

Appendix D

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: HYUNDAI Mini PC

Trade Mark: HYUNDAI

Test Model: HTN4020MPC

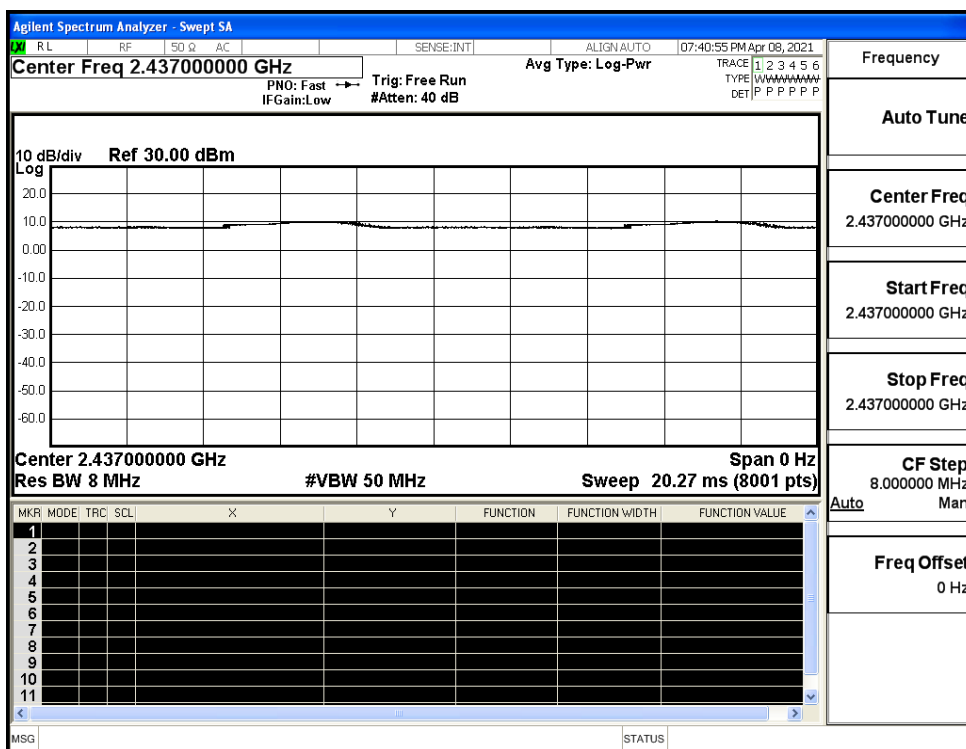
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

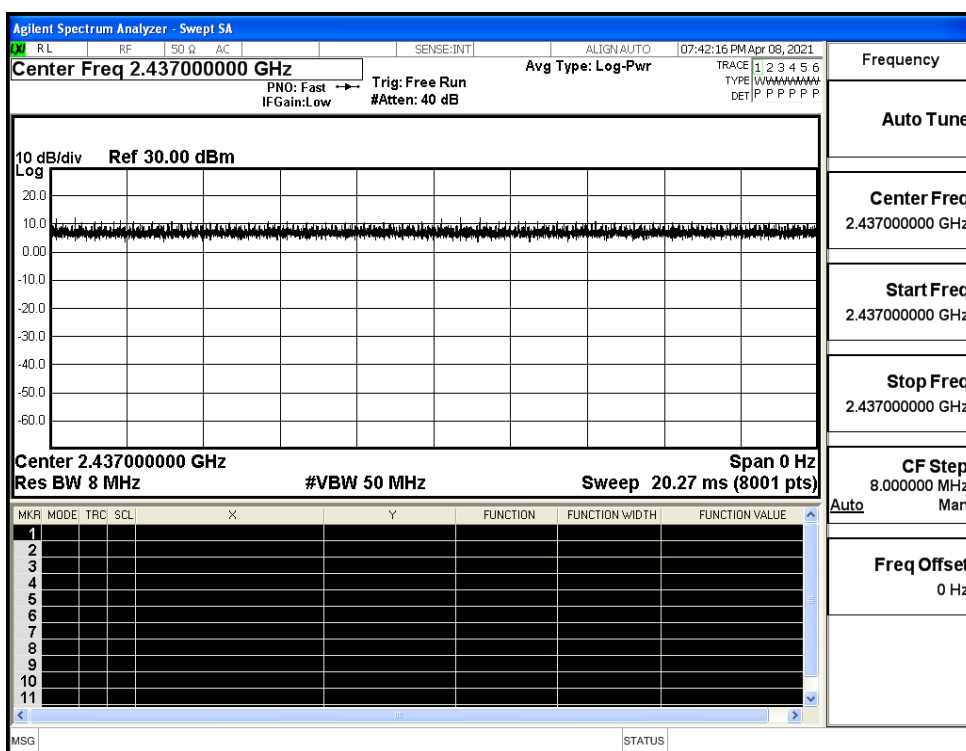
D.1 Duty Cycle

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

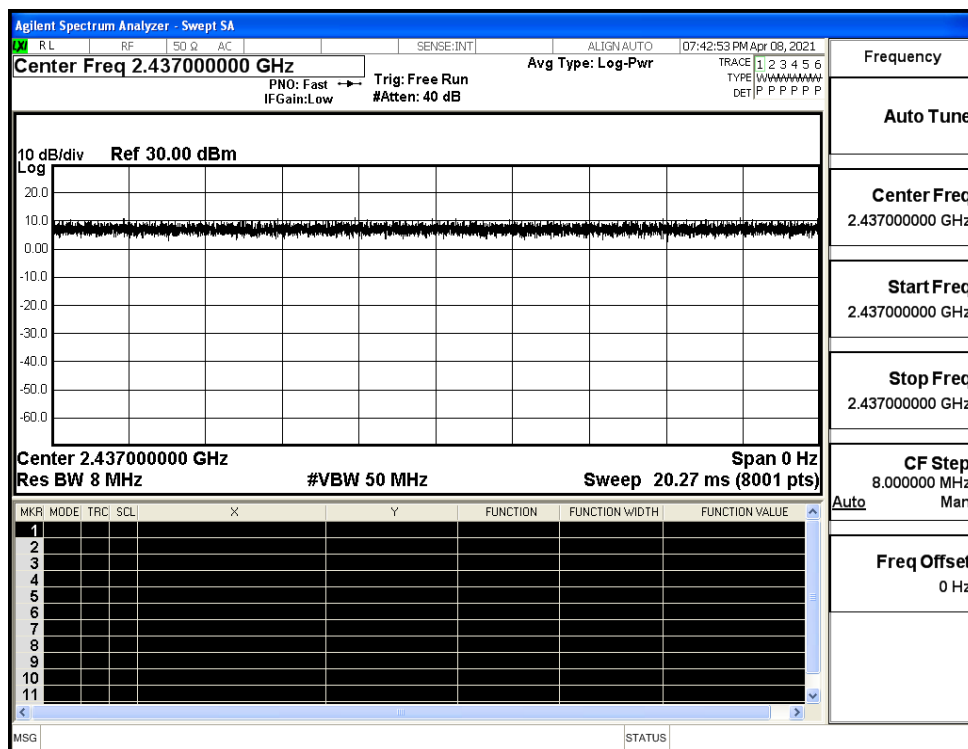
Duty Cycle_11B_2437_Ant1



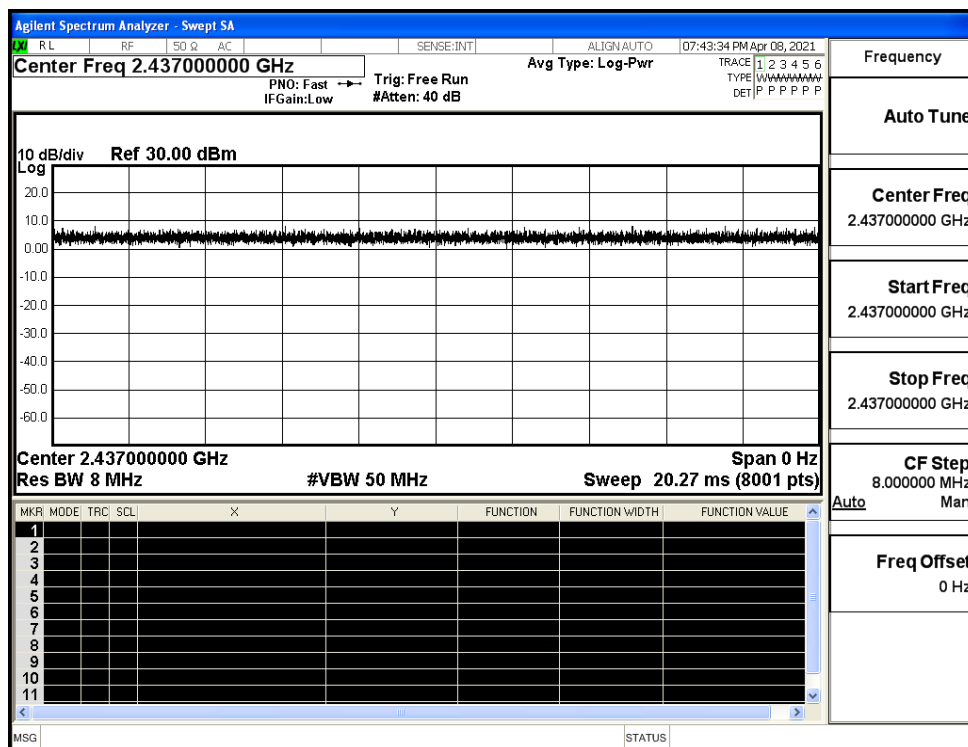
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

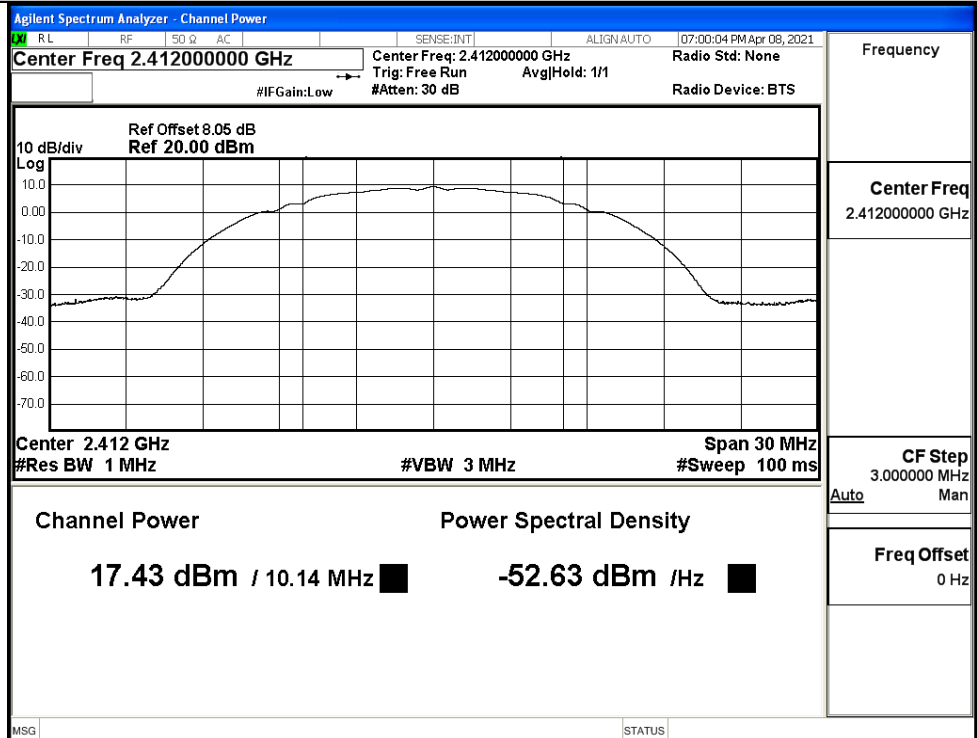


D.2 Maximum Conducted Output Power

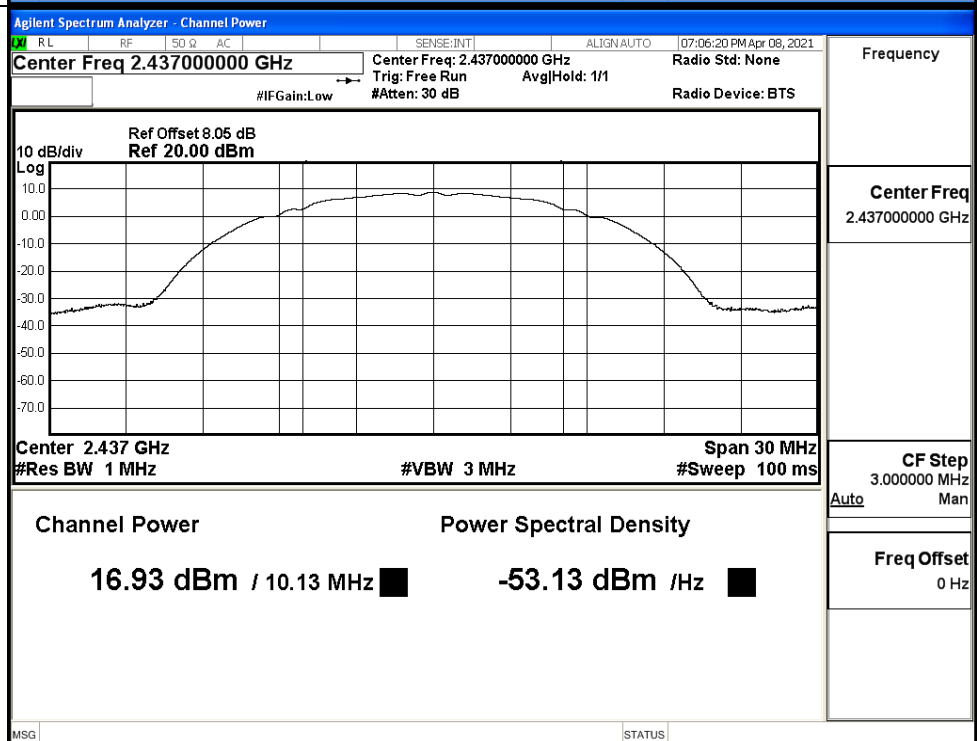
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	17.43	30	PASS
	MCH	16.93	30	PASS
	HCH	16.6	30	PASS
11G	LCH	16.4	30	PASS
	MCH	17.42	30	PASS
	HCH	17.1	30	PASS
11N20SISO	LCH	17.11	30	PASS
	MCH	16.57	30	PASS
	HCH	16.25	30	PASS
11N40SISO	LCH	16.75	30	PASS
	MCH	16.68	30	PASS
	HCH	16.68	30	PASS

Test Graphs

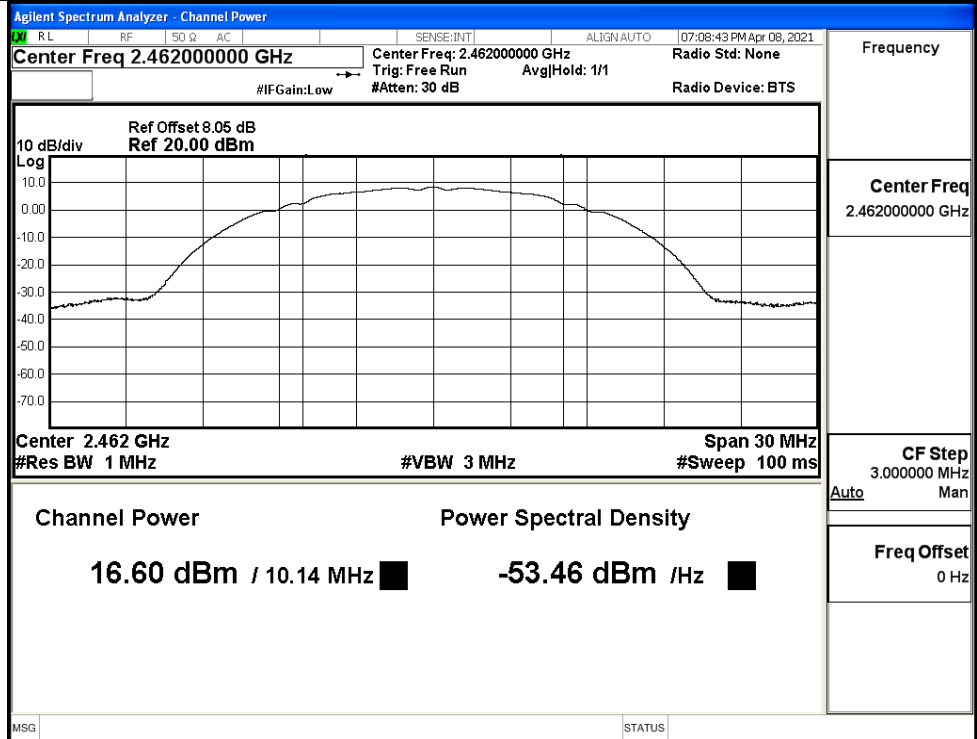
11B/LCH



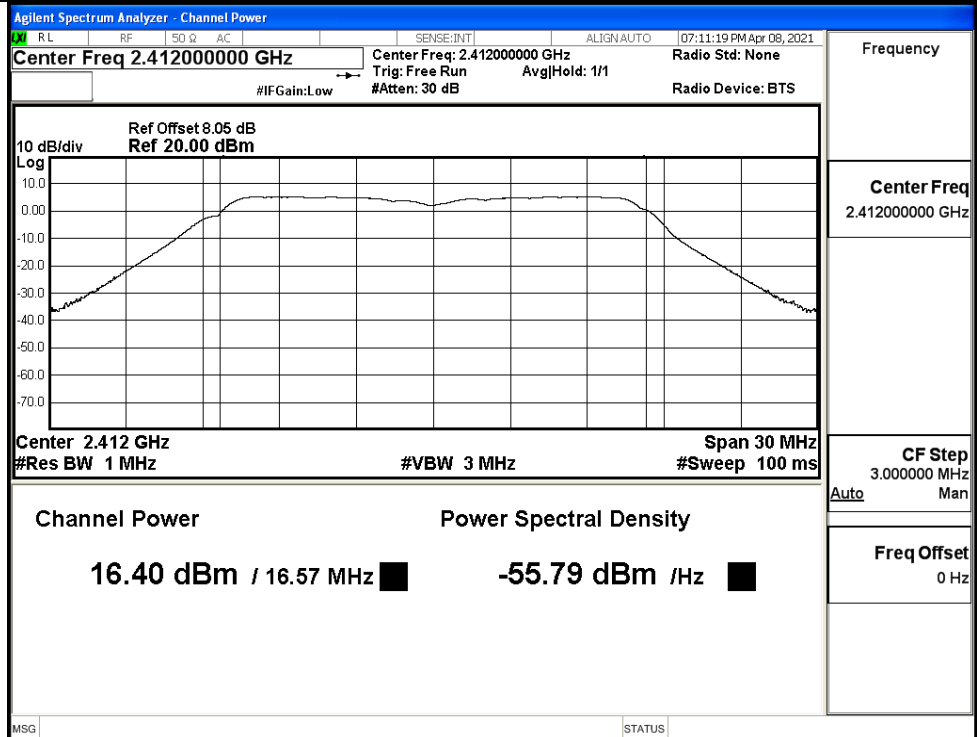
11B/MCH



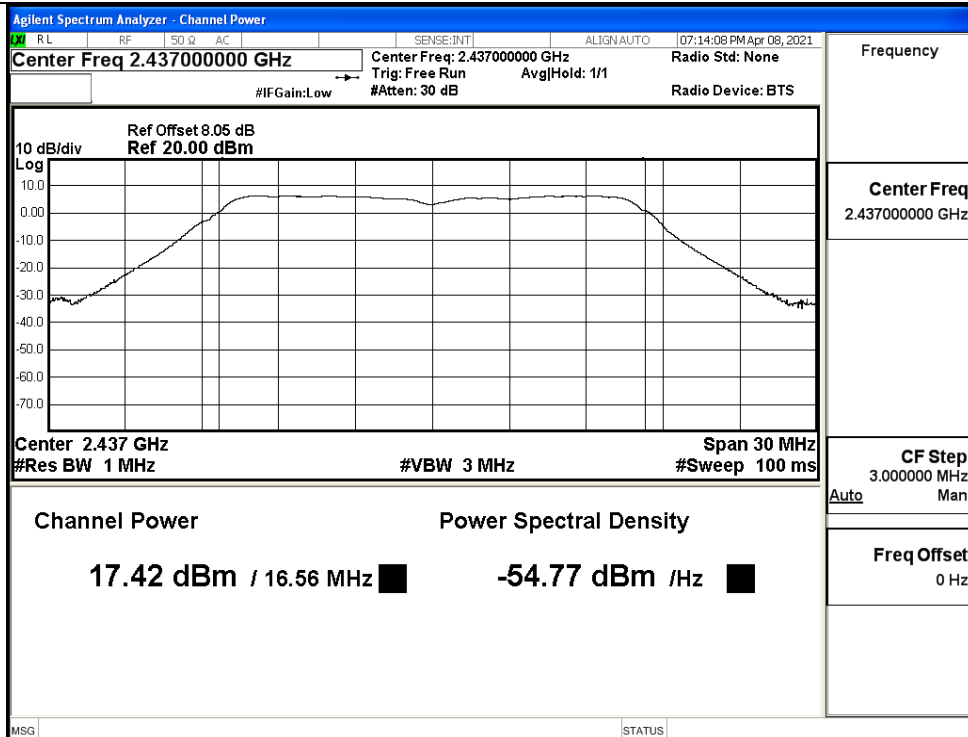
11B/HCH



11G/LCH



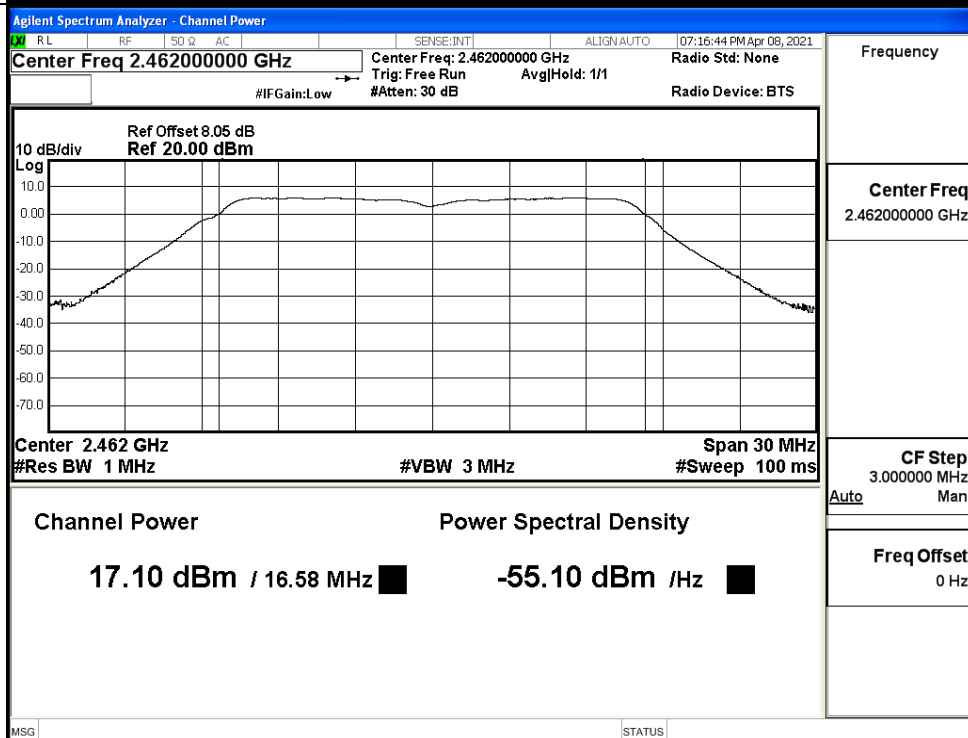
11G/MCH



Frequency

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

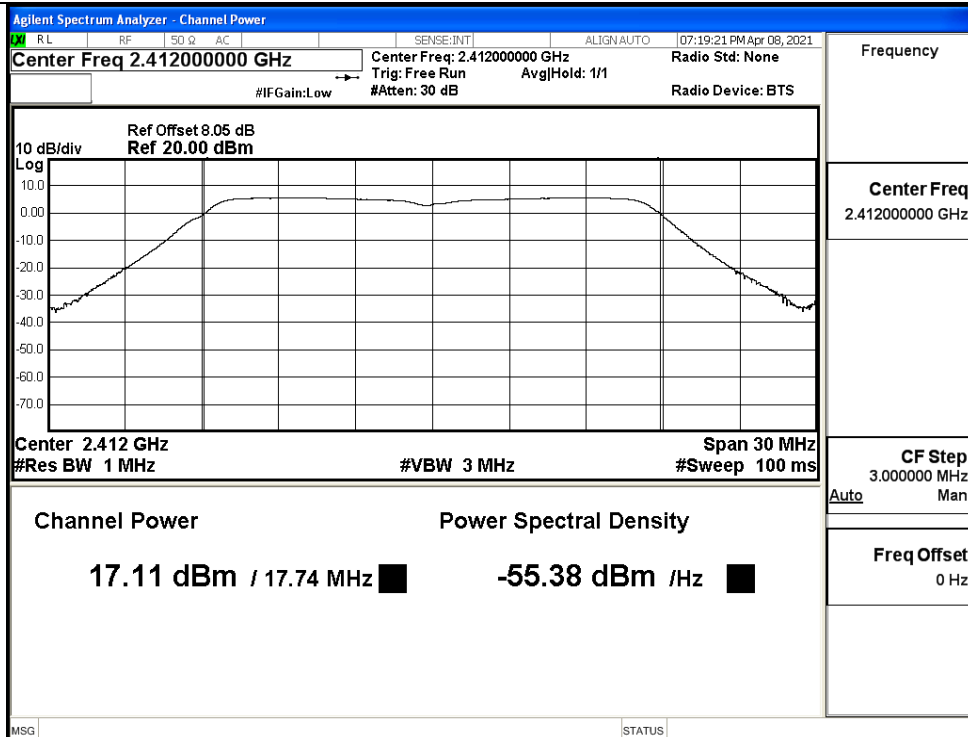
11G/HCH



Frequency

Center Freq
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3.000000 MHz
Auto ManFreq Offset
0 Hz

