

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Hand Cleansing Facial Scan Kiosk

Trade Mark: N/A

Test Model: LKS-TM001X

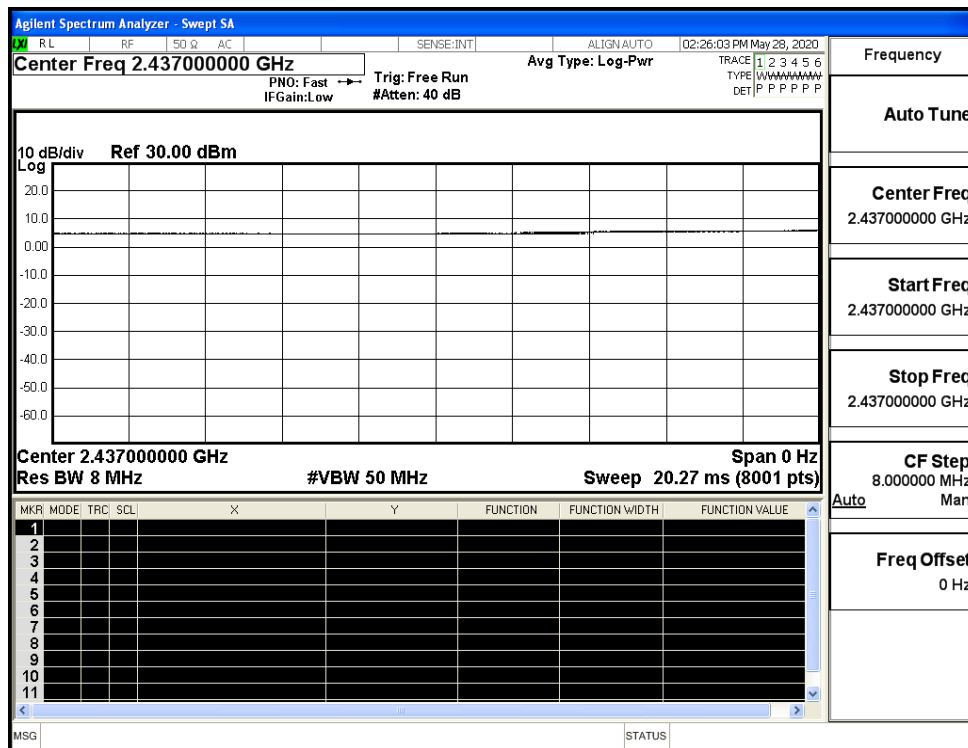
Environmental Conditions

Temperature:	23.2°C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Scout Wu
Supervised by:	Li Huan

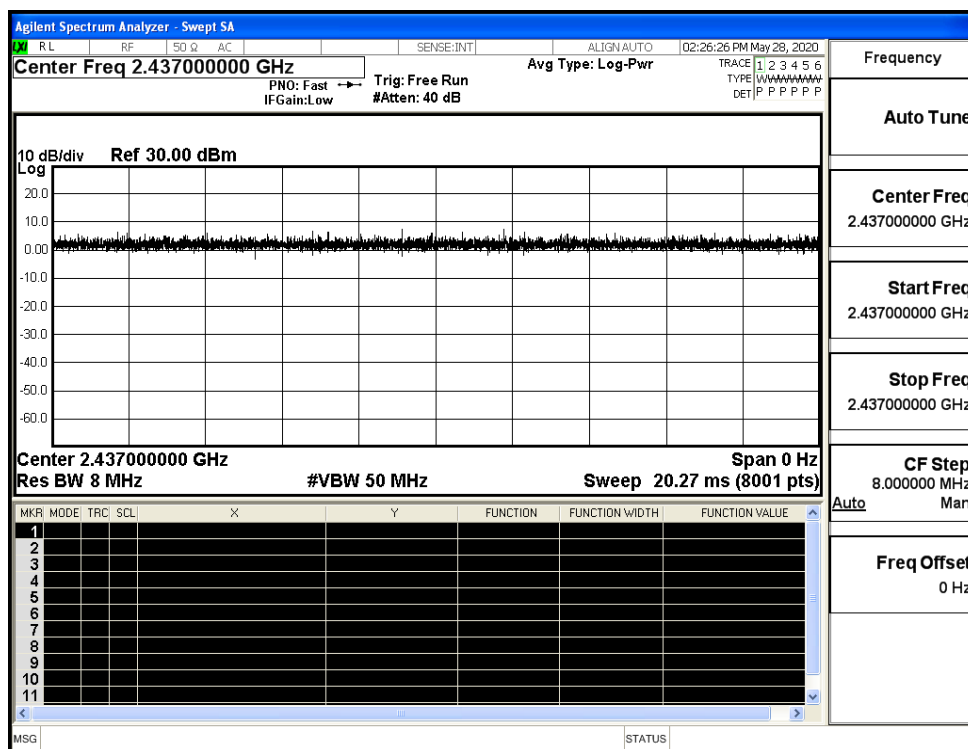
C.1 Duty Cycle

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

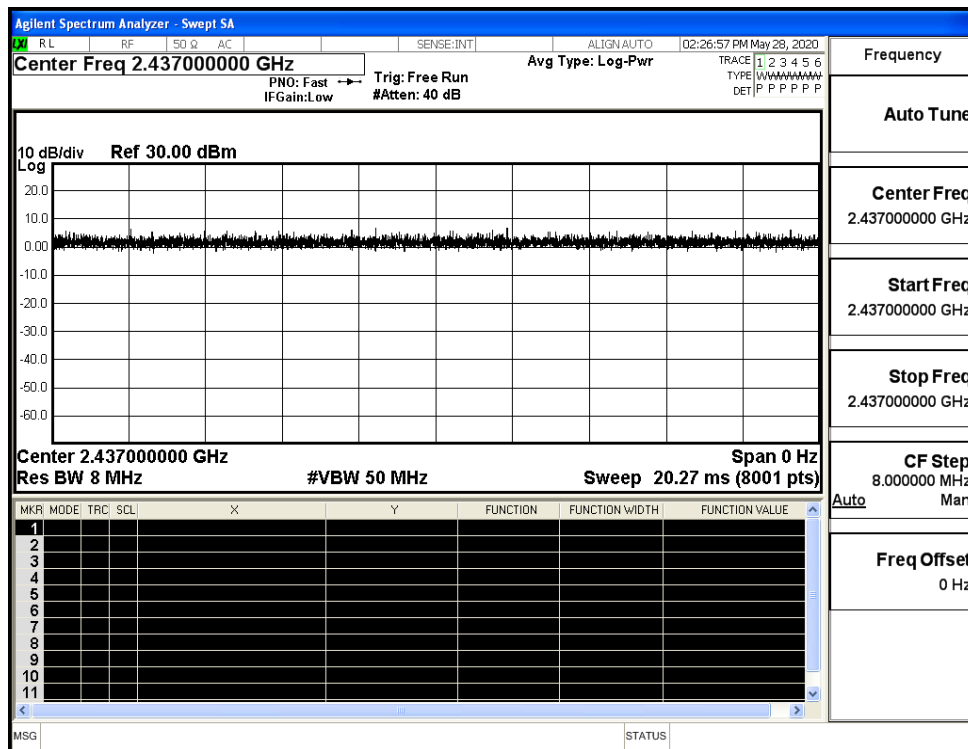
Duty Cycle_11B_2437_Ant1



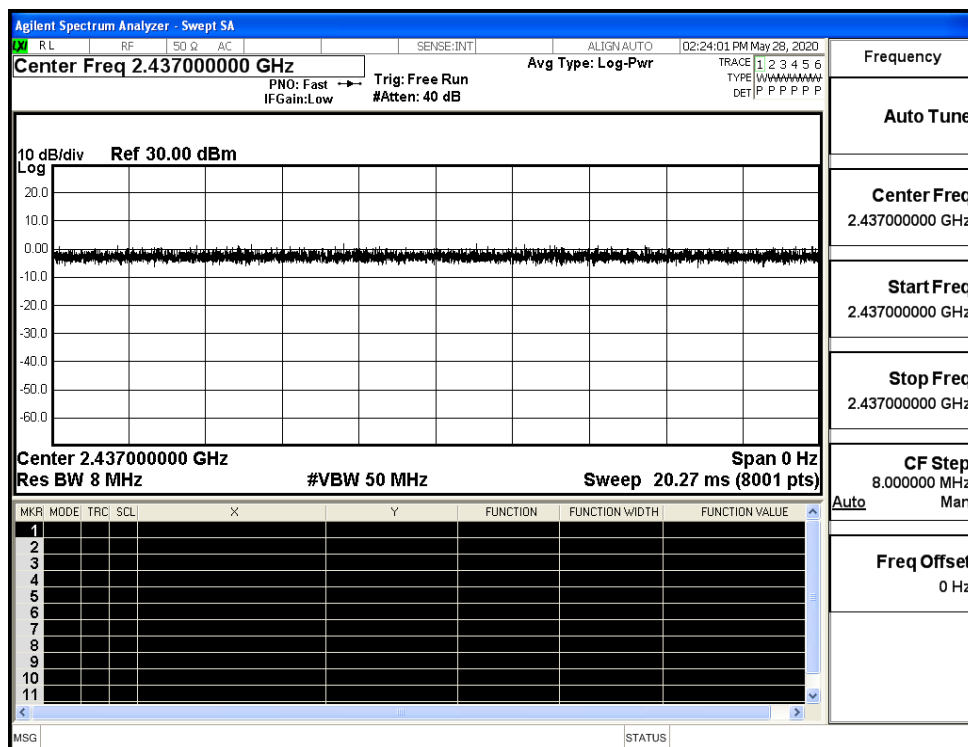
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



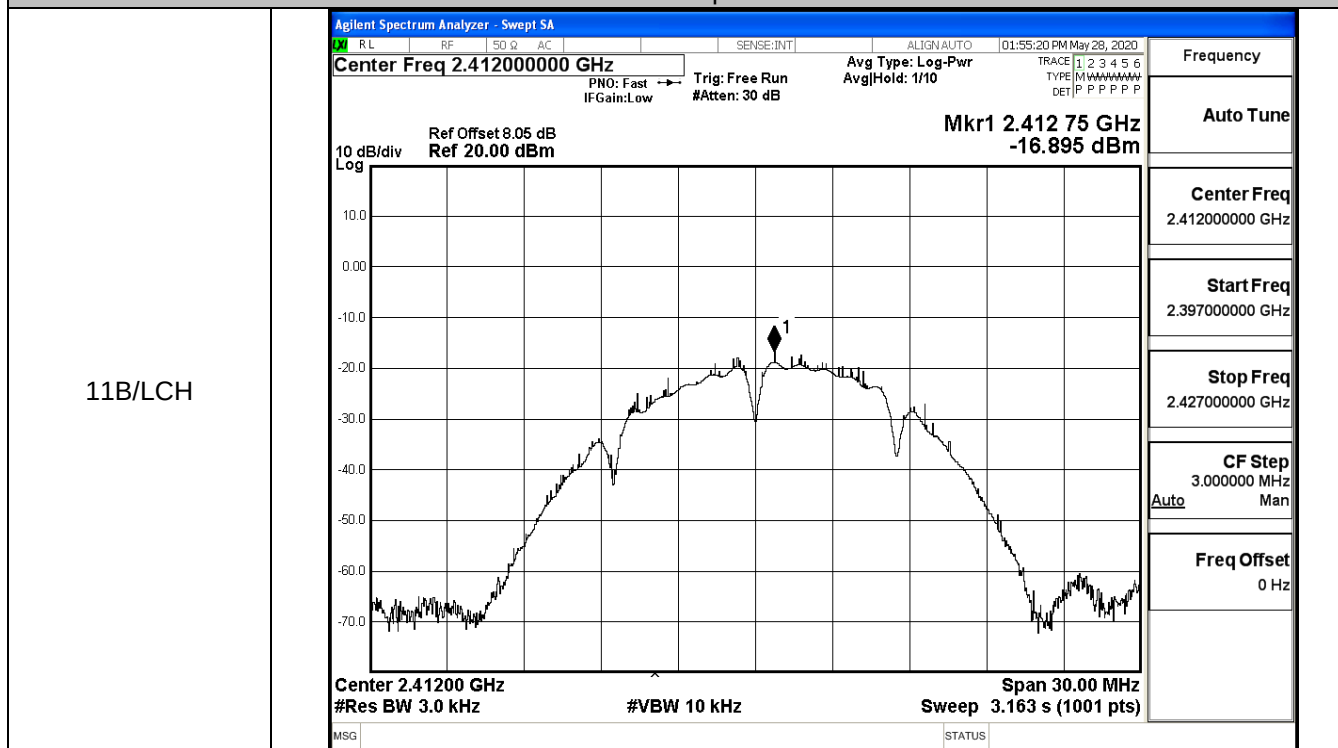
C.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	11.39	30	PASS
	MCH	11.56	30	PASS
	HCH	11.55	30	PASS
11G	LCH	11.35	30	PASS
	MCH	11.64	30	PASS
	HCH	11.5	30	PASS
11N20SISO	LCH	11.13	30	PASS
	MCH	11.32	30	PASS
	HCH	11.4	30	PASS
11N40SISO	LCH	11.68	30	PASS
	MCH	12.25	30	PASS
	HCH	11.83	30	PASS

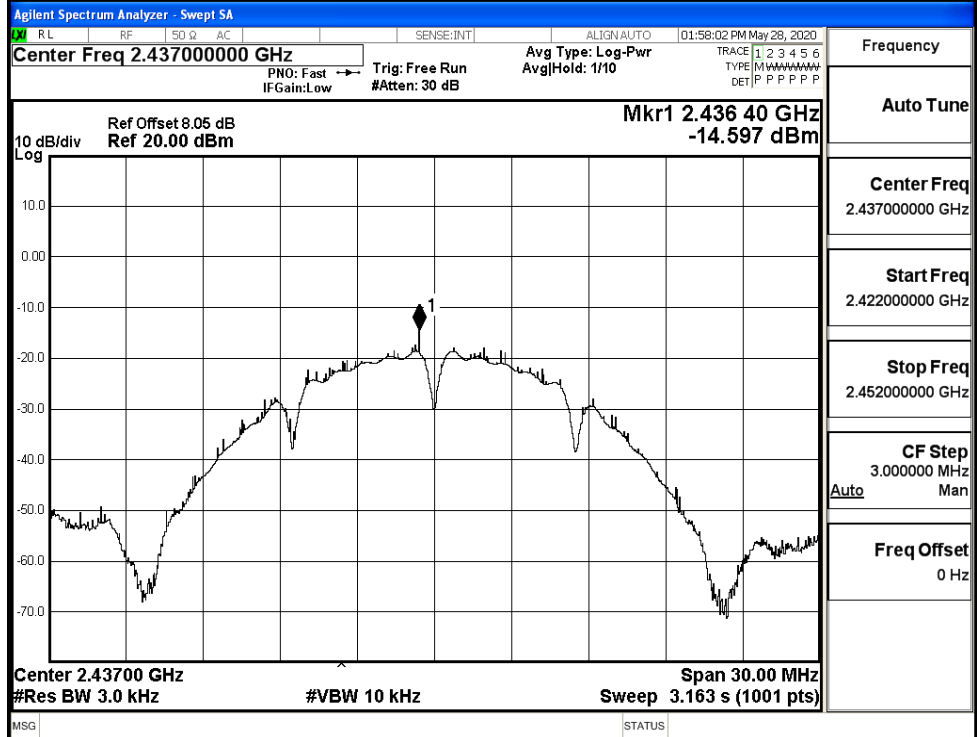
C.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-16.895	8	PASS
	MCH	-14.597	8	PASS
	HCH	-17.252	8	PASS
11G	LCH	-19.602	8	PASS
	MCH	-19.500	8	PASS
	HCH	-22.154	8	PASS
11N20SISO	LCH	-22.021	8	PASS
	MCH	-20.179	8	PASS
	HCH	-21.279	8	PASS
11N40SISO	LCH	-22.040	8	PASS
	MCH	-23.478	8	PASS
	HCH	-23.955	8	PASS

