8.3 Maximum Conducted Output Power

▣ Test Requirements

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

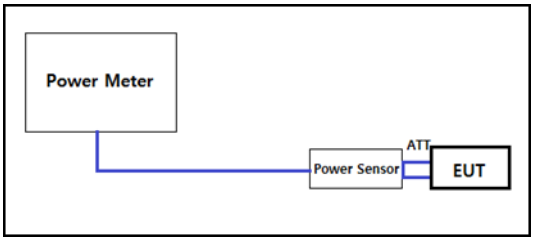
- Output power Limit Calculation

Bands	Mode	Power Limit [mW]	Calculated Limit [dBm]	ANT Gain	Determined Limit [dBm]
Band I	802.11a	250	**23.97**	-1.580	**23.97**
	802.11n HT20	250	**23.97**		**23.97**
	802.11n HT40	250	**23.97**		**23.97**
	802.11ac VHT80	250	**23.97**		**23.97**

Bands	Mode	Power Limit [mW] / Least 26dBC BW [MHz]	Calculation Limit [dBm]	ANT Gain	Determined Limit [dBm]
Band II	802.11a	250	**23.97**	-1.530	**23.97**
		21.110	24.24		
	802.11n HT20	250	**23.97**		**23.97**
		21.660	24.35		
	802.11n HT40	250	**23.97**		**23.97**
		42.380	27.27		
	802.11ac VHT80	250	**23.97**		**23.97**
		83.130	30.19		
Band III	802.11a	250	**23.97**	-0.130	**23.97**
		21.380	24.30		
	802.11n HT20	250	23.97		**23.97**
		21.300	24.28		
	802.11n HT40	250	23.97		**23.97**
		41.980	27.23		
	802.11ac VHT80	250	**23.97**		**23.97**
		83.560	30.21		

Bands	Mode	Power Limit [mW]	Calculated Limit [dBm]	ANT Gain	Determined Limit [dBm]
Band IV	802.11a	1000	**30.00**	-2.570	**30.00**
	802.11n HT20	1000	**30.00**		**30.00**
	802.11n HT40	1000	**30.00**		**30.00**
	802.11ac VHT80	1000	**30.00**		**30.00**

▣ Test Configuration



▣ Test Procedure

Maximum Conducted Output Power is measured using Measurement Procedure **Method PM-G of KDB789033 D02 V01**

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

▣ Test Results : Comply

Mode	Channel	Frequency [MHz]	Test Result [dBm]
802.11a	36	5180	10.360
	40	5200	10.410
	48	5240	10.430
	52	5260	10.420
	60	5300	10.480
	64	5320	**10.510**
	100	5500	10.150
	116	5580	10.220
	140	5700	10.160
	149	5745	10.230
	157	5785	10.210
	165	5825	10.140

Mode	Channel	Frequency [MHz]	Test Result [dBm]
802.11n HT20	36	5180	9.370
	40	5200	9.420
	48	5240	9.300
	52	5260	**9.430**
	60	5300	9.340
	64	5320	9.380
	100	5500	9.240
	116	5580	9.180
	140	5700	9.170
	149	5745	9.180
	157	5785	9.260
	165	5825	9.200

Mode	Channel	Frequency [MHz]	Test Result [dBm]
802.11n HT40	38	5190	8.810
	46	5230	**9.020**
	54	5270	8.900
	62	5310	8.920
	102	5510	8.710
	110	5550	8.600
	134	5670	8.520
	151	5755	8.640
	159	5795	8.540

Mode	Channel	Frequency [MHz]	Test Result [dBm]
802.11ac VHT80	42	5210	9.140
	58	5290	**9.190**
	106	5530	9.020
	155	5775	8.850

8.4 Maximum Power Spectral Density

▣ **Test requirements**

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1MHz band. note1

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1MHz band. note1

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1MHz band. note1

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. note1

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. note1,note2

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

- Peak Power Spectral Density Limit Calculation

Band	Limit [dBm]	ANT Gain [dBi]	Determined Limit [dBm]
Band I	4	-1.580	4
Band II	11	-1.530	11
Band III	11	-0.130	11
Band IV	30	-2.570	30

▣ **Test configuration**

Refer to the APPENDIX I.

▣ **Test procedure**

Maximum Power Spectral Density is measured using Measurement Procedure **of KDB789033 D02 V01**

1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”. (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2) Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3) Make the following adjustments to the peak value of the spectrum, if applicable:
   a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.
   b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4) The result is the Maximum PSD over 1 MHz reference bandwidth.
5) For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in §15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
   a) Set RBW ≥ 1/T, where T is defined in section II.B.1.a). (Refer to Appendix II)
   b) Set VBW ≥ 3 RBW.
   c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
   d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
   e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW=100 kHZ is available on nearly all spectrum analyzers.

▣ **Test result : Comply**

Mode	Channel	Frequency [MHz]	Reading [dBm]	DCF [dB] Note 1	Test Result [dBm]
802.11a	36	5180	-1.920	0.230	-1.690
	40	5200	-1.800		-1.570
	48	5240	-1.840		-1.610
	52	5260	-1.760		-1.530
	60	5300	-1.720		-1.490
	64	5320	-1.370		-1.140
	100	**5500**	-2.050		-1.820
	116	5580	-1.780		-1.550
	140	5700	-1.900		-1.670
	149	5745	-3.770		-3.540
	157	5785	-3.860		-3.630
	165	5825	-3.920		-3.690

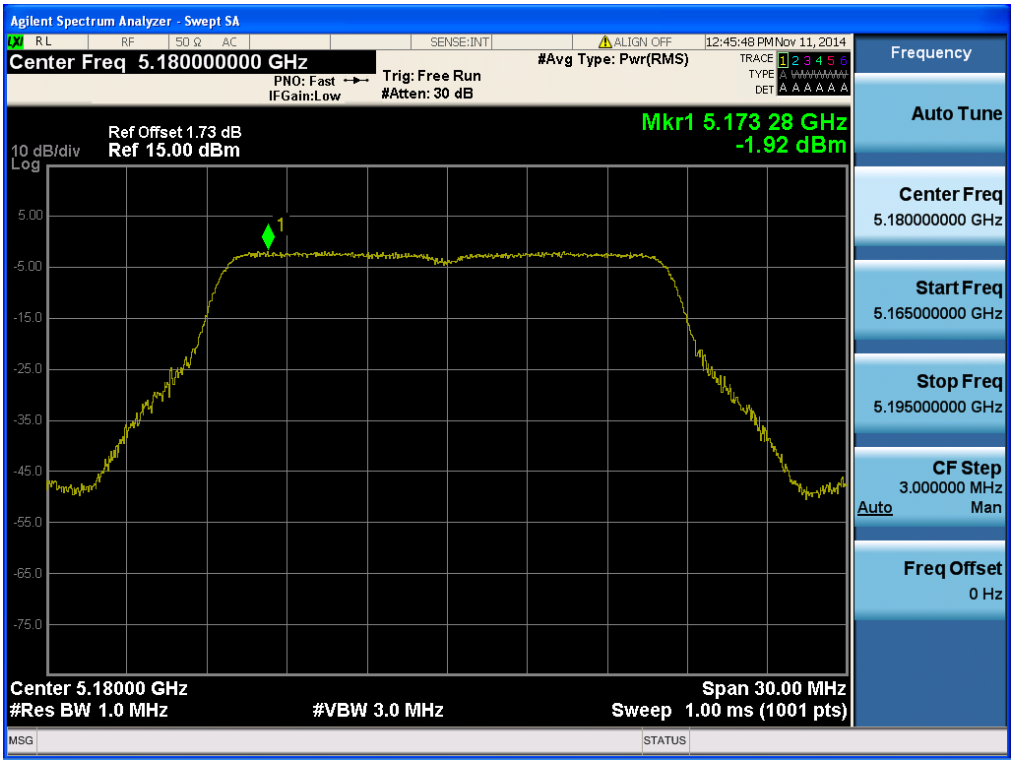
Mode	Channel	Frequency [MHz]	Reading [dBm]	DCF [dB] Note 1	Test Result [dBm]
802.11n HT20	36	5180	-3.390	0.270	-3.120
	40	5200	-3.330		-3.060
	48	5240	-3.150		-2.880
	52	5260	-2.720		-2.450
	60	5300	-2.730		-2.460
	64	5320	-2.650		-2.380
	100	**5500**	-3.160		-2.890
	116	5580	-3.080		-2.810
	140	5700	-3.320		-3.050
	149	5745	-5.290		-5.020
	157	5785	-5.230		-4.960
	165	5825	-5.450		-5.180
802.11n HT40	38	5190	-6.860	0.460	-6.400
	46	5230	-6.650		-6.190
	54	5270	-6.370		-5.910
	62	5310	-6.590		-6.130
	102	5510	-6.760		-6.300
	110	**5550**	-6.640		-6.180
	134	5670	-7.010		-6.550
	151	5755	-8.520		-8.060
	159	5795	-8.910		-8.450
802.11ac VHT80	42	5210	-9.720	1.550	-8.170
	58	5290	-9.470		-7.920
	106	5530	-9.490		-7.940
	155	5775	-11.220		-9.670

Note 1: **Refer to Appendix II. Only applied when Duty cycle < 0.98**
Note 2: Test Result = Measurement Data + DCF

▣ RESULT PLOTS

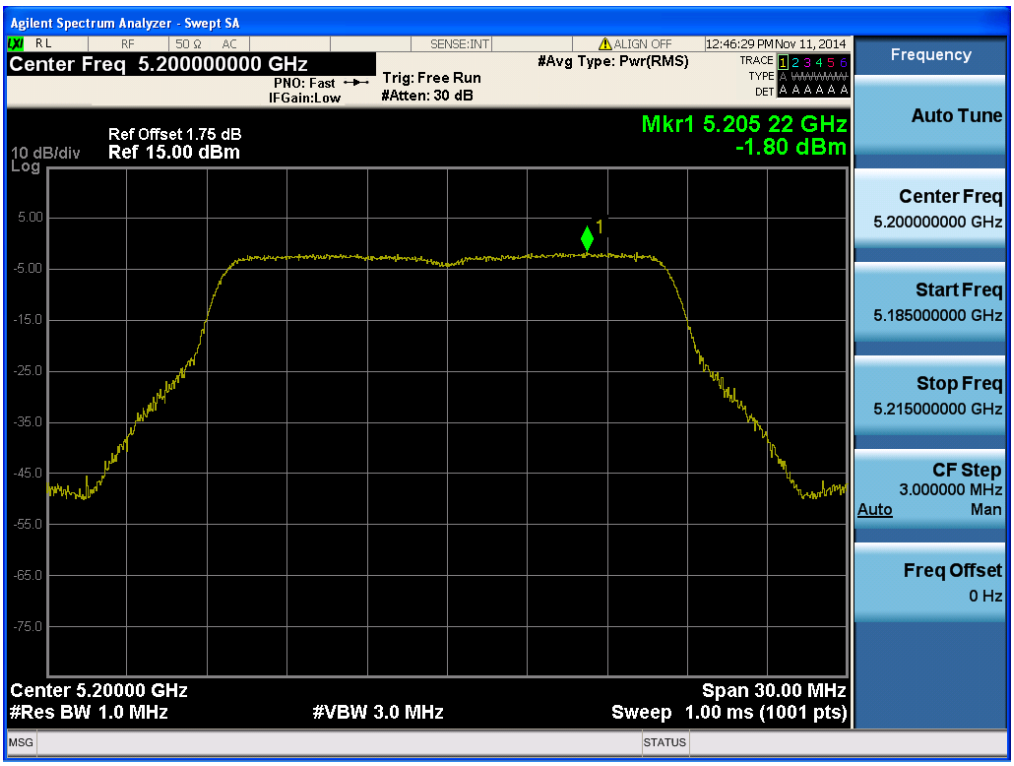
Maximum Power Spectral Density

Test Mode: 802.11a & Ch.36

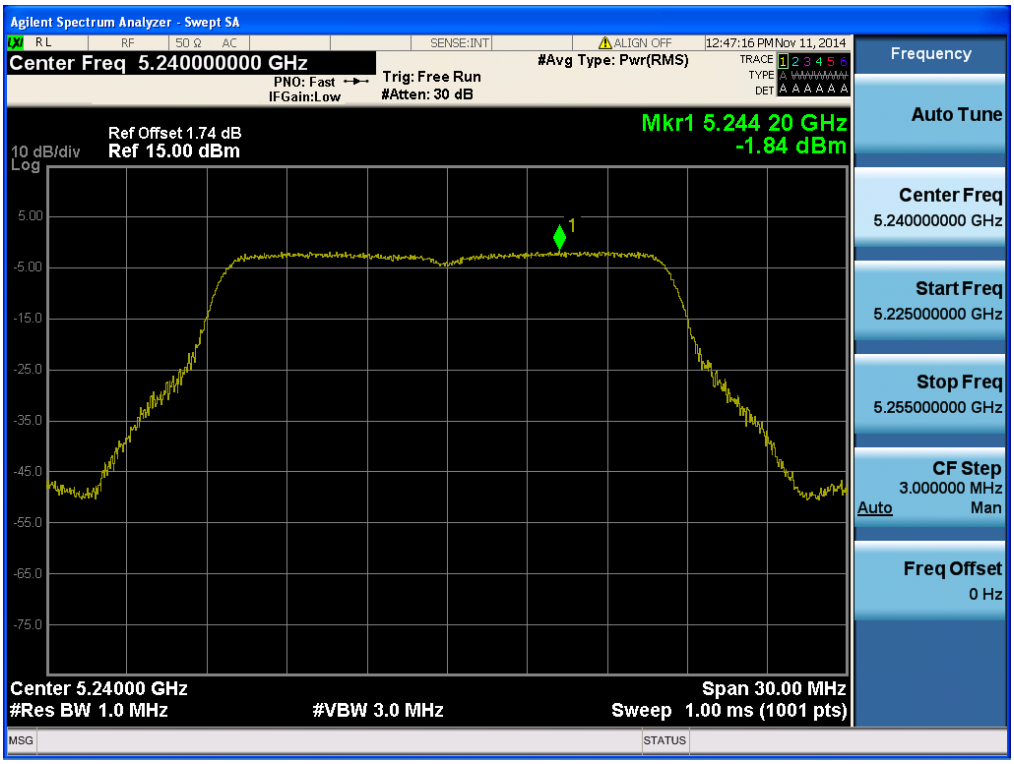


Maximum Power Spectral Density

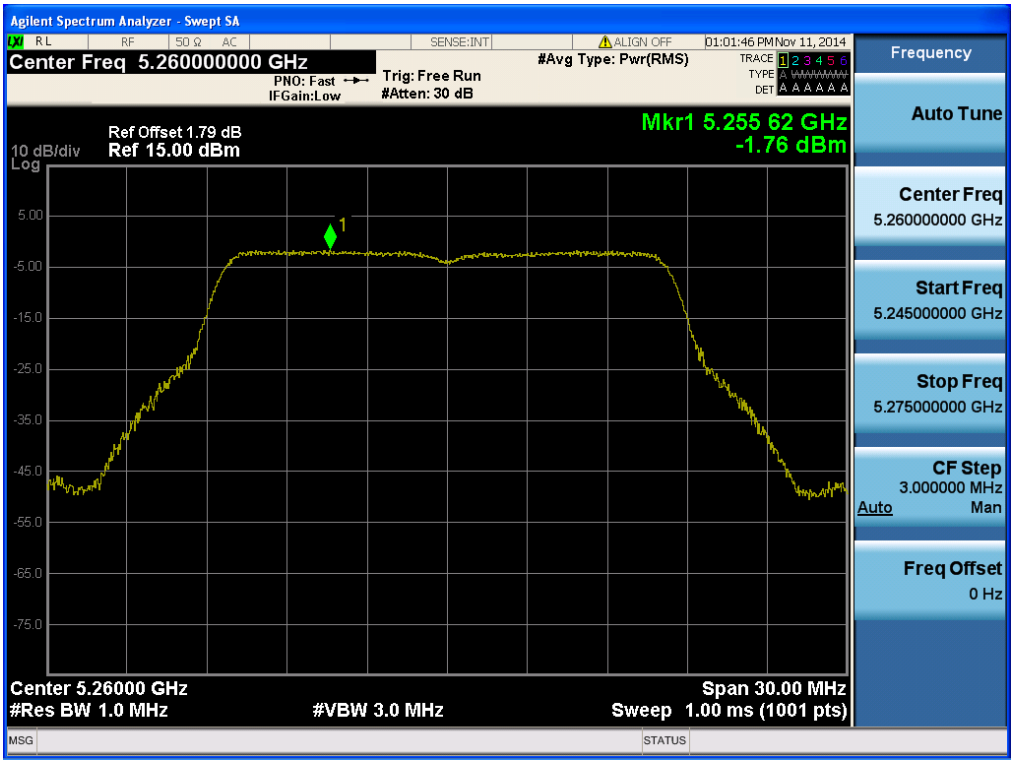
Test Mode: 802.11a & Ch.40



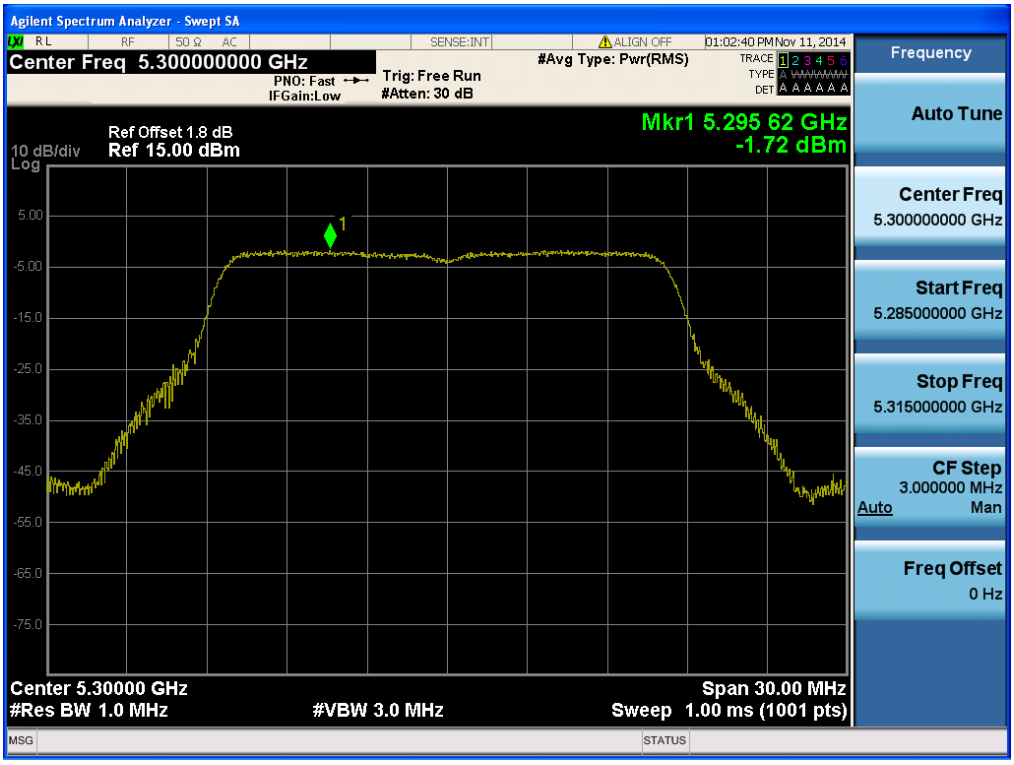
Maximum Power Spectral Density Test Mode: 802.11a & Ch.48



