

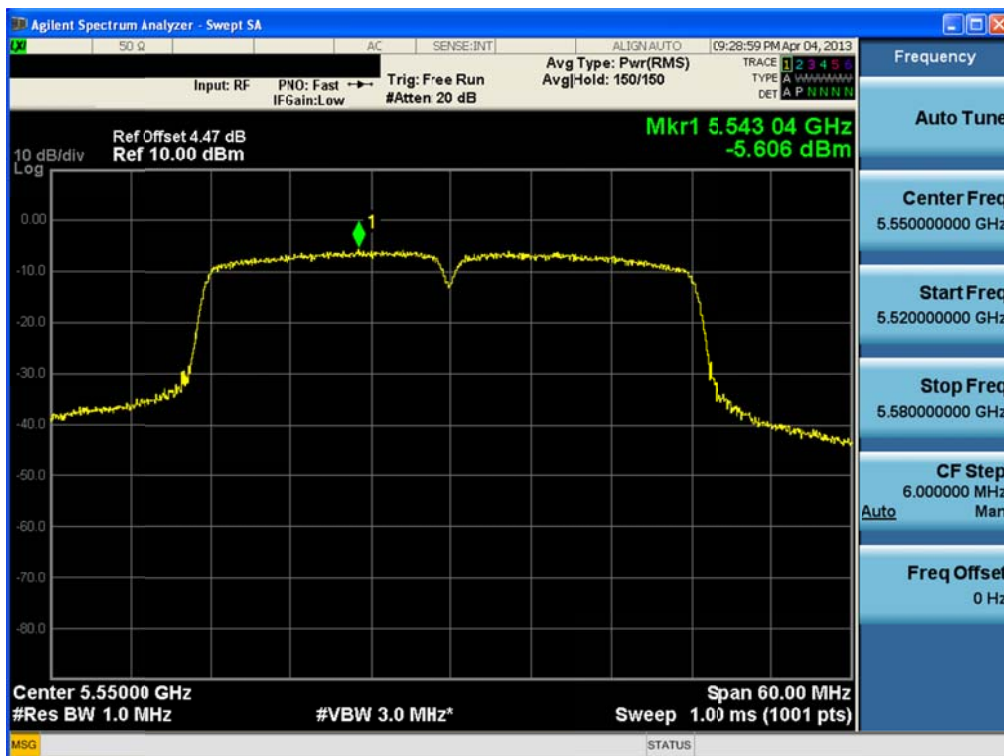
Peak Power Spectral Density

Test Mode: Chain 1 & 802.11n HT40 & Ch.102



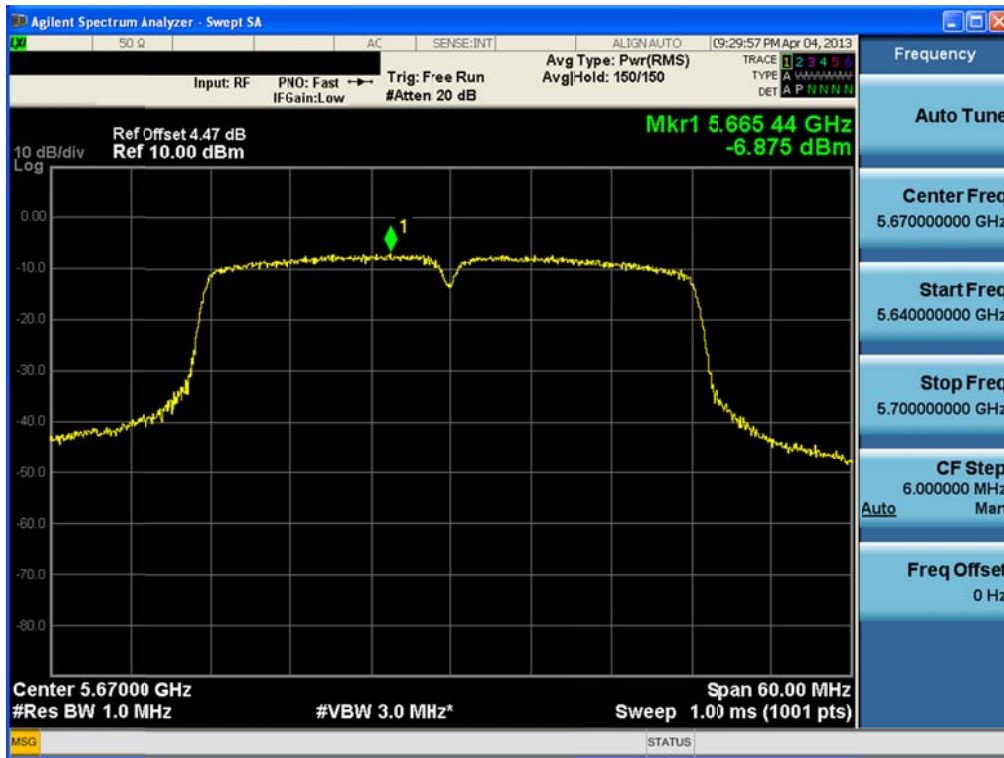
Peak Power Spectral Density

Test Mode: Chain 1 & 802.11n HT40 & Ch.110



Peak Power Spectral Density

Test Mode: Chain 1 & 802.11n HT40 & Ch.134



3.2.4 Peak Excursion Ratio

■ **Test requirements**

The ratio of the peak excursion of the modulation envelope (measured using a peakhold function) to the maximum conducted output power (measured as specified above) shall not exceed **13 dB/MHz**.

■ **TEST CONFIGURATION**

Refer to the APPENDIX I.

■ **TEST PROCEDURE**

Peak Excursion Ratio is measured using Measurement Procedure **of KDB789033**

- 1) Compliance with the peak excursion requirement of Section 15.407(a)(6) shall be demonstrated by confirming that the ratio of the maximum of the peak-max-hold spectrum to the maximum of the average spectrum for continuous transmission does not exceed 13 dB. (Earlier procedures that required computing the ratio of the two spectra at each frequency across the emission bandwidth can lead to unintended failures at band edges and will no longer be required.)
- 2) Set the spectrum analyzer span to view the entire emission bandwidth.
- 3) Find the maximum of the peak-max-hold spectrum.
 - a) Set **RBW = 1 MHz & VBW ≥ 3 MHz**.
 - c) **Detector = peak**.
 - d) **Trace mode = max-hold**.
 - e) Allow the sweeps to continue until the trace stabilizes.
 - f) Use the peak search function to find the peak of the spectrum.
- 4) **Use the procedure found under F) to measure the PPSD.**
- 5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

■ **TEST RESULT : Comply**

Mode	Band	Channel	Frequency [MHz]	Test Result[dB/MHz]	
				Chain 0	Chain 1
802.11a	Band I	36	5180	8.710	-
		44	5220	8.414	-
		48	5240	8.075	-
	Band II	52	5260	7.822	-
		56	5280	8.291	-
		64	5320	8.186	-
	Band III	100	5500	8.321	-
		116	5580	8.225	-
		140	5700	7.911	-
802.11n (20MHz)	Band I	36	5180	8.921	7.937
		44	5220	8.360	8.318
		48	5240	8.405	8.241
	Band II	52	5260	7.910	9.031
		56	5280	7.958	8.345
		64	5320	8.334	8.744
	Band III	100	5500	8.762	9.146
		116	5580	8.693	8.057
		140	5700	8.045	8.419
802.11n (40MHz)	Band I	38	5190	8.824	8.329
		46	5230	8.431	9.359
	Band II	54	5270	8.116	9.040
		62	5310	8.242	8.798
	Band III	102	5510	9.266	8.541
		110	5550	8.434	8.729
		134	5670	8.645	8.344

