

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: LTE GSM/WCDMA Smartphone

Trade Mark: DOOGEE

Test Model: S90

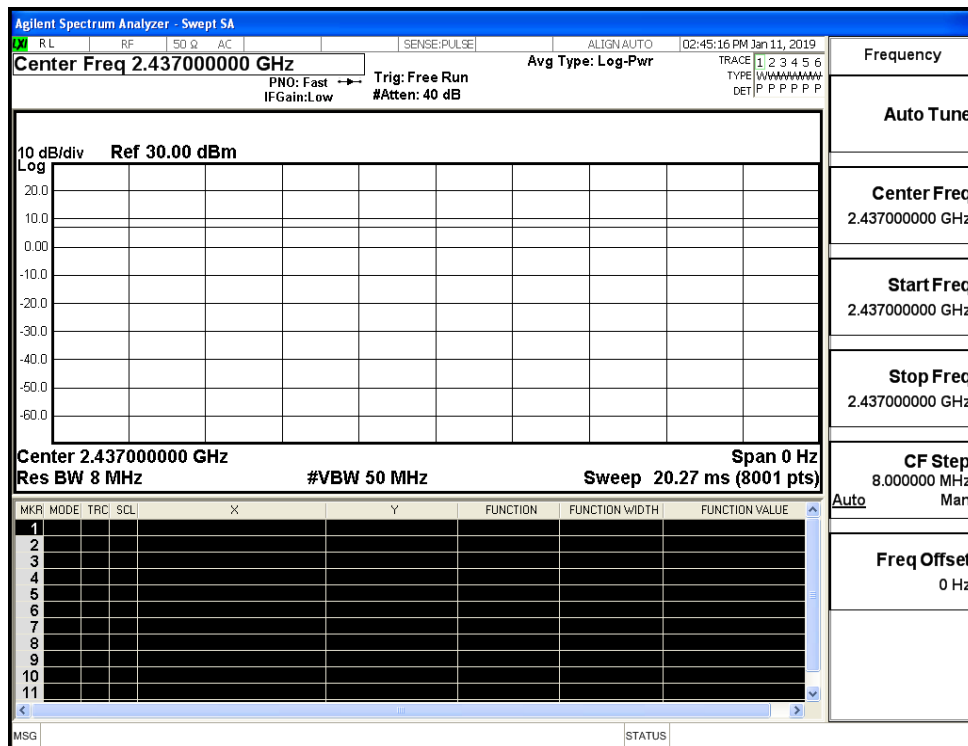
Environmental Conditions

Temperature:	24.1 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

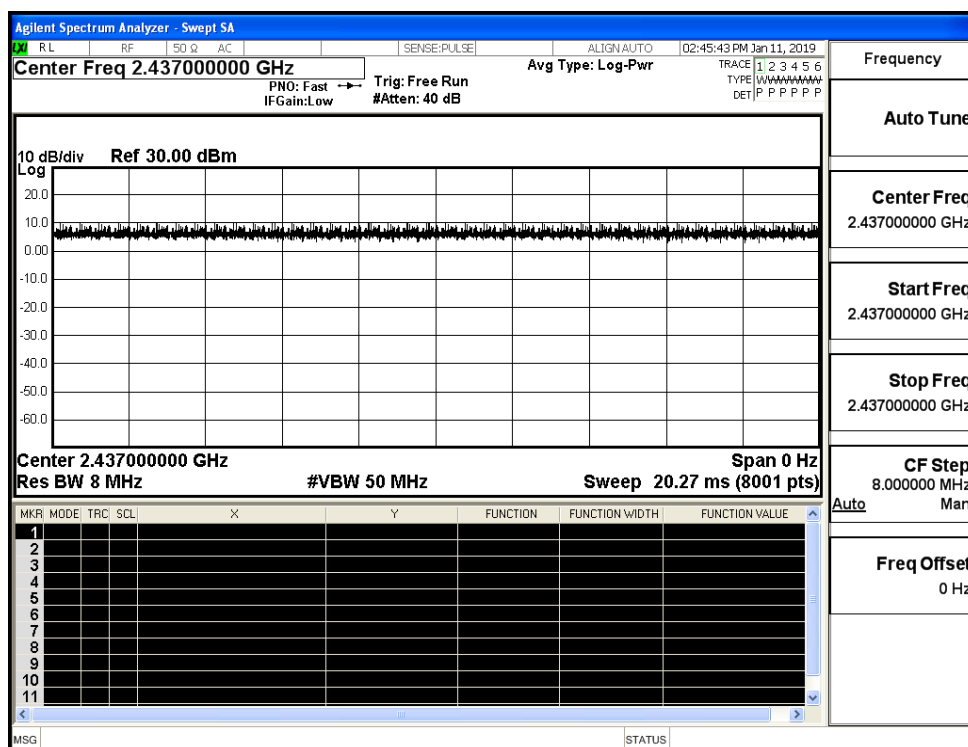
C.1 Duty Cycle

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

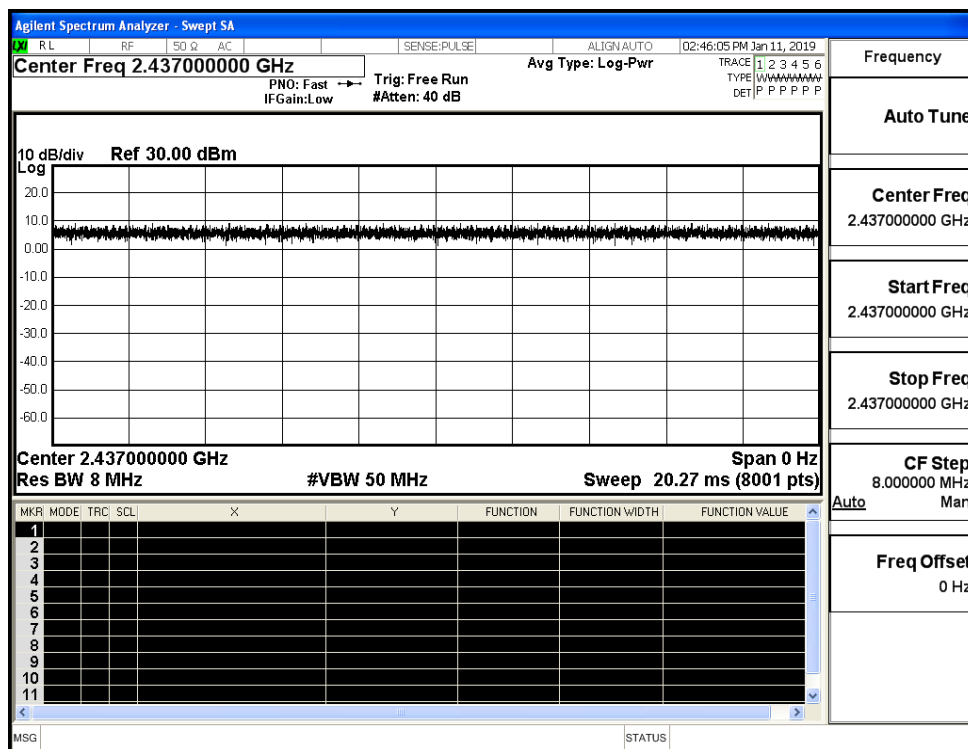
Duty Cycle_11B_2437_Ant1



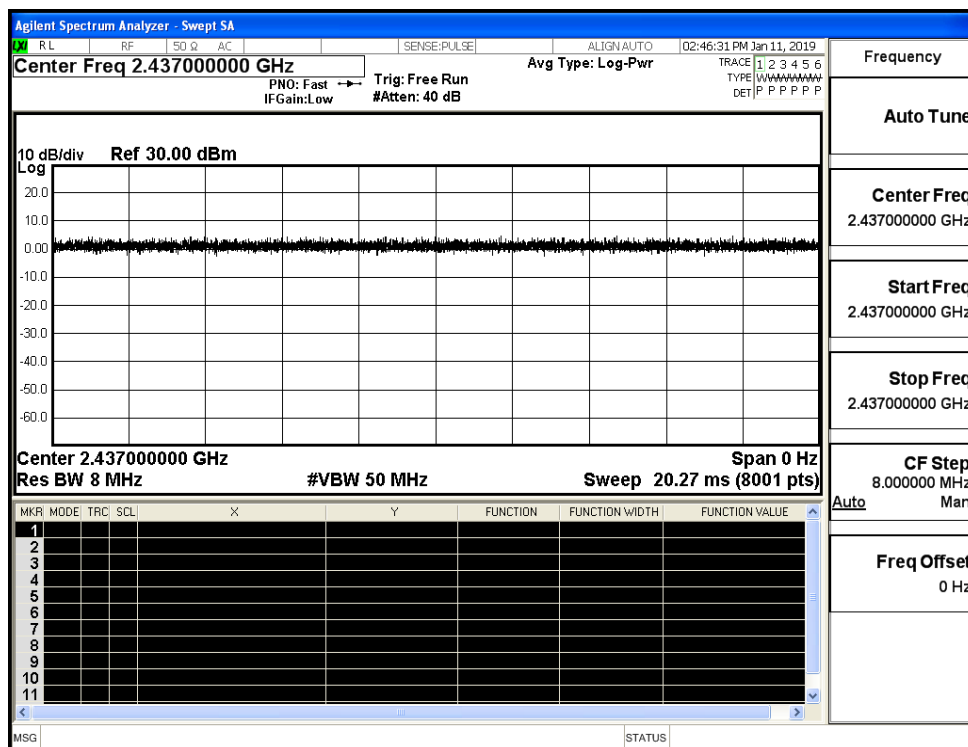
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



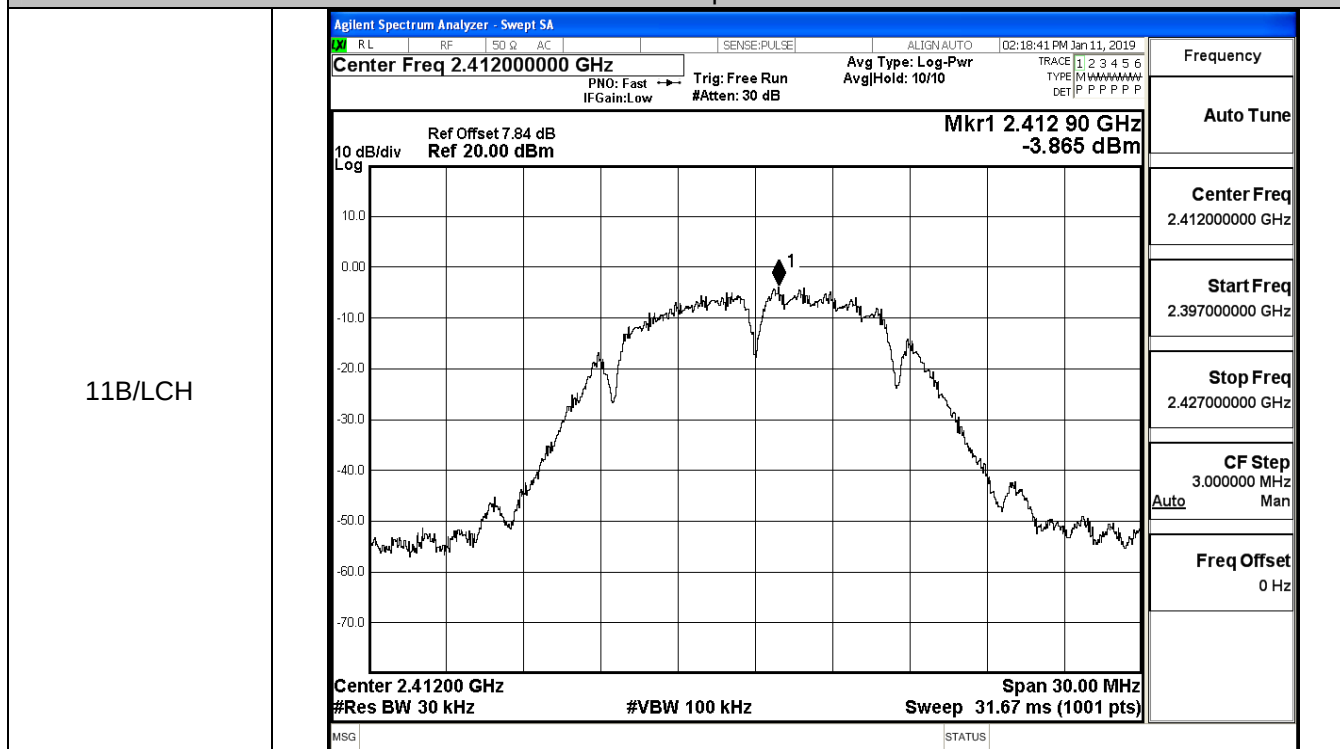
C.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level Peak [dBm]	Meas.Level Average [dBm]	Limit [dBm]	Verdict
11B	LCH	17.03	16.11	30	PASS
	MCH	17.43	16.26	30	PASS
	HCH	17.05	16.34	30	PASS
11G	LCH	16.24	15.54	30	PASS
	MCH	15.78	14.69	30	PASS
	HCH	15.84	14.78	30	PASS
11N20SISO	LCH	15.63	14.36	30	PASS
	MCH	15.04	14.62	30	PASS
	HCH	15.63	14.54	30	PASS
11N40SISO	LCH	14.71	13.62	30	PASS
	MCH	14.77	13.48	30	PASS
	HCH	14.25	13.38	30	PASS

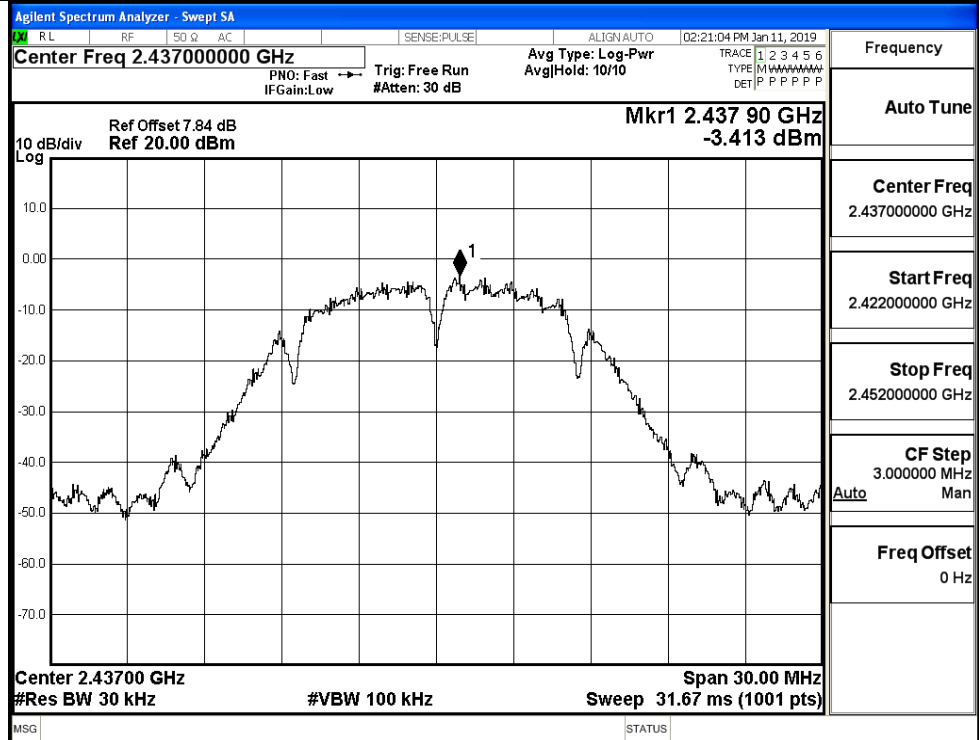
C.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-3.865	8	PASS
	MCH	-3.413	8	PASS
	HCH	-3.779	8	PASS
11G	LCH	-7.186	8	PASS
	MCH	-8.401	8	PASS
	HCH	-7.648	8	PASS
11N20SISO	LCH	-8.611	8	PASS
	MCH	-8.462	8	PASS
	HCH	-8.293	8	PASS
11N40SISO	LCH	-10.745	8	PASS
	MCH	-11.548	8	PASS
	HCH	-10.255	8	PASS

