

Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: NOTEBOOK PC

Trade Mark: THOMSON

Test Model: WWNEO14A-2BK32

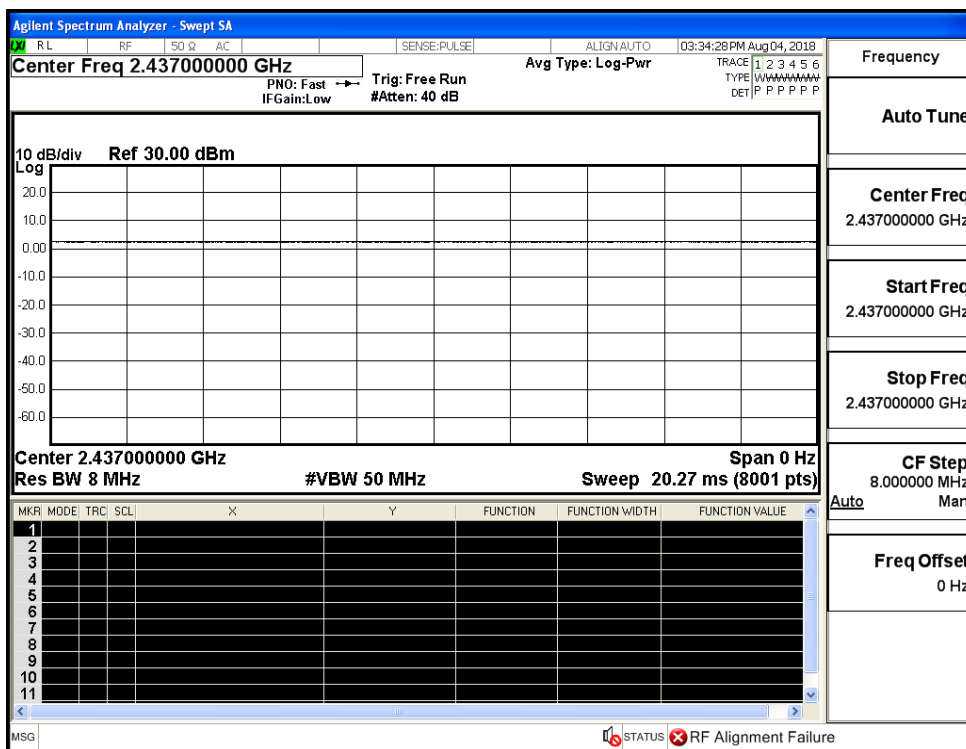
Environmental Conditions

Temperature:	24.3 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

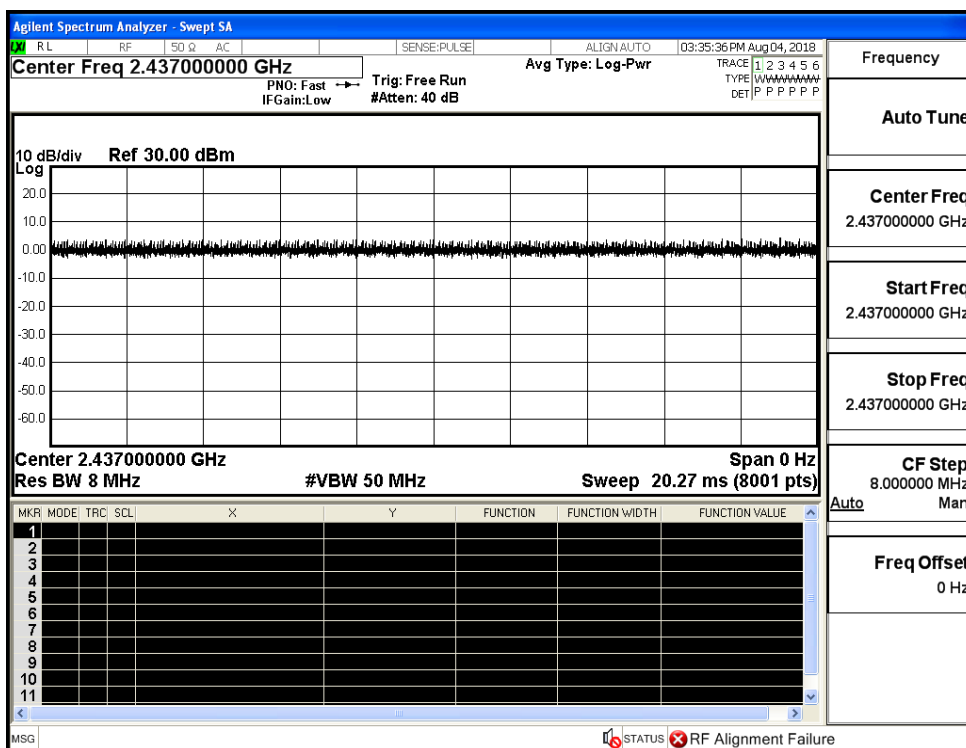
B.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

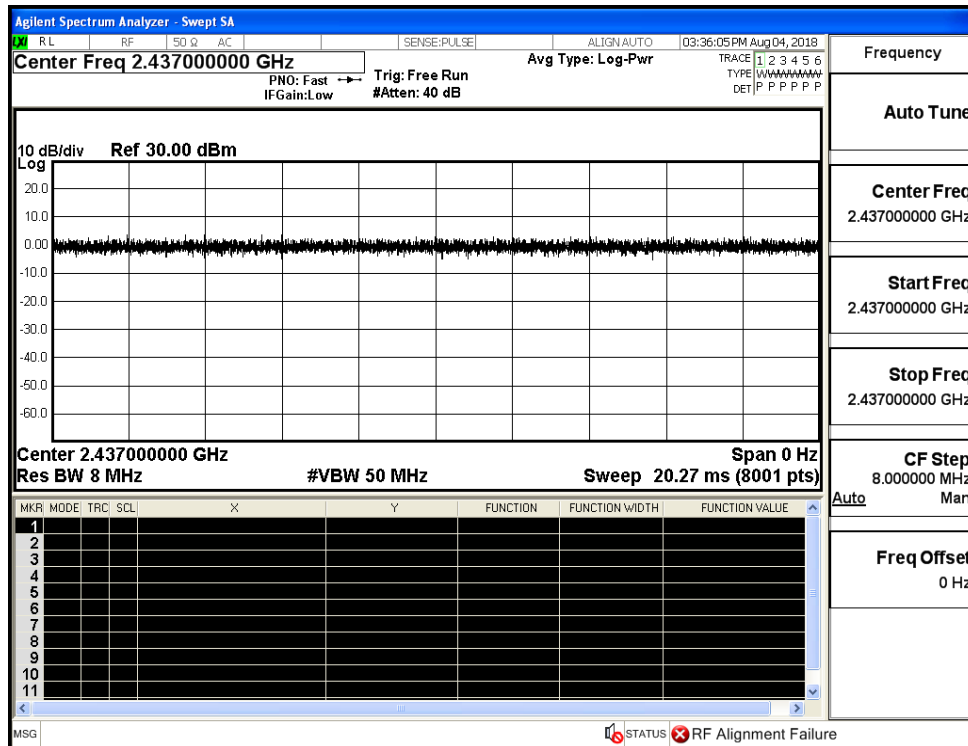
Duty Cycle_11B_2437_Ant1



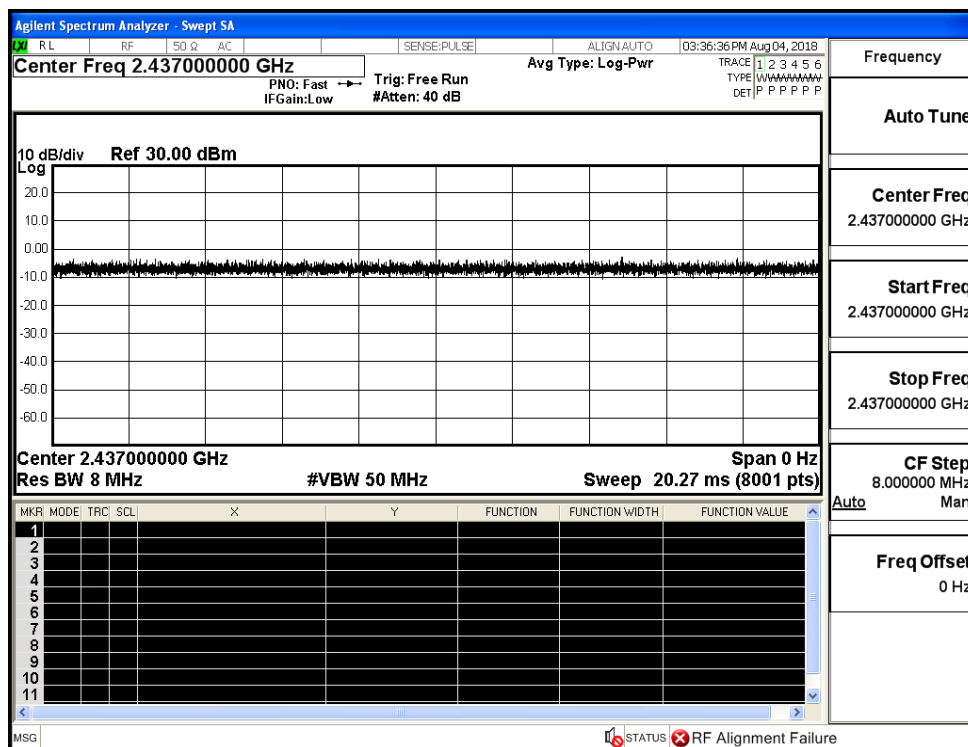
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



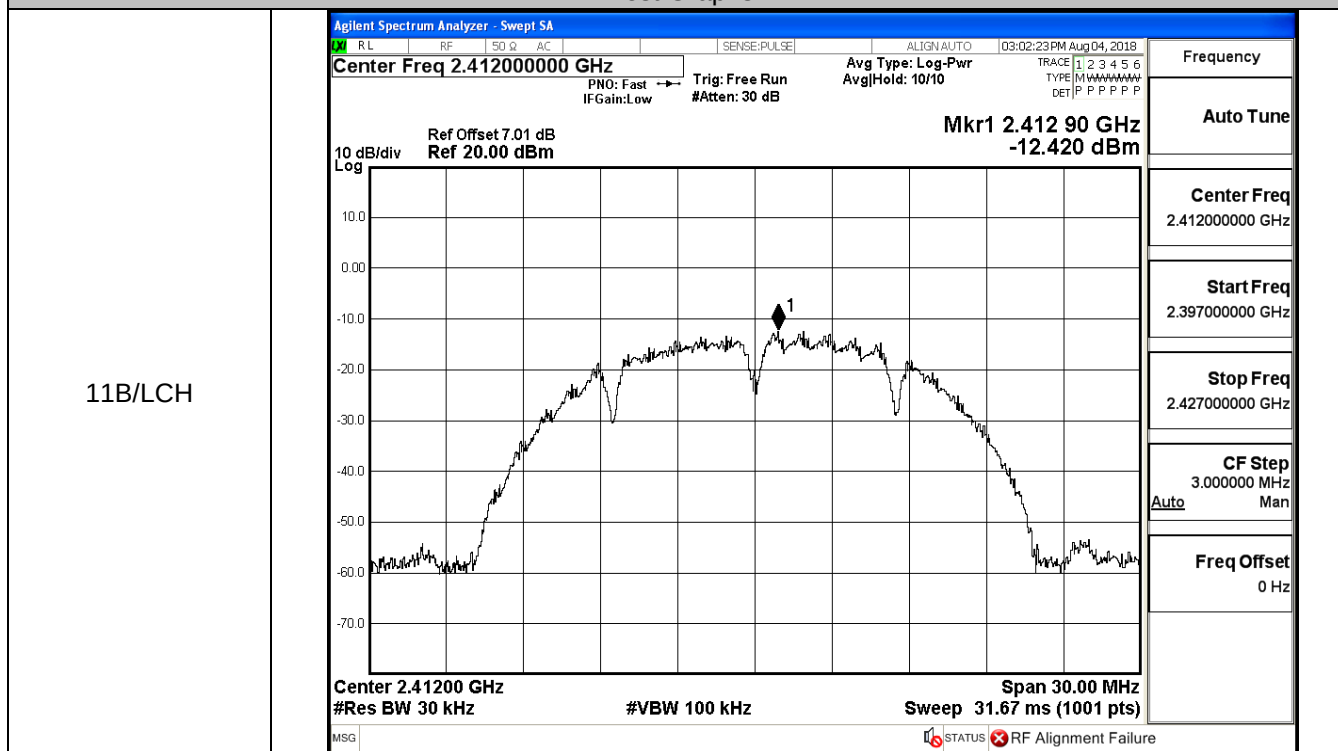
B.2 Maximum Conducted Output Peak Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	11.32	30	PASS
	MCH	11.06	30	PASS
	HCH	11.28	30	PASS
11G	LCH	12.71	30	PASS
	MCH	12.83	30	PASS
	HCH	12.53	30	PASS
11N20SISO	LCH	13.19	30	PASS
	MCH	13.42	30	PASS
	HCH	12.82	30	PASS
11N40SISO	LCH	13.93	30	PASS
	MCH	13.83	30	PASS
	HCH	14.44	30	PASS

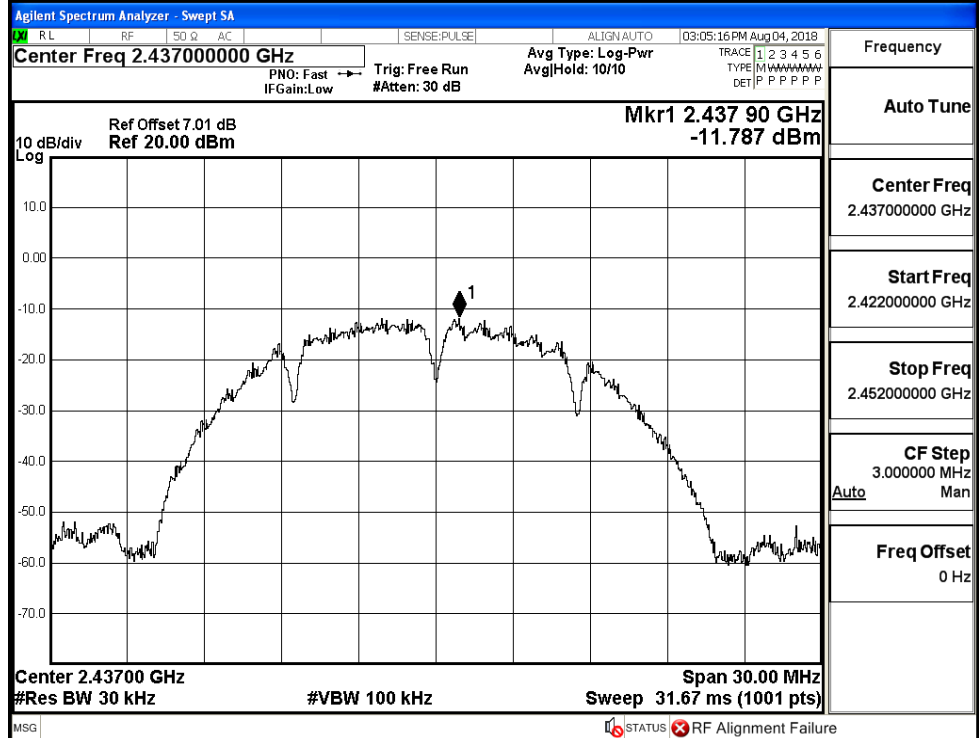
B.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-12.420	8	PASS
	MCH	-11.787	8	PASS
	HCH	-11.706	8	PASS
11G	LCH	-14.590	8	PASS
	MCH	-15.236	8	PASS
	HCH	-8.624	8	PASS
11N20SISO	LCH	-15.192	8	PASS
	MCH	-14.837	8	PASS
	HCH	-8.124	8	PASS
11N40SISO	LCH	-15.898	8	PASS
	MCH	-16.778	8	PASS
	HCH	-8.229	8	PASS

