

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Visual ear spoon

Trade Mark: E-enjoy

Test Model: E-enjoy E5

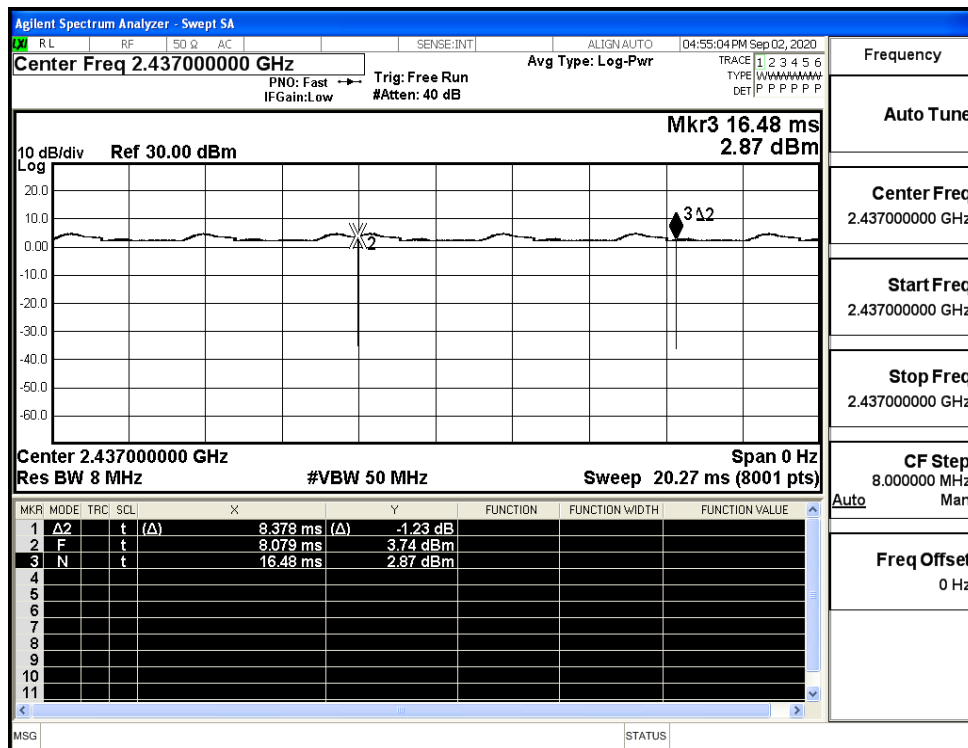
Environmental Conditions

Temperature:	23.4°C
Relative Humidity:	52.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

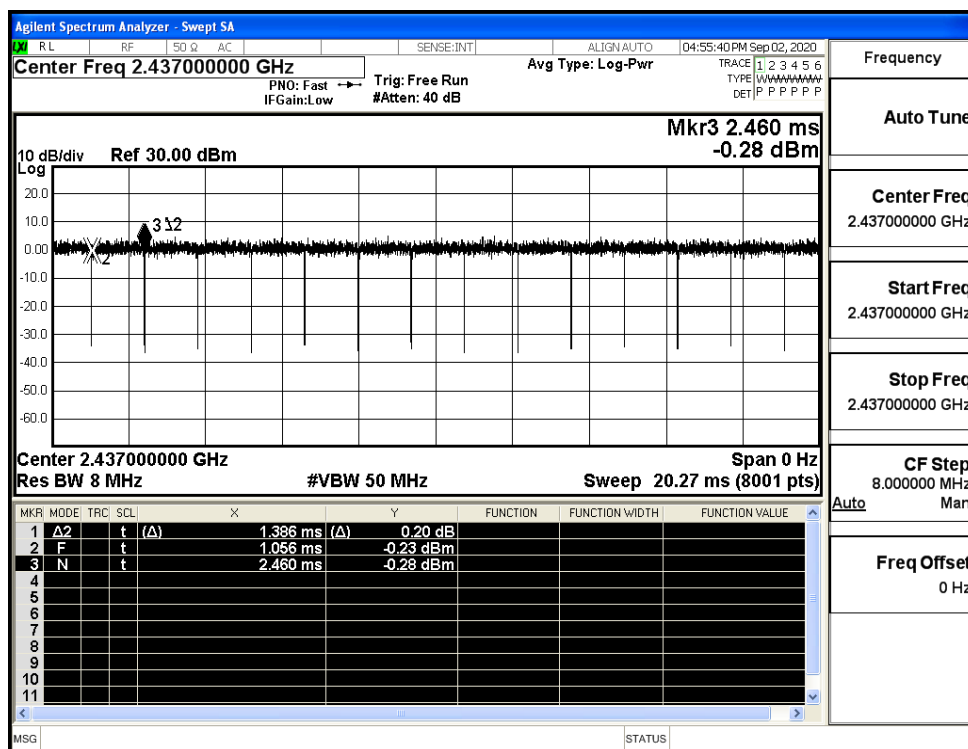
A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	99.76	PASS
11G	2437	Ant1	98.74	PASS
11N20SISO	2437	Ant1	98.46	PASS
11N40SISO	2437	Ant1	98.00	PASS

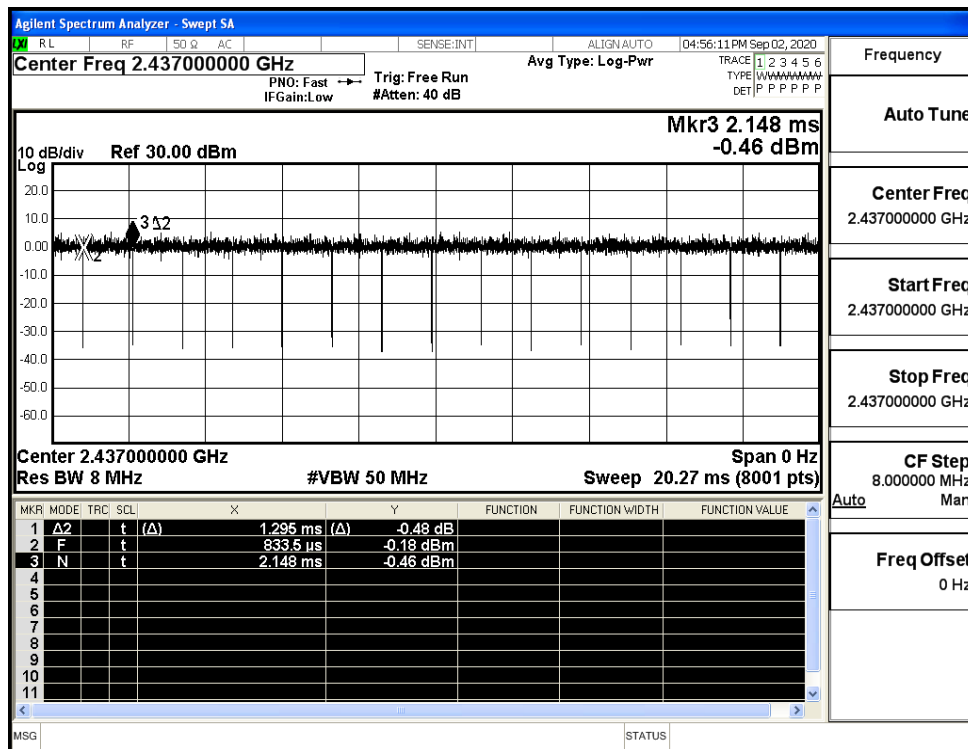
Duty Cycle_11B_2437_Ant1



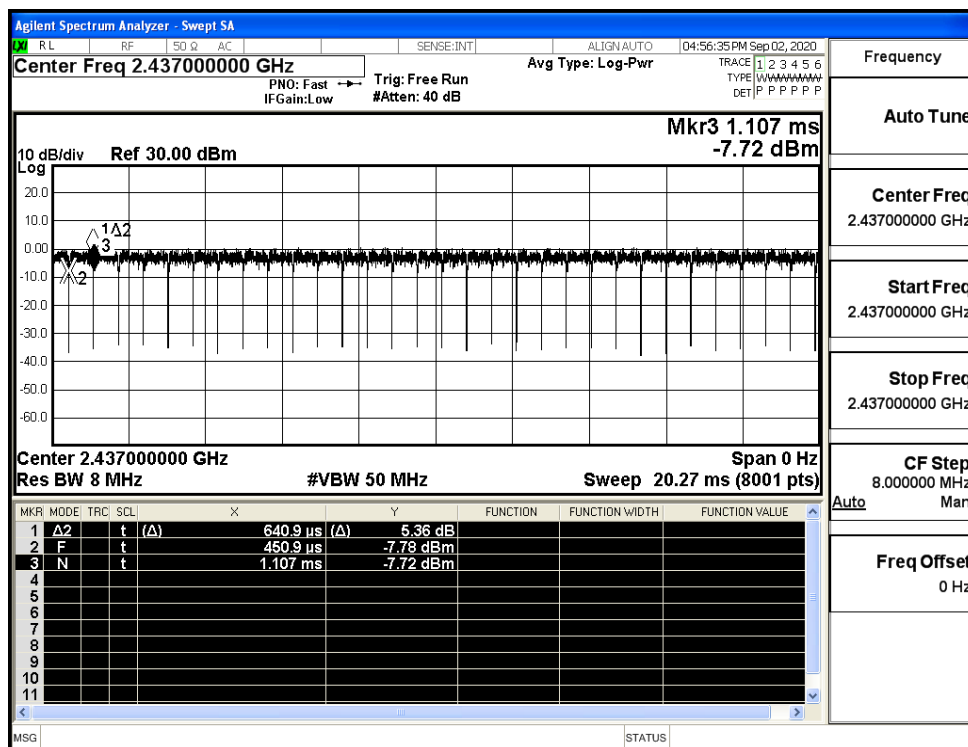
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



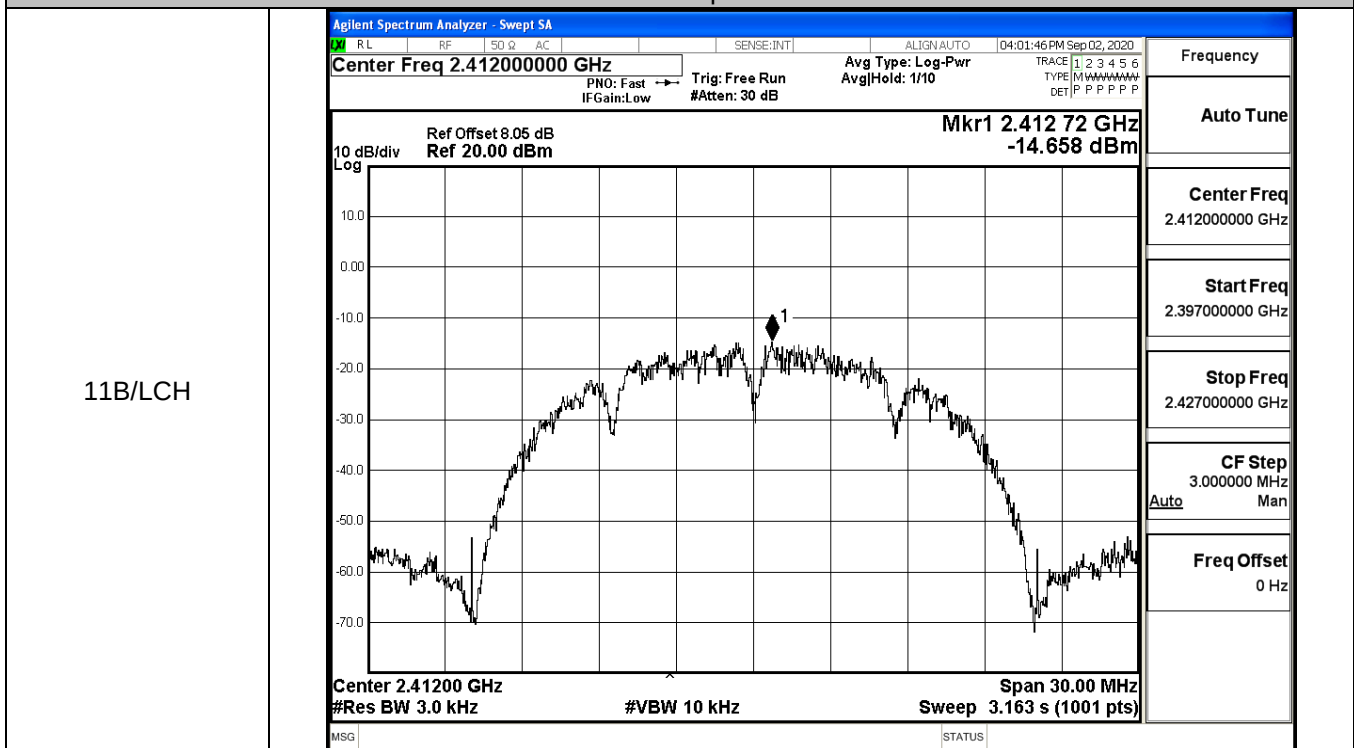
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	8.31	30	PASS
	MCH	7.89	30	PASS
	HCH	8.65	30	PASS
11G	LCH	7.97	30	PASS
	MCH	7.79	30	PASS
	HCH	7.83	30	PASS
11N20SISO	LCH	7.94	30	PASS
	MCH	8.41	30	PASS
	HCH	8.84	30	PASS
11N40SISO	LCH	8.42	30	PASS
	MCH	8.67	30	PASS
	HCH	8.33	30	PASS

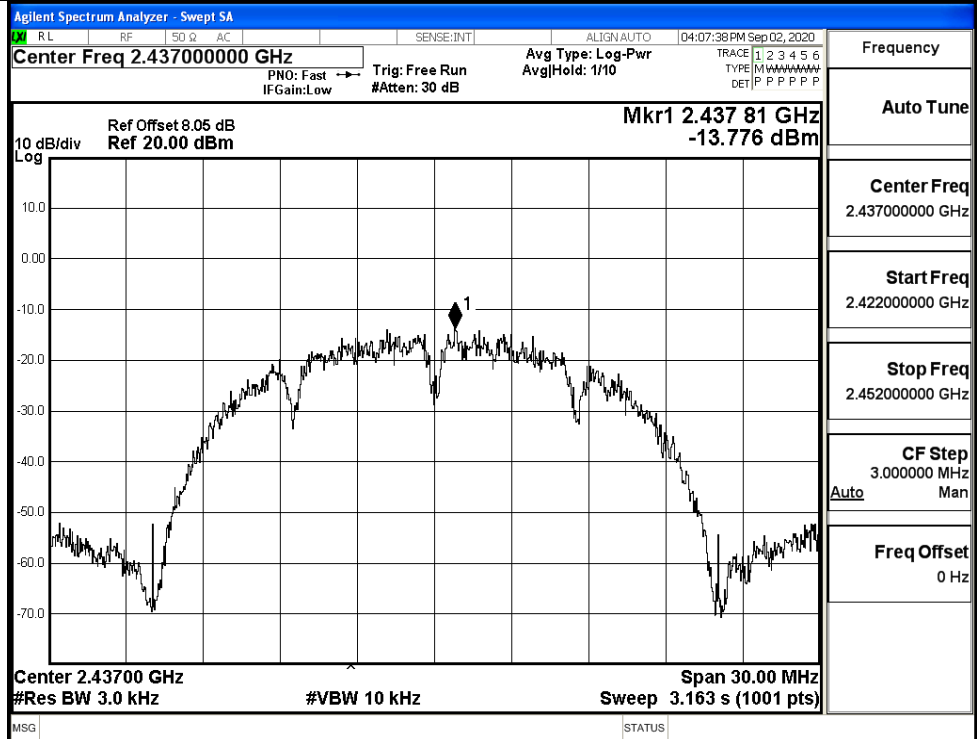
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-14.658	8	PASS
	MCH	-13.776	8	PASS
	HCH	-13.409	8	PASS
11G	LCH	-18.432	8	PASS
	MCH	-20.397	8	PASS
	HCH	-19.314	8	PASS
11N20SISO	LCH	-22.123	8	PASS
	MCH	-20.670	8	PASS
	HCH	-19.340	8	PASS
11N40SISO	LCH	-23.228	8	PASS
	MCH	-22.232	8	PASS
	HCH	-21.293	8	PASS