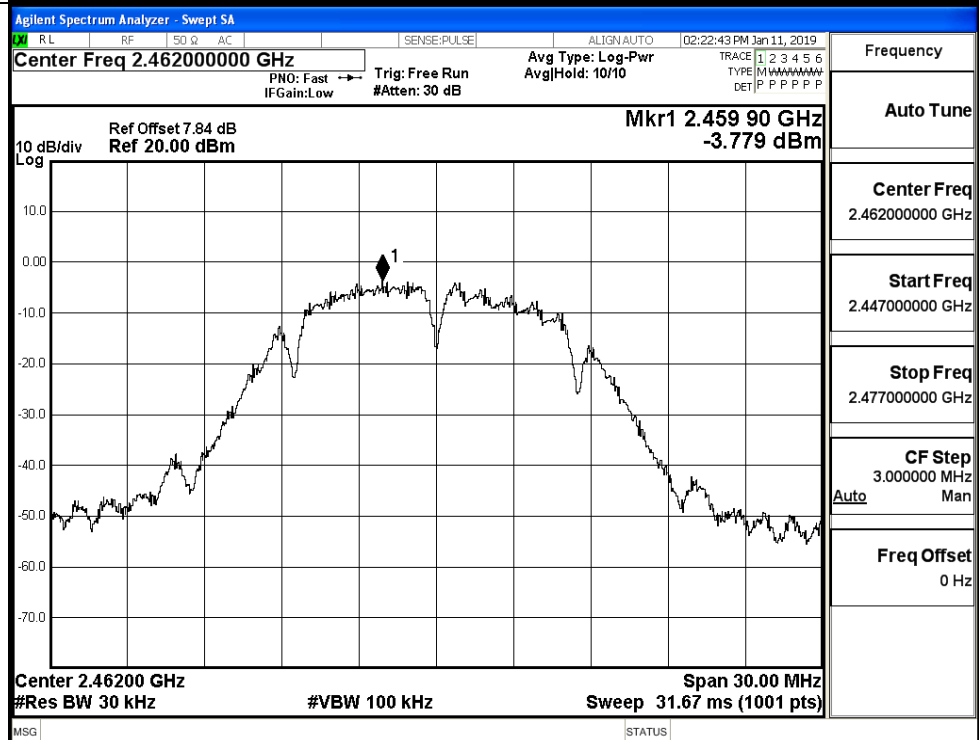
Test Graphs



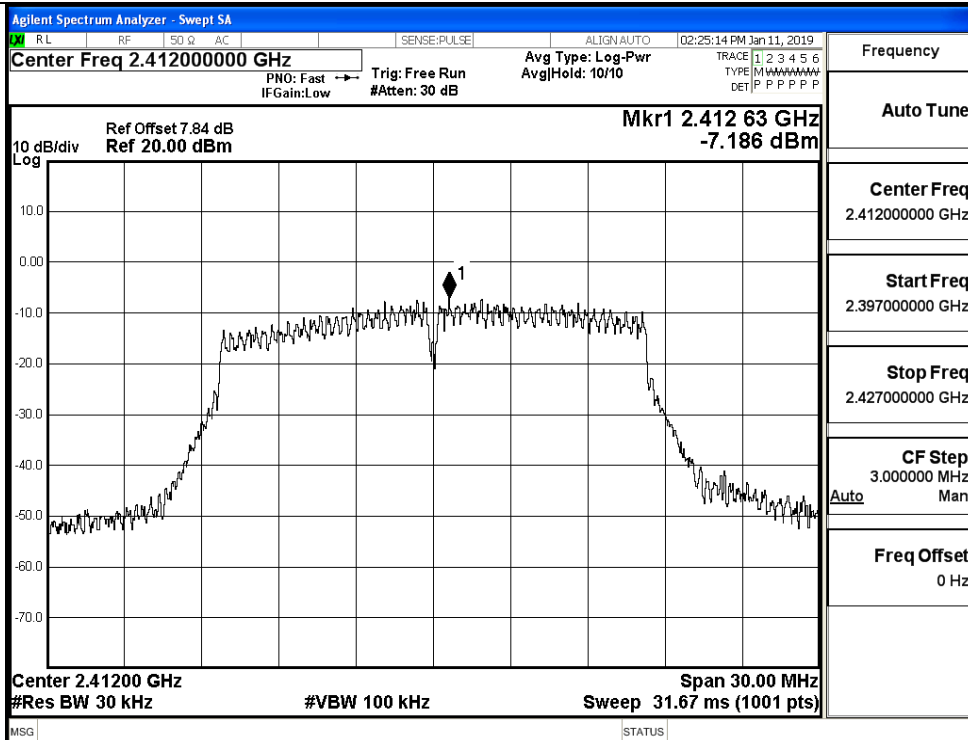
11B/MCH



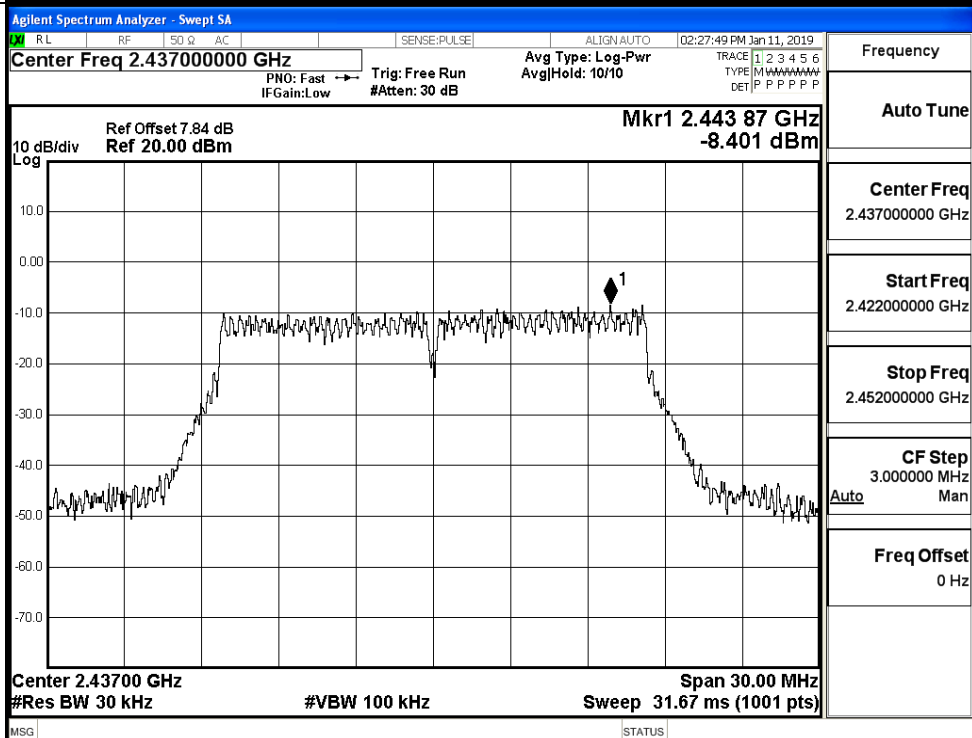
11B/HCH



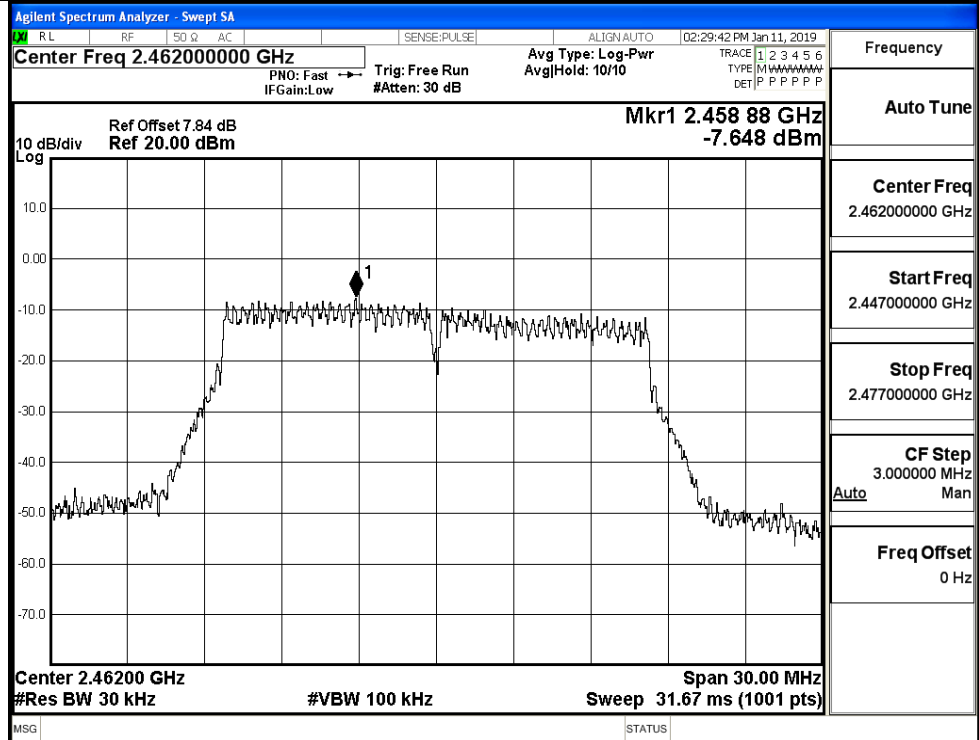
11G/LCH



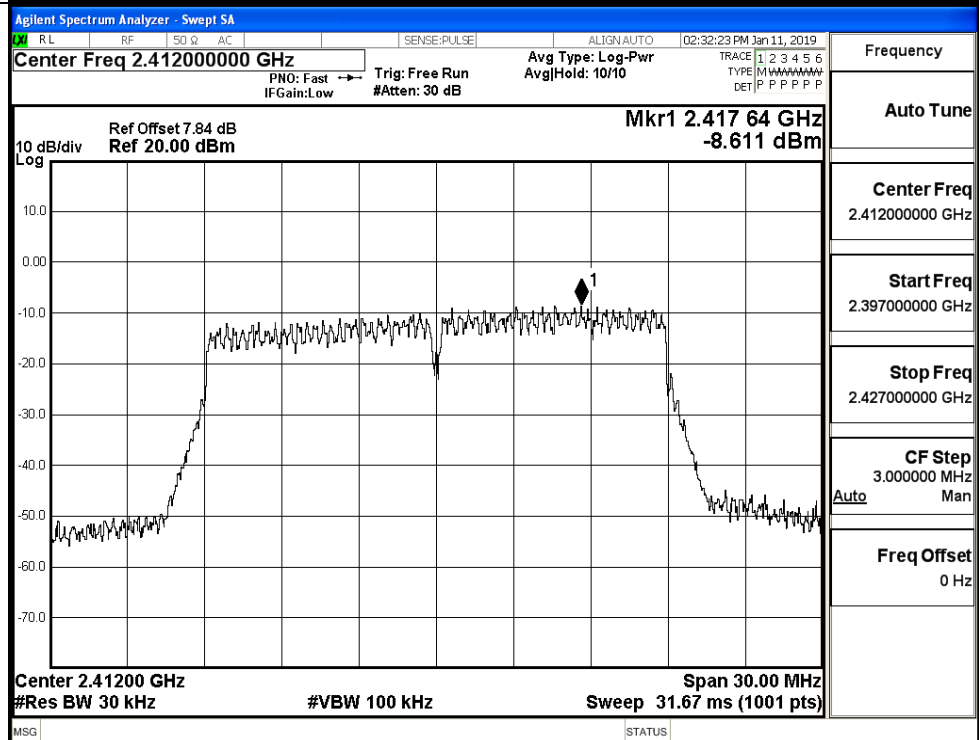
11G/MCH



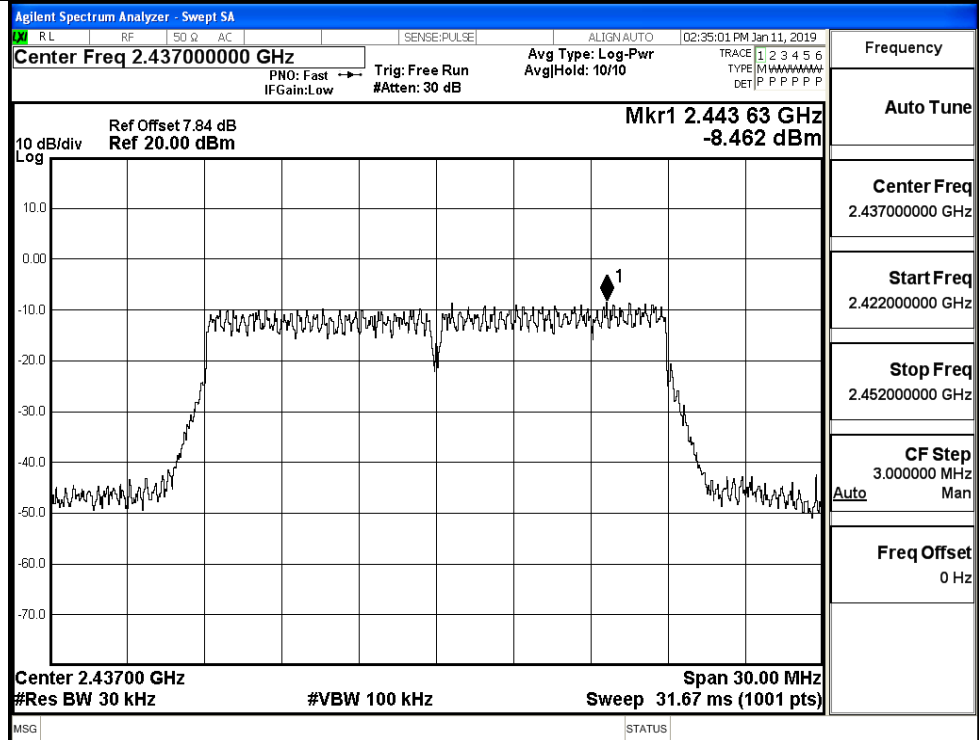
11G/HCH



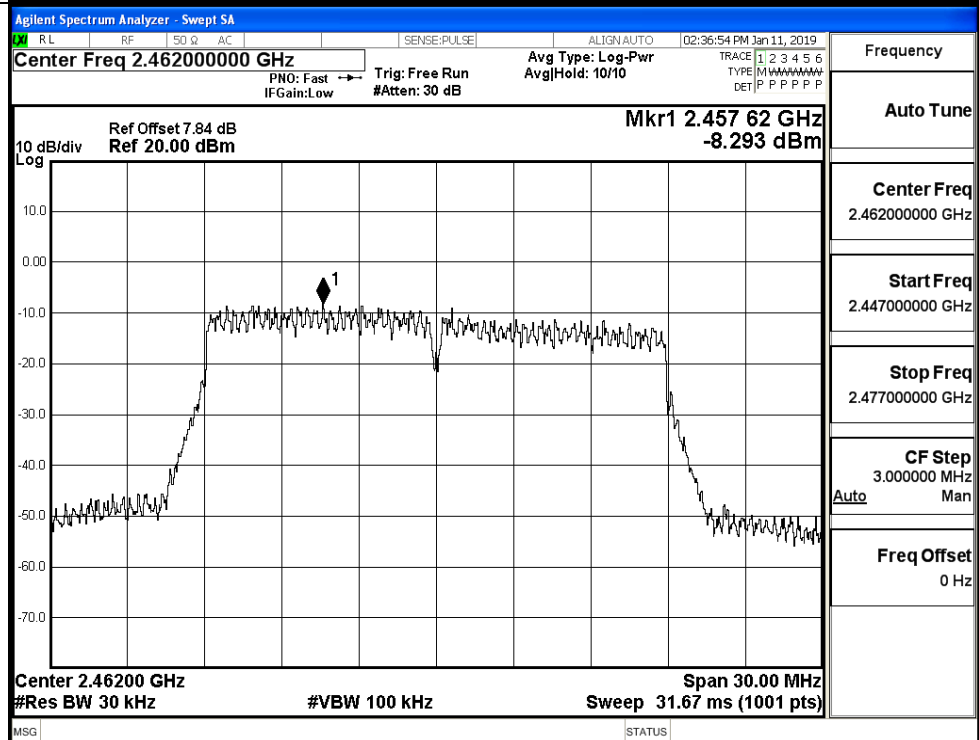
11N20SISO/LCH



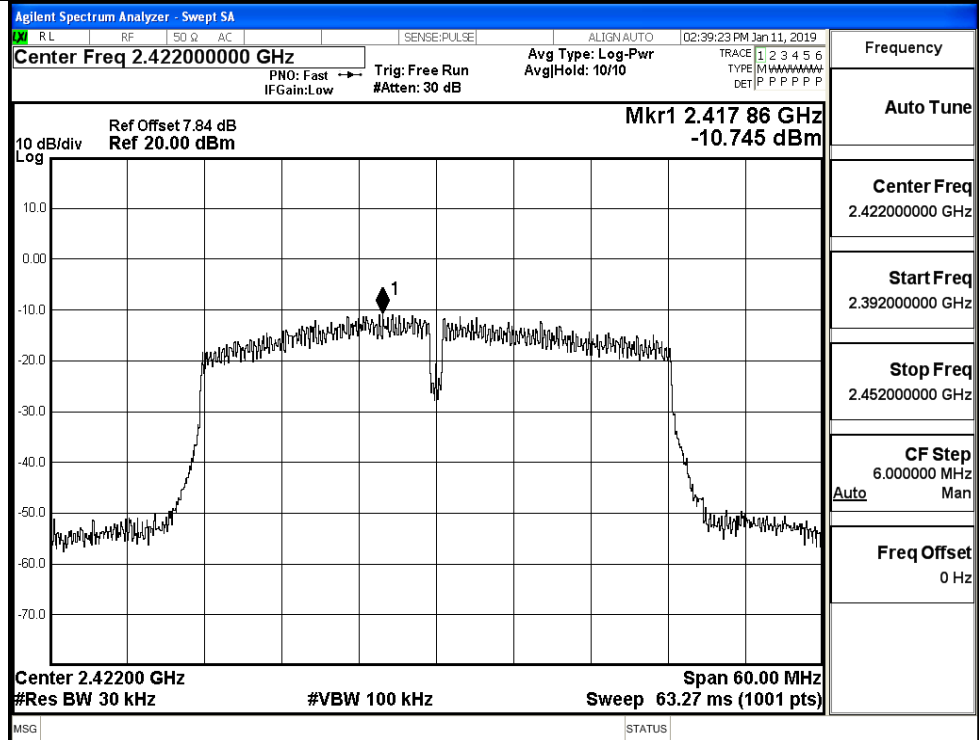
11N20SISO/MCH



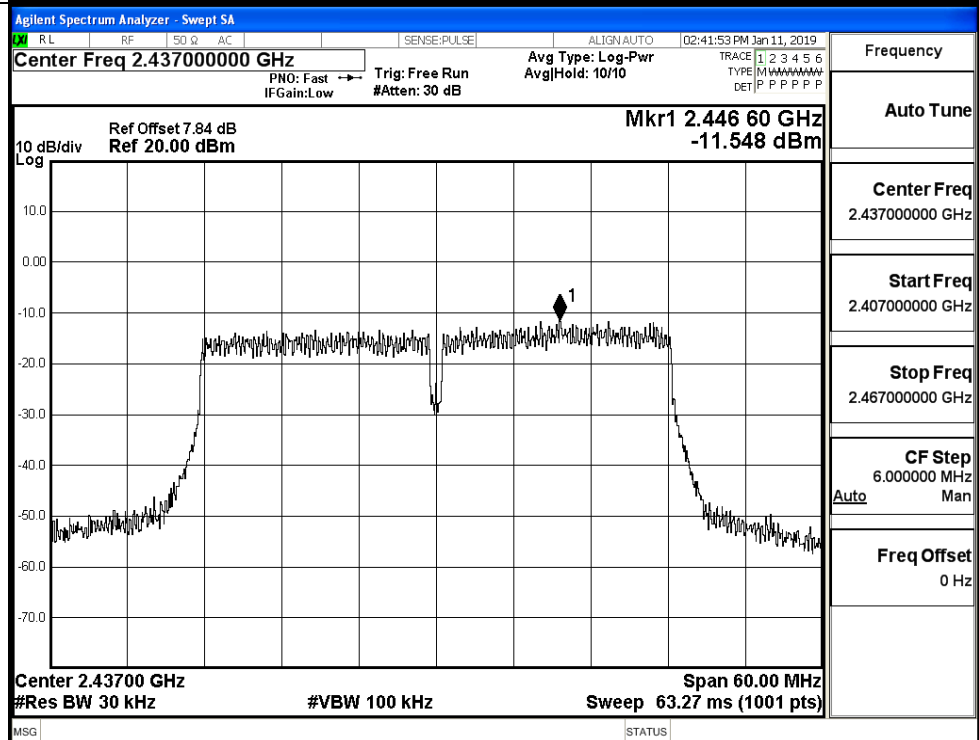
11N20SISO/HCH



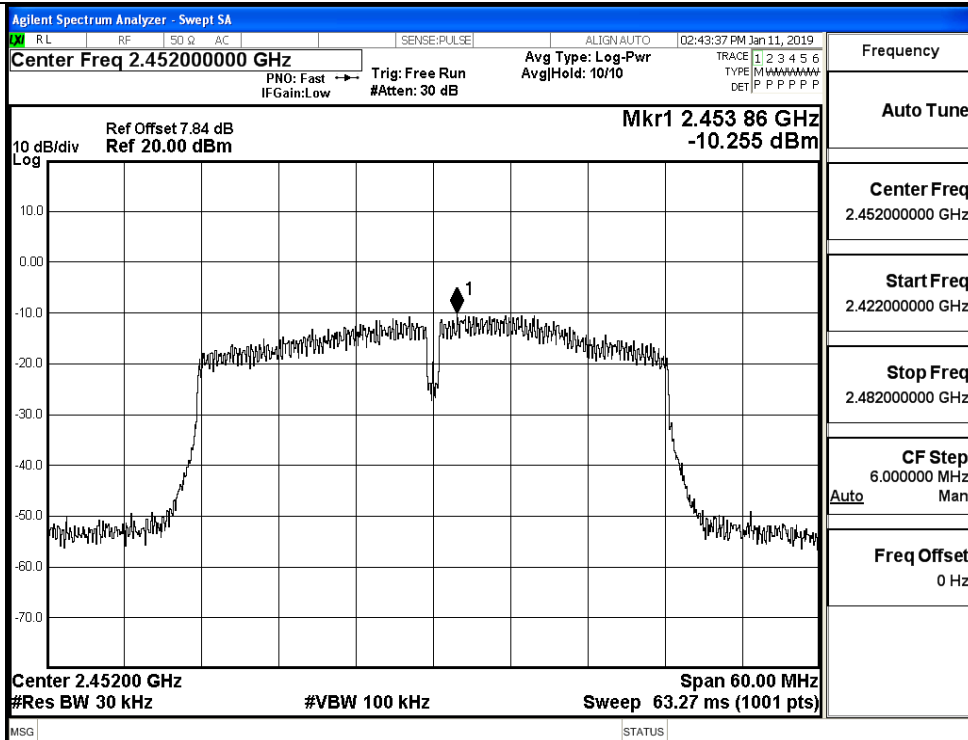
11N40SISO/LCH



11N40SISO/MCH



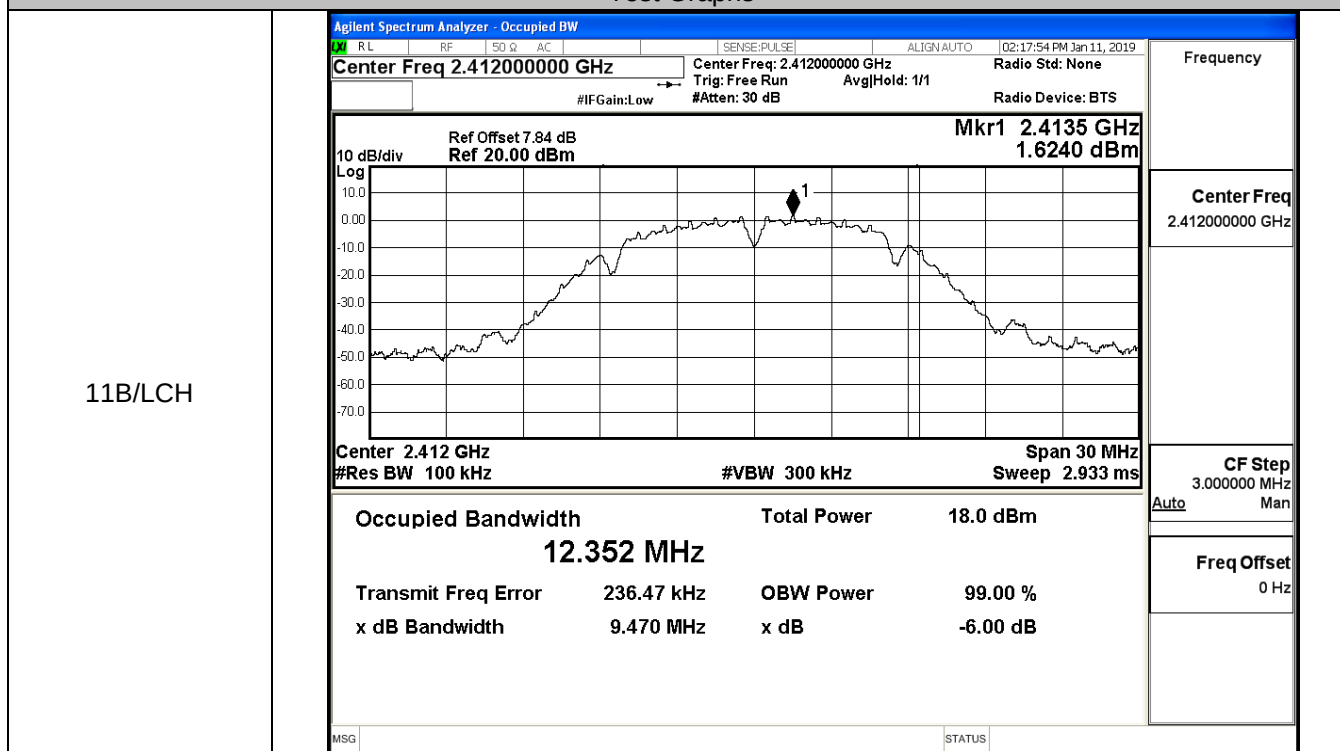
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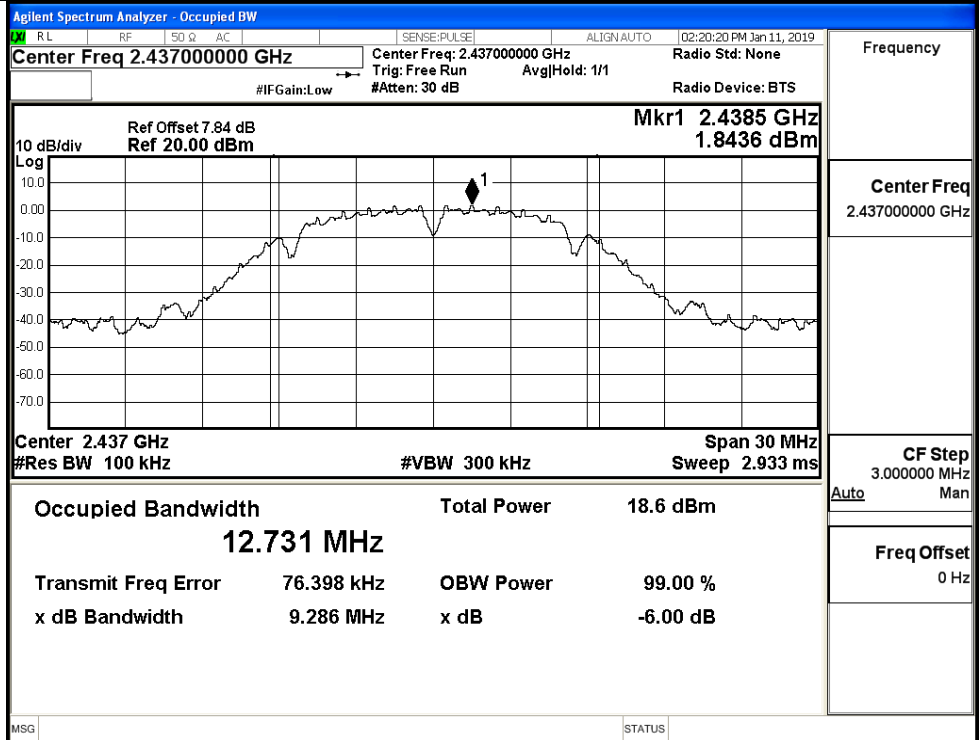
C.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.470	≥ 0.5	PASS
	MCH	9.286	≥ 0.5	PASS
	HCH	8.563	≥ 0.5	PASS
11G	LCH	15.55	≥ 0.5	PASS
	MCH	16.62	≥ 0.5	PASS
	HCH	16.47	≥ 0.5	PASS
11N20SISO	LCH	17.72	≥ 0.5	PASS
	MCH	17.84	≥ 0.5	PASS
	HCH	17.46	≥ 0.5	PASS
11N40SISO	LCH	34.47	≥ 0.5	PASS
	MCH	36.50	≥ 0.5	PASS
	HCH	33.49	≥ 0.5	PASS

