

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

**Product Name: 18G 4x1 Presentation Switcher with Soft Codec &
Wireless BYOD**

Trade Mark: PTN

Test Model: SCU41-BYOD

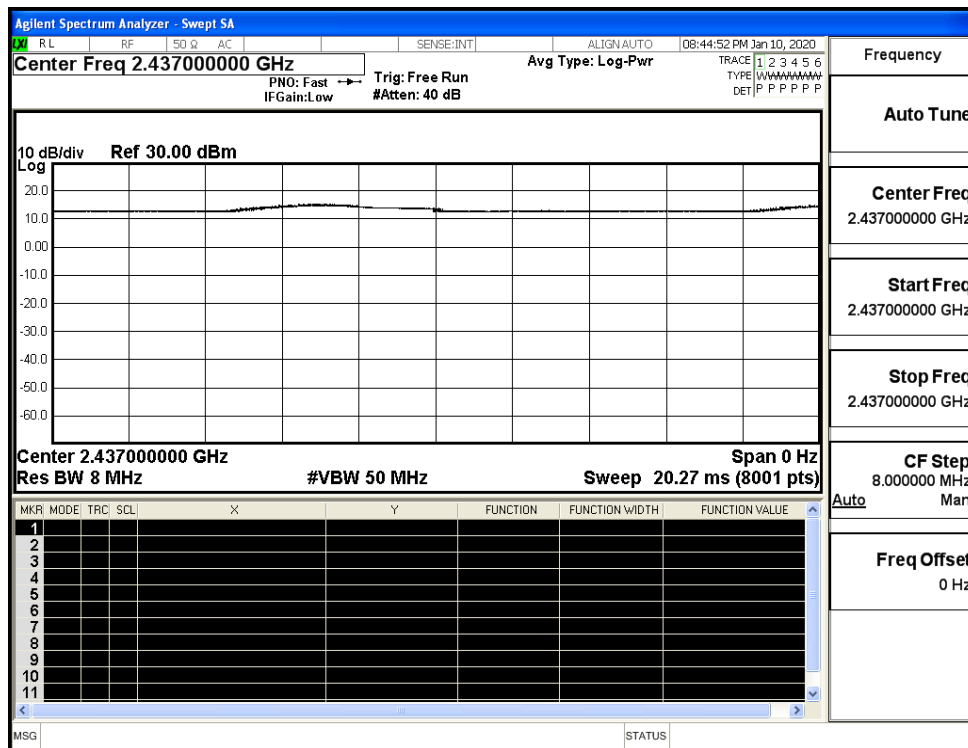
Environmental Conditions

Temperature:	23.9° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Tom Liu

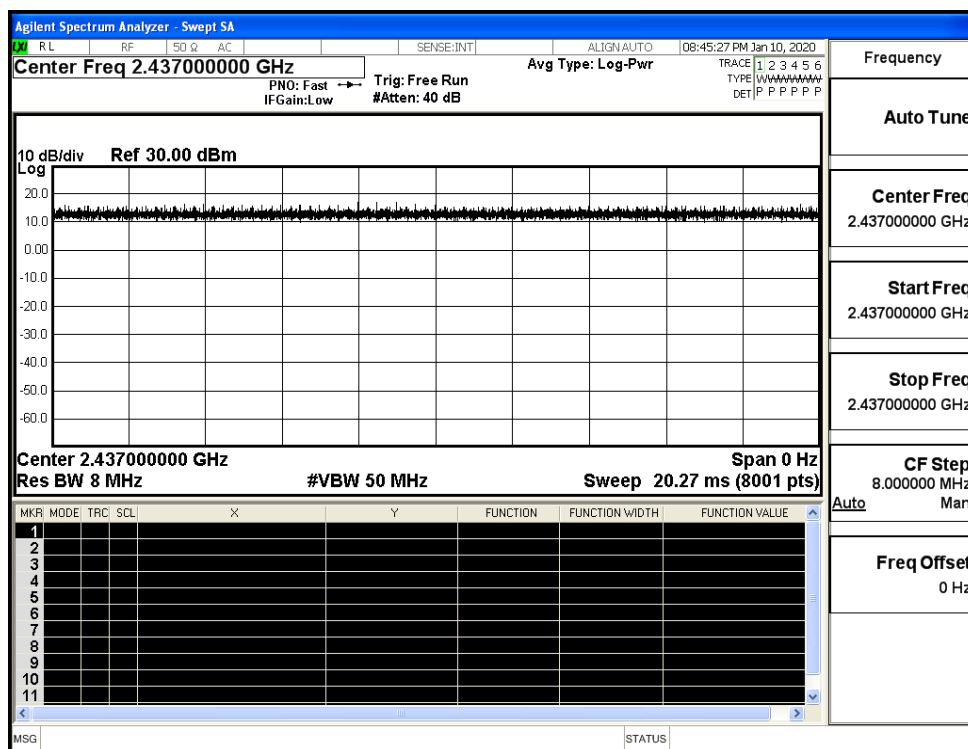
A.1 Duty Cycle

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

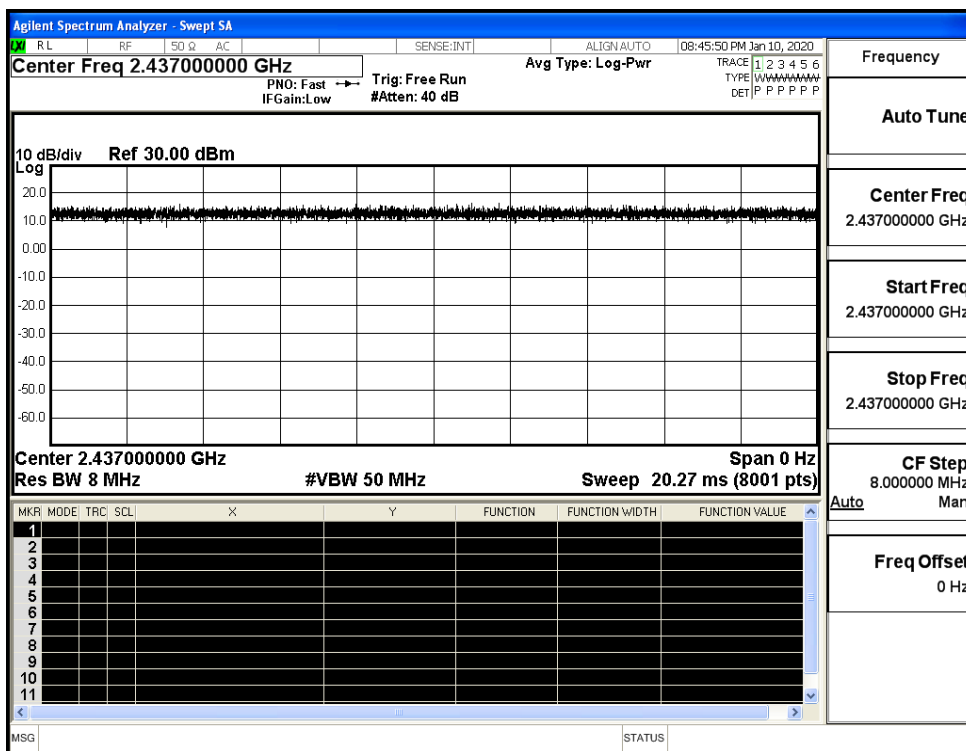
Duty Cycle_11B_2437_Ant1



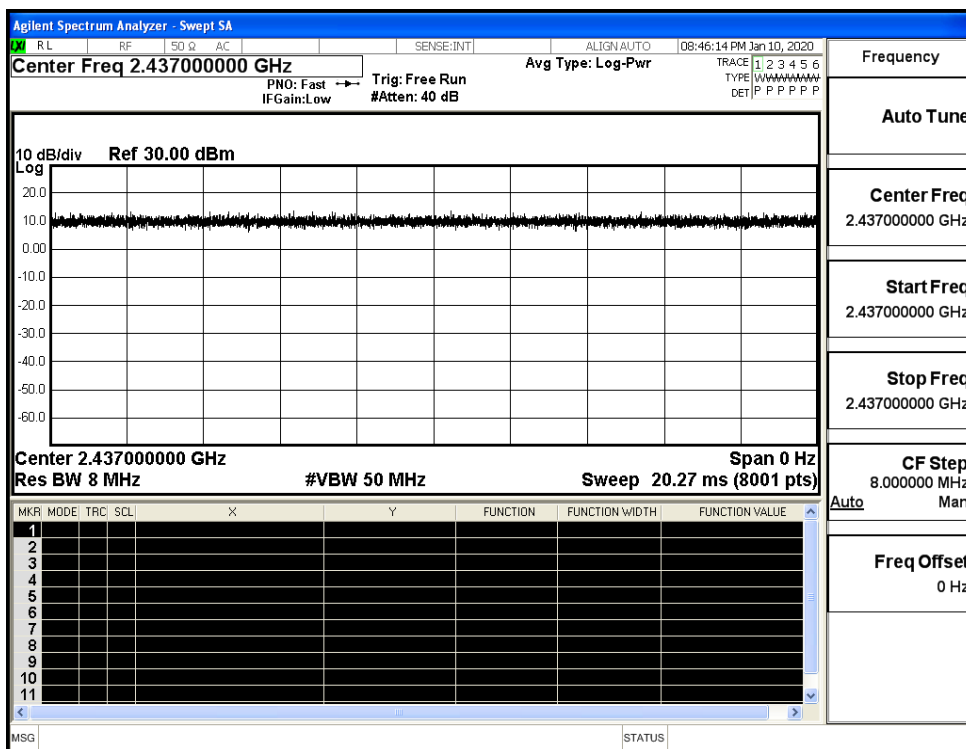
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



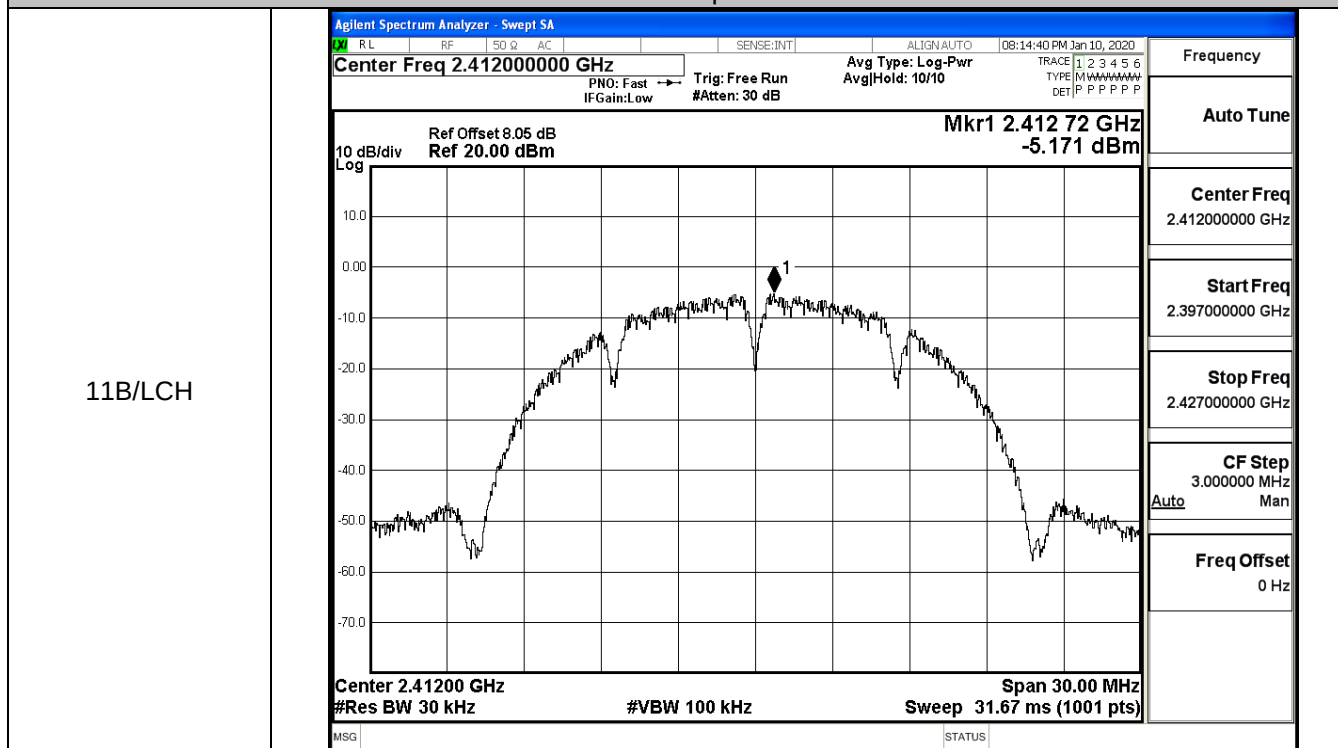
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	12.69	30	PASS
	MCH	12.65	30	PASS
	HCH	12.19	30	PASS
11G	LCH	12.38	30	PASS
	MCH	12.31	30	PASS
	HCH	10.87	30	PASS
11N20SISO	LCH	10.13	30	PASS
	MCH	11.44	30	PASS
	HCH	11.53	30	PASS
11N40SISO	LCH	11.24	30	PASS
	MCH	11.67	30	PASS
	HCH	11.84	30	PASS

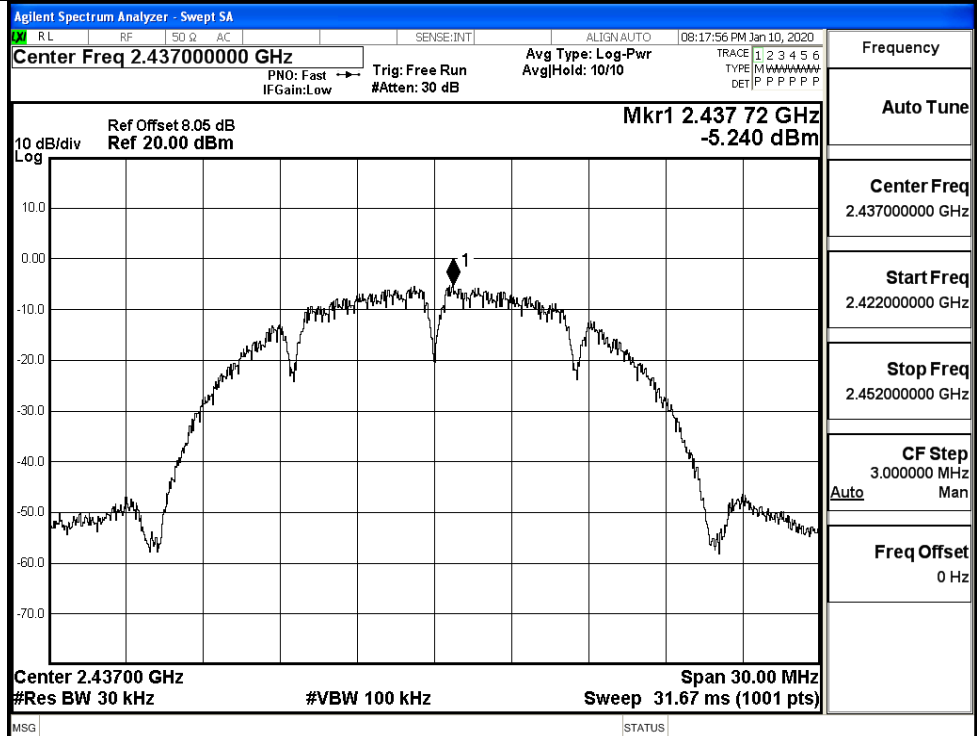
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-5.171	8	PASS
	MCH	-5.240	8	PASS
	HCH	-5.591	8	PASS
11G	LCH	-12.070	8	PASS
	MCH	-12.168	8	PASS
	HCH	-13.825	8	PASS
11N20SISO	LCH	-14.628	8	PASS
	MCH	-13.465	8	PASS
	HCH	-13.217	8	PASS
11N40SISO	LCH	-16.659	8	PASS
	MCH	-16.354	8	PASS
	HCH	-16.070	8	PASS

