

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Facial Scan Camera with Temperature Control System

Trade Mark: N/A

Test Model: LKS-TM001A

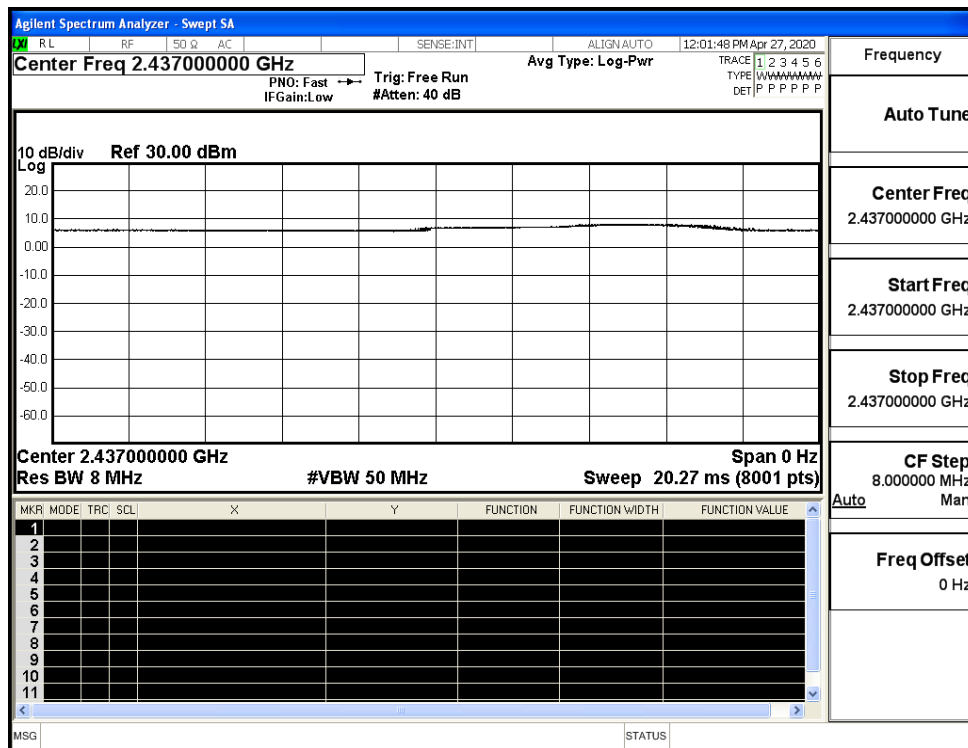
Environmental Conditions

Temperature:	23.6° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Qu Xin
Supervised by:	Li Huan

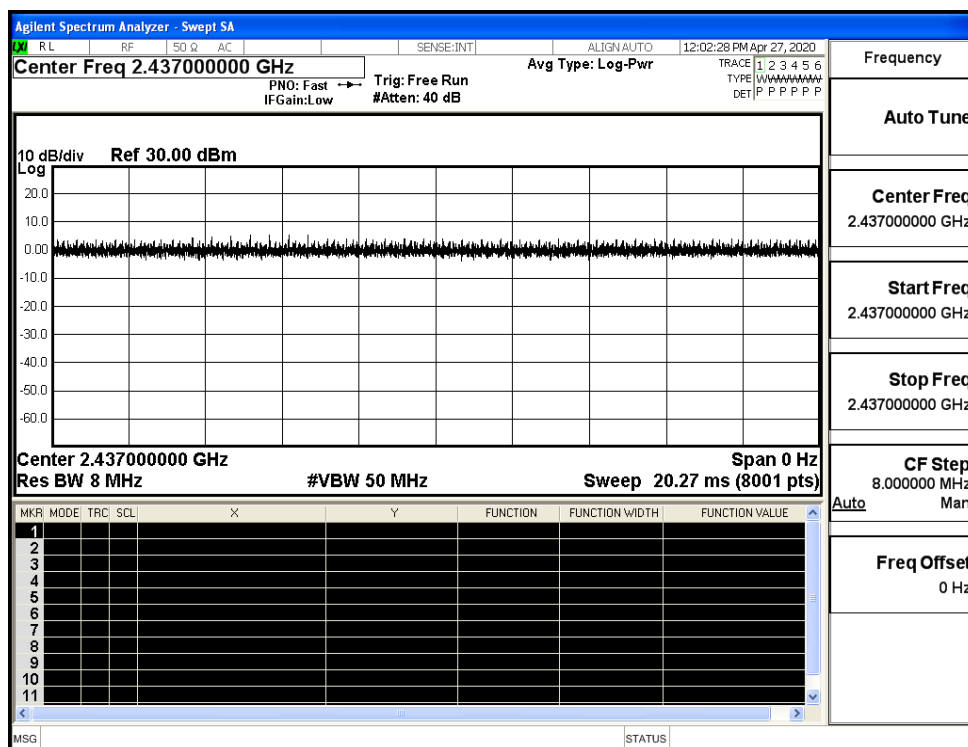
C.1 Duty Cycle

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

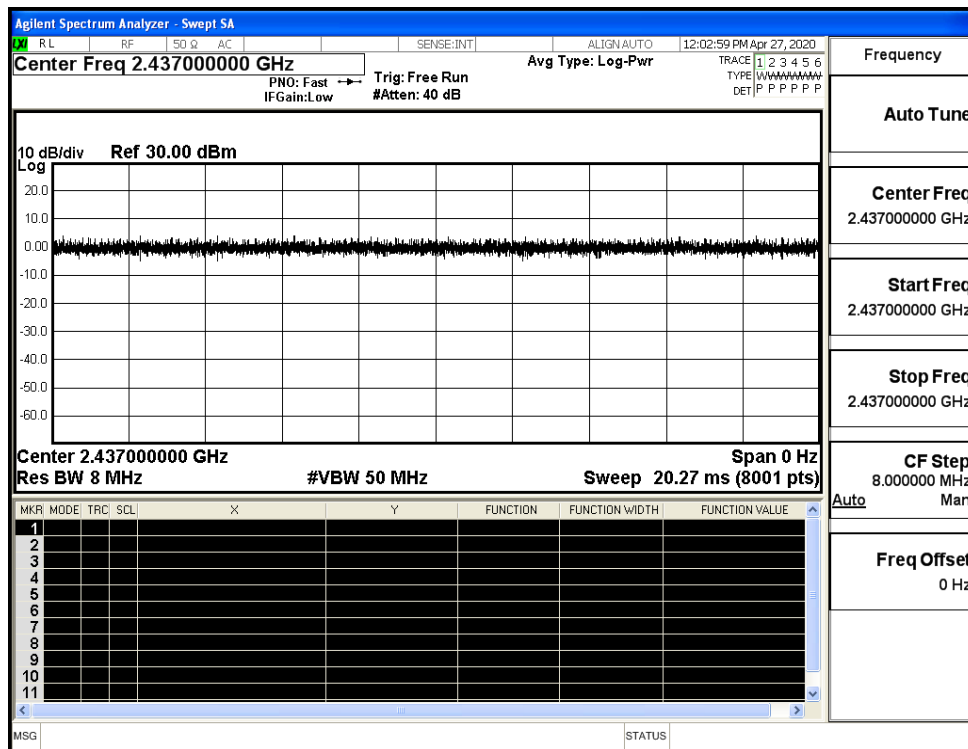
Duty Cycle_11B_2437_Ant1



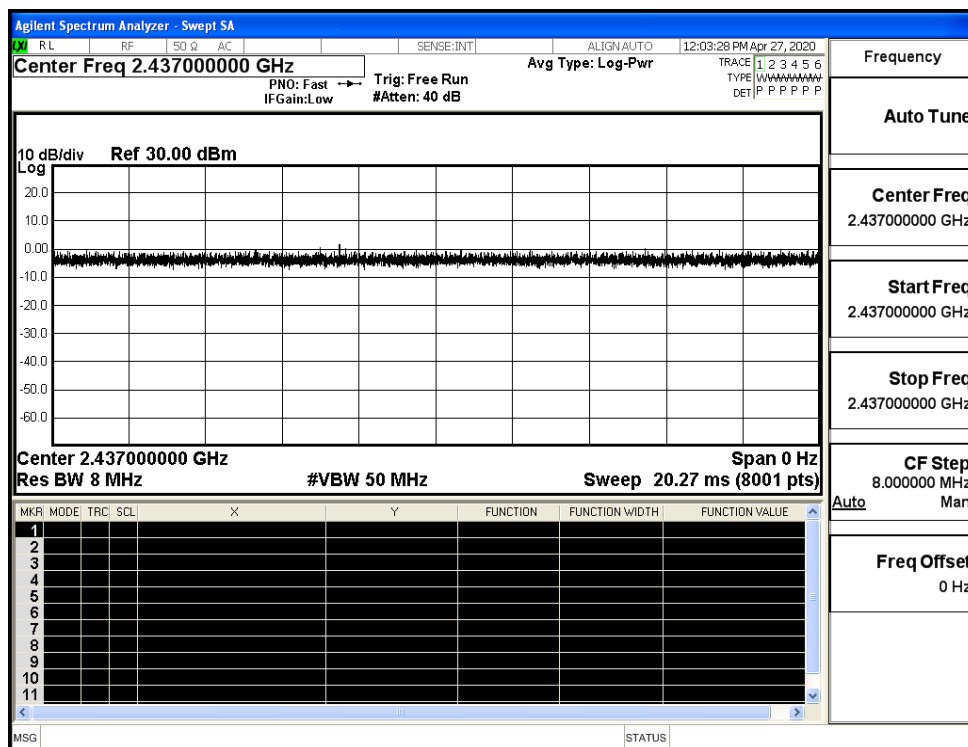
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



C.2 Maximum Conducted Output Power

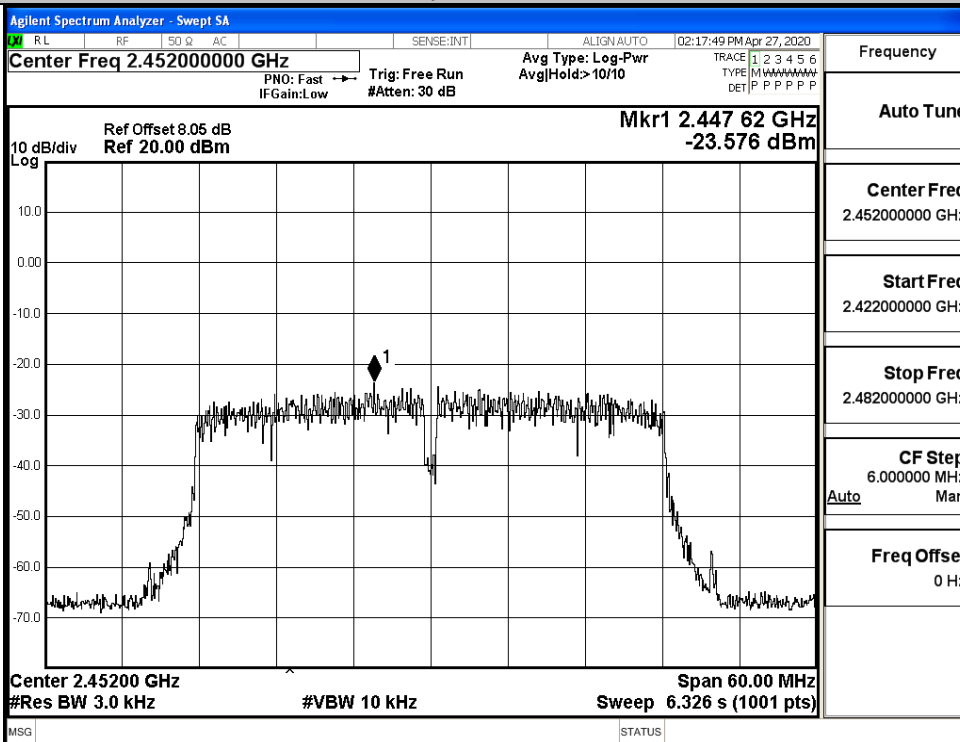
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	12.53	30	PASS
	MCH	12.61	30	PASS
	HCH	12.28	30	PASS
11G	LCH	13.67	30	PASS
	MCH	13.85	30	PASS
	HCH	13.63	30	PASS
11N20SISO	LCH	12.84	30	PASS
	MCH	12.83	30	PASS
	HCH	12.57	30	PASS
11N40SISO	LCH	13.16	30	PASS
	MCH	12.06	30	PASS
	HCH	11.52	30	PASS

C.3 Maximum Power Spectral Density

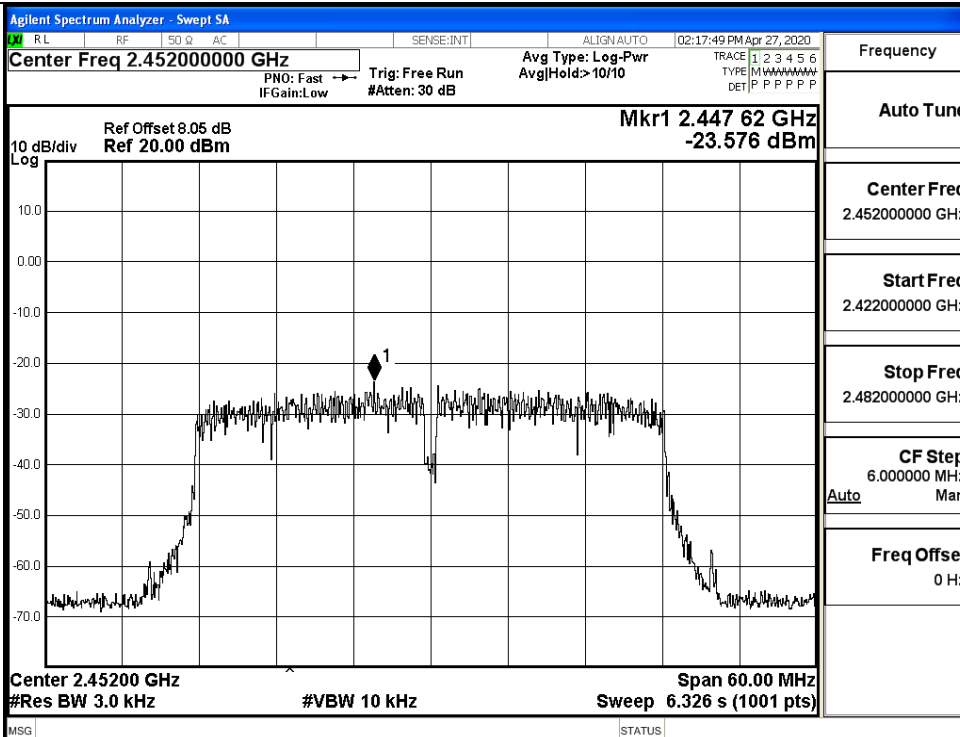
Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-15.233	8	PASS
	MCH	-15.947	8	PASS
	HCH	-14.496	8	PASS
11G	LCH	-18.952	8	PASS
	MCH	-19.028	8	PASS
	HCH	-21.193	8	PASS
11N20SISO	LCH	-21.916	8	PASS
	MCH	-21.343	8	PASS
	HCH	-21.333	8	PASS
11N40SISO	LCH	-25.910	8	PASS
	MCH	-24.880	8	PASS
	HCH	-23.576	8	PASS

