

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: LED Projector

Trade Mark: VIMGO

Test Model: UNO V1

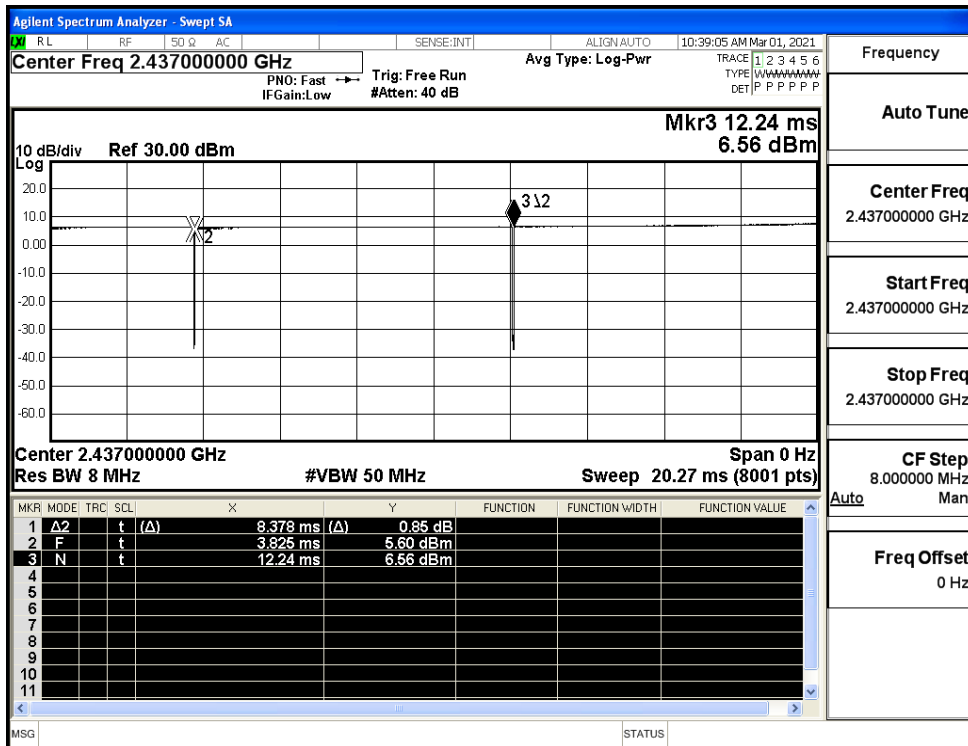
Environmental Conditions

Temperature:	24.2 ° C
Relative Humidity:	57.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

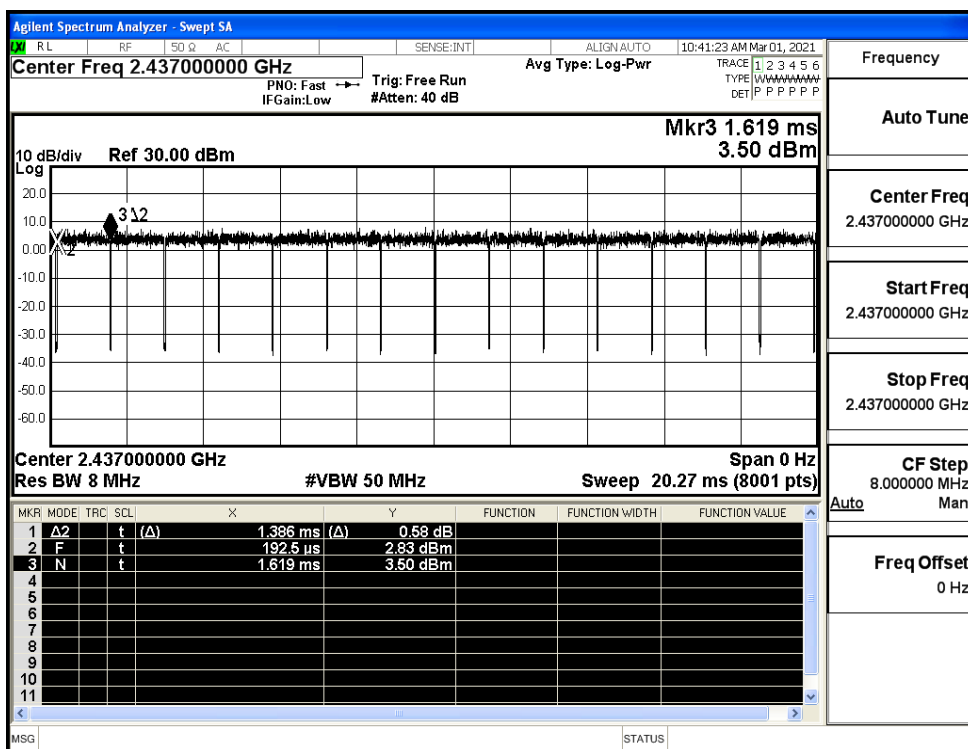
A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	10log(1/x) Factor (dB)	1/B Minimum VBW(KHz)
11B	2437	Ant1	99.47	0.02	0.01
11G	2437	Ant1	97.64	0.10	0.01
11N20SISO	2437	Ant1	96.73	0.14	0.01
11N40SISO	2437	Ant1	94.09	0.26	0.01

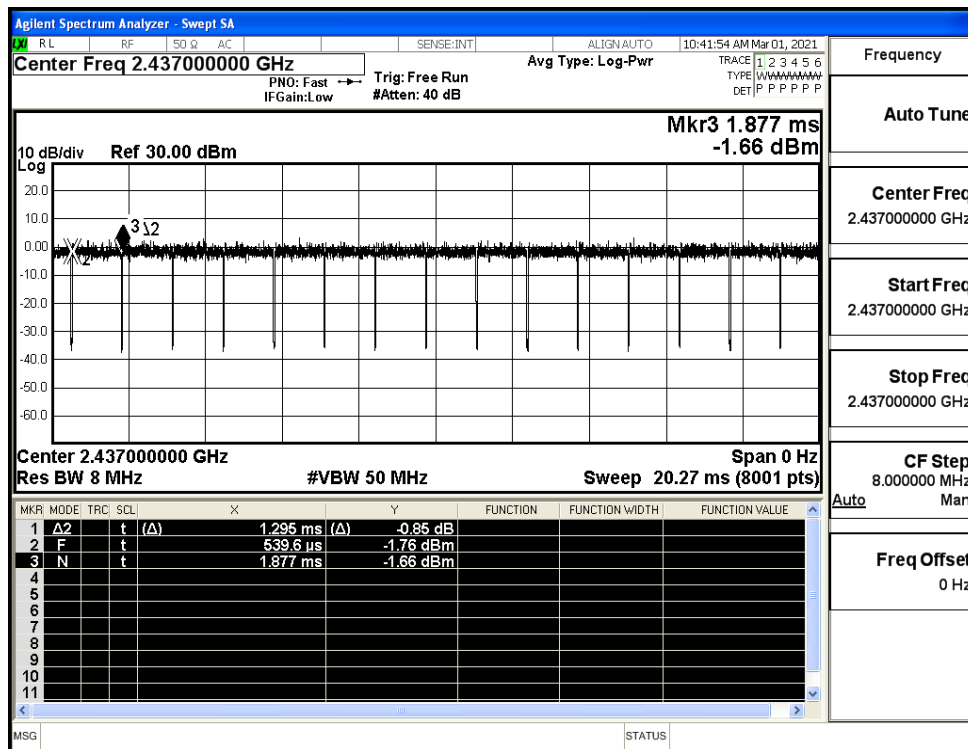
Duty Cycle_11B_2437_Ant1



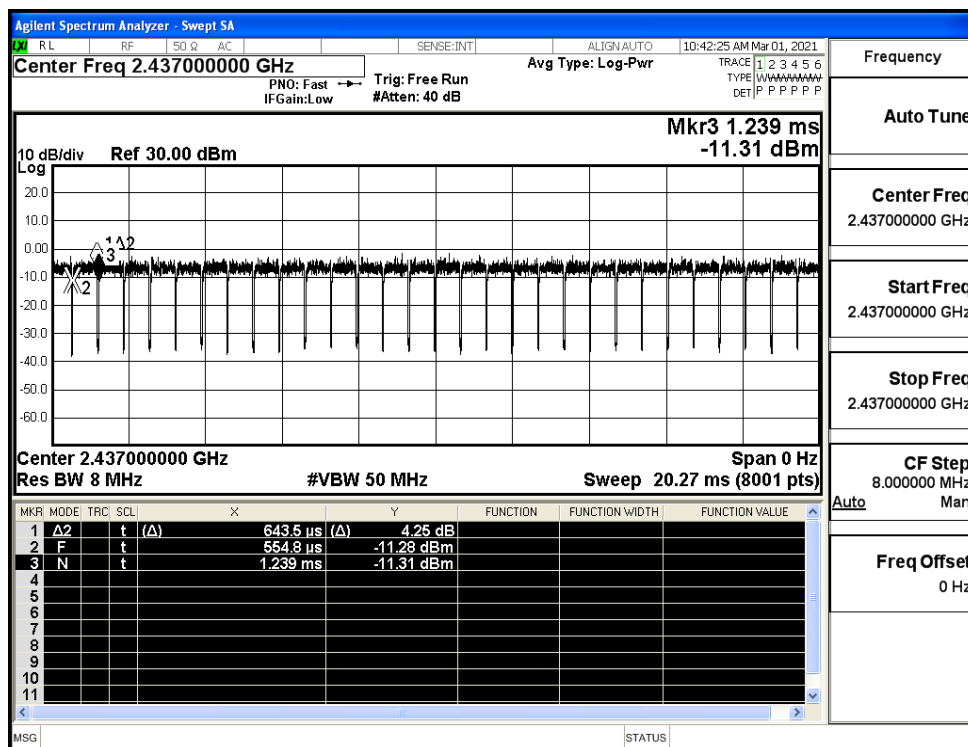
Duty Cycle_11G_2437_Ant1



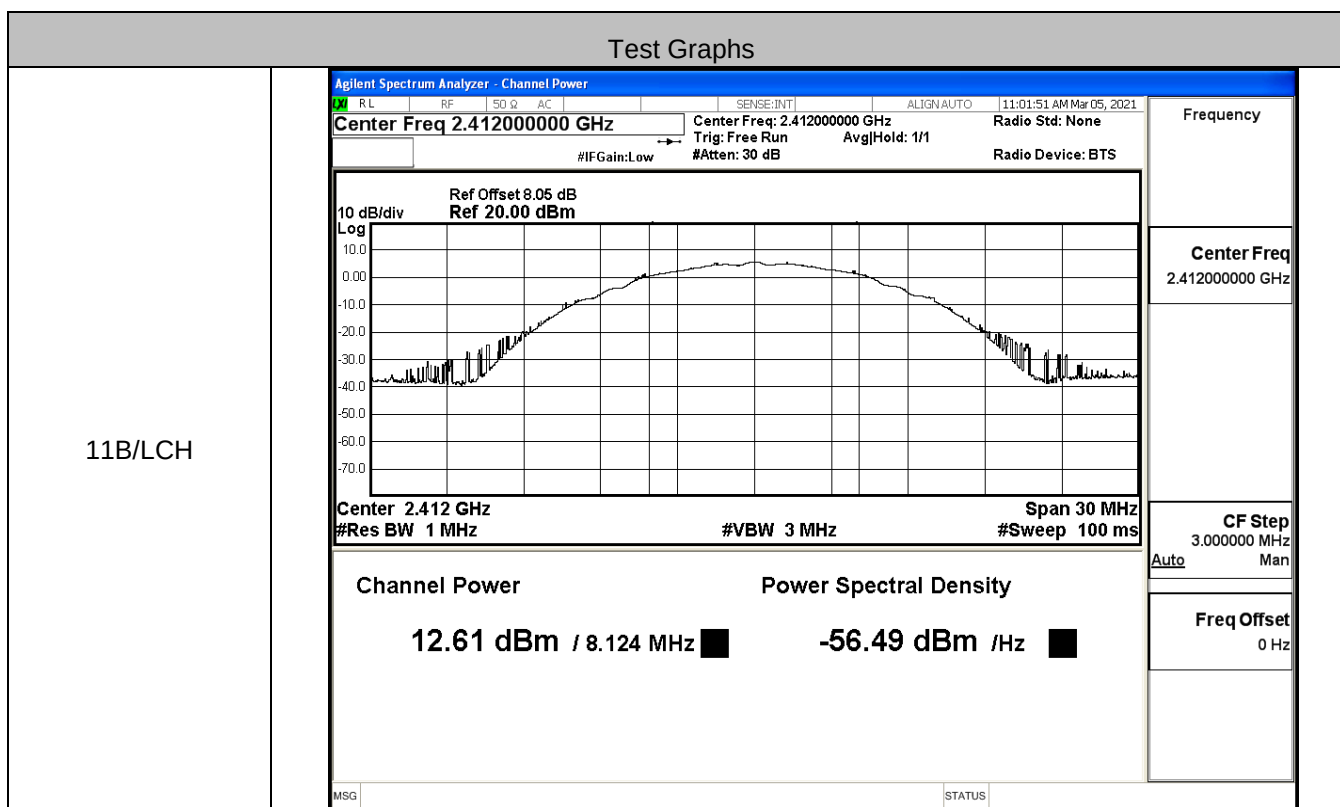
Duty Cycle_11N20SISO_2437_Ant1



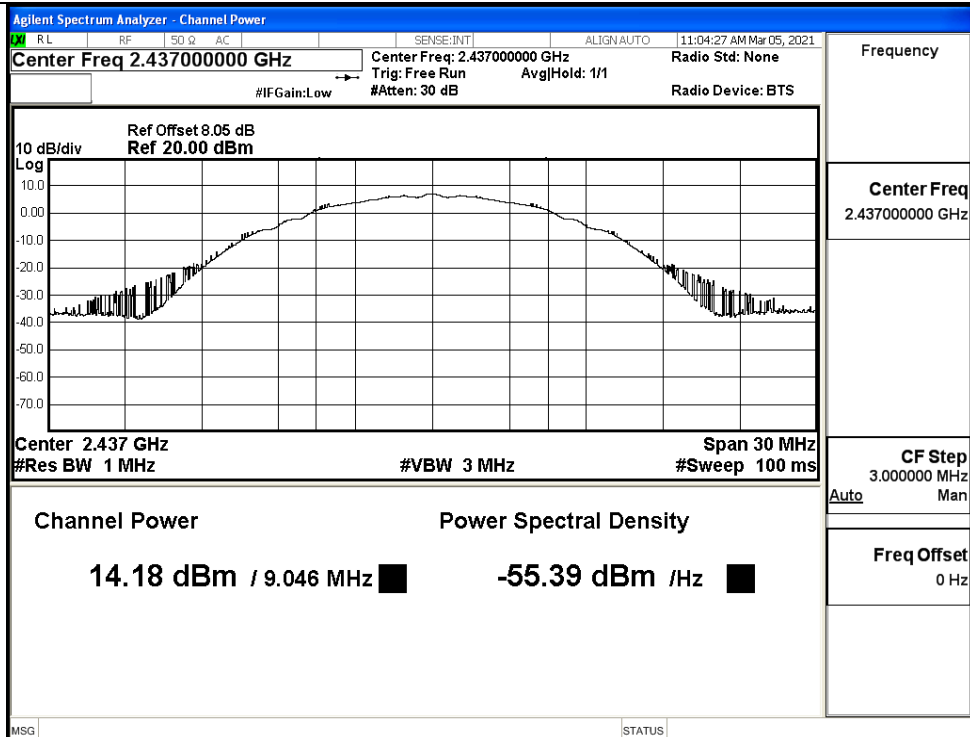
Duty Cycle_11N40SISO_2437_Ant1



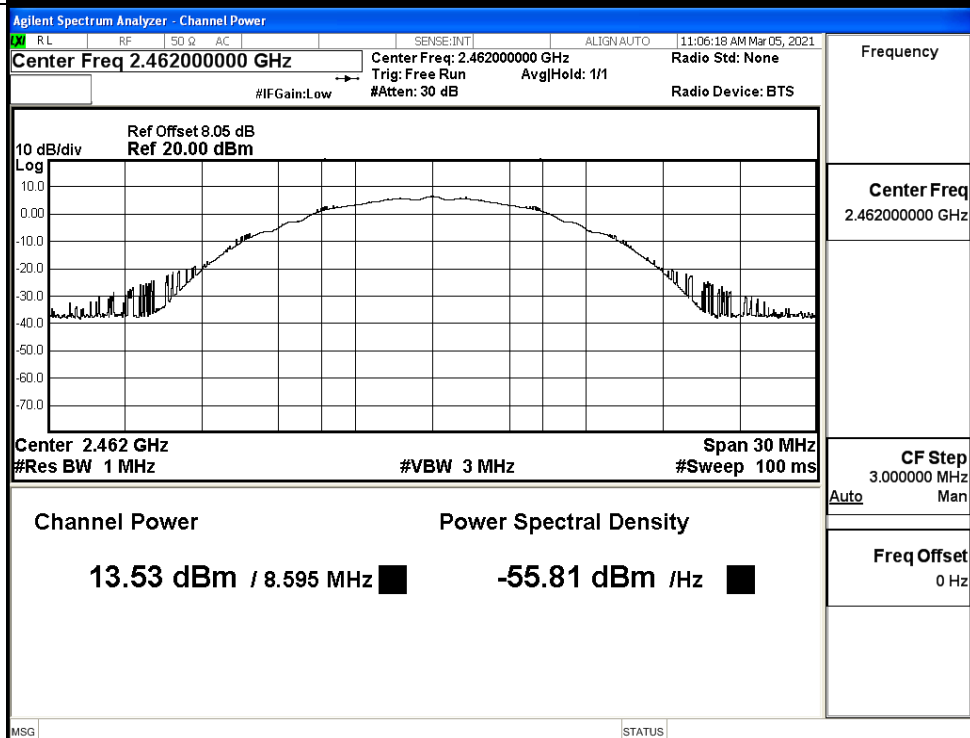
Mode	Channel	AVG Conducted Power (dBm)	Duty Cycle Factor(dB)	Report Conducted Power(dBm)	Limit [dBm]	Verdict
11B	LCH	12.61	0.02	12.63	30	PASS
	MCH	14.18	0.02	14.20	30	PASS
	HCH	13.53	0.02	13.55	30	PASS
11G	LCH	12.12	0.10	12.22	30	PASS
	MCH	13.4	0.10	13.50	30	PASS
	HCH	13.28	0.10	13.38	30	PASS
11N20SISO	LCH	12.25	0.14	12.39	30	PASS
	MCH	13.37	0.14	13.51	30	PASS
	HCH	13.14	0.14	13.28	30	PASS
11N40SISO	LCH	13.4	0.26	13.66	30	PASS
	MCH	14.17	0.26	14.43	30	PASS
	HCH	14.17	0.26	14.43	30	PASS