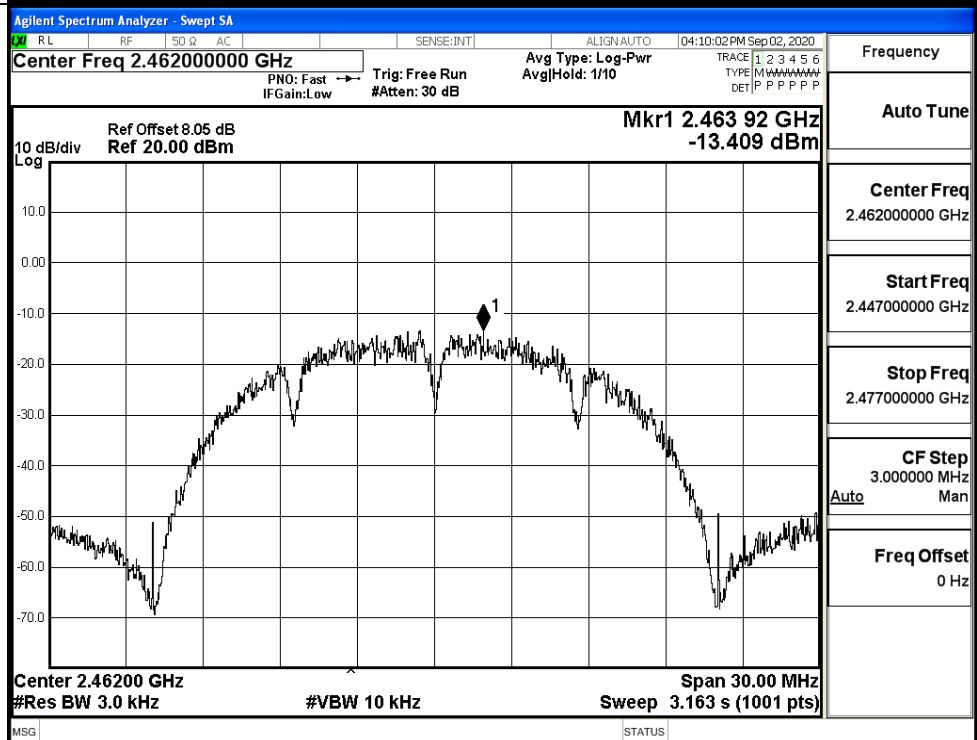
Test Graphs



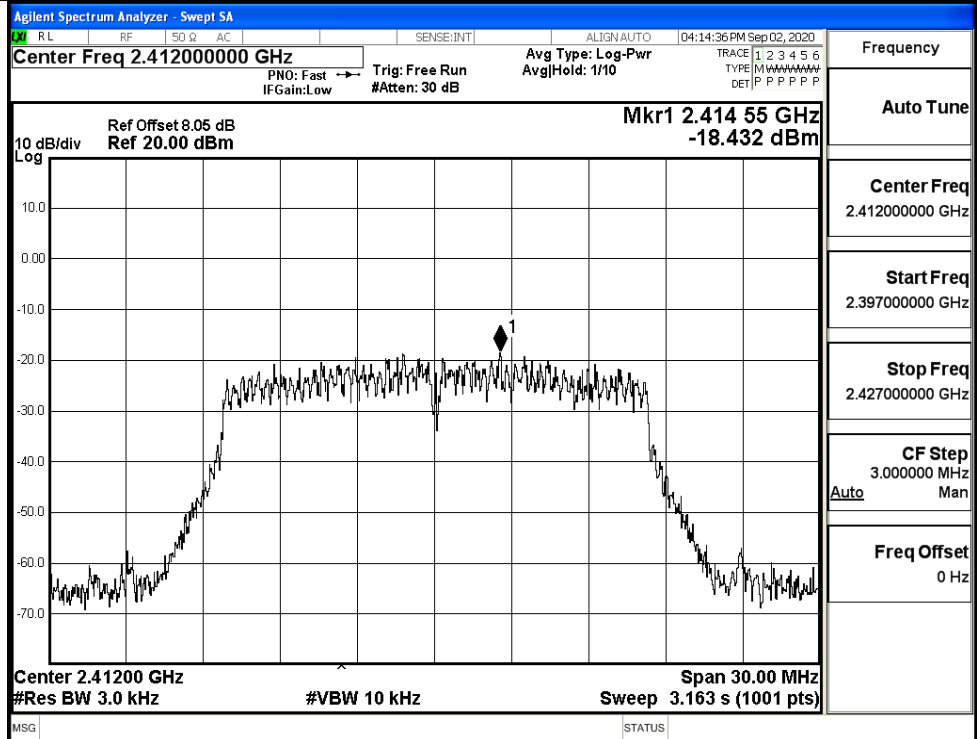
11B/MCH



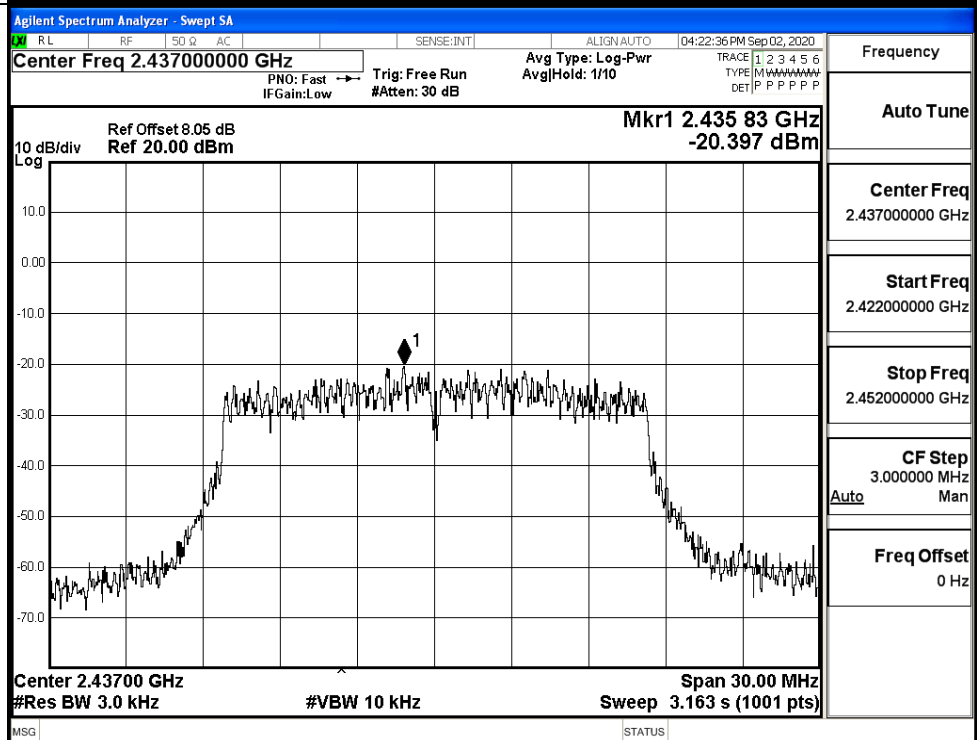
11B/HCH



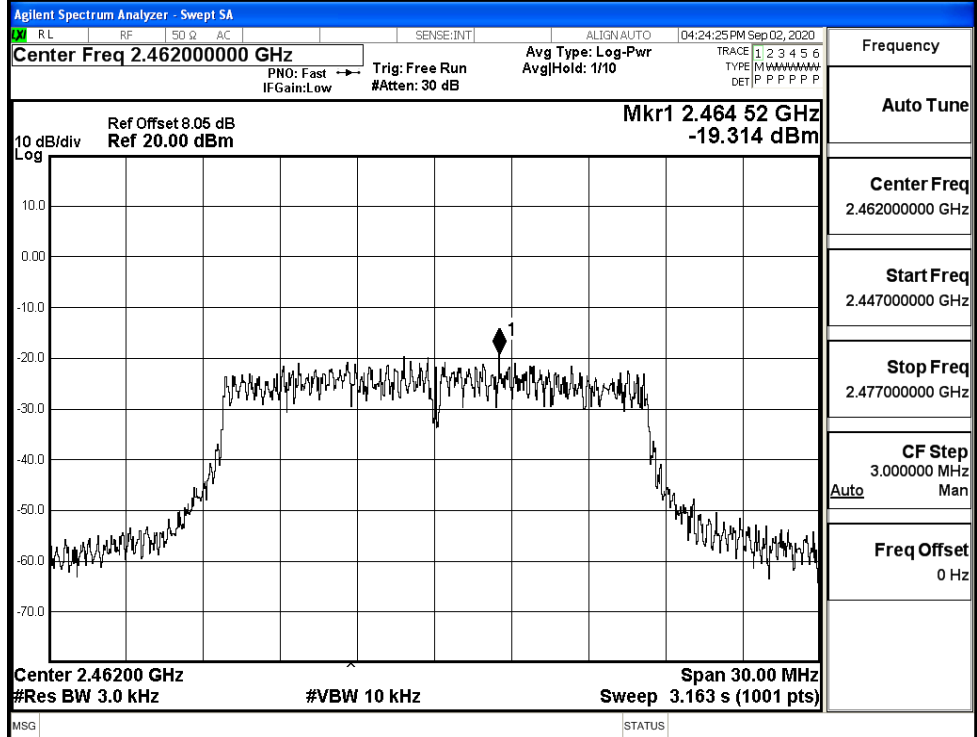
11G/LCH



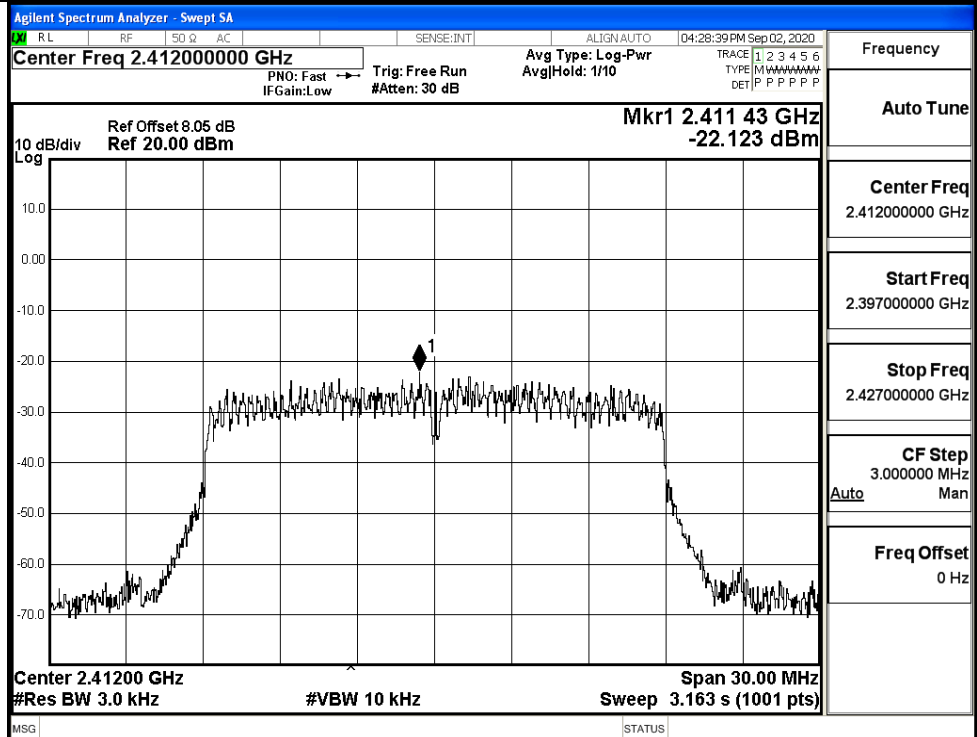
11G/MCH



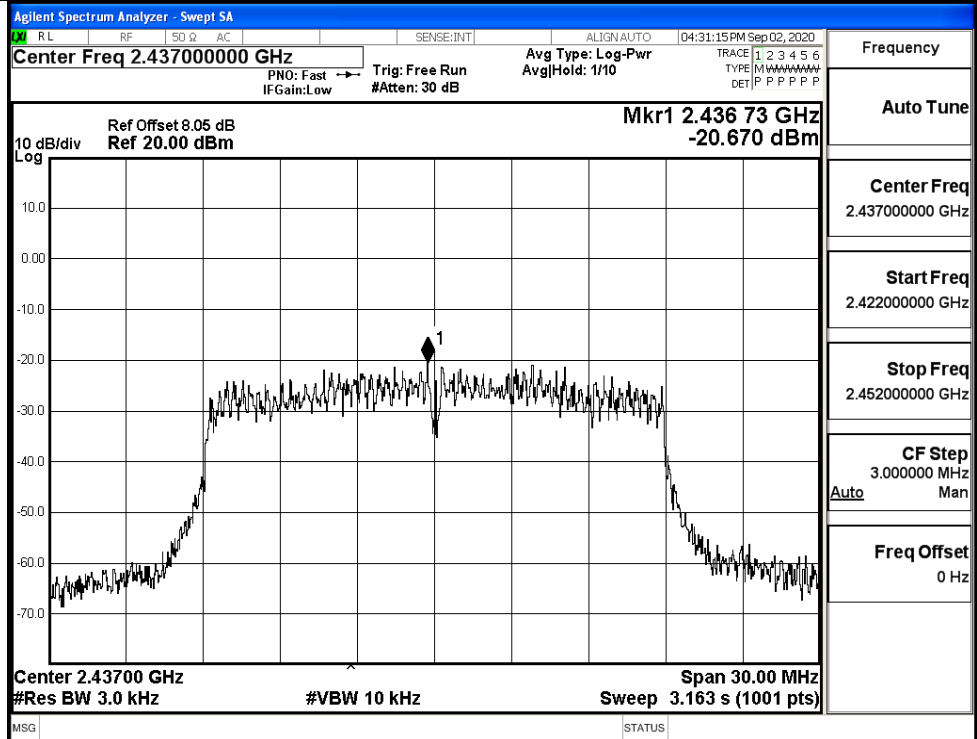
11G/HCH



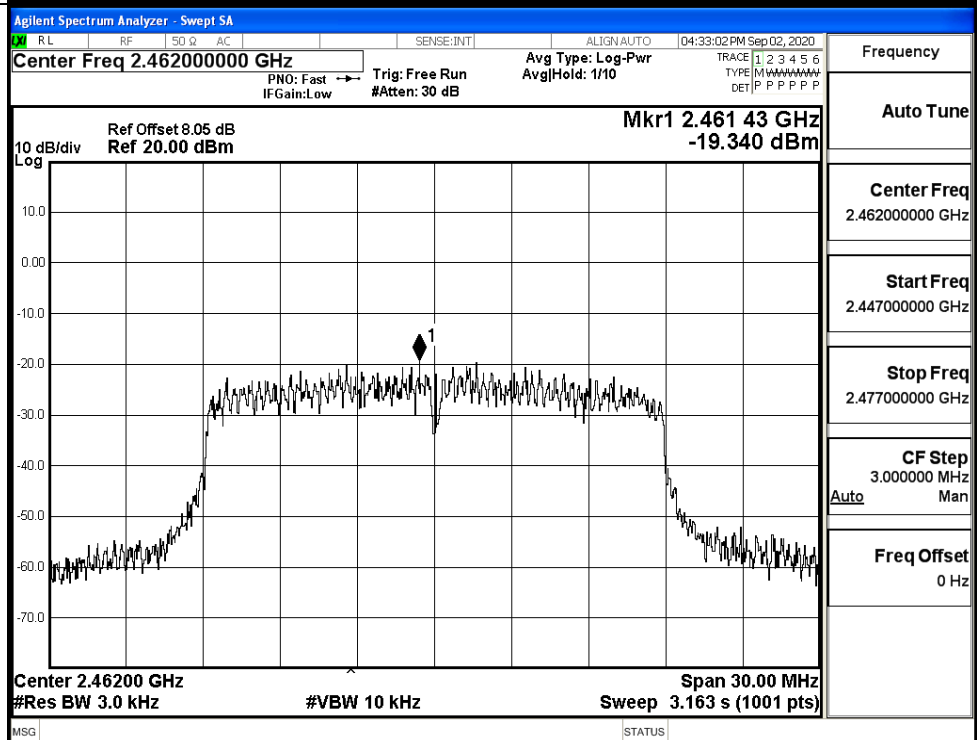
11N20SISO/LCH



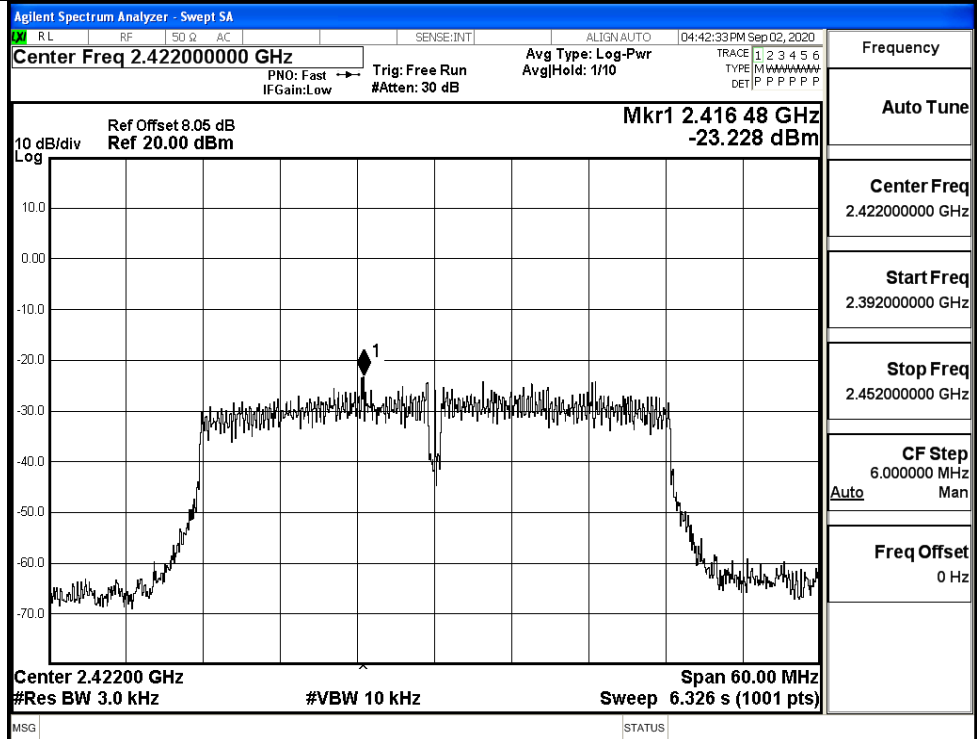
11N20SISO/MCH



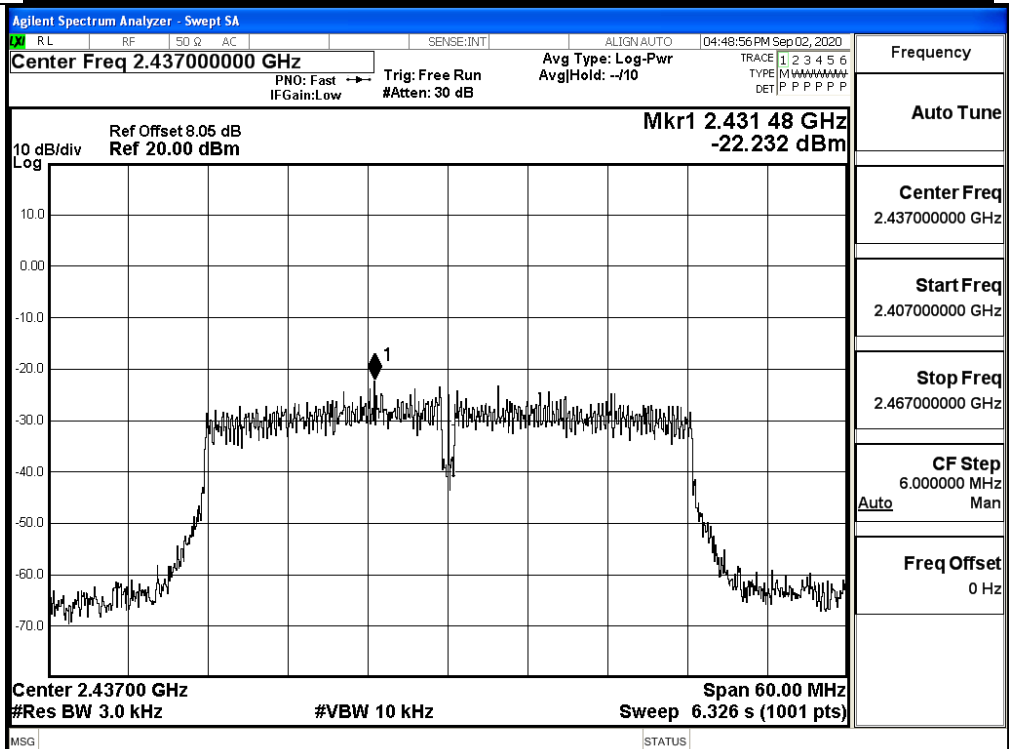
11N20SISO/HCH



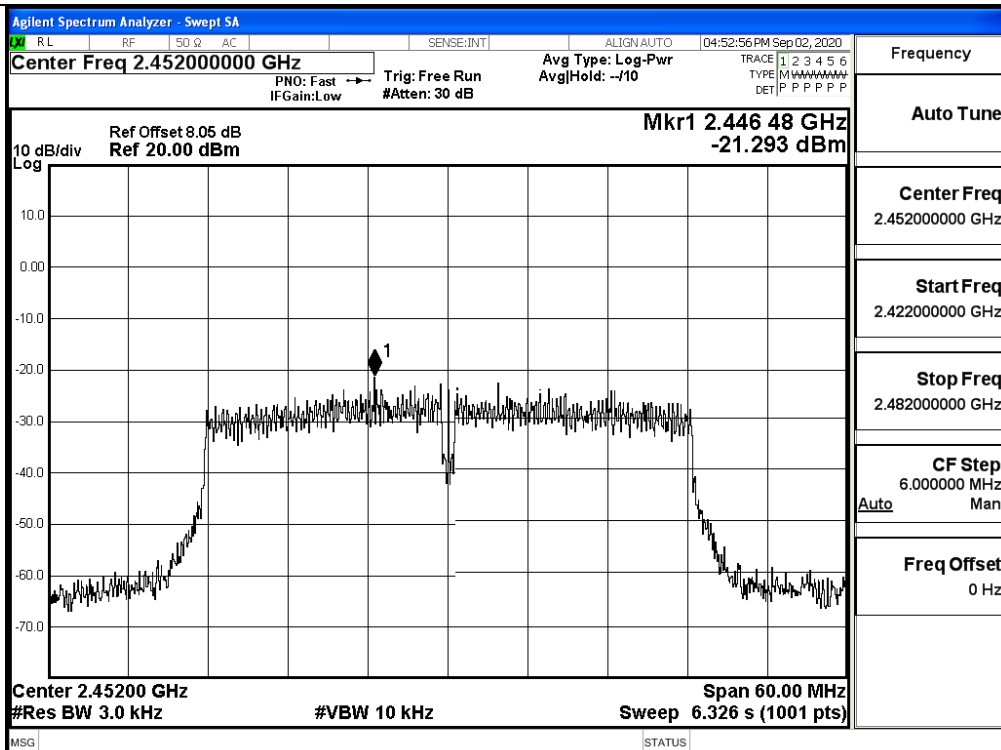
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

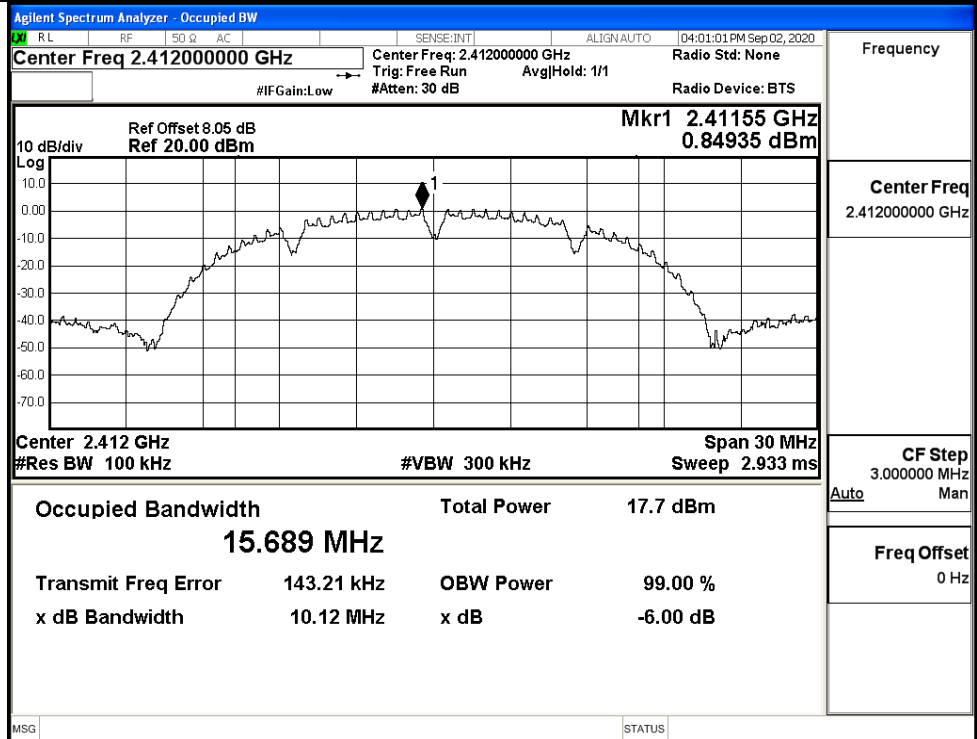


A.4 6dB Bandwidth

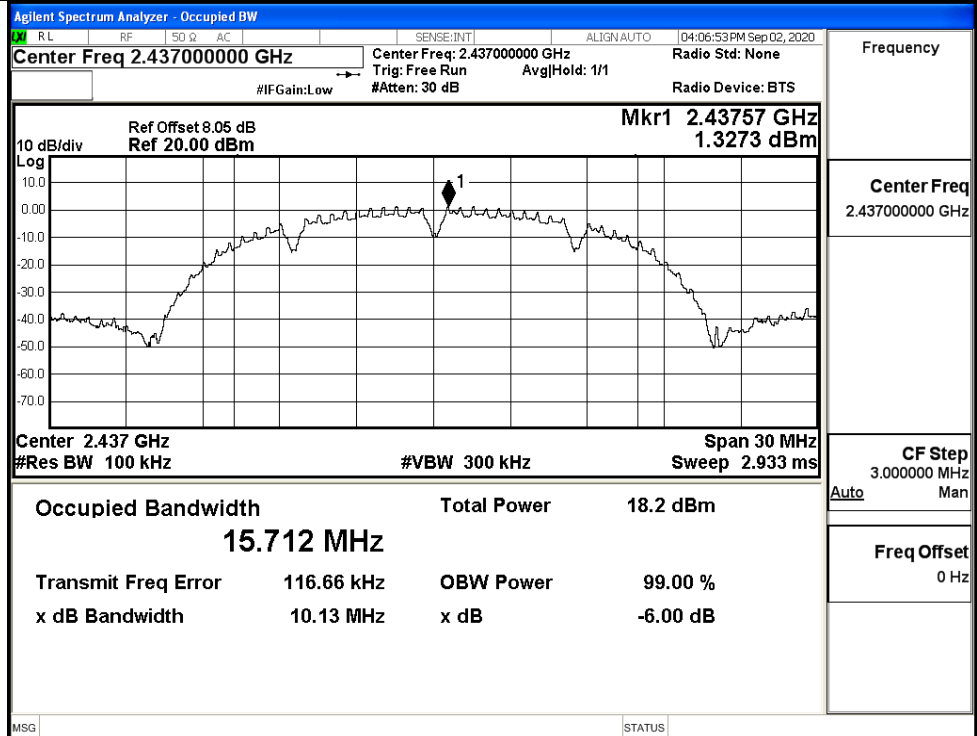
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.12	≥ 0.5	PASS
	MCH	10.13	≥ 0.5	PASS
	HCH	10.12	≥ 0.5	PASS
11G	LCH	15.74	≥ 0.5	PASS
	MCH	15.40	≥ 0.5	PASS
	HCH	15.18	≥ 0.5	PASS
11N20SISO	LCH	15.49	≥ 0.5	PASS
	MCH	15.49	≥ 0.5	PASS
	HCH	15.51	≥ 0.5	PASS
11N40SISO	LCH	35.42	≥ 0.5	PASS
	MCH	35.22	≥ 0.5	PASS
	HCH	35.22	≥ 0.5	PASS

