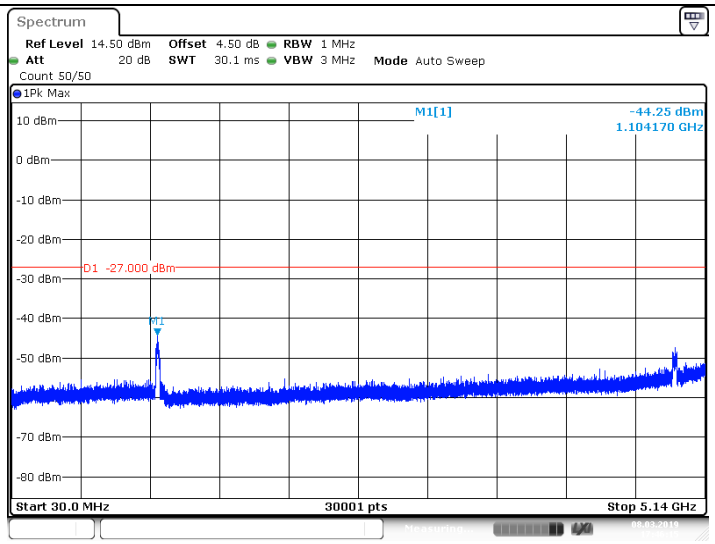
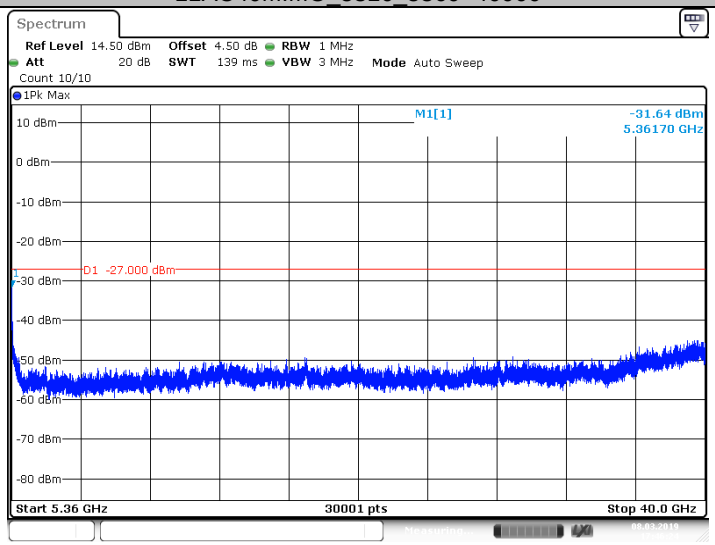
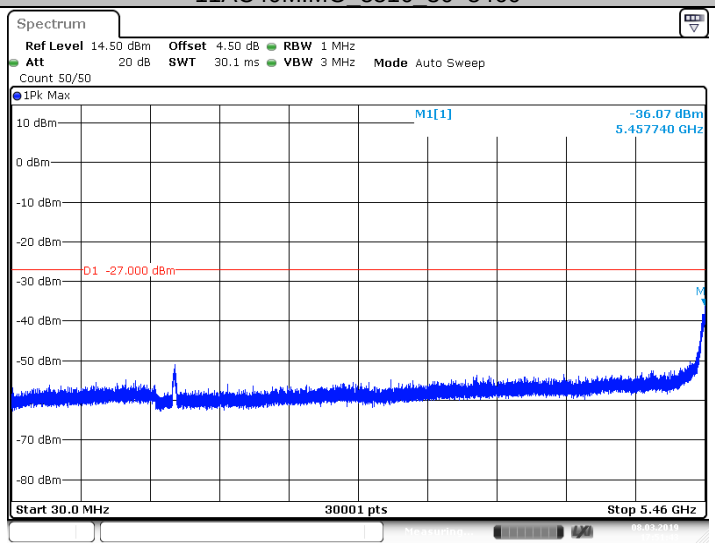