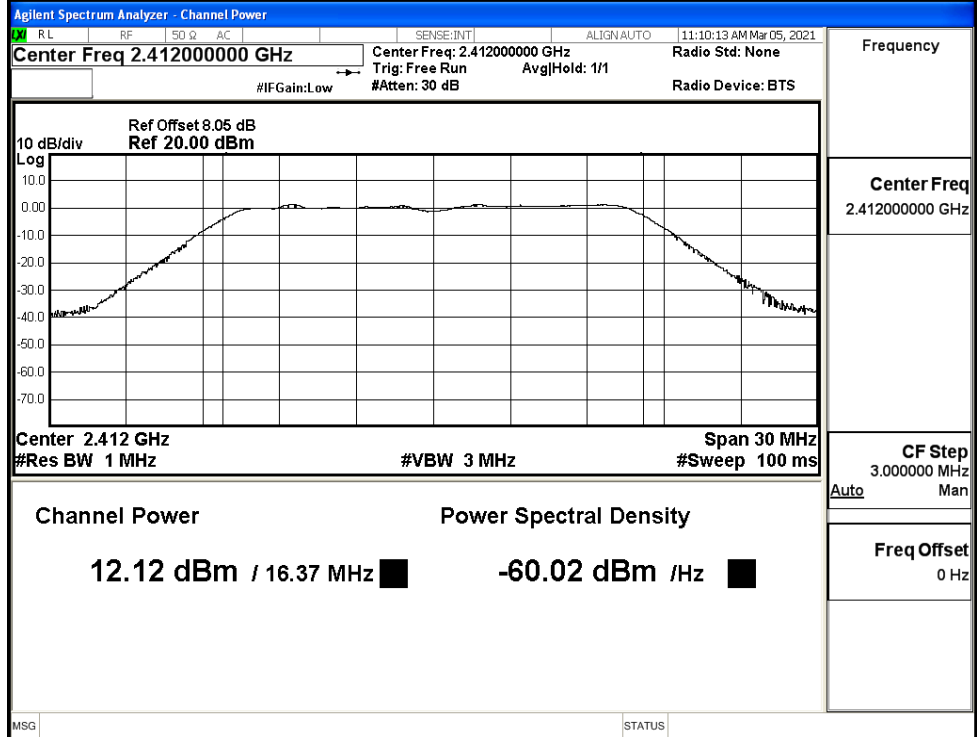
11B/MCH



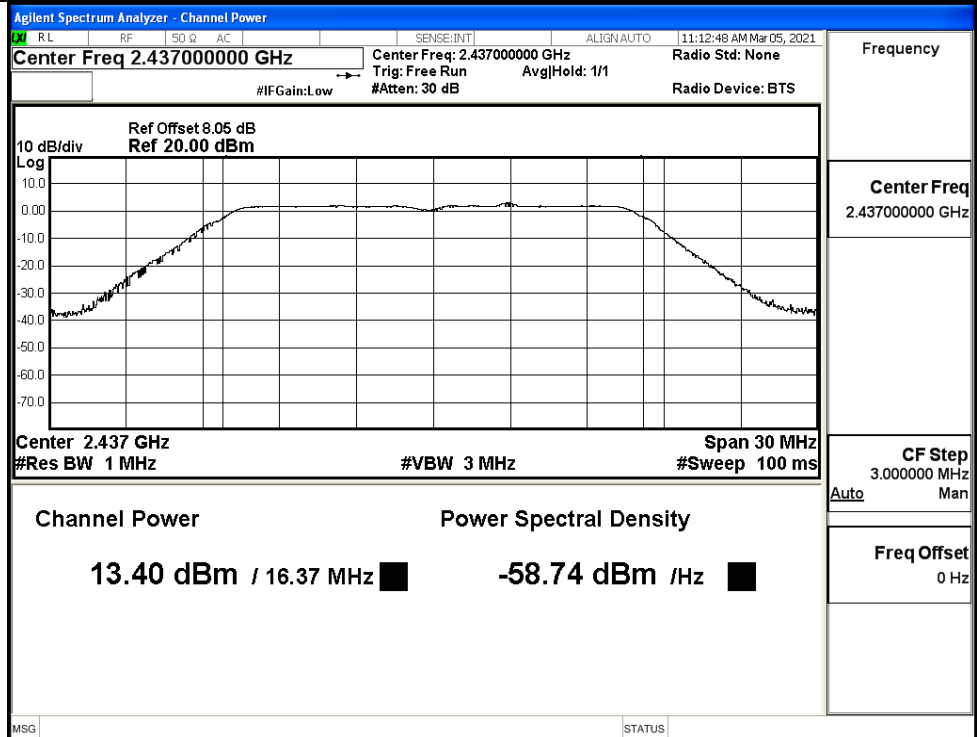
11B/HCH



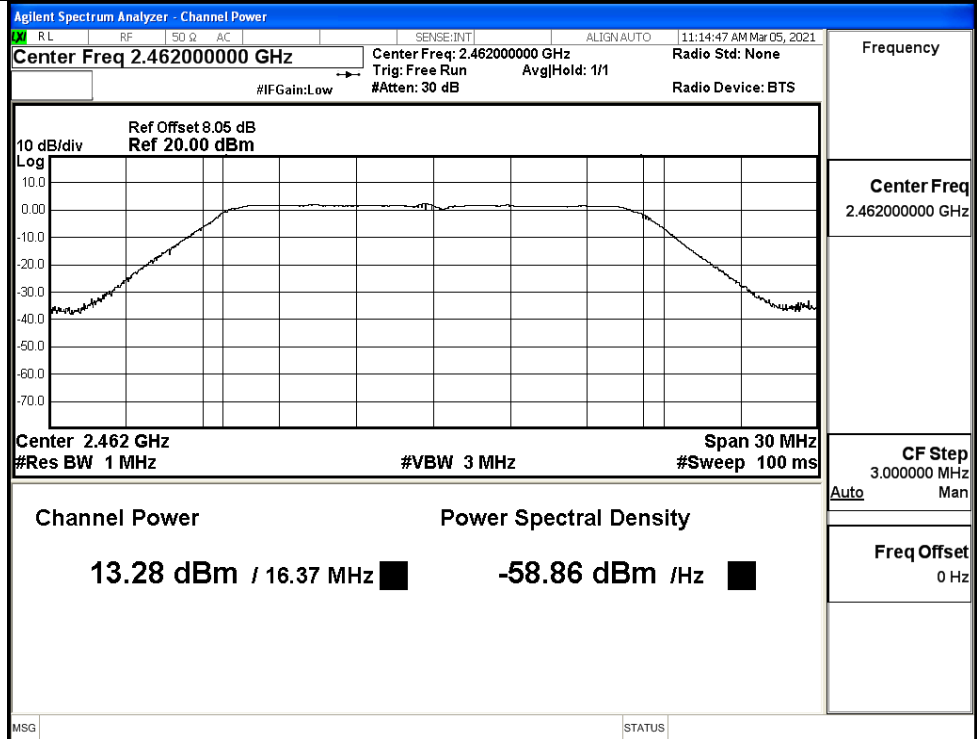
11G/LCH



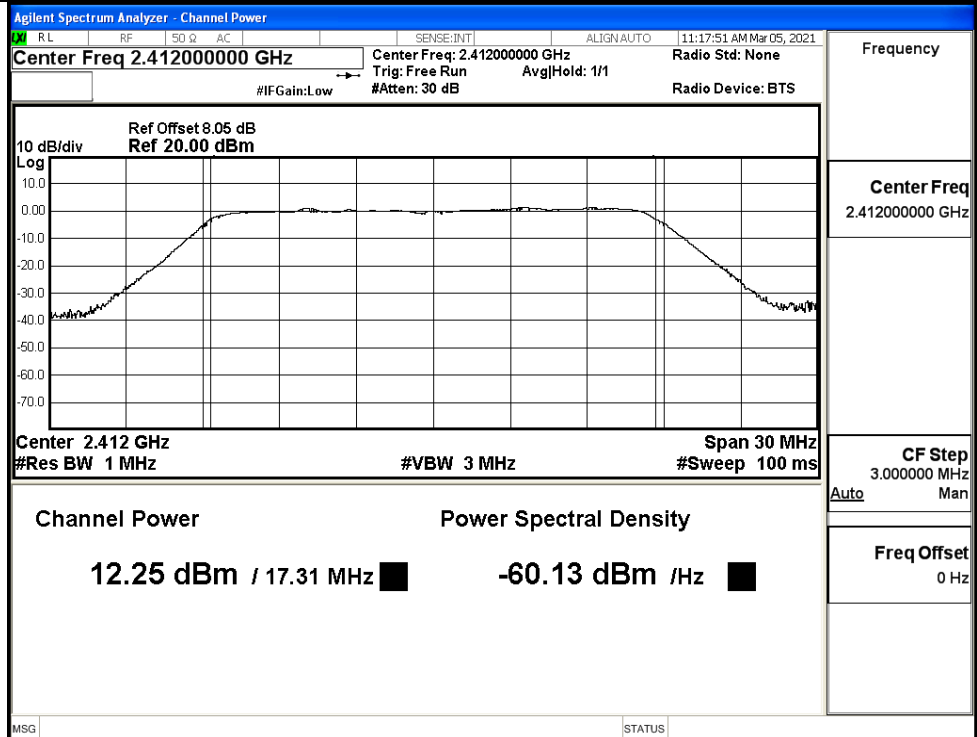
11G/MCH



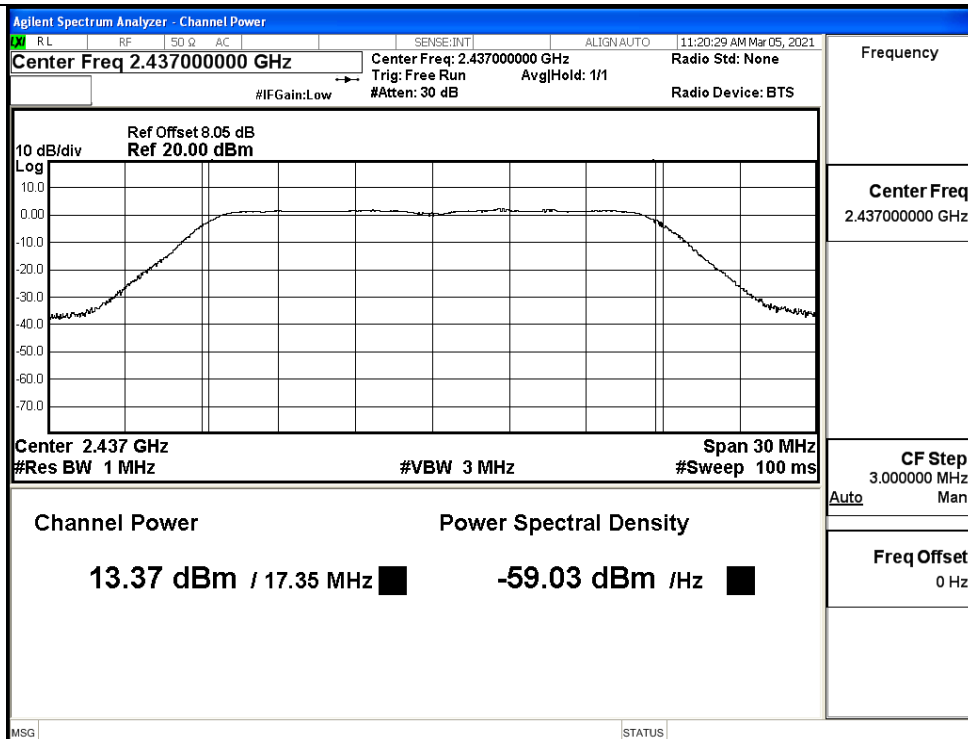
11G/HCH



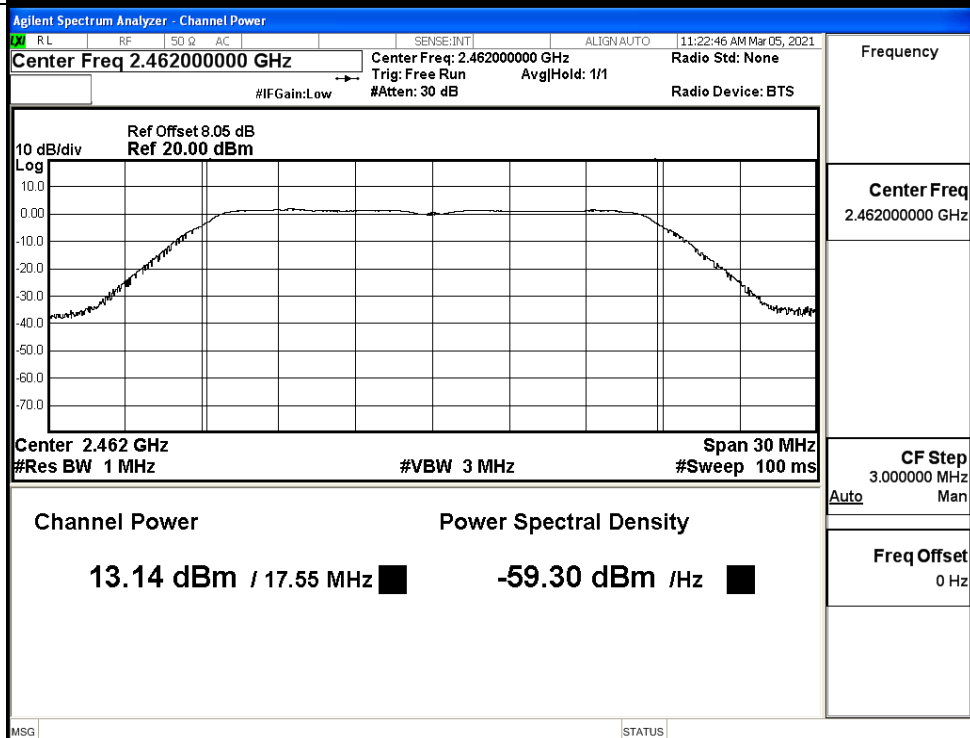
11N20SISO/LCH



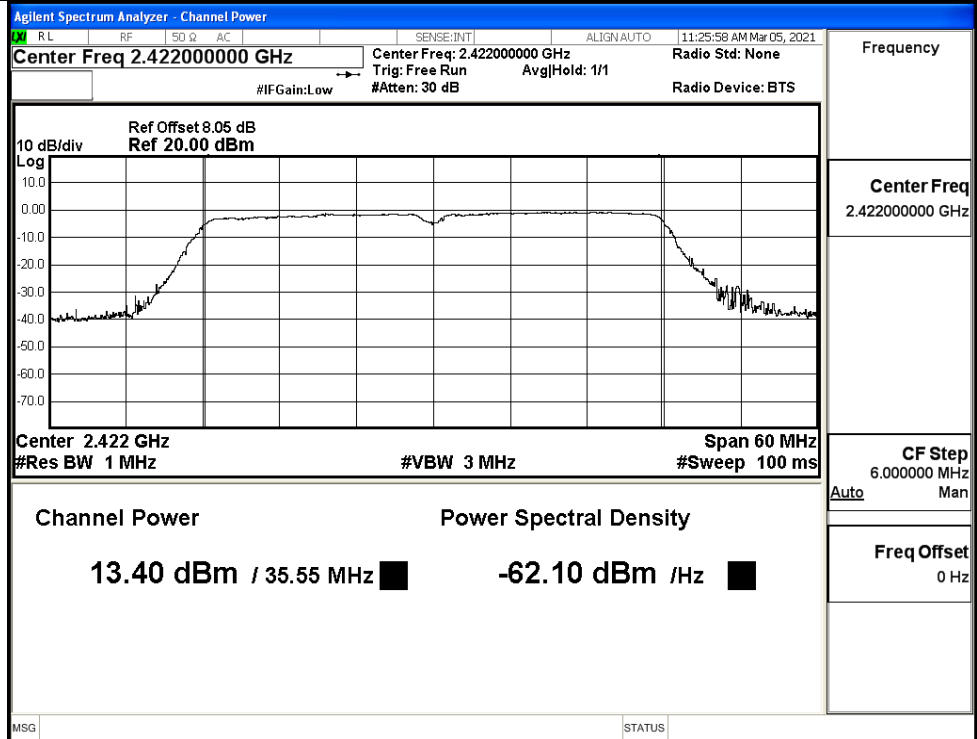
11N20SISO/MCH



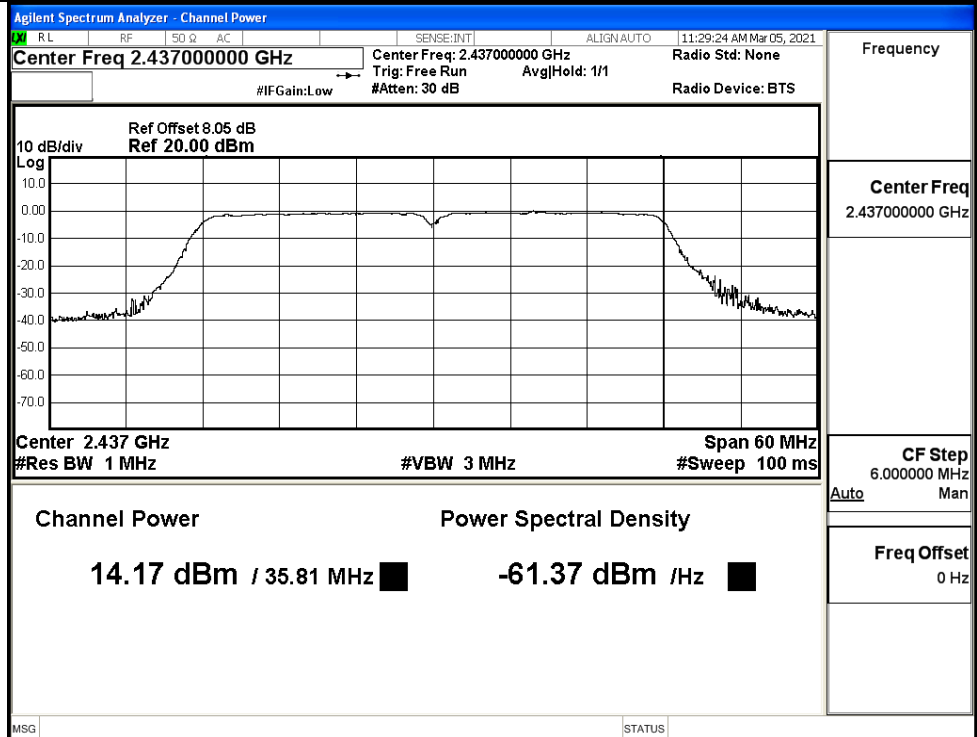
11N20SISO/HCH



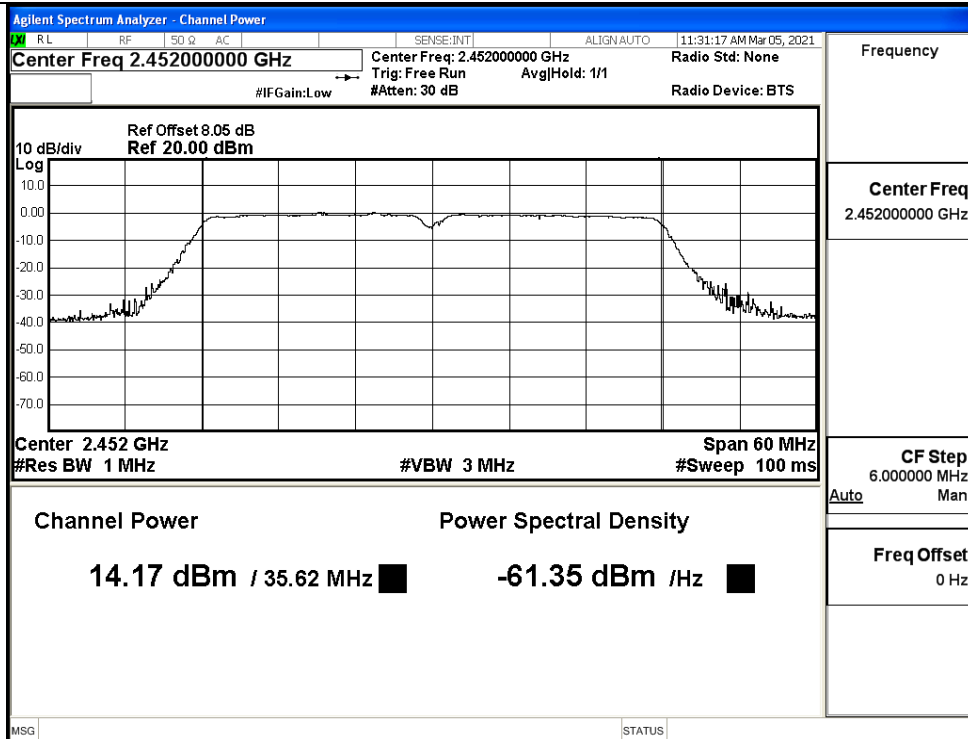
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

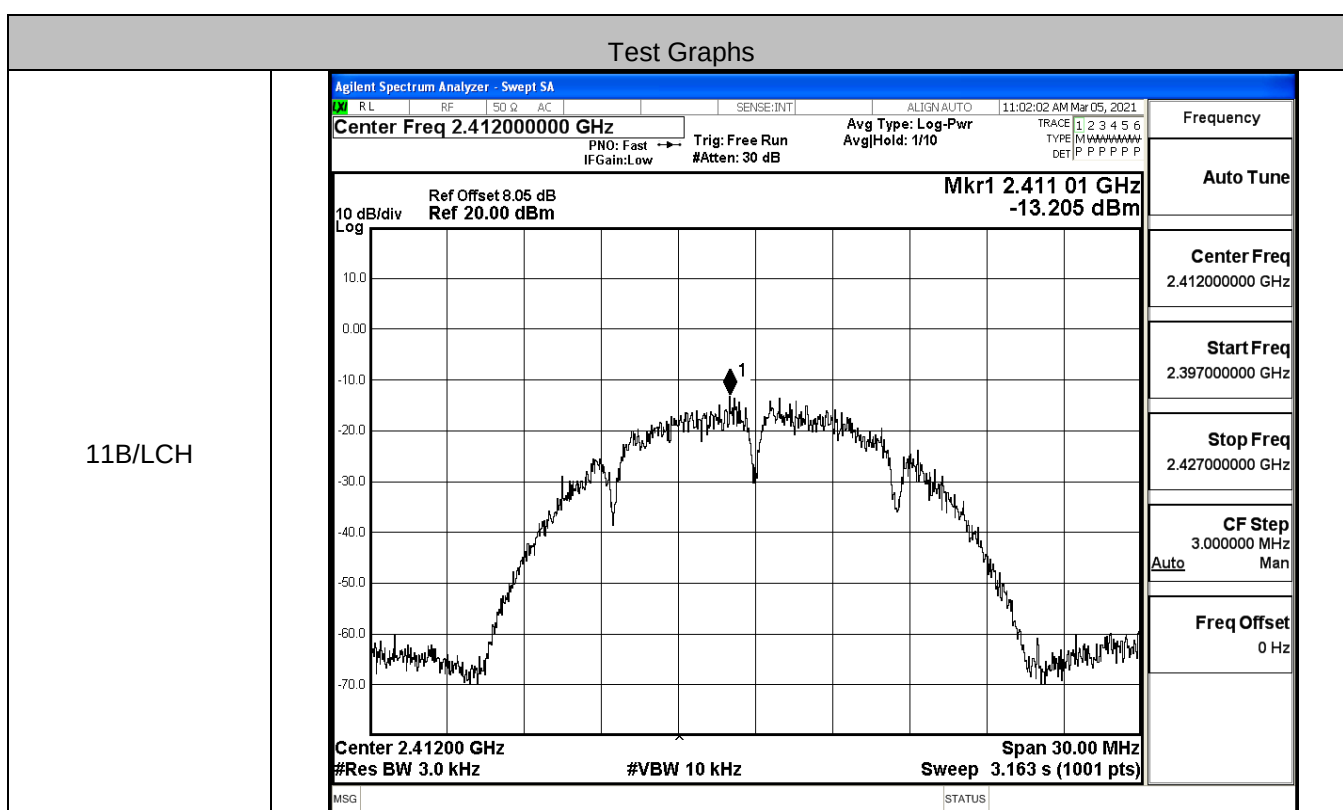


A.3 Maximum Power Spectral Density

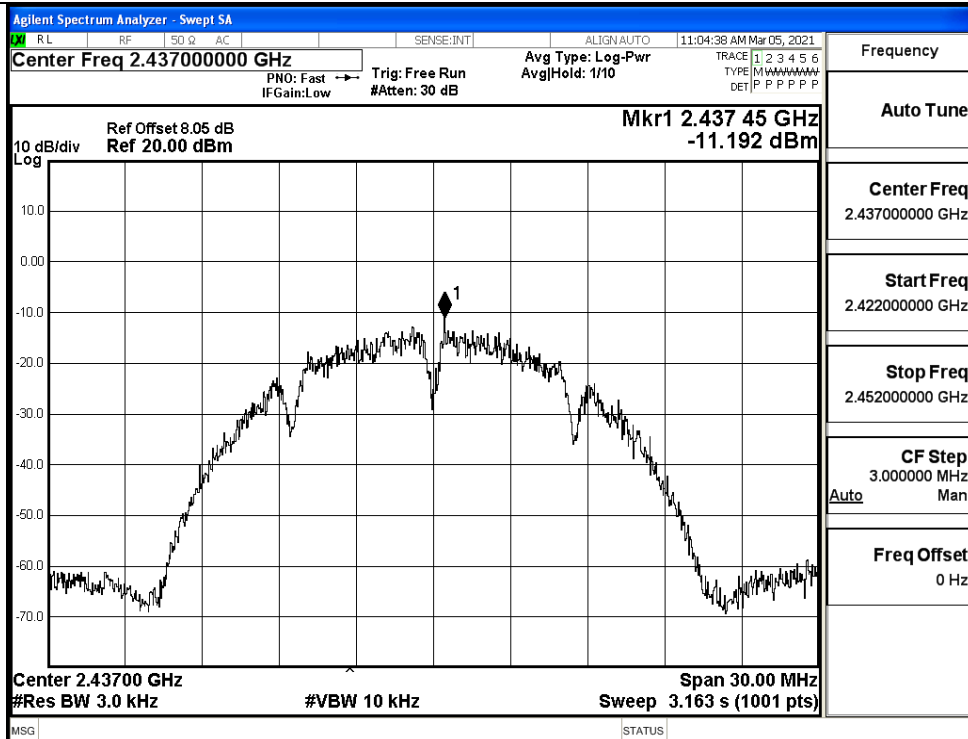
Mode	Channel	Power Density [dBm/3KHz]	Duty Cycle Factor (dB)	RBW Factor (dB)	Report Power Density [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-13.205	0.02	0	-13.185	8	PASS
	MCH	-11.192	0.02	0	-11.172	8	PASS
	HCH	-12.956	0.02	0	-12.936	8	PASS
11G	LCH	-22.123	0.10	0	-22.023	8	PASS
	MCH	-19.882	0.10	0	-19.782	8	PASS
	HCH	-20.474	0.10	0	-20.374	8	PASS
11N20 SISO	LCH	-21.639	0.14	0	-21.499	8	PASS
	MCH	-20.612	0.14	0	-20.472	8	PASS
	HCH	-20.913	0.14	0	-20.773	8	PASS
11N40 SISO	LCH	-22.751	0.26	0	-22.491	8	PASS
	MCH	-22.180	0.26	0	-21.92	8	PASS
	HCH	-21.521	0.26	0	-21.261	8	PASS

Note: 1. $RBW\ Factor(dB) = 10\log(3/3)$

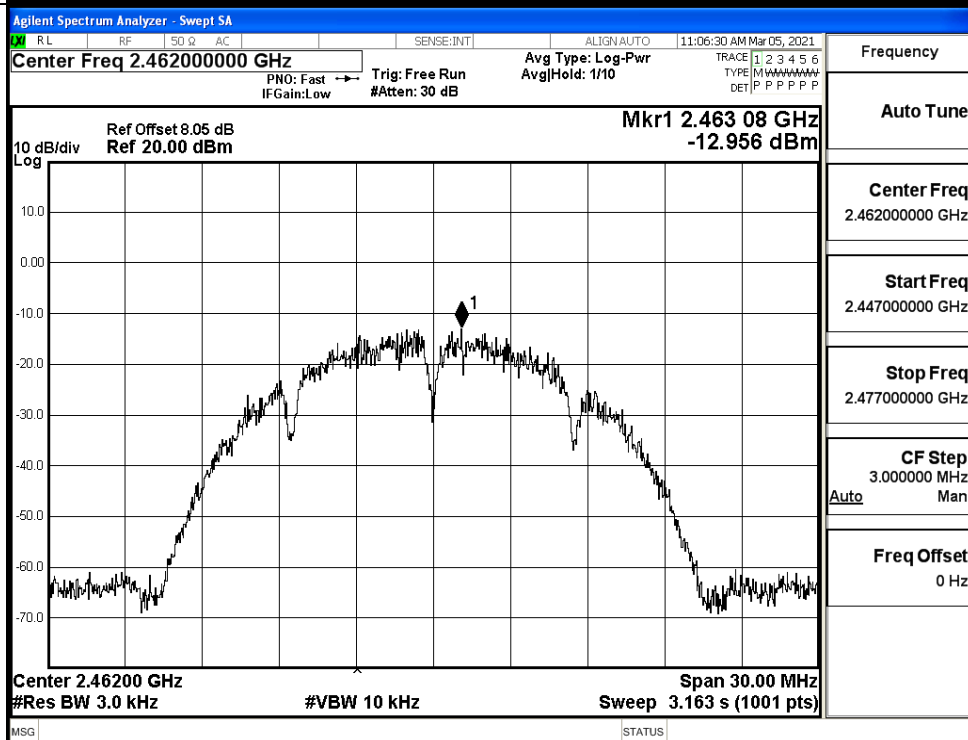
2. $Report\ Power\ Density\ [dBm/3KHz] = Power\ Density[dBm/3KHz] + Duty\ Cycle\ Factor(dB) + RBW\ Factor(dB)$