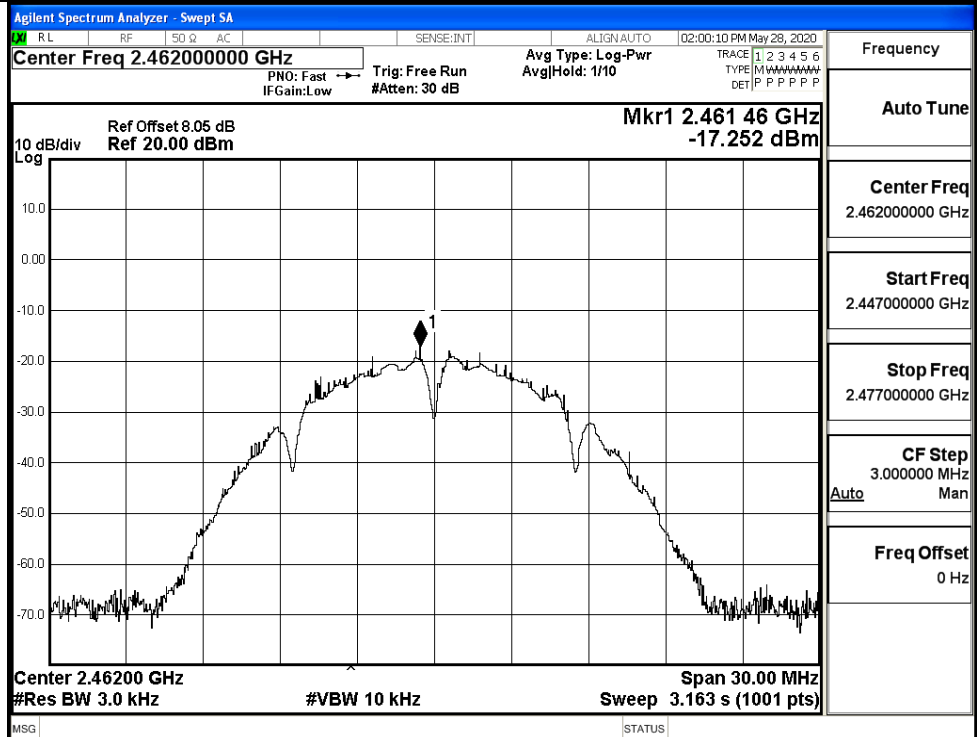
Test Graphs



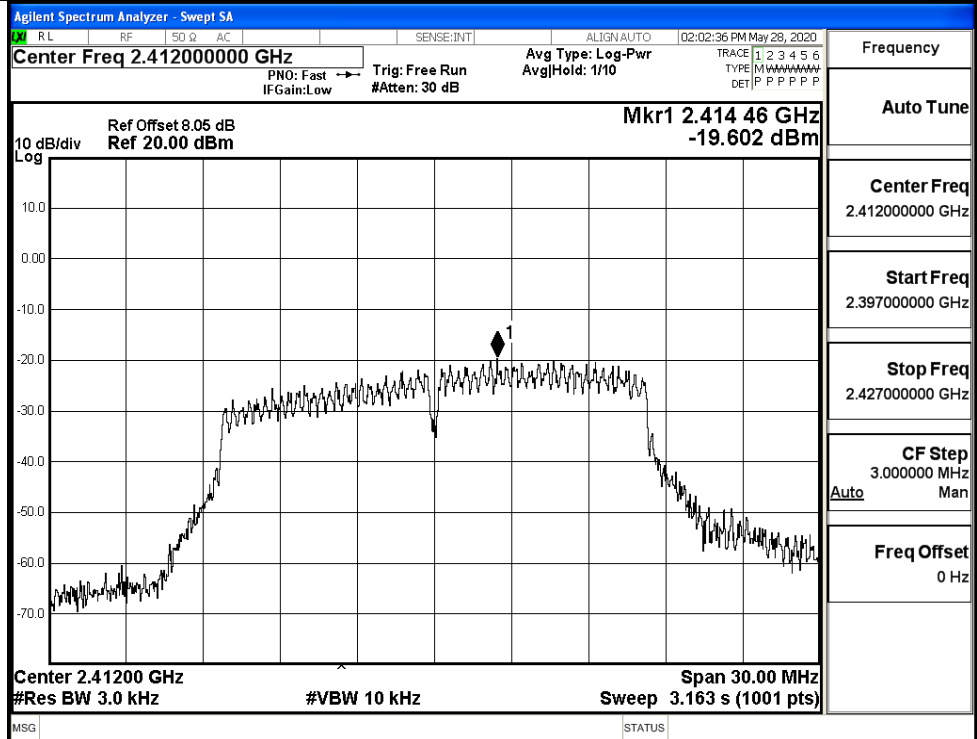
11B/MCH



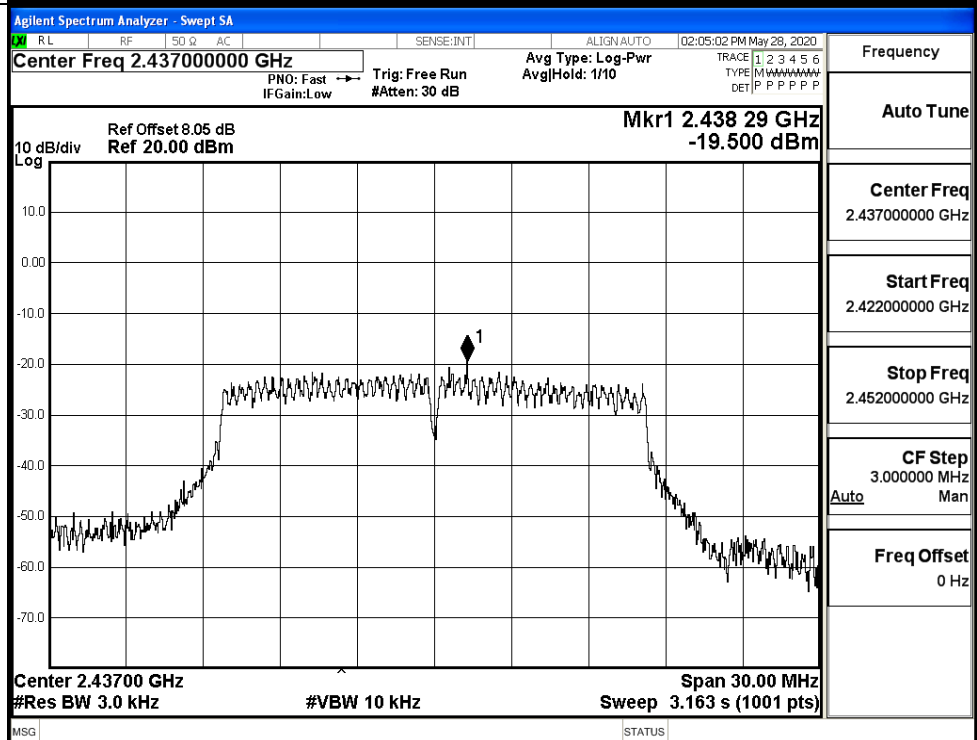
11B/HCH



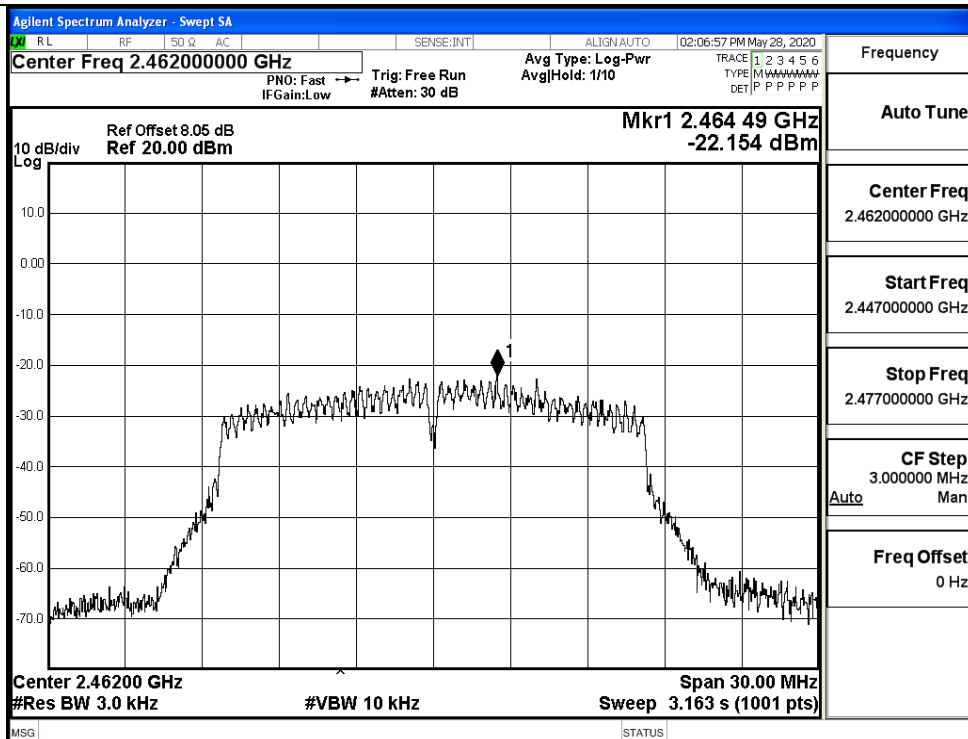
11G/LCH



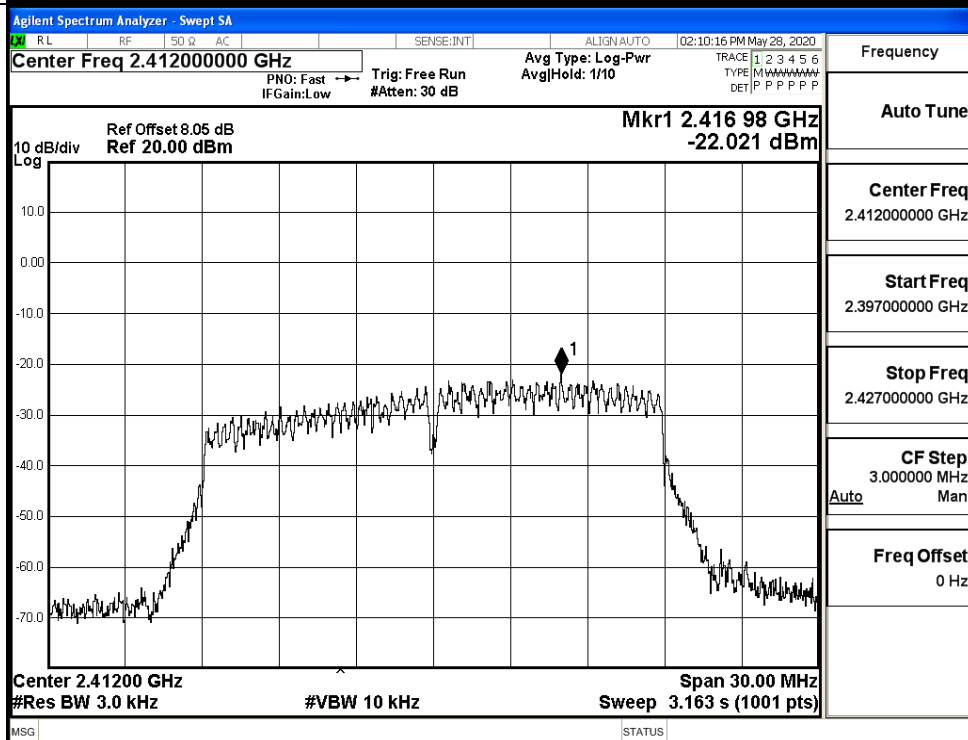
11G/MCH

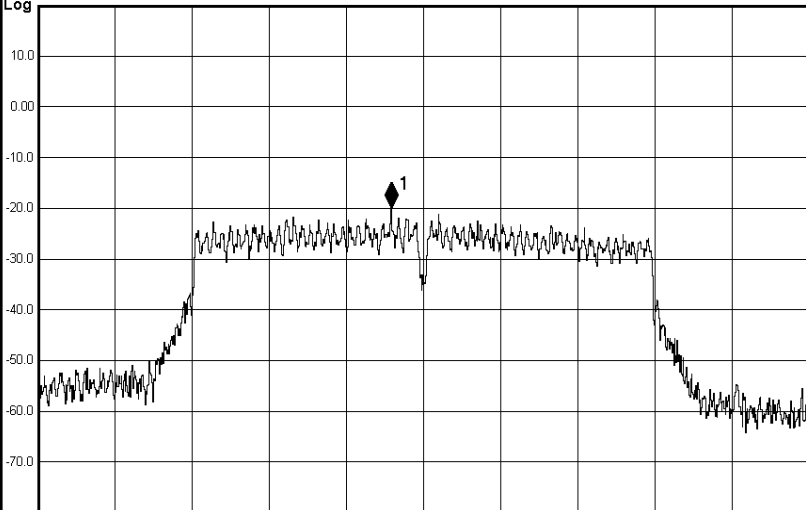
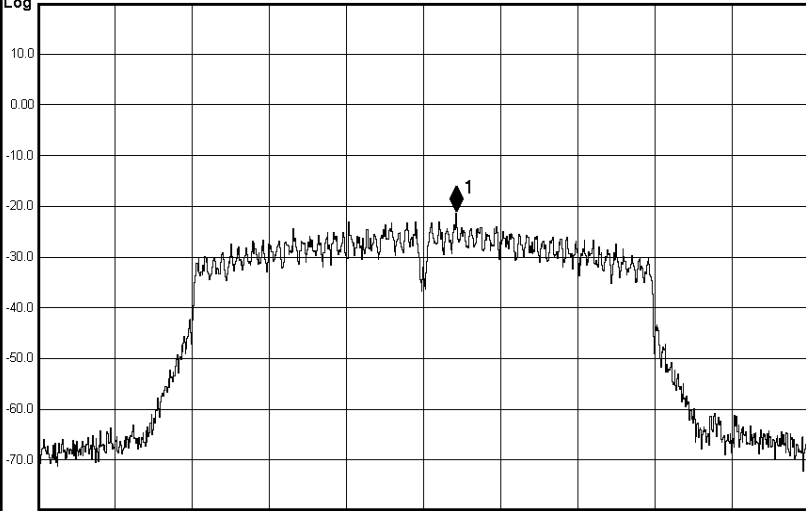


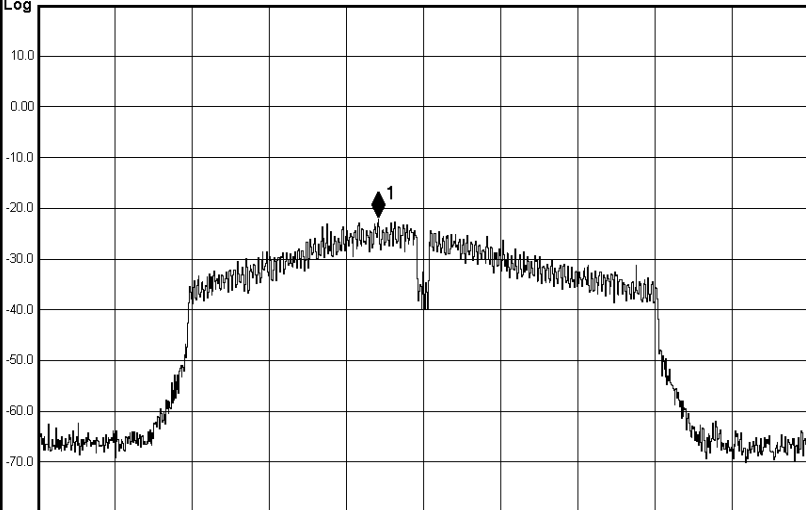
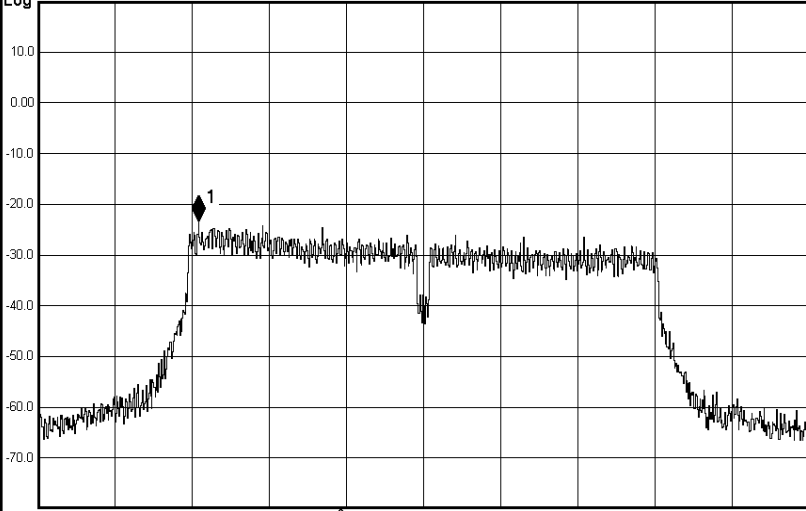
11G/HCH

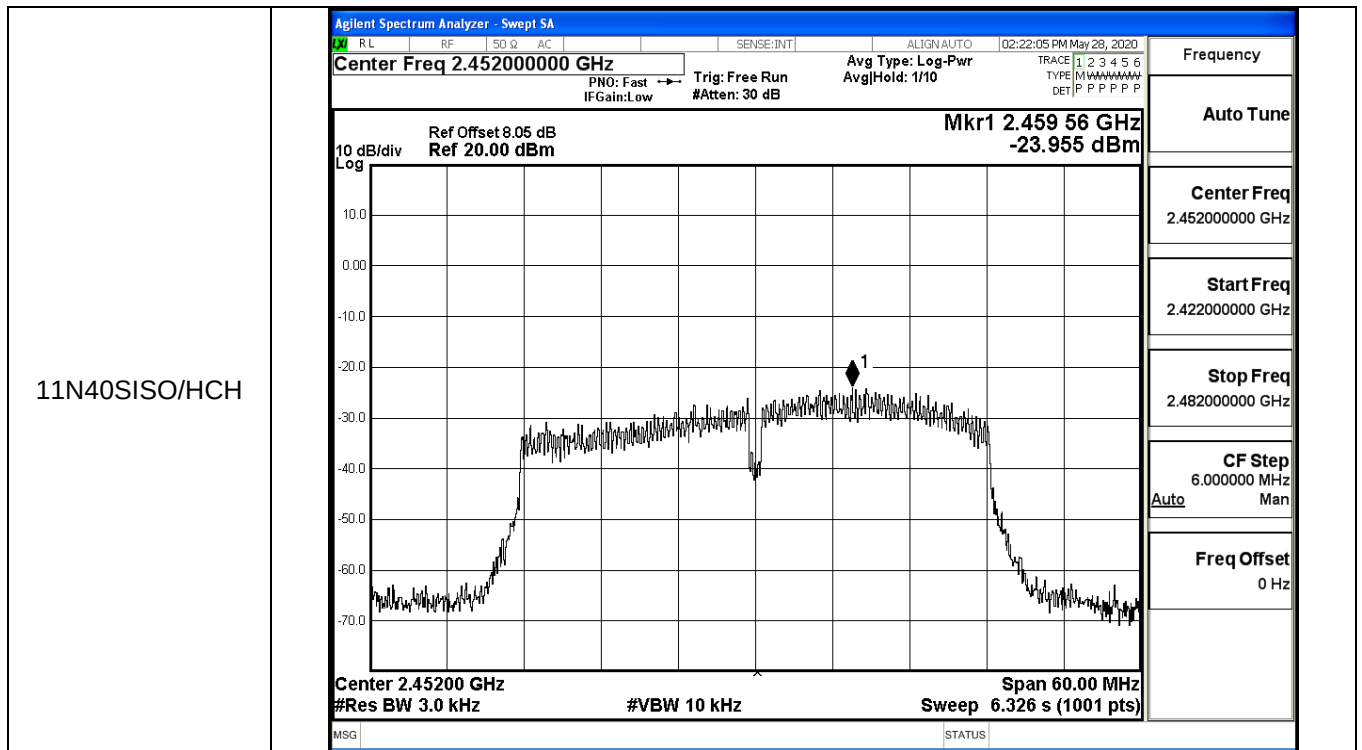


11N20SISO/LCH



11N20SISO/MCH	Agilent Spectrum Analyzer - Swept SA Center Freq 2.437000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 3.163 s (1001 pts) 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 Center Freq 2.462000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 3.163 s (1001 pts) 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 Center Freq 2.422000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz 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 Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Swept SA Center Freq 2.437000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz 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 Freq Offset 0 Hz

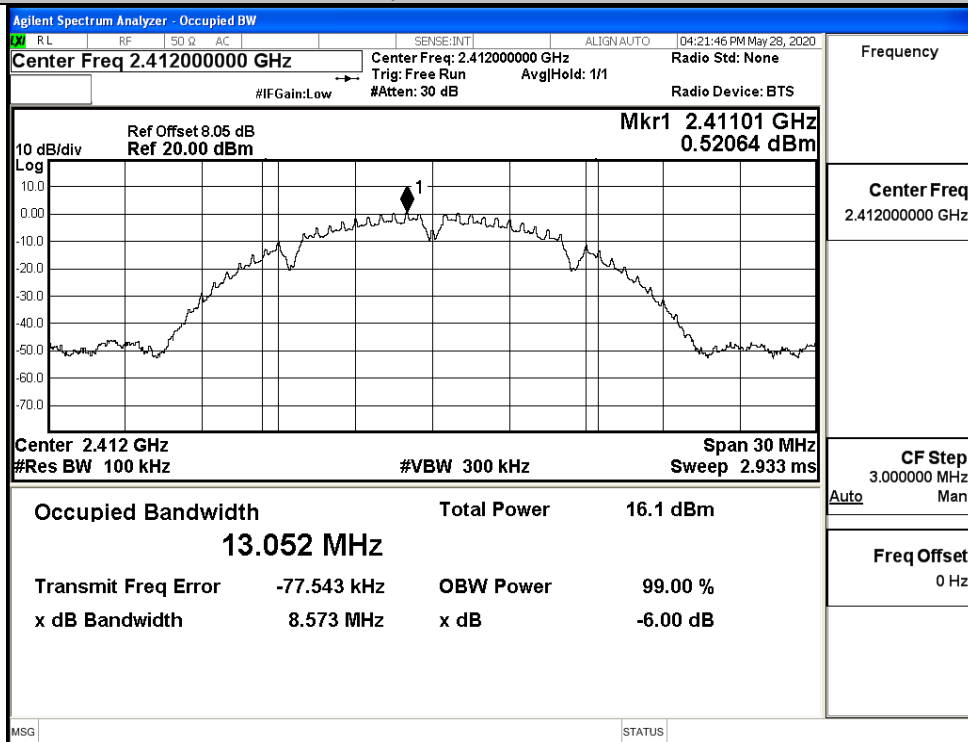


C.4 6dB Bandwidth

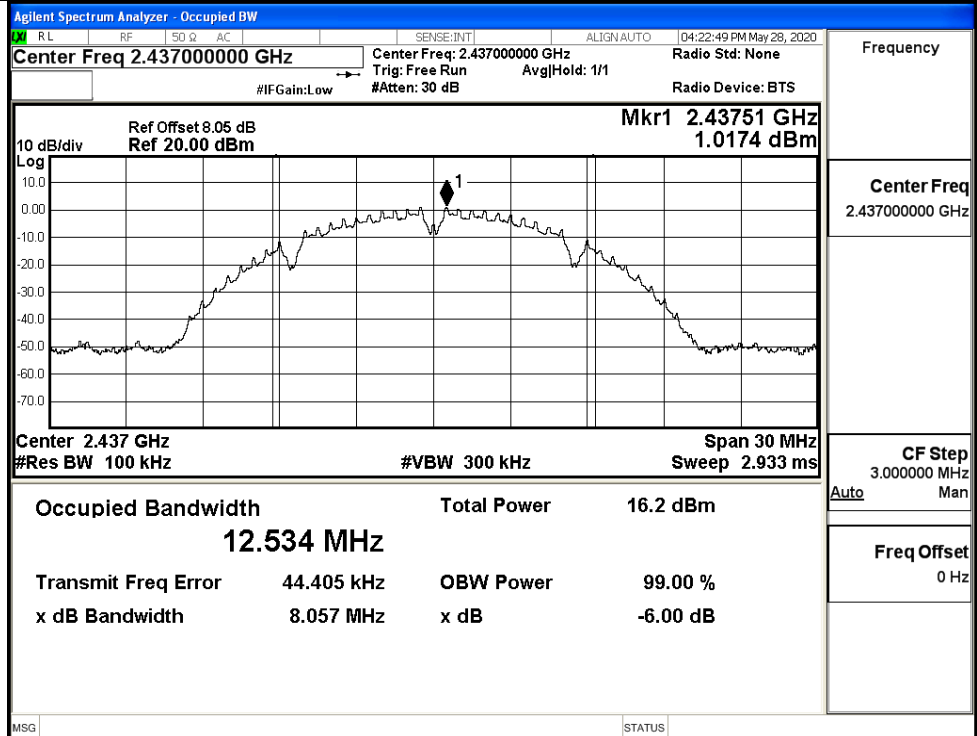
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	8.573	≥ 0.5	PASS
	MCH	8.057	≥ 0.5	PASS
	HCH	8.094	≥ 0.5	PASS
11G	LCH	15.94	≥ 0.5	PASS
	MCH	15.09	≥ 0.5	PASS
	HCH	15.50	≥ 0.5	PASS
11N20SISO	LCH	16.37	≥ 0.5	PASS
	MCH	15.10	≥ 0.5	PASS
	HCH	16.75	≥ 0.5	PASS
11N40SISO	LCH	35.46	≥ 0.5	PASS
	MCH	35.80	≥ 0.5	PASS
	HCH	35.15	≥ 0.5	PASS