Test Graphs

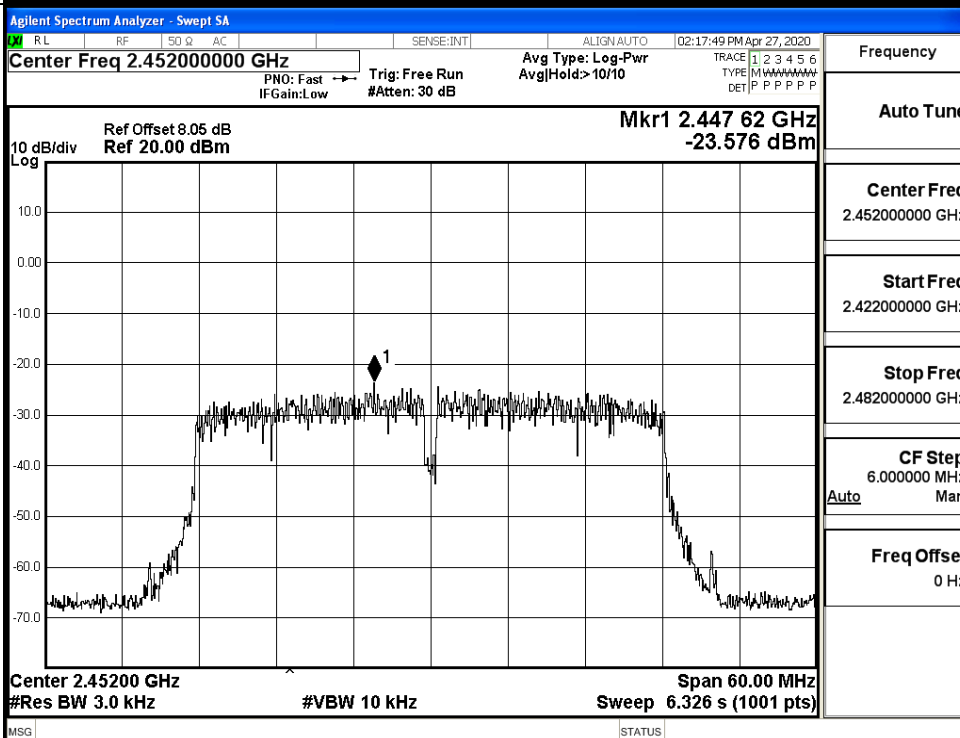
11B/LCH



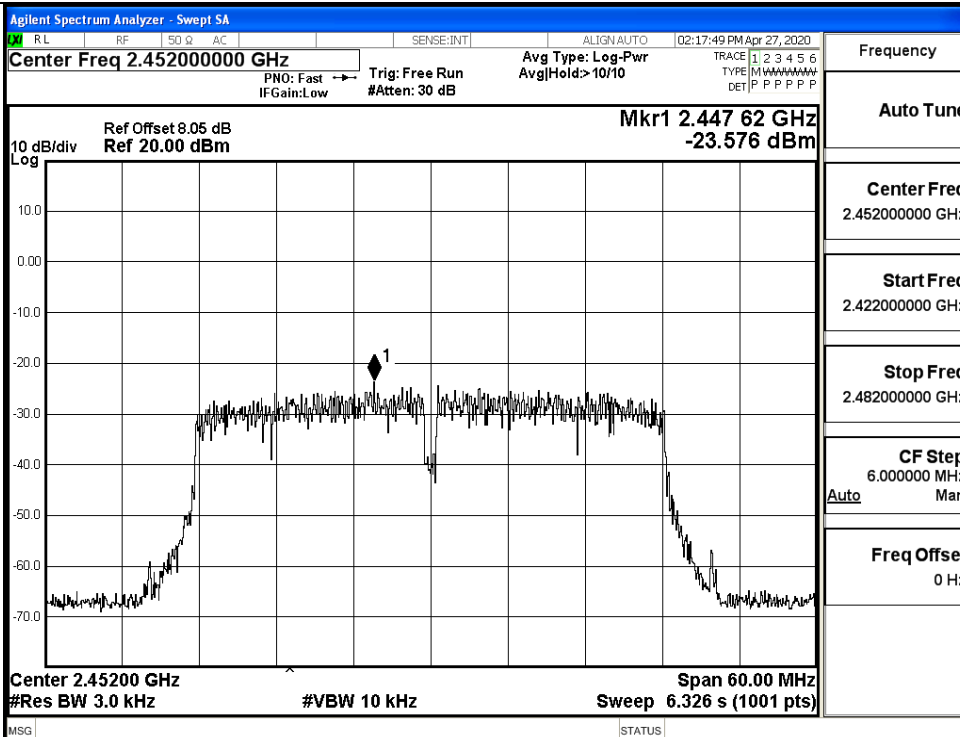
11B/MCH



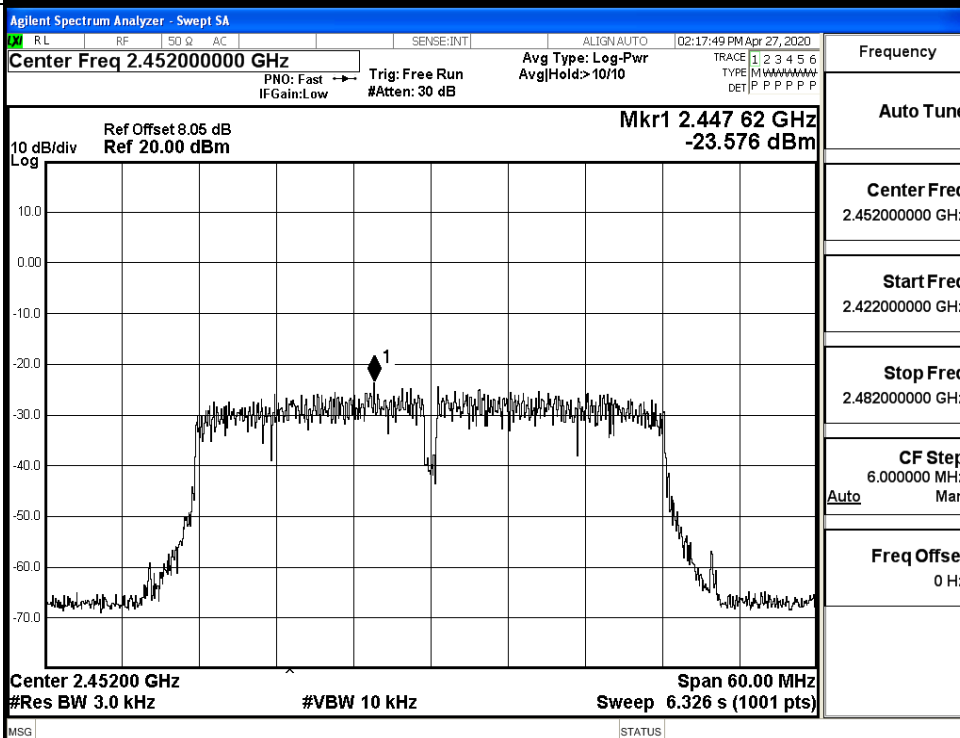
11B/HCH



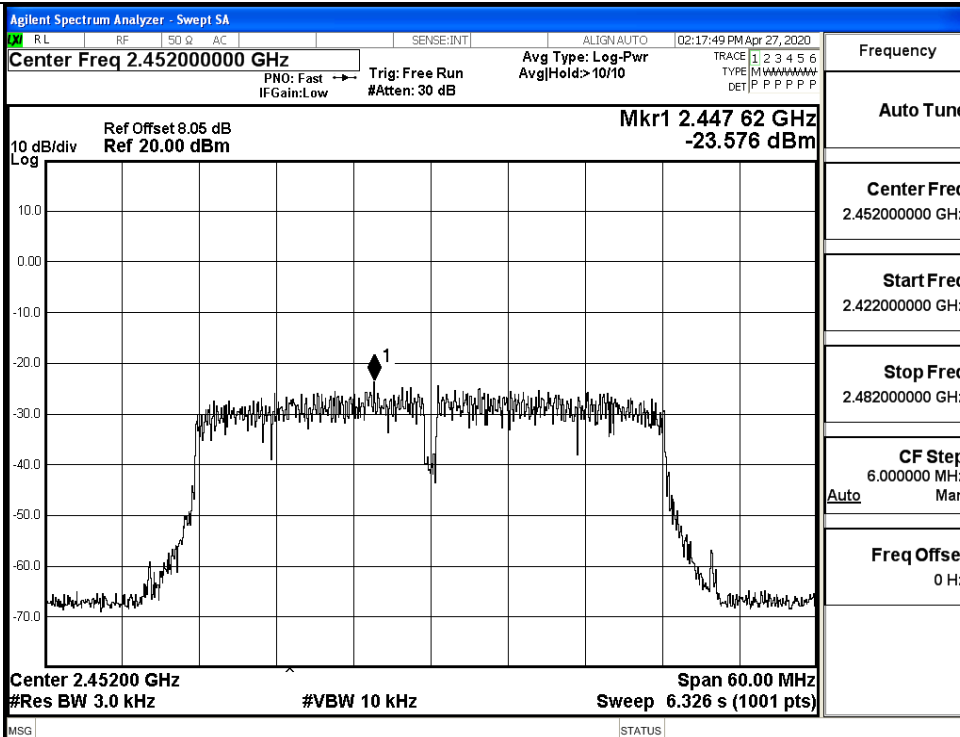
11G/LCH



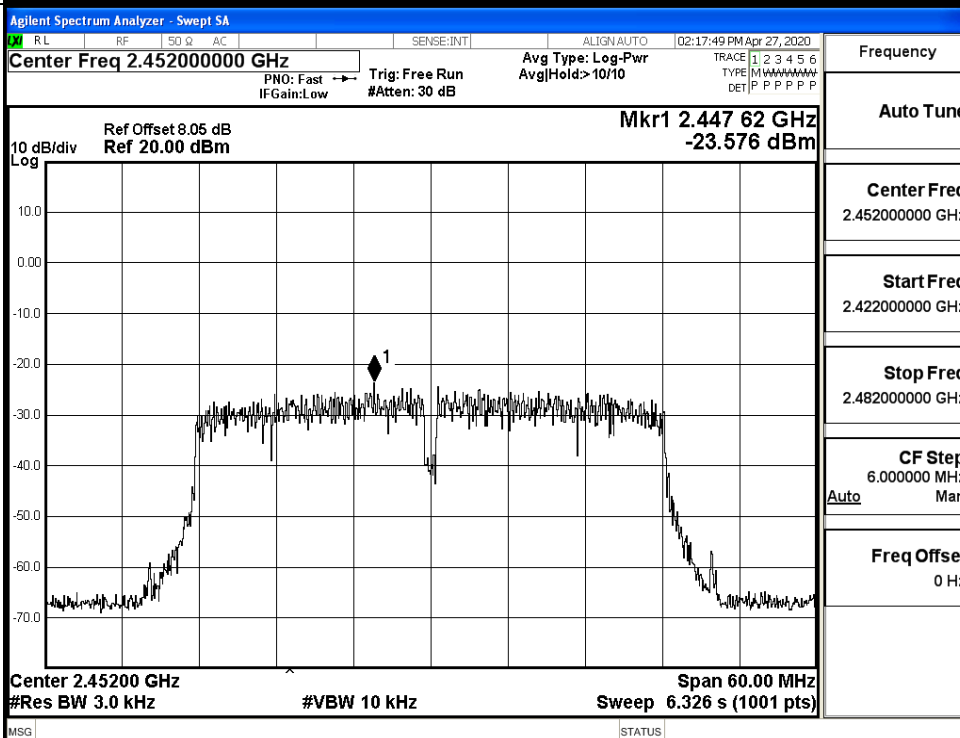
11G/MCH

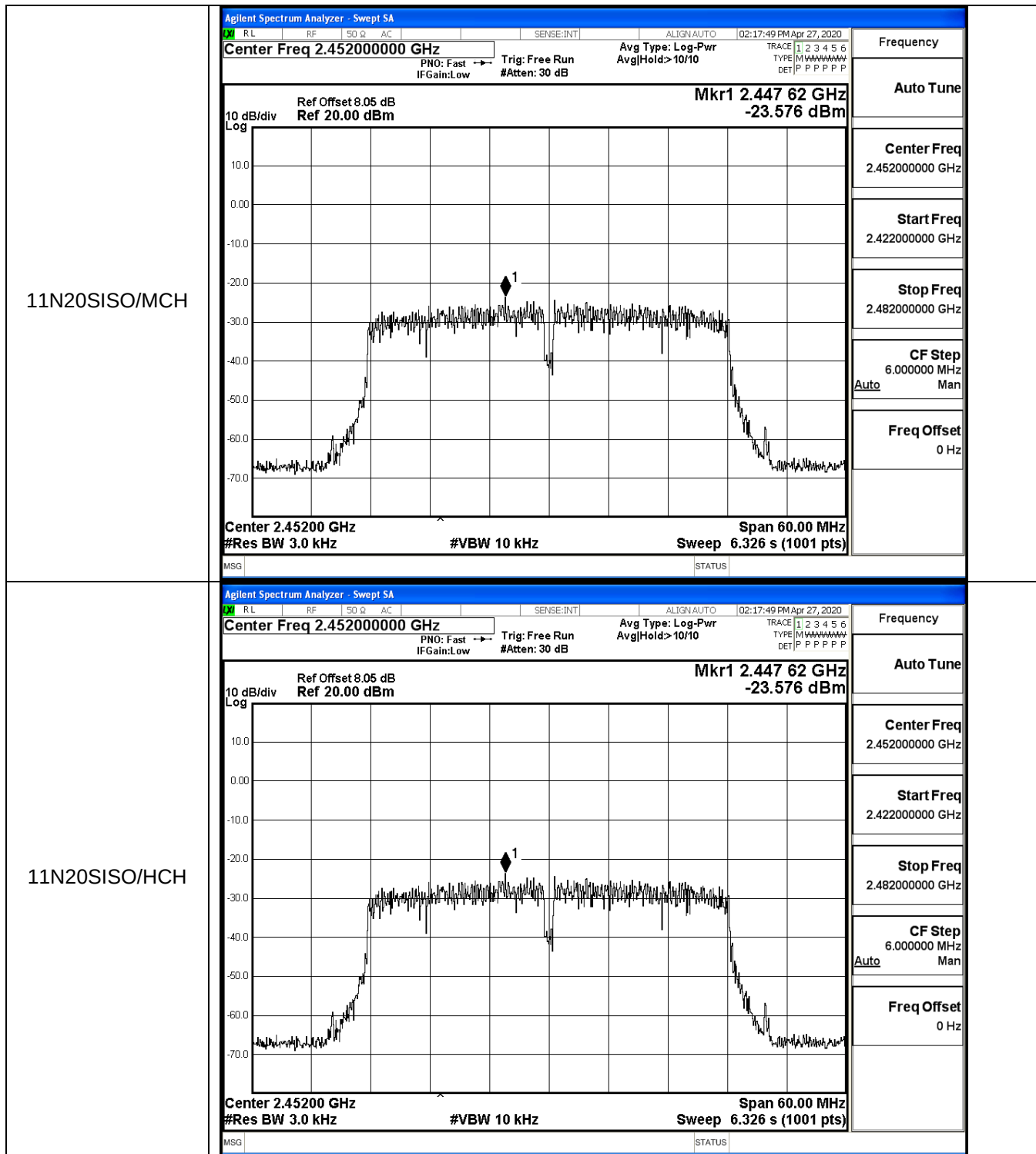


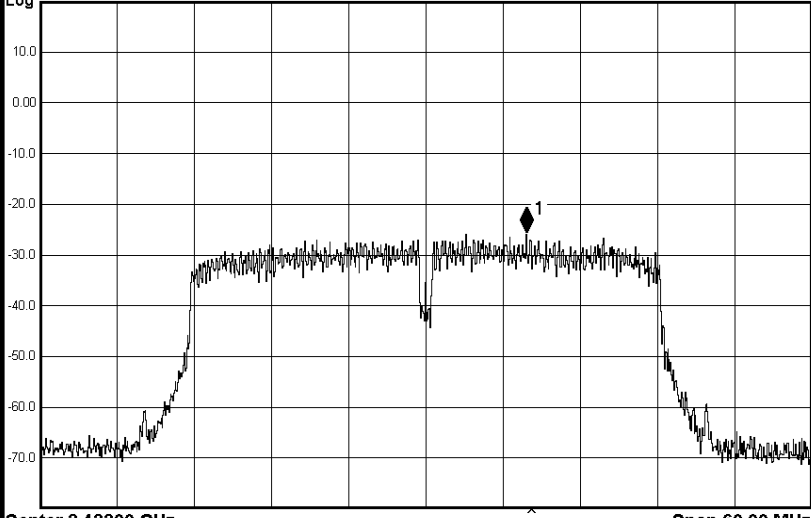
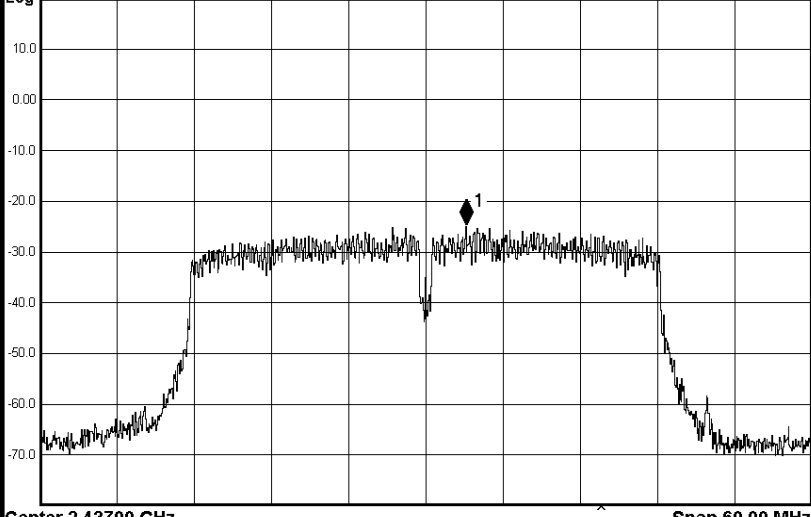
11G/HCH



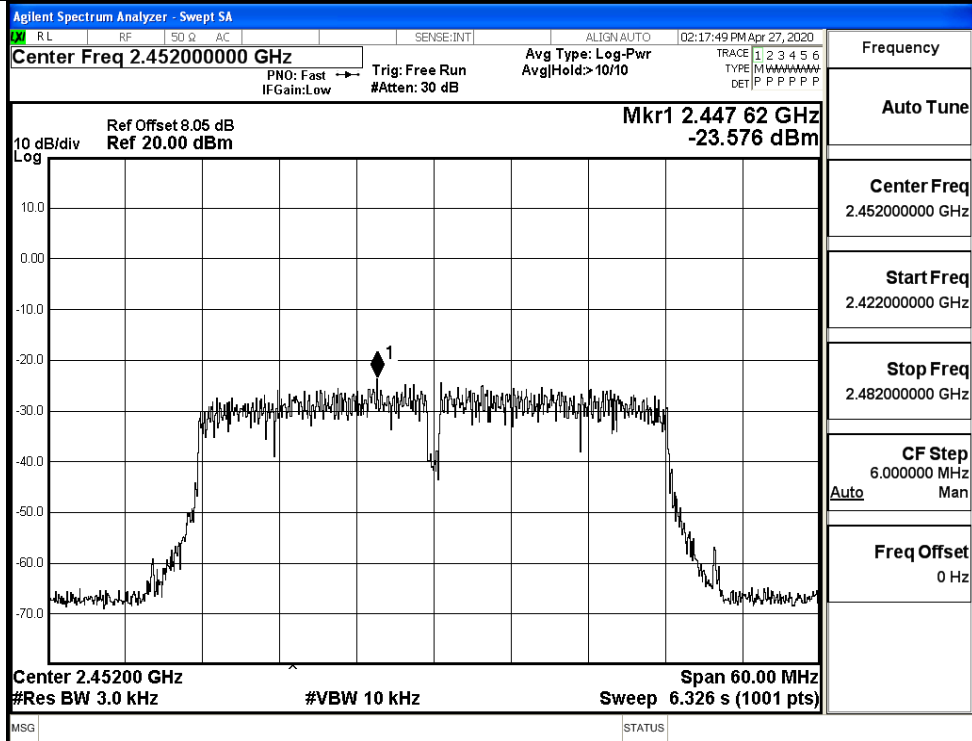
11N20SISO/LCH





11N40SISO/LCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:15:05 PM Apr 27, 2020 Center Freq 2.422000000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 1/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.429 80 GHz -25.910 dBm  Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts) Frequency Auto Tune Center Freq 2.422000000 GHz Start Freq 2.392000000 GHz Stop Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:15:43 PM Apr 27, 2020 Center Freq 2.437000000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 2/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.440 12 GHz -24.880 dBm  Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts) Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.407000000 GHz Stop Freq 2.467000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

11N40SISO/HCH

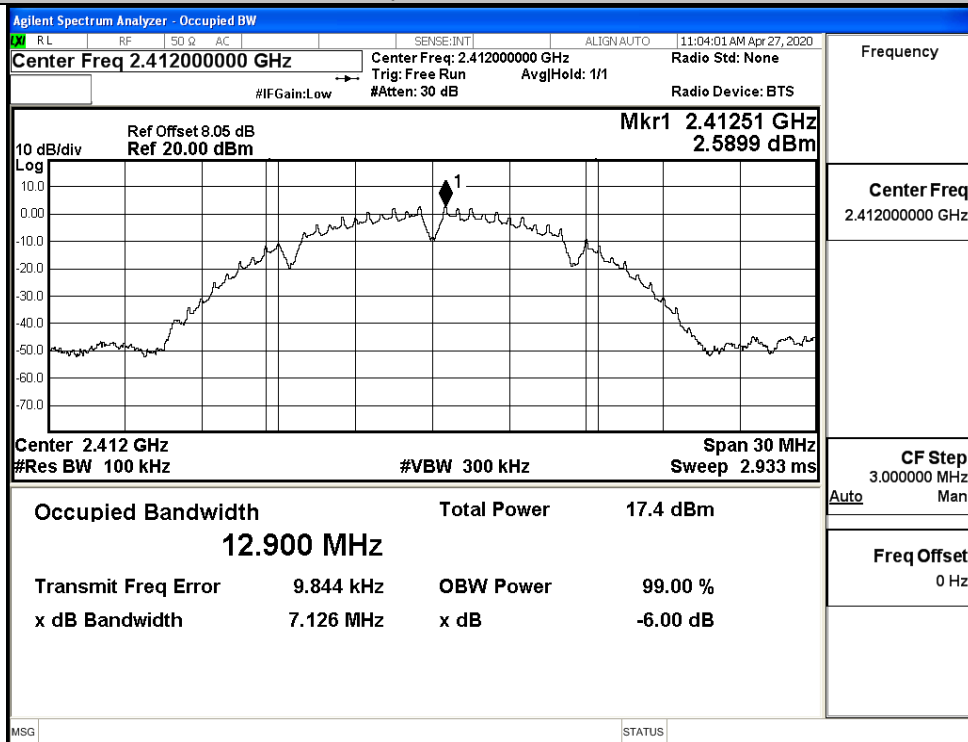


C.4 6dB Bandwidth

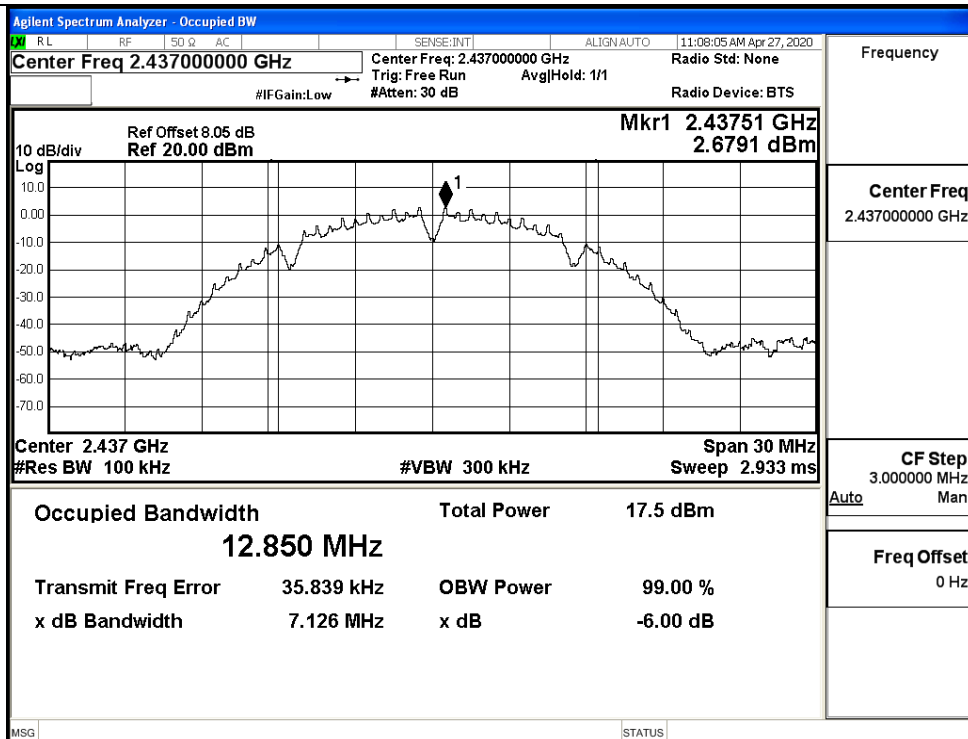
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	7.126	≥ 0.5	PASS
	MCH	7.126	≥ 0.5	PASS
	HCH	7.126	≥ 0.5	PASS
11G	LCH	15.16	≥ 0.5	PASS
	MCH	15.13	≥ 0.5	PASS
	HCH	15.16	≥ 0.5	PASS
11N20SISO	LCH	15.48	≥ 0.5	PASS
	MCH	15.08	≥ 0.5	PASS
	HCH	15.16	≥ 0.5	PASS
11N40SISO	LCH	35.18	≥ 0.5	PASS
	MCH	35.16	≥ 0.5	PASS
	HCH	35.18	≥ 0.5	PASS

