

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: QHD Wireless IP Camera

Trade Mark: FOSCAM

Test Model: D4Z

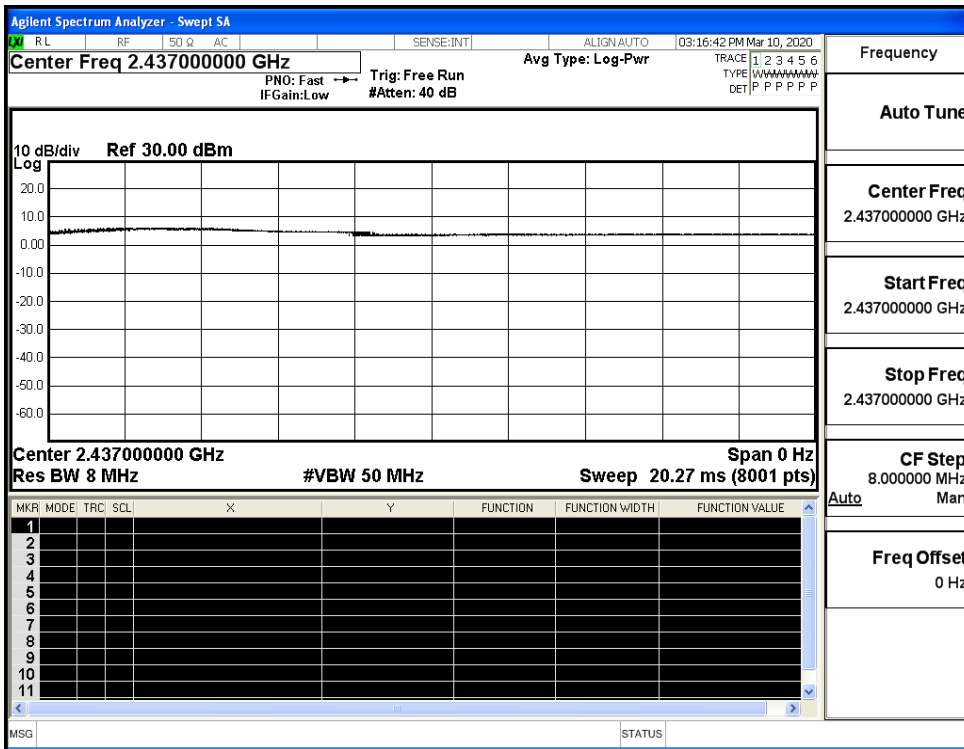
Environmental Conditions

Temperature:	22.8 ° C
Relative Humidity:	54.5%
ATM Pressure:	100.0 kPa
Test Engineer:	SCOUT WU
Supervised by:	Tom.Liu

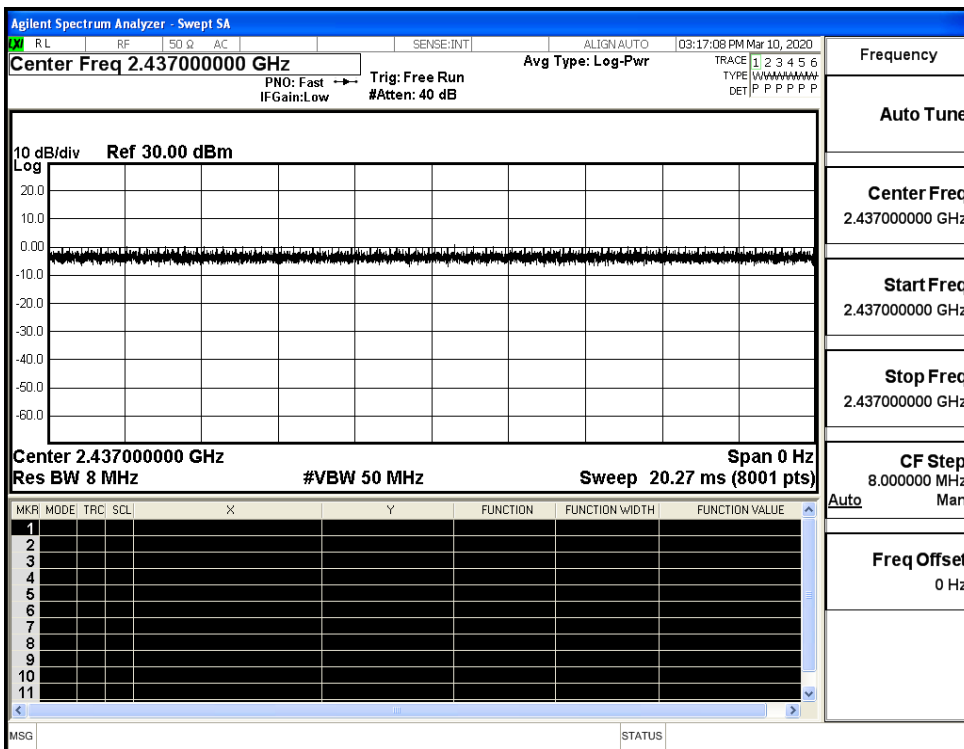
A.1 Duty Cycle

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

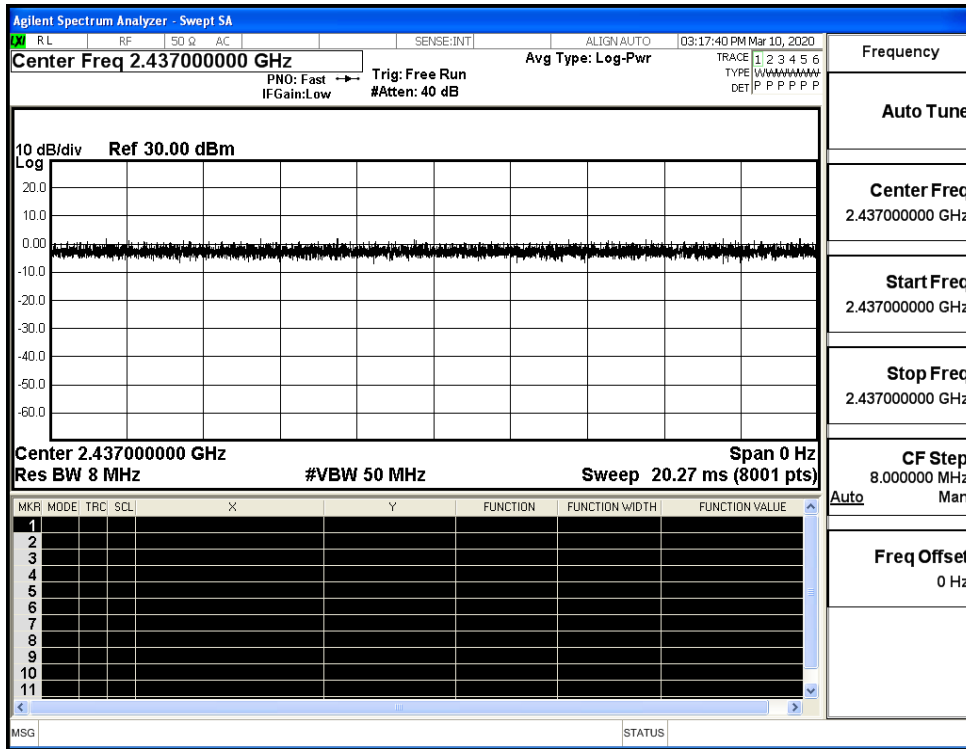
Duty Cycle_11B_2437_Ant1



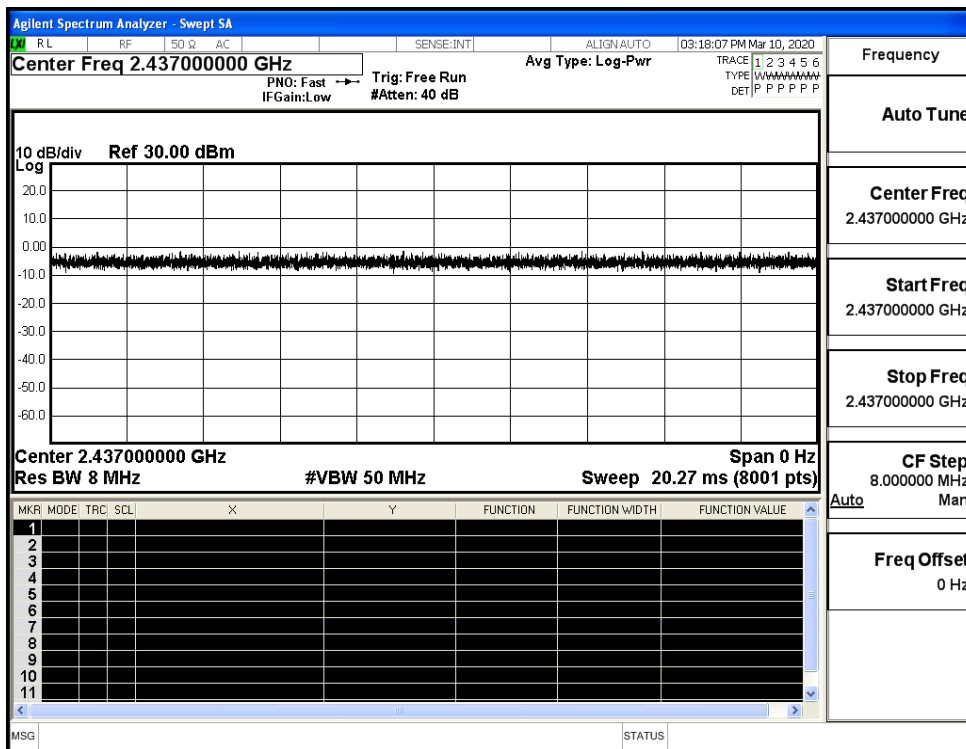
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

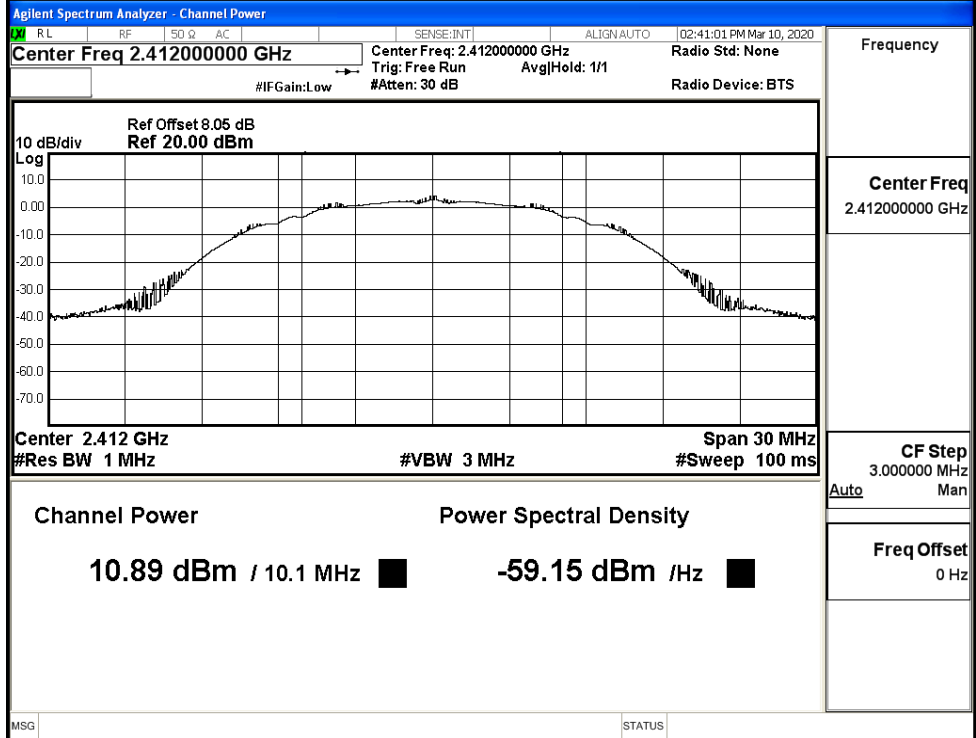


A.2 Maximum Conducted Output Power

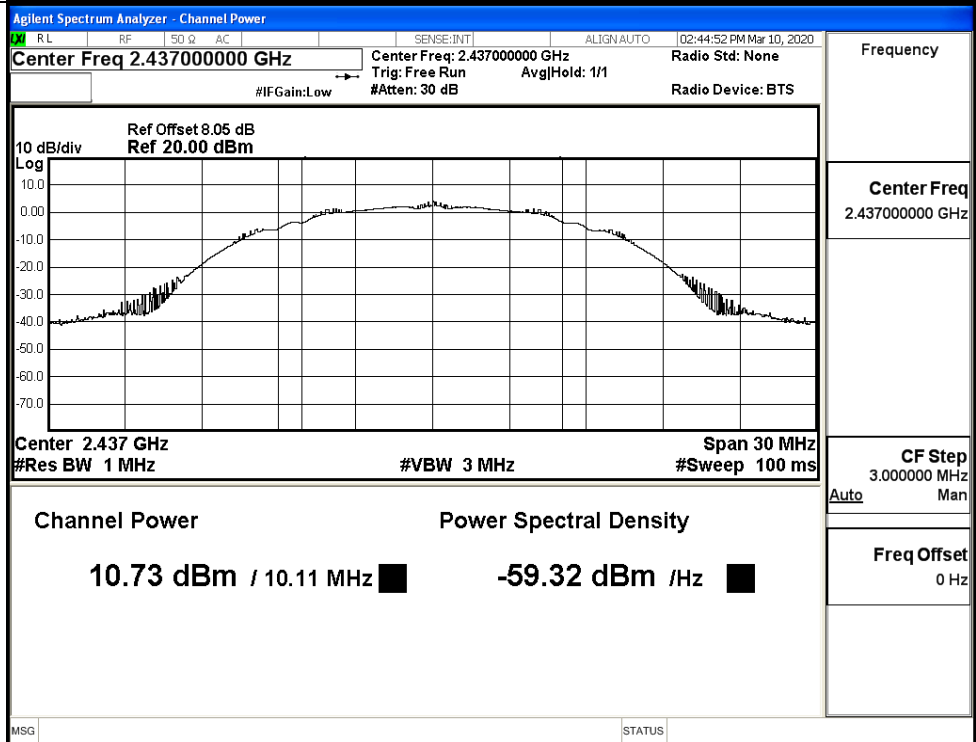
Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	10.89	30	PASS
	MCH	10.73	30	PASS
	HCH	10.13	30	PASS
11G	LCH	11.74	30	PASS
	MCH	11.28	30	PASS
	HCH	10.75	30	PASS
11N20SISO	LCH	11.43	30	PASS
	MCH	11.2	30	PASS
	HCH	10.65	30	PASS
11N40SISO	LCH	11.77	30	PASS
	MCH	11.63	30	PASS
	HCH	10.83	30	PASS

Test Graphs

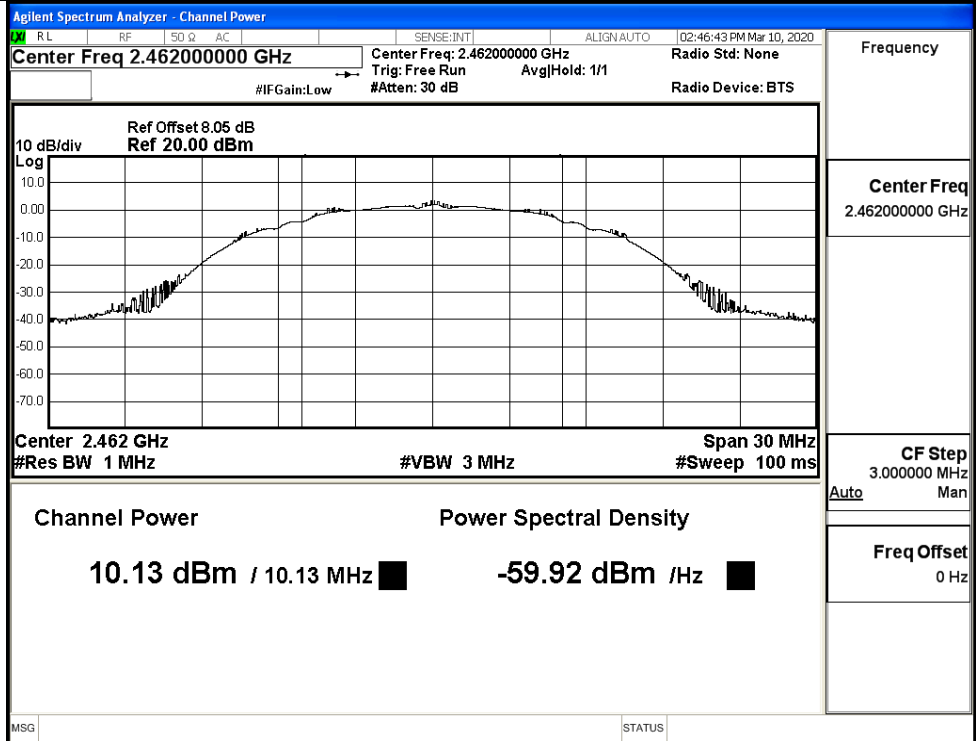
11B/LCH



11B/MCH

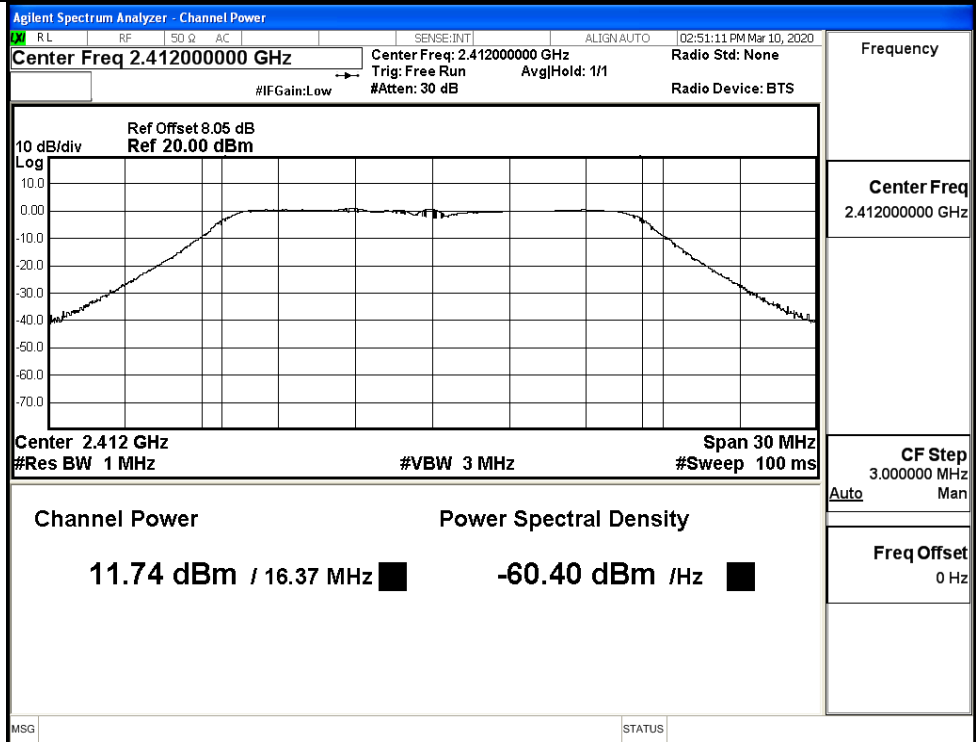


11B/HCH



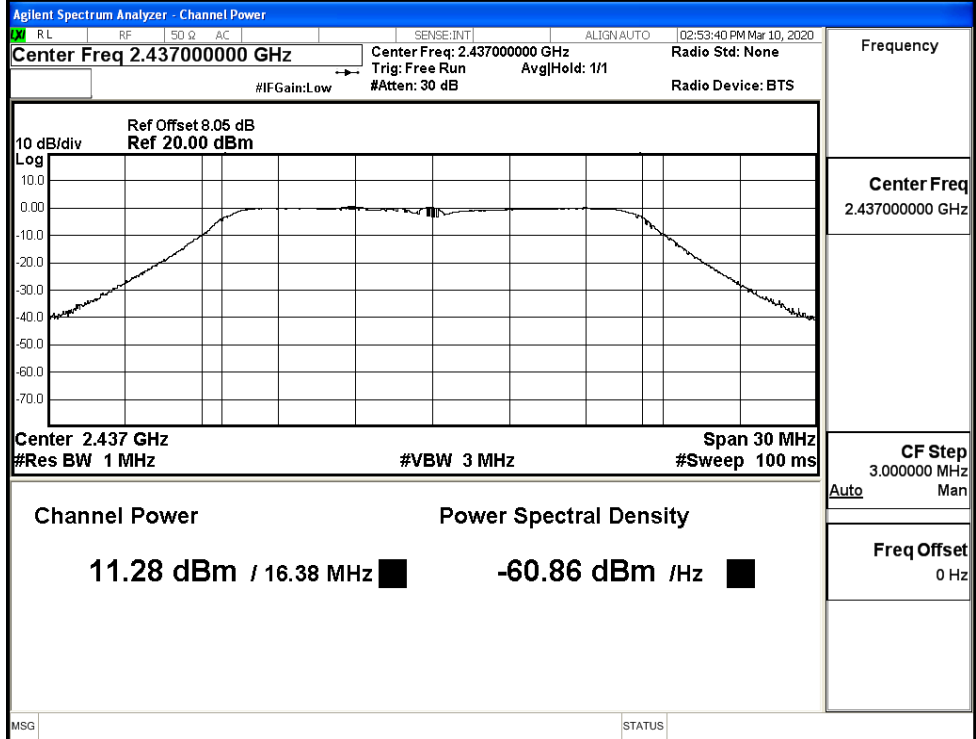
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH

