



Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: 6.5-inch 4G Smart Phone

Trade Mark: LOGIC, iSWAG, UNONU

Test Model: L65

Environmental Conditions

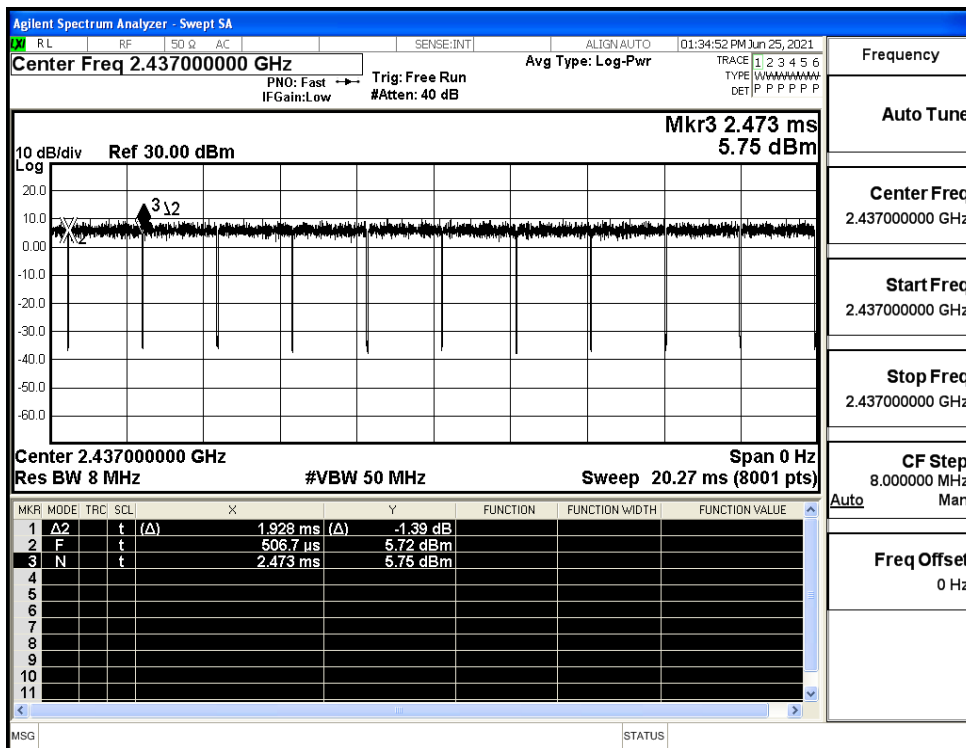
Temperature:	21.6° C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Ken He
Supervised by:	Li Huan

C.1 Duty Cycle

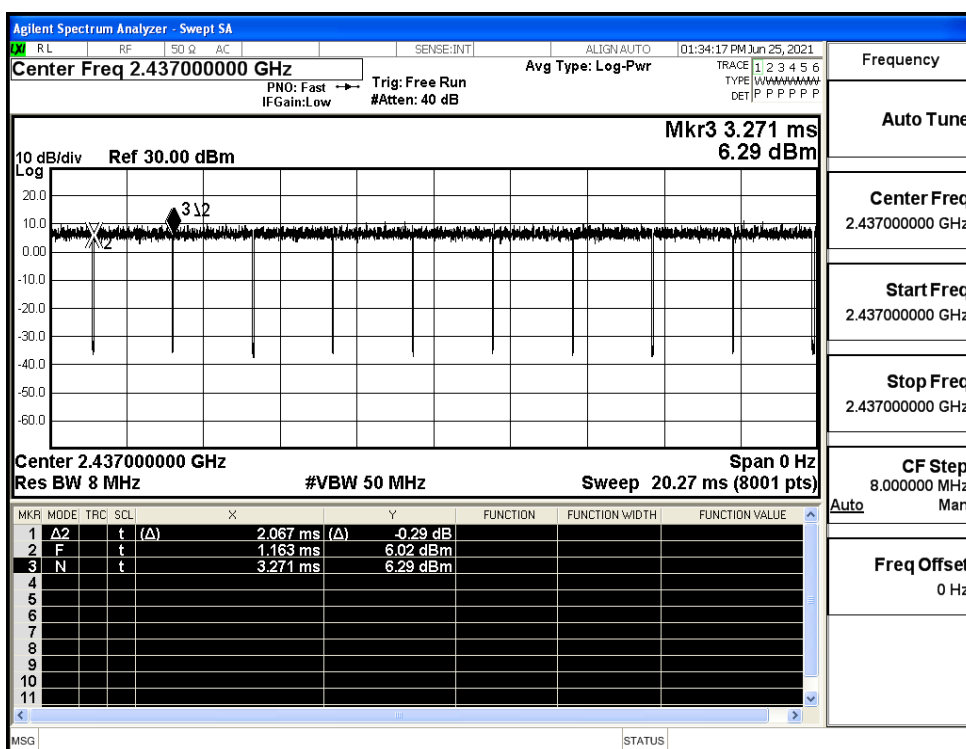
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	98.07	PASS
11G	2437	Ant1	98.08	PASS
11N20SISO	2437	Ant1	98.07	PASS



Duty Cycle_11B_2437_Ant1

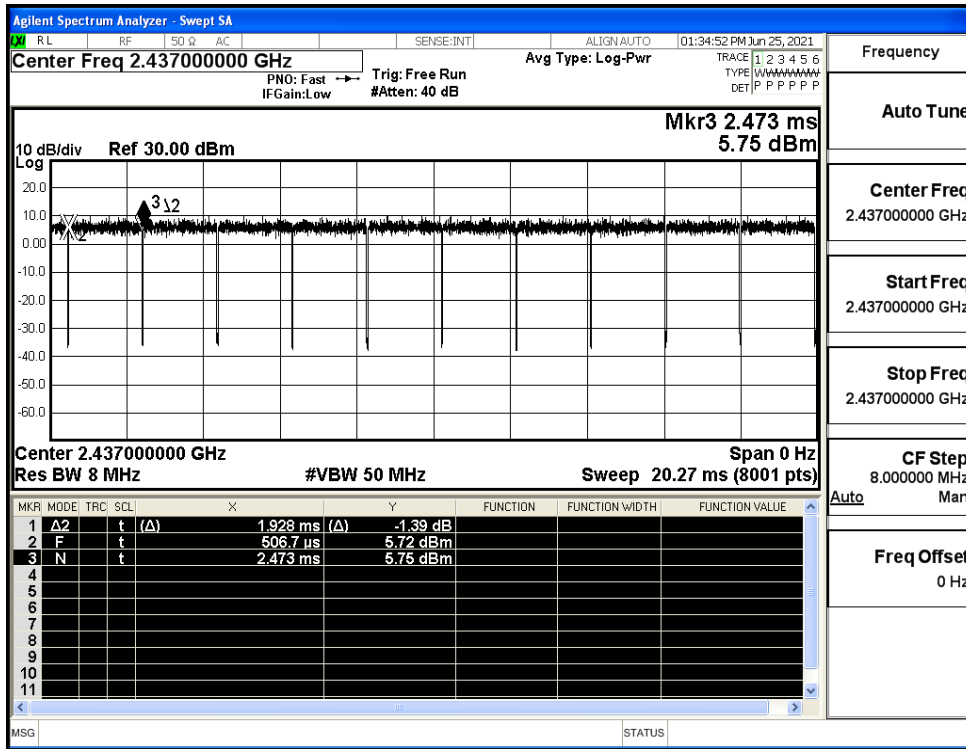


Duty Cycle_11G_2437_Ant1





Duty Cycle_11N20SISO_2437_Ant1





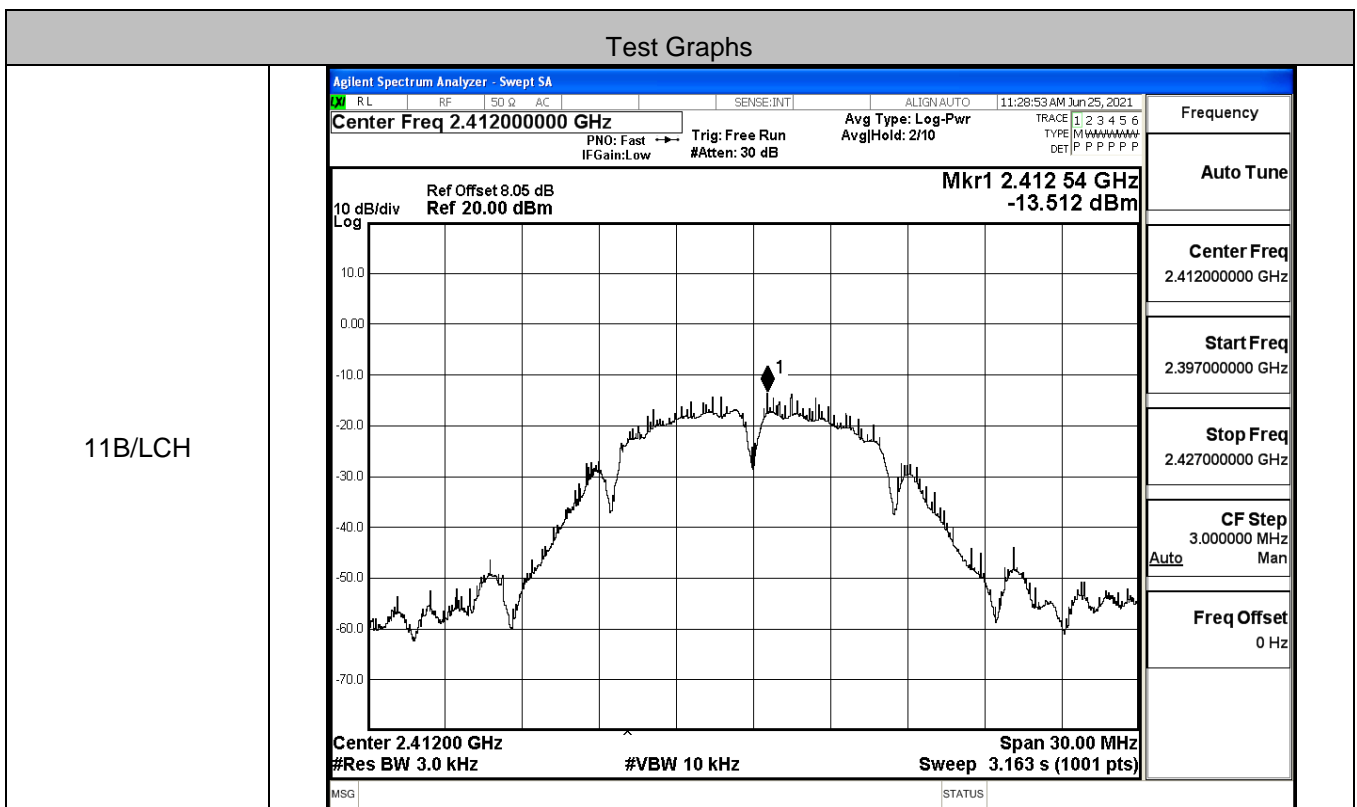
C.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.42	30	PASS
	MCH	16.29	30	PASS
	HCH	16.36	30	PASS
11G	LCH	17.20	30	PASS
	MCH	18.13	30	PASS
	HCH	17.41	30	PASS
11N20SISO	LCH	18.49	30	PASS
	MCH	17.45	30	PASS
	HCH	17.08	30	PASS



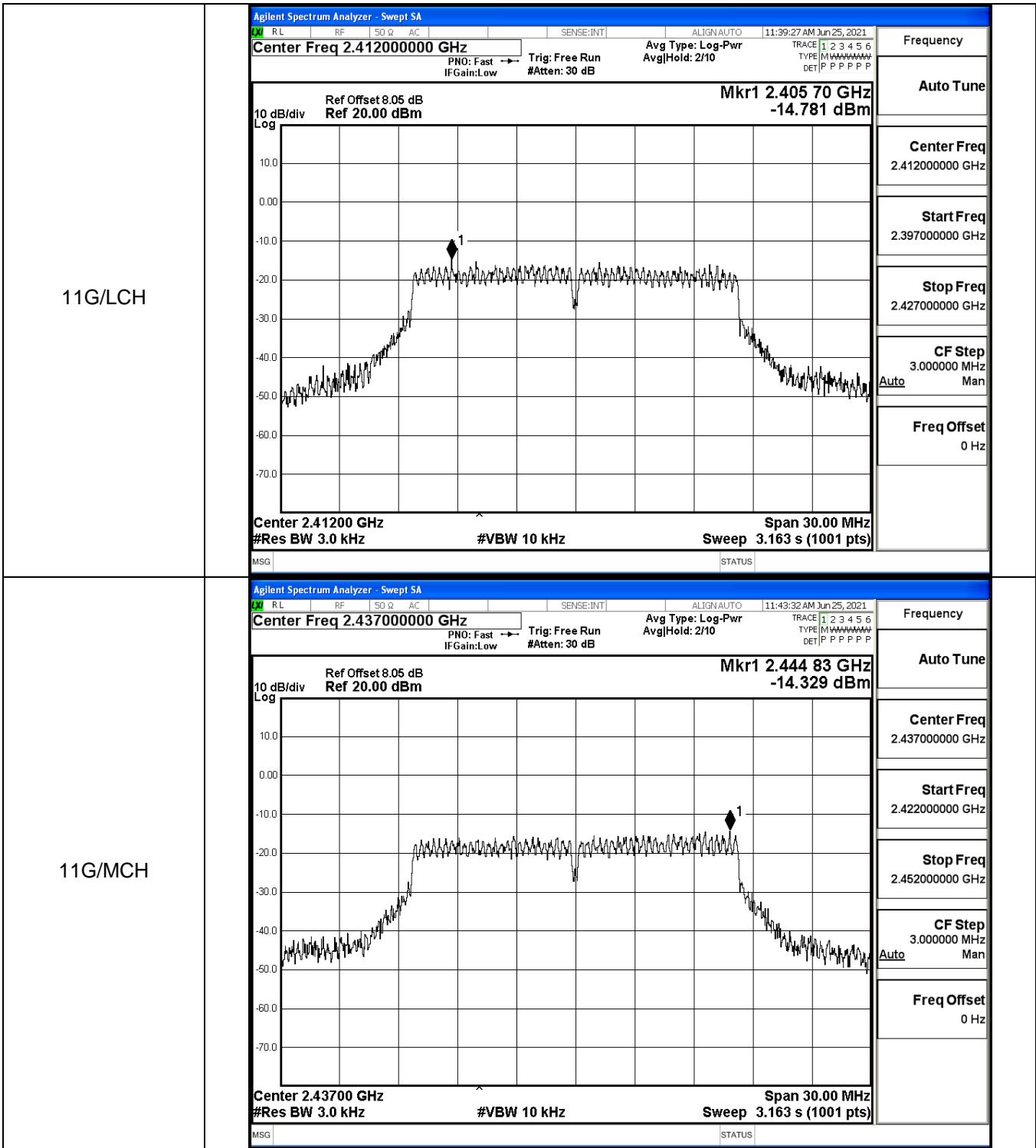
C.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-13.512	8	PASS
	MCH	-12.381	8	PASS
	HCH	-9.858	8	PASS
11G	LCH	-14.781	8	PASS
	MCH	-14.329	8	PASS
	HCH	-14.593	8	PASS
11N20SISO	LCH	-14.090	8	PASS
	MCH	-13.504	8	PASS
	HCH	-15.070	8	PASS





