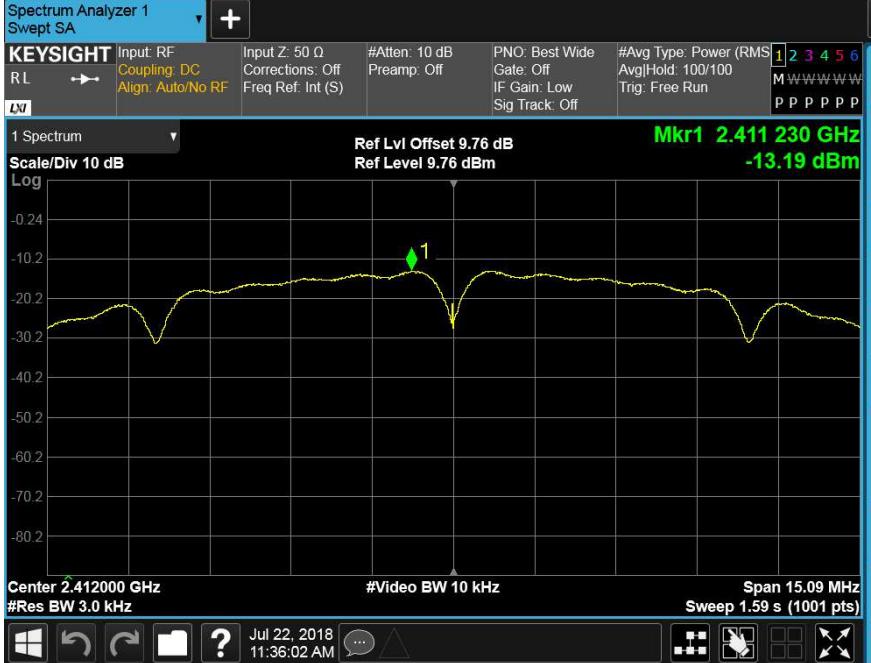
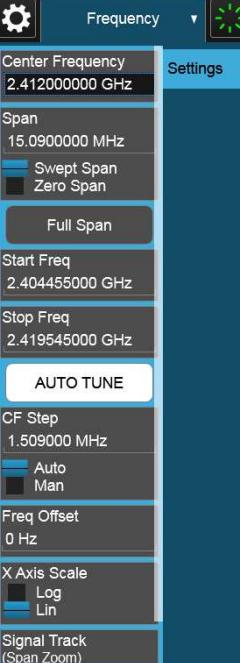
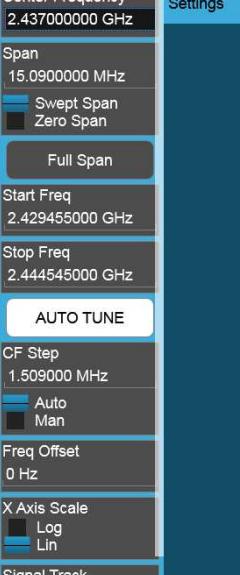
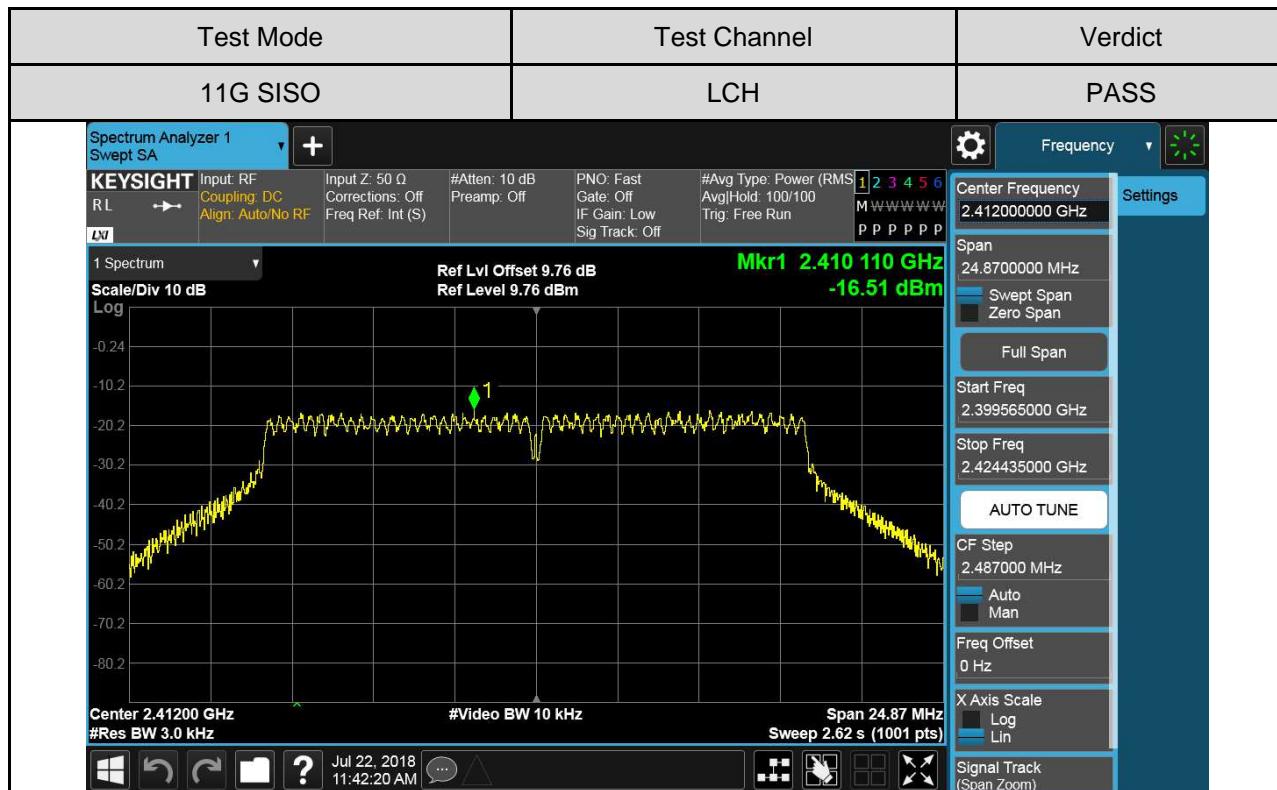
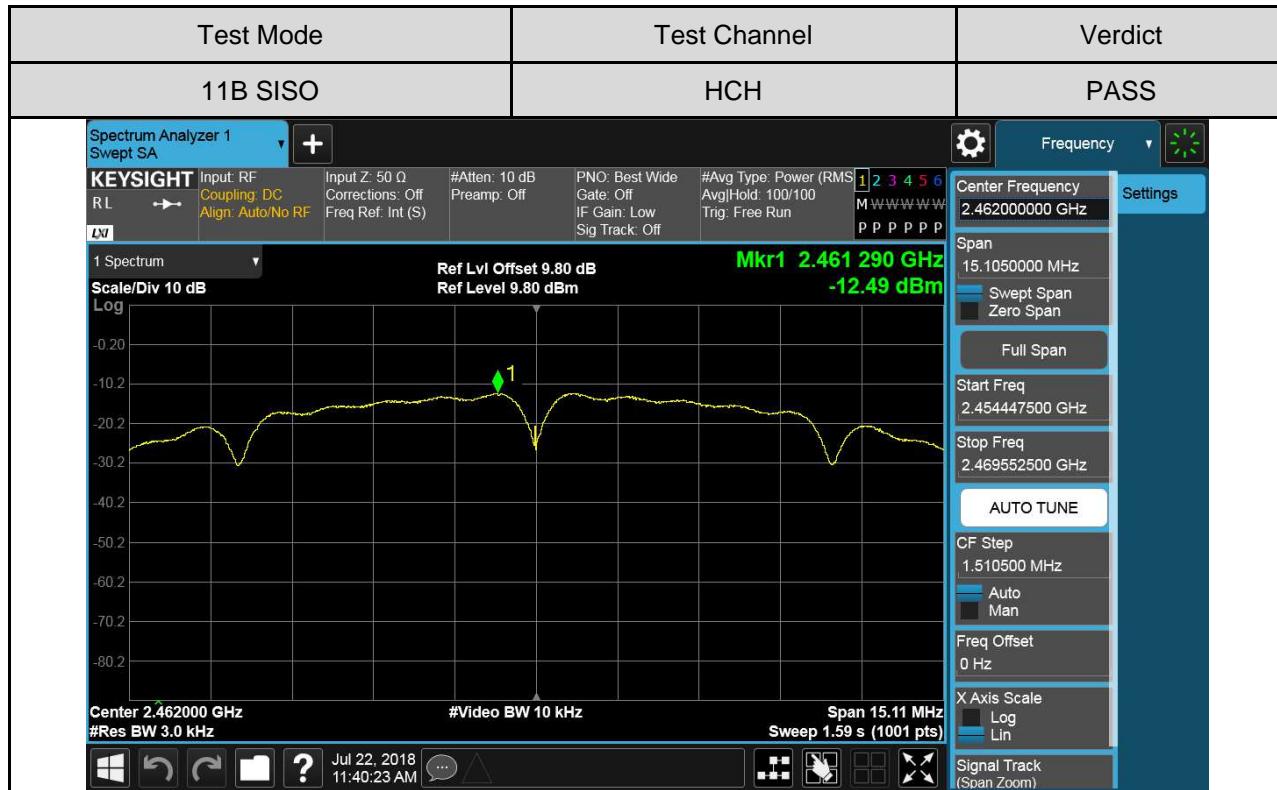
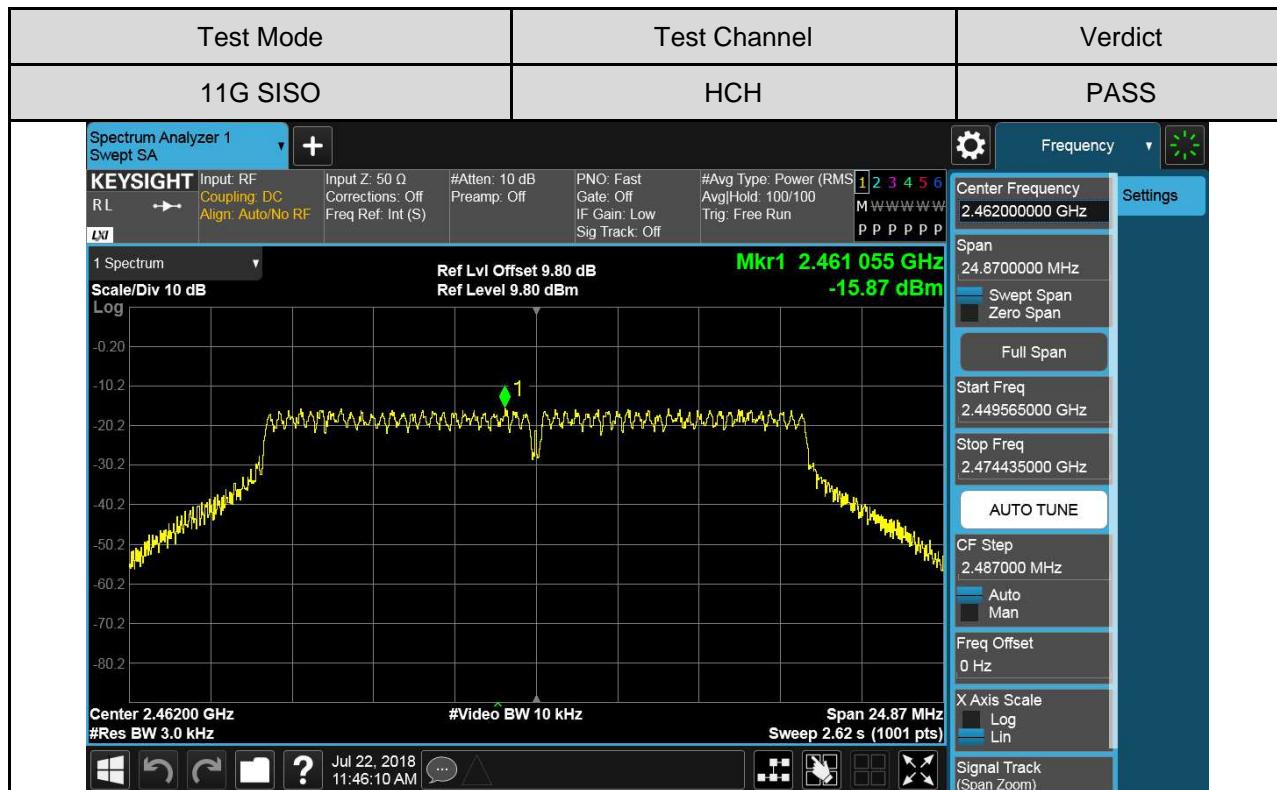
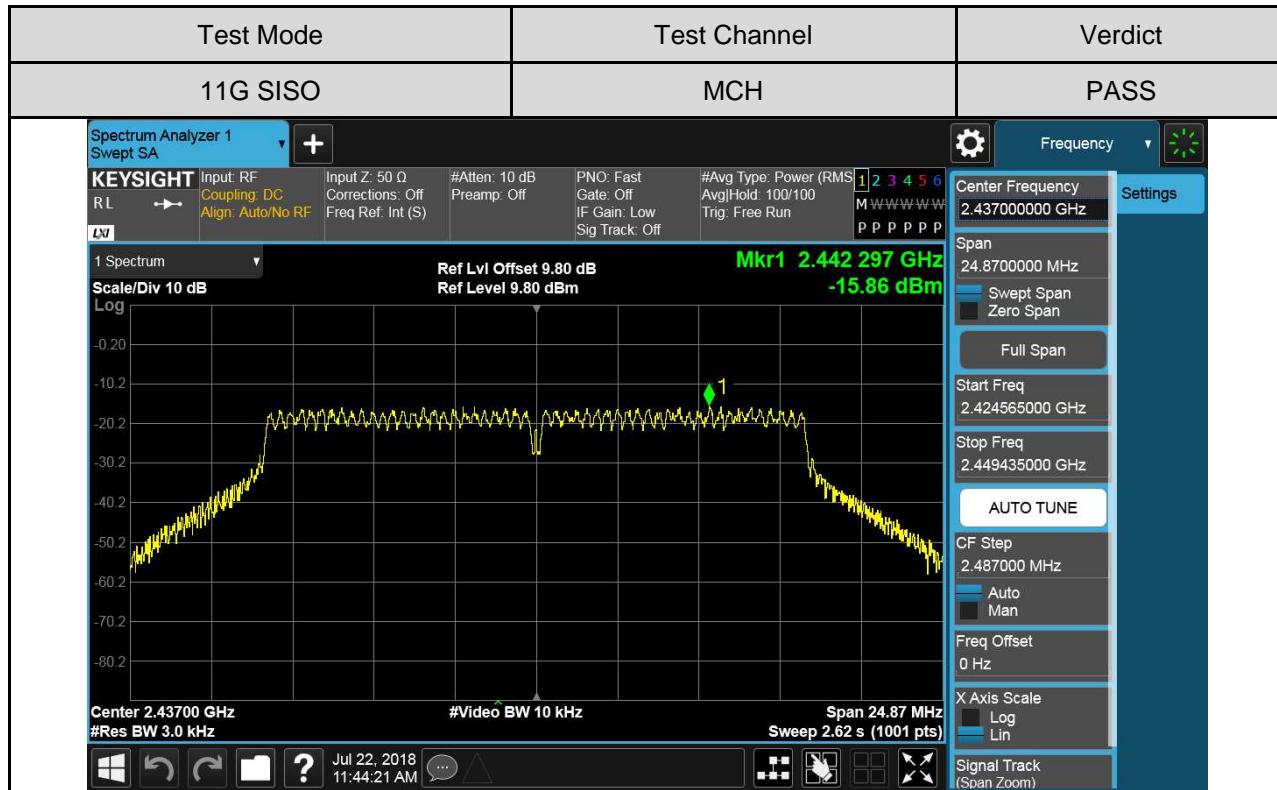


