

## Appendix A

### RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Cellular Wi-Fi Router

Trade Mark:  Connecting things  
**Hongdian**

Test Model: H8951-NA

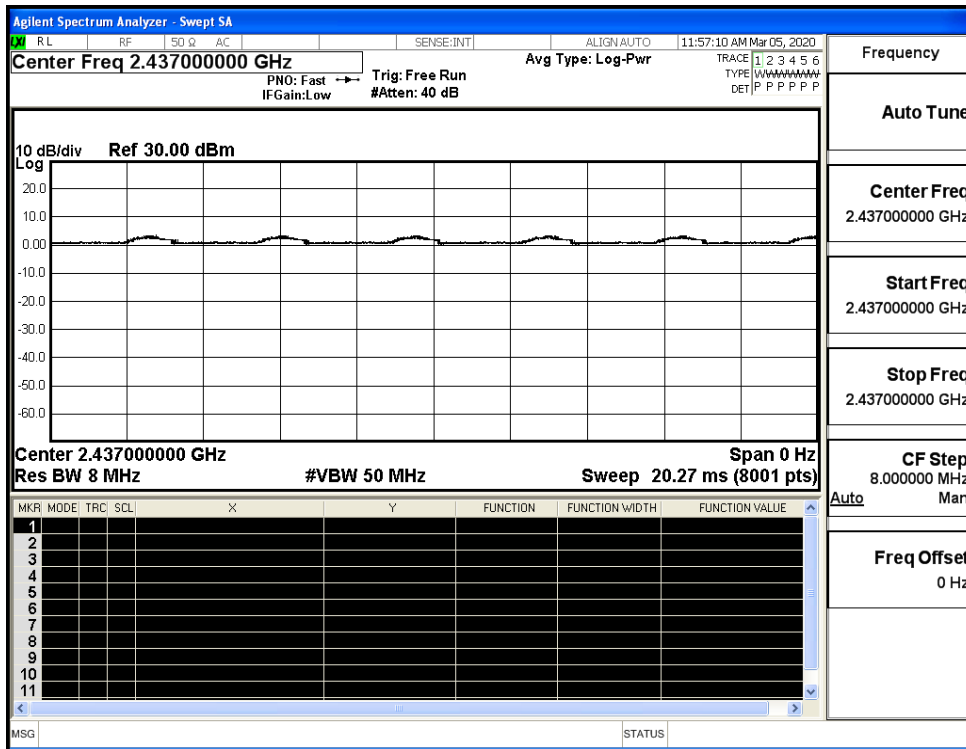
#### Environmental Conditions

Temperature:	24.8° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Li Huan
Supervised by:	Tom.Liu

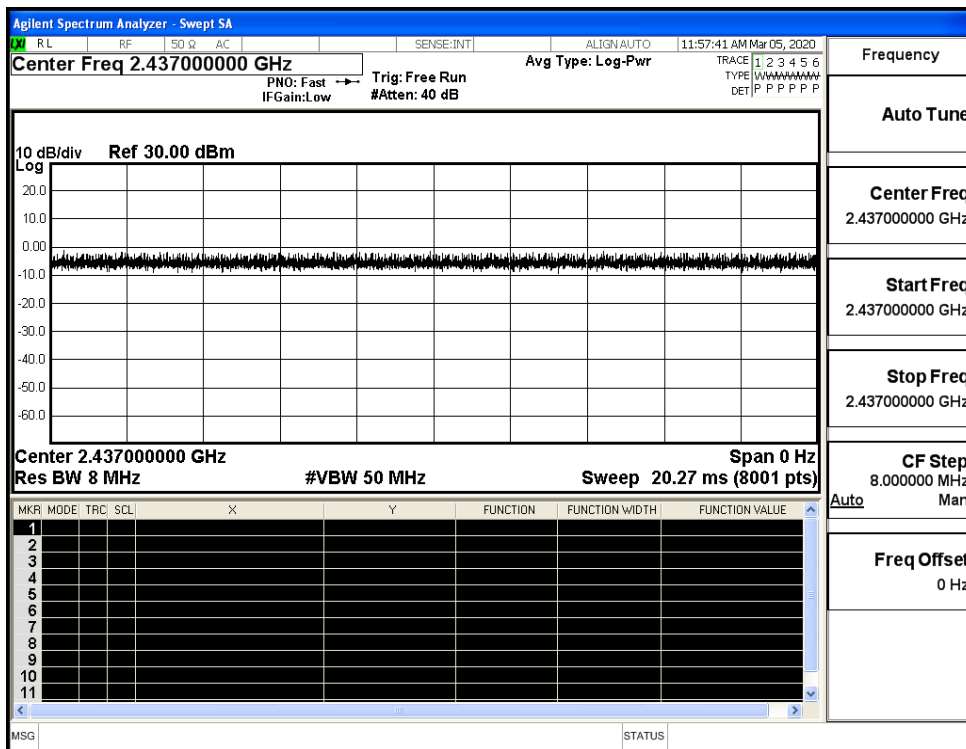
#### A.1 Duty Cycle

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

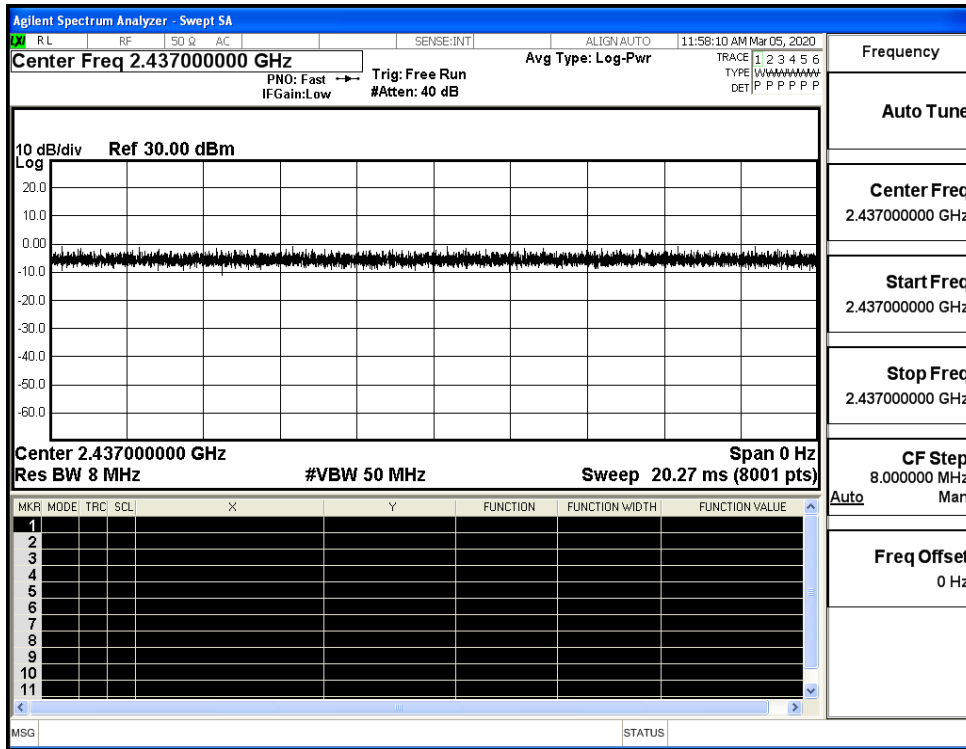
Duty Cycle\_11B\_2437\_Ant1



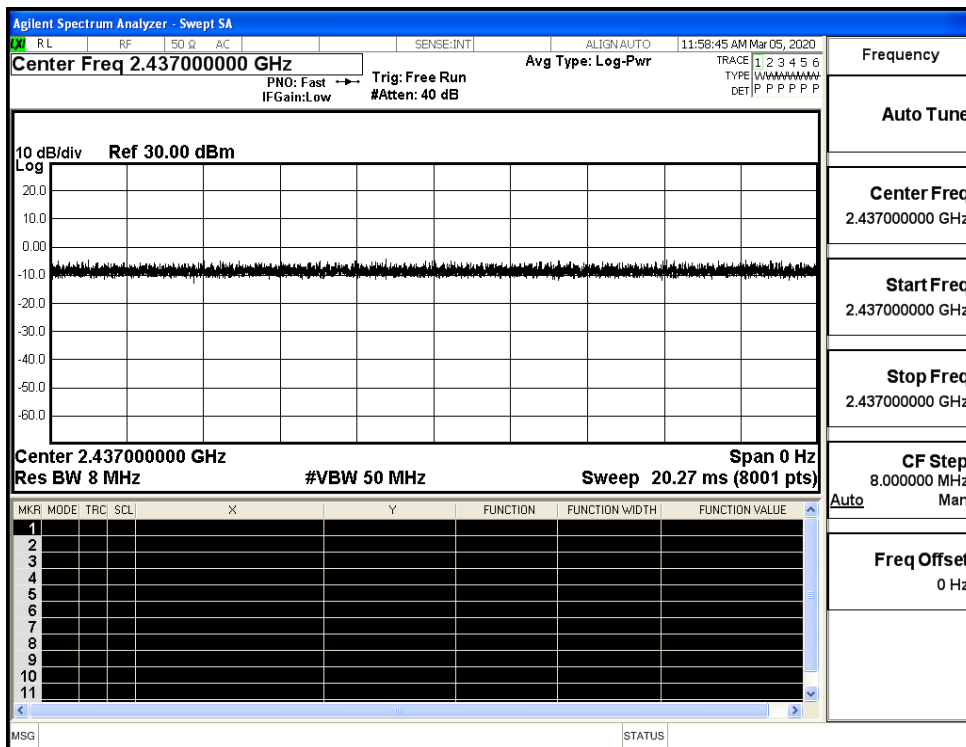
Duty Cycle\_11G\_2437\_Ant1



Duty Cycle\_11N20SISO\_2437\_Ant1



Duty Cycle\_11N40SISO\_2437\_Ant1



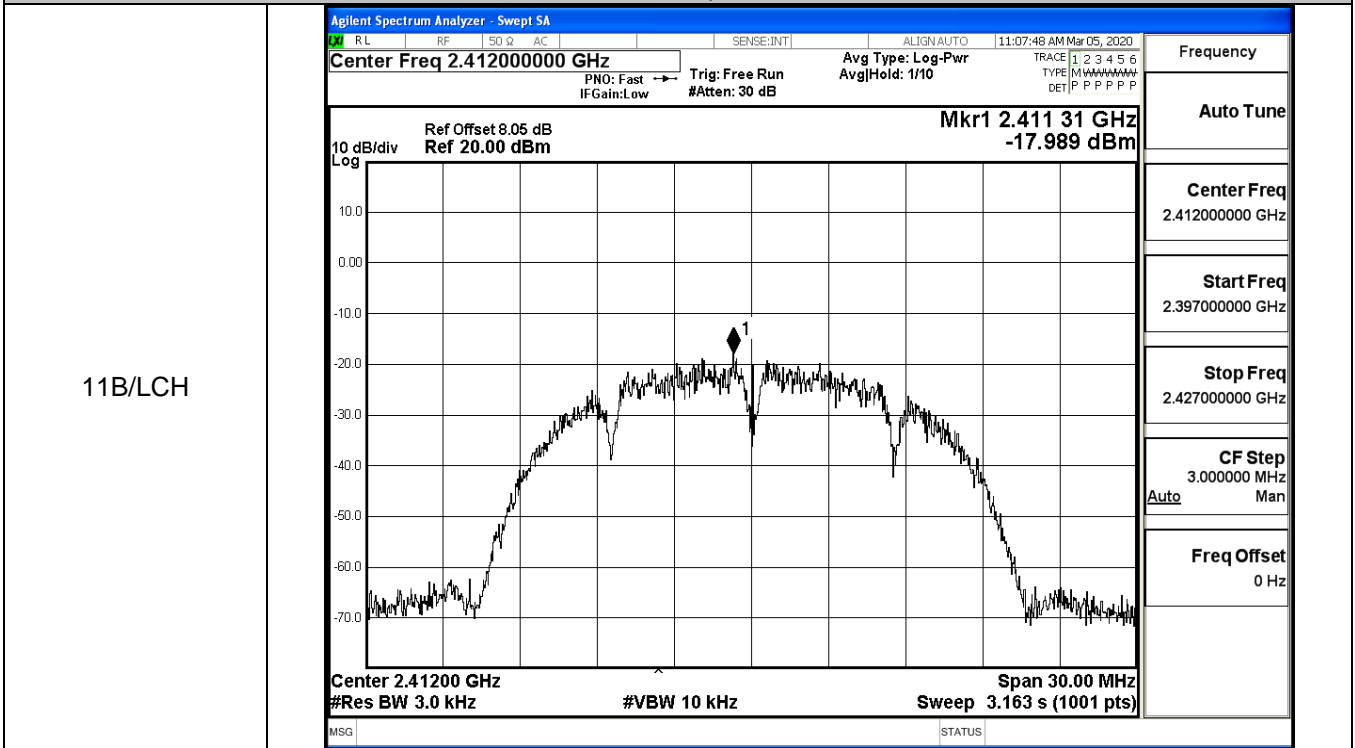
## A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	8.75	30	PASS
	MCH	8.63	30	PASS
	HCH	8.40	30	PASS
11G	LCH	9.00	30	PASS
	MCH	8.78	30	PASS
	HCH	8.26	30	PASS
11N20SISO	LCH	9.05	30	PASS
	MCH	8.69	30	PASS
	HCH	8.12	30	PASS
11N40SISO	LCH	10.29	30	PASS
	MCH	10.06	30	PASS
	HCH	9.31	30	PASS

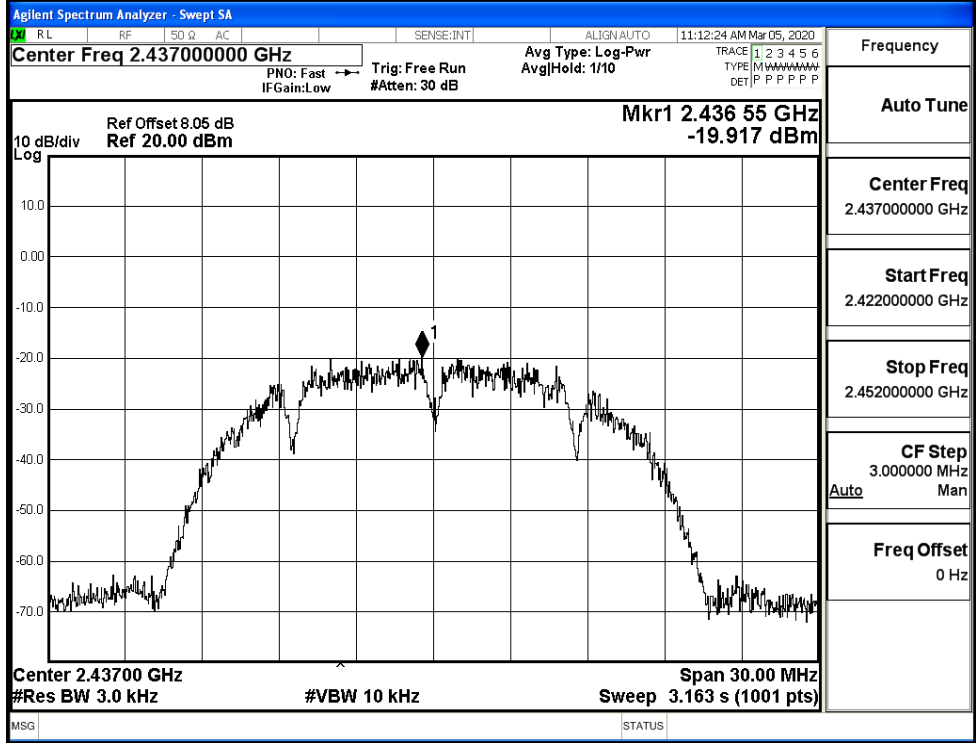
### A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-17.989	8	PASS
	MCH	-19.917	8	PASS
	HCH	-18.764	8	PASS
11G	LCH	-25.500	8	PASS
	MCH	-24.365	8	PASS
	HCH	-25.353	8	PASS
11N20SISO	LCH	-23.956	8	PASS
	MCH	-25.262	8	PASS
	HCH	-25.271	8	PASS
11N40SISO	LCH	-23.507	8	PASS
	MCH	-22.345	8	PASS
	HCH	-22.463	8	PASS

#### Test Graphs

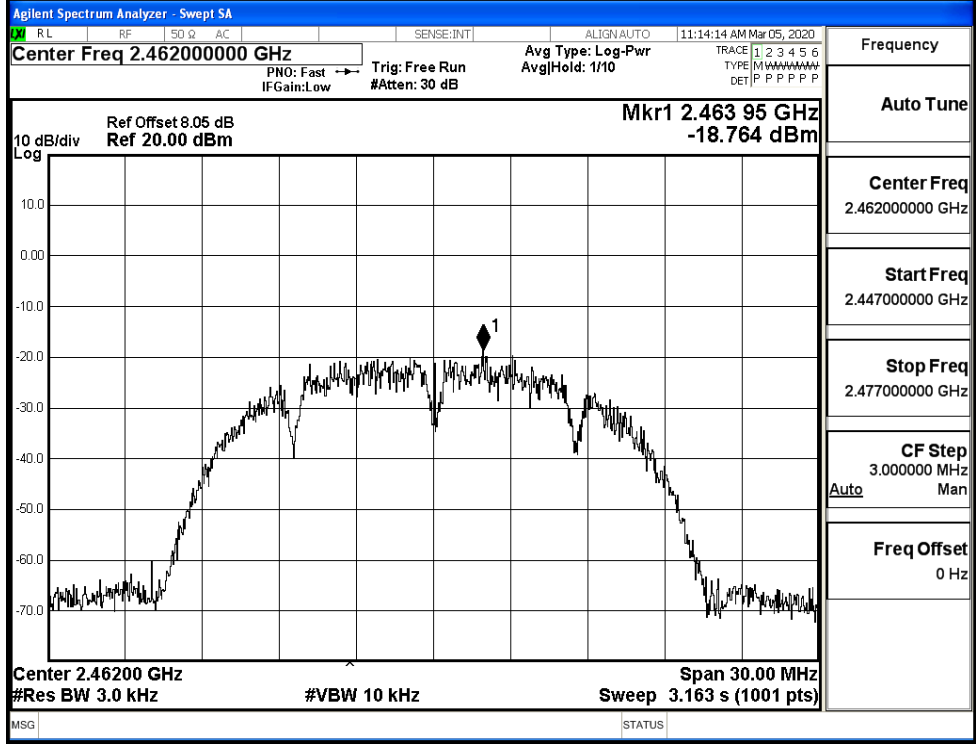


11B/MCH



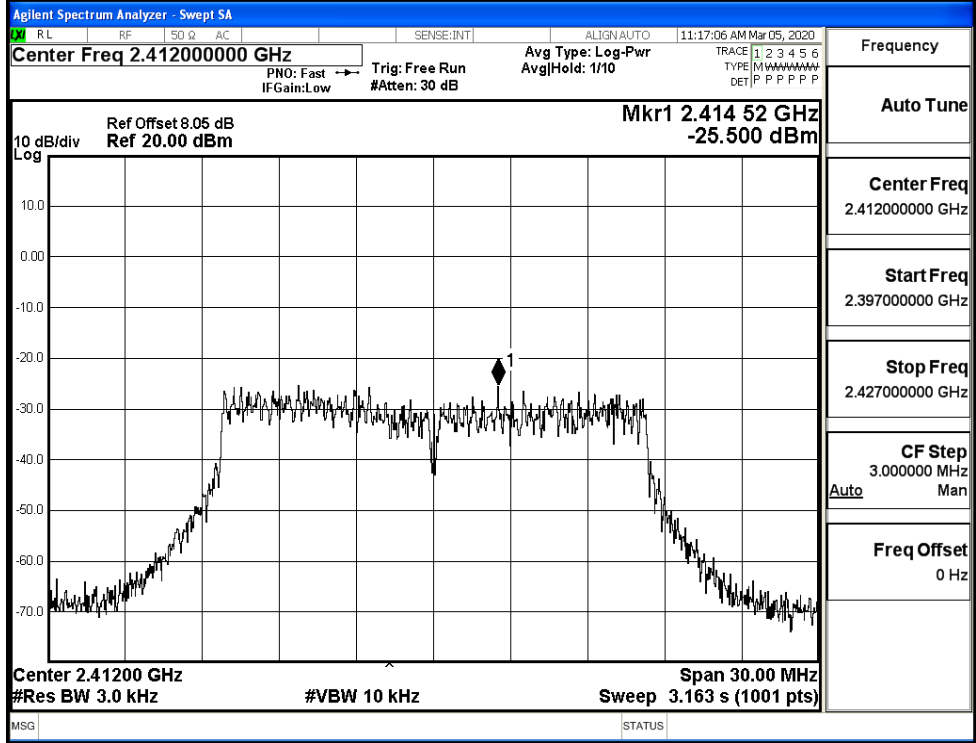
Frequency
Auto Tune
Center Freq 2.437000000 GHz
Start Freq 2.422000000 GHz
Stop Freq 2.452000000 GHz
CF Step 3.000000 MHz Auto Man
Freq Offset 0 Hz

11B/HCH

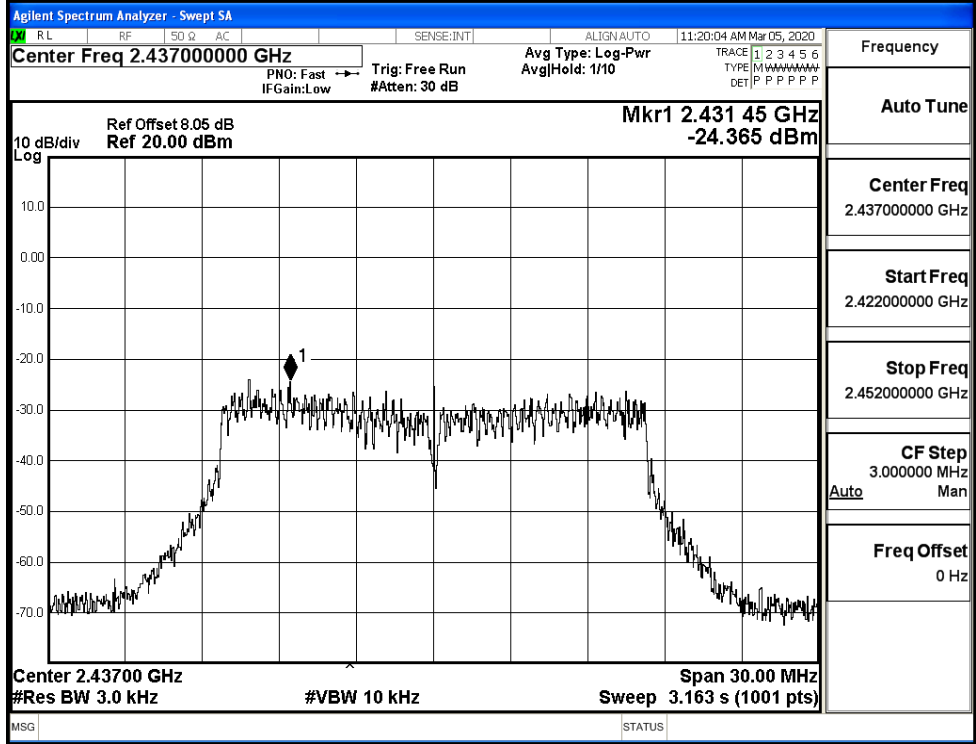


Frequency
Auto Tune
Center Freq 2.462000000 GHz
Start Freq 2.447000000 GHz
Stop Freq 2.477000000 GHz
CF Step 3.000000 MHz Auto Man
Freq Offset 0 Hz

