

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: 4G Car DVR

Trade Mark: AddSecure

Test Model: AddSecure FFC LTE NA

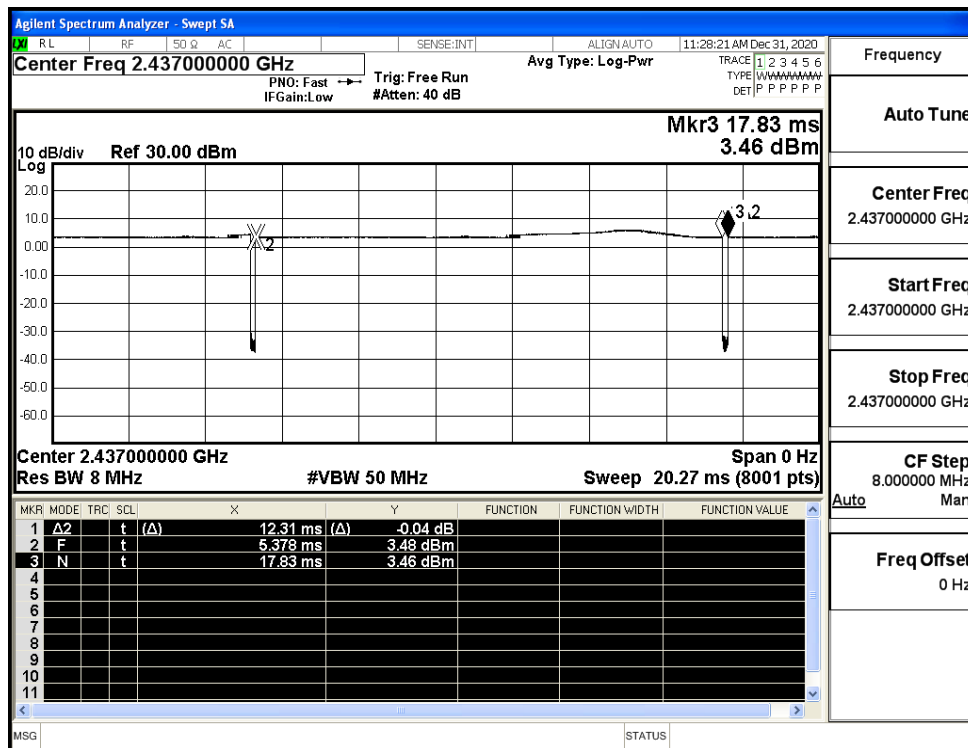
Environmental Conditions

Temperature:	22.3° C
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

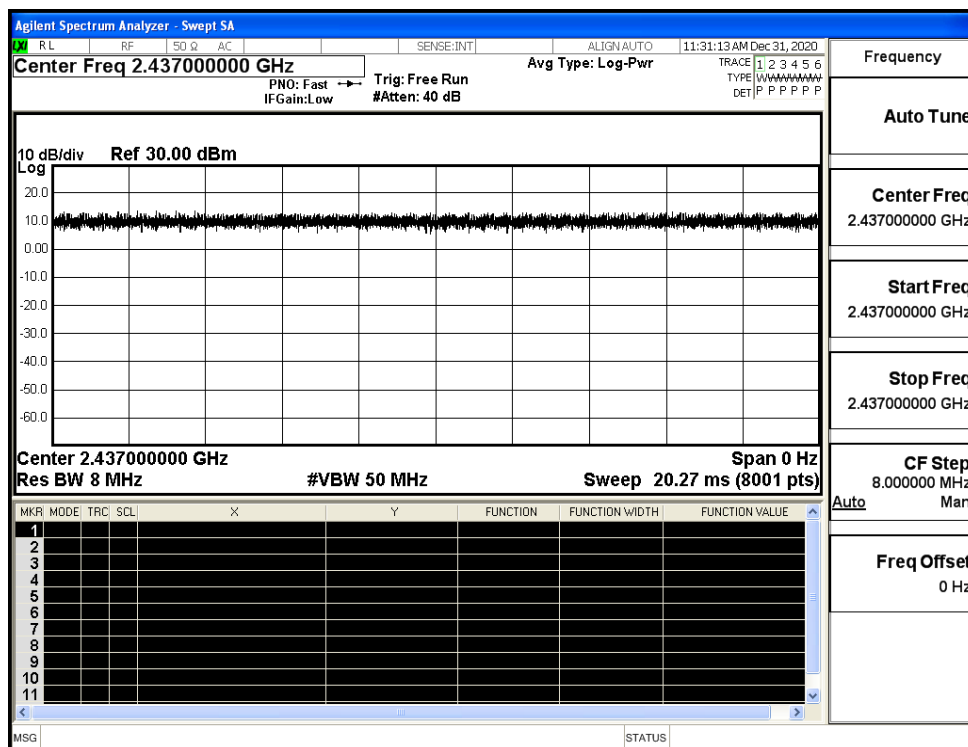
A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	98.9	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

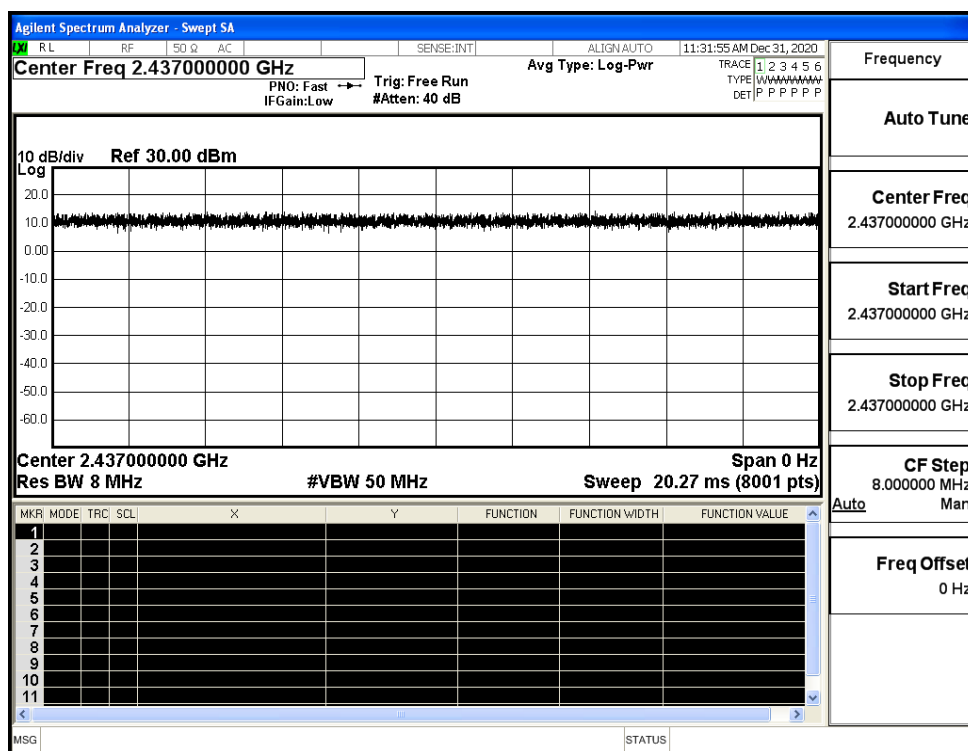
Duty Cycle_11B_2437_Ant1



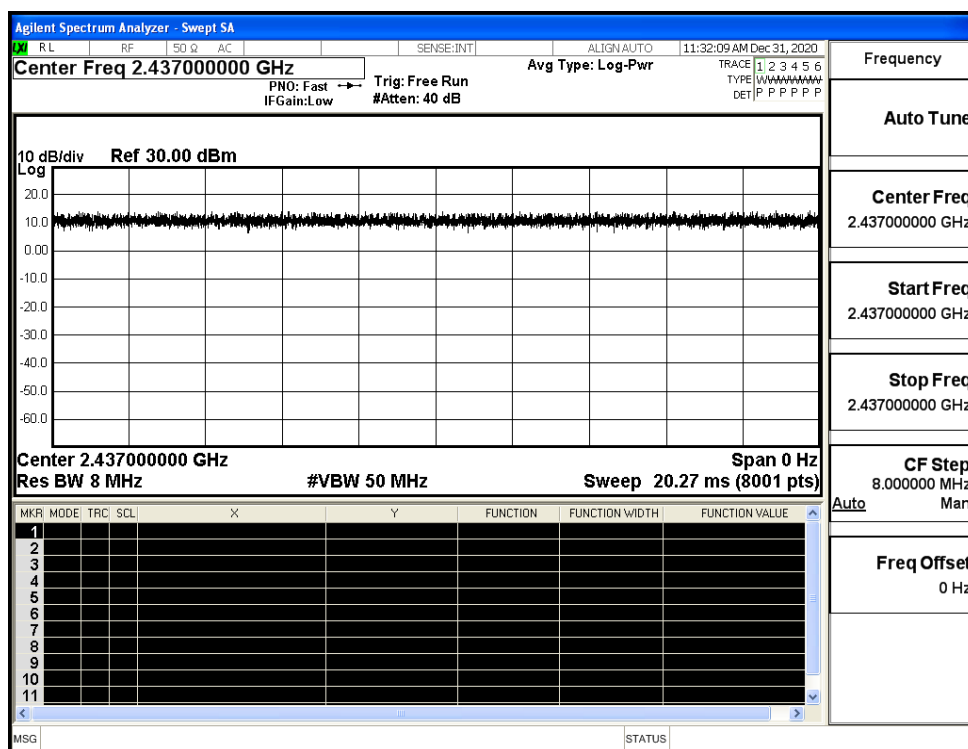
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

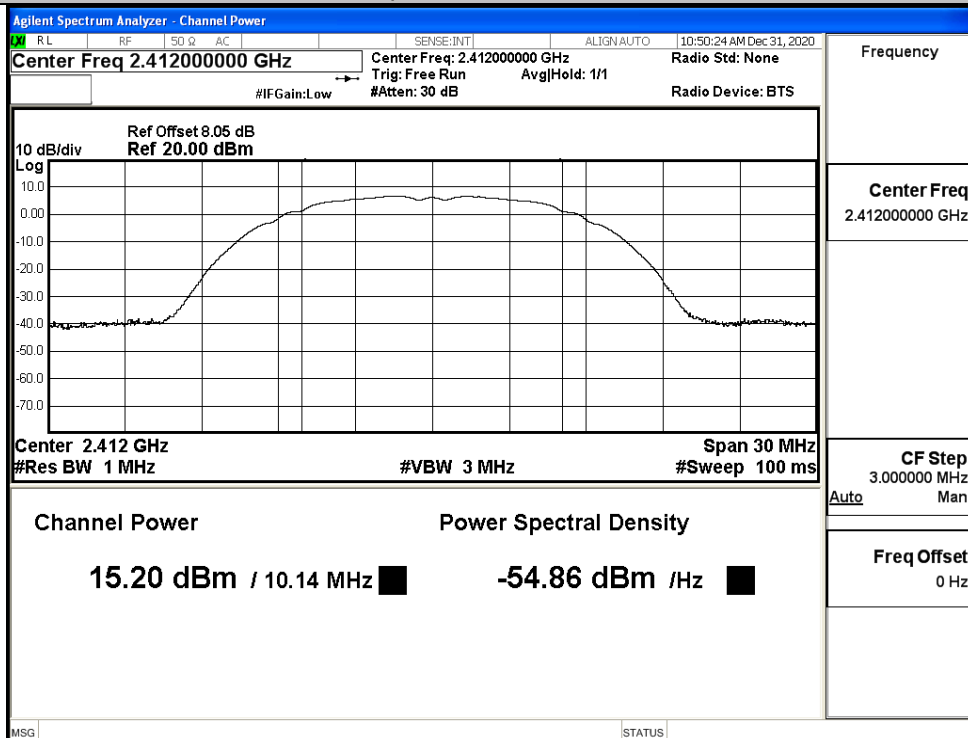


A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.2	30	PASS
	MCH	15.4	30	PASS
	HCH	15.13	30	PASS
11G	LCH	17.81	30	PASS
	MCH	16.93	30	PASS
	HCH	16.71	30	PASS
11N20SISO	LCH	16.81	30	PASS
	MCH	16.88	30	PASS
	HCH	16.68	30	PASS
11N40SISO	LCH	17.03	30	PASS
	MCH	17.03	30	PASS
	HCH	17.04	30	PASS

Test Graphs

11B/LCH



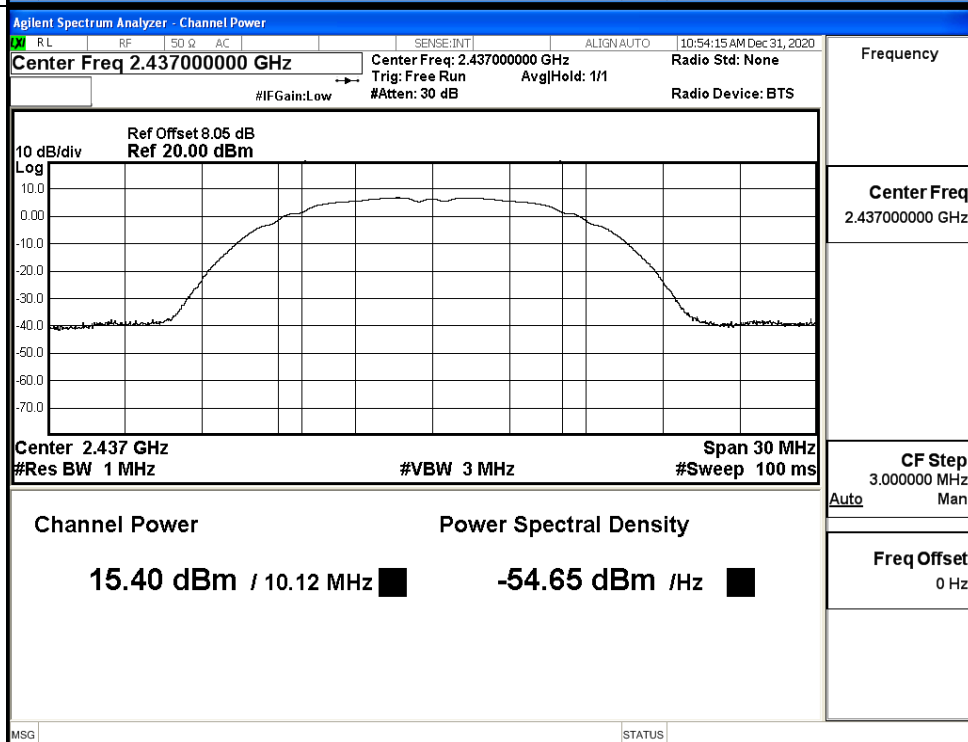
Frequency

Center Freq
2.41200000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11B/MCH



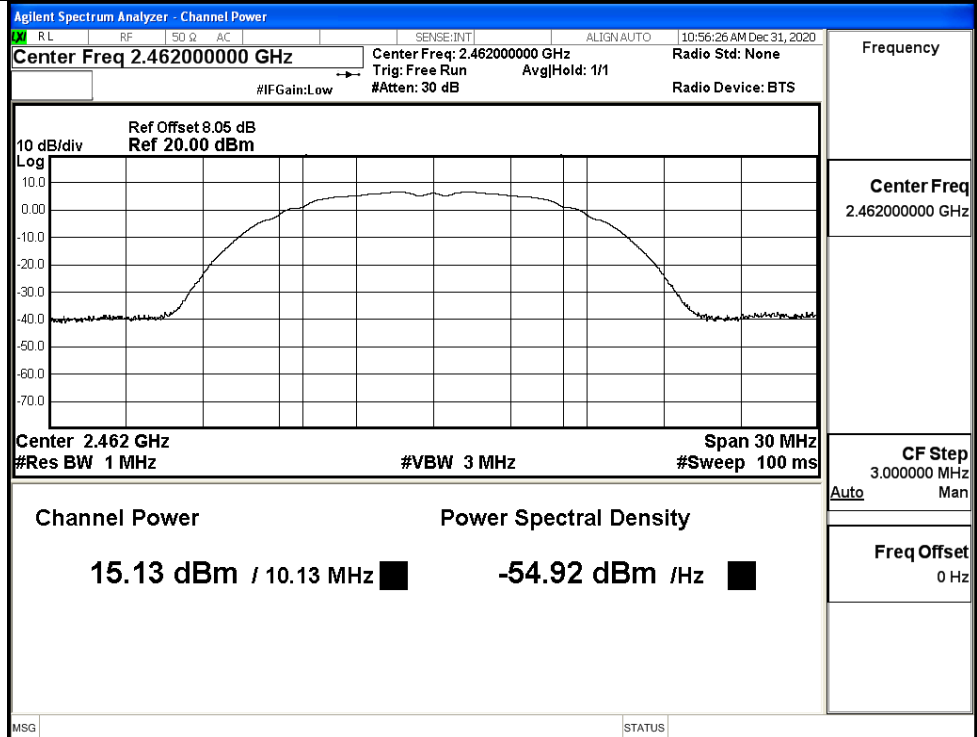
Frequency

Center Freq
2.437000000 GHz

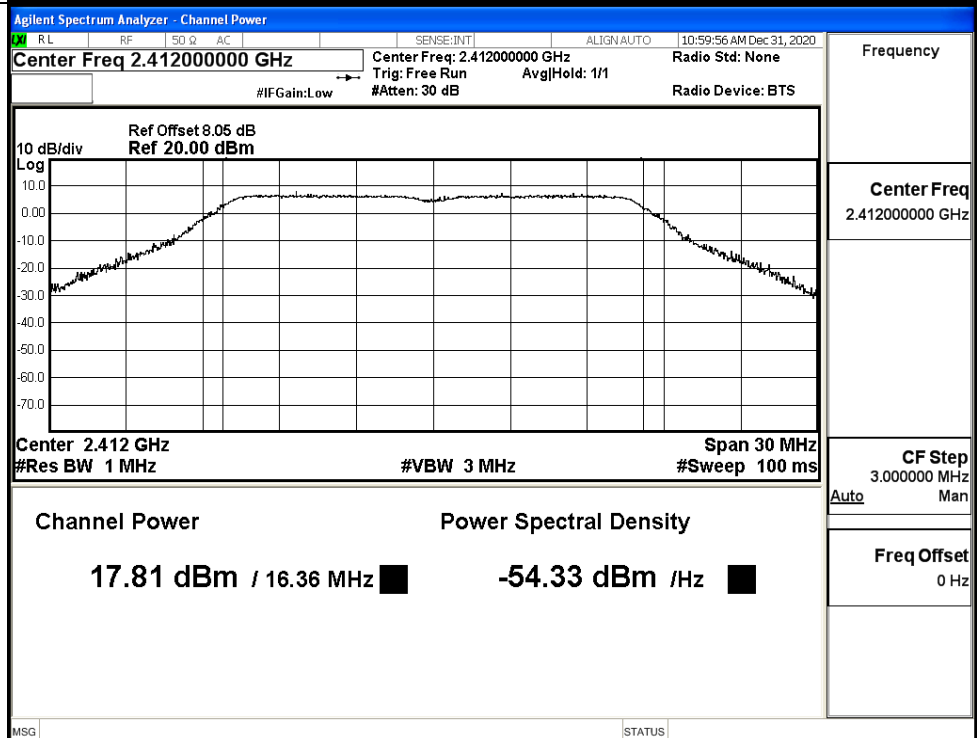
CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

