

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Bebird Smart Visual Ear-Clean Rod

Trade Mark: N/A

Test Model: M9

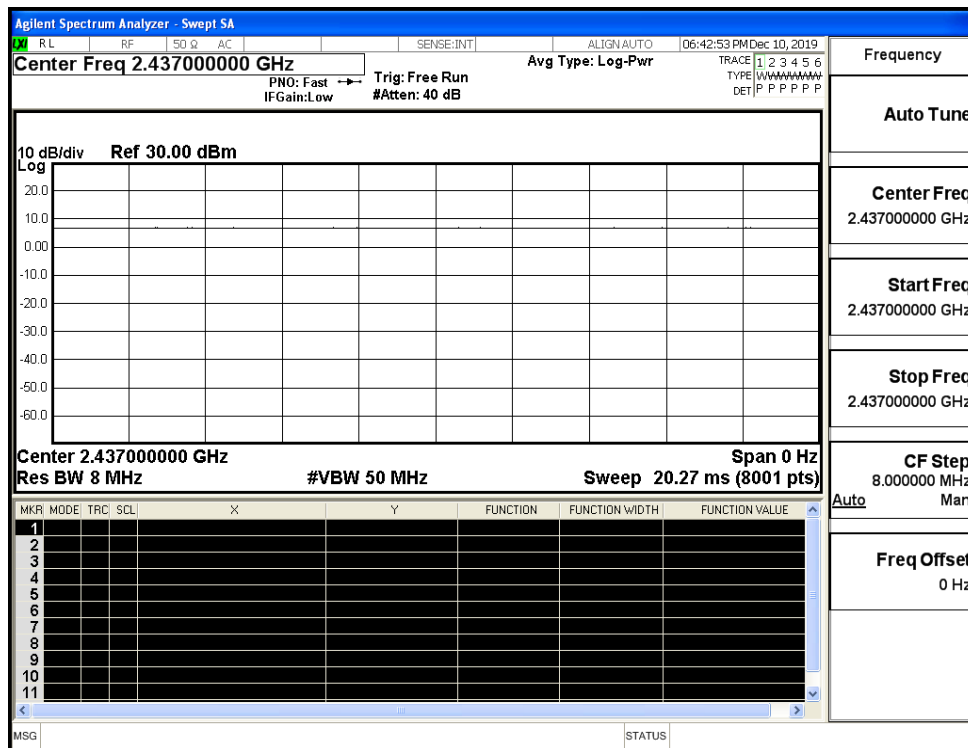
Environmental Conditions

Temperature:	24.3 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Alisa Huang
Supervised by:	Tom Liu

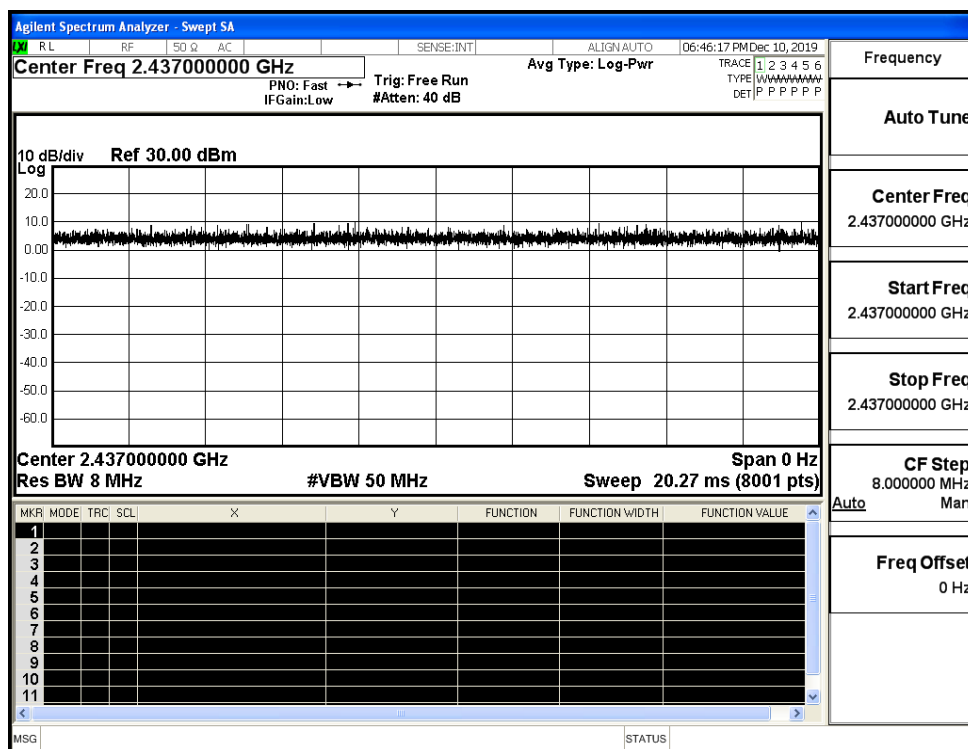
C.1 Duty Cycle

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

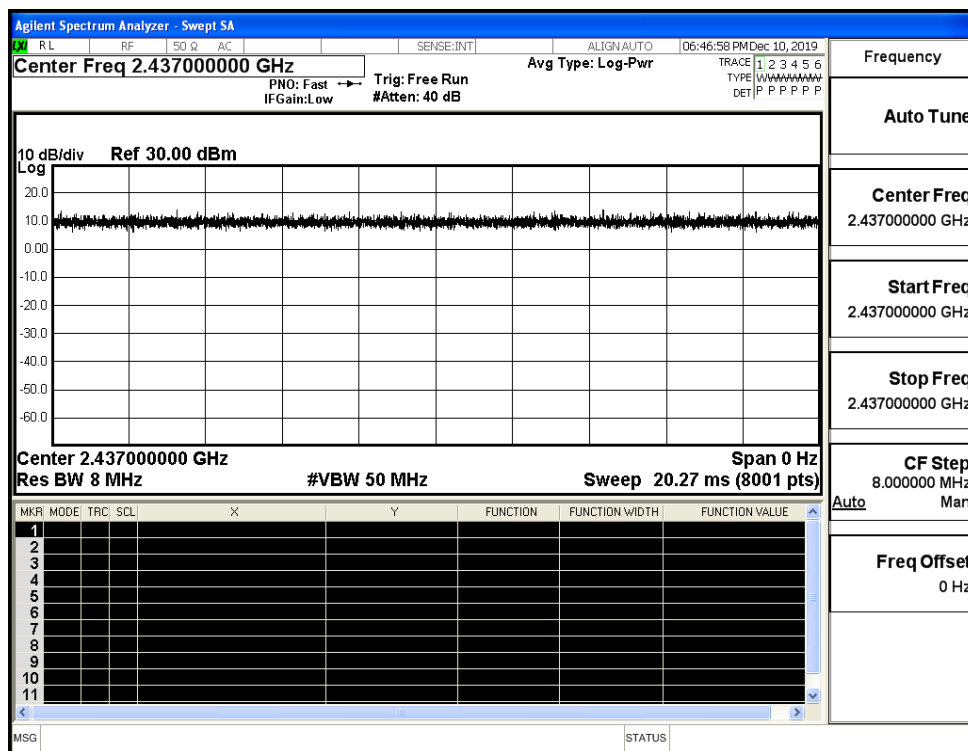
Duty Cycle_11B_2437_Ant1



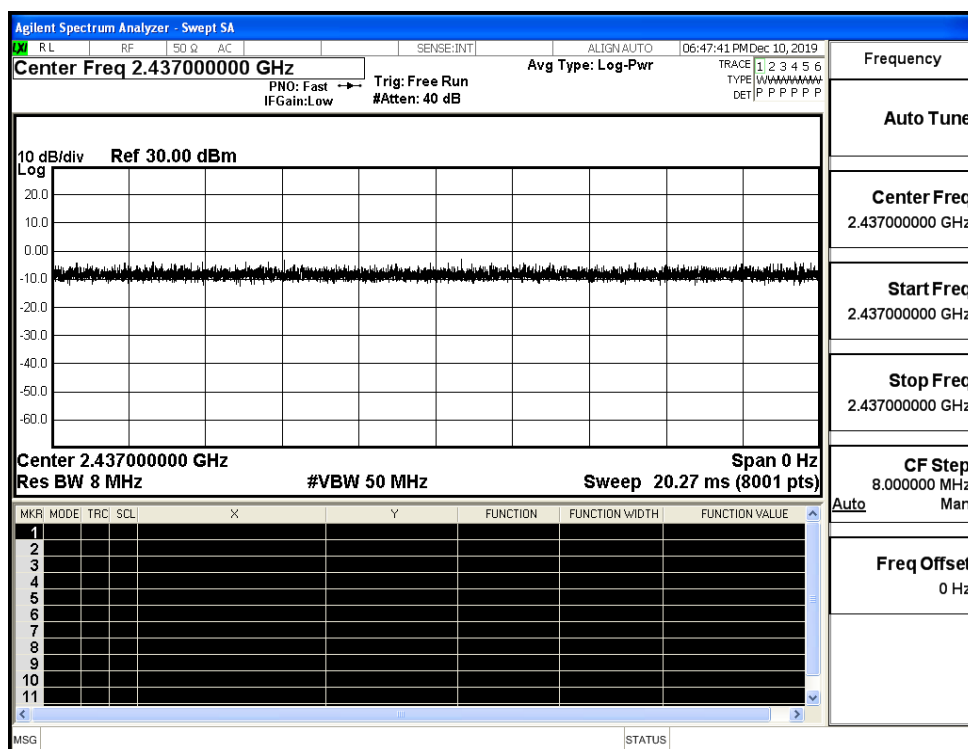
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



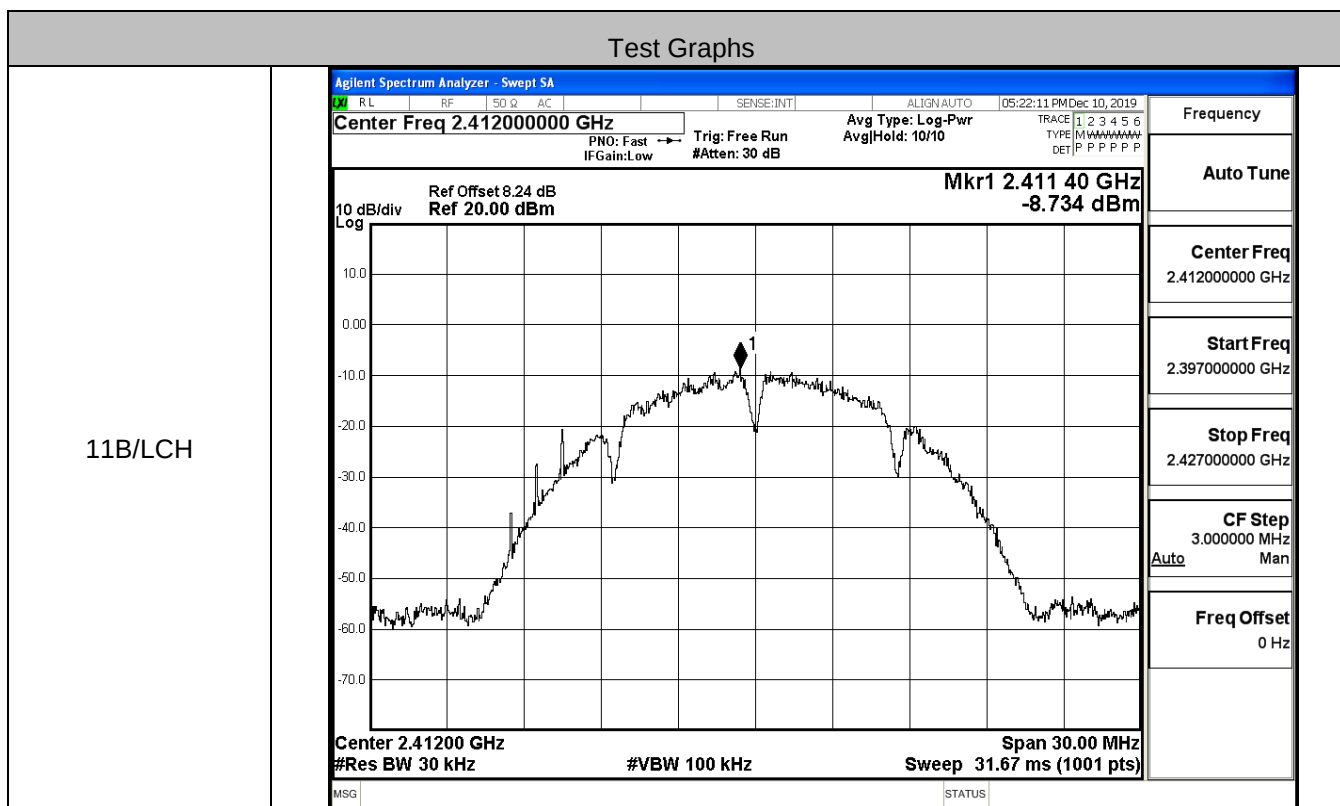
Duty Cycle_11N40SISO_2437_Ant1



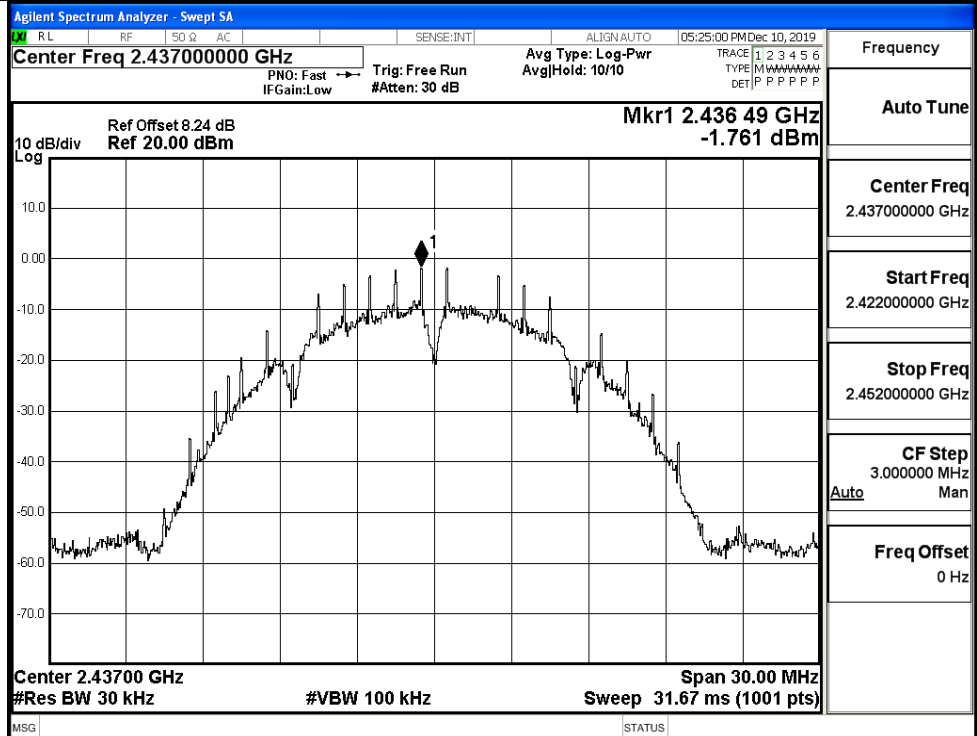
C.2 Maximum Conducted Output Power

Mode	Channel	Peak [dBm]	Average [dBm]	Limit [dBm]	Verdict
11B	LCH	9.12	8.81	30	PASS
	MCH	8.86	8.47	30	PASS
	HCH	8.46	7.90	30	PASS
11G	LCH	8.94	8.54	30	PASS
	MCH	9.10	8.77	30	PASS
	HCH	9.02	8.62	30	PASS
11N20SISO	LCH	9.25	8.86	30	PASS
	MCH	8.61	8.17	30	PASS
	HCH	8.93	8.44	30	PASS
11N40SISO	LCH	9.22	8.82	30	PASS
	MCH	8.71	8.03	30	PASS
	HCH	8.75	8.06	30	PASS

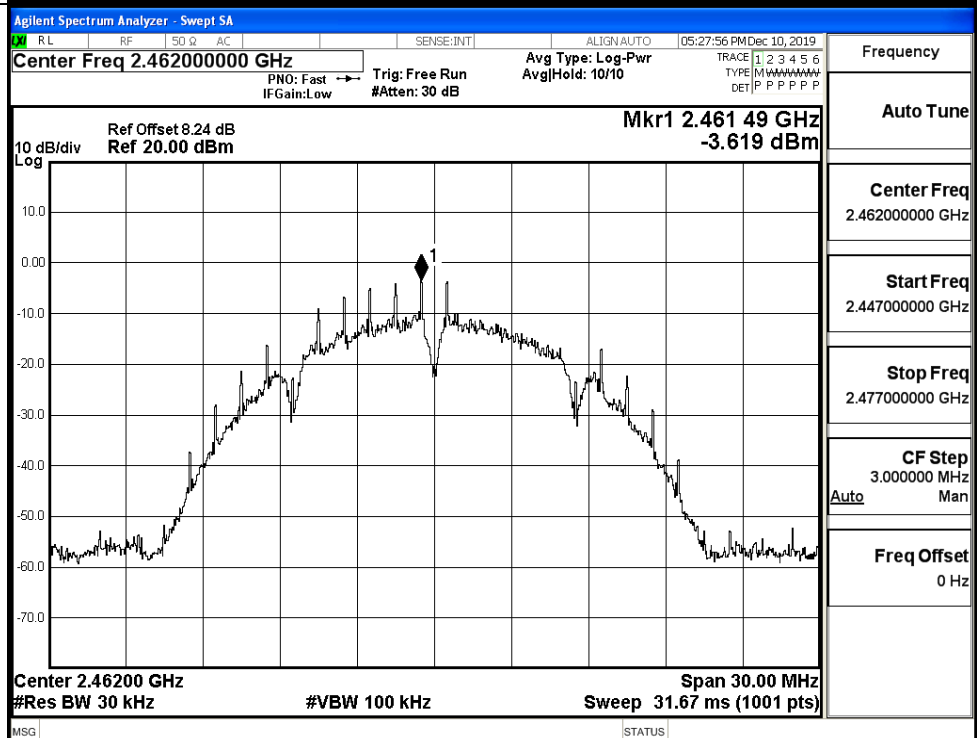
Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-8.734	8	PASS
	MCH	-1.761	8	PASS
	HCH	-3.619	8	PASS
11G	LCH	-13.559	8	PASS
	MCH	-13.868	8	PASS
	HCH	-14.453	8	PASS
11N20SISO	LCH	-16.004	8	PASS
	MCH	-12.888	8	PASS
	HCH	-13.485	8	PASS
11N40SISO	LCH	-18.213	8	PASS
	MCH	-17.659	8	PASS
	HCH	-17.754	8	PASS