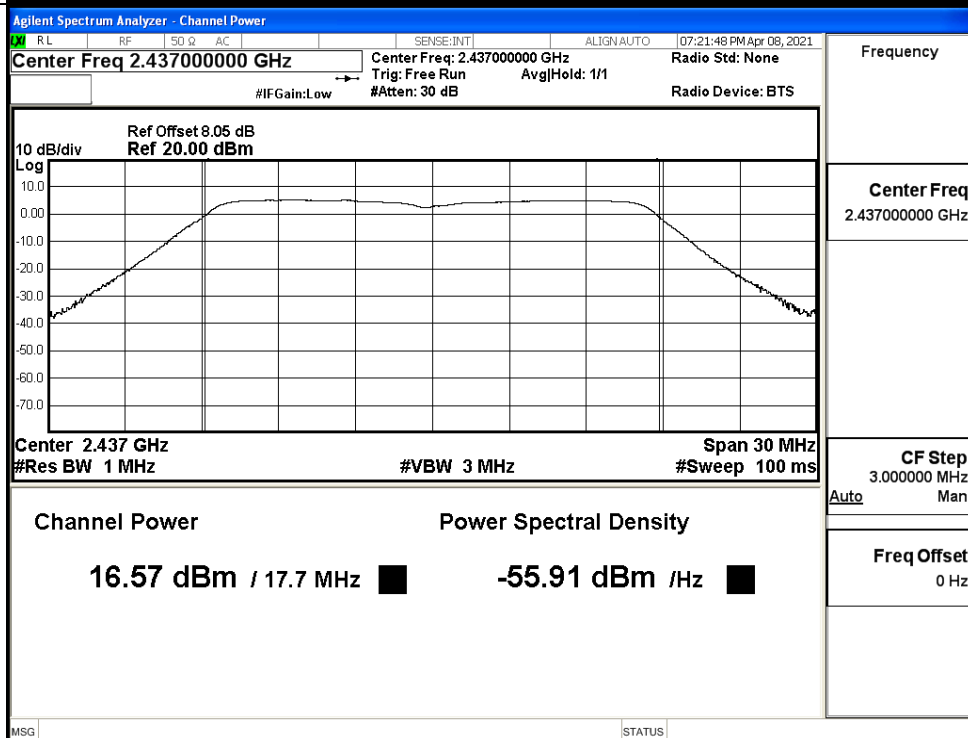
11N20SISO/LCH



Frequency

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

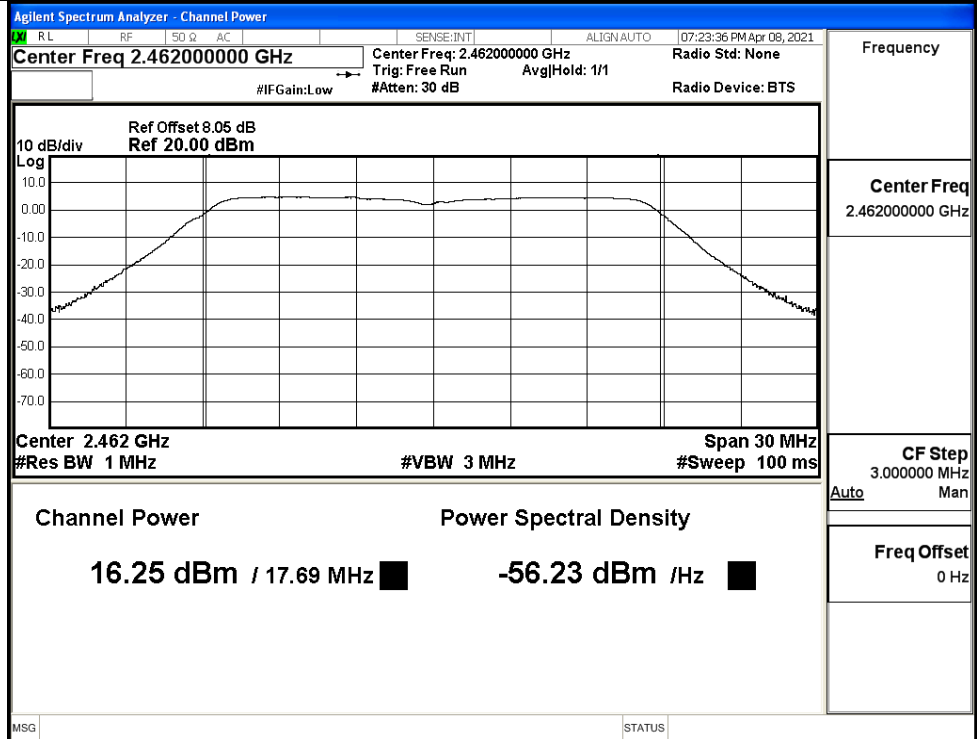
11N20SISO/MCH



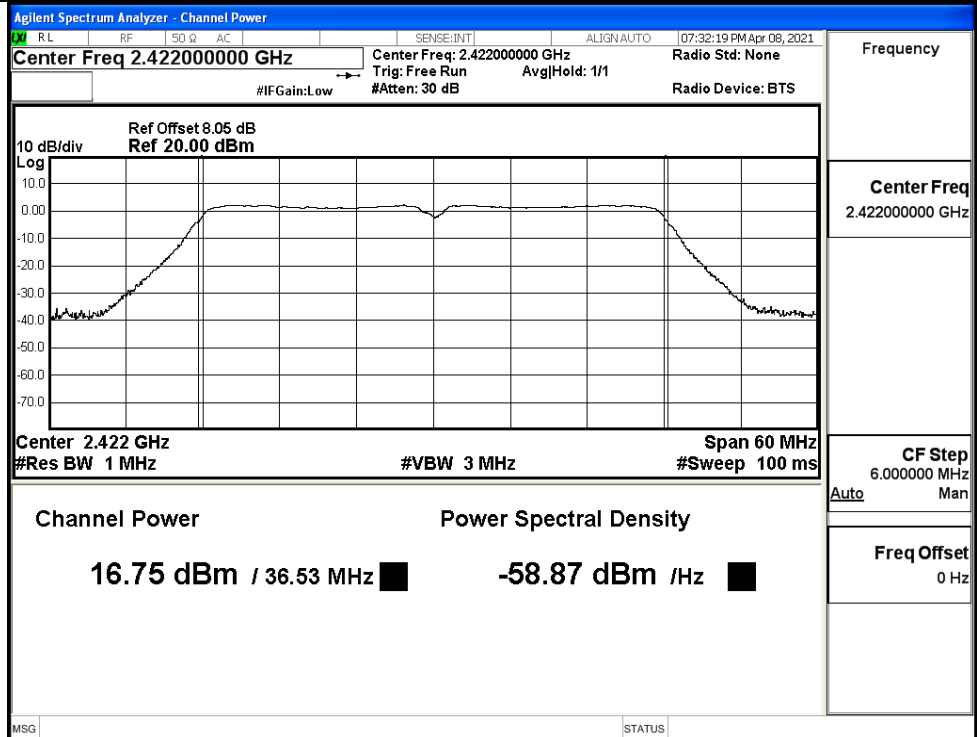
Frequency

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

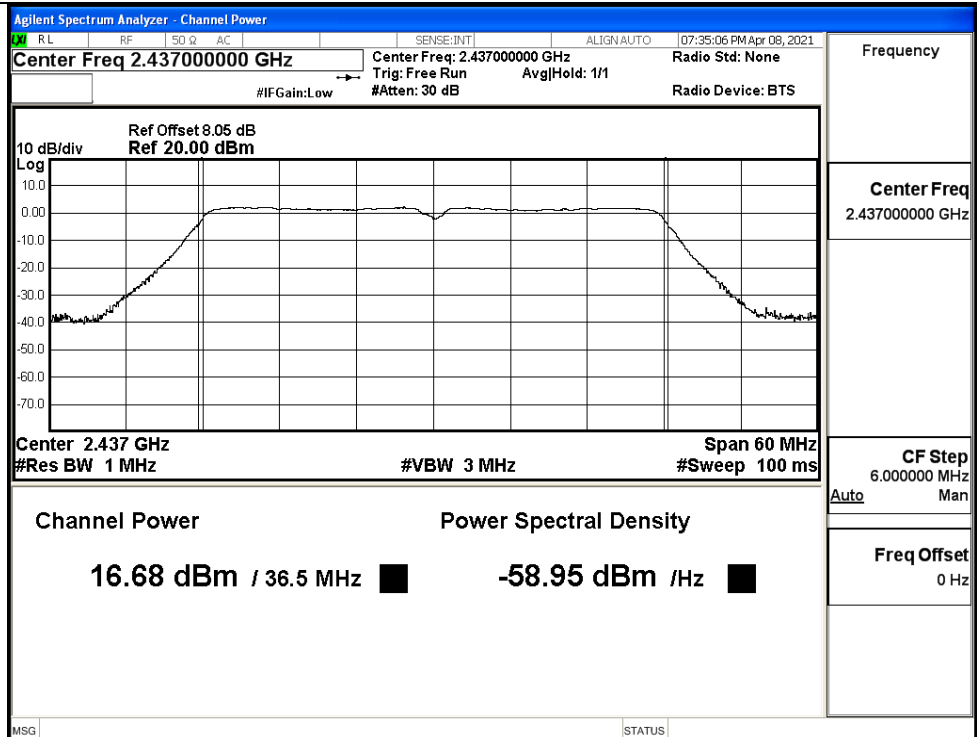
11N20SISO/HCH



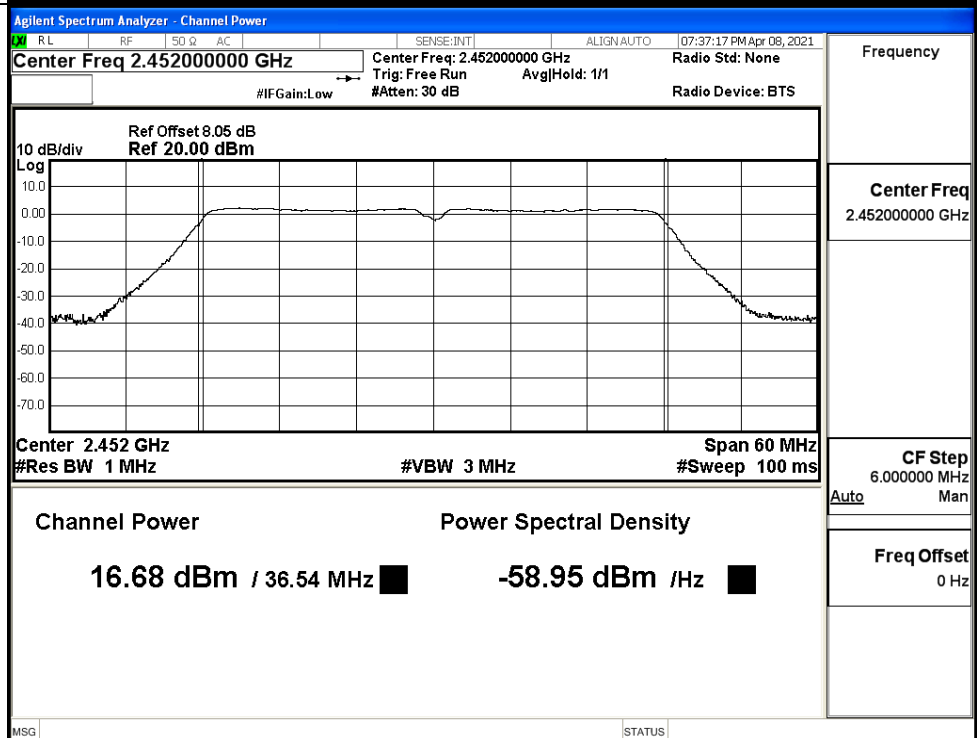
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

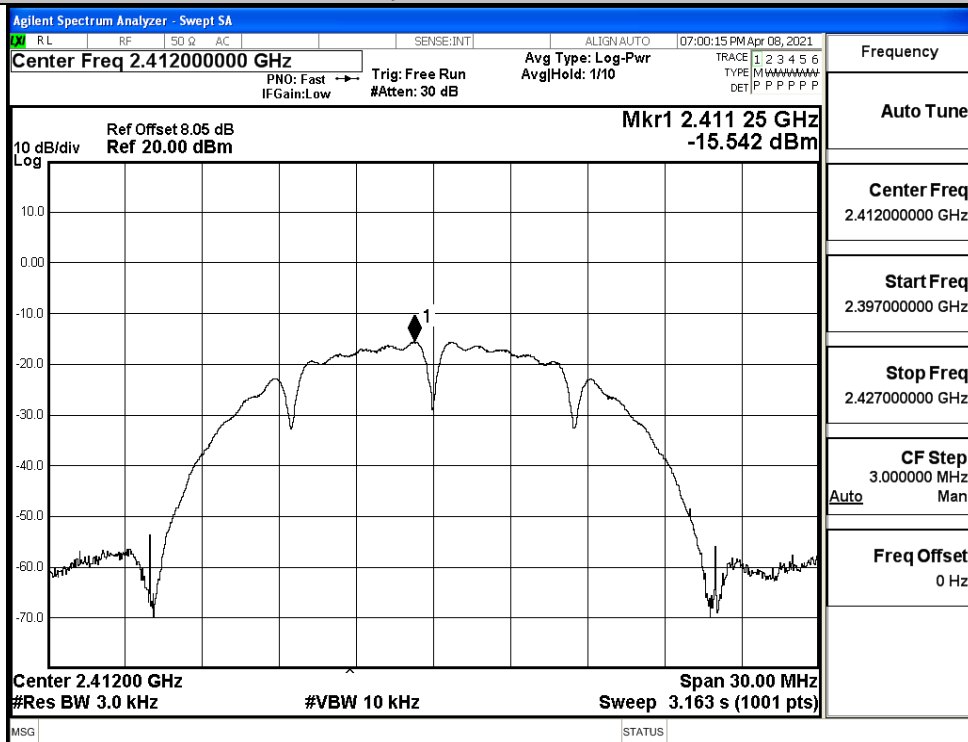


D.3 Maximum Power Spectral Density

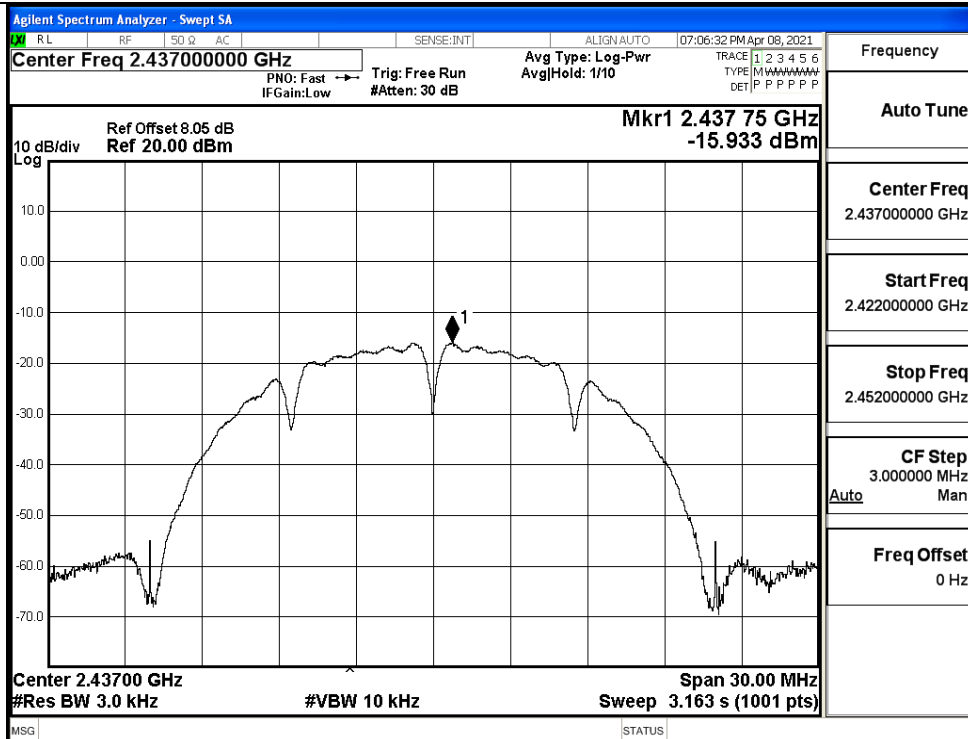
Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-15.542	8	PASS
	MCH	-15.933	8	PASS
	HCH	-16.390	8	PASS
11G	LCH	-19.838	8	PASS
	MCH	-19.105	8	PASS
	HCH	-19.635	8	PASS
11N20SISO	LCH	-19.386	8	PASS
	MCH	-18.801	8	PASS
	HCH	-20.251	8	PASS
11N40SISO	LCH	-20.396	8	PASS
	MCH	-21.472	8	PASS
	HCH	-21.234	8	PASS