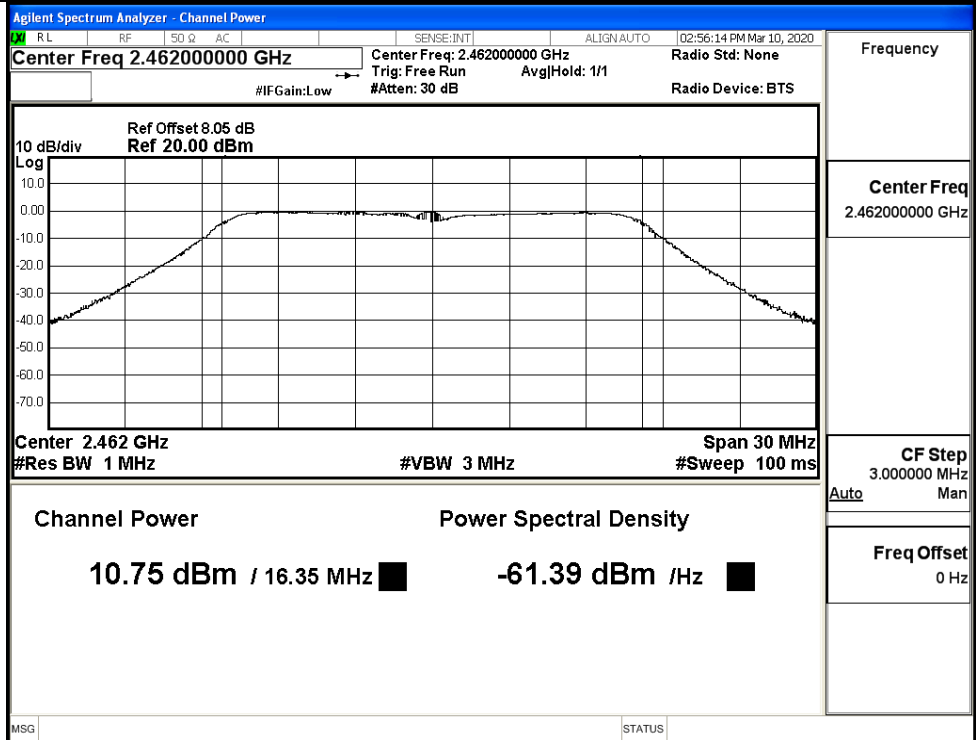


Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

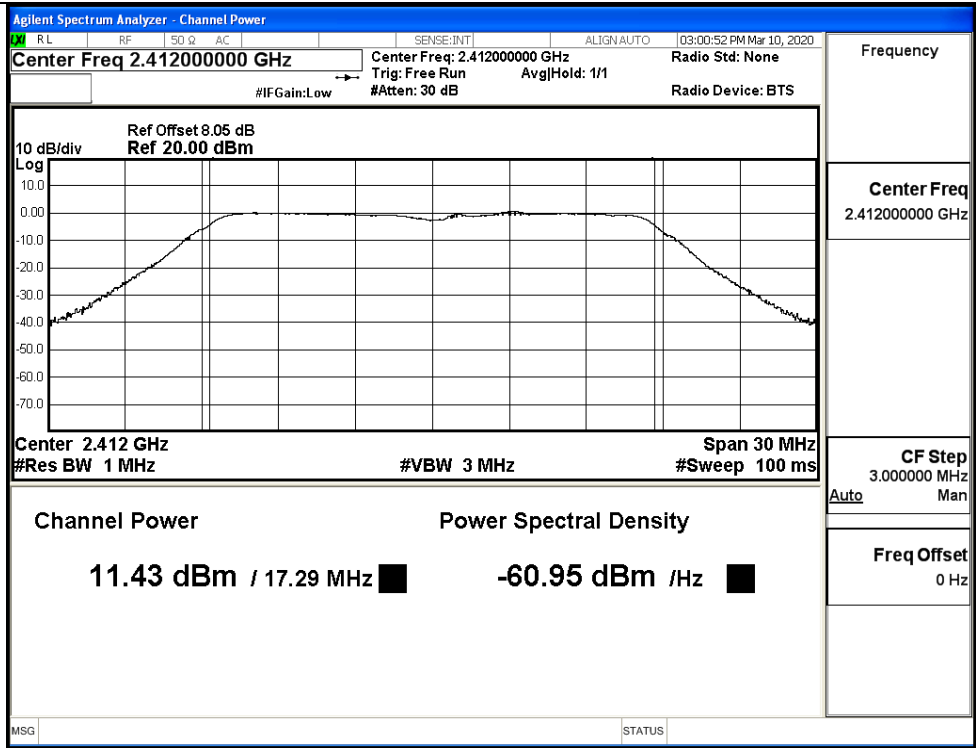
11G/MCH



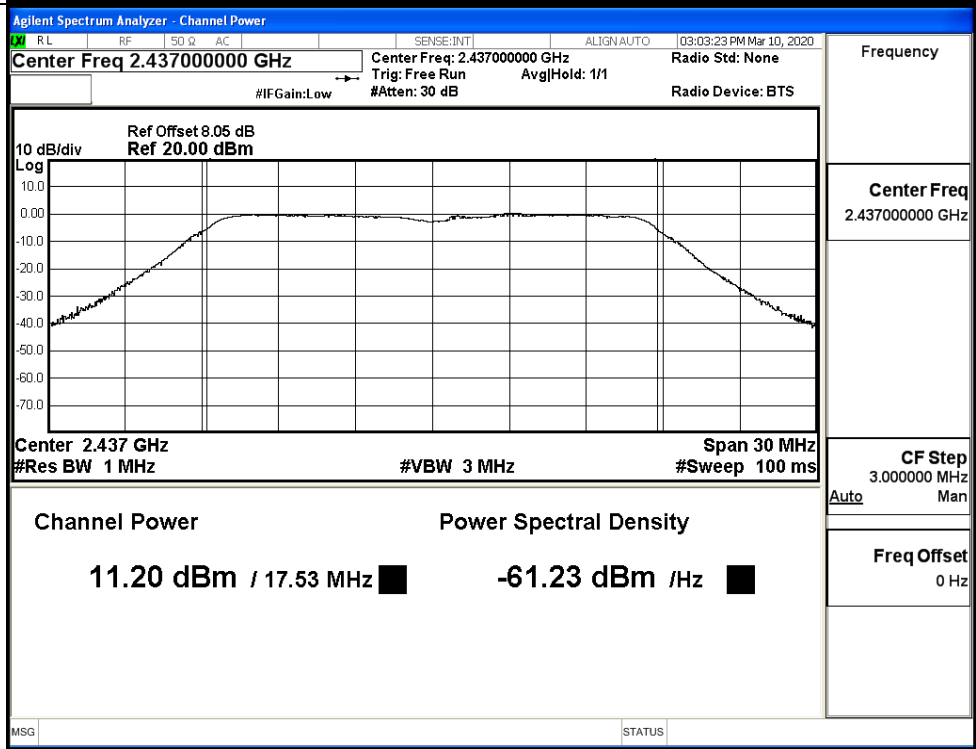
11G/HCH



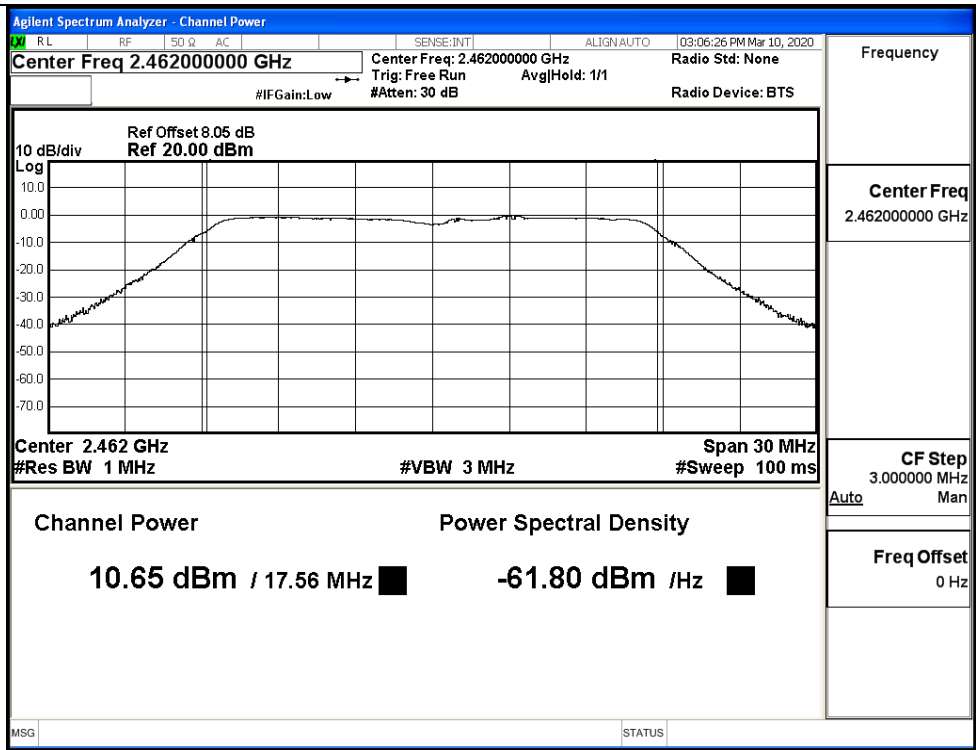
11N20SISO/LCH



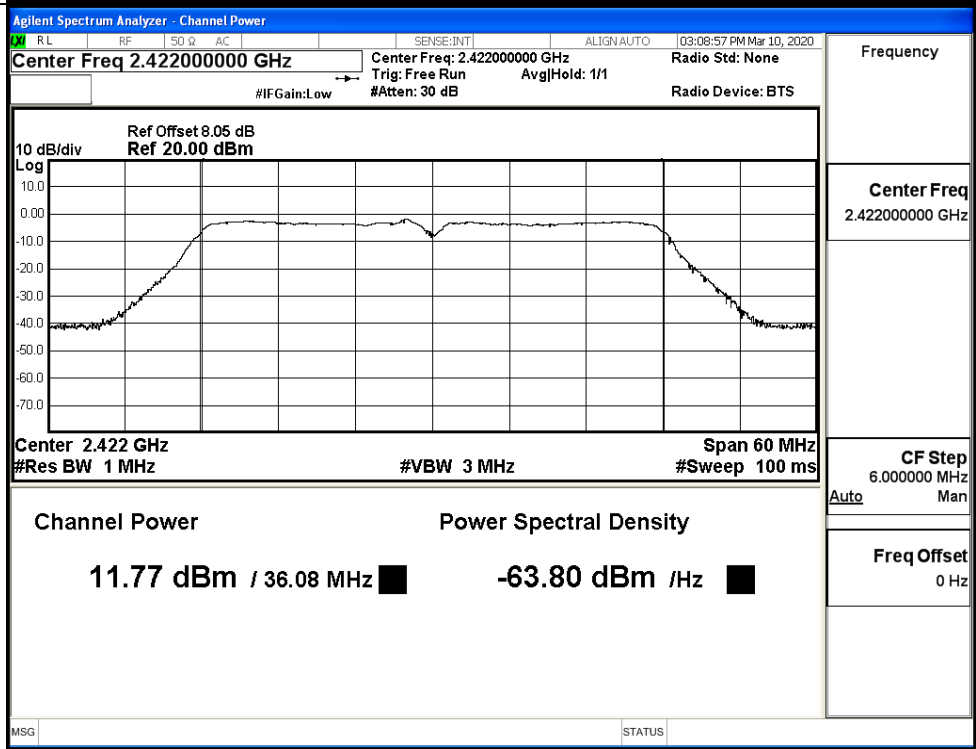
11N20SISO/MCH



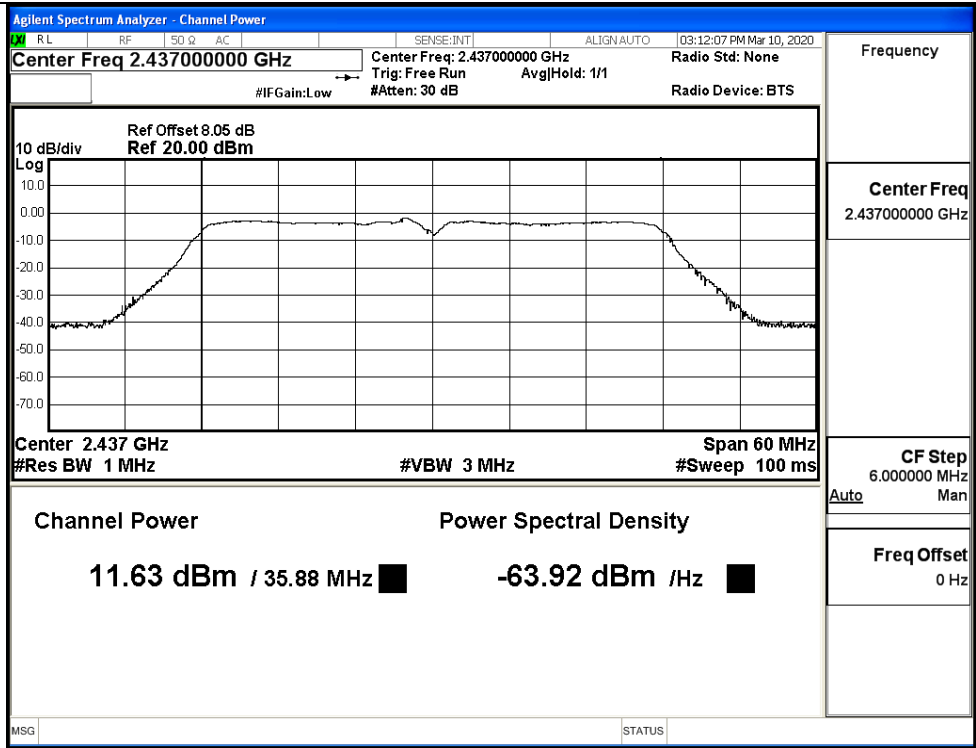
11N20SISO/HCH



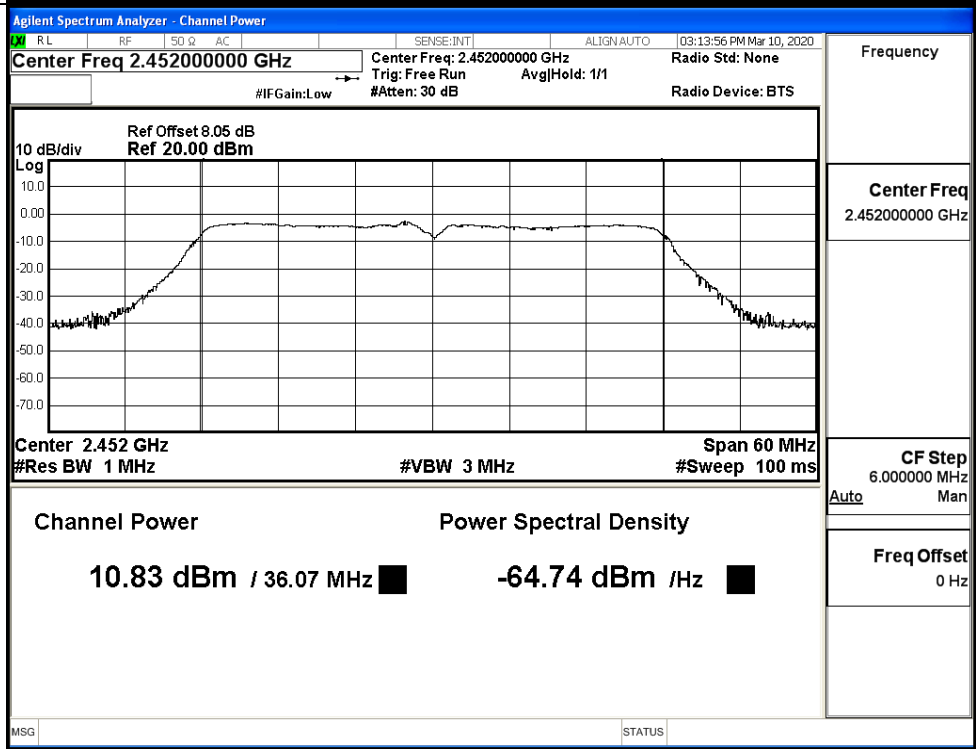
11N40SISO/LCH



11N40SISO/MCH



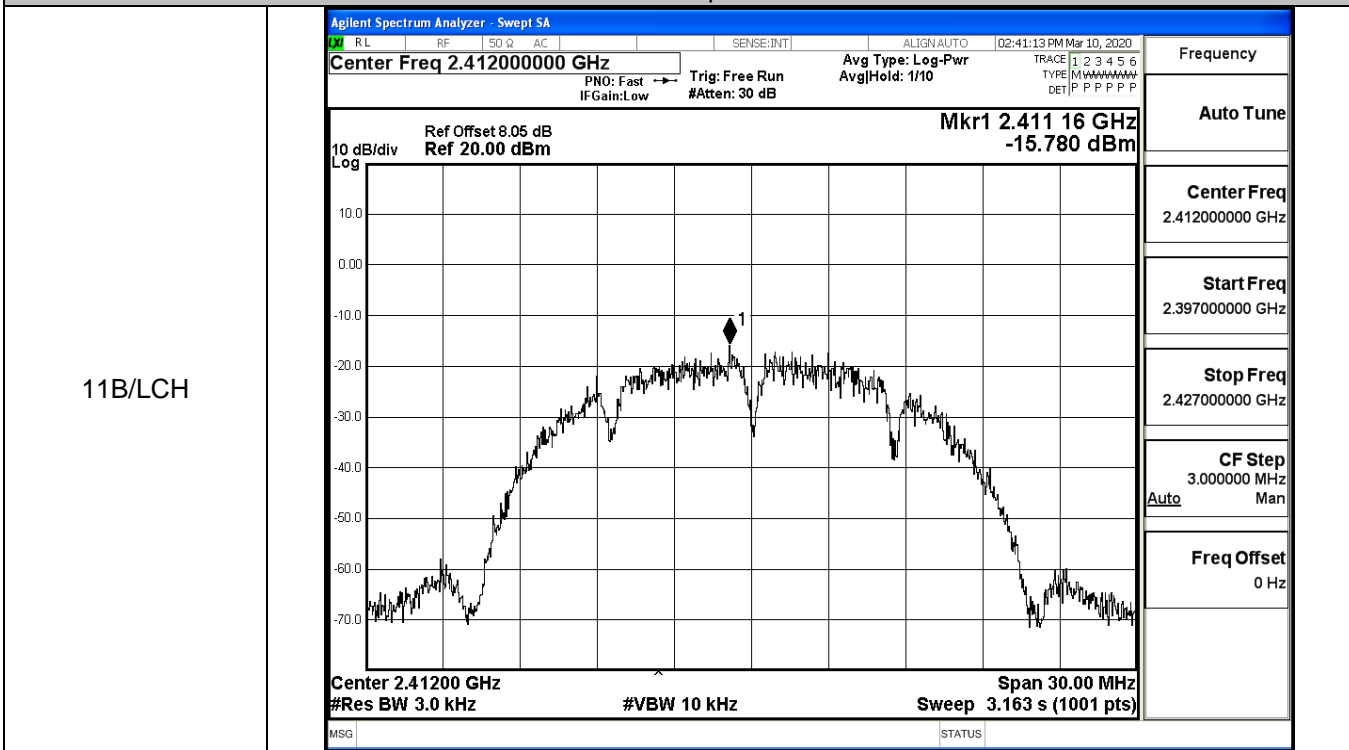
11N40SISO/HCH



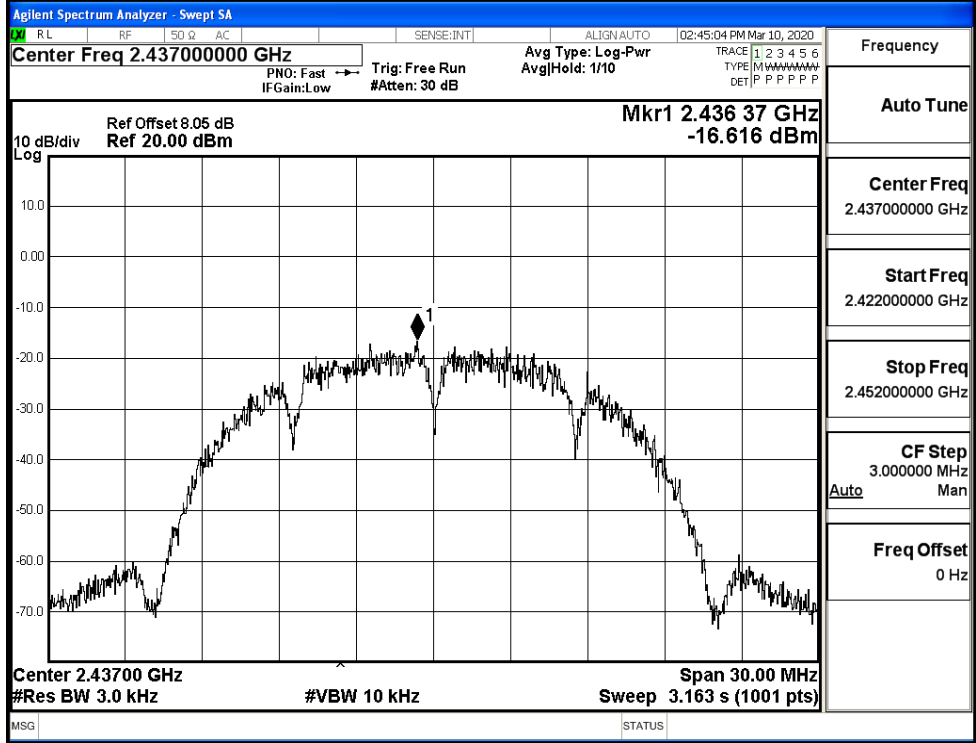
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-15.780	8	PASS
	MCH	-16.616	8	PASS
	HCH	-16.414	8	PASS
11G	LCH	-22.932	8	PASS
	MCH	-22.838	8	PASS
	HCH	-23.228	8	PASS
11N20SISO	LCH	-22.320	8	PASS
	MCH	-22.361	8	PASS
	HCH	-22.852	8	PASS
11N40SISO	LCH	-25.210	8	PASS
	MCH	-26.584	8	PASS
	HCH	-25.811	8	PASS

