

Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Lapbook

Trade Mark: Fusion5

Test Model: C60B

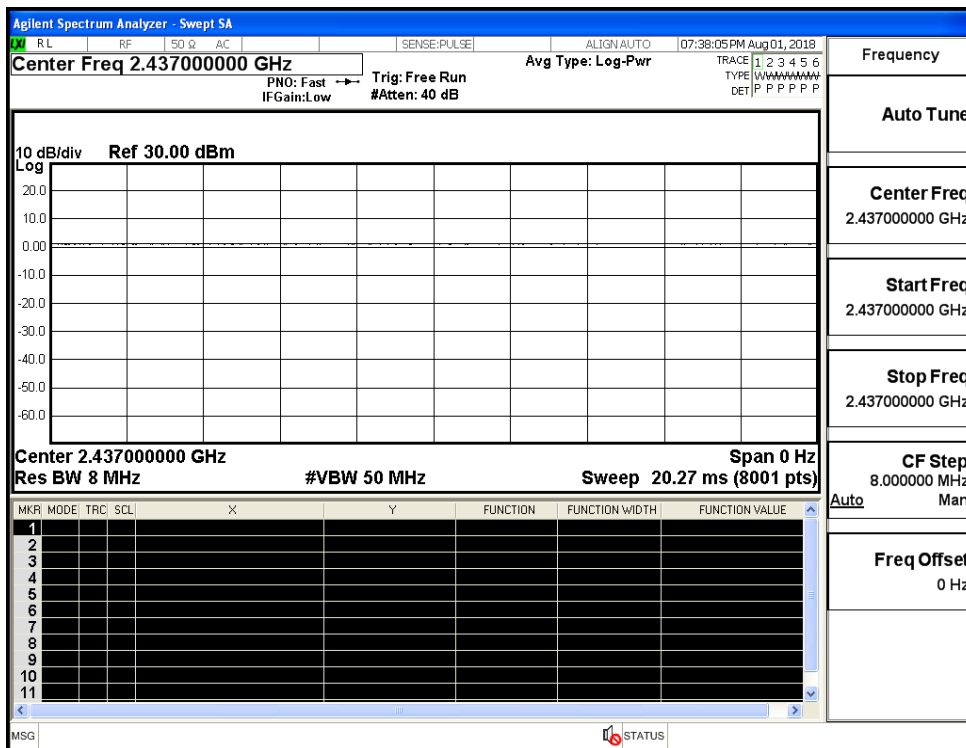
Environmental Conditions

Temperature:	24.2 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom.Liu
Supervised by:	Jayden.Zhuo

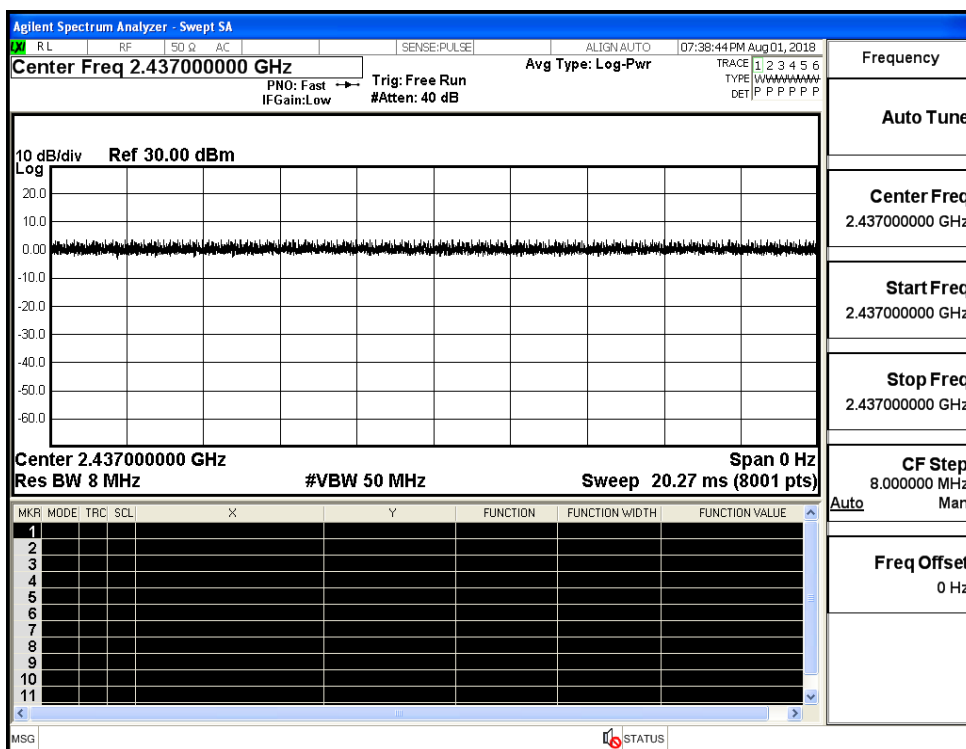
B.1 Duty Cycle

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

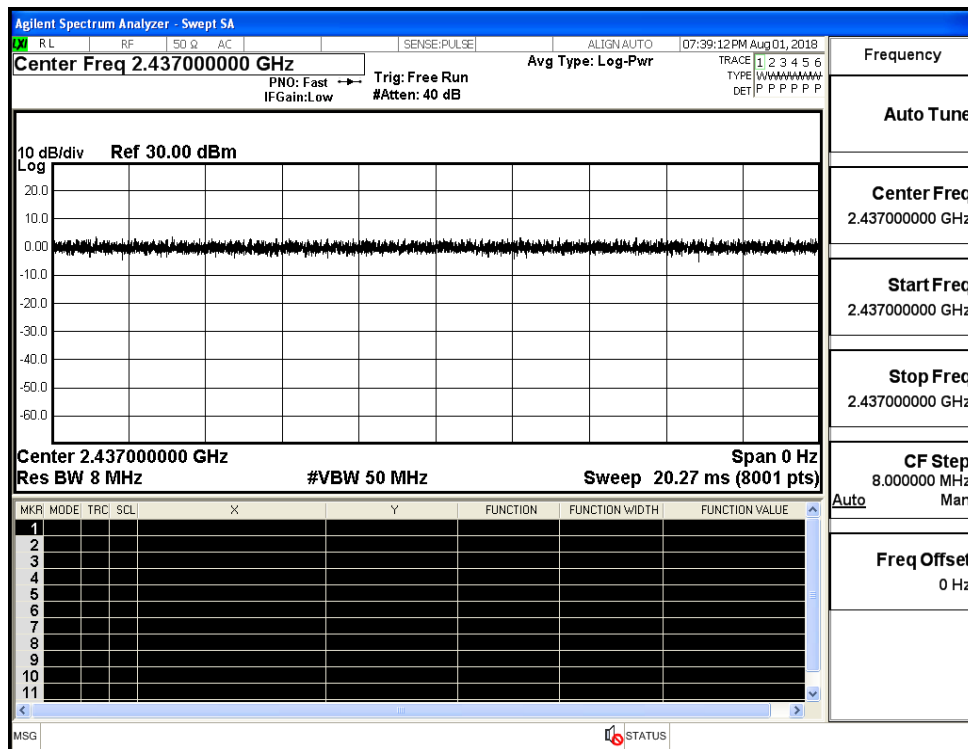
Duty Cycle_11B_2437_Ant1



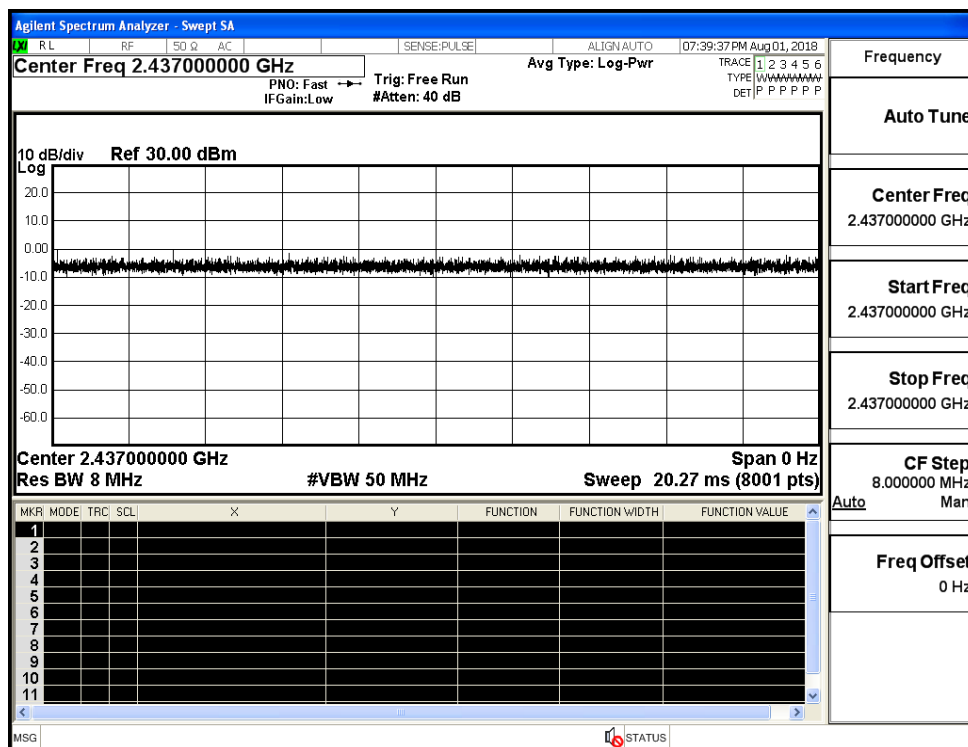
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



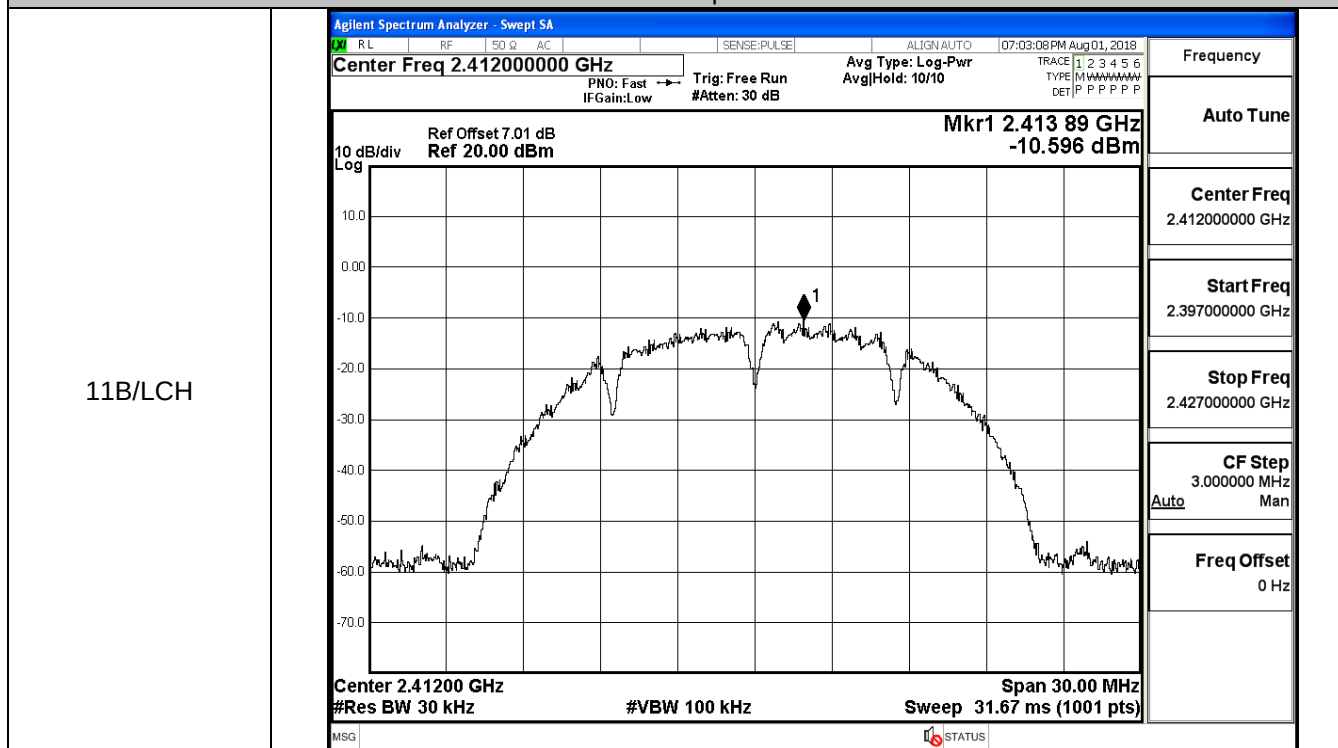
B.2 Maximum Peak Conducted Output Power

Mode	Channel	Meas.Level Peak [dBm]	Limit [dBm]	Verdict
11B	LCH	11.48	30	PASS
	MCH	11.32	30	PASS
	HCH	11.45	30	PASS
11G	LCH	12.21	30	PASS
	MCH	12.62	30	PASS
	HCH	12.48	30	PASS
11N20SISO	LCH	12.62	30	PASS
	MCH	12.51	30	PASS
	HCH	13.22	30	PASS
11N40SISO	LCH	13.45	30	PASS
	MCH	13.32	30	PASS
	HCH	14.15	30	PASS

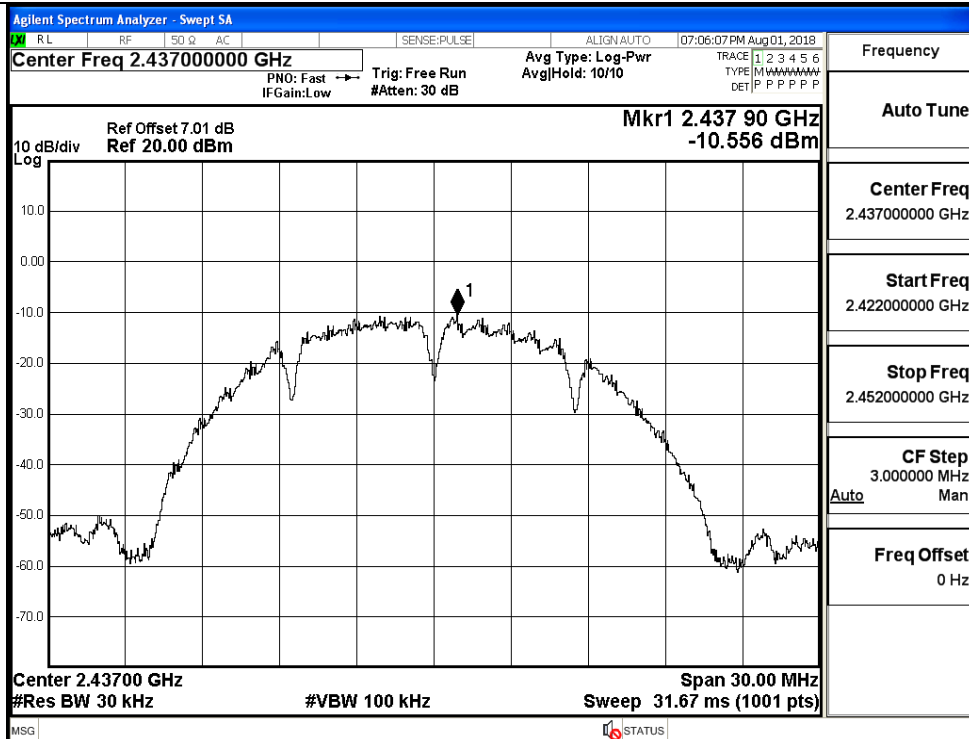
B.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-10.596	8	PASS
	MCH	-10.556	8	PASS
	HCH	-11.279	8	PASS
11G	LCH	-13.912	8	PASS
	MCH	-14.723	8	PASS
	HCH	-13.231	8	PASS
11N20SISO	LCH	-14.348	8	PASS
	MCH	-14.482	8	PASS
	HCH	-13.171	8	PASS
11N40SISO	LCH	-15.738	8	PASS
	MCH	-17.298	8	PASS
	HCH	-15.494	8	PASS