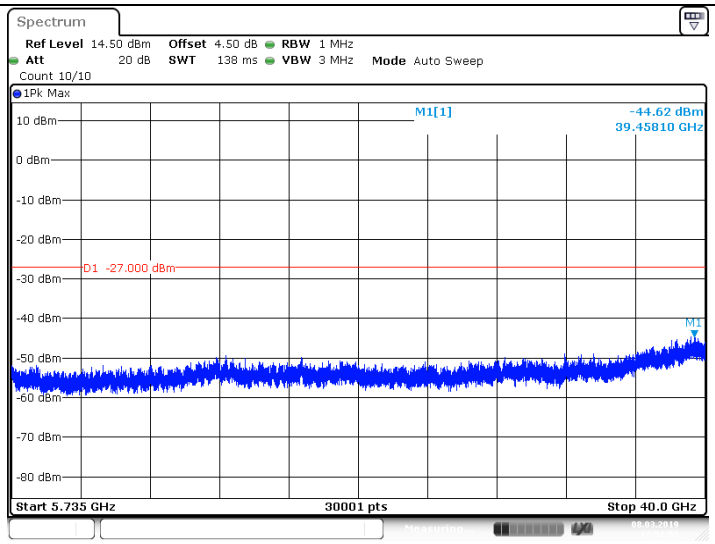
11AC40MIMO_5310_5360~40000



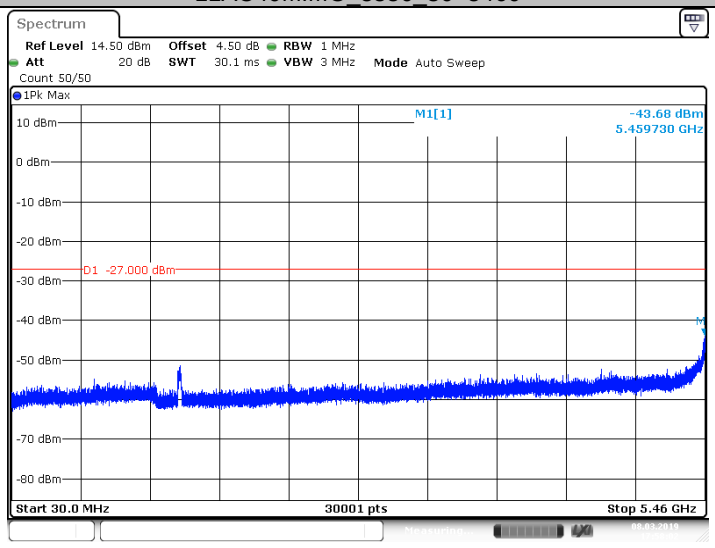
11AC40MIMO_5510_30~5460



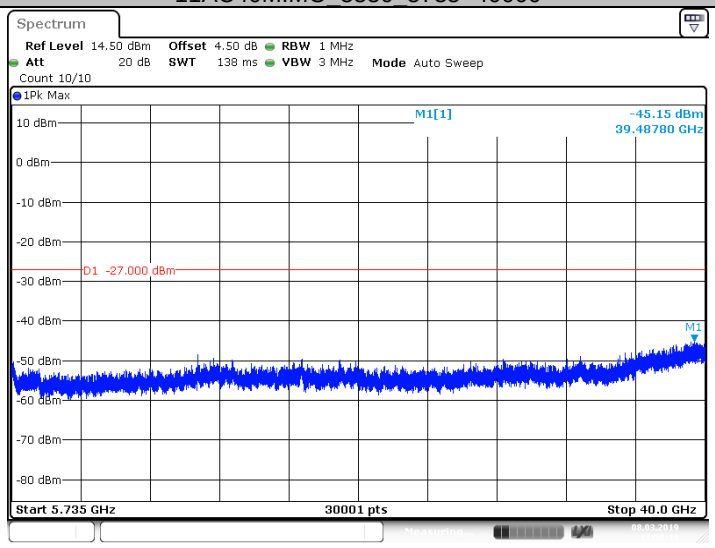
11AC40MIMO_5510_5735~40000



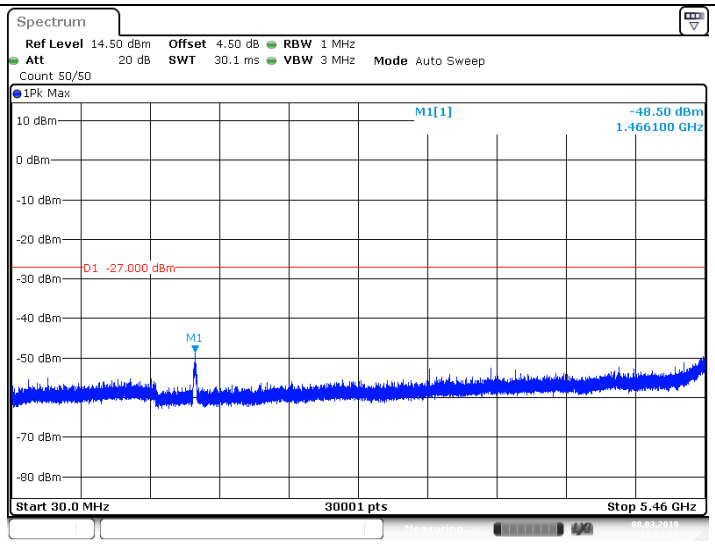
11AC40MIMO_5550_30~5460



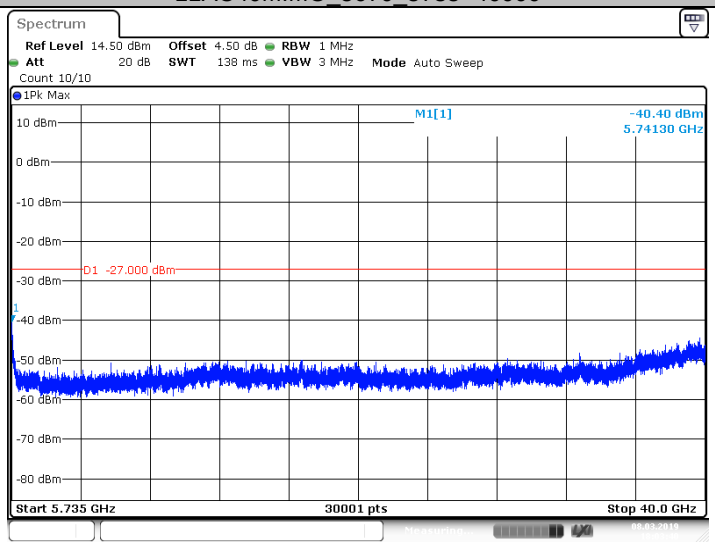
11AC40MIMO_5550_5735~40000



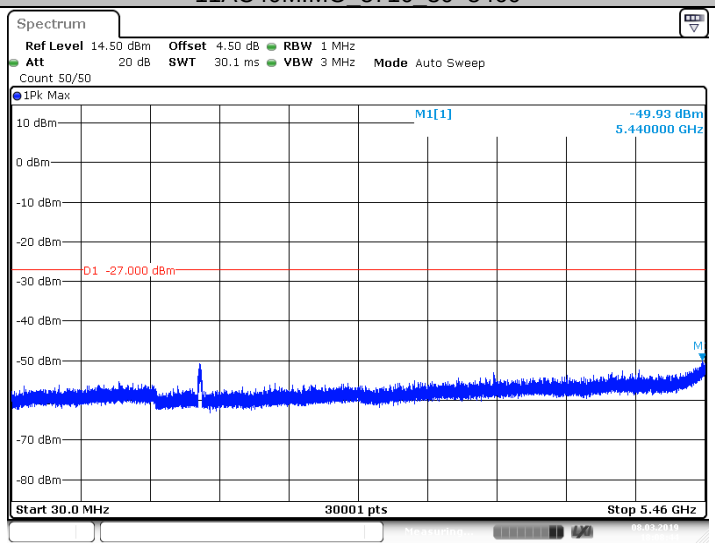
11AC40MIMO_5670_30~5460



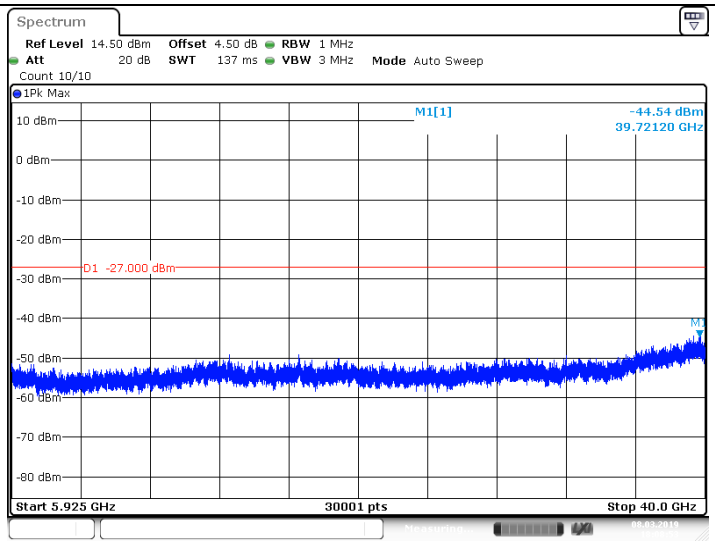
11AC40MIMO_5670_5735~40000



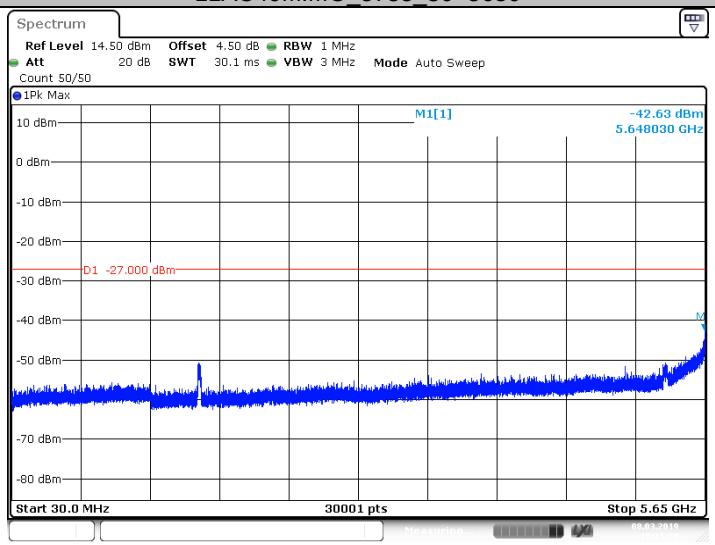
11AC40MIMO_5710_30~5460



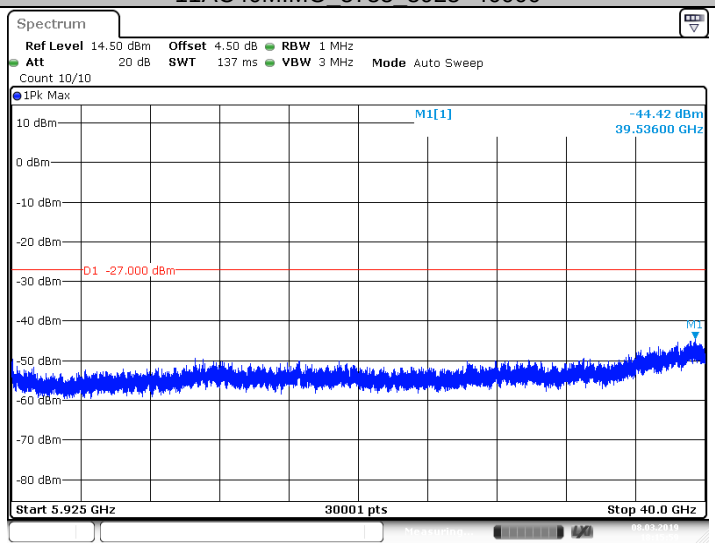
11AC40MIMO_5710_5925~40000



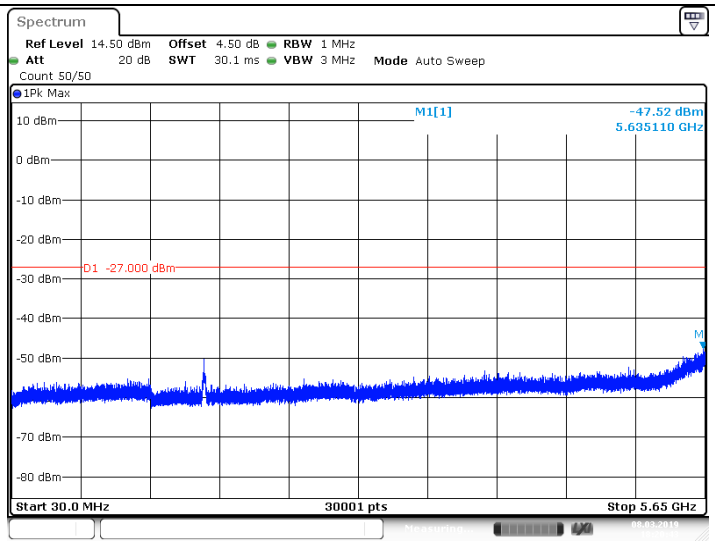
11AC40MIMO_5755_30~5650



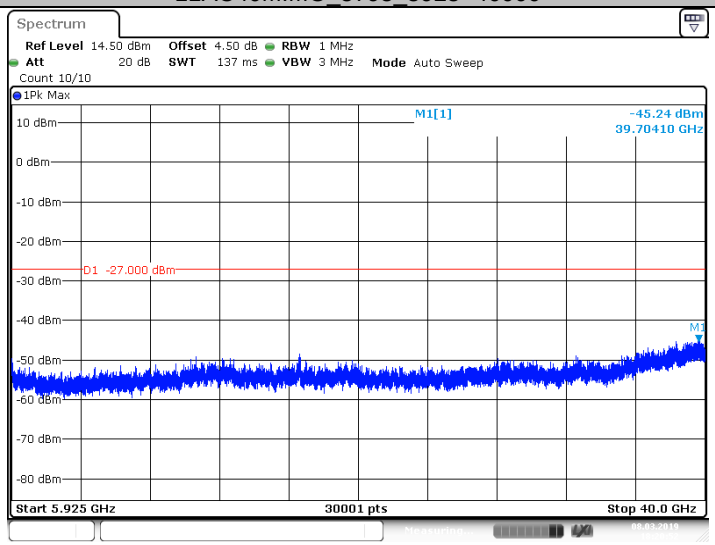
11AC40MIMO_5755_5925~40000



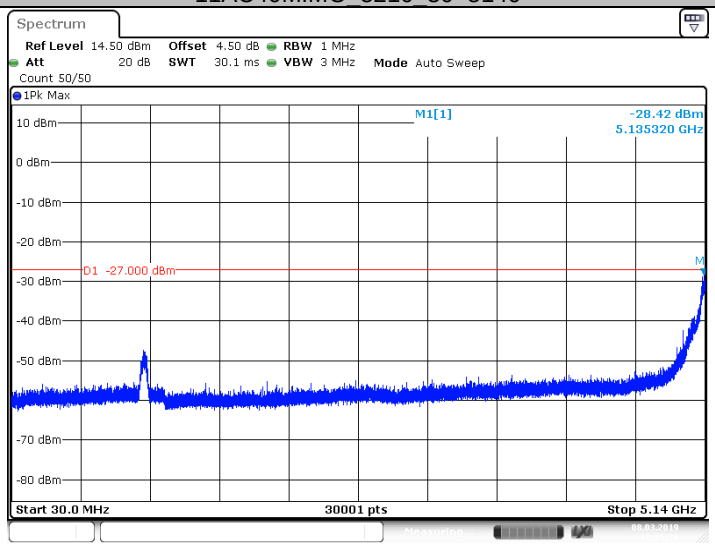
11AC40MIMO_5795_30~5650



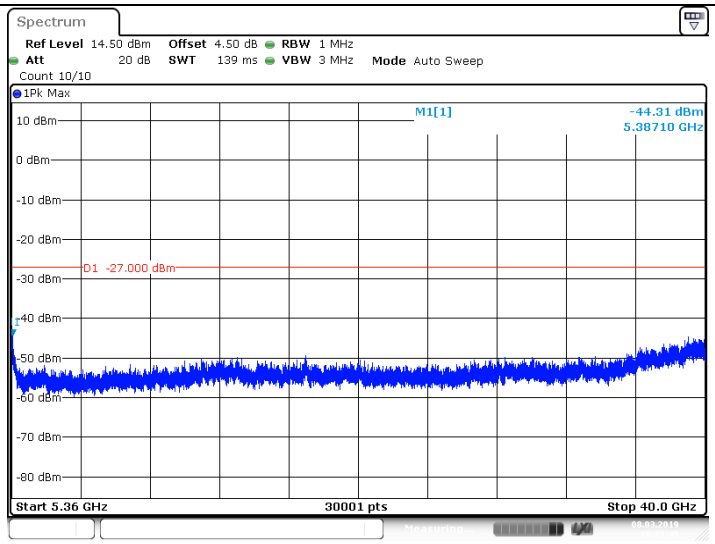
11AC40MIMO_5795_5925~40000



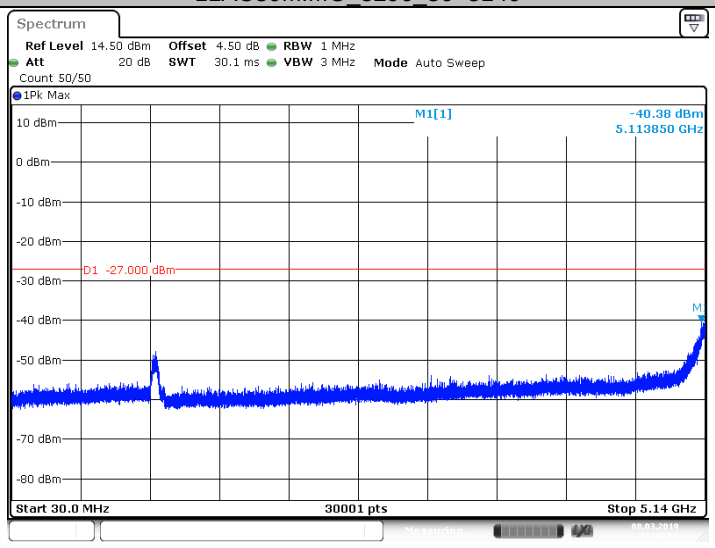
11AC40MIMO_5210_30~5140



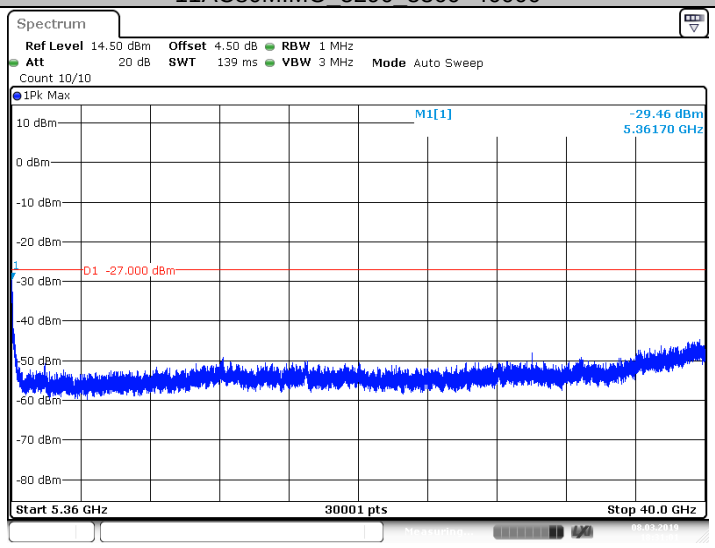
11AC40MIMO_5210_5360~40000



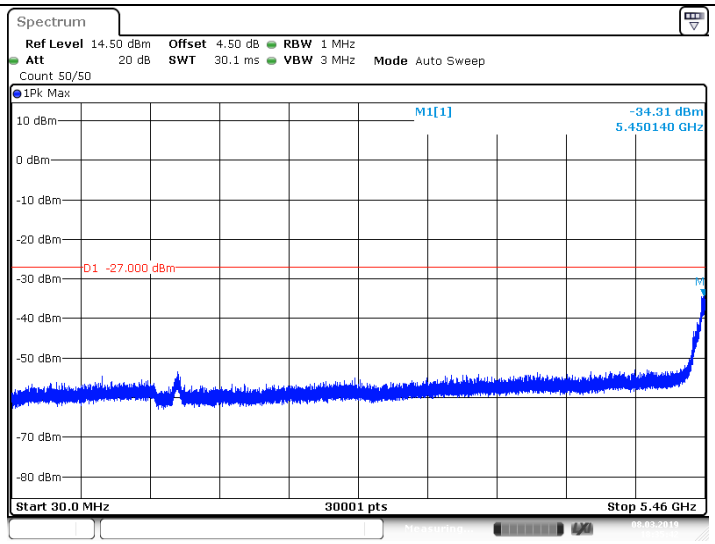
11AC80MIMO_5290_30~5140



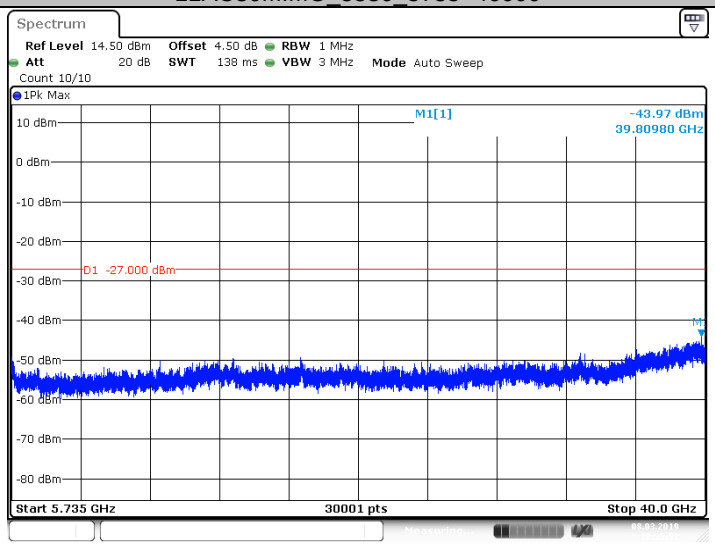
11AC80MIMO_5290_5360~40000



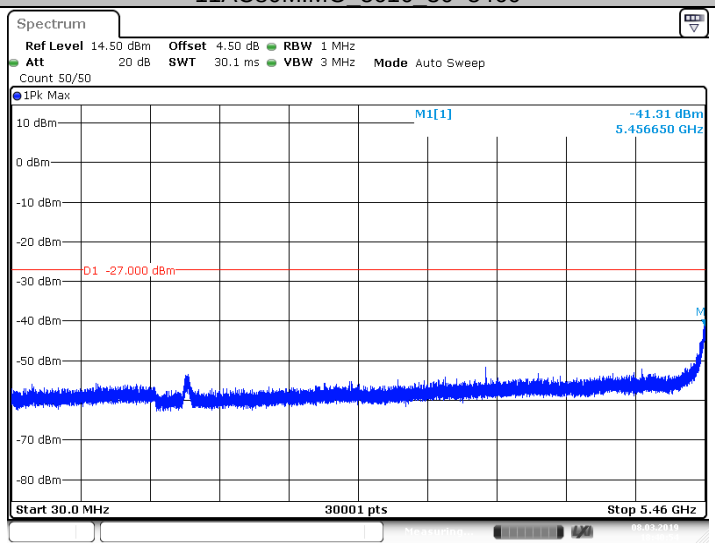
11AC80MIMO_5530_30~5460



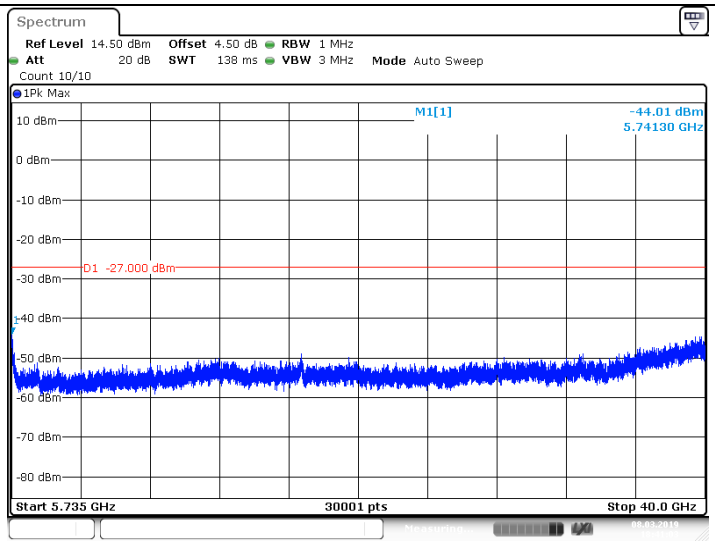
11AC80MIMO_5530_5735~40000



11AC80MIMO_5610_30~5460



11AC80MIMO_5610_5735~40000



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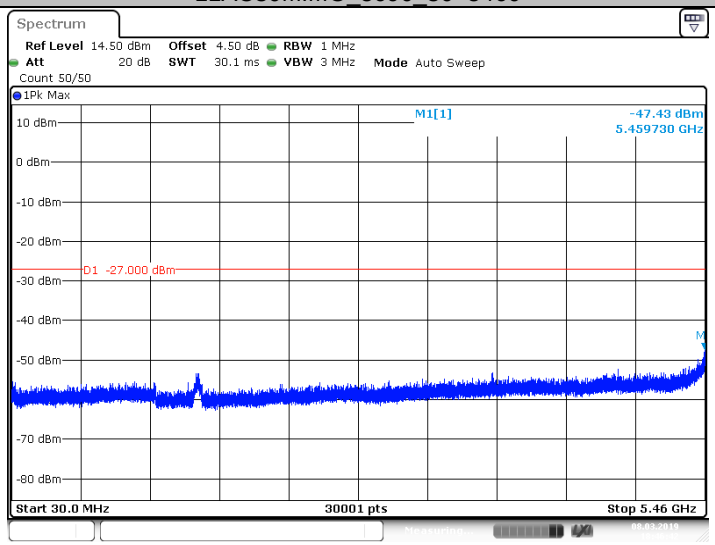
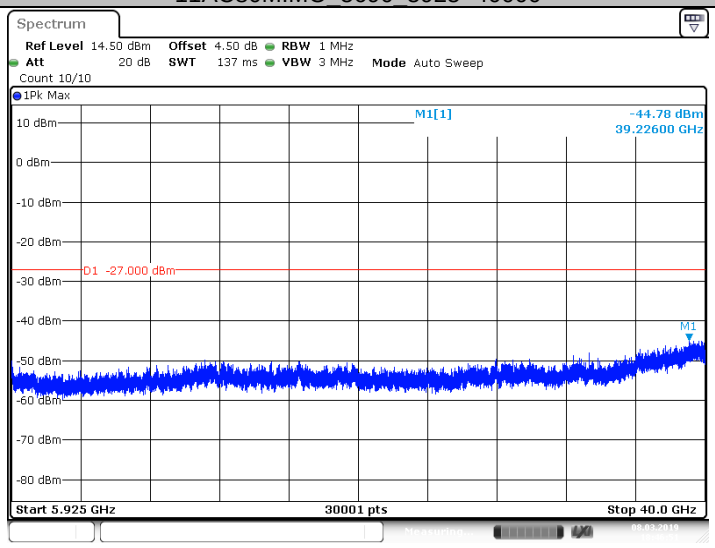
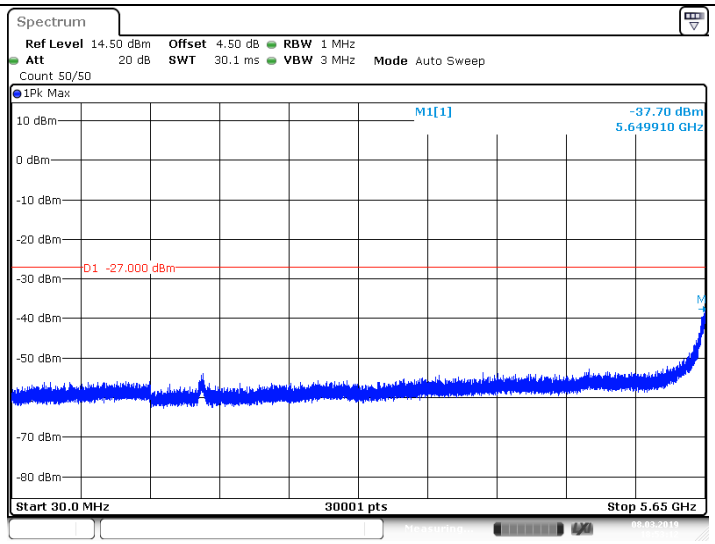


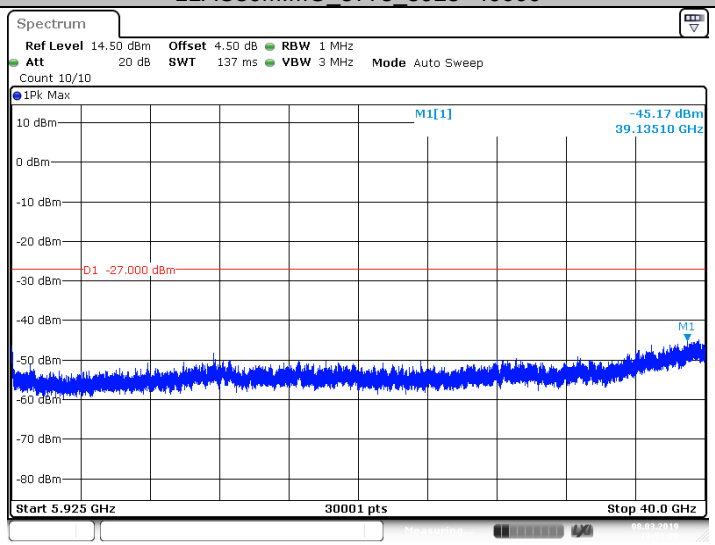
11AC80MIMO_5690_5925~40000



11AC80MIMO_5775_30~5650



11AC80MIMO_5775_5925~40000



Transmitting spurious emission test result as below (Band edge measurements):

Test Mode	Antenna	Channel Name	Channel (MHz)	Result (dBm)	Limit (dBm)	Verdict
11A	Ant0	Low	5180	-41.37	<=-27	PASS
		High	5320	-48.31	<=-27	PASS
		Low	5500	-49.3	<=-27	PASS
		High	5700	-46.42	<=-27	PASS
		Low	5720	-52.87	<=-27	PASS
		High	5720	-52.34	<=-27	PASS
11N20	Ant0	Low	5180	-43.33	<=-27	PASS
		High	5320	-48.17	<=-27	PASS
		Low	5500	-47.62	<=-27	PASS
		High	5700	-45.26	<=-27	PASS
		Low	5720	-53.52	<=-27	PASS
		High	5720	-52.75	<=-27	PASS
11N40	Ant0	Low	5190	-38.31	<=-27	PASS
		High	5310	-34.02	<=-27	PASS
		Low	5510	-37.57	<=-27	PASS
		High	5670	-47.57	<=-27	PASS
		Low	5710	-51.66	<=-27	PASS
		High	5710	-51.37	<=-27	PASS
11AC20	Ant0	Low	5180	-45.87	<=-27	PASS
		High	5320	-47.07	<=-27	PASS
		Low	5500	-46.8	<=-27	PASS