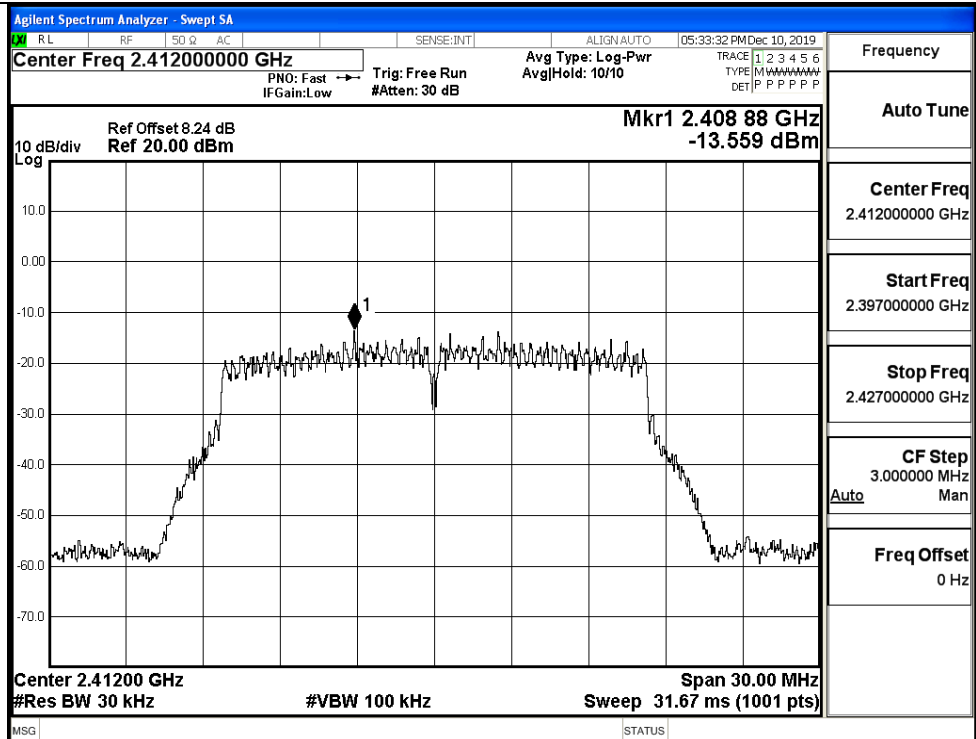
11B/MCH



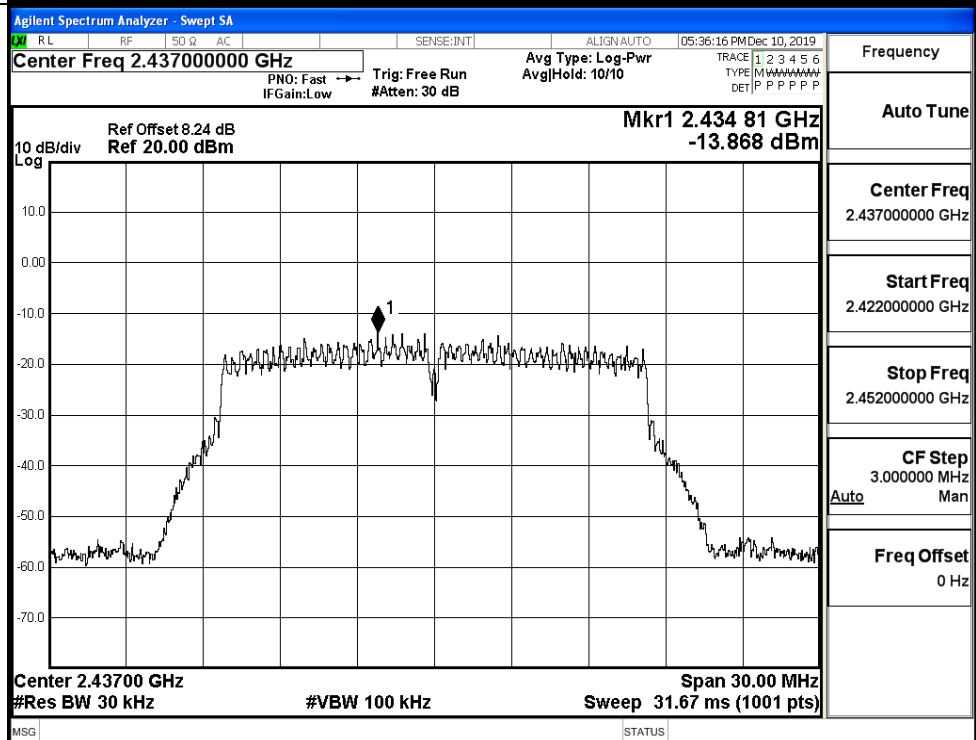
11B/HCH



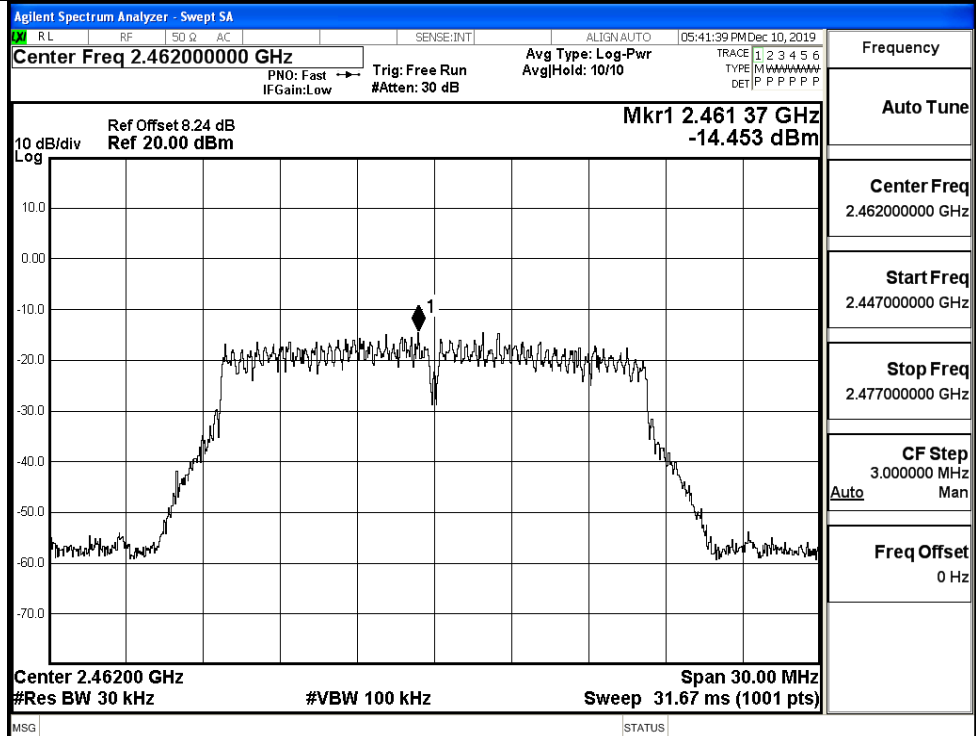
11G/LCH



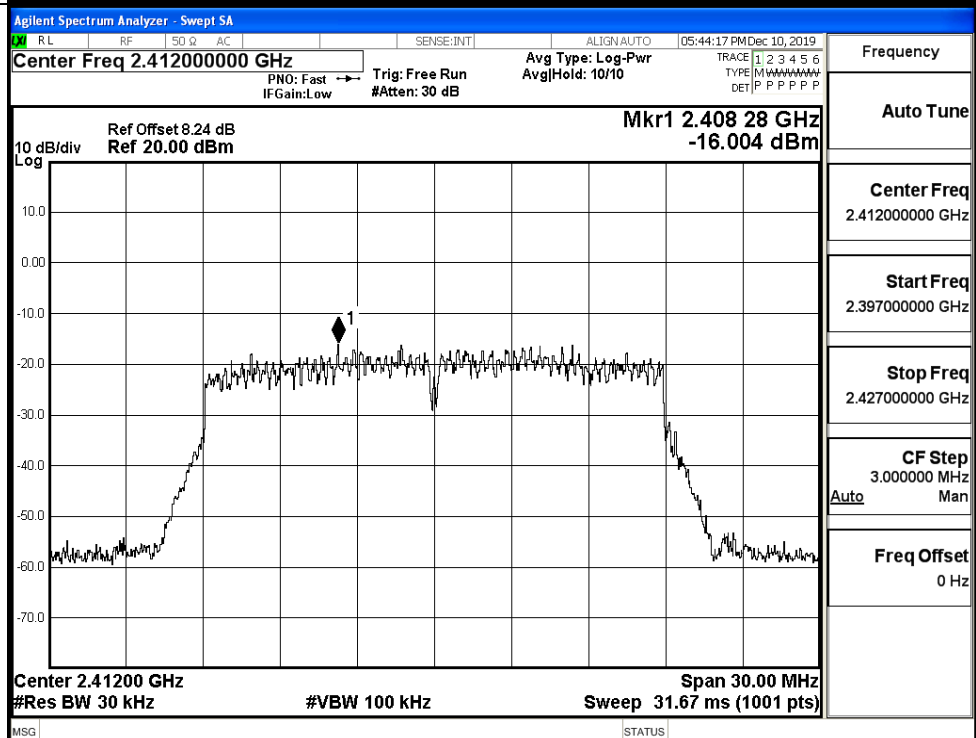
11G/MCH



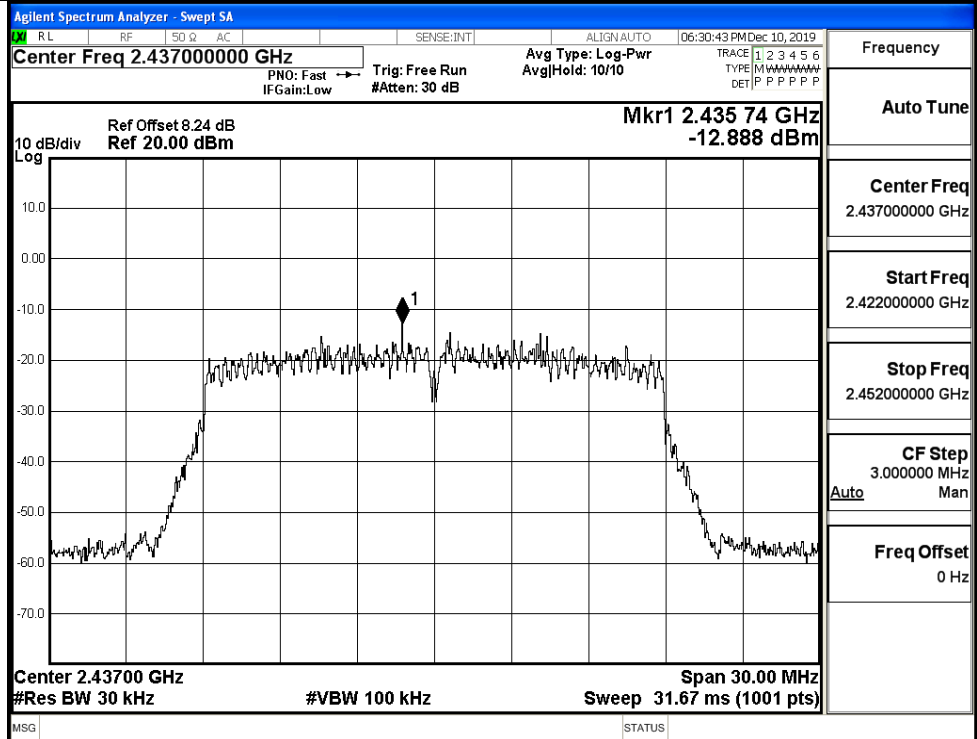
11G/HCH



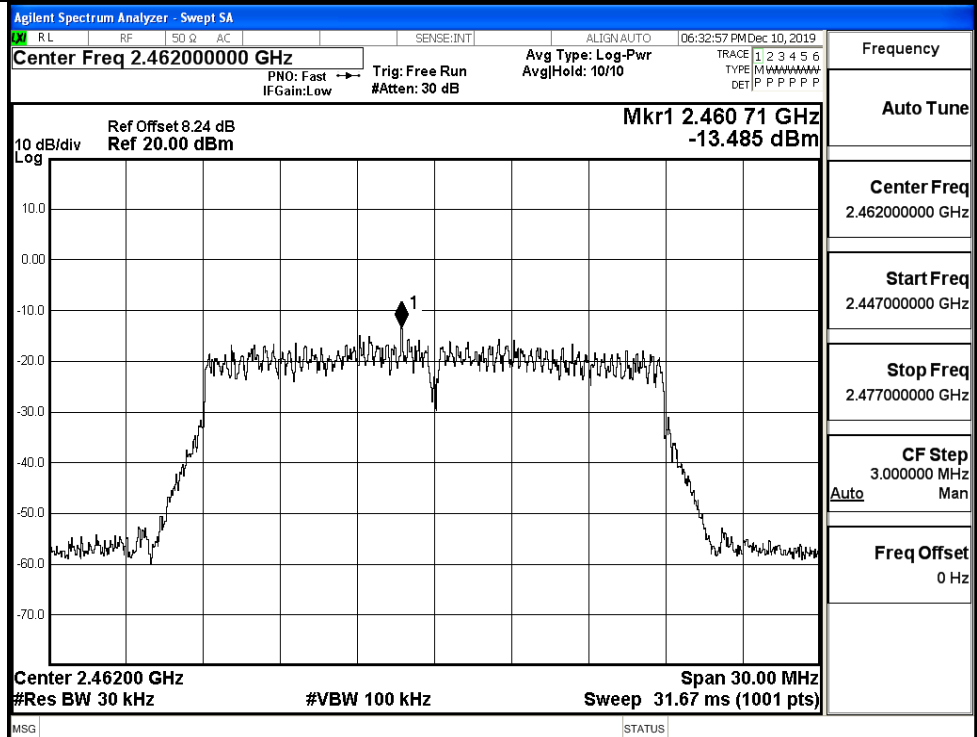
11N20SISO/LCH



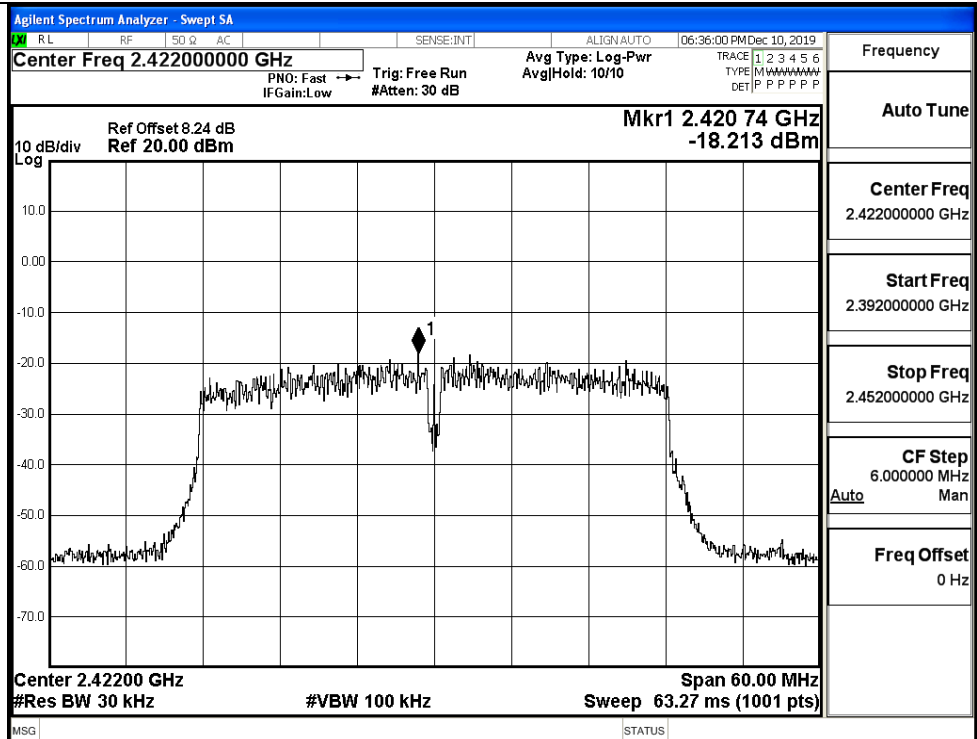
11N20SISO/MCH



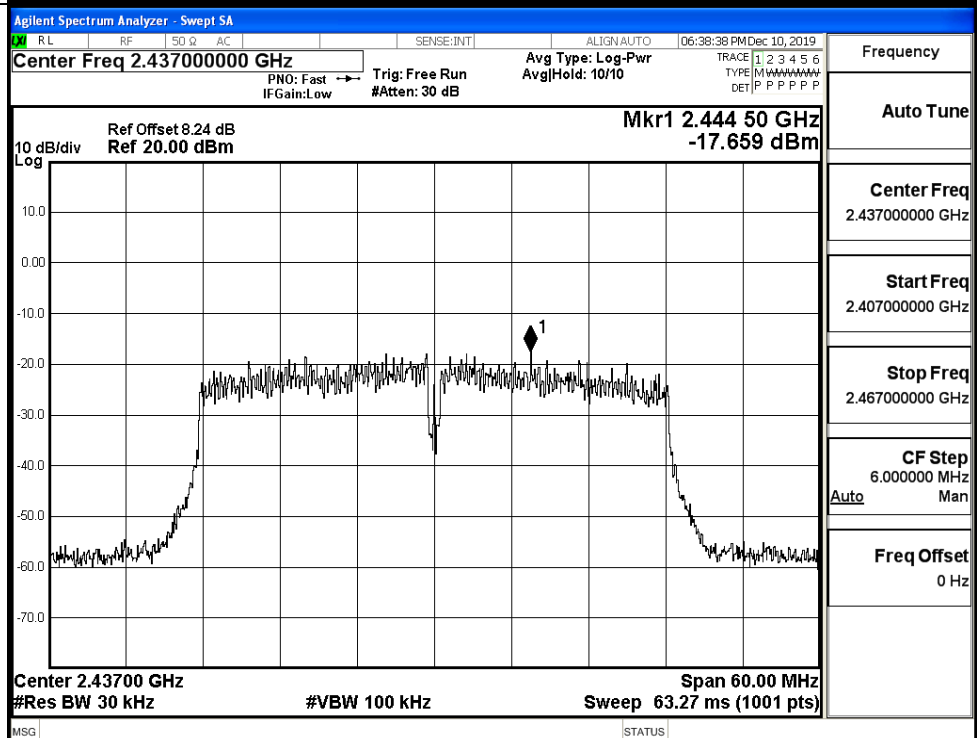
11N20SISO/HCH



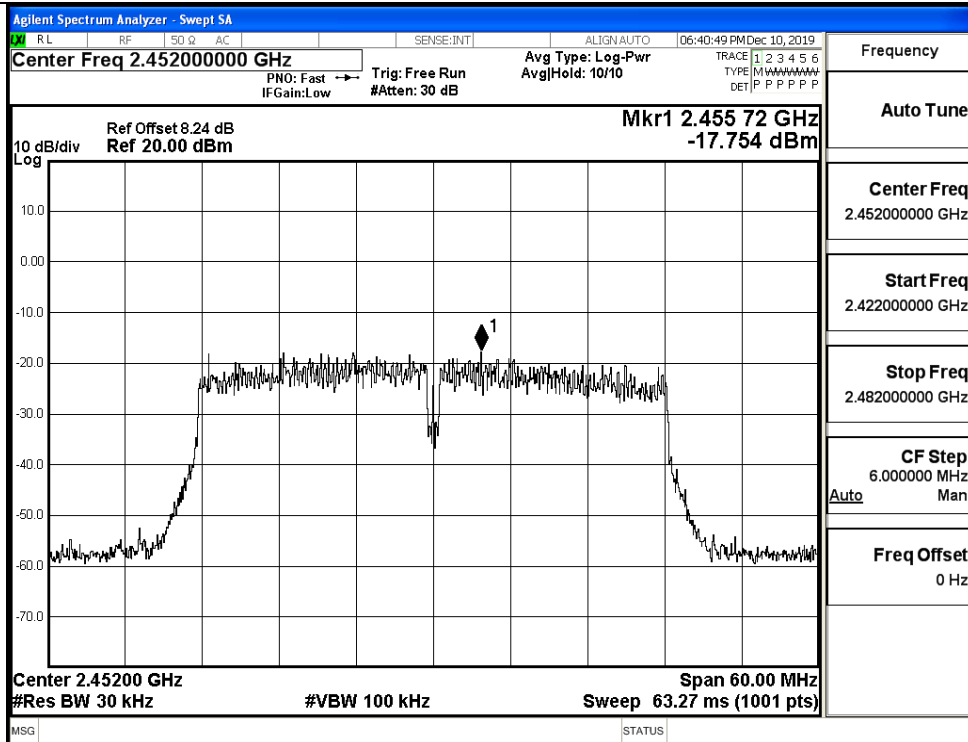
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

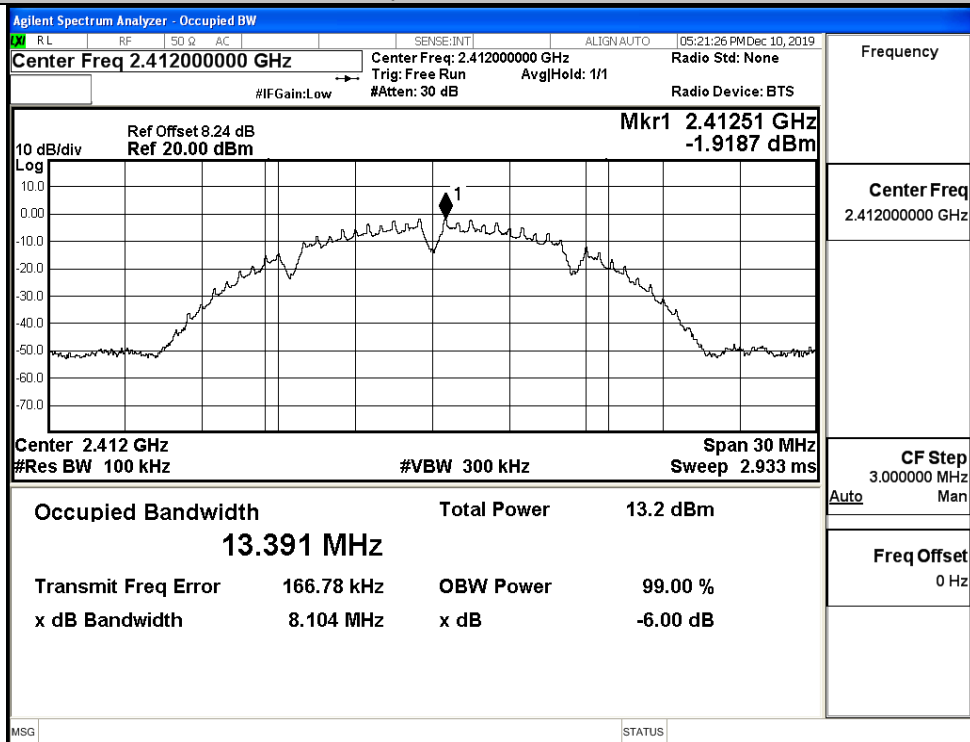


C.4 6dB Bandwidth

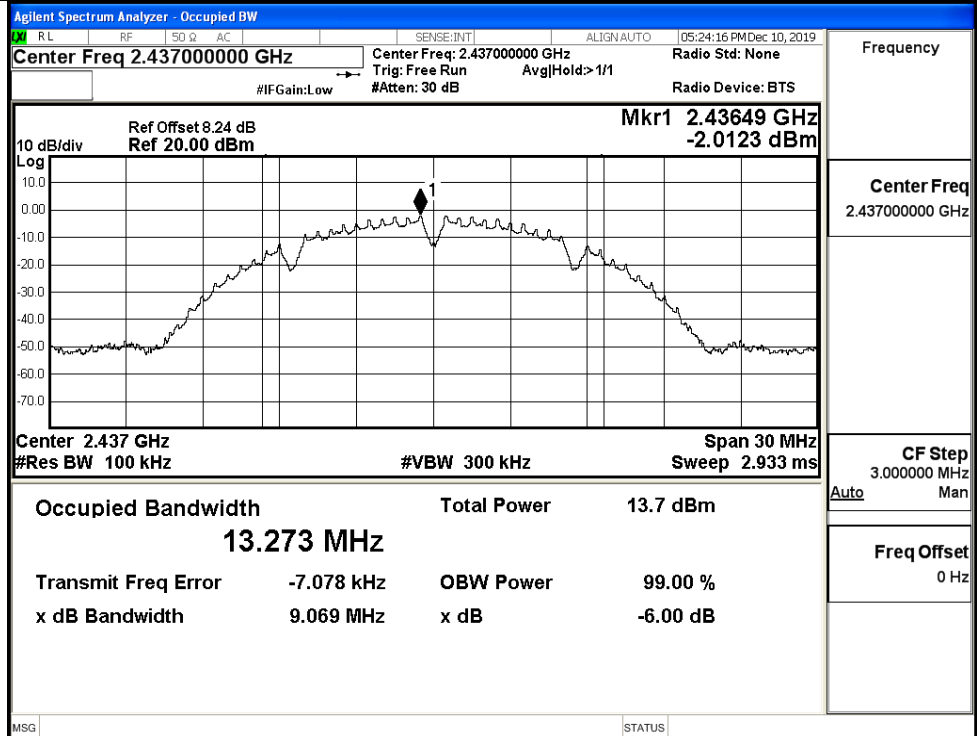
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	8.104	≥ 0.5	PASS
	MCH	9.069	≥ 0.5	PASS
	HCH	9.055	≥ 0.5	PASS
11G	LCH	15.50	≥ 0.5	PASS
	MCH	15.99	≥ 0.5	PASS
	HCH	16.09	≥ 0.5	PASS
11N20SISO	LCH	17.34	≥ 0.5	PASS
	MCH	17.29	≥ 0.5	PASS
	HCH	16.66	≥ 0.5	PASS
11N40SISO	LCH	33.80	≥ 0.5	PASS
	MCH	33.84	≥ 0.5	PASS
	HCH	32.60	≥ 0.5	PASS