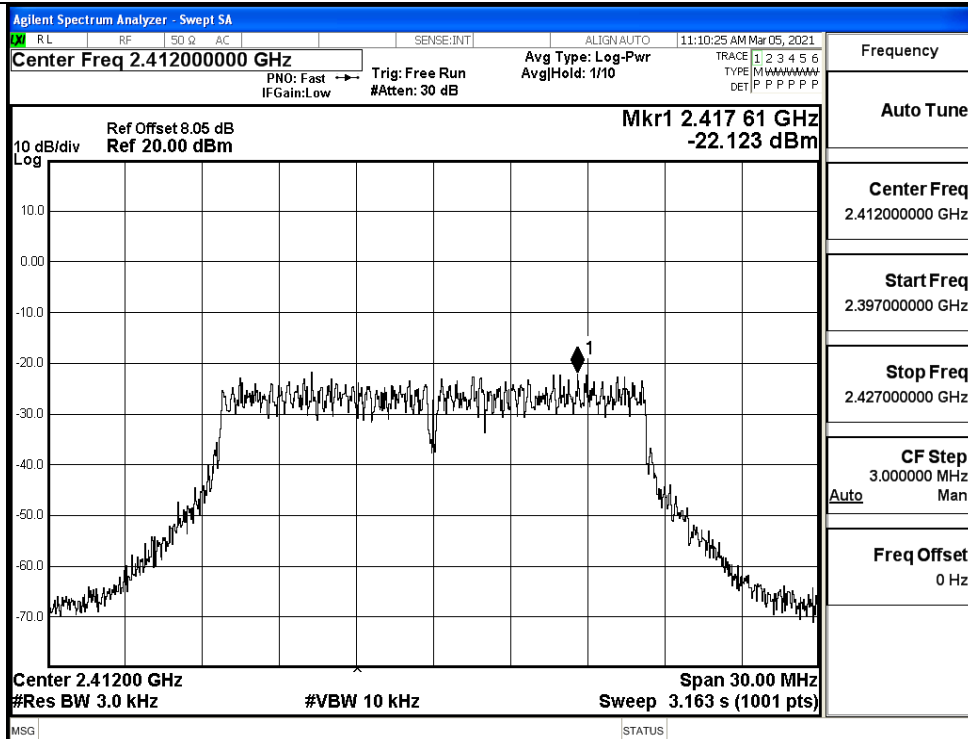
11B/MCH



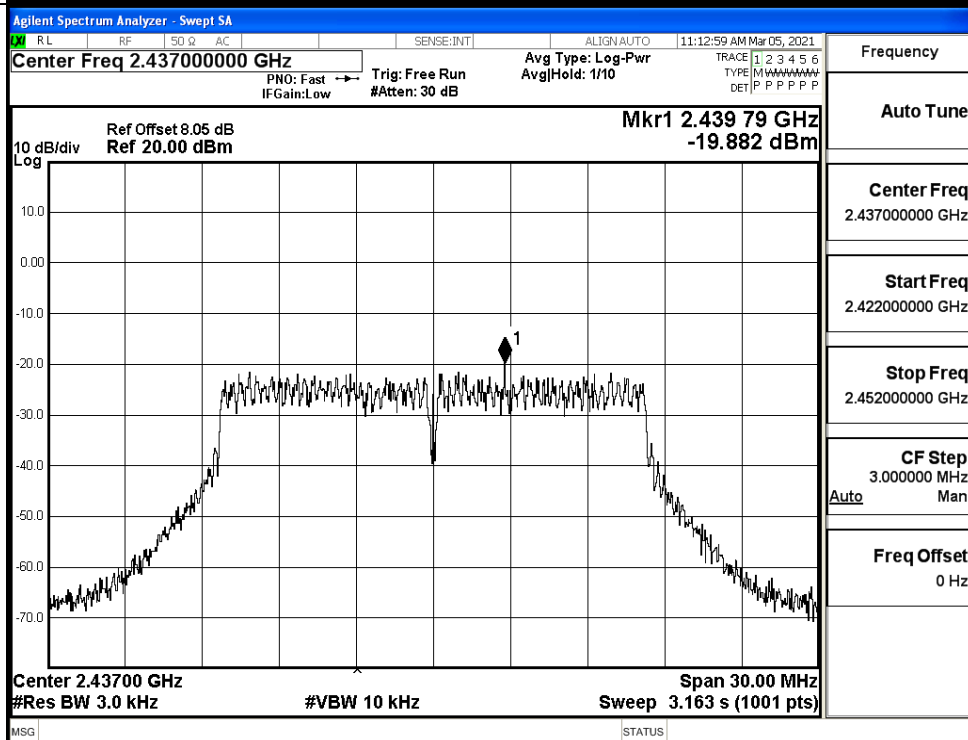
11B/HCH



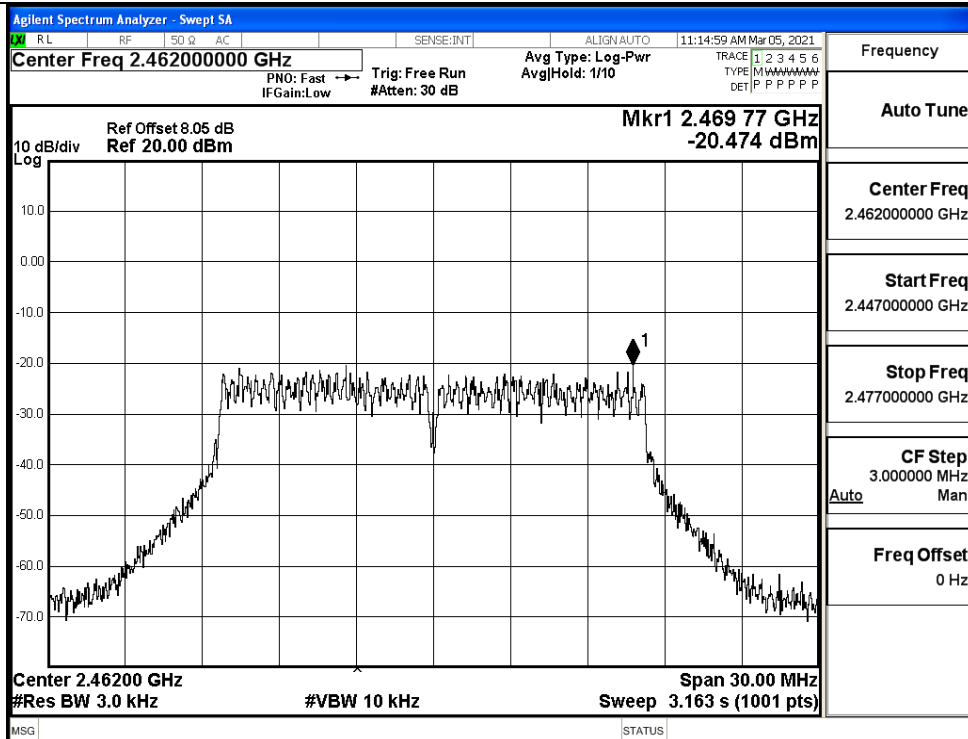
11G/LCH



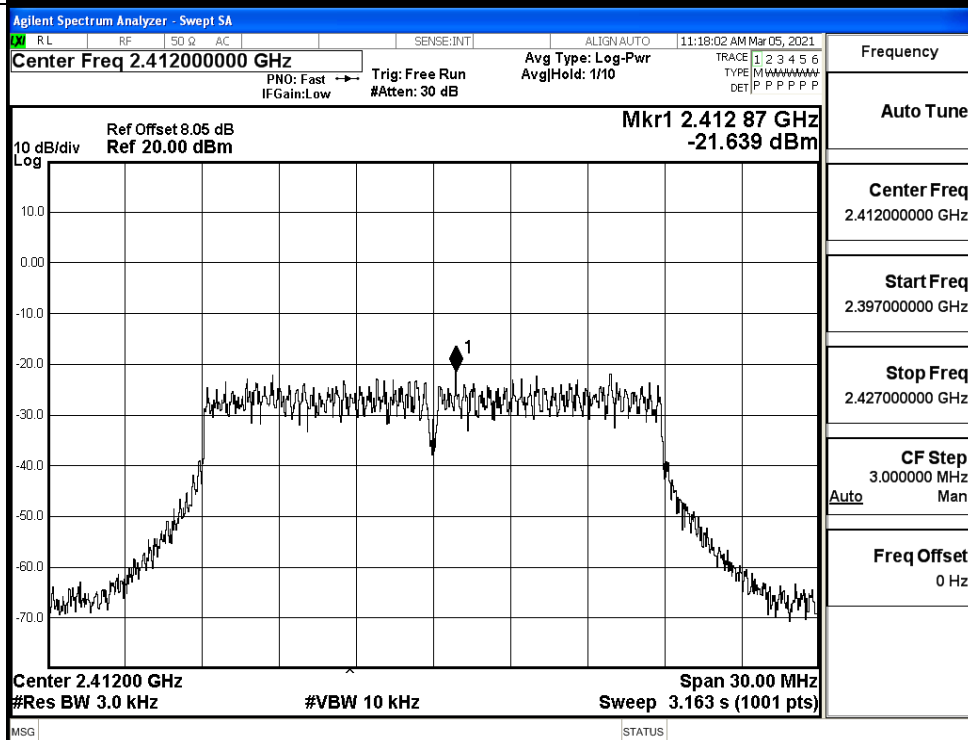
11G/MCH



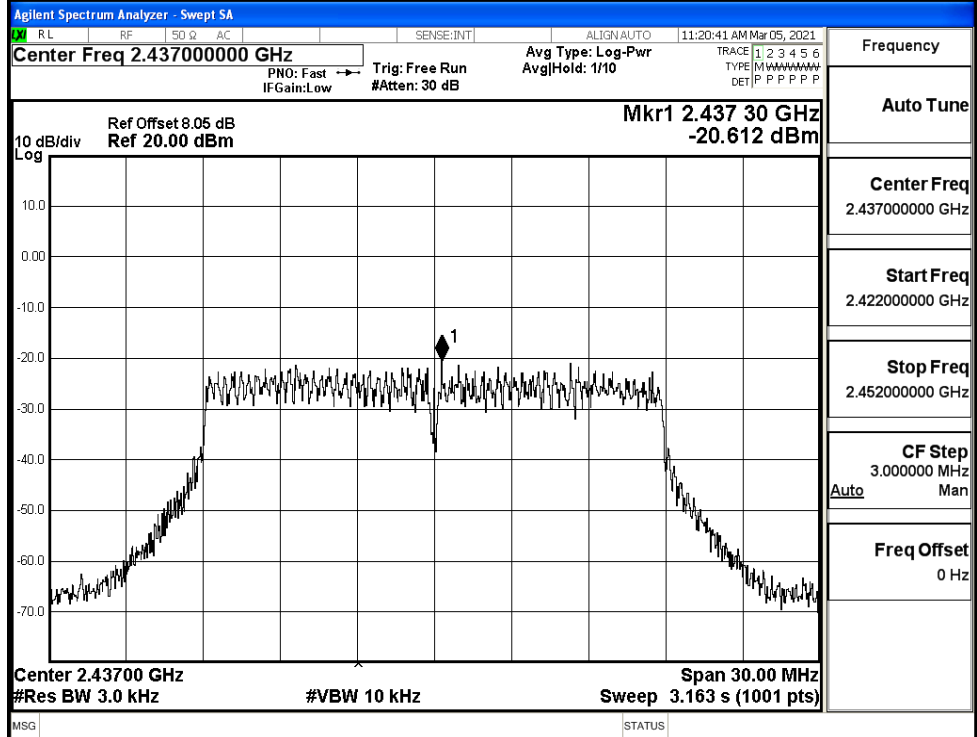
11G/HCH



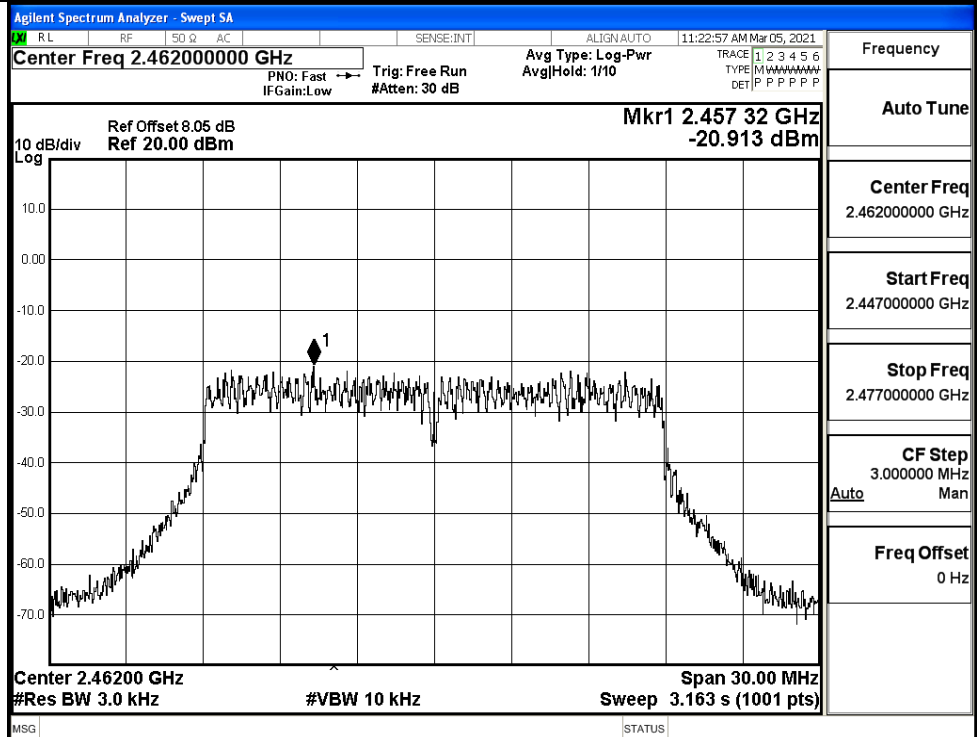
11N20SISO/LCH



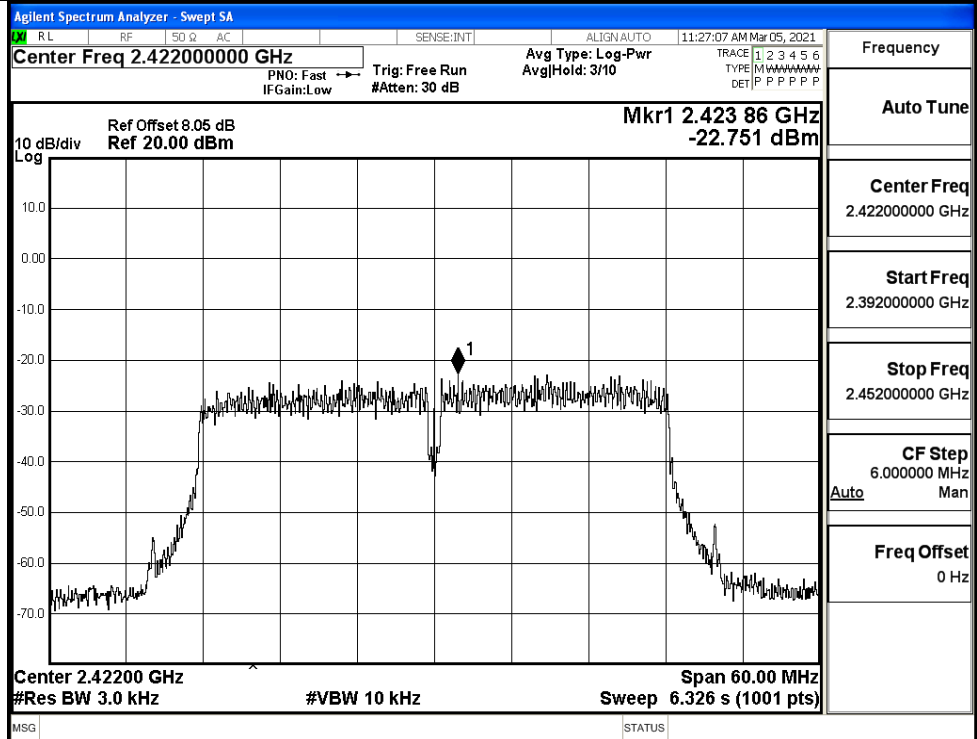
11N20SISO/MCH



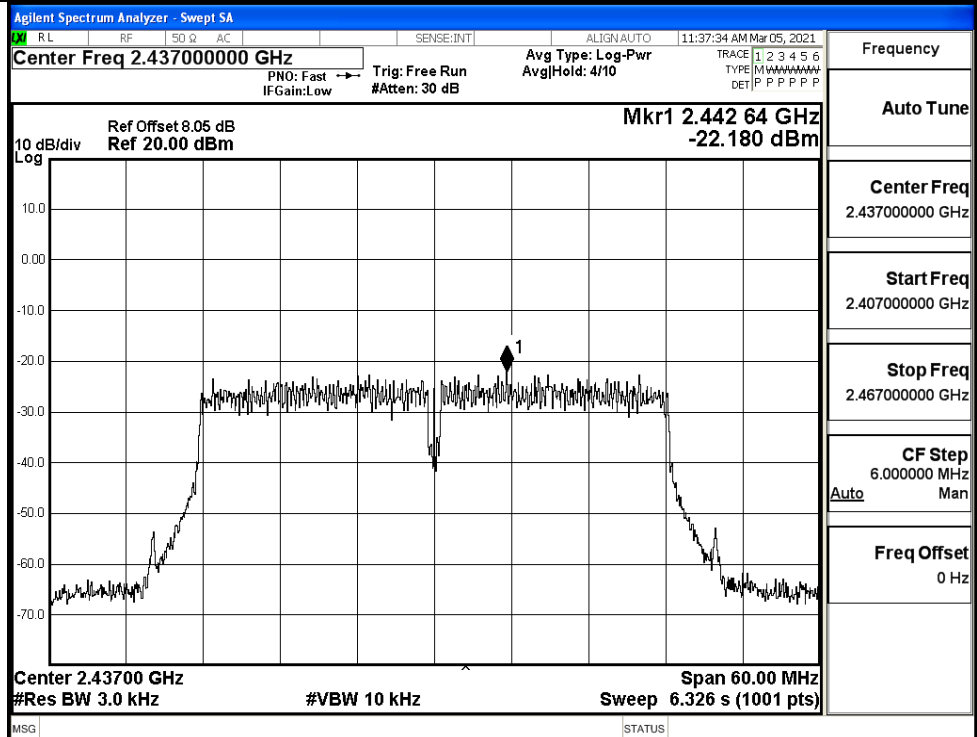
11N20SISO/HCH



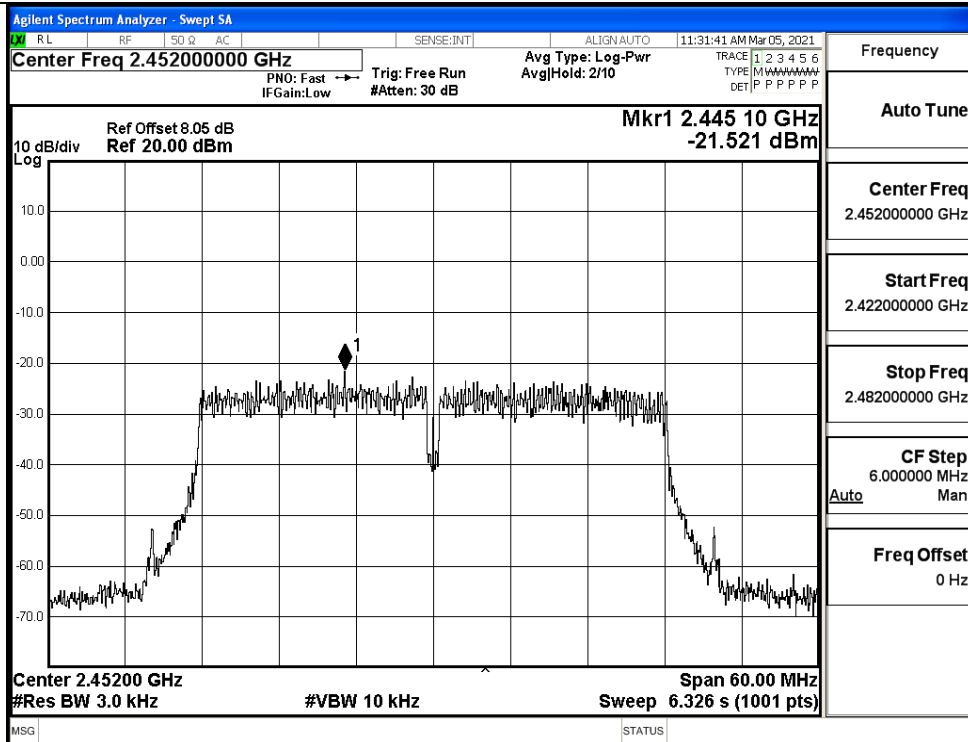
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

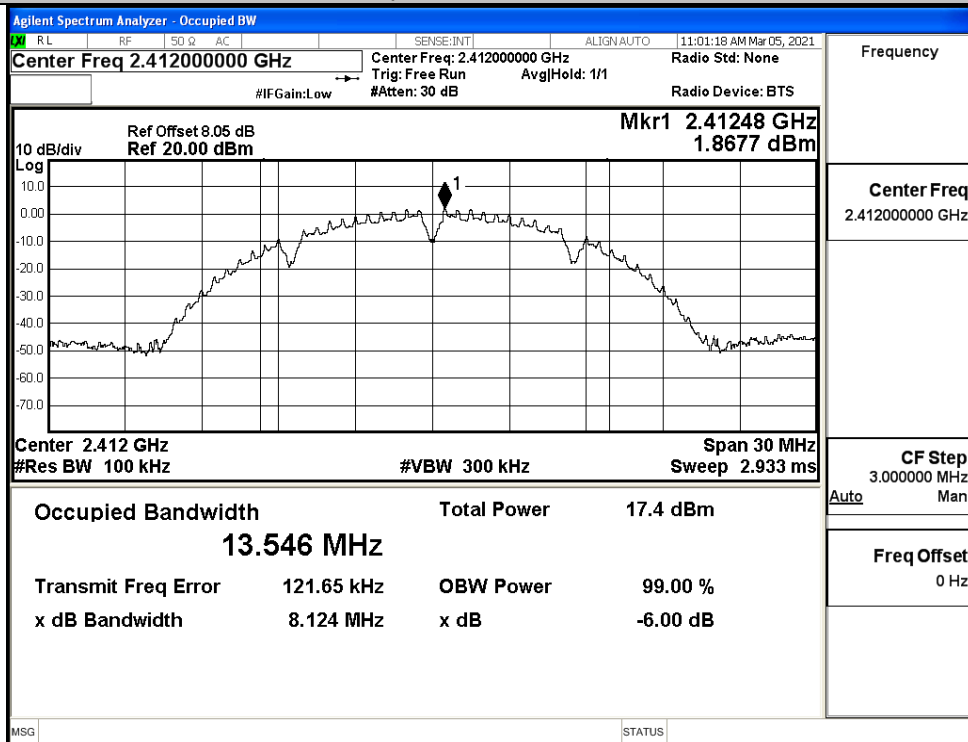


A.4 6dB Bandwidth

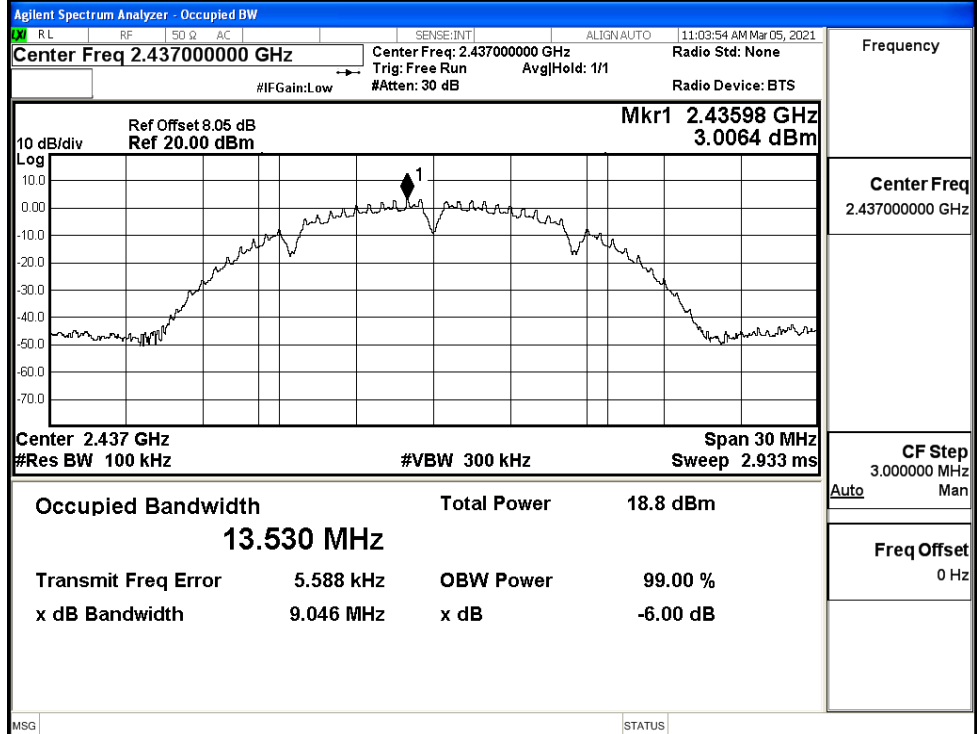
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	8.124	≥ 0.5	PASS
	MCH	9.046	≥ 0.5	PASS
	HCH	8.595	≥ 0.5	PASS
11G	LCH	16.37	≥ 0.5	PASS
	MCH	16.37	≥ 0.5	PASS
	HCH	16.37	≥ 0.5	PASS
11N20SISO	LCH	17.31	≥ 0.5	PASS
	MCH	17.35	≥ 0.5	PASS
	HCH	17.55	≥ 0.5	PASS
11N40SISO	LCH	35.55	≥ 0.5	PASS
	MCH	35.81	≥ 0.5	PASS
	HCH	35.62	≥ 0.5	PASS

