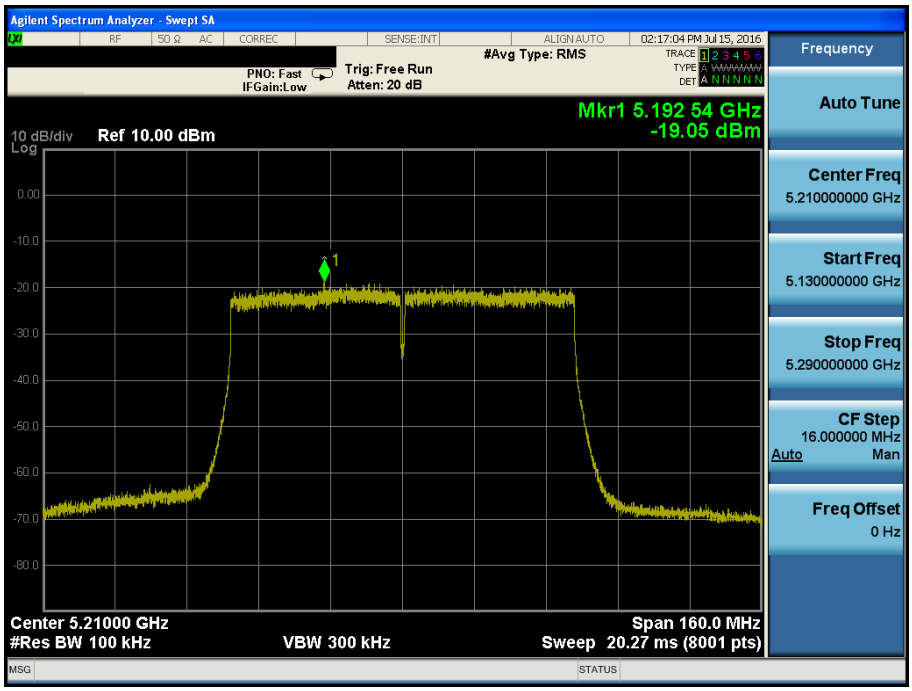
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.151



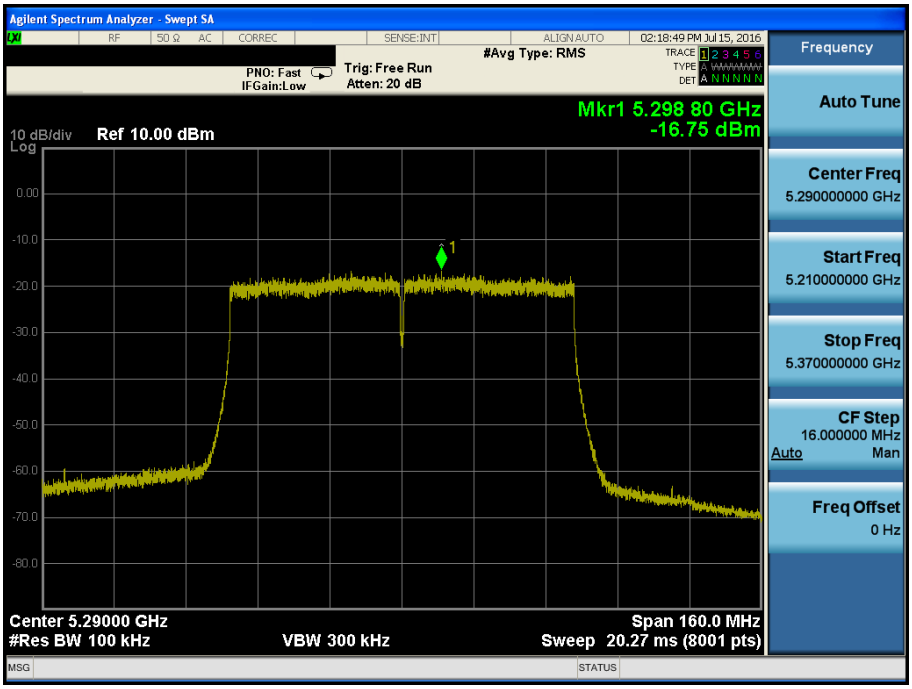
Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.159



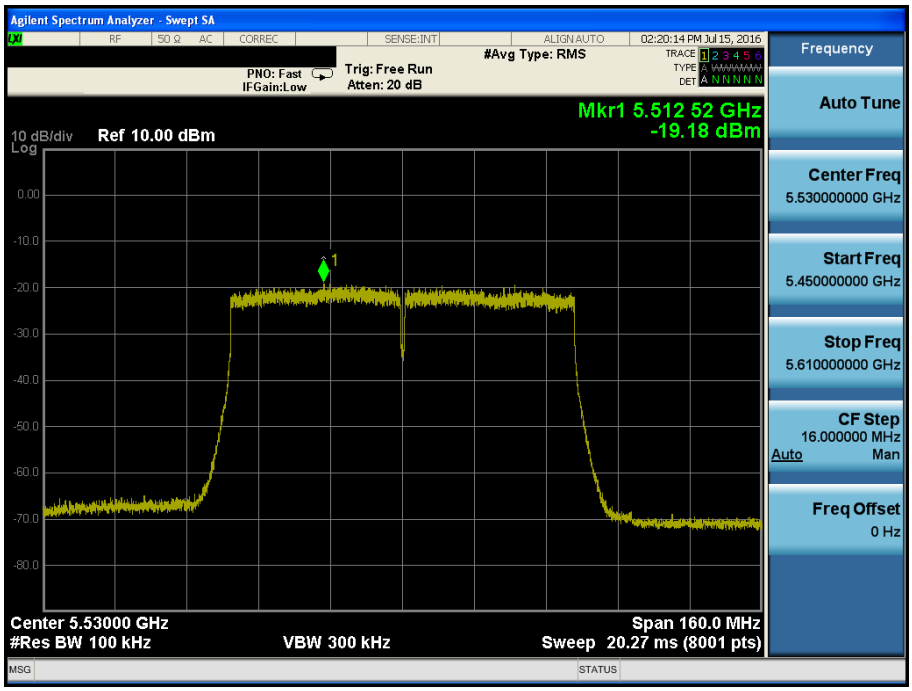
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 2 & Ch.42



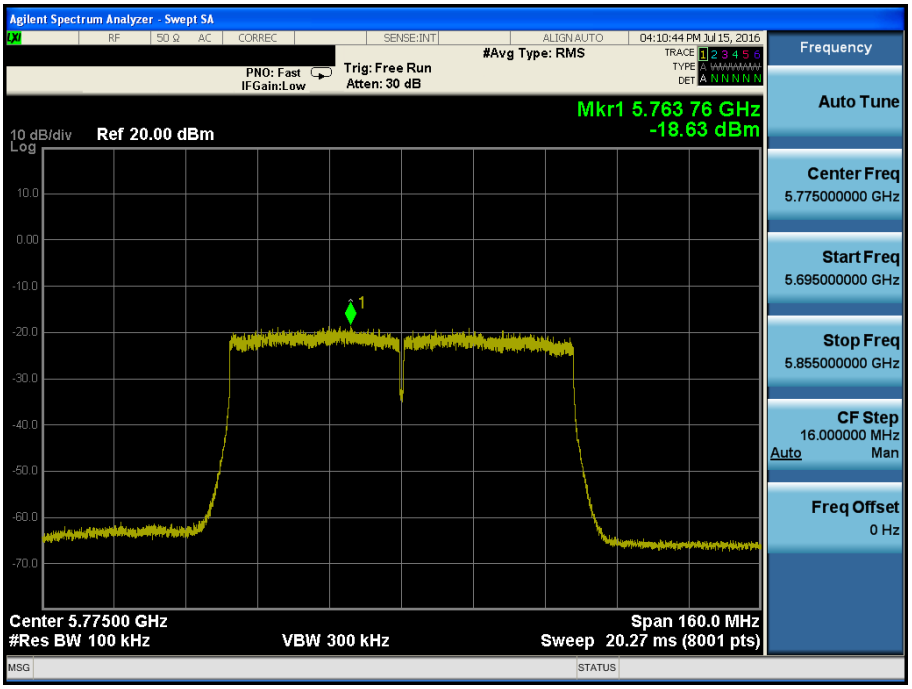
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 2 & Ch.58



Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 2 & Ch.106

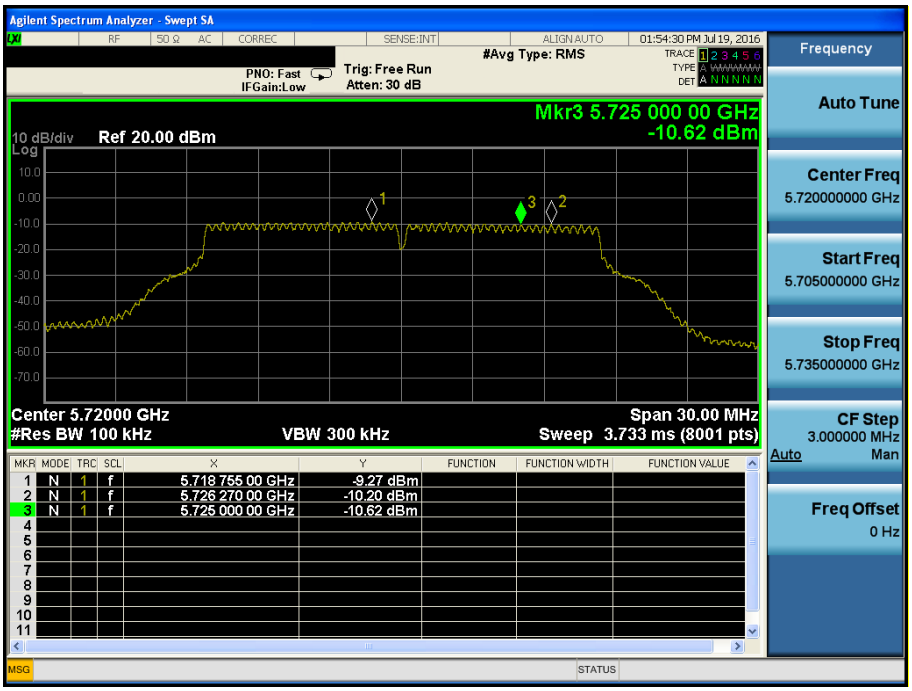


Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 2 & Ch.155



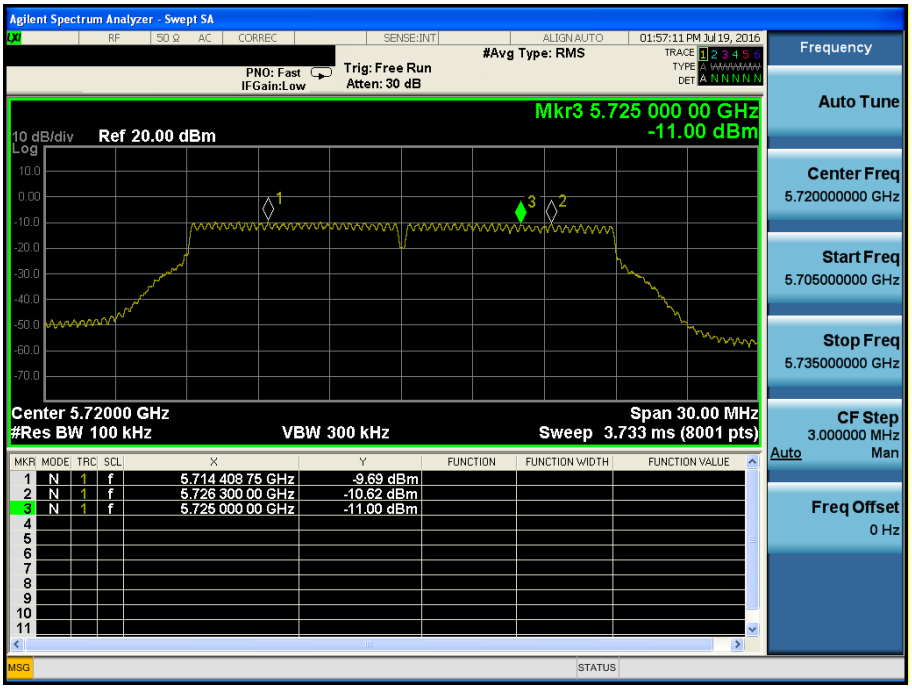
Maximum Power Spectral Density

Test Mode: 802.11a & & ANT 2 & Ch.144

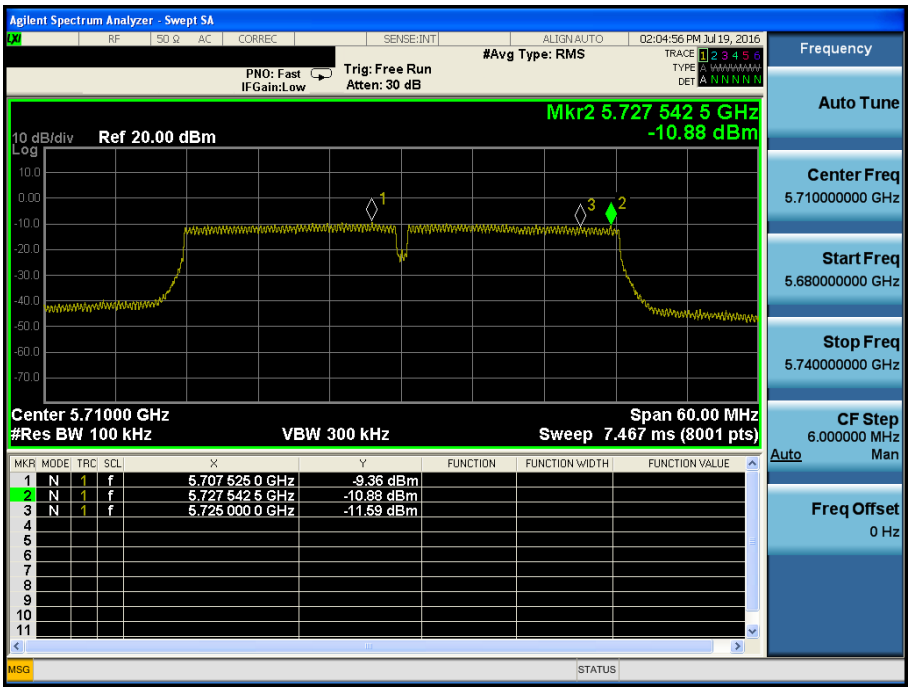


Maximum Power Spectral Density

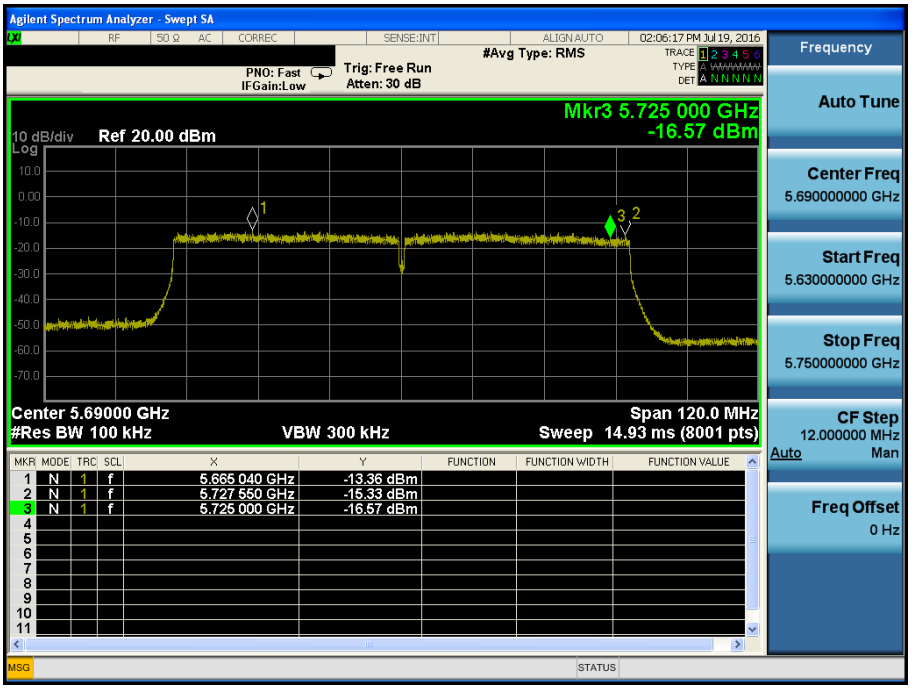
Test Mode: 802.11av VHT20 & & ANT 2 & Ch.144



Maximum Power Spectral Density Test Mode: 802.11ac VHT40 & ANT 2 & Ch.142



Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & ANT 2 & Ch.138



8.5 Frequency Stability

▣ Test requirements

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

▣ Test Procedure

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between 0 ℃ and +60 ℃. The temperature was incremented by 10 ℃ intervals and the unit was allowed to stabilize at each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

▣ Test Results: Comply

U-NII-1 & U-NII-2A : (5150 MHz ~ 5350 MHz)_ANT 1

26 dB Bandwidth Reference	
Low edge(MHz)	**High edge(MHz)**
5169.343750	5330.712500

Supply Voltage (V DC)	TEMP (℃)	Operating Frequency					
		5180 MHz			5320 MHz		
		Measured Frequency (Hz)	Deviation (%)	26dBc low edge Note 1 (Hz)	Measured Frequency (Hz)	Deviation (%)	26dBc High edge Note 2 (Hz)
3.300	+25(Ref)	5,180,026,314	0.000508	5,169,370,064	5,320,023,328	0.000438	5,330,735,828
	+60	5,180,003,543	0.000068	5,169,347,293	5,320,001,373	0.000026	5,330,713,873
	+50	5,180,009,433	0.000182	5,169,353,183	5,320,011,231	0.000211	5,330,723,731
	+40	5,180,018,484	0.000357	5,169,362,234	5,320,015,200	0.000286	5,330,727,700
	+30	5,180,024,394	0.000471	5,169,368,144	5,320,021,264	0.000400	5,330,733,764
	+20	5,180,033,215	0.000641	5,169,376,965	5,320,030,087	0.000566	5,330,742,587
	+10	5,180,044,316	0.000856	5,169,388,066	5,320,041,168	0.000774	5,330,753,668
	0	5,180,048,415	0.000935	5,169,392,165	5,320,047,288	0.000889	5,330,759,788
	-	-	-	-	-	-	-
3.315	+25	5,180,025,844	0.000499	5,169,369,594	5,320,023,662	0.000445	5,330,736,162
3.465	+25	5,180,026,648	0.000514	5,169,370,398	5,320,027,624	0.000519	5,330,740,124

Note 1: **26 dB Bandwidth Reference Low edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **26dBc low edge (Hz)**
Note 2: **26 dB Bandwidth Reference High edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **26dBc High edge (Hz)**
Note 3: **ANT1 is worst case in U-NII-1 & U-NII-2A band**

U-NII-2C : (5470 MHz ~ 5725 MHz)_ANT 1

26 dB Bandwidth Reference	
Low edge	**High edge**
5489.475000	5730.706250

Supply Voltage (V DC)	TEMP (℃)	Operating Frequency					
		5500 MHz			5720 MHz		
		Measured Frequency (Hz)	Deviation (%)	26dBc low edge Note 1 (Hz)	Measured Frequency (Hz)	Deviation (%)	26dBc High edge Note 2 (Hz)
3.300	+25(Ref)	5,500,024,365	0.000443	5,489,499,365	5,720,024,416	0.000427	5,730,730,666
	+60	5,500,000,075	0.000001	5,489,475,075	5,720,003,146	0.000055	5,730,709,396
	+50	5,500,010,037	0.000182	5,489,485,037	5,720,011,633	0.000203	5,730,717,883
	+40	5,500,017,970	0.000327	5,489,492,970	5,720,016,885	0.000295	5,730,723,135
	+30	5,500,023,263	0.000423	5,489,498,263	5,720,022,335	0.000390	5,730,728,585
	+20	5,500,032,905	0.000598	5,489,507,905	5,720,031,476	0.000550	5,730,737,726
	+10	5,500,043,038	0.000783	5,489,518,038	5,720,041,055	0.000718	5,730,747,305
	0	5,500,048,123	0.000875	5,489,523,123	5,720,047,785	0.000835	5,730,754,035
	-	-	-	-	-	-	-
3.315	+25	5,500,024,655	0.000448	5,489,499,655	5,720,024,954	0.000436	5,730,731,204
3.465	+25	5,500,023,894	0.000434	5,489,498,894	5,720,025,604	0.000448	5,730,731,854

Note 1: **26 dB Bandwidth Reference Low edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **26dBc low edge (Hz)**
Note 2: **26 dB Bandwidth Reference High edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **26dBc High edge (Hz)**
Note 3: **ANT1 is worst case in U-NII-2C band**

U-NII-3 : (5725 MHz ~ 5850 MHz)_ANT 2

6 dB Bandwidth Reference	
Low edge	**High edge**
5736.831250	5833.237500

Supply Voltage (V DC)	TEMP (℃)	Operating Frequency					
		5745 MHz			5825 MHz		
		Measured Frequency (Hz)	Deviation (%)	26dBc low edge Note 1 (Hz)	Measured Frequency (Hz)	Deviation (%)	26dBc High edge Note 2 (Hz)
3.300	+25(Ref)	5,745,025,306	0.000440	5,736,856,556	5,825,025,075	0.000430	5,833,262,575
	+60	5,745,005,754	0.000100	5,736,837,004	5,825,004,354	0.000075	5,833,241,854
	+50	5,745,011,950	0.000208	5,736,843,200	5,825,010,686	0.000183	5,833,248,186
	+40	5,745,018,931	0.000330	5,736,850,181	5,825,015,973	0.000274	5,833,253,473
	+30	5,745,020,061	0.000349	5,736,851,311	5,825,019,946	0.000342	5,833,257,446
	+20	5,745,024,904	0.000433	5,736,856,154	5,825,025,311	0.000435	5,833,262,811
	+10	5,745,038,995	0.000679	5,736,870,245	5,825,037,843	0.000650	5,833,275,343
	0	5,745,044,036	0.000767	5,736,875,286	5,825,043,484	0.000746	5,833,280,984
	-	-	-	-	-	-	-
3.315	+25	5,745,024,982	0.000435	5,736,856,232	5,825,024,795	0.000426	5,833,262,295
3.465	+25	5,745,024,773	0.000431	5,736,856,023	5,825,025,364	0.000435	5,833,262,864

Note 1: **6 dB Bandwidth Reference Low edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **6dBc low edge (Hz)**

Note 2: **26 dB Bandwidth Reference High edge (Hz)** + (**Measured Frequency (Hz)** - **Operating Frequency (Hz)**) = **26dBc High edge (Hz)**

Note 2**: ANT1 is worst case in U-NII-3 band**

8.6 Radiated Spurious Emission Measurements

▣ Test Procedure

▪ **FCC Part 15.209(a) and (b)**

Frequency (MHz)	Limit (uV/m)	Measurement Distance (meter)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

▪ **FCC Part 15.205 (a):** Only spurious emissions are permitted in any of the frequency bands listed below:

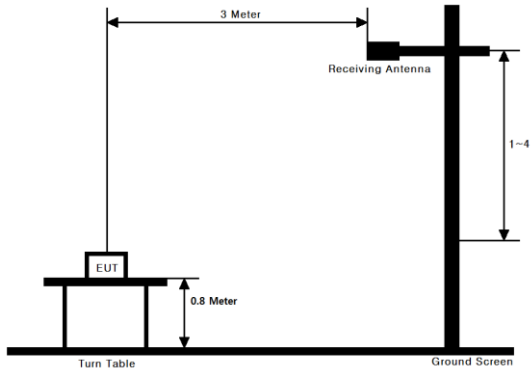
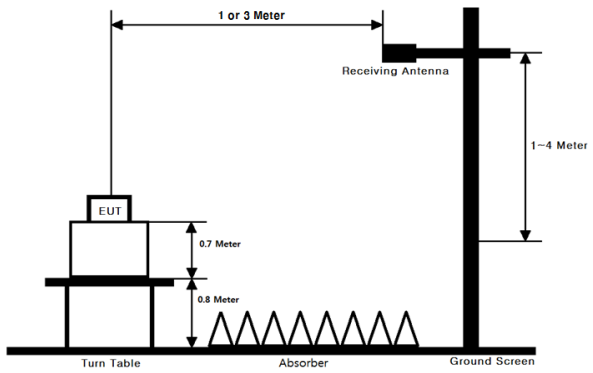
MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.52025	160.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	12.57675 ~	160.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	12.57725	160.7 ~ 160.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	13.36 ~ 13.41	162.0125 ~ 167.17	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.42 ~ 16.423	167.72 ~ 173.2	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	16.69475 ~	240 ~ 285	2655 ~ 2900		
8.291 ~ 8.294	16.69525	322 ~ 335.4	3260 ~ 3267		
8.362 ~ 8.366	16.80425 ~	399.90 ~ 410	3332 ~ 3339		
8.37625 ~ 8.38675	16.80475	608 ~ 614	3345.8 ~ 3358		
	25.5 ~ 25.67	960 ~ 1240	3600 ~ 4000		
	37.5 ~ 38.25				
	73 ~ 74.6				
	74.8 ~ 75.2				

▪ **FCC Part 15.205(b):** The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

▪ **FCC Part 15.407 (b):** Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the **5.15-5.25 GHz band**: all emissions outside of the **5.15-5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
(2) For transmitters operating in the **5.25-5.35 GHz band**: all emissions outside of the **5.15-5.35 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
(3) For transmitters operating in the **5.47-5.725 GHz band**: all emissions outside of the **5.47-5.725 GHz band** shall not exceed an **EIRP of -27 dBm/MHz.**
(4) For transmitters operating in the **5.725-5.85 GHz band**: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
(6) Unwanted emissions **below 1 GHz** must comply with the general field strength limits set forth in **Section 15.209**. Further, any U-NII devices using an **AC power line** are required to comply also with the conducted limits set forth in **Section 15.207**.
(7) The provisions of §15.205 apply to intentional radiators operating under this section
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

▣ Test Procedure

Below 1GHz	Above 1GHz
	

▣ Test Procedure

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turn table shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 1m or 3 m away from the receiving antenna, which is varied from 1m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Radiated spurious emission measured using following Measurement Procedure **of KDB789033 D02**

► General Requirements for Unwanted Emissions Measurements

The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

- EUT Duty Cycle

(1) The EUT shall be configured or modified to **transmit continuously** except as stated in (ii), below. The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (**to no lower than 98 percent**) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

(2) If **continuous transmission (or at least 98 percent duty cycle) cannot be achieved** due to hardware limitations of the EUT (e.g., overheating), the following additions to the measurement and reporting procedures are required:

- The EUT shall be configured to operate at the maximum achievable duty cycle.
- Measure the duty cycle, x, of the transmitter output signal.
- Adjustments to measurement procedures (e.g., increasing test time and number of traces averaged) shall be performed as described in the procedures below.
- The test report shall include the following additional information:
  - The reason for the duty cycle limitation.
  - The duty cycle achieved for testing and the associated transmit duration and interval between transmissions.
  - The sweep time and the amount of time used for trace stabilization during max-hold measurements for peak emission measurements.

(3) **Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.**

► Measurements below 1000 MHz

a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.

b) Compliance shall be demonstrated using **CISPR quasi-peak detection**; however, **peak detection** is permitted as an alternative to quasi-peak detection.

► Measurements Above 1000 MHz (Peak)

a) Follow the requirements in section II.G.3, "General Requirements for Unwanted Emissions Measurements".
b) Peak emission levels are measured by setting the analyzer as follows:
(i) **RBW = 1 MHz.**
(ii) **VBW ≥ 3 MHz.**
(iii) **Detector = Peak.**
(iv) Sweep time = Auto.
(v) Trace mode = Max hold.
(vi) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

► Measurements Above 1000 MHz (Method AD)

(i) **RBW = 1 MHz.**
(ii) **VBW ≥ 3 MHz.**
(iii) **Detector = RMS**, if span / (# of points in sweep) ≤ RBW / 2. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, the detector mode shall be set to peak.
(iv) Averaging type = power (i.e., RMS)
• As an alternative, the detector and averaging type may be set for linear voltage averaging. Some analyzers require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
(v) Sweep time = Auto.
(vi) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of 1/x, where x is the duty cycle. For example, with 50 percent duty cycle, at least 200 traces shall be averaged.
(vii) If tests are performed with the EUT transmitting at a duty cycle less than 98 percent, a correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
• **If power averaging (RMS) mode was used in step (iv) above, the correction factor is 10 log(1/x), where x is the duty cycle.** For example, if the transmit duty cycle was 50 percent, then 3 dB must be added to the measured emission levels.
• If linear voltage averaging mode was used in step (iv) above, the correction factor is 20 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 6 dB must be added to the measured emission levels.
• If a specific emission is demonstrated to be continuous (100 percent duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.

Please refer to Appendix II for the duty correction factor

▣ Measurement Data:

Multiple transmit

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11a*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	36 (5180 MHz)	5149.47	H	X	PK	45.45	7.82	N/A	N/A	53.27	74.00	20.73
		5149.23	H	X	AV	36.02	7.82	0.22	N/A	44.06	54.00	9.94
		10355.93	V	Z	PK	50.95	12.18	N/A	-9.54	53.59	68.20	14.61
		15540.52	V	X	PK	42.62	19.03	N/A	-9.54	52.11	74.00	21.89
		15540.37	V	X	AV	32.30	19.03	0.22	-9.54	42.01	54.00	11.99
	40 (5200 MHz)	10396.02	V	Z	PK	50.74	12.35	N/A	-9.54	53.55	68.20	14.65
		15598.27	V	X	PK	42.46	19.16	N/A	-9.54	52.08	74.00	21.92
		15598.70	V	X	AV	32.67	19.16	0.22	-9.54	42.51	54.00	11.49
	48 (5240 MHz)	10476.30	V	Z	PK	51.75	12.69	N/A	-9.54	54.90	68.20	13.30
		15720.40	V	X	PK	43.93	19.44	N/A	-9.54	53.83	74.00	20.17
		15720.53	V	X	AV	33.99	19.44	0.22	-9.54	44.11	54.00	9.89
U-NII 2A	52 (5260 MHz)	10525.73	V	Z	PK	52.00	12.80	N/A	-9.54	55.26	68.20	12.94
		15781.43	V	X	PK	45.30	19.57	N/A	-9.54	55.33	74.00	18.67
		15780.53	V	X	AV	32.12	19.57	0.22	-9.54	42.37	54.00	11.63
	60 (5300 MHz)	10602.03	V	Z	PK	54.80	12.93	N/A	-9.54	58.19	74.00	15.81
		10601.60	V	Z	AV	44.09	12.93	0.22	-9.54	47.70	54.00	6.30
		15901.35	V	X	PK	45.30	19.85	N/A	-9.54	55.61	74.00	18.39
		15900.98	V	X	AV	34.93	19.85	0.22	-9.54	45.46	54.00	8.54
	64 (5320 MHz)	5350.23	H	X	PK	48.72	7.88	N/A	N/A	56.60	74.00	17.40
		5350.03	H	X	AV	38.31	7.88	0.22	N/A	46.41	54.00	7.59
		10642.70	V	Z	PK	54.88	12.99	N/A	-9.54	58.33	74.00	15.67
		10642.05	V	Z	AV	45.02	12.99	0.22	-9.54	48.69	54.00	5.31
		15956.33	V	X	PK	44.45	19.98	N/A	-9.54	54.89	74.00	19.11
		15956.82	V	X	AV	34.96	19.98	0.22	-9.54	45.62	54.00	8.38

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11a*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2C	100 (5500 MHz)	5458.77	H	X	PK	47.87	7.73	N/A	N/A	55.60	74.00	18.40
		5458.67	H	X	AV	37.14	7.73	0.22	N/A	45.09	54.00	8.91
		5466.57	H	X	PK	48.37	7.71	N/A	N/A	56.08	68.20	12.12
		10998.35	V	Z	PK	53.28	13.55	N/A	-9.54	57.29	74.00	16.71
		10998.32	V	Z	AV	41.43	13.55	0.22	-9.54	45.66	54.00	8.34
		16503.10	V	X	PK	41.64	20.90	N/A	-9.54	53.00	68.20	15.20
	116 (5580 MHz)	11163.12	V	Z	PK	50.02	13.75	N/A	-9.54	54.23	74.00	19.77
		11163.13	V	Z	AV	39.89	13.75	0.22	-9.54	44.32	54.00	9.68
		16741.77	V	X	PK	41.40	21.29	N/A	-9.54	53.15	68.20	15.05
	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-
U-NII 3	149 (5745 MHz)	5714.90	H	X	PK	47.95	8.98	N/A	N/A	56.93	68.20	11.27
		5724.73	H	X	PK	63.24	8.98	N/A	N/A	72.22	78.20	5.98
		11489.28	V	Z	PK	50.95	14.18	N/A	-9.54	55.59	74.00	18.41
		11489.83	V	Z	AV	39.56	14.18	0.22	-9.54	44.42	54.00	9.58
		17240.88	V	X	PK	43.34	22.09	N/A	-9.54	55.89	68.20	12.31
	157 (5785 MHz)	11573.77	V	Z	PK	56.99	14.24	N/A	-9.54	61.69	74.00	12.31
		11573.83	V	Z	AV	45.59	14.24	0.22	-9.54	50.51	54.00	3.49
		17355.50	V	X	PK	42.71	22.27	N/A	-9.54	55.44	68.20	12.76
	165 (5825 MHz)	5850.67	H	X	PK	46.25	9.47	N/A	N/A	55.72	78.20	22.48
		5861.87	H	X	PK	45.22	9.92	N/A	N/A	55.14	68.20	13.06
		11648.62	V	Z	PK	50.98	14.29	N/A	-9.54	55.73	74.00	18.27
		11649.10	V	Z	AV	38.55	14.29	0.22	-9.54	43.52	54.00	10.48
		17475.90	V	X	PK	41.83	22.45	N/A	-9.54	54.74	68.20	13.46

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

▣ Measurement Data:

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11n(HT20)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	36 (5180 MHz)	5148.87	H	X	PK	44.83	7.82	N/A	N/A	52.65	74.00	21.35
		5148.97	H	X	AV	35.99	7.82	0.43	N/A	44.24	54.00	9.76
		10359.92	V	Z	PK	50.89	12.18	N/A	-9.54	53.53	68.20	14.67
		10536.02	V	X	PK	42.46	19.03	N/A	-9.54	51.95	74.00	22.05
		15535.05	V	X	AV	31.98	19.03	0.43	-9.54	41.90	54.00	12.10
	40 (5200 MHz)	10402.10	V	Z	PK	52.29	12.35	N/A	-9.54	55.10	68.20	13.10
		15598.97	V	X	PK	43.57	19.16	N/A	-9.54	53.19	74.00	20.81
		15598.10	V	X	AV	32.32	19.16	0.43	-9.54	42.37	54.00	11.63
	48 (5240 MHz)	10479.12	V	Z	PK	55.01	12.69	N/A	-9.54	58.16	68.20	10.04
		15719.00	V	X	PK	42.53	19.44	N/A	-9.54	52.43	74.00	21.57
		15719.32	V	X	AV	32.69	19.44	0.43	-9.54	43.02	54.00	10.98
U-NII 2A	52 (5260 MHz)	10520.32	V	Z	PK	56.98	12.80	N/A	-9.54	60.24	68.20	7.96
		15781.98	V	X	PK	44.23	19.57	N/A	-9.54	54.26	74.00	19.74
		15781.55	V	X	AV	33.65	19.57	0.43	-9.54	44.11	54.00	9.89
	60 (5300 MHz)	10600.58	V	Z	PK	56.60	12.93	N/A	-9.54	59.99	74.00	14.01
		10600.60	V	Z	AV	46.01	12.93	0.43	-9.54	49.83	54.00	4.17
		15903.47	V	X	PK	43.82	19.85	N/A	-9.54	54.13	74.00	19.87
		15903.90	V	X	AV	33.50	19.85	0.43	-9.54	44.24	54.00	9.76
	64 (5320 MHz)	5350.77	H	X	PK	47.10	7.88	N/A	N/A	54.98	74.00	19.02
		5351.00	H	X	AV	37.28	7.88	0.43	N/A	45.59	54.00	8.41
		10640.80	V	Z	PK	57.15	12.99	N/A	-9.54	60.60	74.00	13.40
		10641.10	V	Z	AV	46.58	12.99	0.43	-9.54	50.46	54.00	3.54
		15963.10	V	X	PK	45.69	19.98	N/A	-9.54	56.13	74.00	17.87
		15963.78	V	X	AV	34.39	19.98	0.43	-9.54	45.26	54.00	8.74

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11n(HT20)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2C	100 (5500 MHz)	5459.00	H	X	PK	47.40	7.73	N/A	N/A	55.13	74.00	18.87
		5459.17	H	X	AV	36.97	7.73	0.43	N/A	45.13	54.00	8.87
		5469.20	H	X	PK	48.59	7.71	N/A	N/A	56.30	68.20	11.90
		10999.83	V	Z	PK	51.61	13.55	N/A	-9.54	55.62	74.00	18.38
		10999.68	V	Z	AV	40.56	13.55	0.43	-9.54	45.00	54.00	9.00
		16501.05	V	X	PK	42.65	20.90	N/A	-9.54	54.01	68.20	14.19
	116 (5580 MHz)	11160.48	V	Z	PK	50.07	13.75	N/A	-9.54	54.28	74.00	19.72
		11160.22	V	Z	AV	39.99	13.75	0.43	-9.54	44.63	54.00	9.37
		16731.78	V	X	PK	41.49	21.29	N/A	-9.54	53.24	68.20	14.96
	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-
U-NII 3	149 (5745 MHz)	5714.37	H	X	PK	47.08	8.98	N/A	N/A	56.06	68.20	12.14
		5723.73	H	X	PK	59.29	8.98	N/A	N/A	68.27	78.20	9.93
		11489.65	V	Z	PK	47.77	14.18	N/A	-9.54	52.41	74.00	21.59
		11489.07	V	Z	AV	38.17	14.18	0.43	-9.54	43.24	54.00	10.76
		17244.48	V	X	PK	42.48	22.09	N/A	-9.54	55.03	68.20	13.17
	157 (5785 MHz)	11570.07	V	Z	PK	47.91	14.24	N/A	-9.54	52.61	74.00	21.39
		11570.02	V	Z	AV	37.71	14.24	0.43	-9.54	42.84	54.00	11.16
		17351.20	V	X	PK	42.01	22.27	N/A	-9.54	54.74	68.20	13.46
	165 (5825 MHz)	5856.03	H	X	PK	43.94	9.47	N/A	N/A	53.41	78.20	24.79
		5860.53	H	X	PK	43.57	9.92	N/A	N/A	53.49	68.20	14.71
		11649.73	V	Z	PK	47.04	14.29	N/A	-9.54	51.79	74.00	22.21
		11649.87	V	Z	AV	36.16	14.29	0.43	-9.54	41.34	54.00	12.66
		17467.47	V	X	PK	41.51	22.45	N/A	-9.54	54.42	68.20	13.78

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

▣ Measurement Data:

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac(VHT40)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	38 (5190 MHz)	5149.60	H	X	PK	48.45	7.82	N/A	N/A	56.27	74.00	17.73
		5149.57	H	X	AV	38.34	7.82	0.26	N/A	46.42	54.00	7.58
		10374.47	V	Z	PK	46.99	12.27	N/A	-9.54	49.72	68.20	18.48
		15566.83	V	X	PK	41.89	19.10	N/A	-9.54	51.45	74.00	22.55
		15566.77	V	X	AV	31.49	19.10	0.26	-9.54	41.31	54.00	12.69
	46 (5230 MHz)	10460.90	V	Z	PK	57.06	12.60	N/A	-9.54	60.12	68.20	8.08
		15686.27	V	X	PK	45.46	19.37	N/A	-9.54	55.29	74.00	18.71
		15686.97	V	X	AV	35.26	19.37	0.26	-9.54	45.35	54.00	8.65
U-NII 2A	54 (5270 MHz)	10538.57	V	Z	PK	57.28	12.83	N/A	-9.54	60.57	68.20	7.63
		15810.70	V	X	PK	46.33	19.64	N/A	-9.54	56.43	74.00	17.57
		15811.30	V	X	AV	35.57	19.64	0.26	-9.54	45.93	54.00	8.07
	62 (5310 MHz)	5350.53	H	X	PK	46.86	7.88	N/A	N/A	54.74	74.00	19.26
		5350.23	H	X	AV	37.54	7.88	0.26	N/A	45.68	54.00	8.32
		10618.63	V	Z	PK	50.31	12.96	N/A	-9.54	53.73	74.00	20.27
		10618.97	V	Z	AV	39.57	12.96	0.26	-9.54	43.25	54.00	10.75
		15930.73	V	X	PK	41.58	19.91	N/A	-9.54	51.95	74.00	22.05
		15931.60	V	X	AV	32.33	19.91	0.26	-9.54	42.96	54.00	11.04

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac(VHT40)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2C	102 (5510 MHz)	5459.50	H	X	PK	49.34	7.73	N/A	N/A	57.07	74.00	16.93
		5459.37	H	X	AV	35.82	7.73	0.26	N/A	43.81	54.00	10.19
		5469.70	H	X	PK	49.22	7.71	N/A	N/A	56.93	68.20	11.27
		11018.87	V	Z	PK	43.06	13.57	N/A	-9.54	47.09	74.00	26.91
		11019.47	V	Z	AV	33.76	13.57	0.26	-9.54	38.05	54.00	15.95
		16534.80	V	X	PK	42.24	20.95	N/A	-9.54	53.65	68.20	14.55
	118 (5590 MHz)	11177.97	V	Z	PK	54.36	13.78	N/A	-9.54	58.60	74.00	15.40
		11178.90	V	Z	AV	43.53	13.78	0.26	-9.54	48.03	54.00	5.97
		16770.90	V	X	PK	42.59	21.34	N/A	-9.54	54.39	68.20	13.81
	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-
U-NII 3	151 (5755 MHz)	5714.57	H	X	PK	55.73	8.98	N/A	N/A	64.71	68.20	3.49
		5719.20	H	X	PK	58.34	8.98	N/A	N/A	67.32	78.20	10.88
		11508.57	V	Z	PK	48.29	14.20	N/A	-9.54	52.95	74.00	21.05
		11508.53	V	Z	AV	38.48	14.20	0.26	-9.54	43.40	54.00	10.60
		17272.63	V	X	PK	41.48	22.13	N/A	-9.54	54.07	68.20	14.13
	159 (5795 MHz)	5825.20	H	X	PK	49.14	9.47	N/A	N/A	58.61	78.20	19.59
		5861.80	H	X	PK	47.40	9.92	N/A	N/A	57.32	68.20	10.88
		11590.73	V	Z	PK	48.19	14.25	N/A	-9.54	52.90	74.00	21.10
		11591.27	V	Z	AV	37.86	14.25	0.26	-9.54	42.83	54.00	11.17
		17377.93	V	X	PK	41.29	22.32	N/A	-9.54	54.07	68.20	14.13

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

▣ Measurement Data:

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac(VHT80)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	42 (5210 MHz)	5148.75	H	X	PK	52.01	7.82	N/A	N/A	59.83	74.00	14.17
		5148.50	H	X	AV	42.33	7.82	0.48	N/A	50.63	54.00	3.37
		10418.80	V	Z	PK	44.38	12.43	N/A	-9.54	47.27	68.20	20.93
		15639.67	V	X	PK	42.26	19.23	N/A	-9.54	51.95	74.00	22.05
		15640.20	V	X	AV	32.21	19.23	0.48	-9.54	42.38	54.00	11.62
U-NII 2A	58 (5290 MHz)	5385.20	H	X	PK	47.94	7.88	N/A	N/A	55.82	74.00	18.18
		5387.70	H	X	AV	37.00	7.88	0.48	N/A	45.36	54.00	8.64
		10596.60	V	Z	PK	48.67	12.90	N/A	-9.54	52.03	68.20	16.17
		10601.73	V	Z	PK	46.26	12.90	N/A	-9.54	49.62	74.00	24.38
		10601.87	V	Z	AV	35.98	12.90	0.48	-9.54	39.82	54.00	14.18
		15855.73	V	X	PK	41.73	19.78	N/A	-9.54	51.97	74.00	22.03
		15856.07	V	X	AV	31.94	19.78	0.48	-9.54	42.66	54.00	11.34
U-NII 2C	106 (5530 MHz)	5459.75	H	X	PK	43.73	7.73	N/A	N/A	51.46	74.00	22.54
		5459.65	H	X	AV	35.24	7.73	0.48	N/A	43.45	54.00	10.55
		5469.30	H	X	PK	44.45	7.71	N/A	N/A	52.16	68.20	16.04
		11059.93	V	Z	PK	43.18	13.62	N/A	-9.54	47.26	74.00	26.74
		11059.93	V	Z	AV	33.48	13.62	0.48	-9.54	38.04	54.00	15.96
		16581.07	V	X	PK	41.82	21.05	N/A	-9.54	53.33	68.20	14.87
U-NII 3	155 (5775 MHz)	5714.49	H	X	PK	46.56	8.98	N/A	N/A	55.54	78.20	22.66
		5723.30	H	X	PK	47.08	8.98	N/A	N/A	56.06	68.20	12.14
		5850.11	H	X	PK	43.25	9.47	N/A	N/A	52.72	78.20	25.48
		5871.17	H	X	PK	44.58	9.92	N/A	N/A	54.50	68.20	13.70
		11536.30	V	Z	PK	41.74	14.22	N/A	-9.54	46.42	74.00	27.58
		11537.50	V	Z	AV	31.71	14.22	0.48	-9.54	36.87	54.00	17.13
		17334.77	V	X	PK	41.47	22.22	N/A	-9.54	54.15	68.20	14.05

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor(DCF) : - 9.54 dB = 20*log(1m/3m)
4. The limit is converted to field strength.
   E[dBuV/m] = EIRP[dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
5. The measured data for U-NII 3 band is satisfied with the emissions mask in 15.407(b)(4)(i), too.
   The old rule 15.407(b)(4) is more tight than the new rule 15.407(b)(4)(i).

▣ Measurement Data:

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11a*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Cross	144 (5720 MHz)	11439.37	V	Z	PK	51.06	14.11	N/A	-9.54	55.63	74.00	18.37
		11439.17	V	Z	AV	39.54	14.11	0.22	-9.54	44.33	54.00	9.67
		16160.10	V	X	PK	42.03	21.97	N/A	-9.54	54.46	68.20	13.74

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac (VHT20)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Cross	144 (5720 MHz)	11438.50	V	Z	PK	48.66	14.11	N/A	-9.54	53.23	74.00	20.77
		11439.17	V	Z	AV	38.56	14.11	0.43	-9.54	43.56	54.00	10.44
		17160.65	V	X	PK	41.34	21.97	N/A	-9.54	53.77	68.20	14.43

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac (VHT40)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Cross	142 (5710 MHz)	11418.23	V	Z	PK	51.96	14.09	N/A	-9.54	56.51	74.00	17.49
		11418.90	V	Z	AV	41.22	14.09	0.26	-9.54	46.03	54.00	7.97
		17124.93	V	X	PK	41.26	21.92	N/A	-9.54	53.64	68.20	14.56

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : *802.11ac (VHT80)*

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Cross	138 (5690 MHz)	11388.20	V	Z	PK	48.78	14.03	N/A	-9.54	53.27	74.00	20.73
		11388.47	V	Z	AV	36.88	14.03	0.48	-9.54	41.85	54.00	12.15
		17076.83	V	X	PK	42.16	21.83	N/A	-9.54	54.45	68.20	13.75

Note.