Test Graphs

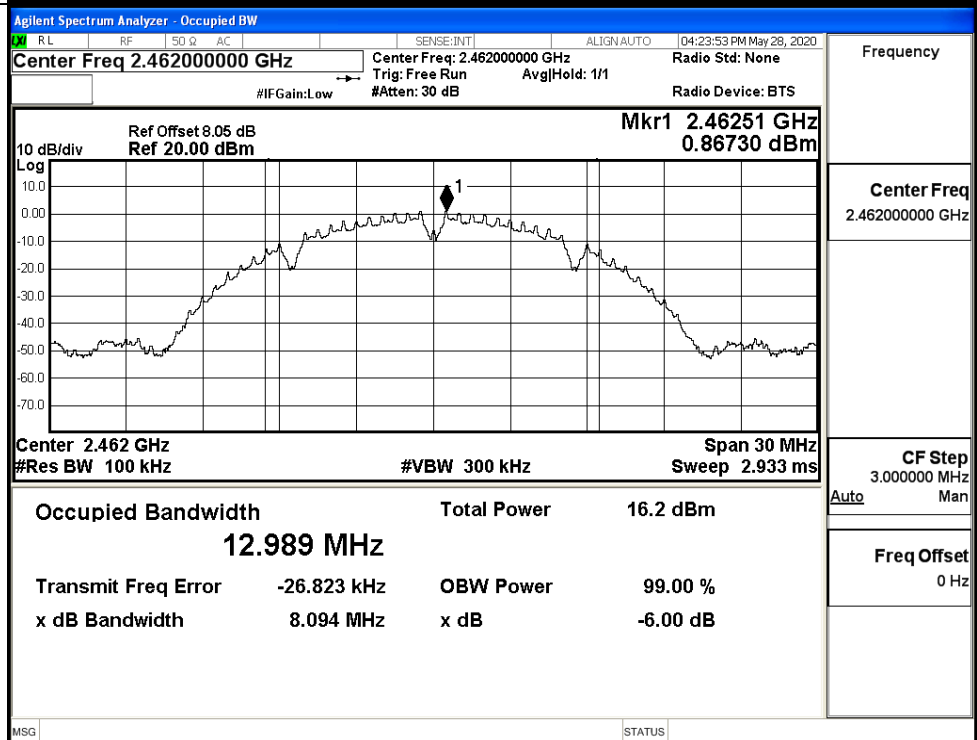
11B/LCH



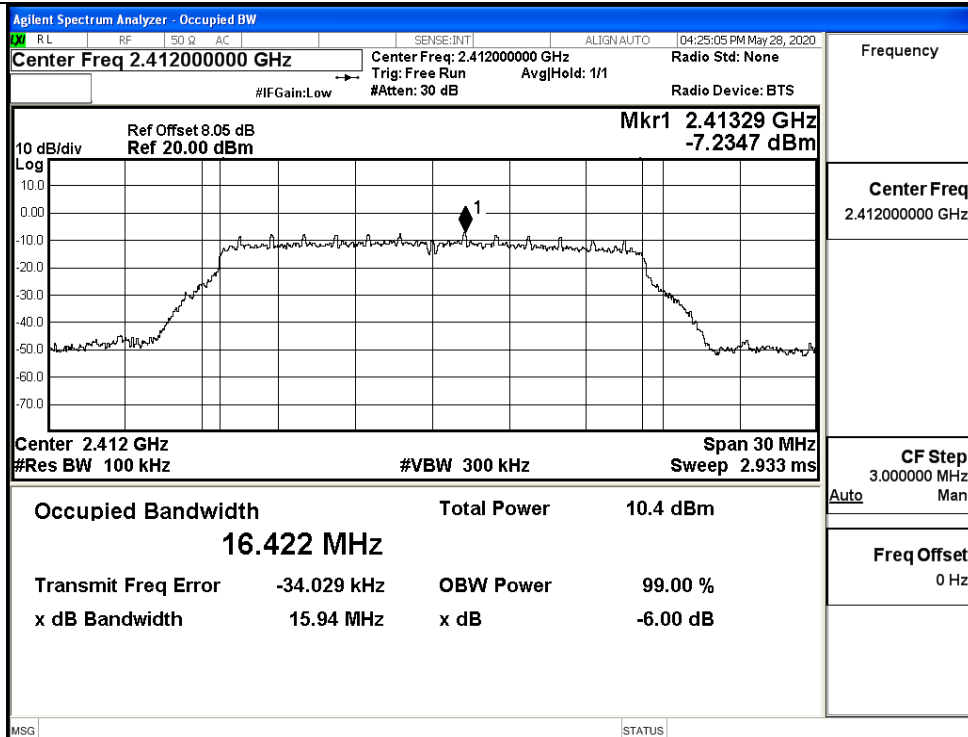
11B/MCH



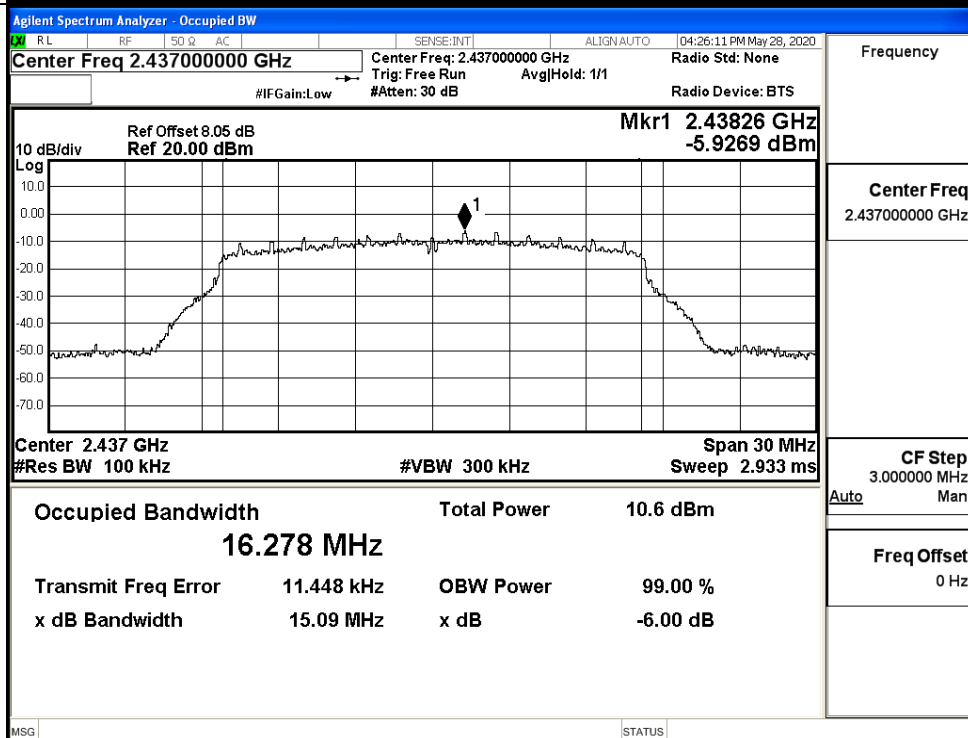
11B/HCH



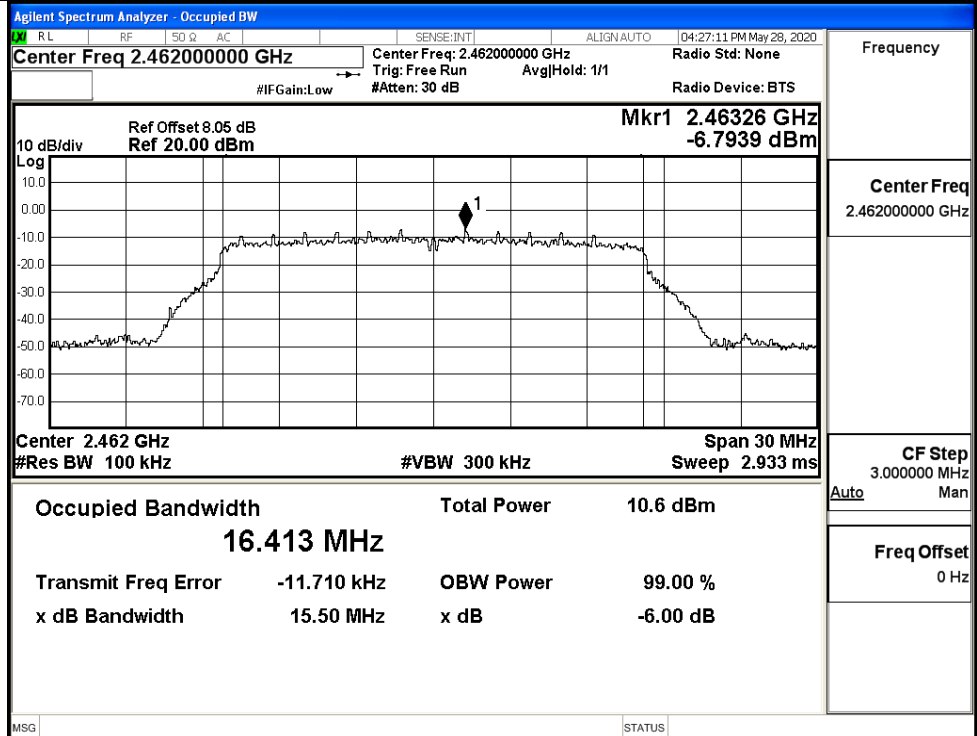
11G/LCH



11G/MCH



11G/HCH



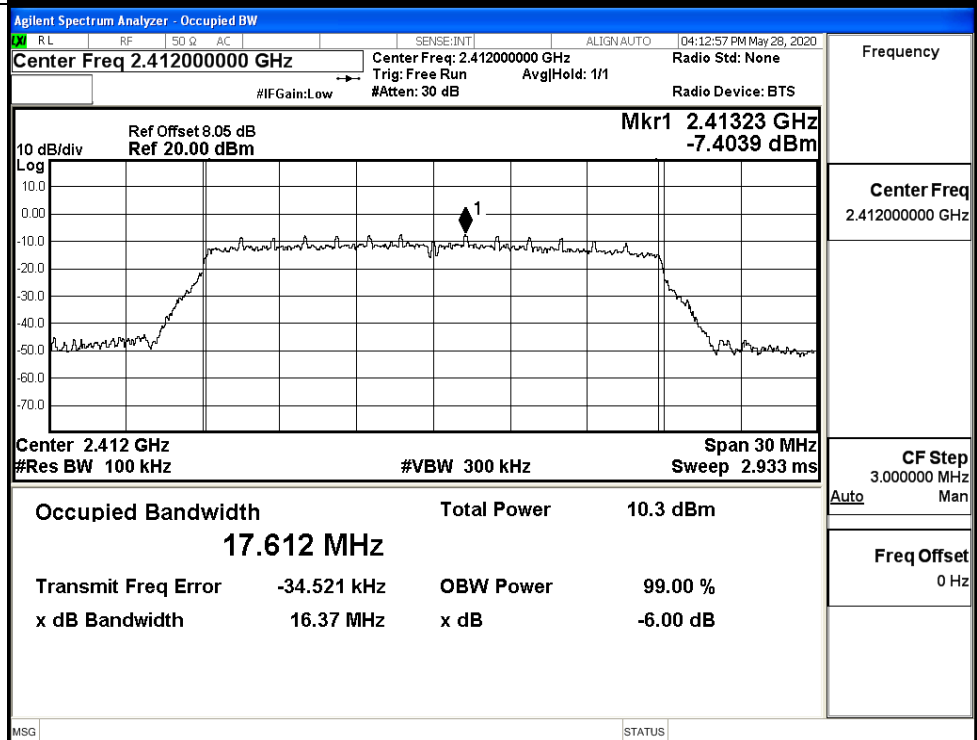
Frequency

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 RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:14:41 PM May 28, 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 2.43826 GHz -5.9830 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.438 MHz Total Power 10.5 dBm Transmit Freq Error 13.050 kHz OBW Power 99.00 % x dB Bandwidth 15.10 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 RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:19:41 PM May 28, 2020 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 8.05 dB Ref 20.00 dBm Mkr1 2.46074 GHz -7.2965 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.594 MHz Total Power 10.4 dBm Transmit Freq Error -5.156 kHz OBW Power 99.00 % x dB Bandwidth 16.75 MHz x dB -6.00 dB

Frequency

Center Freq

2.462000000 GHz

CF Step

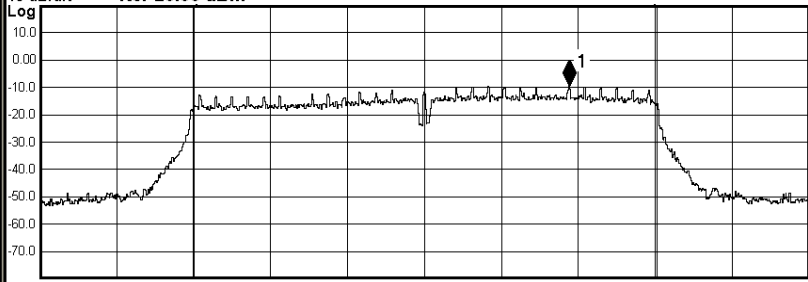
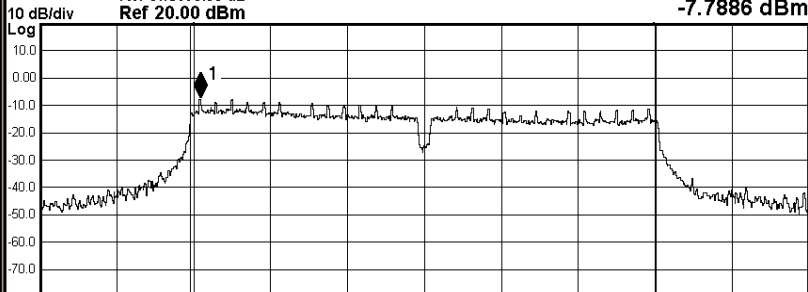
3.000000 MHz

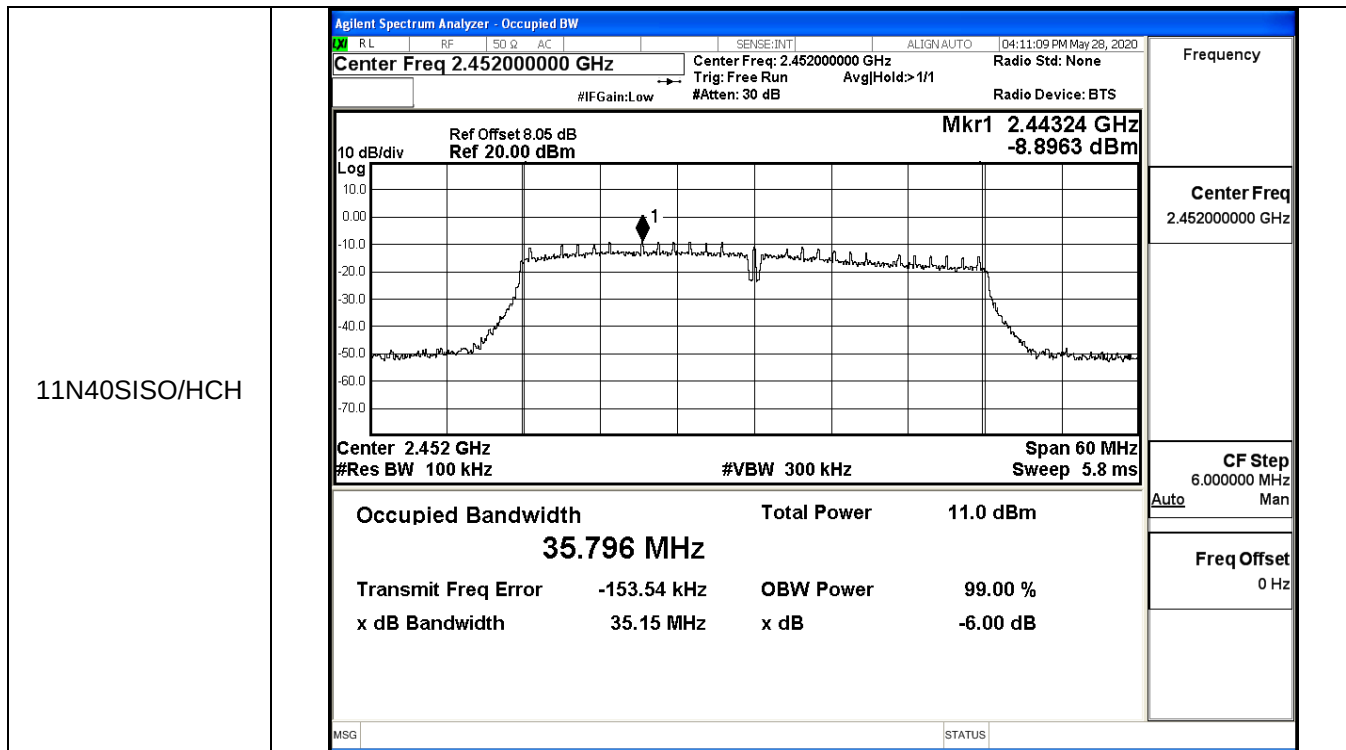
Auto

Man

Freq Offset

0 Hz

11N40SISO/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:09:51 PM May 28, 2020 Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run Avg Hold: 1/1 Radio Std: None Radio Device: BTS #IF Gain: Low #Atten: 30 dB Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43328 GHz -9.5881 dBm 10 dB/div Log  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.036 MHz Total Power 10.9 dBm Transmit Freq Error 73.591 kHz OBW Power 99.00 % x dB Bandwidth 35.46 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
11N40SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:19:17 PM May 28, 2020 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold: 1/1 Radio Std: None Radio Device: BTS #IF Gain: Low #Atten: 30 dB Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.41954 GHz -7.7886 dBm 10 dB/div Log  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.239 MHz Total Power 11.6 dBm Transmit Freq Error -64.154 kHz OBW Power 99.00 % x dB Bandwidth 35.80 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



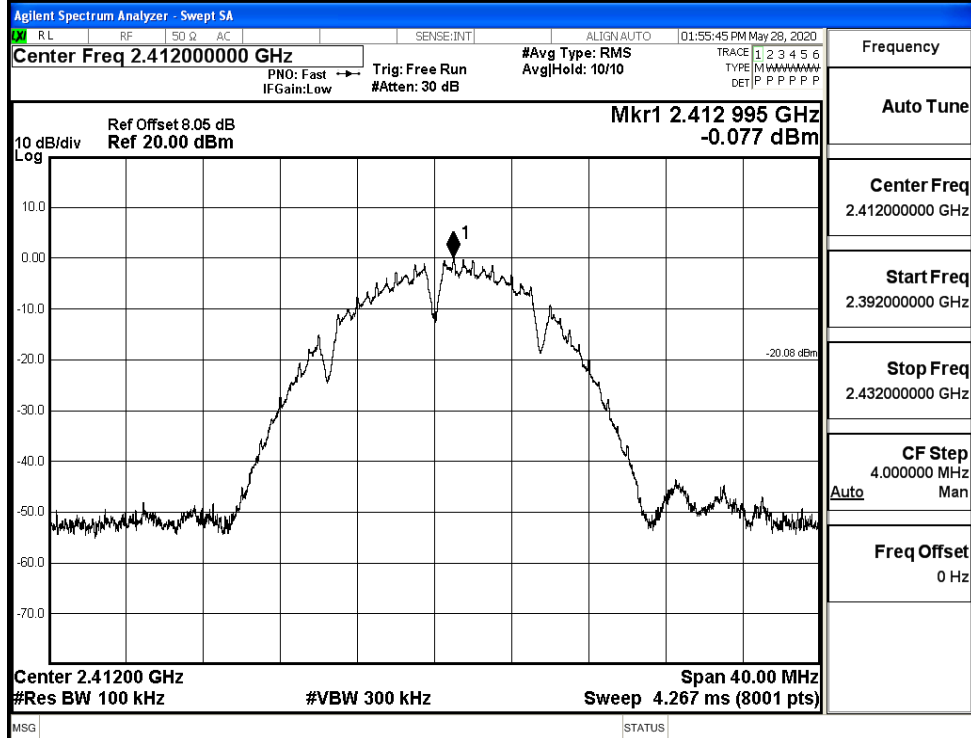
C.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdic
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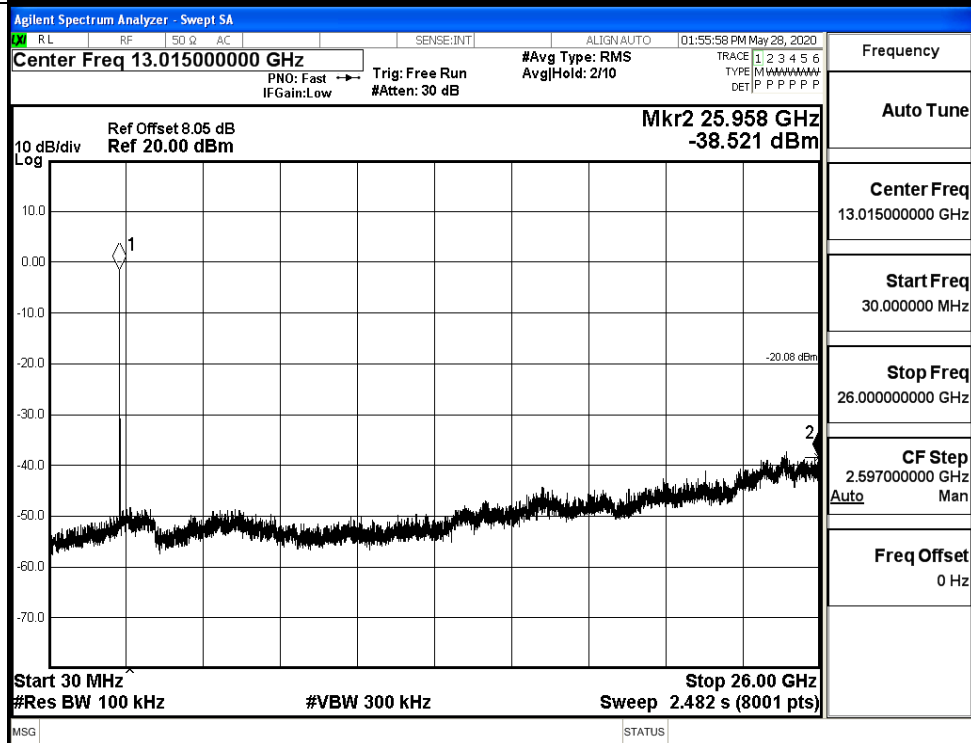
					t
11B	LCH	-0.077	-38.521	-20.077	PASS
	MCH	0.065	-36.786	-19.935	PASS
	HCH	-0.568	-38.605	-20.568	PASS
11G	LCH	-2.641	-37.899	-22.641	PASS
	MCH	-4.291	-37.881	-24.291	PASS
	HCH	-4.899	-38.086	-24.899	PASS
11N20 SISO	LCH	-5.301	-37.816	-25.301	PASS
	MCH	-4.796	-36.478	-24.796	PASS
	HCH	-5.415	-38.350	-25.415	PASS
11N40 SISO	LCH	-5.918	-37.458	-25.918	PASS
	MCH	-7.664	-37.720	-27.664	PASS
	HCH	-7.731	-37.858	-27.731	PASS