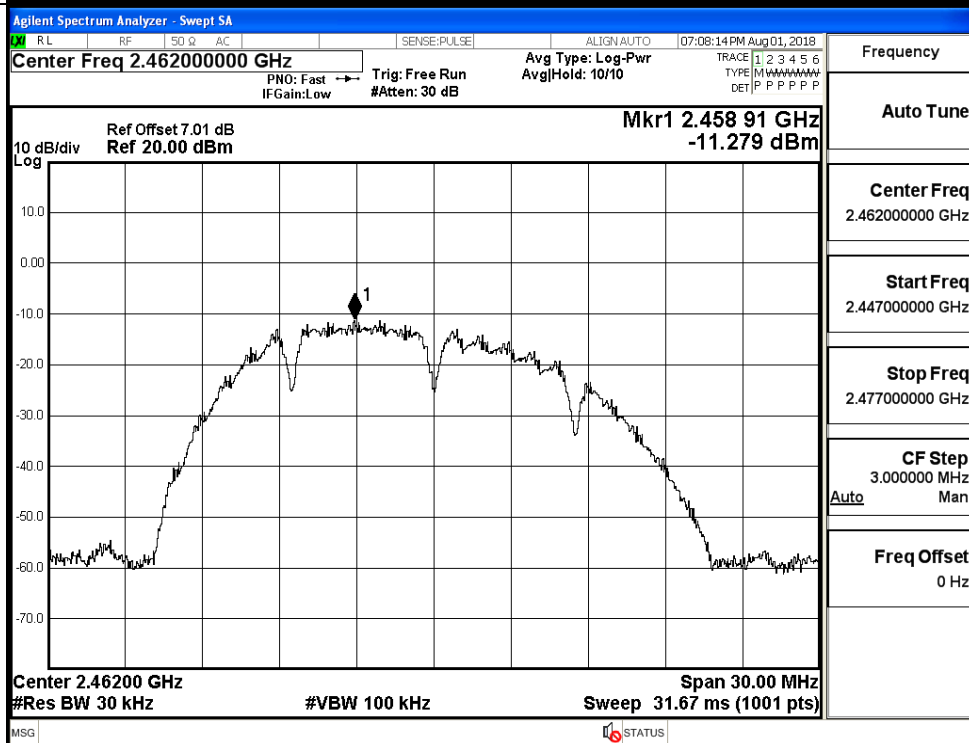
Test Graphs



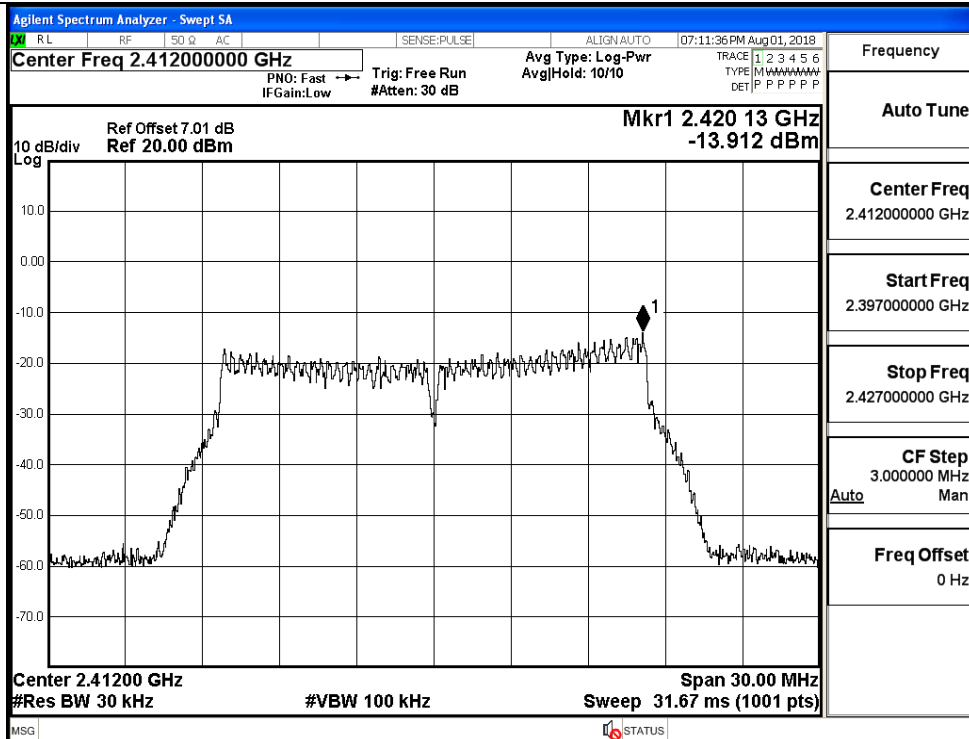
11B/MCH



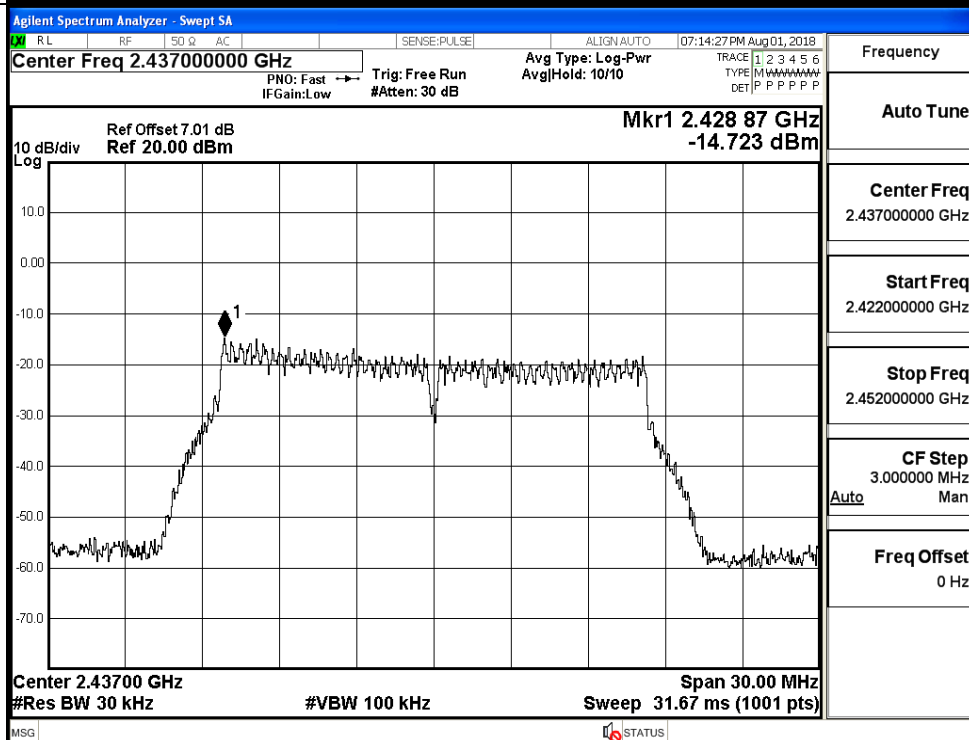
11B/HCH



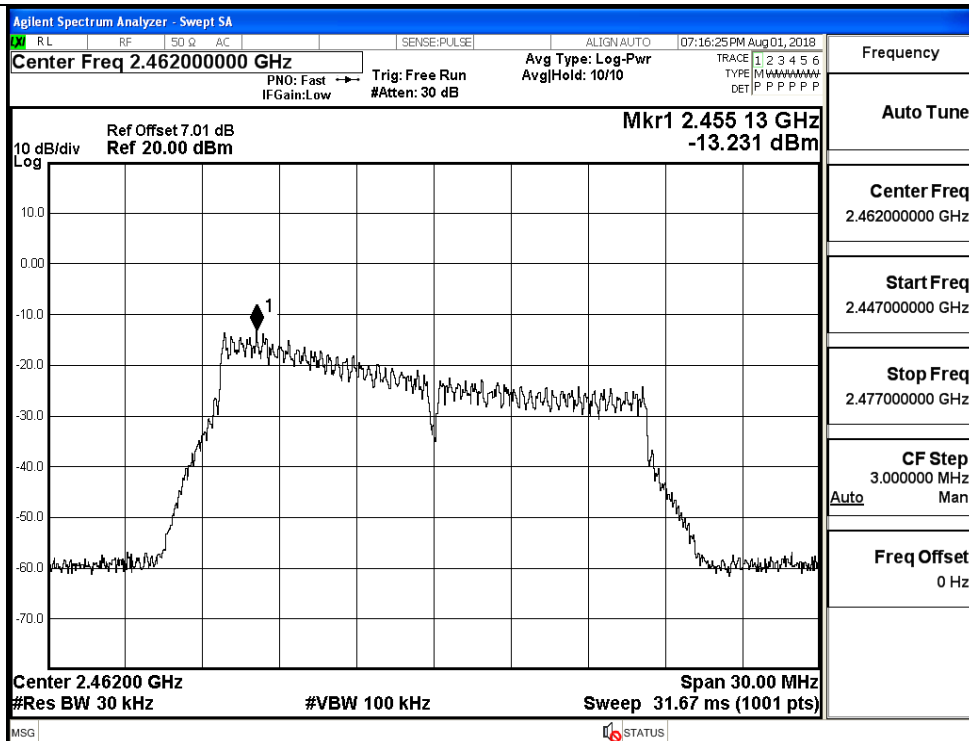
11G/LCH



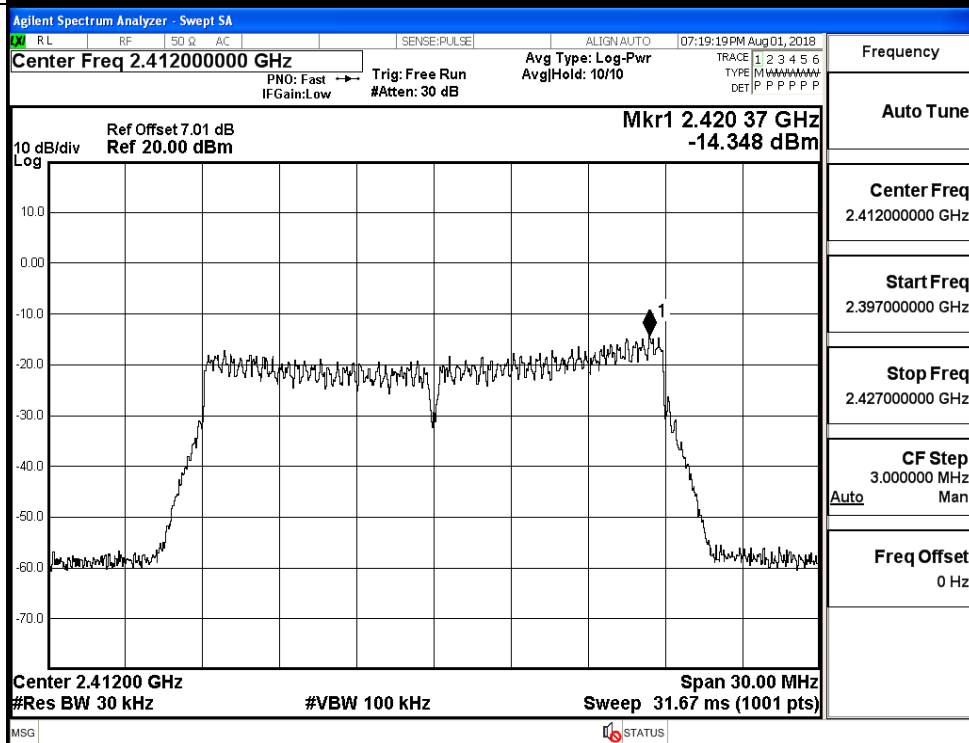
11G/MCH

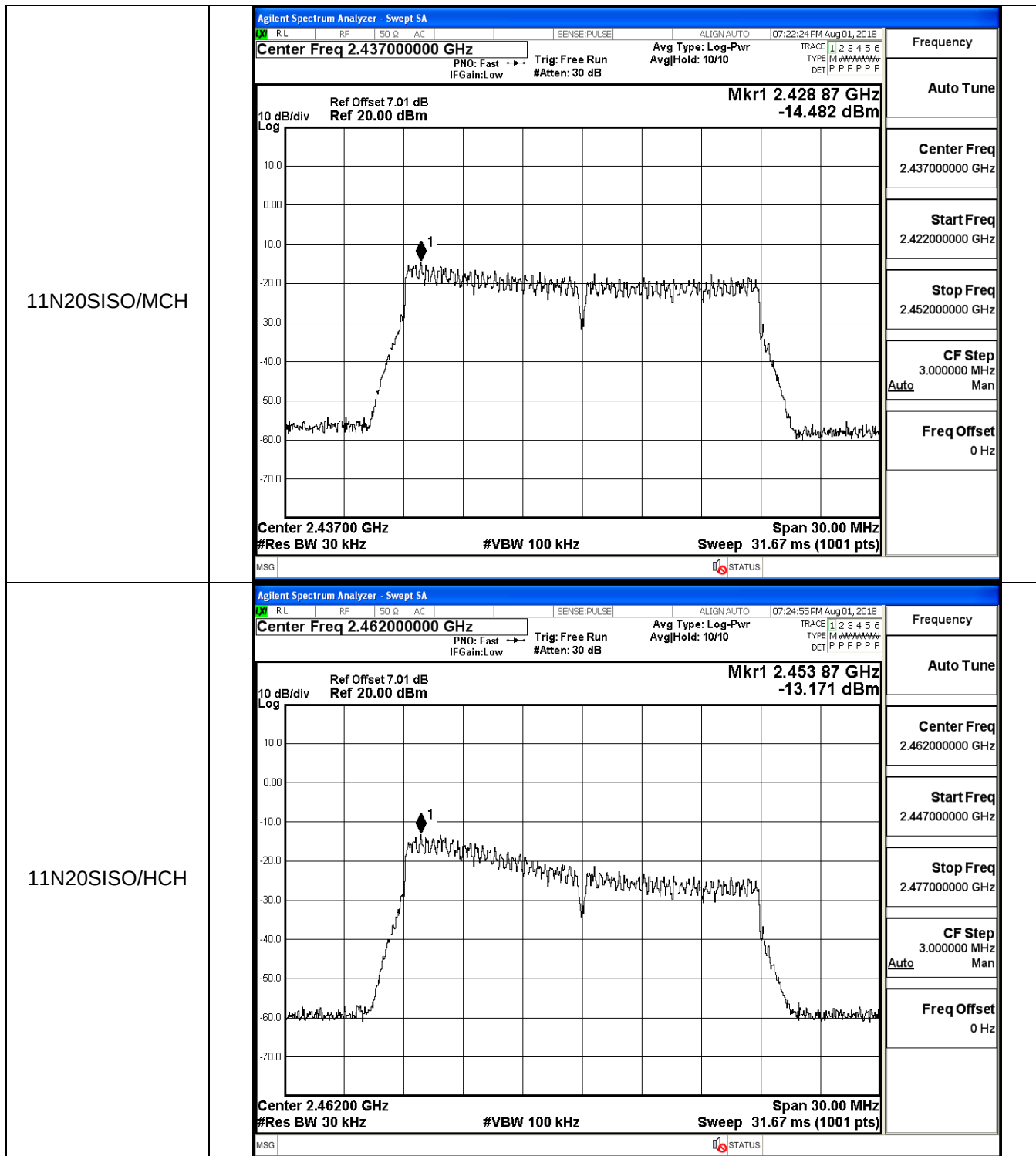


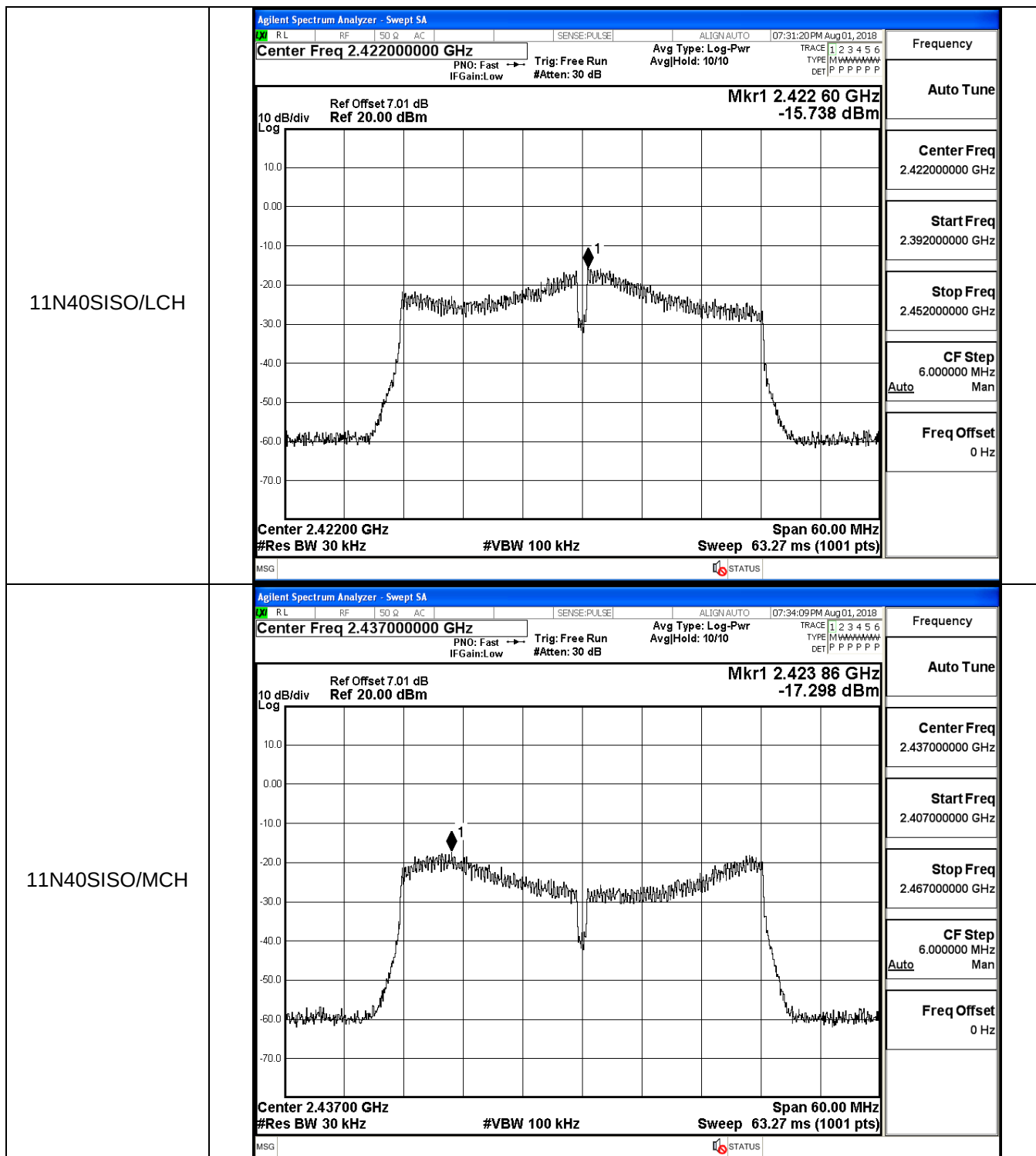
11G/HCH

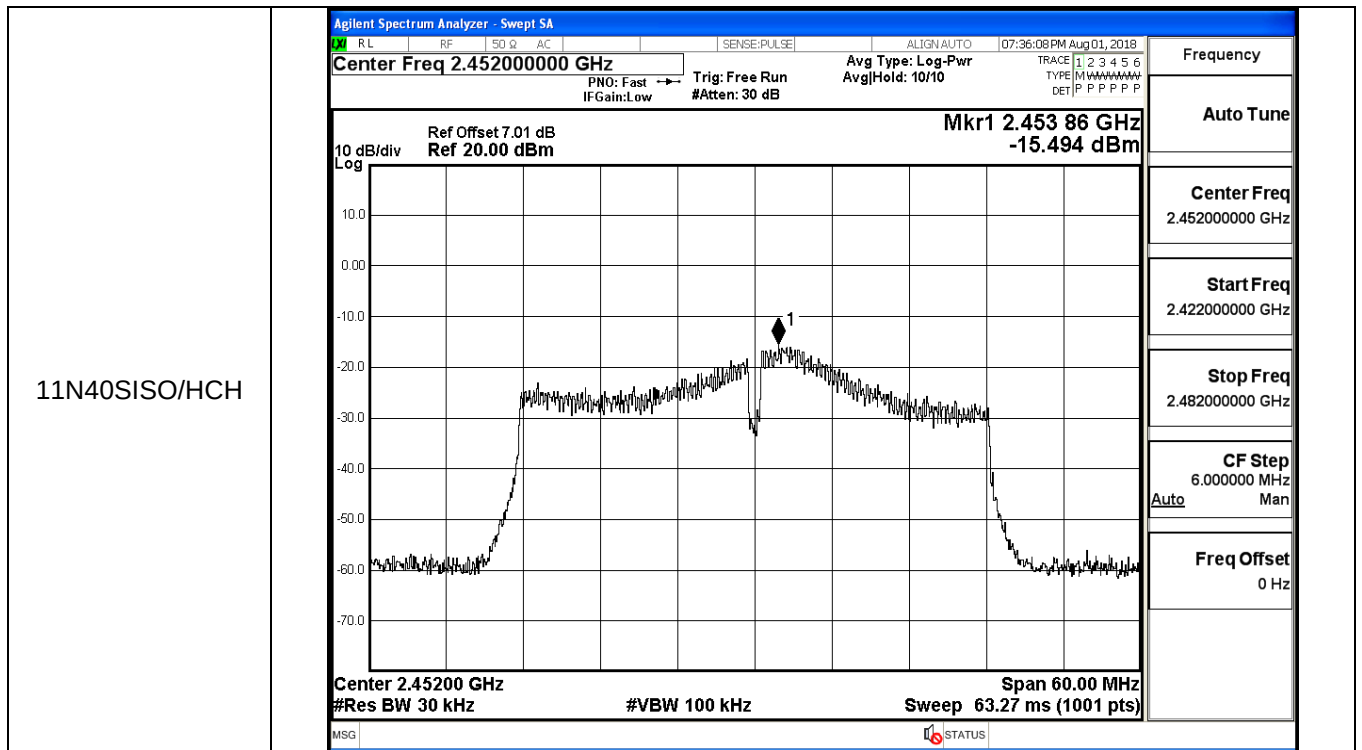


11N20SISO/LCH





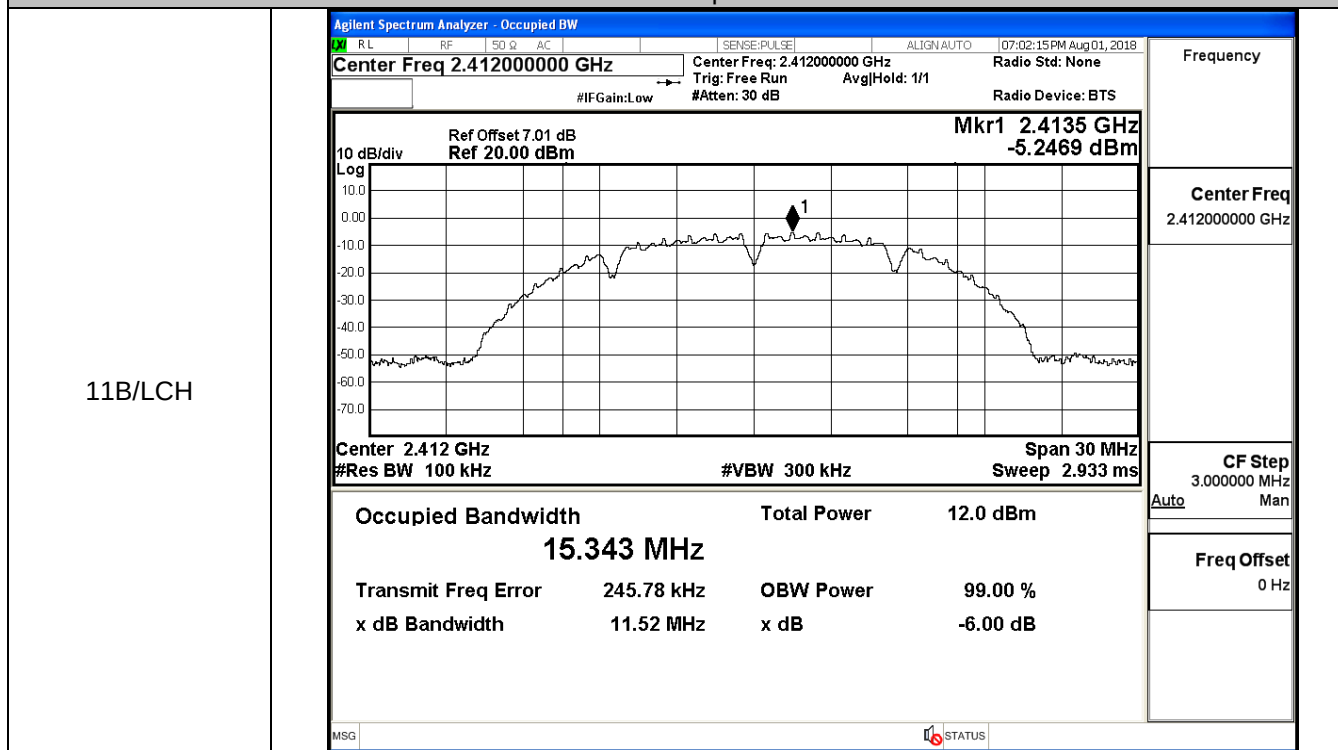




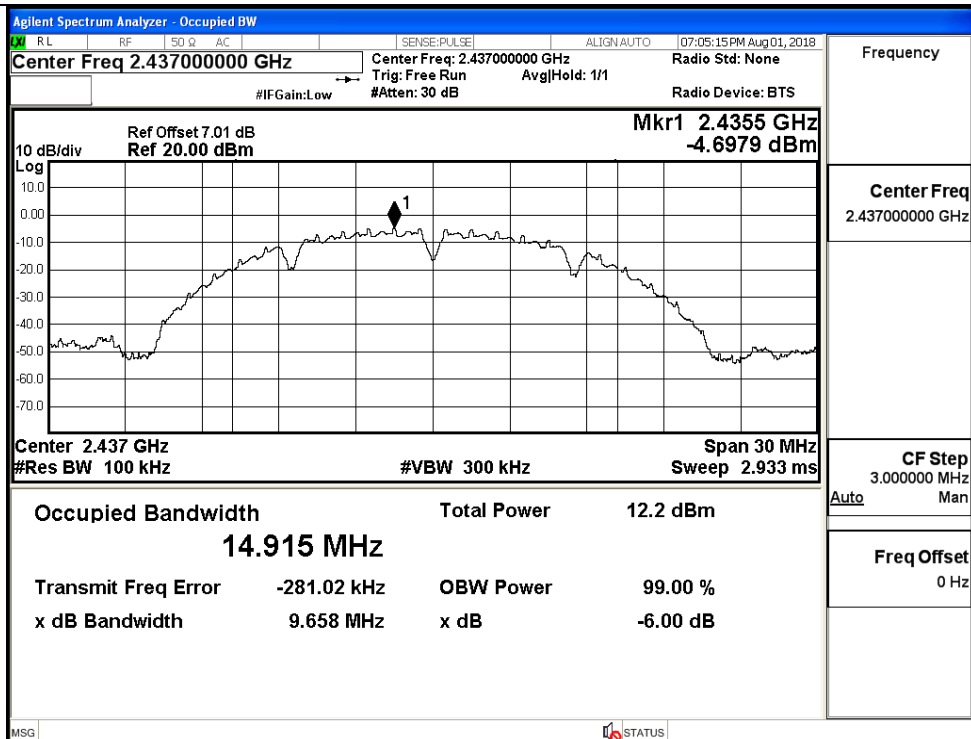
B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	11.52	≥ 0.5	PASS
	MCH	9.658	≥ 0.5	PASS
	HCH	10.12	≥ 0.5	PASS
11G	LCH	16.55	≥ 0.5	PASS
	MCH	16.57	≥ 0.5	PASS
	HCH	16.55	≥ 0.5	PASS
11N20SISO	LCH	17.78	≥ 0.5	PASS
	MCH	17.76	≥ 0.5	PASS
	HCH	17.52	≥ 0.5	PASS
11N40SISO	LCH	35.69	≥ 0.5	PASS
	MCH	36.46	≥ 0.5	PASS
	HCH	35.45	≥ 0.5	PASS