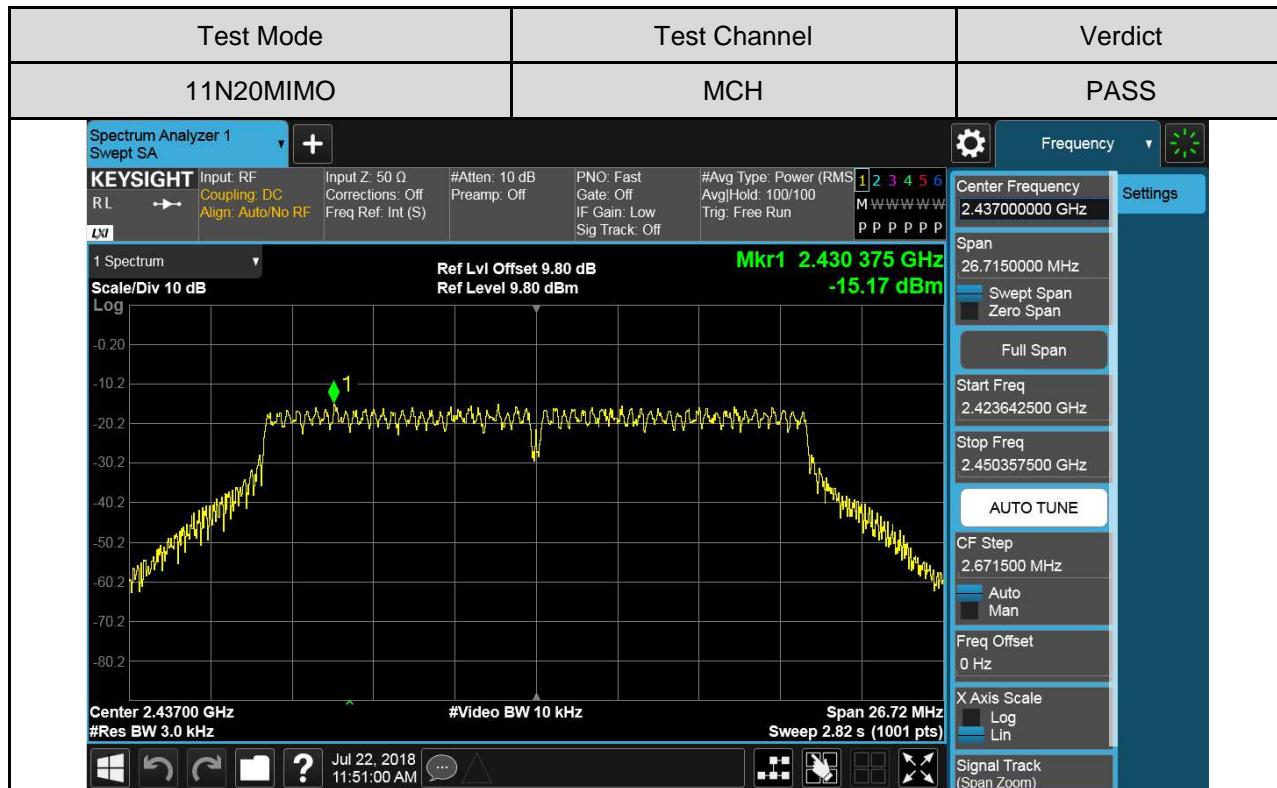
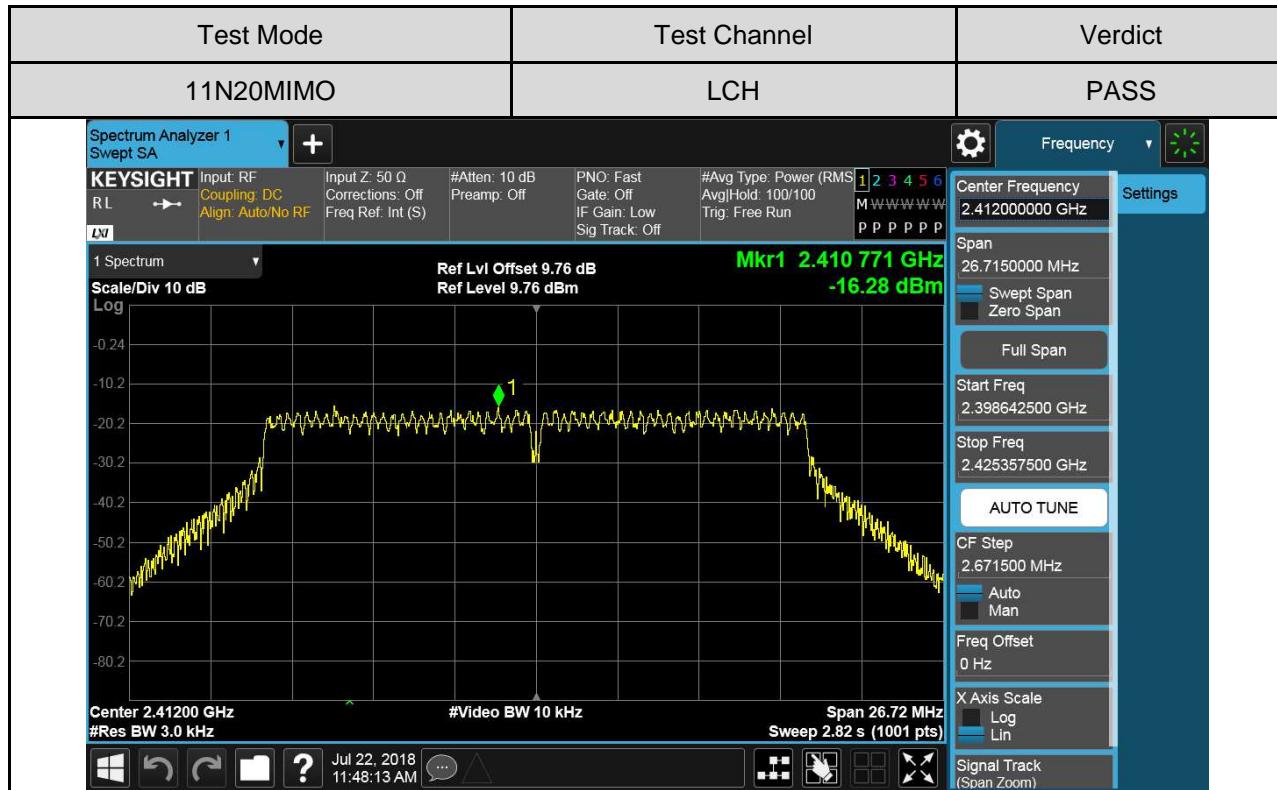
Antenna 2