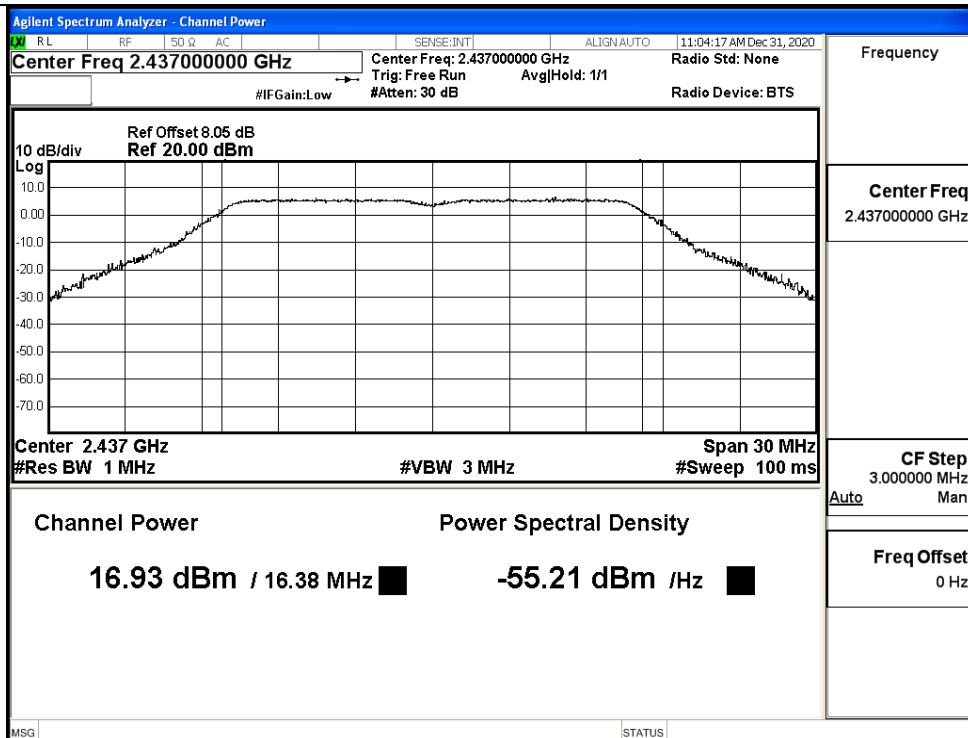
11B/HCH



11G/LCH



11G/MCH



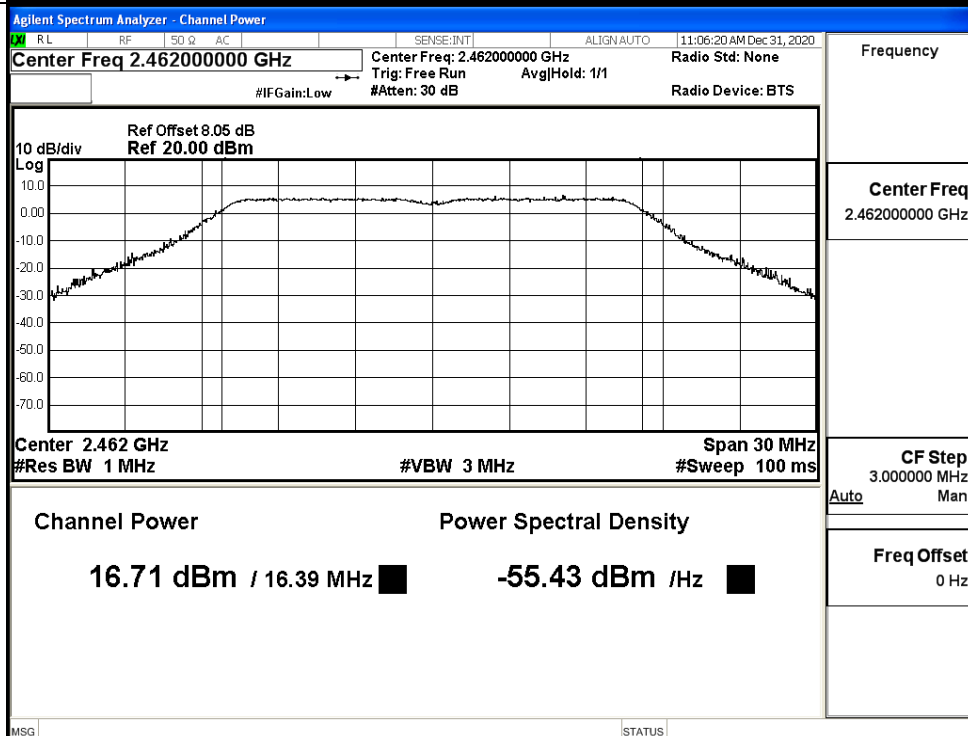
Frequency

Center Freq
2.437000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/HCH



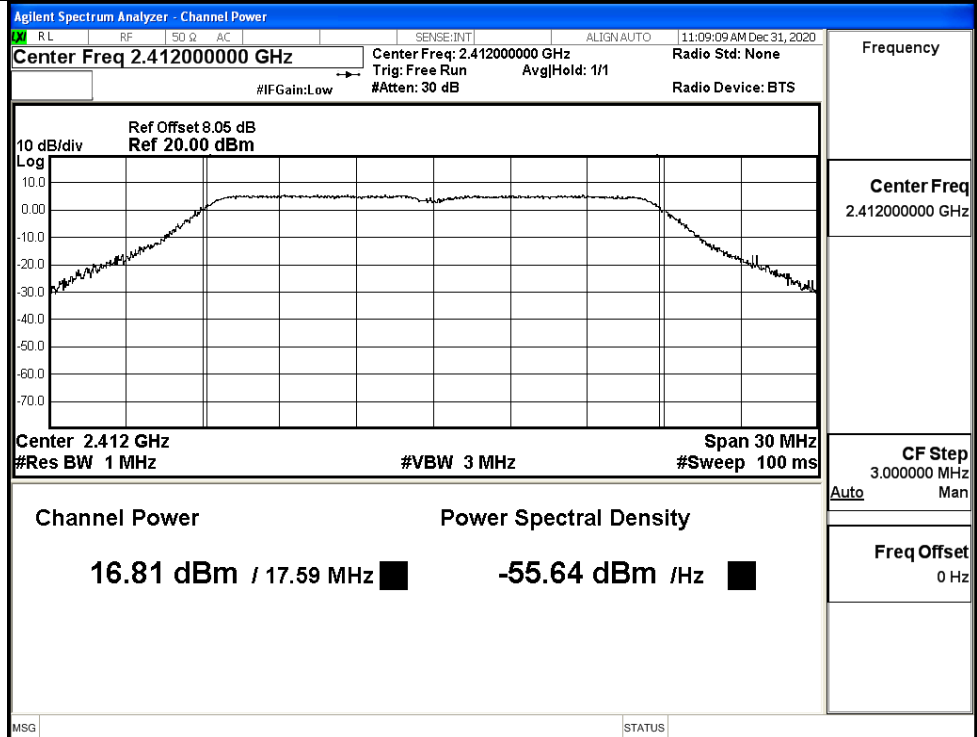
Frequency

Center Freq
2.462000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
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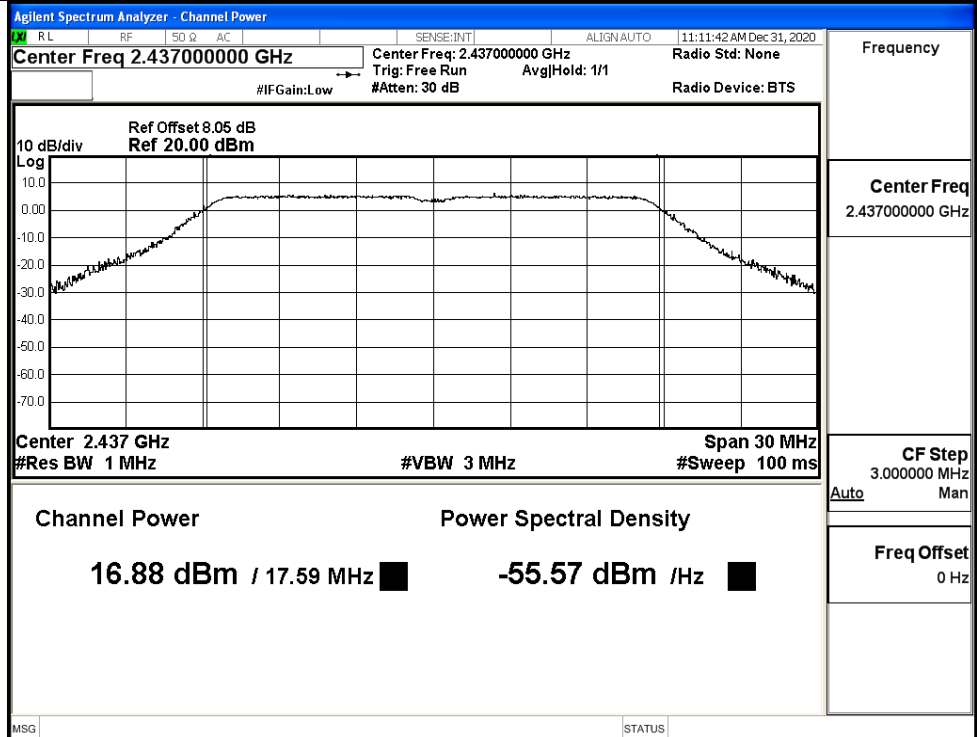
11N20SISO/LCH



Frequency

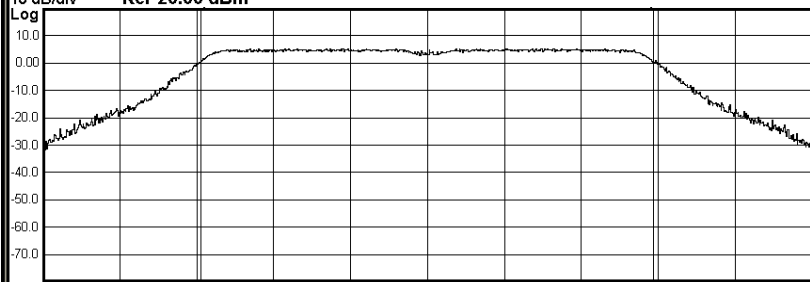
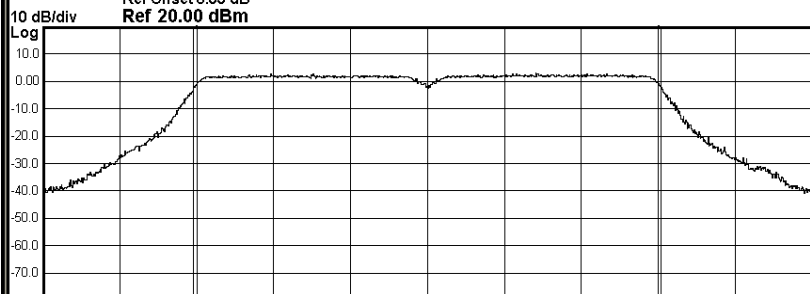
Center Freq
2.412000000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

11N20SISO/MCH



Frequency

Center Freq
2.437000000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

11N20SISO/HCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:16:26 AM Dec 31, 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 Log  Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 30 MHz #Sweep 100 ms Channel Power Power Spectral Density 16.68 dBm / 17.6 MHz -55.78 dBm /Hz MSG STATUS	Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz	
	11N40SISO/LCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:19:03 AM Dec 31, 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 Log  Center 2.422 GHz #Res BW 1 MHz #VBW 3 MHz Span 60 MHz #Sweep 100 ms Channel Power Power Spectral Density 17.03 dBm / 36.38 MHz -58.58 dBm /Hz MSG STATUS	Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

Frequency

Center Freq

2.422000000 GHz

CF Step

6.000000 MHz

Auto

Man

Freq Offset

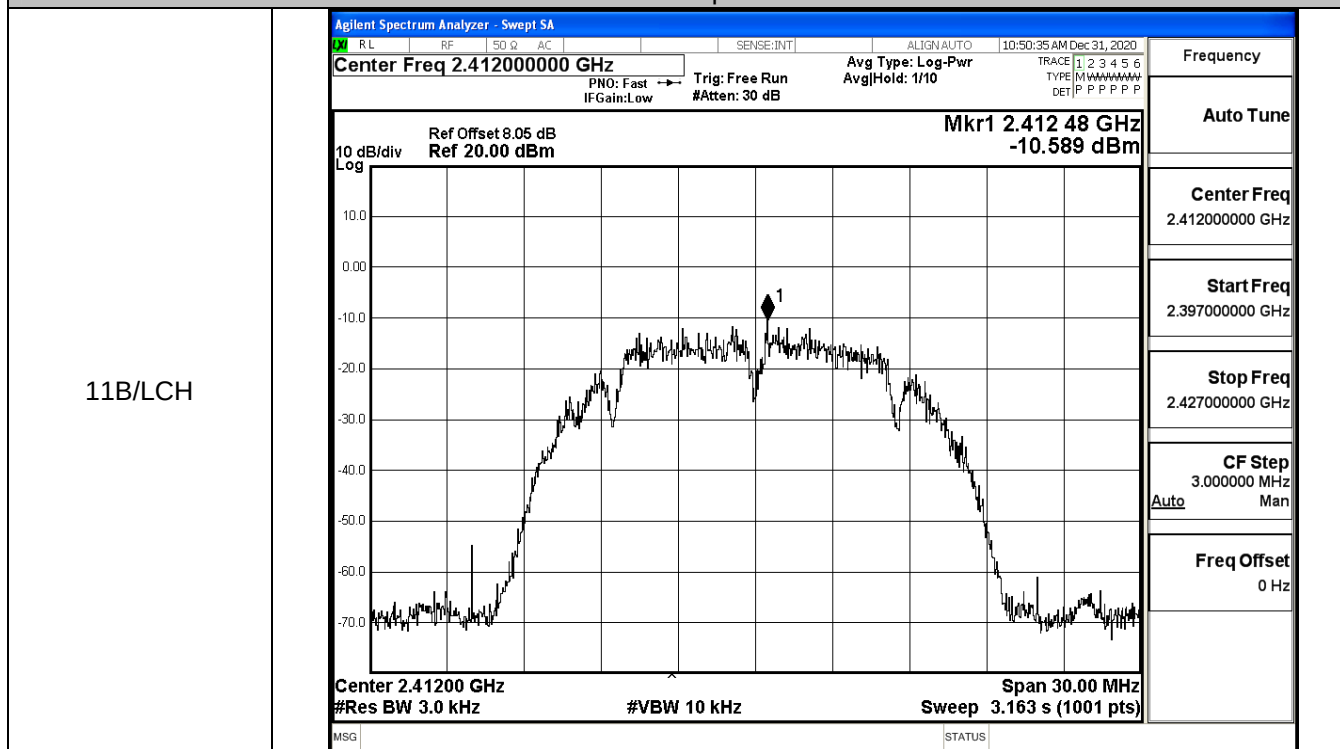
0 Hz

11N40SISO/MCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:22:44 AM Dec 31, 2020 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None #IFGain:Low Trig: Free Run Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 60 MHz #Sweep 100 ms Channel Power Power Spectral Density 17.03 dBm / 36.38 MHz -58.58 dBm /Hz MSG STATUS	Frequency Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/HCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:25:36 AM Dec 31, 2020 Center Freq 2.452000000 GHz Center Freq: 2.452000000 GHz Radio Std: None #IFGain:Low Trig: Free Run Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.452 GHz #Res BW 1 MHz #VBW 3 MHz Span 60 MHz #Sweep 100 ms Channel Power Power Spectral Density 17.04 dBm / 36.38 MHz -58.57 dBm /Hz MSG STATUS	Frequency Center Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

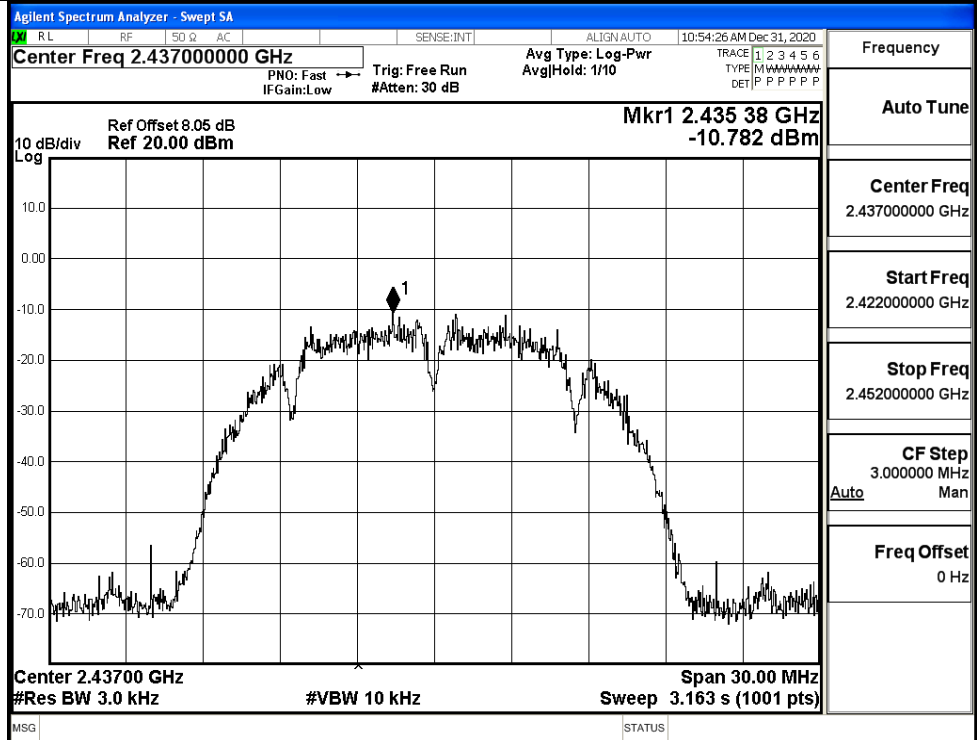
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-10.589	8	PASS
	MCH	-10.782	8	PASS
	HCH	-11.226	8	PASS
11G	LCH	-16.350	8	PASS
	MCH	-16.559	8	PASS
	HCH	-15.699	8	PASS
11N20SISO	LCH	-17.944	8	PASS
	MCH	-17.731	8	PASS
	HCH	-18.921	8	PASS
11N40SISO	LCH	-19.750	8	PASS
	MCH	-21.235	8	PASS
	HCH	-19.232	8	PASS

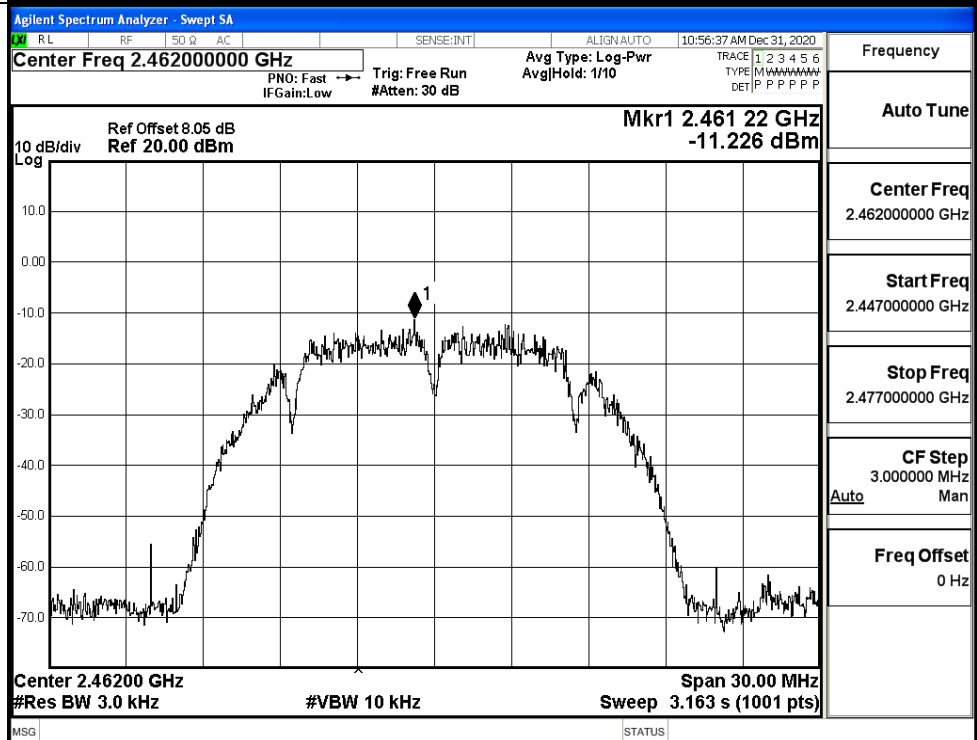
Test Graphs



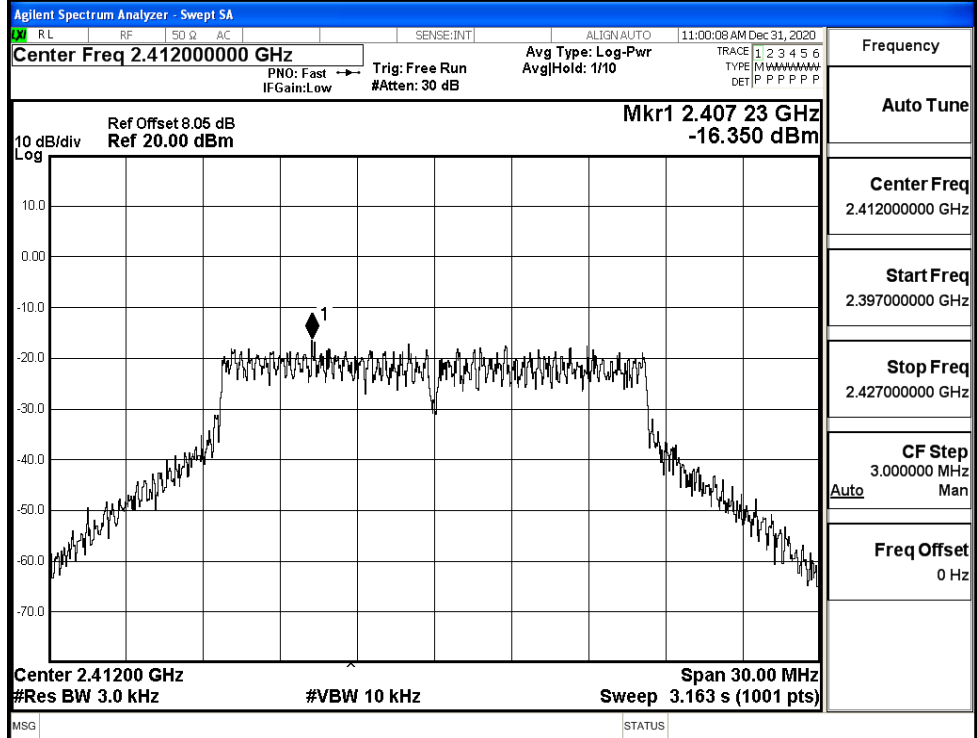
11B/MCH



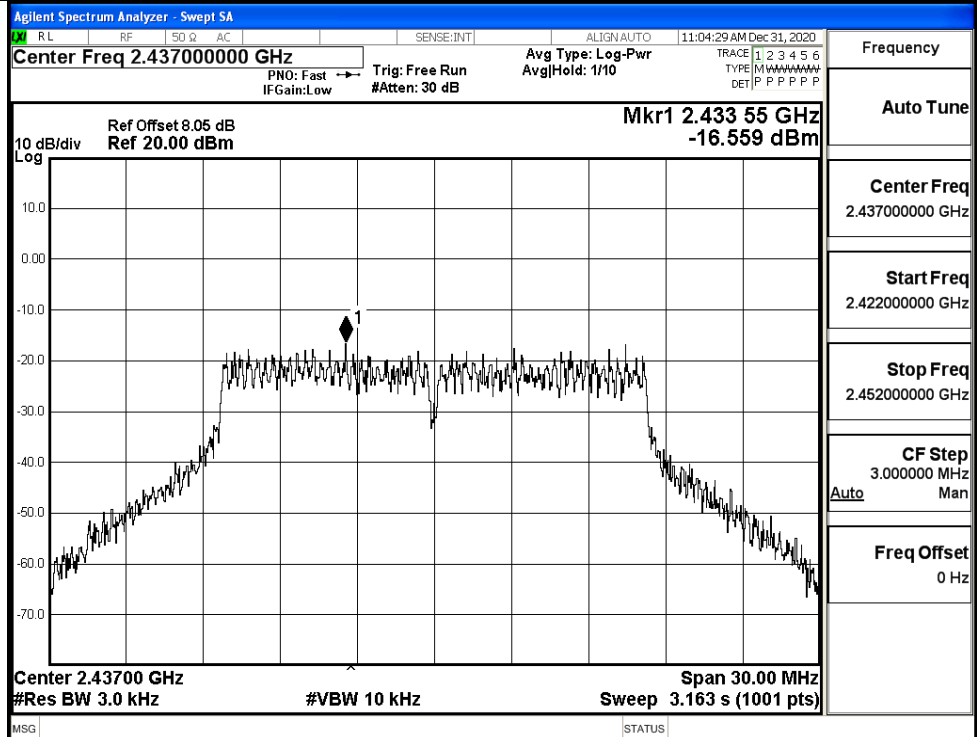
11B/HCH



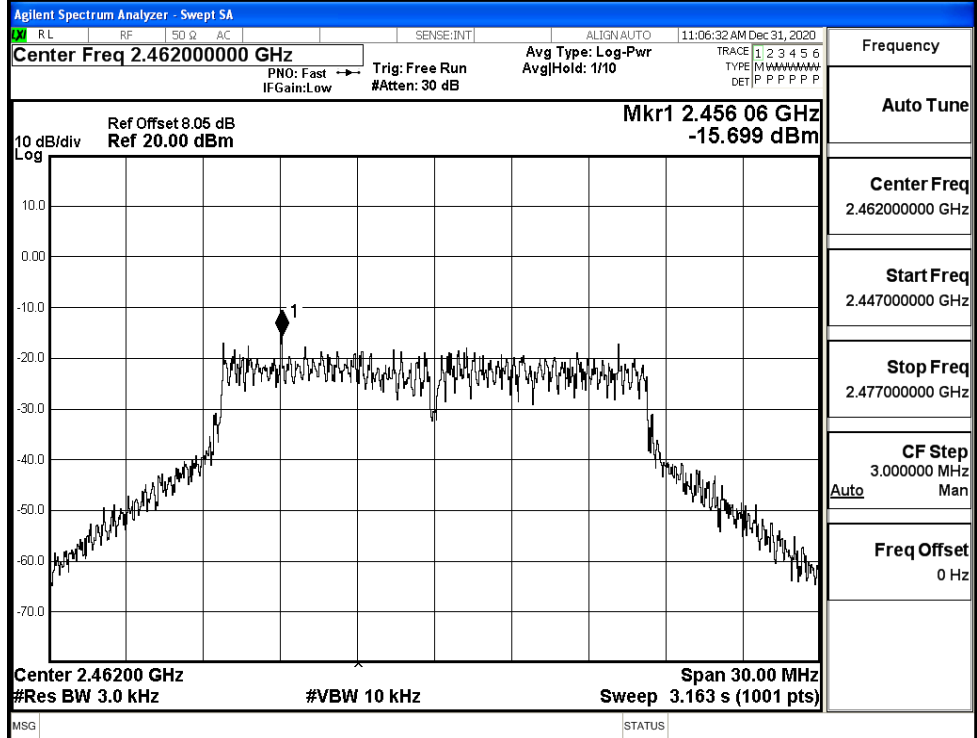
11G/LCH



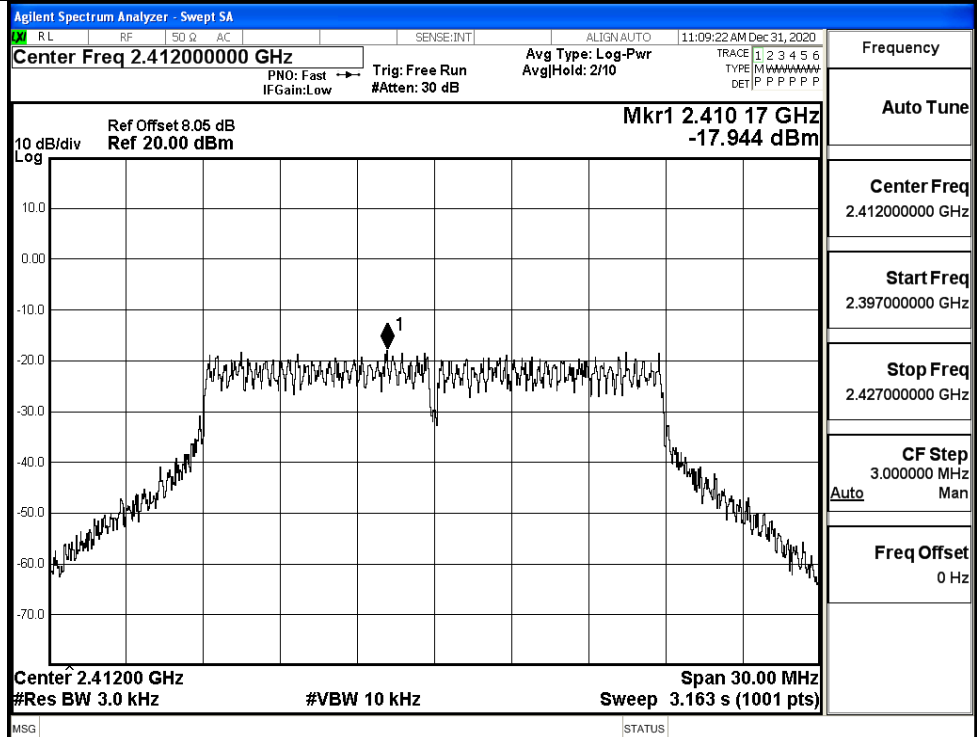
11G/MCH

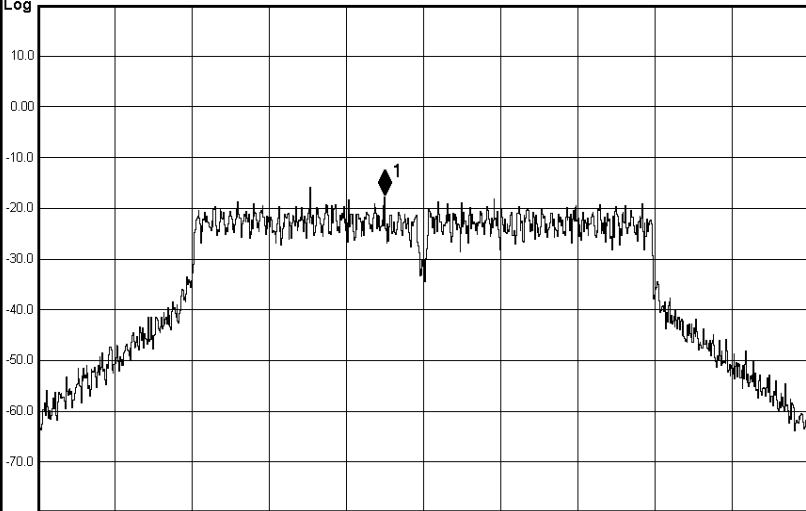
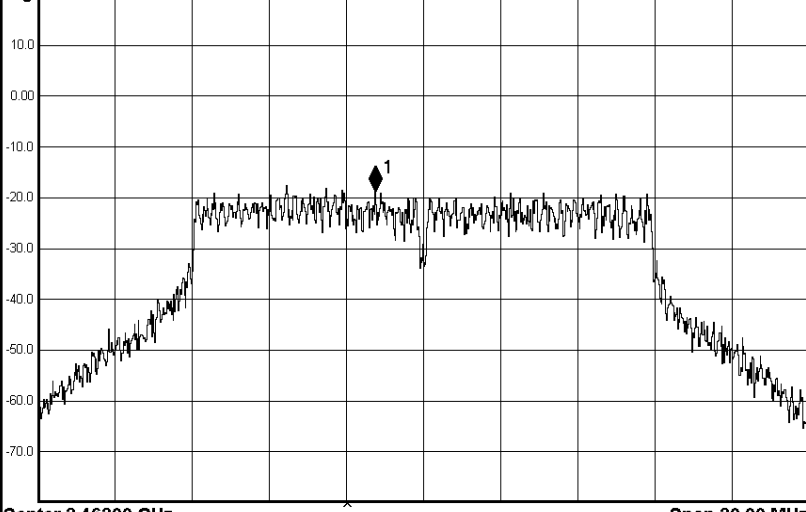