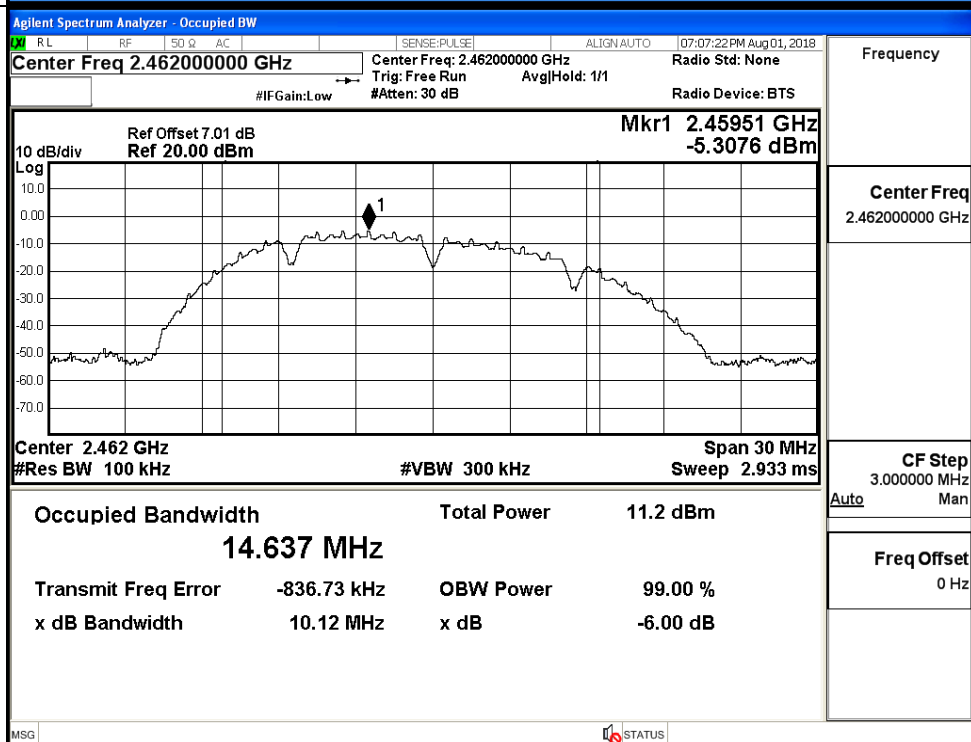
Test Graphs



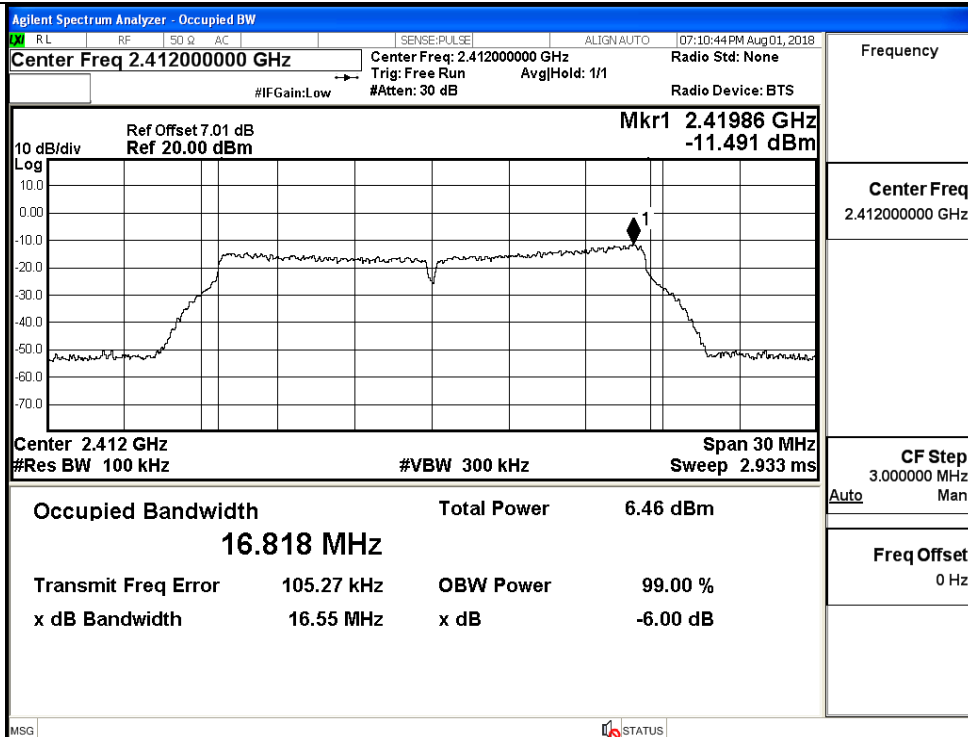
11B/MCH



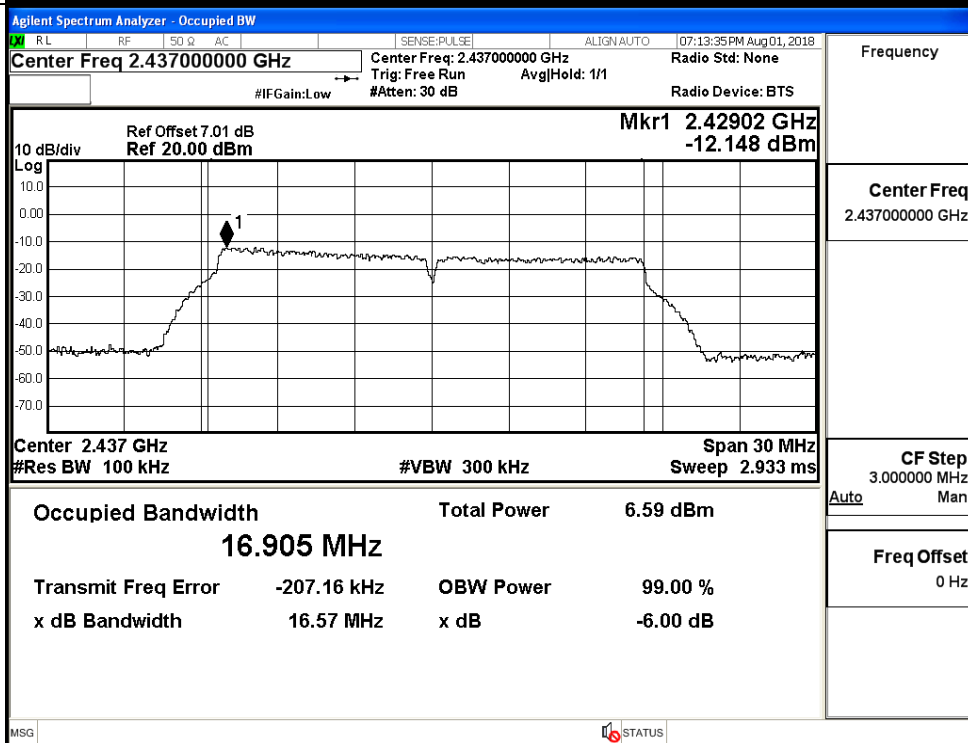
11B/HCH



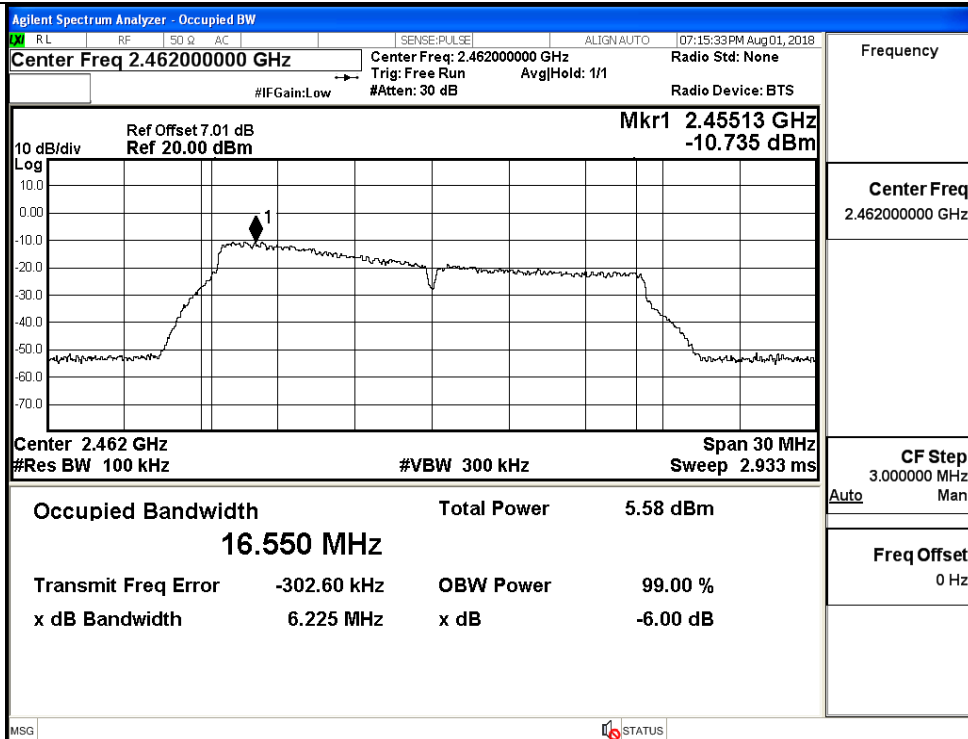
11G/LCH



11G/MCH



11G/HCH



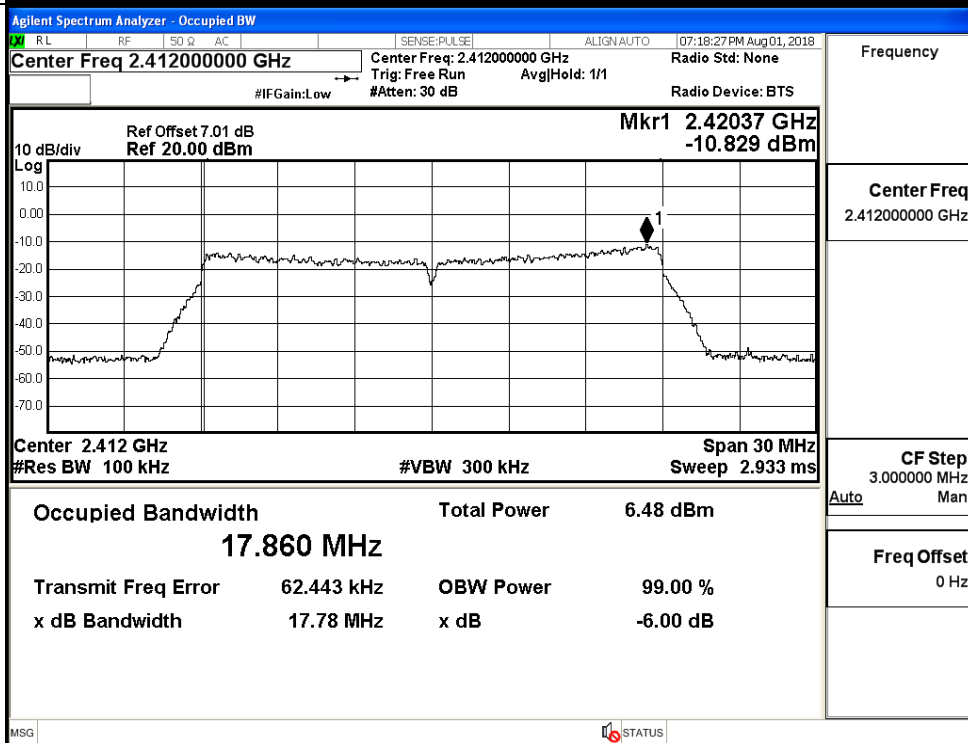
Frequency

Center Freq
2.46200000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH

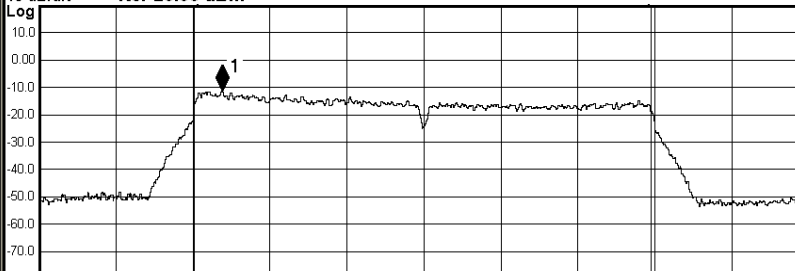
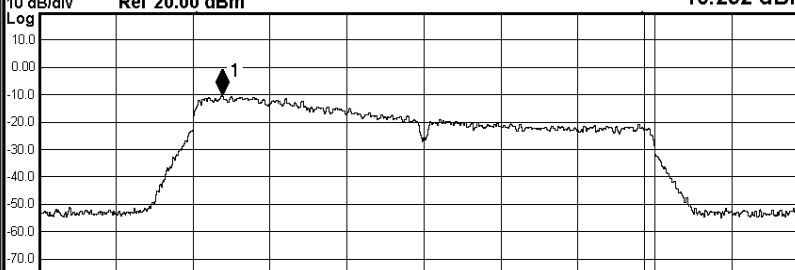


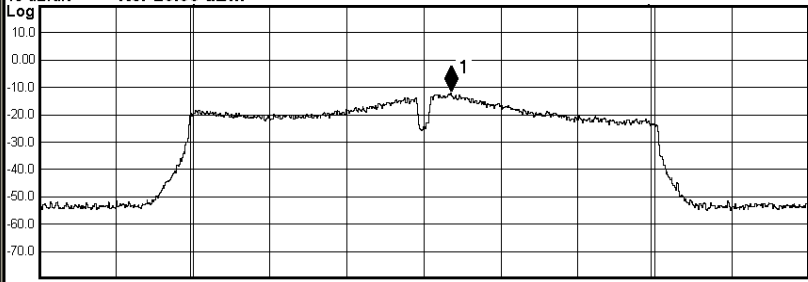
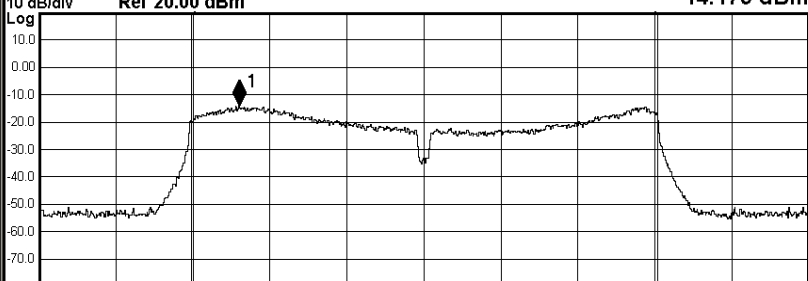
Frequency

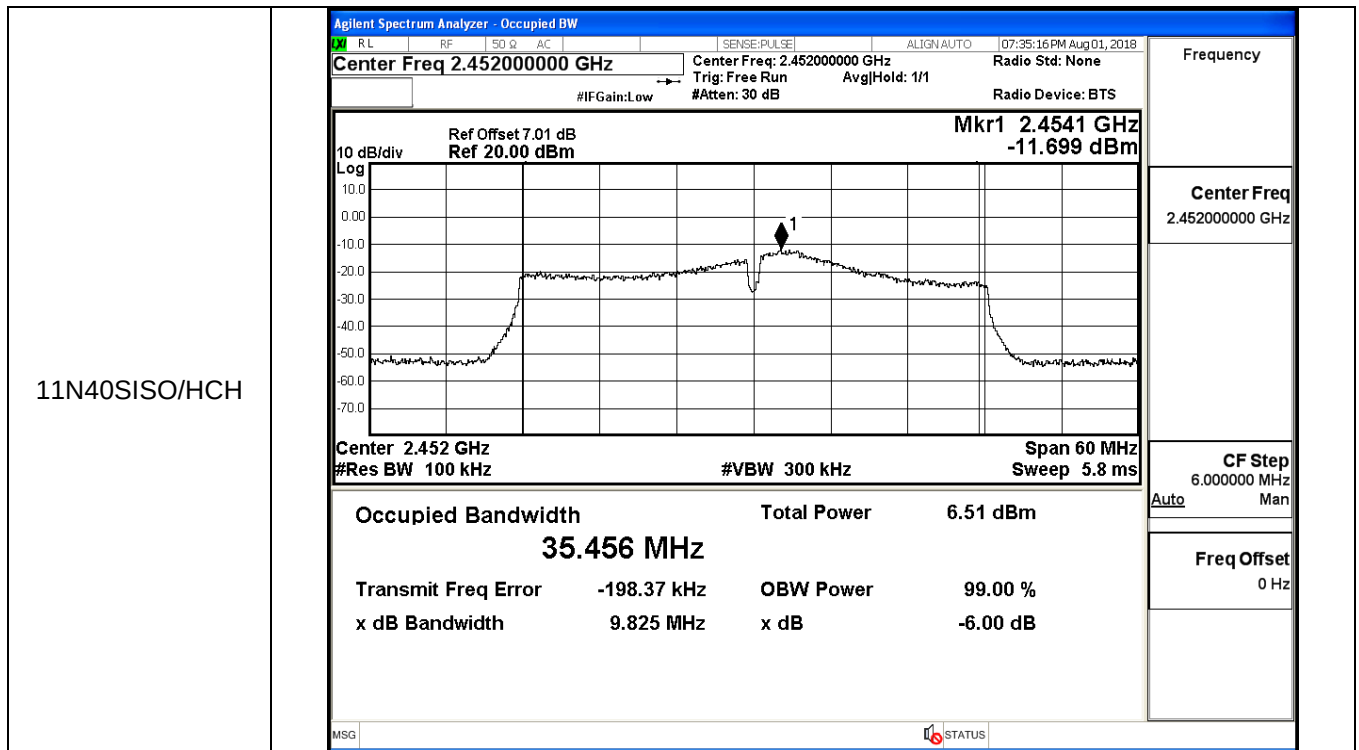
Center Freq
2.41200000 GHz

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 07:21:31 PM Aug 01, 2018 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IFGain:Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.42914 GHz -11.508 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.788 MHz Total Power 6.74 dBm Transmit Freq Error -53.072 kHz OBW Power 99.00 % x dB Bandwidth 17.76 MHz x dB -6.00 dB MSG STATUS	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 07:24:03 PM Aug 01, 2018 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IFGain:Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.45414 GHz -10.292 dBm  Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.519 MHz Total Power 5.92 dBm Transmit Freq Error -187.95 kHz OBW Power 99.00 % x dB Bandwidth 6.102 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

11N40SISO/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:PULSE ALIGN: AUTO 07:30:27 PM Aug 01, 2018 Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IFGain: Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.42416 GHz -12.041 dBm  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.690 MHz Total Power 7.28 dBm Transmit Freq Error -198.99 kHz OBW Power 99.00 % x dB Bandwidth 13.21 MHz x dB -6.00 dB 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 Ω AC SENSE:PULSE ALIGN: AUTO 07:33:17 PM Aug 01, 2018 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold: 1/1 Radio Std: None #IFGain: Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.42266 GHz -14.179 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.291 MHz Total Power 6.35 dBm Transmit Freq Error 51.044 kHz OBW Power 99.00 % x dB Bandwidth 36.46 MHz x dB -6.00 dB Frequency Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