Test Graphs

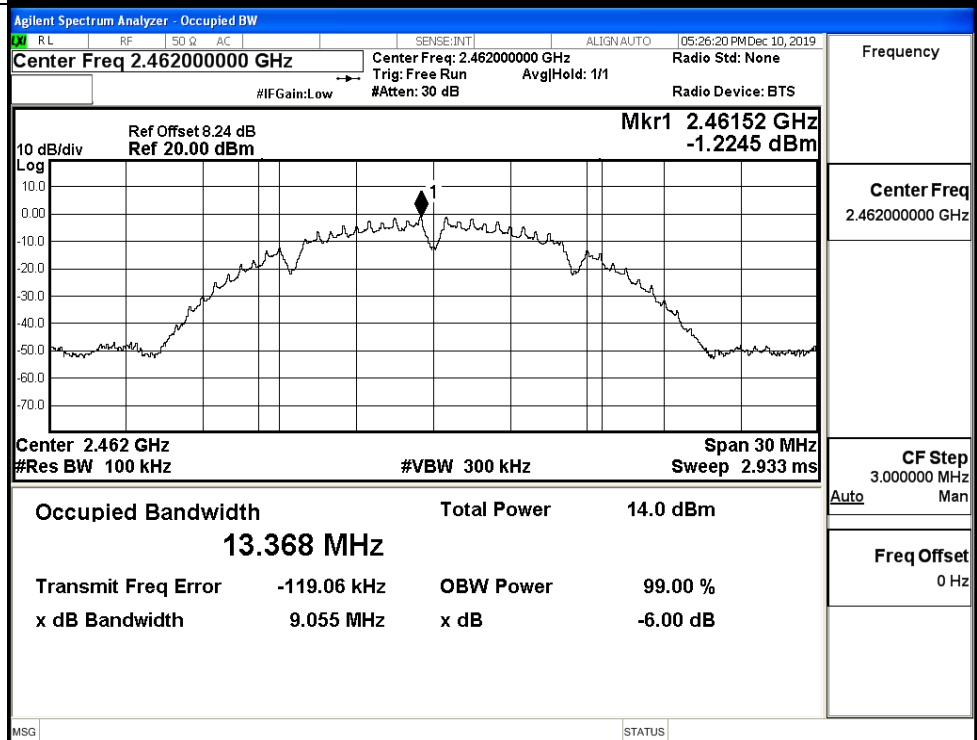
11B/LCH



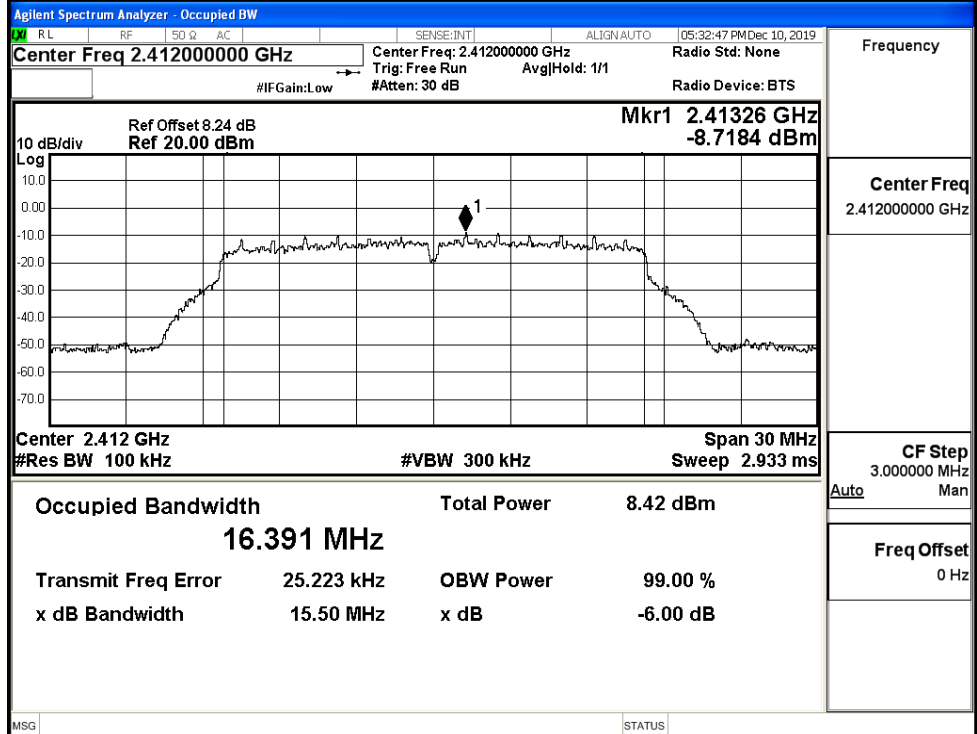
11B/MCH



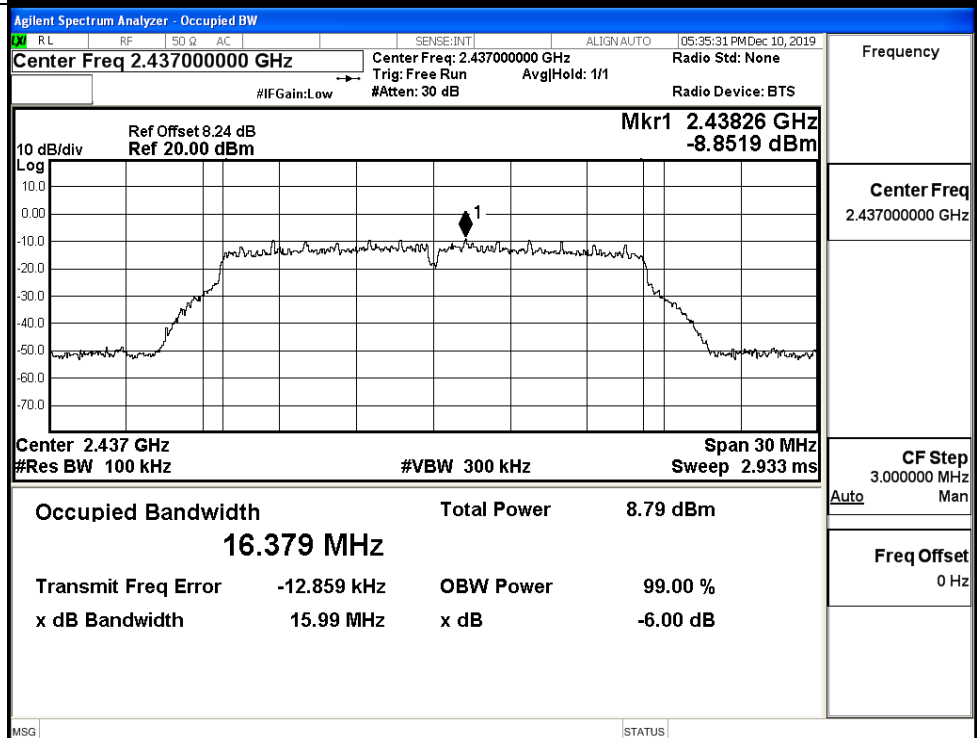
11B/HCH



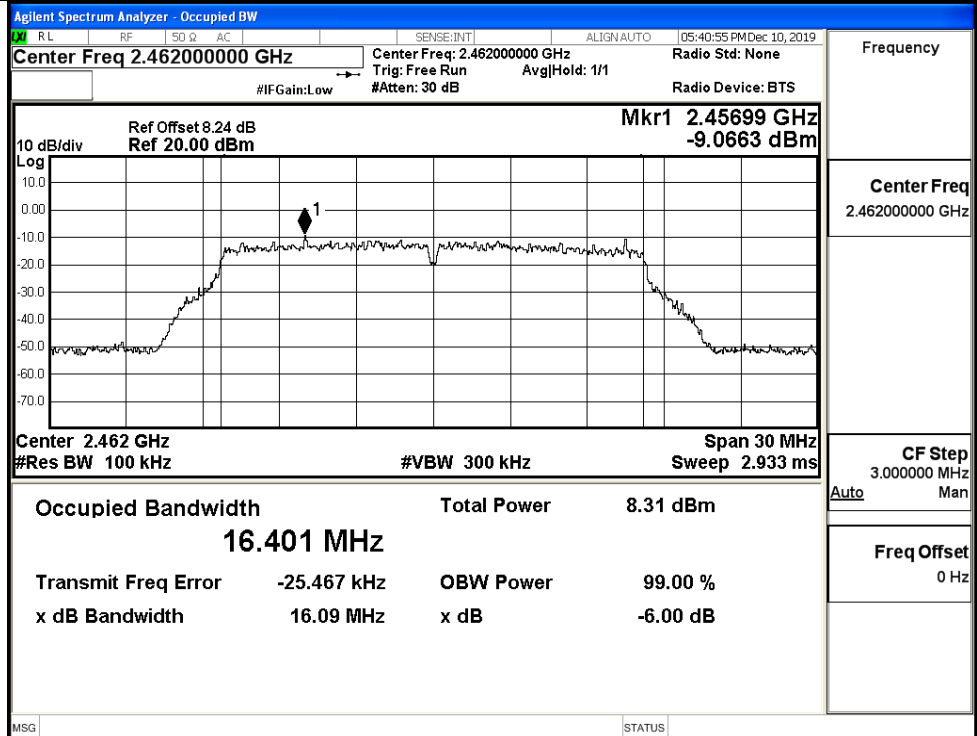
11G/LCH



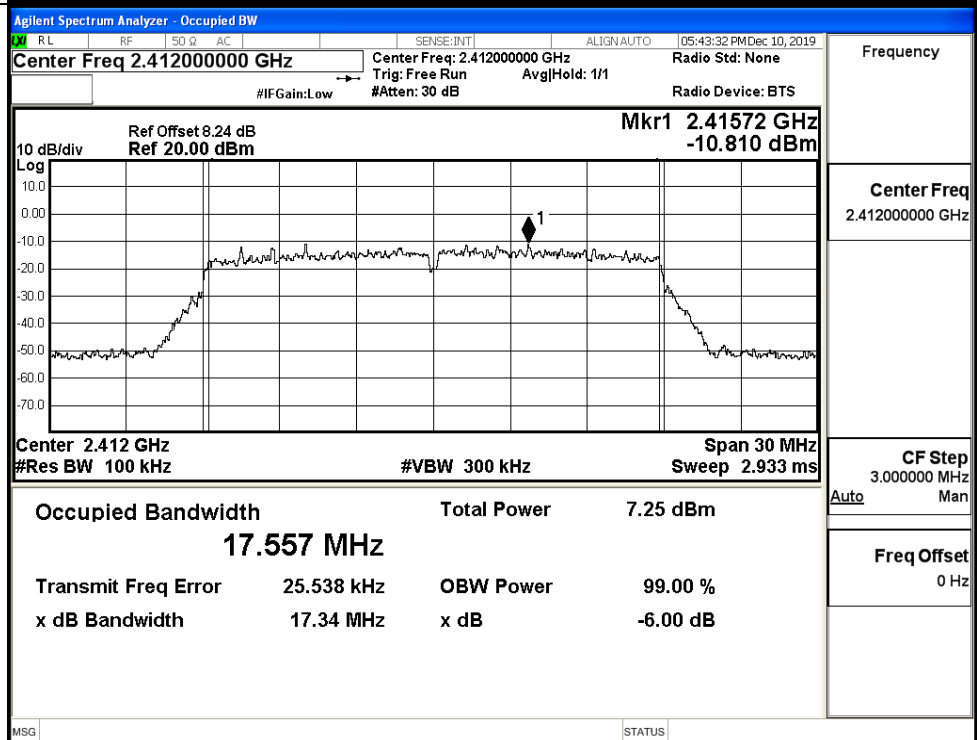
11G/MCH



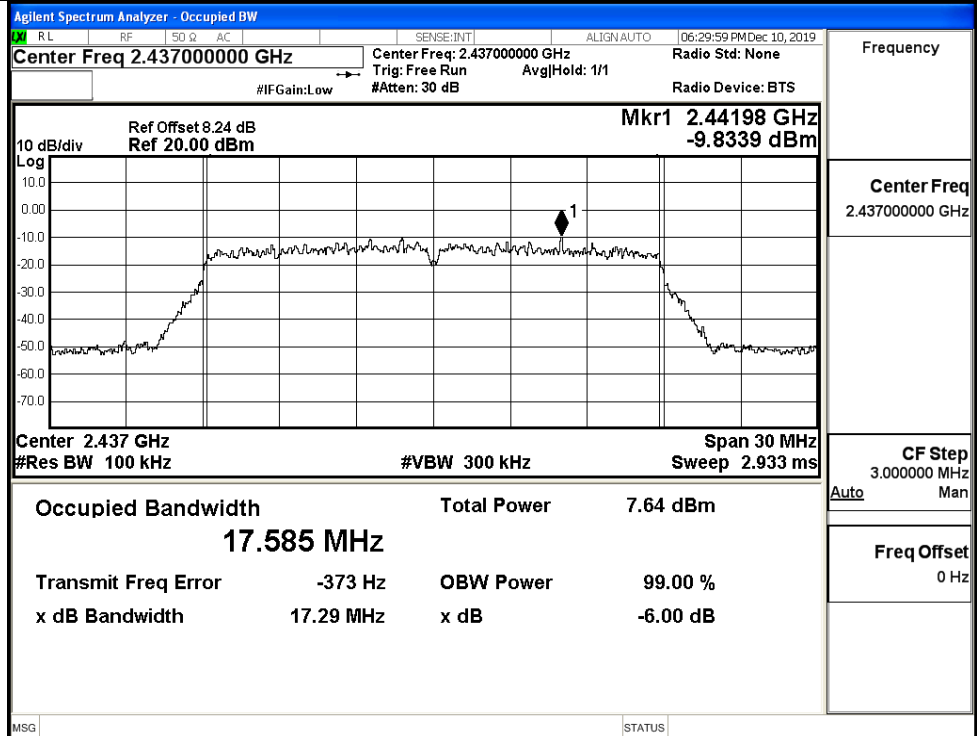
11G/HCH



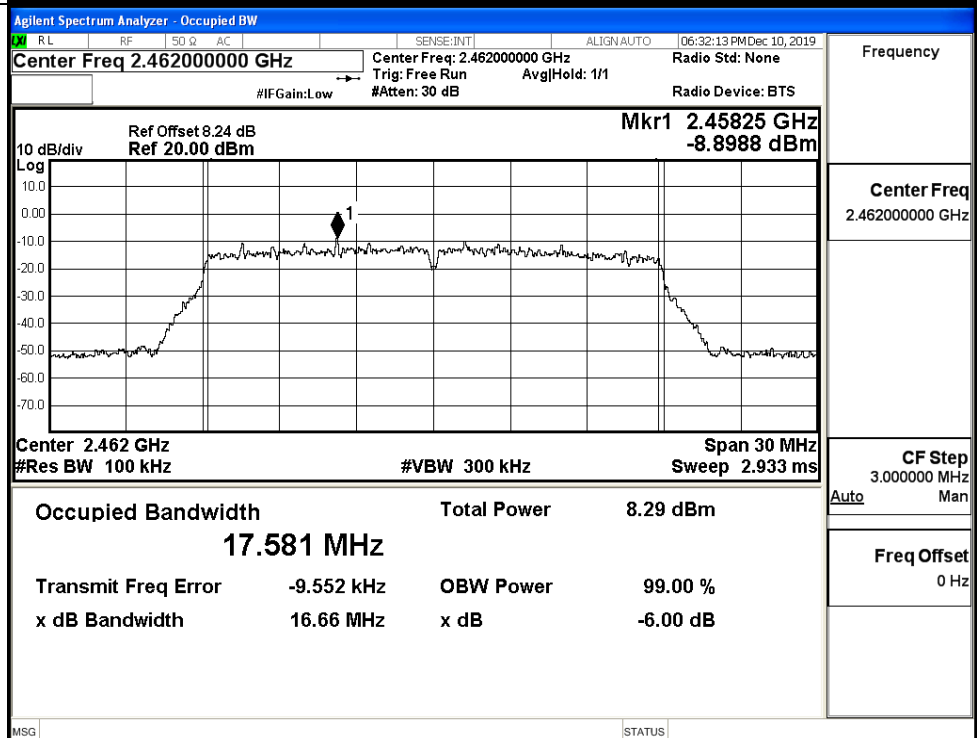
11N20SISO/LCH



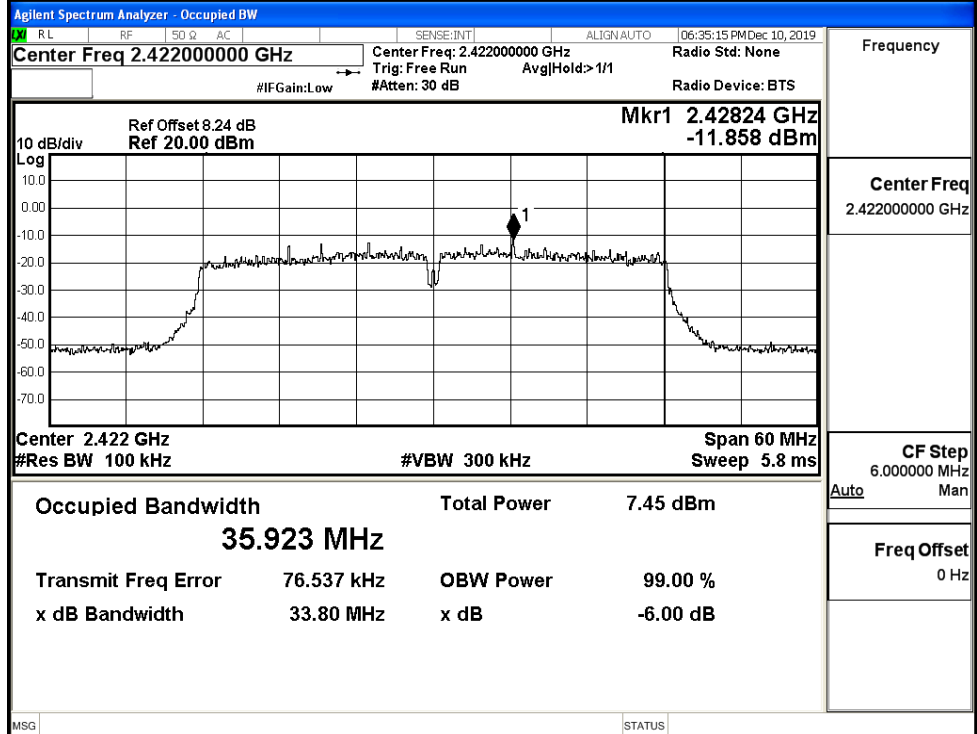
11N20SISO/MCH



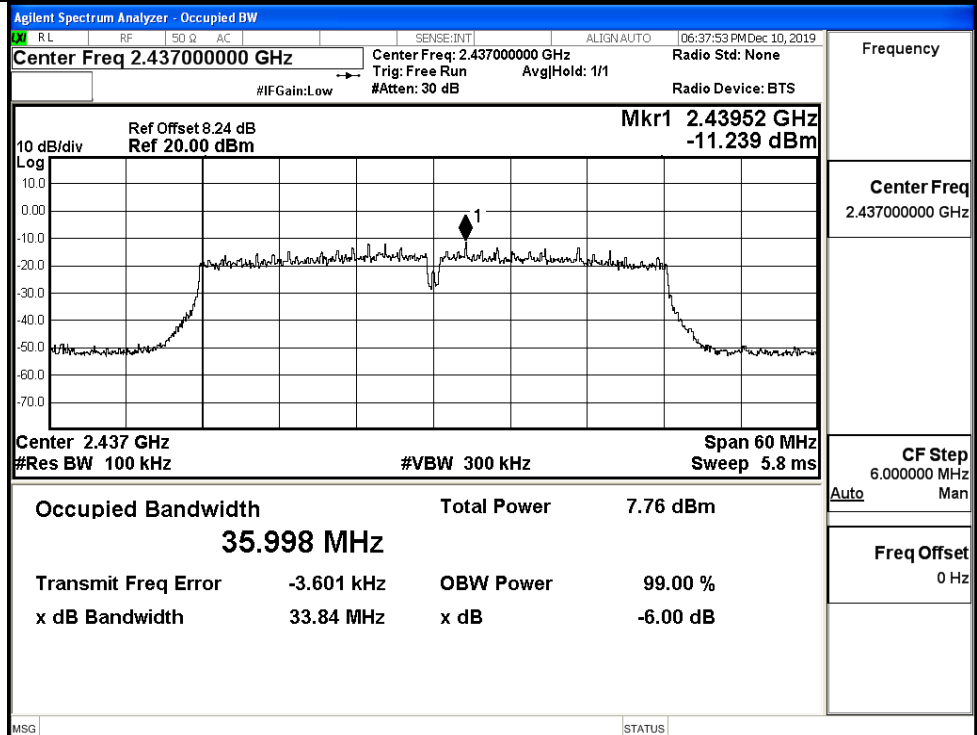
11N20SISO/HCH



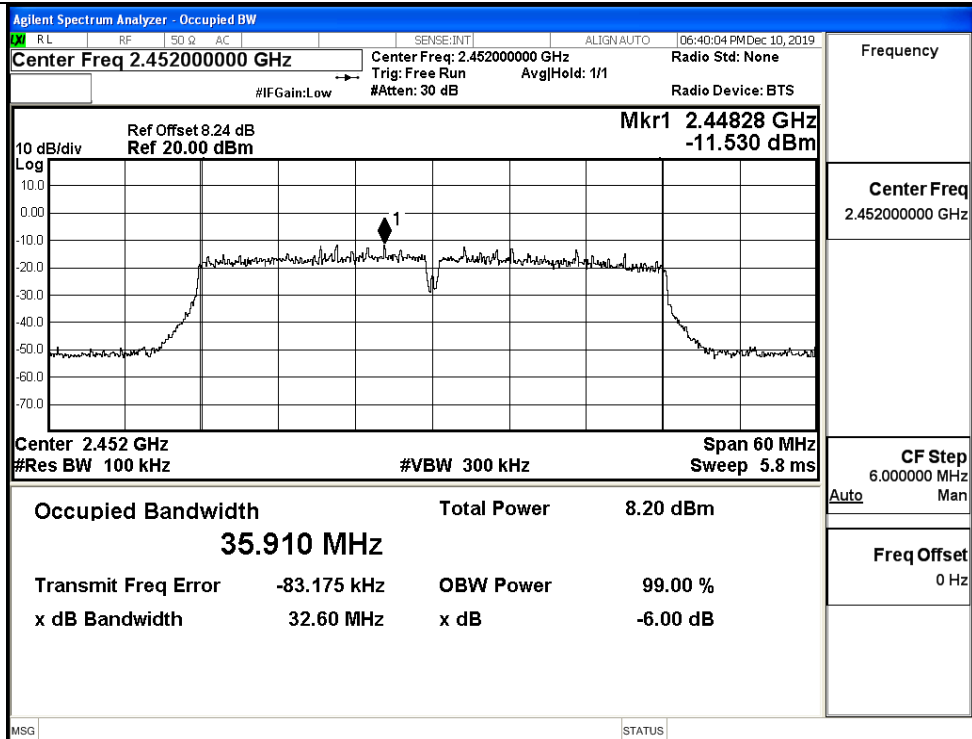
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