Test Graphs

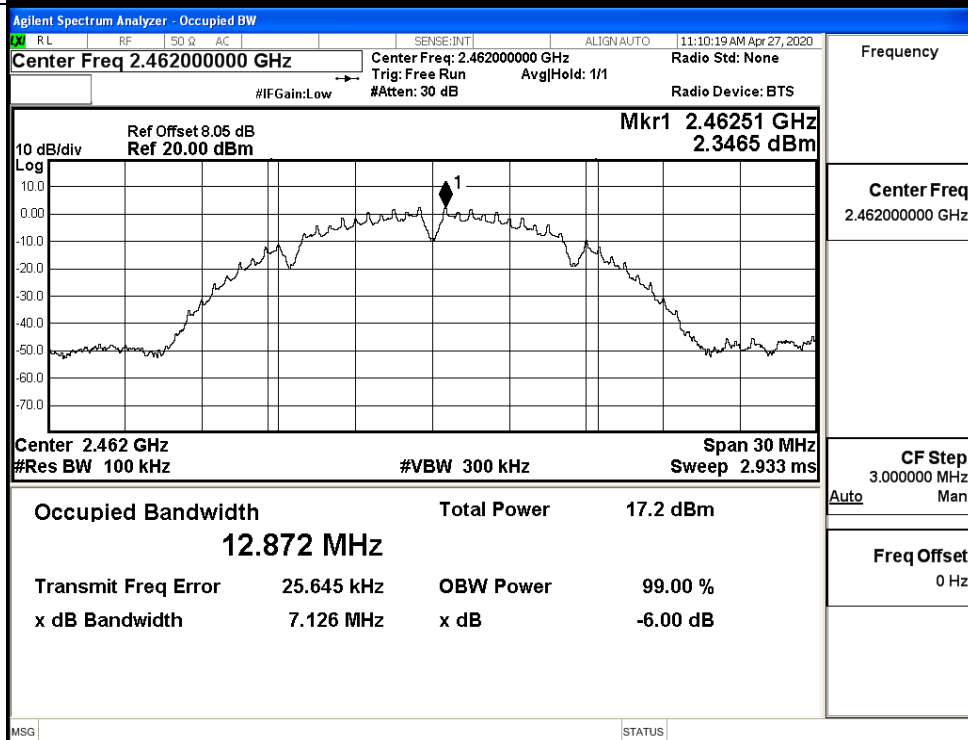
11B/LCH



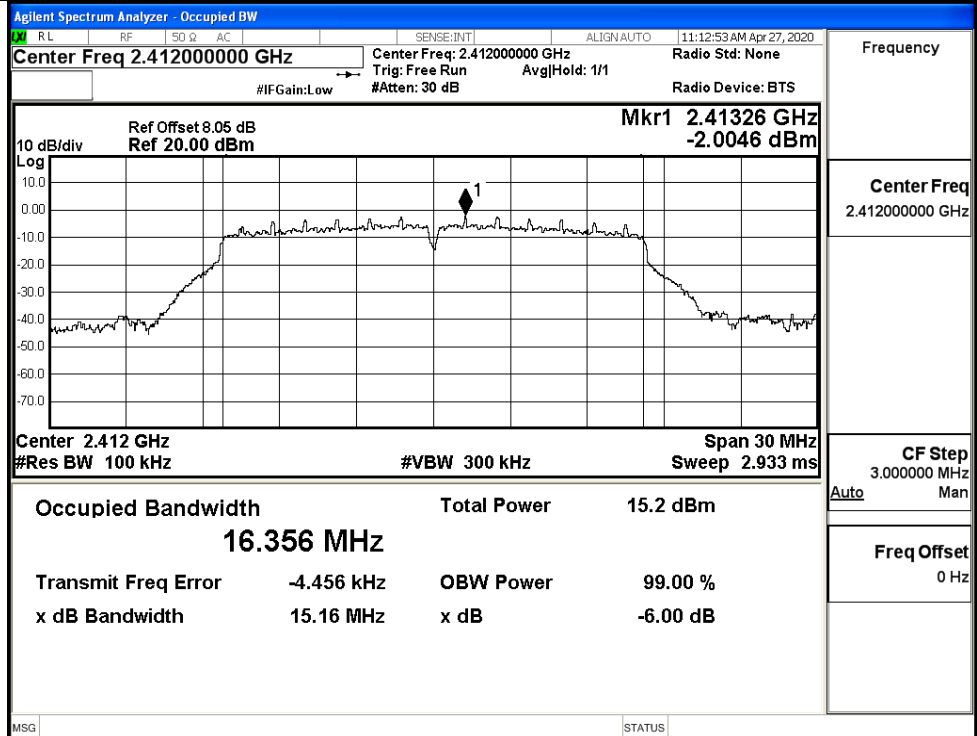
11B/MCH



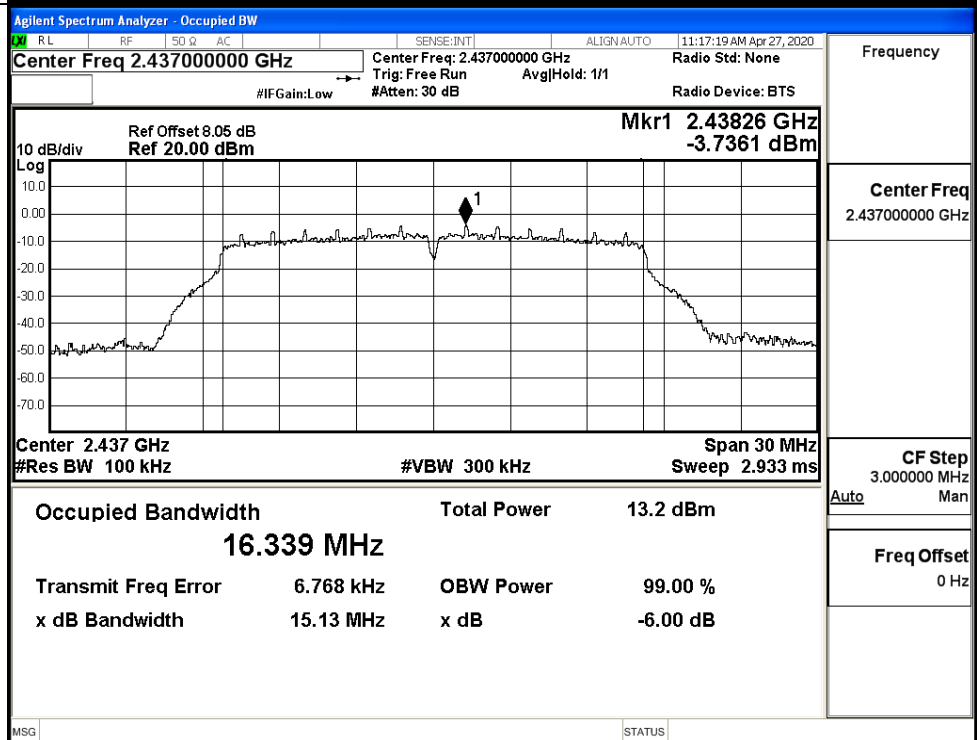
11B/HCH



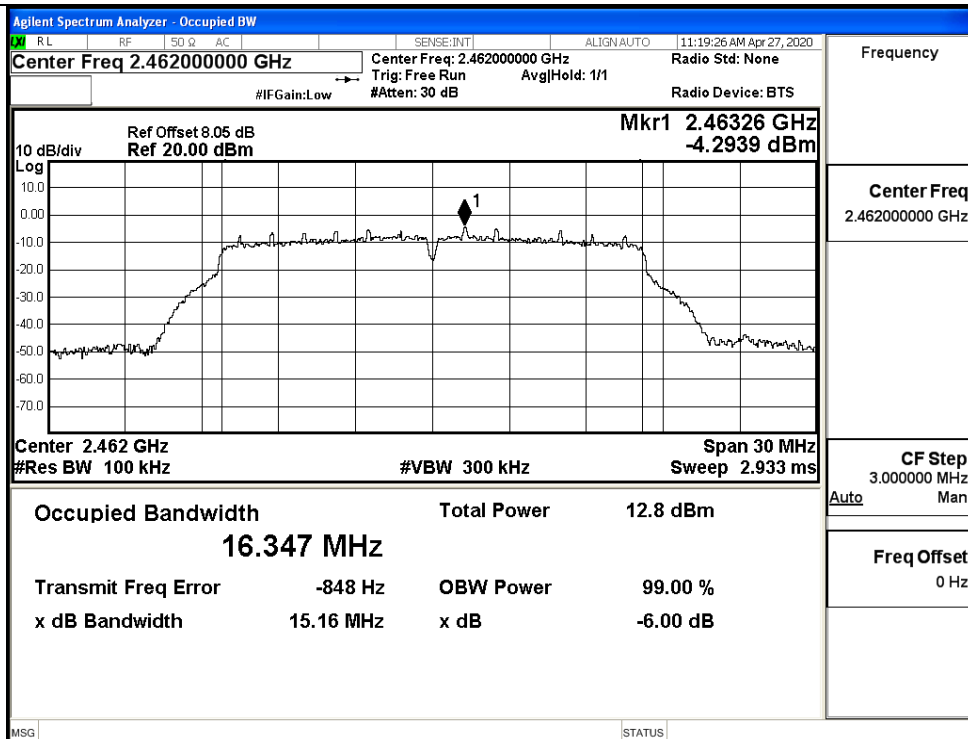
11G/LCH



11G/MCH



11G/HCH



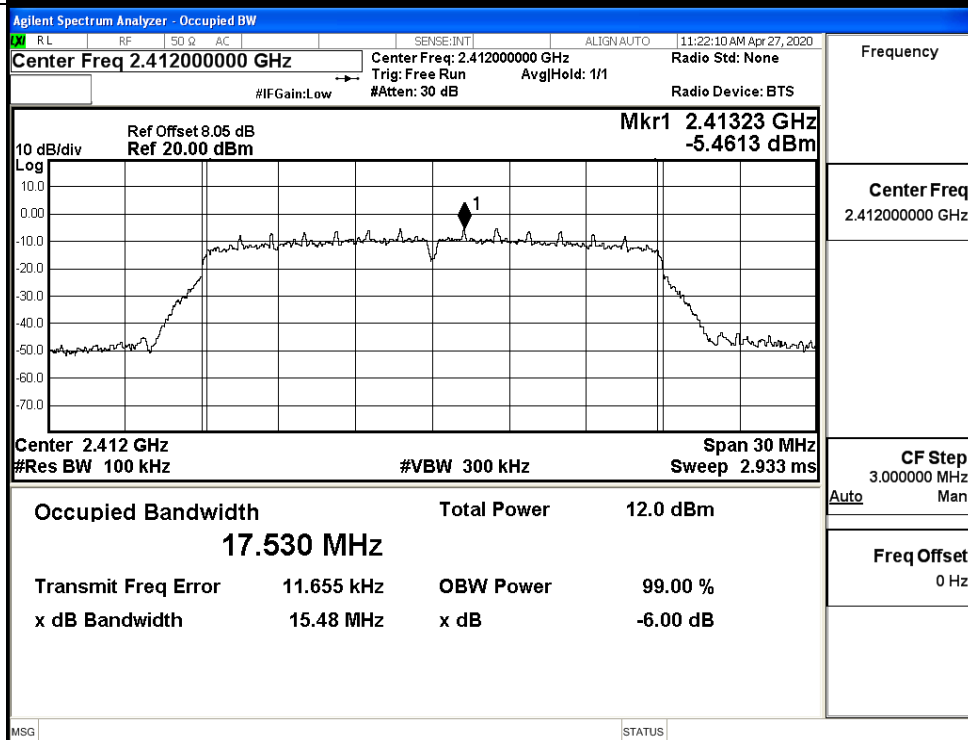
Frequency

Center Freq
2.46200000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH



Frequency

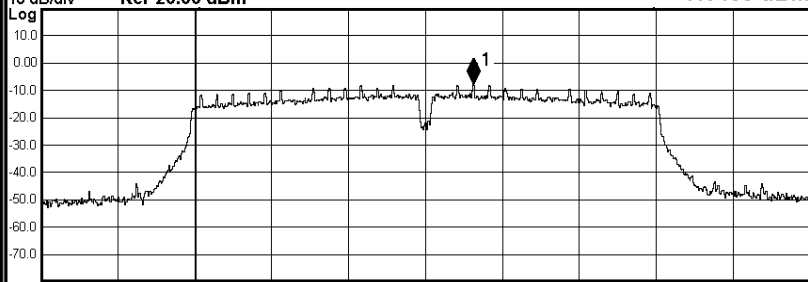
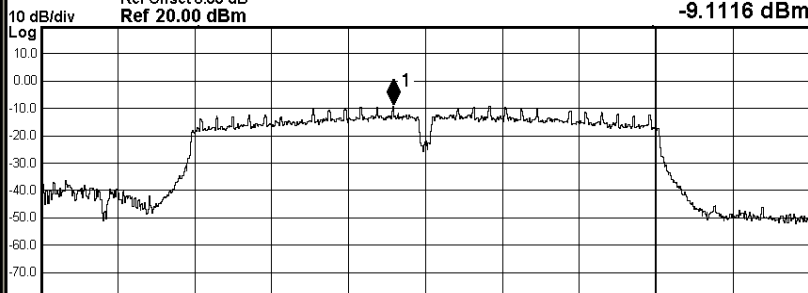
Center Freq
2.41200000 GHz

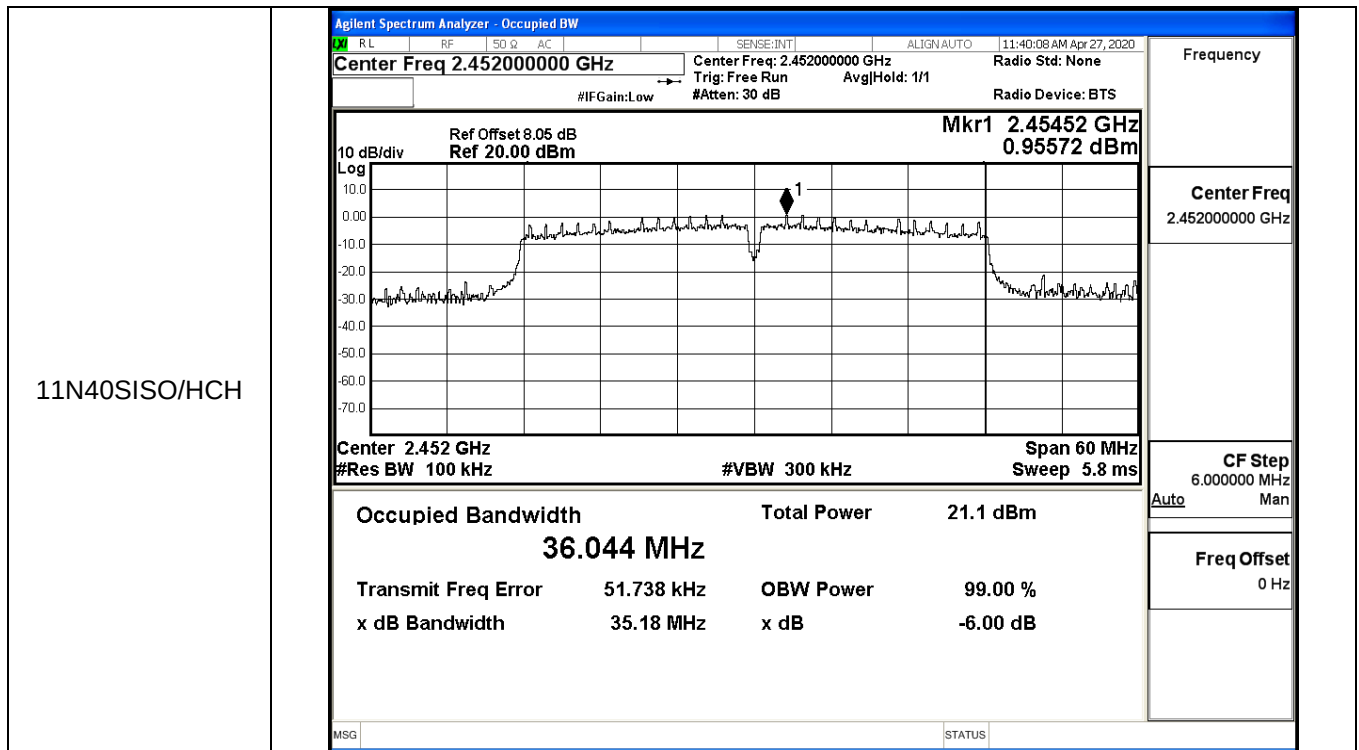
CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/MCH	Agilent Spectrum Analyzer - Occupied BW
	Center Freq: 2.437000000 GHz 10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43826 GHz -4.7392 dBm Center Freq: 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.522 MHz Total Power 12.1 dBm Transmit Freq Error 21.498 kHz OBW Power 99.00 % x dB Bandwidth 15.08 MHz x dB -6.00 dB
	Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

11N20SISO/HCH	Agilent Spectrum Analyzer - Occupied BW
	Center Freq: 2.462000000 GHz 10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.46326 GHz -5.3654 dBm Center Freq: 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.530 MHz Total Power 11.9 dBm Transmit Freq Error 16.414 kHz OBW Power 99.00 % x dB Bandwidth 15.16 MHz x dB -6.00 dB
	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:INT ALIGN AUTO 11:34:52 AM Apr 27, 2020 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 8.05 dB Ref 20.00 dBm Mkr1 2.42572 GHz -7.9458 dBm  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth Total Power 12.4 dBm 35.840 MHz Transmit Freq Error 41.022 kHz OBW Power 99.00 % x dB Bandwidth 35.18 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:38:26 AM Apr 27, 2020 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 8.05 dB Ref 20.00 dBm Mkr1 2.43448 GHz -9.1116 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth Total Power 11.2 dBm 35.808 MHz Transmit Freq Error 26.395 kHz OBW Power 99.00 % x dB Bandwidth 35.16 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

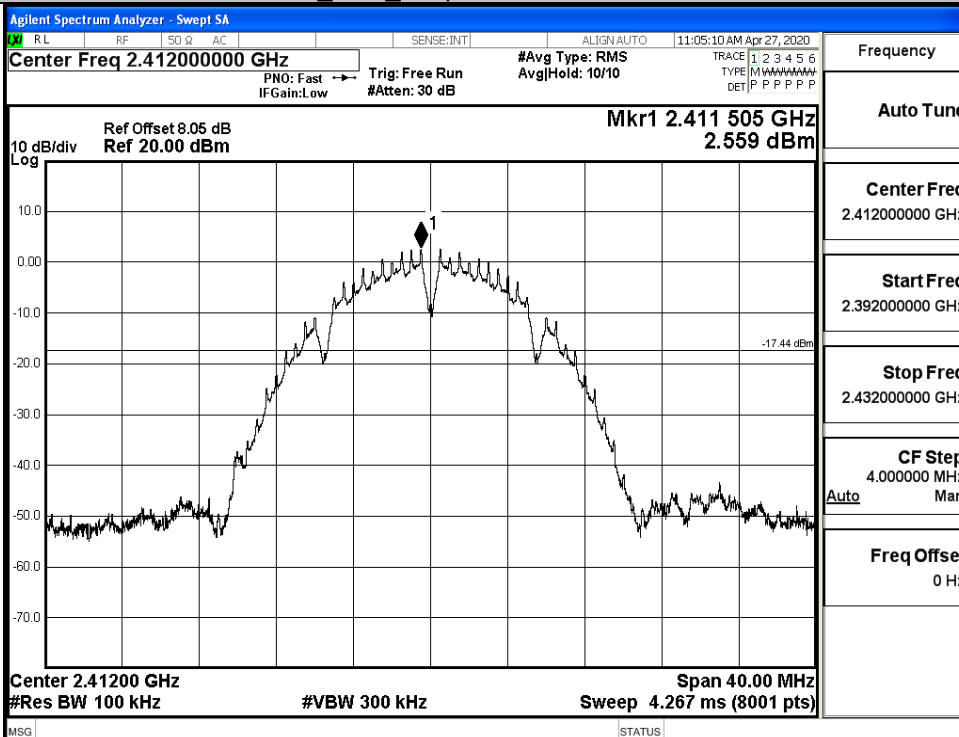


C.5 RF Conducted Spurious Emissions

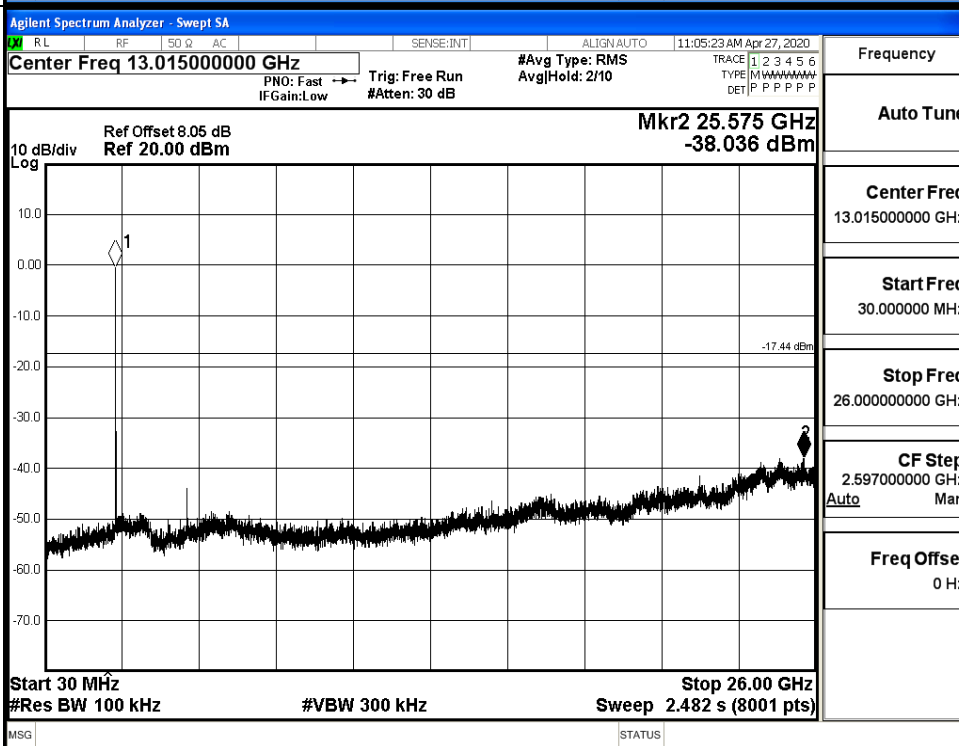
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	2.559	-38.036	-17.441	PASS
	MCH	2.659	-38.750	-17.341	PASS
	HCH	2.053	-37.513	-17.947	PASS
11G	LCH	-4.89	-38.031	-24.890	PASS
	MCH	-4.632	-38.059	-24.632	PASS
	HCH	-4.325	-37.679	-24.325	PASS
11N20 SISO	LCH	-5.074	-37.692	-25.074	PASS
	MCH	-5.427	-37.866	-25.427	PASS
	HCH	-4.968	-38.525	-24.968	PASS
11N40 SISO	LCH	-7.955	-38.337	-27.955	PASS
	MCH	-8.692	-37.104	-28.692	PASS
	HCH	0.99	-38.117	-19.010	PASS