		High	5700	-44.62	<=-27	PASS
		Low	5720	-53.03	<=-27	PASS
		High	5720	-52.47	<=-27	PASS
11AC40	Ant0	Low	5190	-39.68	<=-27	PASS
		High	5310	-34.05	<=-27	PASS
		Low	5510	-37.19	<=-27	PASS
		High	5670	-48.09	<=-27	PASS
		Low	5710	-52.77	<=-27	PASS
		High	5710	-51.52	<=-27	PASS
11AC80	Ant0	Low	5210	-38.92	<=-27	PASS
		High	5290	-37.58	<=-27	PASS
		Low	5530	-40.84	<=-27	PASS
		High	5610	-50.2	<=-27	PASS
		Low	5690	-51.86	<=-27	PASS
		High	5690	-48.59	<=-27	PASS

Test Mode	Antenna	Channel Name	Channel (MHz)	Frequency Range (MHz)	Result (dBm)	Limit (dBm)	Verdict
11A	Ant0	Low	5745	5650~5700	-51.85	10.00	PASS
				5700~5720	-45.66	15.51	PASS
				5720~5725	-38.85	26.24	PASS
				5760~5650	-54.06	-27	PASS
		High	5825	5850~5855	-48.63	16.69	PASS
				5855~5875	-49.9	10.43	PASS
				5875~5925	-51.68	-26.04	PASS
				5925~5935	-52.59	-27	PASS
11N20	Ant0	Low	5745	5650~5700	-50.83	8.64	PASS
				5700~5720	-45.88	15.18	PASS
				5720~5725	-37.72	27.00	PASS
				5760~5650	-54.46	-27	PASS
		High	5825	5850~5855	-46.58	15.80	PASS
				5855~5875	-48.18	10.43	PASS
				5875~5925	-51.54	-18.36	PASS
				5925~5935	-52.74	-27	PASS
11N40	Ant0	Low	5755	5650~5700	-50.25	8.10	PASS
				5700~5720	-33.93	14.92	PASS
				5720~5725	-32.34	21.25	PASS
				5780~5650	-53.36	-27	PASS

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		High	5795	5850~5855	-51.31	26.21	PASS
				5855~5875	-51.84	11.44	PASS
				5875~5925	-53.23	-26.66	PASS
				5925~5935	-53.75	-27	PASS
11AC20	Ant0	Low	5745	5650~5700	-51.51	0.26	PASS
				5700~5720	-43.05	15.60	PASS
				5720~5725	-39.07	26.62	PASS
				5760~5650	-54.24	-27	PASS
		High	5825	5850~5855	-46.27	16.25	PASS
				5855~5875	-49.72	11.31	PASS
				5875~5925	-50.95	-18.51	PASS
				5925~5935	-52.22	-27	PASS
11AC40	Ant0	Low	5755	5650~5700	-49.17	8.54	PASS
				5700~5720	-33.56	14.87	PASS
				5720~5725	-33.37	21.25	PASS
				5780~5650	-53.42	-27	PASS
		High	5795	5850~5855	-51.39	16.94	PASS
				5855~5875	-50.64	14.19	PASS
				5875~5925	-52.52	-20.82	PASS
				5925~5935	-53.98	-27	PASS
11AC80	Ant0	Low	5775	5650~5700	-43.63	6.70	PASS
				5700~5720	-39.88	13.60	PASS
				5720~5725	-40.41	26.93	PASS
				5800~5650	-52.98	-27	PASS
		High	5775	5850~5855	-44.49	16.84	PASS
				5855~5875	-44.76	10.18	PASS
				5875~5925	-49.76	-9.19	PASS
				5925~5935	-49.46	-27	PASS

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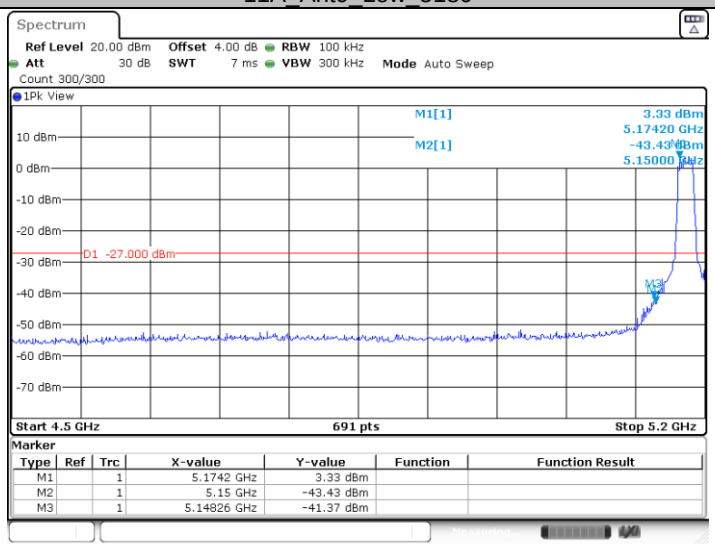
11A_Ant0_Low_5180



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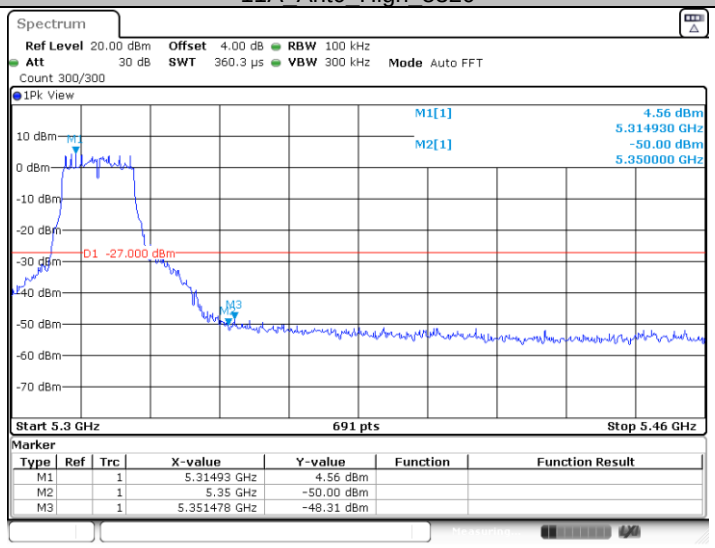
11A_Ant0_High_5320