Test Graphs

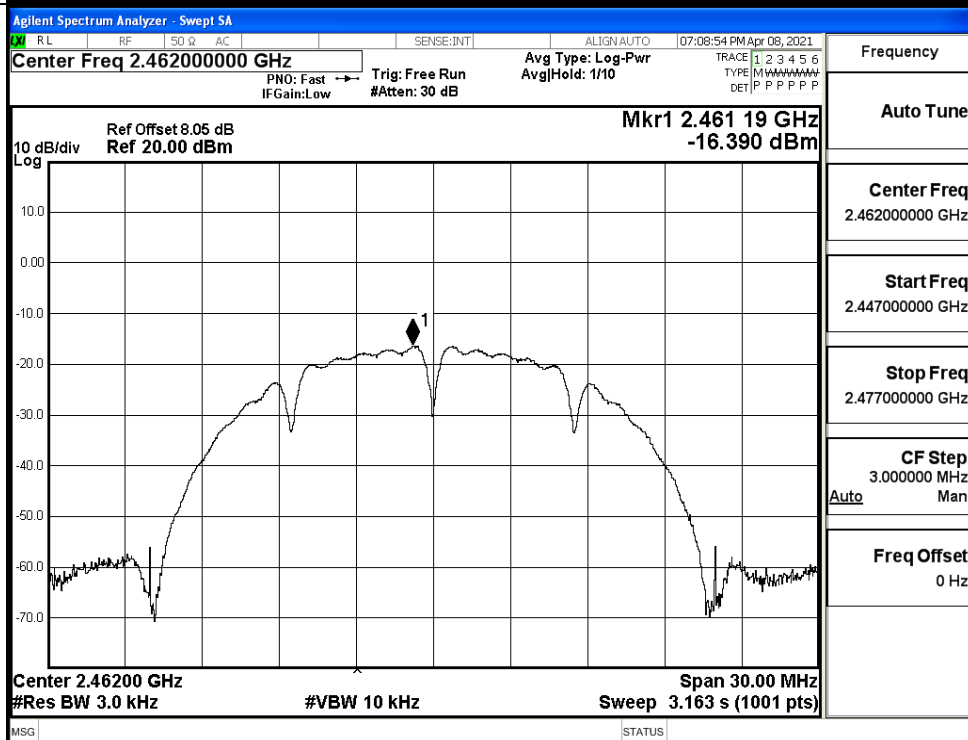
11B/LCH



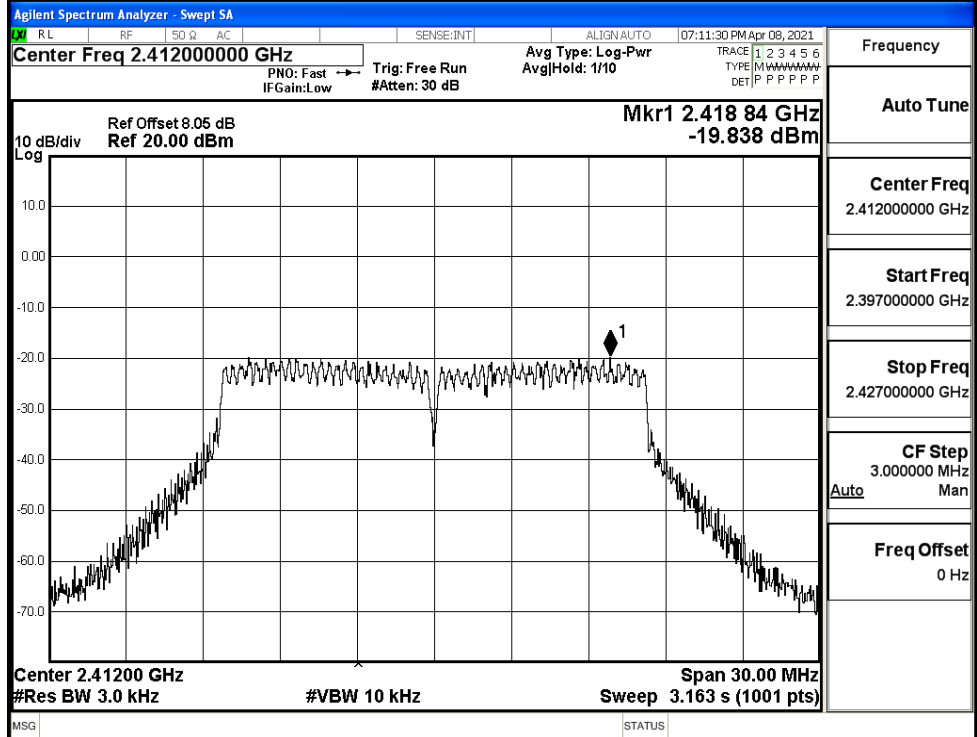
11B/MCH



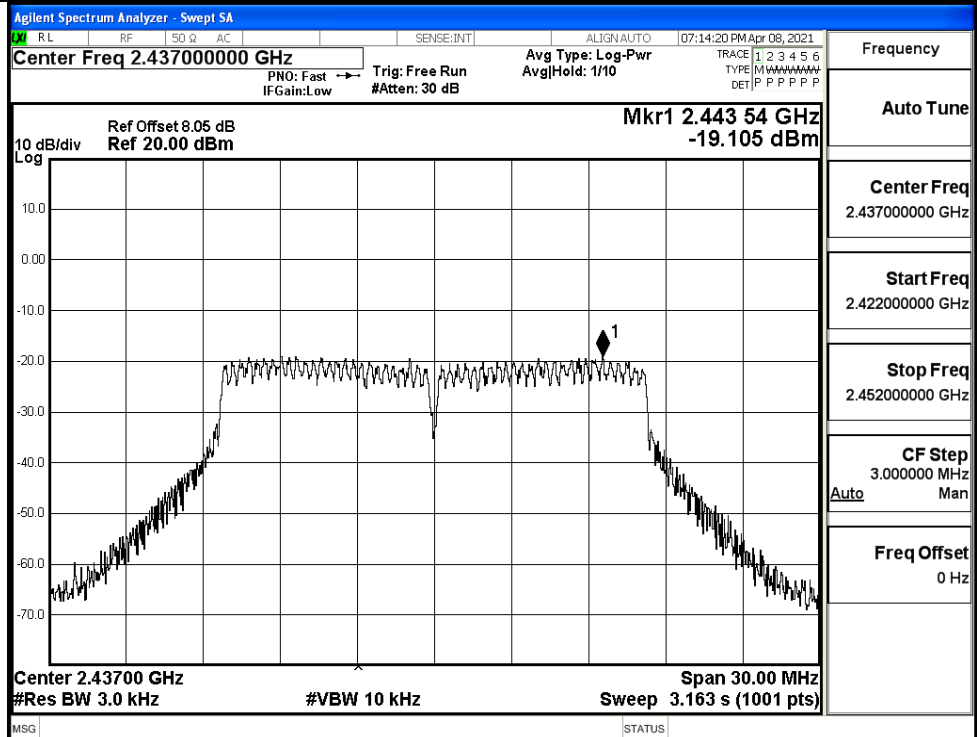
11B/HCH



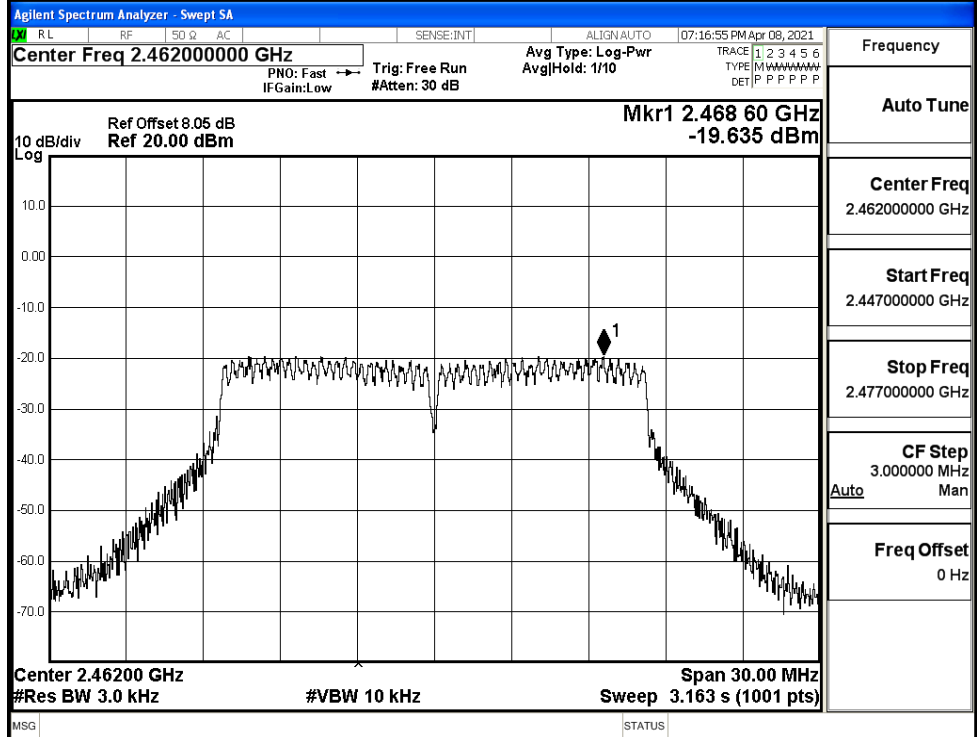
11G/LCH



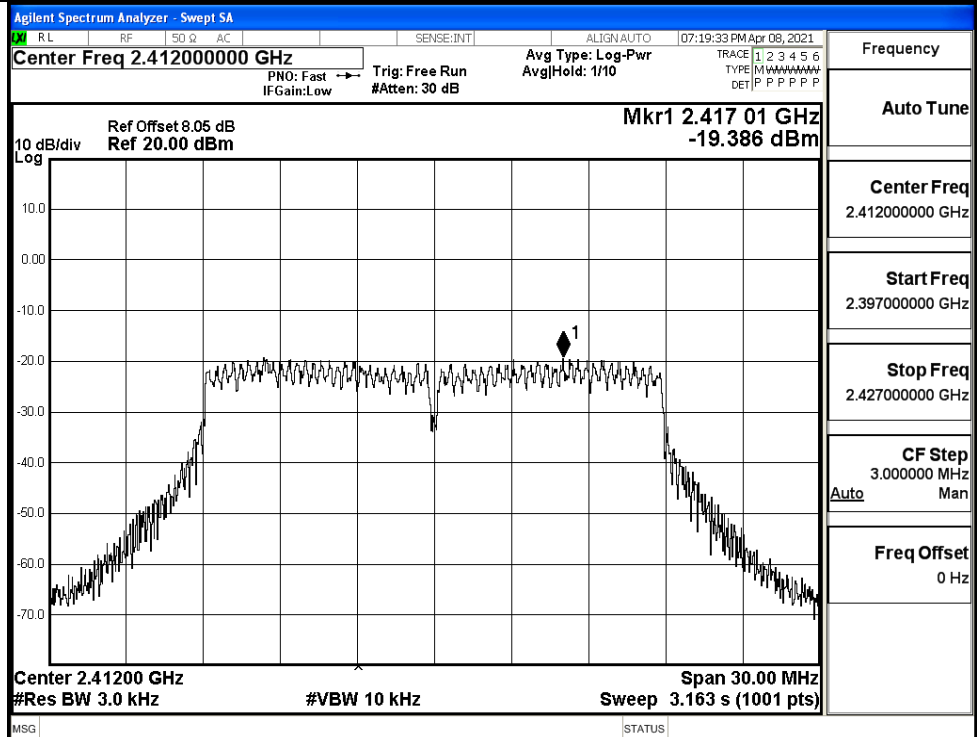
11G/MCH



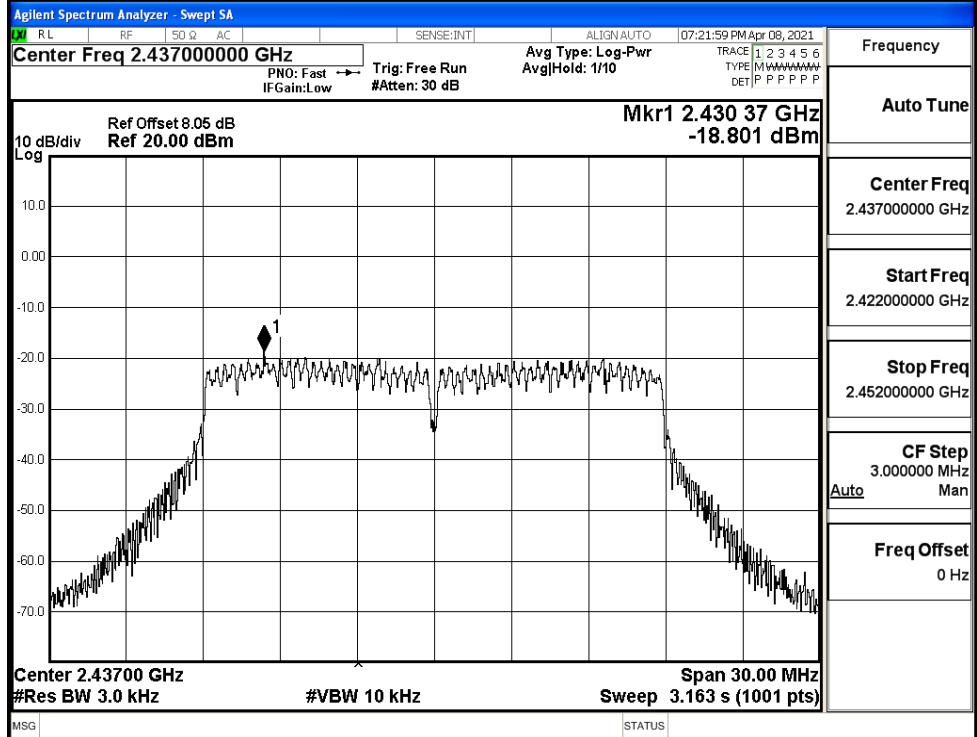
11G/HCH



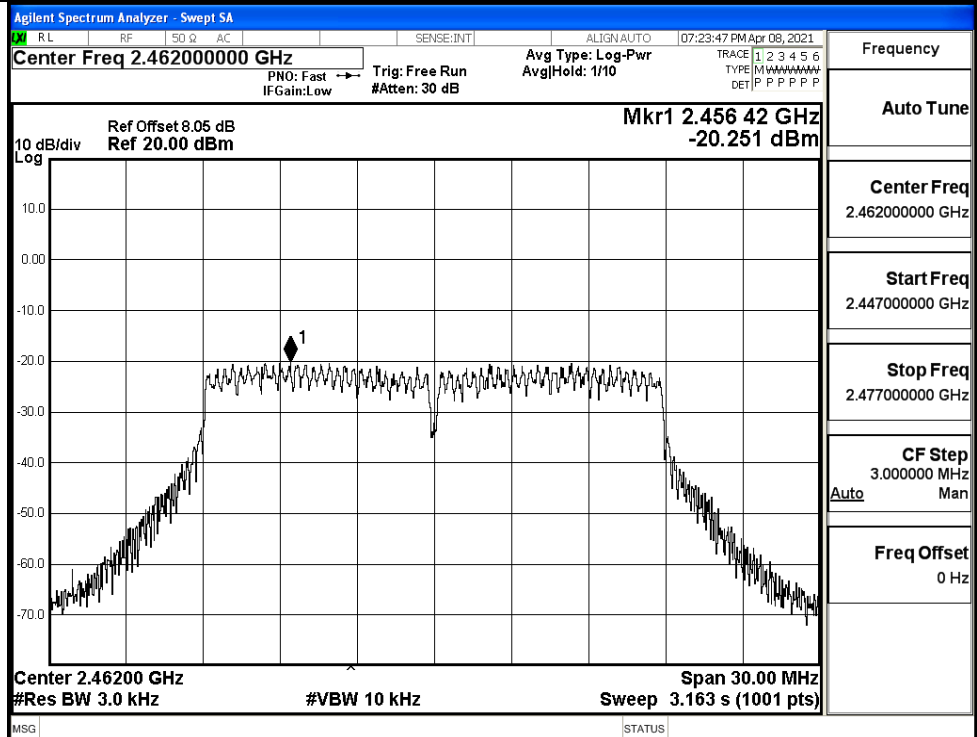
11N20SISO/LCH



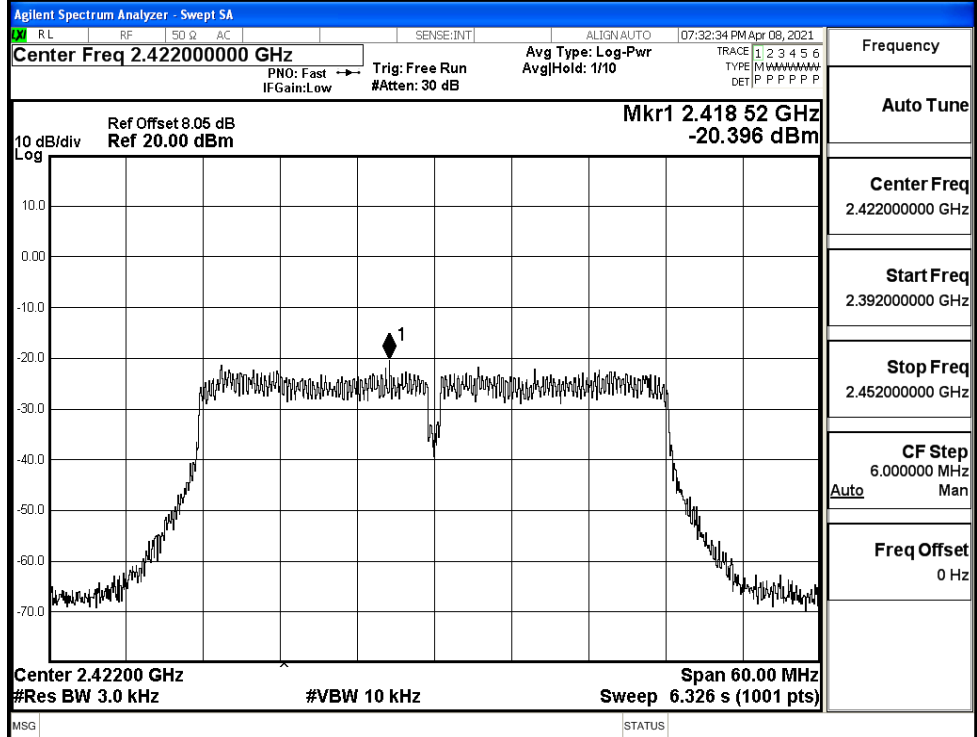
11N20SISO/MCH



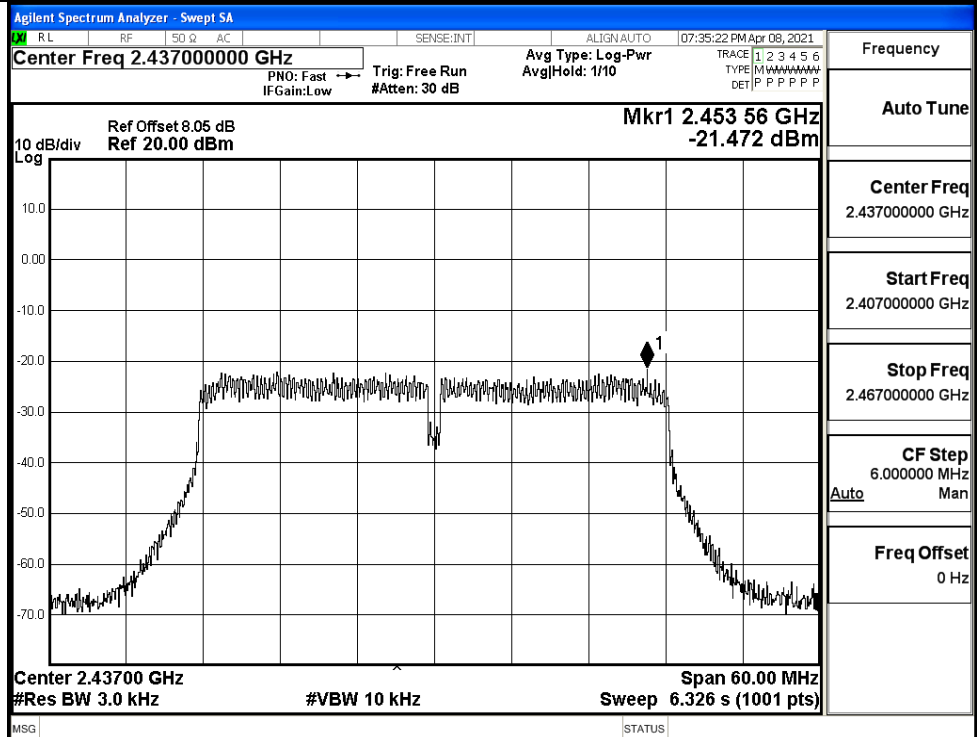
11N20SISO/HCH



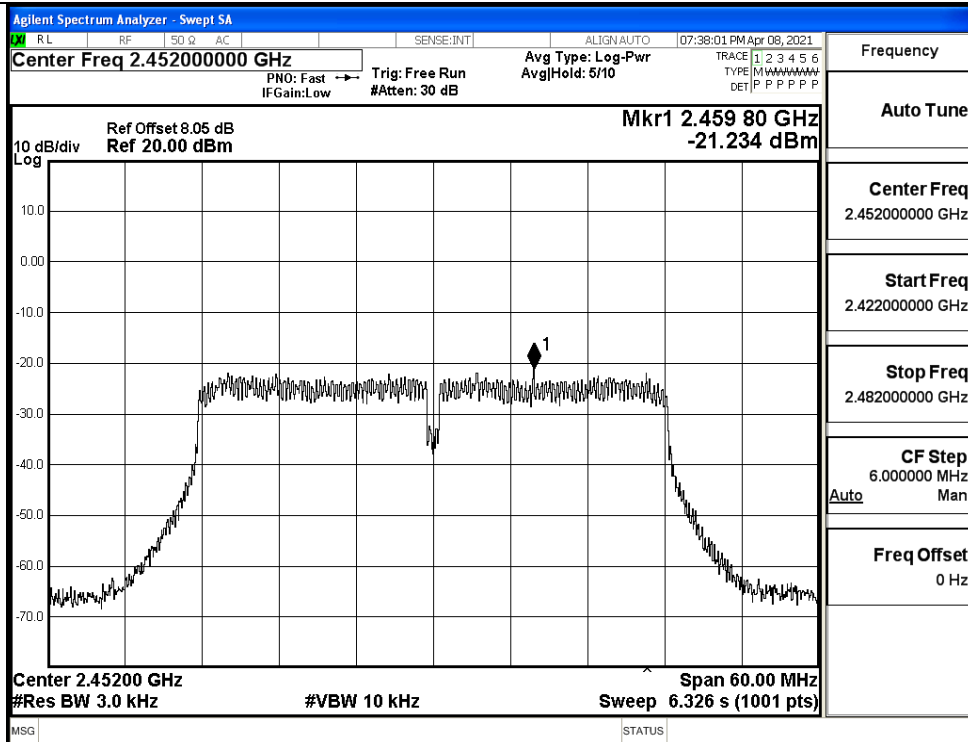
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

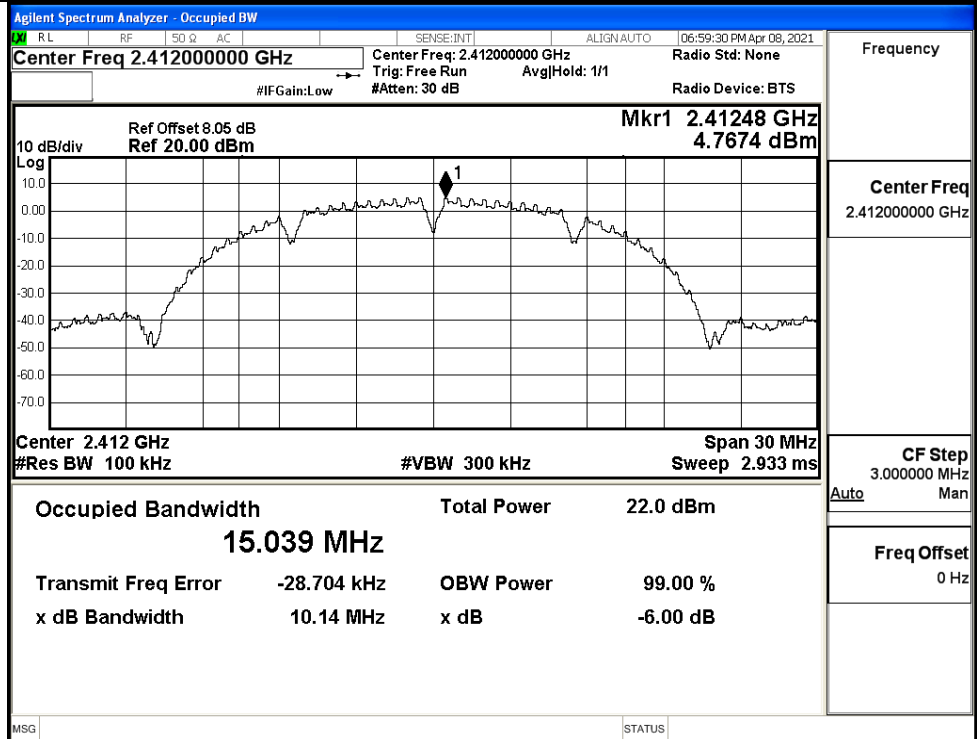


D.4 6dB Bandwidth

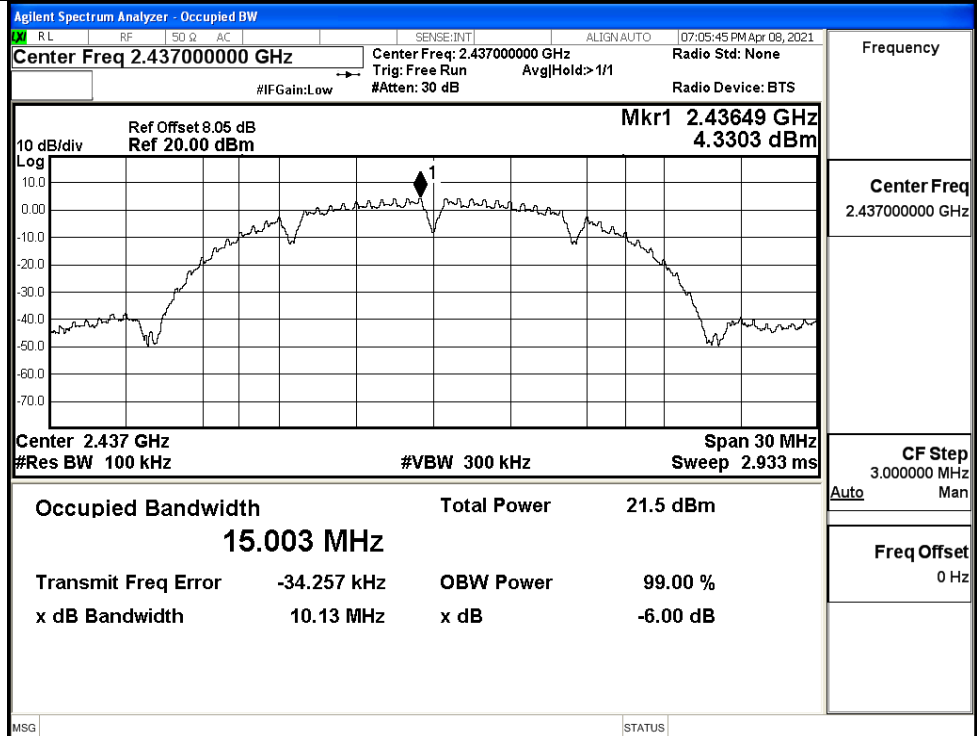
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.14	≥ 0.5	PASS
	MCH	10.13	≥ 0.5	PASS
	HCH	10.14	≥ 0.5	PASS
11G	LCH	16.57	≥ 0.5	PASS
	MCH	16.56	≥ 0.5	PASS
	HCH	16.58	≥ 0.5	PASS
11N20SISO	LCH	17.74	≥ 0.5	PASS
	MCH	17.70	≥ 0.5	PASS
	HCH	17.69	≥ 0.5	PASS
11N40SISO	LCH	36.53	≥ 0.5	PASS
	MCH	36.50	≥ 0.5	PASS
	HCH	36.54	≥ 0.5	PASS