11B LCH Graphs

Pref/11B/LCH

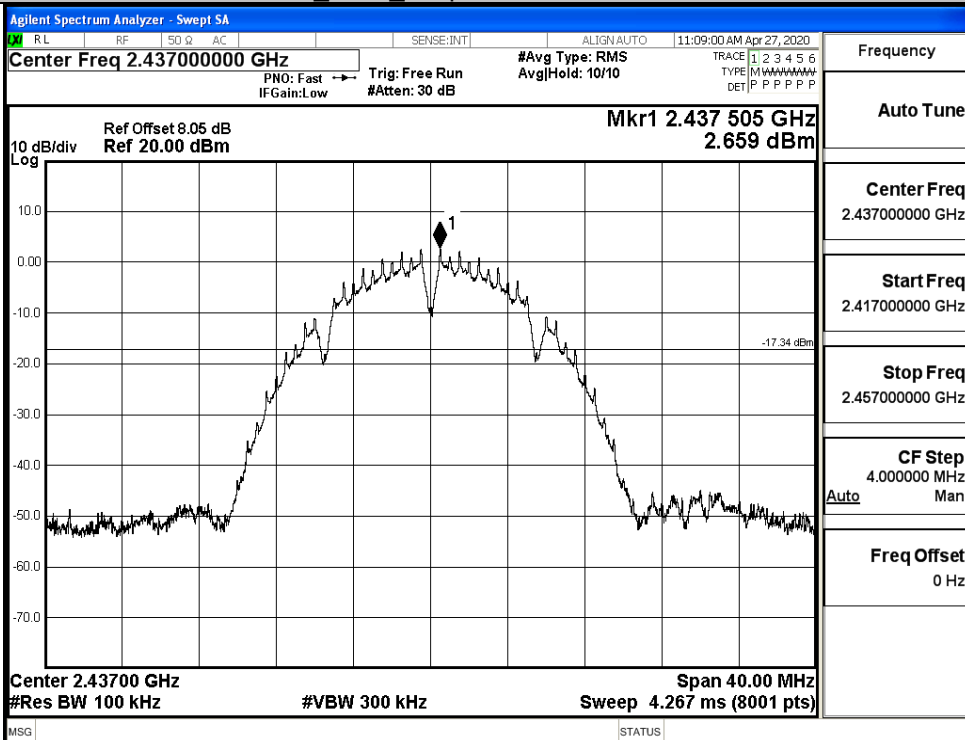


Puw/11B/LCH

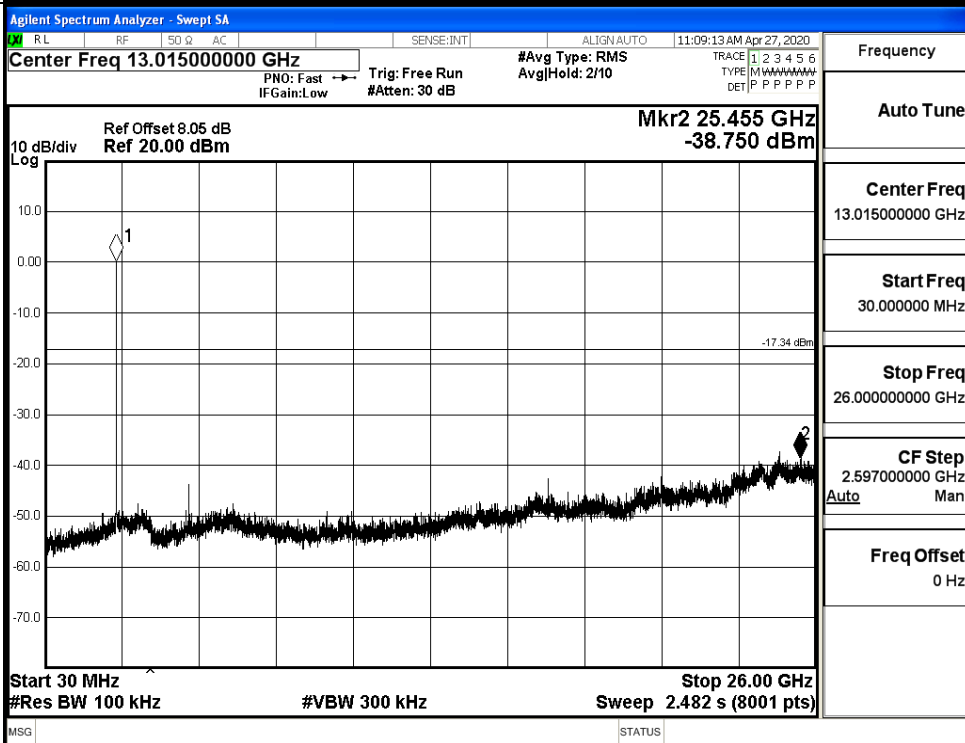


11B MCH Graphs

Pref/11B/MCH

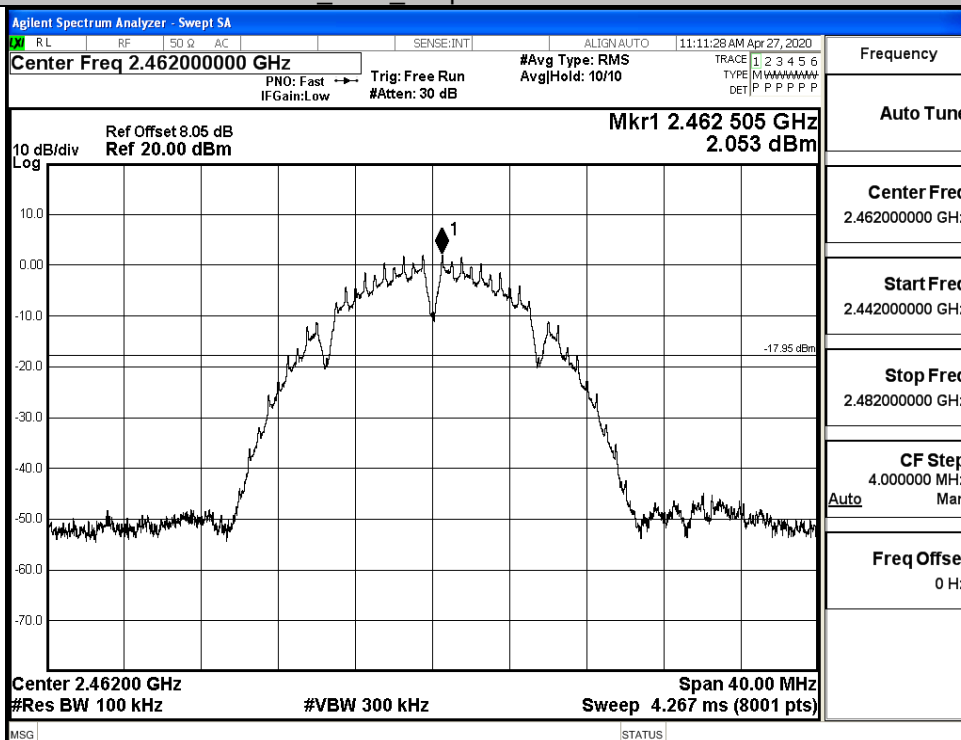


Puw/11B/MCH

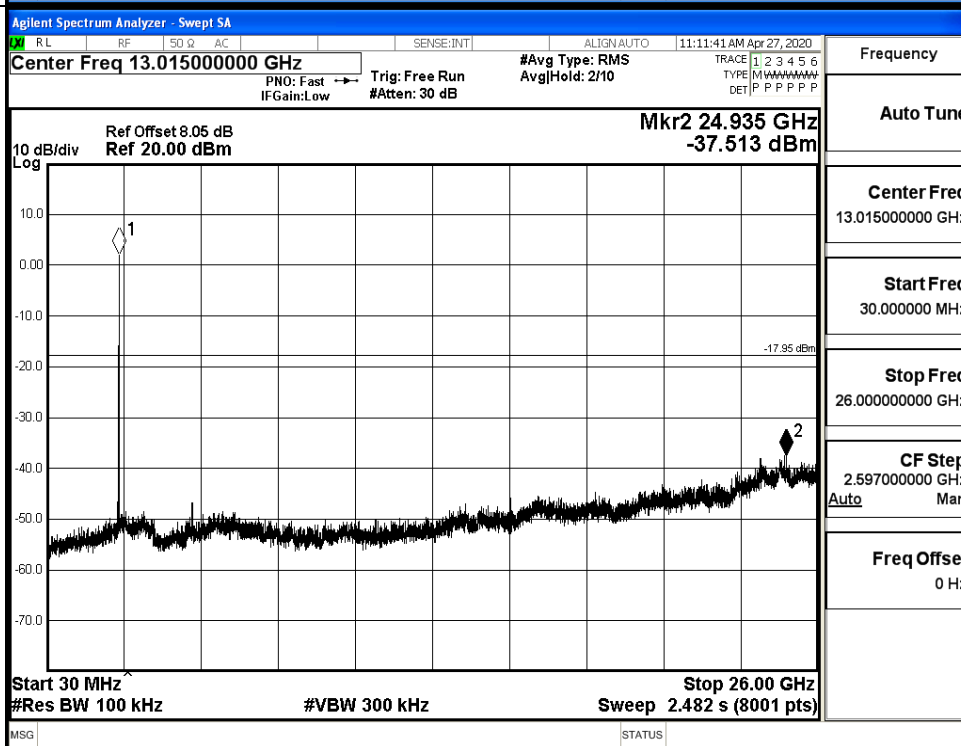


11B HCH Graphs

Pref/11B/HCH

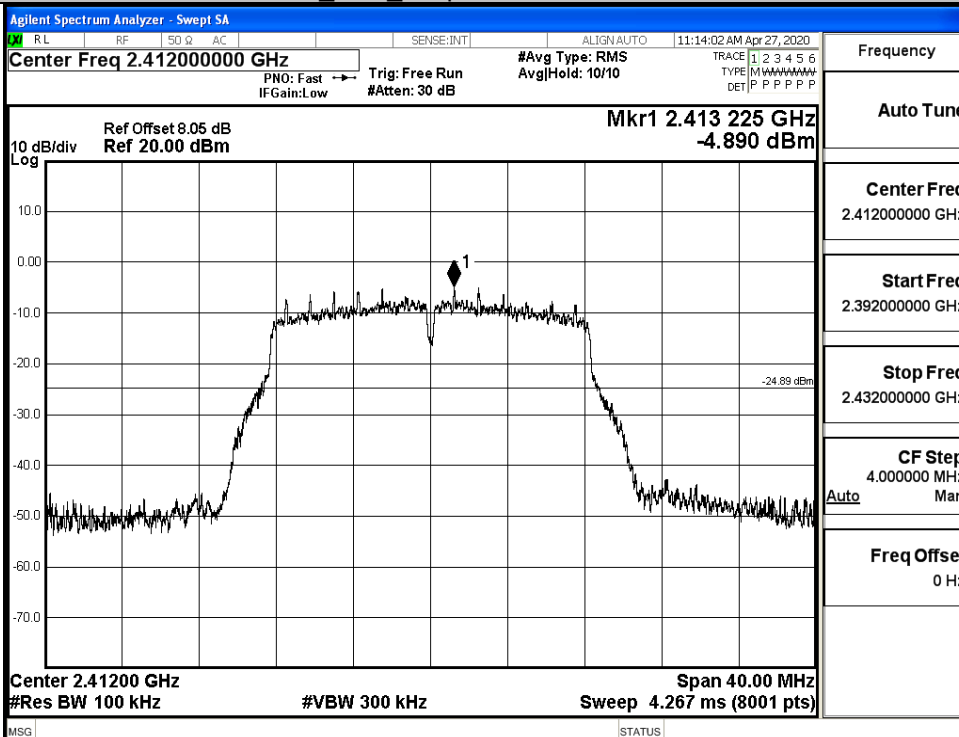


Puw/11B/HCH

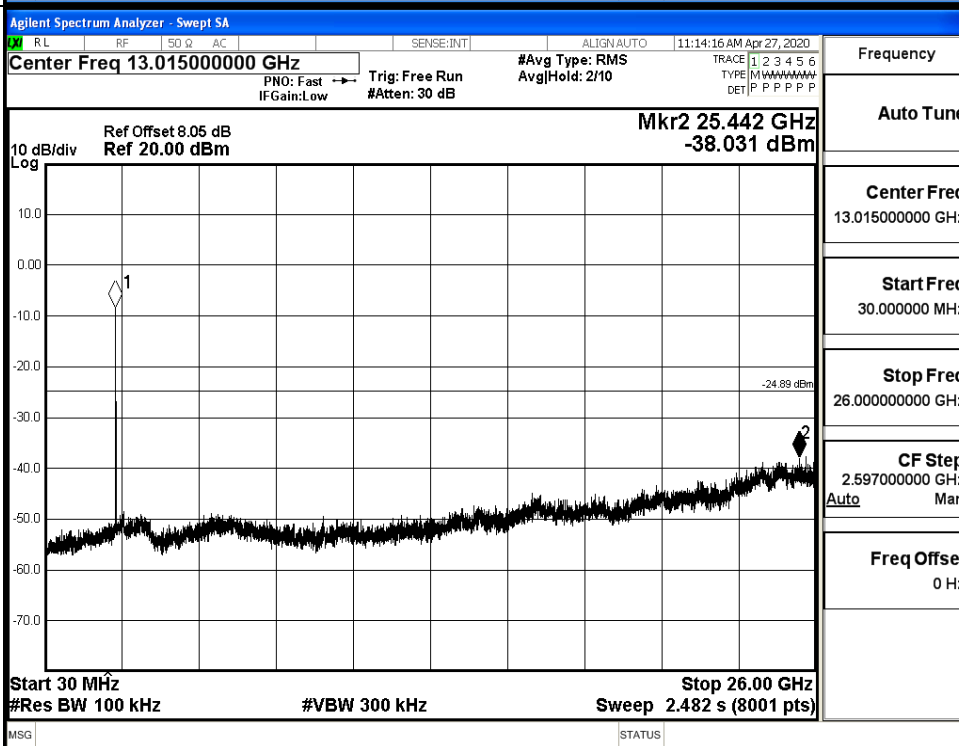


11G LCH Graphs

Pref/11G/LCH

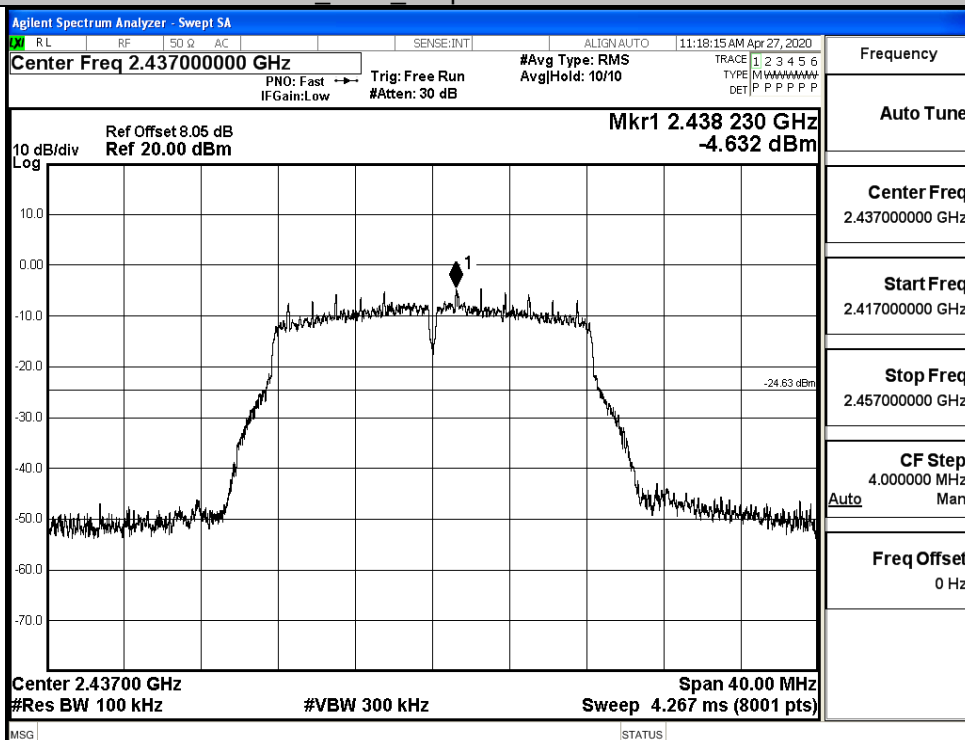


Puw/11G/LCH

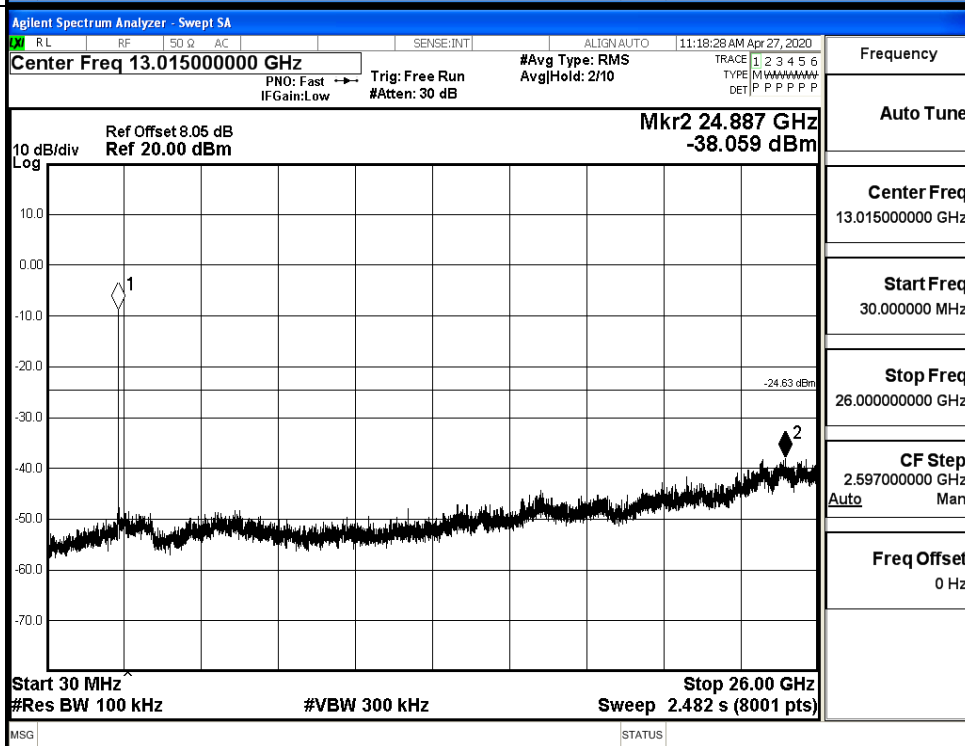


11G MCH Graphs

Pref/11G/MCH

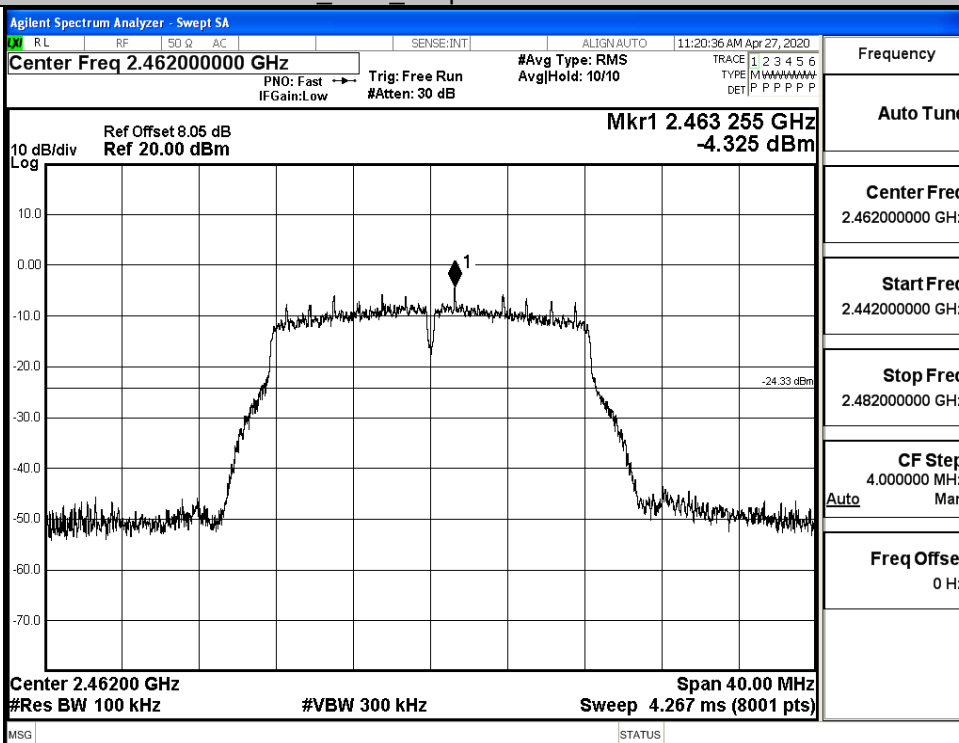


Puw/11G/MCH

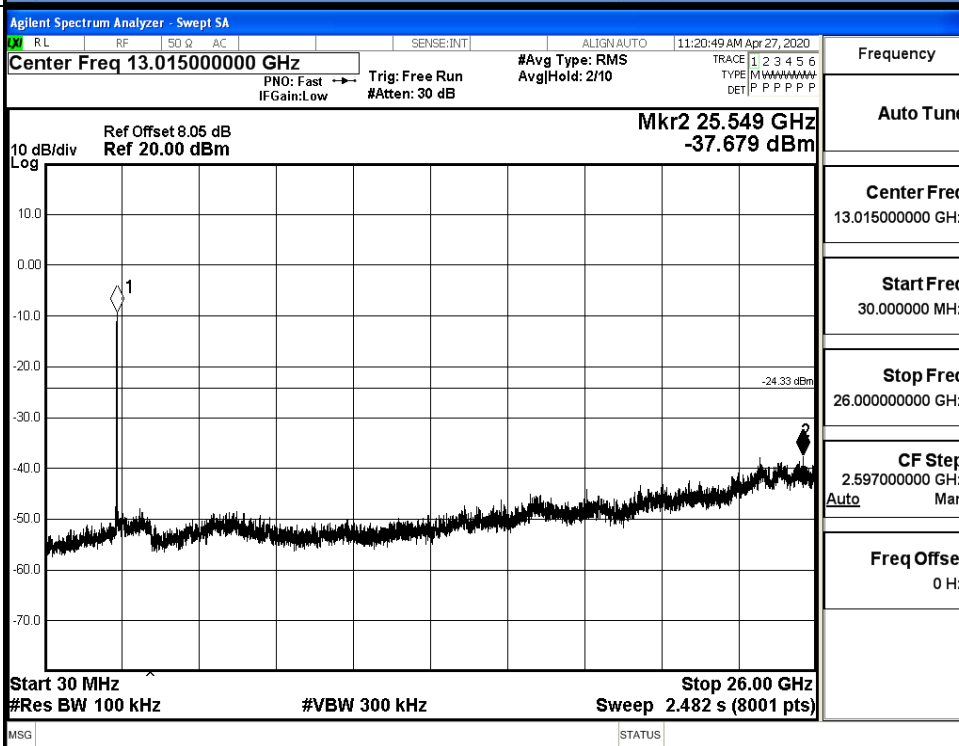


11G HCH Graphs

Pref/11G/HCH

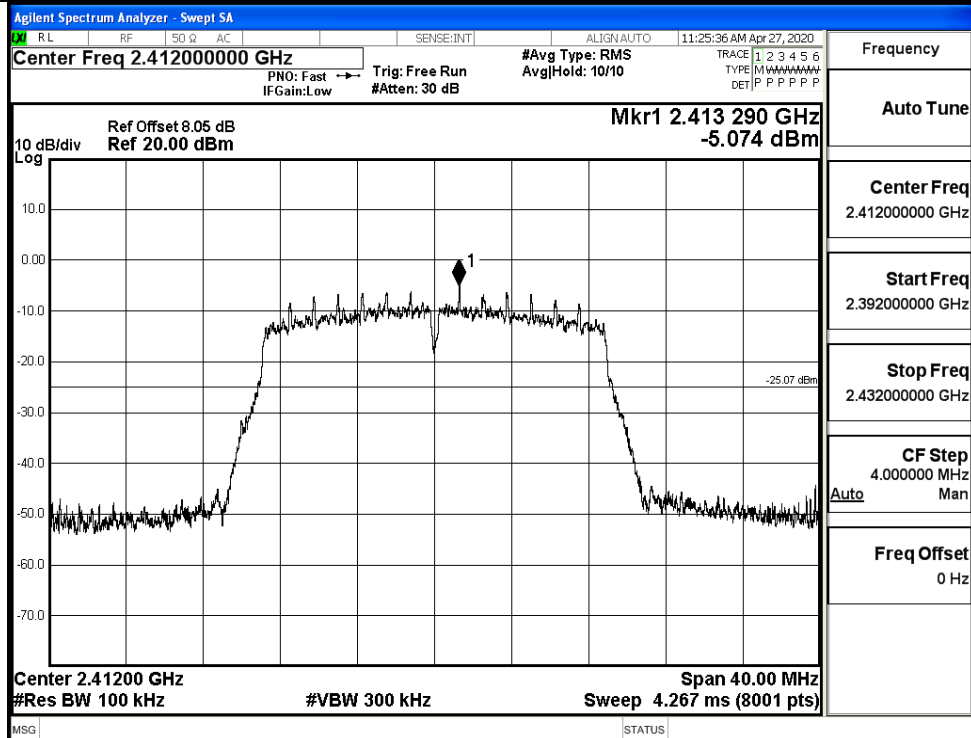


Puw/11G/HCH

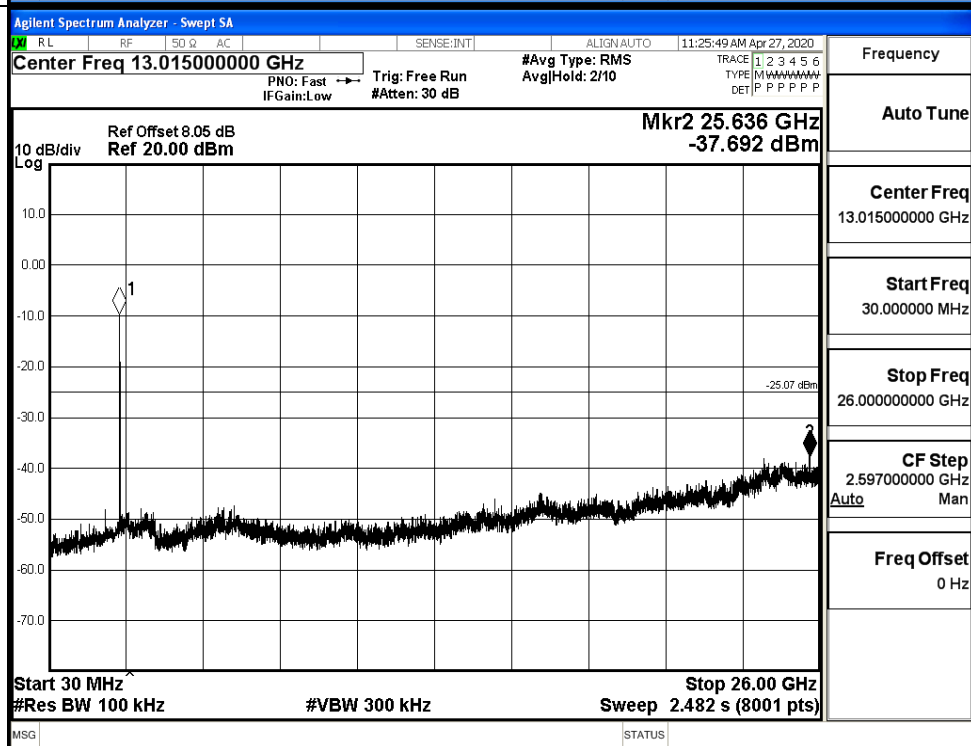


