

Appendix J

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Cellular Wi-Fi Router

Trade Mark:  宏电
Hongdian

Test Model: H8956

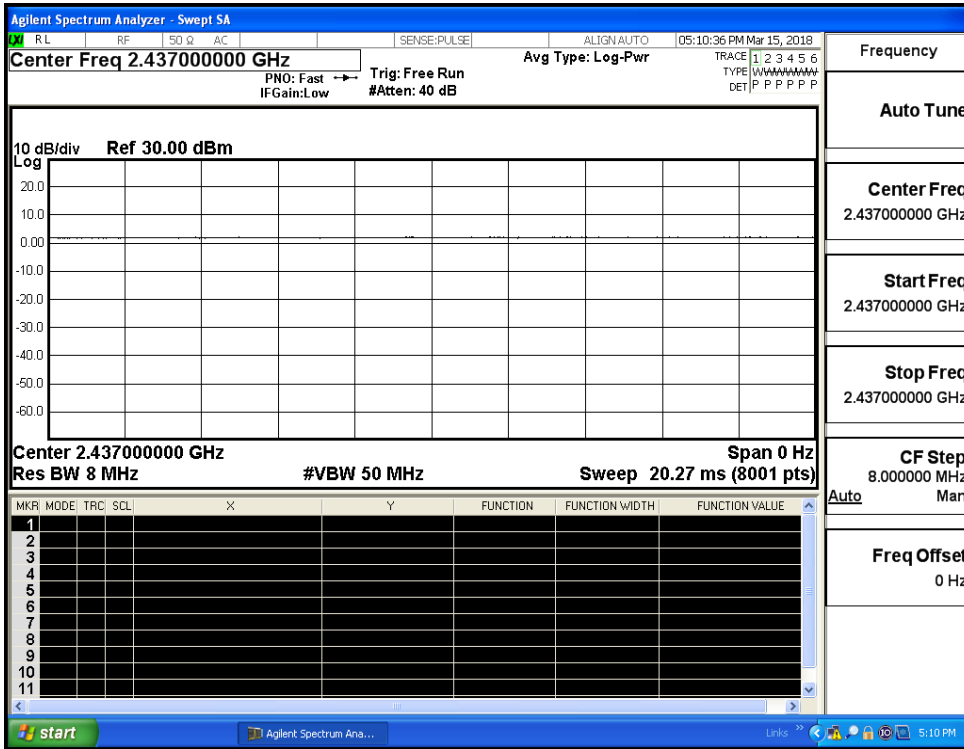
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Tom.Liu

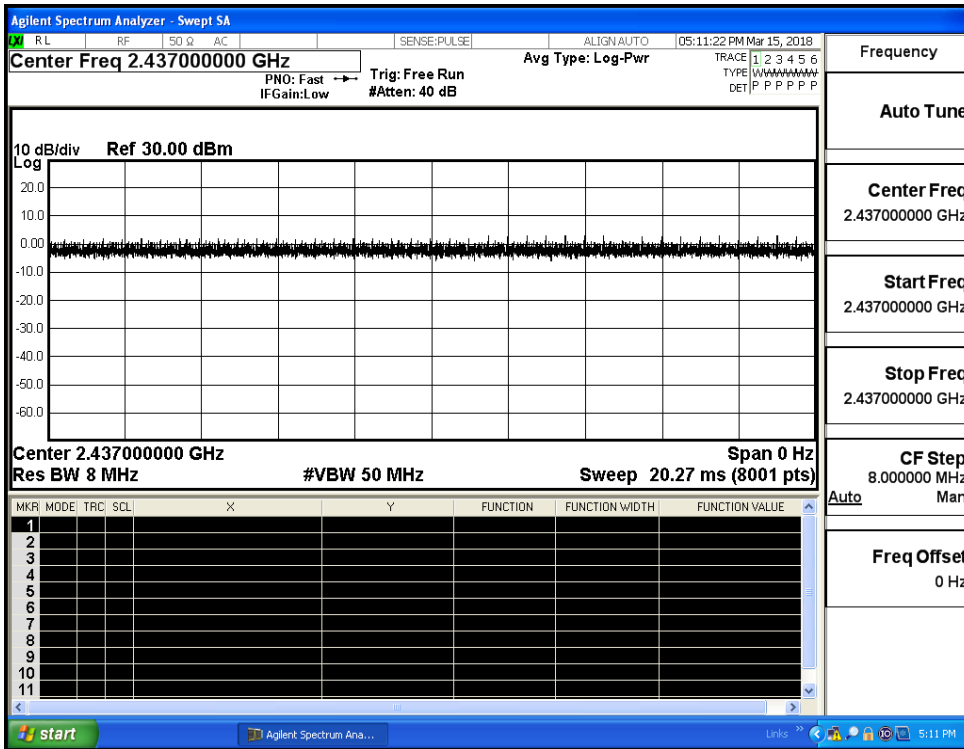
J.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS

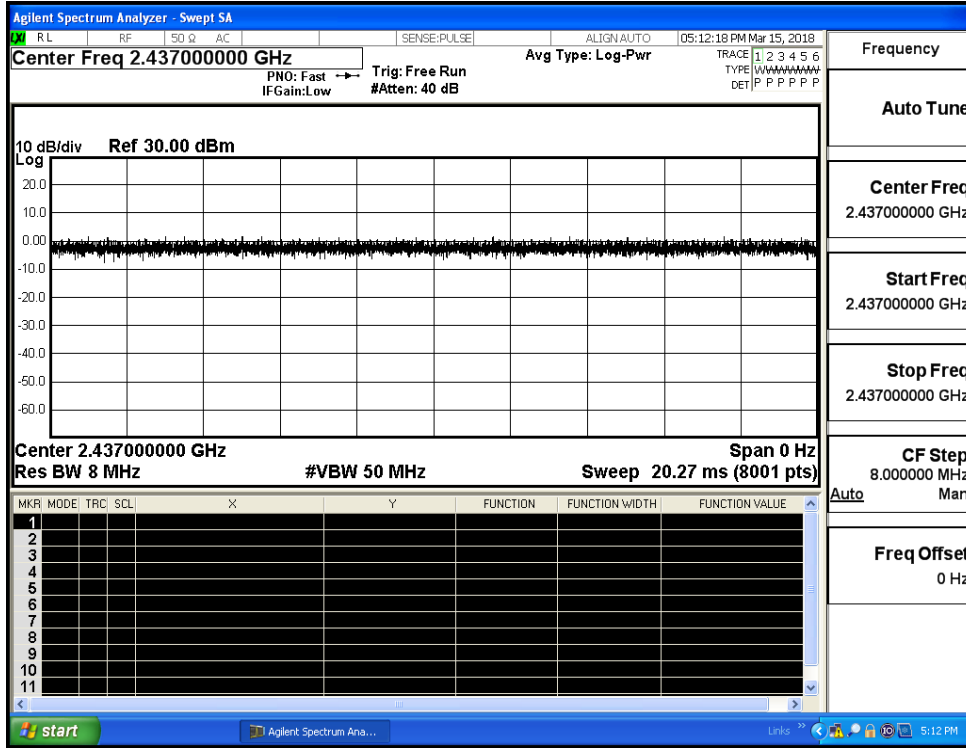
Duty Cycle_11B_2437_Ant1



Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1

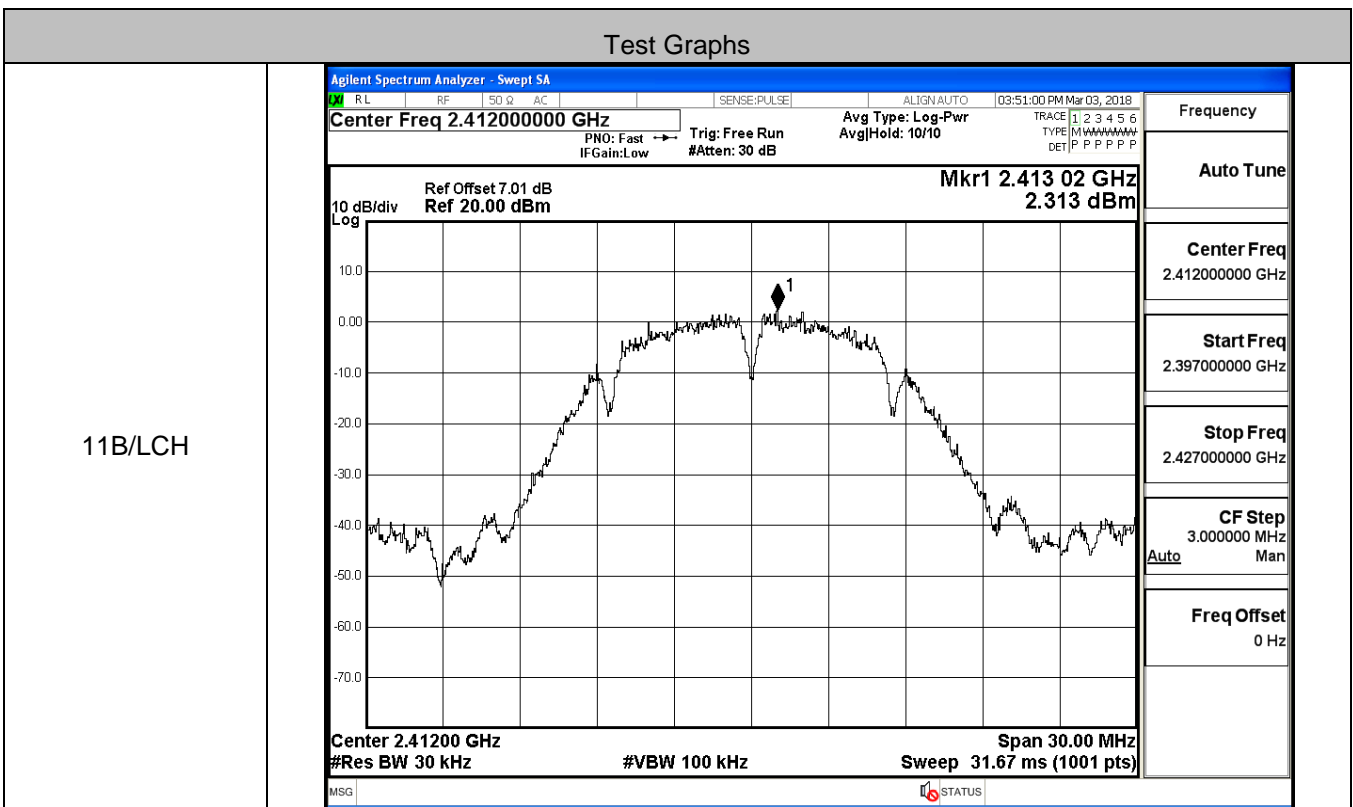


J.2 Maximum Conducted Output Power

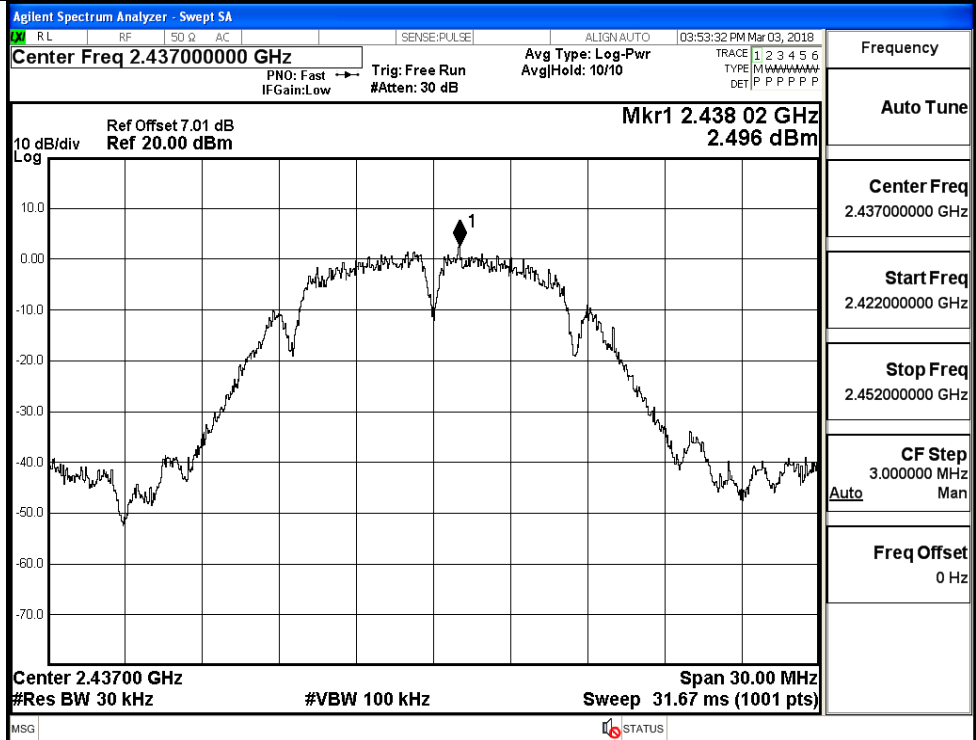
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	17.48	30	PASS
	MCH	17.62	30	PASS
	HCH	17.58	30	PASS
11G	LCH	15.26	30	PASS
	MCH	15.21	30	PASS
	HCH	15.66	30	PASS
11N20SISO	LCH	14.54	30	PASS
	MCH	14.66	30	PASS
	HCH	14.78	30	PASS

J.3 Maximum Power Spectral Density

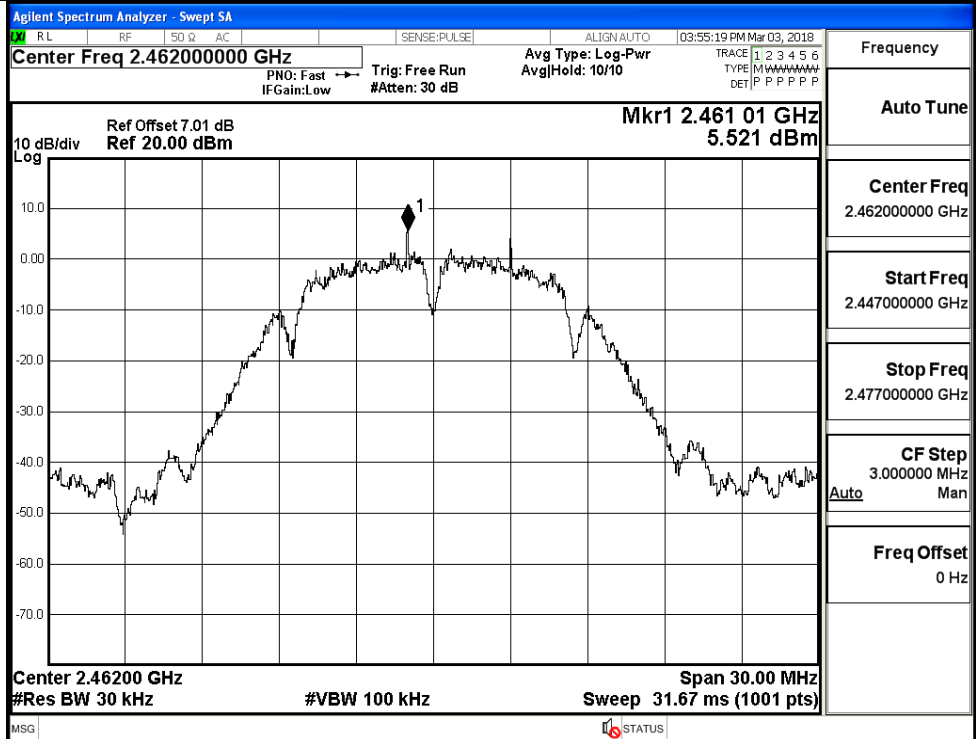
Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	2.313	8	PASS
	MCH	2.496	8	PASS
	HCH	5.521	8	PASS
11G	LCH	-3.479	8	PASS
	MCH	-2.077	8	PASS
	HCH	-1.674	8	PASS
11N20SISO	LCH	-3.371	8	PASS
	MCH	-0.960	8	PASS
	HCH	-1.465	8	PASS