Test Graphs

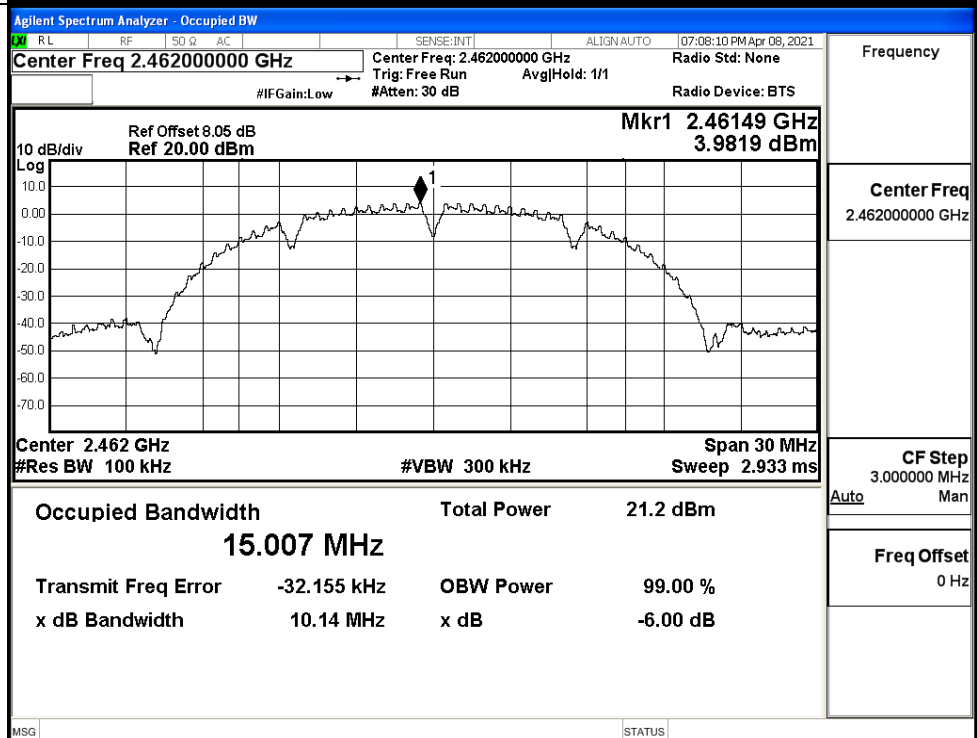
11B/LCH



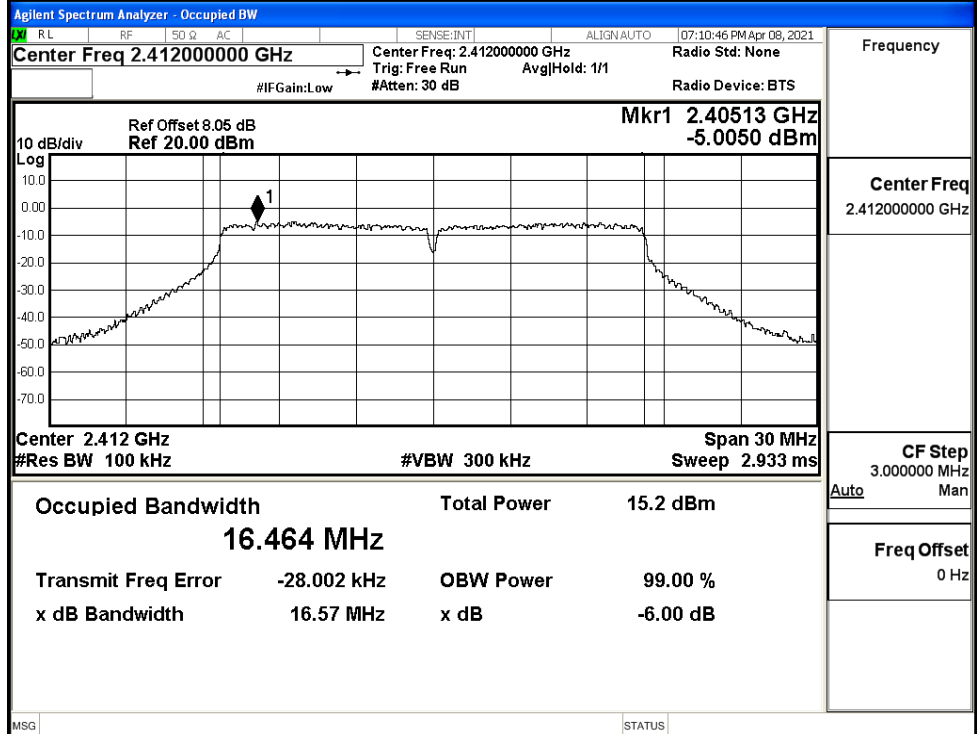
11B/MCH



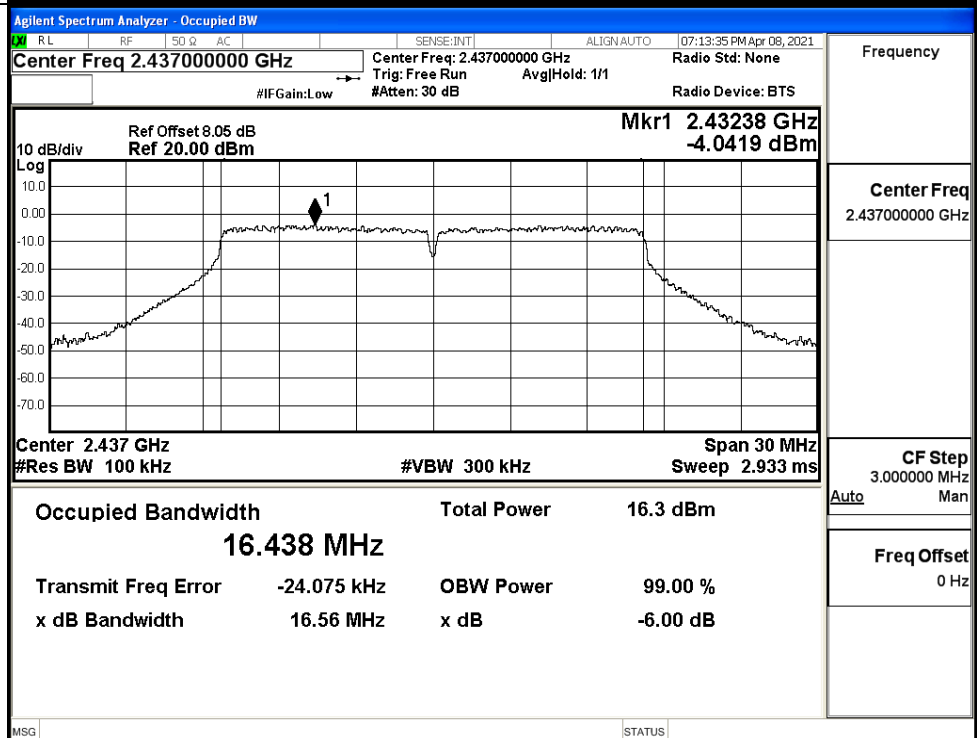
11B/HCH



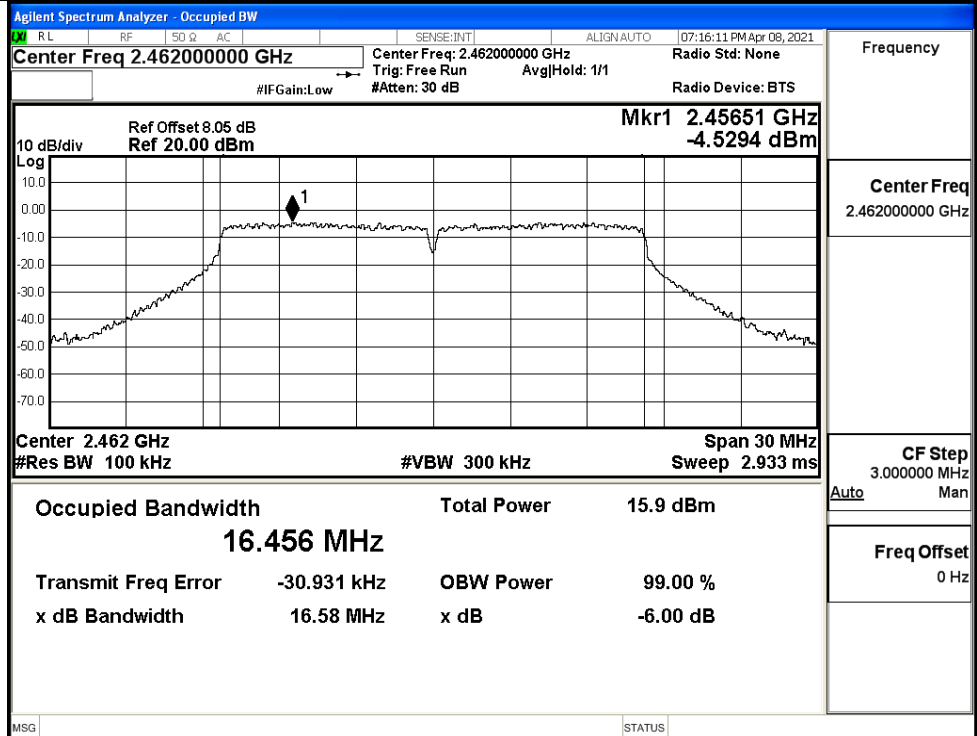
11G/LCH



11G/MCH



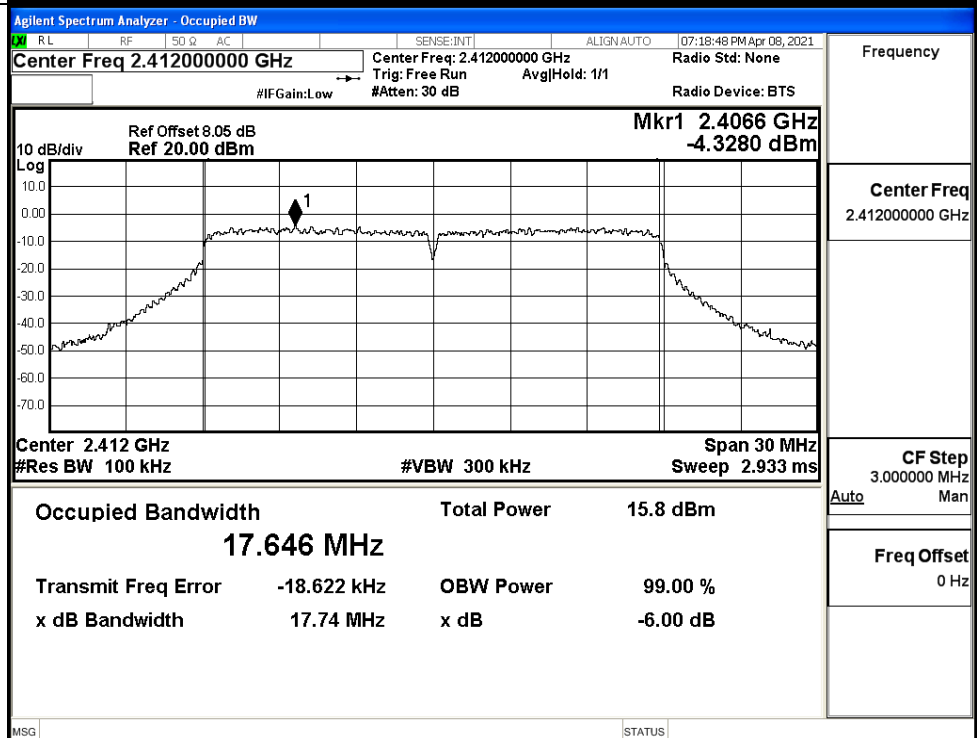
11G/HCH



Frequency

Center Freq
2.46200000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

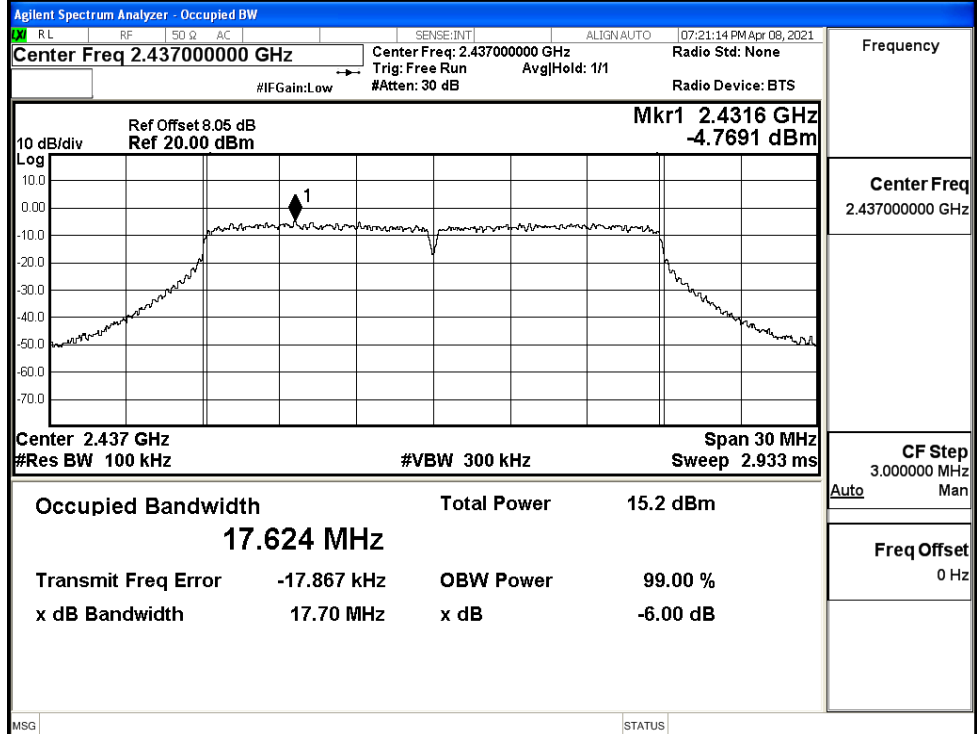
11N20SISO/LCH



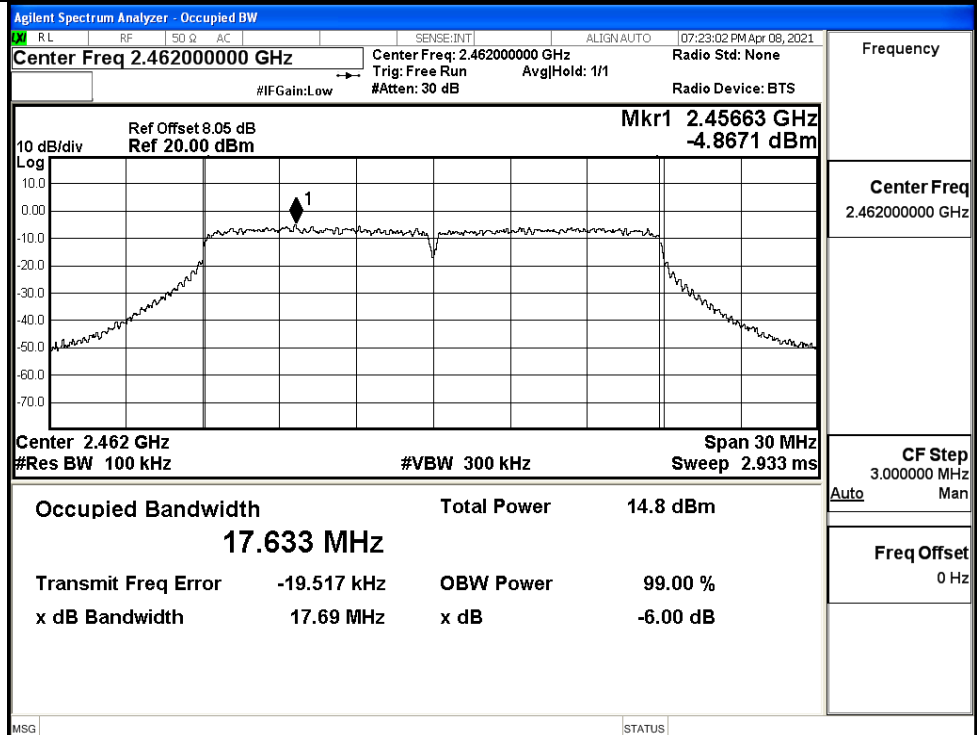
Frequency

Center Freq
2.41200000 GHzCF Step
3.000000 MHz
Auto ManFreq Offset
0 Hz

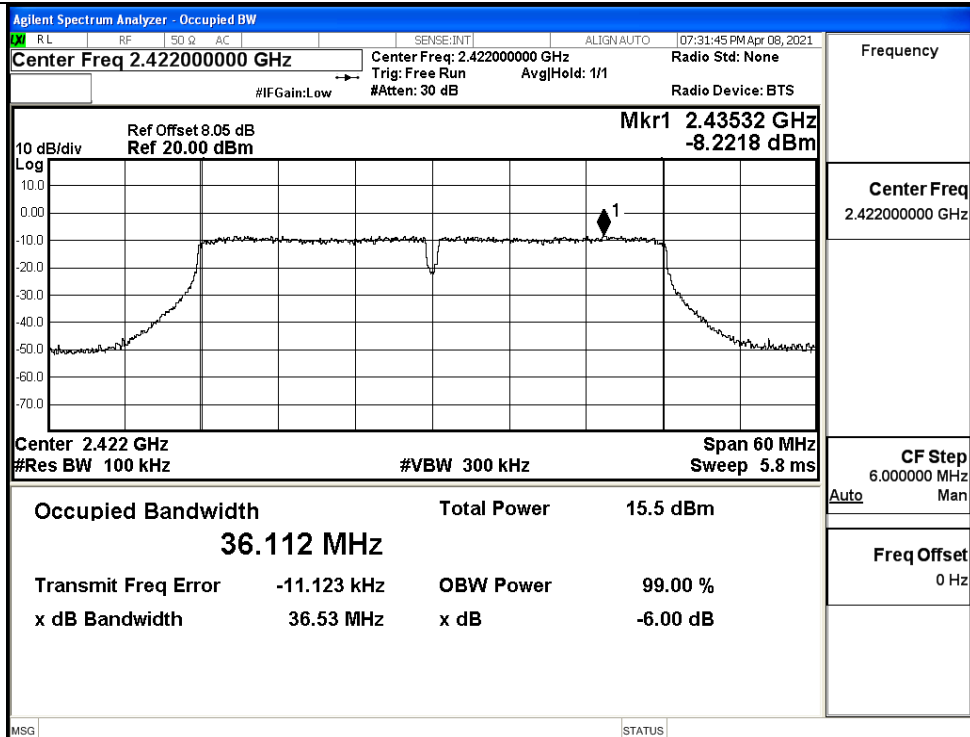
11N20SISO/MCH



11N20SISO/HCH



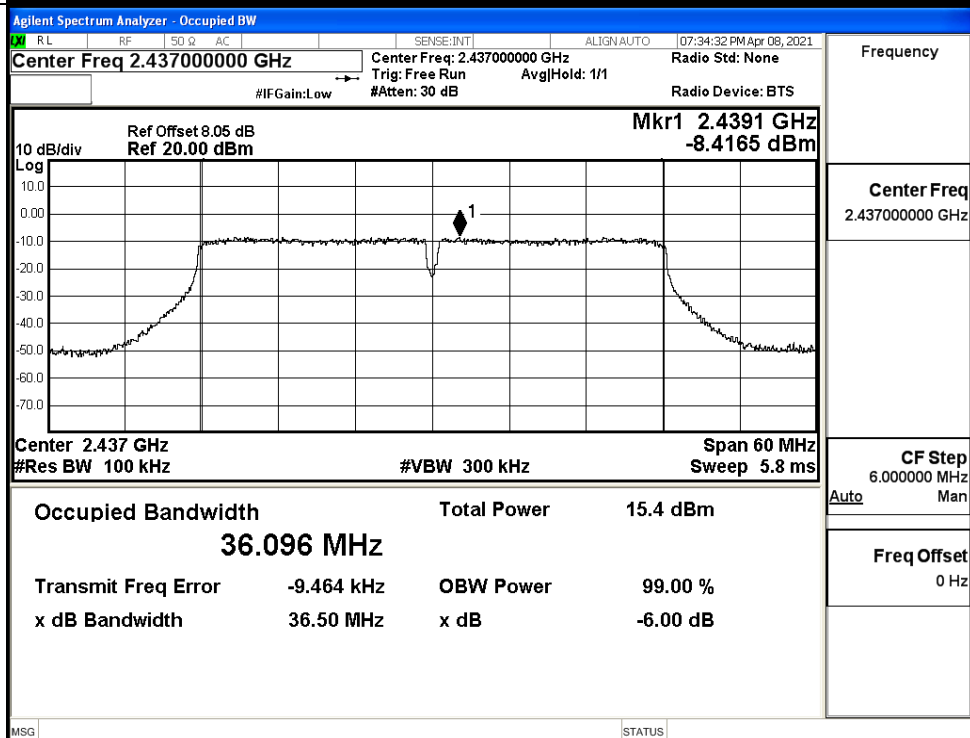
11N40SISO/LCH



Frequency

Center Freq
2.422000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

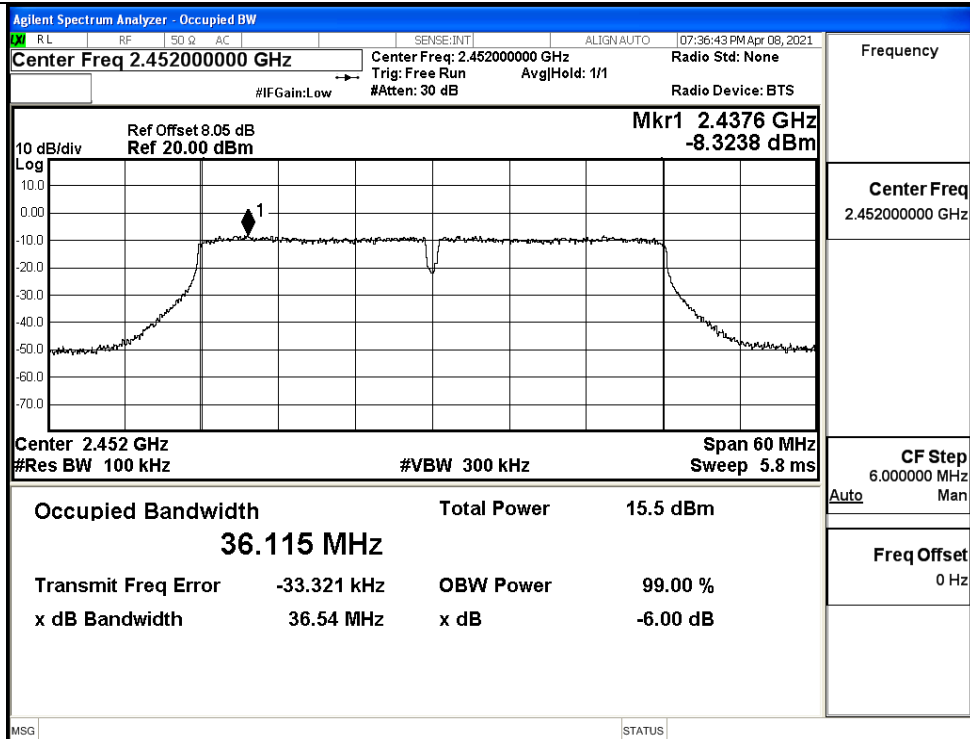
11N40SISO/MCH



Frequency

Center Freq
2.437000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

11N40SISO/HCH

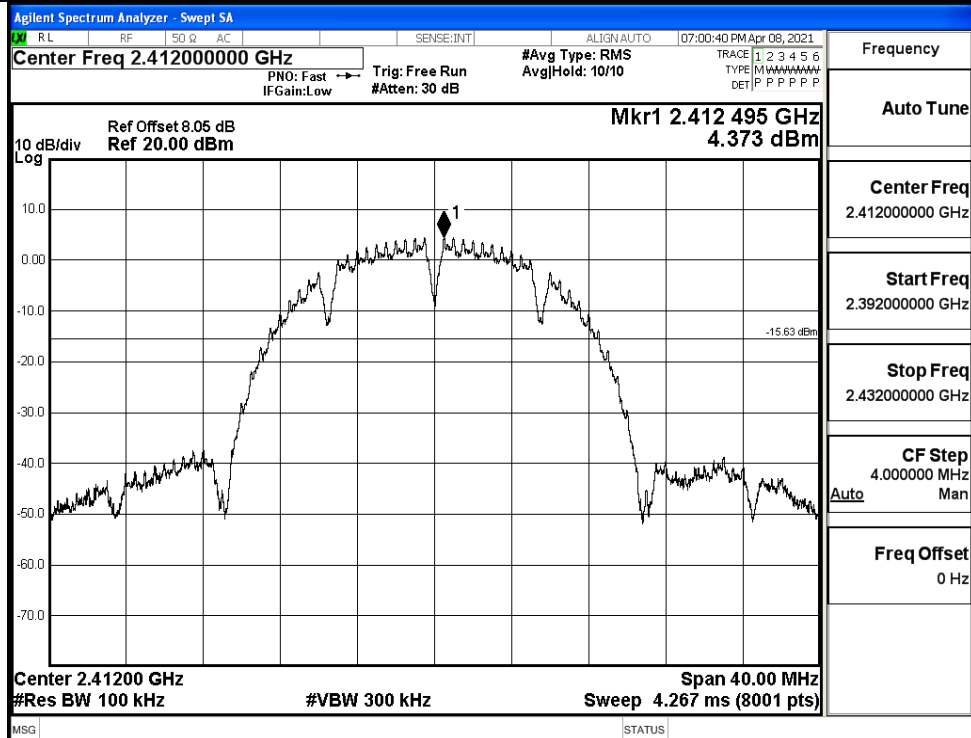


D.5 RF Conducted Spurious Emissions

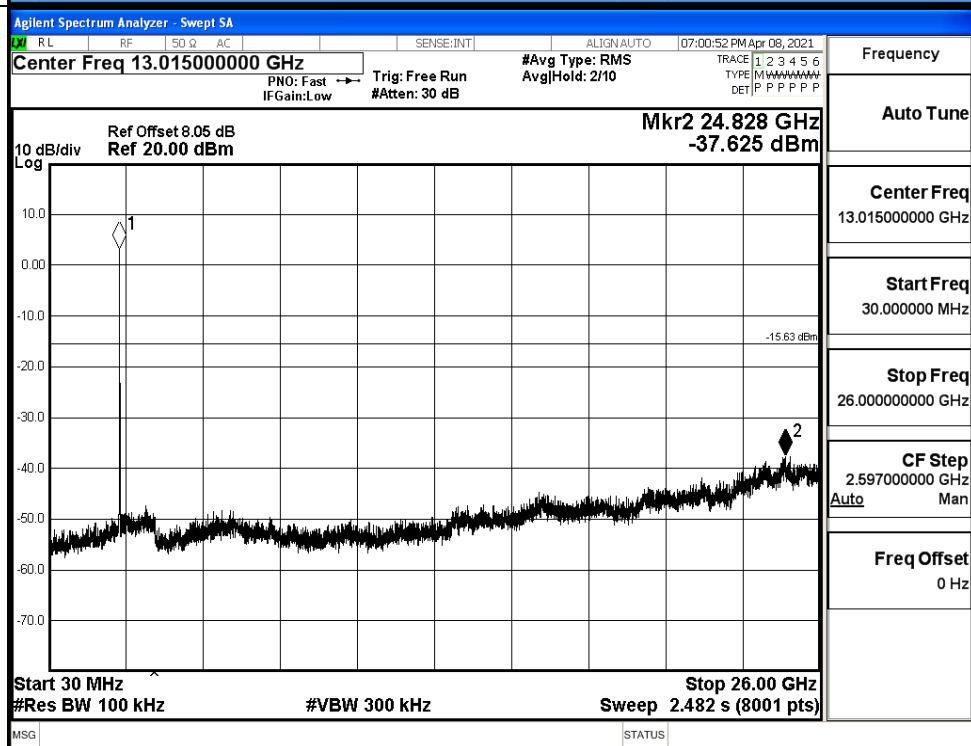
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	4.373	-37.625	-15.627	PASS
	MCH	3.958	-38.544	-16.042	PASS
	HCH	3.625	-37.936	-16.375	PASS
11G	LCH	-5.254	-37.256	-25.254	PASS
	MCH	-4.501	-37.704	-24.501	PASS
	HCH	-4.873	-37.809	-24.873	PASS
11N20 SISO	LCH	-4.781	-38.075	-24.781	PASS
	MCH	-5.122	-37.990	-25.122	PASS
	HCH	-5.296	-37.235	-25.296	PASS
11N40 SISO	LCH	-8.558	-37.763	-28.558	PASS
	MCH	-8.528	-37.846	-28.528	PASS
	HCH	-8.539	-36.799	-28.539	PASS