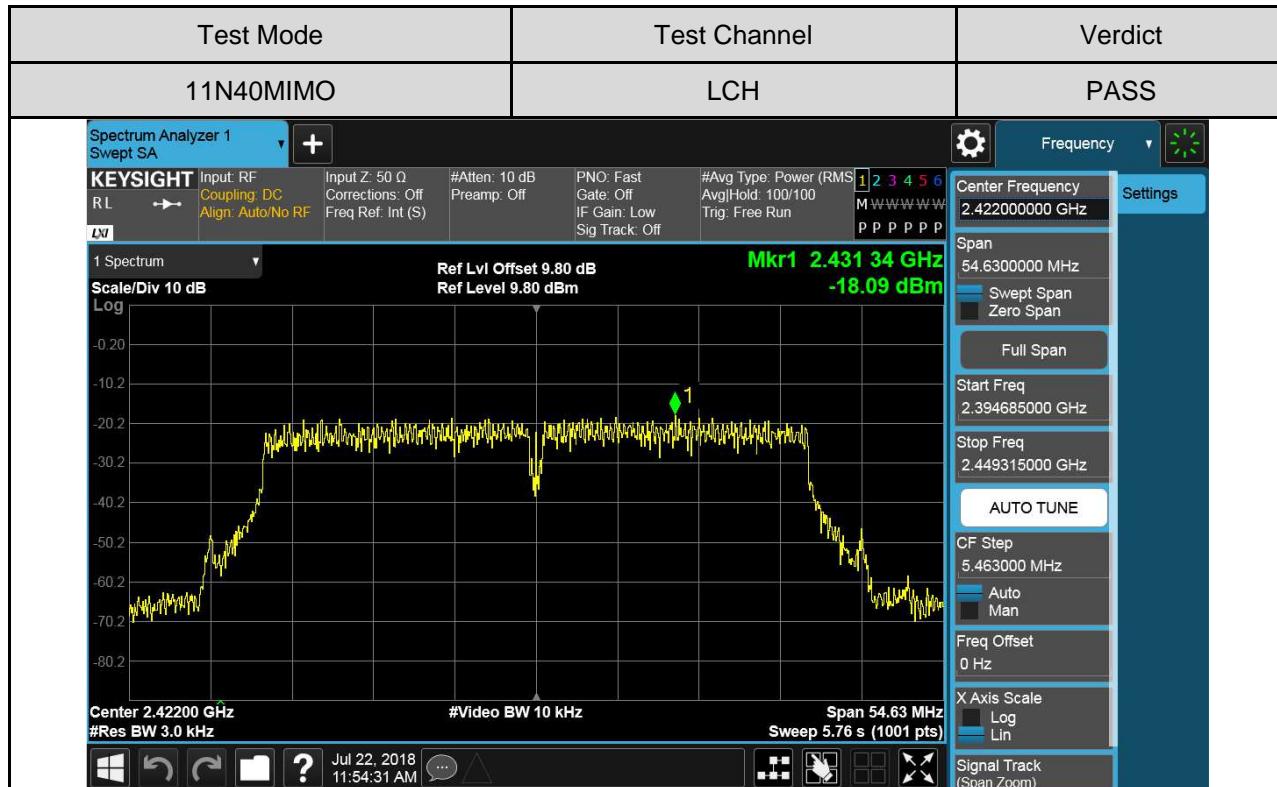
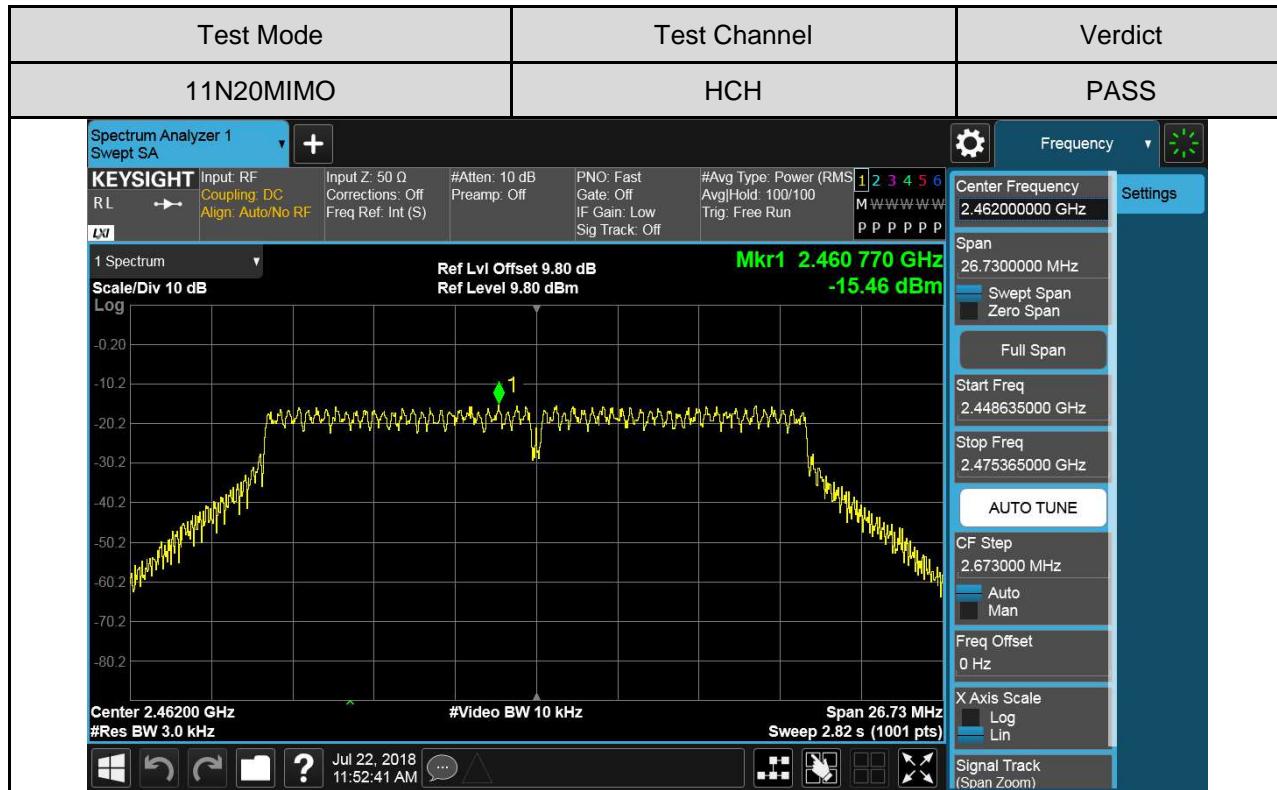
Test Mode	Test Channel	Verdict
11B SISO	LCH	PASS
 <p>Spectrum Analyzer 1 Swept SA</p> <p>KEYSIGHT Input: RF Coupling: DC Align: Auto/No RF</p> <p>Input Z: 50 Ω Corrections: Off Freq Ref: Int (S)</p> <p>#Atten: 10 dB Preamp: Off</p> <p>PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off</p> <p>#Avg Type: Power (RMS) 1 2 3 4 5 6 Avg/Hold: 100/100 Trig: Free Run M W W W W W P P P P P P</p> <p>1 Spectrum Ref Lvl Offset 9.76 dB Ref Level 9.76 dBm</p> <p>Mkr1 2.411 230 GHz -13.19 dBm</p> <p>Scale/Div 10 dB Log</p> <p>-0.24 -10.2 -20.2 -30.2 -40.2 -50.2 -60.2 -70.2 -80.2</p> <p>Center 2.412000 GHz #Res BW 3.0 kHz</p> <p>#Video BW 10 kHz</p> <p>Span 15.09 MHz Sweep 1.59 s (1001 pts)</p> <p>Jul 22, 2018 11:36:02 AM</p>	 <p>Frequency</p> <p>Center Frequency 2.41200000 GHz</p> <p>Span 15.0900000 MHz</p> <p>Settings</p> <p>Swept Span Zero Span</p> <p>Full Span</p> <p>Start Freq 2.404455000 GHz</p> <p>Stop Freq 2.419545000 GHz</p> <p>AUTO TUNE</p> <p>CF Step 1.509000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> <p>X Axis Scale Log Lin</p> <p>Signal Track (Span Zoom)</p>	

