

## Appendix C

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

Product Name: I1012

Trade Mark: Hyundai

Test Model: 10WWA464B

#### Environmental Conditions

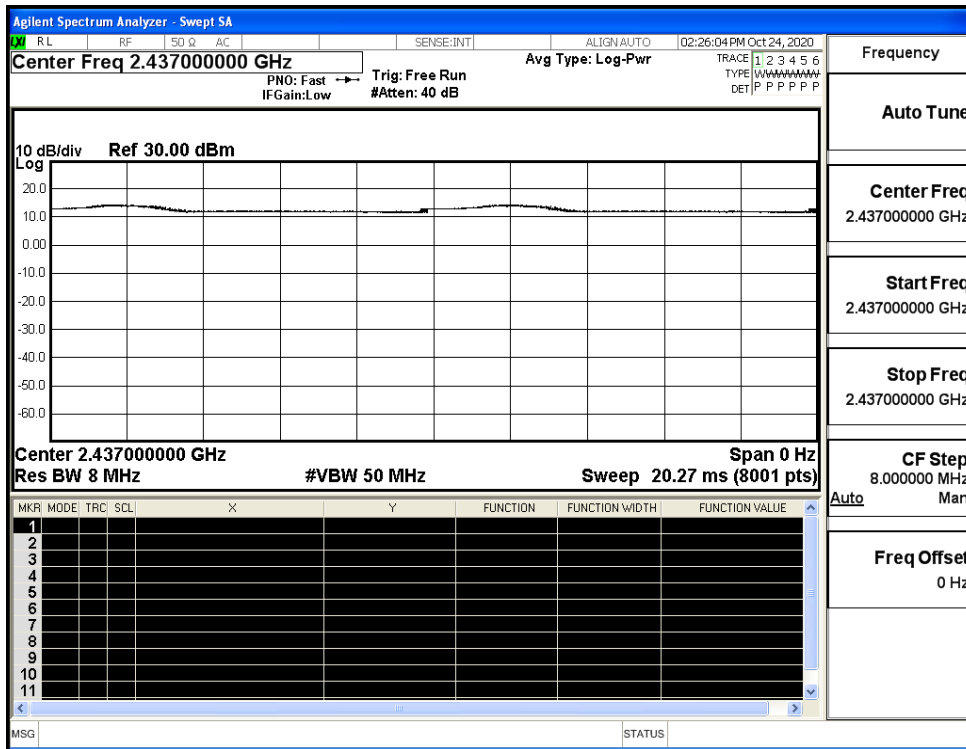
Temperature:	23.6 ° C
Relative Humidity:	54.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

#### C.1 Duty Cycle

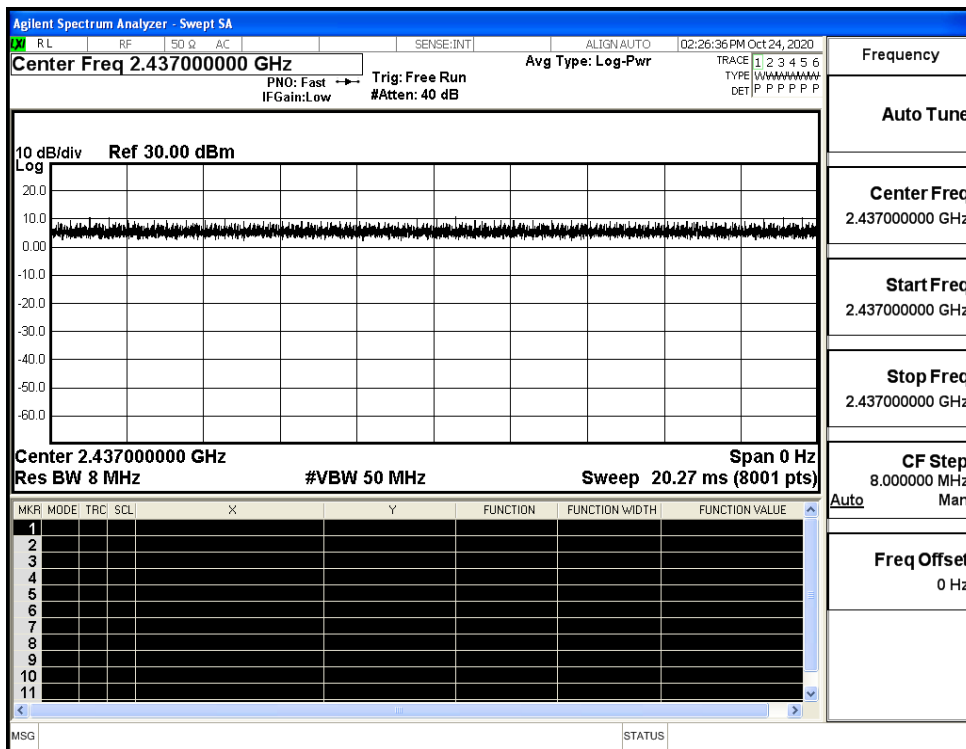
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant0	100	PASS
11G	2437	Ant0	100	PASS
11N20SISO	2437	Ant0	100	PASS
11N40SISO	2437	Ant0	100	PASS

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

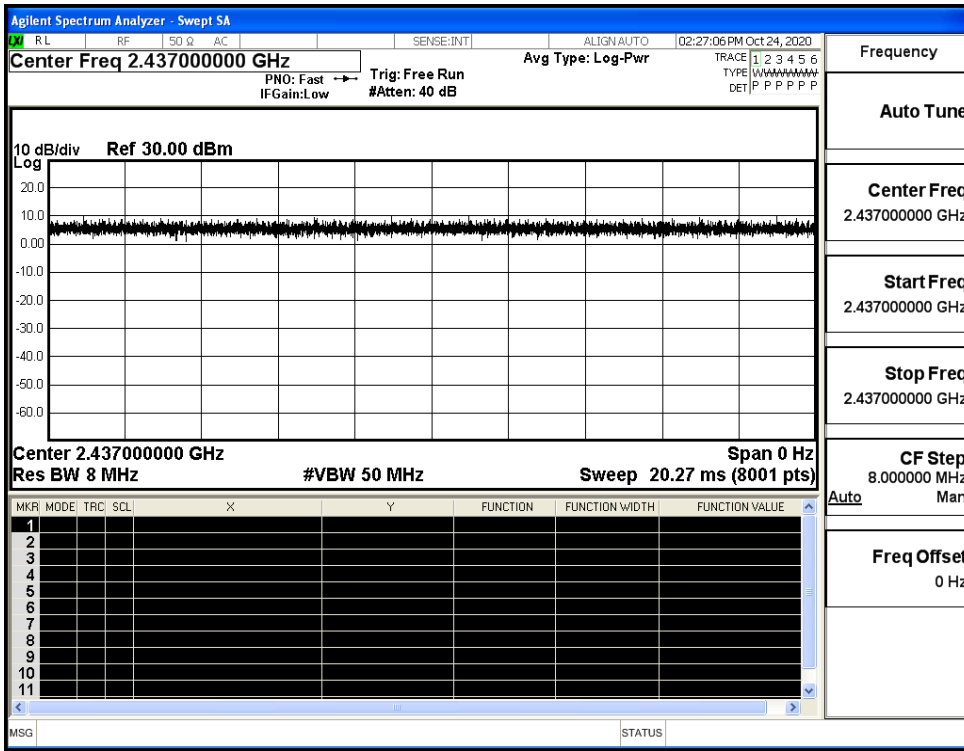
Duty Cycle\_11B\_2437\_Ant0



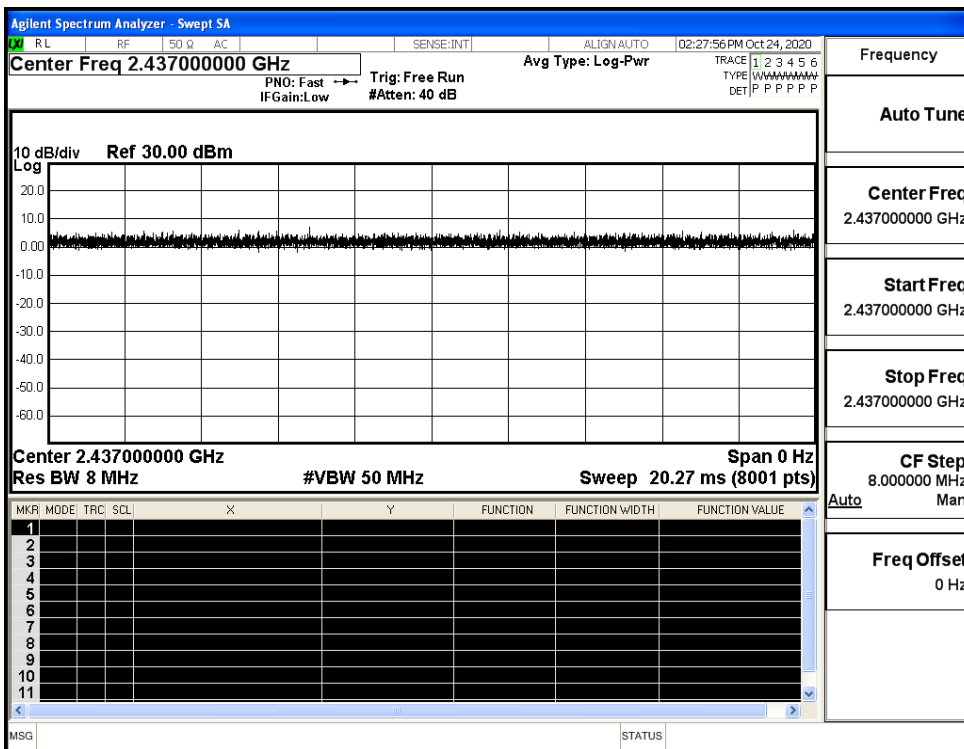
Duty Cycle\_11G\_2437\_Ant0



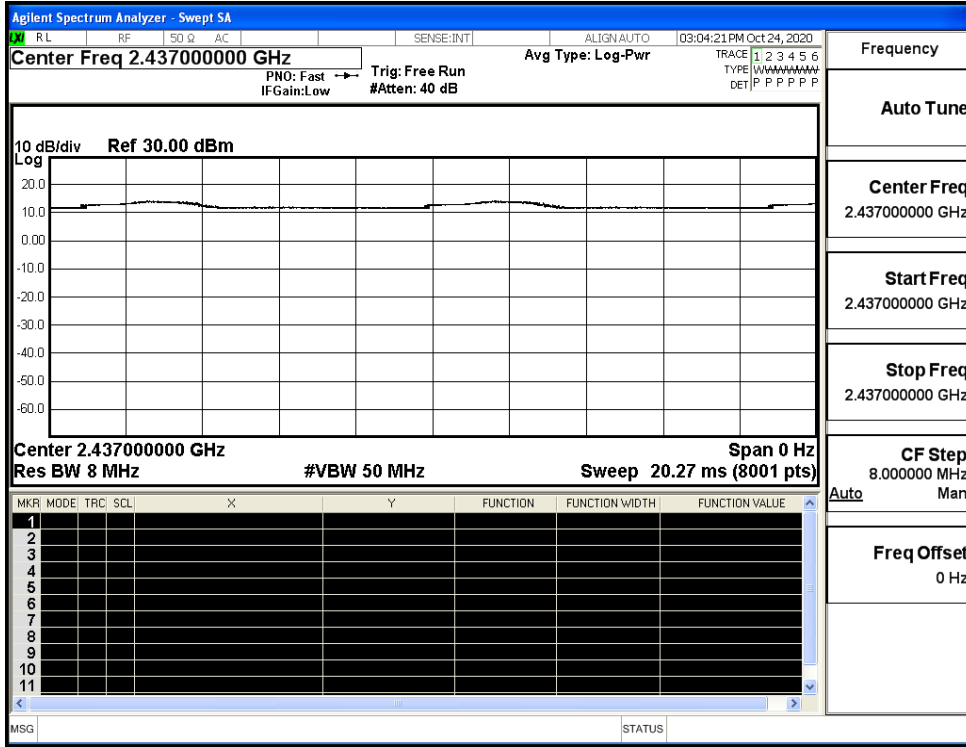
Duty Cycle\_11N20SISO\_2437\_Ant0



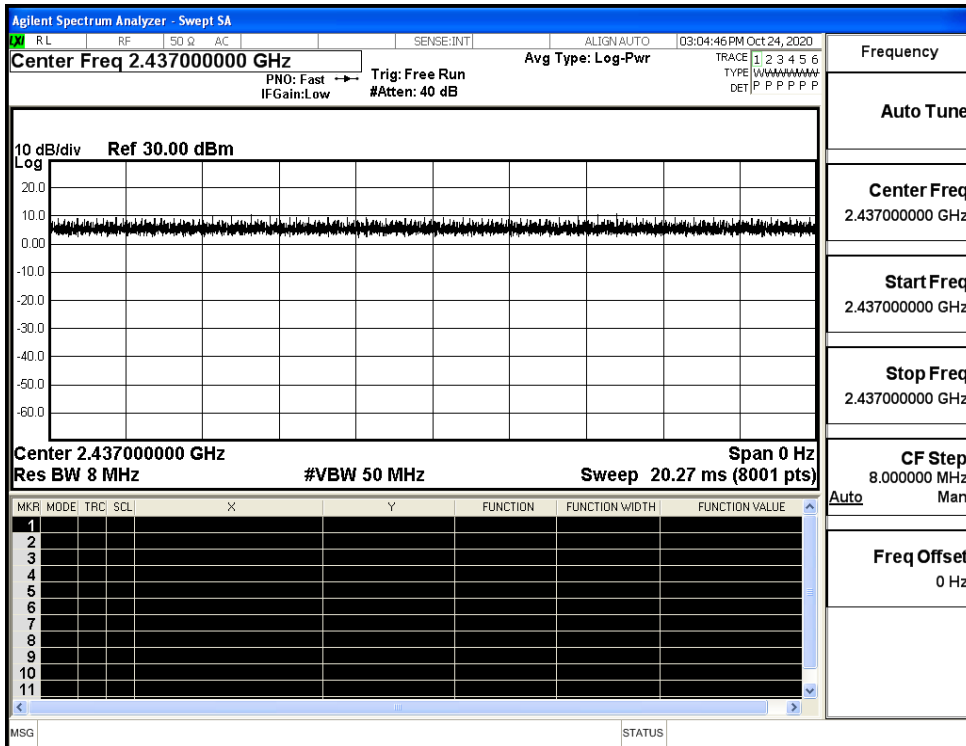
Duty Cycle\_11N40SISO\_2437\_Ant0



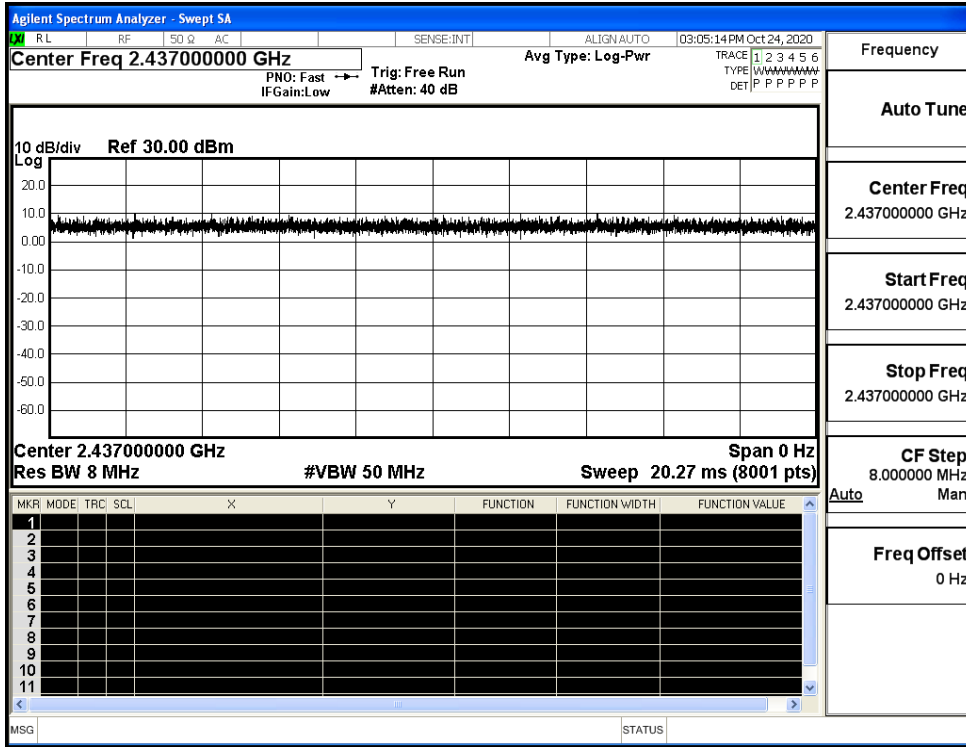
Duty Cycle\_11B\_2437\_Ant1



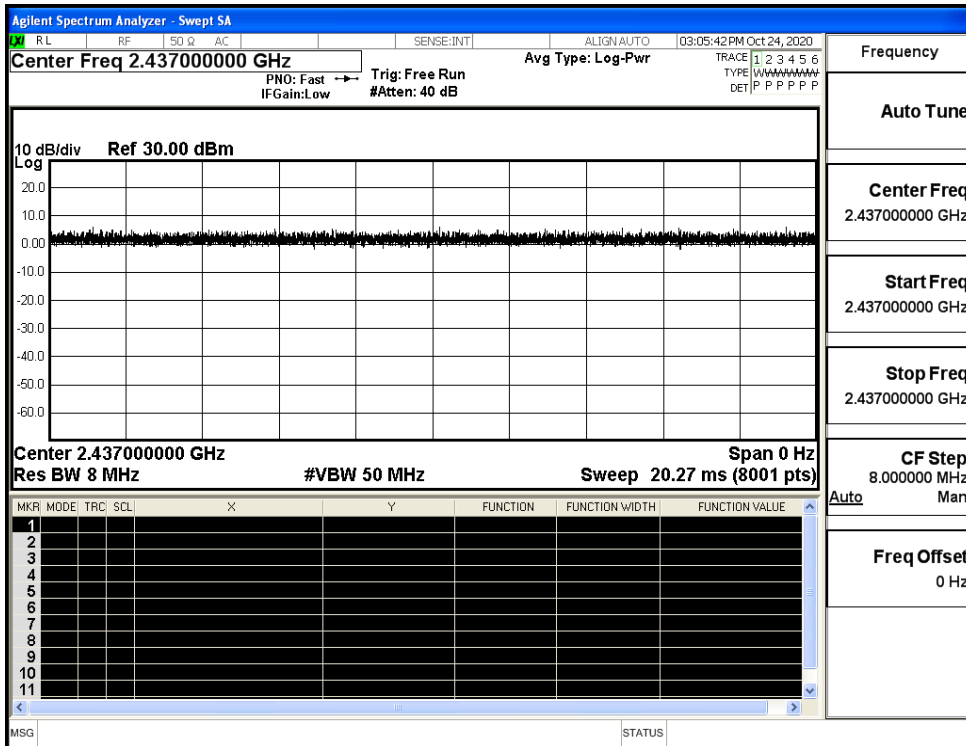
Duty Cycle\_11G\_2437\_Ant1



Duty Cycle\_11N20SISO\_2437\_Ant1



Duty Cycle\_11N40SISO\_2437\_Ant1



**C.2 Maximum Conducted Output Power**

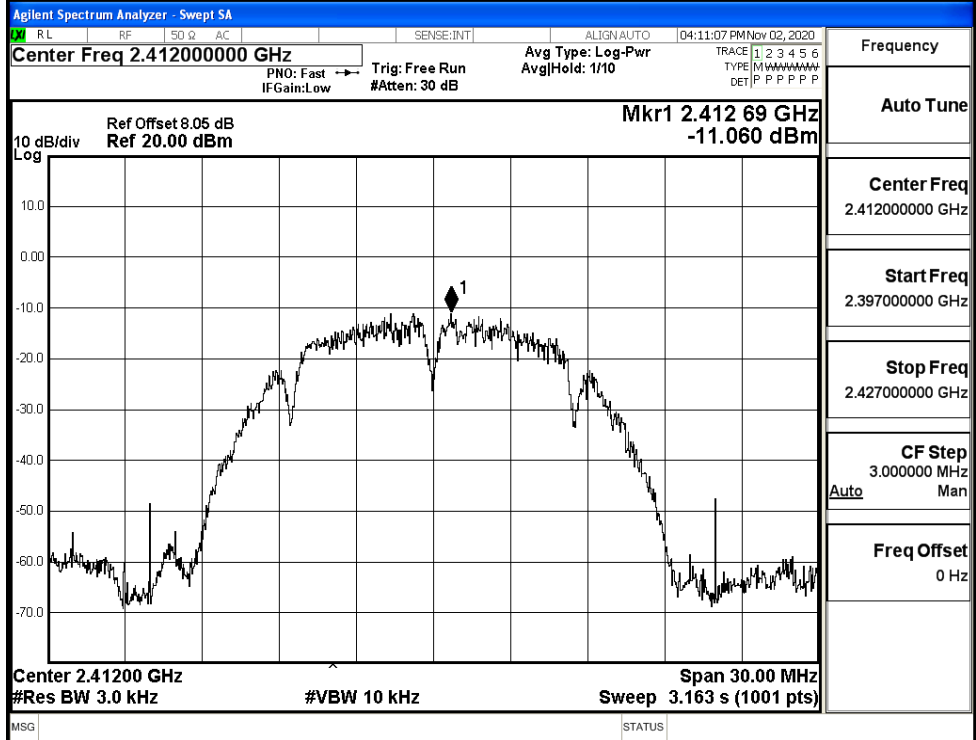
Mode	Channel	Peak Power [dBm]			Limit [dBm]	Verdict
		Ant 0	Ant 1	Sum		
11B	LCH	5.48	5.43	/	30	PASS
	MCH	5.49	5.77	/	30	PASS
	HCH	5.53	5.27	/	30	PASS
11G	LCH	6.40	6.14	/	30	PASS
	MCH	6.16	6.21	/	30	PASS
	HCH	6.33	6.22	/	30	PASS
11N20	LCH	6.37	6.18	9.29	30	PASS
	MCH	6.42	6.49	9.47	30	PASS
	HCH	6.19	6.27	9.24	30	PASS
11N40	LCH	6.25	6.39	9.33	30	PASS
	MCH	6.46	6.25	9.37	30	PASS
	HCH	6.27	6.48	9.39	30	PASS