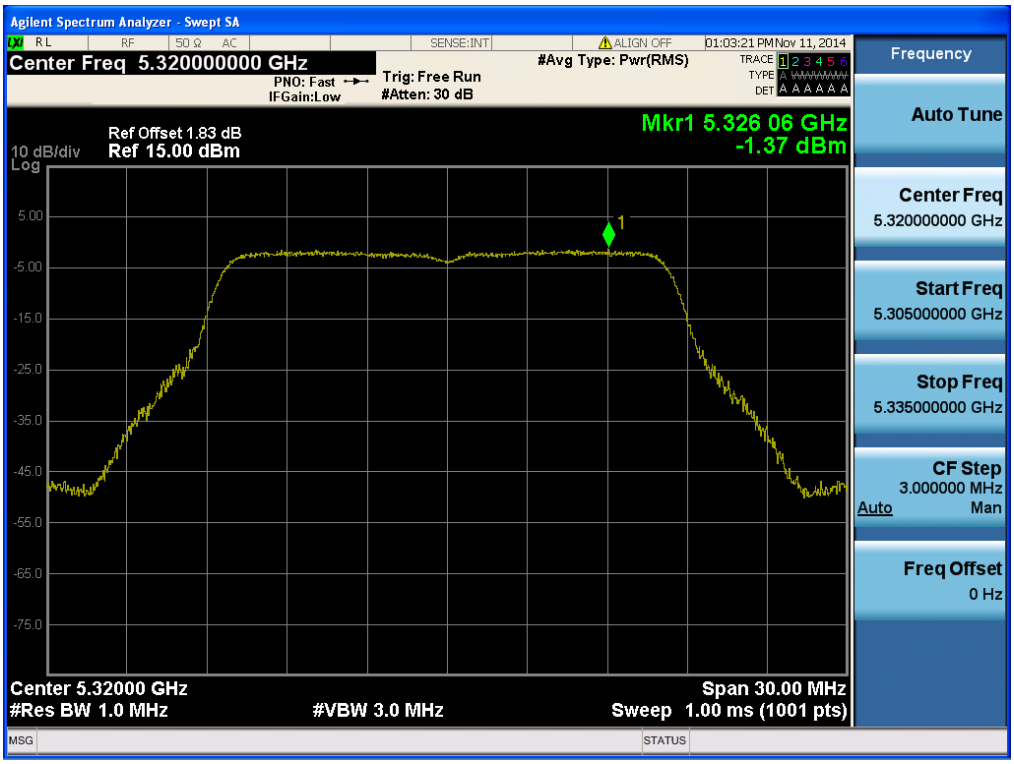
Maximum Power Spectral Density Test Mode: 802.11a & Ch.52



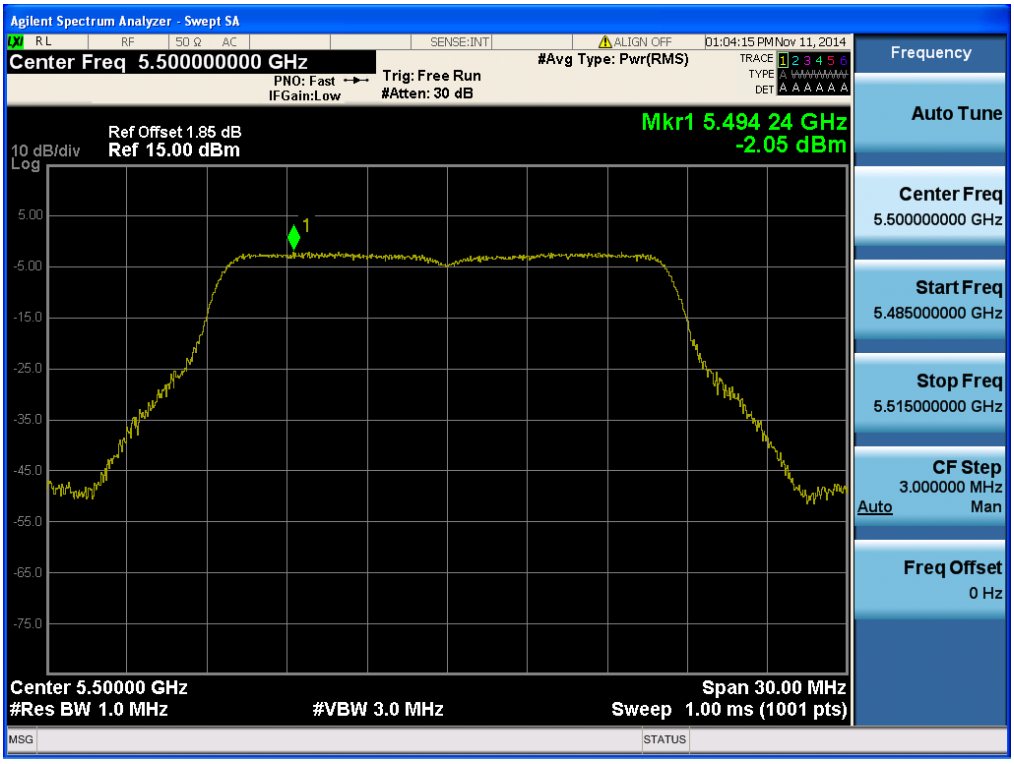
Maximum Power Spectral Density Test Mode: 802.11a & Ch.60



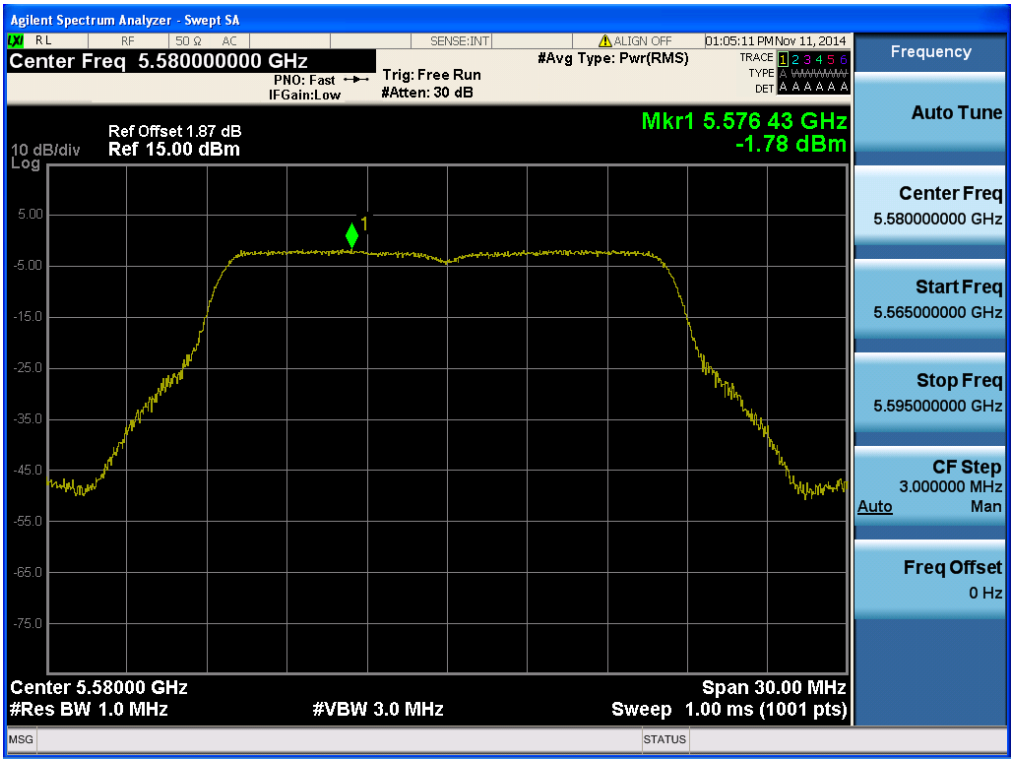
Maximum Power Spectral Density Test Mode: 802.11a & Ch.64



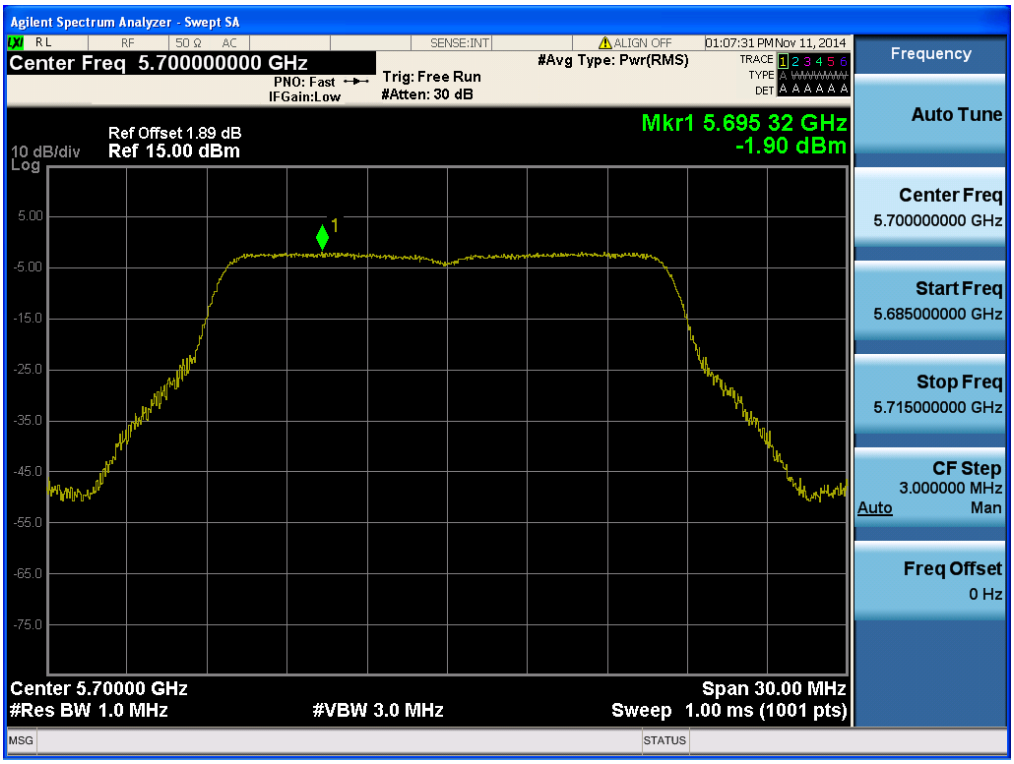
Maximum Power Spectral Density Test Mode: 802.11a & Ch.100



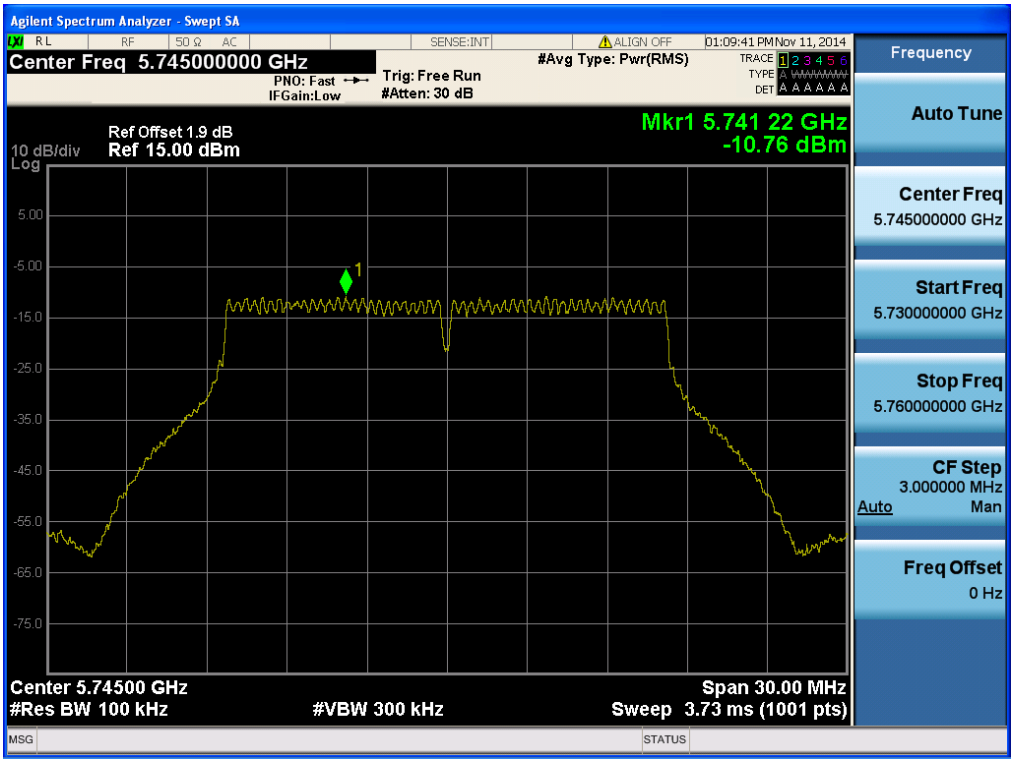
Maximum Power Spectral Density Test Mode: 802.11a & Ch.116



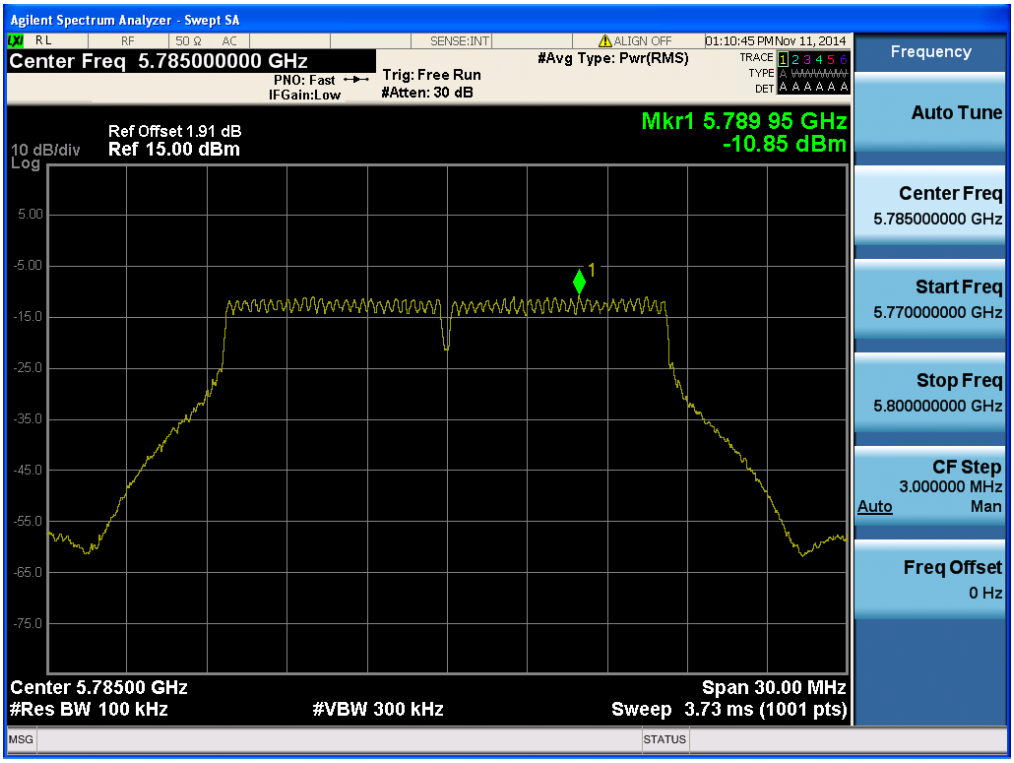
Maximum Power Spectral Density Test Mode: 802.11a & Ch.140



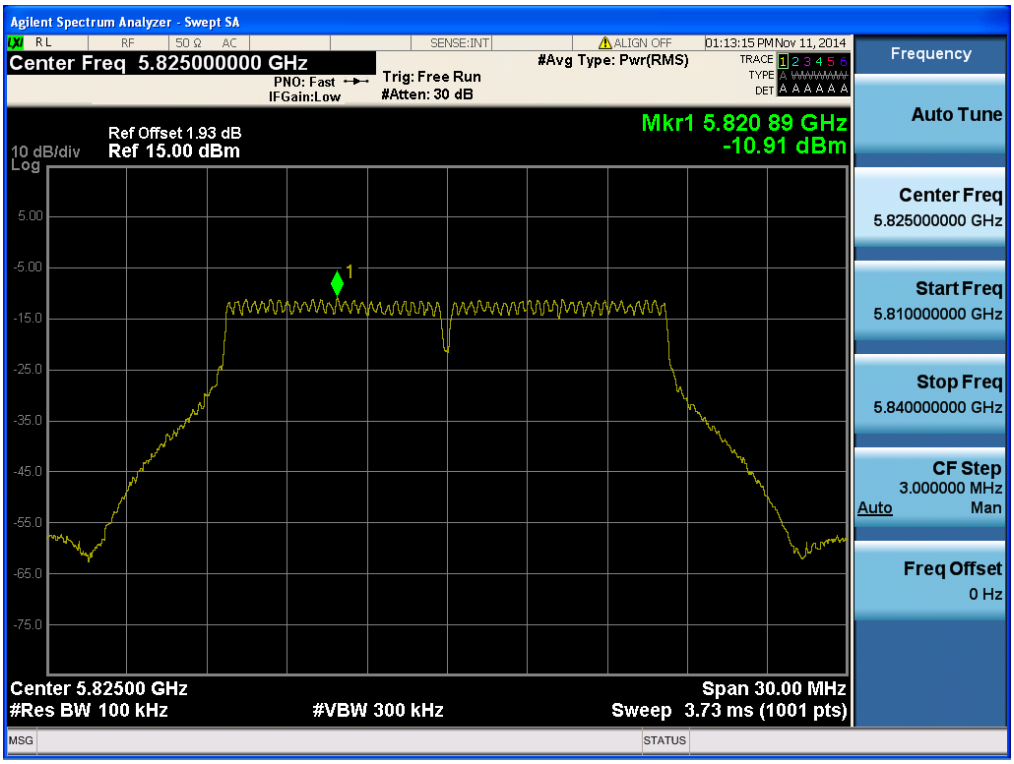
Maximum Power Spectral Density Test Mode: 802.11a & Ch.149