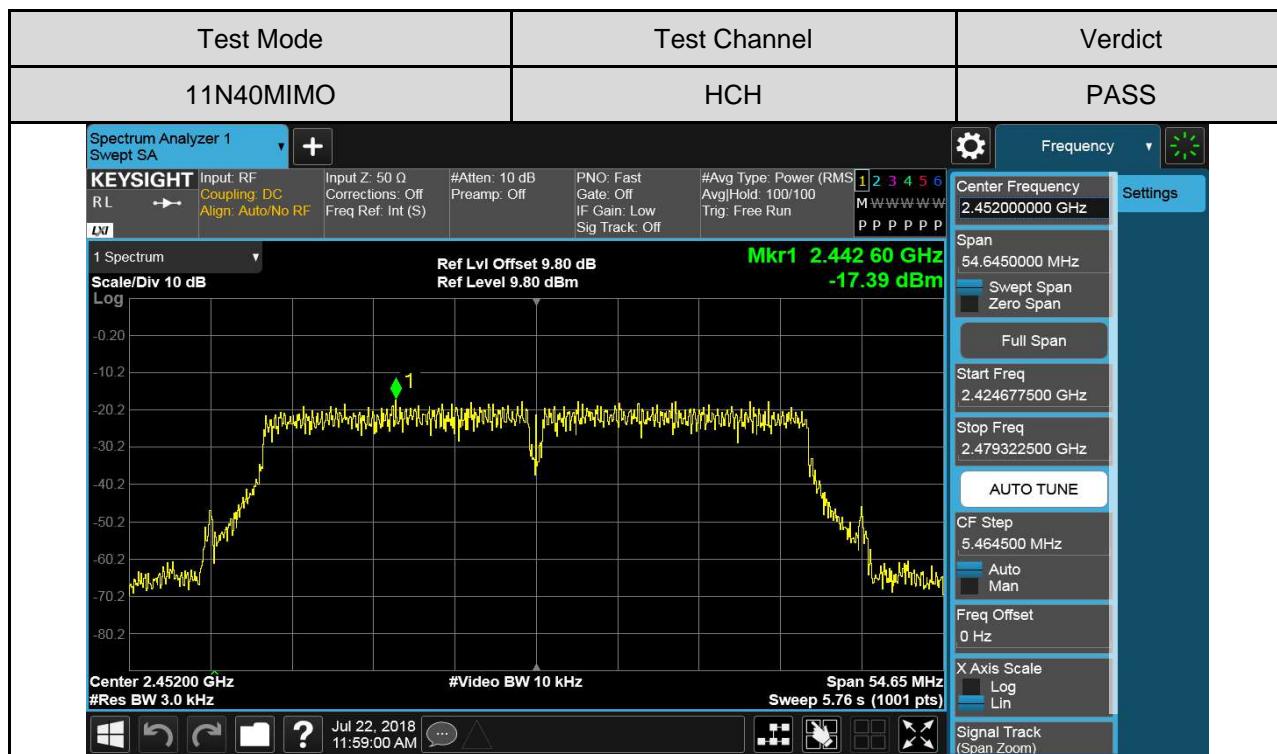
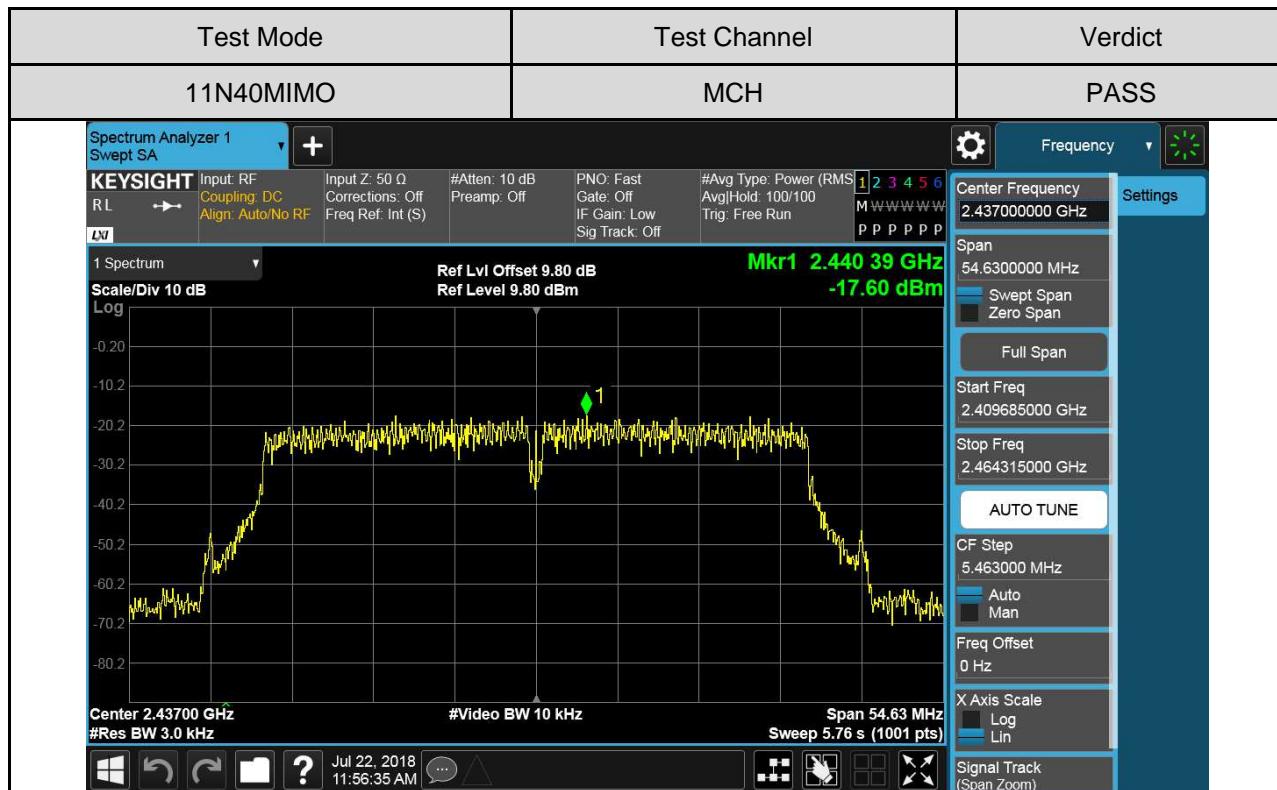
Test Mode	Test Channel	Verdict
11B SISO	MCH	PASS
 <p>Spectrum Analyzer 1 Swept SA</p> <p>KEYSIGHT Input: RF Coupling: DC Align: Auto/No RF</p> <p>Input Z: 50 Ω Corrections: Off Freq Ref: Int (S)</p> <p>#Atten: 10 dB Preamp: Off</p> <p>PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off</p> <p>#Avg Type: Power (RMS) 1 2 3 4 5 6 Avg/Hold: 100/100 Trig: Free Run M W W W W W P P P P P P</p> <p>1 Spectrum Ref Lvl Offset 9.80 dB Ref Level 9.80 dBm</p> <p>Mkr1 2.436 215 GHz -12.49 dBm</p> <p>Scale/Div 10 dB Log</p> <p>-0.20 -10.2 -20.2 -30.2 -40.2 -50.2 -60.2 -70.2 -80.2</p> <p>Center 2.437000 GHz #Res BW 3.0 kHz</p> <p>#Video BW 10 kHz</p> <p>Span 15.09 MHz Sweep 1.59 s (1001 pts)</p> <p>Jul 22, 2018 11:38:14 AM</p>	 <p>Frequency</p> <p>Center Frequency 2.43700000 GHz</p> <p>Span 15.0900000 MHz</p> <p>Settings</p> <p>Swept Span Zero Span</p> <p>Full Span</p> <p>Start Freq 2.429455000 GHz</p> <p>Stop Freq 2.444545000 GHz</p> <p>AUTO TUNE</p> <p>CF Step 1.509000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> <p>X Axis Scale Log Lin</p> <p>Signal Track (Span Zoom)</p>	











6.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) , Subpart C		
Section	Test Item	Limit
FCC §15.247 (d) RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times$ RBW
Span	$1.5 \times$ DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

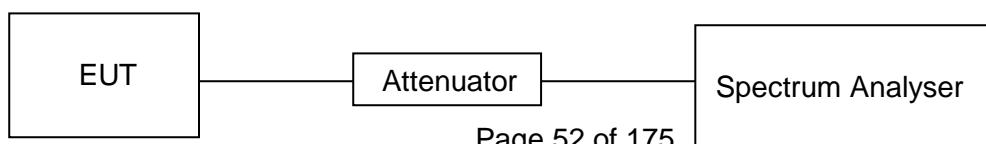
settings:

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	$\geq 3 \times$ RBW
measurement points	\geq span/RBW
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

TEST SETUP



Part I :Conducted Bandedge

RESULTS TABLE

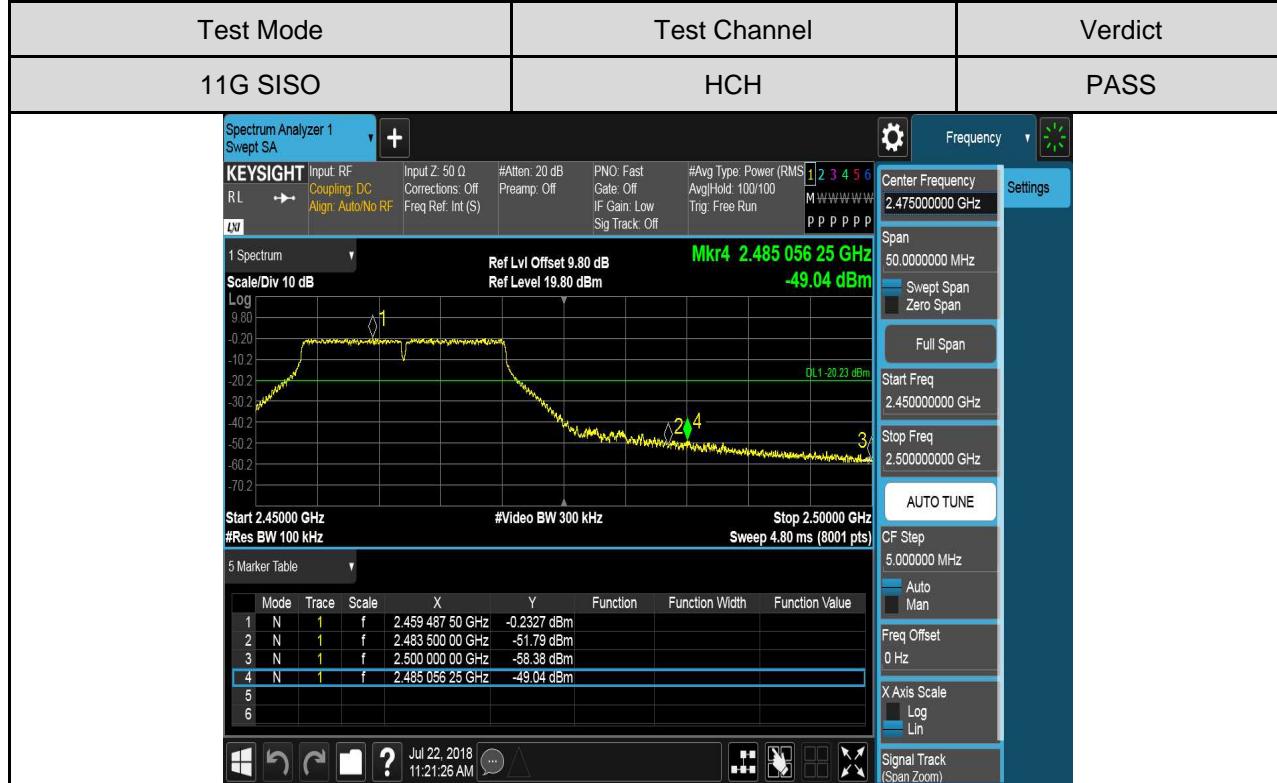
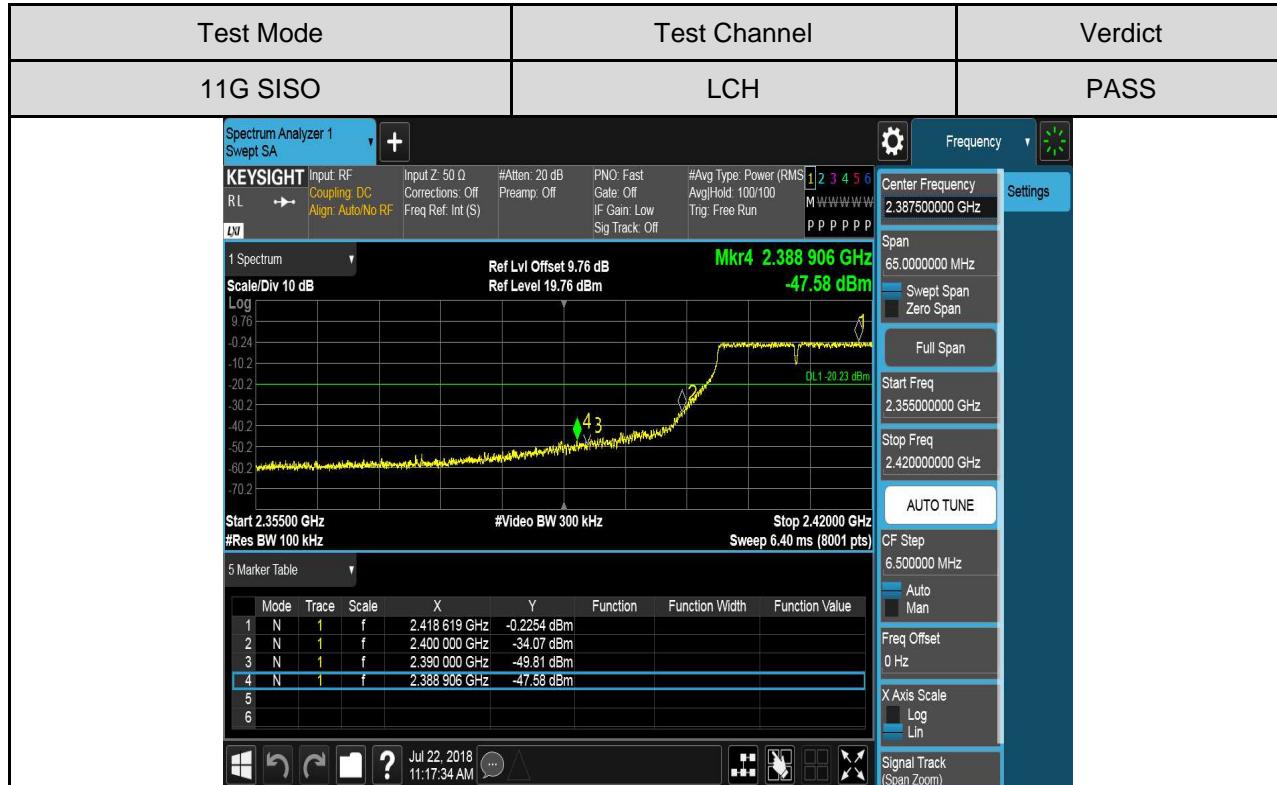
Test Mode	Test Antenna	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B SISO	Antenna 1	2412	9.168	-50.338	-10.83	PASS
		2462	8.845	-51.155	-11.16	PASS
	Antenna 2	2412	6.905	-53.398	-13.1	PASS
		2462	7.645	-50.018	-12.36	PASS
11G SISO	Antenna 1	2412	-0.225	-47.577	-20.23	PASS
		2462	-0.233	-49.044	-20.23	PASS
	Antenna 2	2412	-2.191	-52.103	-22.19	PASS
		2462	-1.214	-48.049	-21.21	PASS
11N20MIMO	Antenna 1	2412	0.213	-45.162	-19.79	PASS
		2462	0.200	-48.473	-19.8	PASS
	Antenna 2	2412	-1.854	-50.842	-21.85	PASS
		2462	-0.991	-48.944	-20.99	PASS
11N40MIMO	Antenna 1	2422	-3.141	-45.297	-23.14	PASS
		2452	-2.932	-47.728	-22.93	PASS
	Antenna 2	2422	-4.931	-50.727	-24.93	PASS
		2452	-3.883	-48.214	-23.88	PASS