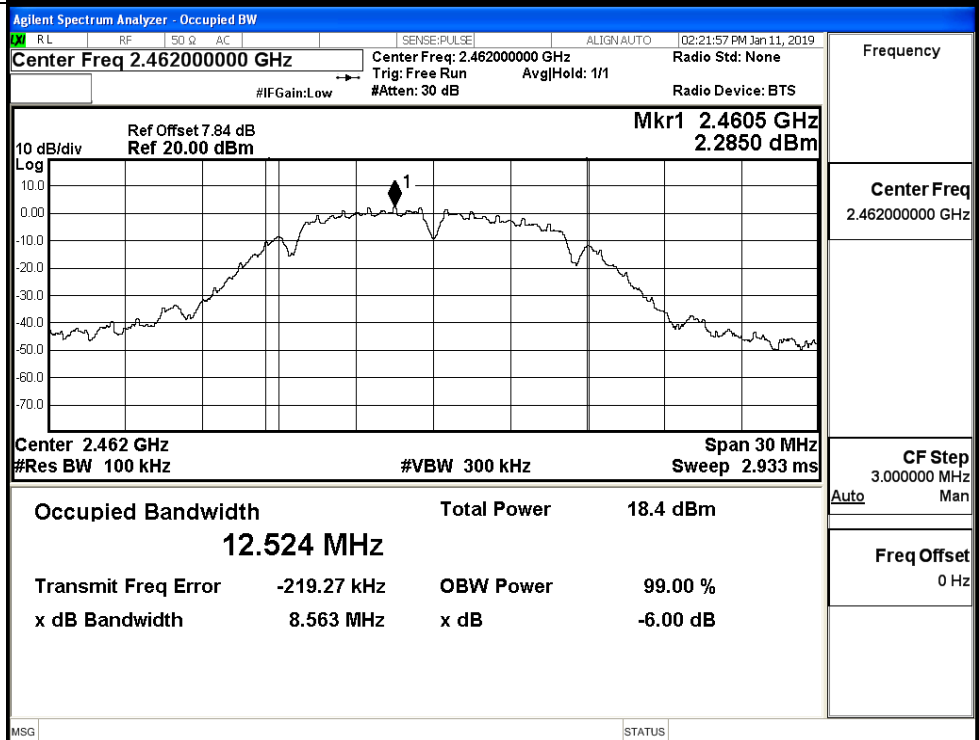
Test Graphs



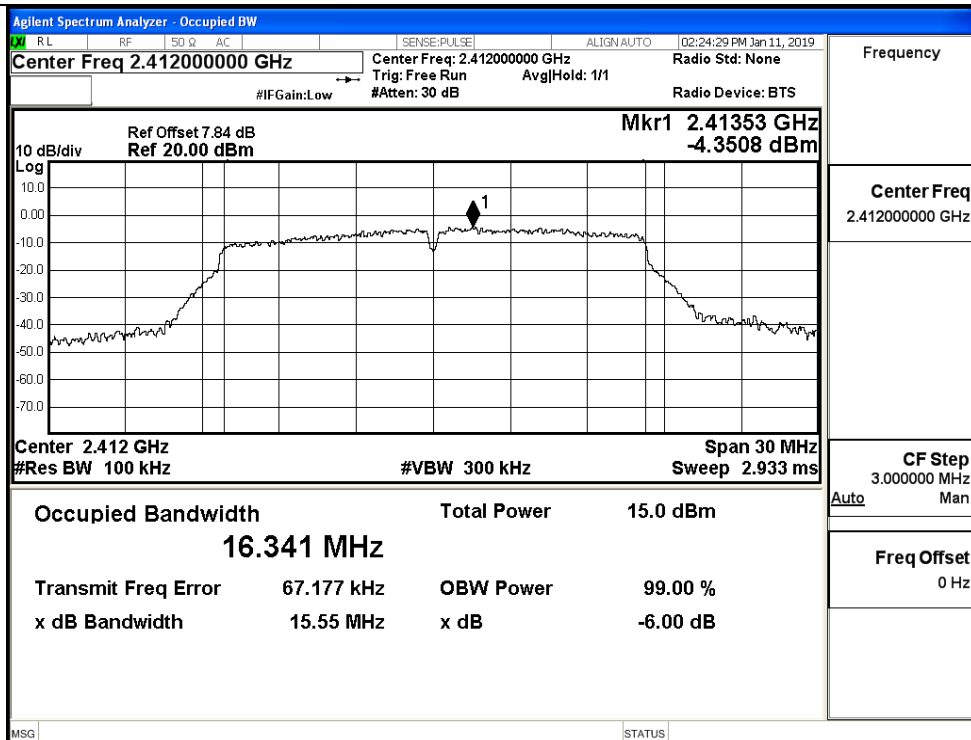
11B/MCH



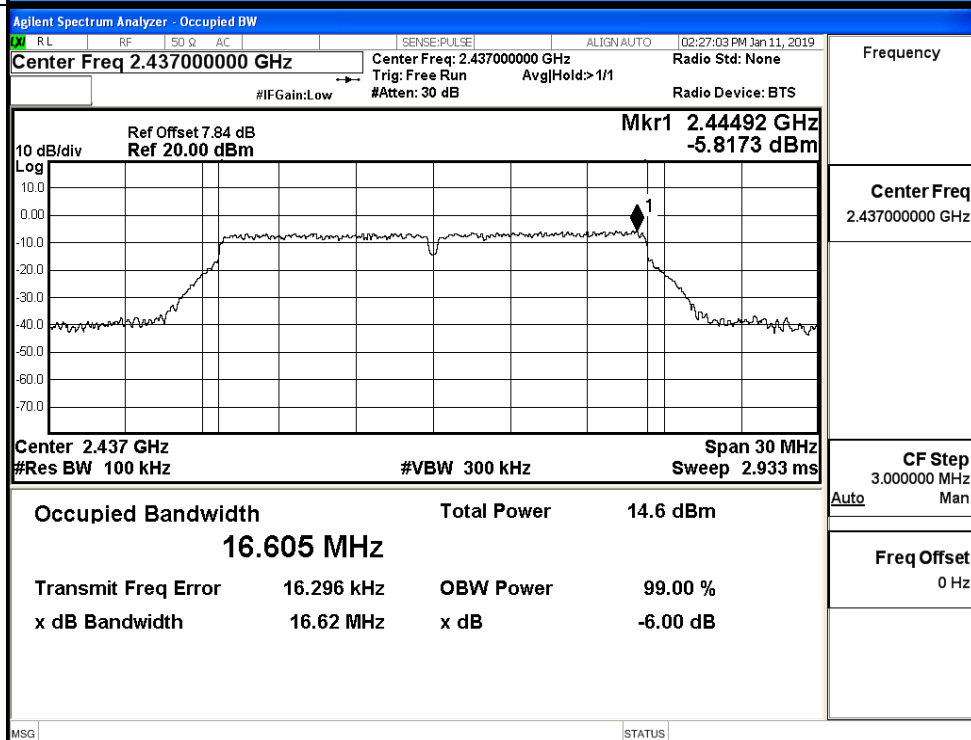
11B/HCH



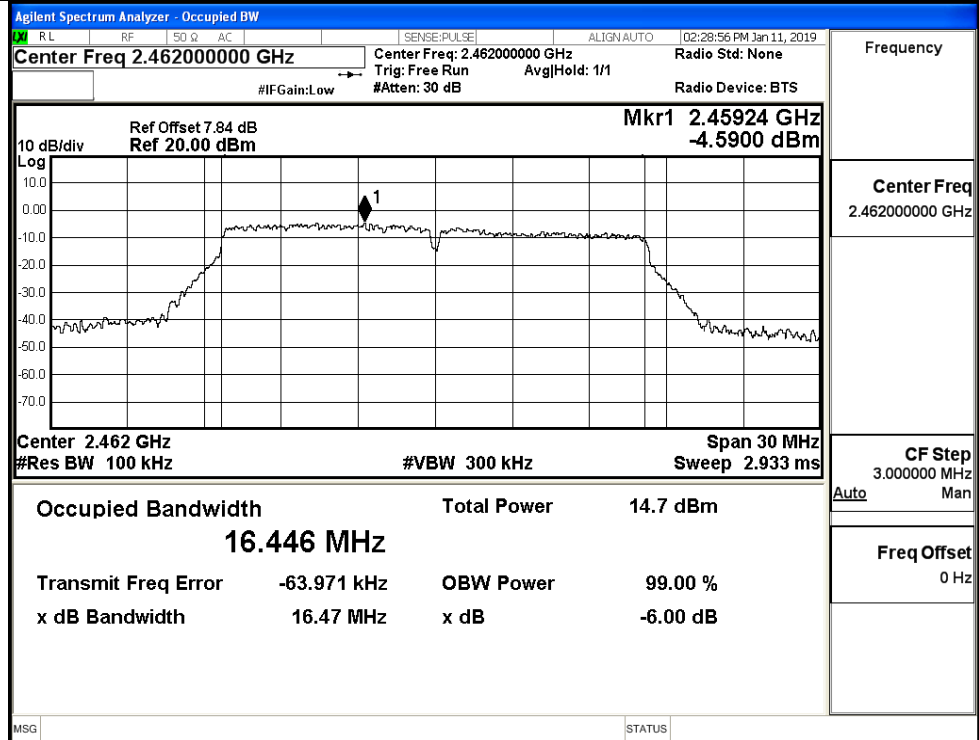
11G/LCH



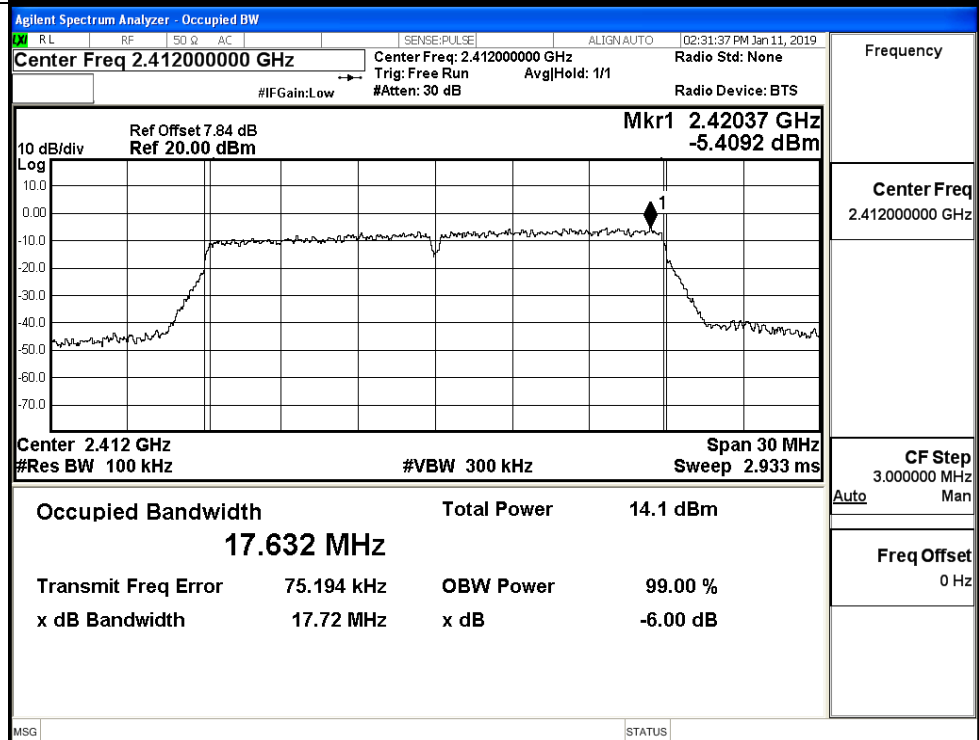
11G/MCH



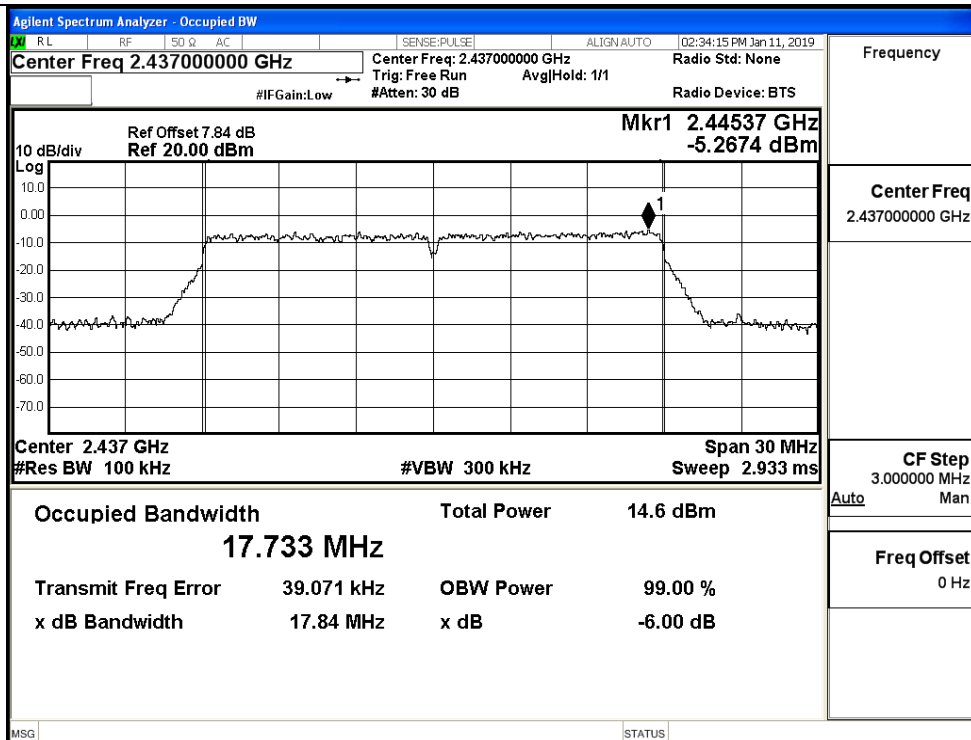
11G/HCH



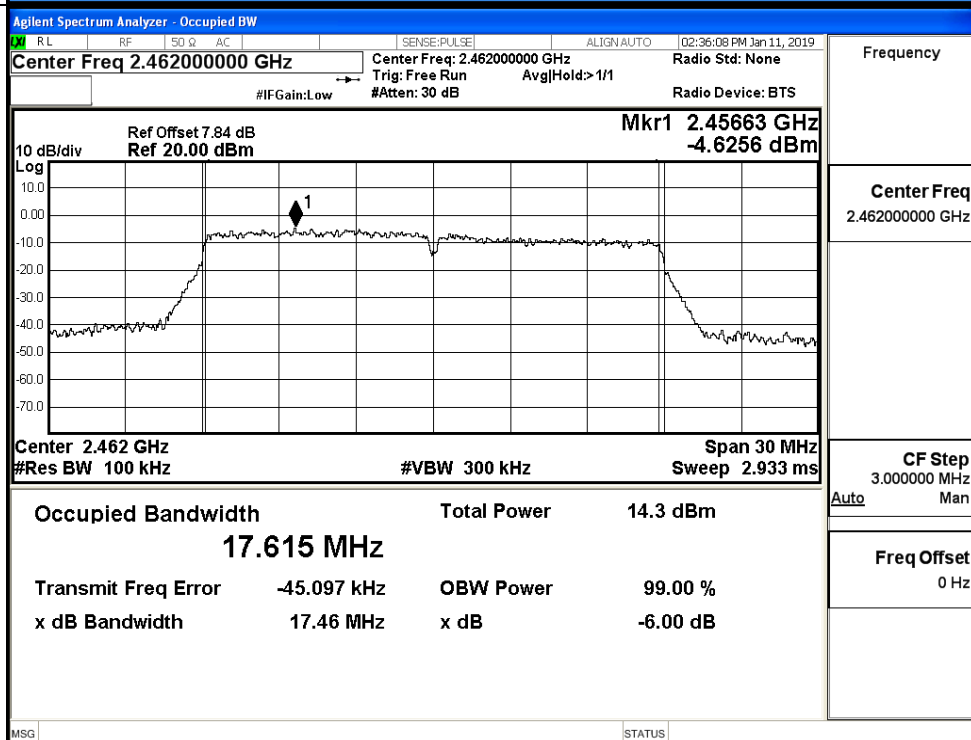
11N20SISO/LCH



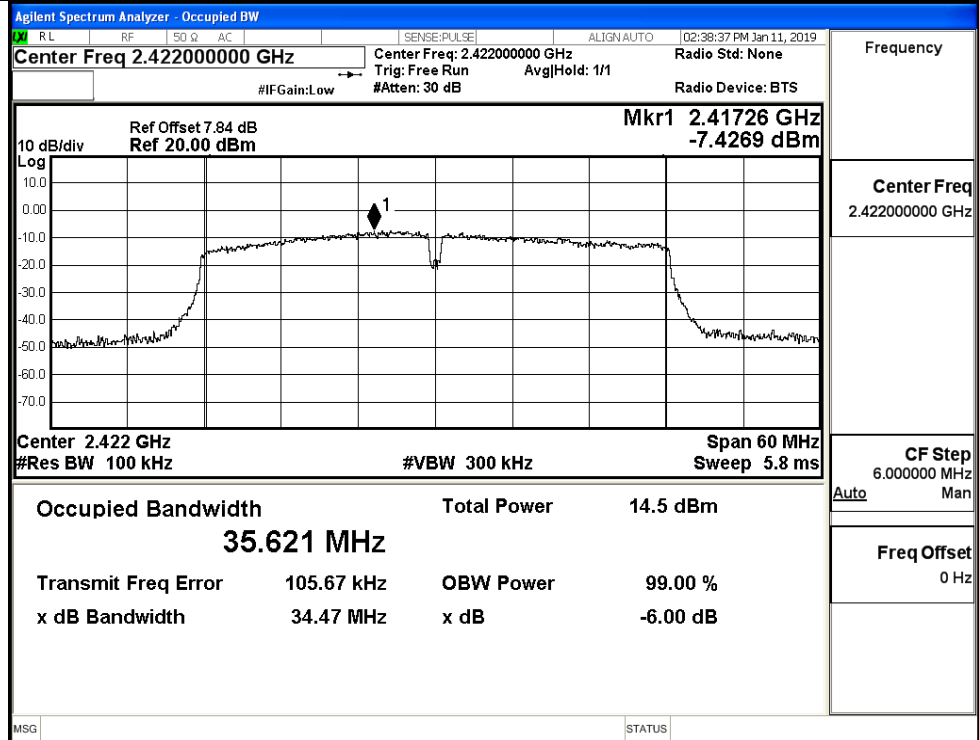
11N20SISO/MCH



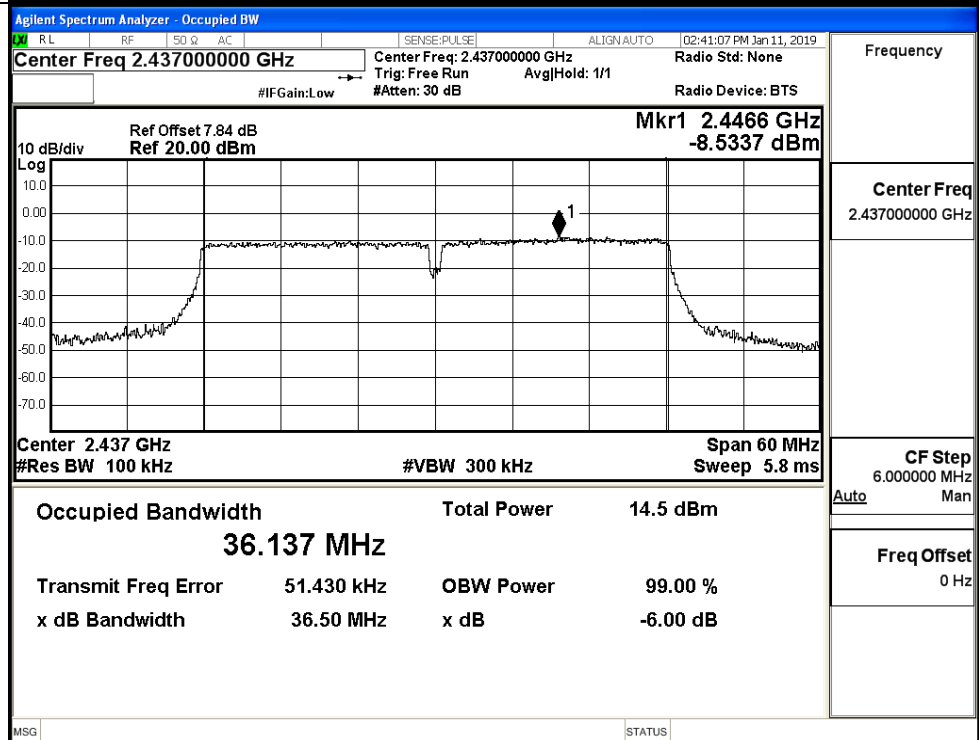
11N20SISO/HCH

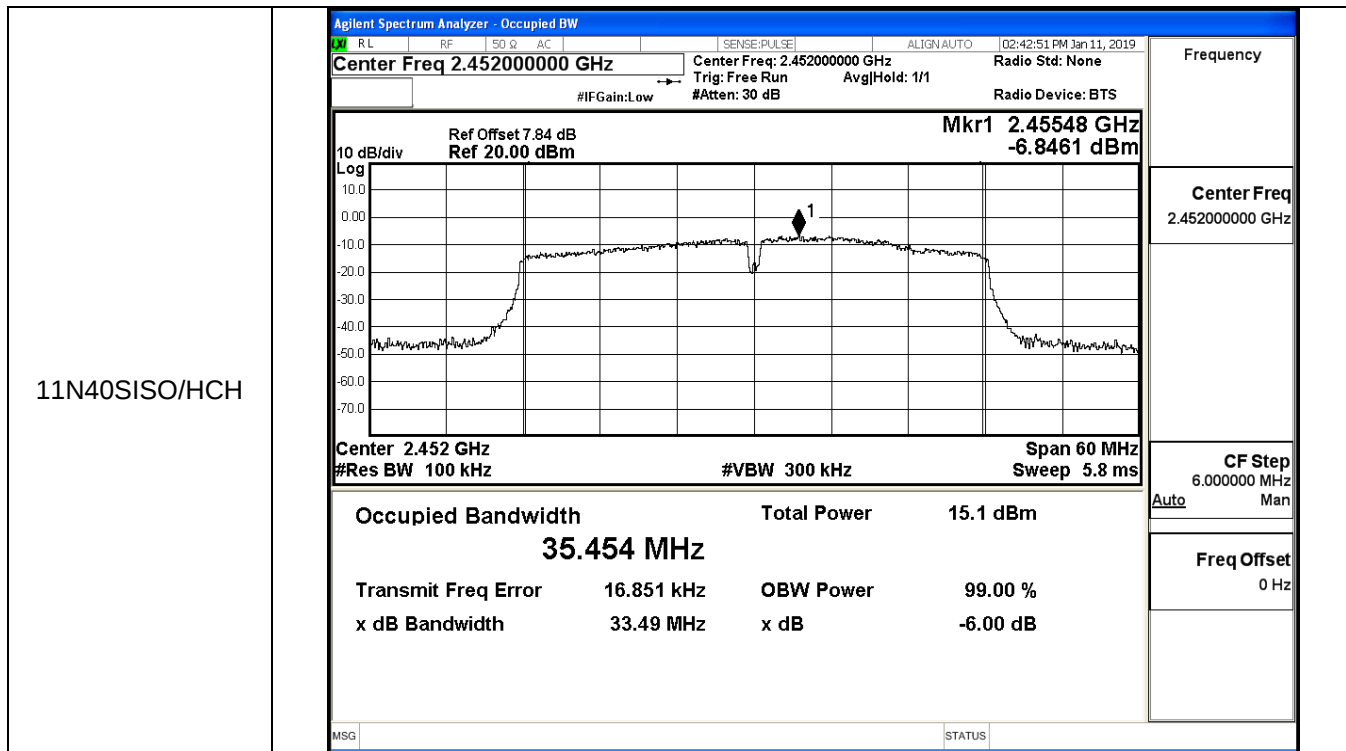


11N40SISO/LCH



11N40SISO/MCH





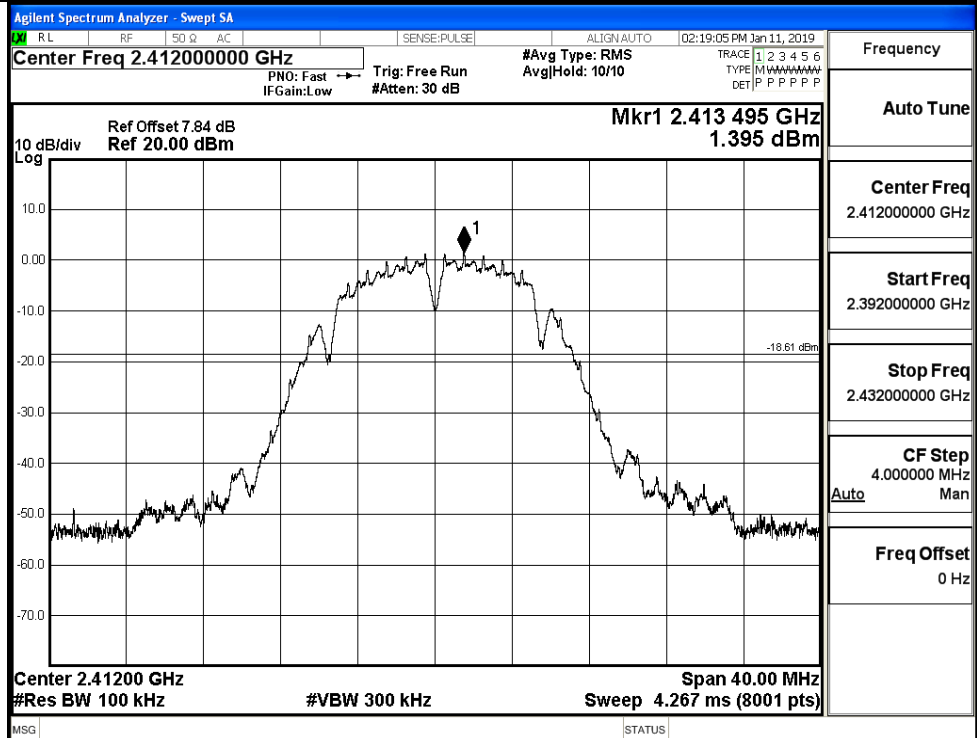
C.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdic
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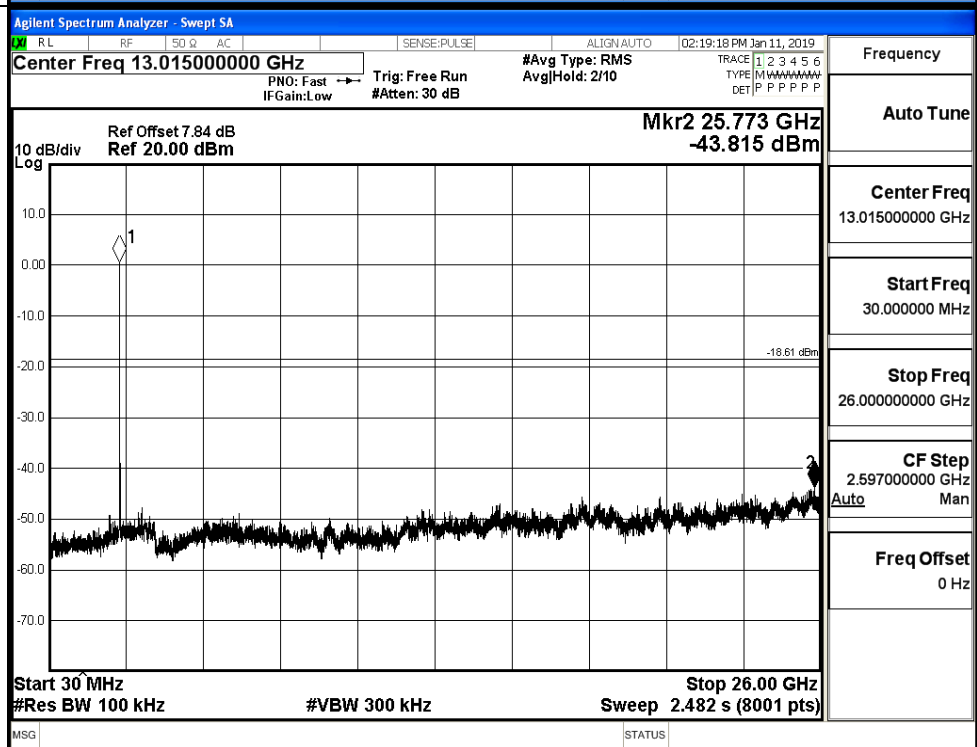
					t
11B	LCH	1.395	-43.815	-18.605	PASS
	MCH	1.784	-44.940	-18.216	PASS
	HCH	2.141	-43.802	-17.859	PASS
11G	LCH	-4.404	-43.471	-24.404	PASS
	MCH	-5.928	-44.342	-25.928	PASS
	HCH	-4.666	-43.589	-24.666	PASS
11N20 SISO	LCH	-5.699	-44.332	-25.699	PASS
	MCH	-5.305	-44.150	-25.305	PASS
	HCH	-4.926	-43.677	-24.926	PASS
11N40 SISO	LCH	-7.982	-43.443	-27.982	PASS
	MCH	-8.519	-44.160	-28.519	PASS
	HCH	-6.759	-41.886	-26.759	PASS

