
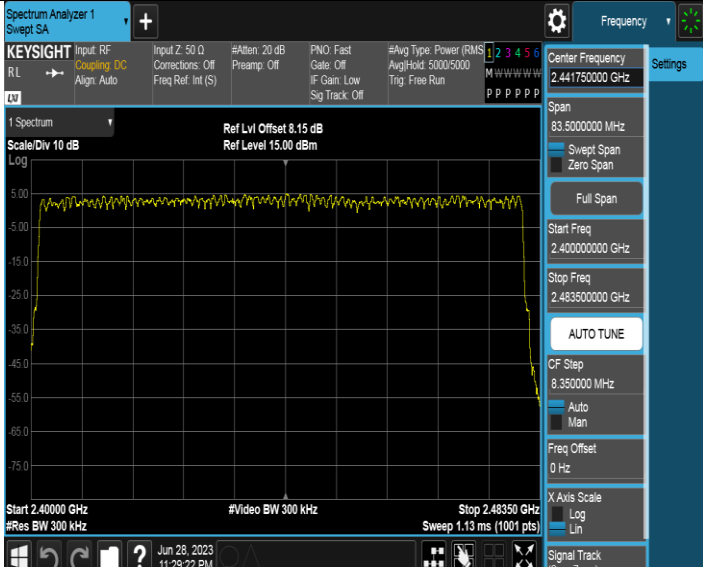
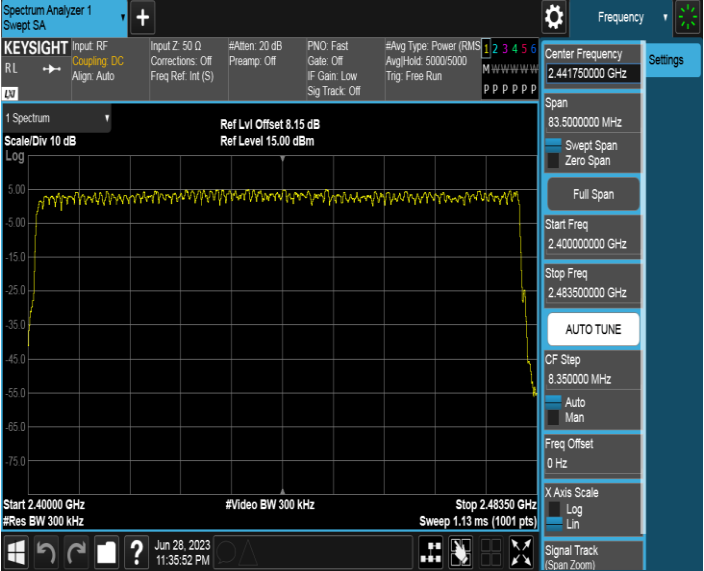


TEST GRAPHS

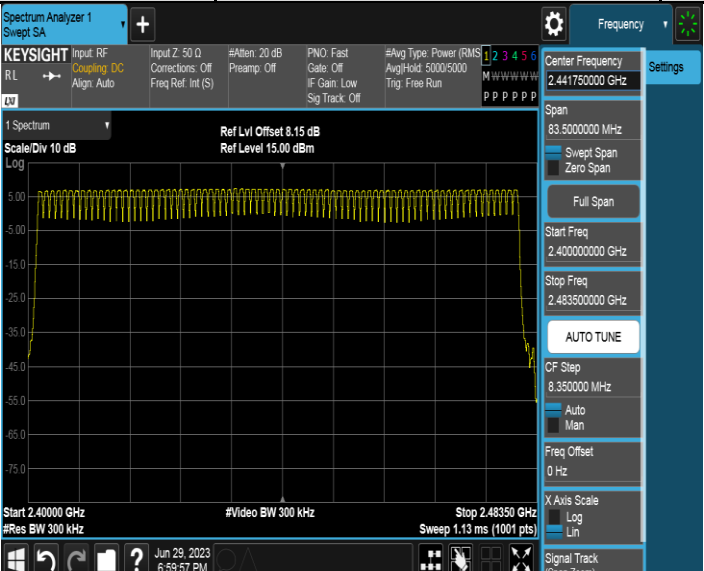
Module 1:

