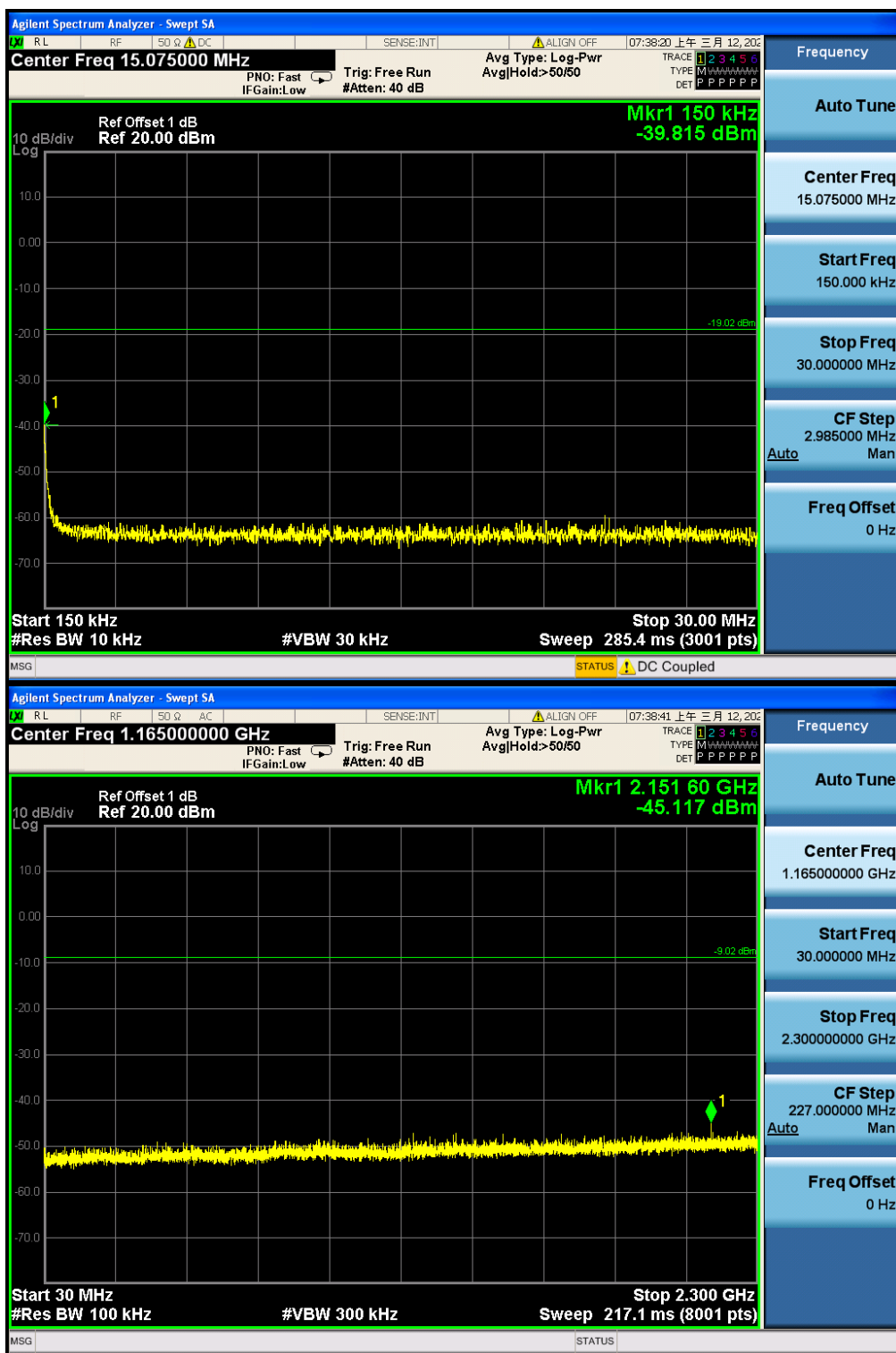
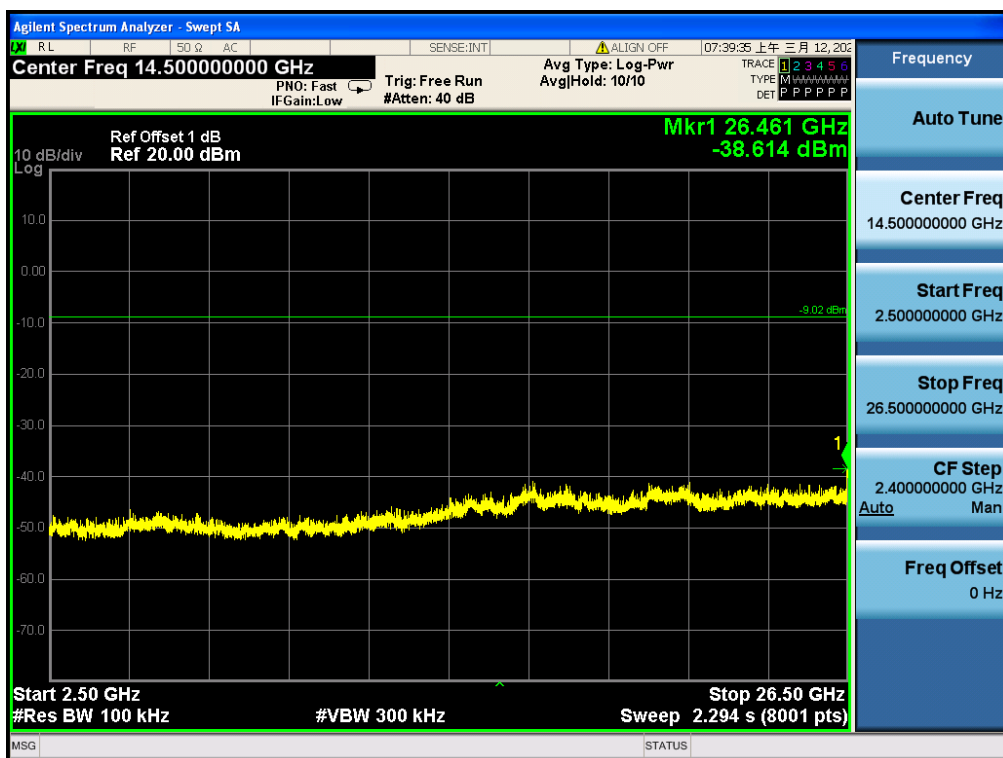


4.8.1.2.3 802.11B_CDD_Highest Channel









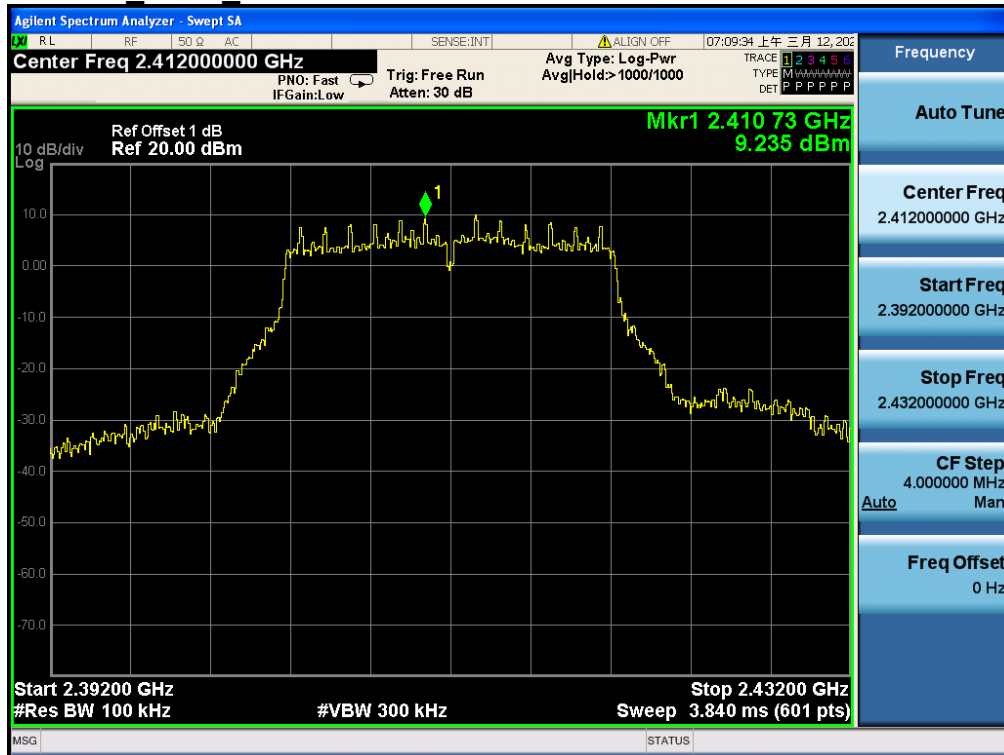
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4.8.1.2.4 802.11G_CDD_Lowest Channel

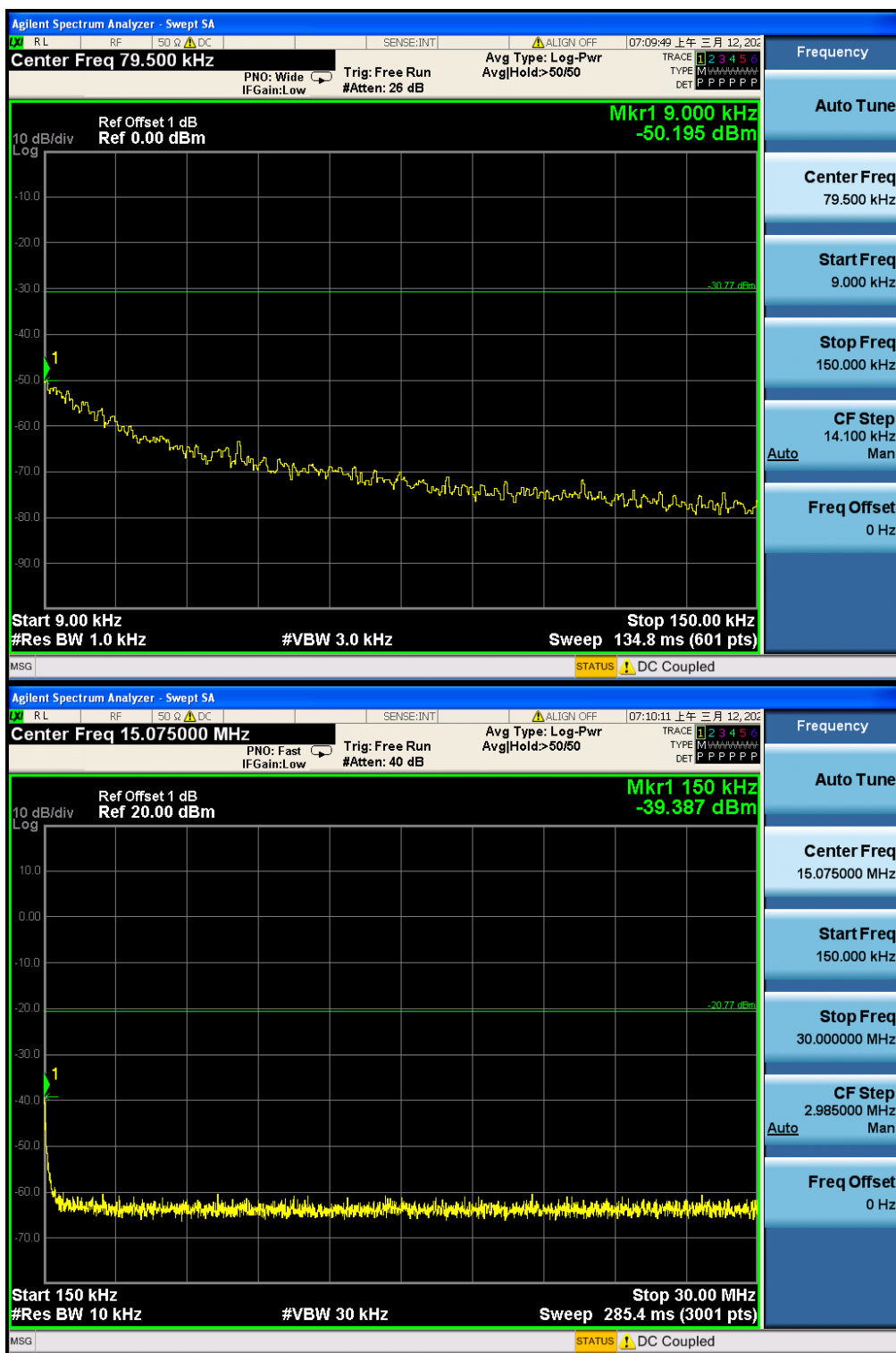


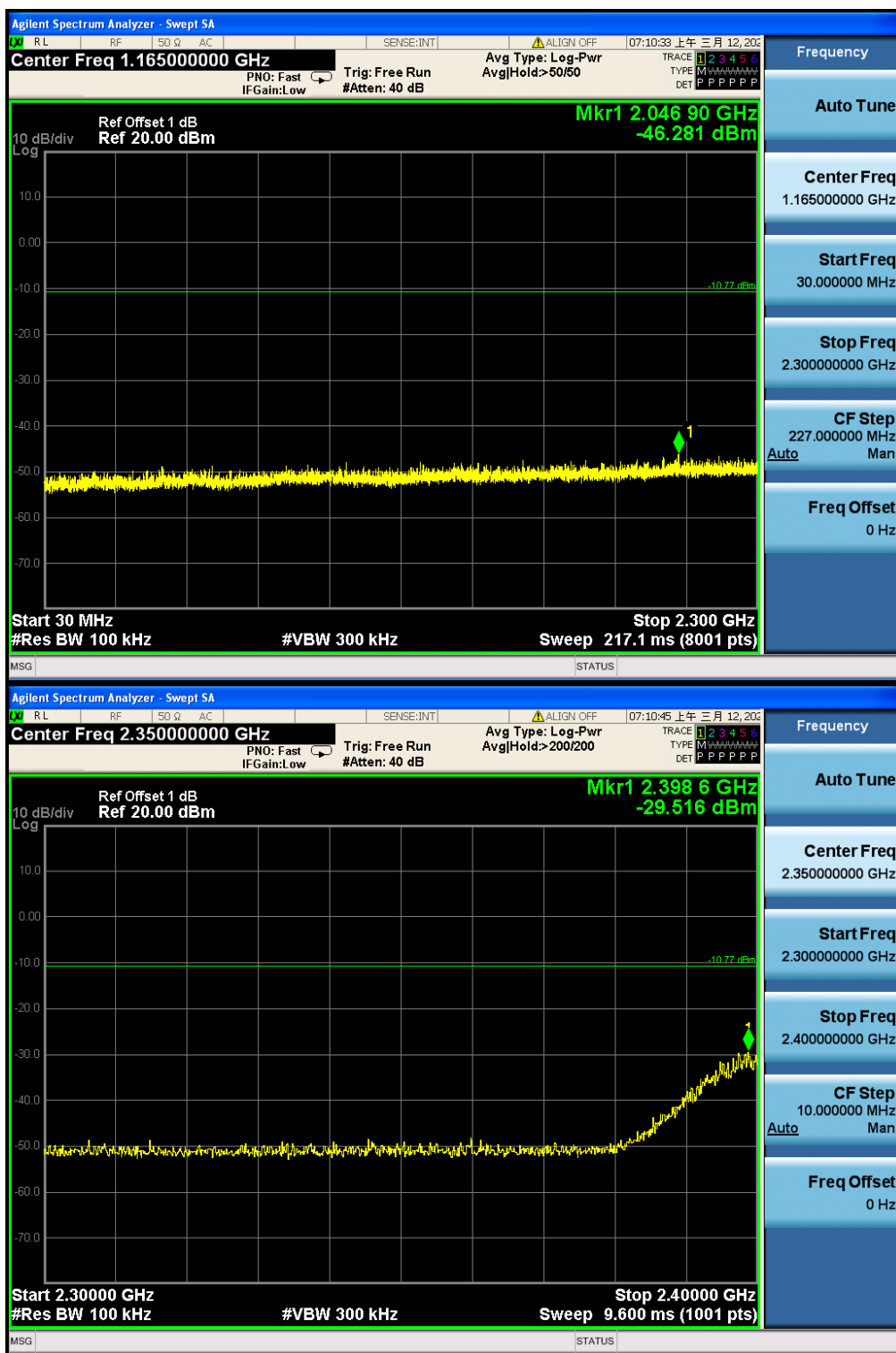
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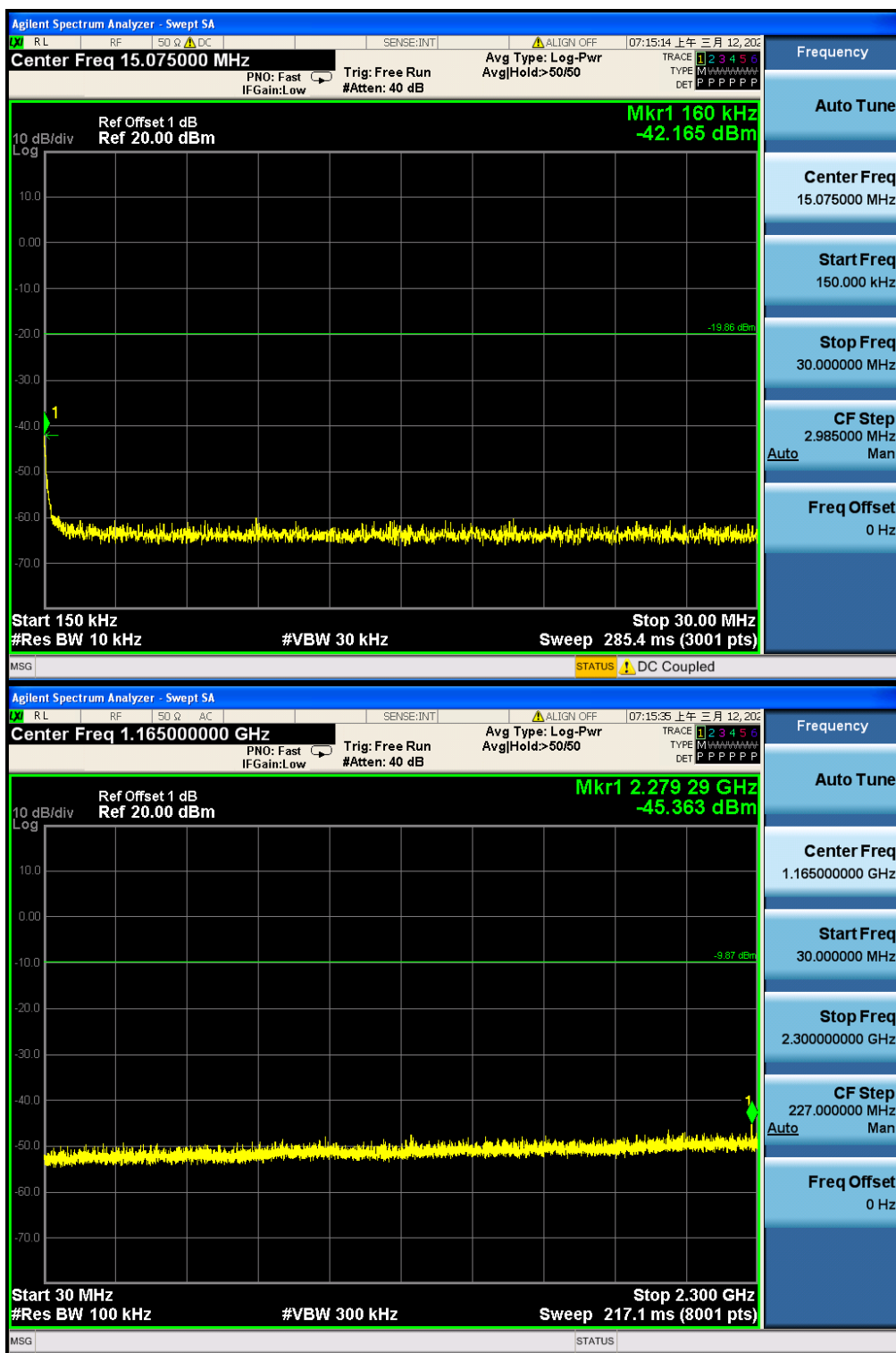