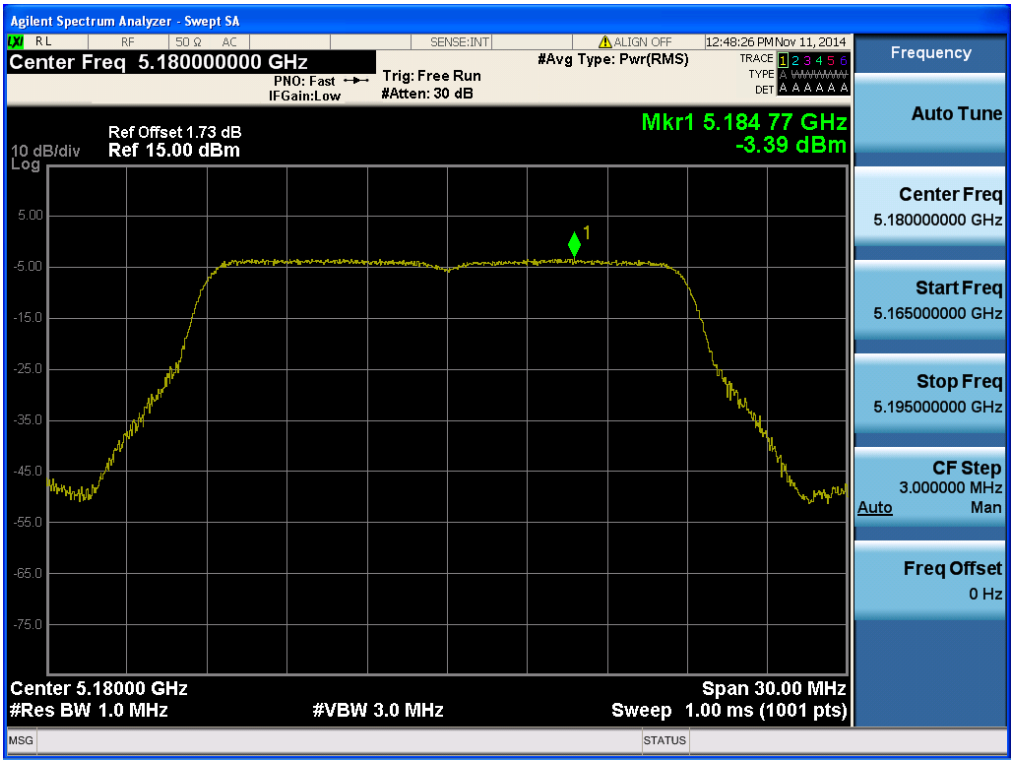
Maximum Power Spectral Density Test Mode: 802.11a & Ch.157



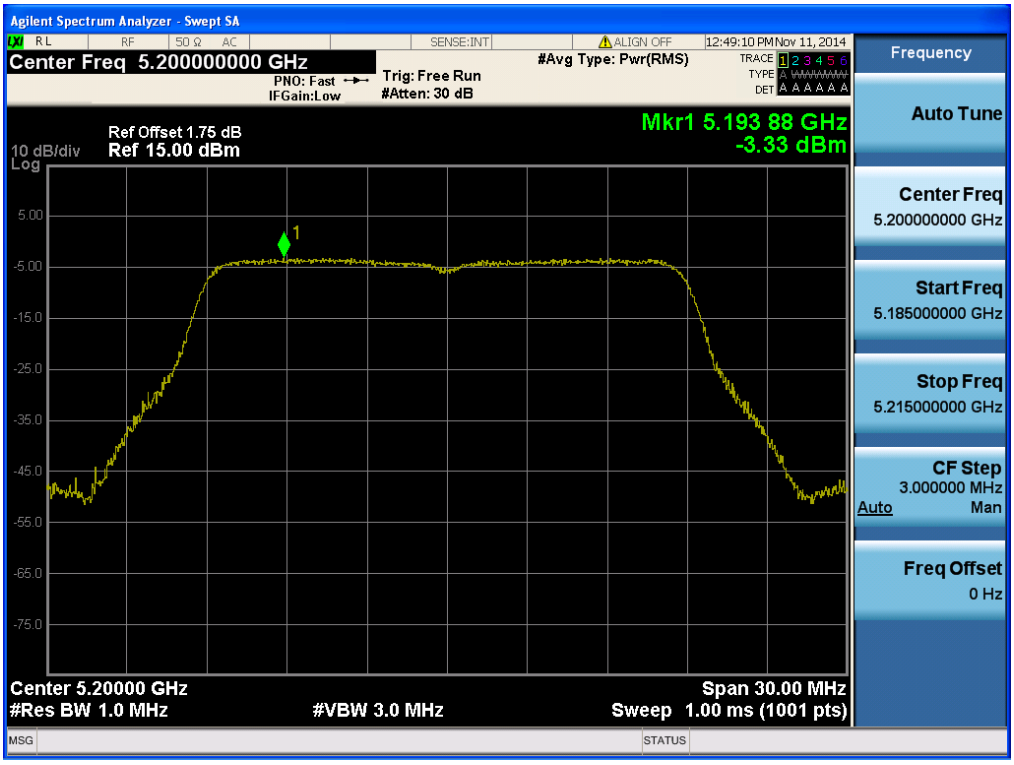
Maximum Power Spectral Density Test Mode: 802.11a & Ch.165



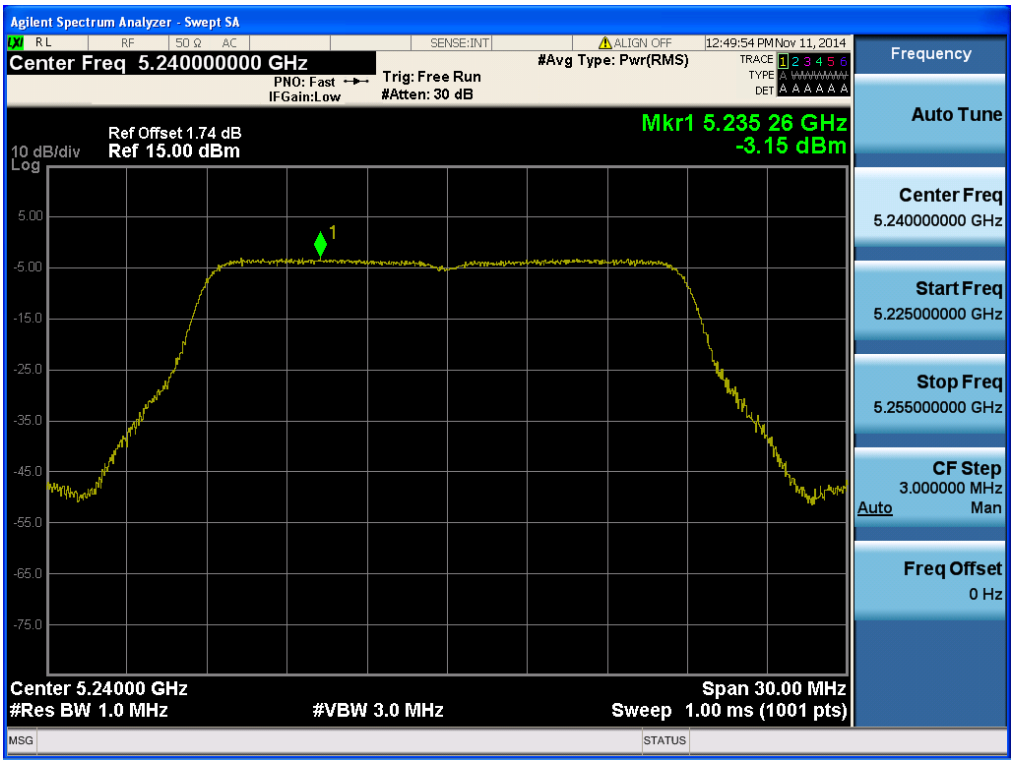
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.36



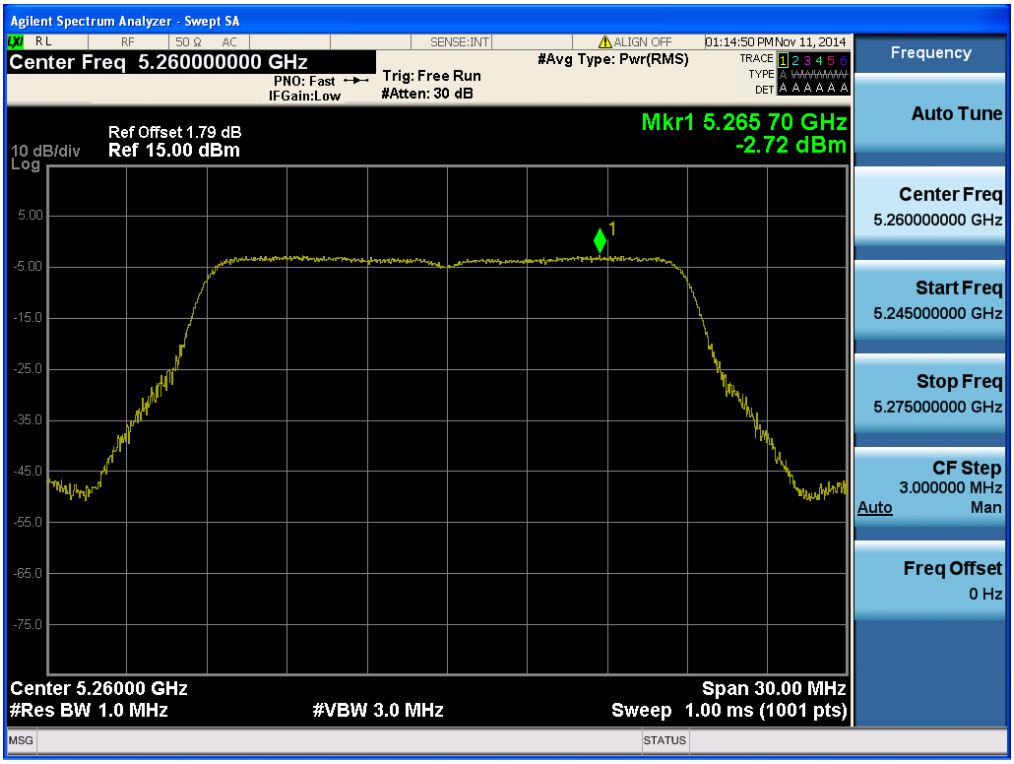
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.40



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



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



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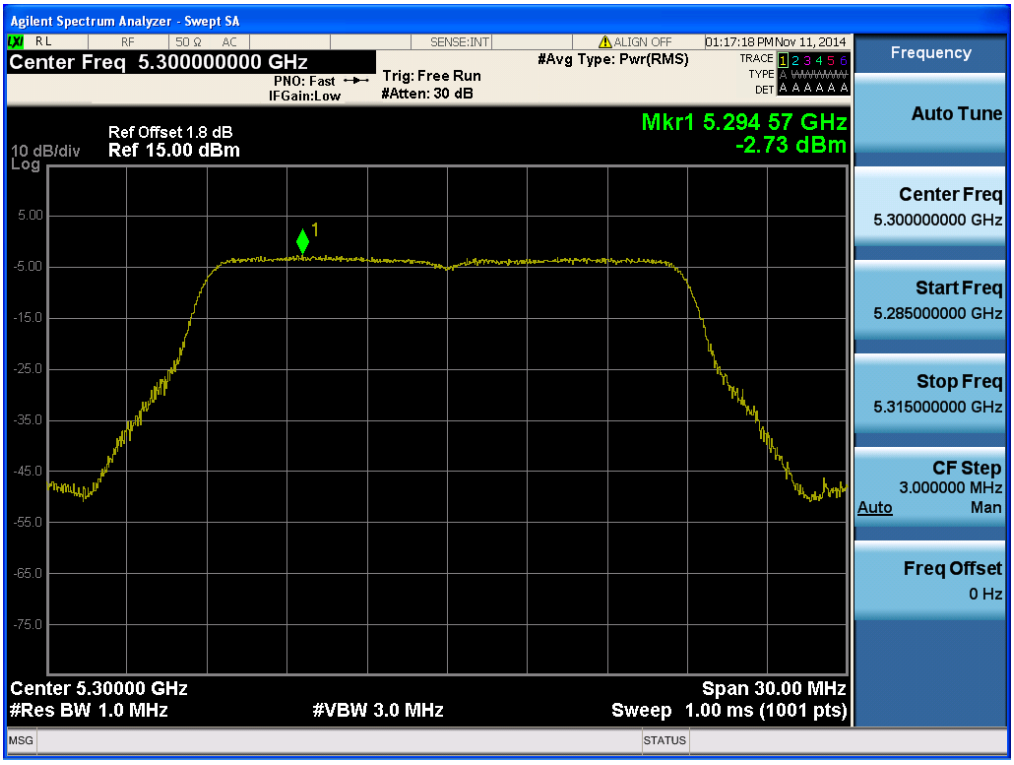
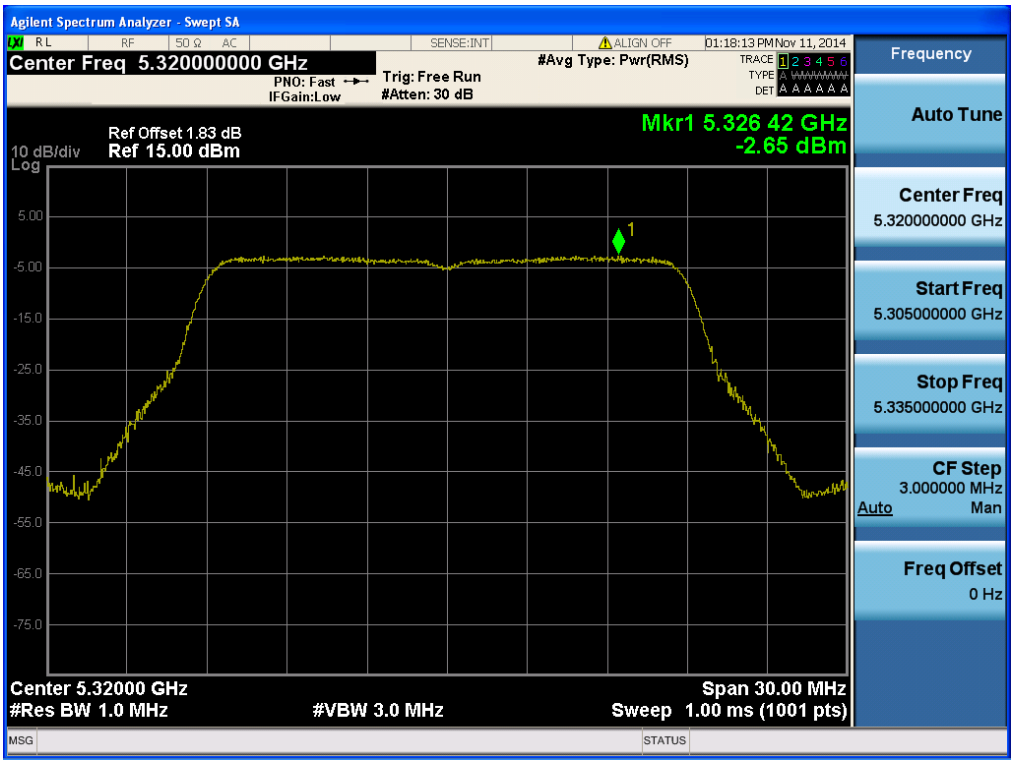
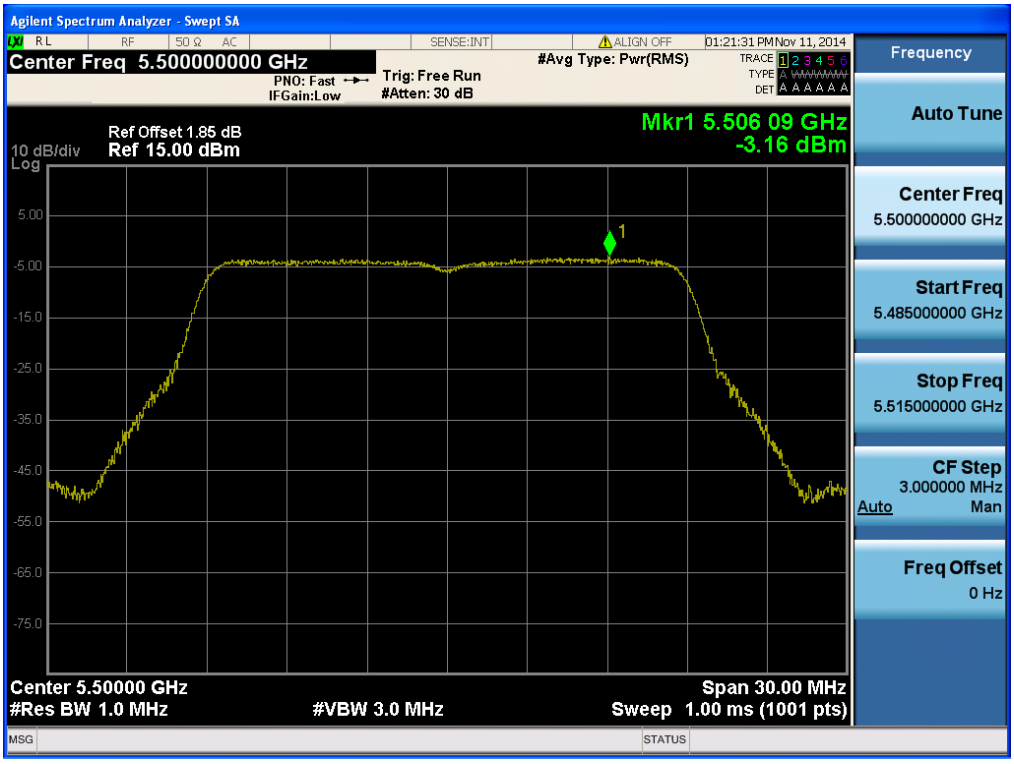


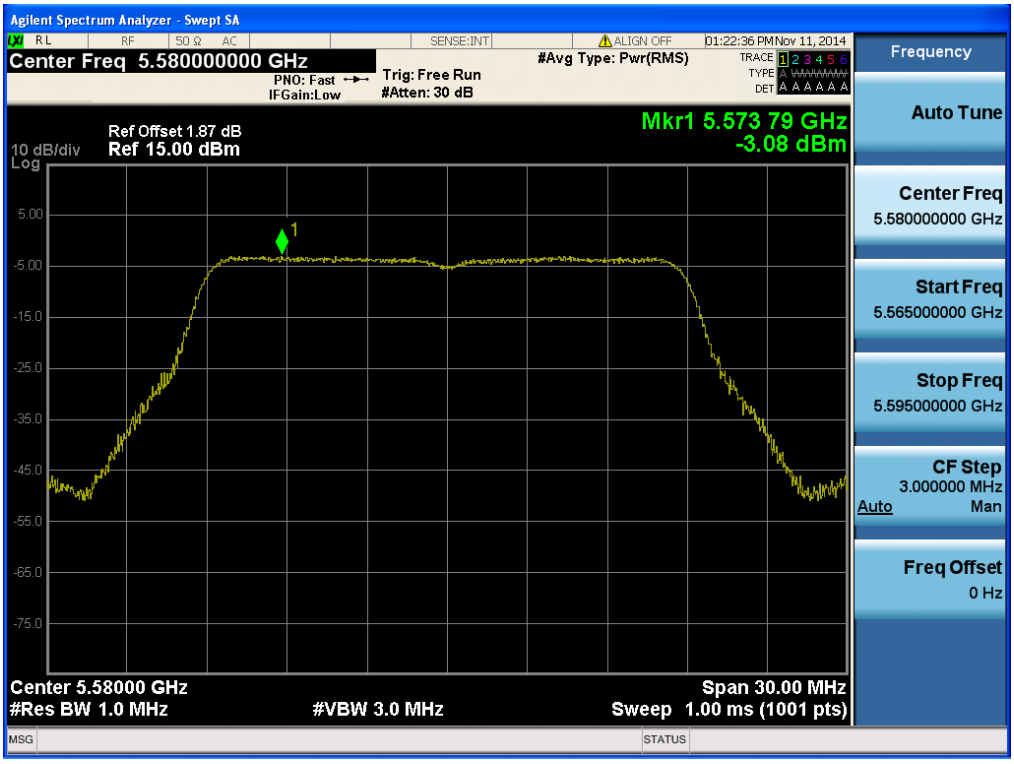
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.64



