



Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WIFI Camera

Trade Mark: N/A

Test Model: WNIP-8LTA-BS-V2

Environmental Conditions

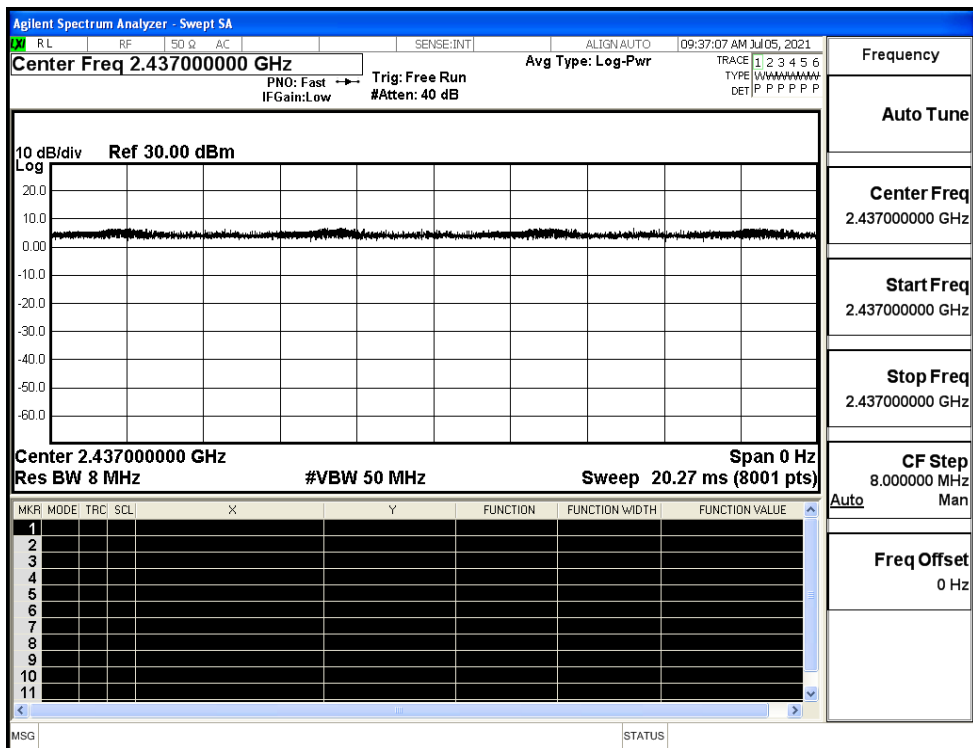
Temperature:	21.6° C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Duty Cycle

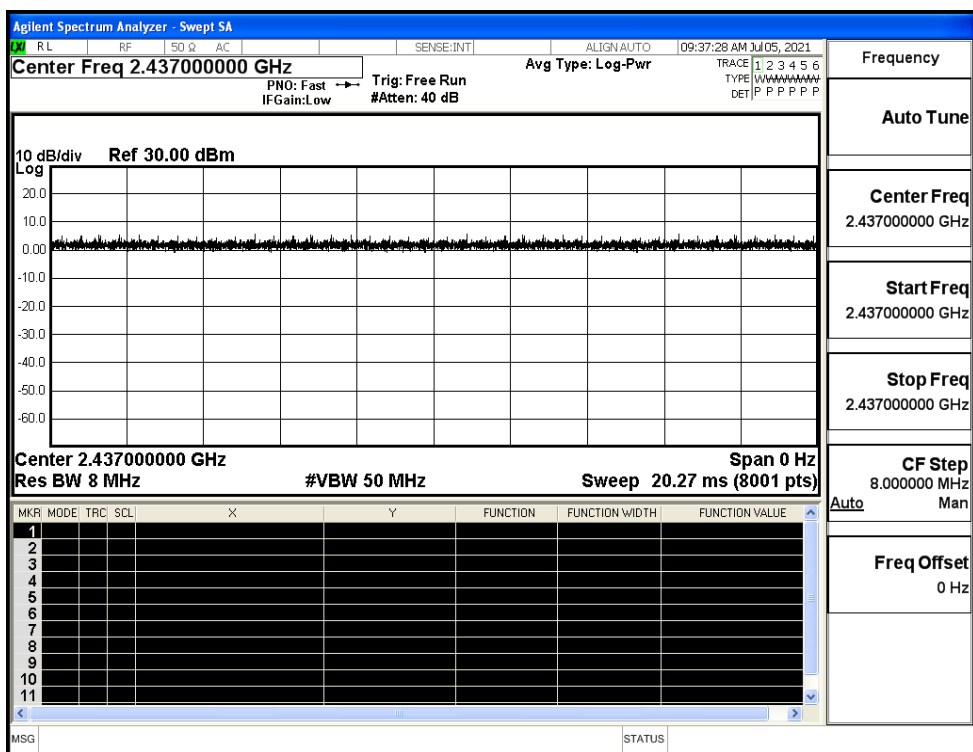
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS



Duty Cycle_11B_2437_Ant1

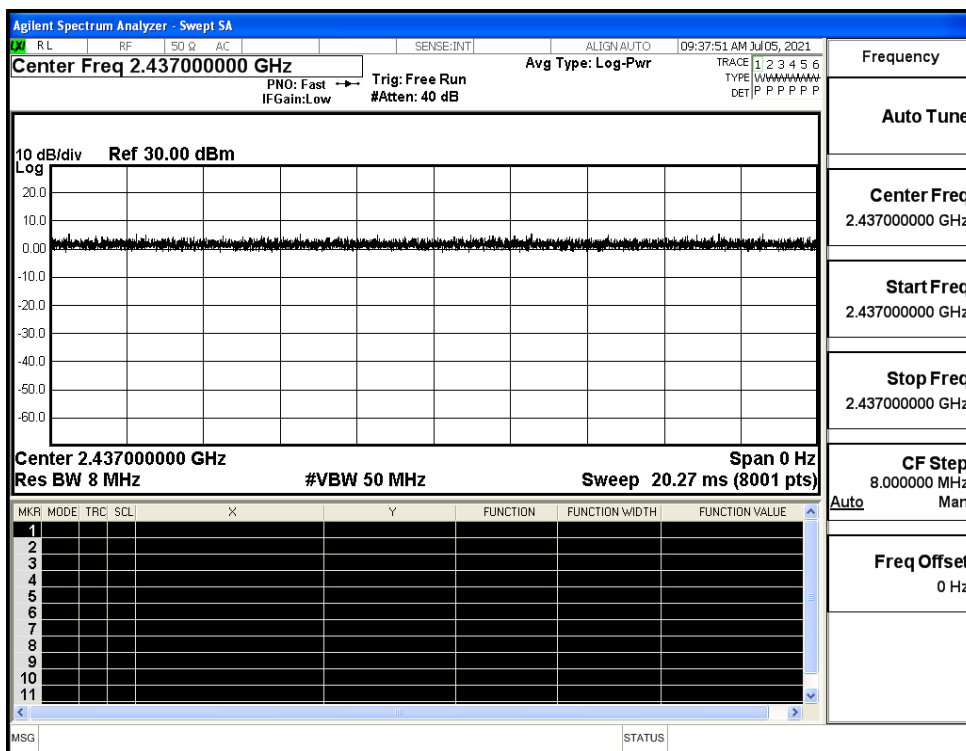


Duty Cycle_11G_2437_Ant1

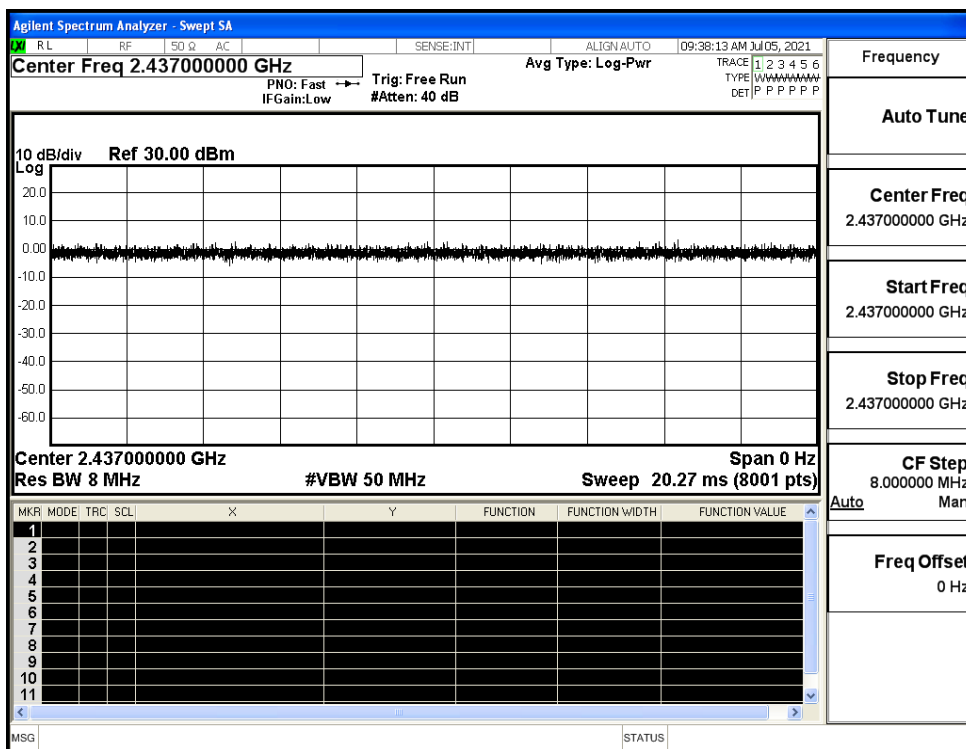




Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1





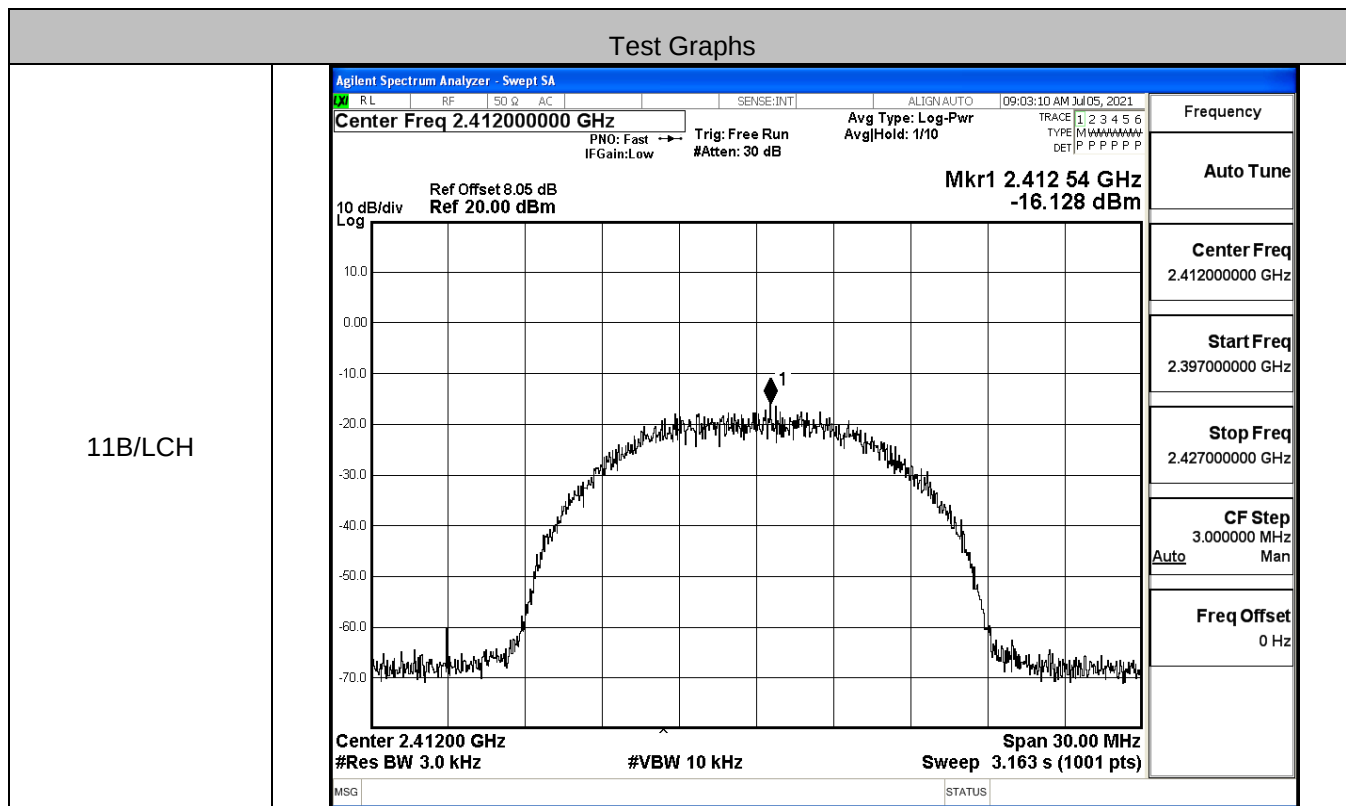
A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.19	30	PASS
	MCH	15.79	30	PASS
	HCH	15.68	30	PASS
11G	LCH	15.32	30	PASS
	MCH	15.61	30	PASS
	HCH	15.88	30	PASS
11N20SISO	LCH	15.06	30	PASS
	MCH	15.48	30	PASS
	HCH	15.76	30	PASS
11N40SISO	LCH	15.55	30	PASS
	MCH	15.8	30	PASS
	HCH	15.83	30	PASS



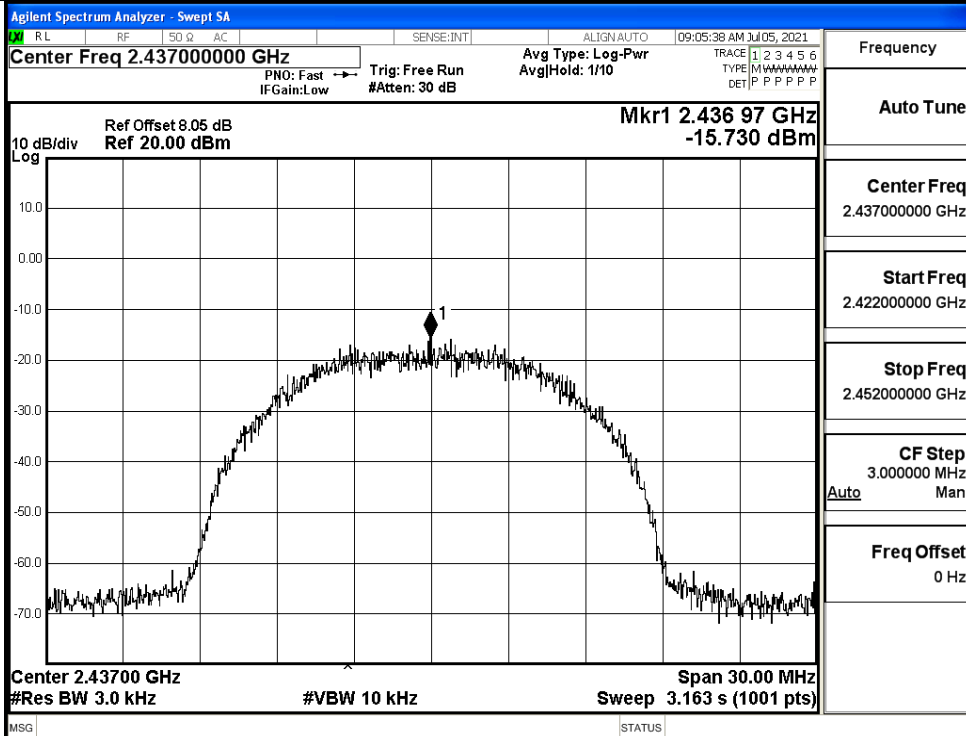
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-16.128	8	PASS
	MCH	-15.730	8	PASS
	HCH	-16.103	8	PASS
11G	LCH	-16.897	8	PASS
	MCH	-17.752	8	PASS
	HCH	-16.004	8	PASS
11N20SISO	LCH	-16.304	8	PASS
	MCH	-17.653	8	PASS
	HCH	-16.963	8	PASS
11N40SISO	LCH	-16.799	8	PASS
	MCH	-16.262	8	PASS
	HCH	-16.353	8	PASS