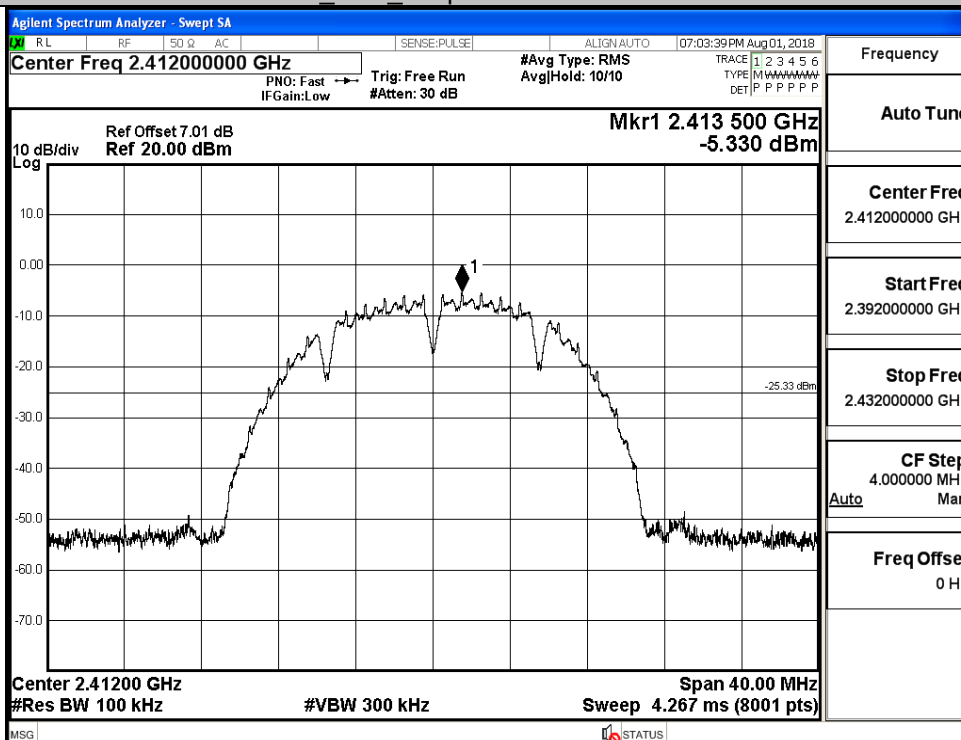


B.5 RF Conducted Spurious Emissions

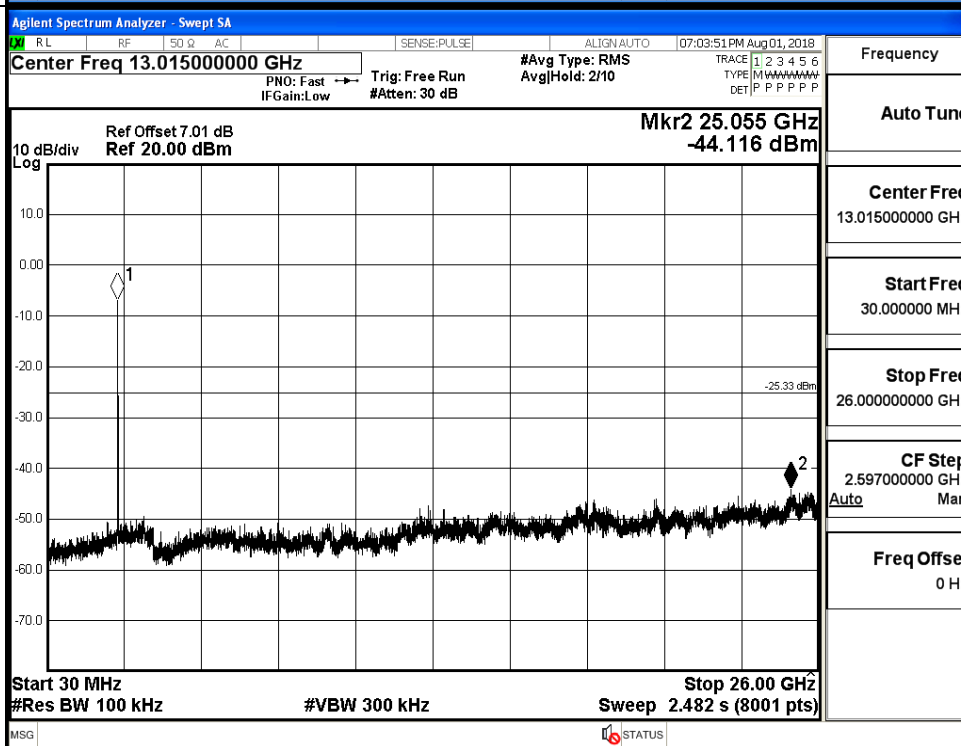
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-5.33	-44.116	-25.330	PASS
	MCH	-4.833	-44.729	-24.833	PASS
	HCH	-5.488	-44.288	-25.488	PASS
11G	LCH	-11.603	-43.950	-31.603	PASS
	MCH	-12.331	-43.885	-32.331	PASS
	HCH	-10.933	-44.429	-30.933	PASS
11N20 SISO	LCH	-11.012	-42.411	-31.012	PASS
	MCH	-11.842	-44.255	-31.842	PASS
	HCH	-10.303	-44.219	-30.303	PASS
11N40 SISO	LCH	-11.883	-44.349	-31.883	PASS
	MCH	-14.27	-44.626	-34.270	PASS
	HCH	-11.877	-45.123	-31.877	PASS