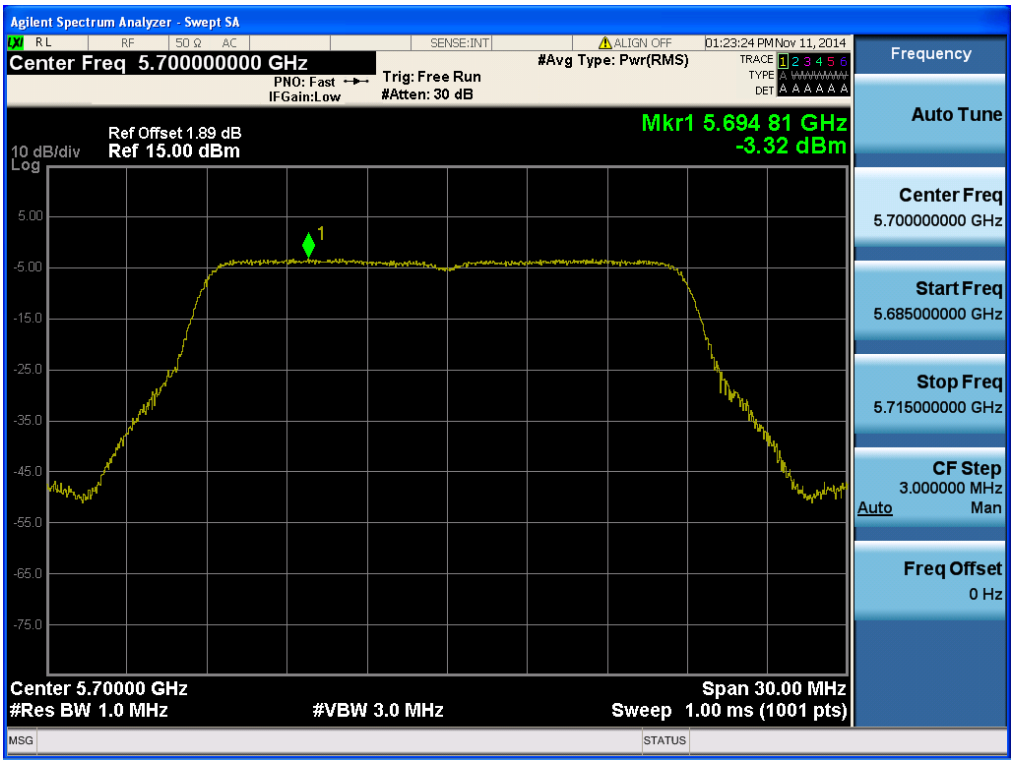
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.100



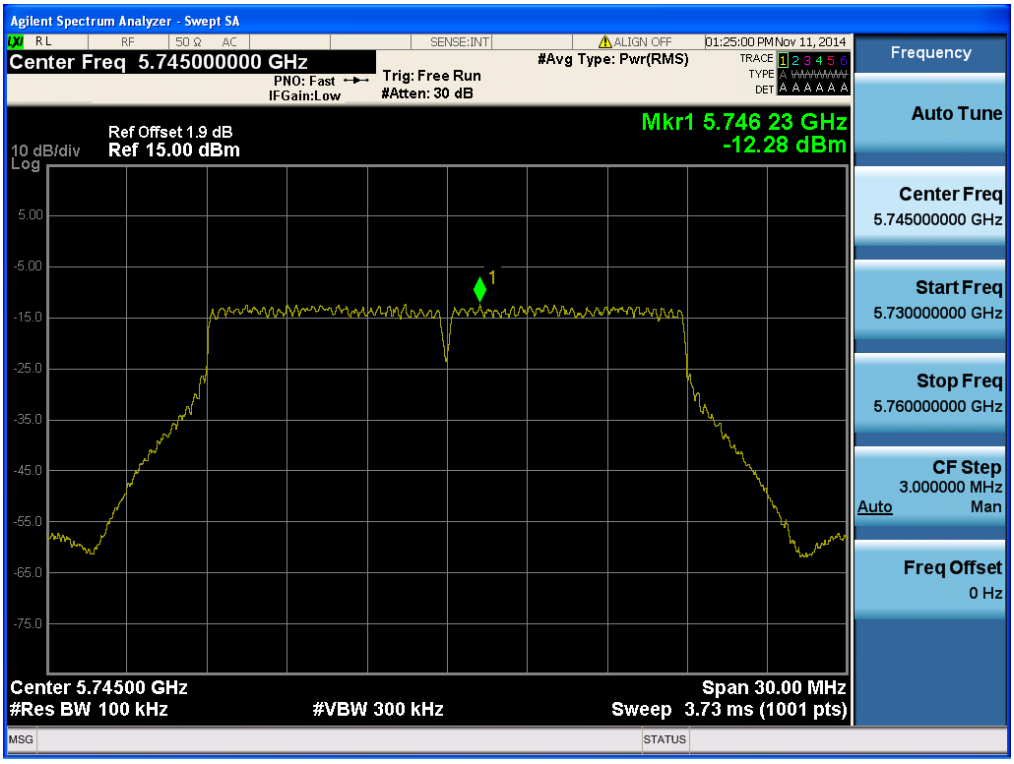
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.116



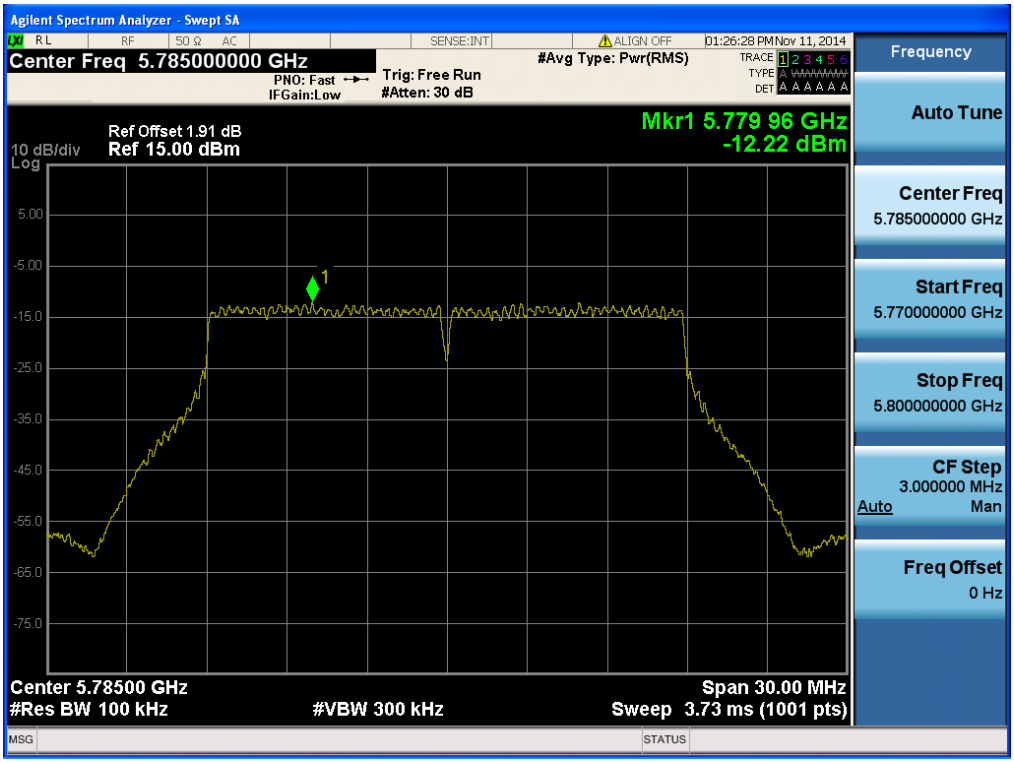
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.140



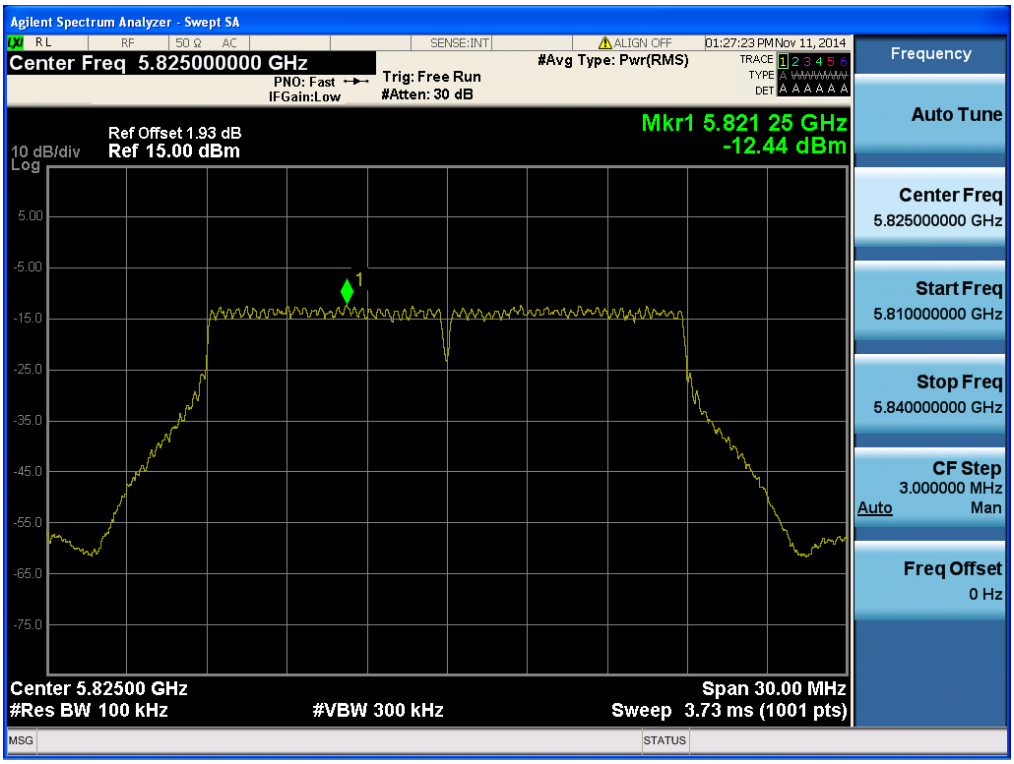
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.149



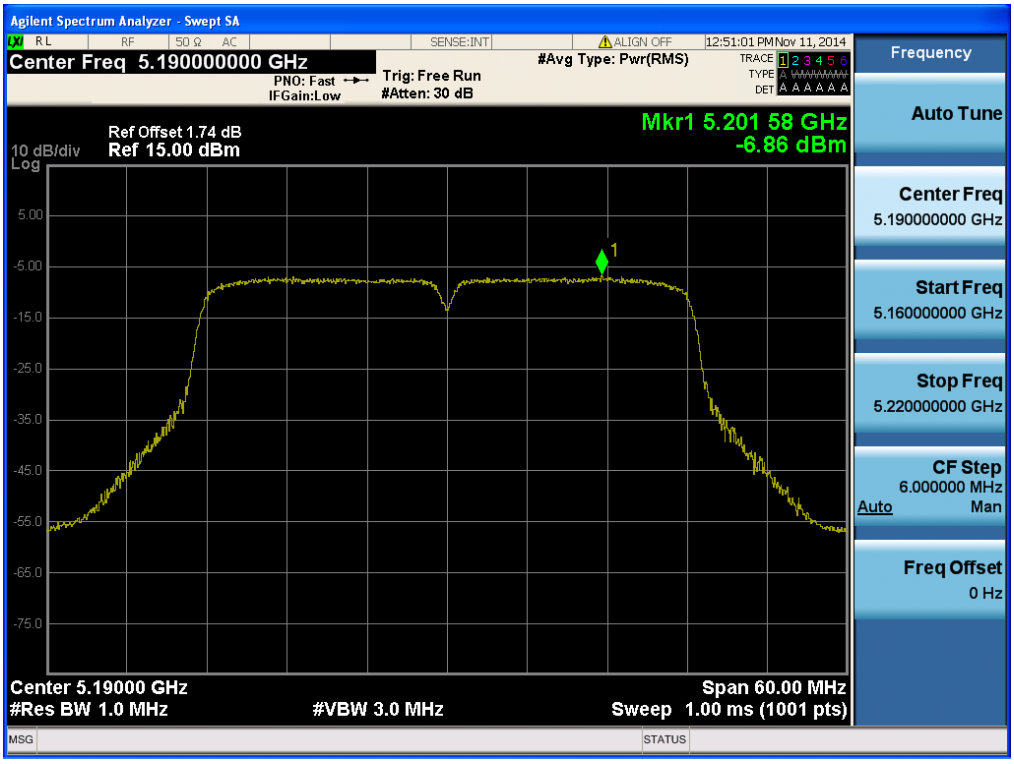
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.157



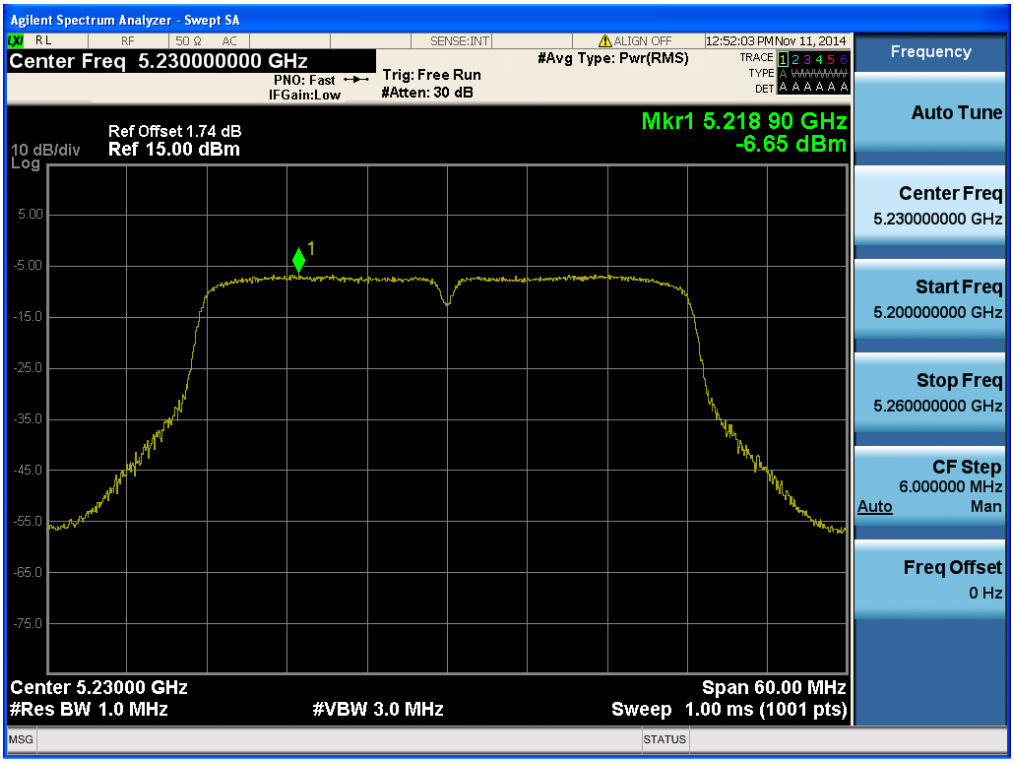
Maximum Power Spectral Density Test Mode: 802.11n HT20 & Ch.165



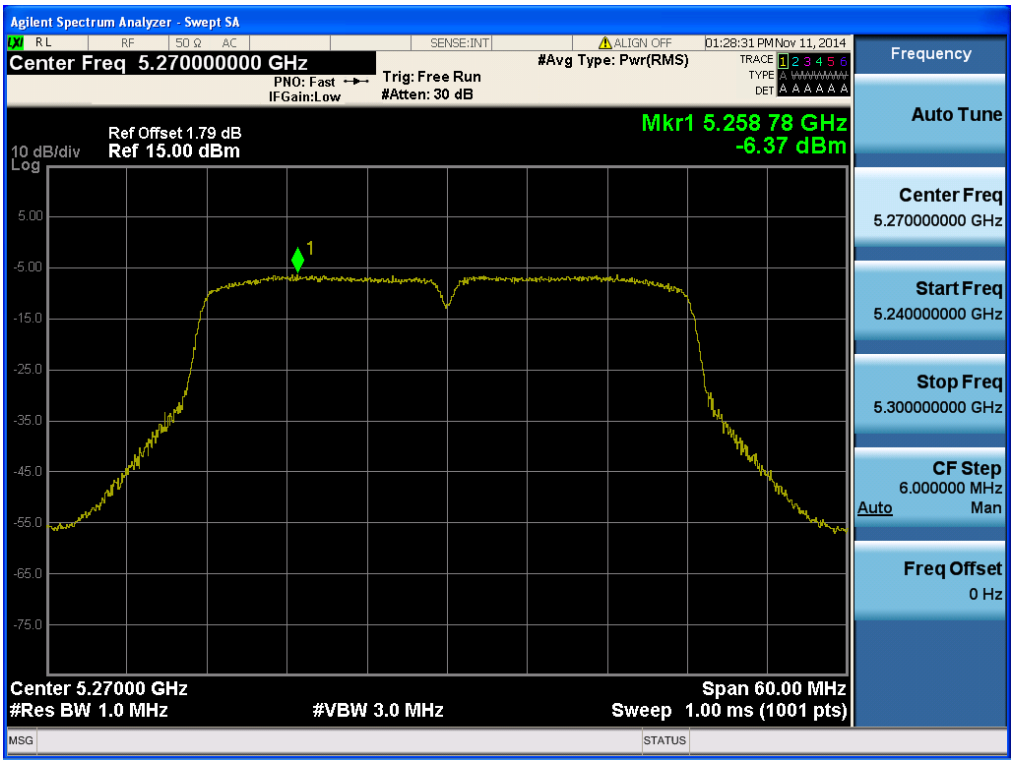
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.38