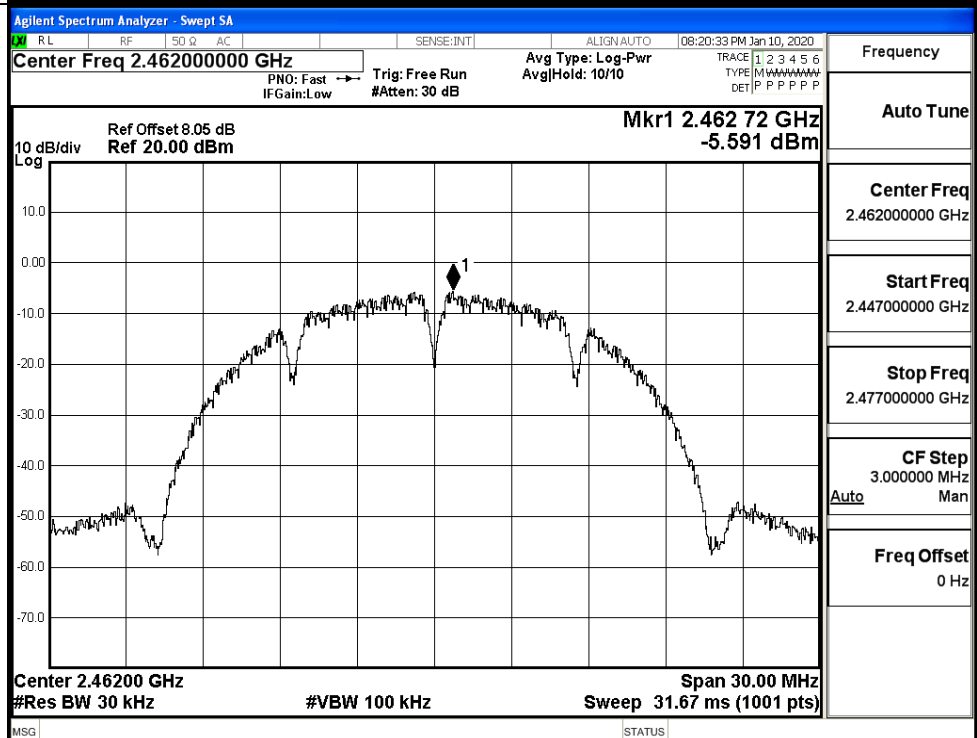
Test Graphs



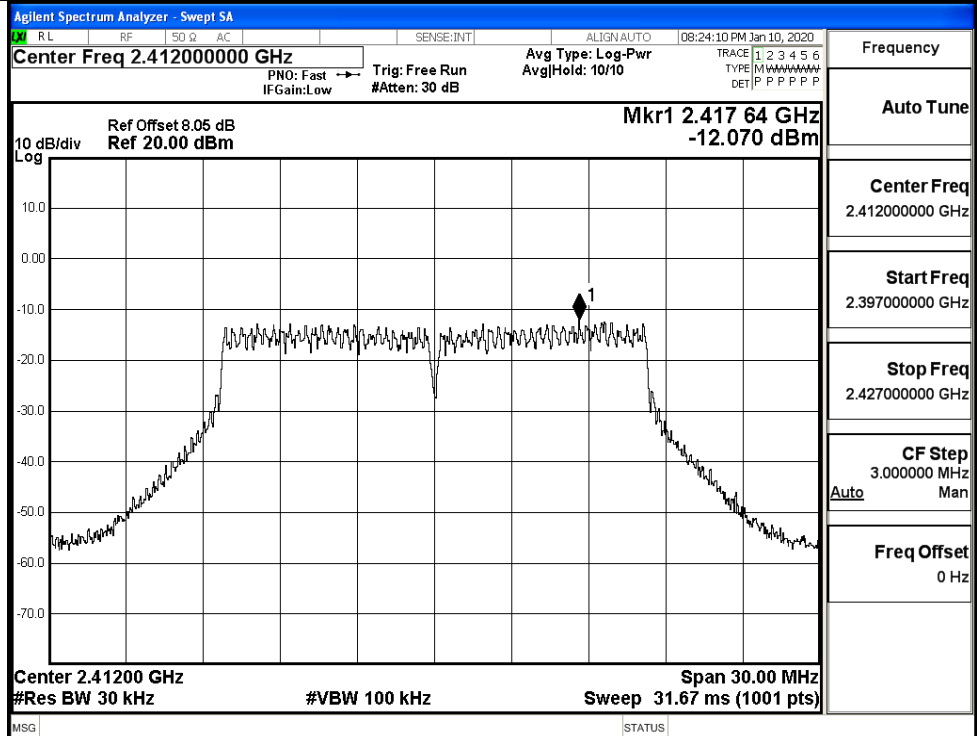
11B/MCH



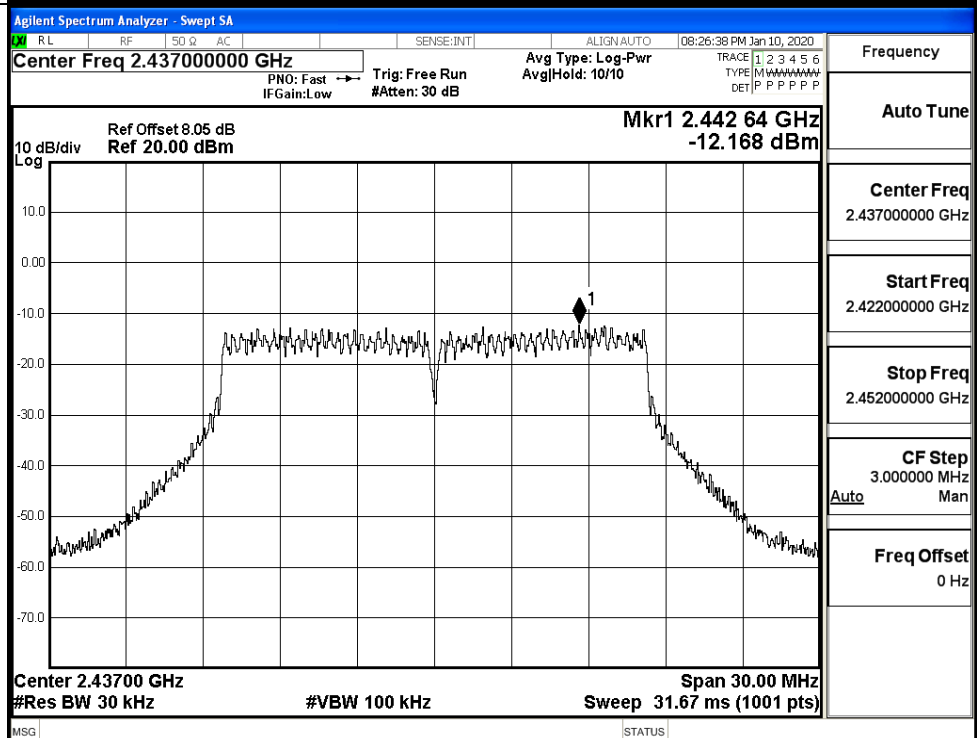
11B/HCH



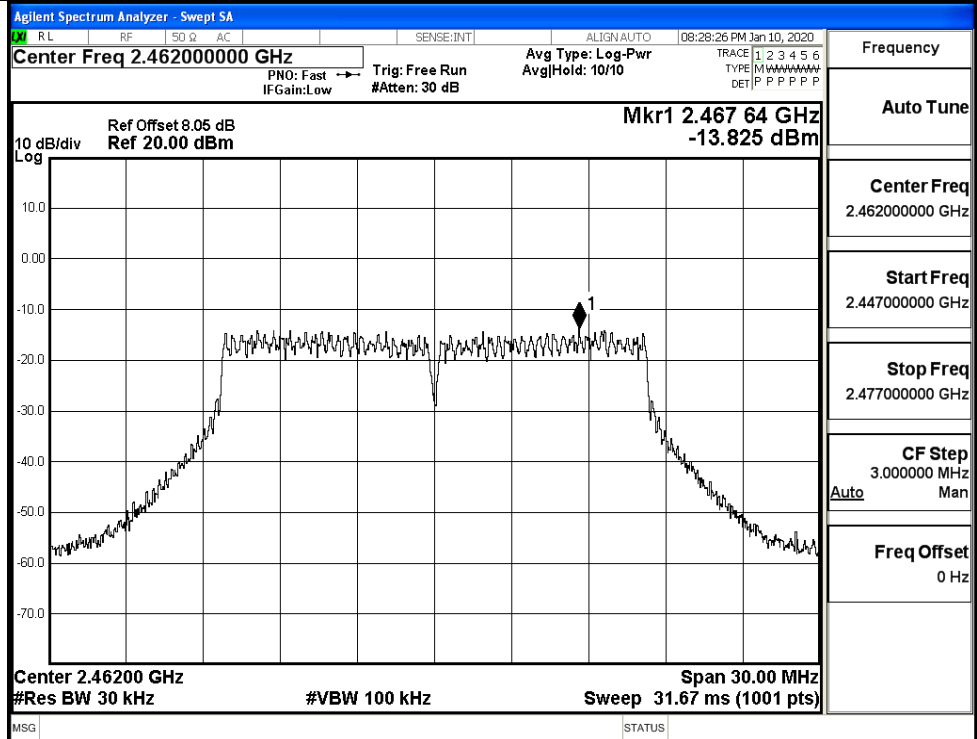
11G/LCH



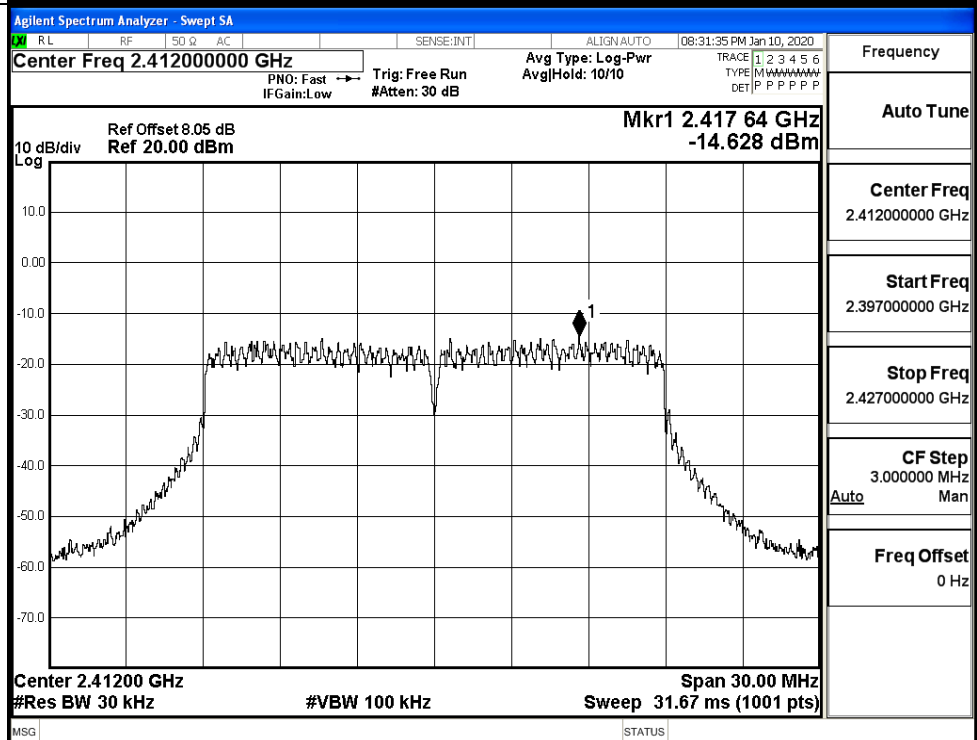
11G/MCH



11G/HCH



11N20SISO/LCH



11N20SISO/MCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.43700000 GHz

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr1 2.442 64 GHz
-13.465 dBm

10 dB/div
Log

Center 2.43700 GHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 31.67 ms (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 2.46200000 GHz

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr1 2.457 65 GHz
-13.217 dBm

10 dB/div
Log

Center 2.46200 GHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 31.67 ms (1001 pts)

Frequency

Auto Tune

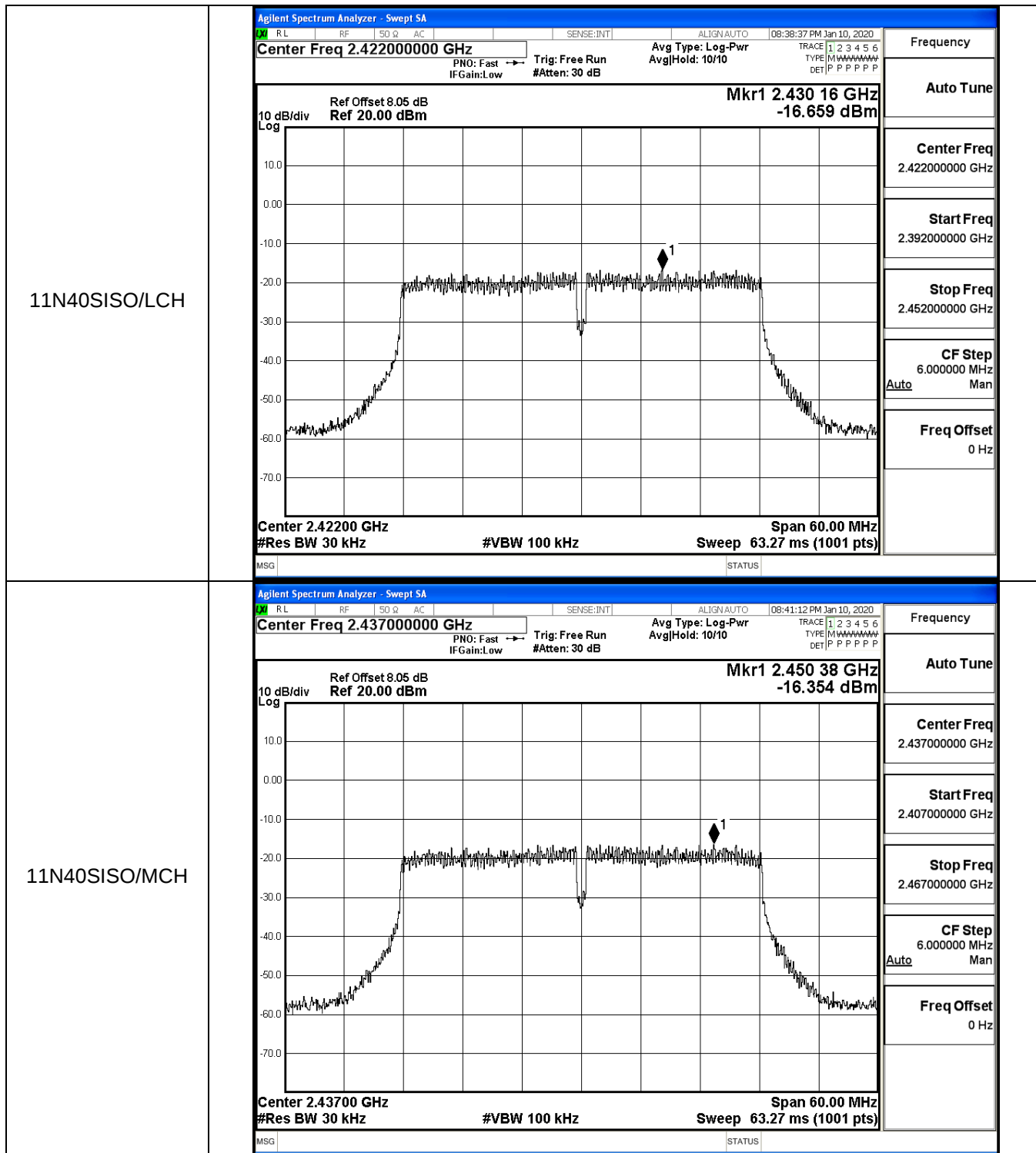
Center Freq
2.462000000 GHz

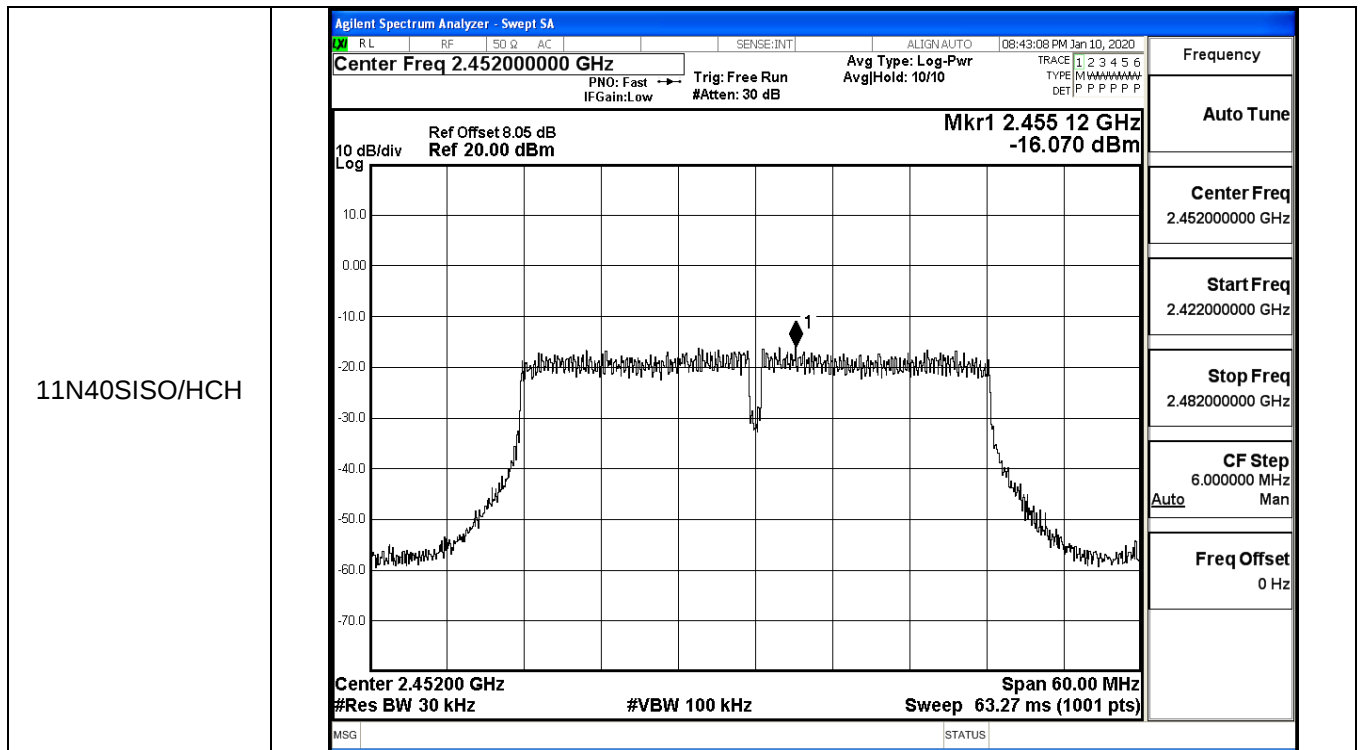
Start Freq
2.447000000 GHz

Stop Freq
2.477000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz



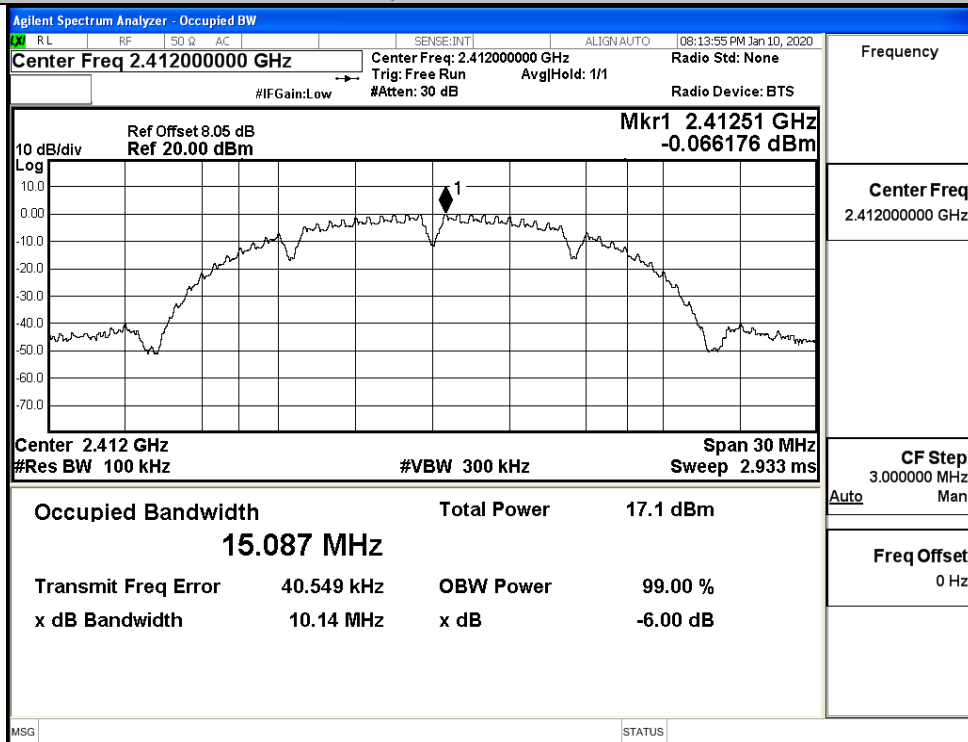


A.4 6dB Bandwidth

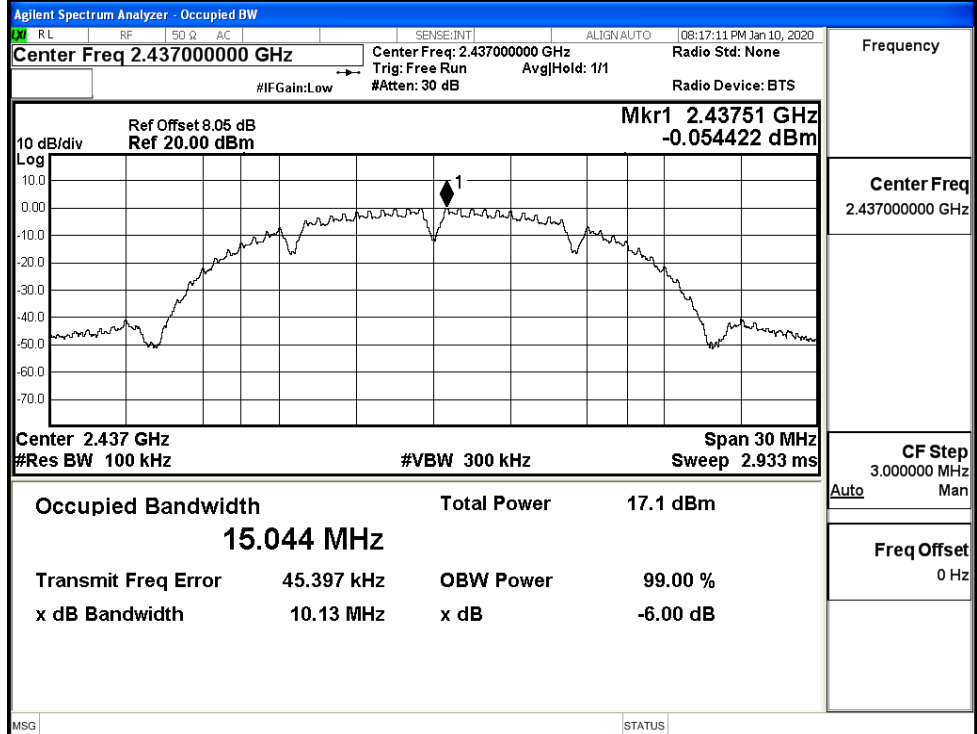
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.14	≥ 0.5	PASS
	MCH	10.13	≥ 0.5	PASS
	HCH	10.13	≥ 0.5	PASS
11G	LCH	16.55	≥ 0.5	PASS
	MCH	16.56	≥ 0.5	PASS
	HCH	16.57	≥ 0.5	PASS
11N20SISO	LCH	17.74	≥ 0.5	PASS
	MCH	17.73	≥ 0.5	PASS
	HCH	17.73	≥ 0.5	PASS
11N40SISO	LCH	36.52	≥ 0.5	PASS
	MCH	36.50	≥ 0.5	PASS
	HCH	36.49	≥ 0.5	PASS