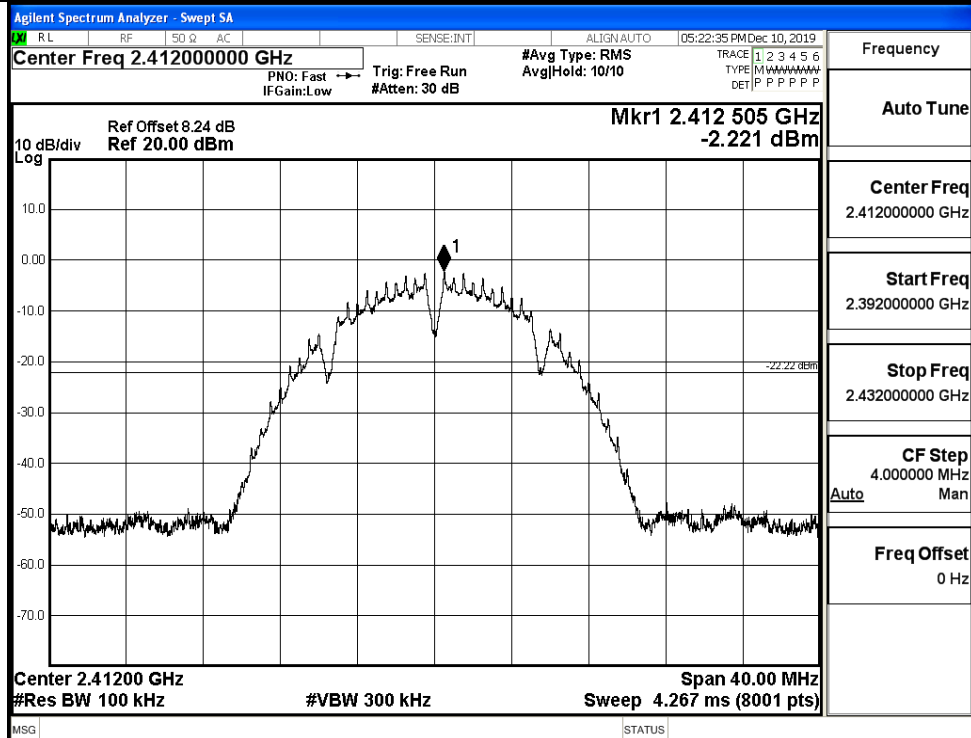


C.5 RF Conducted Spurious Emissions

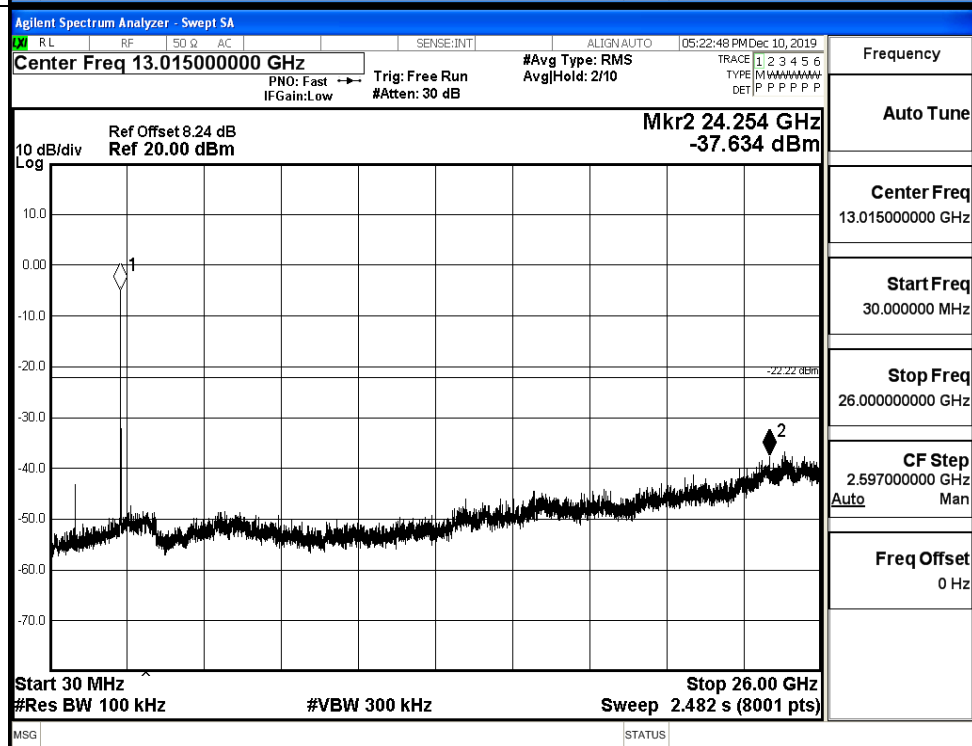
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-2.221	-37.634	-22.221	PASS
	MCH	-1.746	-37.345	-21.746	PASS
	HCH	-3.143	-37.635	-23.143	PASS
11G	LCH	-9.658	-37.210	-29.658	PASS
	MCH	-9.033	-37.617	-29.033	PASS
	HCH	-8.79	-37.697	-28.790	PASS
11N20 SISO	LCH	-10.189	-37.153	-30.189	PASS
	MCH	-10.161	-37.093	-30.161	PASS
	HCH	-9.309	-37.819	-29.309	PASS
11N40 SISO	LCH	-11.845	-37.821	-31.845	PASS
	MCH	-13.622	-37.286	-33.622	PASS
	HCH	-12.72	-37.410	-32.720	PASS