11B LCH Graphs

Pref/11B/LCH

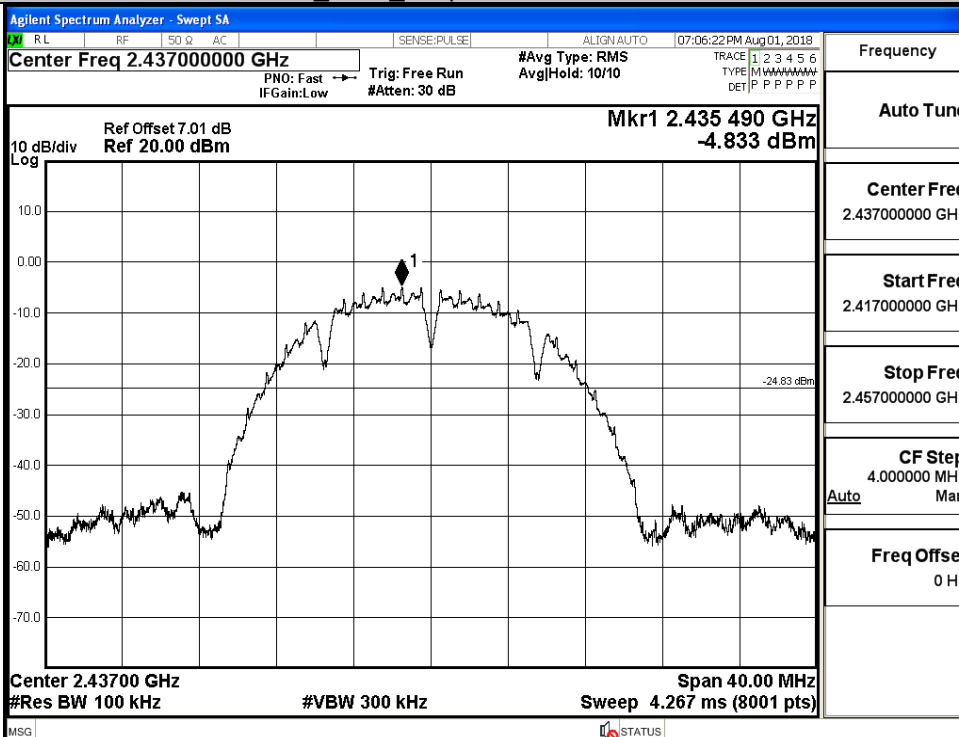


Puw/11B/LCH

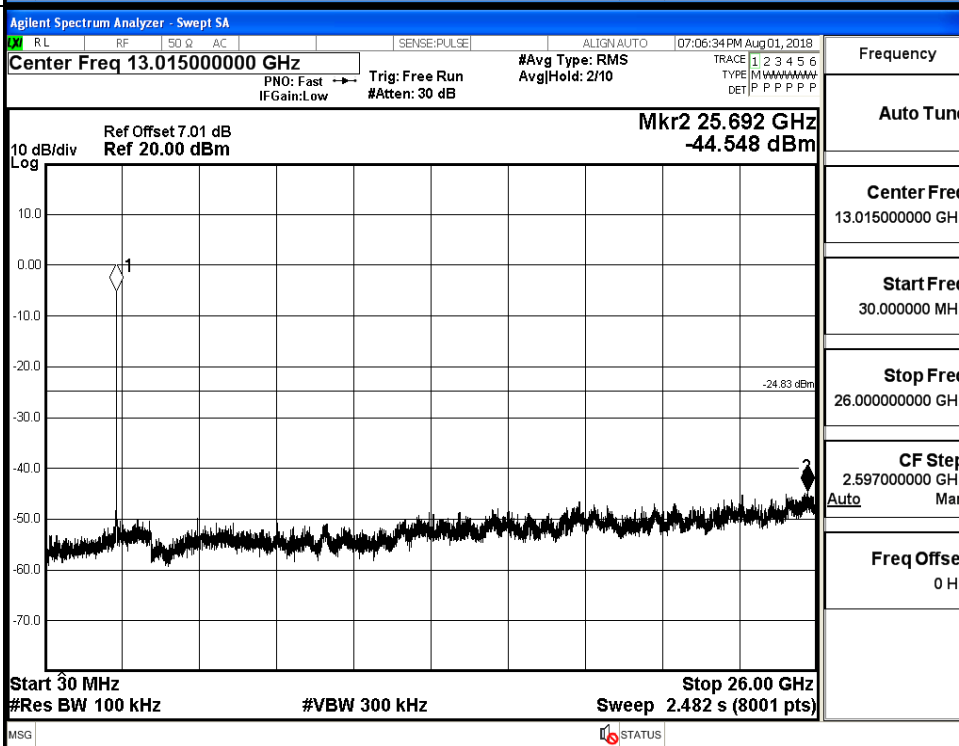


11B MCH Graphs

Pref/11B/MCH

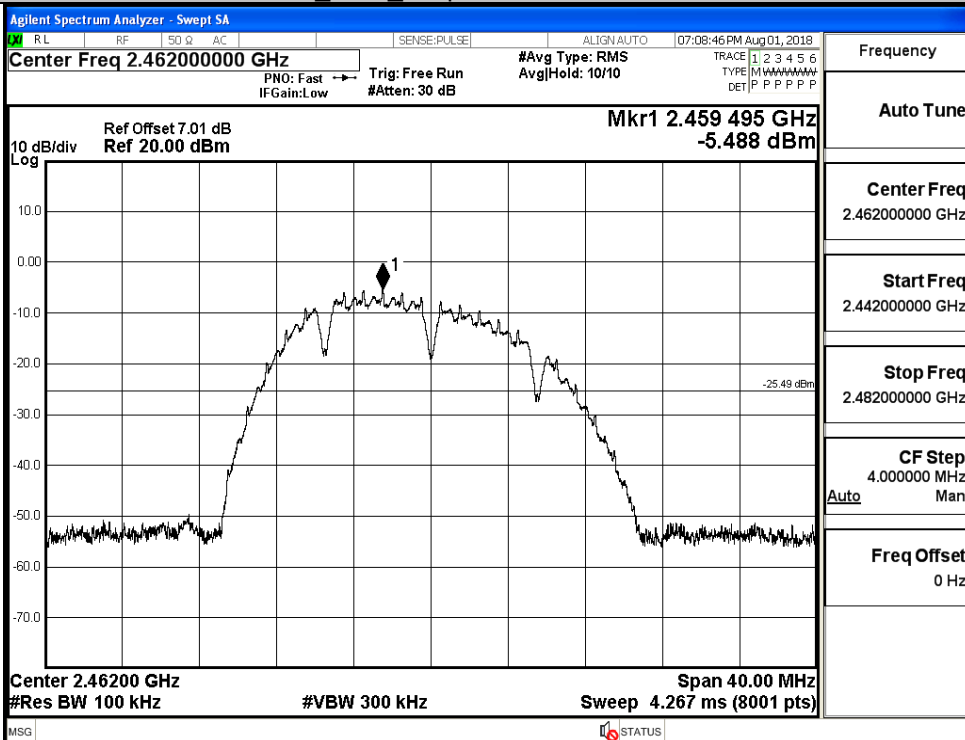


Puw/11B/MCH

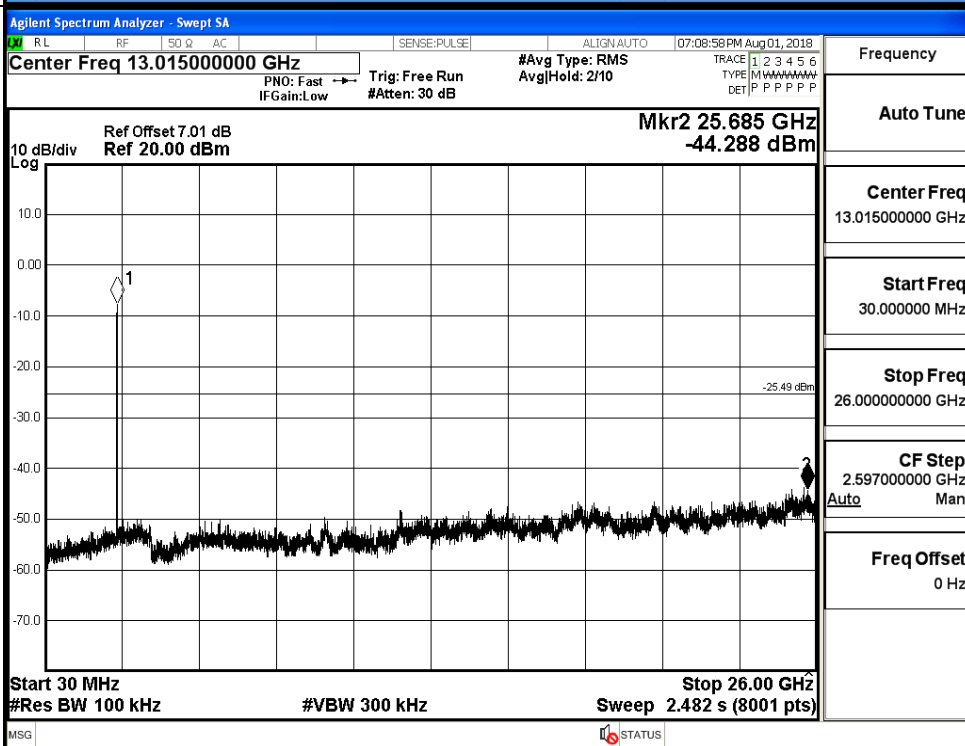


11B HCH Graphs

Pref/11B/HCH

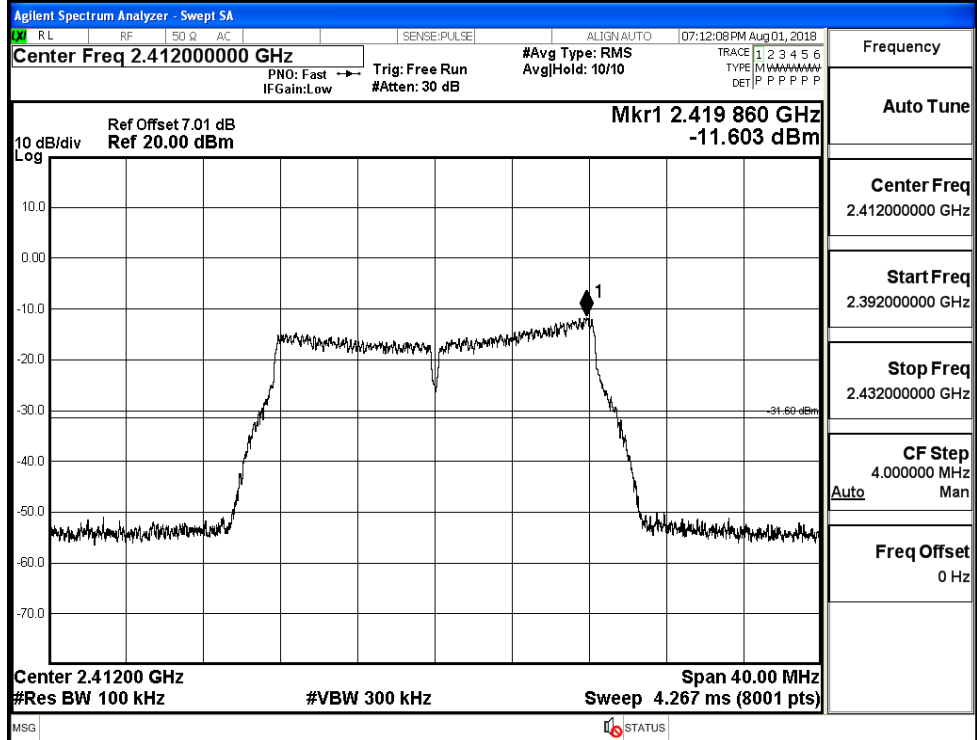


Puw/11B/HCH

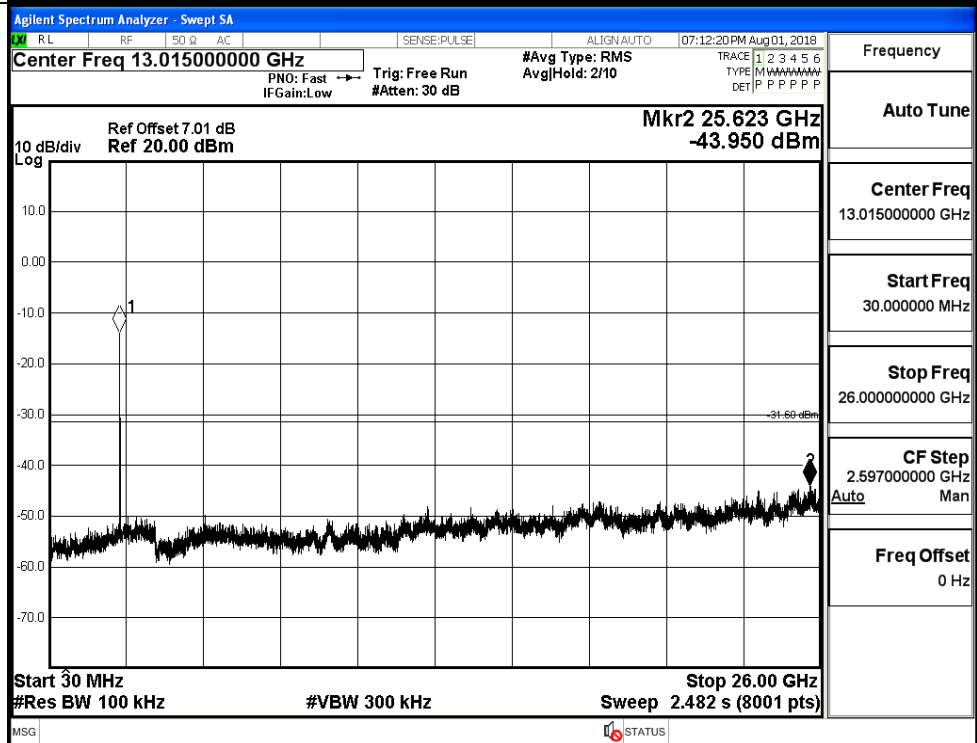


11G LCH Graphs

Pref/11G/LCH

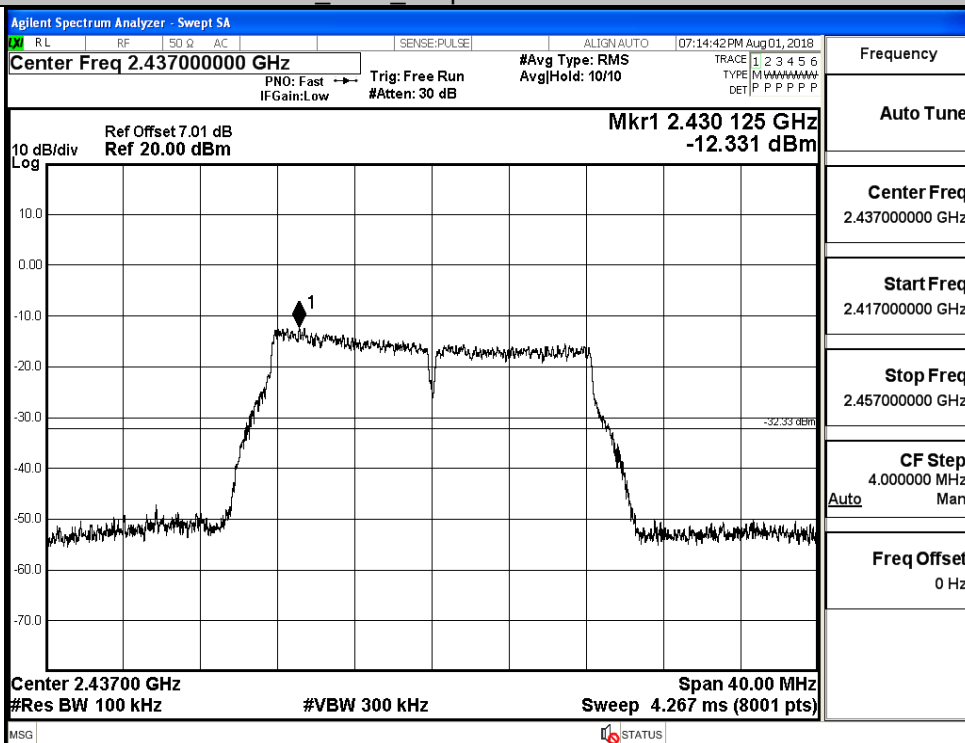


Puw/11G/LCH

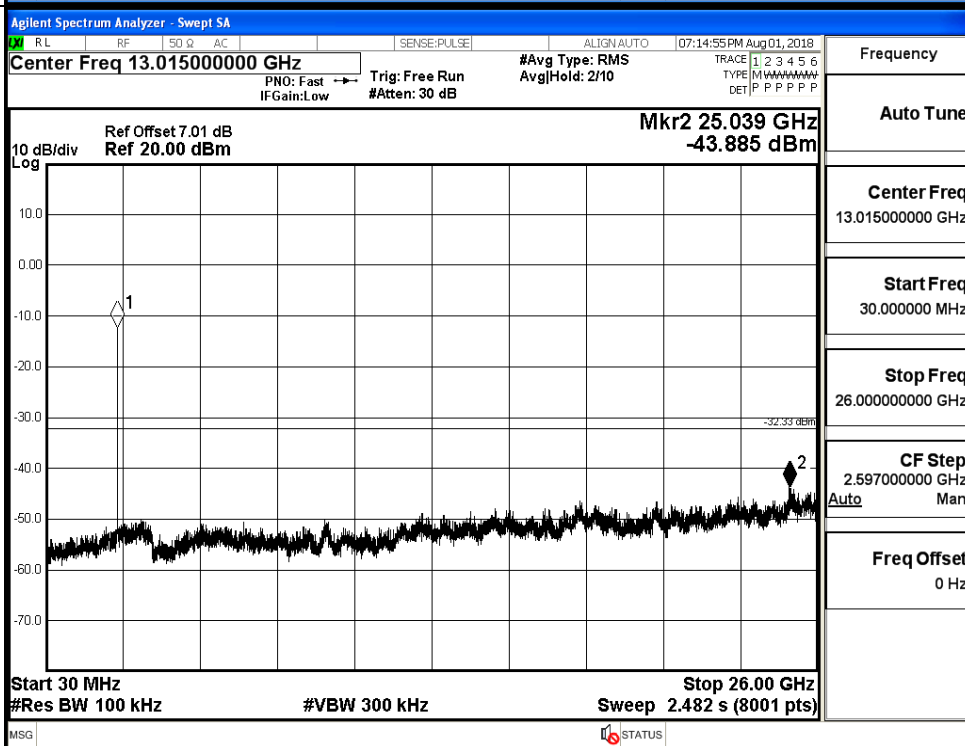


11G MCH Graphs

Pref/11G/MCH

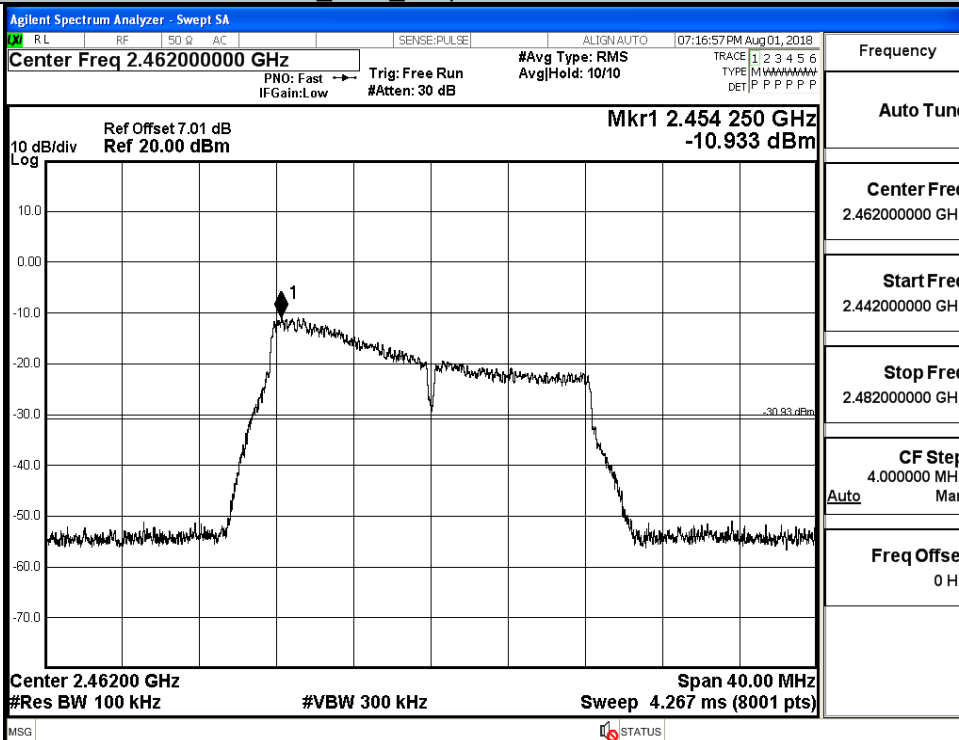


Puw/11G/MCH

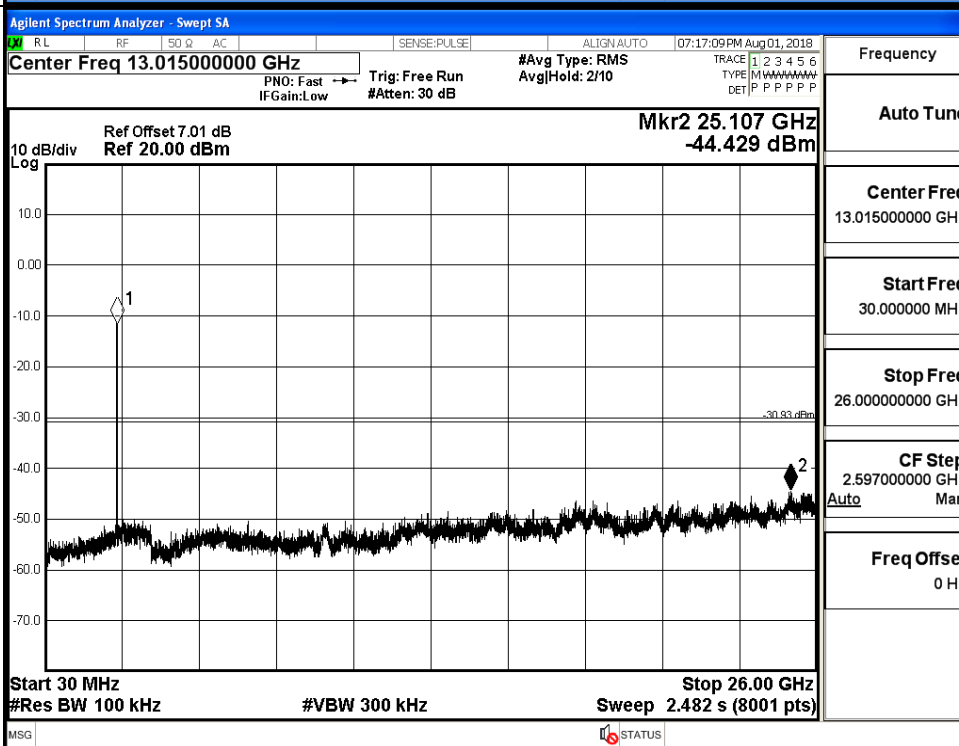


11G HCH Graphs

Pref/11G/HCH

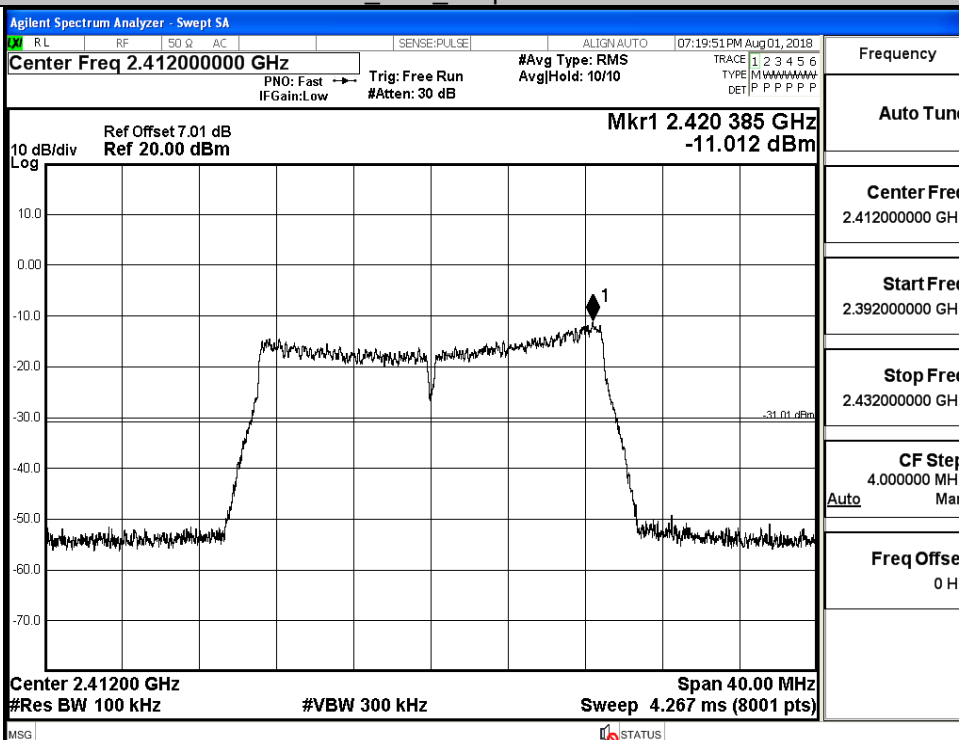


Puw/11G/HCH

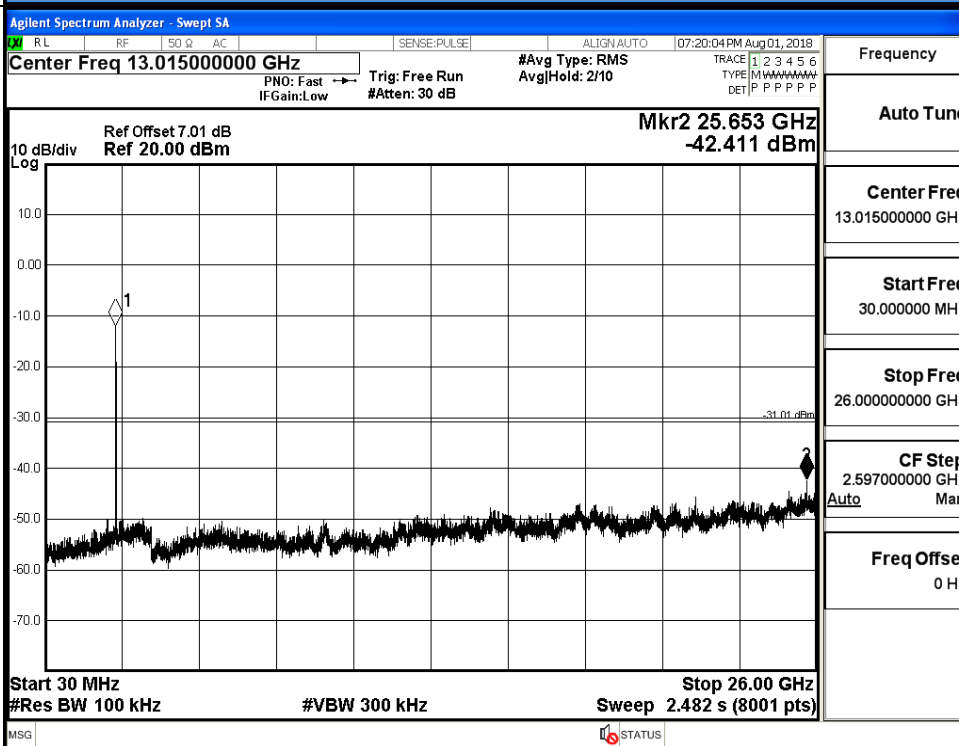


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

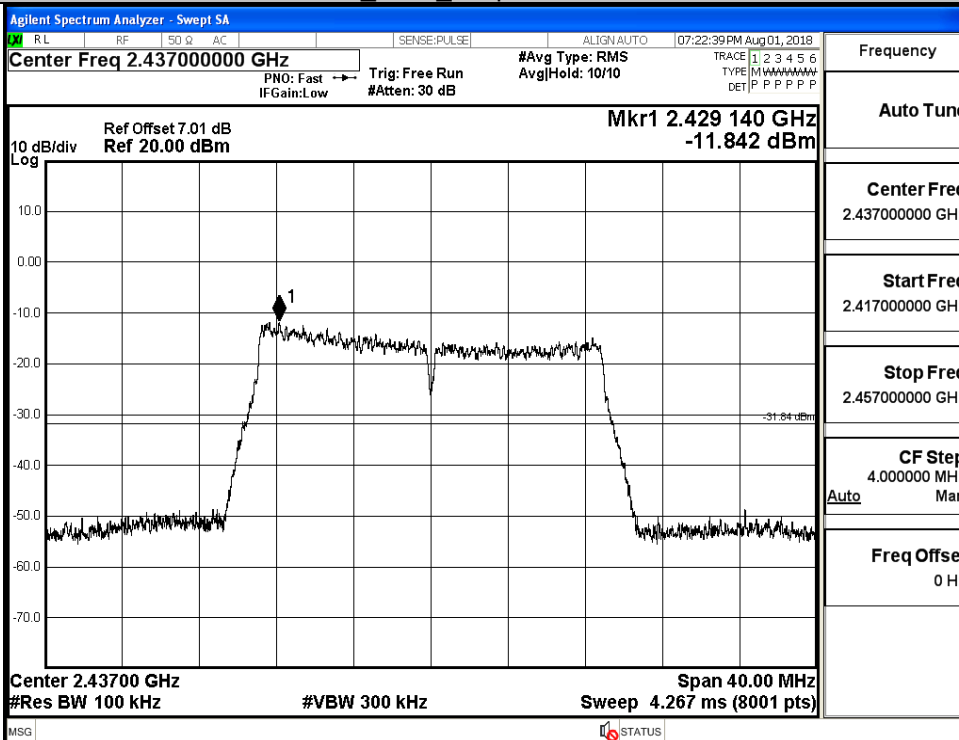


Puw/11N20
SISO/LCH

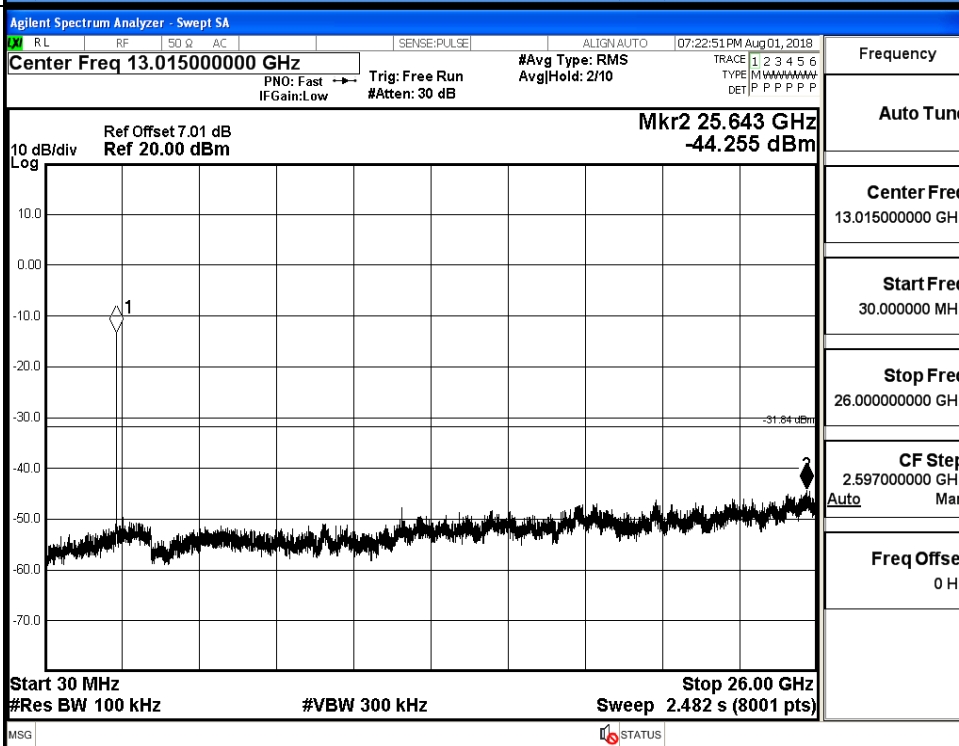


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

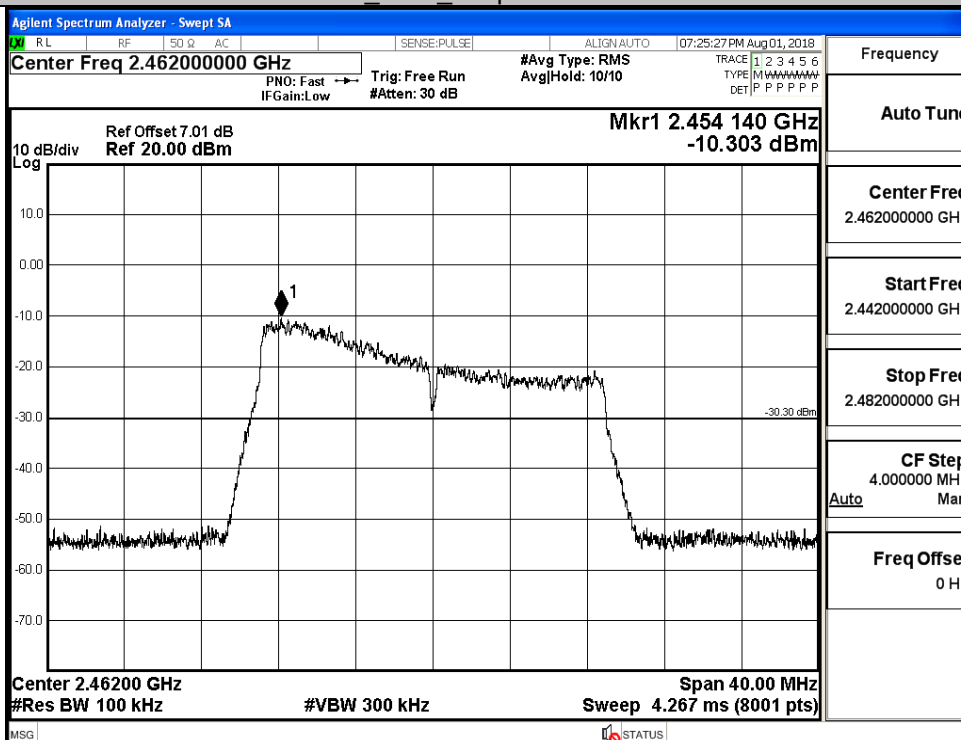


Puw/11N20
SISO/MCH

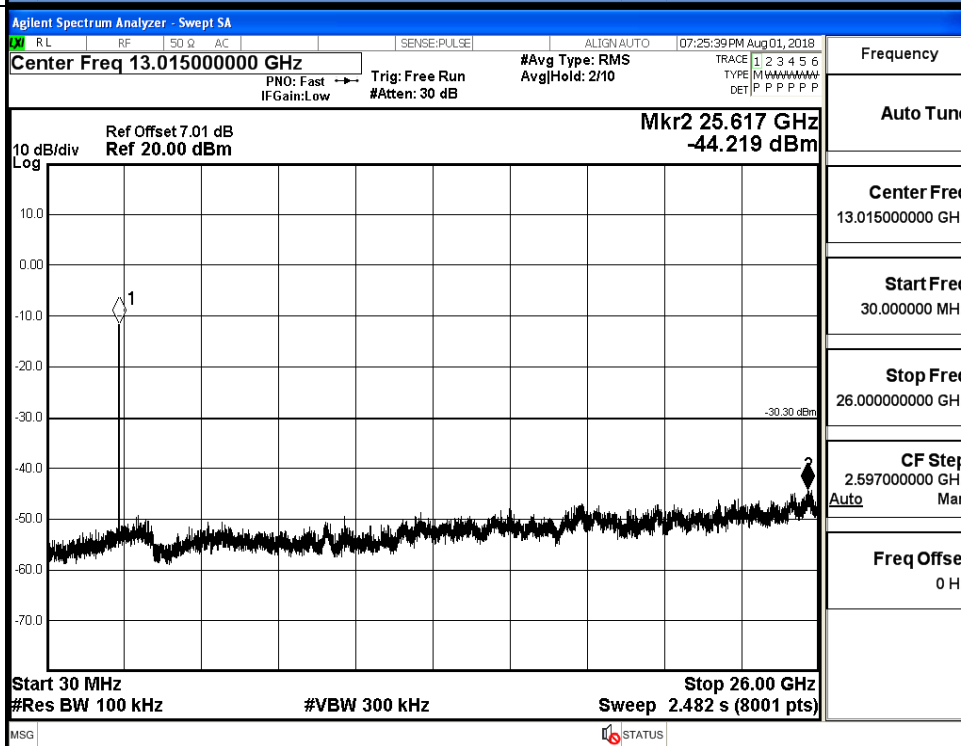


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