### C.3 Maximum Power Spectral Density

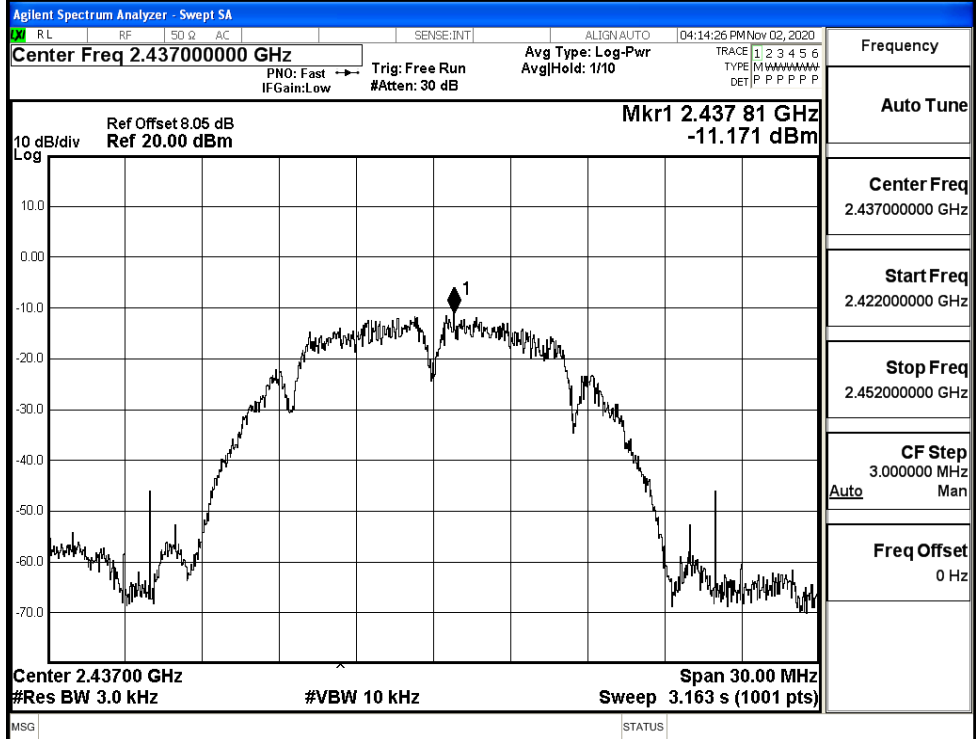
Mode	Channel	Meas.Level [dBm/3KHz]			Limit [dBm/3KHz]	Verdict
		Ant 0	Ant 1	Sum		
11B	LCH	-11.060	-12.700	/	8	PASS
	MCH	-11.171	-12.335	/	8	PASS
	HCH	-9.841	-12.187	/	8	PASS
11G	LCH	-11.563	-11.894	/	8	PASS
	MCH	-12.218	-11.774	/	8	PASS
	HCH	-11.866	-11.375	/	8	PASS
11N20	LCH	-10.887	-11.558	-8.20	8	PASS
	MCH	-11.561	-10.696	-8.10	8	PASS
	HCH	-12.126	-10.500	-8.23	8	PASS
11N40	LCH	-14.297	-15.177	-11.70	8	PASS
	MCH	-17.138	-13.853	-12.18	8	PASS
	HCH	-16.817	-13.523	-11.85	8	PASS

Test Graphs(ANT 0)