11B LCH Graphs

Pref/11B/LCH

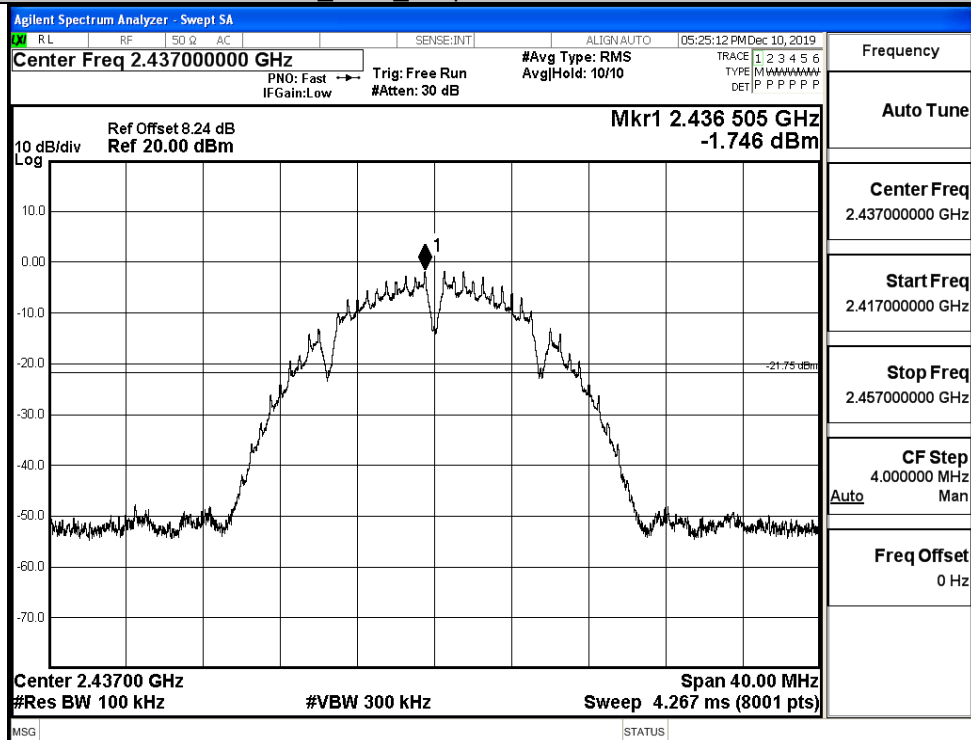


Puw/11B/LCH

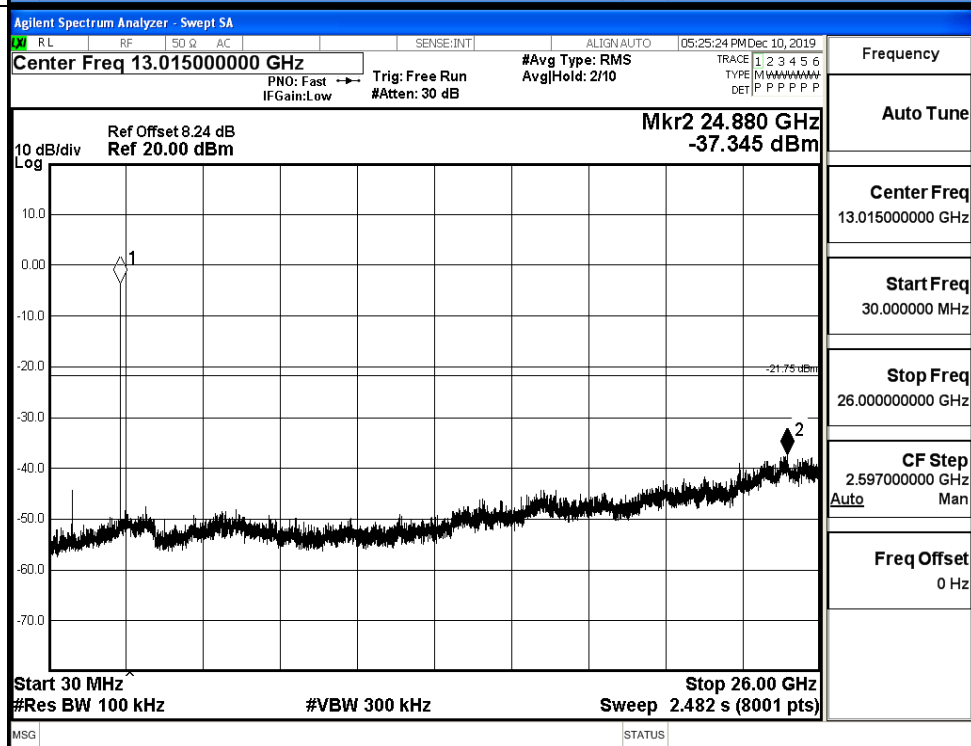


11B MCH Graphs

Pref/11B/MCH

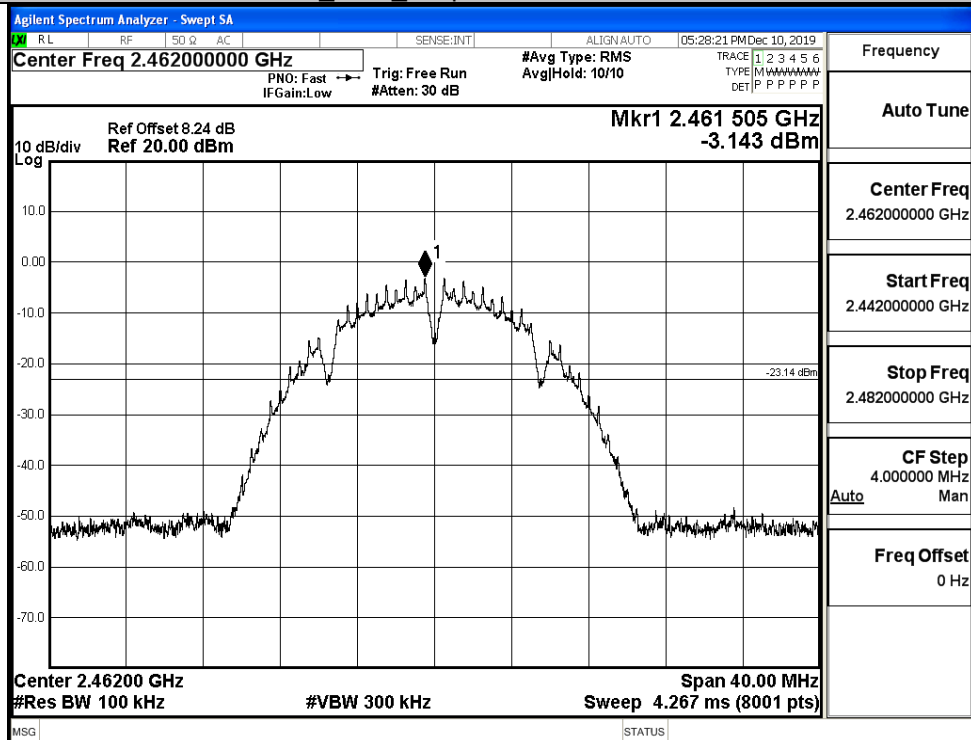


Puw/11B/MCH

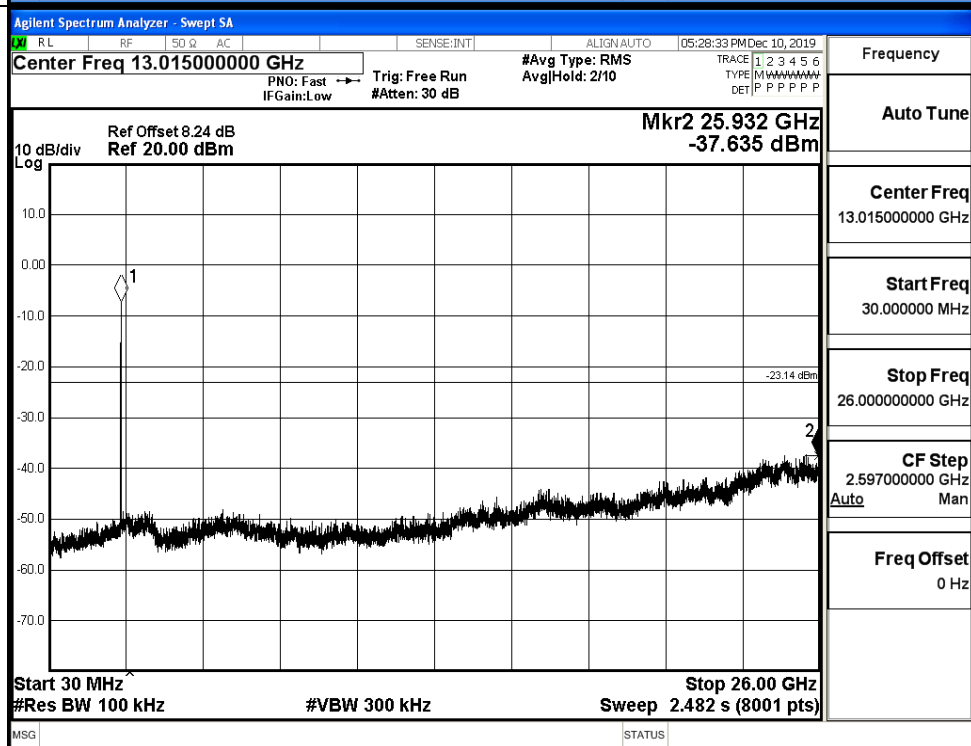


11B HCH Graphs

Pref/11B/HCH

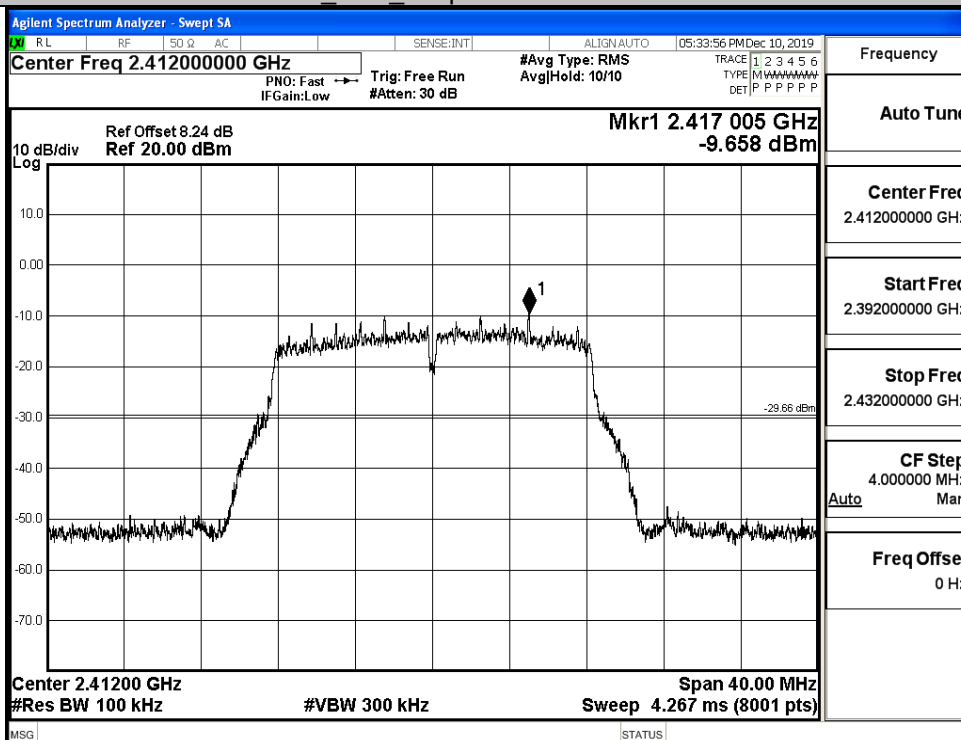


Puw/11B/HCH

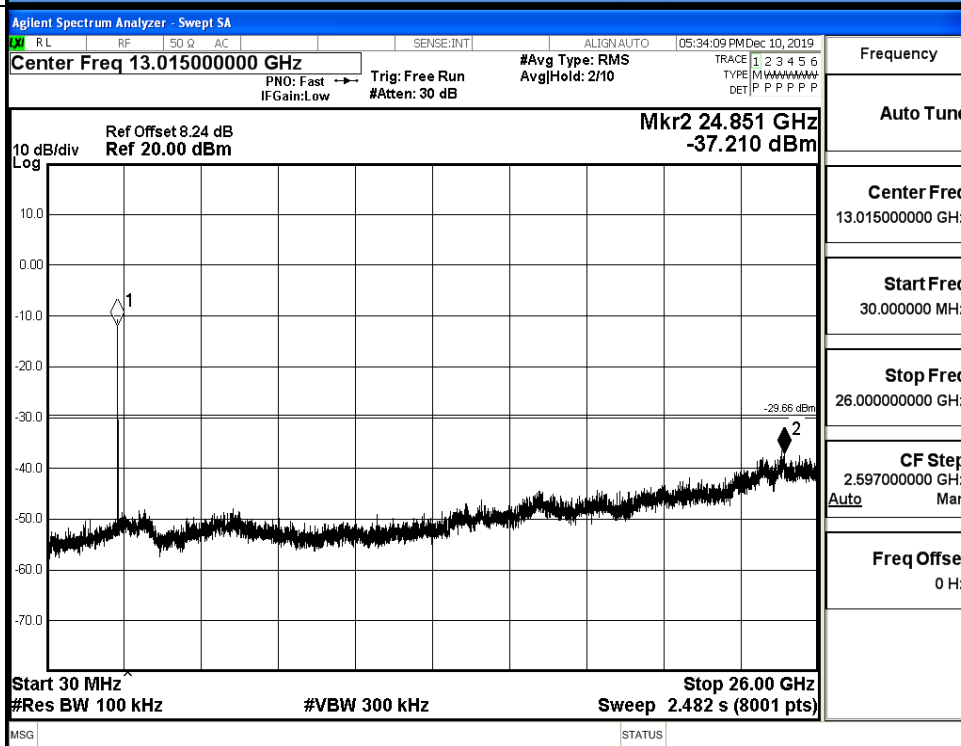


11G_LCH_Graphs

Pref/11G/LCH

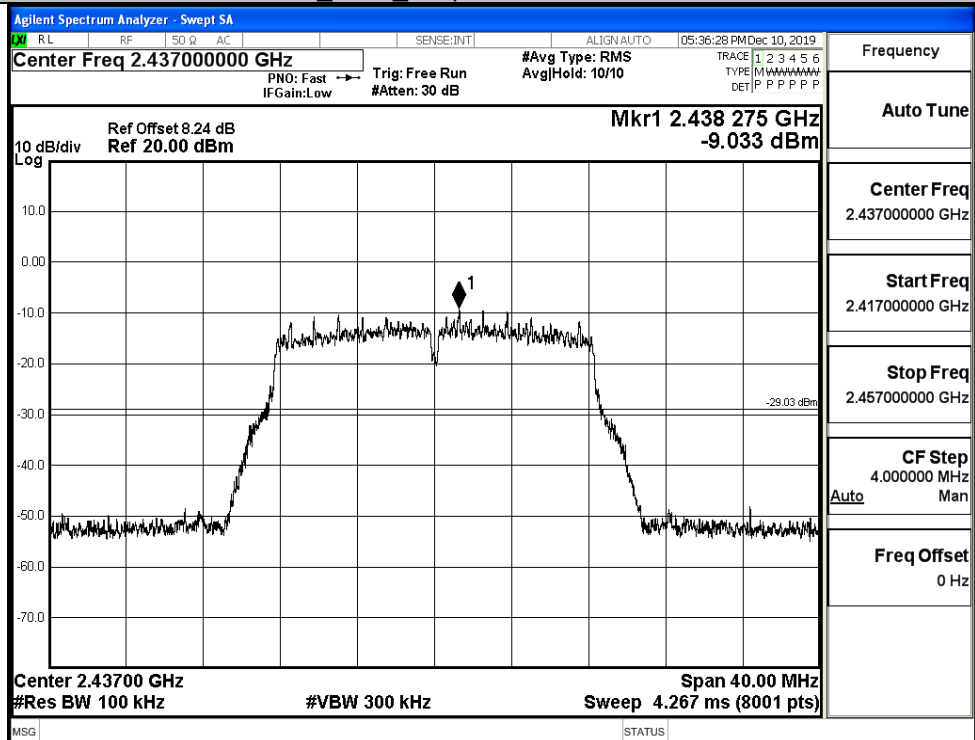


Puw/11G/LCH

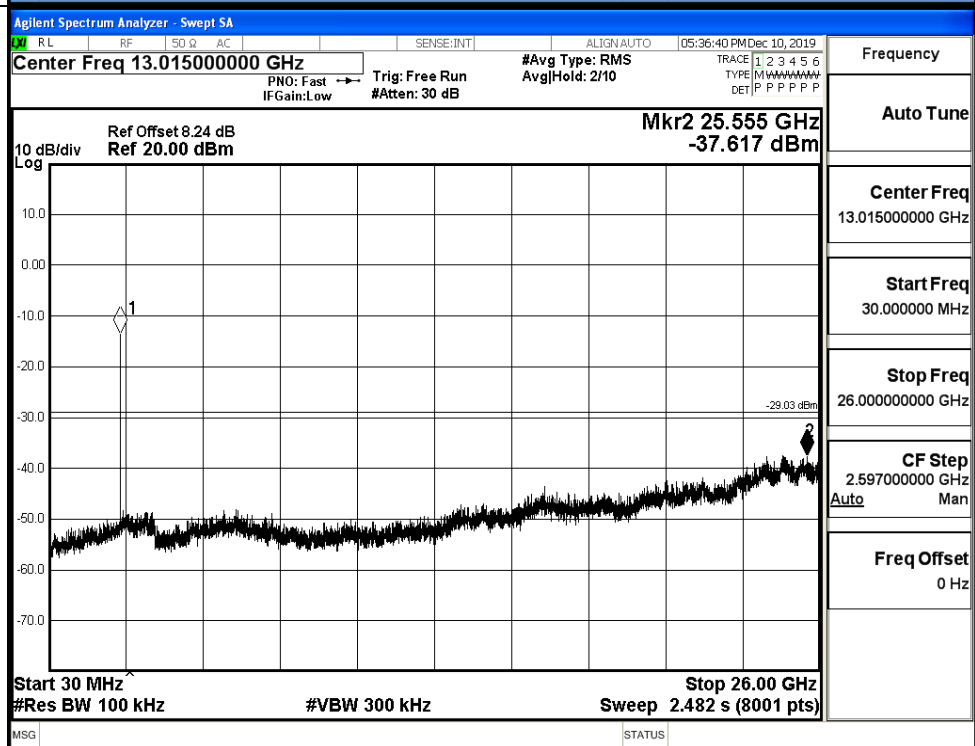


11G MCH Graphs

Pref/11G/MCH

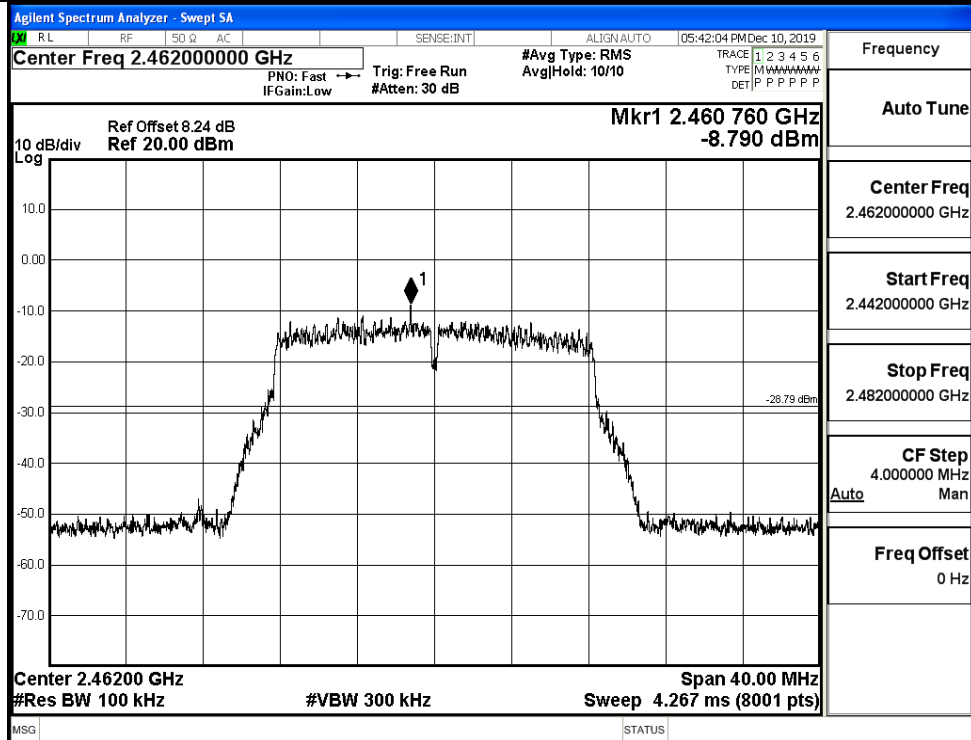


Puw/11G/MCH

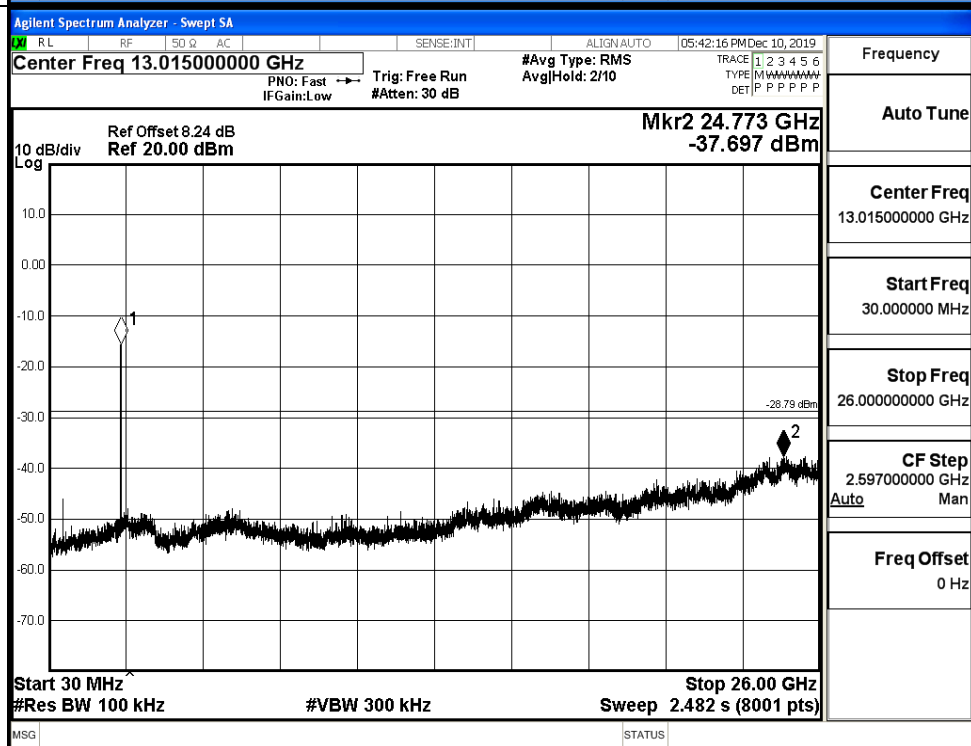


11G HCH Graphs

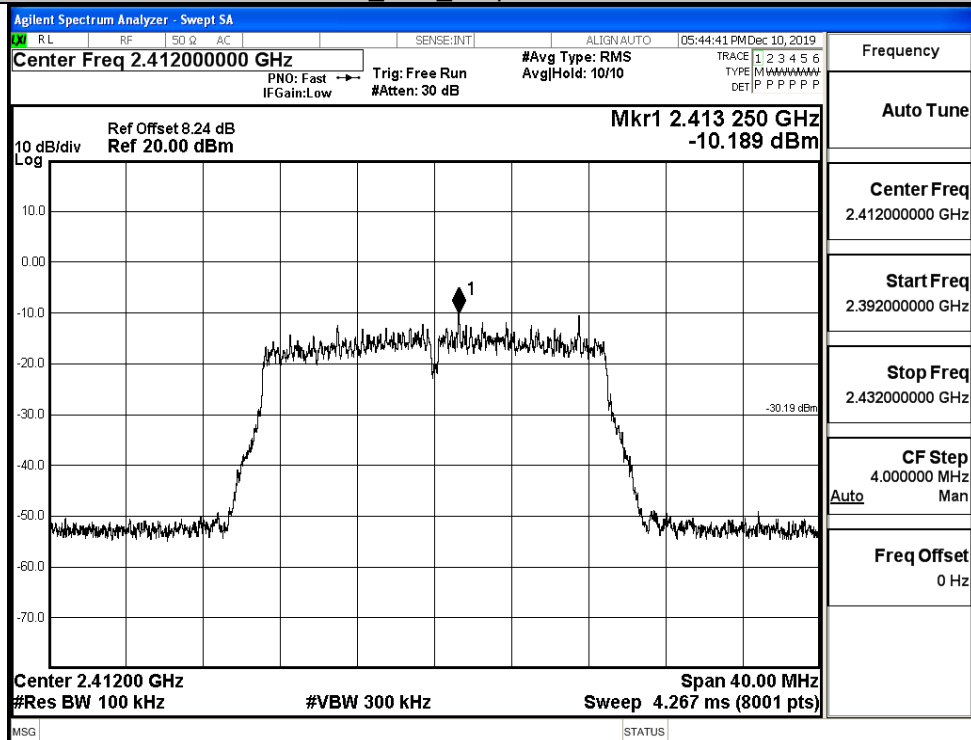
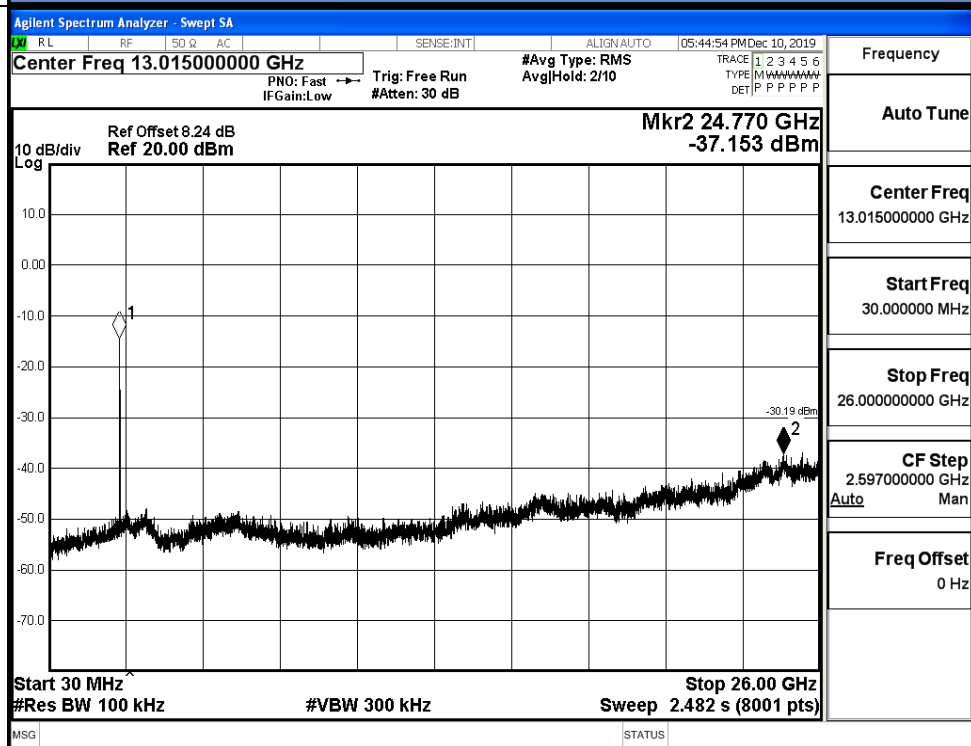
Pref/11G/HCH



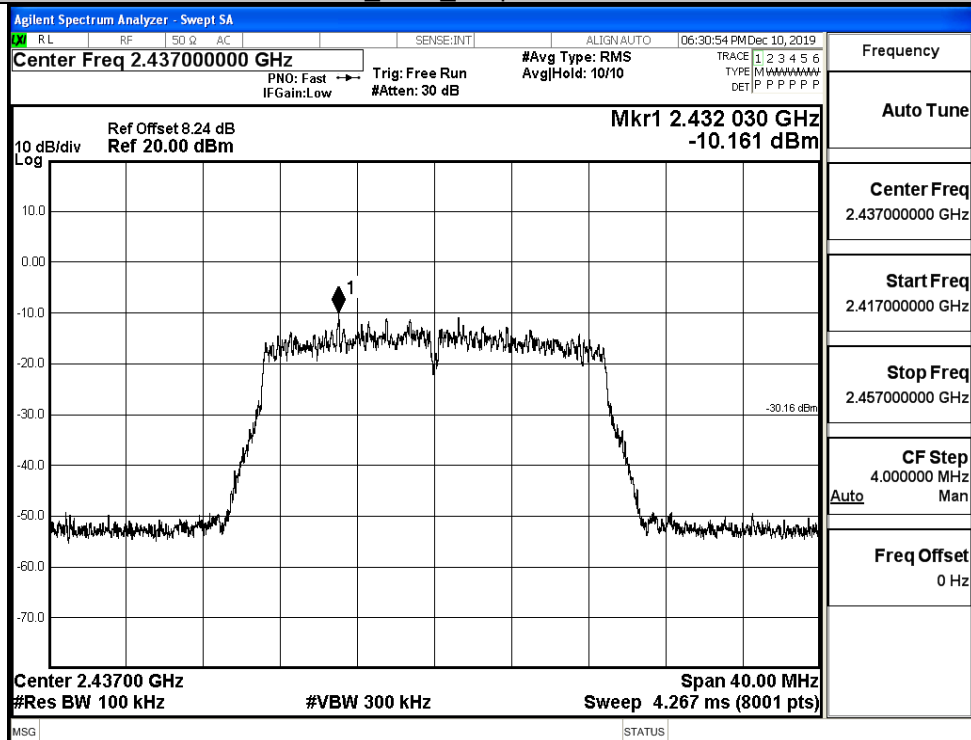
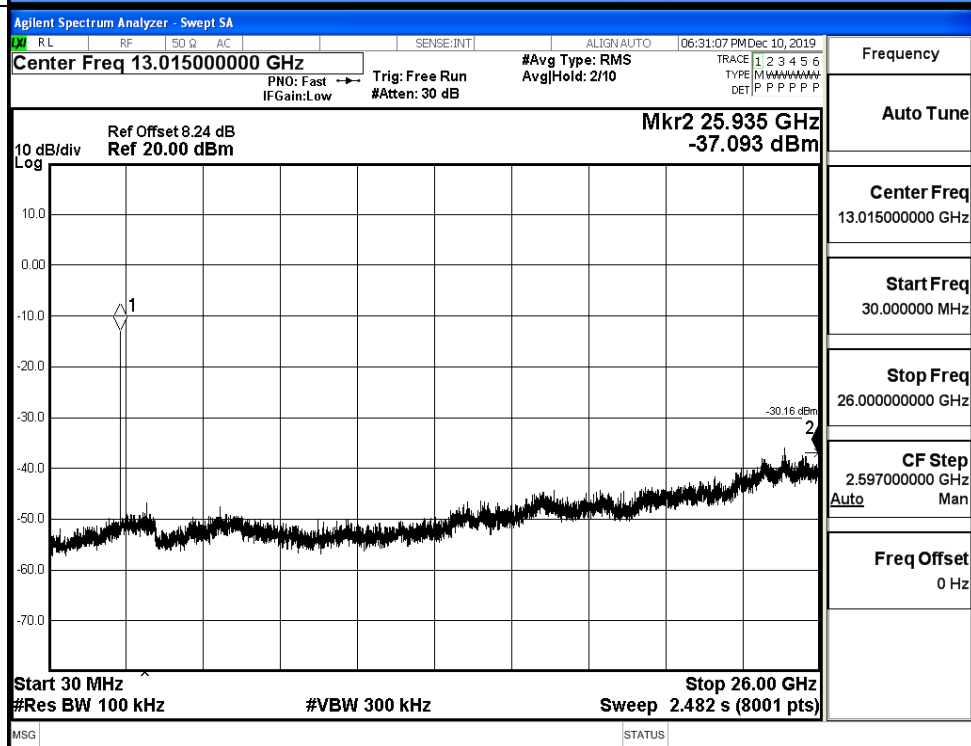
Puw/11G/HCH



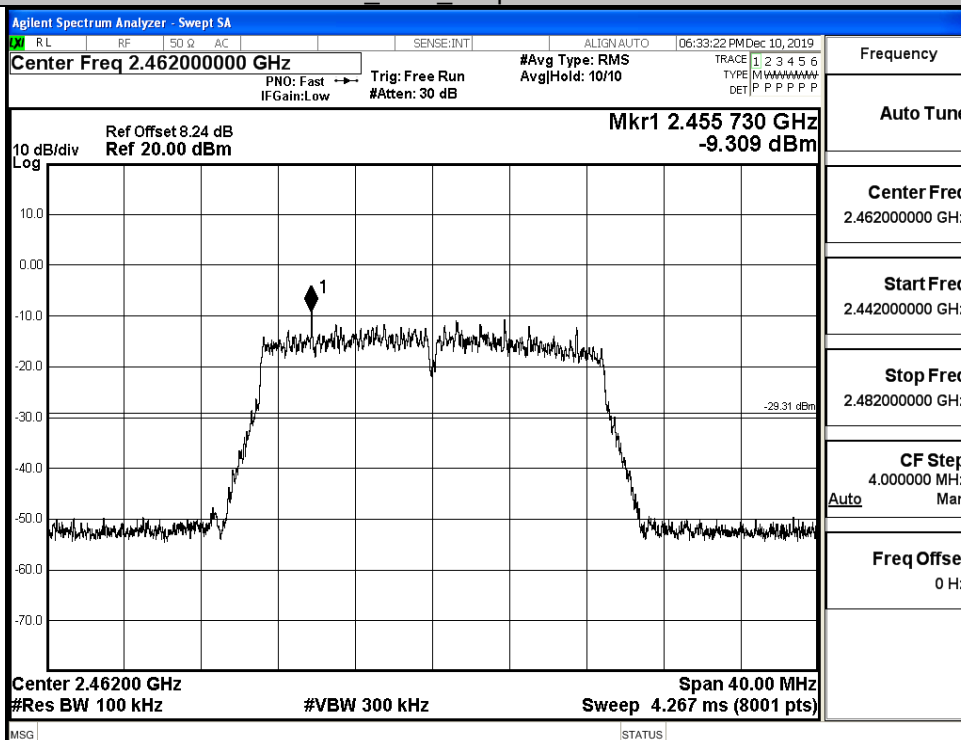
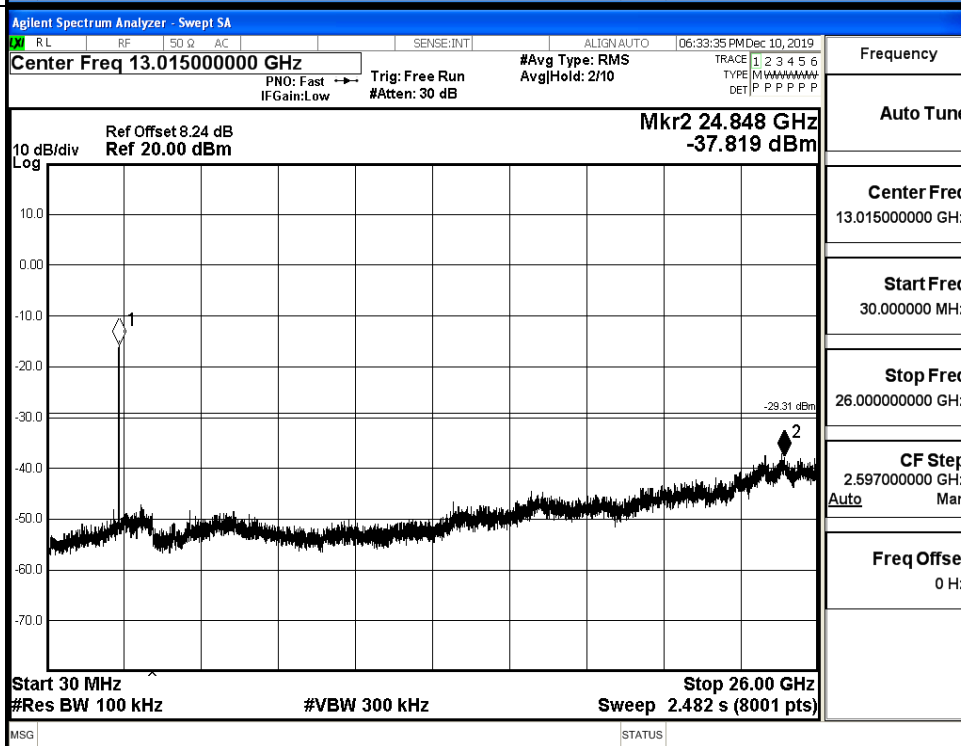
11N20SISO LCH Graphs