Measurement Data PLOTS

Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.36



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.44



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.48



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.52



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.56



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.64



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.100



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.116



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11a & Ch.140



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.36



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.44



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.48



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.52



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.56



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.64



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.100



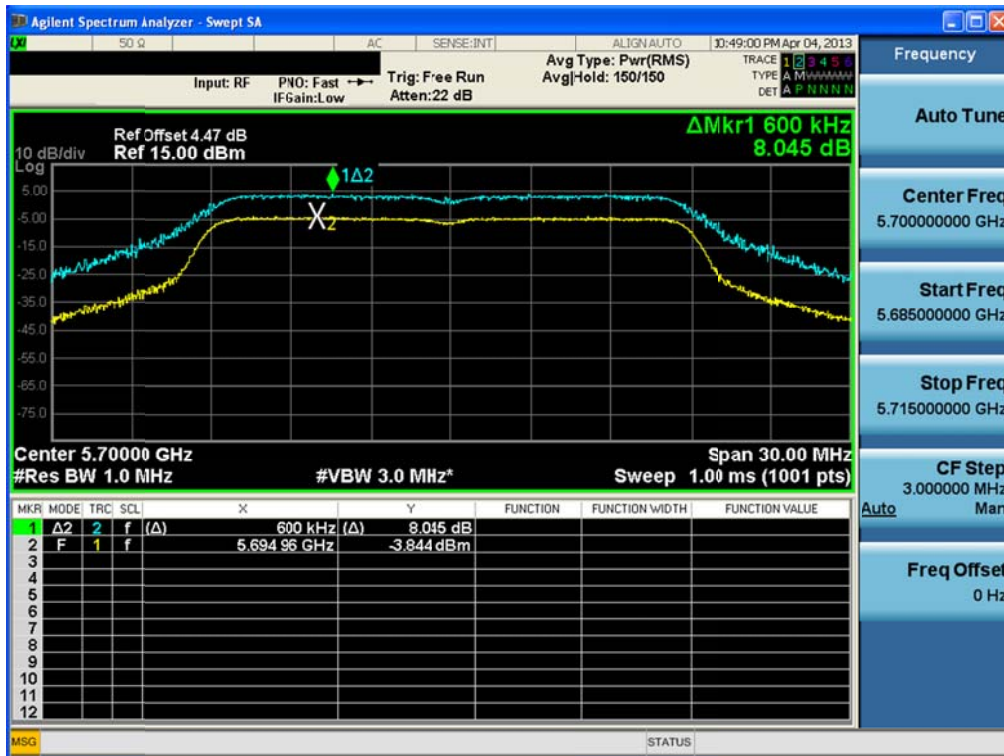
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.116



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT20 & Ch.140



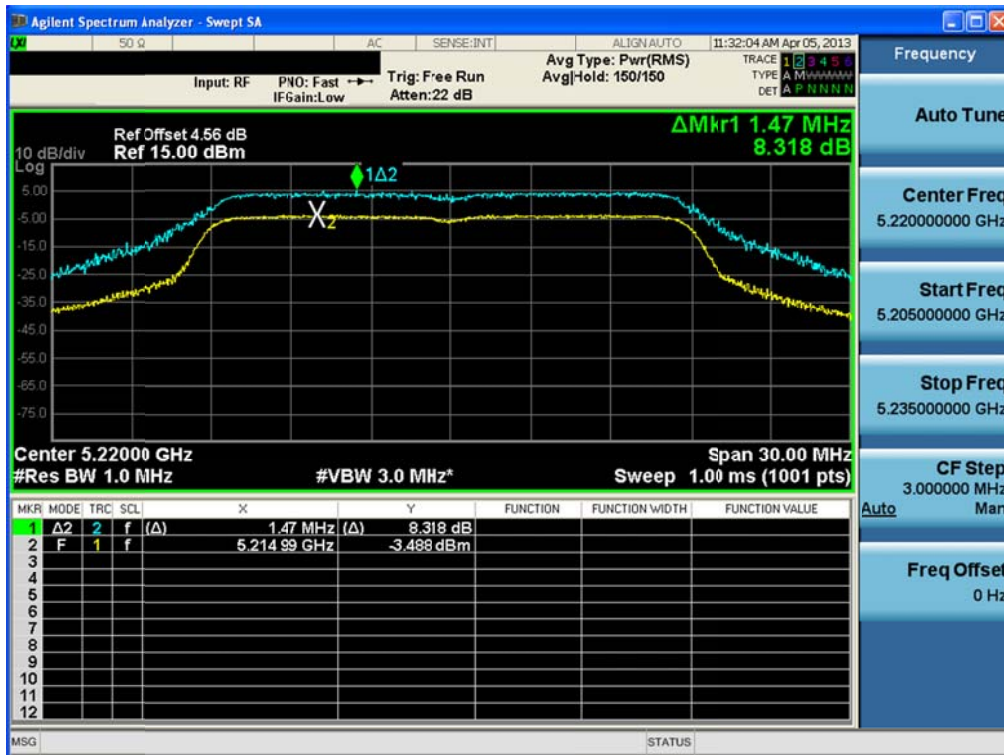
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.36



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.44



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.48



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.52



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.56



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.64



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.100



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.116



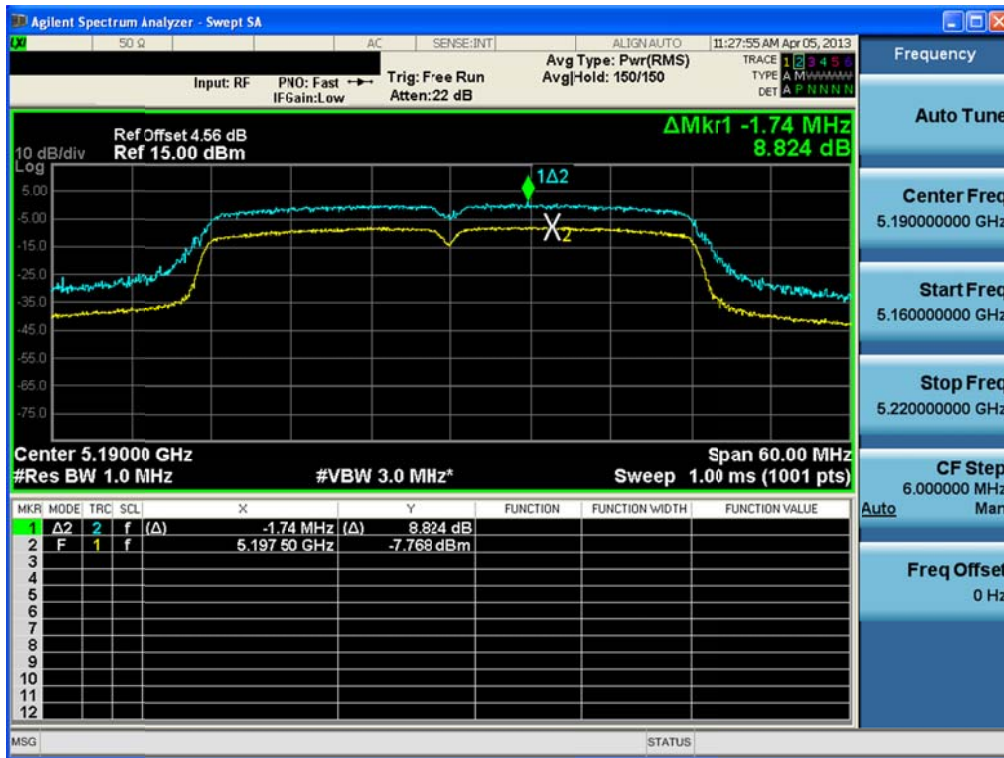
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT20 & Ch.140