11B LCH Graphs

Pref/11B/LCH

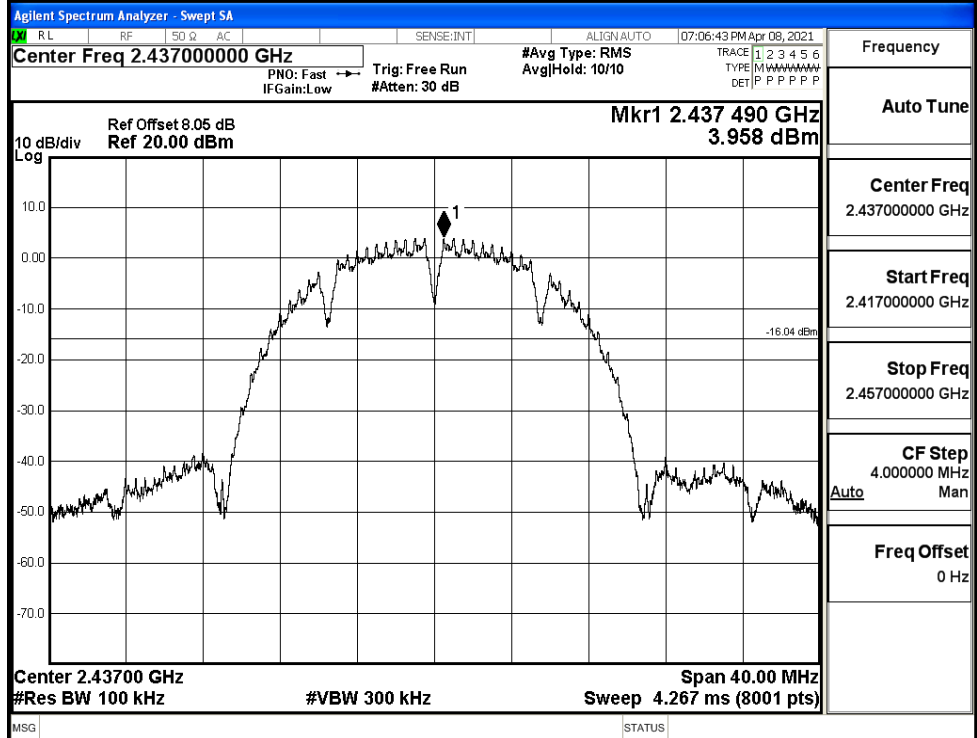


Puw/11B/LCH

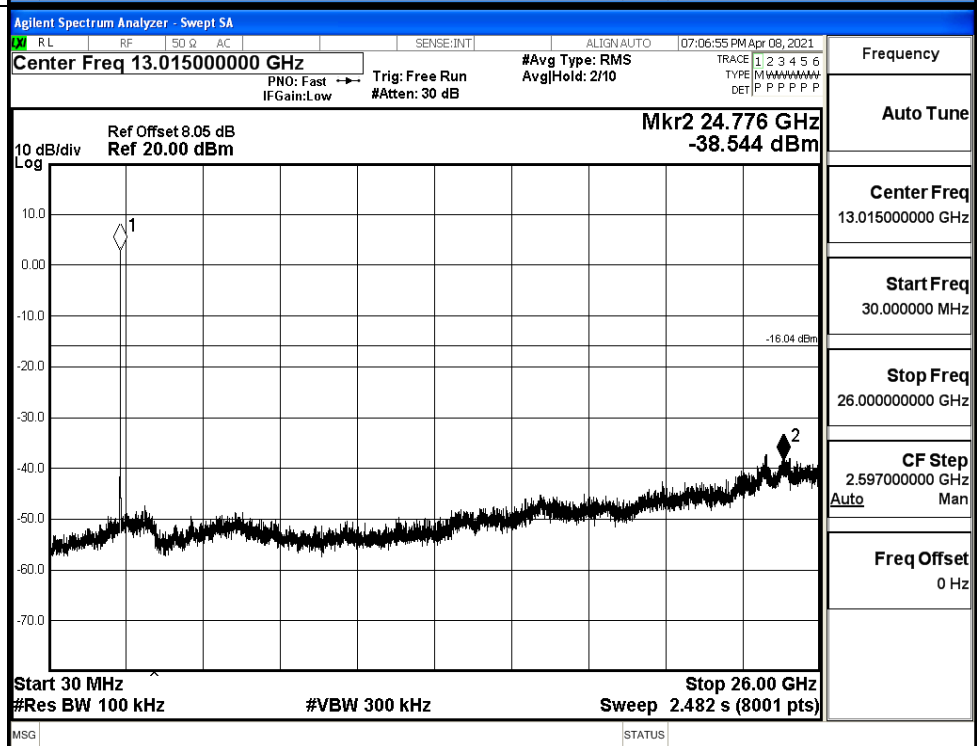


11B MCH Graphs

Pref/11B/MCH

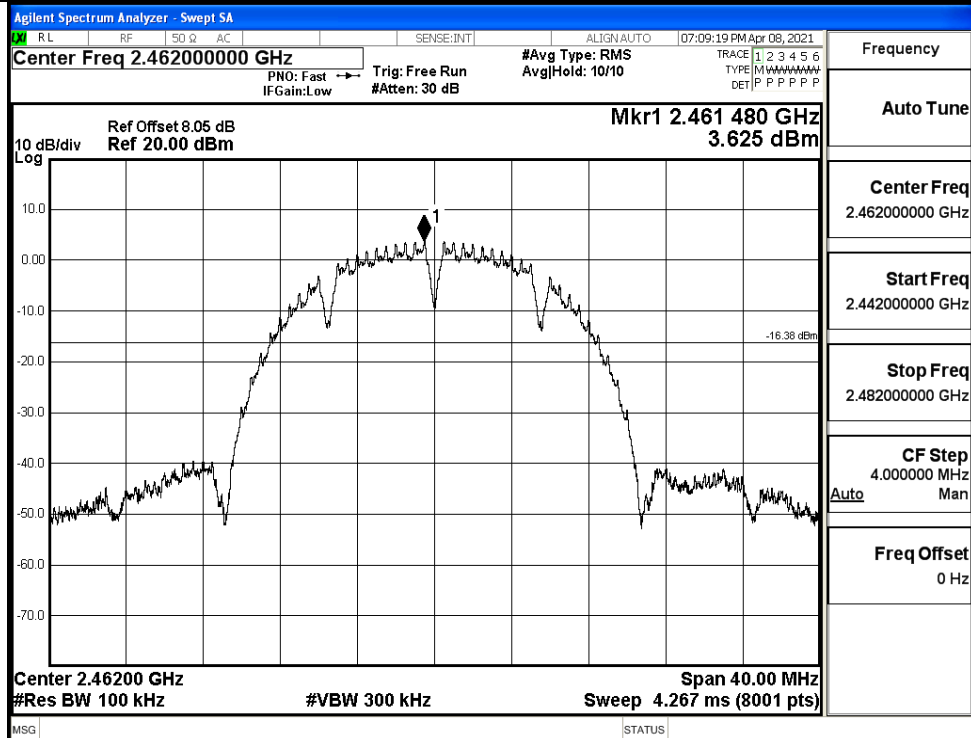


Puw/11B/MCH

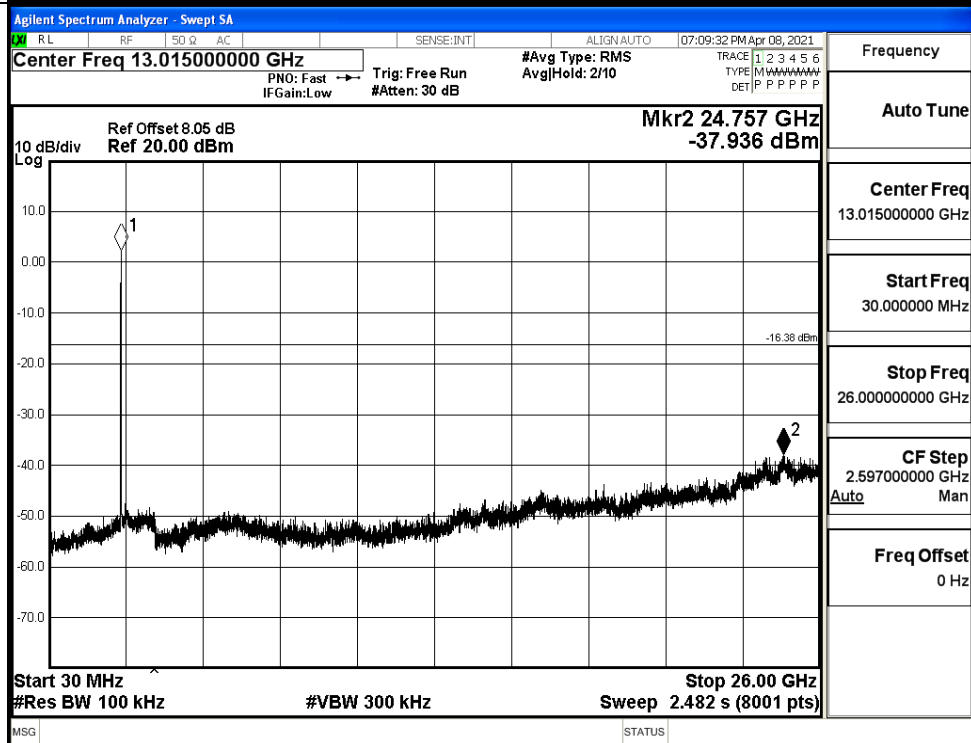


11B HCH Graphs

Pref/11B/HCH

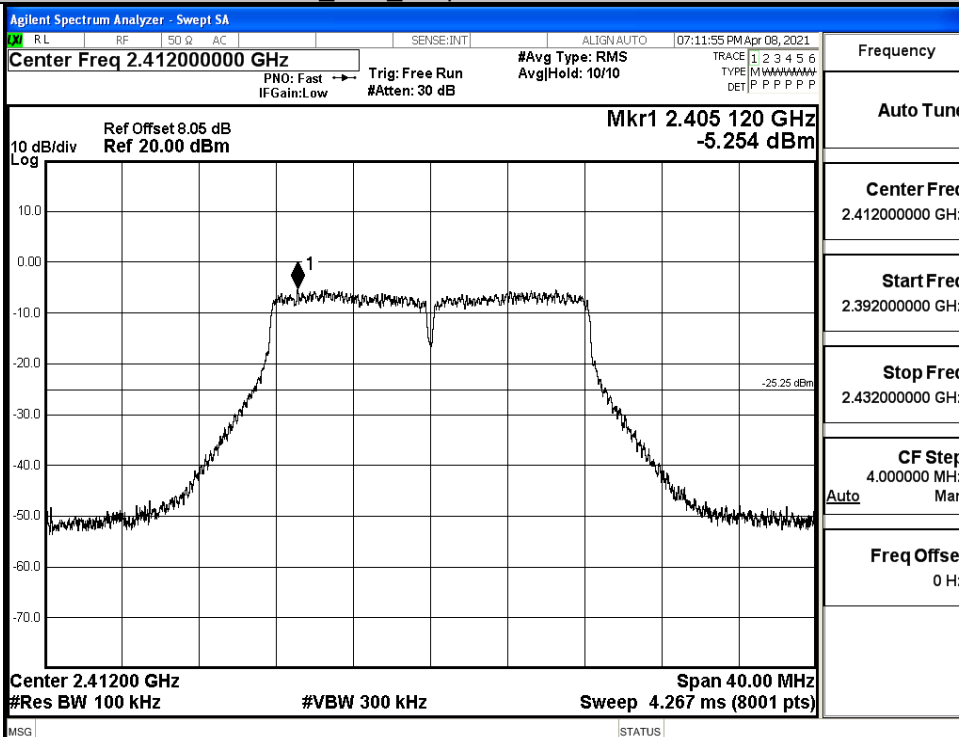


Puw/11B/HCH

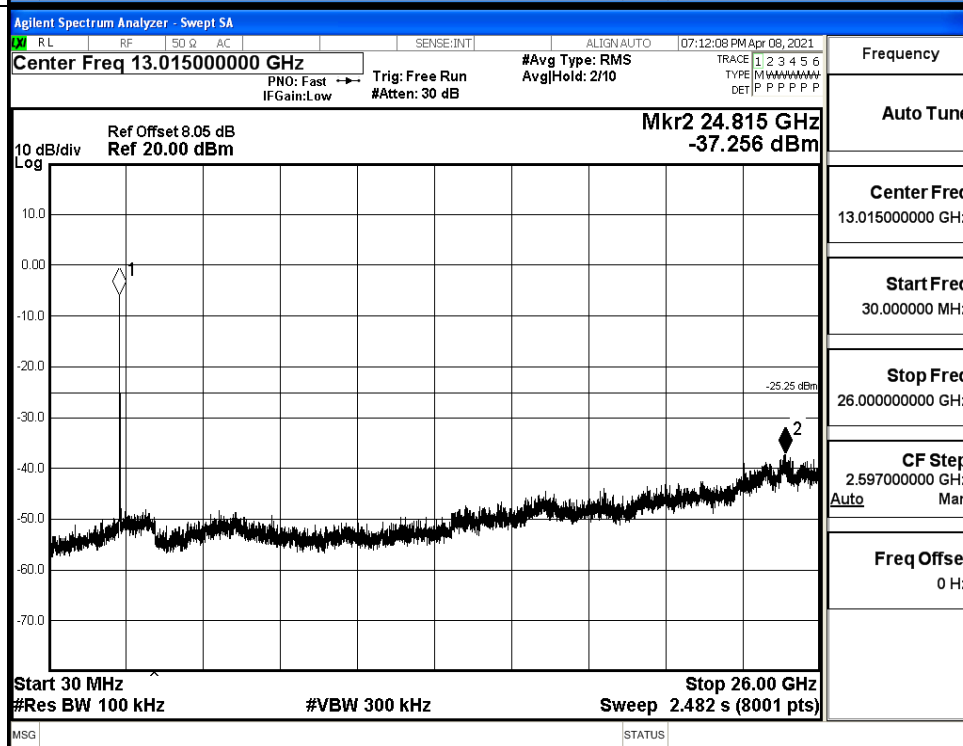


11G_LCH_Graphs

Pref/11G/LCH

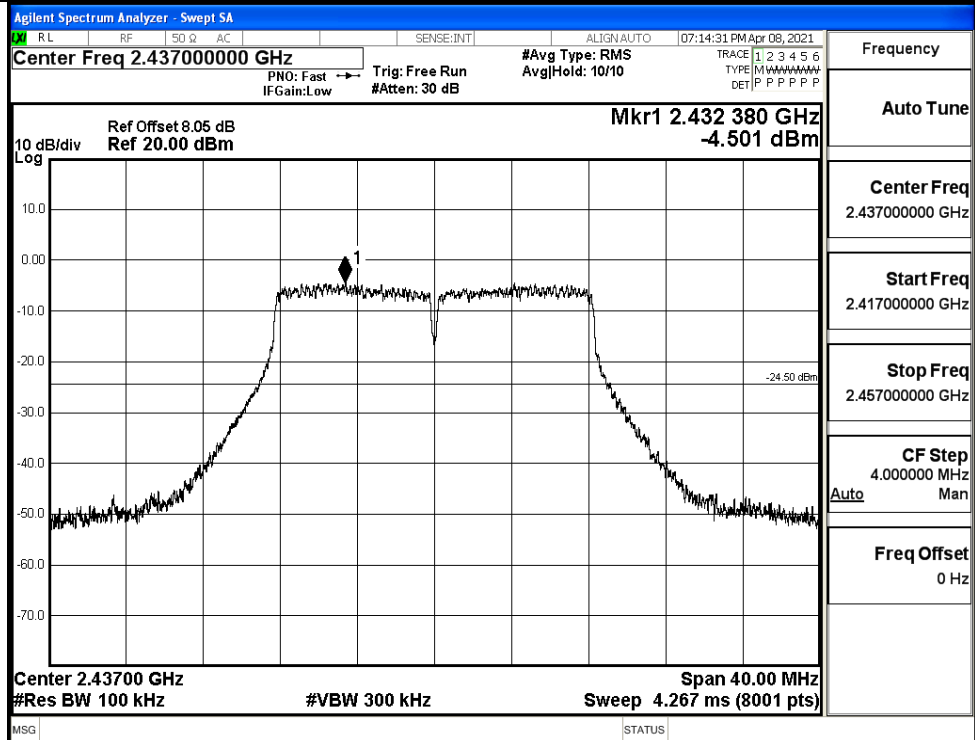


Puw/11G/LCH

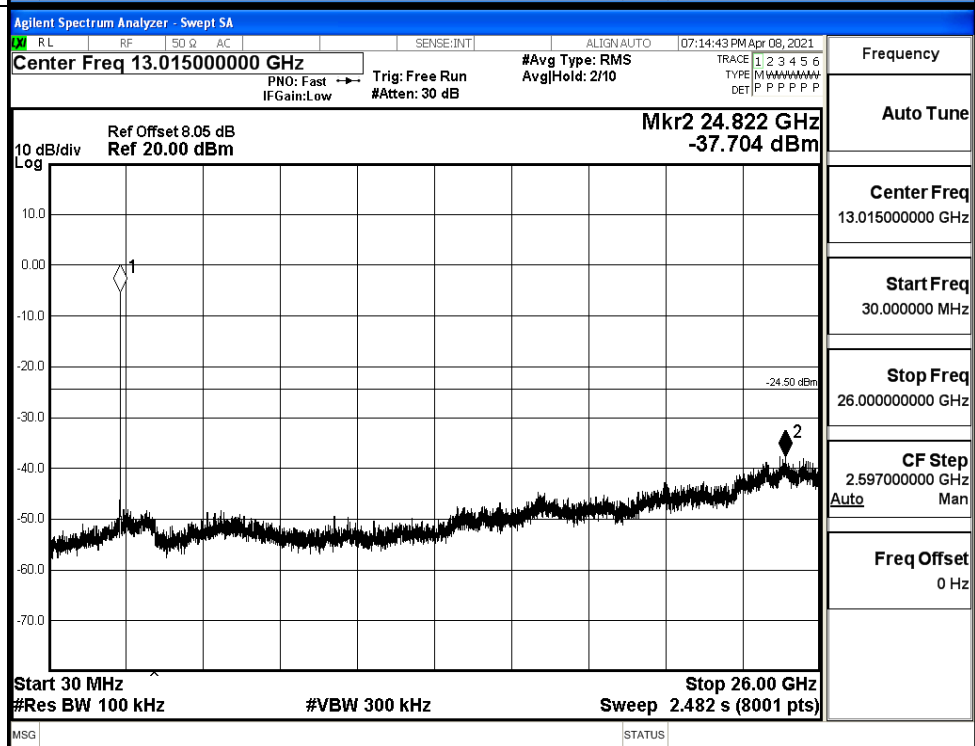


11G MCH Graphs

Pref/11G/MCH

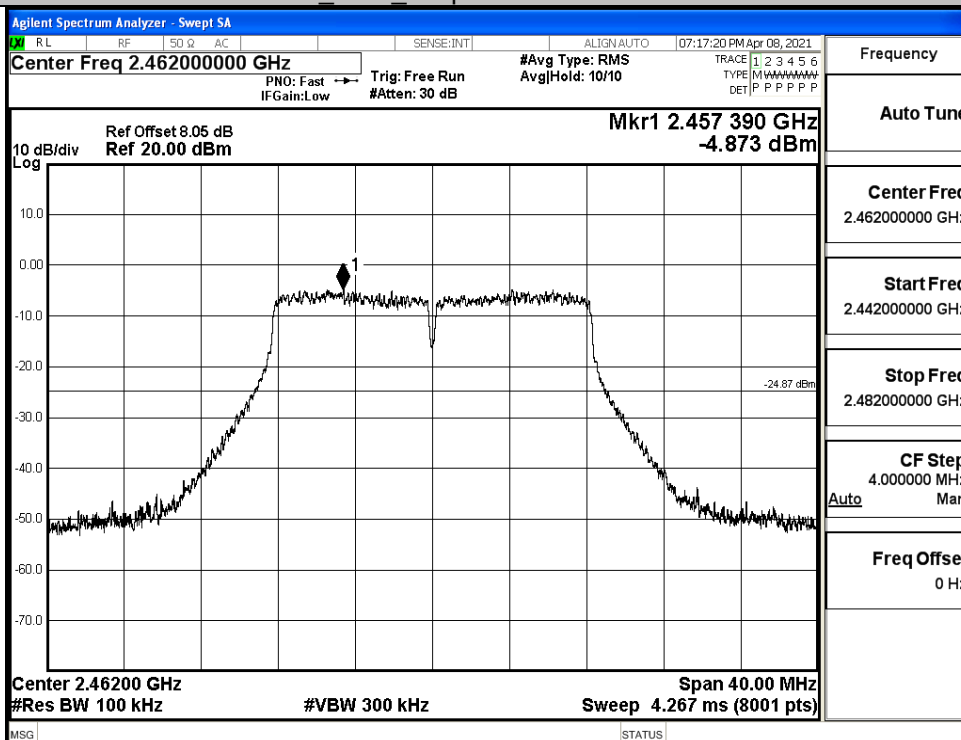


Puw/11G/MCH

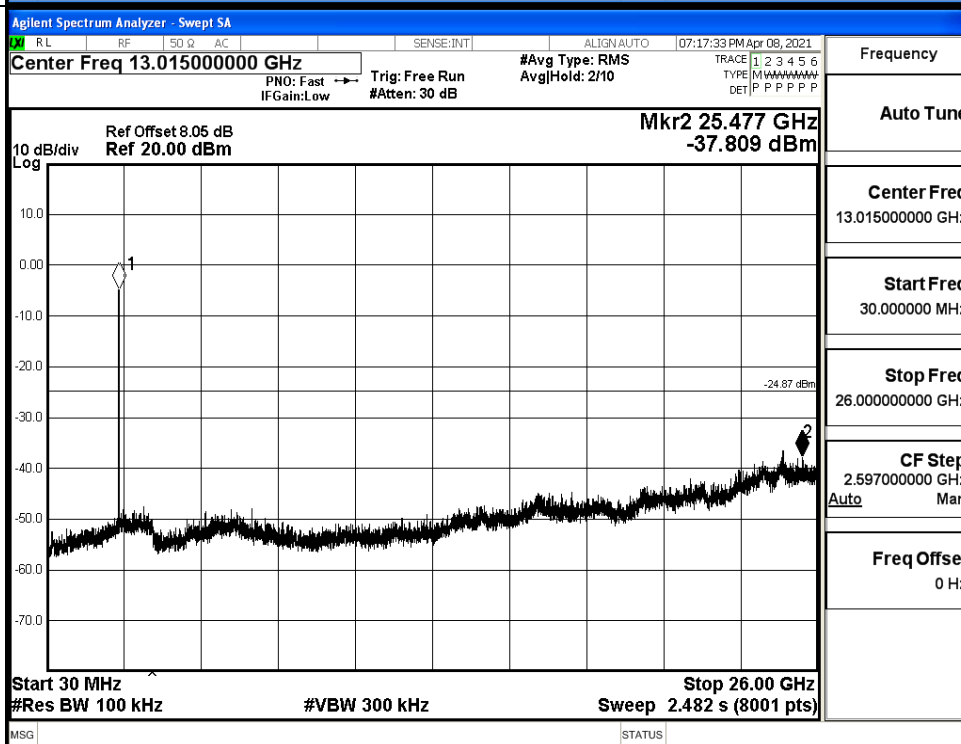


11G HCH Graphs

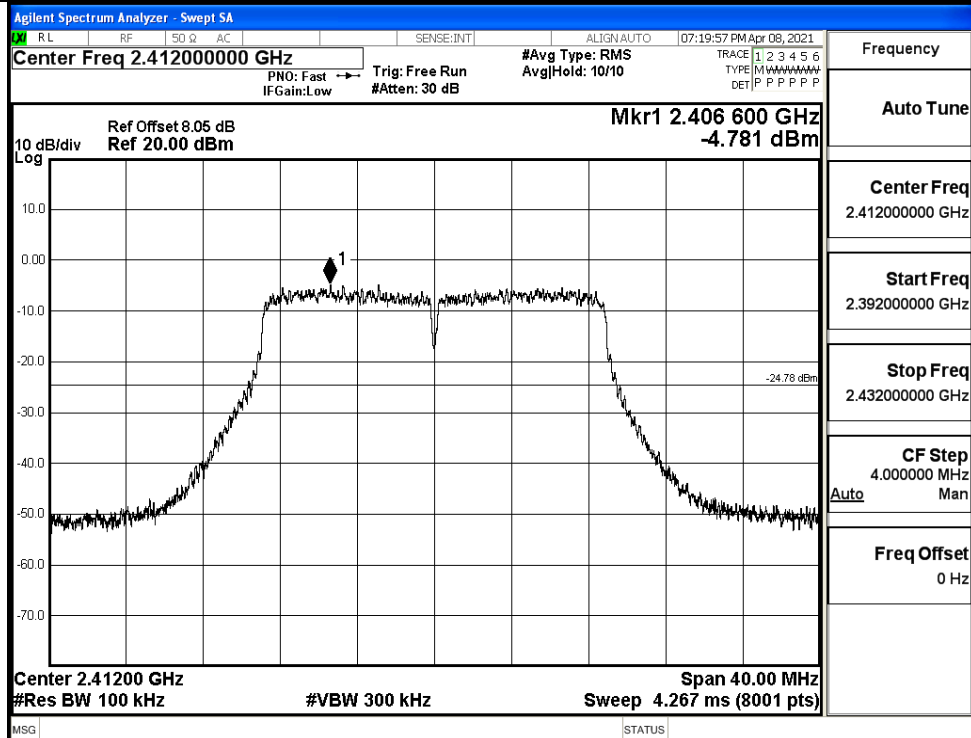
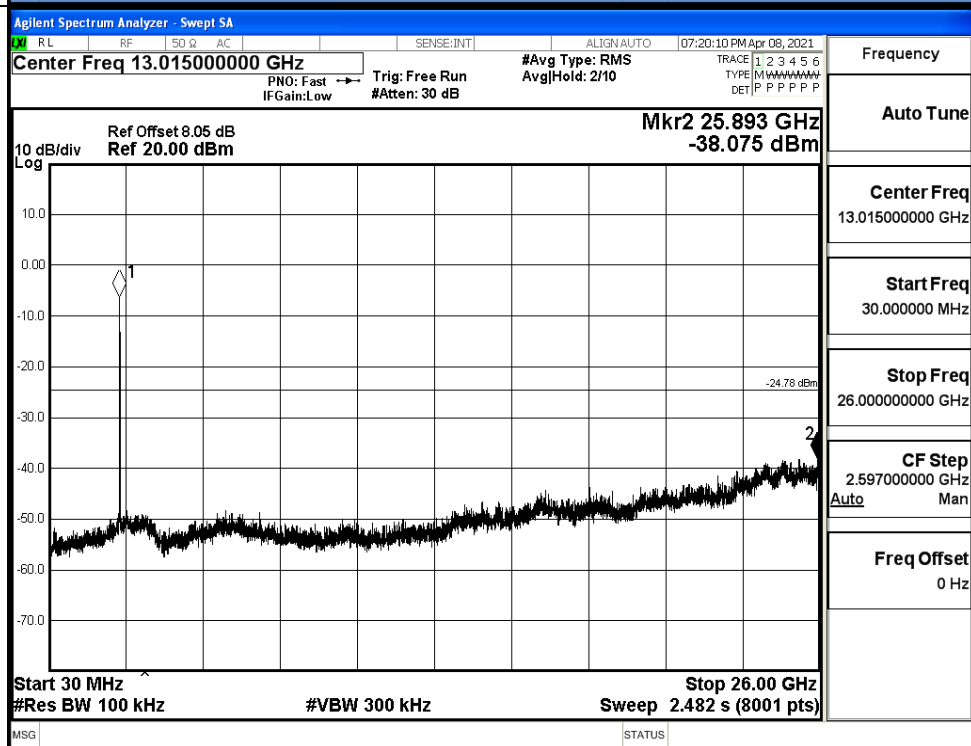
Pref/11G/HCH



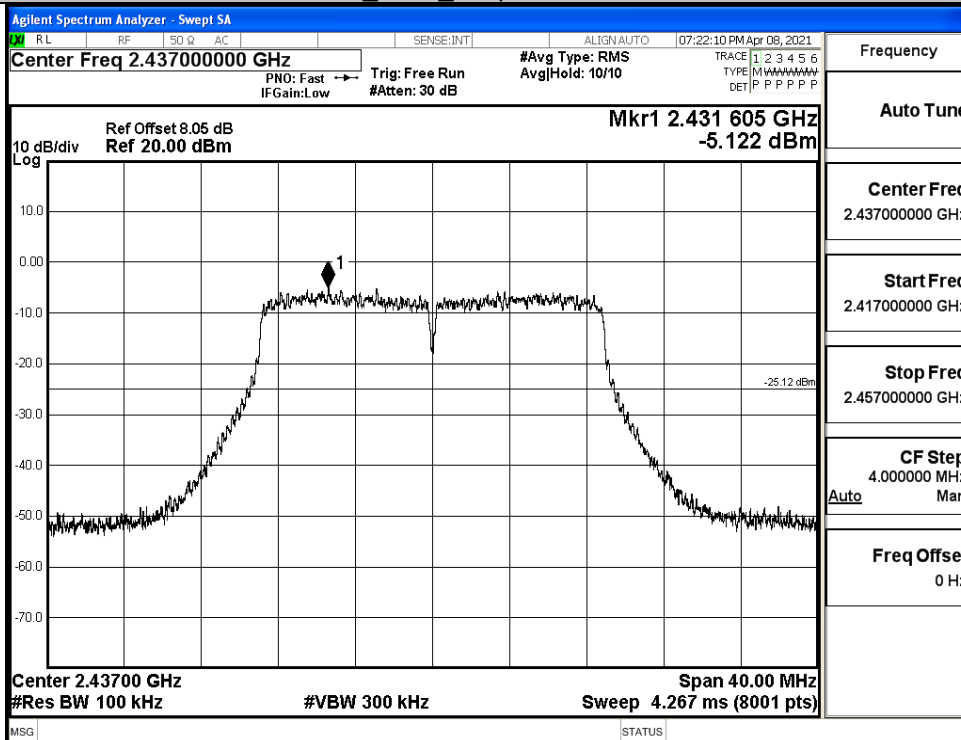
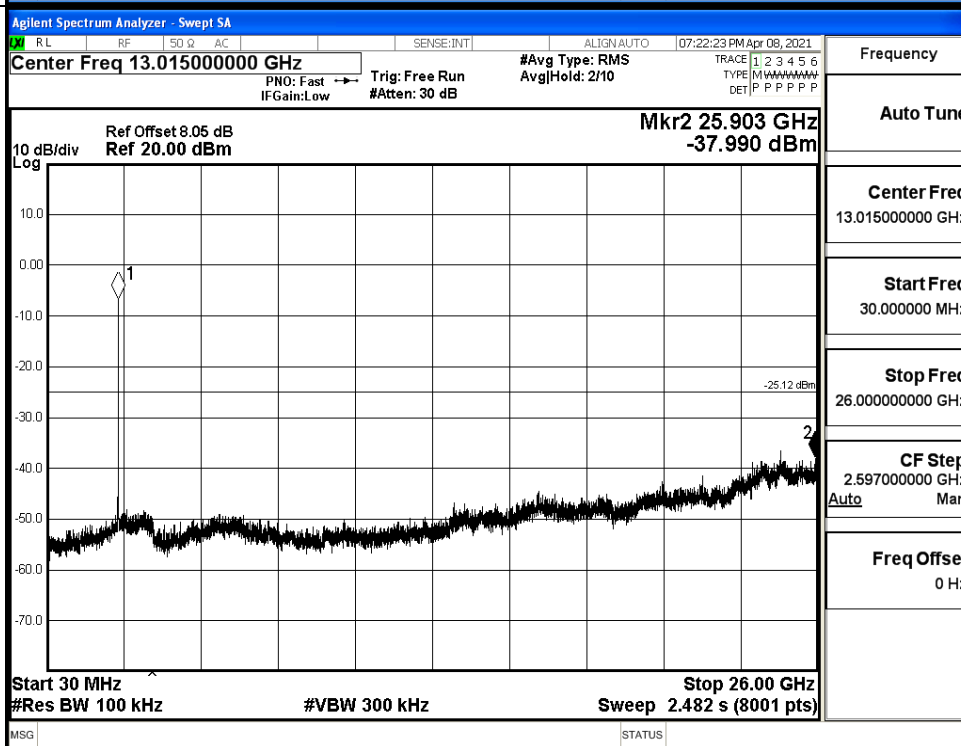
Puw/11G/HCH