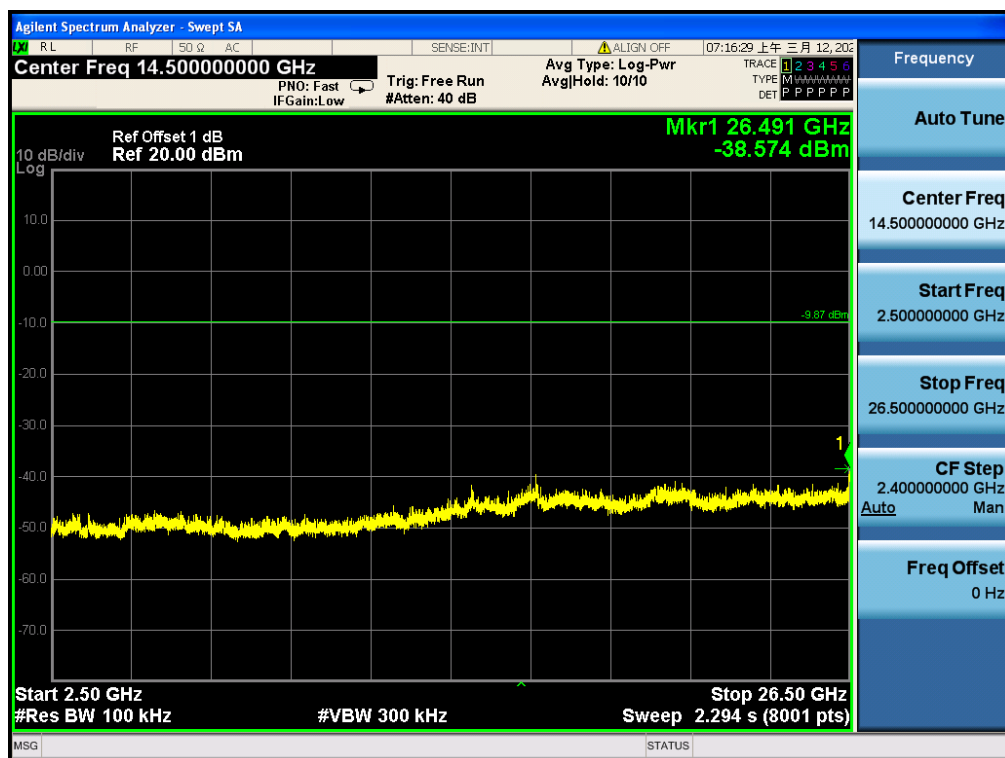


4.8.1.2.5 802.11G_CDD_Middle Channel









4.8.1.2.6 802.11G_CDD_Highest Channel

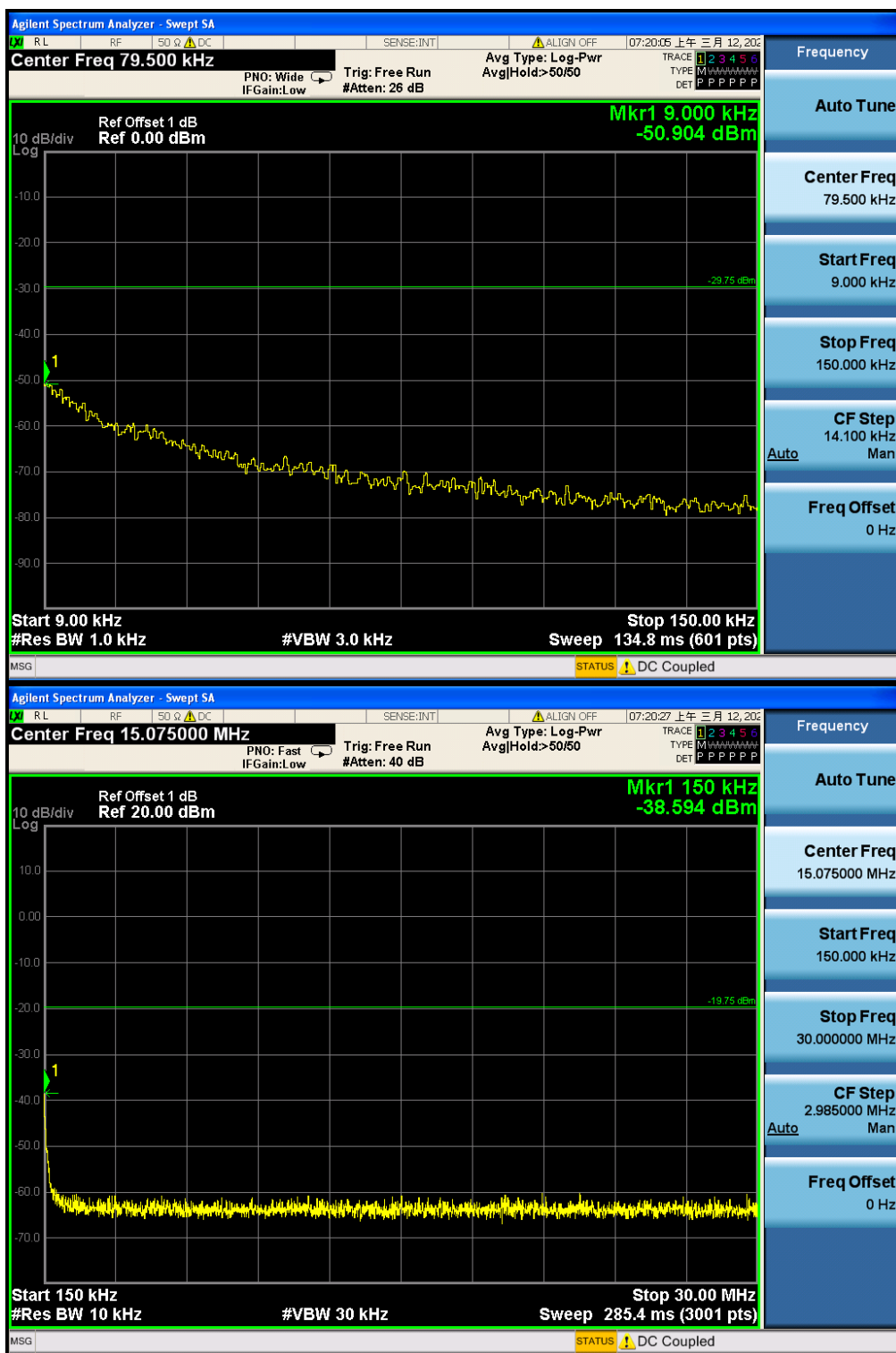


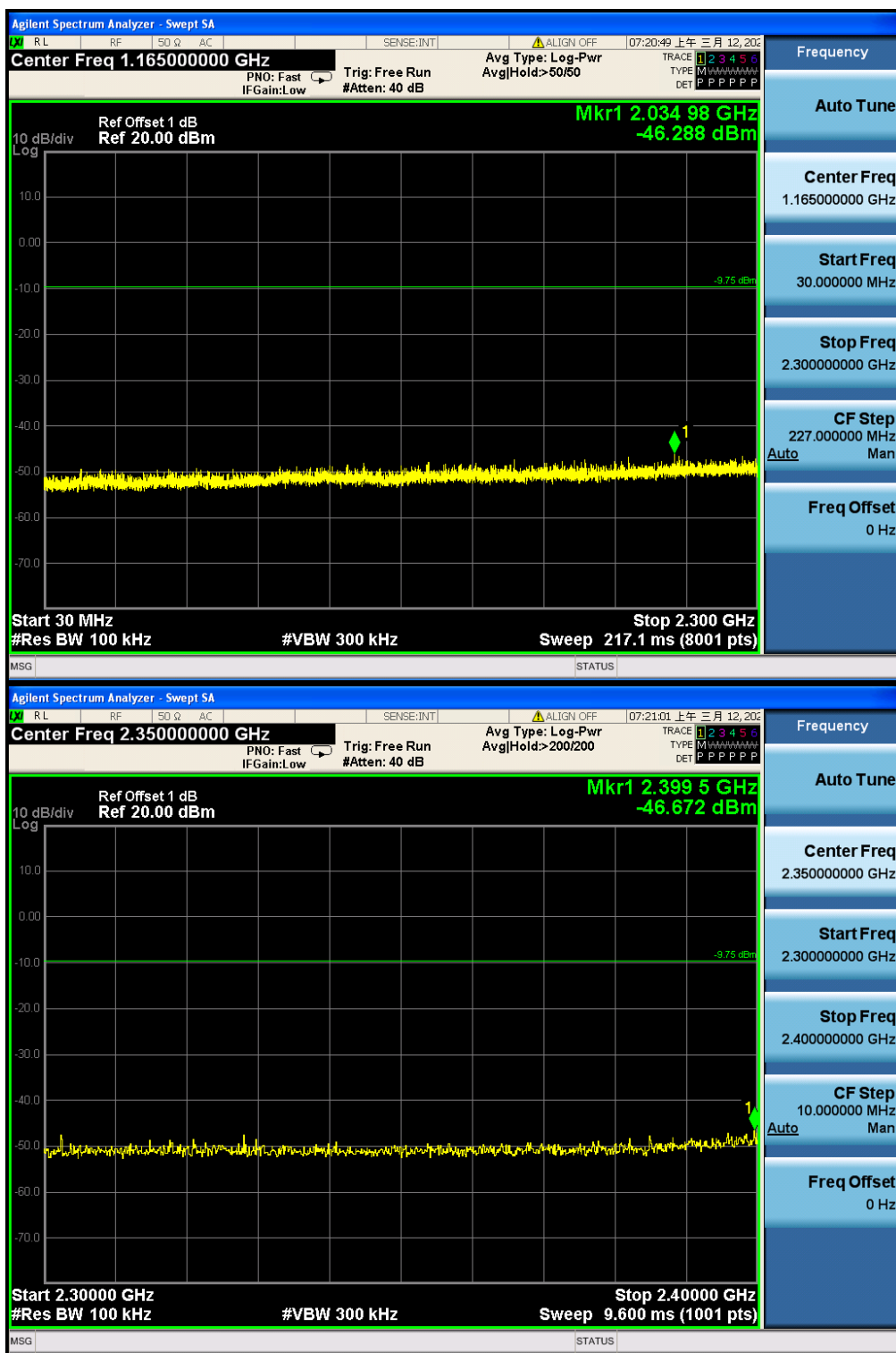
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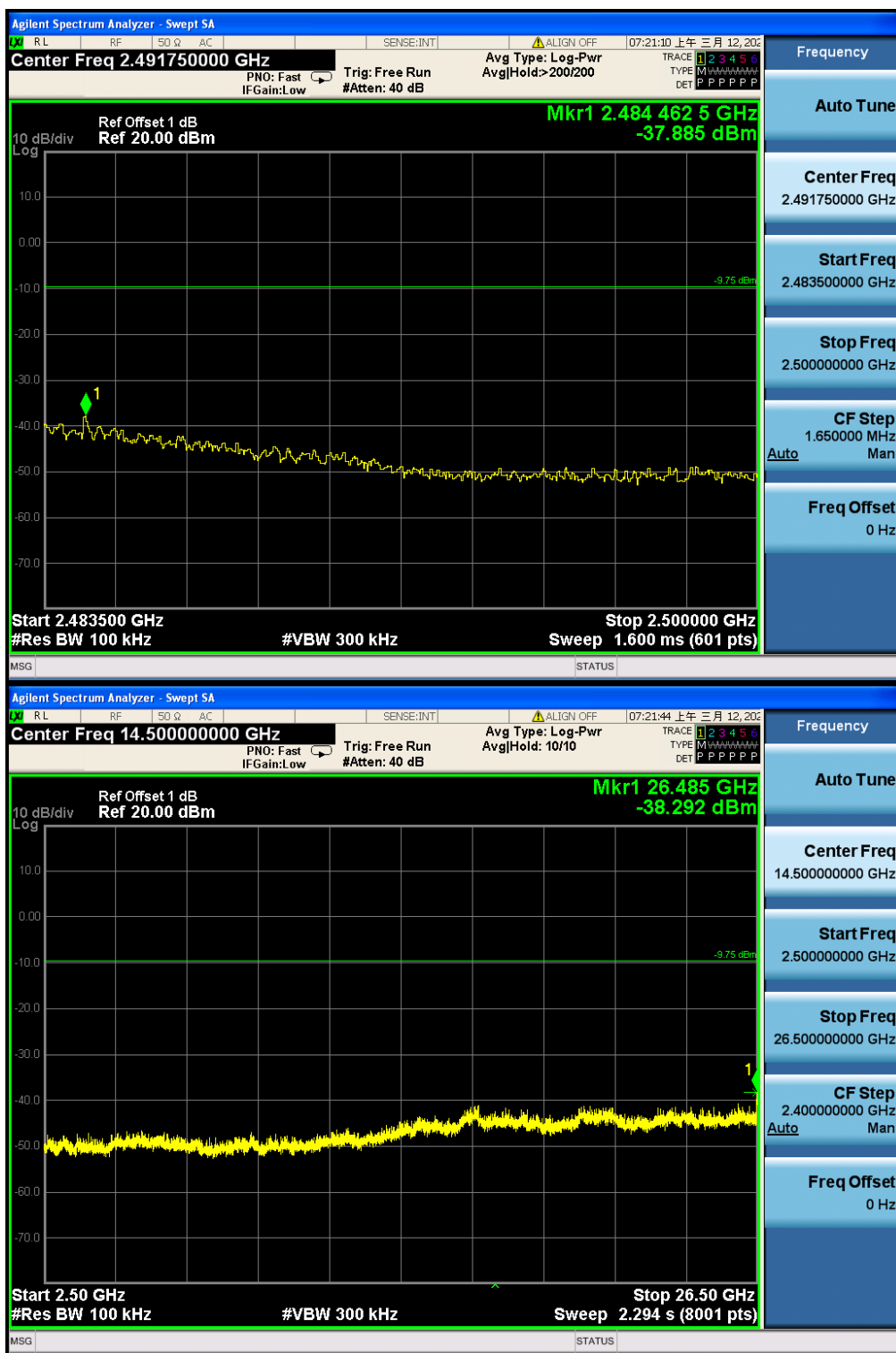
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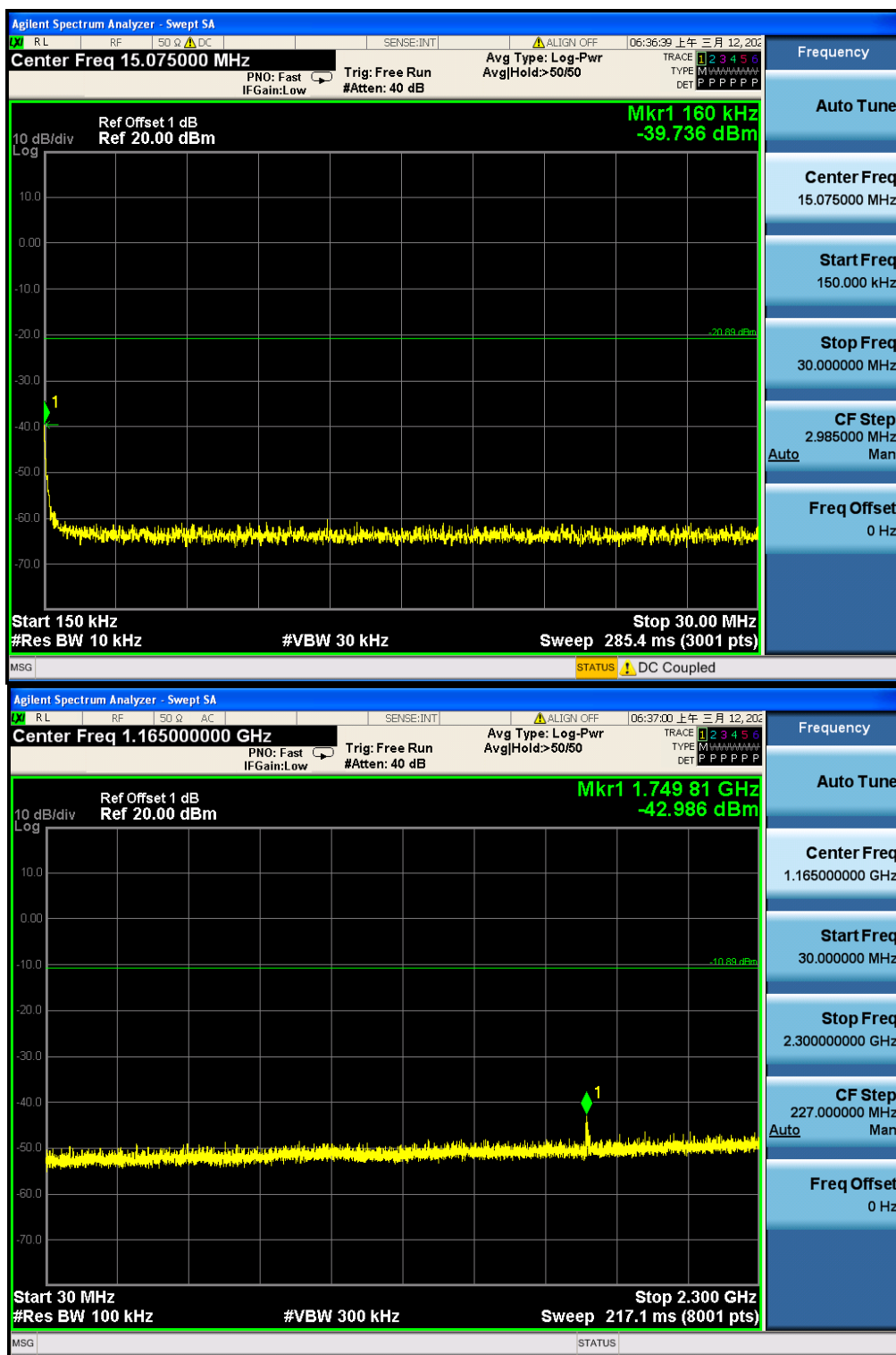




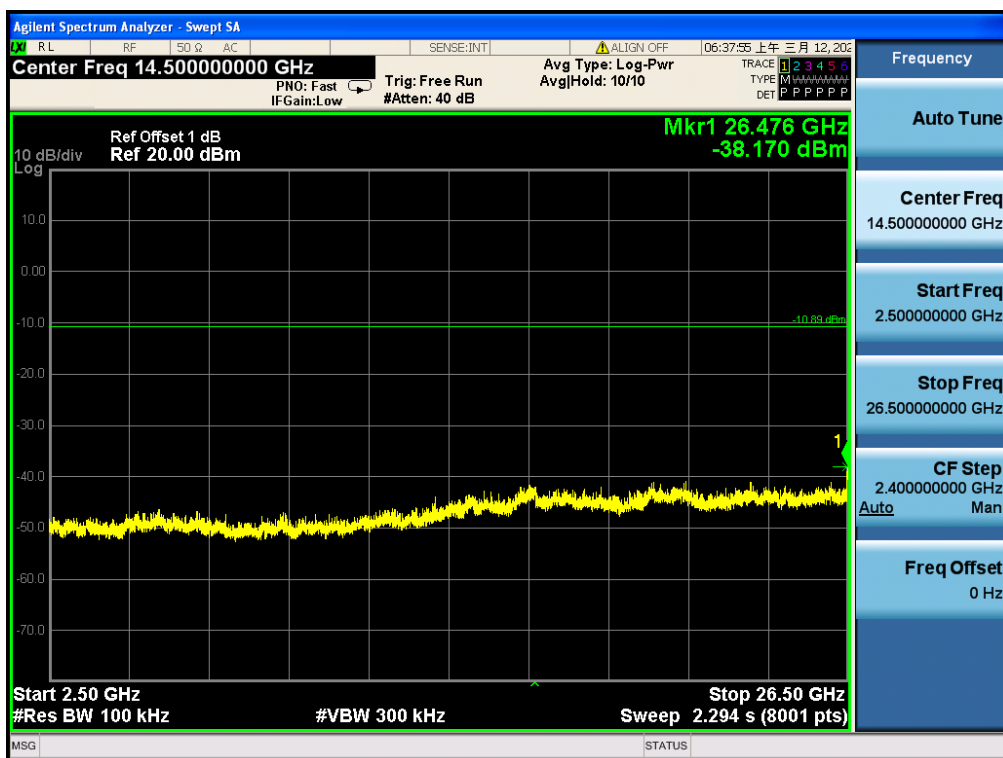


4.8.1.2.7 802.11N20 MIMO Lowest Channel









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4.8.1.2.8 802.11 N20_MIMO_Middle Channel