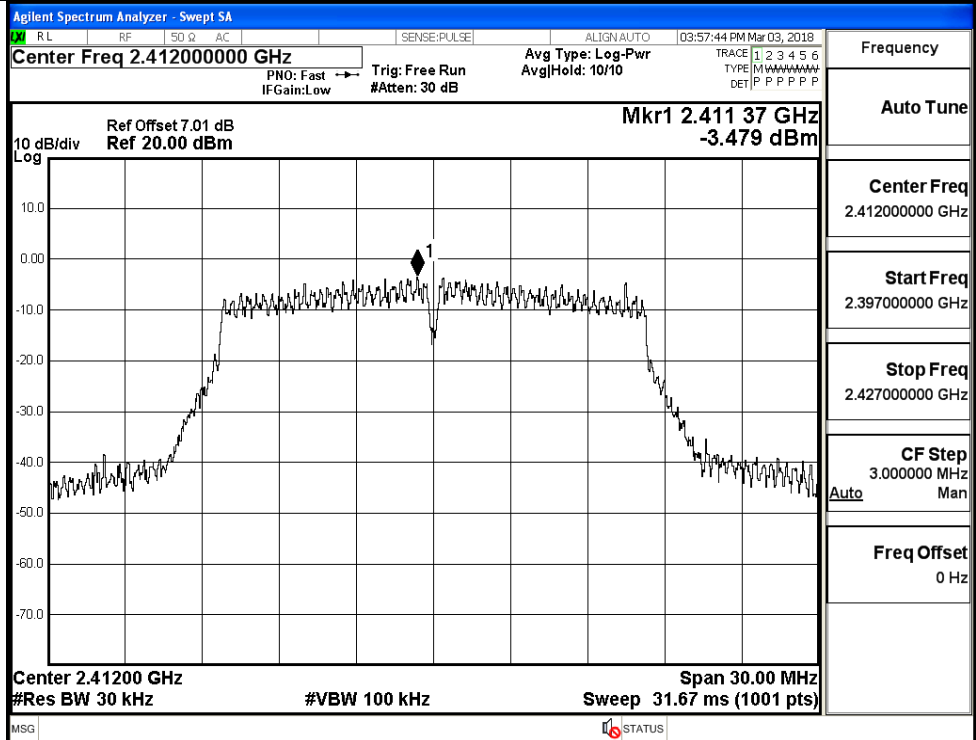
11B/MCH



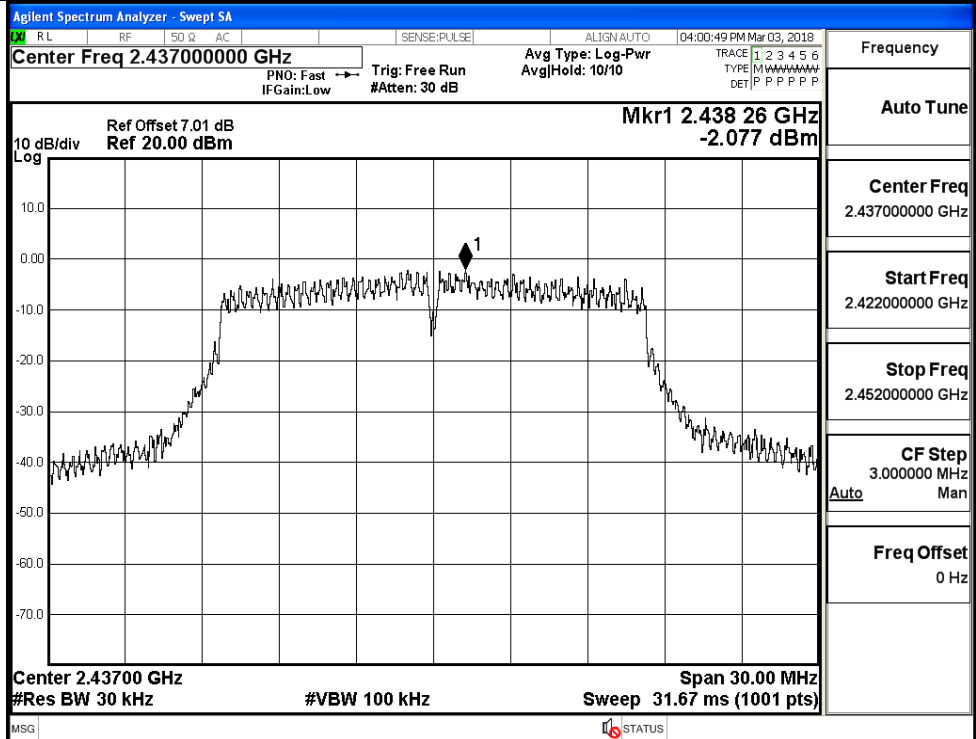
11B/HCH



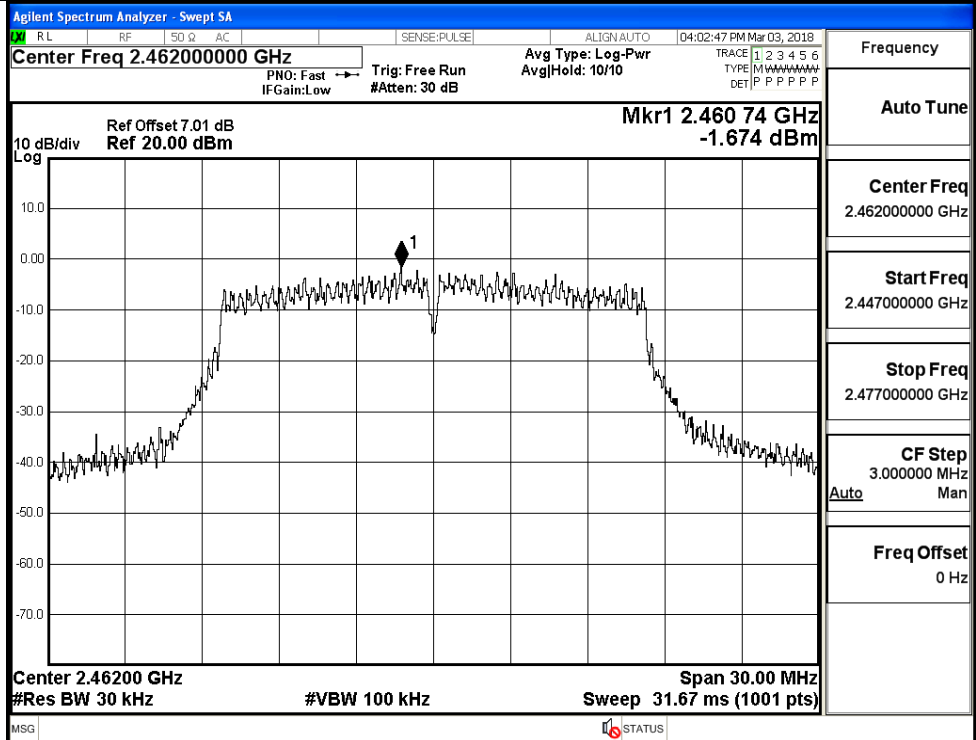
11G/LCH



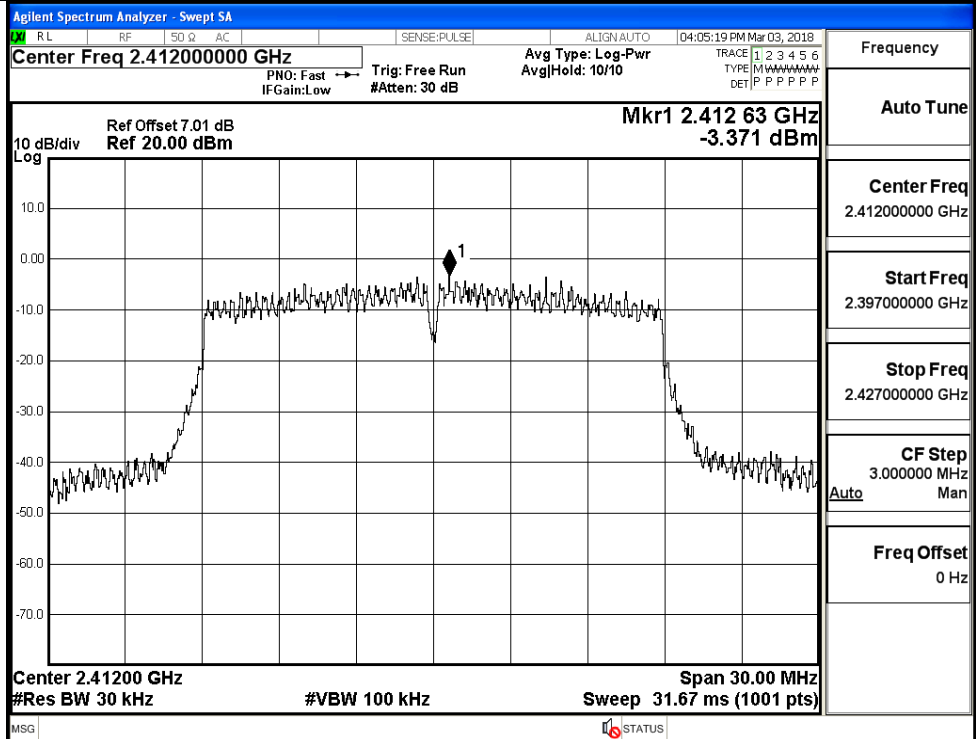
11G/MCH

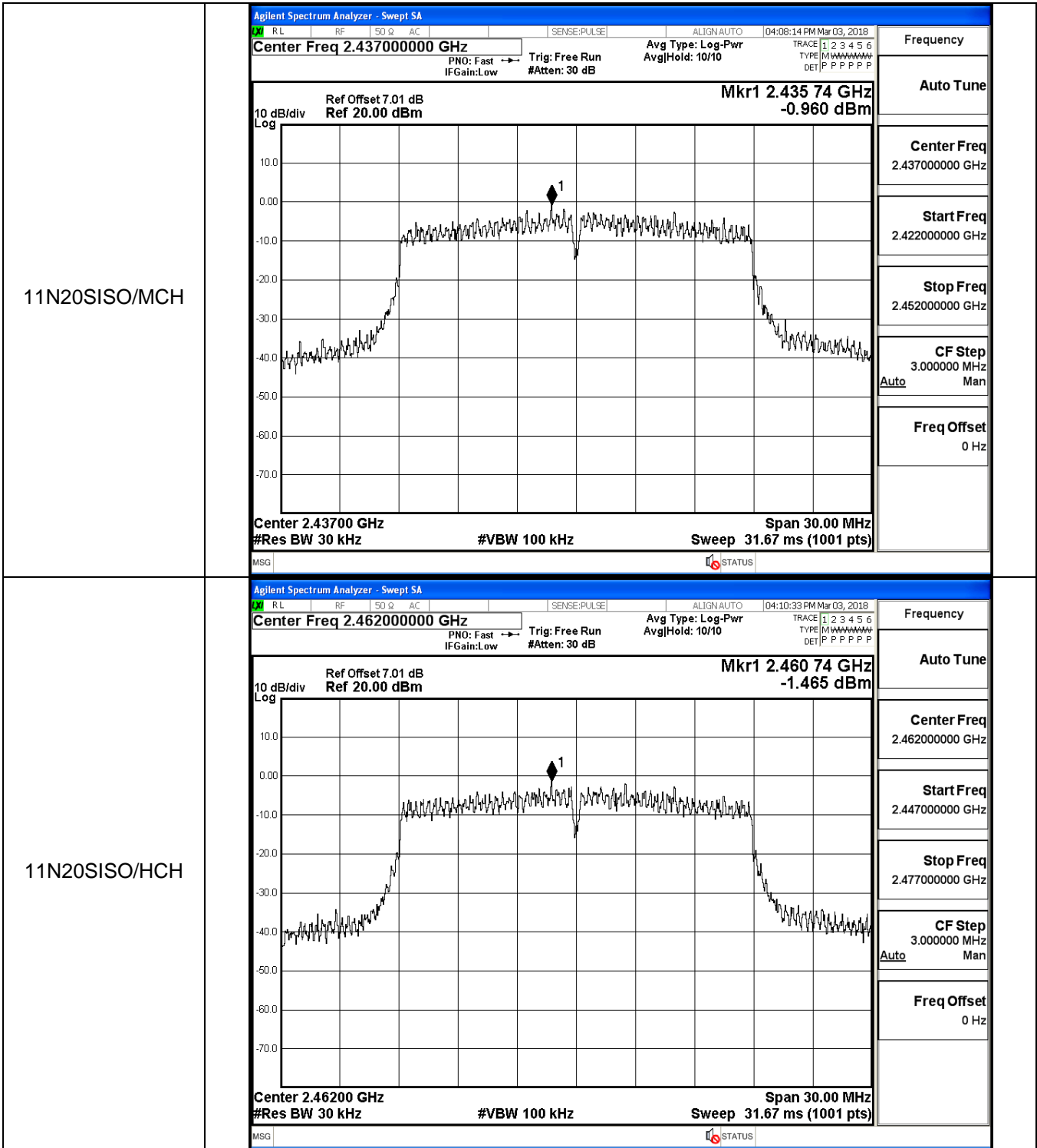


11G/HCH



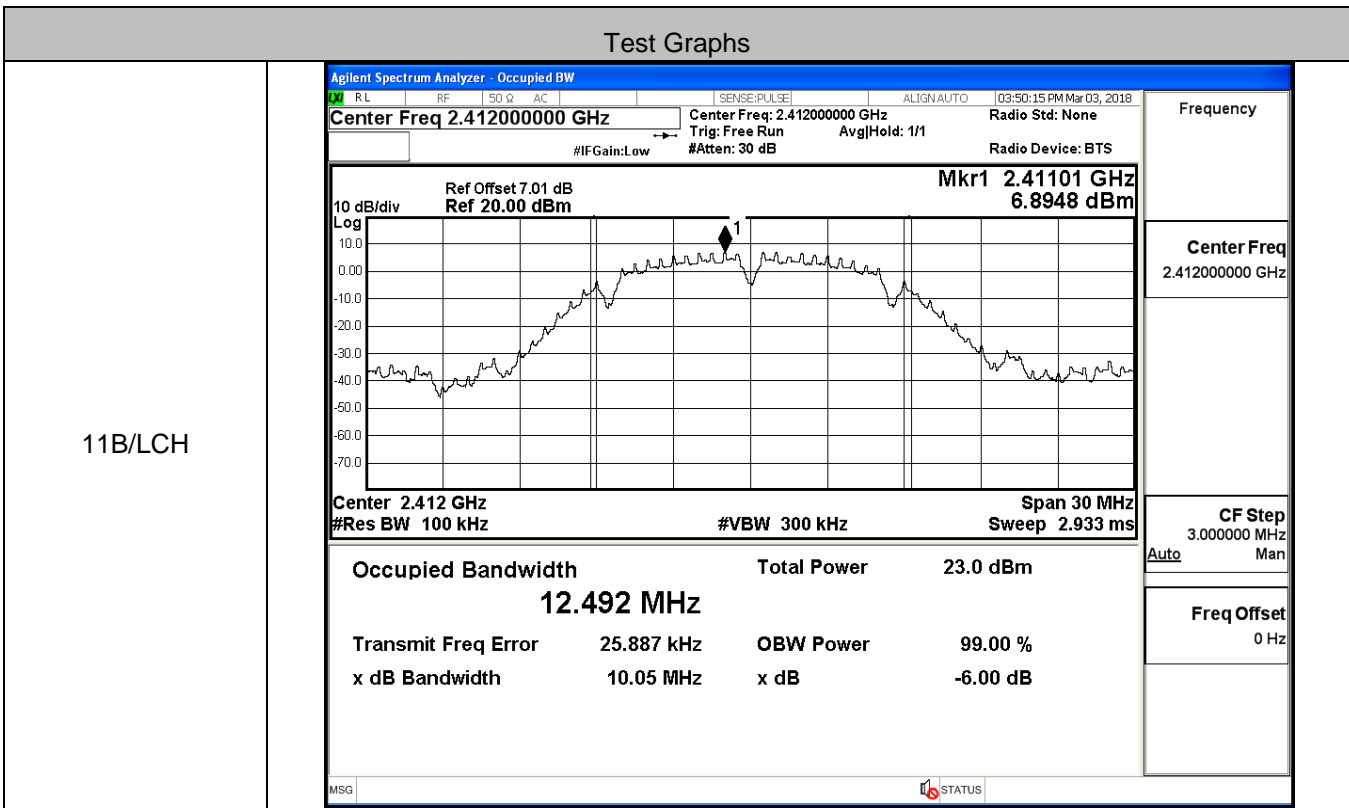
11N20SISO/LCH



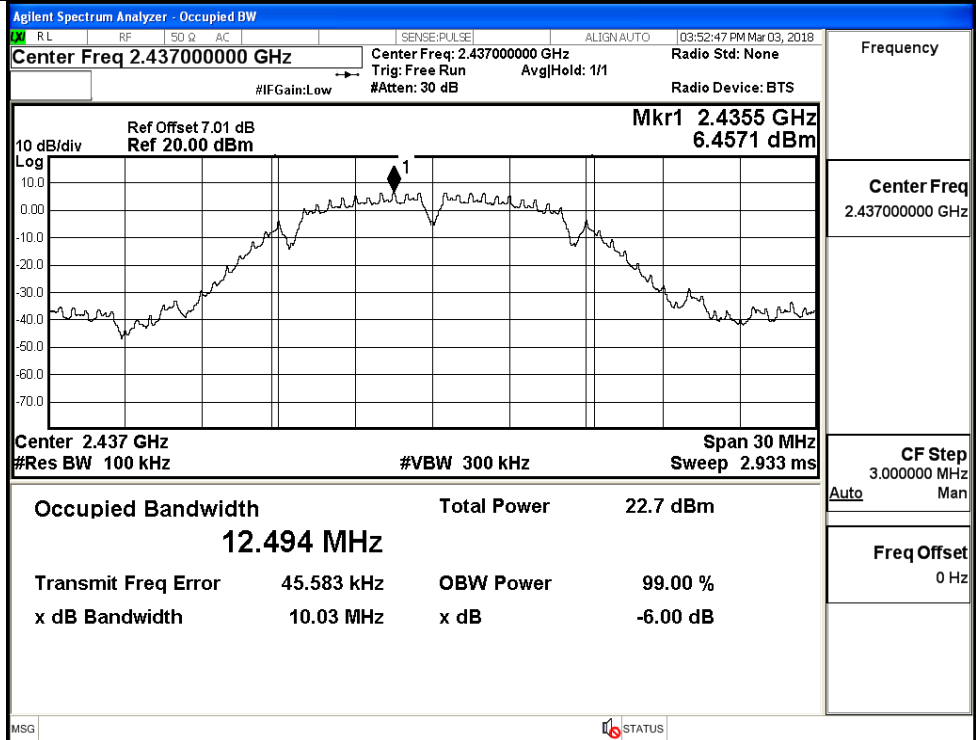


J.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.05	≥0.5	PASS
	MCH	10.03	≥0.5	PASS
	HCH	9.567	≥0.5	PASS
11G	LCH	15.15	≥0.5	PASS
	MCH	15.34	≥0.5	PASS
	HCH	15.13	≥0.5	PASS
11N20SISO	LCH	15.15	≥0.5	PASS
	MCH	15.16	≥0.5	PASS
	HCH	16.10	≥0.5	PASS



11B/MCH



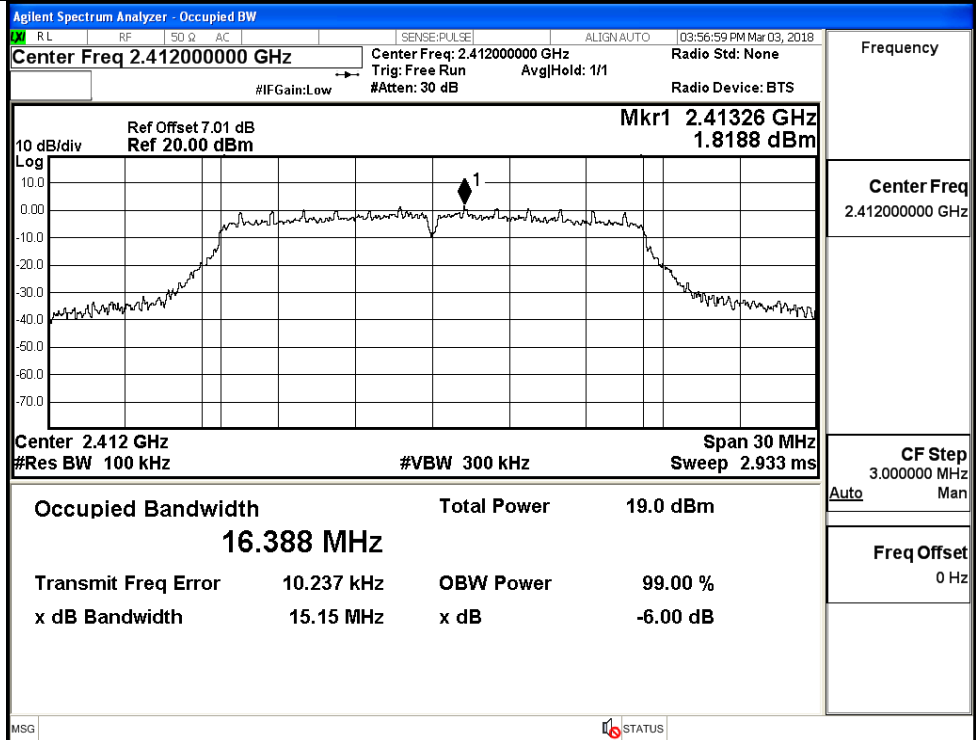
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/HCH