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

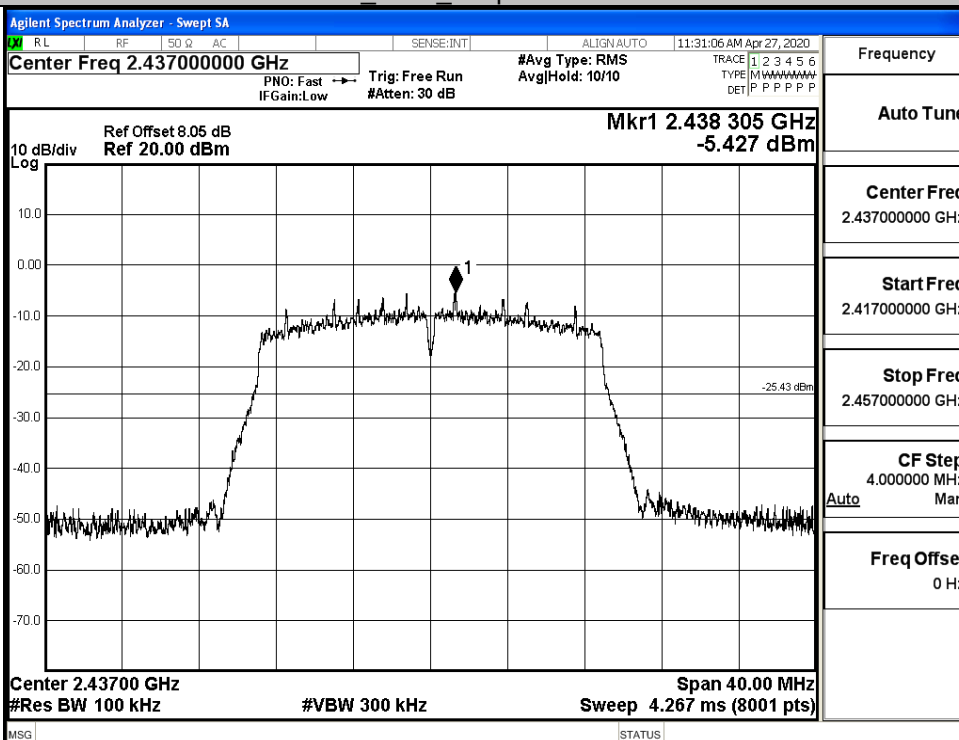


Puw/11N20
SISO/LCH

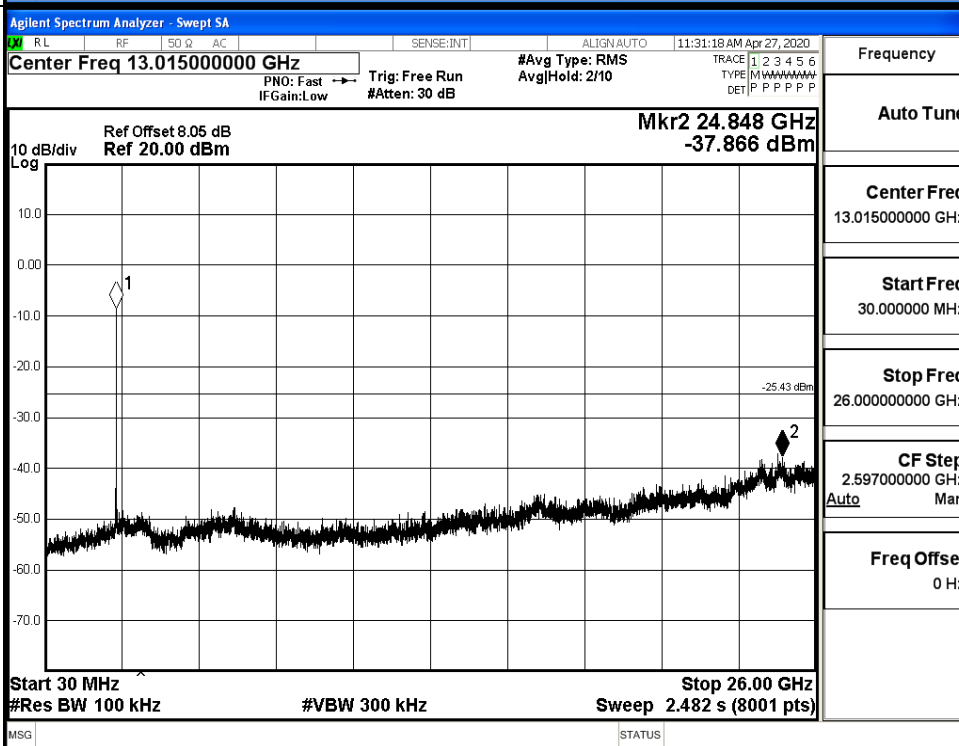


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

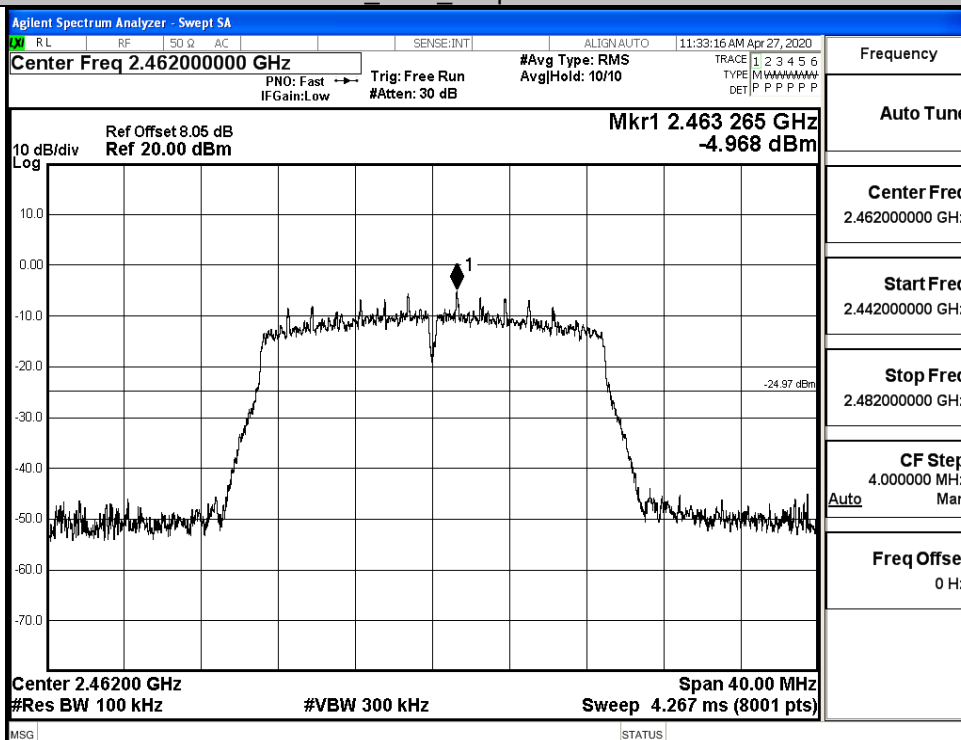


Puw/11N20
SISO/MCH

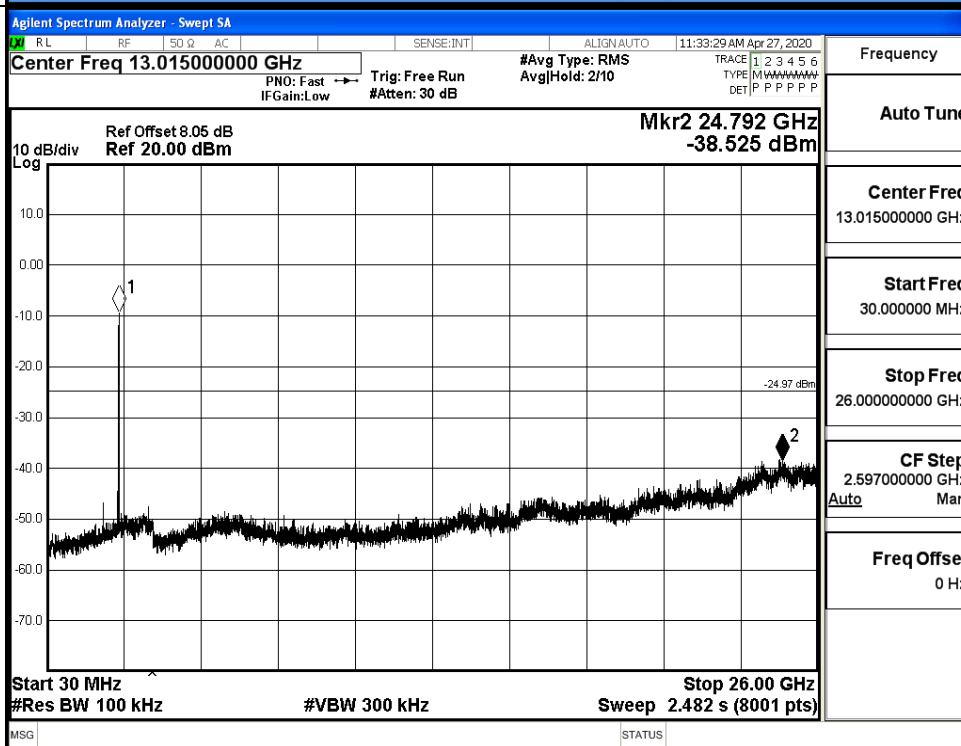


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

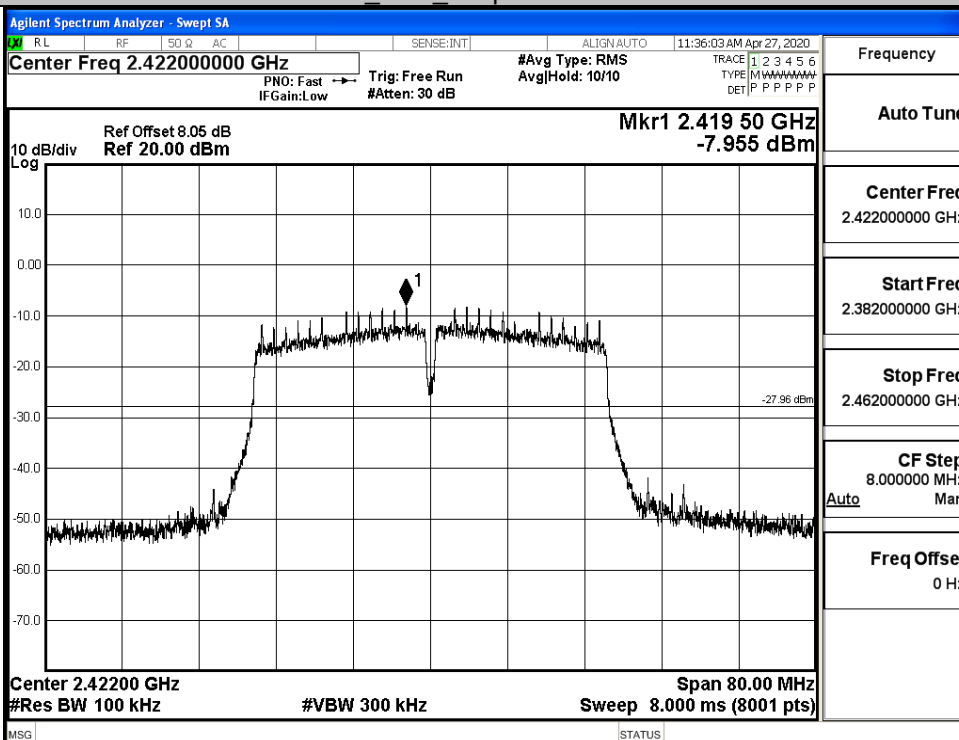


Puw/11N20
SISO/HCH

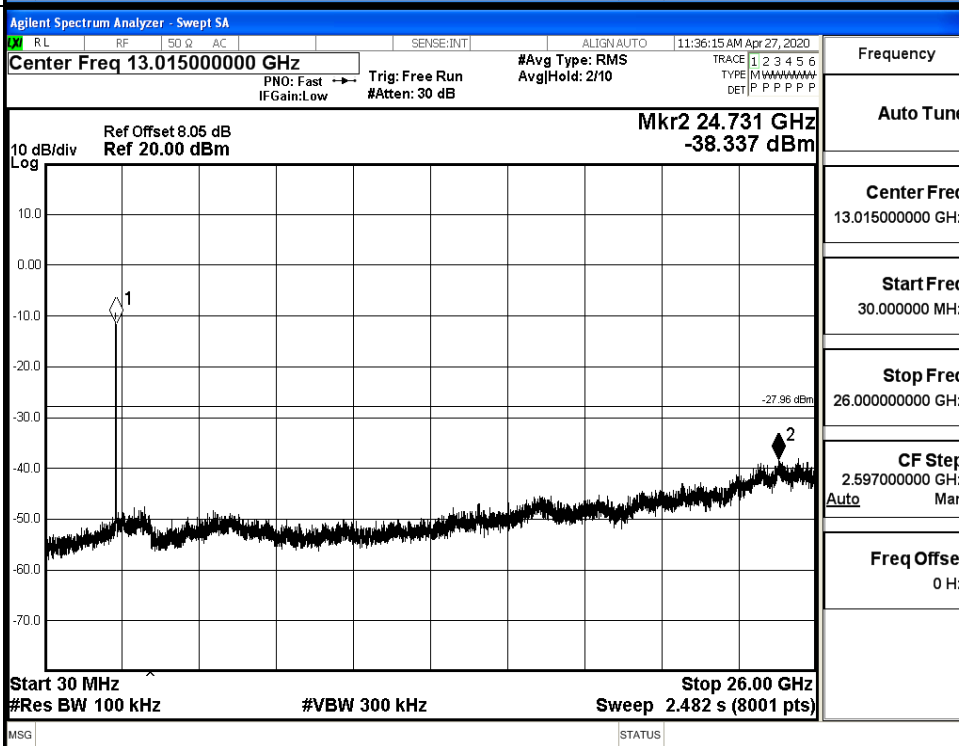


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

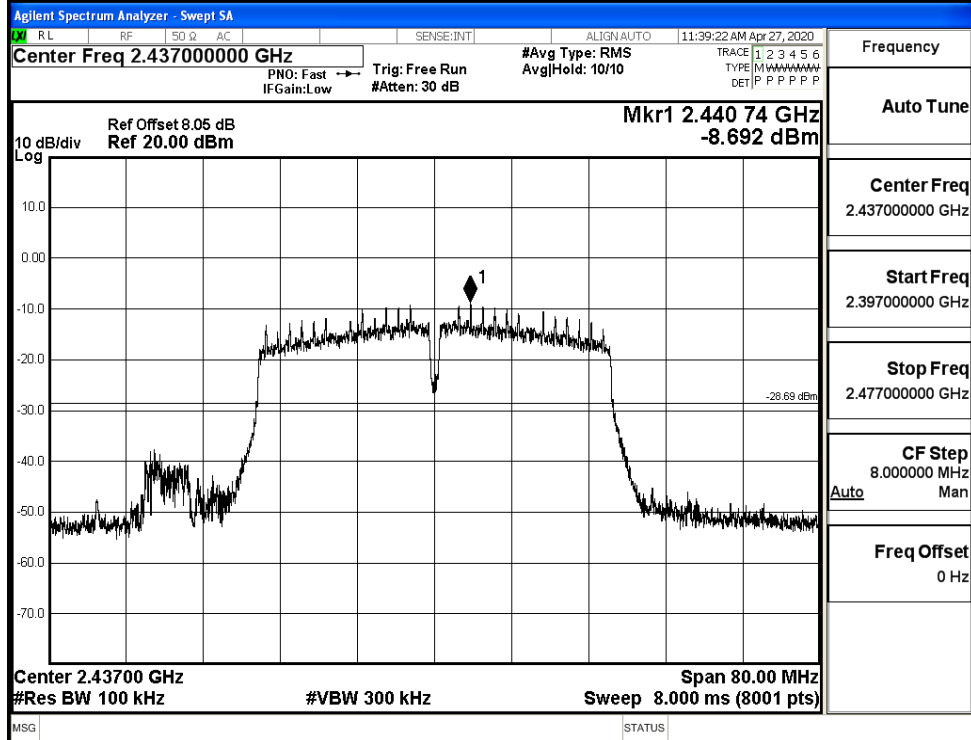


Puw/11N40
SISO/LCH

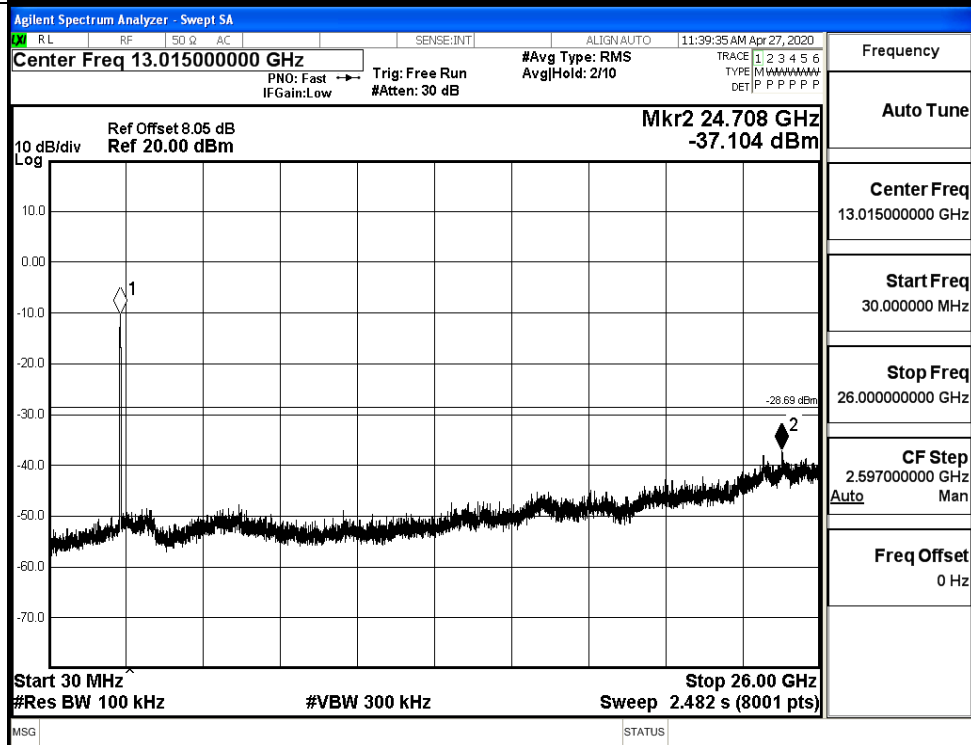


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

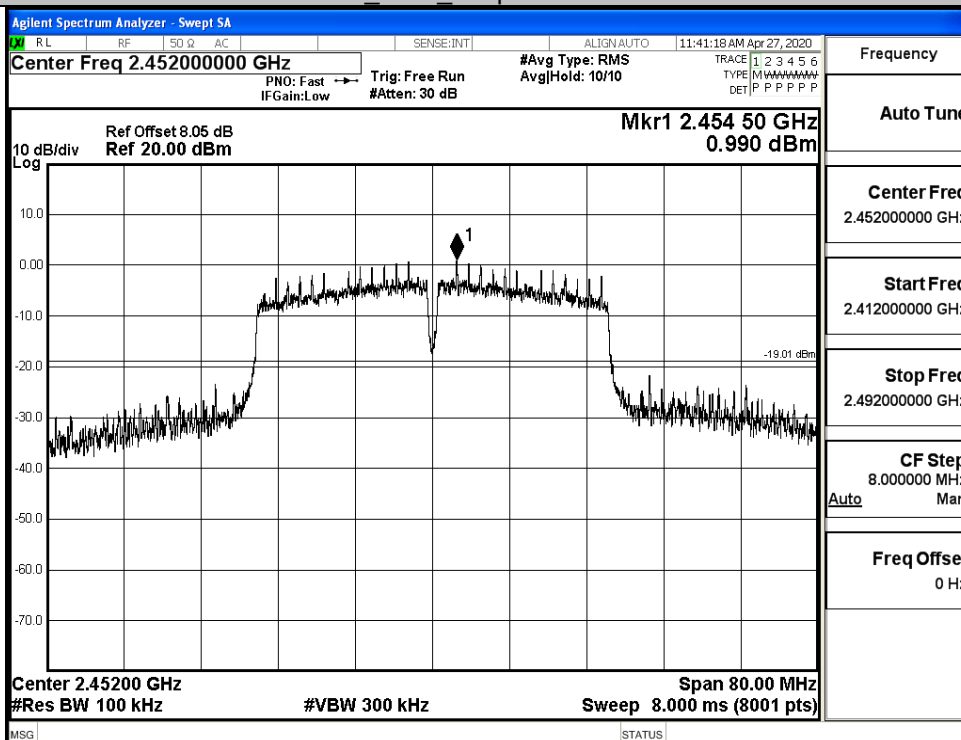


Puw/11N40
SISO/MCH

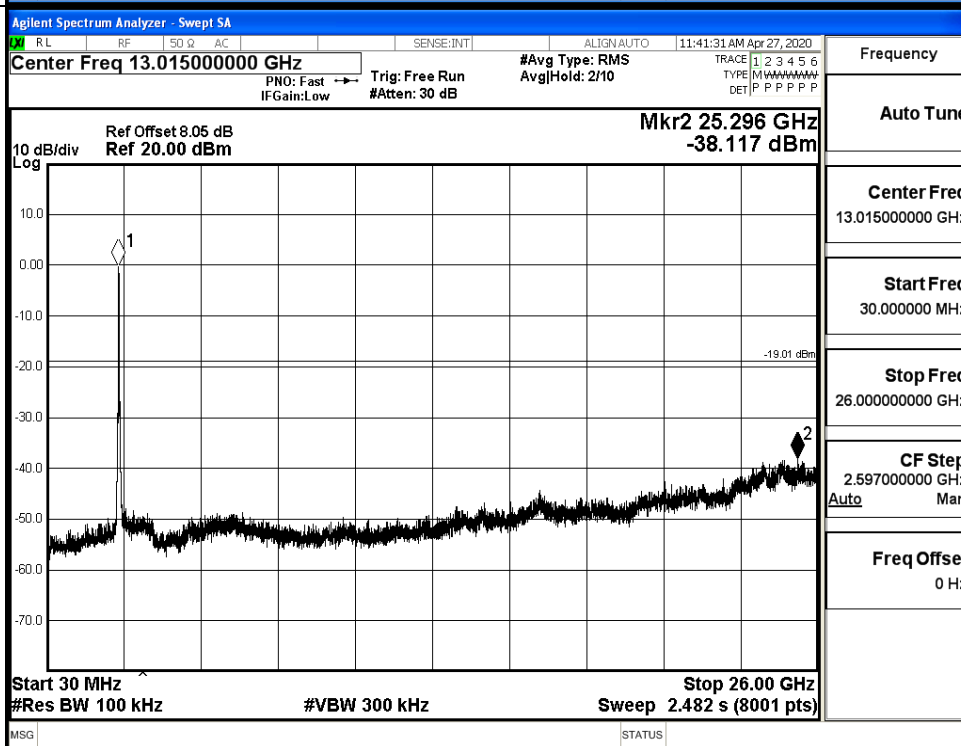