Test Graphs

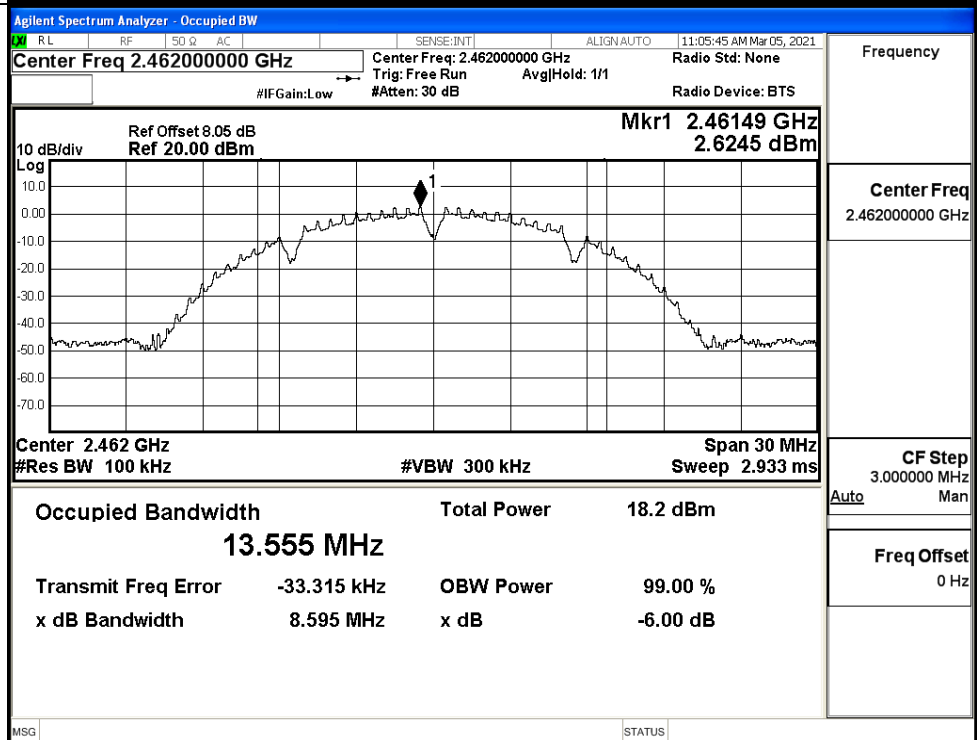
11B/LCH



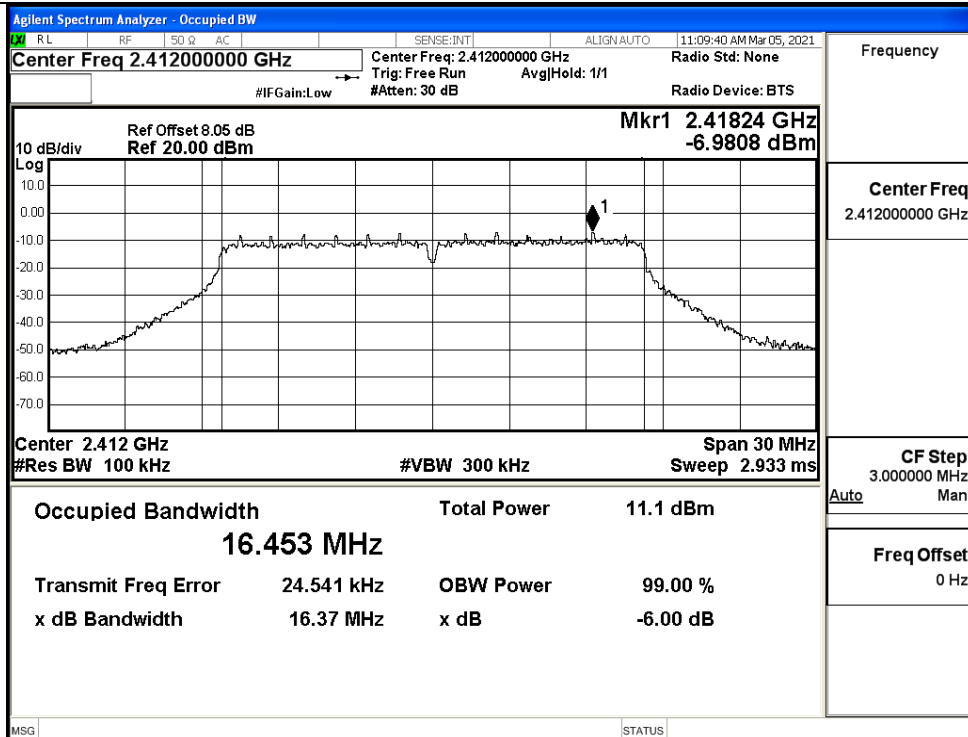
11B/MCH



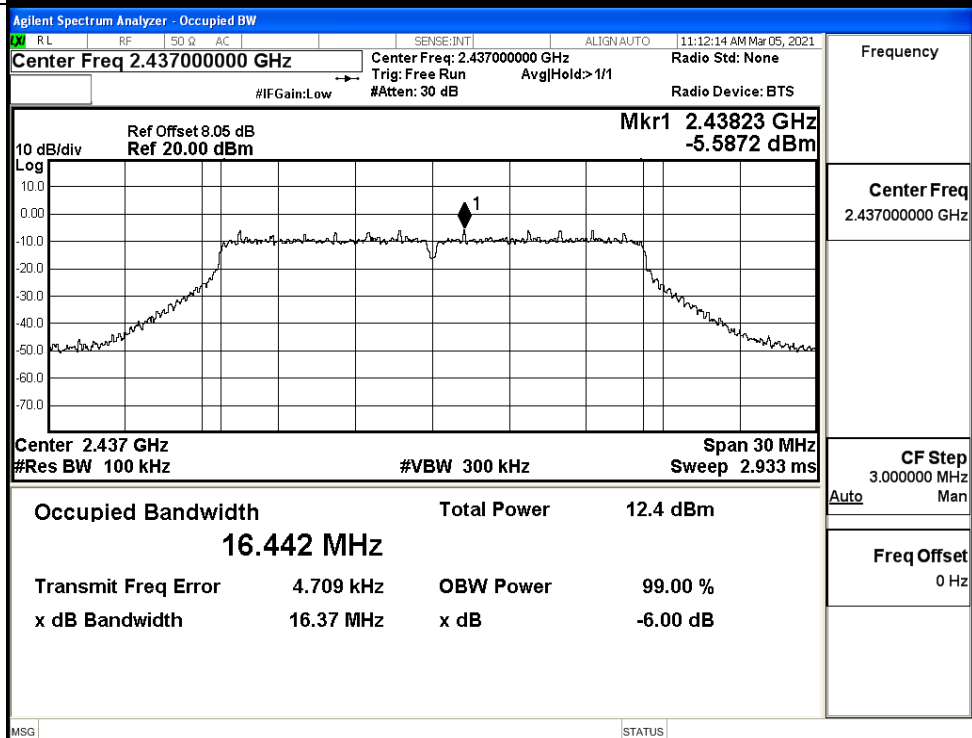
11B/HCH



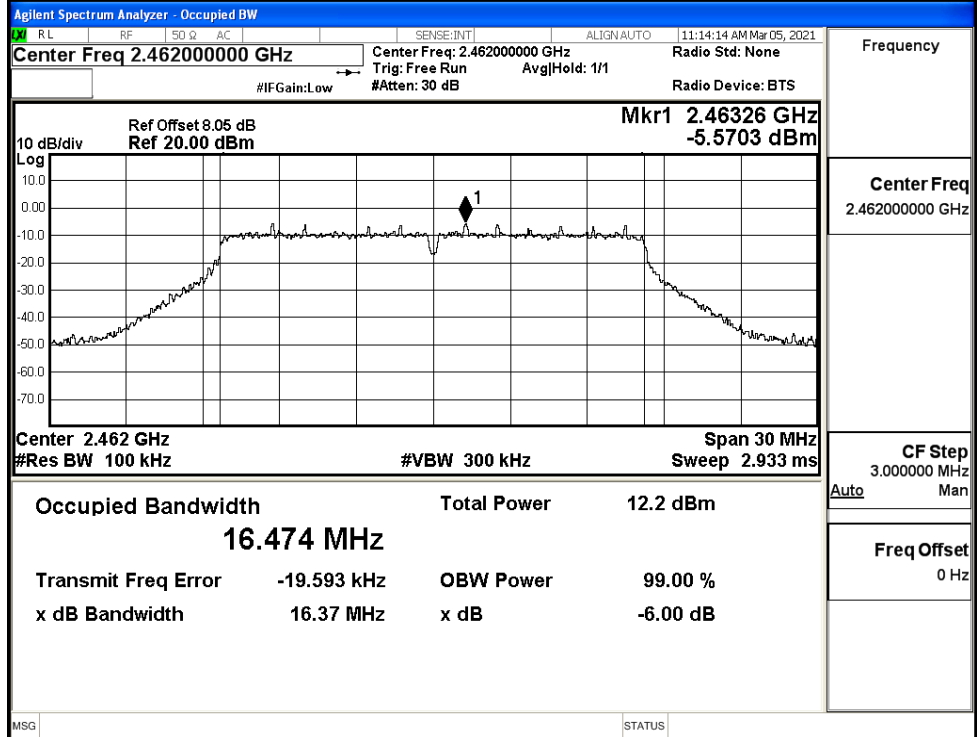
11G/LCH



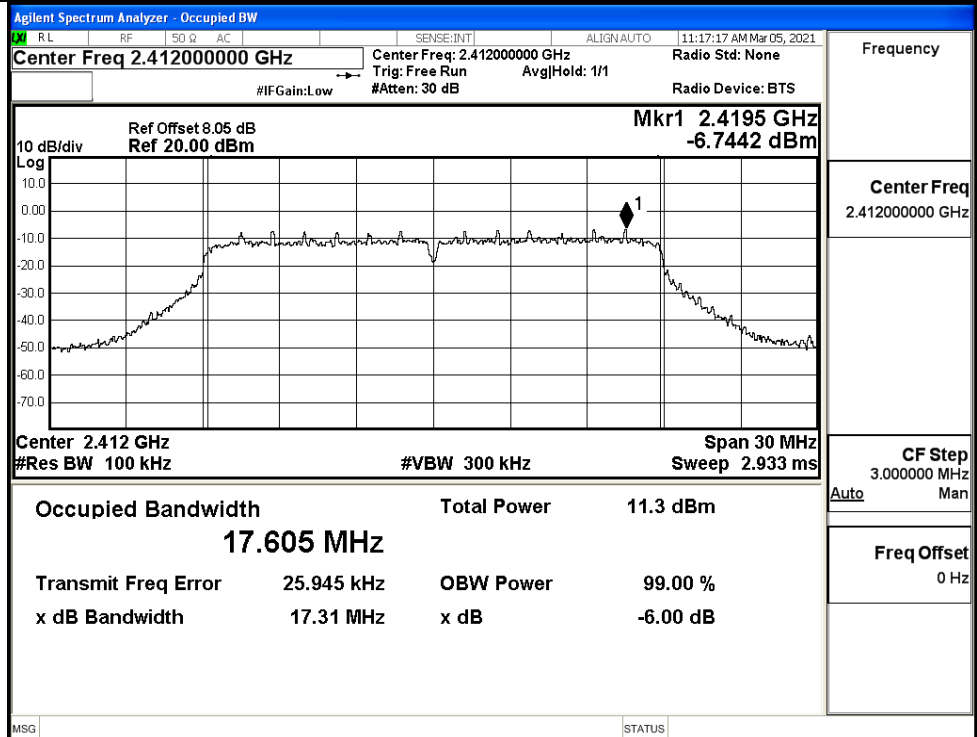
11G/MCH



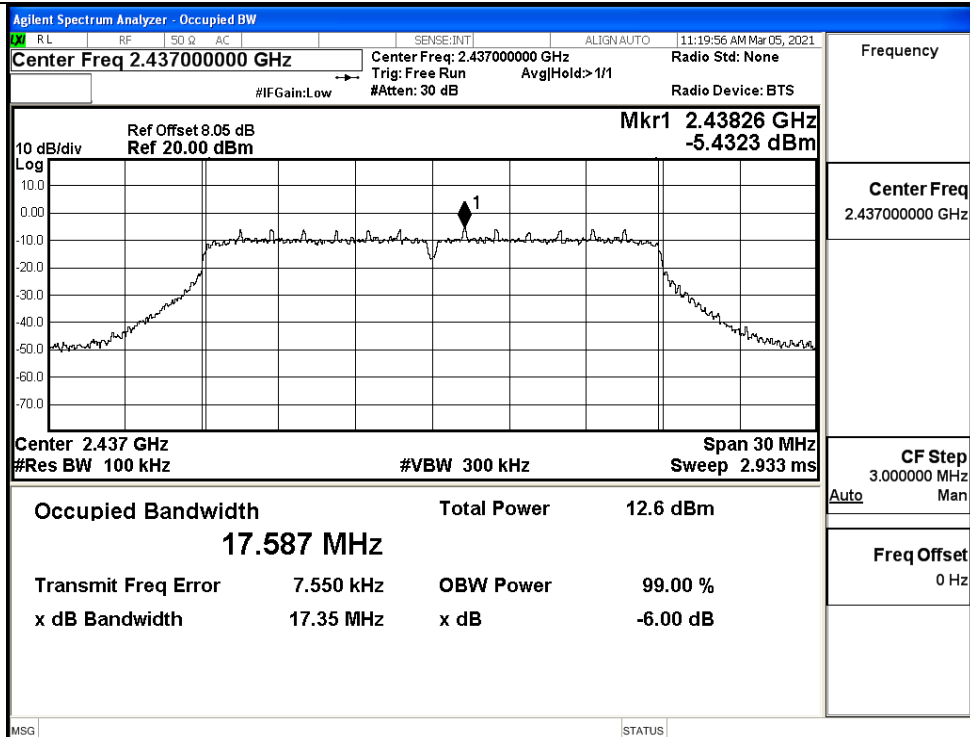
11G/HCH



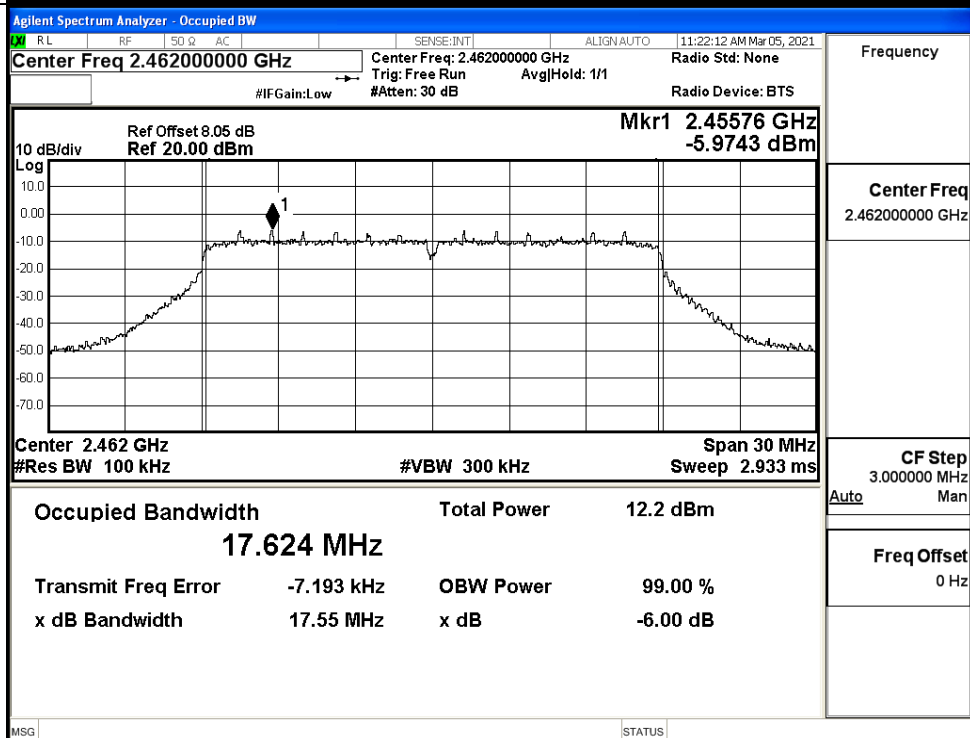
11N20SISO/LCH



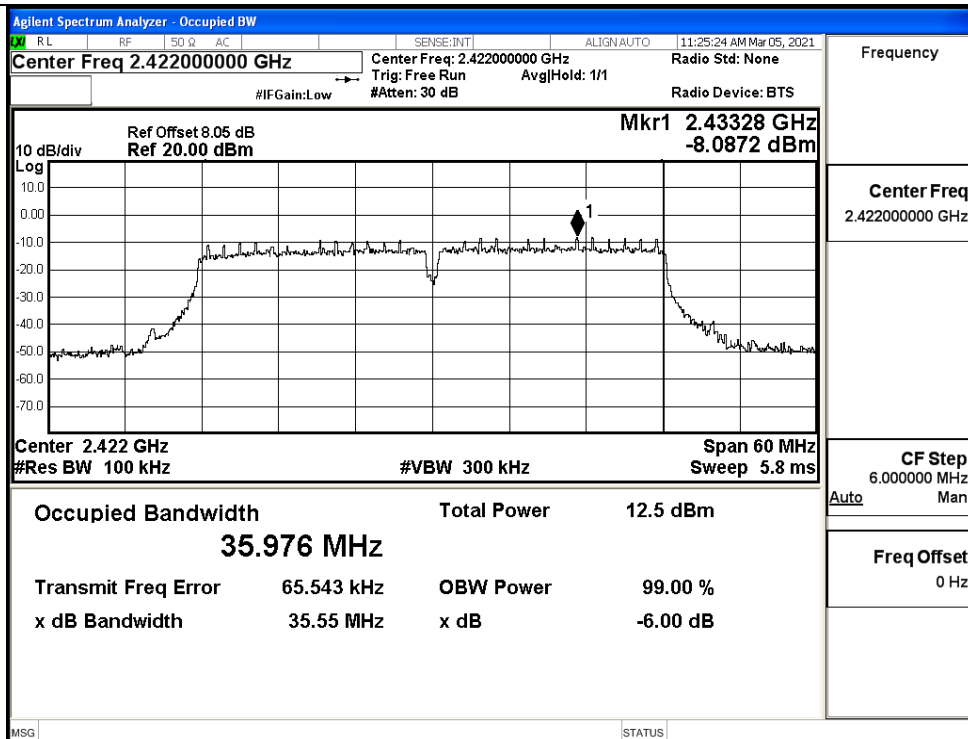
11N20SISO/MCH



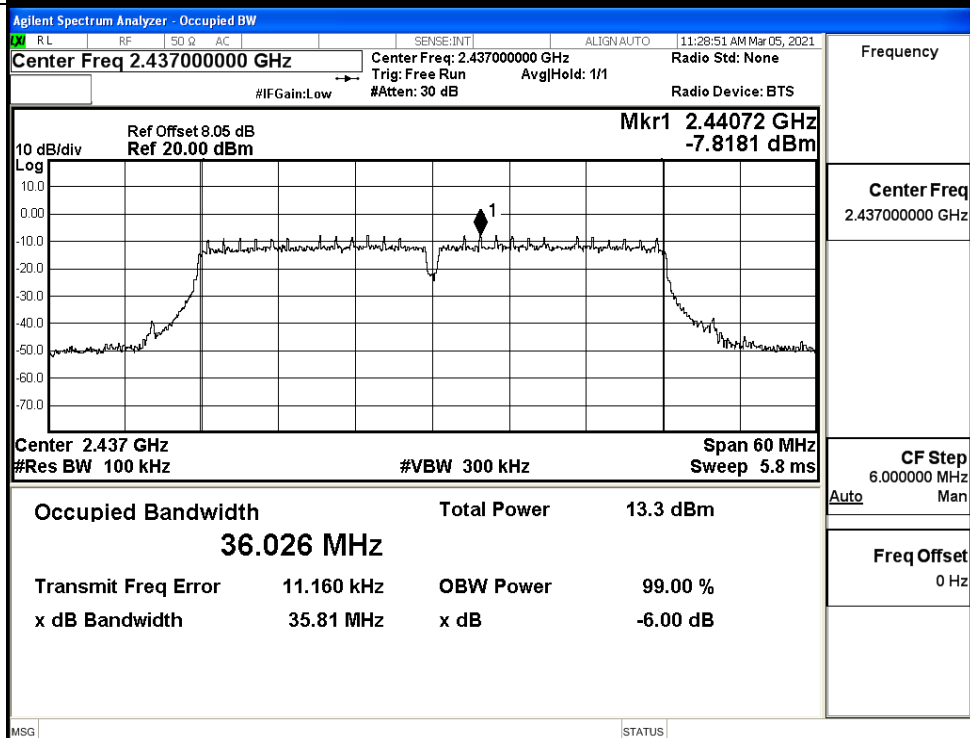
11N20SISO/HCH



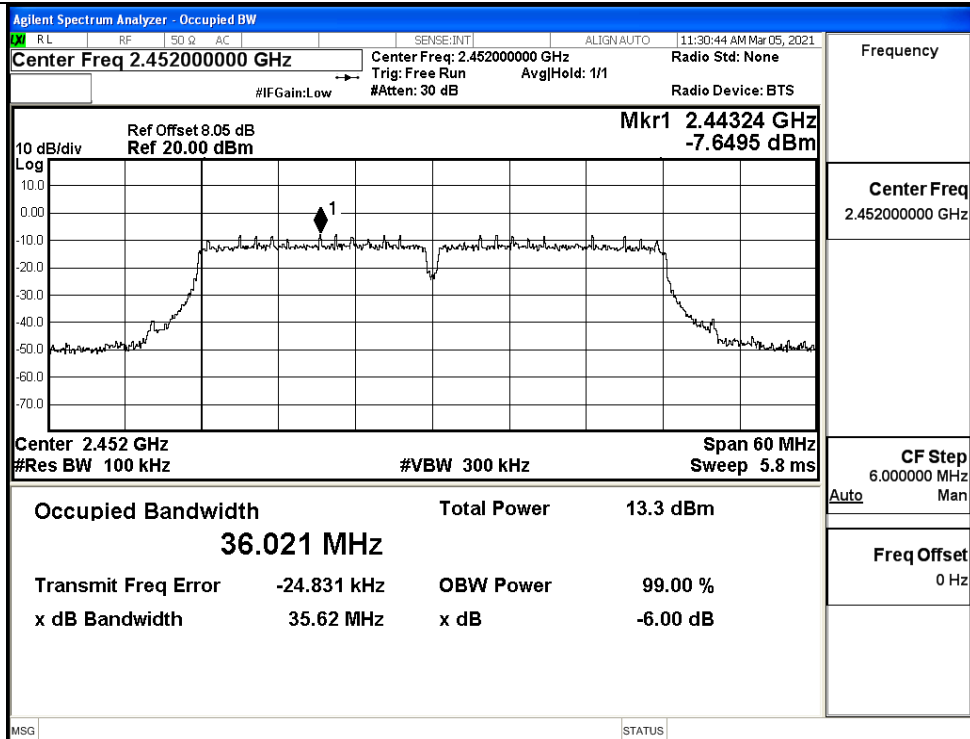
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

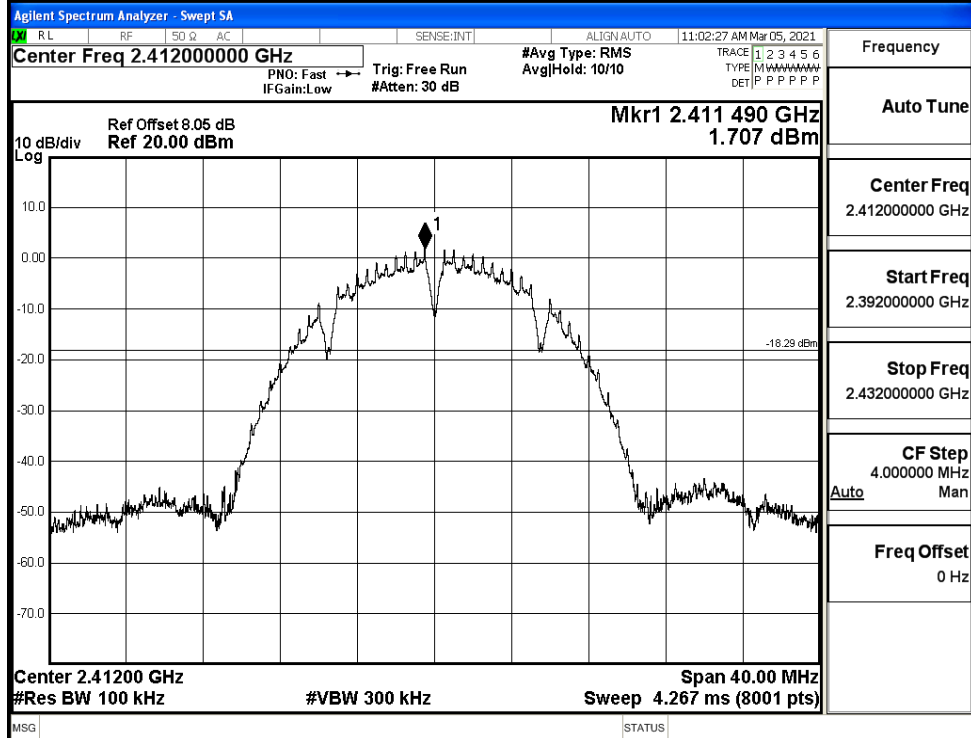


A.5 RF Conducted Spurious Emissions

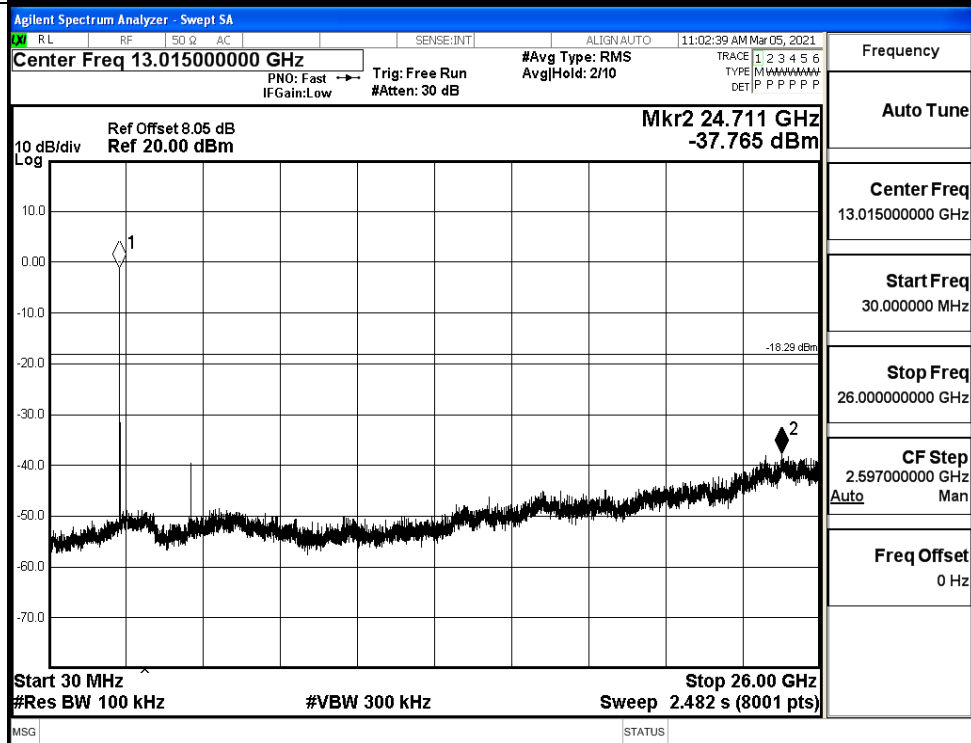
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.707	-37.765	-18.293	PASS
	MCH	3.162	-38.859	-16.838	PASS
	HCH	2.266	-37.213	-17.734	PASS
11G	LCH	-6.807	-38.012	-26.807	PASS
	MCH	-5.983	-37.775	-25.983	PASS
	HCH	-5.939	-38.095	-25.939	PASS
11N20 SISO	LCH	-6.713	-37.879	-26.713	PASS
	MCH	-6.121	-37.572	-26.121	PASS
	HCH	-5.929	-38.447	-25.929	PASS
11N40 SISO	LCH	-7.887	-38.049	-27.887	PASS
	MCH	-7.89	-37.858	-27.890	PASS
	HCH	-7.881	-38.497	-27.881	PASS