Test Graphs

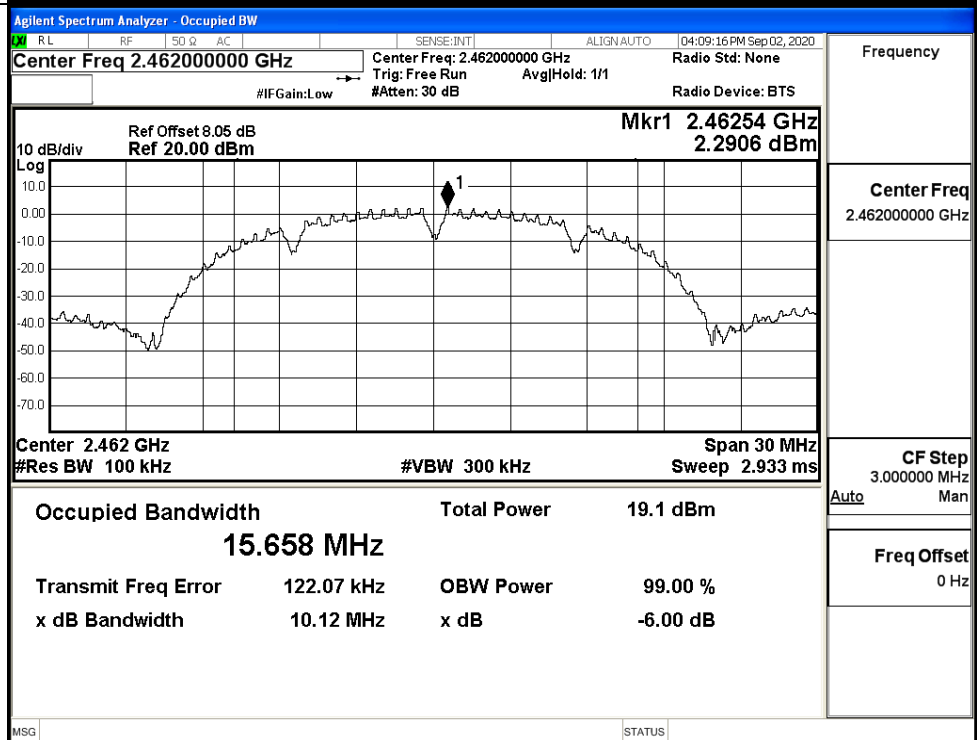
11B/LCH



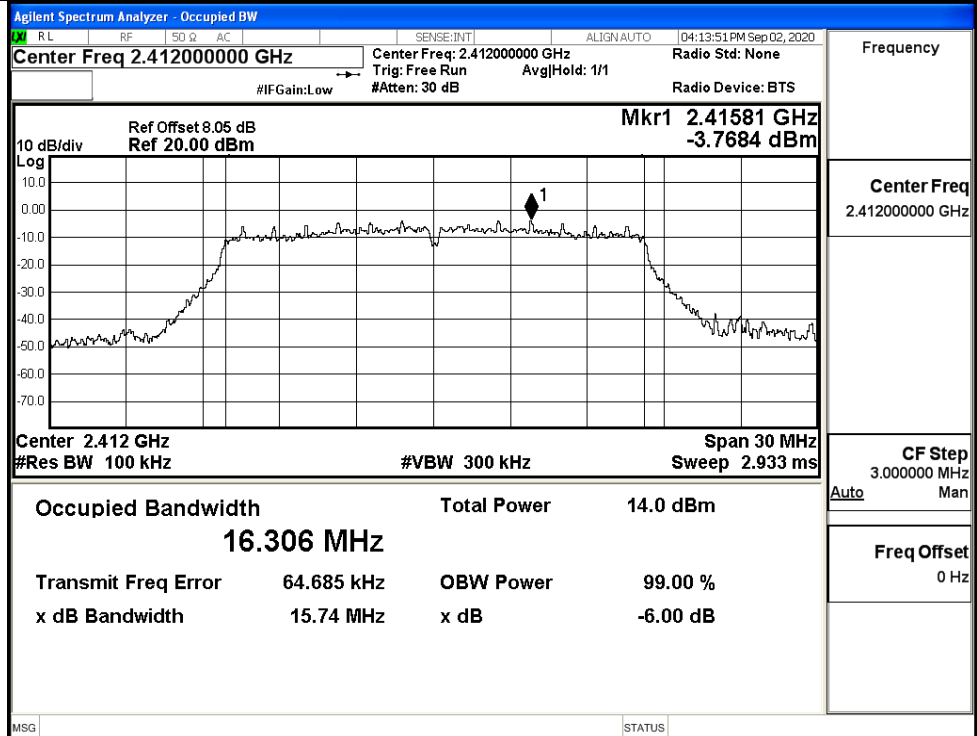
11B/MCH



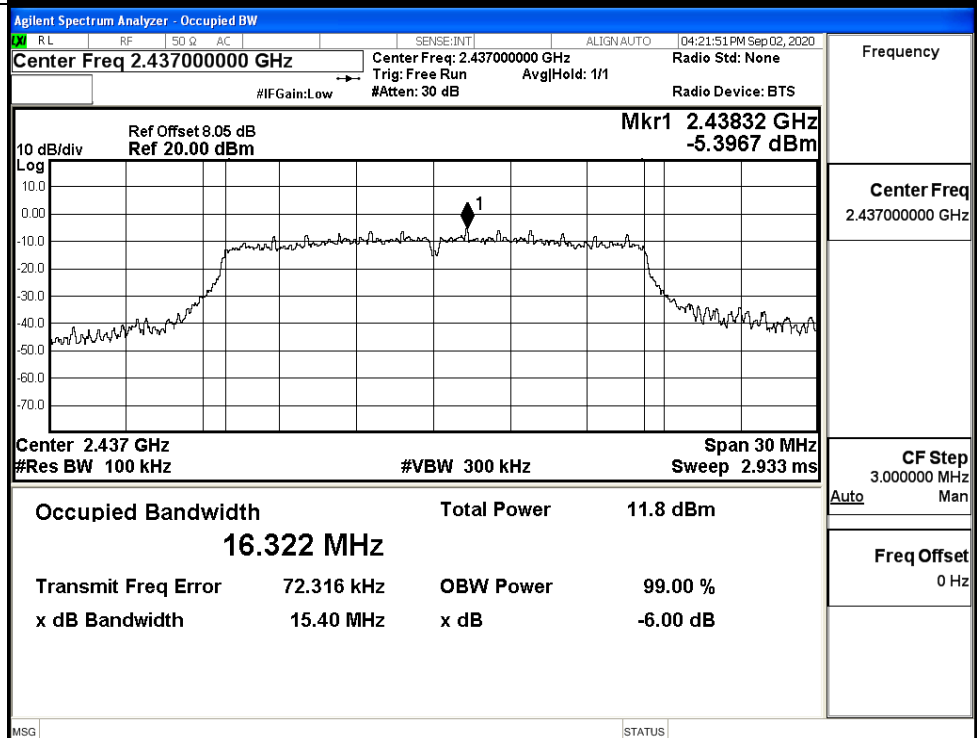
11B/HCH



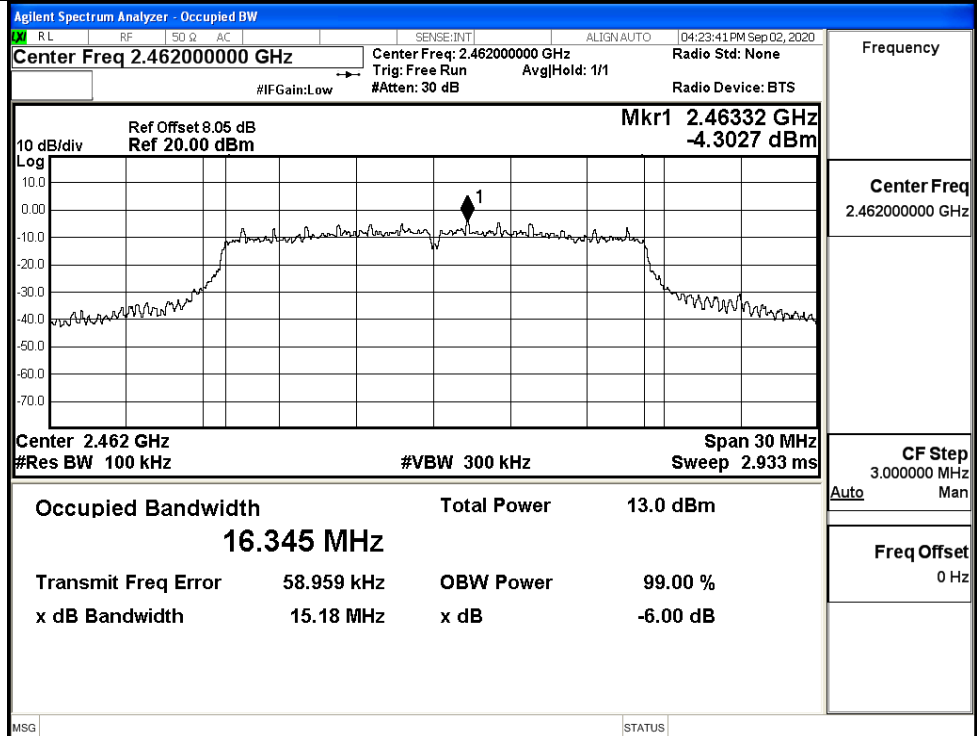
11G/LCH



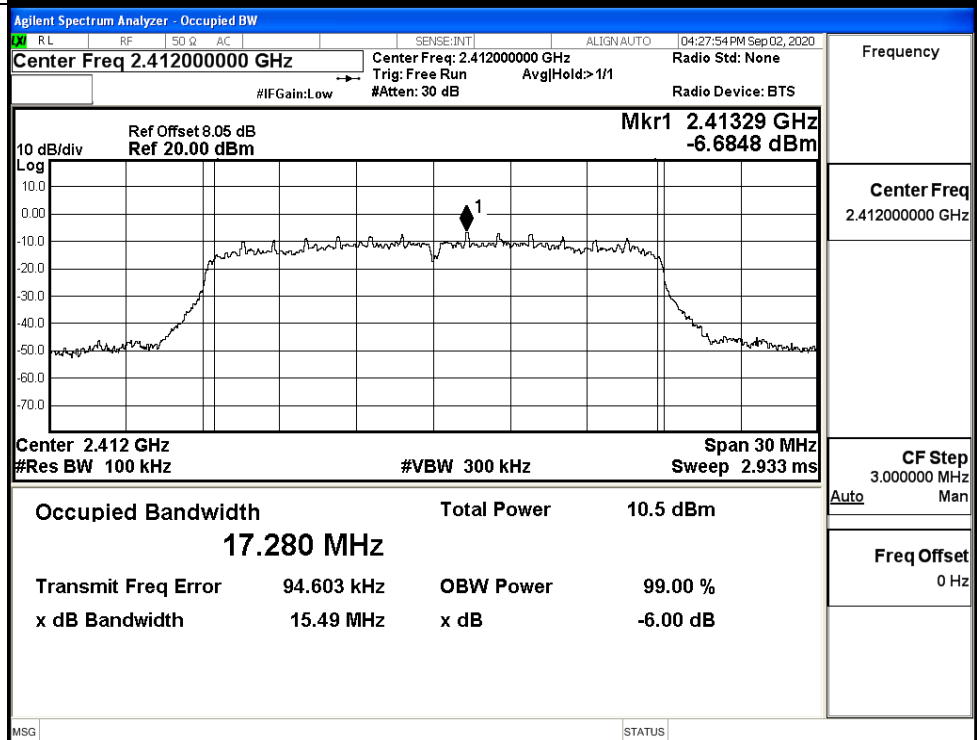
11G/MCH



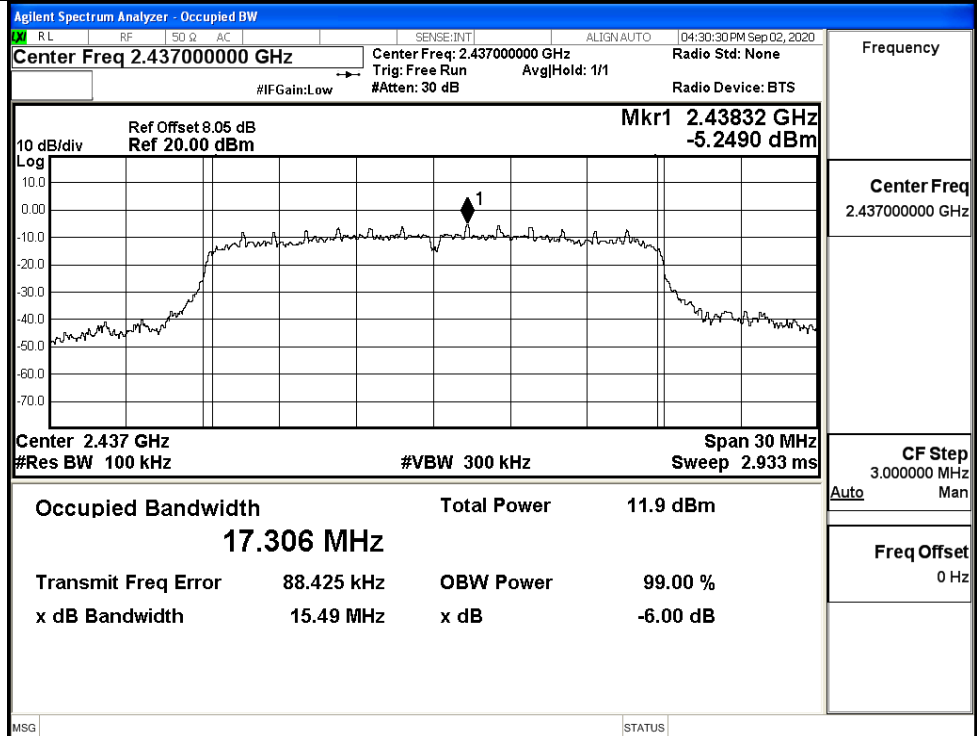
11G/HCH



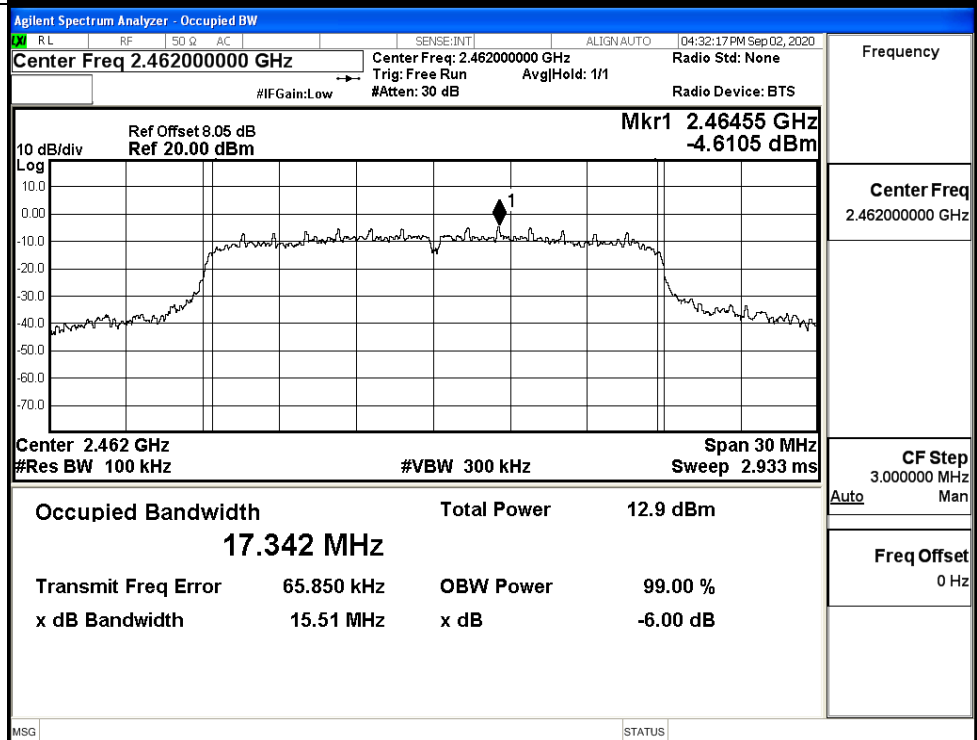
11N20SISO/LCH



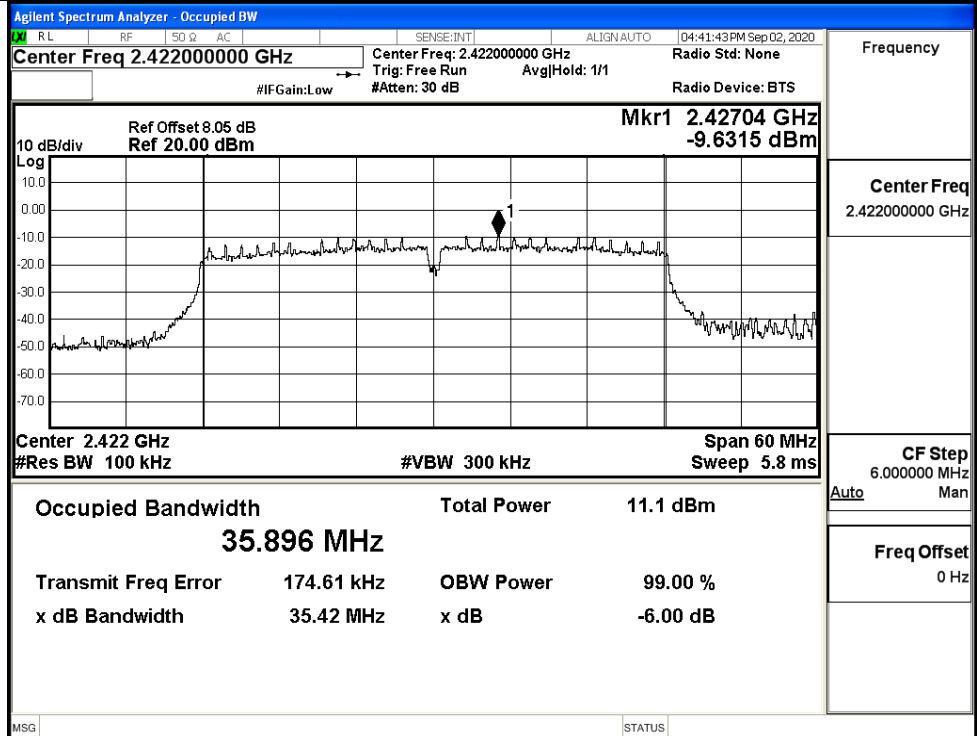
11N20SISO/MCH



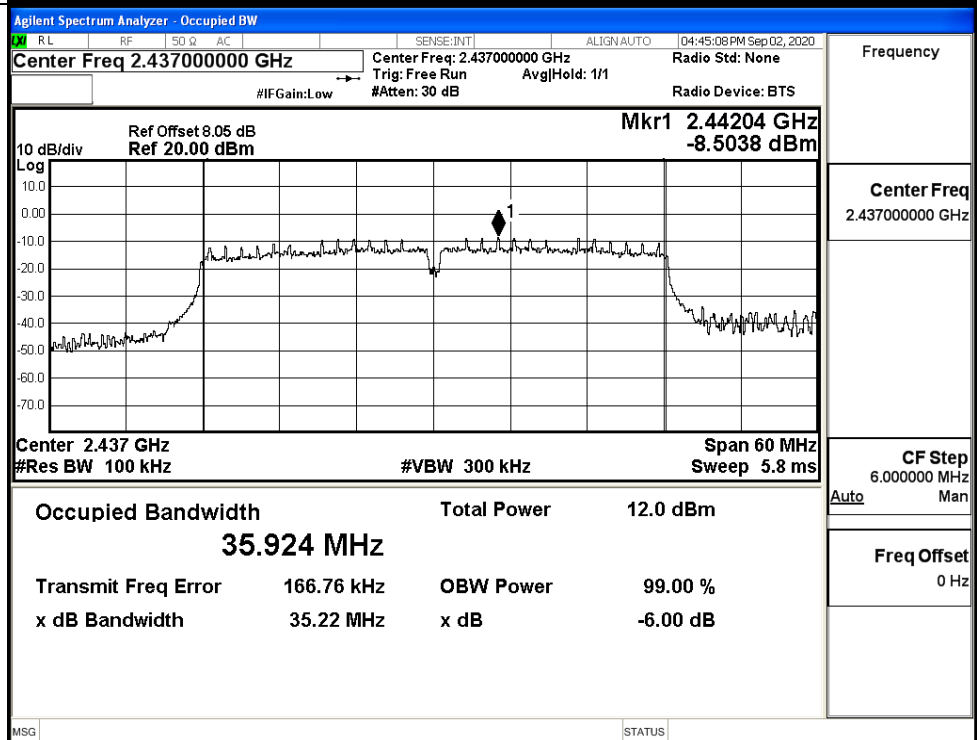
11N20SISO/HCH



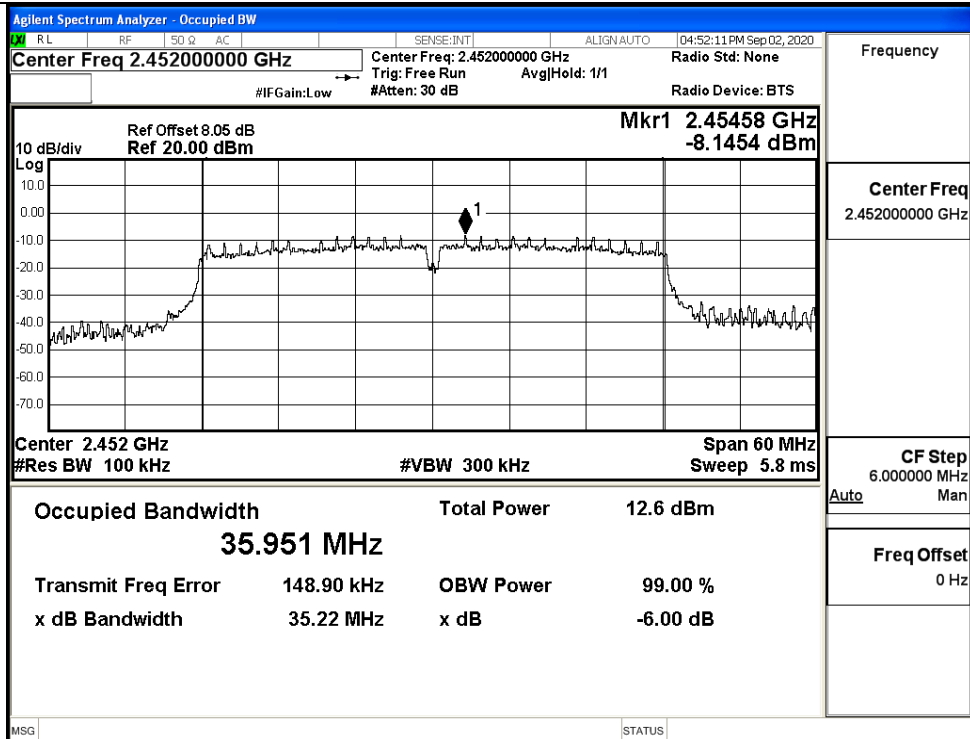
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