11B/MCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.43700000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.437 90 GHz -12.381 dBm 10 dB/div Log Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.422000000 GHz</p> <p>Stop Freq 2.452000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	11B/HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.46200000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.467 22 GHz -9.858 dBm 10 dB/div Log Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>





<p>11G/HCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.46200000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.466 98 GHz -14.593 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.447000000 GHz</p> <p>Stop Freq 2.477000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>11N20SISO/LCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.41200000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.410 11 GHz -14.090 dBm</p> <p>Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.412000000 GHz</p> <p>Start Freq 2.397000000 GHz</p> <p>Stop Freq 2.427000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

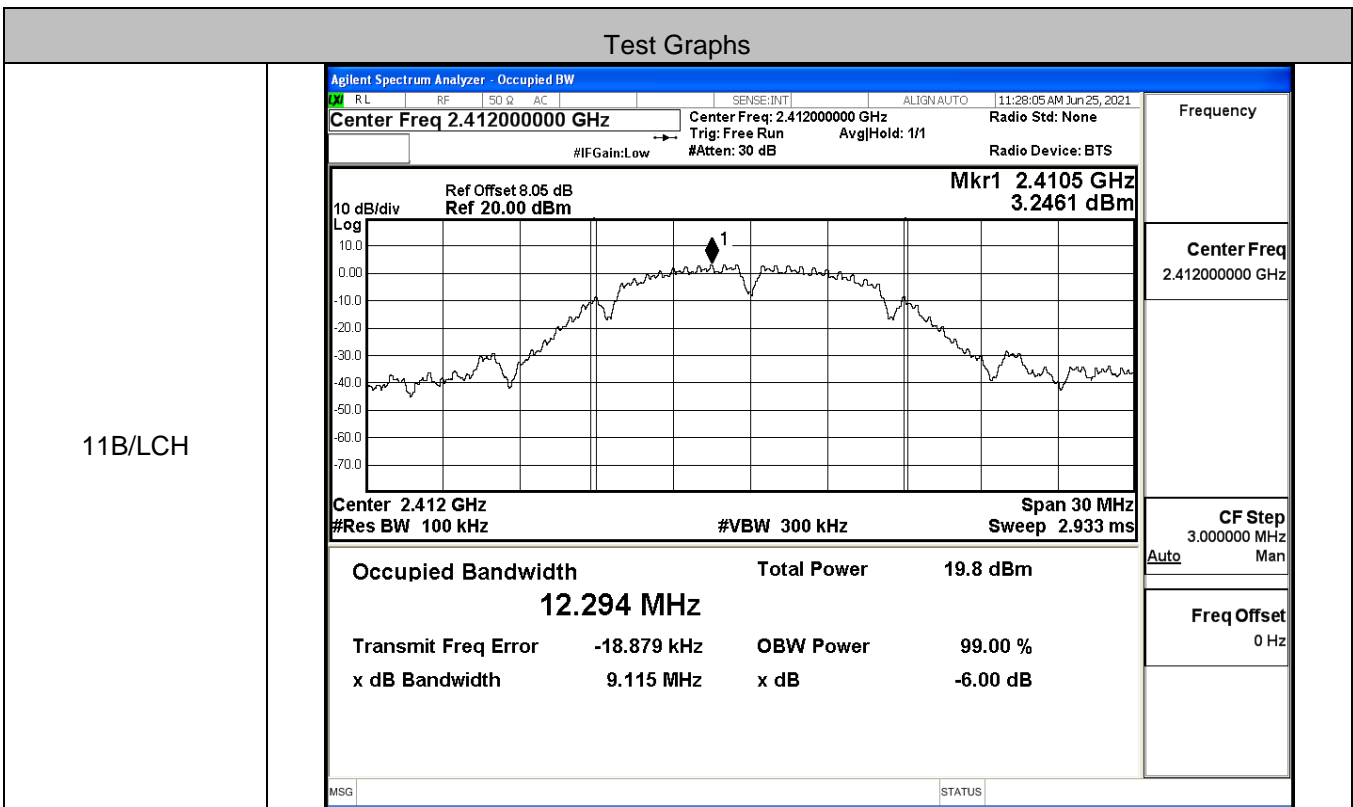


<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.43700000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.44195 GHz -13.504 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.422000000 GHz</p> <p>Stop Freq 2.452000000 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 - Swept SA</p> <p>Center Freq 2.46200000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.46074 GHz -15.070 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.447000000 GHz</p> <p>Stop Freq 2.477000000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

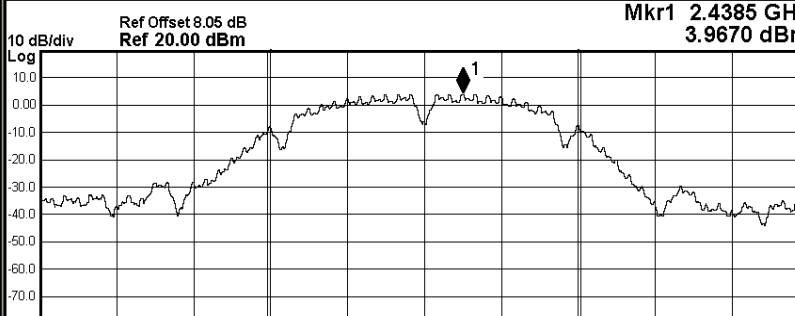
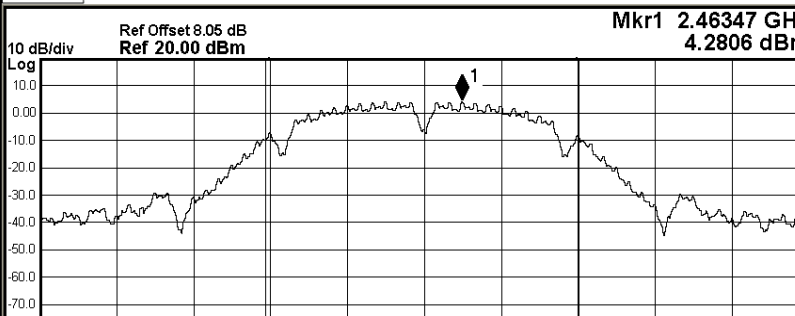


C.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.115	≥0.5	PASS
	MCH	9.131	≥0.5	PASS
	HCH	9.118	≥0.5	PASS
11G	LCH	16.35	≥0.5	PASS
	MCH	16.37	≥0.5	PASS
	HCH	16.39	≥0.5	PASS
11N20SISO	LCH	17.31	≥0.5	PASS
	MCH	17.60	≥0.5	PASS
	HCH	17.32	≥0.5	PASS



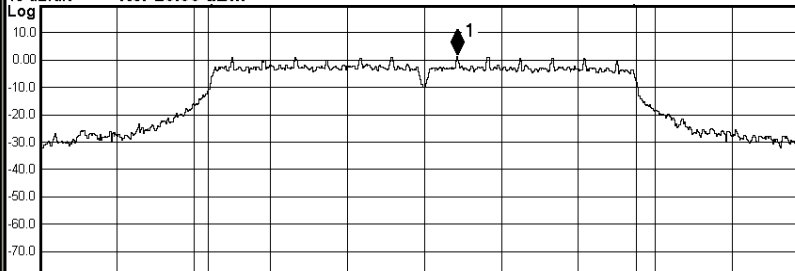
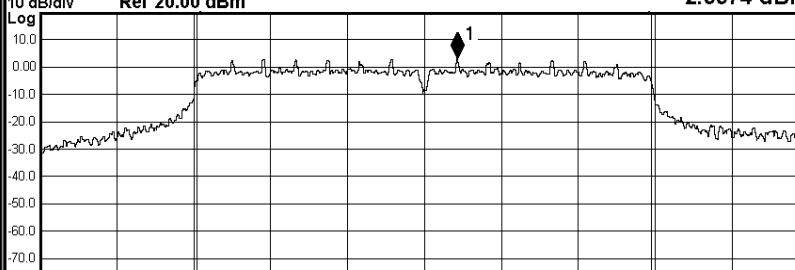


11B/MCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Radio Std: None Trig: Free Run Avg Hold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p>  <p>Center 2.437 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 20.7 dBm 12.186 MHz</p> <p>Transmit Freq Error -10.294 kHz OBW Power 99.00 % x dB Bandwidth 9.131 MHz x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	11B/HCH	<p>Agilent Spectrum Analyzer - Occupied BW</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>Center 2.462 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 20.8 dBm 12.209 MHz</p> <p>Transmit Freq Error -73.778 kHz OBW Power 99.00 % x dB Bandwidth 9.118 MHz x dB -6.00 dB</p>



11G/LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Center Freq: 2.41200000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.41326 GHz 1.7136 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.644 MHz</p> <p>Total Power 19.2 dBm</p> <p>Transmit Freq Error -64.935 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.35 MHz</p> <p>x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.41200000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
	11G/MCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Center Freq: 2.43700000 GHz Trig: Free Run #IFGain: Low #Atten: 30 dB</p> <p>Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Mkr1 2.44324 GHz 2.3001 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 16.808 MHz</p> <p>Total Power 20.1 dBm</p> <p>Transmit Freq Error 35.596 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.37 MHz</p> <p>x dB -6.00 dB</p> <p>MSG STATUS</p>



11G/HCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:44:39 AM Jun 25, 2021</p> <p>Center Freq 2.46200000 GHz Center Freq: 2.46200000 GHz Radio Std: None Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.46329 GHz Ref 20.00 dBm 1.3754 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 19.3 dBm 16.692 MHz</p> <p>Transmit Freq Error -81.094 kHz OBW Power 99.00 % x dB Bandwidth 16.39 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>
	11N20SISO/LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:48:59 AM Jun 25, 2021</p> <p>Center Freq 2.41200000 GHz Center Freq: 2.41200000 GHz Radio Std: None Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.41329 GHz Ref 20.00 dBm 2.9974 dBm</p>  <p>Center 2.412 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 20.8 dBm 17.737 MHz</p> <p>Transmit Freq Error -13.534 kHz OBW Power 99.00 % x dB Bandwidth 17.31 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>



<p>11N20SISO/MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Mkr1 2.44198 GHz 1.3886 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.701 MHz</p> <p>Total Power 19.2 dBm</p> <p>Transmit Freq Error 5.874 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.60 MHz</p> <p>x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 3.000000 MHz</p> <p>Freq Offset 0 Hz</p>
<p>11N20SISO/HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Mkr1 2.45573 GHz 1.3104 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.654 MHz</p> <p>Total Power 19.1 dBm</p> <p>Transmit Freq Error -30.507 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.32 MHz</p> <p>x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.46200000 GHz</p> <p>CF Step 3.000000 MHz</p> <p>Freq Offset 0 Hz</p>



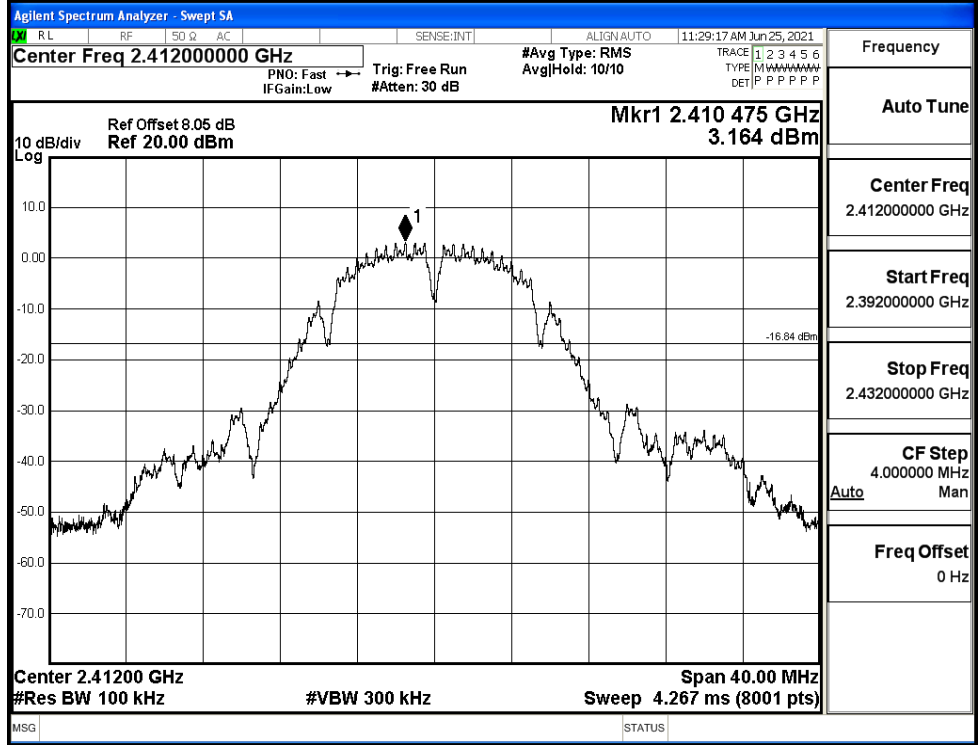
C.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.164	-38.239	-16.836	PASS
	MCH	3.96	-37.600	-16.040	PASS
	HCH	3.973	-37.441	-16.027	PASS
11G	LCH	1.205	-37.290	-18.795	PASS
	MCH	2.145	-38.927	-17.855	PASS
	HCH	1.364	-37.771	-18.636	PASS
11N20 SISO	LCH	3.111	-37.537	-16.889	PASS
	MCH	1.285	-38.227	-18.715	PASS
	HCH	0.581	-38.020	-19.419	PASS