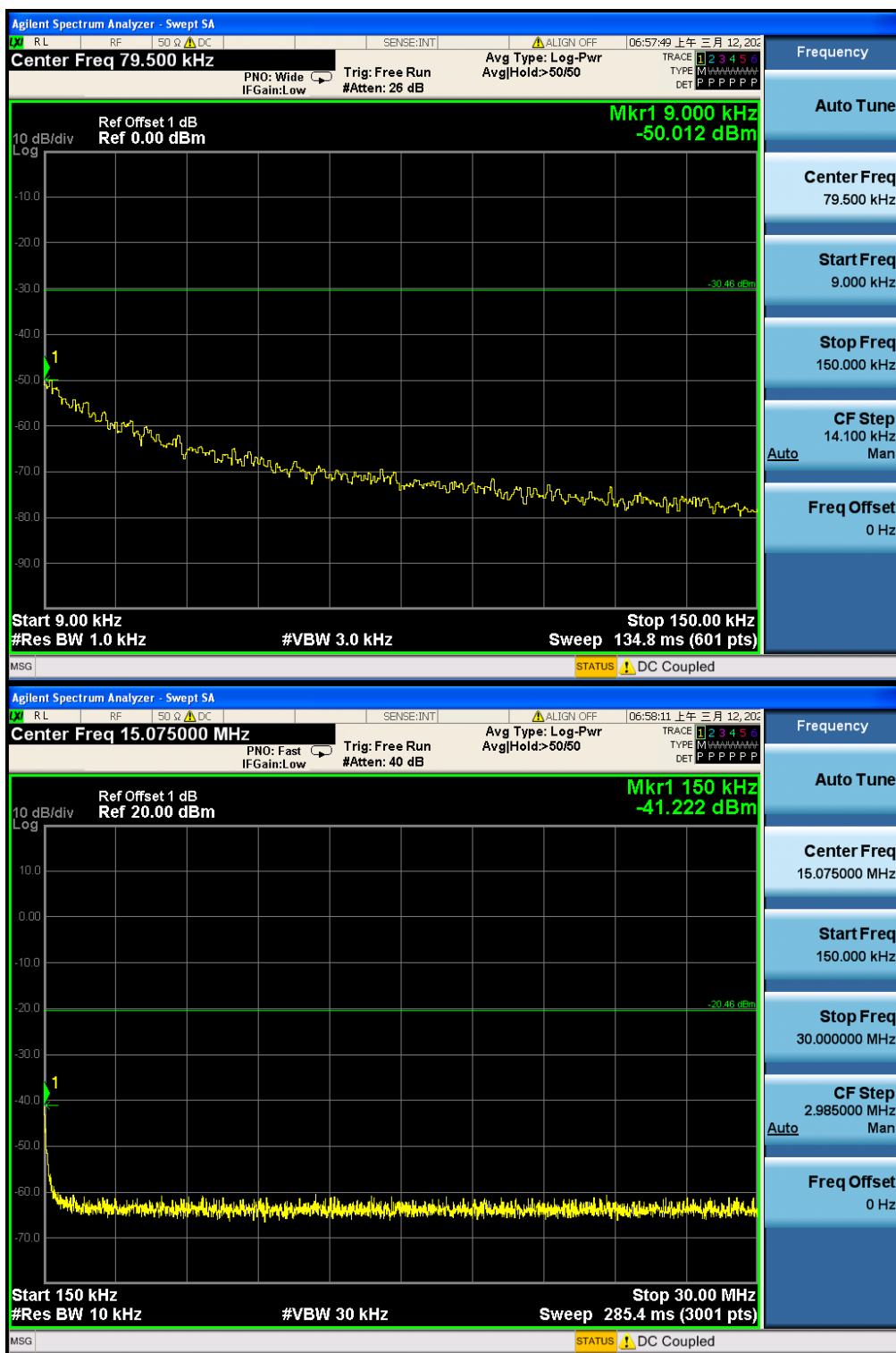


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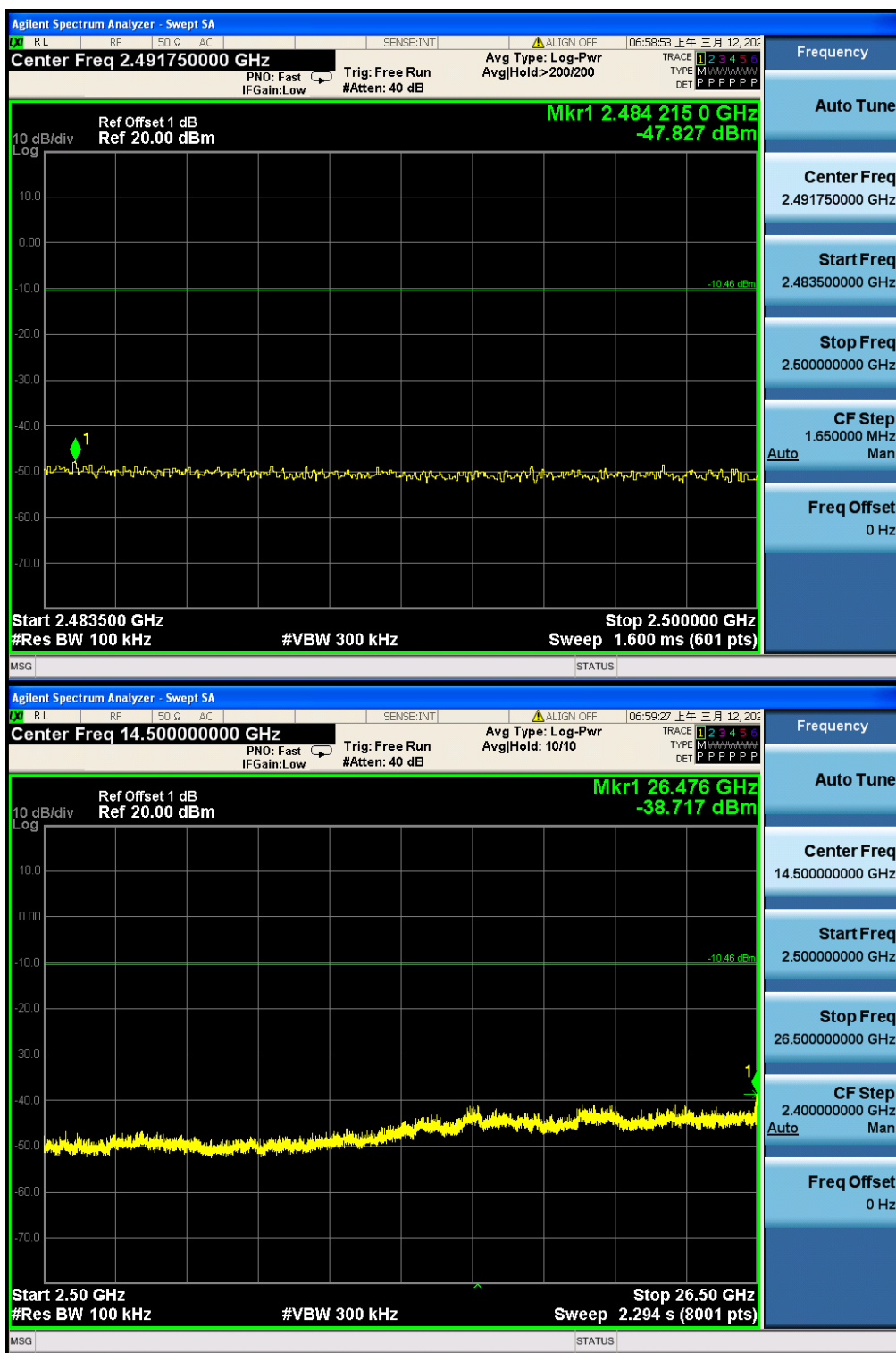
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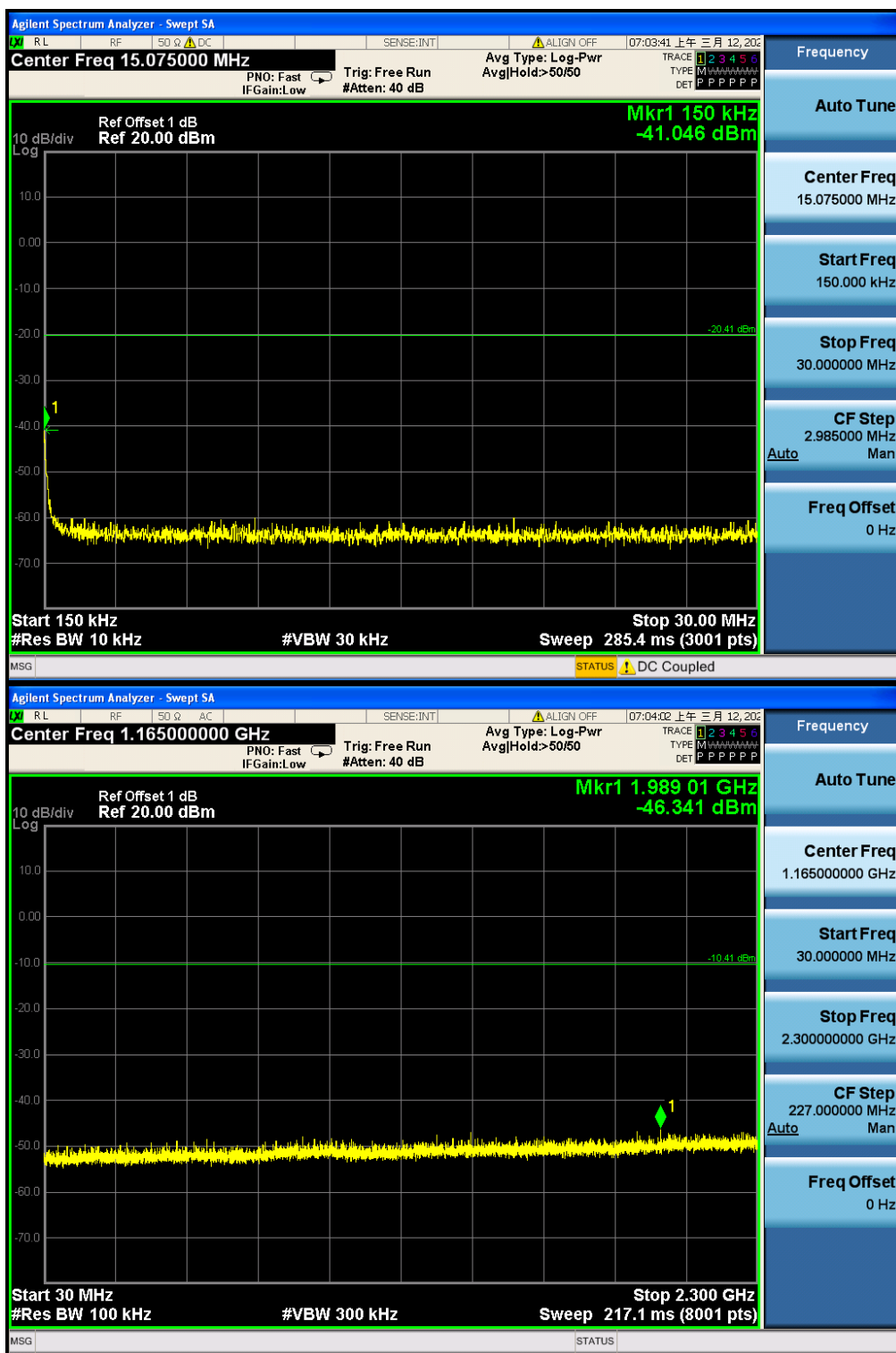




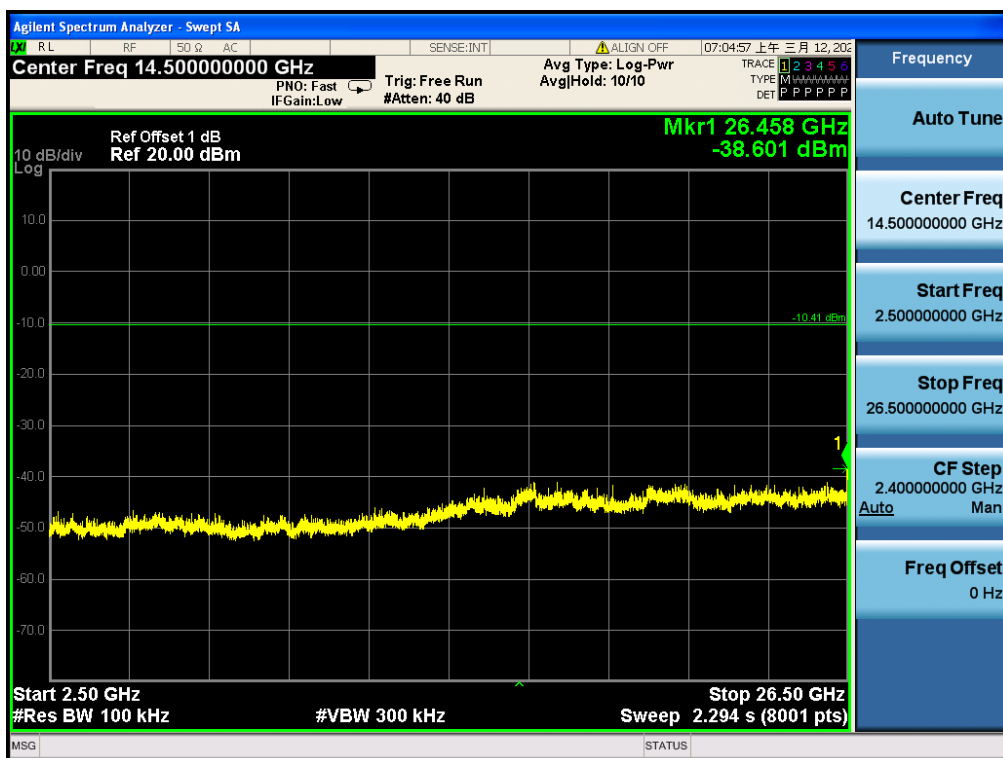


4.8.1.2.9 802.11 N20_MIMO_Highest Channel









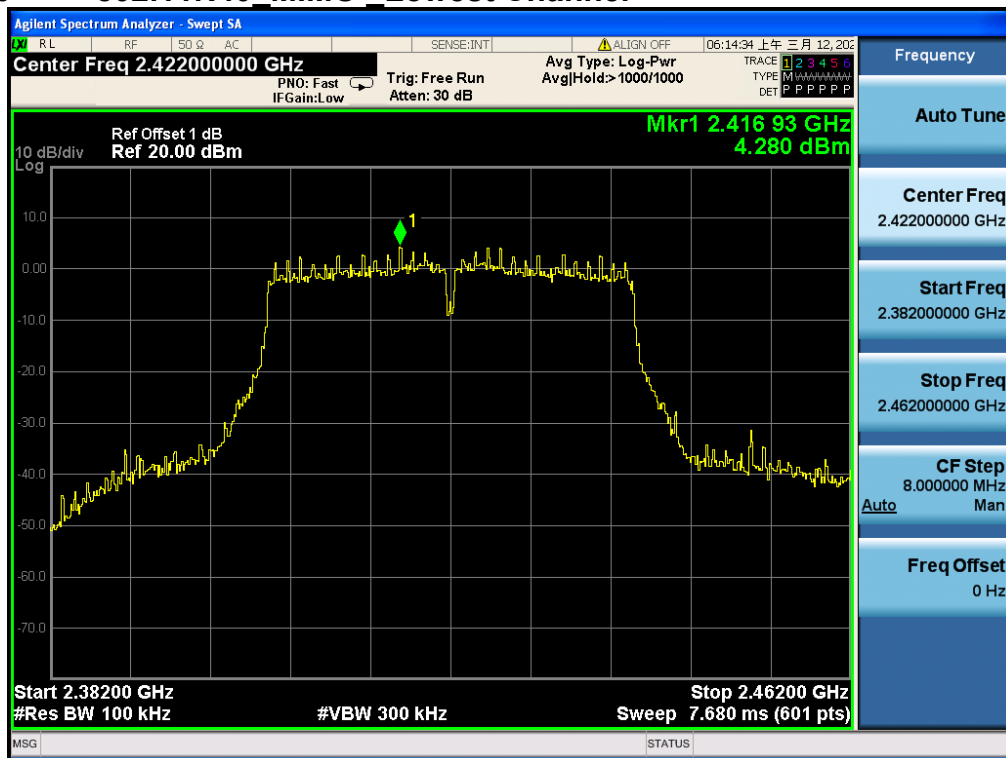
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4.8.1.2.10 802.11N40 MIMO Lowest Channel