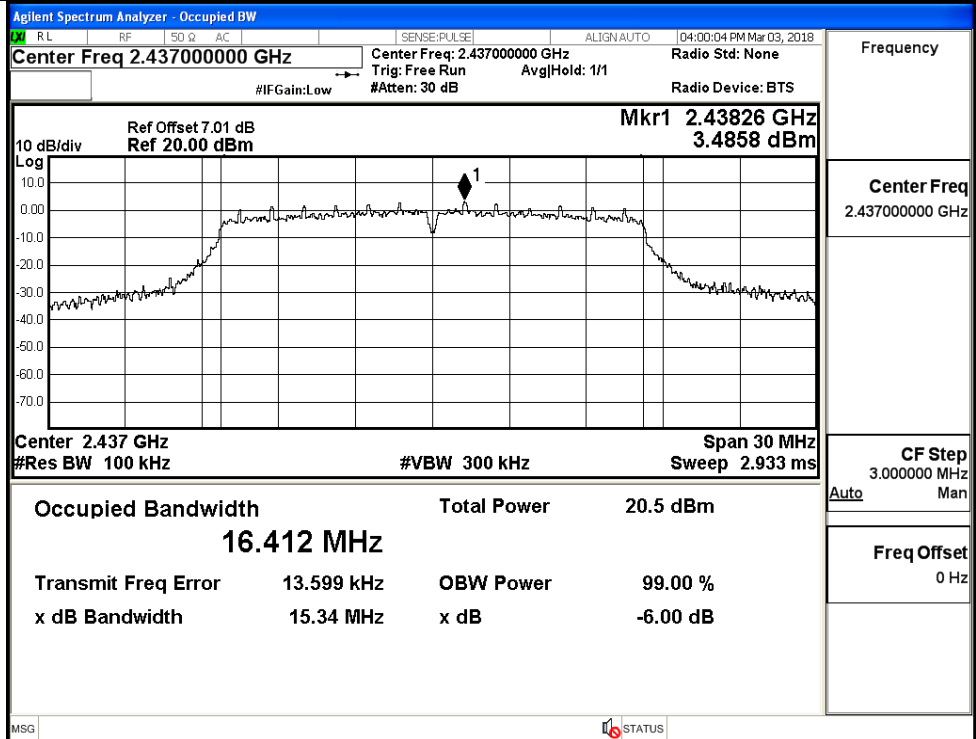
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH



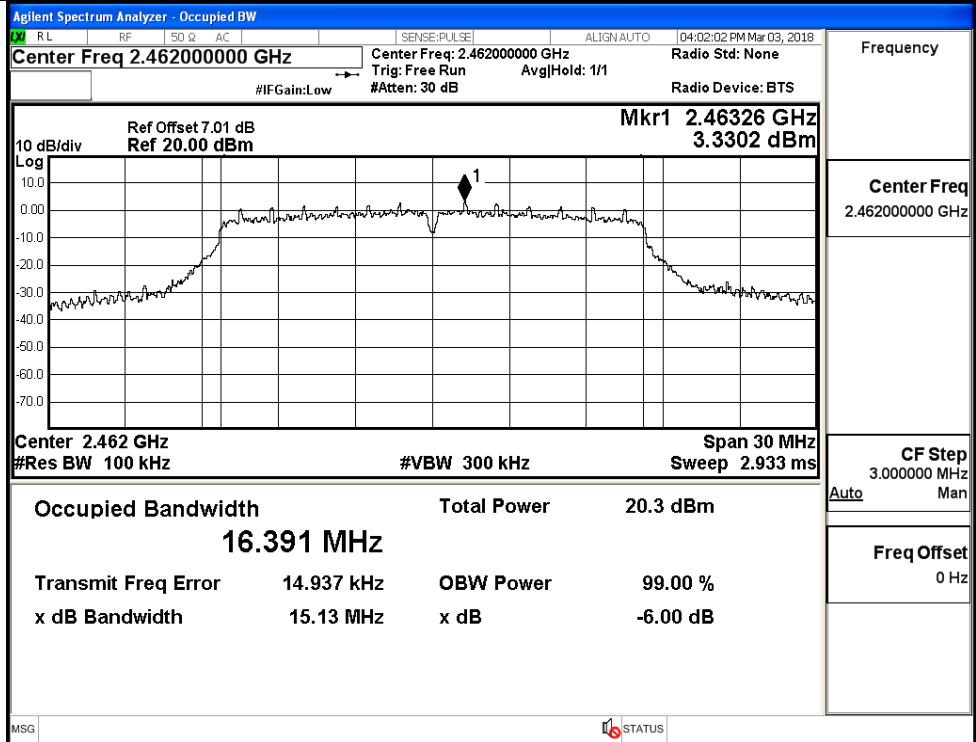
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CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/MCH

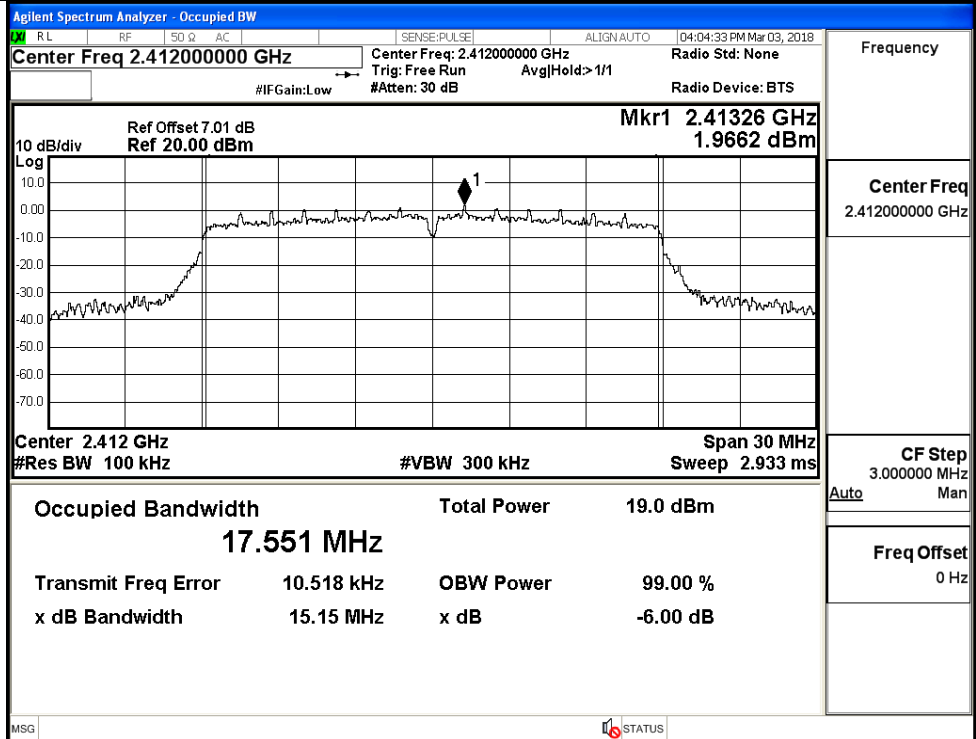


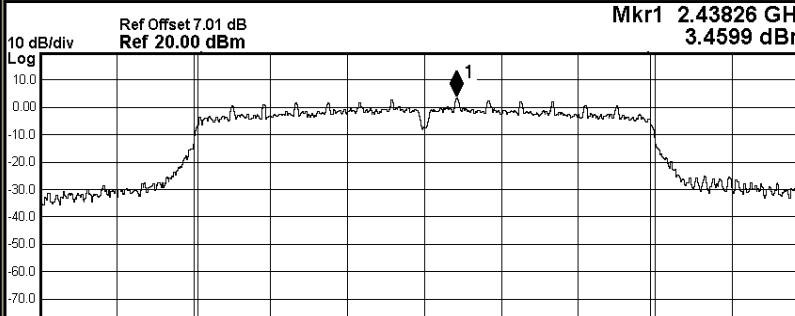
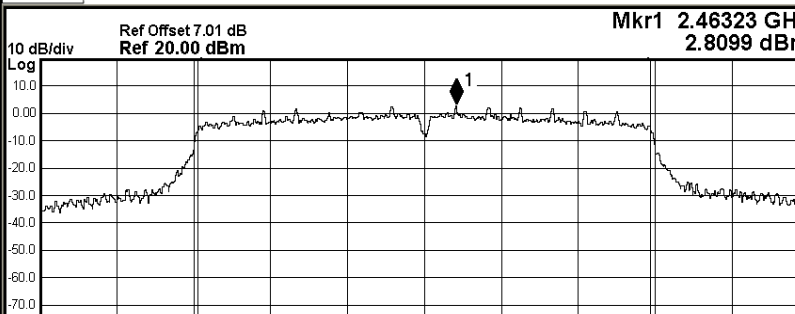
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Freq Offset	0 Hz

11G/HCH



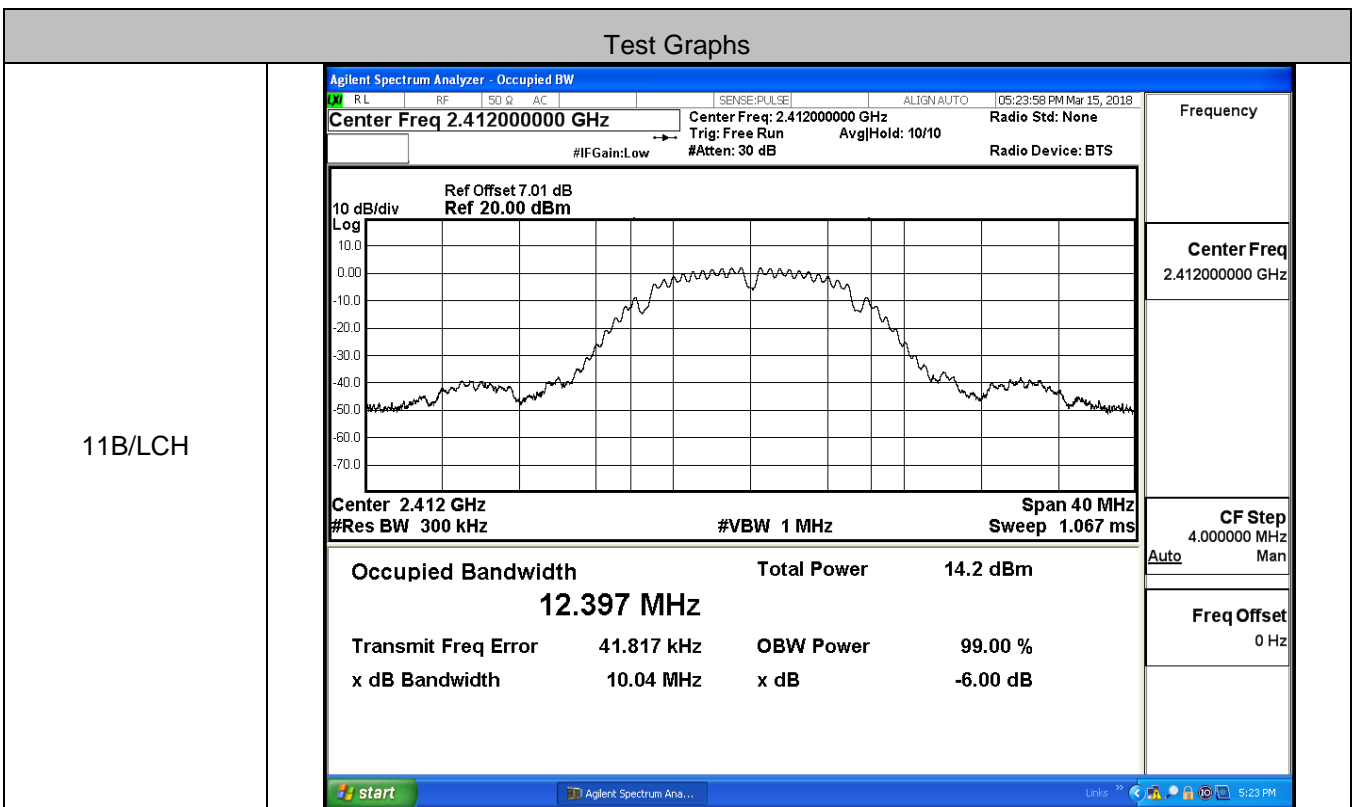
11N20SISO/LCH



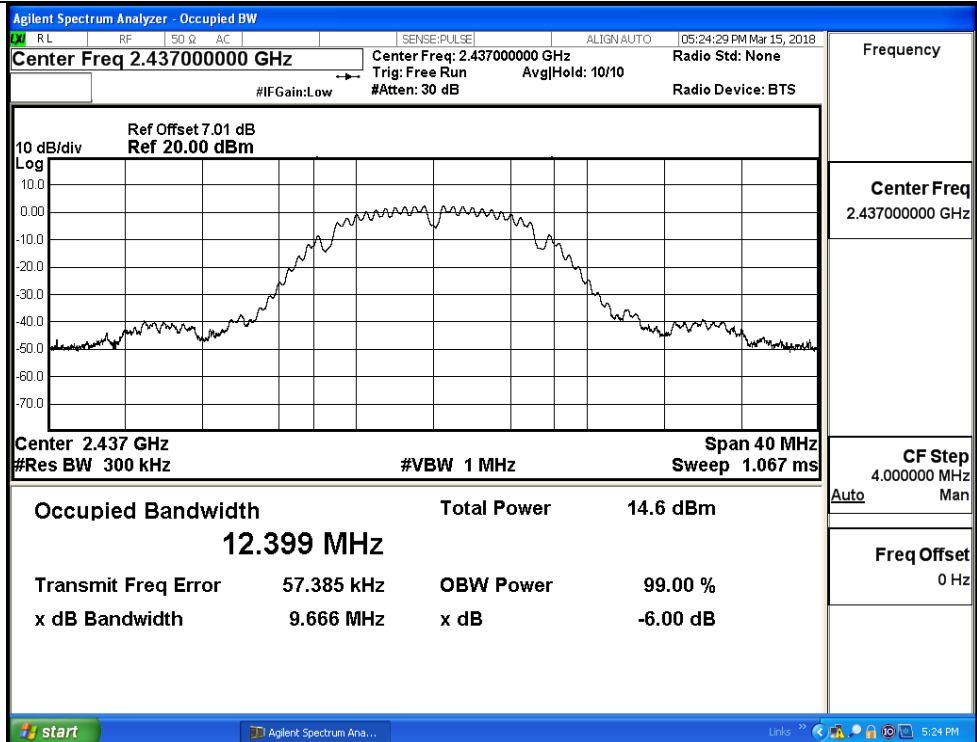
<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>ALIGN AUTO 04:07:29 PM Mar 03, 2018 Radio Std: None Avg Hold: 1/1 Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm</p>  <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.557 MHz Total Power 20.5 dBm</p> <p>Transmit Freq Error 17.613 kHz OBW Power 99.00 % x dB Bandwidth 15.16 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>ALIGN AUTO 04:09:47 PM Mar 03, 2018 Radio Std: None Avg Hold: 1/1 Radio Device: BTS</p> <p>10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm</p>  <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.559 MHz Total Power 20.2 dBm</p> <p>Transmit Freq Error 9.168 kHz OBW Power 99.00 % x dB Bandwidth 16.10 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>

J.5 99% Bandwidth

Mode	Channel	99% Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	12.397	No Limit	PASS
	MCH	12.399	No Limit	PASS
	HCH	12.405	No Limit	PASS
11G	LCH	17.031	No Limit	PASS
	MCH	16.939	No Limit	PASS
	HCH	17.029	No Limit	PASS
11N20SISO	LCH	17.795	No Limit	PASS
	MCH	17.780	No Limit	PASS
	HCH	17.799	No Limit	PASS