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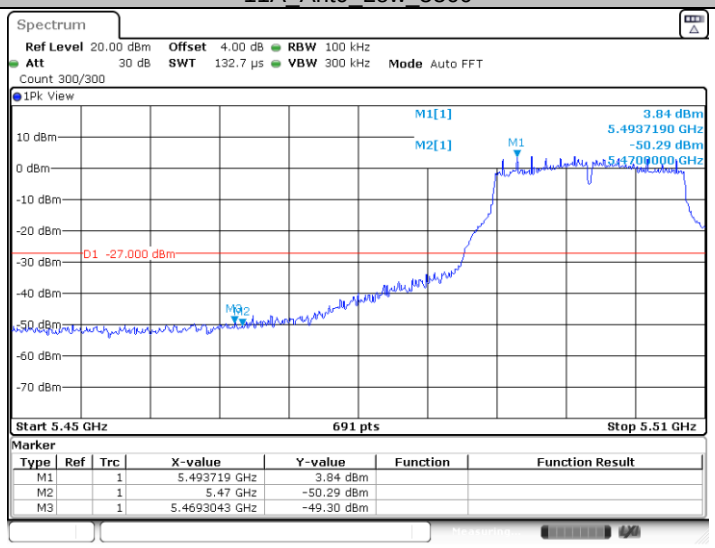
11A_Ant0_Low_5500



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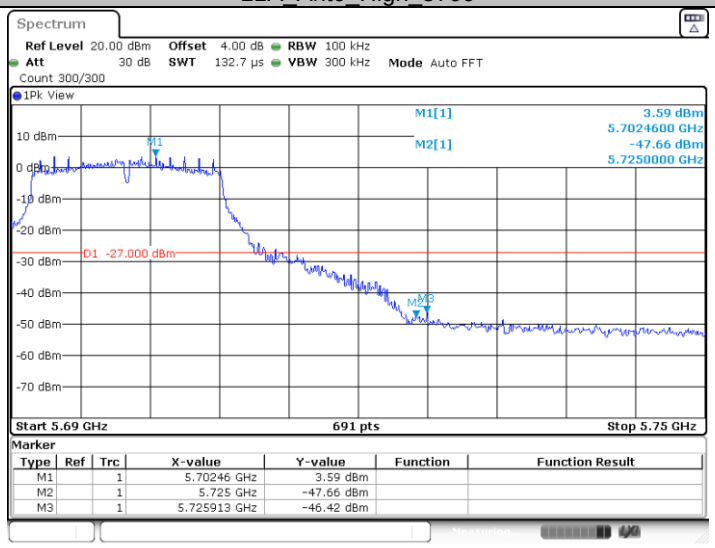
11A_Ant0_High_5700



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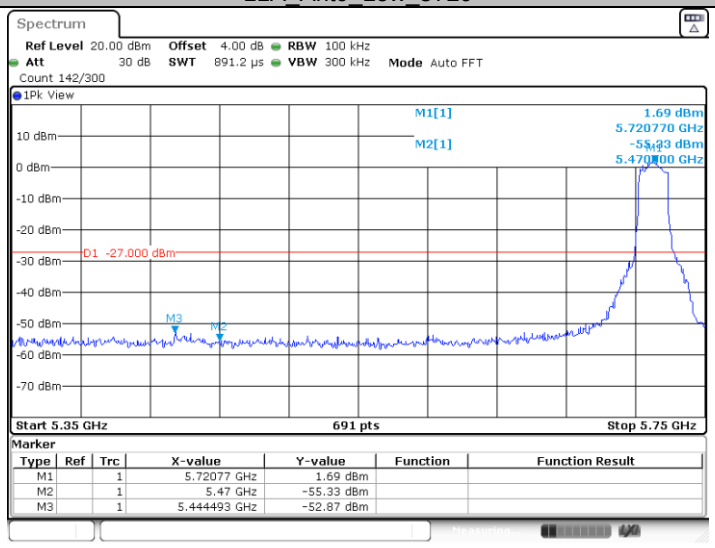
11A_Ant0_Low_5720



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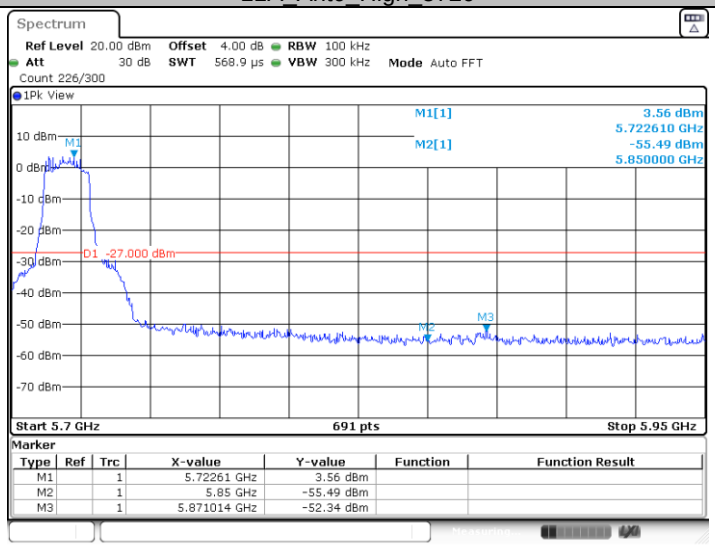
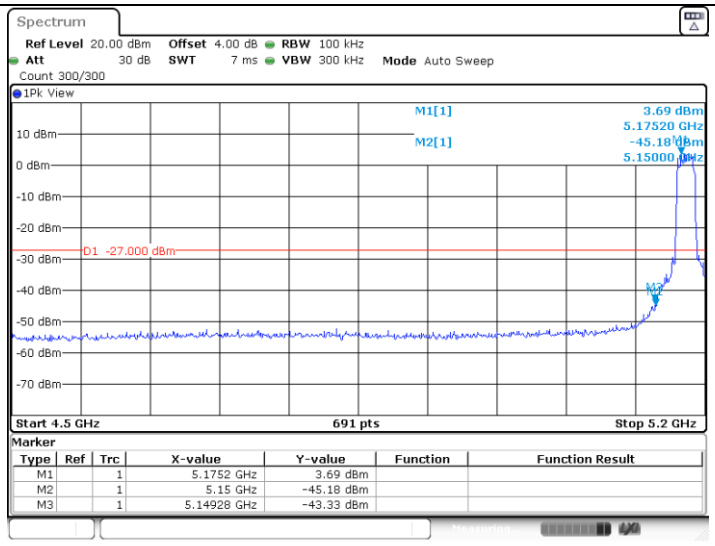
11A_Ant0_High_5720