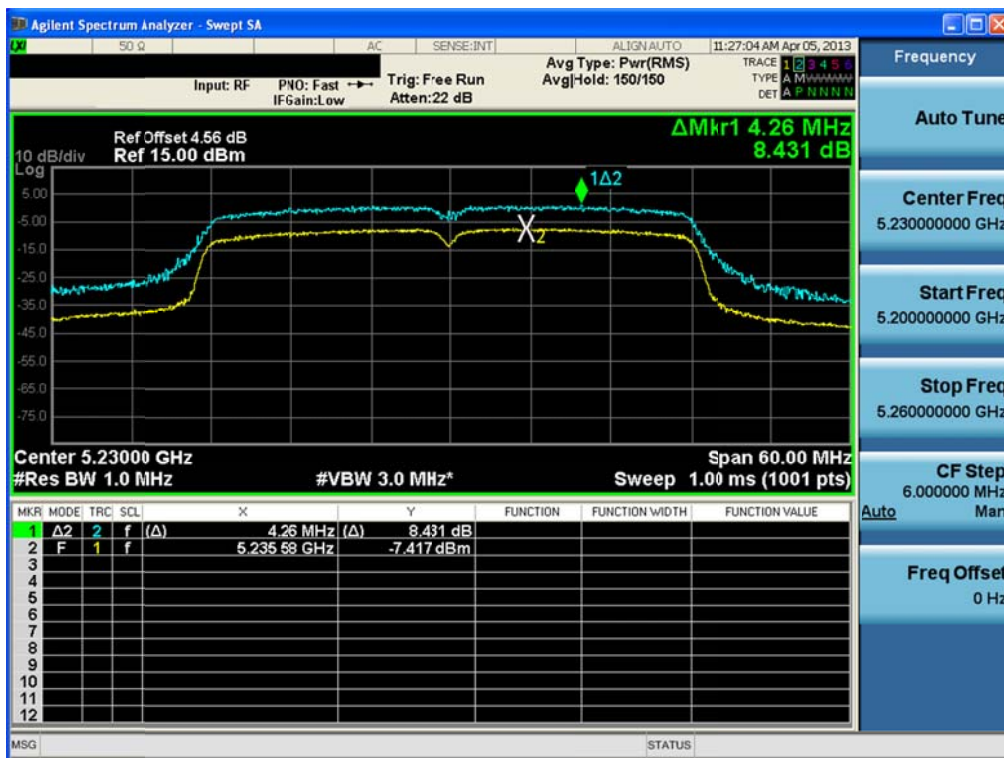
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.38



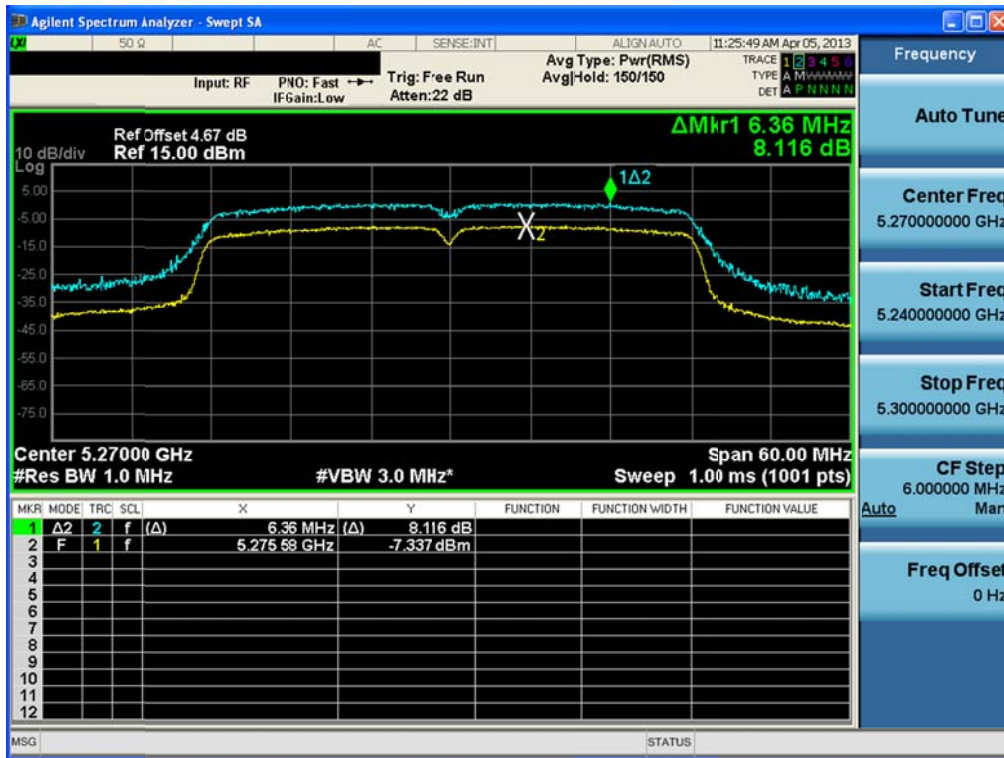
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.46



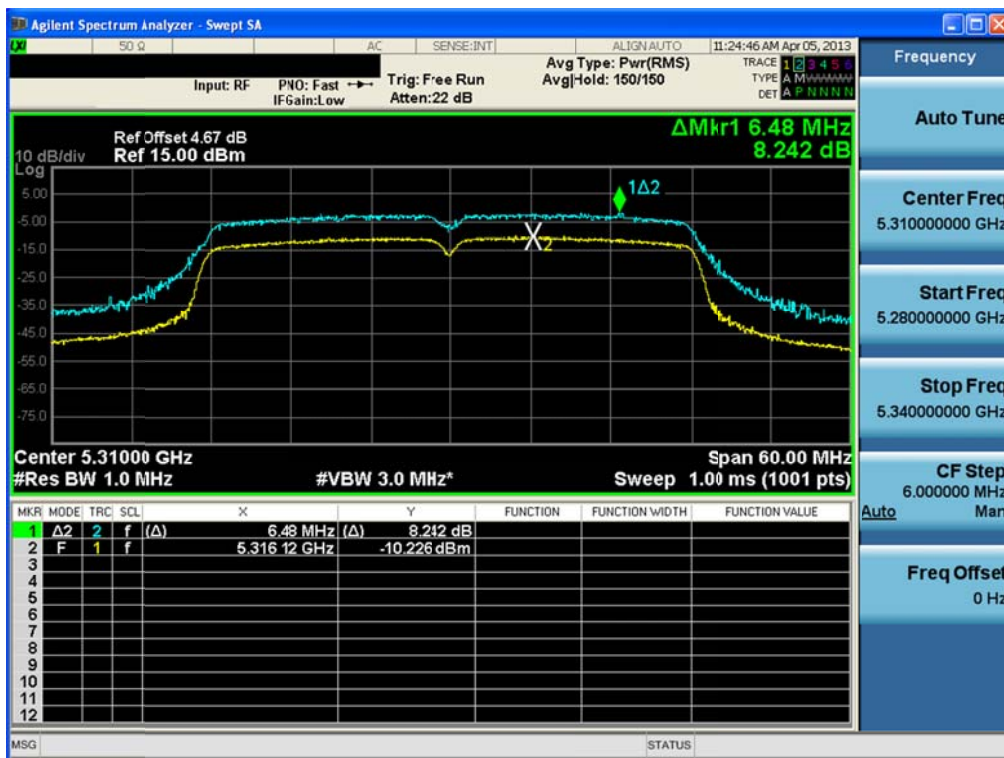
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.54