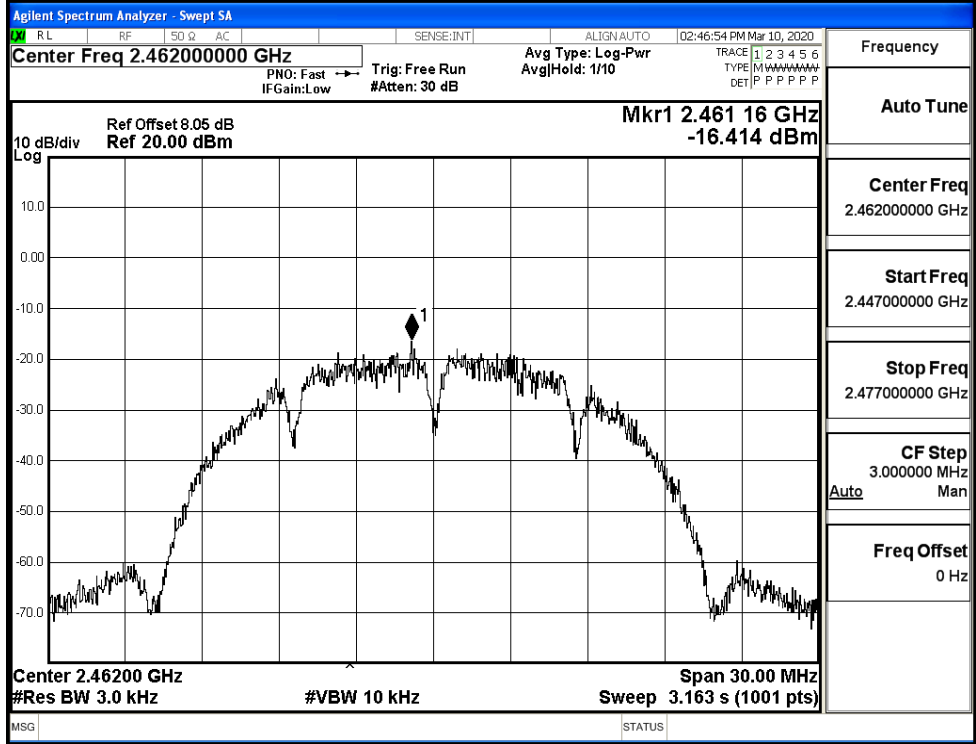
Test Graphs



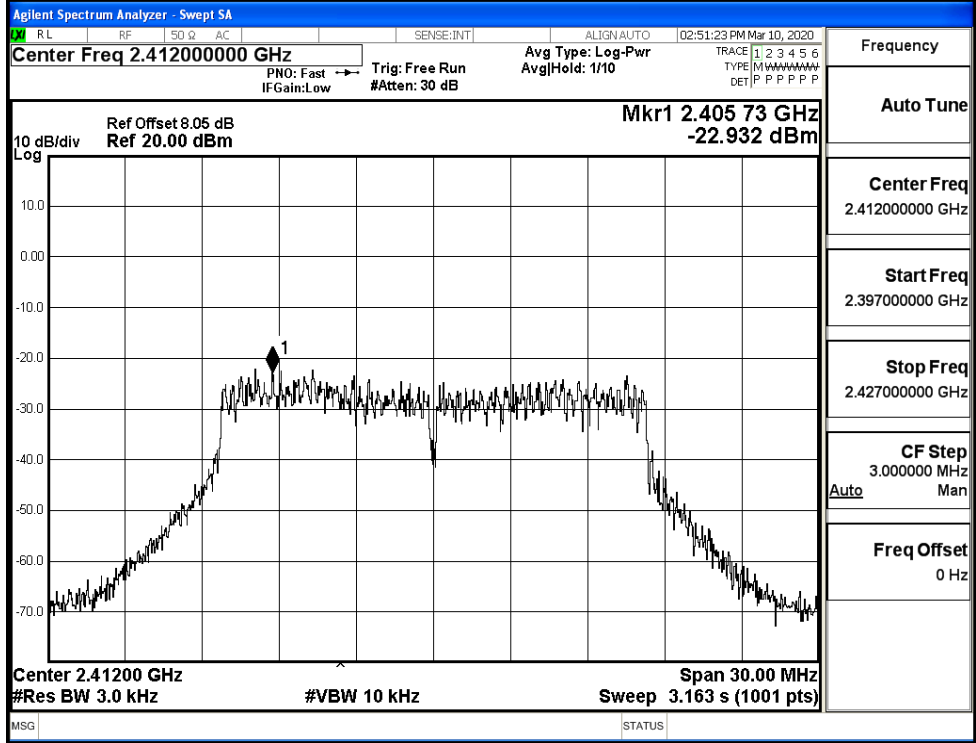
11B/MCH



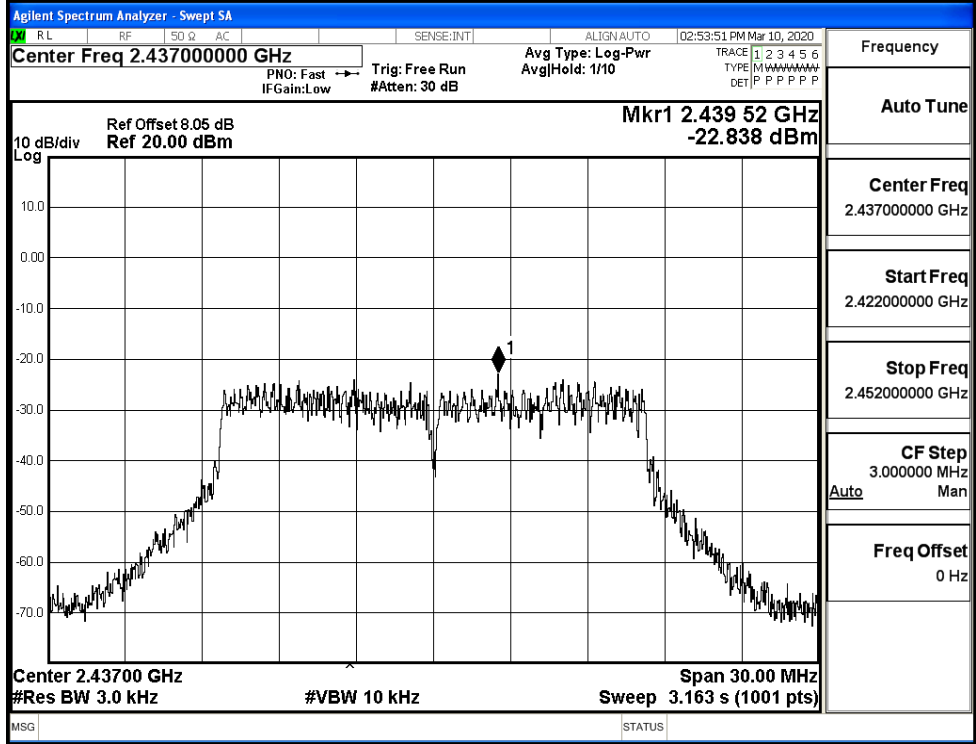
11B/HCH



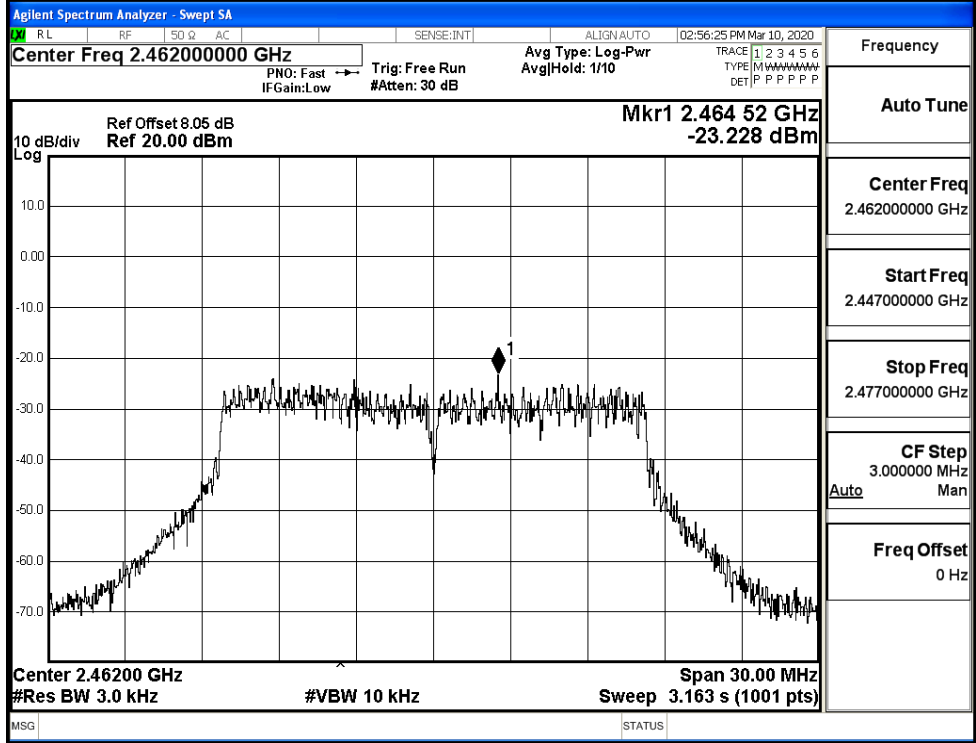
11G/LCH



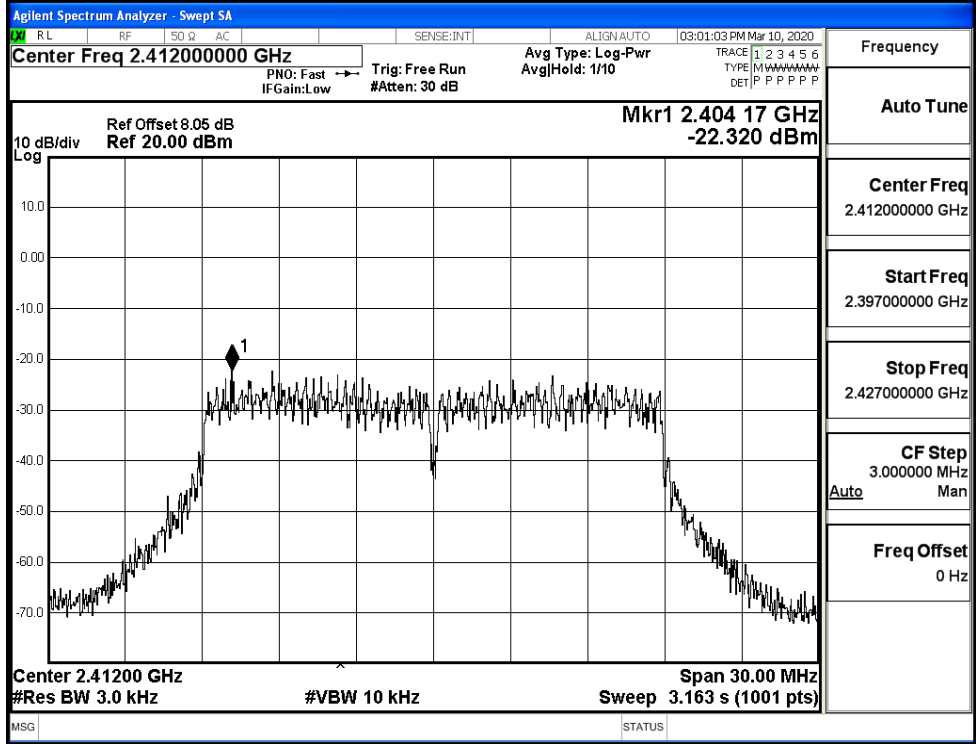
11G/MCH



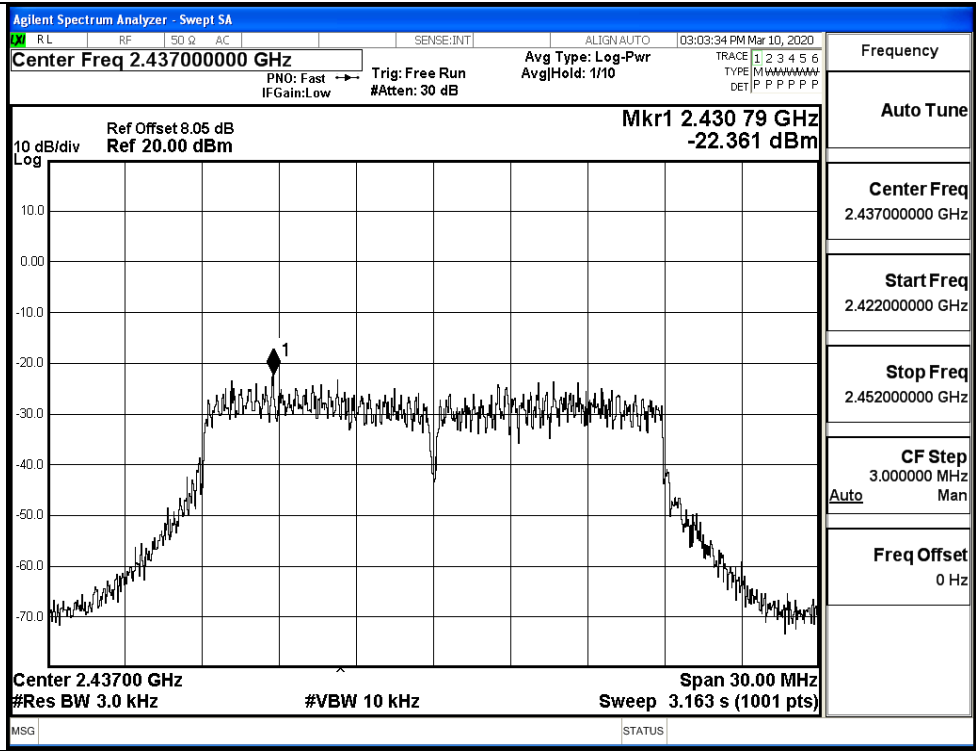
11G/HCH



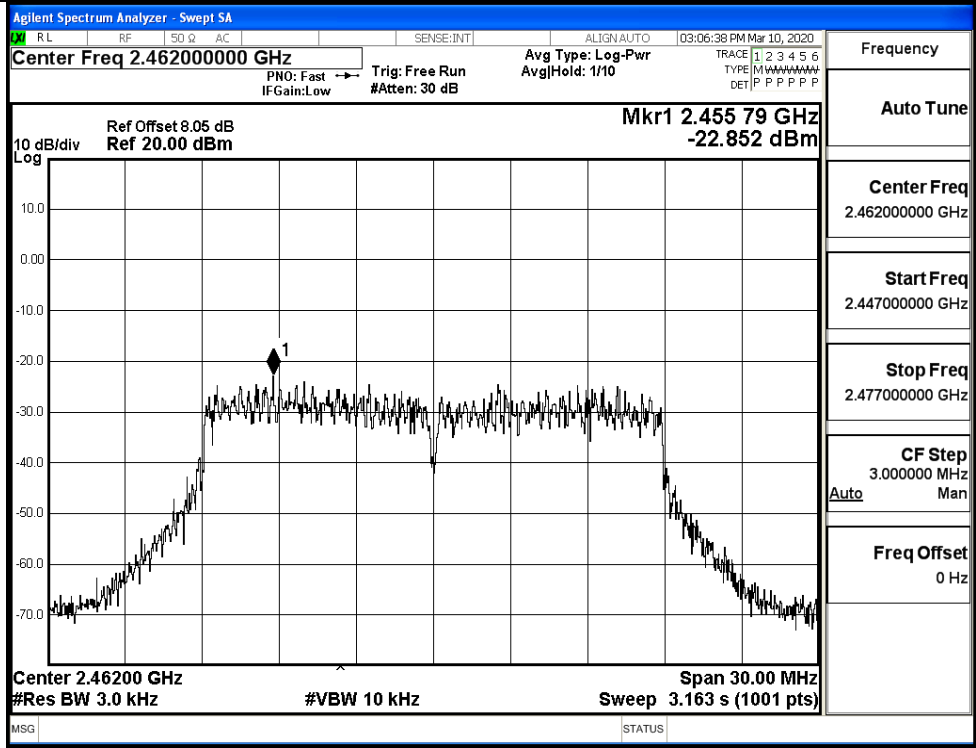
11N20SISO/LCH



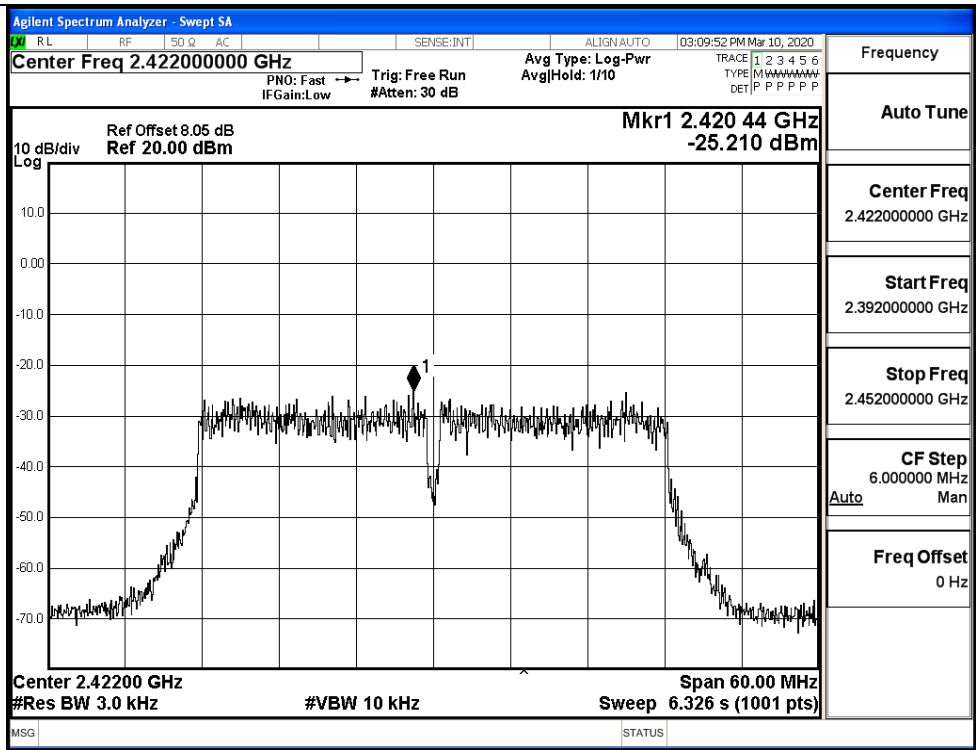
11N20SISO/MCH



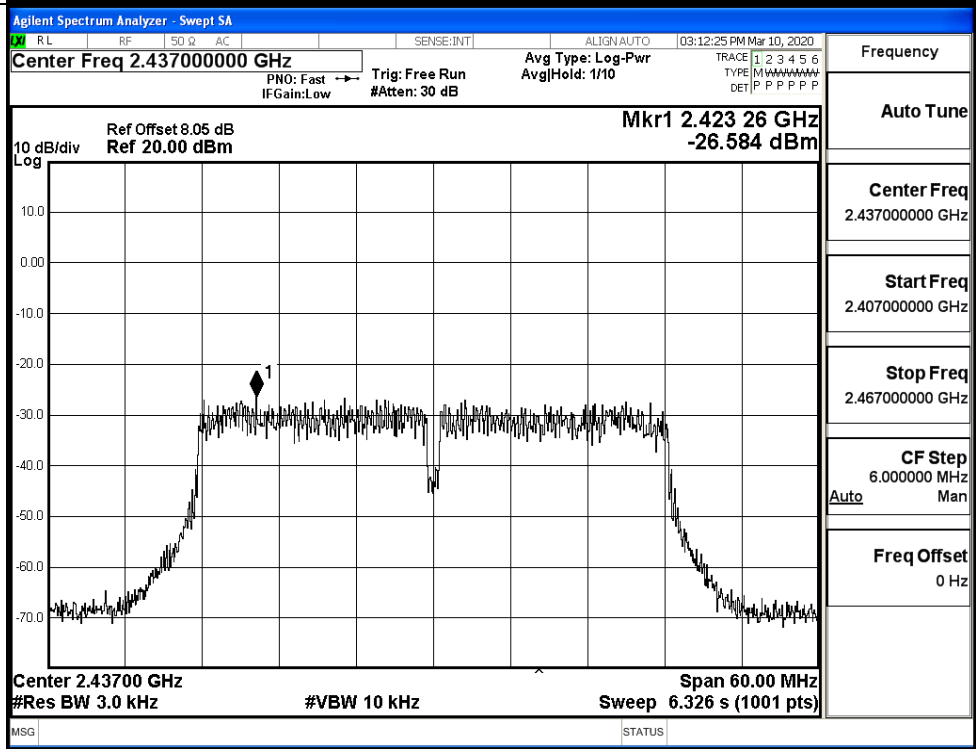
11N20SISO/HCH

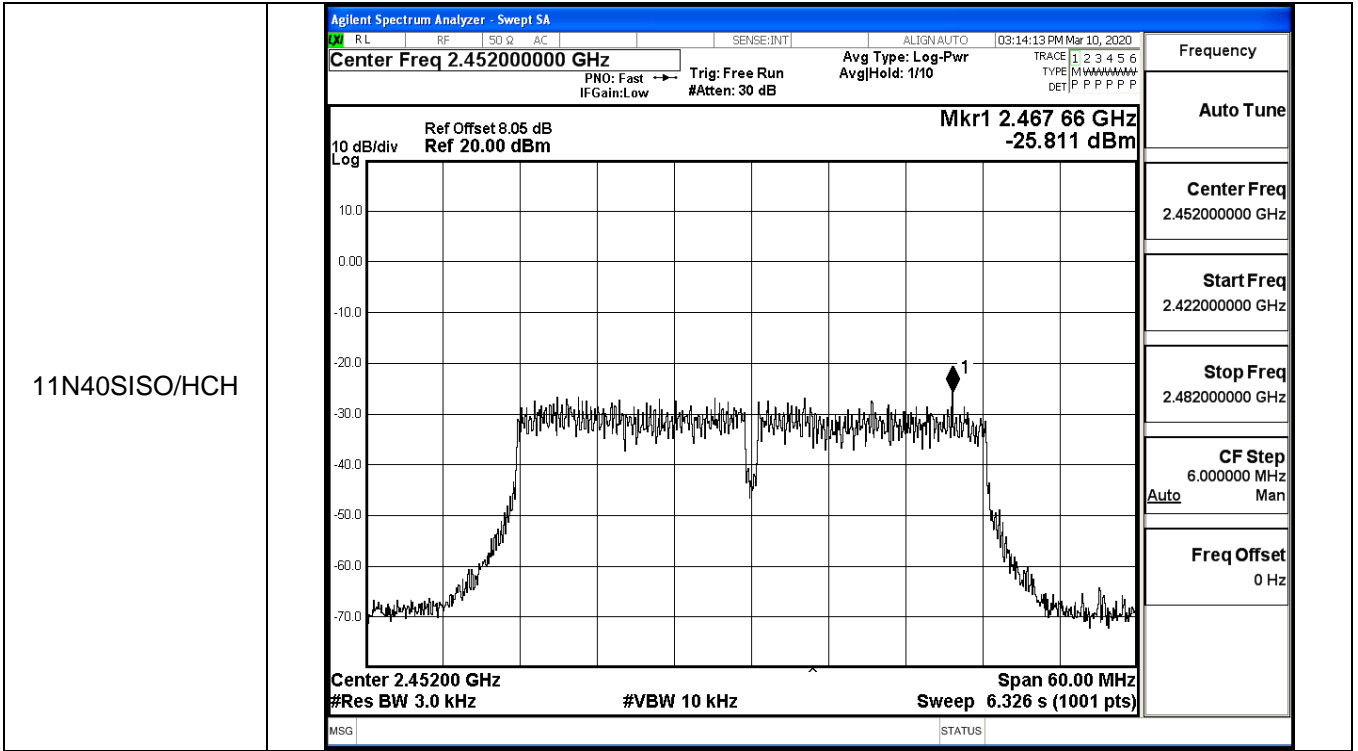


11N40SISO/LCH



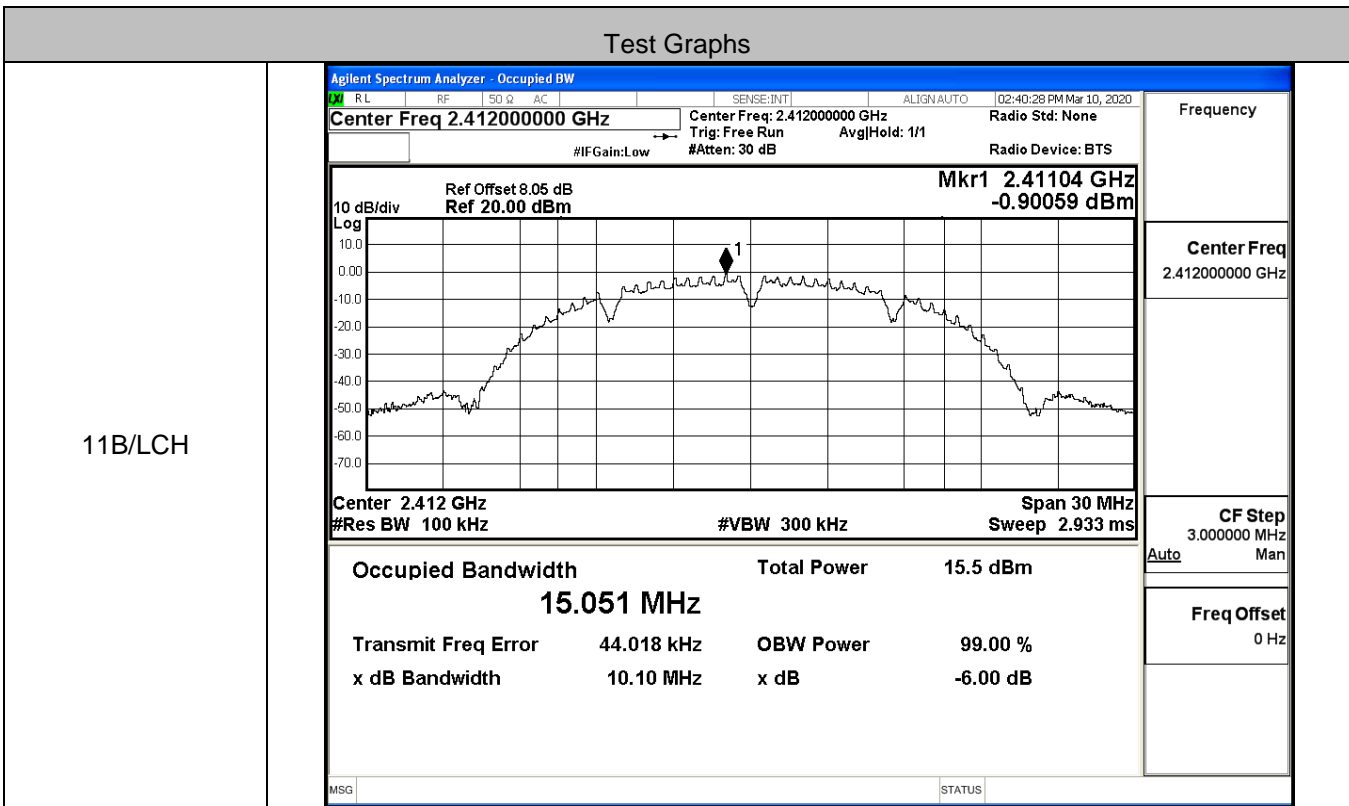
11N40SISO/MCH



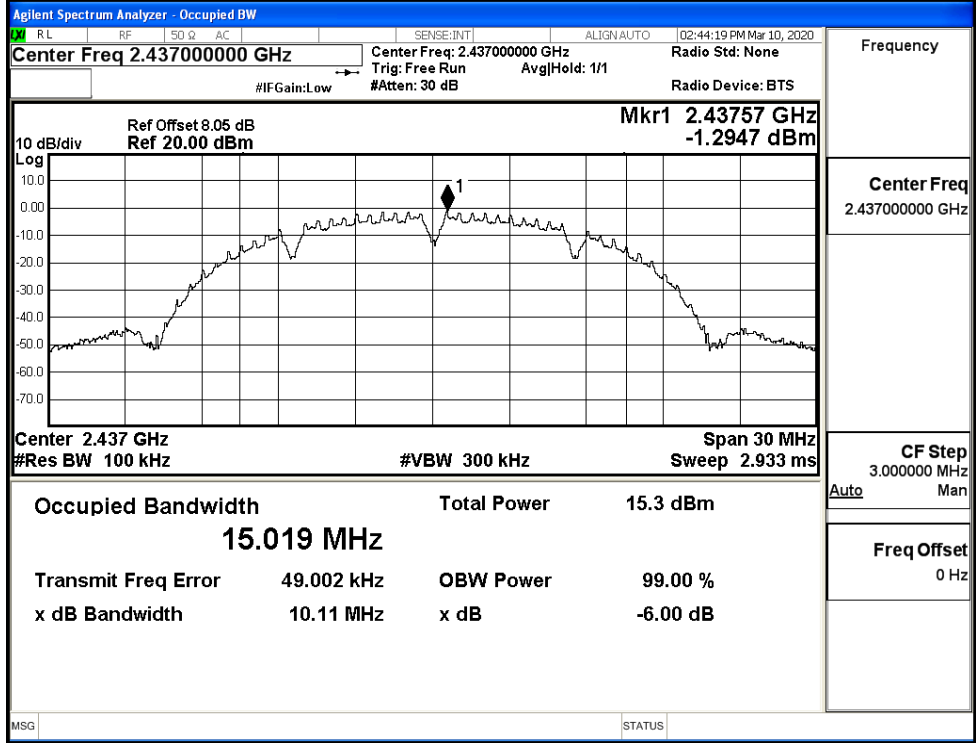


A.4 6dB Bandwidth

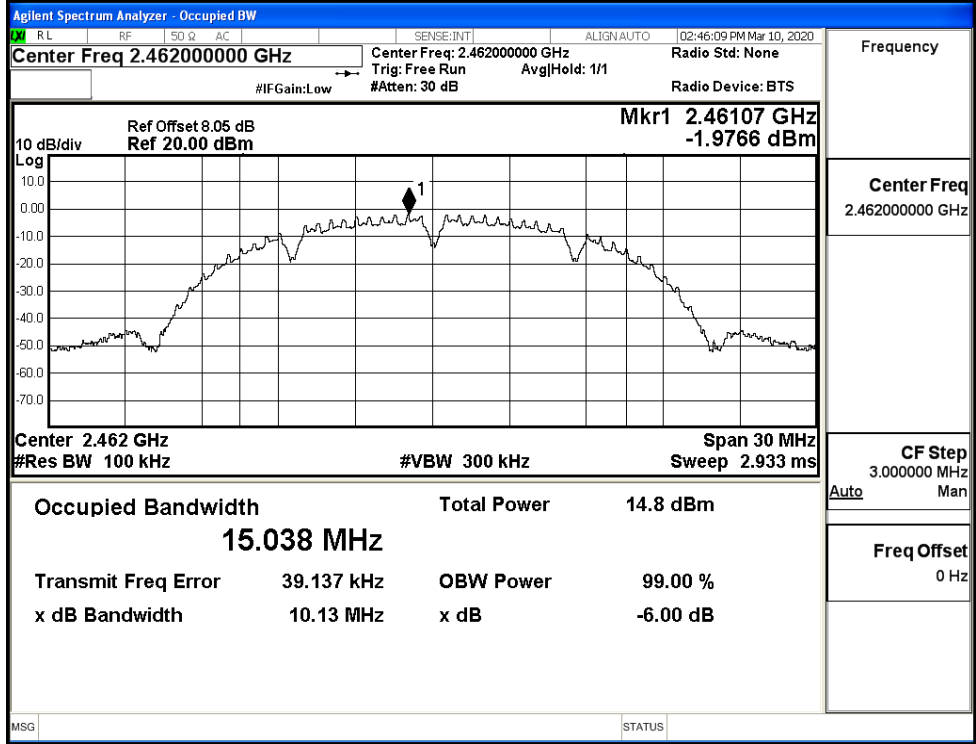
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.10	≥0.5	PASS
	MCH	10.11	≥0.5	PASS
	HCH	10.13	≥0.5	PASS
11G	LCH	16.37	≥0.5	PASS
	MCH	16.38	≥0.5	PASS
	HCH	16.35	≥0.5	PASS
11N20SISO	LCH	17.29	≥0.5	PASS
	MCH	17.53	≥0.5	PASS
	HCH	17.56	≥0.5	PASS
11N40SISO	LCH	36.08	≥0.5	PASS
	MCH	35.88	≥0.5	PASS
	HCH	36.07	≥0.5	PASS