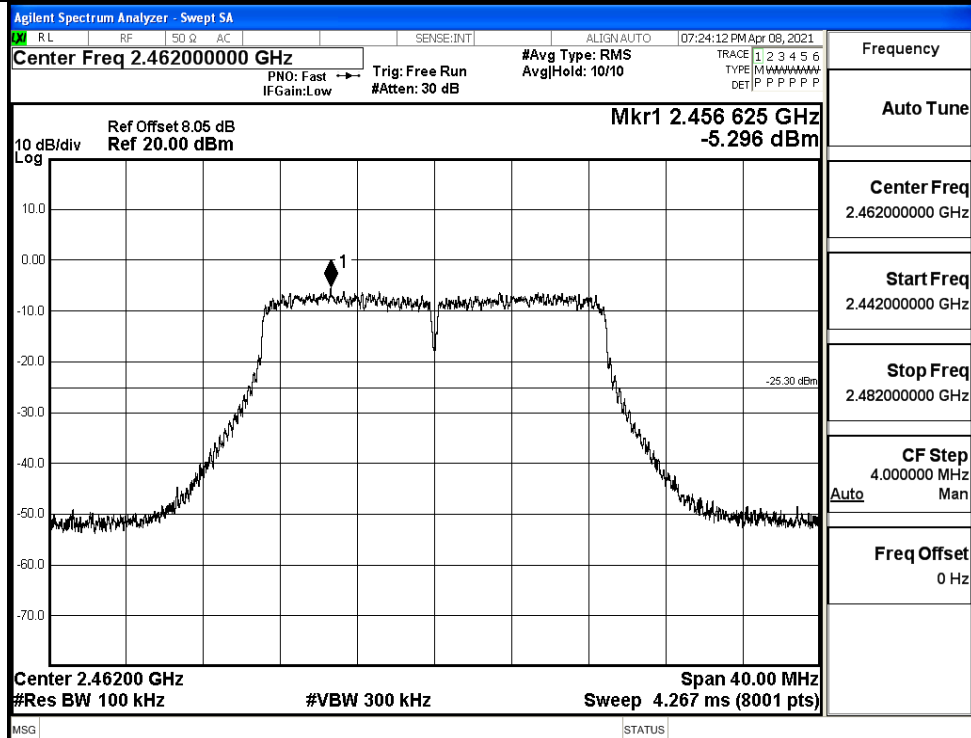
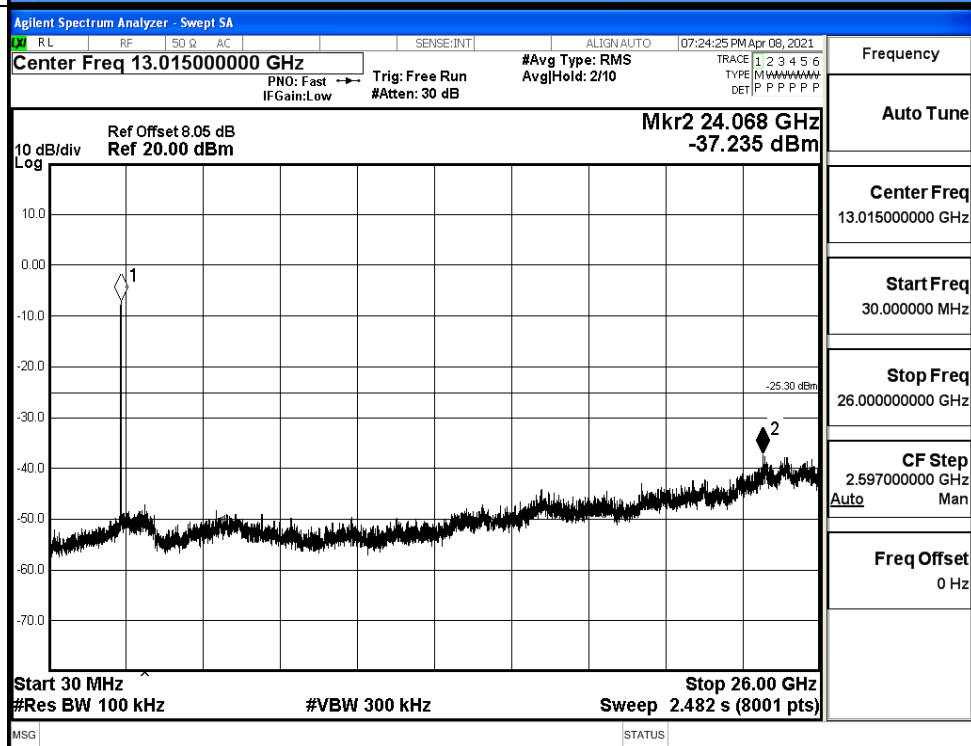
11N20SISO LCH Graphs

Pref/11N20SIS
O/LCHPuw/11N20
SISO/LCH

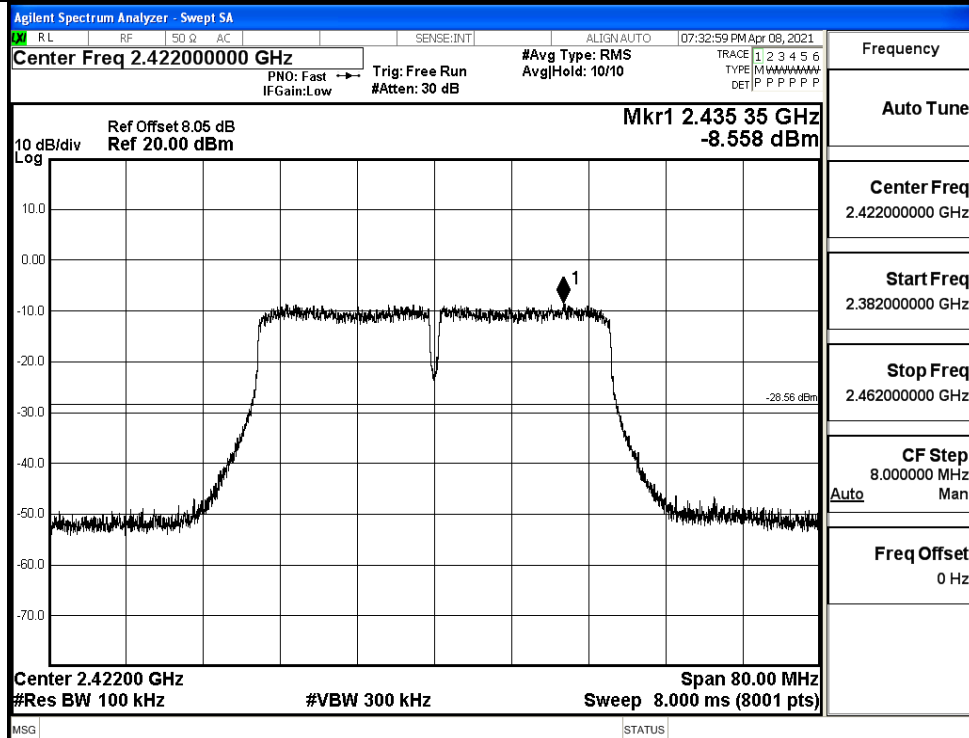
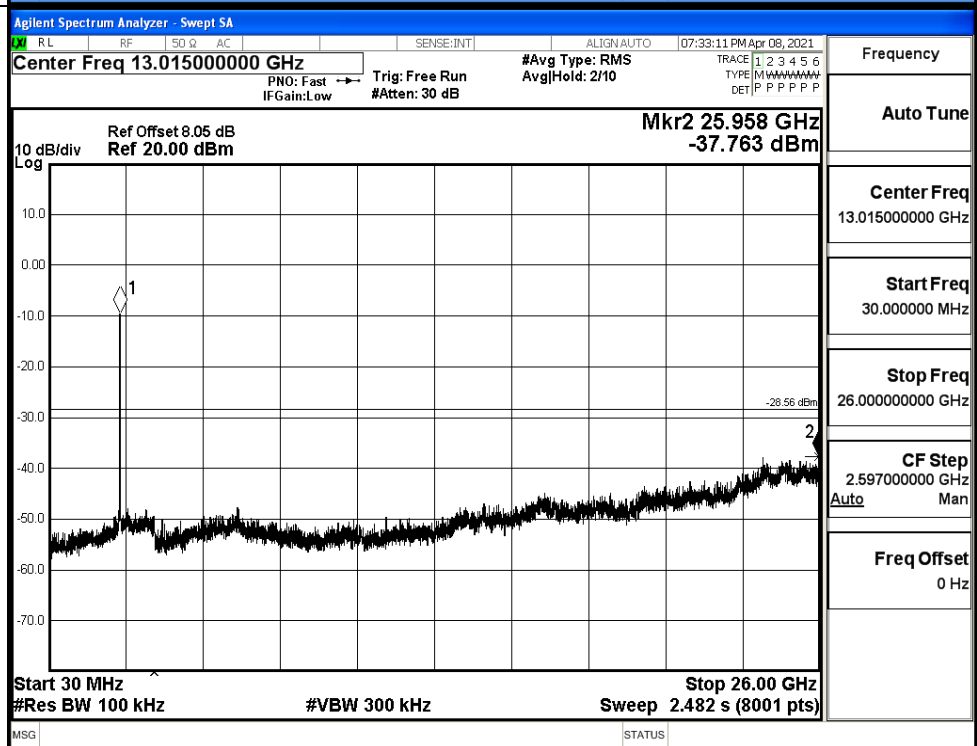
11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCHPuw/11N20
SISO/MCH

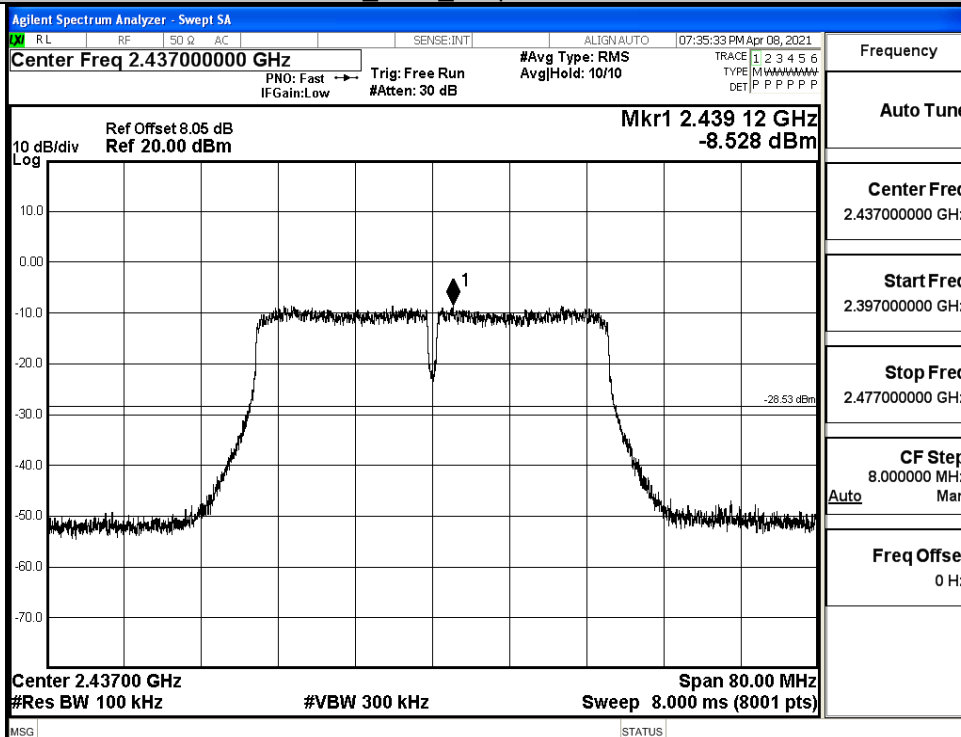
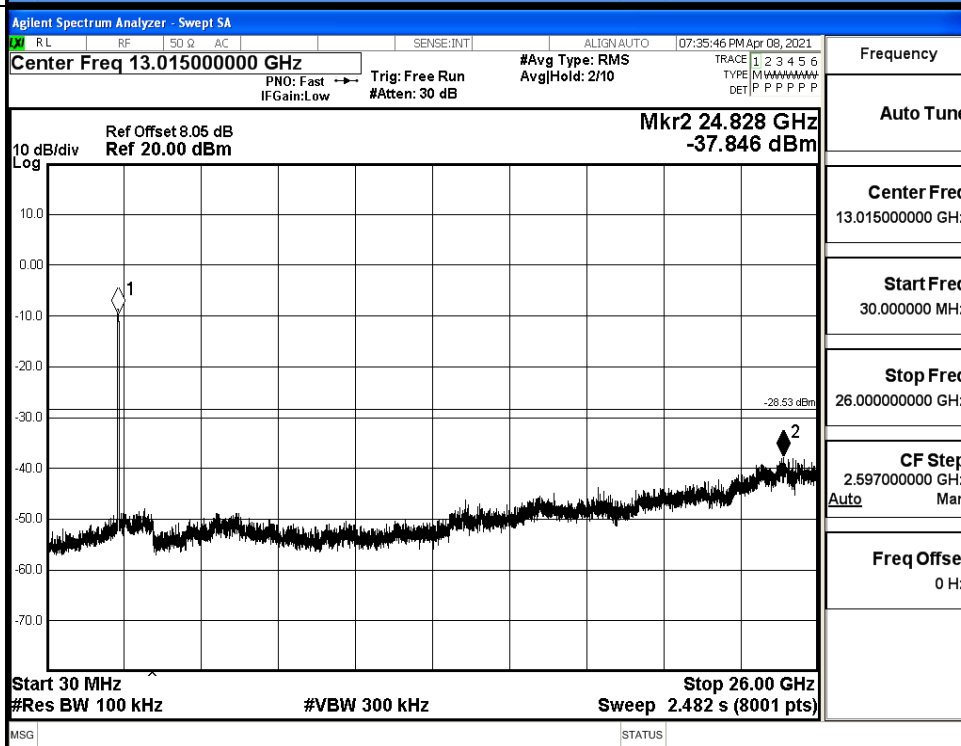
11N20SISO HCH Graphs

Pref/11N20
SISO/HCHPuw/11N20
SISO/HCH

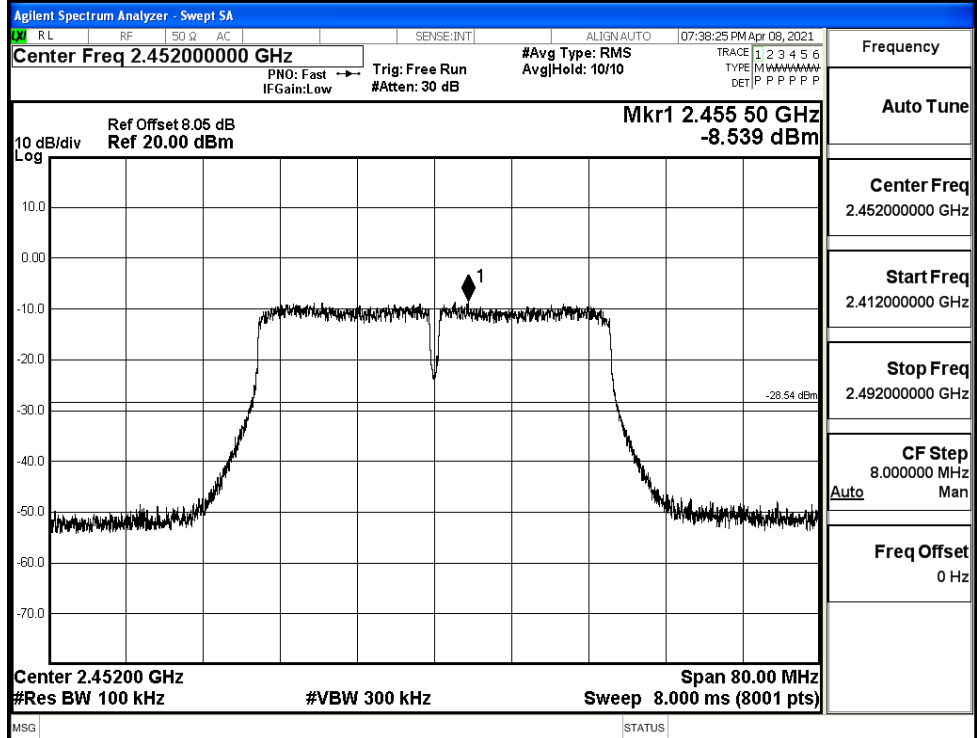
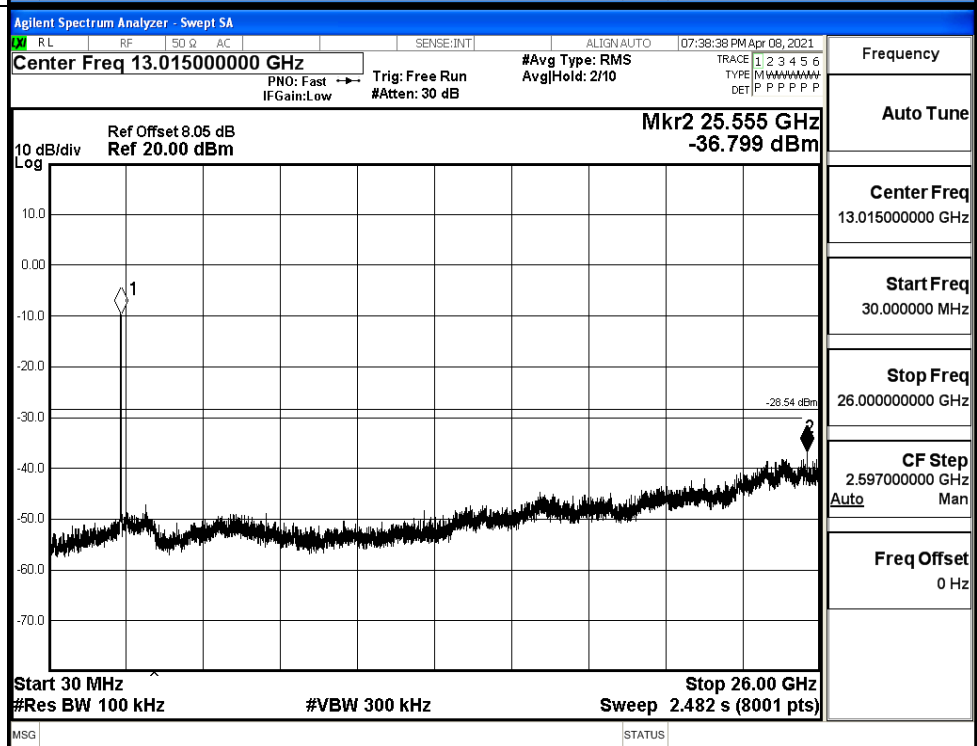
11N40SISO LCH Graphs

Pref/11N40
SISO/LCHPuw/11N40
SISO/LCH

11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCHPuw/11N40
SISO/MCH

11N40SISO HCH Graphs

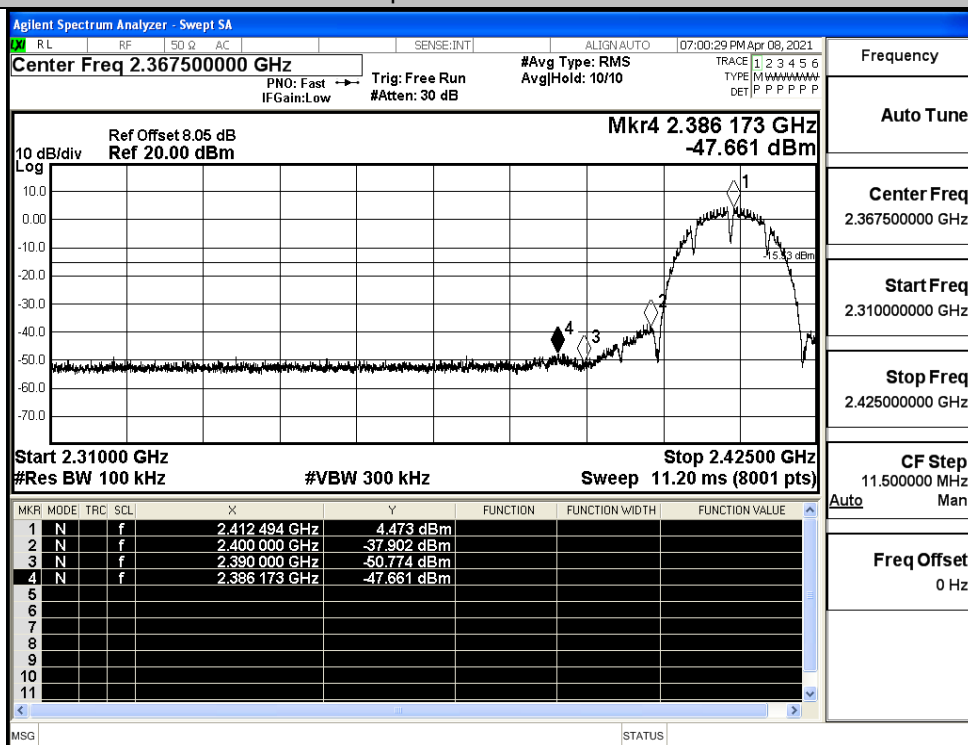
Pref/11N40
SISO/HCHPuw/11N40
SISO/HCH

D.6 Band-edge for RF Conducted Emissions

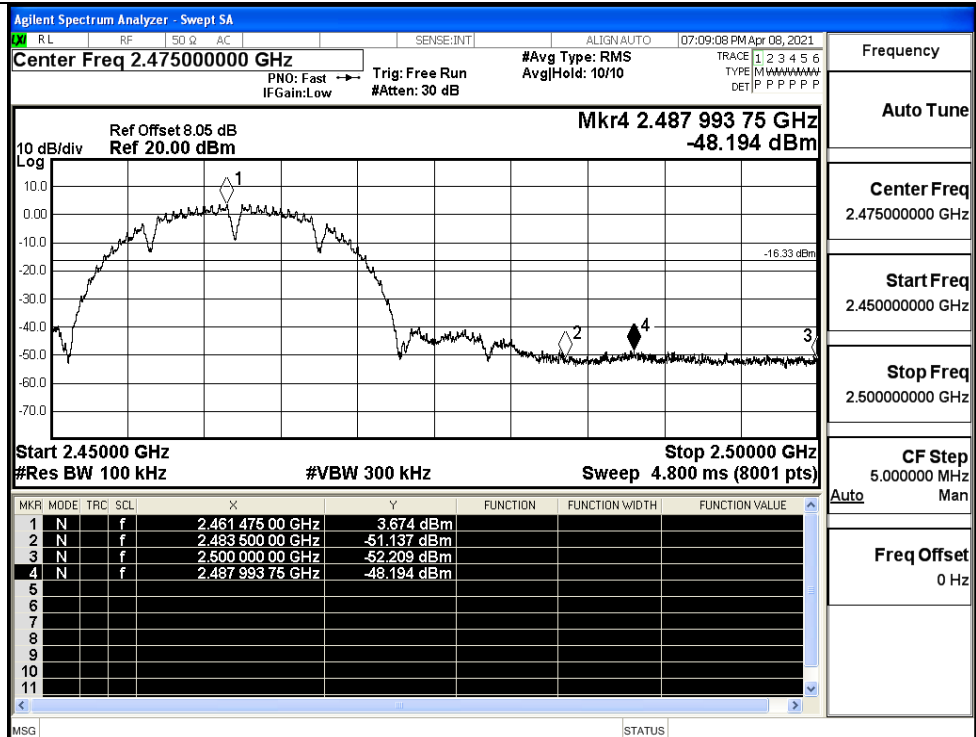
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	4.473	-47.661	-15.53	PASS
	HCH	3.674	-48.194	-16.33	PASS
11G	LCH	-5.215	-48.730	-25.22	PASS
	HCH	-4.737	-48.825	-24.74	PASS
11N20SISO	LCH	-5.099	-49.044	-25.1	PASS
	HCH	-5.017	-48.975	-25.02	PASS
11N40SISO	LCH	-8.431	-49.170	-28.43	PASS
	HCH	-8.591	-48.068	-28.59	PASS