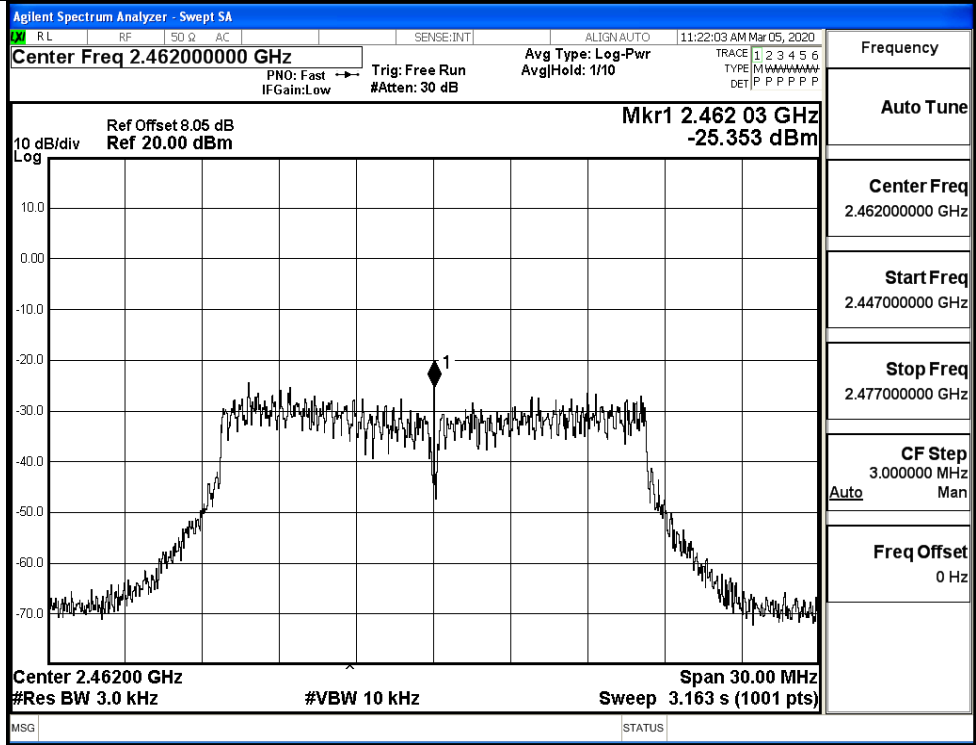
11G/LCH



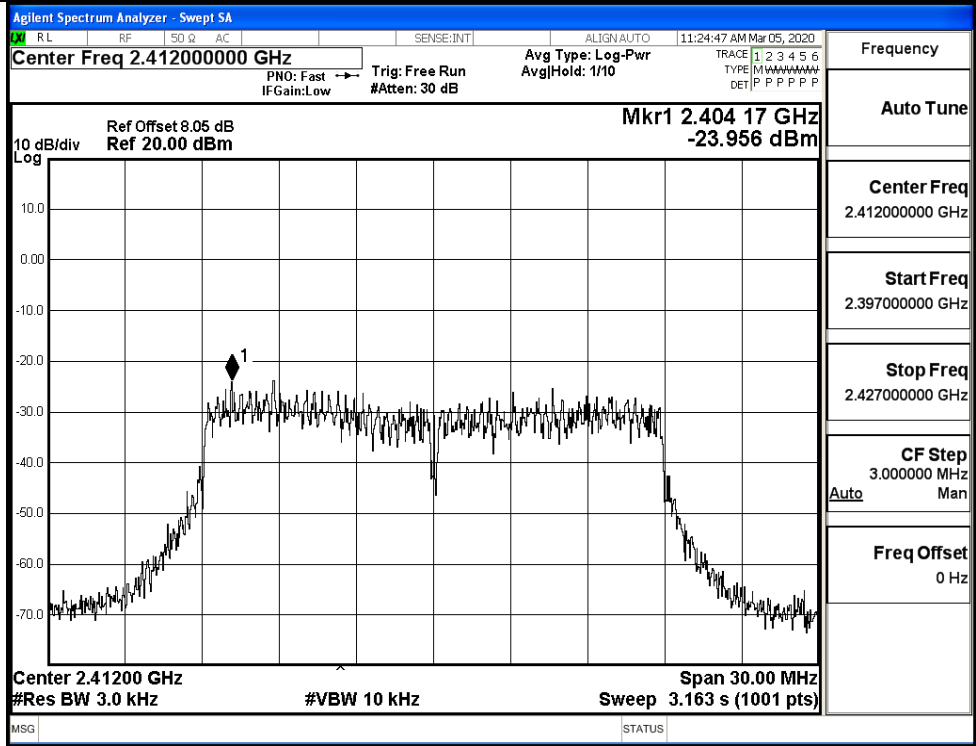
11G/MCH



11G/HCH

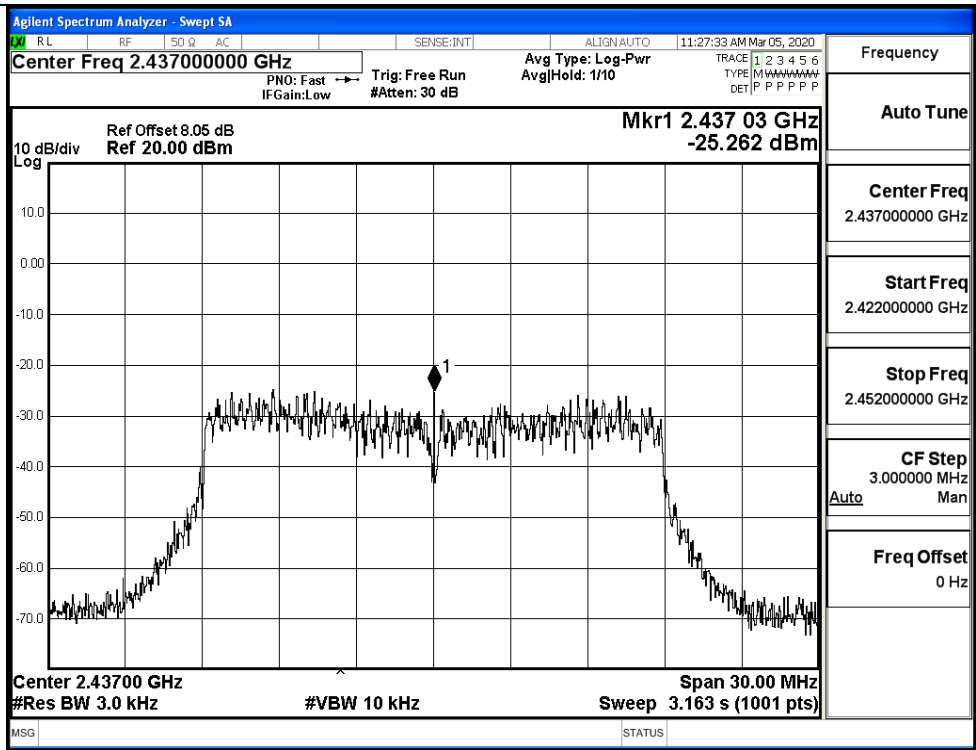


11N20SISO/LCH

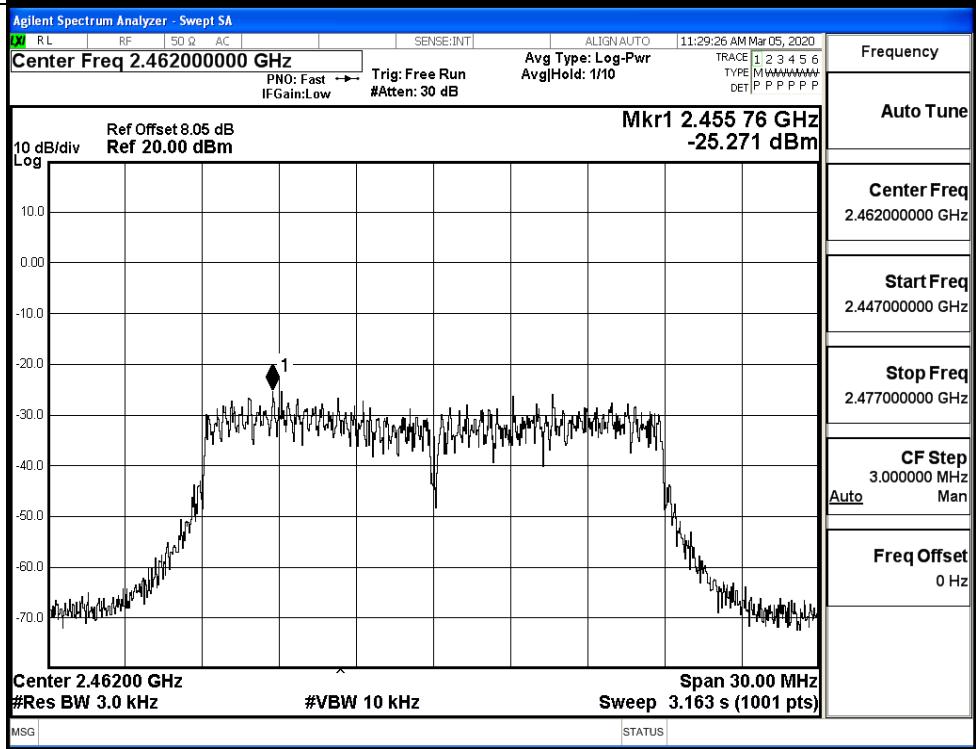




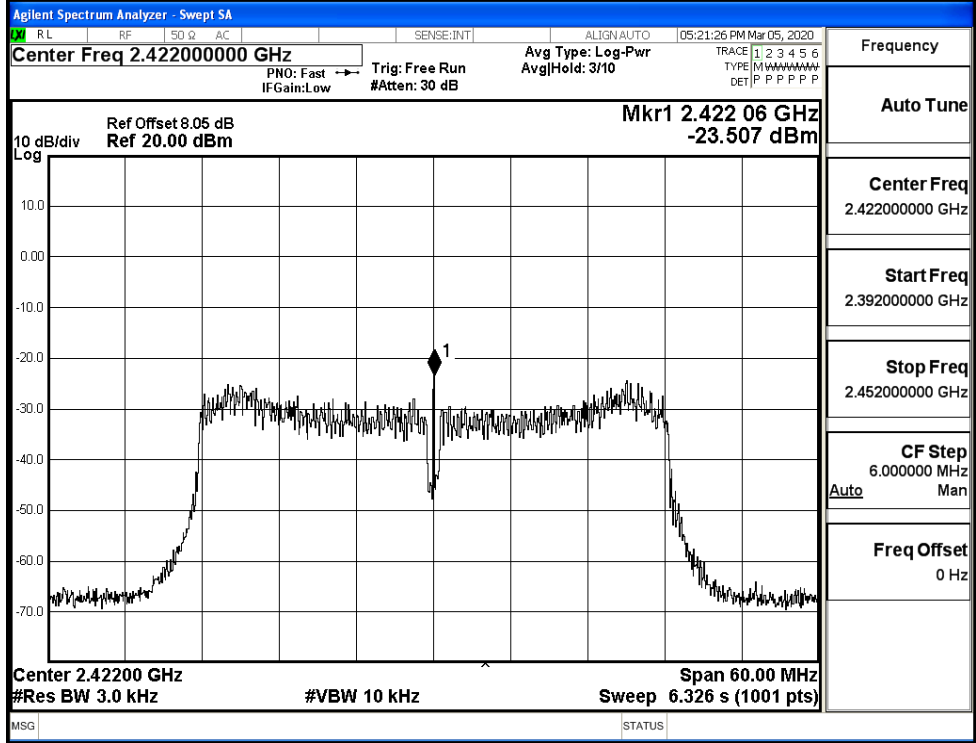
11N20SISO/MCH



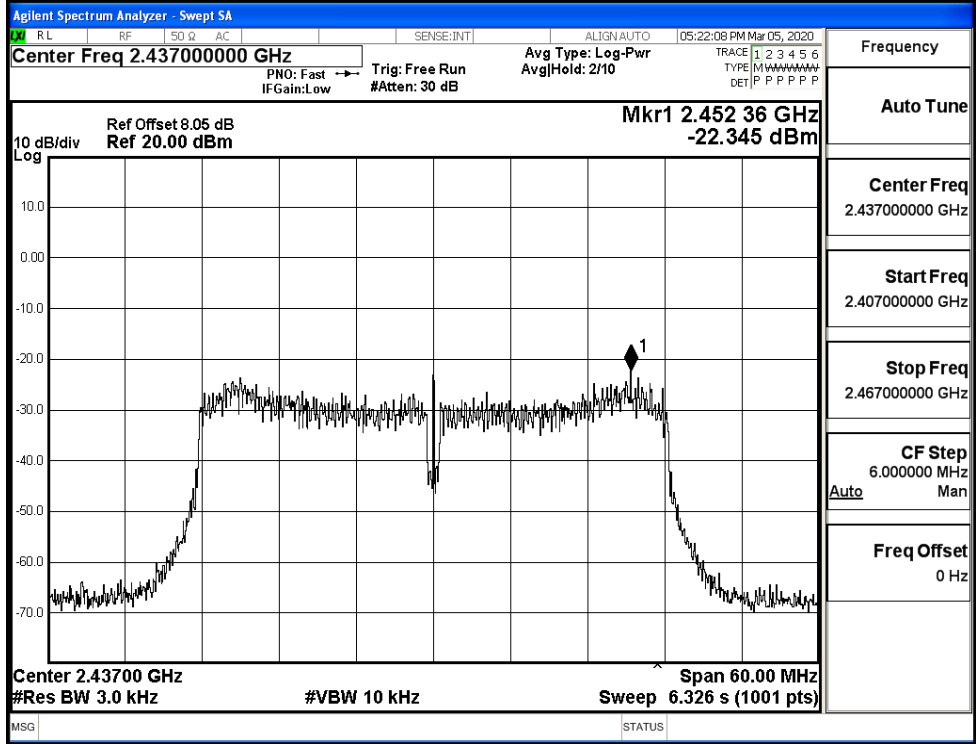
11N20SISO/HCH

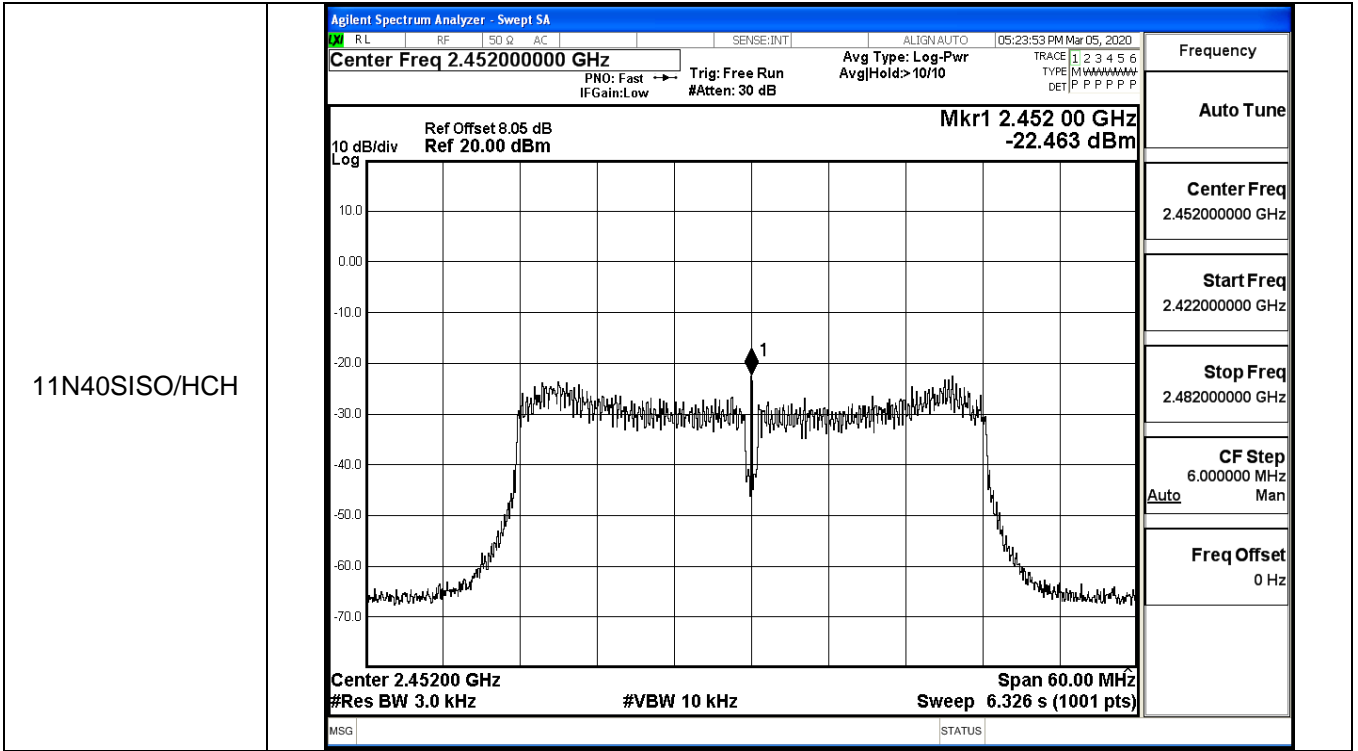


11N40SISO/LCH



11N40SISO/MCH

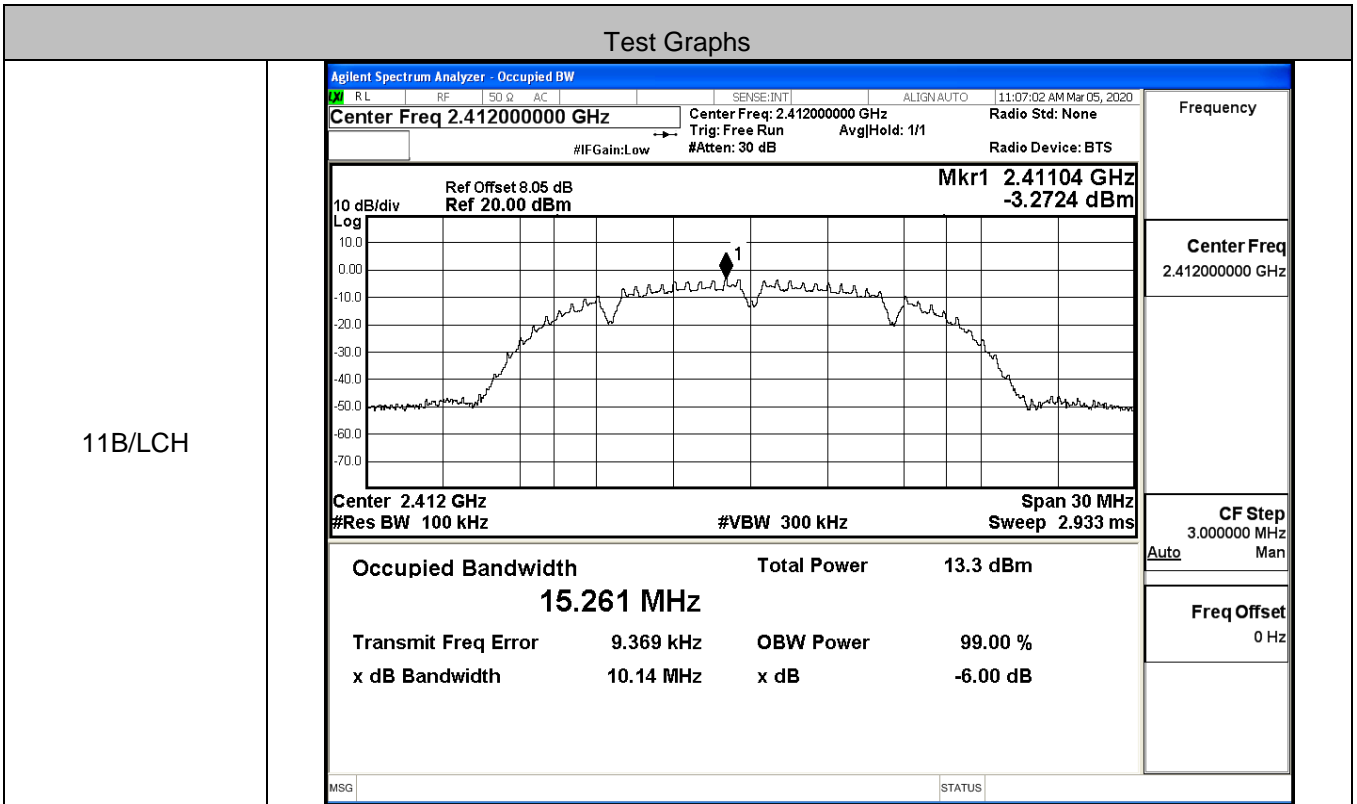




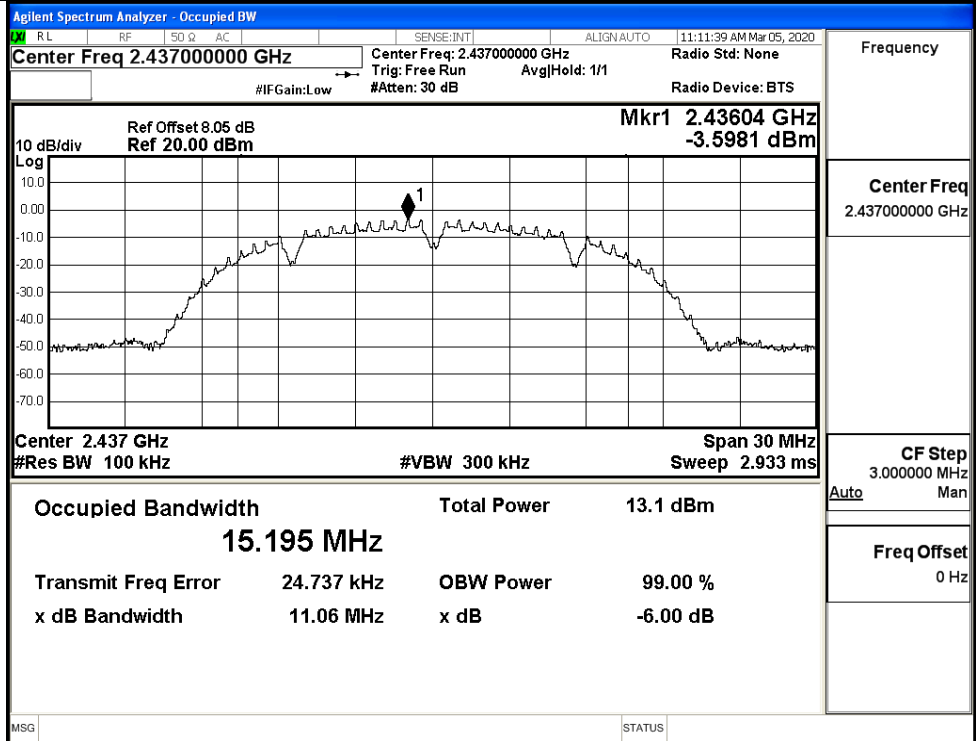
**A.4 6dB Bandwidth**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.14	≥0.5	PASS
	MCH	11.06	≥0.5	PASS
	HCH	11.10	≥0.5	PASS
11G	LCH	16.39	≥0.5	PASS
	MCH	16.37	≥0.5	PASS
	HCH	16.39	≥0.5	PASS
11N20SISO	LCH	17.32	≥0.5	PASS
	MCH	17.08	≥0.5	PASS
	HCH	17.14	≥0.5	PASS
11N40SISO	LCH	35.18	≥0.5	PASS
	MCH	35.16	≥0.5	PASS
	HCH	35.14	≥0.5	PASS