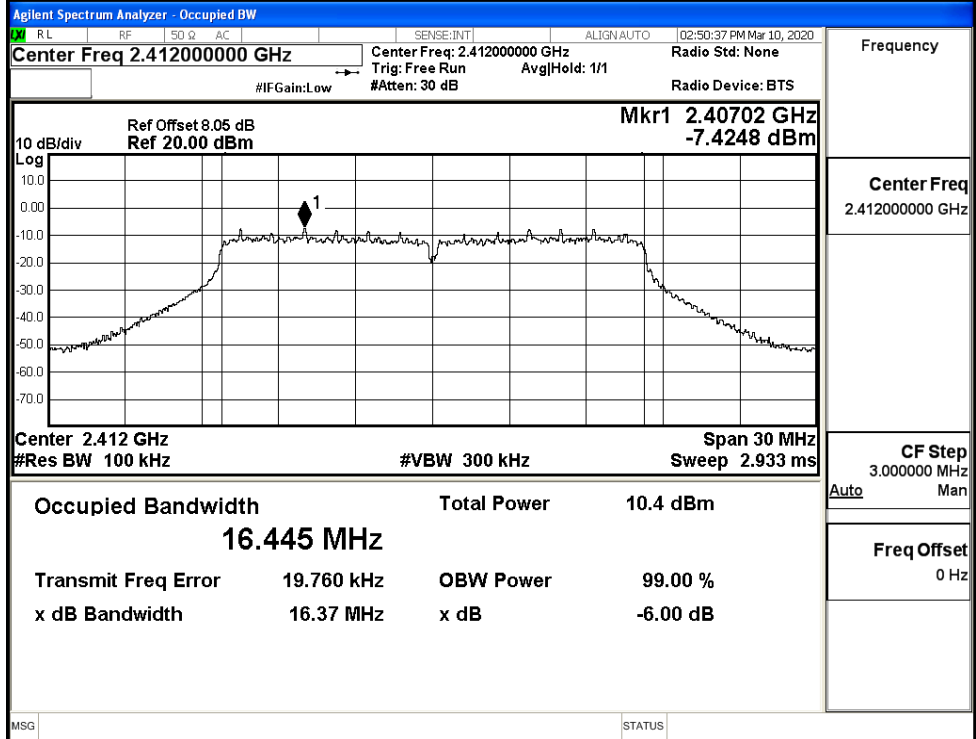
11B/MCH



11B/HCH

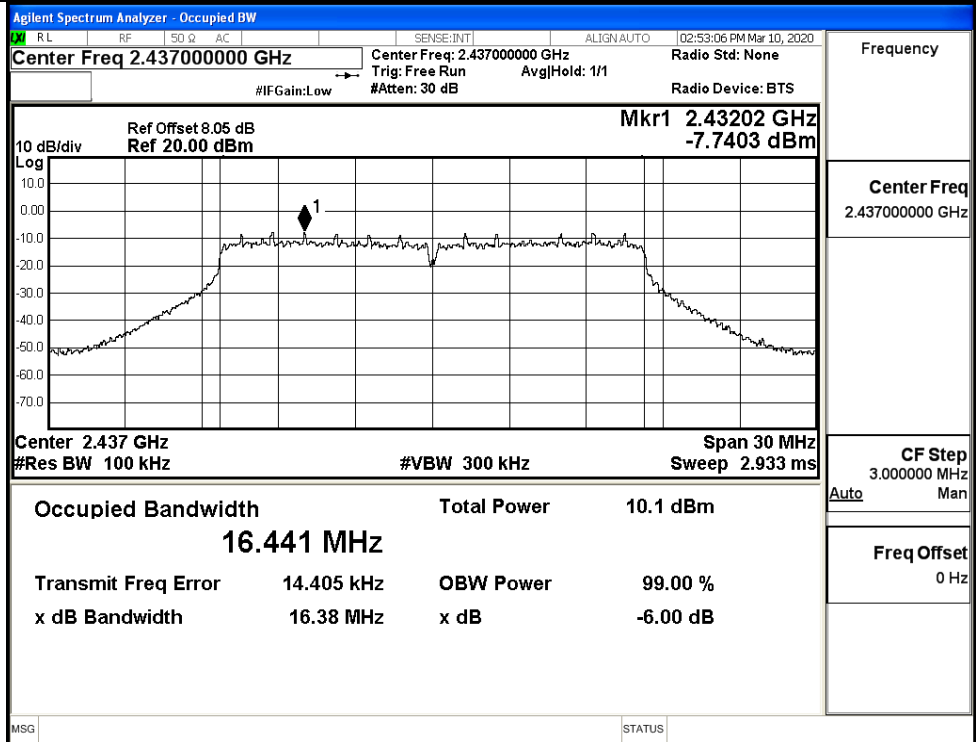


11G/LCH

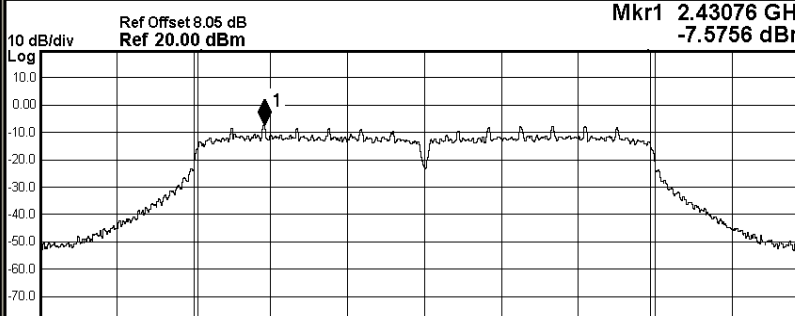
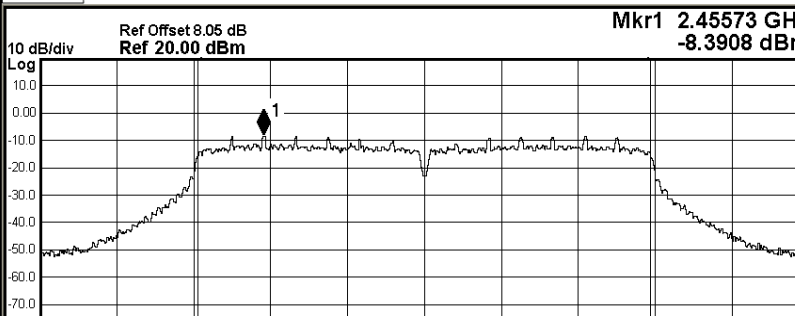


Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

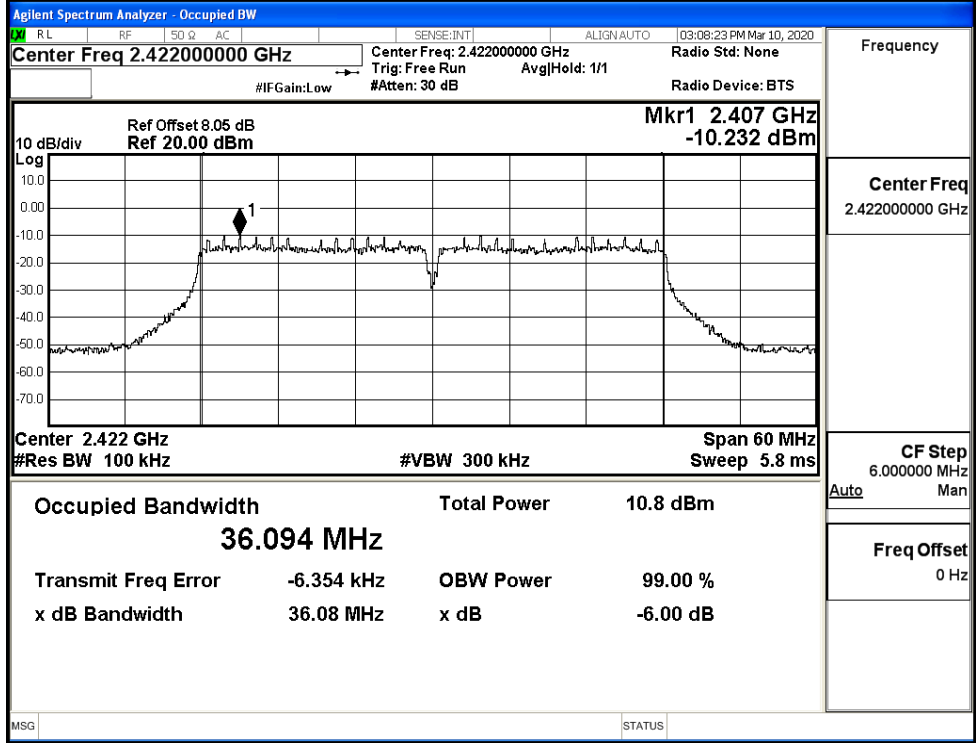
11G/MCH



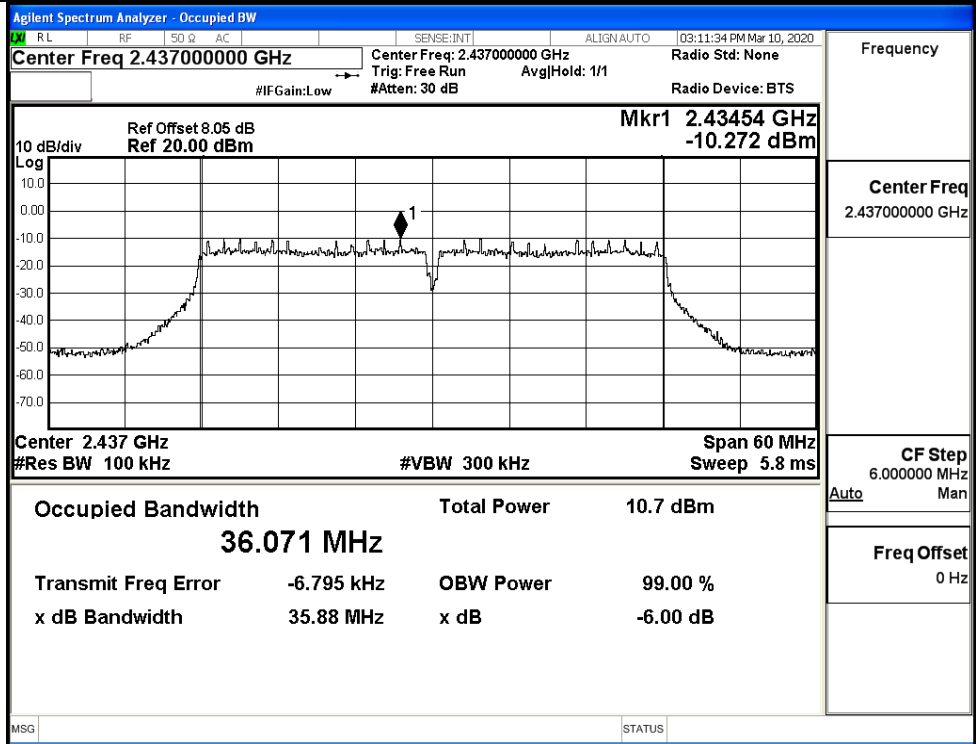
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

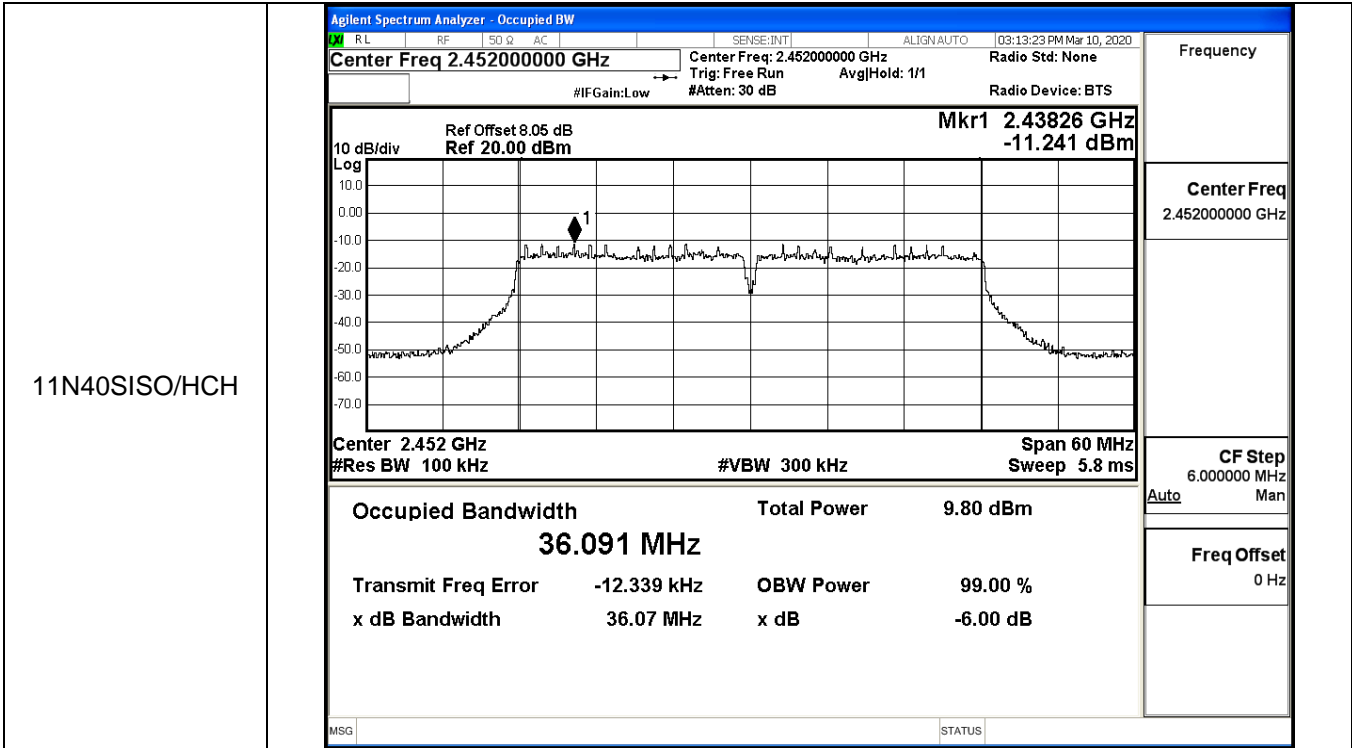
<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB</p>  <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.619 MHz Total Power 10.2 dBm</p> <p>Transmit Freq Error 7.683 kHz OBW Power 99.00 % x dB Bandwidth 17.53 MHz x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Center Freq: 2.46200000 GHz Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB</p>  <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.630 MHz Total Power 9.61 dBm</p> <p>Transmit Freq Error 1.751 kHz OBW Power 99.00 % x dB Bandwidth 17.56 MHz x dB -6.00 dB</p>

11N40SISO/LCH



11N40SISO/MCH



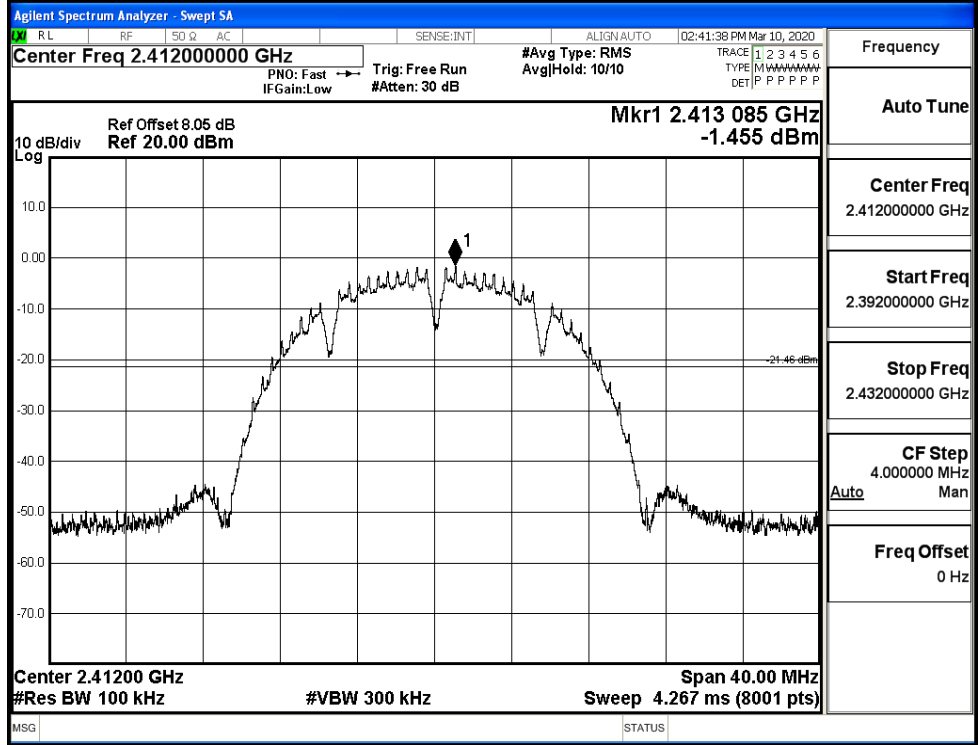


A.5 RF Conducted Spurious Emissions

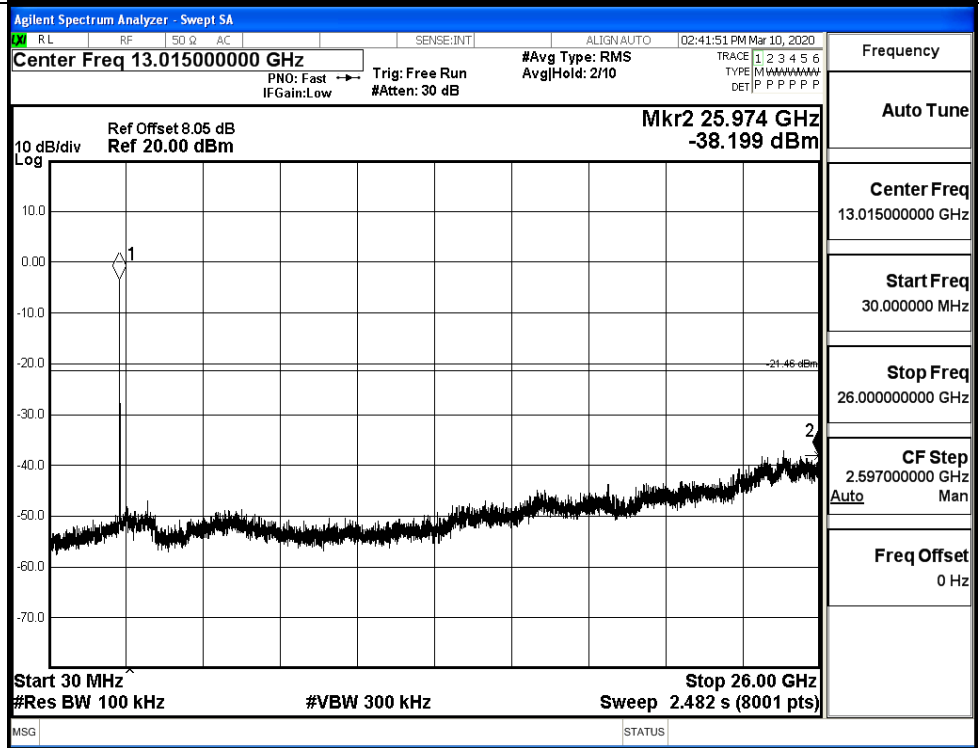
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.455	-38.199	-21.455	PASS
	MCH	-1.951	-37.785	-21.951	PASS
	HCH	-2.384	-37.960	-22.384	PASS
11G	LCH	-6.992	-38.065	-26.992	PASS
	MCH	-8.108	-38.458	-28.108	PASS
	HCH	-8.385	-37.808	-28.385	PASS
11N20 SISO	LCH	-7.532	-37.468	-27.532	PASS
	MCH	-7.869	-37.793	-27.869	PASS
	HCH	-8.108	-36.832	-28.108	PASS
11N40 SISO	LCH	-10.12	-37.800	-30.120	PASS
	MCH	-10.515	-38.045	-30.515	PASS
	HCH	-10.854	-37.946	-30.854	PASS