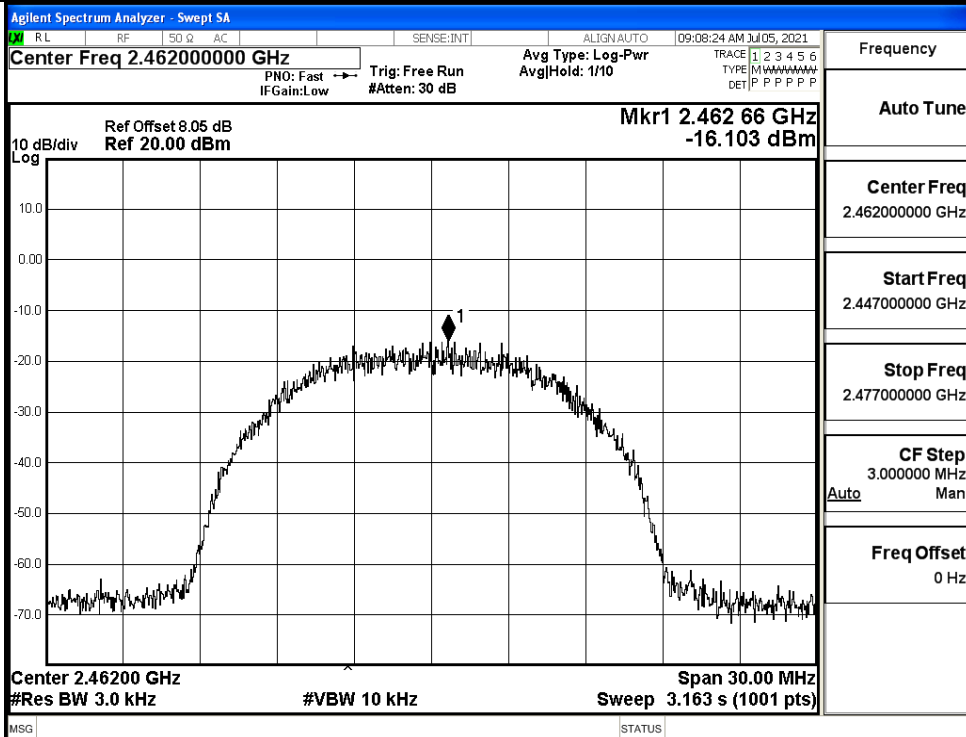




11B/MCH

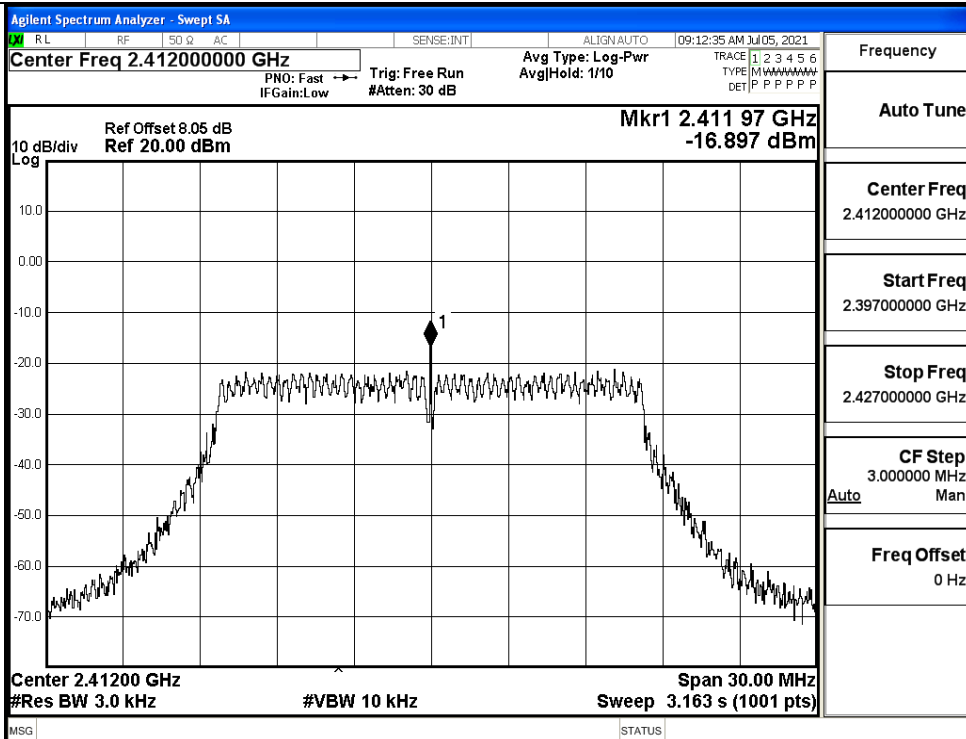


11B/HCH

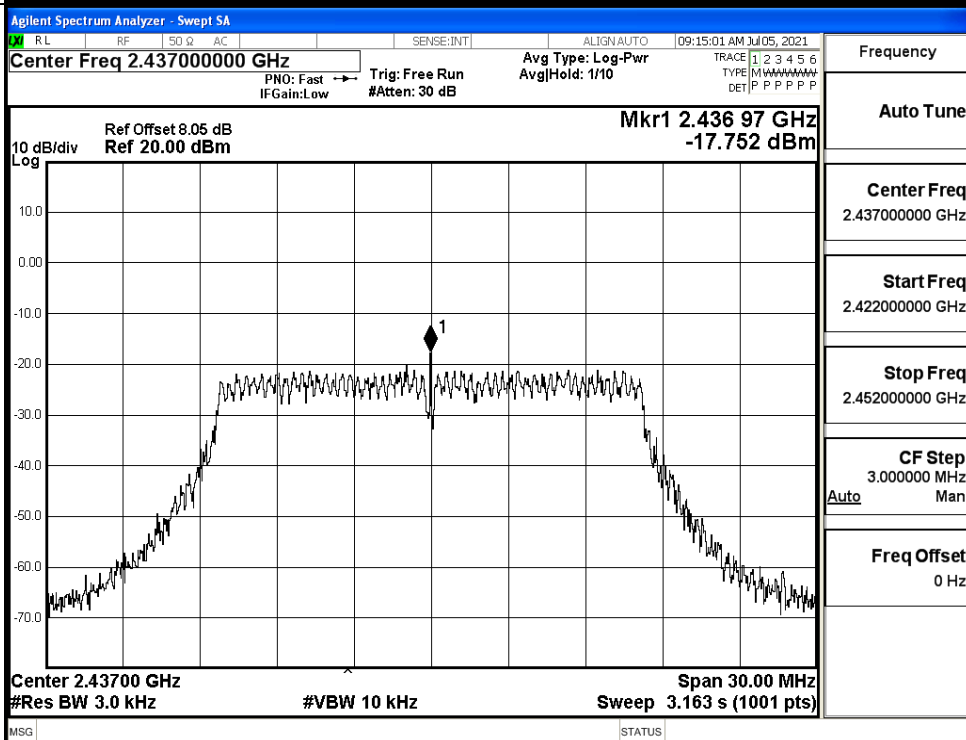




11G/LCH

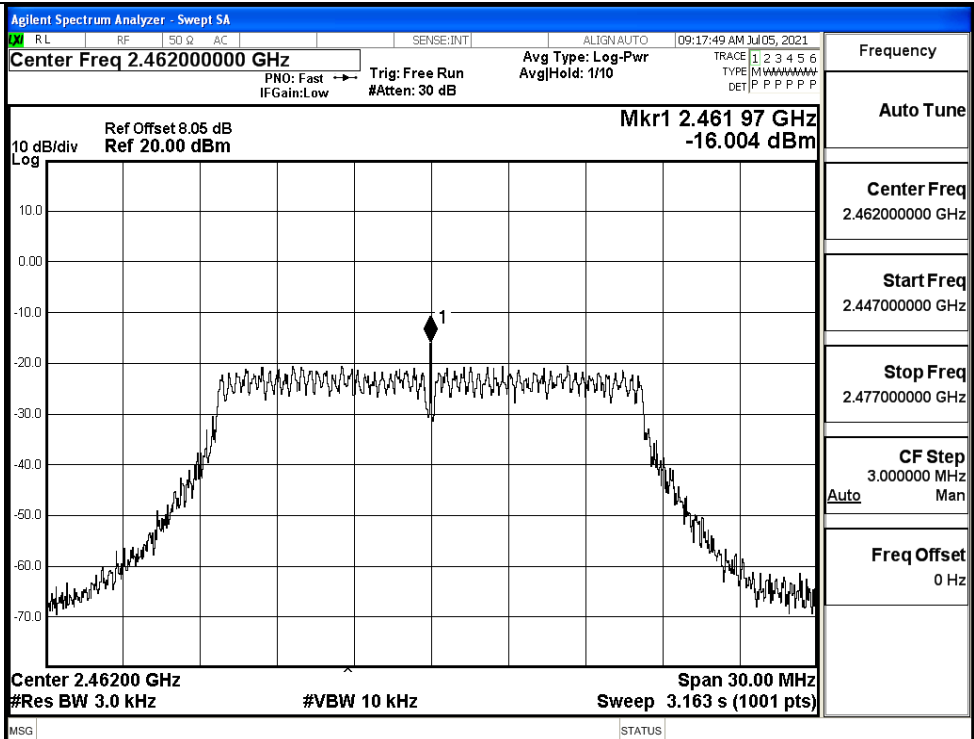


11G/MCH

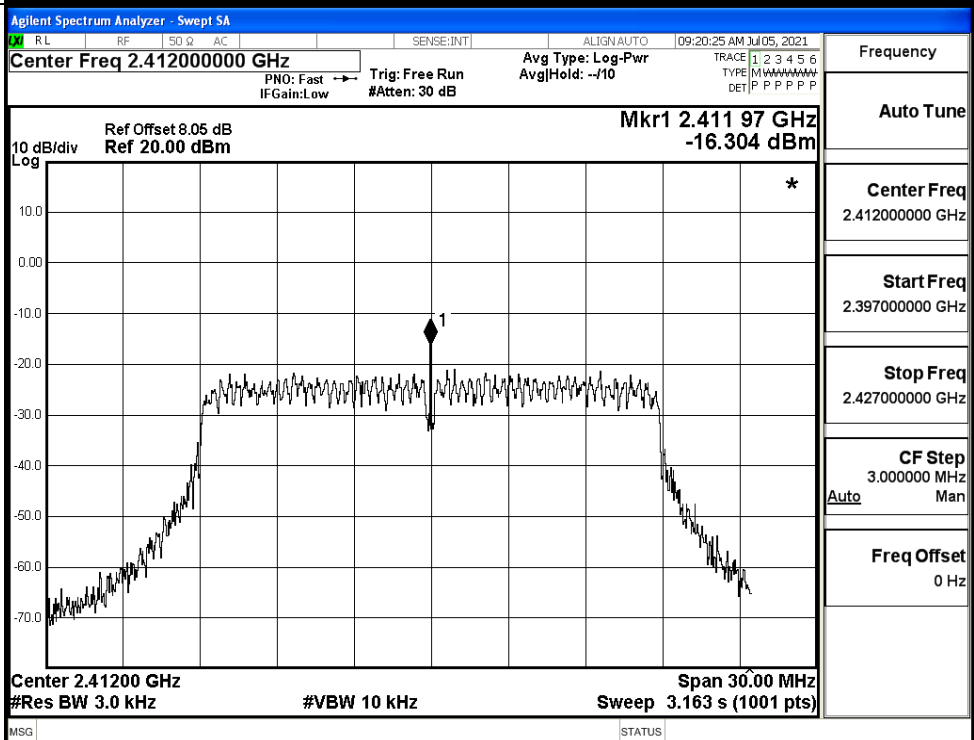


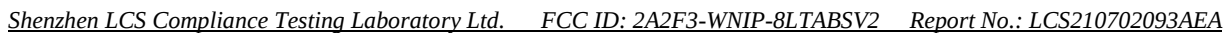


11G/HCH



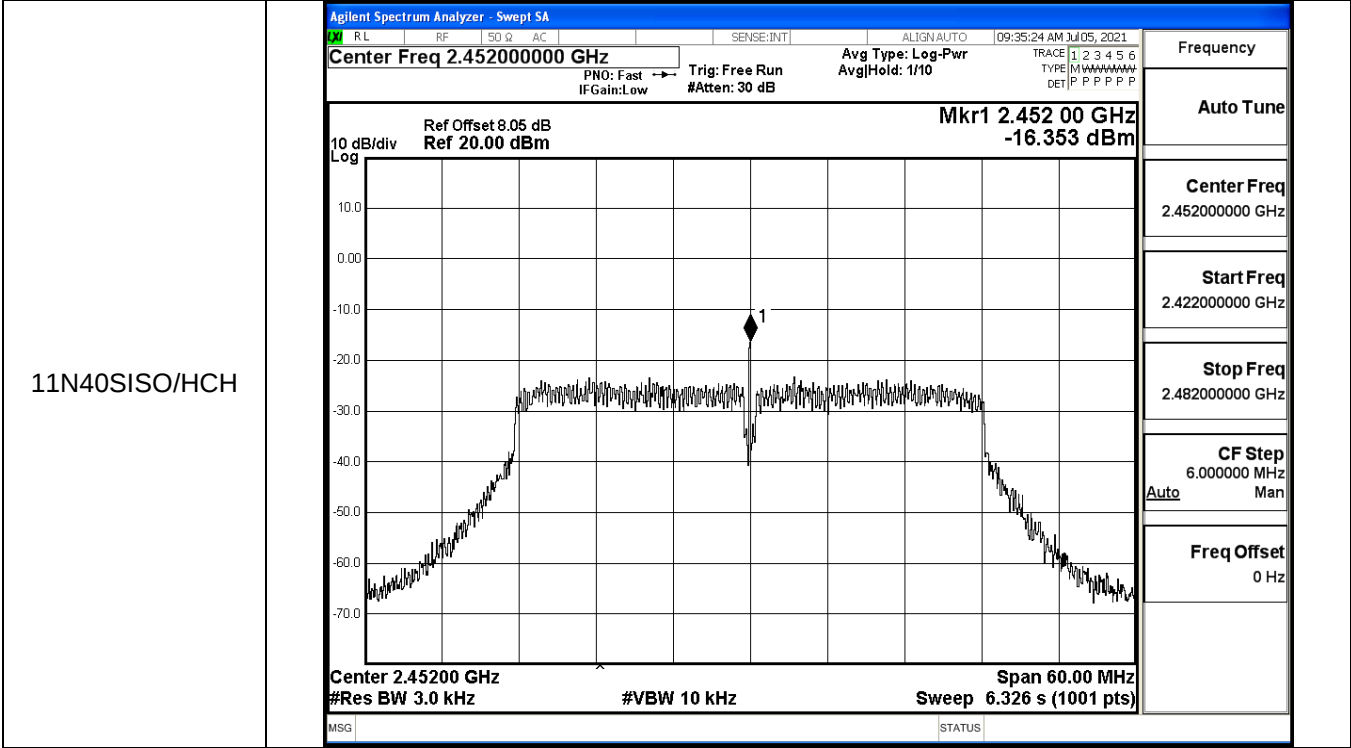
11N20SISO/LCH



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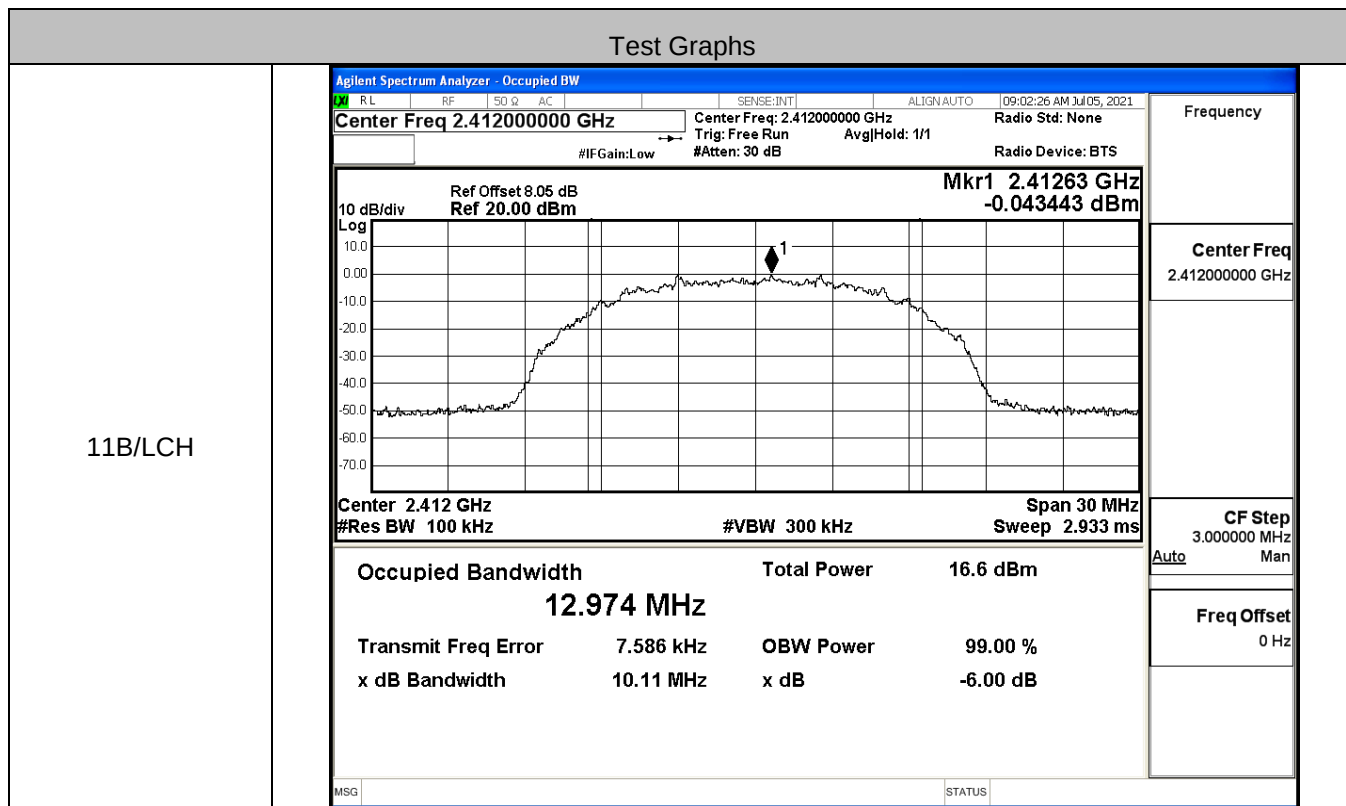
11N40SISO/LCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 09:28:09 AM Jul 05, 2021 Center Freq 2.422000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg Hold: 2/10 TRACE 1 TYPE M DET P Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.422 00 GHz -16.799 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 6.326 s (1001 pts) MSG STATUS Frequency Auto Tune Center Freq 2.422000000 GHz Start Freq 2.392000000 GHz Stop Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 09:30:59 AM Jul 05, 2021 Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg Hold: 1/10 TRACE 1 TYPE M DET P Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.437 00 GHz -16.262 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 6.326 s (1001 pts) MSG STATUS Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.407000000 GHz Stop Freq 2.467000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz





A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.11	≥ 0.5	PASS
	MCH	10.10	≥ 0.5	PASS
	HCH	10.10	≥ 0.5	PASS
11G	LCH	16.48	≥ 0.5	PASS
	MCH	16.49	≥ 0.5	PASS
	HCH	16.49	≥ 0.5	PASS
11N20SISO	LCH	17.63	≥ 0.5	PASS
	MCH	17.61	≥ 0.5	PASS
	HCH	17.61	≥ 0.5	PASS
11N40SISO	LCH	36.51	≥ 0.5	PASS
	MCH	36.50	≥ 0.5	PASS
	HCH	36.51	≥ 0.5	PASS

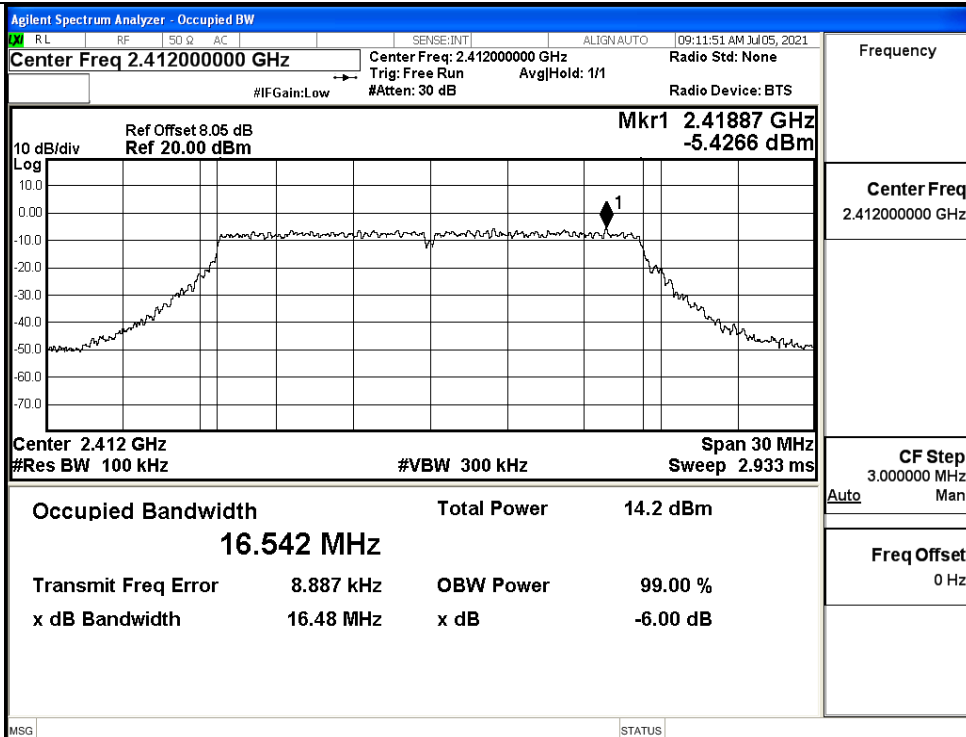




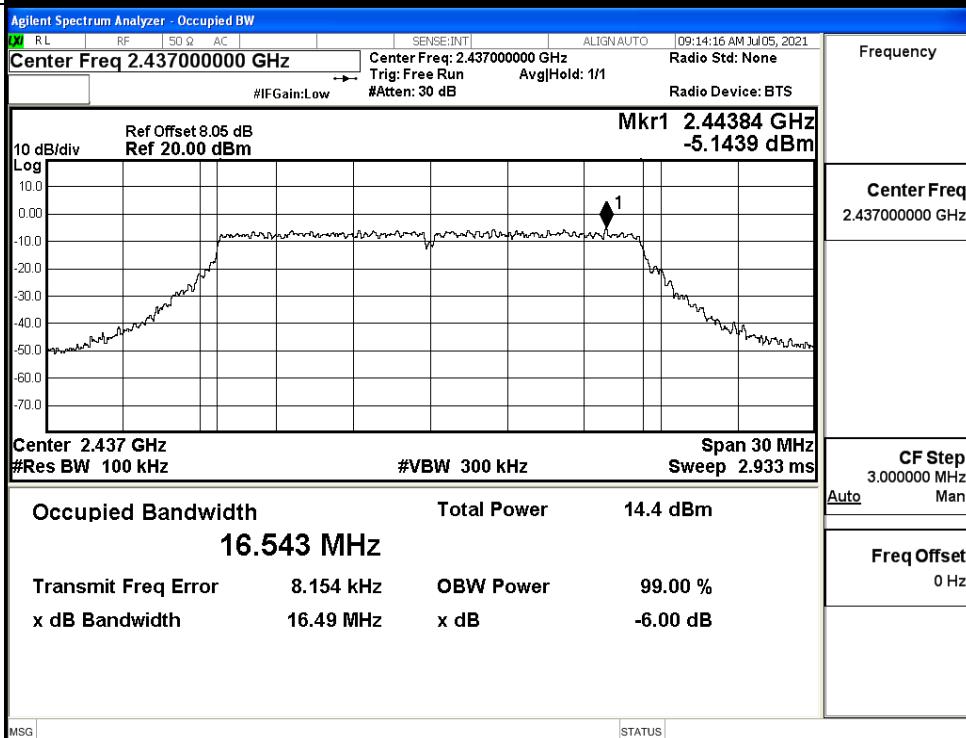
11B/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:04:54 AM Jul 05, 2021 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None #IF Gain: Low Trig: Free Run Avg/Hold: 1/1 #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43955 GHz 0.59508 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 17.3 dBm 12.981 MHz Transmit Freq Error -8.904 kHz OBW Power 99.00 % x dB Bandwidth 10.10 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11B/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:07:39 AM Jul 05, 2021 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None #IF Gain: Low Trig: Free Run Avg/Hold: 1/1 #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.46263 GHz 0.50581 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 17.2 dBm 12.979 MHz Transmit Freq Error -21.632 kHz OBW Power 99.00 % x dB Bandwidth 10.10 MHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz



11G/LCH



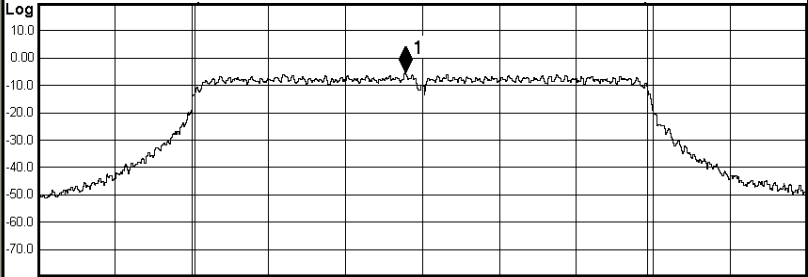
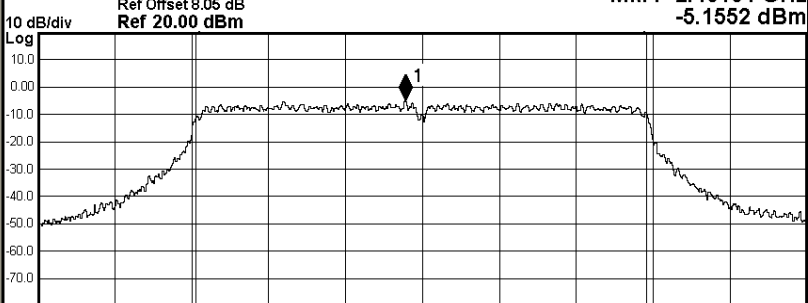
11G/MCH



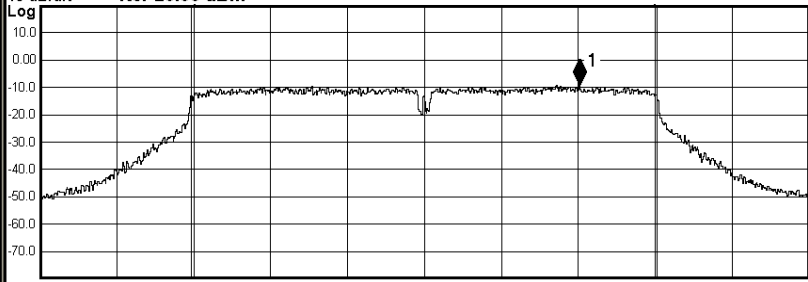
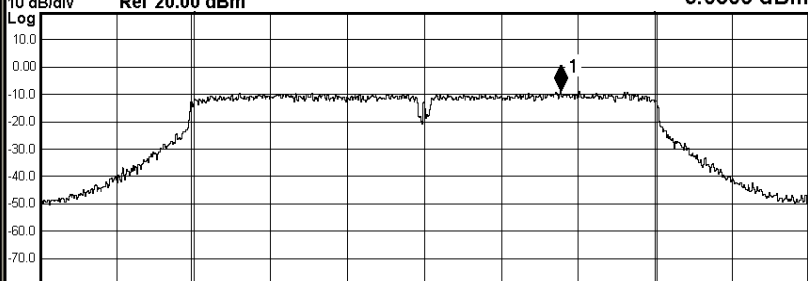


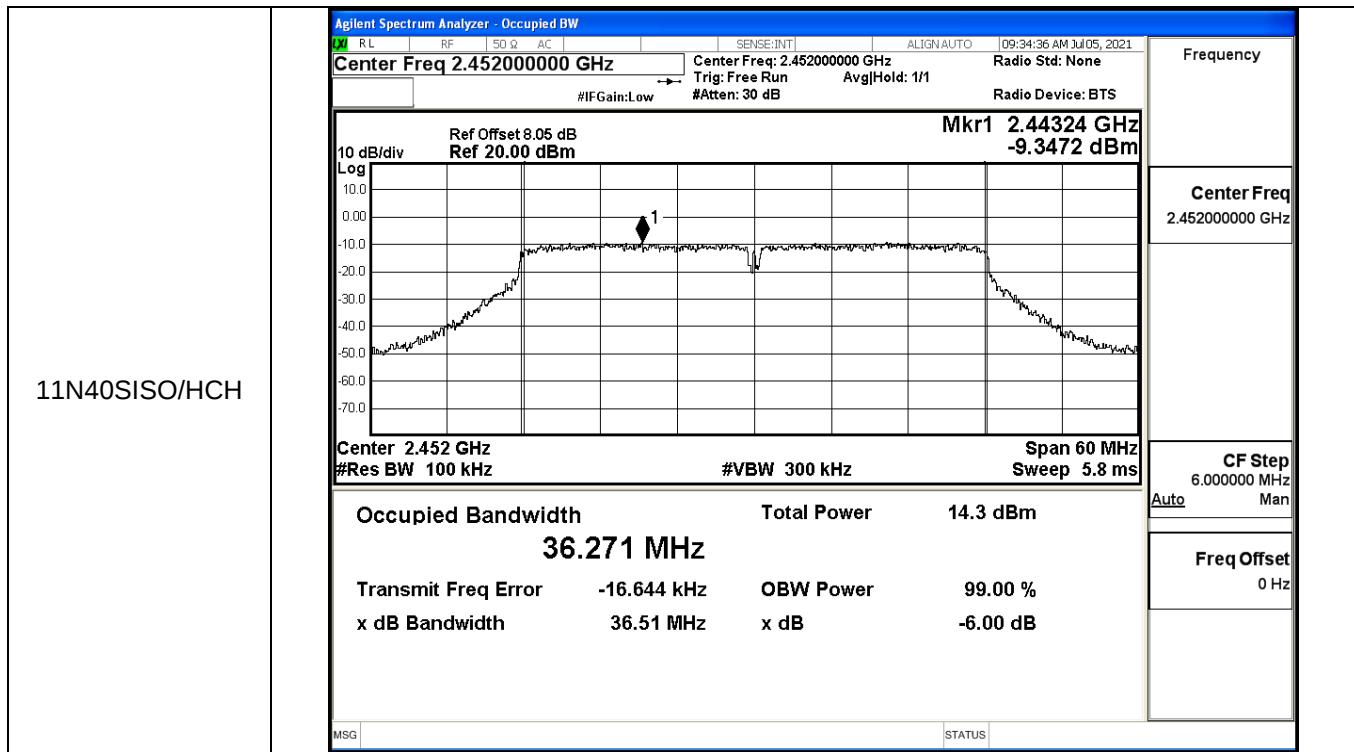
11G/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:17:04 AM Jul 05, 2021 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold: 1/1 Radio Std: None #IFGain: Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.46884 GHz -5.0408 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 14.7 dBm 16.534 MHz Transmit Freq Error -3.185 kHz OBW Power 99.00 % x dB Bandwidth 16.49 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:19:40 AM Jul 05, 2021 Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold: > 1/1 Radio Std: None #IFGain: Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.41134 GHz -6.3600 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 13.9 dBm 17.542 MHz Transmit Freq Error -20.254 kHz OBW Power 99.00 % x dB Bandwidth 17.63 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.412000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz



11N20SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN:Auto 09:22:04 AM Jul 05, 2021 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run #IFGain:Low #Atten: 30 dB Radio Std: None Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43634 GHz -5.4224 dBm  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 14.3 dBm 17.541 MHz Transmit Freq Error -20.277 kHz OBW Power 99.00 % x dB Bandwidth 17.61 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/HCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN:Auto 09:24:45 AM Jul 05, 2021 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run #IFGain:Low #Atten: 30 dB Radio Std: None Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.46134 GHz -5.1552 dBm  Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth Total Power 14.6 dBm 17.544 MHz Transmit Freq Error -27.873 kHz OBW Power 99.00 % x dB Bandwidth 17.61 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz



11N40SISO/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:27:15 AM Jul 05, 2021 Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB Radio Std: None Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.43412 GHz -9.3336 dBm Log 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0  Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth Total Power 14.0 dBm 36.279 MHz Transmit Freq Error 4.529 kHz OBW Power 99.00 % x dB Bandwidth 36.51 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 09:29:48 AM Jul 05, 2021 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB Radio Std: None Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.44762 GHz -9.0306 dBm Log 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0  Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth Total Power 14.3 dBm 36.278 MHz Transmit Freq Error -4.906 kHz OBW Power 99.00 % x dB Bandwidth 36.50 MHz x dB -6.00 dB MSG STATUS Frequency Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz





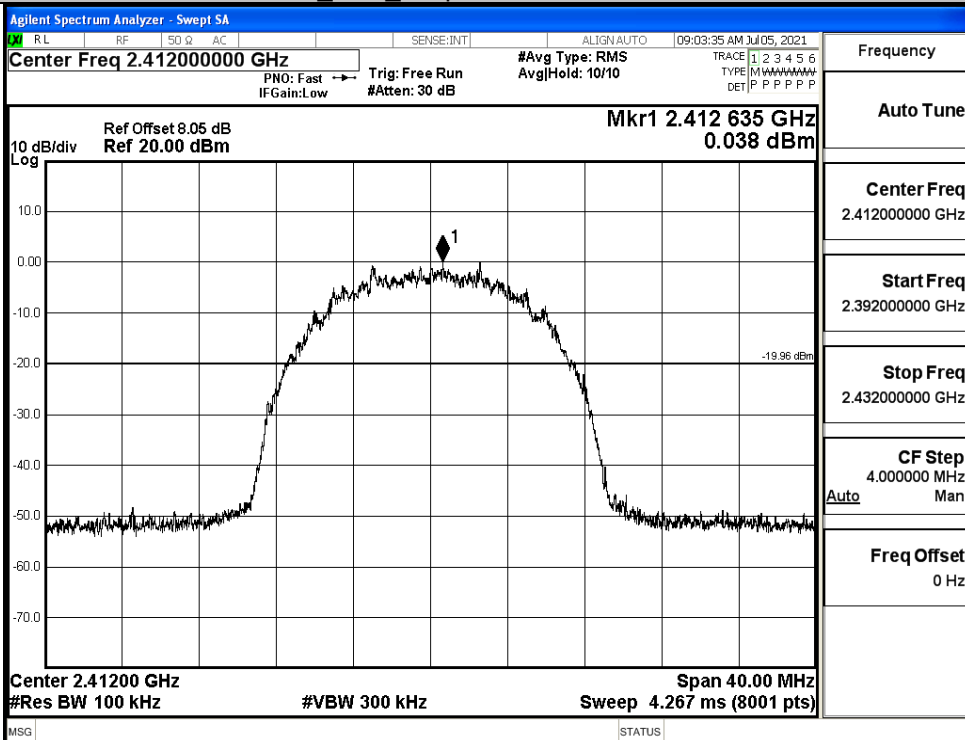
A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	0.038	-37.936	-19.962	PASS
	MCH	0.4	-37.536	-19.600	PASS
	HCH	0.404	-38.218	-19.596	PASS
11G	LCH	-5.708	-38.162	-25.708	PASS
	MCH	-5.292	-37.746	-25.292	PASS
	HCH	-5.295	-37.191	-25.295	PASS
11N20 SISO	LCH	-6.05	-37.807	-26.050	PASS
	MCH	-6.184	-36.881	-26.184	PASS
	HCH	-5.669	-38.305	-25.669	PASS
11N40 SISO	LCH	-9.113	-37.496	-29.113	PASS
	MCH	-9.258	-37.958	-29.258	PASS
	HCH	-9.3	-38.214	-29.300	PASS