11B LCH Graphs

Pref/11B/LCH

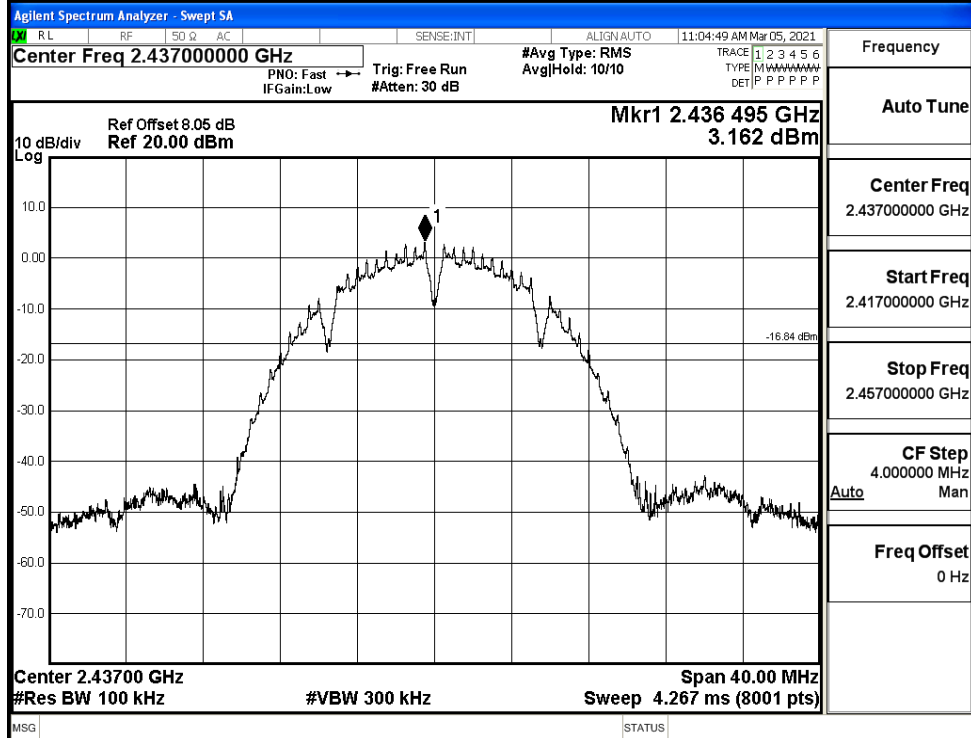


Puw/11B/LCH

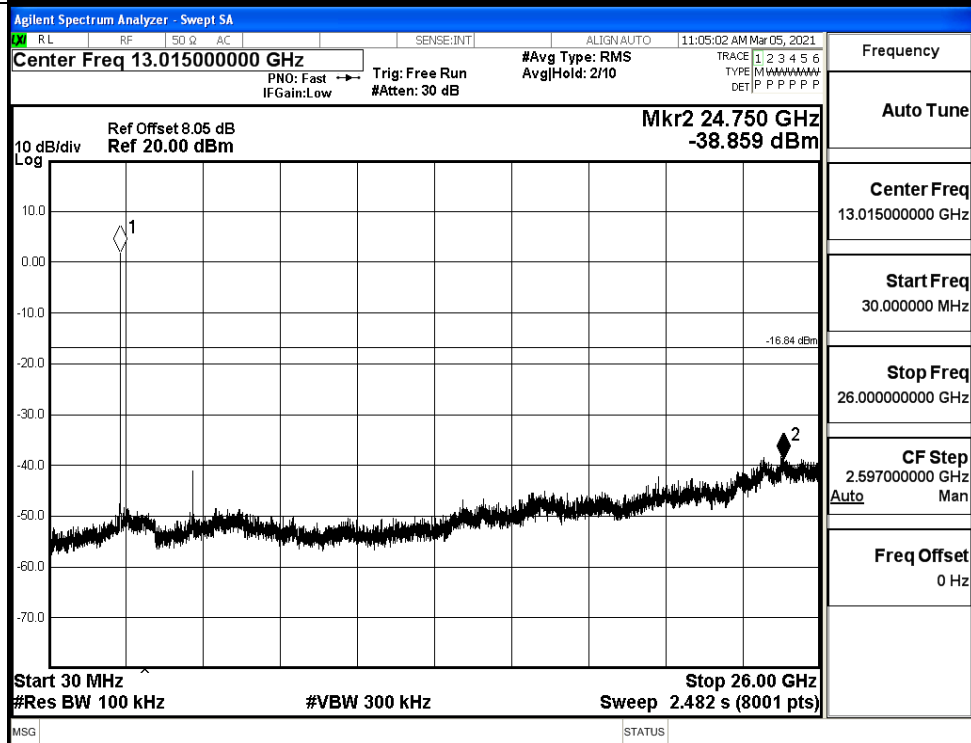


11B MCH Graphs

Pref/11B/MCH

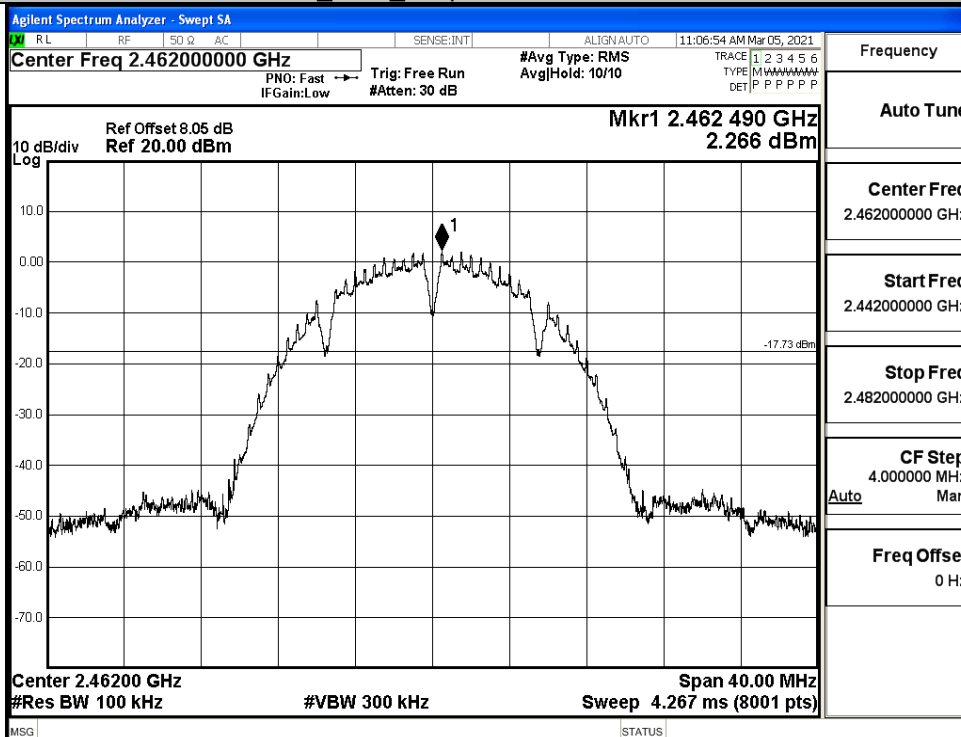


Puw/11B/MCH

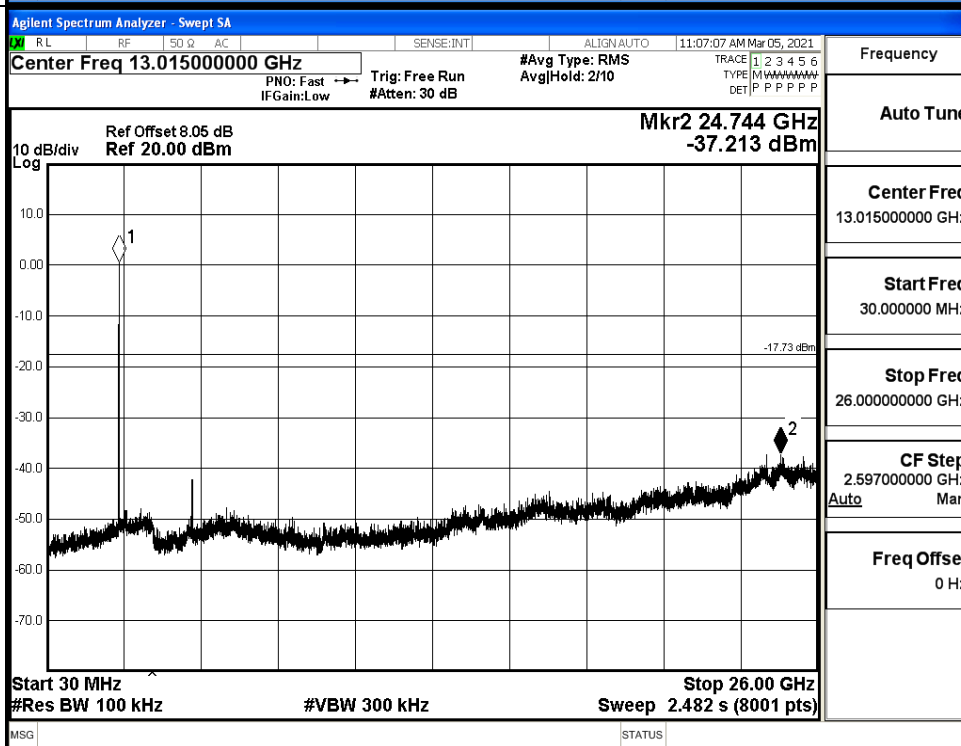


11B HCH Graphs

Pref/11B/HCH

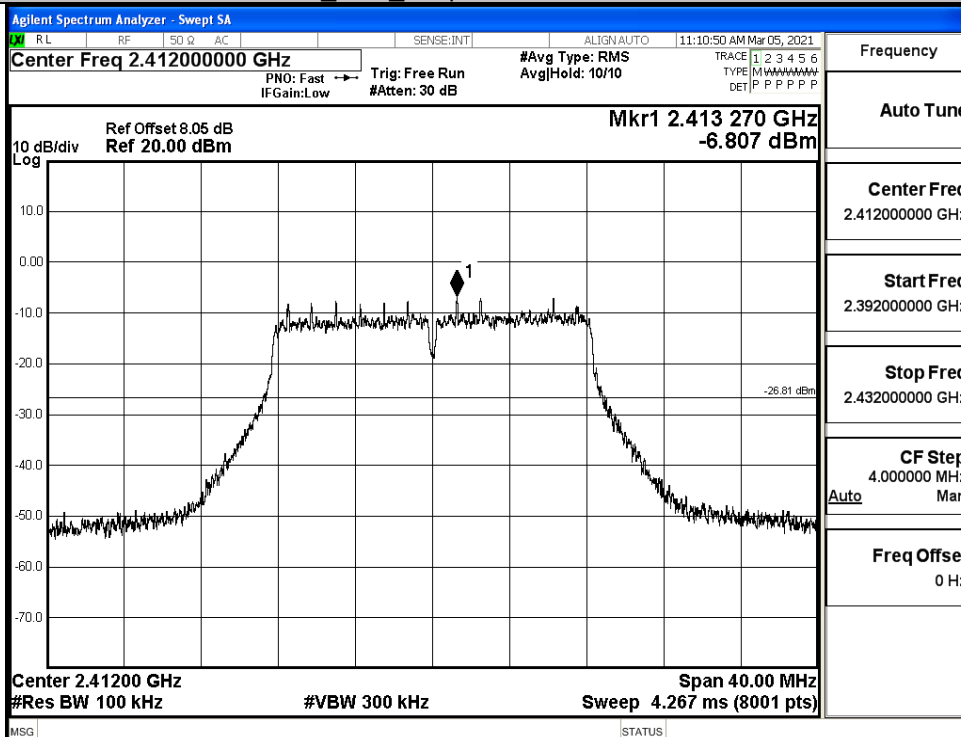


Puw/11B/HCH

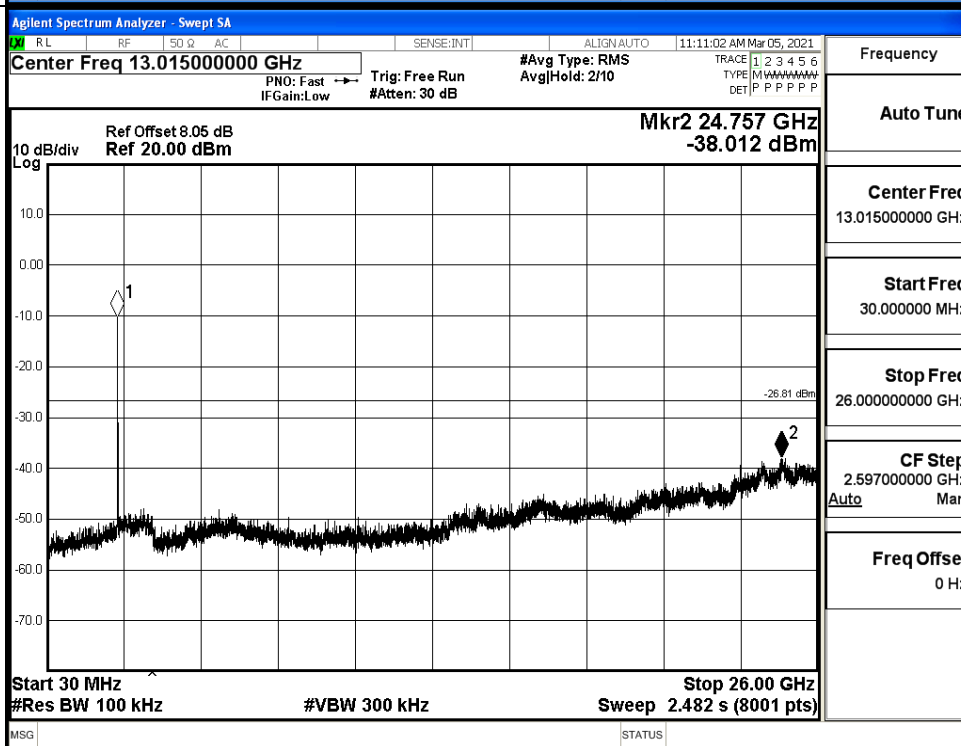


11G LCH Graphs

Pref/11G/LCH

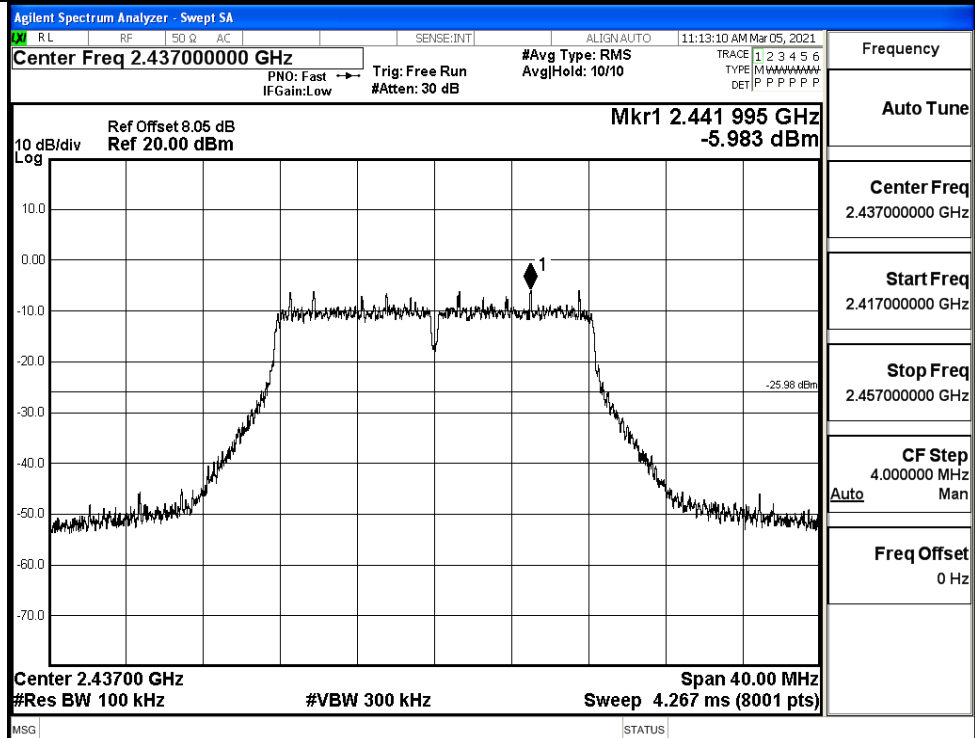


Puw/11G/LCH

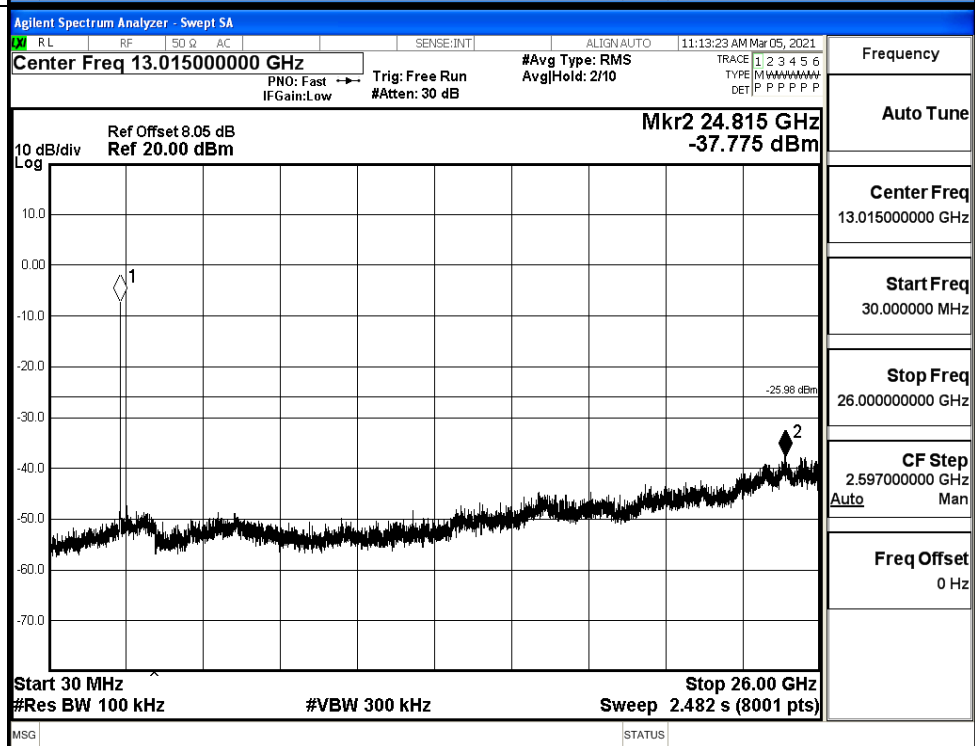


11G MCH Graphs

Pref/11G/MCH

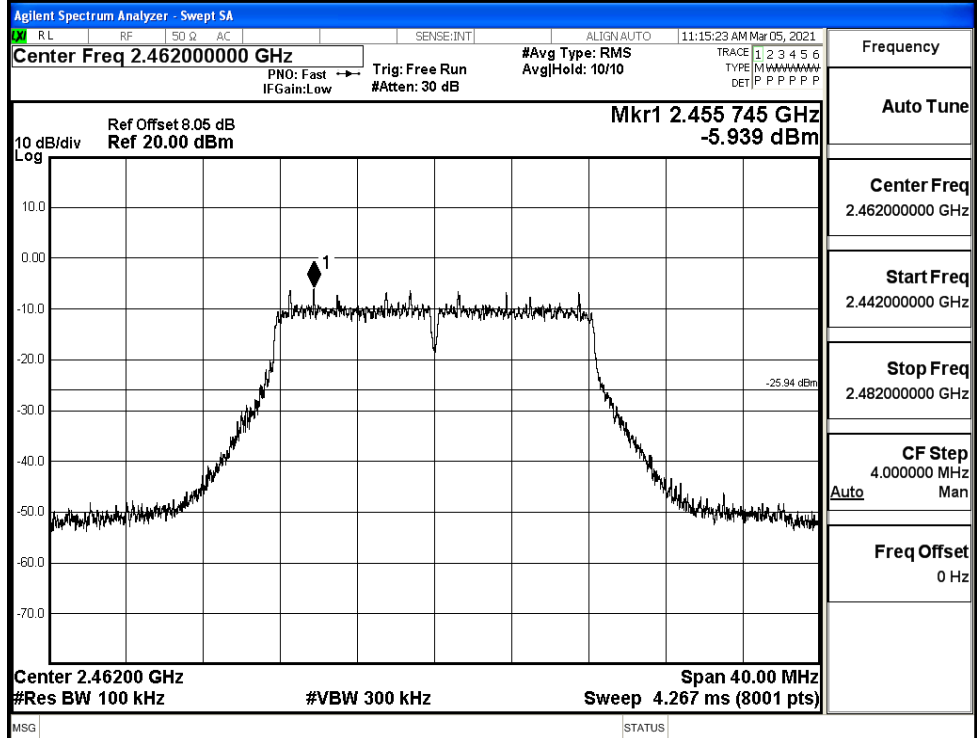


Puw/11G/MCH

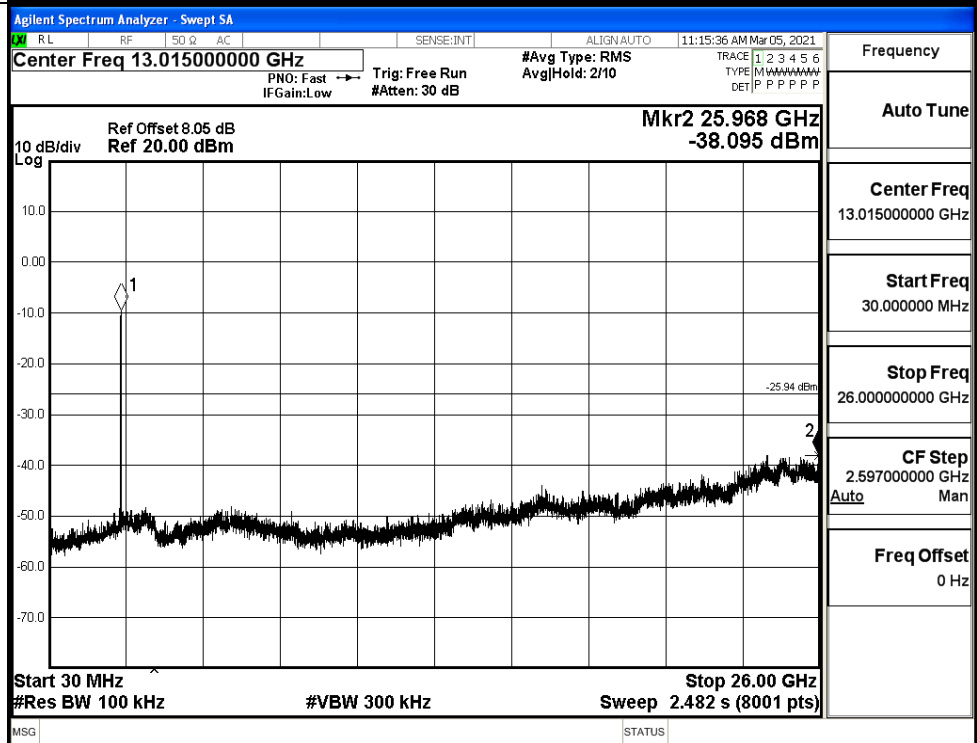


11G HCH Graphs

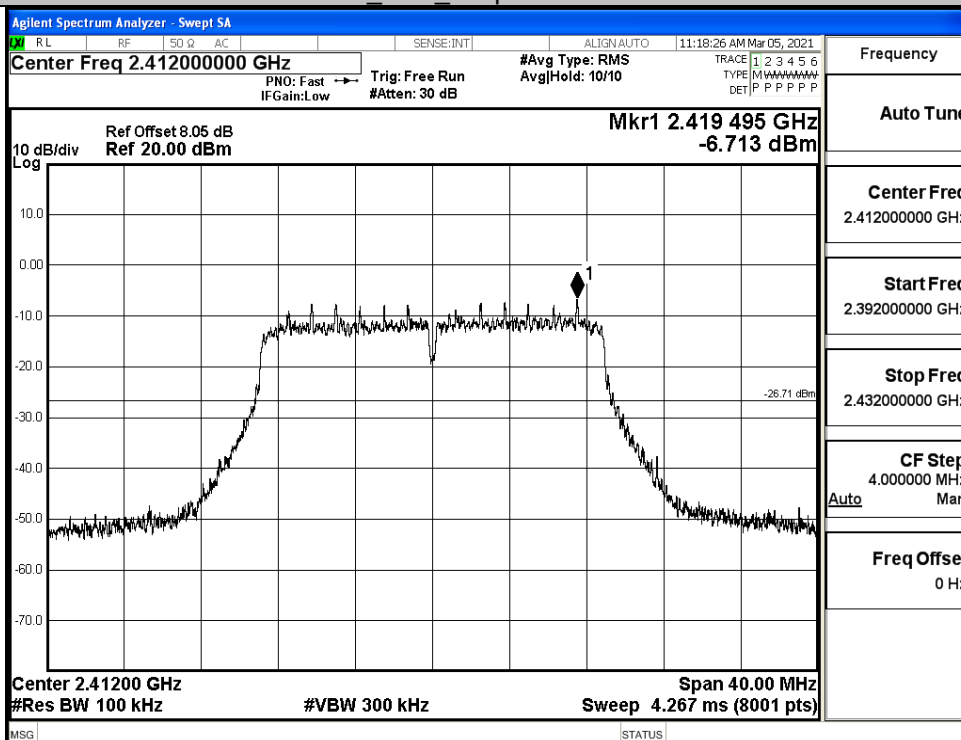
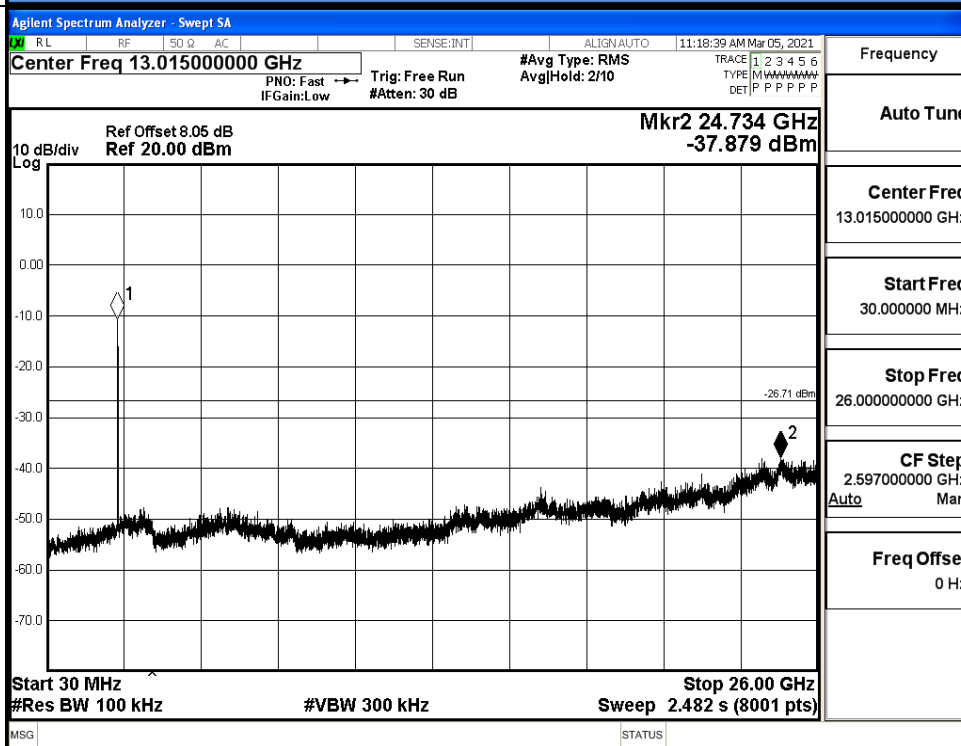
Pref/11G/HCH