11B_LCH_Graphs

Pref/11B/LCH

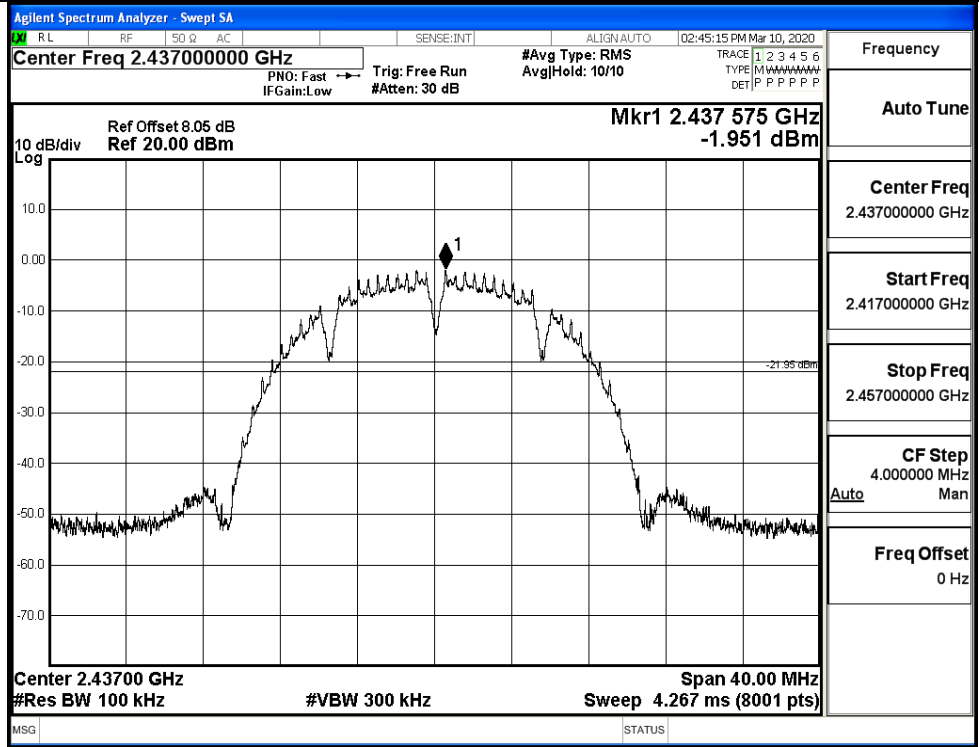


Puw/11B/LCH

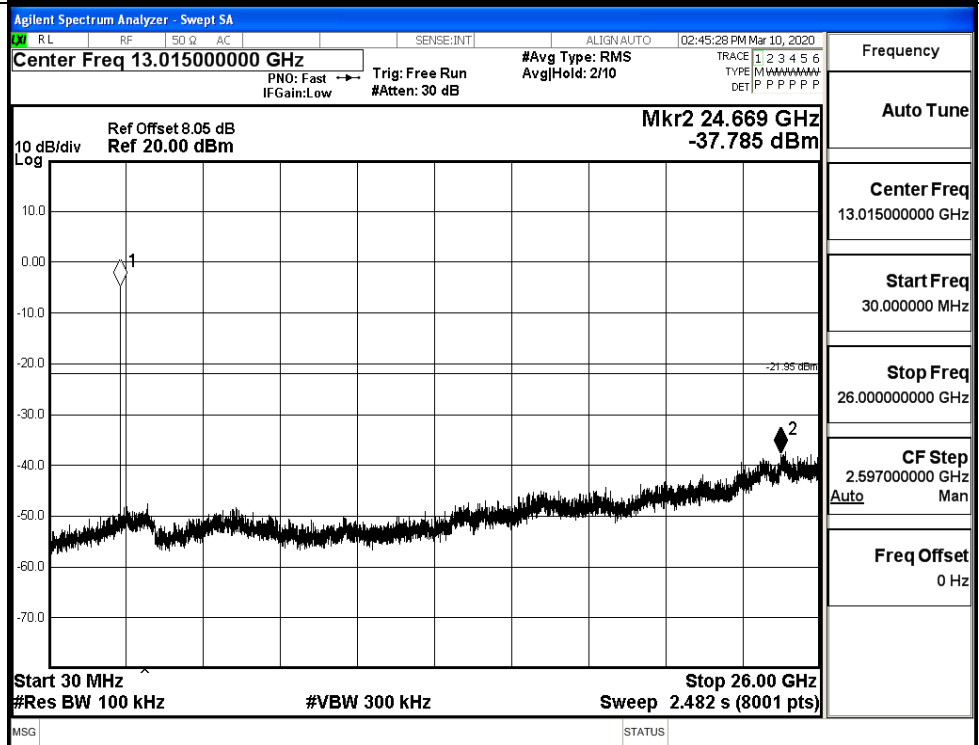


11B_MCH_Graphs

Pref/11B/MCH

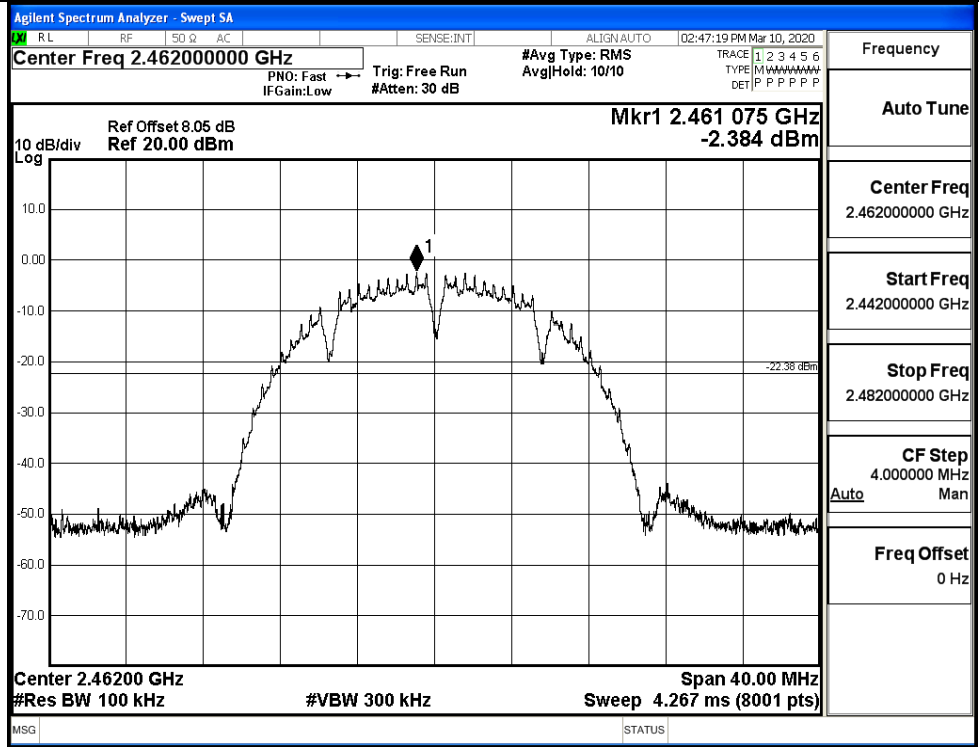


Puw/11B/MCH

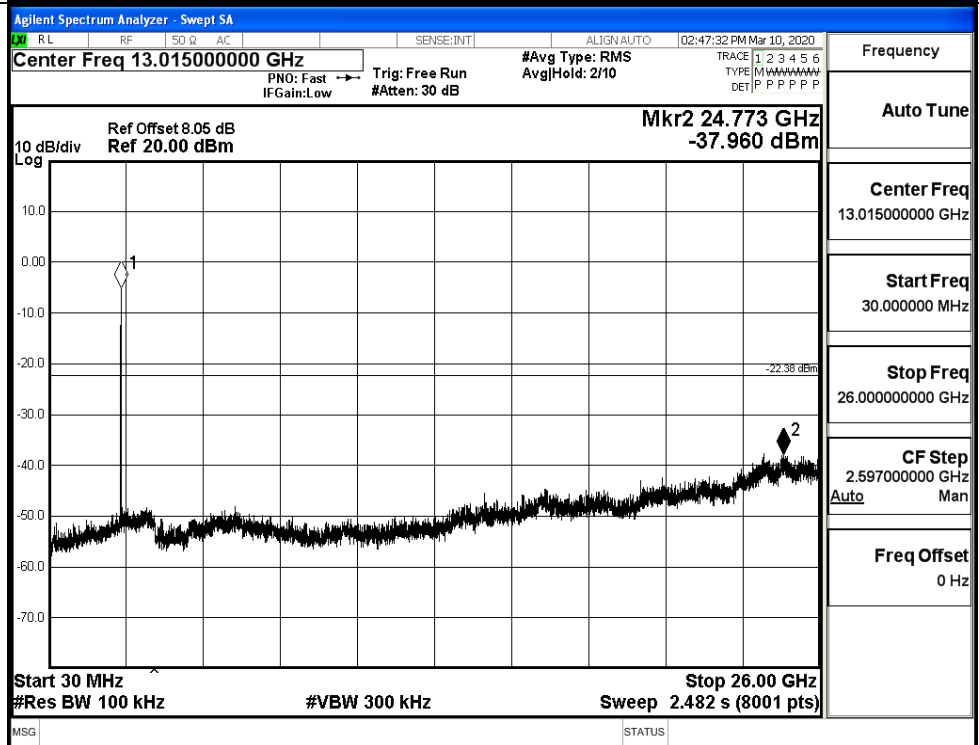


11B_HCH_Graphs

Pref/11B/HCH

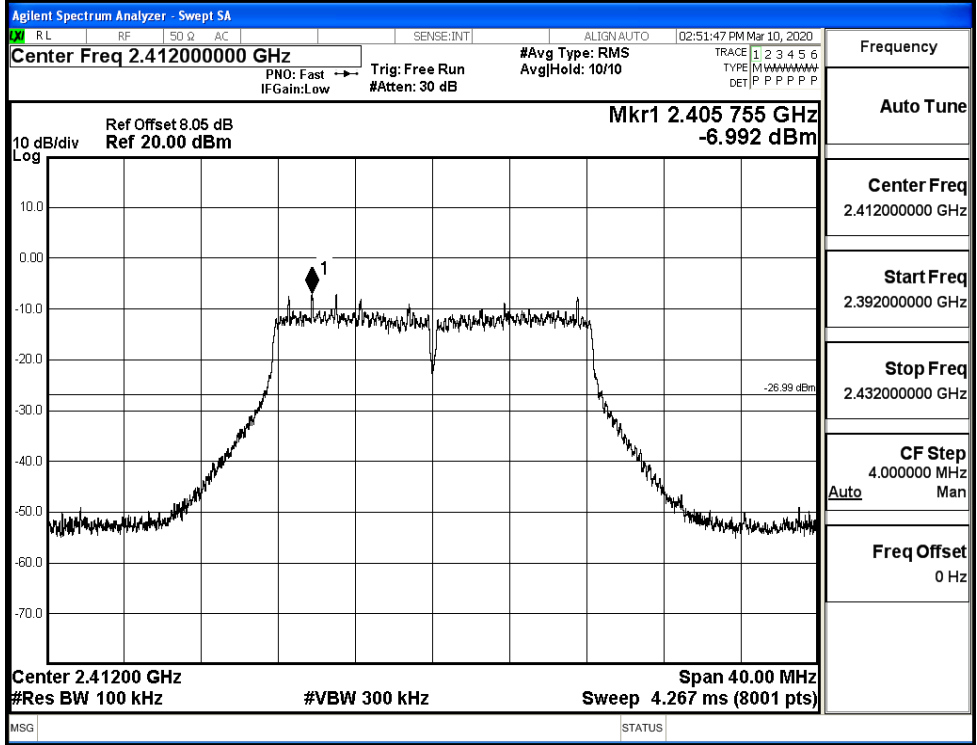


Puw/11B/HCH

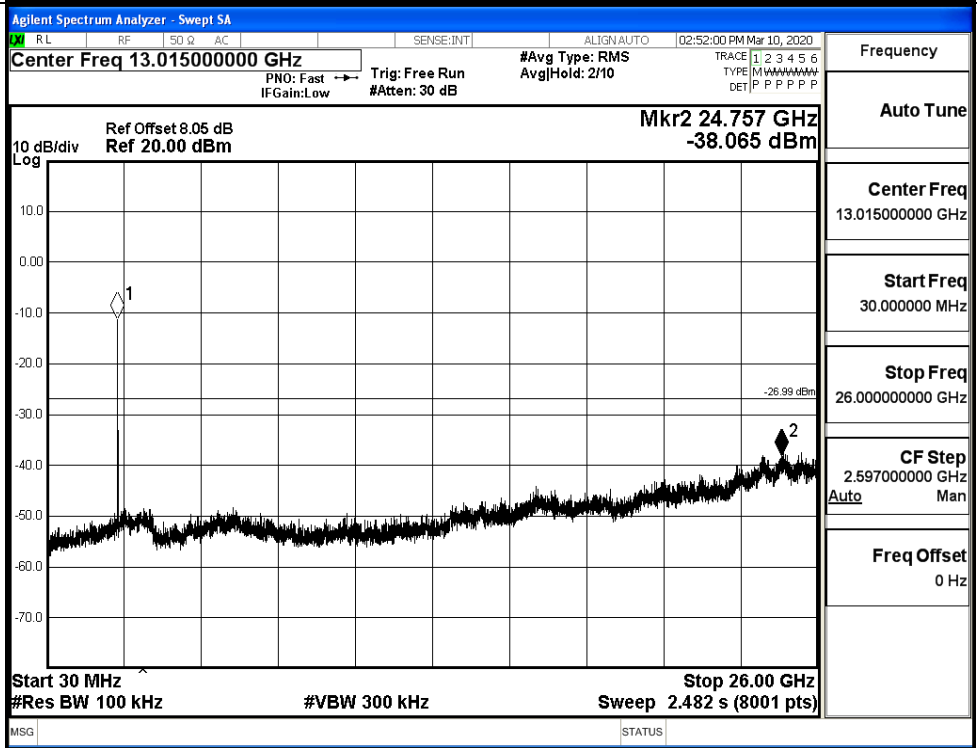


11G_LCH_Graphs

Pref/11G/LCH

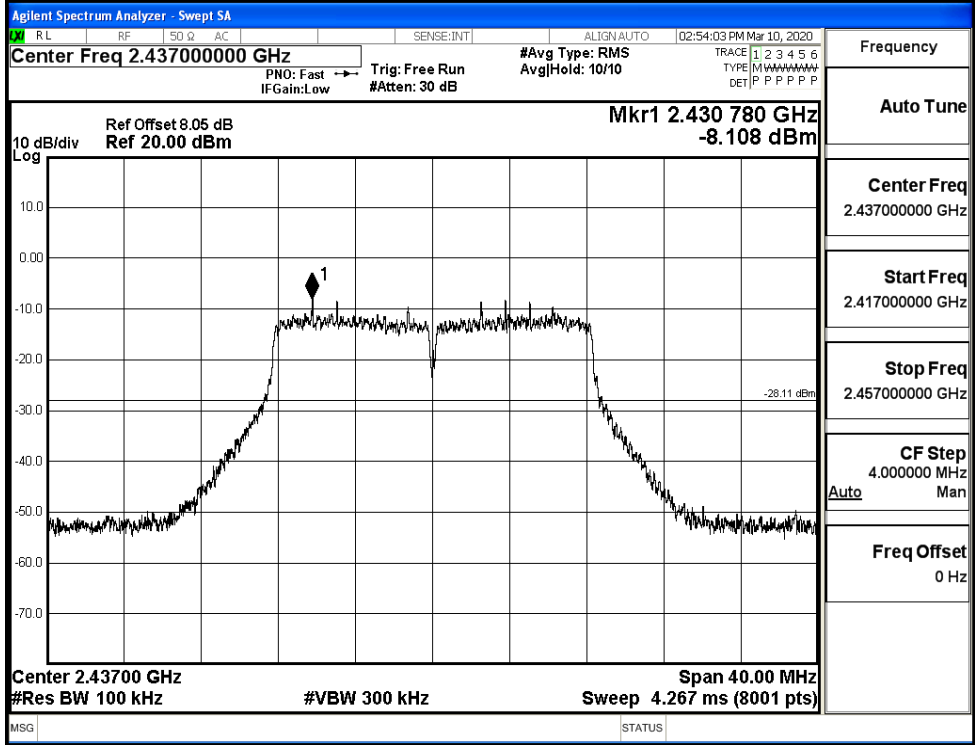


Puw/11G/LCH

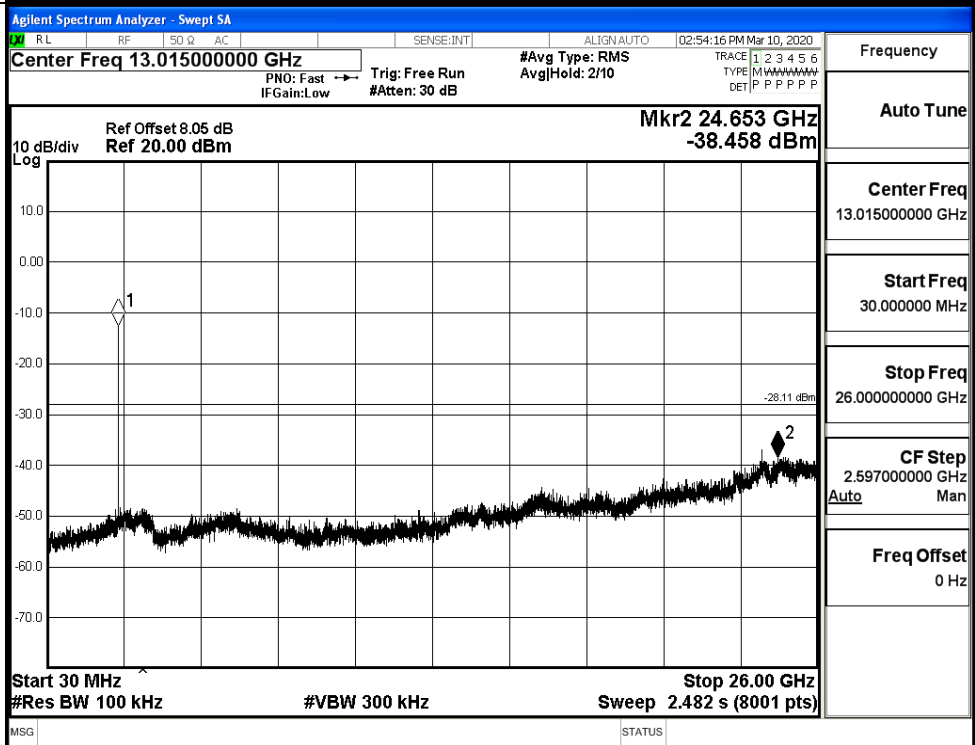


11G_MCH_Graphs

Pref/11G/MCH

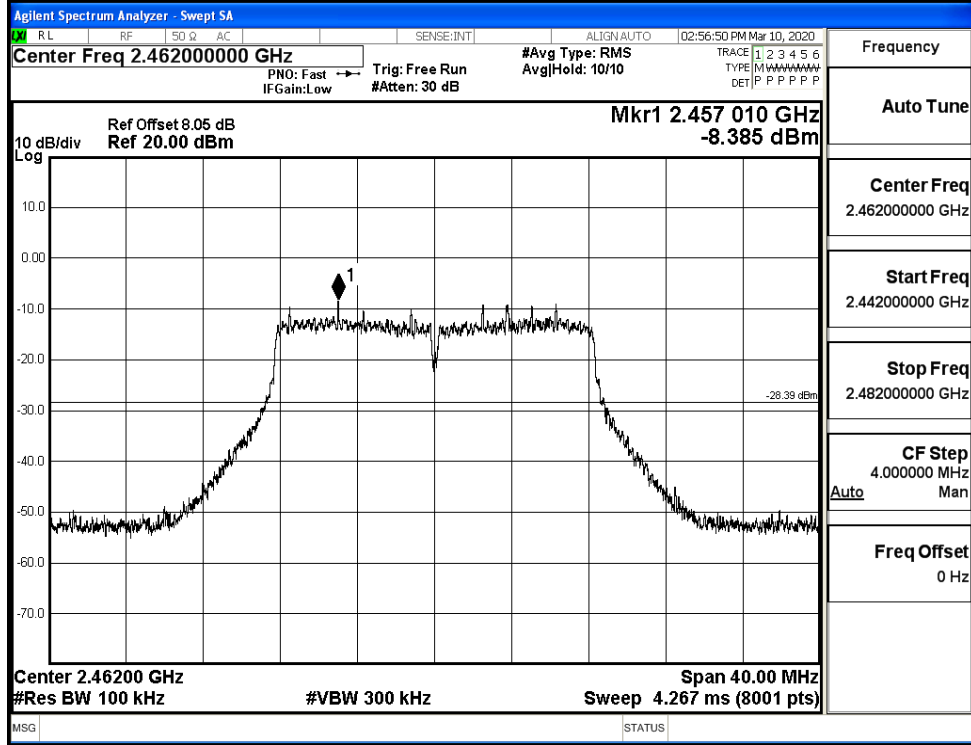


Puw/11G/MCH

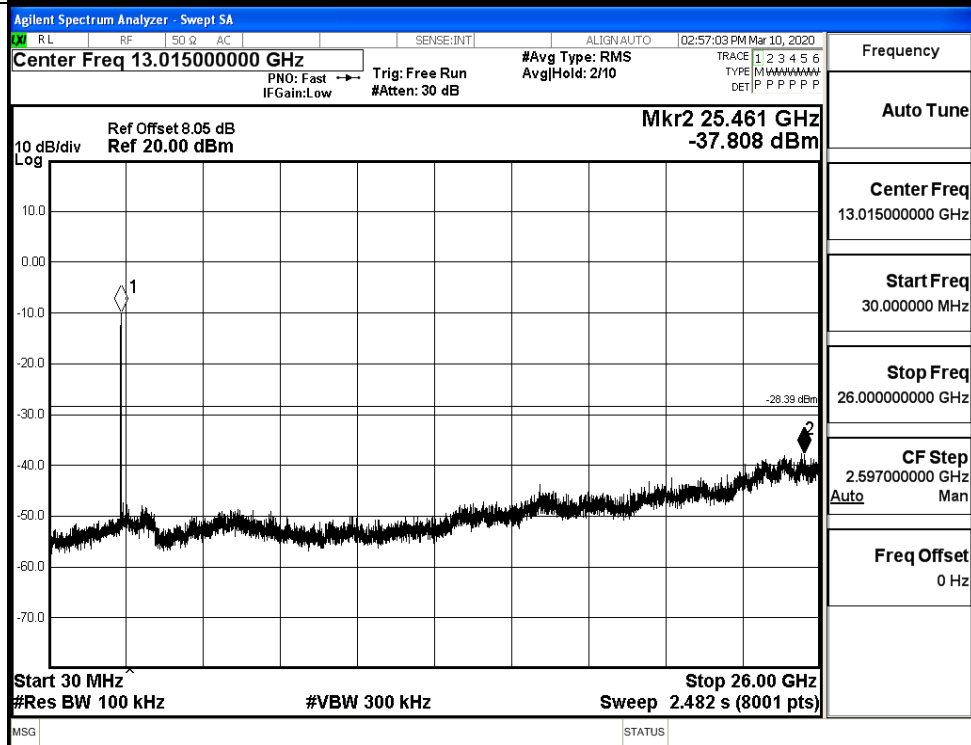


11G_HCH_Graphs

Pref/11G/HCH

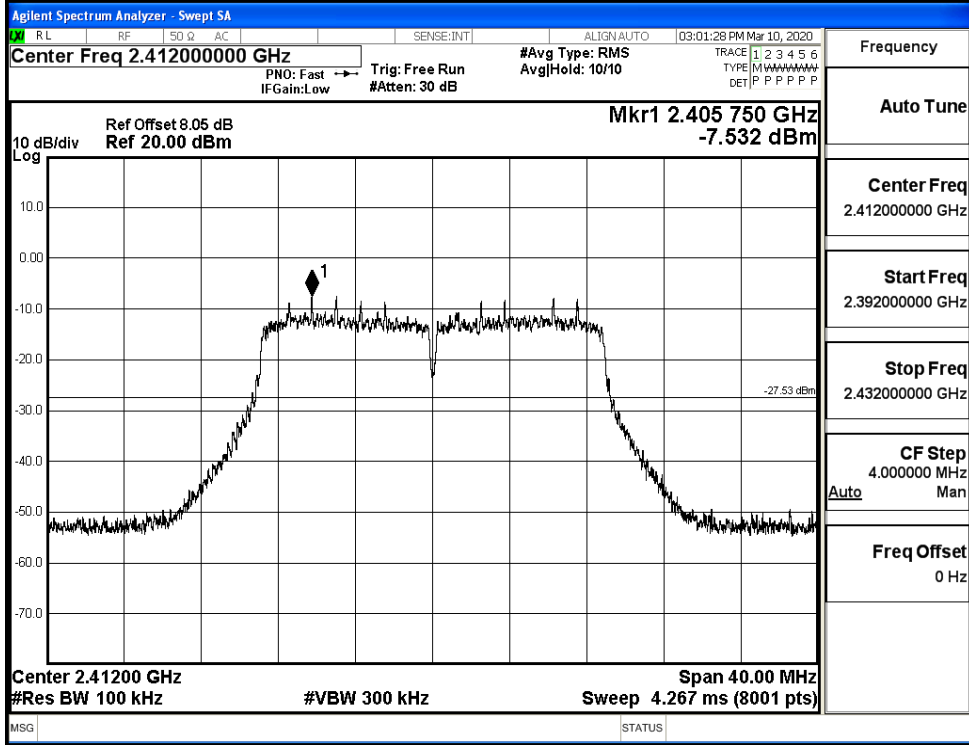


Puw/11G/HCH

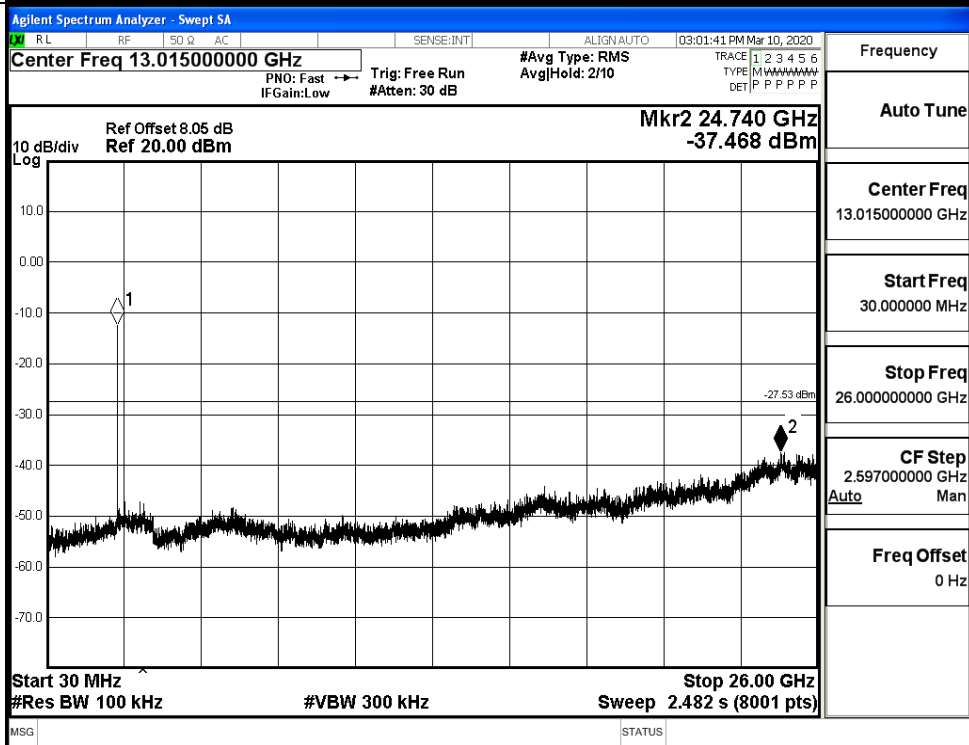


11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCH

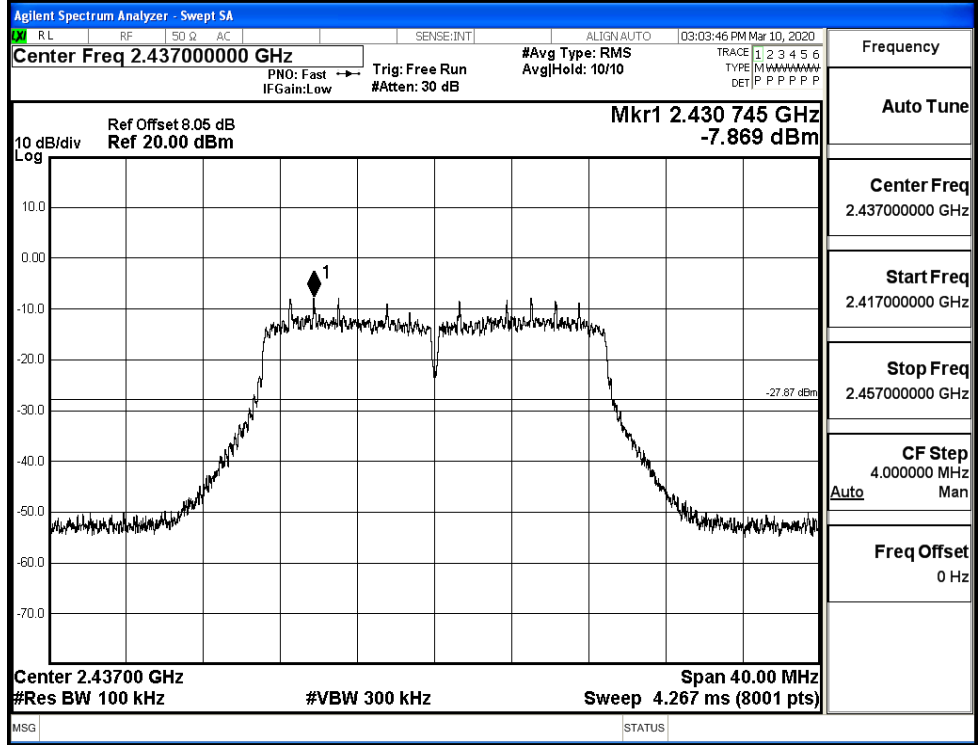


Puw/11N20
SISO/LCH

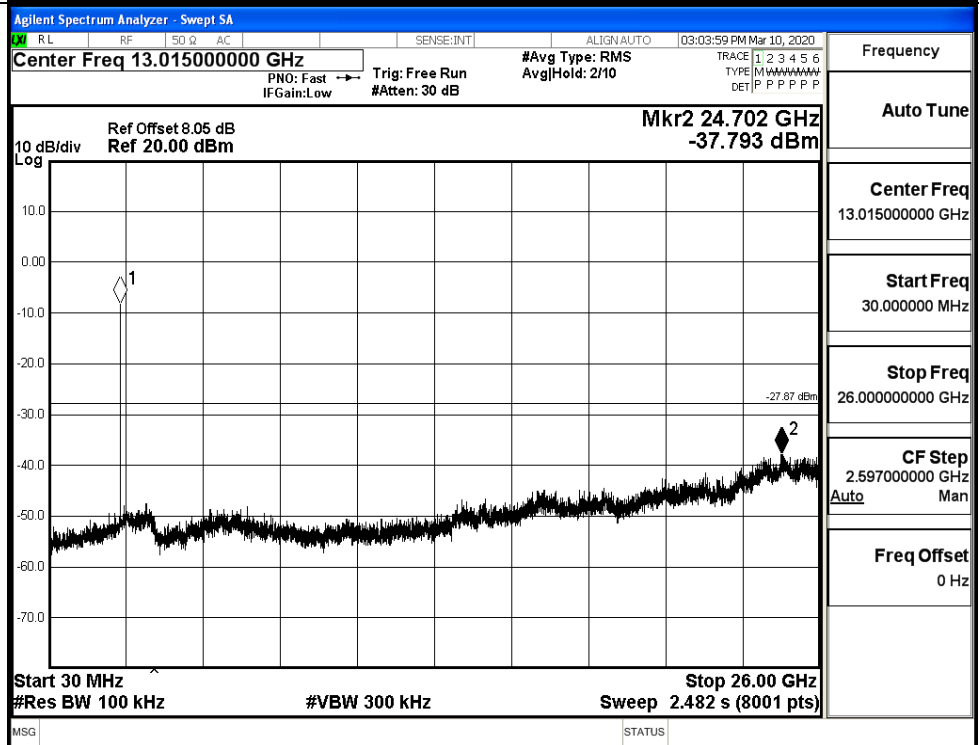


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

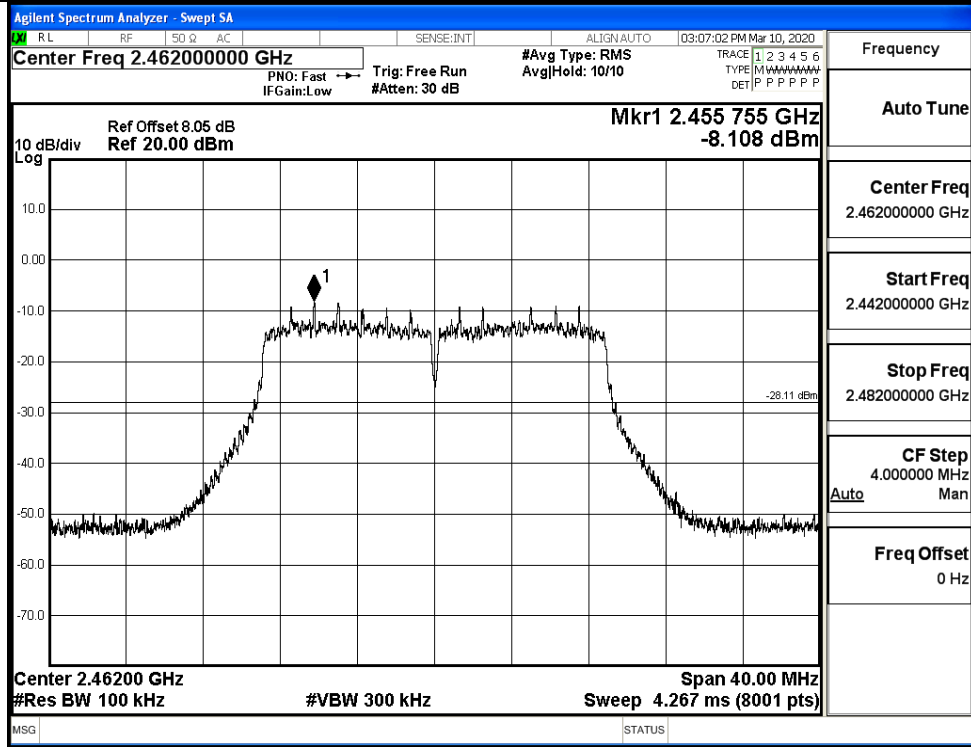