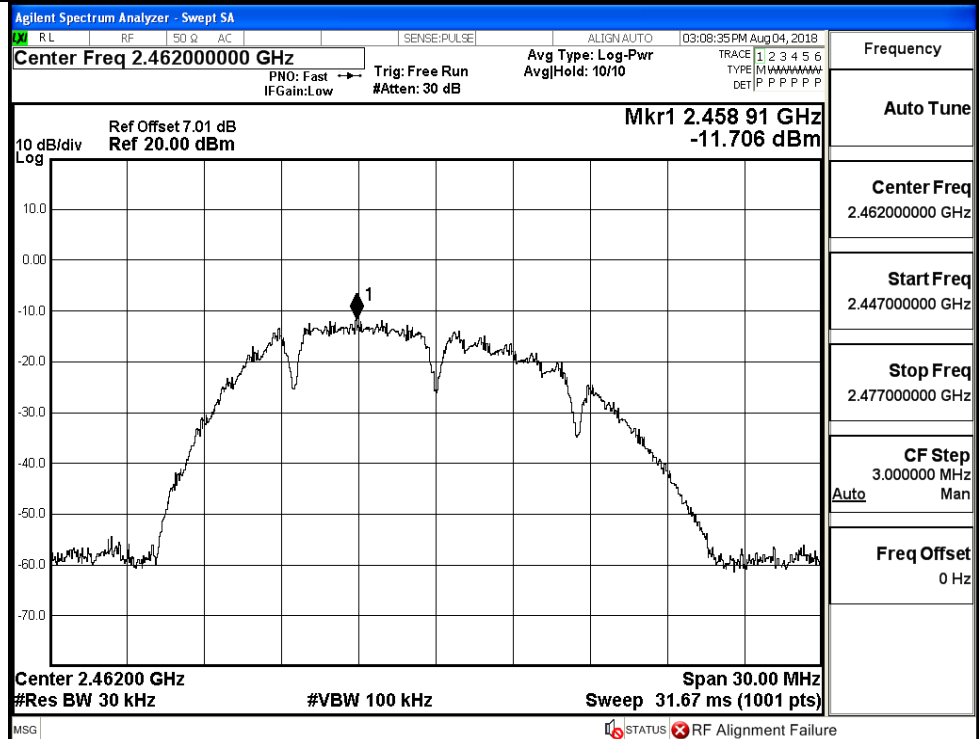
Test Graphs



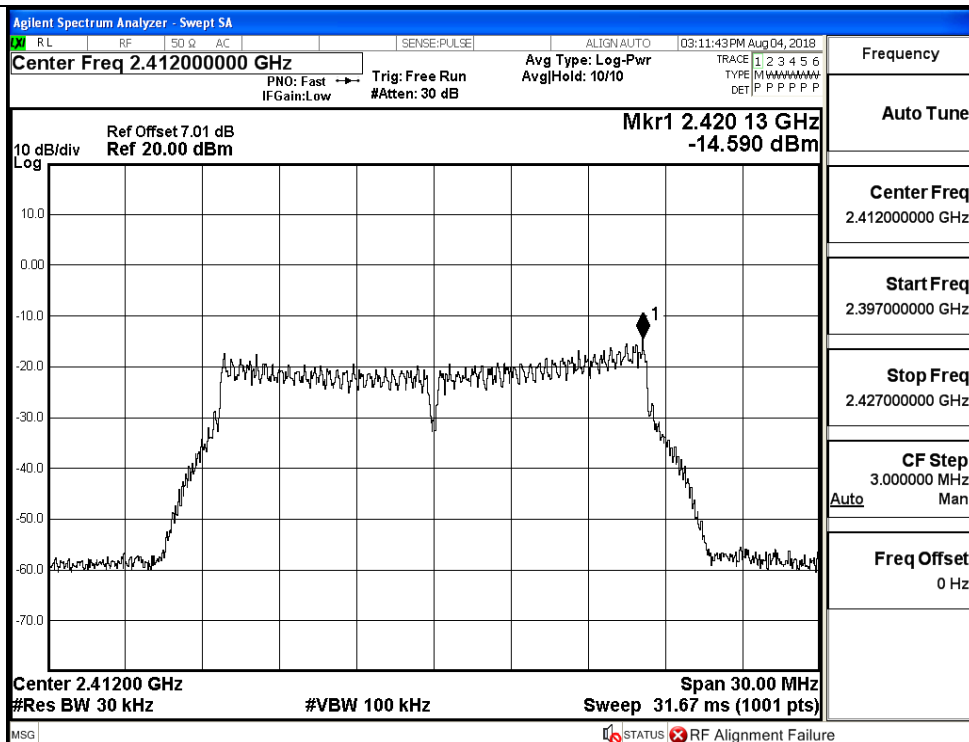
11B/MCH



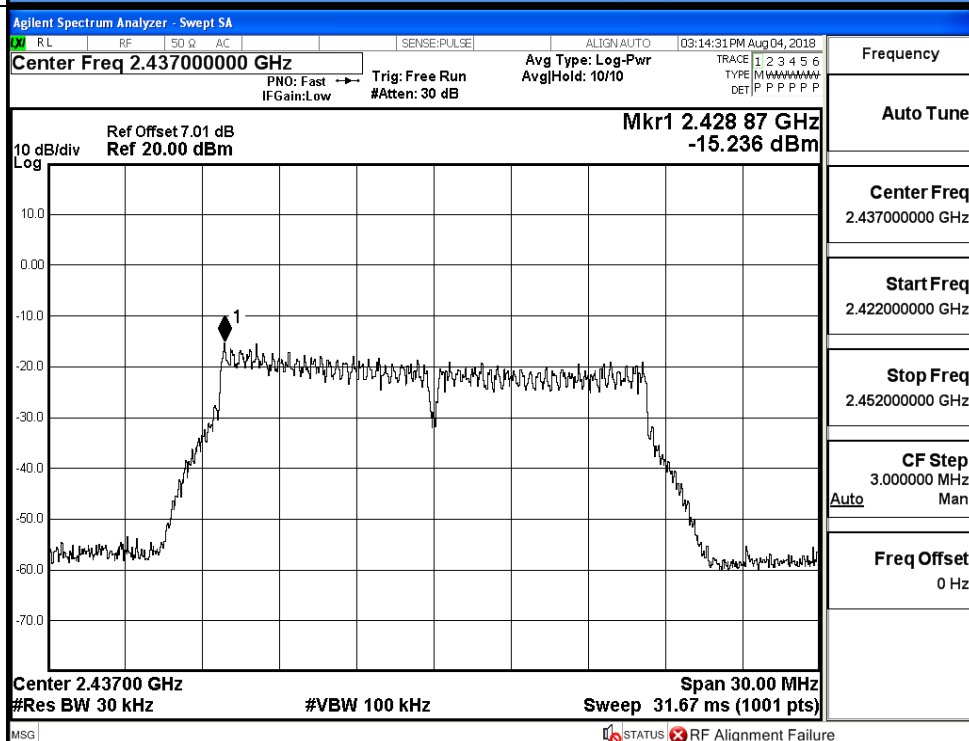
11B/HCH



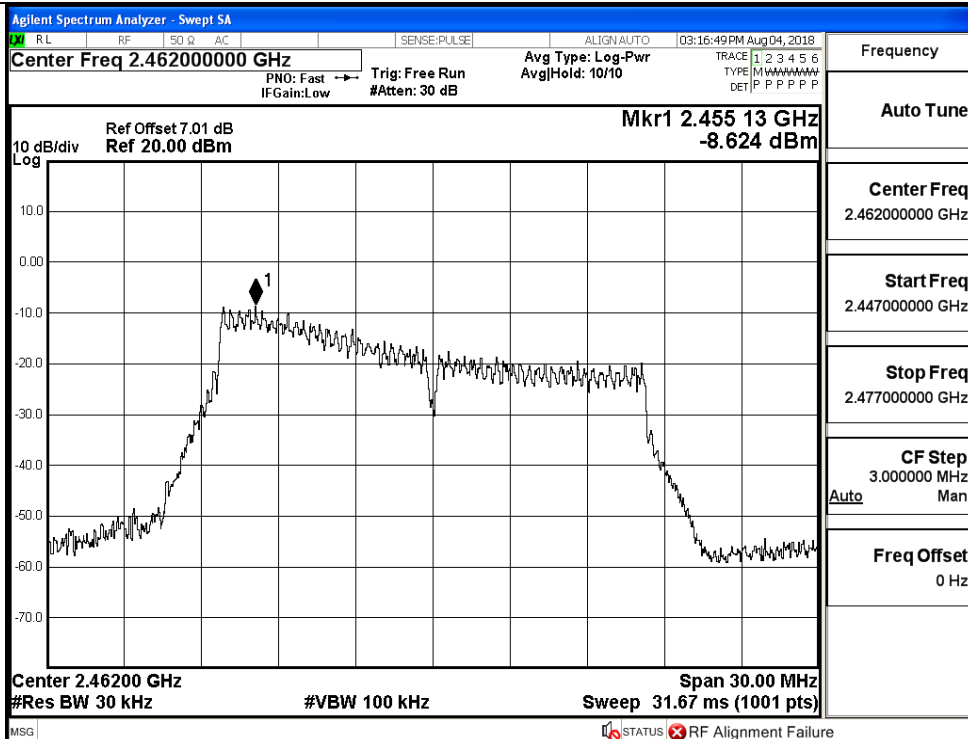
11G/LCH



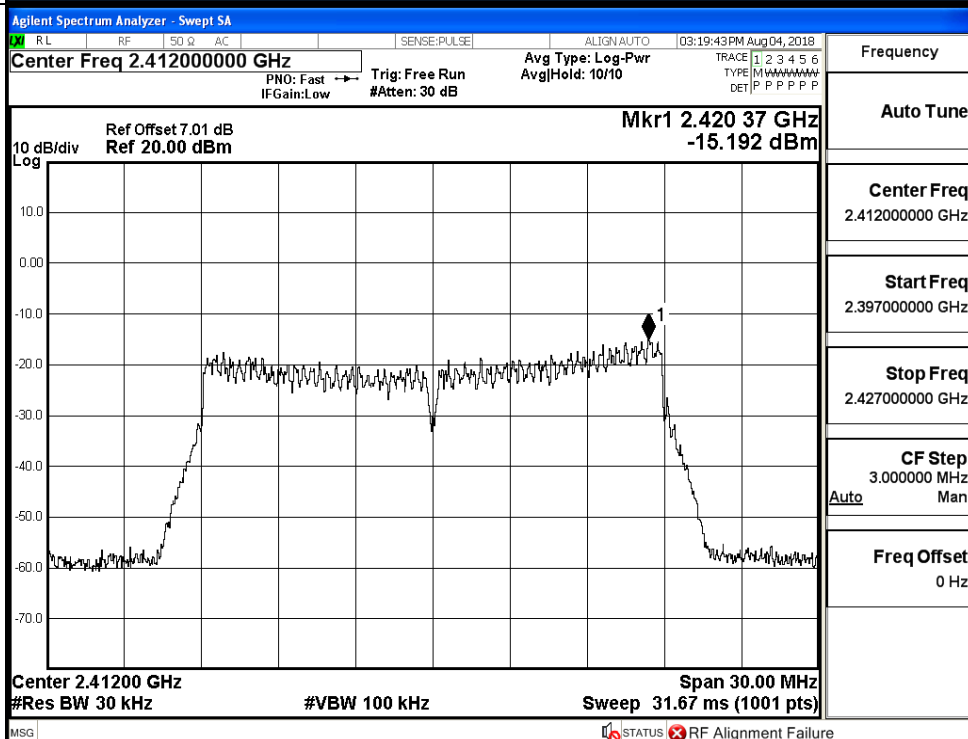
11G/MCH



11G/HCH

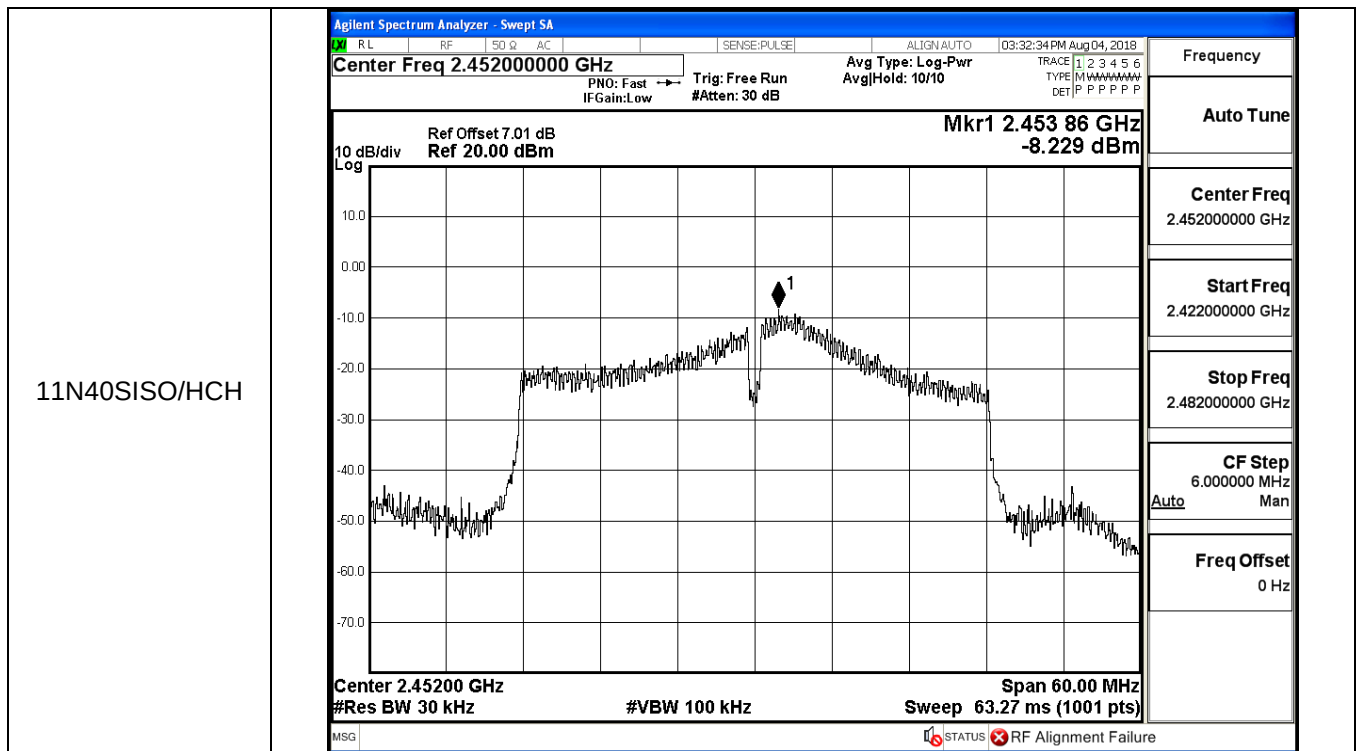


11N20SISO/LCH



11N20SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF SO Q AC SENSE: PULSE ALIGN: AUTO 03:22:41 PM Aug 04, 2018 Center Freq 2.437000000 GHz PN0: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE: M W W W W W W W W DET: P P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.428 87 GHz -14.837 dBm 10 dB/div Log Center 2.43700 GHz #Res BW 30 kHz #VBW 100 kHz Span 30.00 MHz Sweep 31.67 ms (1001 pts) MSG STATUS RF Alignment Failure Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.422000000 GHz Stop Freq 2.452000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/HCH	Agilent Spectrum Analyzer - Swept SA RL RF SO Q AC SENSE: PULSE ALIGN: AUTO 03:24:41 PM Aug 04, 2018 Center Freq 2.462000000 GHz PN0: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE: M W W W W W W W W DET: P P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.454 86 GHz -8.124 dBm 10 dB/div Log Center 2.46200 GHz #Res BW 30 kHz #VBW 100 kHz Span 30.00 MHz Sweep 31.67 ms (1001 pts) MSG STATUS RF Alignment Failure Frequency Auto Tune Center Freq 2.462000000 GHz Start Freq 2.447000000 GHz Stop Freq 2.477000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

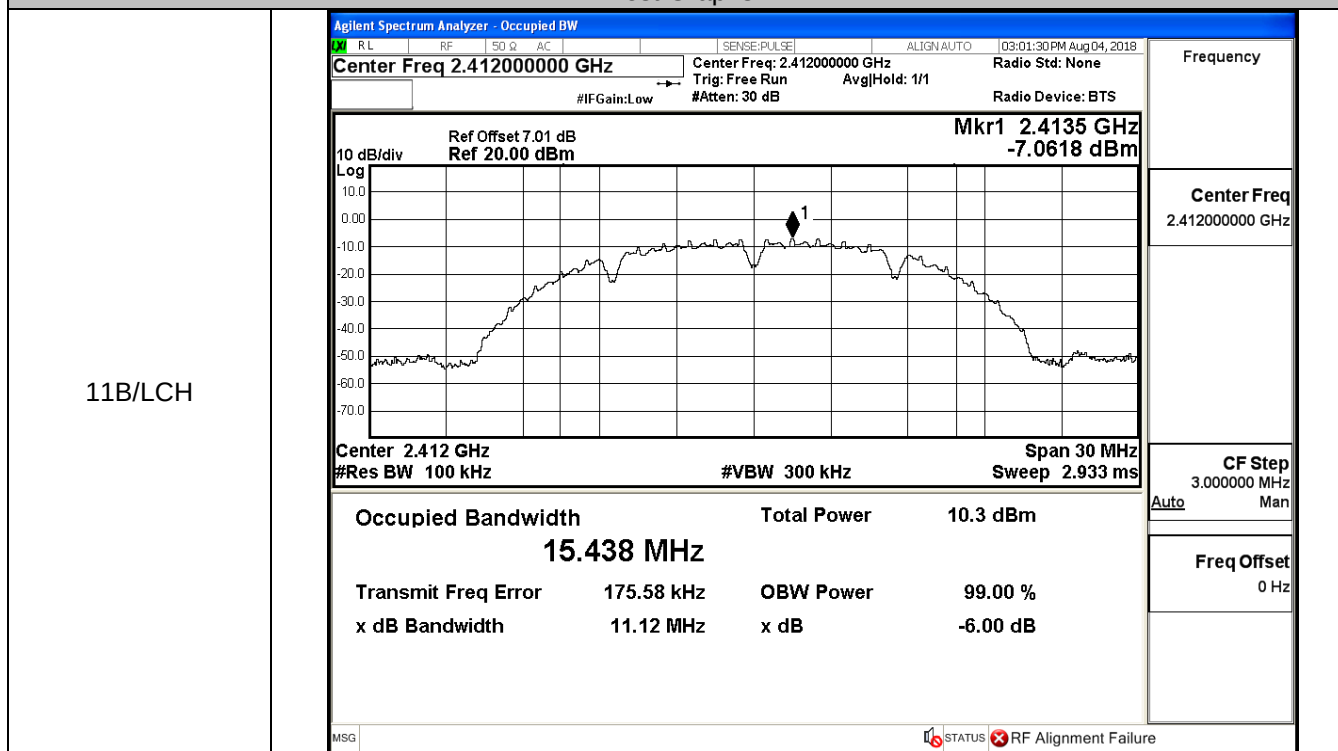
11N40SISO/LCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Q AC SENSE: PULSE ALIGN: AUTO 03:27:38 PM Aug 04, 2018 Center Freq 2.422000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE: M W W W W W W W DET: P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.423 86 GHz -15.898 dBm Center 2.42200 GHz #Res BW 30 kHz #VBW 100 kHz Span 60.00 MHz Sweep 63.27 ms (1001 pts) MSG STATUS RF Alignment Failure Frequency Auto Tune Center Freq 2.422000000 GHz Start Freq 2.392000000 GHz Stop Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Q AC SENSE: PULSE ALIGN: AUTO 03:30:33 PM Aug 04, 2018 Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE: M W W W W W W W DET: P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.423 86 GHz -16.778 dBm Center 2.43700 GHz #Res BW 30 kHz #VBW 100 kHz Span 60.00 MHz Sweep 63.27 ms (1001 pts) MSG STATUS RF Alignment Failure Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.407000000 GHz Stop Freq 2.467000000 GHz CF Step 6.000000 MHz Auto Freq Offset 0 Hz



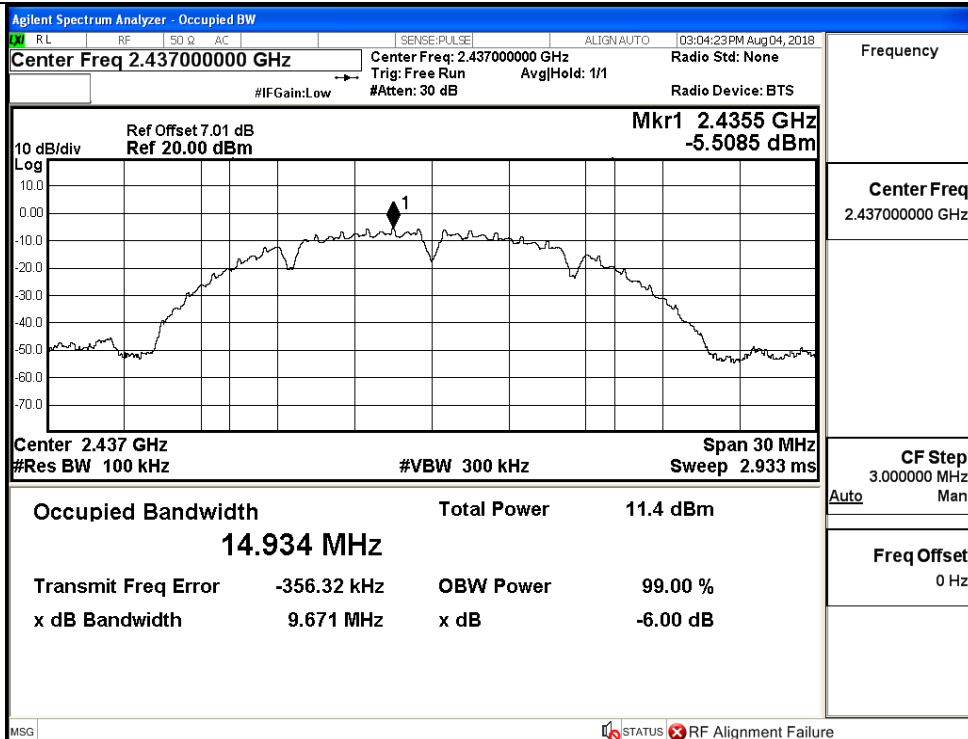
B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	11.12	≥ 0.5	PASS
	MCH	9.671	≥ 0.5	PASS
	HCH	9.165	≥ 0.5	PASS
11G	LCH	16.61	≥ 0.5	PASS
	MCH	16.54	≥ 0.5	PASS
	HCH	16.46	≥ 0.5	PASS
11N20SISO	LCH	17.79	≥ 0.5	PASS
	MCH	17.76	≥ 0.5	PASS
	HCH	17.34	≥ 0.5	PASS
11N40SISO	LCH	35.66	≥ 0.5	PASS
	MCH	36.47	≥ 0.5	PASS
	HCH	34.96	≥ 0.5	PASS