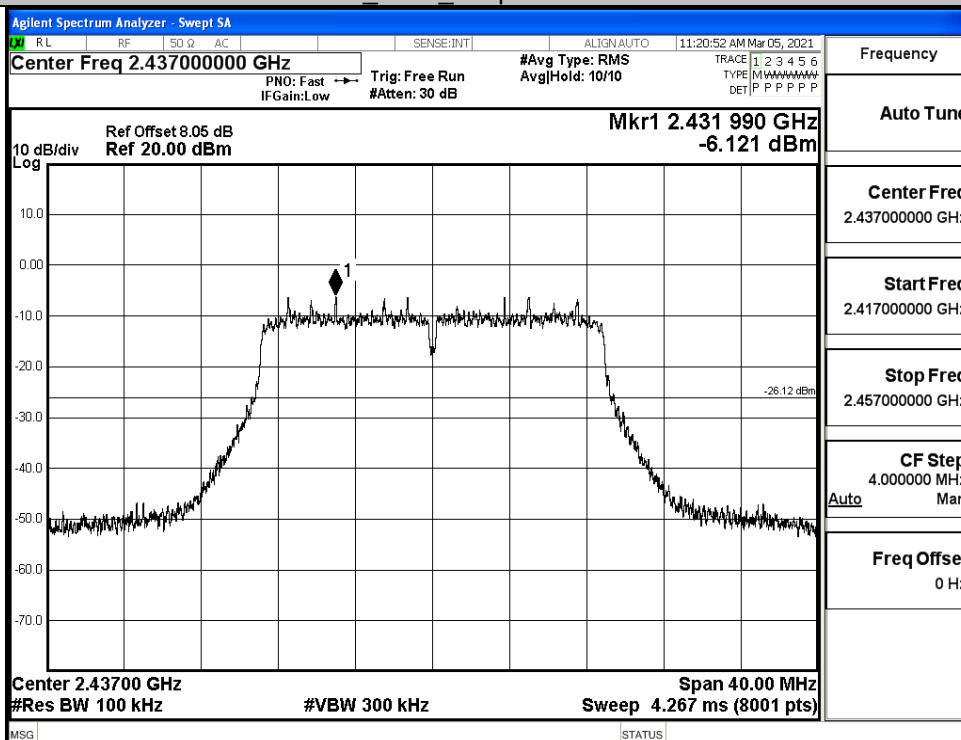
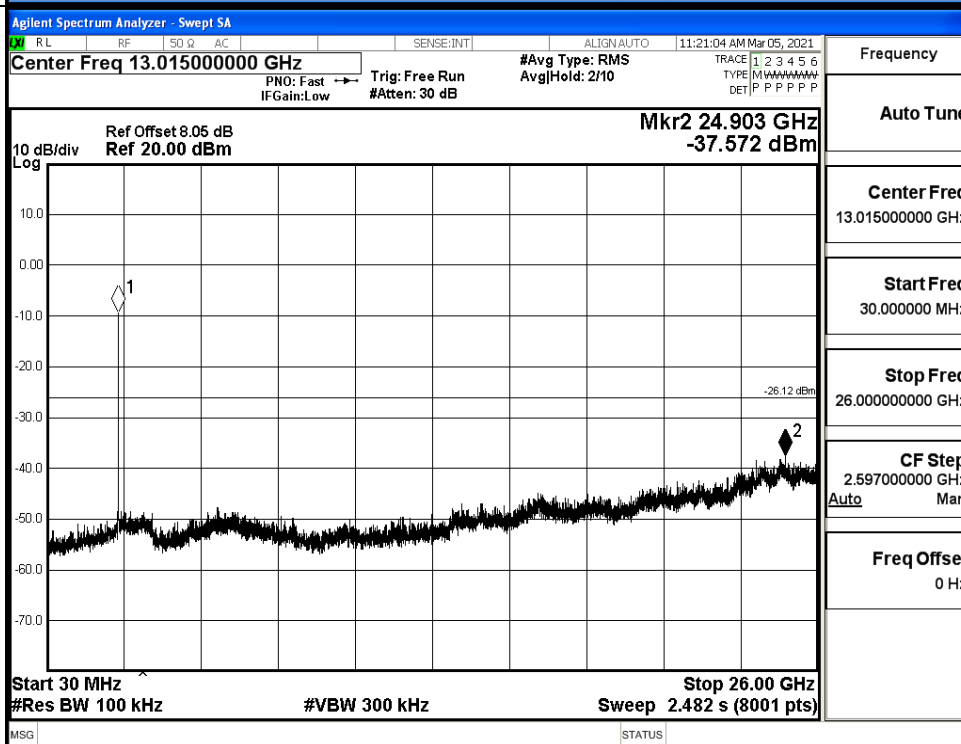
Puw/11G/HCH



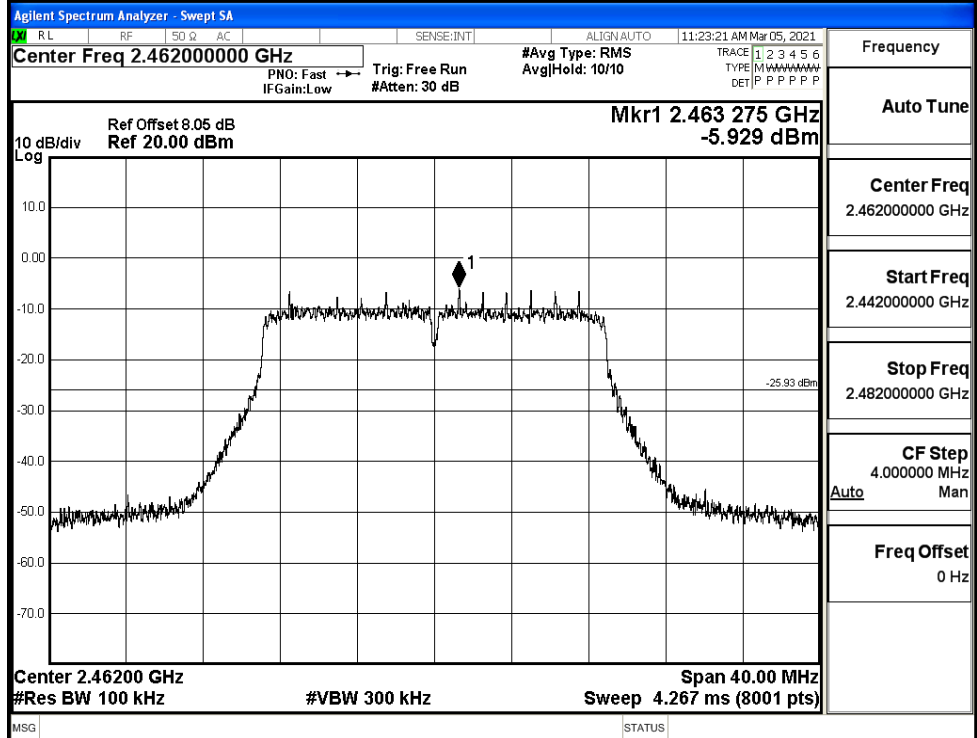
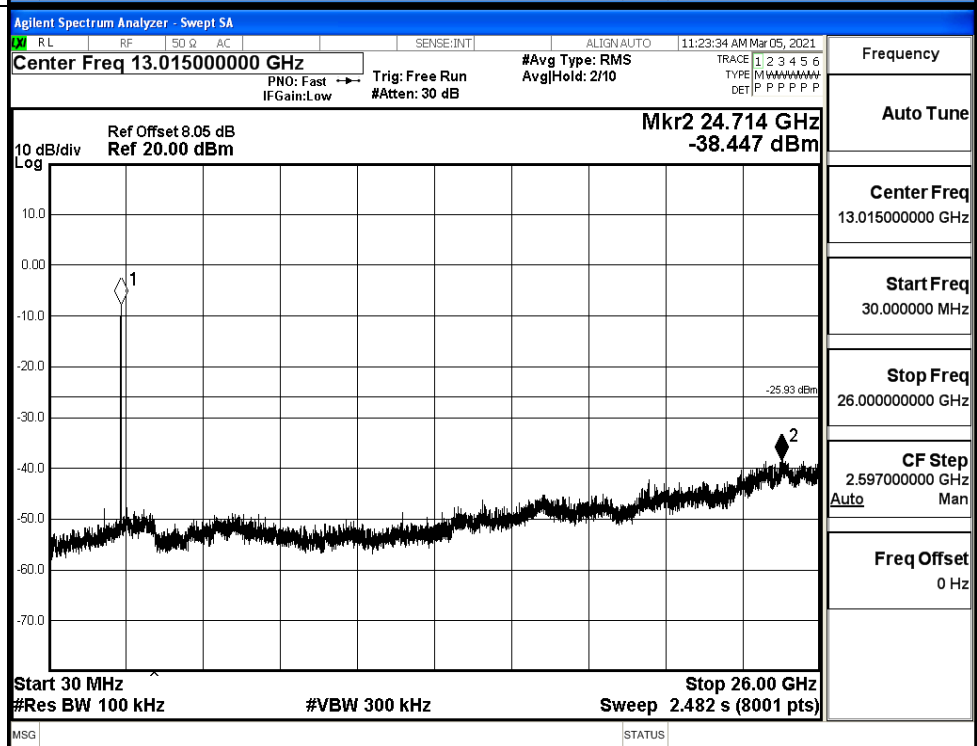
11N20SISO LCH Graphs

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

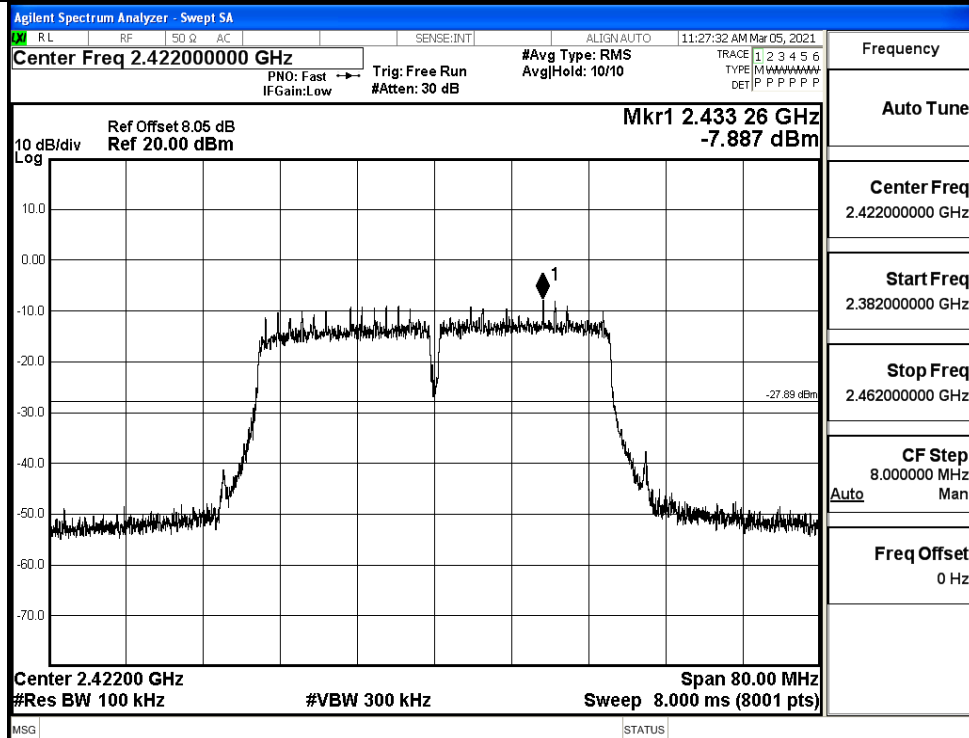
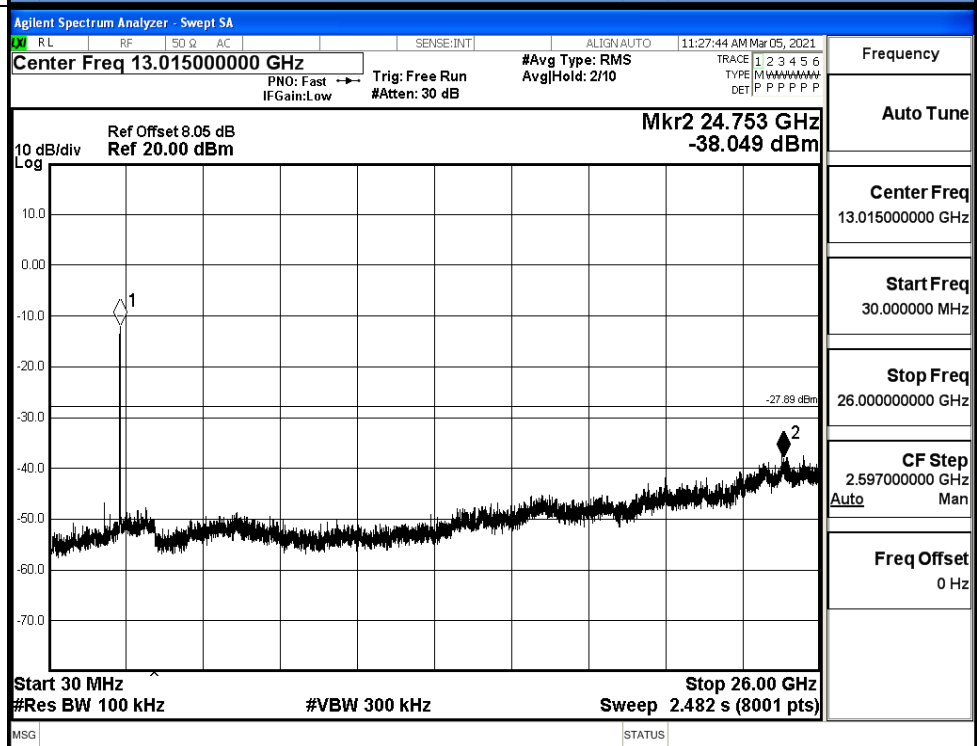
11N20SISO_MCH_Graphs

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

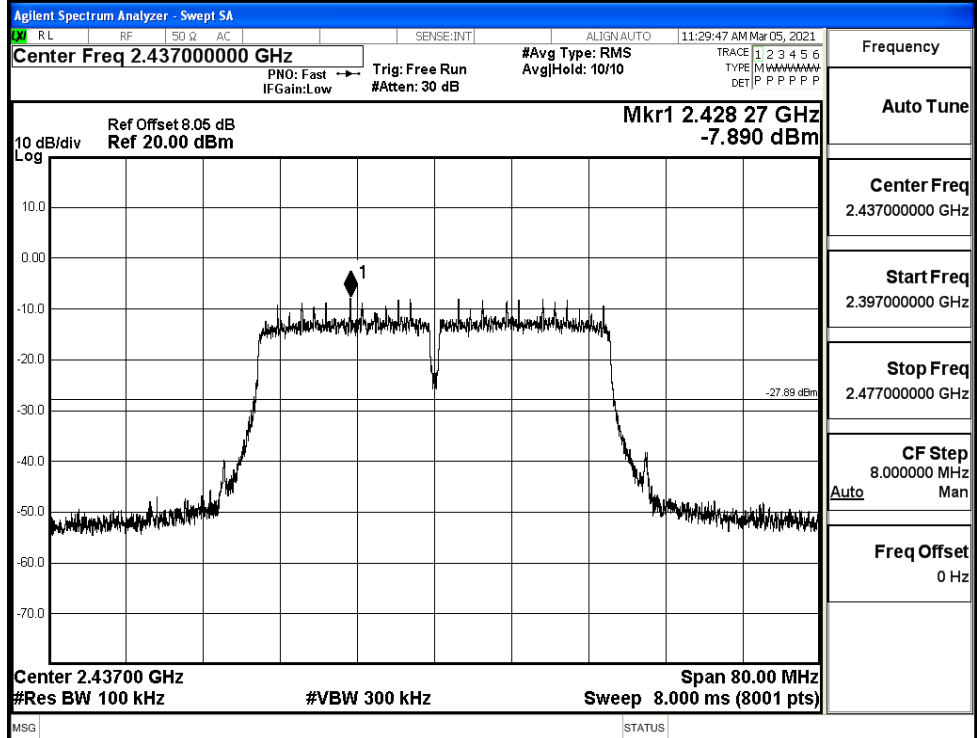
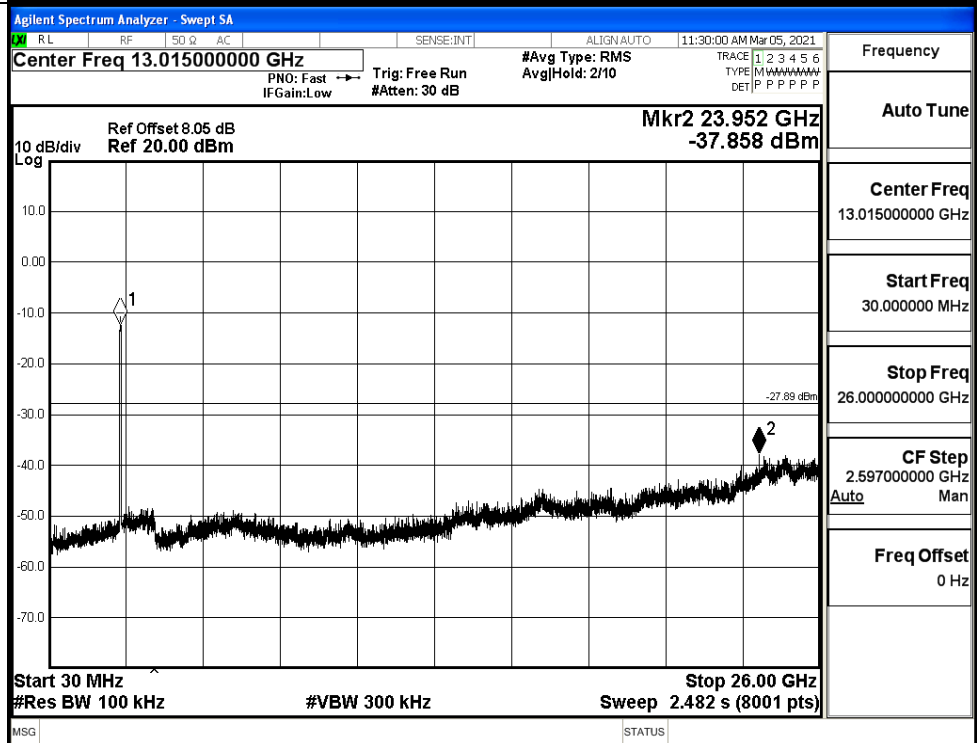
11N20SISO HCH Graphs

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

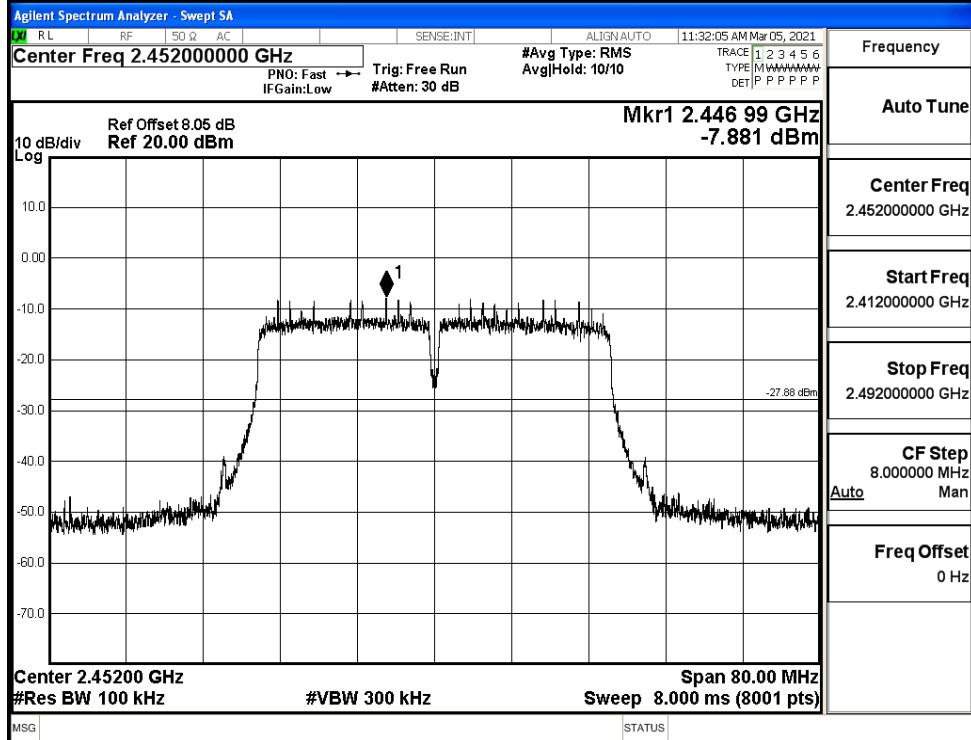
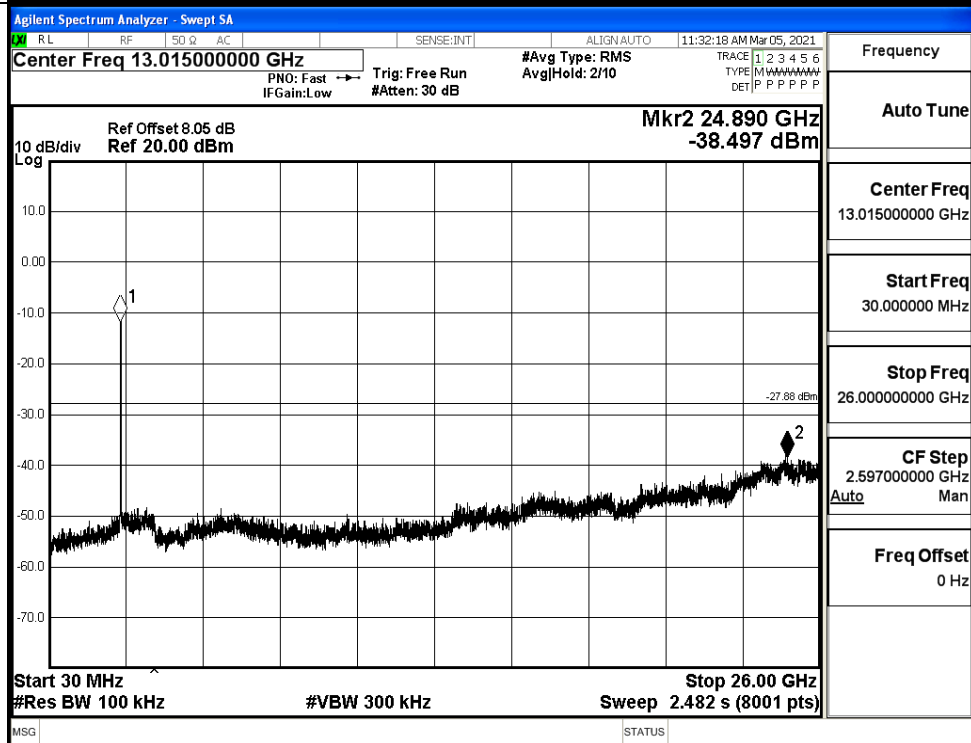
11N40SISO LCH Graphs