Puw/11N20
SISO/MCH

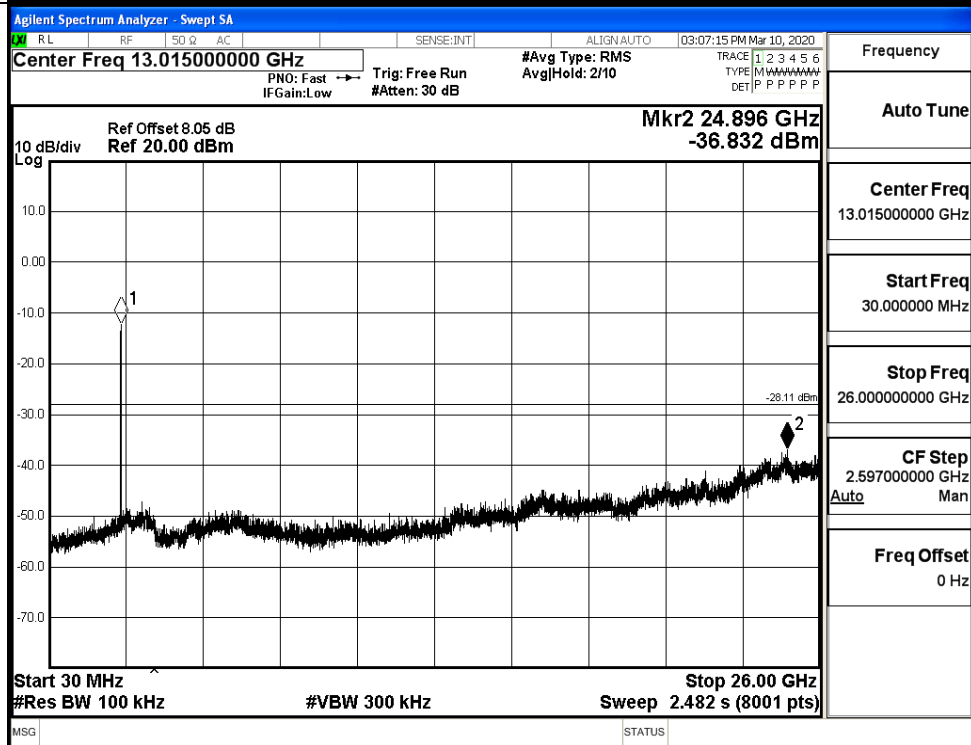


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

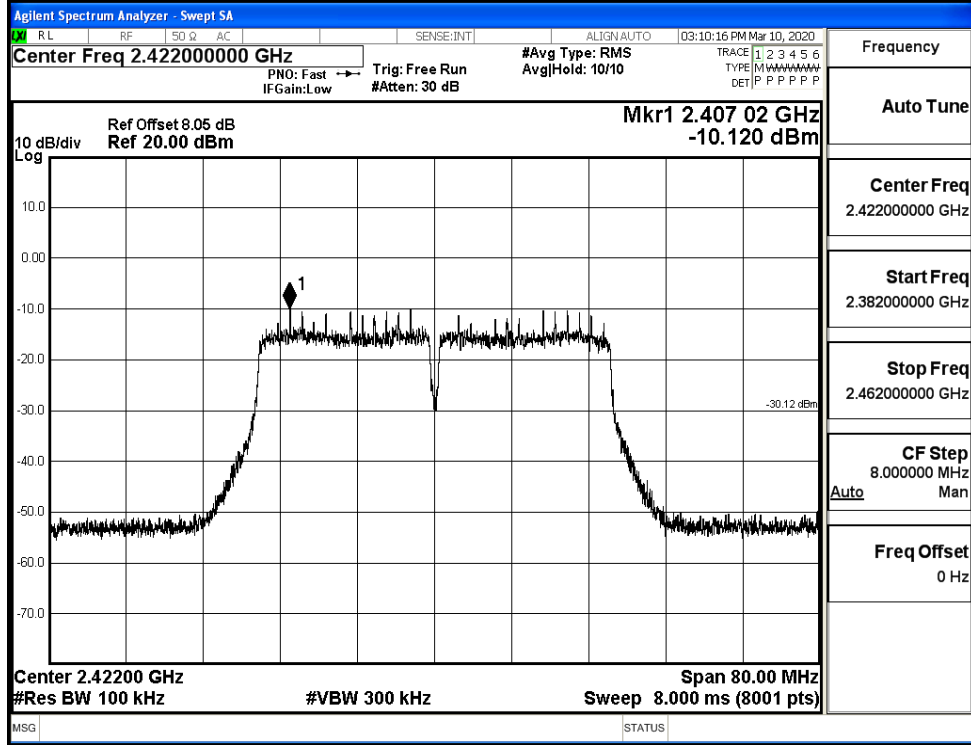


Puw/11N20
SISO/HCH

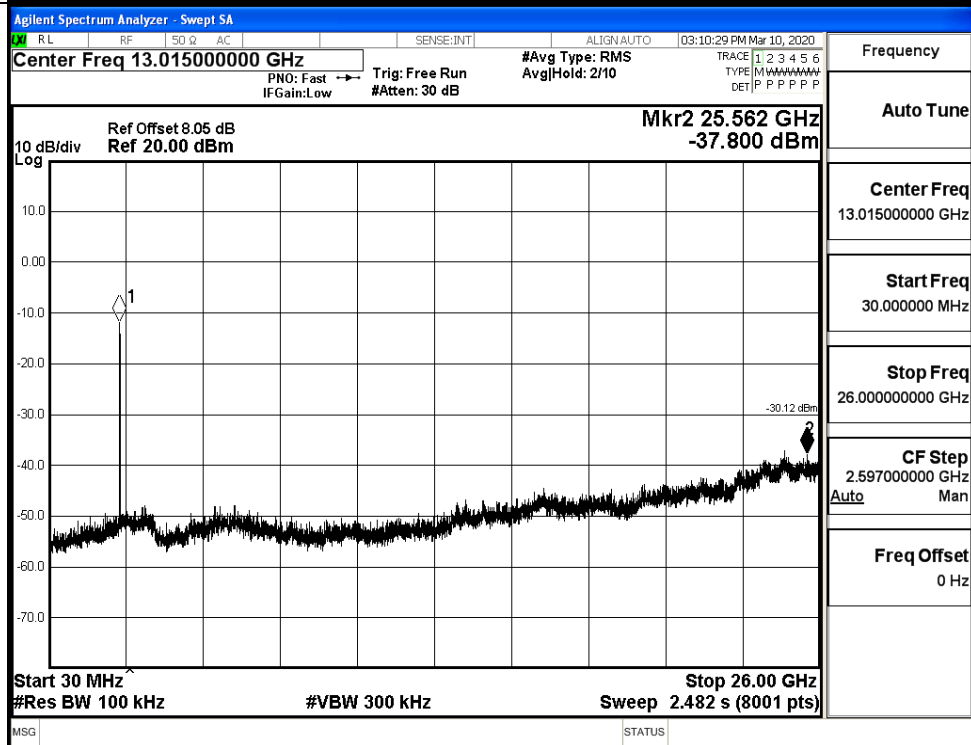


11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCH

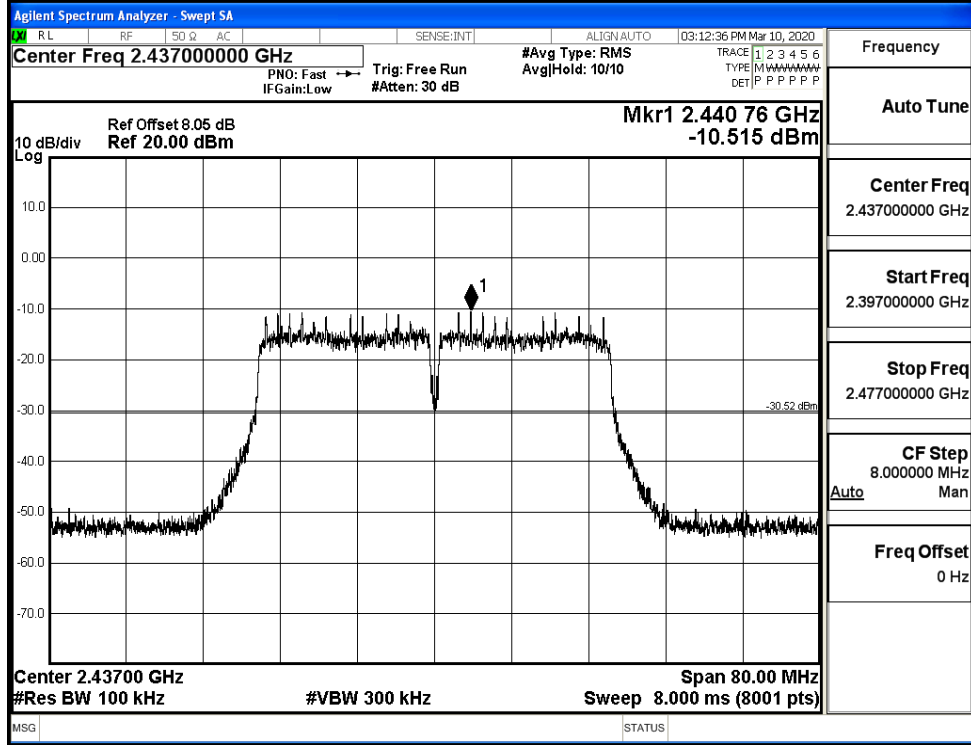


Puw/11N40
SISO/LCH

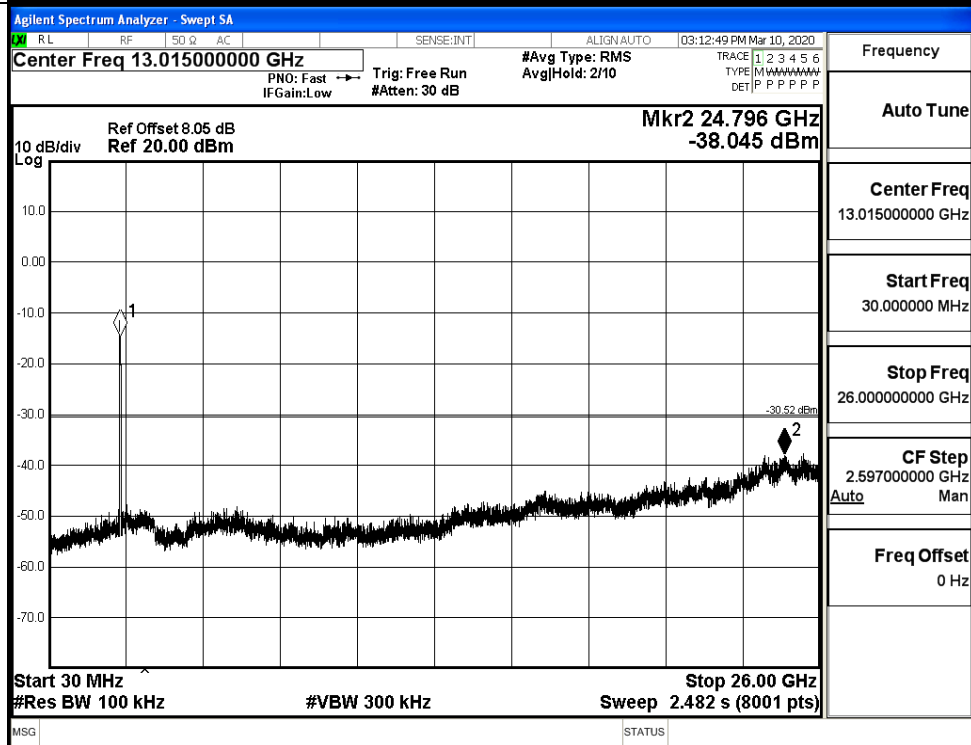


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

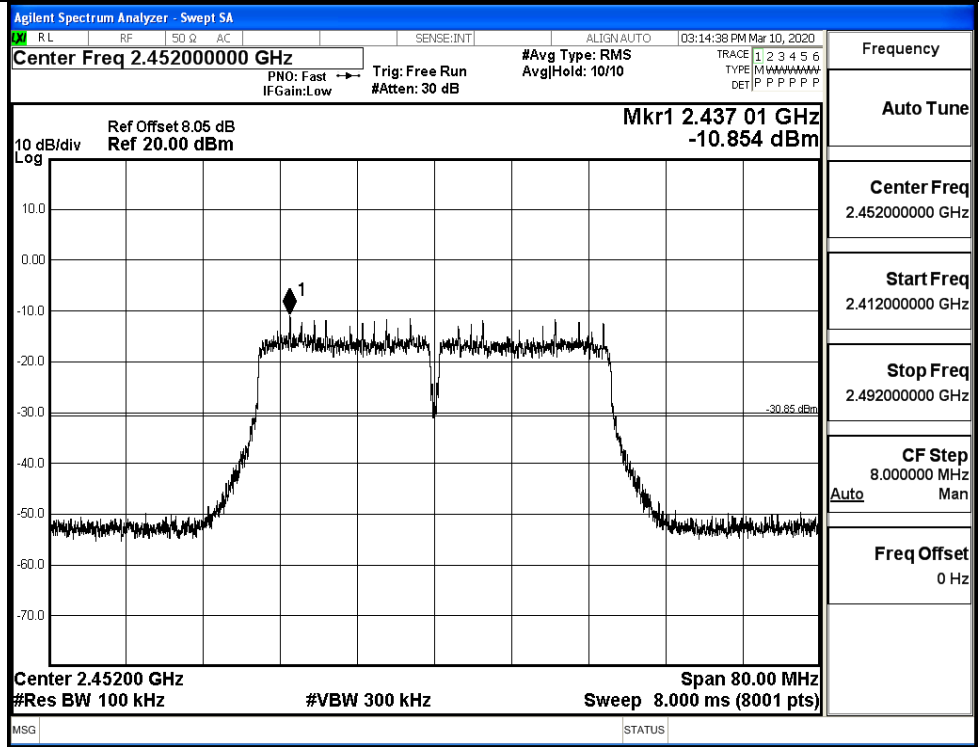


Puw/11N40
SISO/MCH

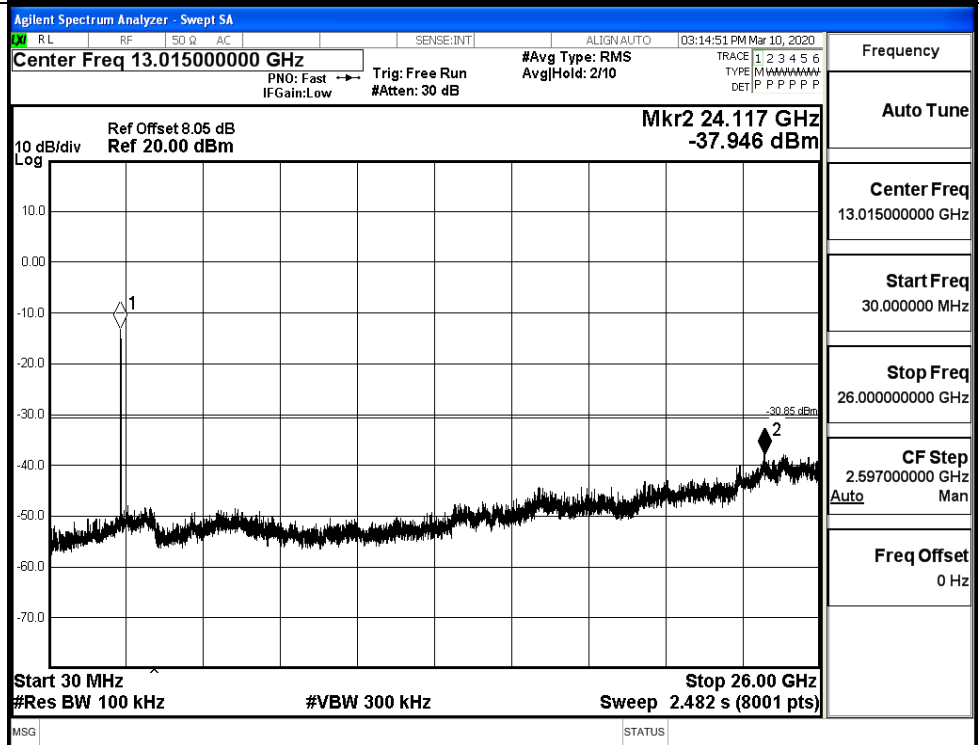


11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH

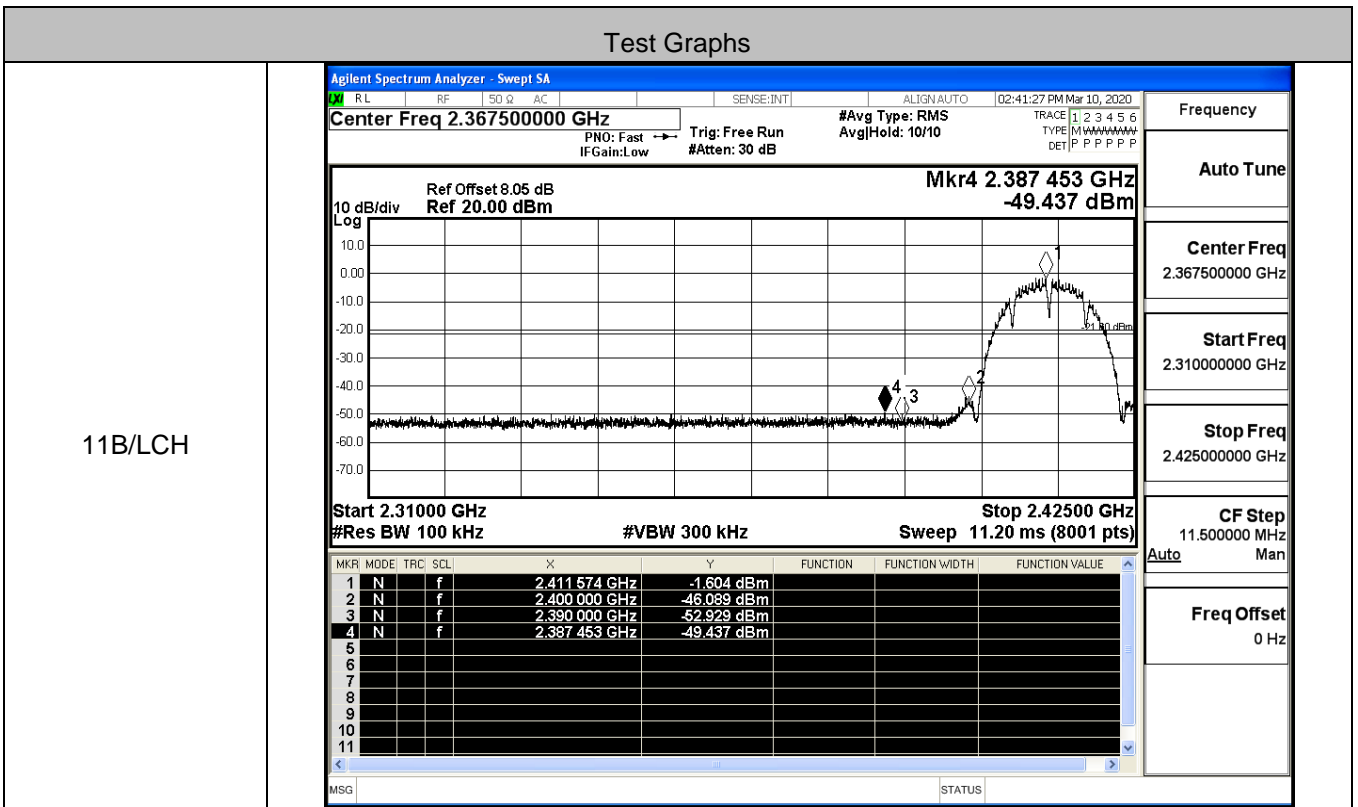


Puw/11N40
SISO/HCH

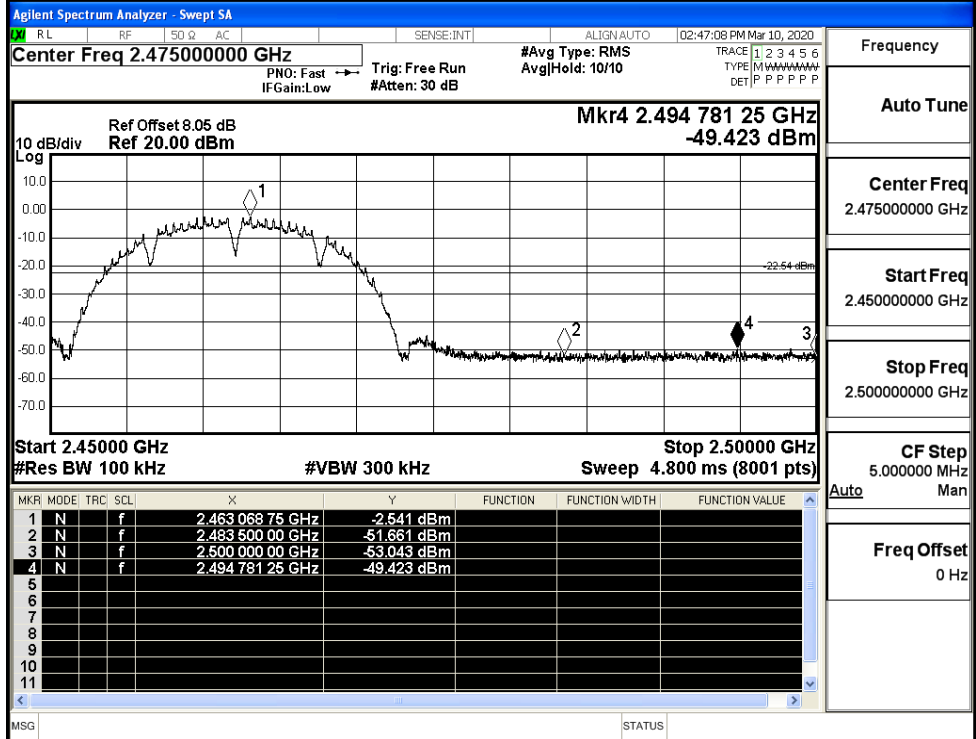


A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.604	-49.437	-21.6	PASS
	HCH	-2.541	-49.423	-22.54	PASS
11G	LCH	-7.103	-49.398	-27.1	PASS
	HCH	-8.671	-49.047	-28.67	PASS
11N20SISO	LCH	-7.862	-49.717	-27.86	PASS
	HCH	-8.623	-48.710	-28.62	PASS
11N40SISO	LCH	-10.182	-50.007	-30.18	PASS
	HCH	-10.935	-49.340	-30.94	PASS