11B/LCH

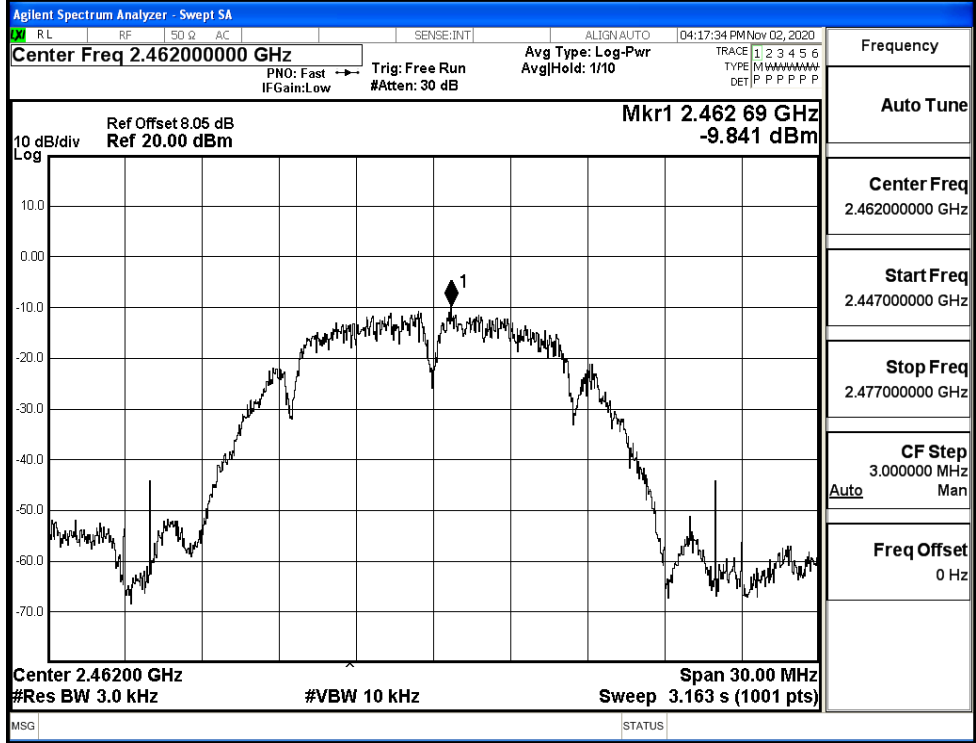


11B/MCH

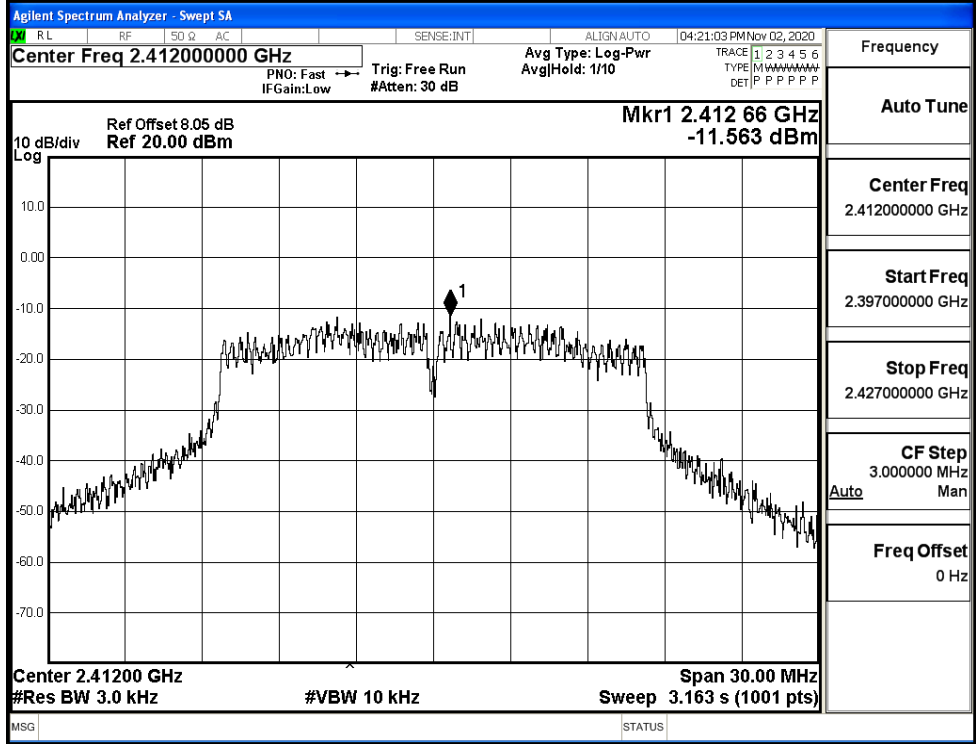




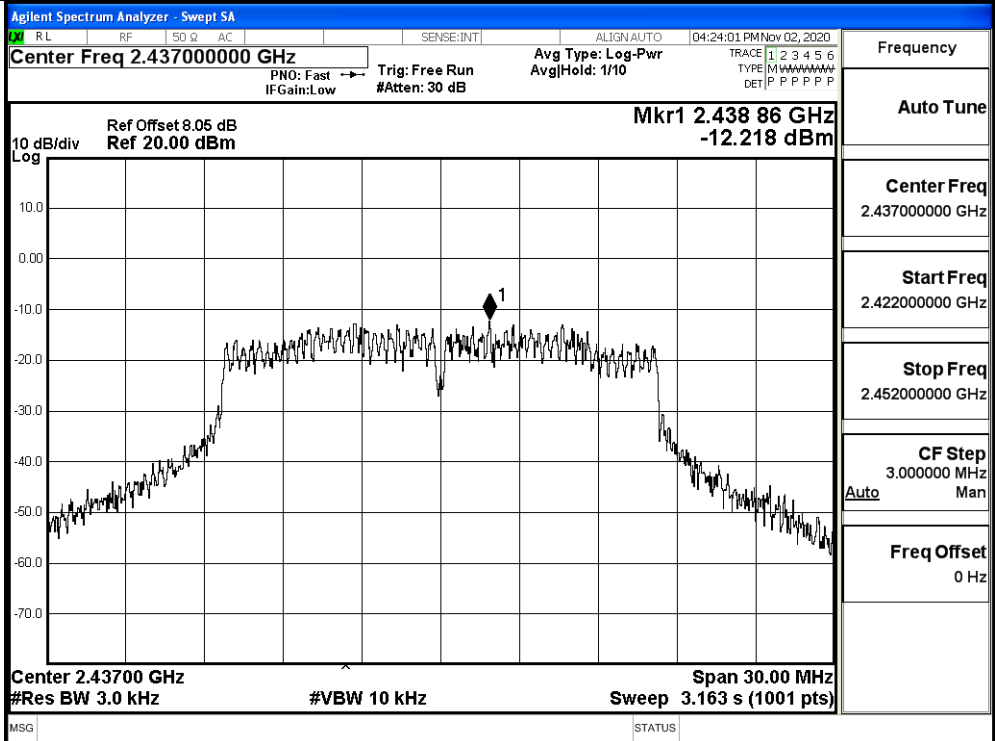
11B/HCH



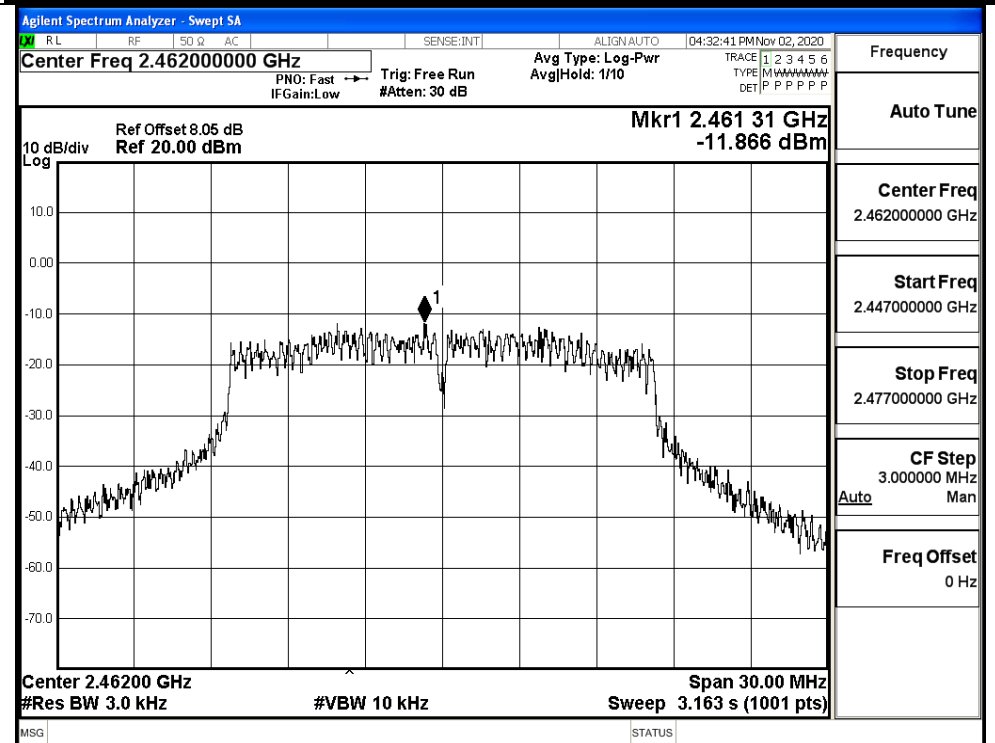
11G/LCH



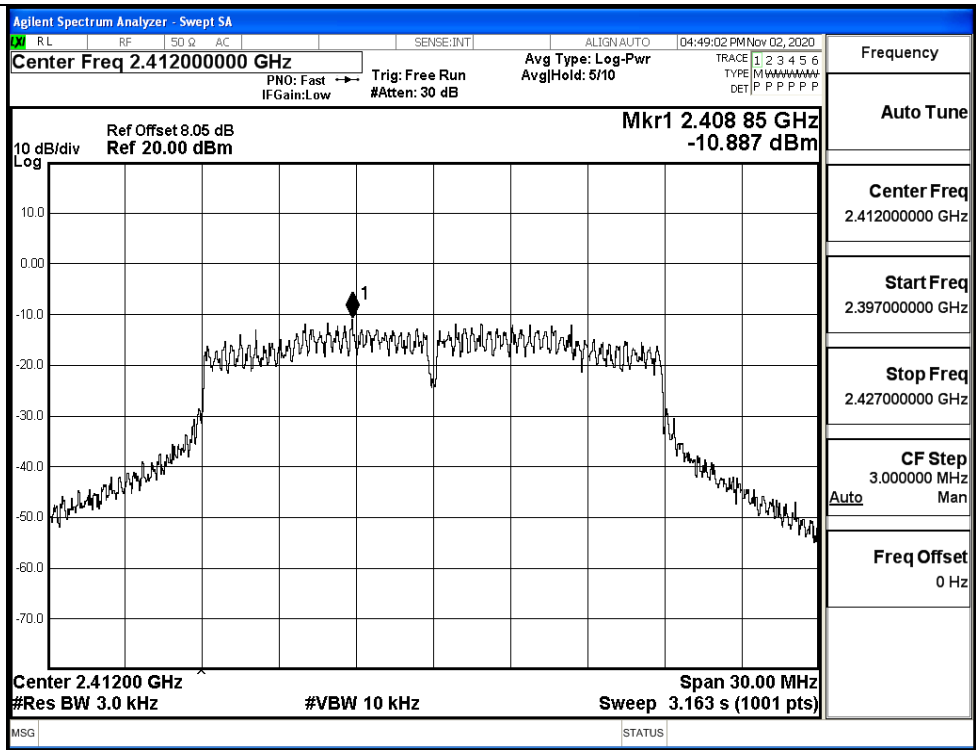
11G/MCH



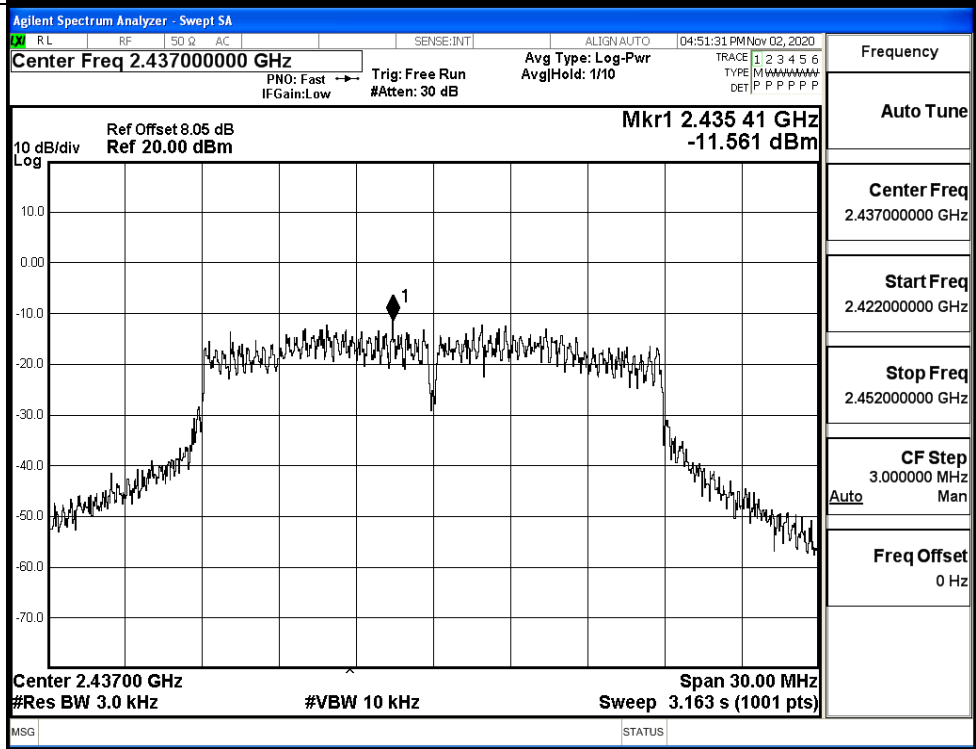
11G/HCH



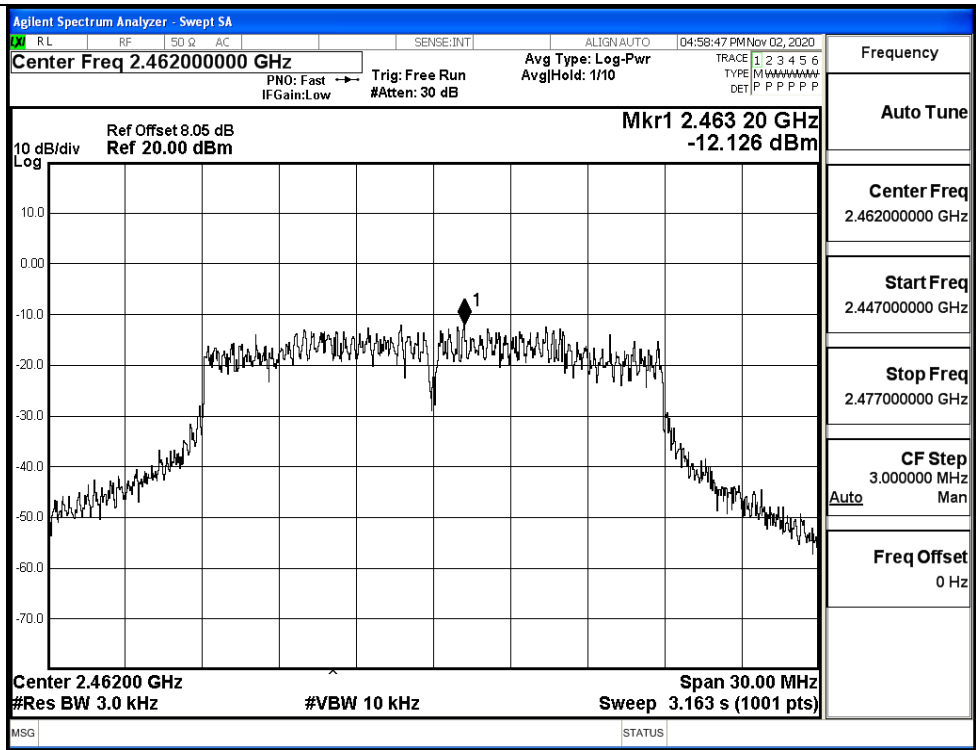
11N20SISO/LCH



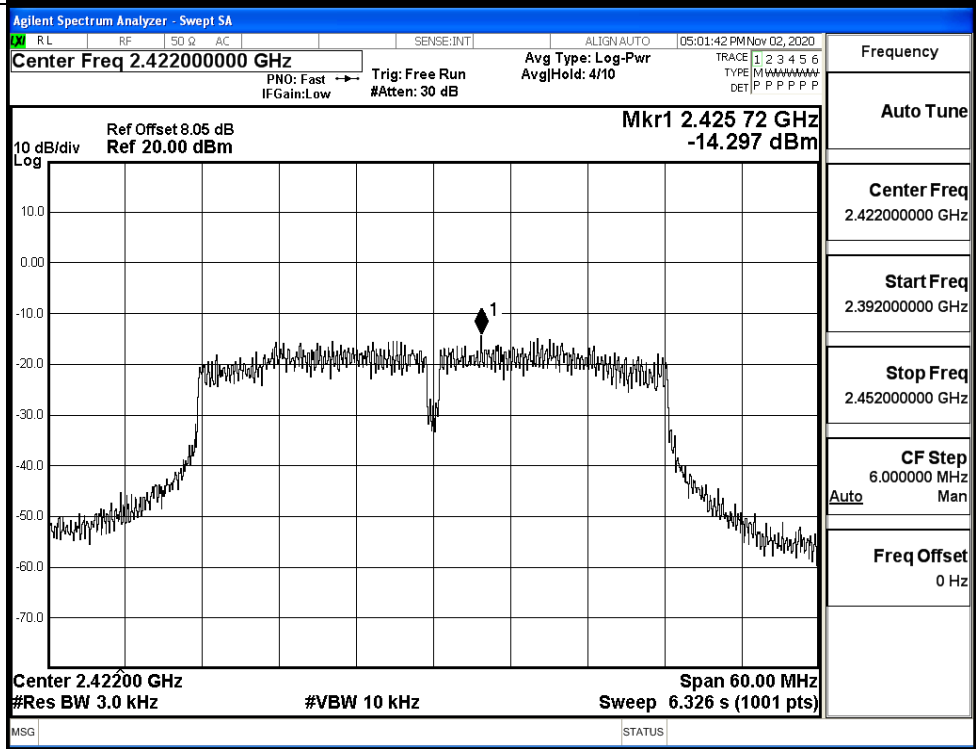
11N20SISO/MCH



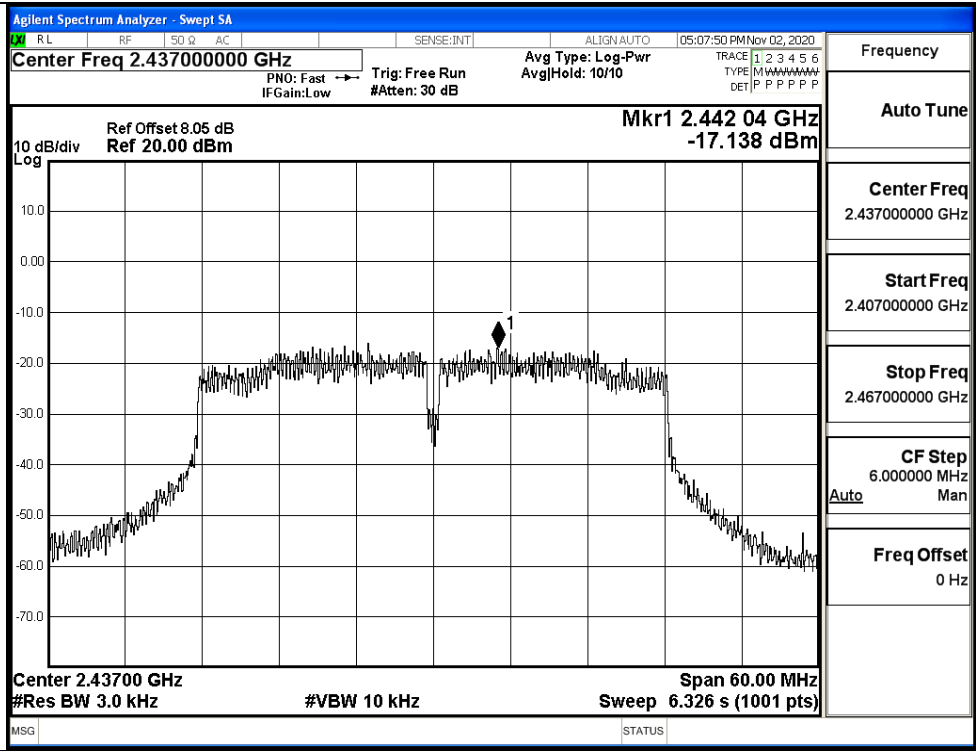
11N20SISO/HCH



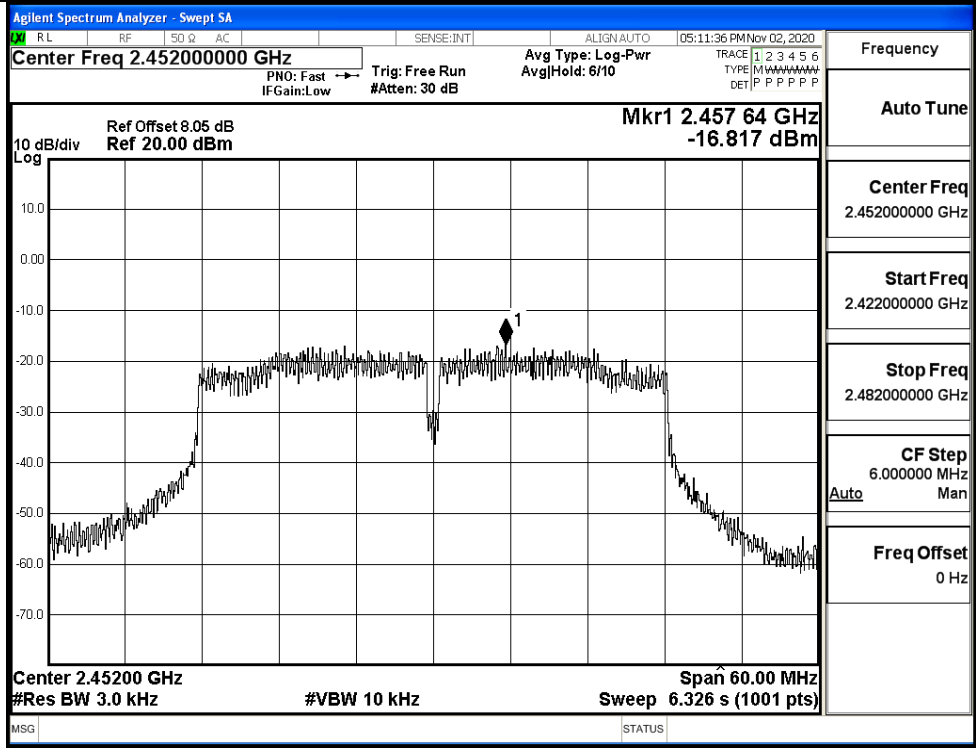
11N40SISO/LCH



11N40SISO/MCH

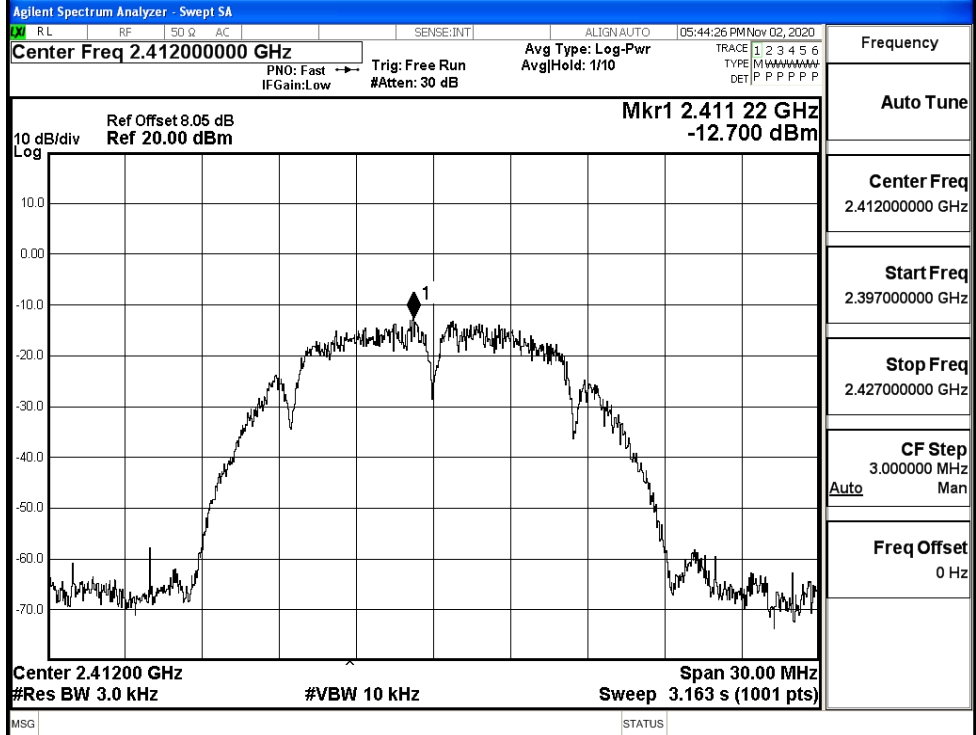


11N40SISO/HCH

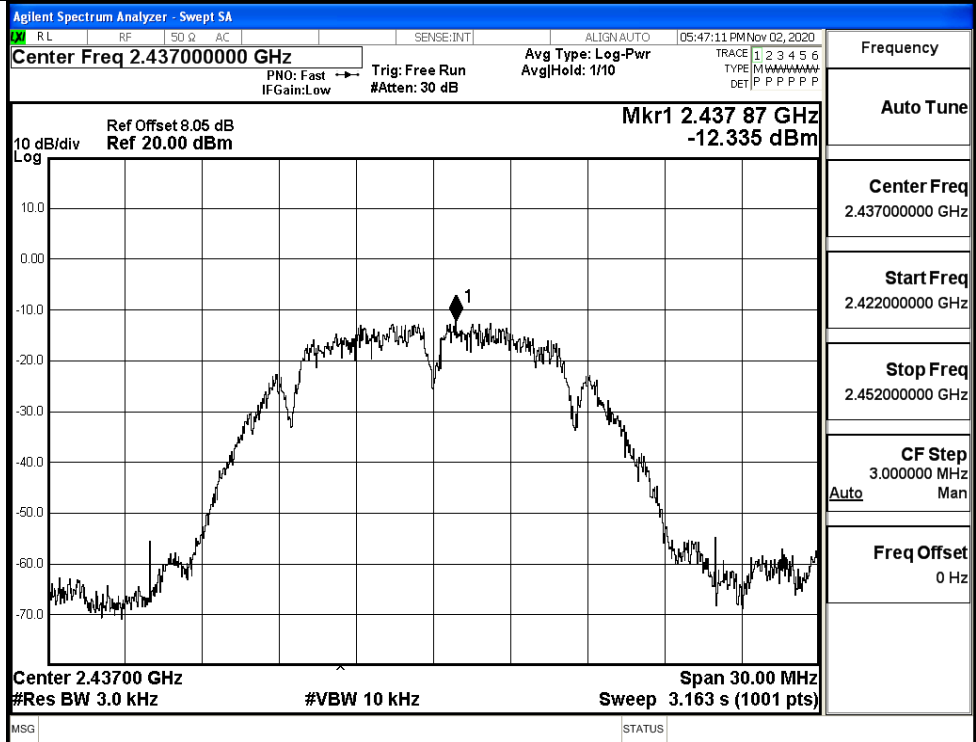


Test Graphs(ANT 1)