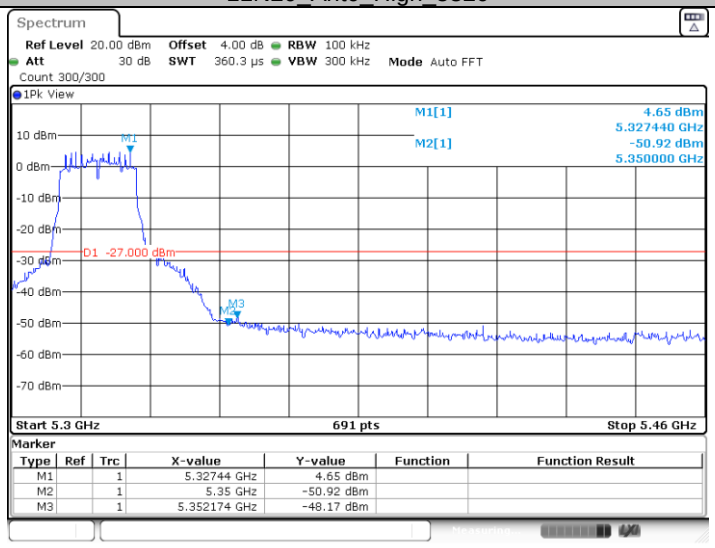


Date: 15.MAY.2022 14:25:43

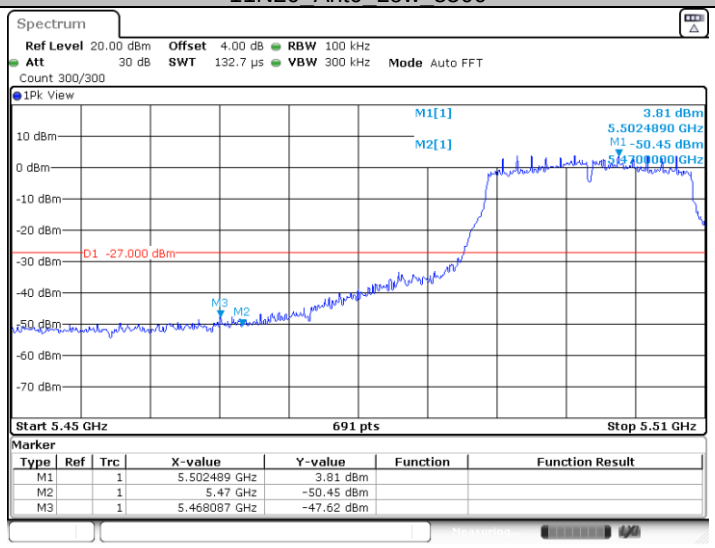
11N20_Ant0_Low_5180



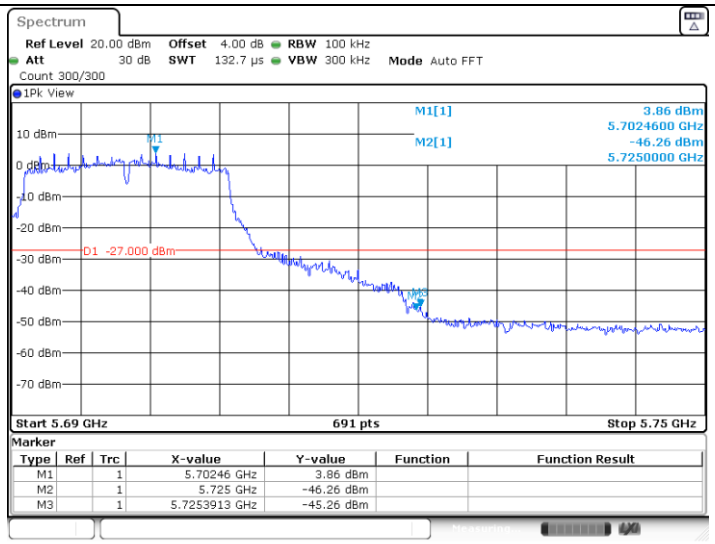
11N20_Ant0_High_5320



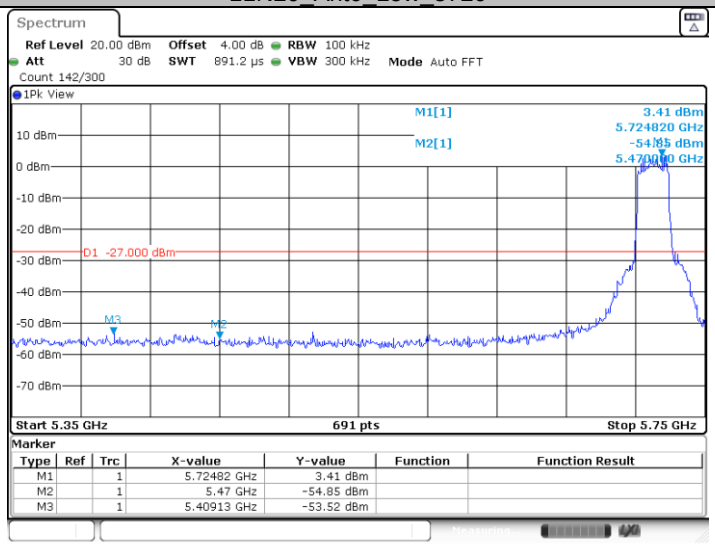
11N20_Ant0_Low_5500



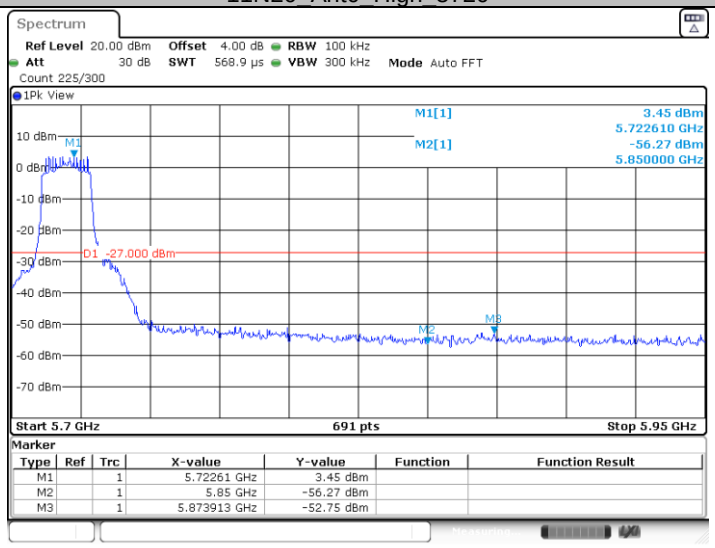
11N20_Ant0_High_5700



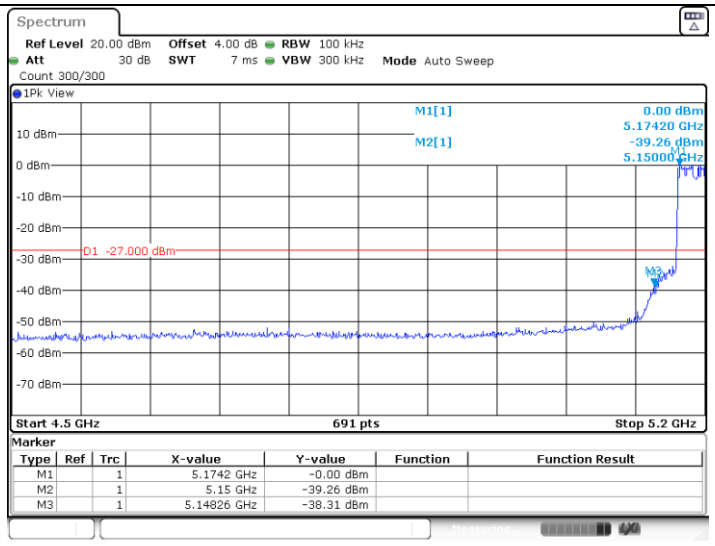
11N20_Ant0_Low_5720



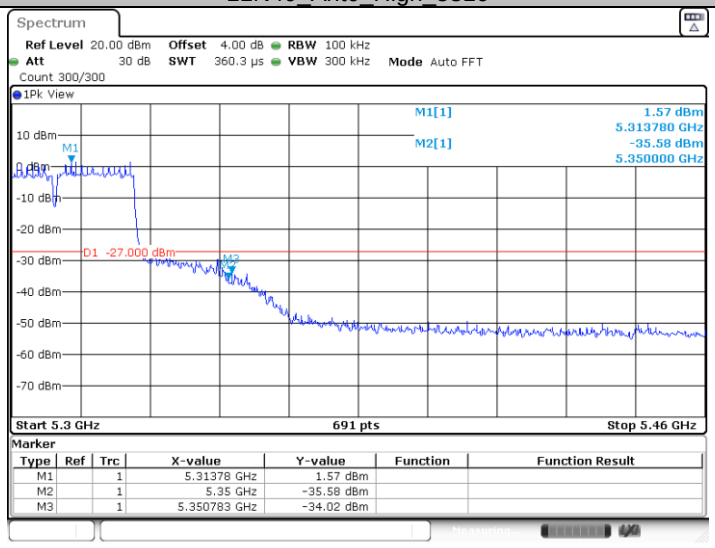
11N20_Ant0_High_5720



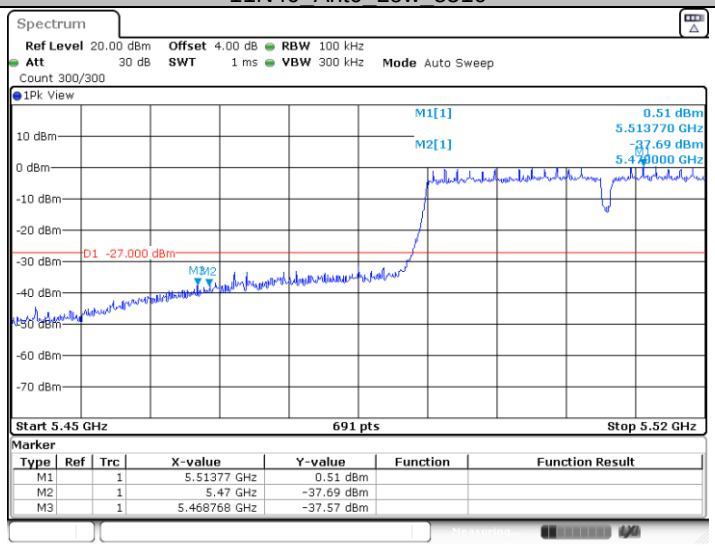
11N40_Ant0_Low_5190



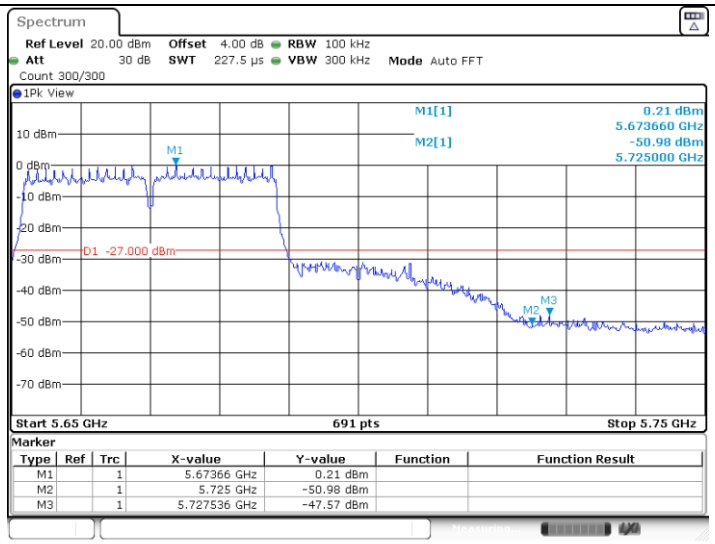
11N40_Ant0_High_5310



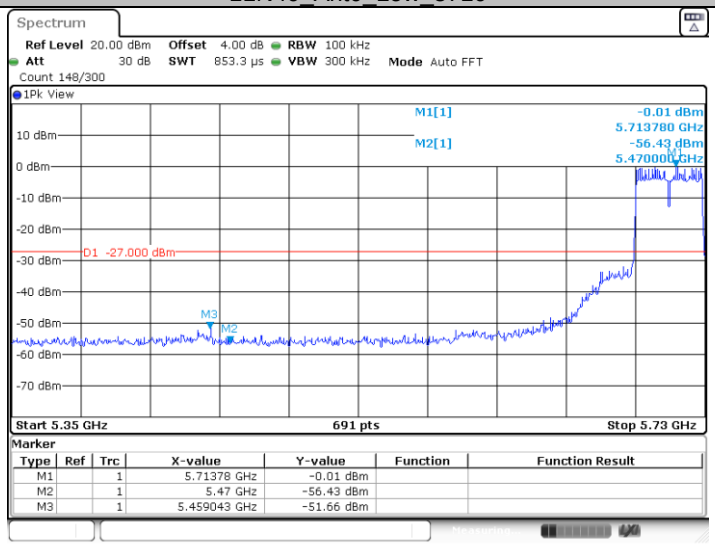
11N40_Ant0_Low_5510



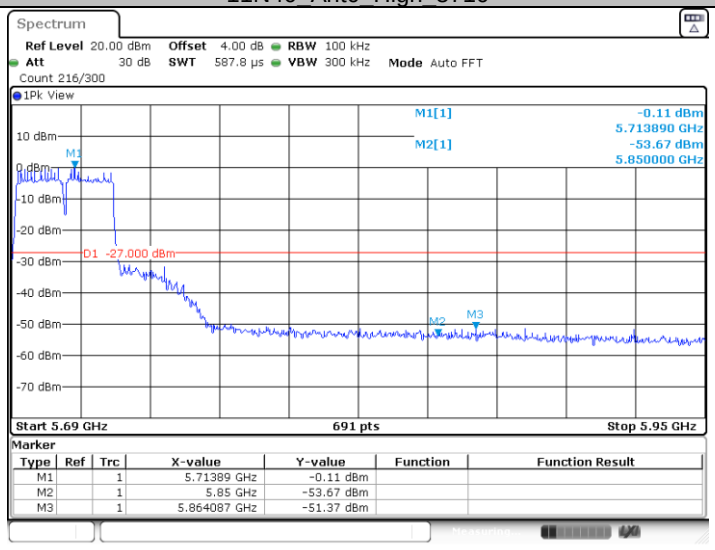
11N40_Ant0_High_5670



11N40_Ant0_Low_5710



11N40_Ant0_High_5710



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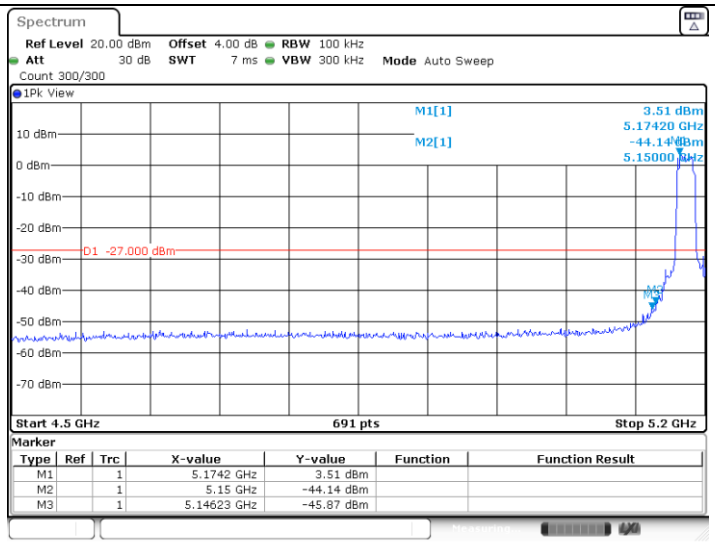

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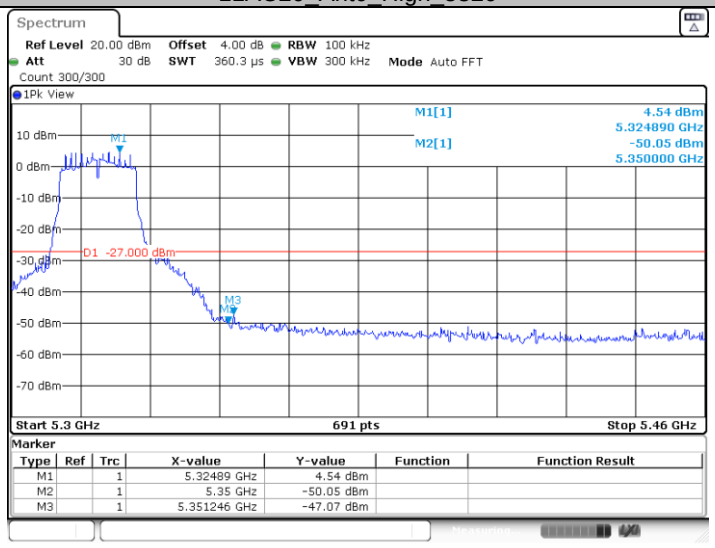

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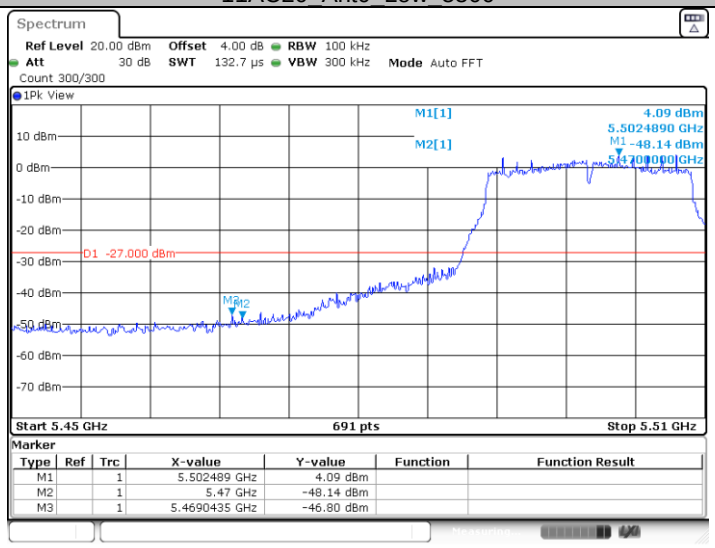

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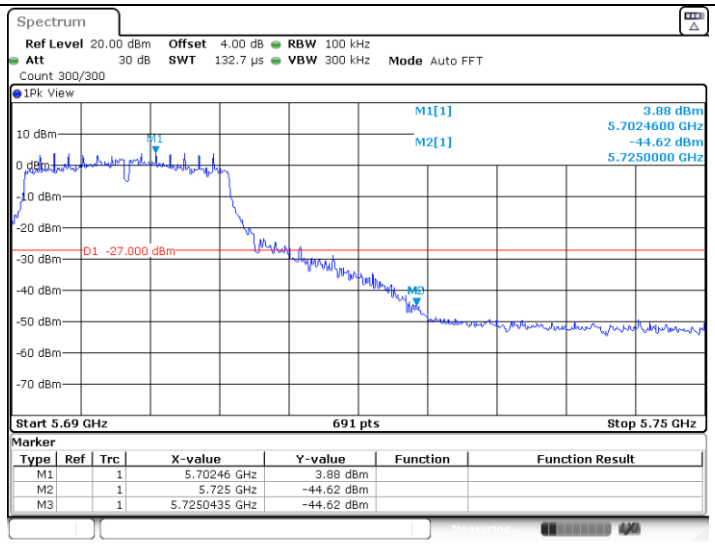