11B LCH Graphs

Pref/11B/LCH

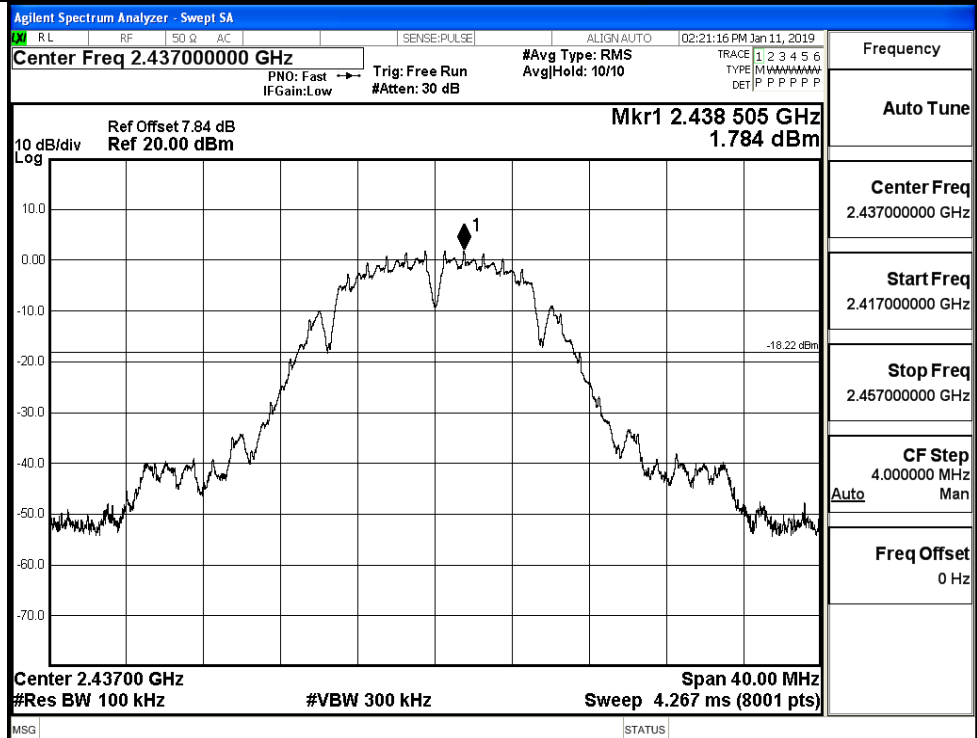


Puw/11B/LCH

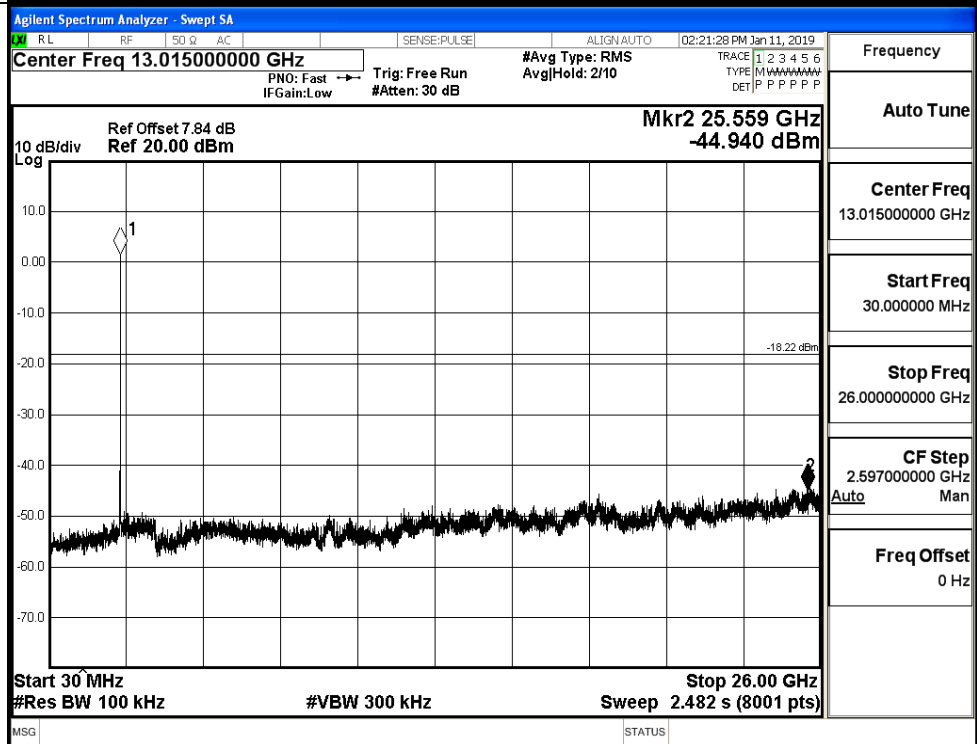


11B MCH Graphs

Pref/11B/MCH

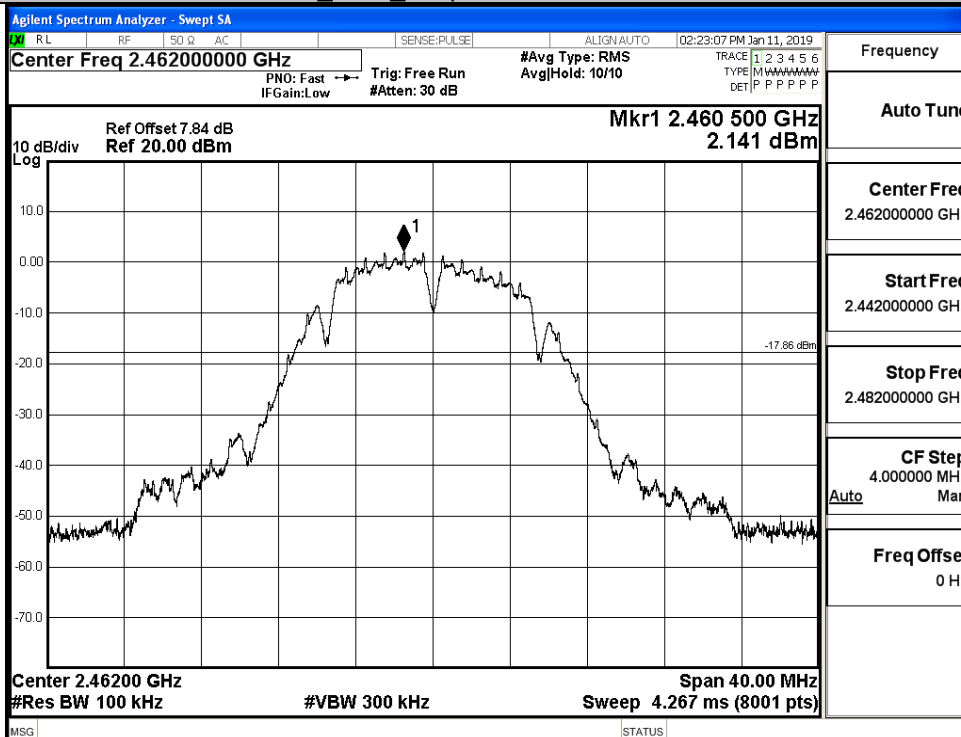


Puw/11B/MCH

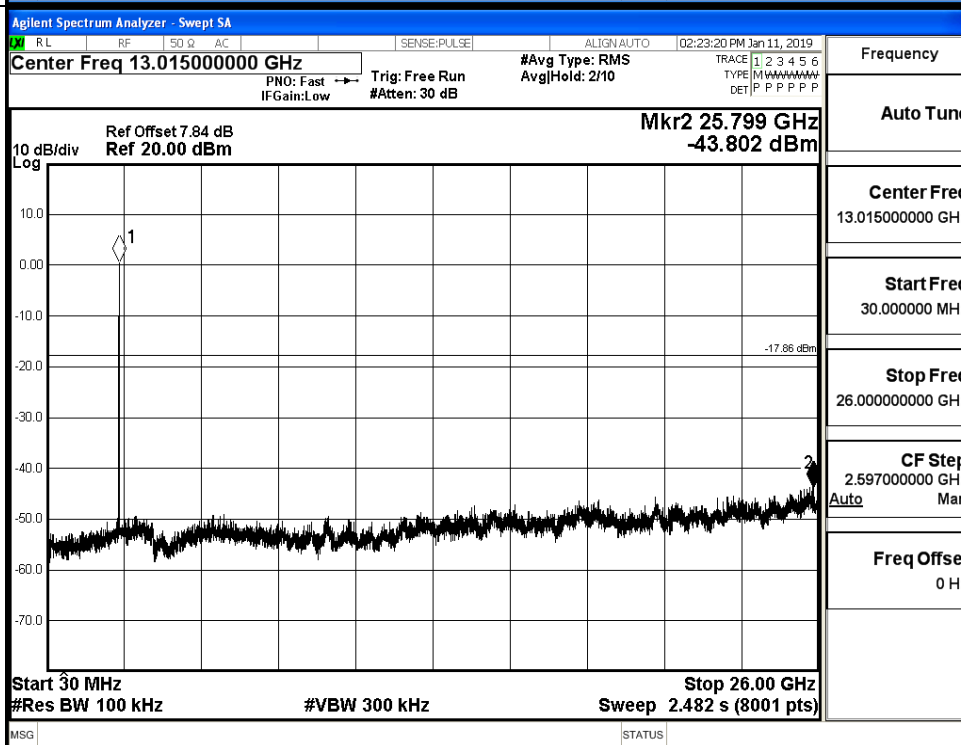


11B HCH Graphs

Pref/11B/HCH

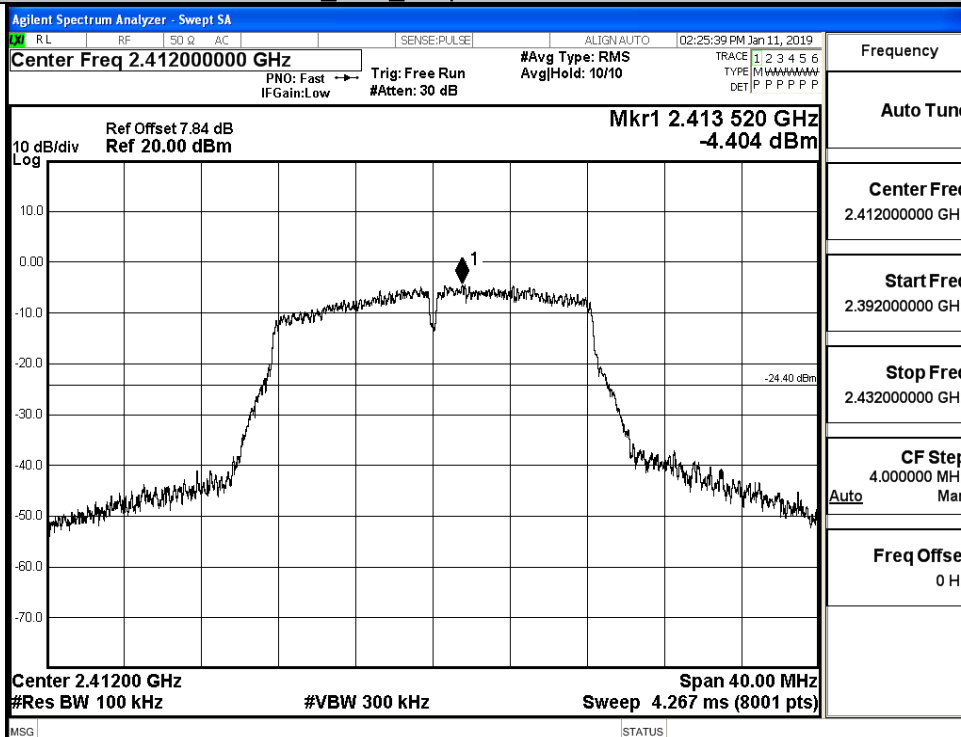


Puw/11B/HCH

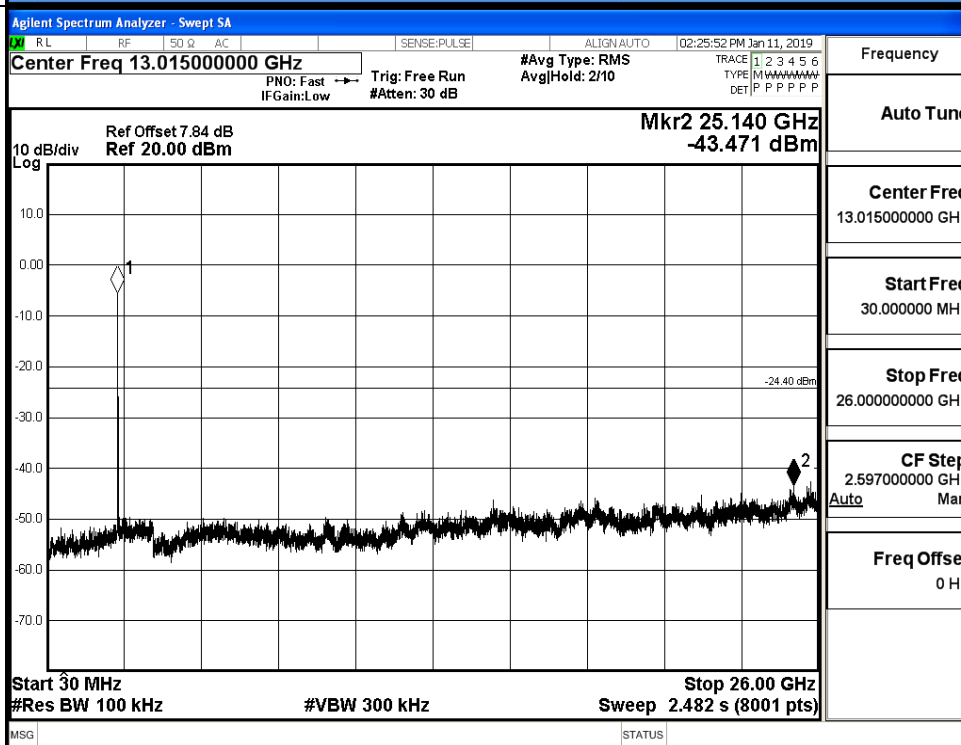


11G LCH Graphs

Pref/11G/LCH

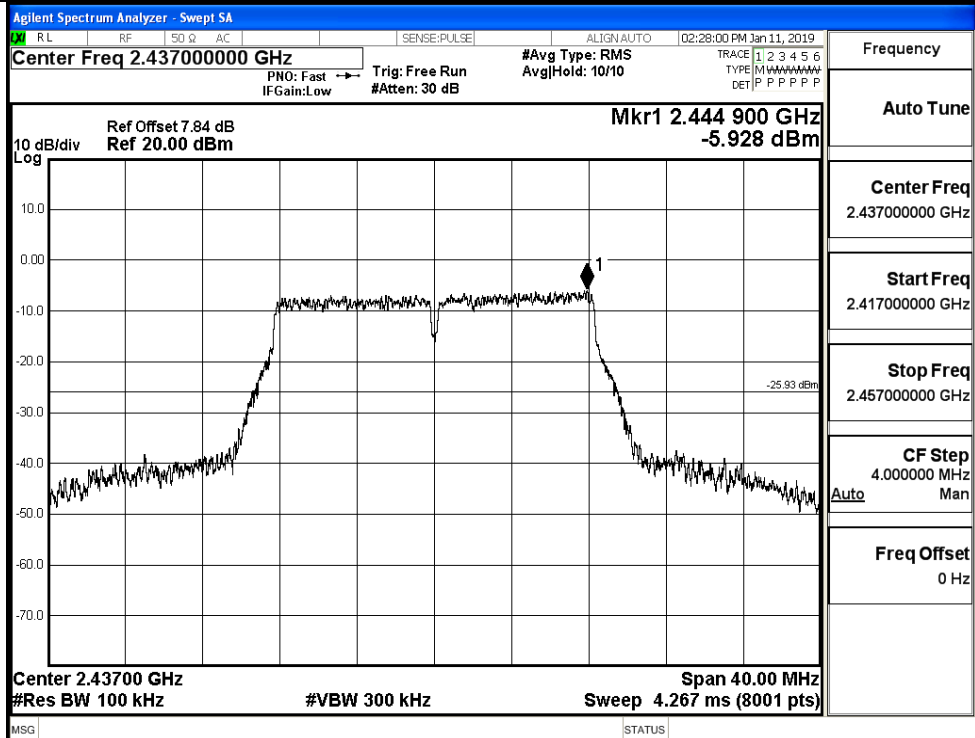


Puw/11G/LCH