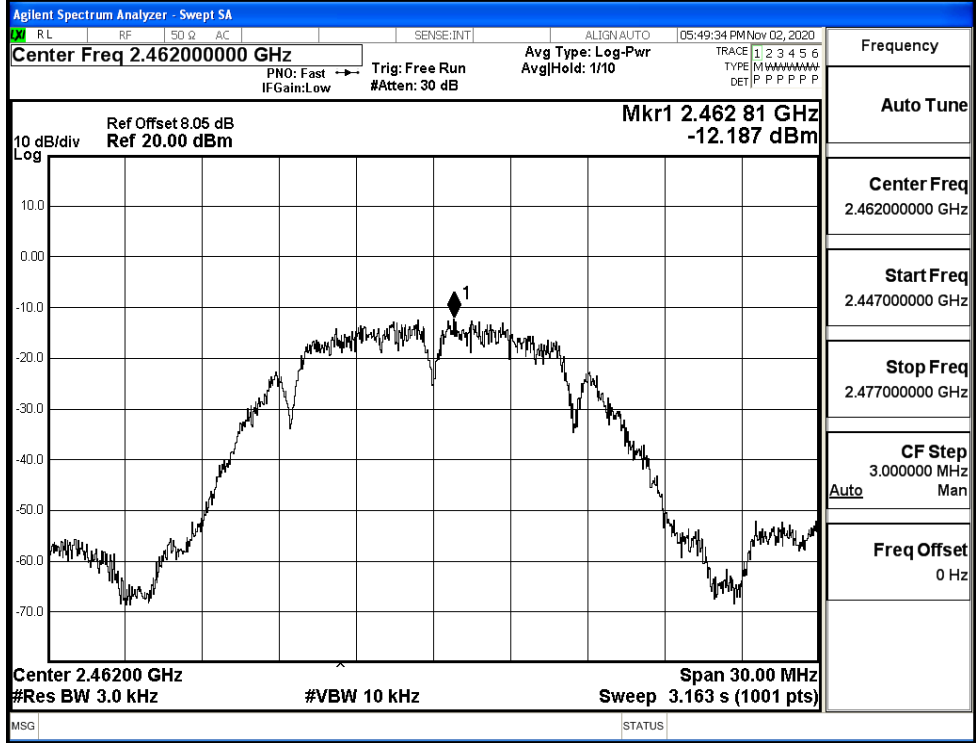
11B/LCH



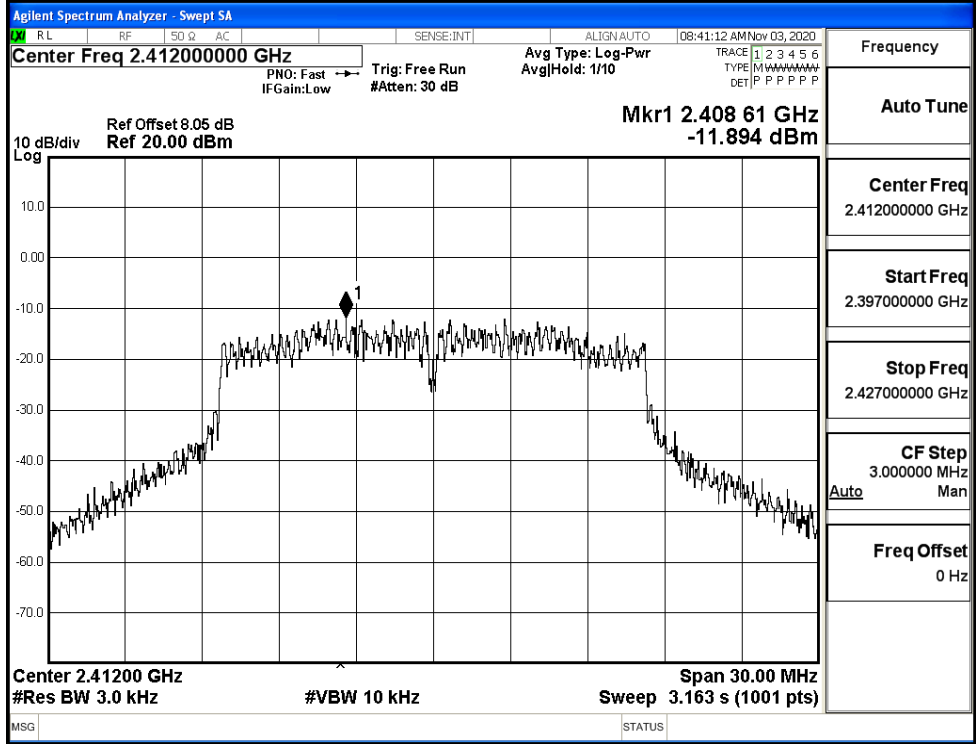
11B/MCH



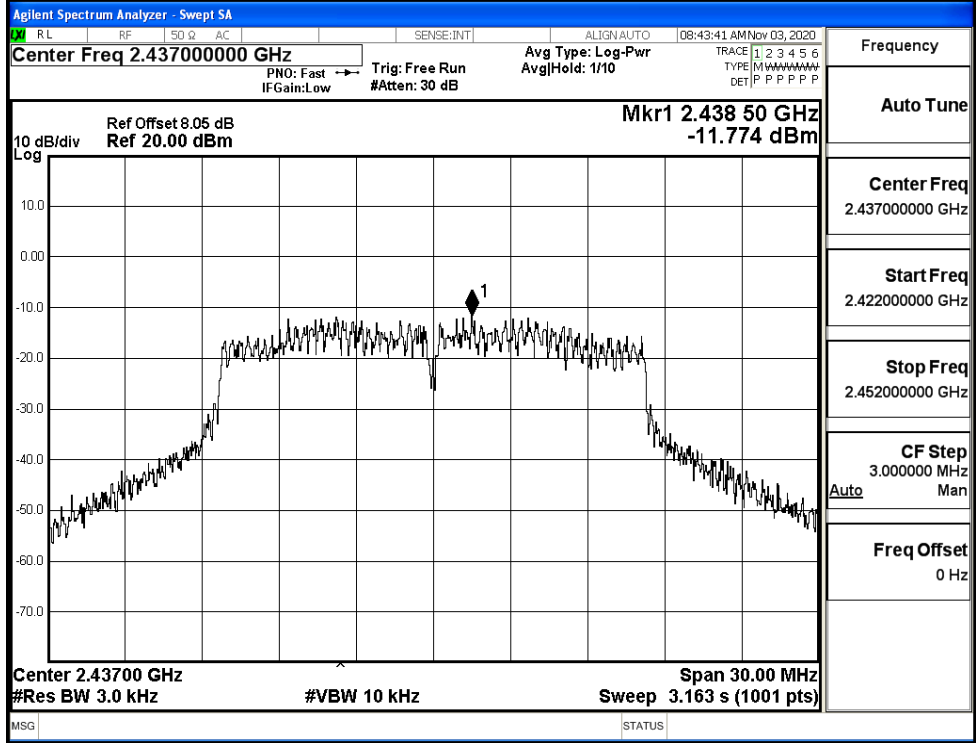
11B/HCH



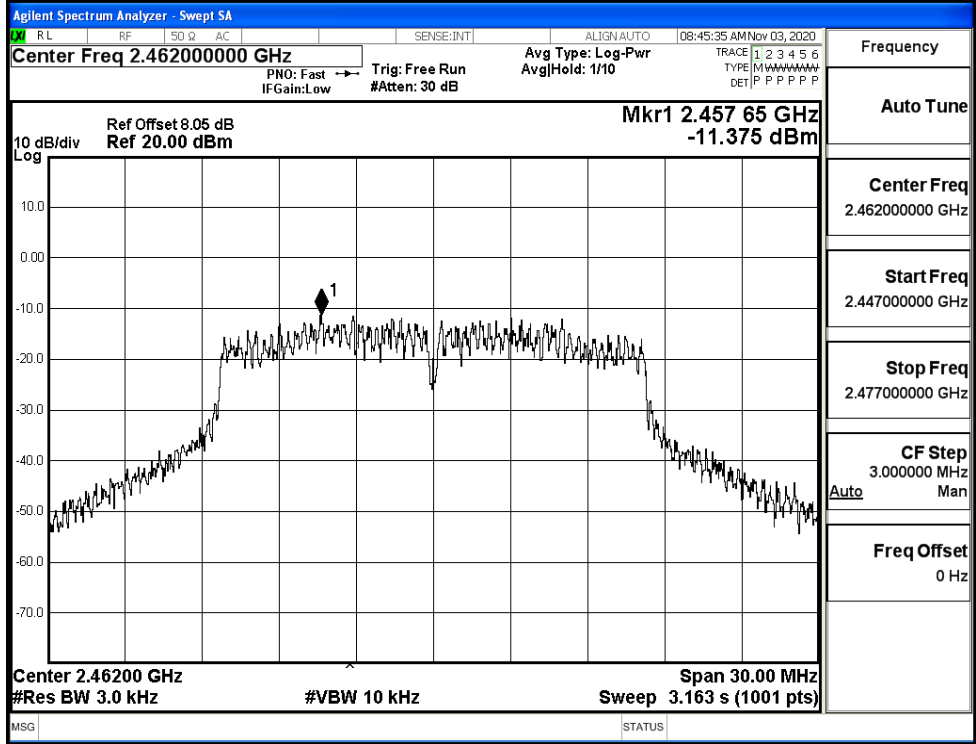
11G/LCH



11G/MCH

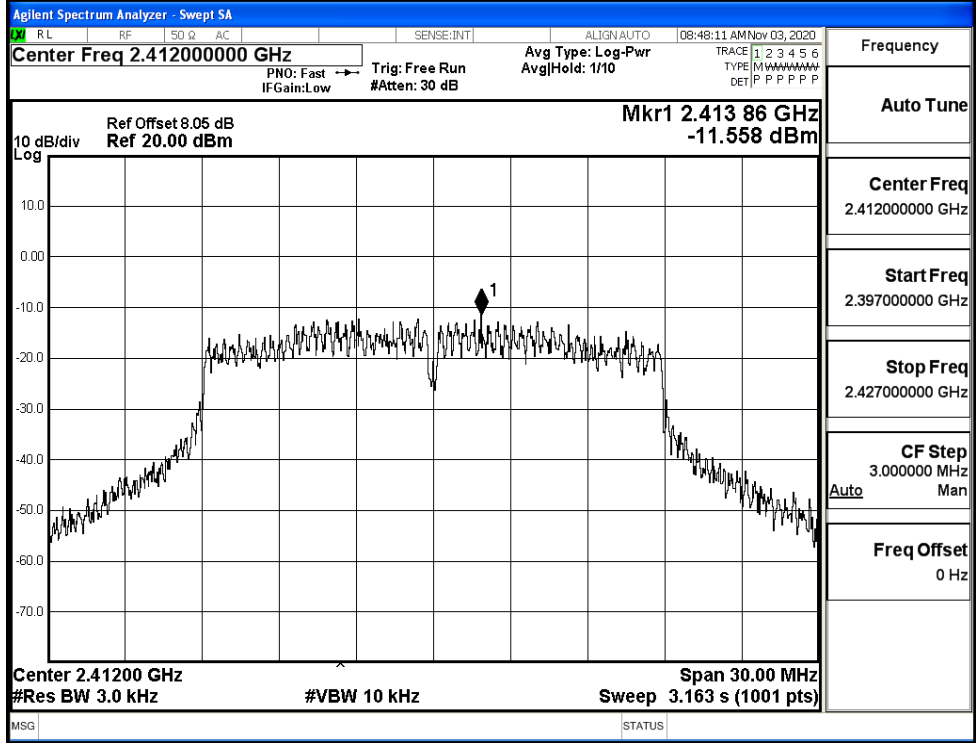


11G/HCH

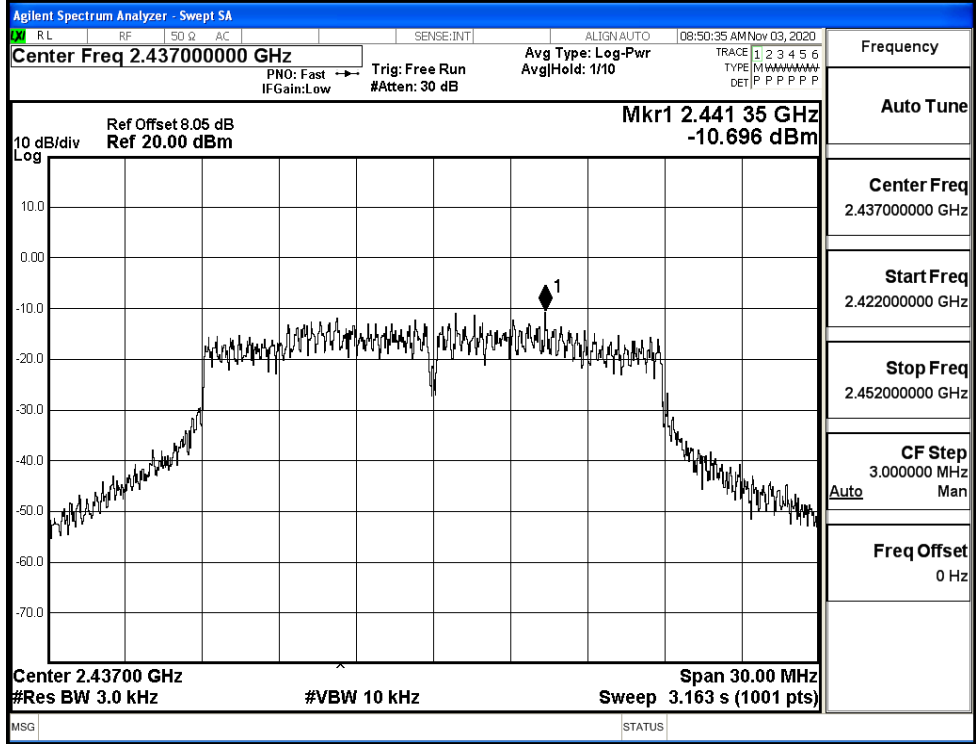




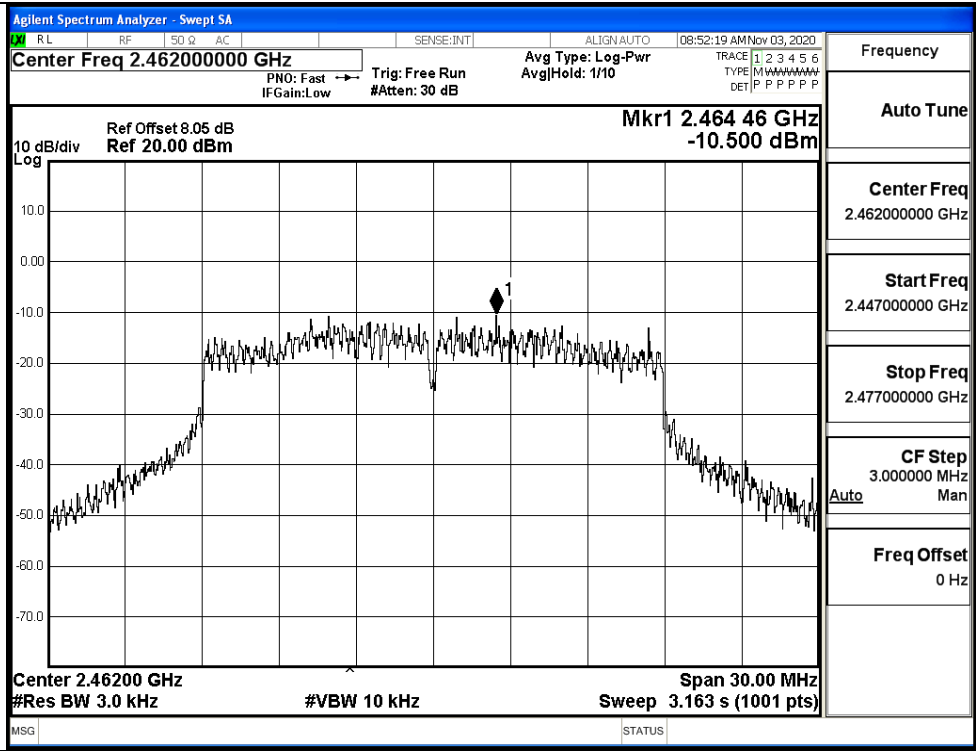
11N20SISO/LCH



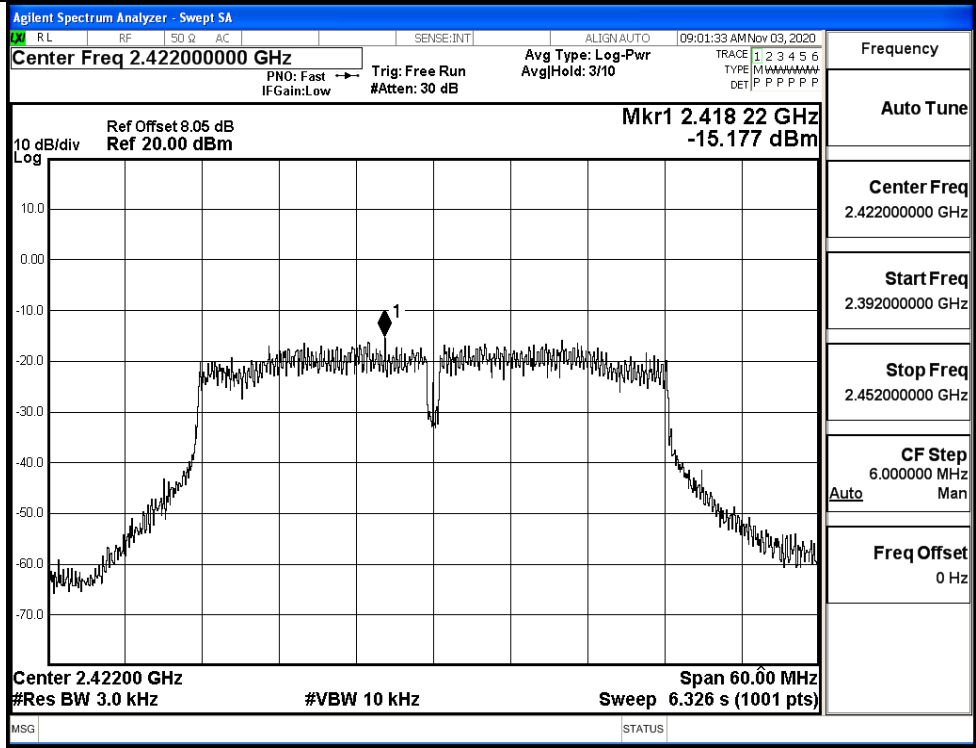
11N20SISO/MCH



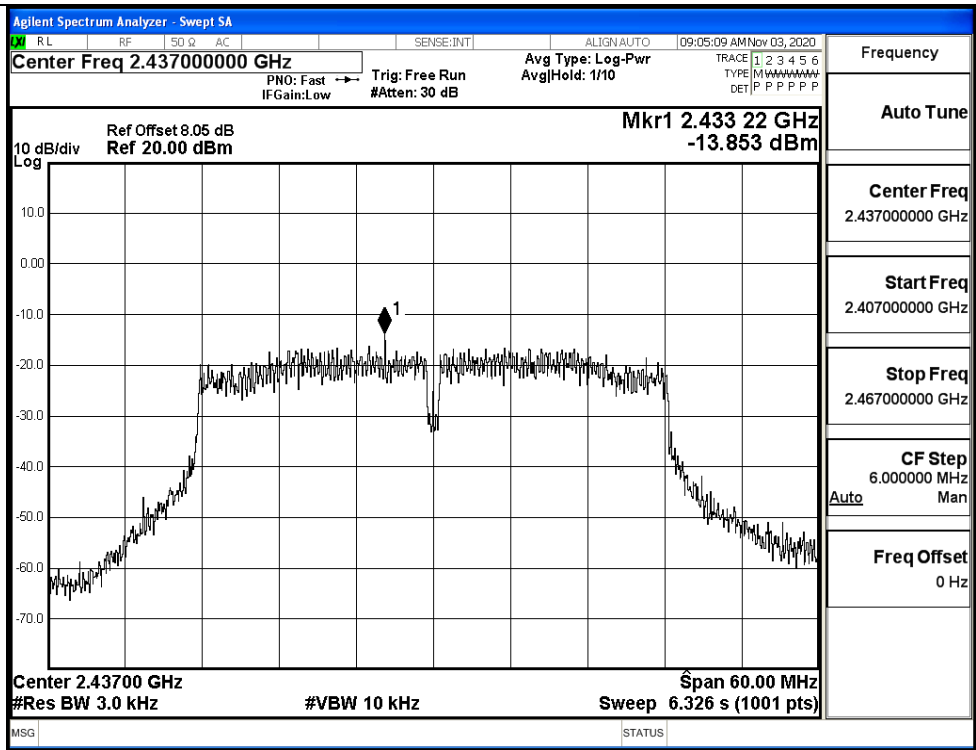
11N20SISO/HCH



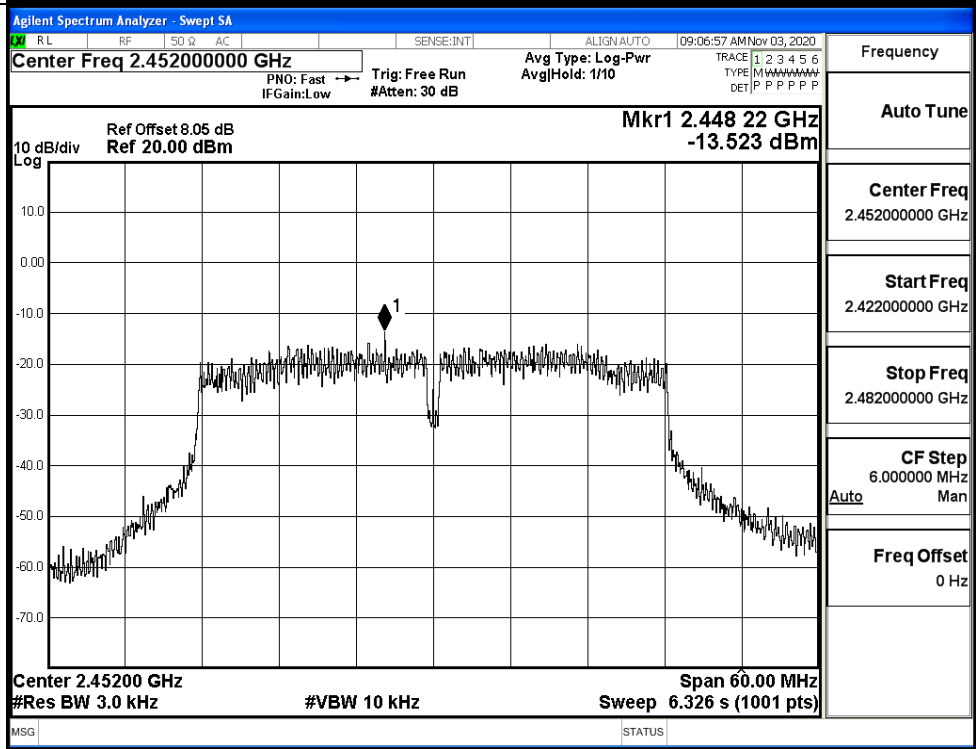
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

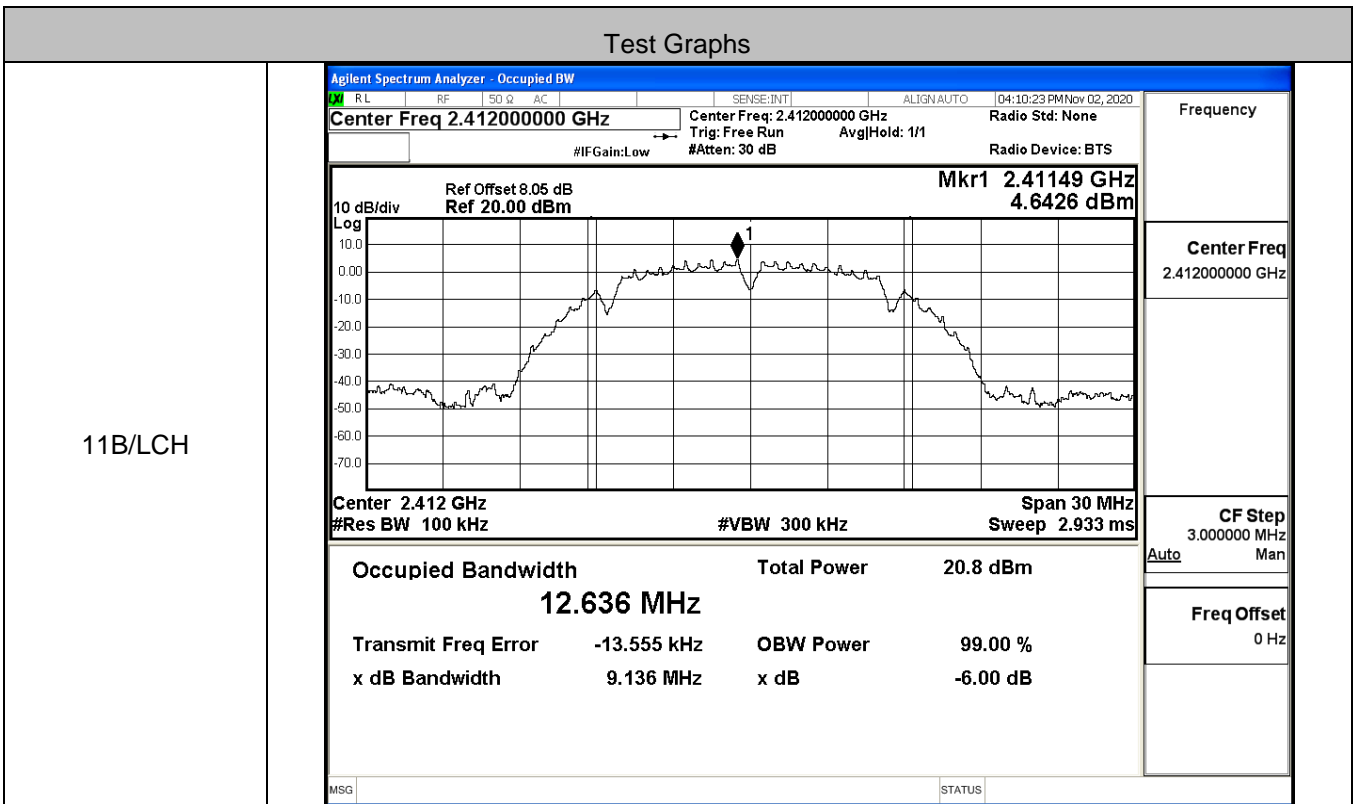


### C.4 6dB Bandwidth

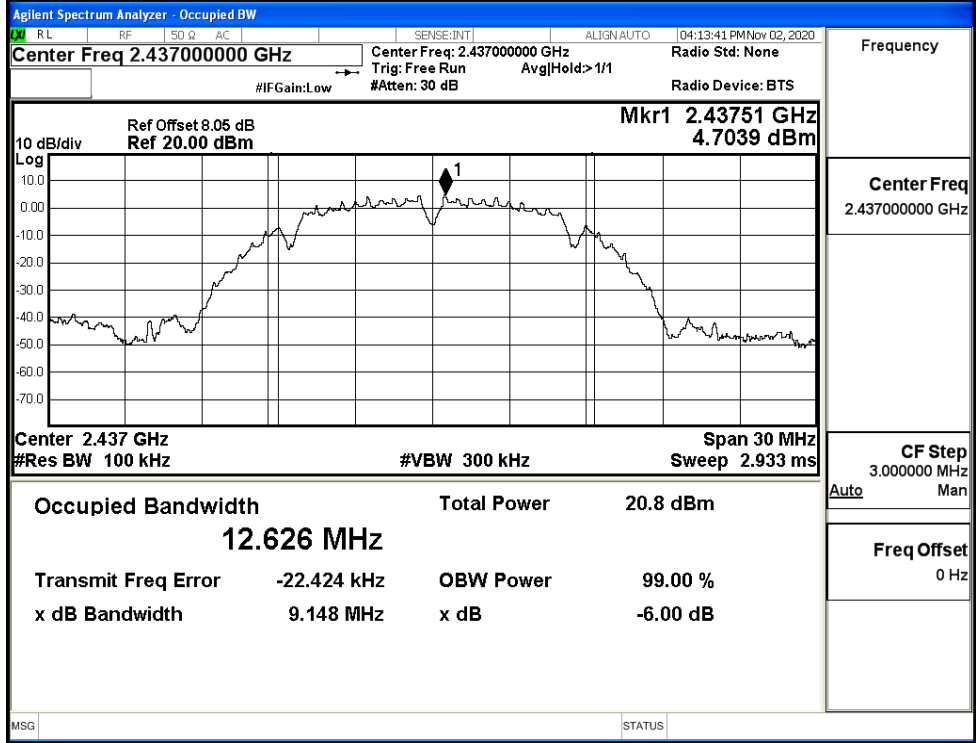
ANT 0

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.136	≥0.5	PASS
	MCH	9.148	≥0.5	PASS
	HCH	9.174	≥0.5	PASS
11G	LCH	15.15	≥0.5	PASS
	MCH	15.14	≥0.5	PASS
	HCH	15.14	≥0.5	PASS
11N20SISO	LCH	15.07	≥0.5	PASS
	MCH	15.49	≥0.5	PASS
	HCH	15.13	≥0.5	PASS
11N40SISO	LCH	35.17	≥0.5	PASS
	MCH	35.16	≥0.5	PASS
	HCH	35.18	≥0.5	PASS

#### Test Graphs

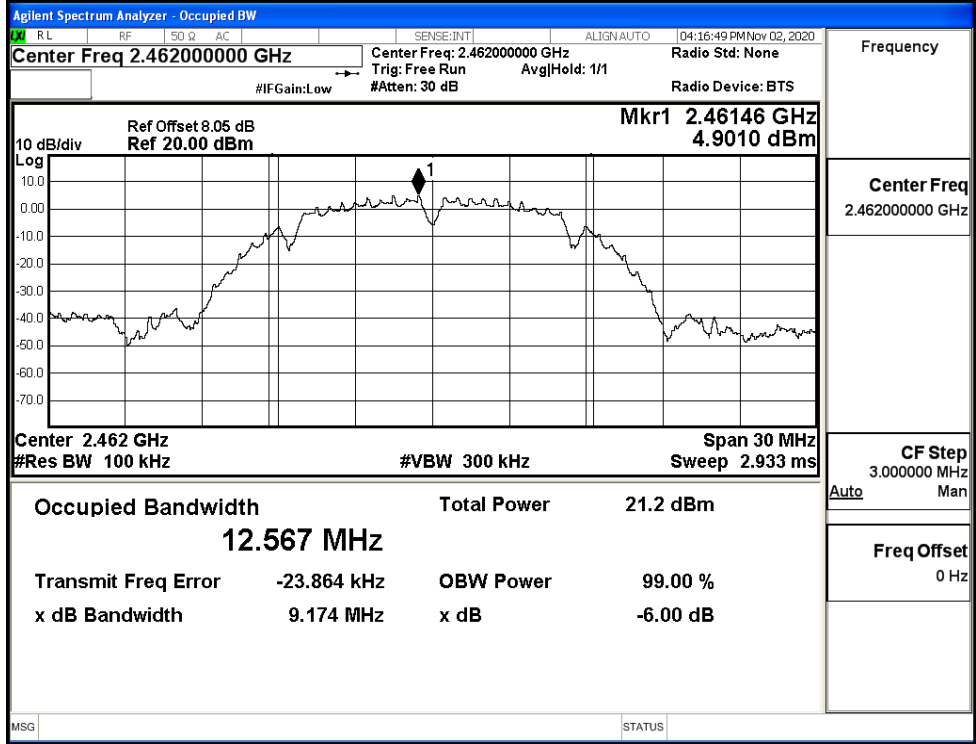


11B/MCH



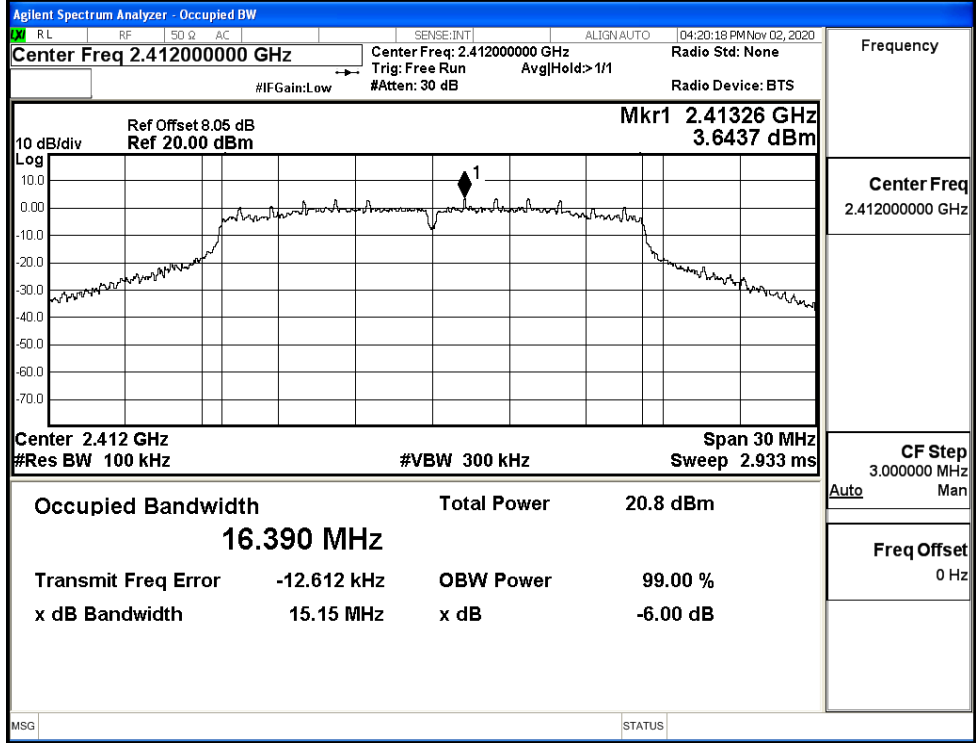
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/HCH



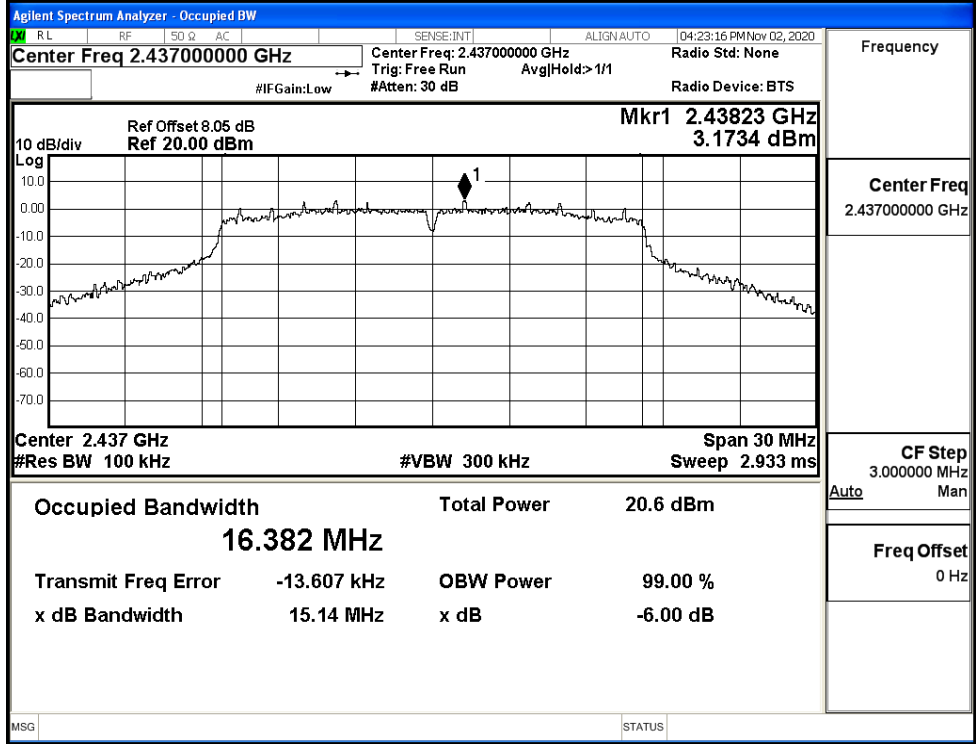
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH



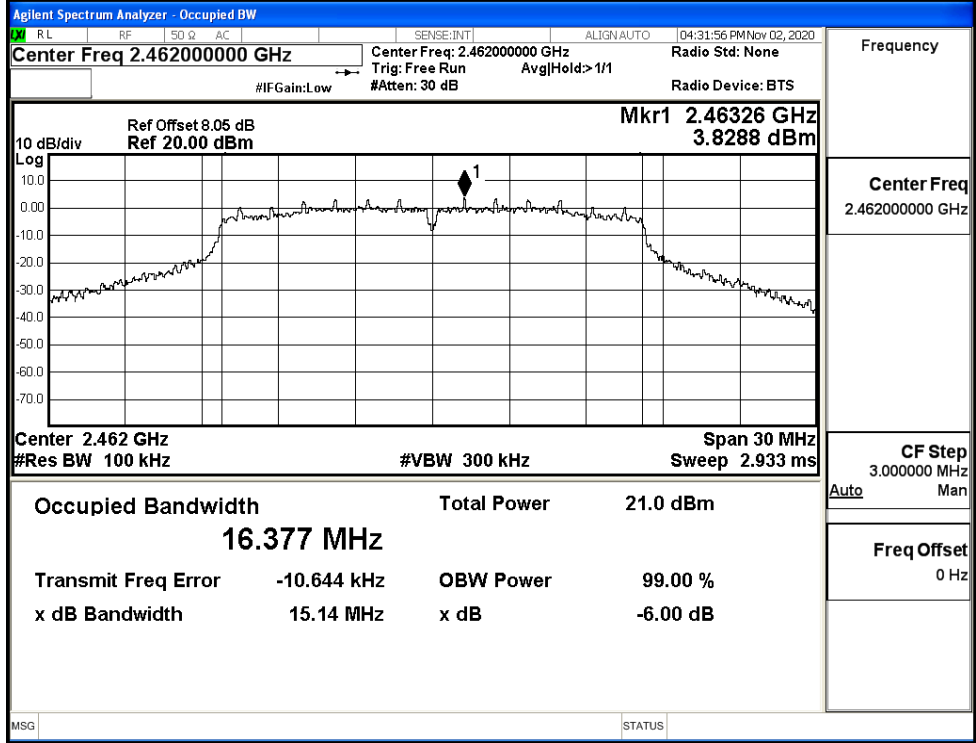
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/MCH



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

11G/HCH



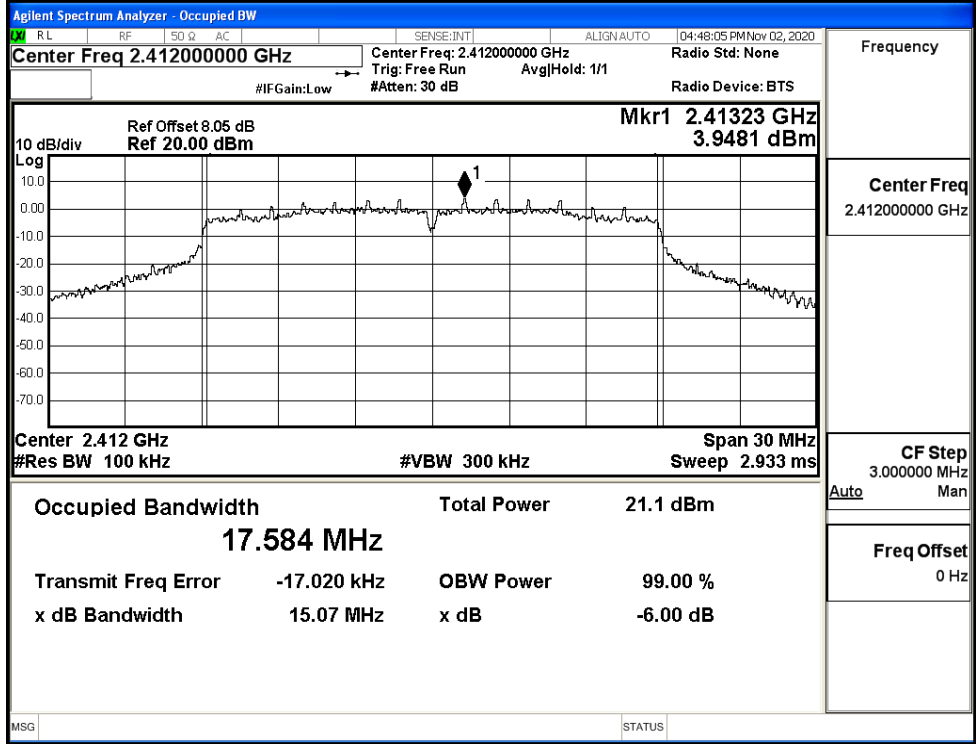
Frequency

Center Freq  
2.46200000 GHz

CF Step  
3.000000 MHz  
Auto Man

Freq Offset  
0 Hz

11N20SISO/LCH

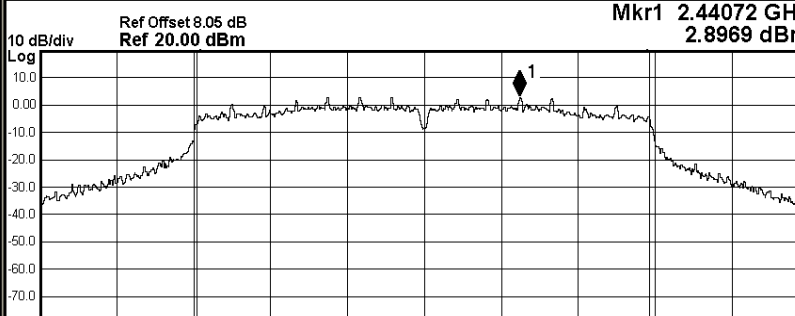
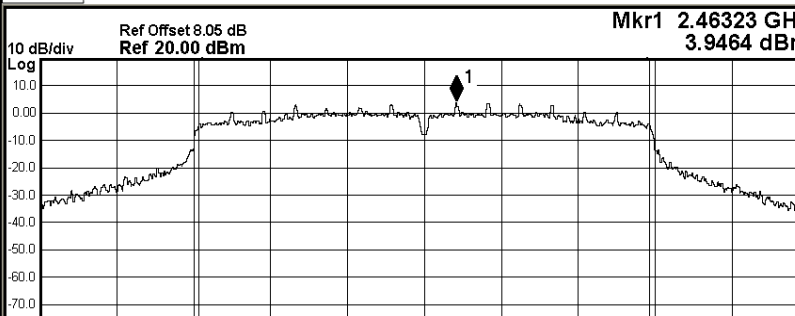