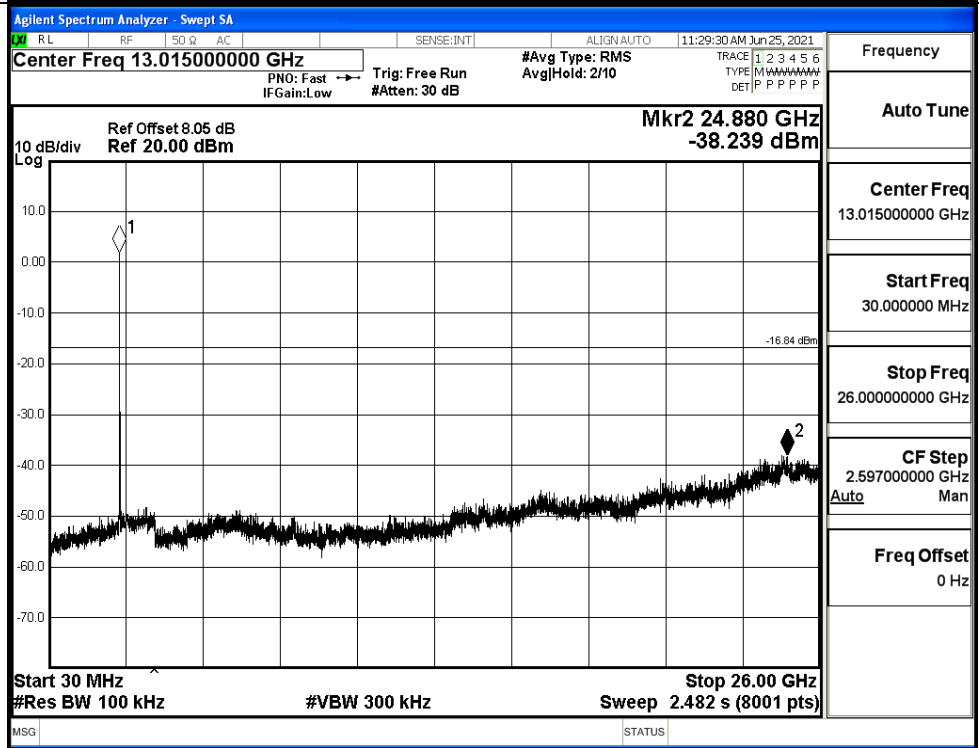


11B_LCH_Graphs

Pref/11B/LCH



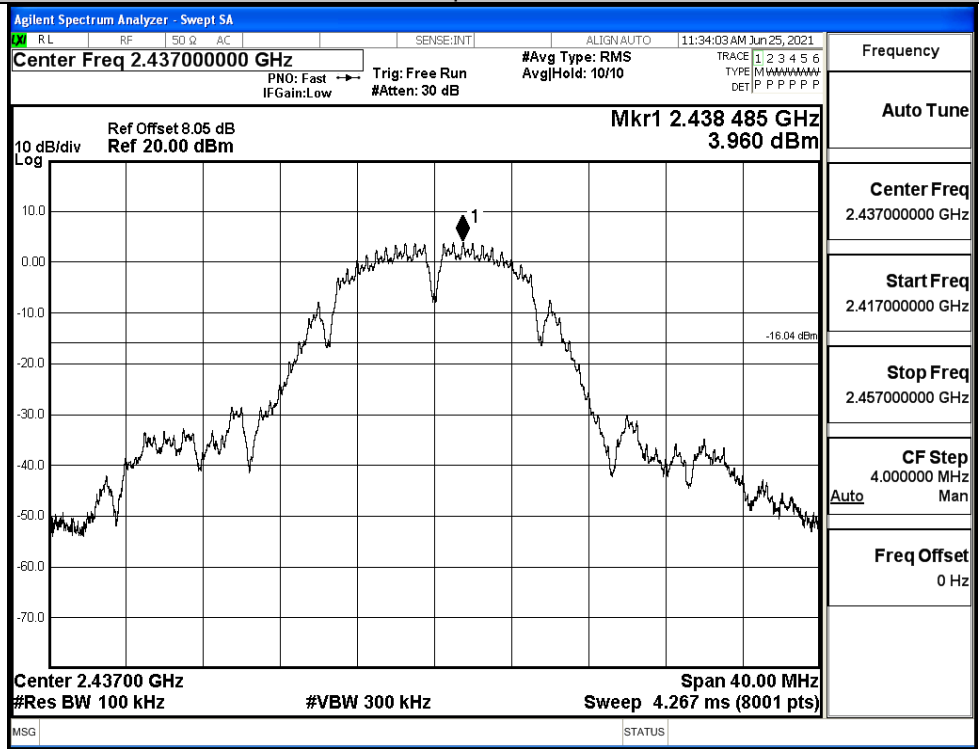
Puw/11B/LCH



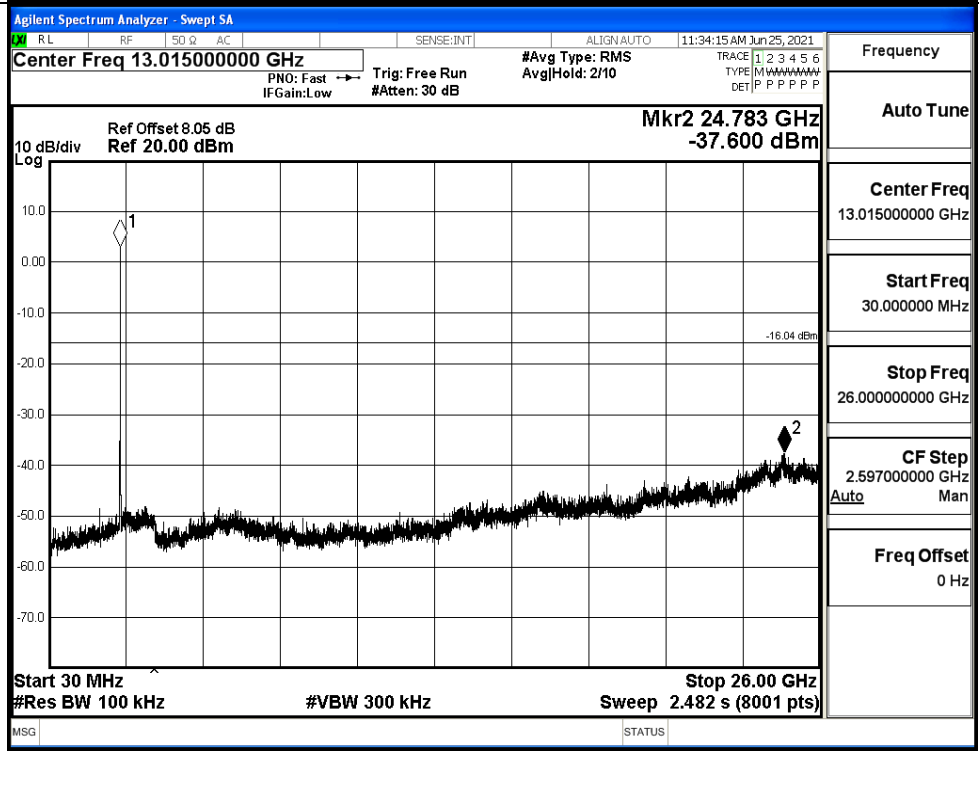


11B_MCH_Graphs

Pref/11B/MCH



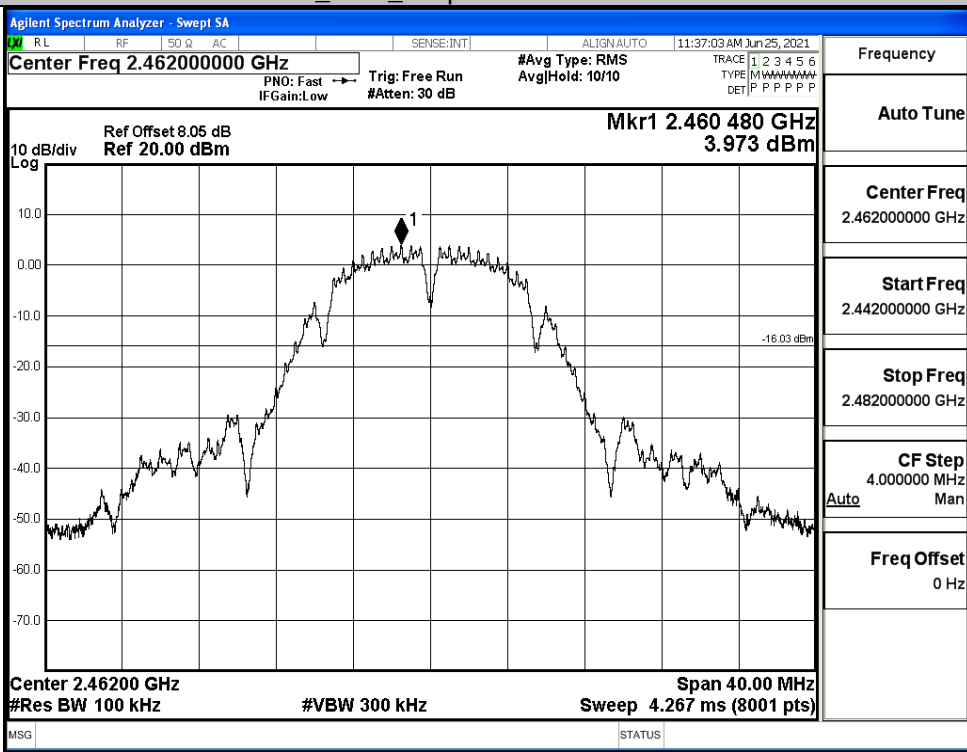
Puw/11B/MCH



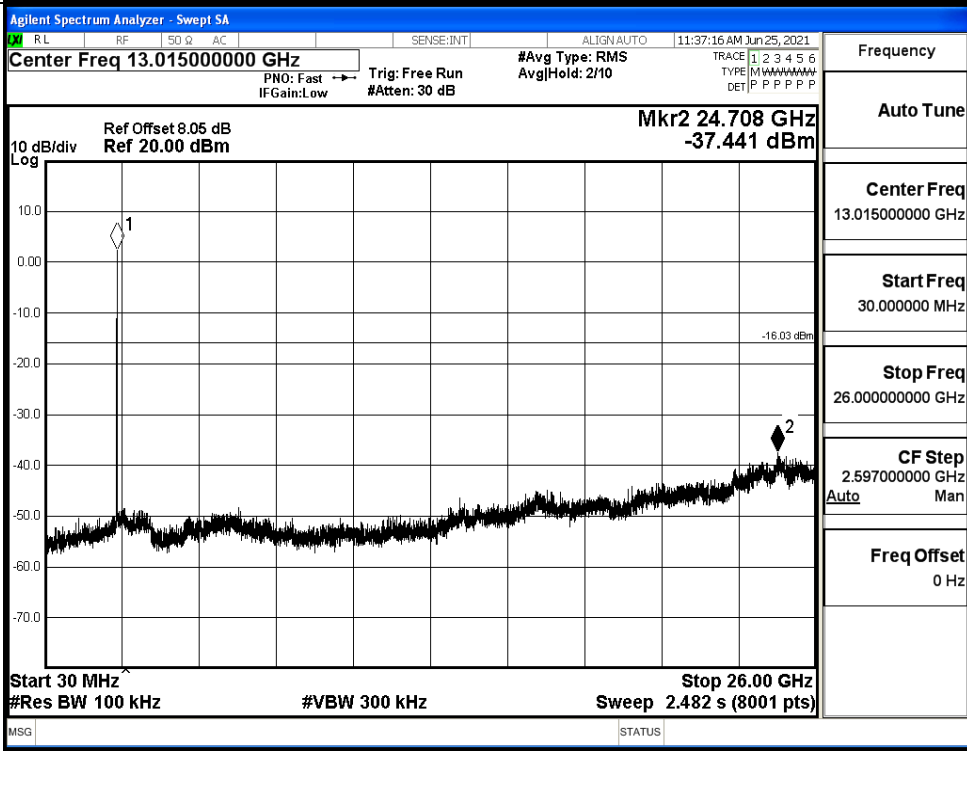


11B_HCH_Graphs

Pref/11B/HCH



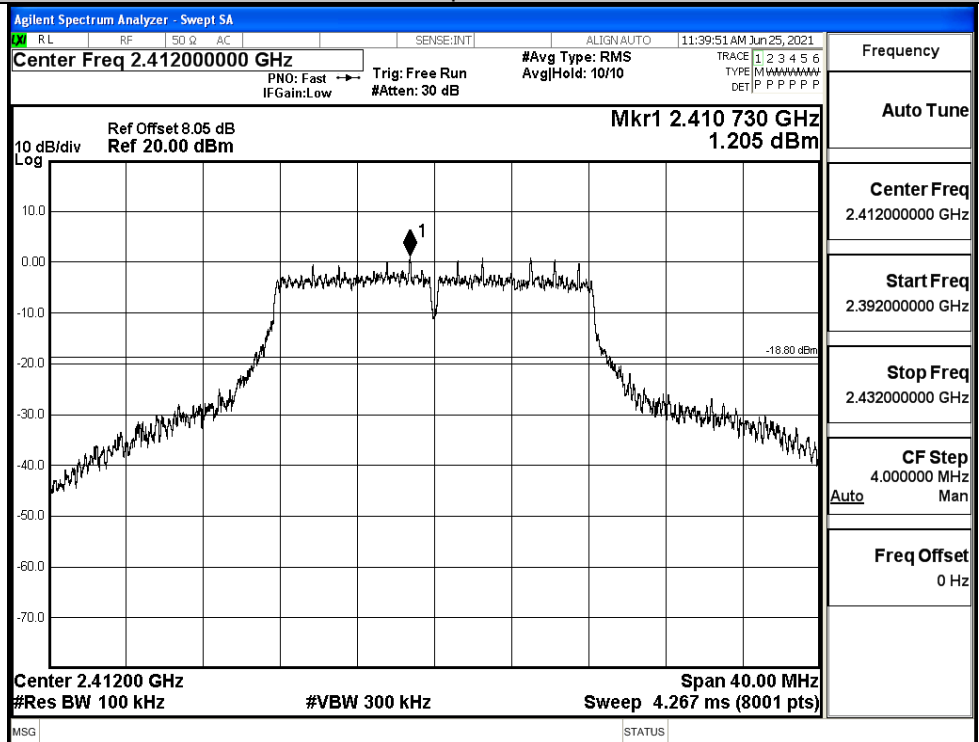
Puw/11B/HCH



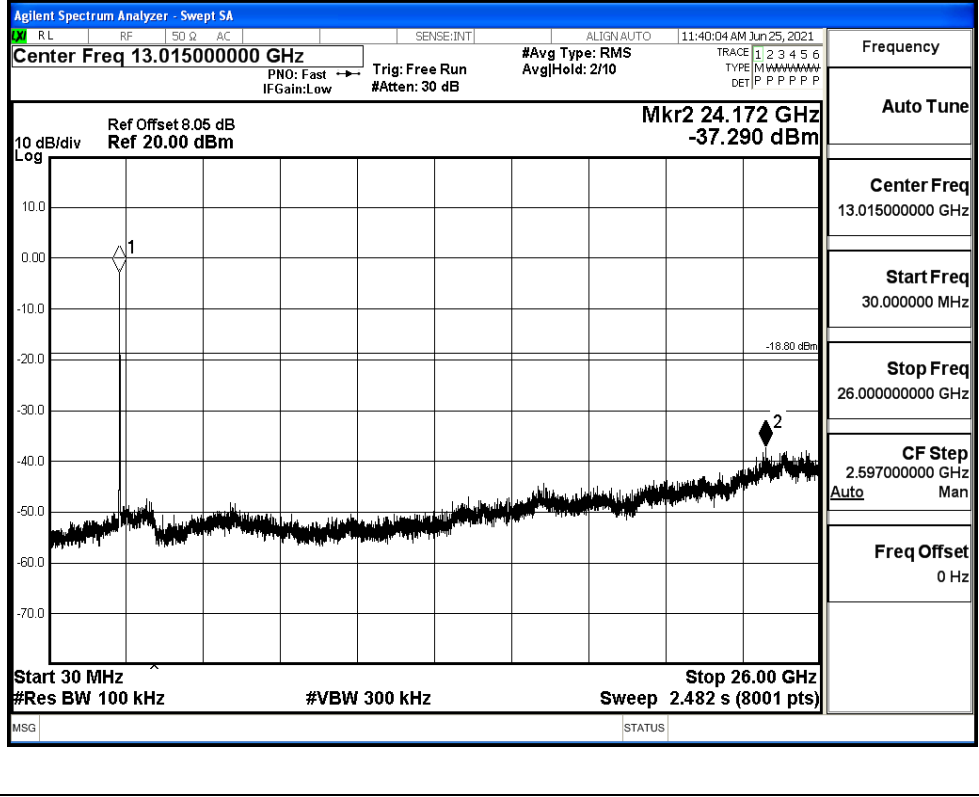


11G_LCH_Graphs

Pref/11G/LCH



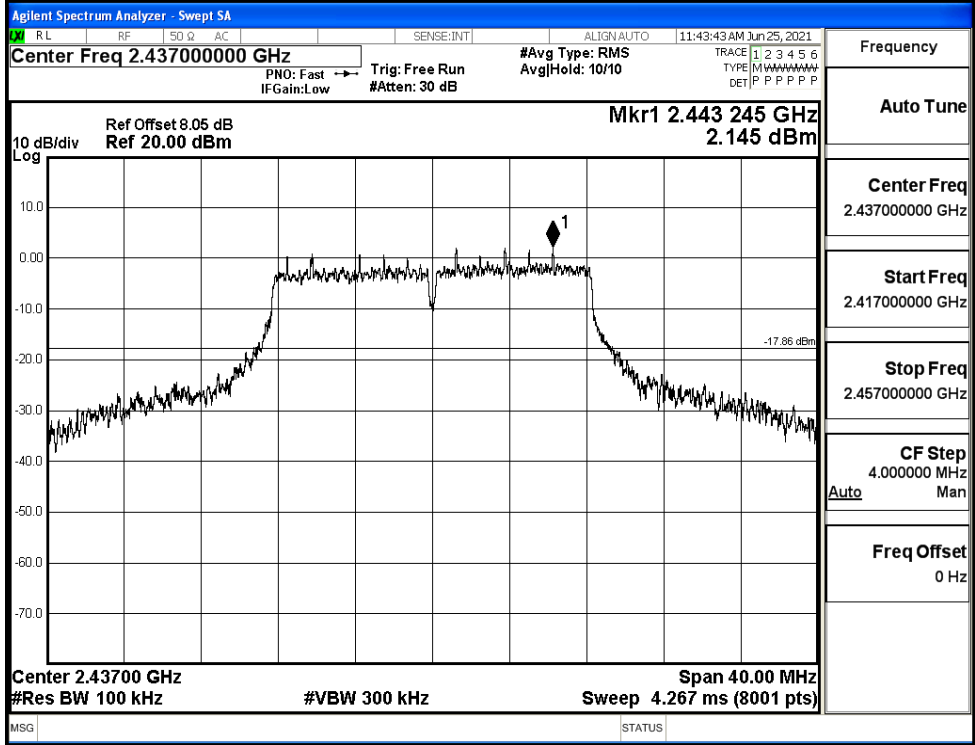
Puw/11G/LCH