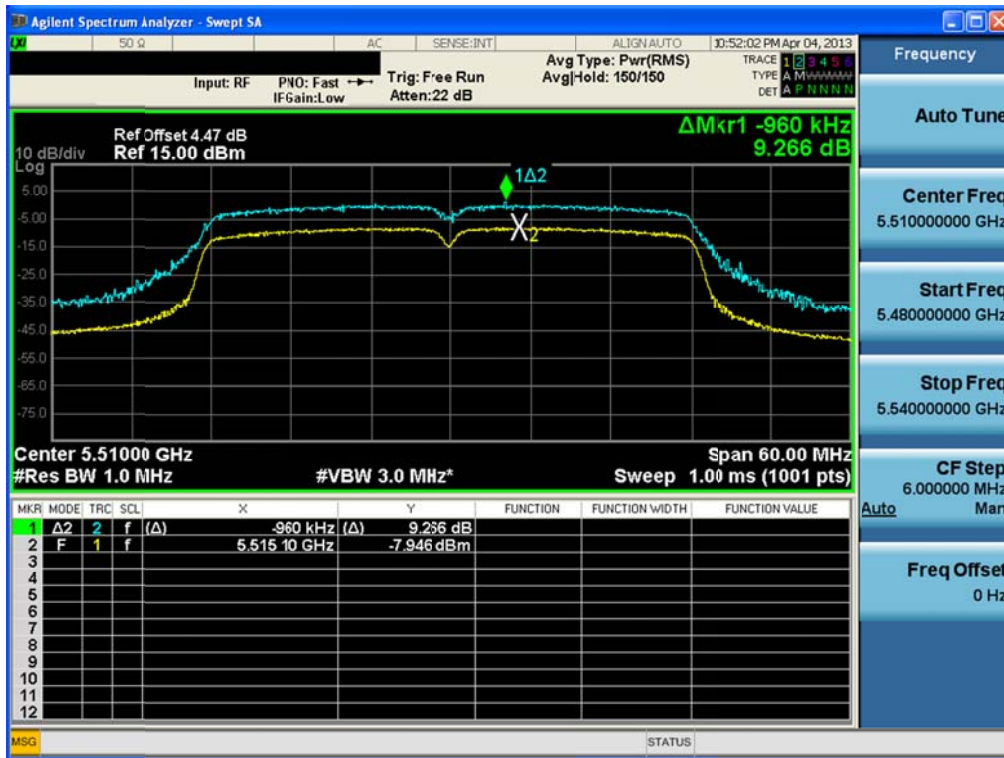
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.62



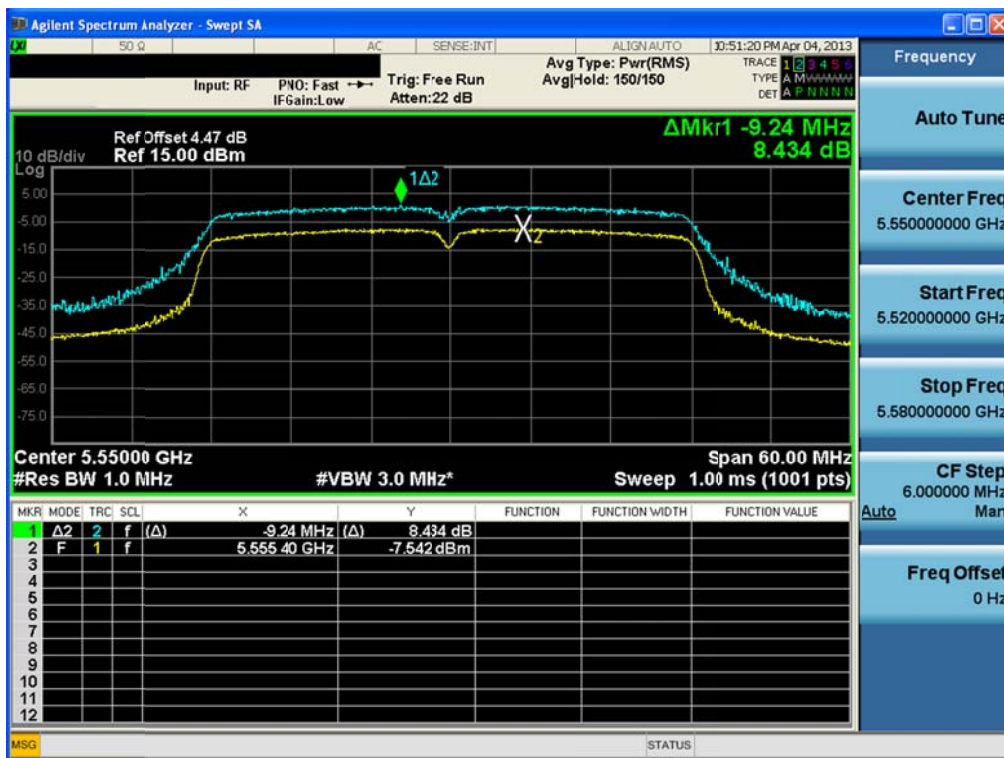
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.102



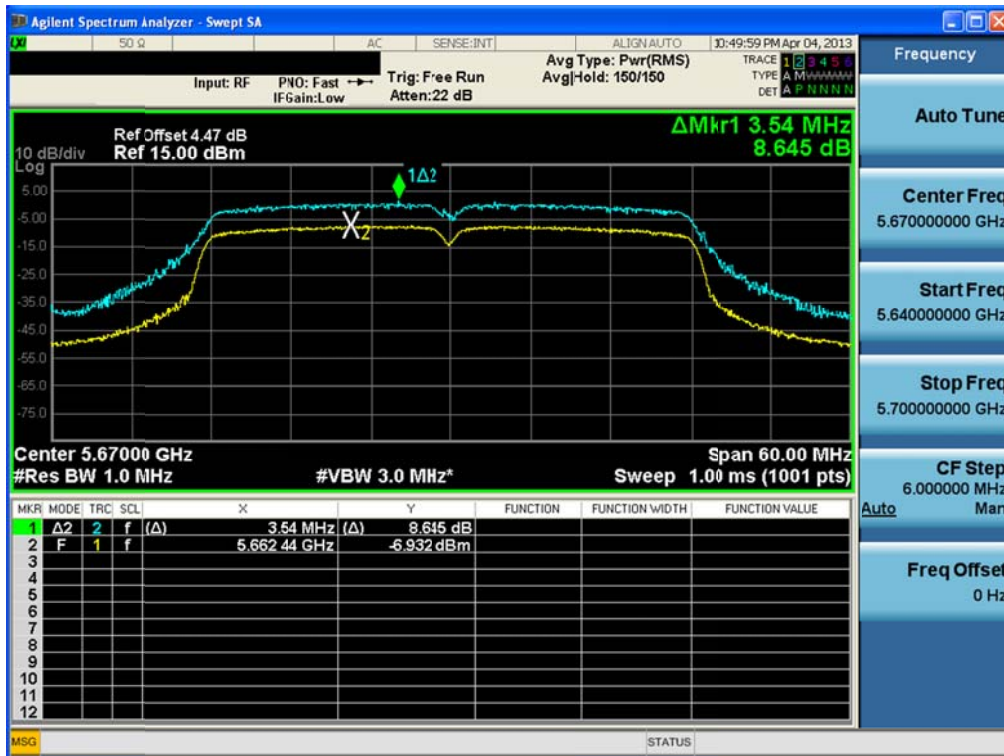
Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.110