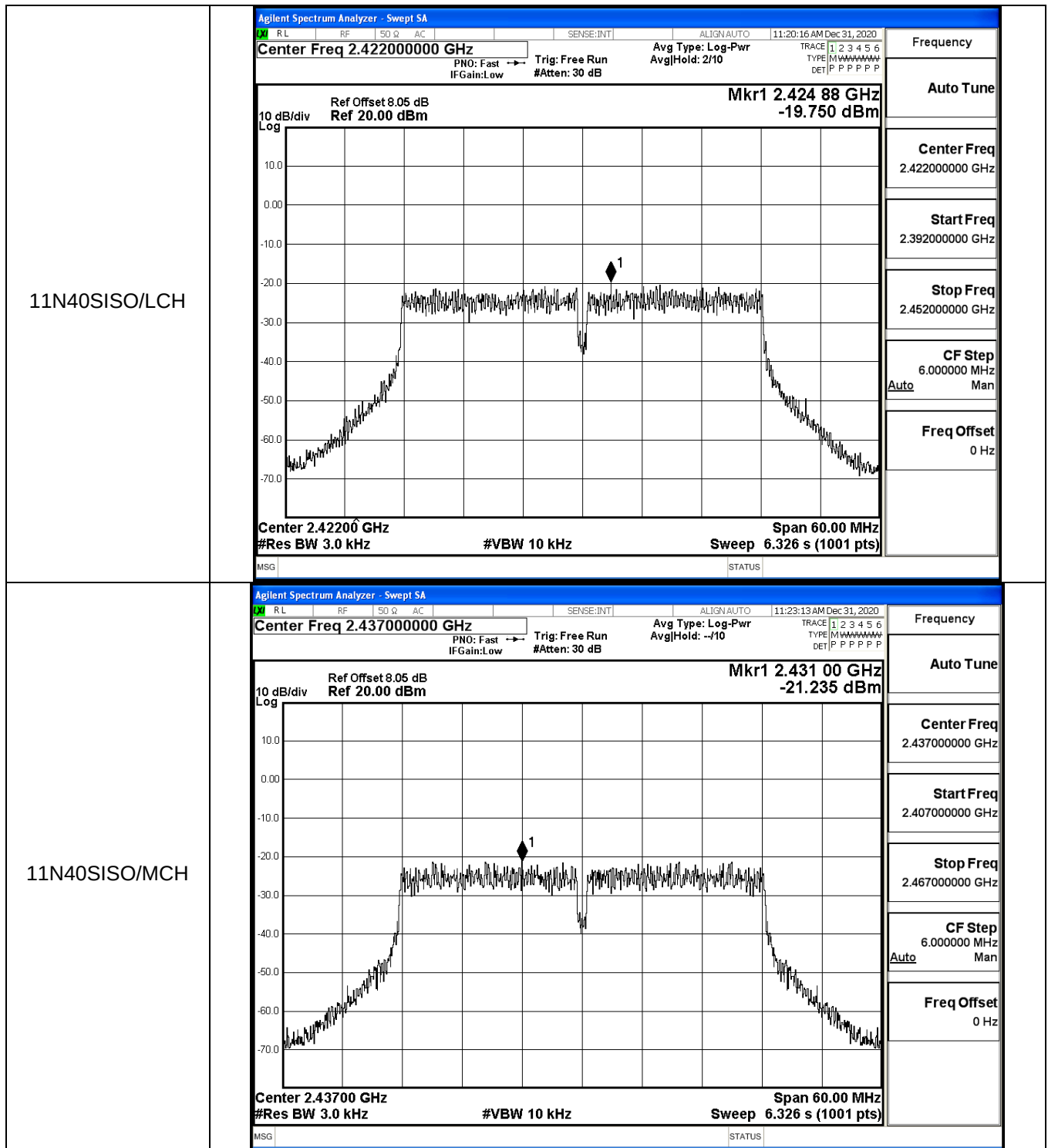
11G/HCH

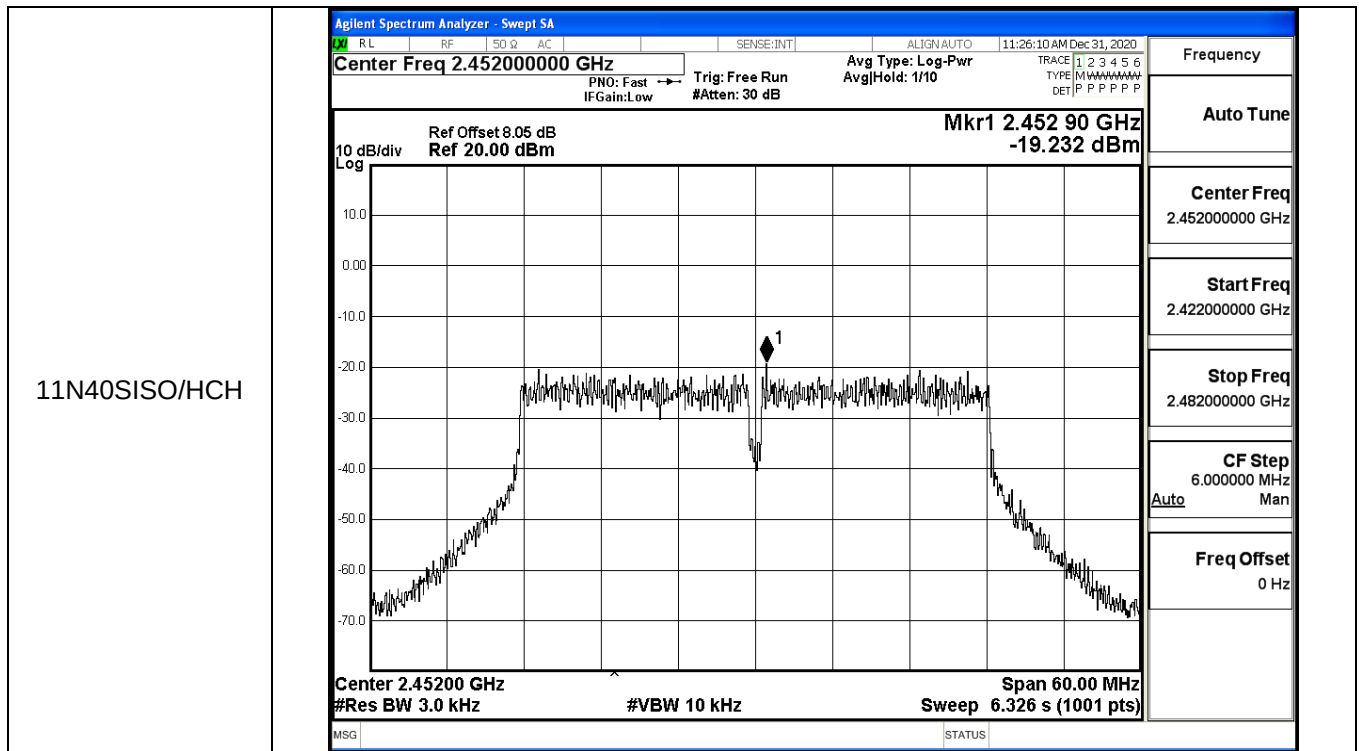


11N20SISO/LCH



11N20SISO/MCH	Agilent Spectrum Analyzer - Swept SA Center Freq 2.437000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.435 50 GHz -17.731 dBm  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 Mkr1 2.460 14 GHz -18.921 dBm  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

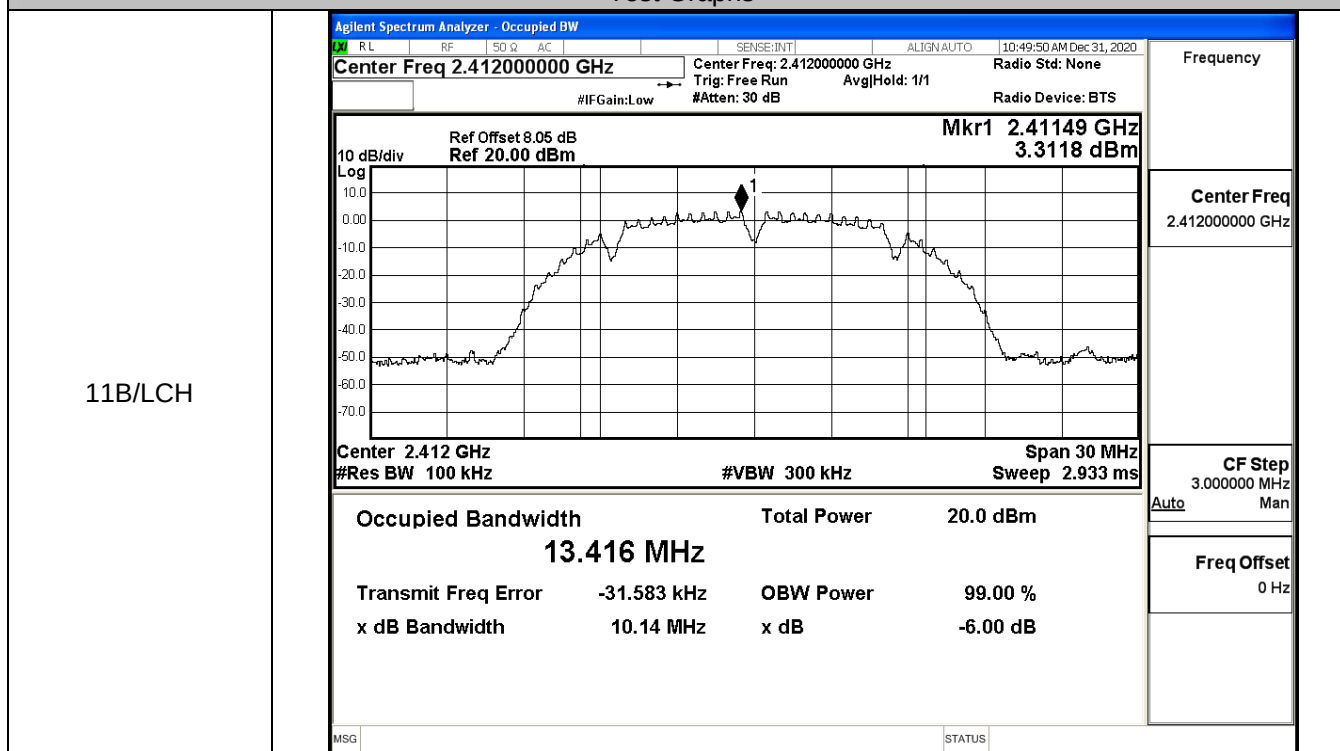




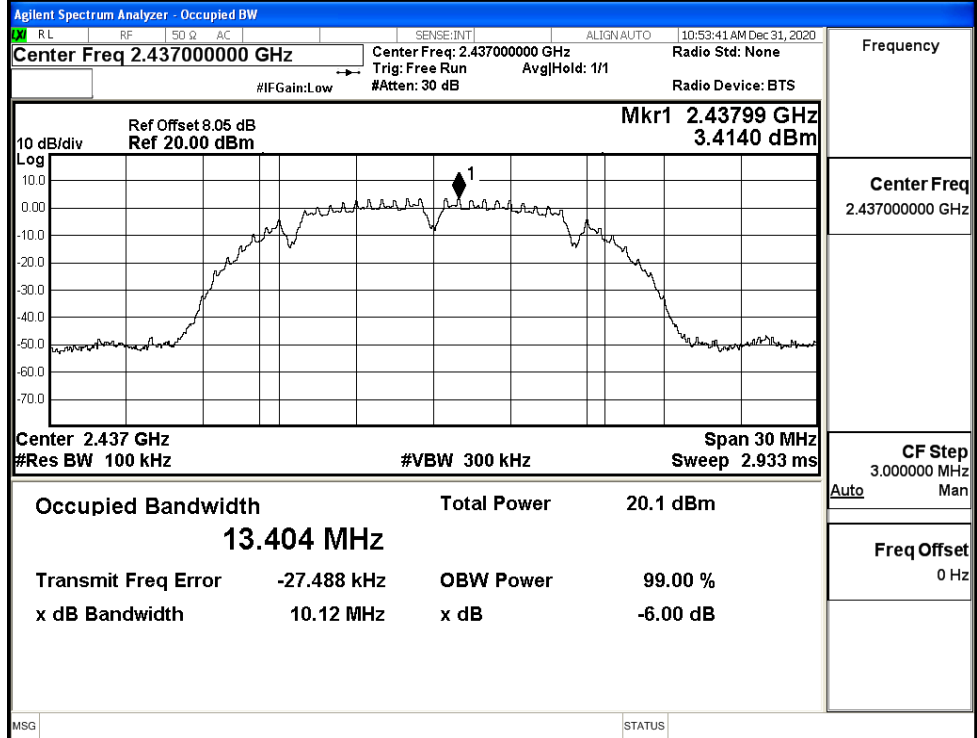
A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.14	≥ 0.5	PASS
	MCH	10.12	≥ 0.5	PASS
	HCH	10.13	≥ 0.5	PASS
11G	LCH	16.36	≥ 0.5	PASS
	MCH	16.38	≥ 0.5	PASS
	HCH	16.39	≥ 0.5	PASS
11N20SISO	LCH	17.59	≥ 0.5	PASS
	MCH	17.59	≥ 0.5	PASS
	HCH	17.60	≥ 0.5	PASS
11N40SISO	LCH	36.38	≥ 0.5	PASS
	MCH	36.38	≥ 0.5	PASS
	HCH	36.38	≥ 0.5	PASS