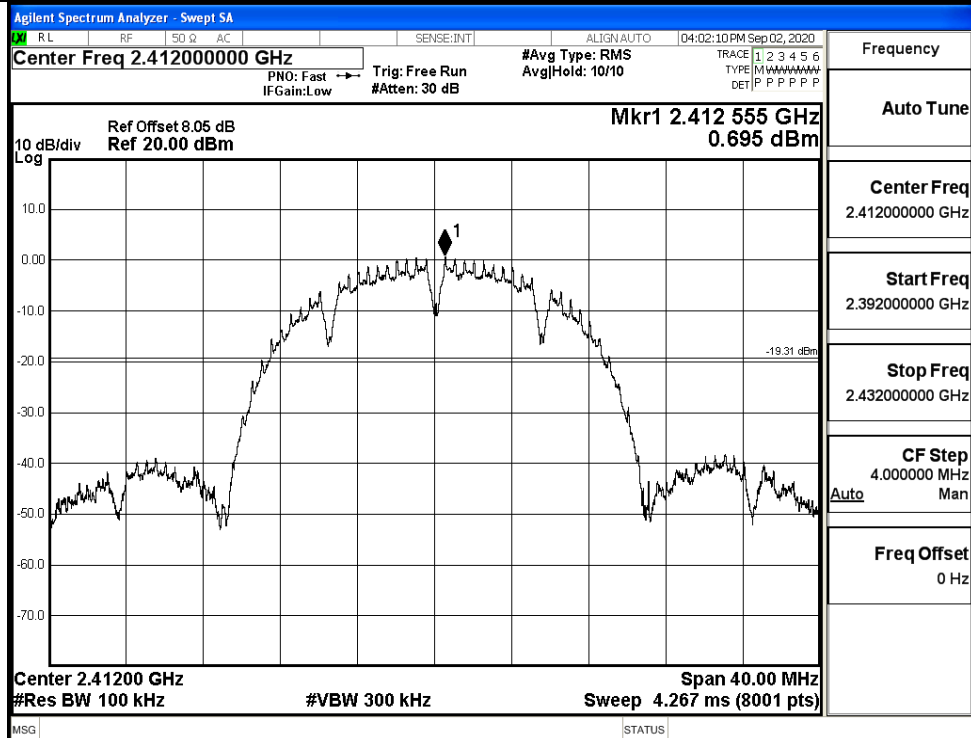


A.5 RF Conducted Spurious Emissions

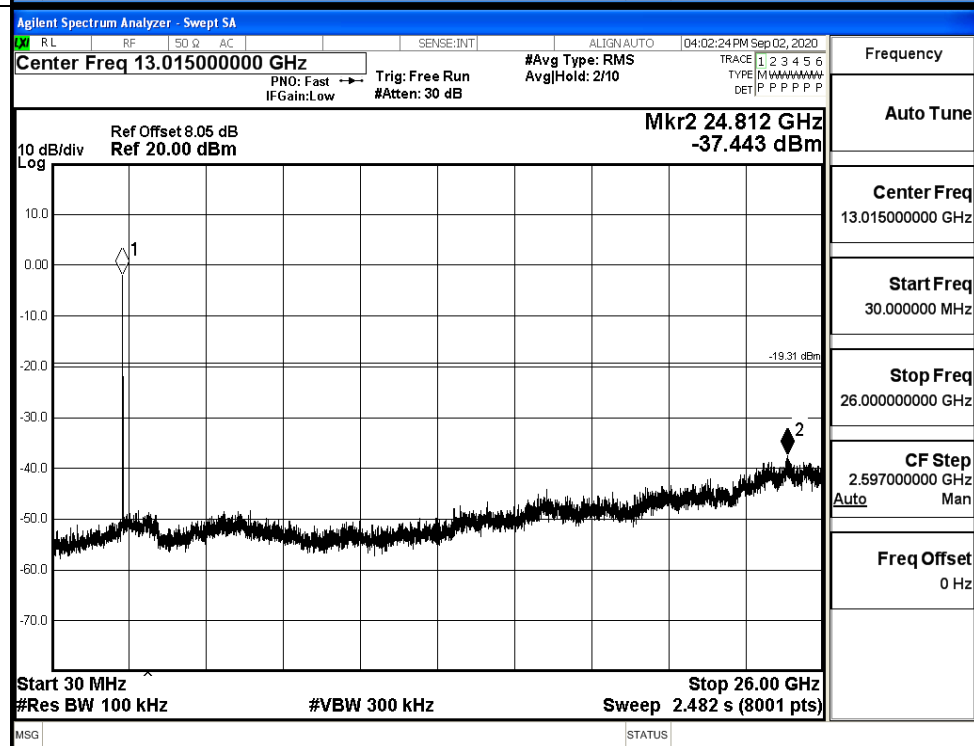
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	0.695	-37.443	-19.305	PASS
	MCH	1.237	-37.902	-18.763	PASS
	HCH	1.863	-37.794	-18.137	PASS
11G	LCH	-3.367	-37.877	-23.367	PASS
	MCH	-5.949	-37.498	-25.949	PASS
	HCH	-4.933	-38.388	-24.933	PASS
11N20 SISO	LCH	-6.888	-38.426	-26.888	PASS
	MCH	-5.427	-37.895	-25.427	PASS
	HCH	-4.417	-37.614	-24.417	PASS
11N40 SISO	LCH	-9.751	-38.515	-29.751	PASS
	MCH	-8.861	-37.831	-28.861	PASS
	HCH	-8.236	-38.077	-28.236	PASS