Test Graphs

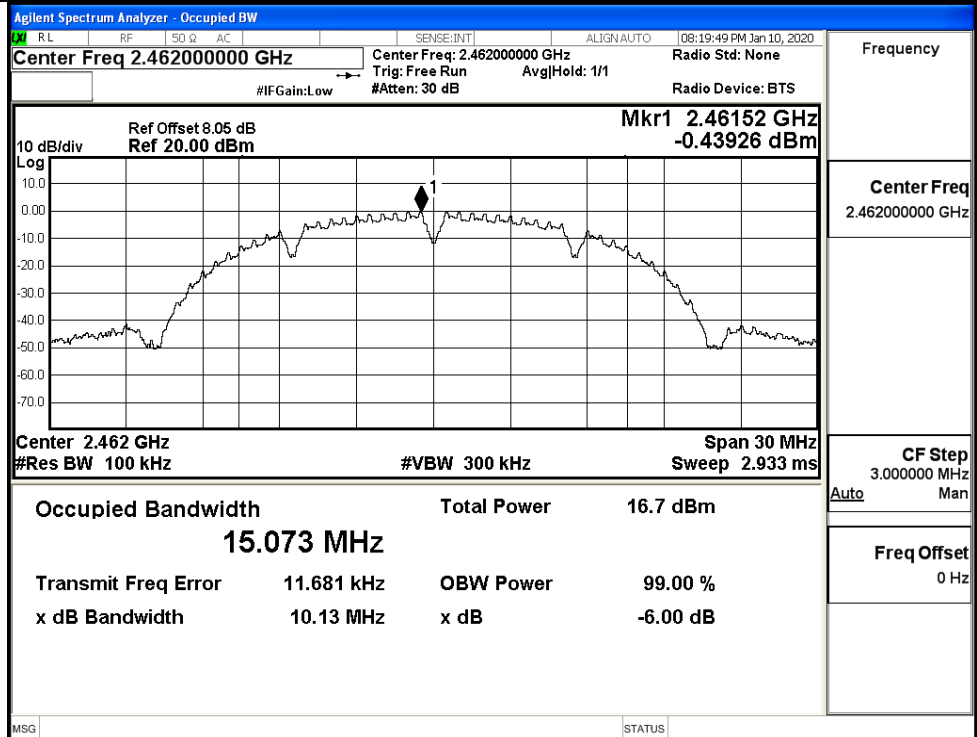
11B/LCH



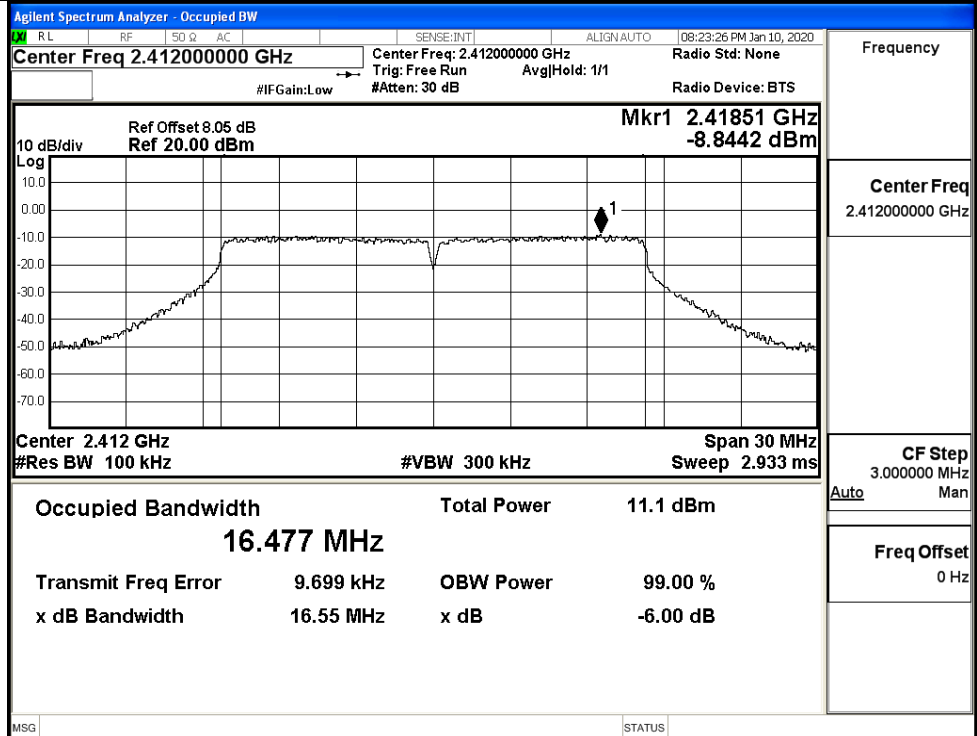
11B/MCH



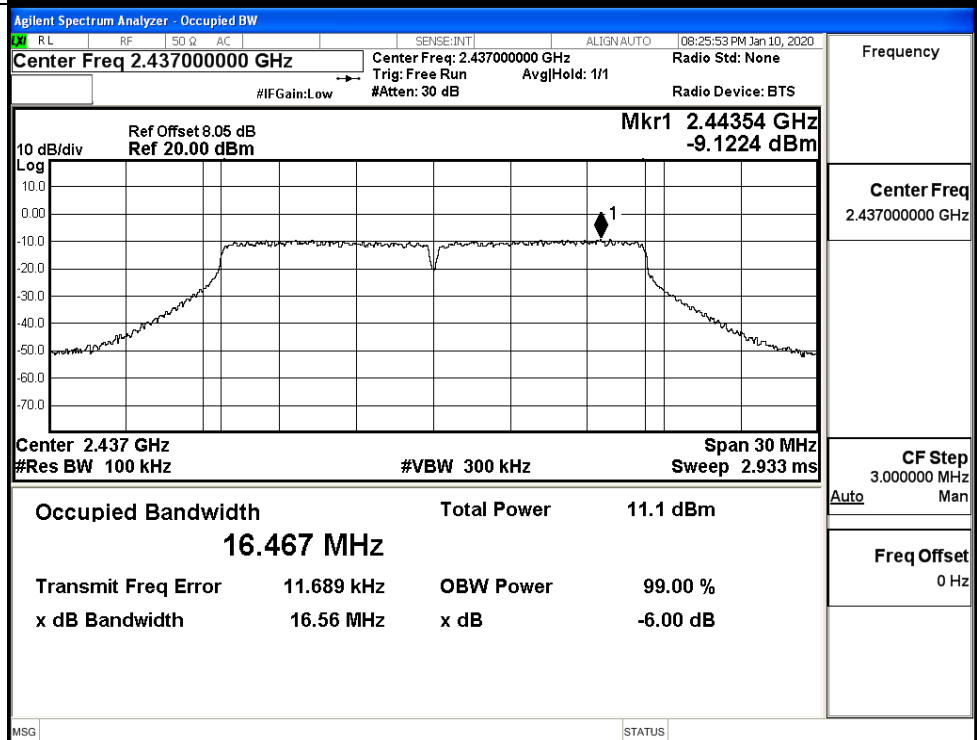
11B/HCH



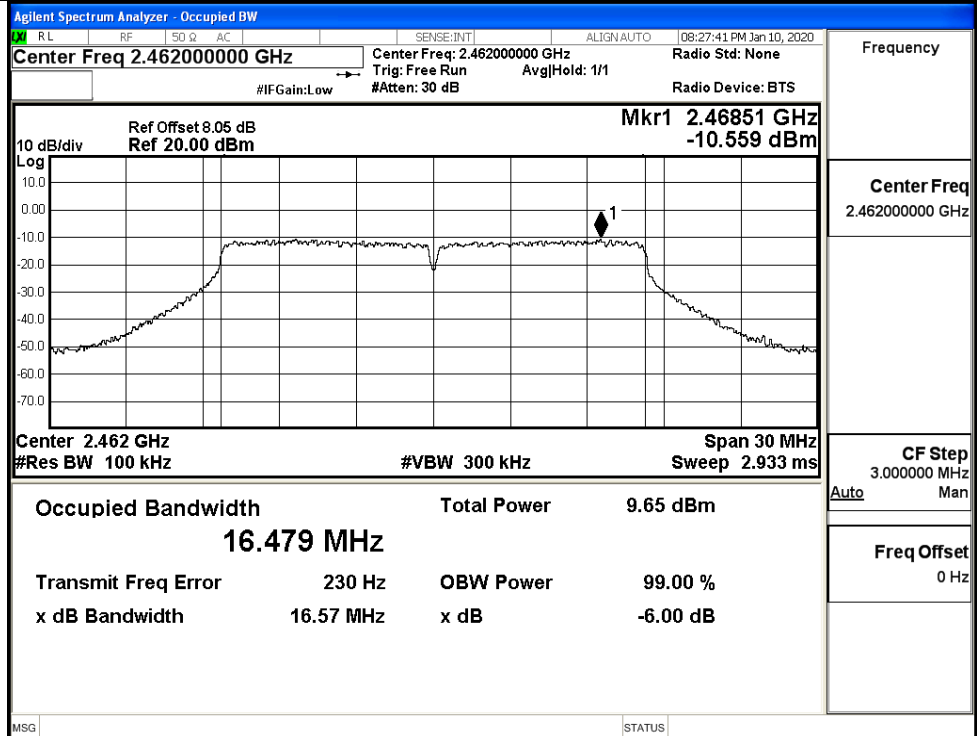
11G/LCH



11G/MCH



11G/HCH



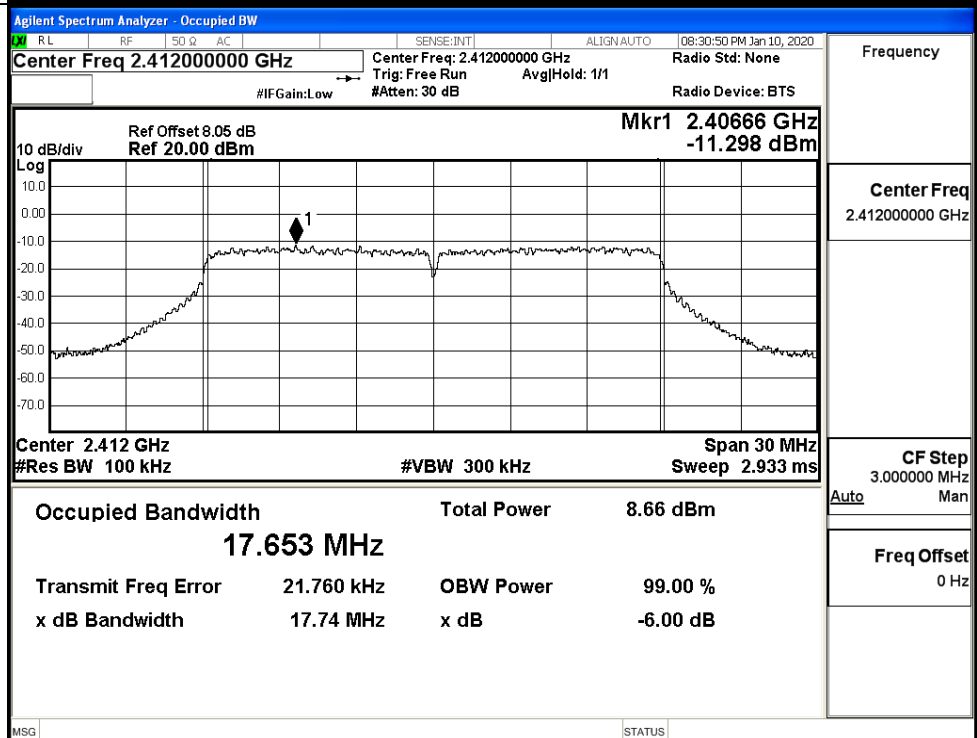
Frequency

Center Freq
2.46200000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH

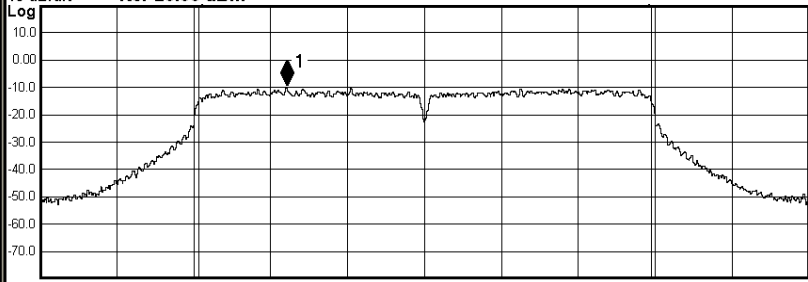
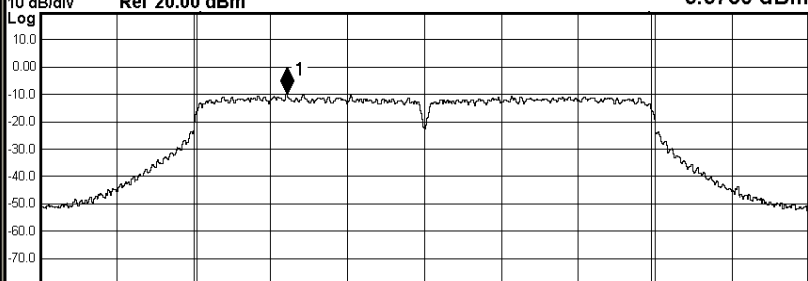


Frequency

Center Freq
2.41200000 GHz

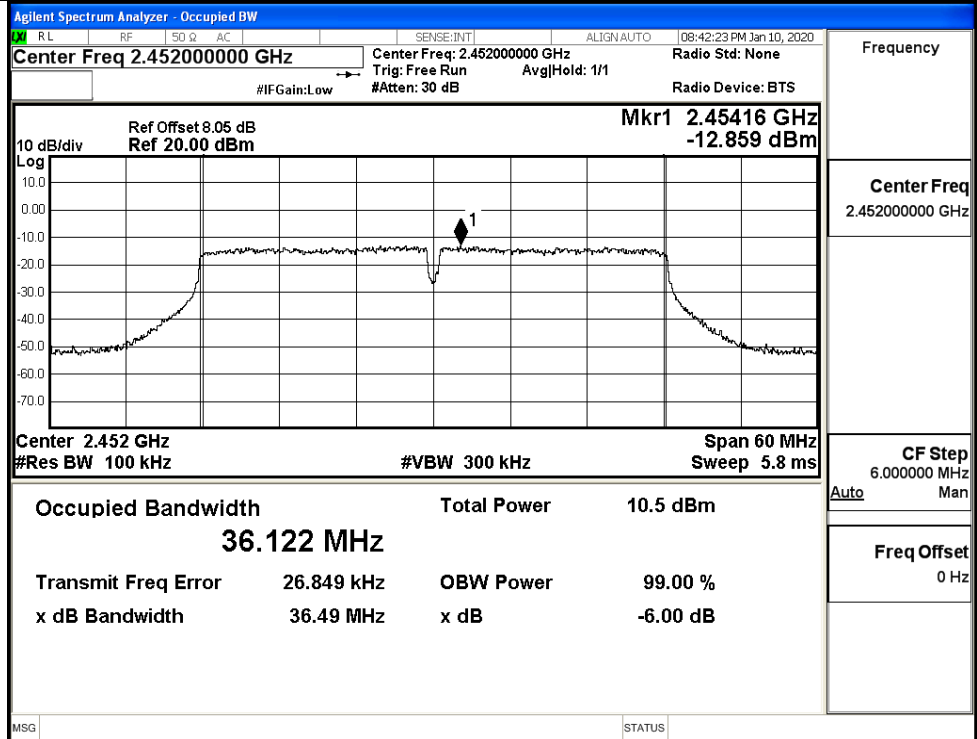
CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN AUTO 08:33:25 PM Jan 10, 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 2.43163 GHz -9.9289 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.646 MHz Total Power 9.96 dBm Transmit Freq Error 23.565 kHz OBW Power 99.00 % x dB Bandwidth 17.73 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:INT ALIGN AUTO 08:35:13 PM Jan 10, 2020 Center Freq 2.462000000 GHz Center Freq: 2.462000000 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 2.45663 GHz -9.9730 dBm  Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.647 MHz Total Power 10.1 dBm Transmit Freq Error 11.515 kHz OBW Power 99.00 % x dB Bandwidth 17.73 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 SO Q AC SENSE:INT ALIGN: AUTO 08:37:52 PM Jan 10, 2020 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 10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.42416 GHz -13.355 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.146 MHz Total Power 9.88 dBm Transmit Freq Error 56.276 kHz OBW Power 99.00 % x dB Bandwidth 36.52 MHz x dB -6.00 dB MSG STATUS
11N40SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF SO Q AC SENSE:INT ALIGN: AUTO 08:40:26 PM Jan 10, 2020 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 10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43916 GHz -13.116 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.115 MHz Total Power 10.3 dBm Transmit Freq Error 50.080 kHz OBW Power 99.00 % x dB Bandwidth 36.50 MHz x dB -6.00 dB MSG STATUS

11N40SISO/HCH

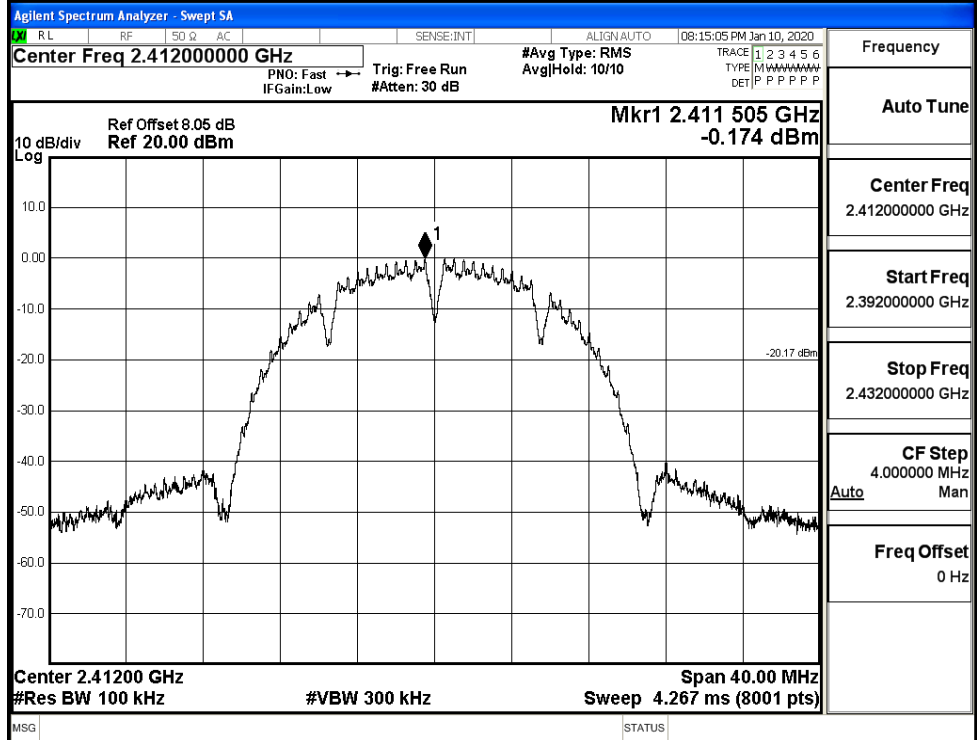


A.5 RF Conducted Spurious Emissions

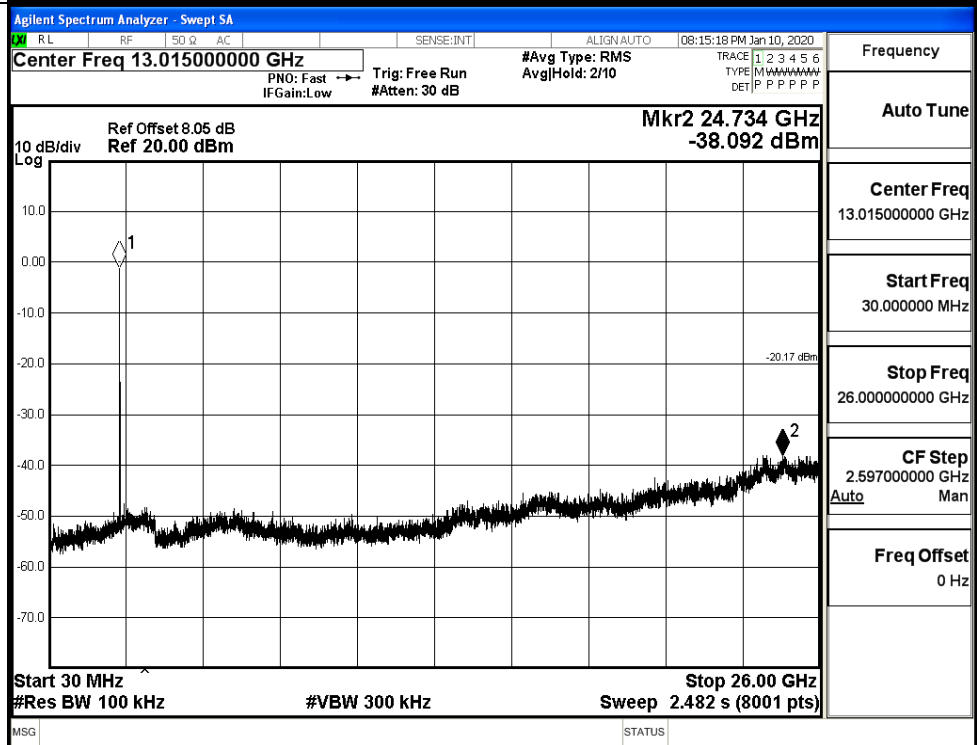
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-0.174	-38.092	-20.174	PASS
	MCH	-0.194	-38.236	-20.194	PASS
	HCH	-0.672	-37.549	-20.672	PASS
11G	LCH	-9.002	-37.002	-29.002	PASS
	MCH	-9.126	-37.682	-29.126	PASS
	HCH	-10.785	-37.648	-30.785	PASS
11N20 SISO	LCH	-11.773	-36.802	-31.773	PASS
	MCH	-10.567	-38.274	-30.567	PASS
	HCH	-10.457	-37.114	-30.457	PASS
11N40 SISO	LCH	-13.873	-37.828	-33.873	PASS
	MCH	-13.382	-37.893	-33.382	PASS
	HCH	-13.025	-36.547	-33.025	PASS