**Test Graphs**

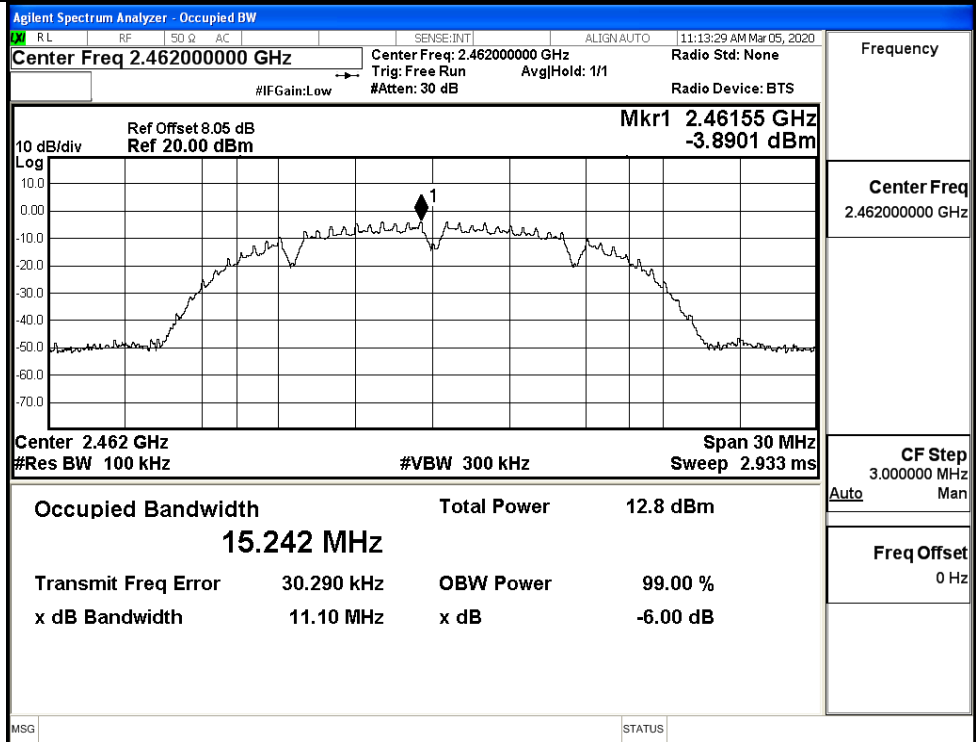


11B/MCH



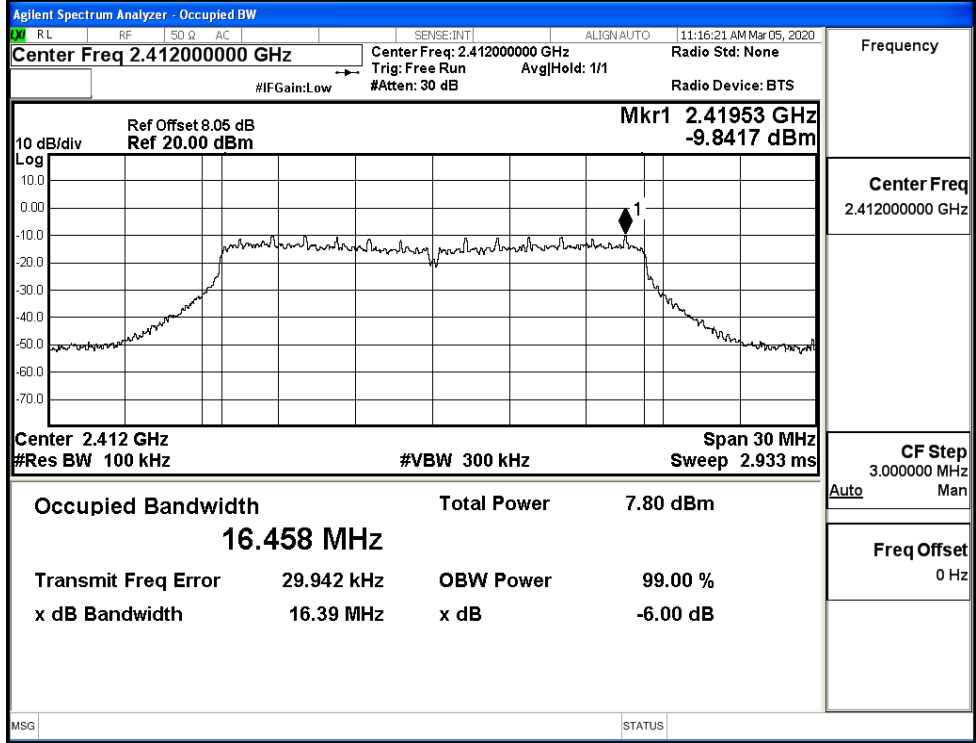
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/HCH



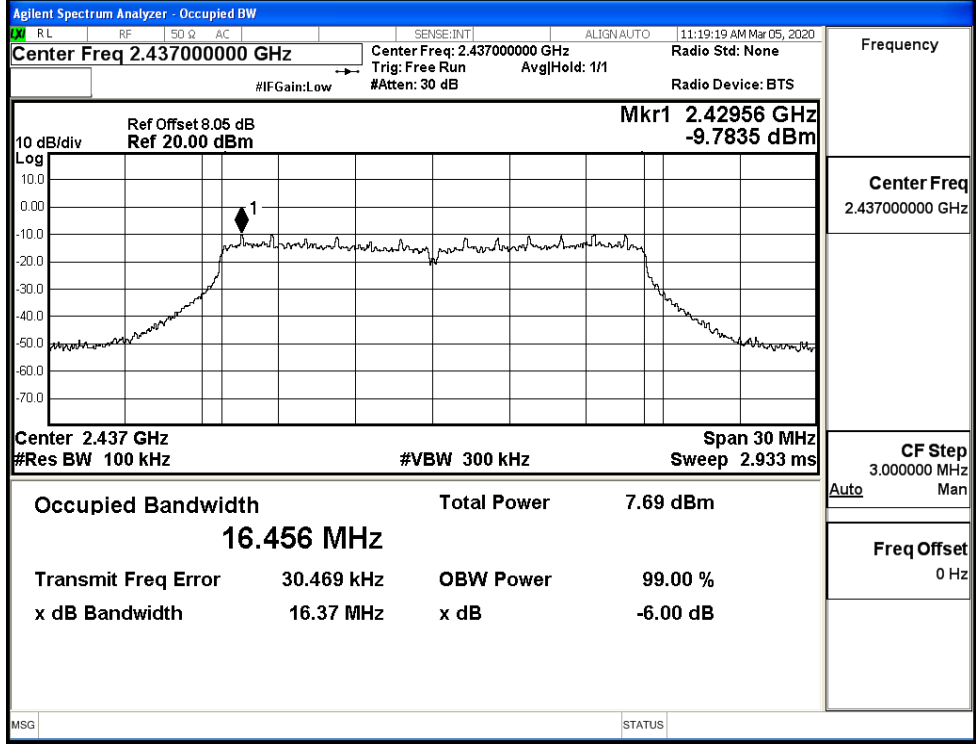
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH



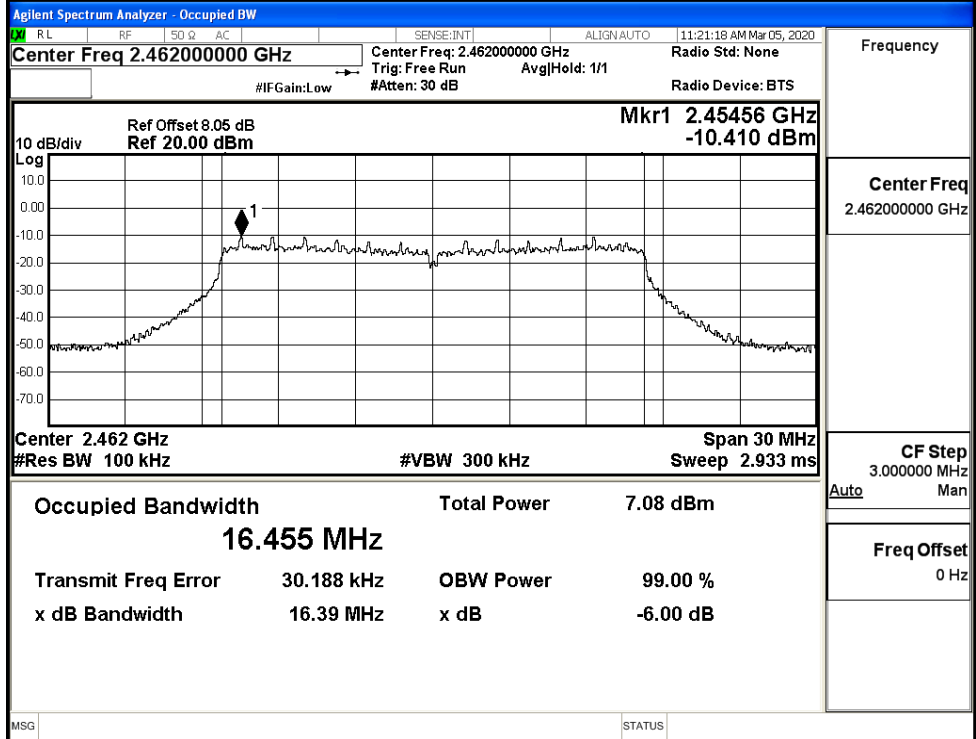
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CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/MCH



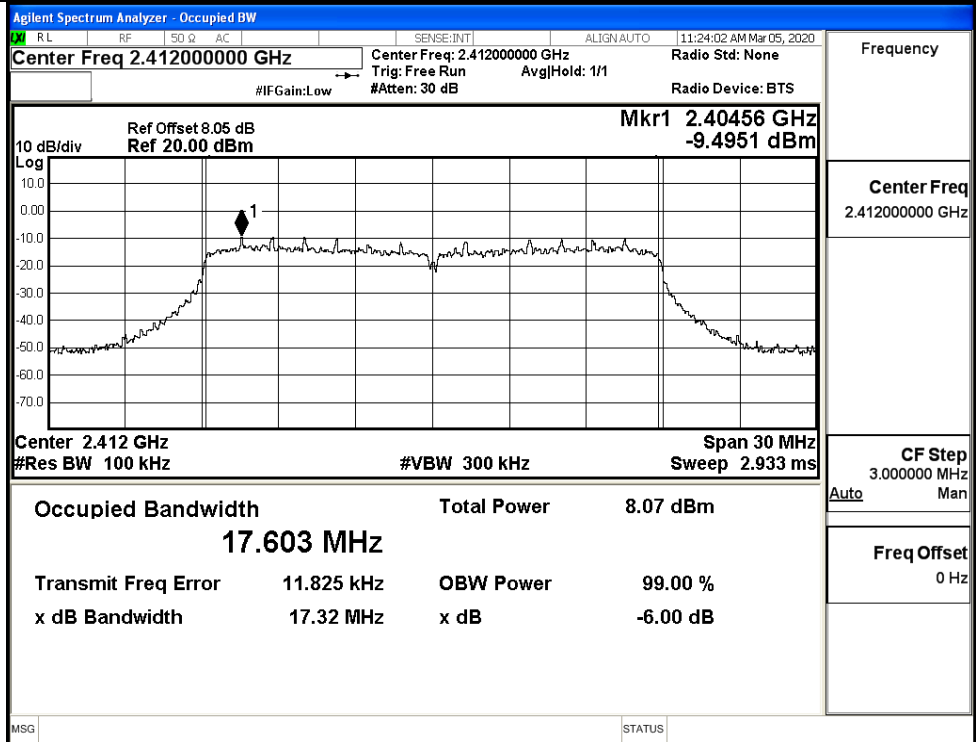
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/HCH



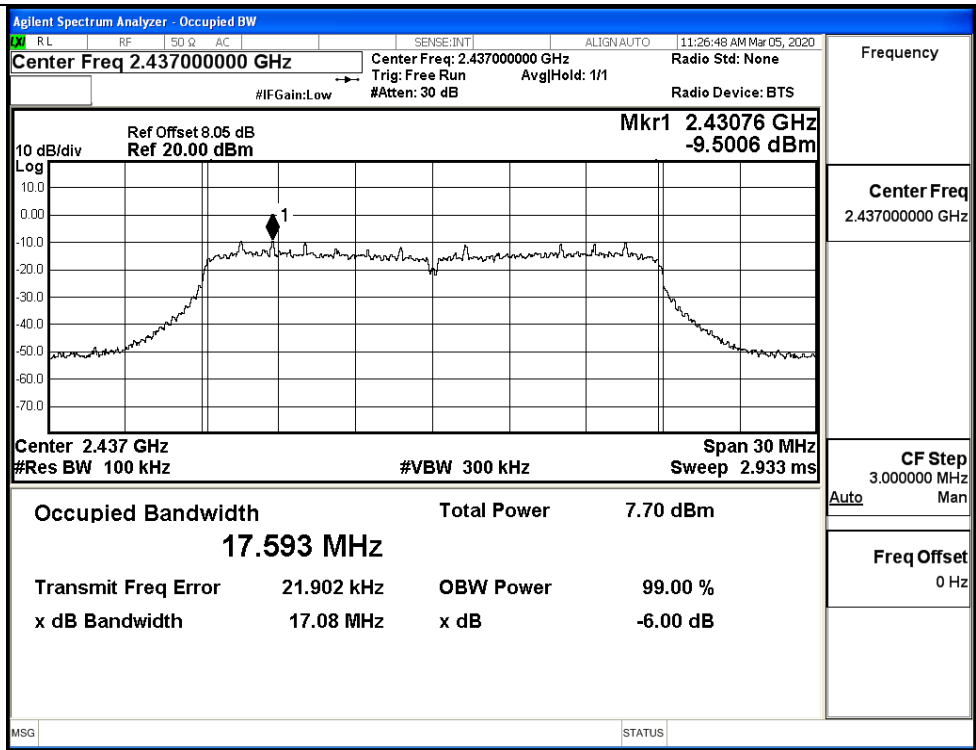
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11N20SISO/LCH



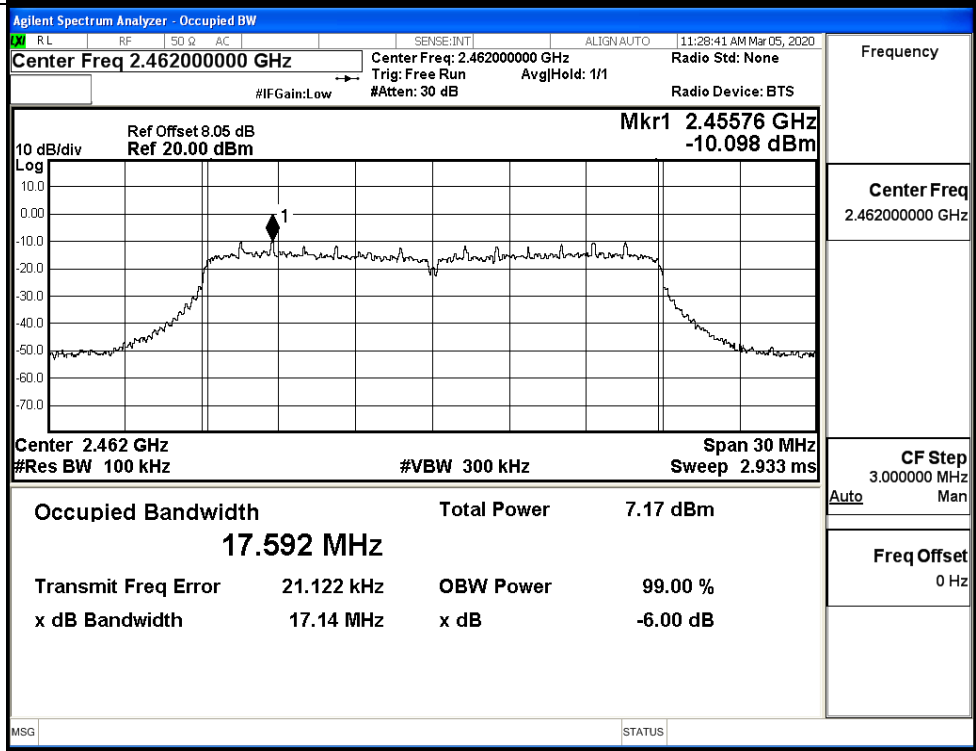
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11N20SISO/MCH



Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

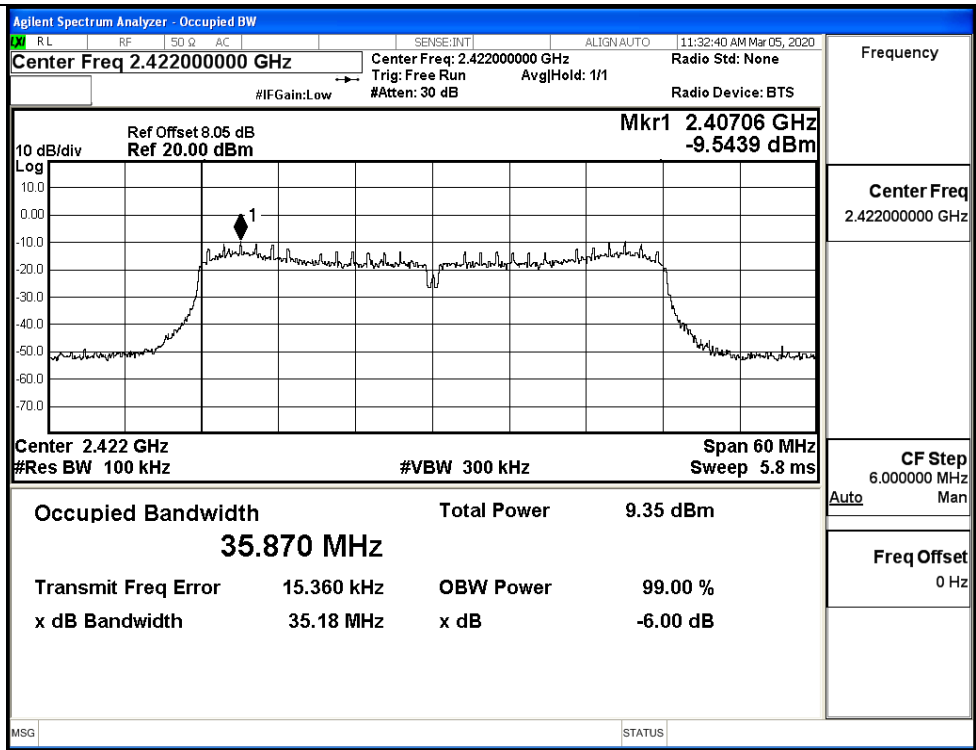
11N20SISO/HCH



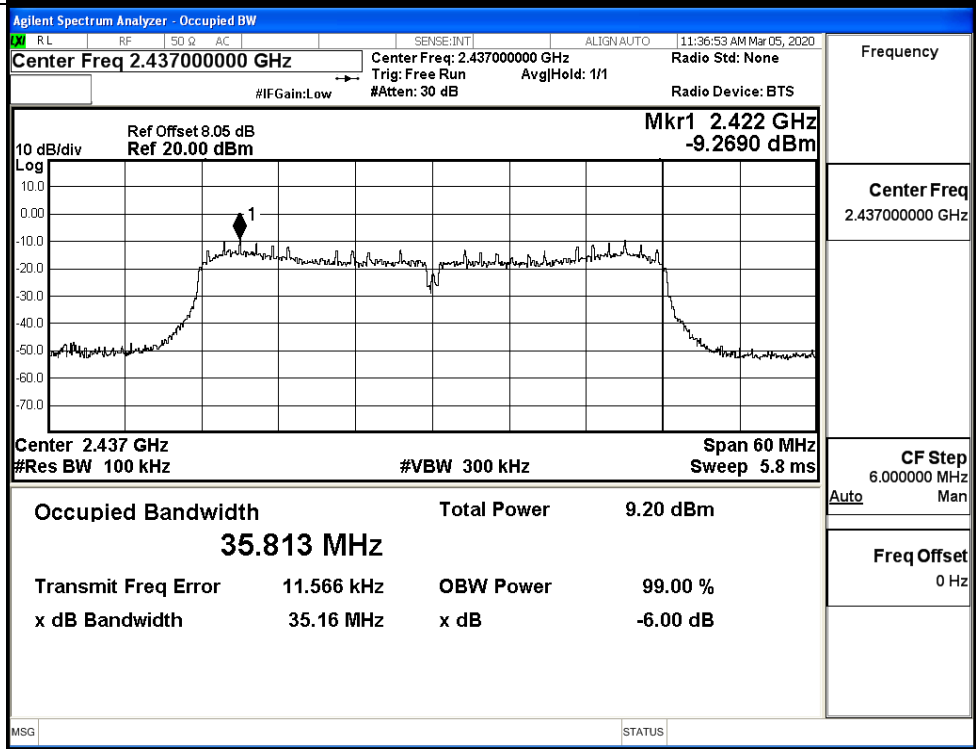
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz



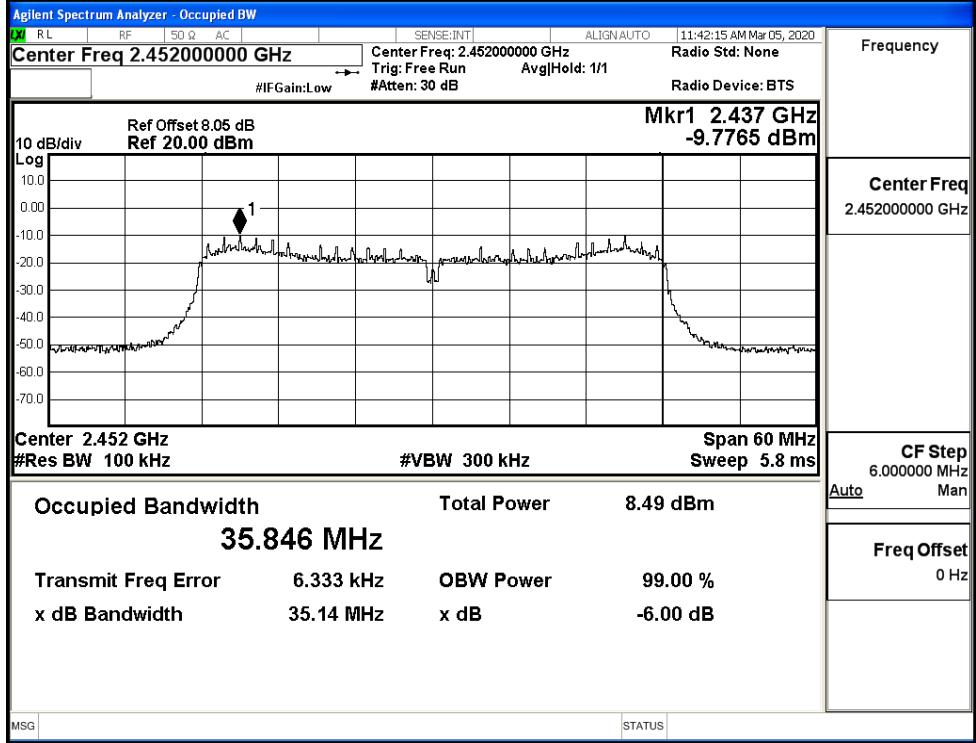
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

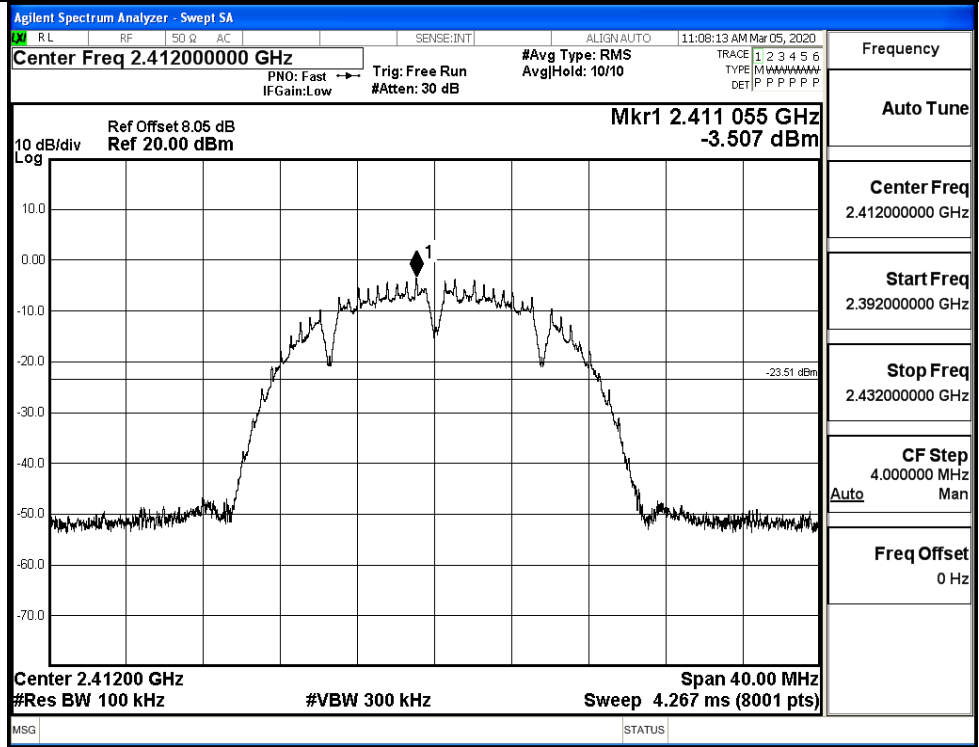


**A.5 RF Conducted Spurious Emissions**

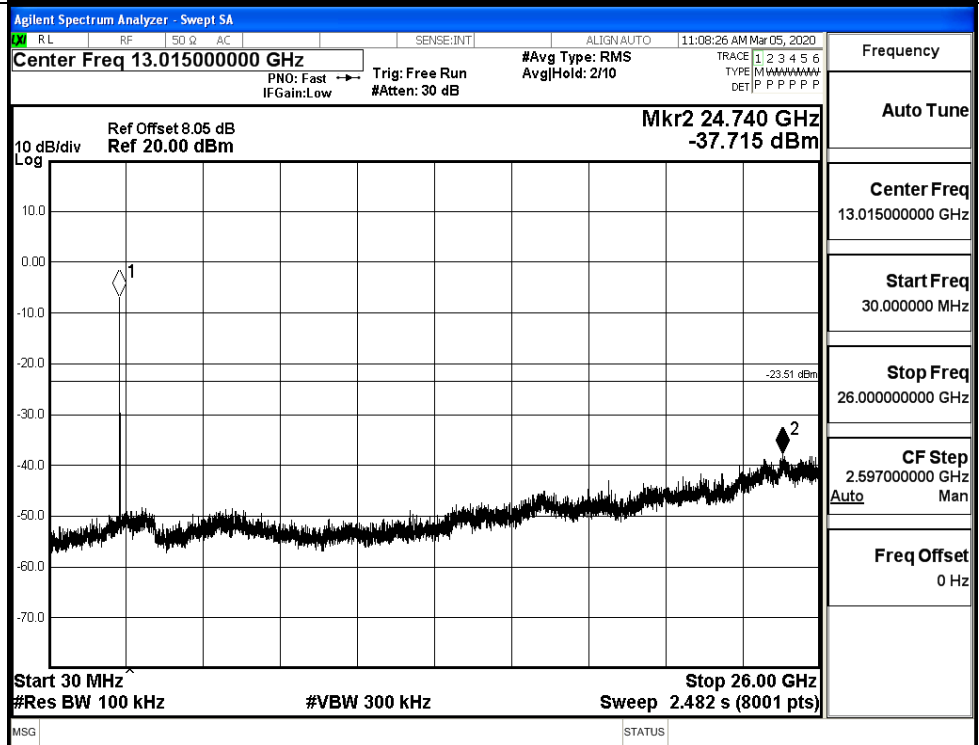
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.507	-37.715	-23.507	PASS
	MCH	-3.968	-38.113	-23.968	PASS
	HCH	-4.498	-37.996	-24.498	PASS
11G	LCH	-9.893	-37.691	-29.893	PASS
	MCH	-10.32	-38.323	-30.320	PASS
	HCH	-10.583	-36.933	-30.583	PASS
11N20 SISO	LCH	-9.499	-38.083	-29.499	PASS
	MCH	-9.749	-37.834	-29.749	PASS
	HCH	-10.261	-37.830	-30.261	PASS
11N40 SISO	LCH	-9.108	-37.176	-29.108	PASS
	MCH	-9.715	-38.523	-29.715	PASS
	HCH	-9.883	-37.953	-29.883	PASS