Frequency

Center Freq  
2.41200000 GHz

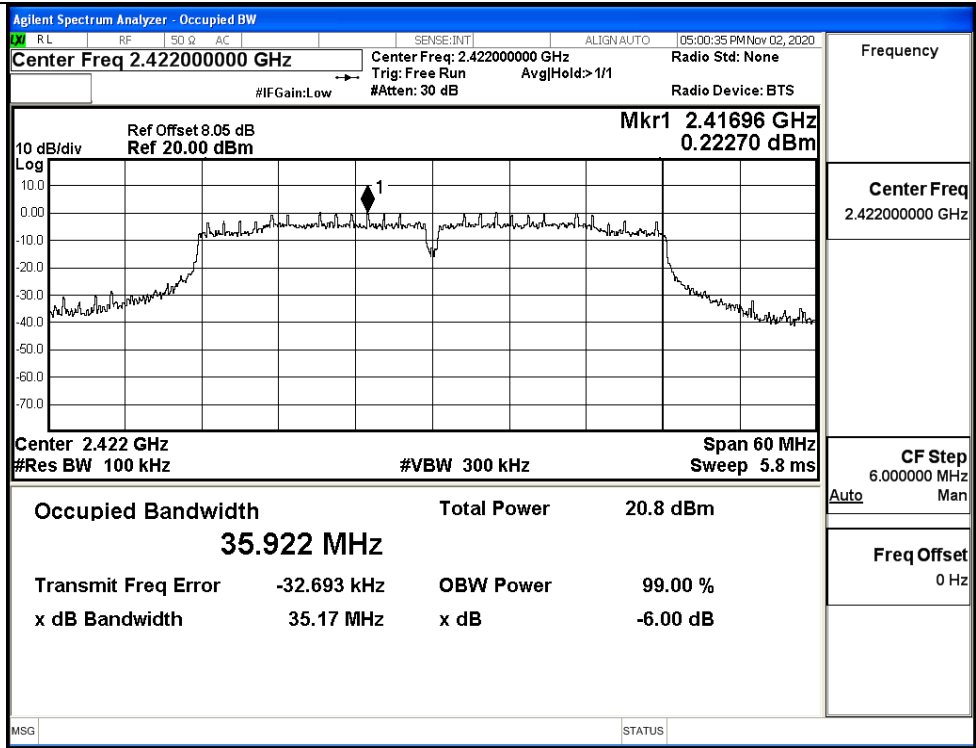
CF Step  
3.000000 MHz  
Auto Man

Freq Offset  
0 Hz

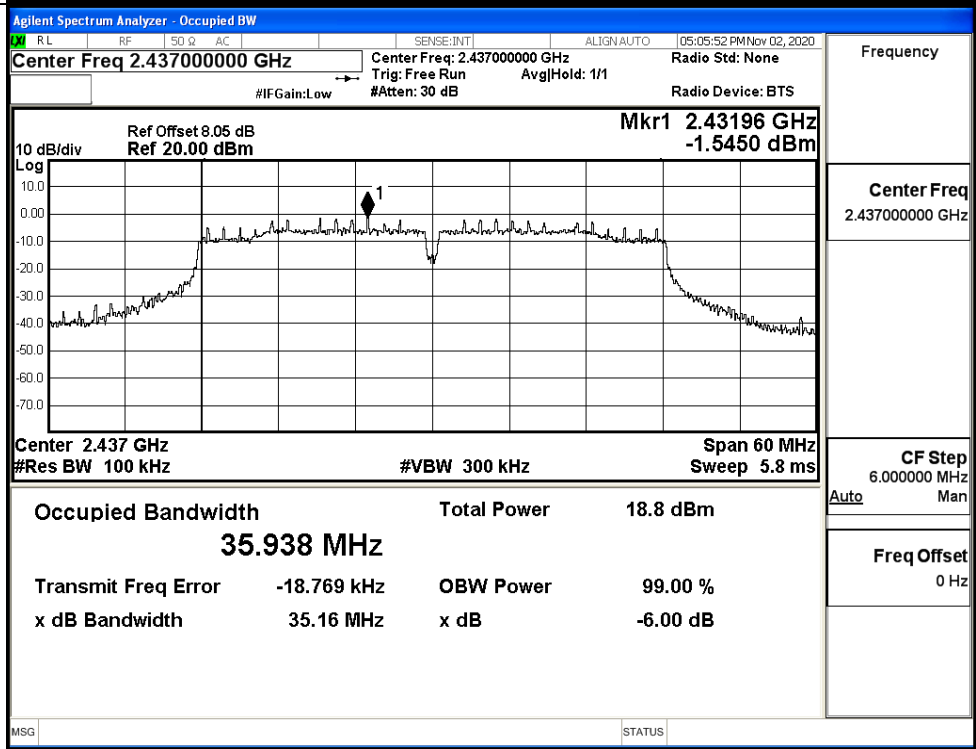
<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:50:46 PM Nov 02, 2020</p> <p>Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Radio Std: None          Trig: Free Run Avg/Hold: 1/1          #IFGain:Low #Atten: 30 dB Radio Device: BTS</p>  <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.44072 GHz          Log Ref 20.00 dBm 2.8969 dBm</p> <p>Center 2.437 GHz Span 30 MHz          #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 20.5 dBm  <b>17.574 MHz</b></p> <p>Transmit Freq Error -20.372 kHz OBW Power 99.00 %          x dB Bandwidth 15.49 MHz x dB -6.00 dB</p> <p>MSG STATUS</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>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:58:00 PM Nov 02, 2020</p> <p>Center Freq 2.46200000 GHz Center Freq: 2.46200000 GHz Radio Std: None          Trig: Free Run Avg/Hold: 1/1          #IFGain:Low #Atten: 30 dB Radio Device: BTS</p>  <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.46323 GHz          Log Ref 20.00 dBm 3.9464 dBm</p> <p>Center 2.462 GHz Span 30 MHz          #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 21.0 dBm  <b>17.588 MHz</b></p> <p>Transmit Freq Error -13.590 kHz OBW Power 99.00 %          x dB Bandwidth 15.13 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.46200000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

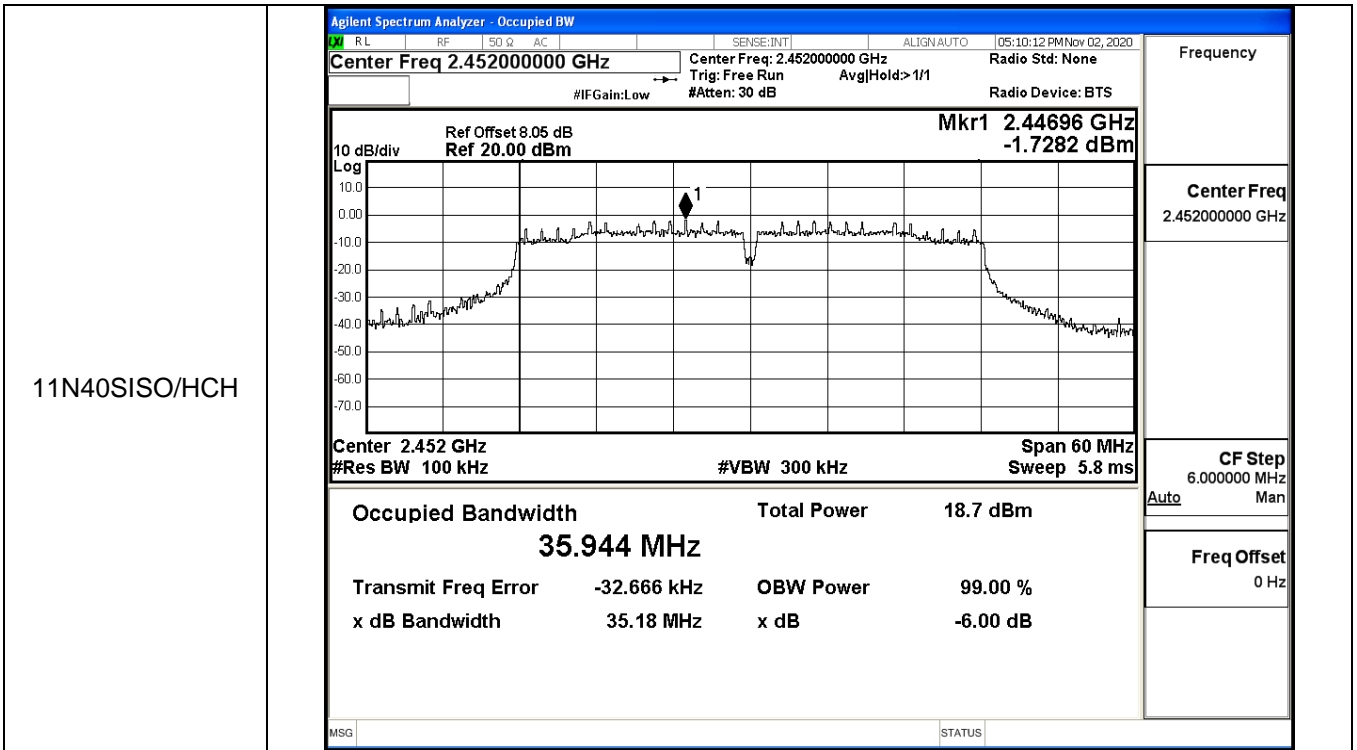


11N40SISO/LCH



11N40SISO/MCH



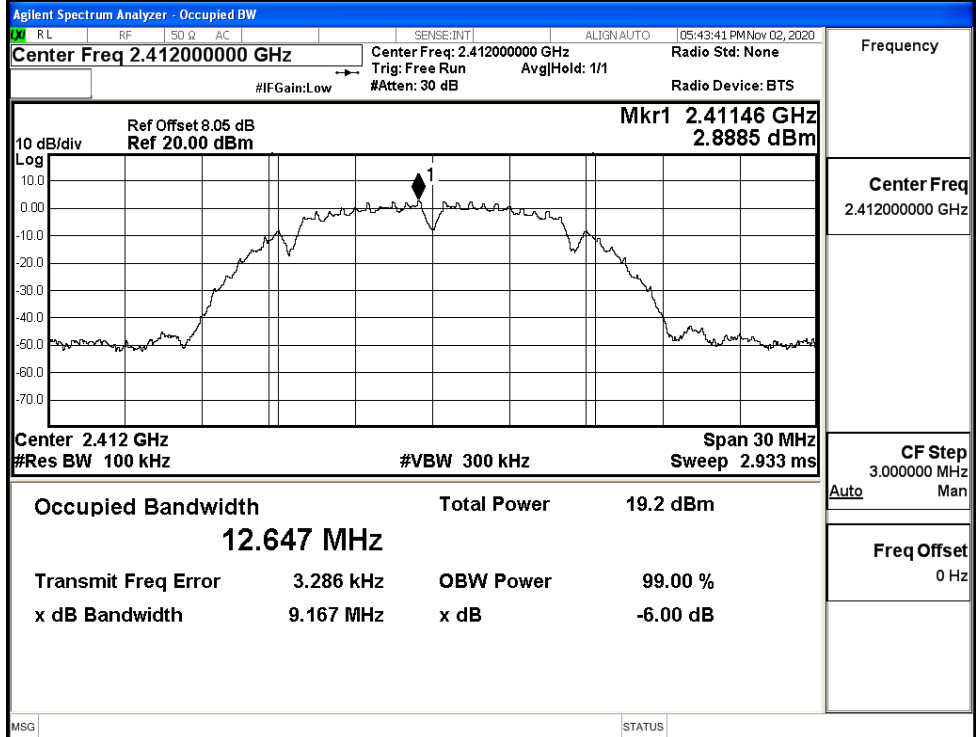


ANT 1

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.167	≥0.5	PASS
	MCH	9.567	≥0.5	PASS
	HCH	9.136	≥0.5	PASS
11G	LCH	15.14	≥0.5	PASS
	MCH	15.10	≥0.5	PASS
	HCH	15.16	≥0.5	PASS
11N20SISO	LCH	15.12	≥0.5	PASS
	MCH	15.07	≥0.5	PASS
	HCH	15.15	≥0.5	PASS
11N40SISO	LCH	35.19	≥0.5	PASS
	MCH	35.19	≥0.5	PASS
	HCH	35.17	≥0.5	PASS

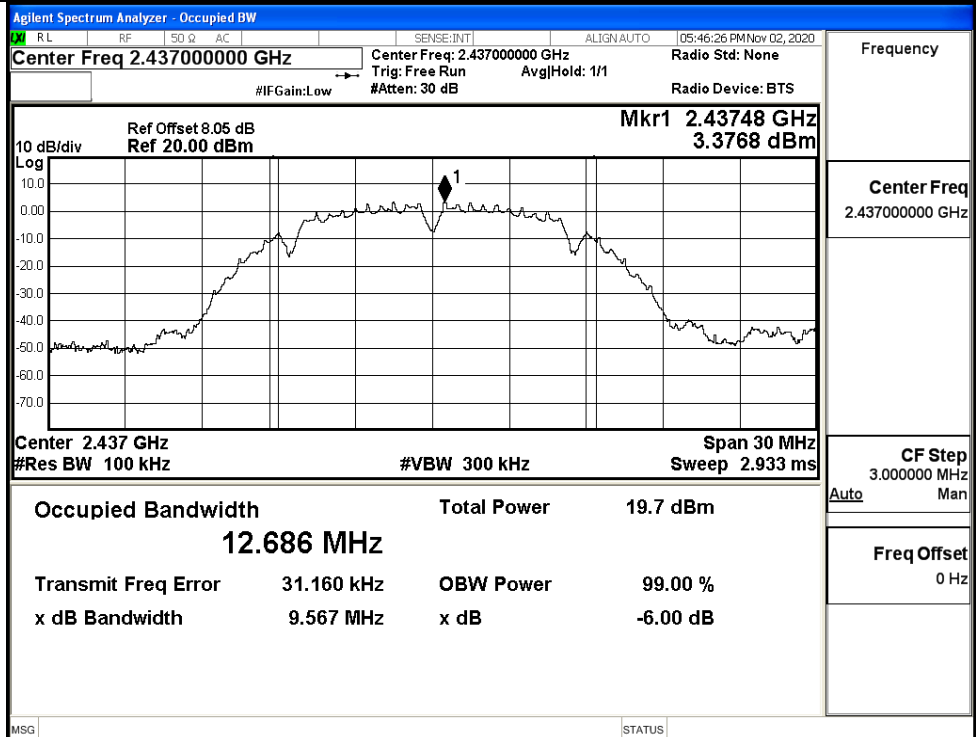
Test Graphs

11B/LCH



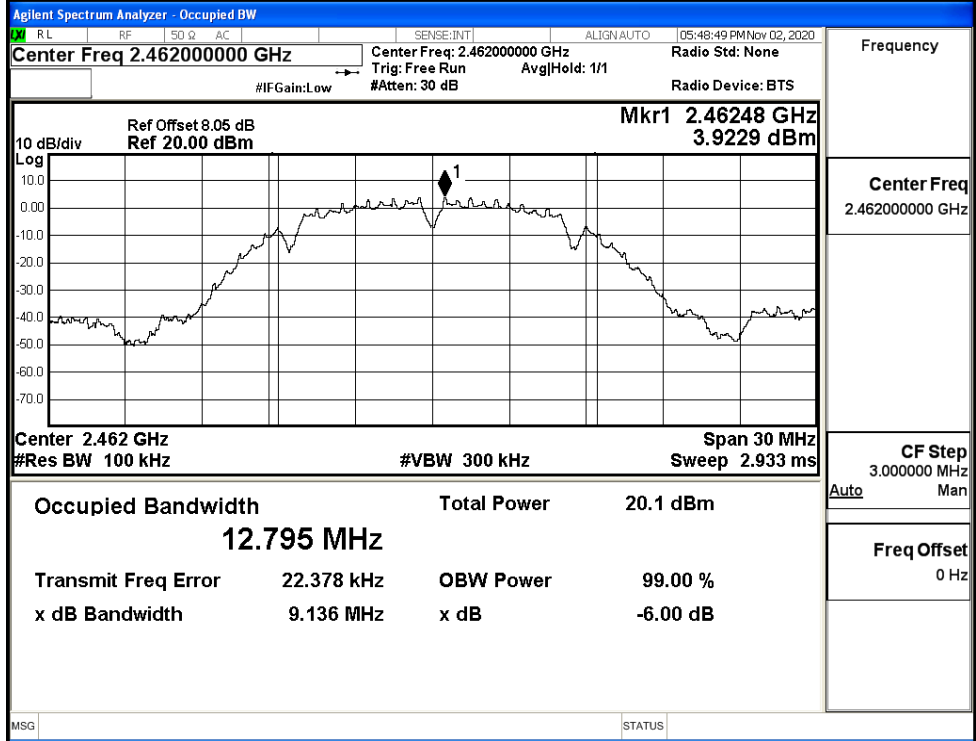
Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/MCH



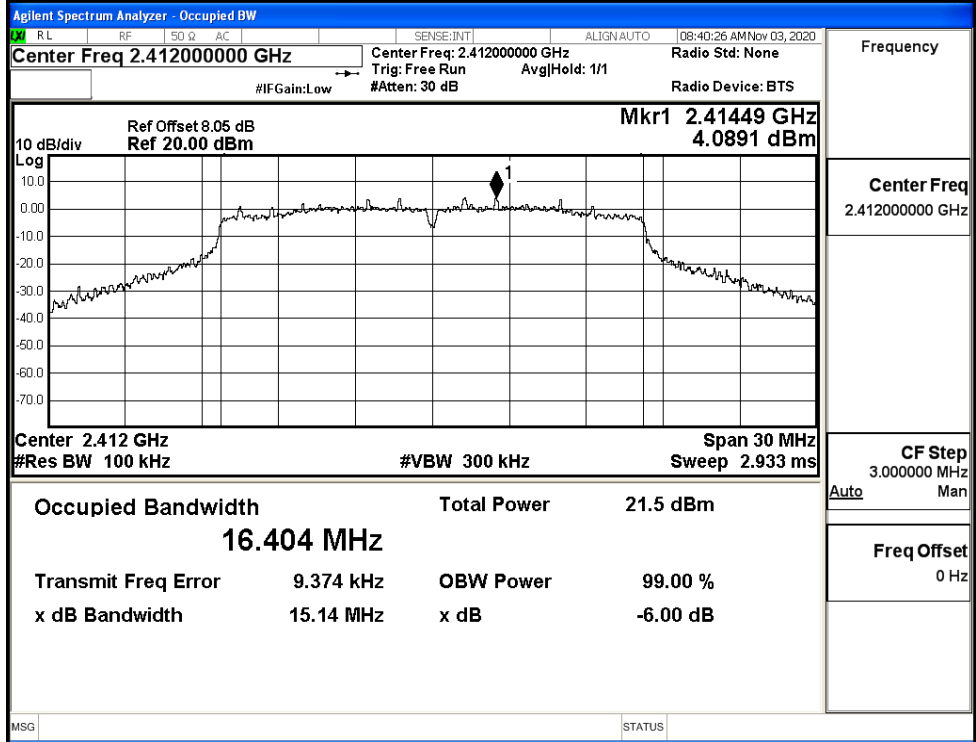
Frequency	2.43700000 GHz
Center Freq	2.43700000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11B/HCH



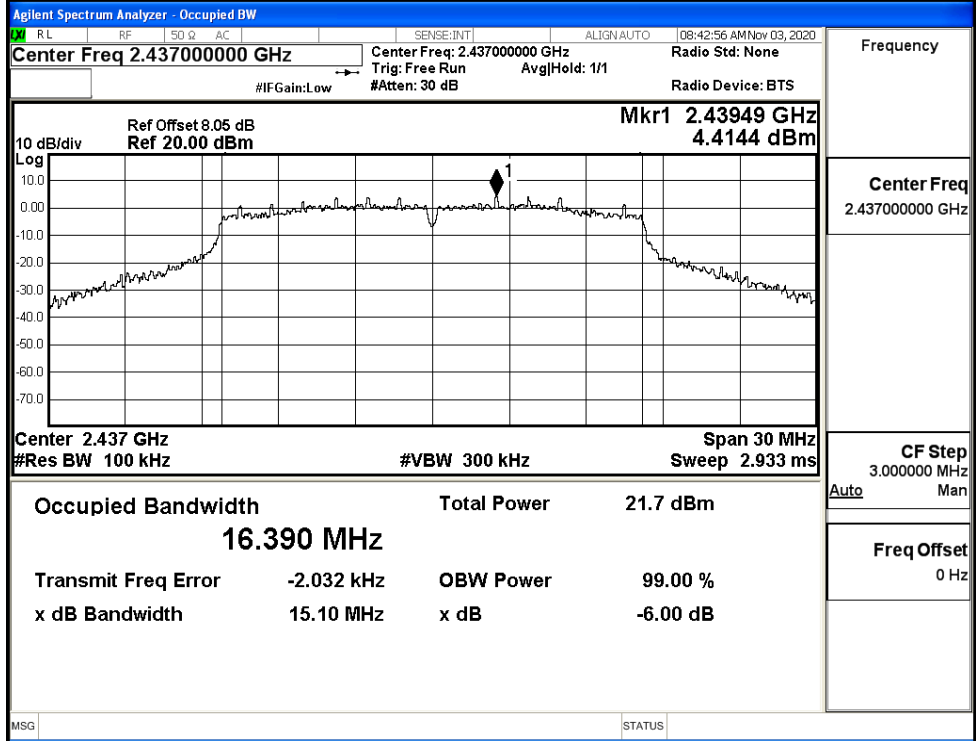
Frequency	2.46200000 GHz
Center Freq	2.46200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