11B LCH Graphs

Pref/11B/LCH

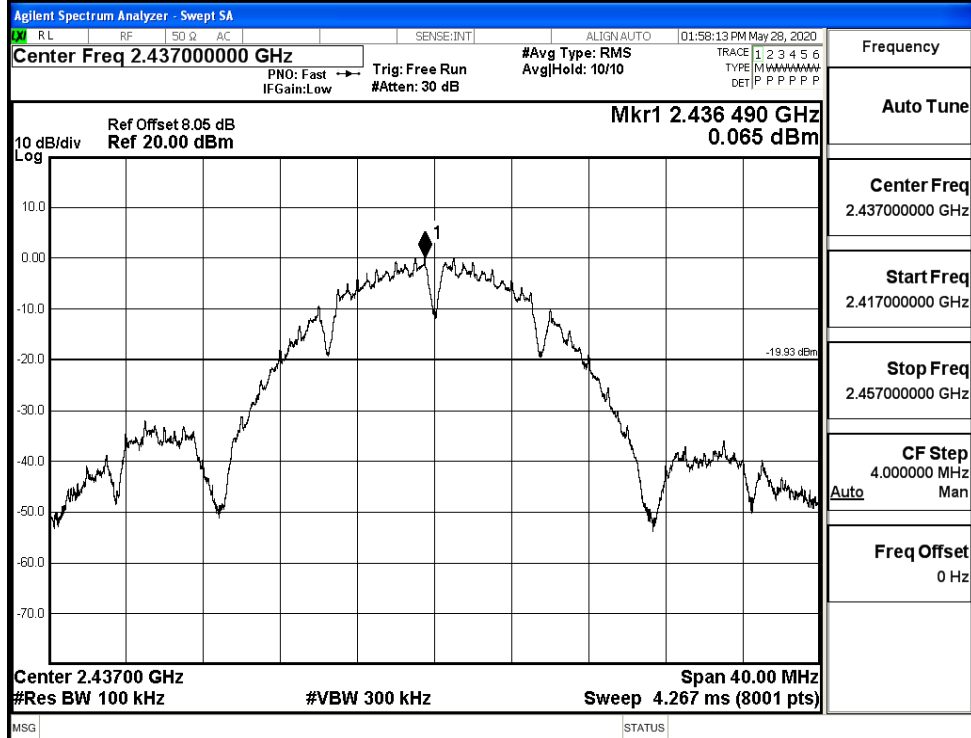


Puw/11B/LCH

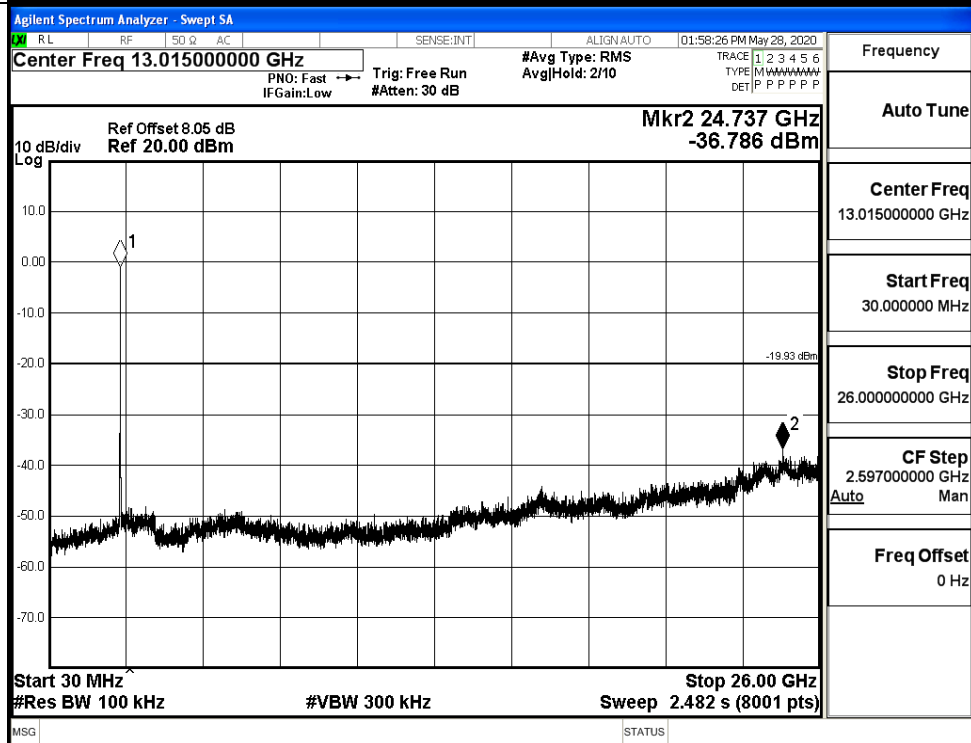


11B MCH Graphs

Pref/11B/MCH

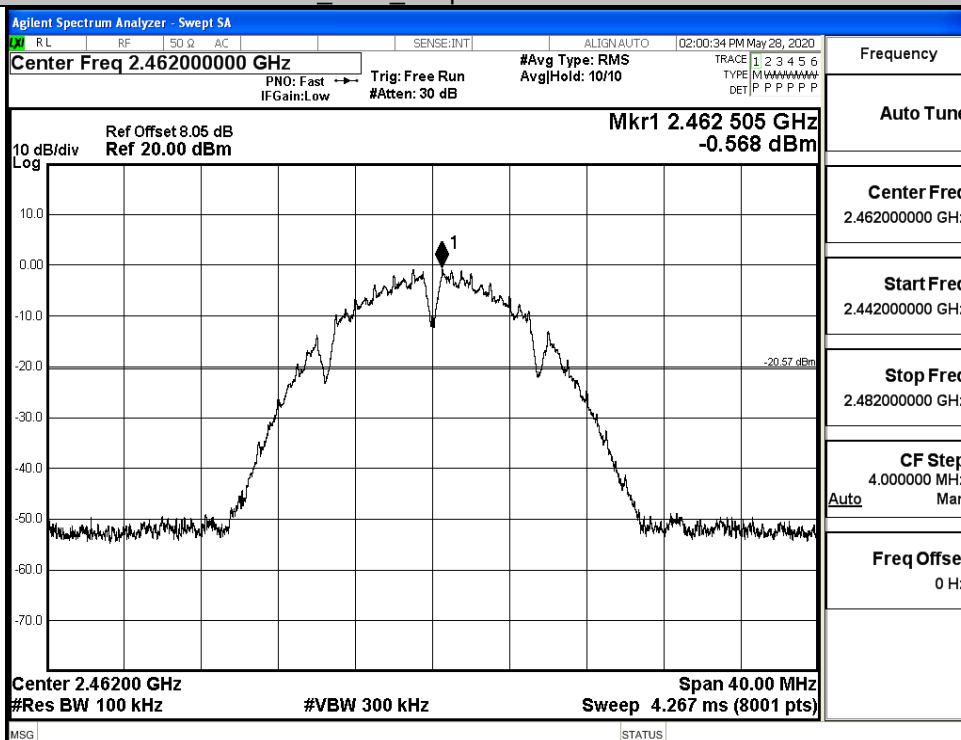


Puw/11B/MCH

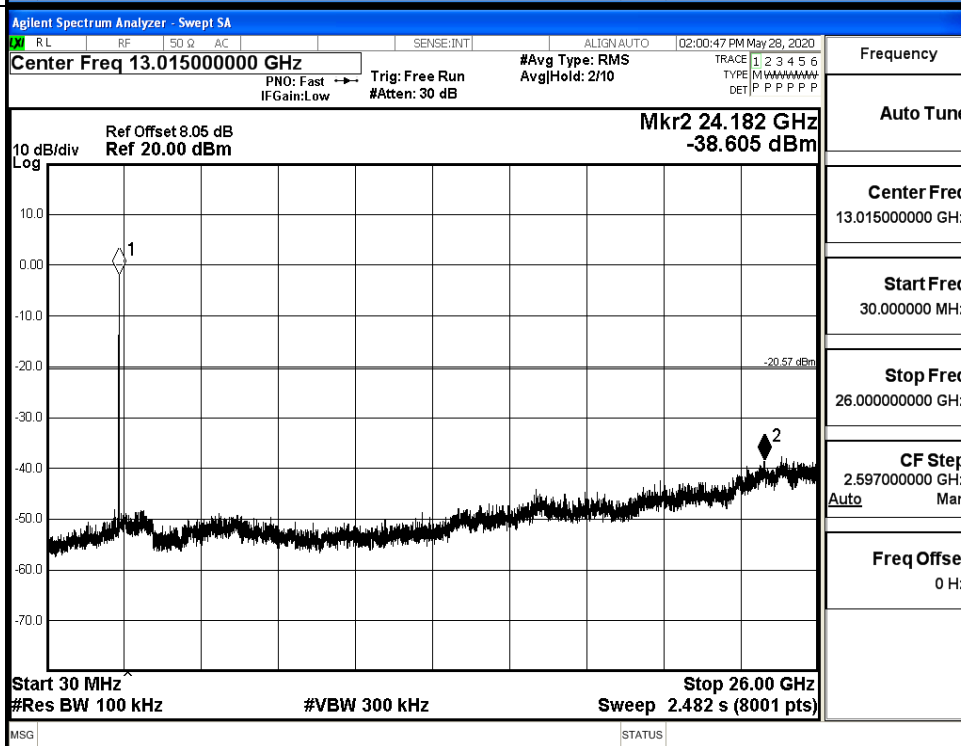


11B HCH Graphs

Pref/11B/HCH

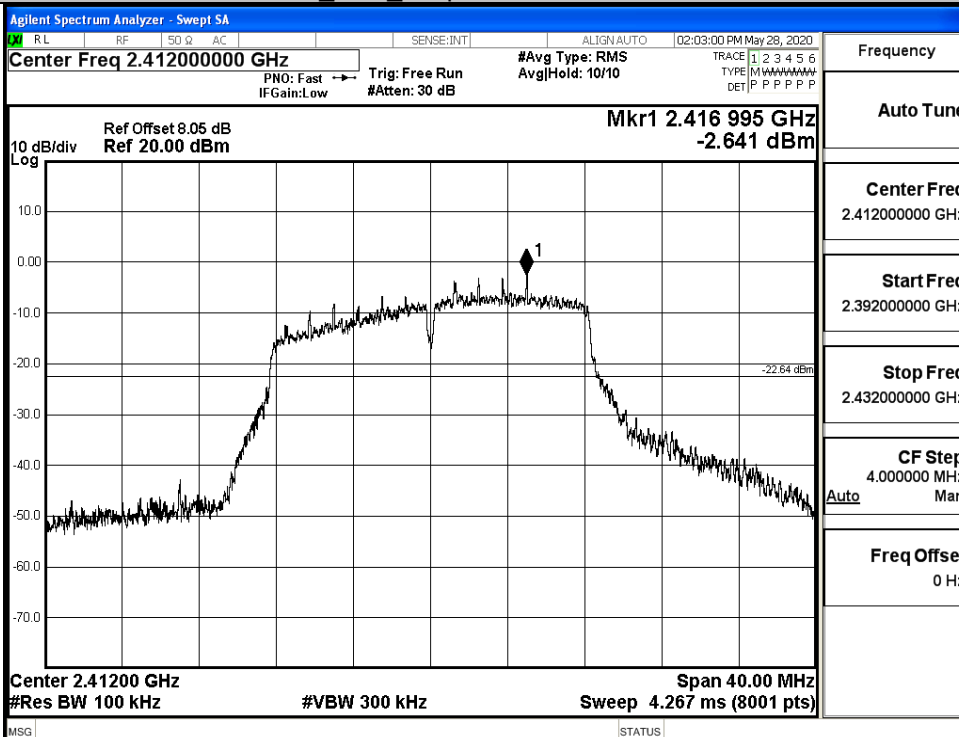


Puw/11B/HCH

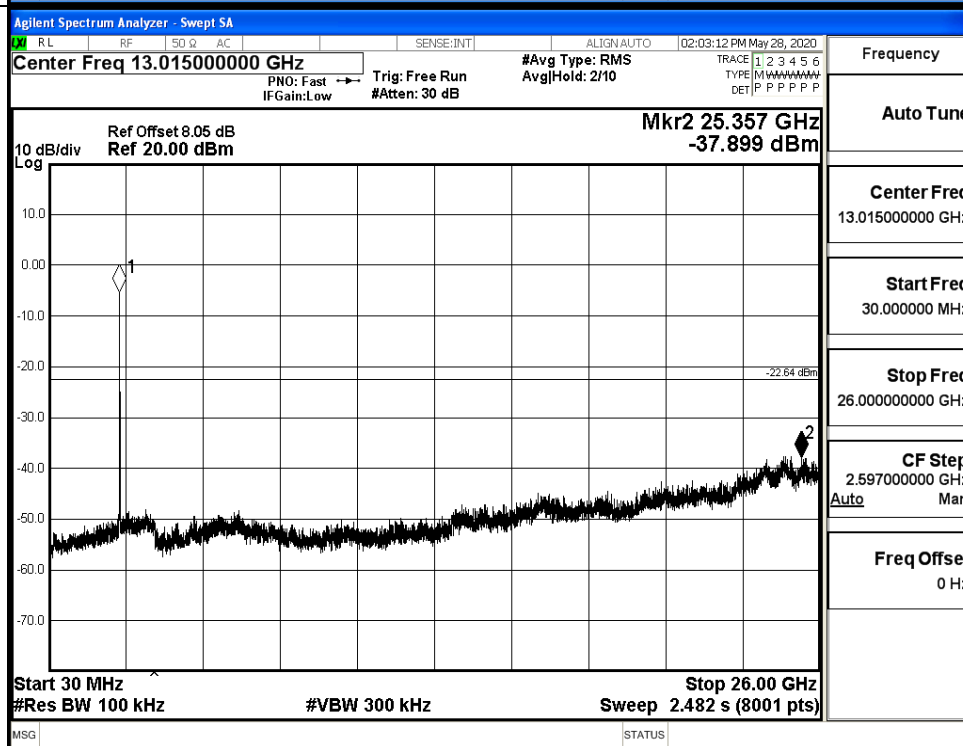


11G LCH Graphs

Pref/11G/LCH

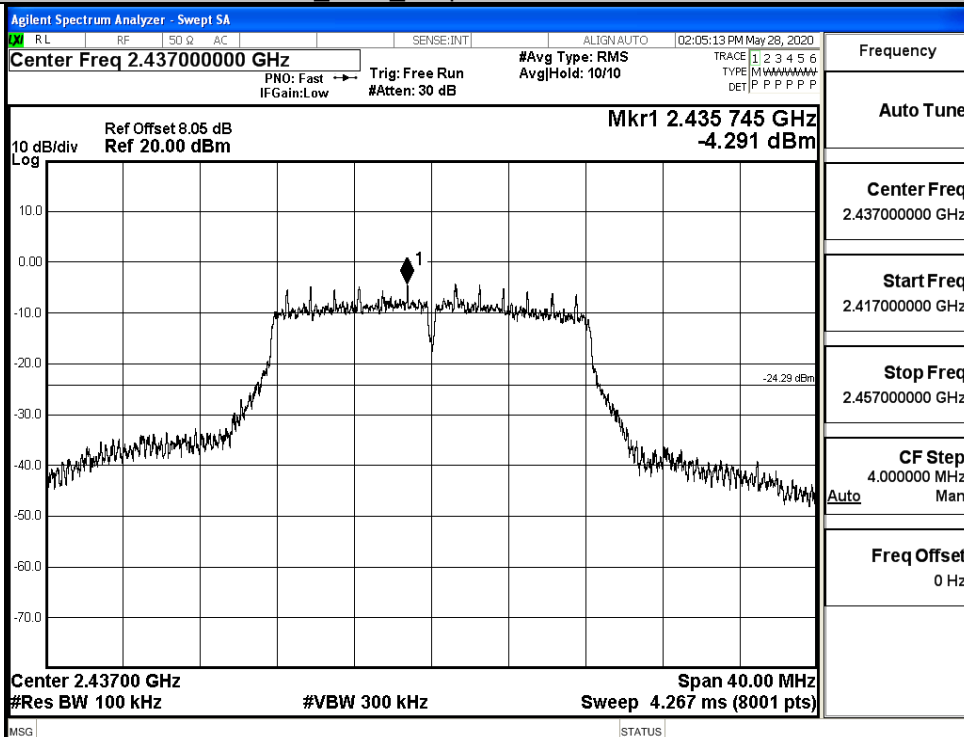


Puw/11G/LCH

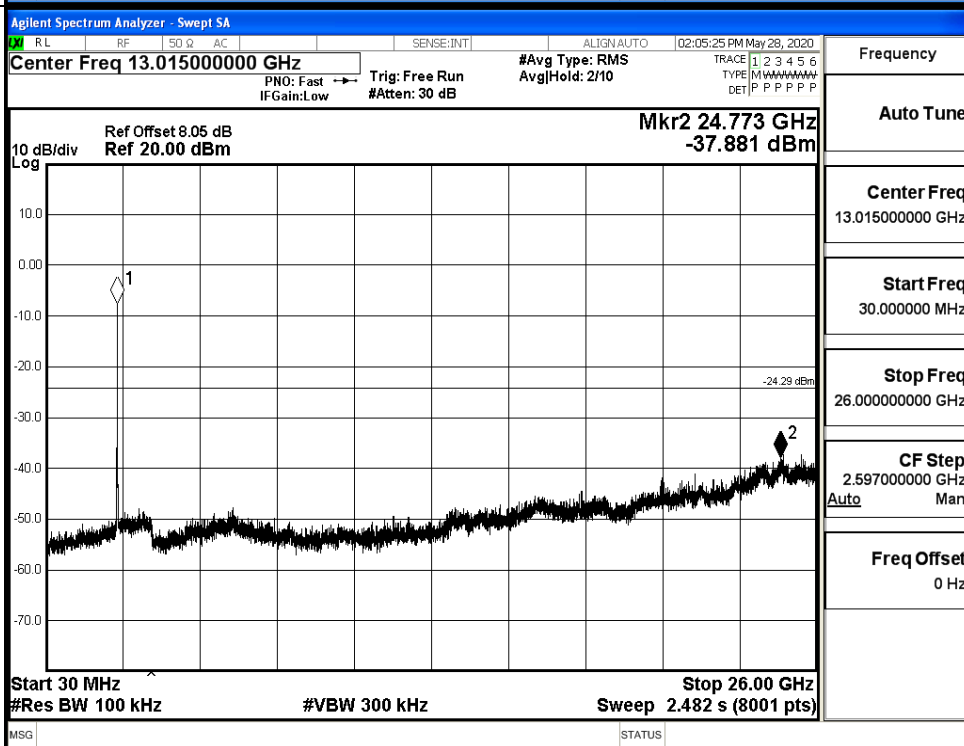


11G MCH Graphs

Pref/11G/MCH

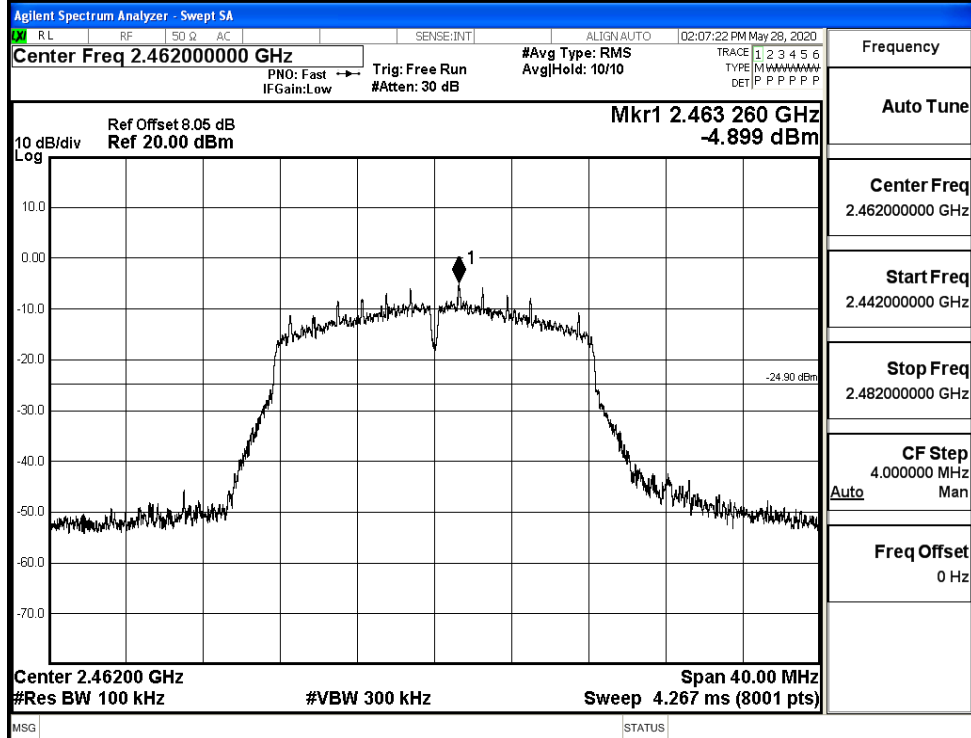


Puw/11G/MCH

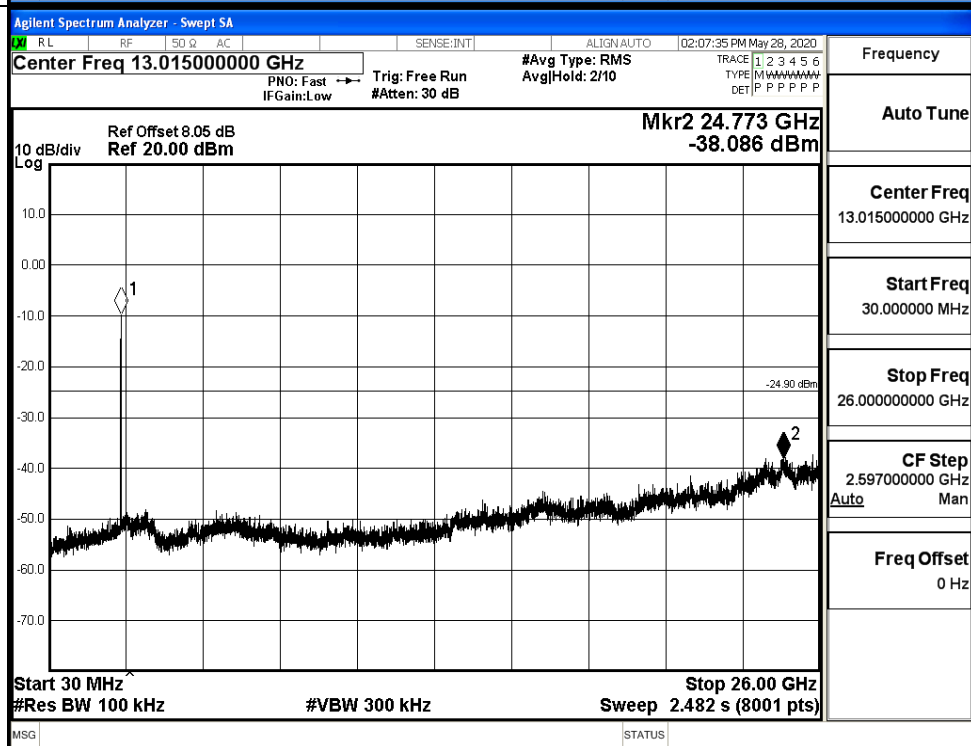


11G HCH Graphs

Pref/11G/HCH

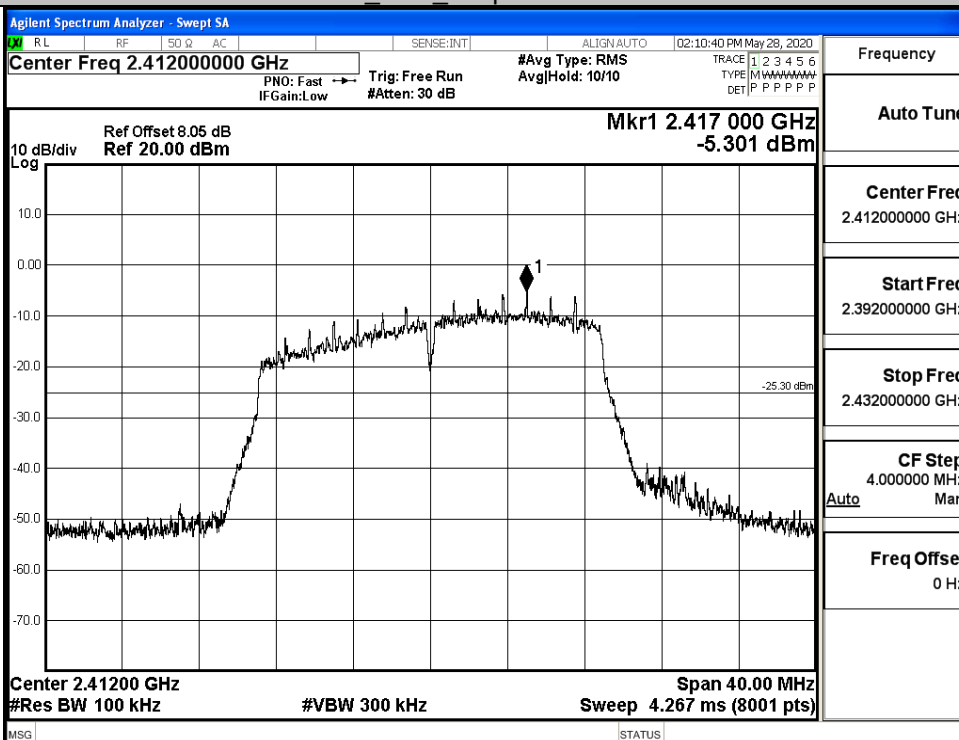


Puw/11G/HCH

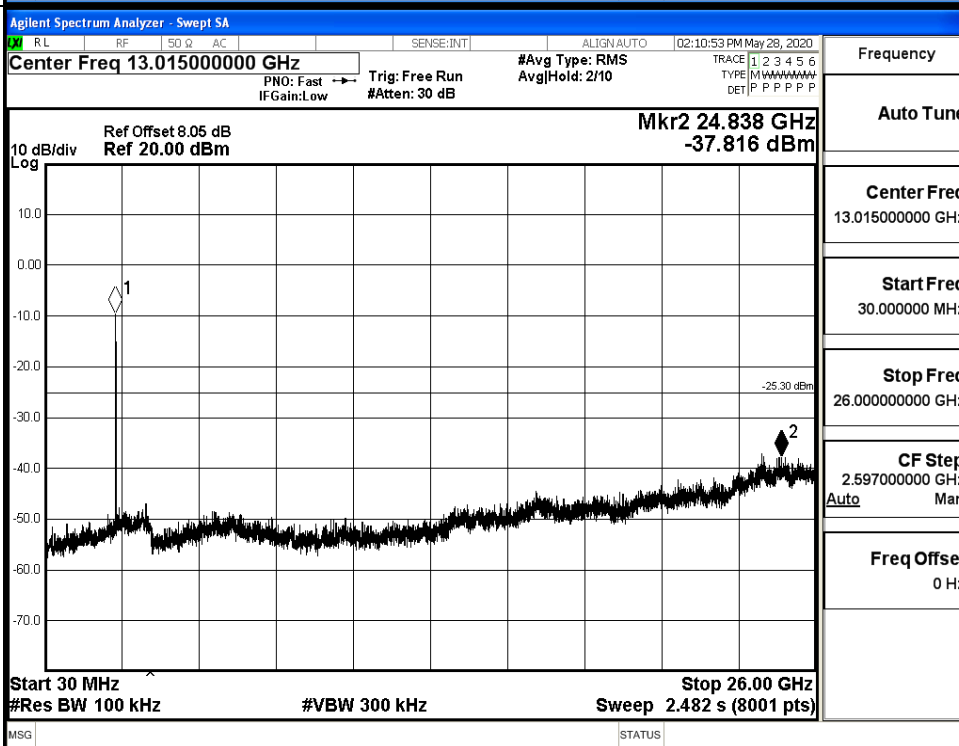


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

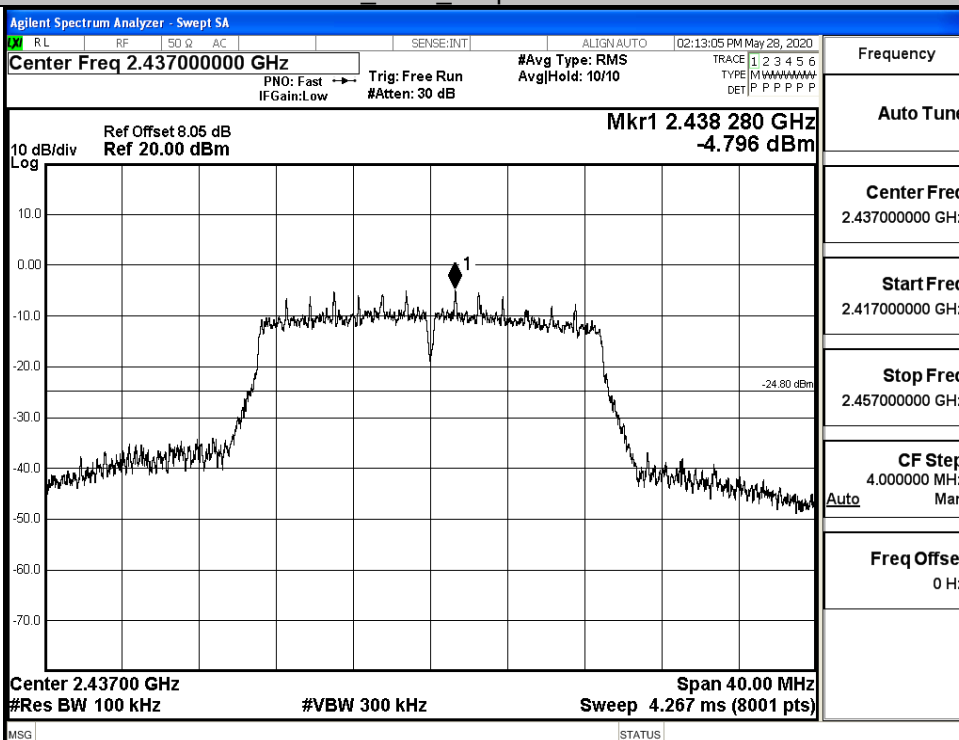