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

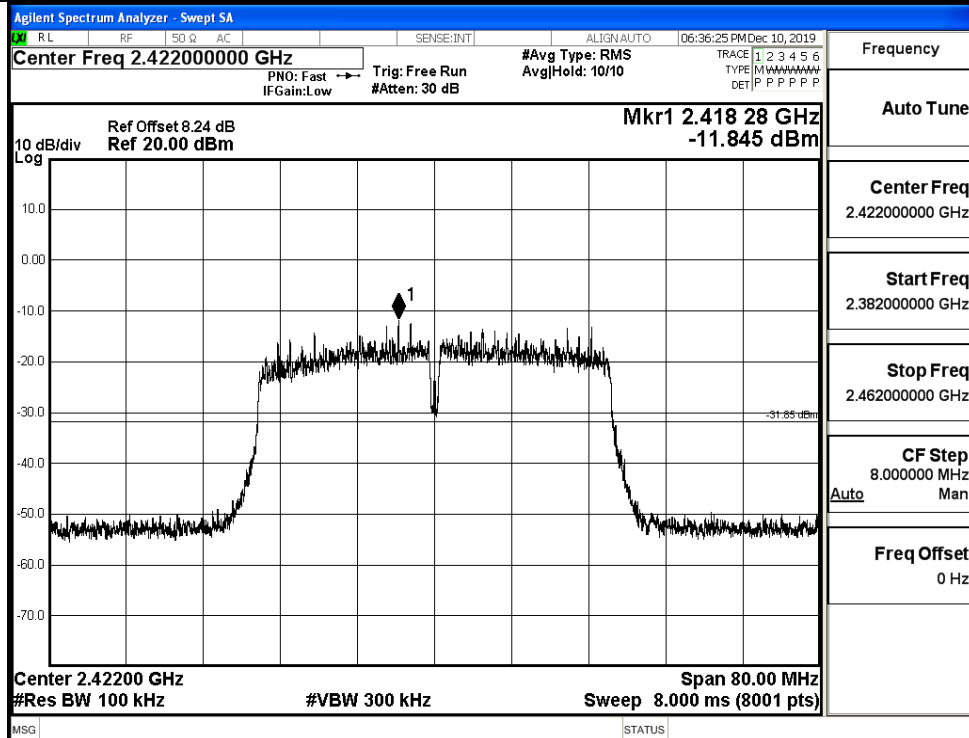
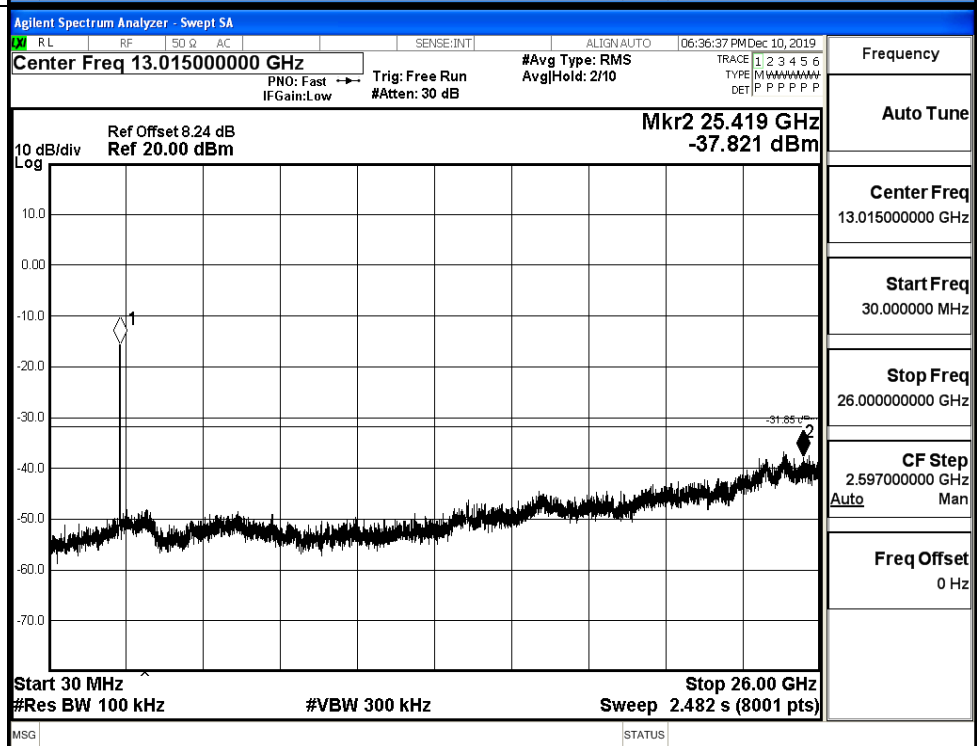
11N20SISO_MCH_Graphs

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

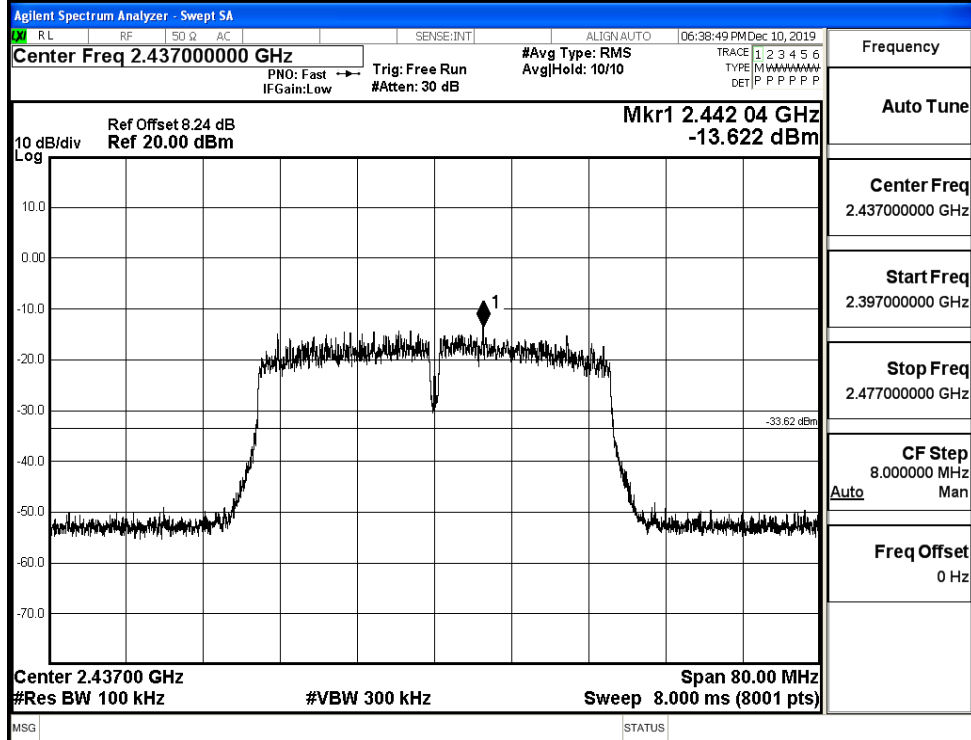
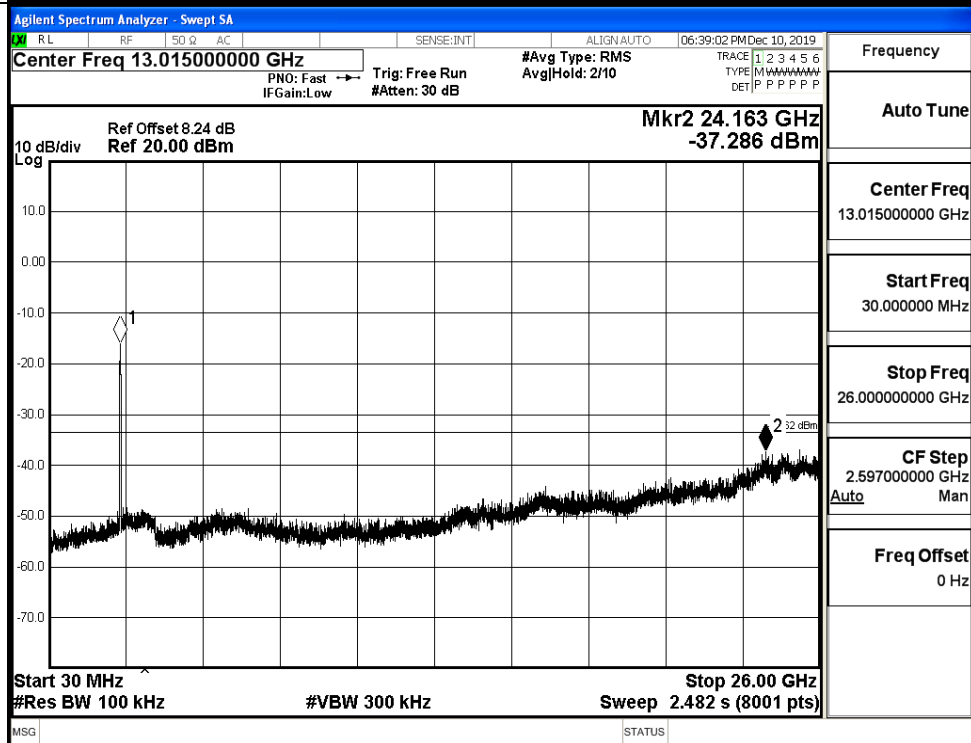
11N20SISO HCH Graphs

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

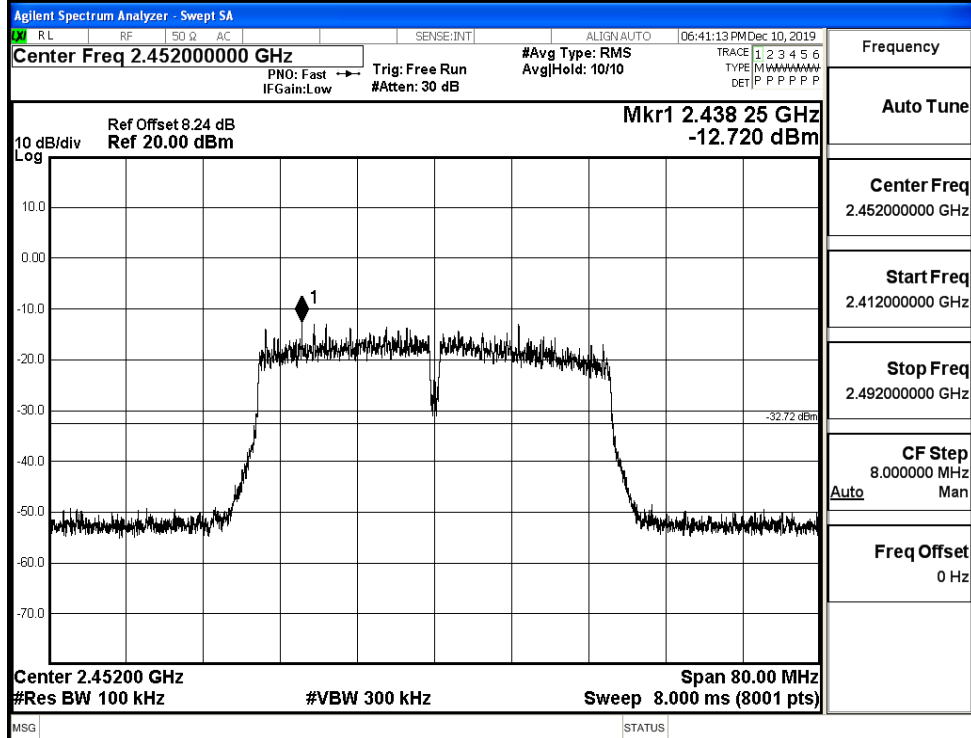
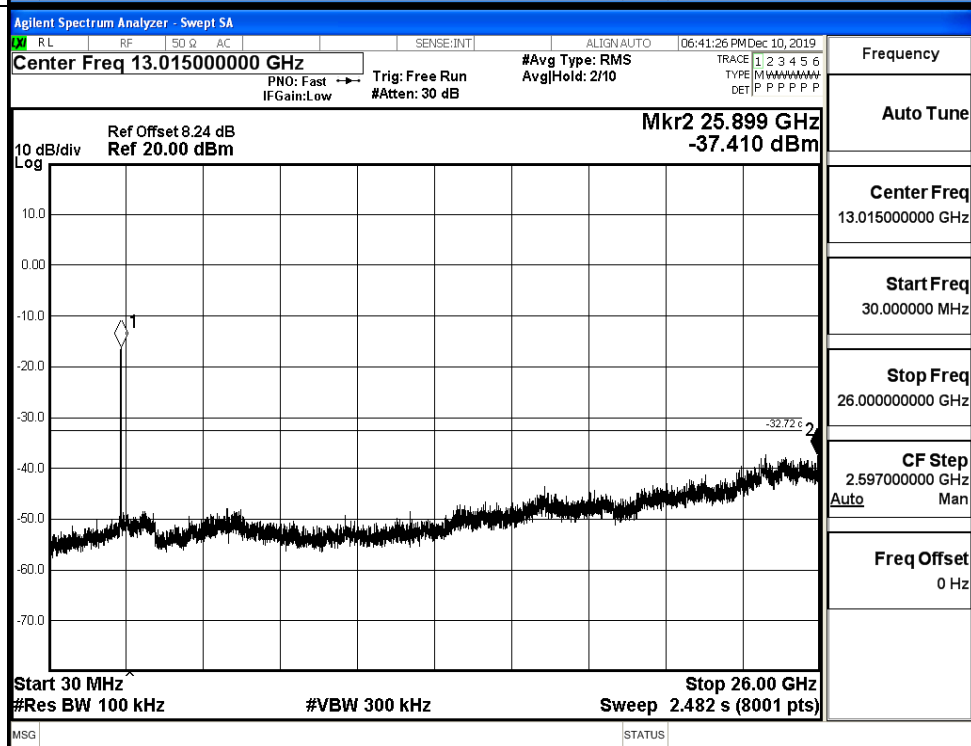
11N40SISO LCH Graphs

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

11N40SISO_MCH_Graphs

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

11N40SISO HCH Graphs

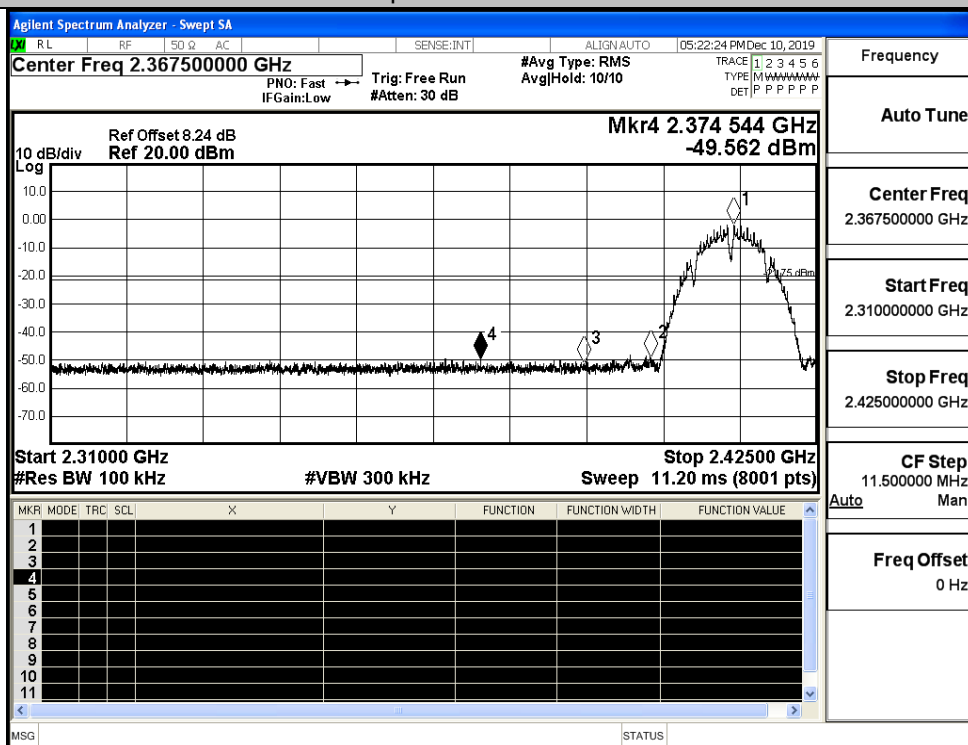
Pref/11N40
SISO/HCHPuw/11N40
SISO/HCH

C.6 Band-edge for RF Conducted Emissions

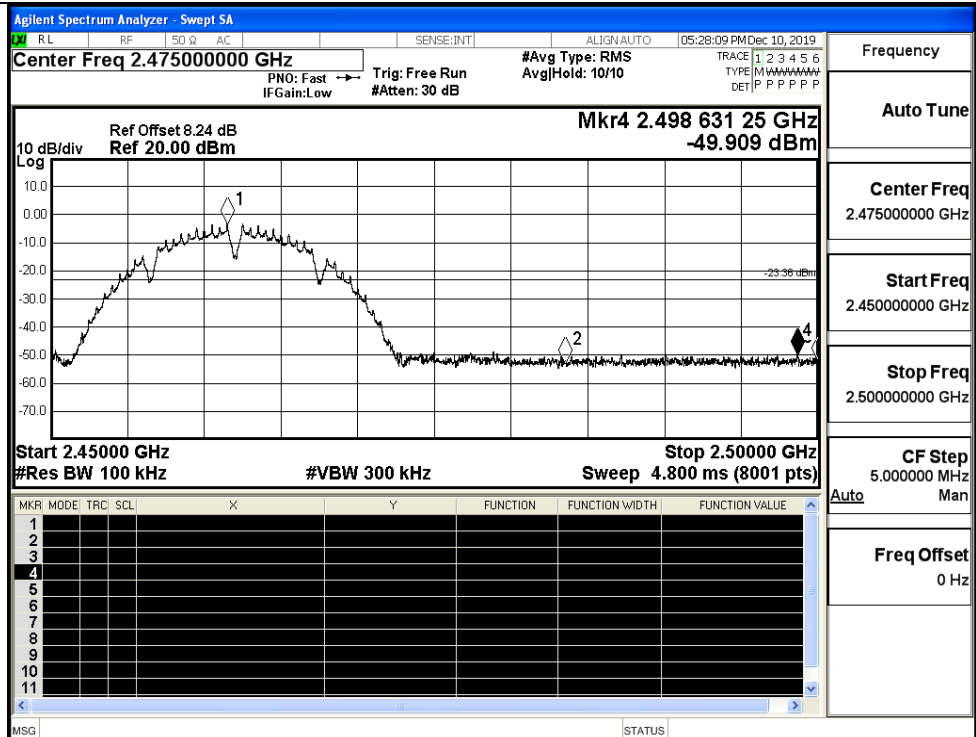
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.753	-49.562	-21.75	PASS
	HCH	-3.362	-49.909	-23.36	PASS
11G	LCH	-9.274	-49.472	-29.27	PASS
	HCH	-9.468	-49.082	-29.47	PASS
11N20SISO	LCH	-11.960	-49.523	-31.96	PASS
	HCH	-9.885	-49.081	-29.89	PASS
11N40SISO	LCH	-11.158	-49.736	-31.16	PASS
	HCH	-10.366	-48.873	-30.37	PASS