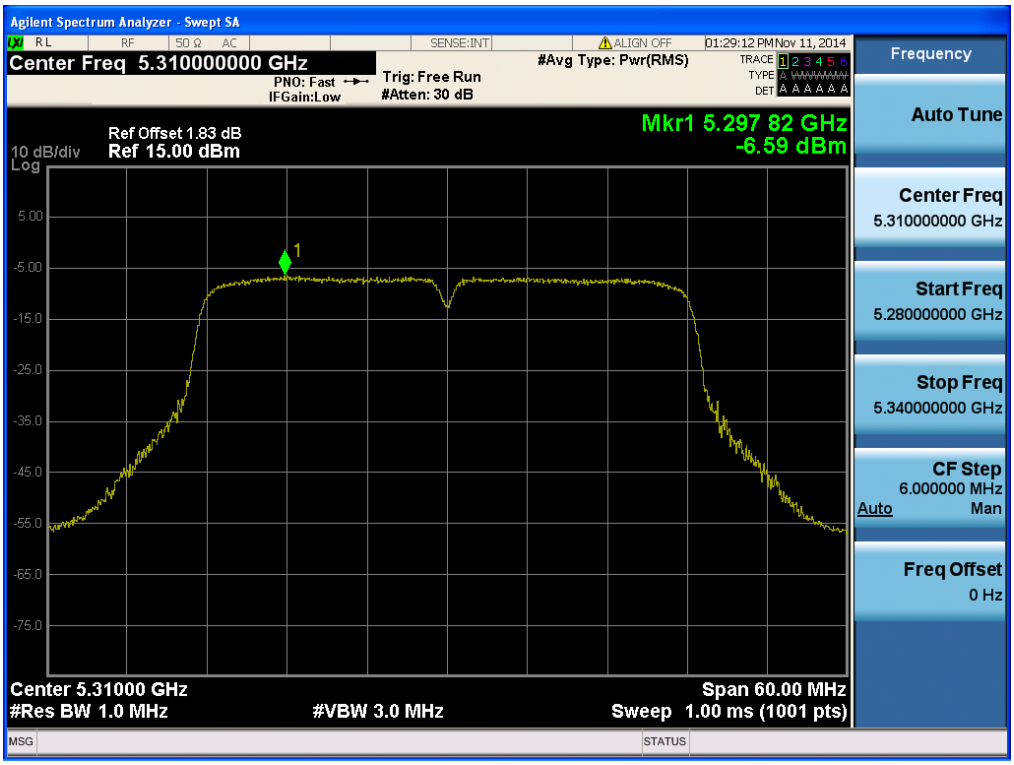
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.46



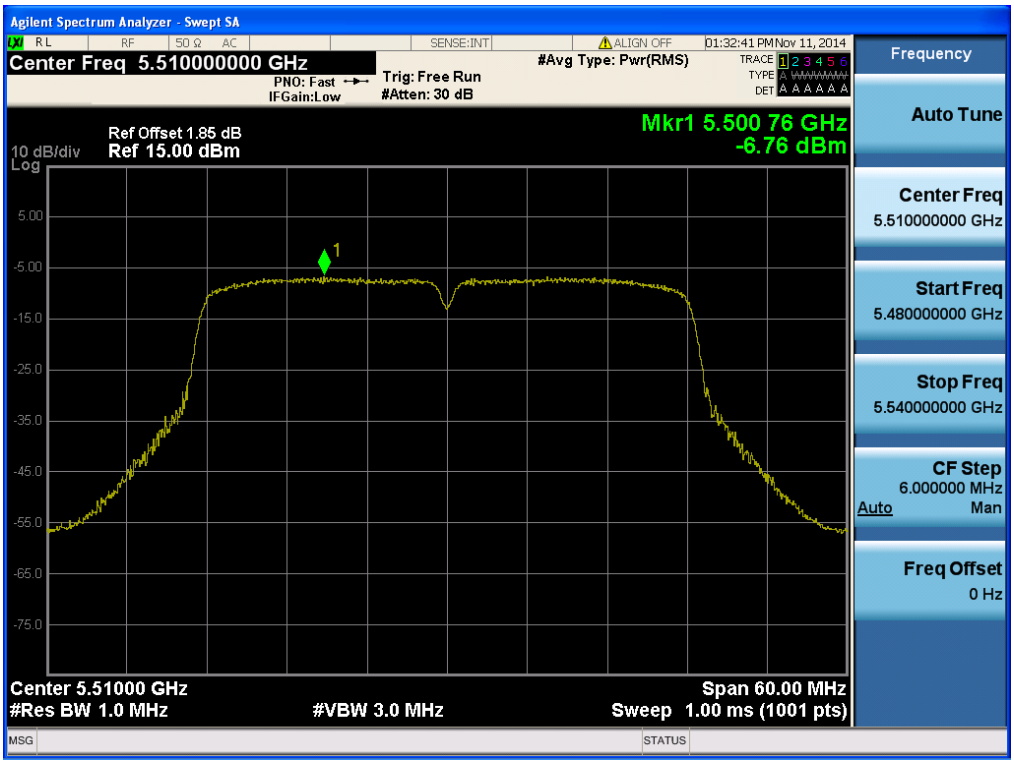
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.54



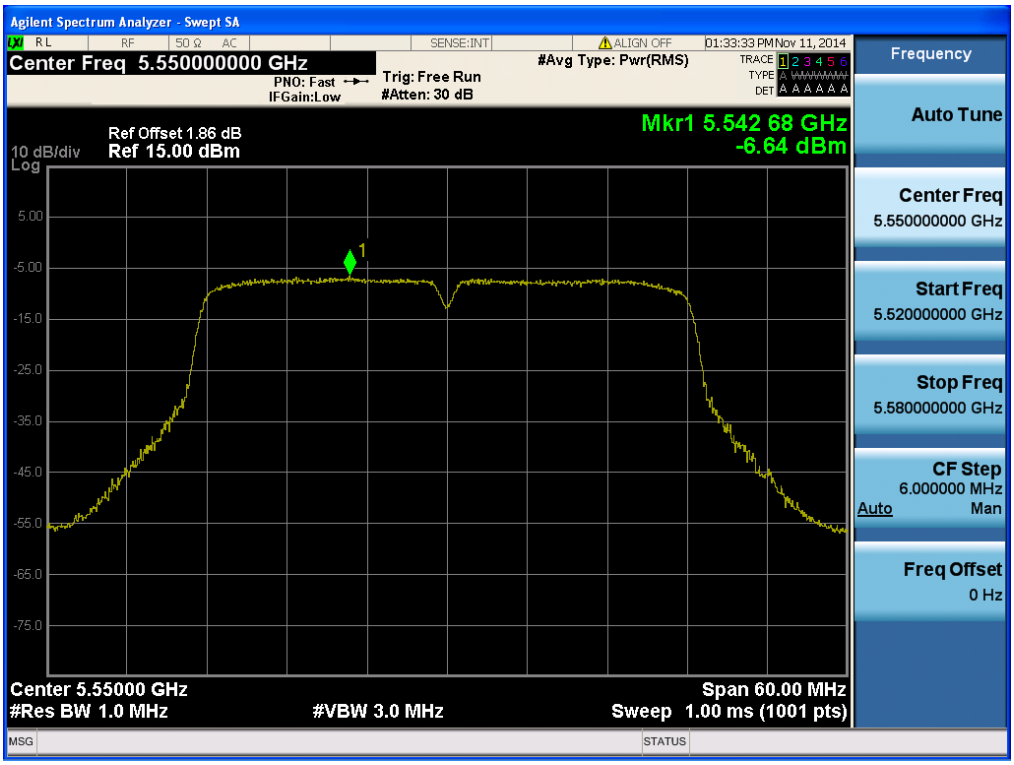
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.62



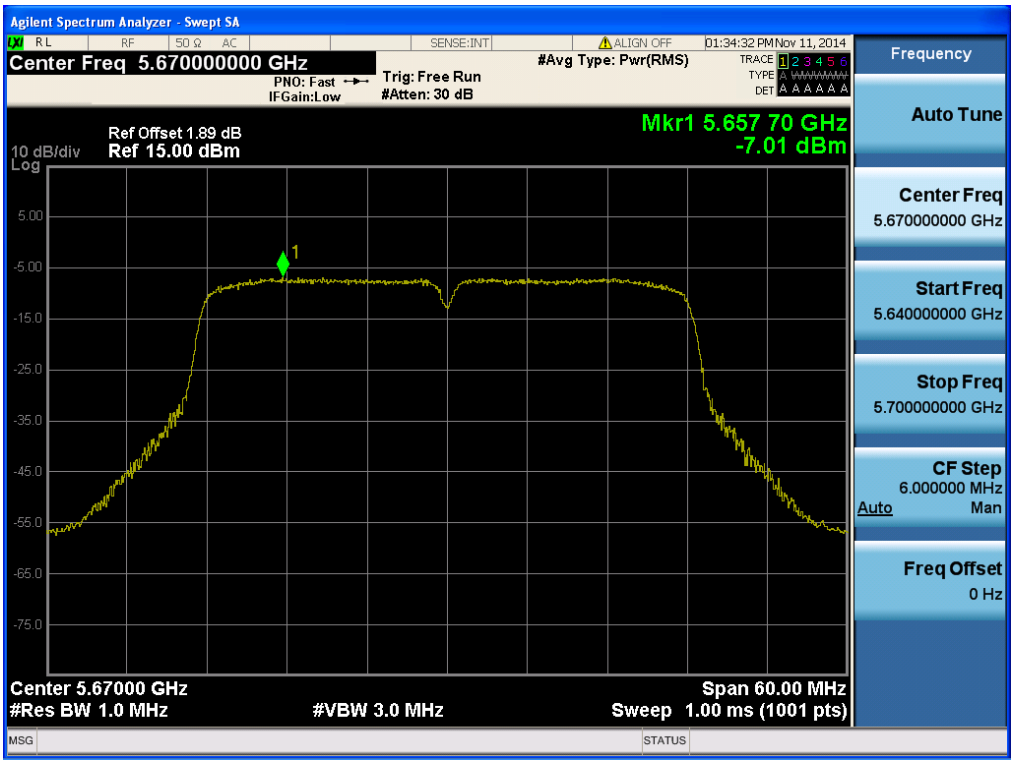
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.102



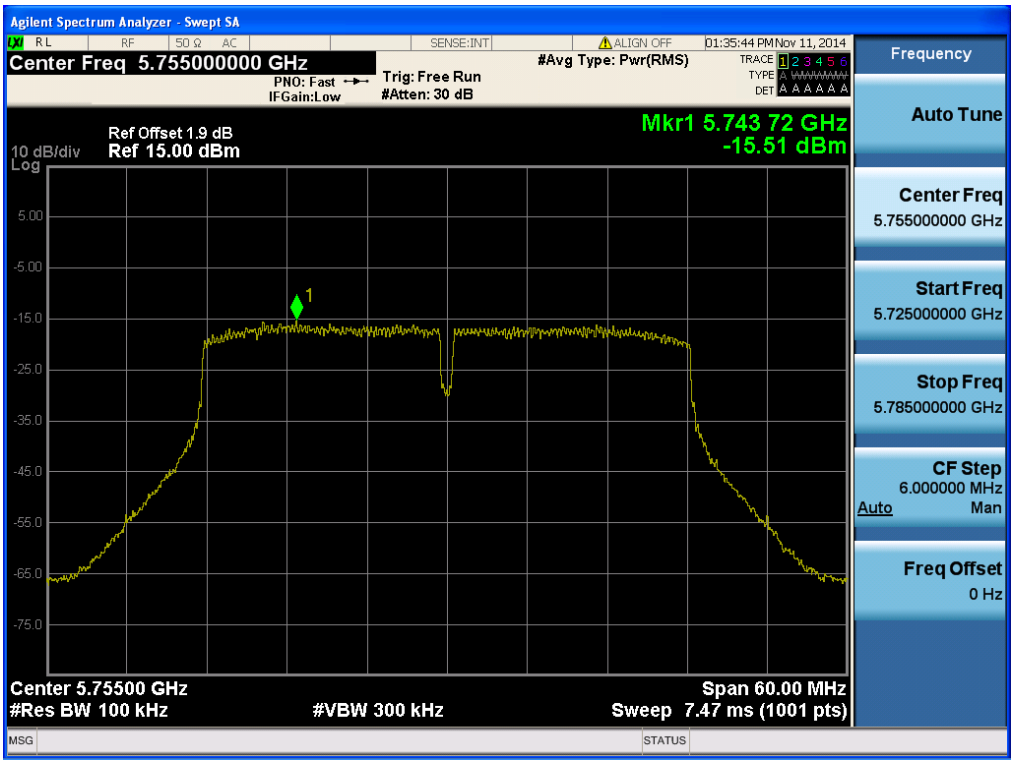
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.110



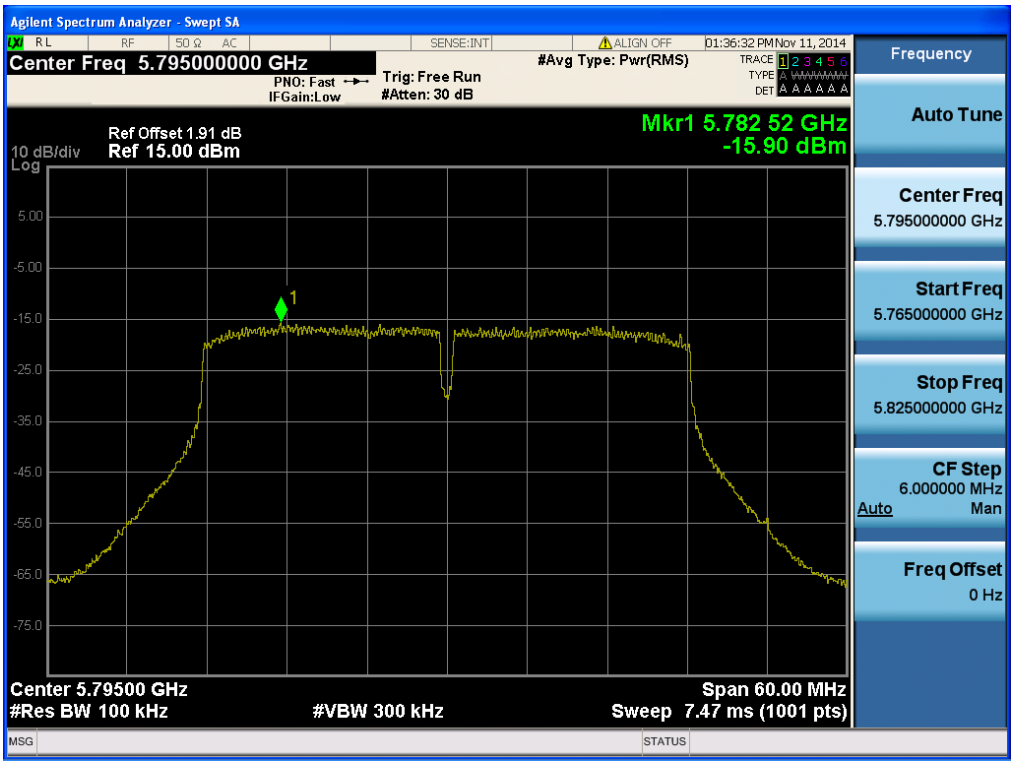
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.134



Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.151



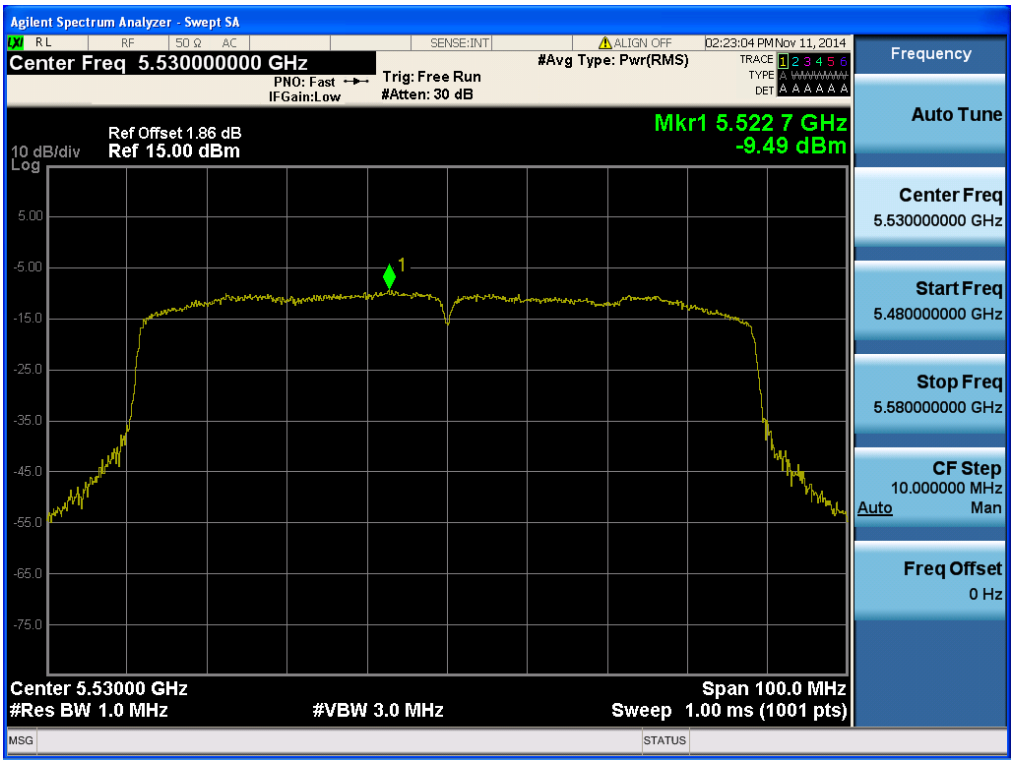
Maximum Power Spectral Density Test Mode: 802.11n HT40 & Ch.159



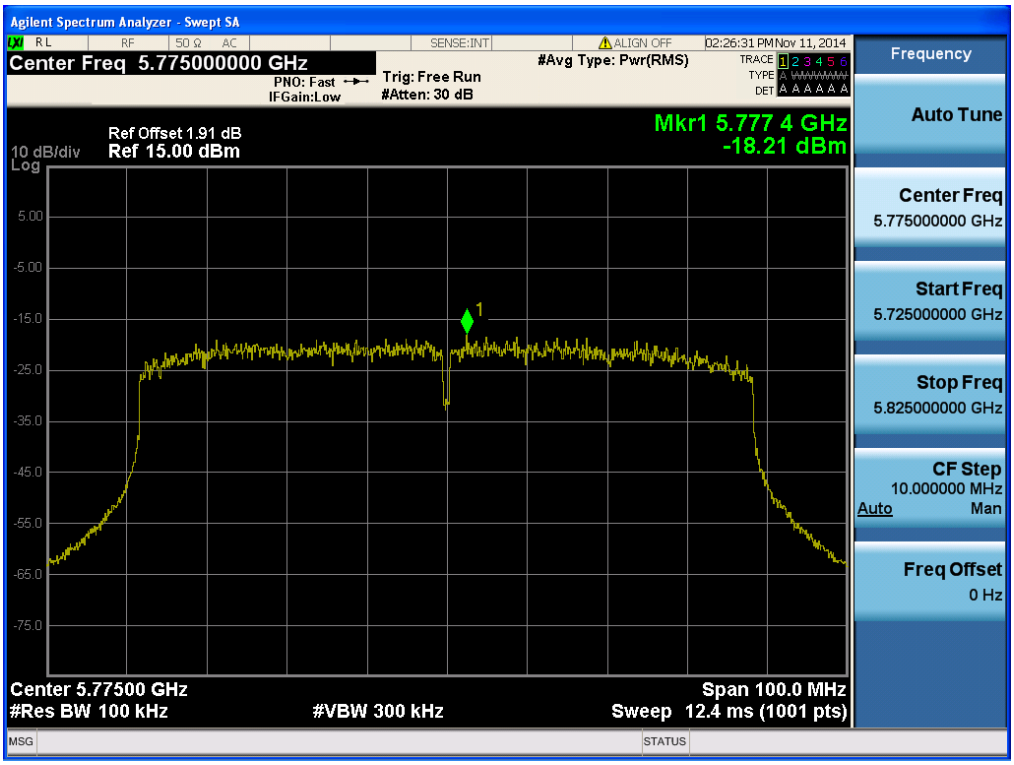
Maximum Power Spectral Density Test Mode: 802.11ac VHT80 & Ch.42

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

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



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



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 -20℃ and +50℃. 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 Result : Comply

Supply Voltage (V DC)	TEMP (℃)	Band I		Band II		Band III		Band IV	
		Frequency (Hz)	Deviation (%)	Frequency (Hz)	Deviation (%)	Frequency (Hz)	Deviation (%)	Frequency (Hz)	Deviation (%)
3.80	+25	5,199,975,748	-0.000466	5,299,976,108	-0.000451	5,579,974,214	-0.000462	5,784,973,262	-0.000462
	+50	5,199,974,496	-0.000490	5,299,973,595	-0.000498	5,579,972,016	-0.000502	5,784,971,191	-0.000498
	+40	5,199,968,241	-0.000611	5,299,967,531	-0.000613	5,579,965,968	-0.000610	5,784,964,937	-0.000606
	+30	5,199,971,558	-0.000547	5,299,970,890	-0.000549	5,579,970,003	-0.000538	5,784,968,304	-0.000548
	+20	5,199,980,453	-0.000376	5,299,981,423	-0.000351	5,579,980,597	-0.000348	5,784,980,582	-0.000336
	+10	5,199,995,835	-0.000080	5,299,996,044	-0.000075	5,579,995,845	-0.000074	5,784,995,037	-0.000086
	0	5,200,009,288	0.000179	5,300,009,207	0.000174	5,580,009,584	0.000172	5,785,009,605	0.000166
	-10	5,200,014,805	0.000285	5,300,012,851	0.000242	5,580,012,748	0.000228	5,785,012,541	0.000217
	-20	5,200,016,473	0.000317	5,300,016,295	0.000307	5,580,016,325	0.000293	5,785,018,869	0.000326
3.10	+25	5,199,975,759	-0.000466	5,299,976,101	-0.000451	5,579,974,224	-0.000462	5,784,973,248	-0.000462
4.37	+25	5,199,975,755	-0.000466	5,299,976,129	-0.000450	5,579,974,195	-0.000462	5,784,973,277	-0.000462

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, 76-88MHz, 174-216MHz or 470-806MHz. 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 within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.
(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

The EUT was placed on a 0.8m high non-conductive table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in semi anechoic chamber. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine the worst-case orientation for maximum emissions.