Puw/11N20
SISO/LCH

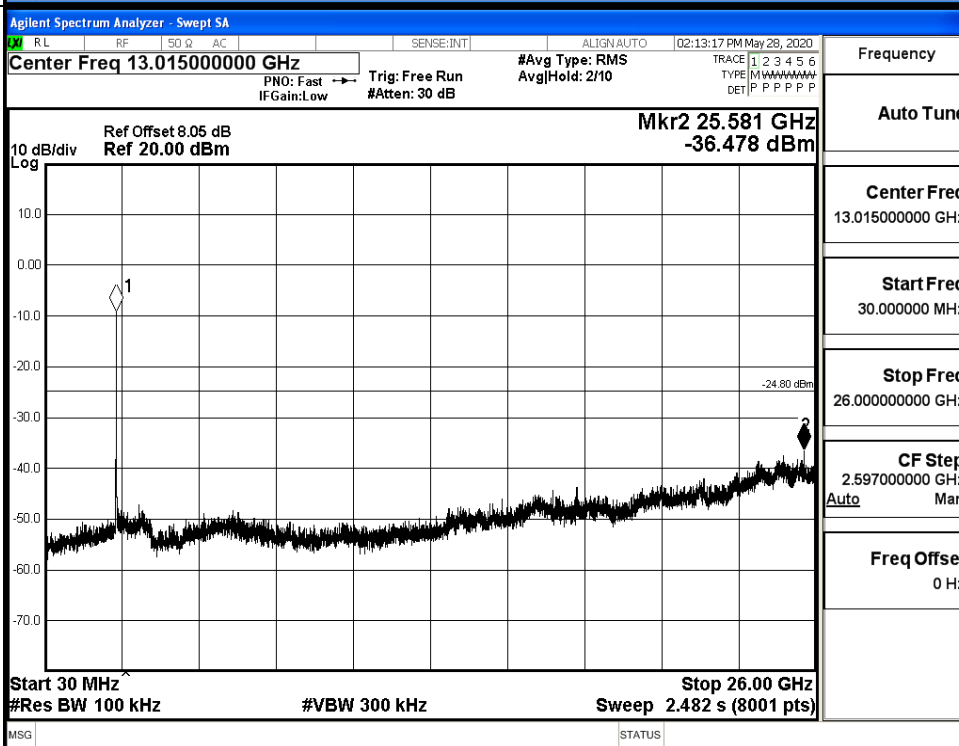


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

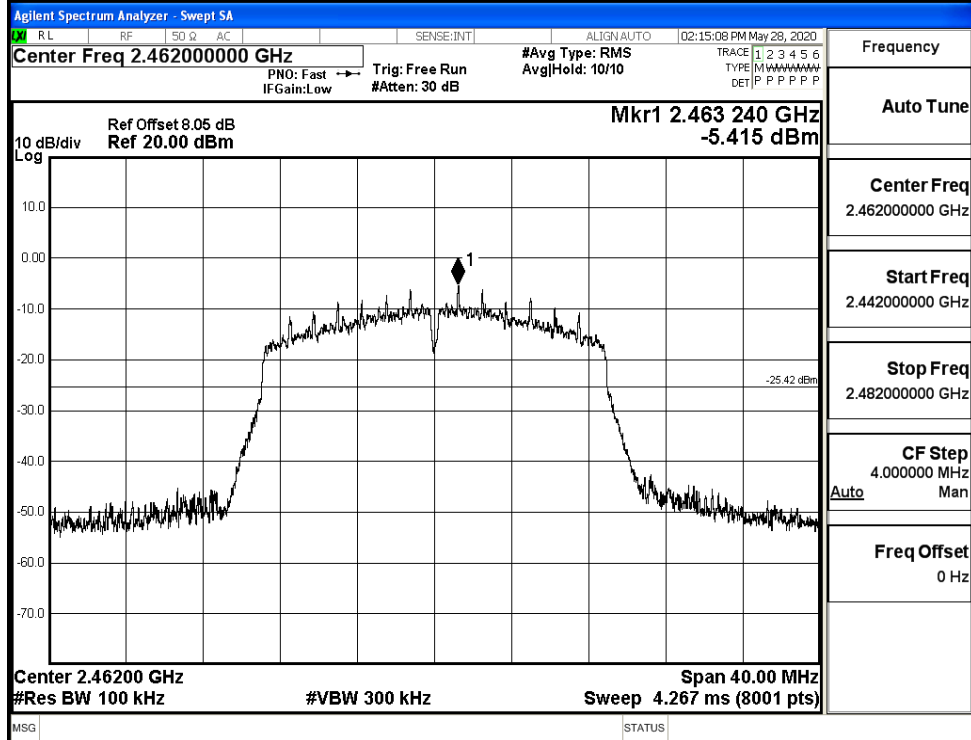


Puw/11N20
SISO/MCH

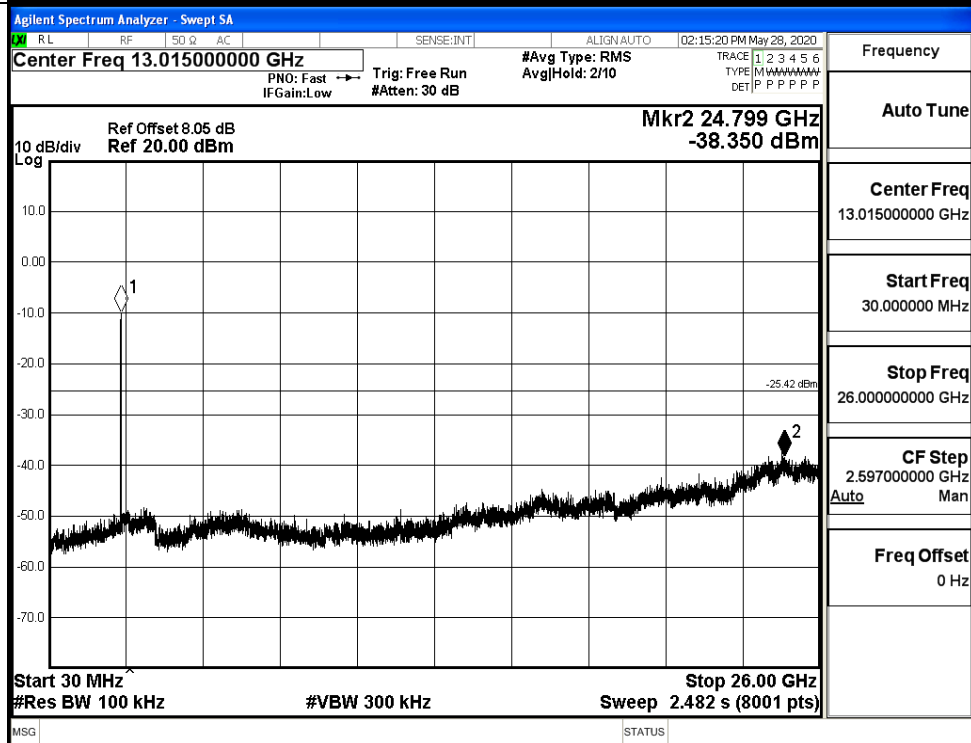


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

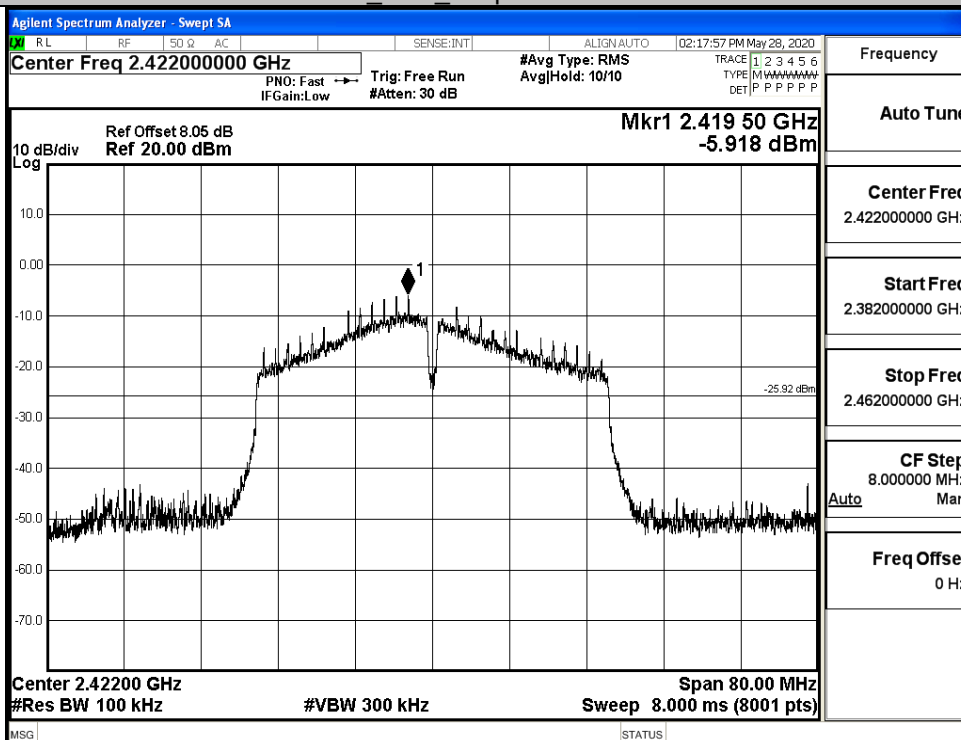


Puw/11N20
SISO/HCH

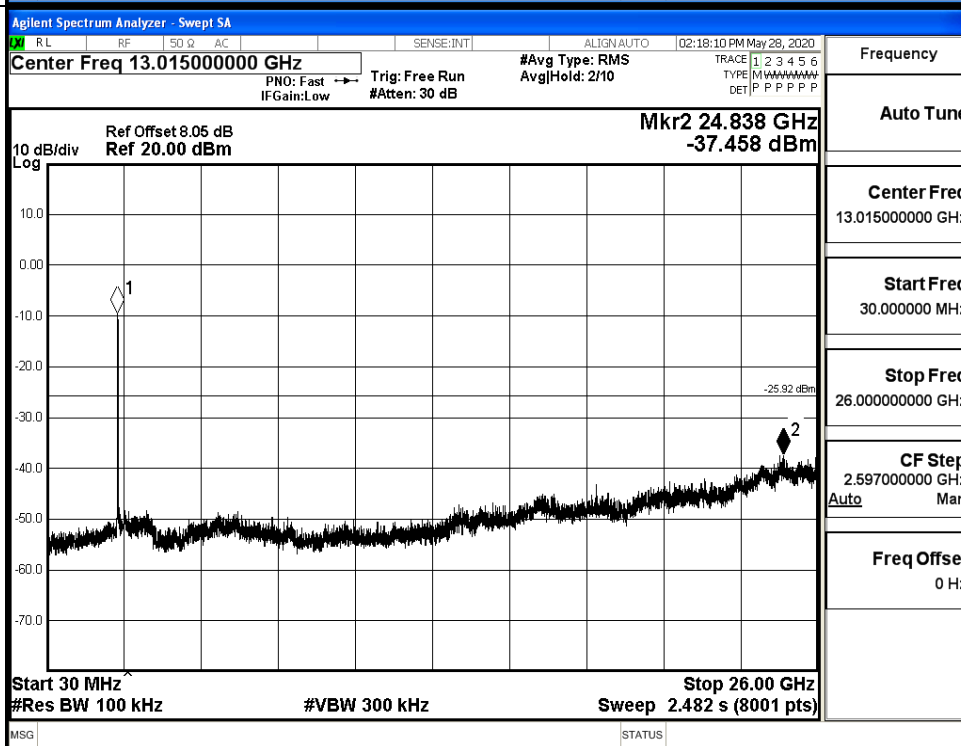


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

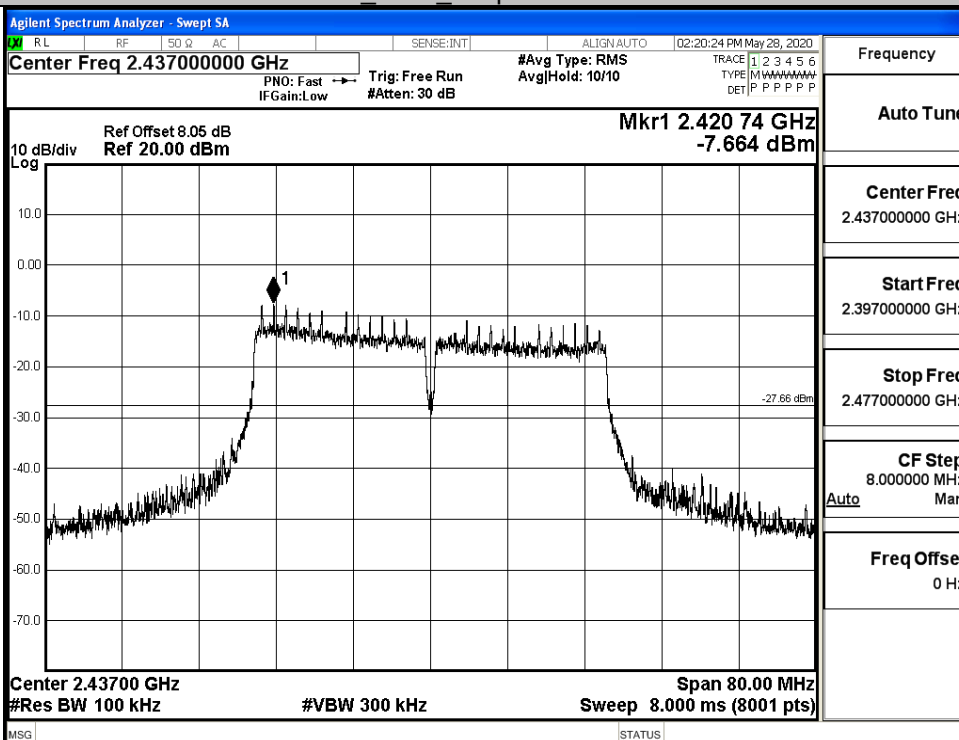


Puw/11N40
SISO/LCH

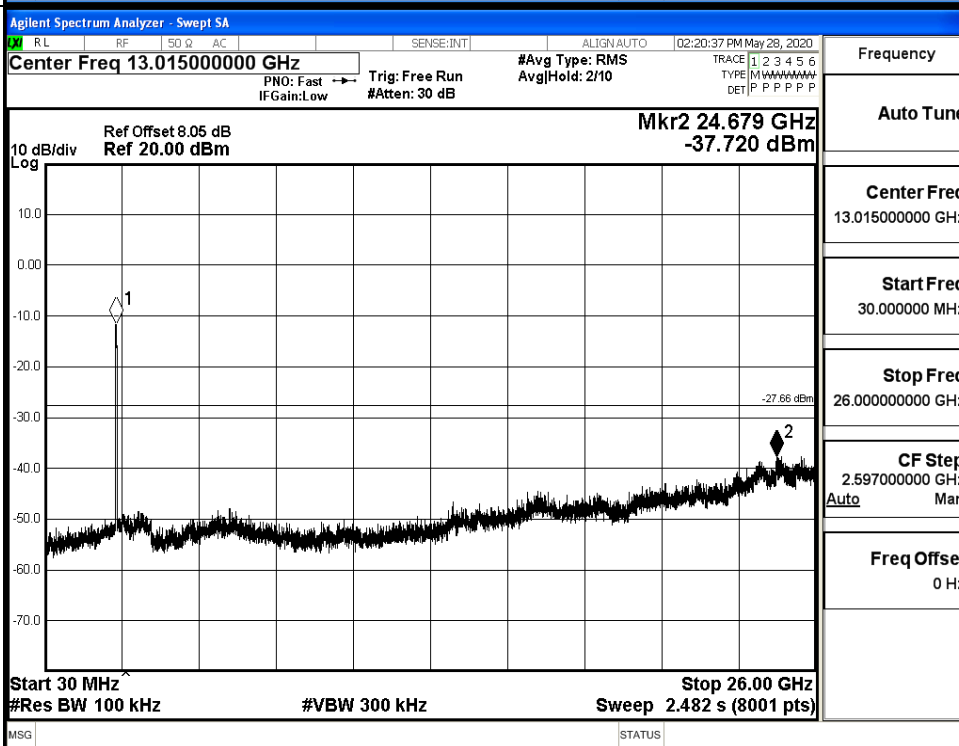


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

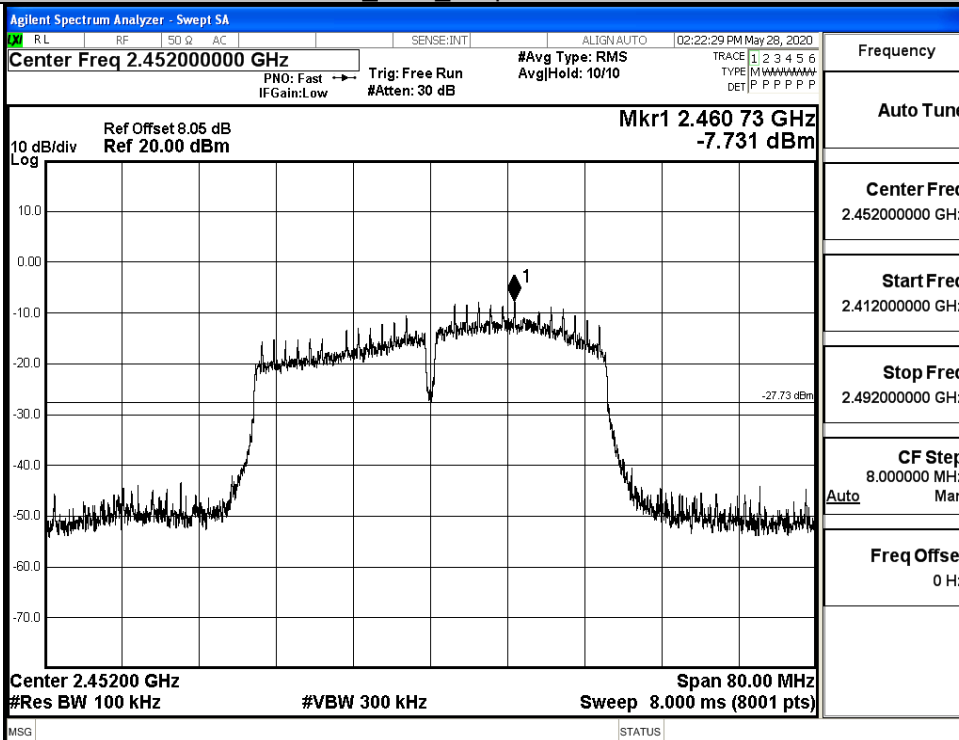


Puw/11N40
SISO/MCH

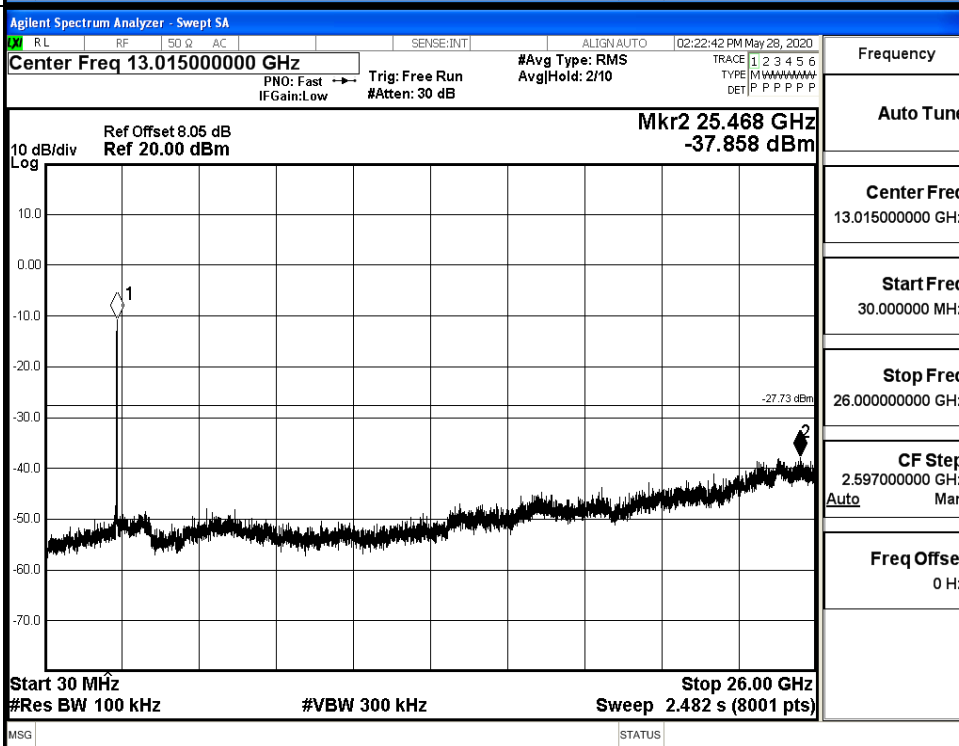


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



Puw/11N40
SISO/HCH

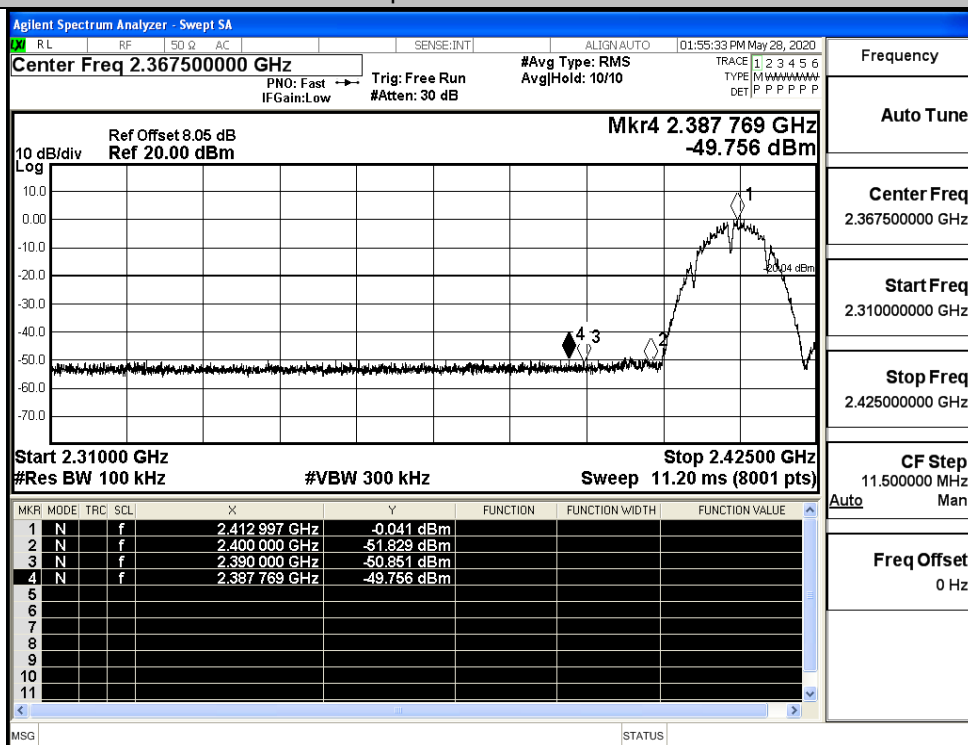