11B/MCH



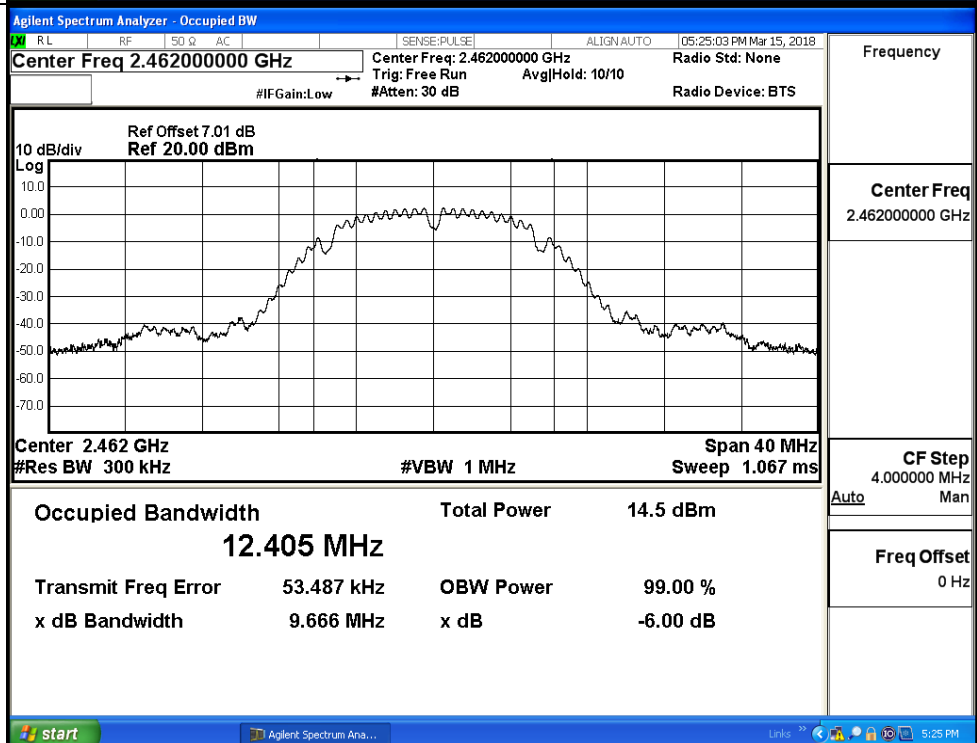
Frequency

Center Freq
2.437000000 GHz

CF Step
4.000000 MHz

Freq Offset
0 Hz

11B/HCH



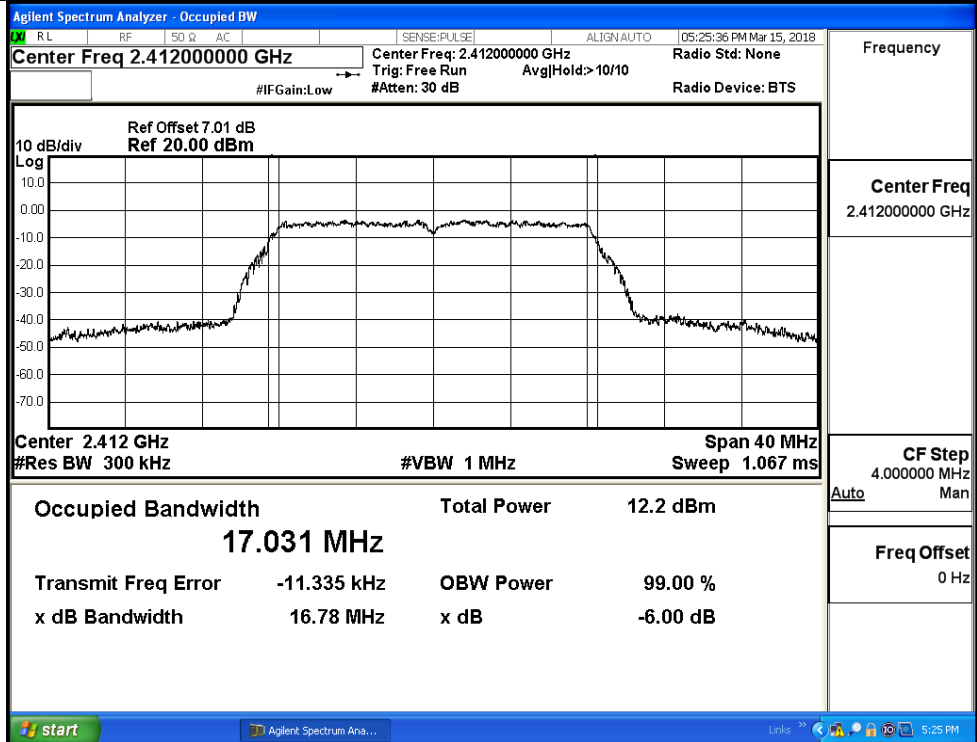
Frequency

Center Freq
2.462000000 GHz

CF Step
4.000000 MHz

Freq Offset
0 Hz

11G/LCH



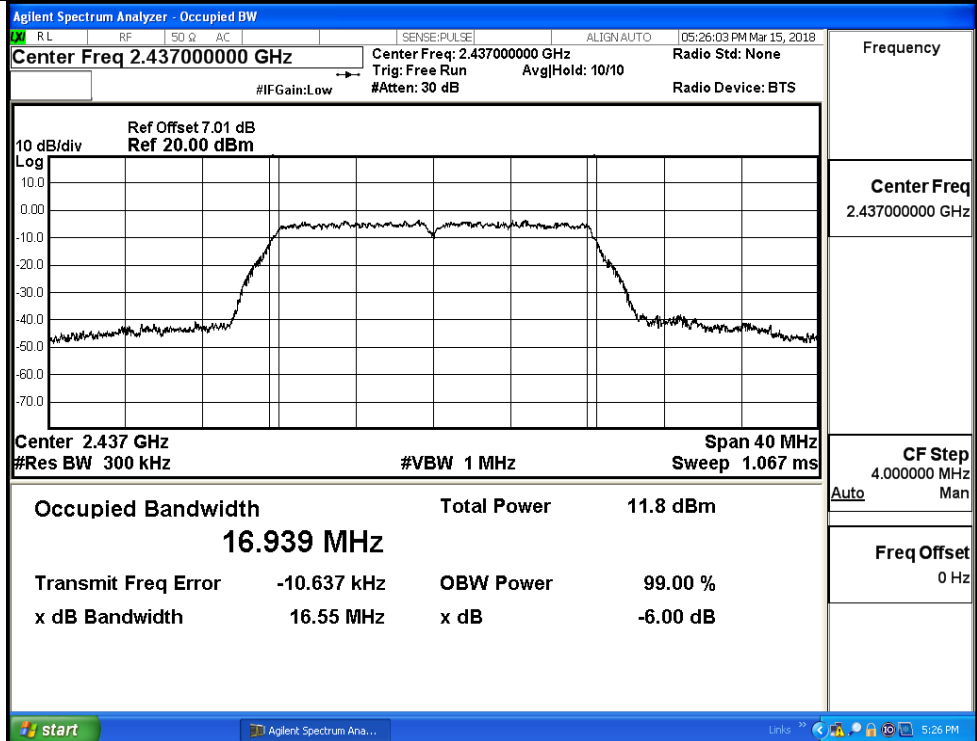
Frequency

Center Freq
2.41200000 GHz

CF Step
4.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/MCH



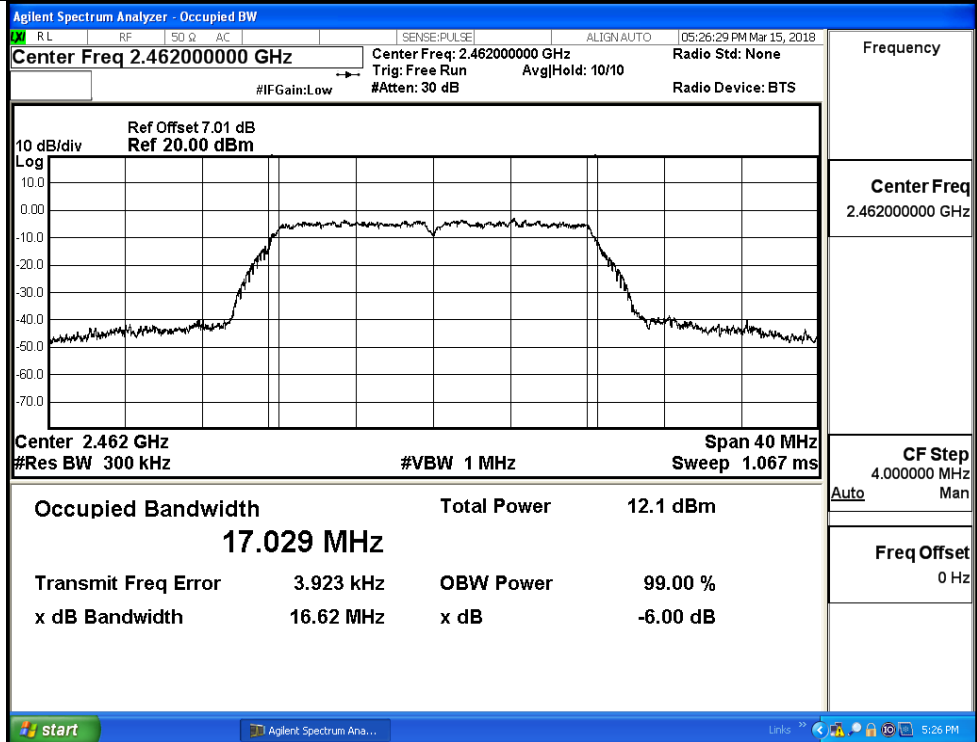
Frequency

Center Freq
2.437000000 GHz

CF Step
4.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/HCH



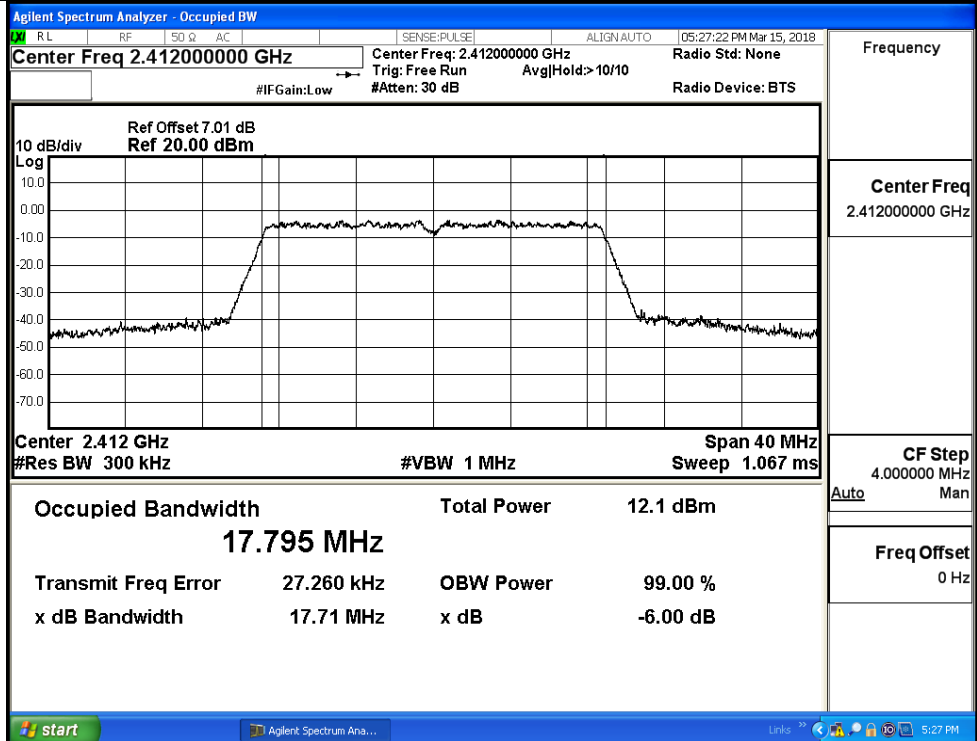
Frequency

Center Freq
2.46200000 GHz

CF Step
4.000000 MHz

Freq Offset
0 Hz

11N20SISO/LCH



Frequency

Center Freq
2.41200000 GHz

CF Step
4.000000 MHz

Freq Offset
0 Hz

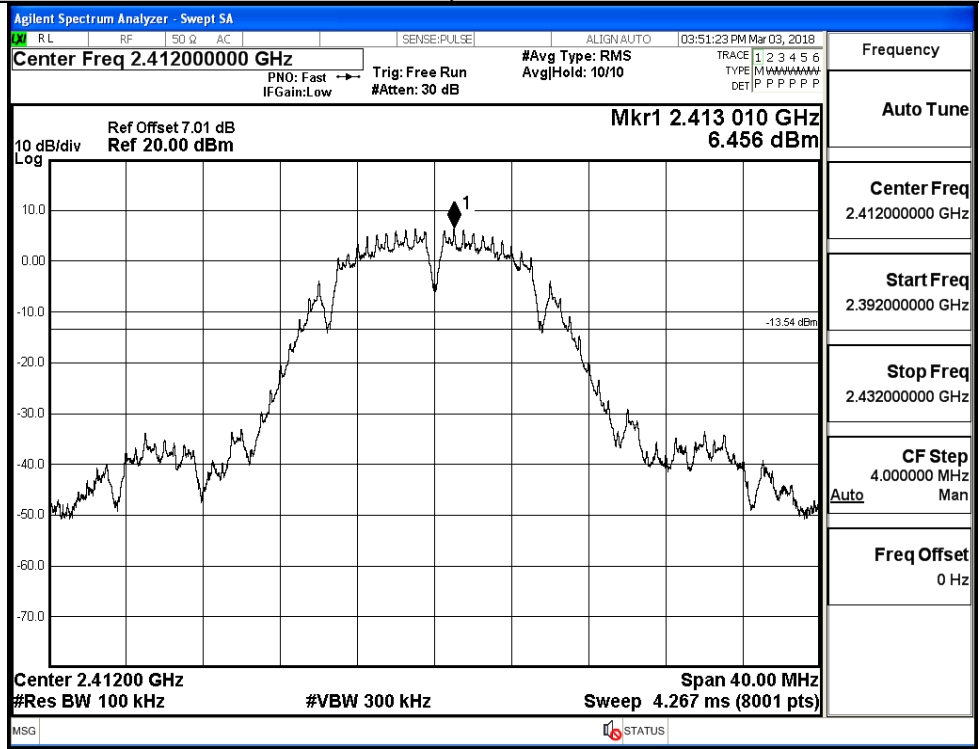
<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.437 GHz #Res BW 300 kHz</p> <p>Span 40 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.780 MHz</p> <p>Total Power 11.8 dBm</p> <p>Transmit Freq Error 36.866 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.71 MHz</p> <p>x dB -6.00 dB</p> <p>start Agilent Spectrum Ana... 5:28 PM</p>	<p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>
<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 7.01 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.462 GHz #Res BW 300 kHz</p> <p>Span 40 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 17.799 MHz</p> <p>Total Power 11.9 dBm</p> <p>Transmit Freq Error 27.107 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.69 MHz</p> <p>x dB -6.00 dB</p> <p>start Agilent Spectrum Ana... 5:30 PM</p>	<p>Frequency</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p>

J.6 RF Conducted Spurious Emissions

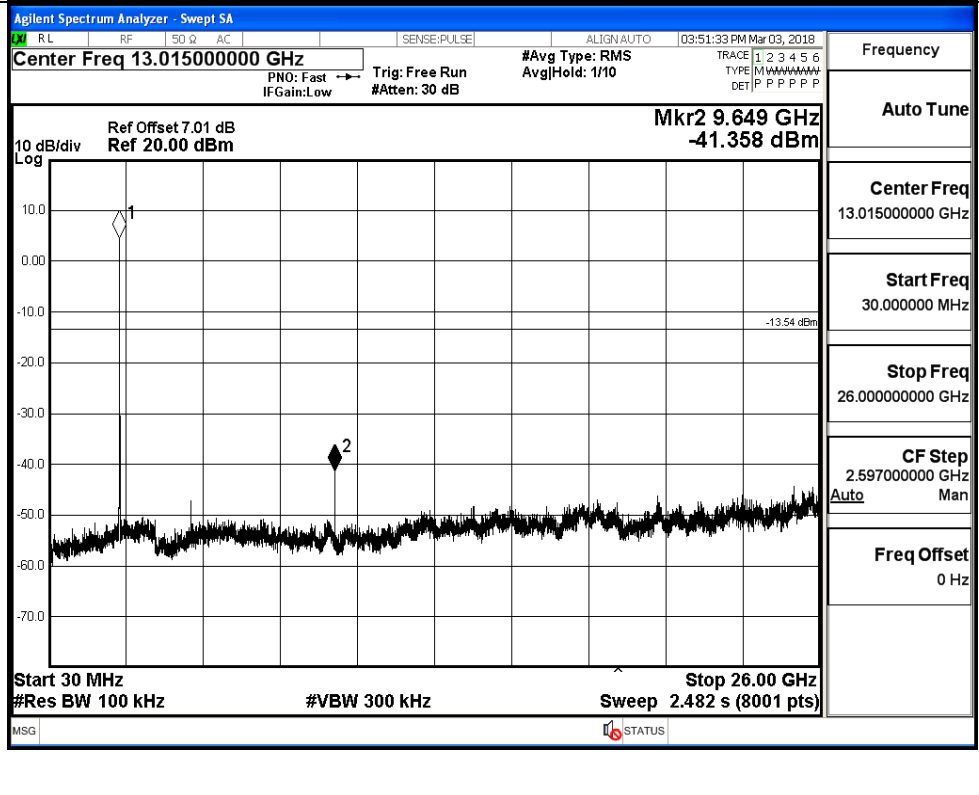
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBc]	Verdict
11B	LCH	6.456	-41.358	-20	PASS
	MCH	6.547	-43.237	-20	PASS
	HCH	6.111	-44.430	-20	PASS
11G	LCH	1.450	-44.090	-20	PASS
	MCH	3.531	-44.896	-20	PASS
	HCH	3.229	-44.179	-20	PASS
11N20SISO	LCH	1.915	-44.467	-20	PASS
	MCH	3.488	-44.830	-20	PASS
	HCH	3.122	-45.151	-20	PASS