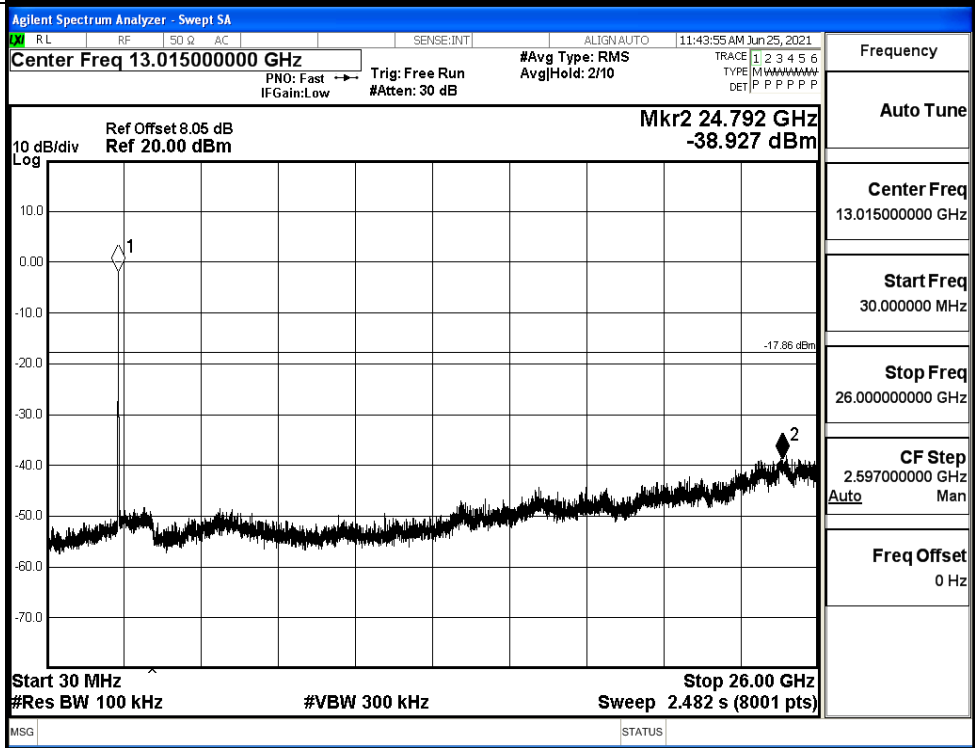


11G_MCH_Graphs

Pref/11G/MCH



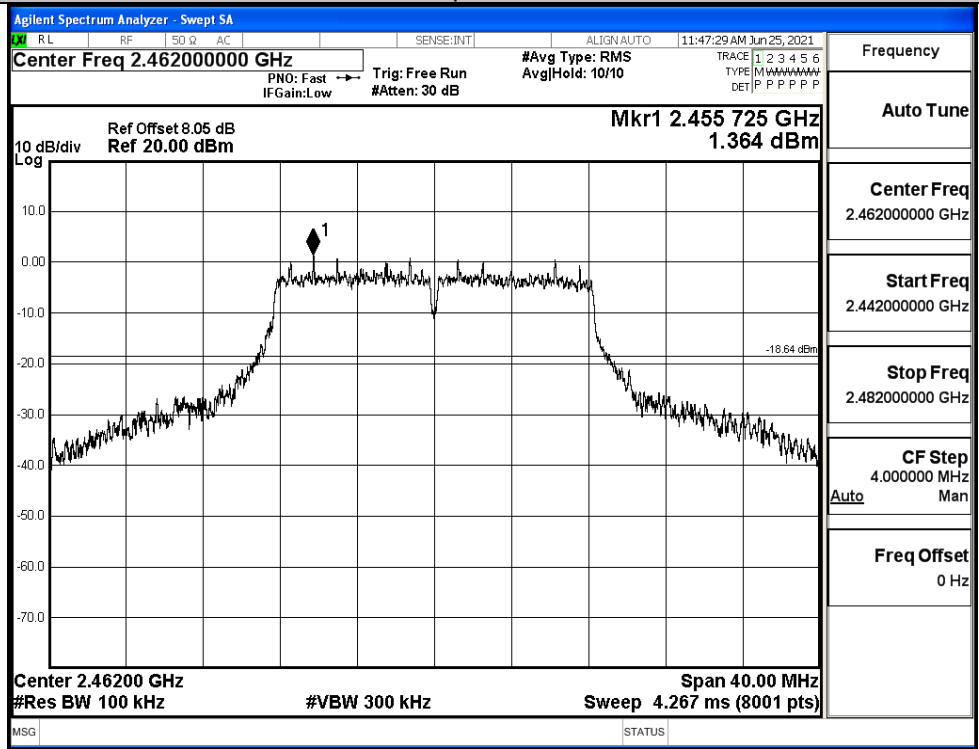
Puw/11G/MCH



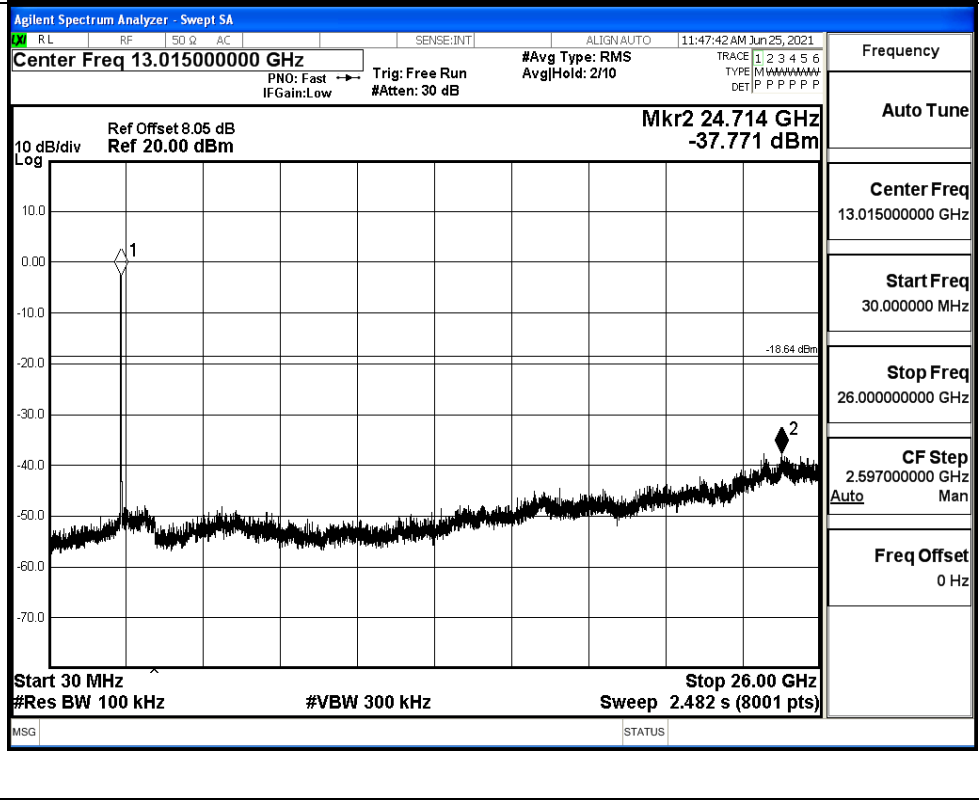


11G_HCH_Graphs

Pref/11G/HCH



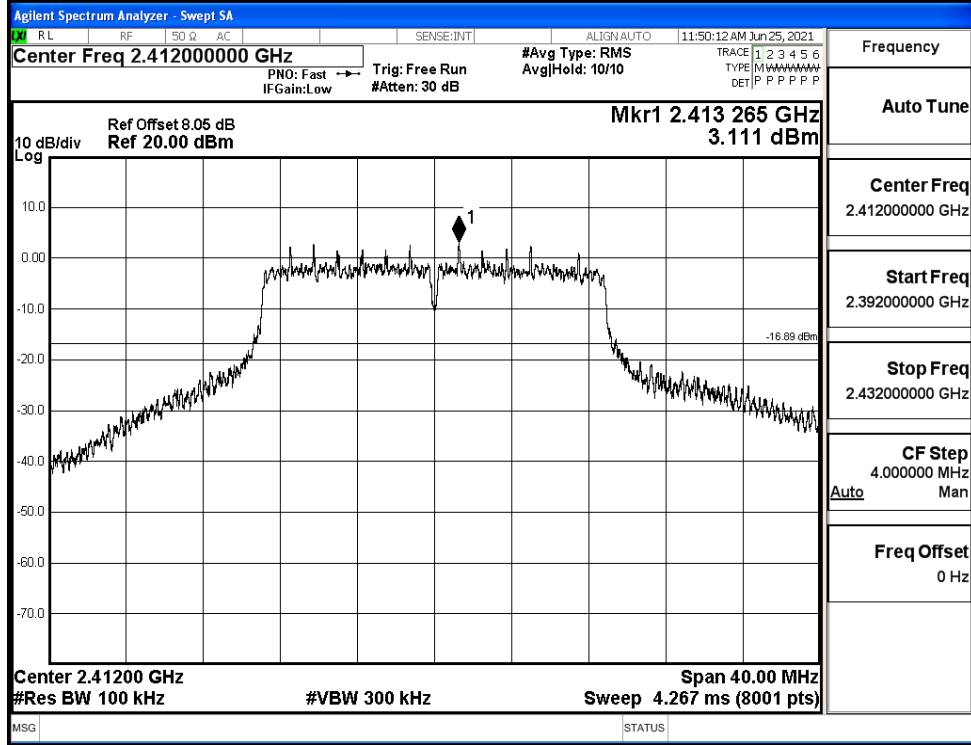
Puw/11G/HCH



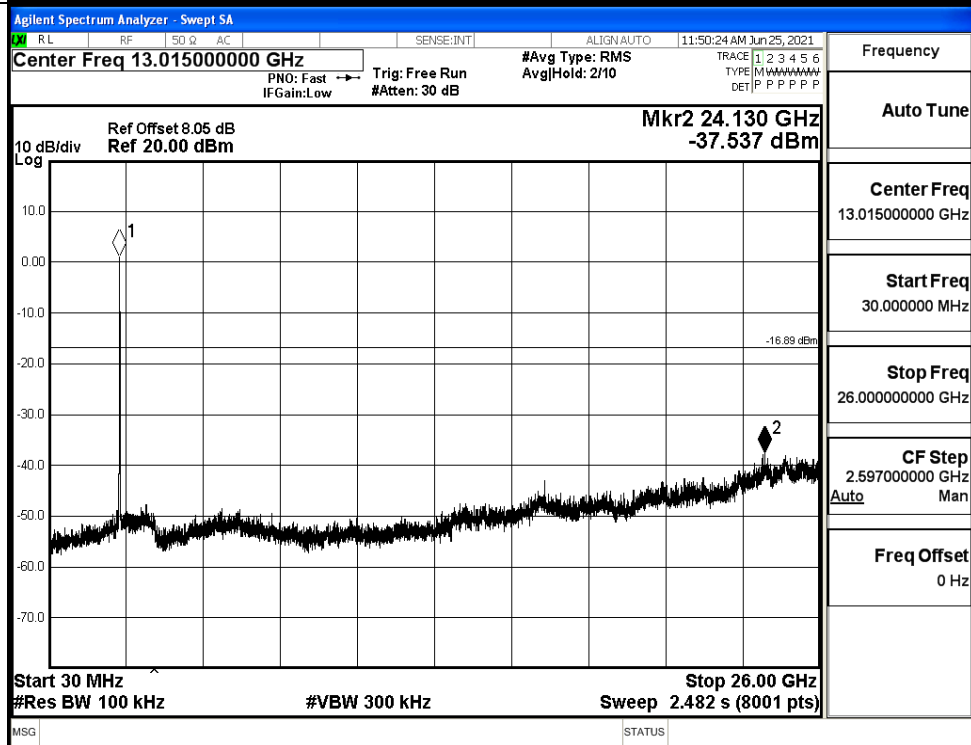


11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCH



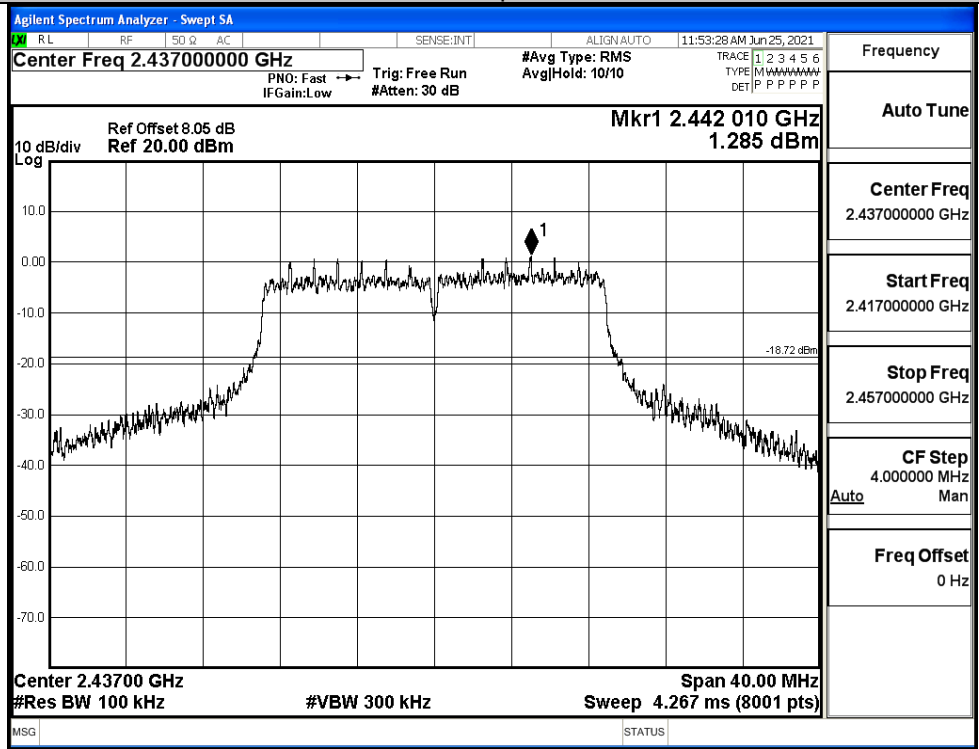
Puw/11N20
SISO/LCH



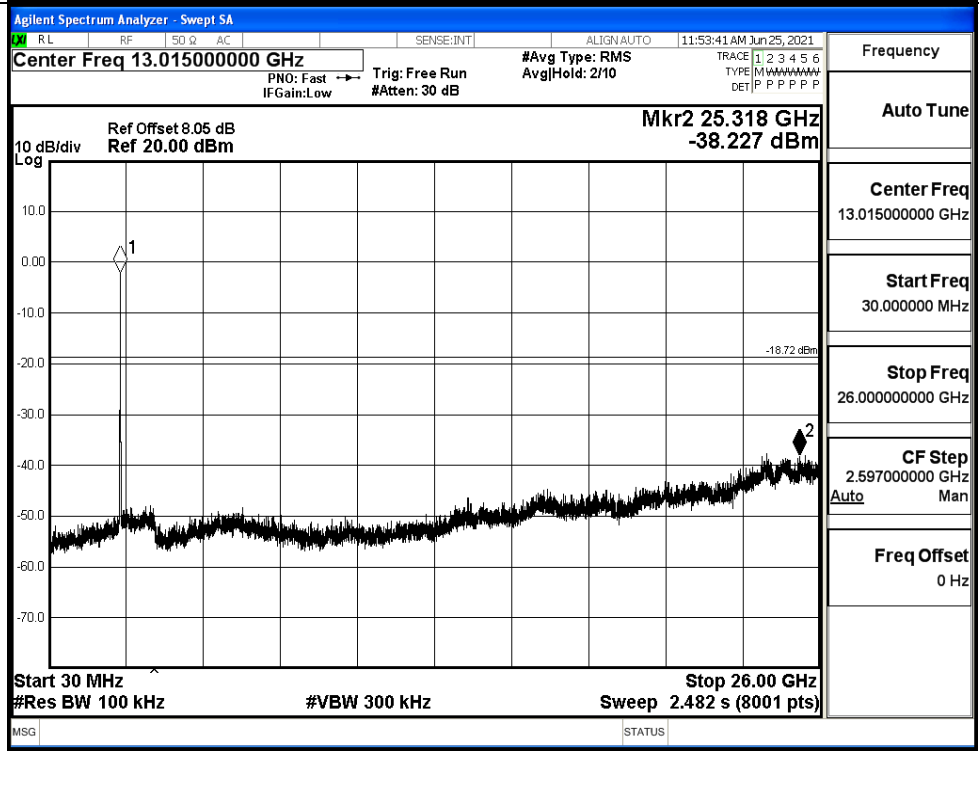


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH



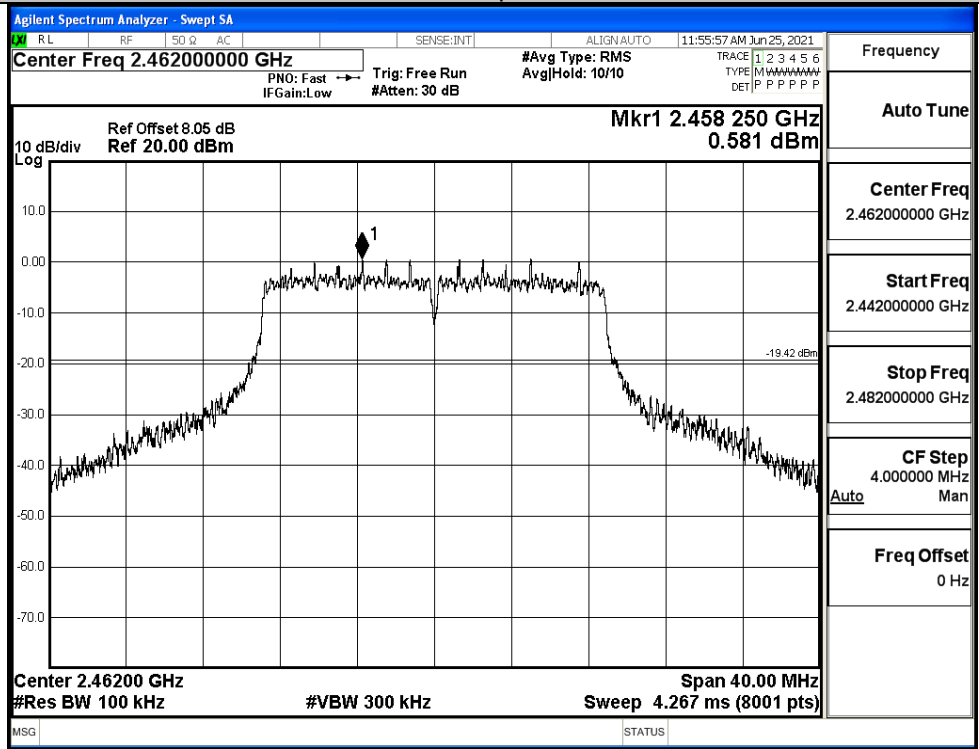
Puw/11N20
SISO/MCH



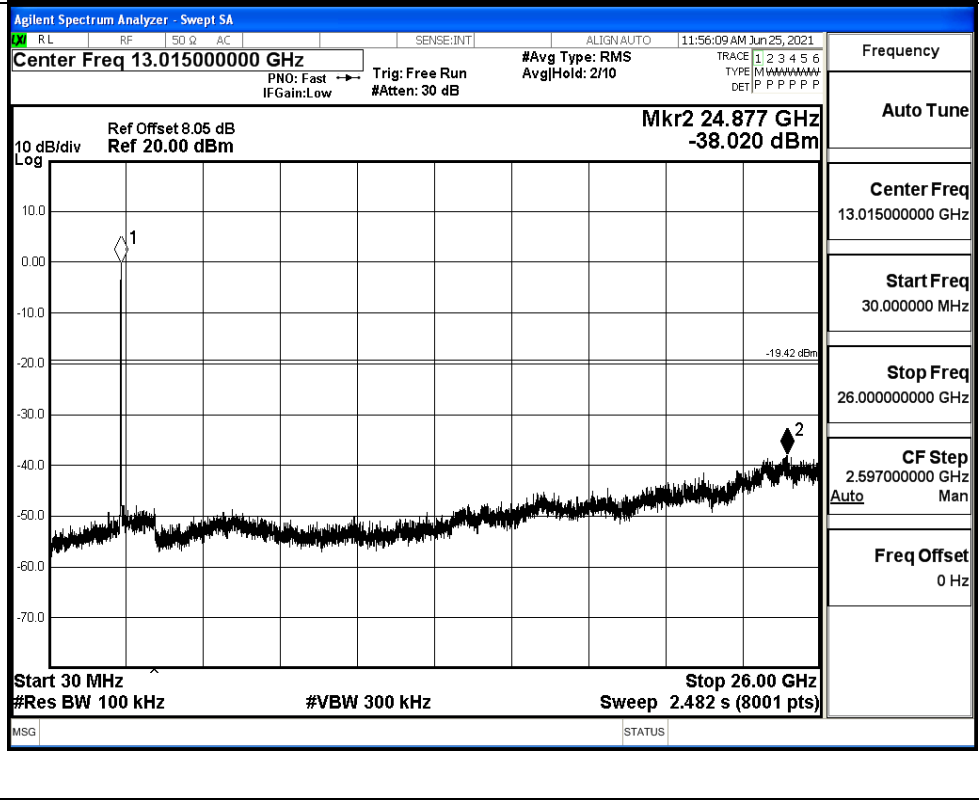


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH



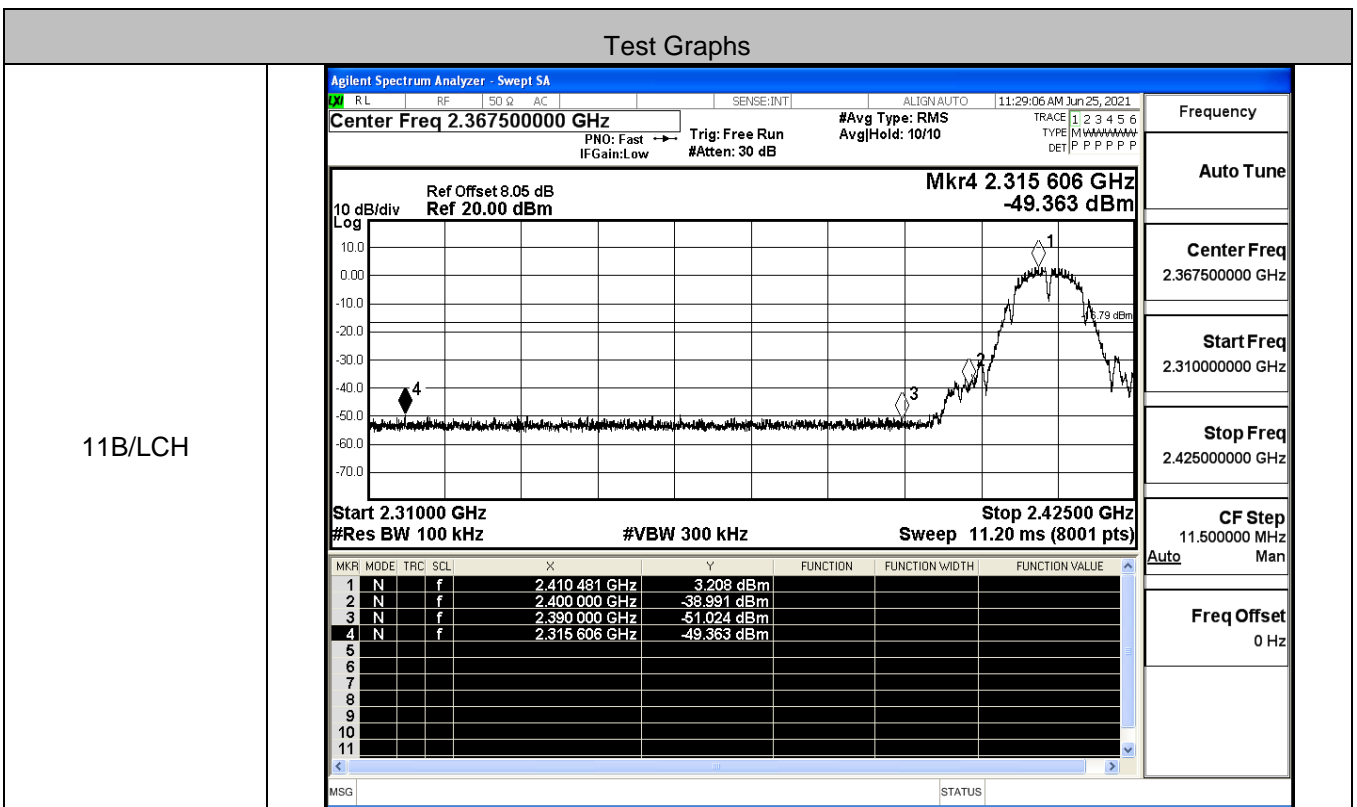
Puw/11N20
SISO/HCH





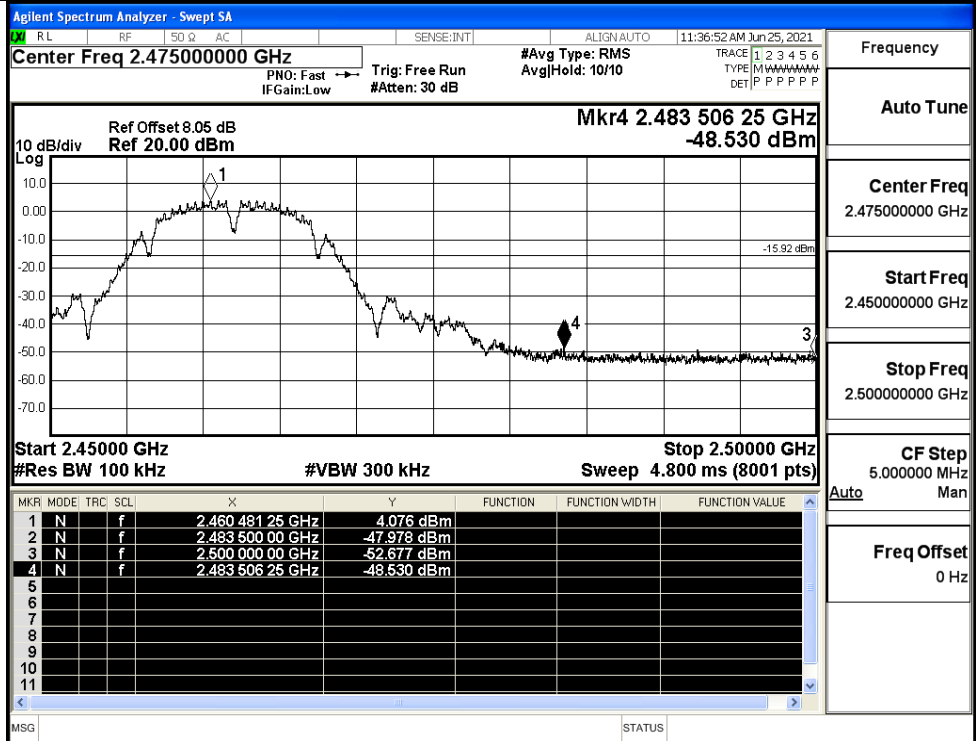
C.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.208	-49.363	-16.79	PASS
	HCH	4.076	-48.530	-15.92	PASS
11G	LCH	0.839	-46.579	-19.16	PASS
	HCH	1.488	-38.046	-18.51	PASS
11N20SISO	LCH	3.121	-44.601	-16.88	PASS
	HCH	0.808	-43.772	-19.19	PASS