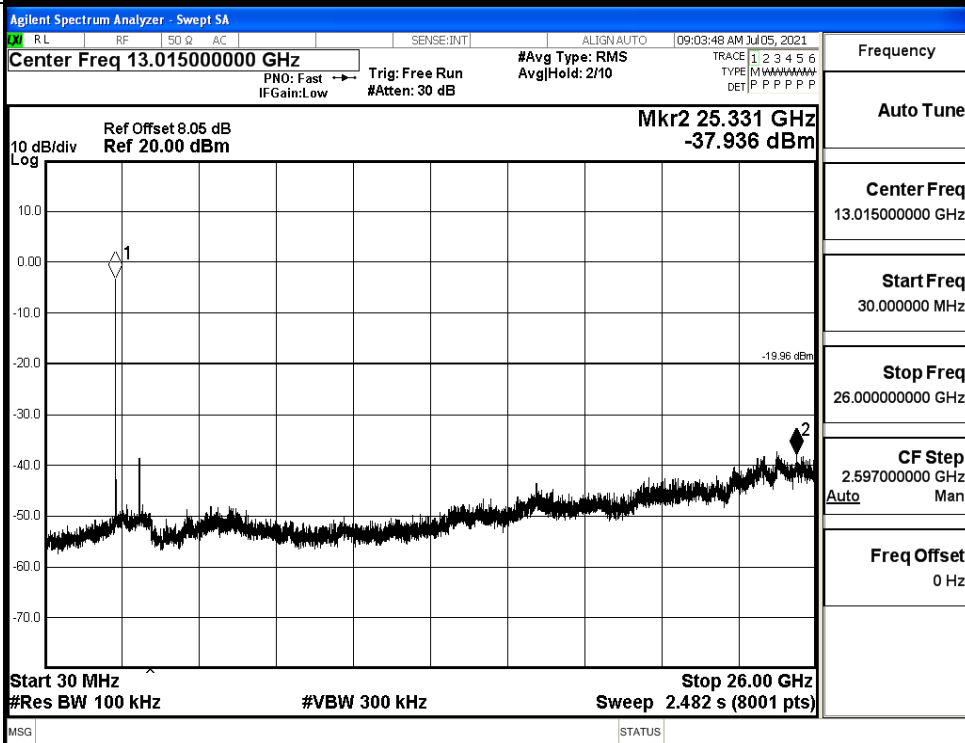


11B LCH Graphs

Pref/11B/LCH



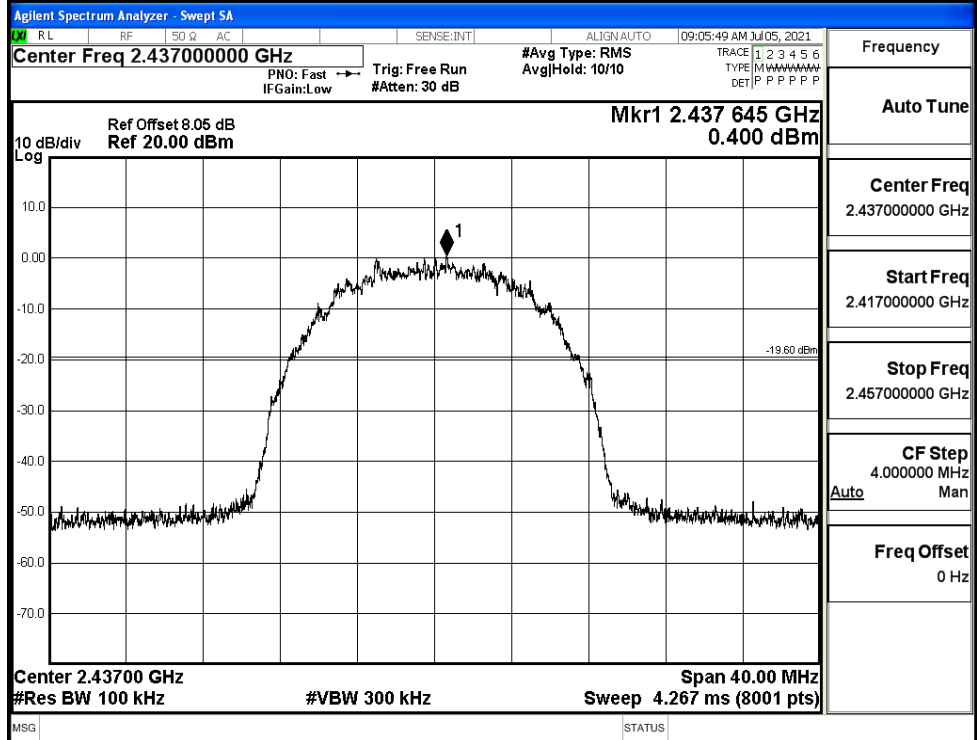
Puw/11B/LCH



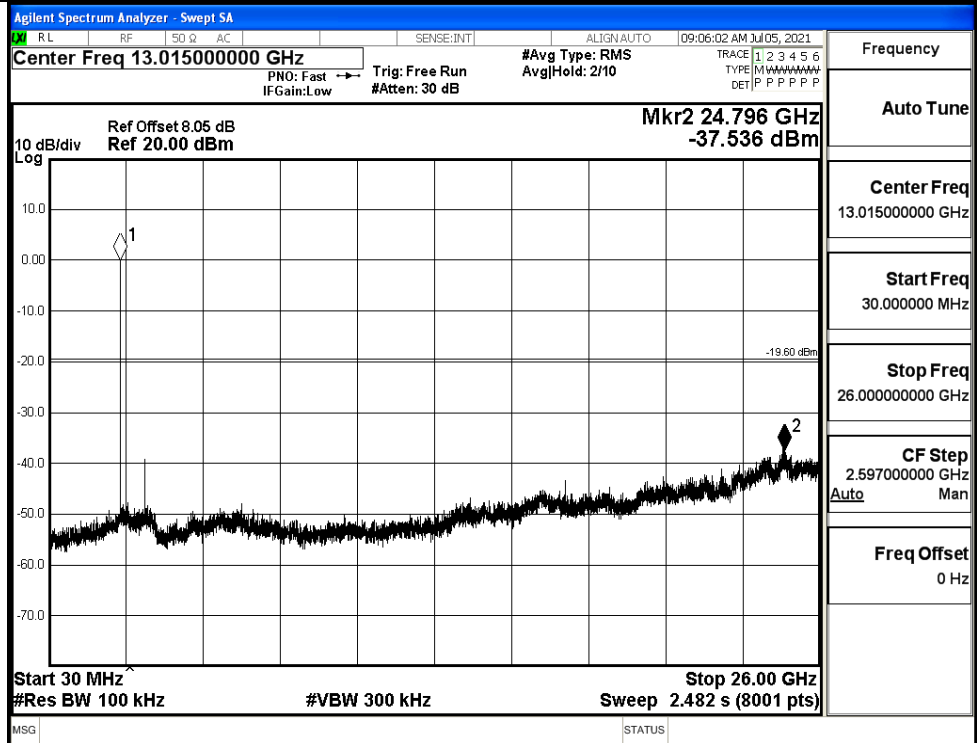


11B MCH Graphs

Pref/11B/MCH



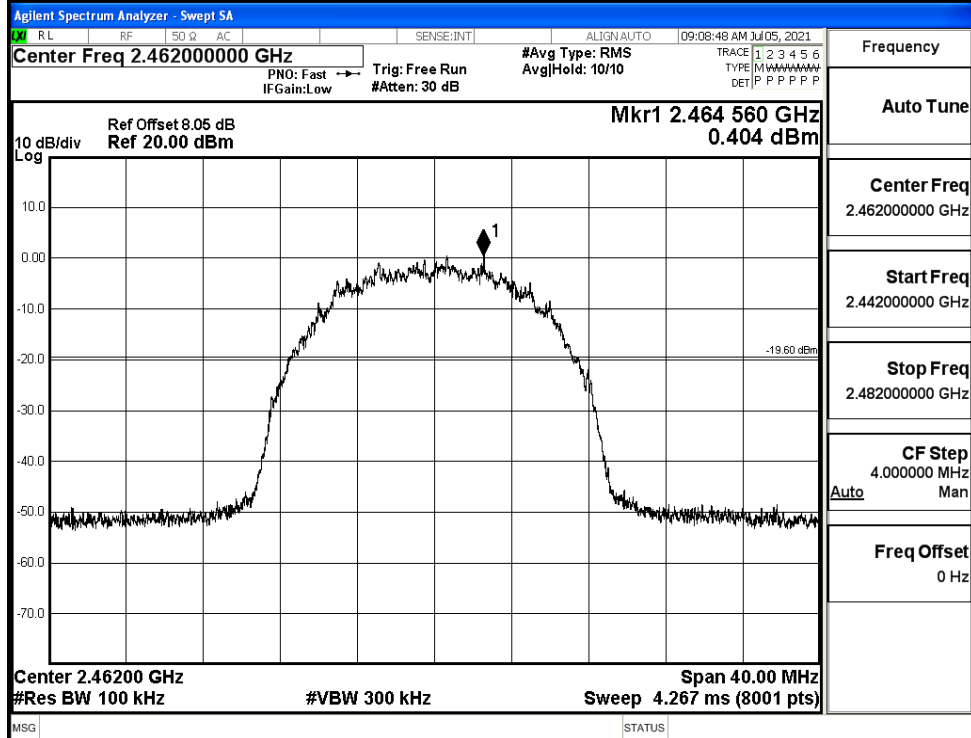
Puw/11B/MCH



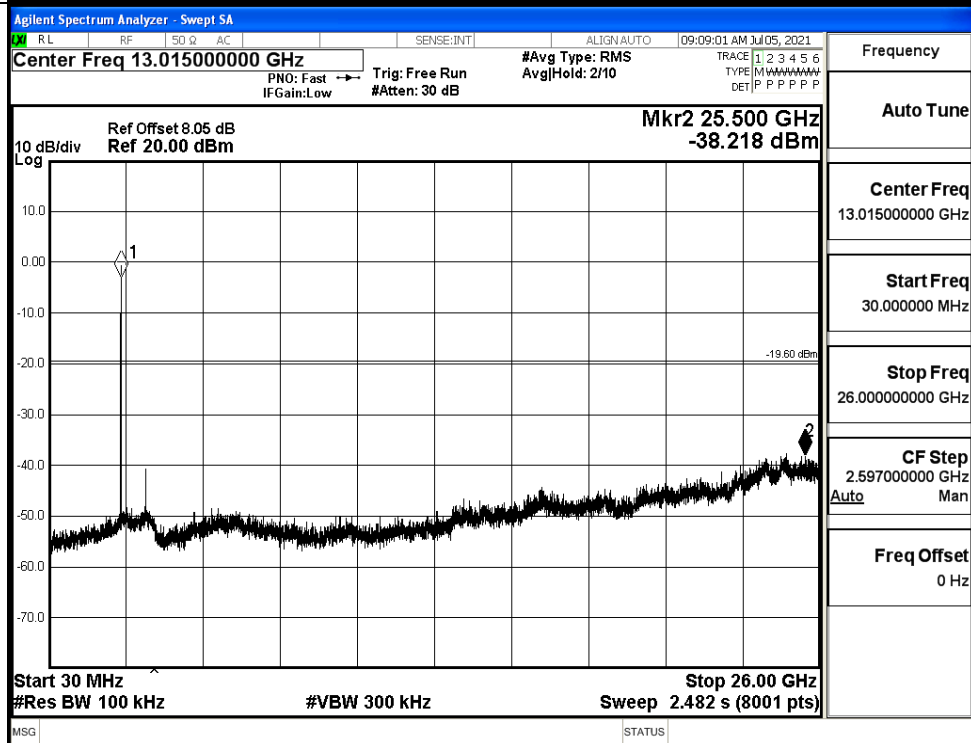


11B HCH Graphs

Pref/11B/HCH



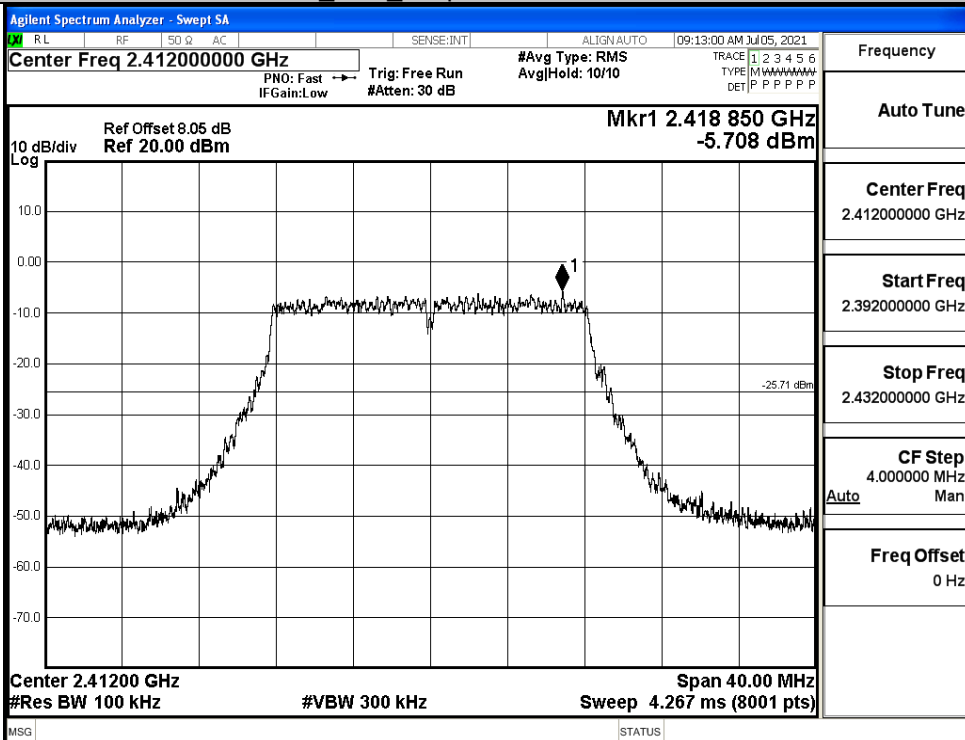
Puw/11B/HCH



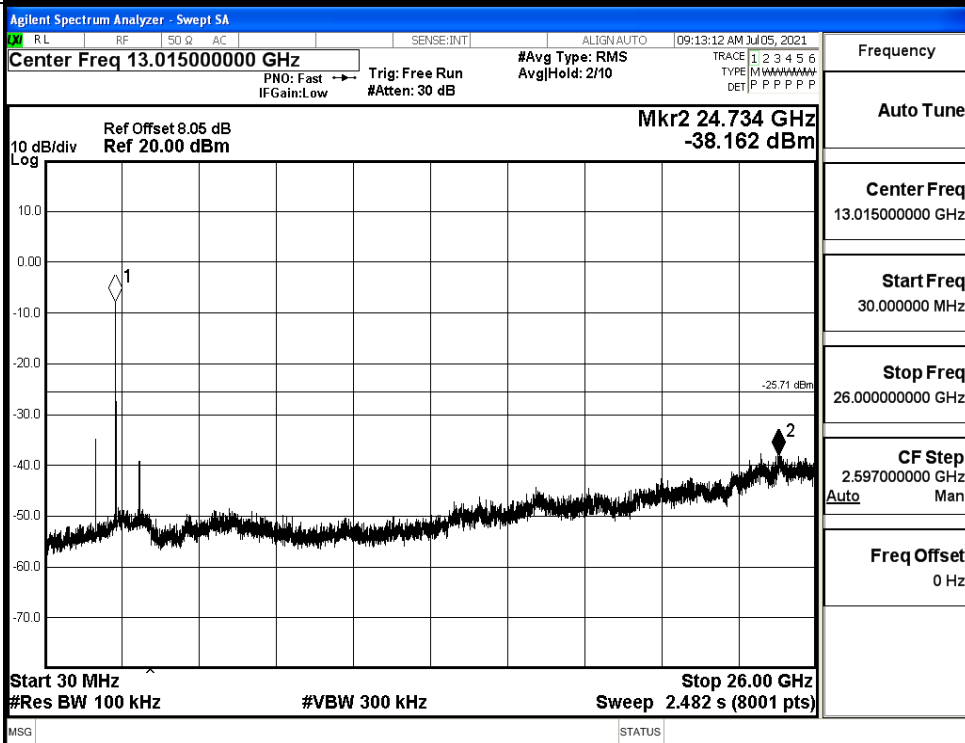


11G_LCH_Graphs

Pref/11G/LCH



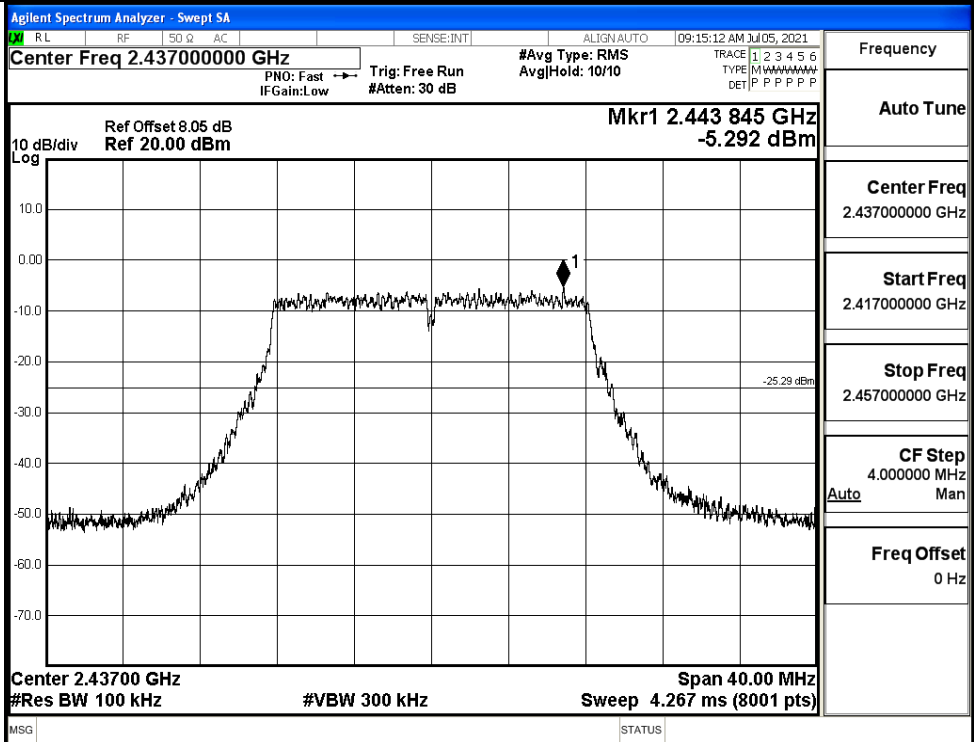
Puw/11G/LCH



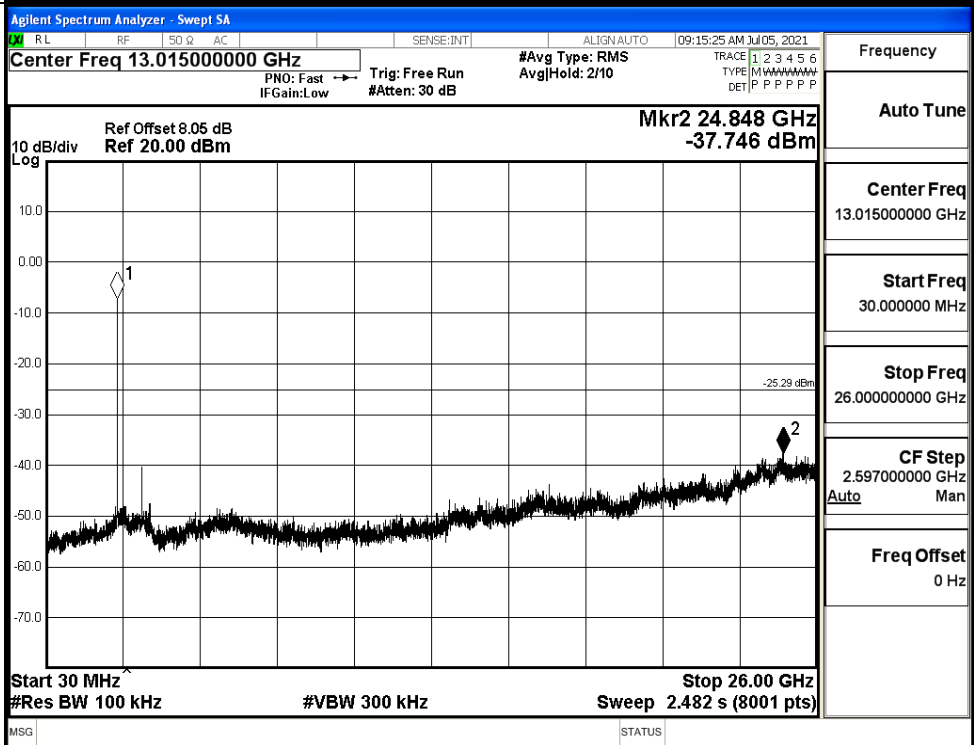


11G MCH Graphs

Pref/11G/MCH



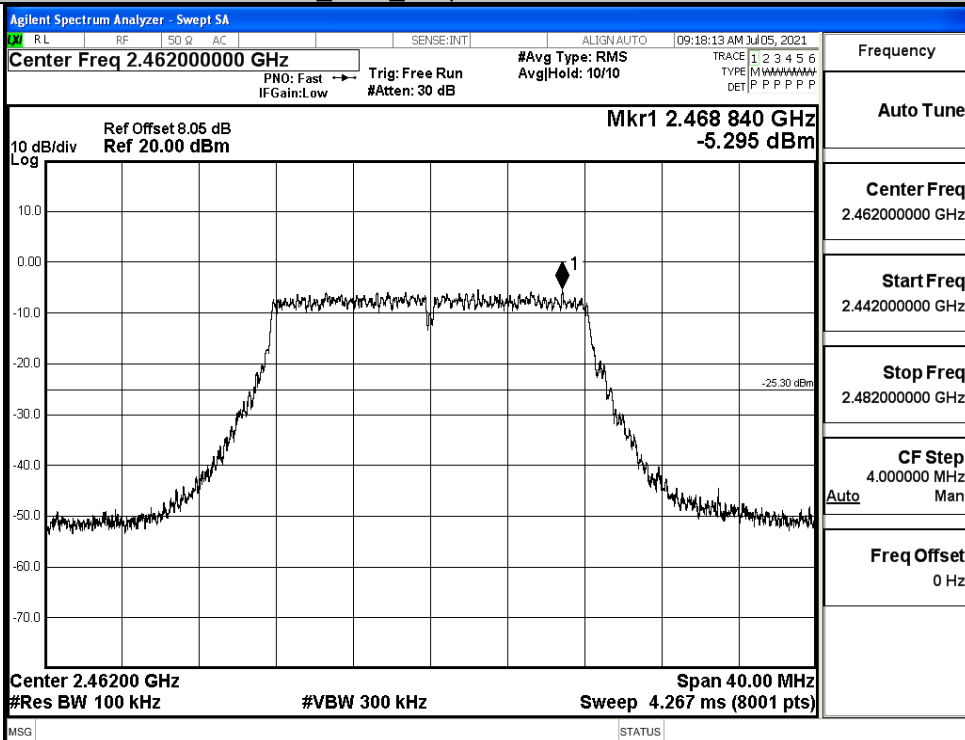
Puw/11G/MCH



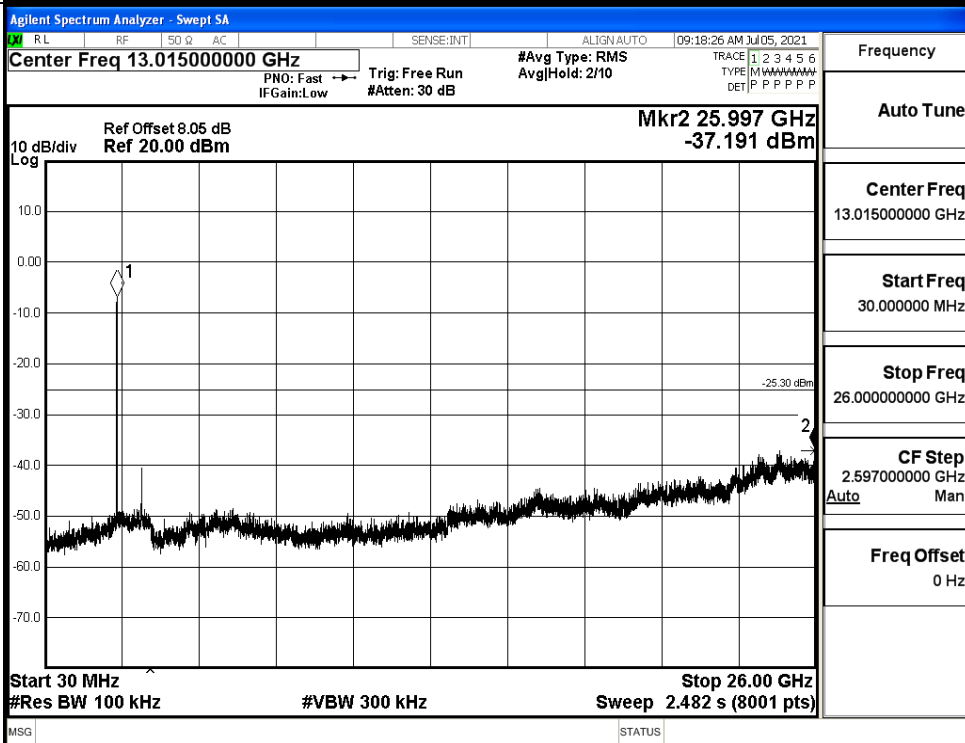


11G HCH Graphs

Pref/11G/HCH



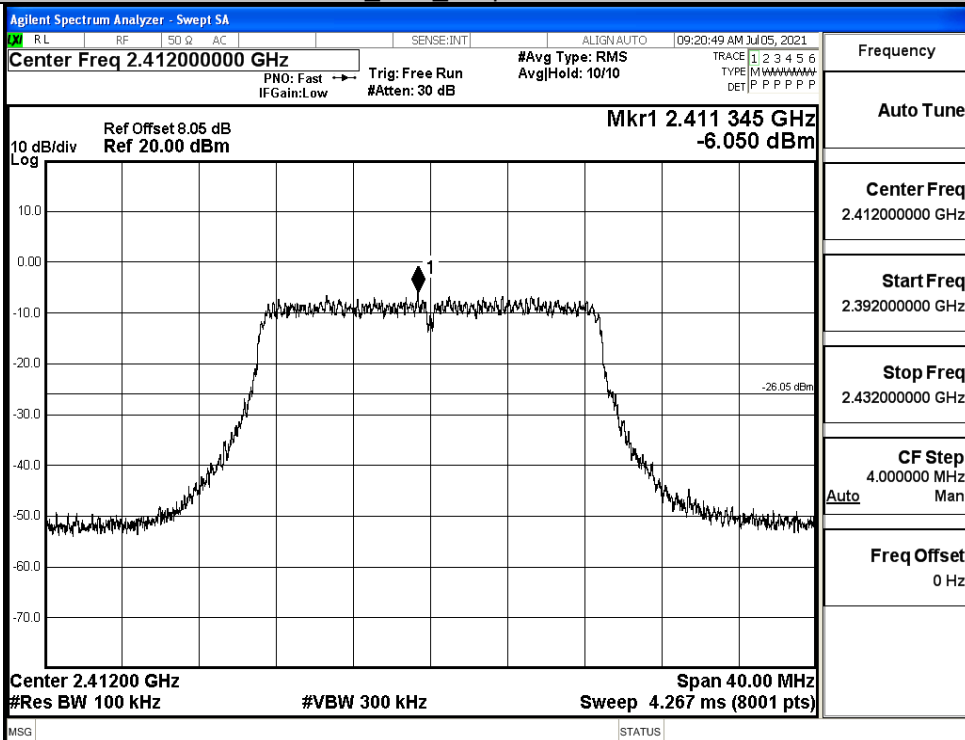
Puw/11G/HCH



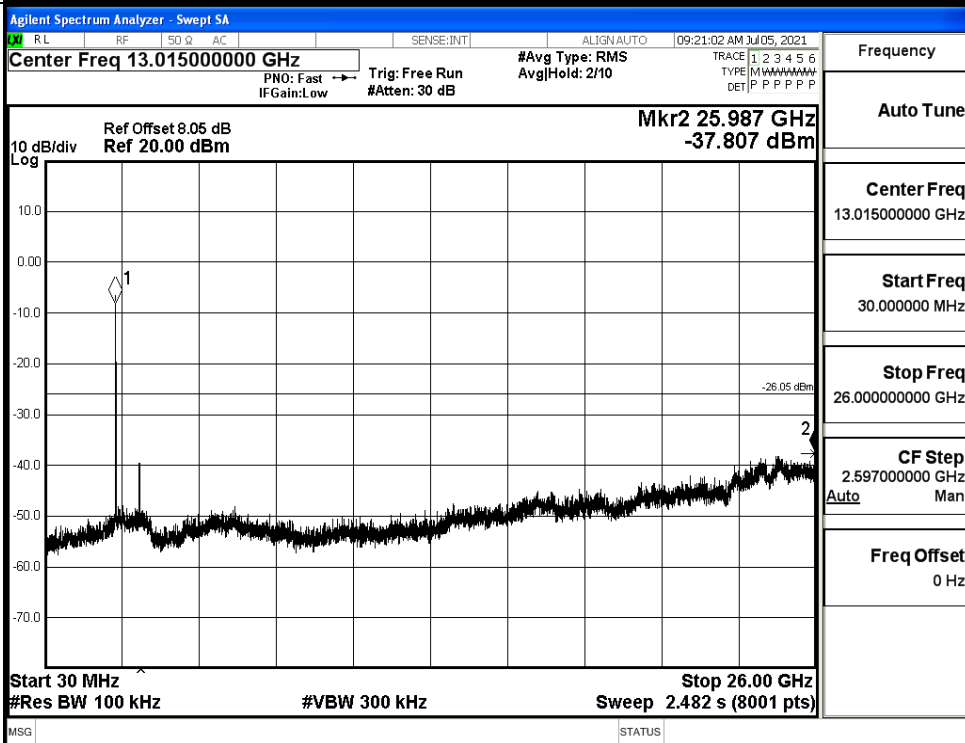