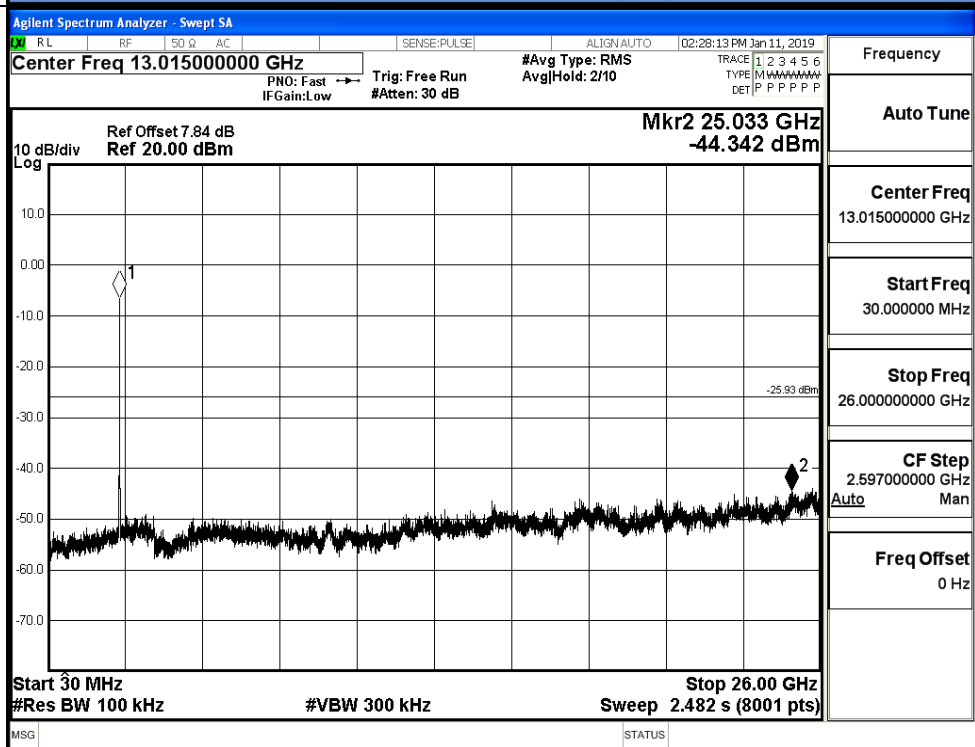


11G MCH Graphs

Pref/11G/MCH

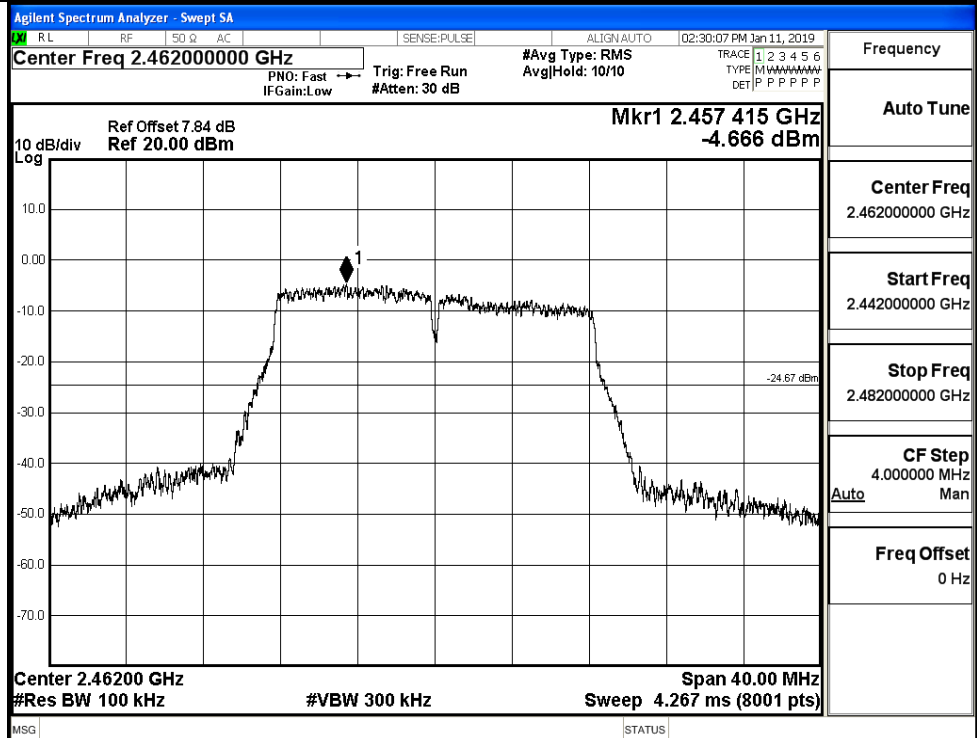


Puw/11G/MCH

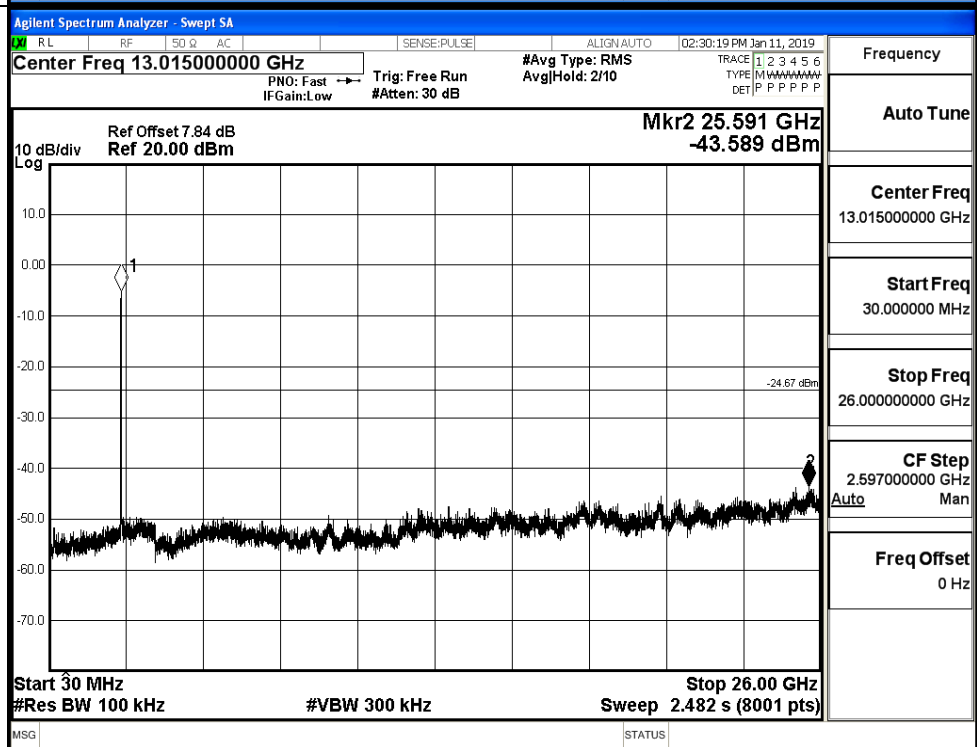


11G HCH Graphs

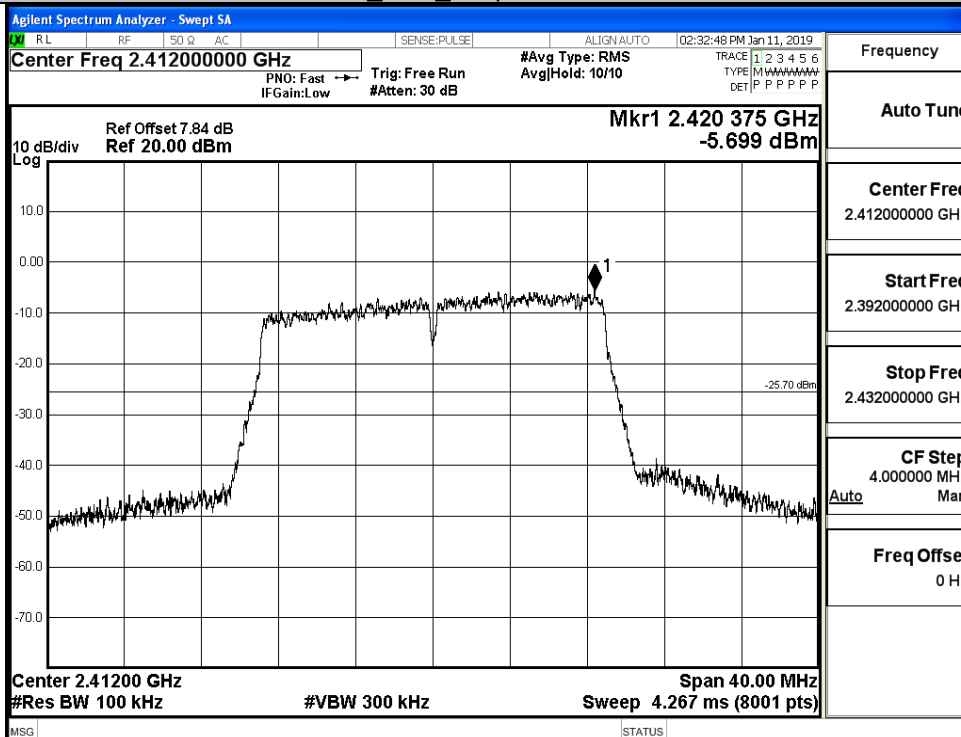
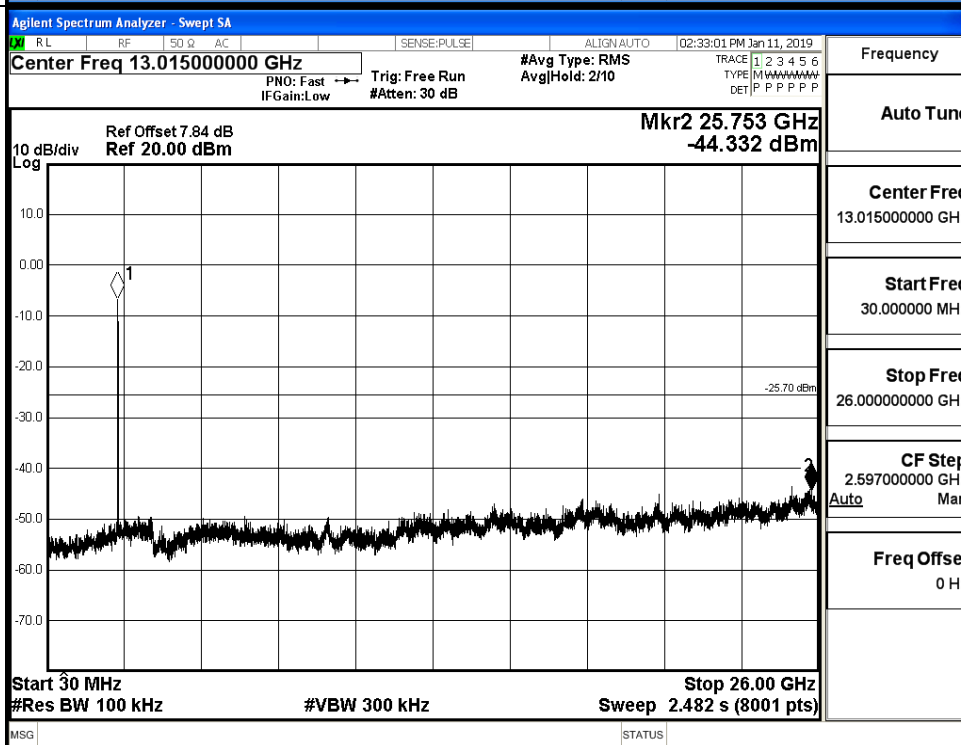
Pref/11G/HCH



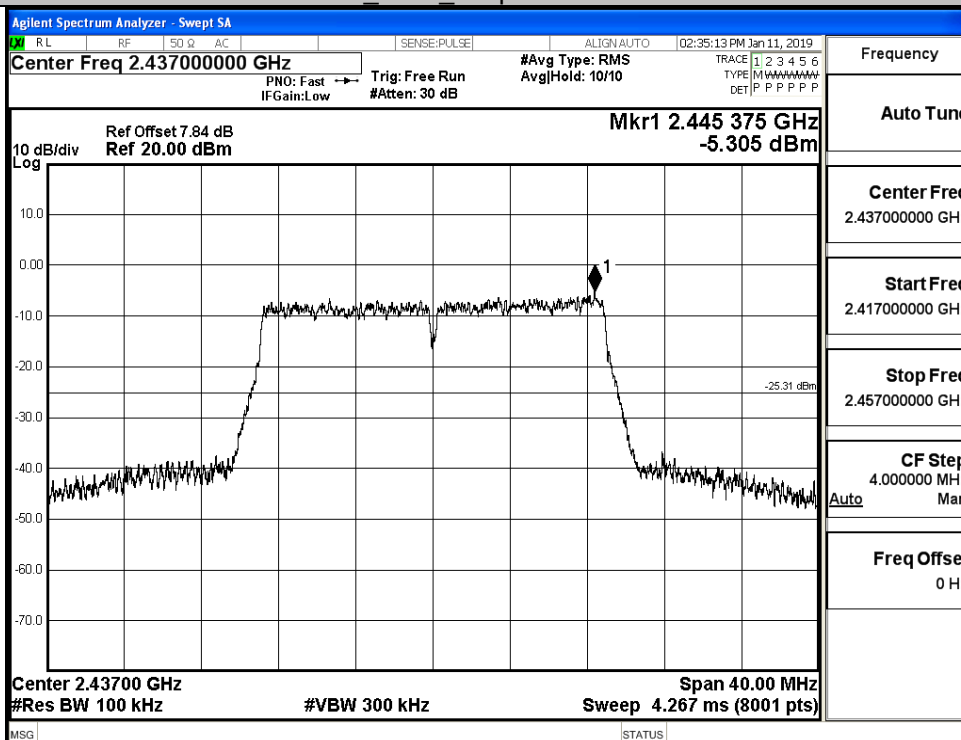
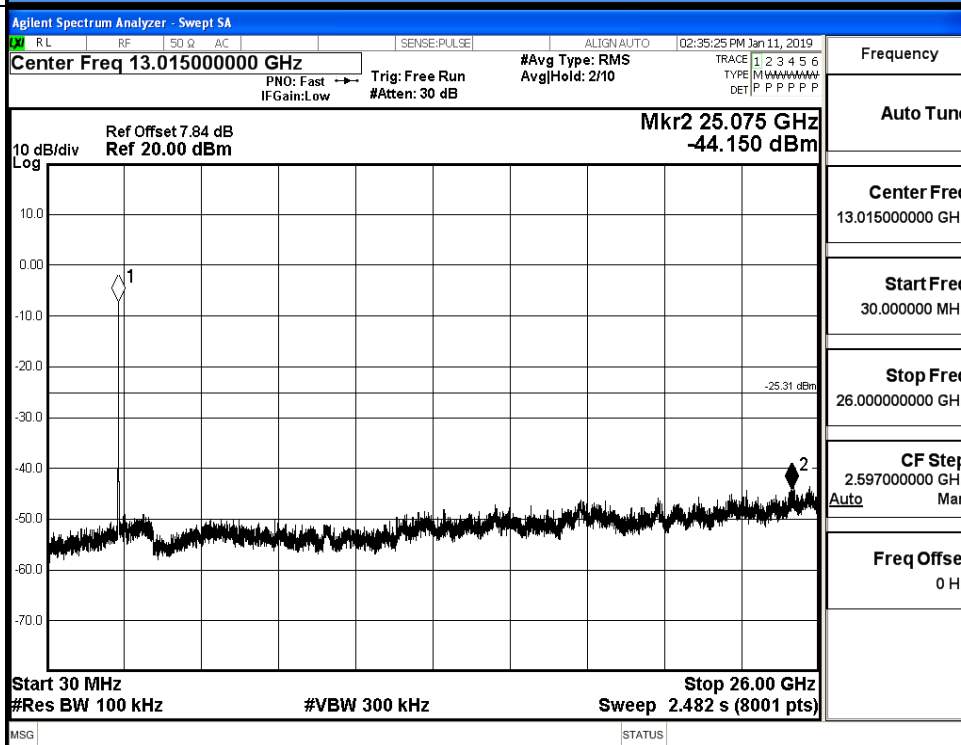
Puw/11G/HCH



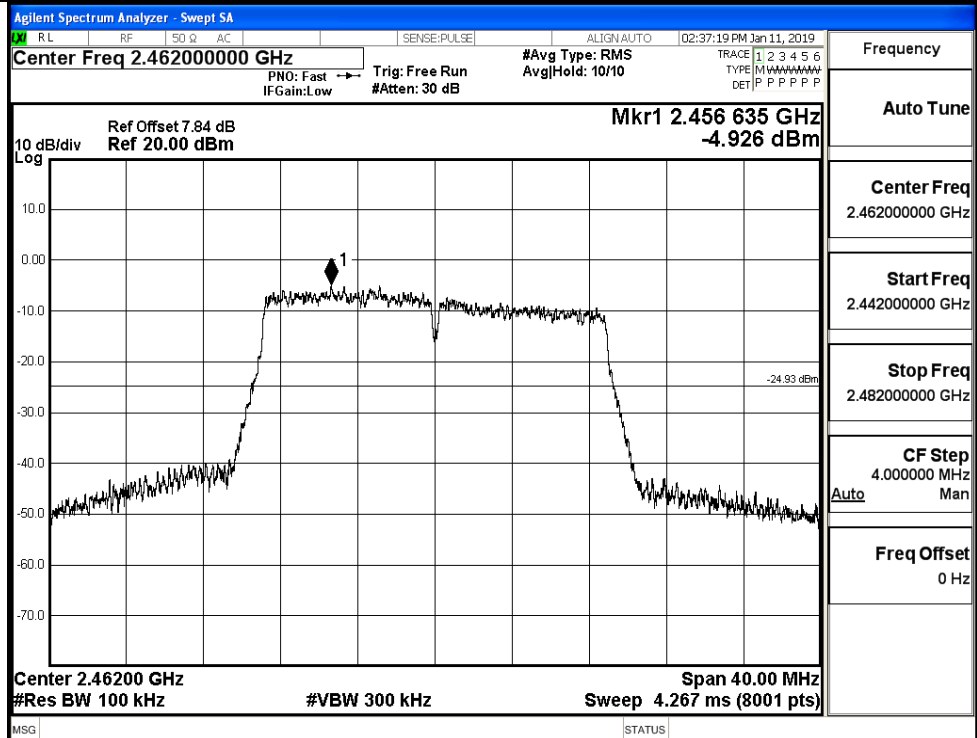
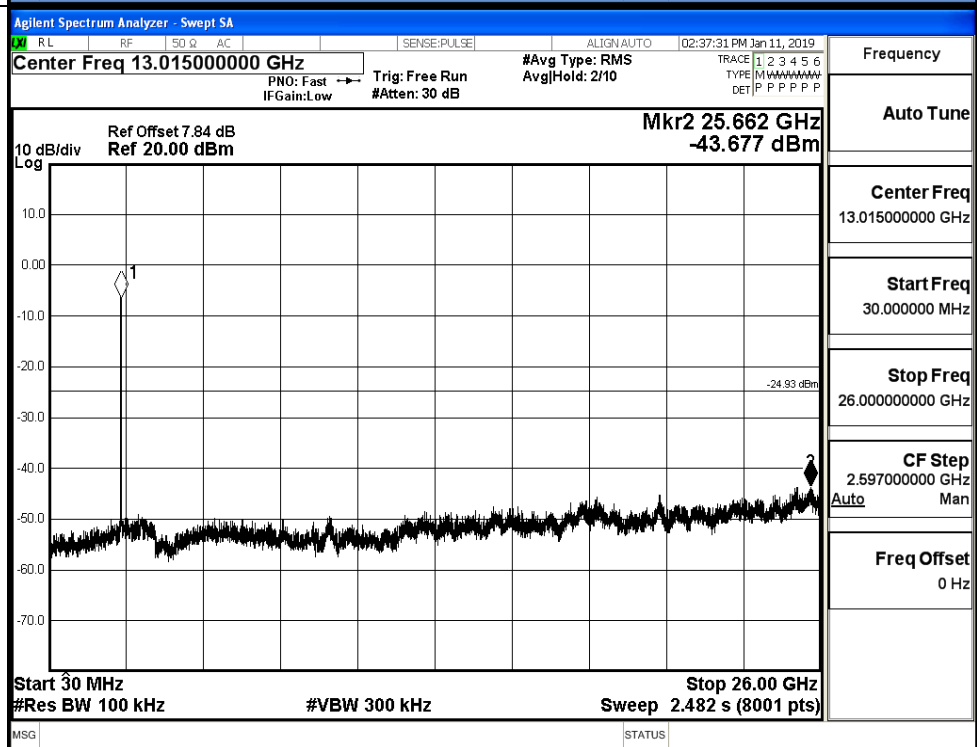
11N20SISO LCH Graphs