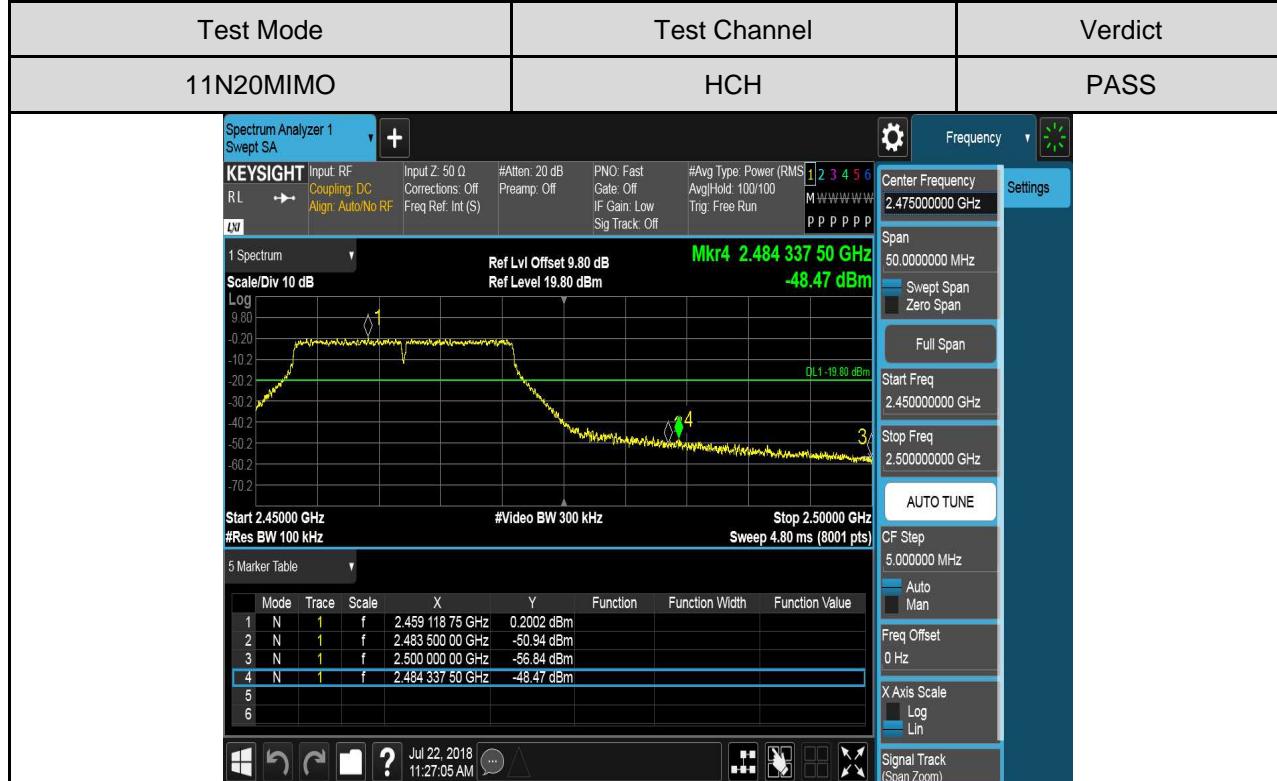
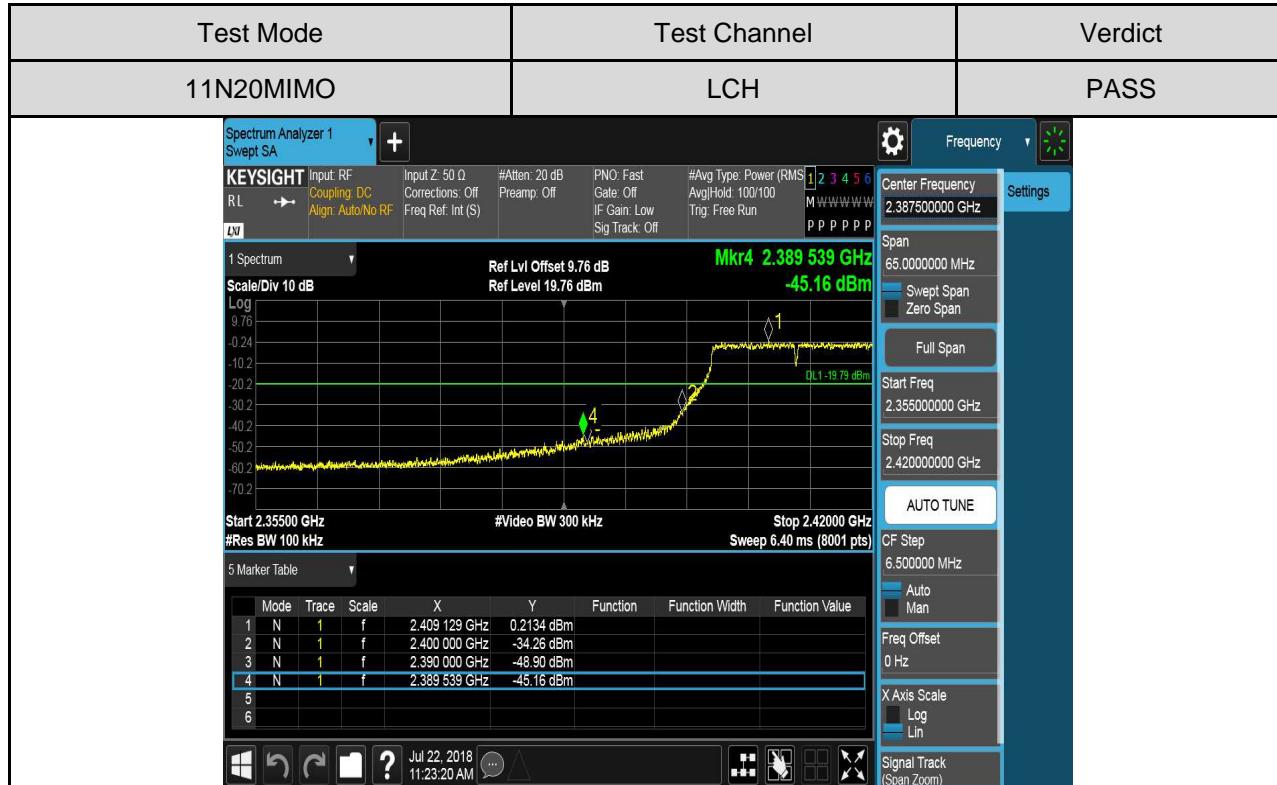
TEST GRAPHS