11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH



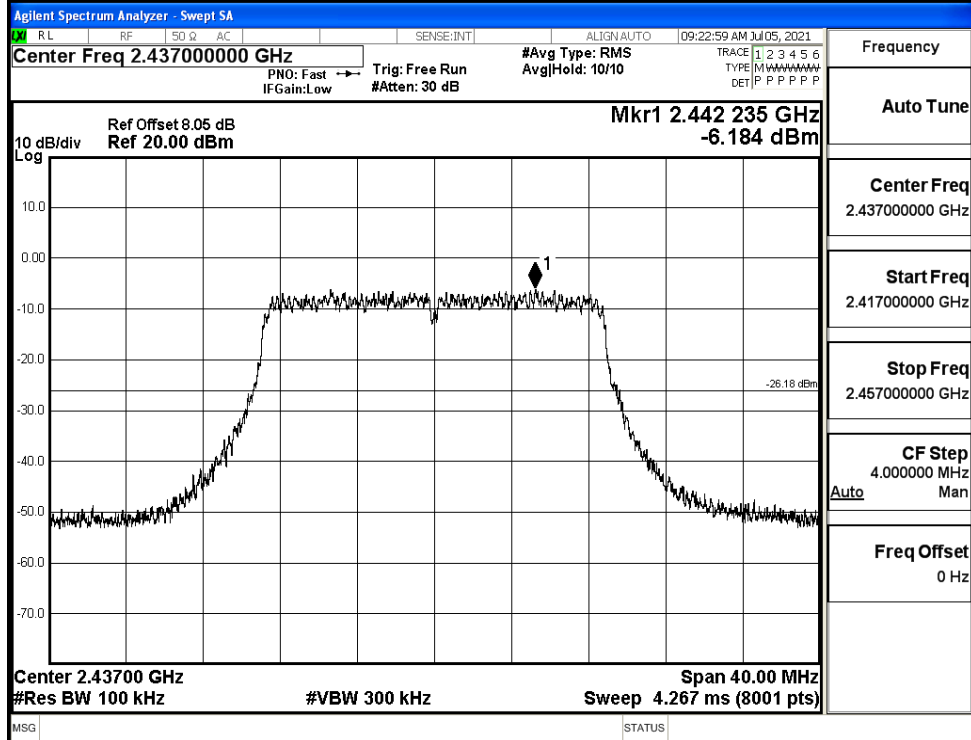
Puw/11N20
SISO/LCH



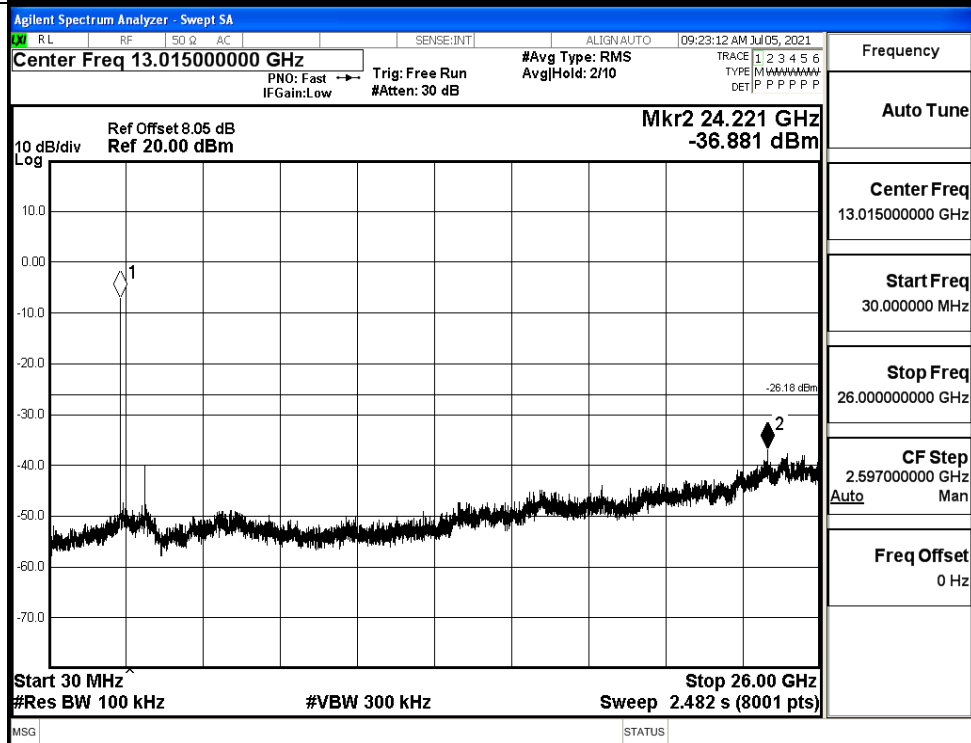


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH



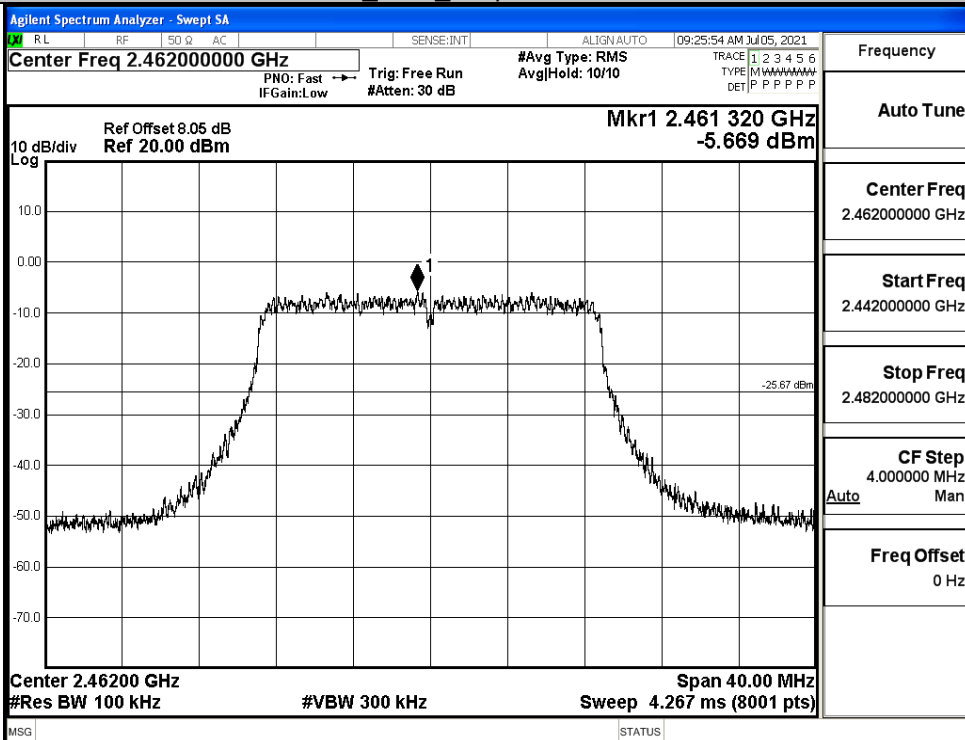
Puw/11N20
SISO/MCH



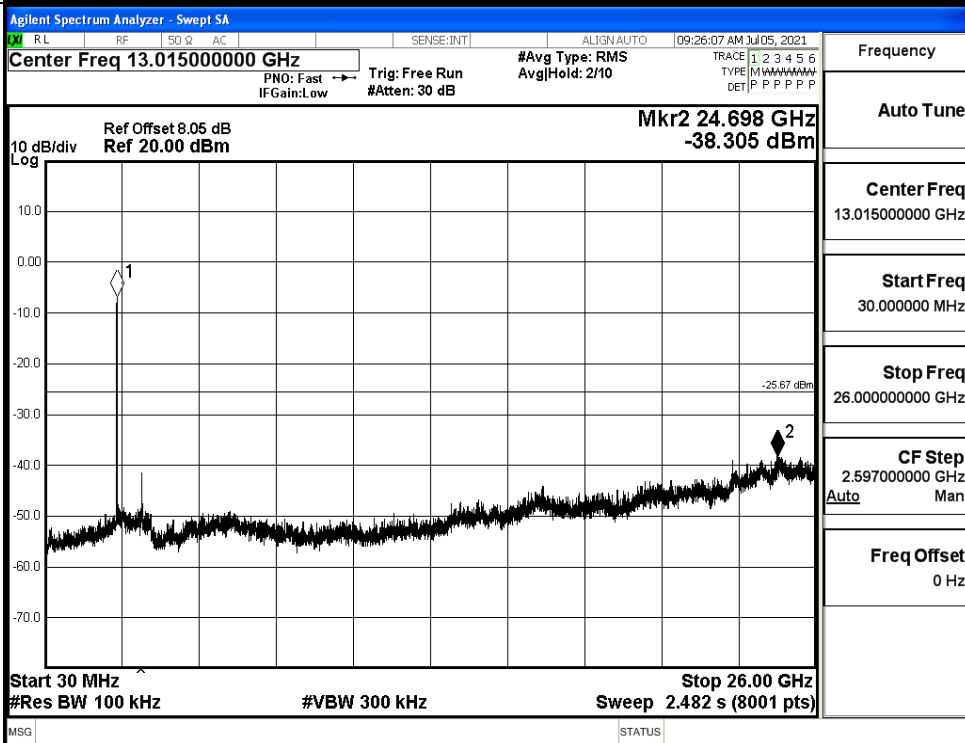


11N20SISO HCH Graphs

Pref/11N20
SISO/HCH



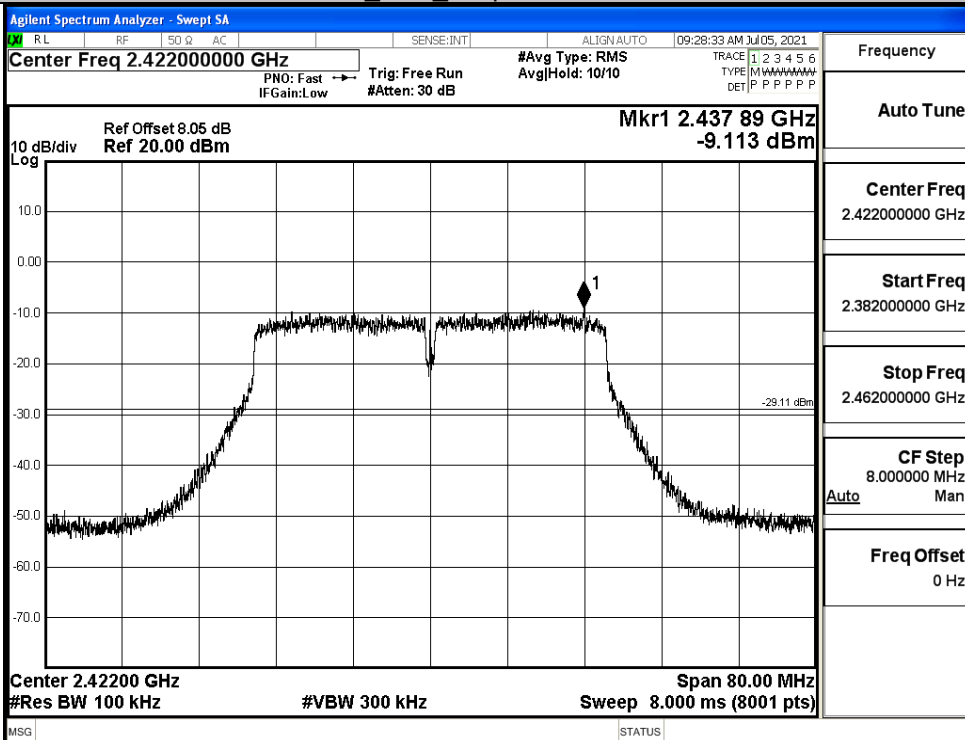
Puw/11N20
SISO/HCH



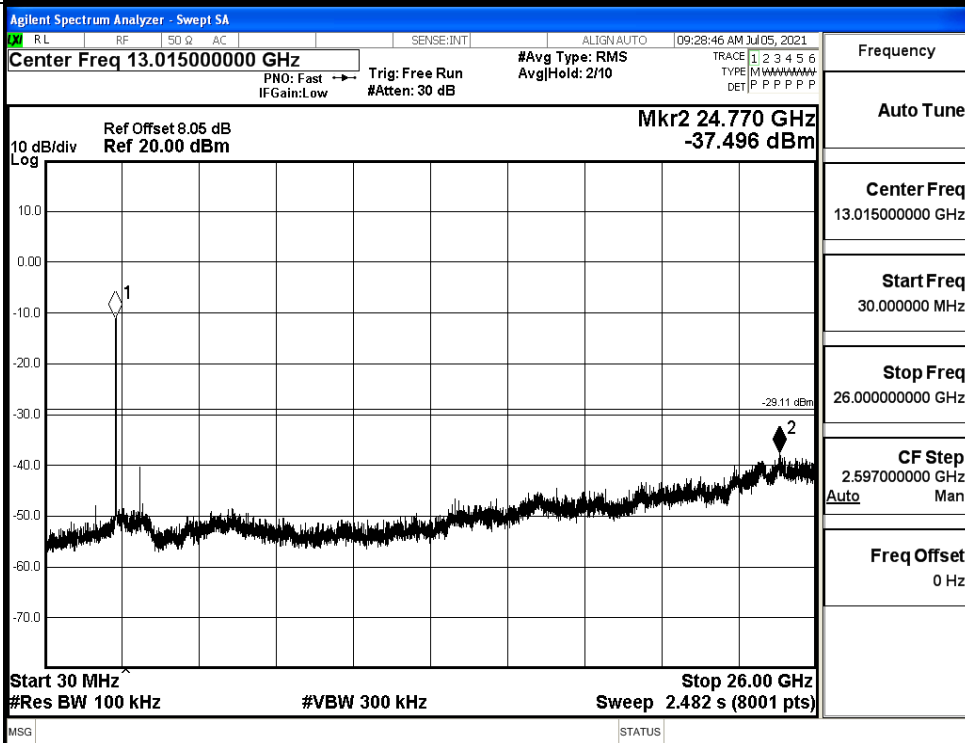


11N40SISO LCH Graphs

Pref/11N40
SISO/LCH



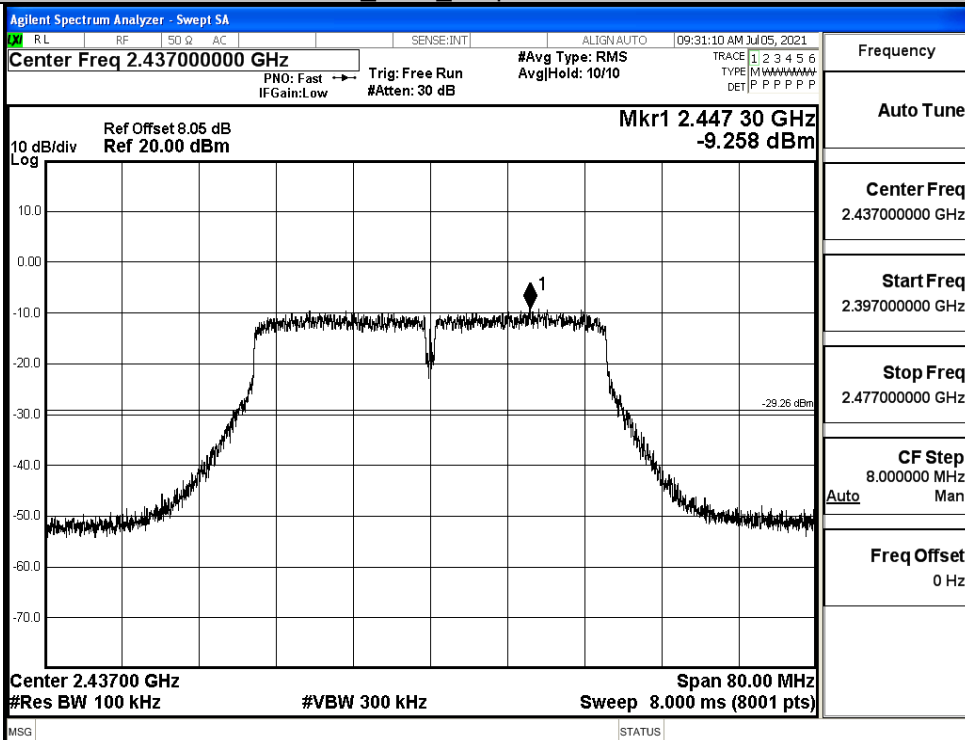
Puw/11N40
SISO/LCH



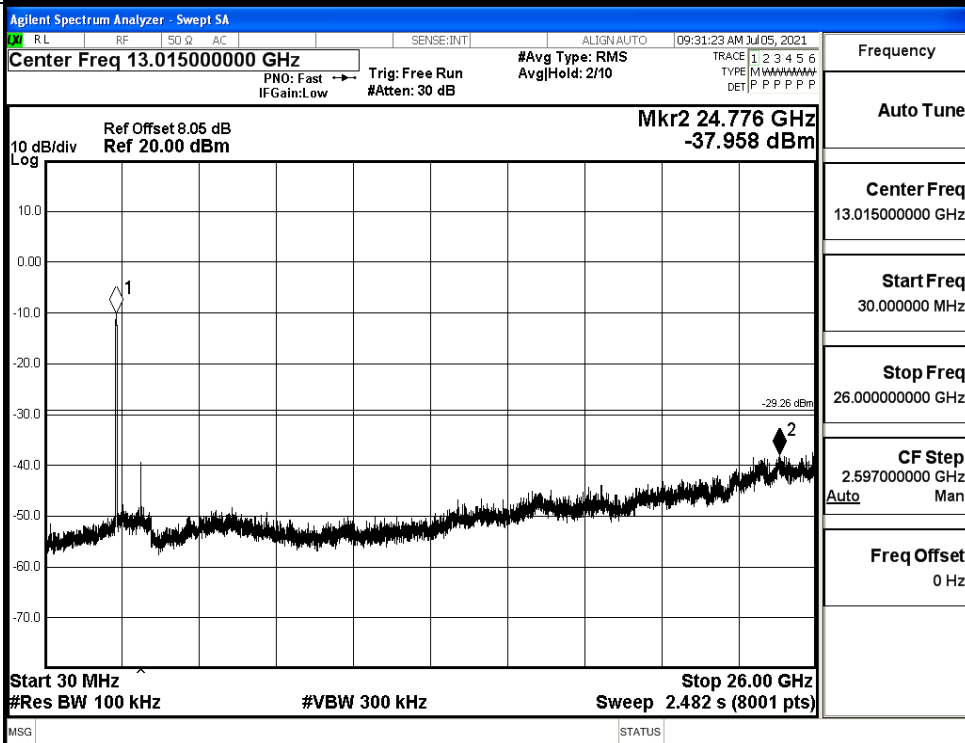


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH



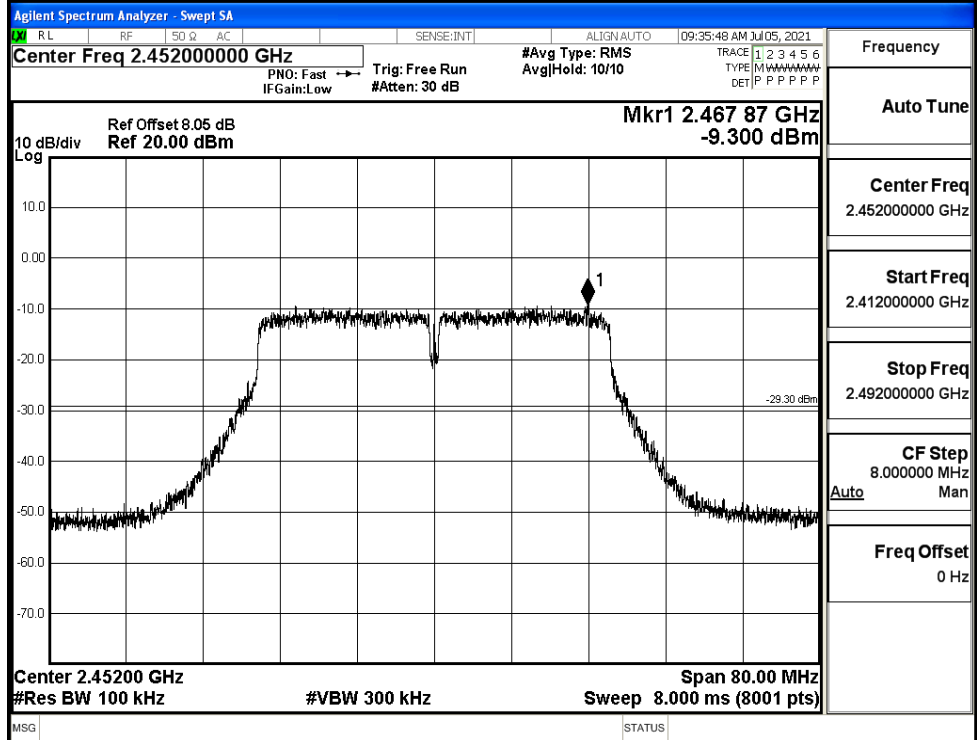
Puw/11N40
SISO/MCH



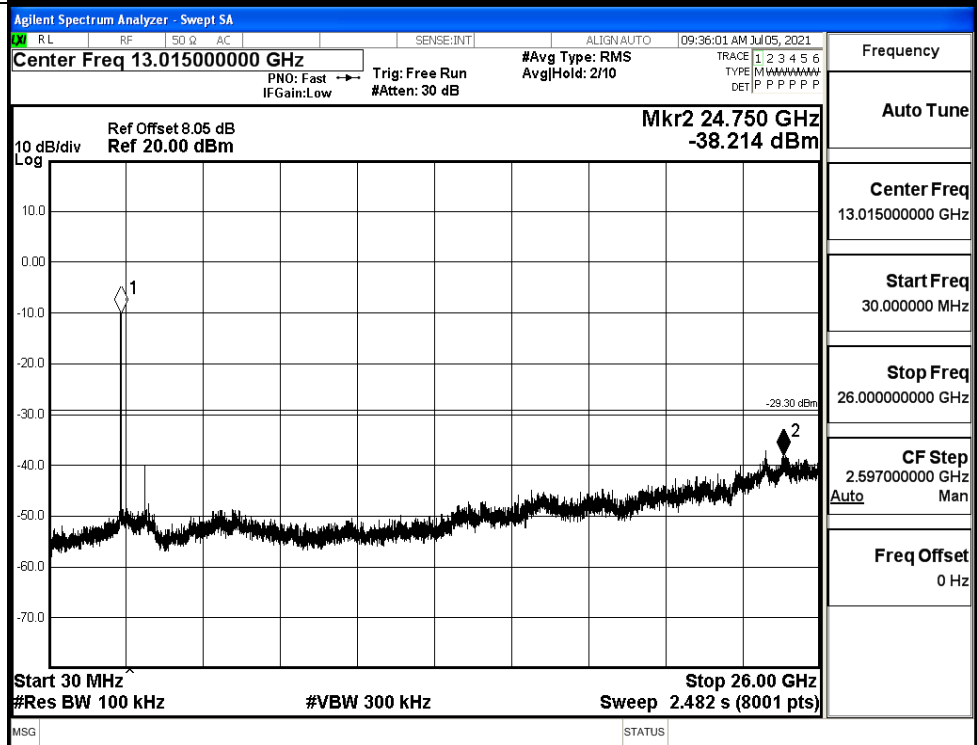