1. No other spurious and harmonic emissions were found greater than listed emissions on above table.
2. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
3. Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
   Therefore Distance Correction Factor (DCF) : - 9.54 dB = 20*log (1m / 3m)
4. The limit is converted to field strength.
   E [dBuV/m] = EIRP [dBm] + 95.2 dB = -27 dBm + 95.2 = 68.2 dBuV/m
   = -17 dBm + 95.2 = 78.2 dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

8.7 AC Conducted Emissions

▣ Test Procedure

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. Emissions closest to the limit are measured in the quasi-peak mode (QP) and average mode (AV) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

▣ Measurement Data: Comply

Note 1: See next pages for actual measured spectrum plots and data for worst case result.

▣ Minimum Standard: FCC Part 15.207(a)

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 1 & 802.11ac(VHT80) & MIMO & 5210 MHz

Results of Conducted Emission

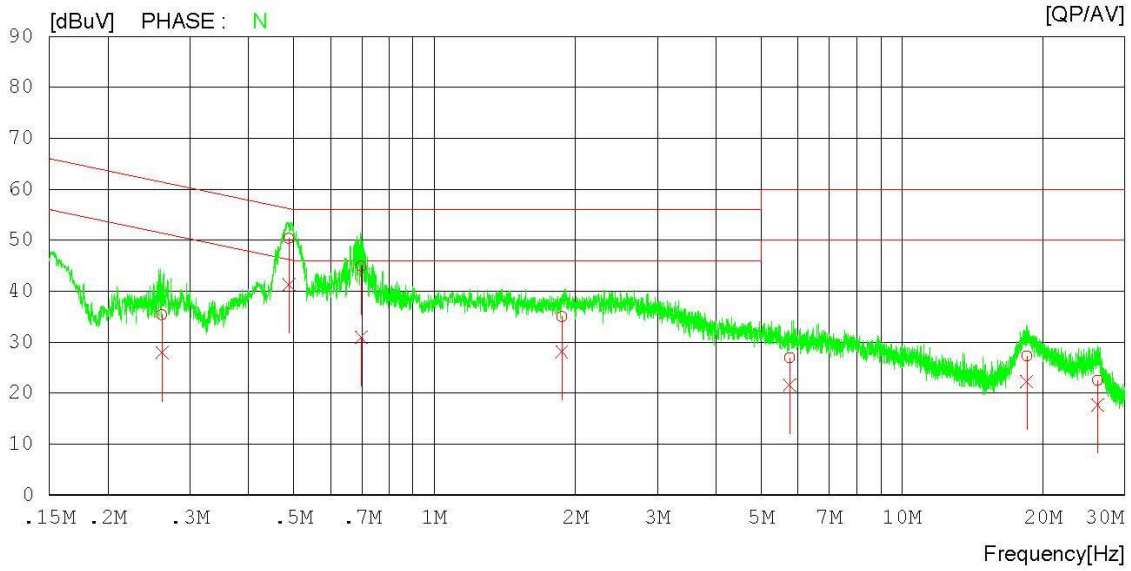
DTNC

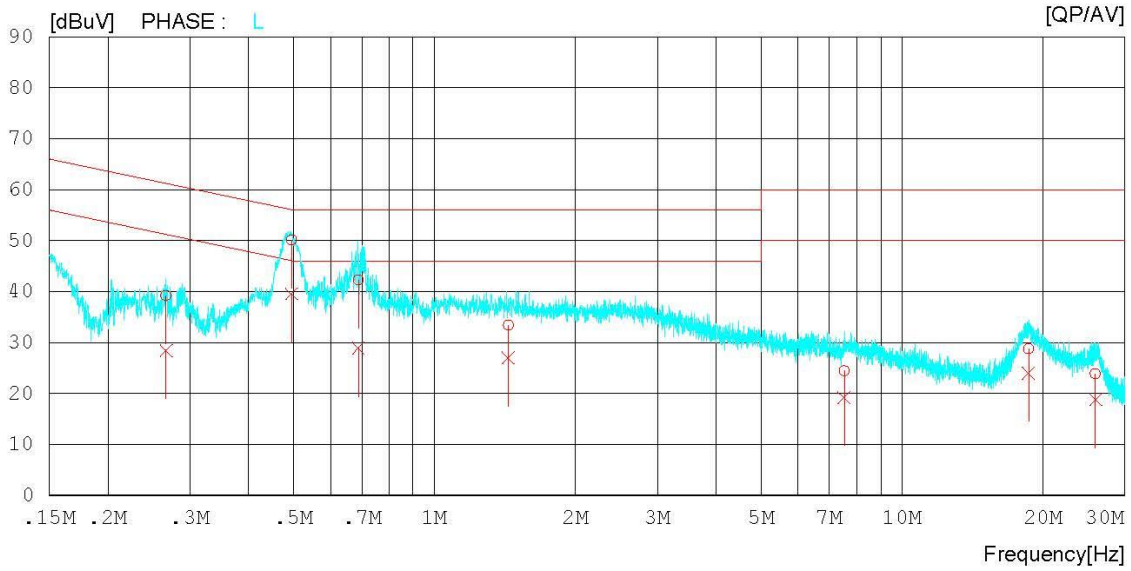
Date : 2016-07-20

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.1GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV





AC Line Conducted Emissions (Data List)

Test Mode: U-NII 1 & 802.11ac(VHT80) & MIMO & 5210 MHz

Results of Conducted Emission

DTNC

Date : 2016-07-20

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.1GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.26121	25.3	17.8	10.1	35.4	27.9	61.4	51.4	26.0	23.5	N
2	0.48807	40.3	31.2	10.1	50.4	41.3	56.2	46.2	5.8	4.9	N
3	0.69704	34.8	20.8	10.1	44.9	30.9	56.0	46.0	11.1	15.1	N
4	1.87320	24.8	17.9	10.2	35.0	28.1	56.0	46.0	21.0	17.9	N
5	5.74920	16.6	11.2	10.4	27.0	21.6	60.0	50.0	33.0	28.4	N
6	18.51000	16.6	11.6	10.7	27.3	22.3	60.0	50.0	32.7	27.7	N
7	26.22900	11.8	6.9	10.8	22.6	17.7	60.0	50.0	37.4	32.3	N
8	0.26657	29.0	18.4	10.1	39.1	28.5	61.2	51.2	22.1	22.7	L
9	0.49457	40.0	29.4	10.1	50.1	39.5	56.1	46.1	6.0	6.6	L
10	0.68740	32.1	18.8	10.1	42.2	28.9	56.0	46.0	13.8	17.1	L
11	1.44000	23.2	16.7	10.2	33.4	26.9	56.0	46.0	22.6	19.1	L
12	7.52720	14.0	8.8	10.4	24.4	19.2	60.0	50.0	35.6	30.8	L
13	18.64400	17.9	13.2	10.8	28.7	24.0	60.0	50.0	31.3	26.0	L
14	25.94280	12.6	7.5	11.2	23.8	18.7	60.0	50.0	36.2	31.3	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2A & 802.11ac(VHT80) & MIMO & 5290 MHz

Results of Conducted Emission

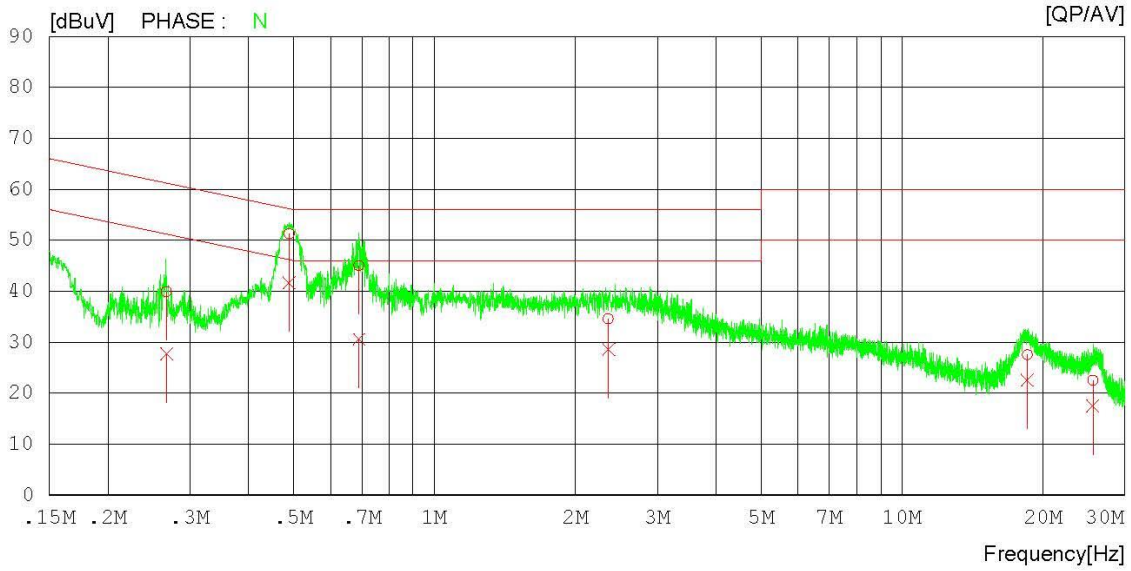
DTNC

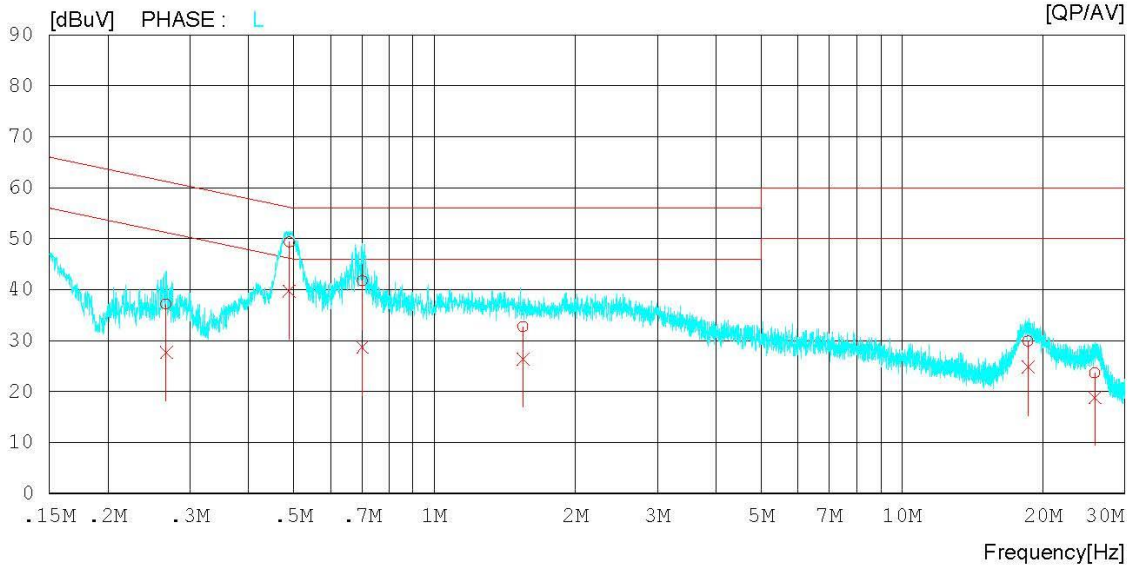
Date : 2016-07-20

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.3GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV





AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2A & 802.11ac(VHT80) & MIMO & 5290 MHz

Results of Conducted Emission

DTNC

Date : 2016-07-20

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.3GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.26720	29.8	17.6	10.1	39.9	27.7	61.2	51.2	21.3	23.5	N
2	0.48905	41.2	31.6	10.1	51.3	41.7	56.2	46.2	4.9	4.5	N
3	0.68942	34.9	20.5	10.1	45.0	30.6	56.0	46.0	11.0	15.4	N
4	2.35680	24.3	18.4	10.2	34.5	28.6	56.0	46.0	21.5	17.4	N
5	18.55480	16.7	11.9	10.7	27.4	22.6	60.0	50.0	32.6	27.4	N
6	25.61500	11.7	6.6	10.8	22.5	17.4	60.0	50.0	37.5	32.6	N
7	0.26665	27.1	17.5	10.1	37.2	27.6	61.2	51.2	24.0	23.6	L
8	0.48865	39.1	29.5	10.1	49.2	39.6	56.2	46.2	7.0	6.6	L
9	0.70138	31.5	18.6	10.1	41.6	28.7	56.0	46.0	14.4	17.3	L
10	1.54800	22.5	16.1	10.2	32.7	26.3	56.0	46.0	23.3	19.7	L
11	18.62960	19.1	14.0	10.8	29.9	24.8	60.0	50.0	30.1	25.2	L
12	25.86280	12.4	7.6	11.2	23.6	18.8	60.0	50.0	36.4	31.2	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & 802.11ac(VHT80) & MIMO & 5530 MHz

Results of Conducted Emission

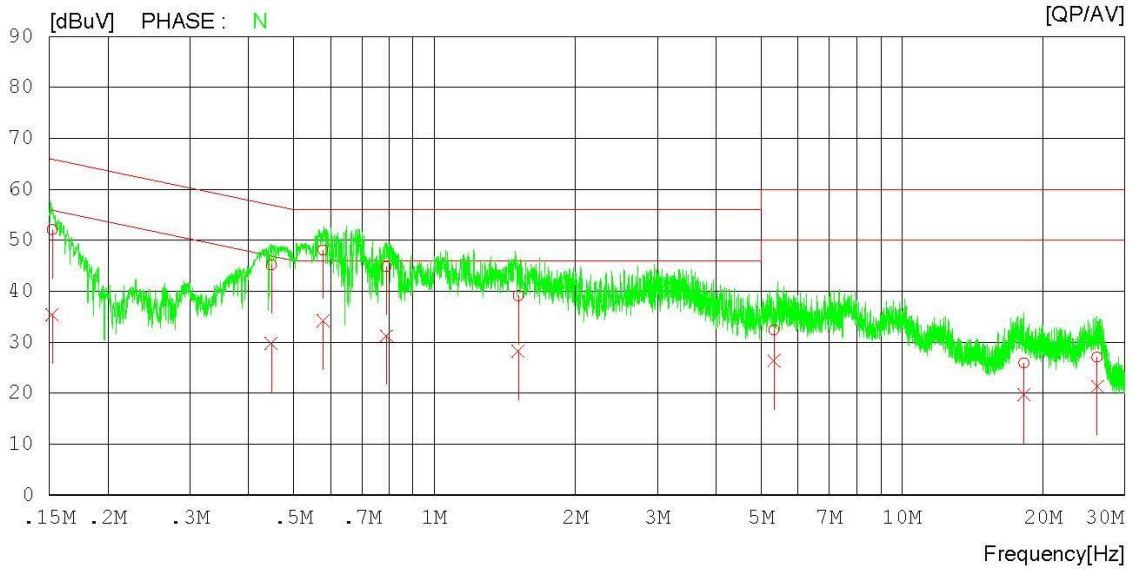
DTNC

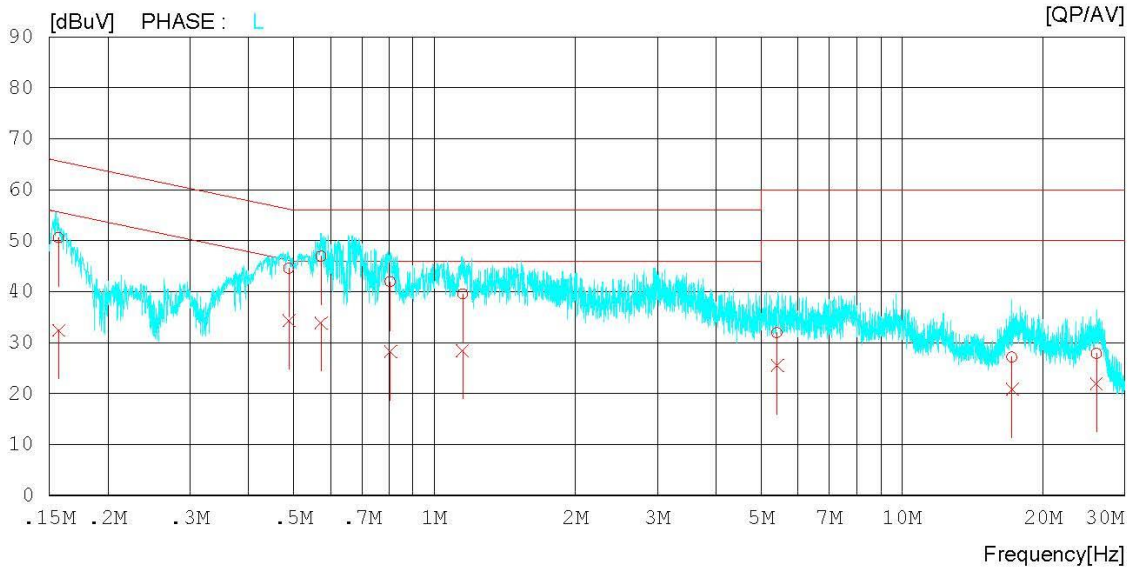
Date : 2016-07-21

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.5GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV





AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & 802.11ac(VHT80) & MIMO & 5530 MHz

Results of Conducted Emission

DTNC

Date : 2016-07-21

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.5GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15209	41.9	25.3	10.1	52.0	35.4	65.9	55.9	13.9	20.5	N
2	0.44753	35.1	19.6	10.1	45.2	29.7	56.9	46.9	11.7	17.2	N
3	0.57773	38.0	24.1	10.1	48.1	34.2	56.0	46.0	7.9	11.8	N
4	0.78945	34.7	21.2	10.1	44.8	31.3	56.0	46.0	11.2	14.7	N
5	1.51020	29.0	18.0	10.2	39.2	28.2	56.0	46.0	16.8	17.8	N
6	5.32140	22.0	15.9	10.4	32.4	26.3	60.0	50.0	27.6	23.7	N
7	18.22960	15.2	9.0	10.7	25.9	19.7	60.0	50.0	34.1	30.3	N
8	26.15680	16.2	10.5	10.8	27.0	21.3	60.0	50.0	33.0	28.7	N
9	0.15710	40.4	22.3	10.1	50.5	32.4	65.6	55.6	15.1	23.2	L
10	0.48833	34.4	24.2	10.1	44.5	34.3	56.2	46.2	11.7	11.9	L
11	0.57234	36.7	23.7	10.1	46.8	33.8	56.0	46.0	9.2	12.2	L
12	0.80446	31.7	18.1	10.1	41.8	28.2	56.0	46.0	14.2	17.8	L
13	1.14760	29.4	18.2	10.2	39.6	28.4	56.0	46.0	16.4	17.6	L
14	5.41020	21.5	15.0	10.4	31.9	25.4	60.0	50.0	28.1	24.6	L
15	17.19440	16.4	10.0	10.8	27.2	20.8	60.0	50.0	32.8	29.2	L
16	26.08260	16.6	10.7	11.2	27.8	21.9	60.0	50.0	32.2	28.1	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 3 & 802.11ac(VHT80) & MIMO & 5775 MHz

Results of Conducted Emission

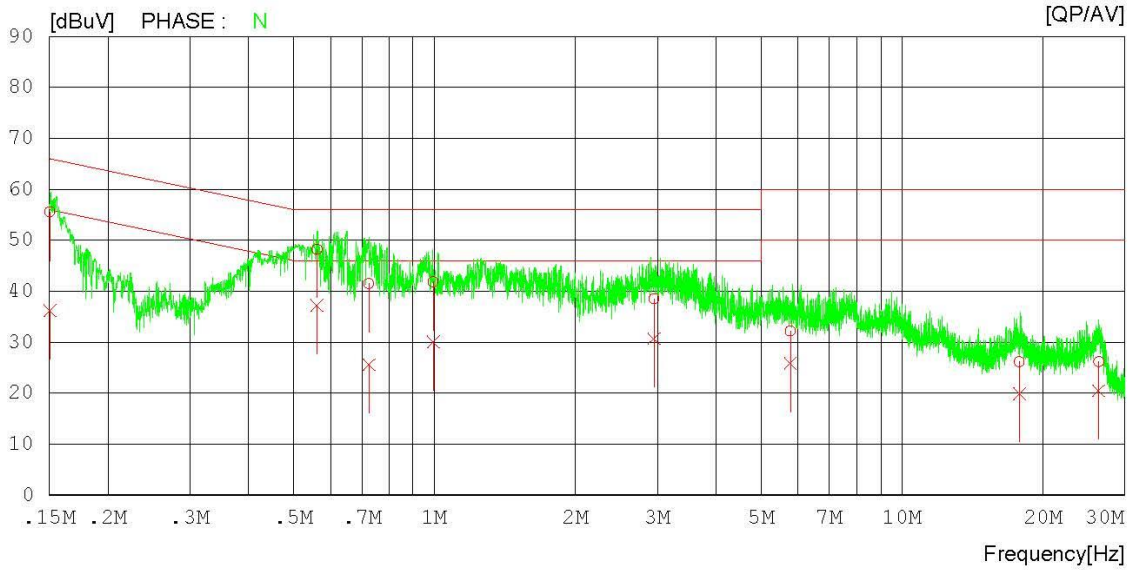
DTNC

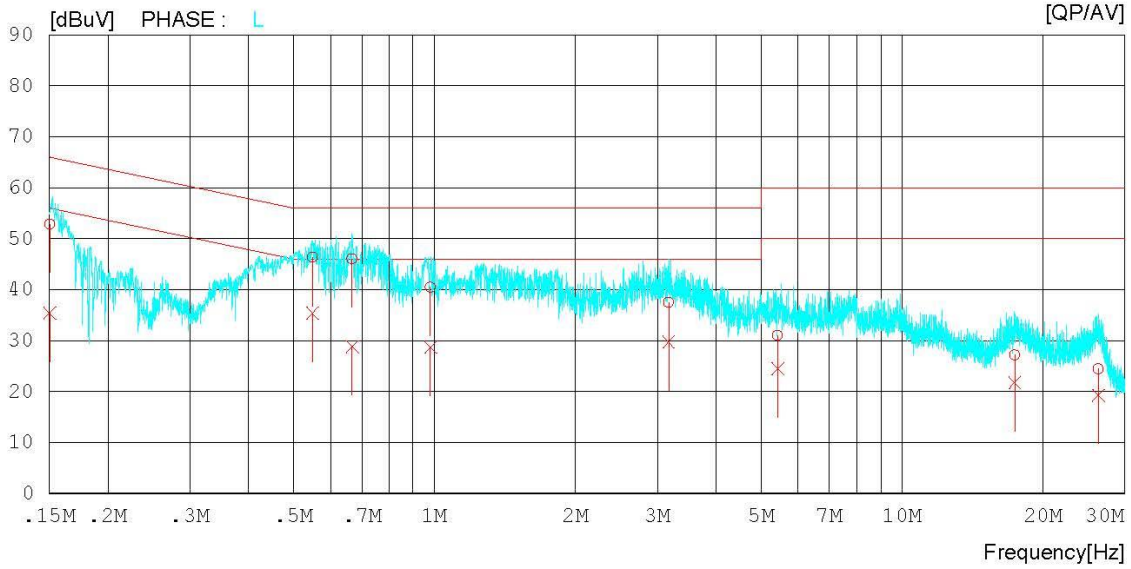
Date : 2016-07-21

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.7GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV





AC Line Conducted Emissions (Data List)

Test Mode: U-NII 3 & 802.11ac(VHT80) & MIMO & 5775 MHz

Results of Conducted Emission

DTNC

Date : 2016-07-21

Order No.	:		Referrence No.	:	
Model No.	:	LGSWFAC73	Power Supply	:	120V 60Hz
Serial No.	:	Identical prototype	Temp/Humi.	:	23 'C 44 % R.H.
Test Condition	:	5.7GHz_802.11ac(VHT80)	Operator	:	J.W.Kim

Memo :

LIMIT : FCC P15.207 QP
FCC P15.207 AV

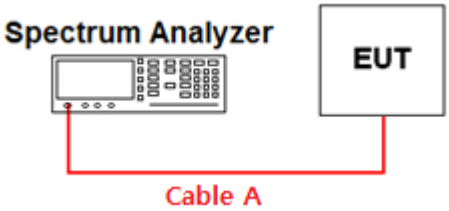
NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15062	45.5	26.1	10.1	55.6	36.2	66.0	56.0	10.4	19.8	N
2	0.56107	38.1	27.1	10.1	48.2	37.2	56.0	46.0	7.8	8.8	N
3	0.72476	31.5	15.5	10.1	41.6	25.6	56.0	46.0	14.4	20.4	N
4	0.99444	31.7	20.0	10.1	41.8	30.1	56.0	46.0	14.2	15.9	N
5	2.94560	28.3	20.5	10.2	38.5	30.7	56.0	46.0	17.5	15.3	N
6	5.77040	21.7	15.5	10.4	32.1	25.9	60.0	50.0	27.9	24.1	N
7	17.84440	15.4	9.2	10.7	26.1	19.9	60.0	50.0	33.9	30.1	N
8	26.37080	15.4	9.7	10.8	26.2	20.5	60.0	50.0	33.8	29.5	N
9	0.15023	42.7	25.3	10.1	52.8	35.4	66.0	56.0	13.2	20.6	L
10	0.54842	36.2	25.3	10.1	46.3	35.4	56.0	46.0	9.7	10.6	L
11	0.66681	35.9	18.6	10.1	46.0	28.7	56.0	46.0	10.0	17.3	L
12	0.97990	30.3	18.5	10.1	40.4	28.6	56.0	46.0	15.6	17.4	L
13	3.16840	27.3	19.5	10.2	37.5	29.7	56.0	46.0	18.5	16.3	L
14	5.42780	20.6	14.0	10.4	31.0	24.4	60.0	50.0	29.0	25.6	L
15	17.43160	16.3	10.9	10.8	27.1	21.7	60.0	50.0	32.9	28.3	L
16	26.32100	13.2	8.0	11.2	24.4	19.2	60.0	50.0	35.6	30.8	L

8.8 Occupied Bandwidth

▣ Test Requirements

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured

▣ Test Configuration



▣ Test Procedure :

- Procedure: RSS-Gen[6.6]

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

■ **Test Result : Comply**

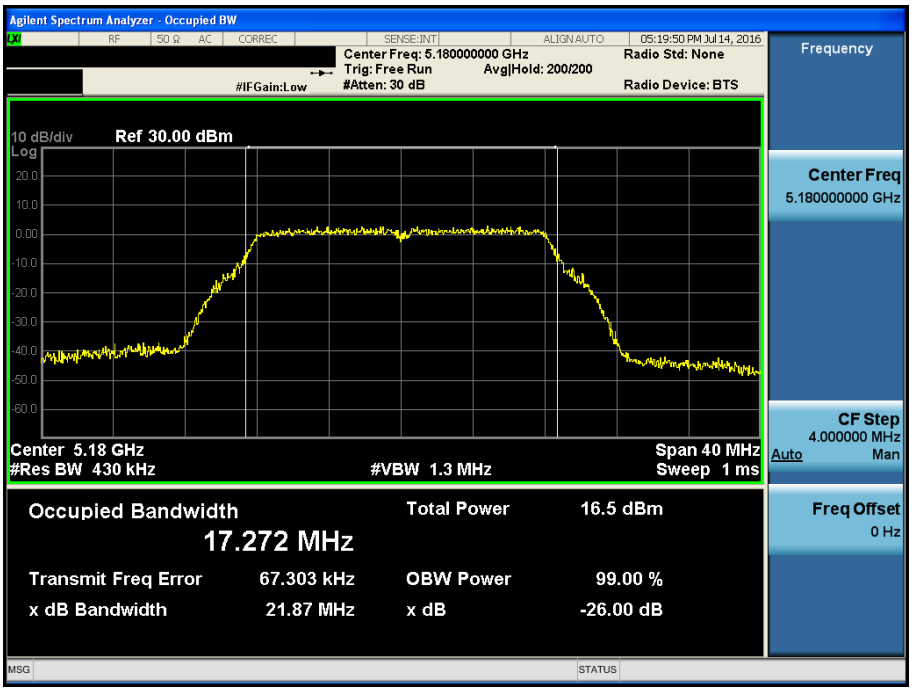
Multiple transmit

Mode	Bands	Channel	Frequency [MHz]	Test Result [MHz]	
				ANT 1	ANT 2
802.11a	U-NII 1	36	5180	17.272	17.386
		40	5200	17.289	17.290
		48	5240	17.280	17.359
	U-NII 2A	52	5260	17.382	17.308
		60	5300	17.300	17.312
		64	5320	17.372	17.363
	U-NII 2C	100	5500	17.317	17.340
		116	5580	17.342	17.320
		-	-	-	-
	U-NII 3	149	5745	17.250	17.295
		157	5785	17.383	17.444
		165	5825	17.434	17.369
802.11n HT20	U-NII 1	36	5180	18.258	18.343
		40	5200	18.297	18.355
		48	5240	18.331	18.307
	U-NII 2A	52	5260	18.338	18.362
		60	5300	18.344	18.383
		64	5320	18.305	18.397
	U-NII 2C	100	5500	18.320	18.285
		116	5580	18.319	18.351
		-	-	-	-
	U-NII 3	149	5745	18.288	18.355
		157	5785	18.284	18.384
		165	5825	18.397	18.368
802.11ac VHT40	U-NII 1	38	5190	36.526	36.398
		46	5230	36.430	36.566
	U-NII 2A	54	5270	36.535	36.539
		62	5310	36.498	36.552
	U-NII 2C	102	5510	36.401	36.414
		118	5590	36.525	36.612
		-	-	-	-
	U-NII 3	151	5755	36.350	36.479
		159	5795	36.366	36.466
802.11ac VHT80	U-NII 1	42	5210	75.872	75.916
	U-NII 2A	58	5290	75.784	75.839
	U-NII 2C	106	5530	75.815	75.784
	U-NII 3	155	5775	75.676	75.782
802.11a	Cross Band	144	5720	17.453	17.382
802.11ac VHT20	Cross Band	144	5720	18.346	18.401
802.11ac VHT40	Cross Band	142	5710	36.399	36.414
802.11ac VHT80	Cross Band	138	5690	75.850	75.734

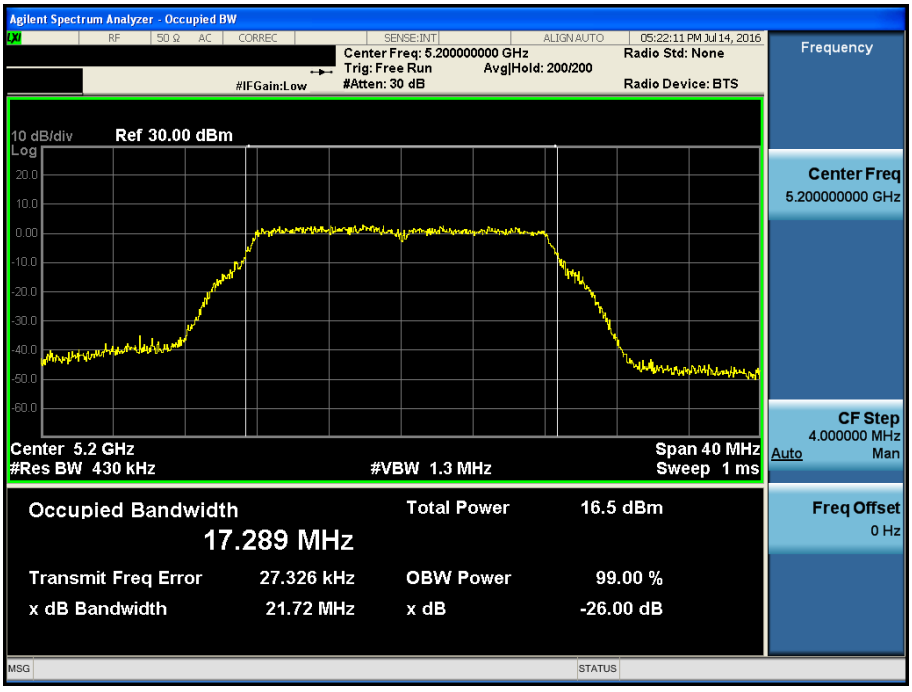
▣ RESULT PLOTS

Multiple Transmit

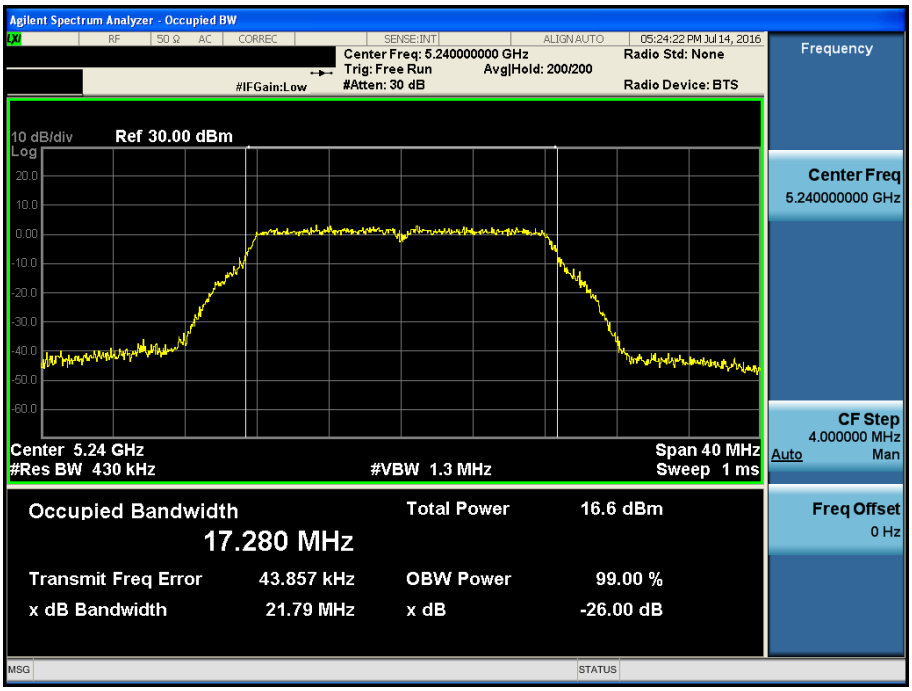
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.36