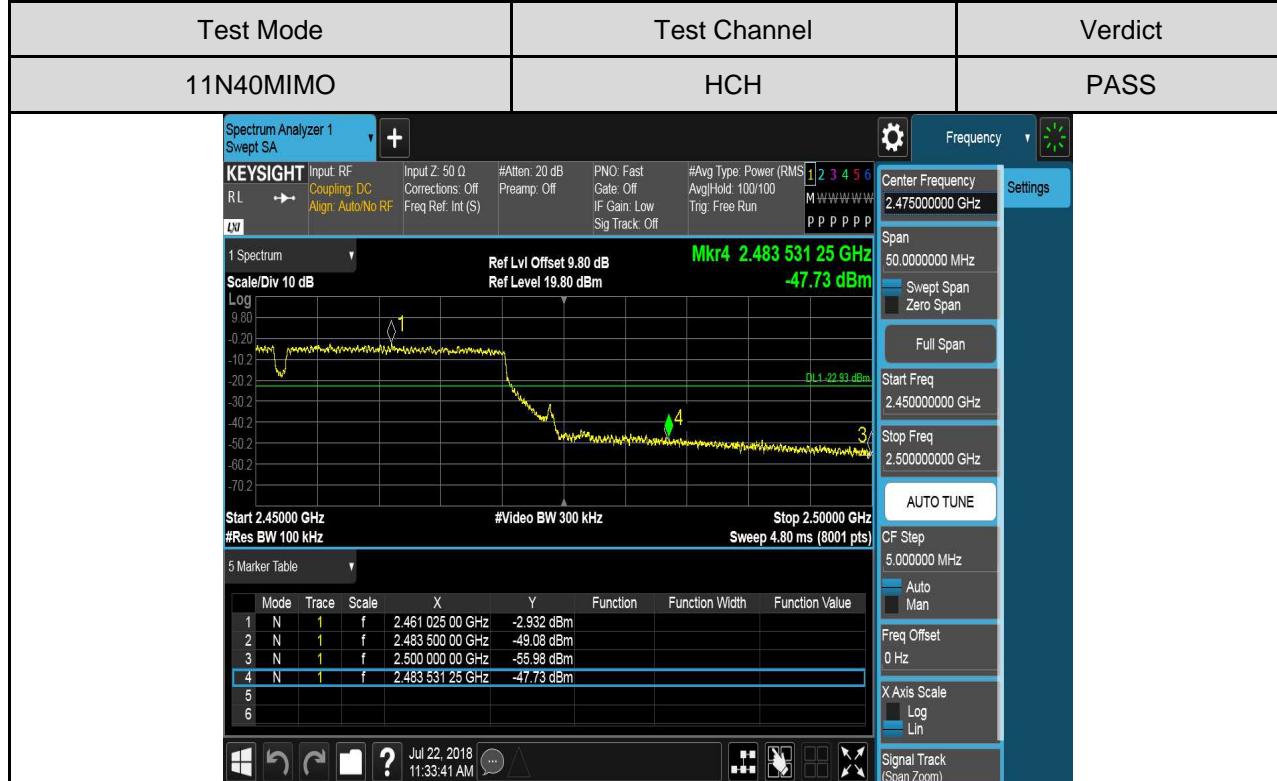
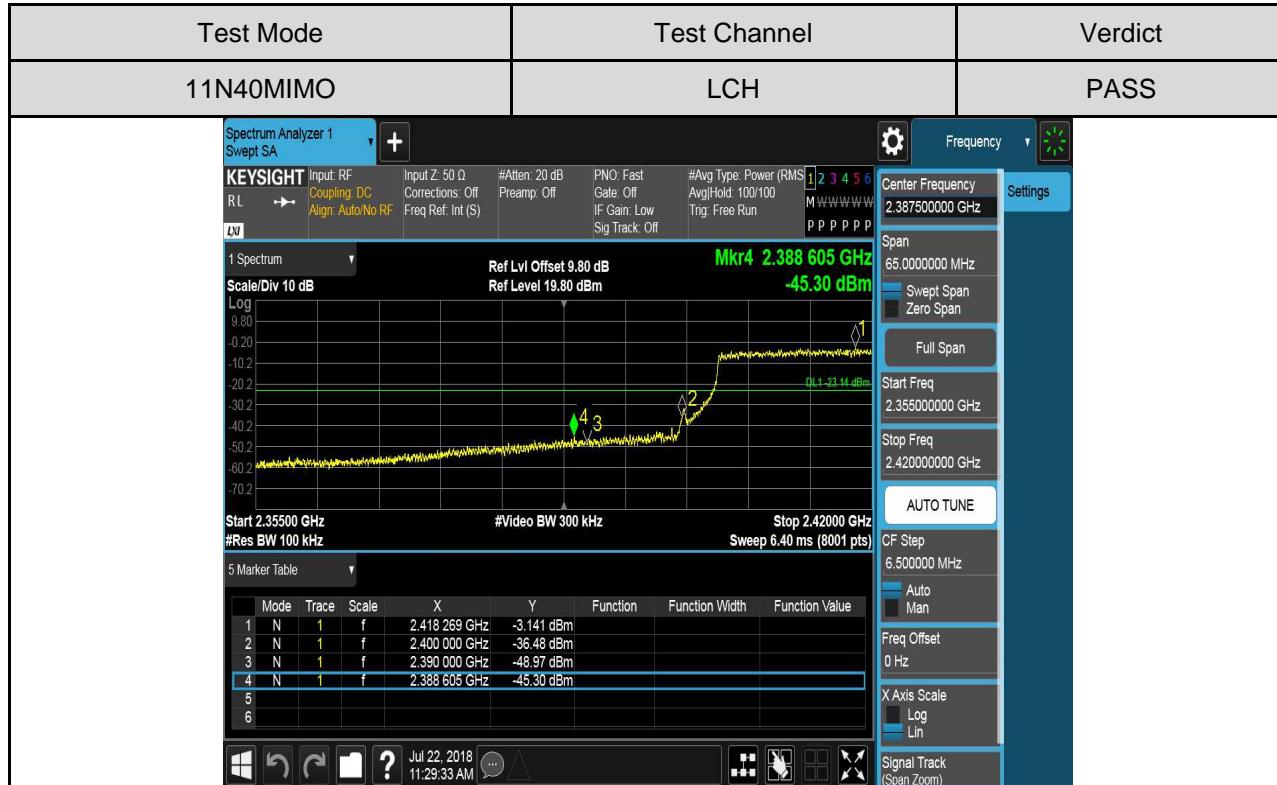
Antenna1

Test Mode	Test Channel	Verdict																																																								
11B SISO	LCH	PASS																																																								
 <p>Spectrum Analyzer 1 KEYSIGHT Input: RF Coupling: DC Align: Auto/No RF Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) #Atten: 20 dB Preamp: Off PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 9.76 dB Ref Level 19.76 dBm Mkr4 2.386 021 GHz -50.34 dBm 1 Spectrum Scale/Div 10 dB Log 9.76 -0.24 -10.2 -20.2 -30.2 -40.2 -50.2 -60.2 -70.2 Start 2.35500 GHz #Video BW 300 kHz Stop 2.42000 GHz #Res BW 100 kHz Sweep 6.40 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Mode</th> <th>Trace</th> <th>Scale</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.411 493 GHz</td> <td>9.168 dBm</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.400 000 GHz</td> <td>-26.92 dBm</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.390 000 GHz</td> <td>-53.63 dBm</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.386 021 GHz</td> <td>-50.34 dBm</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>5 Marker Table</p> <p>Jul 22, 2018 11:11:00 AM</p>	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value	1	N	1	f	2.411 493 GHz	9.168 dBm			2	N	1	f	2.400 000 GHz	-26.92 dBm			3	N	1	f	2.390 000 GHz	-53.63 dBm			4	N	1	f	2.386 021 GHz	-50.34 dBm			5								6								<p>Frequency</p> <p>Center Frequency 2.38750000 GHz</p> <p>Span 65.000000 MHz</p> <p>Sweep Span</p> <p>Zero Span</p> <p>Full Span</p> <p>Start Freq 2.35500000 GHz</p> <p>Stop Freq 2.42000000 GHz</p> <p>AUTO TUNE</p> <p>CF Step 6.500000 MHz</p> <p>Auto</p> <p>Man</p> <p>Freq Offset 0 Hz</p> <p>X Axis Scale Log</p> <p>Lin</p> <p>Signal Track (Span Zoom)</p>	PASS
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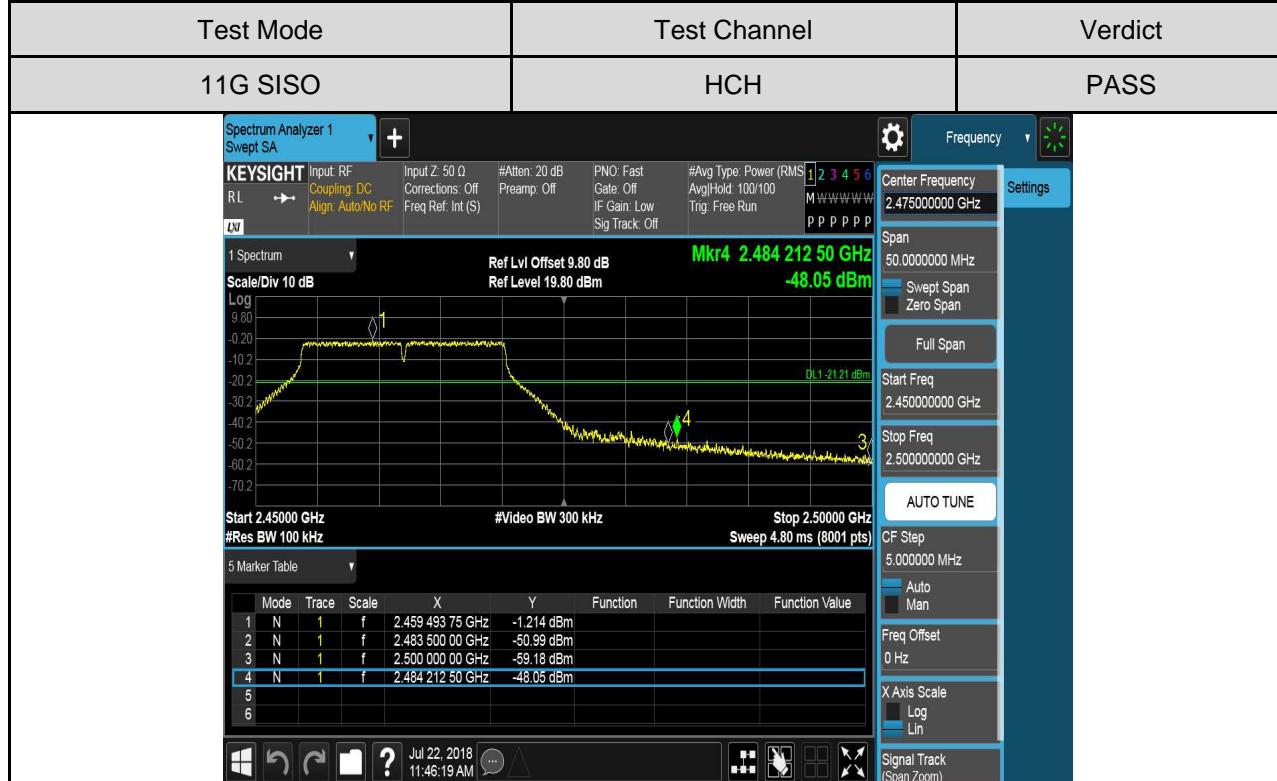
Test Mode	Test Channel	Verdict																																																								
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 <p>Spectrum Analyzer 1 KEYSIGHT Input: RF Coupling: DC Align: Auto/No RF Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) #Atten: 20 dB Preamp: Off PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 9.80 dB Ref Level 19.80 dBm Mkr4 2.488 550 00 GHz -51.15 dBm 1 Spectrum Scale/Div 10 dB Log 9.80 -0.20 -10.2 -20.2 -30.2 -40.2 -50.2 -60.2 -70.2 Start 2.45000 GHz #Video BW 300 kHz Stop 2.50000 GHz #Res BW 100 kHz Sweep 4.80 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>Mode</th> <th>Trace</th> <th>Scale</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.462 500 00 GHz</td> <td>8.845 dBm</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.483 500 00 GHz</td> <td>-53.75 dBm</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.500 000 00 GHz</td> <td>-56.99 dBm</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.488 550 00 GHz</td> <td>-51.15 dBm</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>5 Marker Table</p> <p>Jul 22, 2018 11:15:23 AM</p>	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value	1	N	1	f	2.462 500 00 GHz	8.845 dBm			2	N	1	f	2.483 500 00 GHz	-53.75 dBm			3	N	1	f	2.500 000 00 GHz	-56.99 dBm			4	N	1	f	2.488 550 00 GHz	-51.15 dBm			5								6								<p>Frequency</p> <p>Center Frequency 2.47500000 GHz</p> <p>Span 50.000000 MHz</p> <p>Sweep Span</p> <p>Zero Span</p> <p>Full Span</p> <p>Start Freq 2.45000000 GHz</p> <p>Stop Freq 2.50000000 GHz</p> <p>AUTO TUNE</p> <p>CF Step 5.000000 MHz</p> <p>Auto</p> <p>Man</p> <p>Freq Offset 0 Hz</p> <p>X Axis Scale Log</p> <p>Lin</p> <p>Signal Track (Span Zoom)</p>	PASS
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value																																																			
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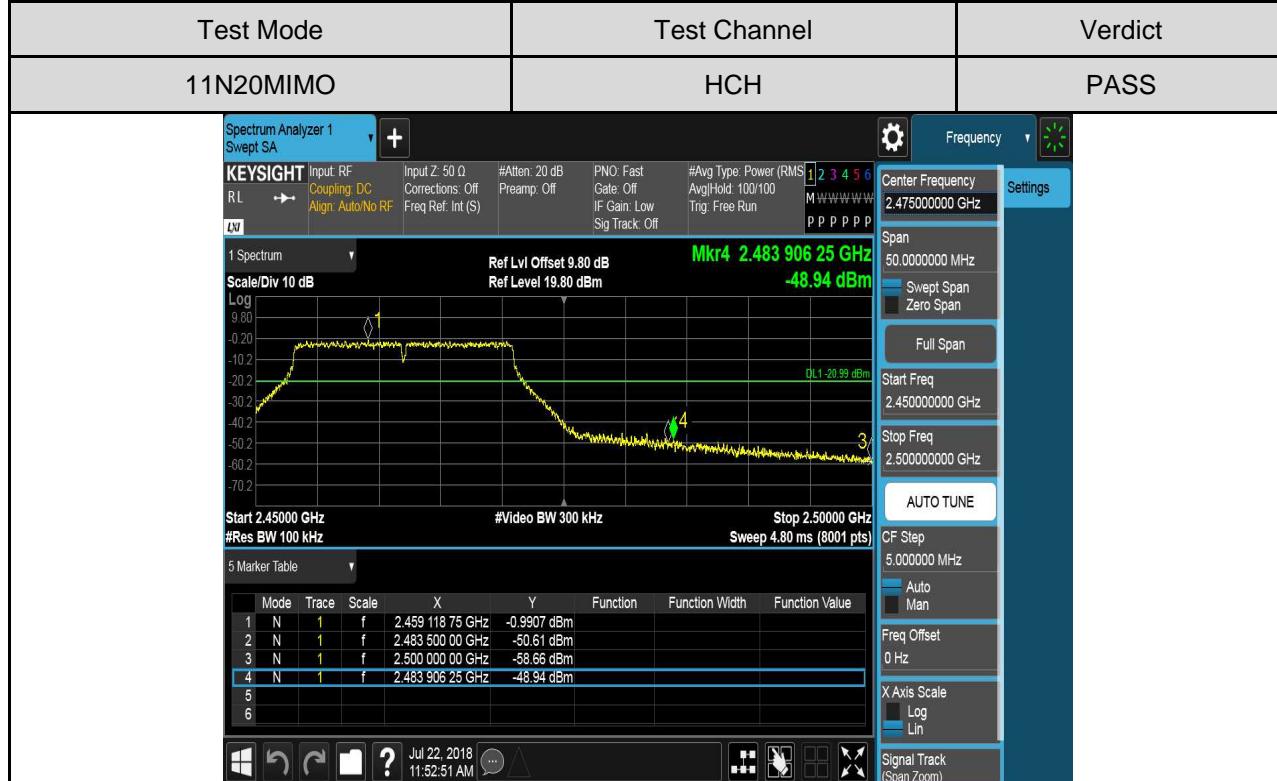
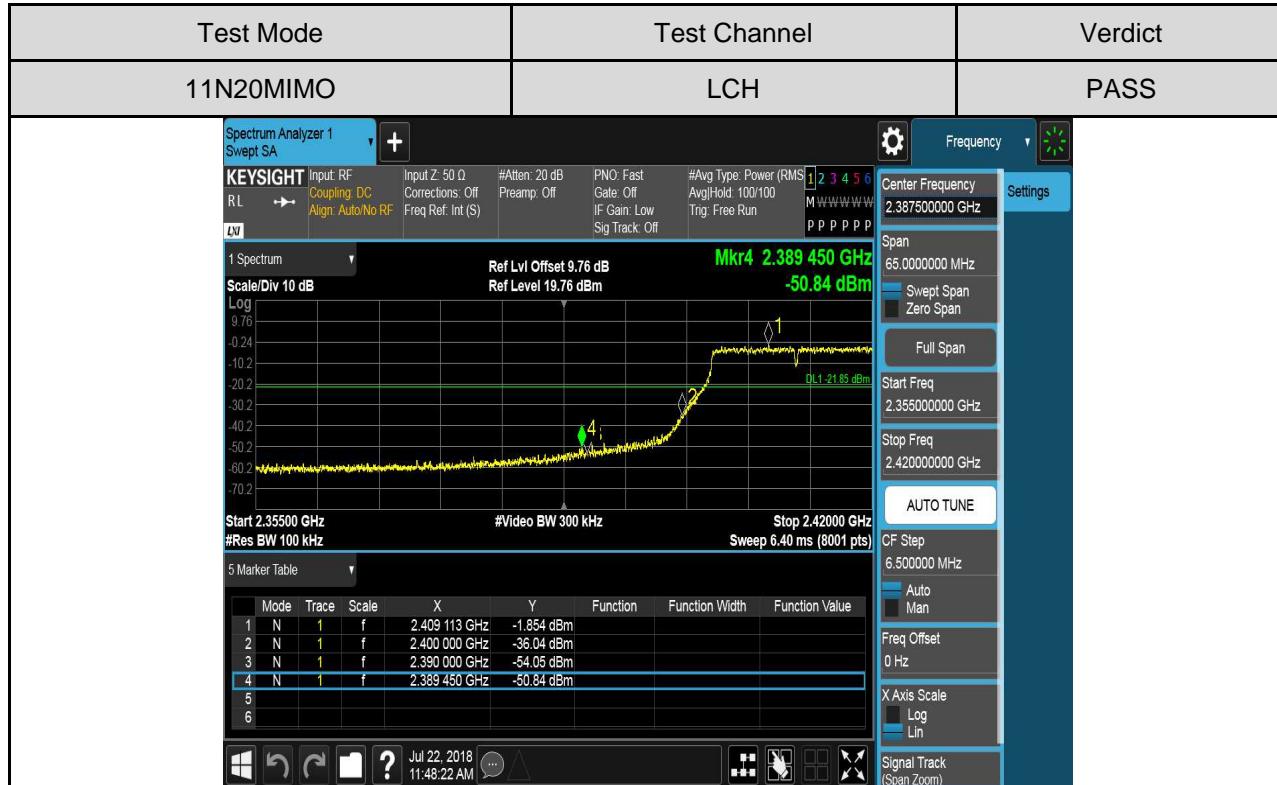