Test Graphs

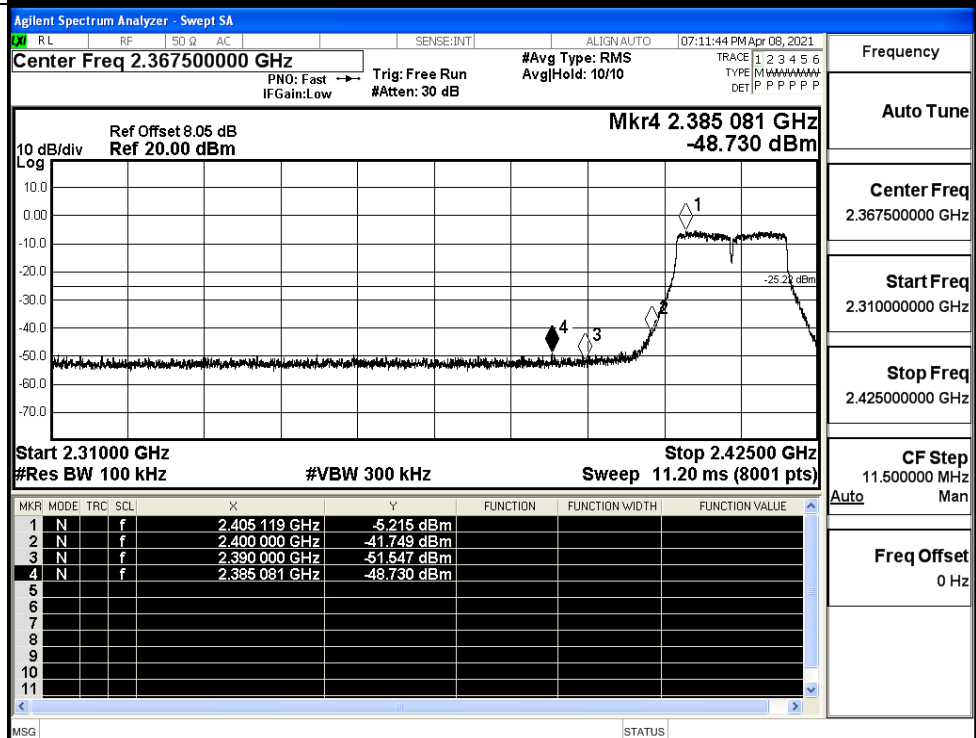
11B/LCH



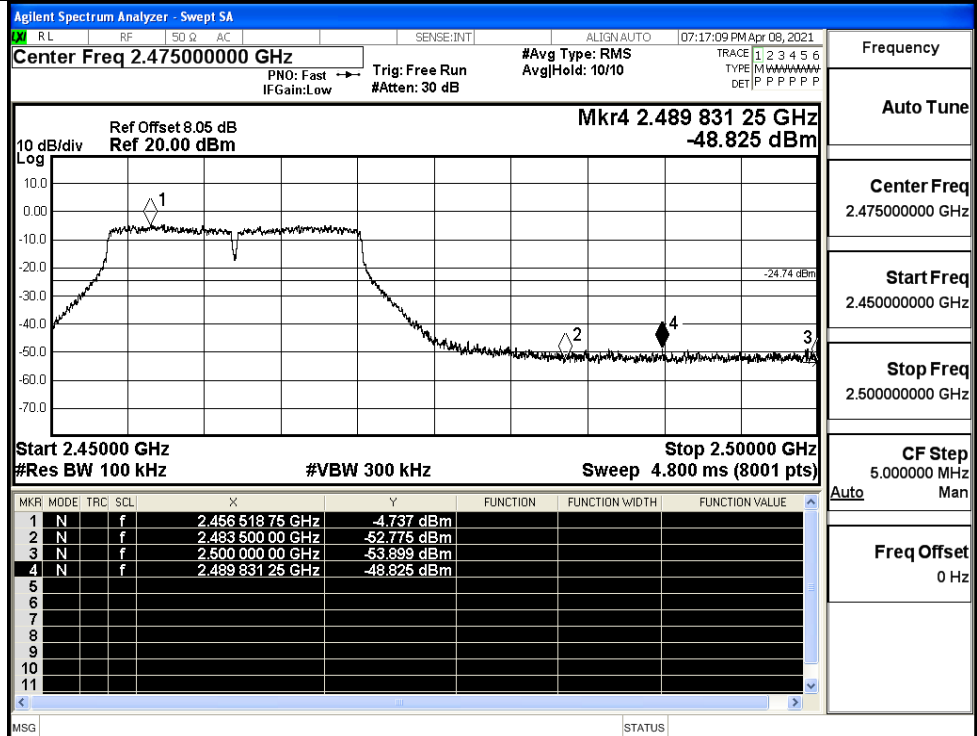
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq

2.475000000 GHz

Start Freq

2.450000000 GHz

Stop Freq

2.500000000 GHz

CF Step

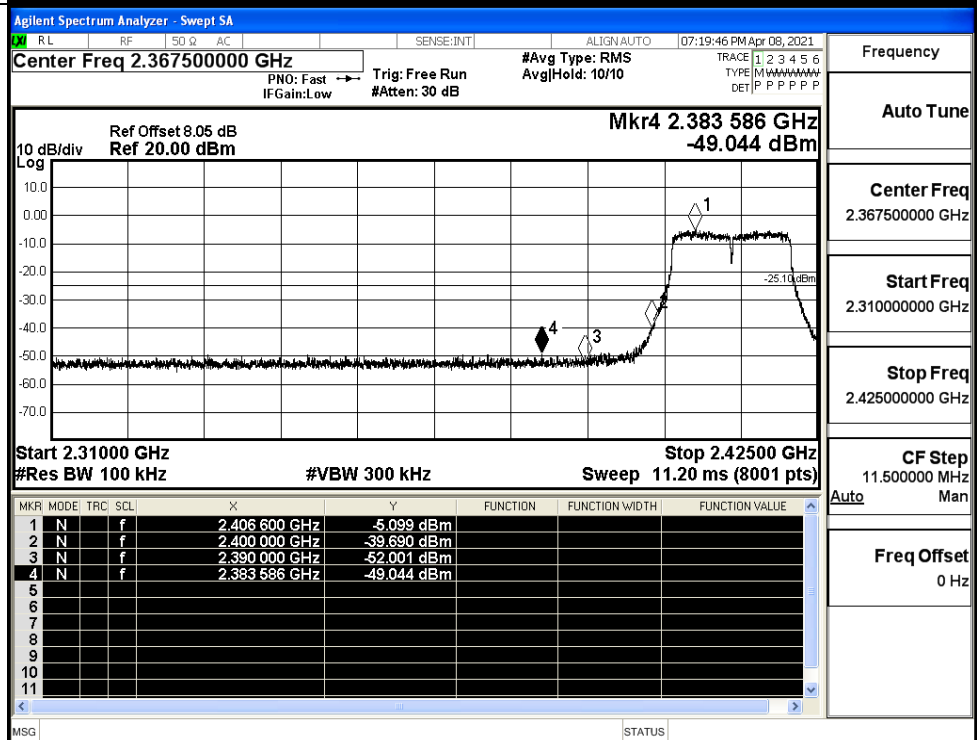
5.000000 MHz

Auto Man

Freq Offset

0 Hz

11N20SISO/LCH



Frequency

Auto Tune

Center Freq

2.367500000 GHz

Start Freq

2.310000000 GHz

Stop Freq

2.425000000 GHz

CF Step

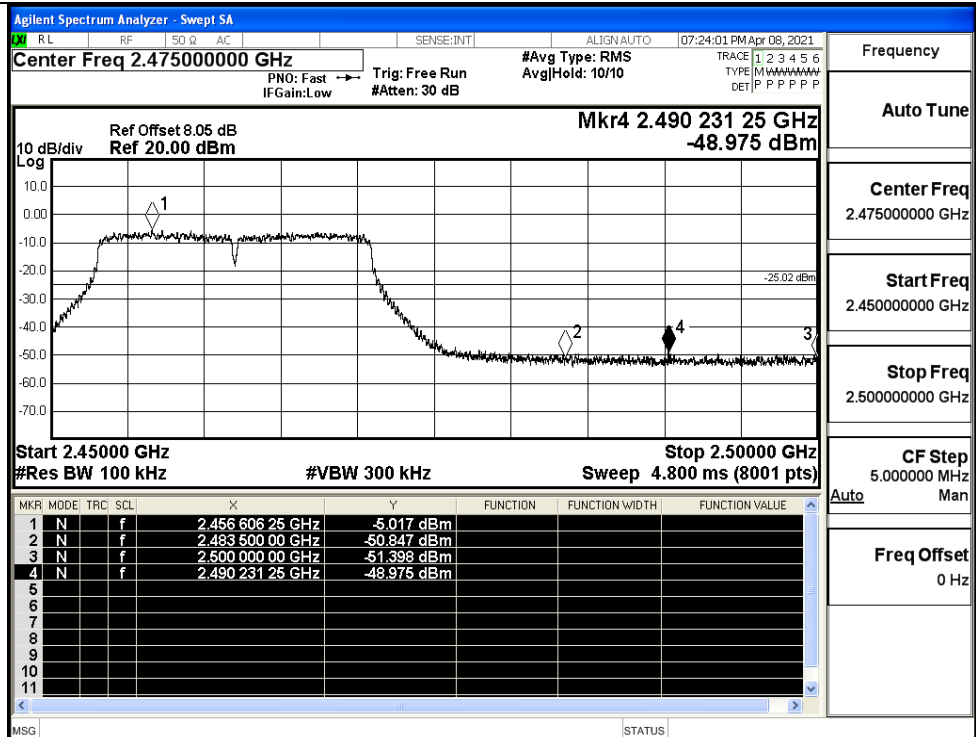
11.500000 MHz

Auto Man

Freq Offset

0 Hz

11N20SISO/HCH



Frequency

Auto Tune

Center Freq
2.475000000 GHz

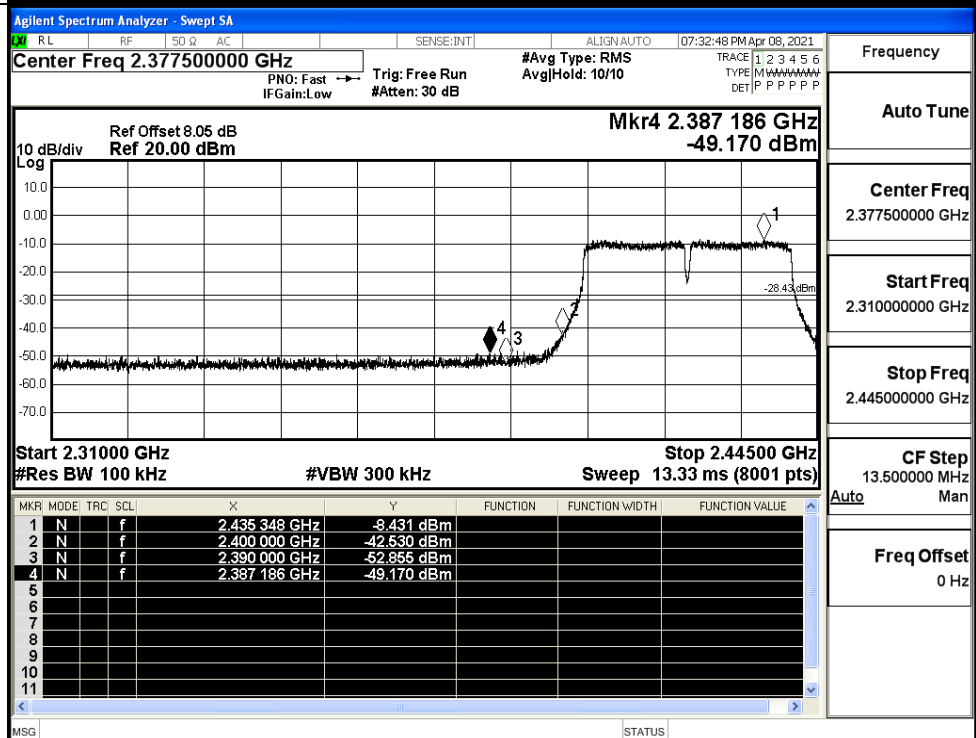
Start Freq
2.450000000 GHz

Stop Freq
2.500000000 GHz

CF Step
5.000000 MHz

Freq Offset
0 Hz

11N40SISO/LCH



Frequency

Auto Tune

Center Freq
2.377500000 GHz

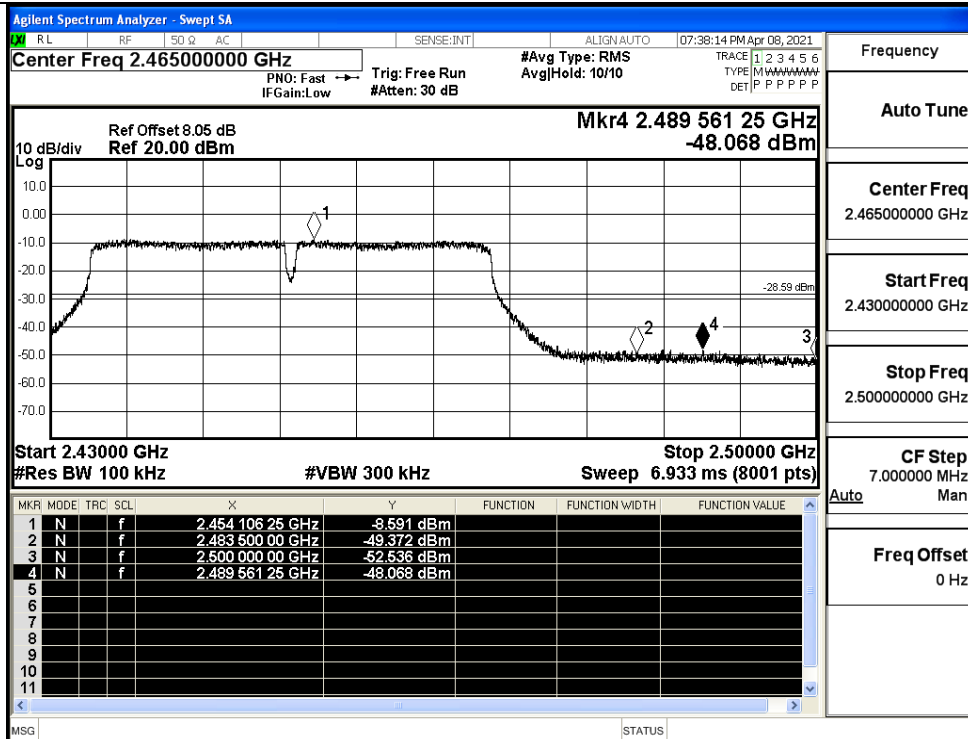
Start Freq
2.310000000 GHz

Stop Freq
2.445000000 GHz

CF Step
13.500000 MHz

Freq Offset
0 Hz

11N40SISO/HCH



Frequency

Auto Tune

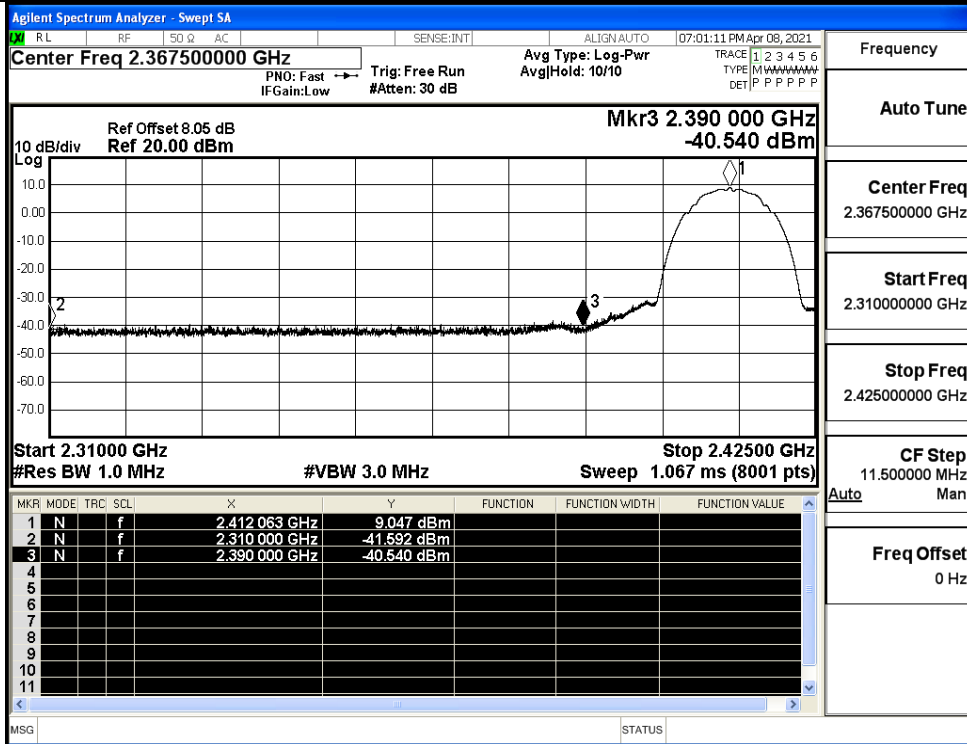
Center Freq
2.465000000 GHzStart Freq
2.430000000 GHzStop Freq
2.500000000 GHzCF Step
7.000000 MHz
Auto ManFreq Offset
0 Hz

D.7 Restrict-band band-edge measurements

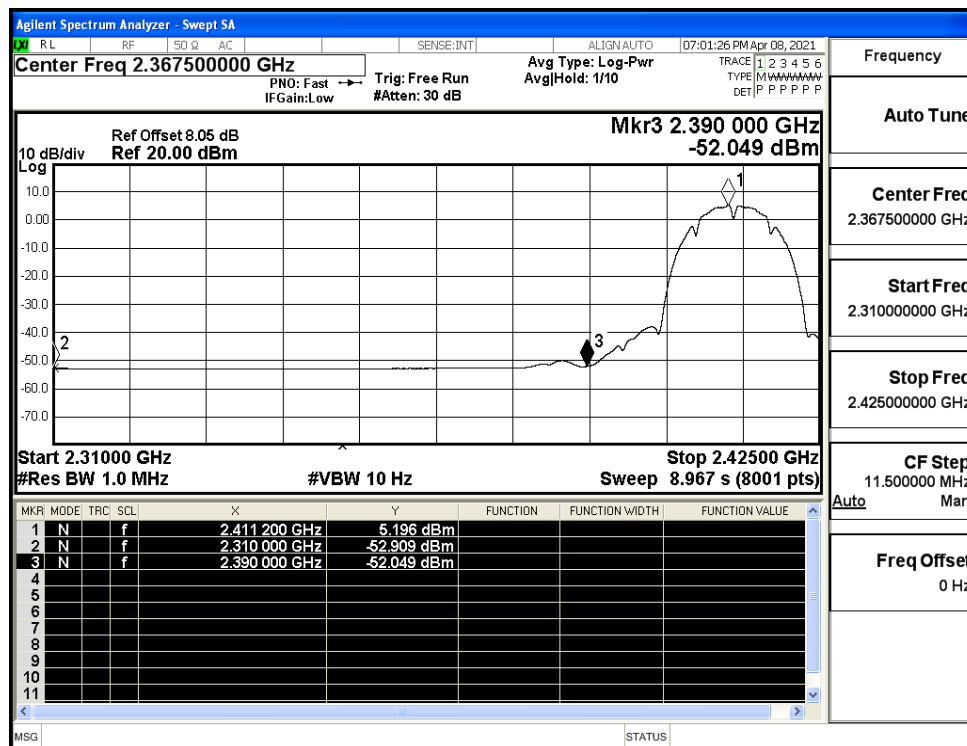
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-41.59	2.0	0	55.64	PEAK	74	PASS
	2412	Ant1	2310.0	-52.91	2.0	0	44.32	AV	54	PASS
	2412	Ant1	2390.0	-40.54	2.0	0	56.69	PEAK	74	PASS
	2412	Ant1	2390.0	-52.05	2.0	0	45.18	AV	54	PASS
	2462	Ant1	2483.5	-42.69	2.0	0	54.54	PEAK	74	PASS
	2462	Ant1	2483.5	-51.81	2.0	0	45.42	AV	54	PASS
	2462	Ant1	2500.0	-42.96	2.0	0	54.27	PEAK	74	PASS
	2462	Ant1	2500.0	-52.35	2.0	0	44.88	AV	54	PASS
11G	2412	Ant1	2310.0	-40.41	2.0	0	56.82	PEAK	74	PASS
	2412	Ant1	2310.0	-53.05	2.0	0	44.18	AV	54	PASS
	2412	Ant1	2390.0	-41.46	2.0	0	55.77	PEAK	74	PASS
	2412	Ant1	2390.0	-52.32	2.0	0	44.91	AV	54	PASS
	2462	Ant1	2483.5	-40.51	2.0	0	56.72	PEAK	74	PASS
	2462	Ant1	2483.5	-51.89	2.0	0	45.34	AV	54	PASS
	2462	Ant1	2500.0	-41.59	2.0	0	55.64	PEAK	74	PASS
	2462	Ant1	2500.0	-52.36	2.0	0	44.87	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-41.90	2.0	0	55.33	PEAK	74	PASS
	2412	Ant1	2310.0	-53.04	2.0	0	44.19	AV	54	PASS
	2412	Ant1	2390.0	-42.09	2.0	0	55.14	PEAK	74	PASS
	2412	Ant1	2390.0	-52.17	2.0	0	45.06	AV	54	PASS
	2462	Ant1	2483.5	-41.15	2.0	0	56.08	PEAK	74	PASS
	2462	Ant1	2483.5	-51.97	2.0	0	45.26	AV	54	PASS
	2462	Ant1	2500.0	-42.26	2.0	0	54.97	PEAK	74	PASS
	2462	Ant1	2500.0	-52.40	2.0	0	44.83	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.91	2.0	0	54.32	PEAK	74	PASS
	2422	Ant1	2310.0	-53.07	2.0	0	44.16	AV	54	PASS

	2422	Ant1	2390.0	-38.82	2.0	0	58.41	PEAK	74	PASS
	2422	Ant1	2390.0	-51.99	2.0	0	45.24	AV	54	PASS
	2452	Ant1	2483.5	-39.87	2.0	0	57.36	PEAK	74	PASS
	2452	Ant1	2483.5	-50.88	2.0	0	46.35	AV	54	PASS
	2452	Ant1	2500.0	-41.70	2.0	0	55.53	PEAK	74	PASS
	2452	Ant1	2500.0	-52.22	2.0	0	45.01	AV	54	PASS

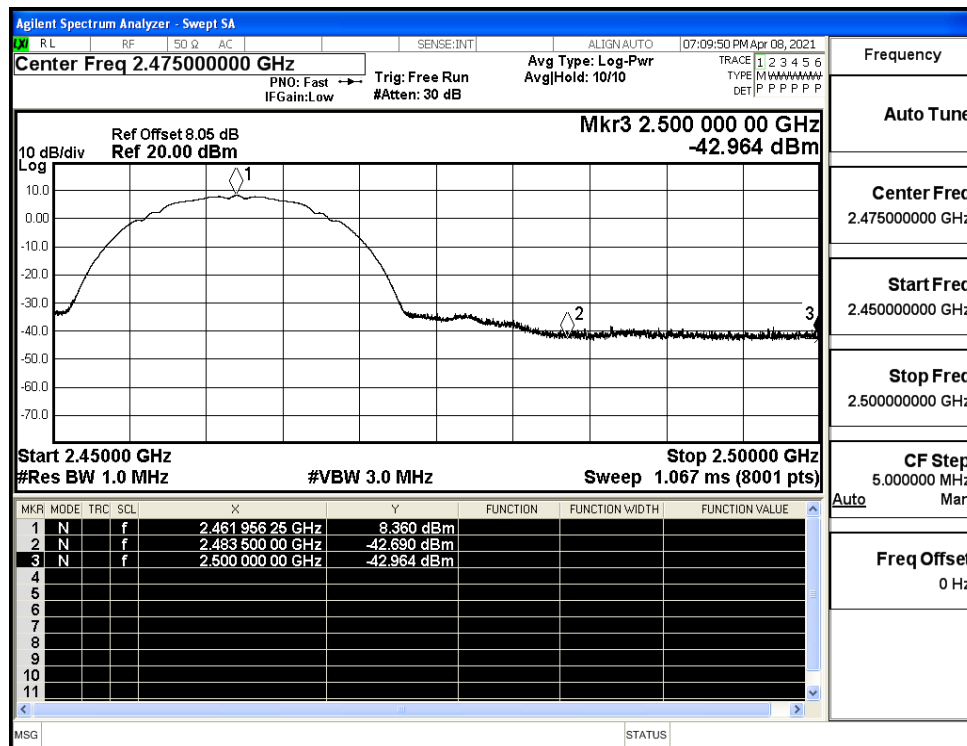
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



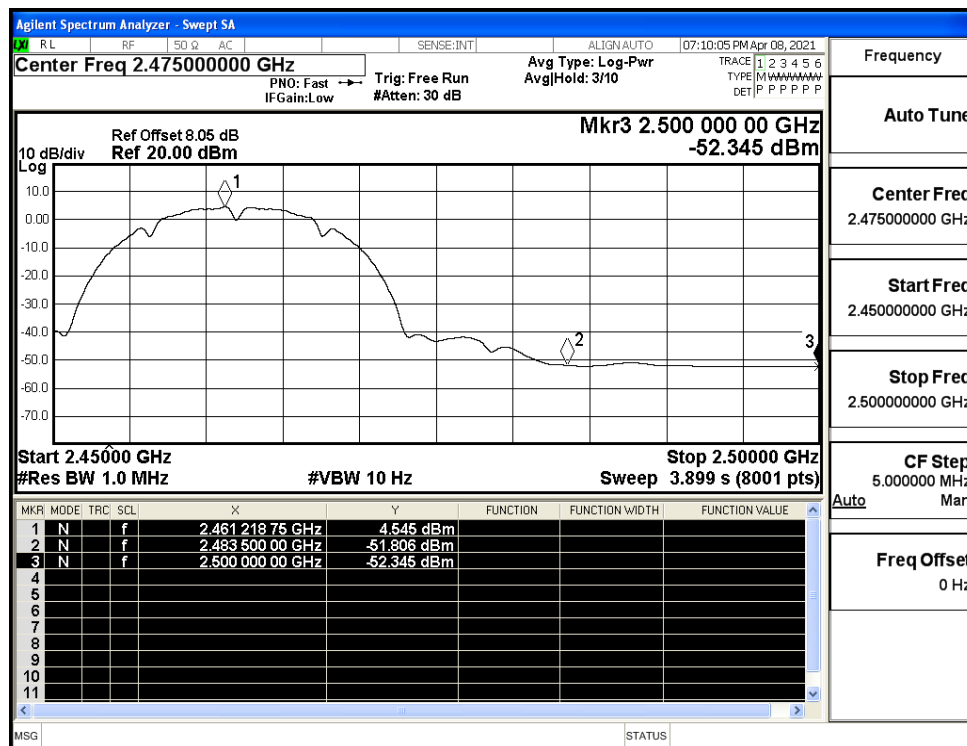
Restrict-band band-edge measurements_11B_2412_Ant1_AV