11G/LCH

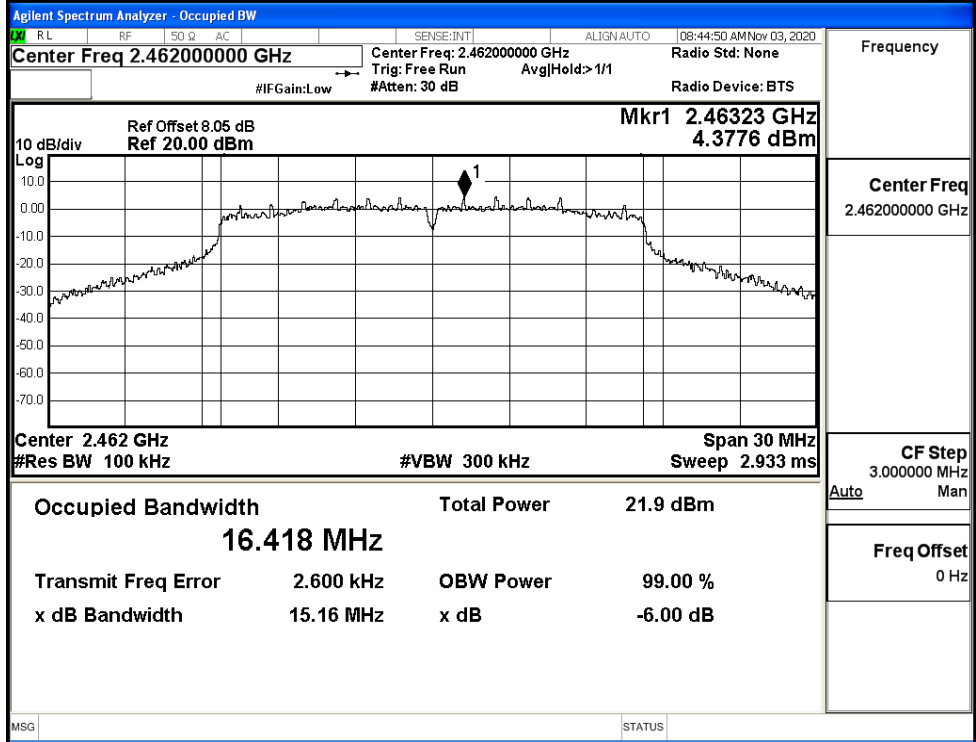


Frequency	2.41200000 GHz
Center Freq	2.41200000 GHz
CF Step	3.000000 MHz
Auto	Man
Freq Offset	0 Hz

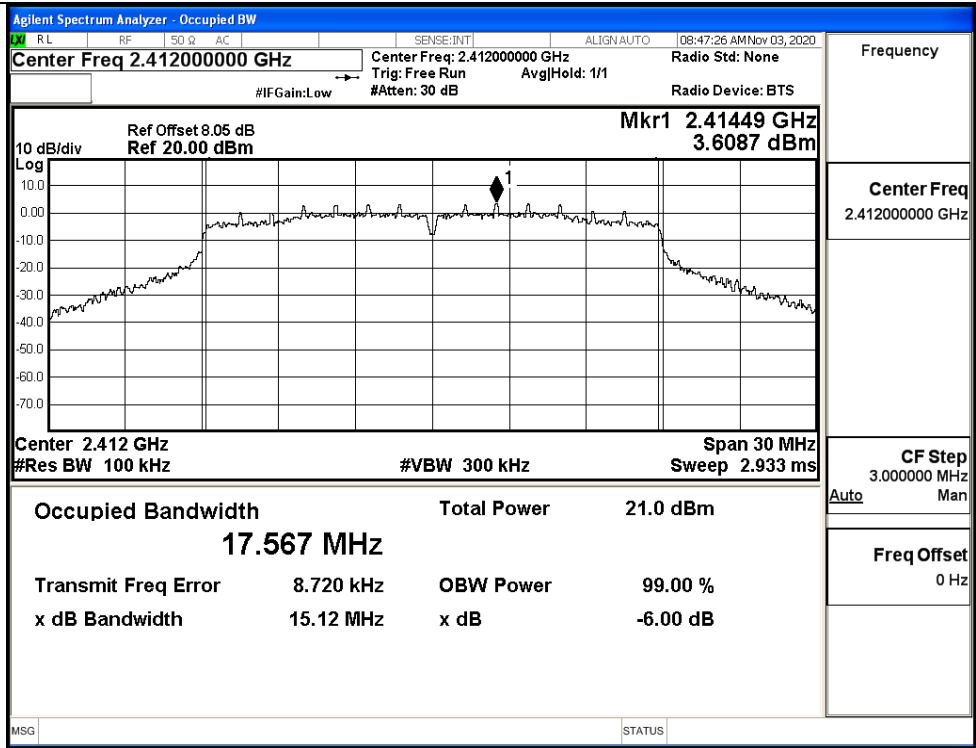
11G/MCH



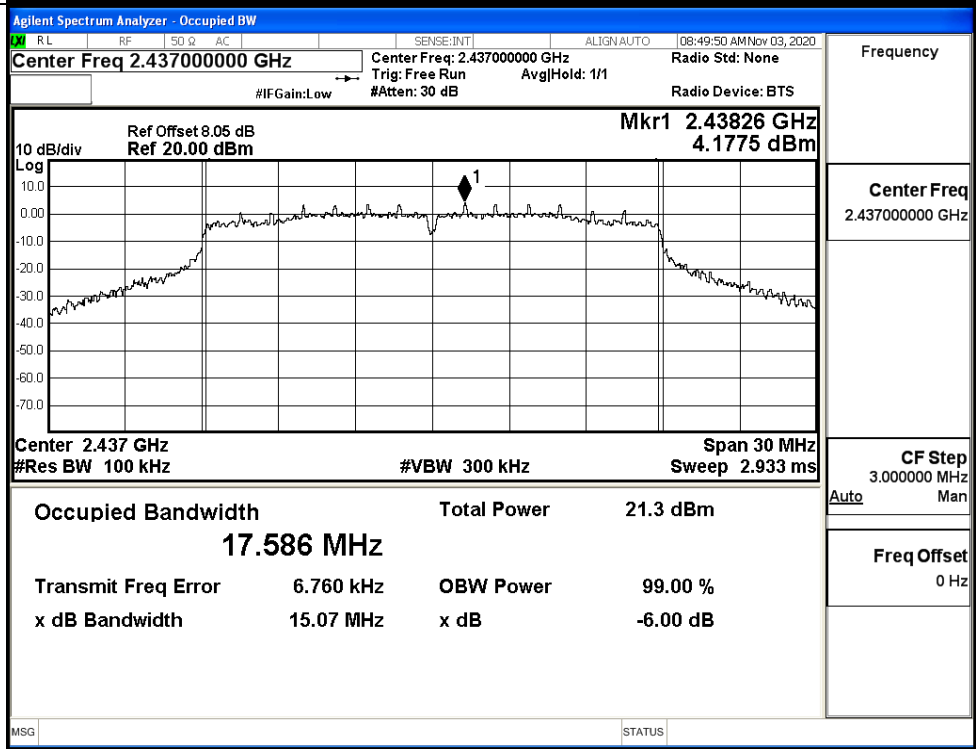
11G/HCH



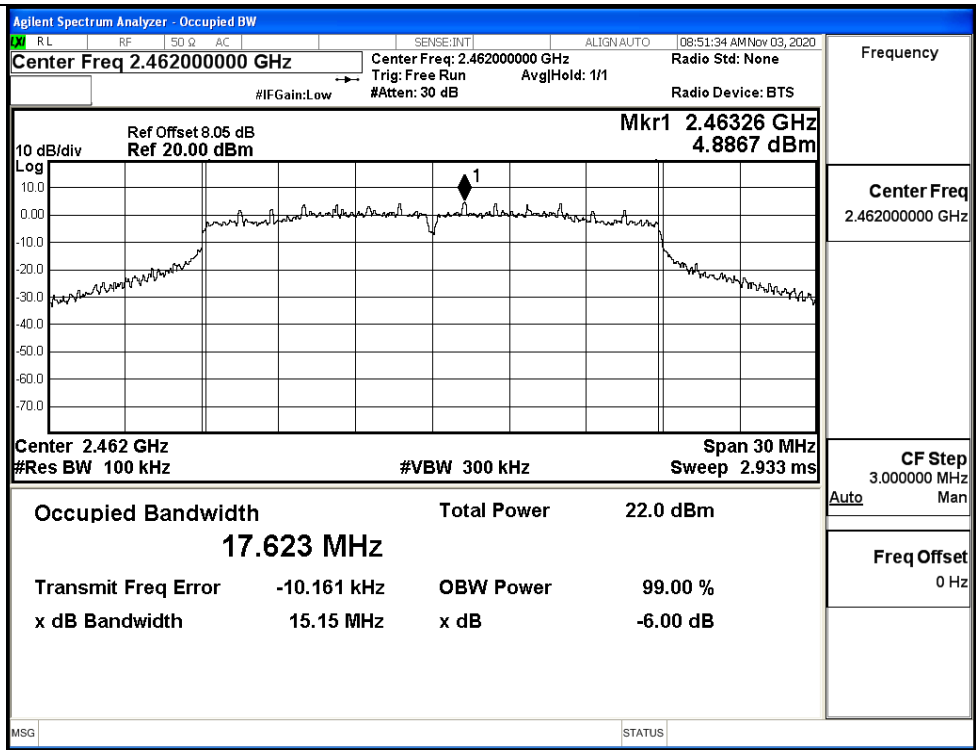
11N20SISO/LCH



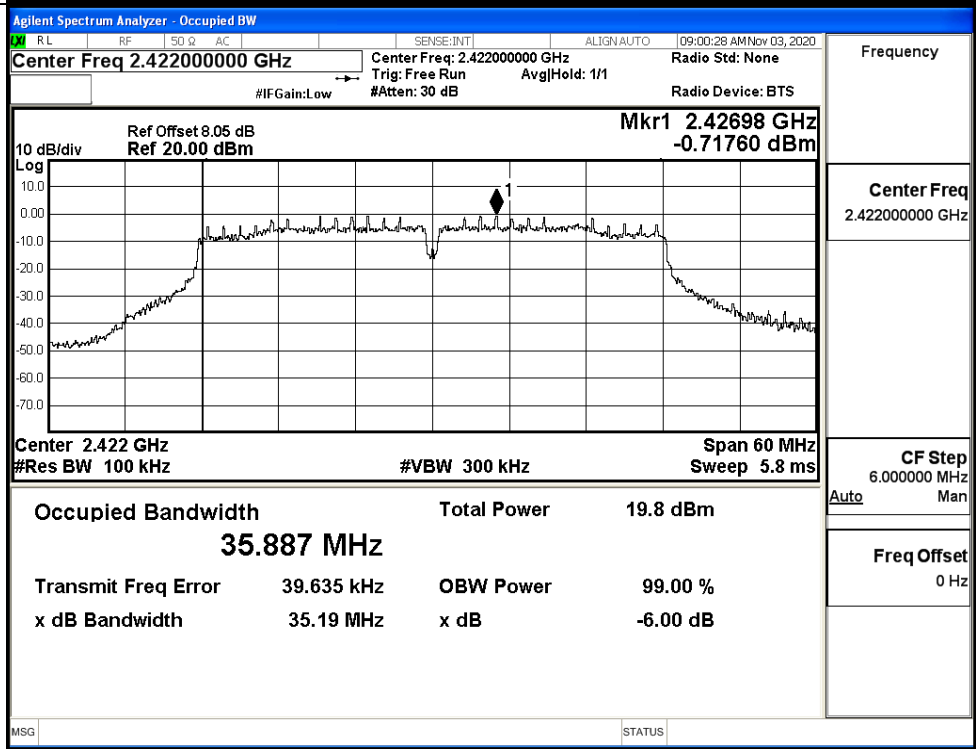
11N20SISO/MCH



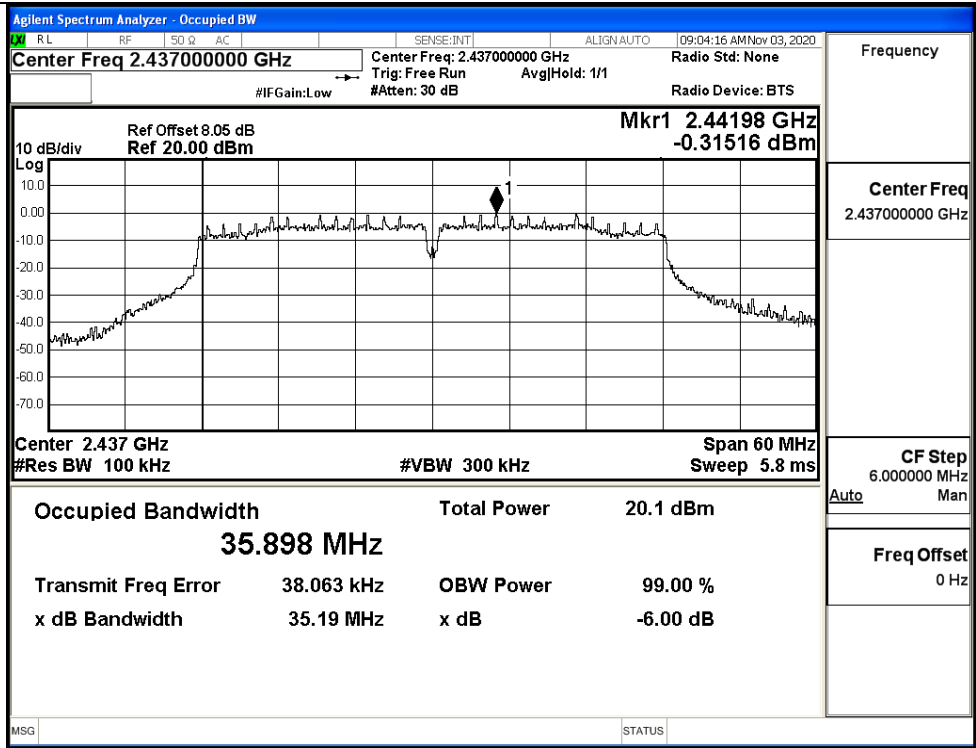
11N20SISO/HCH



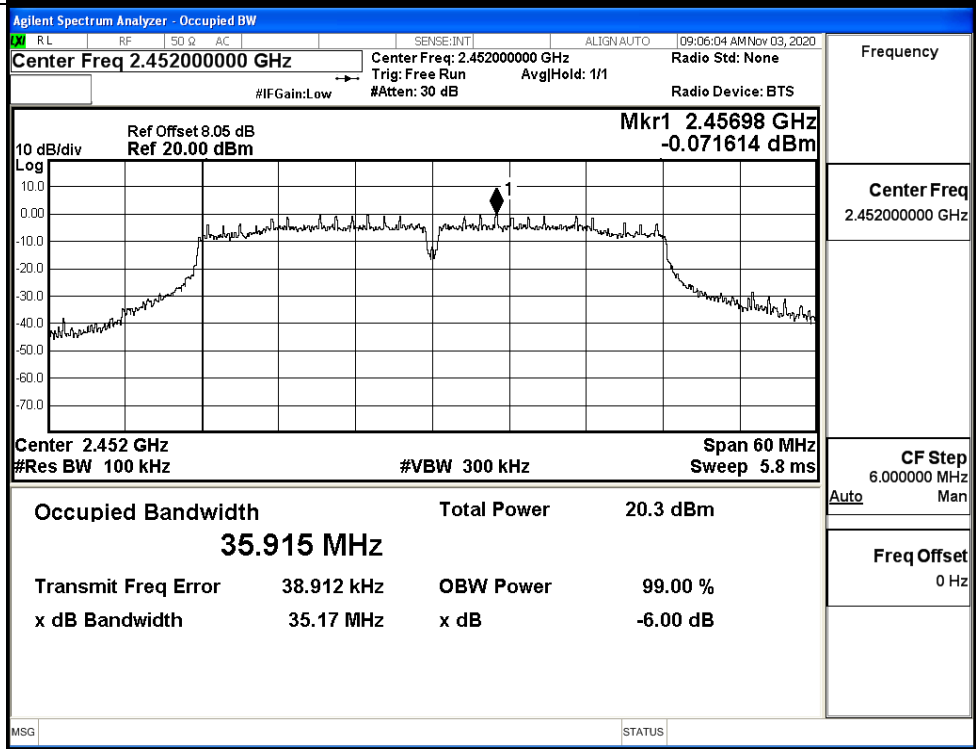
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH



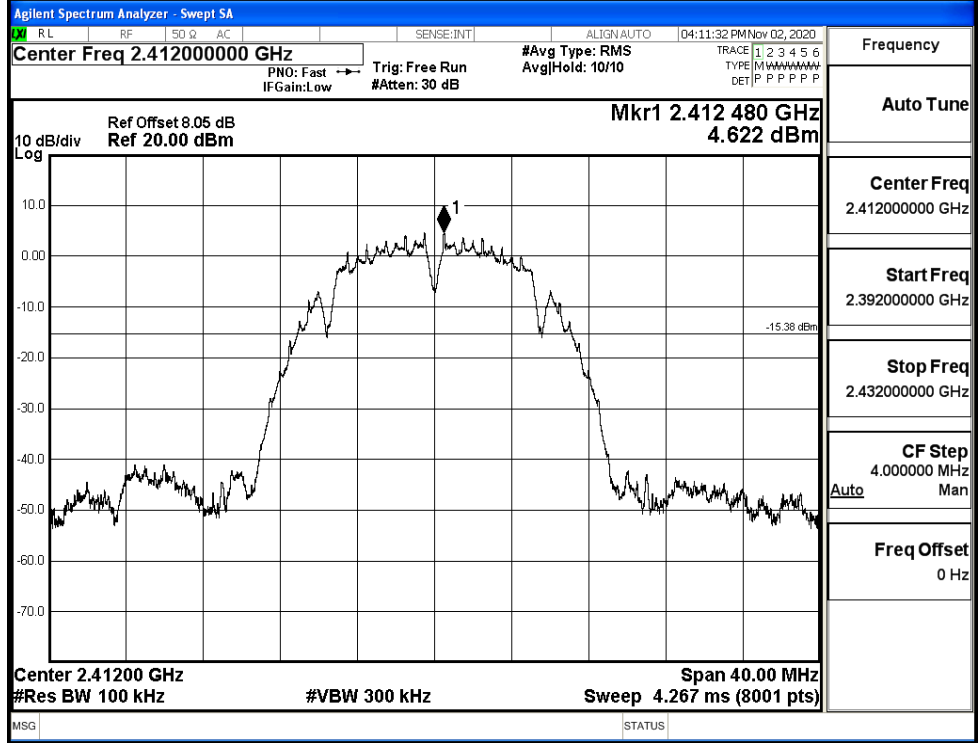


**C.5 RF Conducted Spurious Emissions****ANT 0**

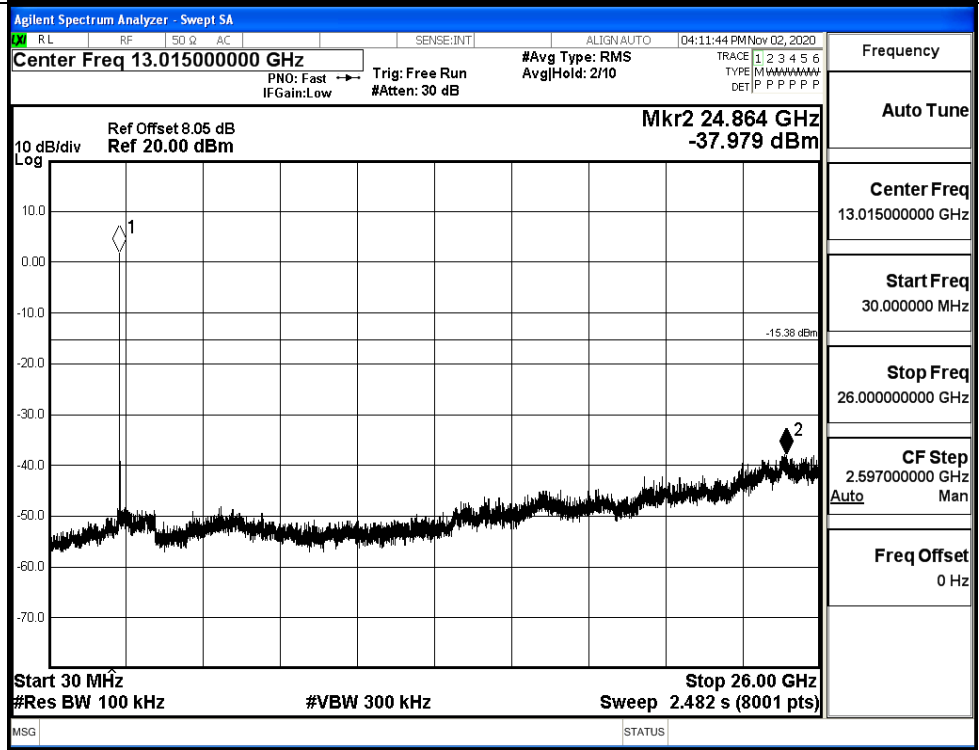
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	4.622	-37.979	-15.378	PASS
	MCH	4.735	-37.293	-15.265	PASS
	HCH	5.541	-37.530	-14.459	PASS
11G	LCH	4.082	-37.637	-15.918	PASS
	MCH	3.479	-38.240	-16.521	PASS
	HCH	3.803	-38.305	-16.197	PASS
11N20 SISO	LCH	3.755	-37.906	-16.245	PASS
	MCH	3.565	-37.436	-16.435	PASS
	HCH	4.005	-37.658	-15.995	PASS
11N40 SISO	LCH	0.067	-37.068	-19.933	PASS
	MCH	-1.612	-37.030	-21.612	PASS
	HCH	-2.03	-37.829	-22.030	PASS