11B_LCH_Graphs

Pref/11B/LCH

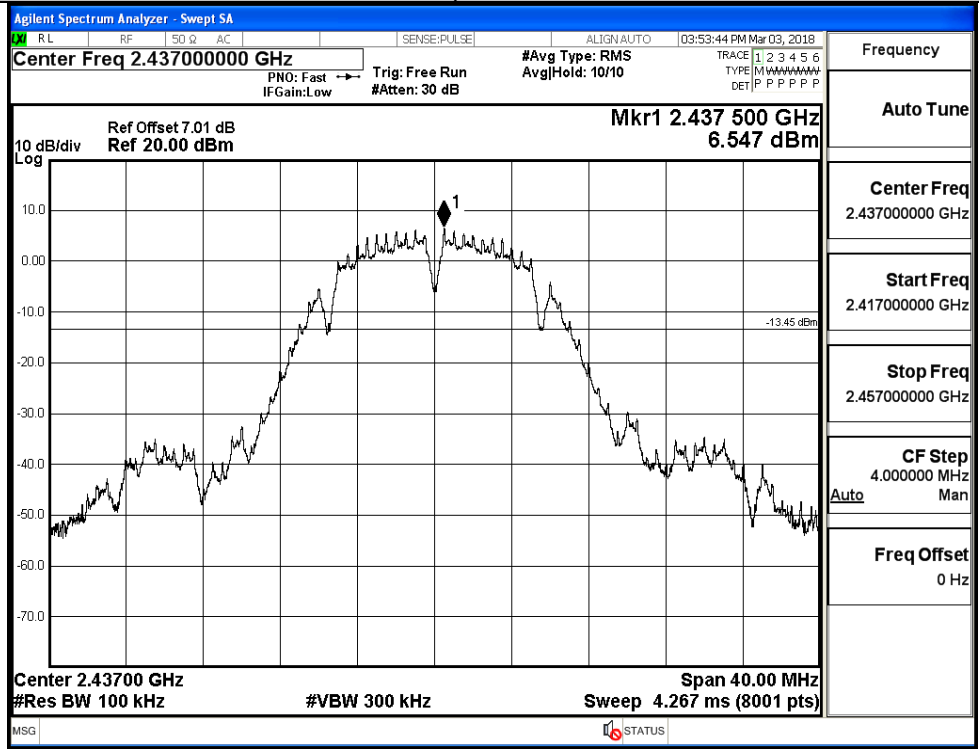


Puw/11B/LCH

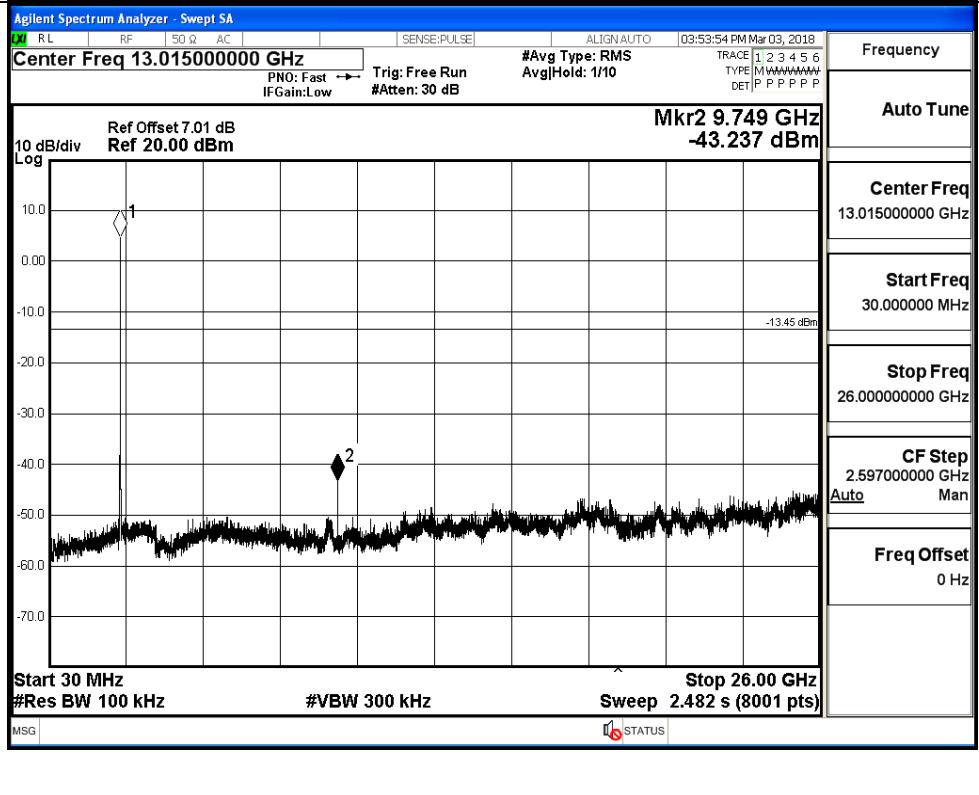


11B_MCH_Graphs

Pref/11B/MCH

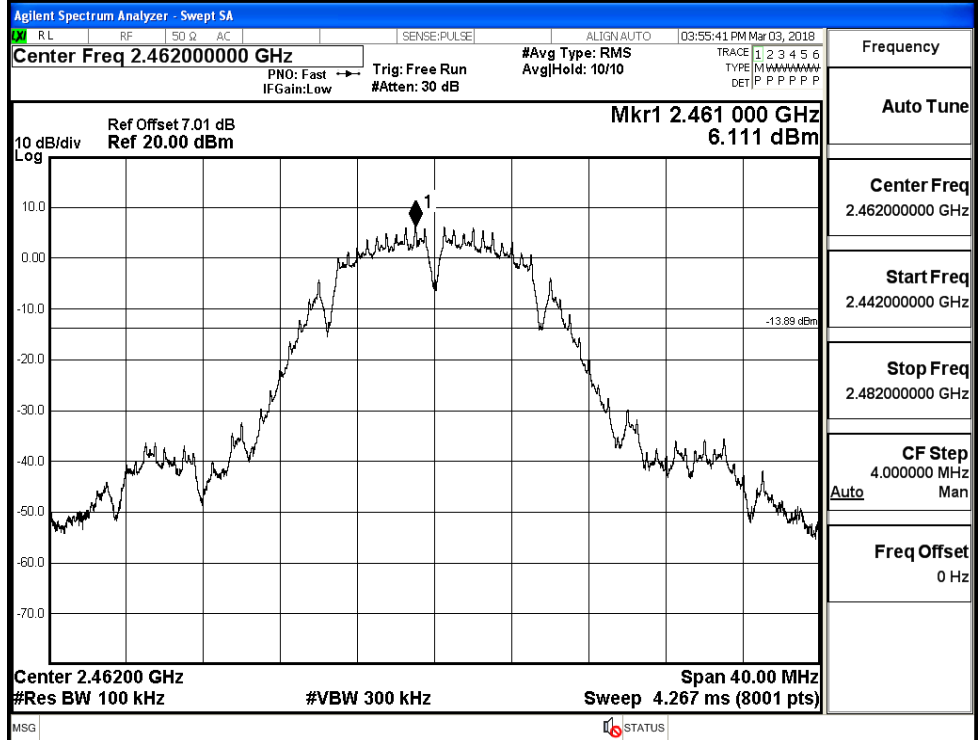


Puw/11B/MCH

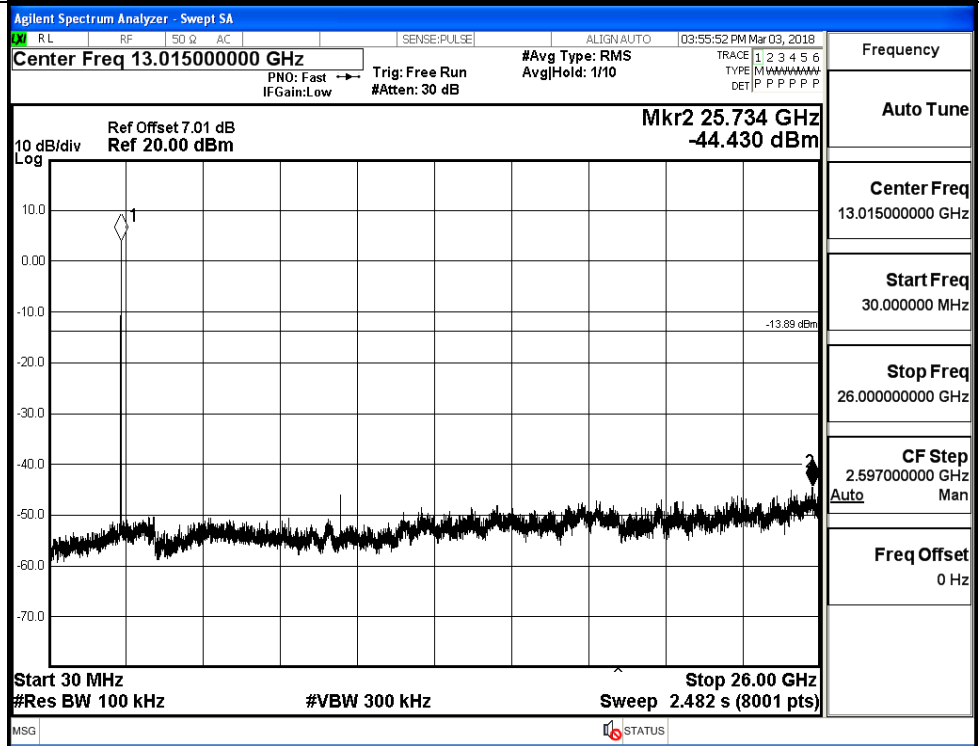


11B_HCH_Graphs

Pref/11B/HCH

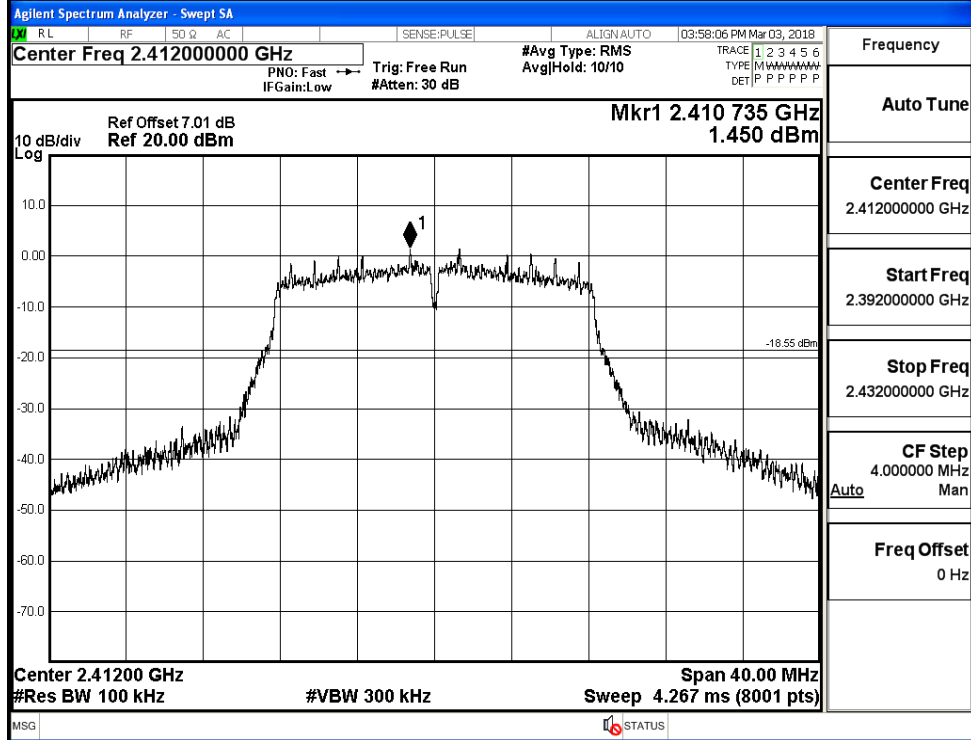


Puw/11B/HCH

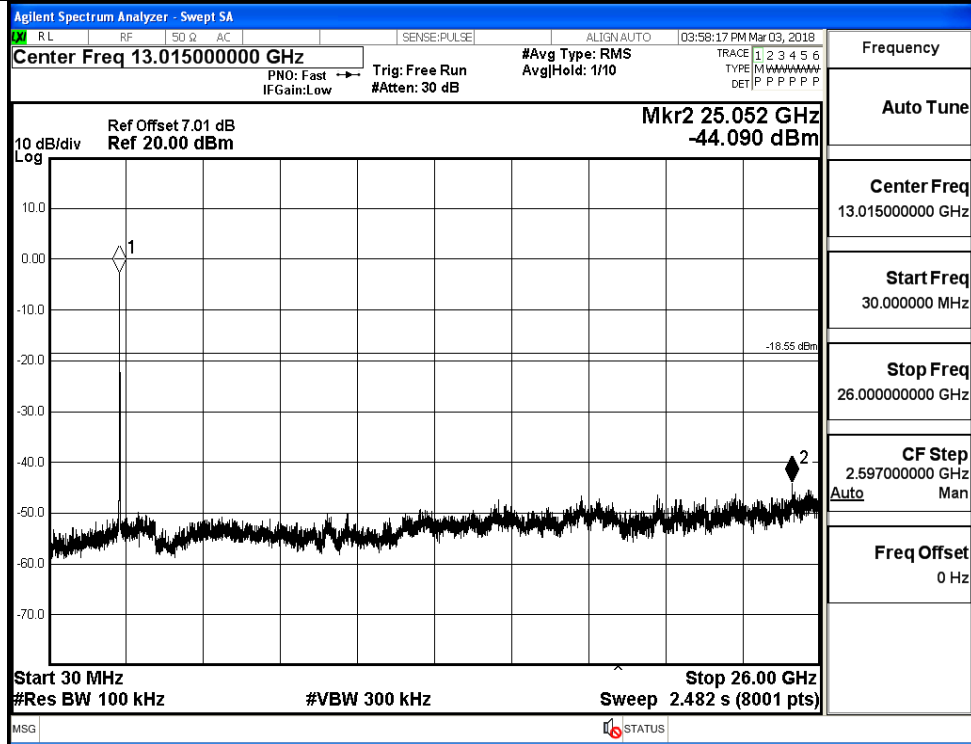


11G_LCH_Graphs

Pref/11G/LCH

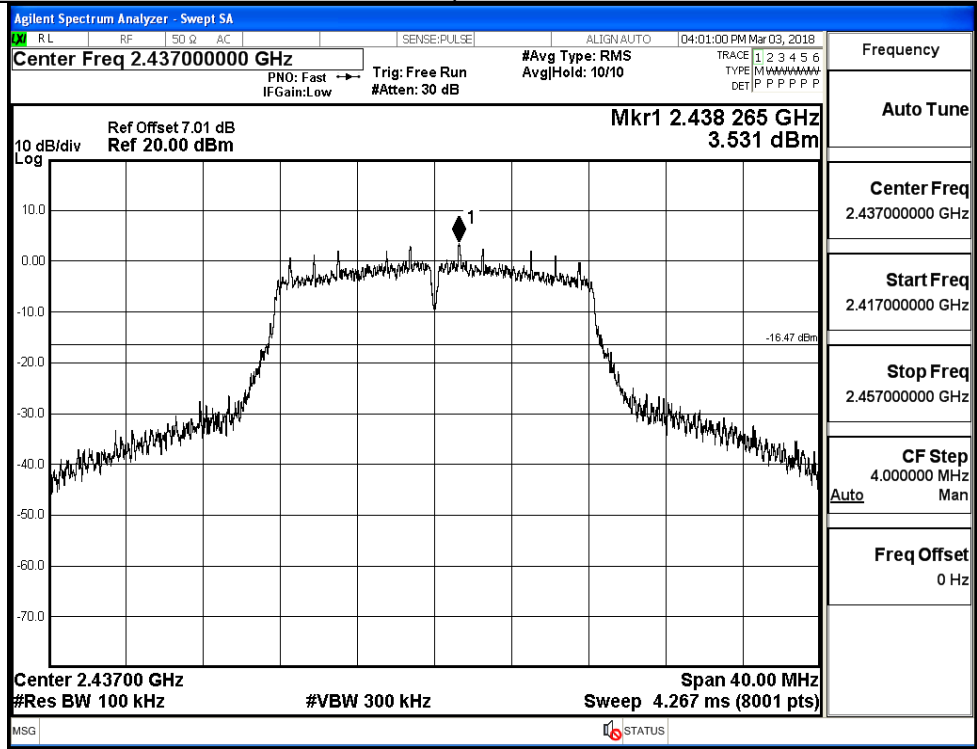


Puw/11G/LCH

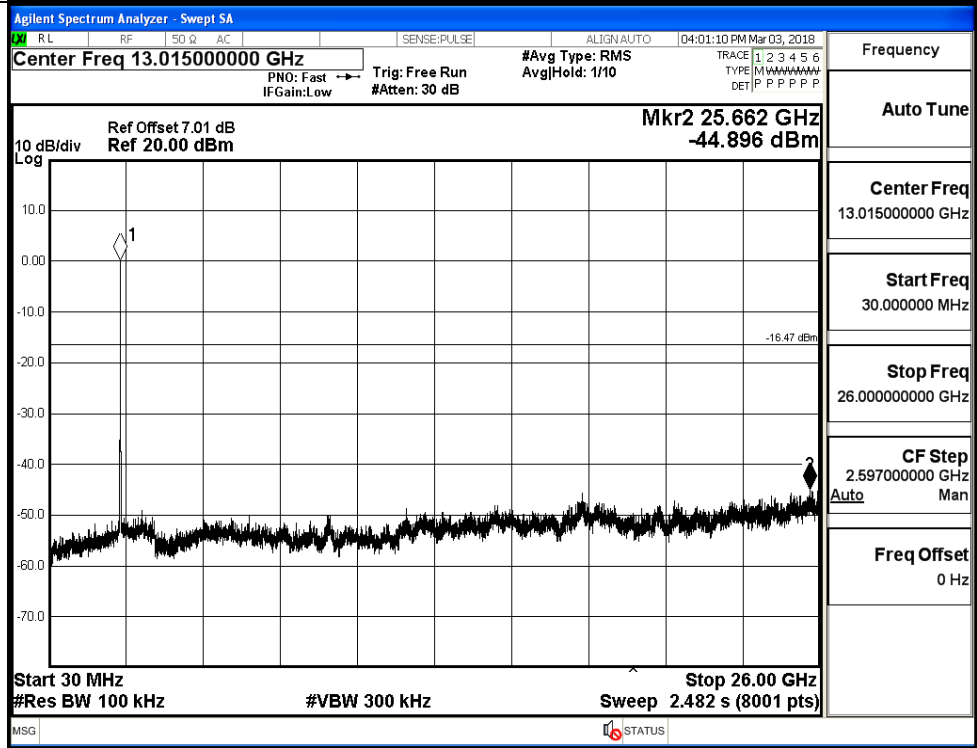


11G_MCH_Graphs

Pref/11G/MCH

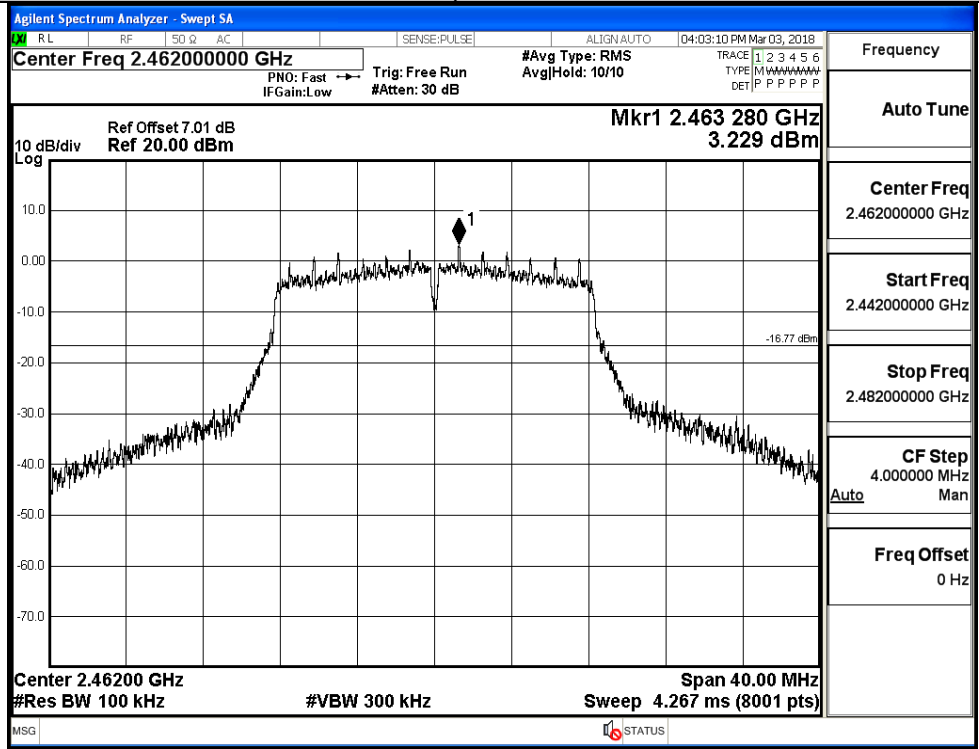


Puw/11G/MCH

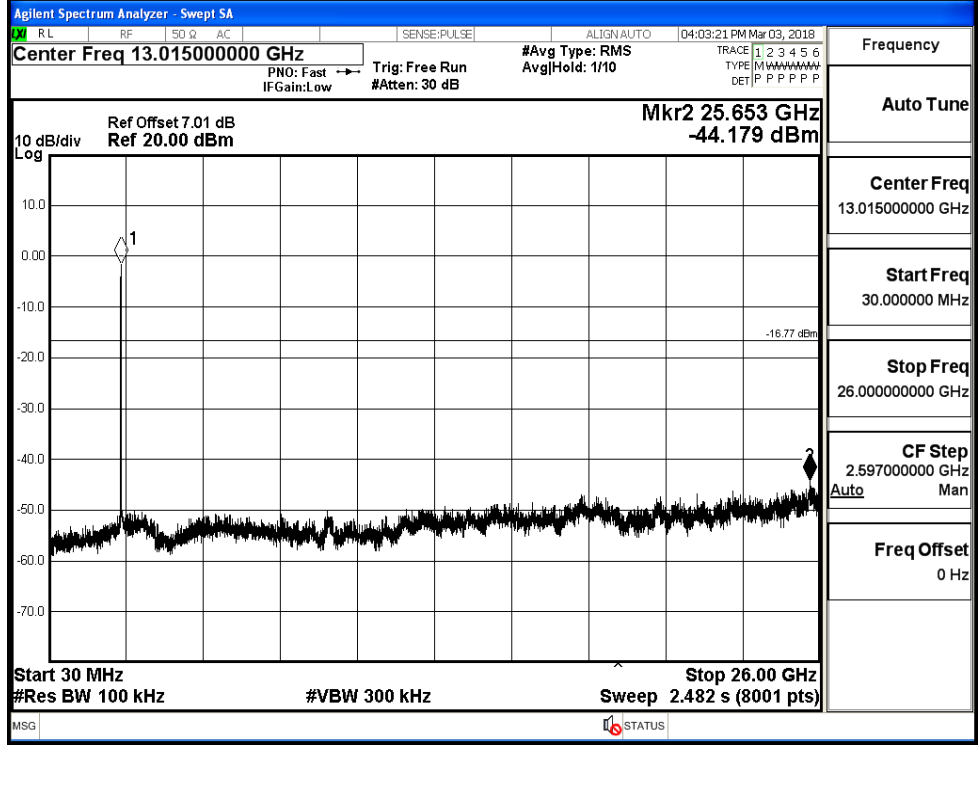


11G_HCH_Graphs

Pref/11G/HCH

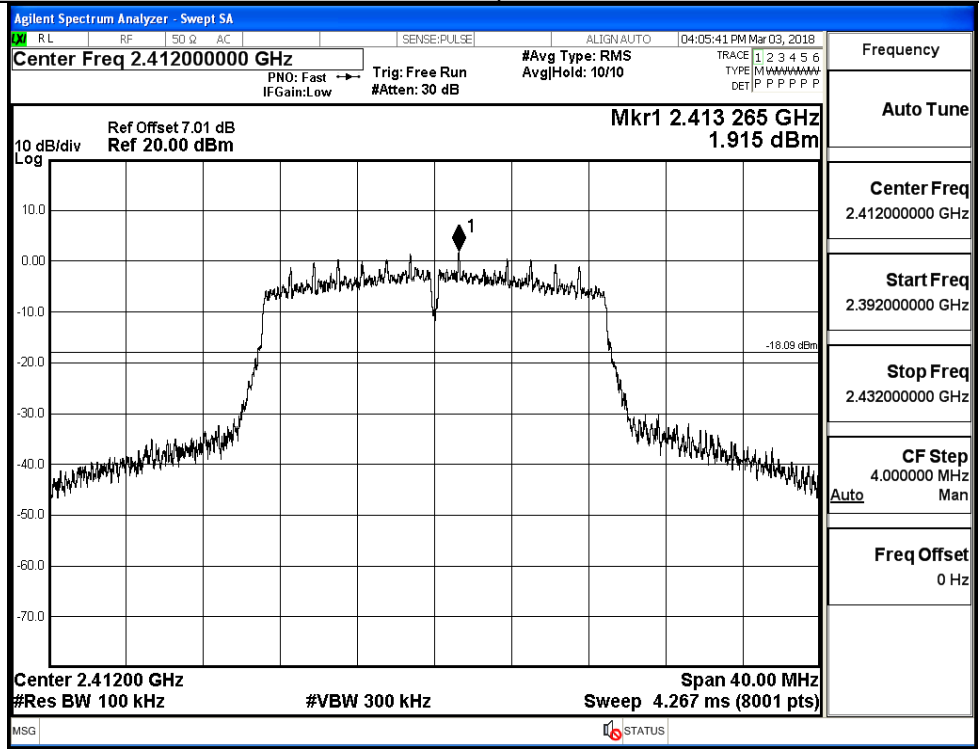


Puw/11G/HCH

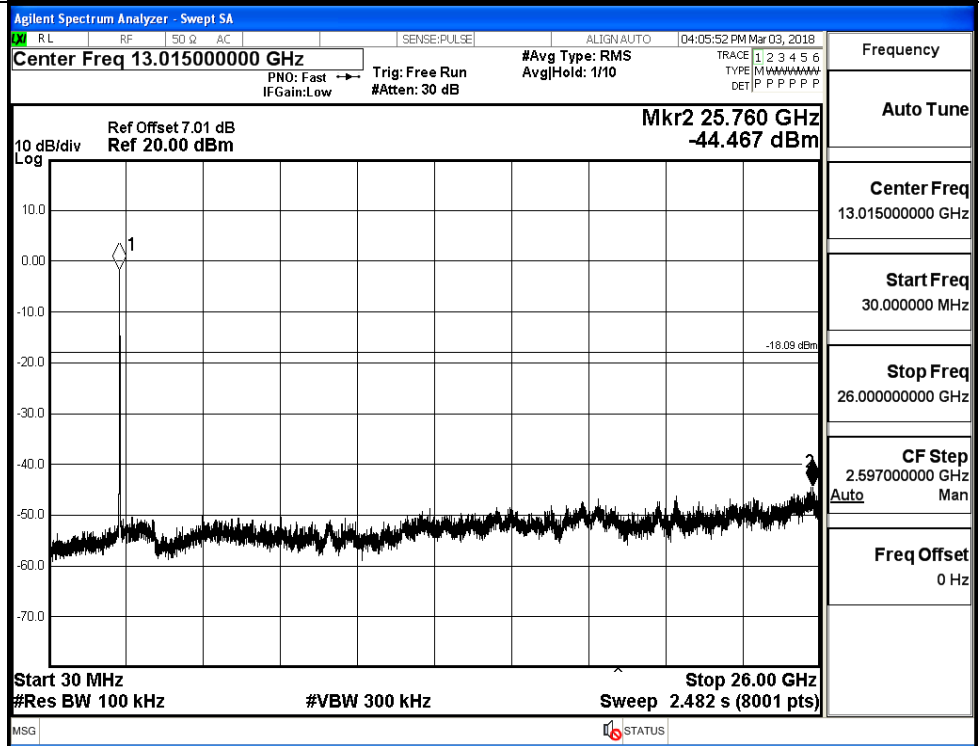


11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCH

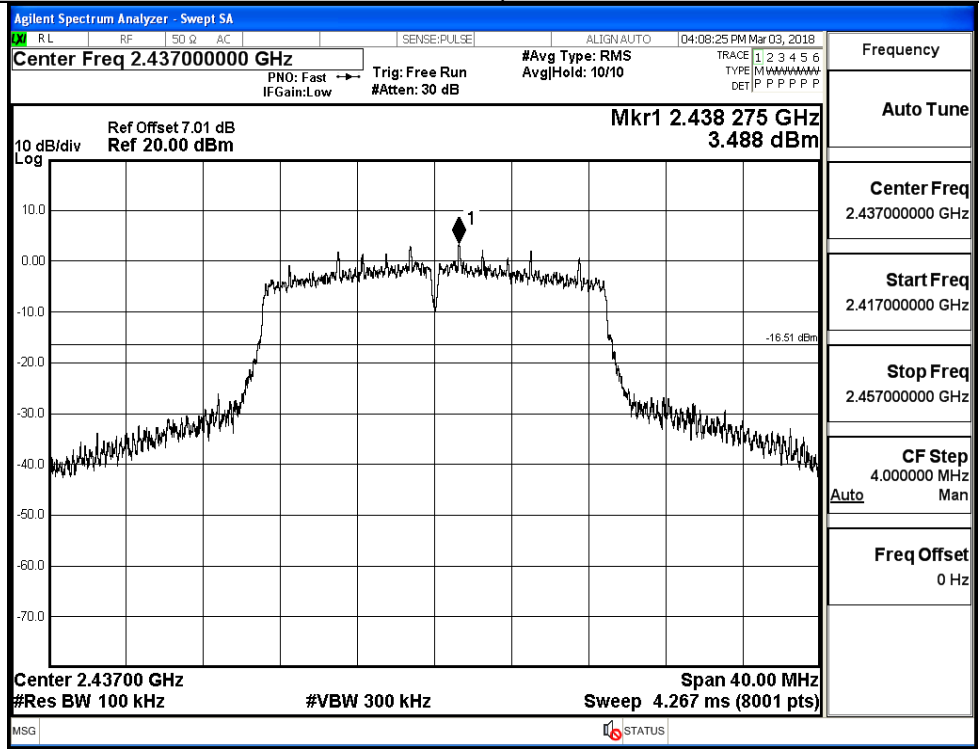


Puw/11N20
SISO/LCH

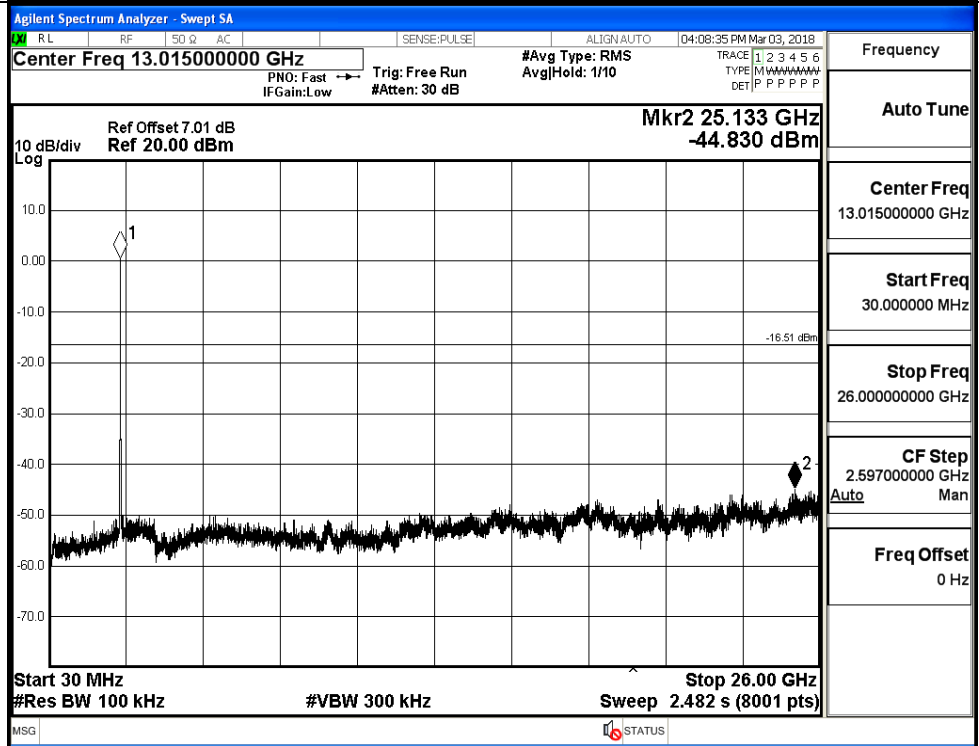


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

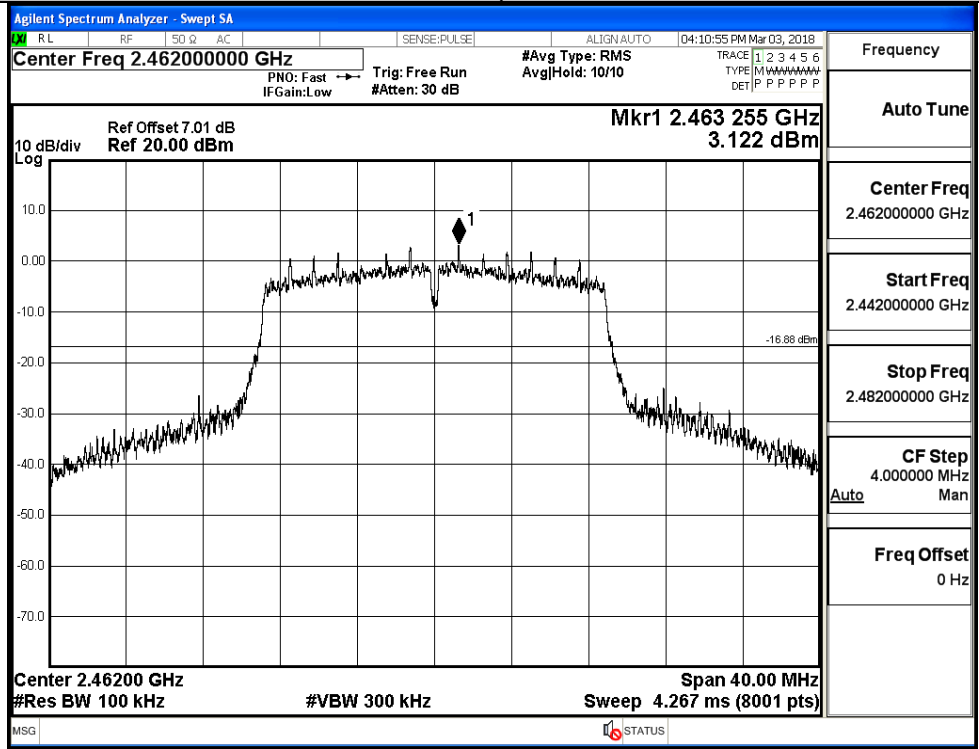