11B LCH Graphs

Pref/11B/LCH

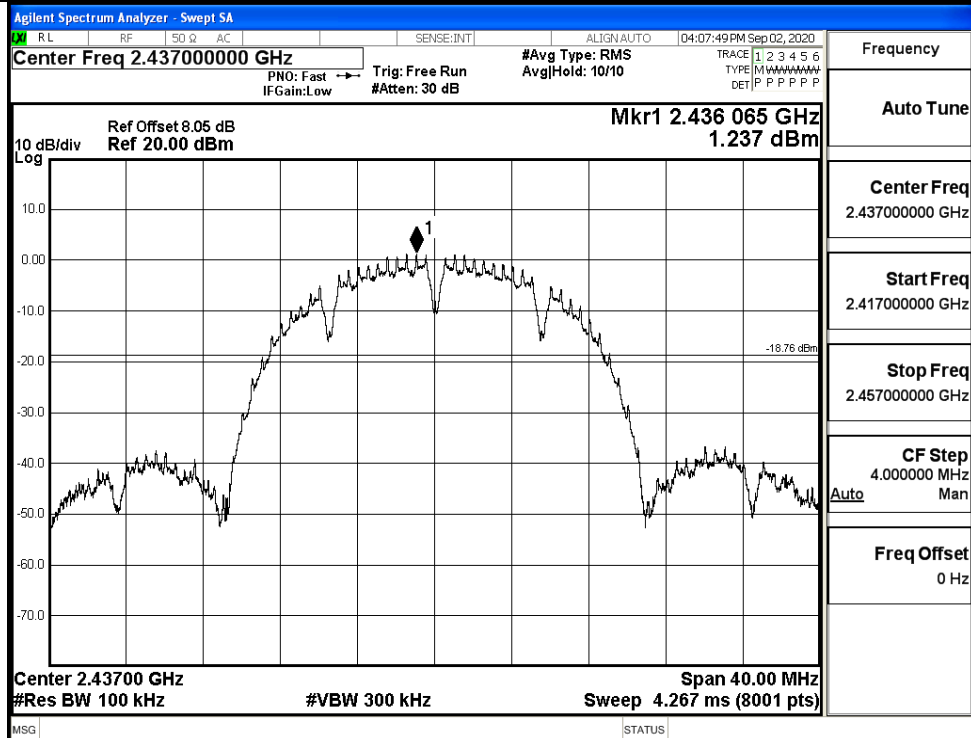


Puw/11B/LCH

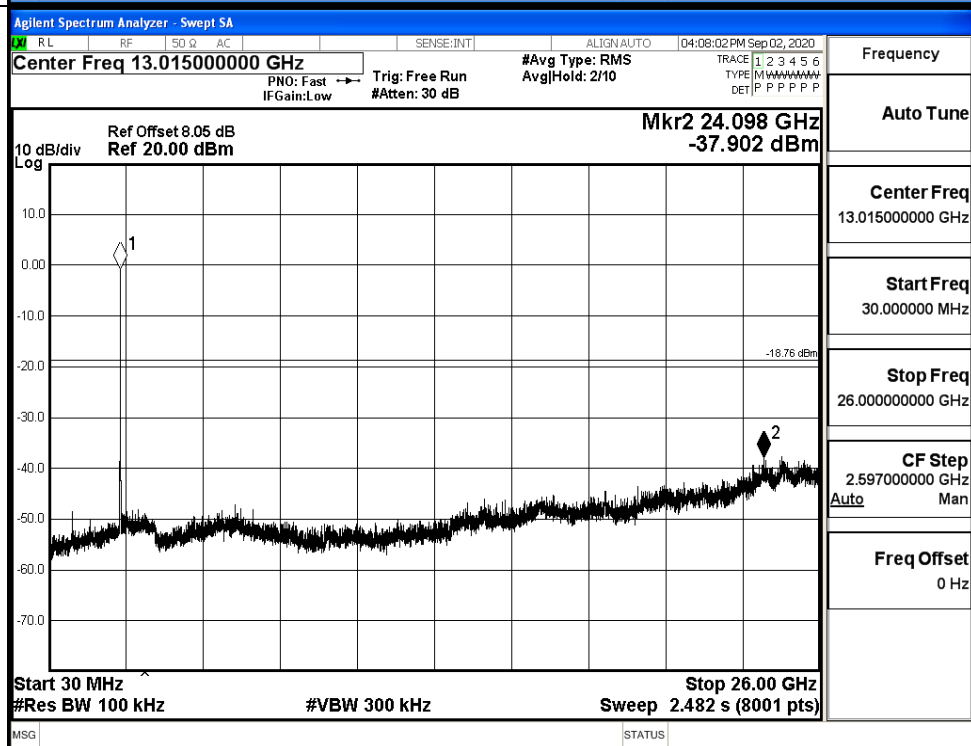


11B MCH Graphs

Pref/11B/MCH

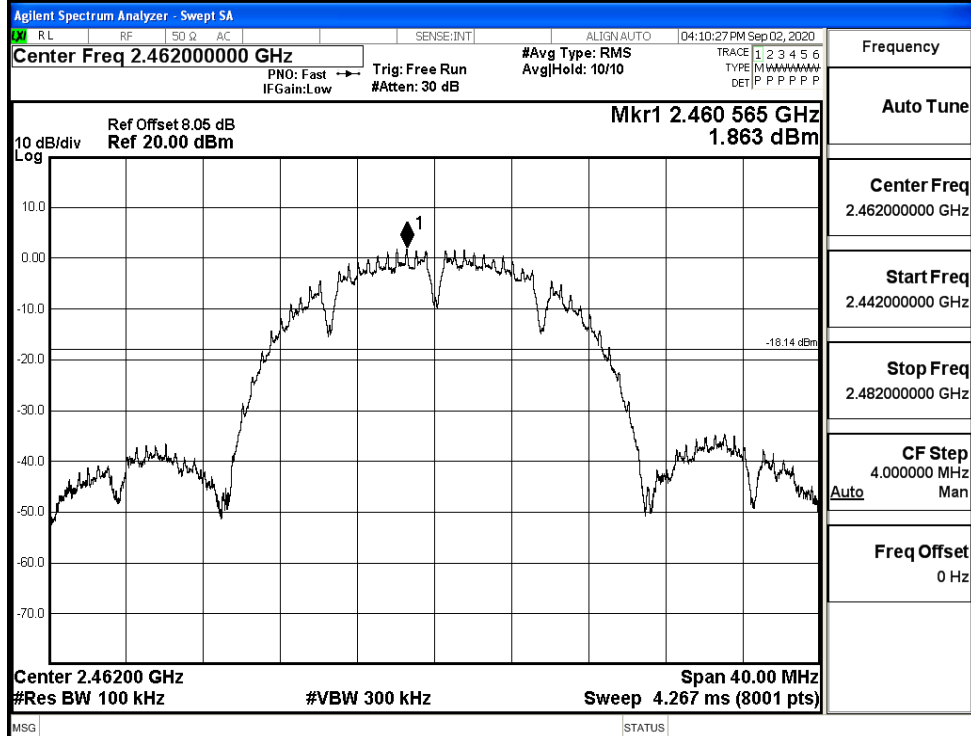


Puw/11B/MCH

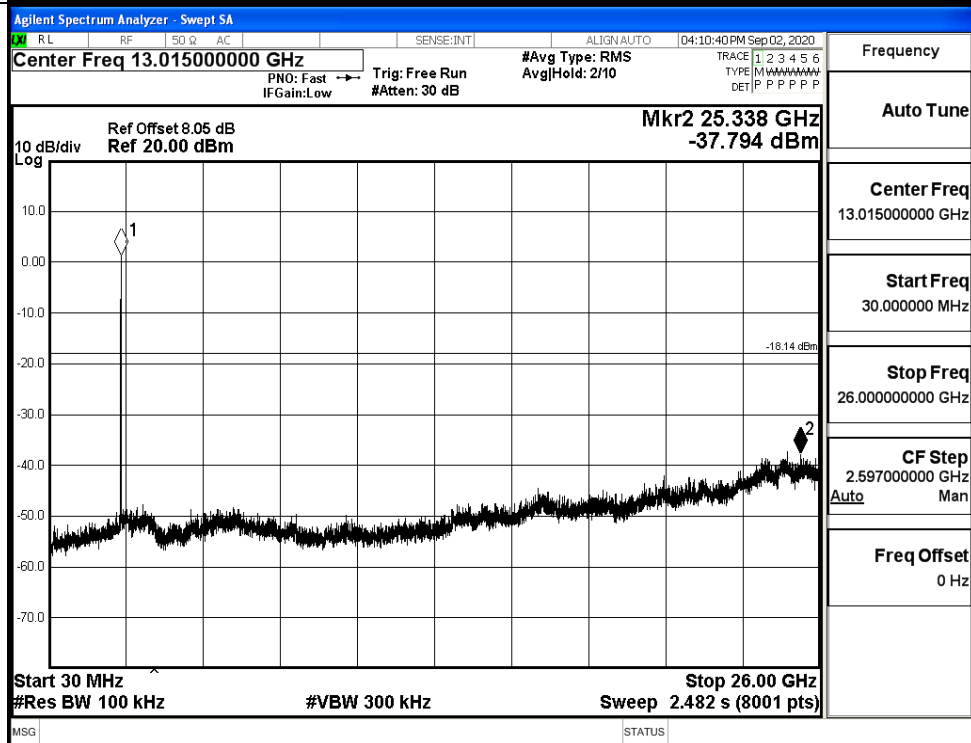


11B HCH Graphs

Pref/11B/HCH

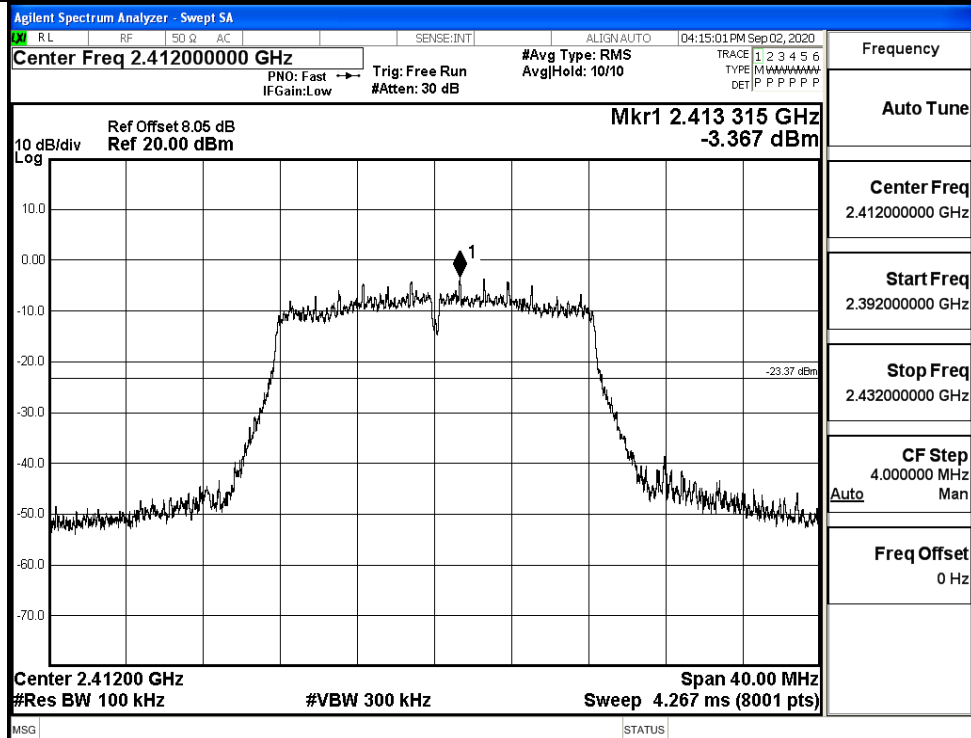


Puw/11B/HCH

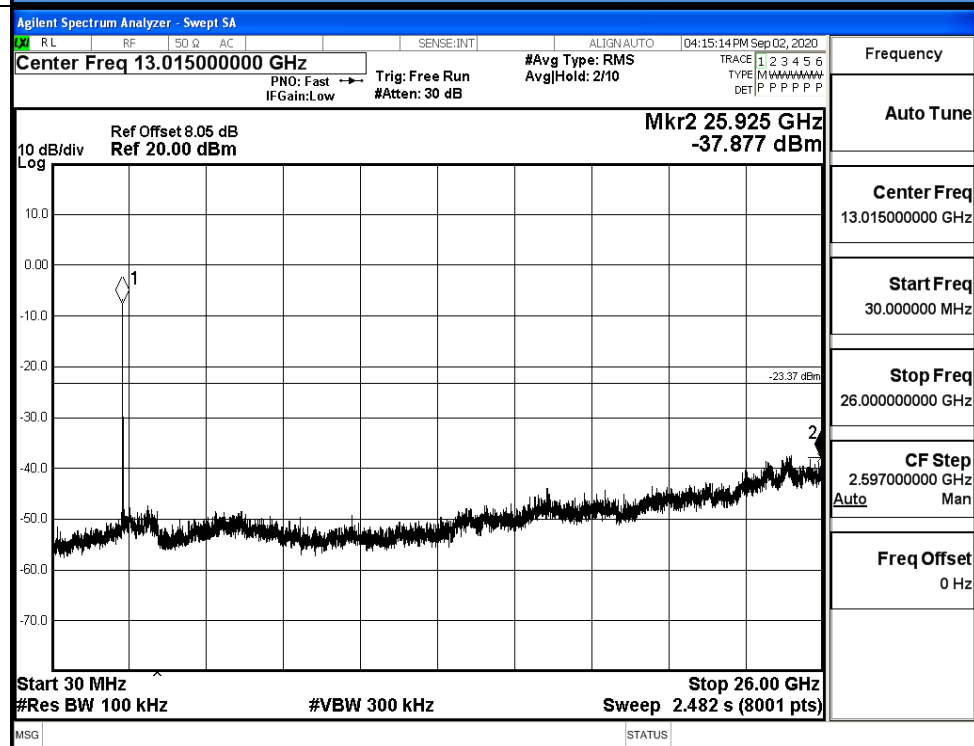


11G LCH Graphs

Pref/11G/LCH

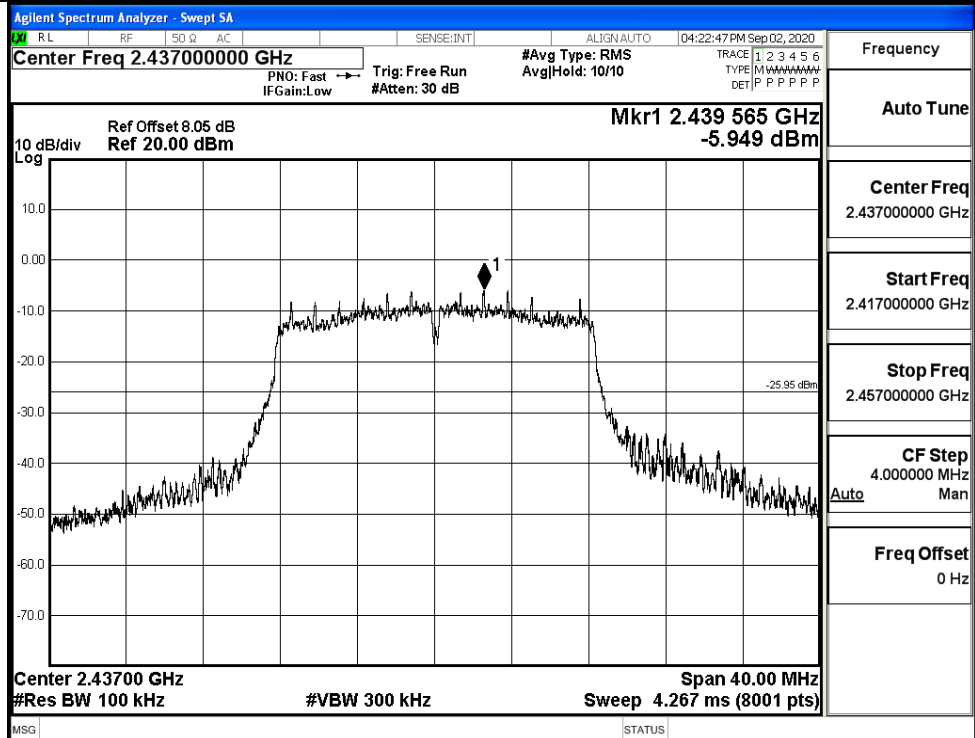


Puw/11G/LCH

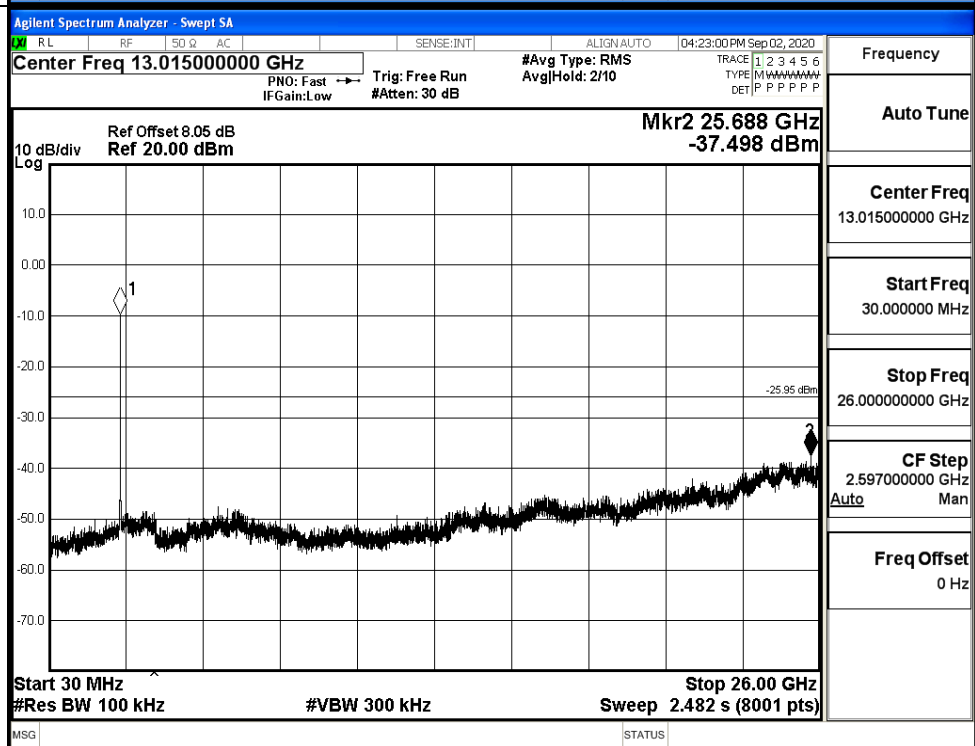


11G MCH Graphs

Pref/11G/MCH

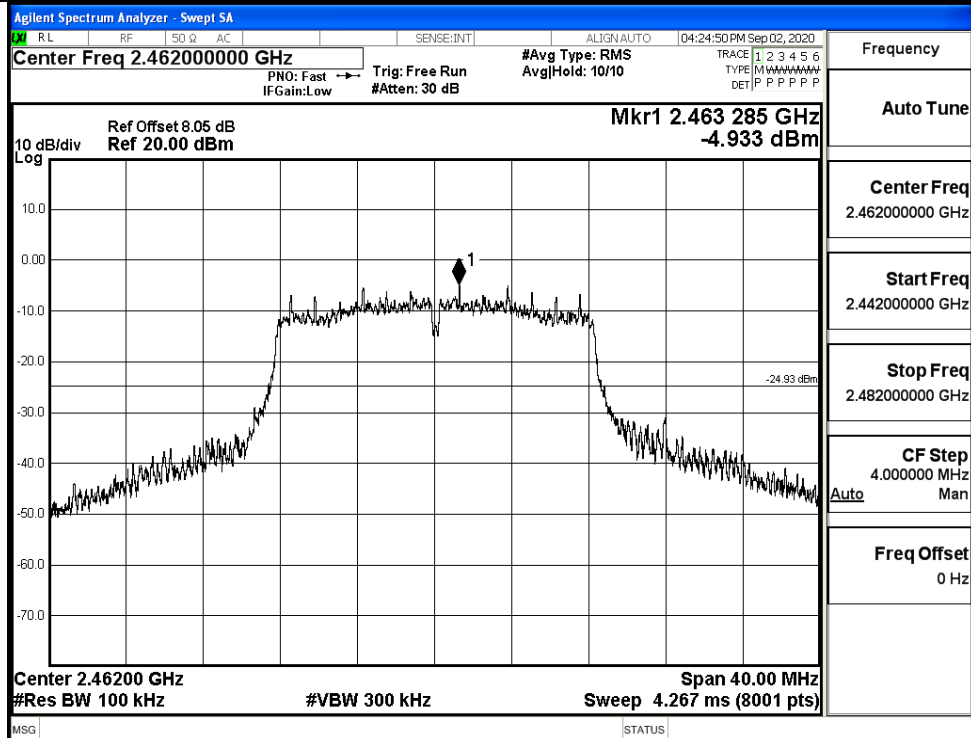


Puw/11G/MCH

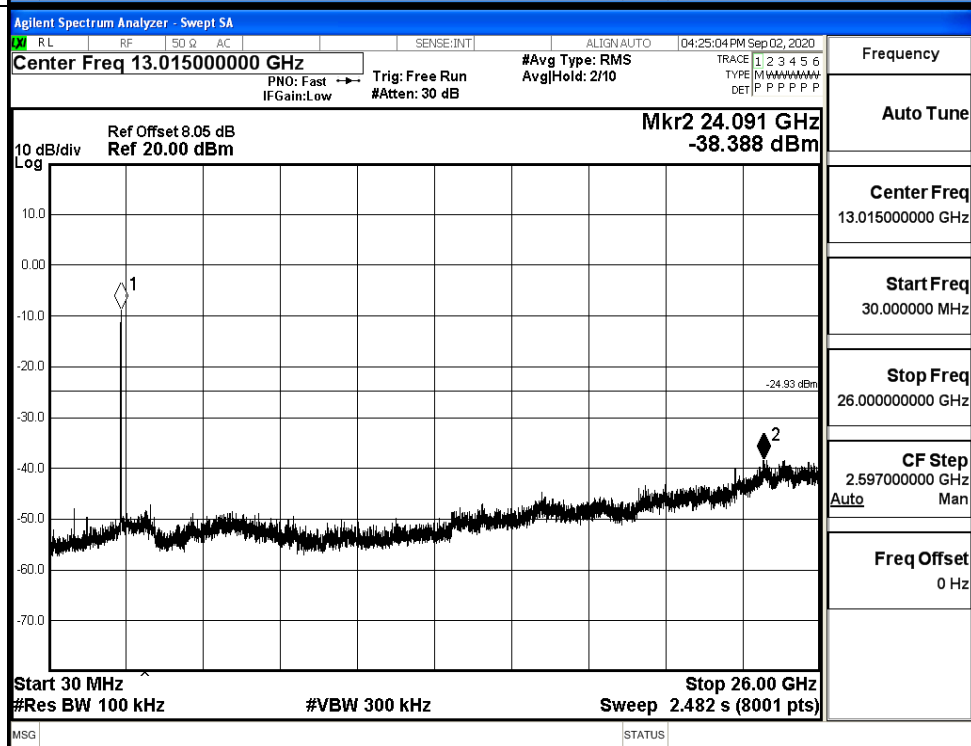


11G HCH Graphs

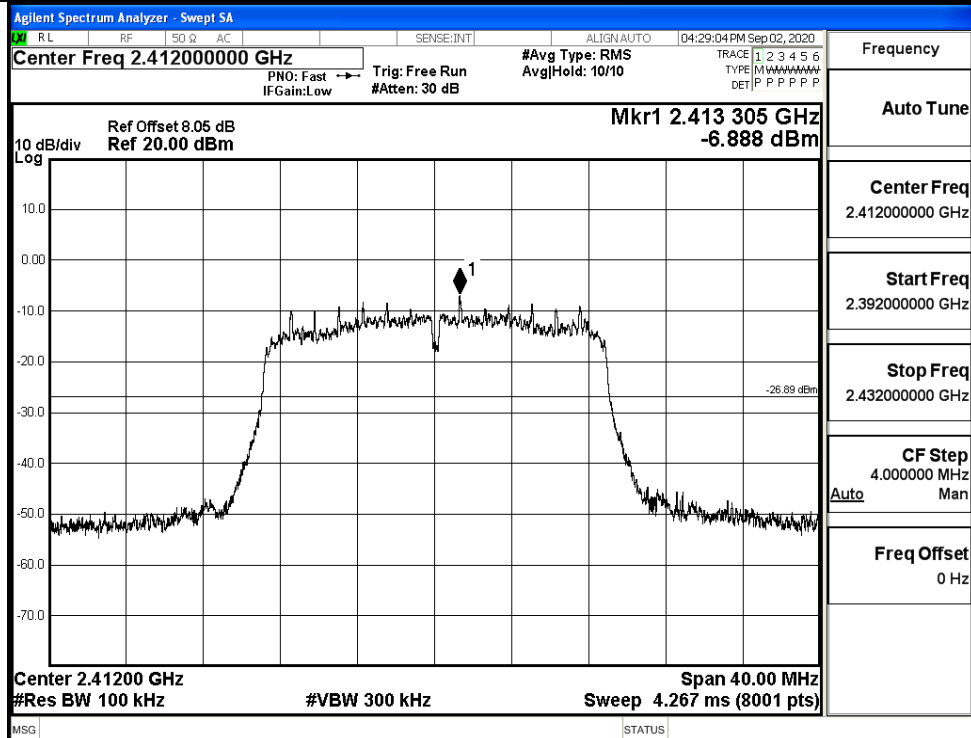
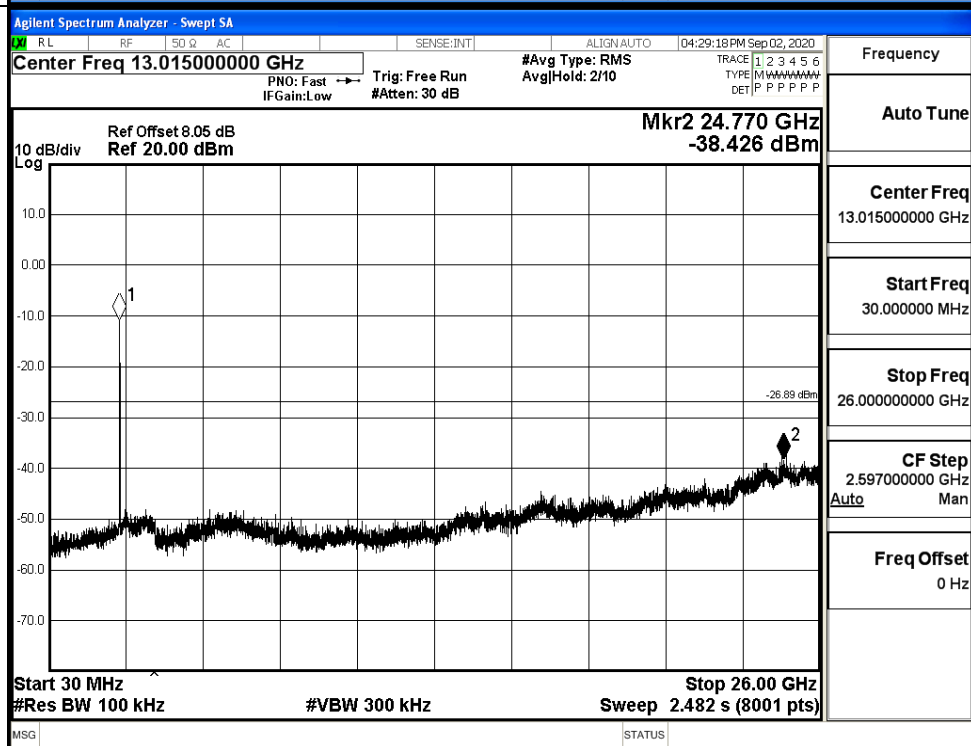
Pref/11G/HCH



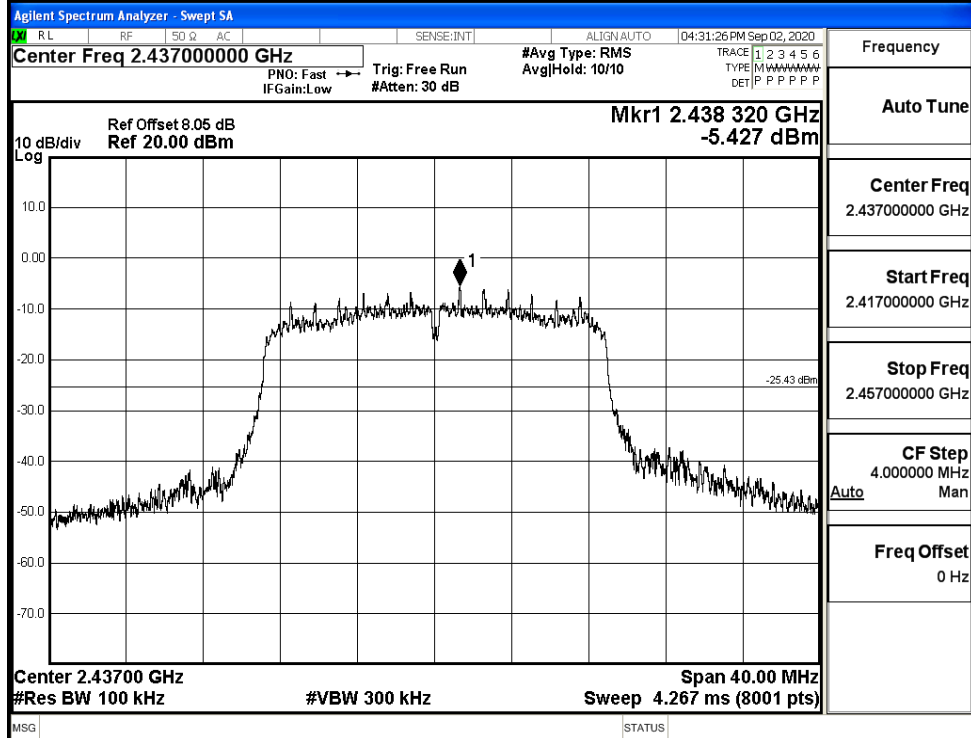
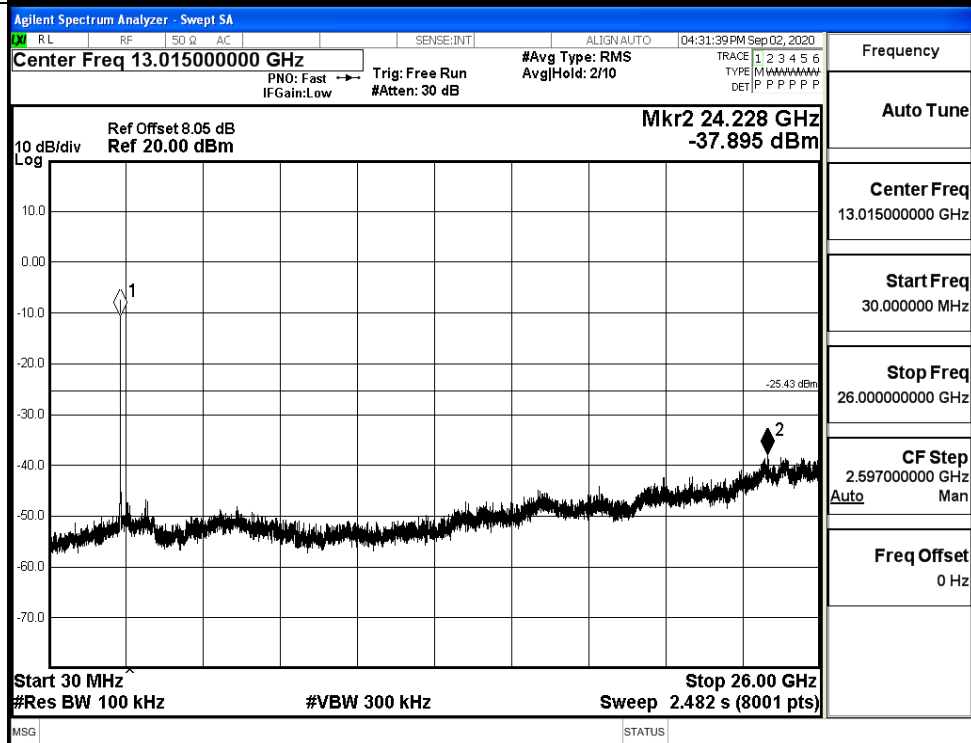
Puw/11G/HCH



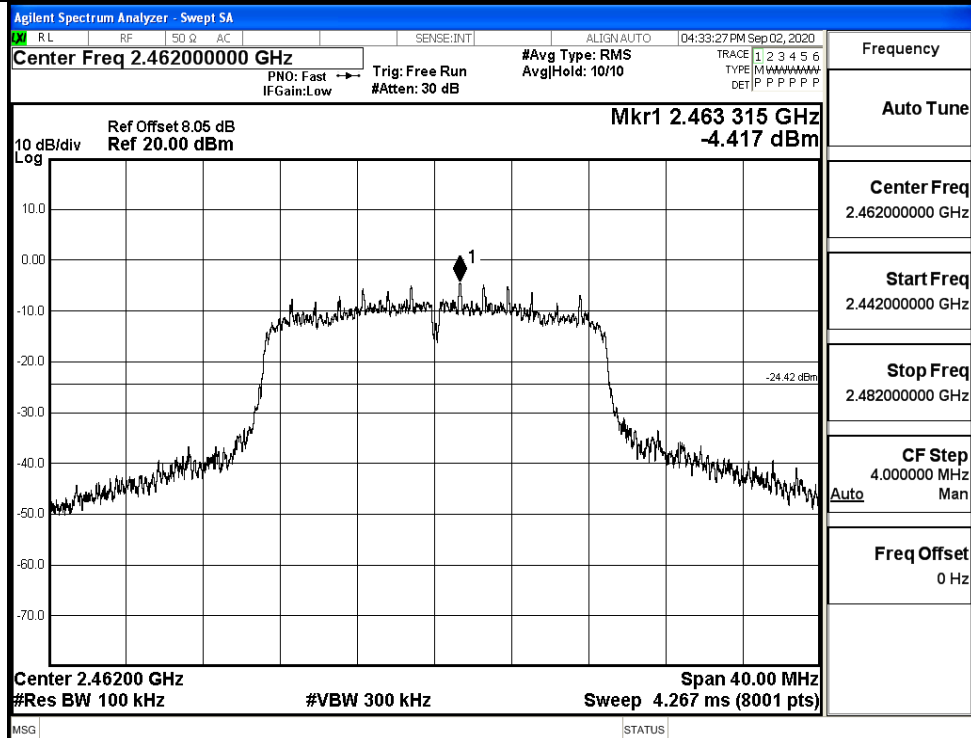
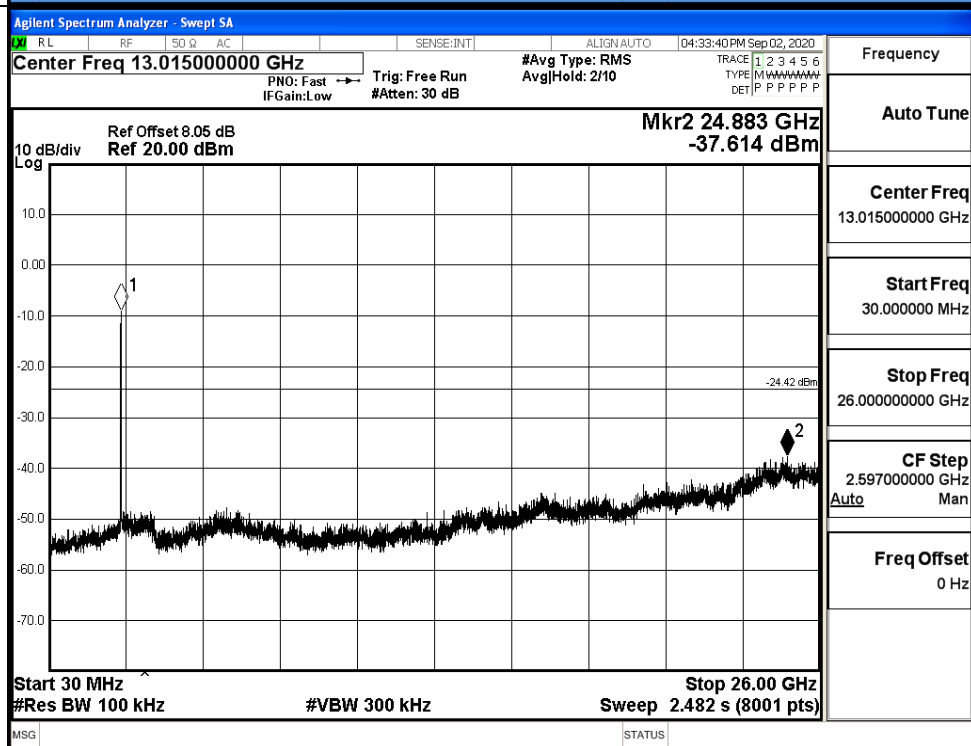
11N20SISO LCH Graphs