11B LCH Graphs

Pref/11B/LCH

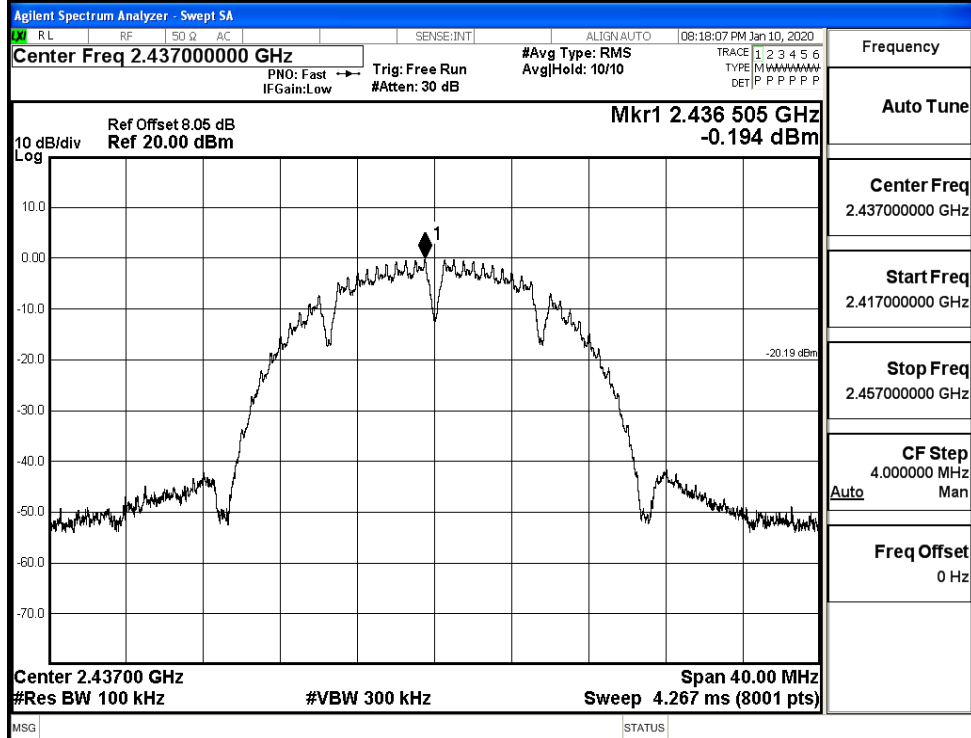


Puw/11B/LCH

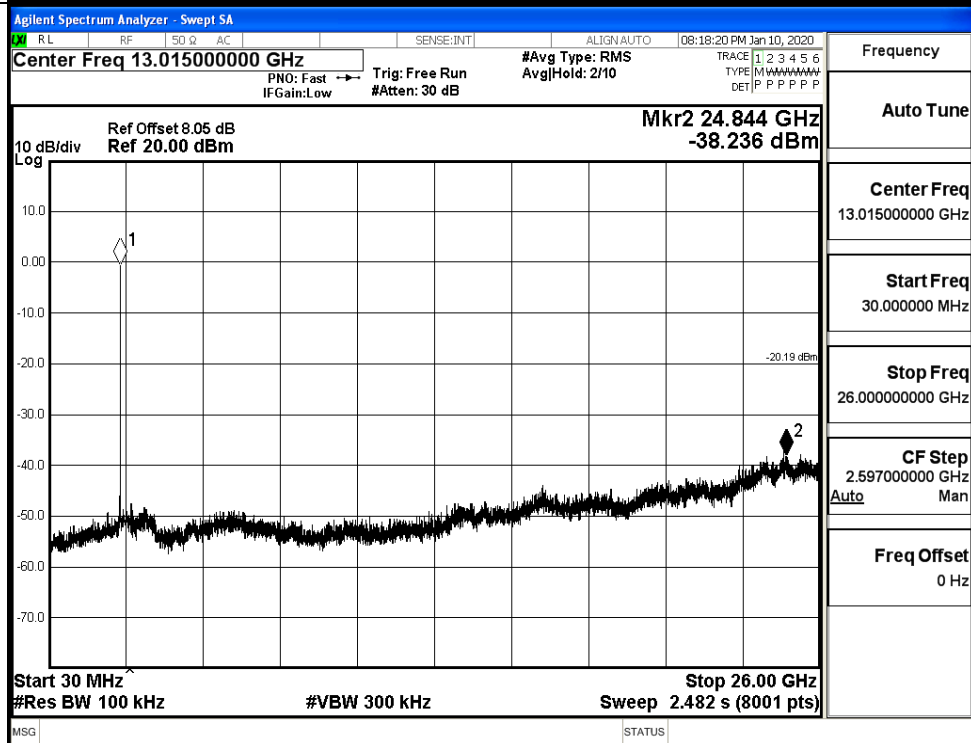


11B MCH Graphs

Pref/11B/MCH

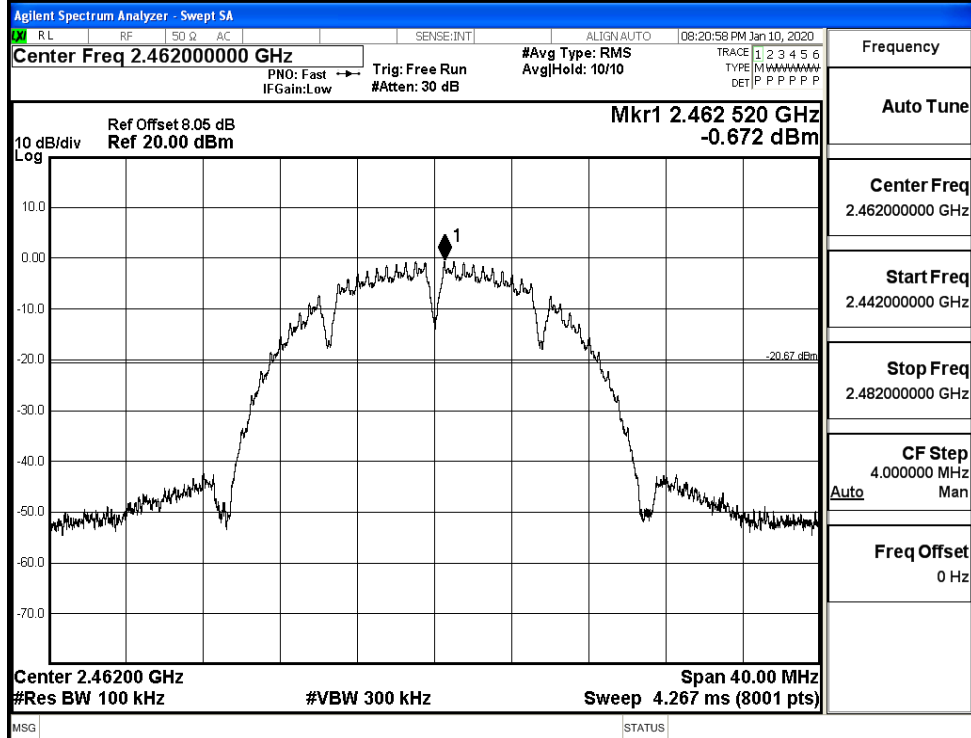


Puw/11B/MCH

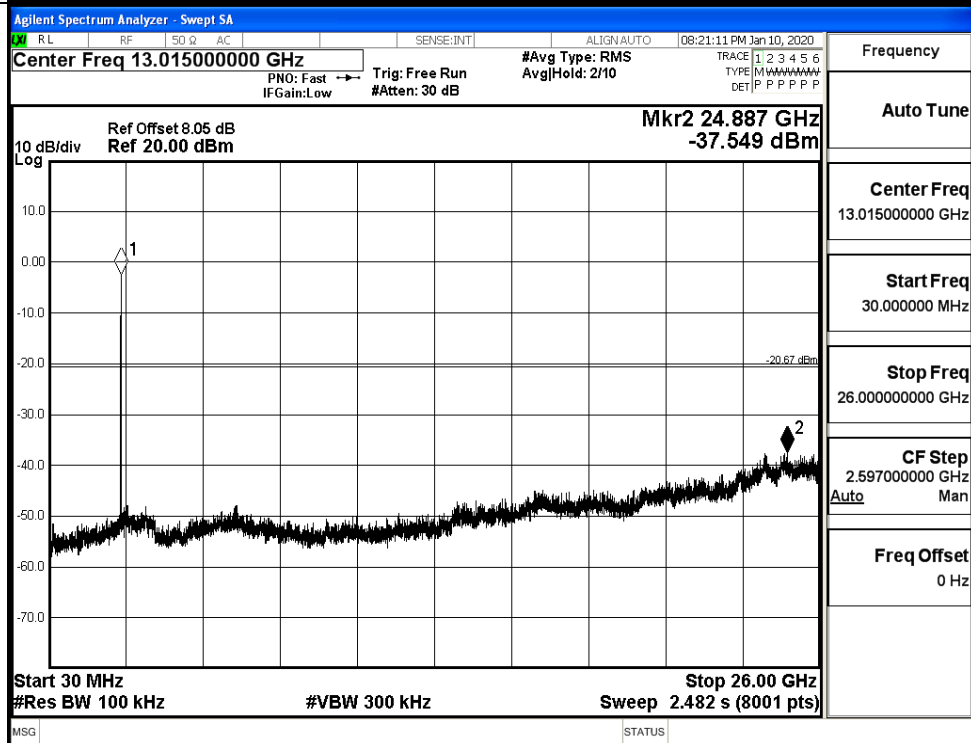


11B HCH Graphs

Pref/11B/HCH

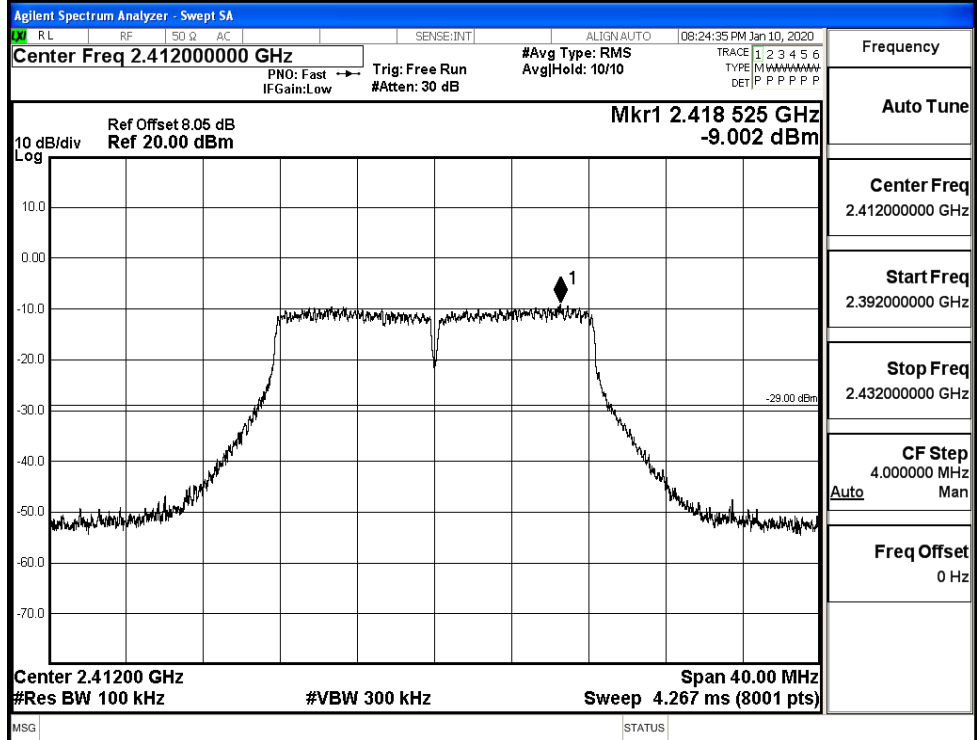


Puw/11B/HCH



11G_LCH_Graphs

Pref/11G/LCH

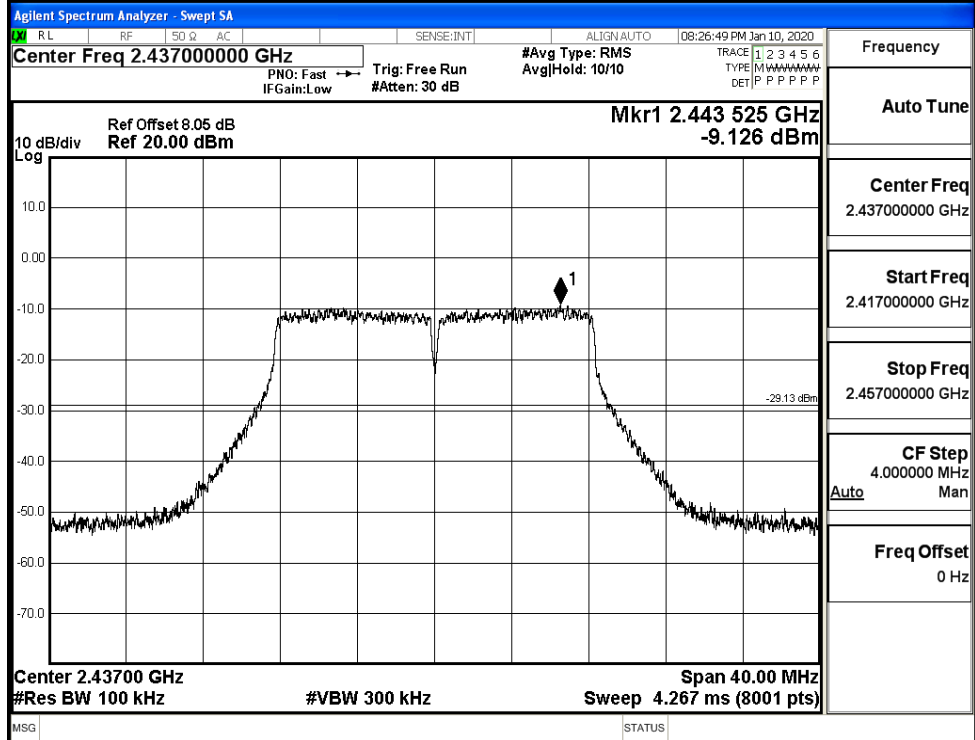


Puw/11G/LCH

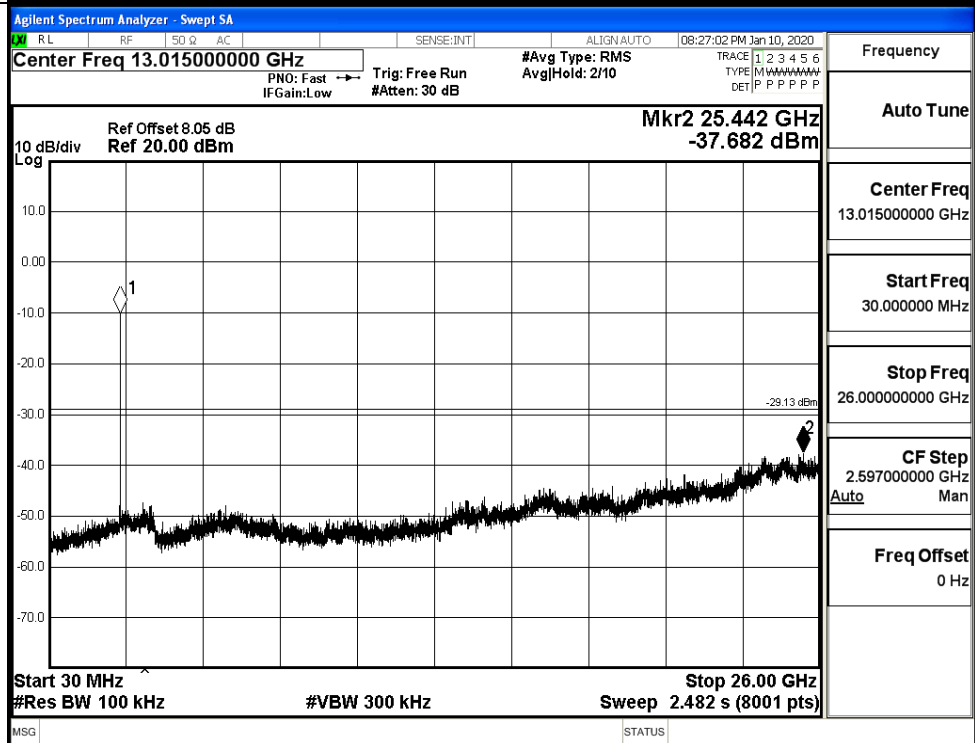


11G MCH Graphs

Pref/11G/MCH

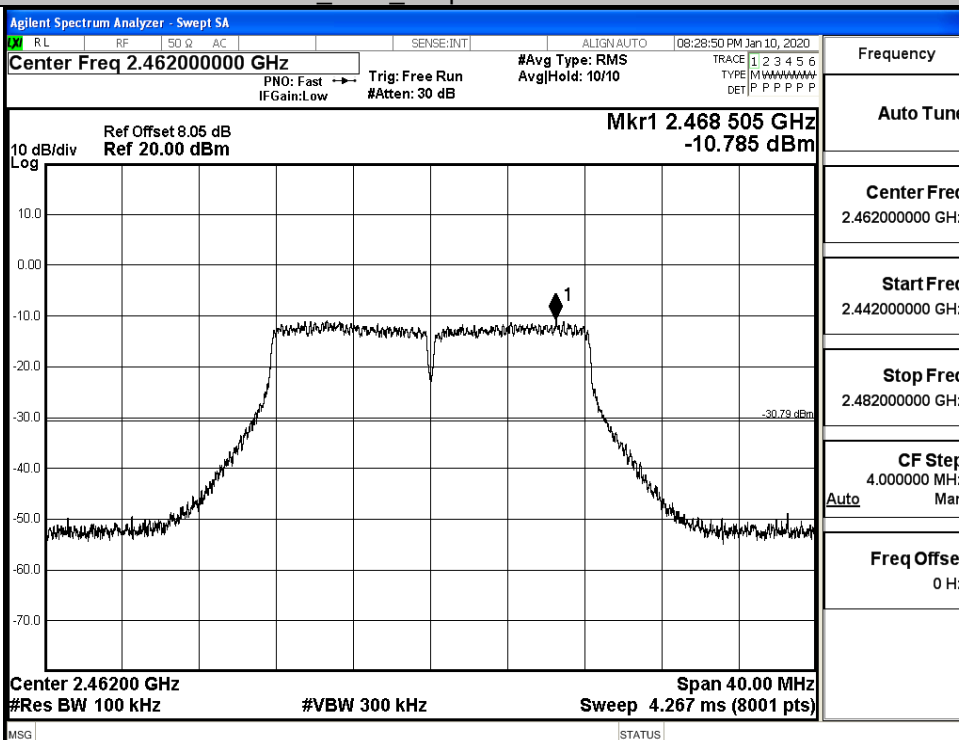


Puw/11G/MCH

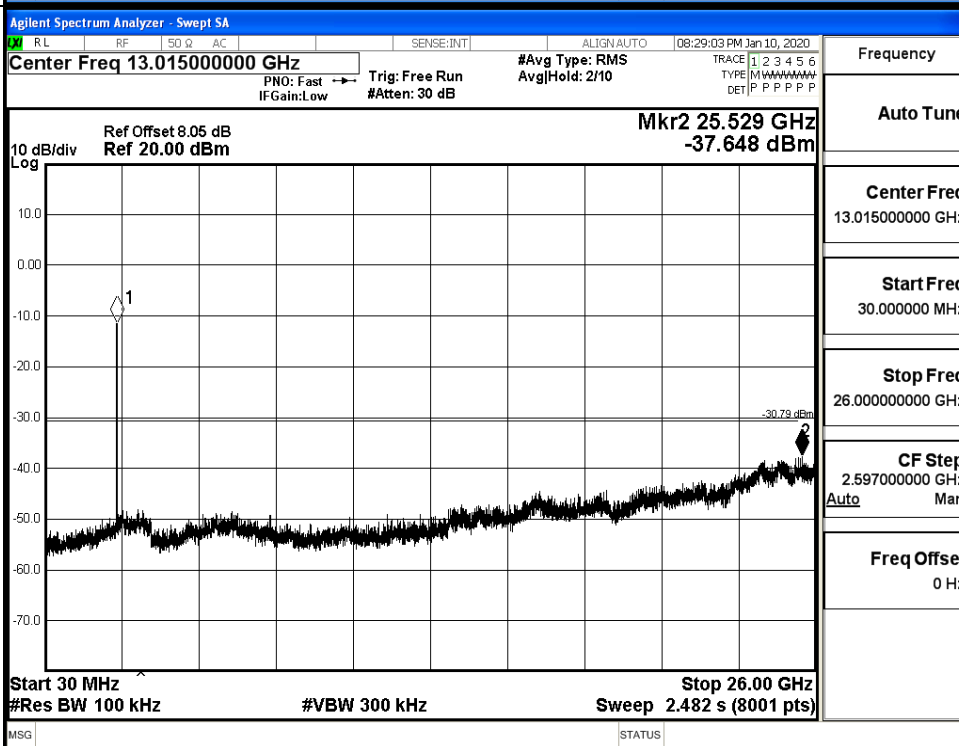


11G HCH Graphs

Pref/11G/HCH

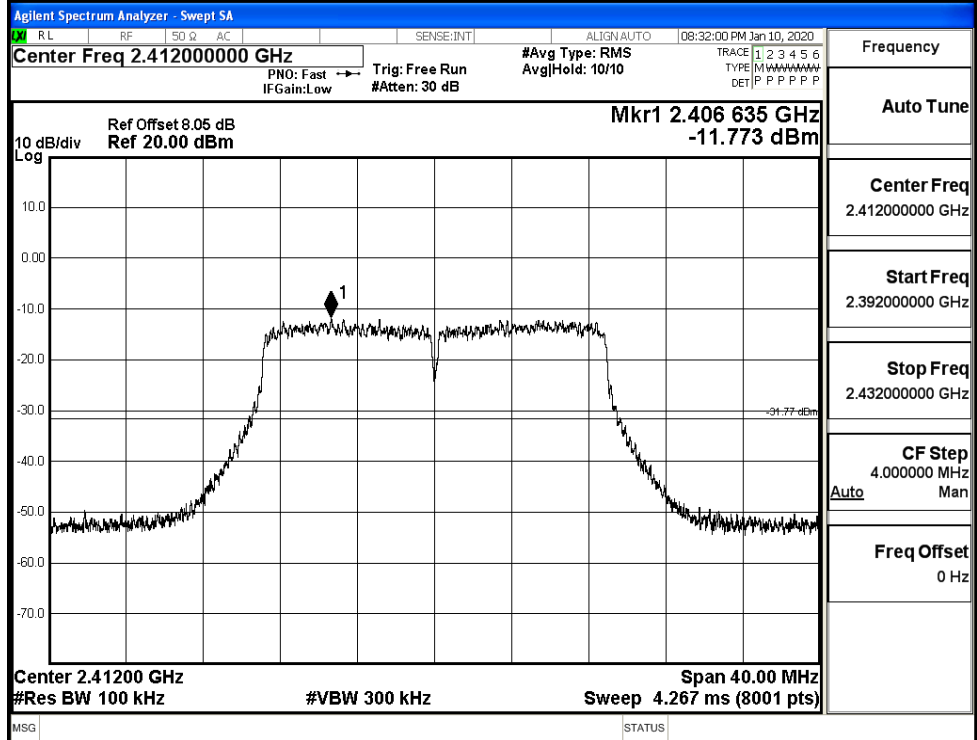


Puw/11G/HCH

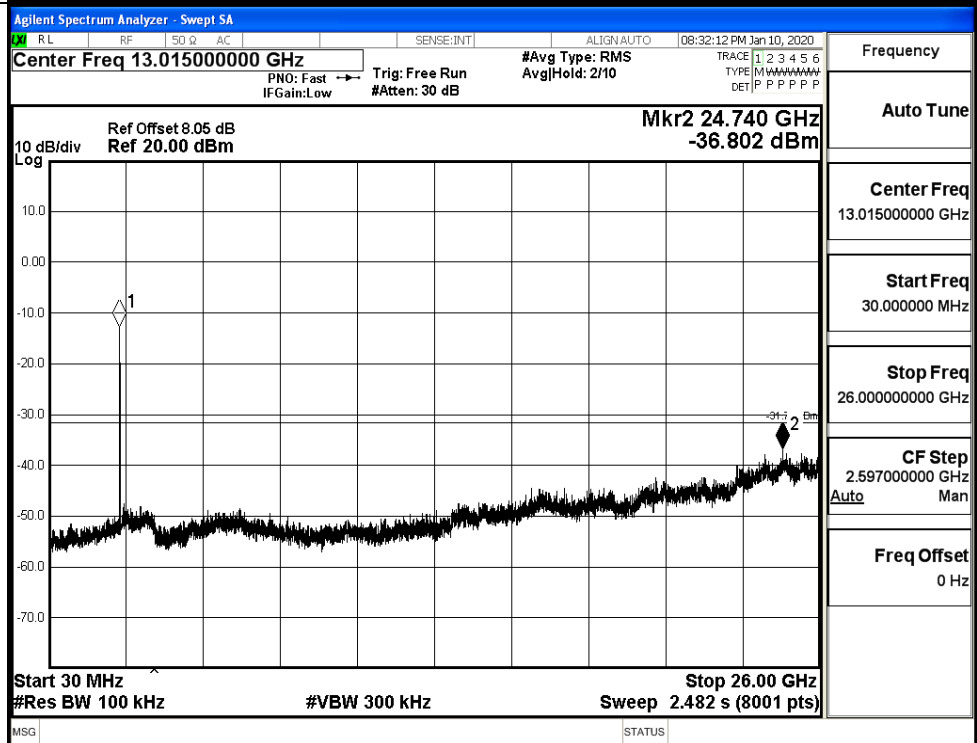


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

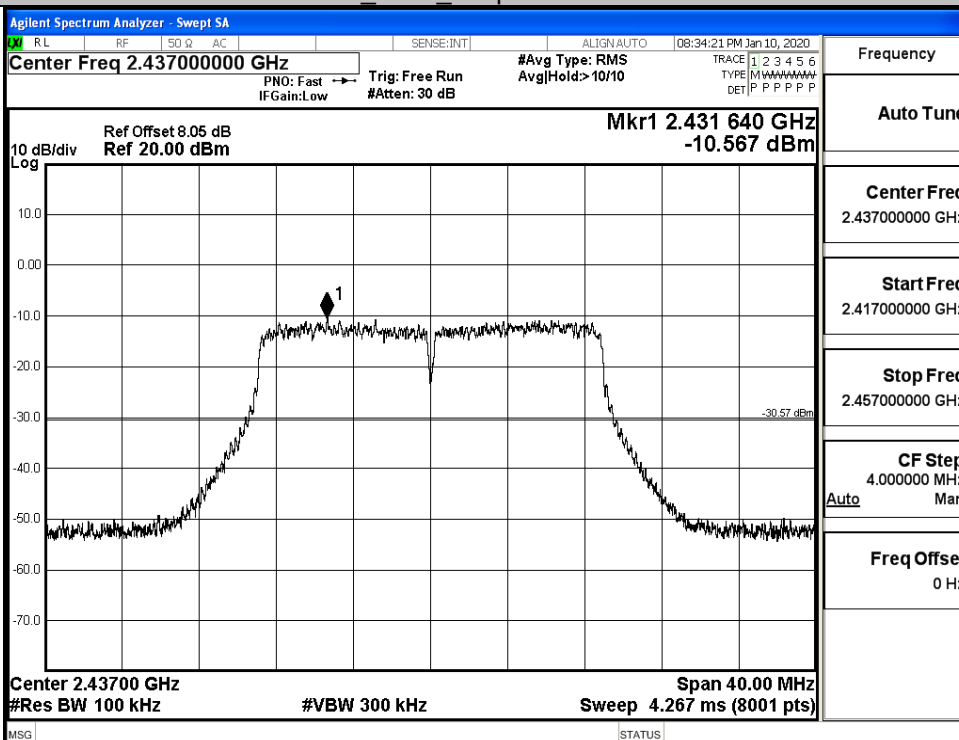