Radiated spurious emission measured using following Measurement Procedure **of KDB789033 D02 V01**

► 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 1000MHz(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 1000MHz(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.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
36 (5180MHz)	5144.320	H	Y	PK	45.22	8.45	N/A	N/A	53.67	74.00	20.33
	5145.080	H	Y	AV	33.84	8.45	0.23	N/A	42.52	54.00	11.48
	10359.990	H	Y	PK	44.84	18.14	N/A	-9.54	53.44	68.20	14.76
40 (5200MHz)	10400.150	H	Y	PK	43.96	18.25	N/A	-9.54	52.67	68.20	15.53
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
48 (5240MHz)	10478.940	H	Y	PK	43.30	18.46	N/A	-9.54	52.22	68.20	15.98
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11a & Band I & with Wireless Charging*

Tested Channel	Frequency (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)
36 (5180MHz)	5144.840	H	X	PK	43.54	8.45	N/A	N/A	51.99	74.00	22.01
	5146.420	H	X	AV	32.41	8.45	0.23	N/A	41.09	54.00	12.91
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ Measurement Data:

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

Tested Channel	Frequency (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)
52 (5260MHz)	10519.950	H	Y	PK	44.51	18.55	N/A	-9.54	53.52	68.20	14.68
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
60 (5300MHz)	10600.710	H	Y	PK	43.44	18.73	N/A	-9.54	52.63	74.00	21.37
	10600.240	H	Y	AV	35.29	18.73	0.23	-9.54	44.71	54.00	9.29
	-	-	-	-	-	-	-	-	-	-	-
64 (5320MHz)	5353.100	H	Y	PK	43.25	8.81	N/A	N/A	52.06	74.00	21.94
	5354.220	H	Y	AV	33.75	8.81	0.23	N/A	42.79	54.00	11.21
	10645.770	H	Y	PK	42.57	18.82	N/A	-9.54	51.85	74.00	22.15
	10640.280	H	Y	AV	33.99	18.82	0.23	-9.54	43.50	54.00	10.50

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11a & Band II & with Wireless Charging*

Tested Channel	Frequency (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)
60 (5300MHz)	10600.890	H	X	PK	43.10	18.73	N/A	-9.54	52.29	74.00	21.71
	10600.360	H	X	AV	32.63	18.73	0.23	-9.54	42.05	54.00	11.95
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
100 (5500MHz)	5453.410	H	Y	PK	45.42	9.05	N/A	N/A	54.47	74.00	19.53
	5450.780	H	Y	AV	34.13	9.05	0.23	N/A	43.41	54.00	10.59
	5466.930	H	Y	PK	44.31	9.09	N/A	N/A	53.40	68.20	14.80
	11000.210	H	Y	PK	42.08	19.61	N/A	-9.54	52.15	74.00	21.85
	10999.880	H	Y	AV	34.77	19.61	0.23	-9.54	45.07	54.00	8.93
116 (5580MHz)	11159.970	H	Y	PK	42.14	20.07	N/A	-9.54	52.67	74.00	21.33
	11160.010	H	Y	AV	33.96	20.07	0.23	-9.54	44.72	54.00	9.28
	-	-	-	-	-	-	-	-	-	-	-
140 (5700MHz)	5726.940	H	Y	PK	45.92	9.98	N/A	N/A	55.90	68.20	12.30
	11400.540	H	Y	PK	42.75	20.77	N/A	-9.54	53.98	74.00	20.02
	11400.040	H	Y	AV	34.68	20.77	0.23	-9.54	46.14	54.00	7.86

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11a & Band III & with Wireless Charging*

Tested Channel	Frequency (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)
140 (5700MHz)	11399.780	H	X	PK	41.29	20.77	N/A	-9.54	52.52	74.00	21.48
	11400.050	H	X	AV	32.32	20.77	0.23	-9.54	43.78	54.00	10.22
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
149 (5745MHz)	11486.980	H	Y	PK	43.24	21.03	N/A	-9.54	54.73	74.00	19.27
	11490.100	H	Y	AV	35.35	21.03	0.23	-9.54	47.07	54.00	6.93
	-	-	-	-	-	-	-	-	-	-	-
157 (5785MHz)	11569.480	H	Y	PK	41.78	21.27	N/A	-9.54	53.51	74.00	20.49
	11569.930	H	Y	AV	34.91	21.27	0.23	-9.54	46.87	54.00	7.13
	-	-	-	-	-	-	-	-	-	-	-
165 (5825MHz)	11652.110	H	Y	PK	42.60	21.51	N/A	-9.54	54.57	74.00	19.43
	11650.070	H	Y	AV	34.90	21.51	0.23	-9.54	47.10	54.00	6.90
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11a & Band IV & with Wireless Charging*

Tested Channel	Frequency (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)
165 (5825MHz)	11651.870	H	X	PK	42.03	21.51	N/A	-9.54	54.00	74.00	20.00
	11650.190	H	X	AV	32.45	21.51	0.23	-9.54	44.65	54.00	9.35
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
36 (5180MHz)	5148.110	H	Y	PK	48.28	8.45	N/A	N/A	56.73	74.00	17.27
	5147.890	H	Y	AV	33.77	8.45	0.27	N/A	42.49	54.00	11.51
	10359.890	H	Y	PK	44.84	18.14	N/A	-9.54	53.44	68.20	14.76
40 (5200MHz)	10399.910	H	Y	PK	43.92	18.25	N/A	-9.54	52.63	68.20	15.57
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
48 (5240MHz)	10480.010	H	Z	PK	43.29	18.46	N/A	-9.54	52.21	68.20	15.99
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT20) & Band I & with Wireless Charging*

Tested Channel	Frequency (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)
36 (5180MHz)	5146.950	H	X	PK	47.01	8.45	N/A	N/A	55.46	74.00	18.54
	5147.020	H	X	AV	32.72	8.45	0.27	N/A	41.44	54.00	12.56
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
52 (5260MHz)	10519.980	H	Y	PK	44.57	18.55	N/A	-9.54	53.58	68.20	14.62
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
60 (5300MHz)	10599.970	H	Y	PK	43.44	18.73	N/A	-9.54	52.63	74.00	21.37
	10600.020	H	Y	AV	35.29	18.73	0.27	-9.54	44.75	54.00	9.25
	-	-	-	-	-	-	-	-	-	-	-
64 (5320MHz)	5356.860	H	Y	PK	44.29	8.81	N/A	N/A	53.10	74.00	20.90
	5350.210	H	Y	AV	33.97	8.81	0.27	N/A	43.05	54.00	10.95
	10645.710	H	Y	PK	42.56	18.82	N/A	-9.54	51.84	74.00	22.16
	10640.240	H	Y	AV	33.92	18.82	0.27	-9.54	43.47	54.00	10.53

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT20) & Band II & with Wireless Charging*

Tested Channel	Frequency (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)
60 (5300MHz)	10600.220	H	X	PK	43.01	18.73	N/A	-9.54	52.20	74.00	21.80
	10600.130	H	X	AV	33.25	18.73	0.27	-9.54	42.71	54.00	11.29
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
100 (5500MHz)	5459.010	H	Y	PK	44.91	9.05	N/A	N/A	53.96	74.00	20.04
	5458.790	H	Y	AV	34.42	9.05	0.27	N/A	43.74	54.00	10.26
	5469.210	H	Y	PK	45.40	9.09	N/A	N/A	54.49	68.20	13.71
	11000.110	H	Y	PK	42.12	19.61	N/A	-9.54	52.19	74.00	21.81
	11000.170	H	Y	AV	34.87	19.61	0.27	-9.54	45.21	54.00	8.79
116 (5580MHz)	11160.020	H	Y	PK	42.15	20.07	N/A	-9.54	52.68	74.00	21.32
	11159.940	H	Y	AV	33.96	20.07	0.27	-9.54	44.76	54.00	9.24
	-	-	-	-	-	-	-	-	-	-	-
140 (5700MHz)	5726.470	H	Y	PK	44.38	9.98	N/A	N/A	54.36	68.20	13.84
	11399.880	H	Y	PK	42.70	20.77	N/A	-9.54	53.93	74.00	20.07
	11400.040	H	Y	AV	34.71	20.77	0.27	-9.54	46.21	54.00	7.79

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT20) & Band III & with Wireless Charging*

Tested Channel	Frequency (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)
140 (5700MHz)	11400.360	H	X	PK	41.55	20.77	N/A	-9.54	52.78	74.00	21.22
	11400.120	H	X	AV	32.99	20.77	0.27	-9.54	44.49	54.00	9.51
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
149 (5745MHz)	11490.050	H	Y	PK	43.24	21.03	N/A	-9.54	54.73	74.00	19.27
	11490.070	H	Y	AV	35.42	21.03	0.27	-9.54	47.18	54.00	6.82
	-	-	-	-	-	-	-	-	-	-	-
157 (5785MHz)	11570.110	H	Y	PK	41.72	21.27	N/A	-9.54	53.45	74.00	20.55
	11570.050	H	Y	AV	34.95	21.27	0.27	-9.54	46.95	54.00	7.05
	-	-	-	-	-	-	-	-	-	-	-
165 (5825MHz)	11650.560	H	Y	PK	42.58	21.51	N/A	-9.54	54.55	74.00	19.45
	11649.940	H	Y	AV	34.92	21.51	0.27	-9.54	47.16	54.00	6.84
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT20) & Band IV & with Wireless Charging*

Tested Channel	Frequency (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)
149 (5745MHz)	11490.190	H	X	PK	42.08	21.03	N/A	-9.54	53.57	74.00	20.43
	11490.080	H	X	AV	31.72	21.03	0.27	-9.54	43.48	54.00	10.52
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band I*

Tested Channel	Frequency (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)
38 (5190MHz)	5148.330	H	Y	PK	44.76	8.45	N/A	N/A	53.21	74.00	20.79
	5148.290	H	Y	AV	34.26	8.45	0.46	N/A	43.17	54.00	10.83
	10379.950	H	Y	PK	44.65	18.20	N/A	-9.54	53.31	68.20	14.89
46 (5230MHz)	10460.080	H	X	PK	43.18	18.41	N/A	-9.54	52.05	68.20	16.15
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band I & with Wireless Charging*

Tested Channel	Frequency (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)
38 (5190MHz)	5148.880	H	X	PK	44.26	8.45	N/A	N/A	52.71	74.00	21.29
	5148.650	H	X	AV	32.89	8.45	0.46	N/A	41.80	54.00	12.20
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band II*

Tested Channel	Frequency (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)
54 (5270MHz)	10541.020	H	Y	PK	44.03	21.12	N/A	-9.54	55.61	68.20	12.59
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
62 (5310MHz)	5357.980	H	Y	PK	44.14	8.81	N/A	N/A	52.95	74.00	21.05
	5357.770	H	Y	AV	33.95	8.81	0.46	N/A	43.22	54.00	10.78
	10622.550	H	Y	PK	42.51	18.82	N/A	-9.54	51.79	74.00	22.21
	10620.270	H	Y	AV	33.94	18.82	0.46	-9.54	43.68	54.00	10.32

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band II & with Wireless Charging*

Tested Channel	Frequency (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)
62 (5310MHz)	10621.690	H	X	PK	41.50	18.82	N/A	-9.54	50.78	74.00	23.22
	10620.360	H	X	PK	33.20	18.82	N/A	-9.54	42.48	54.00	11.52
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band III*

Tested Channel	Frequency (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)
102 (5510MHz)	5456.810	H	Y	PK	44.41	9.05	N/A	N/A	53.46	74.00	20.54
	5458.520	H	Y	AV	34.39	9.05	0.46	N/A	43.90	54.00	10.10
	5468.720	H	Y	PK	46.75	9.09	N/A	N/A	55.84	68.20	12.36
	11020.520	H	Y	PK	42.00	19.67	N/A	-9.54	52.13	74.00	21.87
	11020.020	H	Y	AV	34.30	19.67	0.46	-9.54	44.89	54.00	9.11
110 (5550MHz)	11100.320	H	Y	PK	41.88	20.07	N/A	-9.54	52.41	74.00	21.59
	11100.090	H	Y	AV	33.26	20.07	0.46	-9.54	44.25	54.00	9.75
	-	-	-	-	-	-	-	-	-	-	-
134 (5670MHz)	5726.130	H	Y	PK	44.21	9.98	N/A	N/A	54.19	68.20	14.01
	11340.190	H	Y	PK	42.37	20.59	N/A	-9.54	53.42	74.00	20.58
	11340.040	H	Y	AV	34.08	20.59	0.46	-9.54	45.59	54.00	8.41

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band III & with Wireless Charging*

Tested Channel	Frequency (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)
134 (5670MHz)	11340.250	H	X	PK	41.05	20.59	N/A	-9.54	52.10	74.00	21.90
	11340.110	H	X	AV	33.08	20.59	0.46	-9.54	44.59	54.00	9.41
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band IV*

Tested Channel	Frequency (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)
151 (5755MHz)	11509.650	H	Y	PK	42.97	21.09	N/A	-9.54	54.52	74.00	19.48
	11509.950	H	Y	AV	34.91	21.09	0.46	-9.54	46.92	54.00	7.08
	-	-	-	-	-	-	-	-	-	-	-
159 (5795MHz)	11589.950	H	Y	PK	44.32	21.33	N/A	-9.54	56.11	74.00	17.89
	11589.820	H	Y	AV	35.01	21.33	0.46	-9.54	47.26	54.00	6.74
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11n(HT40) & Band IV & with Wireless Charging*

Tested Channel	Frequency (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)
159 (5795MHz)	11590.140	H	X	PK	40.76	21.33	N/A	-9.54	52.55	74.00	21.45
	11589.740	H	X	AV	32.19	21.33	0.46	-9.54	44.44	54.00	9.56
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
42 (5210MHz)	5149.720	H	Y	PK	46.14	8.45	N/A	N/A	54.59	74.00	19.41
	5143.190	H	Y	AV	34.96	8.45	1.55	N/A	44.96	54.00	9.04
	10420.200	H	Y	PK	43.39	18.30	N/A	-9.54	52.15	68.20	16.05

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11ac(VHT80) & Band I & with Wireless Charging*

Tested Channel	Frequency (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)
42 (5210MHz)	5149.770	H	X	PK	45.23	8.45	N/A	N/A	53.68	74.00	20.32
	5145.300	H	X	AV	33.11	8.45	1.55	N/A	43.11	54.00	10.89
	-	-	-	-	-	-	-	-	-	-	-

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

Tested Channel	Frequency (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)
58 (5290MHz)	5354.090	H	Y	PK	45.58	8.81	N/A	N/A	54.39	74.00	19.61
	5352.610	H	Y	AV	34.02	8.81	1.55	N/A	44.38	54.00	9.62
	10580.230	H	Y	PK	43.52	18.69	N/A	-9.54	52.67	74.00	21.33
	10580.110	H	Y	AV	33.98	18.69	1.55	-9.54	44.68	54.00	9.32
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11ac(VHT80) & Band II & with Wireless Charging*

Tested Channel	Frequency (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)
58 (5290MHz)	10580.270	H	X	PK	42.21	18.69	N/A	-9.54	51.36	74.00	22.64
	10580.300	H	X	AV	32.25	18.69	1.55	-9.54	42.95	54.00	11.05
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/m
5. If peak measurement satisfy the average limit, then average measurement are not required.

▣ **Measurement Data:**

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

Tested Channel	Frequency (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)
106 (5530MHz)	5459.410	H	Y	PK	46.23	9.05	N/A	N/A	55.28	74.00	18.72
	5459.920	H	Y	AV	35.76	9.05	1.55	N/A	46.36	54.00	7.64
	5466.300	H	Y	PK	47.25	9.09	N/A	N/A	56.34	68.20	11.86
	11060.150	H	Y	PK	41.87	19.78	N/A	-9.54	52.11	74.00	21.89
	11061.100	H	Y	AV	33.85	19.78	1.55	-9.54	45.64	54.00	8.36

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11ac(VHT80) & Band III & with Wireless Charging*

Tested Channel	Frequency (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)
106 (5530MHz)	5458.970	H	X	PK	45.06	9.05	N/A	N/A	54.11	74.00	19.89
	5459.380	H	X	AV	33.23	9.05	1.55	N/A	43.83	54.00	10.17
	-	-	-	-	-	-	-	-	-	-	-

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

Tested Channel	Frequency (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)
155 (5775MHz)	11549.890	H	Y	PK	42.32	21.21	N/A	-9.54	53.99	74.00	20.01
	11549.890	H	Y	AV	34.46	21.21	1.55	-9.54	47.68	54.00	6.32
	-	-	-	-	-	-	-	-	-	-	-

Radiated Spurious Emissions data(9kHz ~ 40GHz) : *802.11ac(VHT80) & Band IV & with Wireless Charging*

Tested Channel	Frequency (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)
155 (5775MHz)	11549.770	H	X	PK	41.64	21.21	N/A	-9.54	53.31	74.00	20.69
	11549.820	H	X	AV	32.71	21.21	1.55	-9.54	45.93	54.00	8.07
	-	-	-	-	-	-	-	-	-	-	-

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 = -27dBm + 95.2 = 68.2dBuV/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.