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

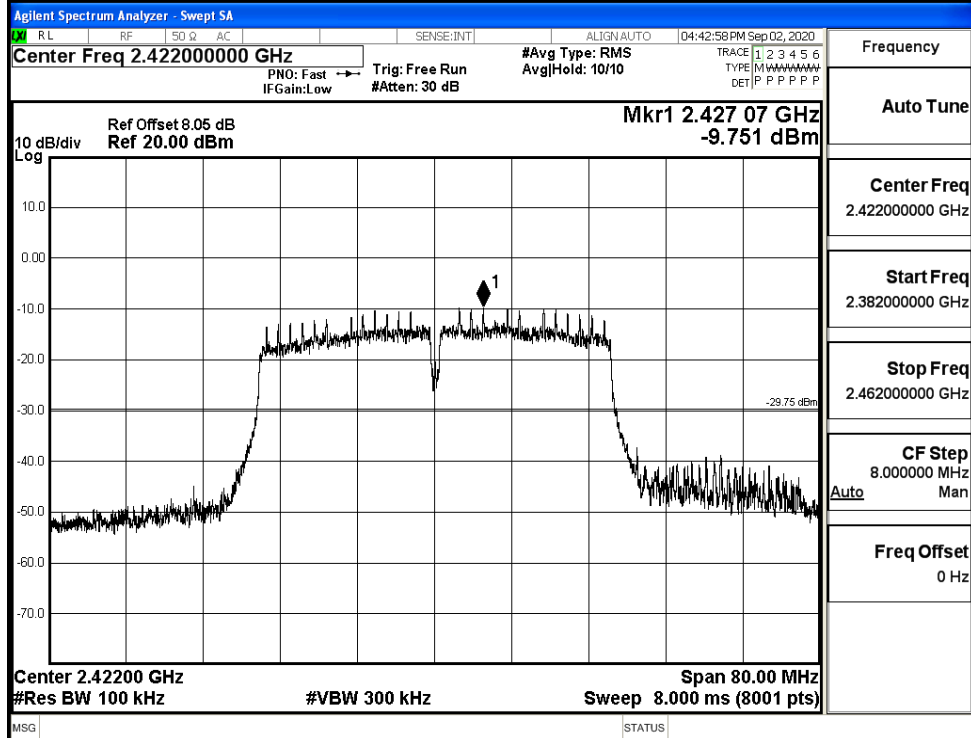
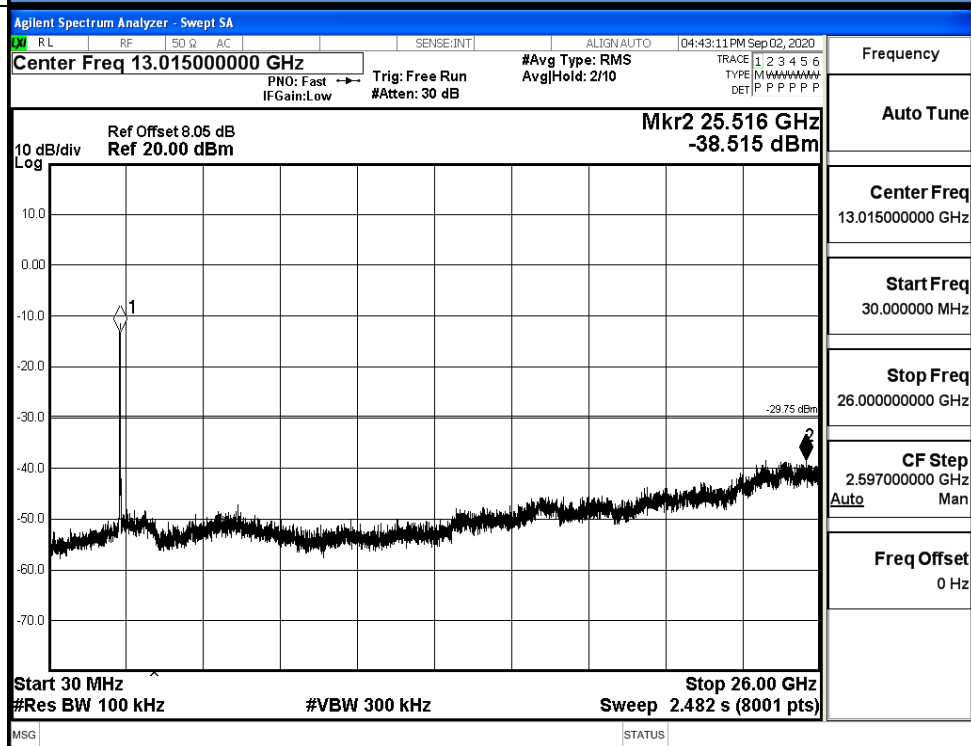
11N20SISO_MCH_Graphs

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

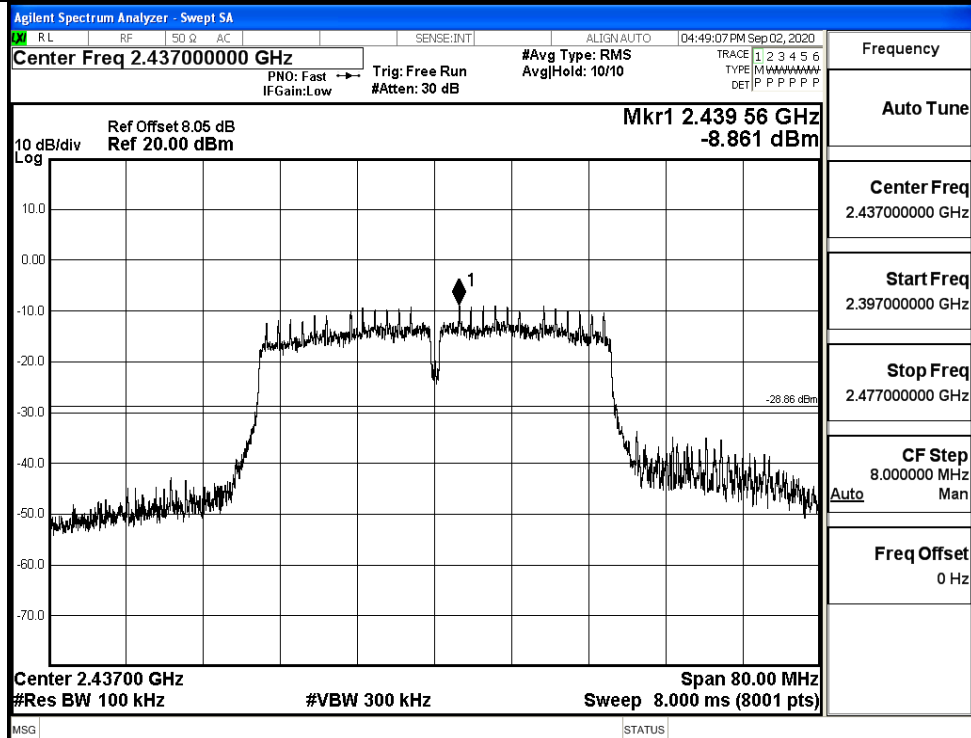
11N20SISO HCH Graphs

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

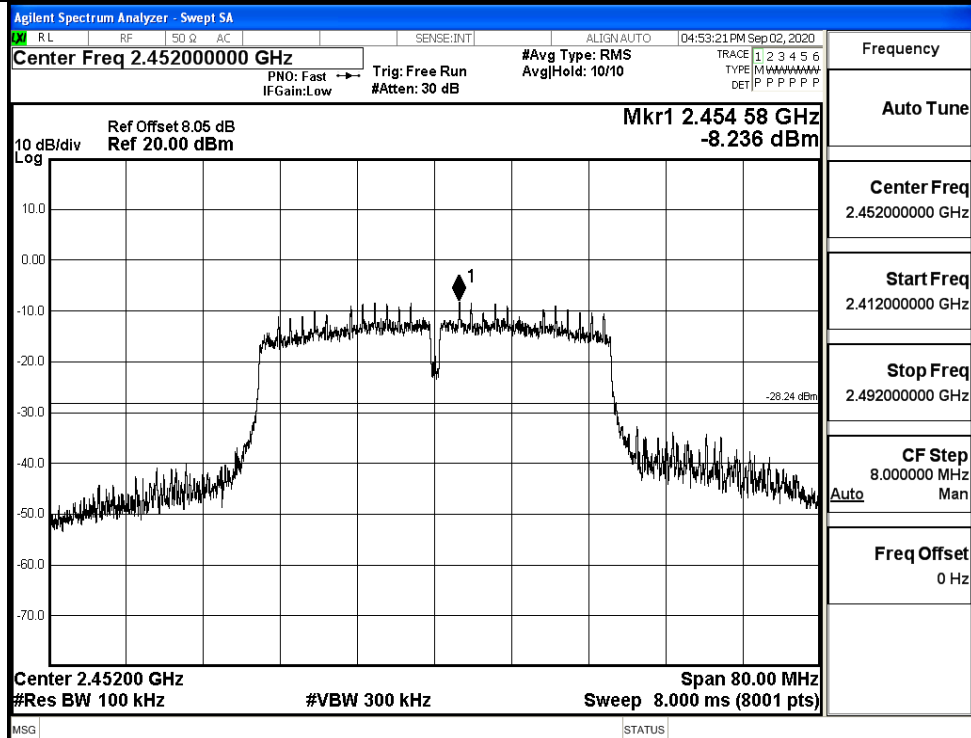
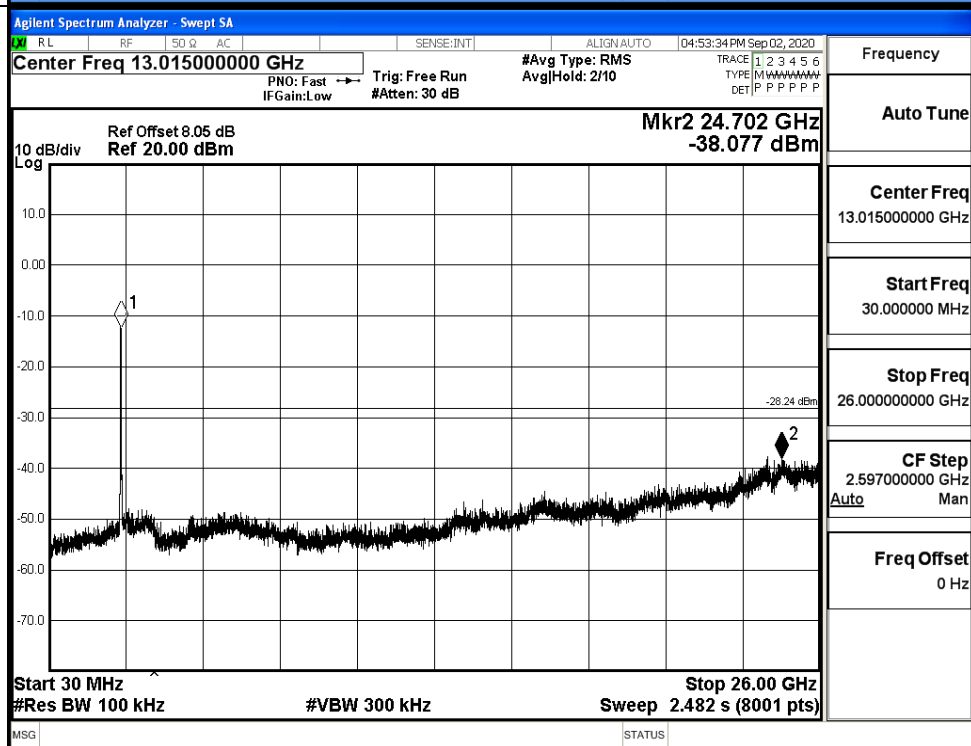
11N40SISO LCH Graphs

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

11N40SISO_MCH_Graphs

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

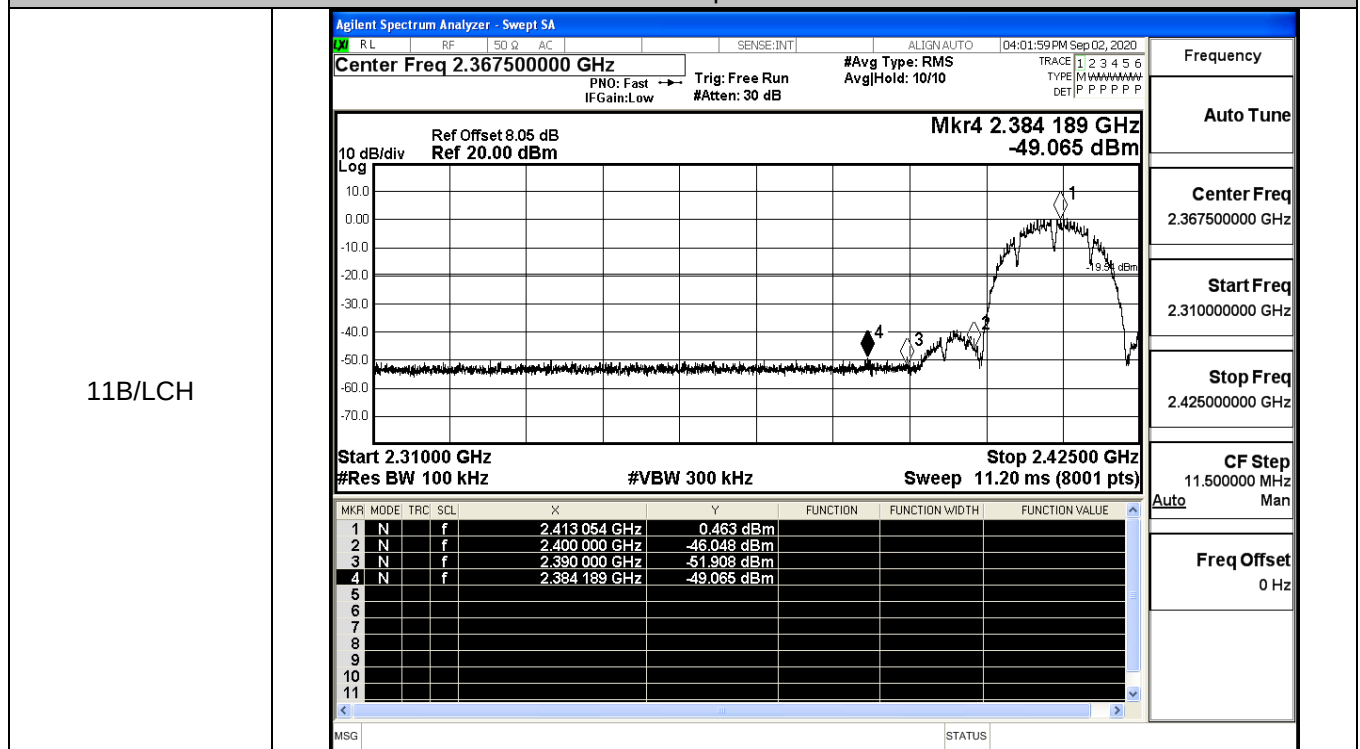
11N40SISO HCH Graphs

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

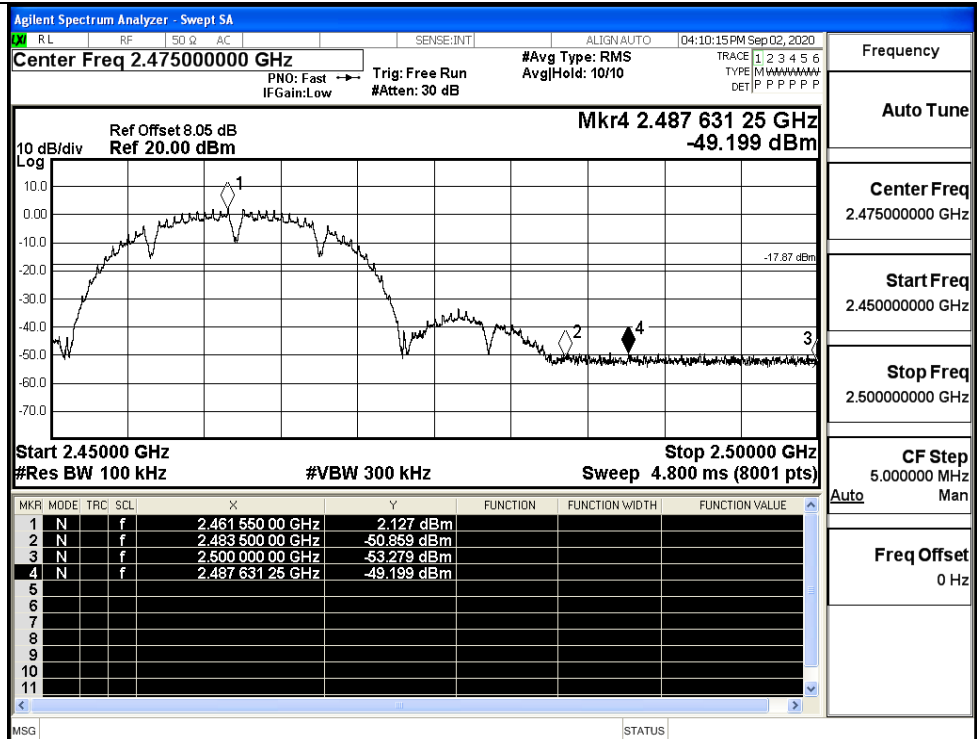
A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	0.463	-49.065	-19.54	PASS
	HCH	2.127	-49.199	-17.87	PASS
11G	LCH	-4.056	-49.752	-24.06	PASS
	HCH	-4.348	-47.608	-24.35	PASS
11N20SISO	LCH	-7.026	-49.524	-27.03	PASS
	HCH	-4.784	-47.417	-24.78	PASS
11N40SISO	LCH	-9.920	-49.206	-29.92	PASS
	HCH	-8.012	-37.435	-28.01	PASS

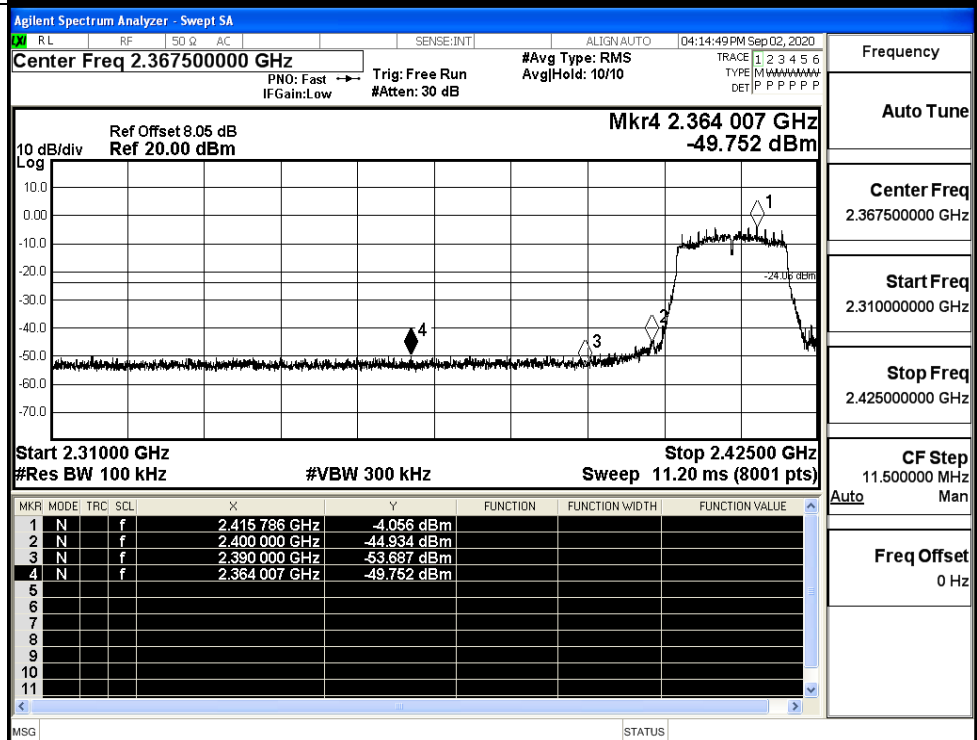
Test Graphs



11B/HCH



11G/LCH



Agilent Spectrum Analyzer - Swept SA

Center Freq 2.47500000 GHz

PNO: Fast → Trg: Free Run
IFGain: Low #Atten: 30 dB

#Avg Type: RMS AvgHold > 10/10

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

Frequency Auto Tune

MKR MODE	TFC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1 N	N	f	2.463 306 25 GHz	-4.348 dBm			
2 N	N	f	2.483 500 00 GHz	-48.743 dBm			
3 N	N	f	2.500 000 00 GHz	-52.782 dBm			
4 N	N	f	2.487 356 25 GHz	-47.608 dBm			
5							
6							
7							
8							
9							
10							
11							

Start 2.45000 GHz Stop 2.50000 GHz
#Res BW 100 kHz Sweep 4.800 ms (8001 pts)
#VBW 300 kHz

CF Step 5.00000 MHz Man
Auto

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF SO Q AC SENSE:INT ALIGN AUTO 04:28:53 PM Sep 02, 2020