11N40SISO HCH Graphs

Pref/11N40
SISO/HCH



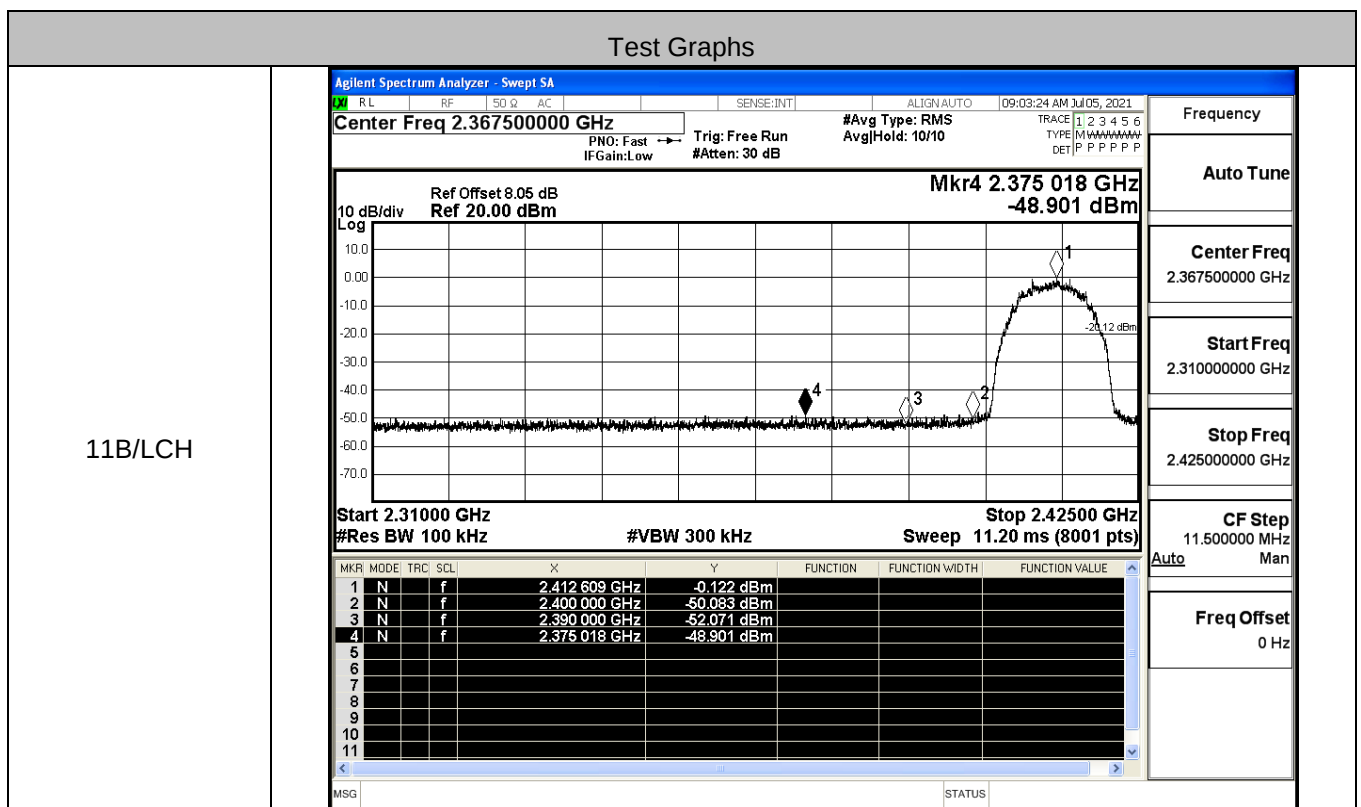
Puw/11N40
SISO/HCH





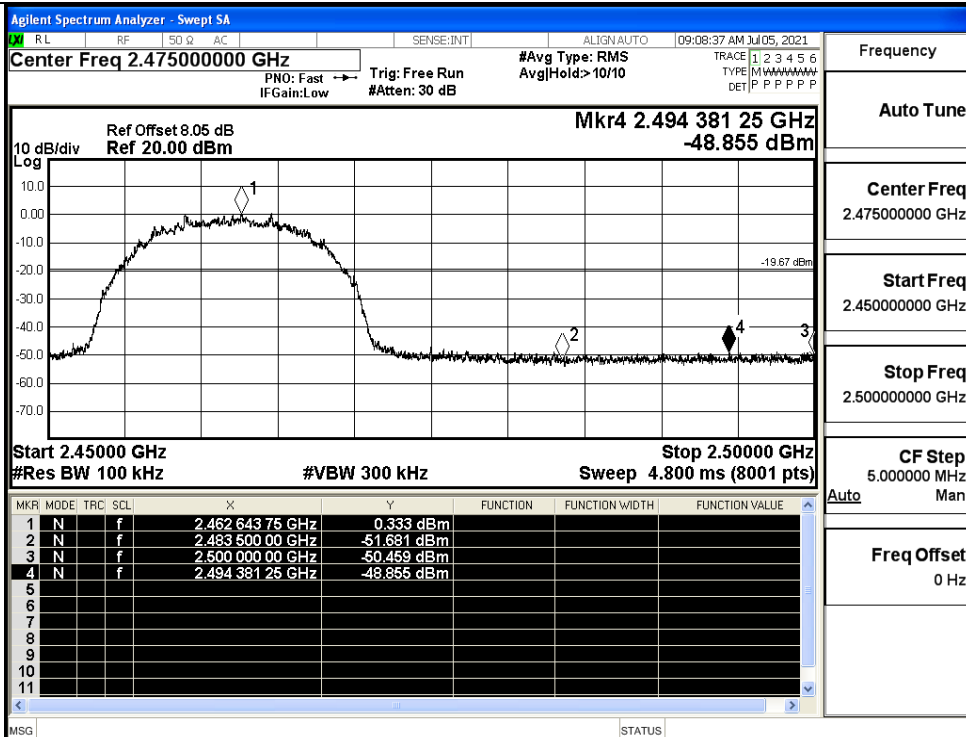
A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-0.122	-48.901	-20.12	PASS
	HCH	0.333	-48.855	-19.67	PASS
11G	LCH	-5.904	-47.972	-25.9	PASS
	HCH	-5.158	-49.022	-25.16	PASS
11N20SISO	LCH	-6.592	-48.977	-26.59	PASS
	HCH	-5.399	-47.767	-25.4	PASS
11N40SISO	LCH	-9.463	-48.845	-29.46	PASS
	HCH	-9.454	-47.998	-29.45	PASS

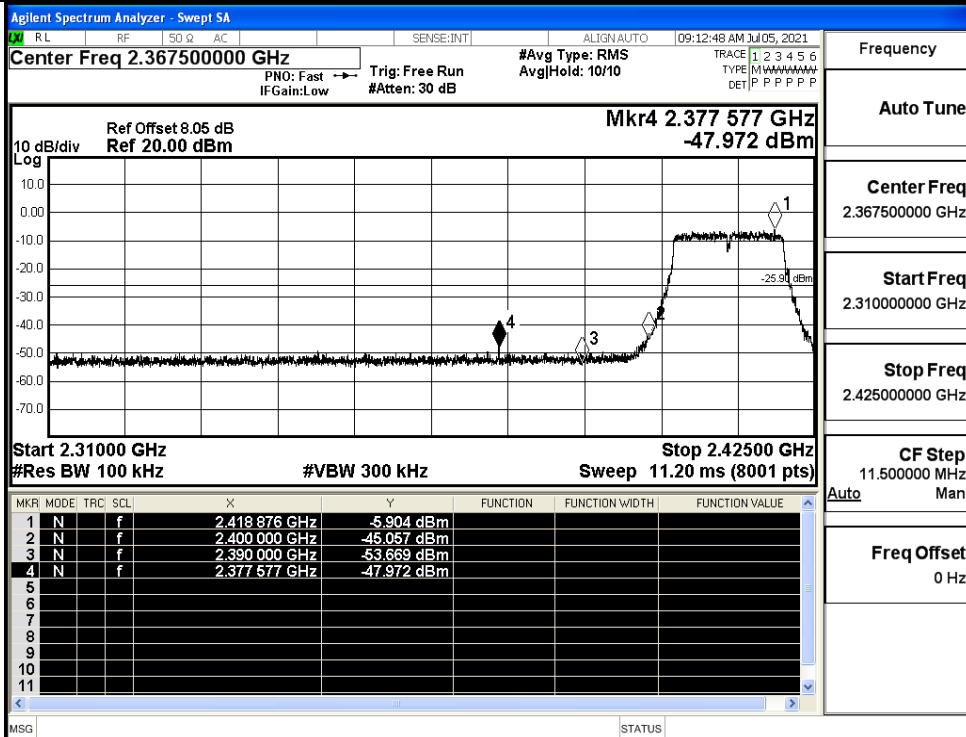




11B/HCH

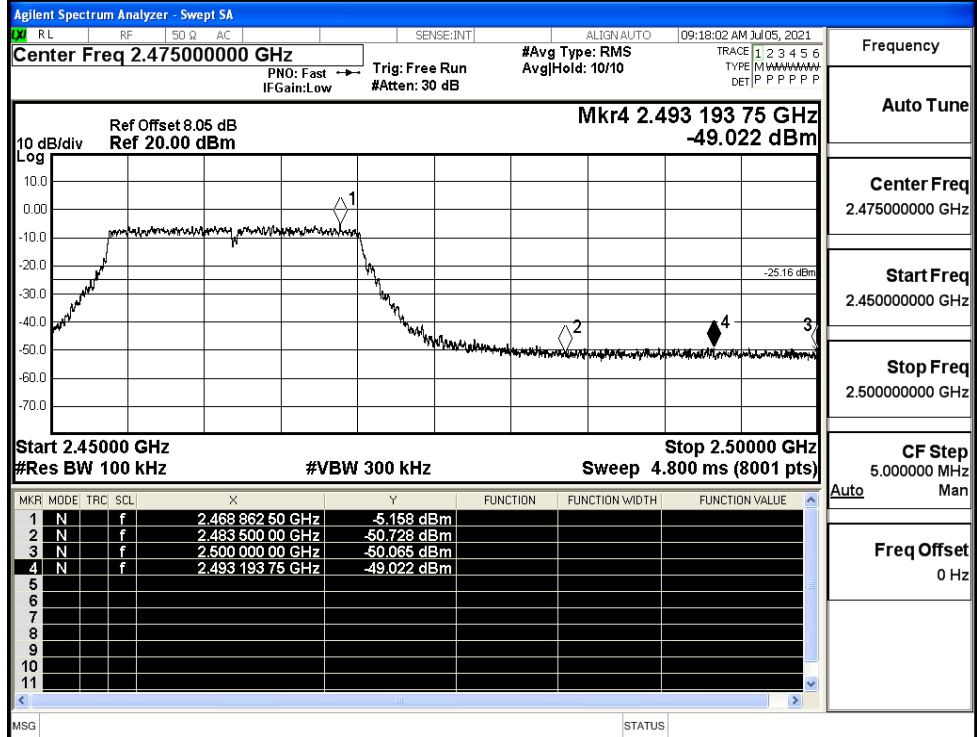


11G/LCH

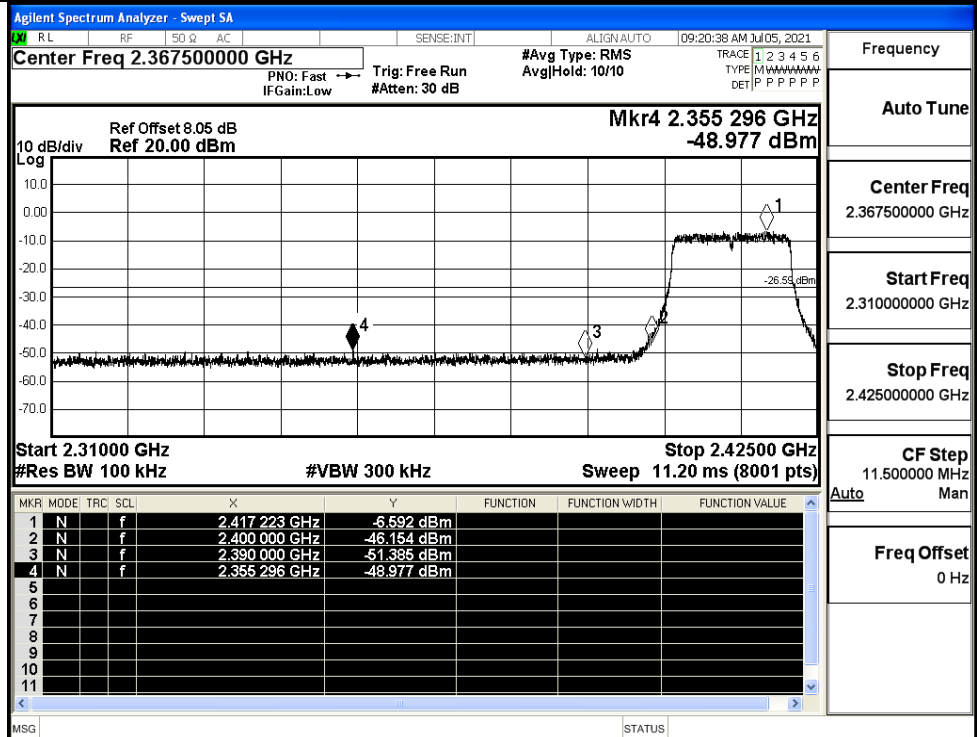


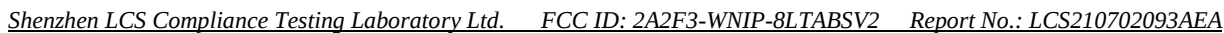


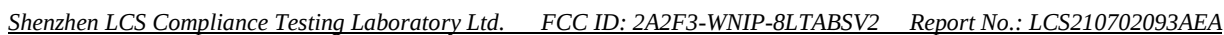
11G/HCH



11N20SISO/LCH



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Agilent Spectrum Analyzer - Sweep SA