11B\_LCH\_Graphs

Pref/11B/LCH

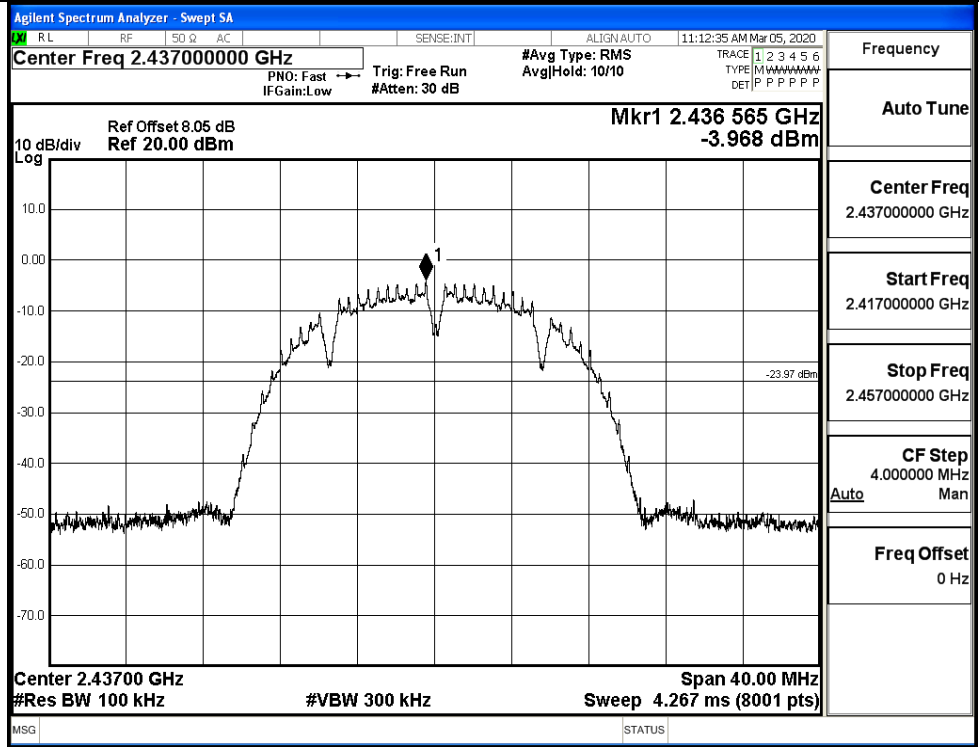


Puw/11B/LCH

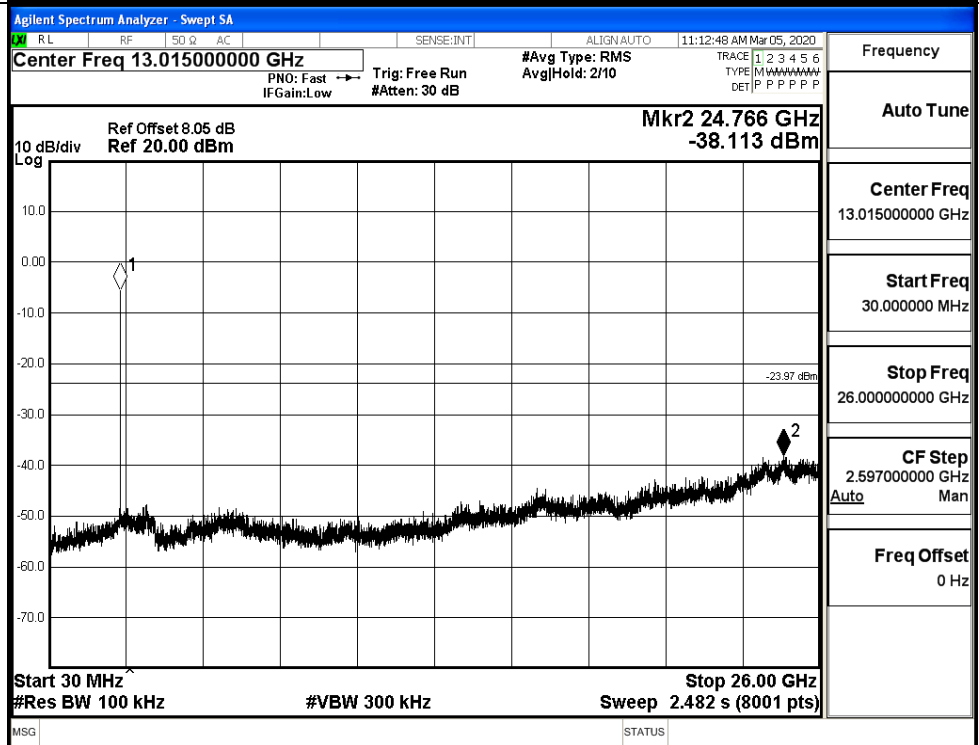


11B\_MCH\_Graphs

Pref/11B/MCH

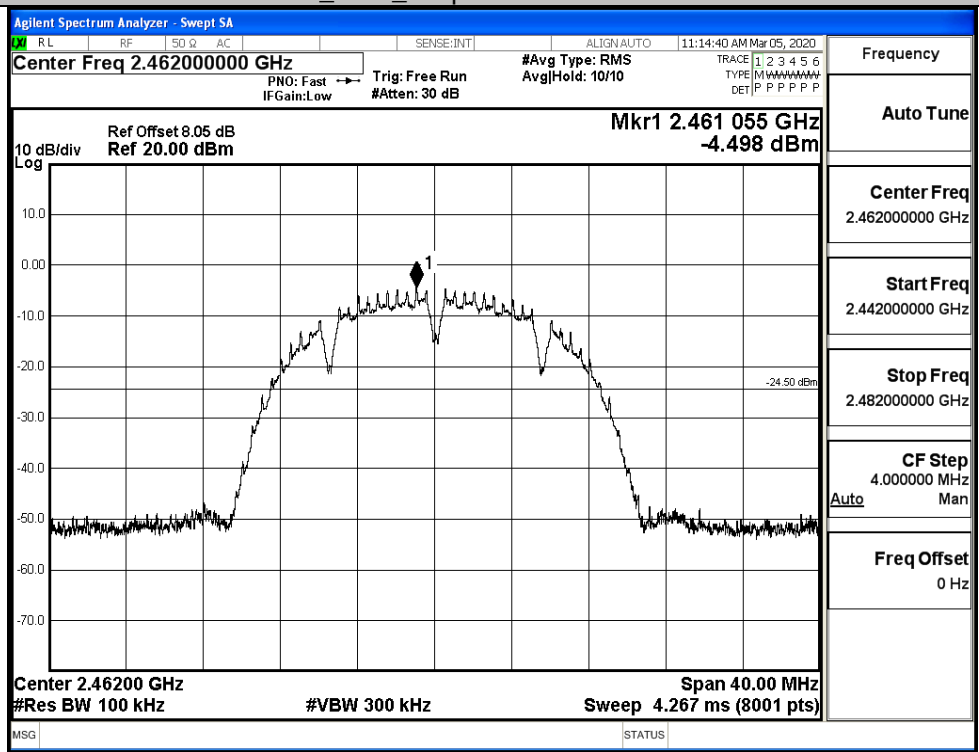


Puw/11B/MCH

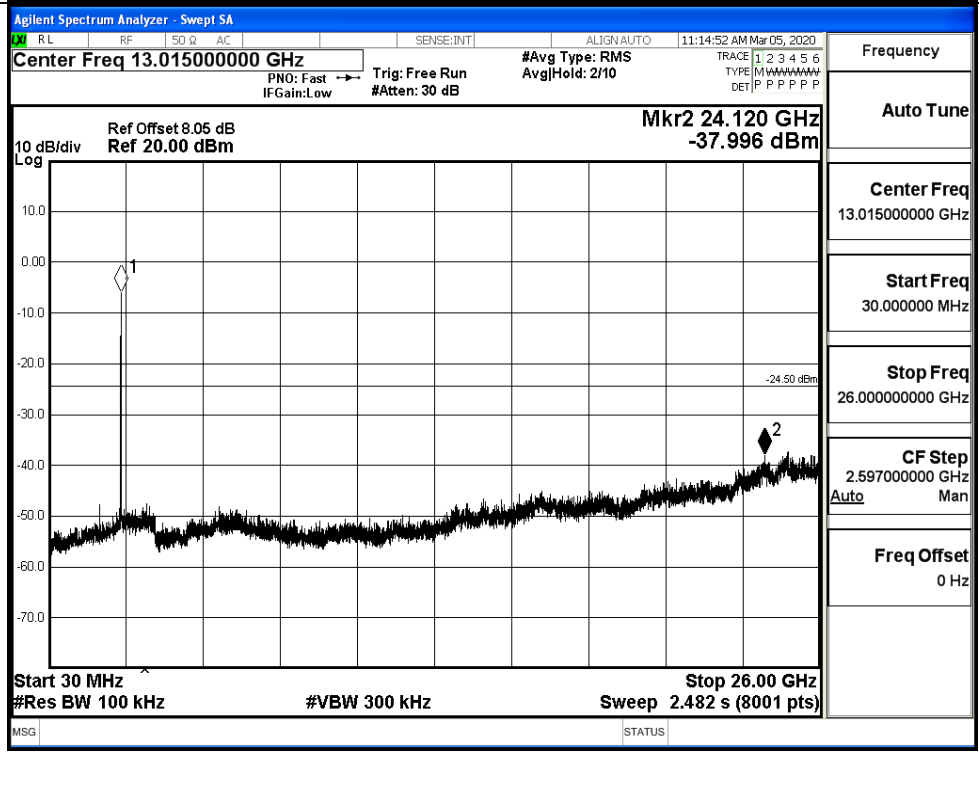


11B\_HCH\_Graphs

Pref/11B/HCH

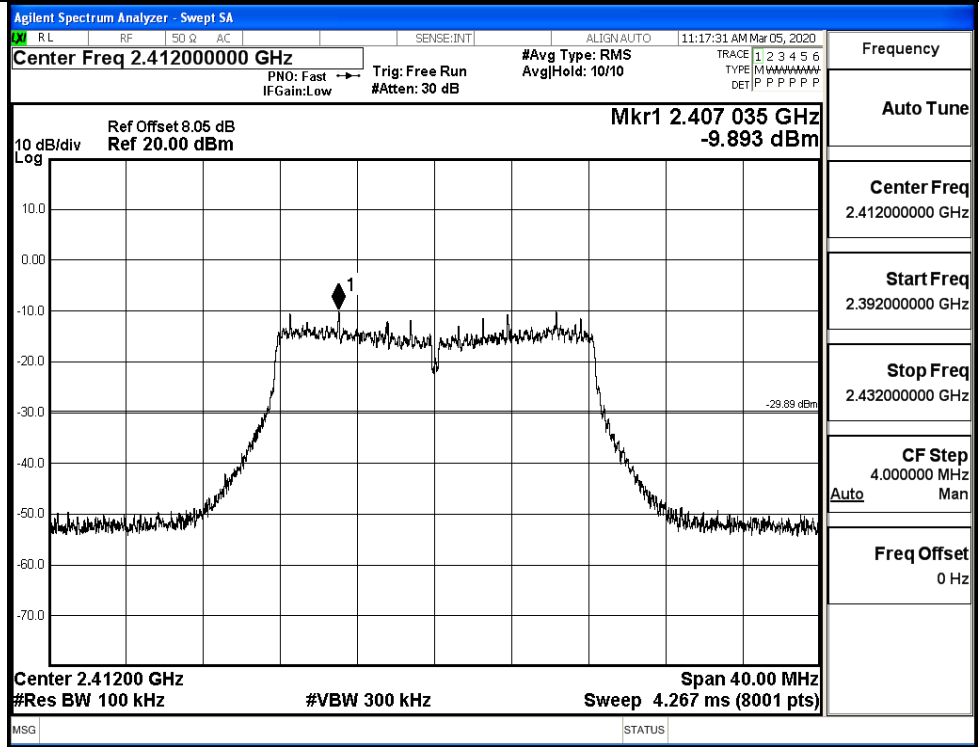


Puw/11B/HCH



11G\_LCH\_Graphs

Pref/11G/LCH

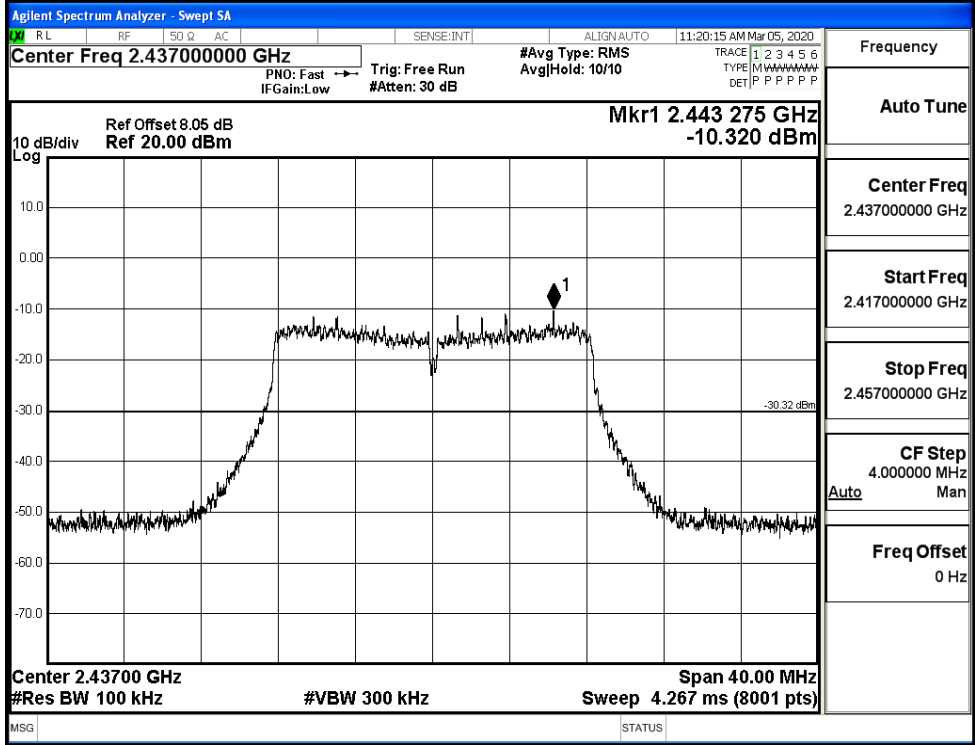


Puw/11G/LCH

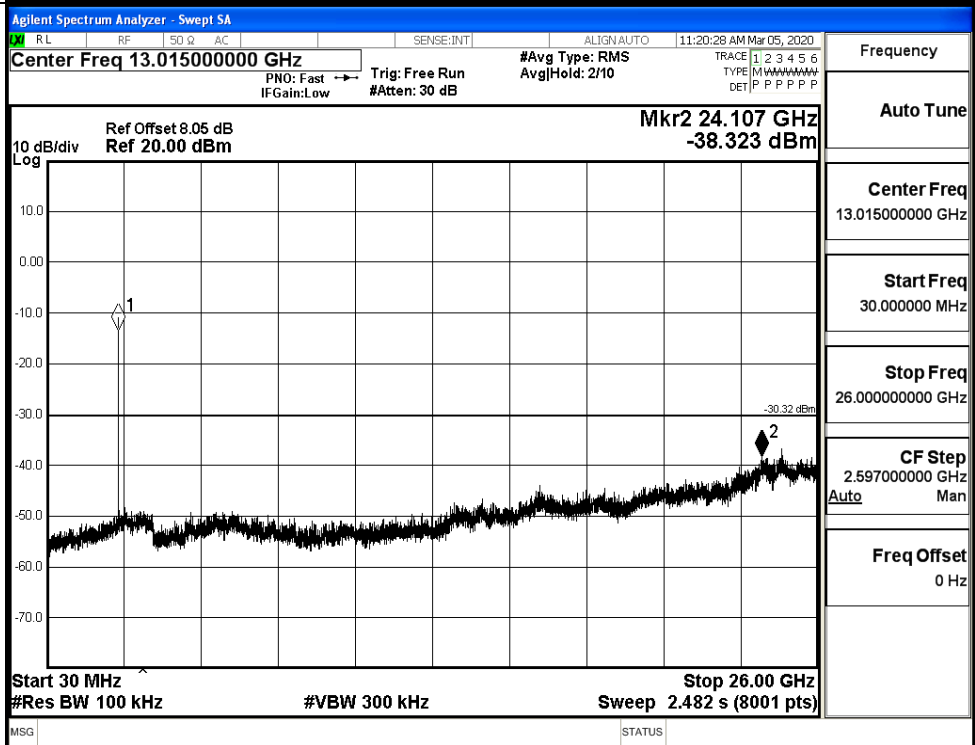


11G\_MCH\_Graphs

Pref/11G/MCH



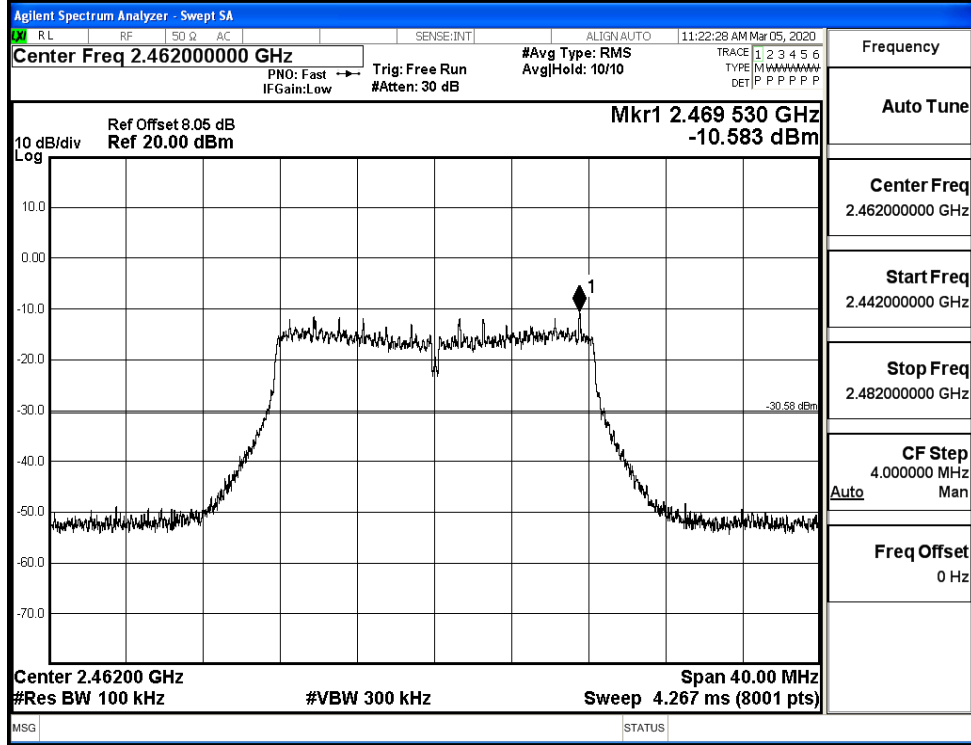
Puw/11G/MCH



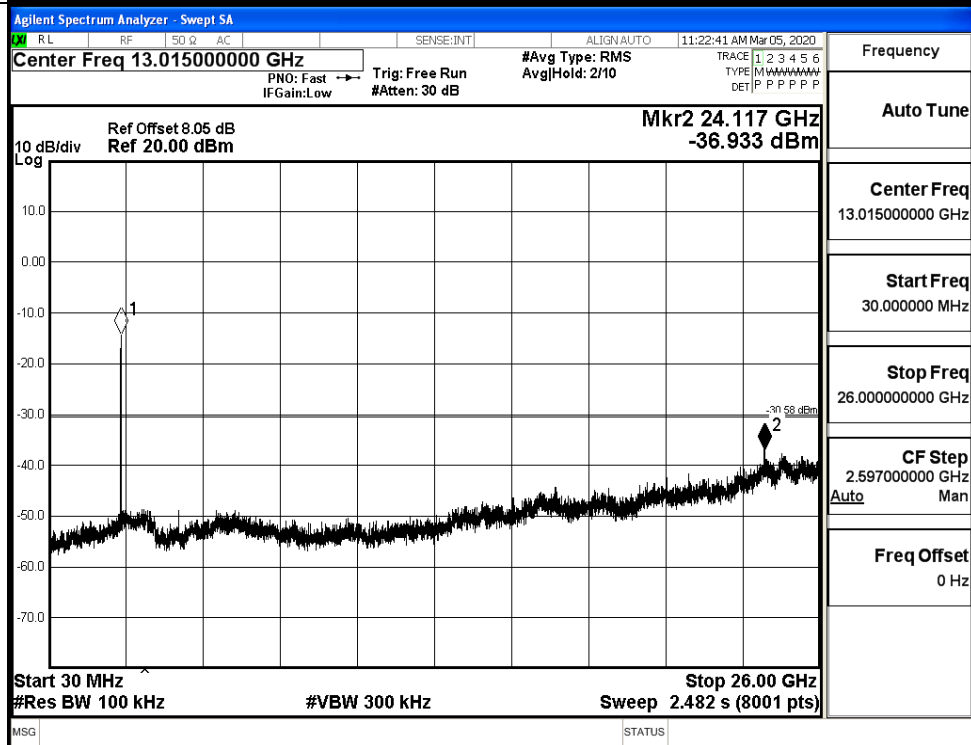


11G\_HCH\_Graphs

Pref/11G/HCH

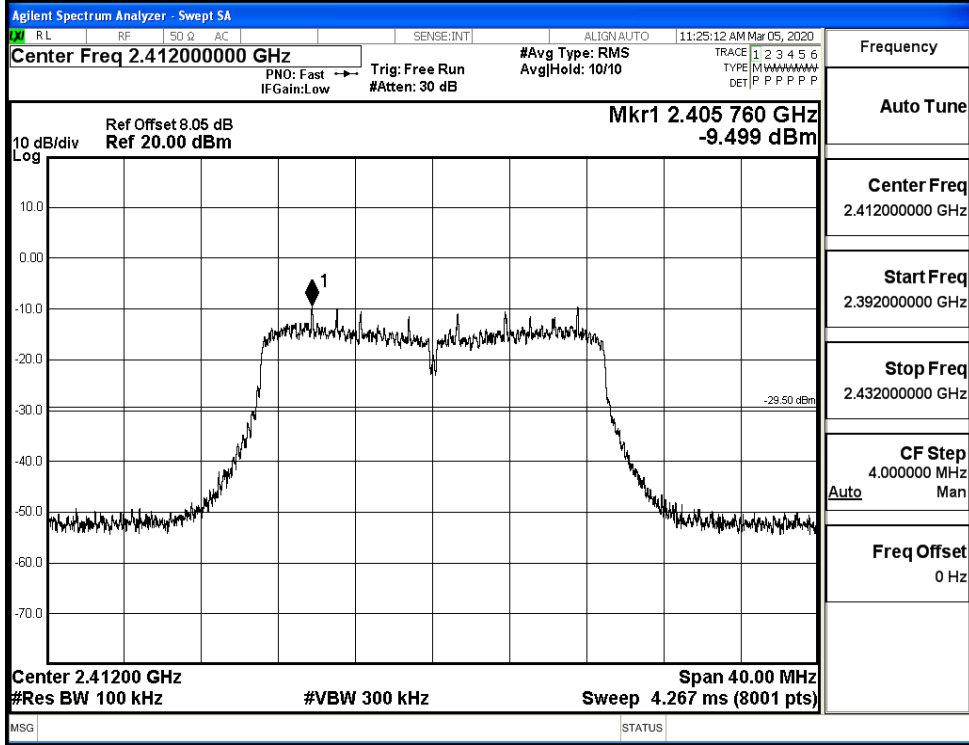


Puw/11G/HCH

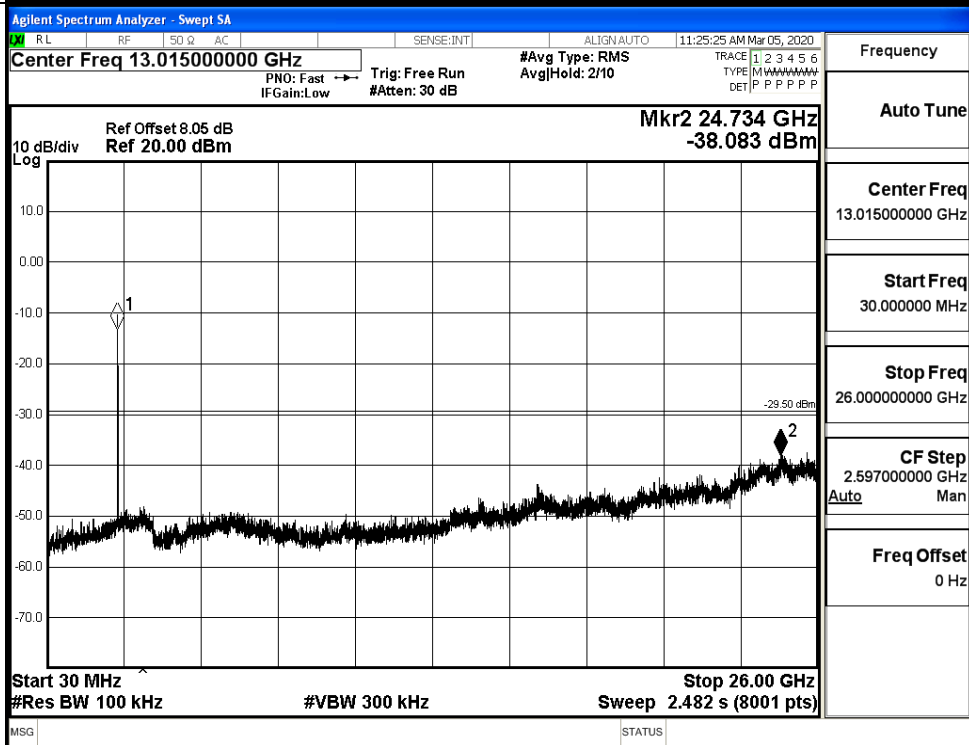


11N20SISO\_LCH\_Graphs

Pref/11N20SIS  
O/LCH

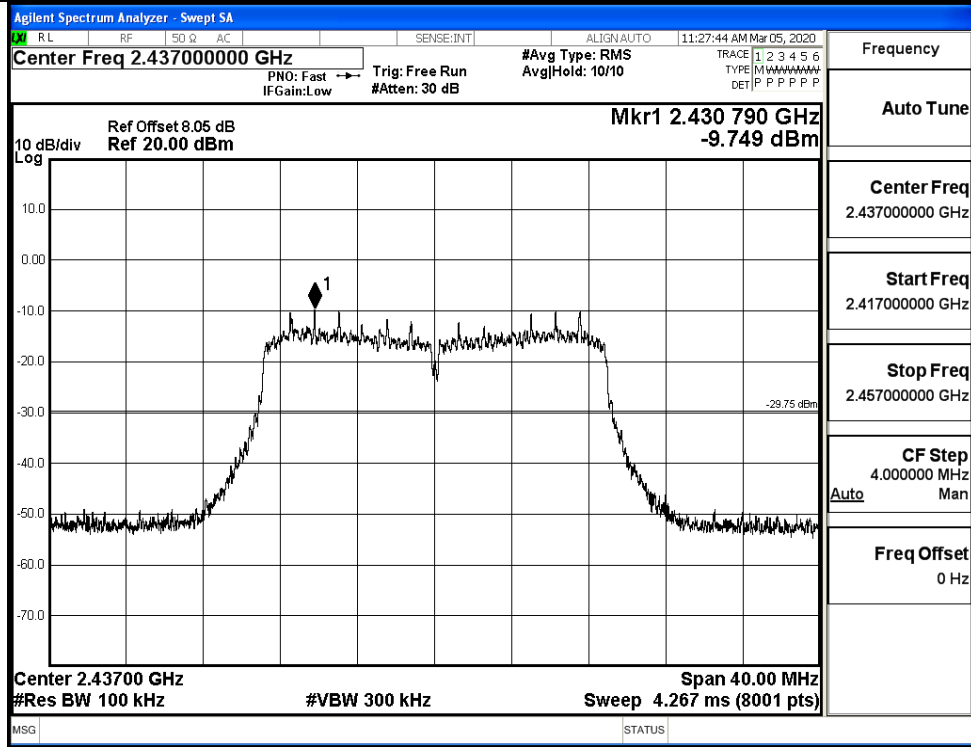


Puw/11N20  
SISO/LCH

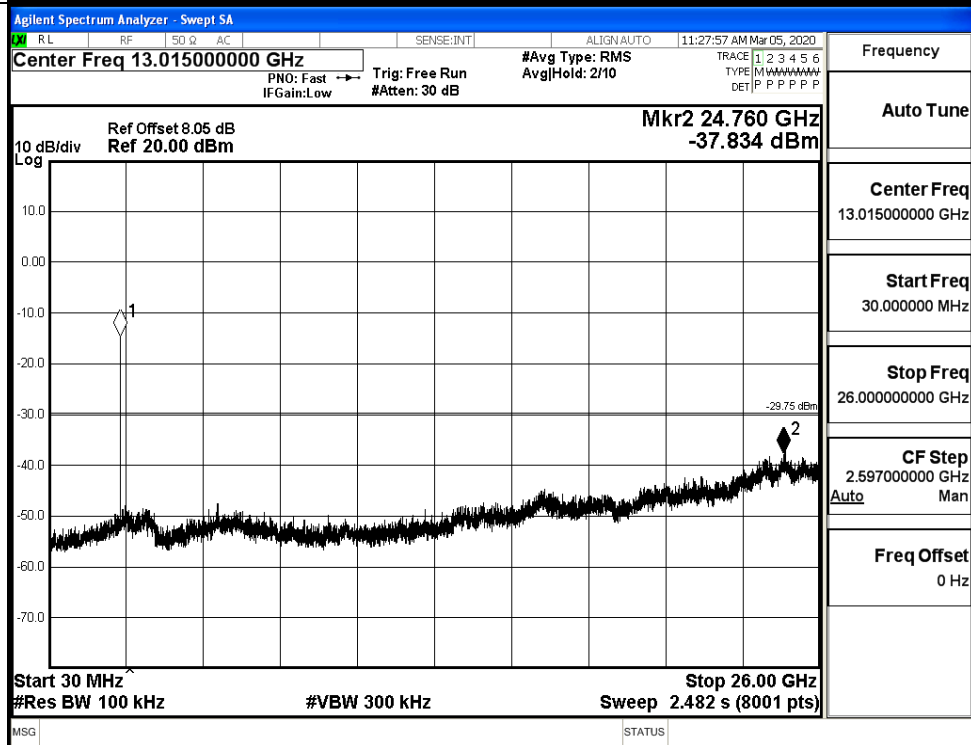


11N20SISO\_MCH\_Graphs

Pref/11N20  
SISO/MCH

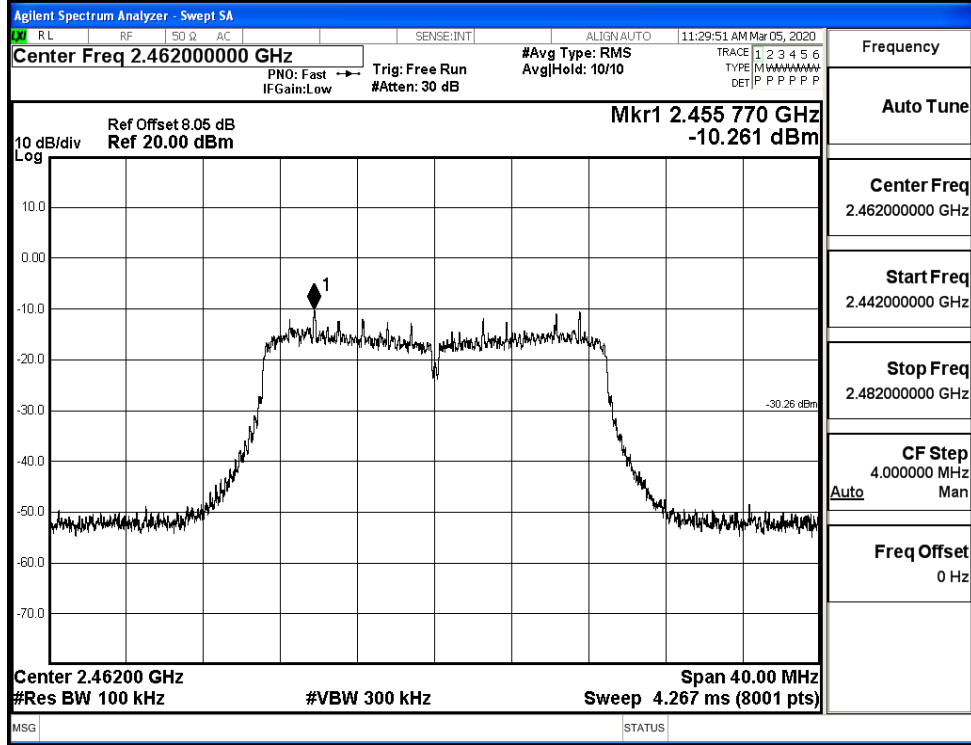


Puw/11N20  
SISO/MCH

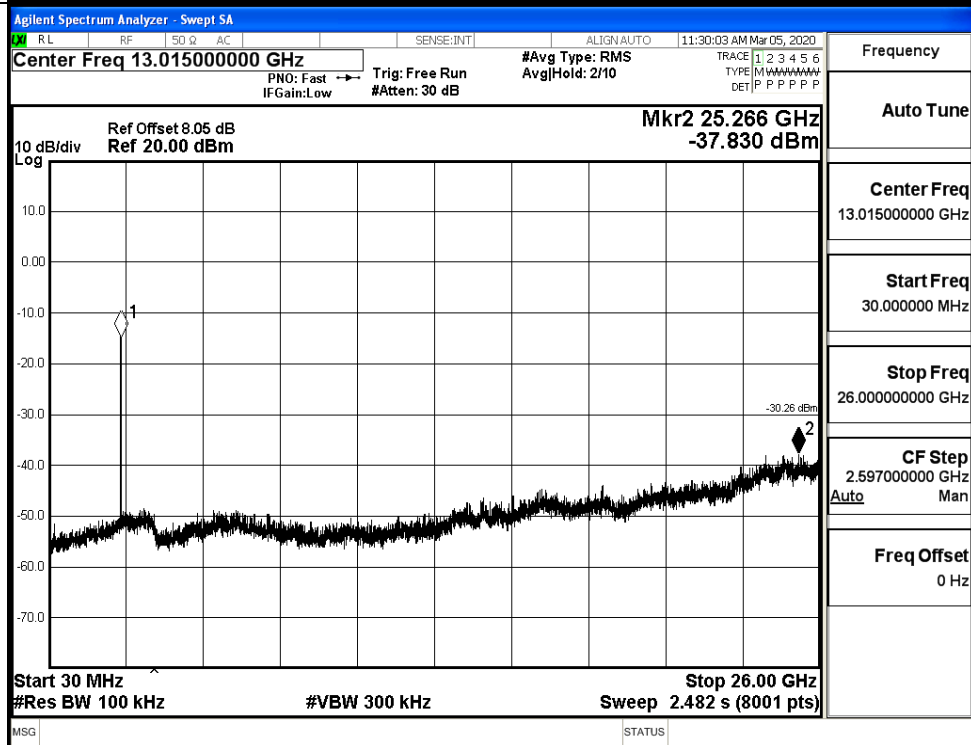


11N20SISO\_HCH\_Graphs

Pref/11N20  
SISO/HCH

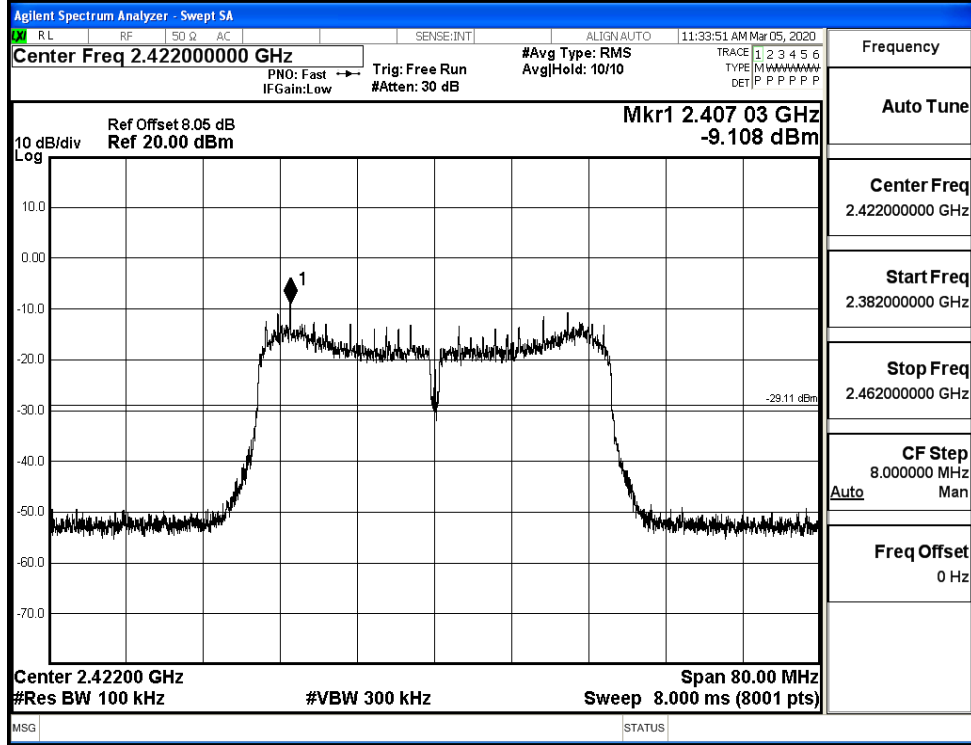


Puw/11N20  
SISO/HCH

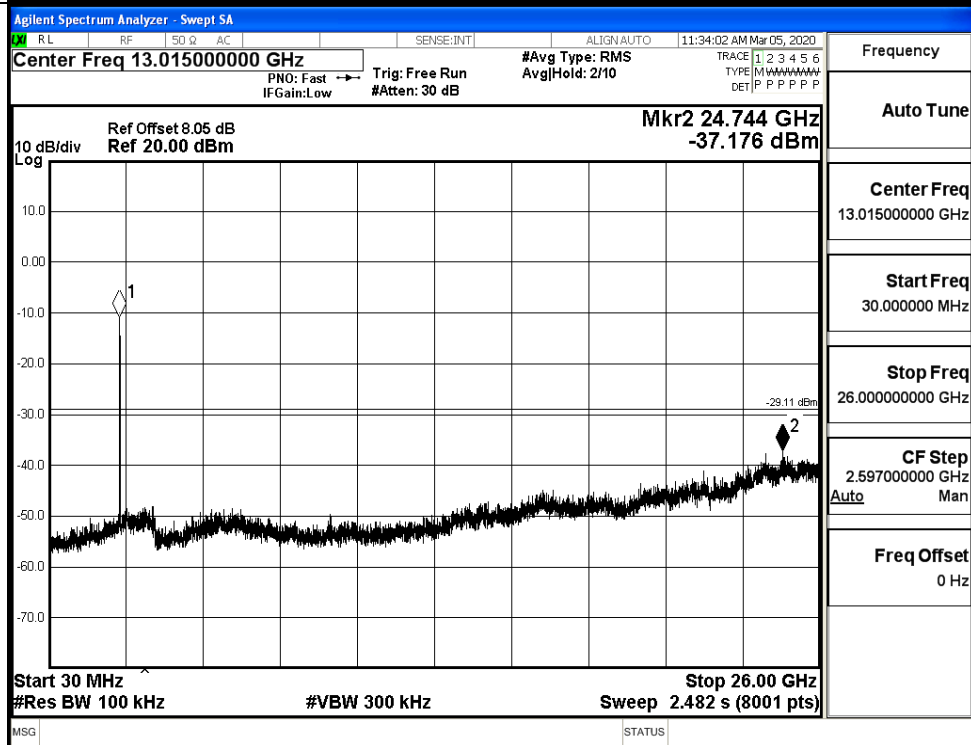


11N40SISO\_LCH\_Graphs