Puw/11N20
SISO/LCH

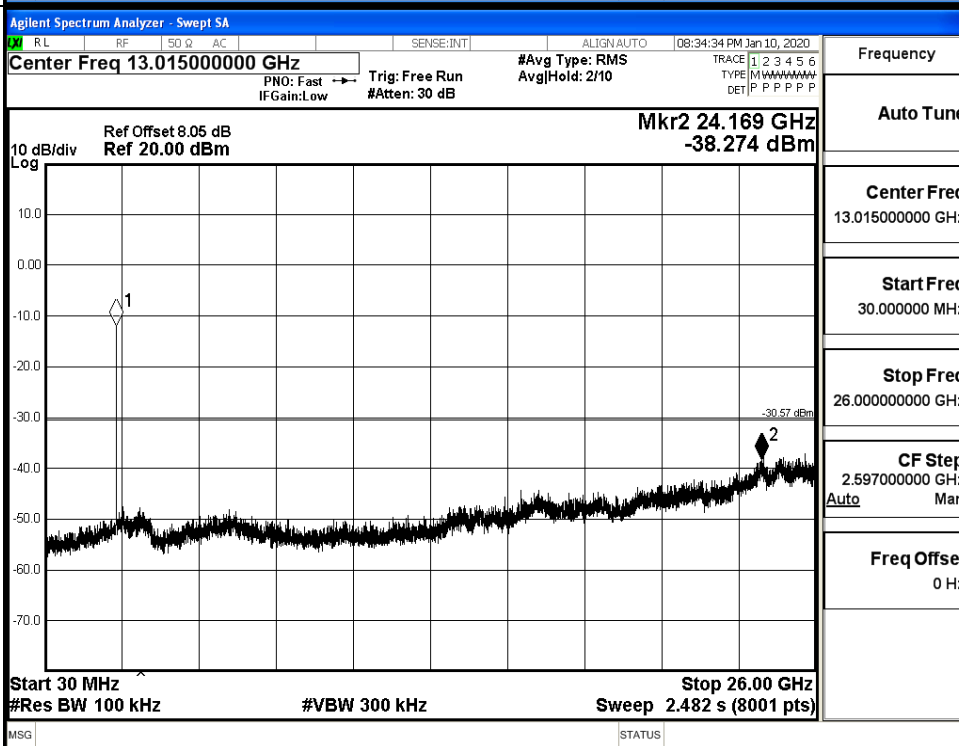


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

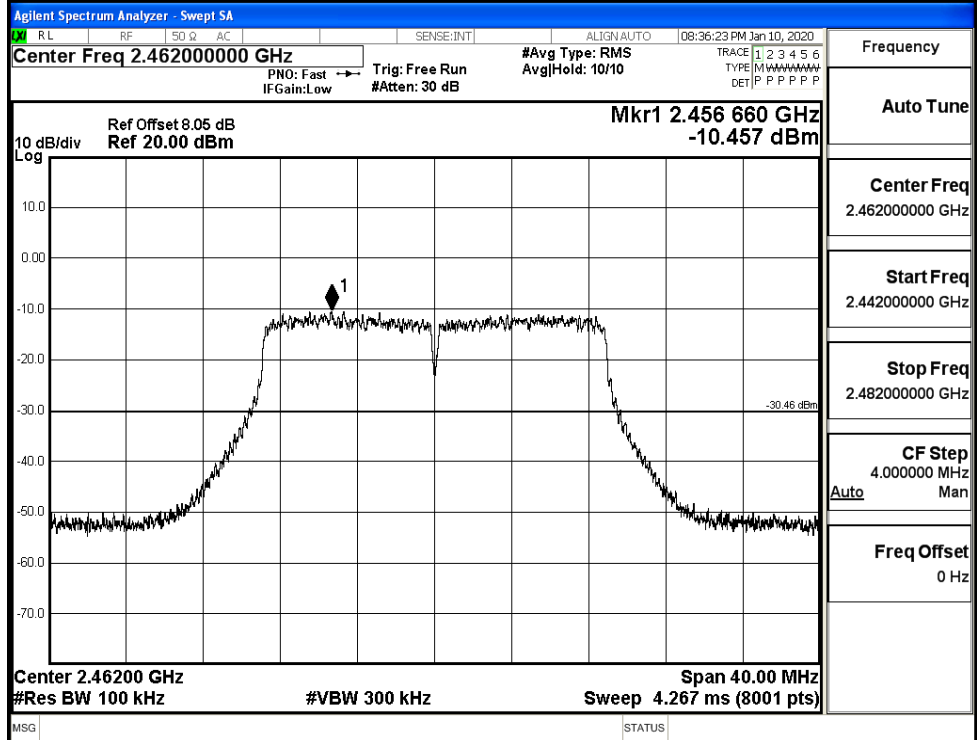


Puw/11N20
SISO/MCH

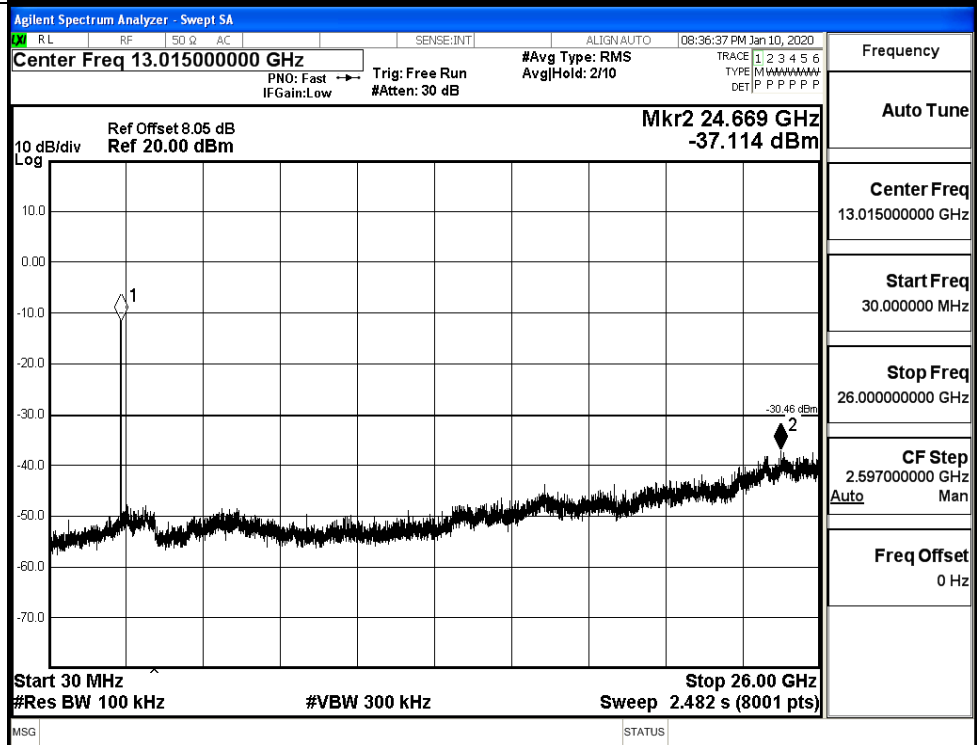


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

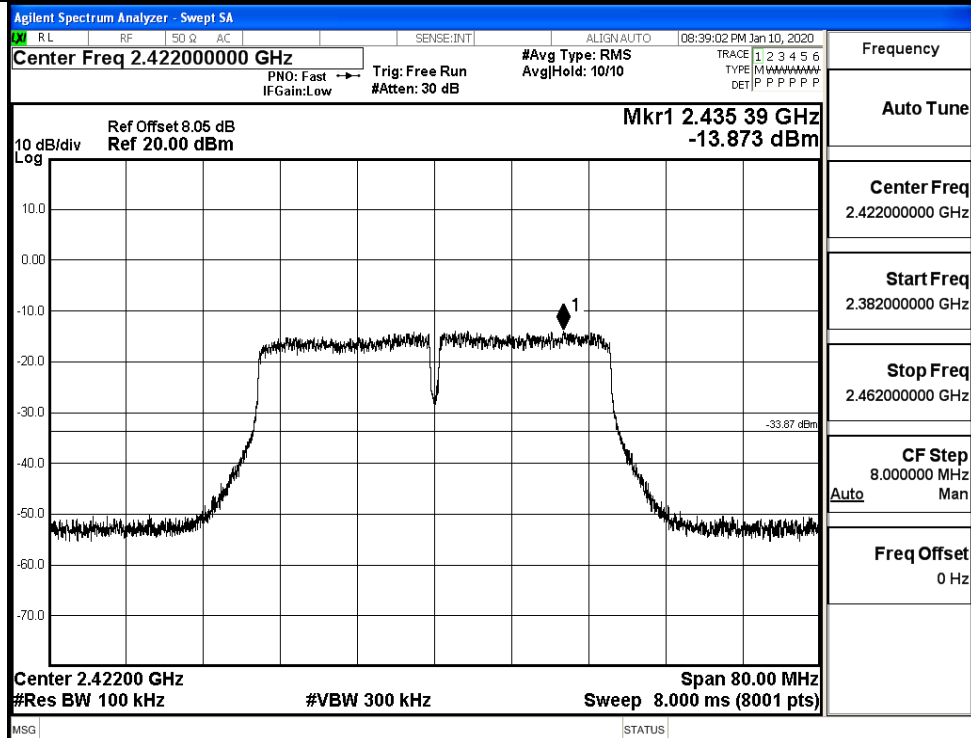


Puw/11N20
SISO/HCH

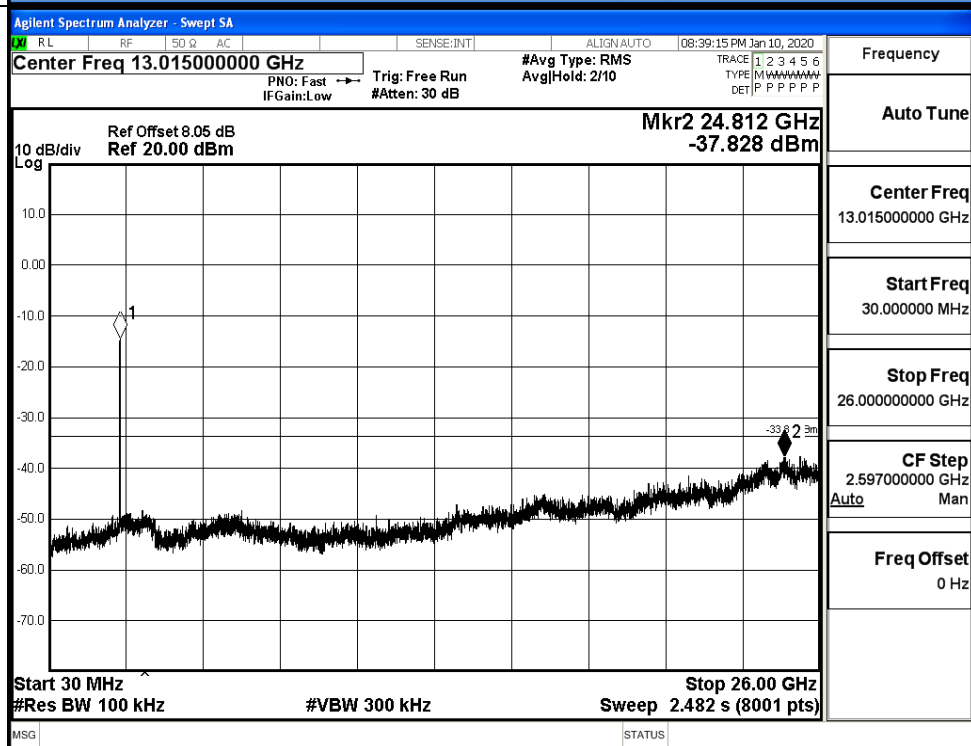


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

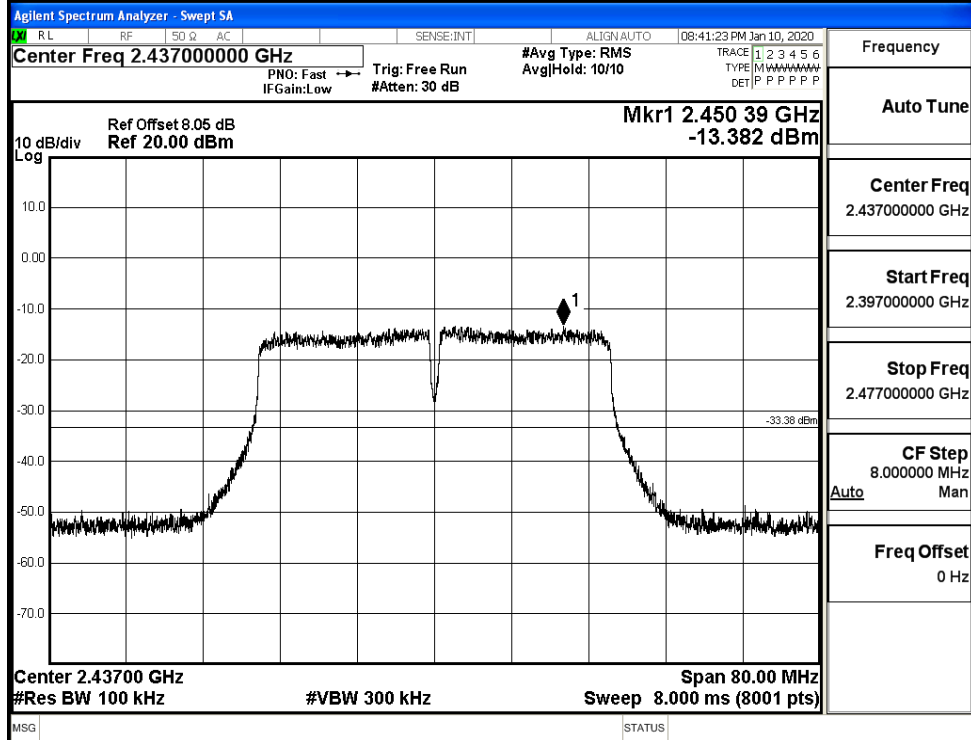


Puw/11N40
SISO/LCH

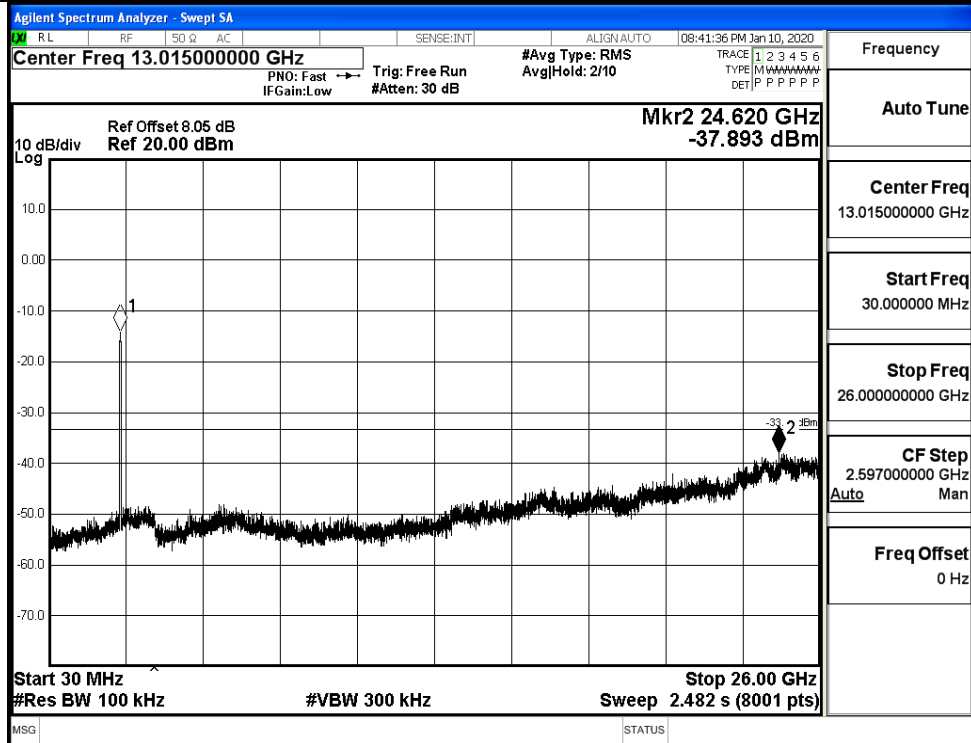


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

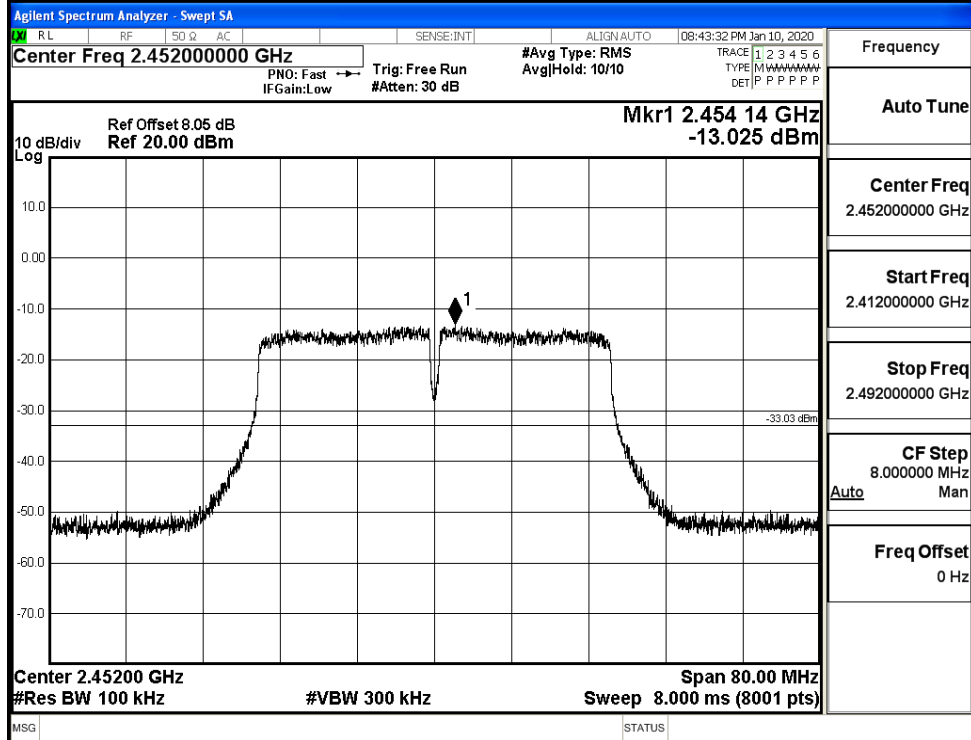


Puw/11N40
SISO/MCH

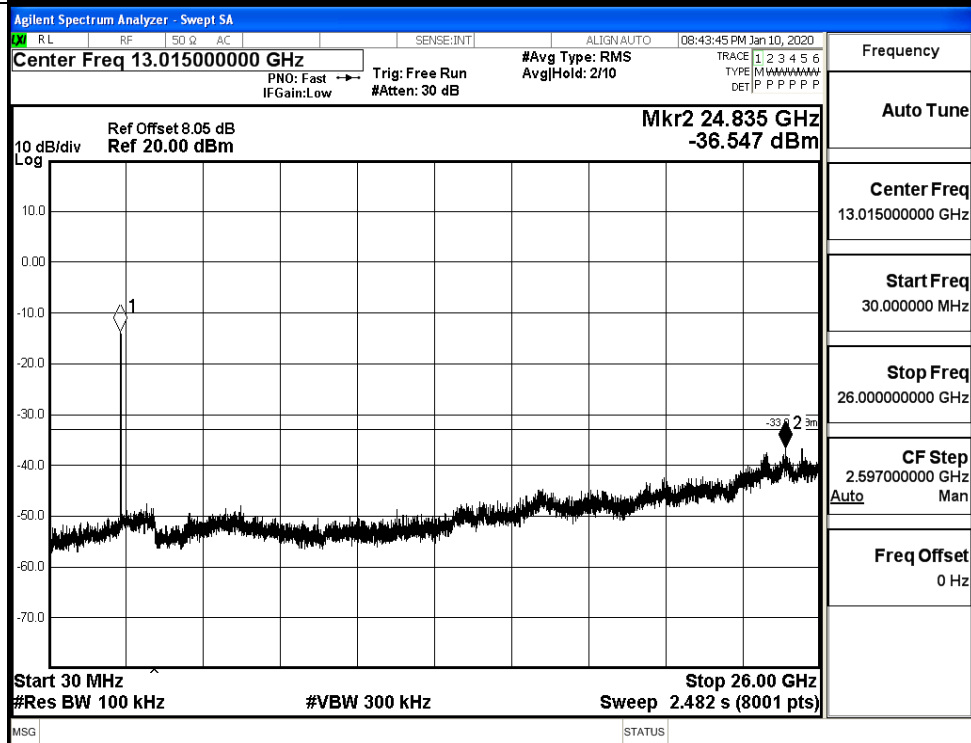


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



Puw/11N40
SISO/HCH