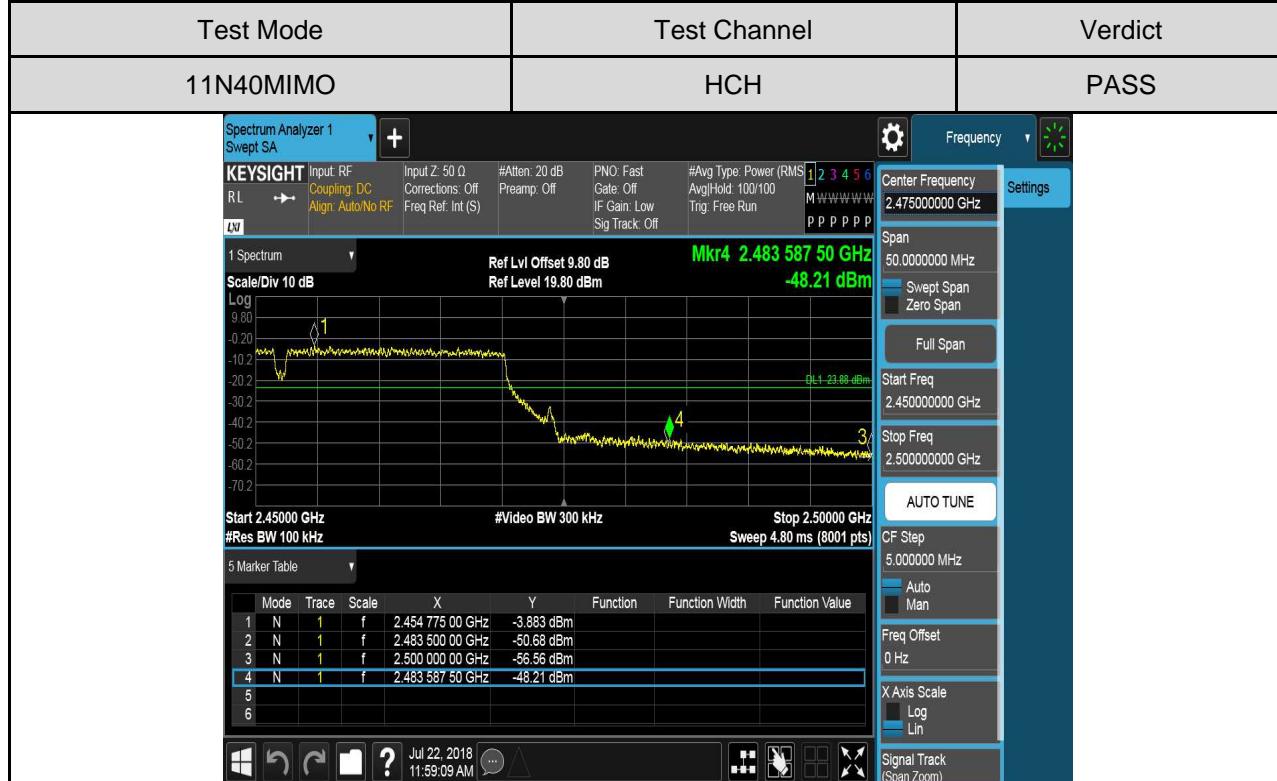
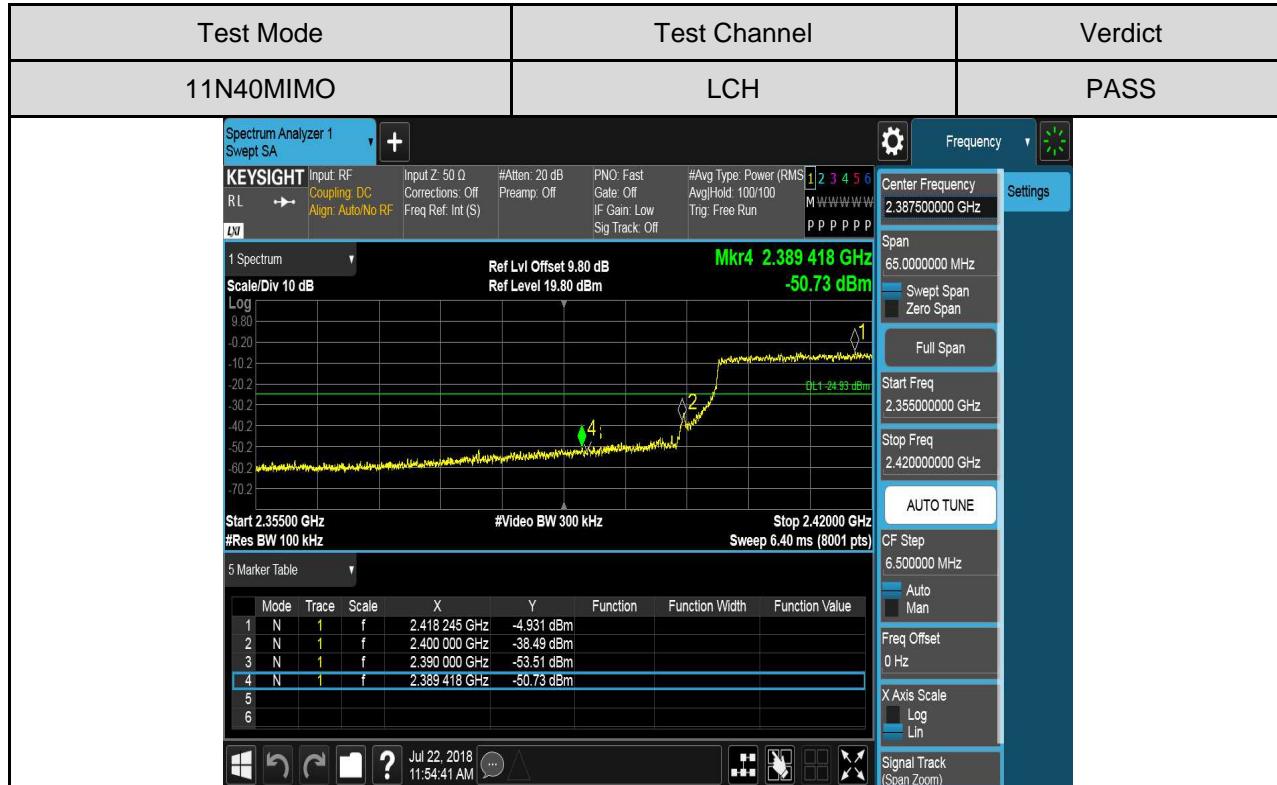