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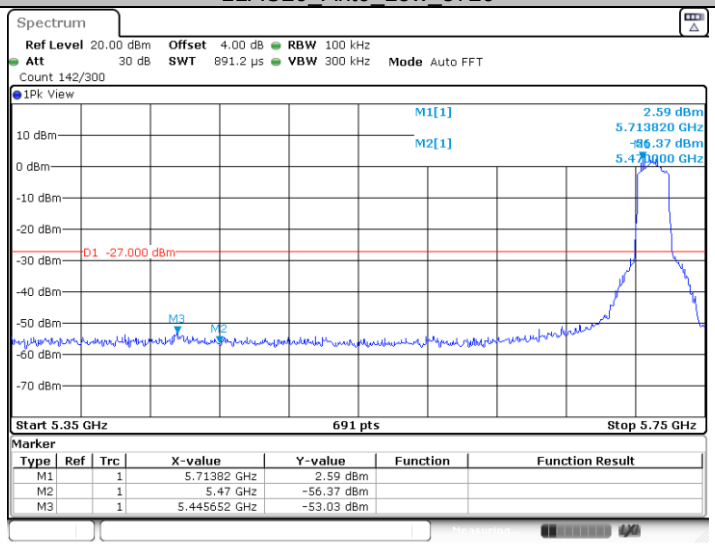

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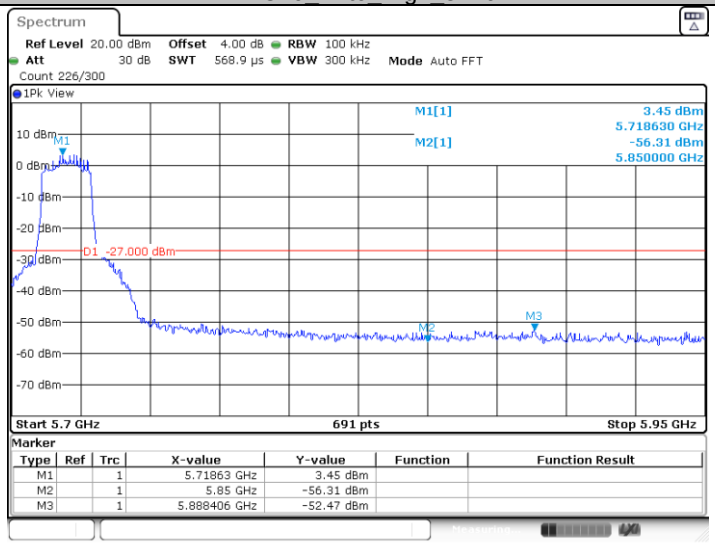
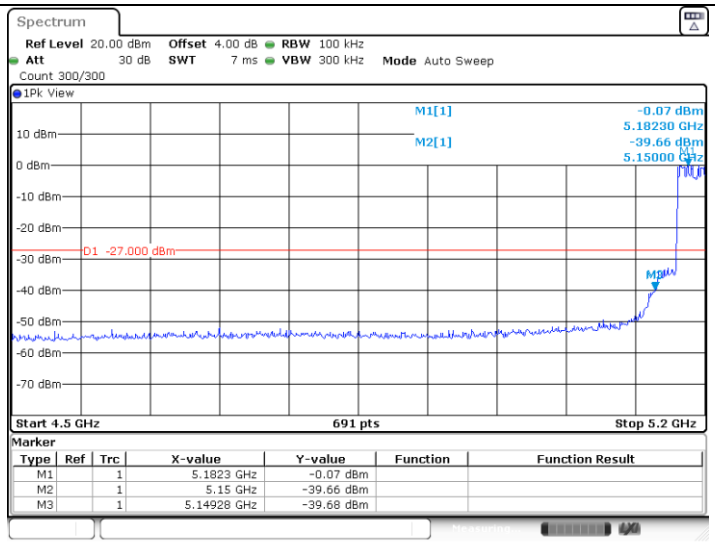


11AC40_Ant0_Low_5190



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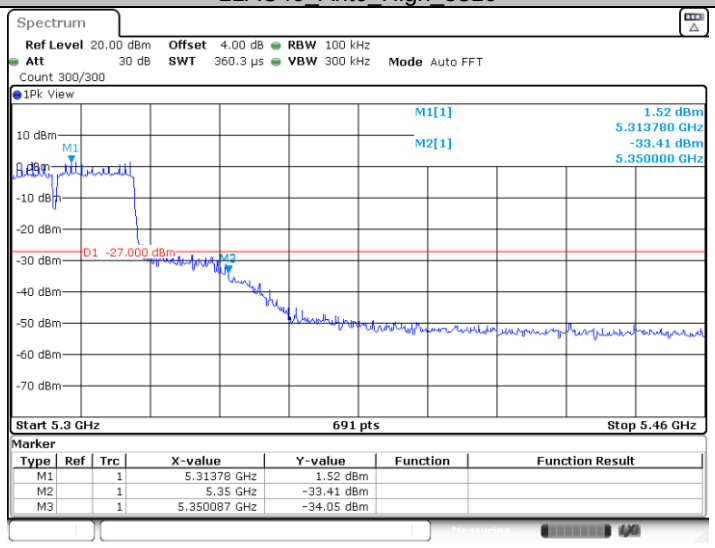

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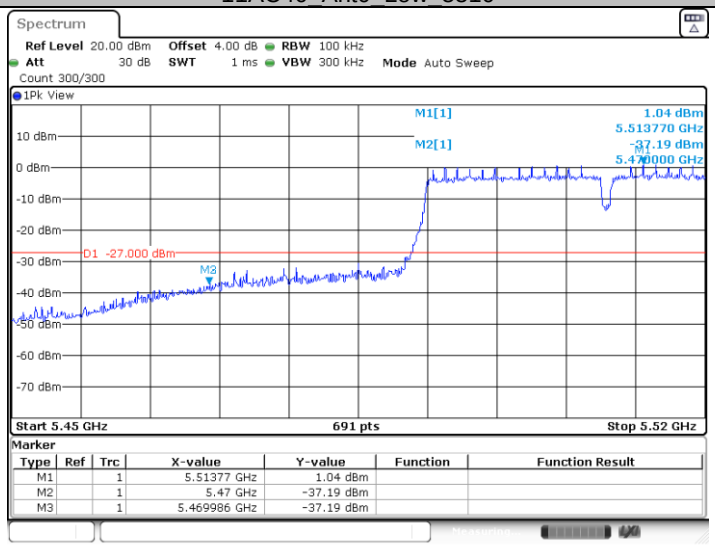

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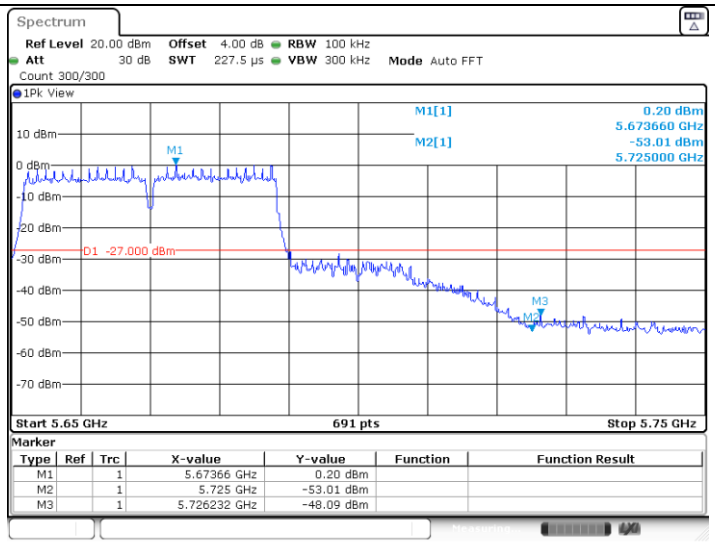

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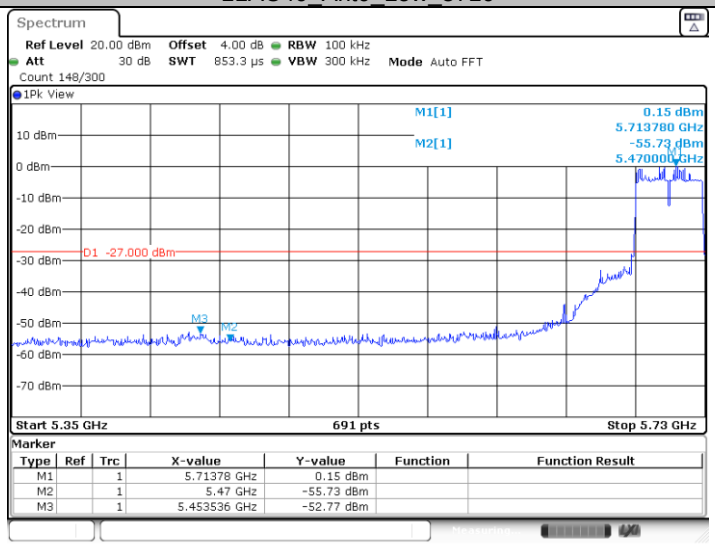
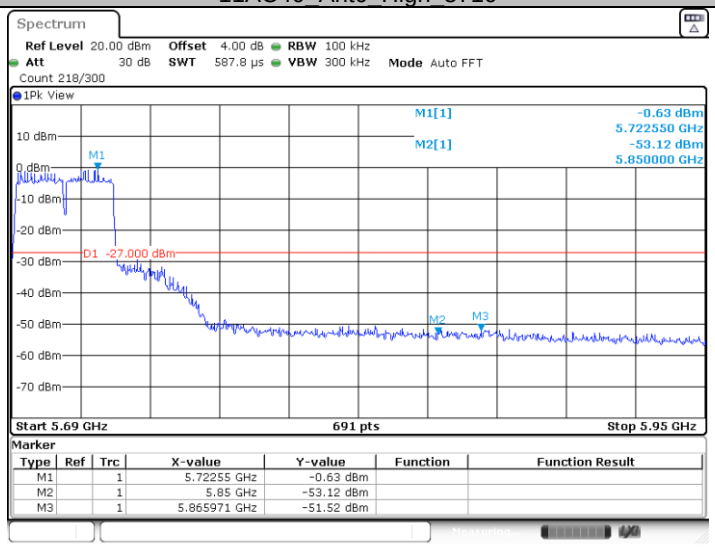
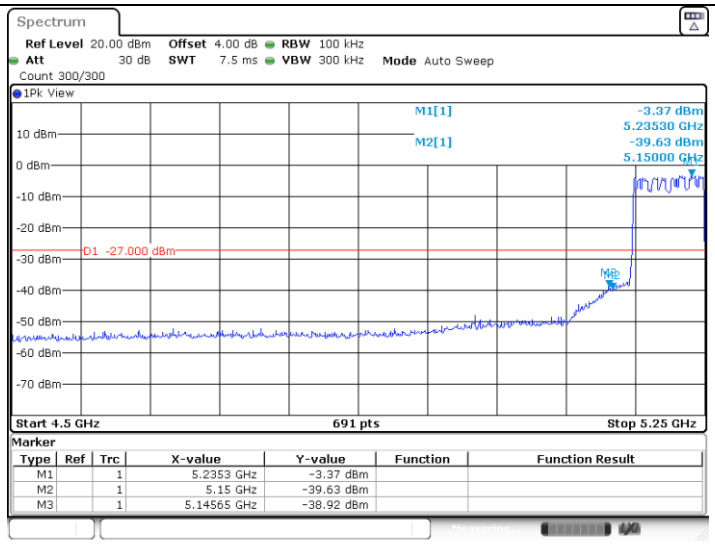