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



Puw/11N40
SISO/HCH

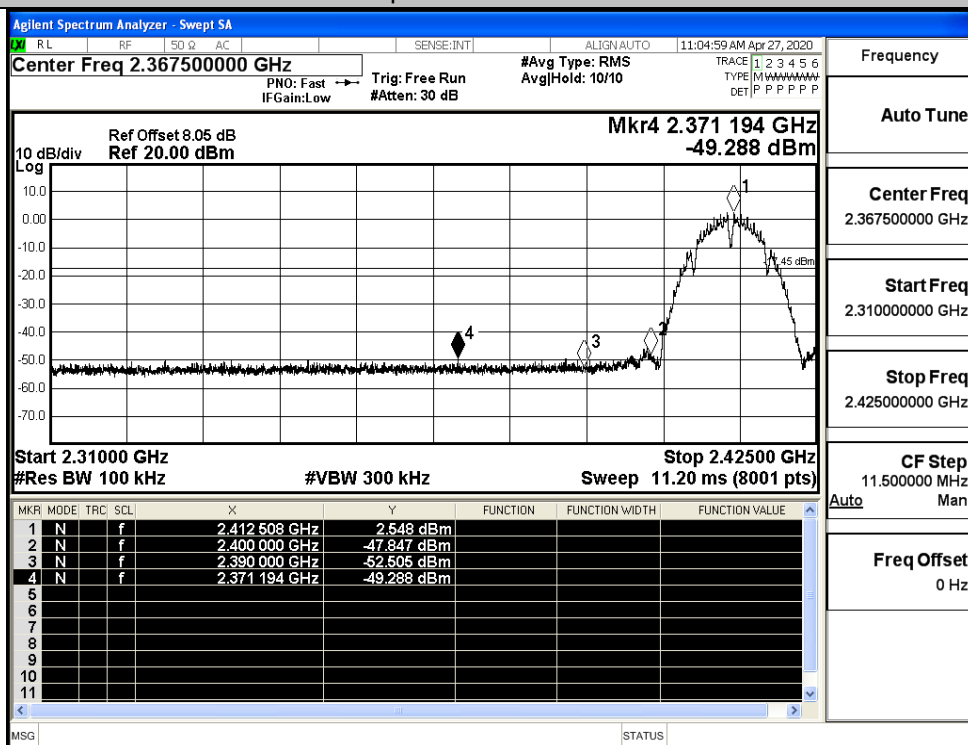


C.6 Band-edge for RF Conducted Emissions

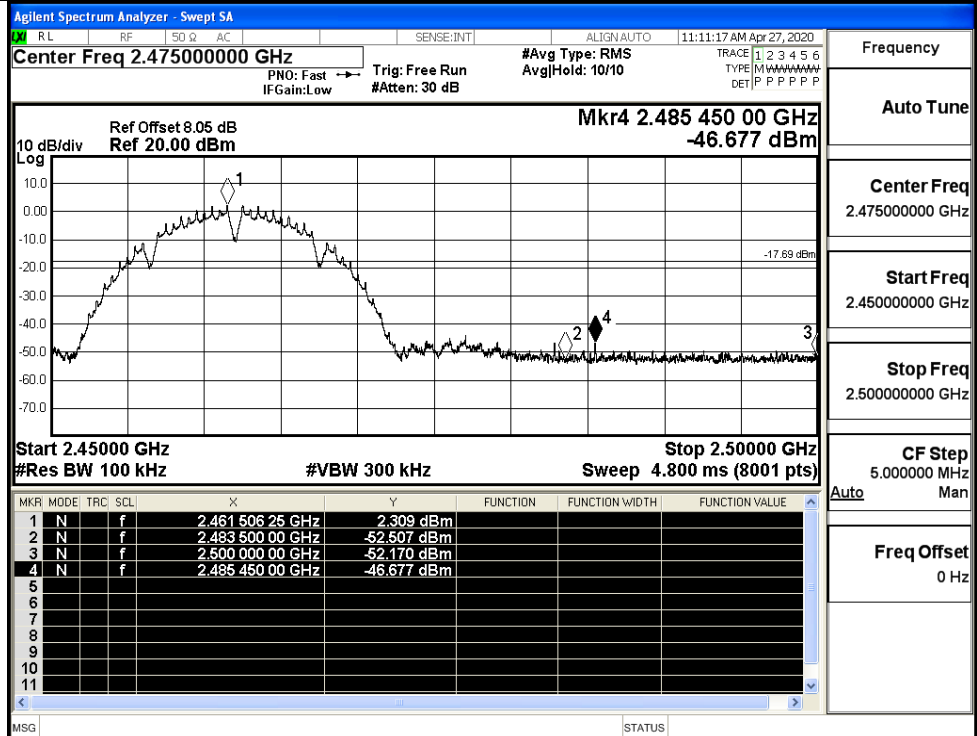
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	2.548	-49.288	-17.45	PASS
	HCH	2.309	-46.677	-17.69	PASS
11G	LCH	-3.957	-46.162	-23.96	PASS
	HCH	-4.302	-46.079	-24.3	PASS
11N20SISO	LCH	-5.287	-48.269	-25.29	PASS
	HCH	-5.467	-44.789	-25.47	PASS
11N40SISO	LCH	-7.935	-50.041	-27.94	PASS
	HCH	1.084	-23.647	-18.92	PASS

Test Graphs

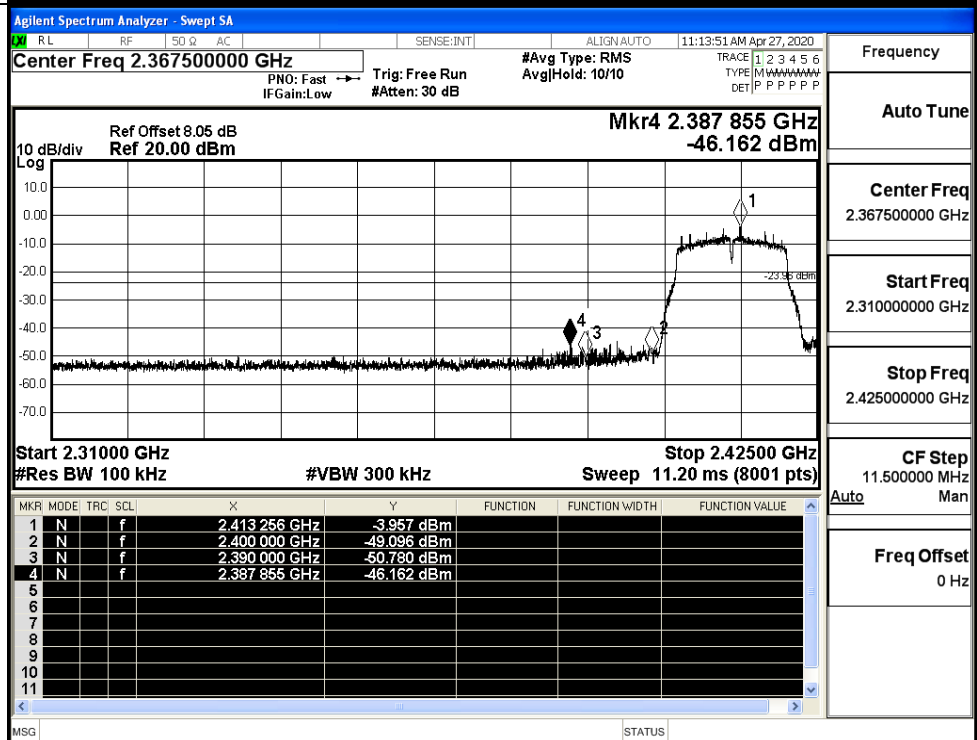
11B/LCH



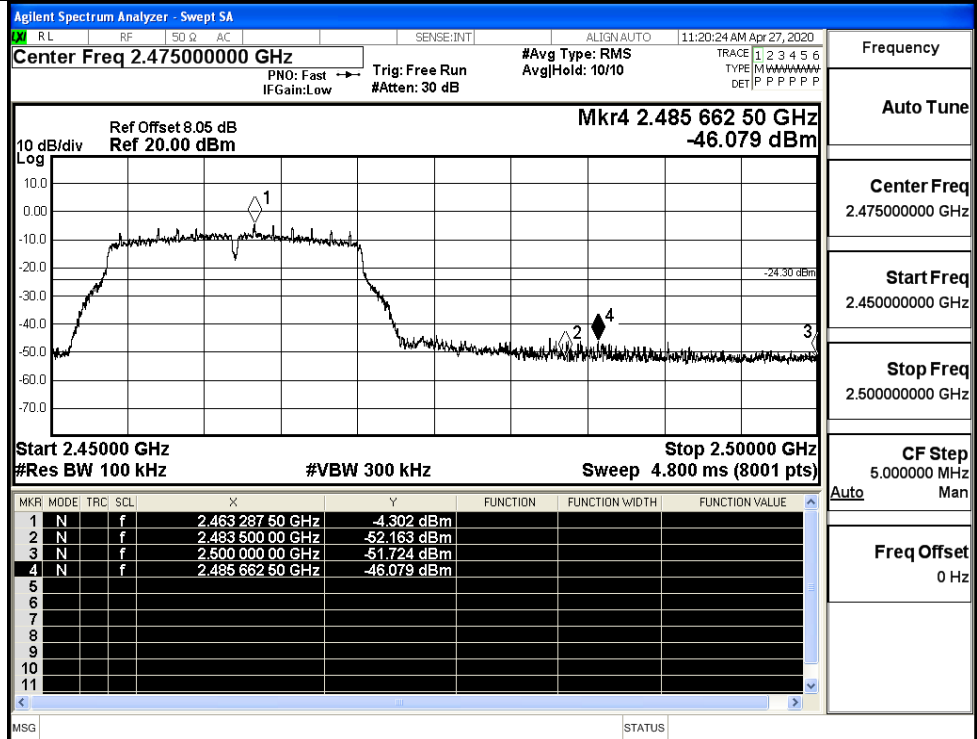
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

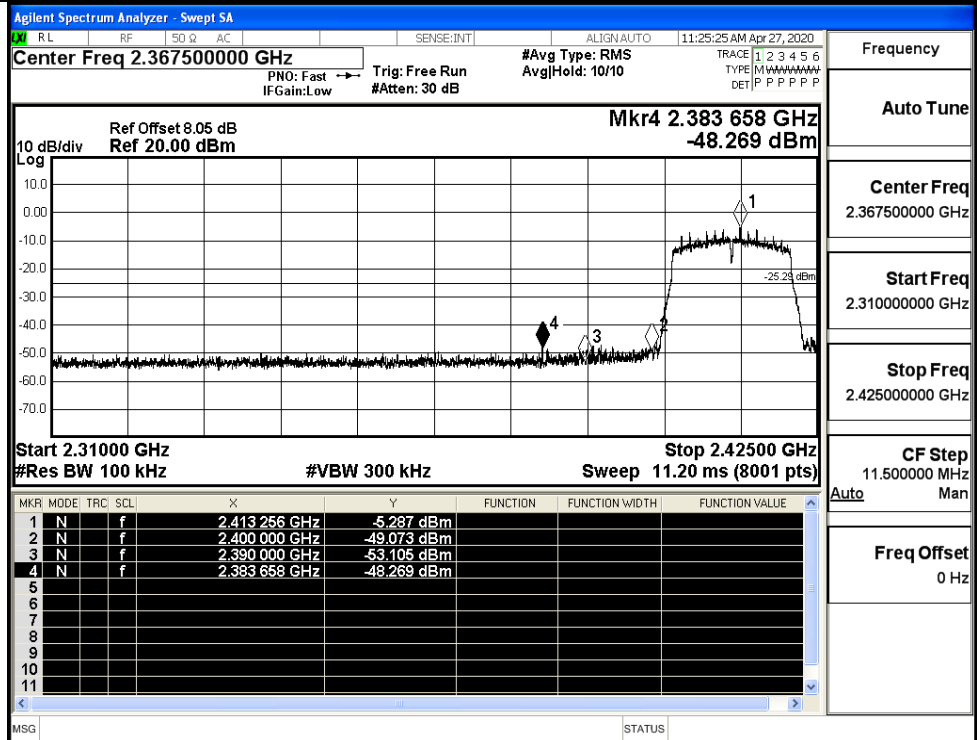
Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