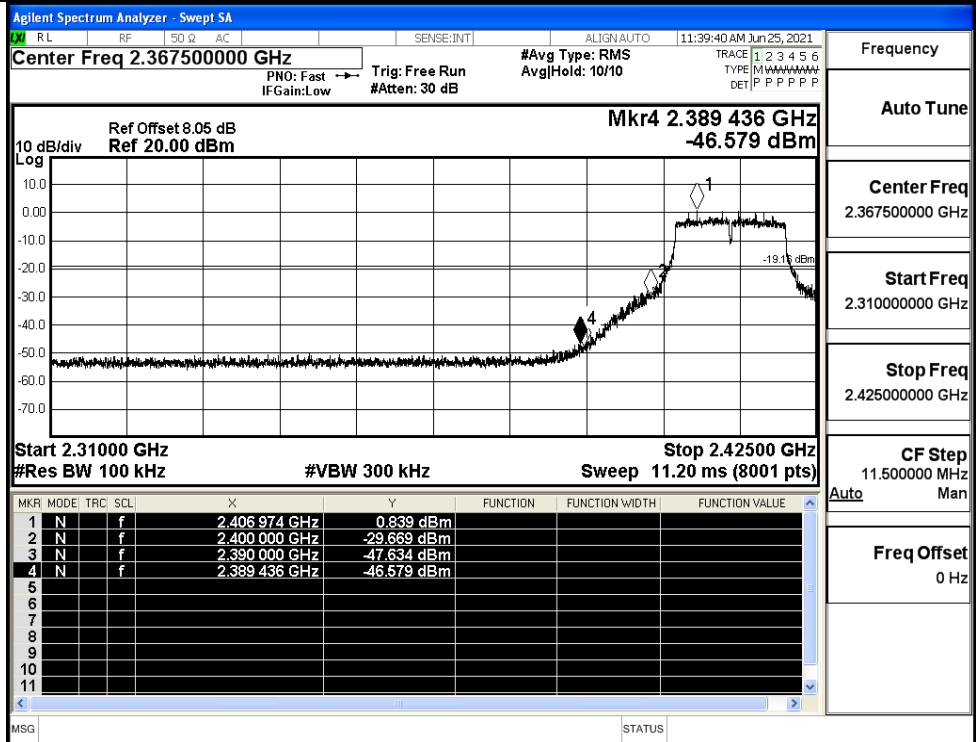




11B/HCH

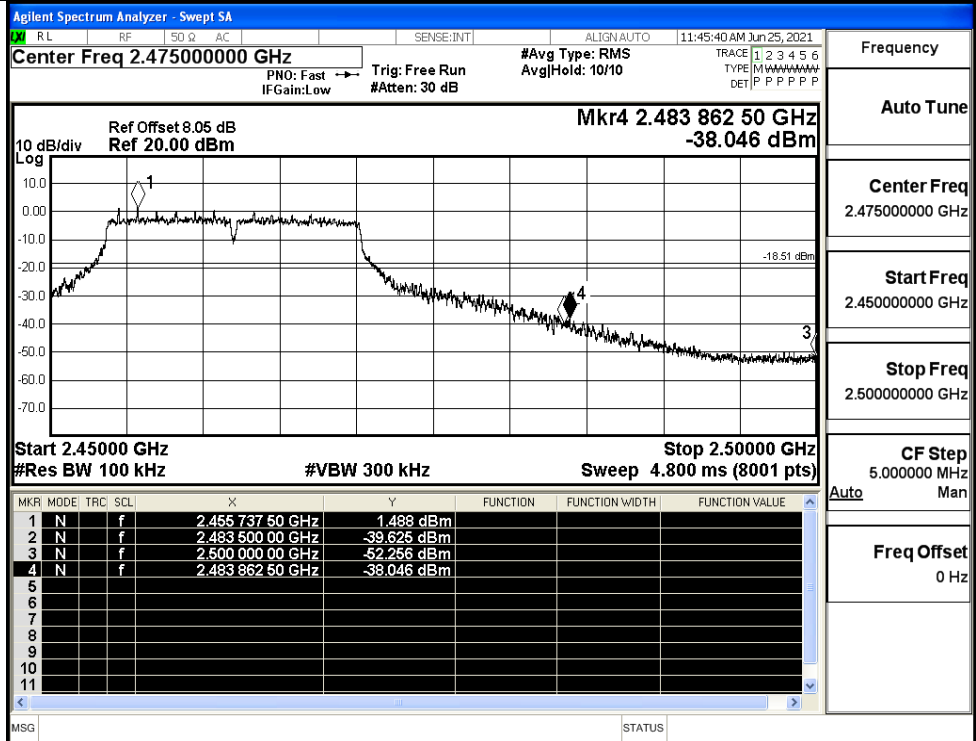


11G/LCH



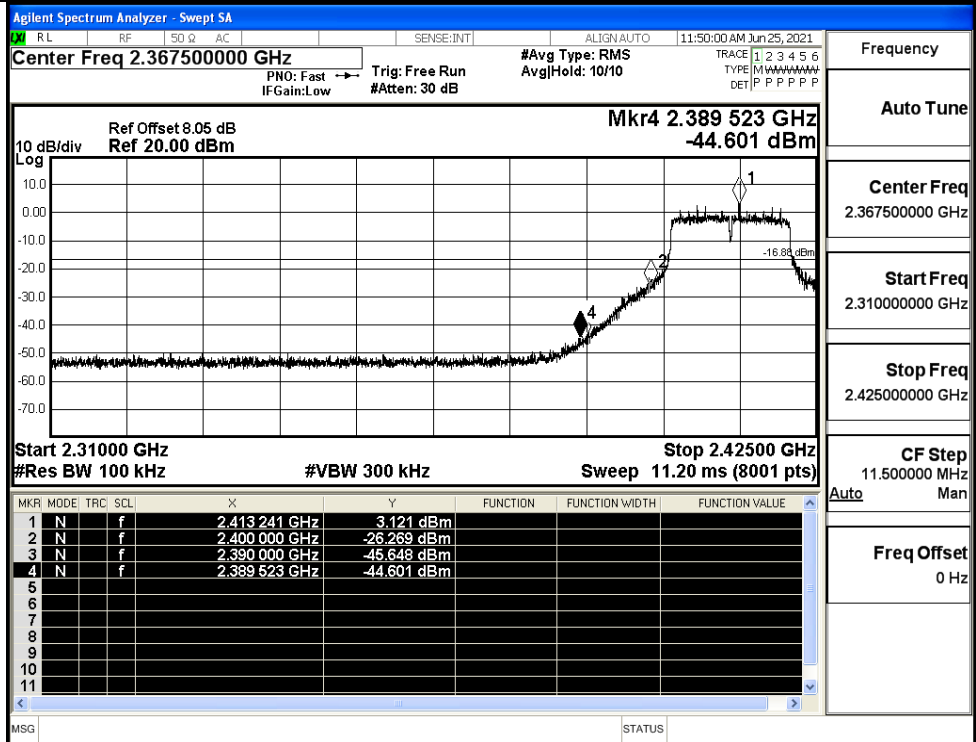


11G/HCH

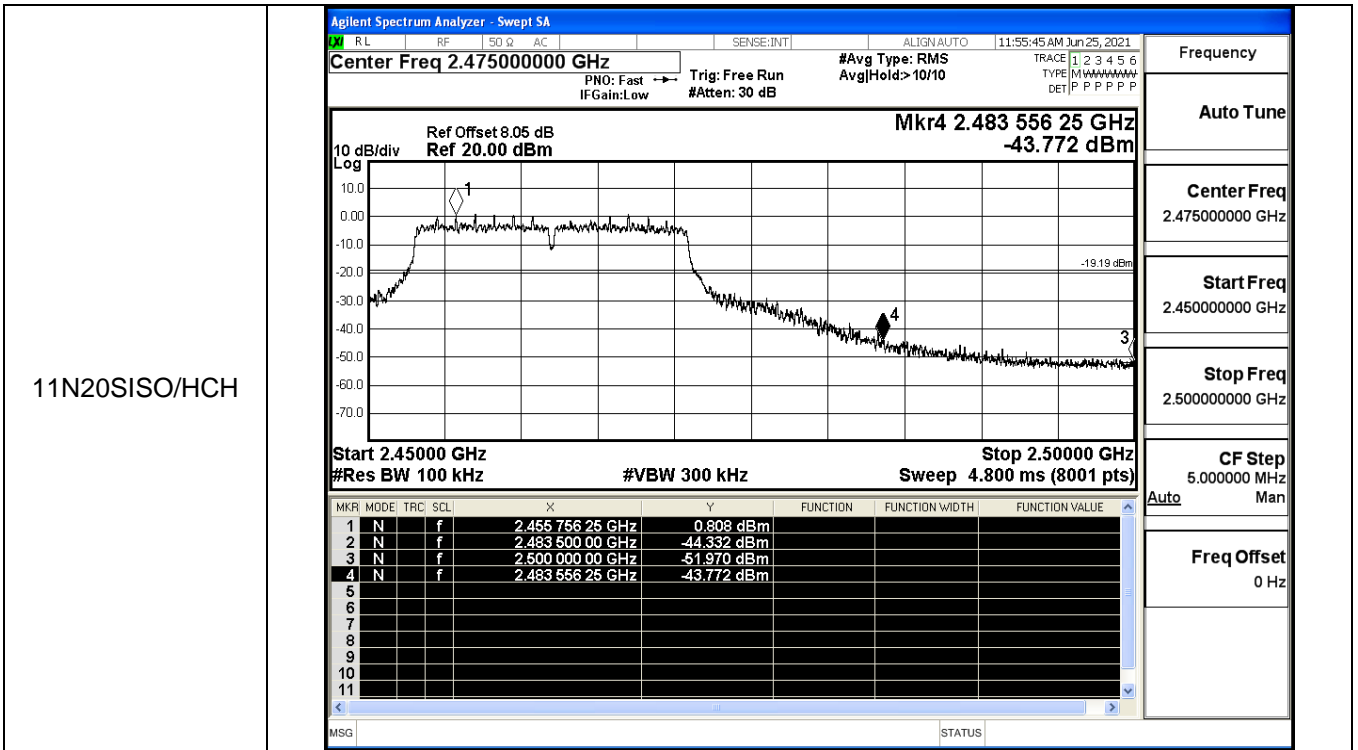


Frequency
Auto Tune
Center Freq 2.47500000 GHz
Start Freq 2.45000000 GHz
Stop Freq 2.50000000 GHz
CF Step 5.000000 MHz
Freq Offset 0 Hz

11N20SISO/LCH



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





C.7 Emissions in Restricted Bands

Test Result

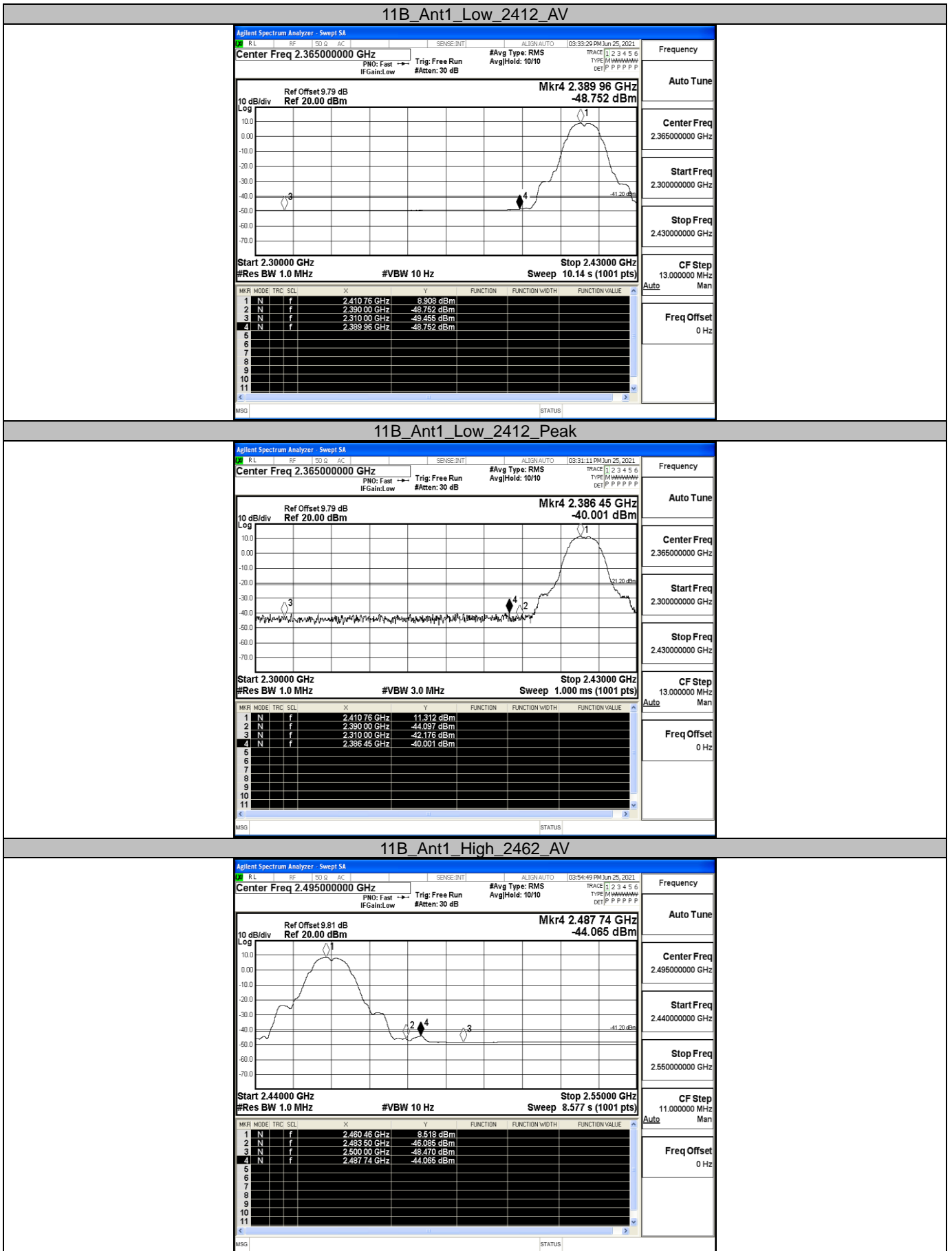
TestMode	Antenna	ChName	Channel	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-49.46	≤-41.20	PASS
				AV	2389.960	-48.75	≤-41.20	PASS
				AV	2390.000	-48.75	≤-41.20	PASS
				Peak	2310.000	-42.18	≤-21.20	PASS
				Peak	2386.450	-40	≤-21.20	PASS
		Peak	2390.000	-44.1	≤-21.20	PASS		
		High	2462	AV	2483.500	-46.09	≤-41.20	PASS
				AV	2487.740	-44.06	≤-41.20	PASS
				AV	2500.000	-48.47	≤-41.20	PASS
				Peak	2483.500	-39.57	≤-21.20	PASS
Peak	2487.520			-38.61	≤-21.20	PASS		
Peak	2500.000	-41.92	≤-21.20	PASS				
11G	Ant1	Low	2412	AV	2310.000	-49.47	≤-41.20	PASS
				AV	2389.960	-47.7	≤-41.20	PASS
				AV	2390.000	-47.7	≤-41.20	PASS
				Peak	2310.000	-44.84	≤-21.20	PASS