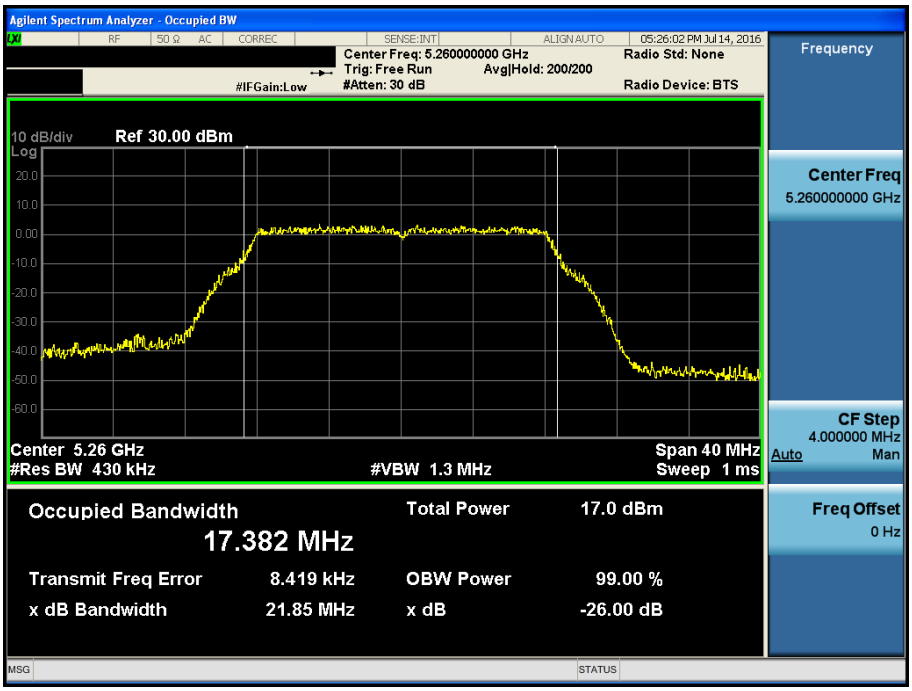
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.40



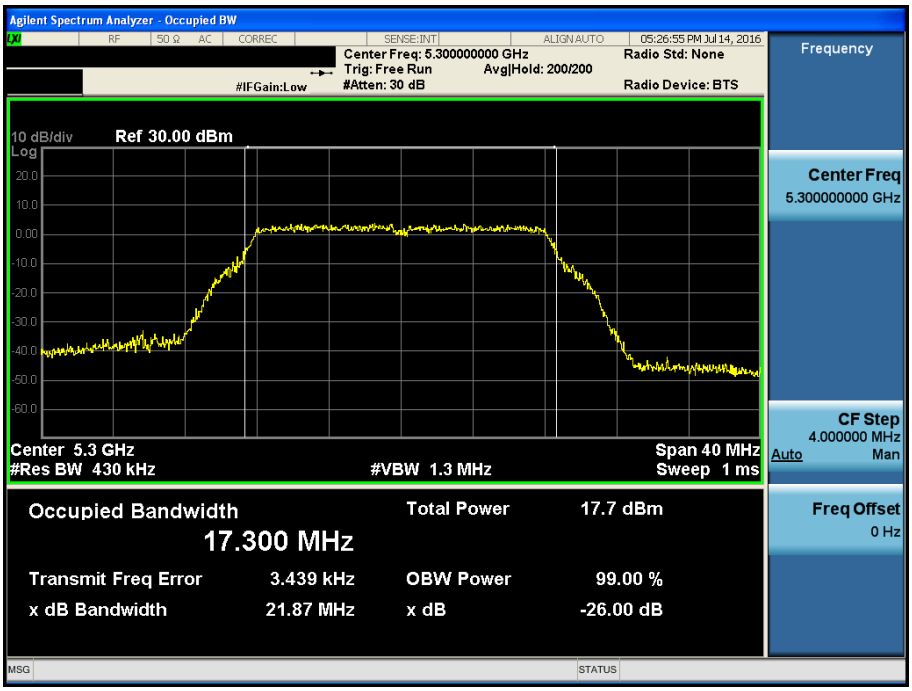
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.48



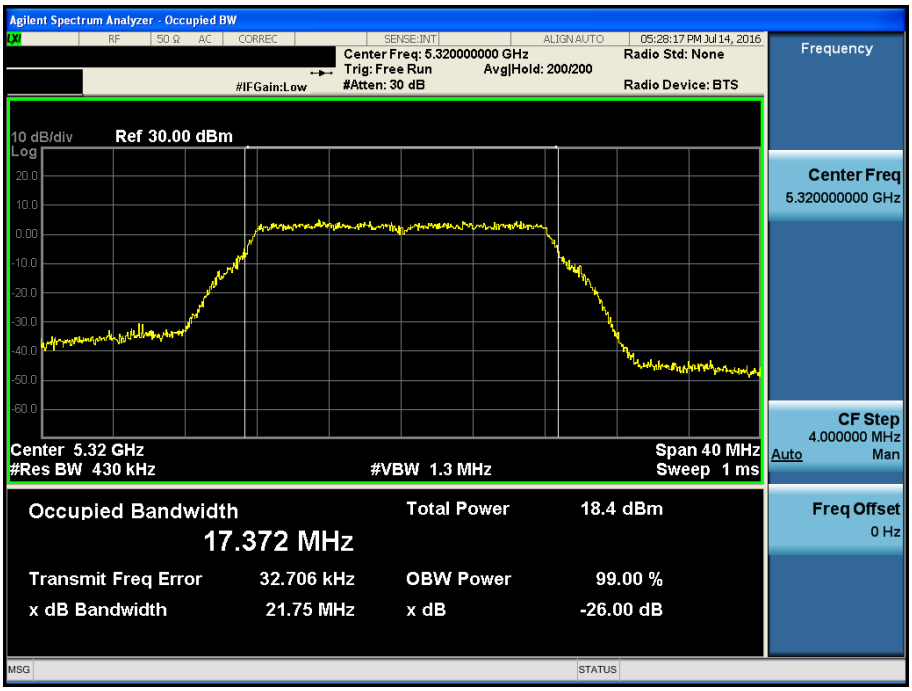
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.52



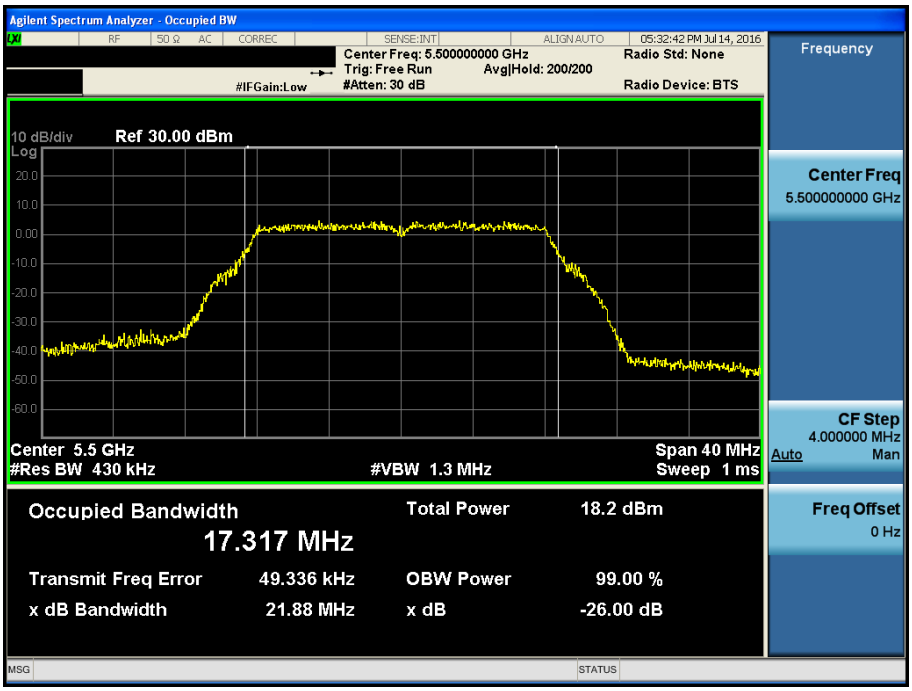
Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.60



Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.64

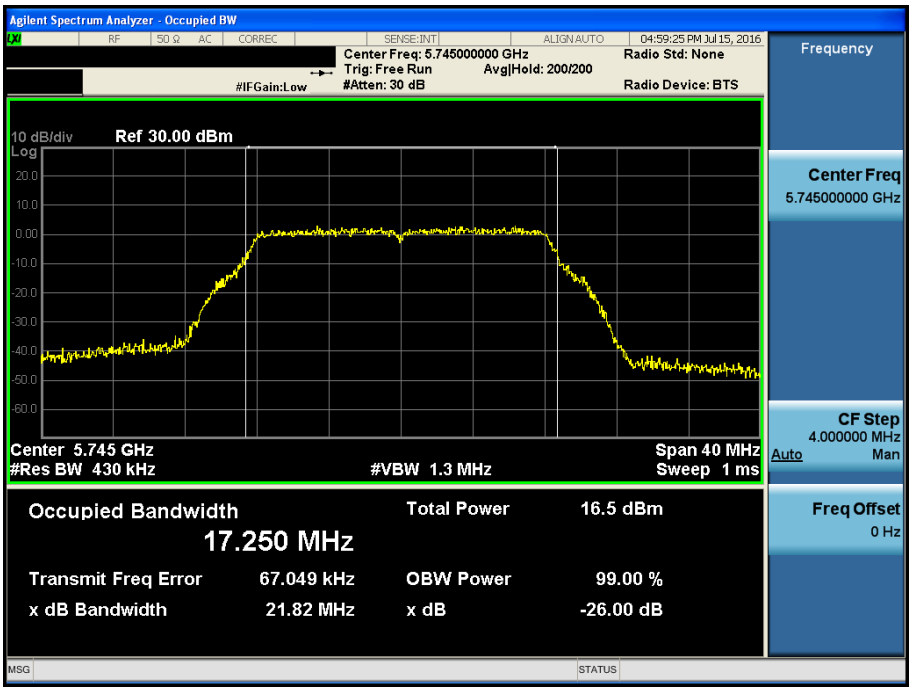
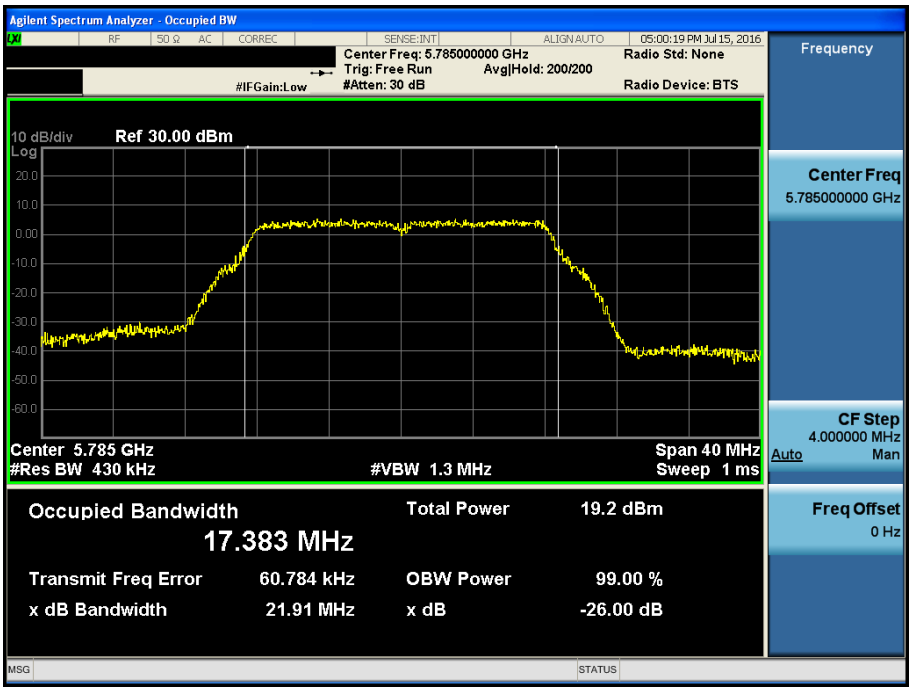


Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.100



Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.116

Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.149



Occupied Bandwidth 99% Test Mode: 802.11a & ANT 1 & Ch.157