Peak Excursion Ratio

Test Mode: Chain 0 & 802.11n HT40 & Ch.134



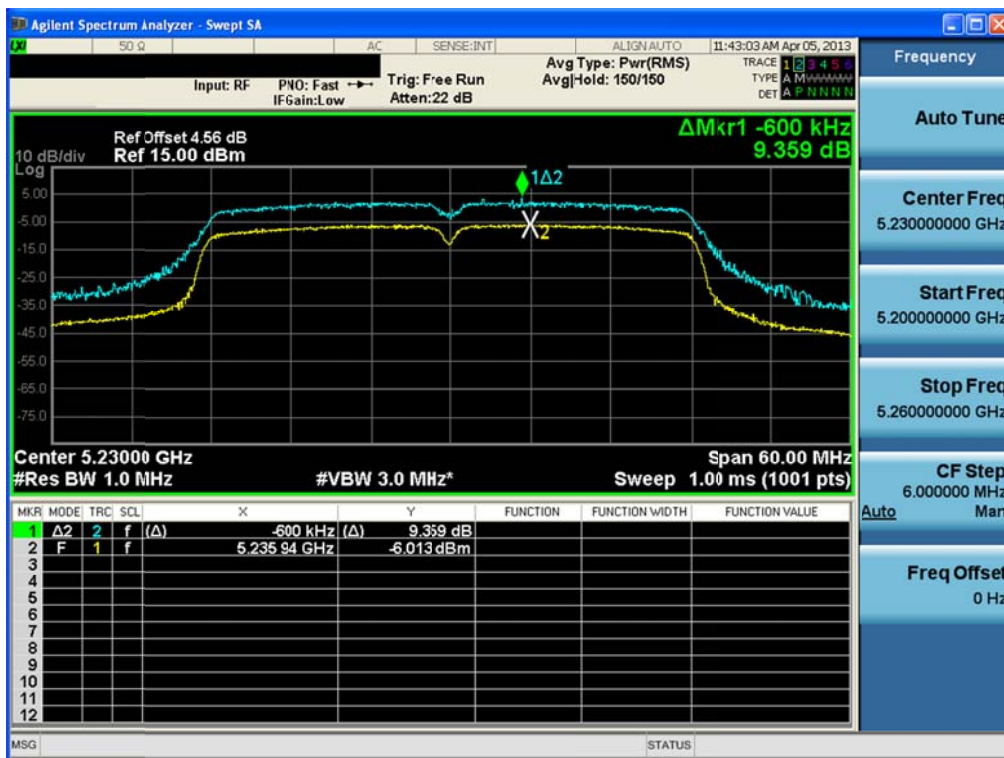
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.38



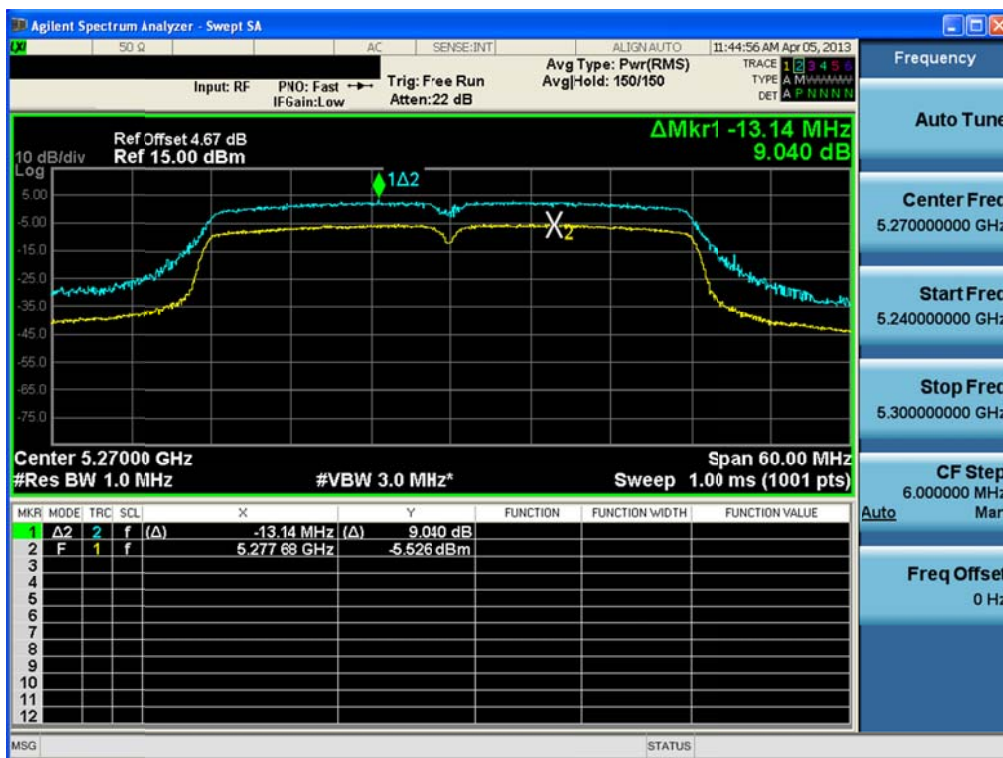
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.46



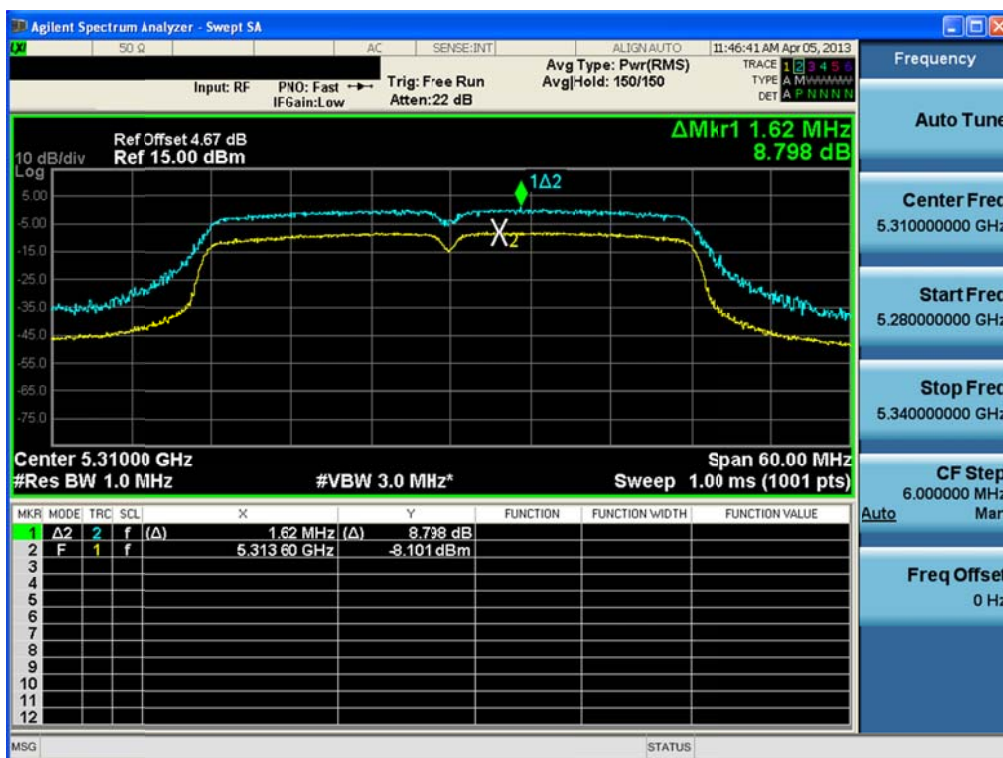
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.54