Test Graphs



11B/MCH



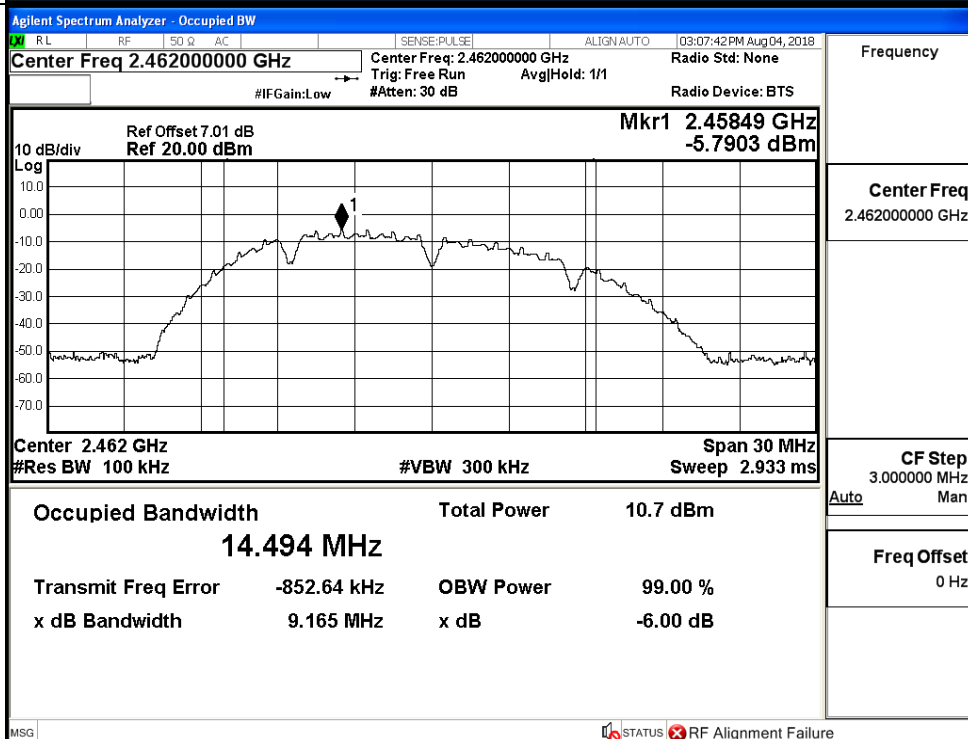
Frequency

Center Freq
2.437000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11B/HCH



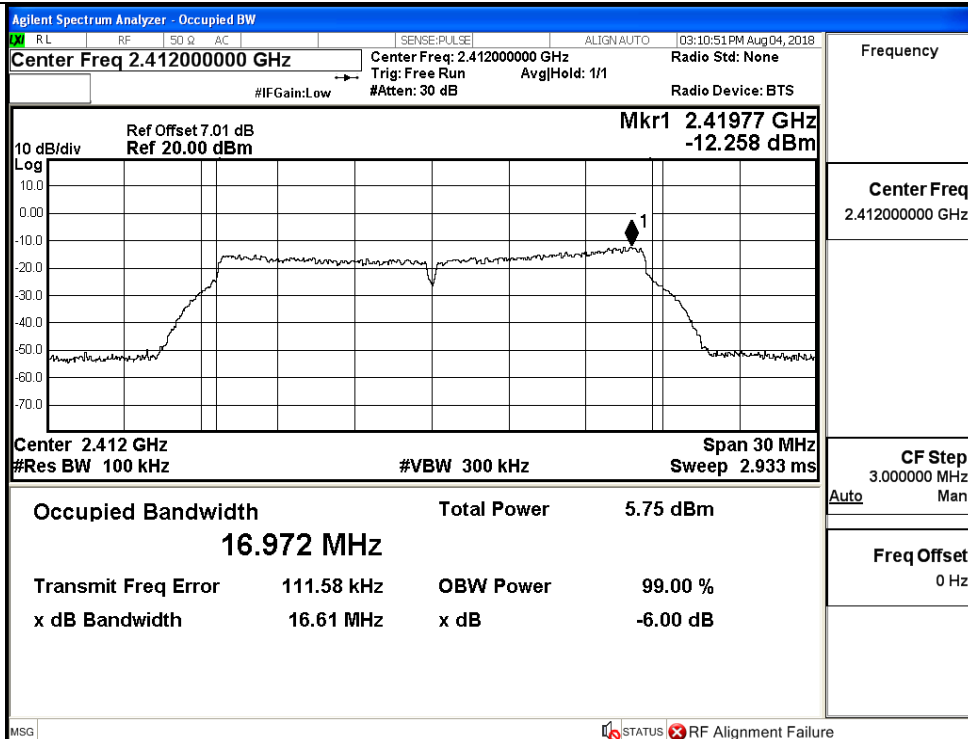
Frequency

Center Freq
2.462000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/LCH



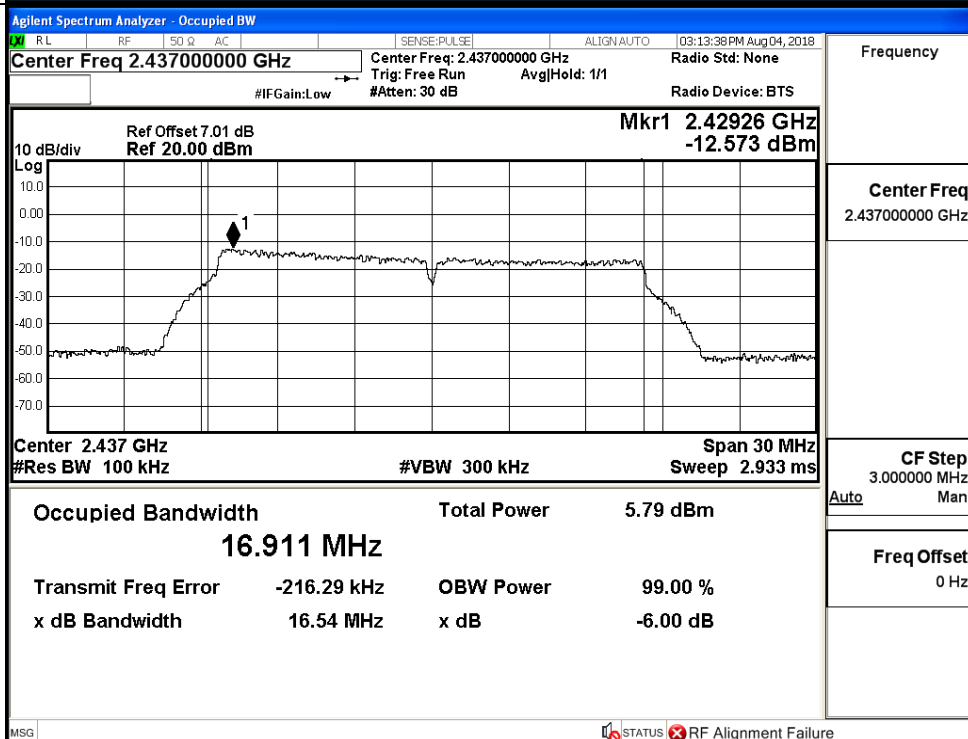
Frequency

Center Freq
2.412000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/MCH



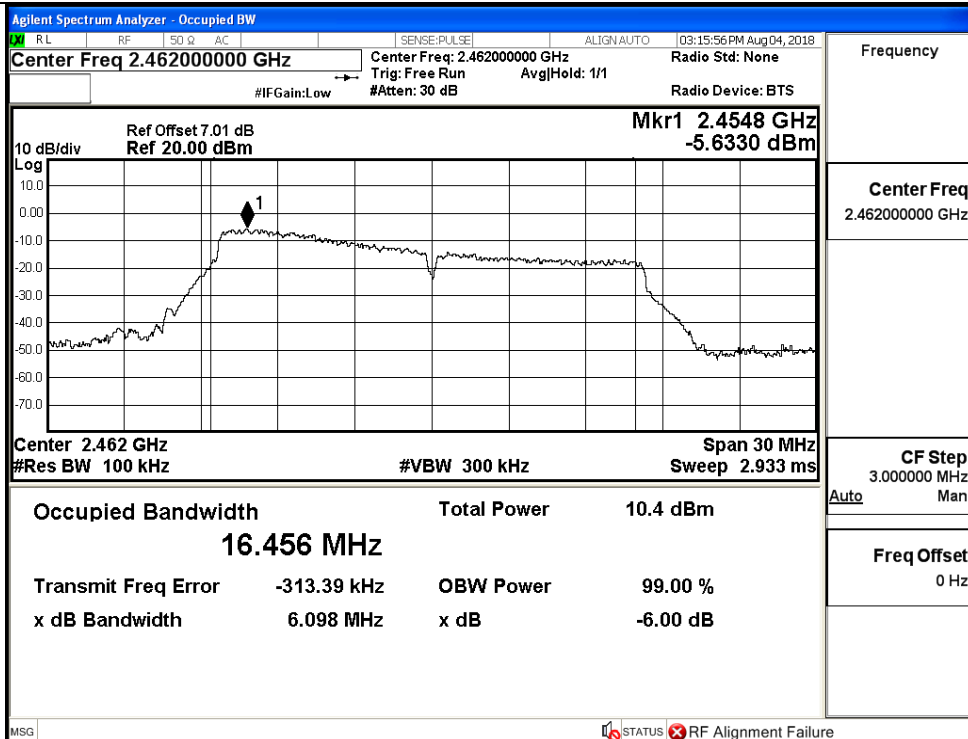
Frequency

Center Freq
2.437000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/HCH



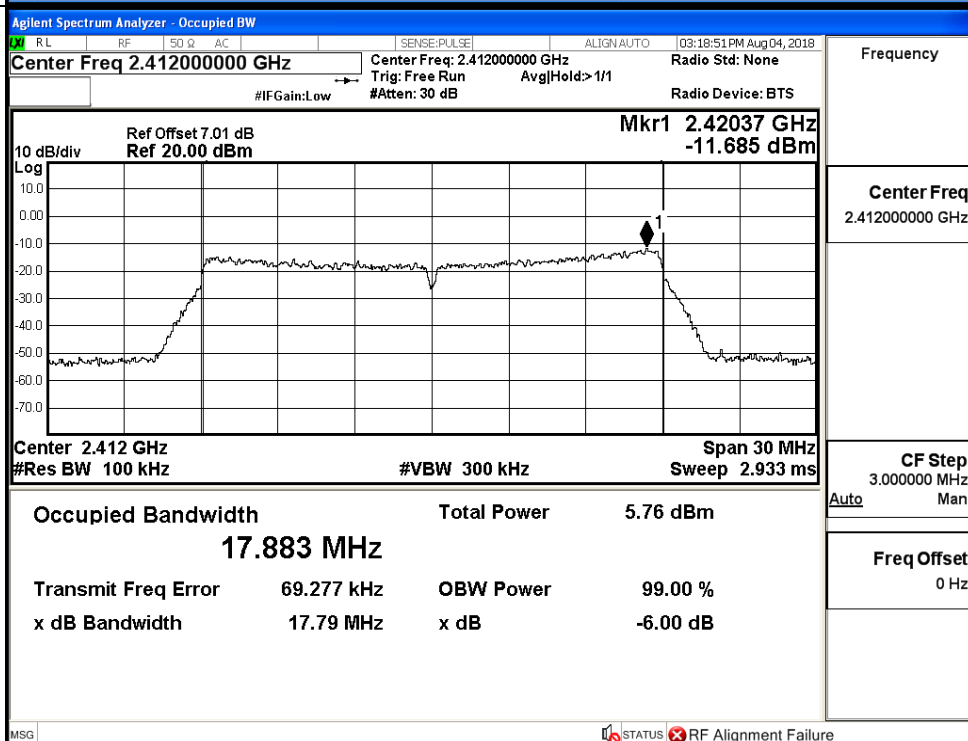
Frequency

Center Freq
2.462000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH

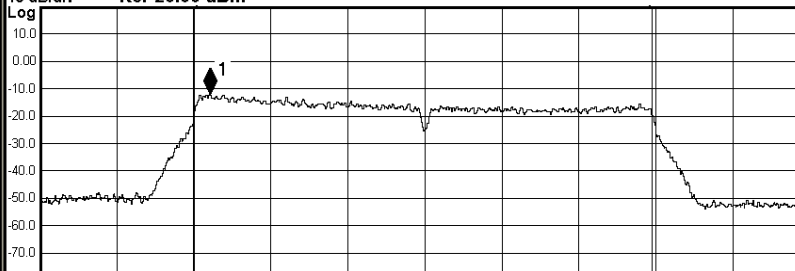
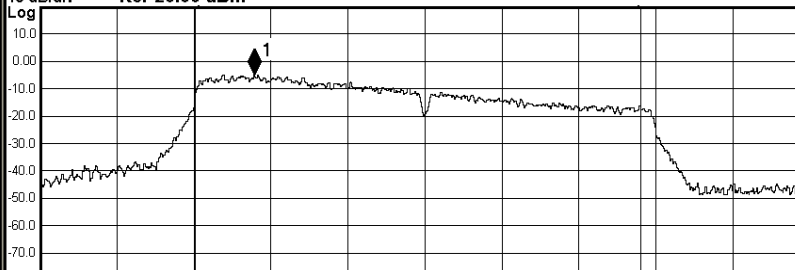


Frequency

Center Freq
2.412000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:PULSE ALIGN AUTO 03:21:48 PM Aug 04, 2018 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None #IF Gain: Low Trig: Free Run Avg/Hold: 1/1 Radio Device: BTS Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.42863 GHz -12.164 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.785 MHz Total Power 6.06 dBm Transmit Freq Error -61.776 kHz OBW Power 99.00 % x dB Bandwidth 17.76 MHz x dB -6.00 dB MSG STATUS RF Alignment Failure			Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz	
	11N20SISO/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:PULSE ALIGN AUTO 03:23:49 PM Aug 04, 2018 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None #IF Gain: Low Trig: Free Run Avg/Hold: 1/1 Radio Device: BTS Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.45537 GHz -5.0134 dBm  Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.340 MHz Total Power 12.1 dBm Transmit Freq Error -253.76 kHz OBW Power 99.00 % x dB Bandwidth 8.330 MHz x dB -6.00 dB MSG STATUS RF Alignment Failure			Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

Center Freq 2.462000000 GHz

Center Freq: 2.462000000 GHz

Radio Std: None

#IF Gain: Low

Trig: Free Run

Avg/Hold: 1/1

Radio Device: BTS

Ref Offset 7.01 dB

Ref 20.00 dBm

Mkr1 2.45537 GHz

-5.0134 dBm

Center 2.462 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 30 MHz

Sweep 2.933 ms

Occupied Bandwidth

17.340 MHz

Total Power

12.1 dBm

Transmit Freq Error

-253.76 kHz

OBW Power

99.00 %

x dB Bandwidth

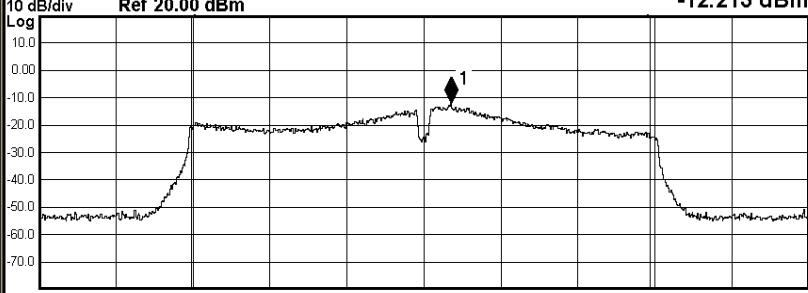
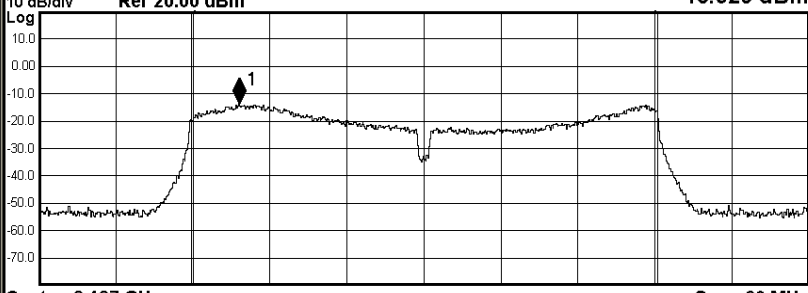
8.330 MHz

x dB

-6.00 dB

MSG

STATUS RF Alignment Failure

11N40SISO/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Q AC SENSE:PULSE ALIGN AUTO 03:26:46 PM Aug 04, 2018 Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IF Gain: Low #Atten: 30 dB Radio Device: BTS Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.4241 GHz -12.213 dBm  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.659 MHz Total Power 6.48 dBm Transmit Freq Error -206.37 kHz OBW Power 99.00 % x dB Bandwidth 11.58 MHz x dB -6.00 dB MSG STATUS RF Alignment Failure Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Q AC SENSE:PULSE ALIGN AUTO 03:29:41 PM Aug 04, 2018 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IF Gain: Low #Atten: 30 dB Radio Device: BTS Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.42266 GHz -13.926 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.296 MHz Total Power 6.54 dBm Transmit Freq Error 59.827 kHz OBW Power 99.00 % x dB Bandwidth 36.47 MHz x dB -6.00 dB MSG STATUS RF Alignment Failure

Frequency

Center Freq

2.437000000 GHz

CF Step

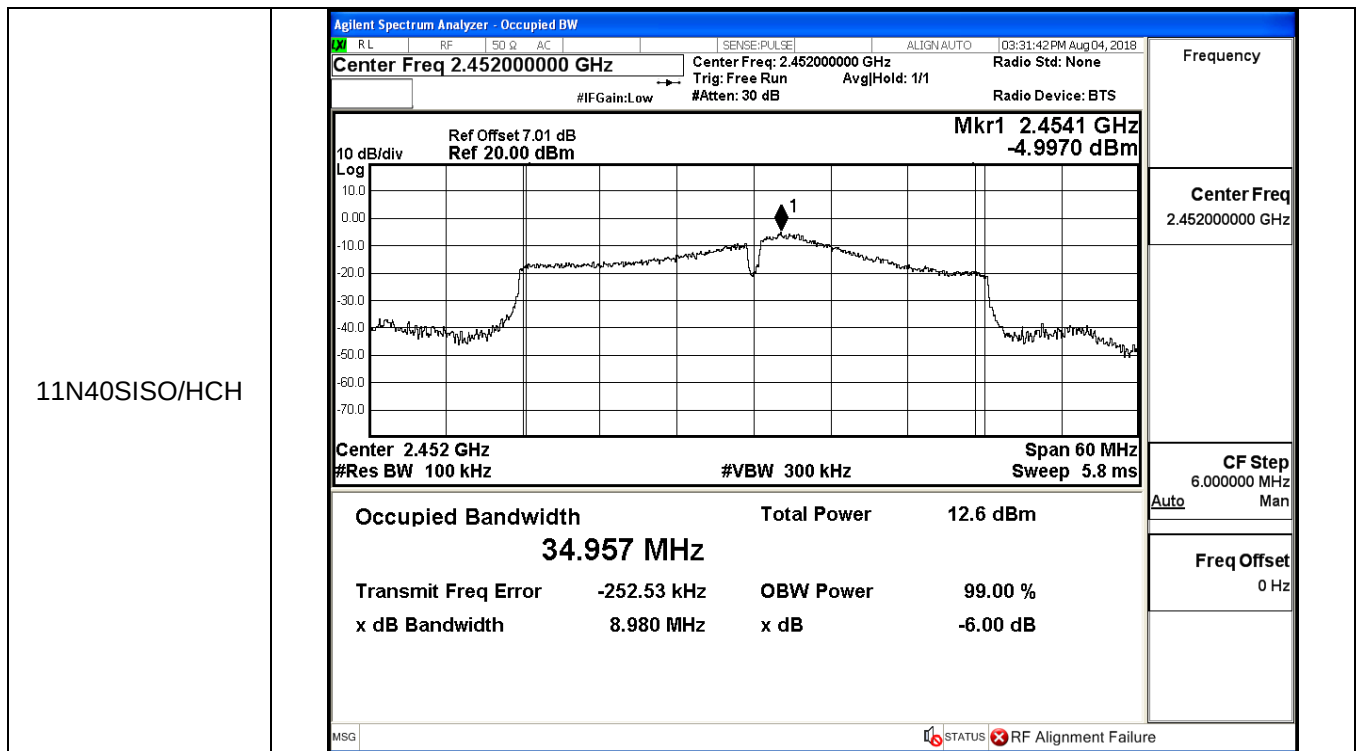
6.000000 MHz

Auto

Man

Freq Offset

0 Hz

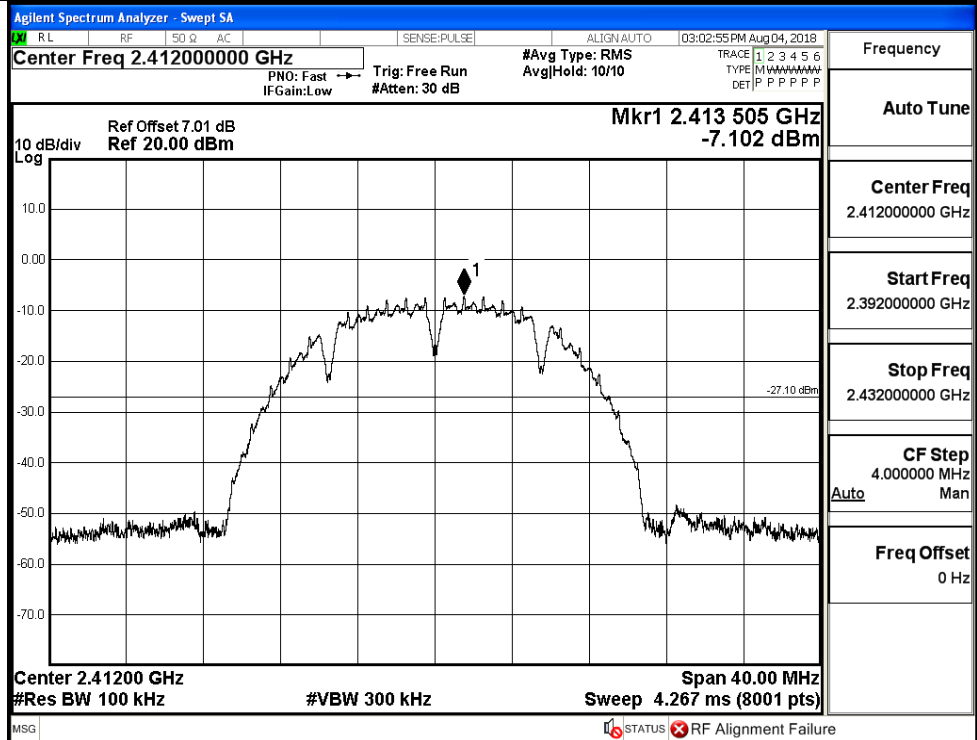


B.5 RF Conducted Spurious Emissions

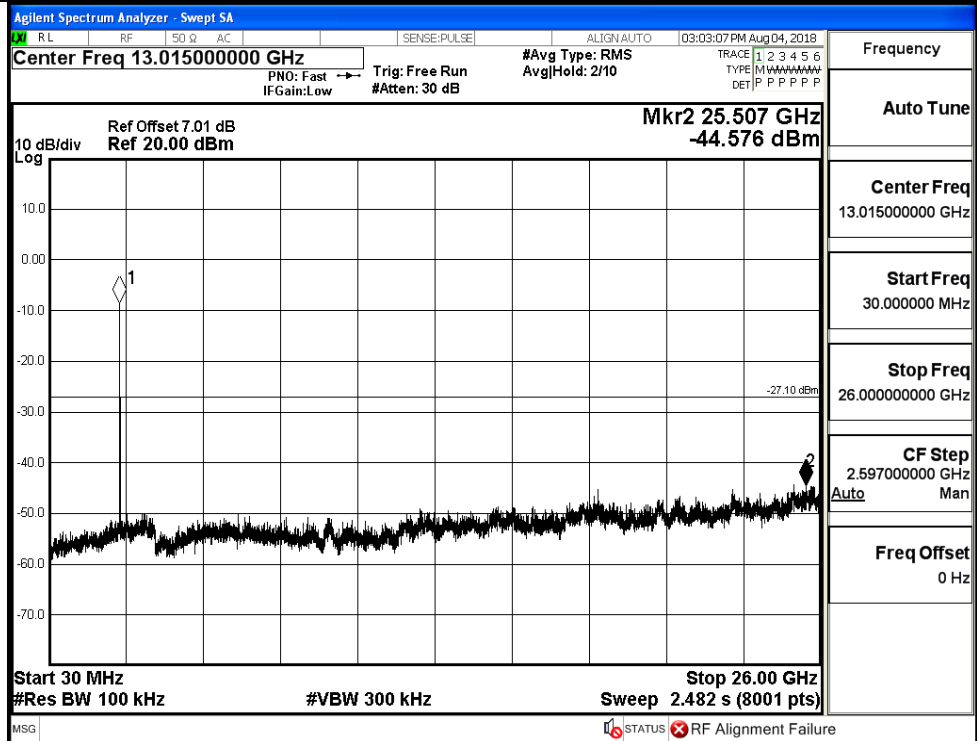
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-7.102	-44.576	-27.102	PASS
	MCH	-6.011	-44.135	-26.011	PASS
	HCH	-6.08	-44.596	-26.080	PASS
11G	LCH	-12.356	-44.383	-32.356	PASS
	MCH	-12.916	-44.674	-32.916	PASS
	HCH	-5.879	-44.863	-25.879	PASS
11N20 SISO	LCH	-11.244	-44.822	-31.244	PASS
	MCH	-12.466	-43.970	-32.466	PASS
	HCH	-5.549	-43.930	-25.549	PASS
11N40 SISO	LCH	-12.537	-43.990	-32.537	PASS
	MCH	-13.984	-44.651	-33.984	PASS
	HCH	-5.747	-44.916	-25.747	PASS