Antenna2







Part II :Conducted Spurious Emissions

Test Result Table

Test Mode	Test Antenna	Channel	Pref(dBm)	Puw(dBm)	Verdict
11B SISO	Antenna 1	LCH	9.109	<Limit	PASS
		MCH	9.161	<Limit	PASS
		HCH	8.801	<Limit	PASS
	Antenna 2	LCH	6.83	<Limit	PASS
		MCH	7.547	<Limit	PASS
		HCH	7.595	<Limit	PASS
11G SISO	Antenna 1	LCH	-0.118	<Limit	PASS
		MCH	0.194	<Limit	PASS
		HCH	-0.149	<Limit	PASS
	Antenna 2	LCH	-2.179	<Limit	PASS
		MCH	-1.41	<Limit	PASS
		HCH	-1.23	<Limit	PASS
11N20MIMO	Antenna 1	LCH	0.146	<Limit	PASS
		MCH	0.486	<Limit	PASS
		HCH	0.127	<Limit	PASS
	Antenna 2	LCH	-1.889	<Limit	PASS
		MCH	-1.167	<Limit	PASS
		HCH	-1.033	<Limit	PASS
11N40MIMO	Antenna 1	LCH	-2.378	<Limit	PASS
		MCH	-2.559	<Limit	PASS
		HCH	-2.464	<Limit	PASS
	Antenna 2	LCH	-4.019	<Limit	PASS
		MCH	-3.771	<Limit	PASS
		HCH	-4.041	<Limit	PASS

Test Plots

Antenna1

Test Mode	Channel	Verdict
11B SISO	LCH	PASS

Pref test Plot



LCH SPURIOUS EMISSION_30MHz~10GHz



LCH SPURIOUS EMISSION_10GHz~26GHz

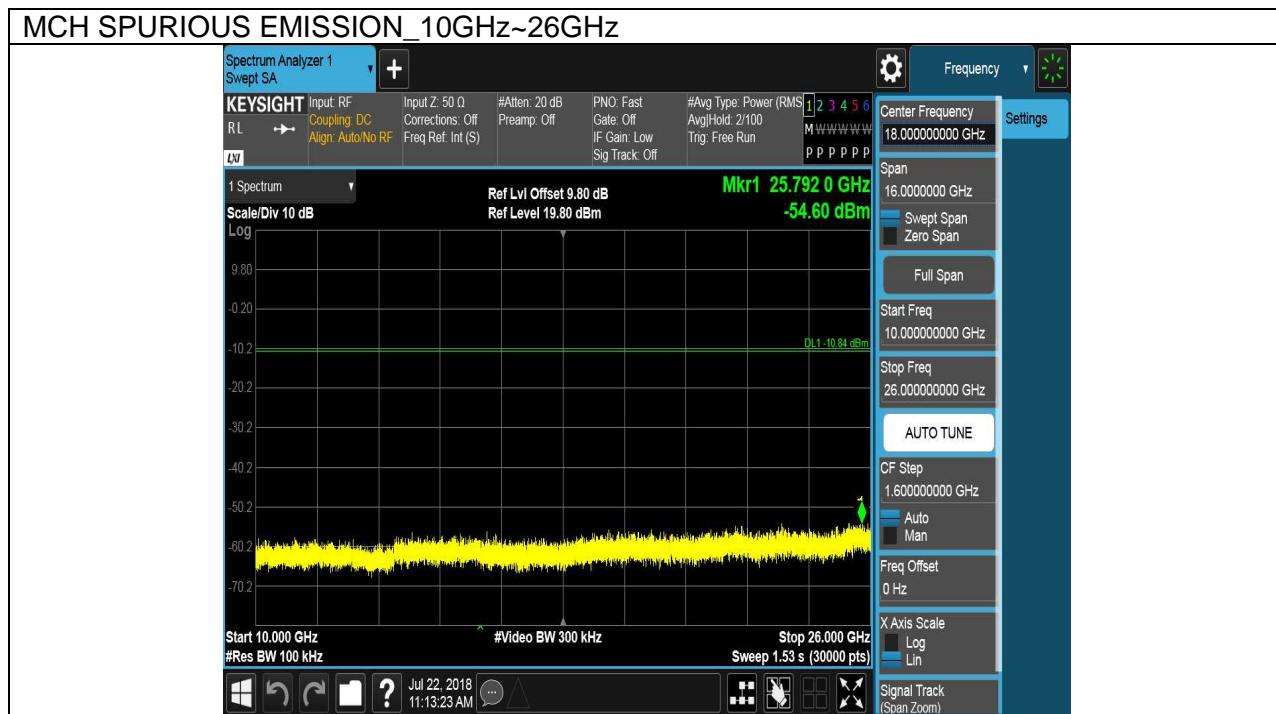
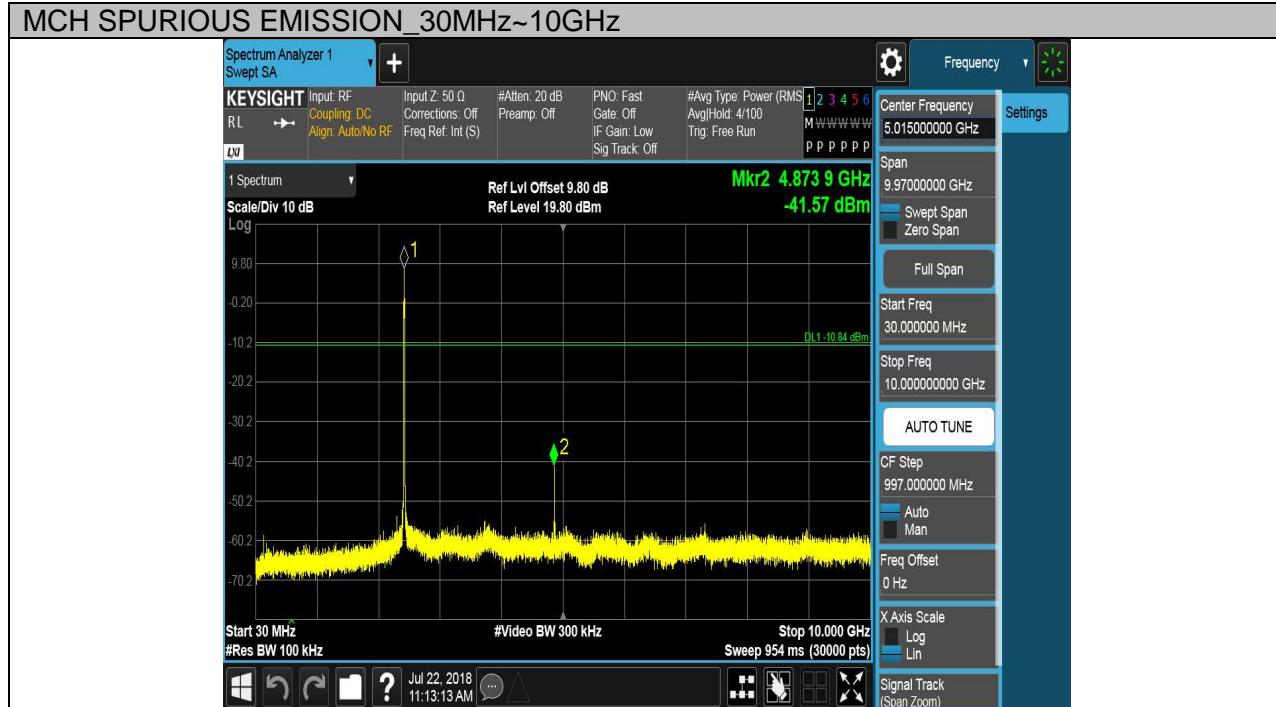


Test Mode	Channel	Verdict
11B SISO	MCH	PASS

Pref test Plot

MCH SPURIOUS EMISSION



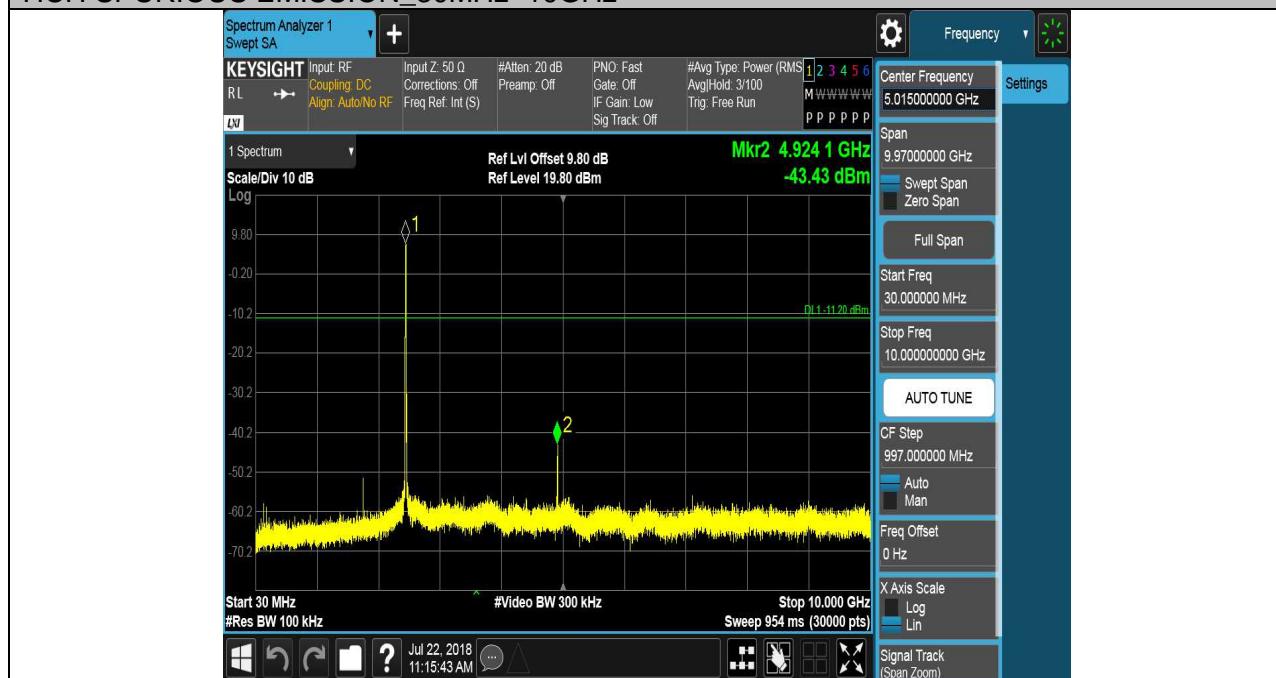


Test Mode	Channel	Verdict
11B SISO	HCH	PASS

Pref test Plot

HCH SPURIOUS EMISSION



HCH SPURIOUS EMISSION_30MHz~10GHz**HCH SPURIOUS EMISSION_10GHz~26GHz**