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

Freq Offset
0 Hz

11N20SISO/HCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.47500000 GHz

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr4 2.485 562 50 GHz
-44.789 dBm

Start 2.45000 GHz
#Res BW 100 kHz

Stop 2.50000 GHz
#VBW 300 kHz
Sweep 4.800 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.463 300 00 GHz	-5.467 dBm			
2	N		f	2.483 500 00 GHz	-52.358 dBm			
3	N		f	2.500 000 00 GHz	-53.363 dBm			
4	N		f	2.485 562 50 GHz	-44.789 dBm			

Frequency

Auto Tune

Center Freq
2.475000000 GHz

Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

Freq Offset
0 Hz

11N40SISO/LCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.37750000 GHz

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr4 2.376 234 GHz
-50.041 dBm

Start 2.31000 GHz
#Res BW 100 kHz

Stop 2.44500 GHz
#VBW 300 kHz
Sweep 13.33 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.424 531 GHz	-7.935 dBm			
2	N		f	2.400 000 GHz	-53.125 dBm			
3	N		f	2.390 000 GHz	-53.148 dBm			
4	N		f	2.376 234 GHz	-50.041 dBm			

Frequency

Auto Tune

Center Freq
2.377500000 GHz

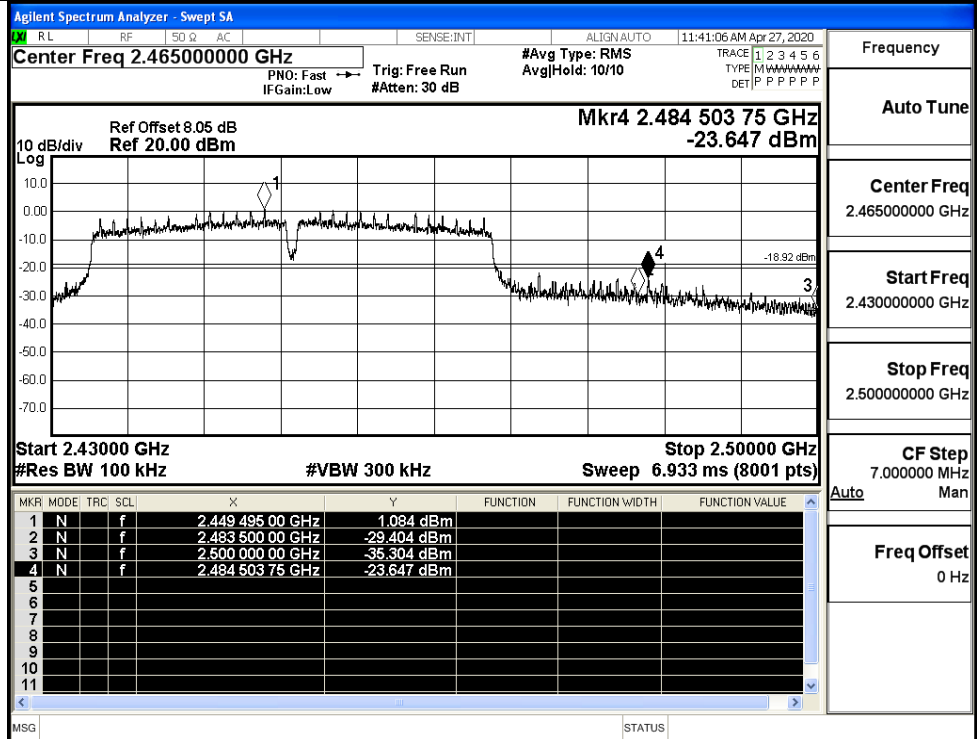
Start Freq
2.310000000 GHz

Stop Freq
2.445000000 GHz

CF Step
13.500000 MHz

Freq Offset
0 Hz

11N40SISO/HCH



Frequency

Auto Tune

Center Freq
2.465000000 GHz

Start Freq
2.430000000 GHz

Stop Freq
2.500000000 GHz

CF Step
7.000000 MHz
Auto Man

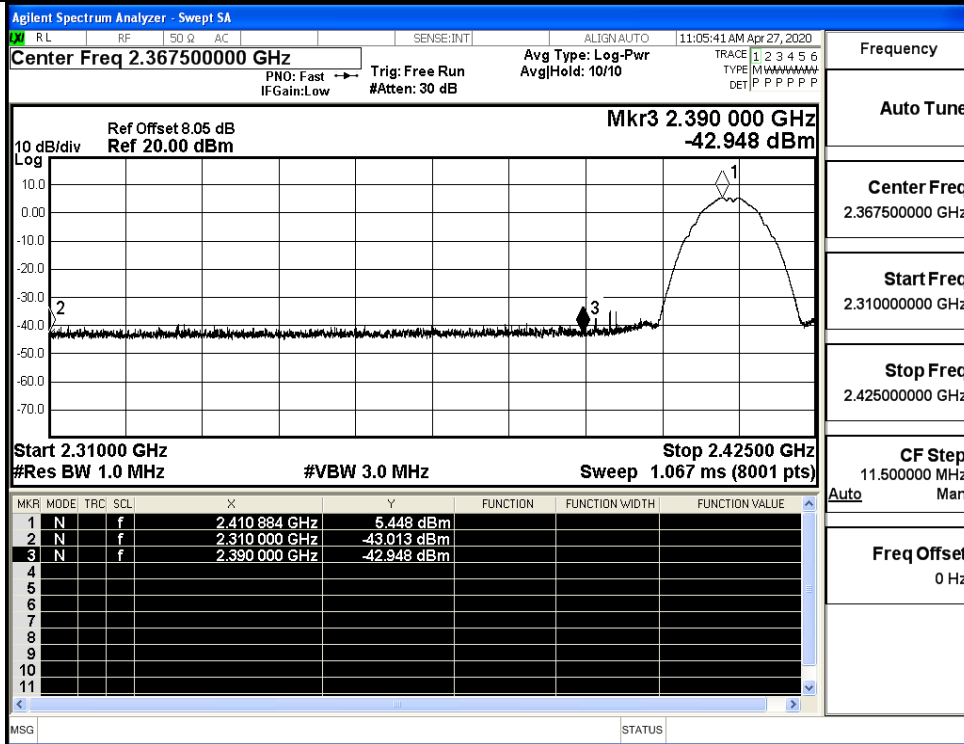
Freq Offset
0 Hz

C.7 Restrict-band band-edge measurements

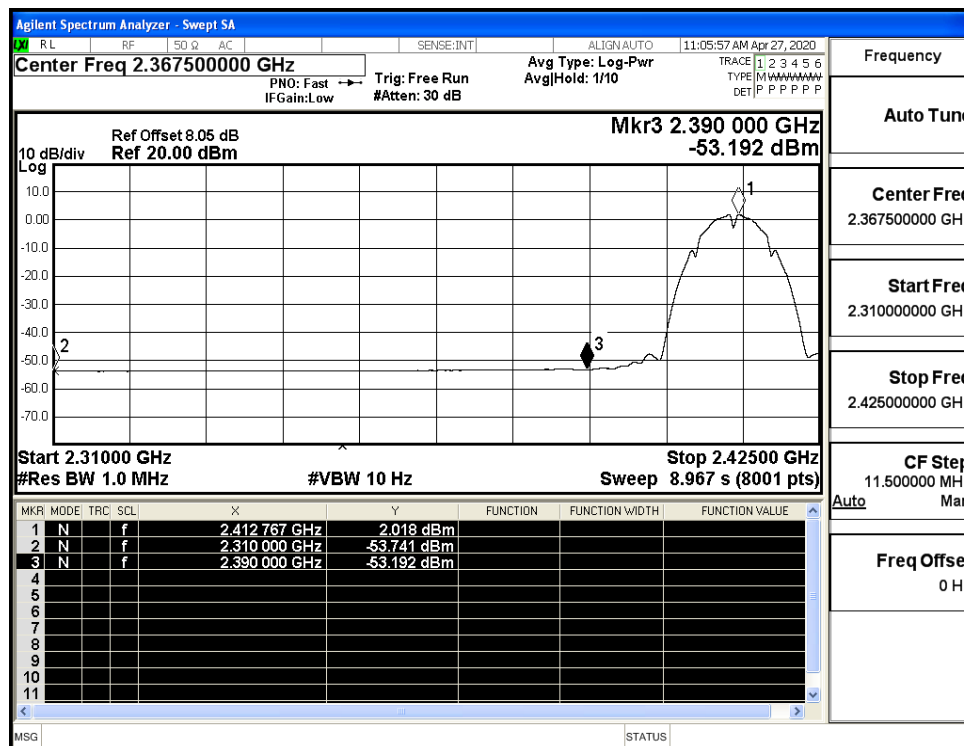
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-40.57	2.0	0	56.66	PEAK	74	PASS
	2412	Ant1	2310.0	-53.74	2.0	0	43.49	AV	54	PASS
	2412	Ant1	2390.0	-42.95	2.0	0	54.28	PEAK	74	PASS
	2412	Ant1	2390.0	-53.19	2.0	0	44.04	AV	54	PASS
	2462	Ant1	2483.5	-41.61	2.0	0	55.62	PEAK	74	PASS
	2462	Ant1	2483.5	-52.73	2.0	0	44.50	AV	54	PASS
	2462	Ant1	2500.0	-42.39	2.0	0	54.84	PEAK	74	PASS
	2462	Ant1	2500.0	-52.55	2.0	0	44.68	AV	54	PASS
11G	2412	Ant1	2310.0	-43.46	2.0	0	53.77	PEAK	74	PASS
	2412	Ant1	2310.0	-53.75	2.0	0	43.48	AV	54	PASS
	2412	Ant1	2390.0	-43.10	2.0	0	54.13	PEAK	74	PASS
	2412	Ant1	2390.0	-52.91	2.0	0	44.32	AV	54	PASS
	2462	Ant1	2483.5	-41.96	2.0	0	55.27	PEAK	74	PASS
	2462	Ant1	2483.5	-52.32	2.0	0	44.91	AV	54	PASS
	2462	Ant1	2500.0	-42.09	2.0	0	55.14	PEAK	74	PASS
	2462	Ant1	2500.0	-52.38	2.0	0	44.85	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.34	2.0	0	53.89	PEAK	74	PASS
	2412	Ant1	2310.0	-53.71	2.0	0	43.52	AV	54	PASS
	2412	Ant1	2390.0	-42.59	2.0	0	54.64	PEAK	74	PASS
	2412	Ant1	2390.0	-53.01	2.0	0	44.22	AV	54	PASS
	2462	Ant1	2483.5	-42.25	2.0	0	54.98	PEAK	74	PASS
	2462	Ant1	2483.5	-52.21	2.0	0	45.02	AV	54	PASS
	2462	Ant1	2500.0	-39.76	2.0	0	57.47	PEAK	74	PASS
	2462	Ant1	2500.0	-52.46	2.0	0	44.77	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.37	2.0	0	54.86	PEAK	74	PASS
	2422	Ant1	2310.0	-53.78	2.0	0	43.45	AV	54	PASS

	2422	Ant1	2390.0	-42.32	2.0	0	54.91	PEAK	74	PASS
	2422	Ant1	2390.0	-52.66	2.0	0	44.57	AV	54	PASS
	2452	Ant1	2483.5	-41.41	2.0	0	55.82	PEAK	74	PASS
	2452	Ant1	2483.5	-51.64	2.0	0	45.59	AV	54	PASS
	2452	Ant1	2500.0	-42.35	2.0	0	54.88	PEAK	74	PASS
	2452	Ant1	2500.0	-52.55	2.0	0	44.68	AV	54	PASS

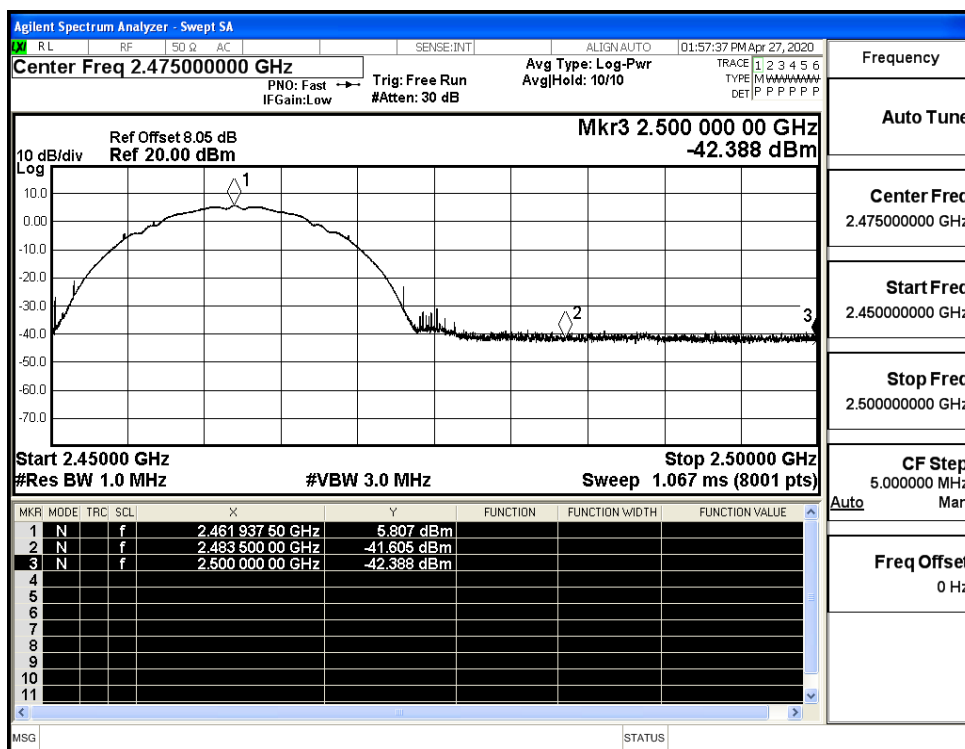
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



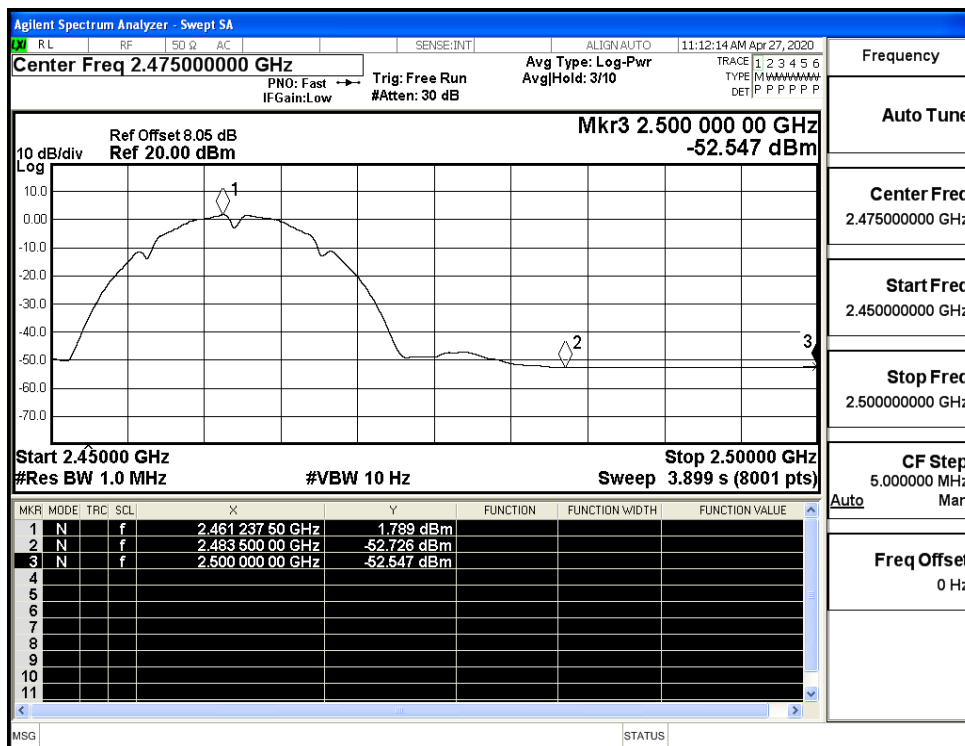
Restrict-band band-edge measurements_11B_2412_Ant1_AV



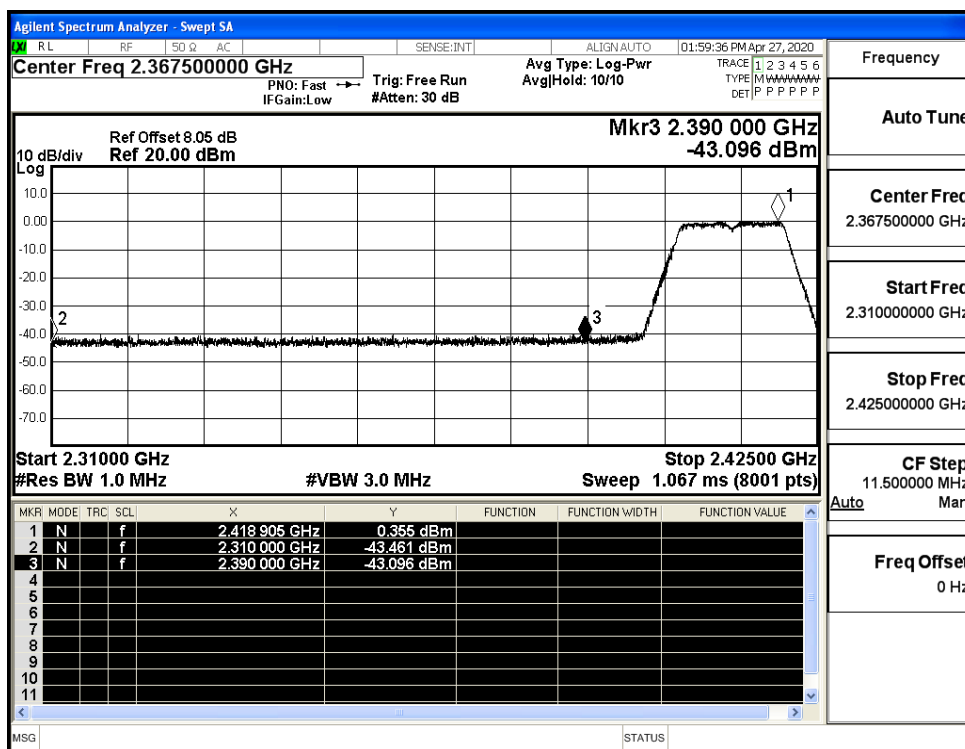
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