Pref/11N40  
SISO/LCH

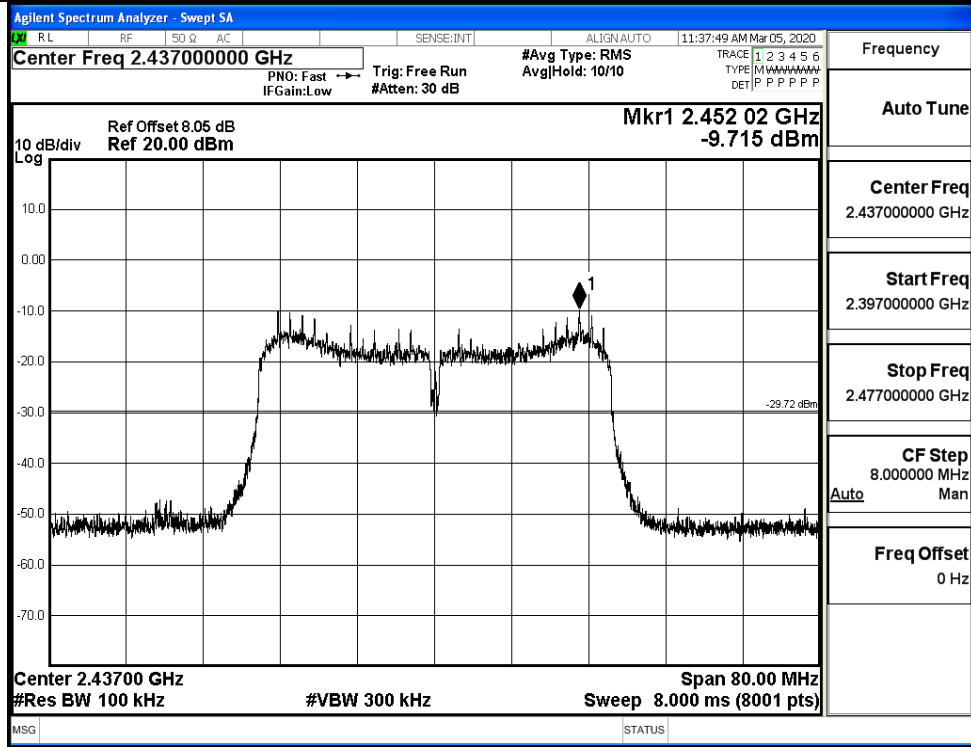


Puw/11N40  
SISO/LCH

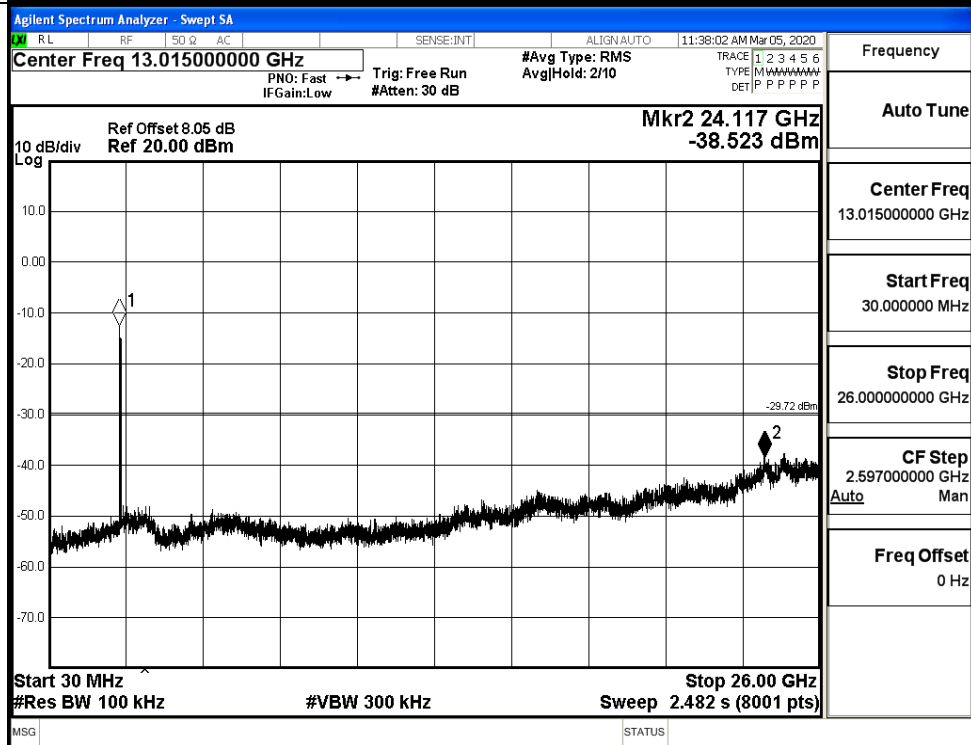


11N40SISO\_MCH\_Graphs

Pref/11N40  
SISO/MCH

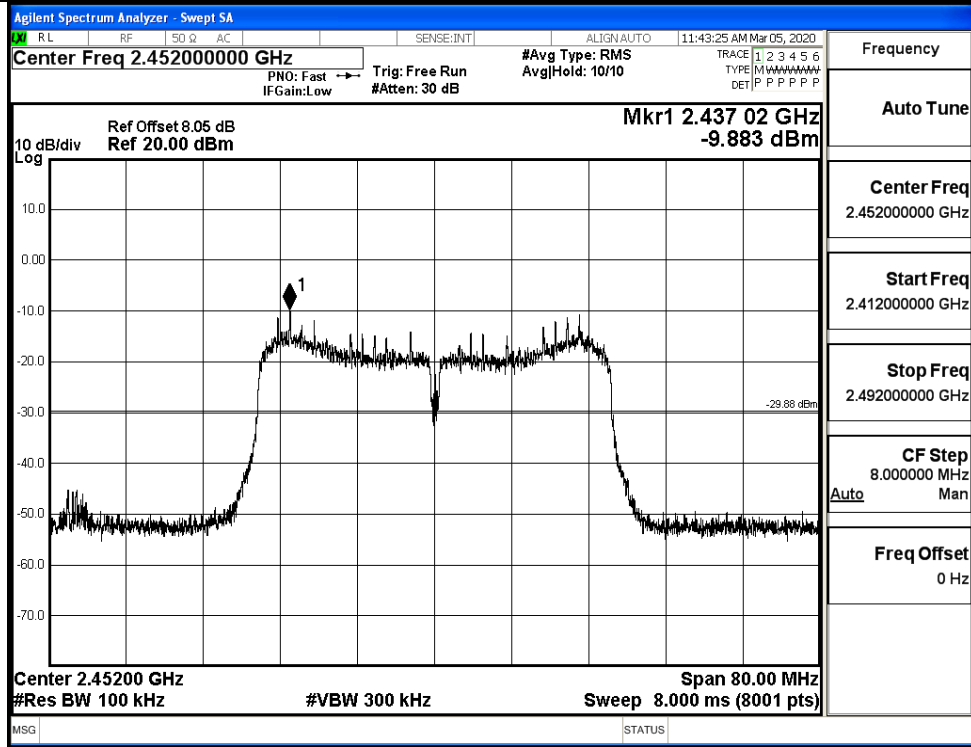


Puw/11N40  
SISO/MCH

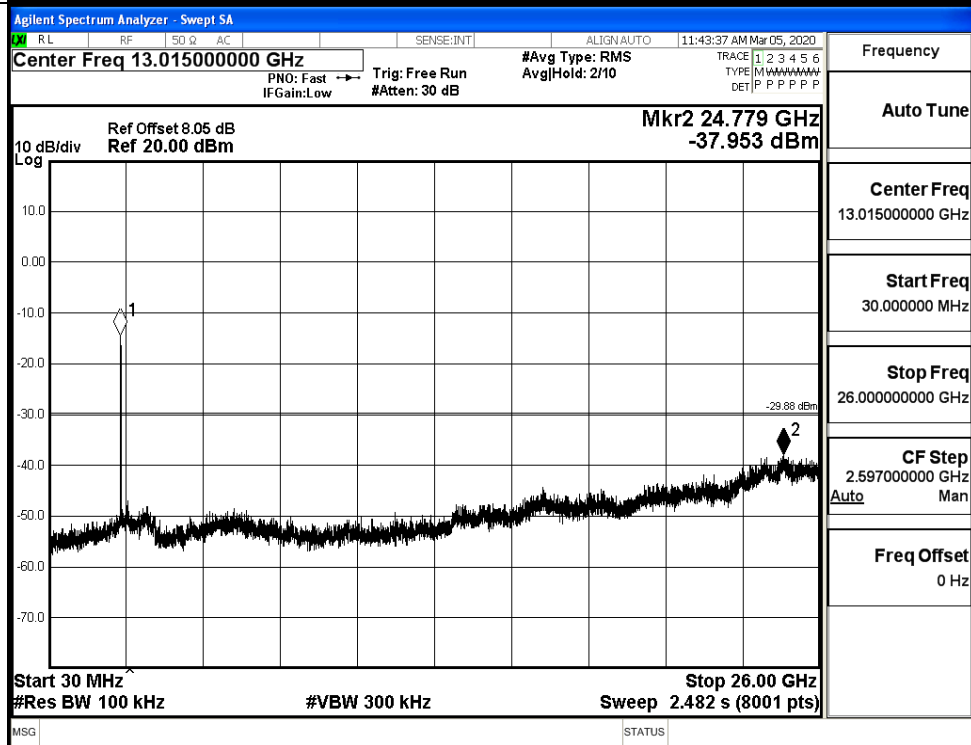


11N40SISO\_HCH\_Graphs

Pref/11N40  
SISO/HCH

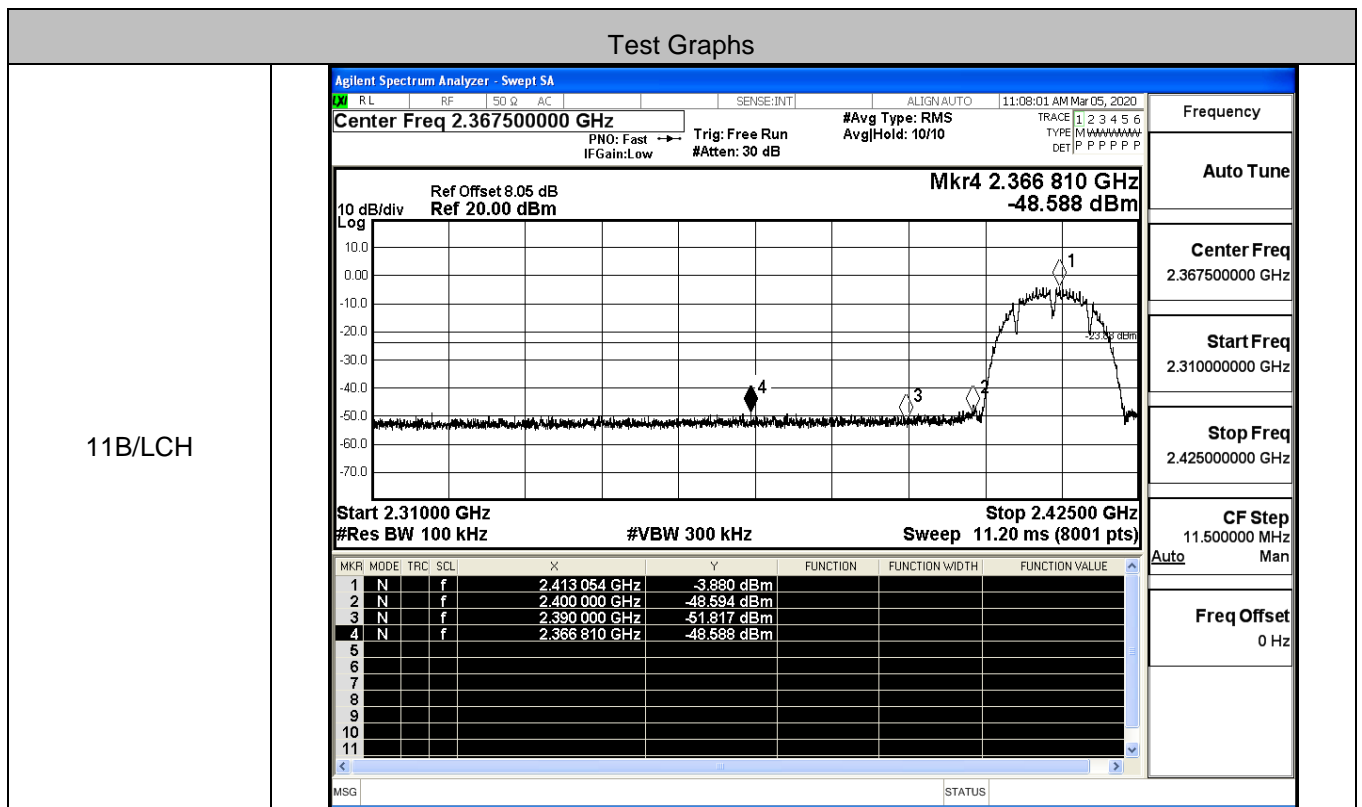


Puw/11N40  
SISO/HCH



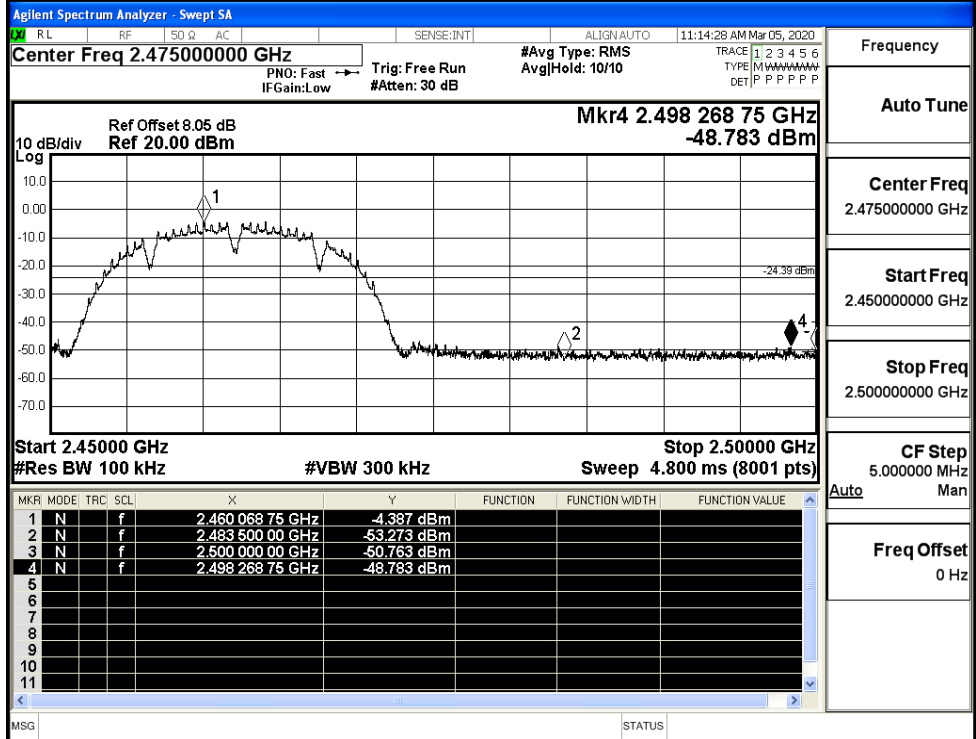
### A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.880	-48.588	-23.88	PASS
	HCH	-4.387	-48.783	-24.39	PASS
11G	LCH	-9.400	-49.322	-29.4	PASS
	HCH	-10.837	-49.203	-30.84	PASS
11N20SISO	LCH	-9.208	-48.873	-29.21	PASS
	HCH	-10.440	-48.906	-30.44	PASS
11N40SISO	LCH	-10.184	-48.927	-30.18	PASS
	HCH	-10.027	-49.108	-30.03	PASS



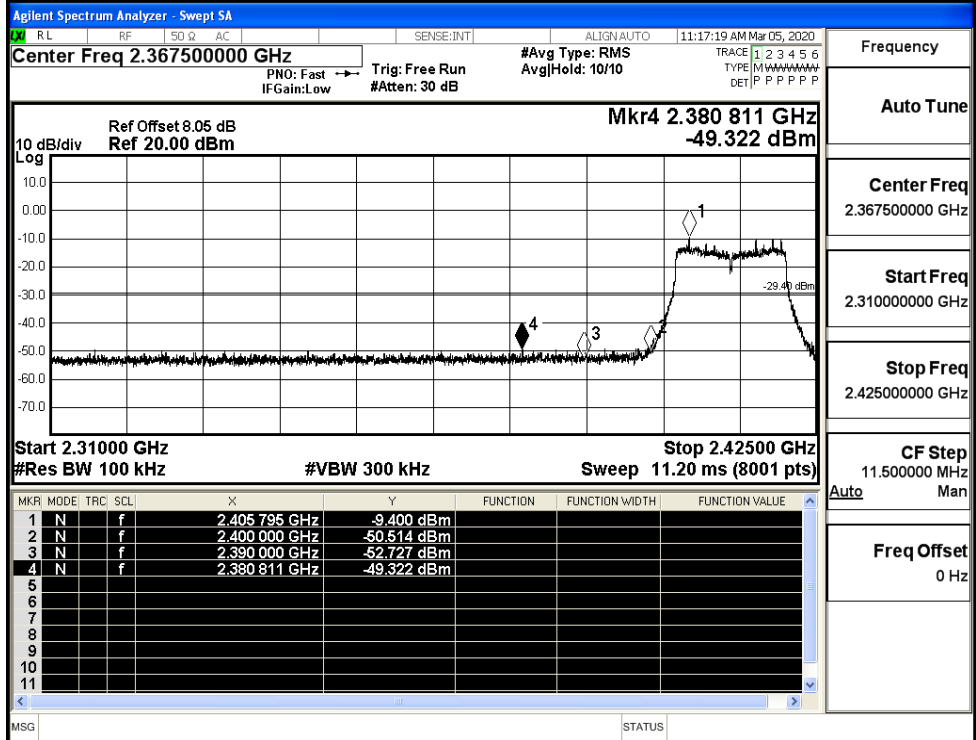


11B/HCH



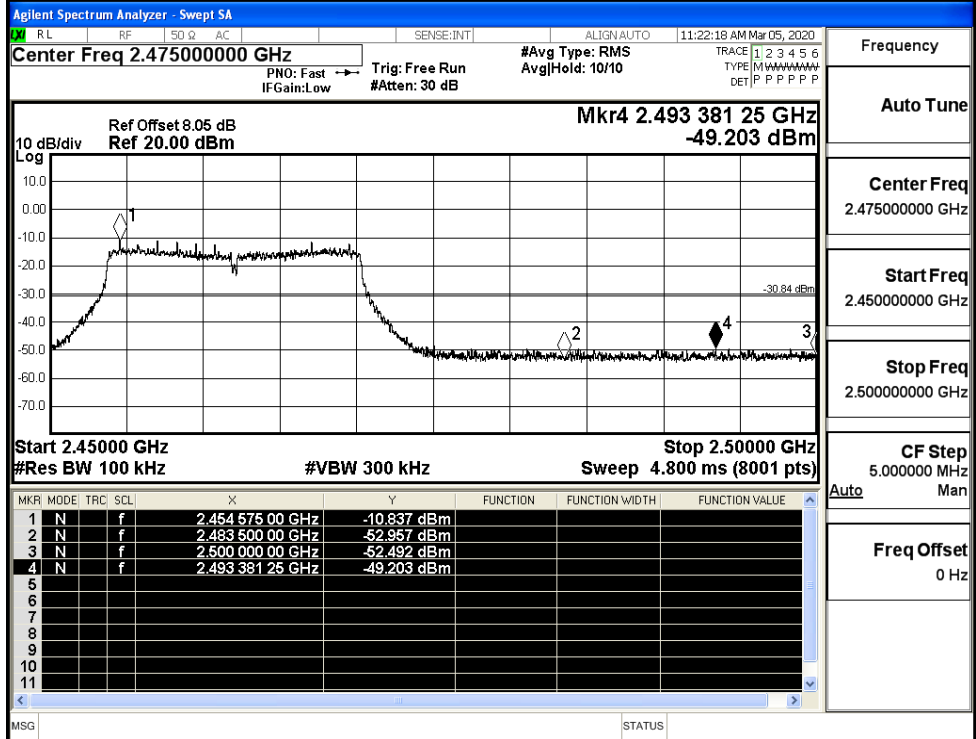
Frequency	Auto Tune
Center Freq	2.475000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.500000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11G/LCH



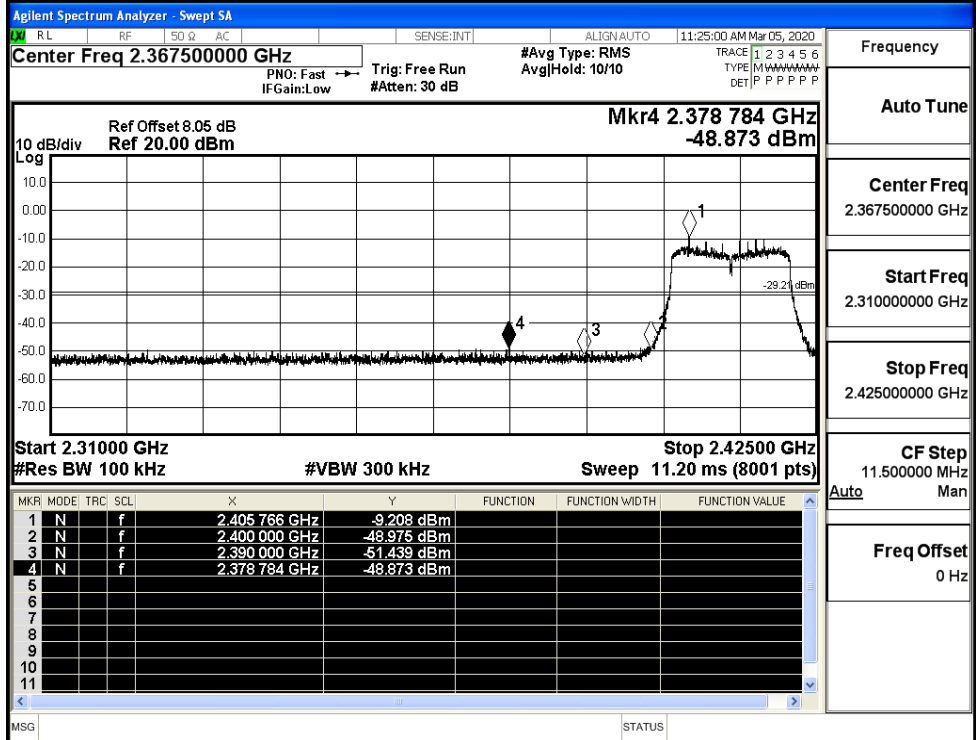
Frequency	Auto Tune
Center Freq	2.367500000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.425000000 GHz
CF Step	11.500000 MHz
Freq Offset	0 Hz