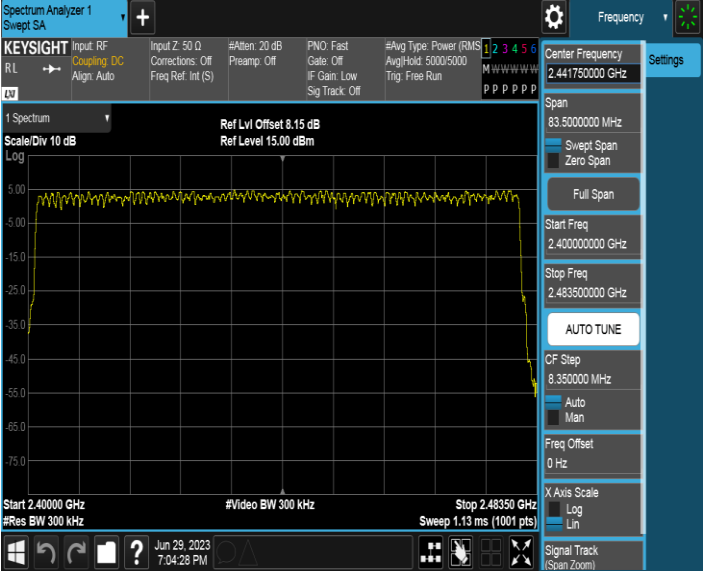
Test Mode	Test Channel	Verdict
DH5	Hop	PASS
		

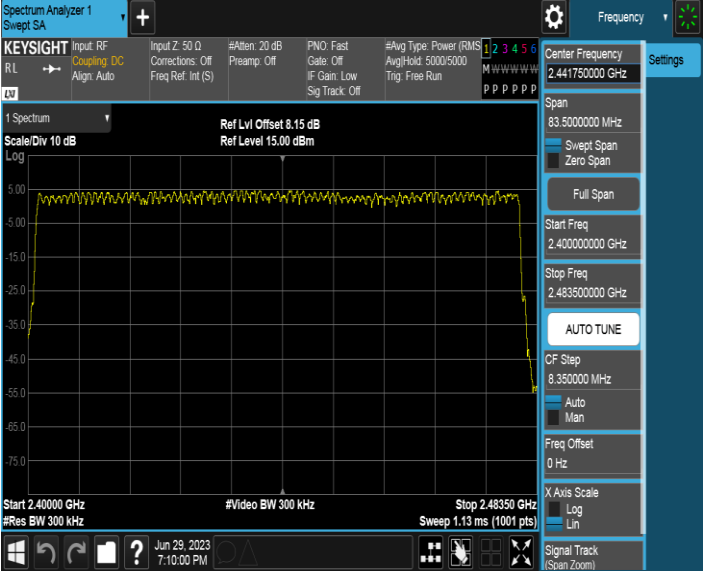
Test Mode	Test Channel	Verdict
2DH5	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH5	Hop	PASS
		

Module 2:

Test Mode	Test Channel	Verdict
DH5	Hop	PASS
		

Test Mode	Test Channel	Verdict
2DH5	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH5	Hop	PASS
		

6.6. TIME OF OCCUPANCY (DWELL TIME)

LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 15.247 (a) (1) III ISED RSS-247 Clause 5.1 (d)	Time of Occupancy (Dwell Time)	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds, multiplied by the number of hopping channels employed.

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 7.8.4.