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

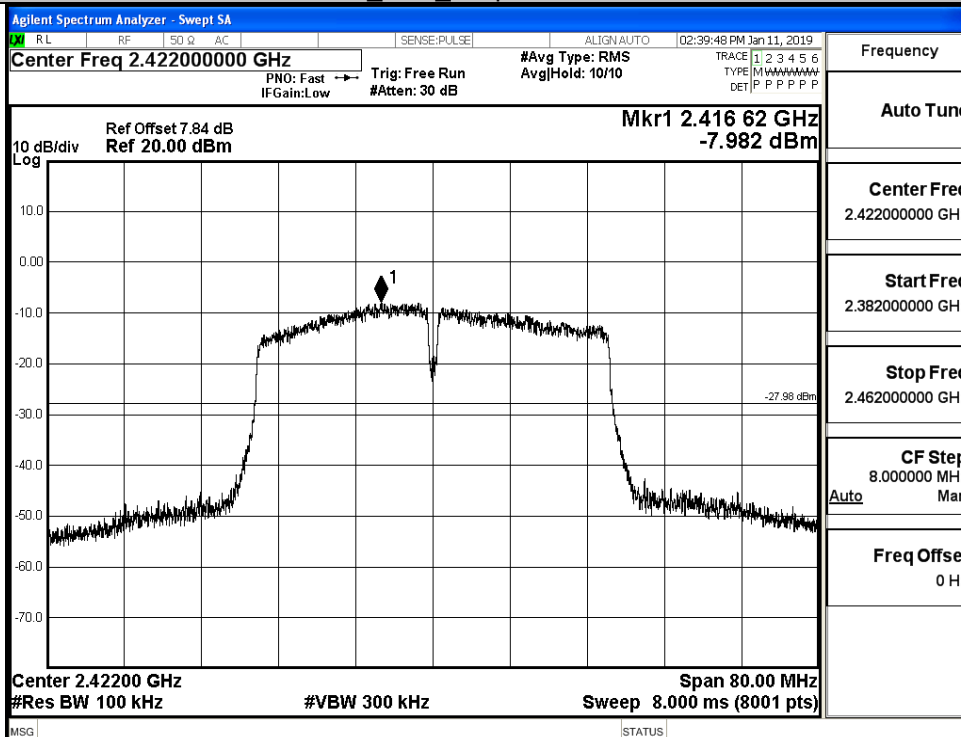
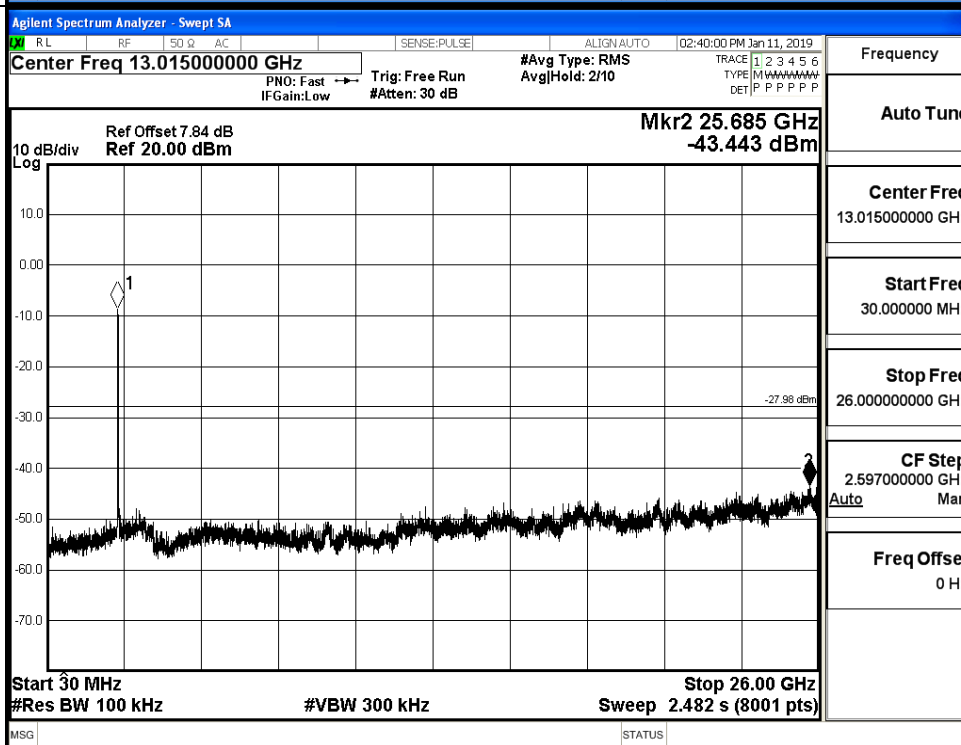
11N20SISO MCH_Graphs

Pref/11N20
SISO/MCHPuW/11N20
SISO/MCH

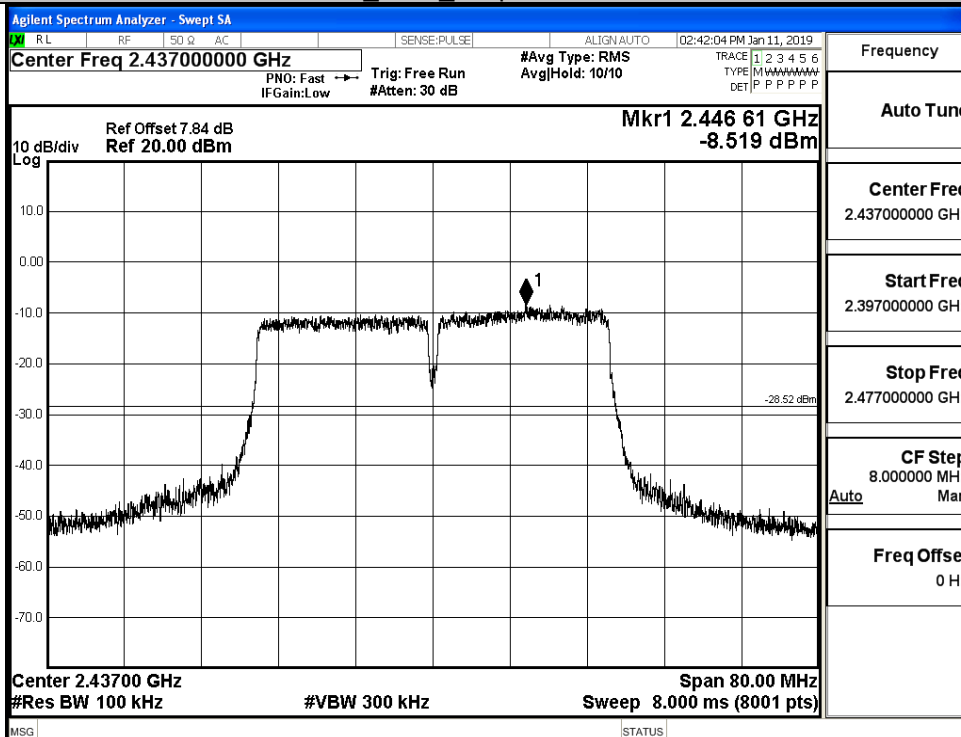
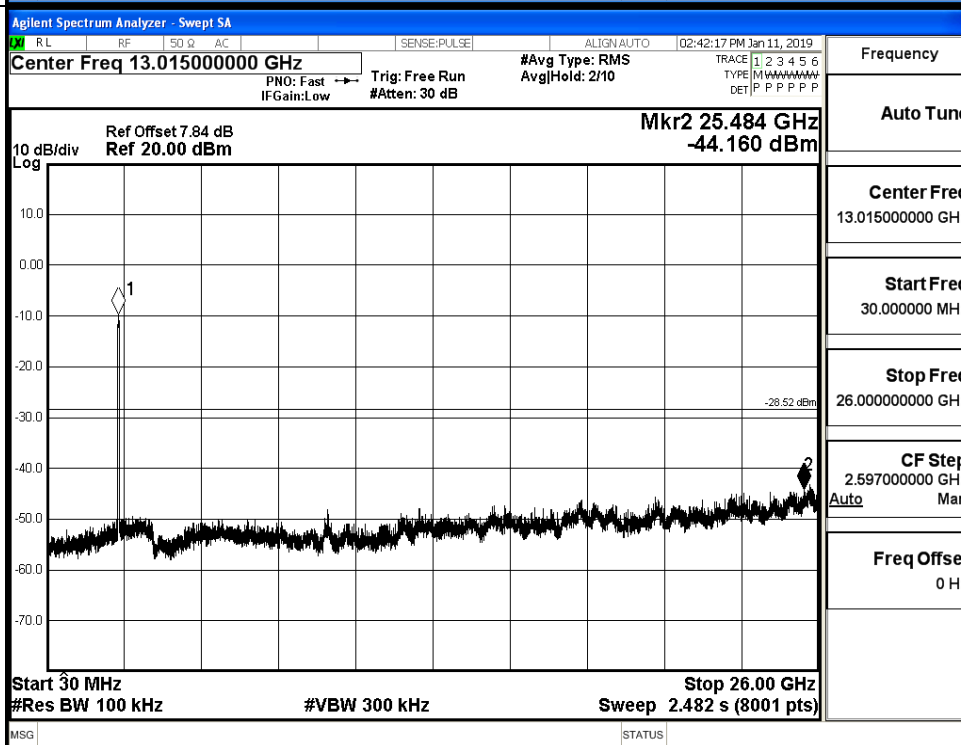
11N20SISO HCH Graphs

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

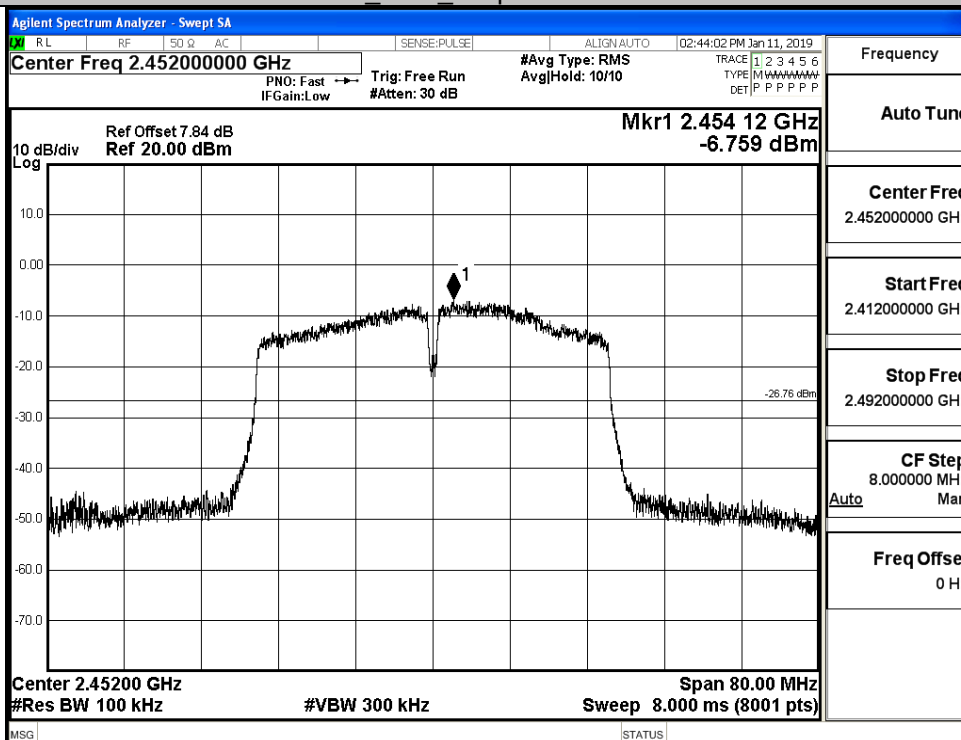
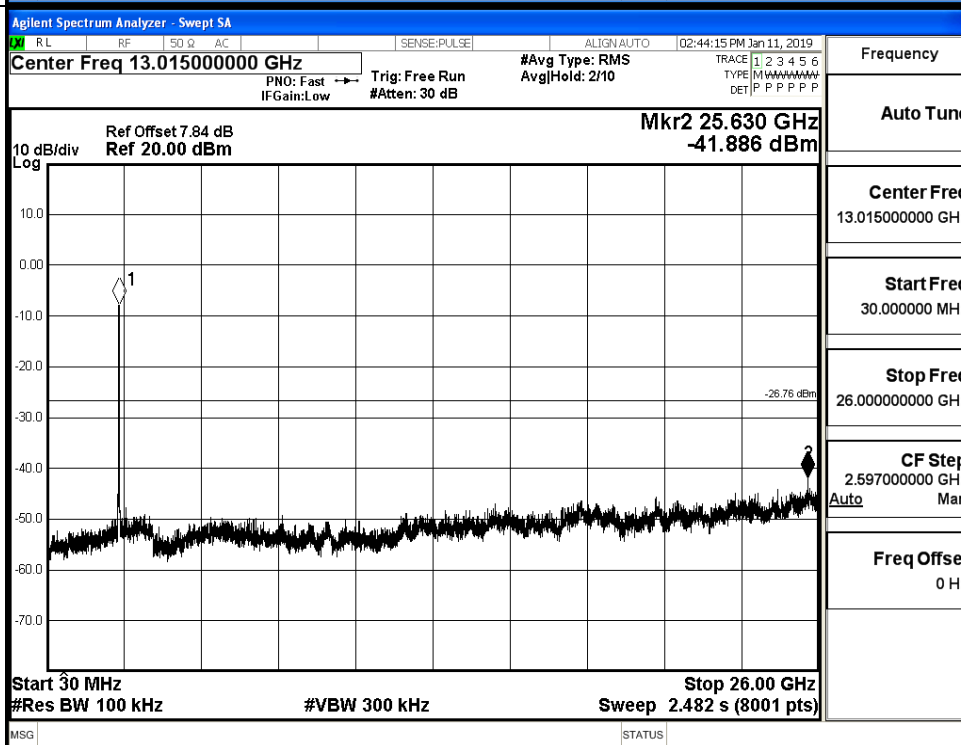
11N40SISO LCH Graphs

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

11N40SISO MCH_Graphs

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

11N40SISO HCH Graphs

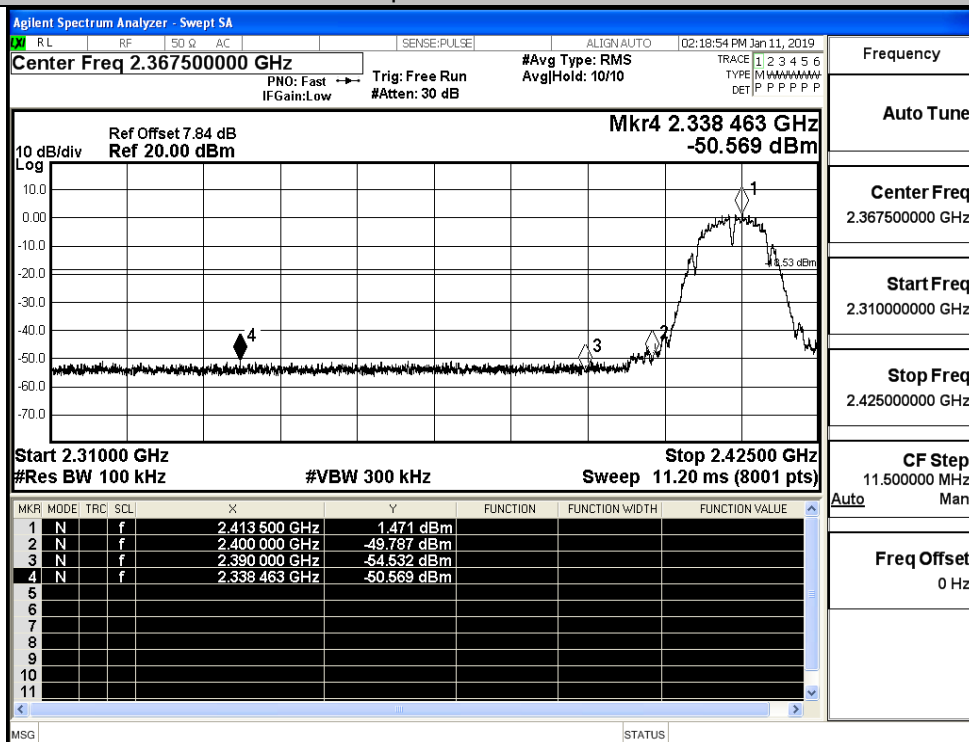
Pref/11N40
SISO/HCHPuw/11N40
SISO/HCH

C.6 Band-edge for RF Conducted Emissions

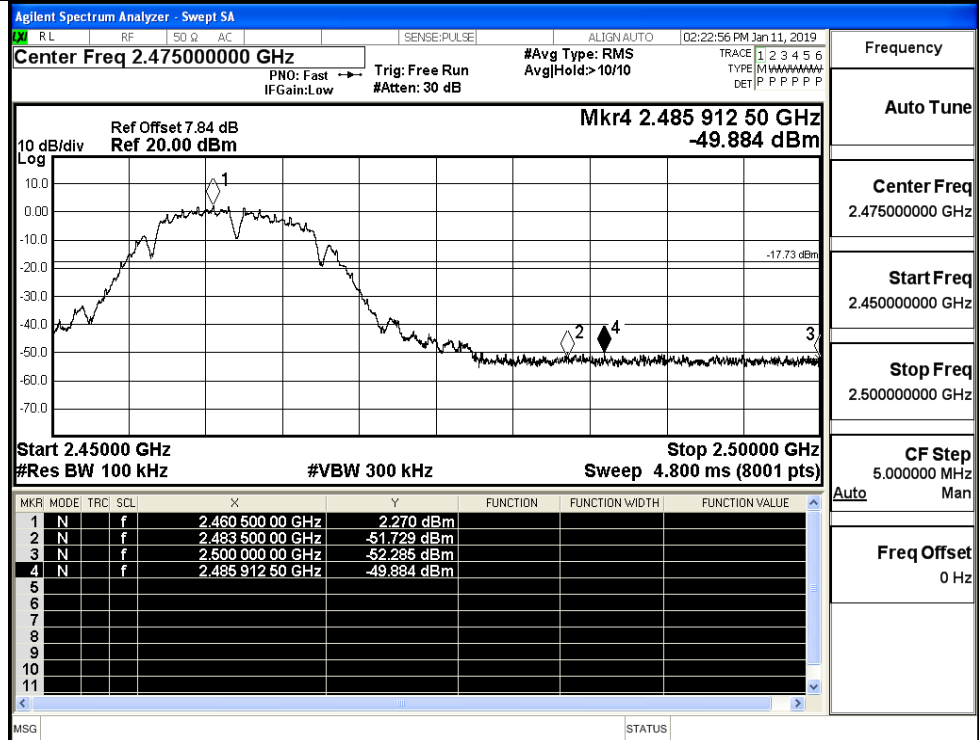
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	1.471	-50.569	-18.53	PASS
	HCH	2.270	-49.884	-17.73	PASS
11G	LCH	-4.422	-50.555	-24.42	PASS
	HCH	-4.584	-49.155	-24.58	PASS
11N20SISO	LCH	-5.691	-49.932	-25.69	PASS
	HCH	-4.866	-47.851	-24.87	PASS
11N40SISO	LCH	-7.634	-49.868	-27.63	PASS
	HCH	-6.605	-46.409	-26.61	PASS