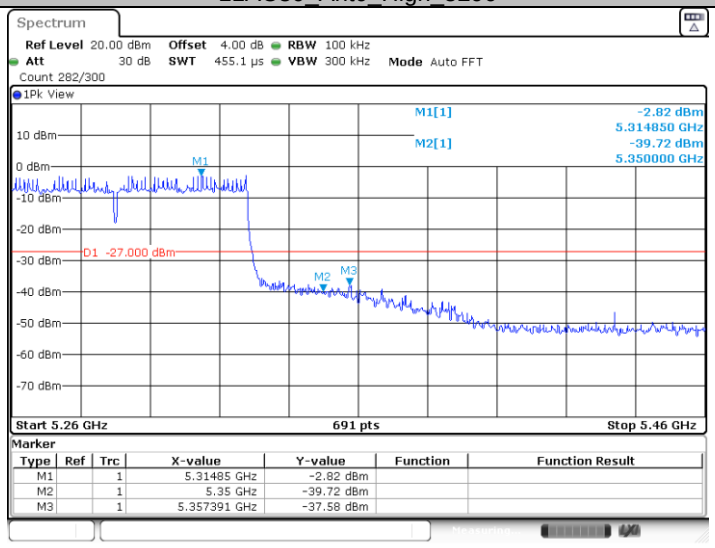
11AC40_Ant0_High_5710



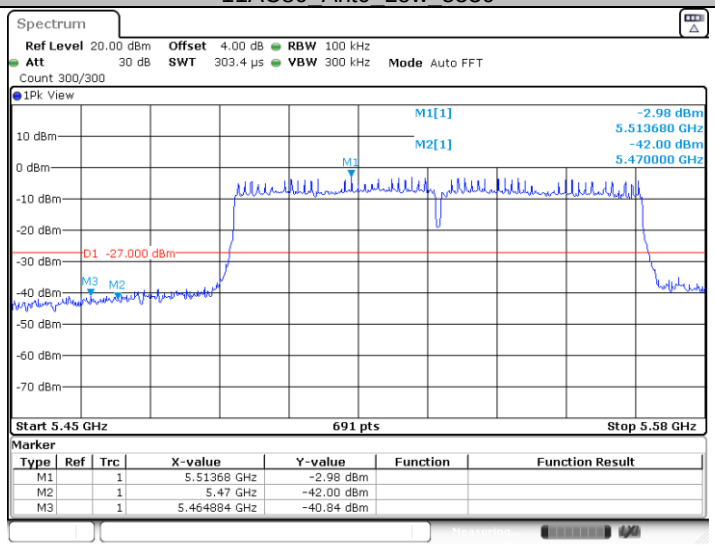
11AC80_Ant0_Low_5210



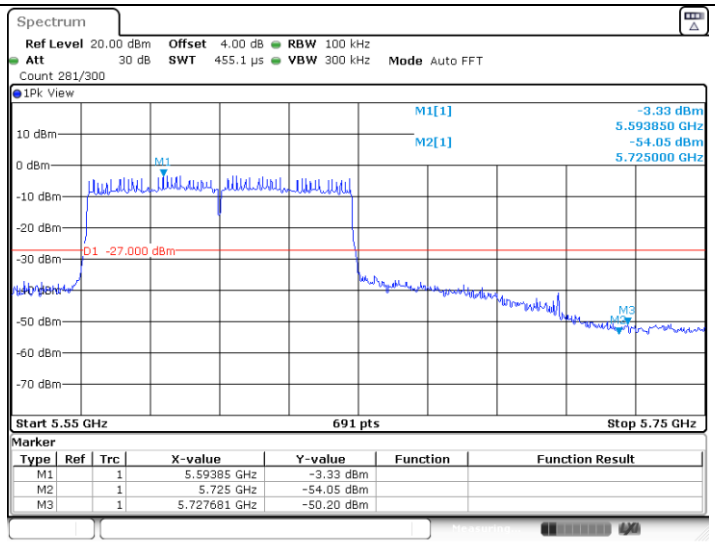
11AC80_Ant0_High_5290



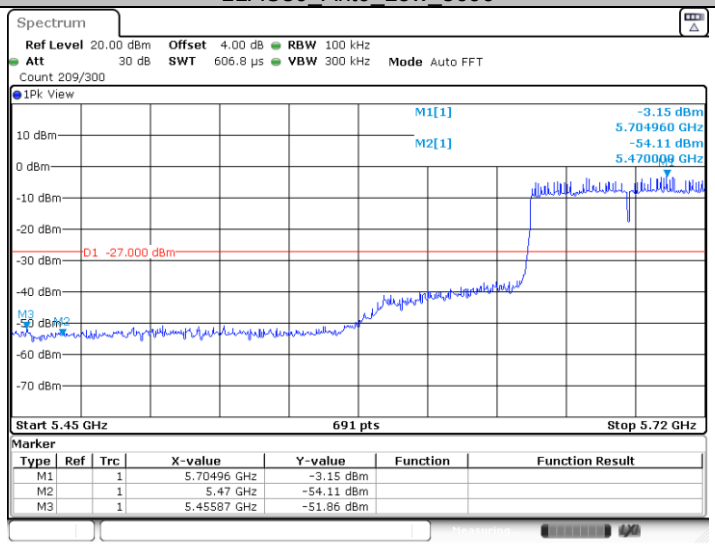
11AC80_Ant0_Low_5530



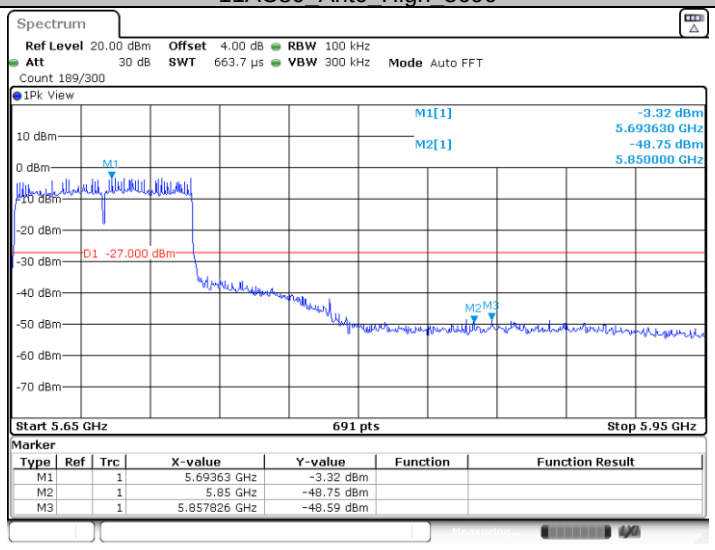
11AC80_Ant0_High_5610



11AC80_Ant0_Low_5690



11AC80_Ant0_High_5690



Transmitting spurious emission test result as below (Radiated Mode):

Test Method

1. The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3meter chamber room for test. The table was
   rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned
5. Use the following spectrum analyzer settings According to C63.10:
   For Above 1GHz
   Span = wide enough to capture the peak level of the in-band emission and all spurious
   RBW = 1MHz, VBW≥RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.
   For Below 1GHz
   Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious
   RBW = 100 KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function =
   peak, Trace = max hold.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (20log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

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Limit

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 e.i.r.p. of −27 dBm/MHz.
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 e.i.r.p. of −27 dBm/MHz.
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 e.i.r.p. of −27 dBm/MHz.
For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Radiated emissions which fall in the restricted bands, as defined in section15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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Transmitting spurious emission test result as below:

802.11ac80 Modulation 5210MHz Test Result

Frequency	Corr. Factor	Emission Level	Read level	Polarization	Limit	Margin	Detector	Result
MHz	dB	dBuV/m	dBuV/m		dBµV/m	dB		
42.340556	19.88	20.82	0.94	Horizontal	40.00	19.18	QP	Pass
72.464444	16.08	20.48	4.4	Horizontal	40.00	19.52	QP	Pass
124.251667	16.10	20.67	4.57	Horizontal	43.50	22.83	QP	Pass
198.510556	19.13	21.37	2.24	Horizontal	43.50	22.13	QP	Pass
327.305000	21.74	26.61	4.87	Horizontal	46.00	19.39	QP	Pass
724.627778	28.73	33.46	4.73	Horizontal	46.00	12.54	QP	Pass
Other frequency	---	---	---	Horizontal	---	---	QP	Pass
30.053889	17.36	33.08	15.72	Vertical	40.00	6.92	QP	Pass
36.574444	18.02	25.23	7.21	Vertical	40.00	14.77	QP	Pass
67.129444	17.99	29.03	11.04	Vertical	40.00	10.97	QP	Pass
76.236667	14.62	27.85	13.23	Vertical	40.00	12.15	QP	Pass
85.236111	14.90	28.93	14.03	Vertical	40.00	11.07	QP	Pass
126.622778	15.71	28.05	12.34	Vertical	43.50	15.45	QP	Pass
Other frequency	---	---	---	Vertical	---	---	QP	Pass
2796.00	-3.73	47.05	50.78	Horizontal	74	31.95	PK	Pass
4222.00	2.69	42.55	39.86	Horizontal	74	25.72	PK	Pass
*5150	4.94	55.35	50.41	Horizontal	74	18.65	PK	Pass
*5150	4.94	43.12	38.18	Horizontal	54	10.88	AV	Pass
*5350	2.3	---	---	Horizontal	74	---	PK	Pass
*5460	3.2	---	---	Horizontal	74	---	PK	Pass
Other Frequency (1000-7000)	---	---	---	Horizontal	74	---	PK	Pass
7000-40000	---	---	---	Horizontal	74	---	PK	Pass
2221.50	-5.98	42.69	48.67	Vertical	74	31.31	PK	Pass
2819.00	-3.54	42.19	45.73	Vertical	74	31.81	PK	Pass
*5150	4.63	46.81	42.18	Vertical	74	27.19	PK	Pass
*5350	2.3	---	---	Vertical	74	---	PK	Pass
*5460	2.8	---	---	Vertical	74	---	PK	Pass
Other Frequency (1000-7000)	---	---	---	Vertical	74	---	PK	Pass
7000-40000	---	---	---	Vertical	74	---	PK	Pass

Remark:
1, Corrected Amplitude = Read level + Corrector factor
Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
2, "*" means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.
We test all modes and only the worst case (802.11ac80 modulation 5210MHz Channel) recorded in the report.
Testing is carried out with frequency rang 9KHz to 40GHz, which below 30MHz and data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 30dB below the permissible limits or the field strength is too small to be measured.
3, According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

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9.6 Duty Cycle

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Use the following spectrum analyzer settings:
   Span = 0, RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize. Mark the OFF time and ON time. and the duty cycle is T_{on} / T_{on}+T_{off}
4. Repeat above procedures until all frequencies measured were complete.

Test Mode	Antenna	Channel (MHz)	Duty Cycle [%]
11A	Ant0	5180	93.18
		5200	93.27
		5240	93.19
		5260	93.27
		5280	93.27
		5320	93.27
		5500	93.27
		5580	93.27
		5700	93.27
		5720	93.27
		5745	93.27
		5785	93.27
		5825	93.19
11N20	Ant0	5180	92.84
		5200	92.76
		5240	92.84
		5260	92.75
		5280	92.76
		5320	92.84
		5500	92.84
		5580	92.84
		5700	92.75
		5720	92.76
		5745	92.84
		5785	92.76
		5825	92.84
11N40	Ant0	5190	86.51
		5230	86.53
		5270	86.36
		5310	86.53
		5510	86.36
		5550	86.53
		5670	86.36
		5710	86.36
		5755	86.53
		5795	86.36
11AC20	Ant0	5180	92.89
		5200	92.88
		5240	92.80
		5260	92.88
		5280	92.89
		5320	92.80
		5500	92.80
		5580	92.80
		5700	92.80
		5720	92.80

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		5745	92.80
		5785	92.80
		5825	92.80
11AC40	Ant0	5190	86.67
		5230	86.50
		5270	86.50
		5310	86.67
		5510	86.67
		5550	86.50
		5670	86.52
		5710	86.67
		5755	86.52
		5795	86.50
11AC80	Ant0	5210	75.96
		5290	75.89
		5530	75.96
		5610	75.89
		5690	75.96
		5775	75.96

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9.7 Frequencies Stability

Test Method:

1, Frequency stability with respect to ambient temperature

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn on the EUT and tune it to one of the number of frequency shown in section 8.
b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT, or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.
c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level
d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit
e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize
f) While maintaining a control on the chamber to the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.
g) Measure the frequency at each of frequency specified in section 8.
h) Switch OFF the EUT but do not switch OFF the oscillator heater.
i) Lower the chamber temperature by not more that -30℃, and allow the temperature inside the chamber to stabilize.
j) Repeat step f) through step i) down to the lowest specified temperature.

2, Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature. An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.
b) Turn the EUT to one of the number if frequencies required in Section8. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level.
c) Measure the frequency at each of the frequencies specified in section 8.
d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limit: It is required that that the emissions are maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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Frequency Error vs. Voltage:

Test Conditions	Measured Frequency (MHz)
	5180
V nom(V)	5180.0335
V max(V)	5180.0453
V min(V)	5180.0236
Max. Deviation Frequency	0.0453
Max. Frequency Error (ppm)	8.75

Frequency Error vs. Temperature:

Test Conditions (°C)	Measured Frequency (MHz)
	5180
-30	5180.0451
-20	5180.0466
-10	5180.0462
0	5180.0461
10	5180.0455
20	5180.0455
30	5180.0458
40	5180.0442
50	5180.0433
60	5180.0421
70	5180.0458
85	5180.0469
Max. Deviation Frequency	0.0469
Max. Frequency Error (ppm)	9.05

Frequency Error vs. Voltage:

Test Conditions	Measured Frequency (MHz)
	5500
V nom(V)	5500.0532
V max(V)	5500.0436
V min(V)	5500.0489
Max. Deviation Frequency	0.0532
Max. Frequency Error (ppm)	9.67

Frequency Error vs. Temperature:

Test Conditions (°C)	Measured Frequency (MHz)
	5500
-30	5500.0438
-20	5500.0455
-10	5500.0469
0	5500.0412
10	5500.0498
20	5500.0521
30	5500.0511
40	5500.0467
50	5500.0459
60	5500.0429
70	5500.0498
85	5500.0521

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Max. Deviation Frequency	0.0521
Max. Frequency Error (ppm)	9.47

Frequency Error vs. Voltage:

Test Conditions	Measured Frequency (MHz)
	5745
V nom(V)	5745.0632
V max(V)	5745.0378
V min(V)	5745.0532
Max. Deviation Frequency	0.0632
Max. Frequency Error (ppm)	11.0

Frequency Error vs. Temperature:

Test Conditions (°C)	Measured Frequency (MHz)
	5745
-30	5745.0362
-20	5745.0431
-10	5745.0468
0	5745.0397
10	5745.0231
20	5745.0159
30	5745.0368
40	5745.0446
50	5745.0458
60	5745.0511
70	5745.0462
85	5745.0589
Max. Deviation Frequency	0.0589
Max. Frequency Error (ppm)	10.3

Remark 1: V min(V) = 85% of the nominal supply voltage
V max(V)=115% of the nominal supply voltage
Remark 2: we test all frequencies which specified in section 8 and only show these representative frequencies.

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9.8 Dynamic Frequency Selection (DFS)

1、General Test Condition

Parameters of EUT	
Frequency	5250-5350MHz & 5470-5725MHz
Operational Mode	Slave
Modulation	OFDM
Channel Bandwidth	20MHz, 40MHz, 80MHz

Note: This device was functioned as a Slave device with Radar Detection during the DFS declared by the manufacturer.

2、Test Requirement

The manufacturer shall whether the EUT is capable of operating as a master and a client. Declare the EUT is capable of operating in more than one operating mode then each operating mode shall be tested separately.