Test Graphs

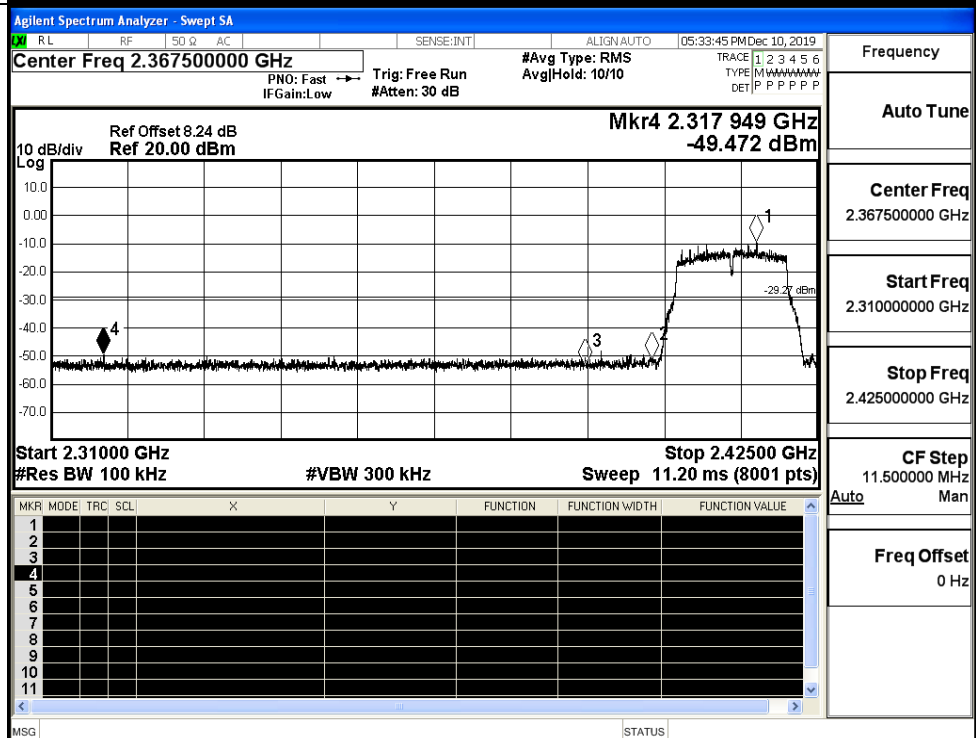
11B/LCH



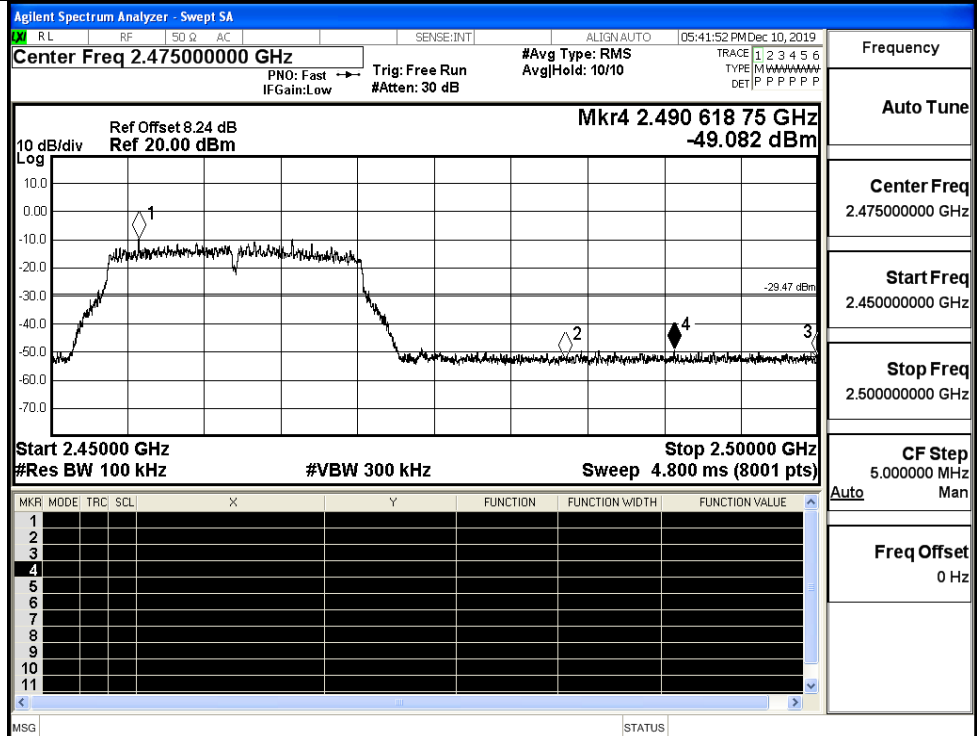
11B/HCH



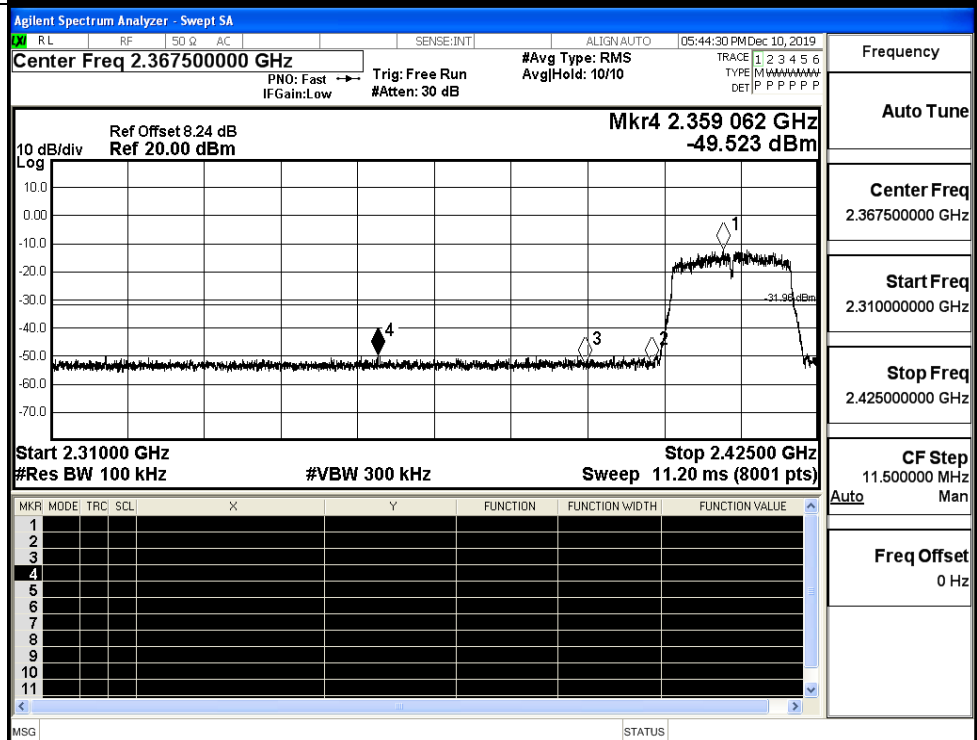
11G/LCH



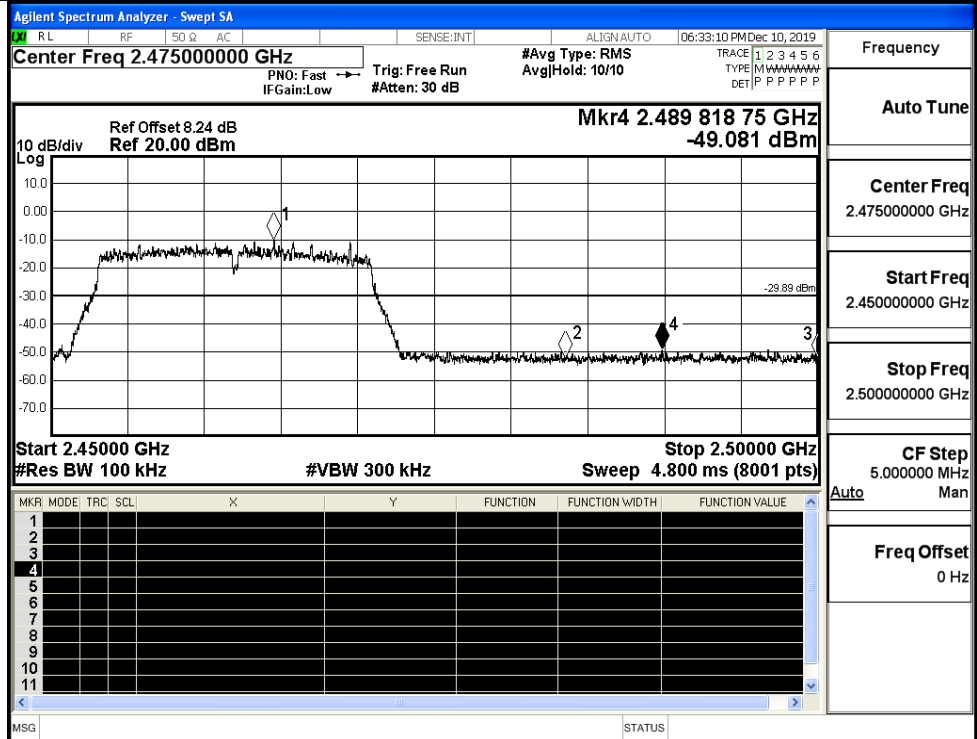
11G/HCH



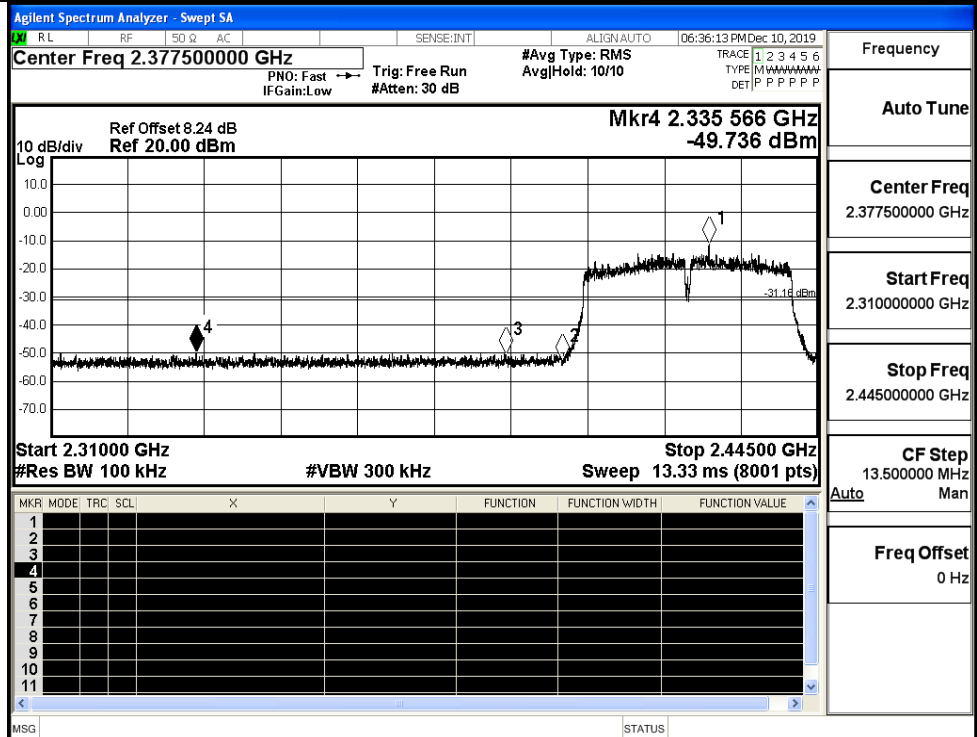
11N20SISO/LCH



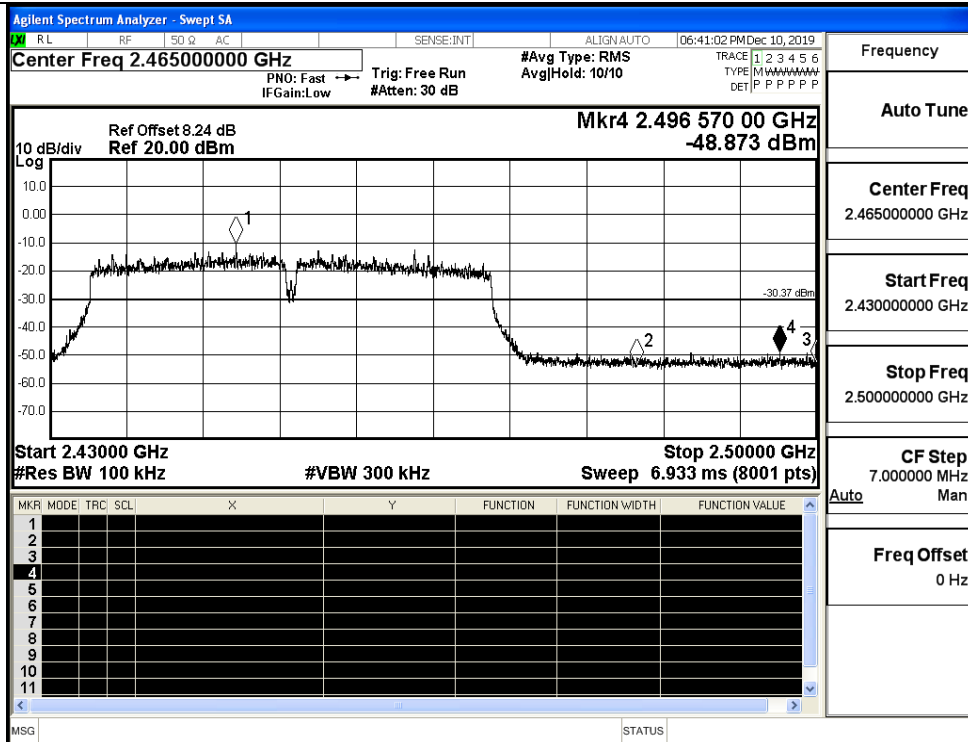
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

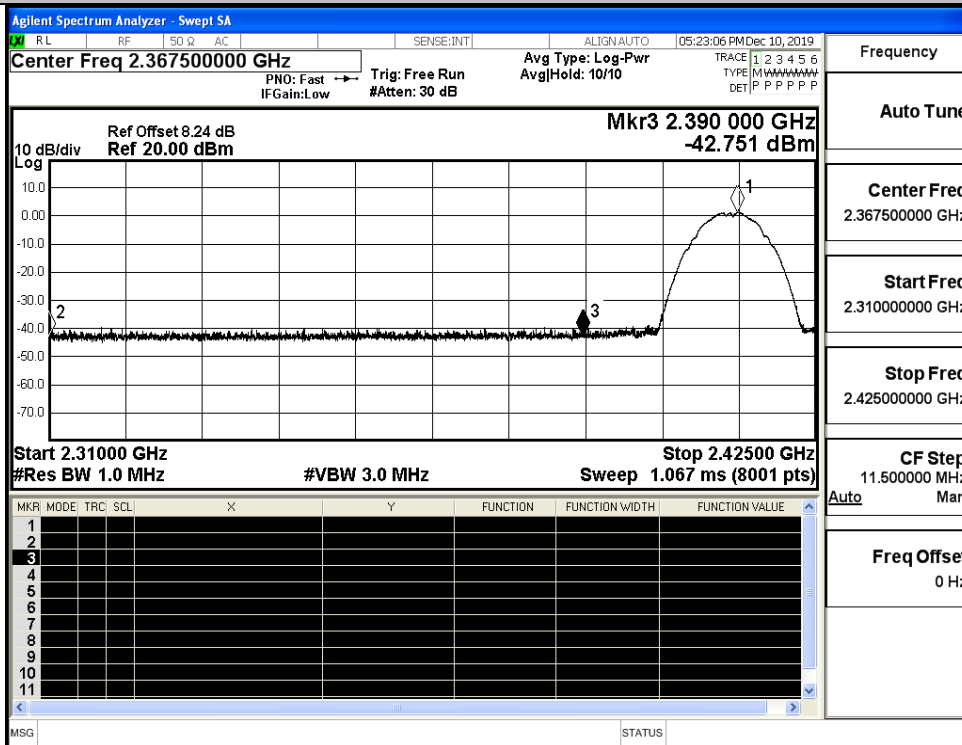


C.7 Restrict-band band-edge measurements

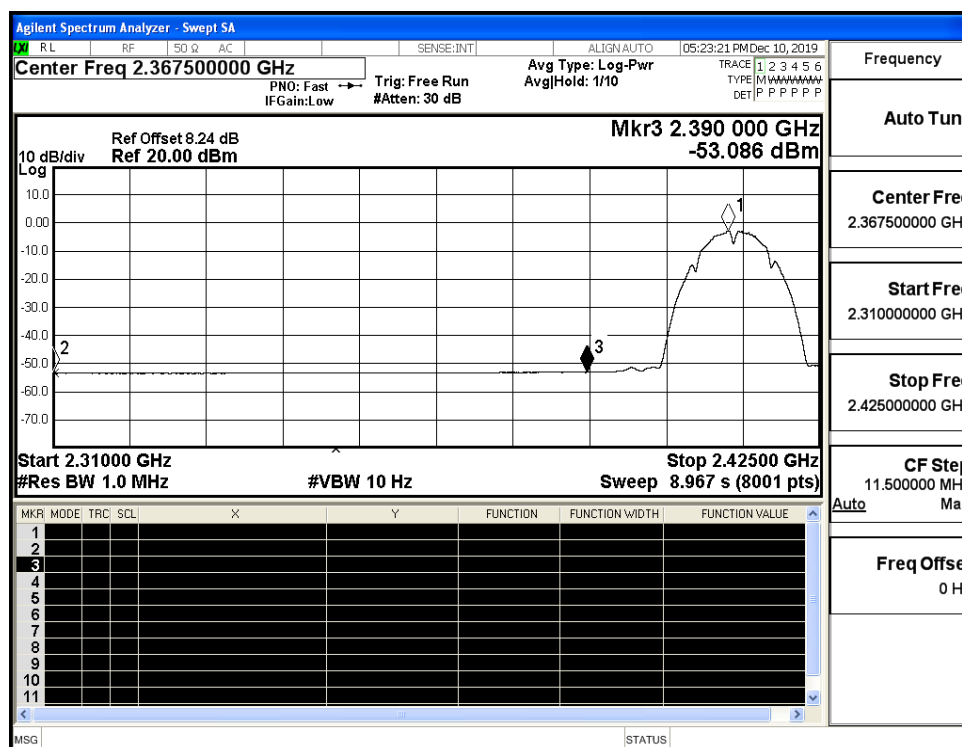
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-43.23	2.0	0	54.03	PEAK	74	PASS
	2412	Ant1	2310.0	-53.41	2.0	0	43.85	AV	54	PASS
	2412	Ant1	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	2412	Ant1	2390.0	-53.09	2.0	0	44.17	AV	54	PASS
	2462	Ant1	2483.5	-41.90	2.0	0	55.36	PEAK	74	PASS
	2462	Ant1	2483.5	-52.74	2.0	0	44.52	AV	54	PASS
	2462	Ant1	2500.0	-41.44	2.0	0	55.82	PEAK	74	PASS
	2462	Ant1	2500.0	-52.54	2.0	0	44.72	AV	54	PASS
11G	2412	Ant1	2310.0	-42.74	2.0	0	54.52	PEAK	74	PASS
	2412	Ant1	2310.0	-53.47	2.0	0	43.79	AV	54	PASS
	2412	Ant1	2390.0	-42.79	2.0	0	54.47	PEAK	74	PASS
	2412	Ant1	2390.0	-53.14	2.0	0	44.12	AV	54	PASS
	2462	Ant1	2483.5	-43.63	2.0	0	53.63	PEAK	74	PASS
	2462	Ant1	2483.5	-52.71	2.0	0	44.55	AV	54	PASS
	2462	Ant1	2500.0	-42.50	2.0	0	54.76	PEAK	74	PASS
	2462	Ant1	2500.0	-52.51	2.0	0	44.75	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-42.35	2.0	0	54.91	PEAK	74	PASS
	2412	Ant1	2310.0	-53.51	2.0	0	43.75	AV	54	PASS
	2412	Ant1	2390.0	-41.88	2.0	0	55.38	PEAK	74	PASS
	2412	Ant1	2390.0	-53.11	2.0	0	44.15	AV	54	PASS
	2462	Ant1	2483.5	-41.28	2.0	0	55.98	PEAK	74	PASS
	2462	Ant1	2483.5	-52.71	2.0	0	44.55	AV	54	PASS
	2462	Ant1	2500.0	-41.41	2.0	0	55.85	PEAK	74	PASS
	2462	Ant1	2500.0	-52.46	2.0	0	44.8	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.59	2.0	0	53.67	PEAK	74	PASS
	2422	Ant1	2310.0	-53.46	2.0	0	43.8	AV	54	PASS

	2422	Ant1	2390.0	-43.44	2.0	0	53.82	PEAK	74	PASS
	2422	Ant1	2390.0	-53.04	2.0	0	44.22	AV	54	PASS
	2452	Ant1	2483.5	-43.01	2.0	0	54.25	PEAK	74	PASS
	2452	Ant1	2483.5	-52.69	2.0	0	44.57	AV	54	PASS
	2452	Ant1	2500.0	-42.89	2.0	0	54.37	PEAK	74	PASS
	2452	Ant1	2500.0	-52.50	2.0	0	44.76	AV	54	PASS

Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



Restrict-band band-edge measurements_11B_2412_Ant1_AV



Agilent Spectrum Analyzer - Swept SA

RL RF SQ Ω AC SENSE:INT ALIGN:AUTO 05:28:51 PM Dec 10, 2019

Center Freq 2.475000000 GHz Avg Type: Log-Pwr Avg/Hold: 10/10

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

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

10 dB/div Ref Offset 8.24 dB Mkr3 2.500 000 00 GHz
Log Ref 20.00 dBm -41.437 dBm

Start 2.45000 GHz Stop 2.50000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.067 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq 2.475000000 GHz

Start Freq 2.450000000 GHz

Stop Freq 2.500000000 GHz

CF Stop 5.000000 MHz

Auto Mar

Freq Offset 0 Hz

STATUS

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 05:29:06 PM Dec 10, 2019

Center Freq 2.47500000 GHz PNO: Fast Trig: Free Run Avg Type: Log-Pwr Avg/Hold: 3/10

IF Gain: Low #Atten: 30 dB

TRACE 1 2 3 4 5 6
TYPE M W A W A W A W
DET P P P P P P

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

10 dB/div
Log
Ref Offset 8.24 dB
Ref 20.00 dBm

Mkr3 2.500 000 00 GHz
-52.541 dBm

Start 2.45000 GHz
#Res BW 1.0 MHz

Stop 2.50000 GHz
Sweep 3.899 s (8001 pts)