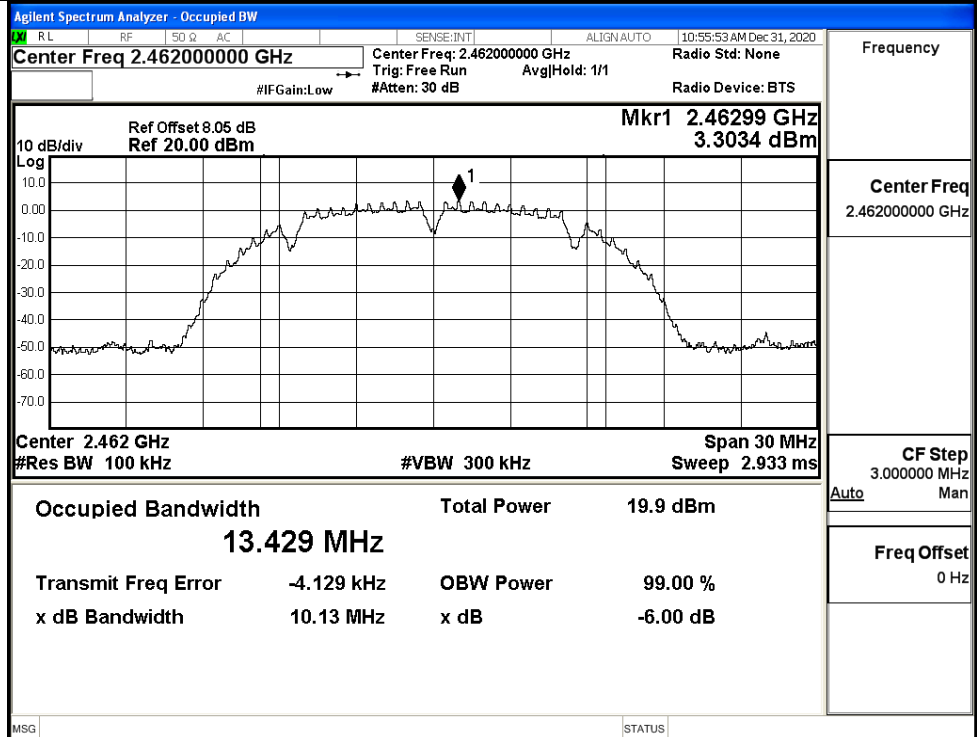
Test Graphs



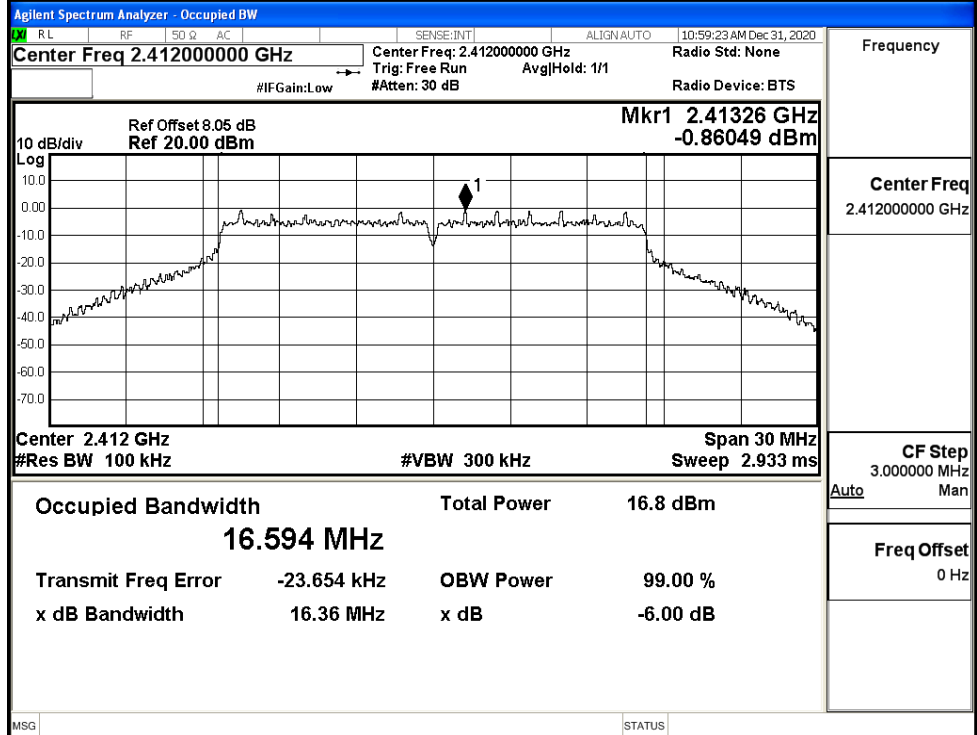
11B/MCH



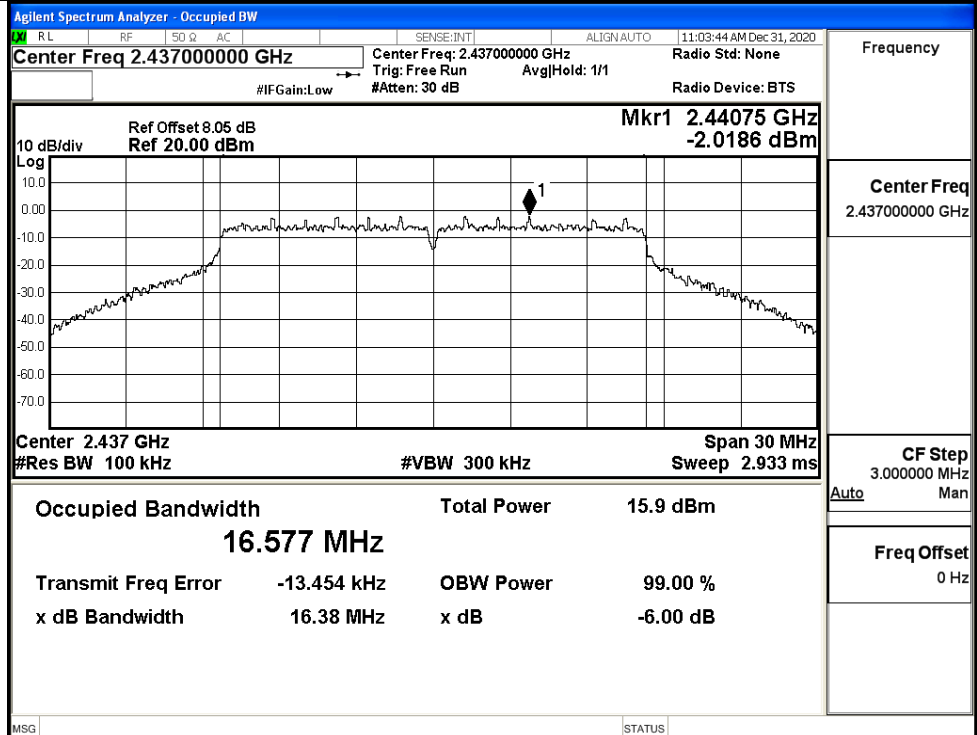
11B/HCH



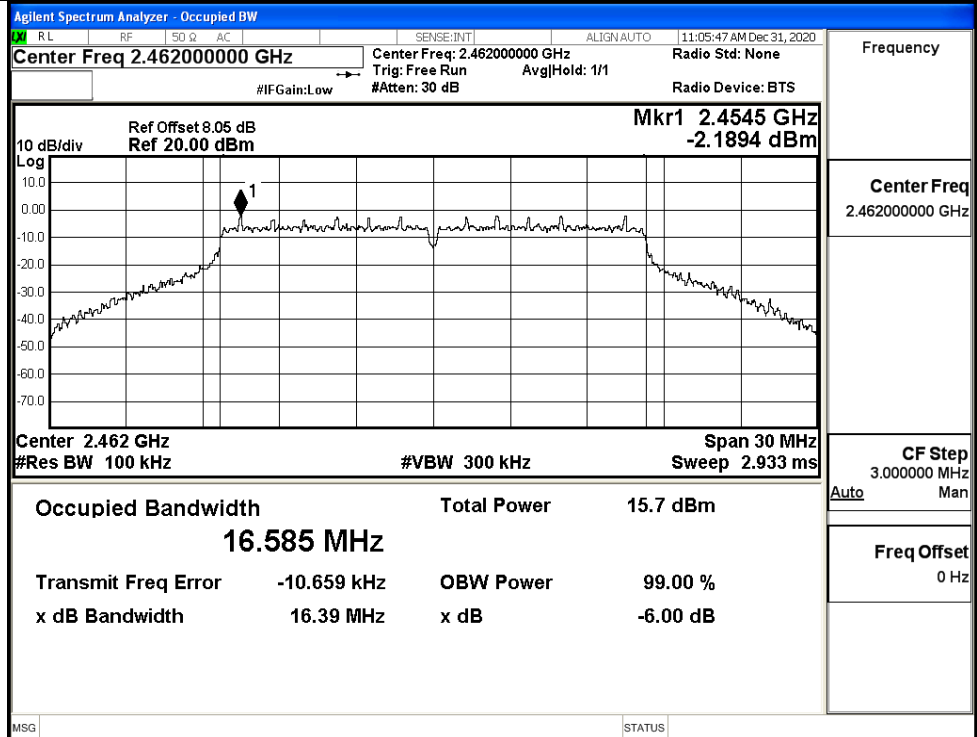
11G/LCH



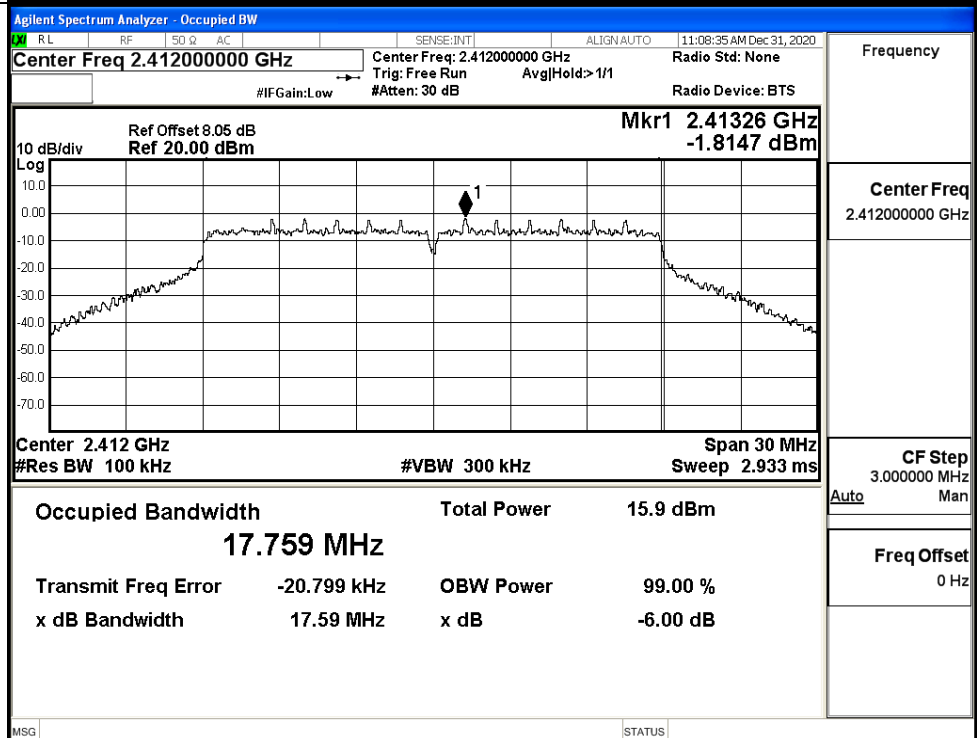
11G/MCH



11G/HCH

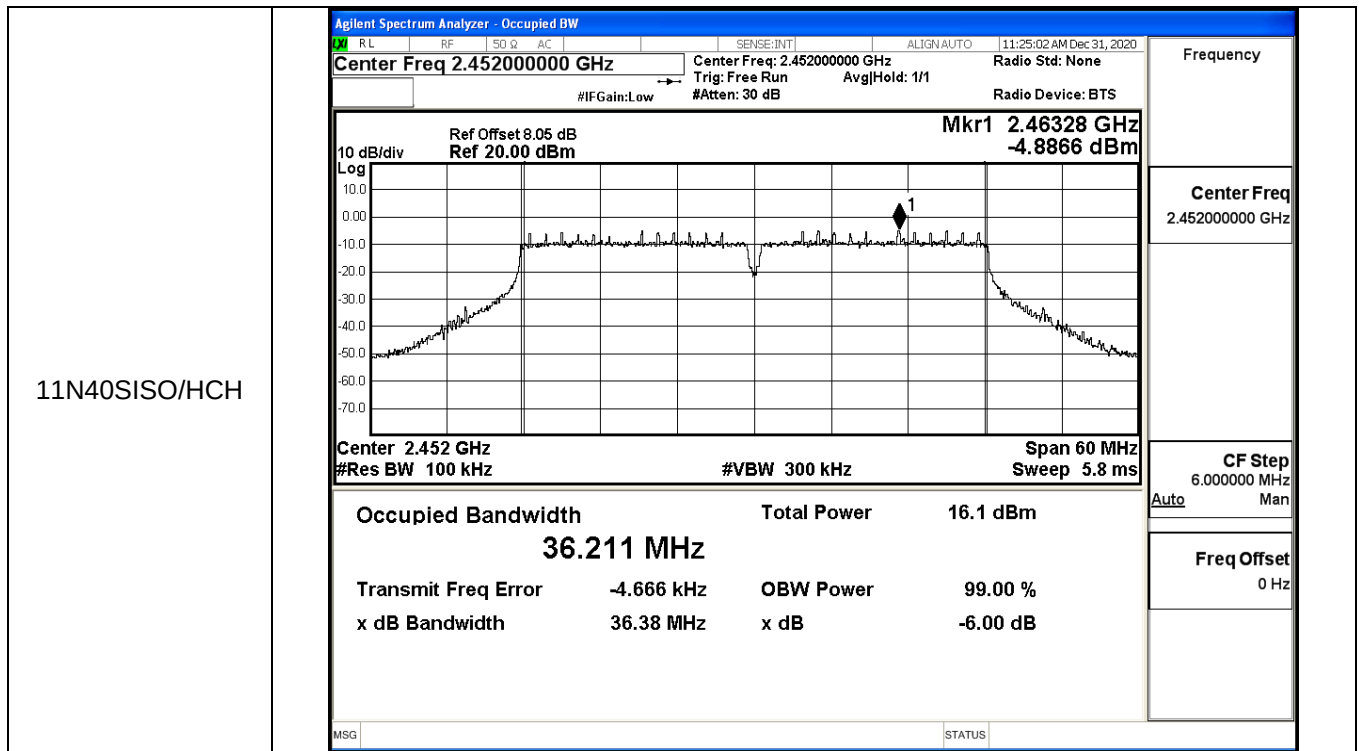


11N20SISO/LCH



Page 22 of 52

Page 23 of 52

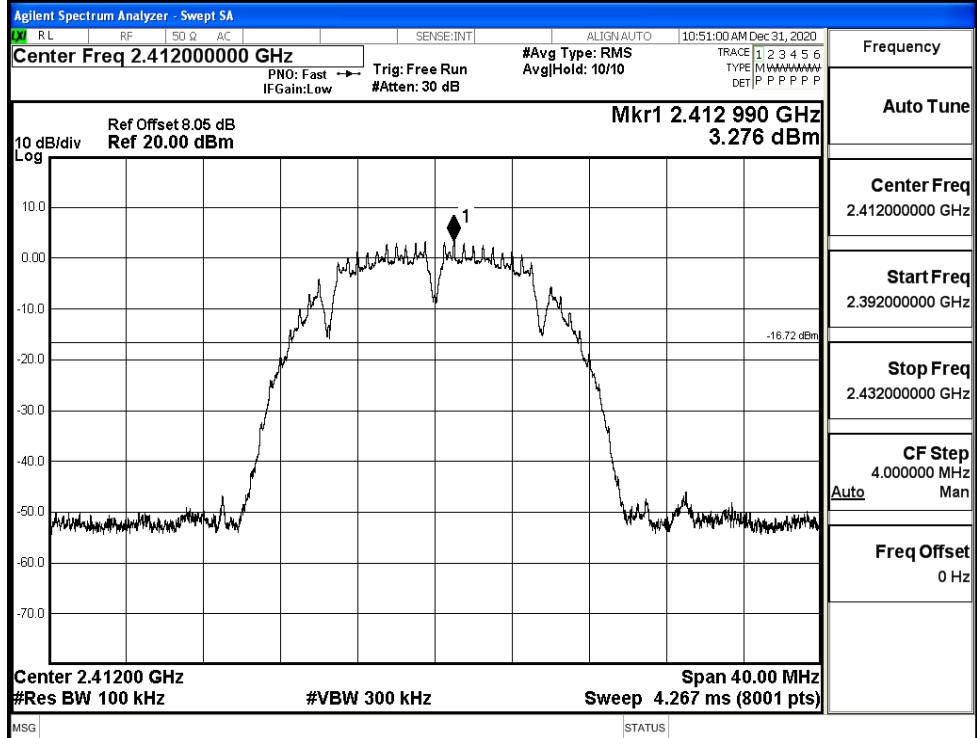


A.5 RF Conducted Spurious Emissions

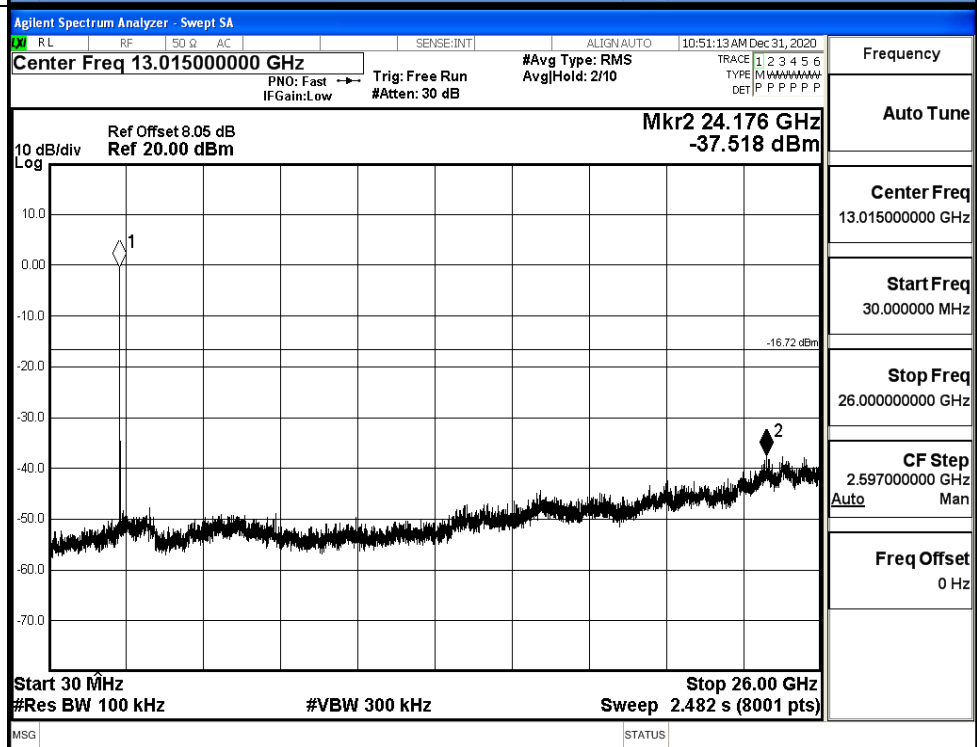
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.276	-37.518	-16.724	PASS
	MCH	3.335	-37.542	-16.665	PASS
	HCH	3.056	-37.653	-16.944	PASS
11G	LCH	-0.961	-37.844	-20.961	PASS
	MCH	-1.991	-37.619	-21.991	PASS
	HCH	-2.251	-38.134	-22.251	PASS
11N20 SISO	LCH	-1.972	-37.046	-21.972	PASS
	MCH	-1.714	-37.414	-21.714	PASS
	HCH	-2.182	-38.148	-22.182	PASS
11N40 SISO	LCH	-4.861	-37.929	-24.861	PASS
	MCH	-5.027	-38.385	-25.027	PASS
	HCH	-5.162	-37.961	-25.162	PASS