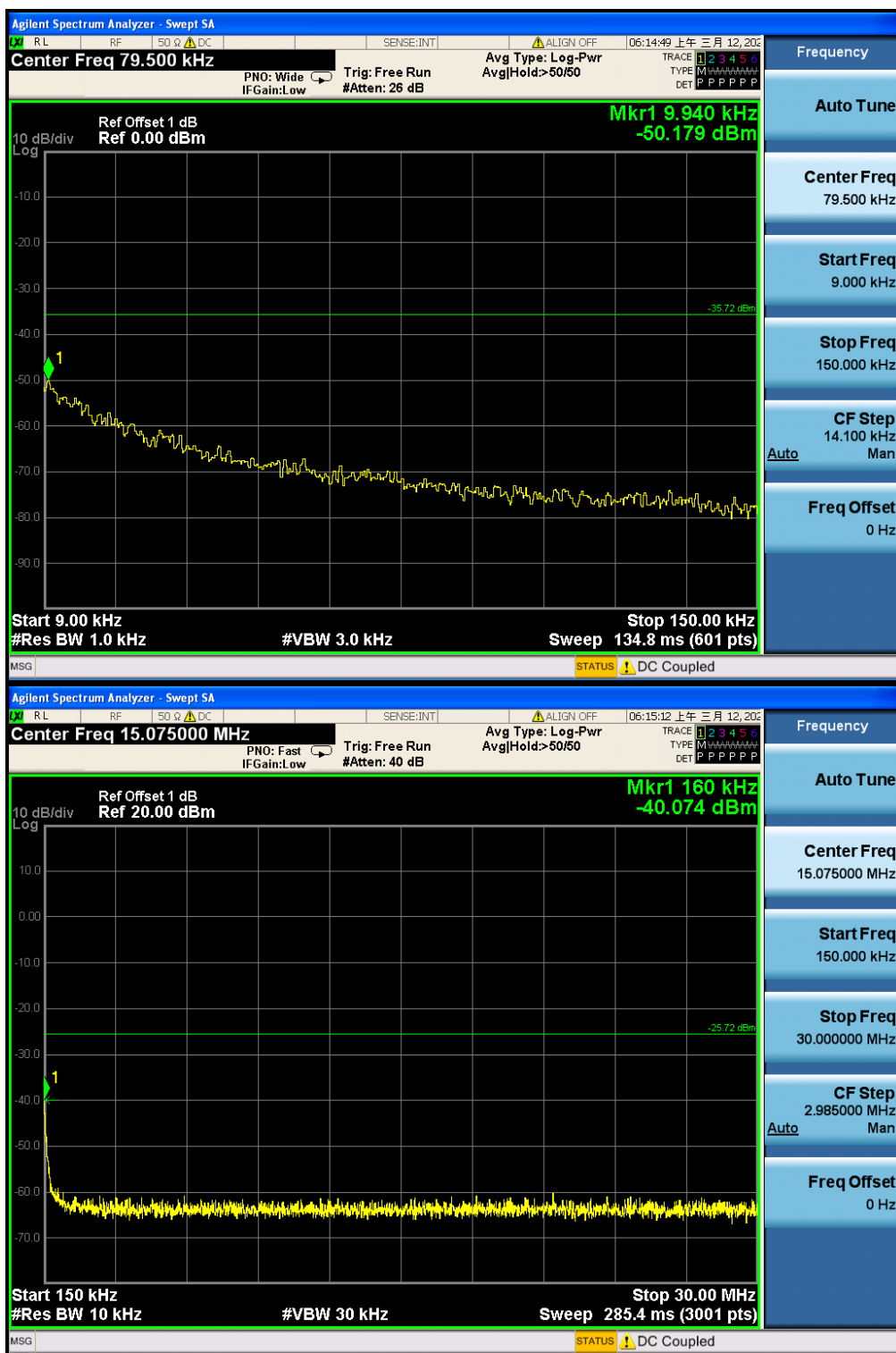


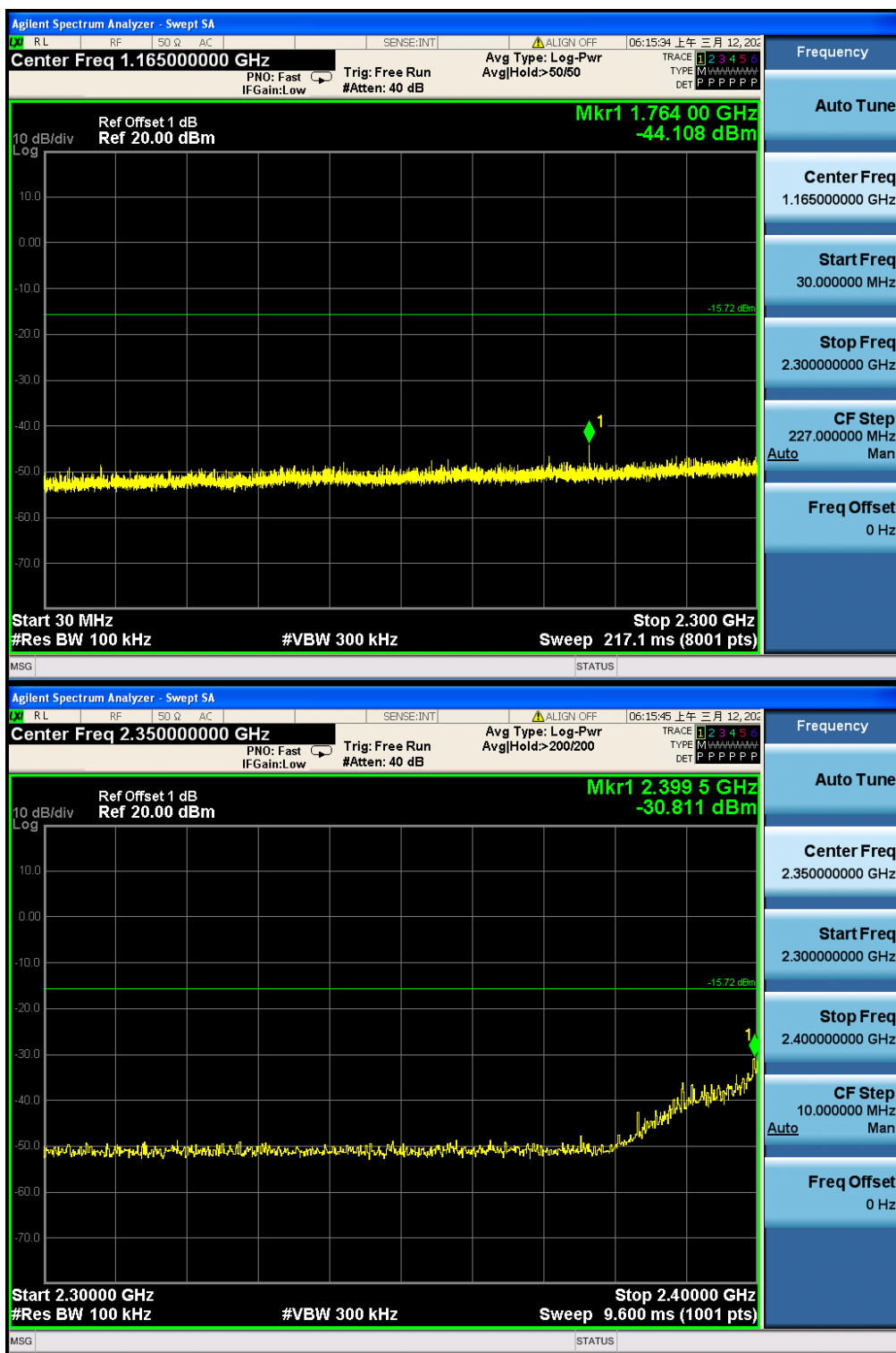
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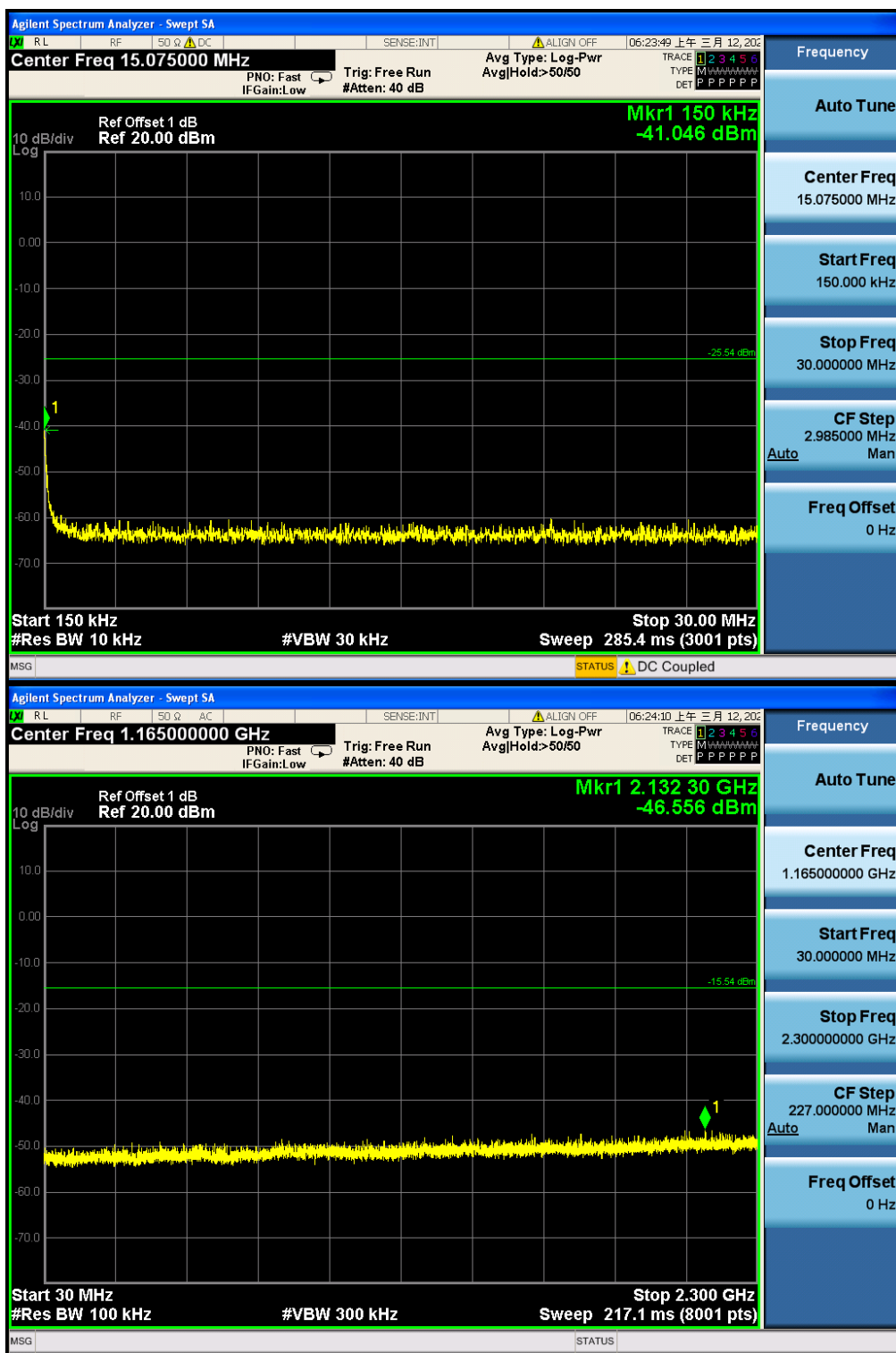




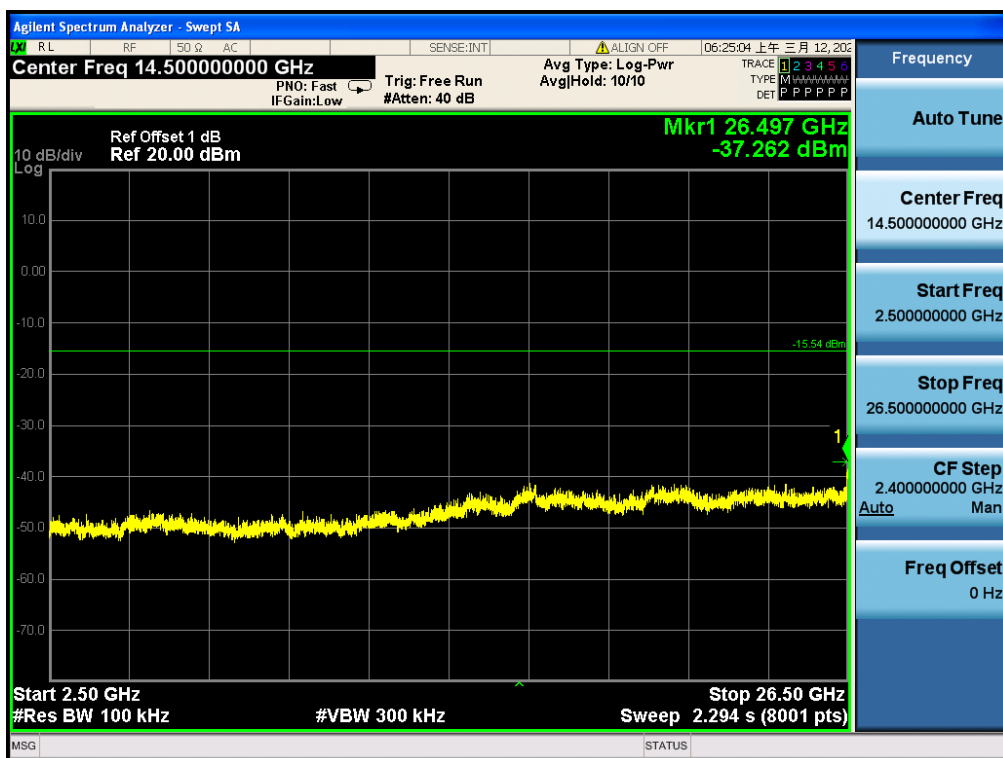


4.8.1.2.11 802.11 N40_MIMO_Middle Channel









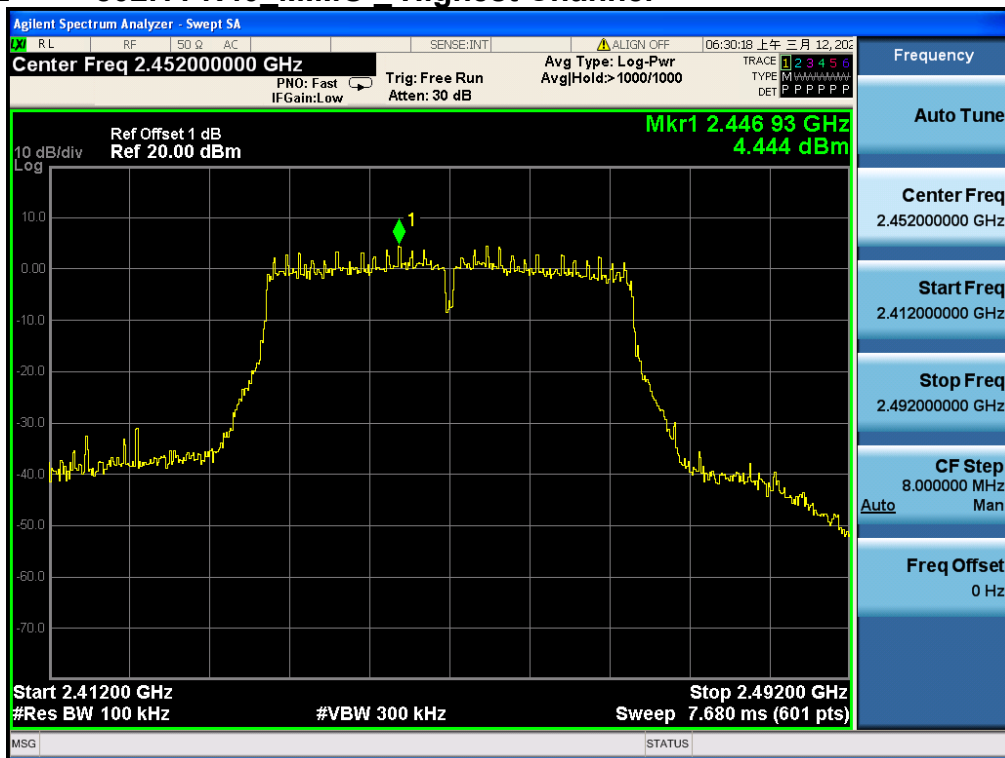
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4.8.1.2.12 802.11 N40 MIMO Highest Channel

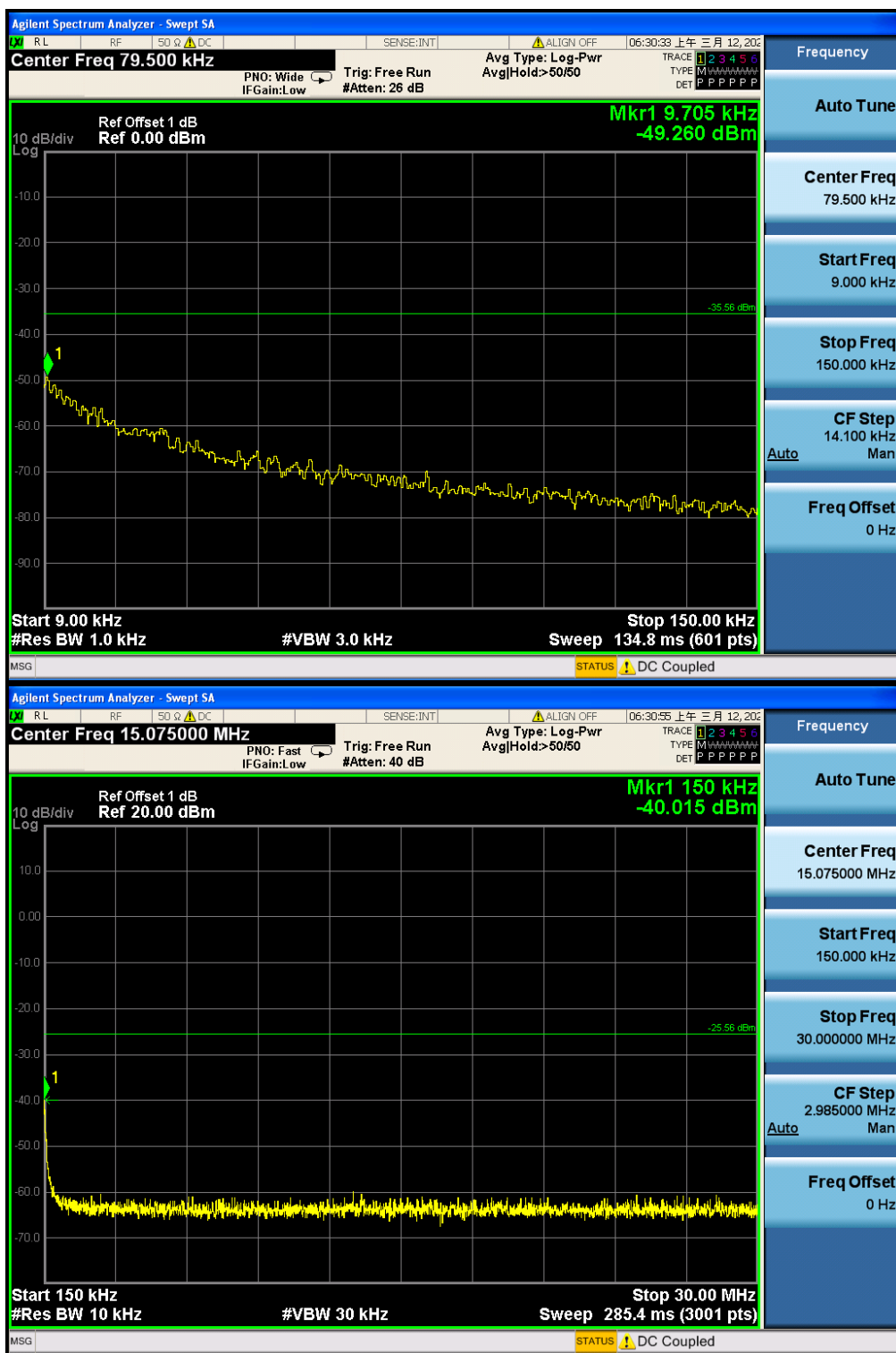


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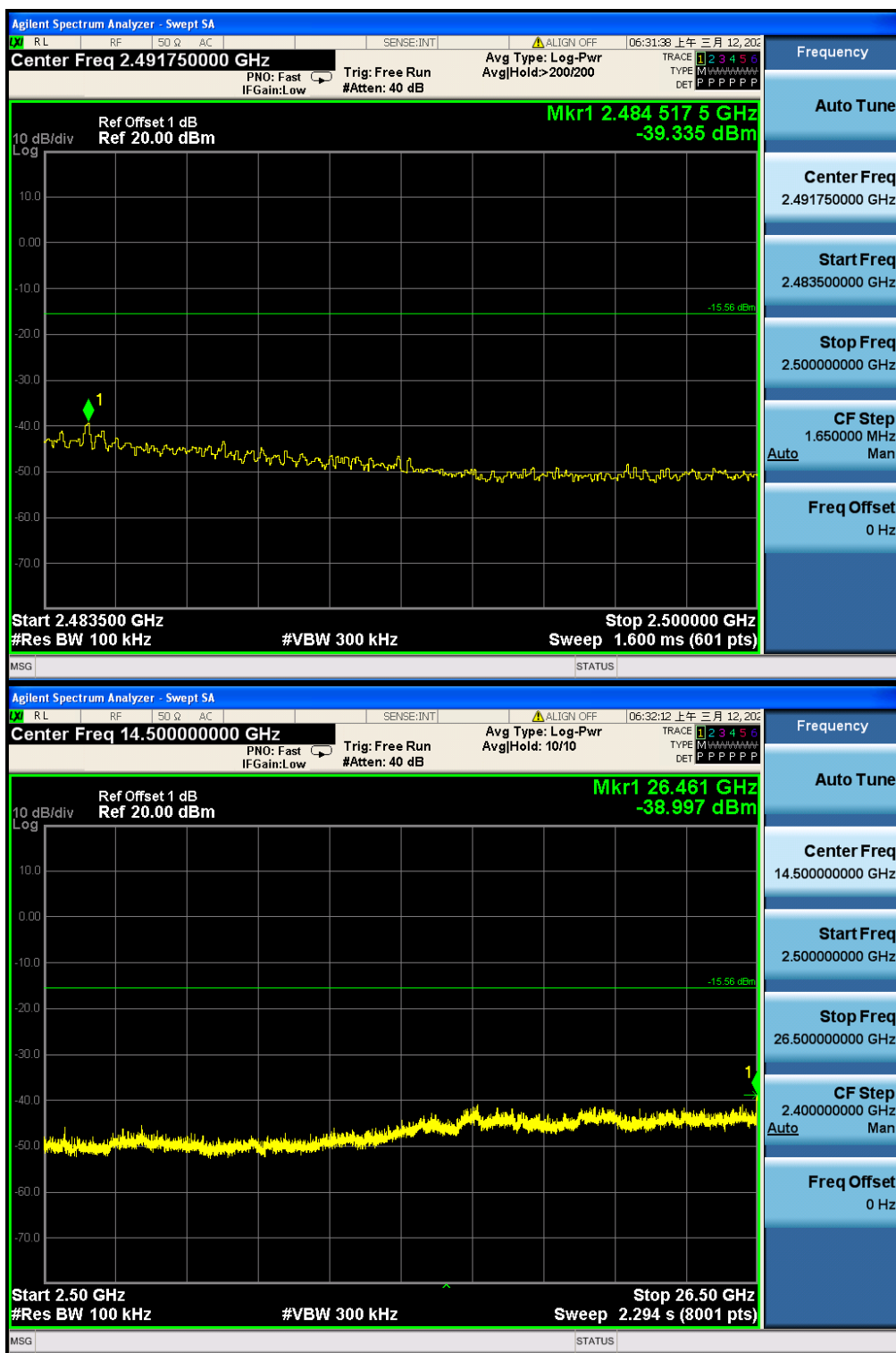
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Remark:

Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



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4.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 :2013 Section 11.12				
Test Site:	Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Remark: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				

Test Setup:	
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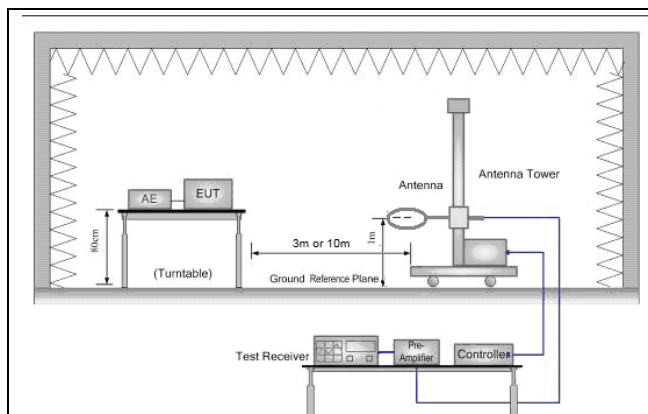


Figure 1. Below 30MHz

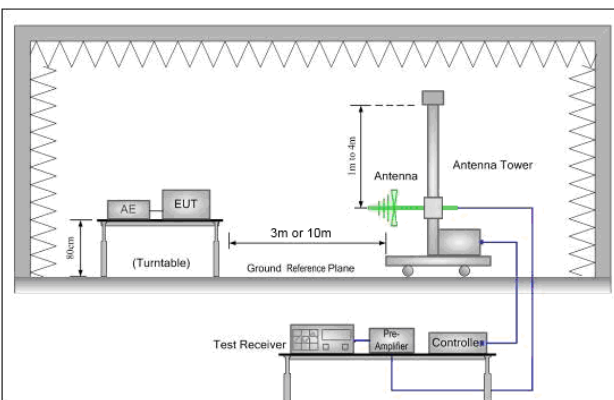


Figure 2. 30MHz to 1GHz

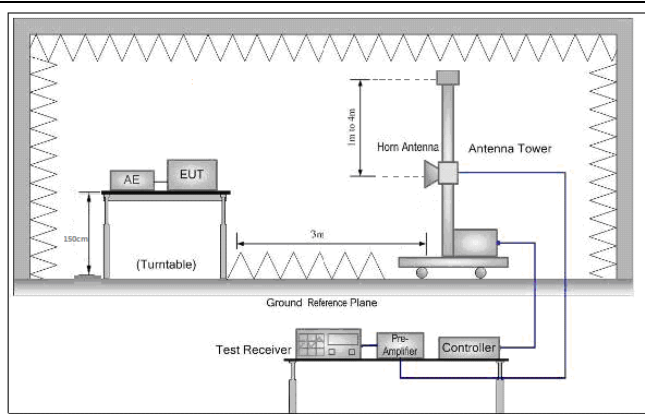


Figure 3. Above 1 GHz

Test Procedure:

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height 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.
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured;
 - Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$ GHz ;
VBW $\geq$ RBW; Sweep = auto;
Detector function = peak; Trace = max hold for peak
 - For average measurement: use duty cycle correction factor method per 15.35(c).
Duty cycle = On time/100 milliseconds
On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$



	Where N 1 is number of type 1 pulses, L 1 is length of type 1 pulses, etc. Average Emission Level = Peak Emission Level + 20*log(Duty cycl f. 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(for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. h. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. i. Test the EUT in the lowest channel, the middle channel ,the Highest channel j. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. k. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode. Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40) For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



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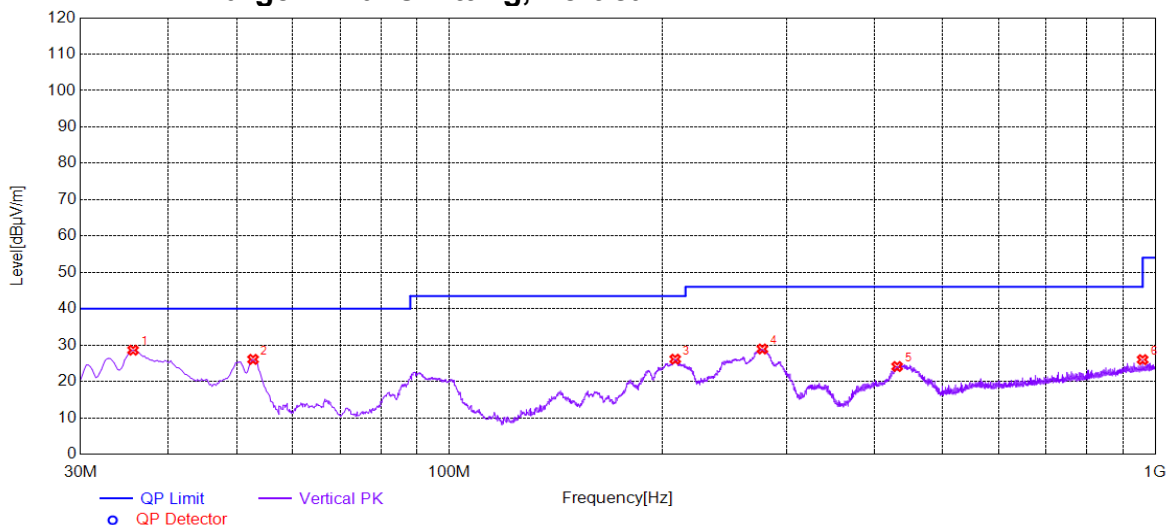
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4.9.1 Radiated emission below 1GHz

4.9.1.1 Charge + Transmitting, Vertical

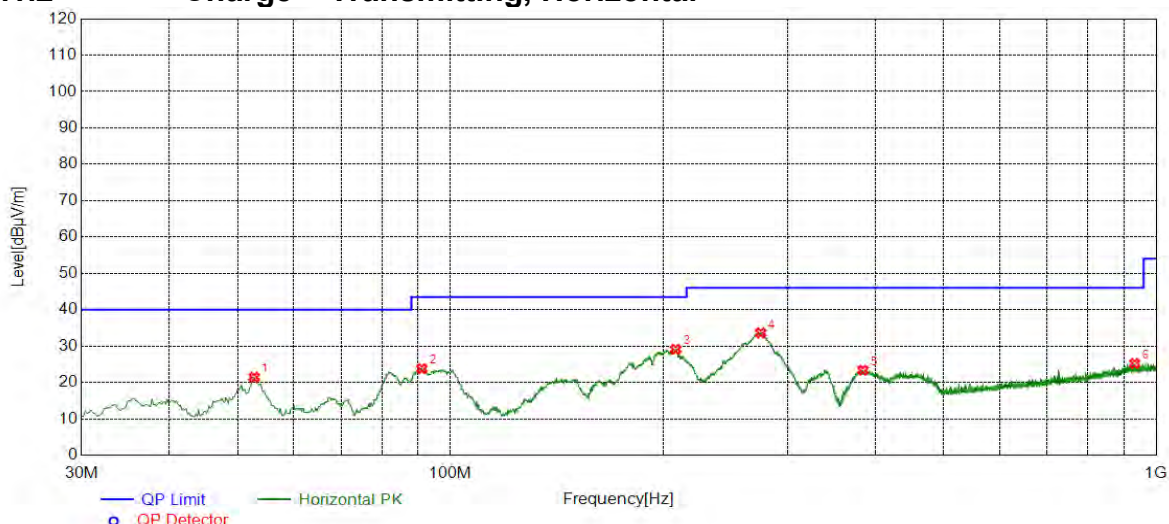


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.6271	28.61	-29.76	40.00	11.39	100	24	Vertical
2	52.7025	26.08	-30.77	40.00	13.92	100	308	Vertical
3	208.9038	26.14	-31.00	43.50	17.36	100	74	Vertical
4	277.5935	28.93	-29.03	46.00	17.07	200	166	Vertical
5	430.8842	24.11	-24.84	46.00	21.89	100	39	Vertical
6	959.8340	26.00	-15.34	46.00	20.00	100	311	Vertical



4.9.1.2 Charge + Transmitting, Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	52.7025	21.42	-30.77	40.00	18.58	200	262	Horizontal
2	91.1222	23.77	-33.53	43.50	19.73	200	57	Horizontal
3	208.5157	29.11	-31.01	43.50	14.39	200	206	Horizontal
4	275.2651	33.63	-29.08	46.00	12.37	100	194	Horizontal
5	384.1208	23.39	-25.94	46.00	22.61	100	54	Horizontal
6	932.2805	25.23	-15.67	46.00	20.77	200	291	Horizontal



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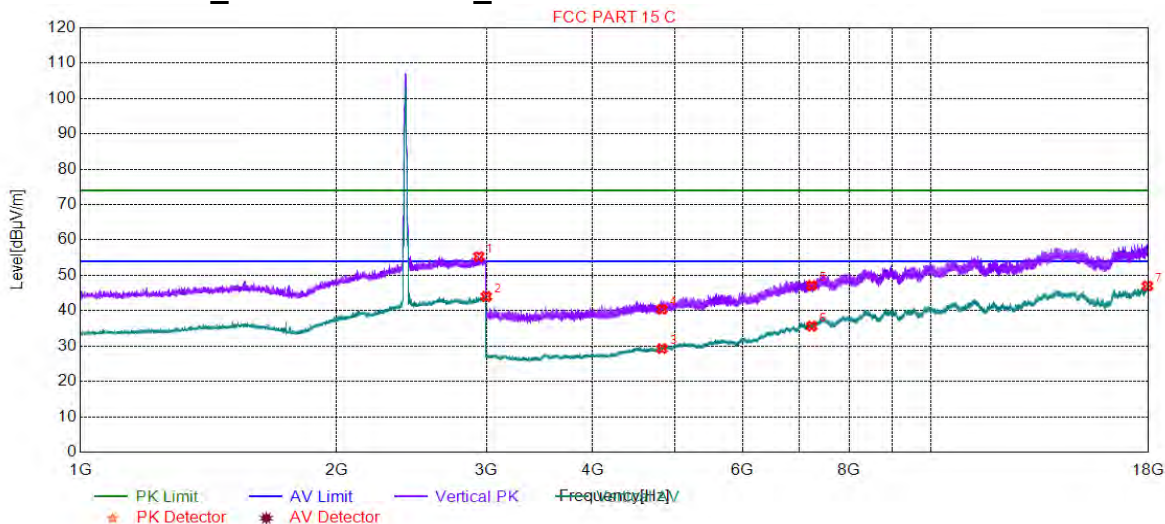
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4.9.2 Transmitter emission above 1GHz

4.9.2.1 ANT1

4.9.2.1.1 802.11B_Lowest Channel_ Vertical

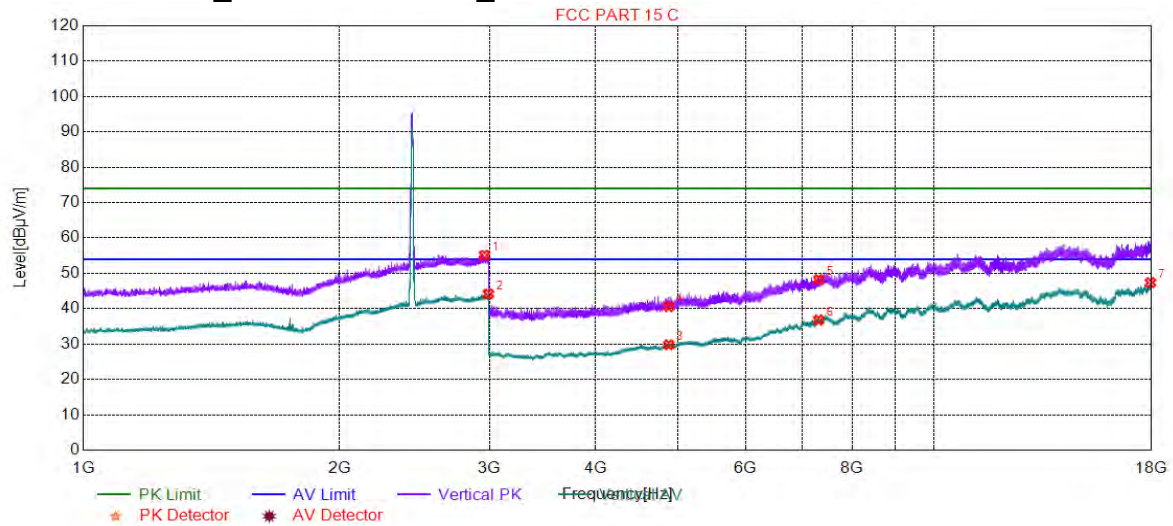


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2938.4846	55.32	9.56	74.00	18.68	150	217	Vertical
2	2998.9998	44.01	9.45	54.00	9.99	150	272	Vertical
3	4824.0000	29.28	-18.21	54.00	24.72	150	320	Vertical
4	4824.0000	40.39	-18.21	74.00	33.61	150	266	Vertical
5	7236.0000	47.14	-9.99	74.00	26.86	150	292	Vertical
6	7236.0000	35.64	-9.99	54.00	18.36	150	191	Vertical
7	17942.247	46.99	0.70	54.00	7.01	150	342	Vertical



4.9.2.1.2 802.11B_ Middle Channel_ Vertical

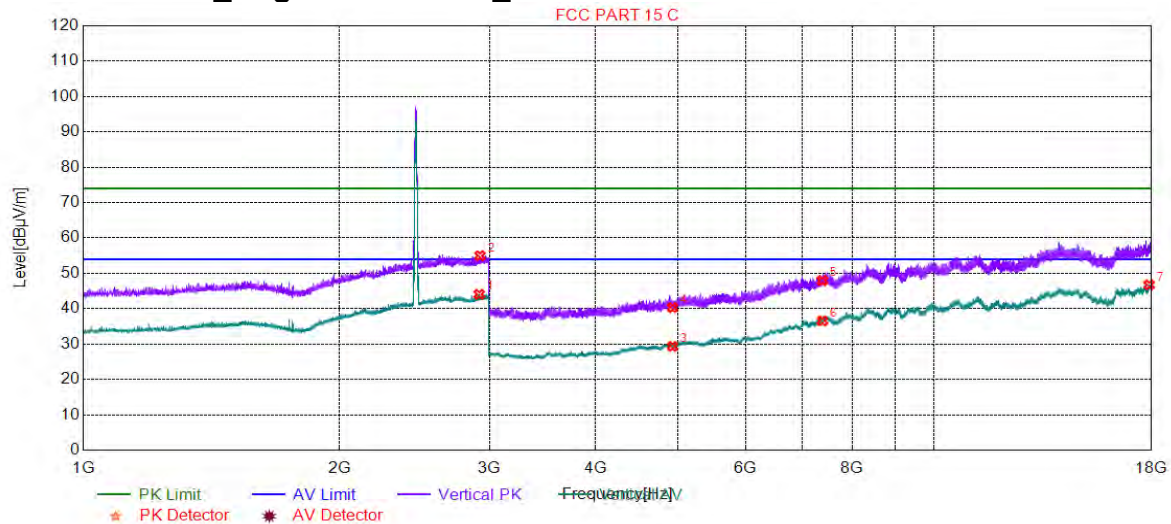


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2959.9900	55.16	9.63	74.00	18.84	150	273	Vertical
2	2991.4979	44.17	9.49	54.00	9.83	150	52	Vertical
3	4874.0000	29.81	-17.99	54.00	24.19	150	126	Vertical
4	4874.0000	40.60	-17.99	74.00	33.40	150	45	Vertical
5	7311.0000	48.24	-9.74	74.00	25.76	150	190	Vertical
6	7311.0000	36.81	-9.74	54.00	17.19	150	190	Vertical
7	17942.797	47.37	0.70	54.00	6.63	150	0	Vertical



4.9.2.1.3 802.11B_ Highest Channel_ Vertical

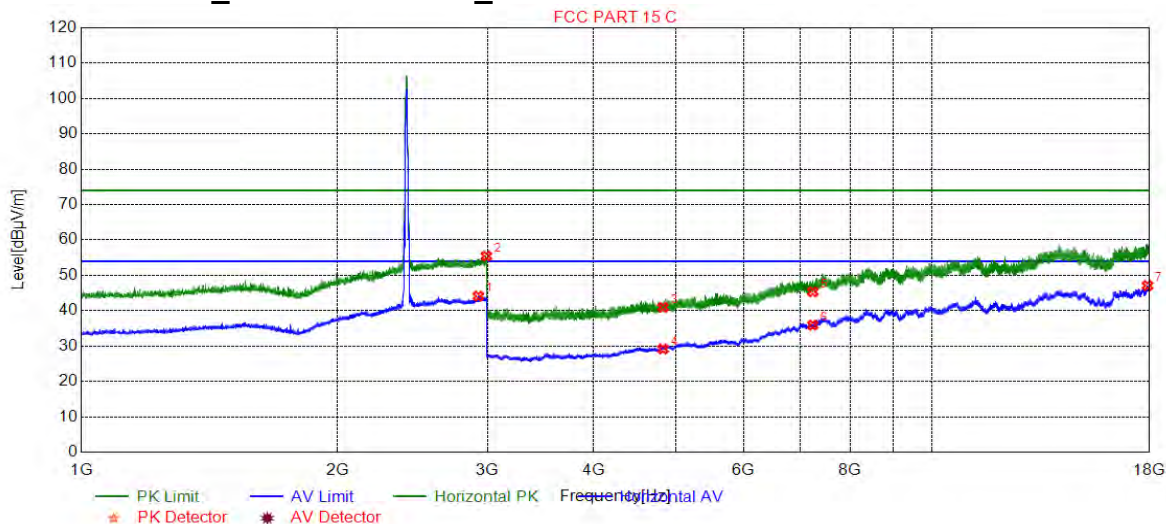


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2918.9797	44.07	9.34	54.00	9.93	150	164	Vertical
2	2924.4811	55.01	9.40	74.00	18.99	150	287	Vertical
3	4924.0000	29.35	-17.72	54.00	24.65	150	18	Vertical
4	4924.0000	40.29	-17.72	74.00	33.71	150	321	Vertical
5	7386.0000	47.94	-9.55	74.00	26.06	150	141	Vertical
6	7386.0000	36.56	-9.55	54.00	17.44	150	141	Vertical
7	17878.443	46.75	0.41	54.00	7.25	150	90	Vertical