				Peak	2389.310	-39.46	≤-21.20	PASS
		Peak	2390.000	-43.01	≤-21.20	PASS		
		High	2462	AV	2483.500	-47.17	≤-41.20	PASS
				AV	2487.410	-47.03	≤-41.20	PASS
				AV	2500.000	-48.45	≤-41.20	PASS
				Peak	2483.500	-41.83	≤-21.20	PASS
Peak	2489.060			-38.64	≤-21.20	PASS		
Peak	2500.000	-44.41	≤-21.20	PASS				
11N20SISO	Ant1	Low	2412	AV	2310.000	-49.45	≤-41.20	PASS
				AV	2389.960	-45.17	≤-41.20	PASS
				AV	2390.000	-45.17	≤-41.20	PASS
				Peak	2310.000	-42.67	≤-21.20	PASS
				Peak	2389.960	-32.07	≤-21.20	PASS
		Peak	2390.000	-32.07	≤-21.20	PASS		
		High	2462	AV	2483.500	-43.48	≤-41.20	PASS
				AV	2488.070	-42.36	≤-41.20	PASS
				AV	2500.000	-48.44	≤-41.20	PASS
				Peak	2483.500	-37.9	≤-21.20	PASS
Peak	2486.970			-34.52	≤-21.20	PASS		
Peak	2500.000	-46.16	≤-21.20	PASS				

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

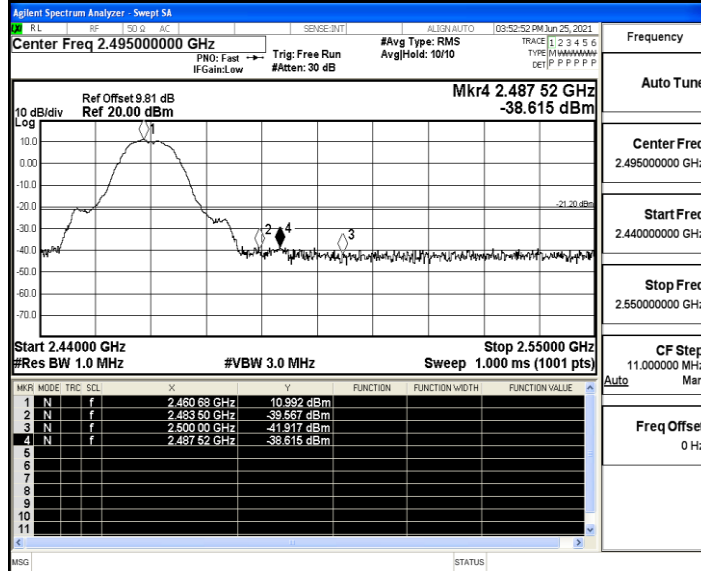


Test Graphs



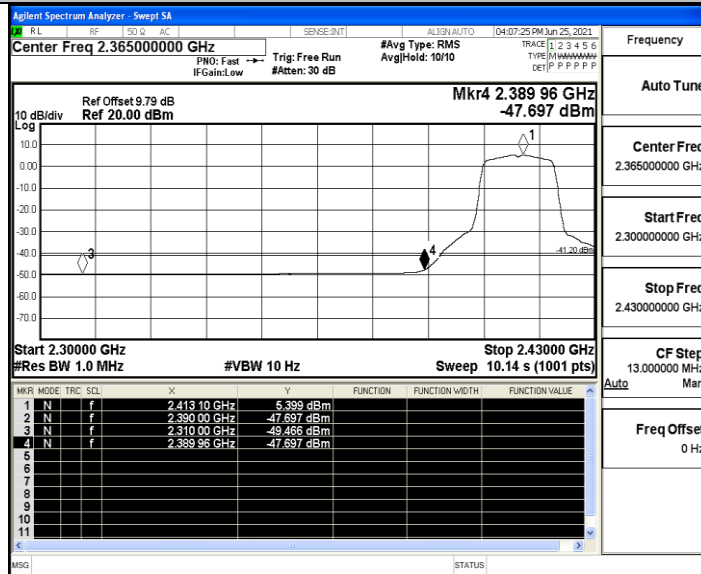


11B_Ant1_High_2462_Peak



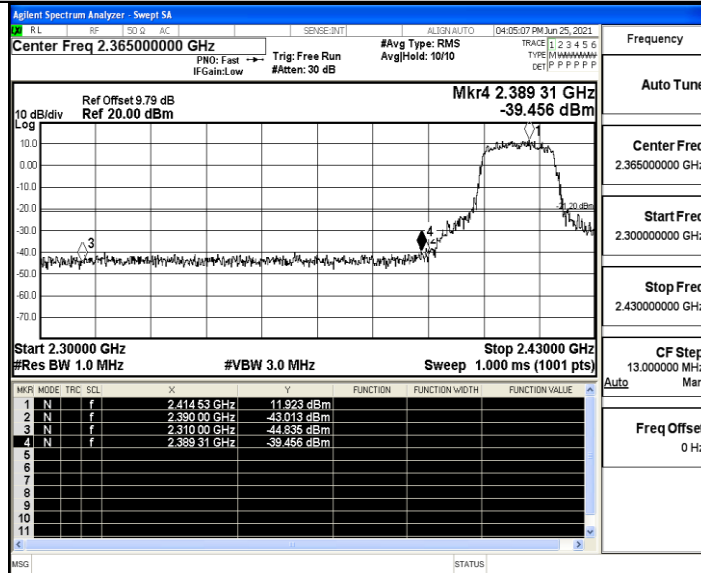
Frequency	Auto Tune
Center Freq	2.495000000 GHz
Start Freq	2.440000000 GHz
Stop Freq	2.550000000 GHz
CF Step	11.000000 MHz
Freq Offset	0 Hz