11B LCH Graphs

Pref/11B/LCH

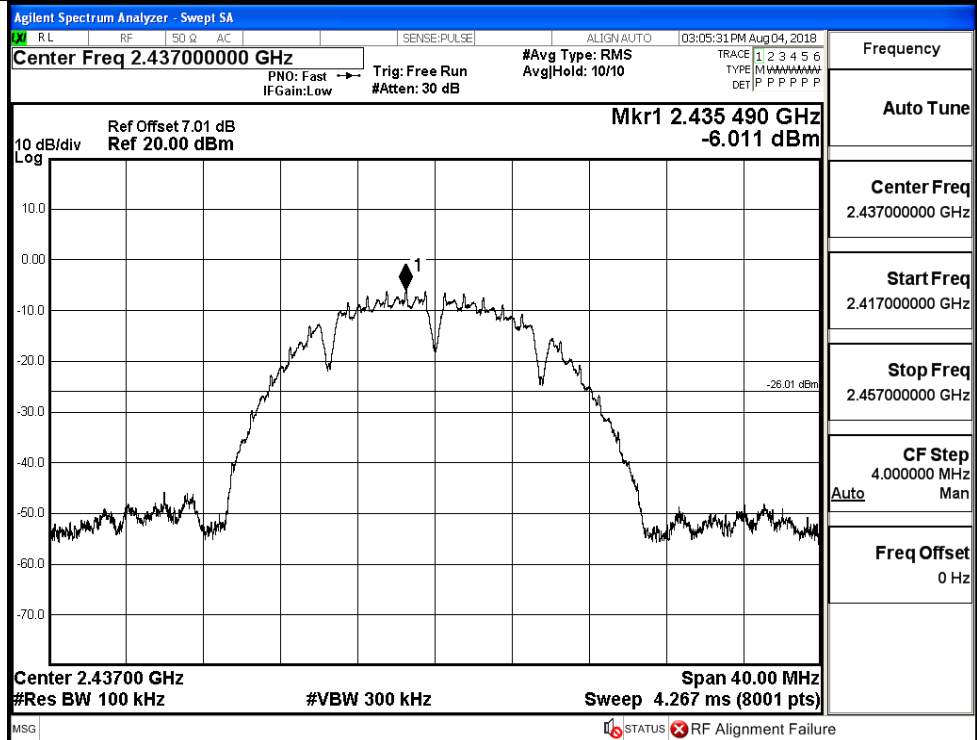


Puw/11B/LCH

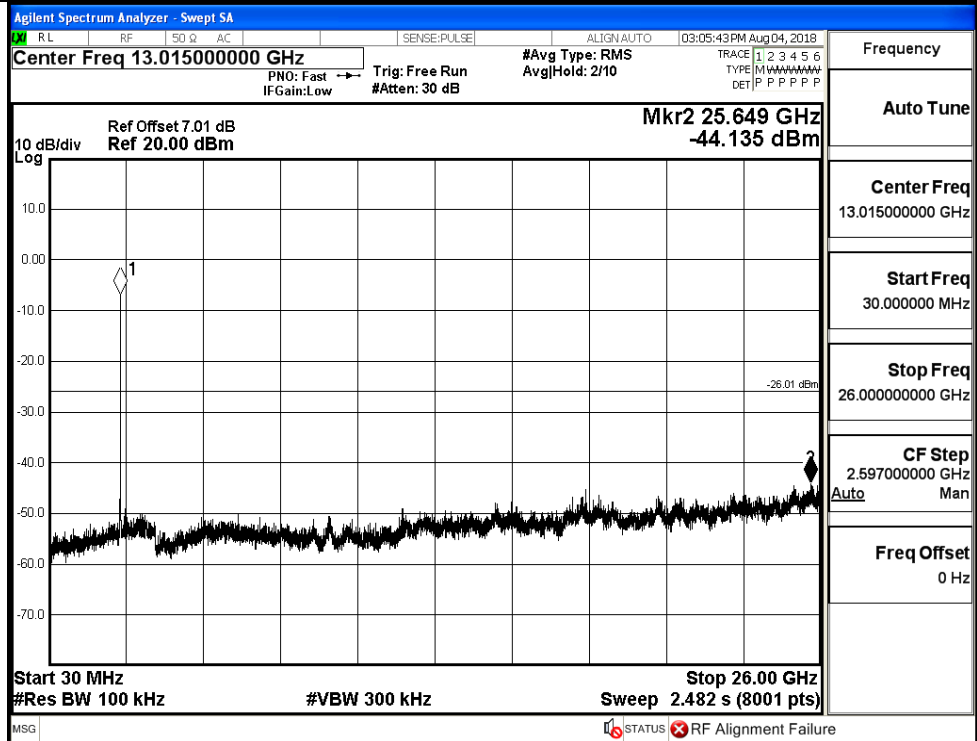


11B MCH Graphs

Pref/11B/MCH

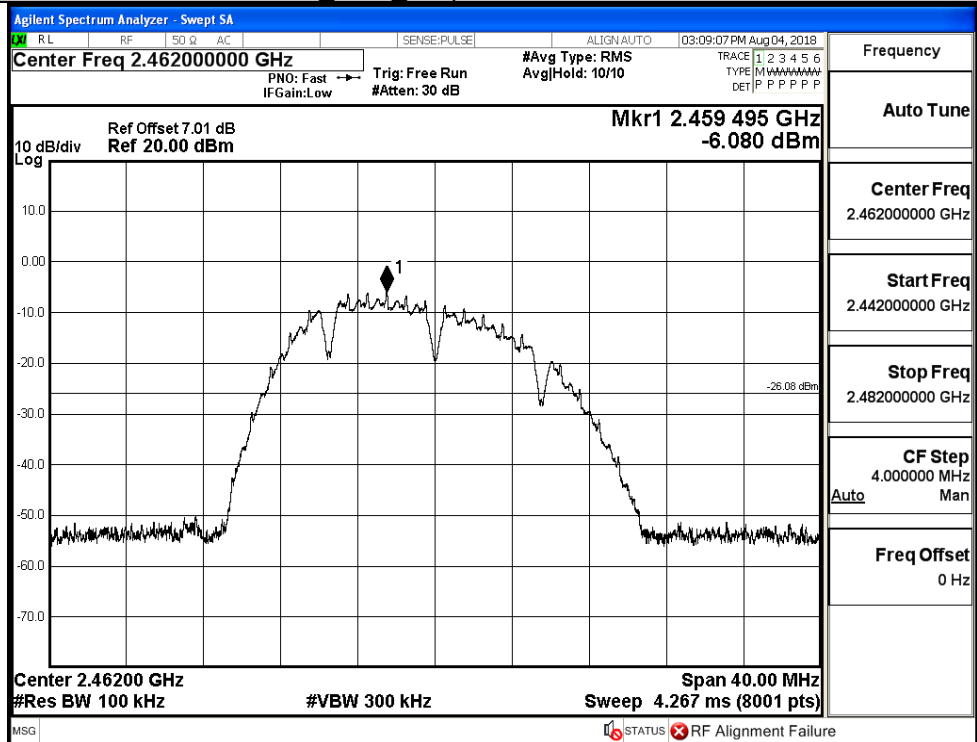


Puw/11B/MCH

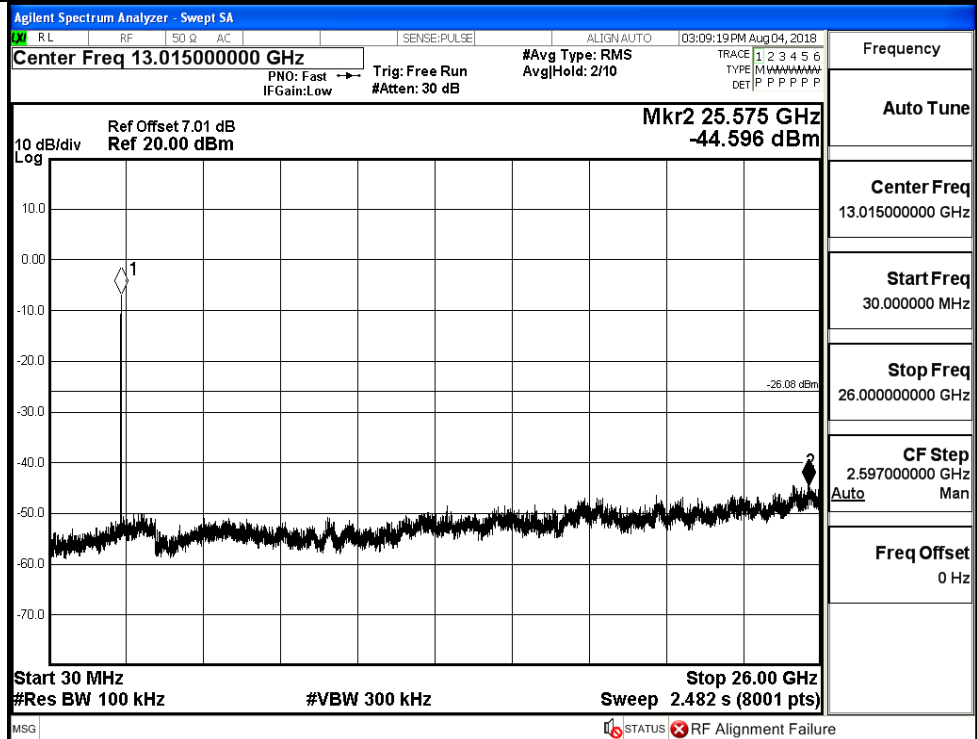


11B HCH Graphs

Pref/11B/HCH

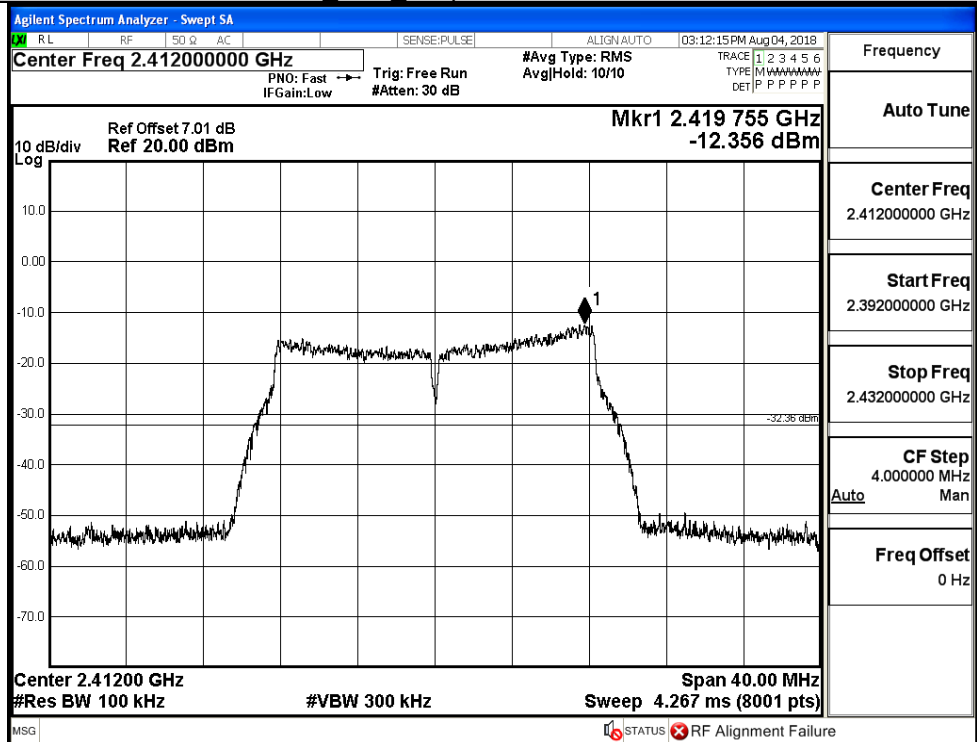


Puw/11B/HCH

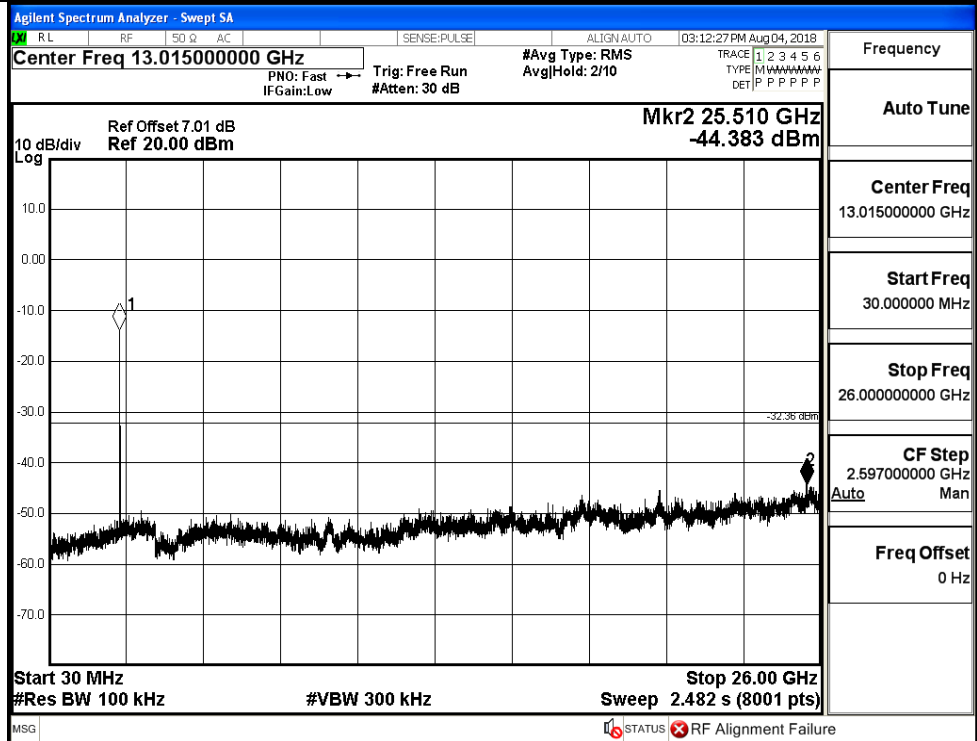


11G LCH Graphs

Pref/11G/LCH

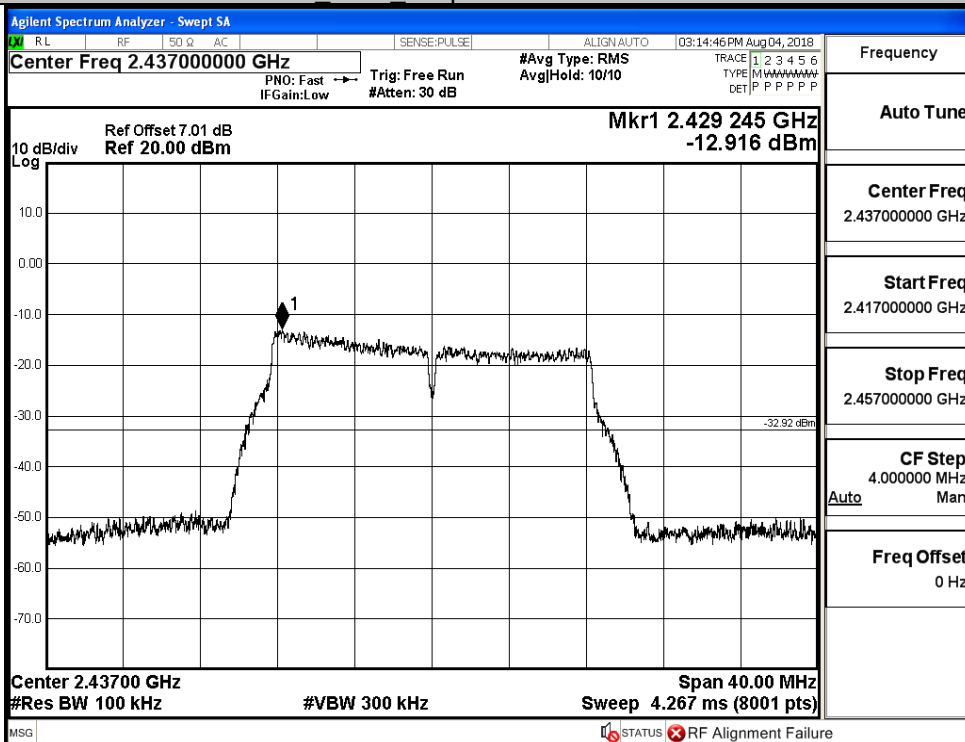


Puw/11G/LCH

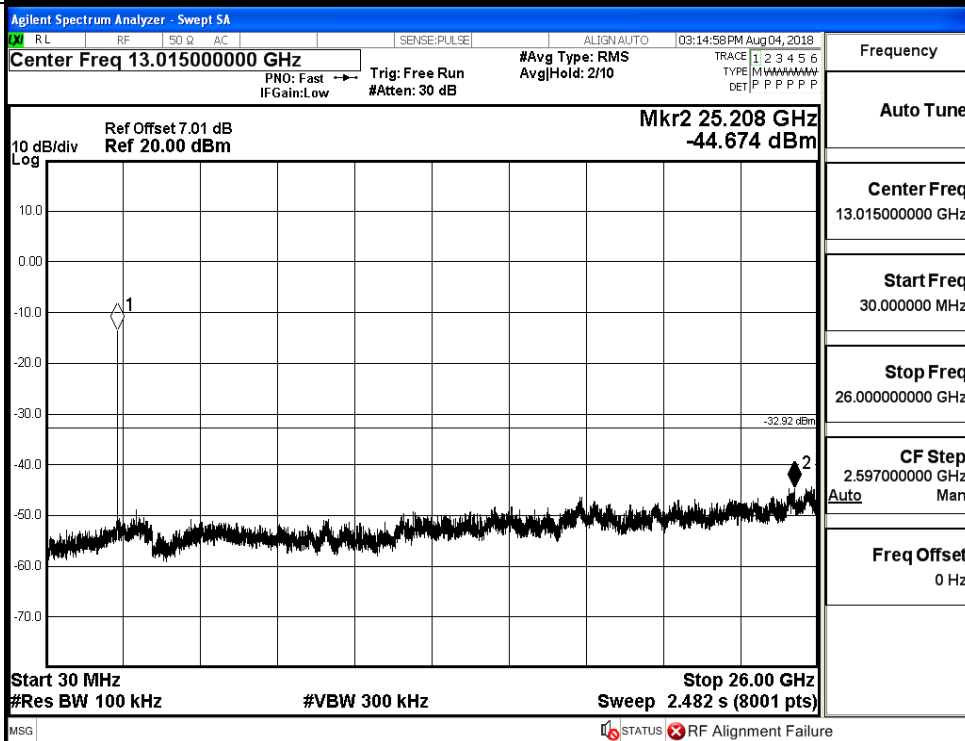


11G MCH Graphs

Pref/11G/MCH

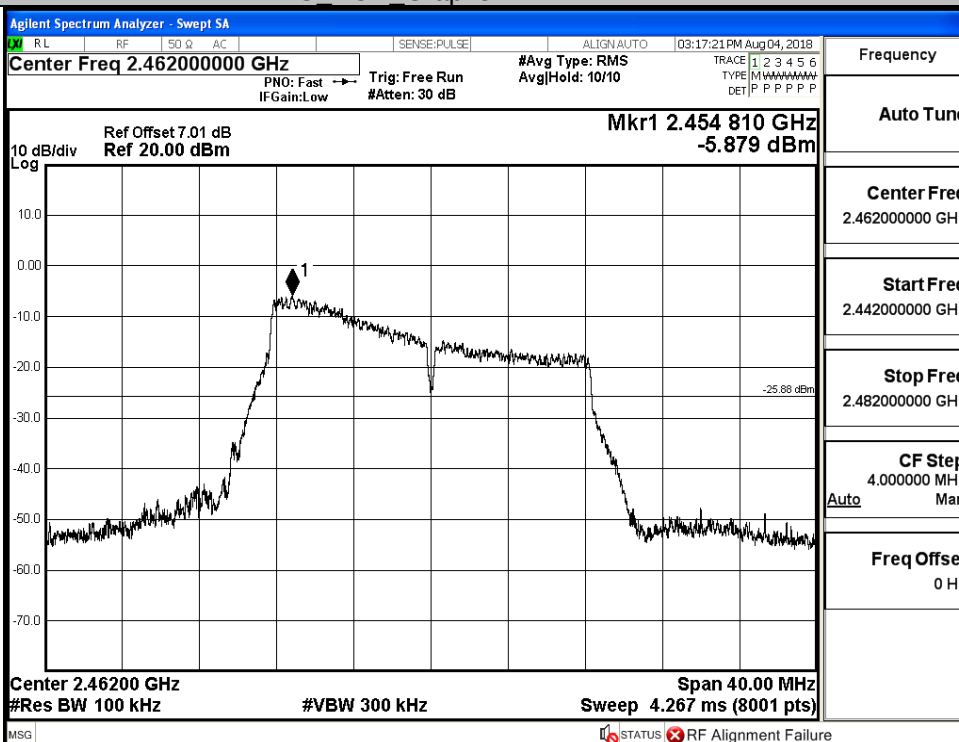


Puw/11G/MCH

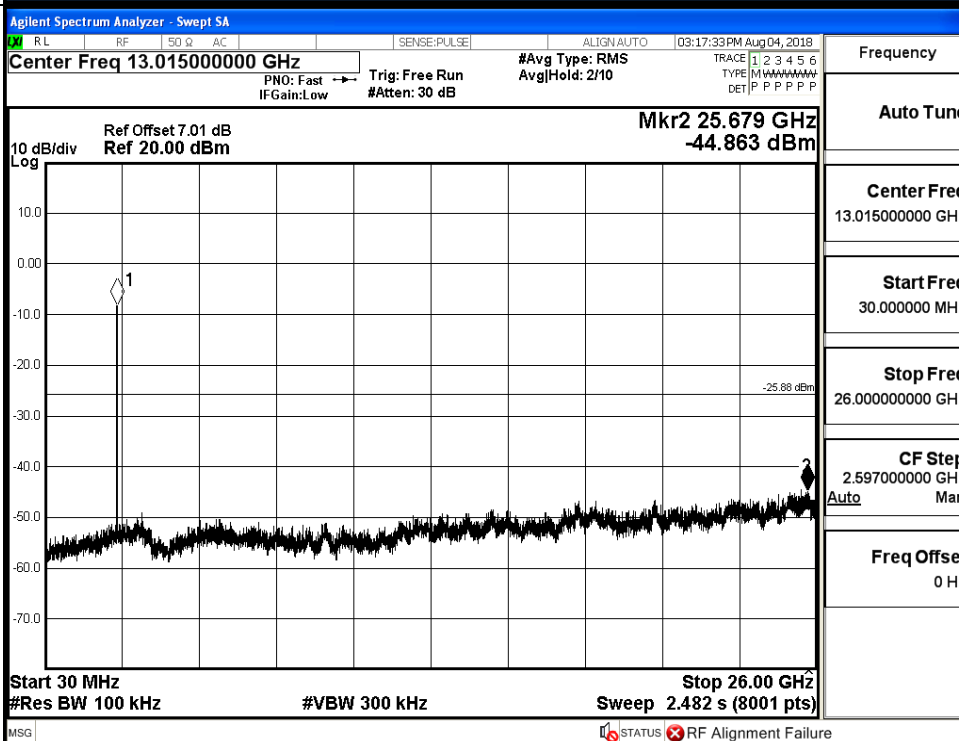


11G HCH Graphs

Pref/11G/HCH