C.6 Band-edge for RF Conducted Emissions

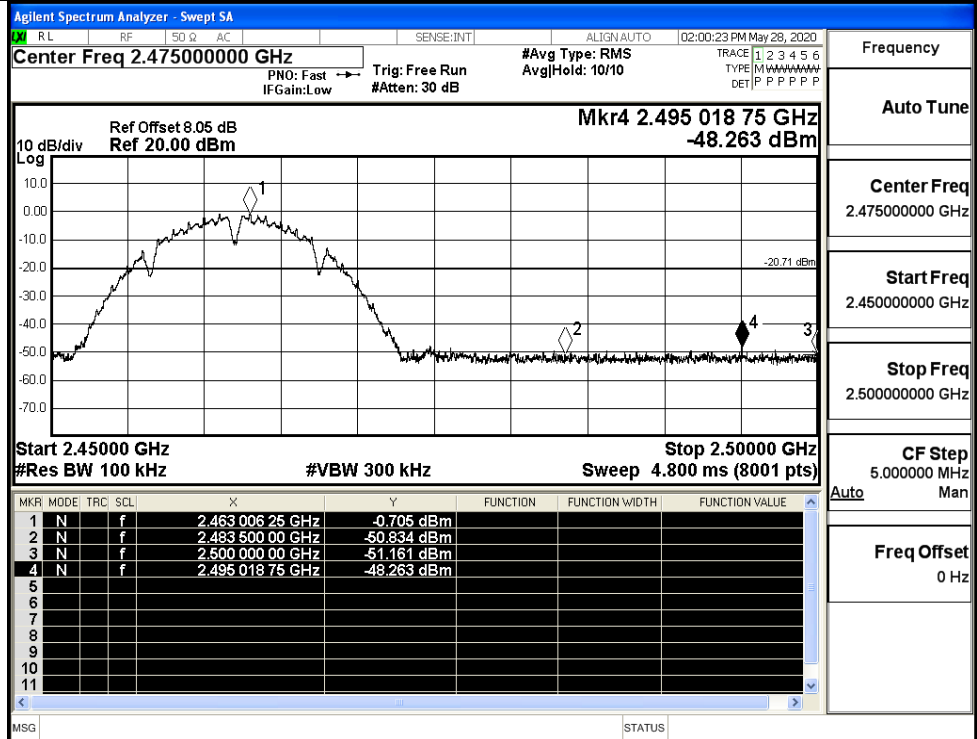
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-0.041	-49.756	-20.04	PASS
	HCH	-0.705	-48.263	-20.71	PASS
11G	LCH	-2.564	-48.964	-22.56	PASS
	HCH	-5.344	-49.316	-25.34	PASS
11N20SISO	LCH	-5.376	-49.121	-25.38	PASS
	HCH	-5.644	-48.848	-25.64	PASS
11N40SISO	LCH	-6.227	-45.325	-26.23	PASS
	HCH	-7.786	-44.225	-27.79	PASS

Test Graphs

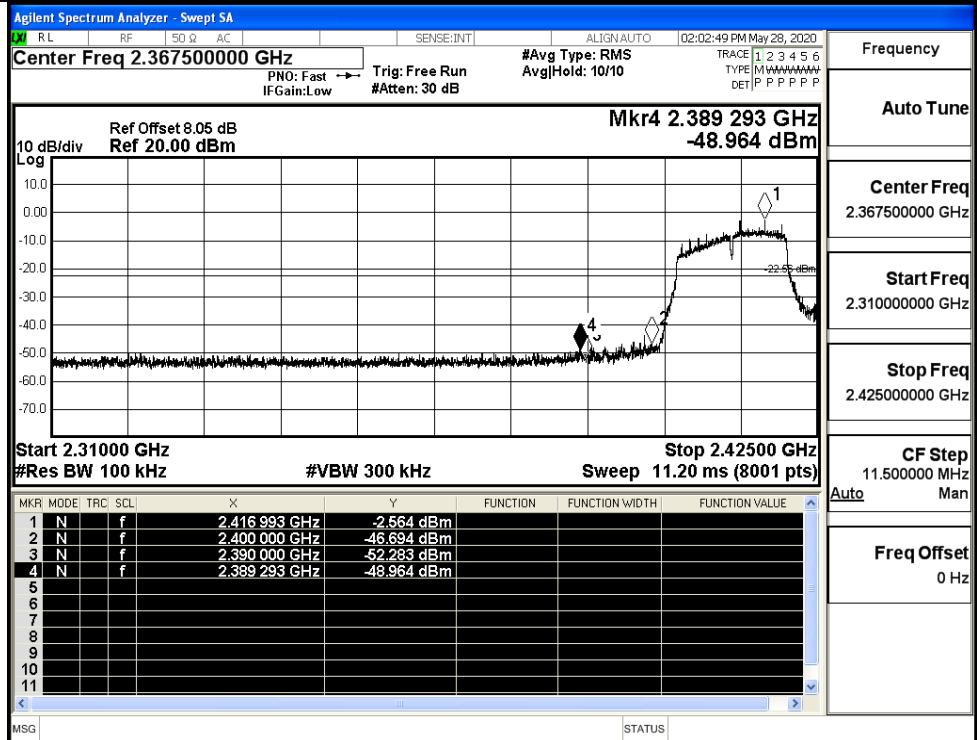
11B/LCH



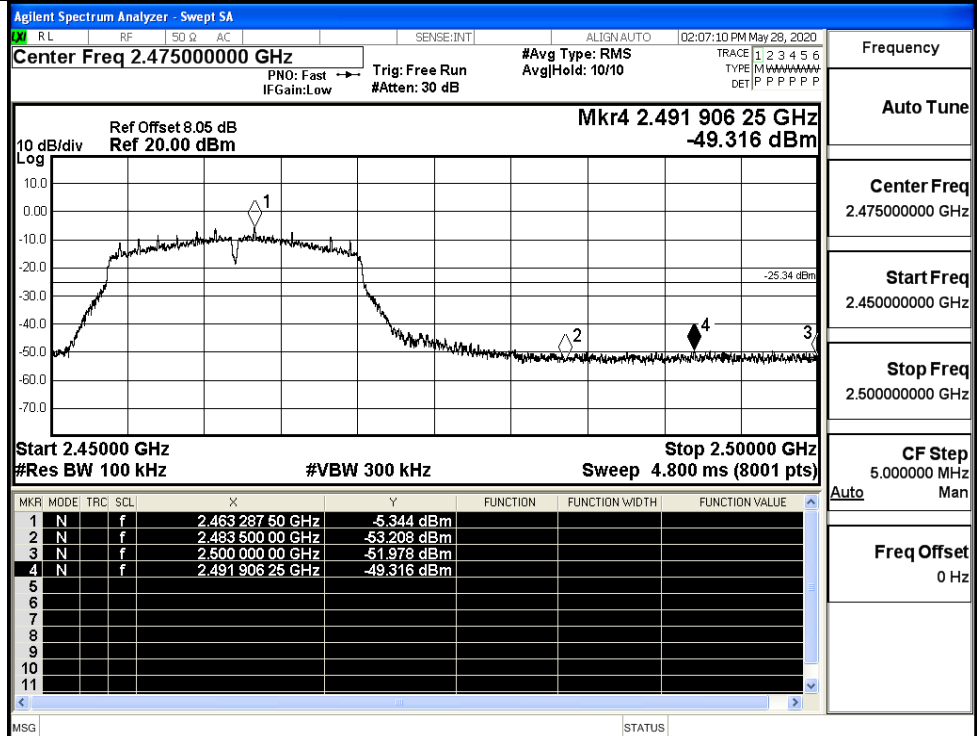
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

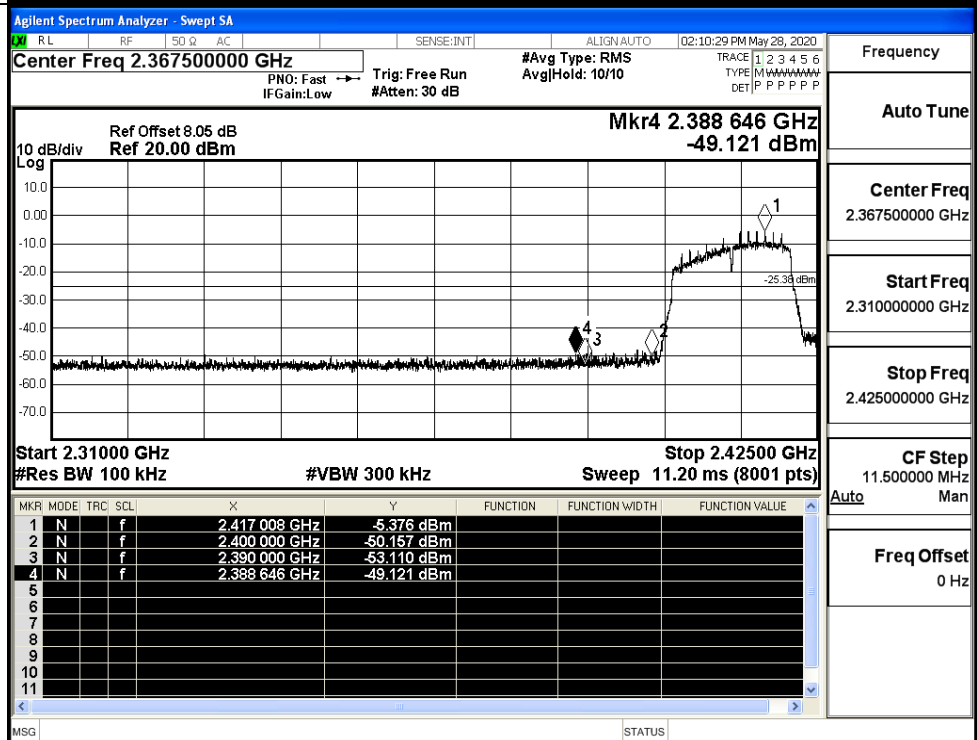
Start Freq
2.450000000 GHz

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 2.475000000 GHz

PNO: Fast → IF Gain: Low Trig: Free Run #Atten: 30 dB

#Avg Type: RMS Avg|Hold: 10/10

TRACE 1 2 3 4 5 6 TYPE [M W W W W W W W W W] DET [P P P P P P P P]