4.9.2.1.4 802.11B_Lowest Channel_ Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2927.4819	44.11	9.44	54.00	9.89	150	249	Horizontal
2	2991.9980	55.46	9.49	74.00	18.54	150	58	Horizontal
3	4824.0000	40.97	-18.21	74.00	33.03	150	47	Horizontal
4	4824.0000	29.17	-18.21	54.00	24.83	150	47	Horizontal
5	7236.0000	45.34	-9.99	74.00	28.66	150	291	Horizontal
6	7236.0000	35.92	-9.99	54.00	18.08	150	291	Horizontal
7	17899.345	47.12	0.68	54.00	6.88	150	91	Horizontal



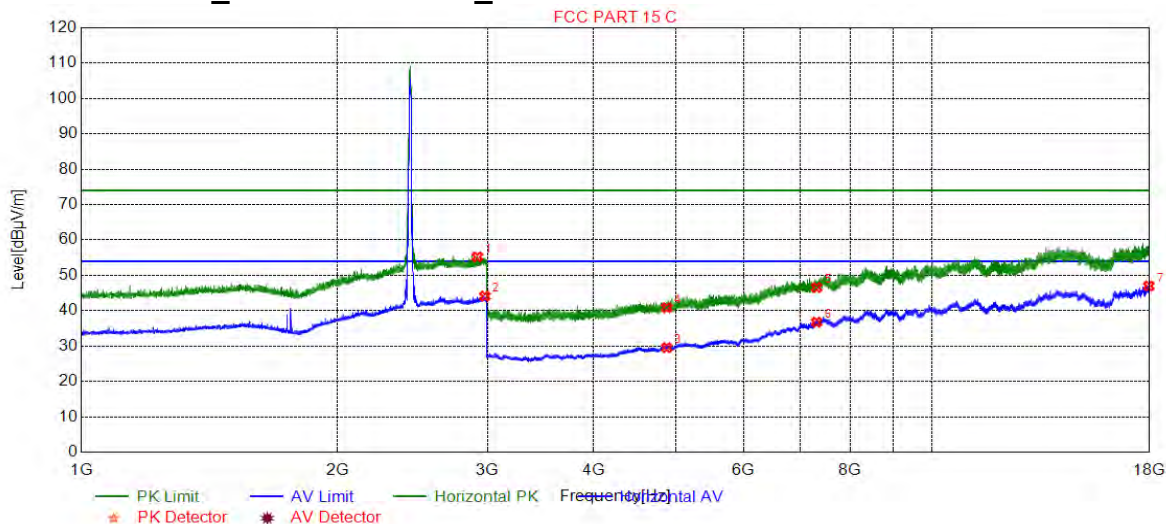
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4.9.2.1.5 802.11B_ Middle Channel_ Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2919.9800	55.22	9.36	74.00	18.78	150	224	Horizontal
2	2980.4951	44.10	9.54	54.00	9.90	150	32	Horizontal
3	4874.0000	29.56	-17.99	54.00	24.44	150	128	Horizontal
4	4874.0000	40.84	-17.99	74.00	33.16	150	322	Horizontal
5	7311.0000	46.55	-9.74	74.00	27.45	150	132	Horizontal
6	7311.0000	36.76	-9.74	54.00	17.24	150	83	Horizontal
7	17960.398	46.98	0.71	54.00	7.02	150	32	Horizontal



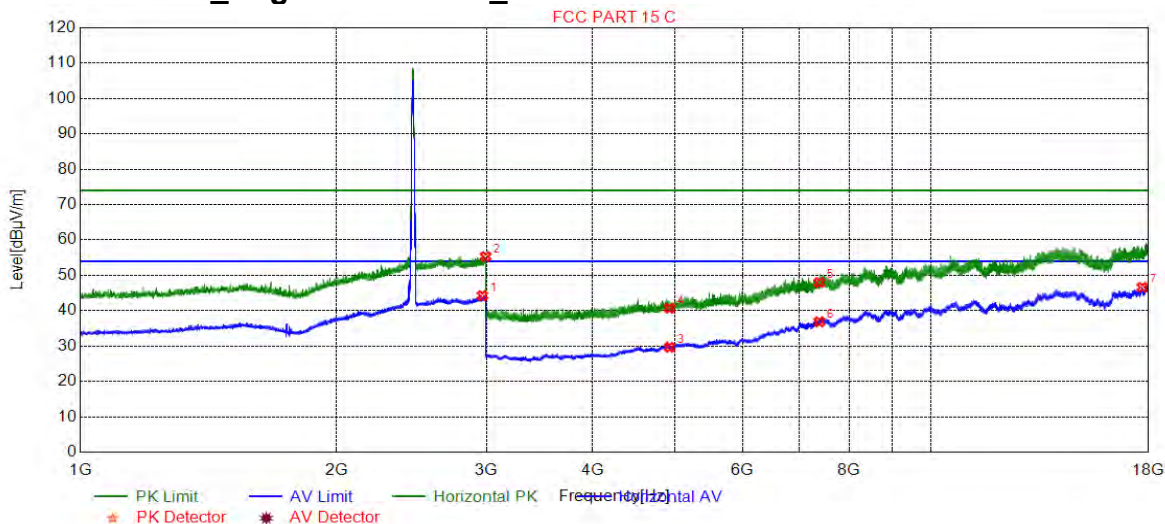
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4.9.2.1.6 802.11B_ Highest Channel_ Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2967.4919	44.28	9.60	54.00	9.72	150	155	Horizontal
2	2993.9985	55.32	9.48	74.00	18.68	150	59	Horizontal
3	4924.0000	29.65	-17.72	54.00	24.35	150	159	Horizontal
4	4924.0000	40.71	-17.72	74.00	33.29	150	333	Horizontal
5	7386.0000	47.95	-9.55	74.00	26.05	150	241	Horizontal
6	7386.0000	36.86	-9.55	54.00	17.14	150	342	Horizontal
7	17699.685	46.60	1.36	54.00	7.40	150	190	Horizontal



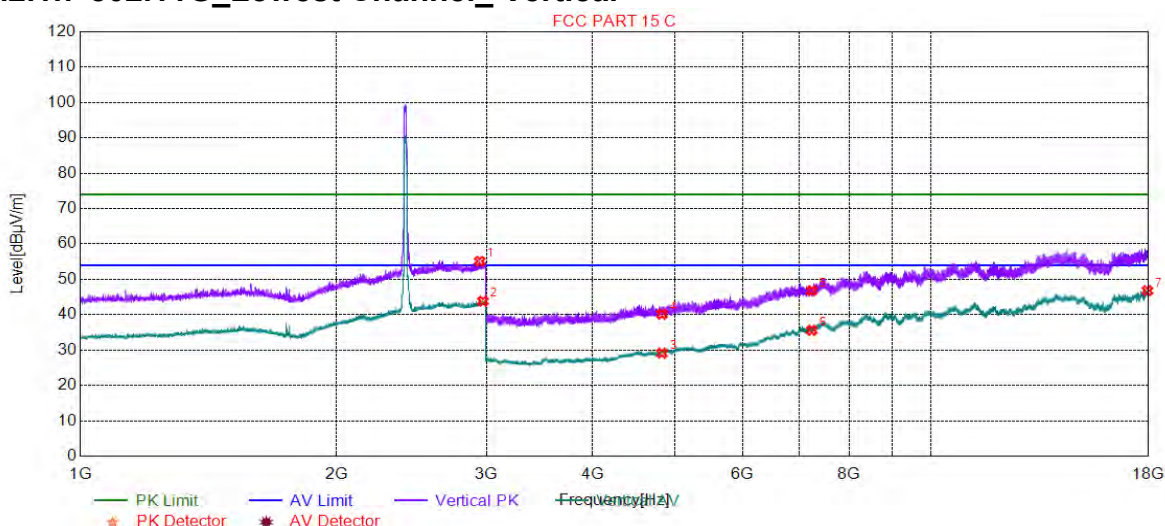
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4.9.2.1.7 802.11G_Lowest Channel_Vertical

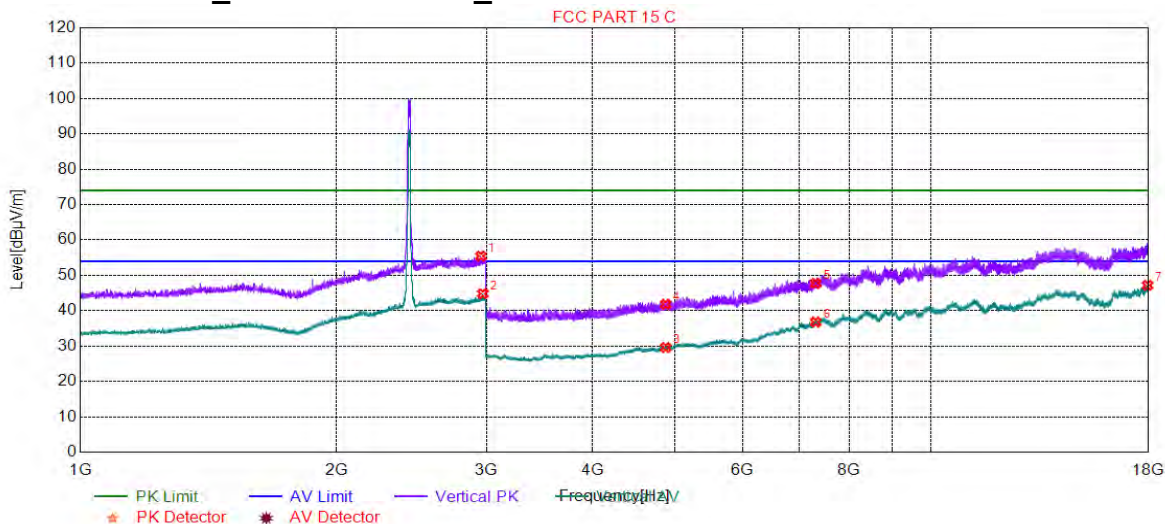


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2946.4866	55.13	9.64	74.00	18.87	150	24	Vertical
2	2971.9930	43.83	9.58	54.00	10.17	150	190	Vertical
3	4824.0000	29.14	-18.21	54.00	24.86	150	18	Vertical
4	4824.0000	40.15	-18.21	74.00	33.85	150	156	Vertical
5	7236.0000	46.78	-9.99	74.00	27.22	150	342	Vertical
6	7236.0000	35.61	-9.99	54.00	18.39	150	39	Vertical
7	17938.946	46.79	0.70	54.00	7.21	150	190	Vertical



4.9.2.1.8 802.11G_ Middle Channel_ Vertical

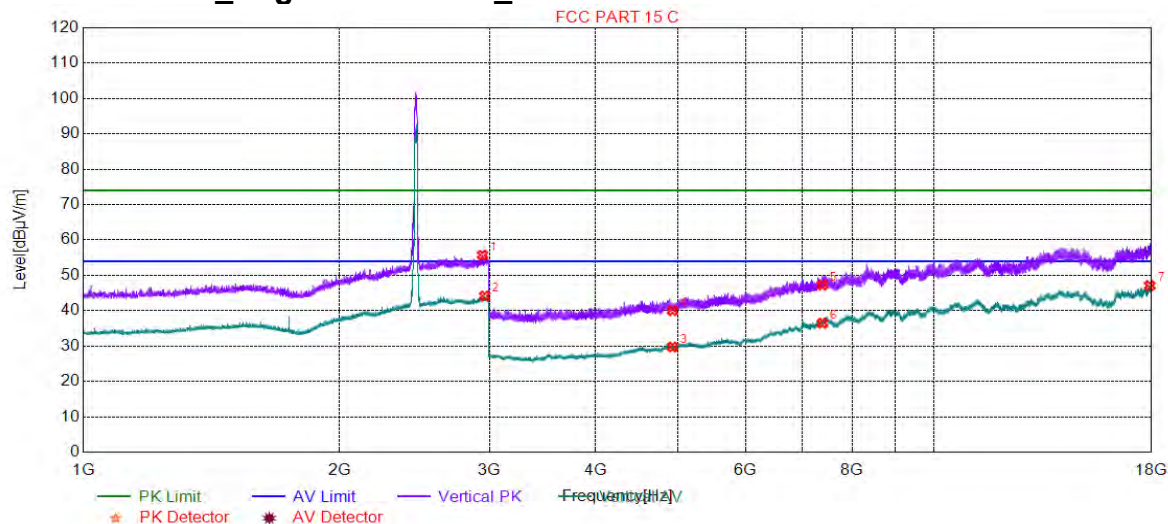


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2955.9890	55.44	9.65	74.00	18.56	150	272	Vertical
2	2970.9927	44.81	9.58	54.00	9.19	150	50	Vertical
3	4874.0000	29.60	-17.99	54.00	24.40	150	266	Vertical
4	4874.0000	41.83	-17.99	74.00	32.17	150	18	Vertical
5	7311.0000	47.75	-9.74	74.00	26.25	150	39	Vertical
6	7311.0000	36.81	-9.74	54.00	17.19	150	39	Vertical
7	17951.597	47.17	0.71	54.00	6.83	150	140	Vertical



4.9.2.1.9 802.11G_ Highest Channel_ Vertical

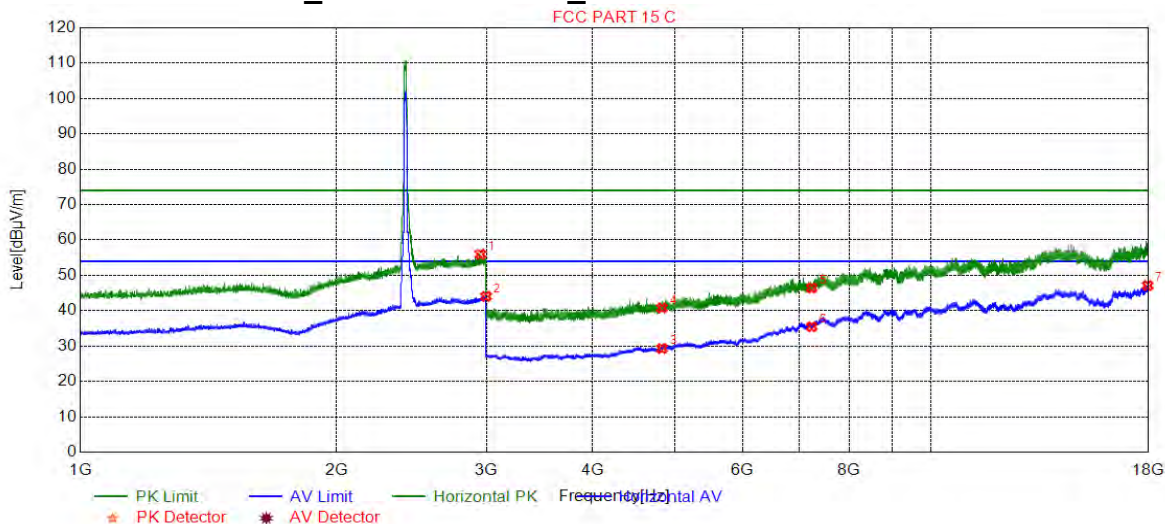


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2944.9862	55.73	9.63	74.00	18.27	150	275	Vertical
2	2962.4906	44.16	9.62	54.00	9.84	150	136	Vertical
3	4924.0000	29.75	-17.72	54.00	24.25	150	100	Vertical
4	4924.0000	40.02	-17.72	74.00	33.98	150	183	Vertical
5	7386.0000	47.28	-9.55	74.00	26.72	150	241	Vertical
6	7386.0000	36.50	-9.55	54.00	17.50	150	342	Vertical
7	17908.695	47.10	0.69	54.00	6.90	150	241	Vertical



4.9.2.1.10 802.11G_Lowest Channel_ Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2952.4881	55.98	9.67	74.00	18.02	150	18	Horizontal
2	2997.4994	44.05	9.46	54.00	9.95	150	114	Horizontal
3	4824.0000	29.32	-18.21	54.00	24.68	150	18	Horizontal
4	4824.0000	40.77	-18.21	74.00	33.23	150	101	Horizontal
5	7236.0000	46.42	-9.99	74.00	27.58	150	90	Horizontal
6	7236.0000	35.48	-9.99	54.00	18.52	150	342	Horizontal
7	17954.347	47.12	0.71	54.00	6.88	150	39	Horizontal



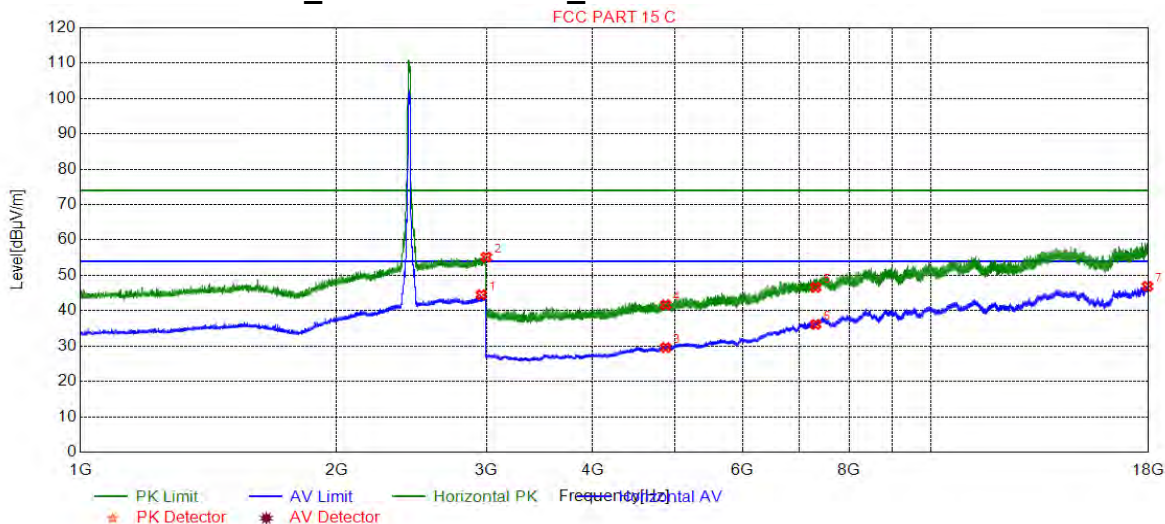
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4.9.2.1.11 802.11G_ Middle Channel_ Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2958.4896	44.51	9.64	54.00	9.49	150	211	Horizontal
2	2999.4999	55.15	9.45	74.00	18.85	150	141	Horizontal
3	4874.0000	29.58	-17.99	54.00	24.42	150	18	Horizontal
4	4874.0000	41.66	-17.99	74.00	32.34	150	240	Horizontal
5	7311.0000	46.59	-9.74	74.00	27.41	150	292	Horizontal
6	7311.0000	36.12	-9.74	54.00	17.88	150	35	Horizontal
7	17947.197	46.87	0.70	54.00	7.13	150	188	Horizontal



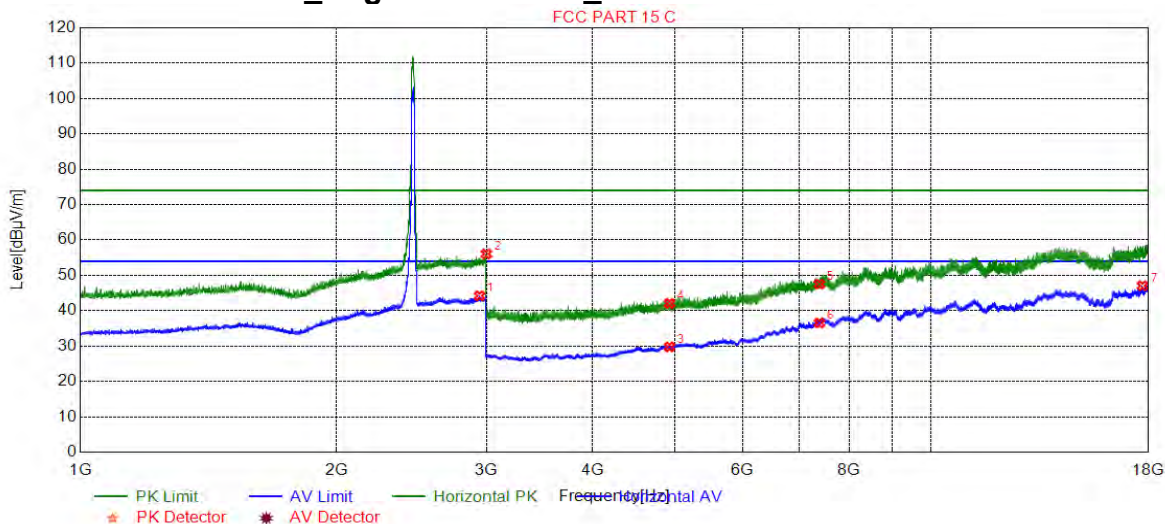
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4.9.2.1.12 802.11G_ Highest Channel_ Horizontal