Puw/11N20
SISO/MCH

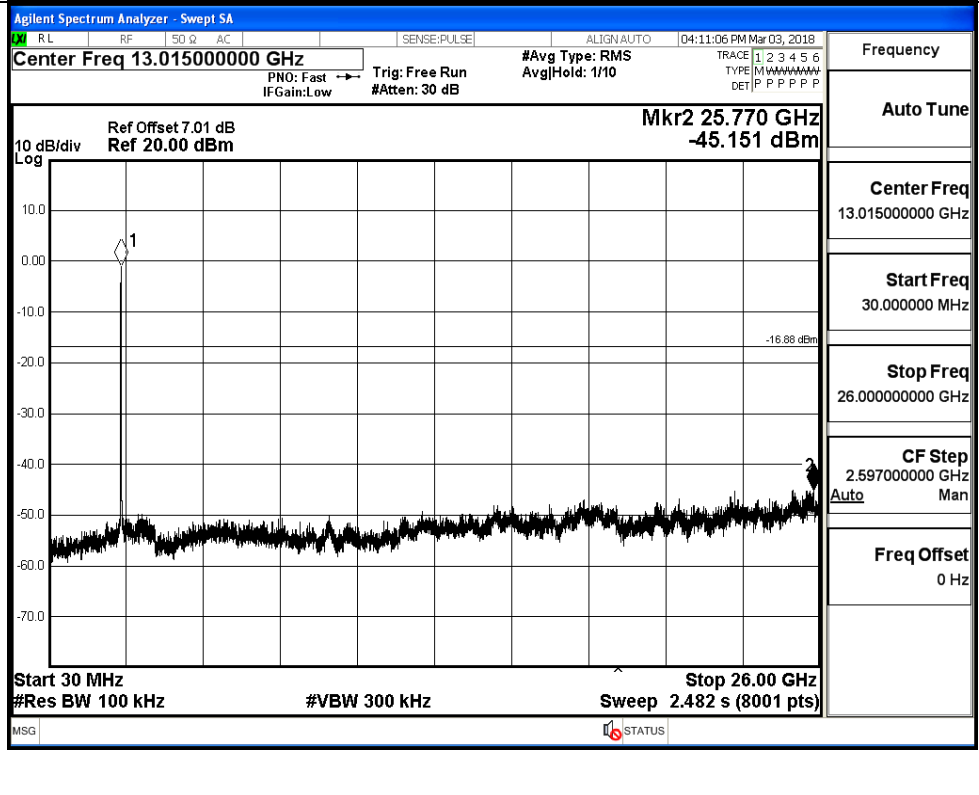


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

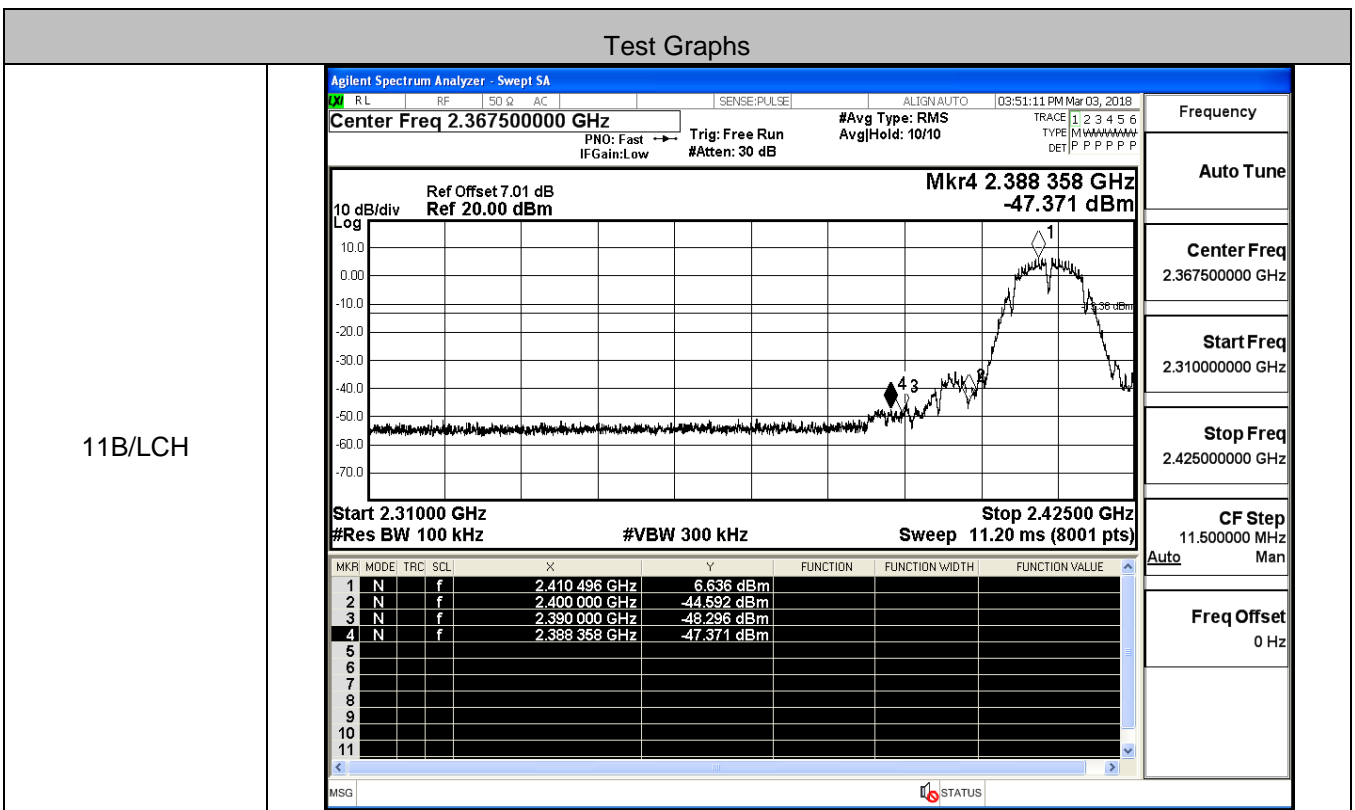


Puw/11N20
SISO/HCH

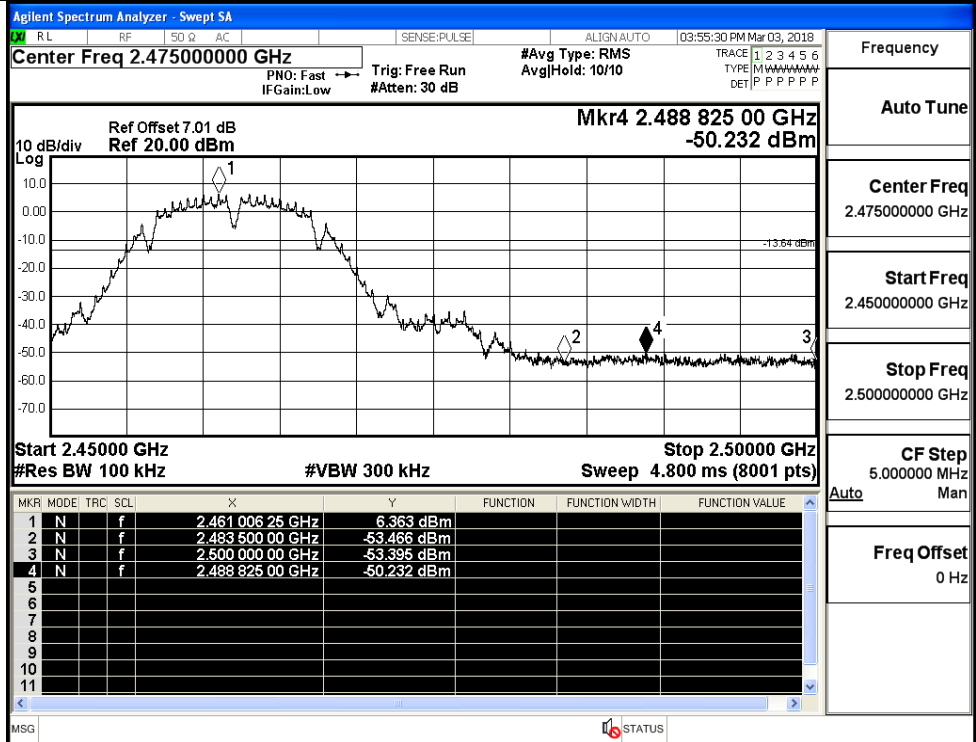


J.7 Band-edge for RF Conducted Emissions

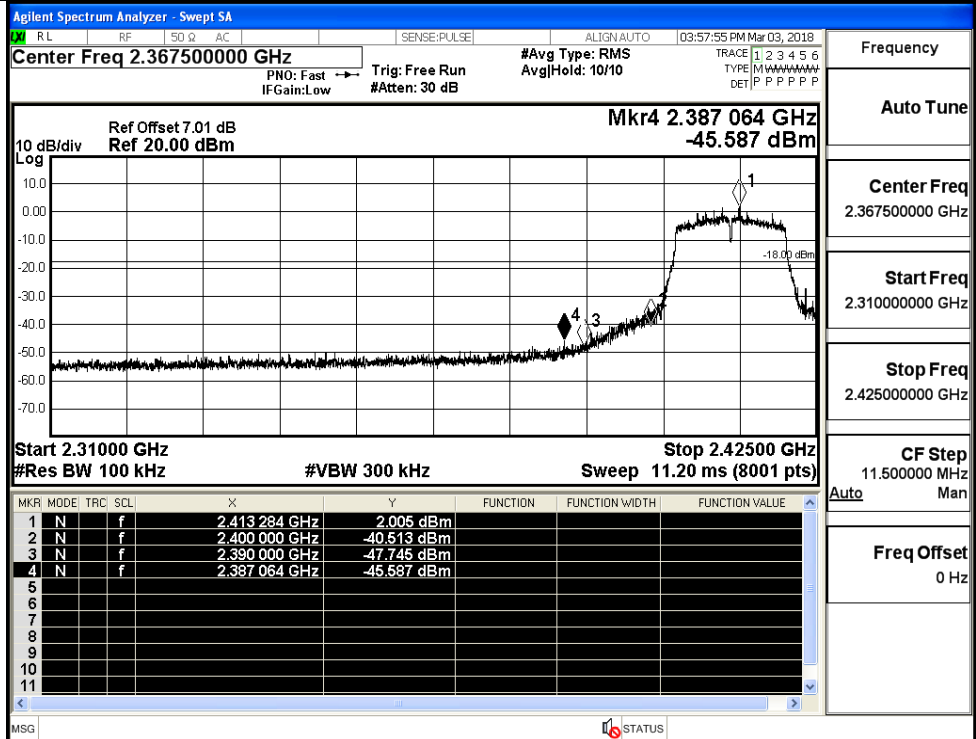
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	6.636	-47.371	-13.36	PASS
	HCH	6.363	-50.232	-13.64	PASS
11G	LCH	2.005	-45.587	-18.00	PASS
	HCH	3.390	-43.373	-16.61	PASS
11N20SISO	LCH	1.306	-44.713	-18.69	PASS
	HCH	2.998	-40.834	-17.00	PASS



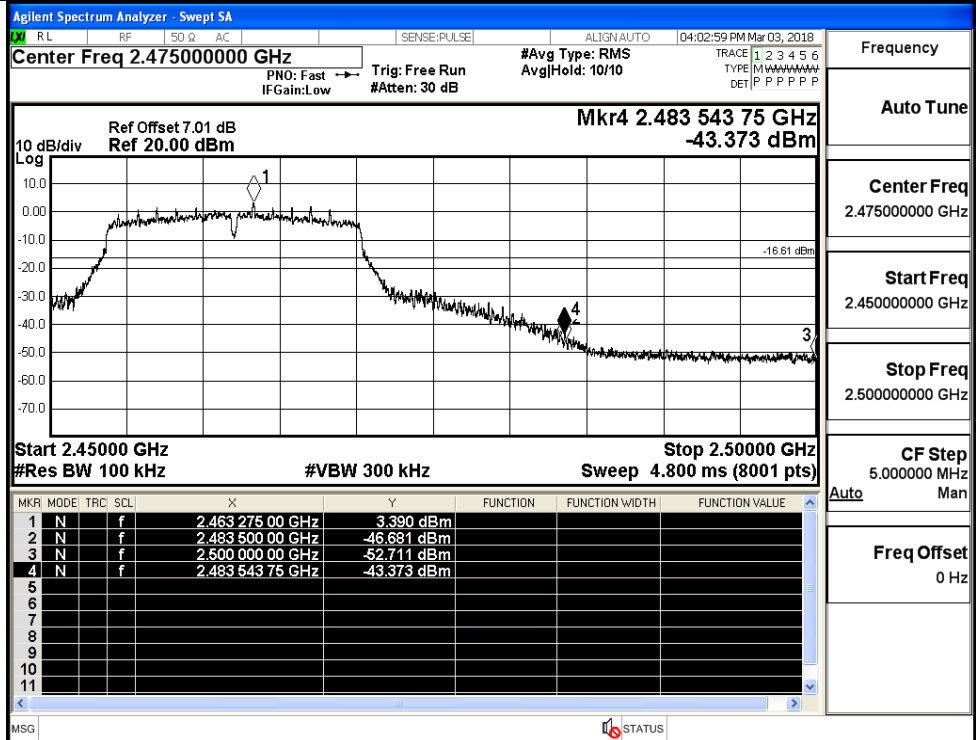
11B/HCH



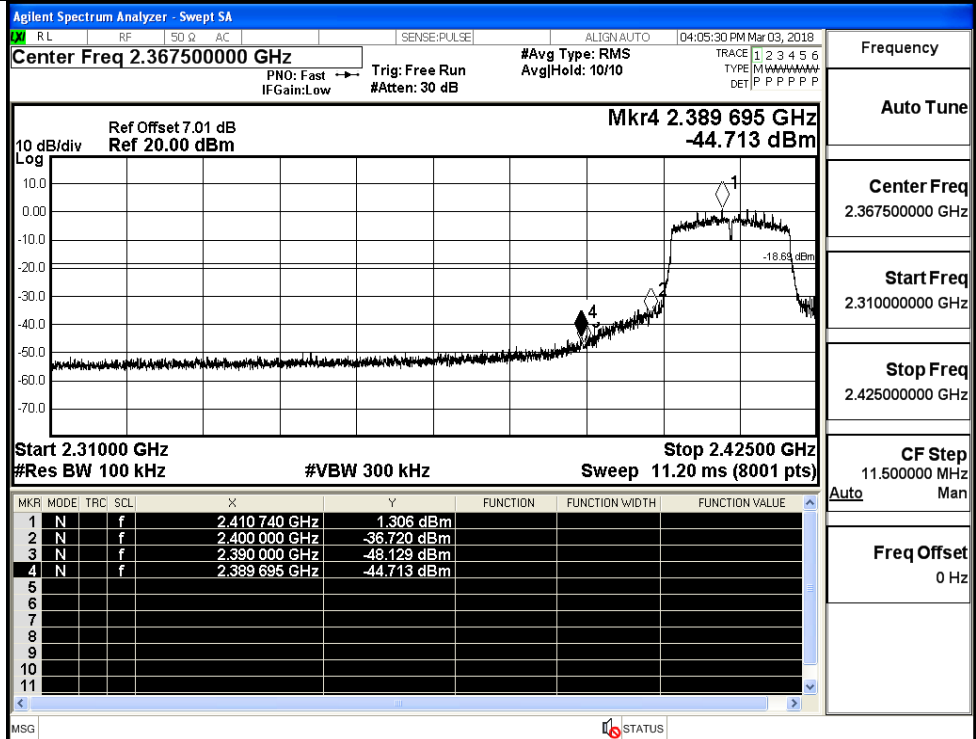
11G/LCH



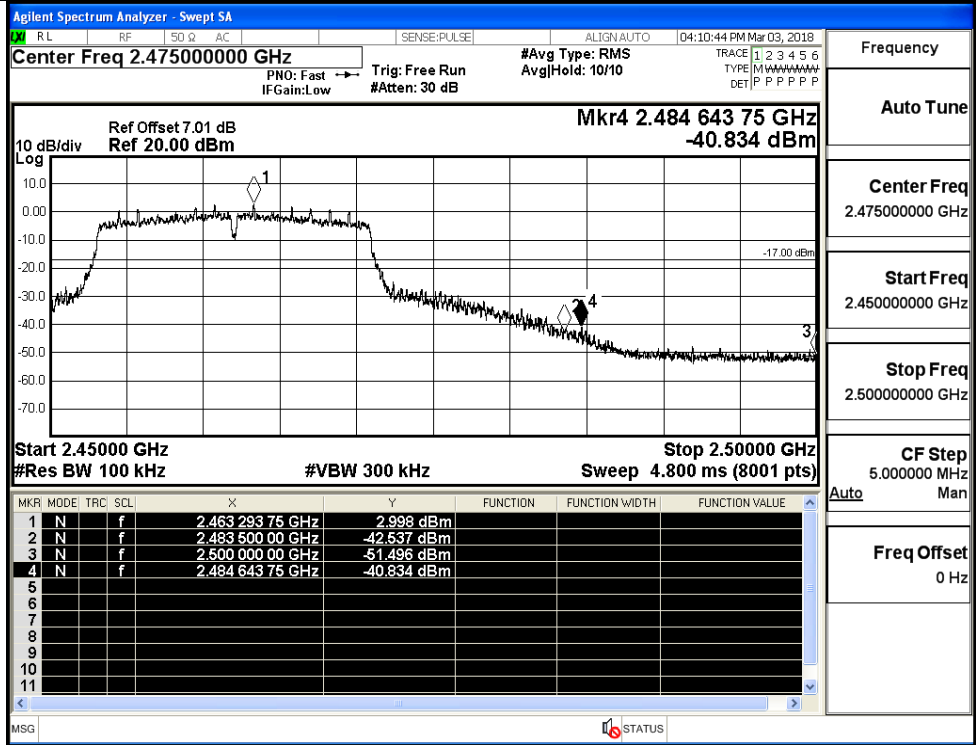
11G/HCH



11N20SISO/LCH



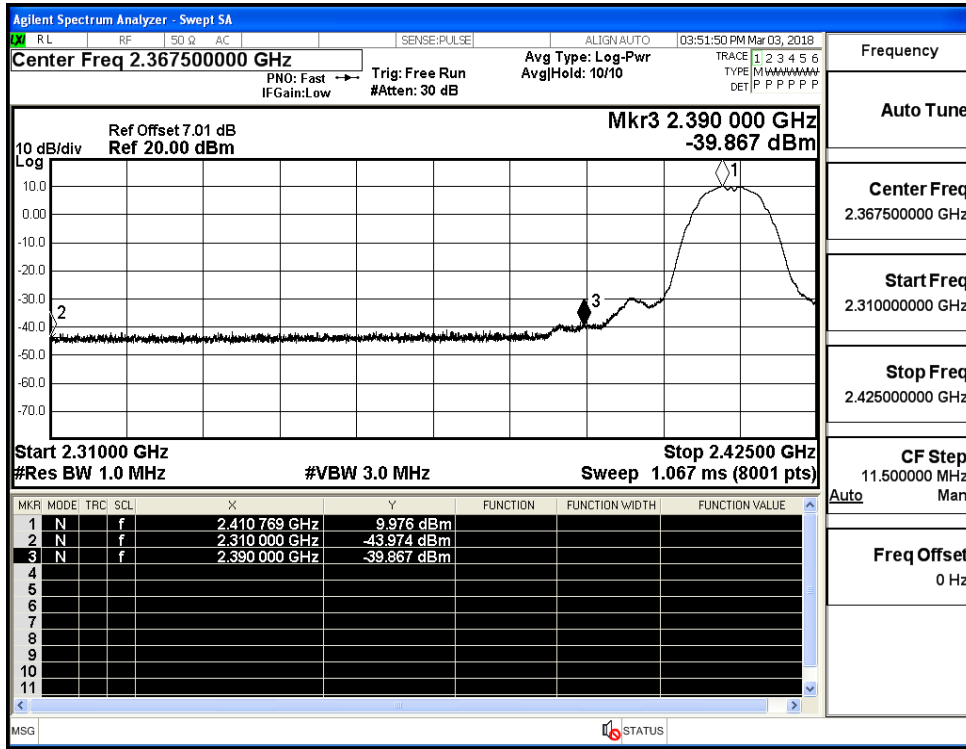
11N20SISO/HCH



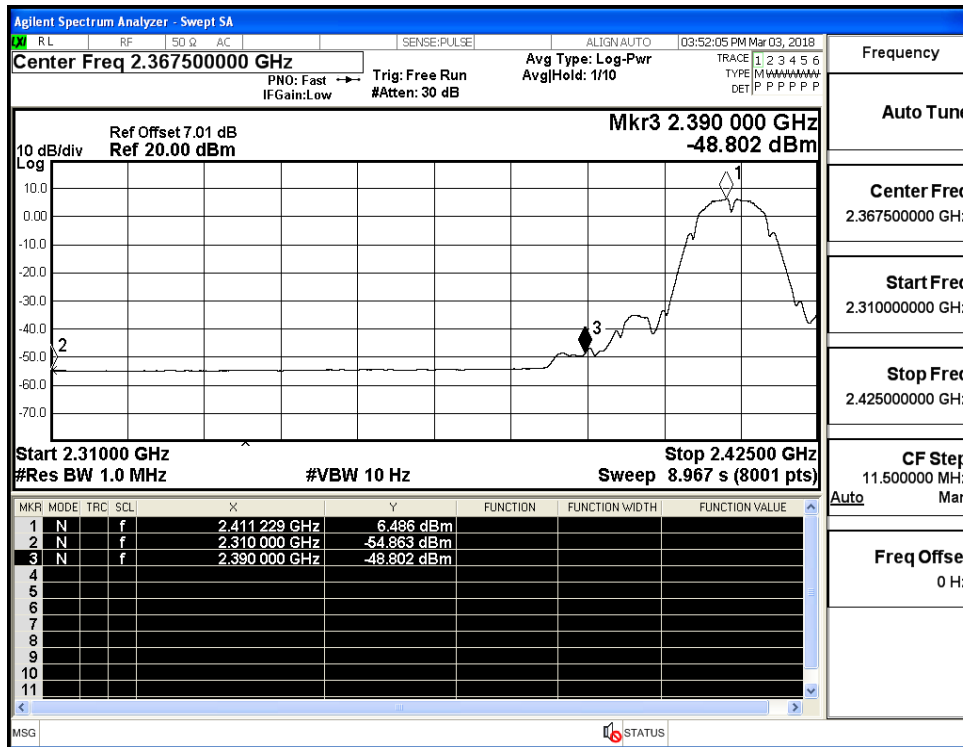
J.8 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.97	3.0	0	54.26	PEAK	74	PASS
	2412	Ant1	2310.0	-54.86	3.0	0	43.37	AV	54	PASS
	2412	Ant1	2390.0	-39.87	3.0	0	58.36	PEAK	74	PASS