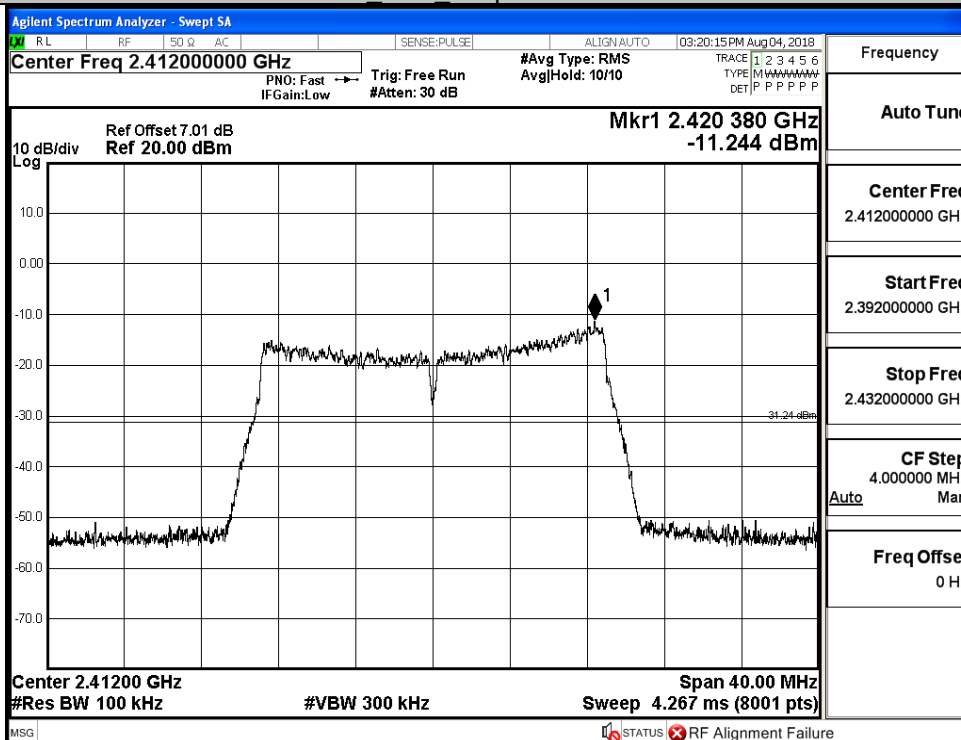


Puw/11G/HCH

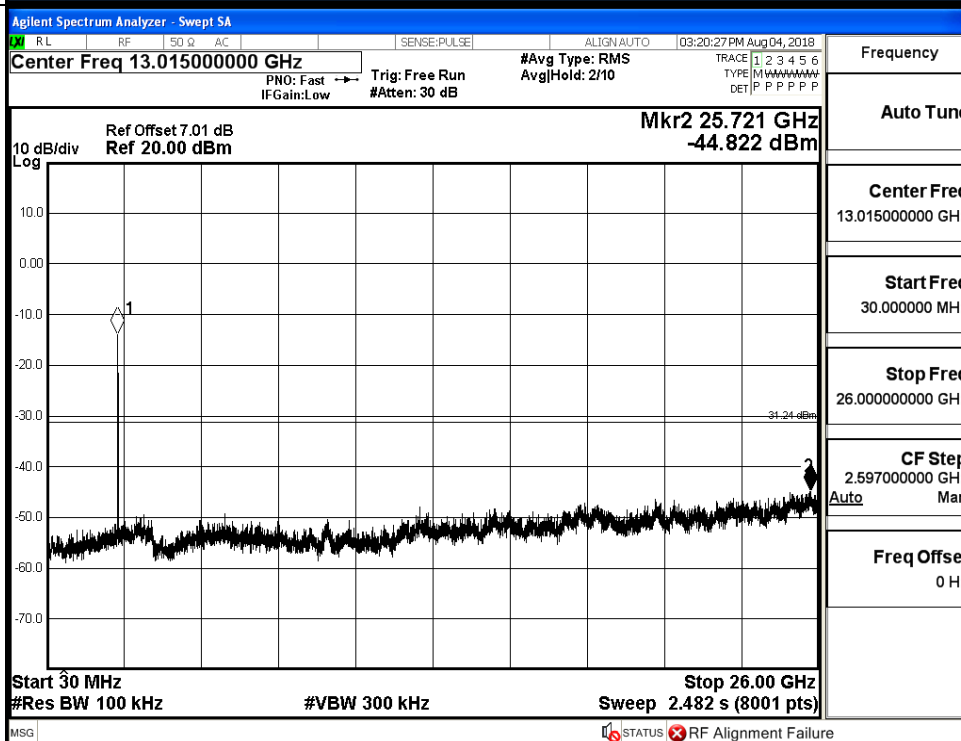


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

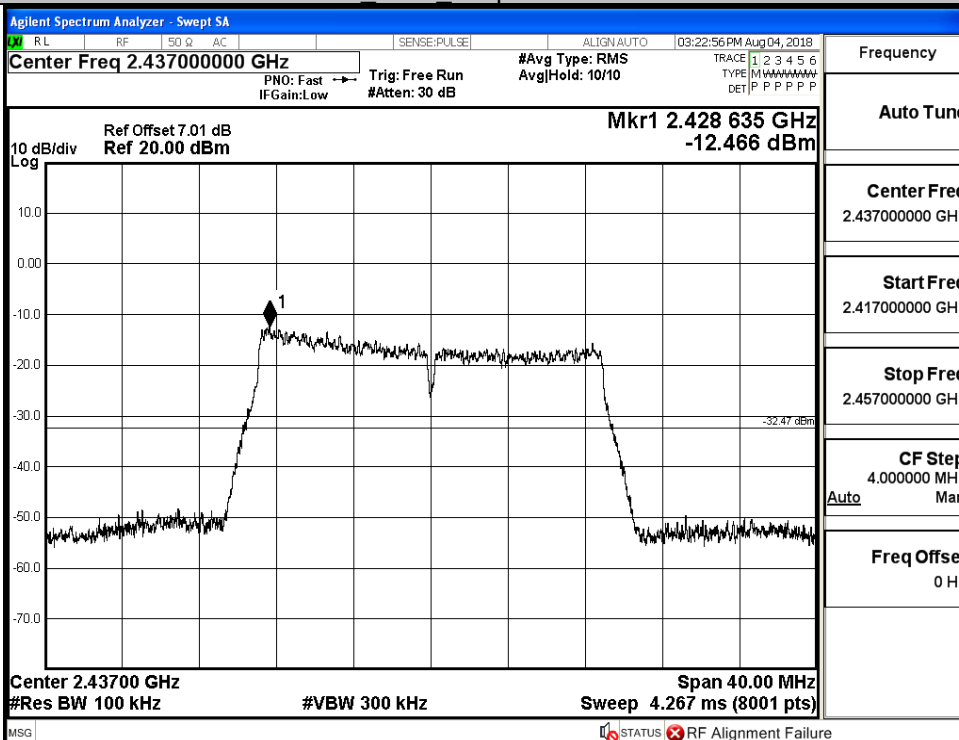


Puw/11N20
SISO/LCH

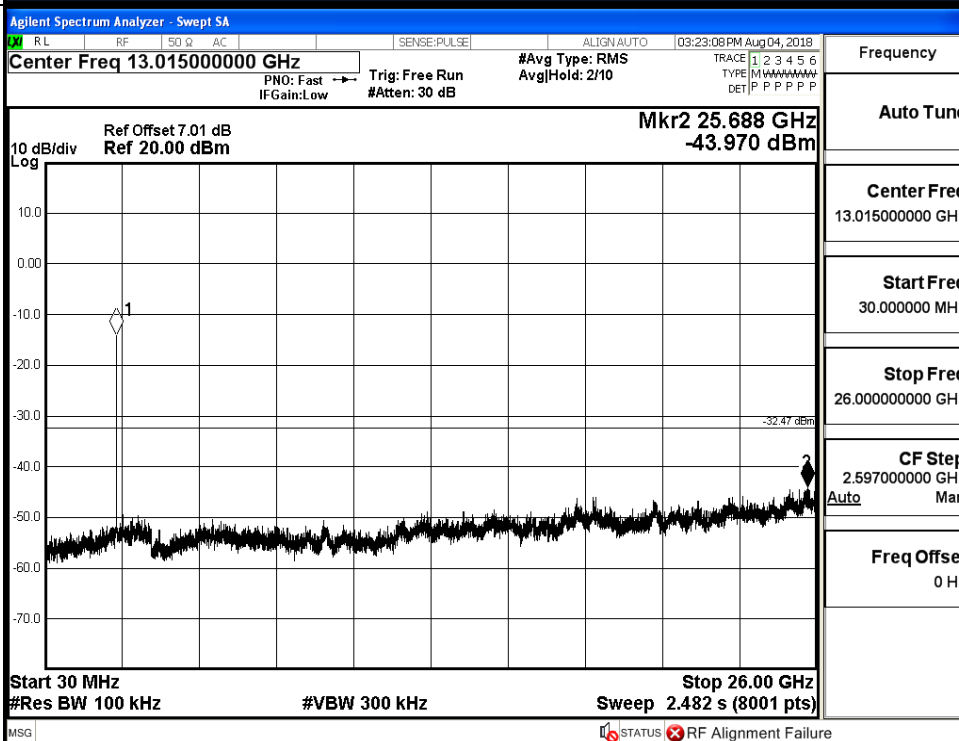


11N20SISO MCH Graphs

Pref/11N20
SISO/MCH

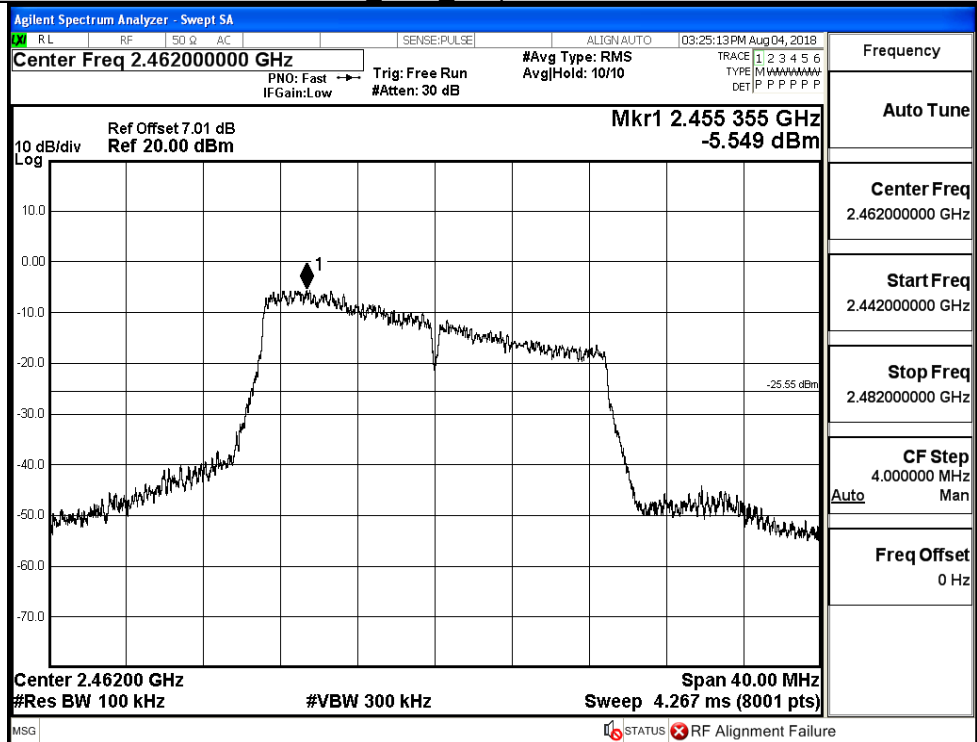


Puw/11N20
SISO/MCH

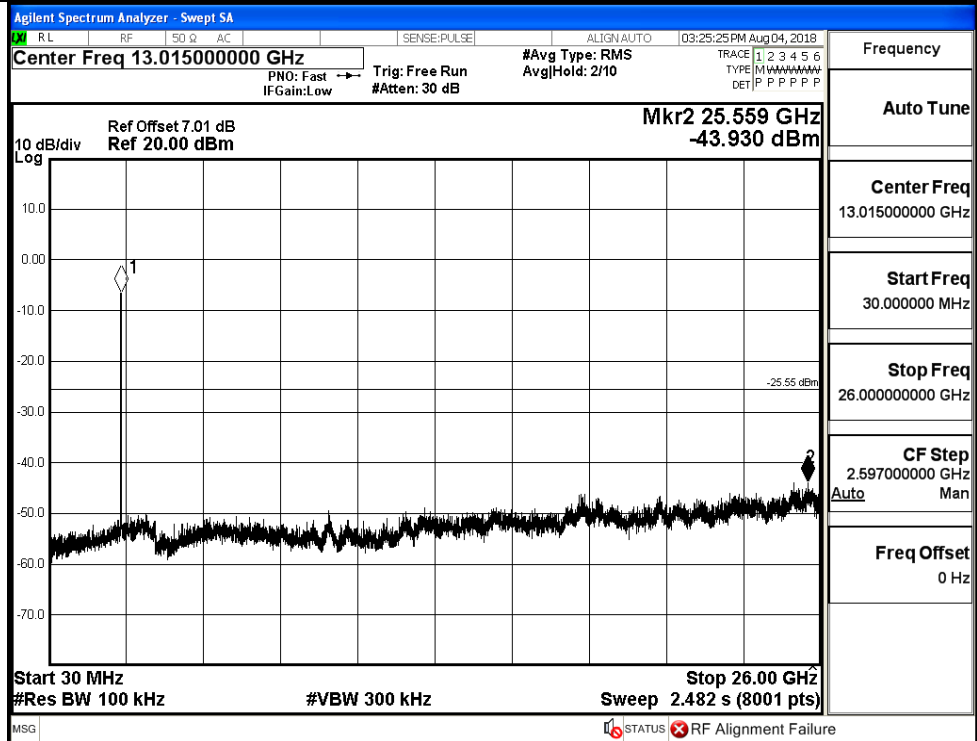


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

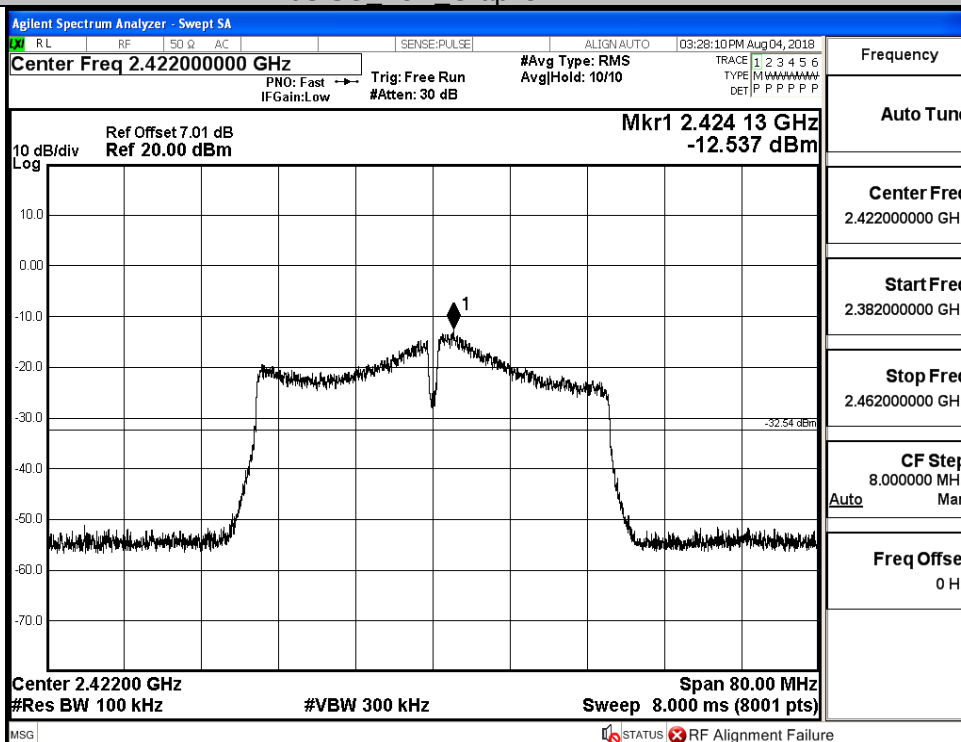


Puw/11N20
SISO/HCH

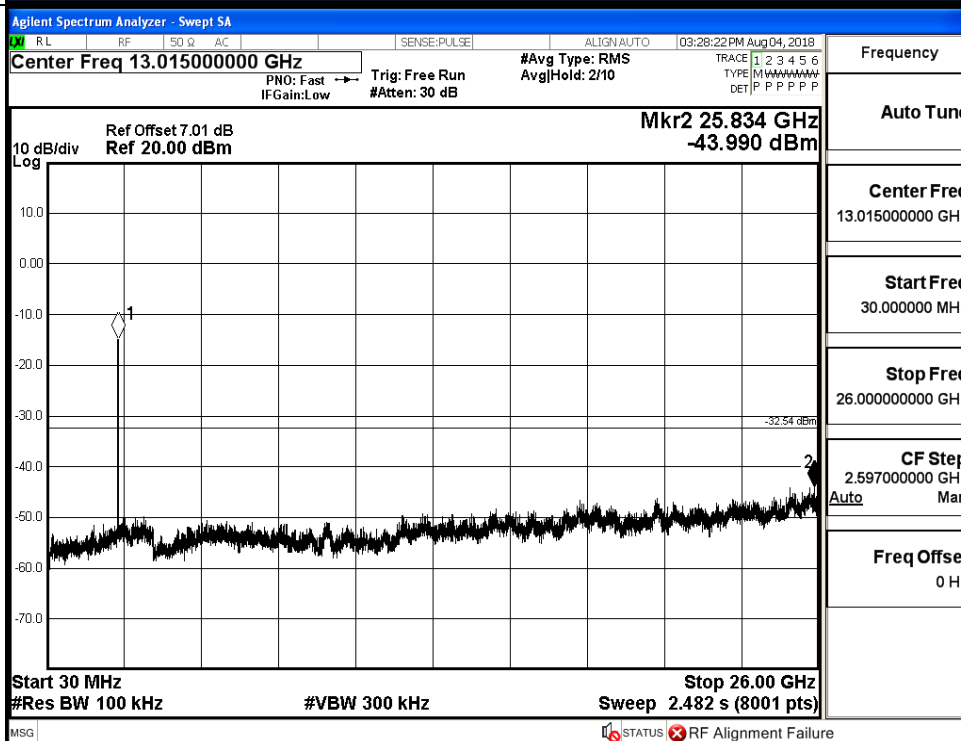


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

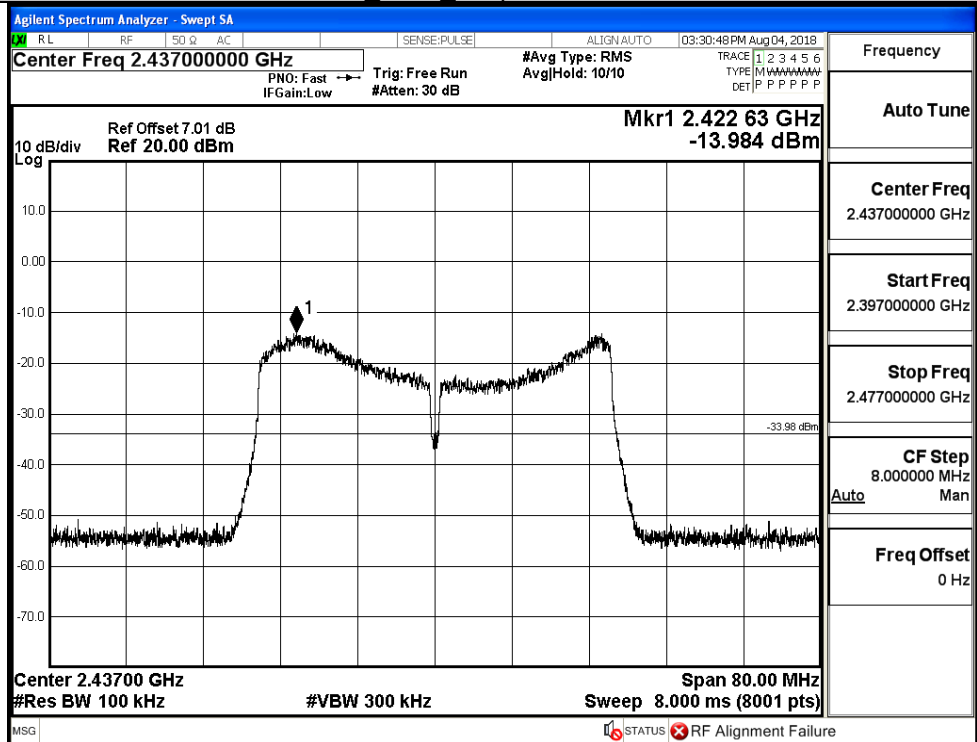


Puw/11N40
SISO/LCH

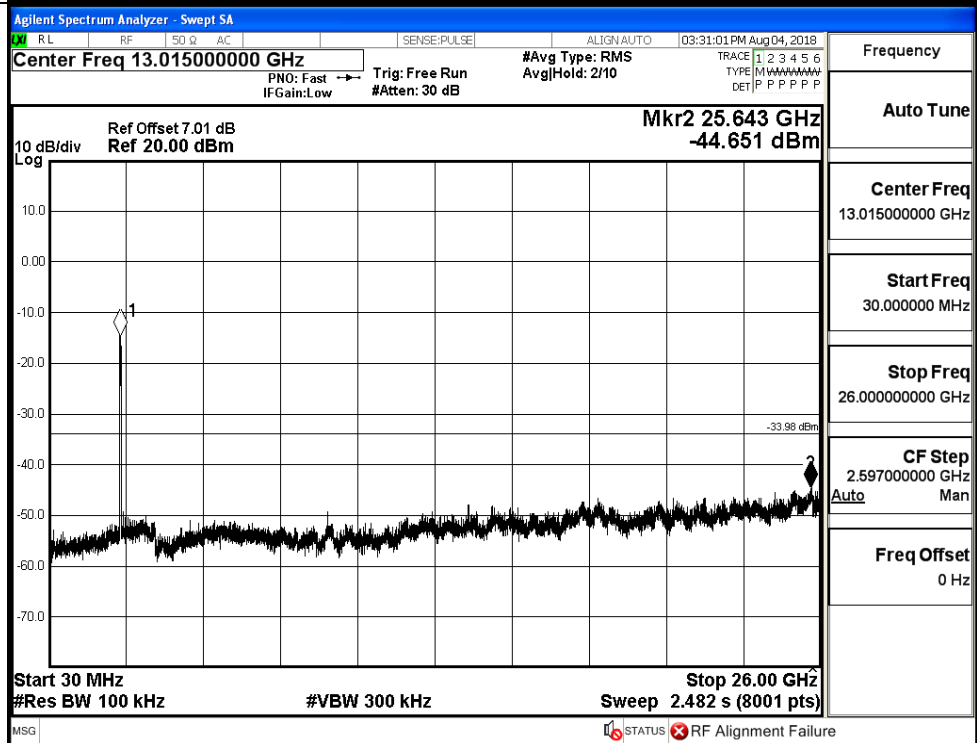