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

11N40SISO_MCH_Graphs

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

11N40SISO HCH Graphs

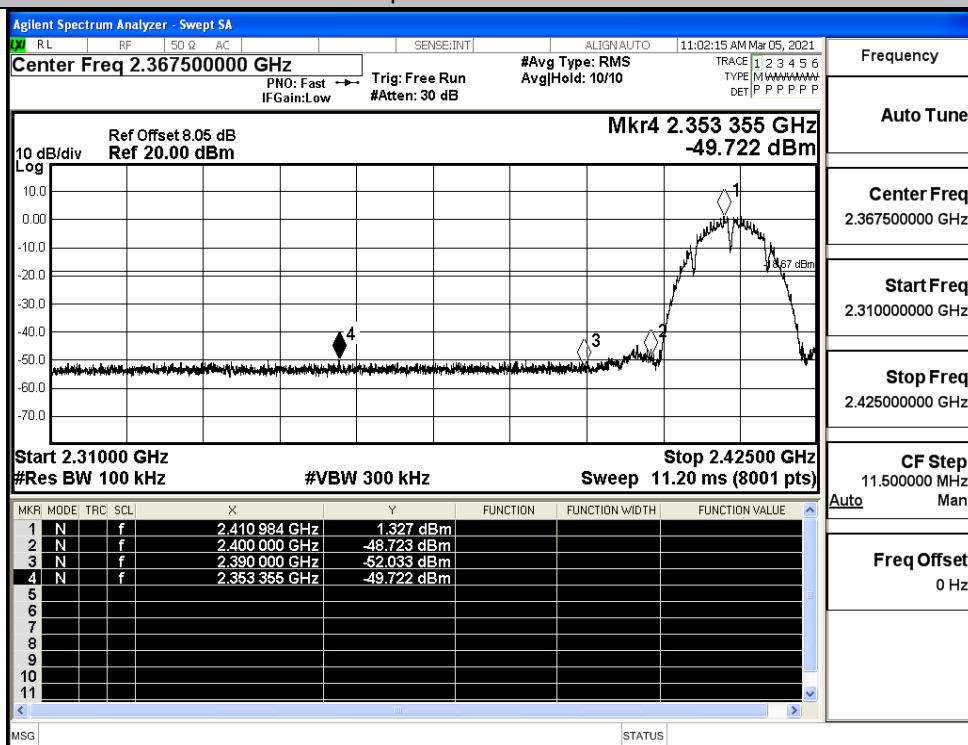
Pref/11N40
SISO/HCHPuw/11N40
SISO/HCH

A.6 Band-edge for RF Conducted Emissions

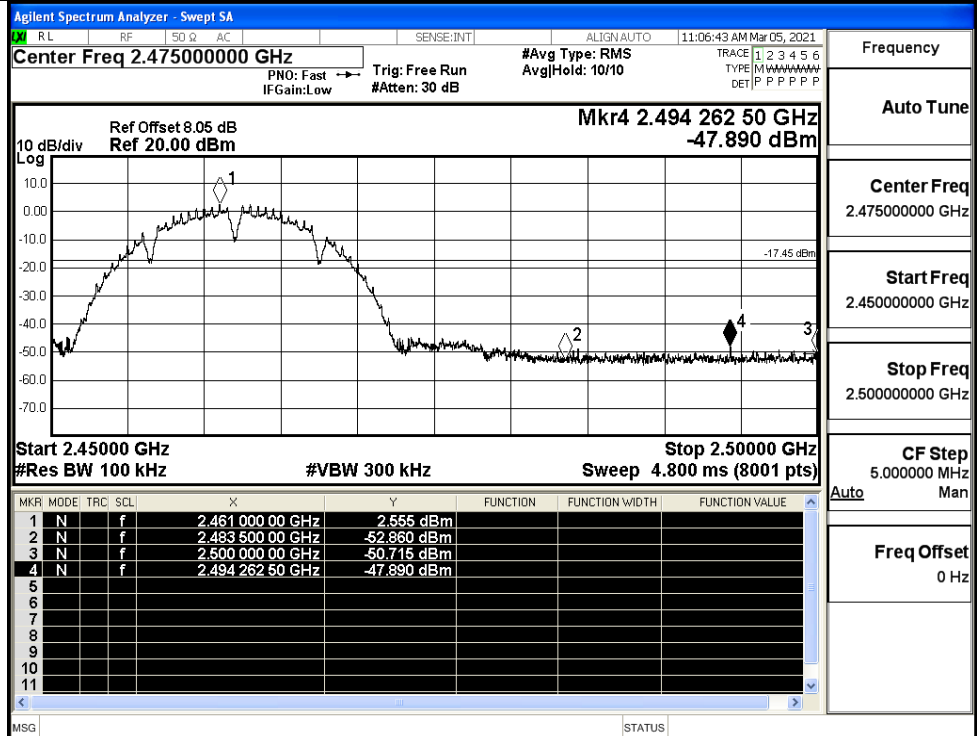
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.327	-49.722	-18.67	PASS
	HCH	2.555	-47.890	-17.45	PASS
11G	LCH	-6.940	-49.976	-26.94	PASS
	HCH	-5.979	-49.423	-25.98	PASS
11N20SISO	LCH	-6.622	-49.045	-26.62	PASS
	HCH	-5.713	-49.565	-25.71	PASS
11N40SISO	LCH	-8.078	-49.721	-28.08	PASS
	HCH	-7.923	-48.371	-27.92	PASS

Test Graphs

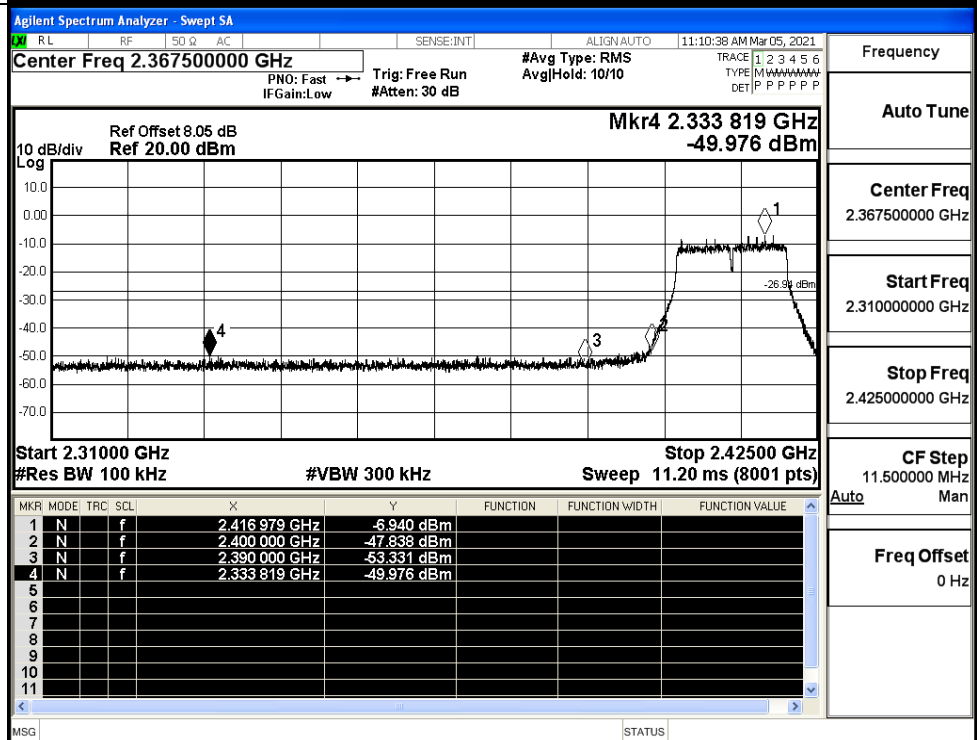
11B/LCH



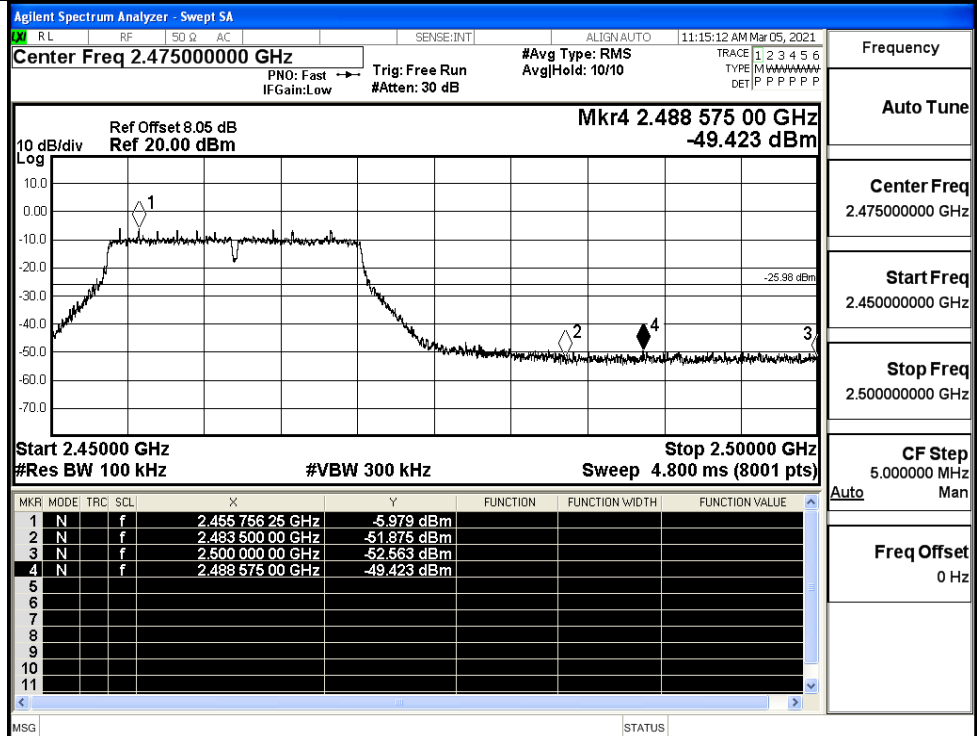
11B/HCH



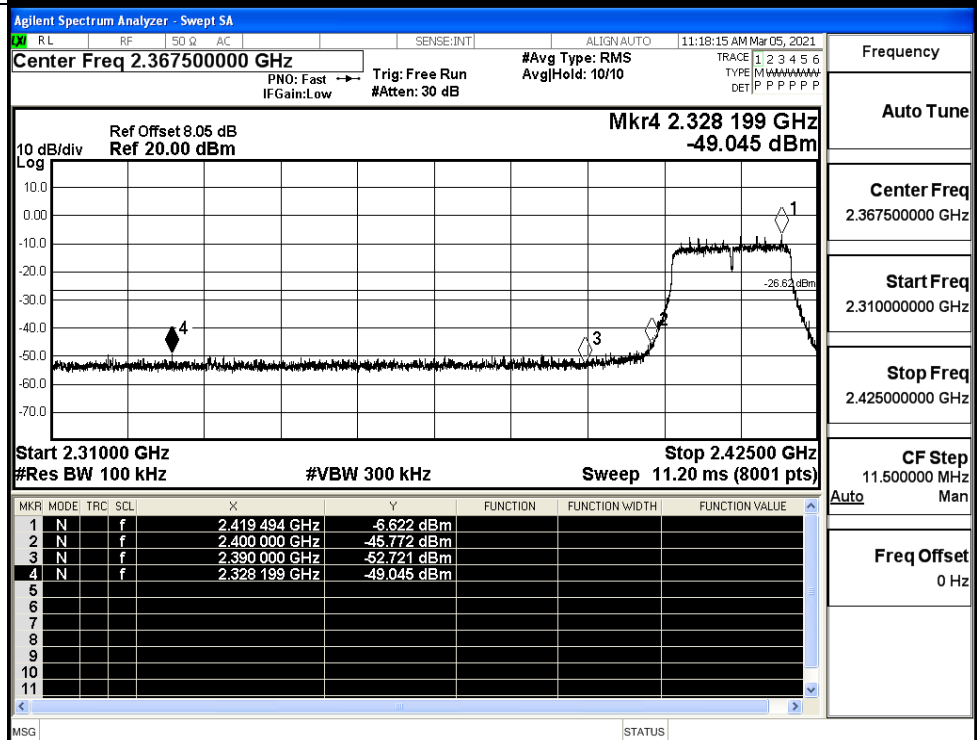
11G/LCH



11G/HCH



11N20SISO/LCH



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:27:20 AM Mar 05, 2021

Center Freq 2.377500000 GHz PNO: Fast Trg: Free Run #Avl: 10/10 #Att: 30 dB

Ref Offset 8.05 dB Ref 20.00 dBm Mkr4 2.389 313 GHz -49.721 dBm

10 dB/div Log

Start 2.31000 GHz #Res BW 100 kHz Stop 2.44500 GHz #VBW 300 kHz Sweep 13.33 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.434 504 GHz	-8.078 dBm			
2	N	f		2.400 000 GHz	-44.863 dBm			
3	N	f		2.390 000 GHz	-54.404 dBm			
4	N	f		2.389 313 GHz	-49.721 dBm			
5								
6								
7								
8								
9								
10								
11								

11N40SISO/LCH

Frequency

Auto Tune

Center Freq 2.377500000 GHz

Start Freq 2.310000000 GHz

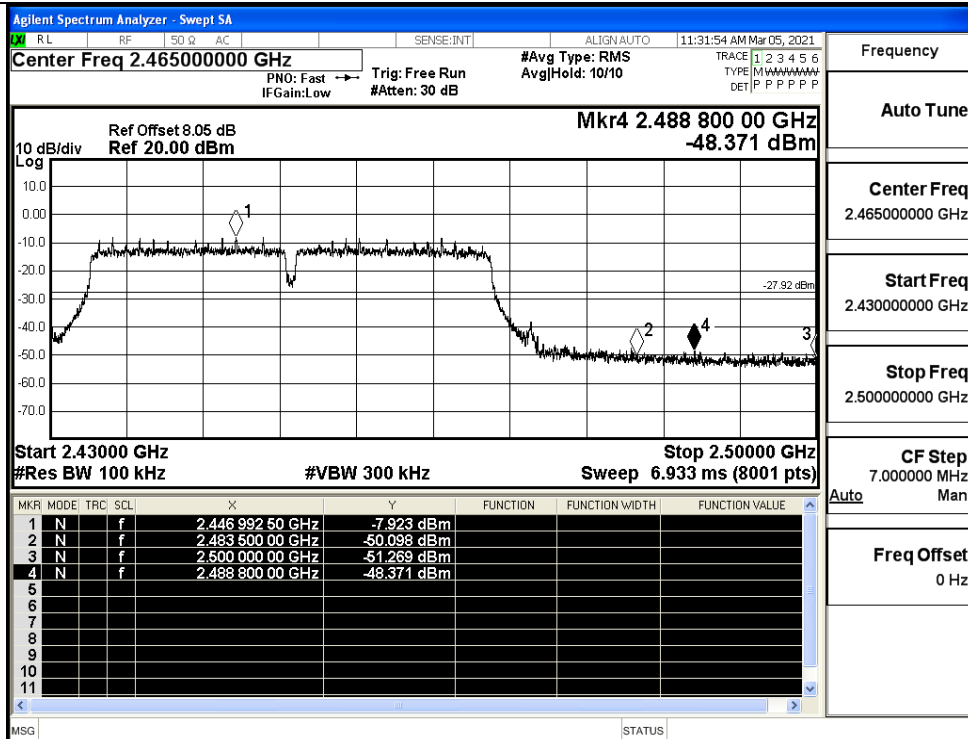
Stop Freq 2.445000000 GHz

CF Step 13.50000 MHz

Freq Offset 0 Hz

MSG STATUS

11N40SISO/HCH

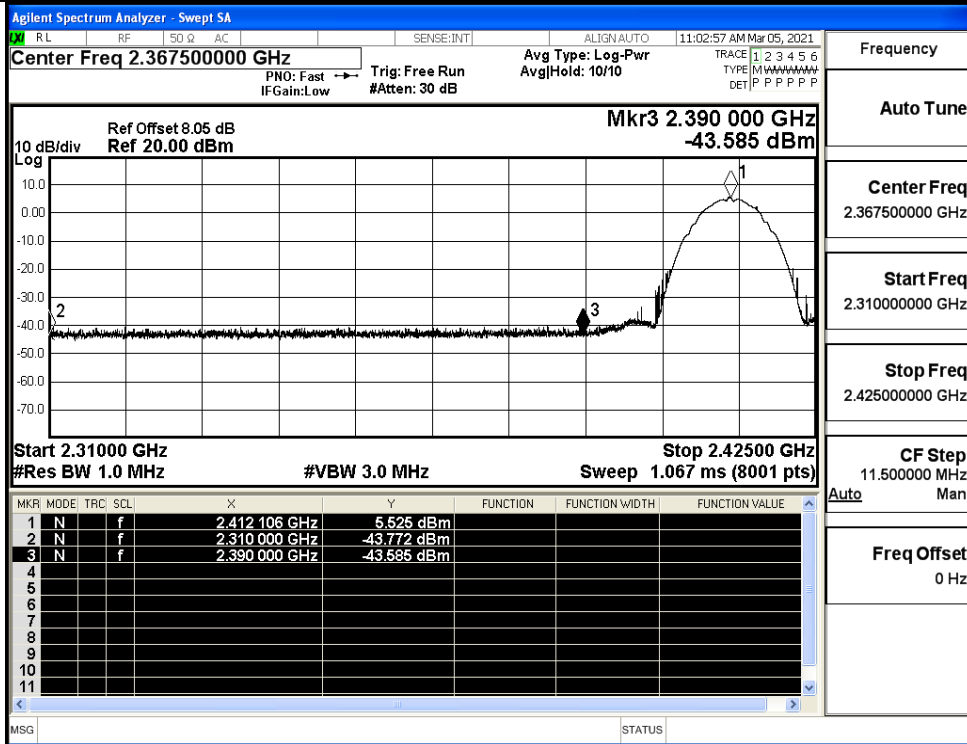


A.7 Restrict-band band-edge measurements

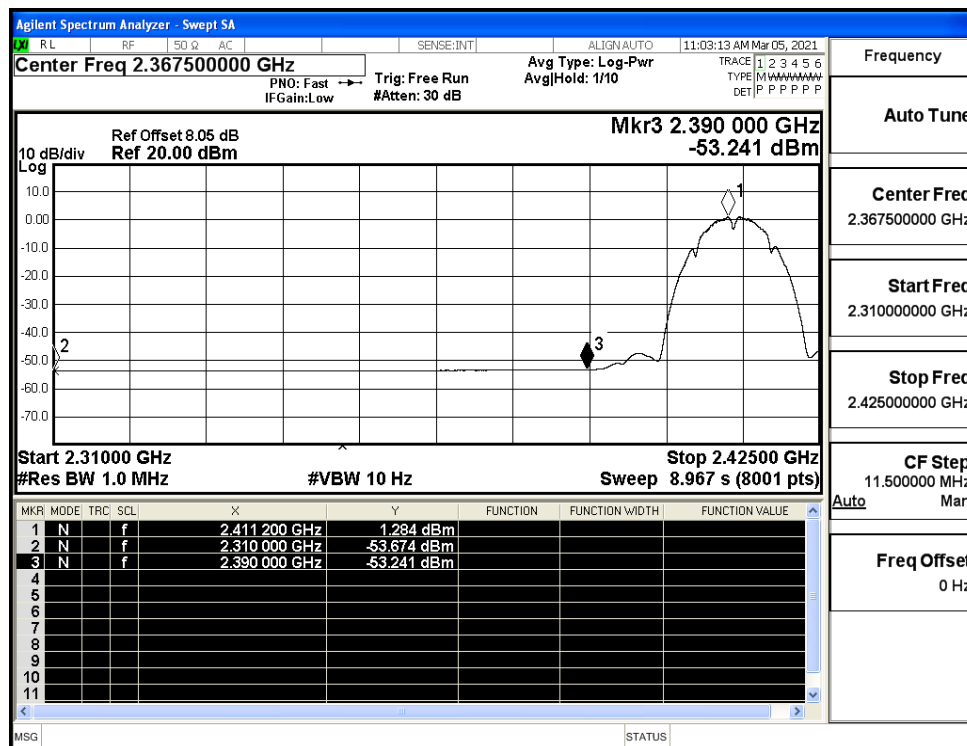
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.77	2.0	0	51.49	PEAK	74	PASS
	2412	Ant1	2310.0	-53.67	2.0	0	41.58	AV	54	PASS
	2412	Ant1	2390.0	-43.59	2.0	0	51.67	PEAK	74	PASS
	2412	Ant1	2390.0	-53.24	2.0	0	42.02	AV	54	PASS
	2462	Ant1	2483.5	-42.69	2.0	0	52.57	PEAK	74	PASS
	2462	Ant1	2483.5	-52.78	2.0	0	42.48	AV	54	PASS
	2462	Ant1	2500.0	-41.90	2.0	0	53.36	PEAK	74	PASS
	2462	Ant1	2500.0	-52.64	2.0	0	42.61	AV	54	PASS
11G	2412	Ant1	2310.0	-43.83	2.0	0	51.43	PEAK	74	PASS
	2412	Ant1	2310.0	-53.71	2.0	0	41.55	AV	54	PASS
	2412	Ant1	2390.0	-42.04	2.0	0	53.22	PEAK	74	PASS
	2412	Ant1	2390.0	-53.08	2.0	0	42.17	AV	54	PASS
	2462	Ant1	2483.5	-42.55	2.0	0	52.70	PEAK	74	PASS
	2462	Ant1	2483.5	-52.48	2.0	0	42.78	AV	54	PASS
	2462	Ant1	2500.0	-40.53	2.0	0	54.73	PEAK	74	PASS
	2462	Ant1	2500.0	-52.60	2.0	0	42.66	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-42.80	2.0	0	52.46	PEAK	74	PASS
	2412	Ant1	2310.0	-53.70	2.0	0	41.55	AV	54	PASS
	2412	Ant1	2390.0	-42.80	2.0	0	52.46	PEAK	74	PASS
	2412	Ant1	2390.0	-53.00	2.0	0	42.26	AV	54	PASS
	2462	Ant1	2483.5	-40.83	2.0	0	54.43	PEAK	74	PASS
	2462	Ant1	2483.5	-52.30	2.0	0	42.95	AV	54	PASS
	2462	Ant1	2500.0	-42.26	2.0	0	53.00	PEAK	74	PASS
	2462	Ant1	2500.0	-52.63	2.0	0	42.63	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.63	2.0	0	52.62	PEAK	74	PASS
	2422	Ant1	2310.0	-53.71	2.0	0	41.54	AV	54	PASS

	2422	Ant1	2390.0	-42.27	2.0	0	52.99	PEAK	74	PASS
	2422	Ant1	2390.0	-52.66	2.0	0	42.60	AV	54	PASS
	2452	Ant1	2483.5	-40.35	2.0	0	54.91	PEAK	74	PASS
	2452	Ant1	2483.5	-51.66	2.0	0	43.59	AV	54	PASS
	2452	Ant1	2500.0	-42.18	2.0	0	53.08	PEAK	74	PASS
	2452	Ant1	2500.0	-52.54	2.0	0	42.72	AV	54	PASS

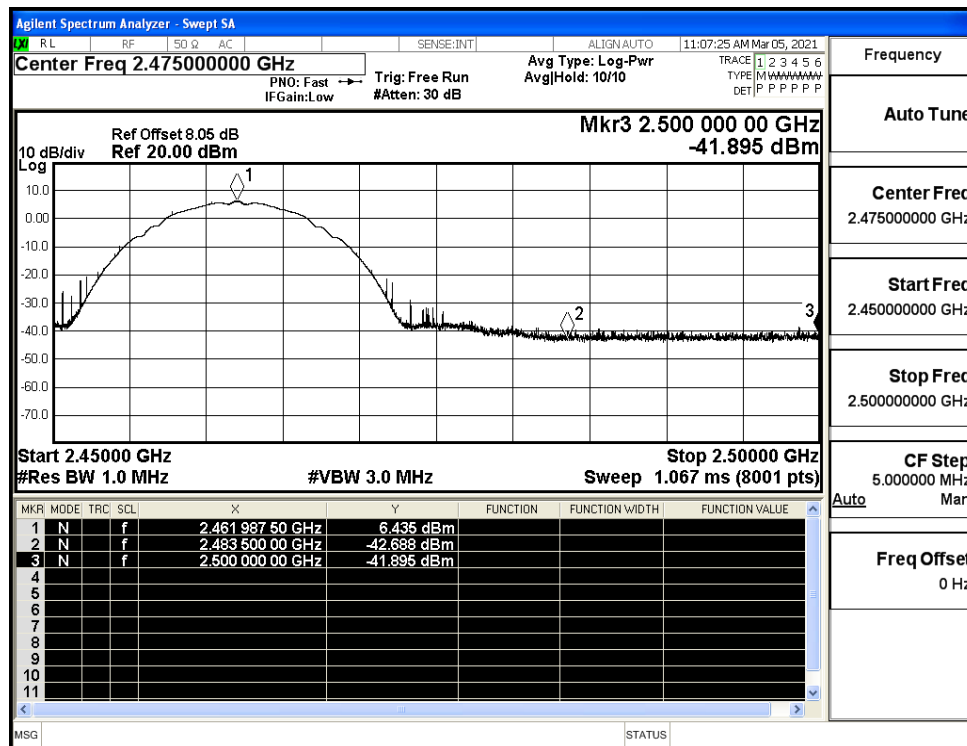
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



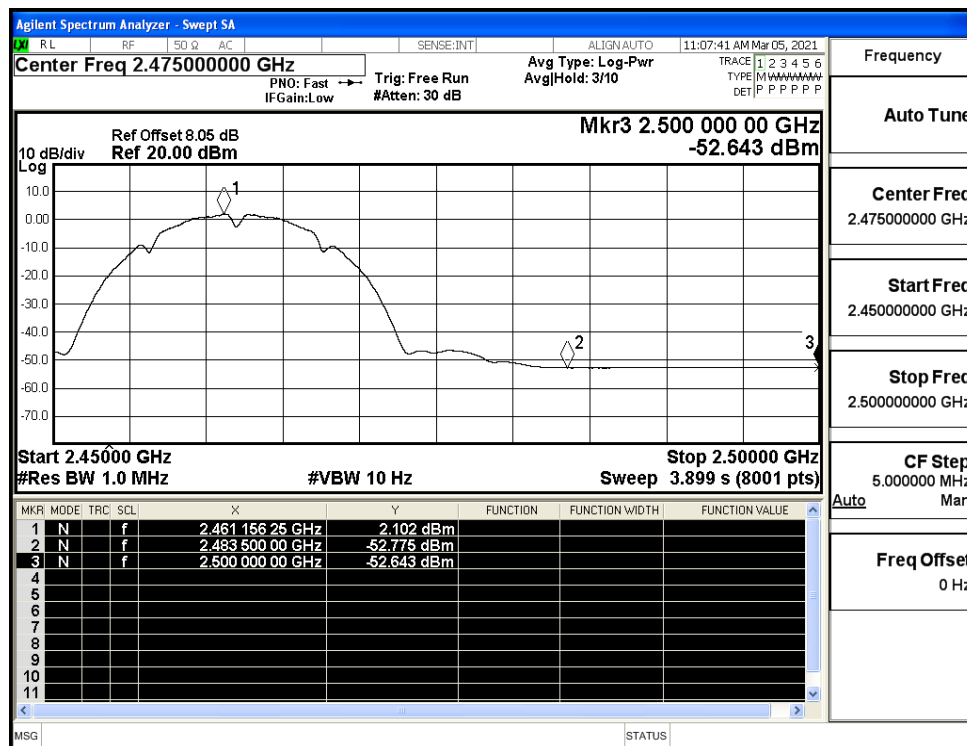
Restrict-band band-edge measurements_11B_2412_Ant1_AV