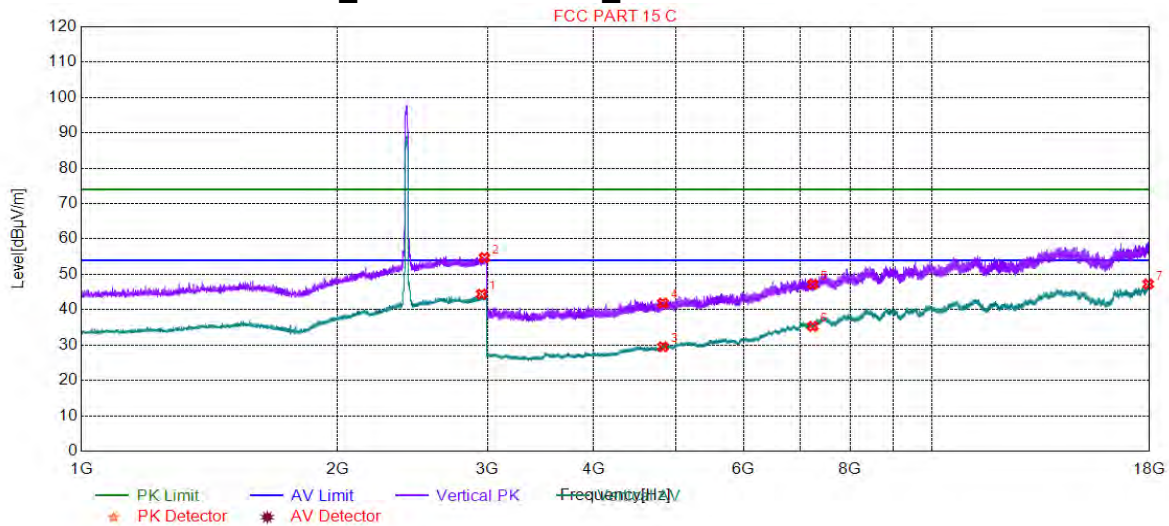


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2945.4864	44.21	9.63	54.00	9.79	150	169	Horizontal
2	2999.4999	56.05	9.45	74.00	17.95	150	293	Horizontal
3	4924.0000	29.77	-17.72	54.00	24.23	150	73	Horizontal
4	4924.0000	42.09	-17.72	74.00	31.91	150	293	Horizontal
5	7386.0000	47.51	-9.55	74.00	26.49	150	342	Horizontal
6	7386.0000	36.53	-9.55	54.00	17.47	150	190	Horizontal
7	17703.535	47.06	1.29	54.00	6.94	150	140	Horizontal



4.9.2.1.13 802.11N20_Lowest Channel_Vertical

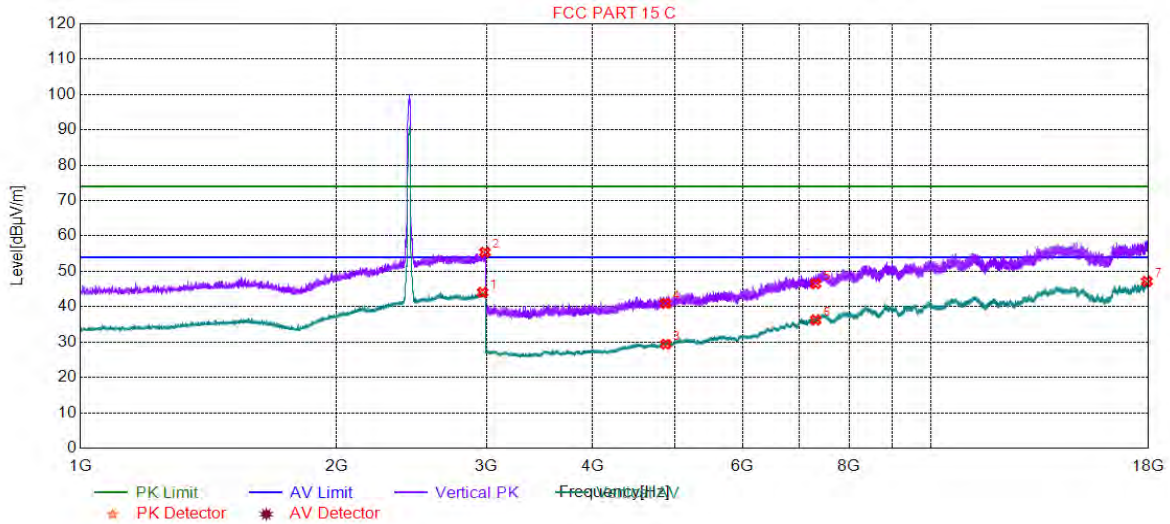


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2953.9885	44.40	9.66	54.00	9.60	150	40	Vertical
2	2975.9940	54.73	9.56	74.00	19.27	150	301	Vertical
3	4824.0000	29.53	-18.21	54.00	24.47	150	293	Vertical
4	4824.0000	41.89	-18.21	74.00	32.11	150	45	Vertical
5	7236.0000	47.19	-9.99	74.00	26.81	150	38	Vertical
6	7236.0000	35.30	-9.99	54.00	18.70	150	89	Vertical
7	17931.796	47.24	0.70	54.00	6.76	150	241	Vertical



4.9.2.1.14 802.11N20_Middle Channel_Vertical

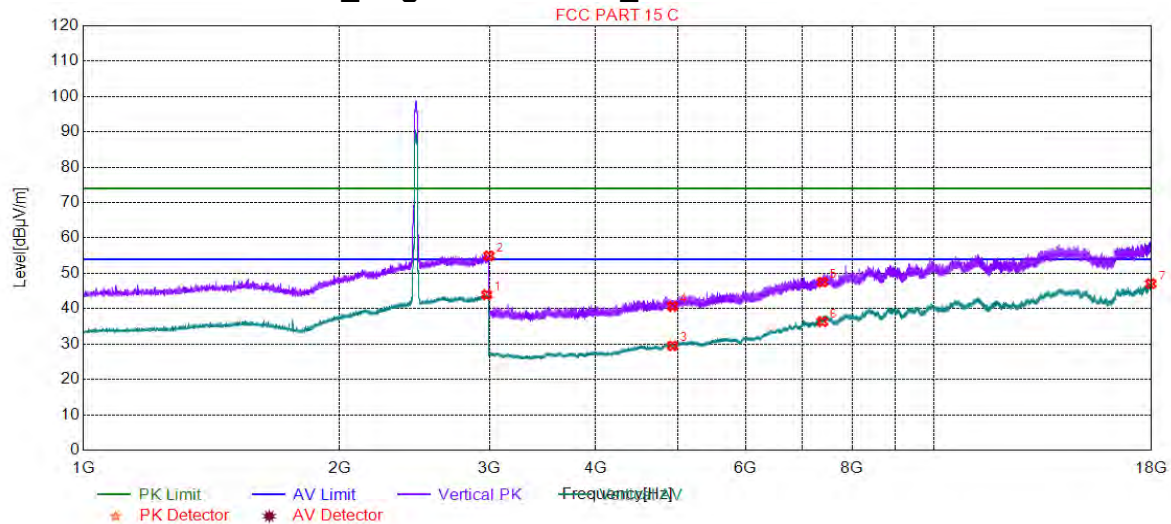


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2968.9922	44.03	9.59	54.00	9.97	150	39	Vertical
2	2988.4971	55.41	9.50	74.00	18.59	150	39	Vertical
3	4874.0000	29.40	-17.99	54.00	24.60	150	45	Vertical
4	4874.0000	40.90	-17.99	74.00	33.10	150	210	Vertical
5	7311.0000	46.49	-9.74	74.00	27.51	150	0	Vertical
6	7311.0000	36.25	-9.74	54.00	17.75	150	241	Vertical
7	17914.745	47.17	0.69	54.00	6.83	150	90	Vertical



4.9.2.1.15 802.11N20_ Highest Channel_ Vertical



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2978.9947	43.95	9.55	54.00	10.05	150	246	Vertical
2	2996.9993	54.96	9.46	74.00	19.04	150	260	Vertical
3	4924.0000	29.52	-17.72	54.00	24.48	150	46	Vertical
4	4924.0000	40.67	-17.72	74.00	33.33	150	156	Vertical
5	7386.0000	47.52	-9.55	74.00	26.48	150	242	Vertical
6	7386.0000	36.35	-9.55	54.00	17.65	150	292	Vertical
7	17958.197	47.08	0.71	54.00	6.92	150	92	Vertical



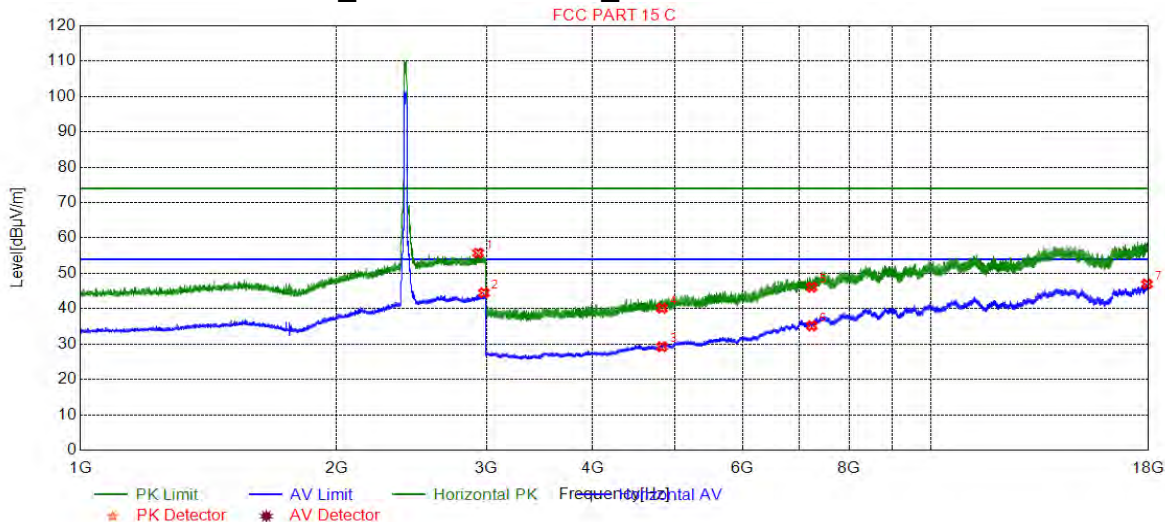
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4.9.2.1.16 802.11N20_Lowest Channel_ Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2933.9835	55.75	9.51	74.00	18.25	150	358	Horizontal
2	2980.9952	44.50	9.54	54.00	9.50	150	236	Horizontal
3	4824.0000	29.25	-18.21	54.00	24.75	150	237	Horizontal
4	4824.0000	40.14	-18.21	74.00	33.86	150	237	Horizontal
5	7236.0000	46.08	-9.99	74.00	27.92	150	0	Horizontal
6	7236.0000	35.17	-9.99	54.00	18.83	150	291	Horizontal
7	17916.945	46.98	0.70	54.00	7.02	150	40	Horizontal



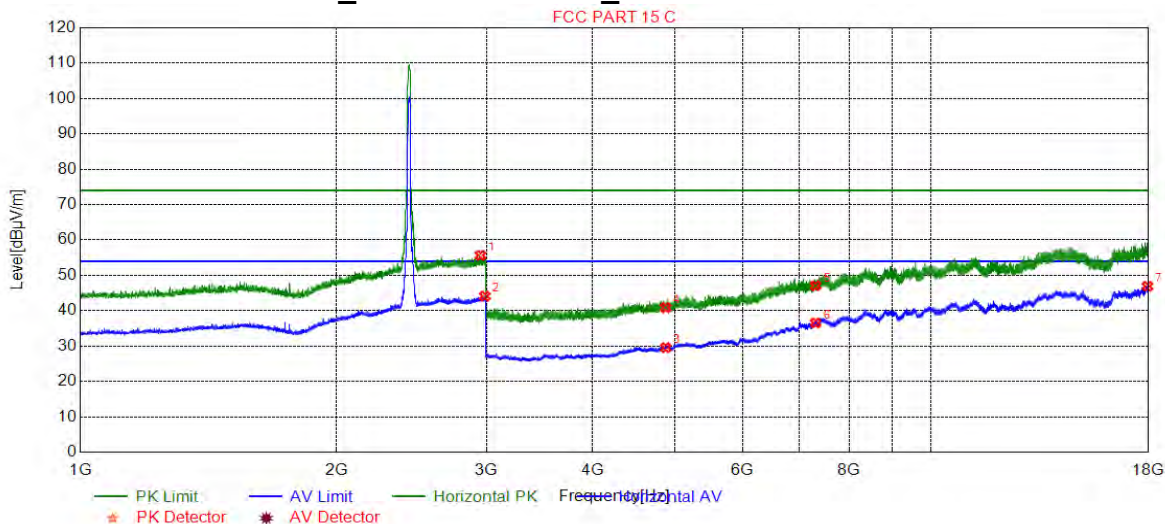
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4.9.2.1.17 802.11N20_Middle Channel_Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2952.4881	55.66	9.67	74.00	18.34	150	334	Horizontal
2	2987.4969	44.11	9.51	54.00	9.89	150	127	Horizontal
3	4874.0000	29.57	-17.99	54.00	24.43	150	302	Horizontal
4	4874.0000	40.85	-17.99	74.00	33.15	150	47	Horizontal
5	7311.0000	47.06	-9.74	74.00	26.94	150	186	Horizontal
6	7311.0000	36.56	-9.74	54.00	17.44	150	186	Horizontal
7	17944.997	46.90	0.70	54.00	7.10	150	342	Horizontal



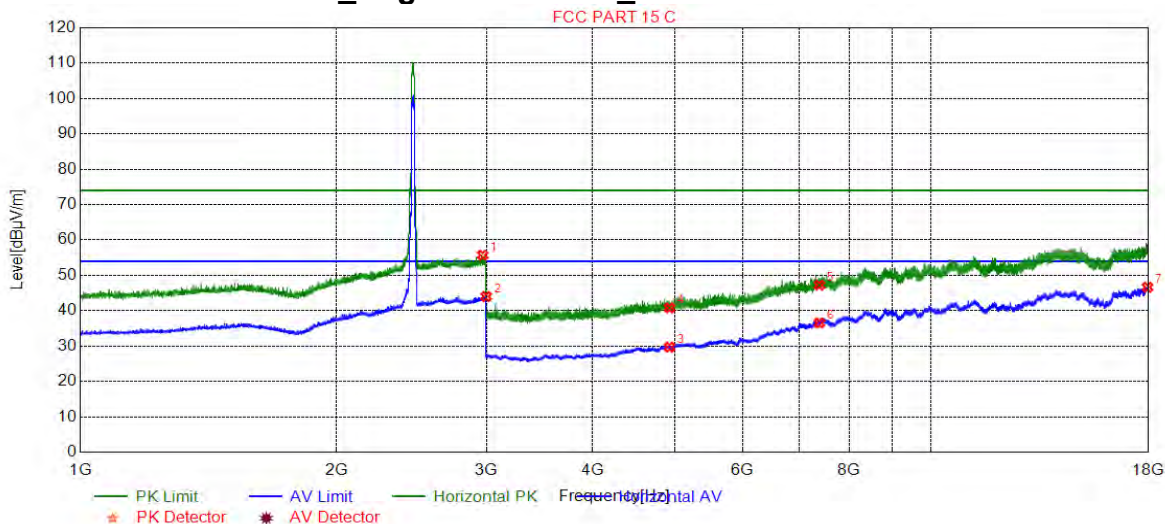
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4.9.2.1.18 802.11N20_ Highest Channel_ Horizontal

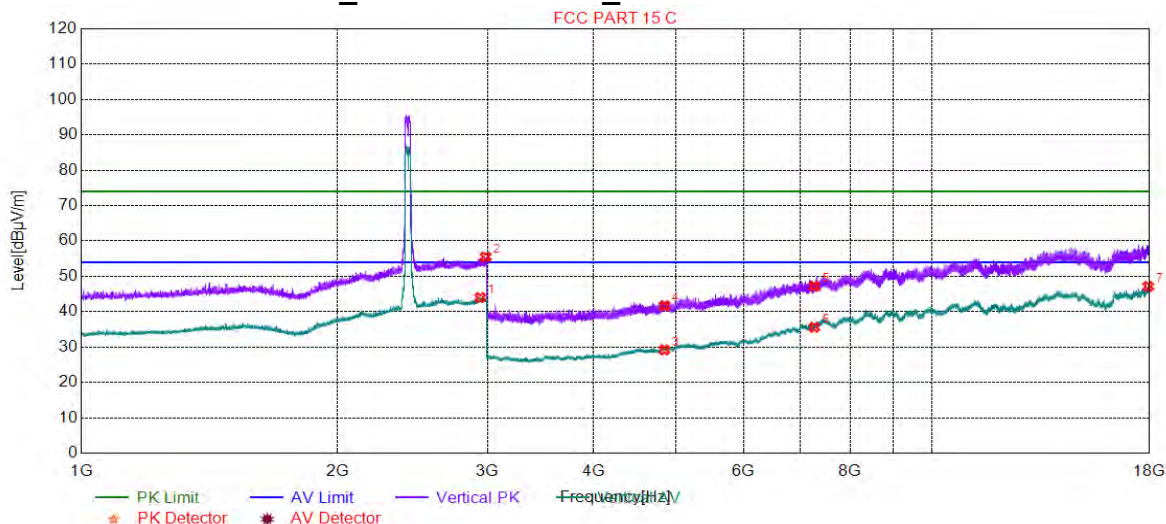


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2969.4924	55.73	9.59	74.00	18.27	150	321	Horizontal
2	2998.4996	44.02	9.46	54.00	9.98	150	74	Horizontal
3	4924.0000	29.71	-17.72	54.00	24.29	150	160	Horizontal
4	4924.0000	40.79	-17.72	74.00	33.21	150	132	Horizontal
5	7386.0000	47.22	-9.55	74.00	26.78	150	291	Horizontal
6	7386.0000	36.54	-9.55	54.00	17.46	150	342	Horizontal
7	17946.097	46.64	0.70	54.00	7.36	150	190	Horizontal