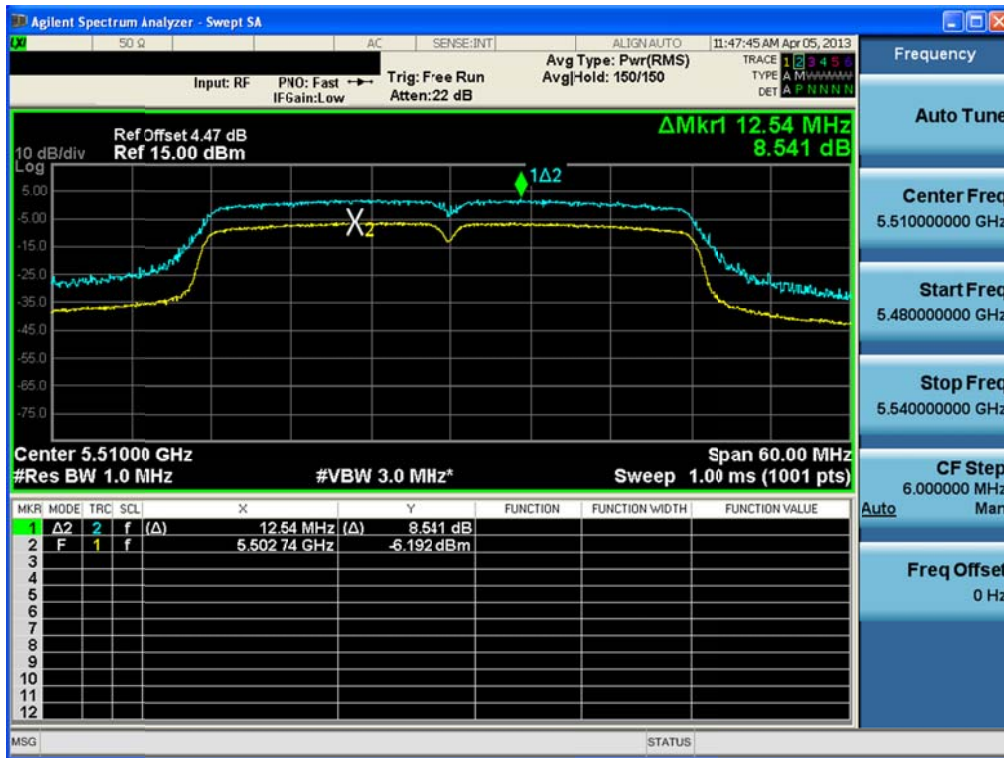
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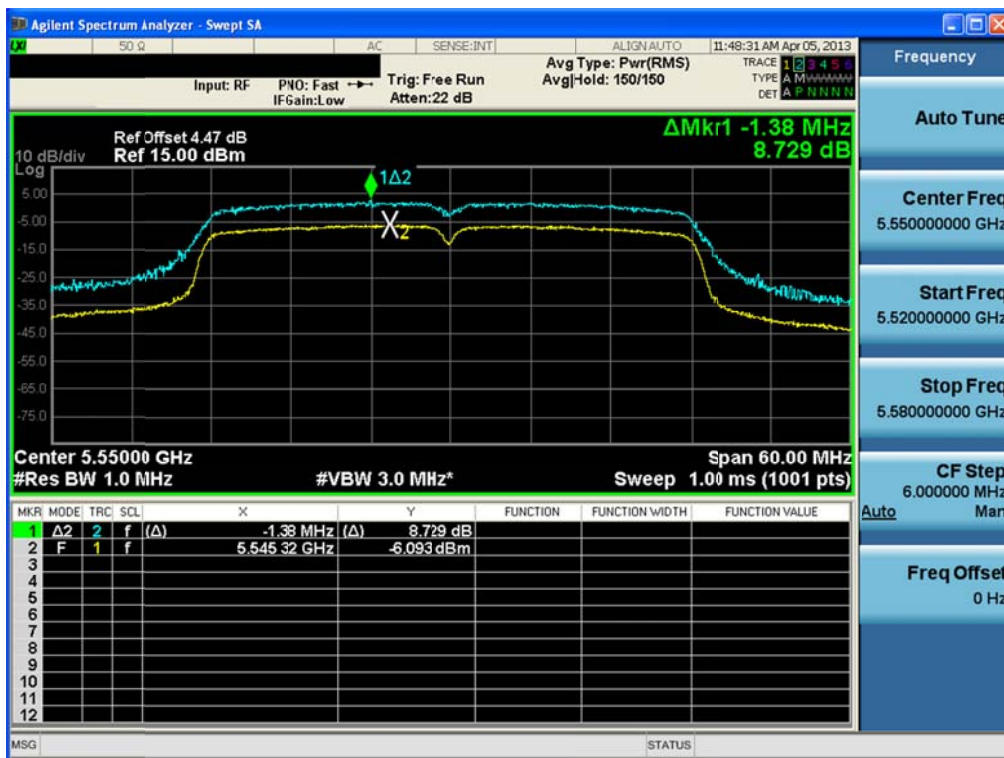
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.102



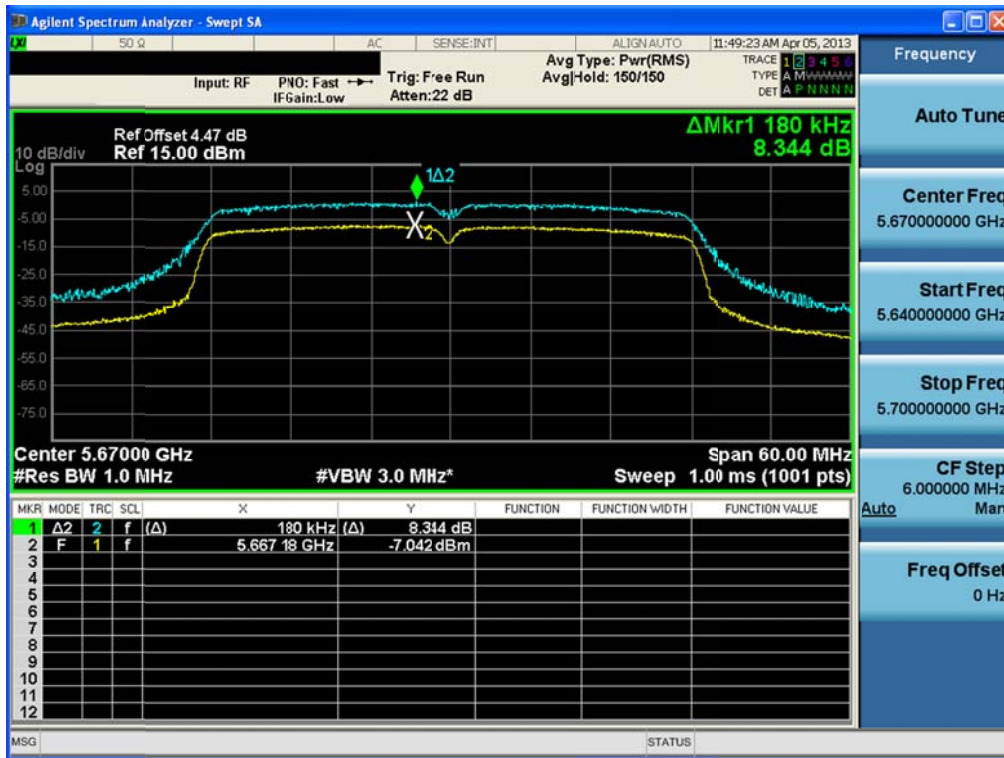
Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.110