	2412	Ant1	2390.0	-48.80	3.0	0	49.43	AV	54	PASS
	2462	Ant1	2483.5	-43.51	3.0	0	54.72	PEAK	74	PASS
	2462	Ant1	2483.5	-53.20	3.0	0	45.03	AV	54	PASS
	2462	Ant1	2500.0	-44.25	3.0	0	53.98	PEAK	74	PASS
	2462	Ant1	2500.0	-53.87	3.0	0	44.36	AV	54	PASS
11G	2412	Ant1	2310.0	-44.06	3.0	0	54.17	PEAK	74	PASS
	2412	Ant1	2310.0	-54.74	3.0	0	43.49	AV	54	PASS
	2412	Ant1	2390.0	-37.31	3.0	0	60.92	PEAK	74	PASS
	2412	Ant1	2390.0	-49.10	3.0	0	49.13	AV	54	PASS
	2462	Ant1	2483.5	-31.42	3.0	0	66.81	PEAK	74	PASS
	2462	Ant1	2483.5	-47.49	3.0	0	50.74	AV	54	PASS
	2462	Ant1	2500.0	-41.09	3.0	0	57.14	PEAK	74	PASS
	2462	Ant1	2500.0	-52.31	3.0	0	45.92	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-45.25	3.0	0	52.98	PEAK	74	PASS
	2412	Ant1	2310.0	-54.77	3.0	0	43.46	AV	54	PASS
	2412	Ant1	2390.0	-35.11	3.0	0	63.12	PEAK	74	PASS
	2412	Ant1	2390.0	-48.05	3.0	0	50.18	AV	54	PASS
	2462	Ant1	2483.5	-30.95	3.0	0	67.28	PEAK	74	PASS
	2462	Ant1	2483.5	-45.61	3.0	0	52.62	AV	54	PASS
	2462	Ant1	2500.0	-40.42	3.0	0	57.81	PEAK	74	PASS
	2462	Ant1	2500.0	-52.26	3.0	0	45.97	AV	54	PASS