# R L	R F	S O Q	A C	SENSE:INT	ALIGN AUTO	DATE: 09-35:37 AM JUL05, 2021
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Center Freq 2.46500000 GHz

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

#Avg Type: RMS Avg/Hold: 10/10 TYPE M W I N T E X P DET P P P P P P

Mkr 2.486 043 75 GHz
-47.998 dBm

Ref Offset 8.05 dB
Ref 20.00 dBm

Start 2.43000 GHz Stop 2.50000 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 6.933 ms (8001 pts)

MARKER MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f	2.437 612 50 GHz	-9.454 dBm			
2	N	f	2.483 500 00 GHz	-50.068 dBm			
3	N	f	2.500 000 00 GHz	-51.516 dBm			
4	N	f	2.486 043 75 GHz	-47.998 dBm			

Frequency

Auto Tune

Center Freq
2.46500000 GHz

Start Freq
2.43000000 GHz

Stop Freq
2.50000000 GHz

CF Step
7.00000 MHz
Man

Freq Offset
0 Hz

MSG STATUS

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

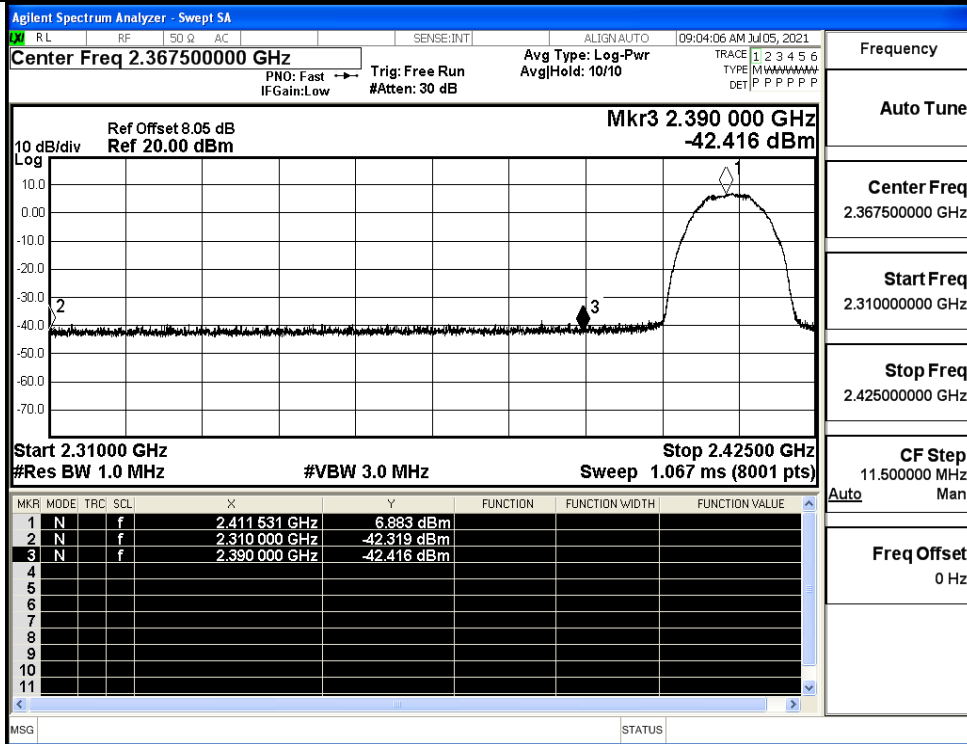
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-42.32	5.0	0	57.94	PEAK	74	PASS
	2412	Ant1	2310.0	-53.06	5.0	0	47.2	AV	54	PASS
	2412	Ant1	2390.0	-42.42	5.0	0	57.84	PEAK	74	PASS
	2412	Ant1	2390.0	-52.31	5.0	0	47.95	AV	54	PASS
	2462	Ant1	2483.5	-41.88	5.0	0	58.38	PEAK	74	PASS
	2462	Ant1	2483.5	-51.79	5.0	0	48.47	AV	54	PASS
	2462	Ant1	2500.0	-40.20	5.0	0	60.06	PEAK	74	PASS
	2462	Ant1	2500.0	-51.61	5.0	0	48.65	AV	54	PASS
11G	2412	Ant1	2310.0	-42.00	5.0	0	58.26	PEAK	74	PASS
	2412	Ant1	2310.0	-53.16	5.0	0	47.1	AV	54	PASS
	2412	Ant1	2390.0	-42.66	5.0	0	57.6	PEAK	74	PASS
	2412	Ant1	2390.0	-52.33	5.0	0	47.93	AV	54	PASS
	2462	Ant1	2483.5	-40.36	5.0	0	59.9	PEAK	74	PASS
	2462	Ant1	2483.5	-51.56	5.0	0	48.7	AV	54	PASS
	2462	Ant1	2500.0	-40.59	5.0	0	59.67	PEAK	74	PASS
	2462	Ant1	2500.0	-51.70	5.0	0	48.56	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-43.25	5.0	0	57.01	PEAK	74	PASS
	2412	Ant1	2310.0	-53.16	5.0	0	47.1	AV	54	PASS
	2412	Ant1	2390.0	-42.20	5.0	0	58.06	PEAK	74	PASS
	2412	Ant1	2390.0	-52.32	5.0	0	47.94	AV	54	PASS
	2462	Ant1	2483.5	-40.36	5.0	0	59.9	PEAK	74	PASS
	2462	Ant1	2483.5	-51.43	5.0	0	48.83	AV	54	PASS
	2462	Ant1	2500.0	-41.57	5.0	0	58.69	PEAK	74	PASS
	2462	Ant1	2500.0	-51.67	5.0	0	48.59	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-43.41	5.0	0	56.85	PEAK	74	PASS
	2422	Ant1	2310.0	-53.17	5.0	0	47.09	AV	54	PASS
	2422	Ant1	2390.0	-41.60	5.0	0	58.66	PEAK	74	PASS



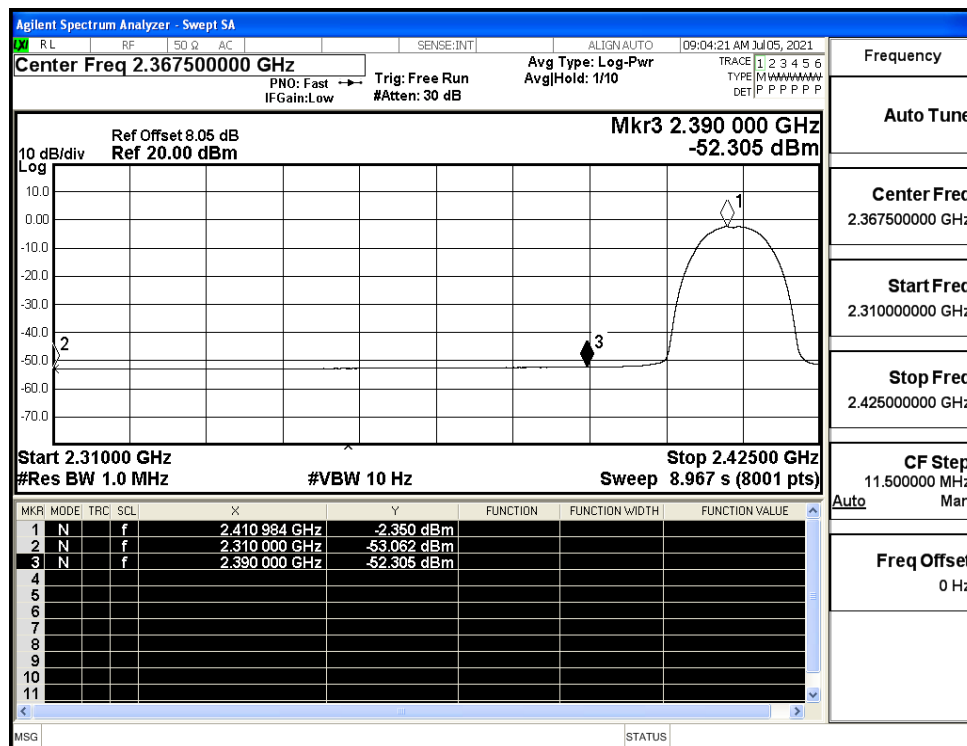
	2422	Ant1	2390.0	-51.86	5.0	0	48.4	AV	54	PASS
	2452	Ant1	2483.5	-40.96	5.0	0	59.3	PEAK	74	PASS
	2452	Ant1	2483.5	-50.24	5.0	0	50.02	AV	54	PASS
	2452	Ant1	2500.0	-40.16	5.0	0	60.1	PEAK	74	PASS
	2452	Ant1	2500.0	-51.55	5.0	0	48.71	AV	54	PASS