Ref Offset 8.05 dB Ref 20.00 dBm

Mkr4 2.493 081 25 GHz -48.848 dBm

10 dB/div Log

Start 2.45000 GHz Stop 2.50000 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.800 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.463 293 75 GHz	-5.644 dBm			
2	N		f	2.483 500 00 GHz	-51.299 dBm			
3	N		f	2.500 000 00 GHz	-51.999 dBm			
4	N		f	2.493 081 25 GHz	-48.848 dBm			
5								
6								
7								
8								
9								
10								
11								

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 → IF Gain: Low Trig: Free Run #Atten: 30 dB

#Avg Type: RMS Avg|Hold: 10/10

TRACE 1 2 3 4 5 6 TYPE [M W W W W W W W W W] DET [P P P P P P P P]

Ref Offset 8.05 dB Ref 20.00 dBm

Mkr4 2.387 861 GHz -45.325 dBm

10 dB/div Log

Start 2.31000 GHz Stop 2.44500 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 13.33 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.418 236 GHz	-6.227 dBm			
2	N		f	2.400 000 GHz	-46.397 dBm			
3	N		f	2.390 000 GHz	-49.880 dBm			
4	N		f	2.387 861 GHz	-45.325 dBm			
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
2.377500000 GHz

Start Freq
2.310000000 GHz

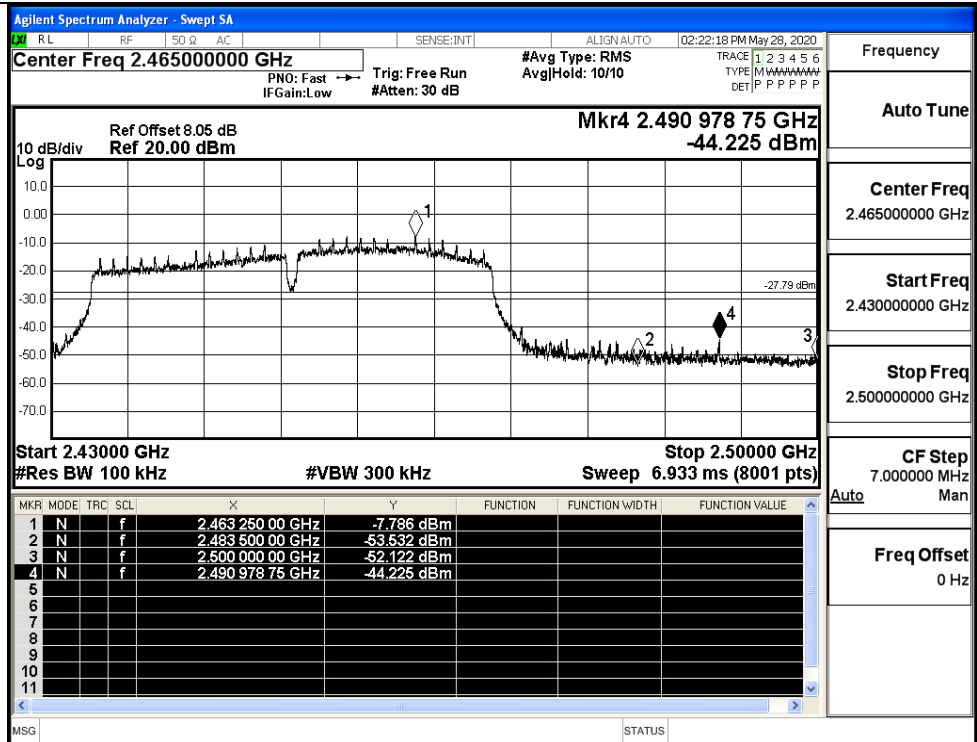
Stop Freq
2.445000000 GHz

CF Step
13.500000 MHz

Auto Man

Freq Offset
0 Hz

11N40SISO/HCH



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

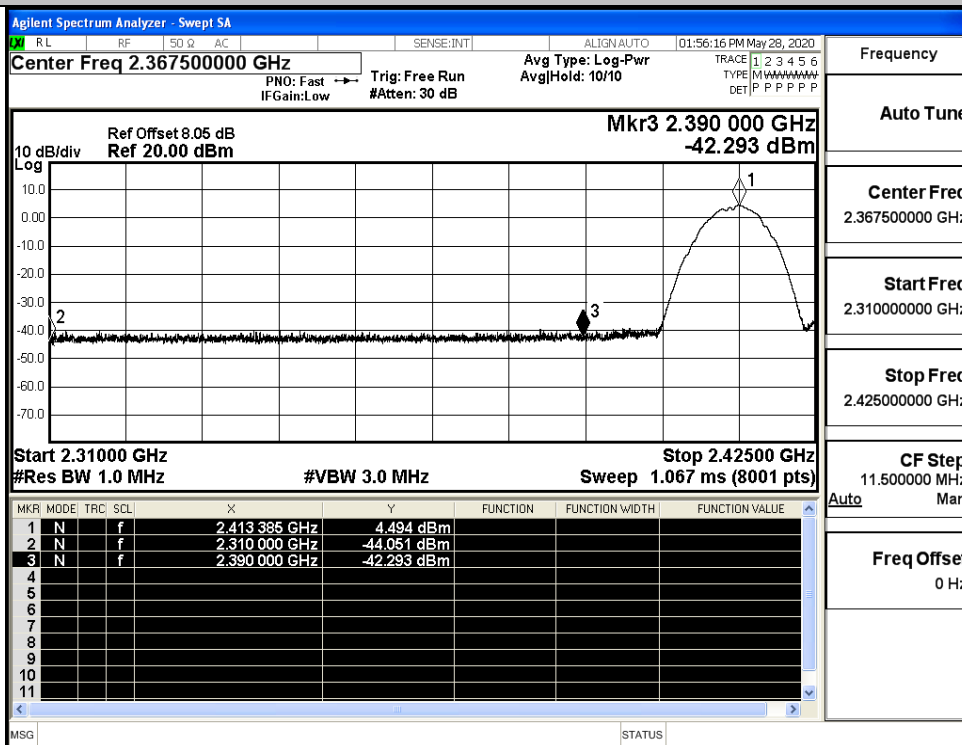
Freq Offset
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C.7 Restrict-band band-edge measurements

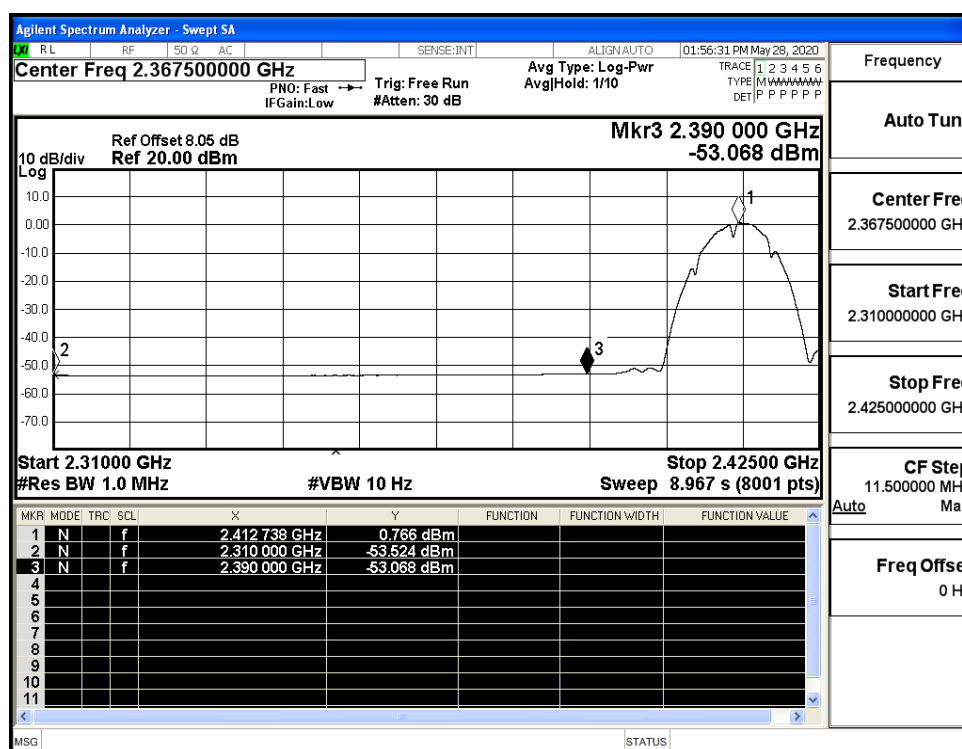
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-44.05	2.0	0	53.18	PEAK	74	PASS
	2412	Ant1	2310.0	-53.52	2.0	0	43.71	AV	54	PASS
	2412	Ant1	2390.0	-42.29	2.0	0	54.94	PEAK	74	PASS
	2412	Ant1	2390.0	-53.07	2.0	0	44.16	AV	54	PASS
	2462	Ant1	2483.5	-42.10	2.0	0	55.13	PEAK	74	PASS
	2462	Ant1	2483.5	-52.76	2.0	0	44.47	AV	54	PASS
	2462	Ant1	2500.0	-42.19	2.0	0	55.04	PEAK	74	PASS
	2462	Ant1	2500.0	-52.54	2.0	0	44.69	AV	54	PASS
11G	2412	Ant1	2310.0	-43.56	2.0	0	53.67	PEAK	74	PASS
	2412	Ant1	2310.0	-53.50	2.0	0	43.73	AV	54	PASS
	2412	Ant1	2390.0	-39.28	2.0	0	57.95	PEAK	74	PASS
	2412	Ant1	2390.0	-52.23	2.0	0	45.00	AV	54	PASS
	2462	Ant1	2483.5	-41.32	2.0	0	55.91	PEAK	74	PASS
	2462	Ant1	2483.5	-52.46	2.0	0	44.77	AV	54	PASS
	2462	Ant1	2500.0	-41.38	2.0	0	55.85	PEAK	74	PASS
	2462	Ant1	2500.0	-52.52	2.0	0	44.71	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.32	2.0	0	53.91	PEAK	74	PASS
	2412	Ant1	2310.0	-53.54	2.0	0	43.69	AV	54	PASS
	2412	Ant1	2390.0	-40.58	2.0	0	56.65	PEAK	74	PASS
	2412	Ant1	2390.0	-52.84	2.0	0	44.39	AV	54	PASS
	2462	Ant1	2483.5	-40.46	2.0	0	56.77	PEAK	74	PASS
	2462	Ant1	2483.5	-52.45	2.0	0	44.78	AV	54	PASS
	2462	Ant1	2500.0	-41.64	2.0	0	55.59	PEAK	74	PASS
	2462	Ant1	2500.0	-52.53	2.0	0	44.70	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.36	2.0	0	53.87	PEAK	74	PASS
	2422	Ant1	2310.0	-53.50	2.0	0	43.73	AV	54	PASS

	2422	Ant1	2390.0	-38.35	2.0	0	58.88	PEAK	74	PASS
	2422	Ant1	2390.0	-51.06	2.0	0	46.17	AV	54	PASS
	2452	Ant1	2483.5	-40.26	2.0	0	56.97	PEAK	74	PASS
	2452	Ant1	2483.5	-51.82	2.0	0	45.41	AV	54	PASS
	2452	Ant1	2500.0	-42.29	2.0	0	54.94	PEAK	74	PASS
	2452	Ant1	2500.0	-52.52	2.0	0	44.71	AV	54	PASS

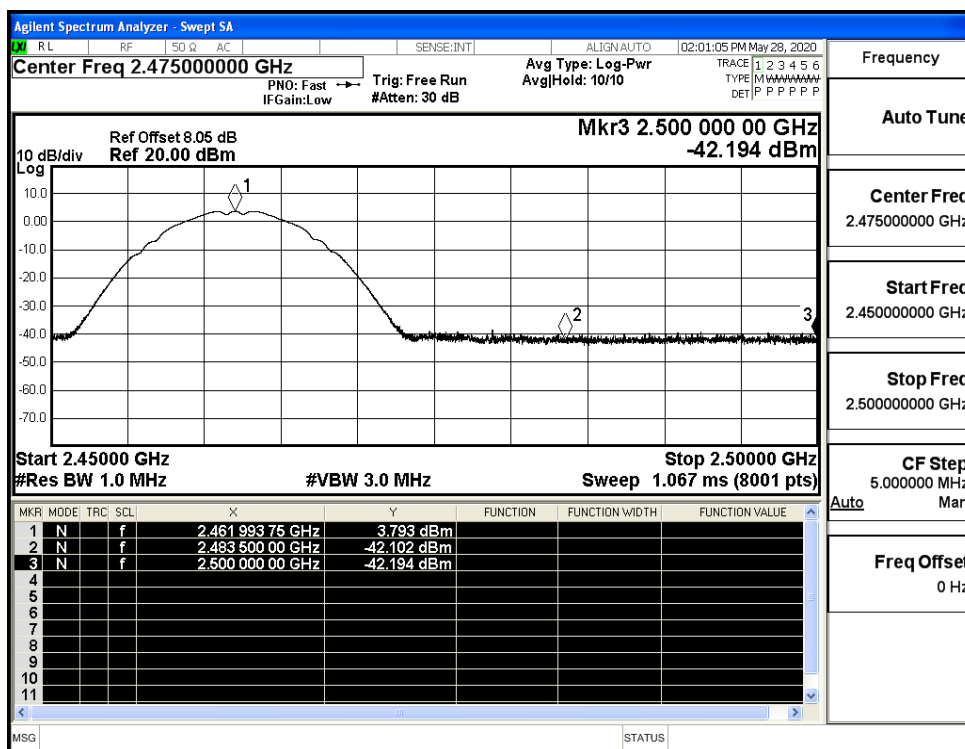
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



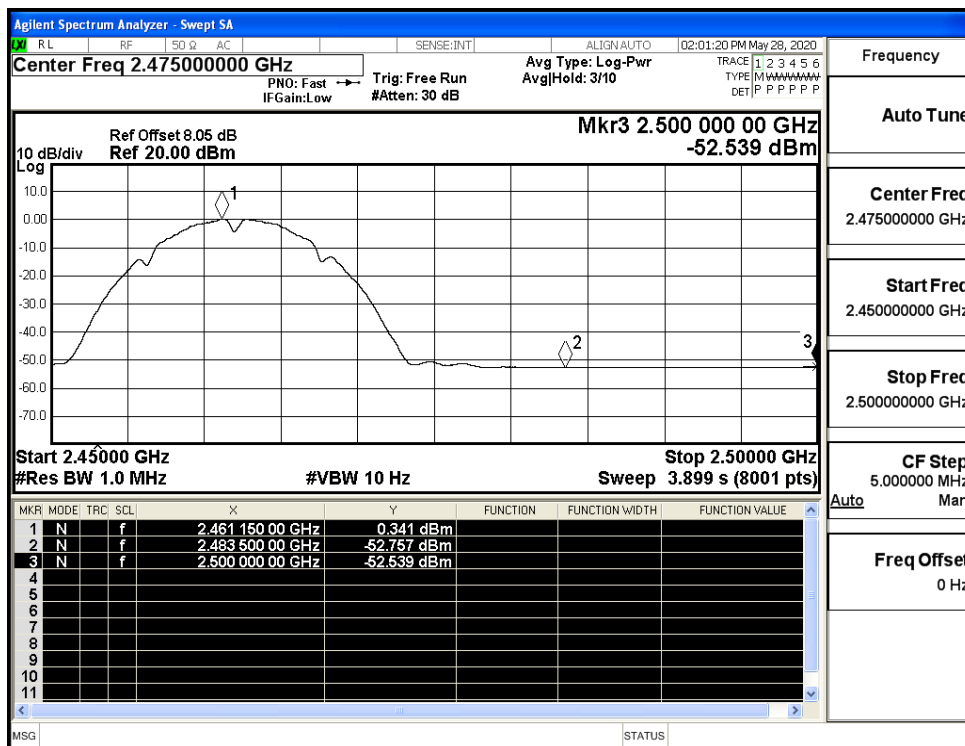
Restrict-band band-edge measurements_11B_2412_Ant1_AV



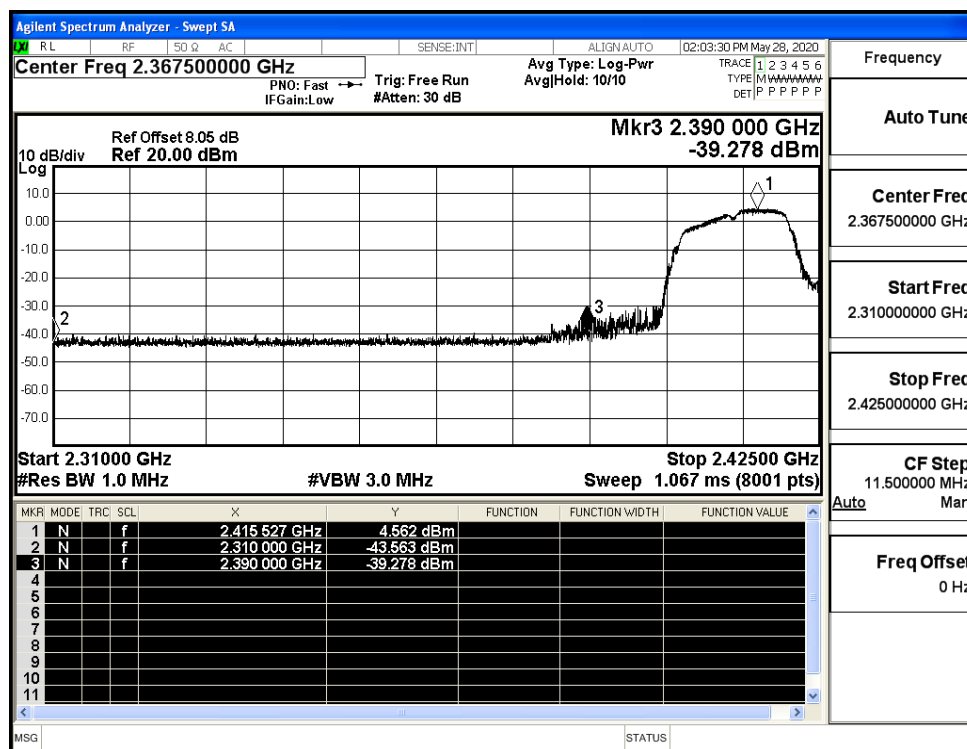
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