11G/HCH



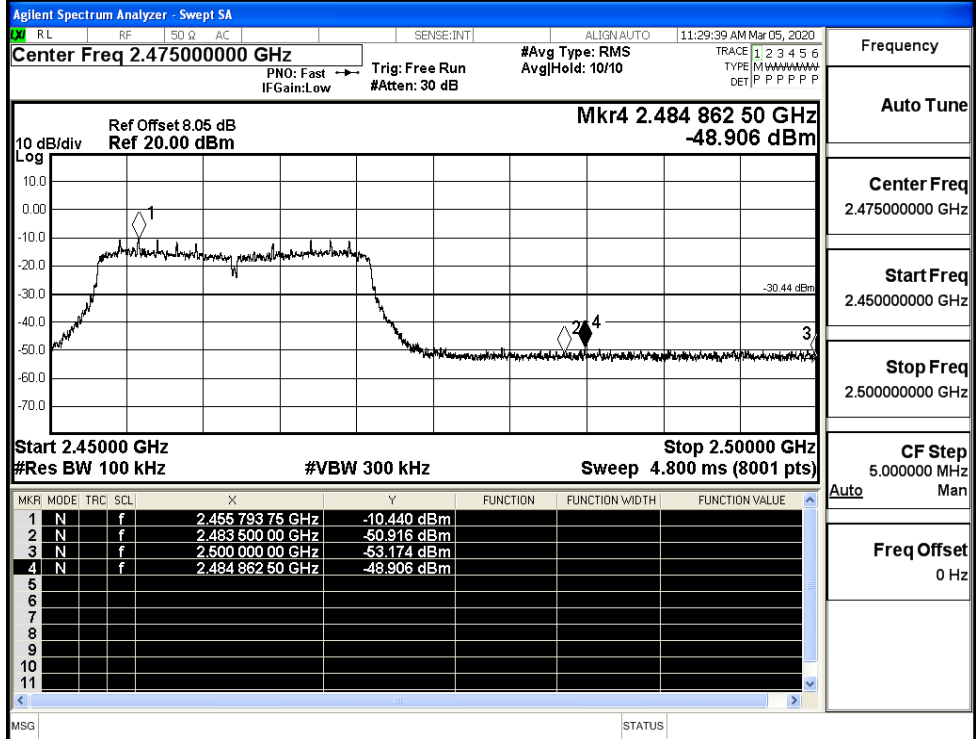
Frequency	2.475000000 GHz
Auto Tune	
Center Freq	2.475000000 GHz
Start Freq	2.450000000 GHz
Stop Freq	2.500000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH

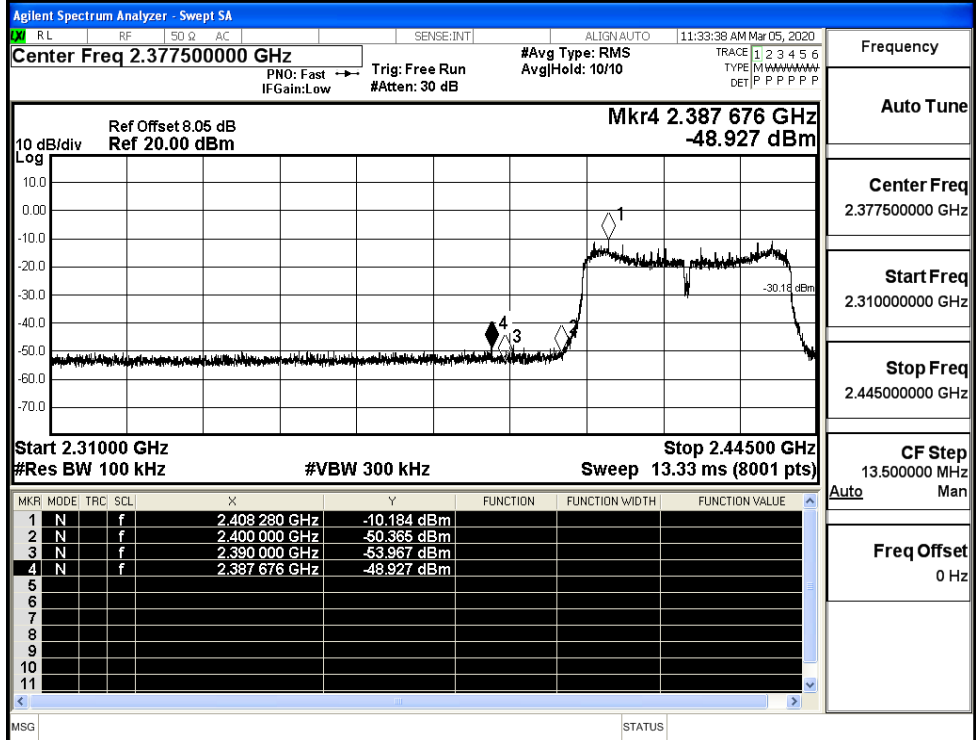


Frequency	2.367500000 GHz
Auto Tune	
Center Freq	2.367500000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.425000000 GHz
CF Step	11.500000 MHz
Freq Offset	0 Hz

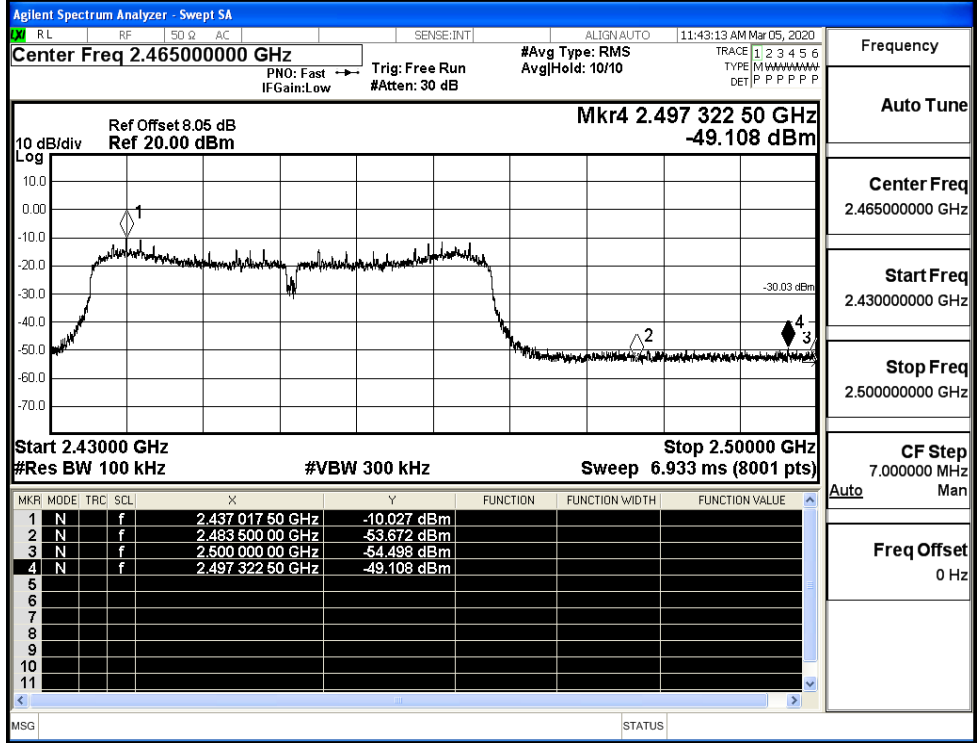
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

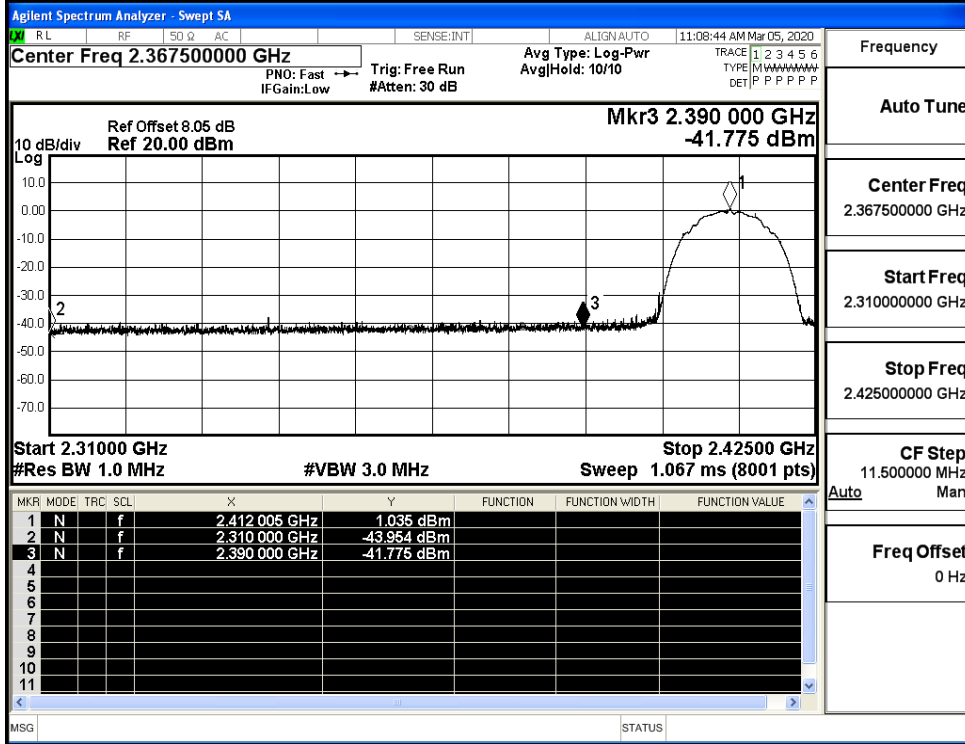


## A.7 Restrict-band band-edge measurements

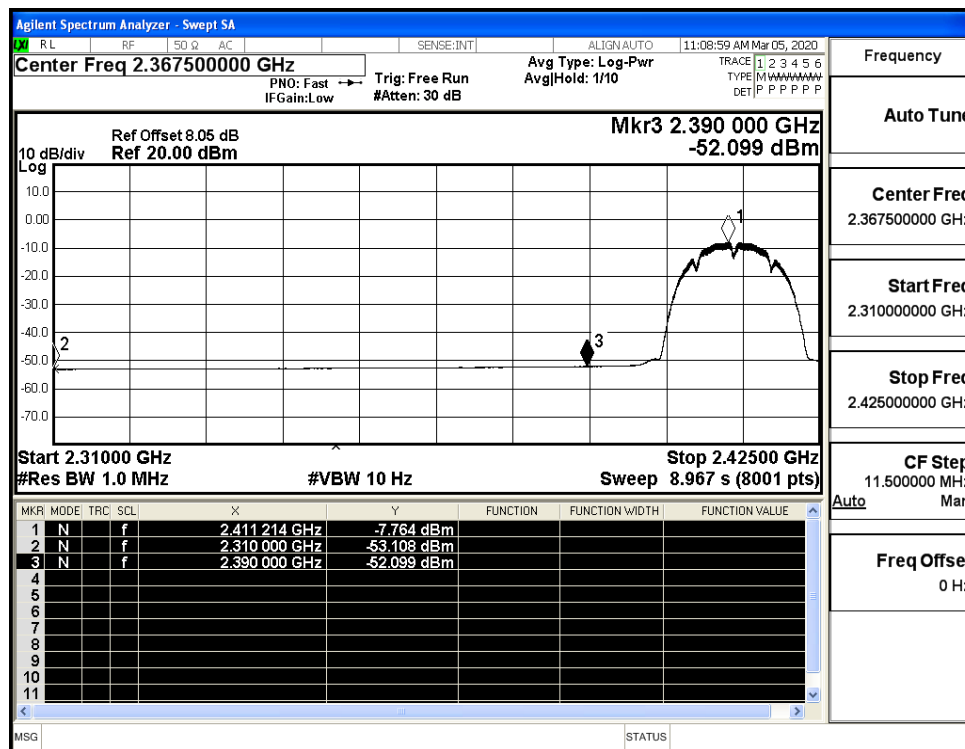
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBu V/m]	Verdict
11B	2412	Ant1	2310.0	-43.95	2.0	0	53.30	PEAK	74	PASS
	2412	Ant1	2310.0	-53.11	2.0	0	44.15	AV	54	PASS
	2412	Ant1	2390.0	-41.78	2.0	0	55.48	PEAK	74	PASS
	2412	Ant1	2390.0	-52.10	2.0	0	45.16	AV	54	PASS
	2462	Ant1	2483.5	-40.93	2.0	0	56.32	PEAK	74	PASS
	2462	Ant1	2483.5	-52.17	2.0	0	45.09	AV	54	PASS
	2462	Ant1	2500.0	-42.85	2.0	0	54.41	PEAK	74	PASS
	2462	Ant1	2500.0	-52.13	2.0	0	45.13	AV	54	PASS
11G	2412	Ant1	2310.0	-42.61	2.0	0	54.65	PEAK	74	PASS
	2412	Ant1	2310.0	-53.44	2.0	0	43.82	AV	54	PASS
	2412	Ant1	2390.0	-41.47	2.0	0	55.79	PEAK	74	PASS
	2412	Ant1	2390.0	-52.80	2.0	0	44.46	AV	54	PASS
	2462	Ant1	2483.5	-42.40	2.0	0	54.86	PEAK	74	PASS
	2462	Ant1	2483.5	-52.54	2.0	0	44.72	AV	54	PASS
	2462	Ant1	2500.0	-42.61	2.0	0	54.64	PEAK	74	PASS
	2462	Ant1	2500.0	-52.44	2.0	0	44.82	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-42.17	2.0	0	55.09	PEAK	74	PASS
	2412	Ant1	2310.0	-53.41	2.0	0	43.85	AV	54	PASS
	2412	Ant1	2390.0	-41.97	2.0	0	55.29	PEAK	74	PASS
	2412	Ant1	2390.0	-52.75	2.0	0	44.50	AV	54	PASS
	2462	Ant1	2483.5	-41.91	2.0	0	55.35	PEAK	74	PASS
	2462	Ant1	2483.5	-52.57	2.0	0	44.69	AV	54	PASS
	2462	Ant1	2500.0	-42.17	2.0	0	55.09	PEAK	74	PASS
	2462	Ant1	2500.0	-52.48	2.0	0	44.78	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.52	2.0	0	54.74	PEAK	74	PASS
	2422	Ant1	2310.0	-53.49	2.0	0	43.76	AV	54	PASS

	2422	Ant1	2390.0	-42.73	2.0	0	54.53	PEAK	74	PASS
	2422	Ant1	2390.0	-52.73	2.0	0	44.53	AV	54	PASS
	2452	Ant1	2483.5	-41.83	2.0	0	55.43	PEAK	74	PASS
	2452	Ant1	2483.5	-52.67	2.0	0	44.59	AV	54	PASS
	2452	Ant1	2500.0	-41.02	2.0	0	56.24	PEAK	74	PASS
	2452	Ant1	2500.0	-52.53	2.0	0	44.72	AV	54	PASS

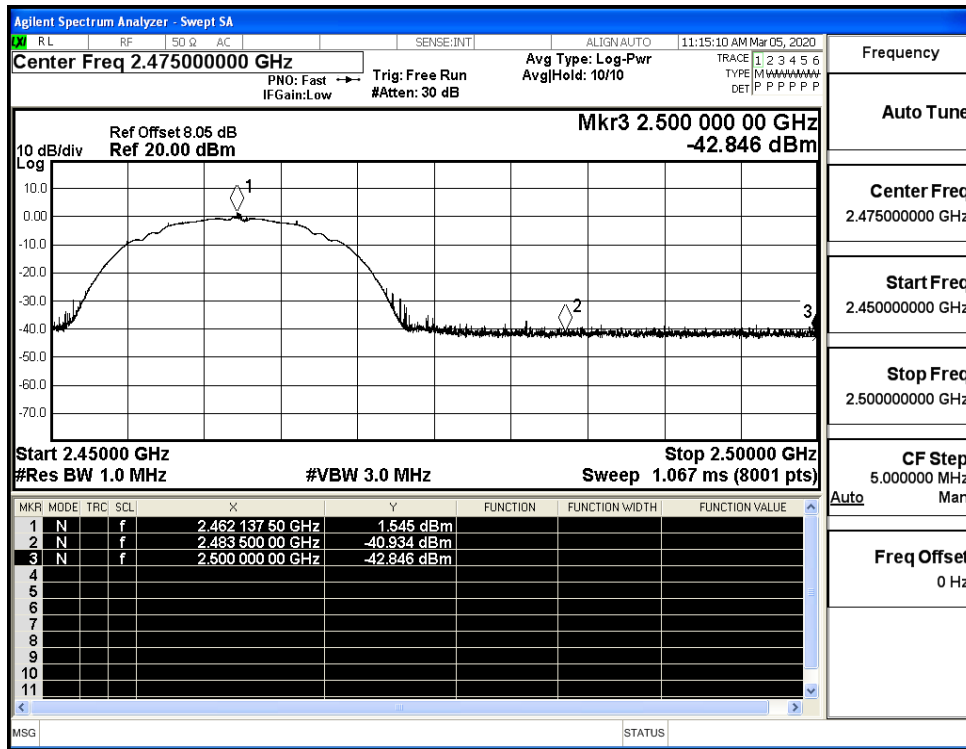
Restrict-band band-edge measurements\_11B\_2412\_Ant1\_PEAK



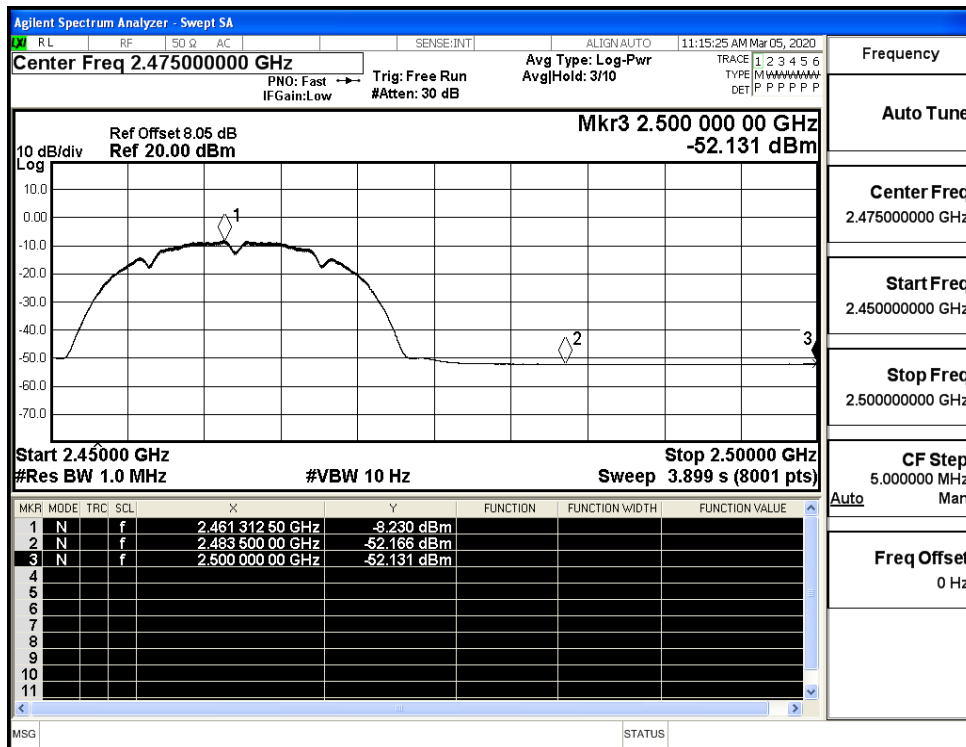
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Restrict-band band-edge measurements\_11B\_2462\_Ant1\_PEAK