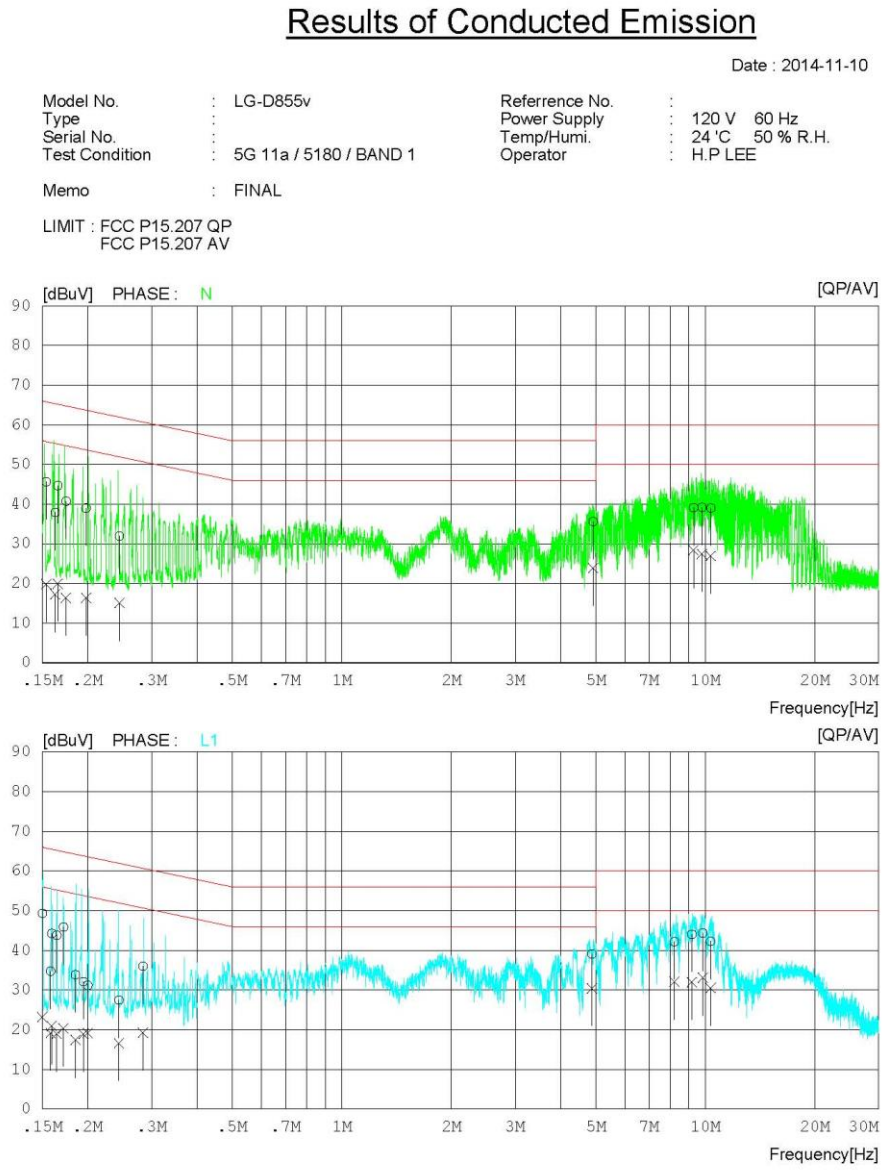
▣ **Minimum Standard: FCC Part 15.207(a)/EN 55022**

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: Band I &802.11a HT20



AC Line Conducted Emissions (Data List)

Test Mode: Band I &802.11a HT20

Results of Conducted Emission

Date : 2014-11-10

Model No.	: LG-D855v	Referrence No.	:
Type	:	Power Supply	: 120 V 60 Hz
Serial No.	:	Temp/Humi.	: 24 'C 50 % R.H.
Test Condition	: 5G 11a / 5180 / BAND 1	Operator	: H.P LEE

Memo : FINAL

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

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15372	35.8	10.0	9.9	45.7	19.9	65.8	55.8	20.1	35.9	N
2	0.16274	28.0	7.3	9.9	37.9	17.2	65.3	55.3	27.4	38.1	N
3	0.16542	34.8	10.0	9.9	44.7	19.9	65.2	55.2	20.5	35.3	N
4	0.17439	30.8	6.5	9.9	40.7	16.4	64.7	54.7	24.0	38.3	N
5	0.19773	29.1	6.4	9.9	39.0	16.3	63.7	53.7	24.7	37.4	N
6	0.24433	22.0	5.2	9.9	31.9	15.1	61.9	51.9	30.0	36.8	N
7	4.91200	25.5	13.8	10.1	35.6	23.9	56.0	46.0	20.4	22.1	N
8	9.28360	28.9	18.2	10.2	39.1	28.4	60.0	50.0	20.9	21.6	N
9	9.80320	29.0	17.3	10.2	39.2	27.5	60.0	50.0	20.8	22.5	N
10	10.36260	28.8	16.7	10.2	39.0	26.9	60.0	50.0	21.0	23.1	N
11	0.15000	39.3	13.2	10.0	49.3	23.2	66.0	56.0	16.7	32.8	L1
12	0.15806	24.8	9.3	9.9	34.7	19.2	65.6	55.6	30.9	36.4	L1
13	0.15907	34.3	10.9	9.9	44.2	20.8	65.5	55.5	21.3	34.7	L1
14	0.16423	33.9	9.1	9.9	43.8	19.0	65.2	55.2	21.4	36.2	L1
15	0.17141	36.0	10.4	9.9	45.9	20.3	64.9	54.9	19.0	34.6	L1
16	0.18494	23.9	7.5	9.9	33.8	17.4	64.3	54.3	30.5	36.9	L1
17	0.19450	22.2	9.0	9.9	32.1	18.9	63.8	53.8	31.7	34.9	L1
18	0.19989	21.3	9.3	9.9	31.2	19.2	63.6	53.6	32.4	34.4	L1
19	0.24358	17.6	6.7	9.9	27.5	16.6	62.0	52.0	34.5	35.4	L1
20	0.28372	26.1	9.4	9.9	36.0	19.3	60.7	50.7	24.7	31.4	L1
21	4.87760	29.0	20.3	10.1	39.1	30.4	56.0	46.0	16.9	15.6	L1
22	8.22100	32.0	21.9	10.2	42.2	32.1	60.0	50.0	17.8	17.9	L1
23	9.19300	33.8	21.8	10.2	44.0	32.0	60.0	50.0	16.0	18.0	L1
24	9.84760	34.2	22.9	10.2	44.4	33.1	60.0	50.0	15.6	16.9	L1
25	10.34820	32.1	20.3	10.2	42.3	30.5	60.0	50.0	17.7	19.5	L1

AC Line Conducted Emissions (Graph)

Test Mode: Band II &802.11a HT20

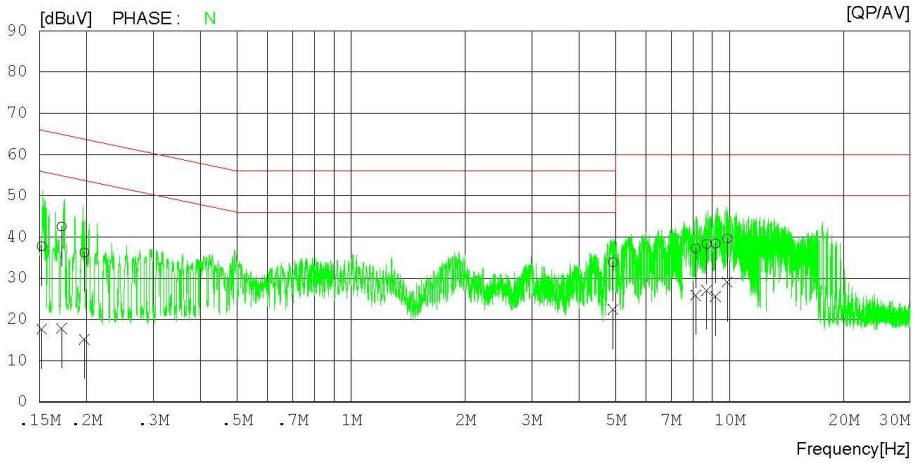
Results of Conducted Emission

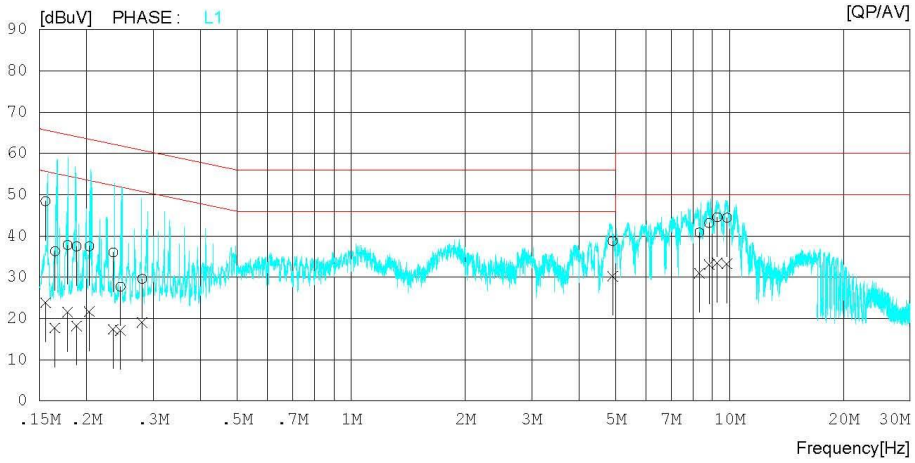
Date : 2014-11-10

Model No.	:	LG-D855v	Referrence No.	:	
Type	:		Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	24 'C 50 % R.H.
Test Condition	:	5G 11a / 5260 / BAND 2	Operator	:	H.P LEE

Memo : FINAL

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





AC Line Conducted Emissions (Data List)

Test Mode: Band II &802.11a HT20

Results of Conducted Emission

Date : 2014-11-10

Model No.	: LG-D855v	Referrence No.	:
Type	:	Power Supply	: 120 V 60 Hz
Serial No.	:	Temp/Humi.	: 24 'C 50 % R.H.
Test Condition	: 5G 11a / 5260 / BAND 2	Operator	: H.P LEE

Memo : FINAL

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

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15203	27.9	7.7	9.9	37.8	17.6	65.9	55.9	28.1	38.3	N
2	0.17167	32.6	7.9	9.9	42.5	17.8	64.9	54.9	22.4	37.1	N
3	0.19721	26.4	5.3	9.9	36.3	15.2	63.7	53.7	27.4	38.5	N
4	4.91740	23.8	12.3	10.1	33.9	22.4	56.0	46.0	22.1	23.6	N
5	8.13760	27.0	15.7	10.2	37.2	25.9	60.0	50.0	22.8	24.1	N
6	8.70060	28.1	16.9	10.2	38.3	27.1	60.0	50.0	21.7	22.9	N
7	9.18320	28.2	15.3	10.2	38.4	25.5	60.0	50.0	21.6	24.5	N
8	9.86200	29.4	18.9	10.2	39.6	29.1	60.0	50.0	20.4	20.9	N
9	0.15554	38.5	13.9	9.9	48.4	23.8	65.7	55.7	17.3	31.9	L1
10	0.16485	26.4	7.8	9.9	36.3	17.7	65.2	55.2	28.9	37.5	L1
11	0.17800	27.9	11.6	9.9	37.8	21.5	64.6	54.6	26.8	33.1	L1
12	0.18799	27.6	8.2	9.9	37.5	18.1	64.1	54.1	26.6	36.0	L1
13	0.20313	27.6	11.8	9.9	37.5	21.7	63.5	53.5	26.0	31.8	L1
14	0.23503	26.1	7.5	9.9	36.0	17.4	62.3	52.3	26.3	34.9	L1
15	0.24562	17.8	7.2	9.9	27.7	17.1	61.9	51.9	34.2	34.8	L1
16	0.28034	19.7	9.1	9.9	29.6	19.0	60.8	50.8	31.2	31.8	L1
17	4.90820	28.7	20.2	10.1	38.8	30.3	56.0	46.0	17.2	15.7	L1
18	8.32400	30.7	20.7	10.2	40.9	30.9	60.0	50.0	19.1	19.1	L1
19	8.82740	32.9	22.9	10.2	43.1	33.1	60.0	50.0	16.9	16.9	L1
20	9.28020	34.3	23.2	10.2	44.5	33.4	60.0	50.0	15.5	16.6	L1
21	9.84540	34.2	23.0	10.2	44.4	33.2	60.0	50.0	15.6	16.8	L1

AC Line Conducted Emissions (Graph)

Test Mode: Band III &802.11a HT20

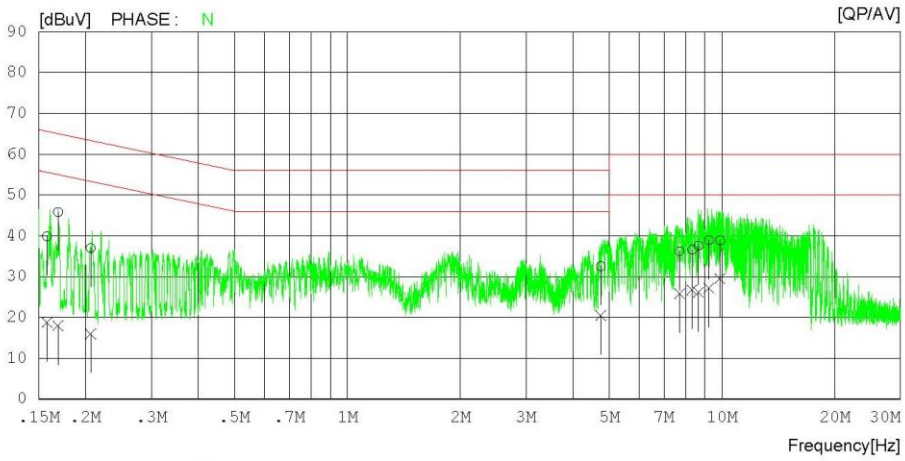
Results of Conducted Emission

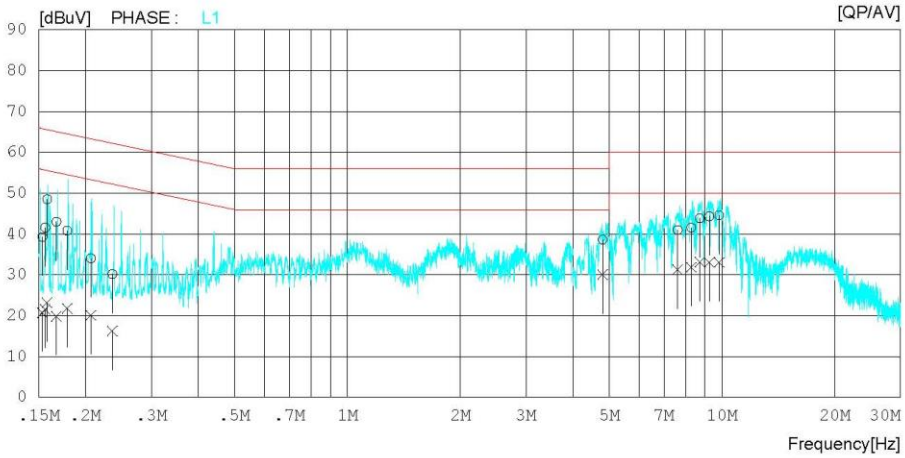
Date : 2014-11-10

Model No.	:	LG-D855v	Referrence No.	:	
Type	:		Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	24 'C 50 % R.H.
Test Condition	:	5G 11a / 5500 / BAND 3	Operator	:	H.P LEE

Memo : FINAL

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





AC Line Conducted Emissions (Data List)

Test Mode: Band III &802.11a HT20

Results of Conducted Emission

Date : 2014-11-10

Model No.	: LG-D855v	Referrence No.	:
Type	:	Power Supply	: 120 V 60 Hz
Serial No.	:	Temp/Humi.	: 24 'C 50 % R.H.
Test Condition	: 5G 11a / 5500 / BAND 3	Operator	: H.P LEE