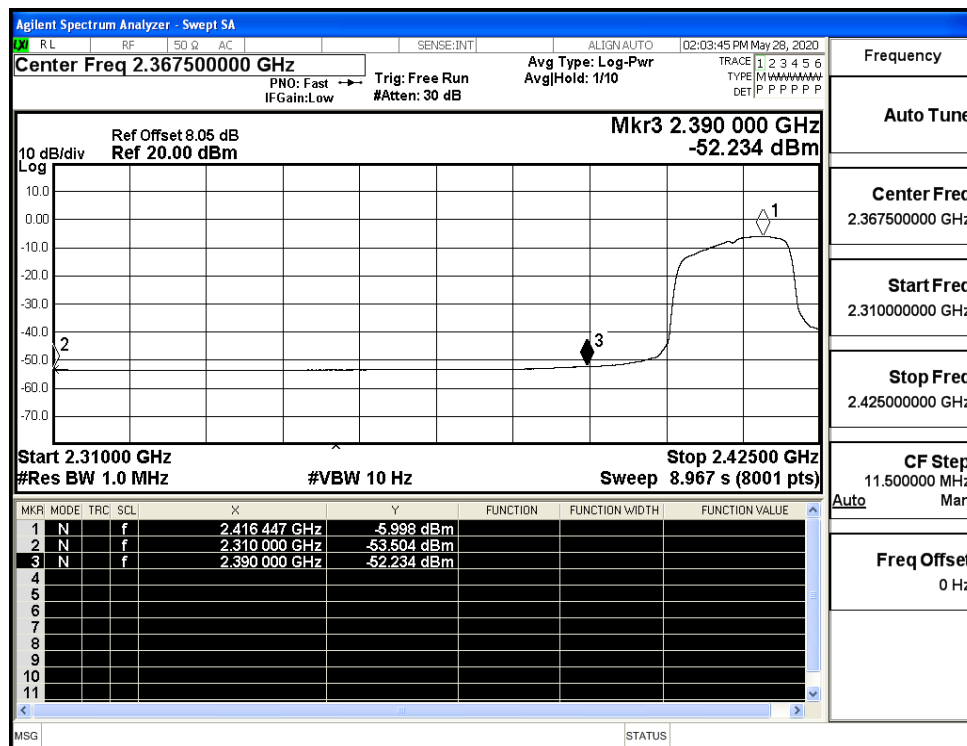
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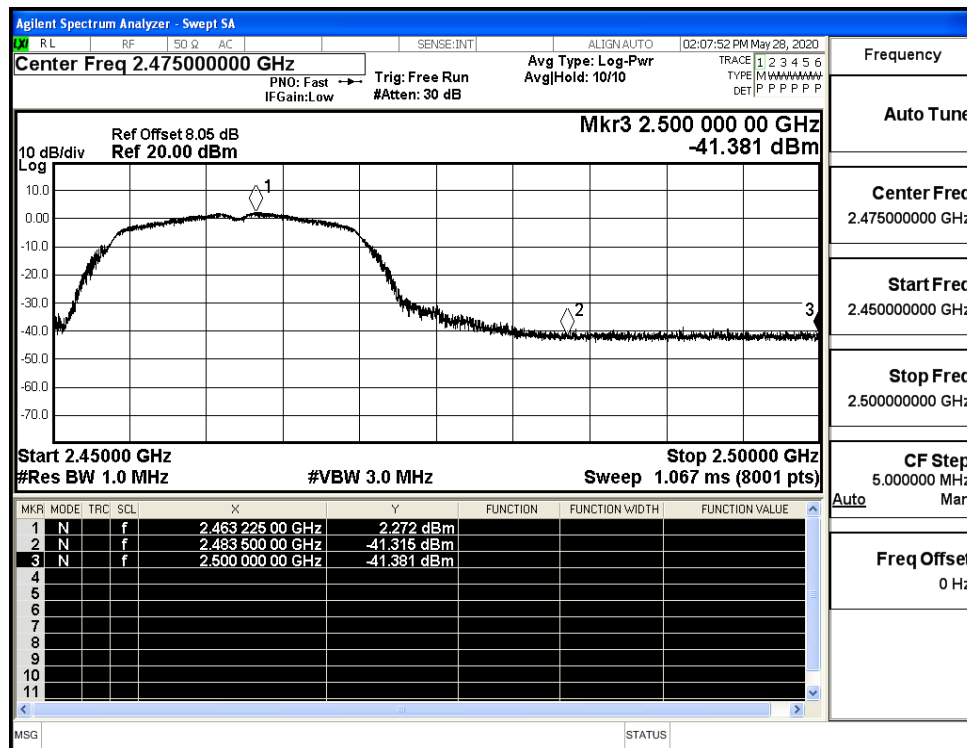
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



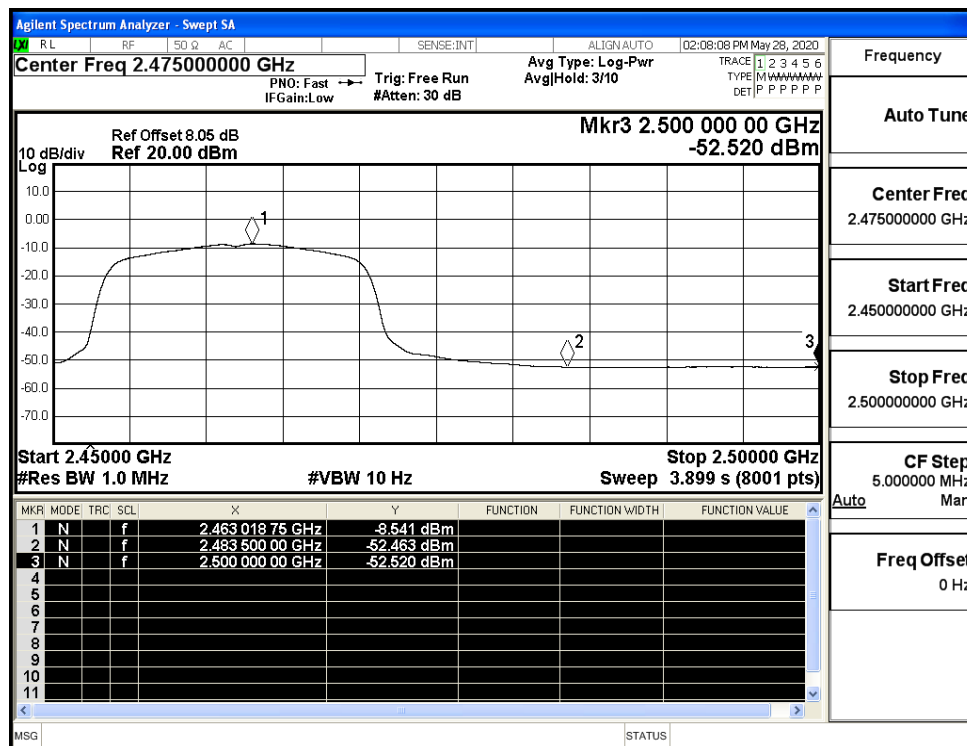
Restrict-band band-edge measurements_11G_2412_Ant1_AV



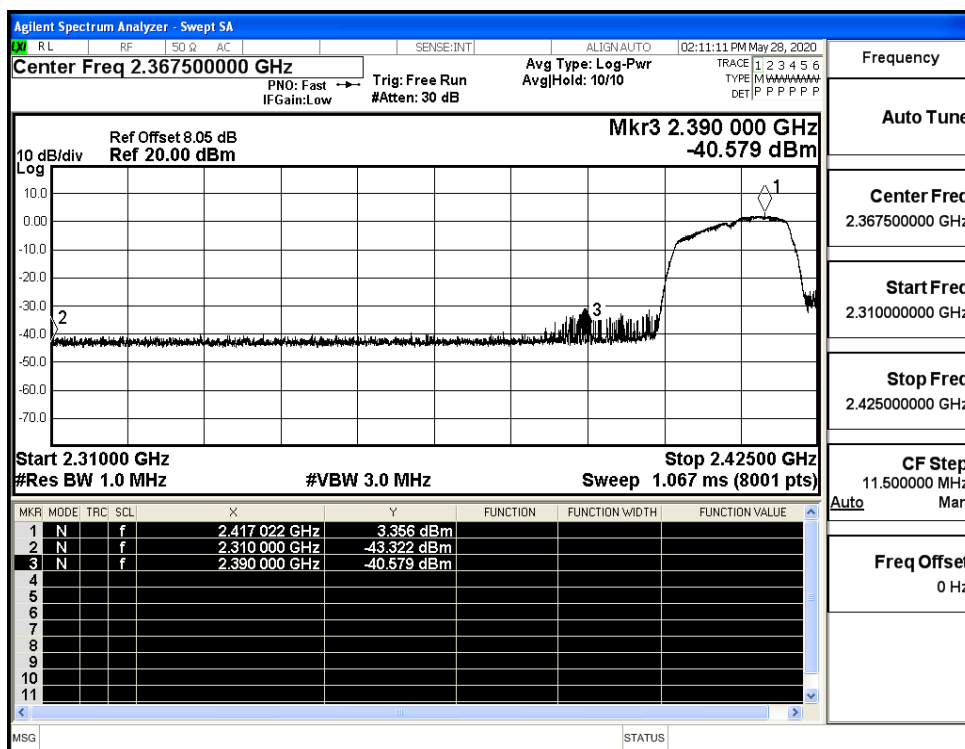
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



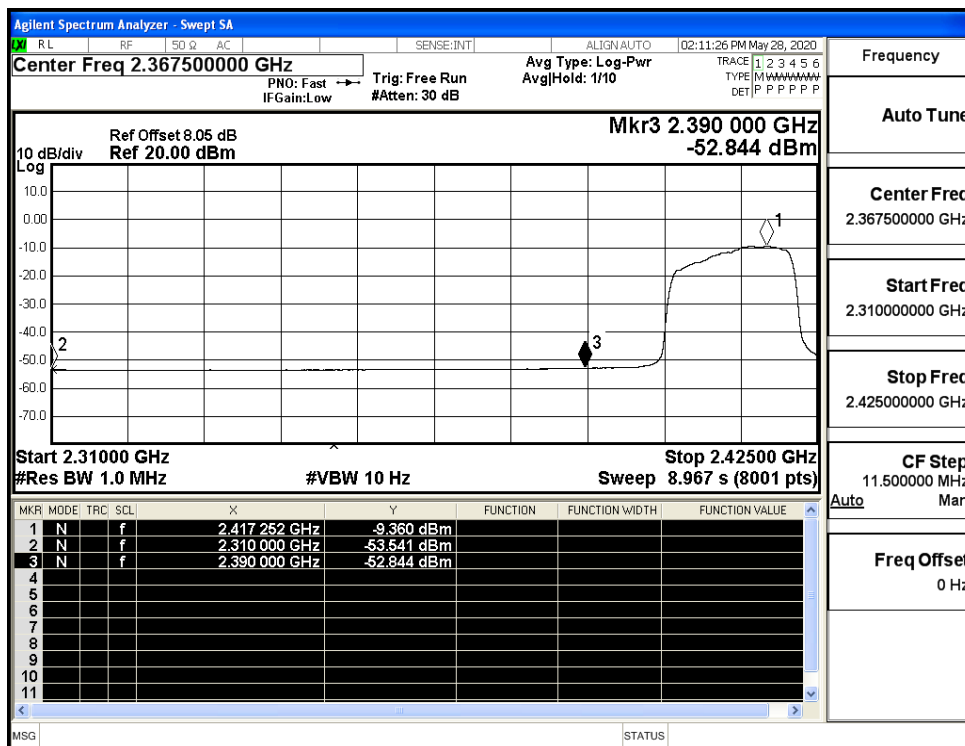
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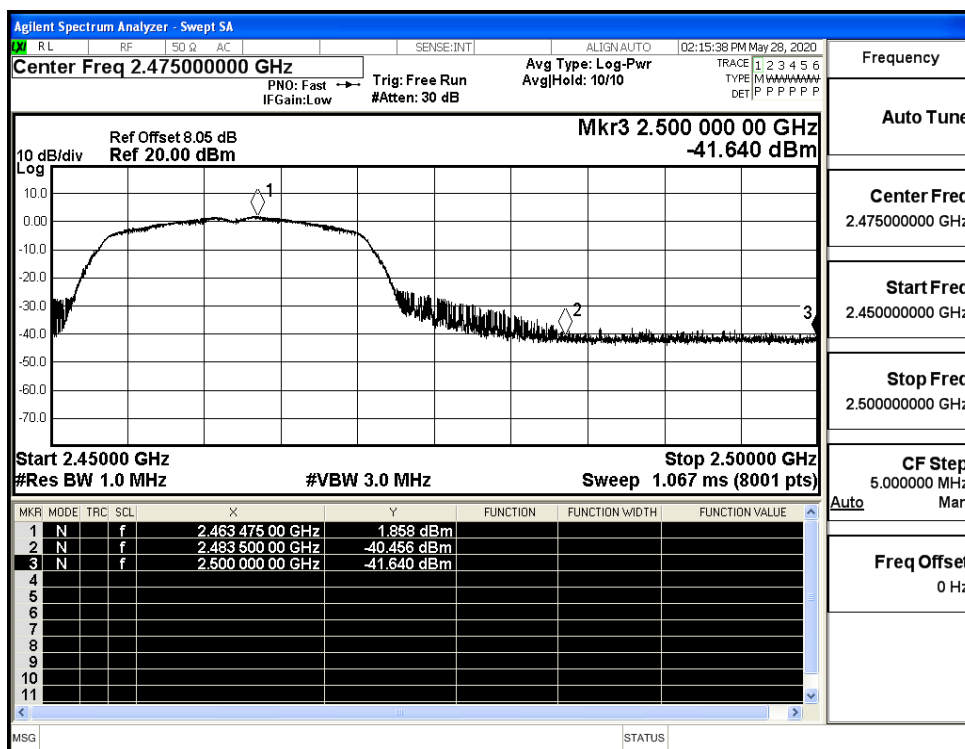
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



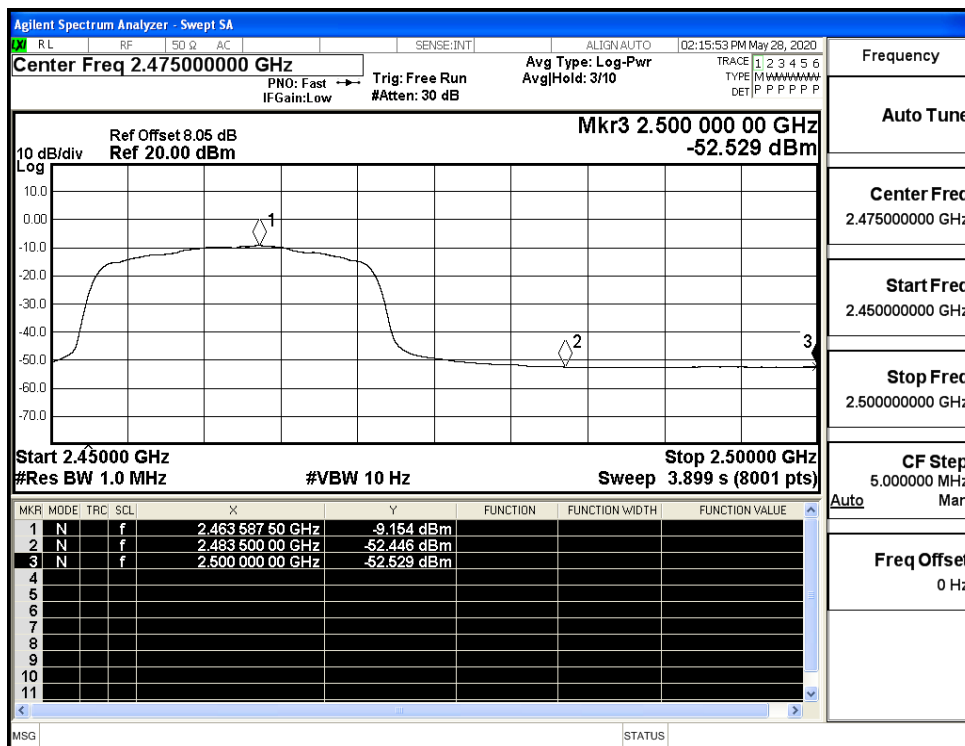
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



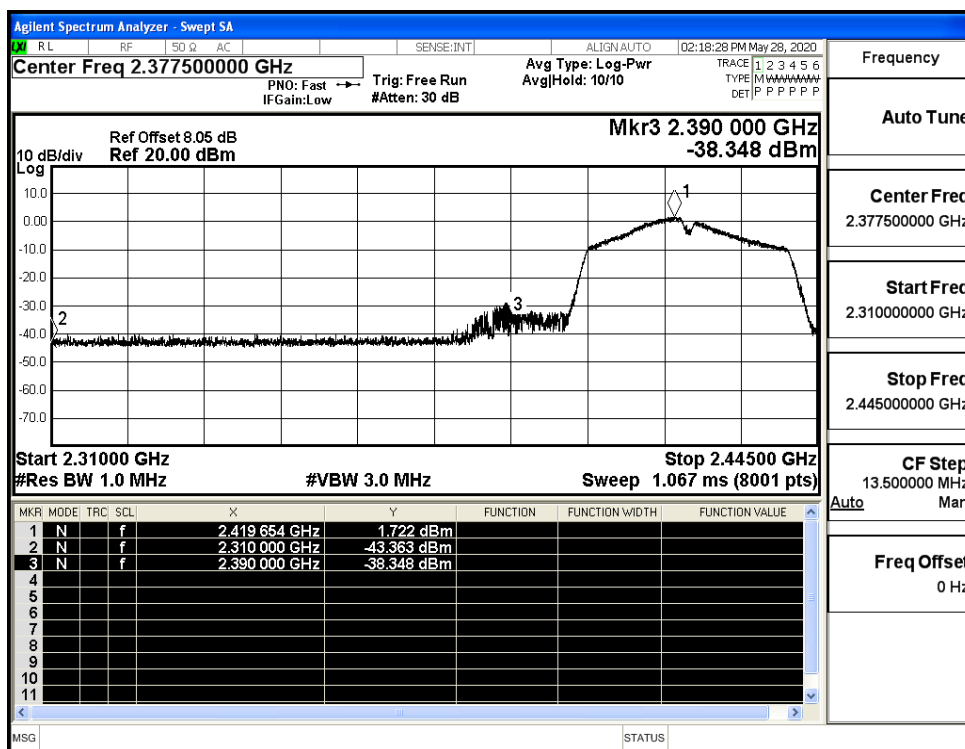
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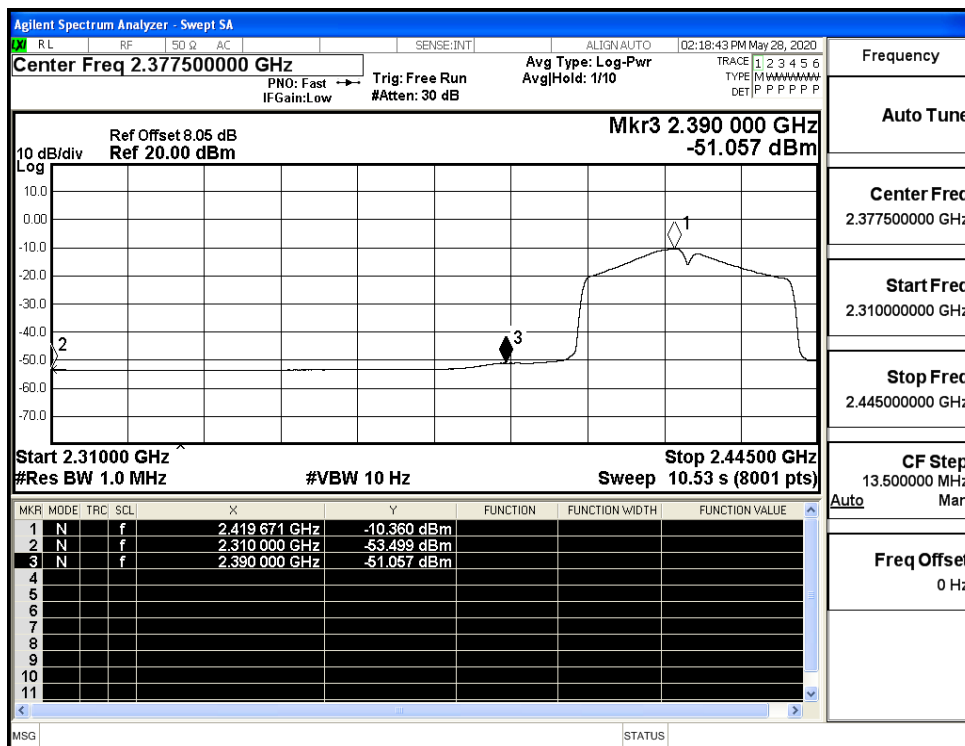
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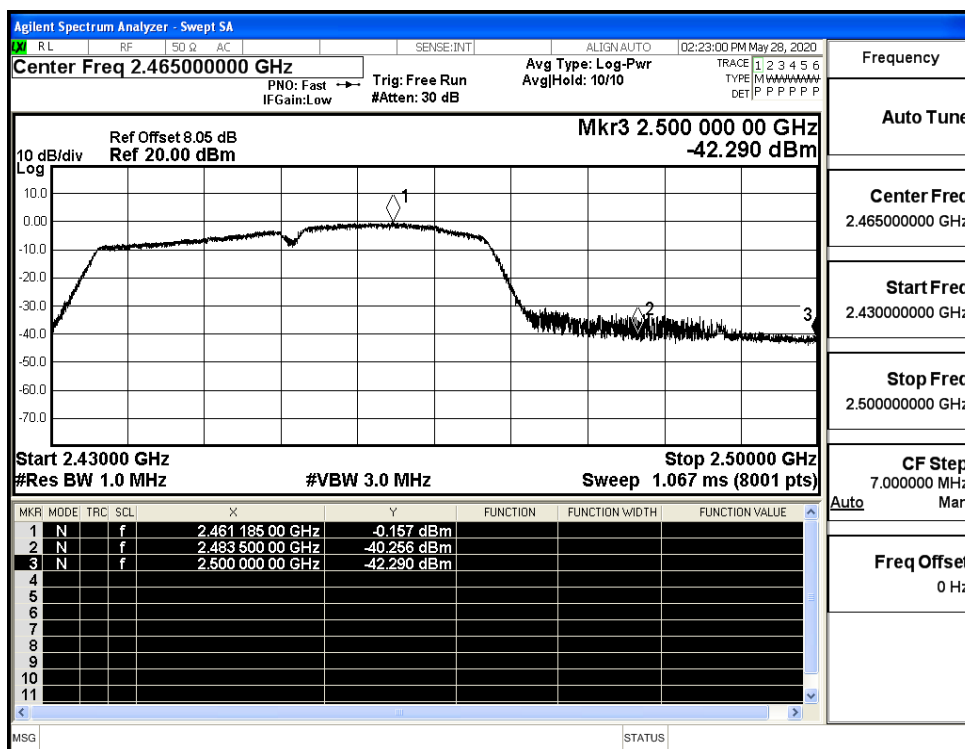
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