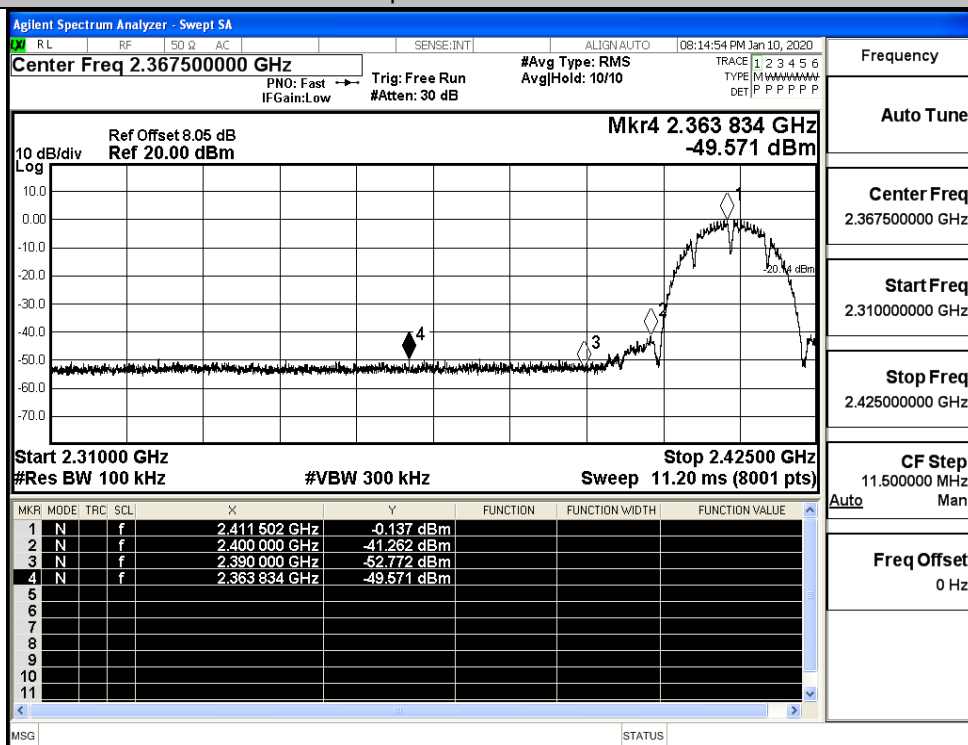


A.6 Band-edge for RF Conducted Emissions

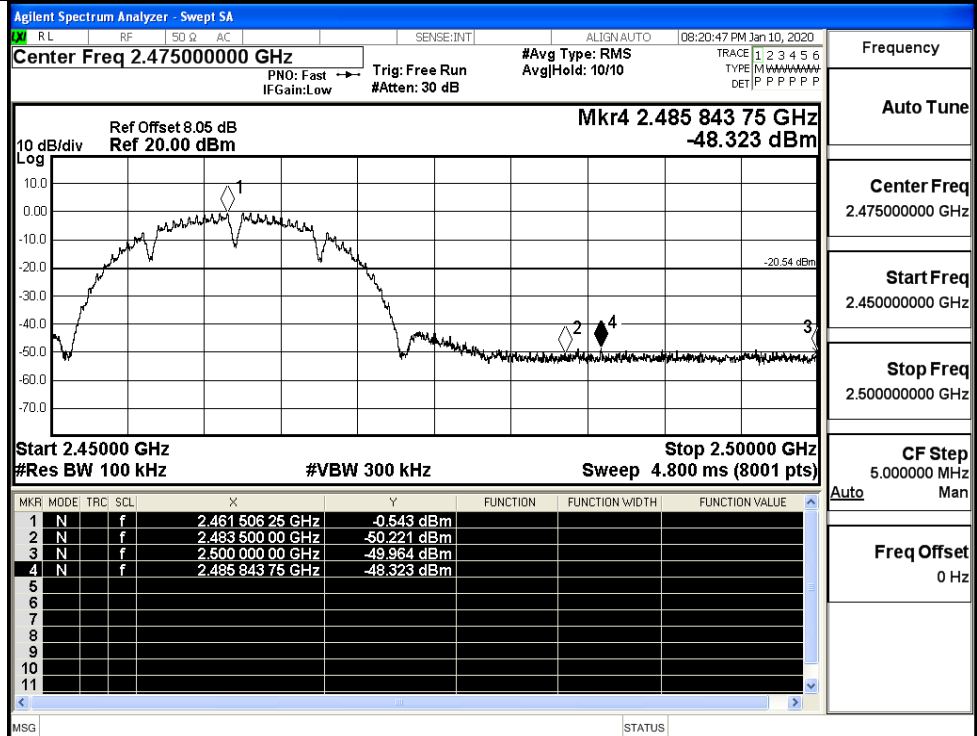
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-0.137	-49.571	-20.14	PASS
	HCH	-0.543	-48.323	-20.54	PASS
11G	LCH	-8.906	-49.433	-28.91	PASS
	HCH	-10.767	-49.177	-30.77	PASS
11N20SISO	LCH	-11.889	-49.308	-31.89	PASS
	HCH	-10.165	-48.545	-30.17	PASS
11N40SISO	LCH	-13.535	-49.996	-33.54	PASS
	HCH	-13.297	-48.602	-33.3	PASS

Test Graphs

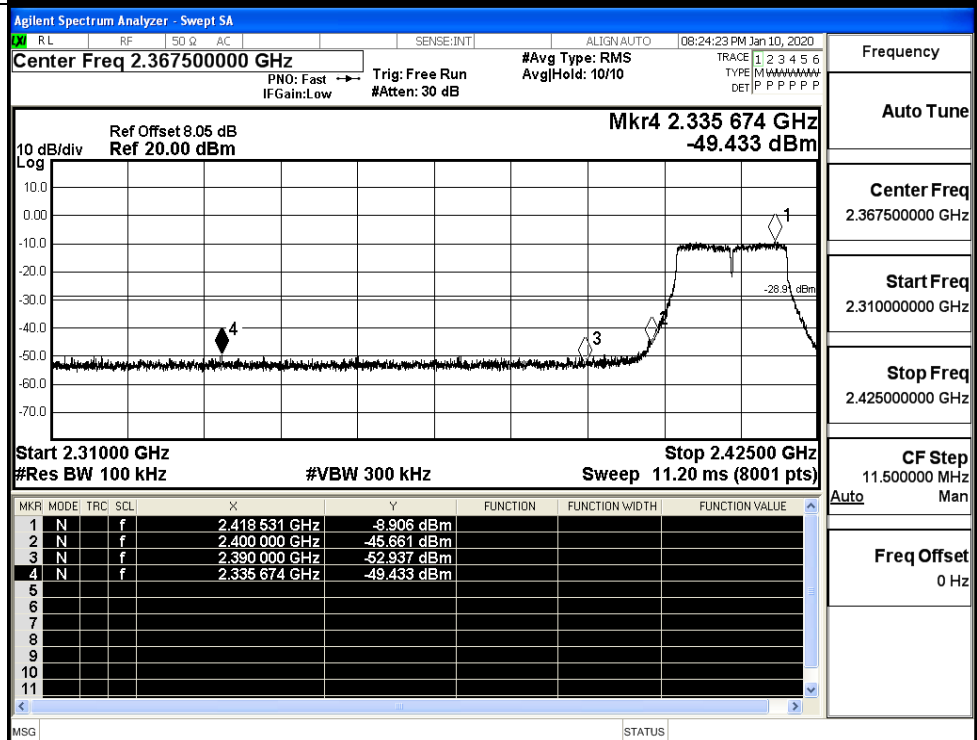
11B/LCH



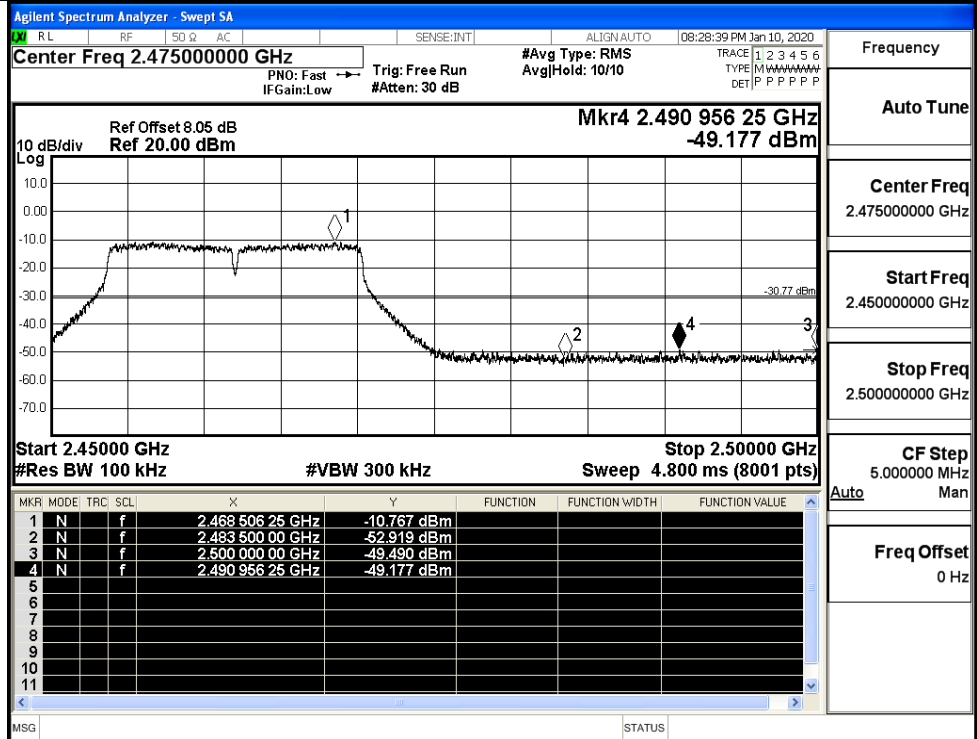
11B/HCH



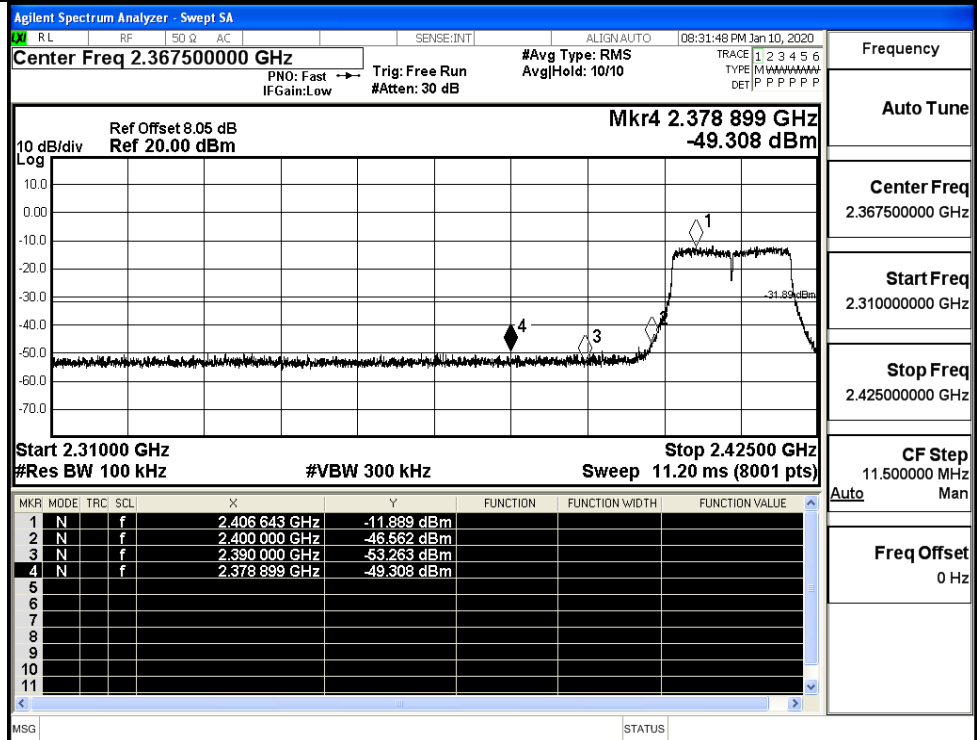
11G/LCH



11G/HCH



11N20SISO/LCH



11N20SISO/HCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.475000000 GHz

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr4 2.486 537 50 GHz
-48.545 dBm