#VBW 10 Hz

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

Auto

STATUS

[illegible]

Agilent Spectrum Analyzer - Swept SA

RL RF SQ AC SENSE:INT ALIGN:AUTO 05:34:42 PM Dec 10, 2019

Center Freq 2.367500000 GHz PNO: Fast Trig: Free Run Avg Type: Log-Pwr AvgHold: 1/10

Ref Offset 8.24 dB Ref 20.00 dBm

Mkr3 2.390 000 GHz -53.136 dBm

10 dB/div Log

Start 2.31000 GHz Stop 2.42500 GHz

#Res BW 1.0 MHz #VBW 10 Hz Sweep 8.967 s (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1								
2								
3								
4								
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

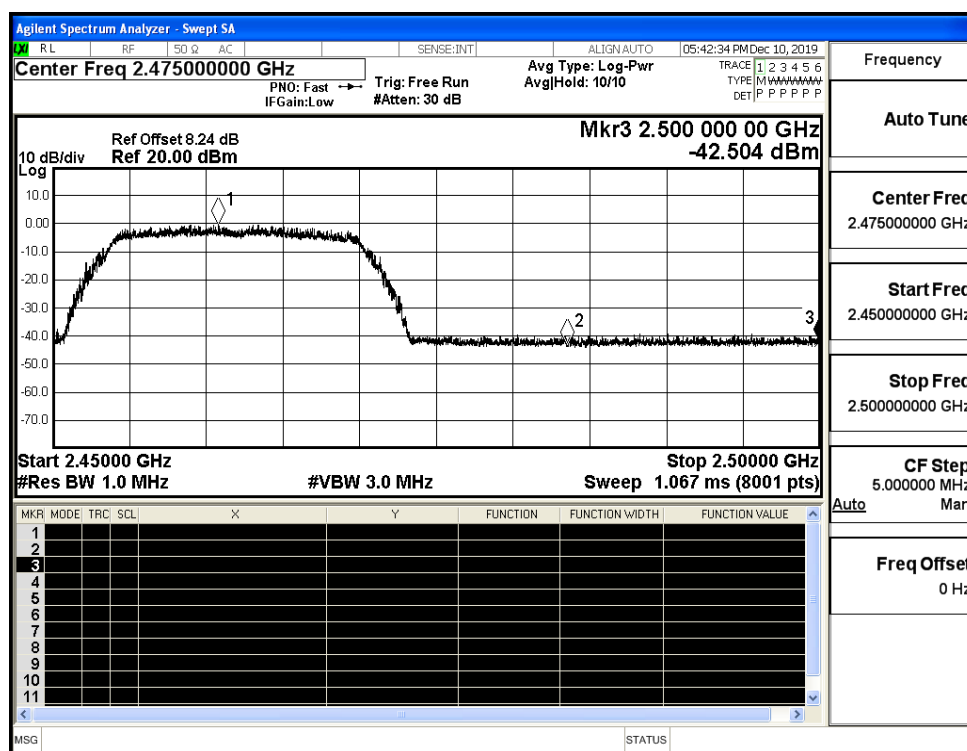
CF Step 11.500000 MHz

Auto Mar

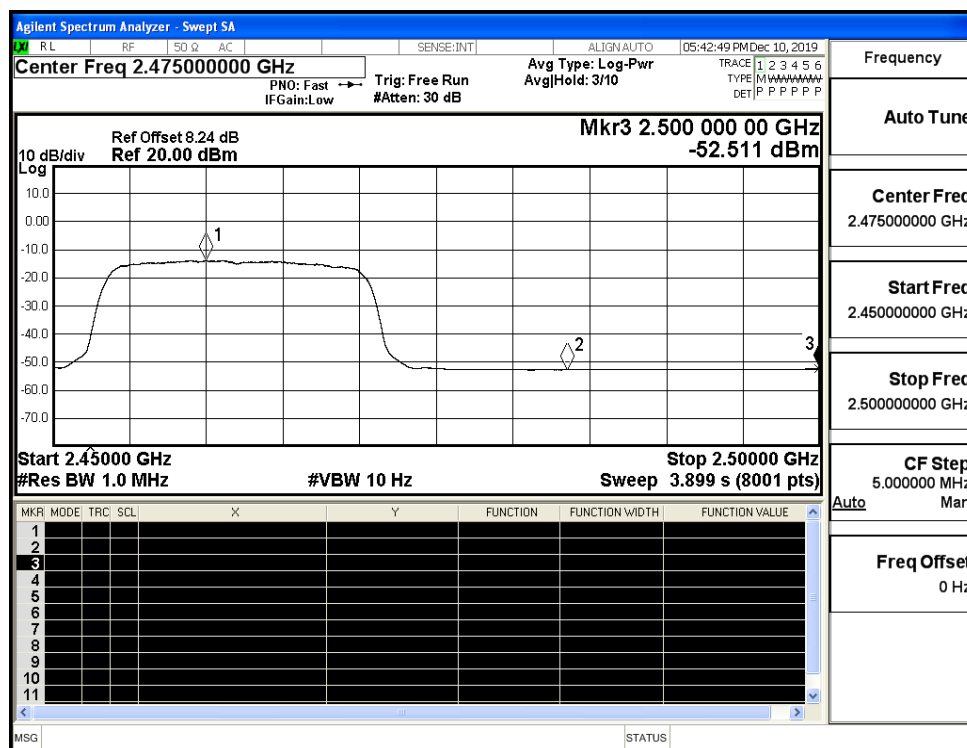
Freq Offset 0 Hz

MSG STATUS

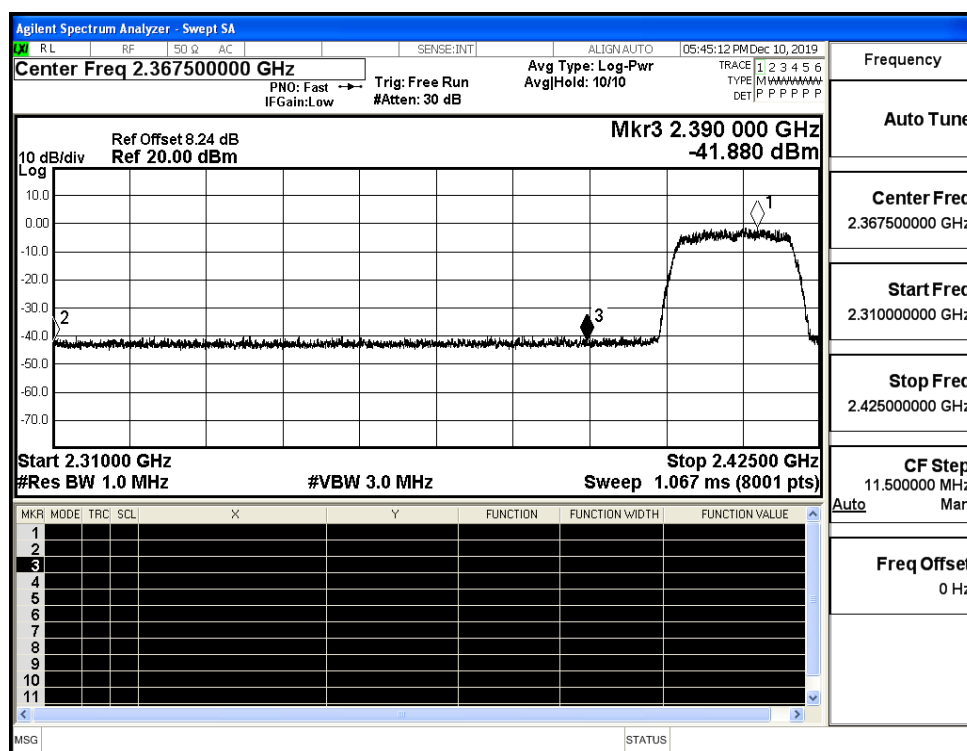
Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



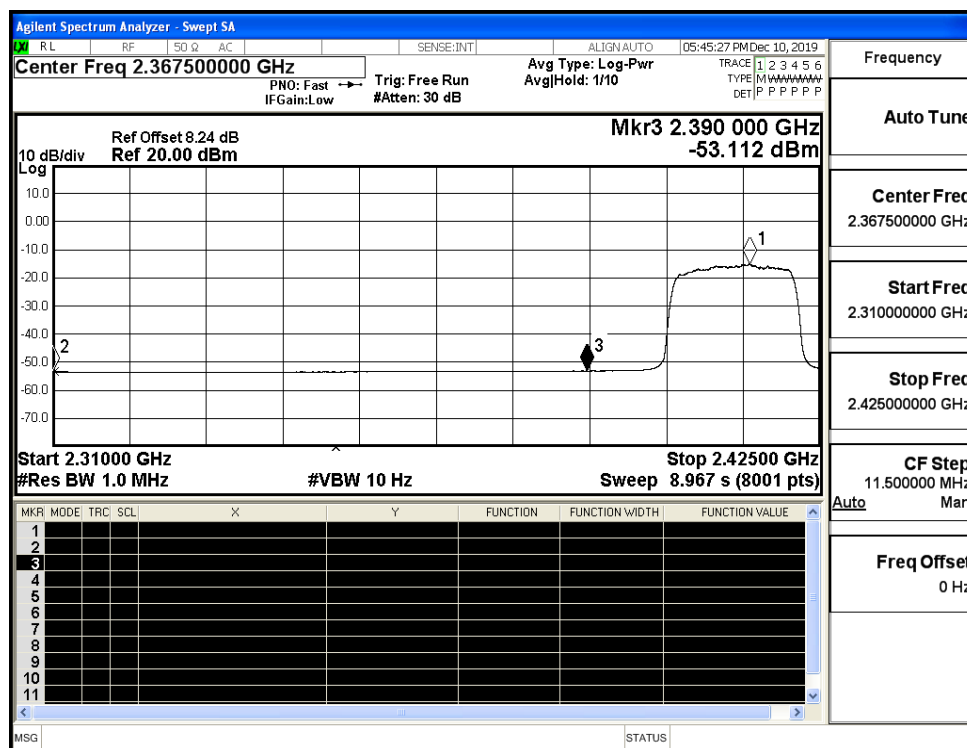
Restrict-band band-edge measurements_11G_2462_Ant1_AV



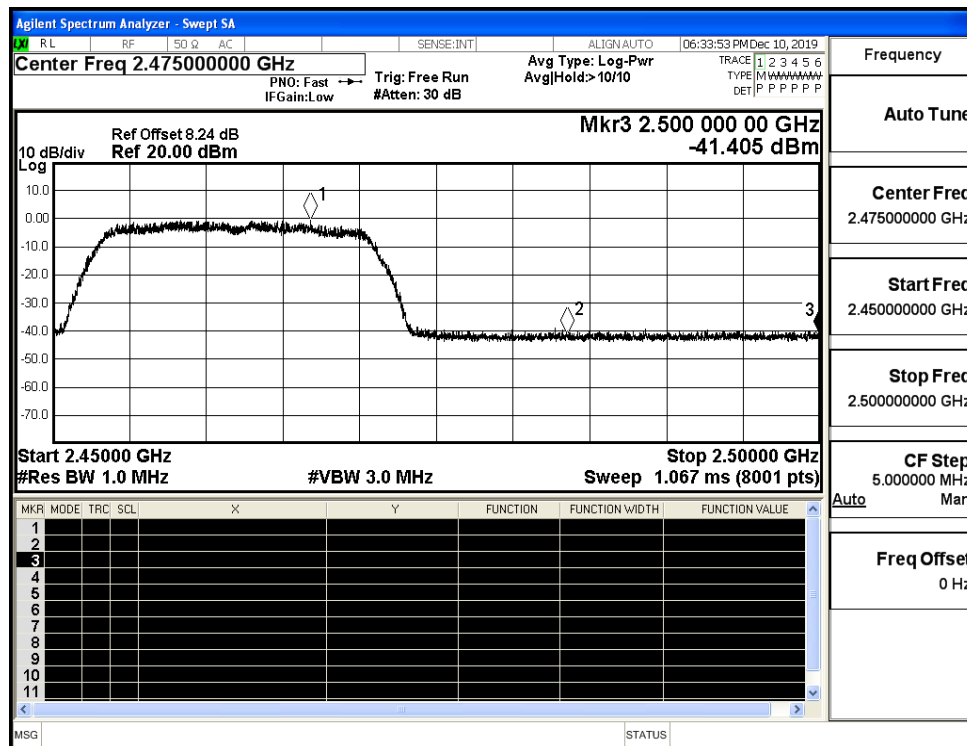
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



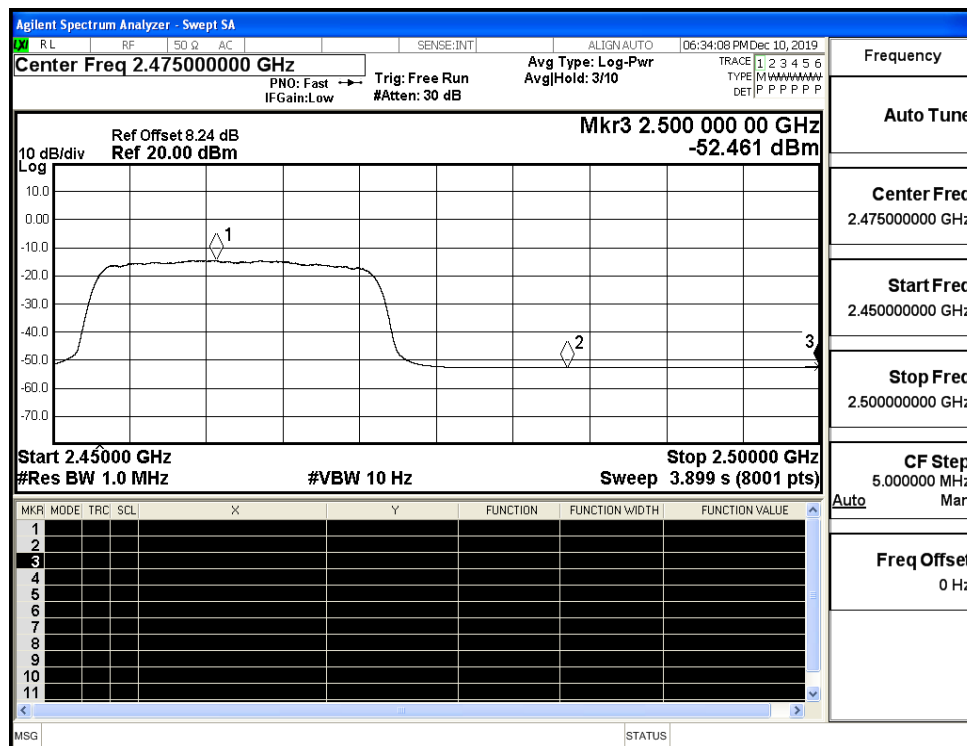
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



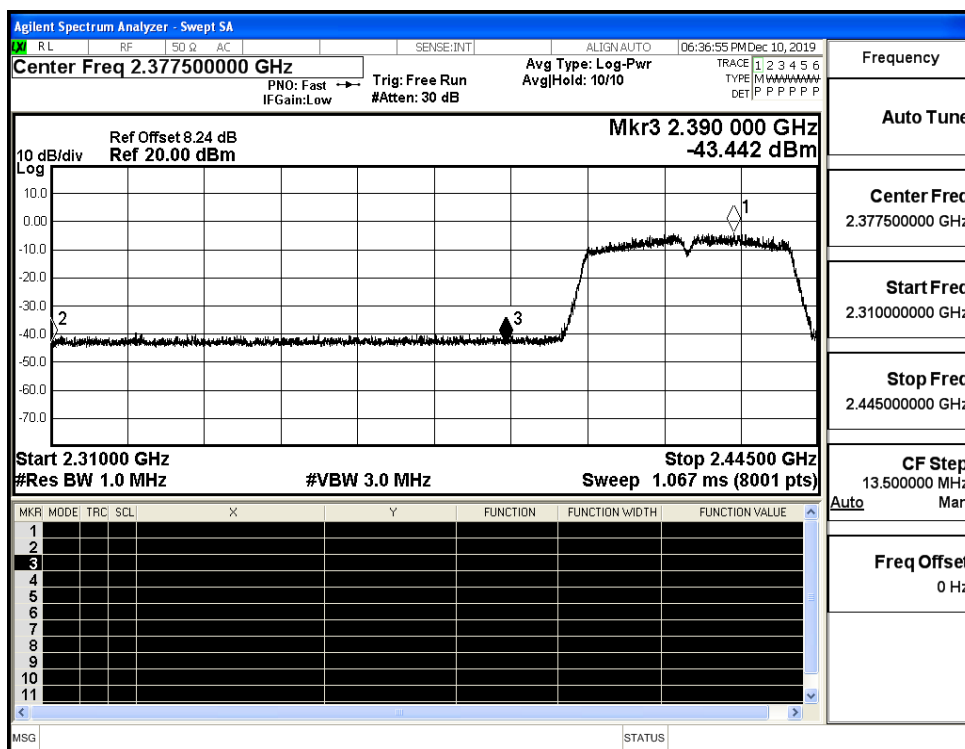
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



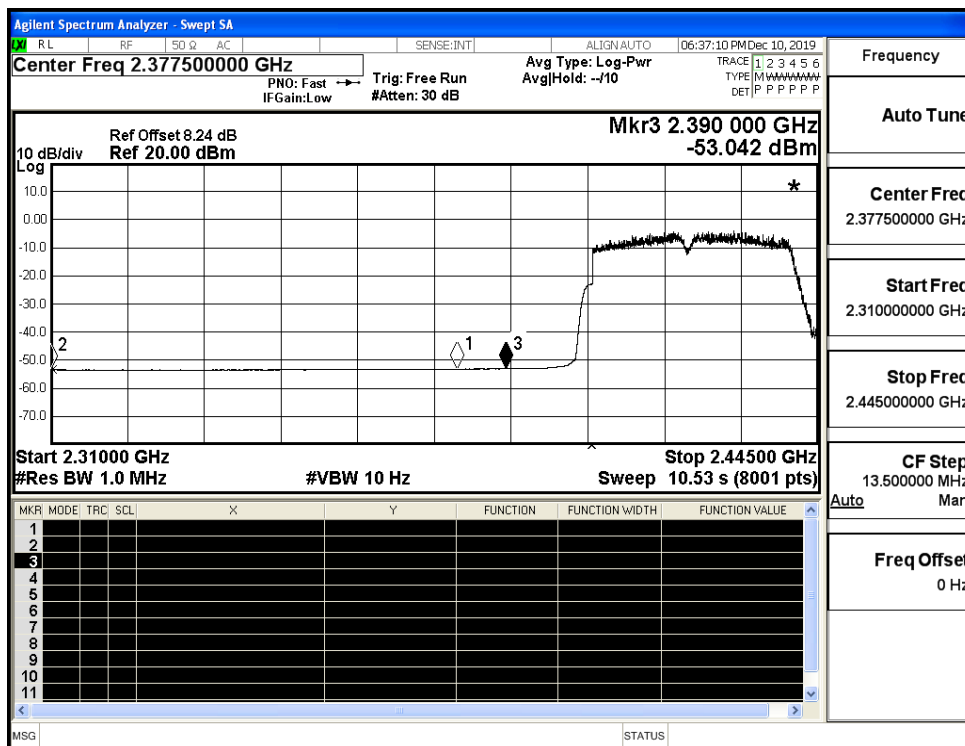
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



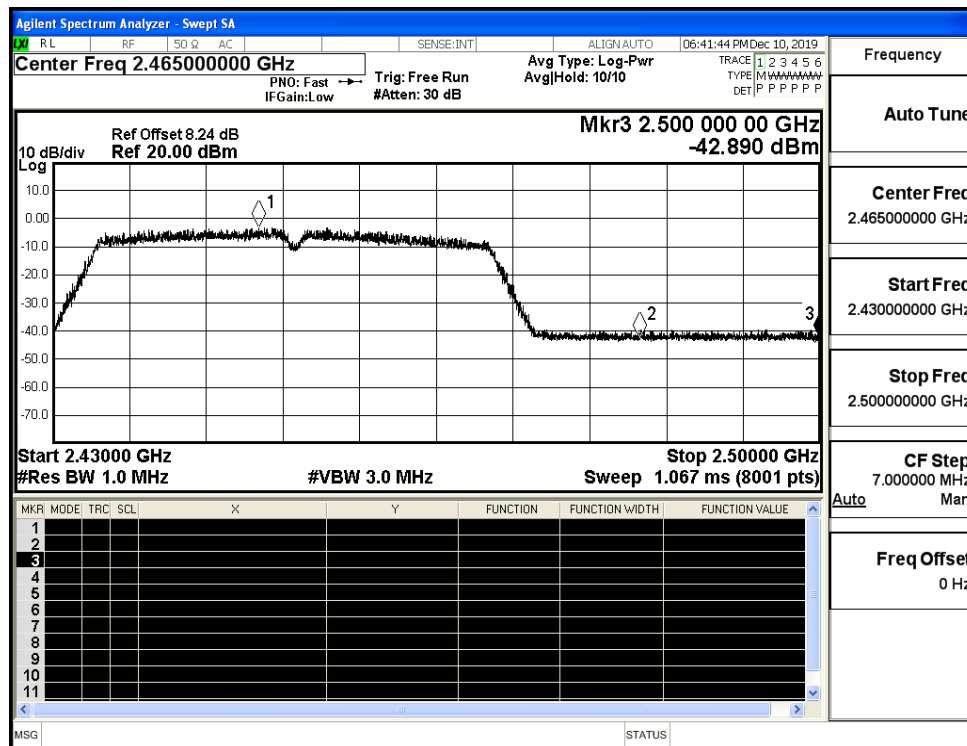
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