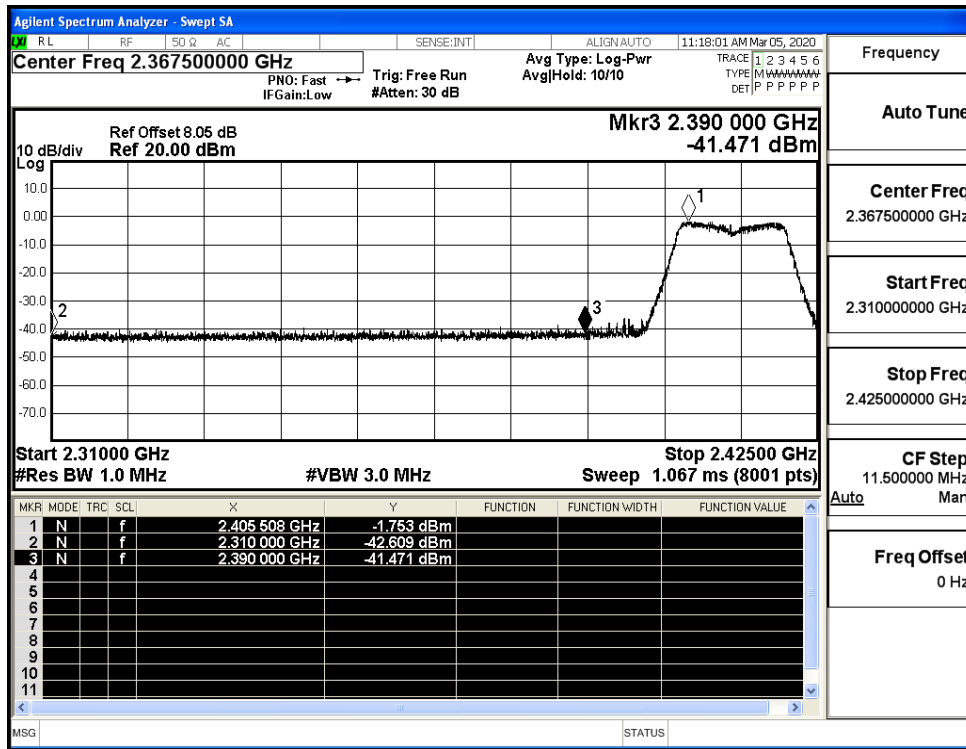


Restrict-band band-edge measurements\_11B\_2462\_Ant1\_AV

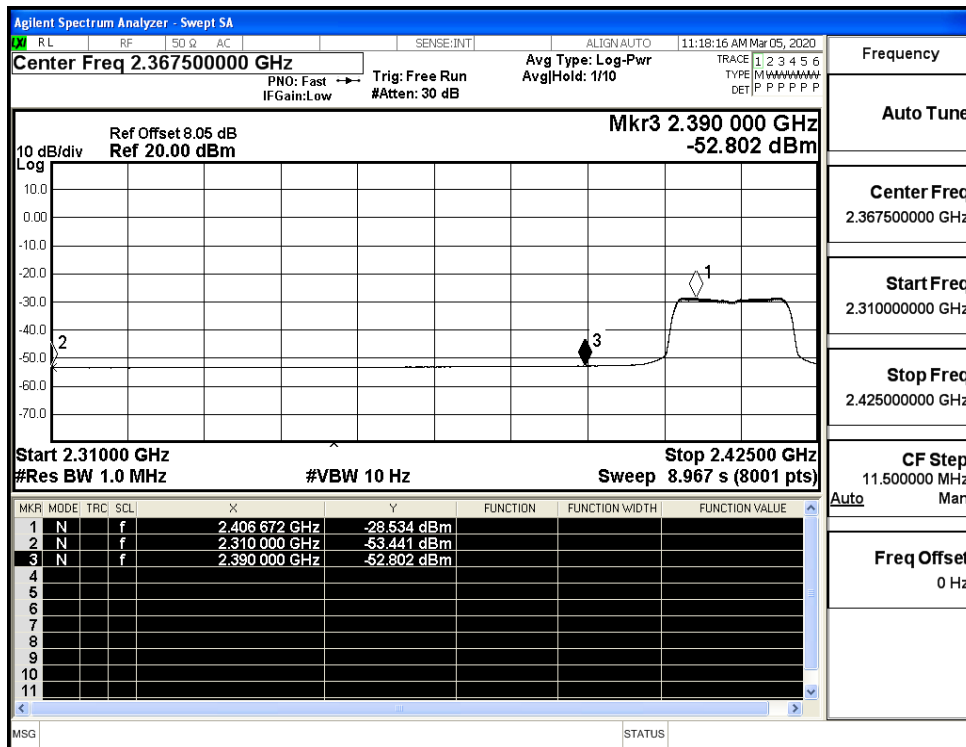




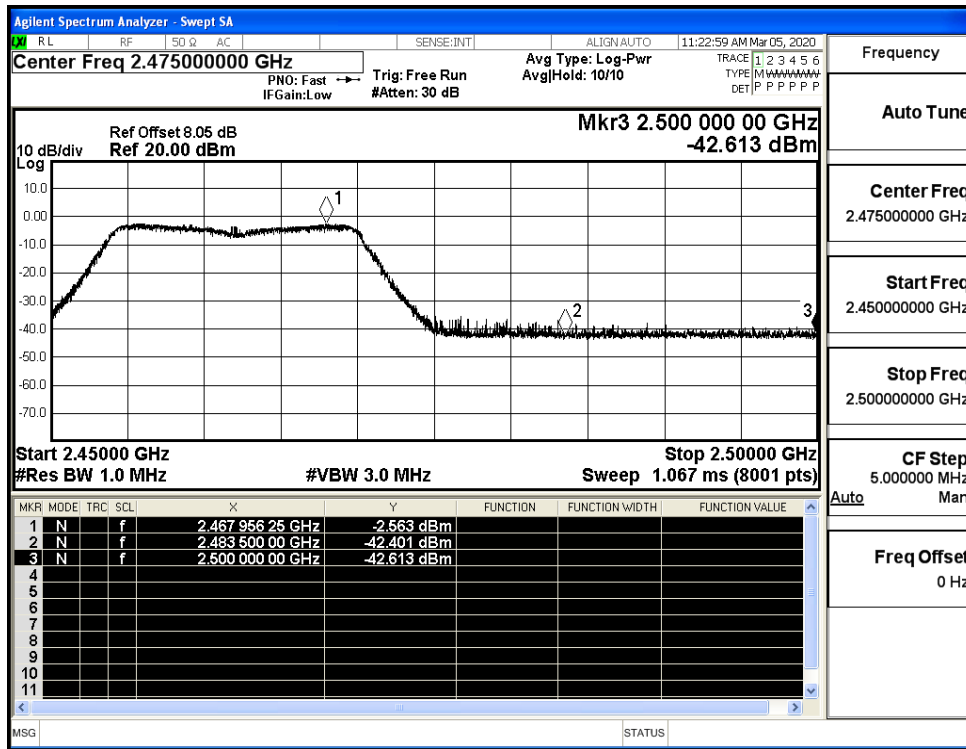
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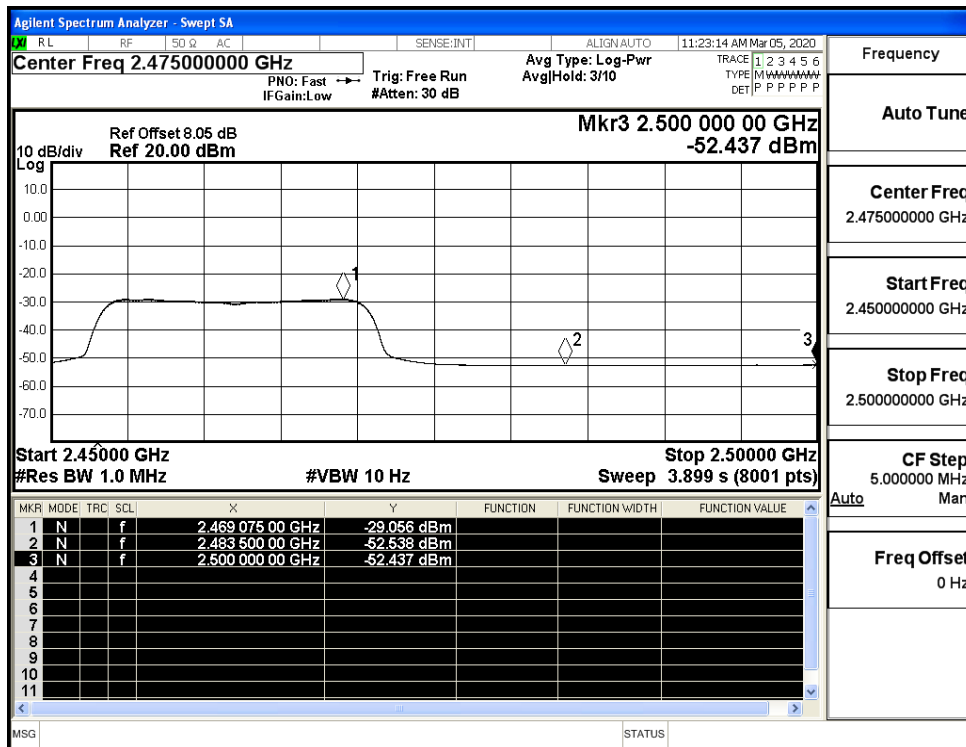
Restrict-band band-edge measurements\_11G\_2412\_Ant1\_AV



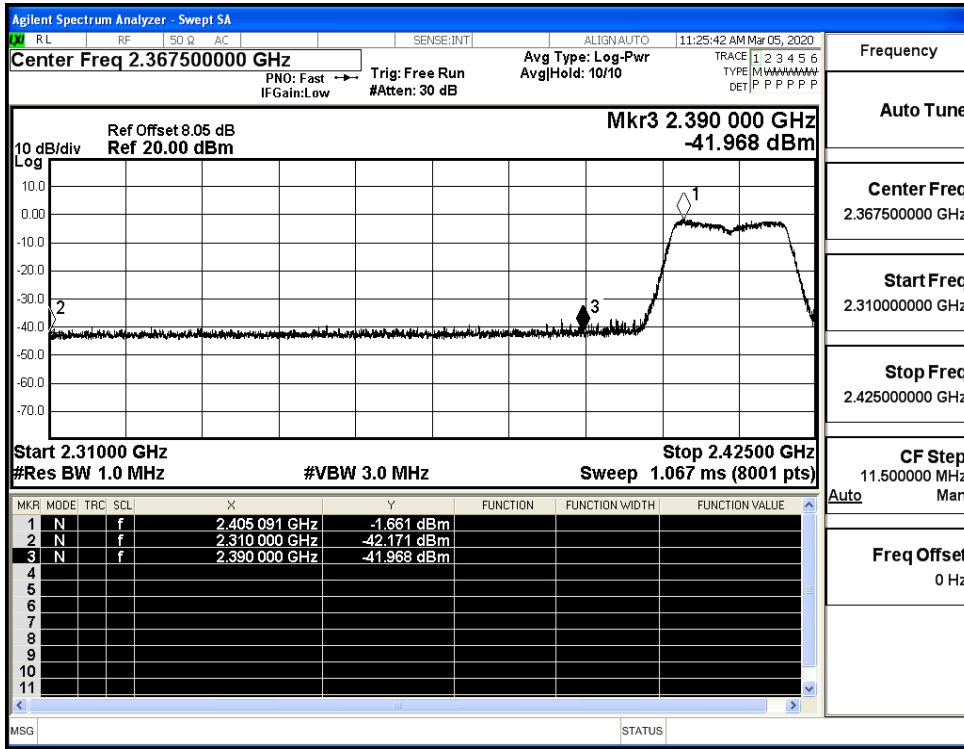
Restrict-band band-edge measurements\_11G\_2462\_Ant1\_PEAK



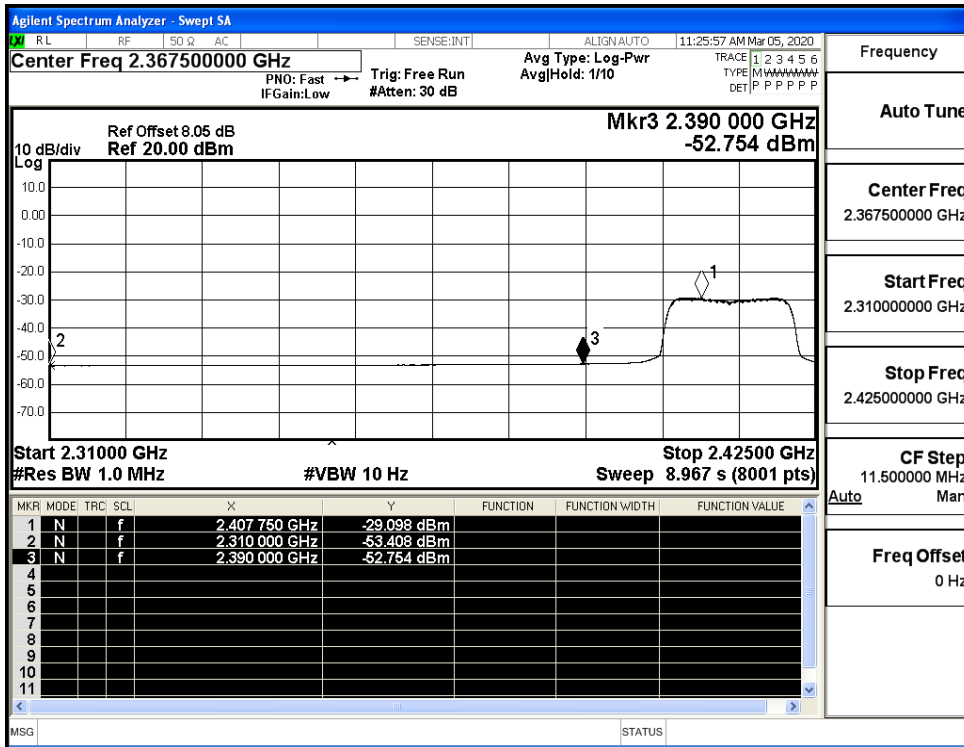
Restrict-band band-edge measurements\_11G\_2462\_Ant1\_AV



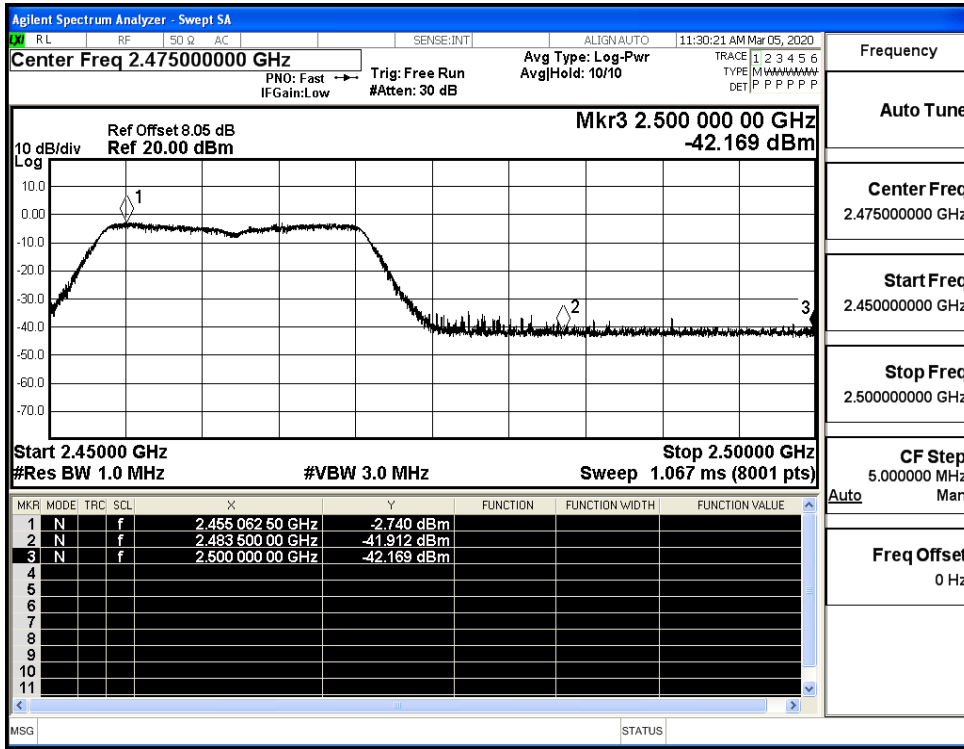
Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_PEAK



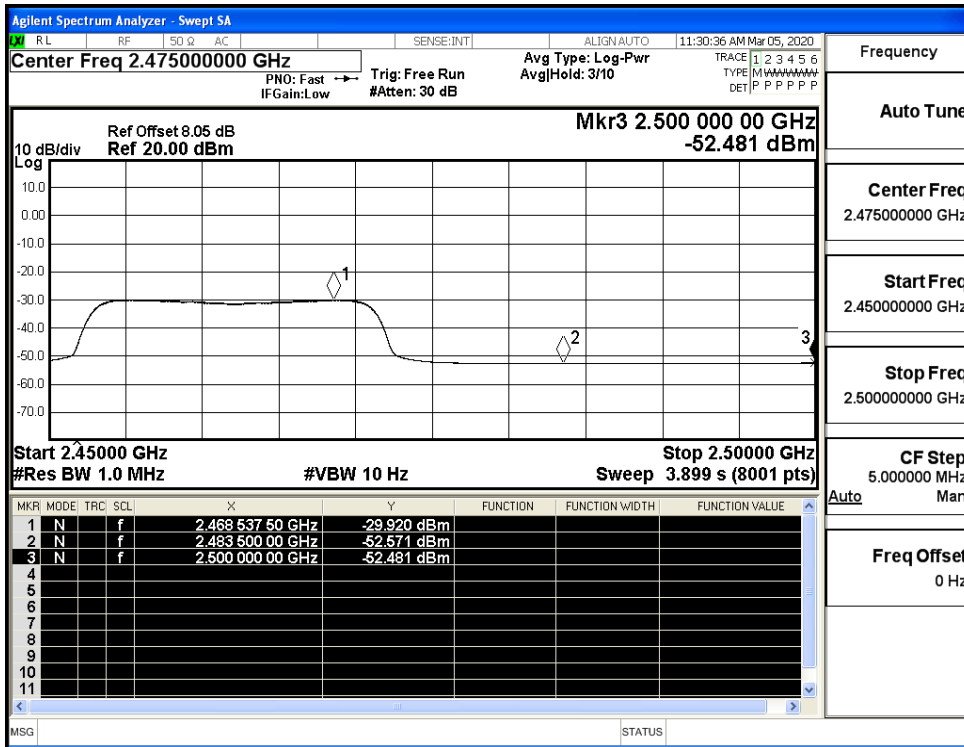
Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_AV



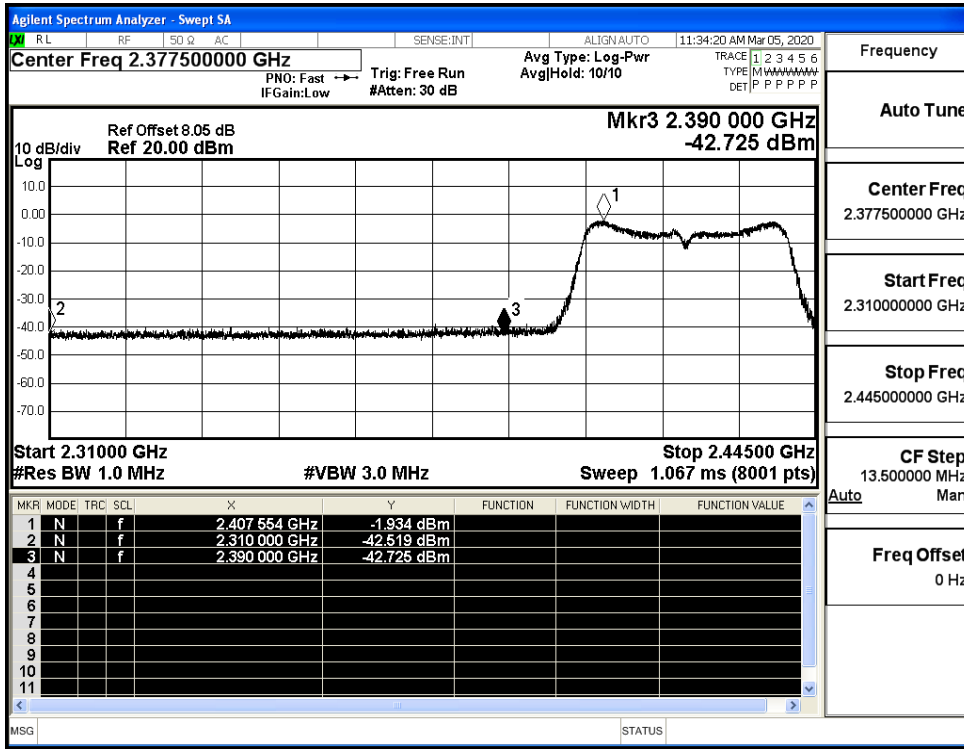
Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_PEAK



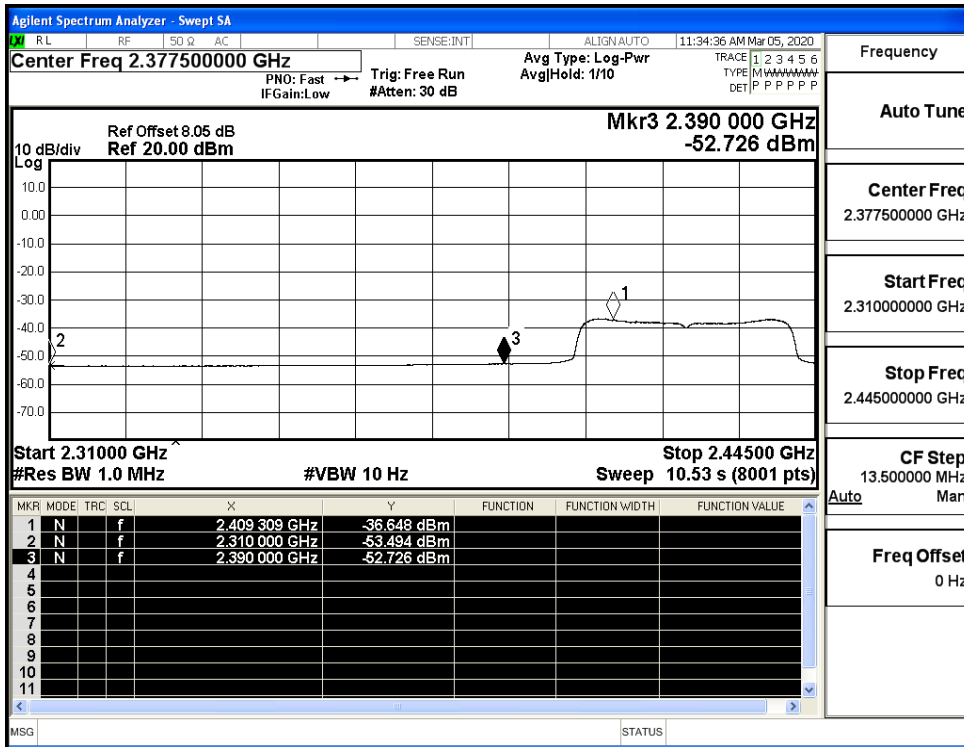
Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_AV



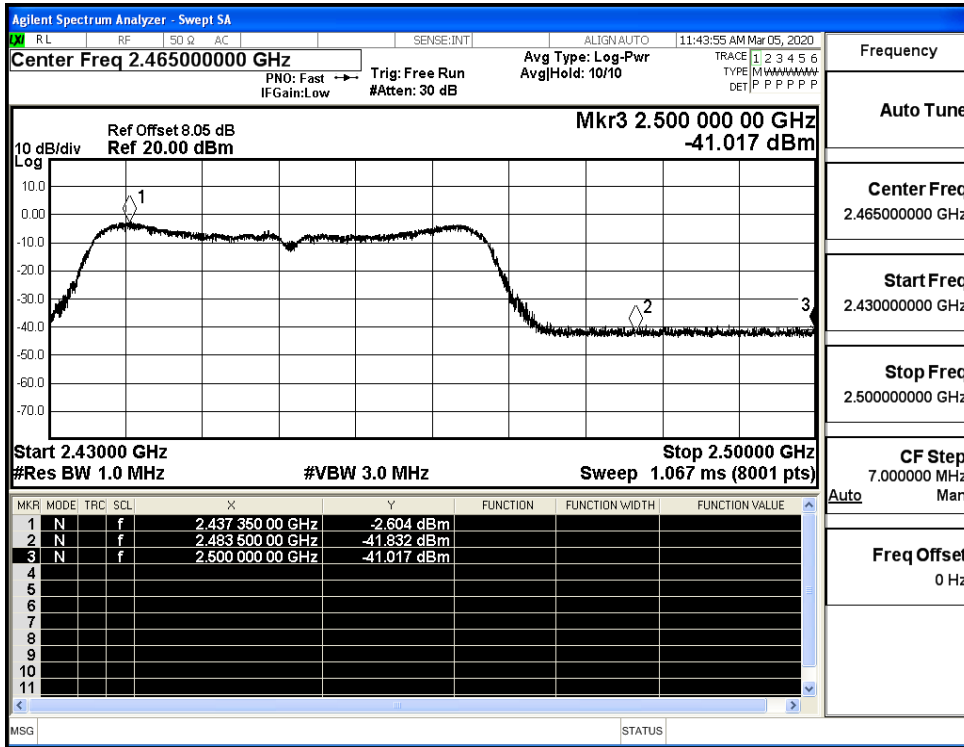
Restrict-band band-edge measurements\_11N40SISO\_2422\_Ant1\_PEAK



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