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	2.456 643 75 GHz	-10.165 dBm			
2	N		f	2.483 500 00 GHz	-51.212 dBm			
3	N		f	2.500 000 00 GHz	-51.929 dBm			
4	N		f	2.486 537 50 GHz	-48.545 dBm			

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

Ref Offset 8.05 dB
Ref 20.00 dBm

Mkr4 2.350 854 GHz
-49.996 dBm

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	-13.535 dBm			
2	N		f	2.400 000 GHz	-47.064 dBm			
3	N		f	2.390 000 GHz	-53.897 dBm			
4	N		f	2.350 854 GHz	-49.996 dBm			

Frequency

Auto Tune

Center Freq
2.377500000 GHz

Start Freq
2.310000000 GHz

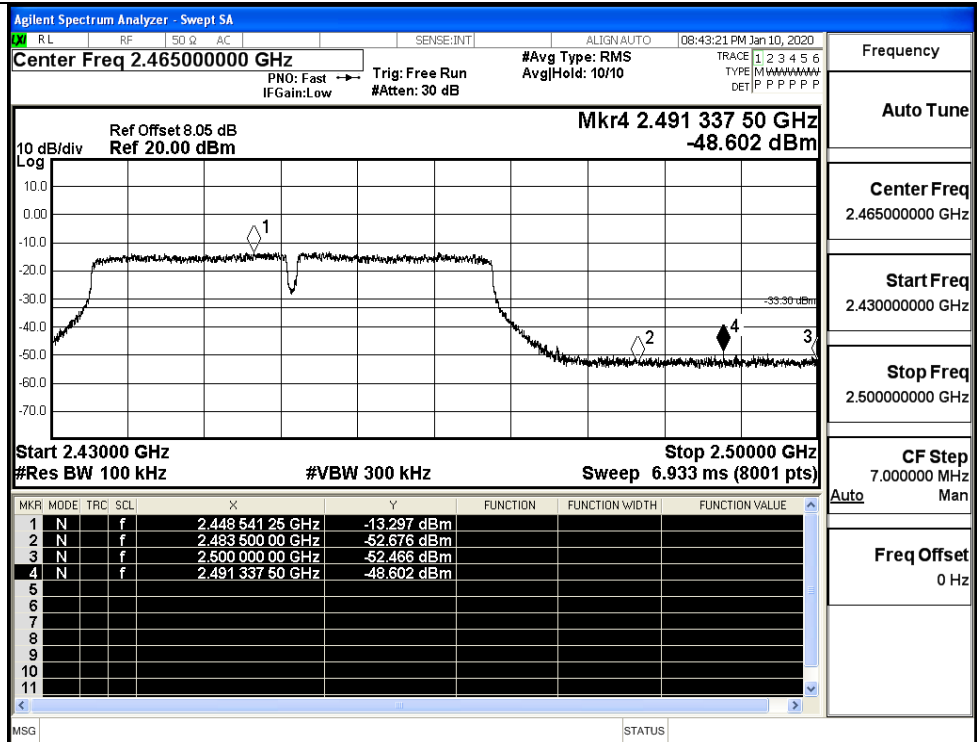
Stop Freq
2.445000000 GHz

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

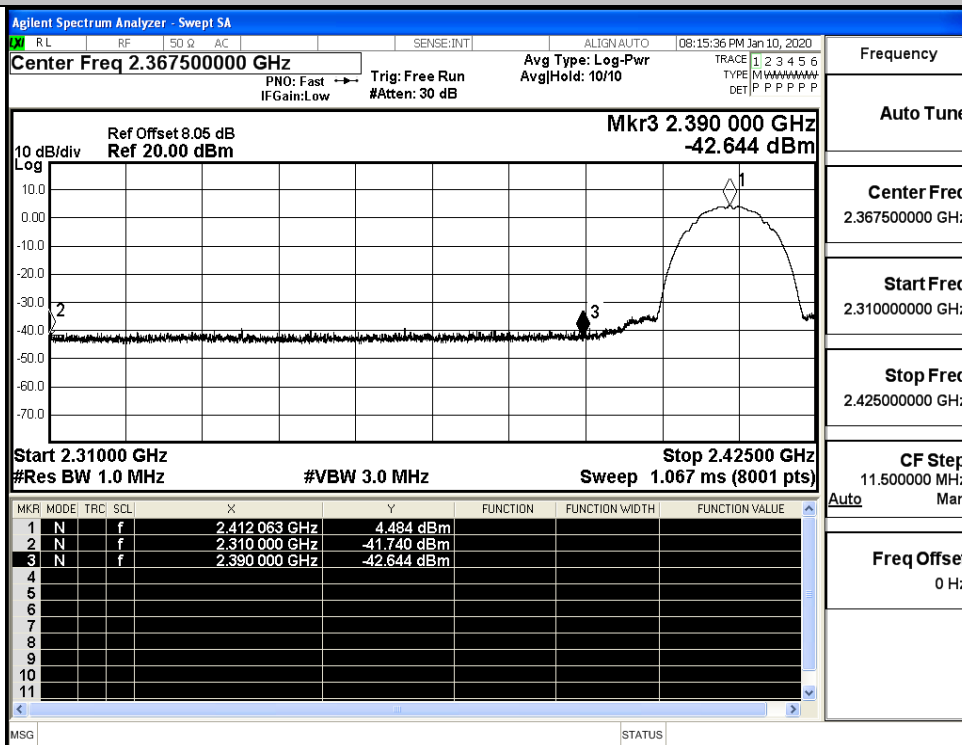
0 Hz

A.7 Restrict-band band-edge measurements

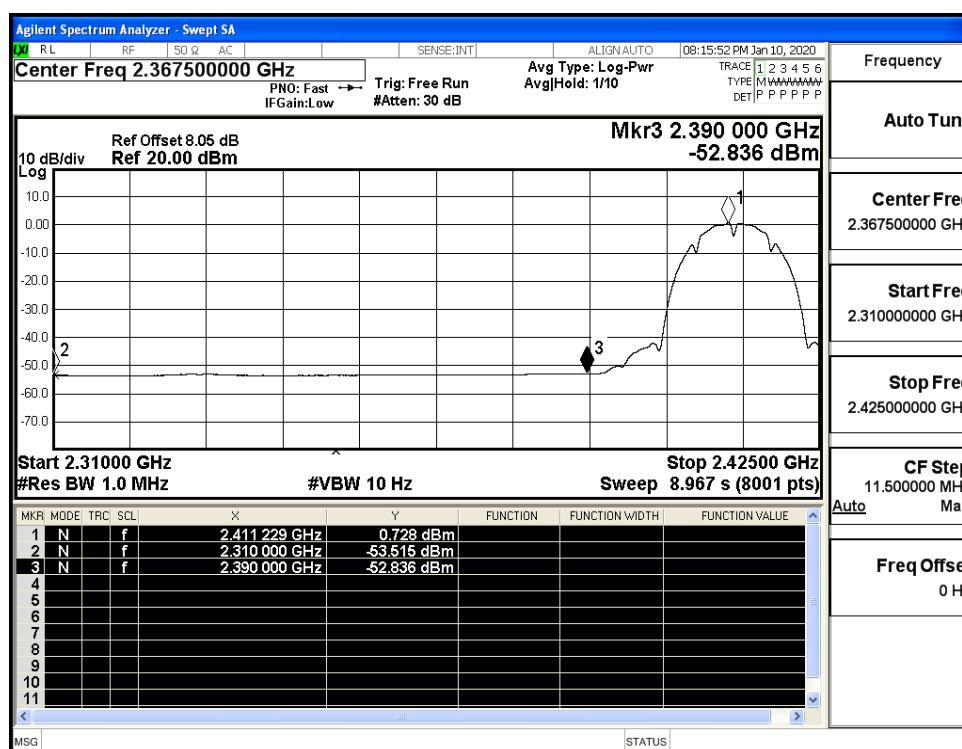
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-41.74	5.0	0	58.49	PEAK	74	PASS
	2412	Ant1	2310.0	-53.52	5.0	0	46.71	AV	54	PASS
	2412	Ant1	2390.0	-42.64	5.0	0	57.59	PEAK	74	PASS
	2412	Ant1	2390.0	-52.84	5.0	0	47.39	AV	54	PASS
	2462	Ant1	2483.5	-42.27	5.0	0	57.96	PEAK	74	PASS
	2462	Ant1	2483.5	-52.51	5.0	0	47.72	AV	54	PASS
	2462	Ant1	2500.0	-41.56	5.0	0	58.67	PEAK	74	PASS
	2462	Ant1	2500.0	-52.46	5.0	0	47.77	AV	54	PASS
11G	2412	Ant1	2310.0	-42.83	5.0	0	57.4	PEAK	74	PASS
	2412	Ant1	2310.0	-53.56	5.0	0	46.67	AV	54	PASS
	2412	Ant1	2390.0	-42.62	5.0	0	57.61	PEAK	74	PASS
	2412	Ant1	2390.0	-52.94	5.0	0	47.29	AV	54	PASS
	2462	Ant1	2483.5	-42.18	5.0	0	58.05	PEAK	74	PASS
	2462	Ant1	2483.5	-52.65	5.0	0	47.58	AV	54	PASS
	2462	Ant1	2500.0	-42.48	5.0	0	57.75	PEAK	74	PASS
	2462	Ant1	2500.0	-52.52	5.0	0	47.71	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-42.44	5.0	0	57.79	PEAK	74	PASS
	2412	Ant1	2310.0	-53.49	5.0	0	46.74	AV	54	PASS
	2412	Ant1	2390.0	-42.89	5.0	0	57.34	PEAK	74	PASS
	2412	Ant1	2390.0	-53.05	5.0	0	47.18	AV	54	PASS
	2462	Ant1	2483.5	-43.34	5.0	0	56.89	PEAK	74	PASS
	2462	Ant1	2483.5	-52.67	5.0	0	47.56	AV	54	PASS
	2462	Ant1	2500.0	-42.97	5.0	0	57.26	PEAK	74	PASS
	2462	Ant1	2500.0	-52.49	5.0	0	47.74	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.51	5.0	0	57.72	PEAK	74	PASS
	2422	Ant1	2310.0	-53.55	5.0	0	46.68	AV	54	PASS

	2422	Ant1	2390.0	-41.51	5.0	0	58.72	PEAK	74	PASS
	2422	Ant1	2390.0	-52.91	5.0	0	47.32	AV	54	PASS
	2452	Ant1	2483.5	-42.79	5.0	0	57.44	PEAK	74	PASS
	2452	Ant1	2483.5	-52.60	5.0	0	47.63	AV	54	PASS
	2452	Ant1	2500.0	-43.04	5.0	0	57.19	PEAK	74	PASS
	2452	Ant1	2500.0	-52.54	5.0	0	47.69	AV	54	PASS

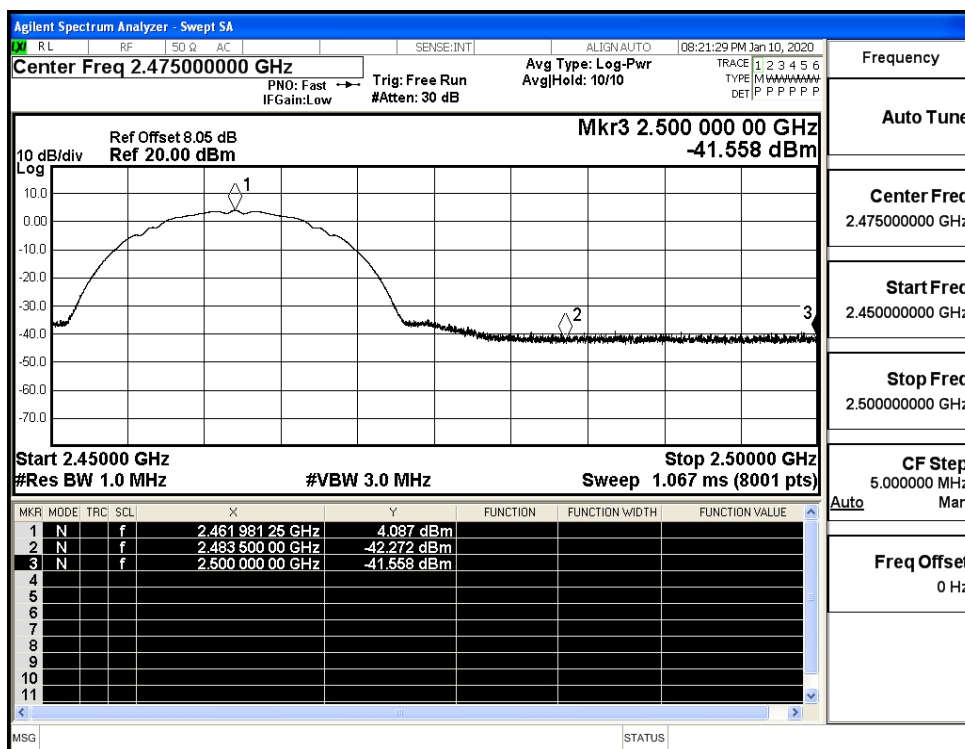
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



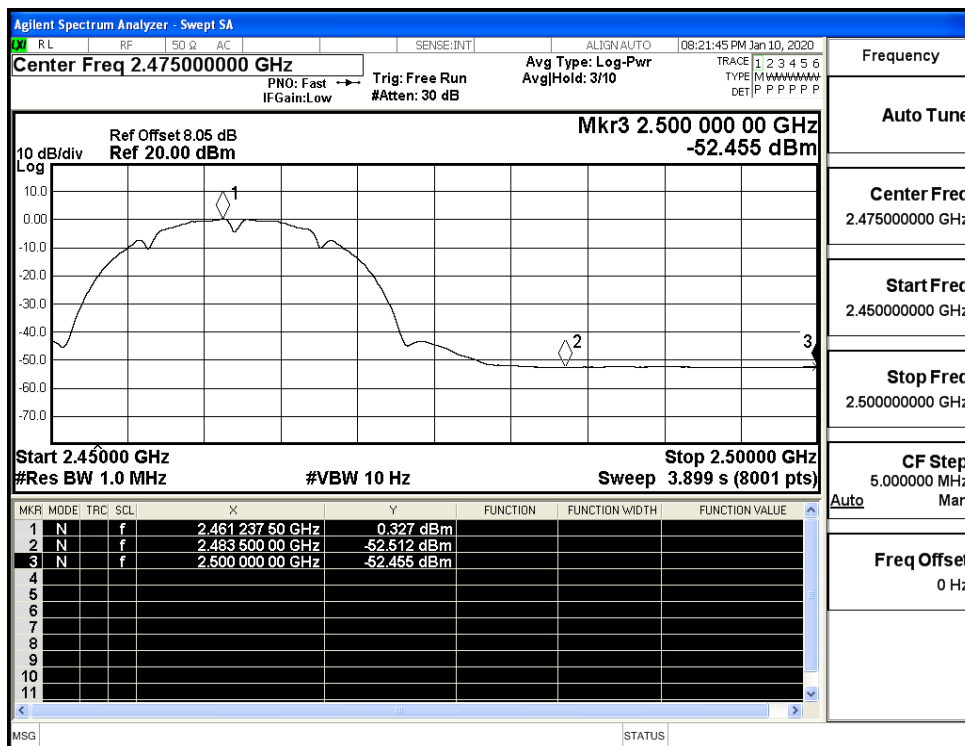
Restrict-band band-edge measurements_11B_2412_Ant1_AV



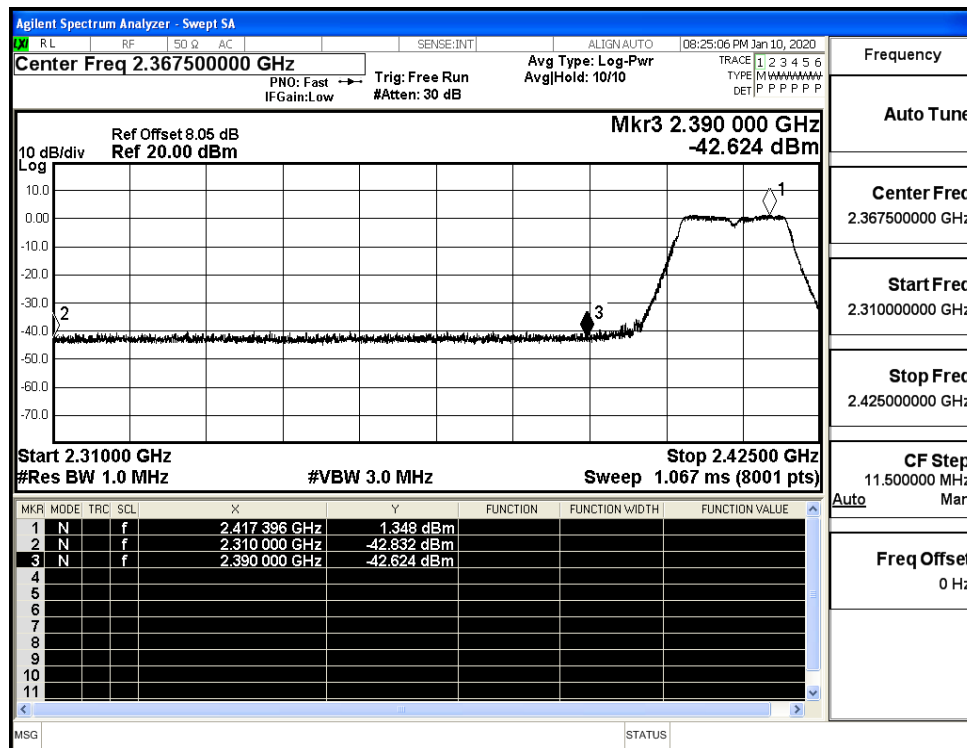
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



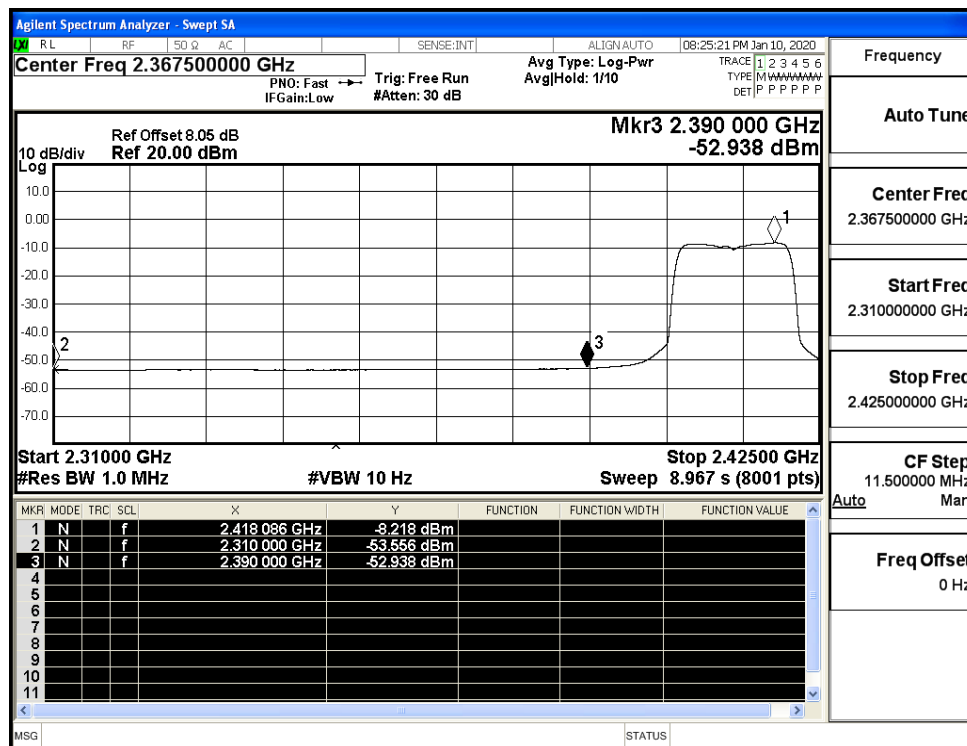
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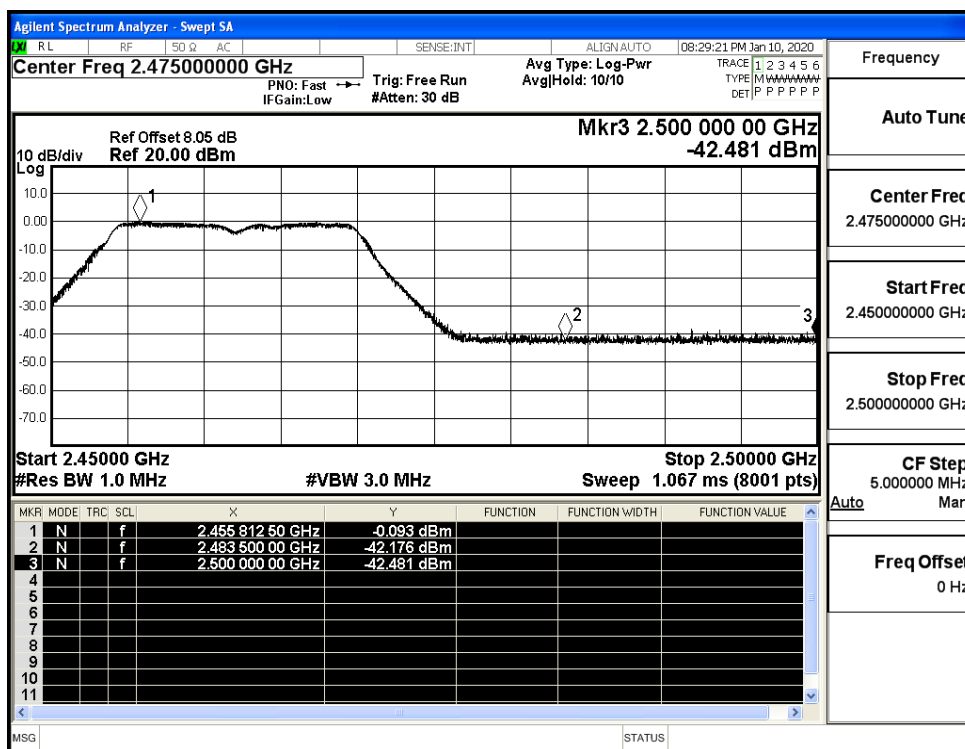
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