Peak Excursion Ratio

Test Mode: Chain 1 & 802.11n HT40 & Ch.134



3.2.5 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 -10°C and +60°C. The temperature was incremented by 10°C 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**

- Measurement Data:

OPERATING FREQUENCY : 5,220,000,000 Hz
 CHANNEL : 44
 REFERENCE VOLTAGE : 7.500 V DC

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation (%)
100%	7.500	+25(Ref)	5,219,987,831	-0.000233
100%		-30	5,220,022,567	0.000432
100%		-20	5,220,018,421	0.000353
100%		-10	5,220,007,564	0.000145
100%		0	5,219,998,023	-0.000038
100%		+10	5,219,995,678	-0.000083
100%		+20	5,219,986,756	-0.000254
100%		+30	5,219,985,564	-0.000277
100%		+40	5,219,982,431	-0.000337
100%		+50	5,219,980,268	-0.000378
100%		+60	5,219,979,345	-0.000396
85%	6.375	+25	5,219,982,567	-0.000334
115%	8.625	+25	5,219,984,356	-0.000300

- Minimum Standard: The emission is maintained within the band of the operation.

- Measurement Data:

OPERATING FREQUENCY : 5,280,000,000Hz
 CHANNEL : 56
 REFERENCE VOLTAGE : 7.500 V DC

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation (%)
100%	7.500	+25(Ref)	5,279,980,232	-0.000374
100%		-30	5,280,016,231	0.000307
100%		-20	5,280,013,723	0.000260
100%		-10	5,280,010,233	0.000194
100%		0	5,280,003,598	0.000068
100%		+10	5,279,996,771	-0.000061
100%		+20	5,279,989,945	-0.000190
100%		+30	5,279,986,558	-0.000255
100%		+40	5,279,981,883	-0.000343
100%		+50	5,279,979,860	-0.000381
100%		+60	5,279,972,356	-0.000524
85%		6.375	+25	5,279,984,221
115%	8.625	+25	5,279,983,989	-0.000303

- Minimum Standard: The emission is maintained within the band of the operation.

- Measurement Data:

OPERATING FREQUENCY : 5,580,000,000 Hz
 CHANNEL : 116
 REFERENCE VOLTAGE : 7.500 V DC

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQ (Hz)	Deviation (%)
100%	7.500	+25(Ref)	5,579,986,244	-0.000247
100%		-30	5,580,015,689	0.000281
100%		-20	5,580,006,682	0.000120
100%		-10	5,580,005,671	0.000102
100%		0	5,580,005,311	0.000095
100%		+10	5,579,998,922	-0.000019
100%		+20	5,579,994,514	-0.000098
100%		+30	5,579,988,542	-0.000205
100%		+40	5,579,982,579	-0.000312
100%		+50	5,579,976,542	-0.000420
100%		+60	5,579,972,260	-0.000497
85%		6.375	+25	5,579,975,664
115%	8.625	+25	5,579,981,548	-0.000331

- Minimum Standard: The emission is maintained within the band of the operation.

3.2.6 Radiated Spurious Emission Measurements

■ TEST PROCEDURE

The EUT was placed on a 0.8m high wooden 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**

● Measurements Below 1000MHz

- a) Follow the requirements in section H)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.

H)3), General Requirements for Unwanted Emissions Measurements. The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

a) 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 (**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 Above 1000MHz(Peak)**

- a) Follow the requirements in section H)3), "General Requirements for Unwanted Emissions Measurements".
- b) Peak emission levels are measured by setting the analyzer as follows:
 - (1) **RBW = 1 MHz.**
 - (2) **VBW ≥ 3 MHz.**
 - (3) **Detector = Peak.**
 - (4) Sweep time = auto.
 - (5) Trace mode = max hold.
 - (6) 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)**

- (1) **RBW = 1 MHz.**
- (2) **VBW ≥ 3 MHz.**
- (3) **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.
- (4) 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.
- (5) Sweep time = auto.
- (6) 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 should be averaged.
- (7) 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.

■ **Minimum Standard:**

• **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	3600 ~ 4400	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	4.5 ~ 5.15	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~	149.9 ~ 150.05	1645.5 ~ 1646.5	5.35 ~ 5.46	17.7 ~ 21.4
4.125 ~ 4.128	12.52025	156.52475 ~	1660 ~ 1710	7.25 ~ 7.75	22.01 ~ 23.12
4.17725 ~ 4.17775	12.57675 ~	156.52525	1718.8 ~ 1722.2	8.025 ~ 8.5	23.6 ~ 24.0
4.20725 ~ 4.20775	12.57725	156.7 ~ 156.9	2200 ~ 2300	9.0 ~ 9.2	31.2 ~ 31.8
6.215 ~ 6.218	13.36 ~ 13.41	162.0125 ~ 167.17	2310 ~ 2390	9.3 ~ 9.5	36.43 ~ 36.5
6.26775 ~ 6.26825	16.42 ~ 16.423	167.72 ~ 173.2	2483.5 ~ 2500	10.6 ~ 12.7	Above 38.6
6.31175 ~ 6.31225	16.69475 ~	240 ~ 285	2655 ~ 2900	13.25 ~ 13.4	
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			
	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)(6) of this section, the peak 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**. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
- (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 5.725-5.825 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 EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (5) The above 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**.

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5180MHz(Ch. 36)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5149.65	H	Y	PK	61.04	2.95	-	-	63.99	74.00	10.01
5149.74	H	Y	AV	47.72	2.95	0.14	-	50.81	54.00	3.19
10359.20	V	Y	PK	59.42	10.29	-	-9.54	60.17	68.20	8.03
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5220MHz(Ch. 44)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10441.27	V	Y	PK	59.52	10.7	-	-9.54	60.68	68.20	7.52
-	-	-	-	-	-	-	-	-	-	-

9KHz ~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5240MHz(Ch. 48)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10478.32	V	Y	PK	58.5	11.1	-	-9.54	60.06	68.20	8.14
-	-	-	-	-	-	-	-	-	-	-

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.14 dB = 10*log(1/0.97) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5260MHz(Ch. 52)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10519.30	V	Y	PK	59.02	10.86	-	-9.54	60.34	68.20	7.86
-	-	-	-	-	-	-	-	-	-	-

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5280MHz(Ch. 56)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10565.35	V	Y	PK	60.1	11.49	-	-9.54	62.05	68.20	6.15
-	-	-	-	-	-	-	-	-	-	-