Test Graphs

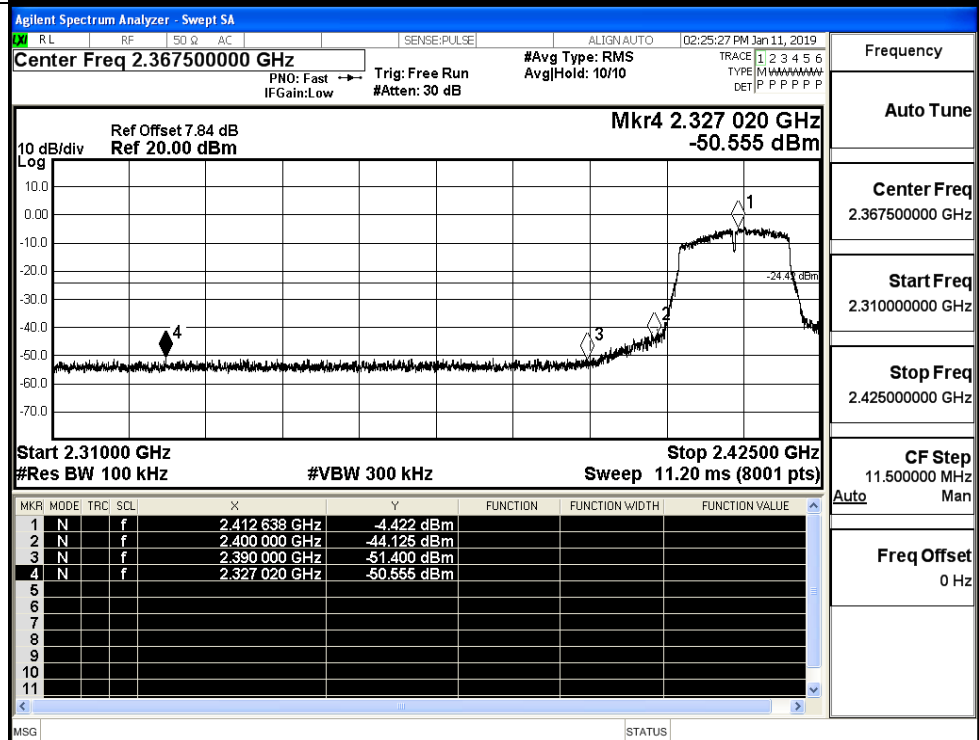
11B/LCH



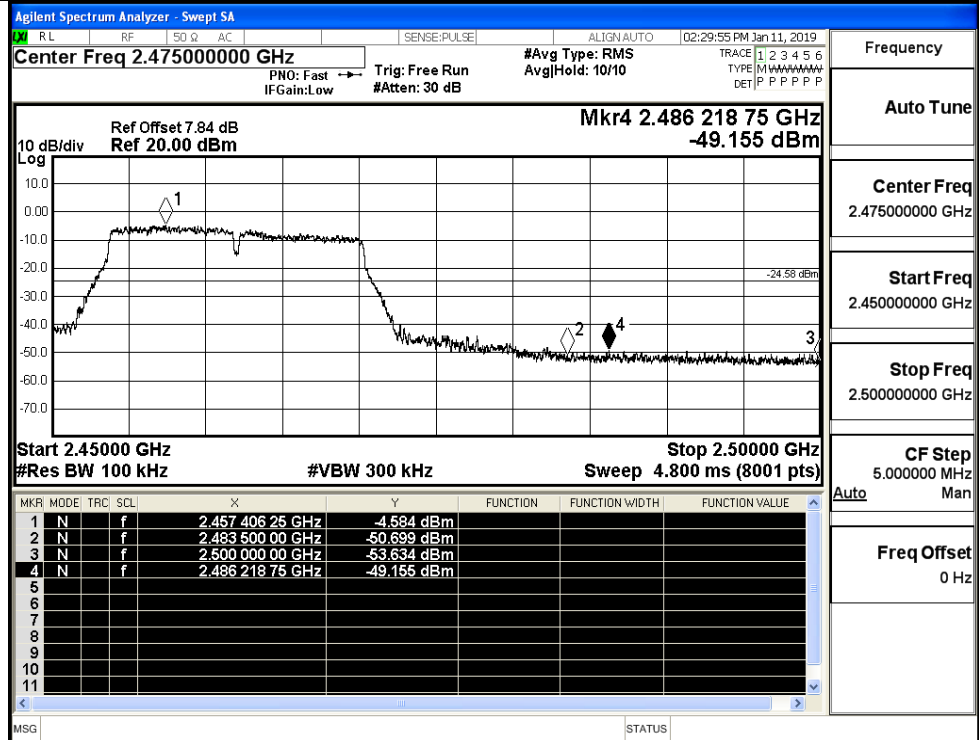
11B/HCH



11G/LCH



11G/HCH



Frequency

Auto Tune

Center Freq

2.475000000 GHz

Start Freq

2.450000000 GHz

Stop Freq

2.500000000 GHz

CF Step

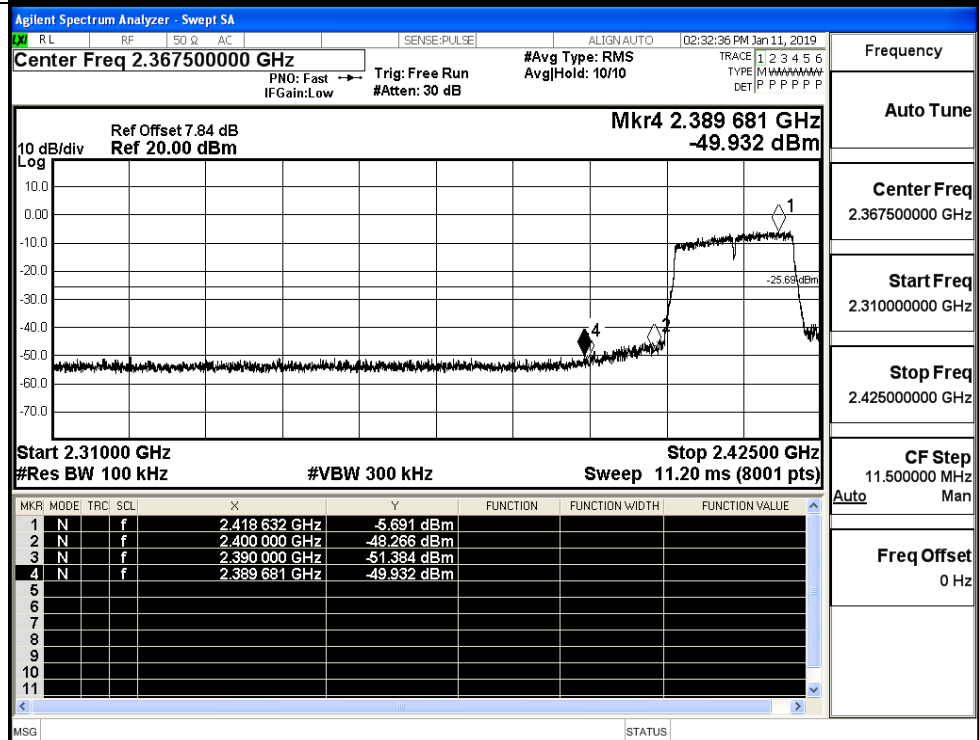
5.000000 MHz

Auto

Freq Offset

0 Hz

11N20SISO/LCH



Frequency

Auto Tune

Center Freq

2.367500000 GHz

Start Freq

2.310000000 GHz

Stop Freq

2.425000000 GHz

CF Step

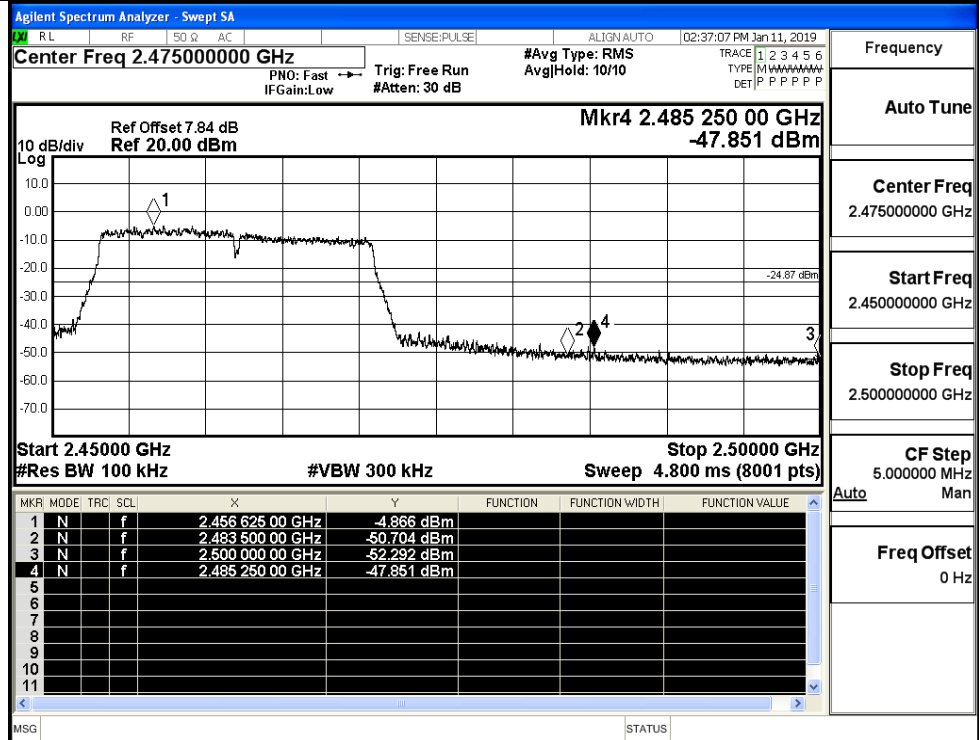
11.500000 MHz

Auto

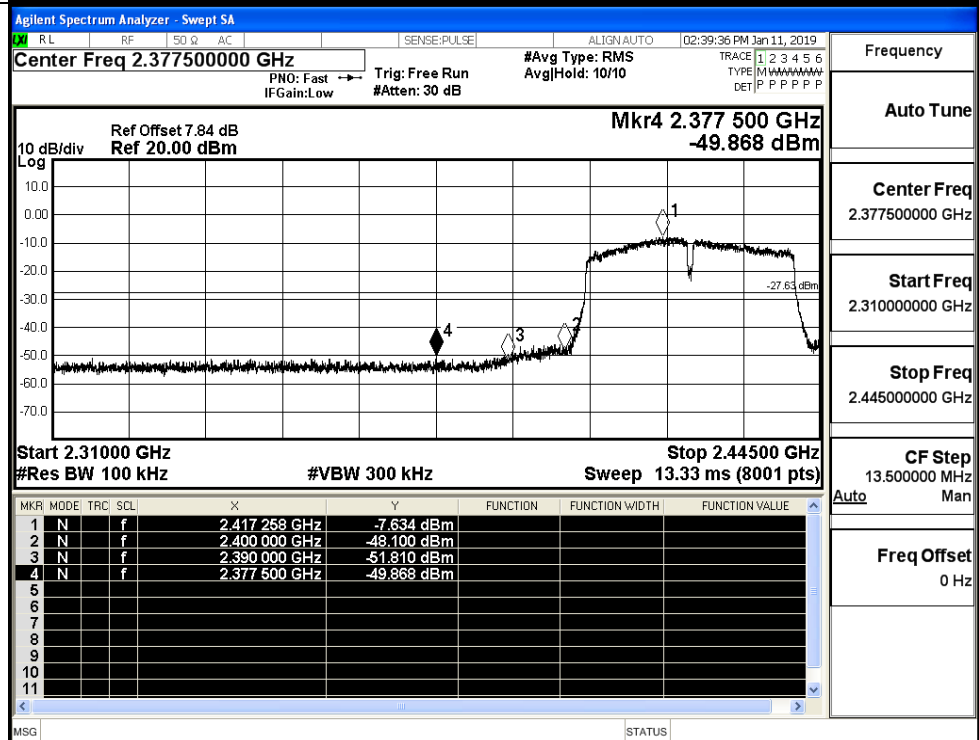
Freq Offset

0 Hz

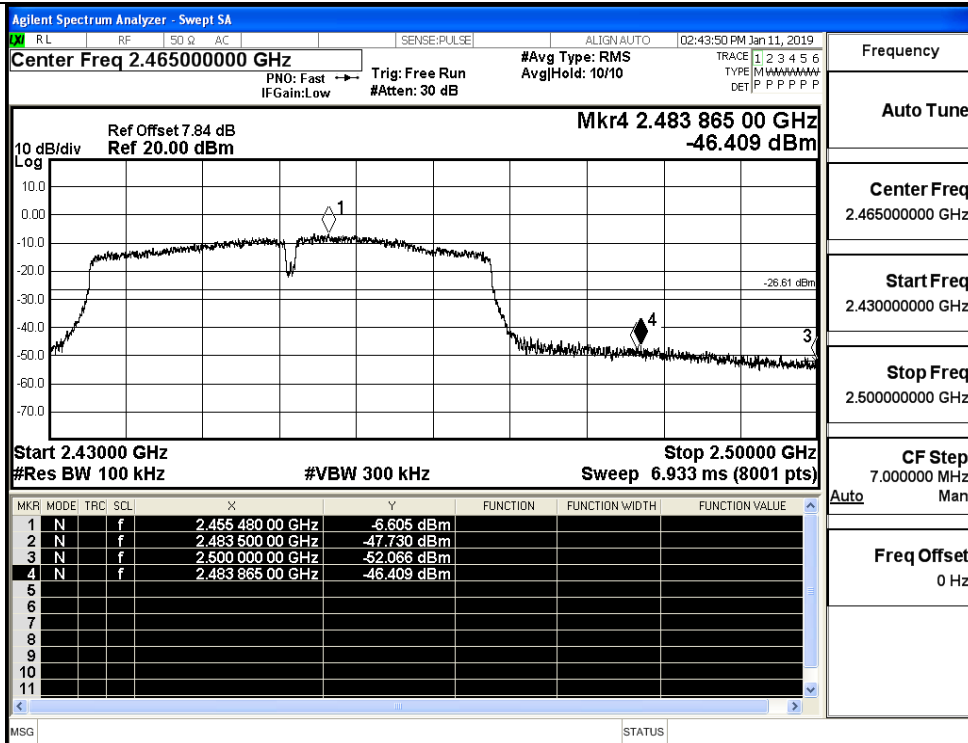
11N20SISO/HCH



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	-42.53	2.0	0	54.73	PEAK	74	PASS
	2412	Ant1	2310.0	-54.19	2.0	0	43.06	AV	54	PASS
	2412	Ant1	2390.0	-43.19	2.0	0	54.07	PEAK	74	PASS
	2412	Ant1	2390.0	-53.78	2.0	0	43.48	AV	54	PASS
	2462	Ant1	2483.5	-42.71	2.0	0	54.55	PEAK	74	PASS
	2462	Ant1	2483.5	-52.91	2.0	0	44.35	AV	54	PASS
	2462	Ant1	2500.0	-43.15	2.0	0	54.11	PEAK	74	PASS
	2462	Ant1	2500.0	-53.48	2.0	0	43.78	AV	54	PASS
11G	2412	Ant1	2310.0	-42.78	2.0	0	54.47	PEAK	74	PASS
	2412	Ant1	2310.0	-54.16	2.0	0	43.10	AV	54	PASS
	2412	Ant1	2390.0	-42.97	2.0	0	54.28	PEAK	74	PASS
	2412	Ant1	2390.0	-53.09	2.0	0	44.17	AV	54	PASS
	2462	Ant1	2483.5	-41.54	2.0	0	55.72	PEAK	74	PASS
	2462	Ant1	2483.5	-51.92	2.0	0	45.34	AV	54	PASS
	2462	Ant1	2500.0	-42.93	2.0	0	54.32	PEAK	74	PASS
	2462	Ant1	2500.0	-53.30	2.0	0	43.95	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.13	2.0	0	54.13	PEAK	74	PASS
	2412	Ant1	2310.0	-54.17	2.0	0	43.08	AV	54	PASS
	2412	Ant1	2390.0	-40.61	2.0	0	56.64	PEAK	74	PASS
	2412	Ant1	2390.0	-52.72	2.0	0	44.53	AV	54	PASS
	2462	Ant1	2483.5	-38.11	2.0	0	59.15	PEAK	74	PASS
	2462	Ant1	2483.5	-51.49	2.0	0	45.76	AV	54	PASS
	2462	Ant1	2500.0	-43.14	2.0	0	54.12	PEAK	74	PASS
	2462	Ant1	2500.0	-53.39	2.0	0	43.86	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-44.63	2.0	0	52.63	PEAK	74	PASS
	2422	Ant1	2310.0	-54.24	2.0	0	43.02	AV	54	PASS

	2422	Ant1	2390.0	-39.84	2.0	0	57.42	PEAK	74	PASS
	2422	Ant1	2390.0	-51.84	2.0	0	45.42	AV	54	PASS
	2452	Ant1	2483.5	-34.96	2.0	0	62.30	PEAK	74	PASS
	2452	Ant1	2483.5	-49.53	2.0	0	47.73	AV	54	PASS
	2452	Ant1	2500.0	-41.72	2.0	0	55.54	PEAK	74	PASS
	2452	Ant1	2500.0	-53.21	2.0	0	44.04	AV	54	PASS

Agilent Spectrum Analyzer - Swept SA

RL RF SO Q AC SENSE-PULSE ALIGN AUTO 02:19:36 PM Jan 11, 2019

Center Freq 2.367500000 GHz

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

Avg Type: Log-Pwr AvgHld: 10/10

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

Mkr3 2.390 000 GHz -43.185 dBm

Ref Offset 7.84 dB Ref 20.00 dBm

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.413 428 GHz	-6.061 dBm			
2	N	f		2.310 000 GHz	-42.532 dBm			
3	N	f		2.390 000 GHz	-43.185 dBm			

Start 2.31000 GHz #Res BW 1.0 MHz Sweep 1.067 ms (8001 pts)

Stop 2.42500 GHz

#VBW 3.0 MHz

Auto Tune

Center Freq 2.367500000 GHz

Start Freq 2.310000000 GHz

Stop Freq 2.425000000 GHz

CF Step 11.500000 MHz Mar

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:PULSE ALIGN: AUTO 02:19:51 PM Jan 11, 2019

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

Ref Offset 7.84 dB Ref 20.00 dBm Mkr3 2.390 000 GHz -53.779 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	N	f		2.412 753 GHz	2.361 dBm			
2	N	f		2.310 000 GHz	-54.193 dBm			
3	N	f		2.390 000 GHz	-53.779 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

Frequency Auto Tun

Center Freq 2.367500000 GHz

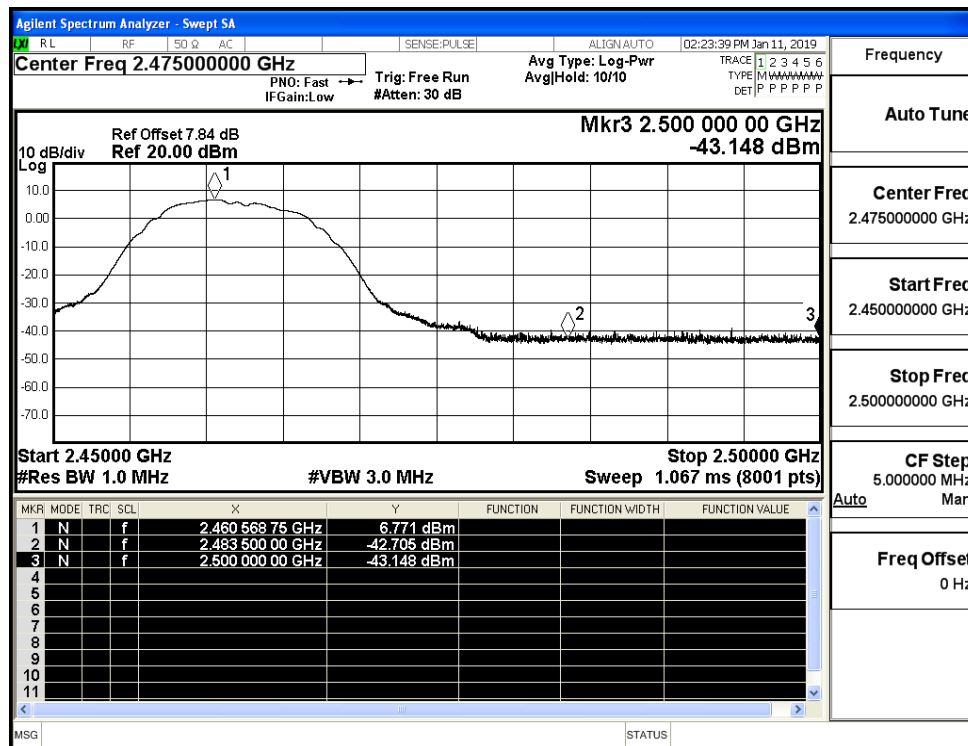
Start Freq 2.310000000 GHz

Stop Freq 2.425000000 GHz

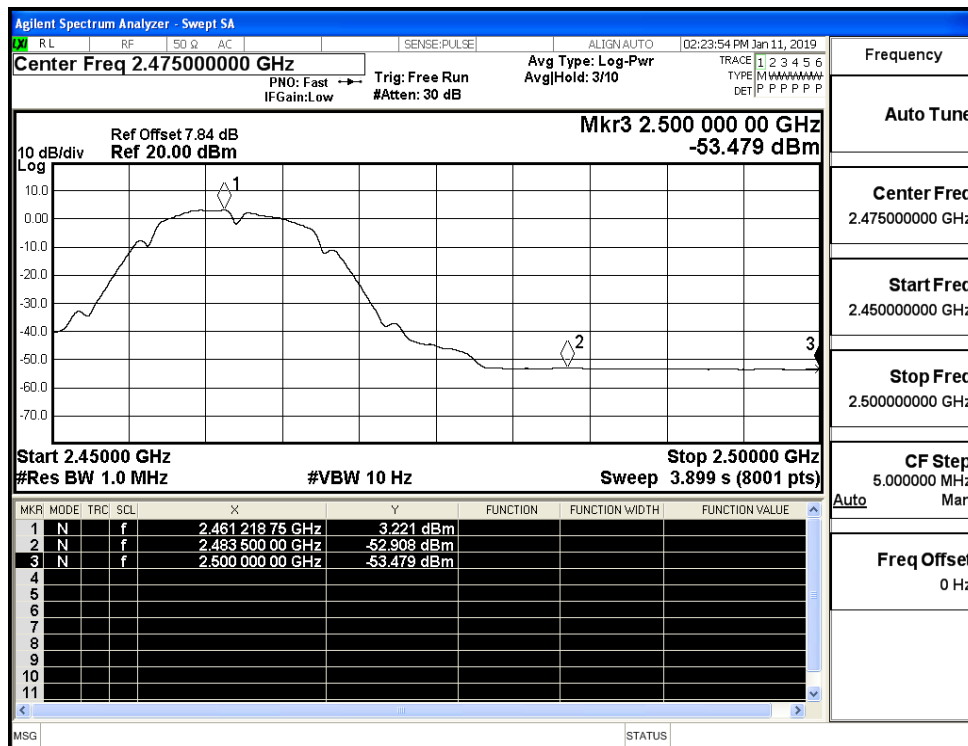
CF Step 11.500000 MHz

Freq Offset 0 Hz

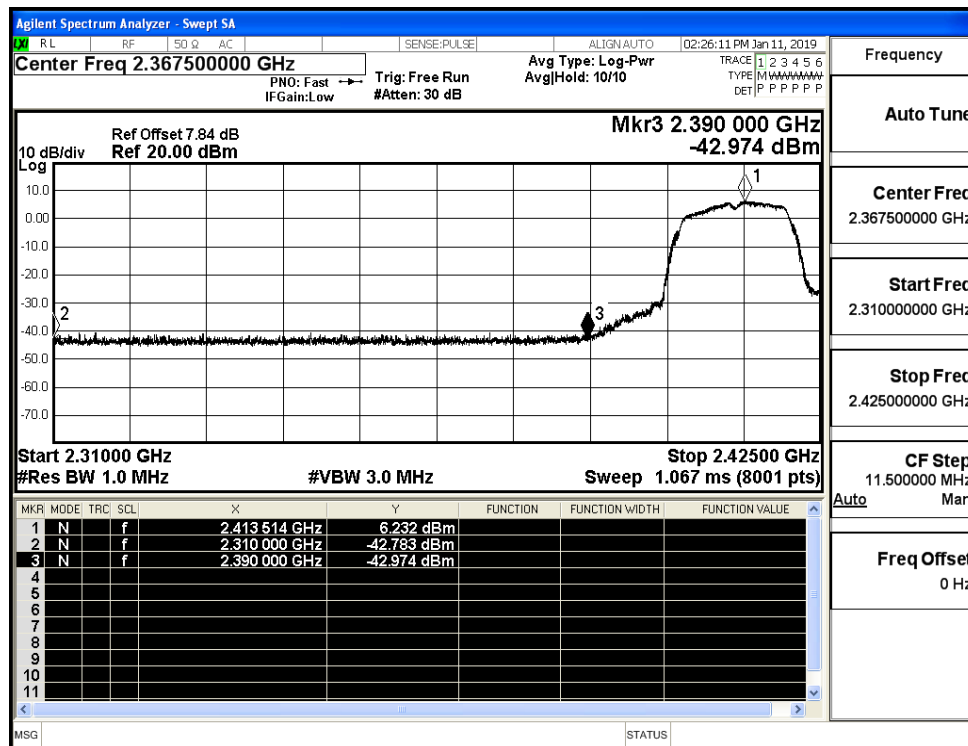
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