11N40SISO MCH Graphs

Pref/11N40
SISO/MCH

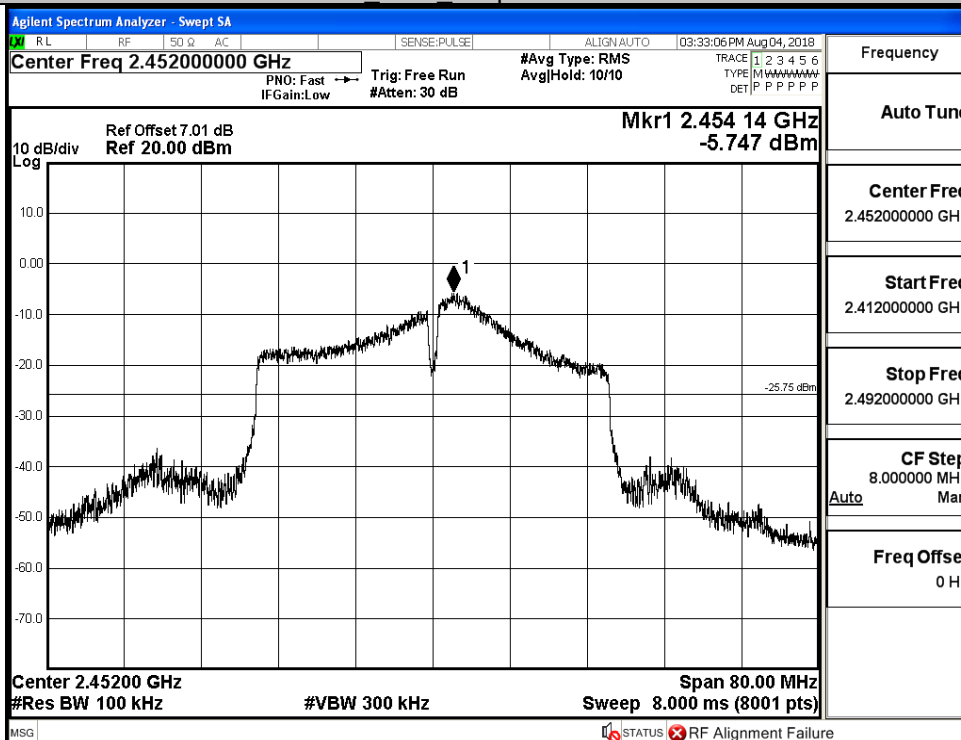


Puw/11N40
SISO/MCH

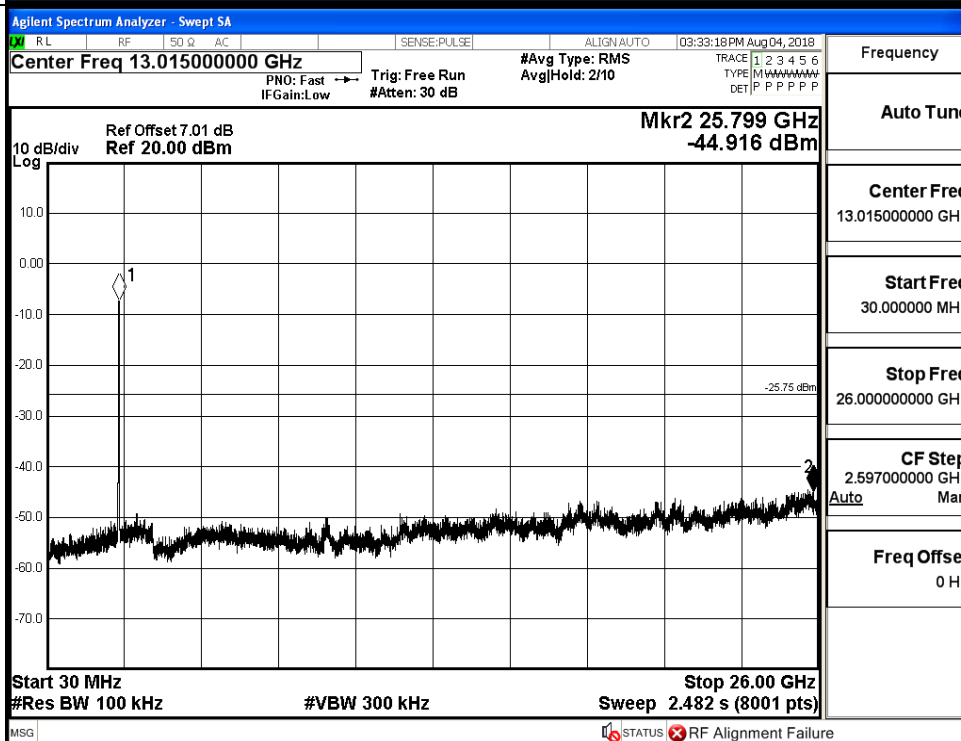


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



Puw/11N40
SISO/HCH

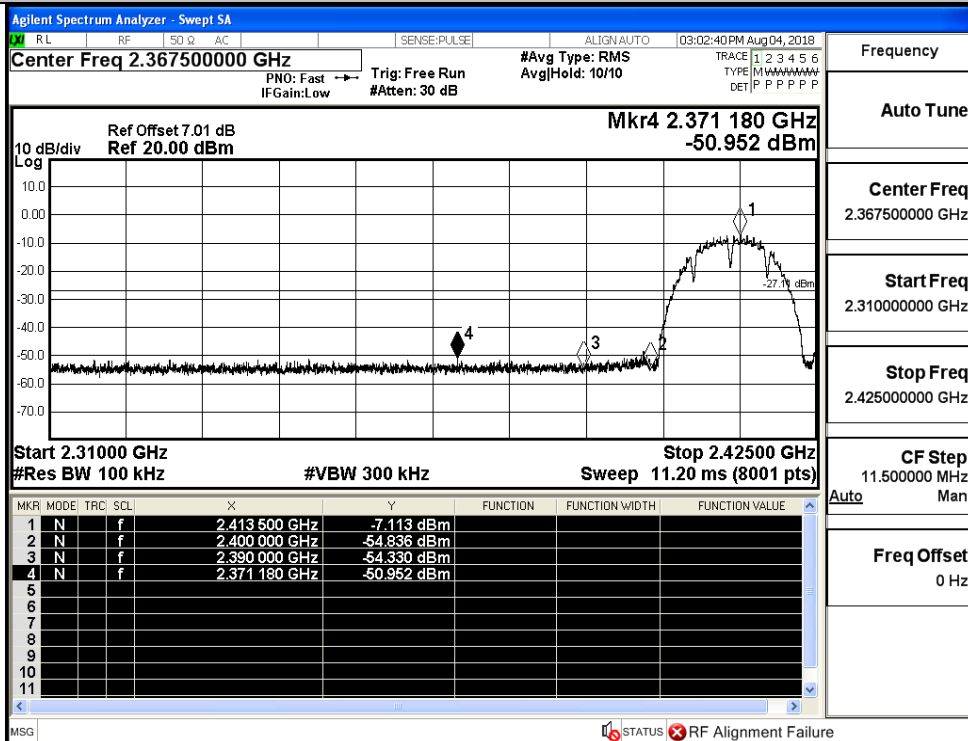


B.6 Band-edge for RF Conducted Emissions

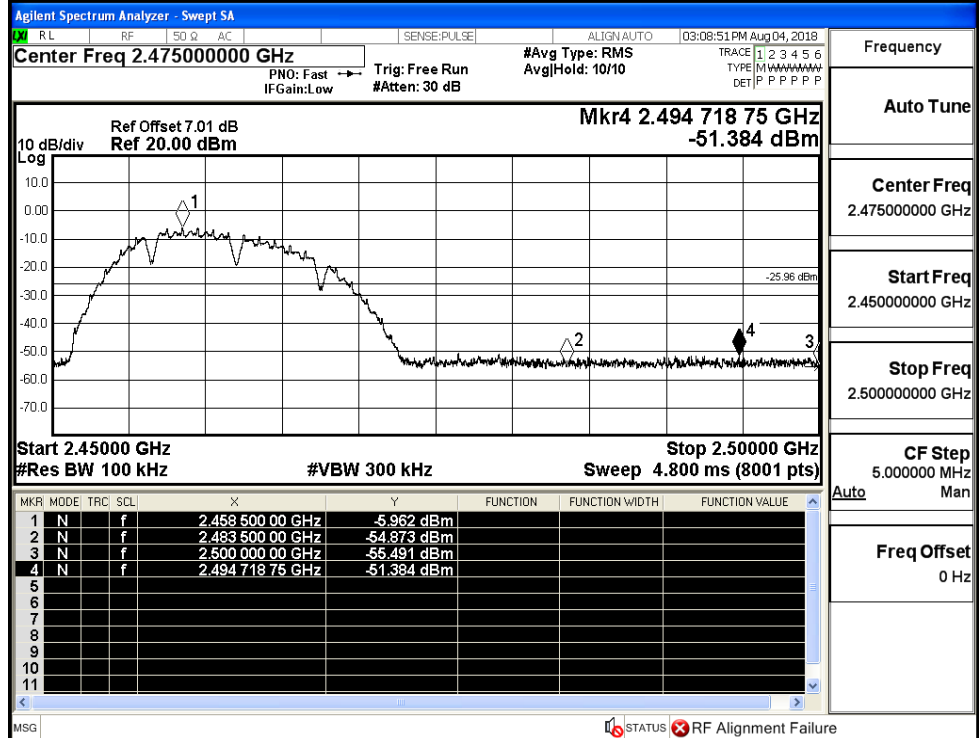
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-7.113	-50.952	-27.11	PASS
	HCH	-5.962	-51.384	-25.96	PASS
11G	LCH	-12.384	-50.792	-32.38	PASS
	HCH	-5.881	-51.041	-25.88	PASS
11N20SISO	LCH	-11.385	-51.193	-31.39	PASS
	HCH	-5.575	-50.970	-25.58	PASS
11N40SISO	LCH	-12.805	-51.437	-32.81	PASS
	HCH	-5.664	-48.185	-25.66	PASS