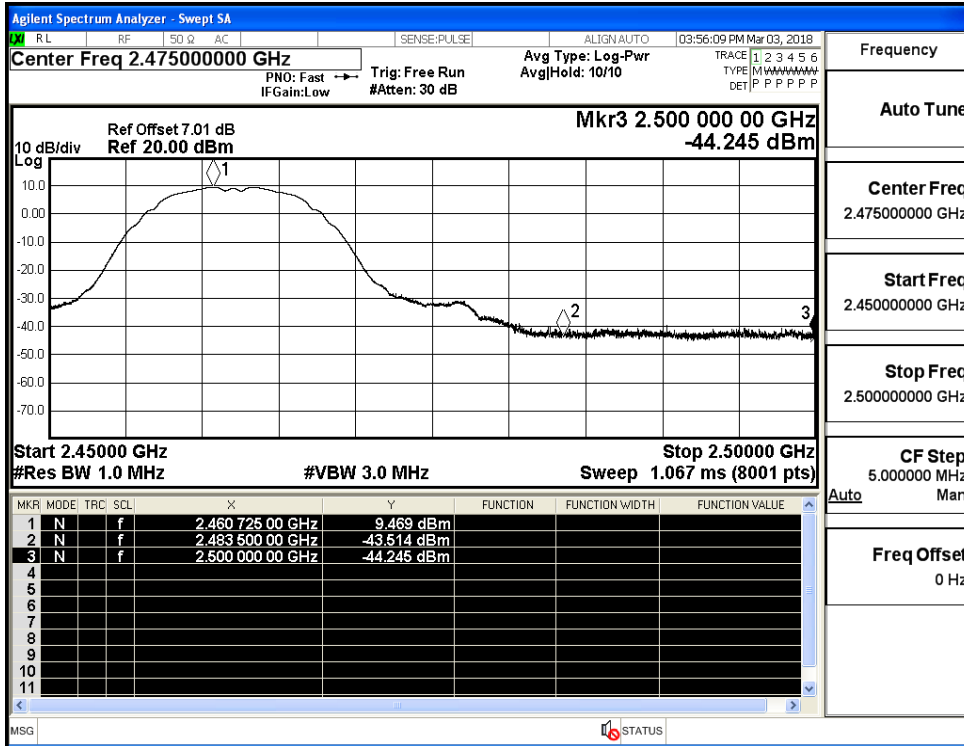
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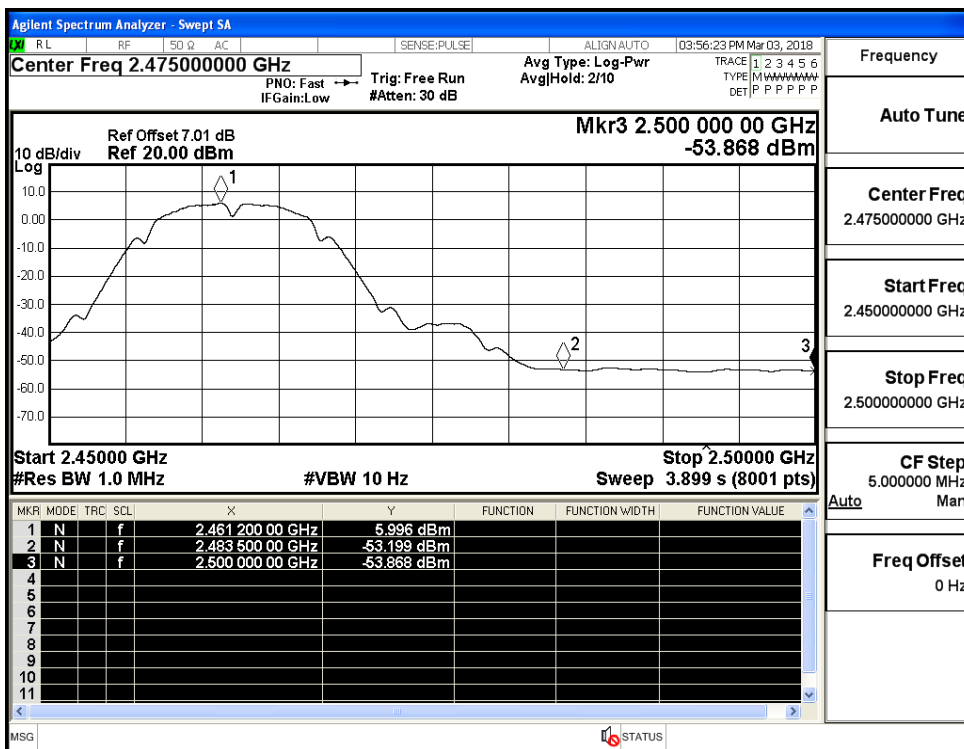
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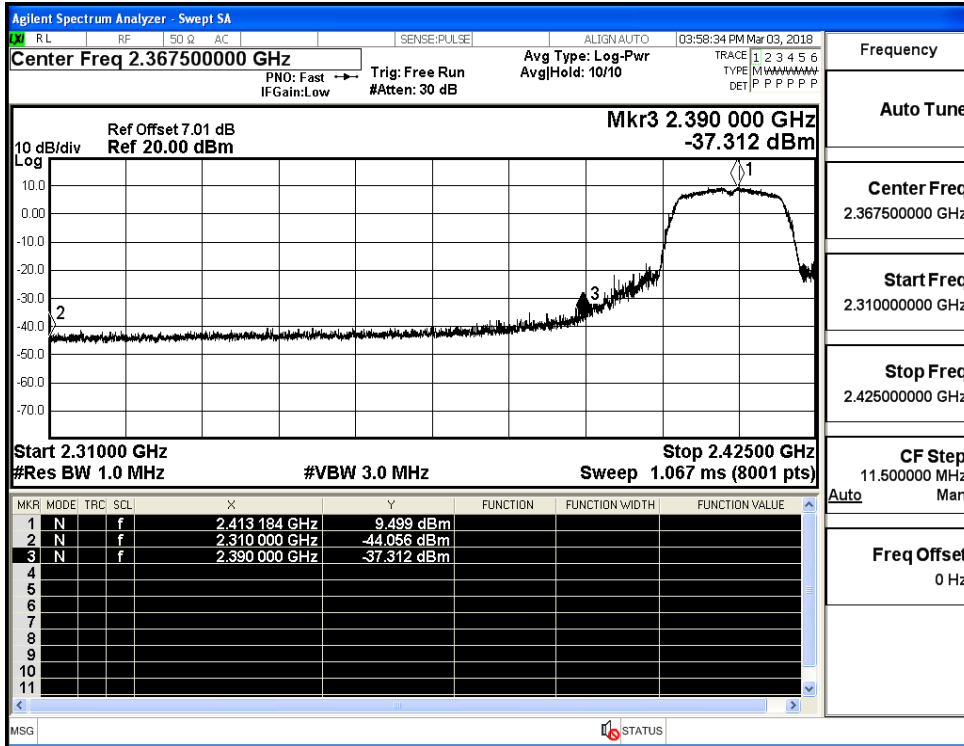
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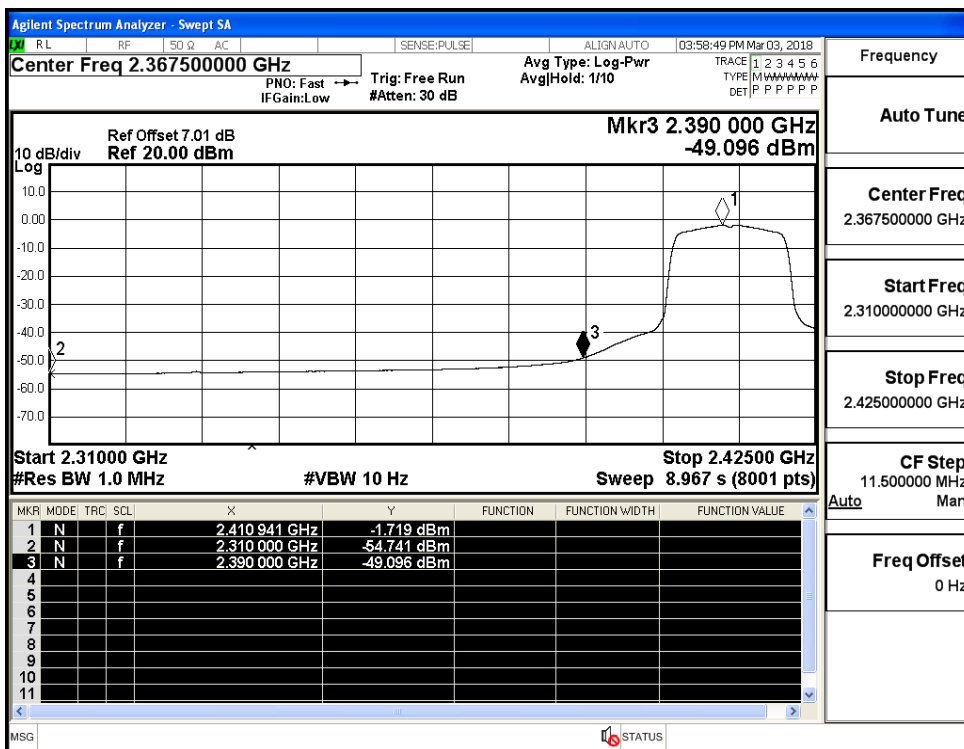
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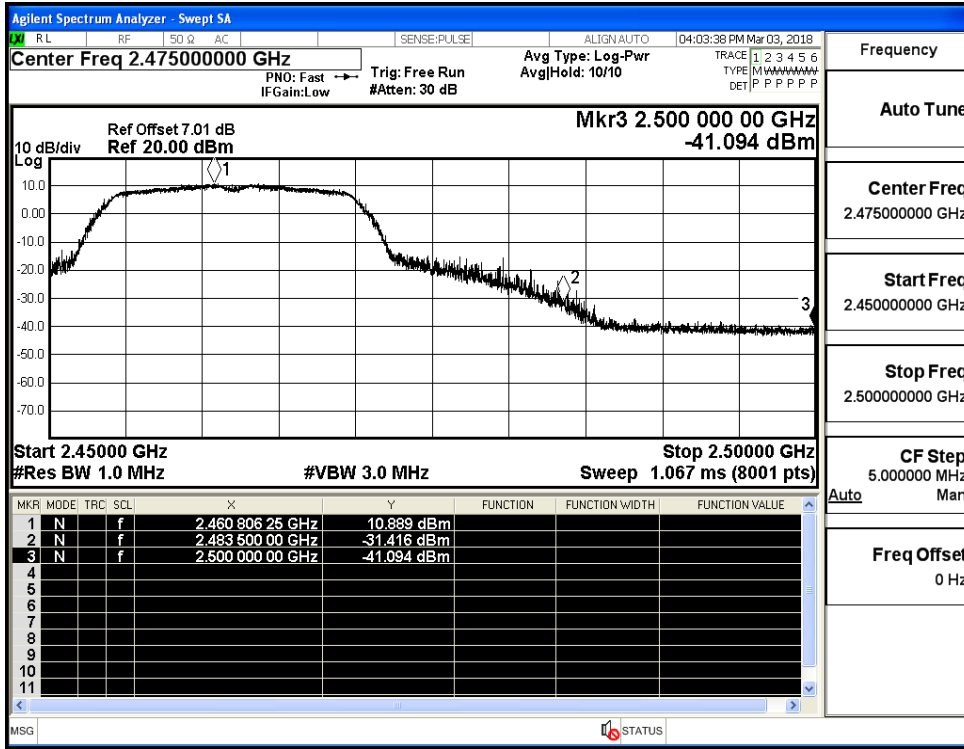
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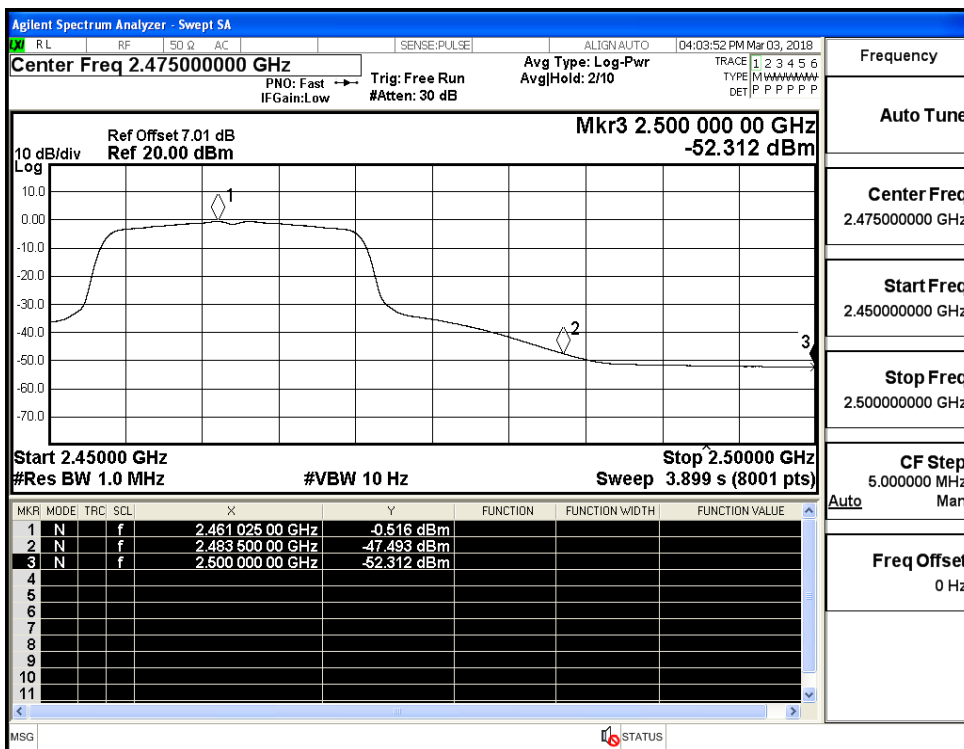
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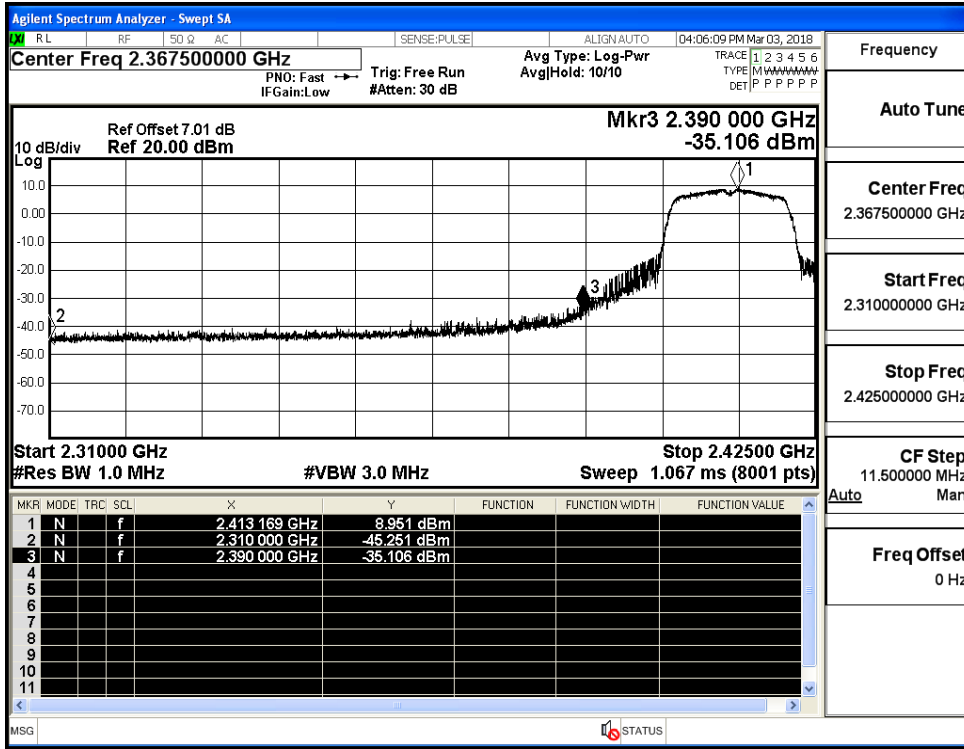
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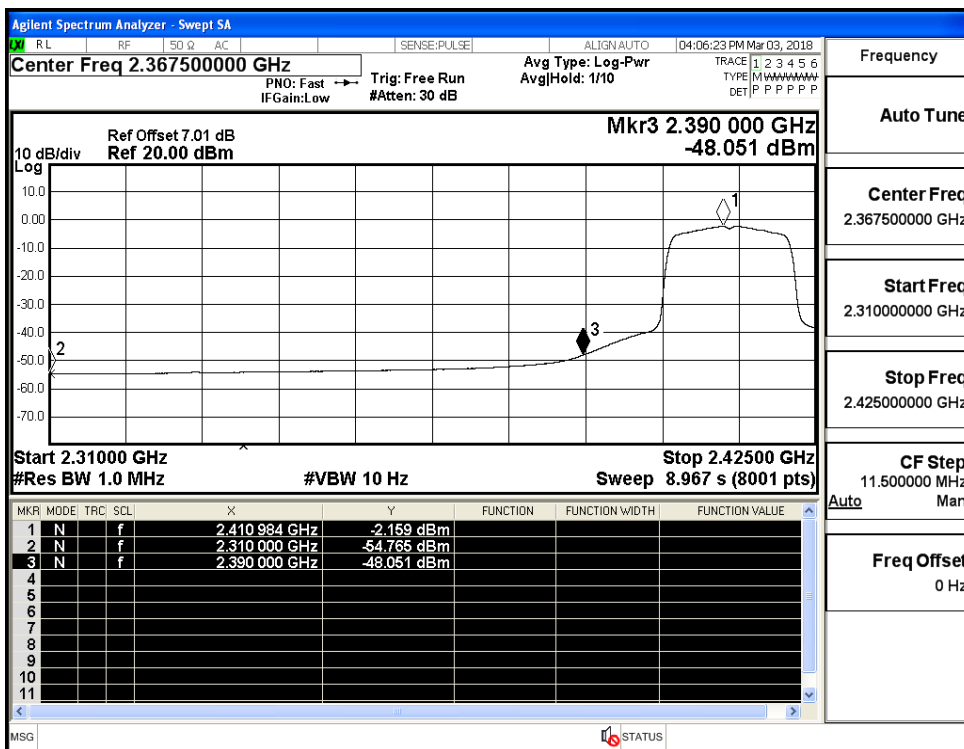
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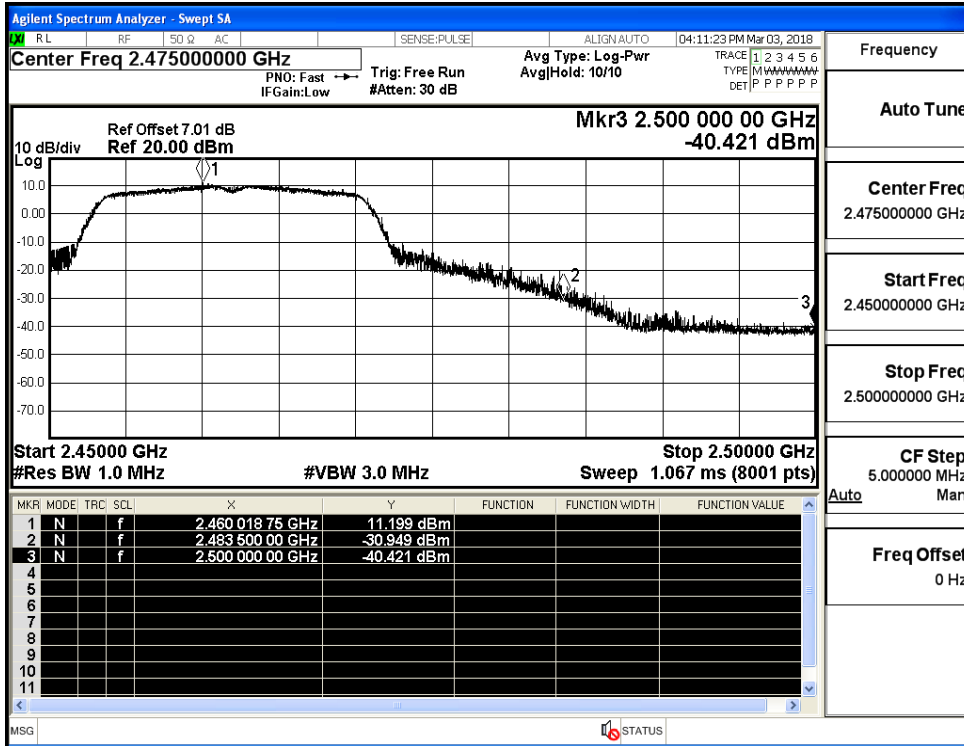
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Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV