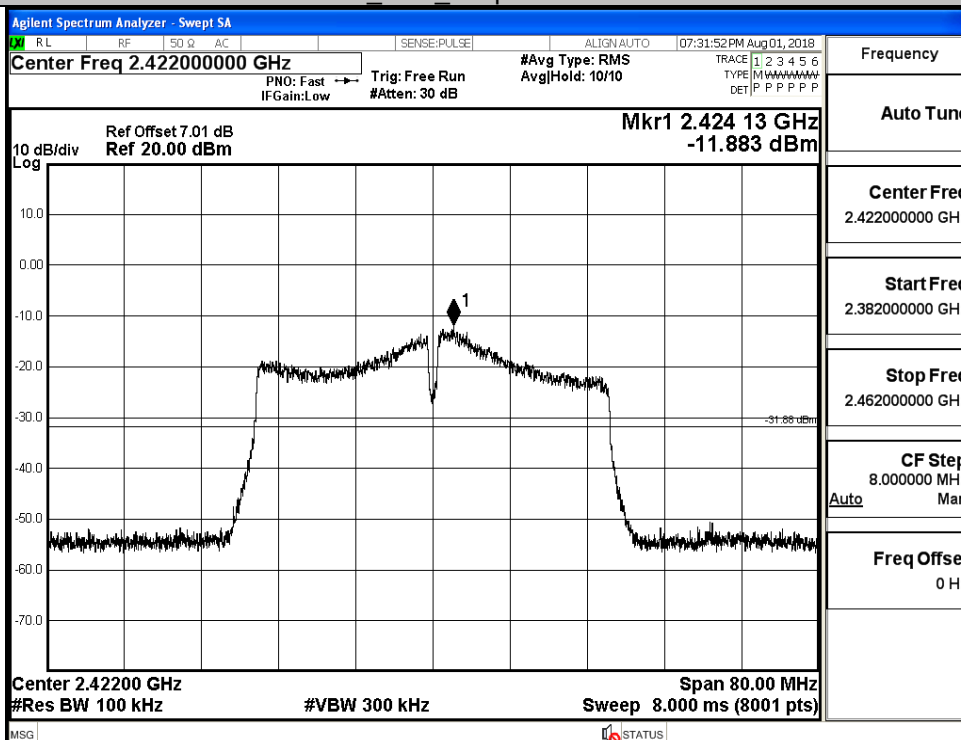


Puw/11N20
SISO/HCH

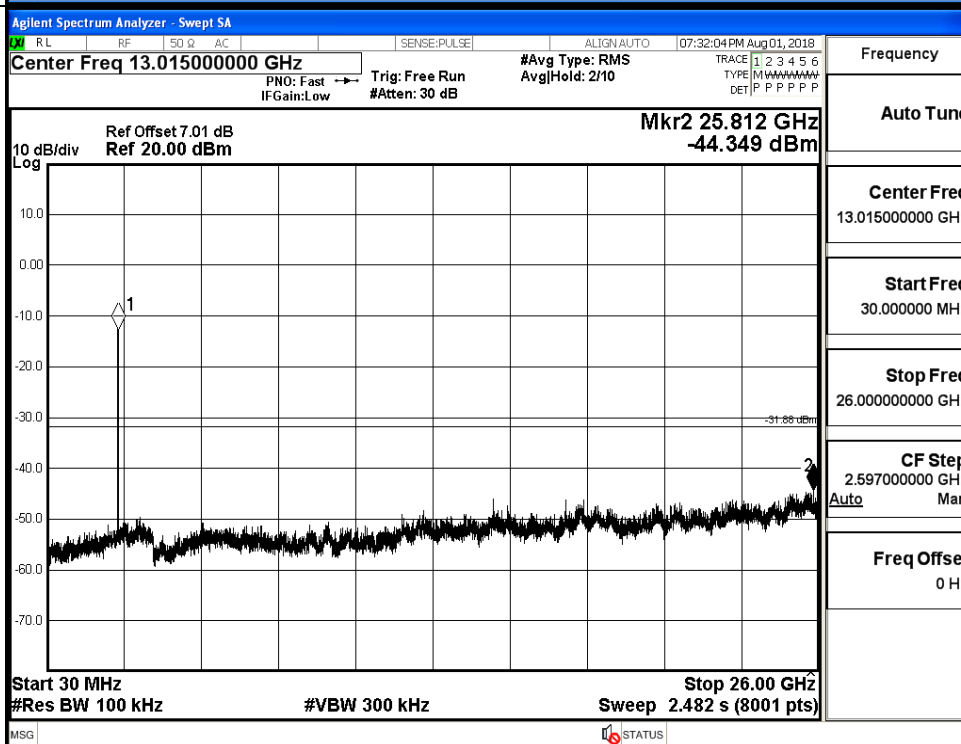


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

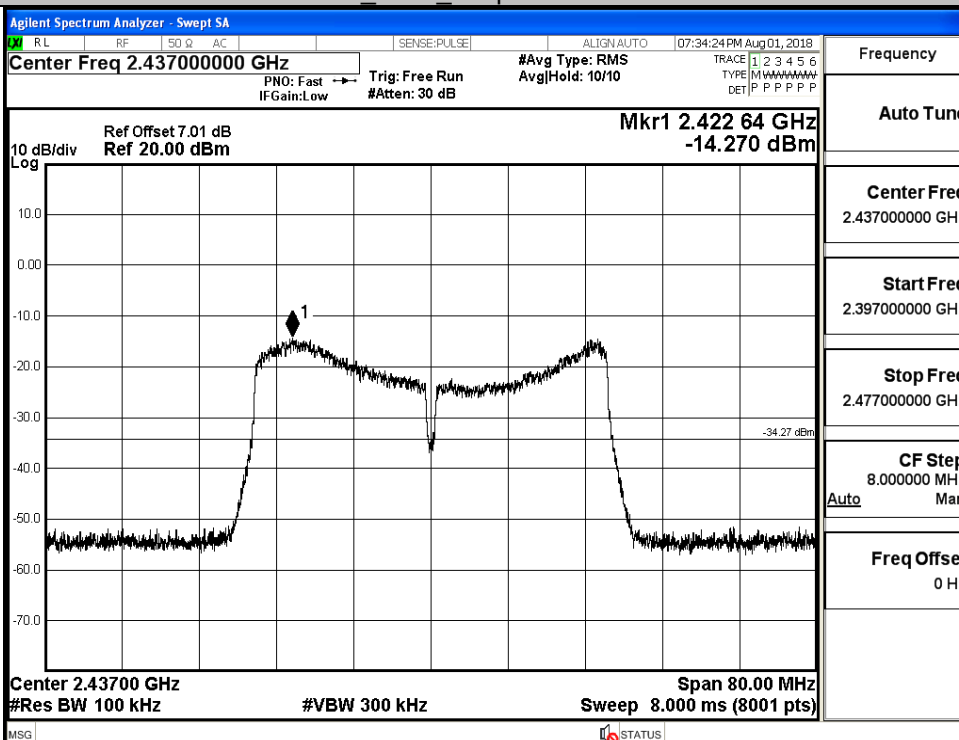


Puw/11N40
SISO/LCH

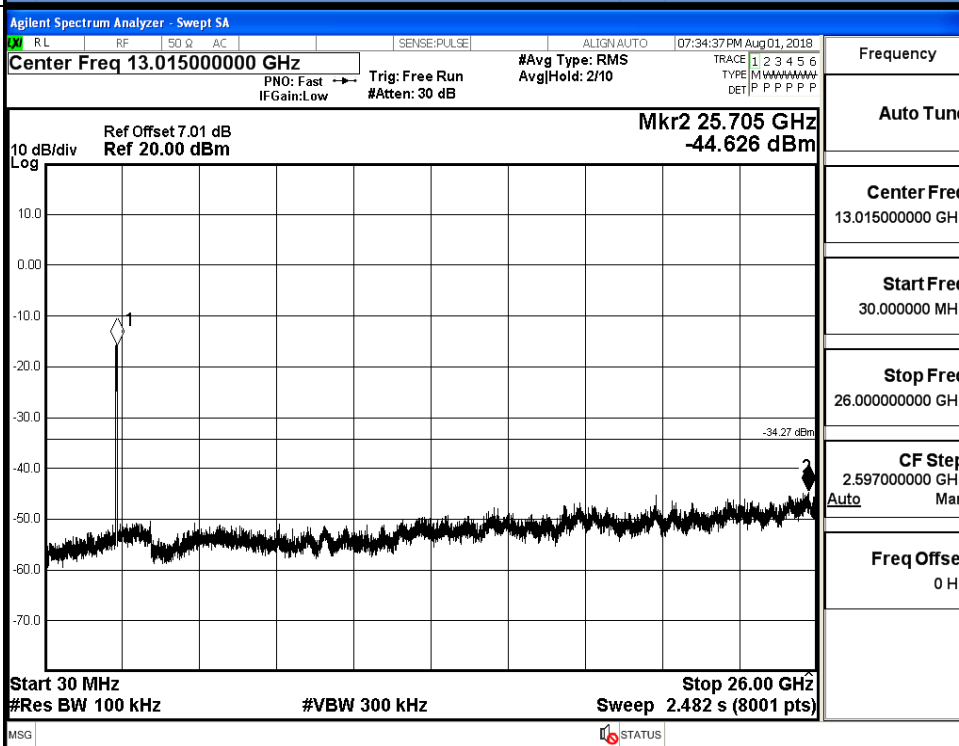


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

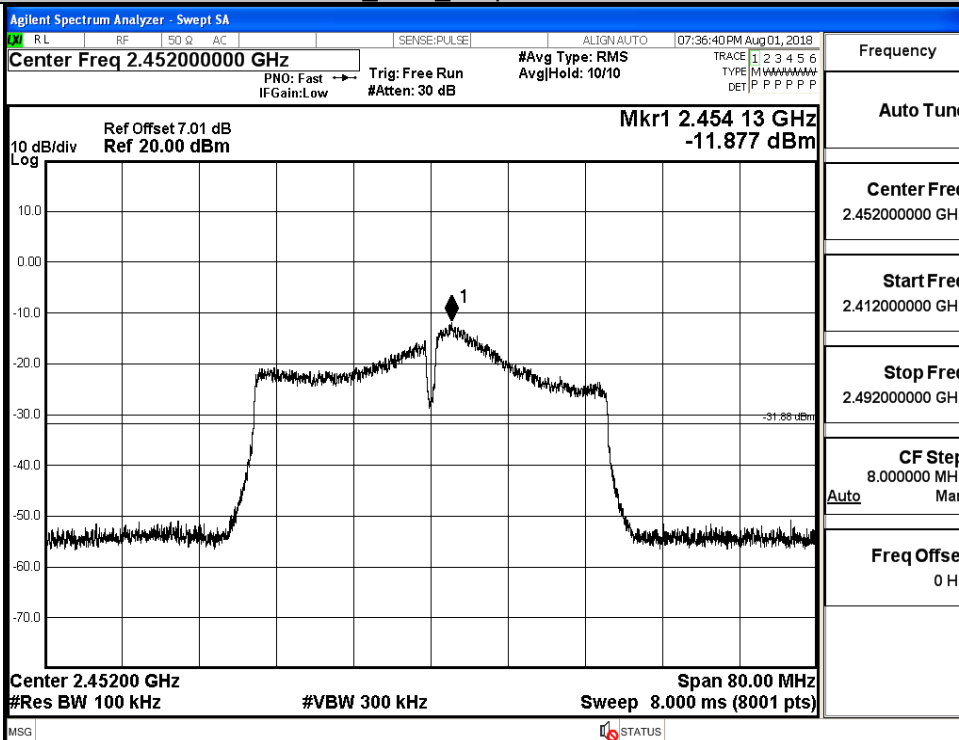


Puw/11N40
SISO/MCH

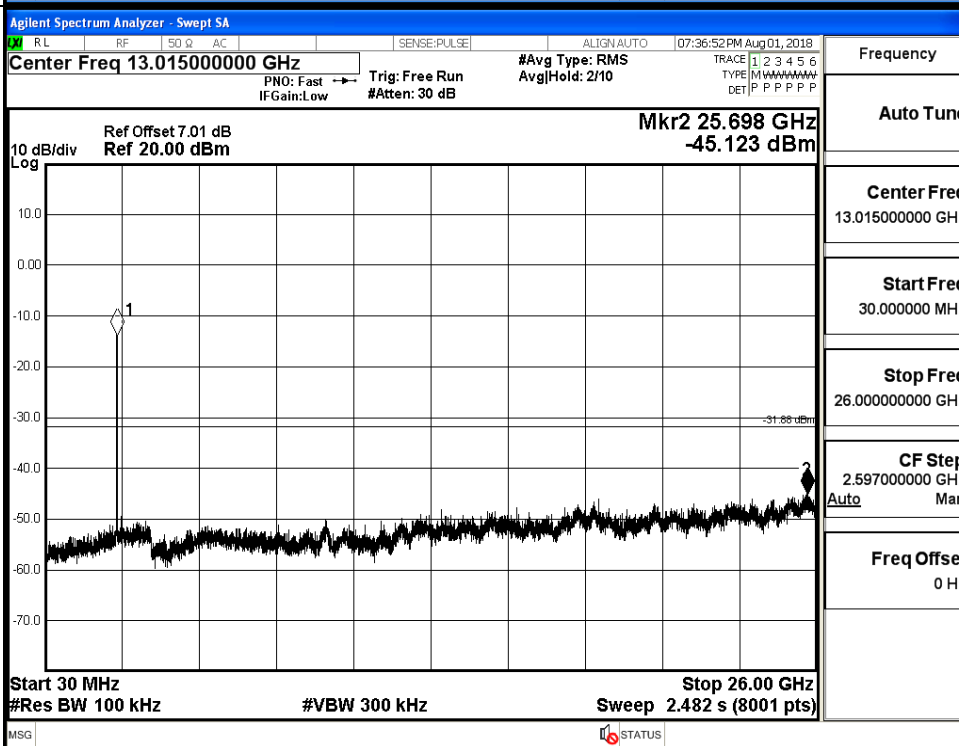


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



Puw/11N40
SISO/HCH

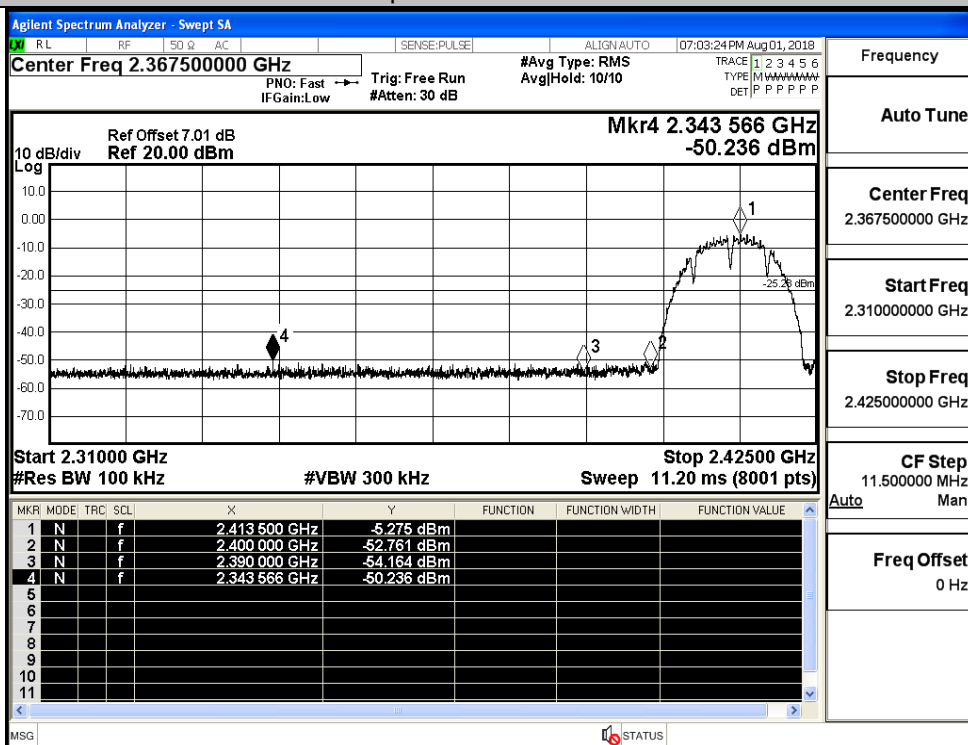


B.6 Band-edge for RF Conducted Emissions

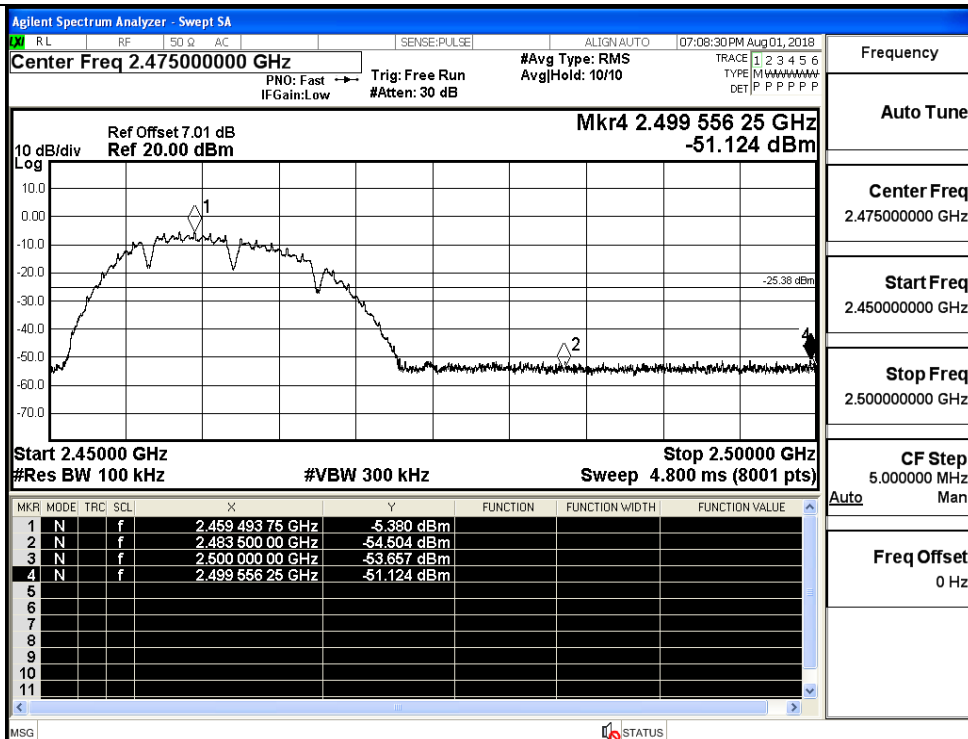
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-5.275	-50.236	-25.28	PASS
	HCH	-5.380	-51.124	-25.38	PASS
11G	LCH	-11.642	-51.493	-31.64	PASS
	HCH	-10.903	-50.817	-30.9	PASS
11N20SISO	LCH	-10.651	-51.084	-30.65	PASS
	HCH	-10.588	-51.214	-30.59	PASS
11N40SISO	LCH	-12.154	-50.358	-32.15	PASS
	HCH	-11.812	-51.679	-31.81	PASS

Test Graphs

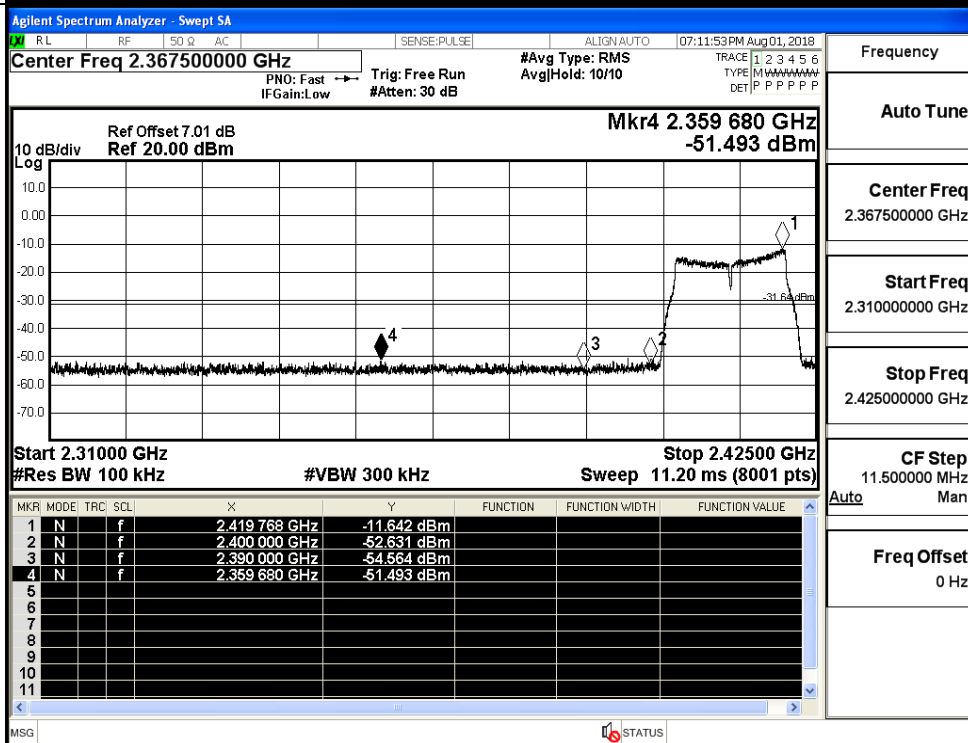
11B/LCH



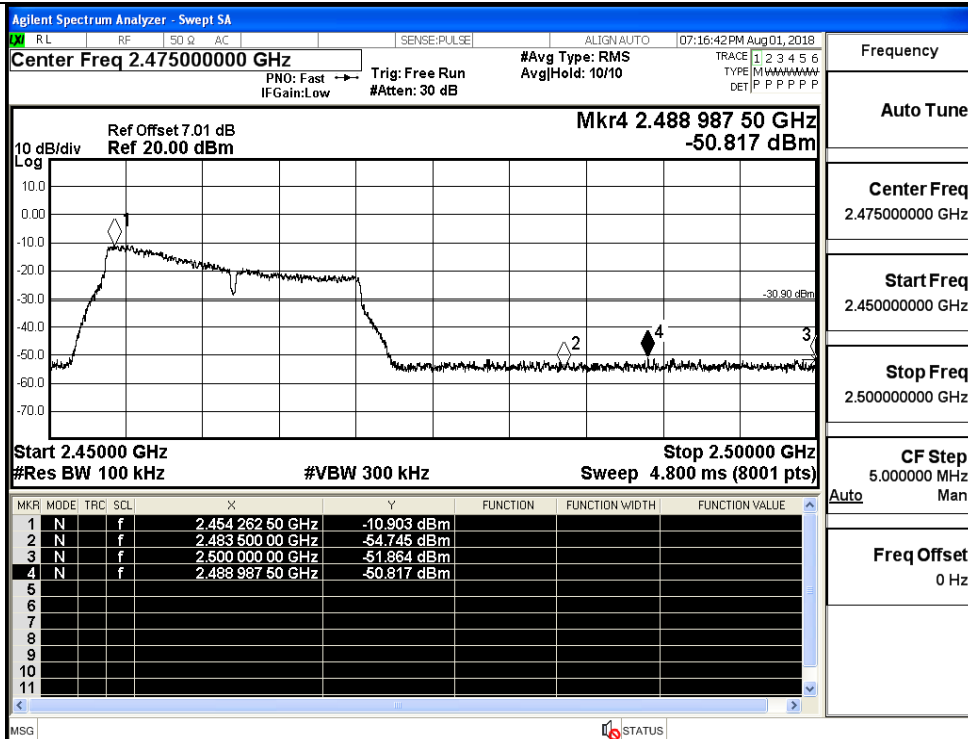
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