Center Freq 2.367500000 GHz

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

#Avg Type: RMS AvgHld: 10/10

TRACE 1 2 3 4 5 6
TYPE M W X Y Z
DET P P P P P P

Mkr 2.371 151 GHz -49.524 dBm

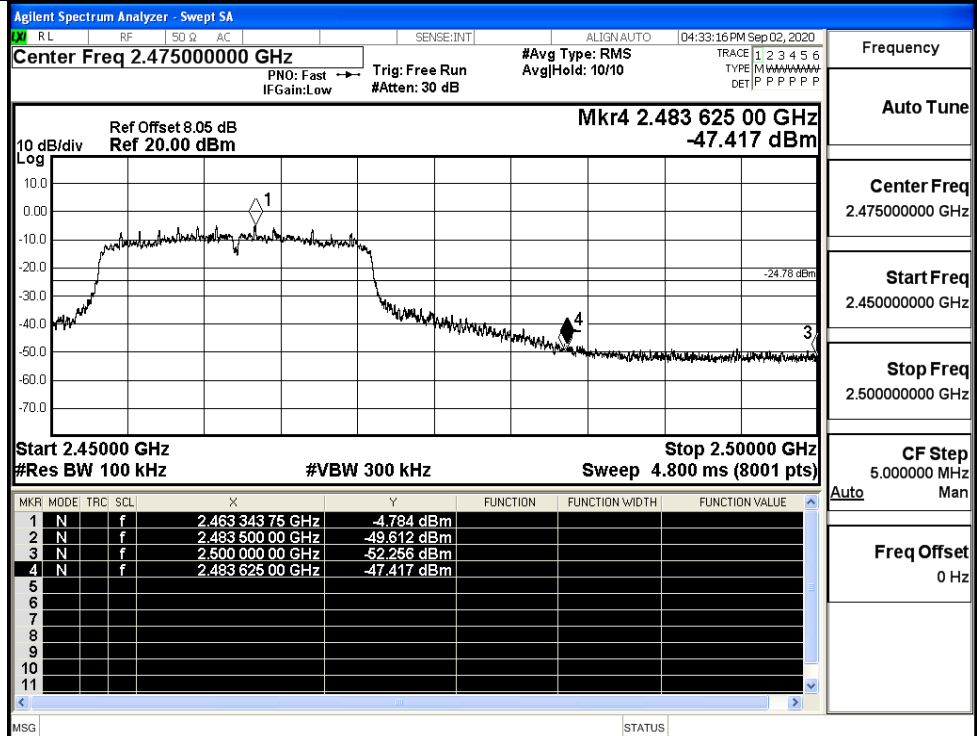
Ref Offset 8.05 dB
Ref 20.00 dBm

Start	Stop	Res BW	#VBW	Sweep
2.31000 GHz	2.42500 GHz	100 kHz	300 kHz	11.20 ms (8001 pts)

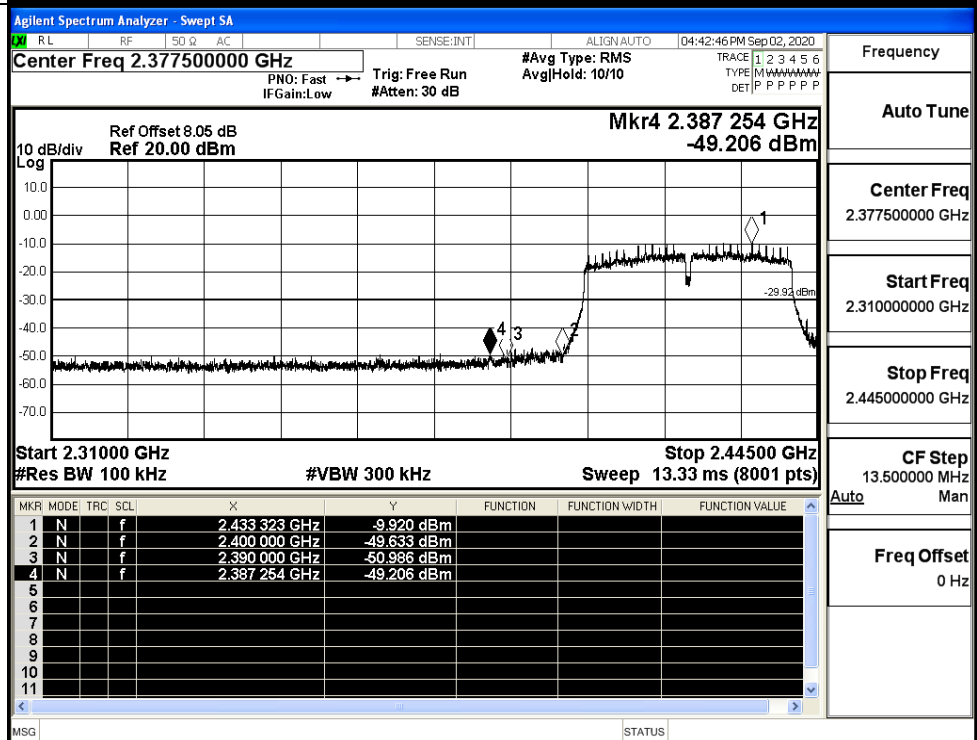
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.413 299 GHz	-7.026 dBm			
2	N		f	2.400 000 GHz	-47.975 dBm			
3	N		f	2.390 000 GHz	-53.441 dBm			
4	N		f	2.371 151 GHz	-49.524 dBm			
5								
6								
7								
8								
9								
10								
11								

Frequency
Auto Tune
Center Freq
2.367500000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.425000000 GHz
CF Step
11.500000 MHz
Freq Offset
0 Hz

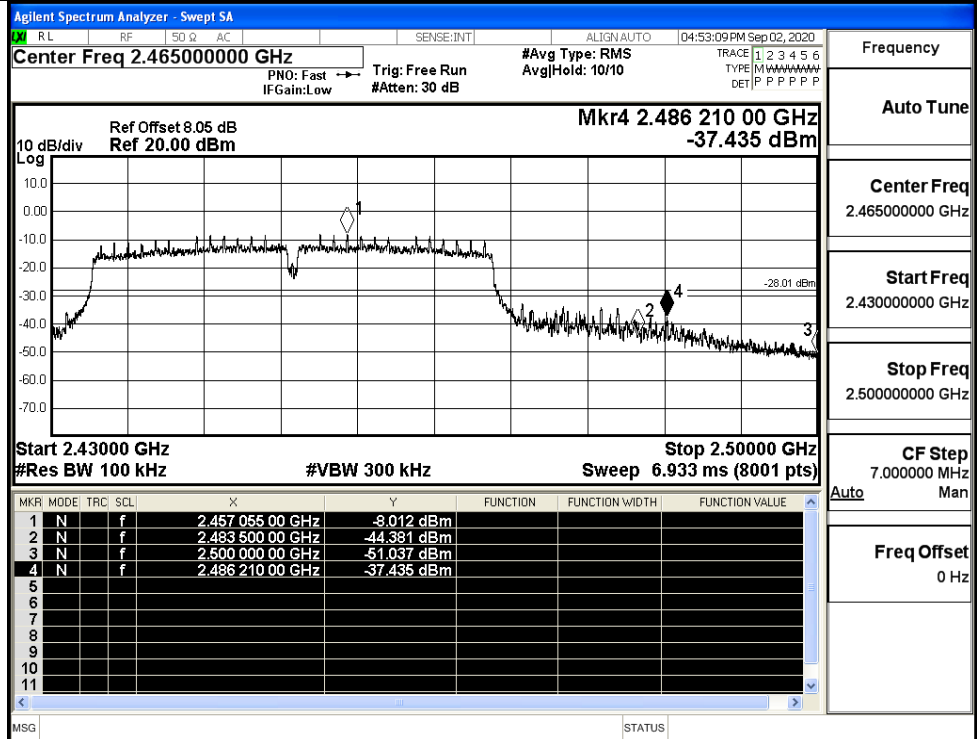
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

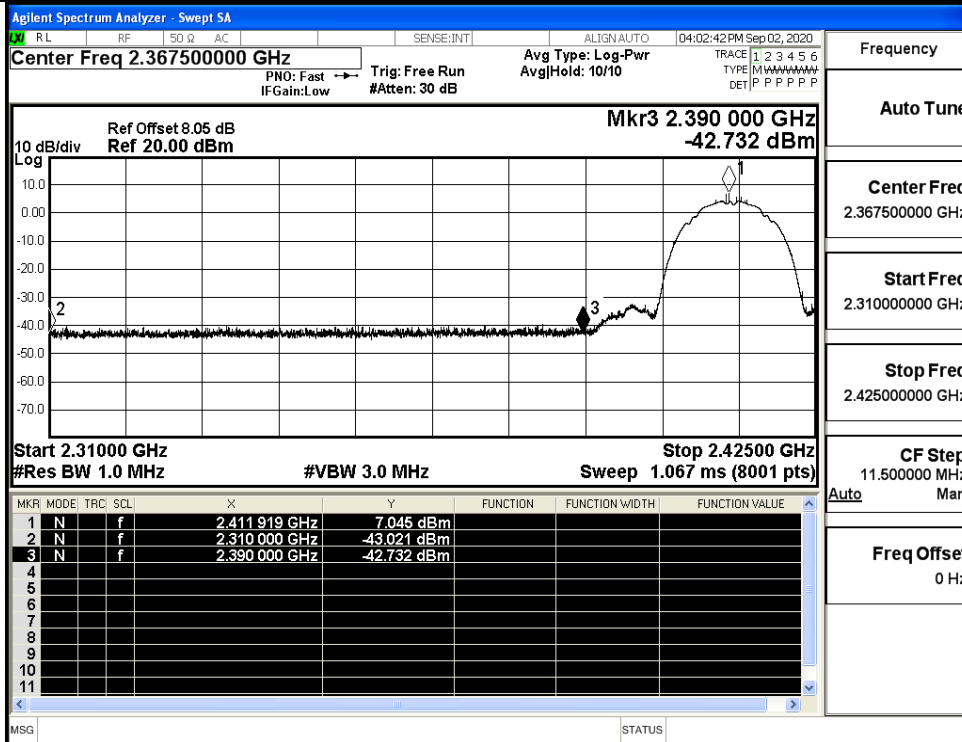


A.7 Restrict-band band-edge measurements

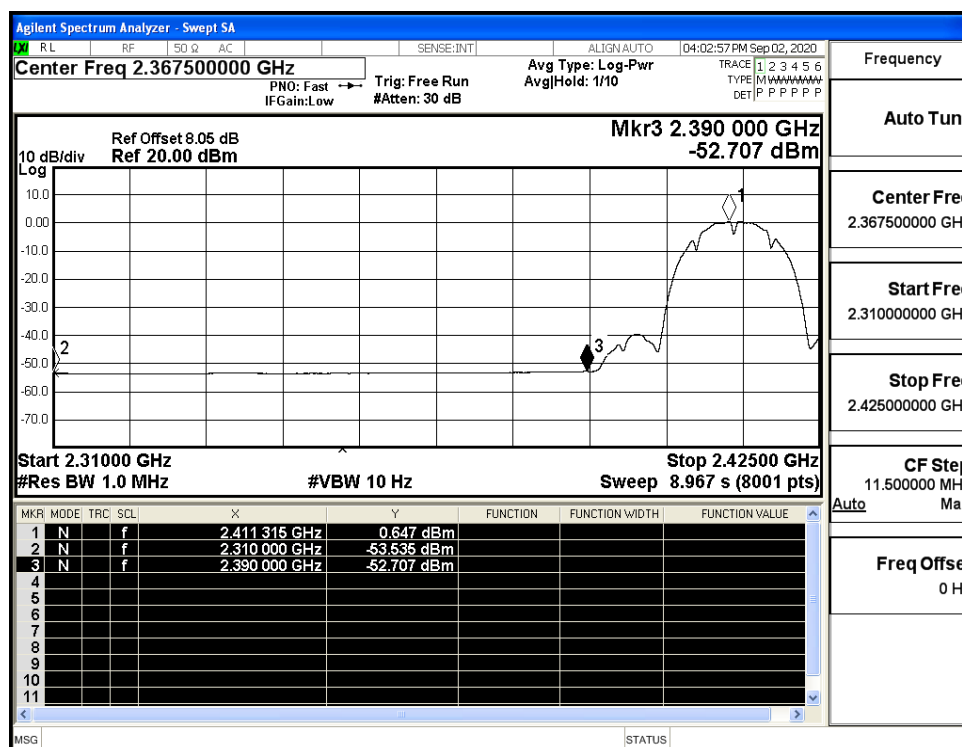
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.02	2.0	0	54.21	PEAK	74	PASS
	2412	Ant1	2310.0	-53.54	2.0	0	43.69	AV	54	PASS
	2412	Ant1	2390.0	-42.73	2.0	0	54.50	PEAK	74	PASS
	2412	Ant1	2390.0	-52.71	2.0	0	44.52	AV	54	PASS
	2462	Ant1	2483.5	-40.82	2.0	0	56.41	PEAK	74	PASS
	2462	Ant1	2483.5	-51.64	2.0	0	45.59	AV	54	PASS
	2462	Ant1	2500.0	-42.14	2.0	0	55.09	PEAK	74	PASS
	2462	Ant1	2500.0	-52.35	2.0	0	44.88	AV	54	PASS
11G	2412	Ant1	2310.0	-43.48	2.0	0	53.75	PEAK	74	PASS
	2412	Ant1	2310.0	-53.46	2.0	0	43.77	AV	54	PASS
	2412	Ant1	2390.0	-42.56	2.0	0	54.67	PEAK	74	PASS
	2412	Ant1	2390.0	-52.57	2.0	0	44.66	AV	54	PASS
	2462	Ant1	2483.5	-39.27	2.0	0	57.96	PEAK	74	PASS
	2462	Ant1	2483.5	-49.99	2.0	0	47.24	AV	54	PASS
	2462	Ant1	2500.0	-41.04	2.0	0	56.19	PEAK	74	PASS
	2462	Ant1	2500.0	-52.33	2.0	0	44.90	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.60	2.0	0	53.63	PEAK	74	PASS
	2412	Ant1	2310.0	-53.60	2.0	0	43.63	AV	54	PASS
	2412	Ant1	2390.0	-41.93	2.0	0	55.30	PEAK	74	PASS
	2412	Ant1	2390.0	-53.00	2.0	0	44.23	AV	54	PASS
	2462	Ant1	2483.5	-34.93	2.0	0	62.30	PEAK	74	PASS
	2462	Ant1	2483.5	-49.74	2.0	0	47.49	AV	54	PASS
	2462	Ant1	2500.0	-40.50	2.0	0	56.73	PEAK	74	PASS
	2462	Ant1	2500.0	-52.33	2.0	0	44.90	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.38	2.0	0	53.85	PEAK	74	PASS
	2422	Ant1	2310.0	-53.57	2.0	0	43.66	AV	54	PASS

	2422	Ant1	2390.0	-39.07	2.0	0	58.16	PEAK	74	PASS
	2422	Ant1	2390.0	-51.50	2.0	0	45.73	AV	54	PASS
	2452	Ant1	2483.5	-31.20	2.0	0	66.03	PEAK	74	PASS
	2452	Ant1	2483.5	-44.68	2.0	0	52.55	AV	54	PASS
	2452	Ant1	2500.0	-38.58	2.0	0	58.65	PEAK	74	PASS
	2452	Ant1	2500.0	-51.19	2.0	0	46.04	AV	54	PASS