Test Graphs

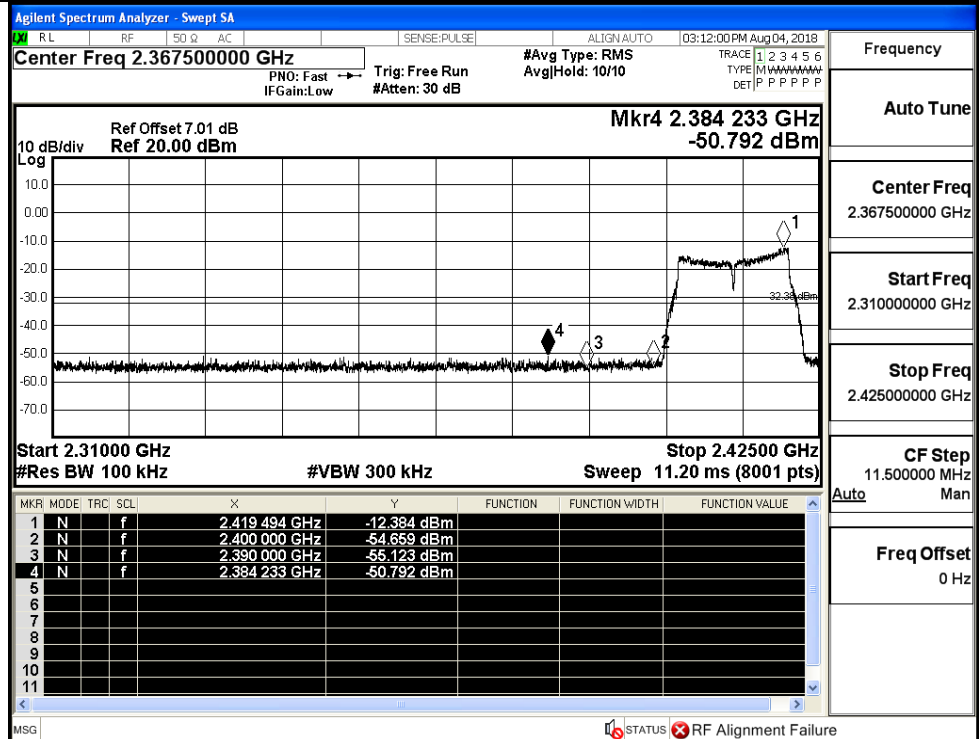
11B/LCH



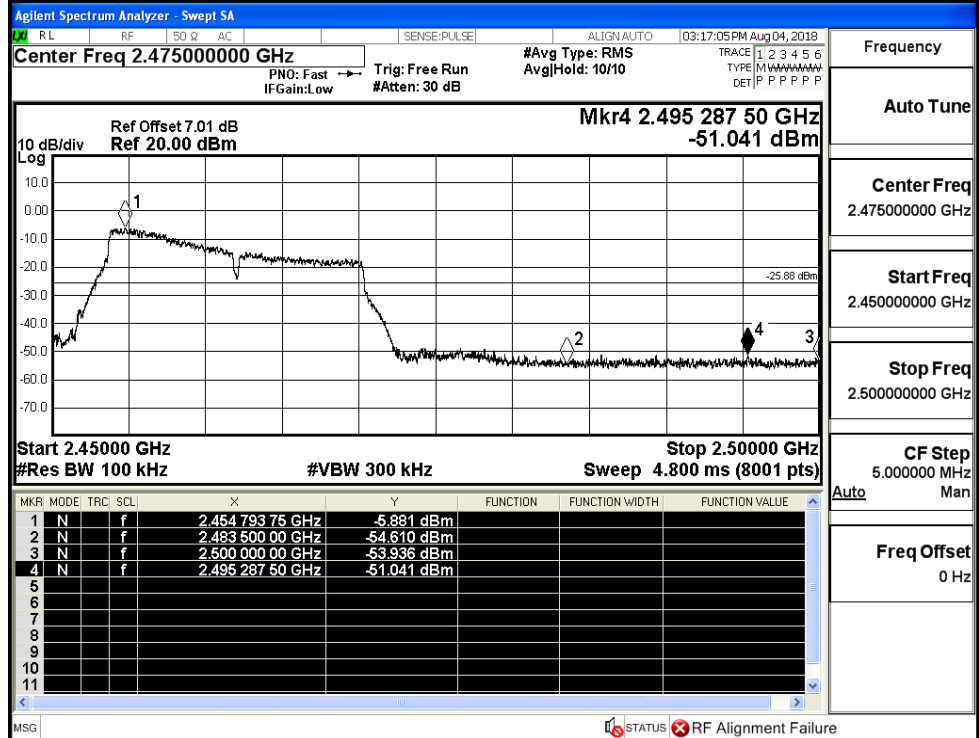
11B/HCH



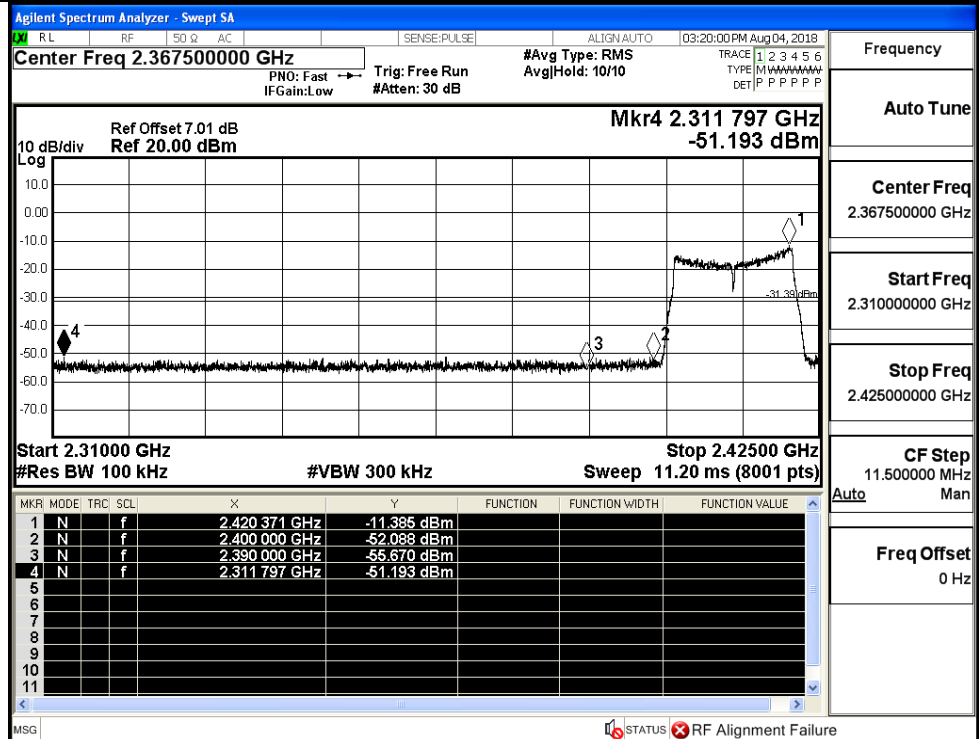
11G/LCH



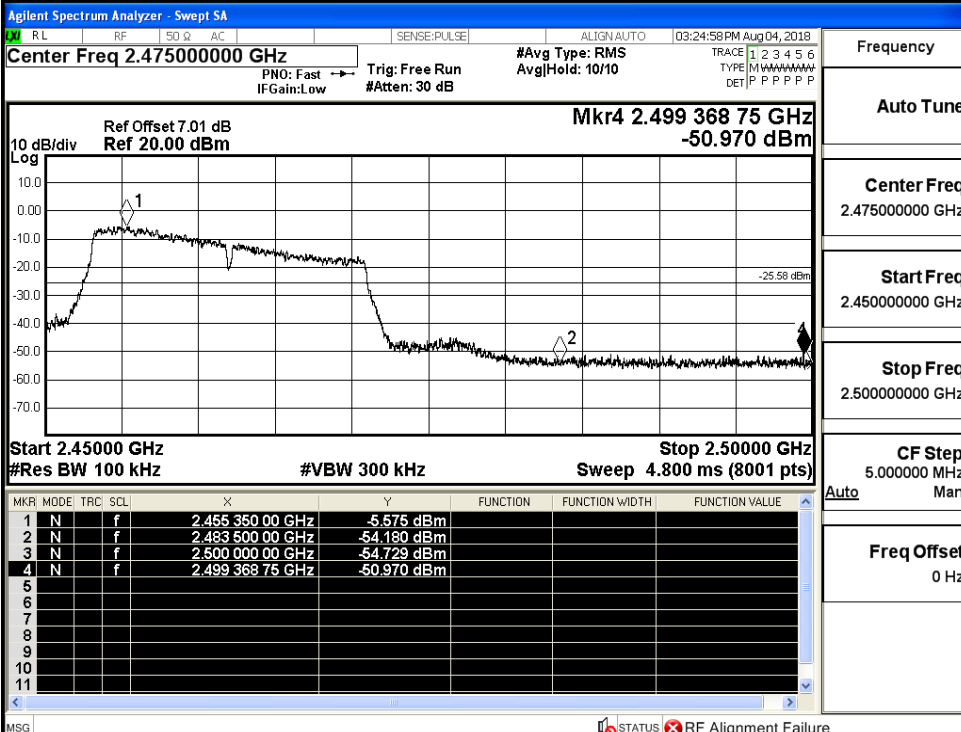
11G/HCH



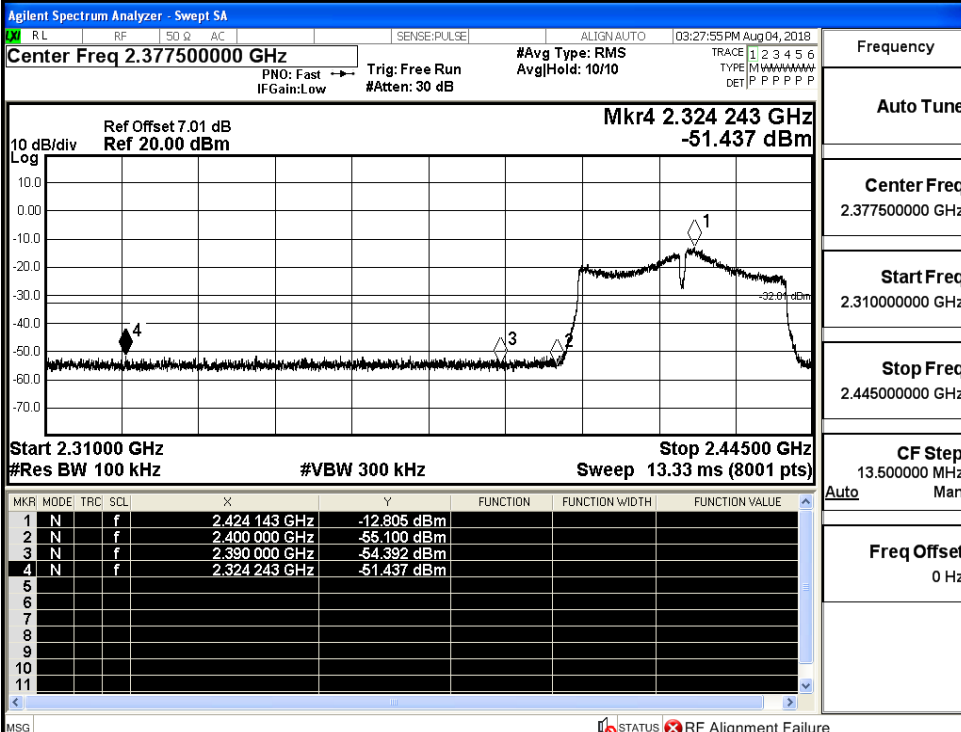
11N20SISO/LCH



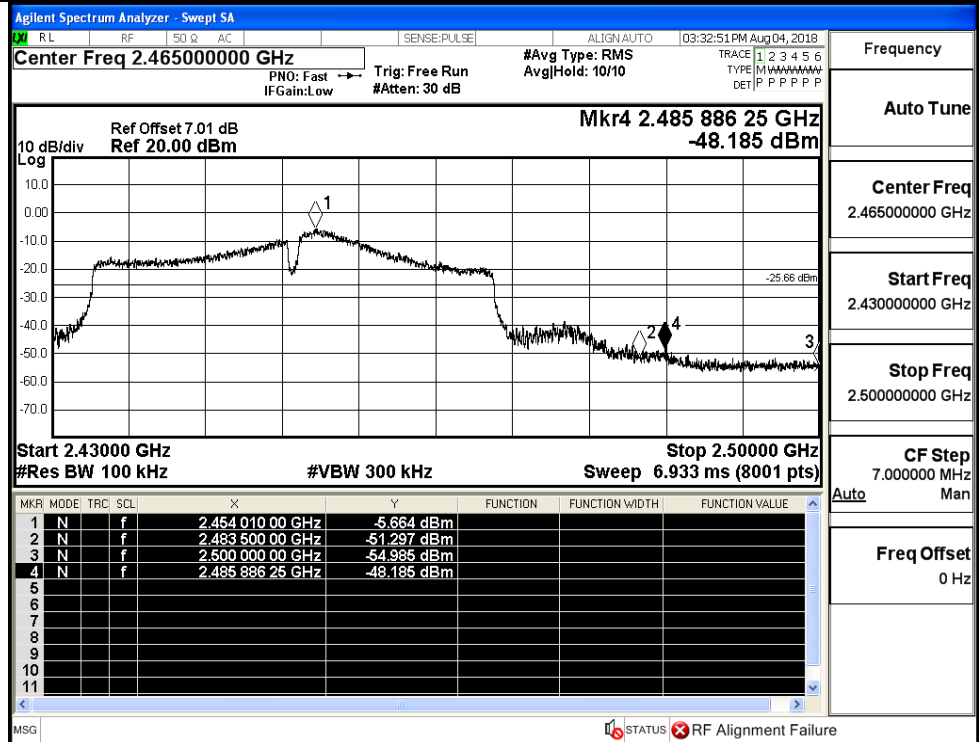
11N20SISO/HCH



11N40SISO/LCH



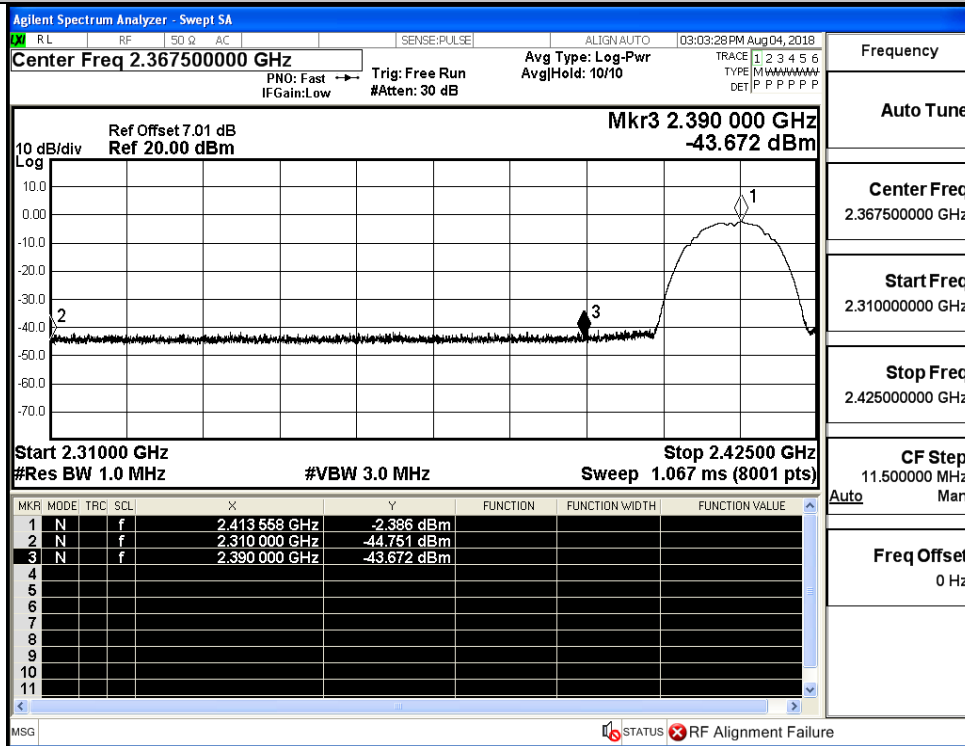
11N40SISO/HCH



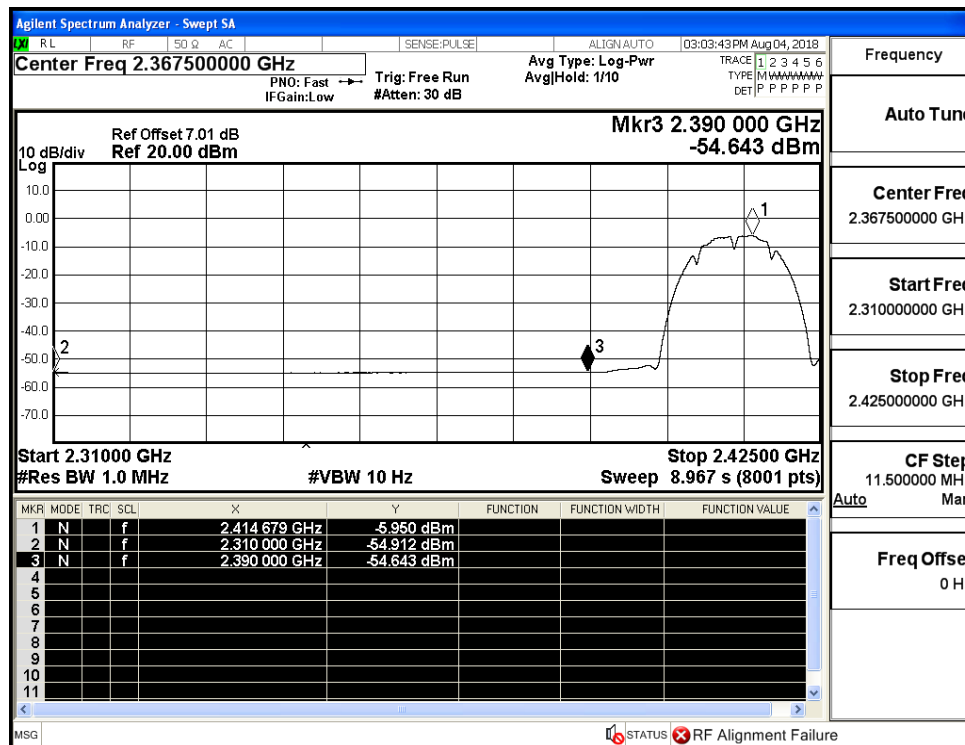
B.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-44.75	2.0	0	52.51	PEAK	74	PASS
	2412	Ant1	2310.0	-54.91	2.0	0	42.35	AV	54	PASS
	2412	Ant1	2390.0	-43.67	2.0	0	53.59	PEAK	74	PASS
	2412	Ant1	2390.0	-54.64	2.0	0	42.61	AV	54	PASS
	2462	Ant1	2483.5	-44.02	2.0	0	53.24	PEAK	74	PASS
	2462	Ant1	2483.5	-54.46	2.0	0	42.79	AV	54	PASS
	2462	Ant1	2500.0	-42.63	2.0	0	54.63	PEAK	74	PASS
	2462	Ant1	2500.0	-54.30	2.0	0	42.95	AV	54	PASS
11G	2412	Ant1	2310.0	-43.99	2.0	0	53.27	PEAK	74	PASS
	2412	Ant1	2310.0	-54.90	2.0	0	42.35	AV	54	PASS
	2412	Ant1	2390.0	-43.77	2.0	0	53.49	PEAK	74	PASS
	2412	Ant1	2390.0	-54.64	2.0	0	42.62	AV	54	PASS
	2462	Ant1	2483.5	-43.04	2.0	0	54.22	PEAK	74	PASS
	2462	Ant1	2483.5	-54.30	2.0	0	42.96	AV	54	PASS
	2462	Ant1	2500.0	-44.32	2.0	0	52.94	PEAK	74	PASS
	2462	Ant1	2500.0	-54.30	2.0	0	42.96	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-44.91	2.0	0	52.35	PEAK	74	PASS
	2412	Ant1	2310.0	-54.94	2.0	0	42.32	AV	54	PASS
	2412	Ant1	2390.0	-43.53	2.0	0	53.73	PEAK	74	PASS
	2412	Ant1	2390.0	-54.64	2.0	0	42.62	AV	54	PASS
	2462	Ant1	2483.5	-43.83	2.0	0	53.43	PEAK	74	PASS
	2462	Ant1	2483.5	-54.05	2.0	0	43.21	AV	54	PASS
	2462	Ant1	2500.0	-41.95	2.0	0	55.30	PEAK	74	PASS
	2462	Ant1	2500.0	-54.27	2.0	0	42.99	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.56	2.0	0	53.69	PEAK	74	PASS
	2422	Ant1	2310.0	-54.91	2.0	0	42.34	AV	54	PASS
	2422	Ant1	2390.0	-44.05	2.0	0	53.20	PEAK	74	PASS
	2422	Ant1	2390.0	-54.62	2.0	0	42.64	AV	54	PASS
	2452	Ant1	2483.5	-38.80	2.0	0	58.46	PEAK	74	PASS
	2452	Ant1	2483.5	-51.83	2.0	0	45.43	AV	54	PASS
	2452	Ant1	2500.0	-44.37	2.0	0	52.89	PEAK	74	PASS
	2452	Ant1	2500.0	-54.31	2.0	0	42.95	AV	54	PASS

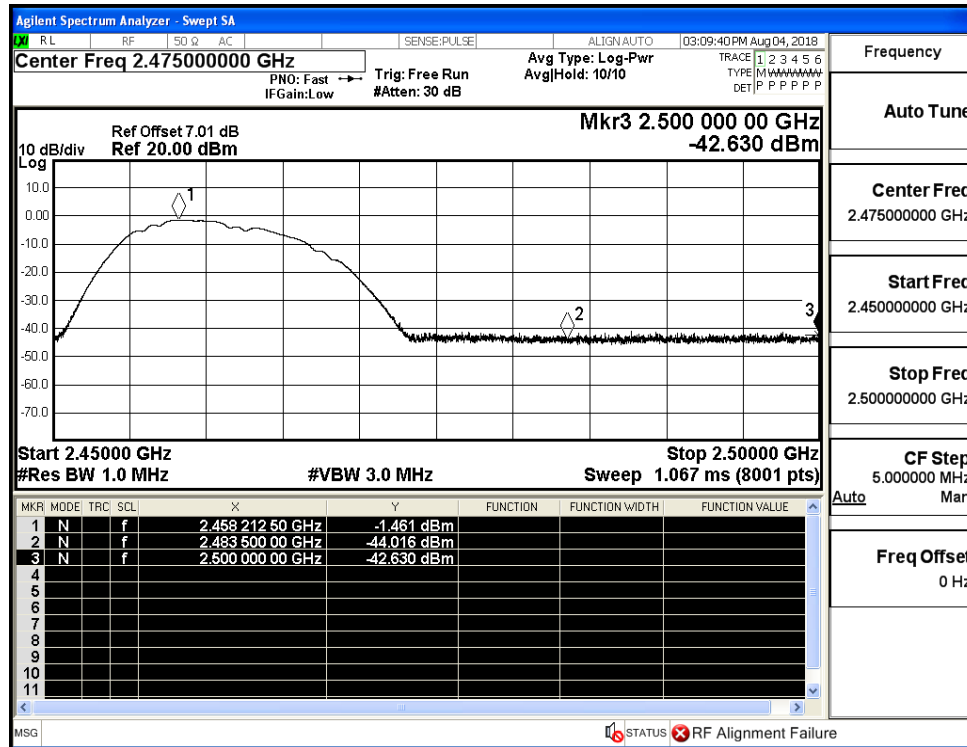
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



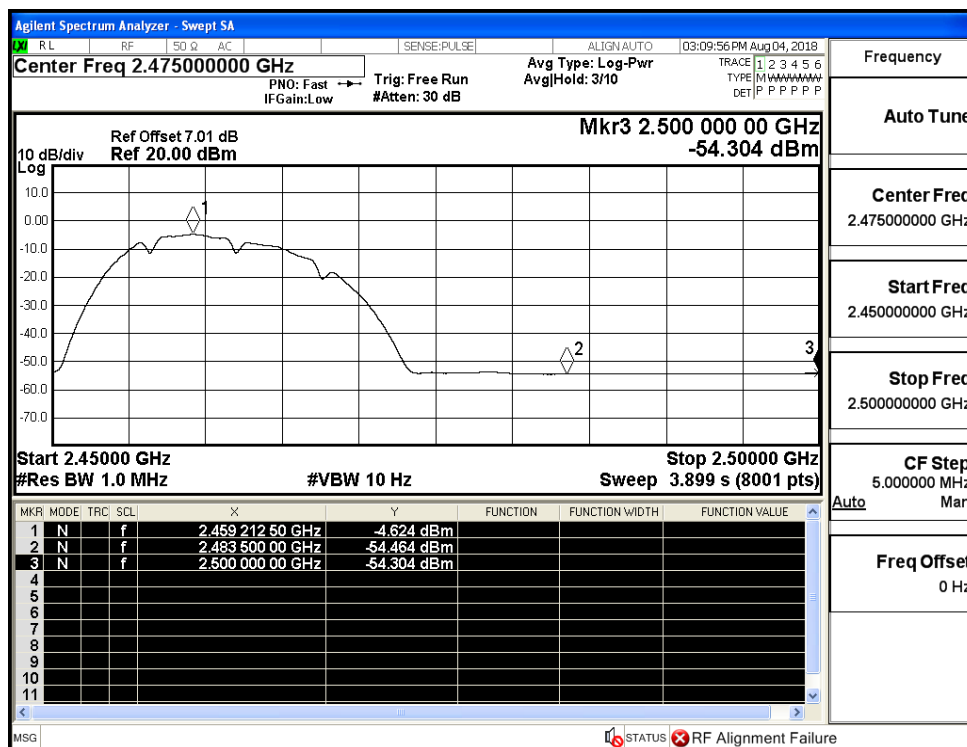
Restrict-band band-edge measurements_11B_2412_Ant1_AV



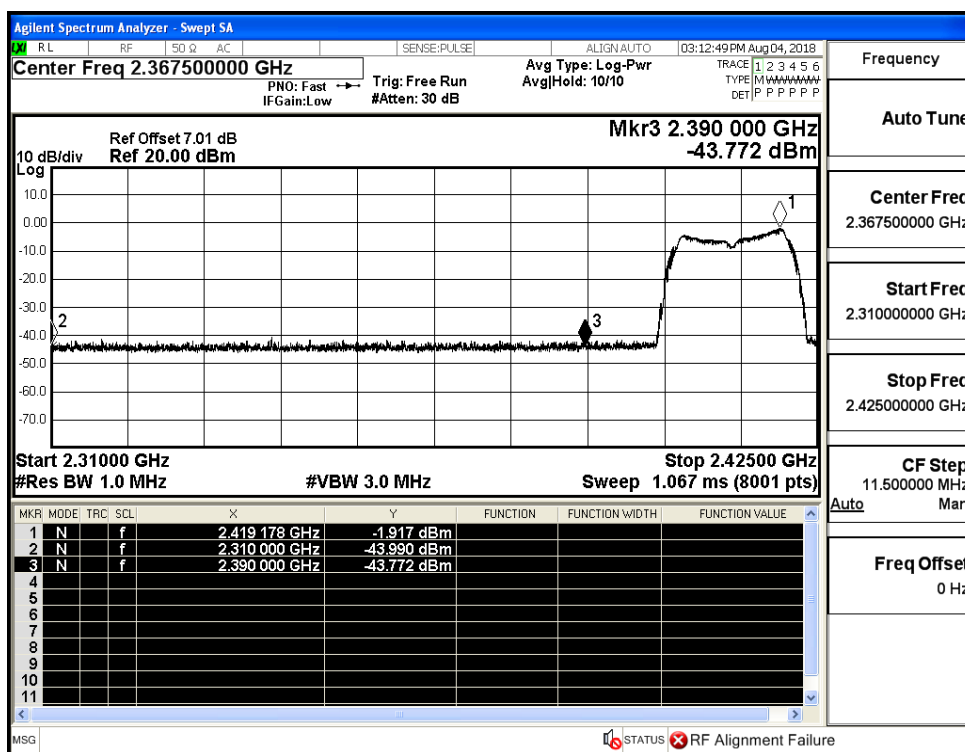
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