11B LCH Graphs

Pref/11B/LCH

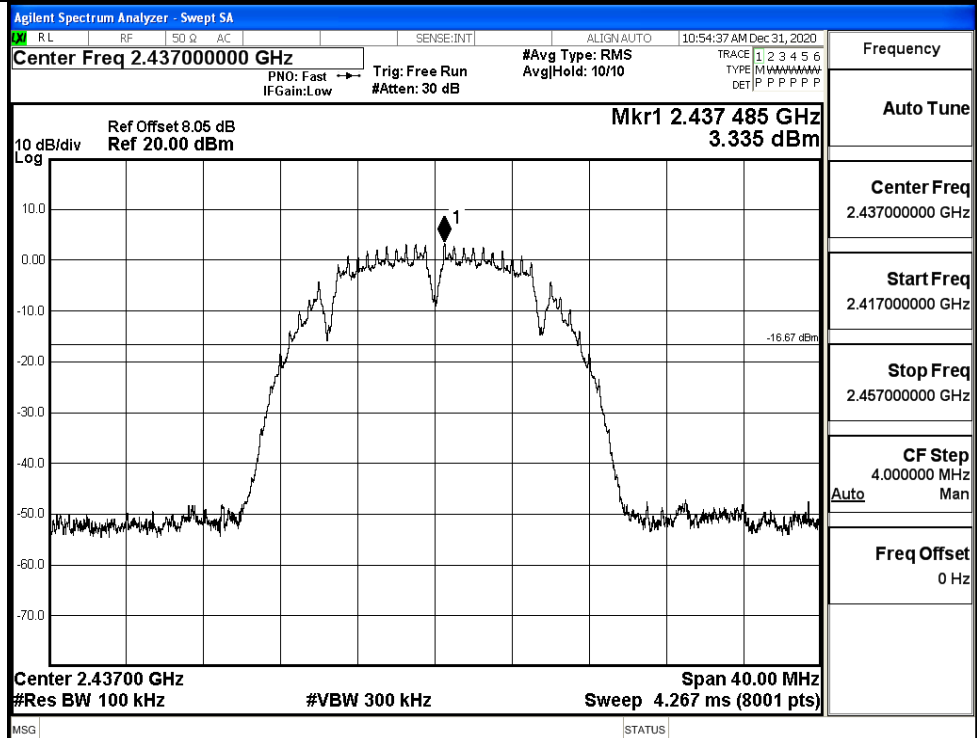


Puw/11B/LCH

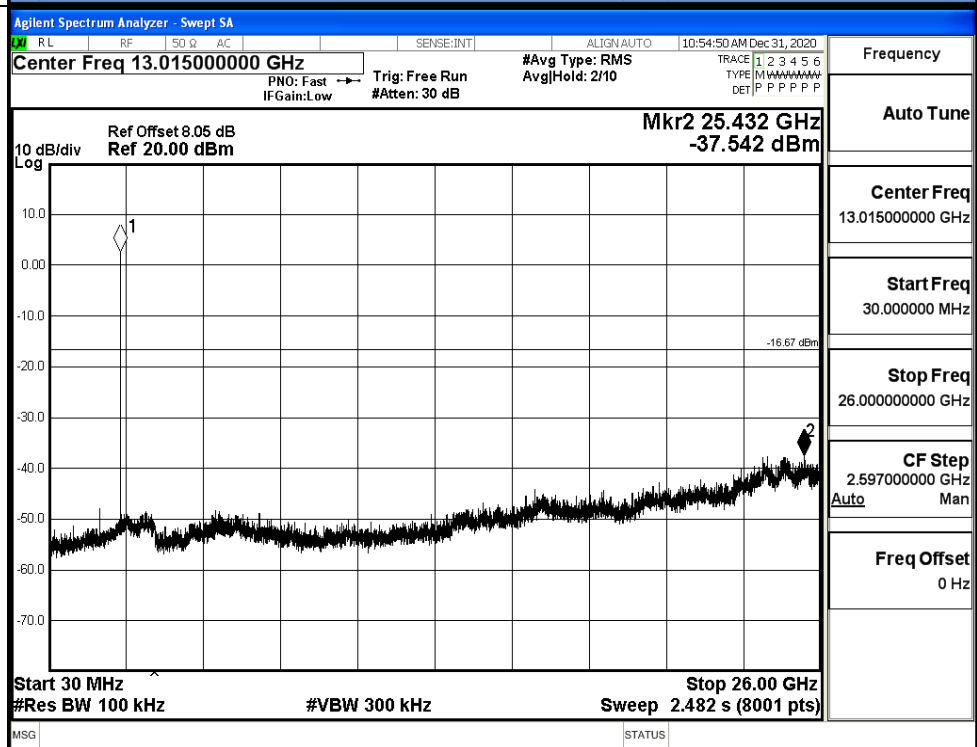


11B MCH Graphs

Pref/11B/MCH

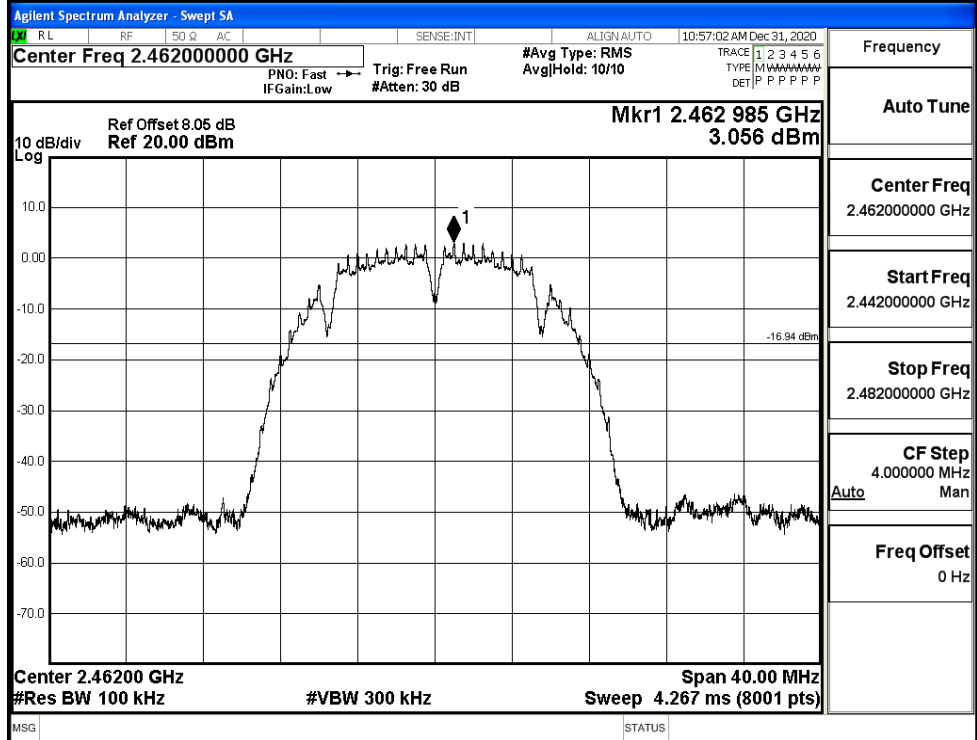


Puw/11B/MCH

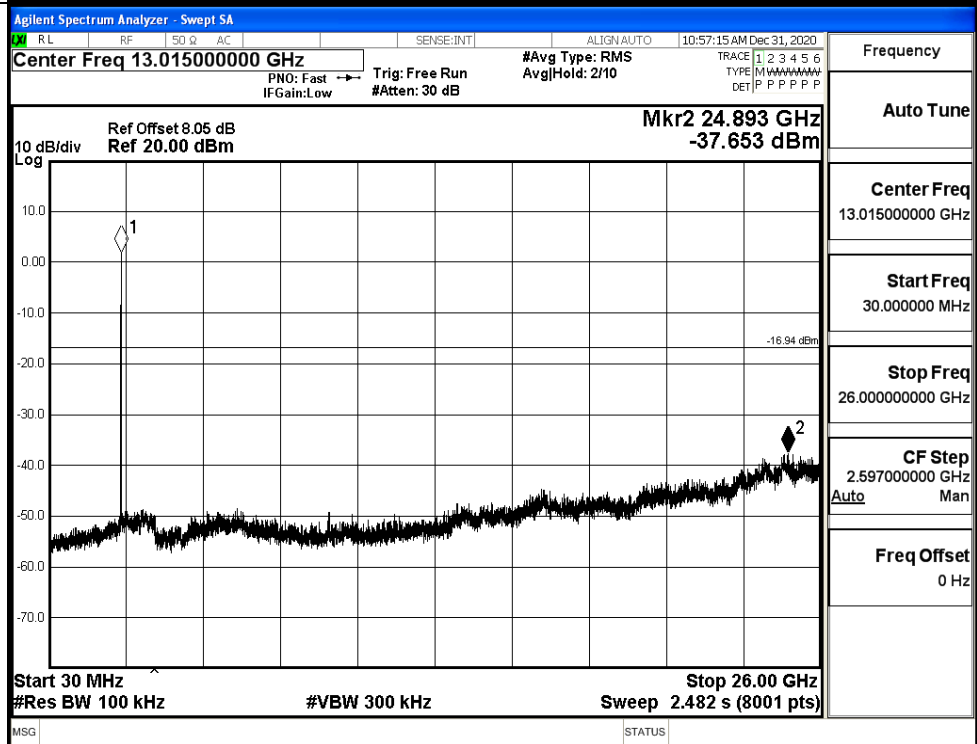


11B HCH Graphs

Pref/11B/HCH

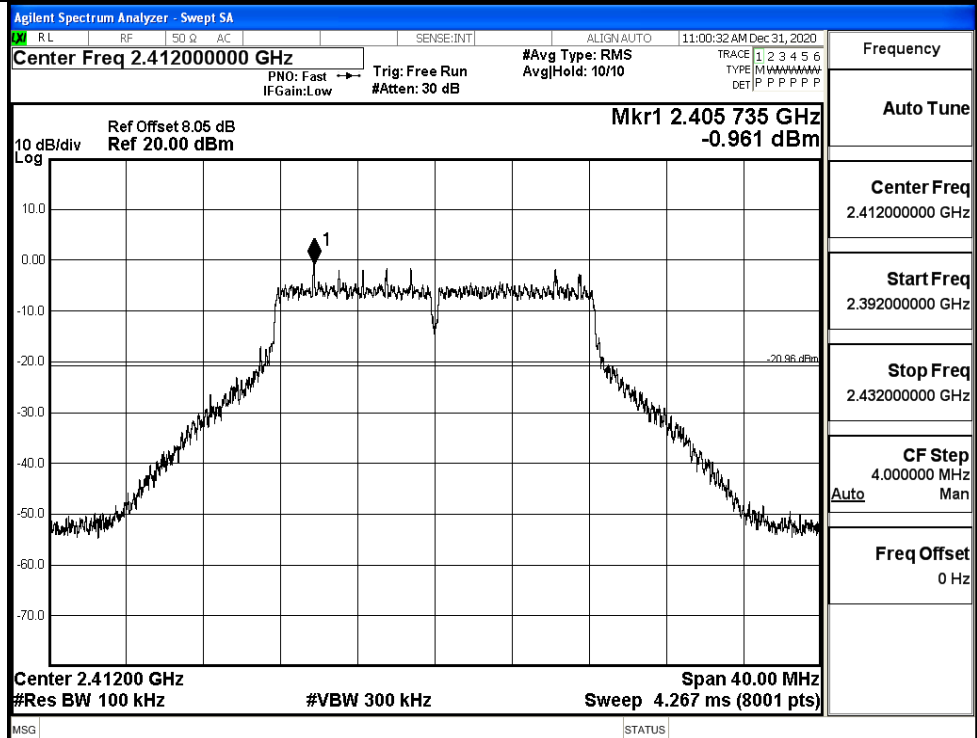


Puw/11B/HCH

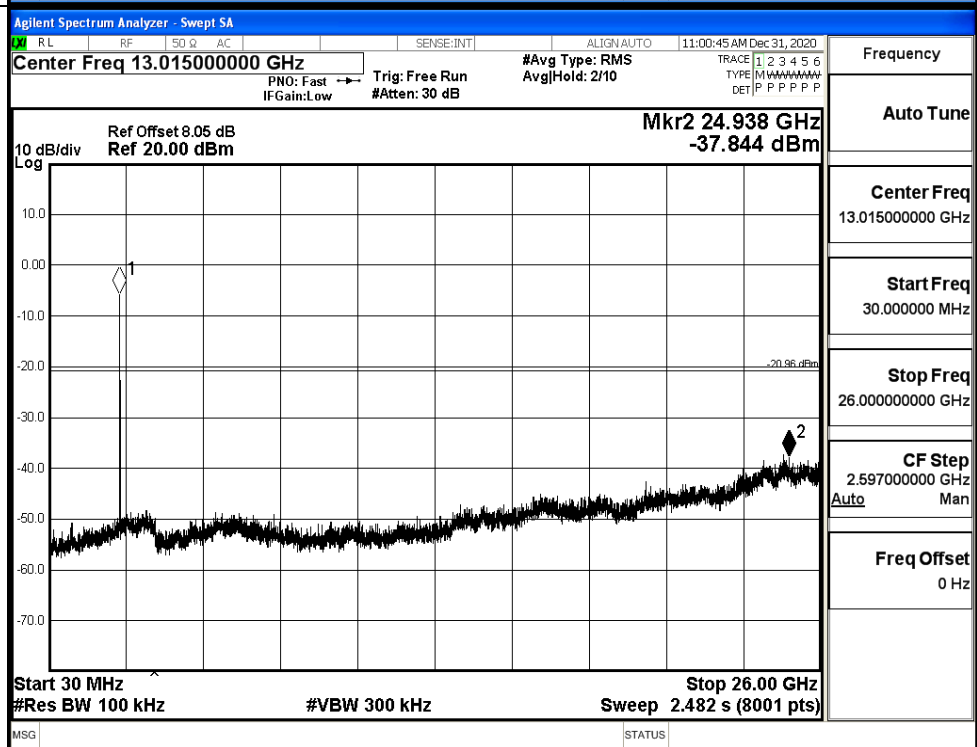


11G LCH Graphs

Pref/11G/LCH

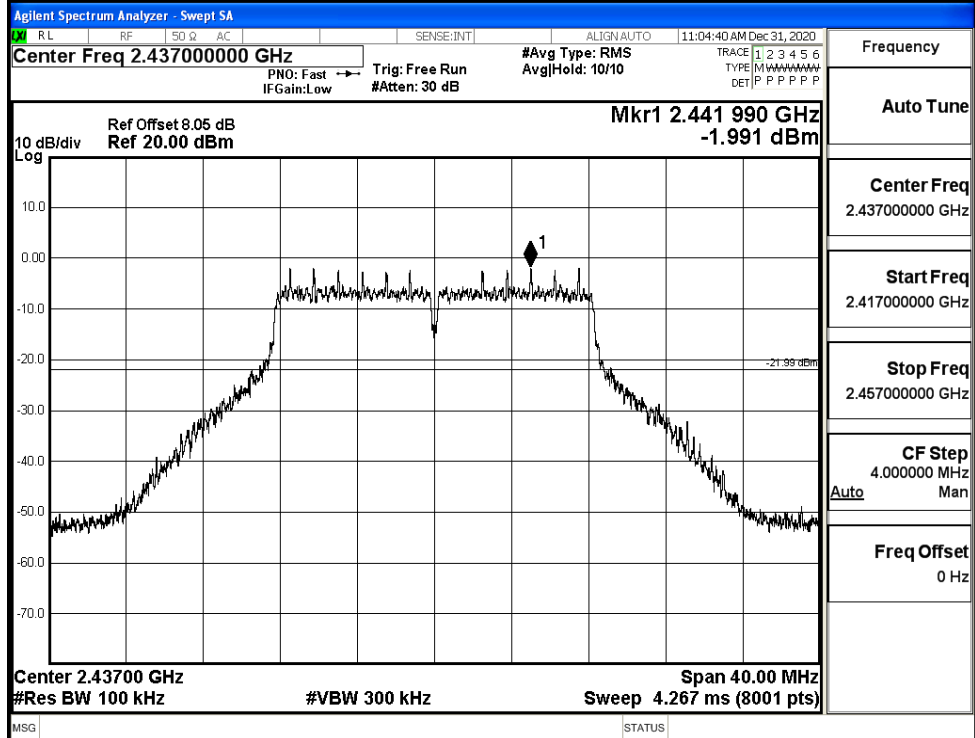


Puw/11G/LCH

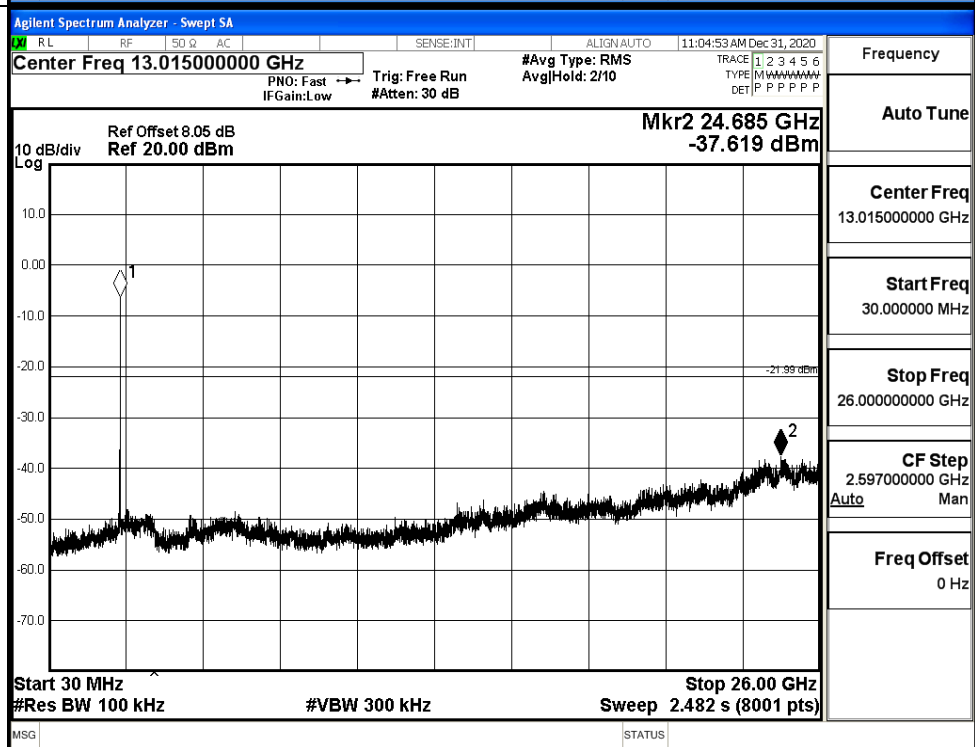


11G MCH Graphs

Pref/11G/MCH

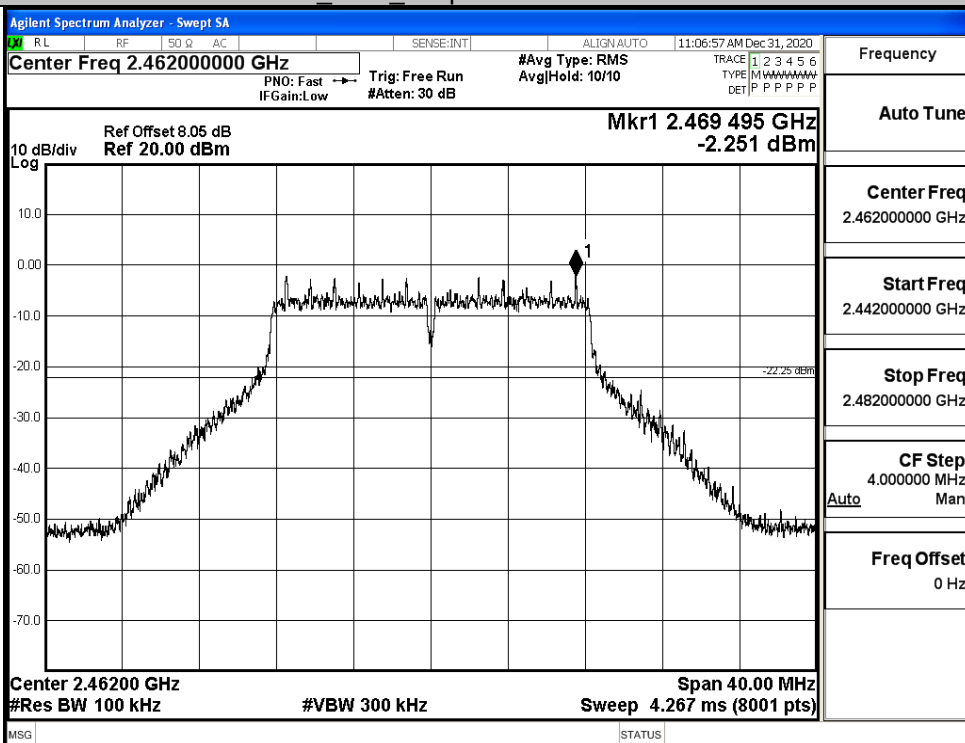


Puw/11G/MCH

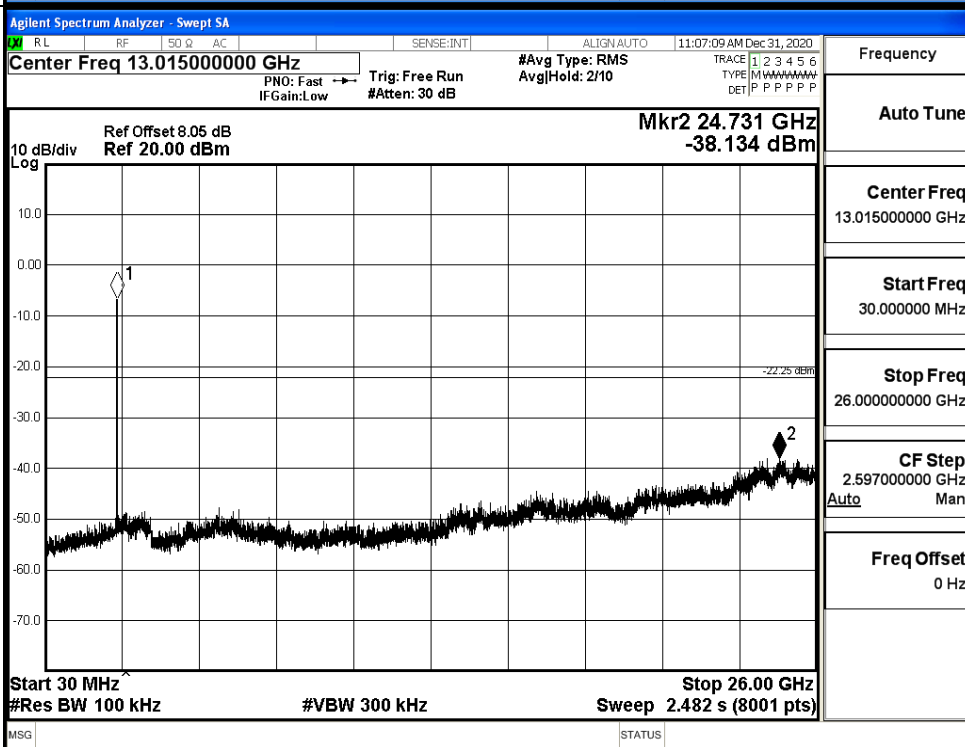


11G HCH Graphs

Pref/11G/HCH

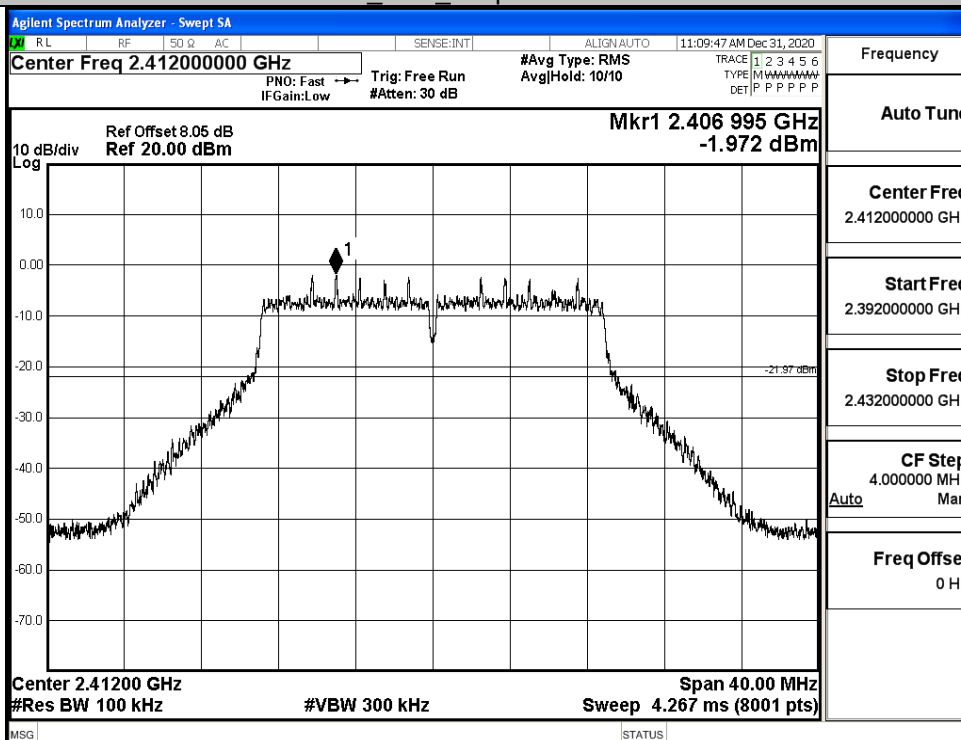


Puw/11G/HCH

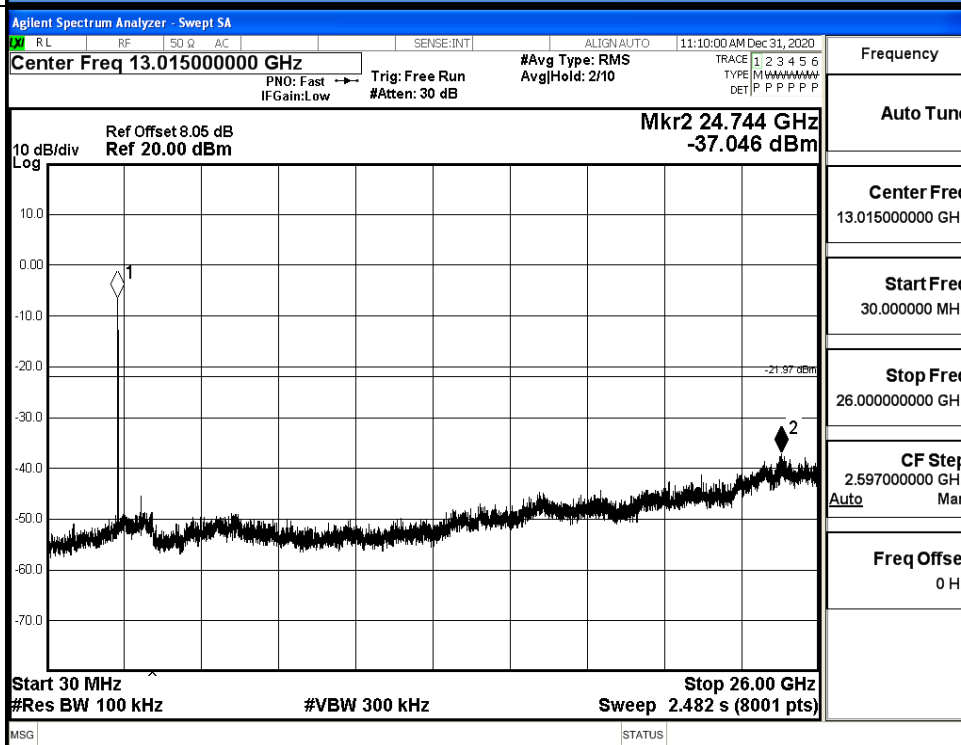


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

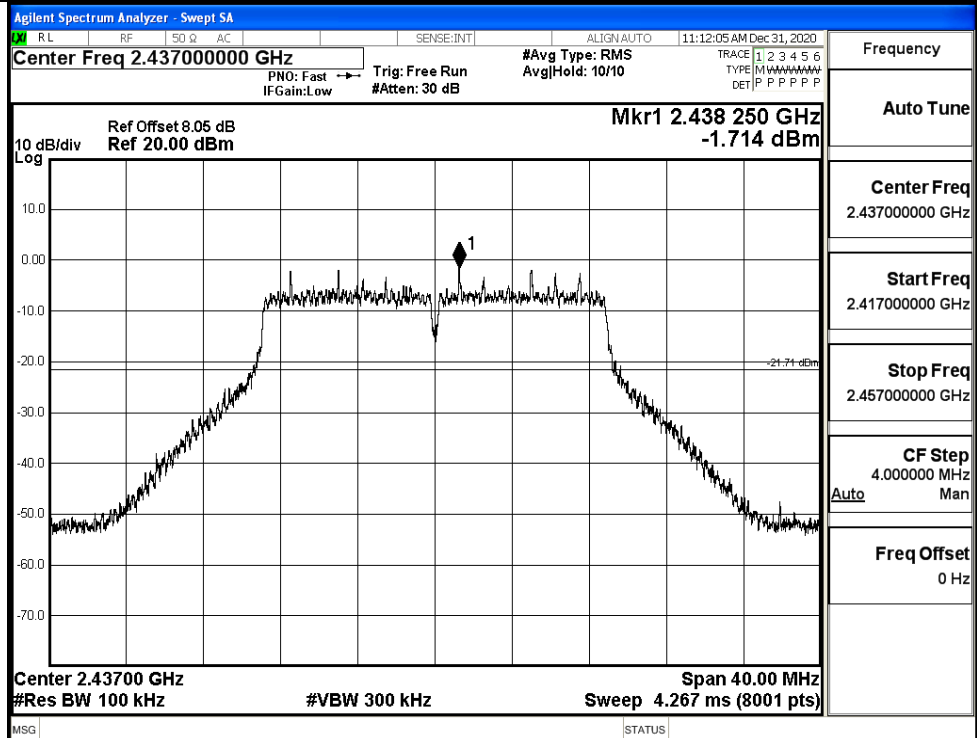


Puw/11N20
SISO/LCH

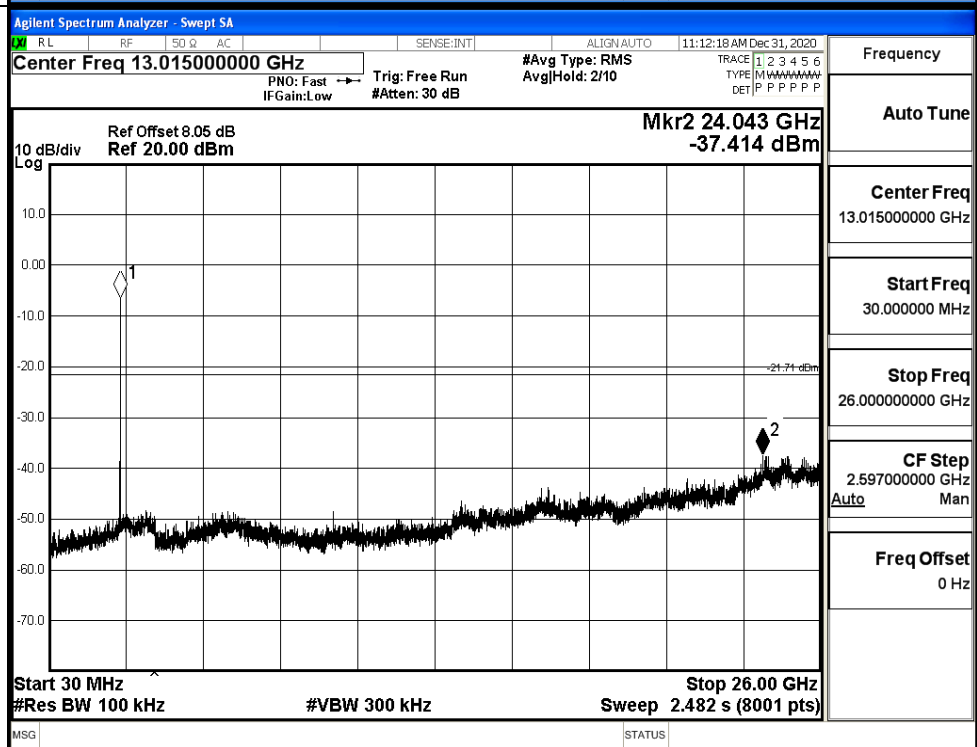


11N20SISO MCH Graphs

Pref/11N20
SISO/MCH

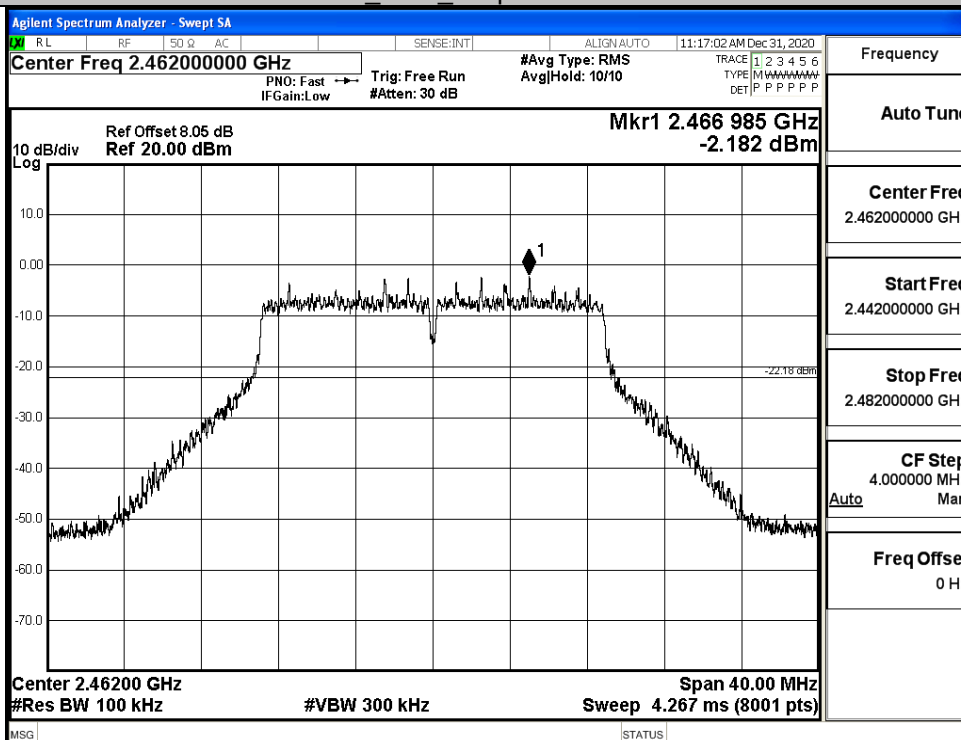


Puw/11N20
SISO/MCH

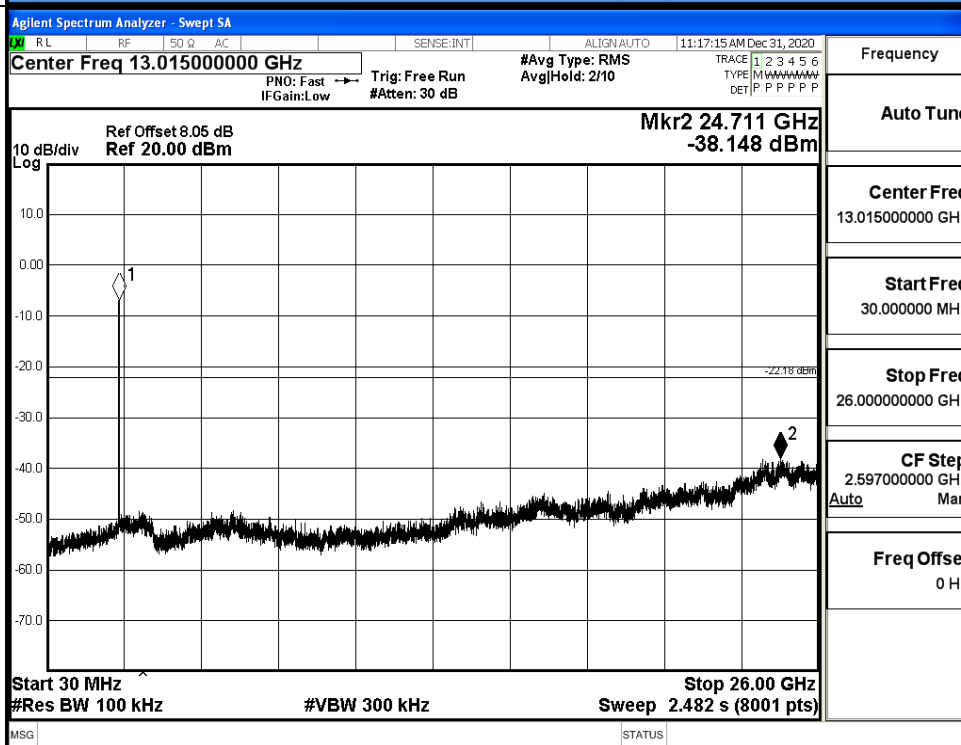