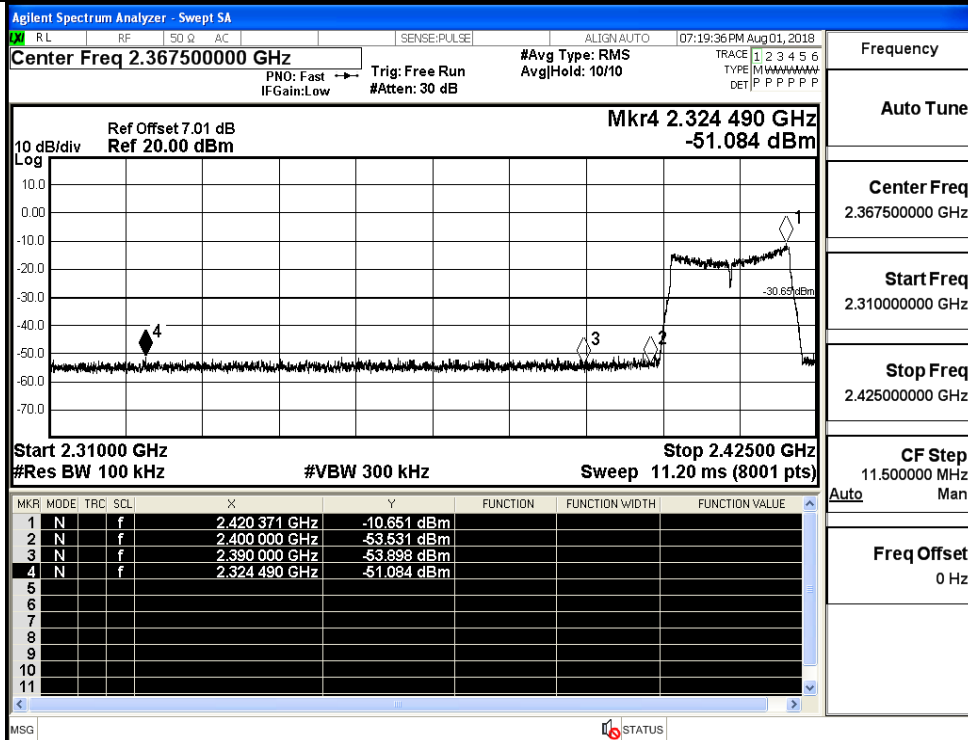
Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH



Frequency

Auto Tune

Center Freq
2.367500000 GHz

Start Freq
2.310000000 GHz

Stop Freq
2.425000000 GHz

CF Step
11.500000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/HCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.475000000 GHz

PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS AvgHold: 10/10

Ref Offset 7.01 dB Ref 20.00 dBm

Mkr4 2.495 506 25 GHz -51.214 dBm

10 dB/div Log

Start 2.45000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.50000 GHz Sweep 4.800 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.454 500 00 GHz	-10.588 dBm			
2	N		f	2.483 500 00 GHz	-54.495 dBm			
3	N		f	2.500 000 00 GHz	-54.154 dBm			
4	N		f	2.495 506 25 GHz	-51.214 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq
2.475000000 GHz

Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

Auto Man

Freq Offset
0 Hz

11N40SISO/LCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.377500000 GHz

PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS AvgHold: 10/10

Ref Offset 7.01 dB Ref 20.00 dBm

Mkr4 2.380 841 GHz -50.358 dBm

10 dB/div Log

Start 2.31000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.44500 GHz Sweep 13.33 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.424 126 GHz	-12.154 dBm			
2	N		f	2.400 000 GHz	-55.568 dBm			
3	N		f	2.390 000 GHz	-55.947 dBm			
4	N		f	2.380 841 GHz	-50.358 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq
2.377500000 GHz

Start Freq
2.310000000 GHz

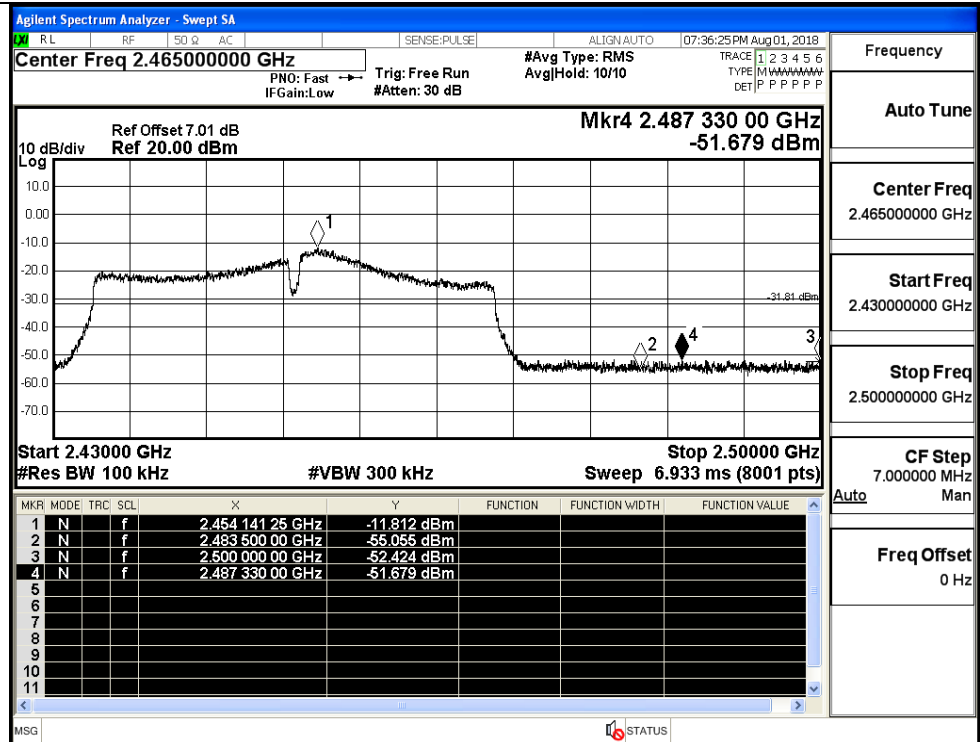
Stop Freq
2.445000000 GHz

CF Step
13.500000 MHz

Auto Man

Freq Offset
0 Hz

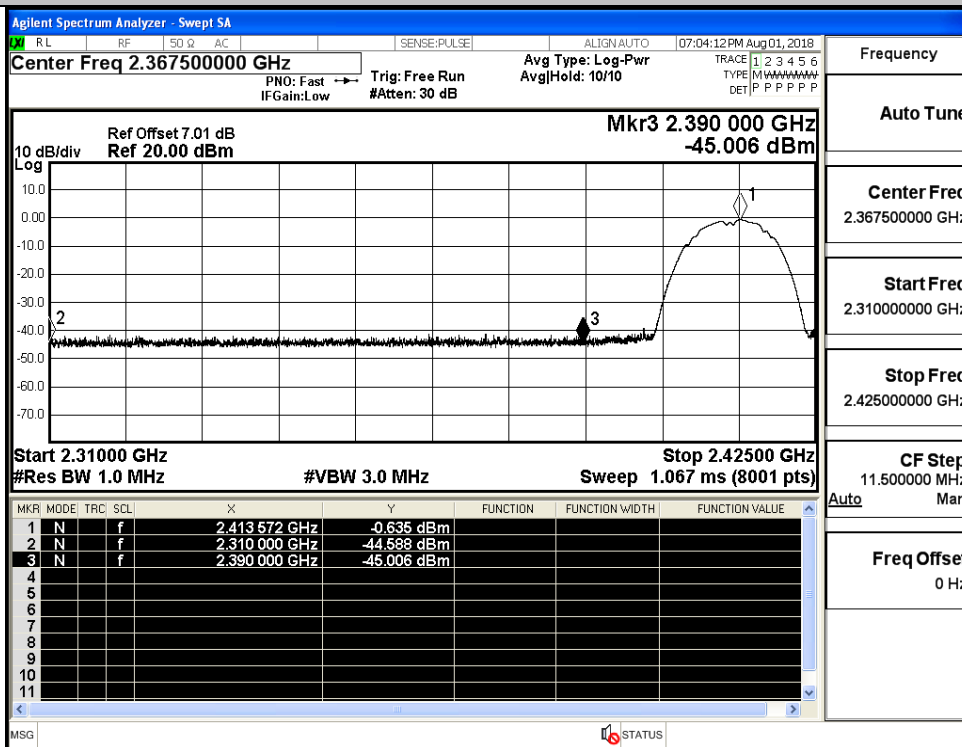
11N40SISO/HCH



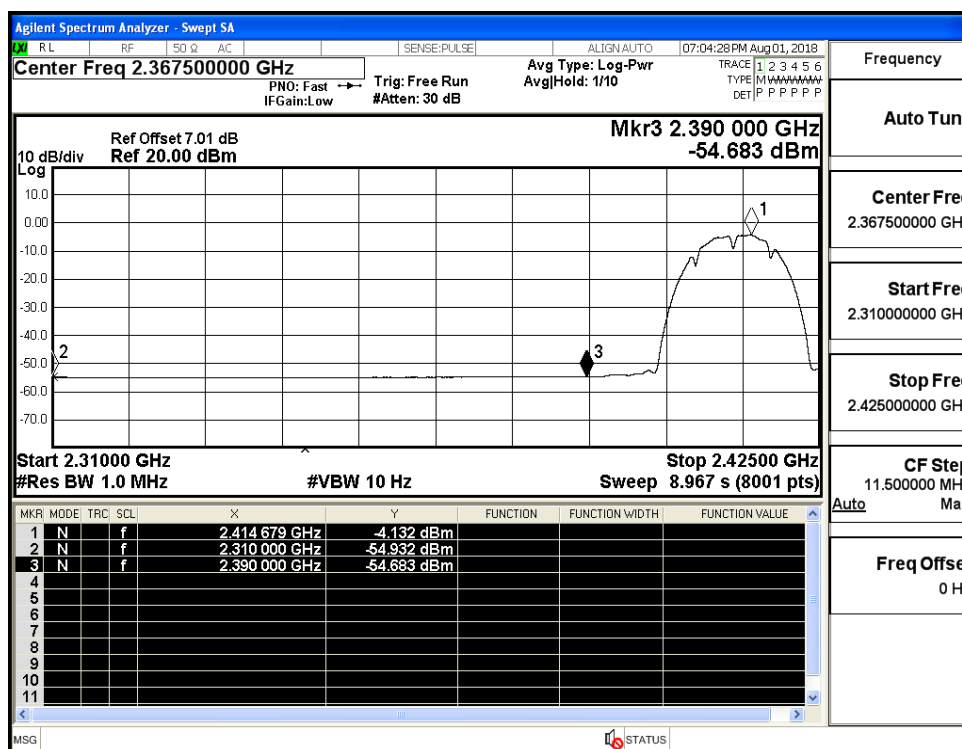
B.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-44.59	2.0	0	52.67	PEAK	74	PASS
	2412	Ant1	2310.0	-54.93	2.0	0	42.33	AV	54	PASS
	2412	Ant1	2390.0	-45.01	2.0	0	52.25	PEAK	74	PASS
	2412	Ant1	2390.0	-54.68	2.0	0	42.57	AV	54	PASS
	2462	Ant1	2483.5	-43.72	2.0	0	53.54	PEAK	74	PASS
	2462	Ant1	2483.5	-54.53	2.0	0	42.73	AV	54	PASS
	2462	Ant1	2500.0	-44.57	2.0	0	52.68	PEAK	74	PASS
	2462	Ant1	2500.0	-54.37	2.0	0	42.89	AV	54	PASS
11G	2412	Ant1	2310.0	-44.14	2.0	0	53.12	PEAK	74	PASS
	2412	Ant1	2310.0	-54.97	2.0	0	42.29	AV	54	PASS
	2412	Ant1	2390.0	-44.32	2.0	0	52.94	PEAK	74	PASS
	2412	Ant1	2390.0	-54.69	2.0	0	42.56	AV	54	PASS
	2462	Ant1	2483.5	-43.87	2.0	0	53.39	PEAK	74	PASS
	2462	Ant1	2483.5	-54.44	2.0	0	42.82	AV	54	PASS
	2462	Ant1	2500.0	-43.83	2.0	0	53.43	PEAK	74	PASS
	2462	Ant1	2500.0	-54.34	2.0	0	42.92	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-44.32	2.0	0	52.93	PEAK	74	PASS
	2412	Ant1	2310.0	-54.92	2.0	0	42.34	AV	54	PASS
	2412	Ant1	2390.0	-44.60	2.0	0	52.66	PEAK	74	PASS
	2412	Ant1	2390.0	-54.69	2.0	0	42.57	AV	54	PASS
	2462	Ant1	2483.5	-43.96	2.0	0	53.30	PEAK	74	PASS
	2462	Ant1	2483.5	-54.46	2.0	0	42.79	AV	54	PASS
	2462	Ant1	2500.0	-42.89	2.0	0	54.37	PEAK	74	PASS
	2462	Ant1	2500.0	-54.35	2.0	0	42.91	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.90	2.0	0	53.36	PEAK	74	PASS
	2422	Ant1	2310.0	-54.95	2.0	0	42.31	AV	54	PASS
	2422	Ant1	2390.0	-44.75	2.0	0	52.50	PEAK	74	PASS
	2422	Ant1	2390.0	-54.67	2.0	0	42.59	AV	54	PASS
	2452	Ant1	2483.5	-44.48	2.0	0	52.78	PEAK	74	PASS
	2452	Ant1	2483.5	-54.50	2.0	0	42.76	AV	54	PASS
	2452	Ant1	2500.0	-44.08	2.0	0	53.17	PEAK	74	PASS
	2452	Ant1	2500.0	-54.33	2.0	0	42.92	AV	54	PASS

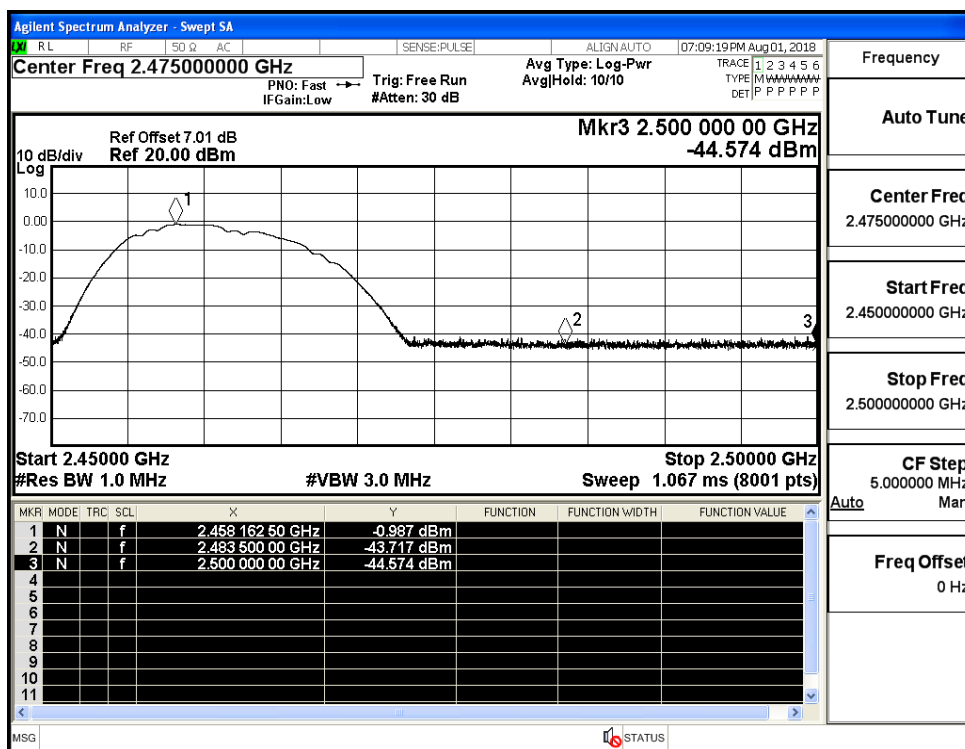
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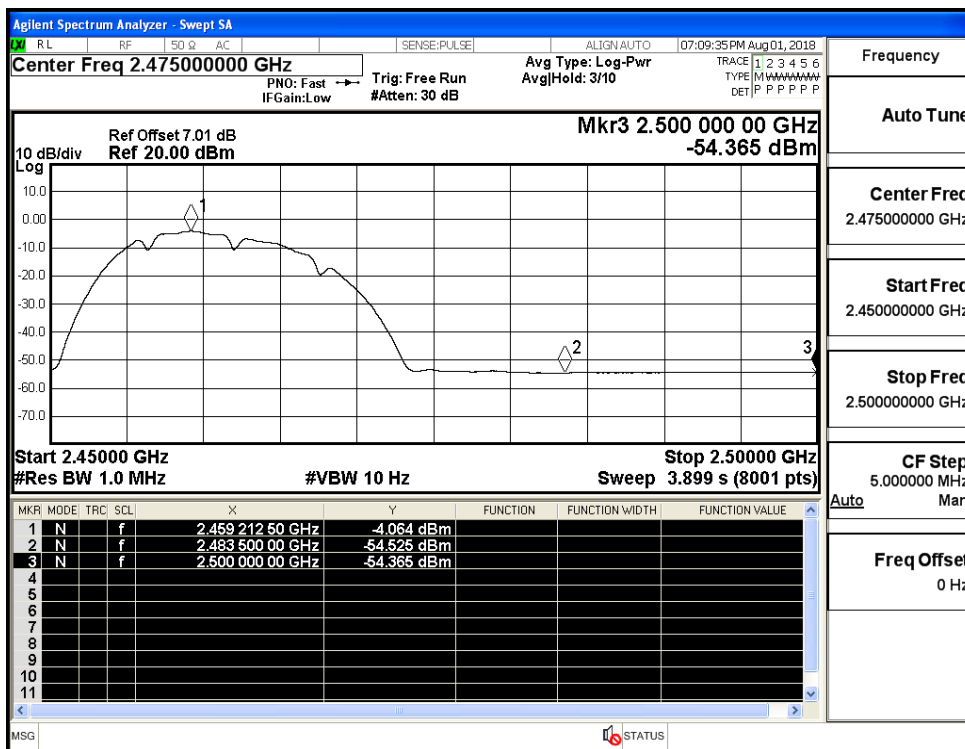
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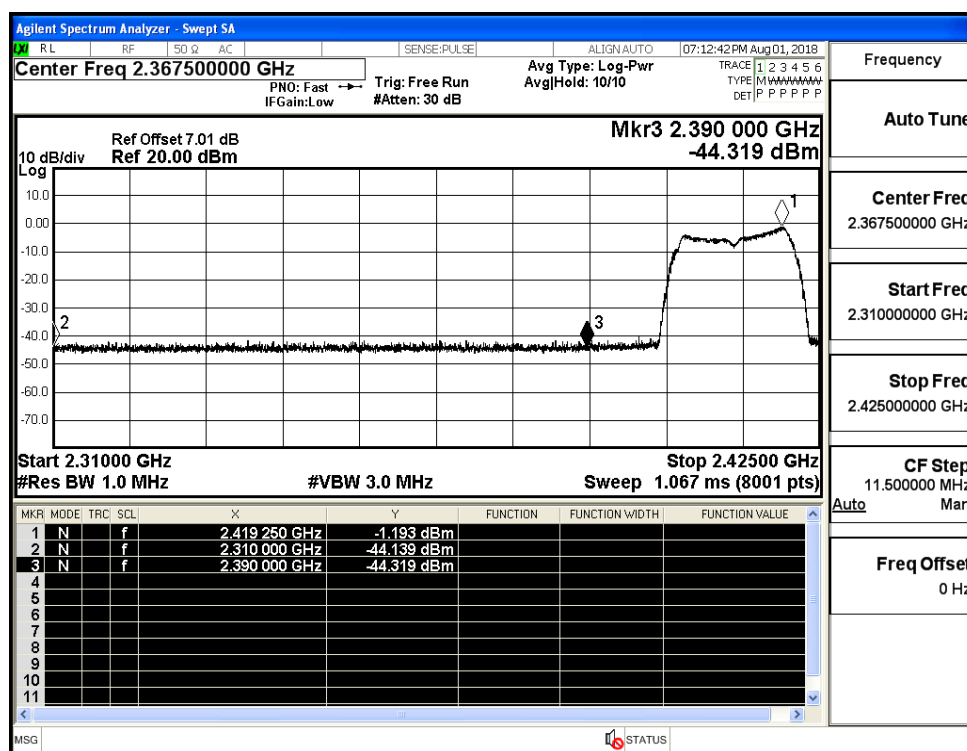
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