11B\_LCH\_Graphs

Pref/11B/LCH

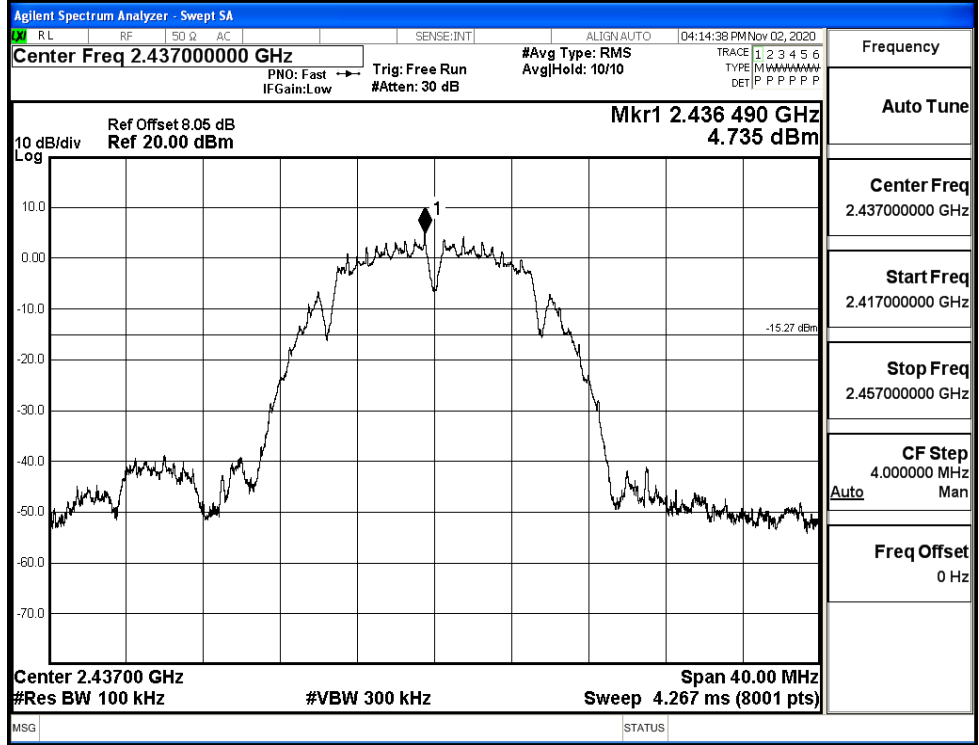


Puw/11B/LCH

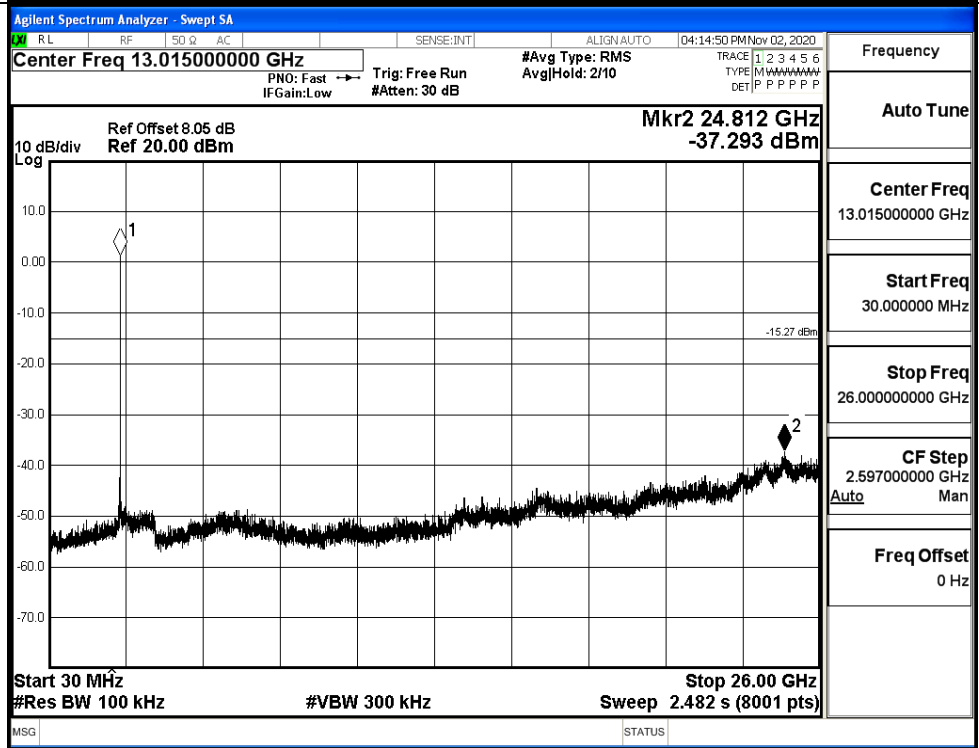


11B\_MCH\_Graphs

Pref/11B/MCH

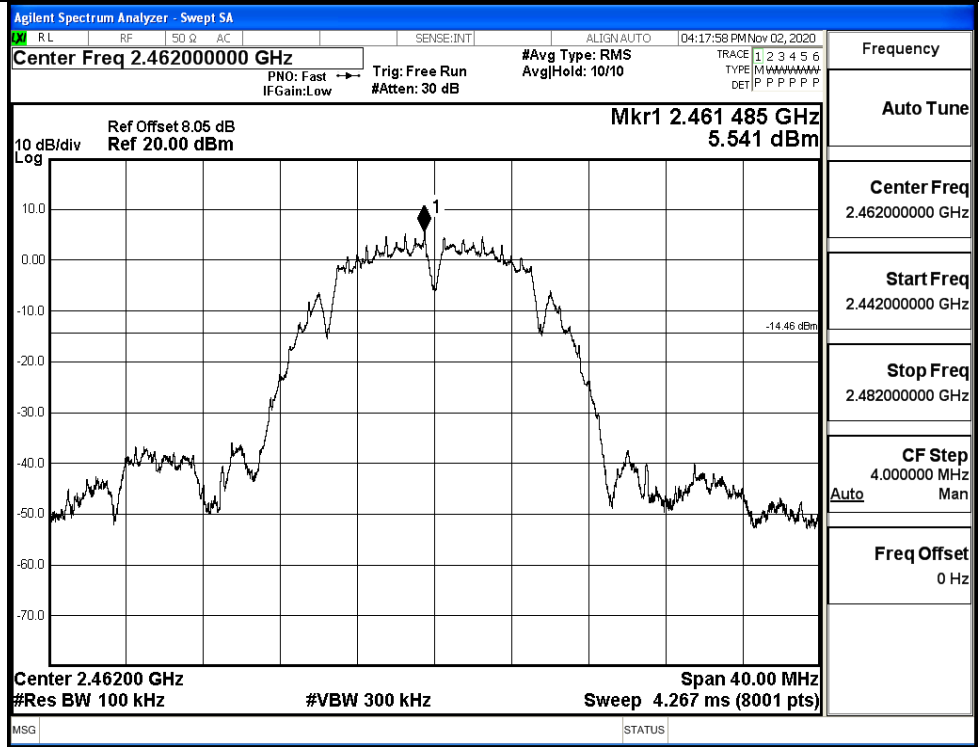


Puw/11B/MCH

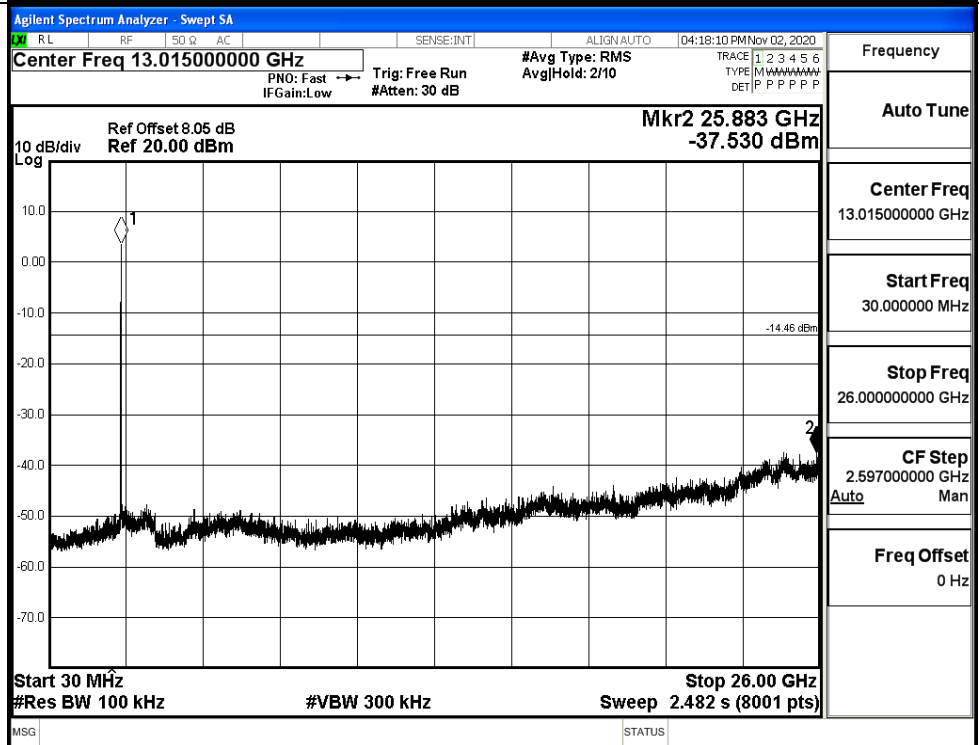


11B\_HCH\_Graphs

Pref/11B/HCH

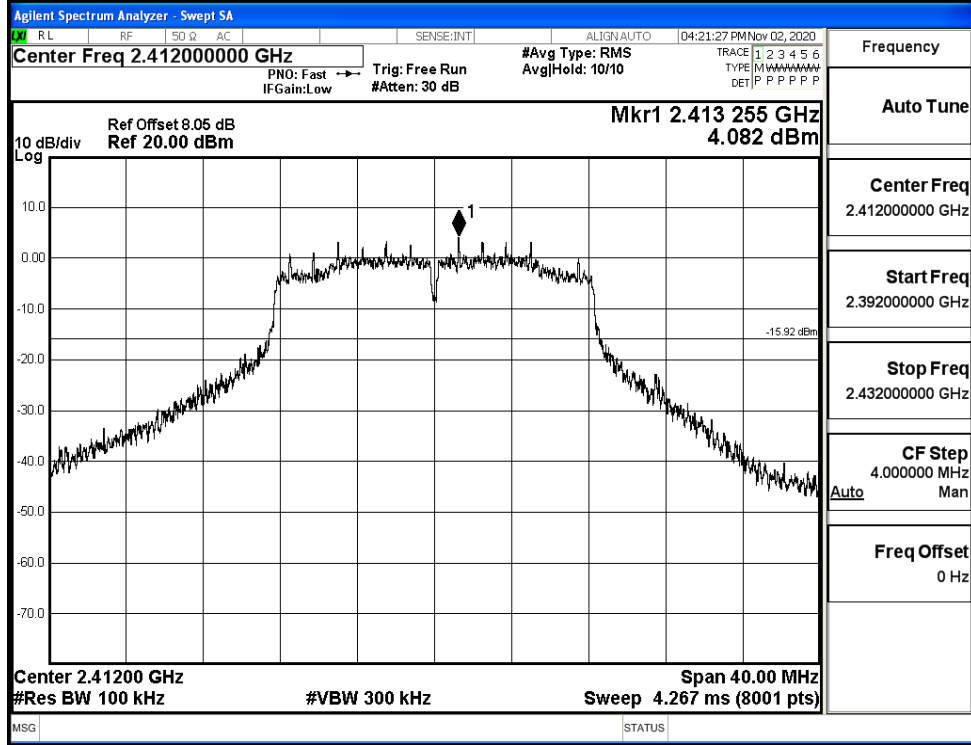


Puw/11B/HCH

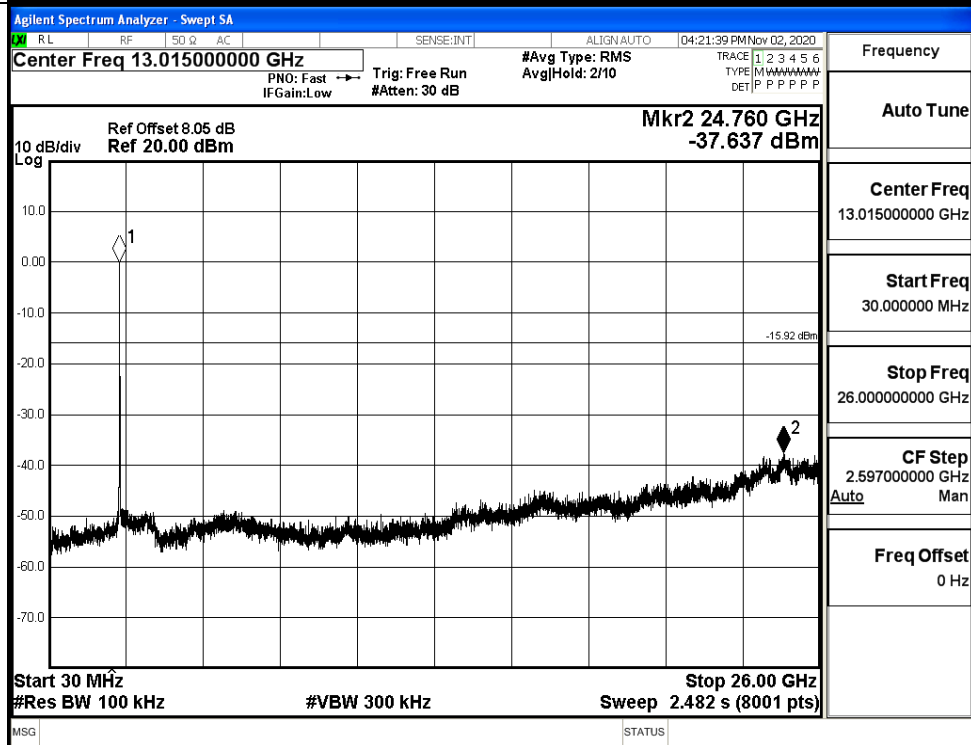


11G\_LCH\_Graphs

Pref/11G/LCH

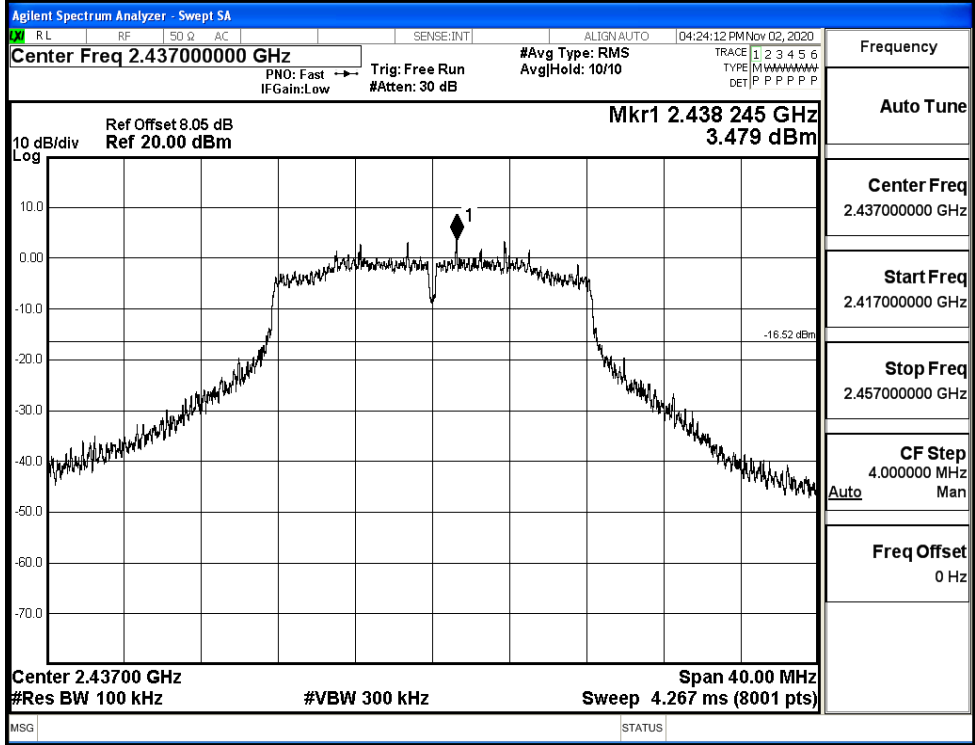


Puw/11G/LCH

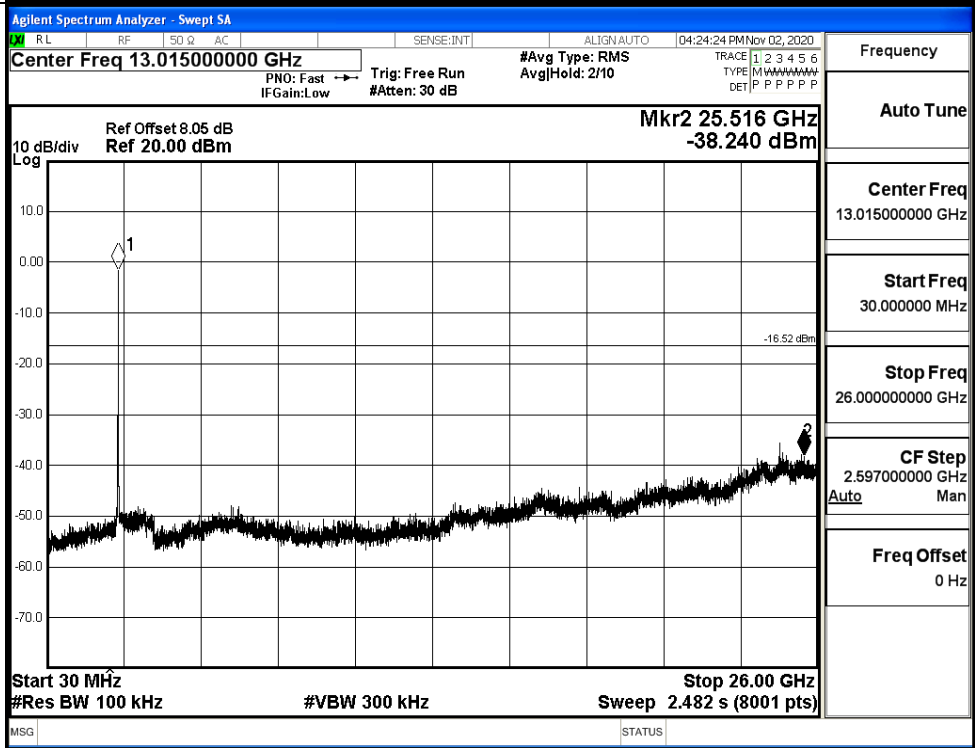


11G\_MCH\_Graphs

Pref/11G/MCH

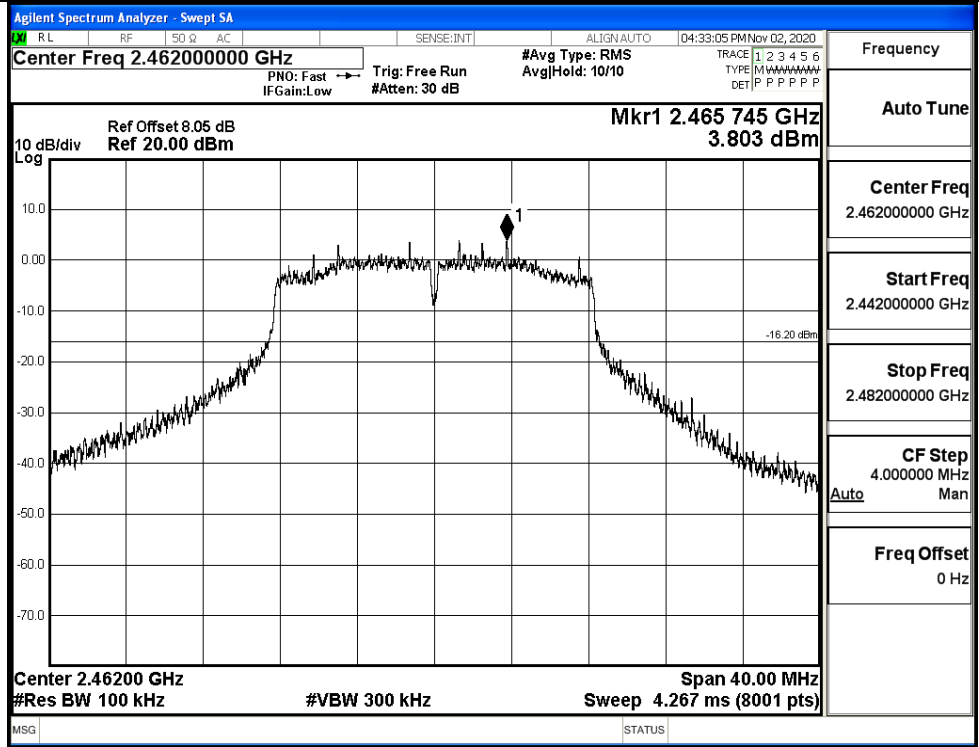


Puw/11G/MCH

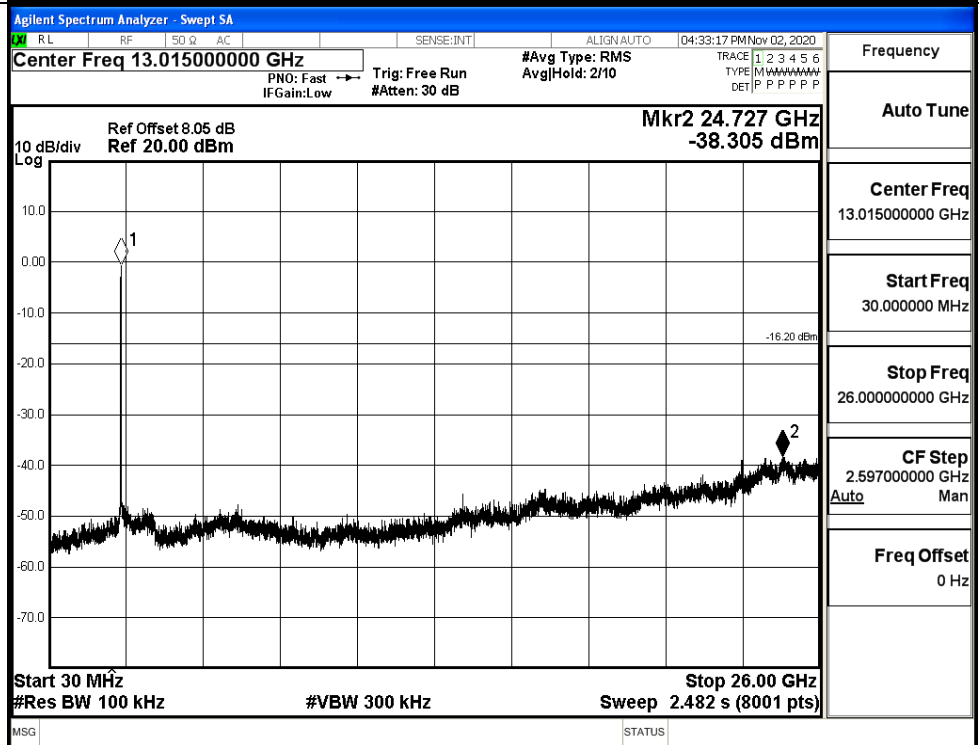


11G\_HCH\_Graphs

Pref/11G/HCH

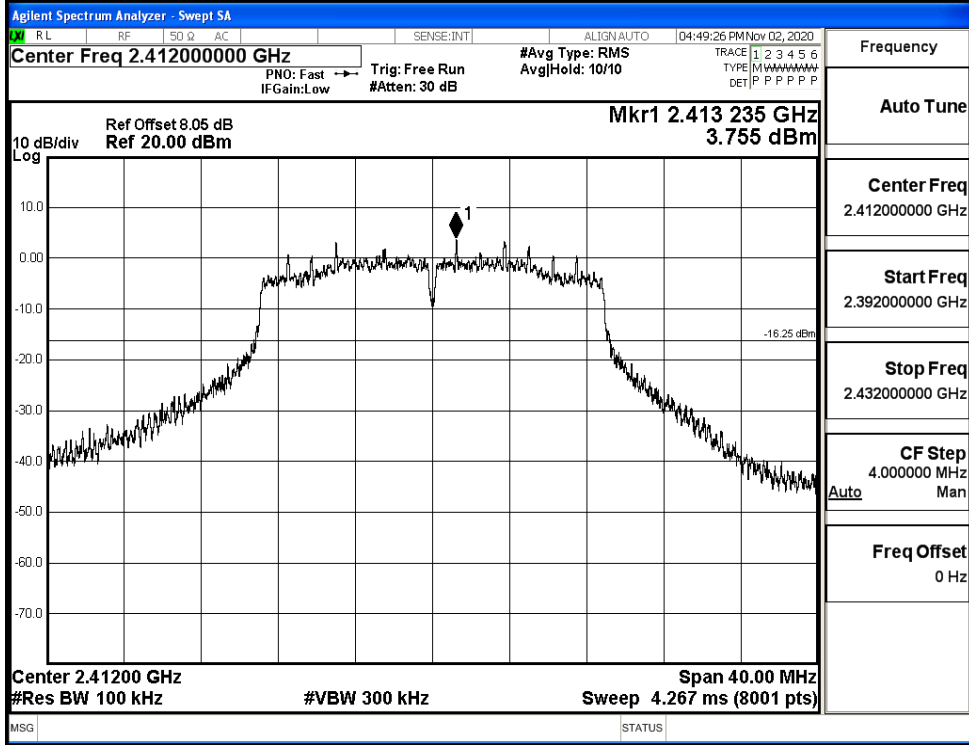


Puw/11G/HCH

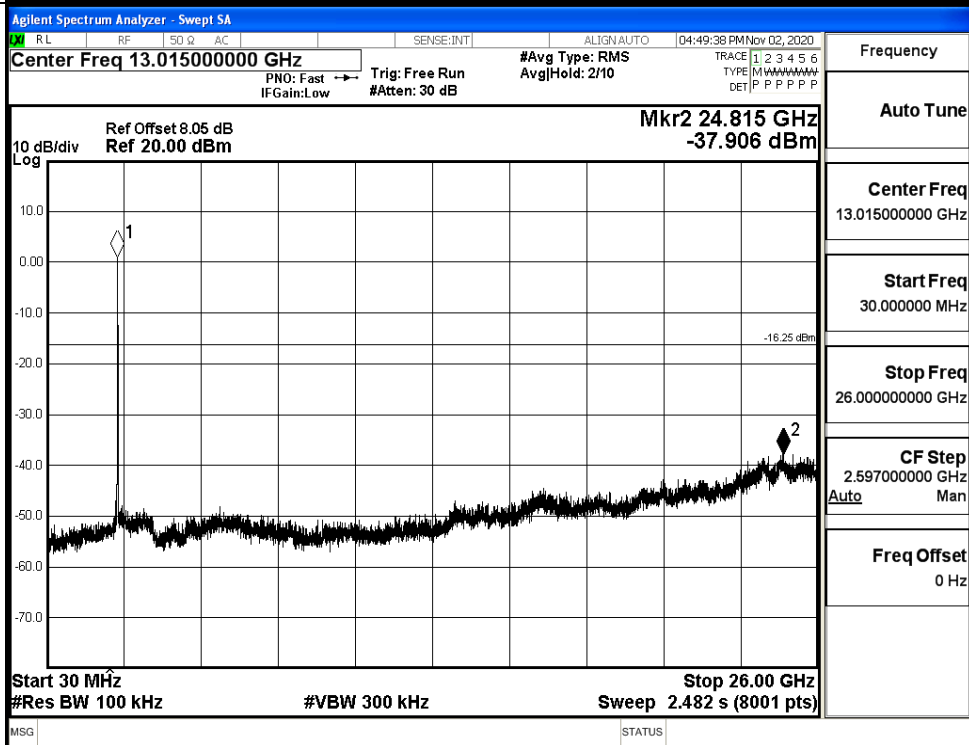