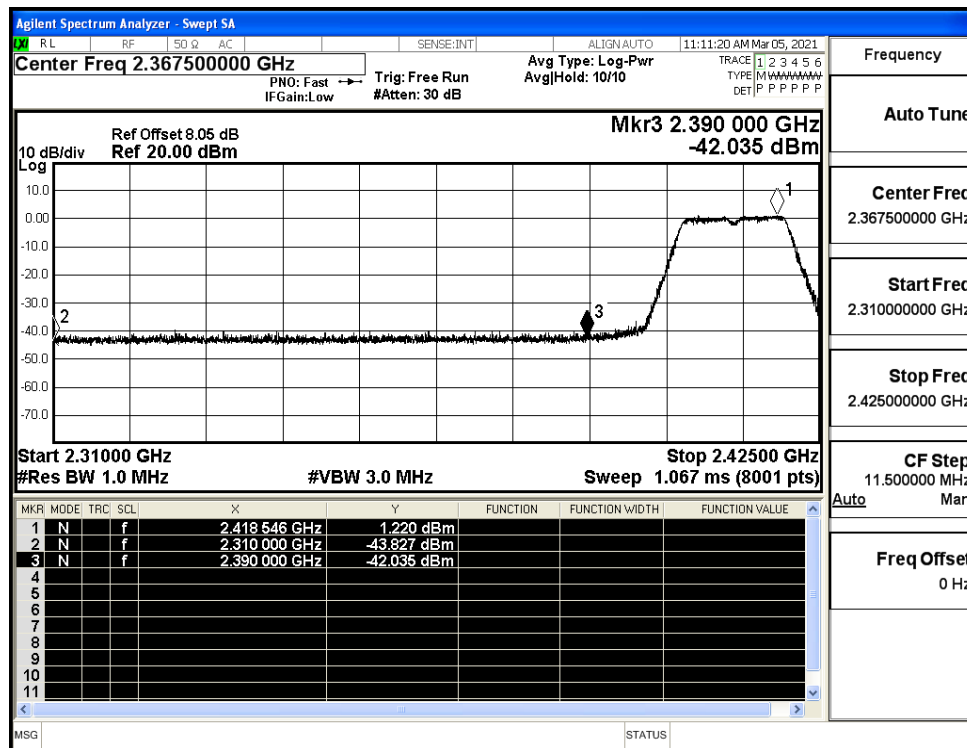
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



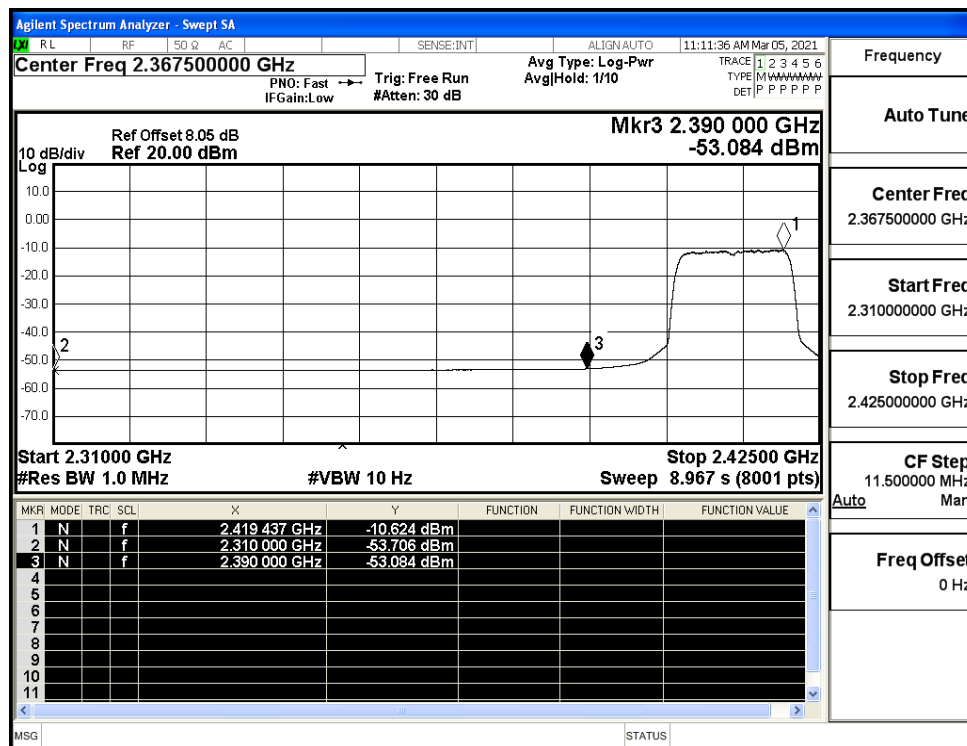
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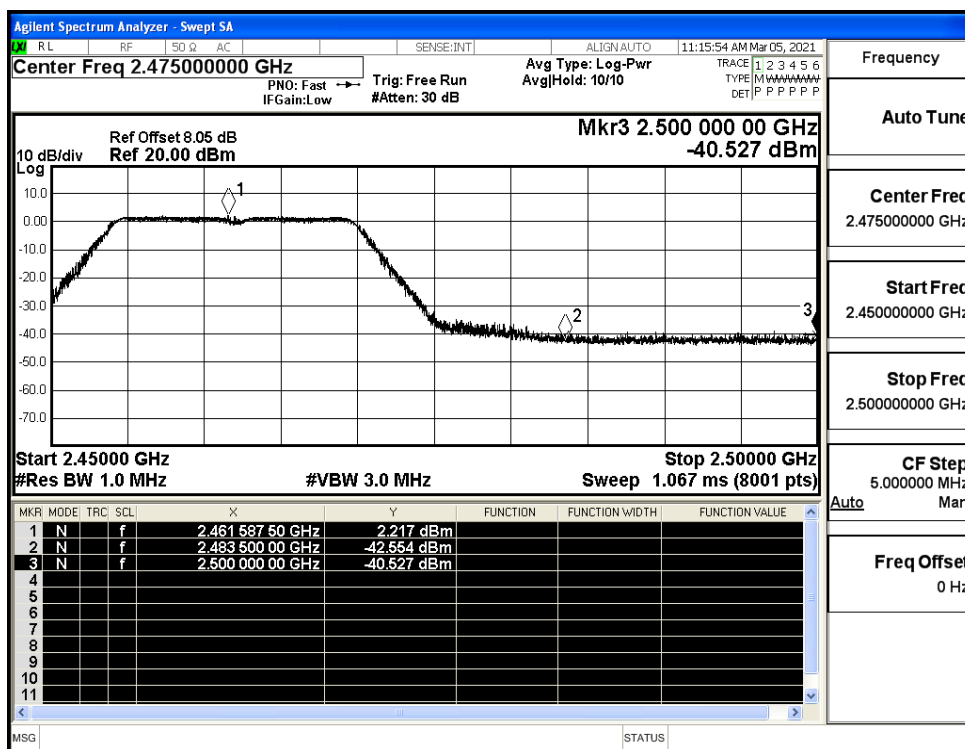
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



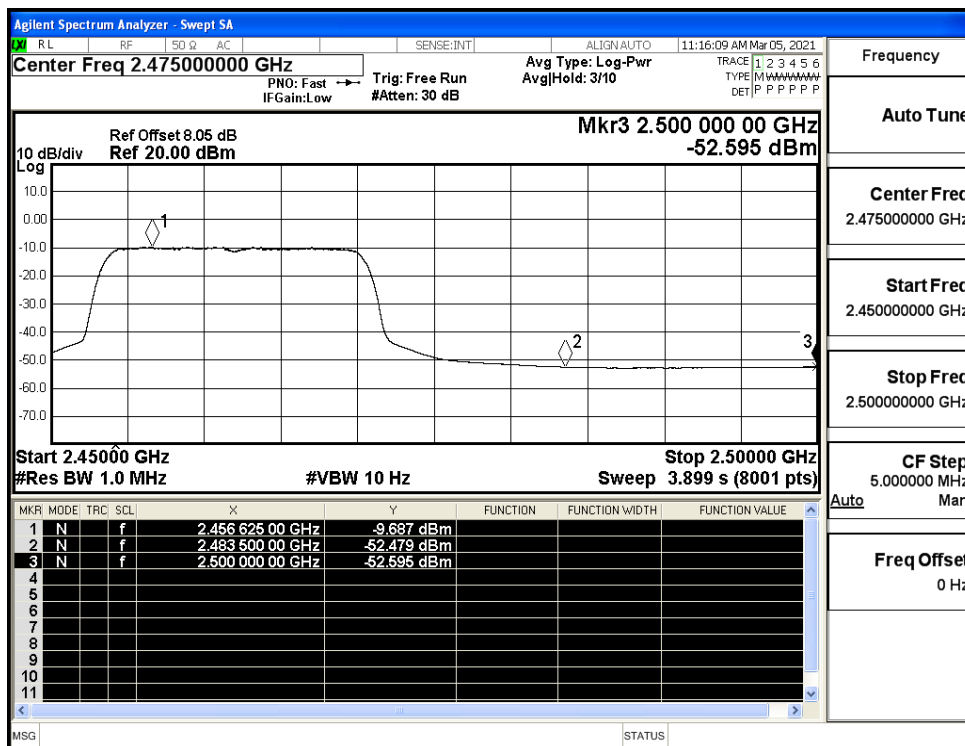
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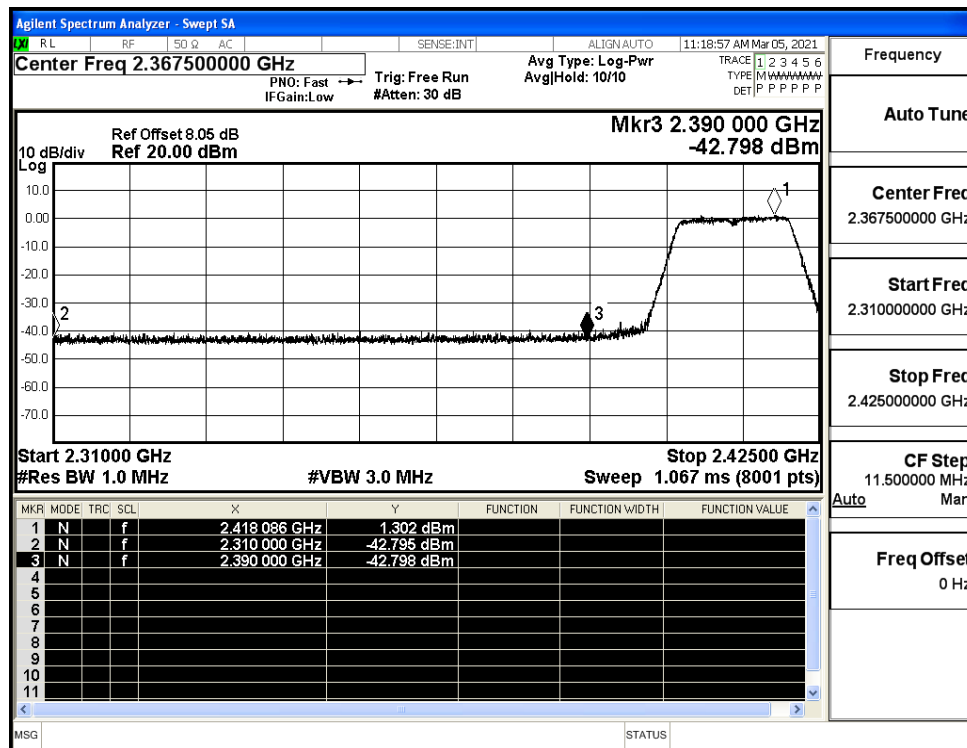
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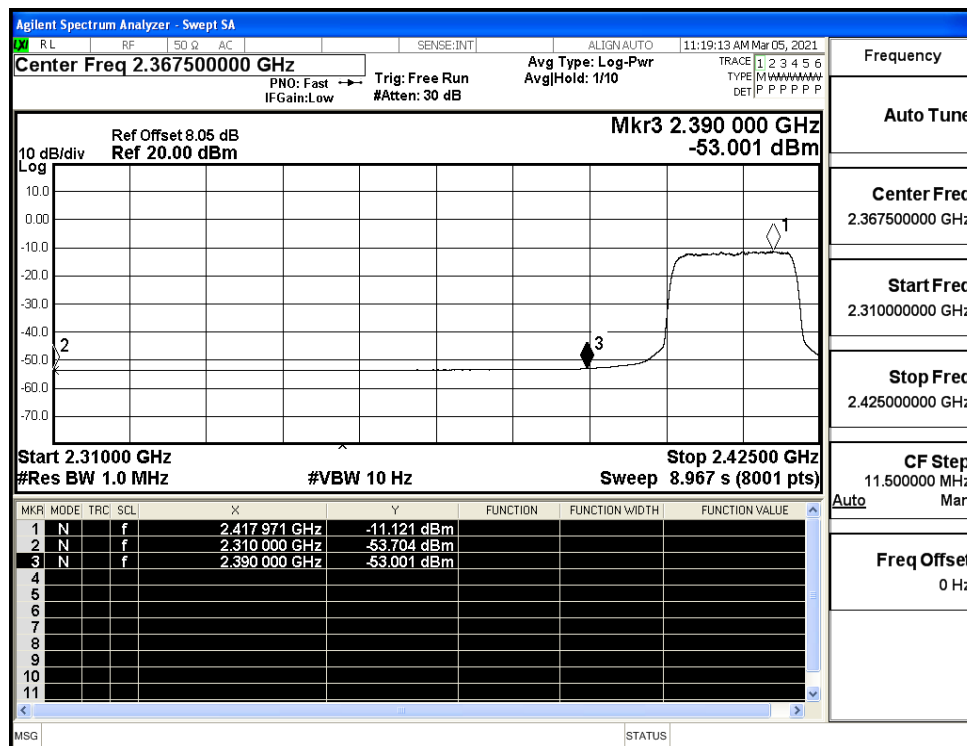
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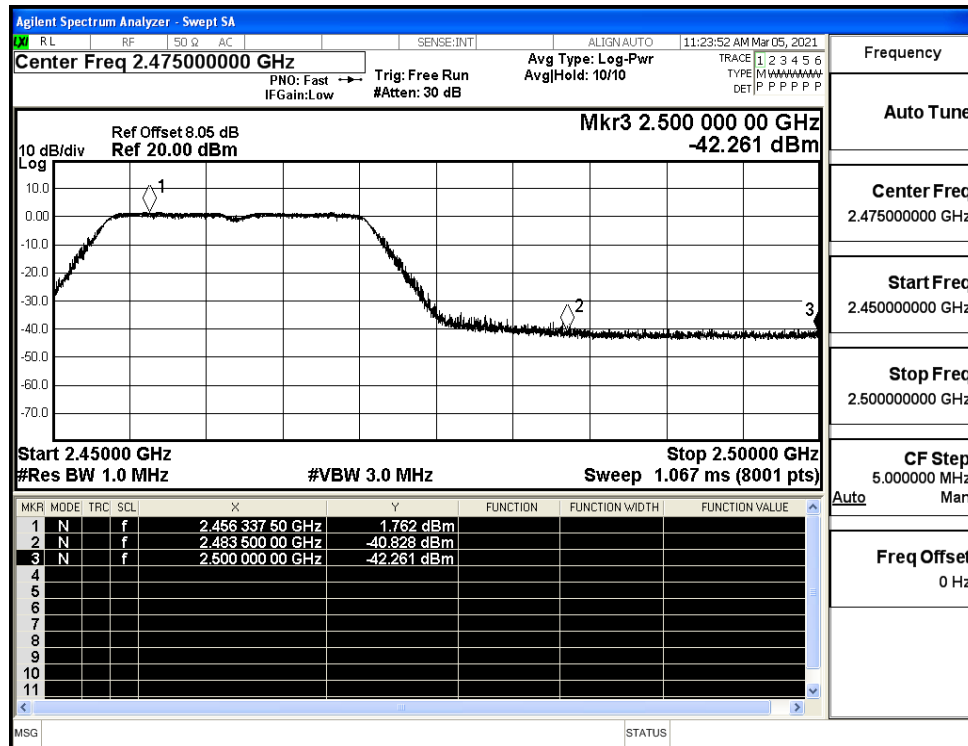
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



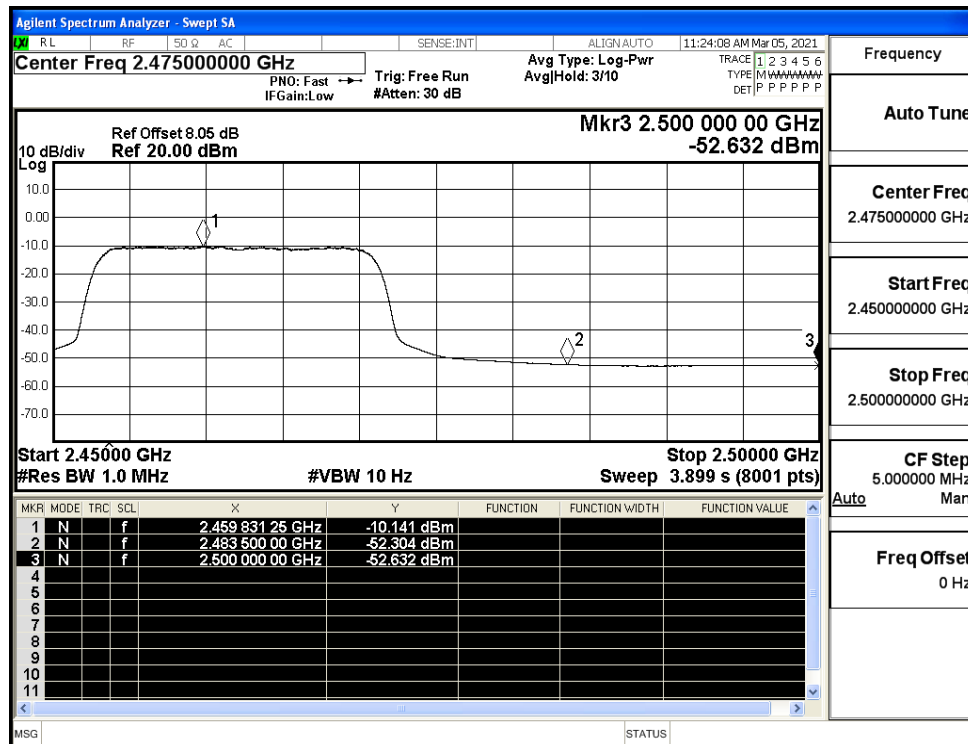
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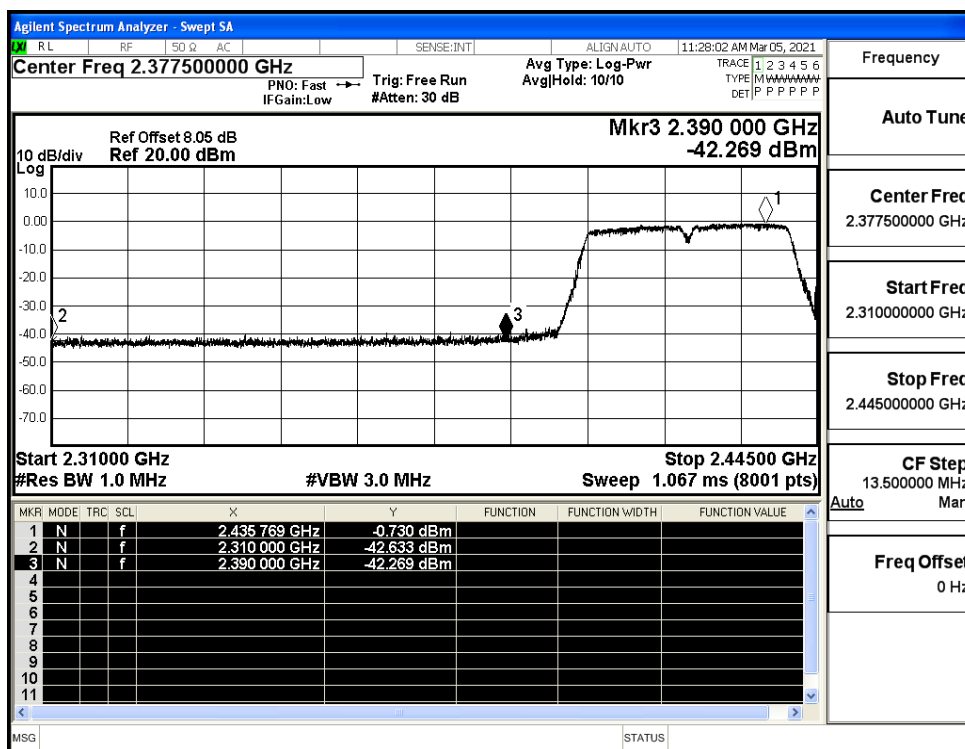
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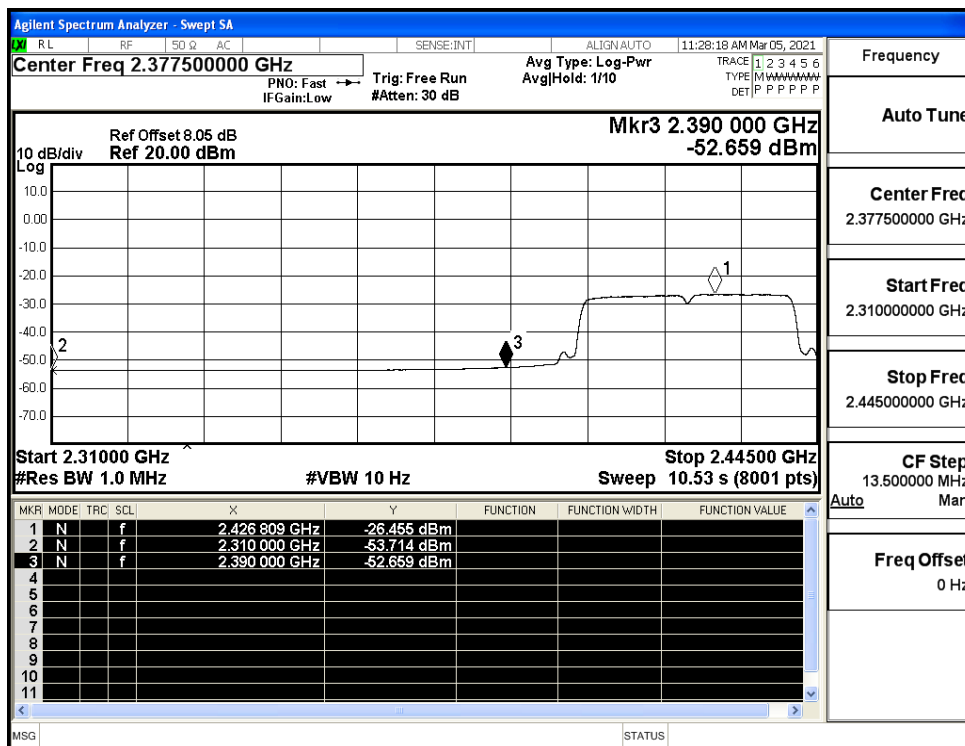
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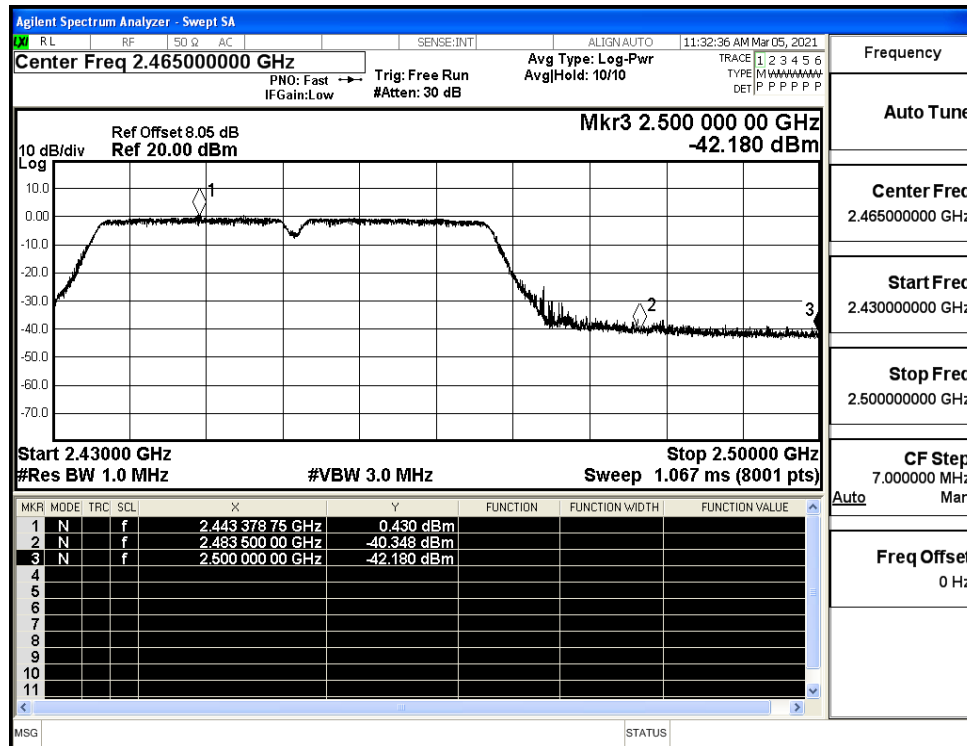
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