11B/HCH



Frequency

Auto Tune

Center Freq
2.47500000 GHz

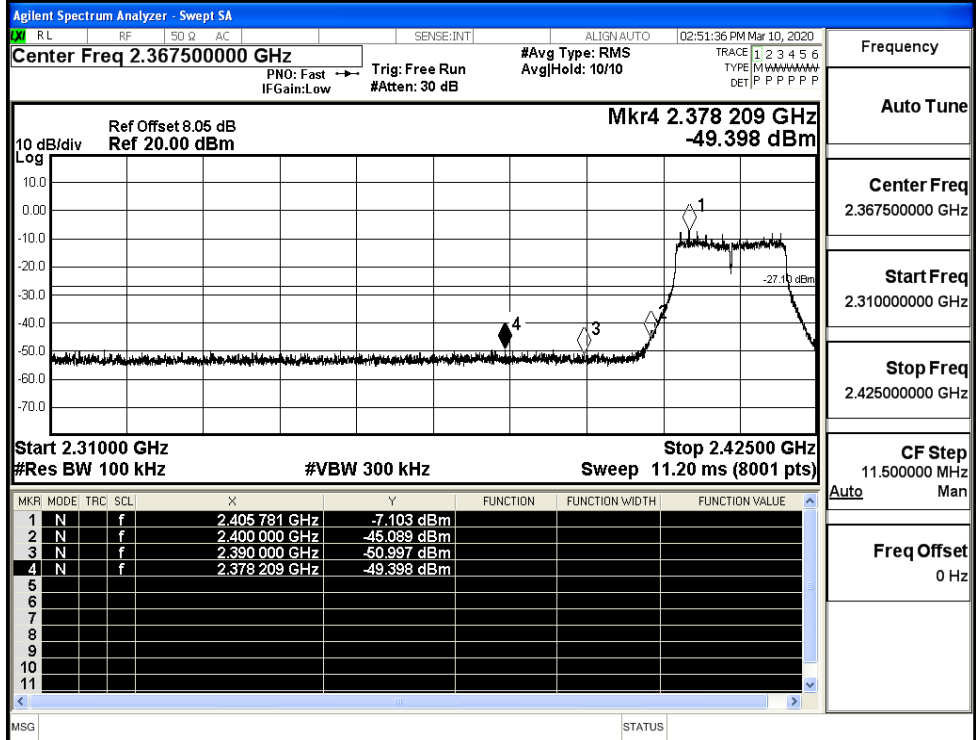
Start Freq
2.45000000 GHz

Stop Freq
2.50000000 GHz

CF Step
5.000000 MHz

Freq Offset
0 Hz

11G/LCH



Frequency

Auto Tune

Center Freq
2.36750000 GHz

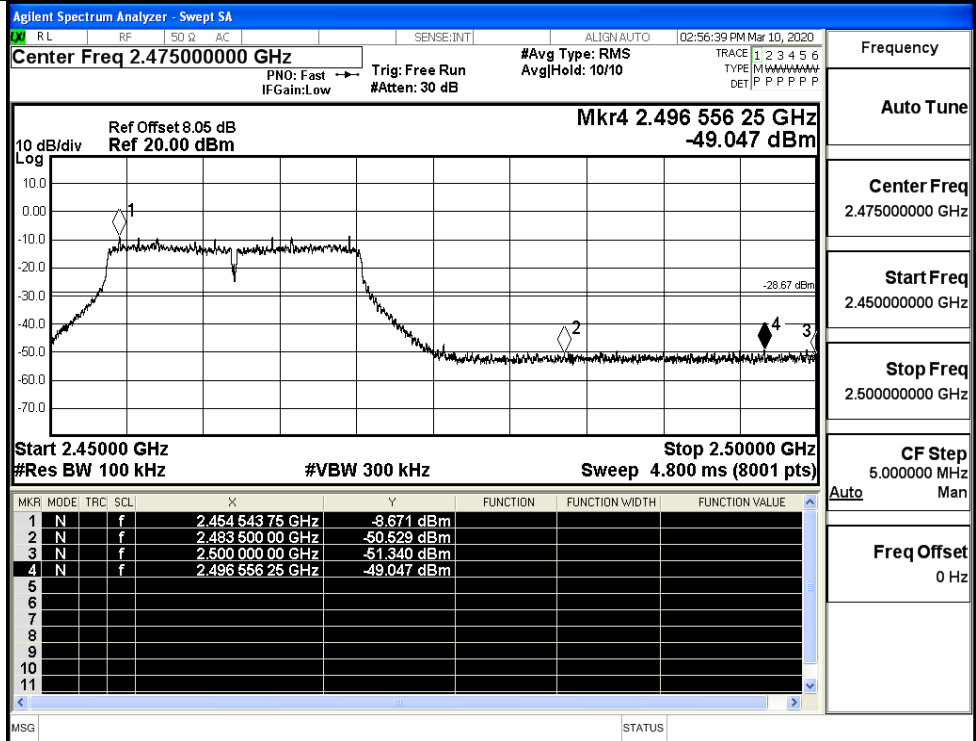
Start Freq
2.31000000 GHz

Stop Freq
2.42500000 GHz

CF Step
11.500000 MHz

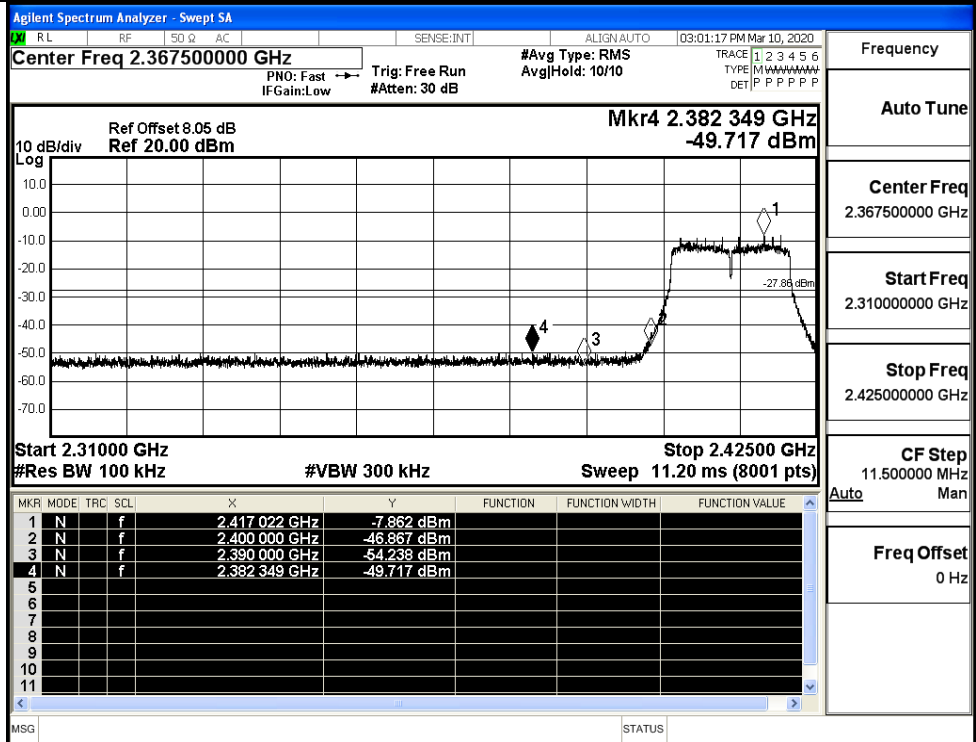
Freq Offset
0 Hz

11G/HCH



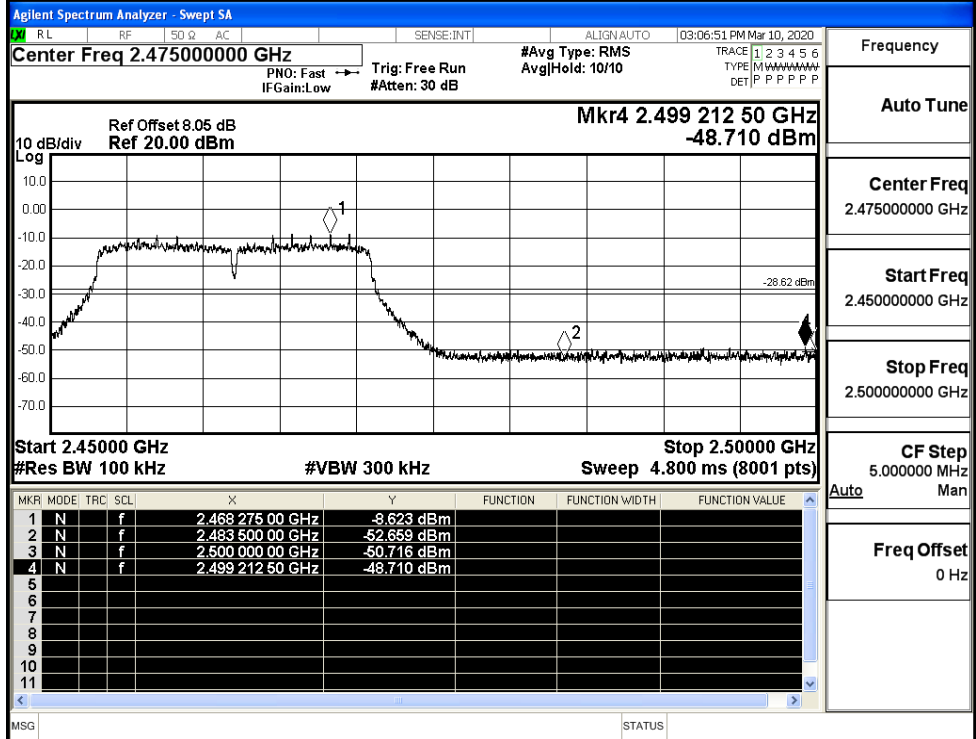
Frequency	
Auto Tune	
Center Freq	2.47500000 GHz
Start Freq	2.45000000 GHz
Stop Freq	2.50000000 GHz
CF Step	5.000000 MHz
Freq Offset	0 Hz

11N20SISO/LCH

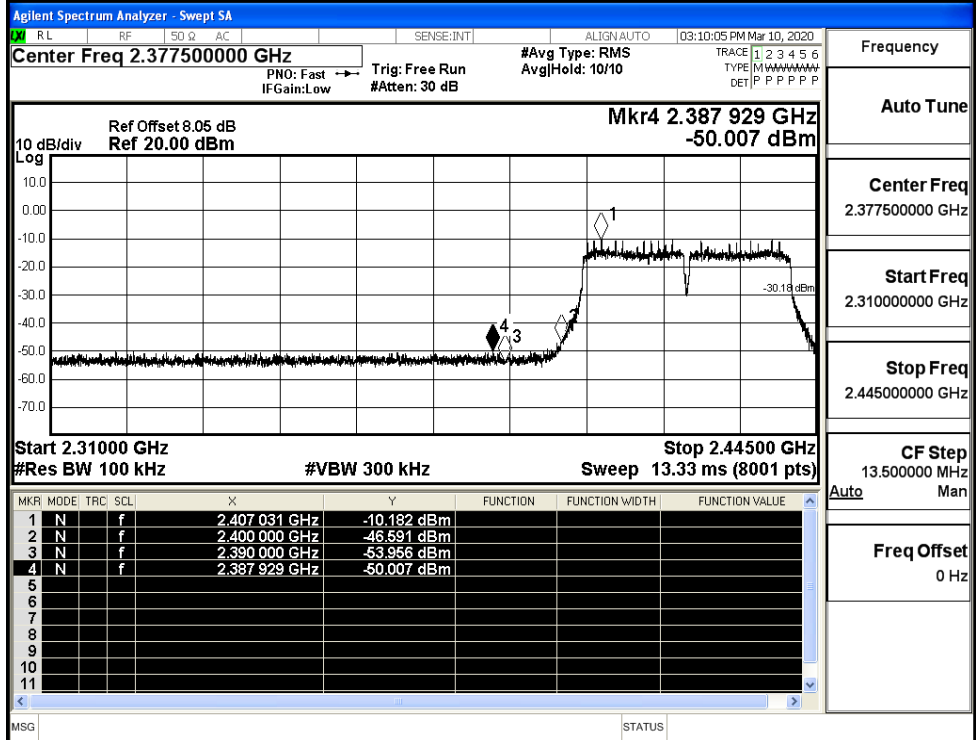


Frequency	
Auto Tune	
Center Freq	2.36750000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.42500000 GHz
CF Step	11.500000 MHz
Freq Offset	0 Hz

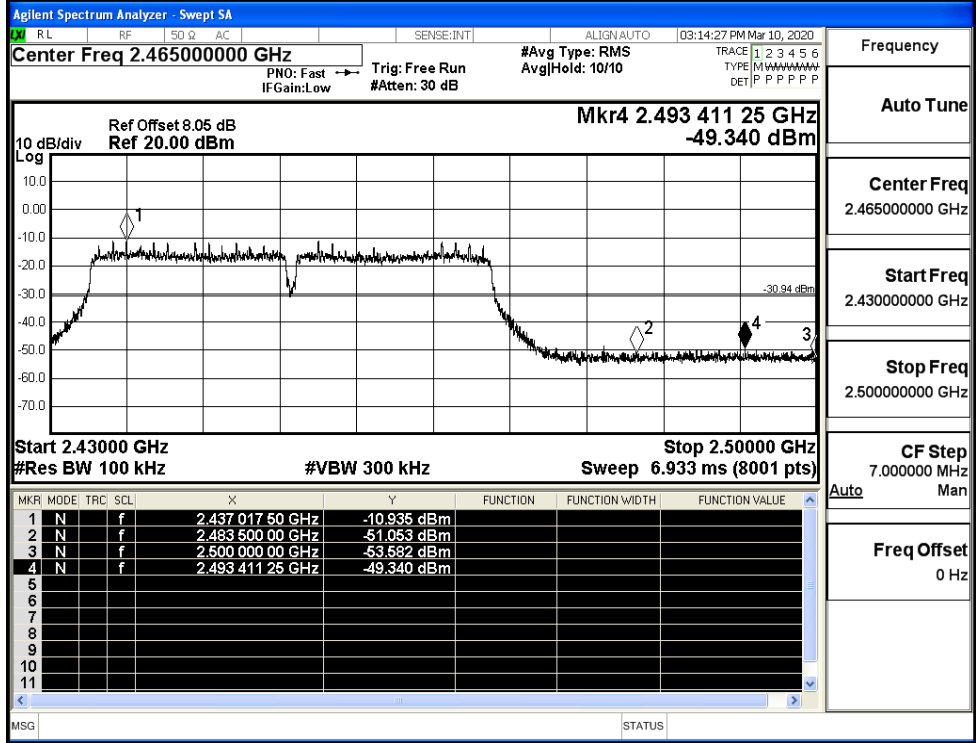
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

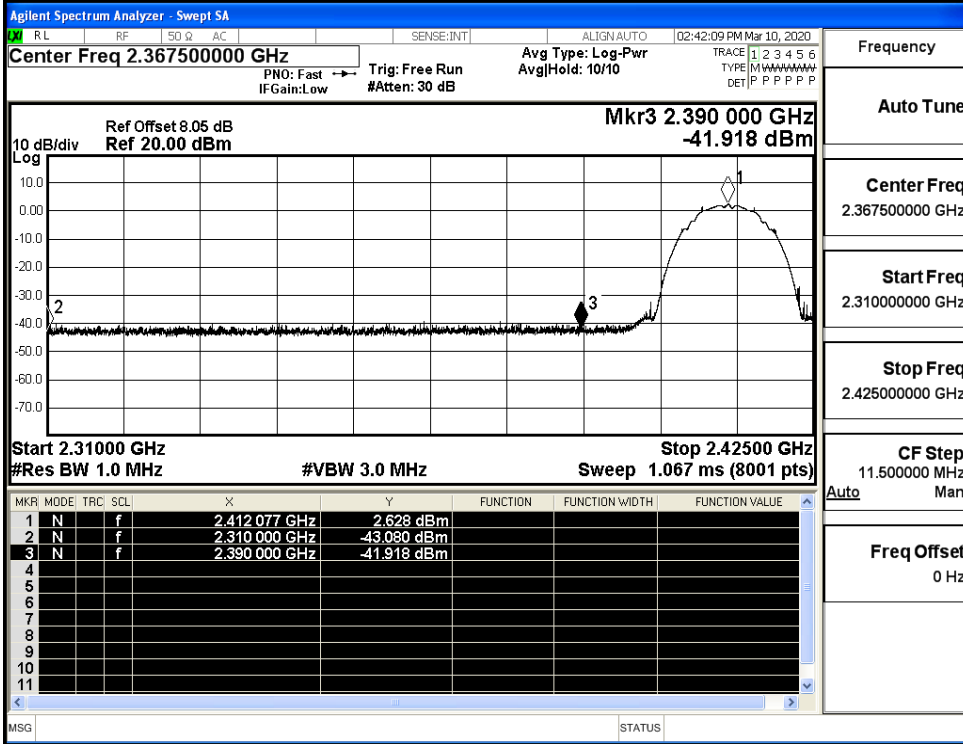


A.7 Restrict-band band-edge measurements

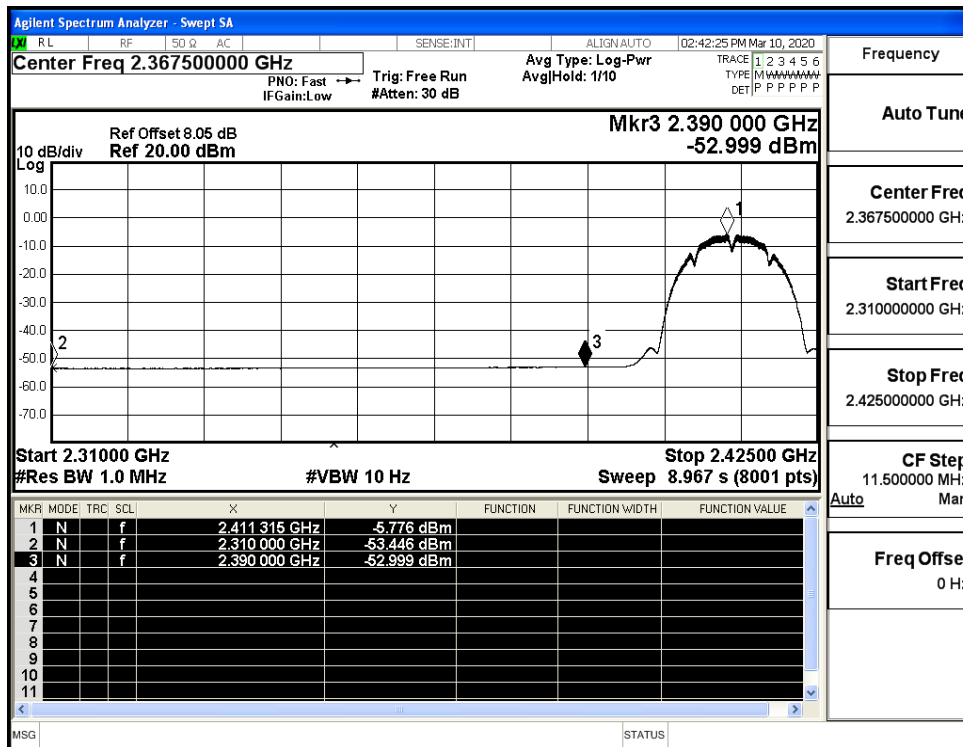
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBu V/m]	Verdict
11B	2412	Ant1	2310.0	-43.08	2.0	0	52.18	PEAK	74	PASS
	2412	Ant1	2310.0	-53.45	2.0	0	41.81	AV	54	PASS
	2412	Ant1	2390.0	-41.92	2.0	0	53.34	PEAK	74	PASS
	2412	Ant1	2390.0	-53.00	2.0	0	42.26	AV	54	PASS
	2462	Ant1	2483.5	-41.60	2.0	0	53.66	PEAK	74	PASS
	2462	Ant1	2483.5	-52.70	2.0	0	42.56	AV	54	PASS
	2462	Ant1	2500.0	-41.22	2.0	0	54.04	PEAK	74	PASS
	2462	Ant1	2500.0	-52.53	2.0	0	42.73	AV	54	PASS
11G	2412	Ant1	2310.0	-42.90	2.0	0	52.36	PEAK	74	PASS
	2412	Ant1	2310.0	-53.48	2.0	0	41.78	AV	54	PASS
	2412	Ant1	2390.0	-42.72	2.0	0	52.54	PEAK	74	PASS
	2412	Ant1	2390.0	-53.05	2.0	0	42.20	AV	54	PASS
	2462	Ant1	2483.5	-42.87	2.0	0	52.39	PEAK	74	PASS
	2462	Ant1	2483.5	-52.75	2.0	0	42.51	AV	54	PASS
	2462	Ant1	2500.0	-41.77	2.0	0	53.49	PEAK	74	PASS
	2462	Ant1	2500.0	-52.47	2.0	0	42.79	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.01	2.0	0	52.25	PEAK	74	PASS
	2412	Ant1	2310.0	-53.50	2.0	0	41.76	AV	54	PASS
	2412	Ant1	2390.0	-42.47	2.0	0	52.78	PEAK	74	PASS
	2412	Ant1	2390.0	-53.03	2.0	0	42.22	AV	54	PASS
	2462	Ant1	2483.5	-42.64	2.0	0	52.62	PEAK	74	PASS
	2462	Ant1	2483.5	-52.73	2.0	0	42.53	AV	54	PASS
	2462	Ant1	2500.0	-41.80	2.0	0	53.46	PEAK	74	PASS
	2462	Ant1	2500.0	-52.52	2.0	0	42.73	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-42.92	2.0	0	52.34	PEAK	74	PASS
	2422	Ant1	2310.0	-53.50	2.0	0	41.76	AV	54	PASS

	2422	Ant1	2390.0	-41.65	2.0	0	53.61	PEAK	74	PASS
	2422	Ant1	2390.0	-53.10	2.0	0	42.16	AV	54	PASS
	2452	Ant1	2483.5	-40.06	2.0	0	55.19	PEAK	74	PASS
	2452	Ant1	2483.5	-52.72	2.0	0	42.54	AV	54	PASS
	2452	Ant1	2500.0	-41.94	2.0	0	53.32	PEAK	74	PASS
	2452	Ant1	2500.0	-52.54	2.0	0	42.72	AV	54	PASS

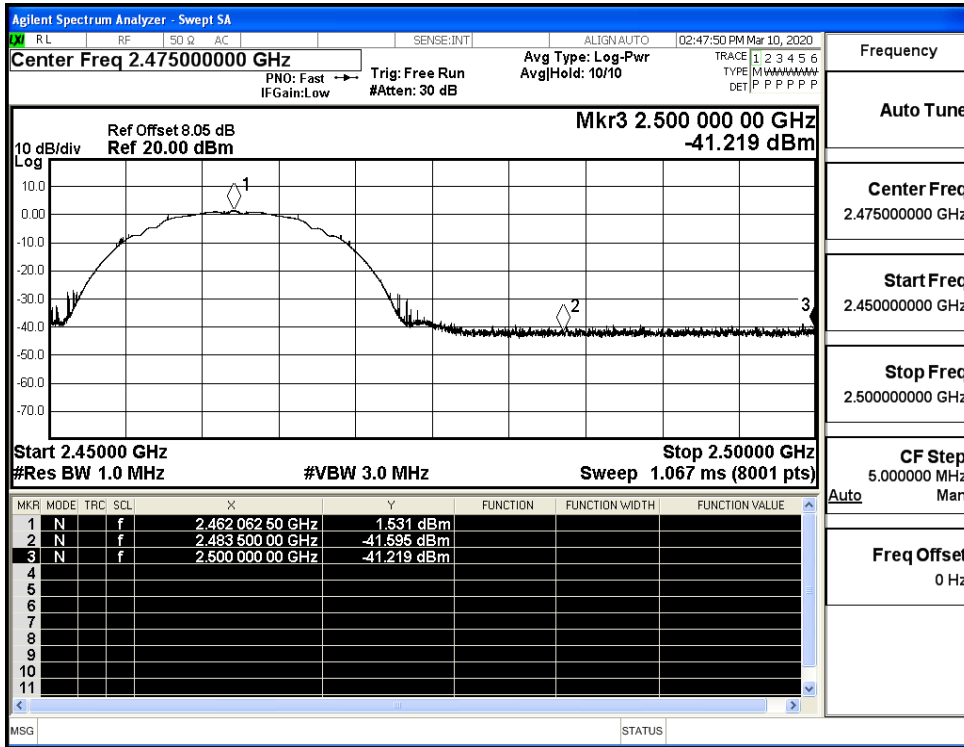
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



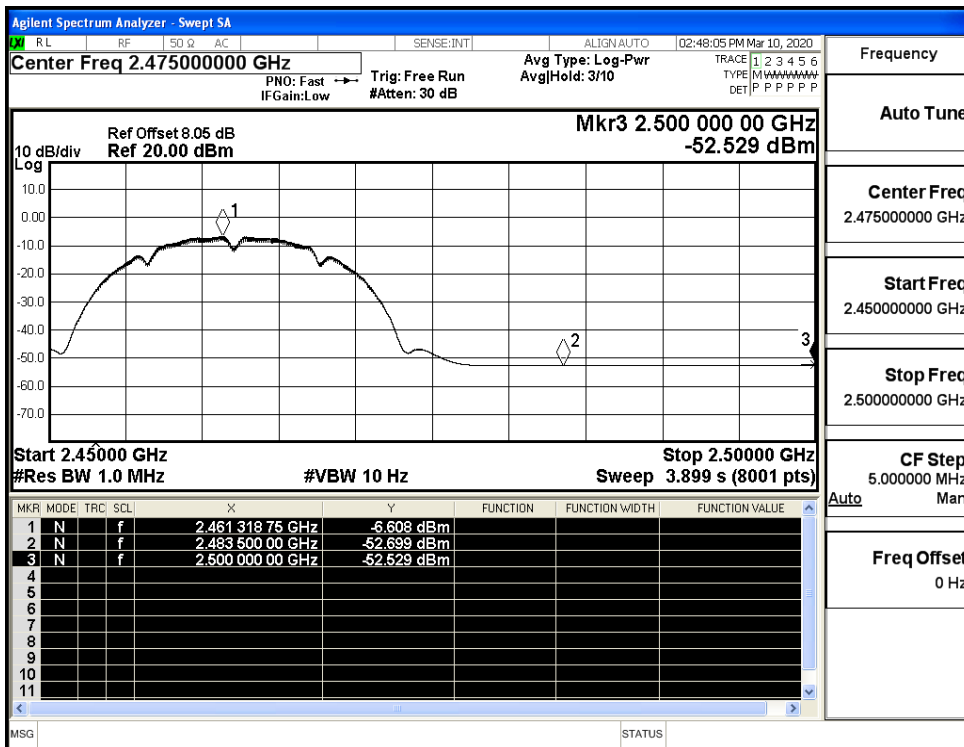
Restrict-band band-edge measurements_11B_2412_Ant1_AV