DFS Applicability During Normal Operation

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Yes	Not required
Uniform Spreading	Yes	Yes	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Requirement	Operational Mode		

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3、Test Limited

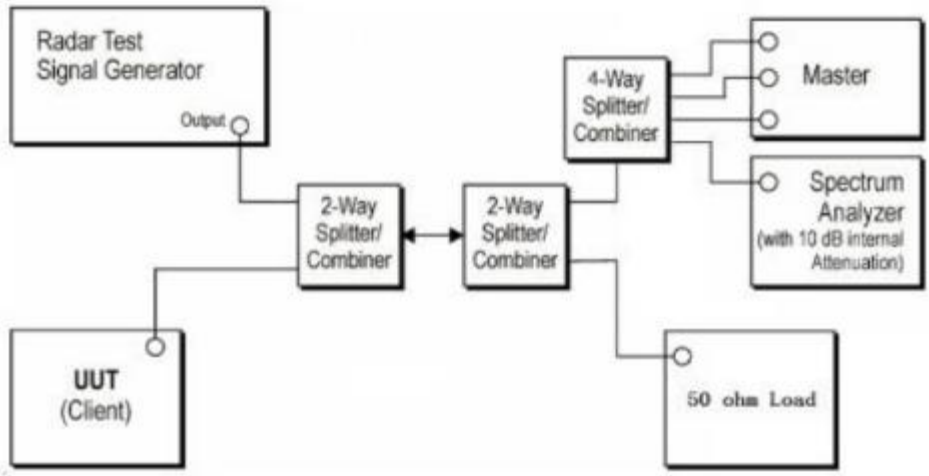
According to KDB 905462 D02 Table 4 DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. **Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

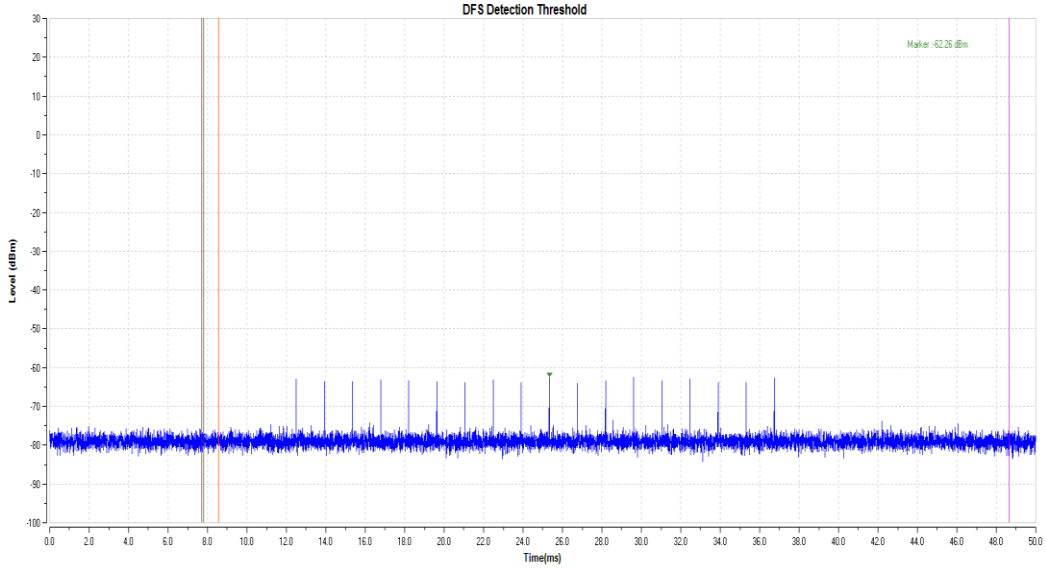
4、Calibration of Radar Waveform

(1) A 50ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master.
(2) The interference Radar Detection Threshold Level is -62dBm+3.7dB+1.5dB=-55.8dBm that had been taken into account the output power range and antenna gain.
(3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3MHz. The spectrum analyzer had offset -1.5dB to compensate RF cable loss 1.5dB.
(4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was -62dBm+3.7dB+1.5dB=-55.8dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

Conducted Calibration Setup:



Radar Waveform Calibration result:



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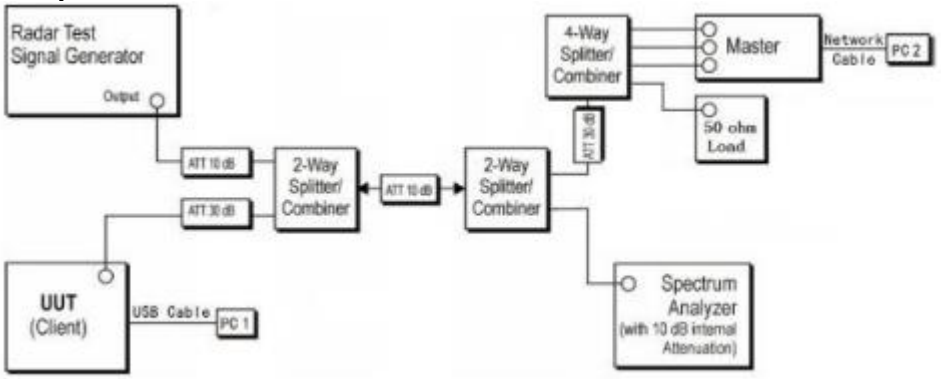
Channel Closing Transmission Time, Channel Move Time and Non-Occupancy Period.

Block Diagram of test setup test procedure.

(1) The Radar Pulse generator is setup to provide a pulse at frequency that the master and client are operating, A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
(2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -55.8dBm at the antenna of the master device.
(3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
(4) EUT will associate with the master at channel. The file “iperf.exe” specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using test software in order to properly load the network for the entire period of the test.
(5) When radar burst with a Level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection threshold +1dB.
(6) Observer the transmissions of the EUT at the end of the radar Burst on the Operating channel. Measure and record the transmissions form the UUT during The observation time (channel move time). One 15 seconds plot is reported for the short pulse radar type 0. The plot for the short pulse radar burst. The channel move time will be calculated based on the zoom in 600ms plot of the short pulse radar type.
(7) Measurement of the aggregate duration of the channel closed transmission time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (3.0)=S(12000ms)/B(4000); where dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of channel closing transmission time is calculated by: C(ms)=N X Dwell (0.3ms); where C is the closing time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and dwell is the dwell time per bin.
(8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Test Setup:

Setup for client with injection at the master.



5、Test Result

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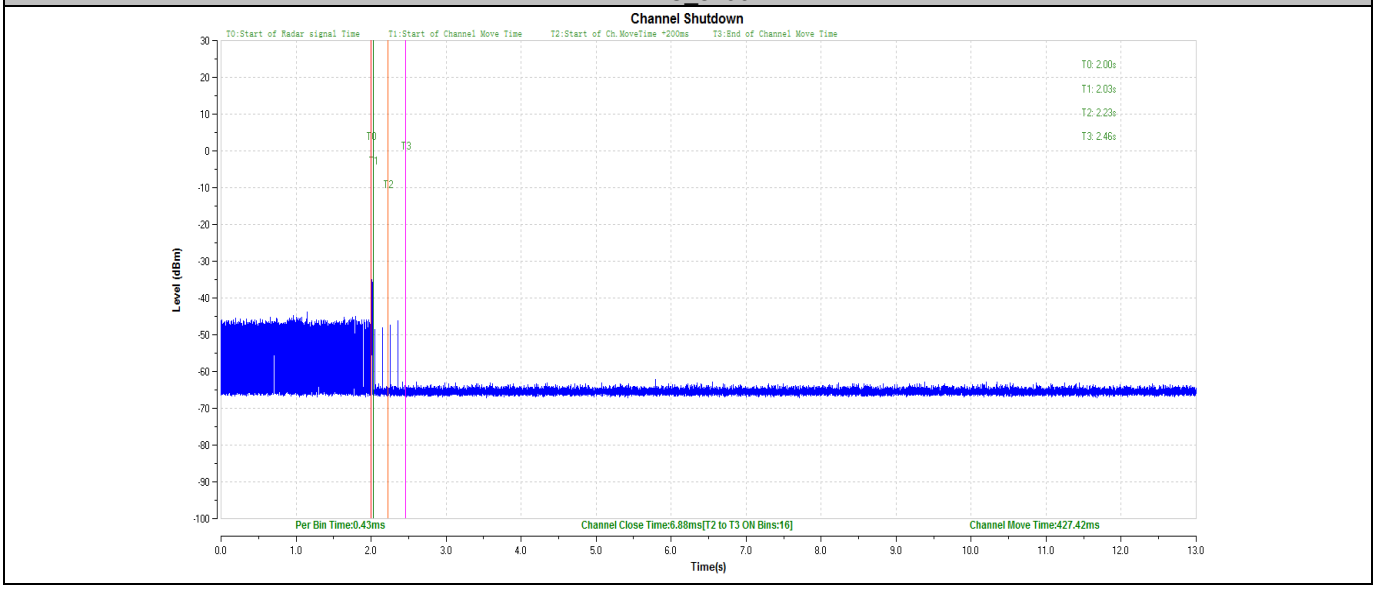
Clause	Test Parameter	Remarks	Pass/Fail
15.407	DFS Detection Threshold	No Applicable	N/A
15.407	Channel Availability Check time	No Applicable	N/A
15.407	Channel Move time	Applicable	Pass
15.407	Channel Closing Transmission Time	Applicable	Pass
15.407	Non-Occupancy Period	Applicable	Pass
15.407	Uniform Spreading	No Applicable	N/A
15.407	U-NII Detection Bandwidth	No Applicable	N/A

TestMode	Channel	CCT[s]	Limit[s]	CMT[s]	Limit[s]	Verdict
11AC	5290	6.88	60	427.42	10000	PASS

11AC_5290



TestMode	Channel	CCT[s]	Limit[s]	CMT[s]	Limit[s]	Verdict
11AC	5530	6.02	60	498.37	10000	PASS

11AC_5530

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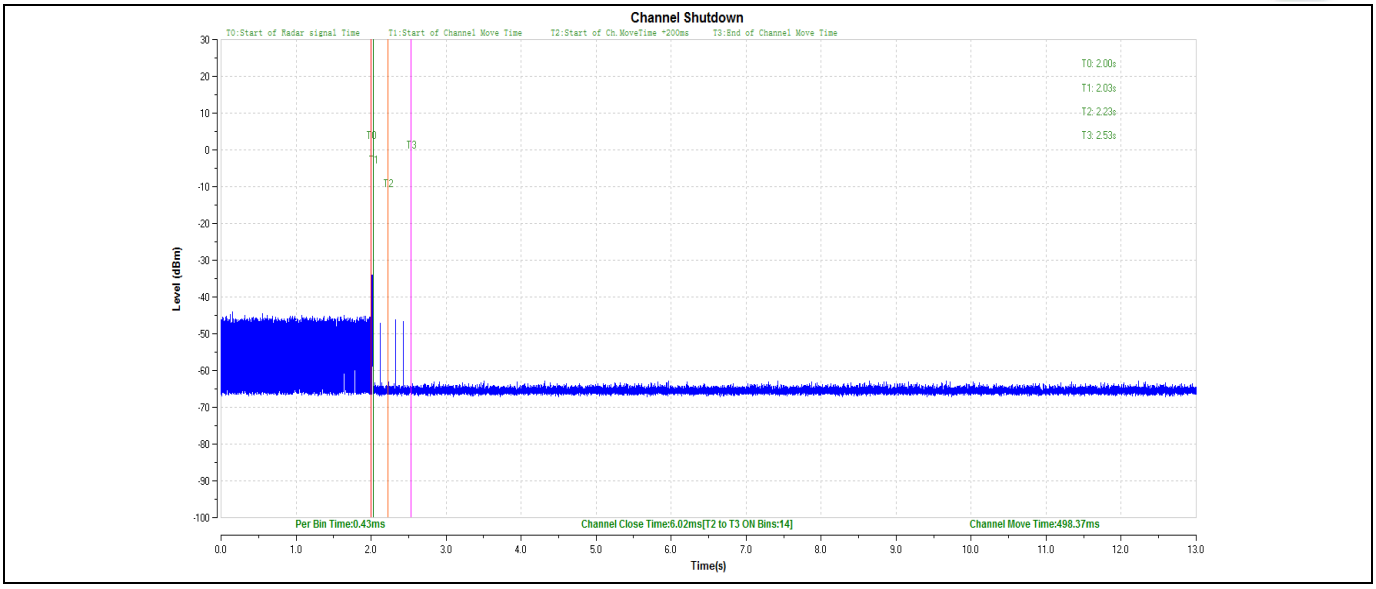

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10 Test Equipment List

Conducted Emission Test

Description	Manufacturer	Model no.	Serial no.	cal. due date
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2019-7-6
LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
LISN	Rohde & Schwarz	ENV432	101318	2019-7-6
LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
ISN	Rohde & Schwarz	ENY81-CA6	101664	2019-7-6
High Voltage Probe	Rohde & Schwarz	TK9420(VT9420)	9420-584	2019-6-30
RF Current Probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2019-7-6
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2019-7-6
Attenuator	Agilent	8491A	MY39264334	2019-7-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

TS8997 Test System

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
Vector Signal Generator	Rohde & Schwarz	SMBV100A	262825	2019-7-6
Communication Synthetical Test Instrument	Rohde & Schwarz	CMW 270	101251	2019-5-31
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6
Power Splitter	Weinschel	1580	SC319	2019-7-5
10dB Attenuator	Weinschel	4M-10	43152	2019-7-6
10dB Attenuator	R&S	DNF	DNF-001	2019-7-6
10dB Attenuator	R&S	DNF	DNF-002	2019-7-6
10dB Attenuator	R&S	DNF	DNF-003	2019-7-6
10dB Attenuator	R&S	DNF	DNF-004	2019-7-6
Test software	Rohde & Schwarz	EMC32	Version 10.38.00	N/A
Test software	Tonscend	System for BT/WIFI	Version 2.6	N/A

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11 System Measurement Uncertainly

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission 150kHz-30MHz	3.21dB
Uncertainty for Radiated Emission 25MHz-3000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission 3000MHz-18000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Radiated Emission 18000MHz-40000MHz	Horizontal: 5.05dB; Vertical: 5.04dB;
Uncertainty for Conducted RF test with TS 8997	Power level test involved: 1.16dB Frequency test involved: 0.6×10^{-7}

THE END

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