9KHz ~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5320MHz(Ch. 64)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5350.19	H	Y	PK	57.51	3.27	-	-	60.78	74.00	13.22
5350.10	H	Y	AV	46.24	3.27	0.14	-	49.65	54.00	4.35
10639.83	V	Y	PK	57.1	11.72	-	-9.54	59.28	74.00	14.72
10639.60	V	Y	AV	47.02	11.72	0.14	-9.54	49.34	54.00	4.66
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.14 dB = 10*log(1/0.97) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5500MHz(Ch. 100)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5458.80	H	Y	PK	55.66	3.35	-	-	59.01	74.00	14.99
5459.98	H	Y	AV	46.91	3.35	0.14	-	50.40	54.00	3.60
5469.56	H	Y	PK	57.67	3.33	-	-	61.00	68.20	7.20
10999.75	V	Y	PK	56.45	11.27	-	-9.54	58.18	74.00	15.82
10999.92	V	Y	AV	45.17	11.27	0.14	-9.54	47.04	54.00	6.96

9KHz~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5580MHz(Ch. 116)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11159.93	V	Y	PK	60.87	11.7	-	-9.54	63.03	74.00	10.97
11159.84	V	Y	AV	40.35	11.7	0.14	-9.54	42.65	54.00	11.35

9KHz ~ 40GHz Radiated Spurious Emissions: Chain 0 & 802.11a & 5700MHz(Ch. 140)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5725.24	H	Y	PK	60.15	3.27	-	-	63.42	68.20	4.78
11400.18	V	Y	PK	62.07	12.19	-	-9.54	64.72	74.00	9.28
11399.93	V	Y	AV	48.02	12.19	0.14	-9.54	50.81	54.00	3.19

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.14 dB = 10*log(1/0.97) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9kHz ~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20&5180MHz(Ch. 36)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5149.68	H	Y	PK	57.36	2.95	-	-	60.31	74.00	13.69
5149.61	H	Y	AV	43.21	2.95	0.27	-	46.43	54.00	7.57
10361.70	V	Y	PK	51.35	10.29	-	-9.54	52.10	68.20	16.10
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

9kHz ~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20 &5220MHz(Ch. 44)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10439.45	V	Y	PK	53.02	10.7	-	-9.54	54.18	68.20	14.02
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

9kHz ~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20 & 5240MHz(Ch. 48)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10479.75	V	Y	PK	53.62	11.1	-	-9.54	55.18	68.20	13.02
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.27dB = 20*log(1/0.94)
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20&5260MHz(Ch. 52)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10518.55	V	Y	PK	52.22	10.86	-	-9.54	53.54	68.20	14.66
-	-	-	-	-	-	-	-	-	-	-

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20&5280MHz(Ch. 56)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10559.70	V	Y	PK	51.78	11.49	-	-9.54	53.73	68.20	14.47
-	-	-	-	-	-	-	-	-	-	-

9KHz ~ 40GHz Radiated Spurious Emissions:2TX(Chain 0,1) & 802.11n HT20& 5320MHz(Ch. 64)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5350.30	H	Y	PK	53.68	3.27	-	-	56.95	74.00	17.05
5350.68	H	Y	AV	44.16	3.27	0.27	-	47.70	54.00	6.30
10642.50	V	Y	PK	50.22	11.72	-	-9.54	52.40	74.00	21.60
10641.00	V	Y	AV	39.11	11.72	0.27	-9.54	41.56	54.00	12.44
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Note.

2. This test item was performed in each axis and the worst case data were reported.
3. Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.27 dB = 10*log(1/0.94) for Method AD.
4. Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20&5500MHz(Ch. 100)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBUV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)
5453.45	H	Y	PK	51.51	3.35	-	-	54.86	74.00	19.14
5453.90	H	Y	AV	42.34	3.35	0.27	-	45.96	54.00	8.04
5468.24	H	Y	PK	50.97	3.33	-	-	54.30	68.20	13.90
11001.10	V	Y	PK	53.05	11.27	-	-9.54	54.78	74.00	19.22
11000.90	V	Y	AV	42.14	11.27	0.27	-9.54	44.14	54.00	9.86

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20&5580MHz(Ch. 116)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBUV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)
11158.80	V	Y	PK	48.42	11.7	-	-9.54	50.58	74.00	23.42
11158.05	V	Y	AV	37.39	11.7	0.27	-9.54	39.82	54.00	14.18

9KHz ~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT20& 5700MHz(Ch. 140)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBUV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)
5725.09	H	Y	PK	59.41	3.27	-	-	62.68	68.20	5.52
11400.70	V	Y	PK	60.18	12.19	-	-9.54	62.83	74.00	11.17
11399.40	V	Y	AV	47.56	12.19	0.27	-9.54	50.48	54.00	3.52

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.27 dB = 10*log(1/0.94) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5190MHz(Ch. 38)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5149.92	H	Y	PK	60.23	2.95	-	-	63.18	74.00	10.82
5149.83	H	Y	AV	47.01	2.95	0.32	-	50.28	54.00	3.72
10379.94	V	Y	PK	52.54	10.55	-	-9.54	53.55	68.20	14.65

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5230MHz(Ch. 46)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10459.68	V	Y	PK	51.44	10.83	-	-9.54	52.73	68.20	15.47
-	-	-	-	-	-	-	-	-	-	-

Note.

1. This test item was performed in each axis and the worst case data were reported.
2. Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.32 dB = 10*log(1/0.93) for Method AD.
3. Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5270MHz(Ch. 54)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
10540.12	V	Y	PK	48.72	10.72	-	-9.54	49.90	68.20	18.30
-	-	-	-	-	-	-	-	-	-	-

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5310MHz(Ch. 62)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5350.48	H	Y	PK	56.23	3.27	-	-	59.50	74.00	14.50
5350.29	H	Y	AV	47.33	3.27	0.32	-	50.92	54.00	3.08
10619.93	V	Y	PK	50.24	11.61	-	-9.54	52.31	74.00	21.69
10620.17	V	Y	AV	38.59	11.61	0.32	-9.54	40.98	54.00	13.02

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.32 dB = 10*log(1/0.93) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)

■ **Measurement Data:**

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5510MHz(Ch. 102)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5459.71	H	Y	PK	51.89	3.35	-	-	55.24	74.00	18.76
5459.81	H	Y	AV	41.27	3.35	0.32	-	44.94	74.00	29.06
5468.55	H	Y	PK	57.37	3.33	-	-	60.70	68.20	7.50
11010.80	V	Y	PK	48.6	11.19	-	-9.54	50.25	74.00	23.75
11011.40	V	Y	AV	37.07	11.19	0.32	-9.54	39.04	54.00	14.96

9KHz~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5550MHz(Ch. 110)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
11098.92	V	Y	PK	45.11	11.66	-	-9.54	47.23	74.00	26.77
11098.74	V	Y	AV	35.11	11.66	0.32	-9.54	37.55	54.00	16.45

9KHz ~ 40GHz Radiated Spurious Emissions: 2TX(Chain 0,1) & 802.11n HT40&5670MHz(Ch. 134)

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector	Reading (dBuV)	T.F (dB/m)	DUTY Correction Factor (dB)	Distance Correction Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5725.07	H	Y	PK	50.10	3.27	-	-	53.37	68.20	14.83
11340.20	V	Y	PK	46.82	12.15	-	-9.54	49.43	74.00	24.57
11341.72	V	Y	AV	36.17	12.15	0.32	-9.54	39.10	54.00	14.90

Note.

- This test item was performed in each axis and the worst case data were reported.
- Sample Calculation.
 Margin = Limit – Result
 Result = Reading + T.F + DUTY Correction Factor + Distance Correction Factor
 T.F = AF + CL – AG
 DUTY Correction Factor : 0.32 dB = 10*log(1/0.93) for Method AD.
- Measurement Distance above 10 GHz = 1m. So Distance Correction Factor :-9.54dB = 20*log(1m/3m)