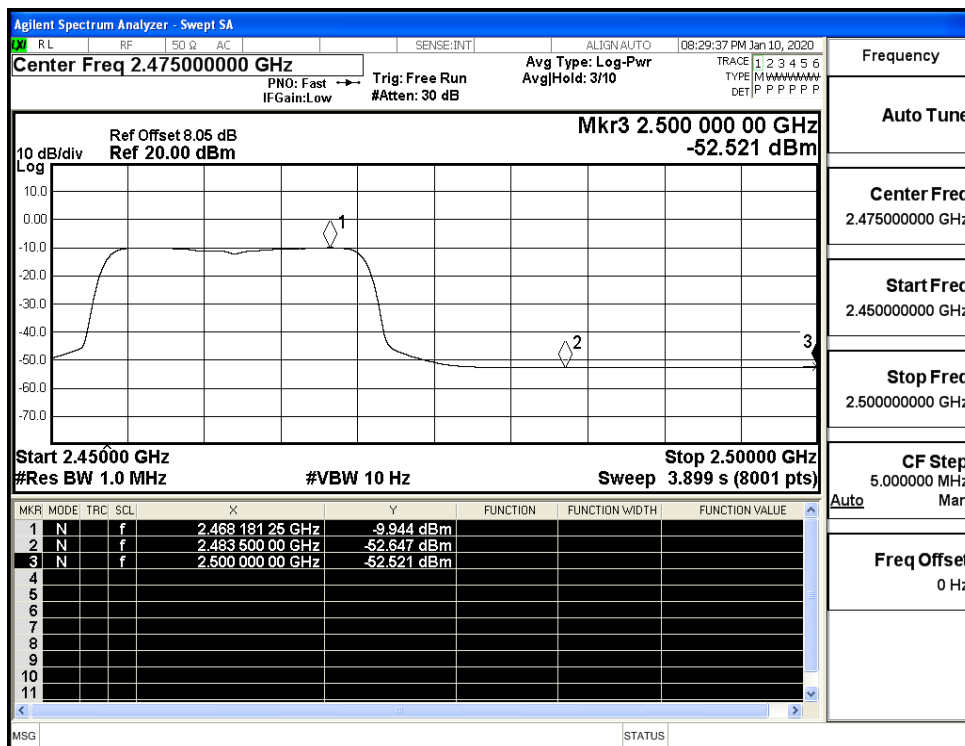
Restrict-band band-edge measurements_11G_2412_Ant1_AV



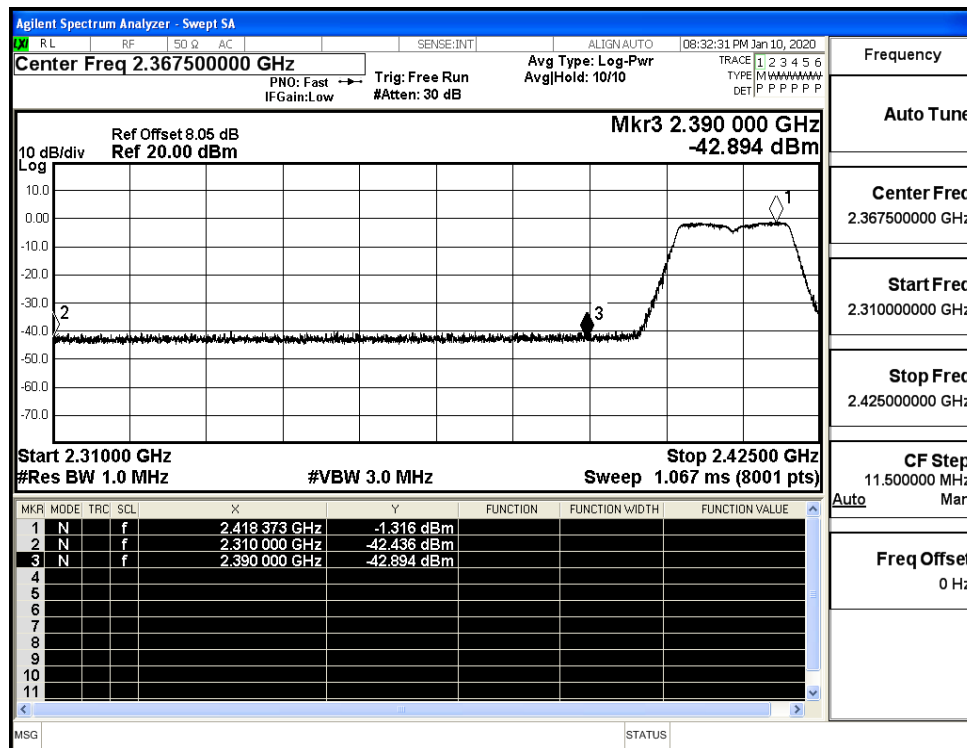
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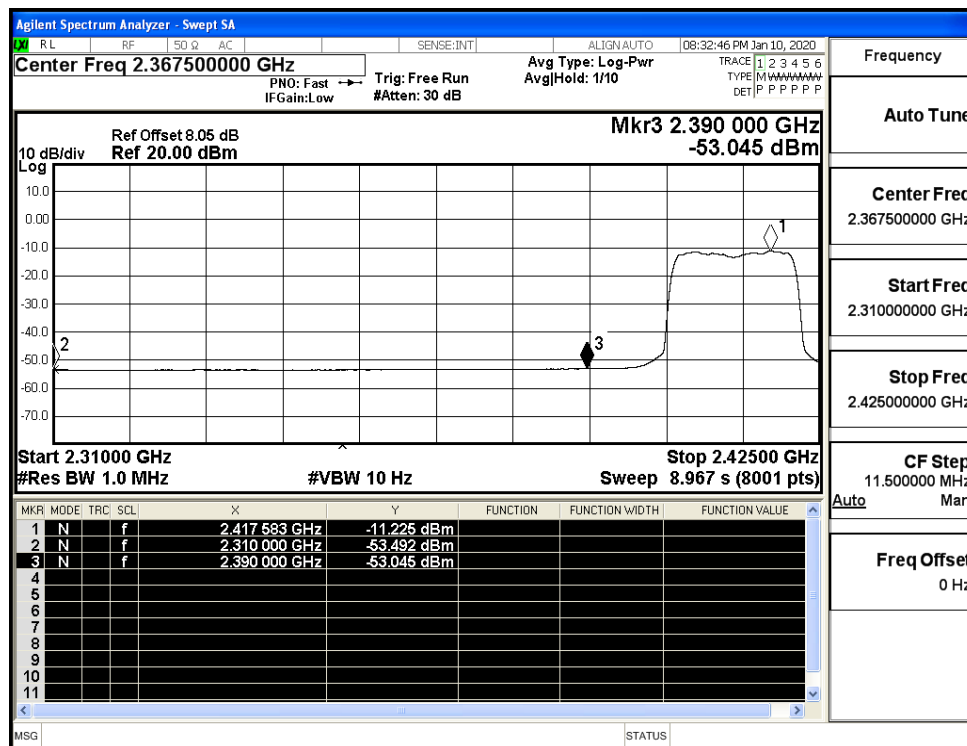
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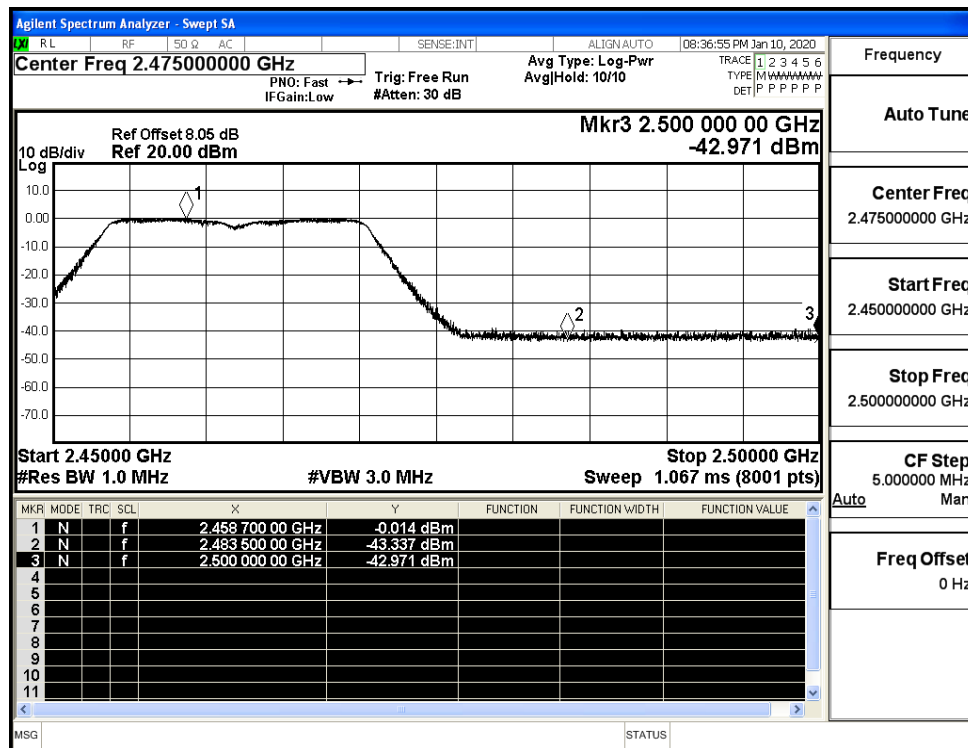
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



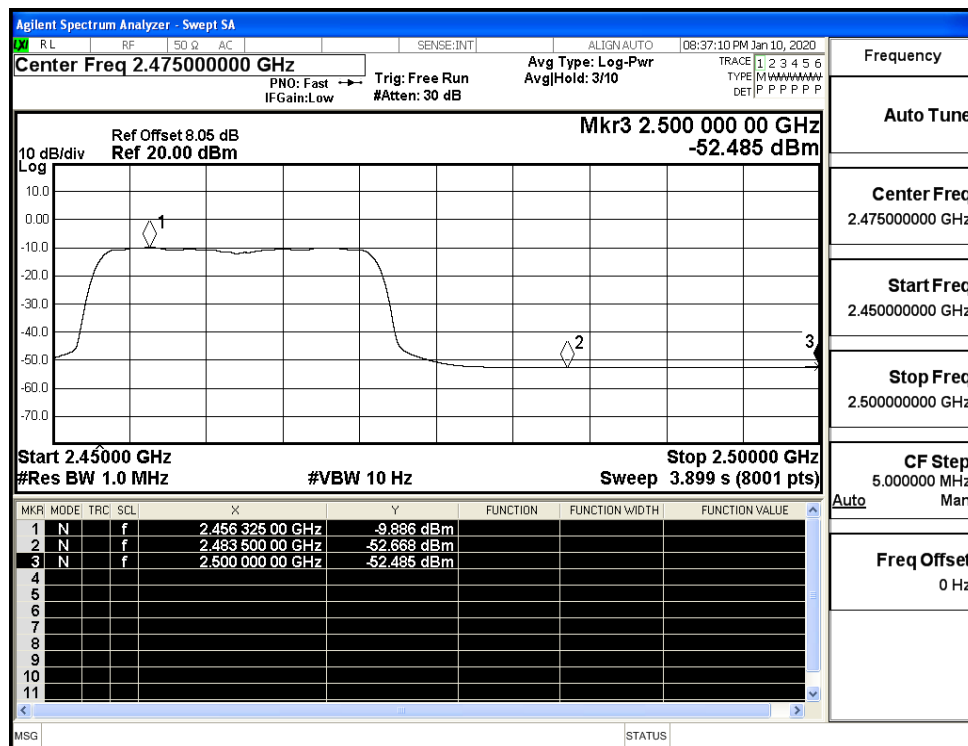
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



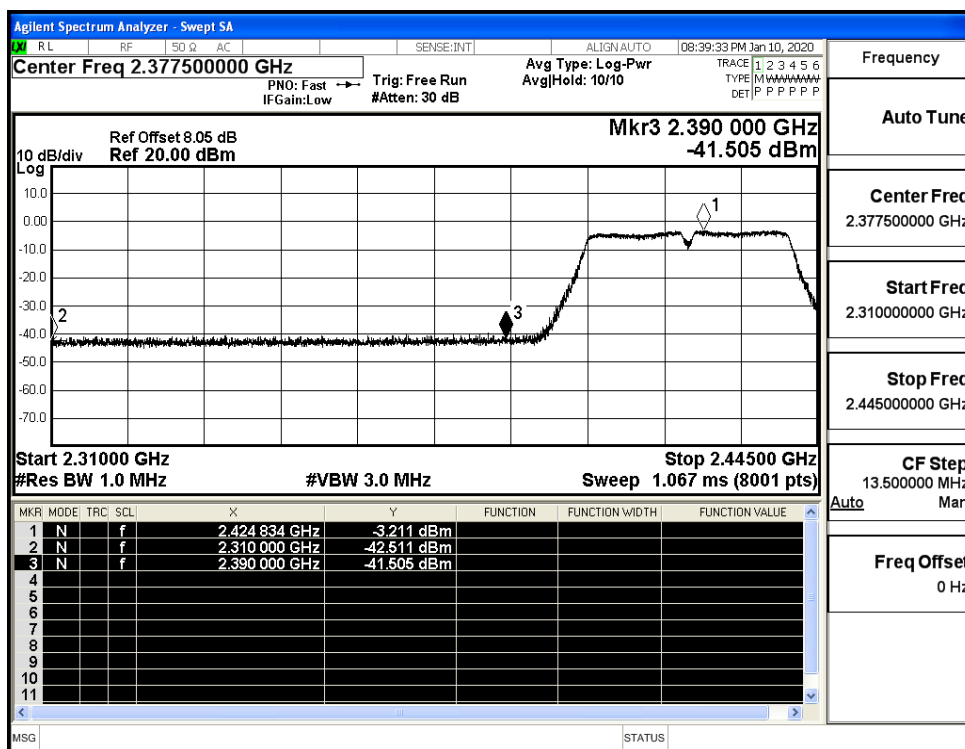
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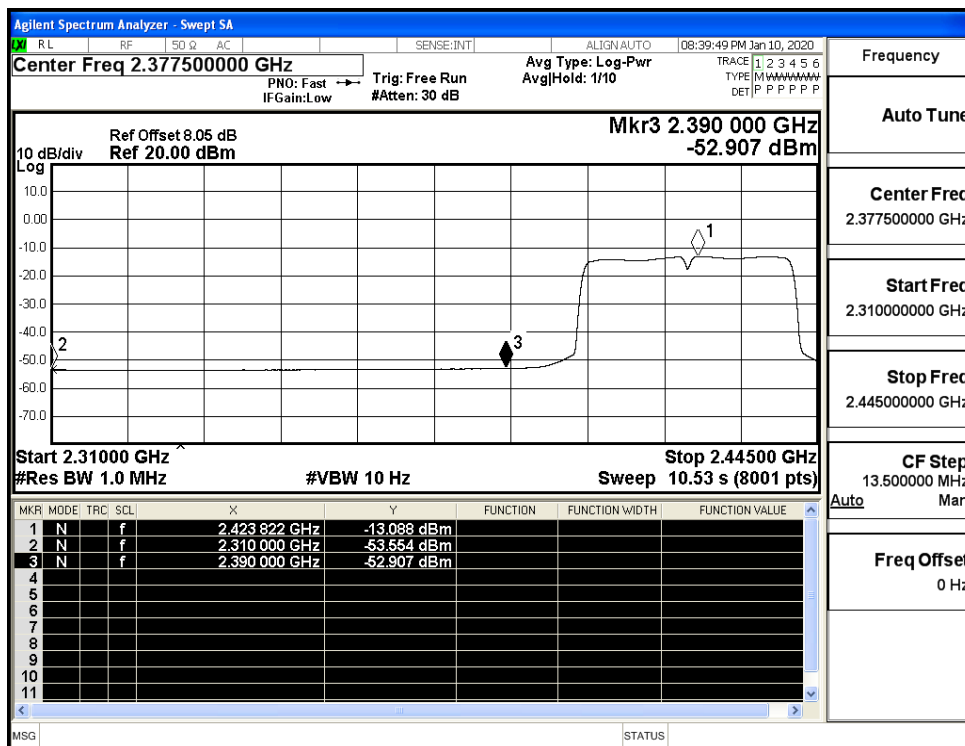
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



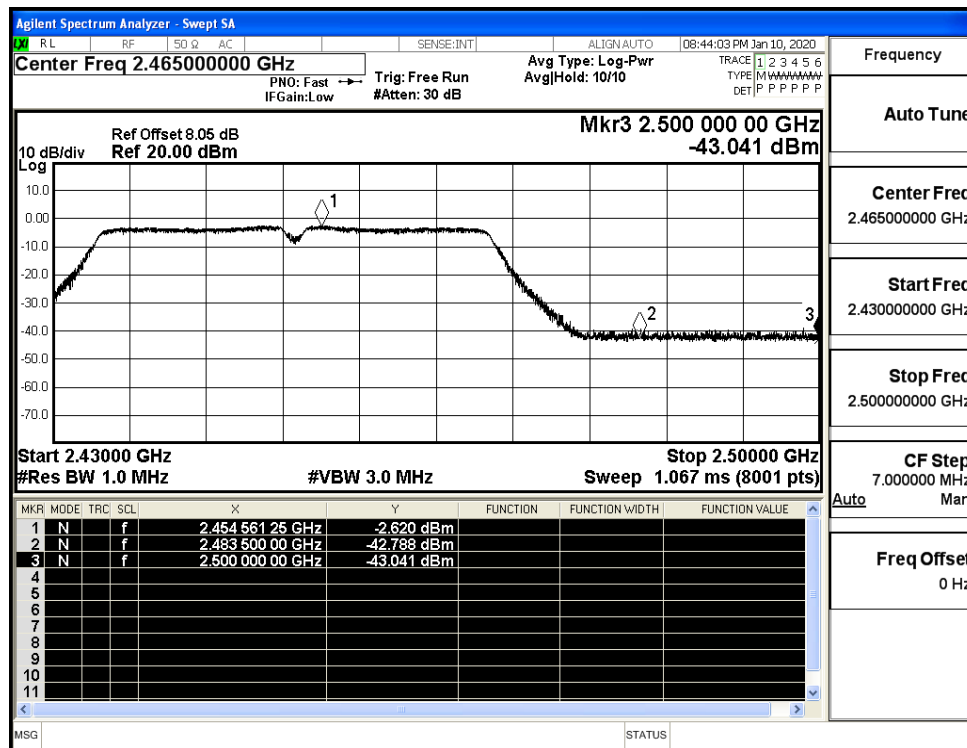
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