11G_Ant1_Low_2412_AV



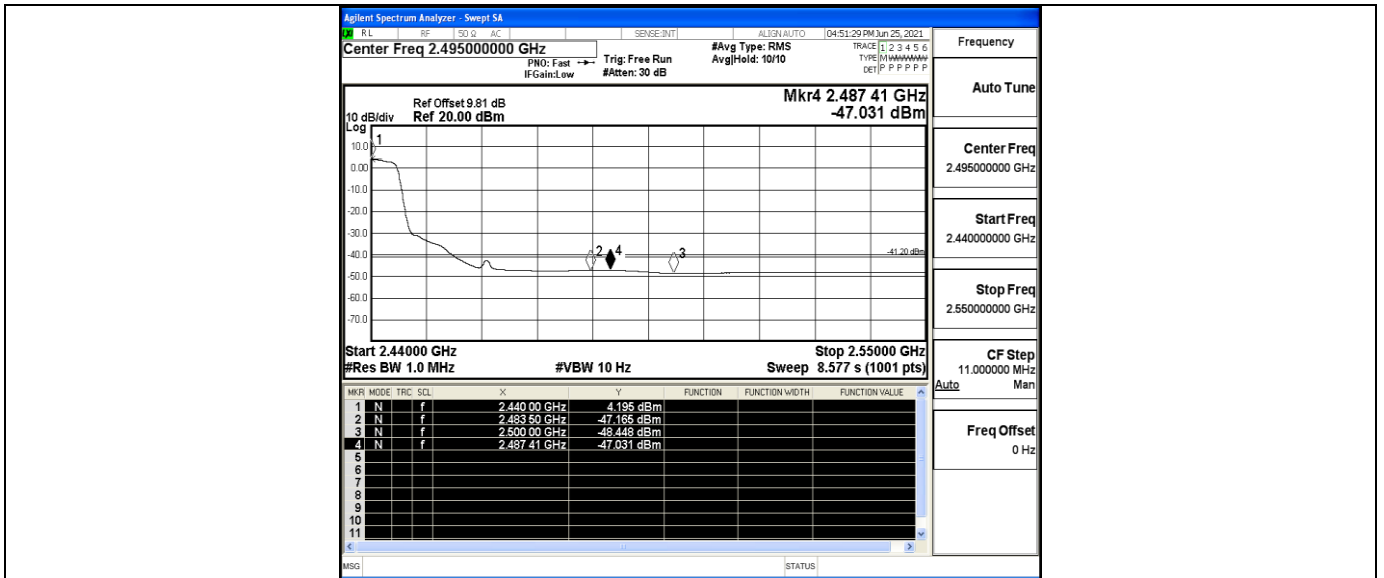
Frequency	Auto Tune
Center Freq	2.365000000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.430000000 GHz
CF Step	13.000000 MHz
Freq Offset	0 Hz

11G_Ant1_Low_2412_Peak

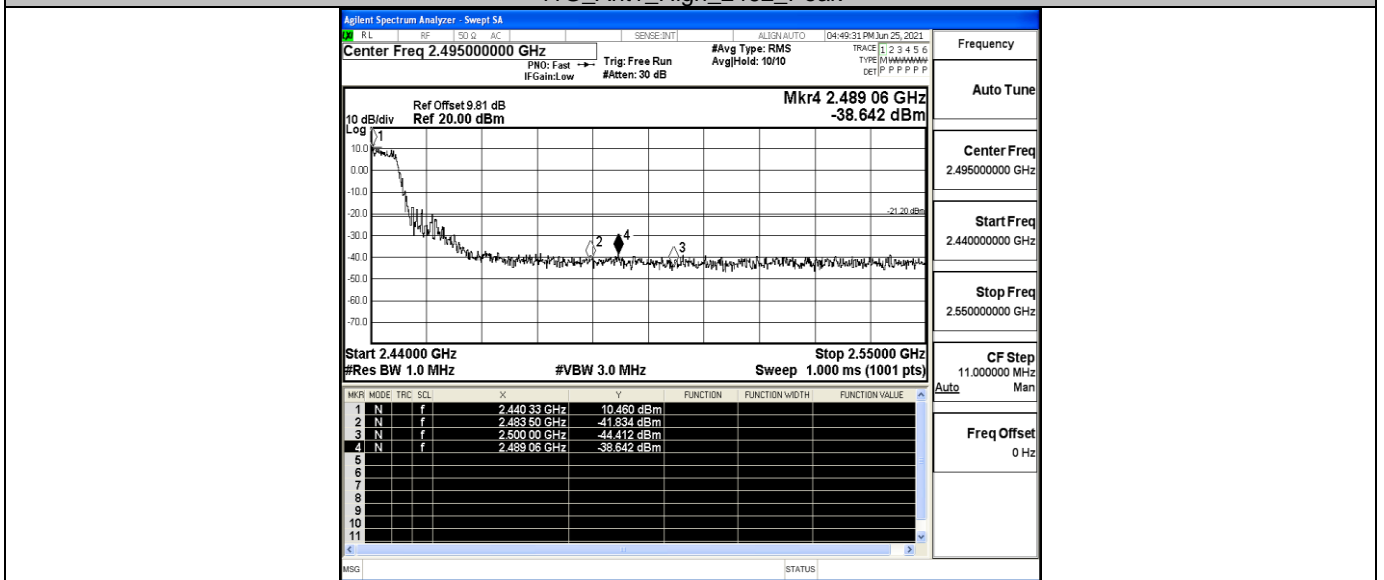


Frequency	Auto Tune
Center Freq	2.365000000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.430000000 GHz
CF Step	13.000000 MHz
Freq Offset	0 Hz

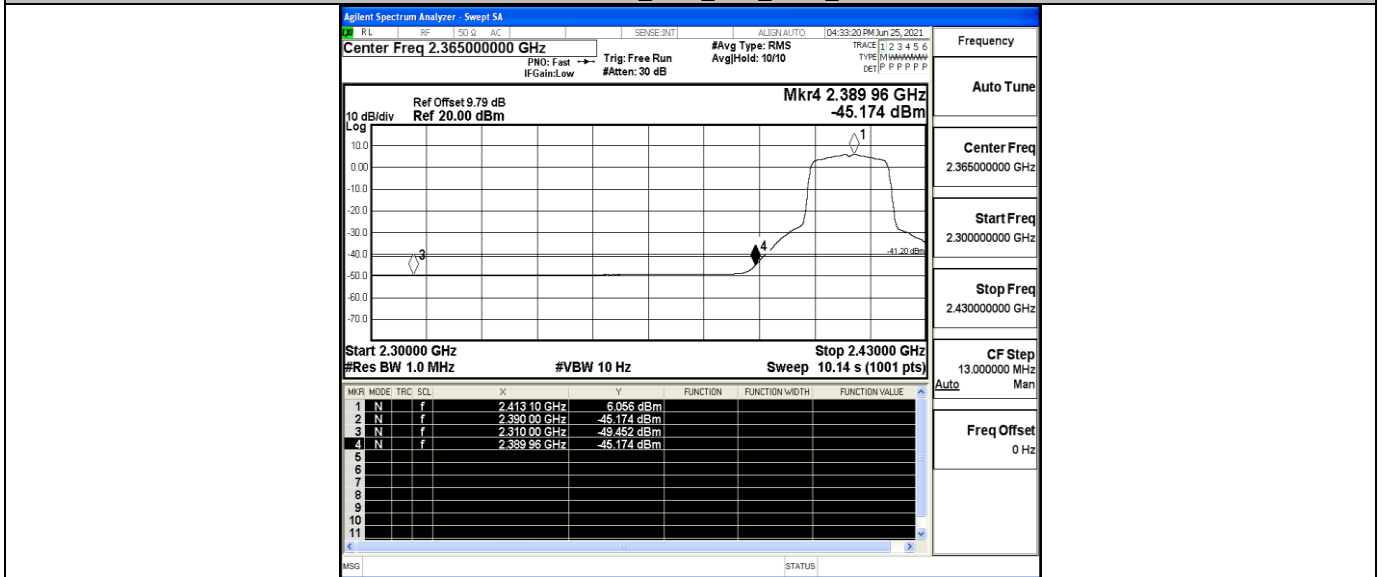
11G_Ant1_High_2462_AV



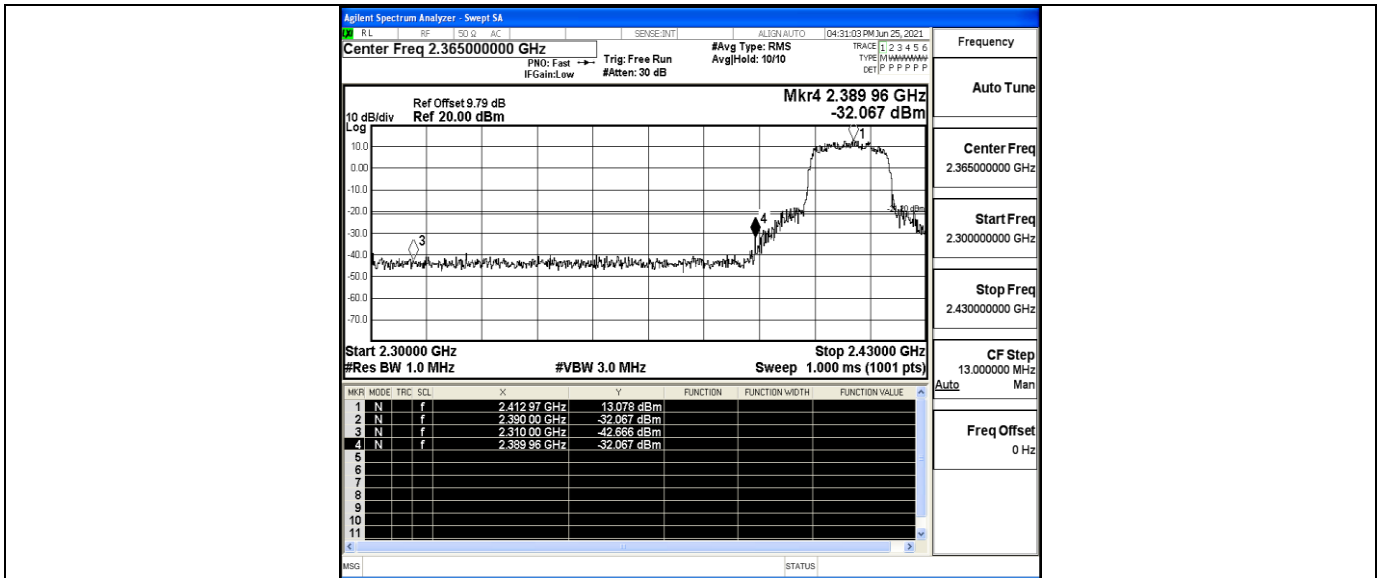
11G_Ant1_High_2462_Peak



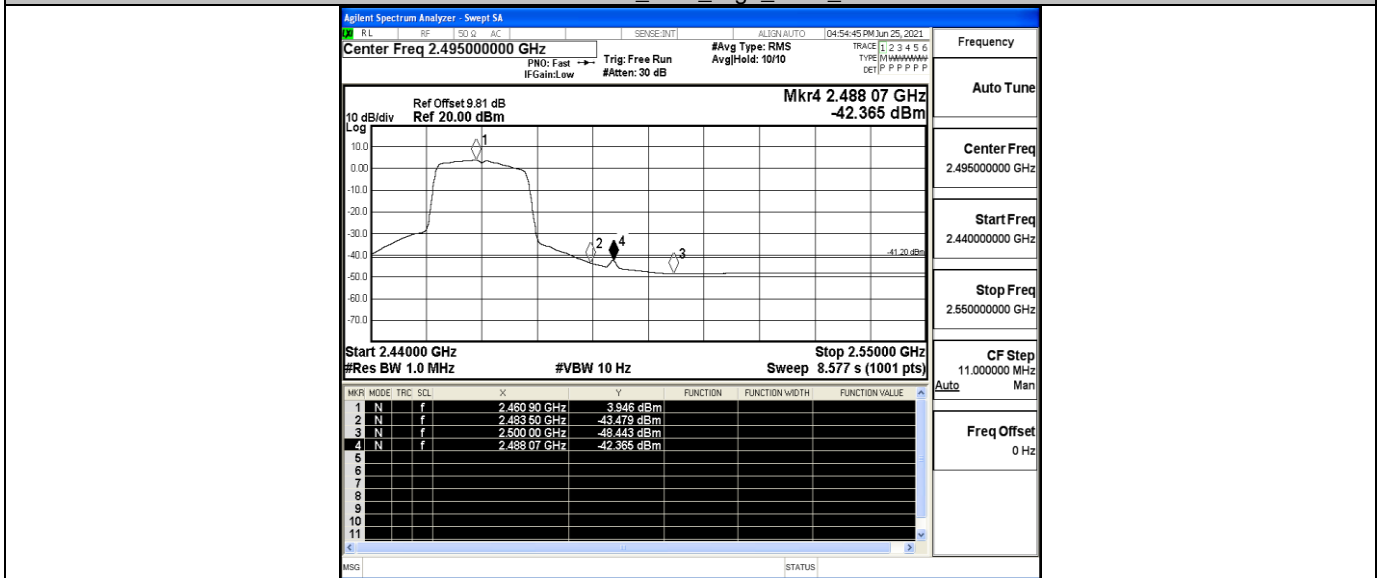
11N20SISO_Ant1_Low_2412_AV



11N20SISO_Ant1_Low_2412_Peak



11N20SISO_Ant1_High_2462_AV



11N20SISO_Ant1_High_2462_Peak