11N20SISO\_LCH\_Graphs

Pref/11N20SIS  
O/LCH



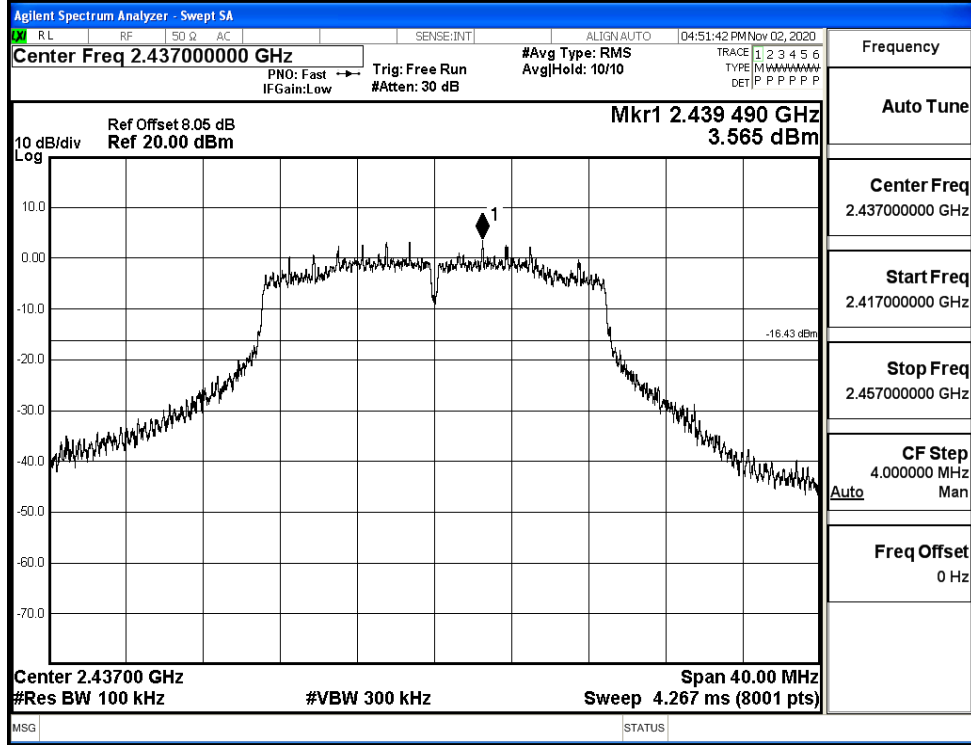
Puw/11N20  
SISO/LCH



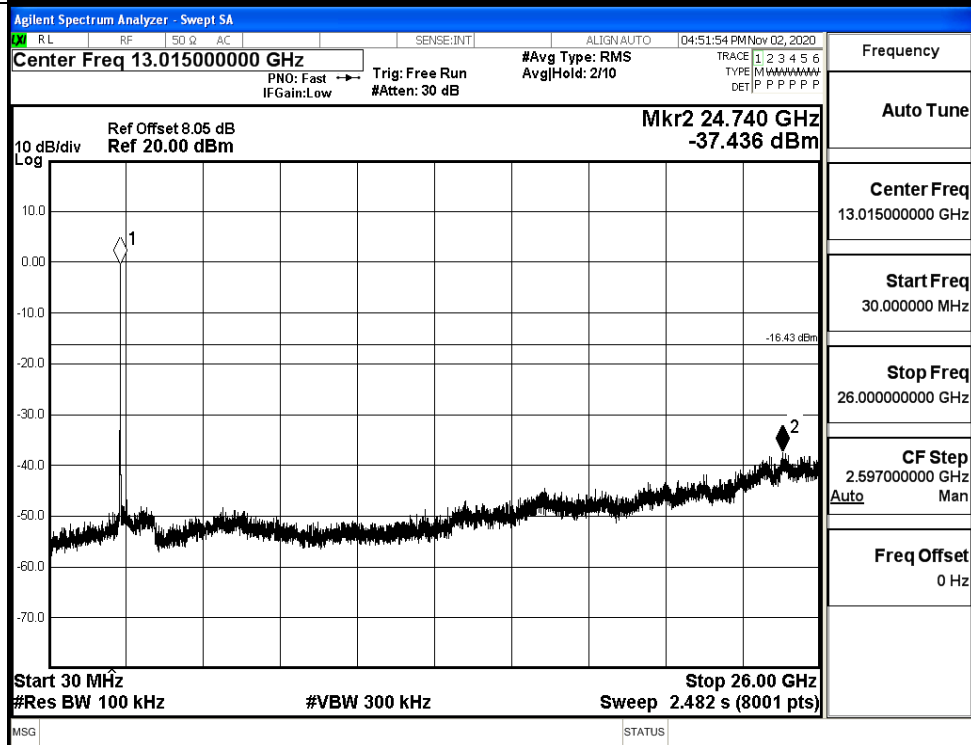


11N20SISO\_MCH\_Graphs

Pref/11N20  
SISO/MCH

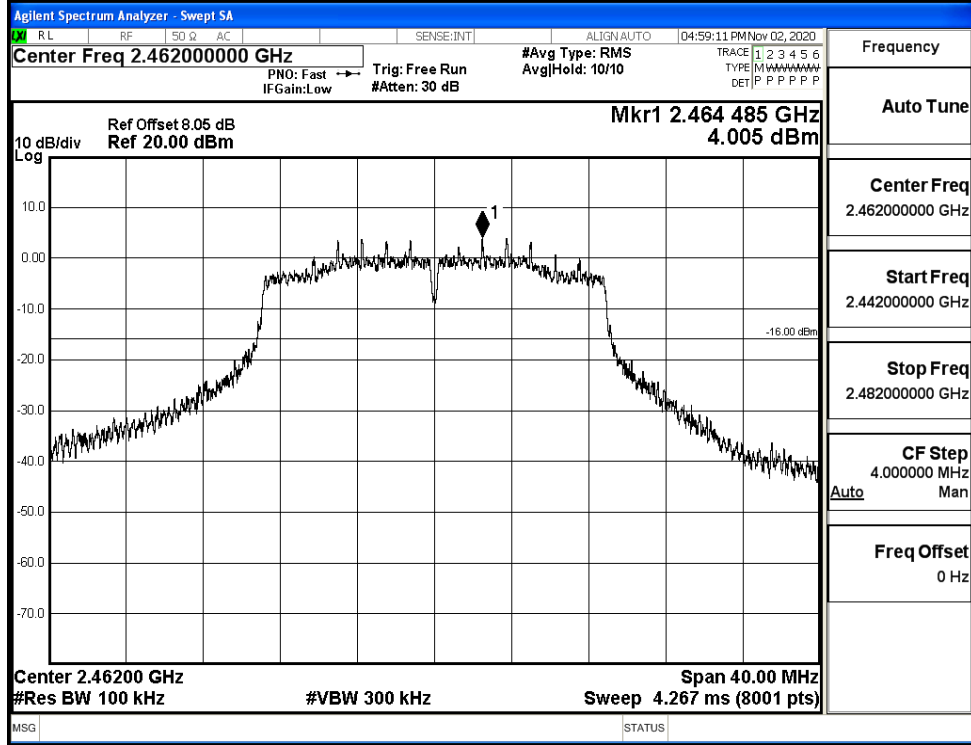


Puw/11N20  
SISO/MCH

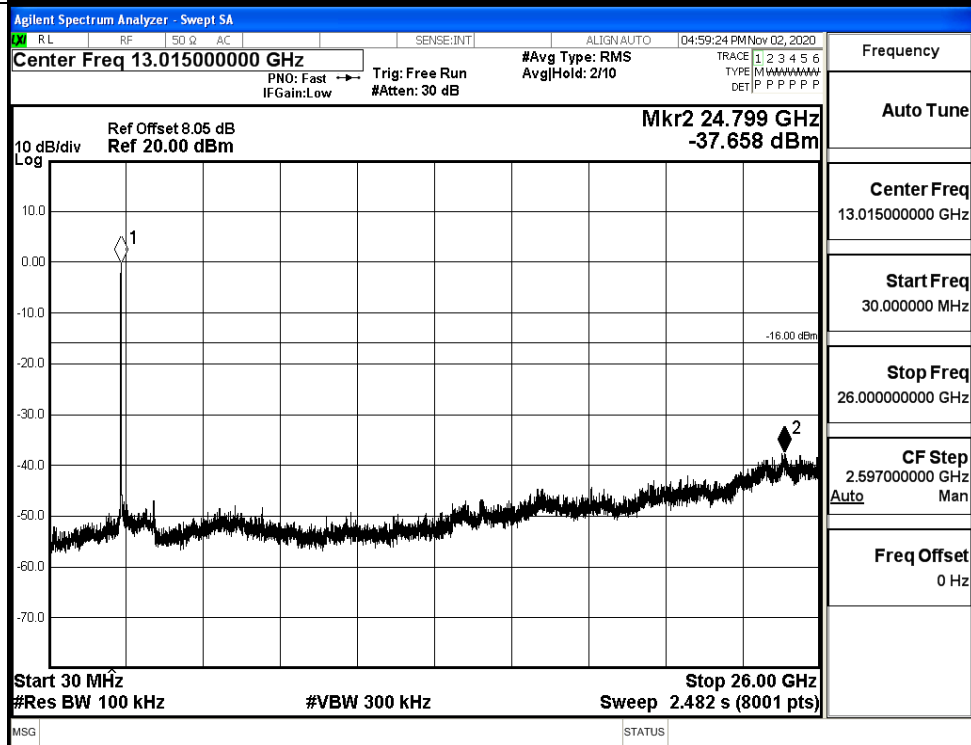


11N20SISO\_HCH\_Graphs

Pref/11N20  
SISO/HCH

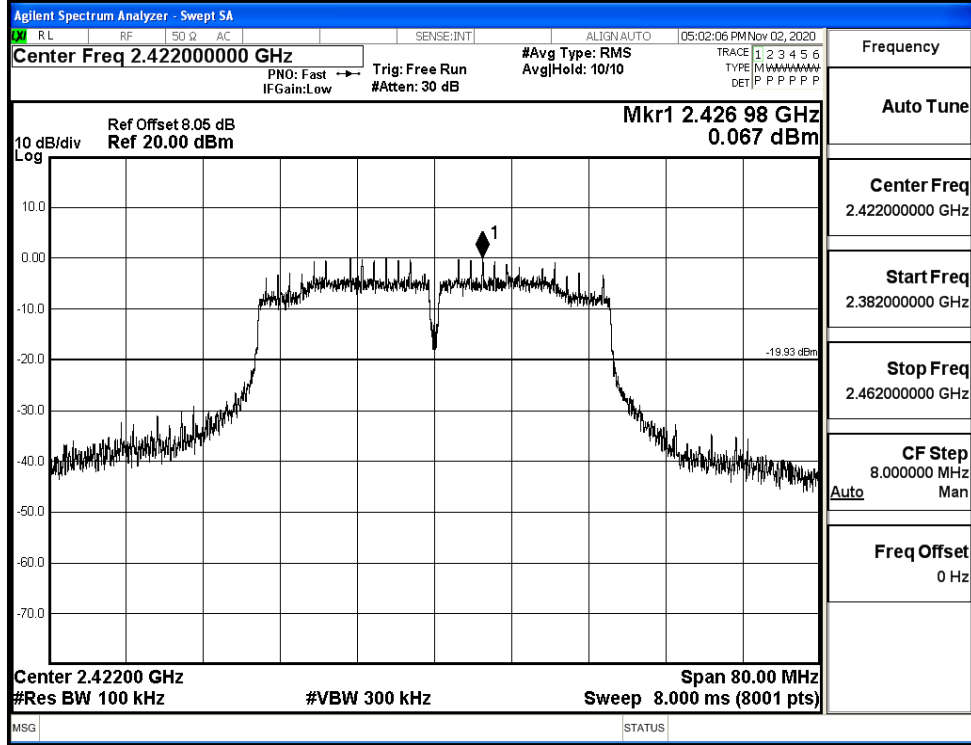


Puw/11N20  
SISO/HCH

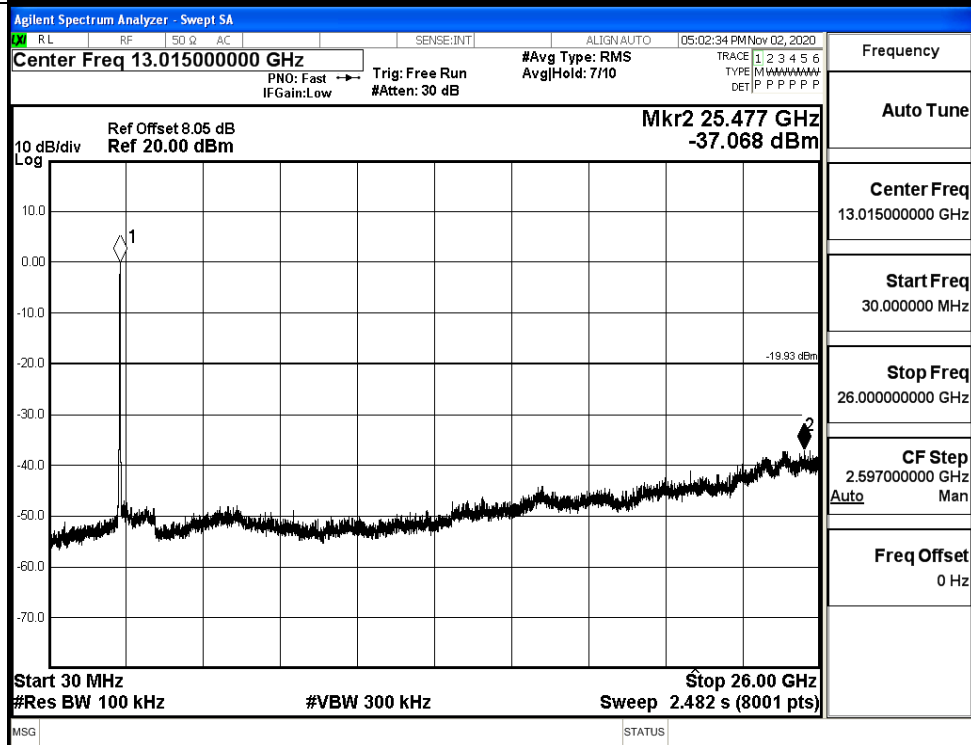


11N40SISO\_LCH\_Graphs

Pref/11N40  
SISO/LCH

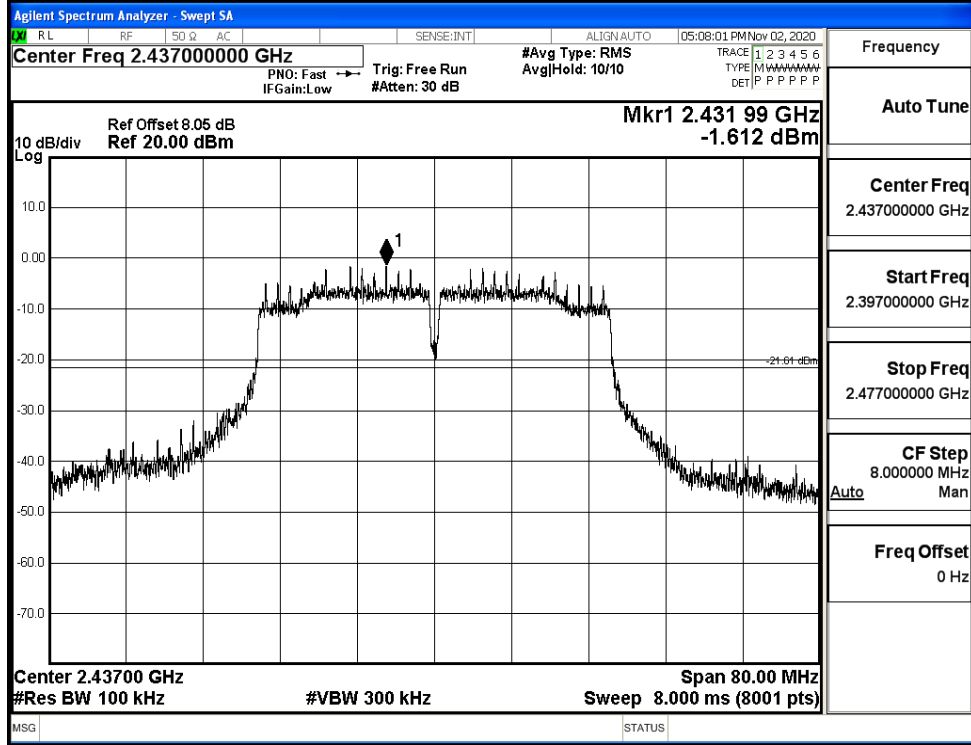


Puw/11N40  
SISO/LCH

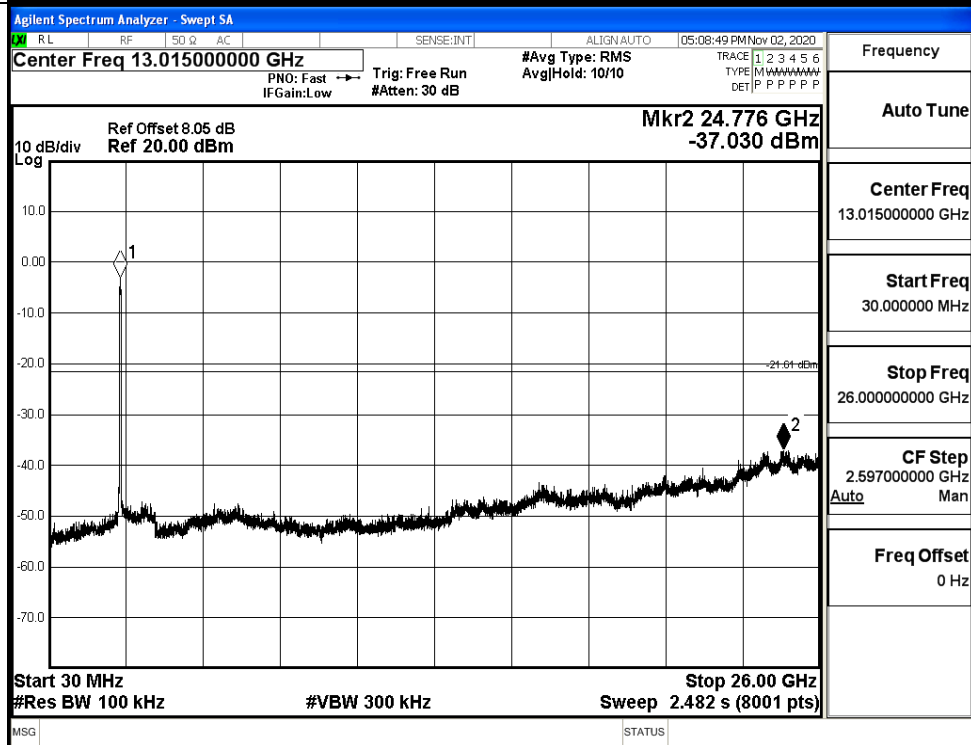


11N40SISO\_MCH\_Graphs

Pref/11N40  
SISO/MCH

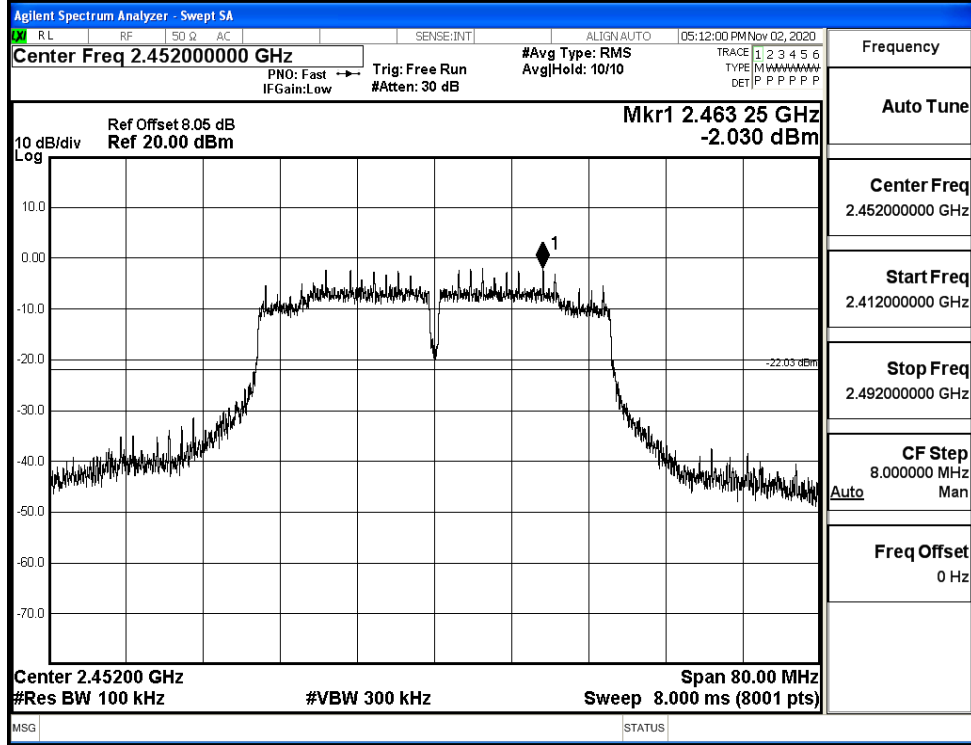


Puw/11N40  
SISO/MCH



11N40SISO\_HCH\_Graphs

Pref/11N40  
SISO/HCH



Puw/11N40  
SISO/HCH