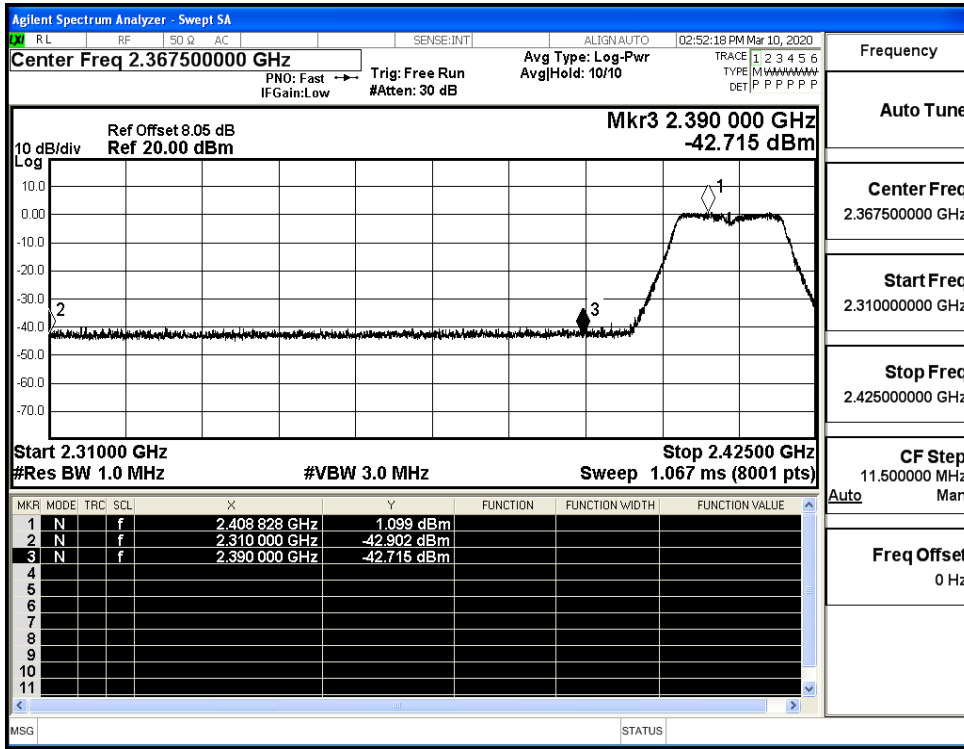
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



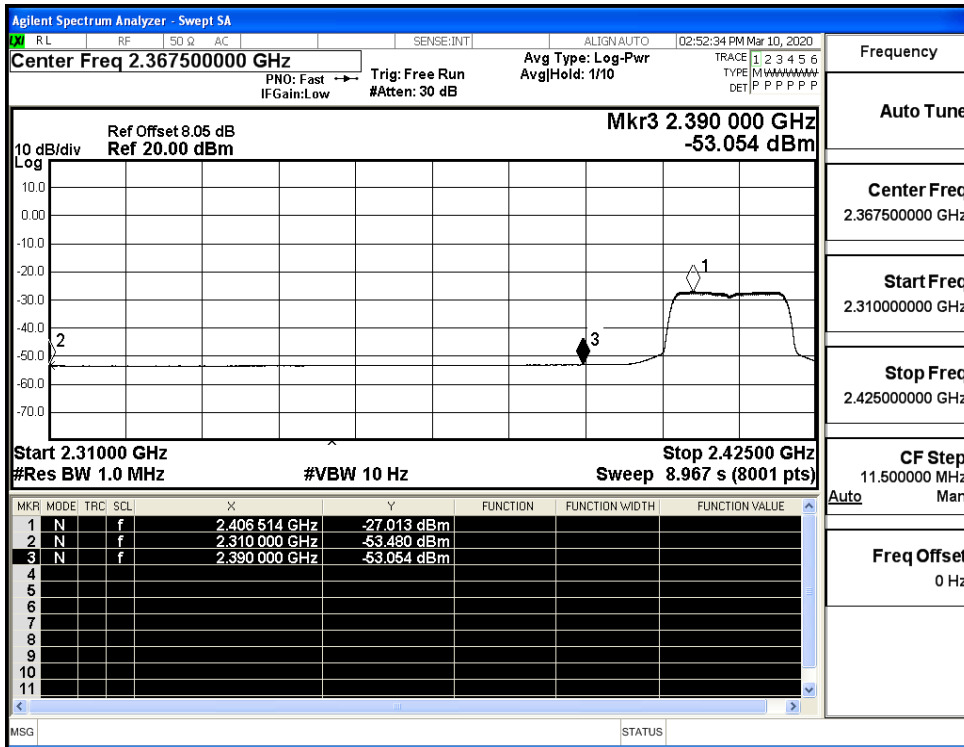
Restrict-band band-edge measurements_11B_2462_Ant1_AV



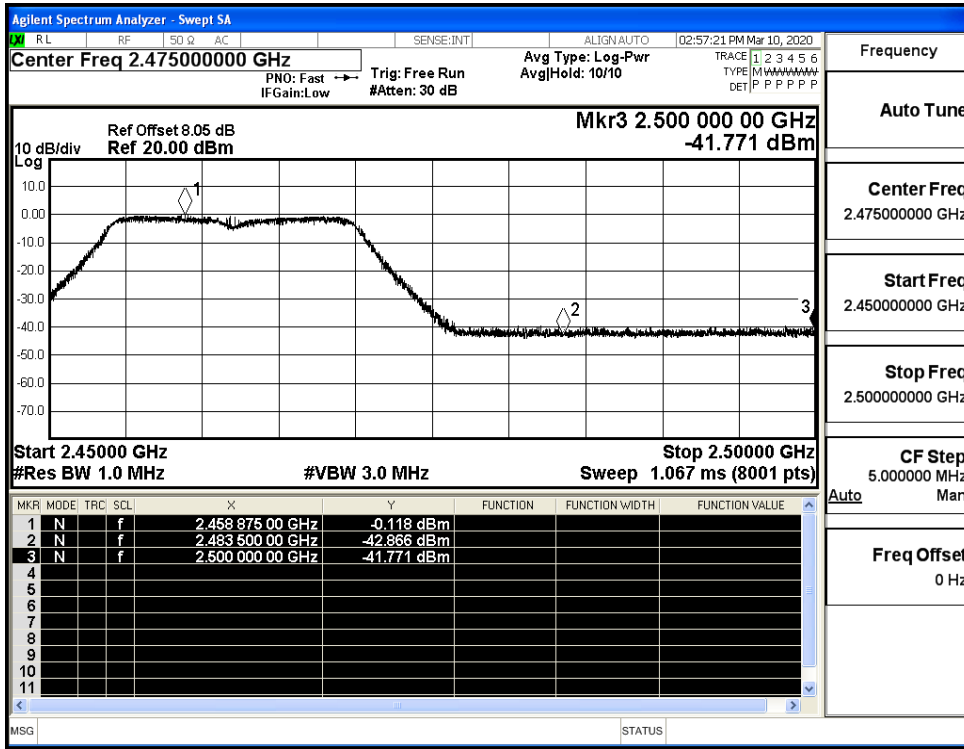
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



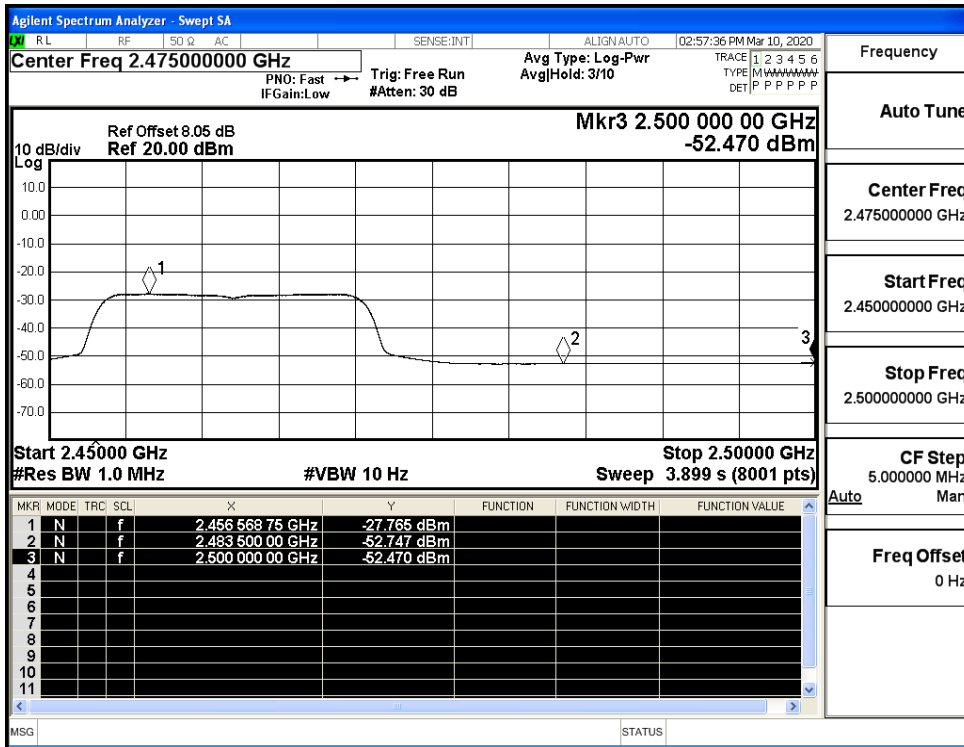
Restrict-band band-edge measurements_11G_2412_Ant1_AV



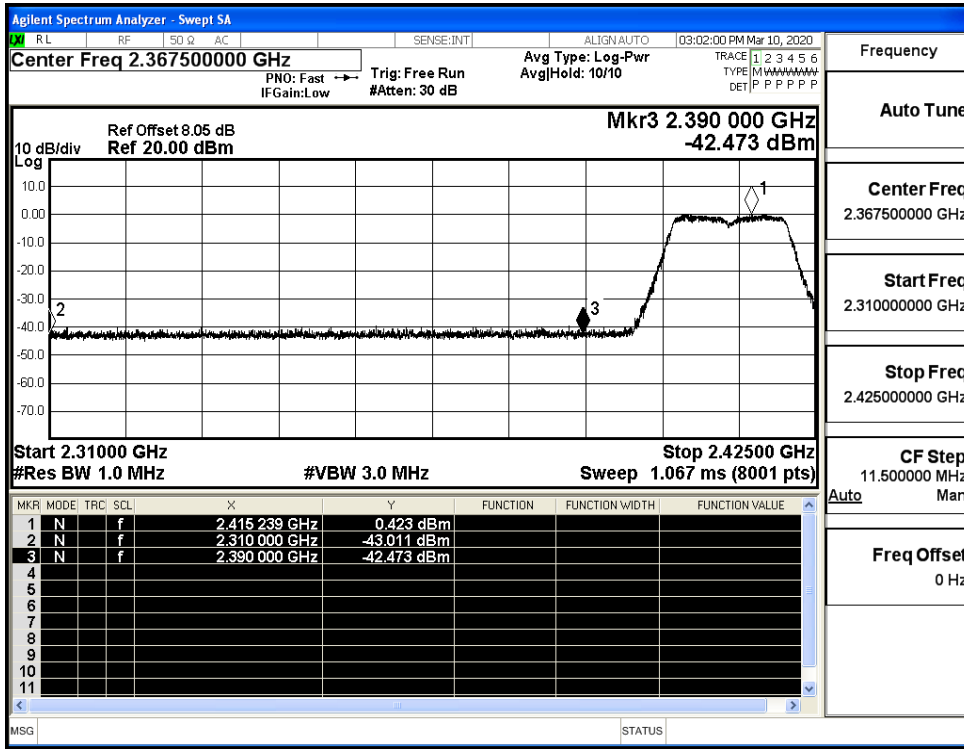
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



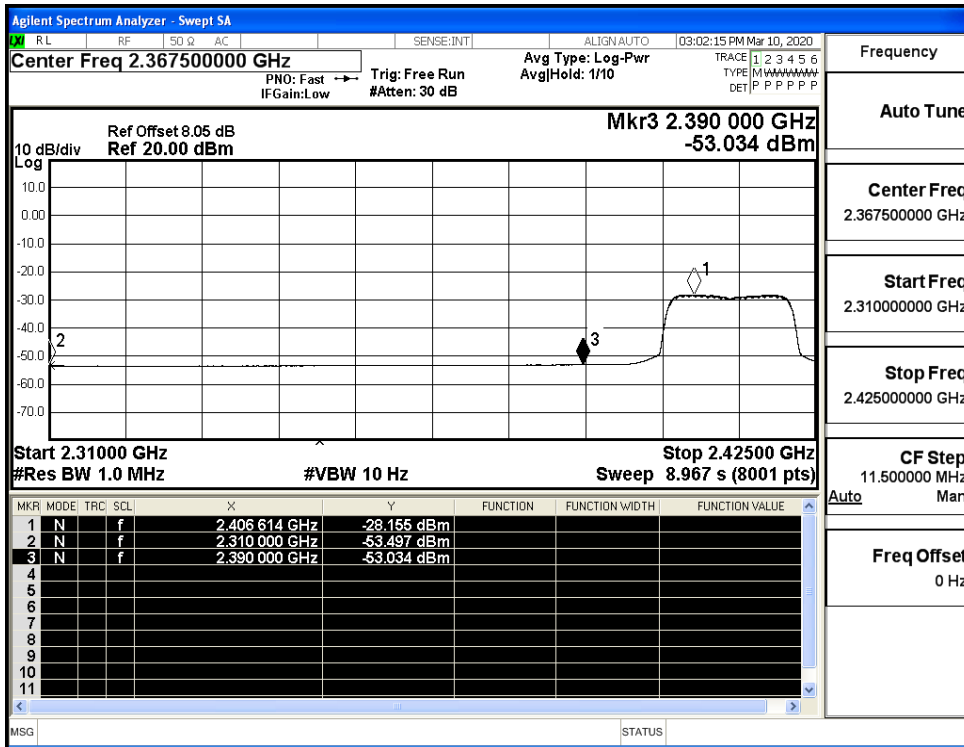
Restrict-band band-edge measurements_11G_2462_Ant1_AV



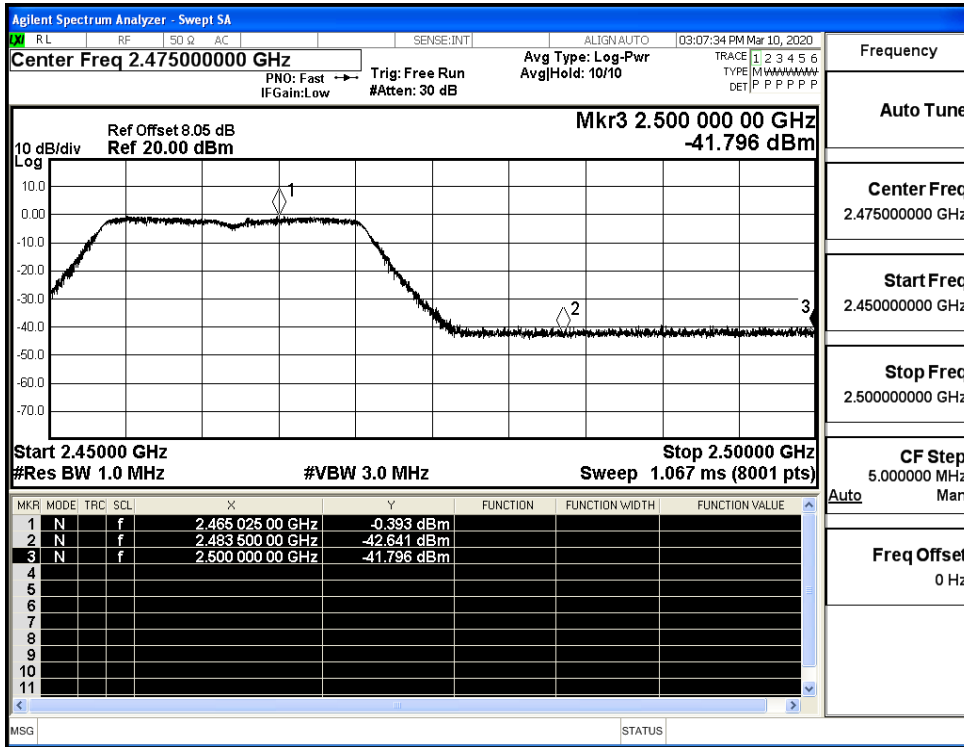
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



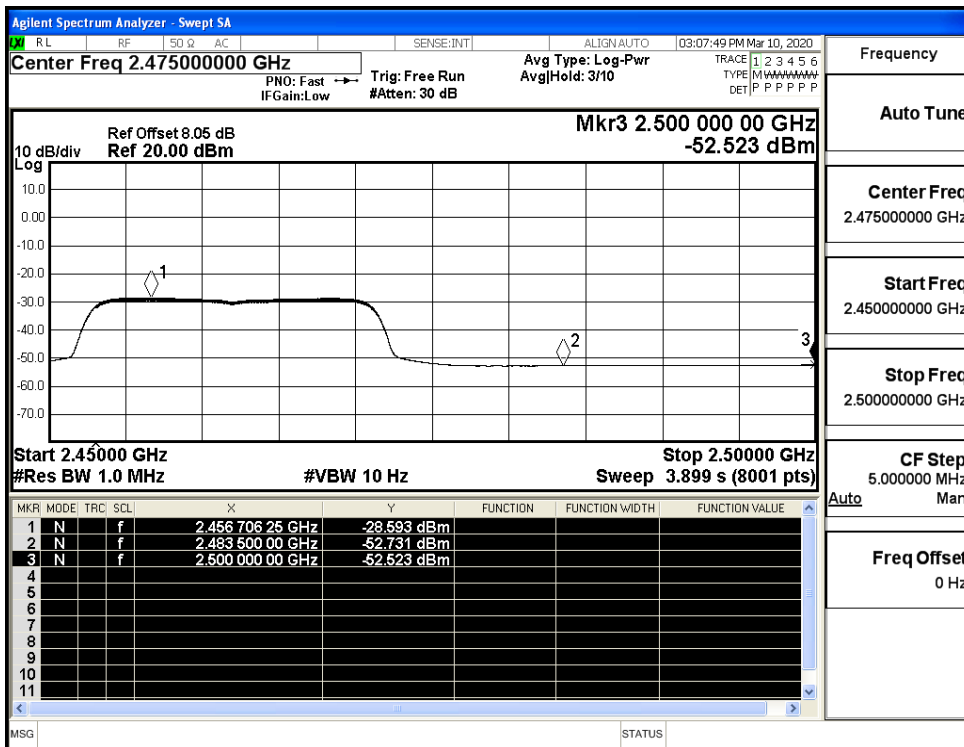
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



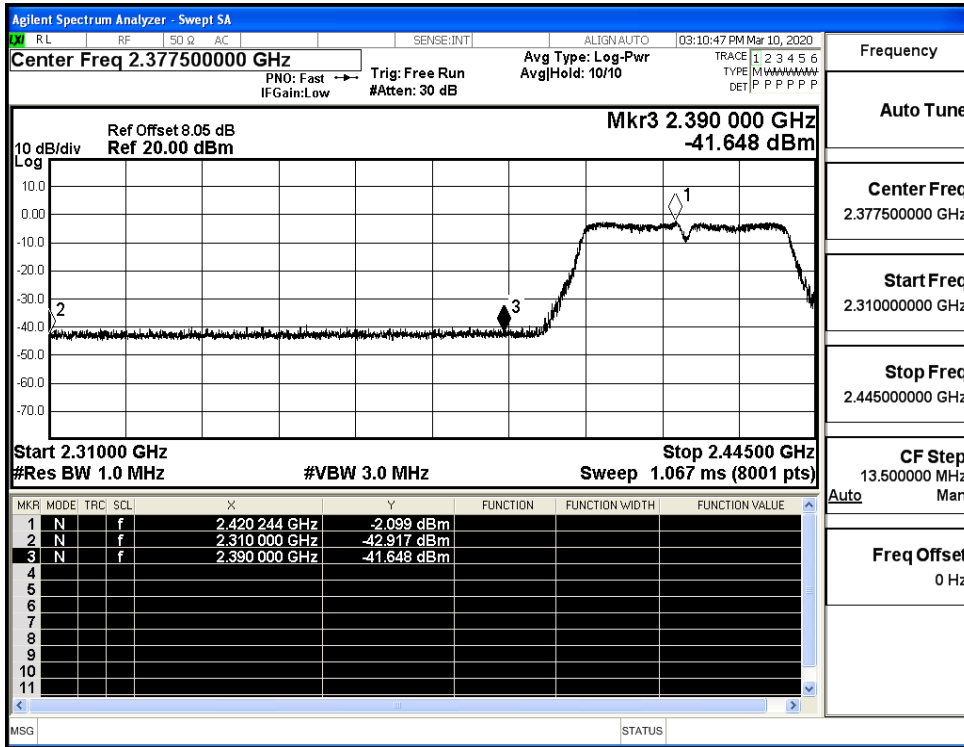
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



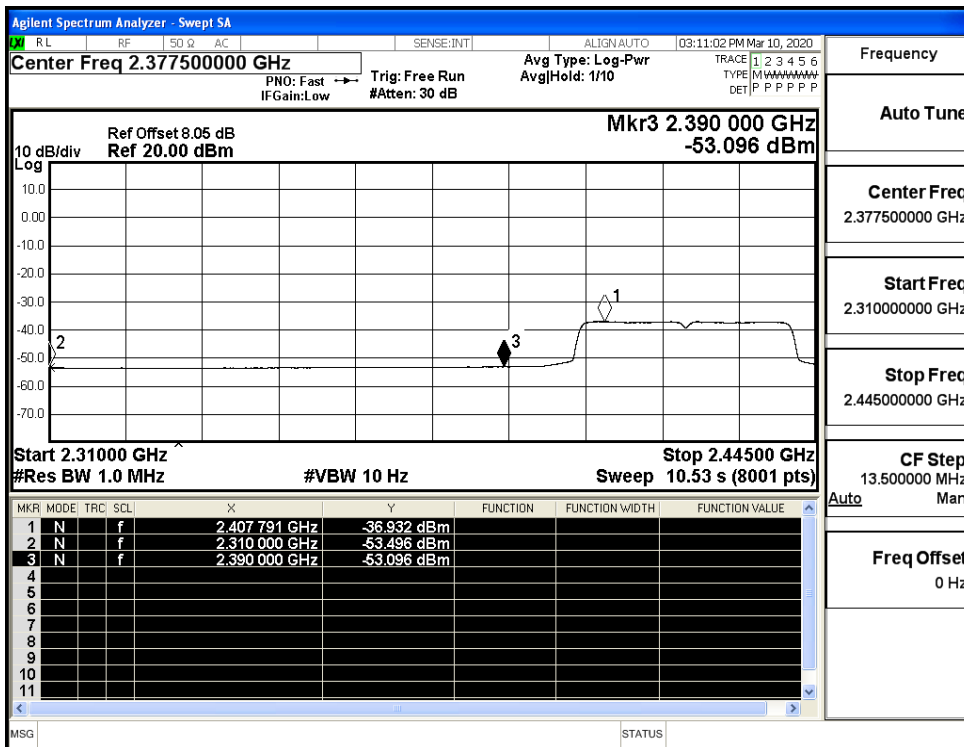
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



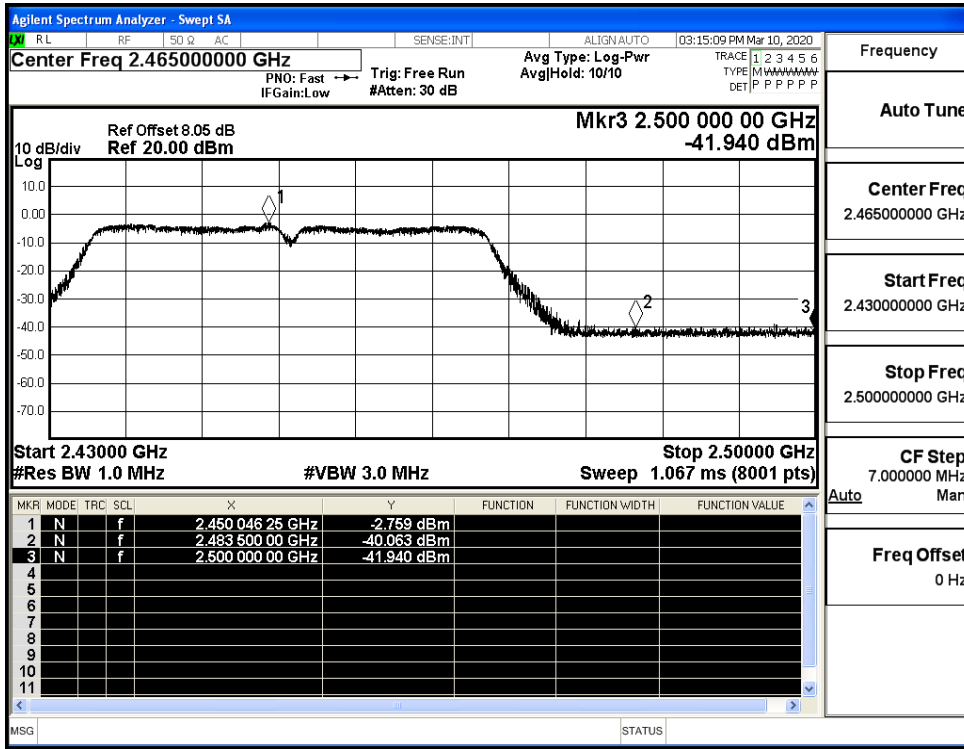
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