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH

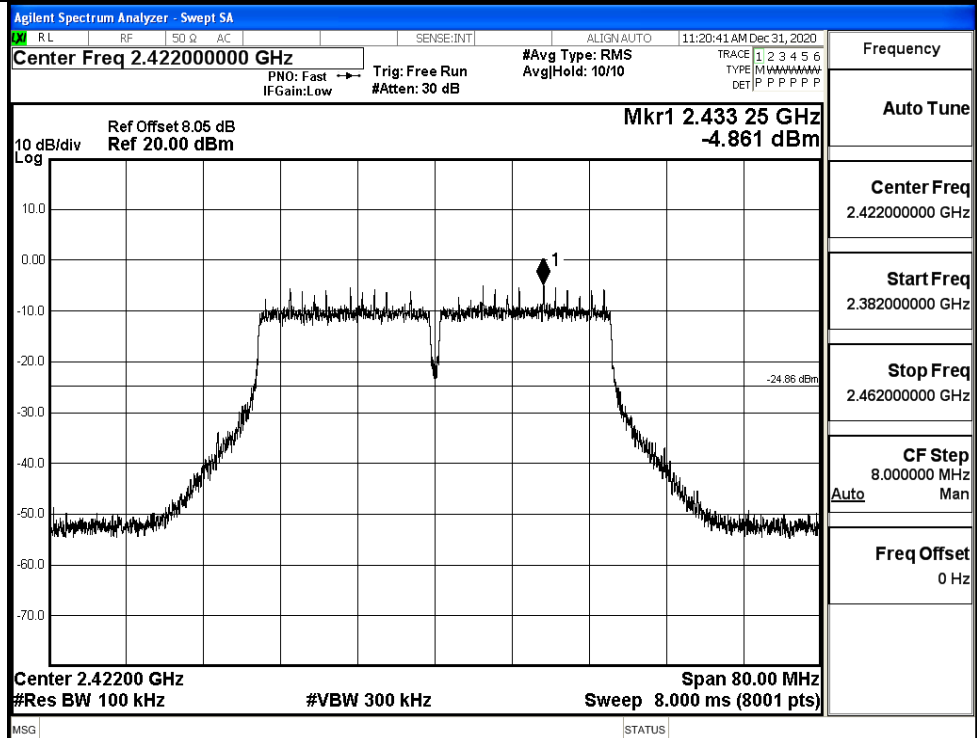


Puw/11N20
SISO/HCH

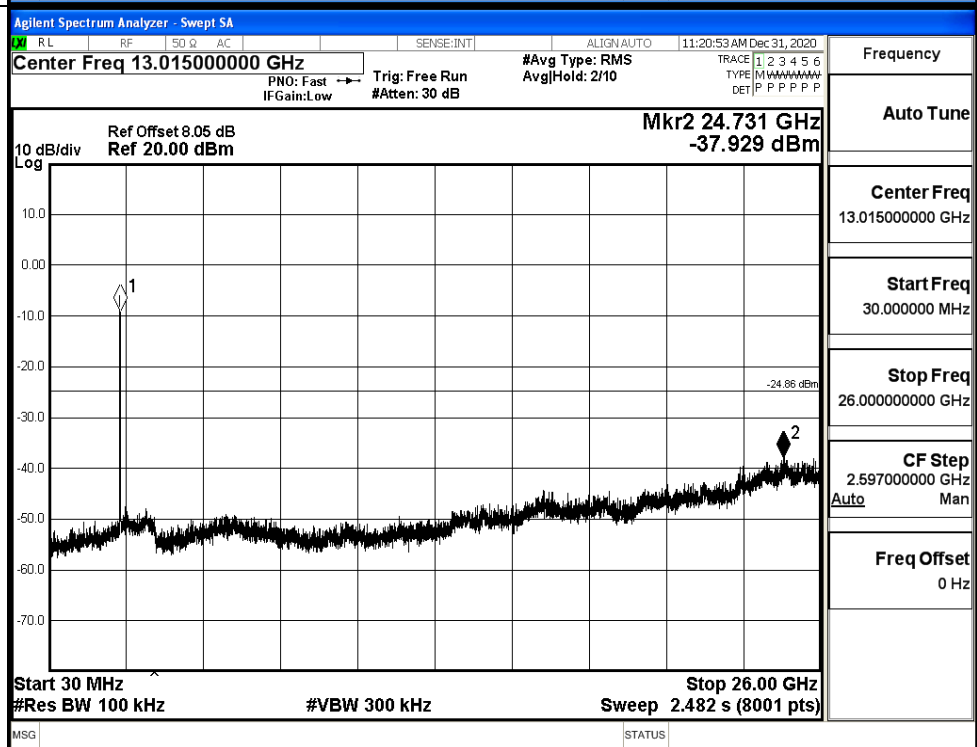


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH

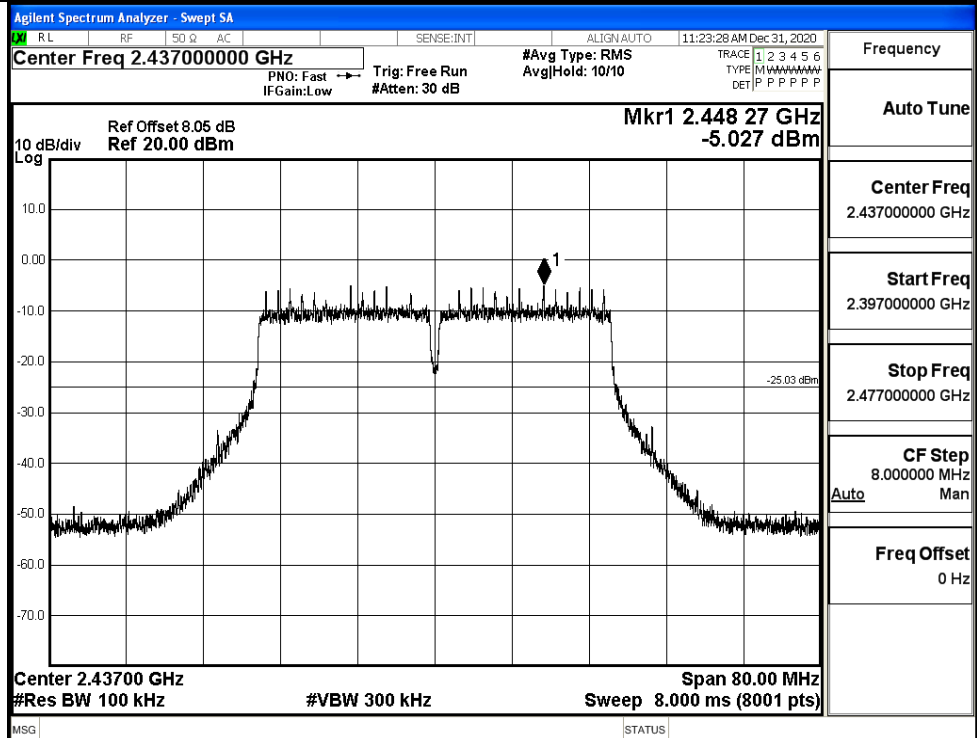


Puw/11N40
SISO/LCH

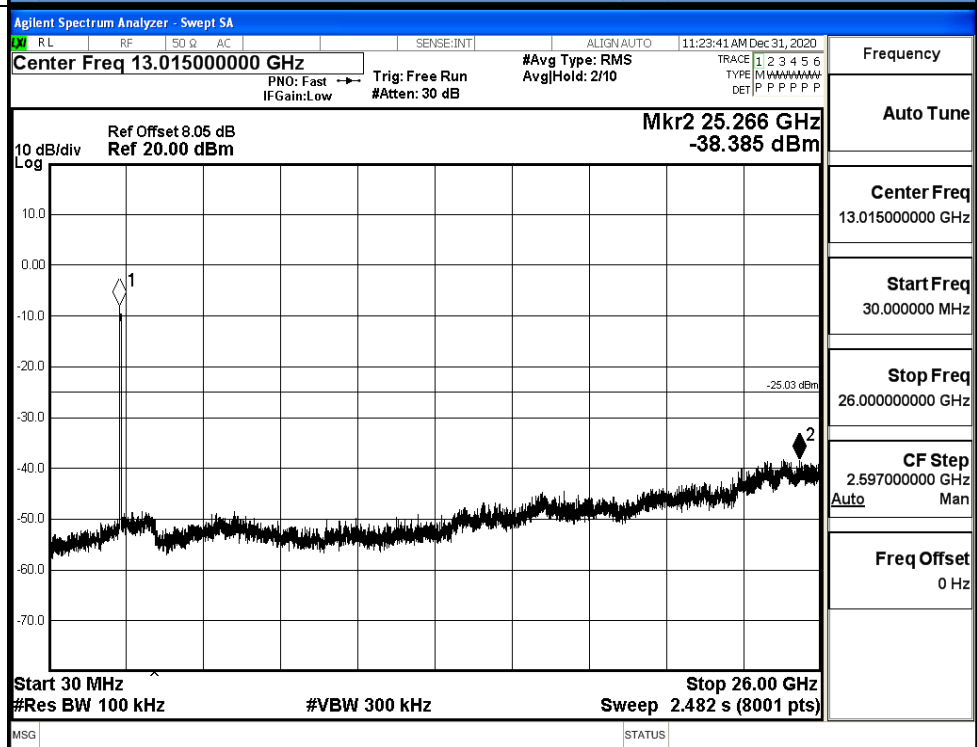


11N40SISO MCH Graphs

Pref/11N40
SISO/MCH

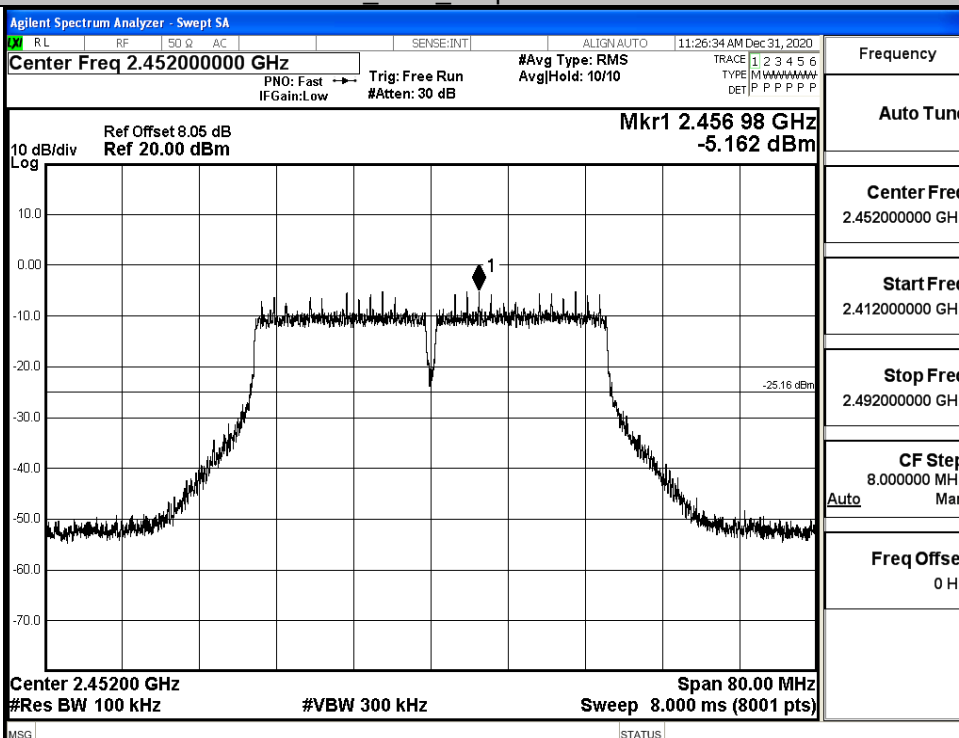


Puw/11N40
SISO/MCH

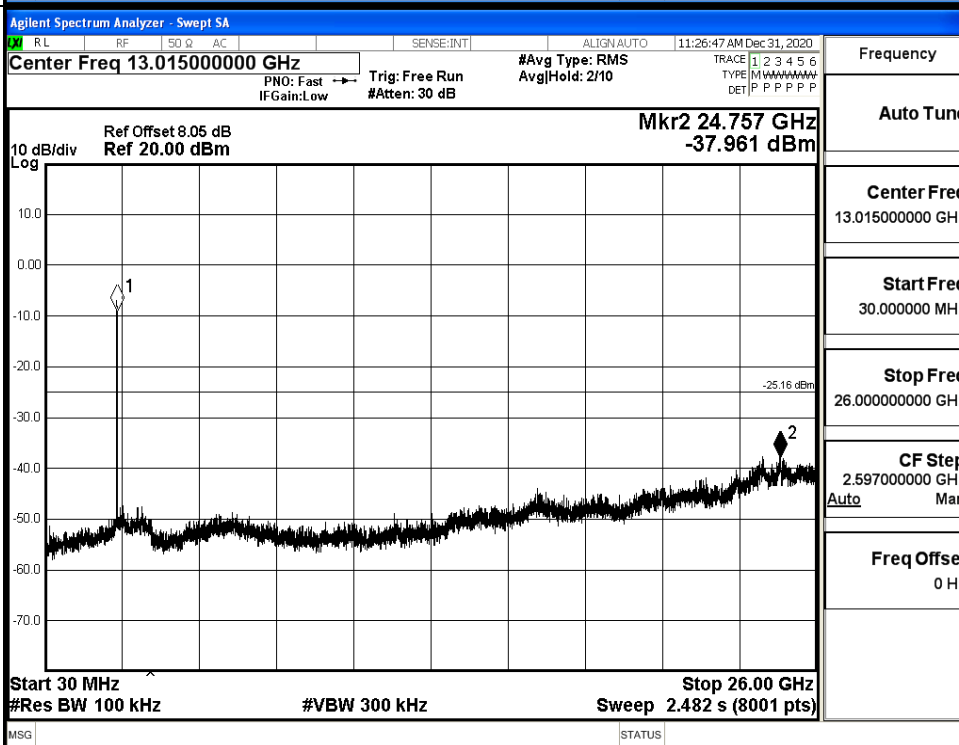


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH

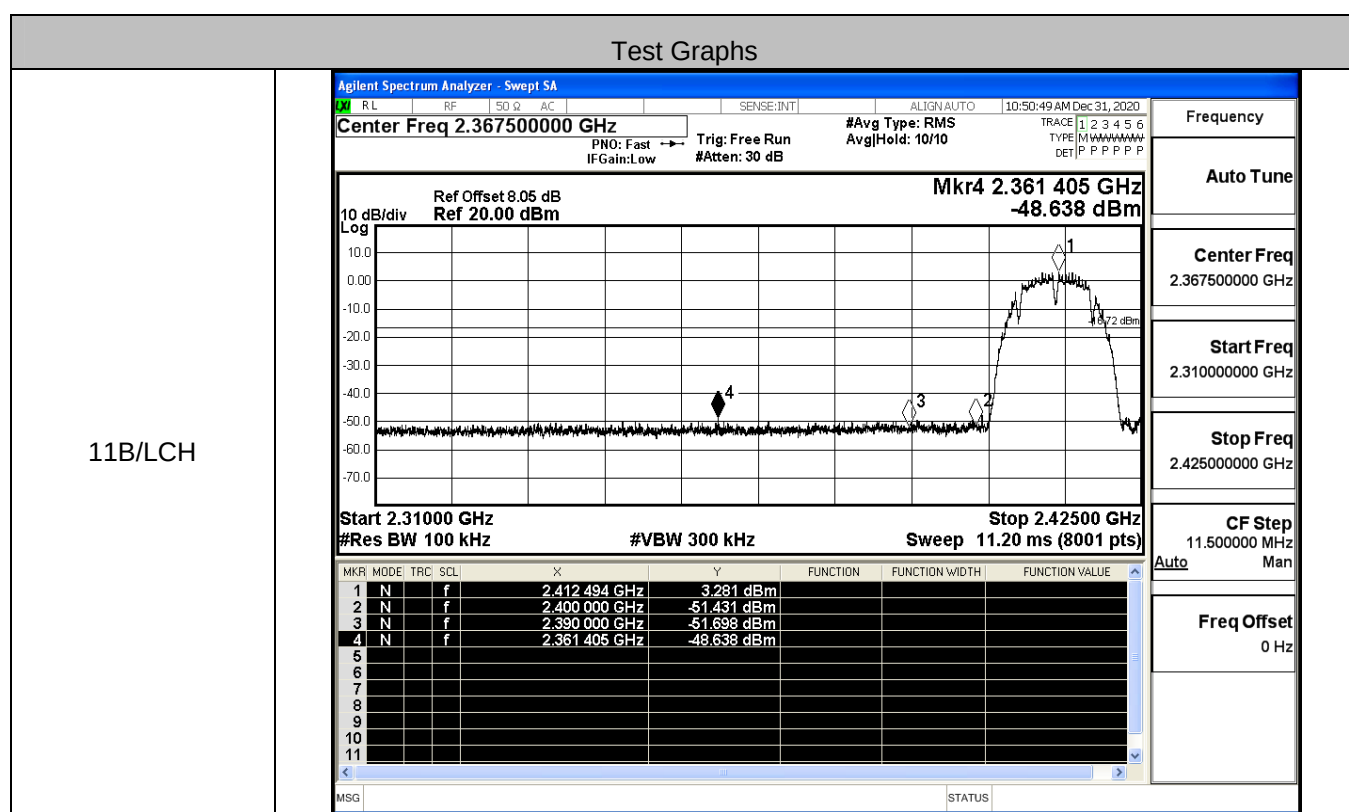


Puw/11N40
SISO/HCH

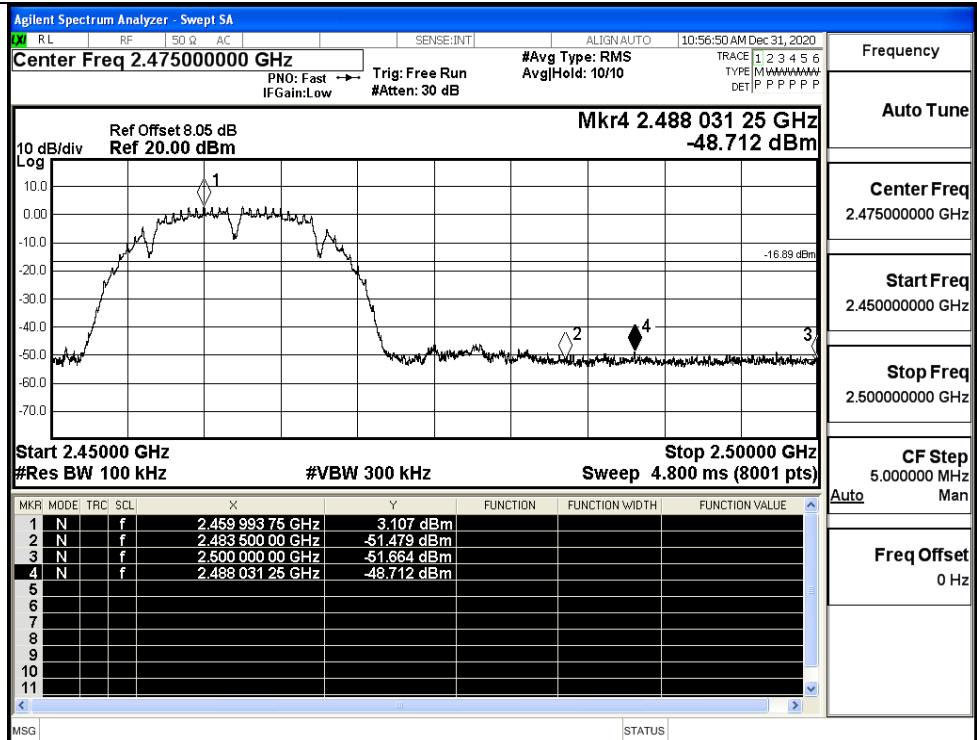


A.6 Band-edge for RF Conducted Emissions

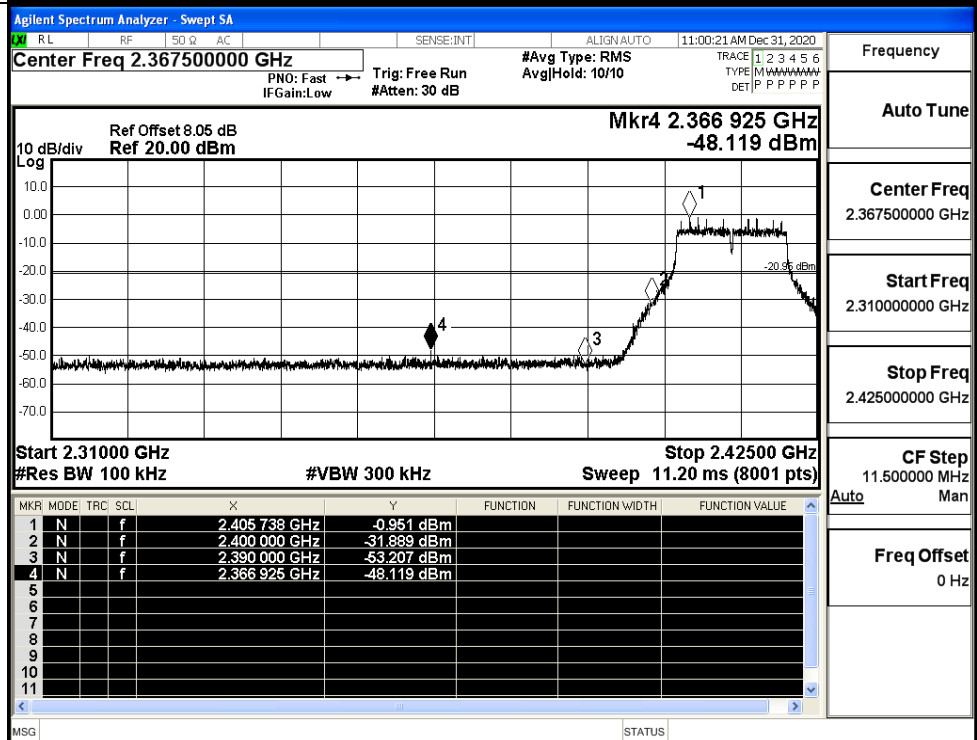
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.281	-48.638	-16.72	PASS
	HCH	3.107	-48.712	-16.89	PASS
11G	LCH	-0.951	-48.119	-20.95	PASS
	HCH	-2.165	-49.284	-22.17	PASS
11N20SISO	LCH	-1.967	-49.222	-21.97	PASS
	HCH	-2.043	-49.677	-22.04	PASS
11N40SISO	LCH	-5.099	-48.440	-25.1	PASS
	HCH	-5.135	-48.945	-25.14	PASS