Restrict-band band-edge measurements_11B_2412_Ant1_PEAK

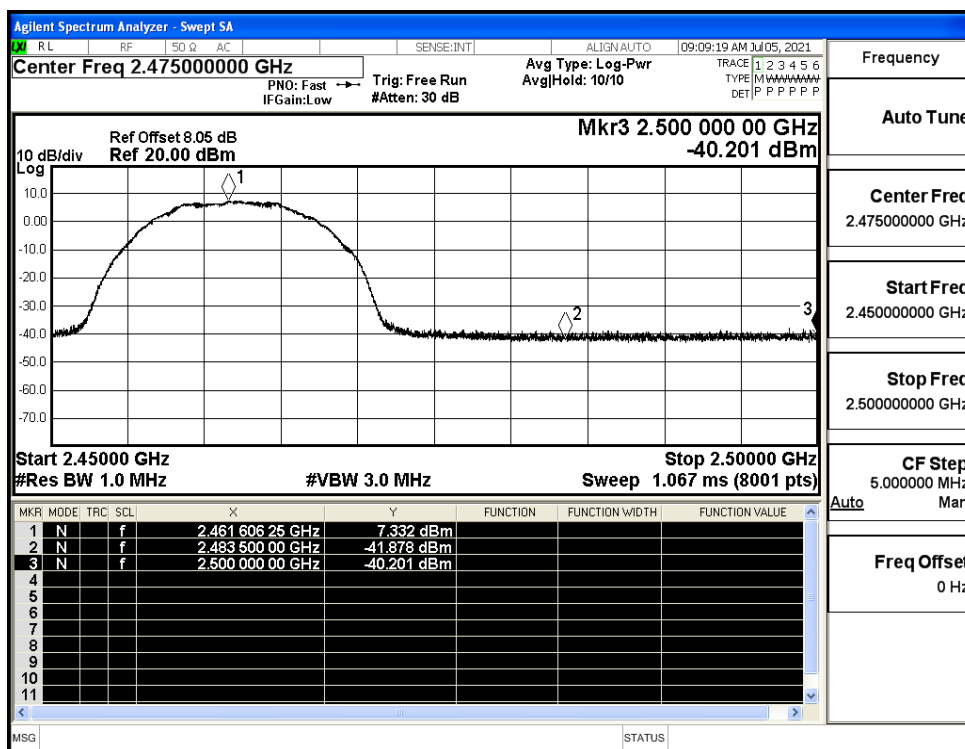


Restrict-band band-edge measurements_11B_2412_Ant1_AV

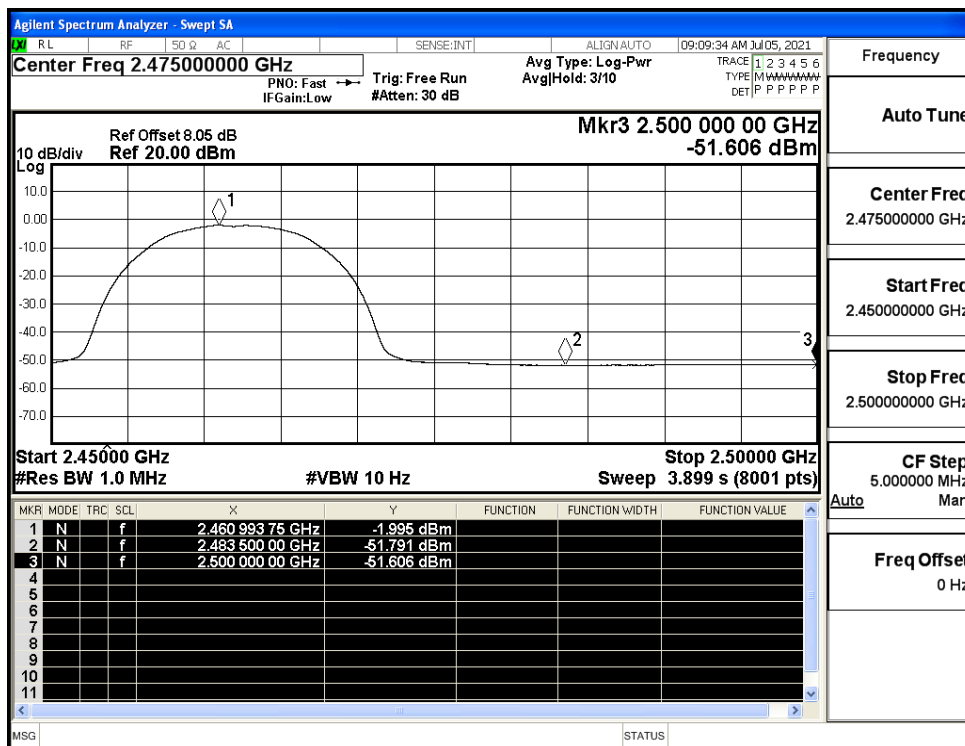




Restrict-band band-edge measurements_11B_2462_Ant1_PEAK

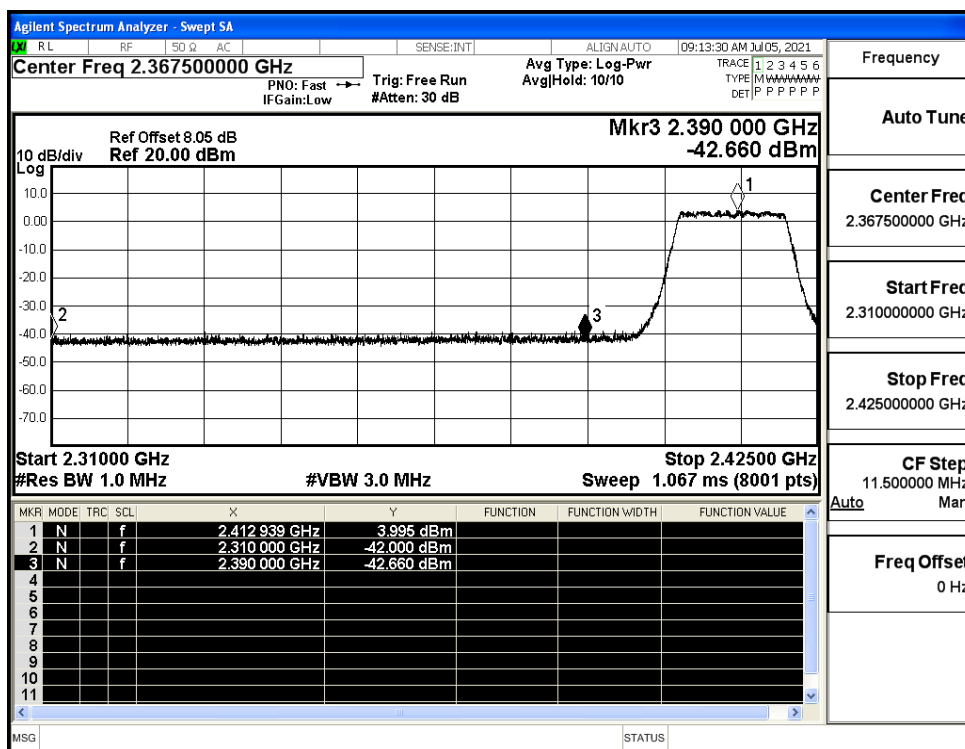


Restrict-band band-edge measurements_11B_2462_Ant1_AV

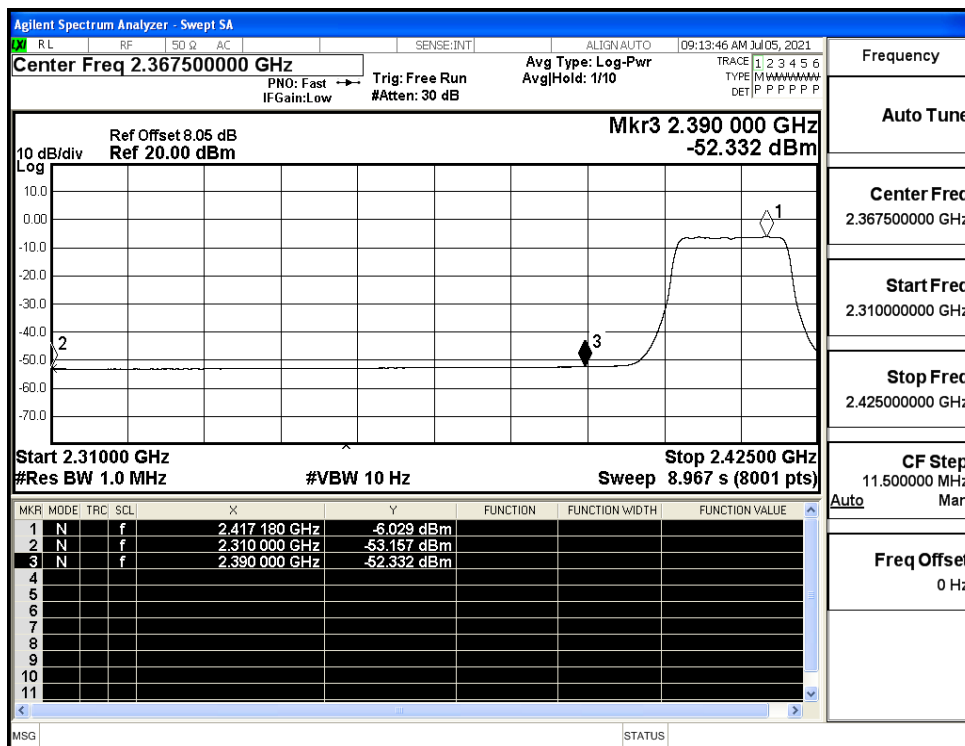




Restrict-band band-edge measurements_11G_2412_Ant1_PEAK

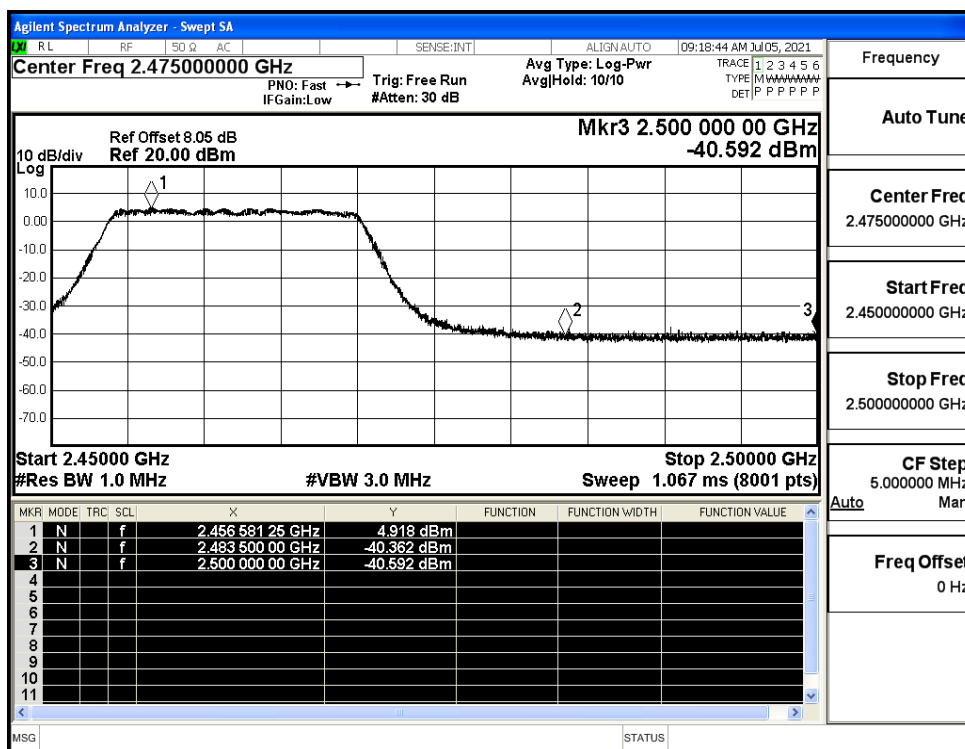


Restrict-band band-edge measurements_11G_2412_Ant1_AV

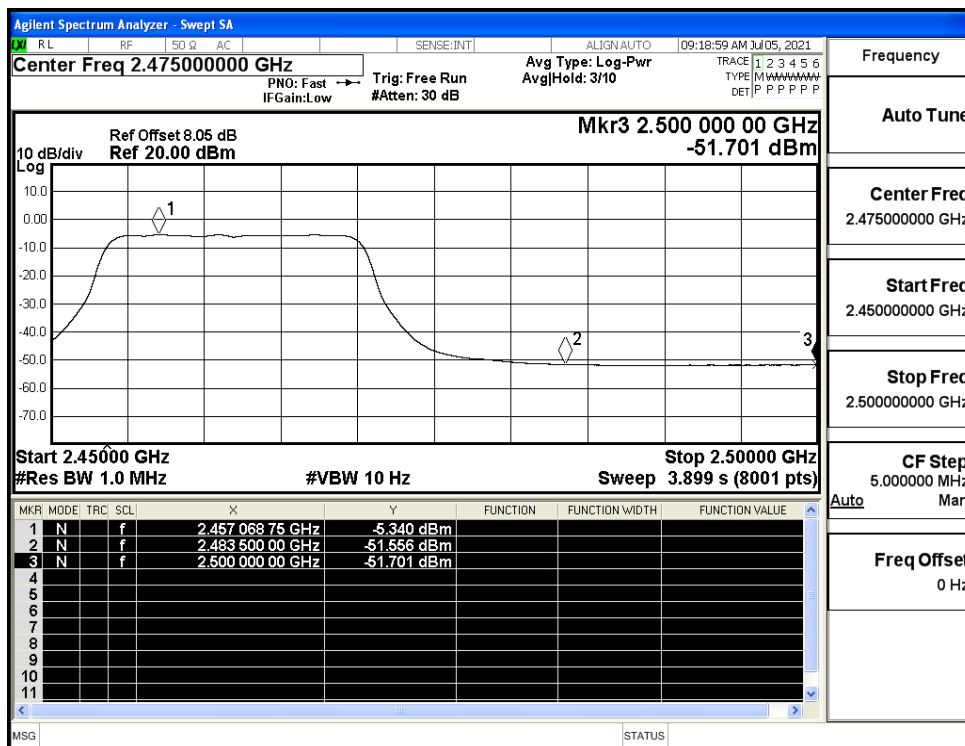




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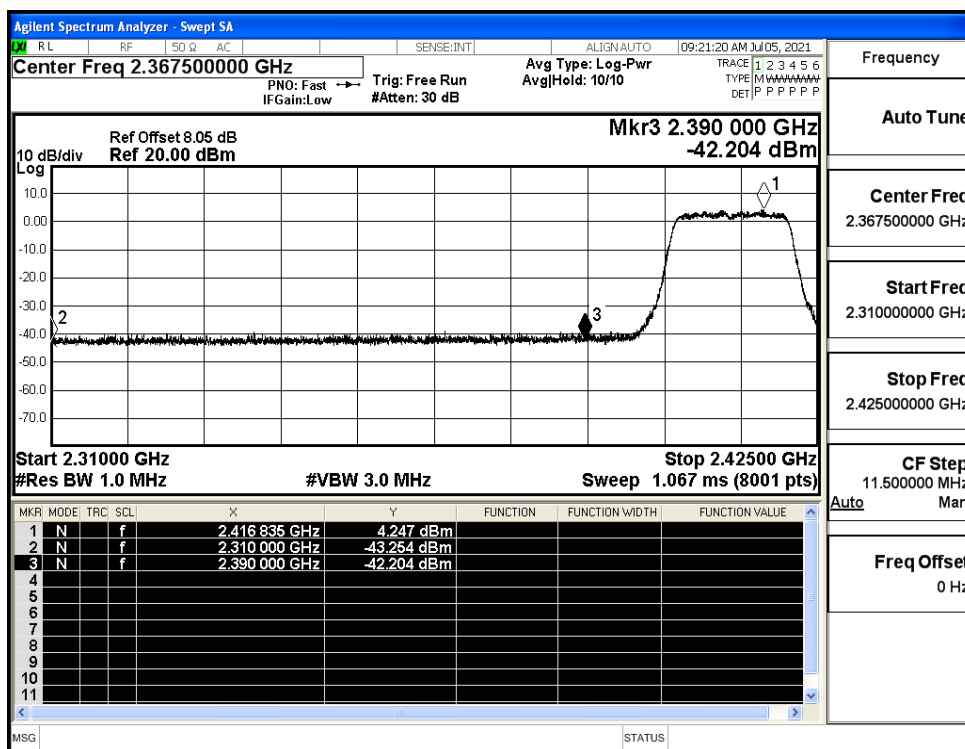


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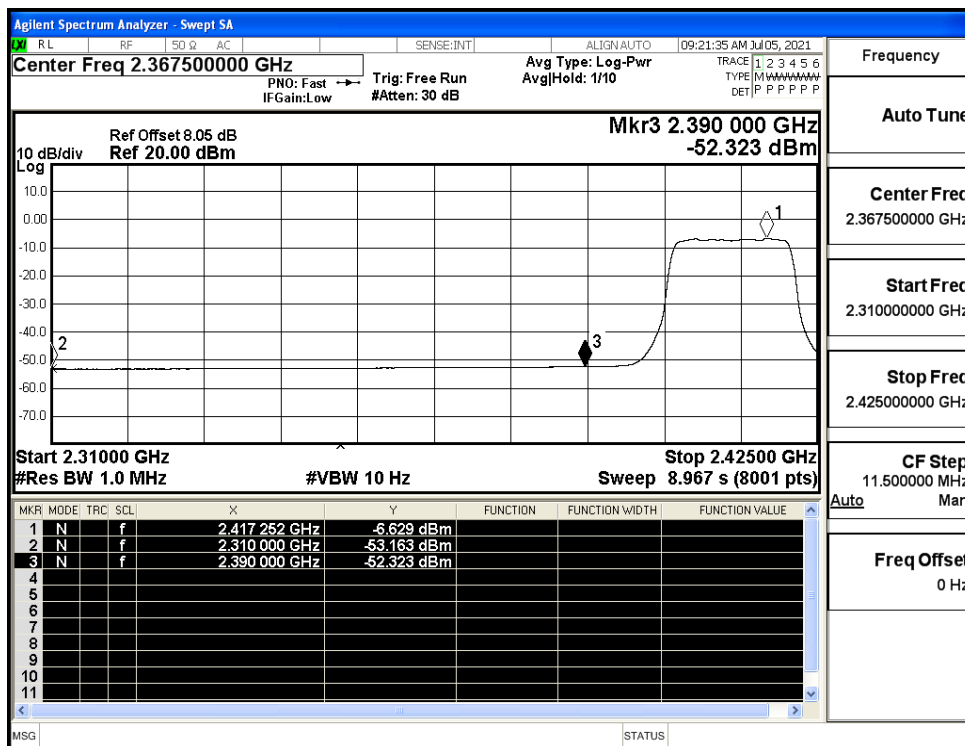




Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK

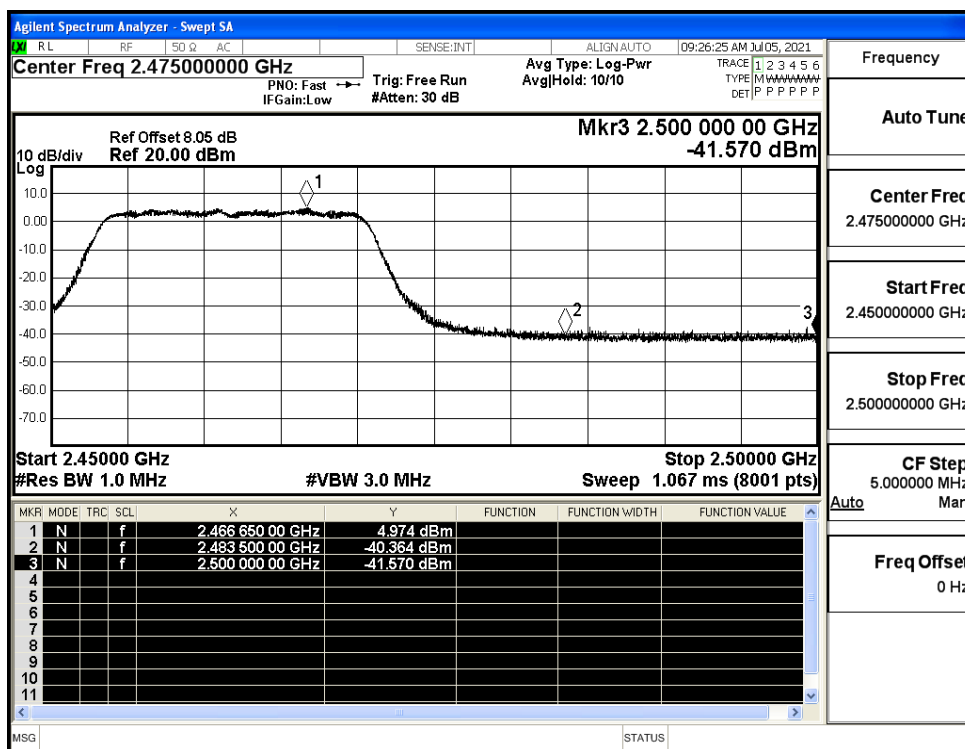


Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV

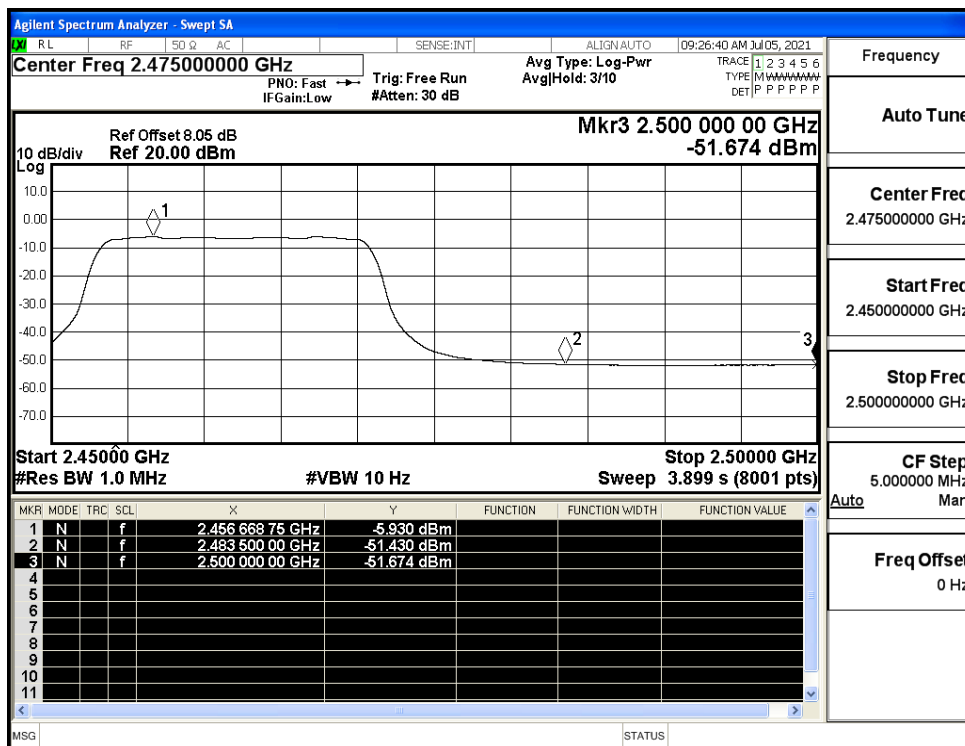




Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK

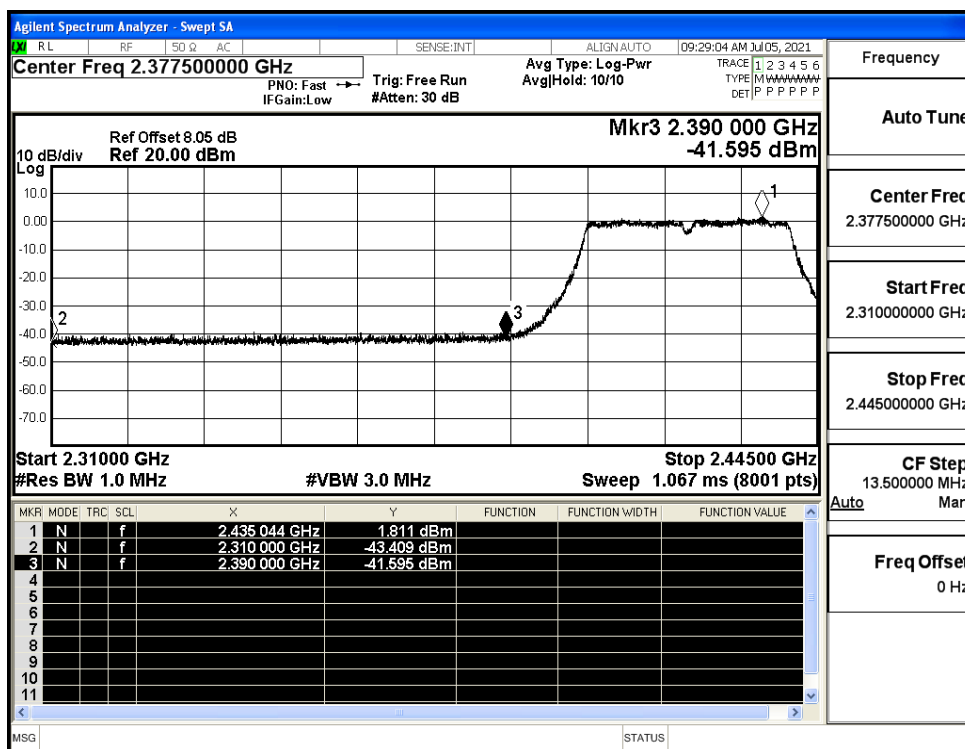


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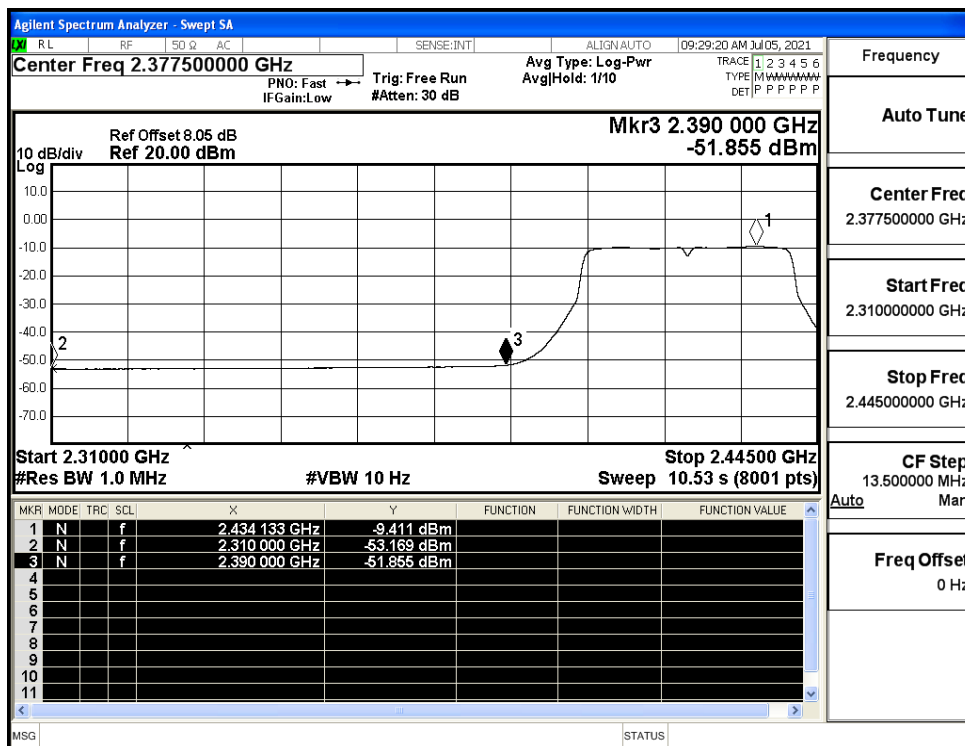




Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK

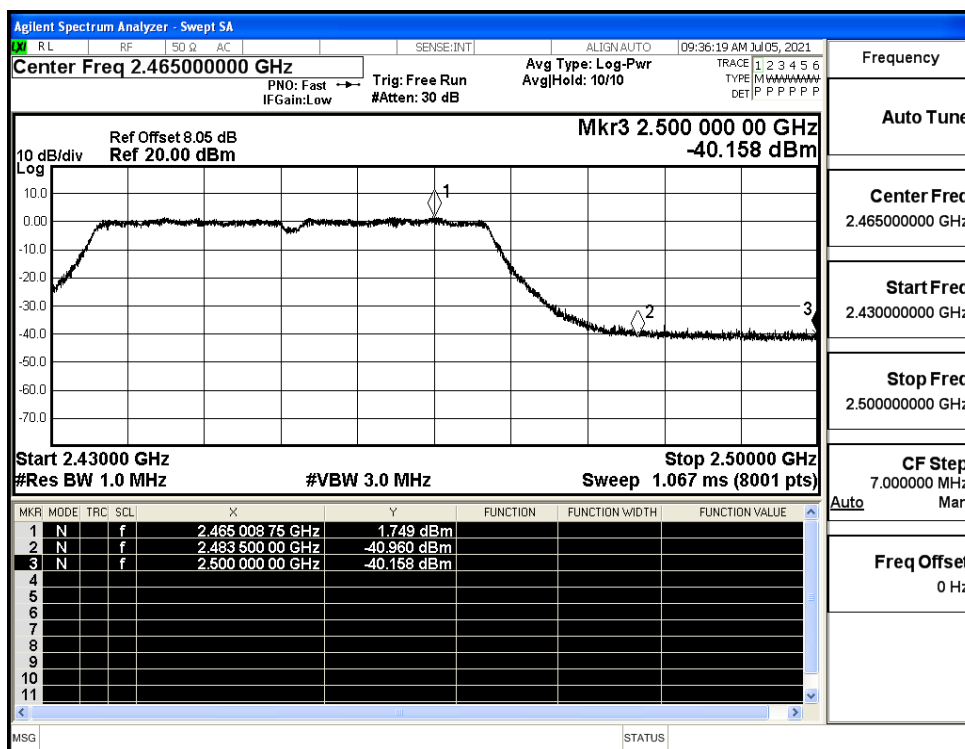


Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV





Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