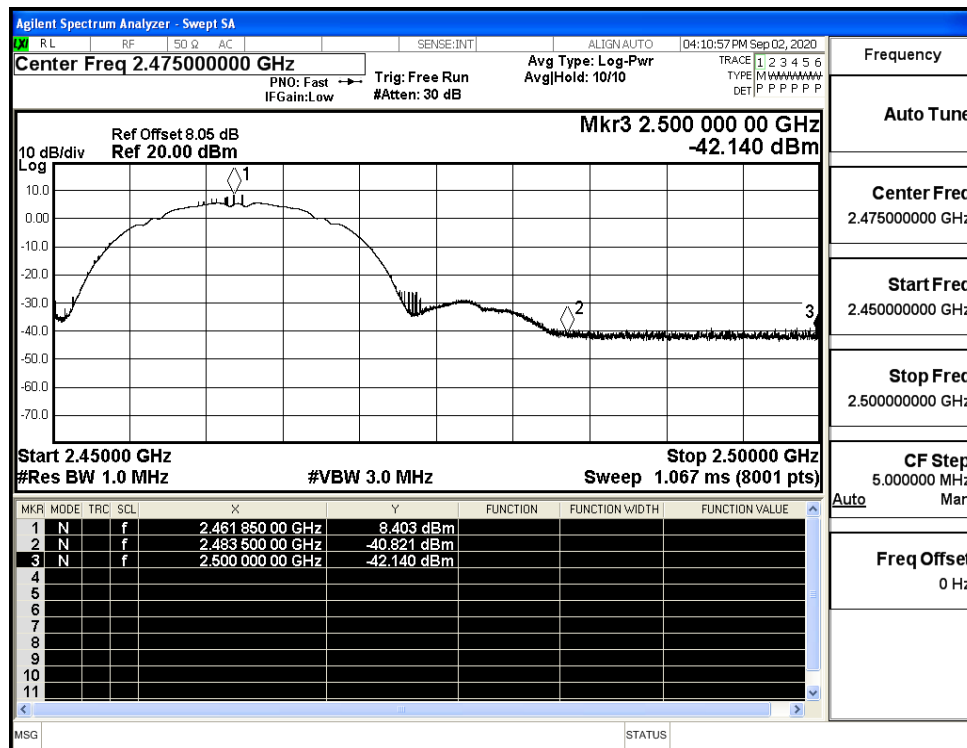
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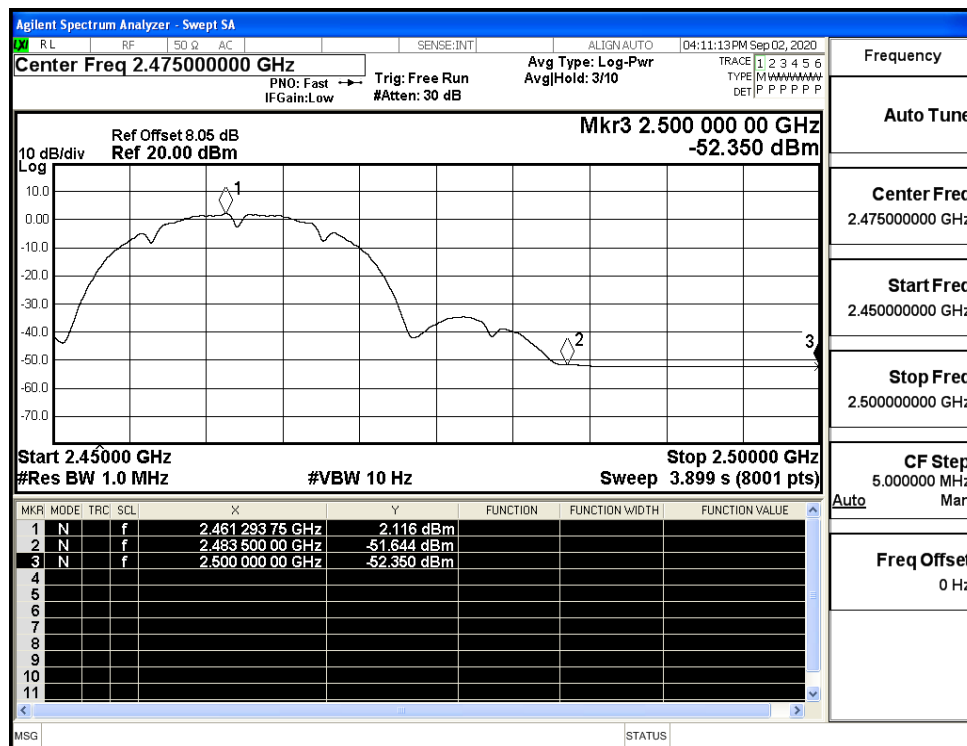
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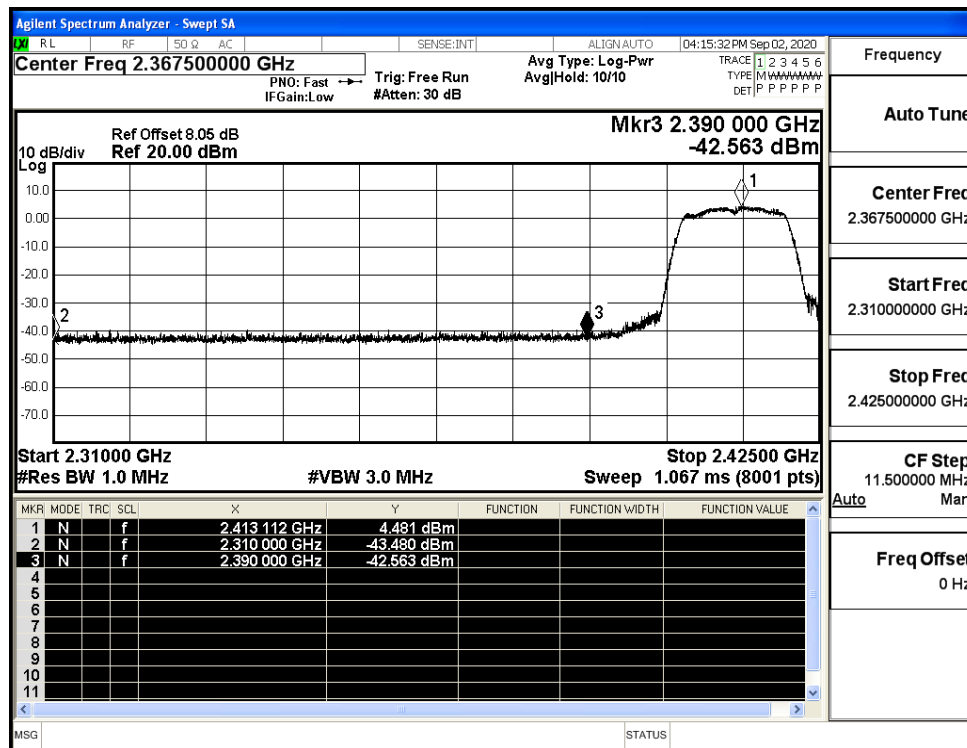
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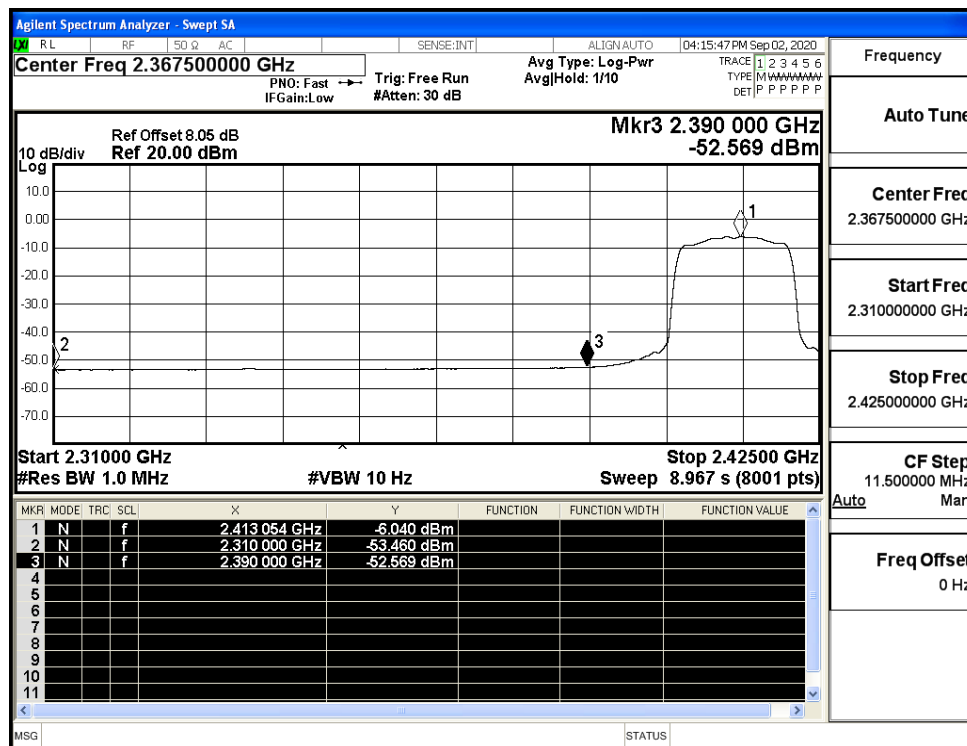
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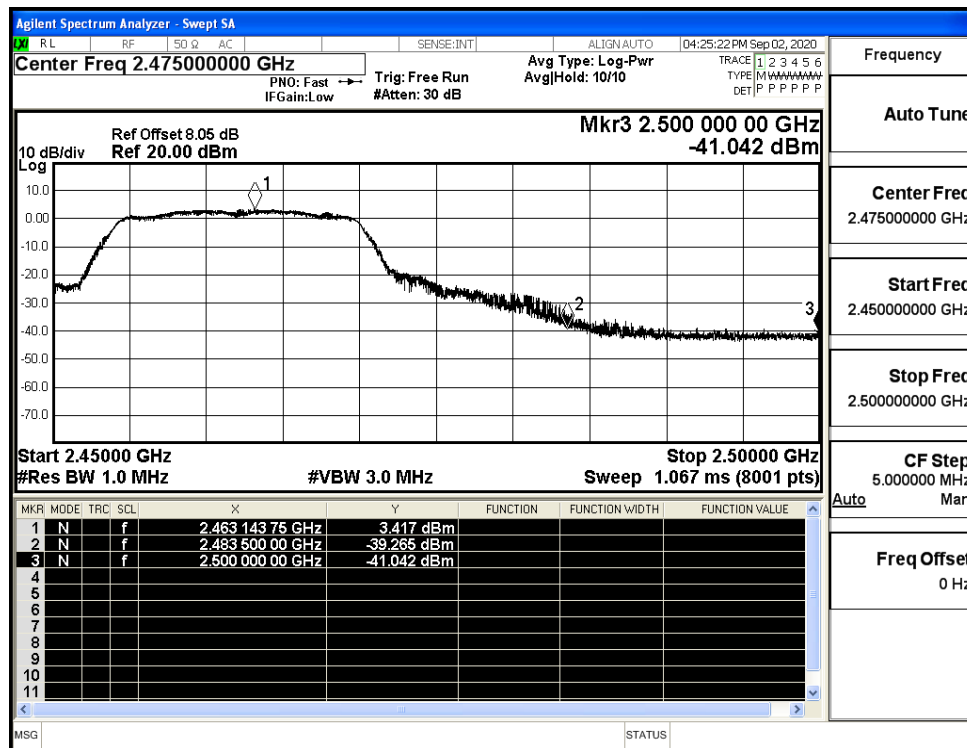
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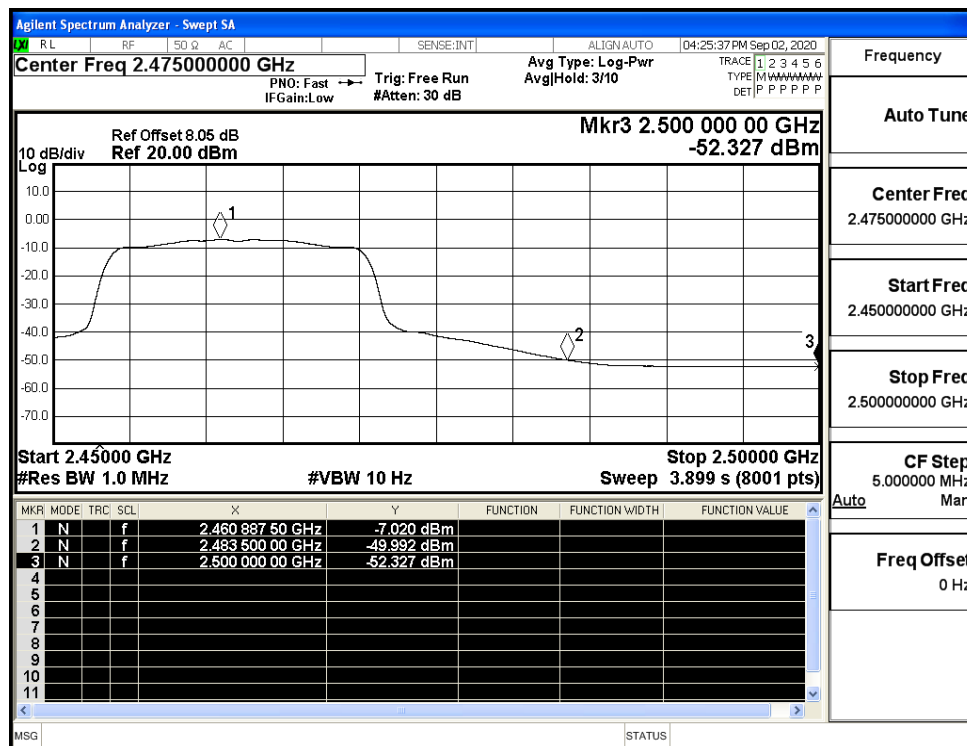
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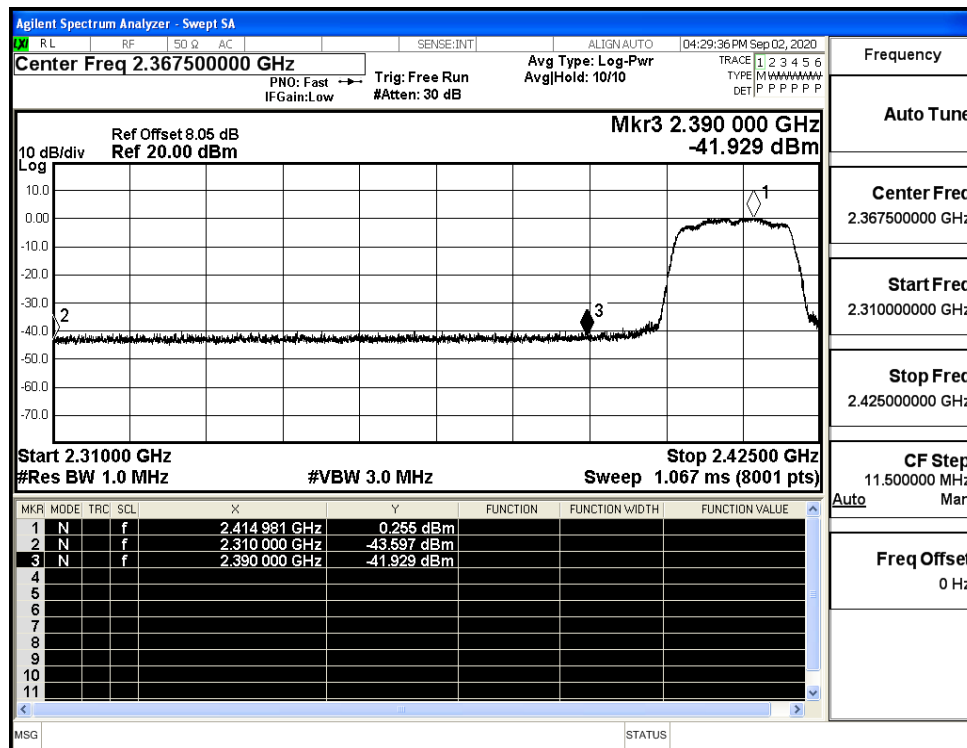
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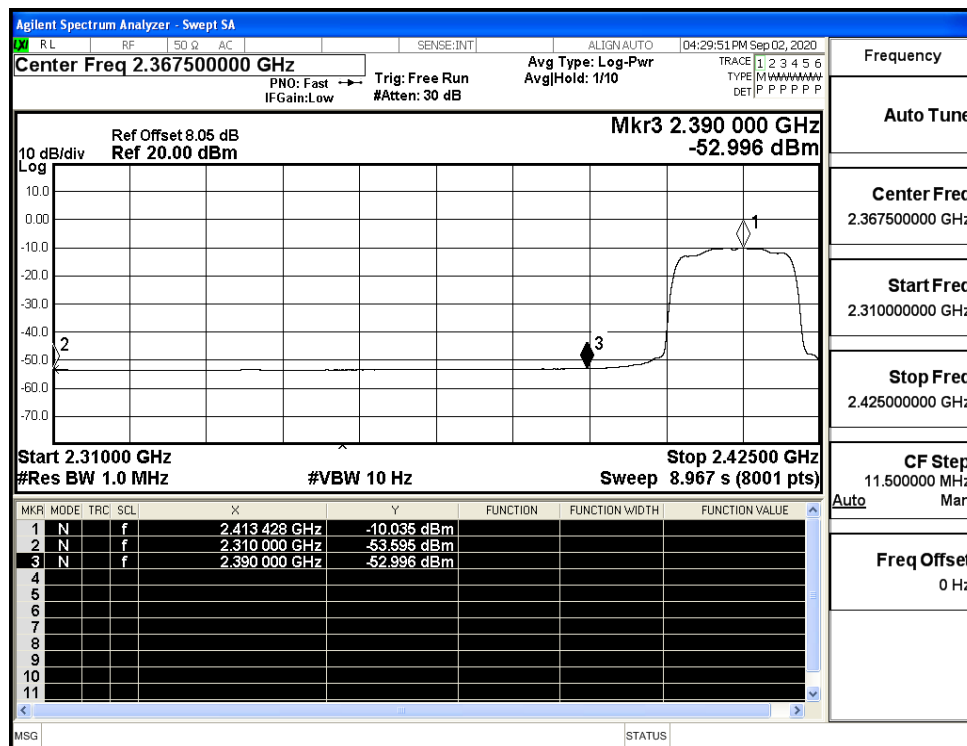
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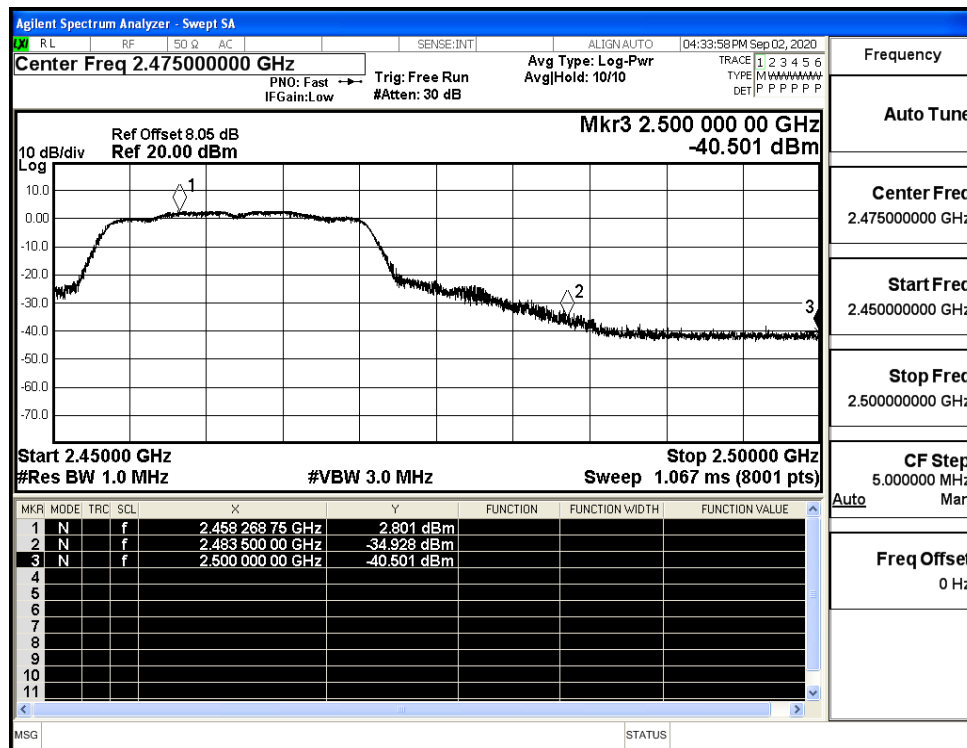
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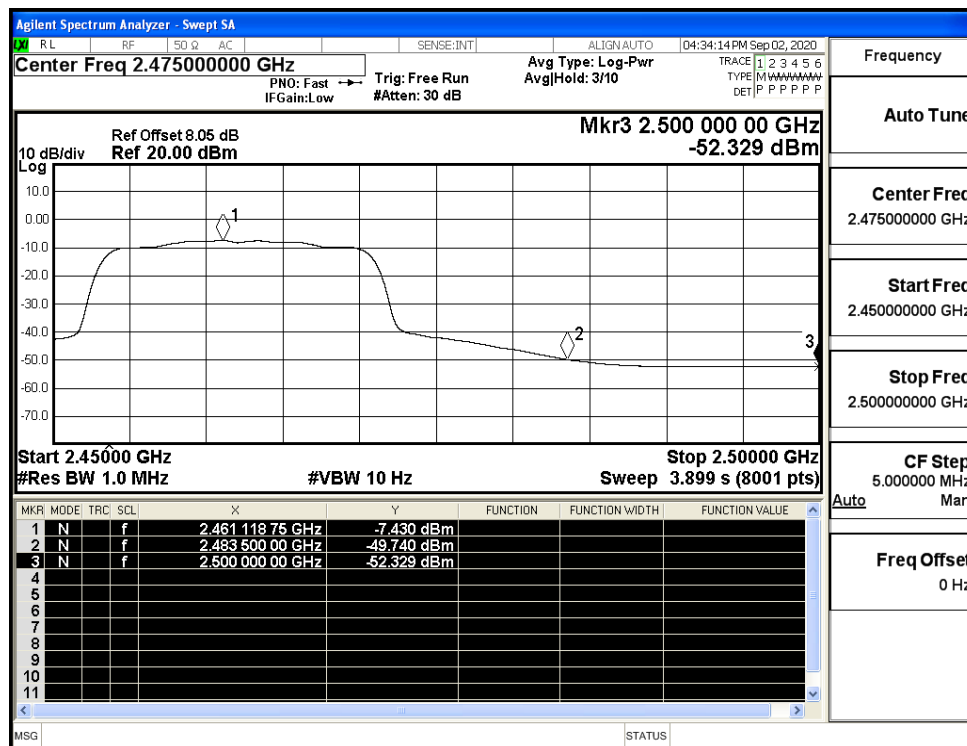
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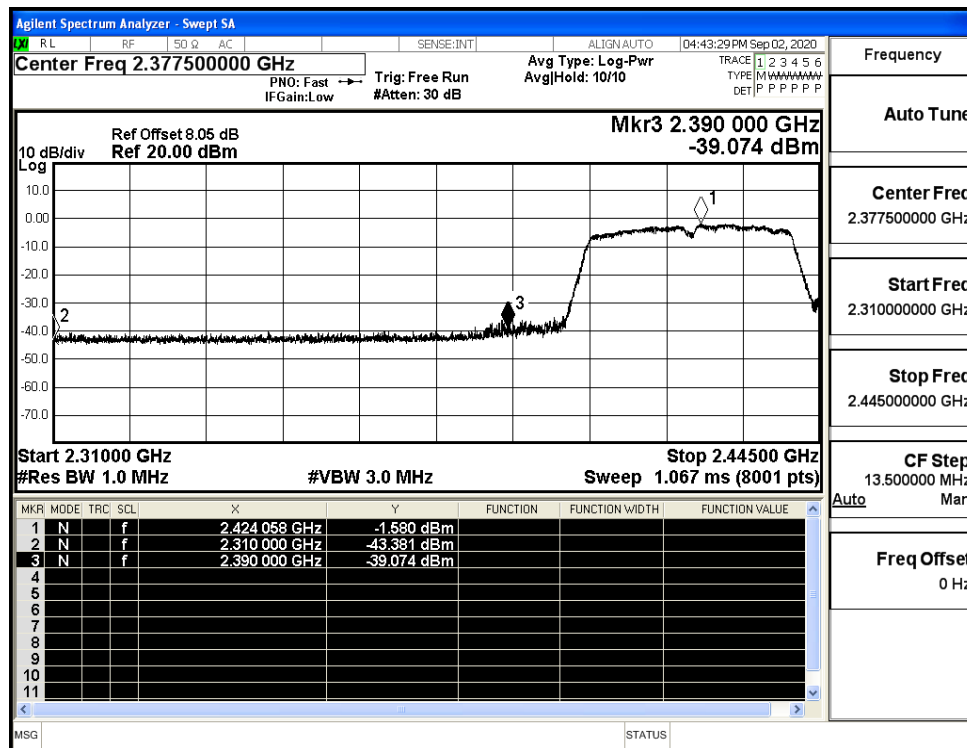
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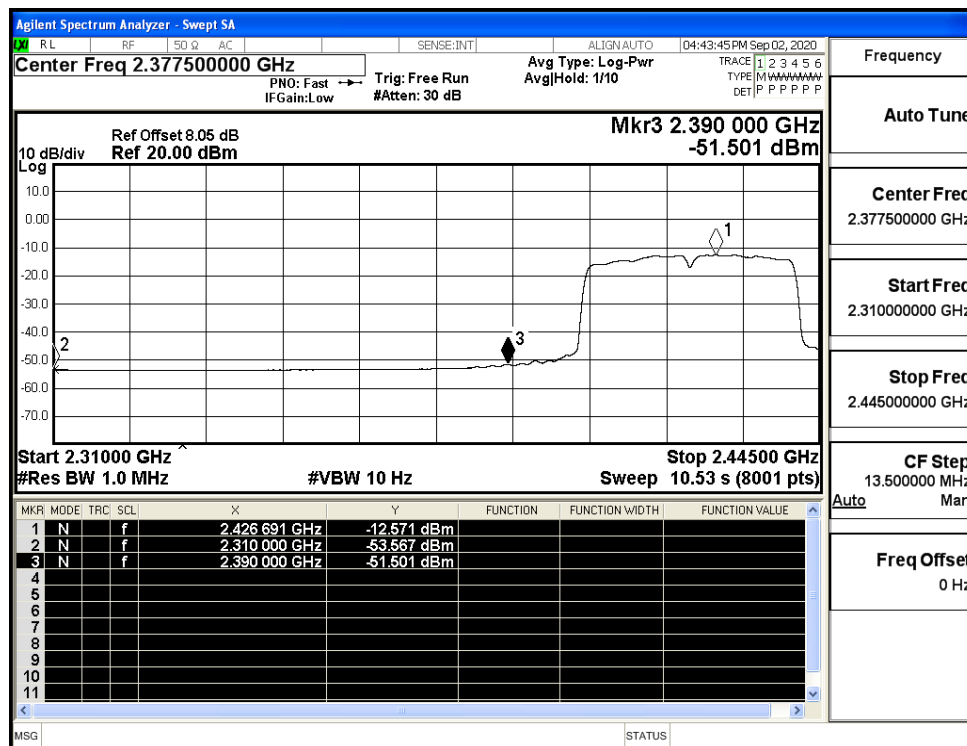
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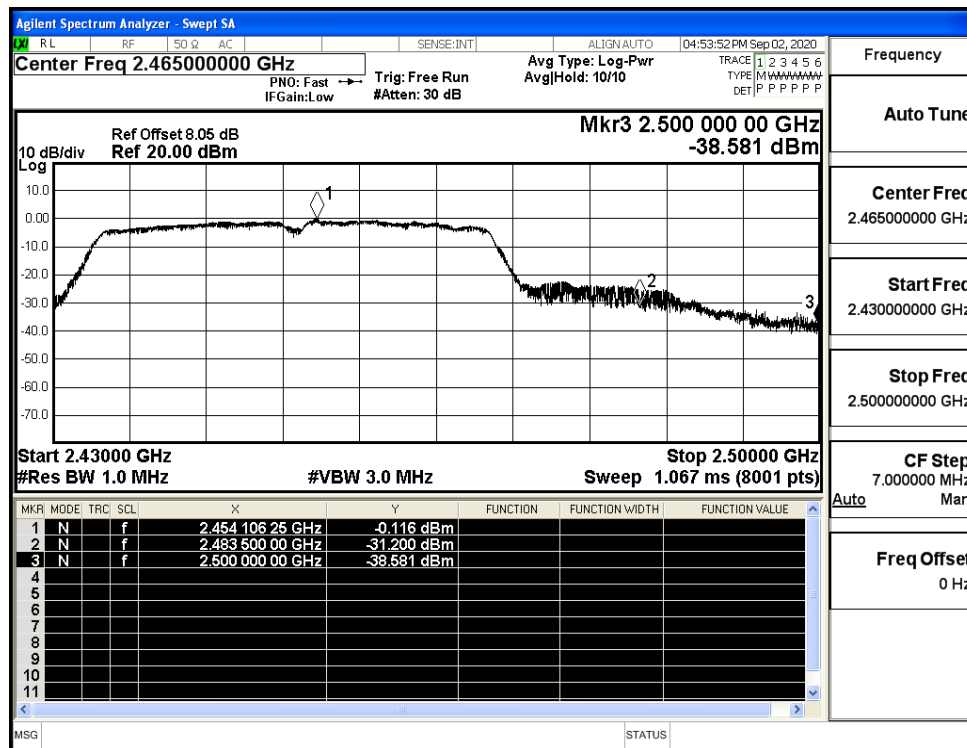
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Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