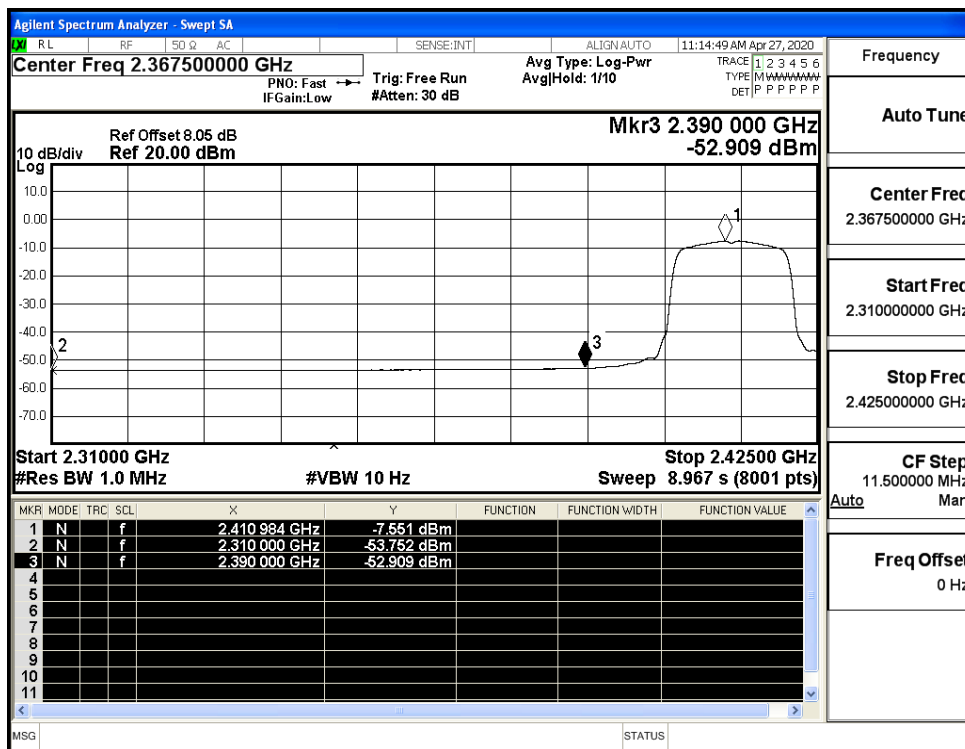
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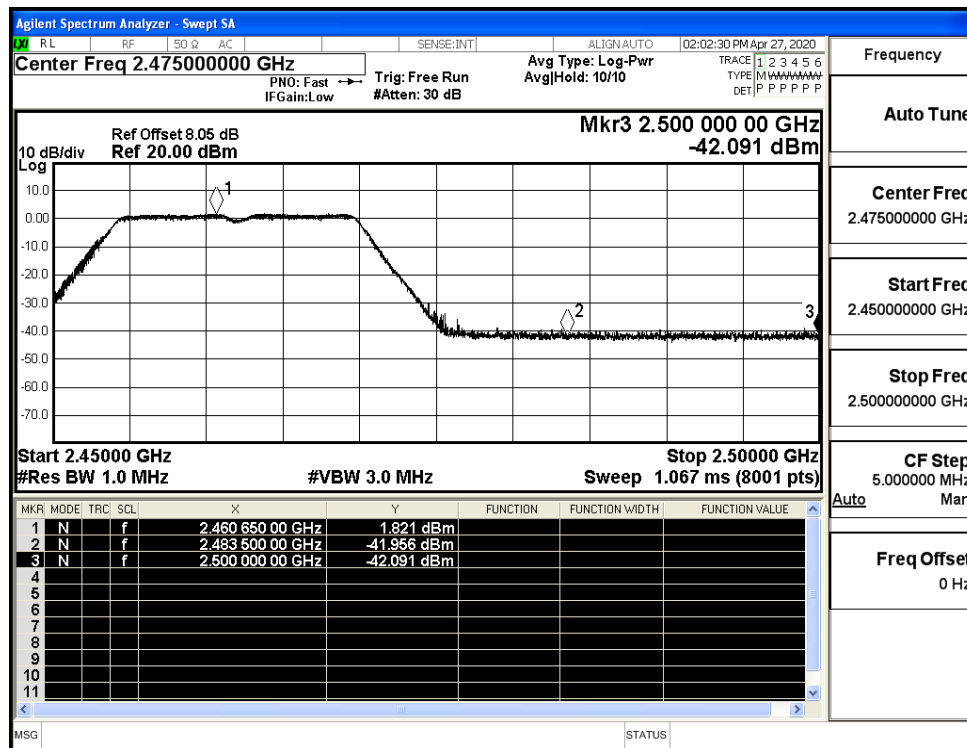
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



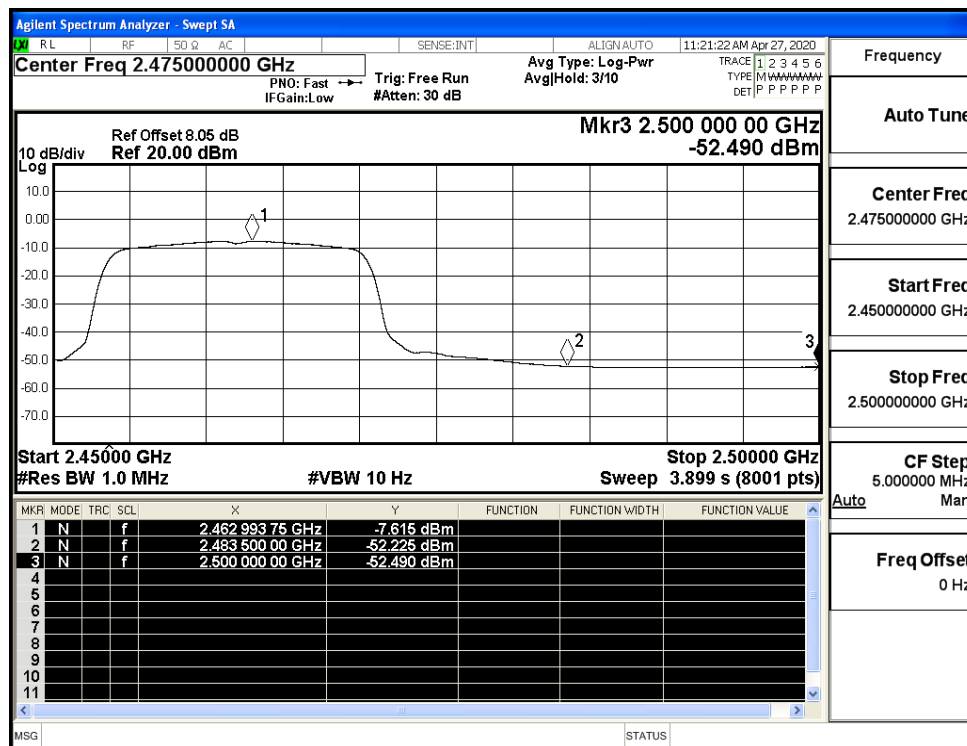
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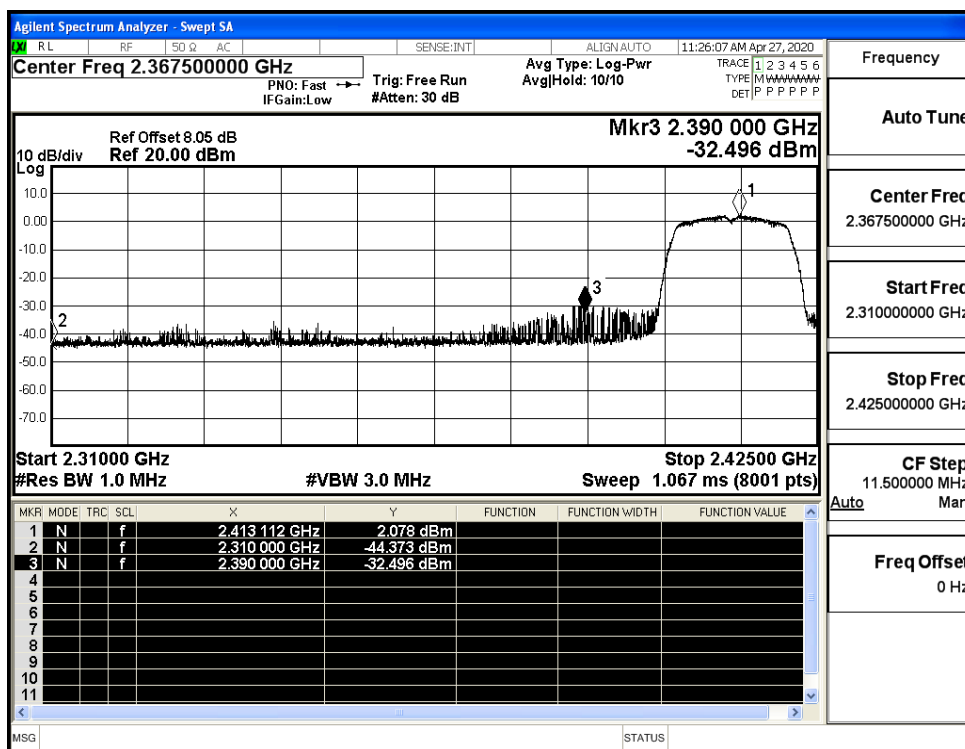
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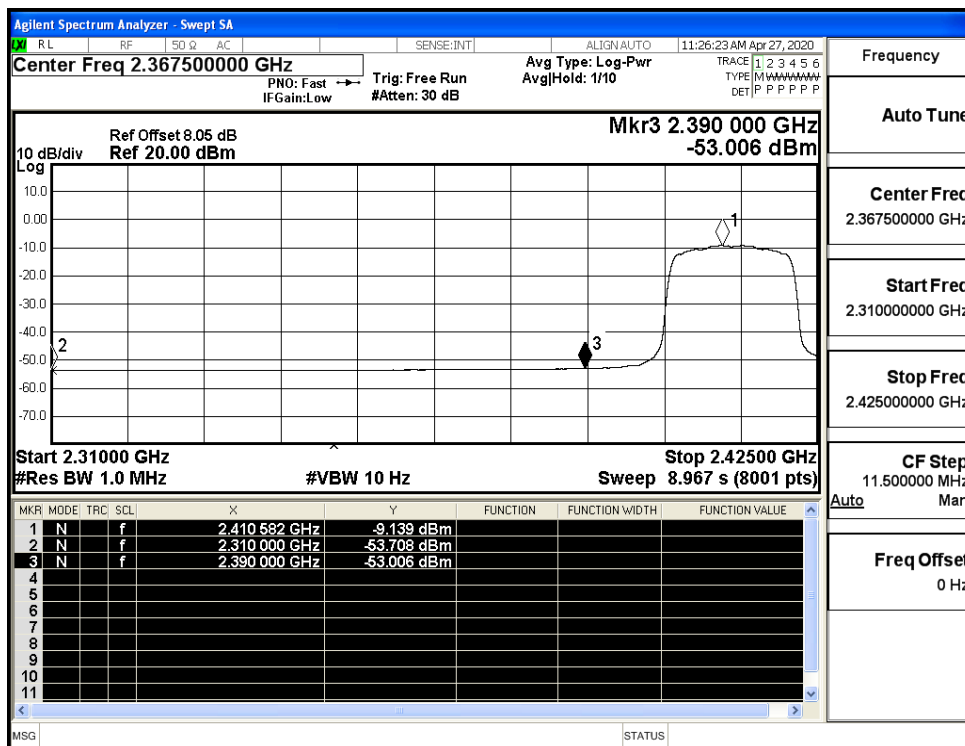
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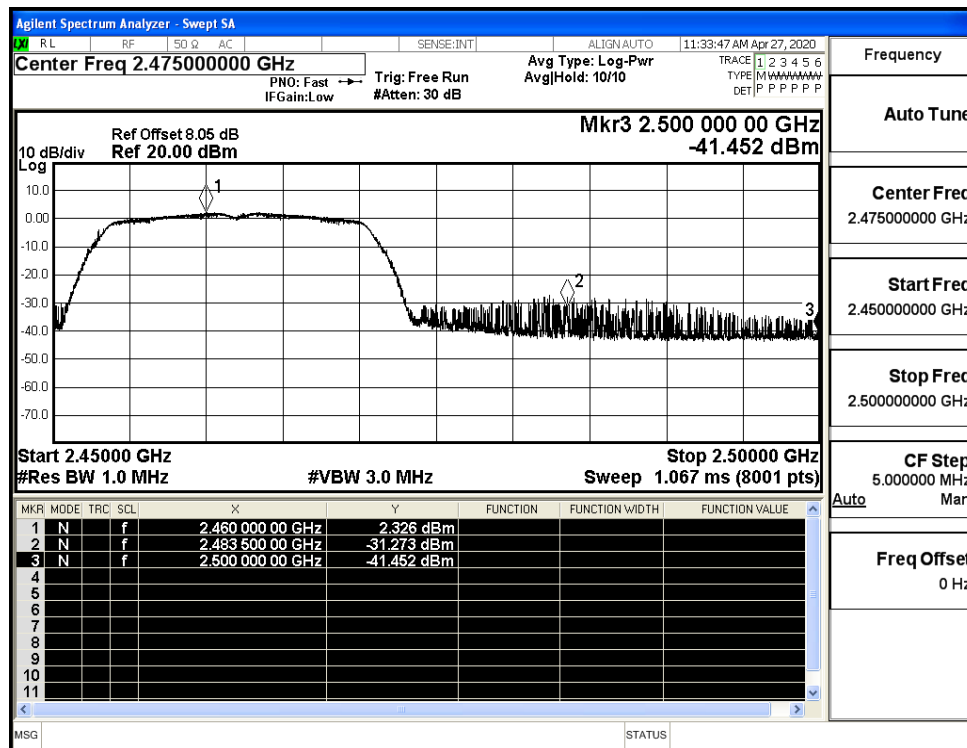
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



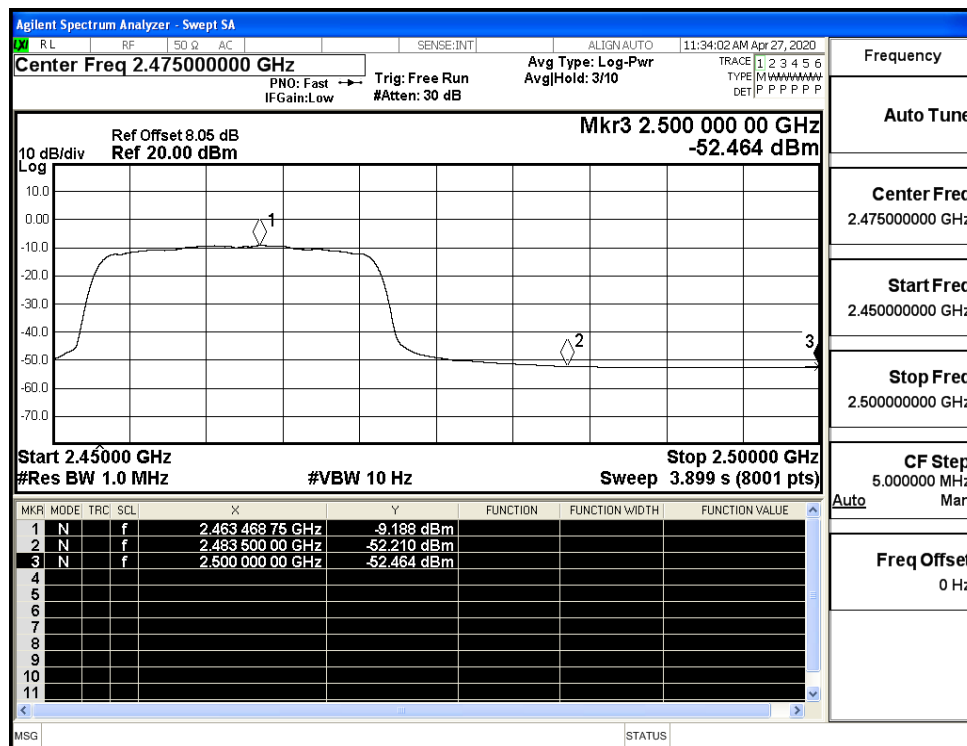
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



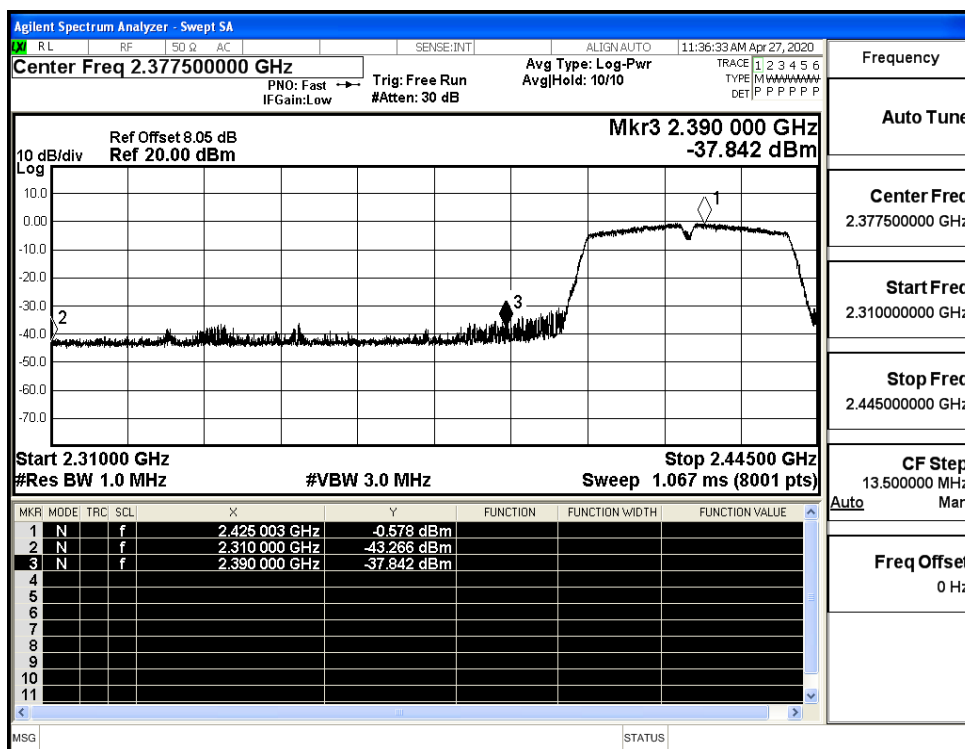
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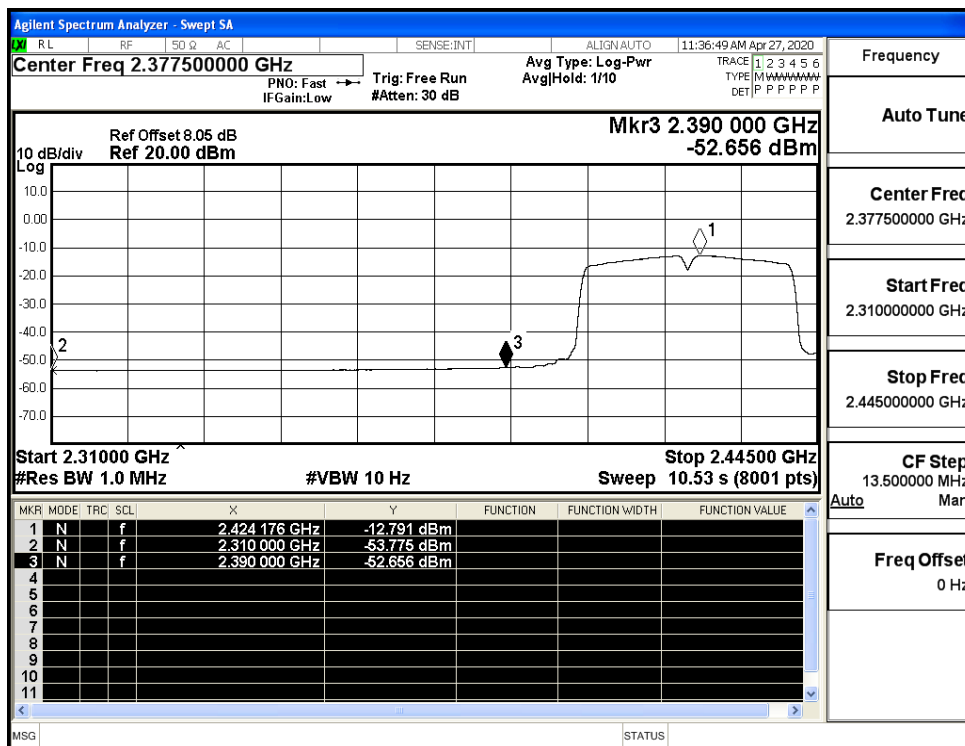
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



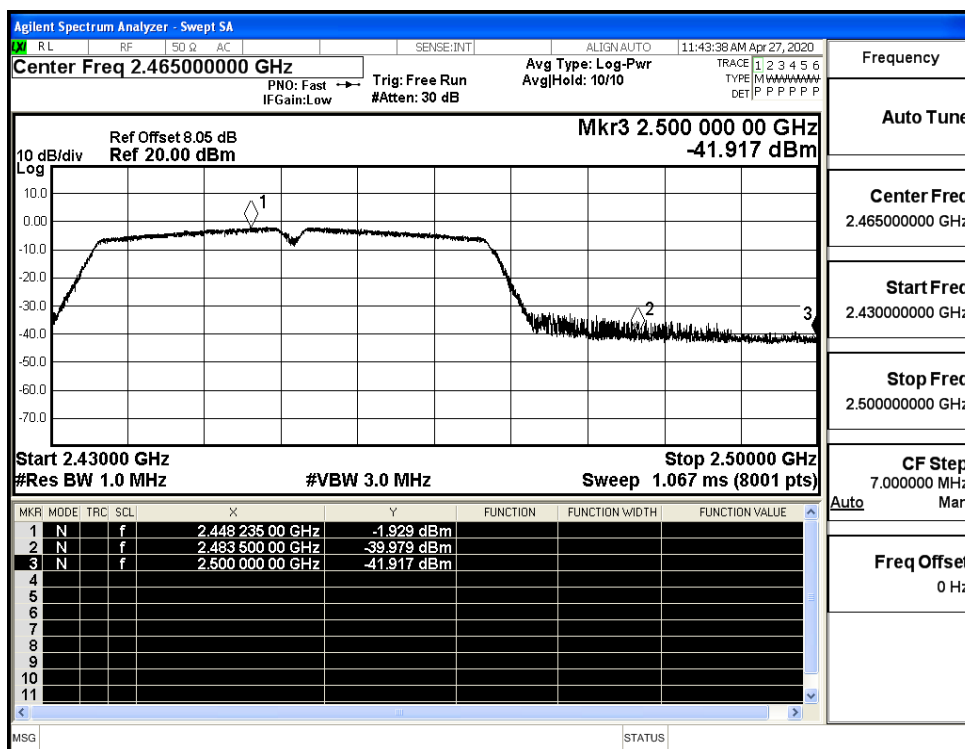
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