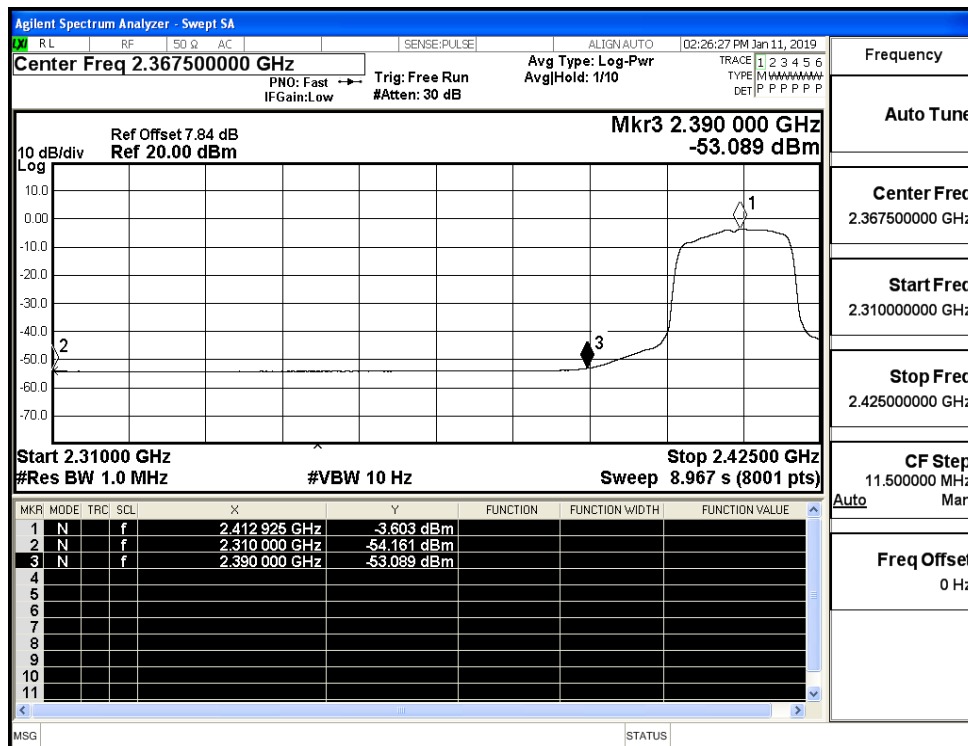
Restrict-band band-edge measurements_11B_2462_Ant1_AV



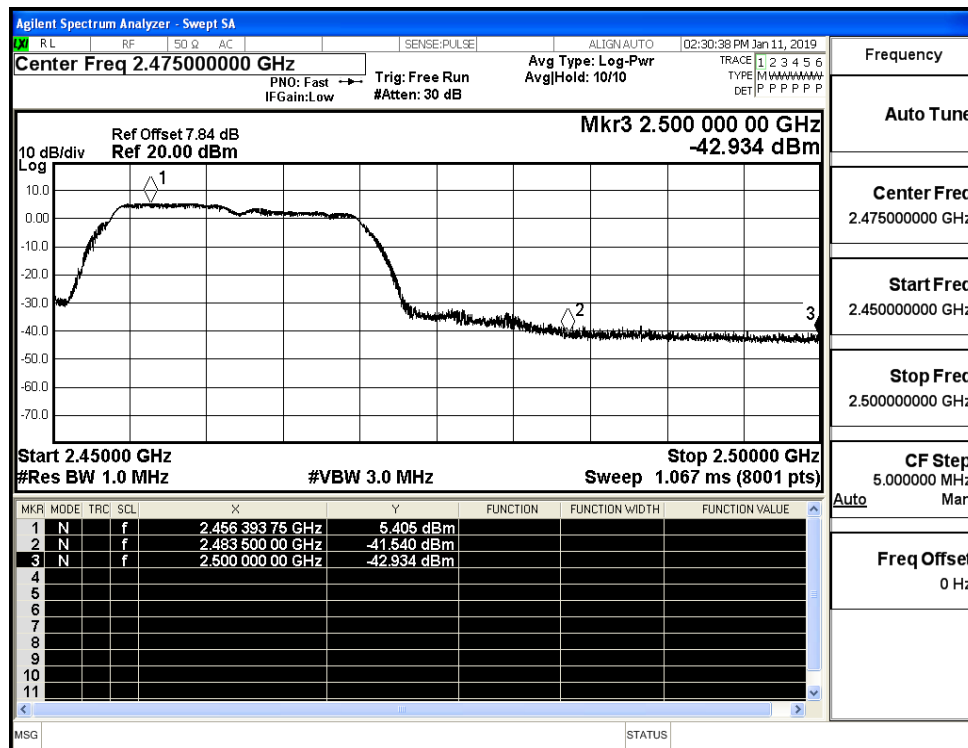
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



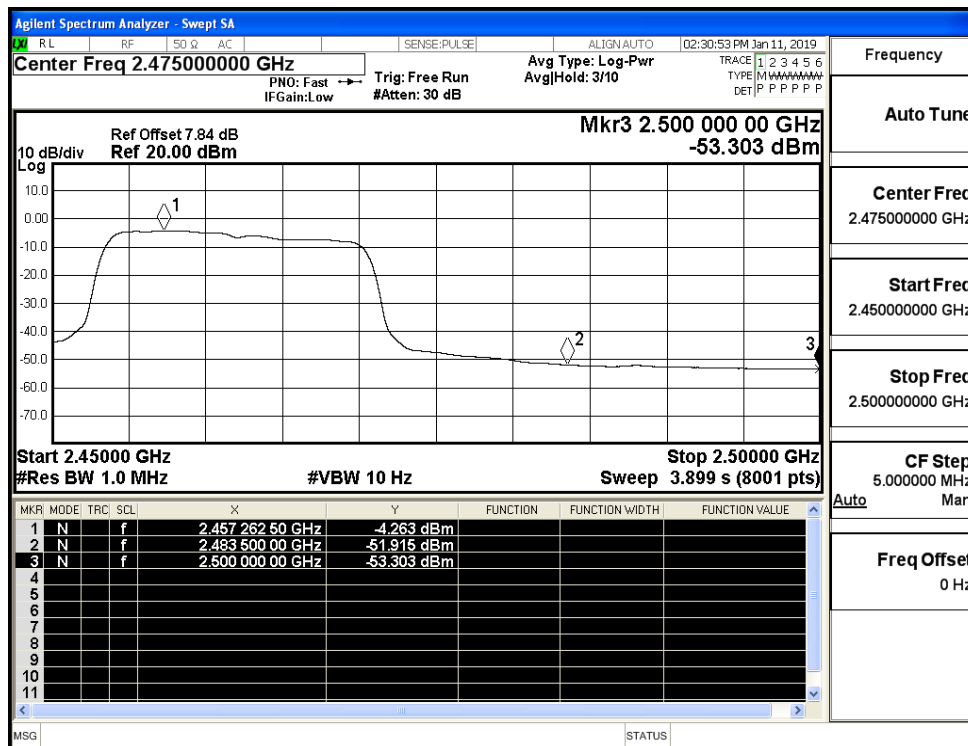
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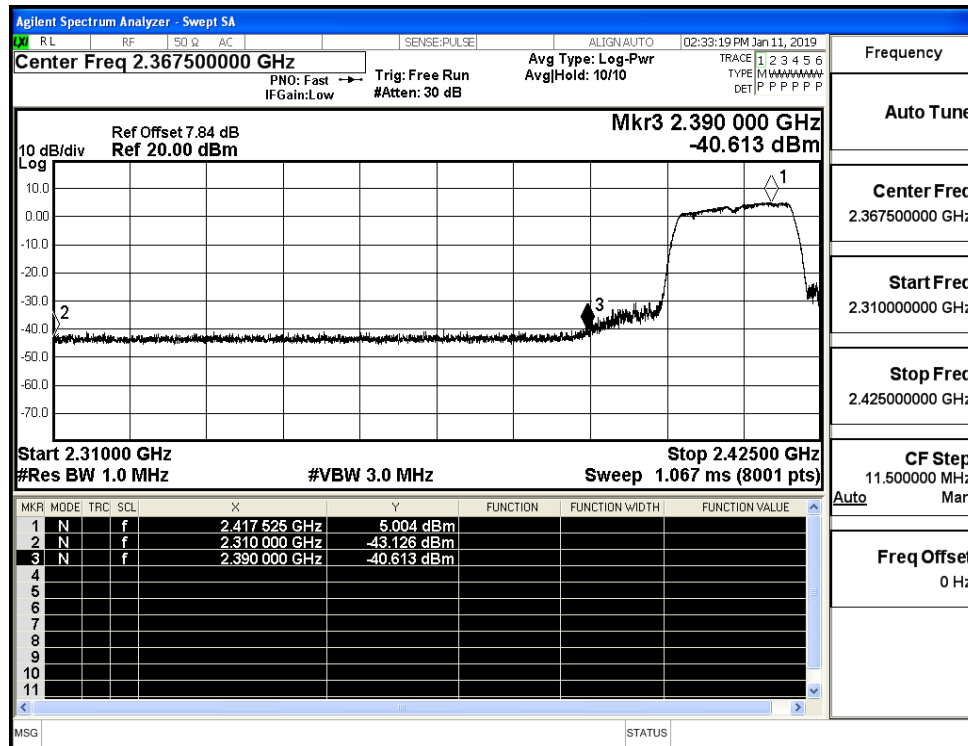
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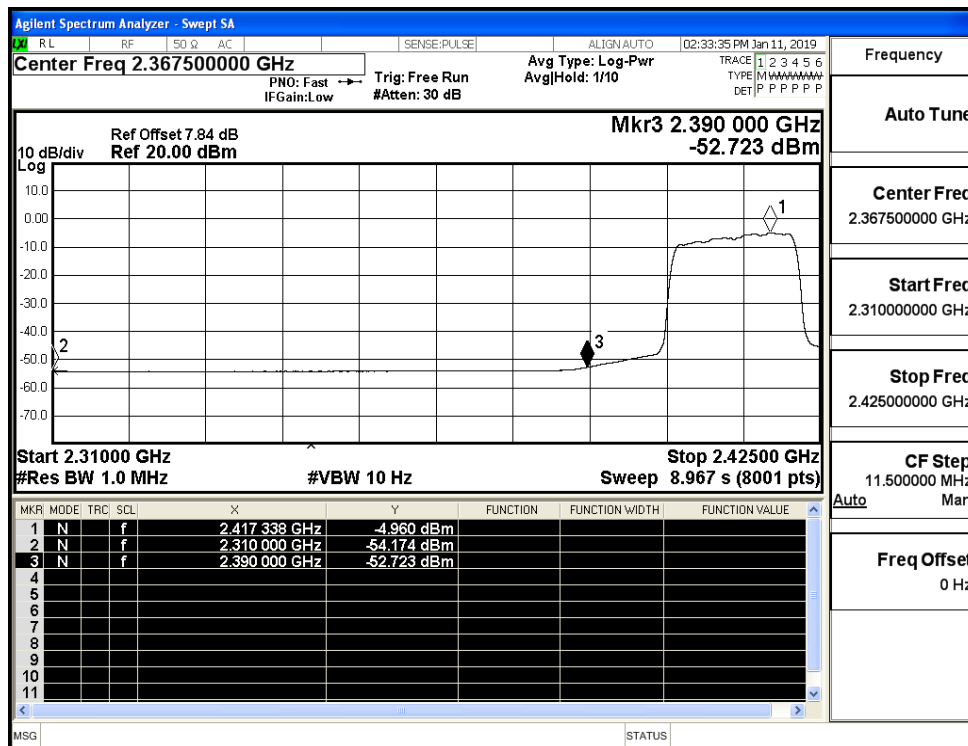
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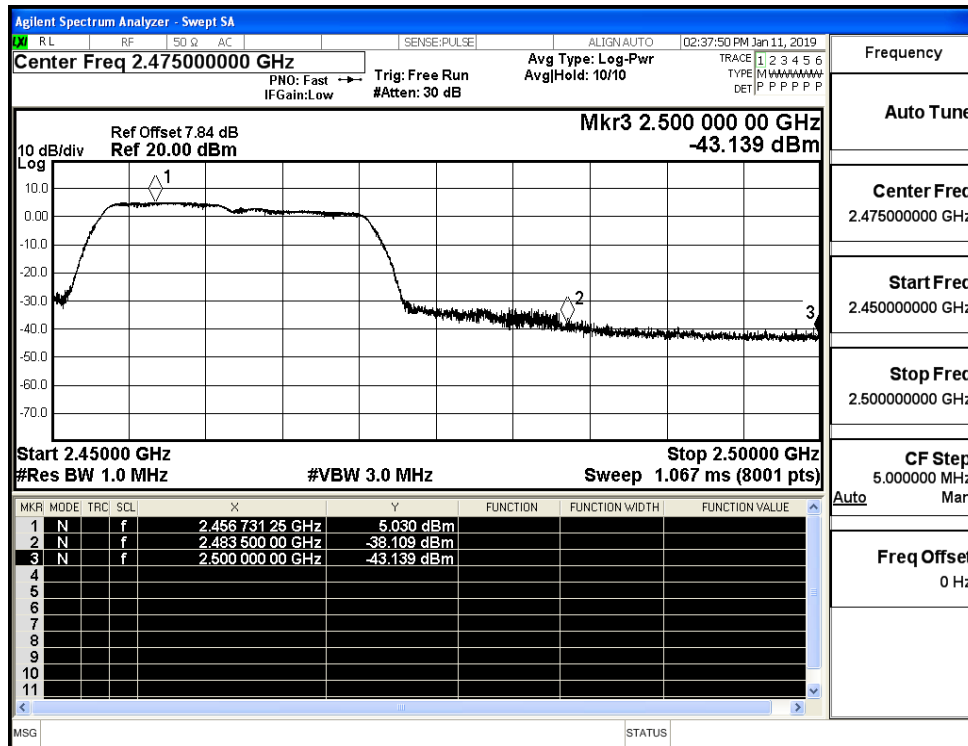
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



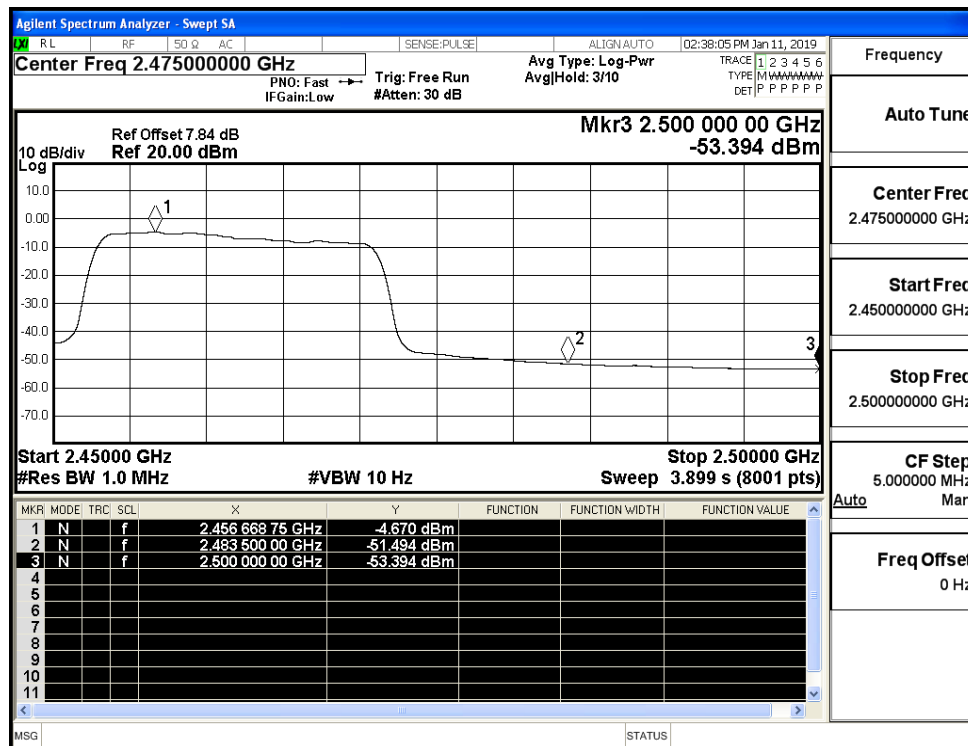
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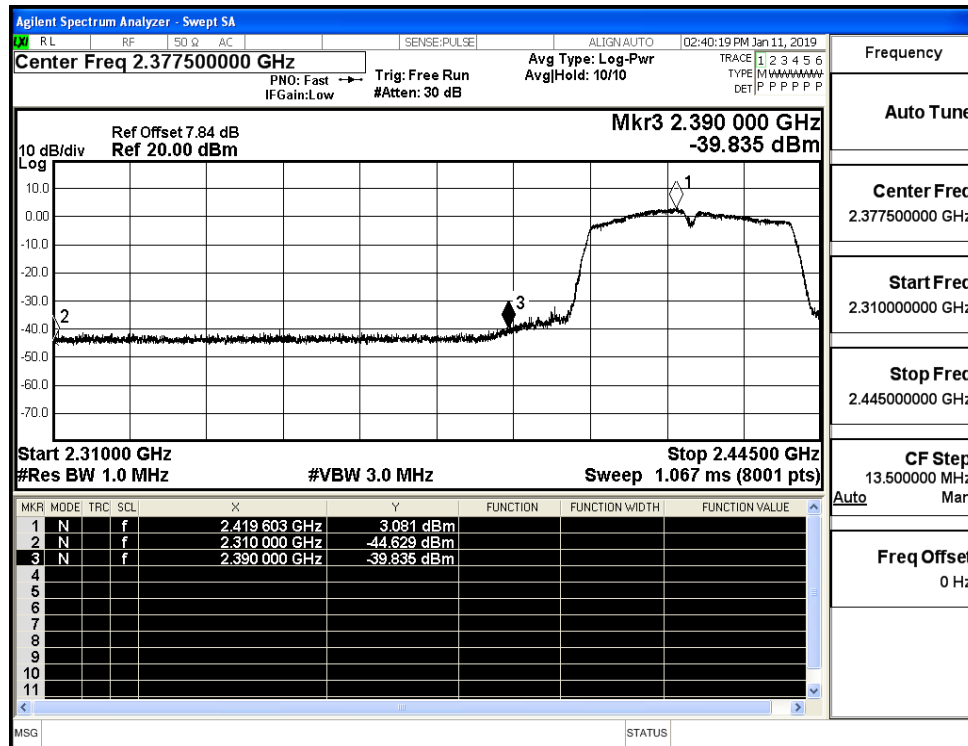
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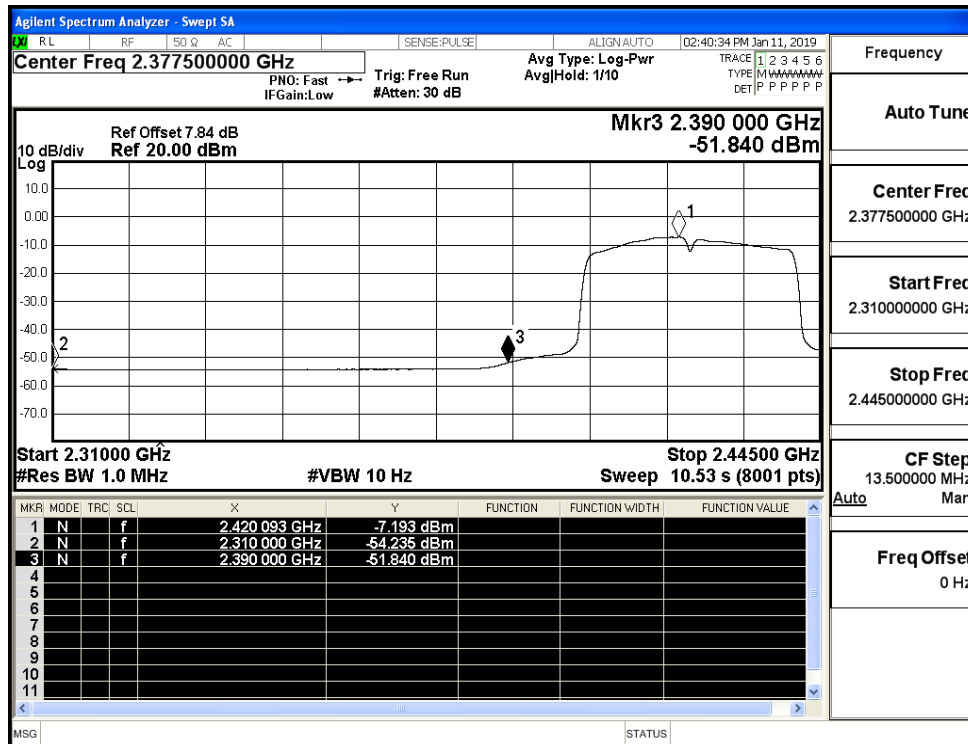
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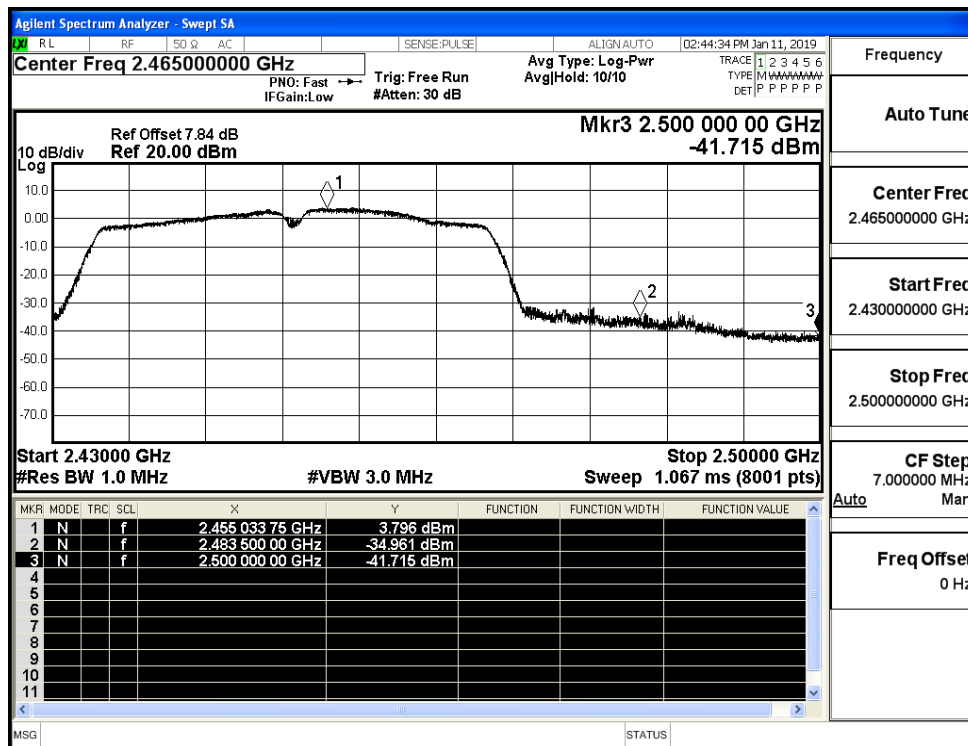
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



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