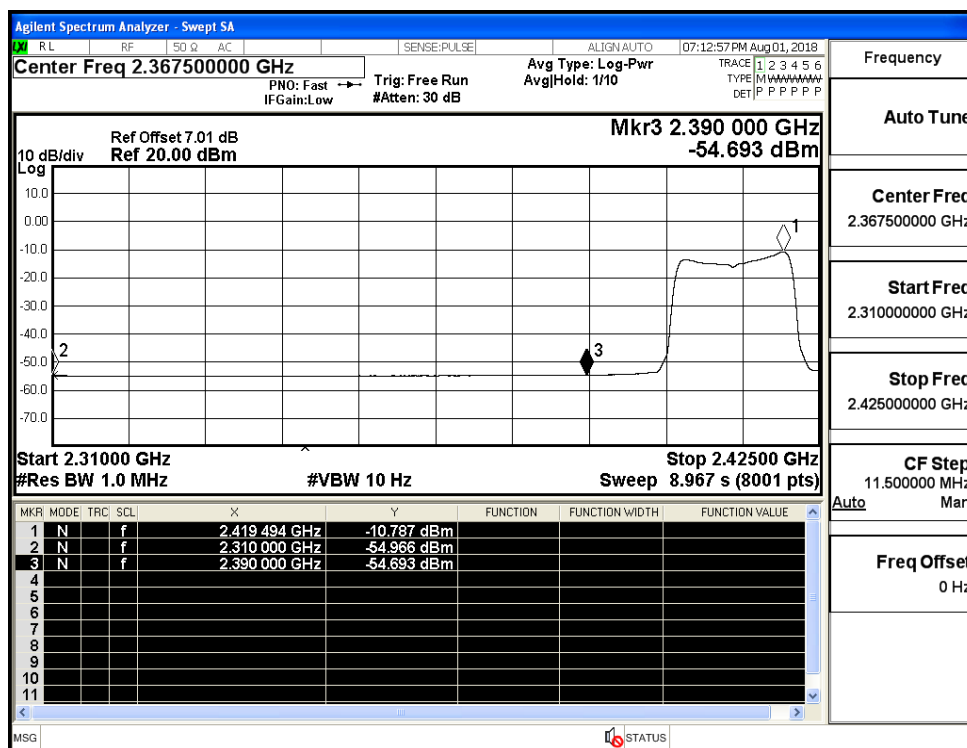
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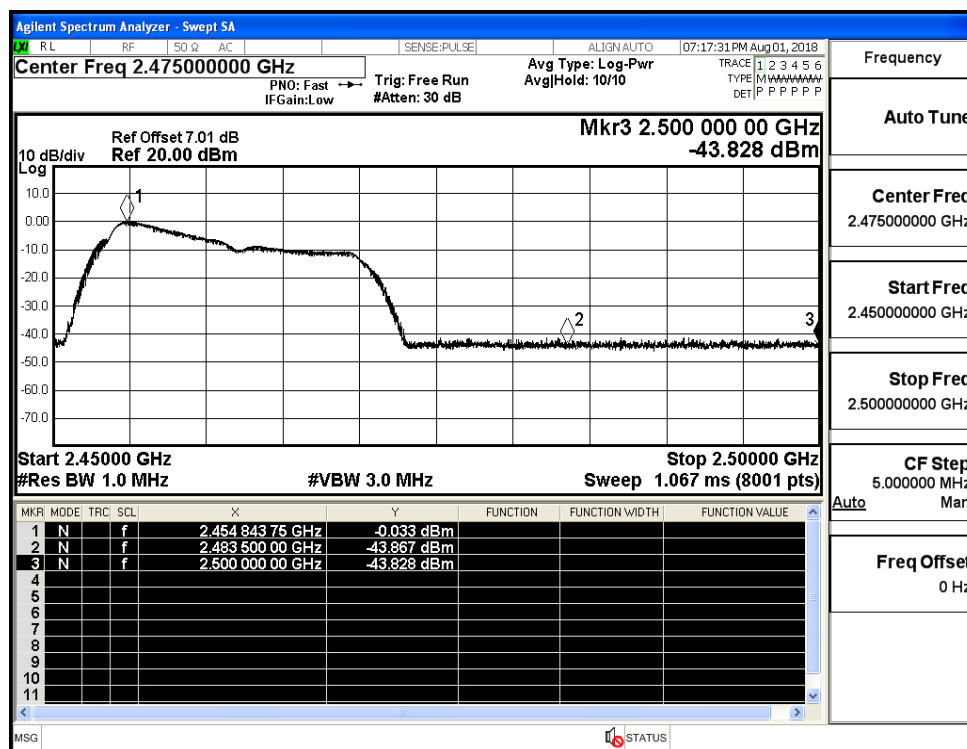
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



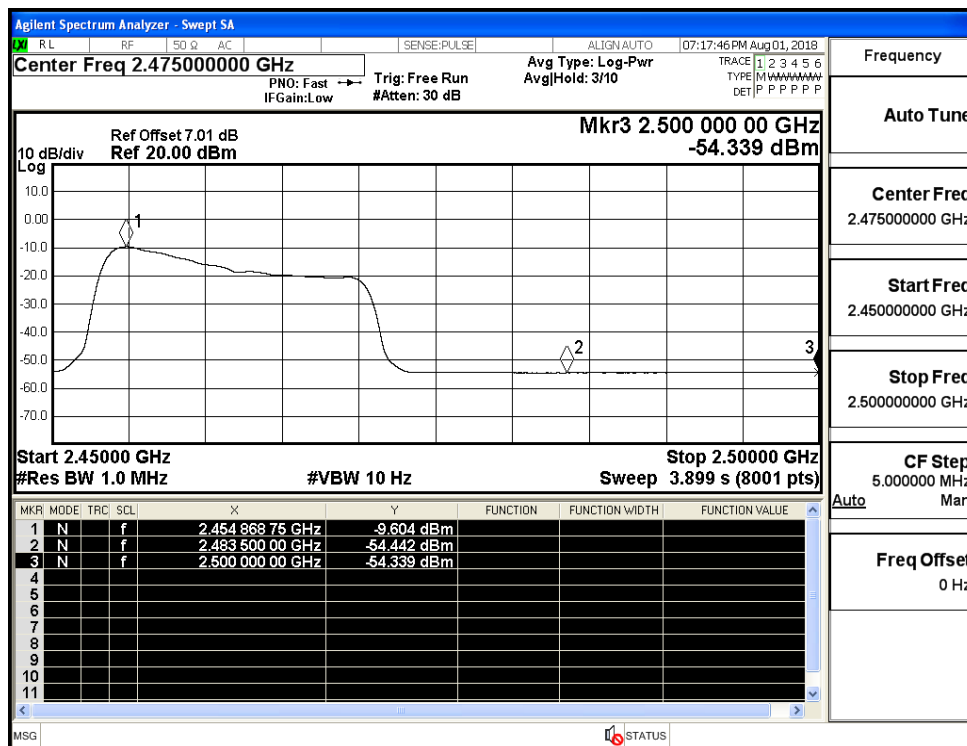
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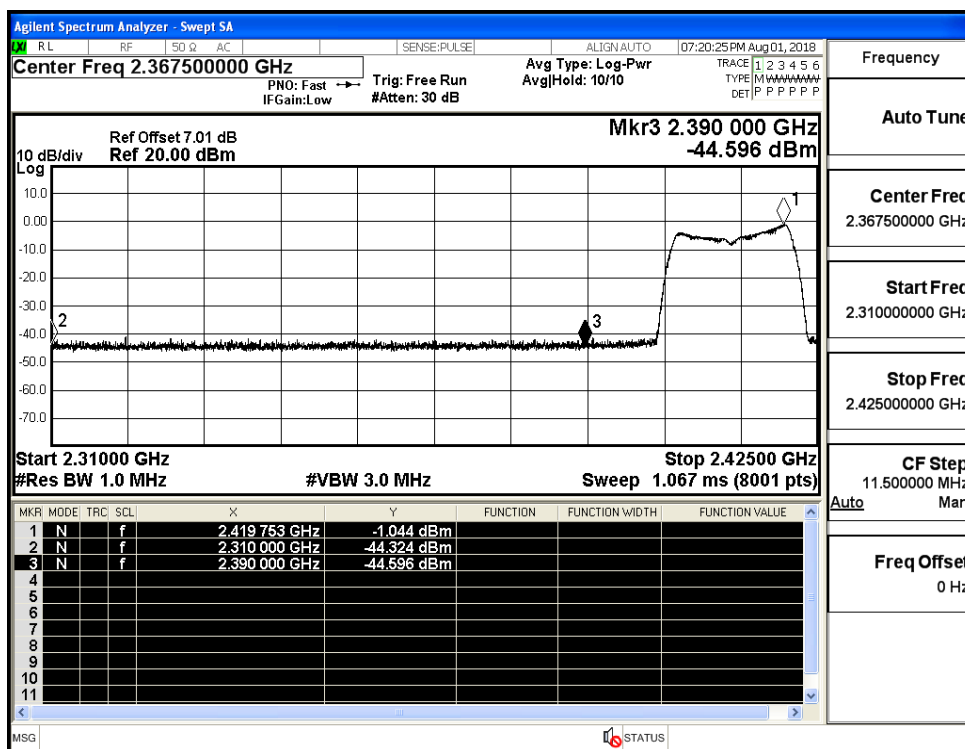
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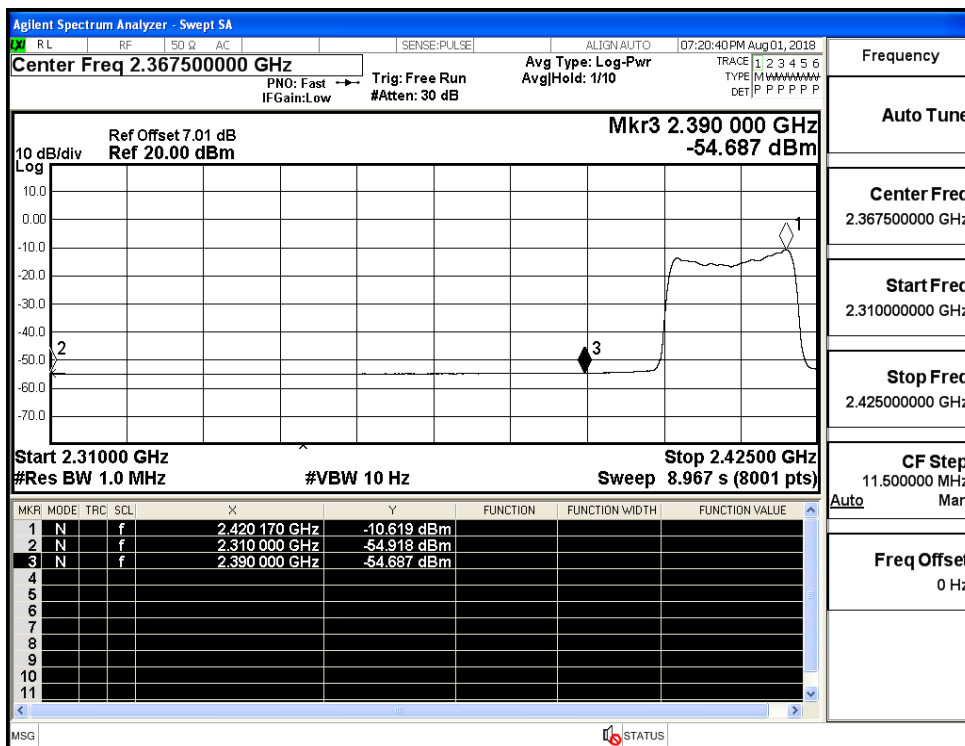
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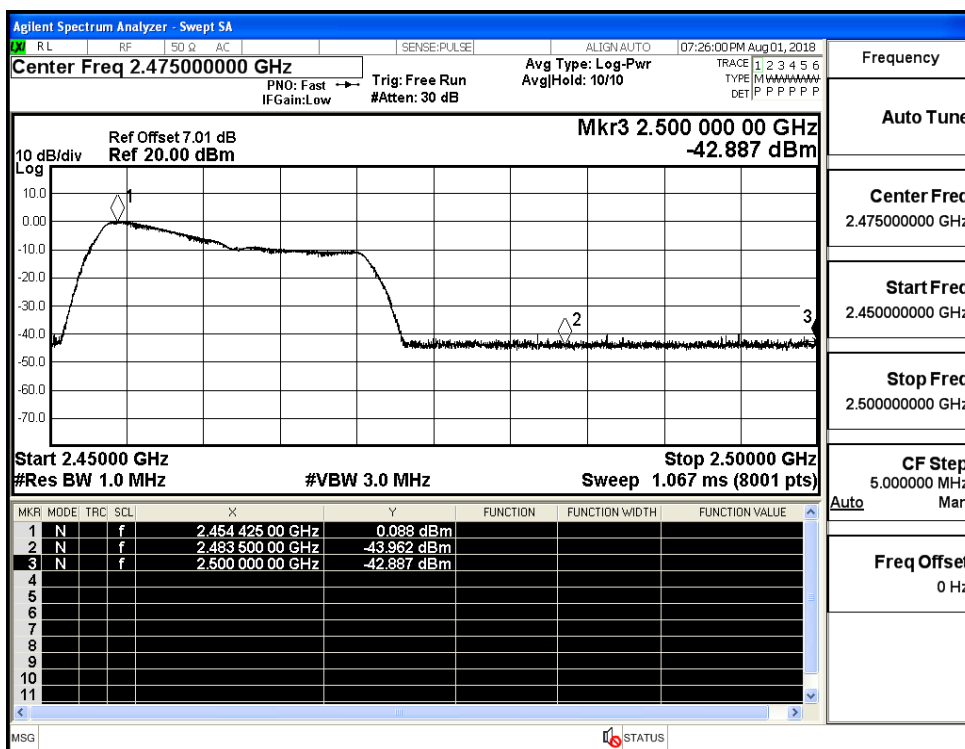
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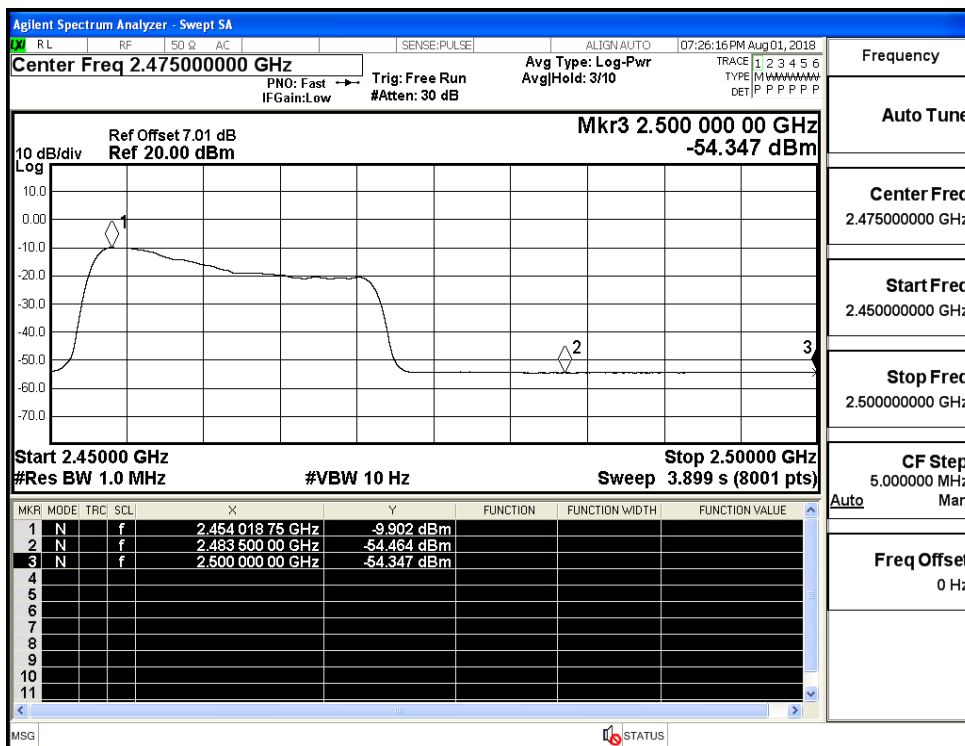
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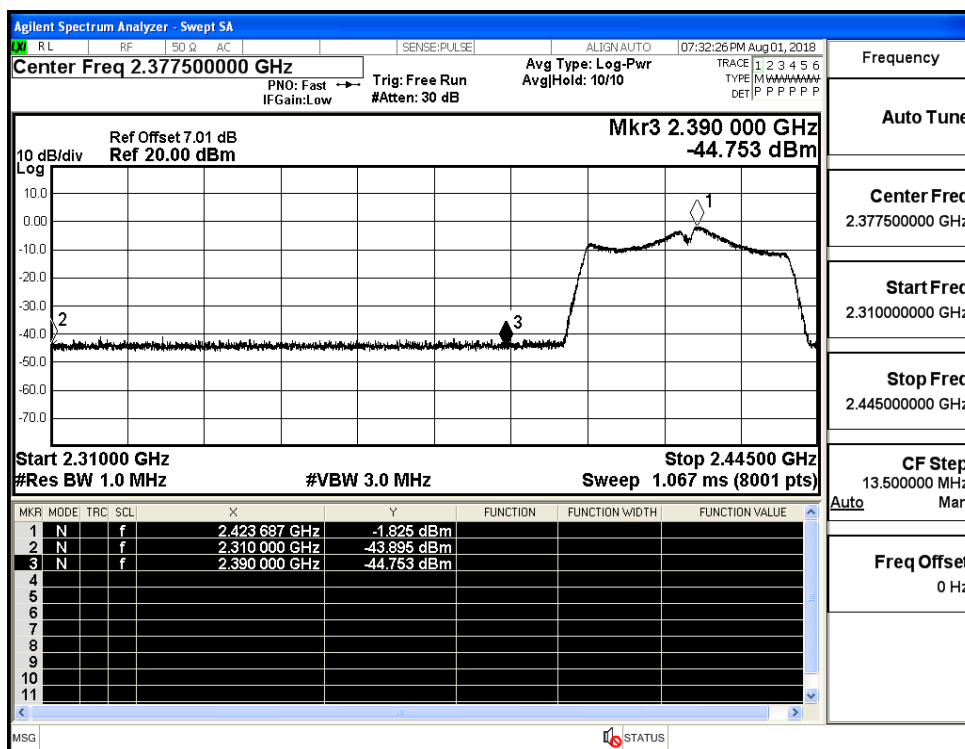
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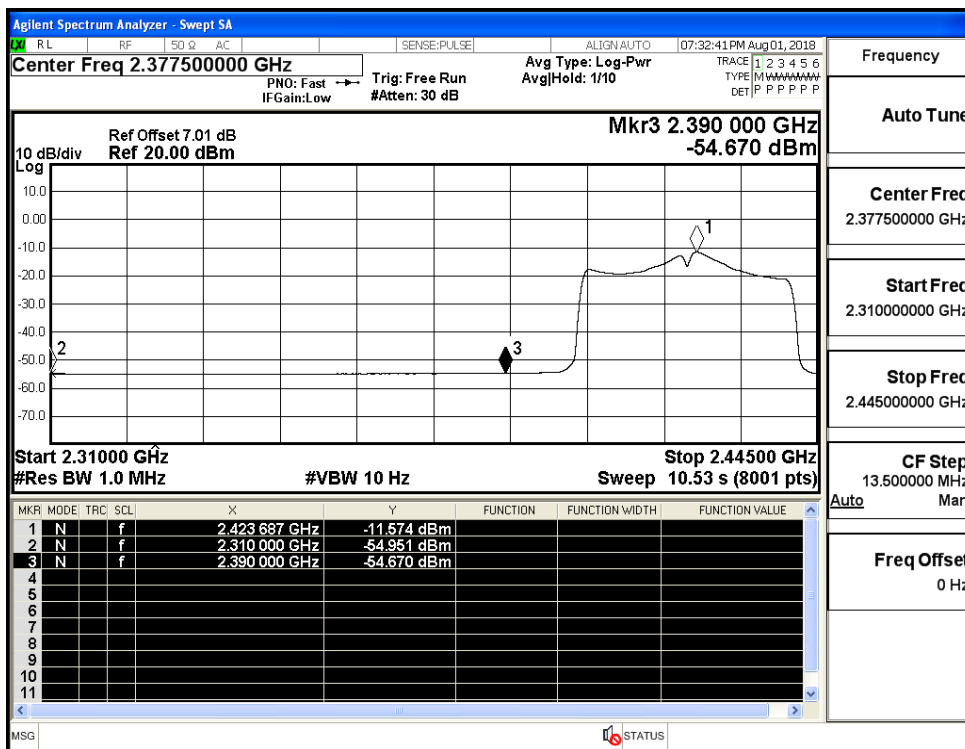
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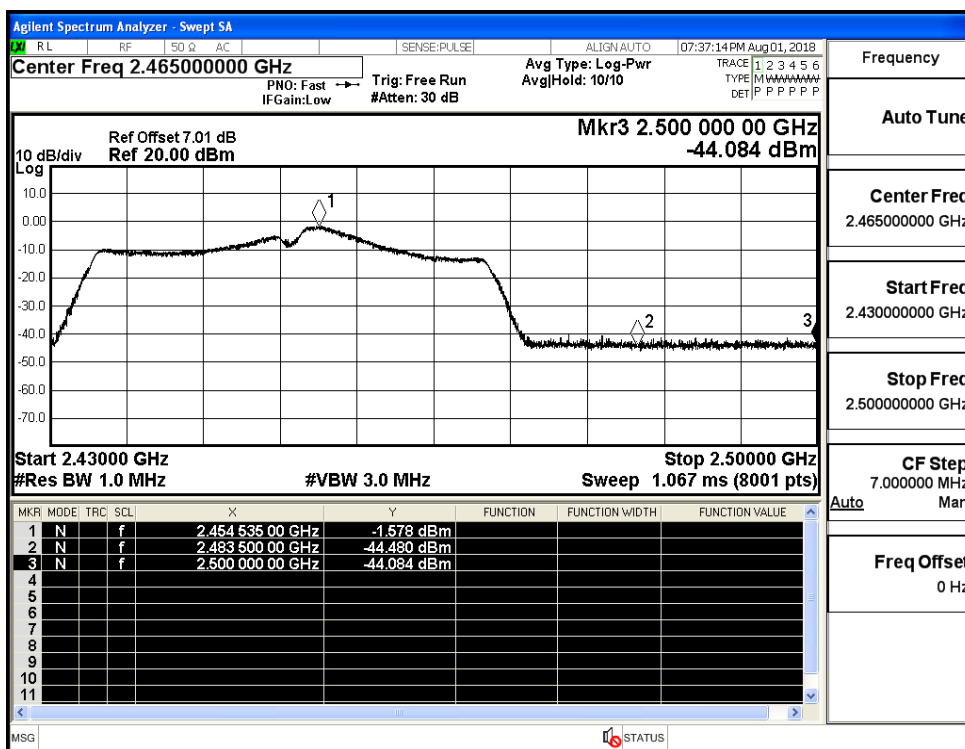
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