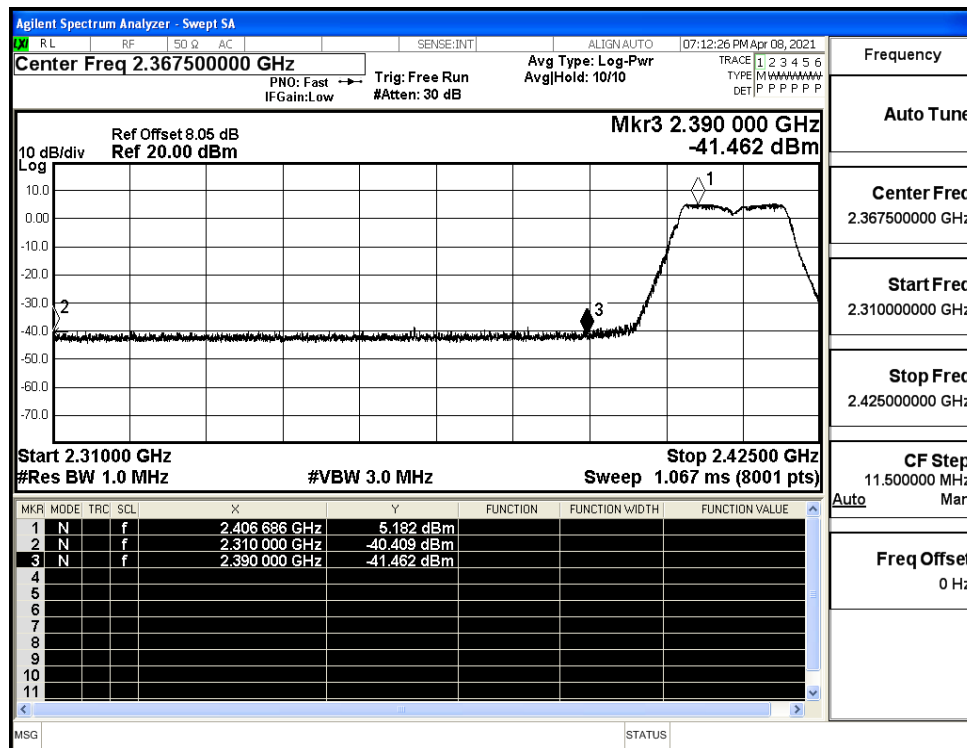
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



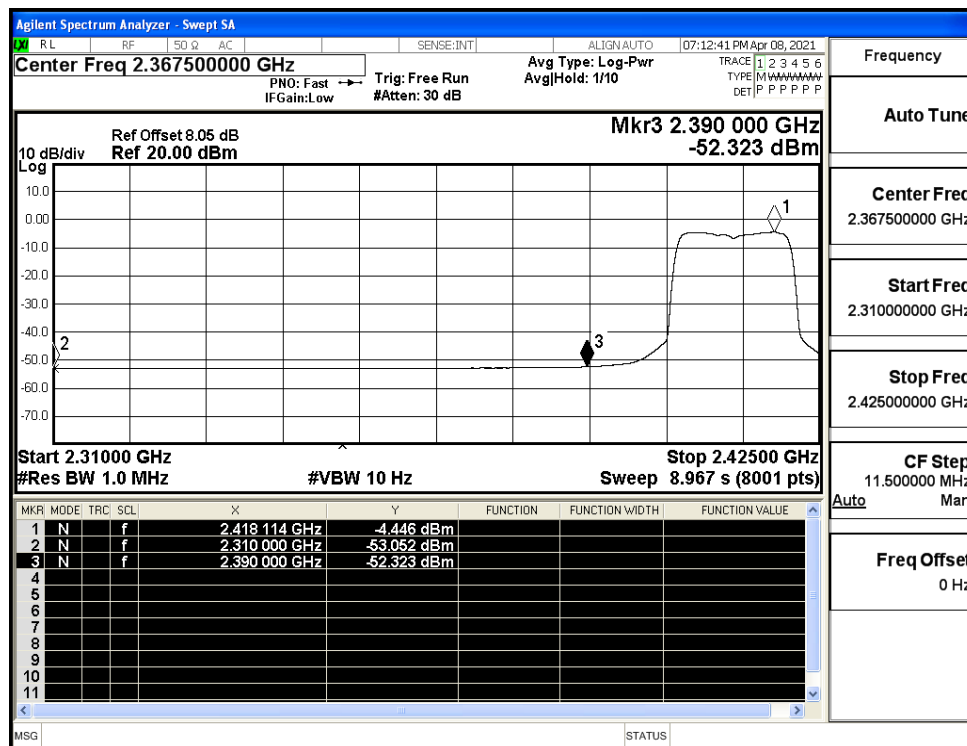
Restrict-band band-edge measurements_11B_2462_Ant1_AV



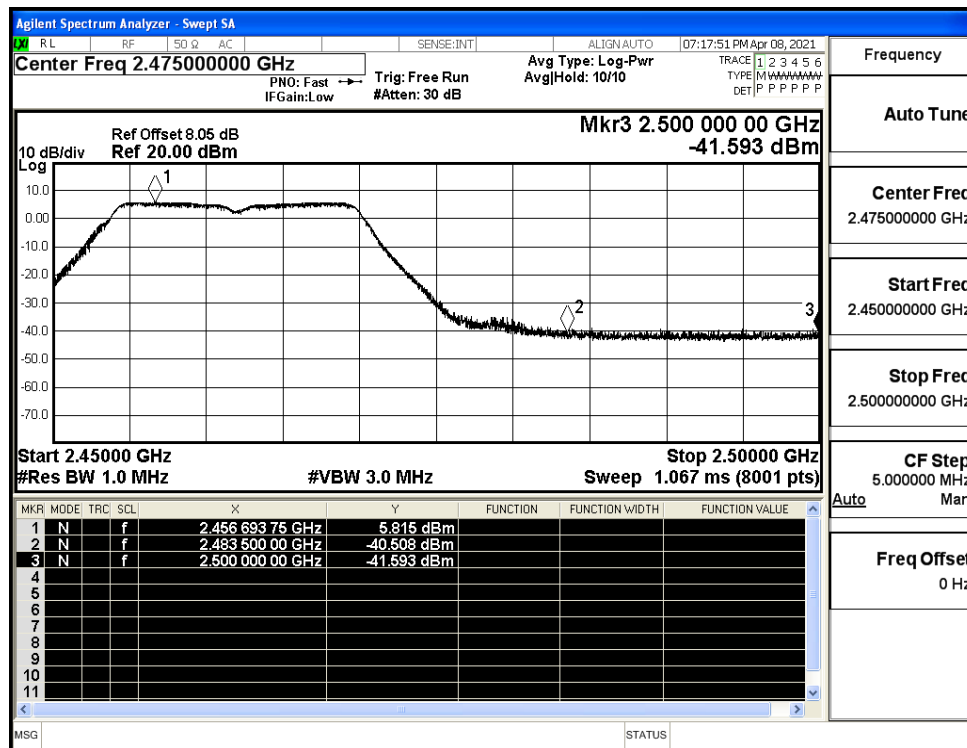
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



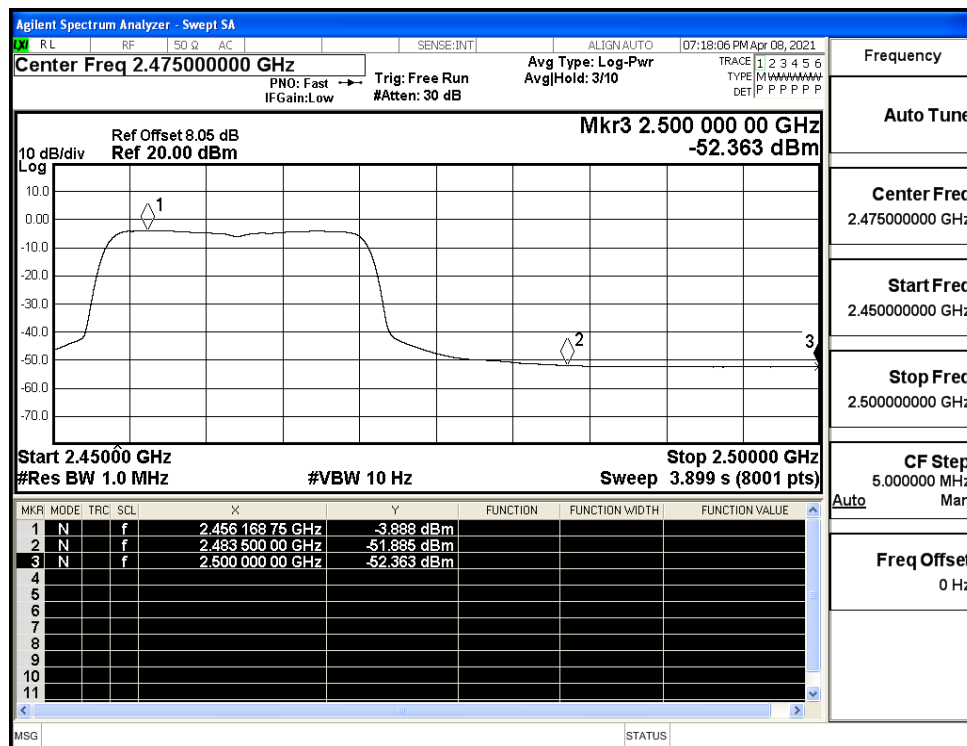
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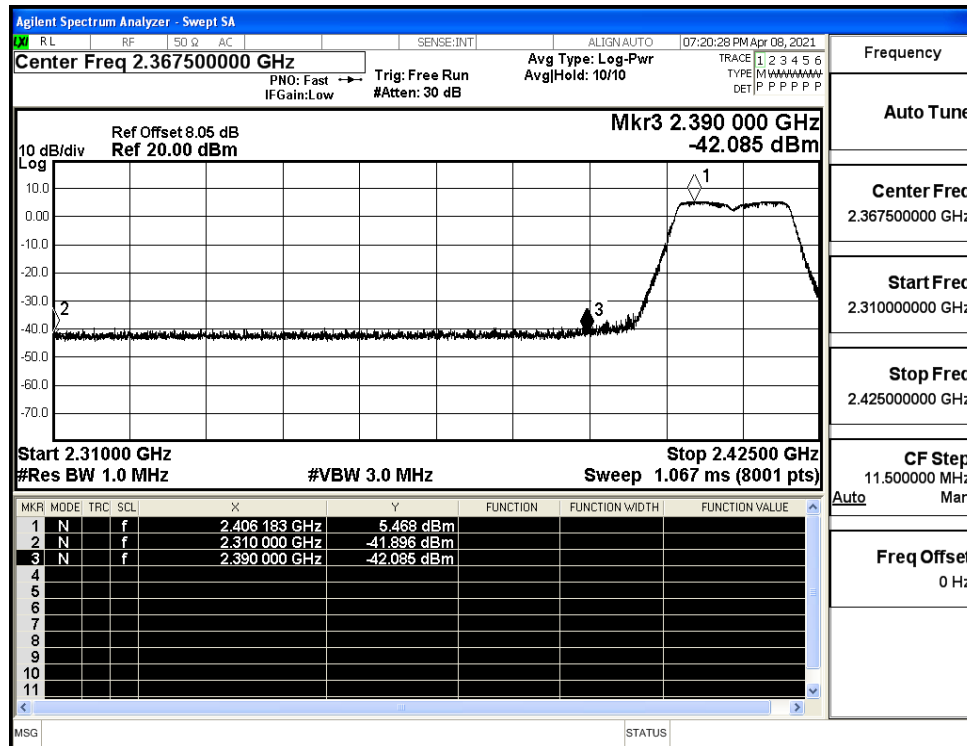
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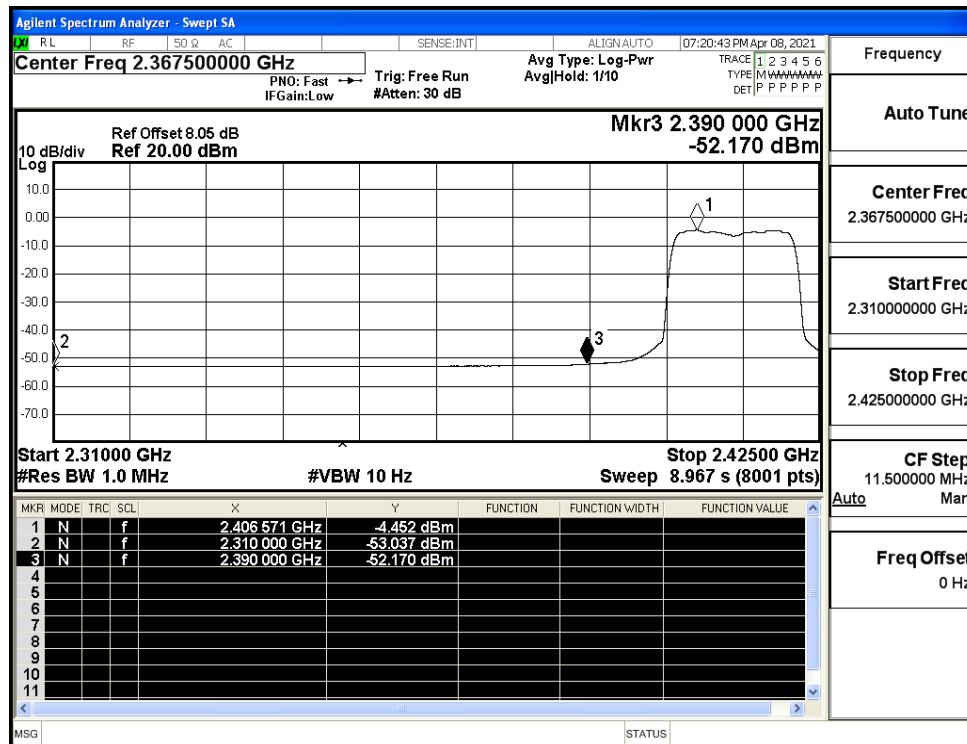
Restrict-band band-edge measurements_11G_2462_Ant1_AV



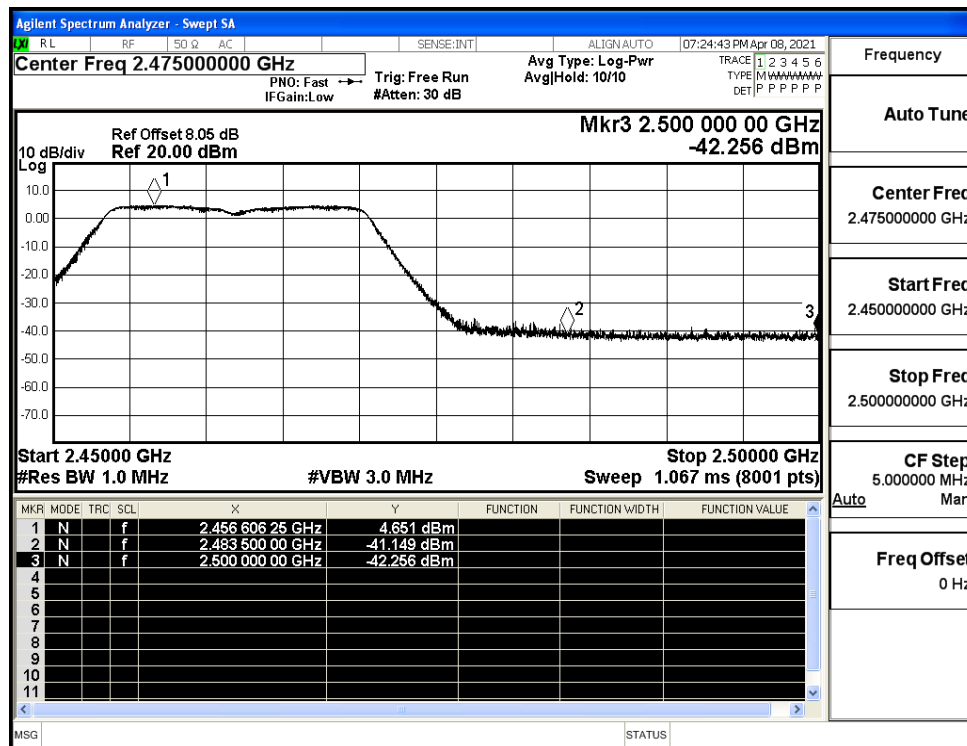
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



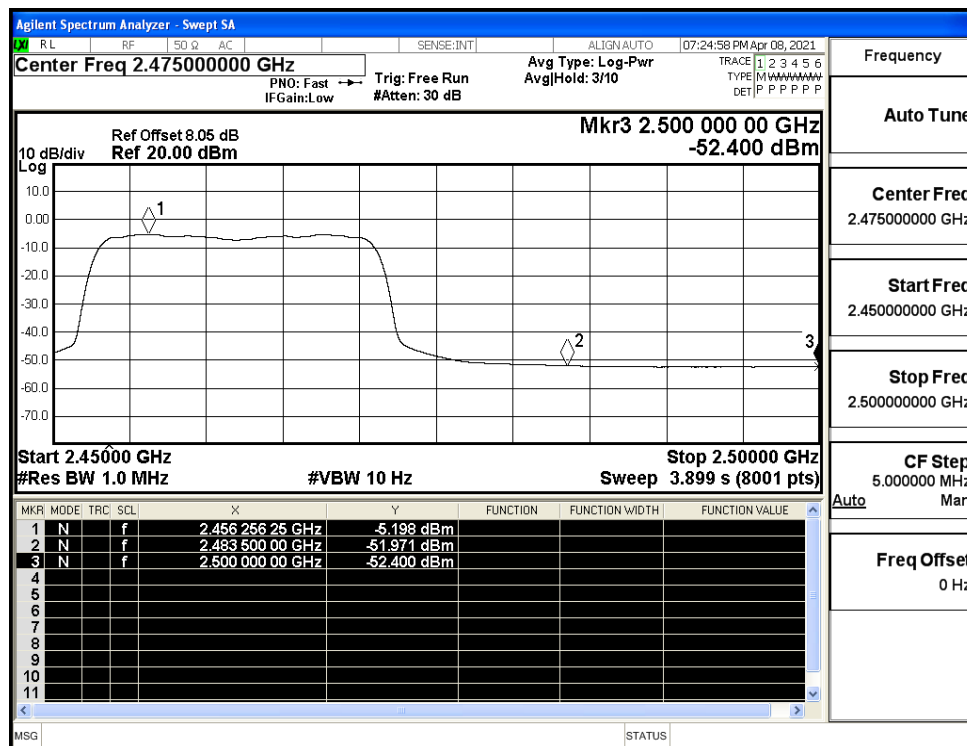
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



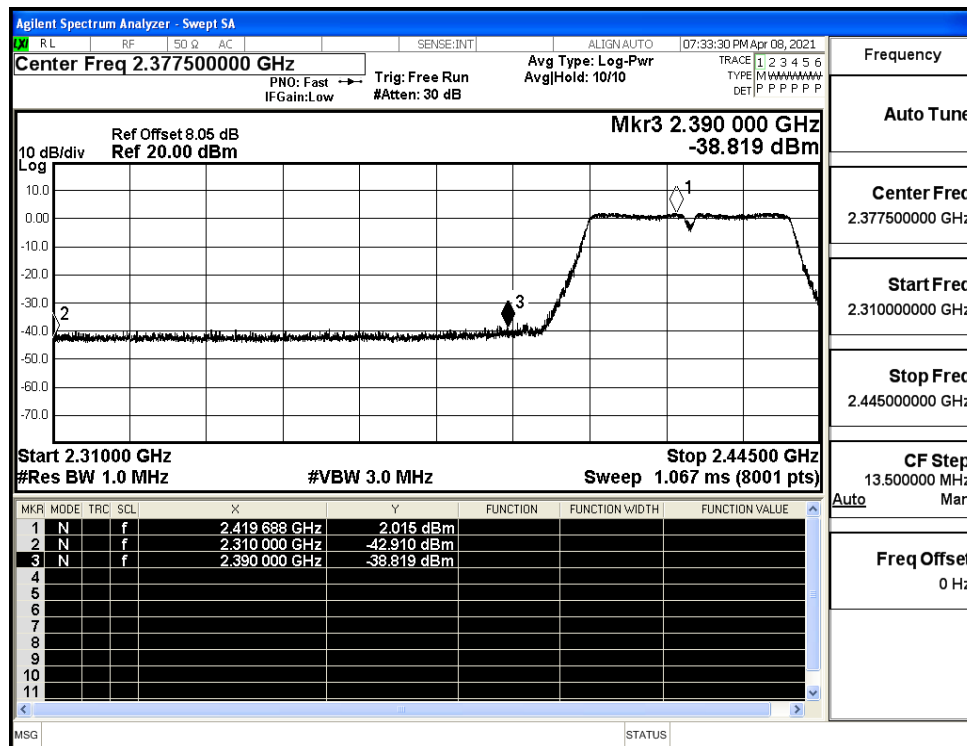
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



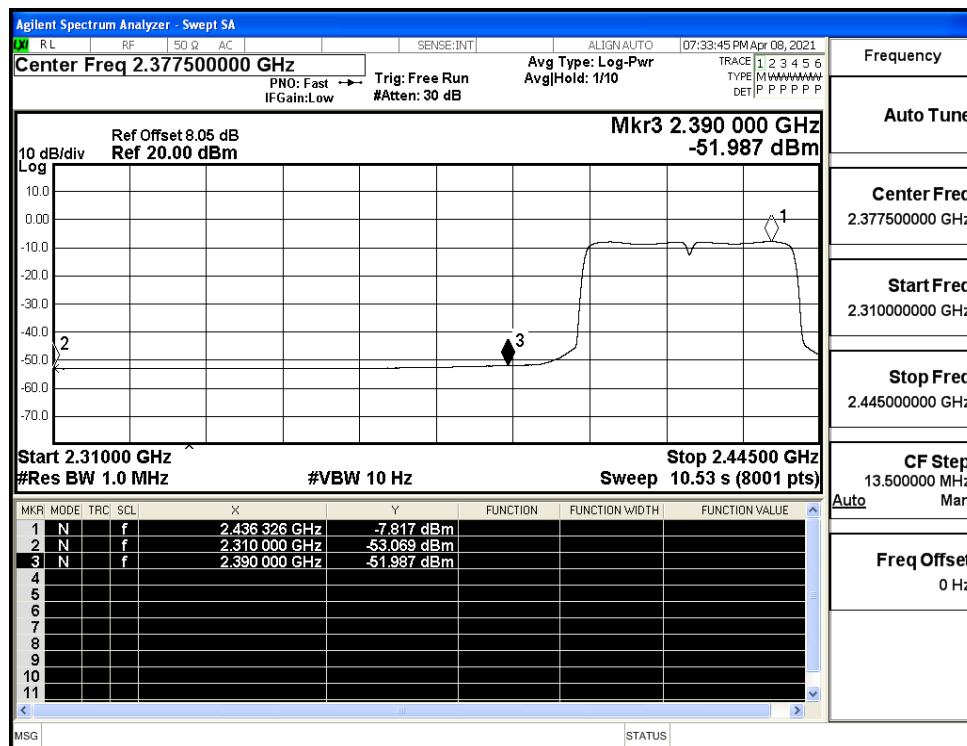
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



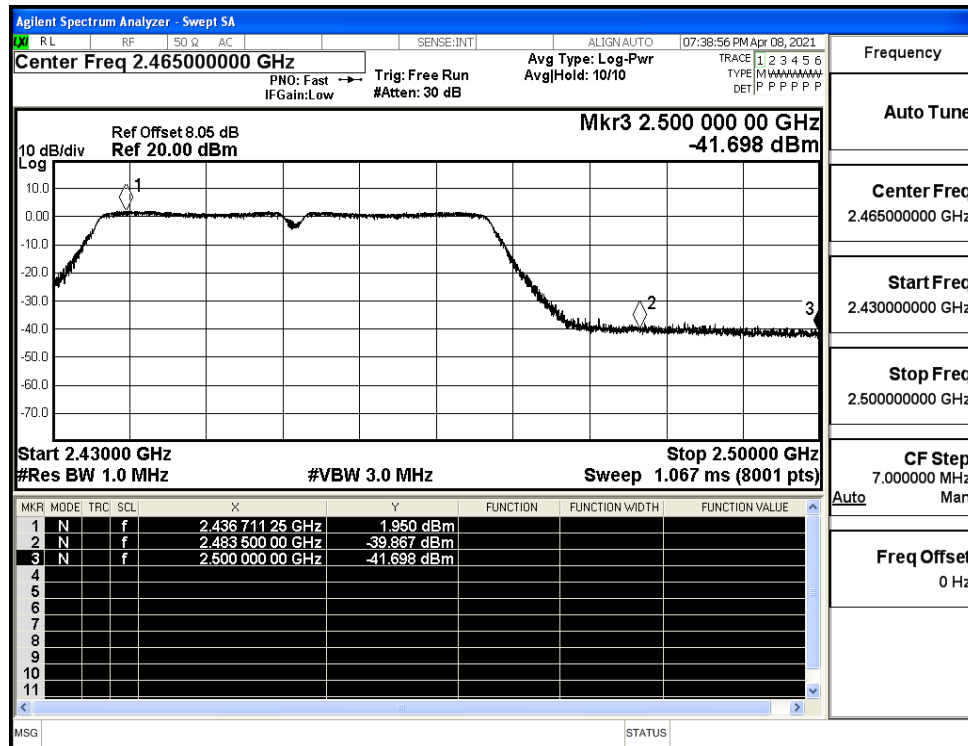
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