4.9.2.1.19 802.11N40_Lowest Channel_Vertical

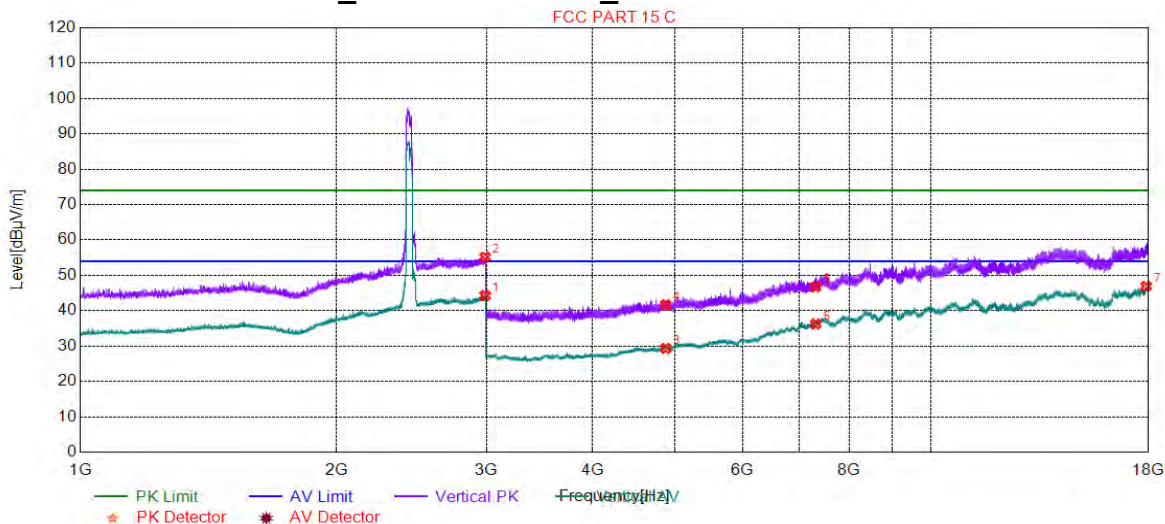


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2941.9855	44.01	9.59	54.00	9.99	150	259	Vertical
2	2985.4964	55.50	9.52	74.00	18.50	150	150	Vertical
3	4844.0000	29.21	-18.13	54.00	24.79	150	101	Vertical
4	4844.0000	41.68	-18.13	74.00	32.32	150	155	Vertical
5	7266.0000	47.22	-9.88	74.00	26.78	150	190	Vertical
6	7266.0000	35.58	-9.88	54.00	18.42	150	342	Vertical
7	17931.246	47.14	0.70	54.00	6.86	150	140	Vertical



4.9.2.1.20 802.11N40_Middle Channel_Vertical



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2988.9972	44.30	9.50	54.00	9.70	150	151	Vertical
2	2989.4974	55.20	9.50	74.00	18.80	150	342	Vertical
3	4874.0000	29.35	-17.99	54.00	24.65	150	18	Vertical
4	4874.0000	41.68	-17.99	74.00	32.32	150	209	Vertical
5	7311.0000	46.77	-9.74	74.00	27.23	150	342	Vertical
6	7311.0000	36.27	-9.74	54.00	17.73	150	291	Vertical
7	17878.994	46.91	0.41	54.00	7.09	150	191	Vertical



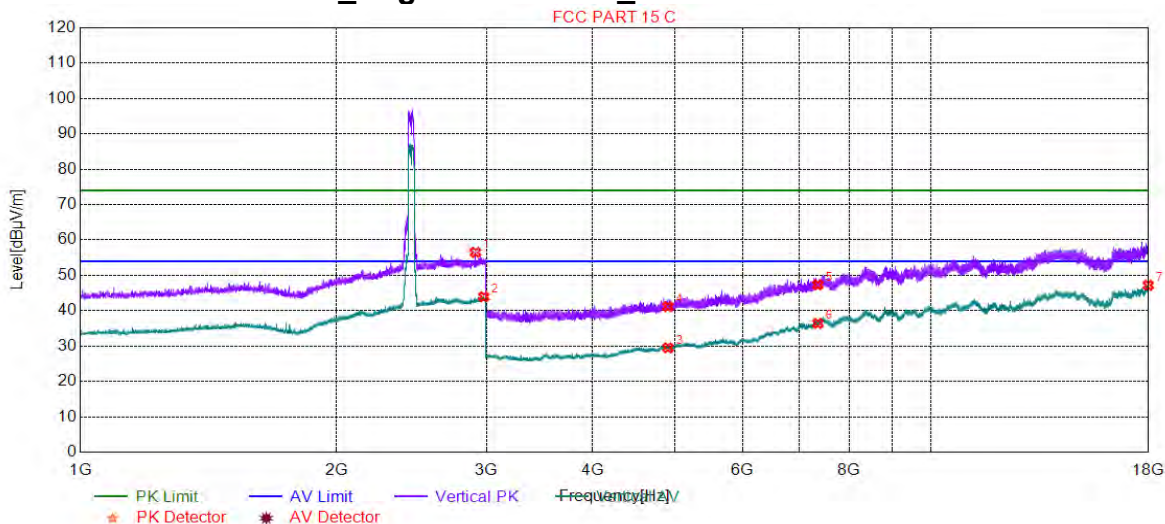
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4.9.2.1.21 802.11N40_ Highest Channel_ Vertical



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2912.9782	56.51	9.28	74.00	17.49	150	108	Vertical
2	2979.4949	43.95	9.54	54.00	10.05	150	315	Vertical
3	4904.0000	29.51	-17.85	54.00	24.49	150	18	Vertical
4	4904.0000	41.16	-17.85	74.00	32.84	150	159	Vertical
5	7356.0000	47.33	-9.62	74.00	26.67	150	33	Vertical
6	7356.0000	36.40	-9.62	54.00	17.60	150	342	Vertical
7	17979.099	47.20	0.71	54.00	6.80	150	84	Vertical



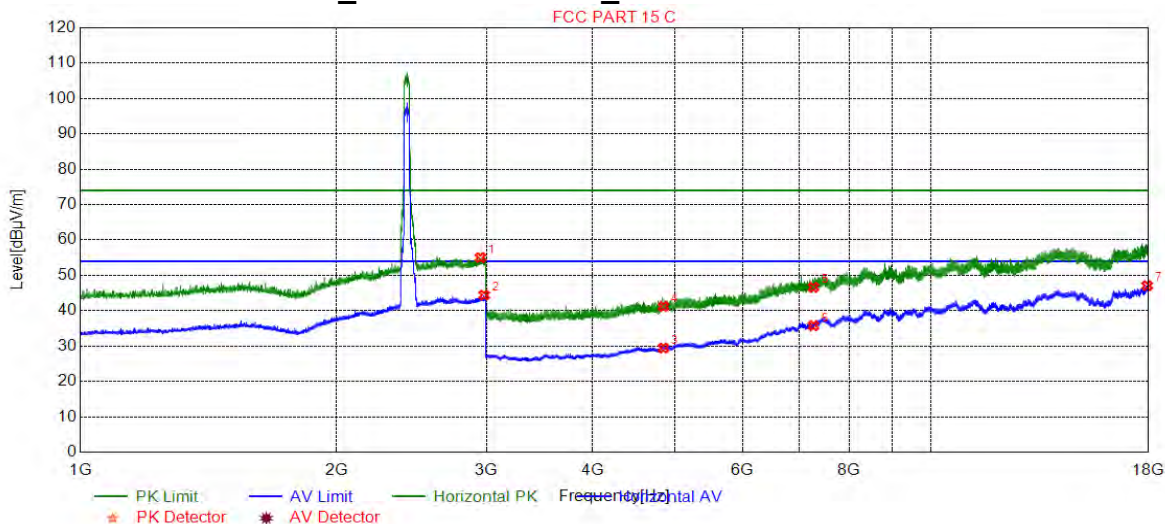
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4.9.2.1.22 802.11N40_Lowest Channel_Horizontal



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2951.9880	55.03	9.67	74.00	18.97	150	346	Horizontal
2	2981.9955	44.41	9.53	54.00	9.59	150	155	Horizontal
3	4844.0000	29.44	-18.13	54.00	24.56	150	210	Horizontal
4	4844.0000	41.21	-18.13	74.00	32.79	150	45	Horizontal
5	7266.0000	46.61	-9.88	74.00	27.39	150	0	Horizontal
6	7266.0000	35.77	-9.88	54.00	18.23	150	141	Horizontal
7	17928.496	47.10	0.70	54.00	6.90	150	90	Horizontal



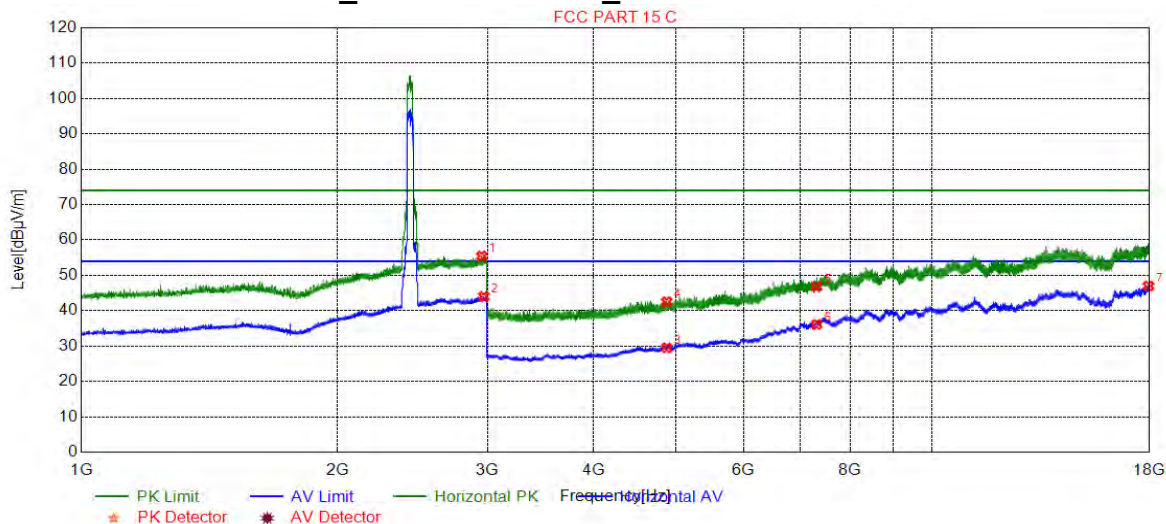
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4.9.2.1.23 802.11N40_Middle Channel_Horizontal

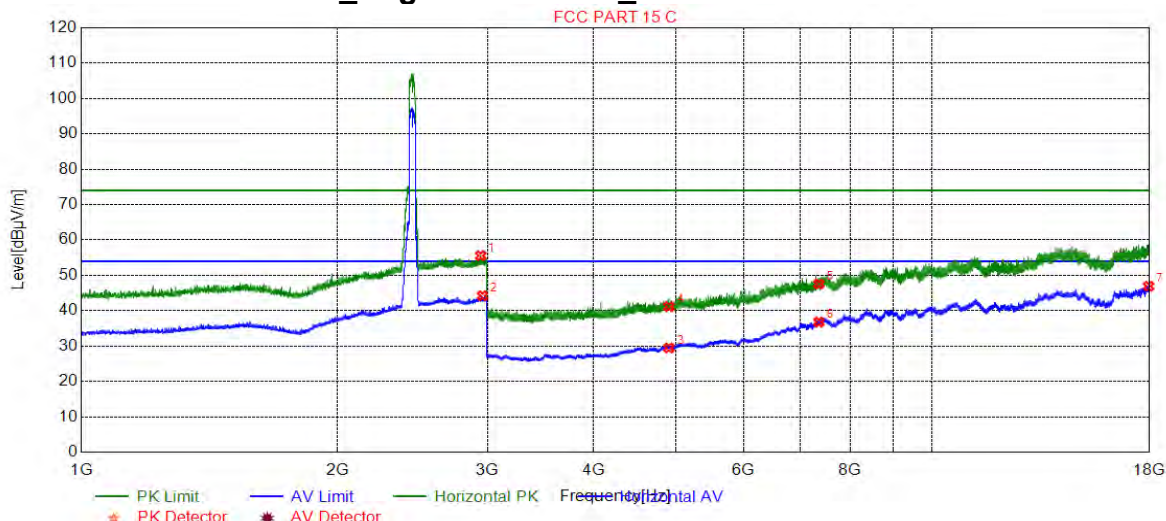


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2954.9887	55.44	9.66	74.00	18.56	150	74	Horizontal
2	2971.4929	44.01	9.58	54.00	9.99	150	18	Horizontal
3	4874.0000	29.50	-17.99	54.00	24.50	150	348	Horizontal
4	4874.0000	42.51	-17.99	74.00	31.49	150	265	Horizontal
5	7311.0000	46.80	-9.74	74.00	27.20	150	190	Horizontal
6	7311.0000	36.10	-9.74	54.00	17.90	150	241	Horizontal
7	17943.897	46.96	0.70	54.00	7.04	150	342	Horizontal



4.9.2.1.24 802.11N40_ Highest Channel_ Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2946.4866	55.56	9.64	74.00	18.44	150	128	Horizontal
2	2960.4901	44.23	9.63	54.00	9.77	150	346	Horizontal
3	4904.0000	29.47	-17.85	54.00	24.53	150	18	Horizontal
4	4904.0000	41.17	-17.85	74.00	32.83	150	163	Horizontal
5	7356.0000	47.57	-9.62	74.00	26.43	150	33	Horizontal
6	7356.0000	36.79	-9.62	54.00	17.21	150	291	Horizontal
7	17952.147	46.91	0.71	54.00	7.09	150	241	Horizontal

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz and 18GHz to 25GHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.
- 4) All Modes have been tested, but only the worst case data displayed in this report.



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4.10 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205		
Test Method:	ANSI C63.10: 2013 Section 11.12		
Test Site:	Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)		
Limit:	Frequency	Limit (dBuV/m @3m)	Remark
	30MHz-88MHz	40.0	Quasi-peak Value
	88MHz-216MHz	43.5	Quasi-peak Value
	216MHz-960MHz	46.0	Quasi-peak Value
	960MHz-1GHz	54.0	Quasi-peak Value
	Above 1GHz	54.0	Average Value
		74.0	Peak Value
Test Setup:			

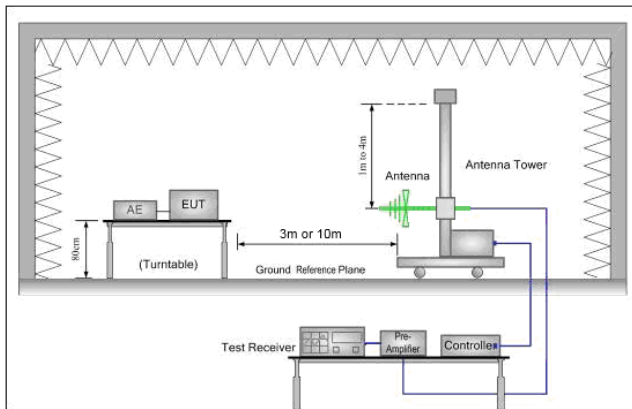


Figure 1. 30MHz to 1GHz

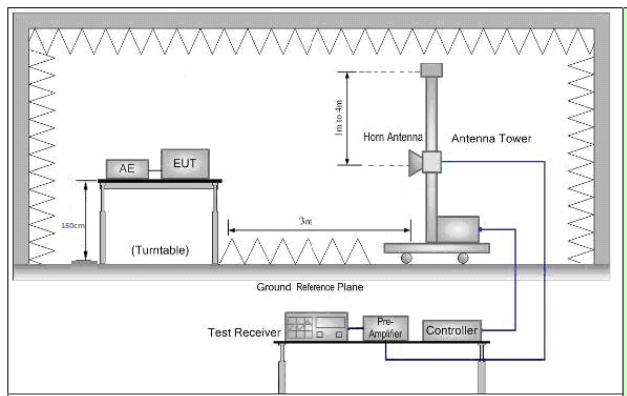


Figure 2. Above 1 GHz



Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. The antenna height 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. e. 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 from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel h. Test the EUT in the lowest channel , the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Charge +Transmitting mode. Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G ; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40). Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

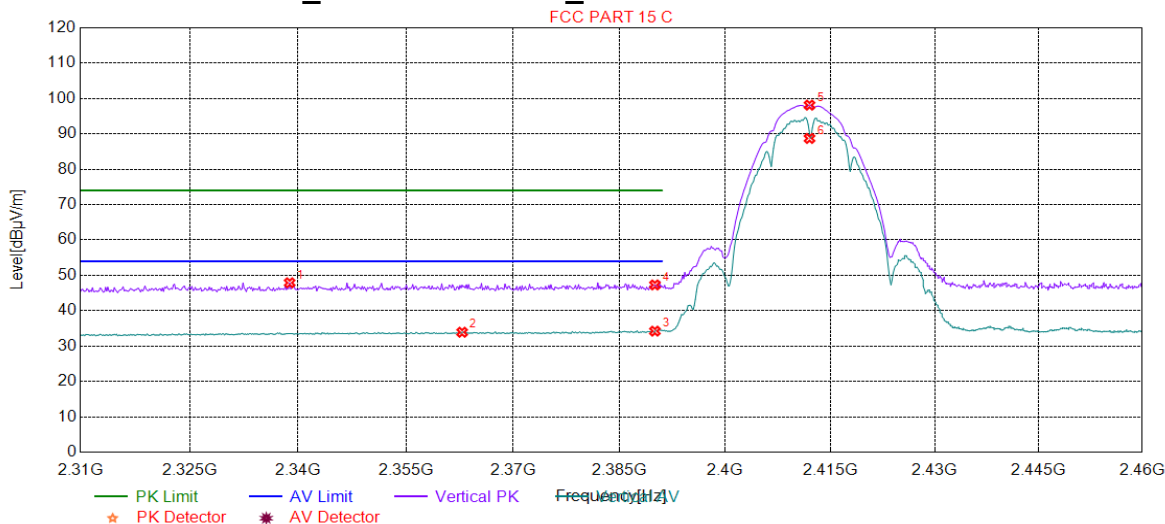




Test plot as follows:

4.10.1 ANT1

4.10.1.1 802.11B_Lowest Channel_Vertical

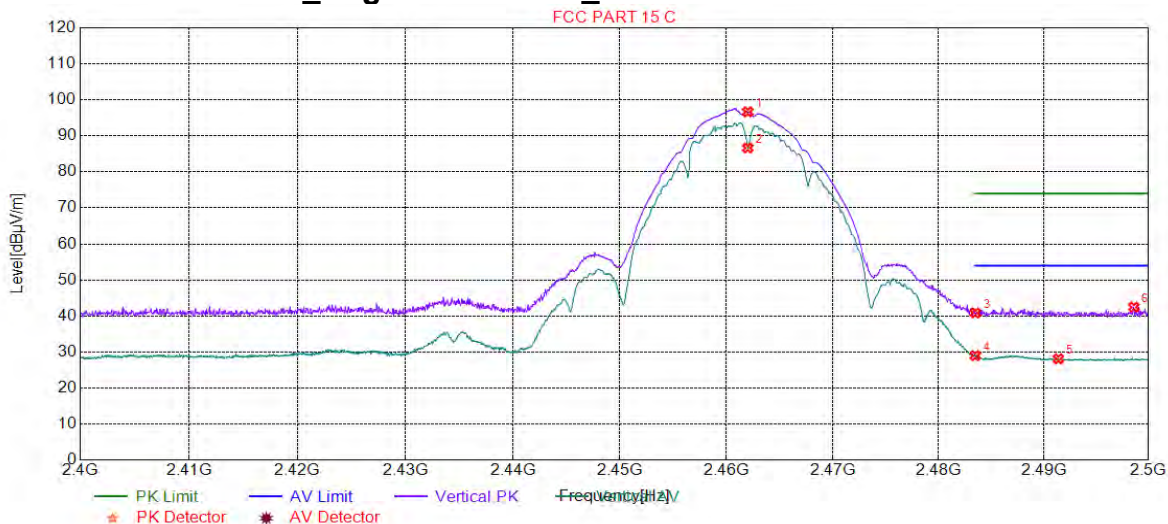


Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2338.8288	47.90	7.71	74.00	26.10	150	104	Vertical
2	2362.8529	33.92	7.80	54.00	20.08	150	7	Vertical
3	2390.0000	34.23	7.77	54.00	19.77	150	239	Vertical
4	2390.0000	47.29	7.77	74.00	26.71	150	268	Vertical
5	2412.0000	98.14	7.81	0.00	-98.14	150	288	Vertical
6	2412.0000	88.72	7.81	0.00	-88.72	150	292	Vertical



4.10.1.2 802.11B_ Highest Channel_ Vertical



Suspected List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.0000	96.67	7.98	0.00	-96.67	150	325	Vertical
2	2462.0000	86.65	7.98	0.00	-86.65	150	325	Vertical
3	2483.5000	40.85	8.01	74.00	33.15	150	314	Vertical
4	2483.5000	28.99	8.01	54.00	25.01	150	248	Vertical
5	2491.3957	28.13	8.02	54.00	25.87	150	88	Vertical
6	2498.5993	42.47	8.03	74.00	31.53	150	336	Vertical