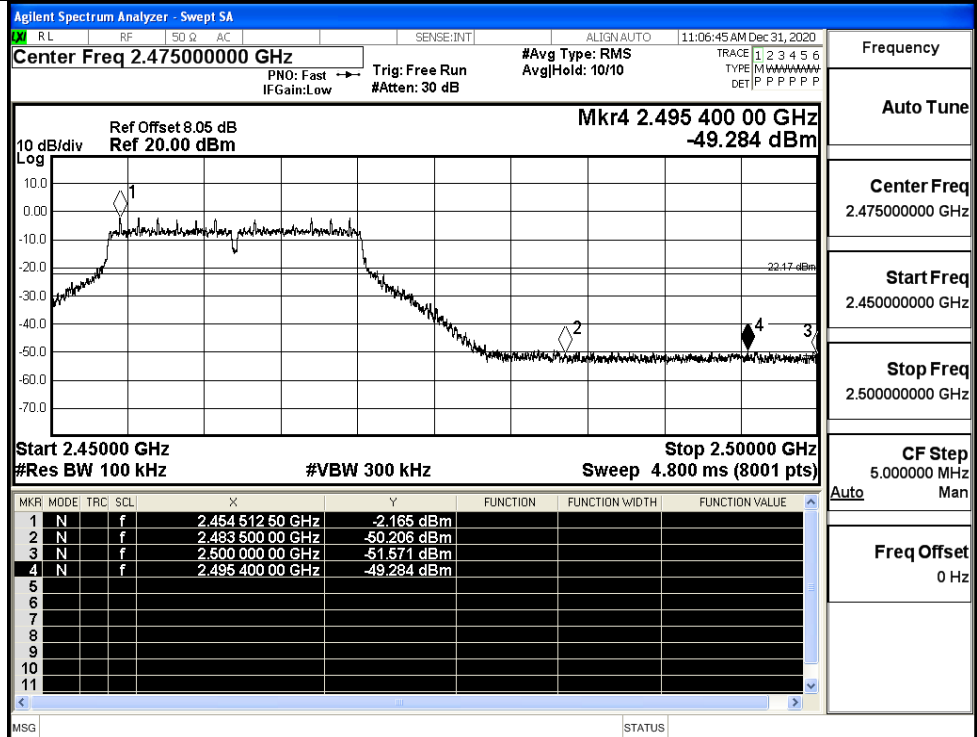
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq

2.475000000 GHz

Start Freq

2.450000000 GHz

Stop Freq

2.500000000 GHz

CF Step

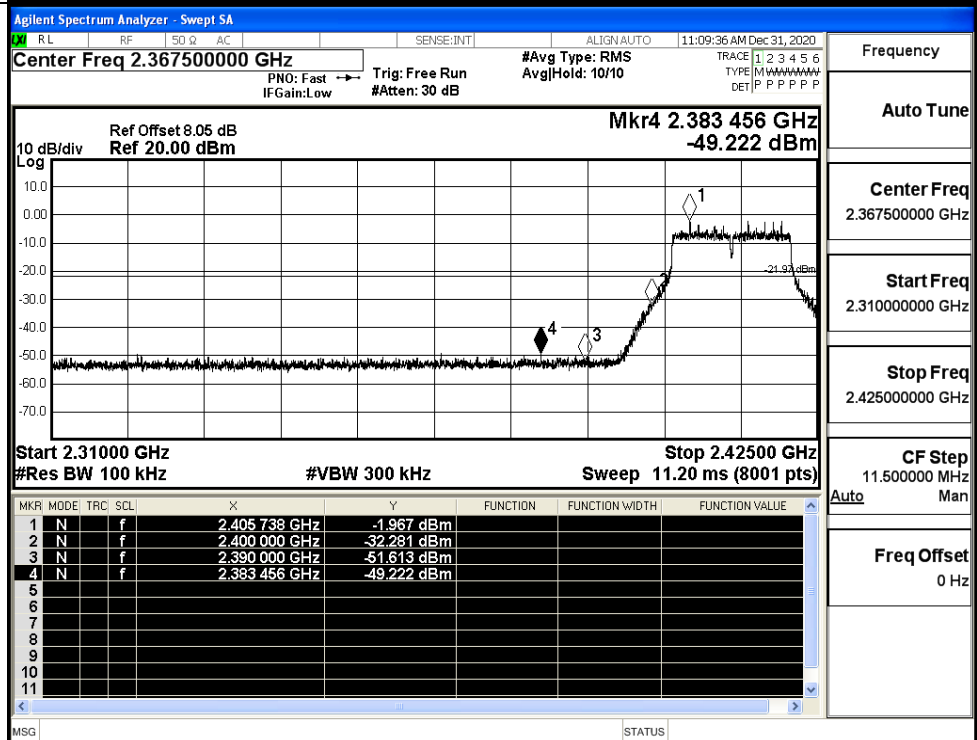
5.000000 MHz

Auto

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

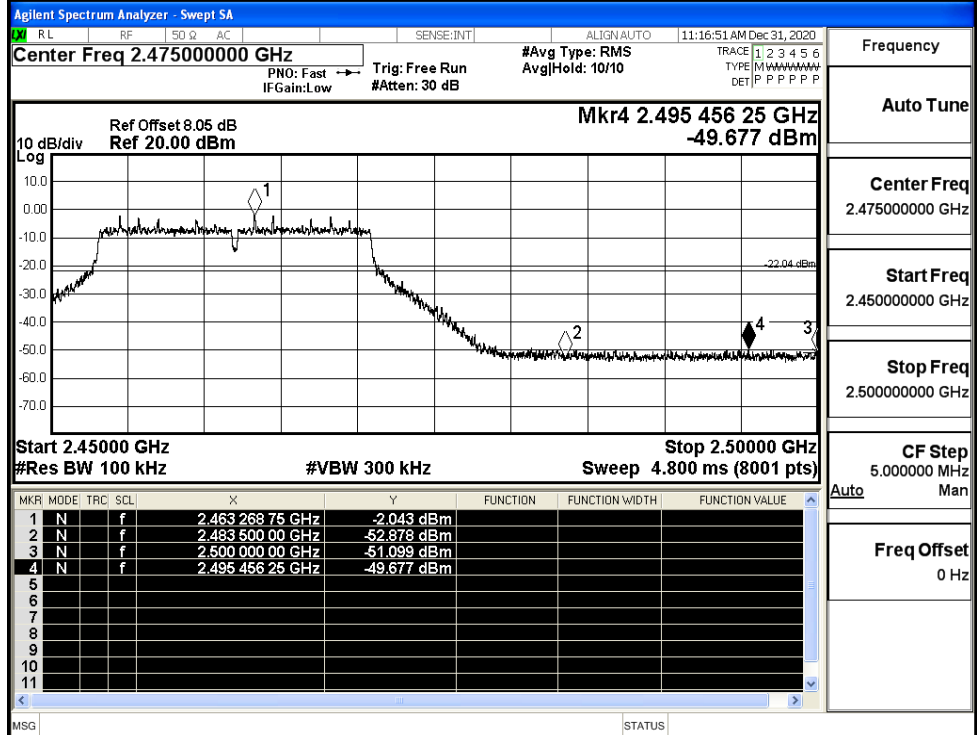
11.500000 MHz

Auto

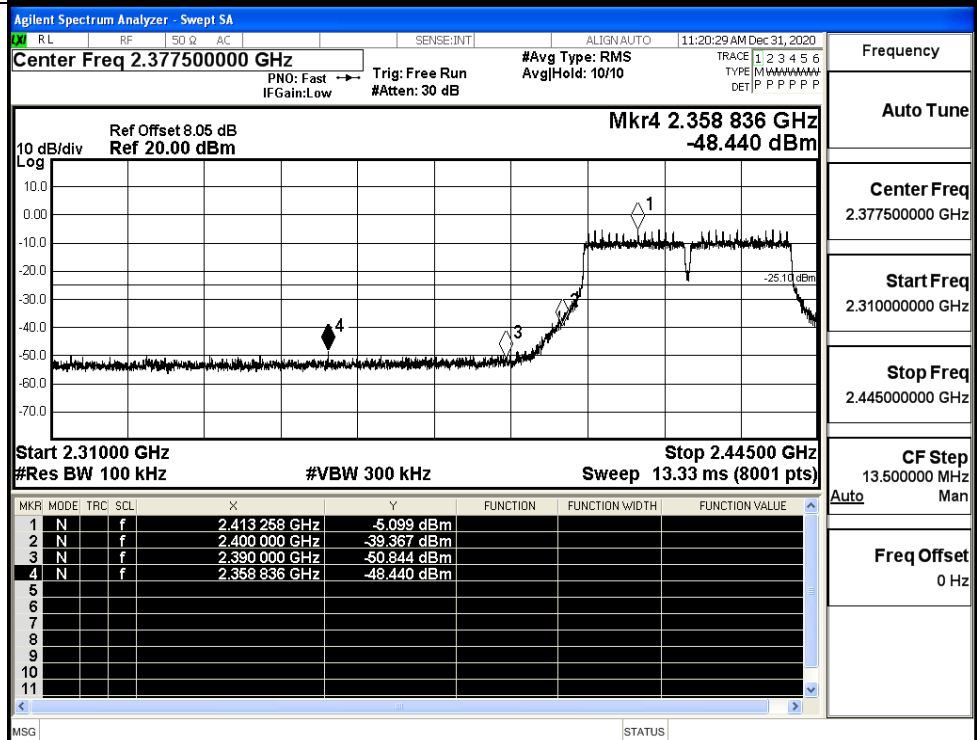
Freq Offset

0 Hz

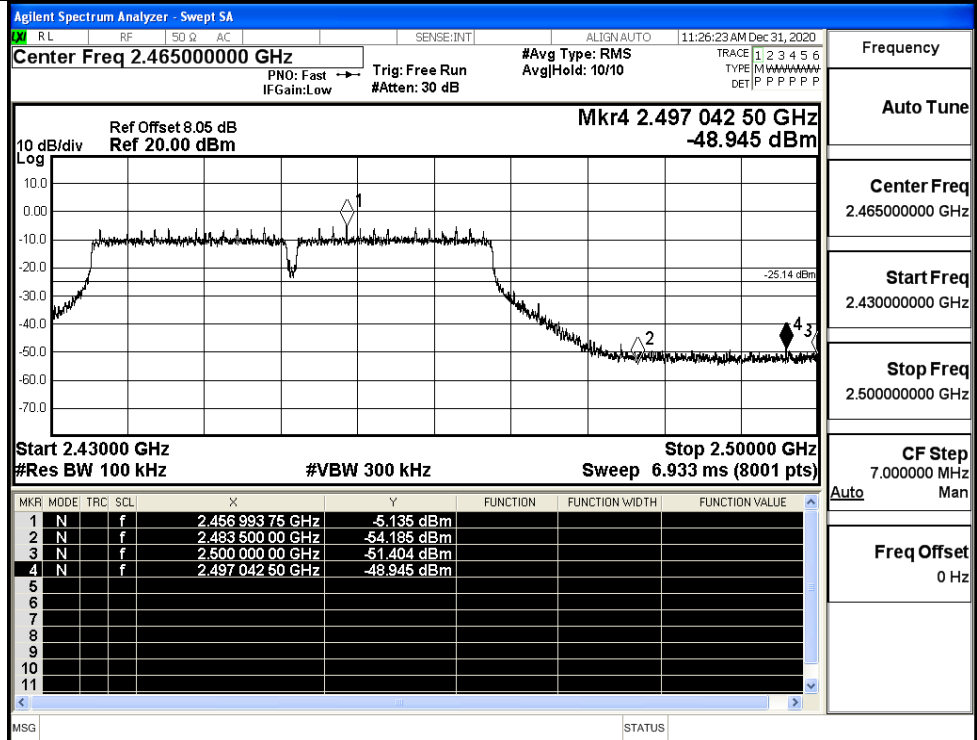
11N20SISO/HCH



11N40SISO/LCH



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

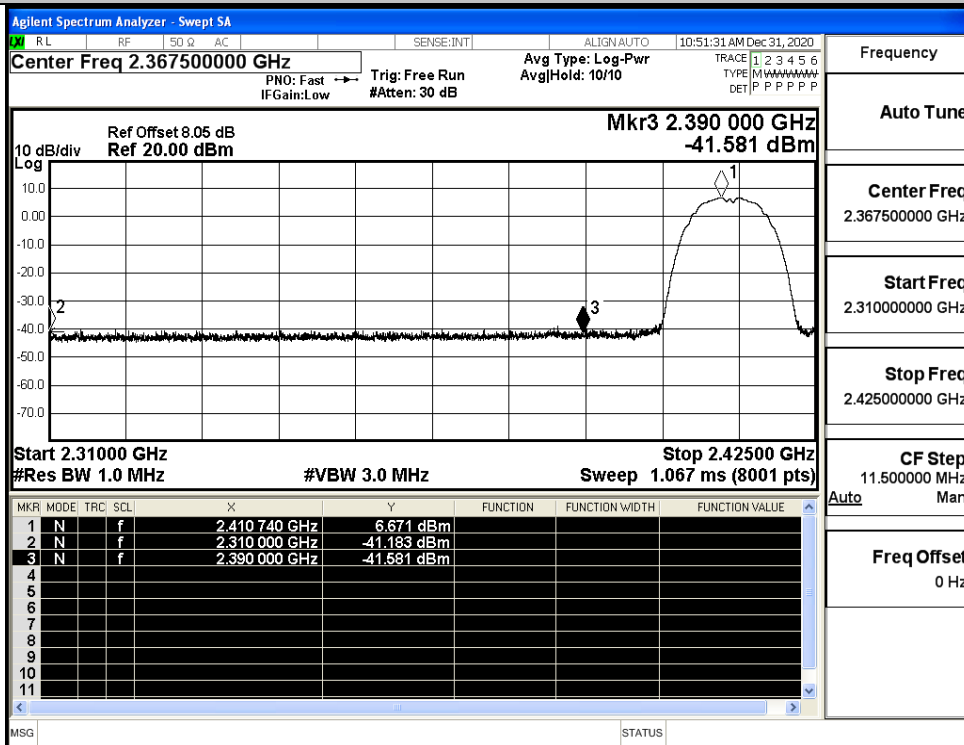
Freq Offset
0 Hz

A.7 Restrict-band band-edge measurements

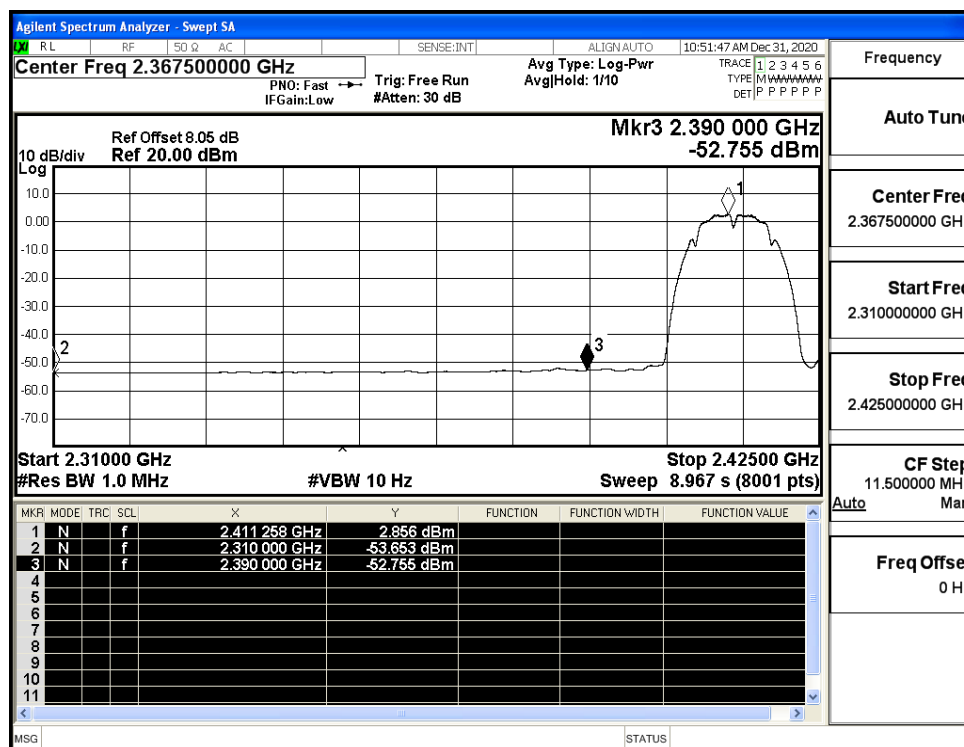
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-41.18	2.0	0	54.07	PEAK	74	PASS
	2412	Ant1	2310.0	-53.65	2.0	0	41.60	AV	54	PASS
	2412	Ant1	2390.0	-41.58	2.0	0	53.68	PEAK	74	PASS
	2412	Ant1	2390.0	-52.76	2.0	0	42.50	AV	54	PASS
	2462	Ant1	2483.5	-41.34	2.0	0	53.92	PEAK	74	PASS
	2462	Ant1	2483.5	-52.28	2.0	0	42.98	AV	54	PASS
	2462	Ant1	2500.0	-42.12	2.0	0	53.14	PEAK	74	PASS
	2462	Ant1	2500.0	-52.47	2.0	0	42.79	AV	54	PASS
11G	2412	Ant1	2310.0	-42.23	2.0	0	53.03	PEAK	74	PASS
	2412	Ant1	2310.0	-53.62	2.0	0	41.64	AV	54	PASS
	2412	Ant1	2390.0	-43.10	2.0	0	52.15	PEAK	74	PASS
	2412	Ant1	2390.0	-52.85	2.0	0	42.41	AV	54	PASS
	2462	Ant1	2483.5	-42.22	2.0	0	53.04	PEAK	74	PASS
	2462	Ant1	2483.5	-52.25	2.0	0	43.01	AV	54	PASS
	2462	Ant1	2500.0	-42.16	2.0	0	53.10	PEAK	74	PASS
	2462	Ant1	2500.0	-52.50	2.0	0	42.76	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.83	2.0	0	51.43	PEAK	74	PASS
	2412	Ant1	2310.0	-53.64	2.0	0	41.62	AV	54	PASS
	2412	Ant1	2390.0	-41.91	2.0	0	53.34	PEAK	74	PASS
	2412	Ant1	2390.0	-52.92	2.0	0	42.34	AV	54	PASS
	2462	Ant1	2483.5	-42.75	2.0	0	52.51	PEAK	74	PASS
	2462	Ant1	2483.5	-52.28	2.0	0	42.98	AV	54	PASS
	2462	Ant1	2500.0	-42.59	2.0	0	52.66	PEAK	74	PASS
	2462	Ant1	2500.0	-52.41	2.0	0	42.84	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.59	2.0	0	51.67	PEAK	74	PASS
	2422	Ant1	2310.0	-53.58	2.0	0	41.68	AV	54	PASS
	2422	Ant1	2390.0	-41.23	2.0	0	54.03	PEAK	74	PASS

	2422	Ant1	2390.0	-52.22	2.0	0	43.04	AV	54	PASS
	2452	Ant1	2483.5	-39.67	2.0	0	55.59	PEAK	74	PASS
	2452	Ant1	2483.5	-51.99	2.0	0	43.26	AV	54	PASS
	2452	Ant1	2500.0	-41.58	2.0	0	53.68	PEAK	74	PASS
	2452	Ant1	2500.0	-52.30	2.0	0	42.96	AV	54	PASS

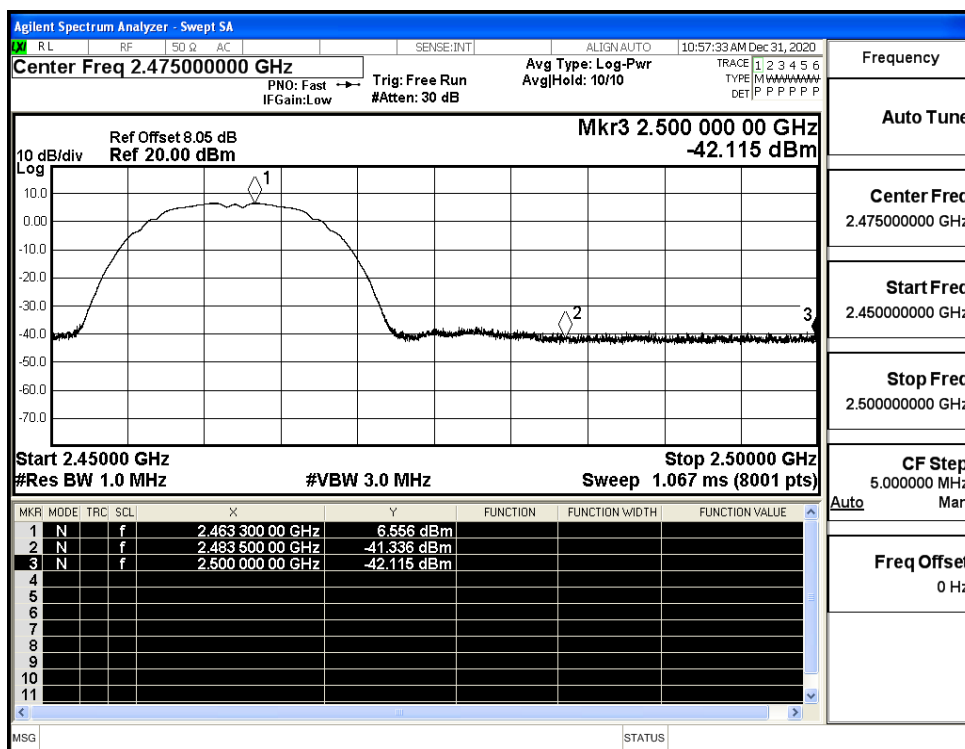
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



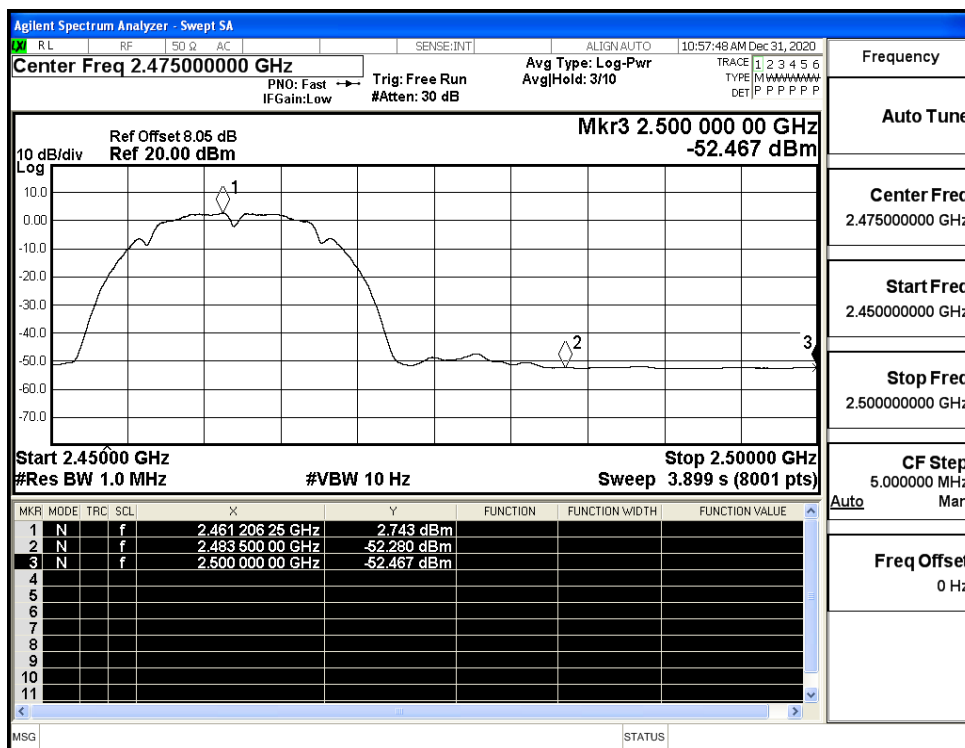
Restrict-band band-edge measurements_11B_2412_Ant1_AV