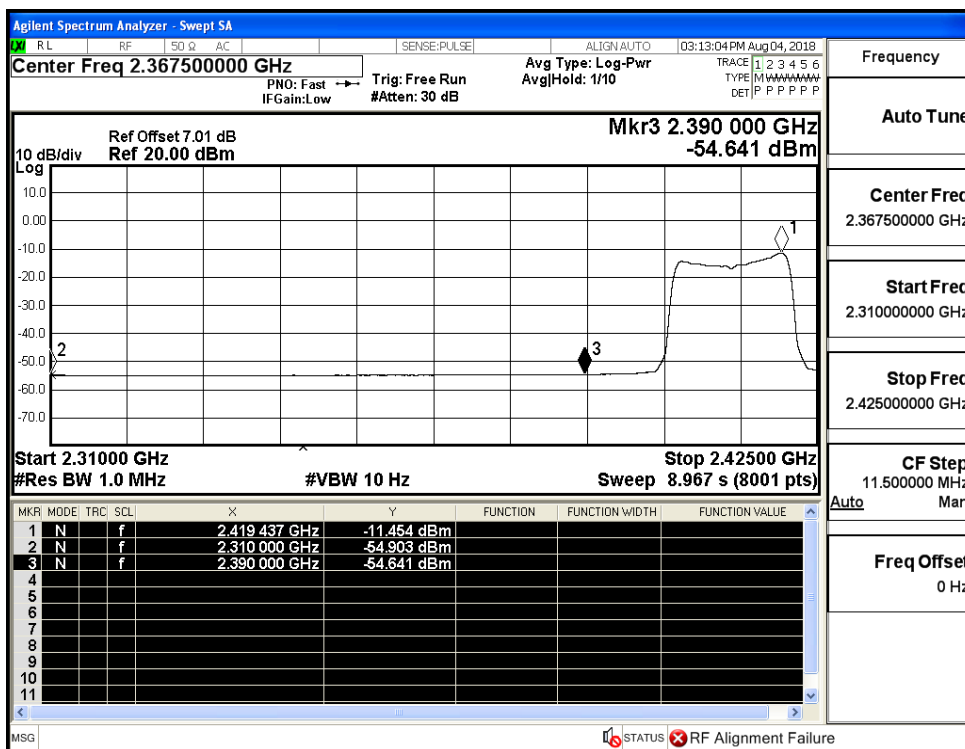
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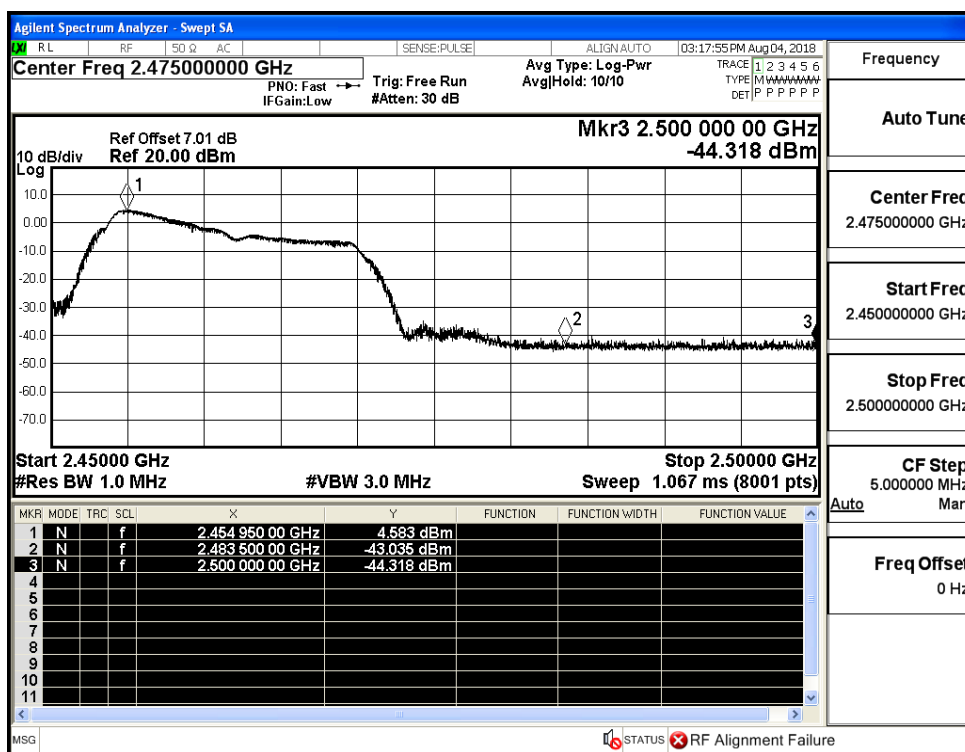
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



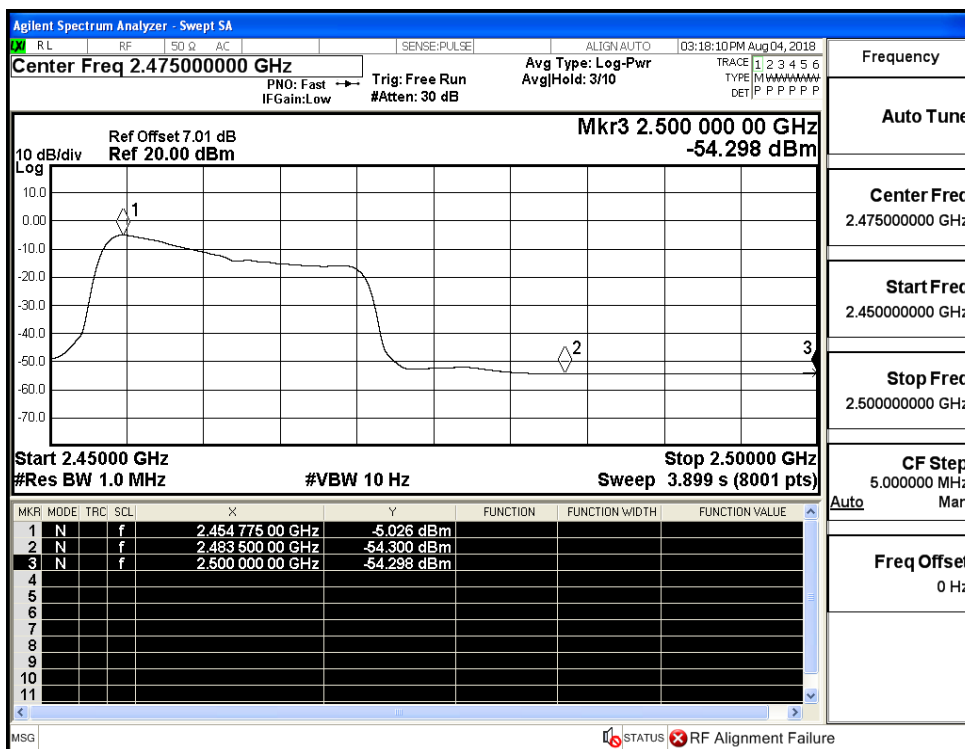
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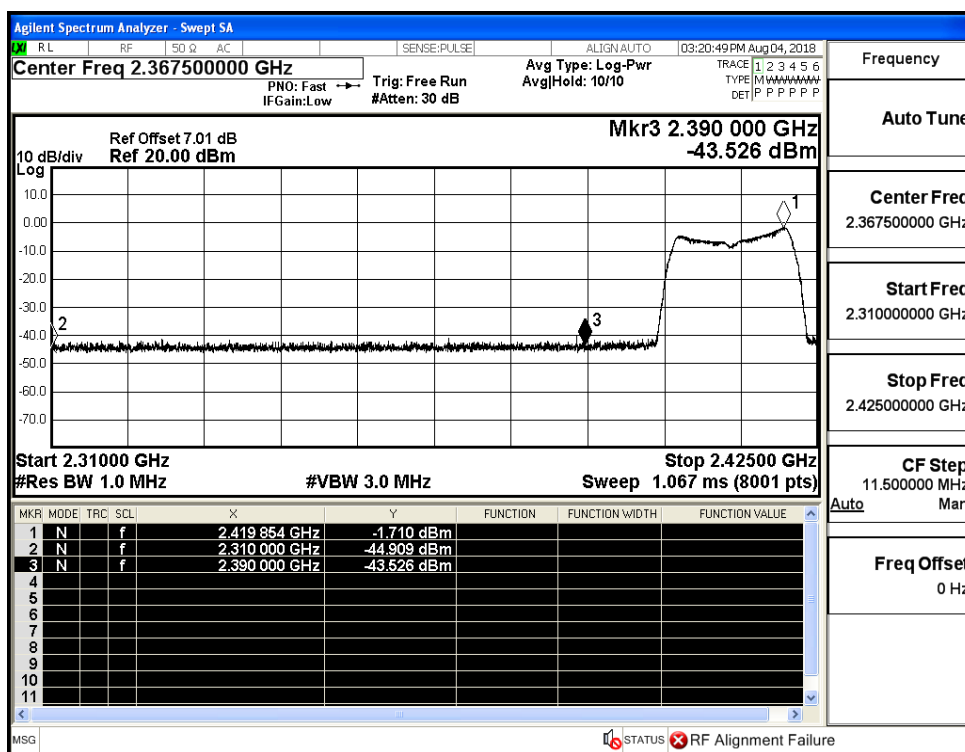
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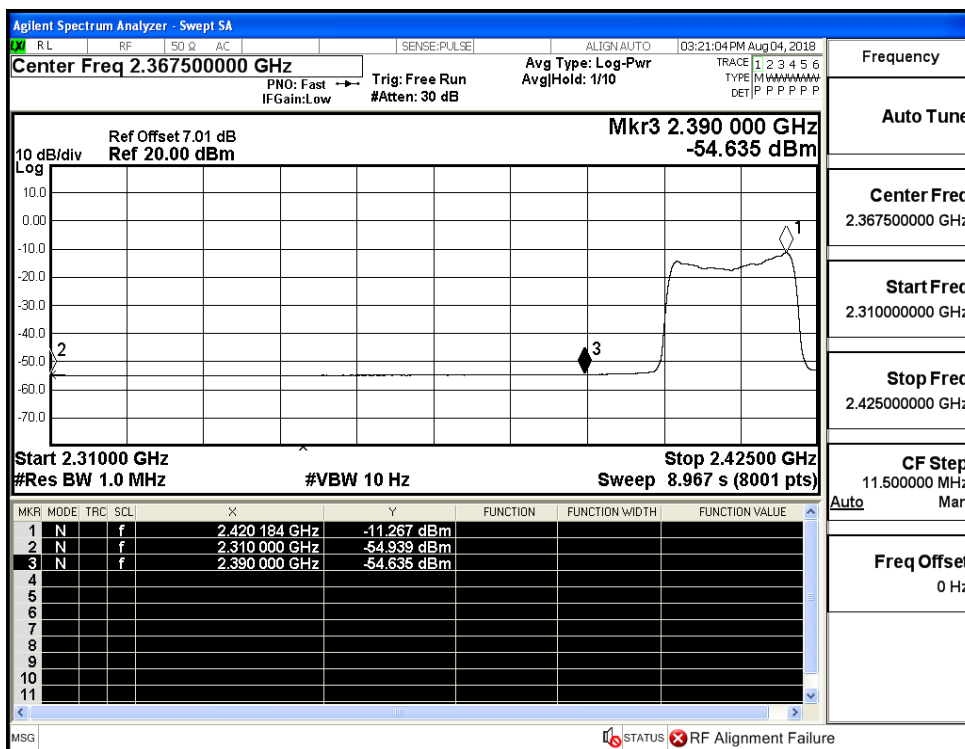
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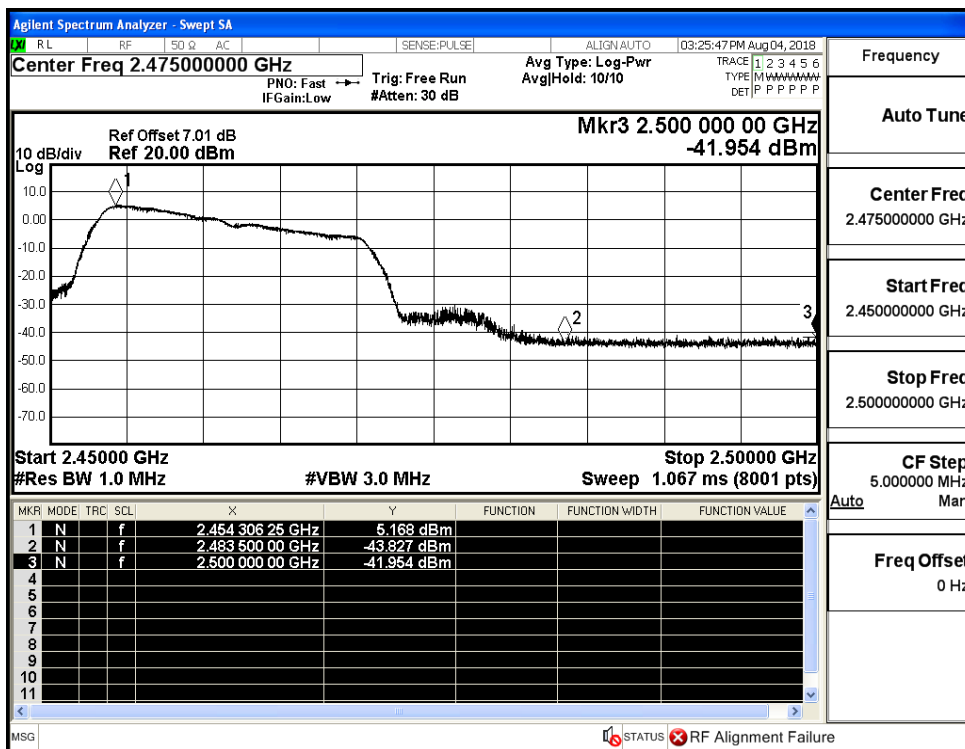
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



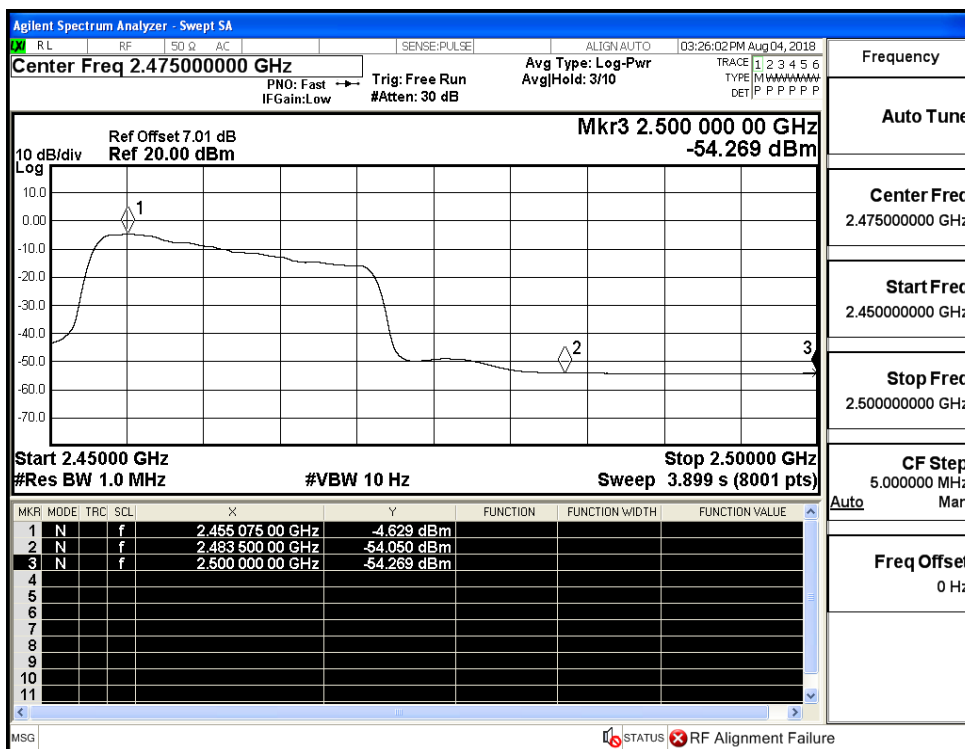
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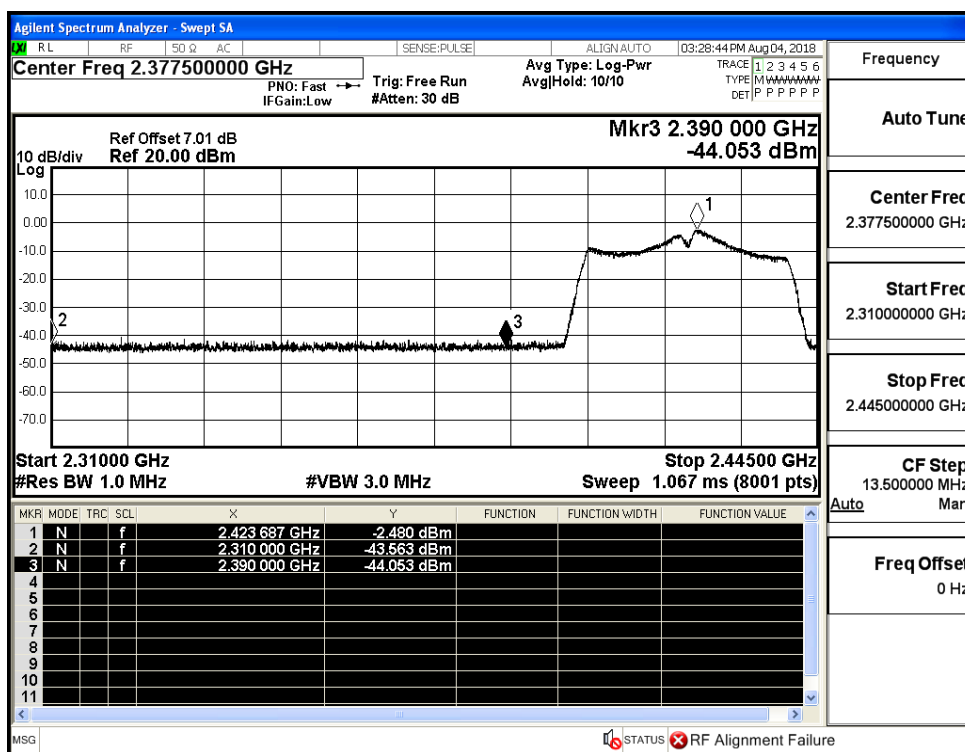
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



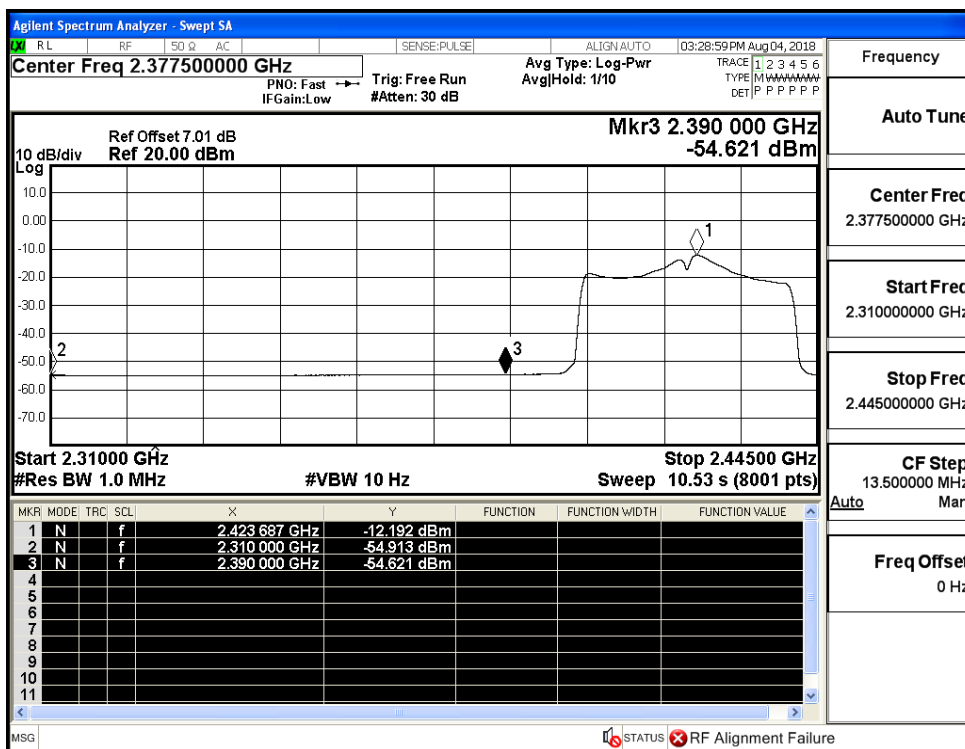
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



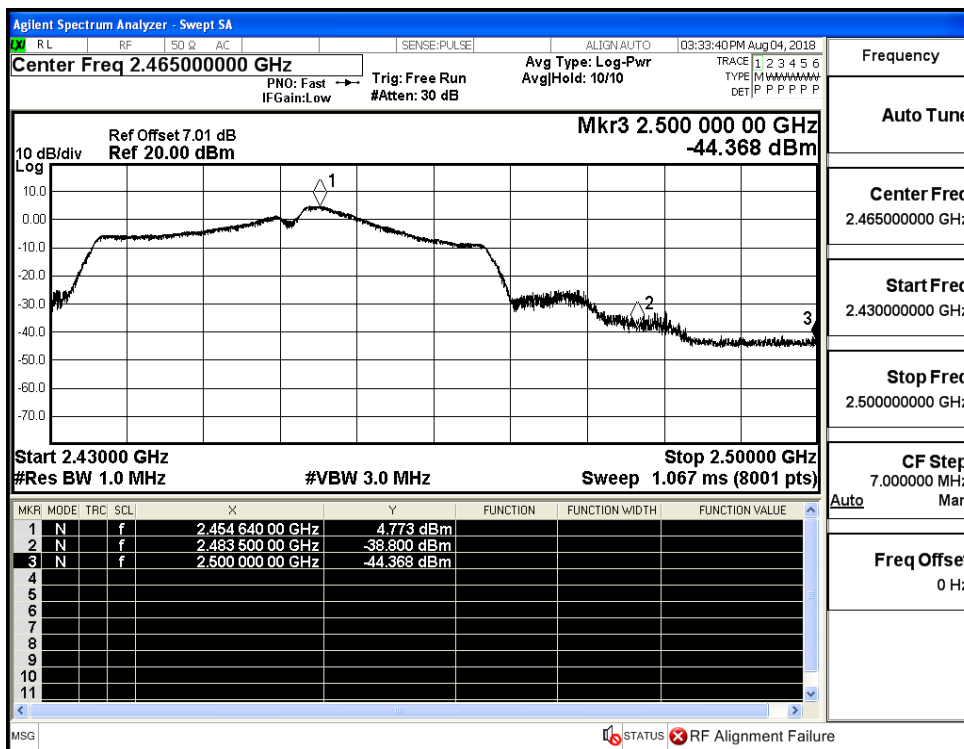
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