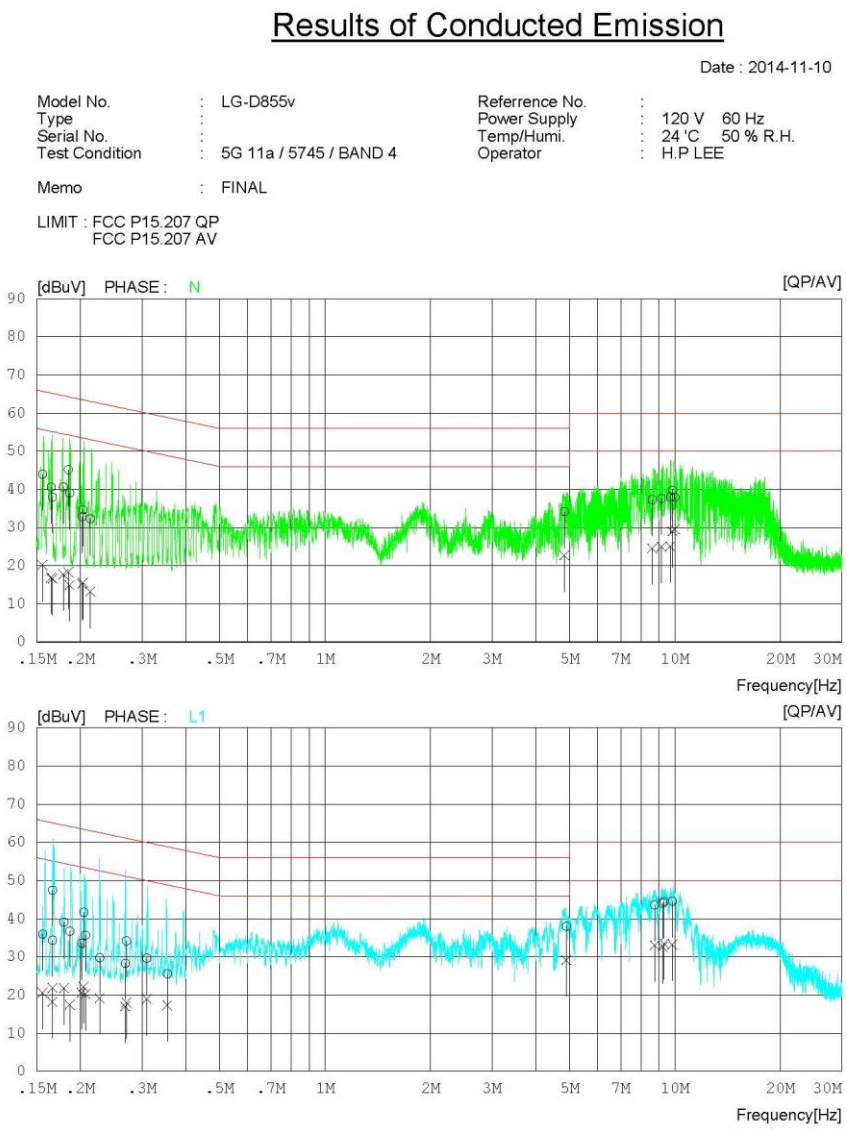
Memo : FINAL

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

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15750	30.0	8.9	9.9	39.9	18.8	65.6	55.6	25.7	36.8	N
2	0.16876	35.9	8.1	9.9	45.8	18.0	65.0	55.0	19.2	37.0	N
3	0.20620	27.1	6.1	9.9	37.0	16.0	63.4	53.4	26.4	37.4	N
4	4.75440	22.5	10.4	10.1	32.6	20.5	56.0	46.0	23.4	25.5	N
5	7.71300	26.0	15.6	10.2	36.2	25.8	60.0	50.0	23.8	24.2	N
6	8.33460	26.4	16.6	10.2	36.6	26.8	60.0	50.0	23.4	23.2	N
7	8.66600	27.4	15.9	10.2	37.6	26.1	60.0	50.0	22.4	23.9	N
8	9.23660	28.7	17.0	10.2	38.9	27.2	60.0	50.0	21.1	22.8	N
9	9.89440	28.7	19.3	10.2	38.9	29.5	60.0	50.0	21.1	20.5	N
10	0.15338	29.4	10.8	9.9	39.3	20.7	65.8	55.8	26.5	35.1	L1
11	0.15600	31.7	11.7	9.9	41.6	21.6	65.7	55.7	24.1	34.1	L1
12	0.15790	38.6	13.3	9.9	48.5	23.2	65.6	55.6	17.1	32.4	L1
13	0.16701	33.1	10.0	9.9	43.0	19.9	65.1	55.1	22.1	35.2	L1
14	0.17854	30.9	11.8	9.9	40.8	21.7	64.6	54.6	23.8	32.9	L1
15	0.20665	24.1	10.2	9.9	34.0	20.1	63.3	53.3	29.3	33.2	L1
16	0.23573	20.3	6.4	9.9	30.2	16.3	62.2	52.2	32.0	35.9	L1
17	4.80280	28.5	19.9	10.1	38.6	30.0	56.0	46.0	17.4	16.0	L1
18	7.62180	30.8	21.0	10.2	41.0	31.2	60.0	50.0	19.0	18.8	L1
19	8.27900	31.4	21.7	10.2	41.6	31.9	60.0	50.0	18.4	18.1	L1
20	8.73320	33.6	22.9	10.2	43.8	33.1	60.0	50.0	16.2	16.9	L1
21	9.25700	34.1	22.9	10.2	44.3	33.1	60.0	50.0	15.7	16.9	L1
22	9.83440	34.4	22.8	10.2	44.6	33.0	60.0	50.0	15.4	17.0	L1

AC Line Conducted Emissions (Graph)

Test Mode: Band IV &802.11a HT20



AC Line Conducted Emissions (Data List)

Test Mode: Band IV &802.11a HT20

Results of Conducted Emission

Date : 2014-11-10

Model No.	:	LG-D855v	Referrence No.	:	
Type	:		Power Supply	:	120 V 60 Hz
Serial No.	:		Temp/Humi.	:	24 'C 50 % R.H.
Test Condition	:	5G 11a / 5745 / BAND 4	Operator	:	H.P LEE

Memo : FINAL

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

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15565	34.1	10.3	9.9	44.0	20.2	65.7	55.7	21.7	35.5	N
2	0.16471	30.7	7.0	9.9	40.6	16.9	65.2	55.2	24.6	38.3	N
3	0.16629	28.1	6.7	9.9	38.0	16.6	65.1	55.1	27.1	38.5	N
4	0.17846	30.7	7.9	9.9	40.6	17.8	64.6	54.6	24.0	36.8	N
5	0.18594	29.1	5.1	9.9	39.0	15.0	64.2	54.2	25.2	39.2	N
6	0.18450	35.3	8.4	9.9	45.2	18.3	64.3	54.3	19.1	36.0	N
7	0.20201	23.0	5.4	9.9	32.9	15.3	63.5	53.5	30.6	38.2	N
8	0.20313	24.7	5.7	9.9	34.6	15.6	63.5	53.5	28.9	37.9	N
9	0.21337	22.4	3.3	9.9	32.3	13.2	63.1	53.1	30.8	39.9	N
10	4.83060	24.1	12.6	10.1	34.2	22.7	56.0	46.0	21.8	23.3	N
11	8.62480	27.1	14.3	10.2	37.3	24.5	60.0	50.0	22.7	25.5	N
12	9.15400	27.4	14.8	10.2	37.6	25.0	60.0	50.0	22.4	25.0	N
13	9.71160	27.9	14.8	10.2	38.1	25.0	60.0	50.0	21.9	25.0	N
14	9.85480	29.5	18.8	10.2	39.7	29.0	60.0	50.0	20.3	21.0	N
15	9.99540	27.7	19.3	10.2	37.9	29.5	60.0	50.0	22.1	20.5	N
16	0.15574	26.0	10.7	9.9	35.9	20.6	65.7	55.7	29.8	35.1	L1
17	0.16607	24.5	8.3	9.9	34.4	18.2	65.2	55.2	30.8	37.0	L1
18	0.16632	37.6	12.0	9.9	47.5	21.9	65.1	55.1	17.6	33.2	L1
19	0.17905	29.2	11.9	9.9	39.1	21.8	64.5	54.5	25.4	32.7	L1
20	0.18619	26.9	7.5	9.9	36.8	17.4	64.2	54.2	27.4	36.8	L1
21	0.20139	23.7	10.7	9.9	33.6	20.6	63.6	53.6	30.0	33.0	L1
22	0.20413	31.8	12.3	9.9	41.7	22.2	63.4	53.4	21.7	31.2	L1
23	0.20660	25.8	10.4	9.9	35.7	20.3	63.3	53.3	27.6	33.0	L1
24	0.22652	19.9	9.3	9.9	29.8	19.2	62.6	52.6	32.8	33.4	L1
25	0.26858	18.4	7.1	9.9	28.3	17.0	61.2	51.2	32.9	34.2	L1
26	0.27039	24.3	8.1	9.9	34.2	18.0	61.1	51.1	26.9	33.1	L1
27	0.30936	19.7	9.0	9.9	29.6	18.9	60.0	50.0	30.4	31.1	L1
28	0.35380	15.7	7.4	9.9	25.6	17.3	58.9	48.9	33.3	31.6	L1
29	4.89340	27.9	19.1	10.1	38.0	29.2	56.0	46.0	18.0	16.8	L1
30	8.74660	33.4	22.8	10.2	43.6	33.0	60.0	50.0	16.4	17.0	L1
31	9.23200	33.9	22.4	10.2	44.1	32.6	60.0	50.0	15.9	17.4	L1
32	9.32320	34.3	23.3	10.2	44.5	33.5	60.0	50.0	15.5	16.5	L1
33	9.84080	34.4	23.0	10.2	44.6	33.2	60.0	50.0	15.4	16.8	L1

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**

Refer to the APPENDIX I.

▣ **Test Procedure :**

The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%.
The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted.
Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual

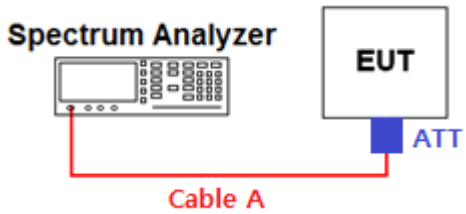
▣ **Test Result : NA**

9. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
MXA Signal Analyzer	Agilent	N9020A	14/03/28	15/03/28	MY50510026
Digital Multimeter	H.P	34401A	14/02/27	15/02/27	3146A13475
Dynamic Measurement DC Source	Agilent	66332A	14/09/11	15/09/11	US37473627
Thermohygrometer	BODYCOM	BJ5478	14/03/03	15/03/03	1209
Vector Signal Generator	Rohde Schwarz	SMJ100A	14/01/07	15/01/07	100148
Signal Generator	Rohde Schwarz	SMF100A	14/07/01	15/07/01	102341
Attenuator(3dB)	SMAJK	SMAJK-2-3	14/10/21	15/10/21	3
High-pass filter	Wainwright	WHNX8.5	14/09/11	15/09/11	1
High-pass filter	Wainwright	WHKX3.0	14/09/11	15/09/11	9
LOOP Antenna	Schwarzbeck	FMZB1513	14/04/29	16/04/29	1513-128
BILOG ANTENNA	Schwarzbeck	VULB 9160	14/04/04	16/04/04	3357
Horn Antenna	ETS-LINDGREN	3117	14/05/12	16/05/12	00140394
HORN ANT	A.H.Systems	SAS-574	13/03/20	15/03/20	154
Amplifier (22dB)	H.P	8447E	14/01/07	15/01/07	2945A02865
Amplifier (30dB)	Agilent	8449B	14/02/27	15/02/27	3008A00370
EMI TEST RECEIVER	R&S	ESU	14/01/07	15/01/07	100014
EMI TEST RECEIVER	R&S	ESCI	14/02/27	15/02/27	100910
Temp & Humi Test Chamber	SJ Science	SJ-TH-S50	14/10/21	15/10/21	SJ-TH-S50-130930
CVCF	NF	4420	14/05/26	15/05/26	3049354420023
LISN	R&S	ESH2-Z5	14/09/11	15/09/11	828739/006
PULSE LIMITER	R&S	ESH3-Z2	14/01/08	15/01/08	101334
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A/ MA2411B	14/10/21	15/10/21	1338004 / 1306053

APPENDIX I
Conducted Test set up Diagram

- **Conducted Measurement**



APPENDIX II

Duty Cycle Information

TEST PROCEDURE

Duty Cycle [X = On Time / (On + Off time)] is measured using Measurement Procedure **of KDB789033 D02 V01**

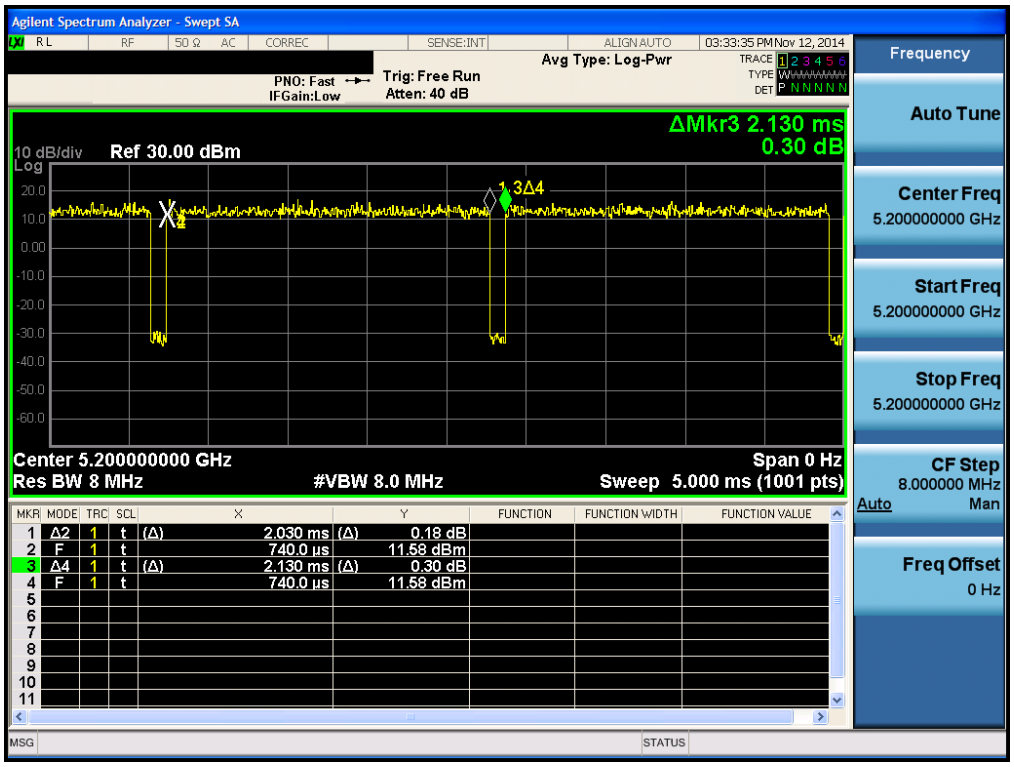
1. Set the center frequency of the spectrum analyzer to the center frequency of the transmission.
2. Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value.
3. Set VBW ≥ RBW.
4. Set detector = peak.
5. Note : The zero-span measurement method shall not be used unless both **RBW and VBW are> 50/*T***, where *T* is defined in section II.B.1.a), and **the number of sweep points across duration *T* exceeds 100**. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if *T* ≤ 16.7 microseconds.)

   T : The minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
   (***T* = On time** of the above table since the EUT operates with above fixed Duty Cycle and it is the minimum On time)

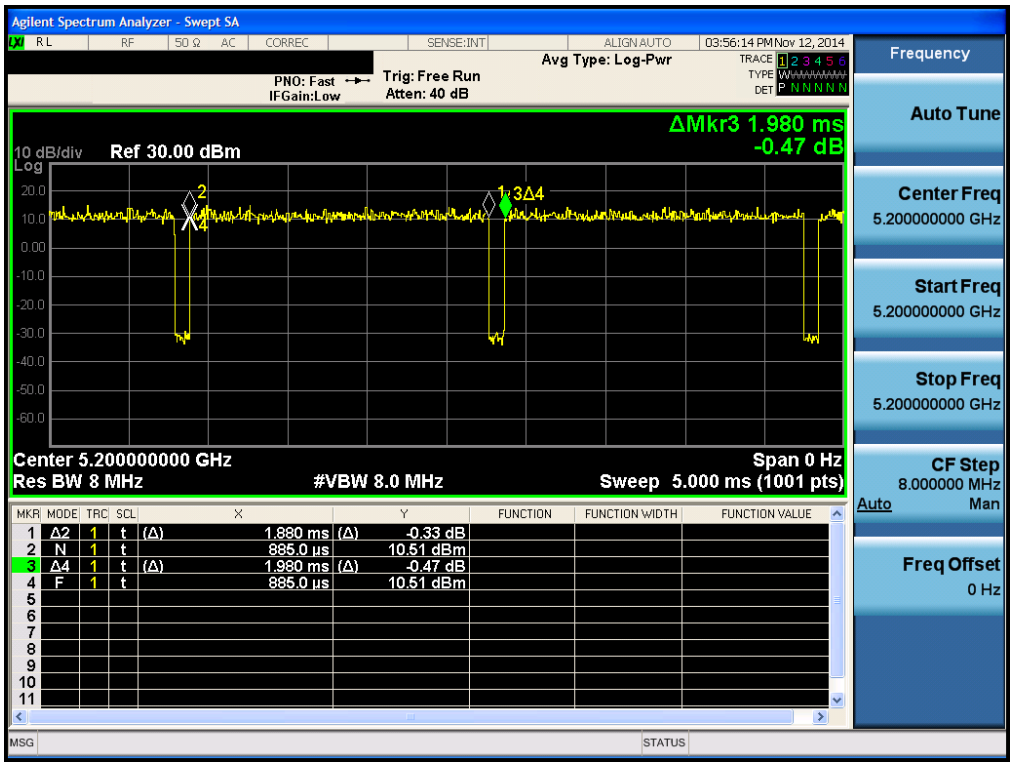
TEST DATA

Mode	Channel	Tested Frequency [MHz]	Maximum Achievable Duty Cycle (*x*) = On / (On+Off)			Duty Cycle Correction Factor [dB]	1/*T* [Hz]
			On Time [ms]	On+OffTime [ms]	*x*		
802.11a	40	5200	2.030	2.130	0.95	0.23	492.62
802.11n (HT20)	40	5200	1.880	1.980	0.94	0.27	531.92
802.11n (HT40)	38	5190	0.918	1.020	0.90	0.46	1089.33
802.11ac (HT80)	42	5210	0.247	0.348	0.70	1.55	4048.59

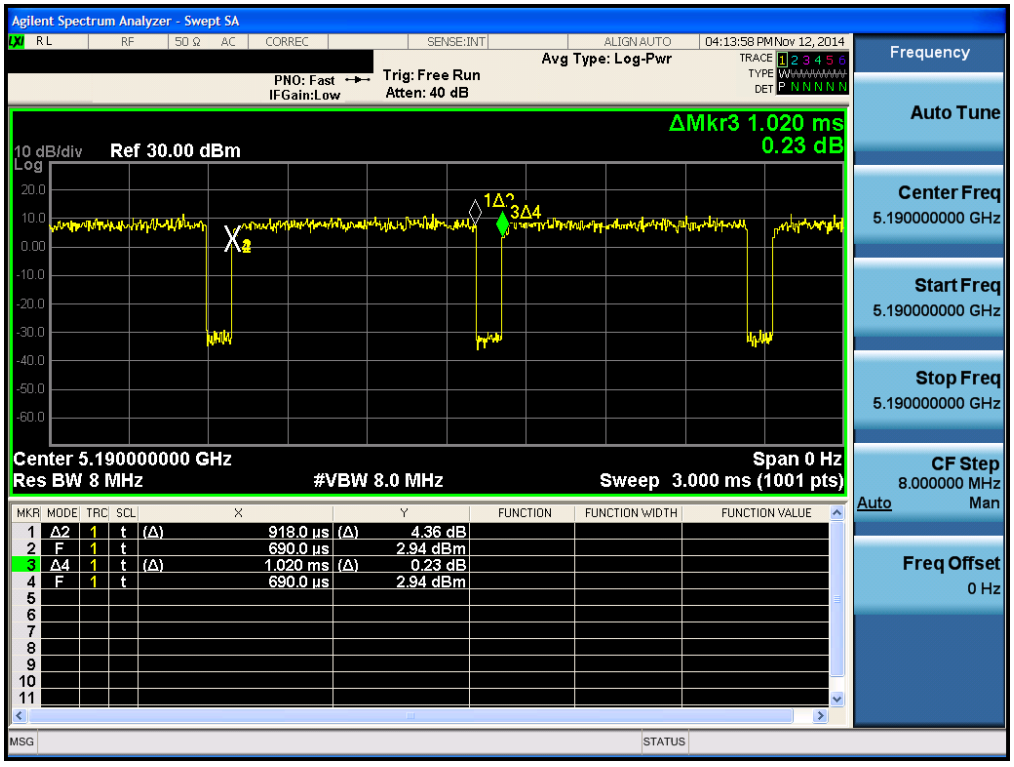
Duty Cycle Test Mode: 802.11a & Ch.40



Duty Cycle Test Mode: 802.11n HT20 & Ch.40



Duty Cycle Test Mode: 802.11n HT40 & Ch.38



Duty Cycle Test Mode: 802.11ac VHT80 & Ch.42