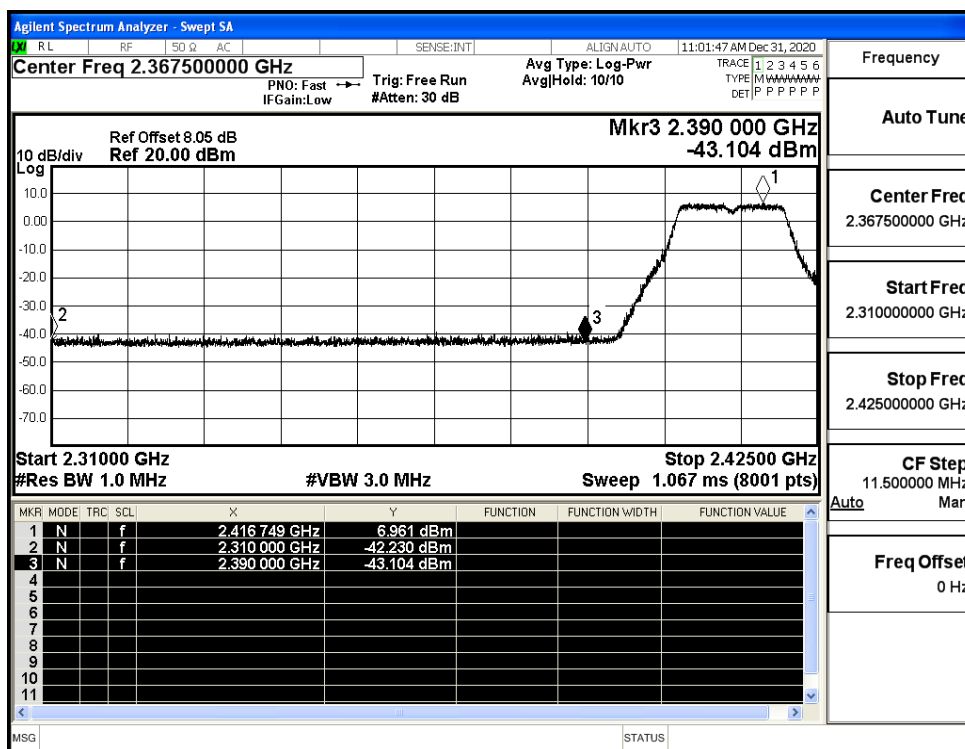
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



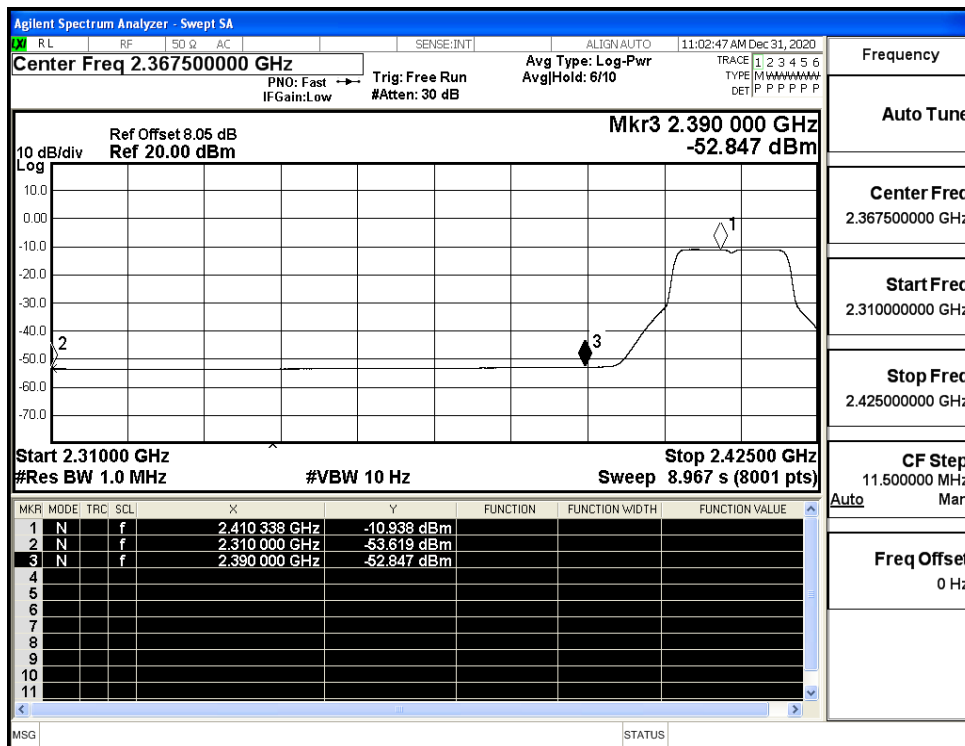
Restrict-band band-edge measurements_11B_2462_Ant1_AV



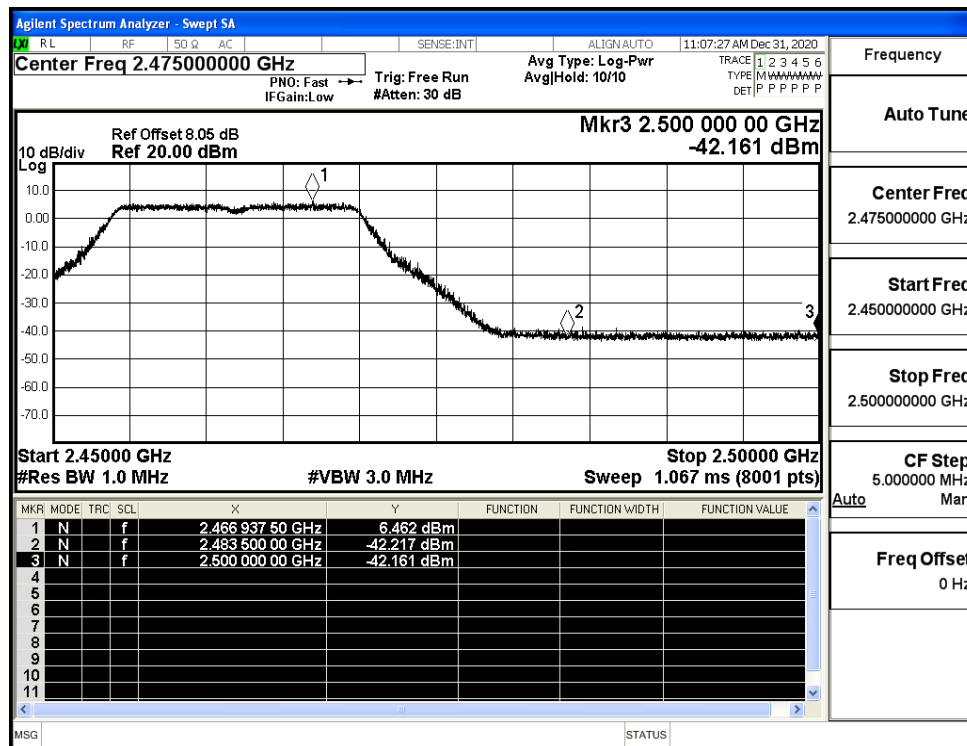
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



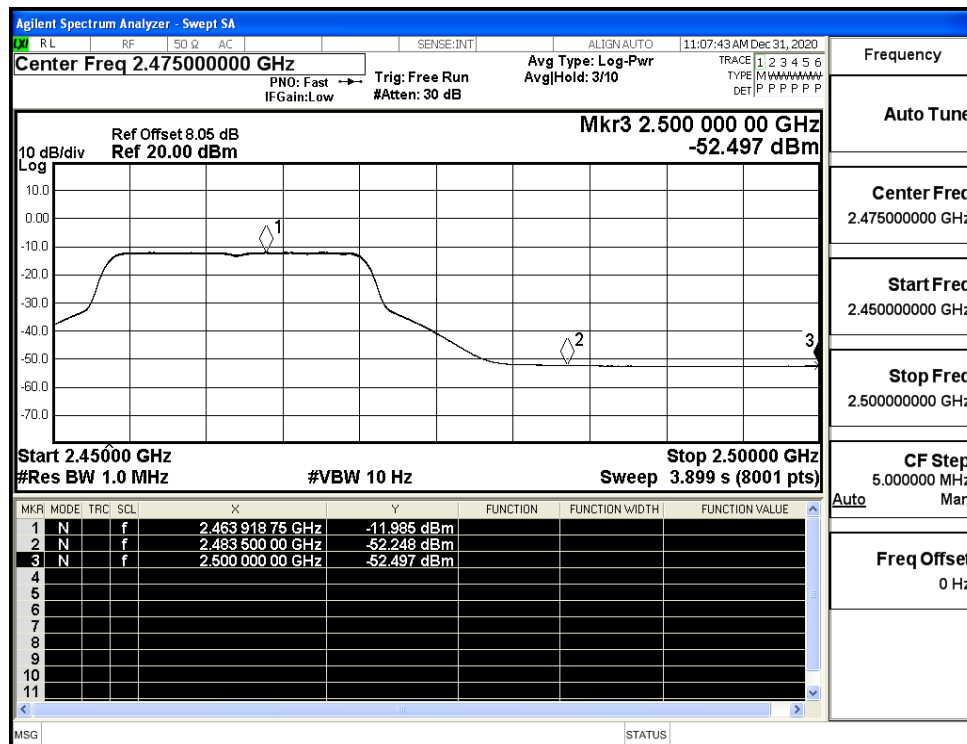
Restrict-band band-edge measurements_11G_2412_Ant1_AV



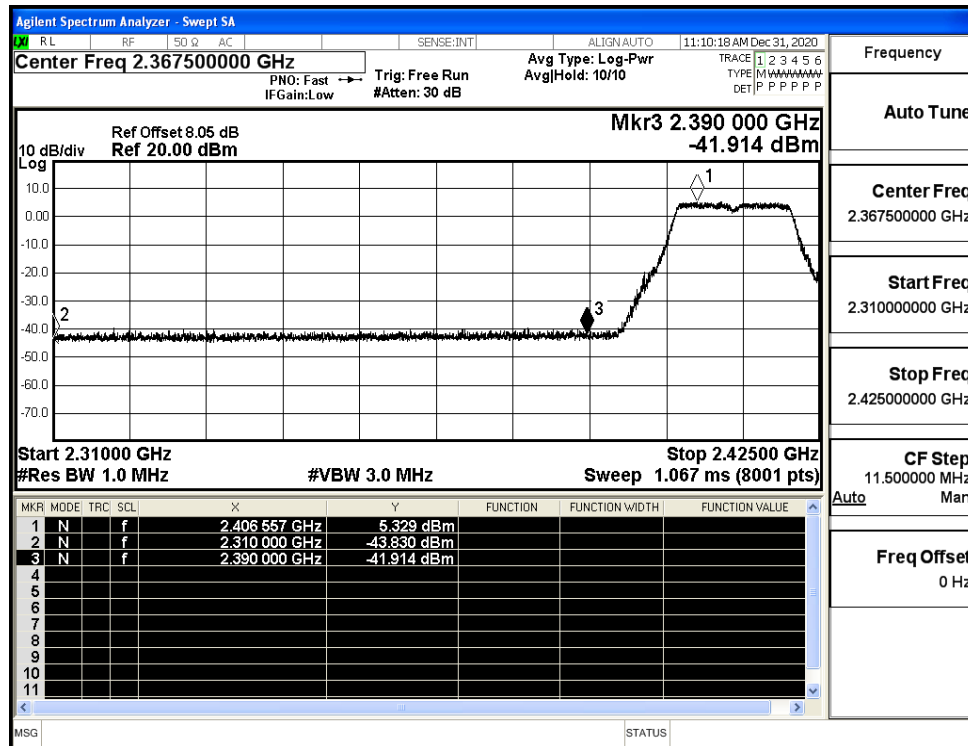
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



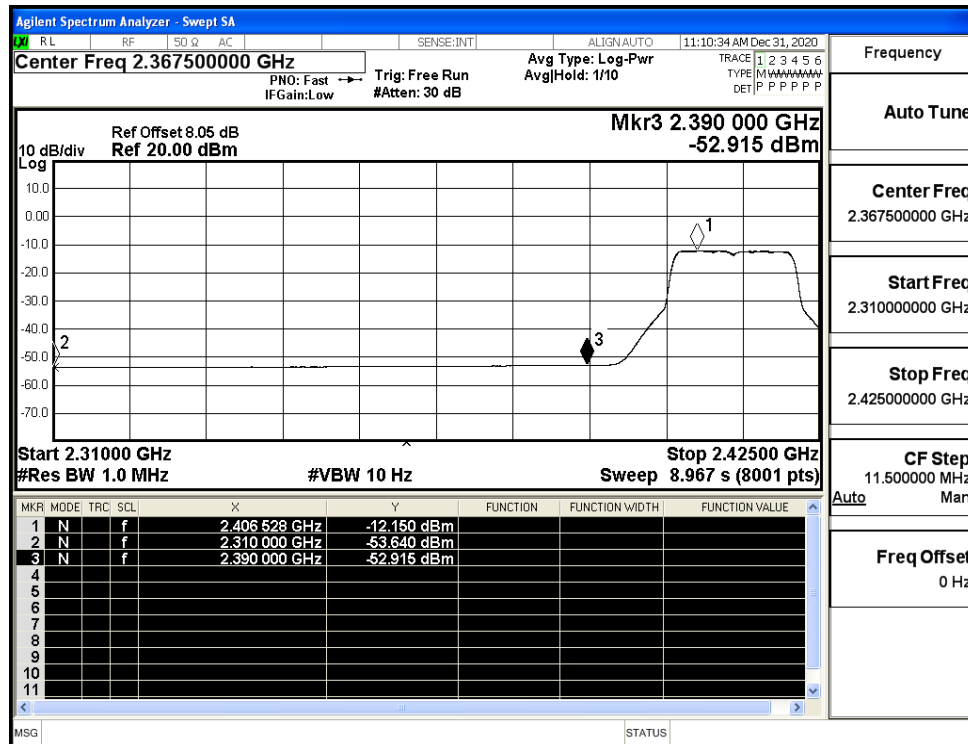
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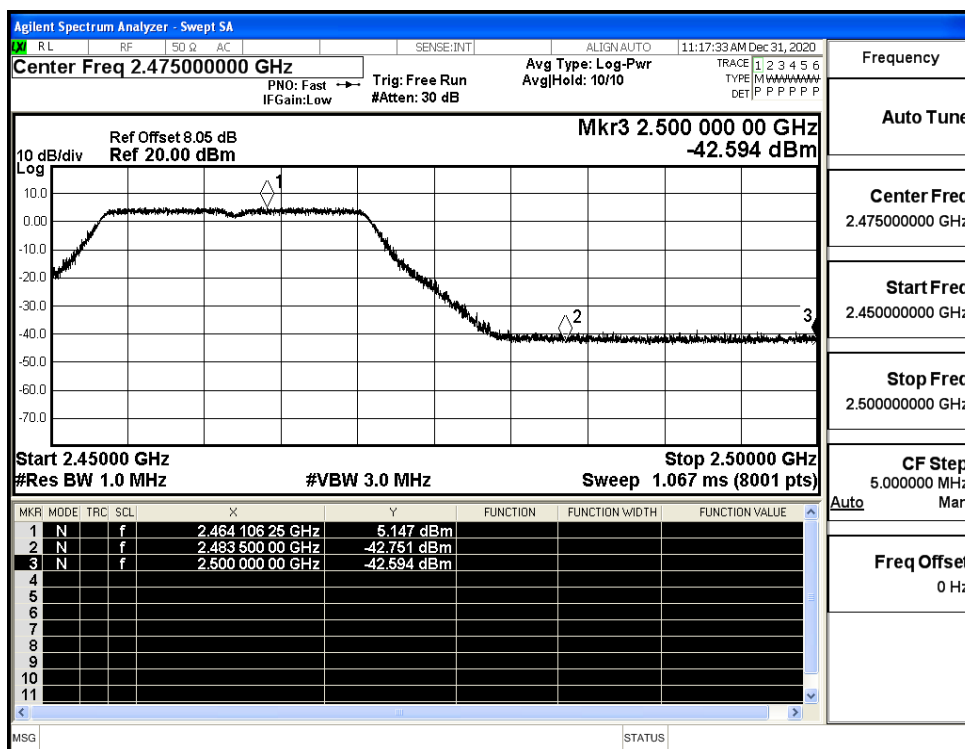
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



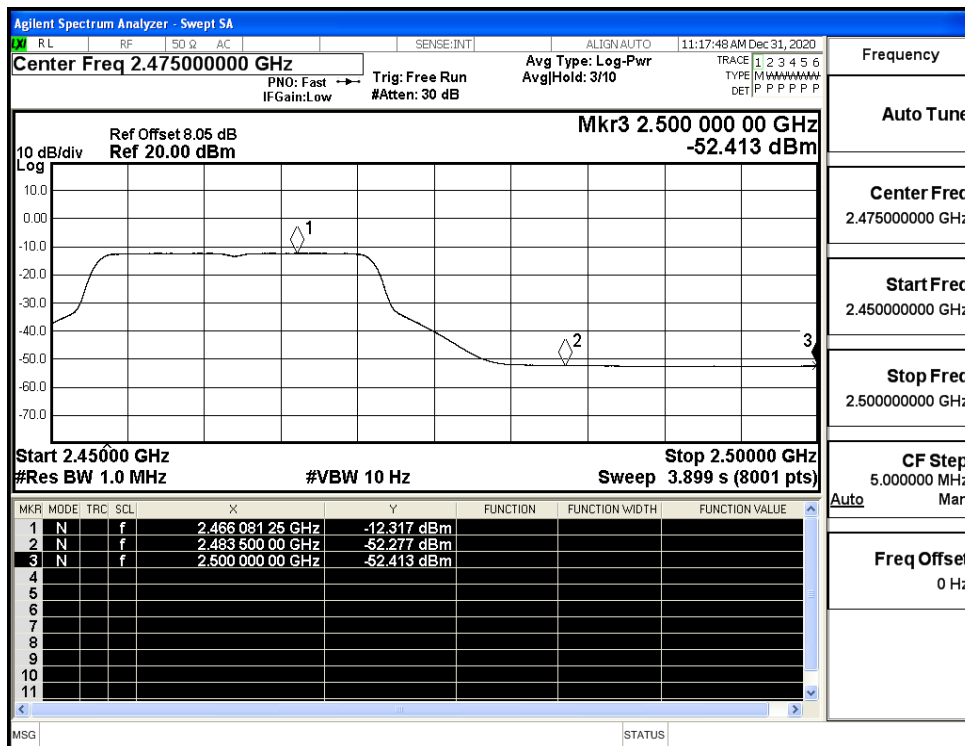
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



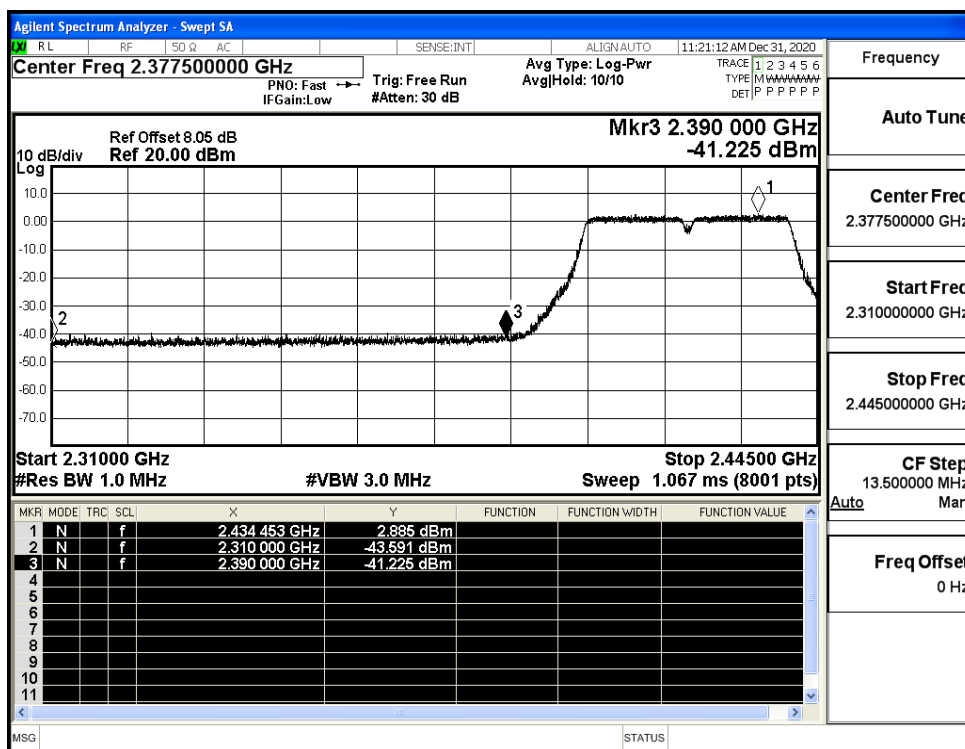
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



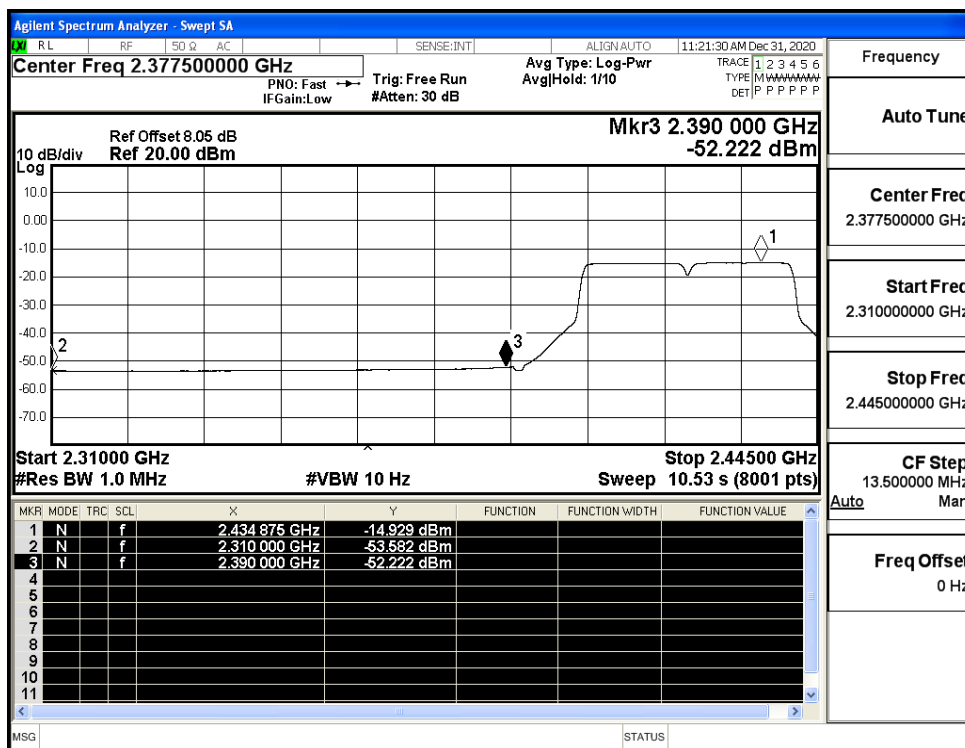
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



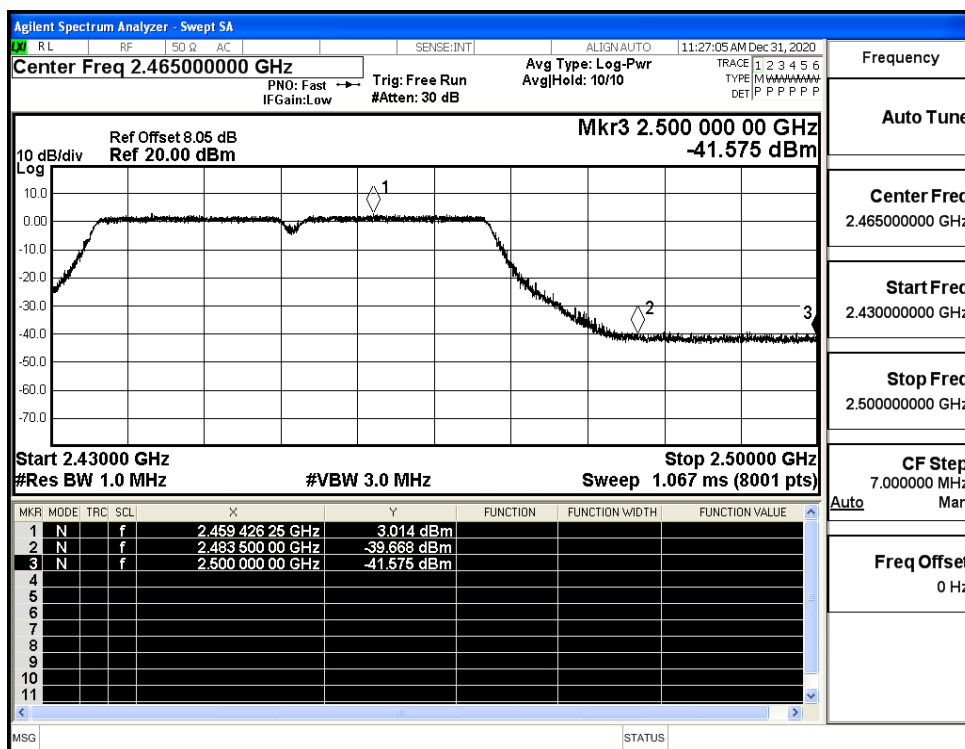
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