Connect the EUT to the spectrum Analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1 MHz
VBW	≥RBW
Span	Zero span, centered on a hopping channel
Trace	Max hold
Sweep time	As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel

Use the marker-delta function to determine the transmit time per hop (Burst Width). If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

For FHSS Mode (79 Channel):

DH1/3DH1 Dwell Time: Burst Width * (1600/2) * 31.6 / (channel number)

DH3/3DH3 Dwell Time: Burst Width * (1600/4) * 31.6 / (channel number)

DH5/3DH5 Dwell Time: Burst Width * (1600/6) * 31.6 / (channel number)

For AFHSS Mode (20 Channel):

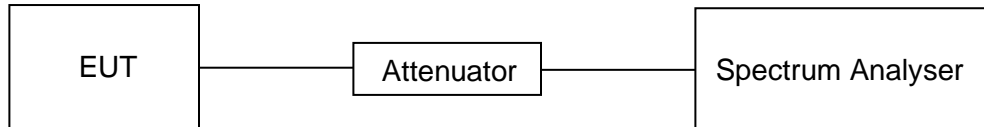
DH1/3DH1 Dwell Time: Burst Width * (800/2) * 8 / (channel number)

DH3/3DH3 Dwell Time: Burst Width * (800/4) * 8 / (channel number)

DH5/3DH5 Dwell Time: Burst Width * (800/6) * 8 / (channel number)

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 13.2V

TEST SETUP

TEST RESULTS TABLE

Module 1:

FHSS Mode				
Packet	Channel	Burst Width [ms/hop/ch]	Dwell Time [ms]	Results
DH1	Hop	0.380	0.1216	PASS
DH3	Hop	1.640	0.2624	PASS
DH5	Hop	2.890	0.3083	PASS
3DH1	Hop	0.400	0.1280	PASS
3DH3	Hop	1.640	0.2624	PASS
3DH5	Hop	2.890	0.3083	PASS
AFHSS Mode				
DH1	Hop	0.380	0.0608	PASS
DH3	Hop	1.640	0.1312	PASS
DH5	Hop	2.890	0.1541	PASS
3DH1	Hop	0.400	0.0640	PASS
3DH3	Hop	1.640	0.1312	PASS
3DH5	Hop	2.890	0.1541	PASS

Module 2:


FHSS Mode				
Packet	Channel	Burst Width [ms/hop/ch]	Dwell Time [ms]	Results
DH1	Hop	0.380	0.1216	PASS
DH3	Hop	1.640	0.2624	PASS
DH5	Hop	2.890	0.3083	PASS
3DH1	Hop	0.400	0.1280	PASS
3DH3	Hop	1.640	0.2624	PASS
3DH5	Hop	2.900	0.3093	PASS
AFHSS Mode				
DH1	Hop	0.380	0.0608	PASS
DH3	Hop	1.640	0.1312	PASS
DH5	Hop	2.890	0.1541	PASS
3DH1	Hop	0.400	0.0640	PASS
3DH3	Hop	1.640	0.1312	PASS
3DH5	Hop	2.900	0.1547	PASS

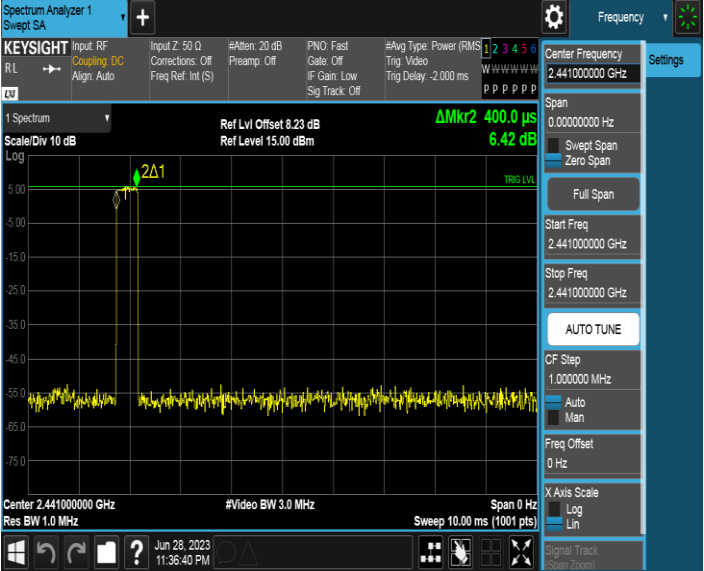
TEST GRAPHS


Module 1:


Test Mode	Test Channel	Verdict
DH1	Hop	PASS


Test Mode	Test Channel	Verdict
DH3	Hop	PASS


Test Mode	Test Channel	Verdict
DH5	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH1	Hop	PASS
		

Test Mode	Test Channel	Verdict
DH5	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH1	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH3	Hop	PASS
		

Test Mode	Test Channel	Verdict
3DH5	Hop	PASS
		

6.7. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) Subpart C, ISSED RSS-247 ISSUE 2		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISSED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	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 settings:

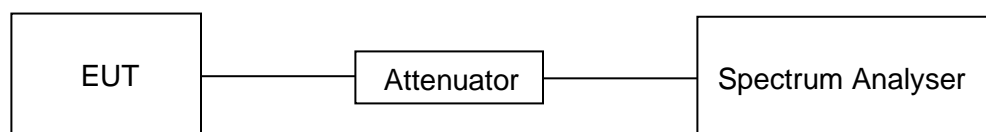
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 13.2V

PART 1: REFERENCE LEVEL MEASUREMENT

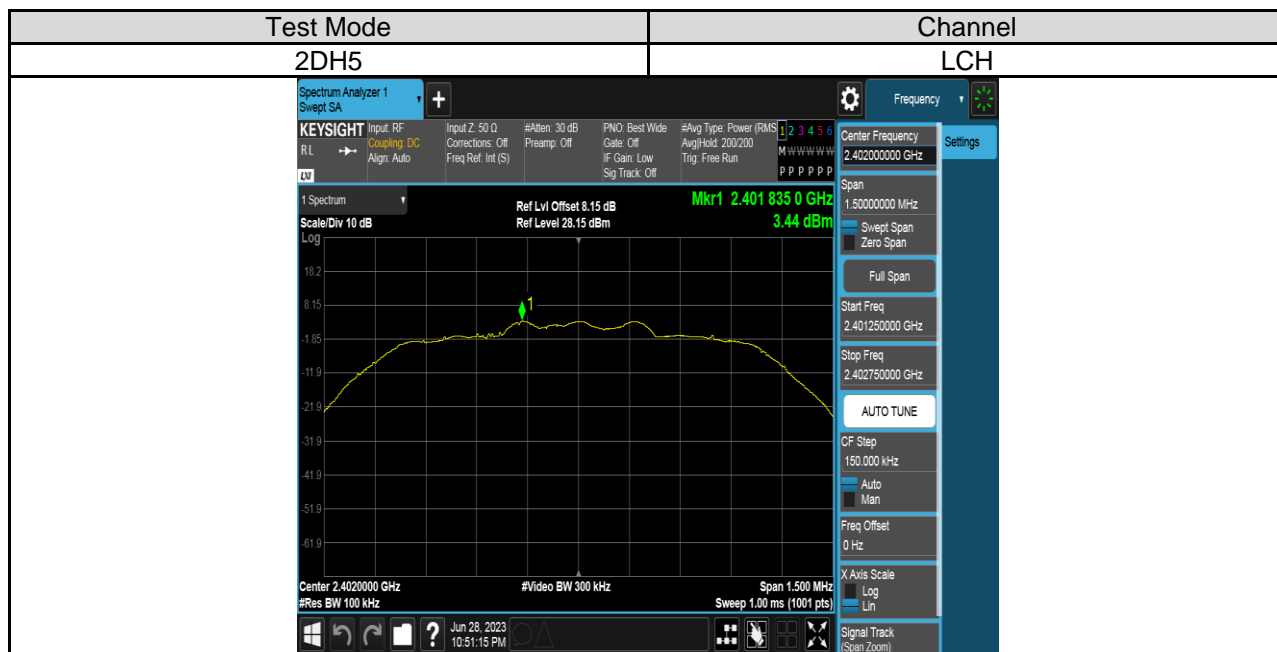
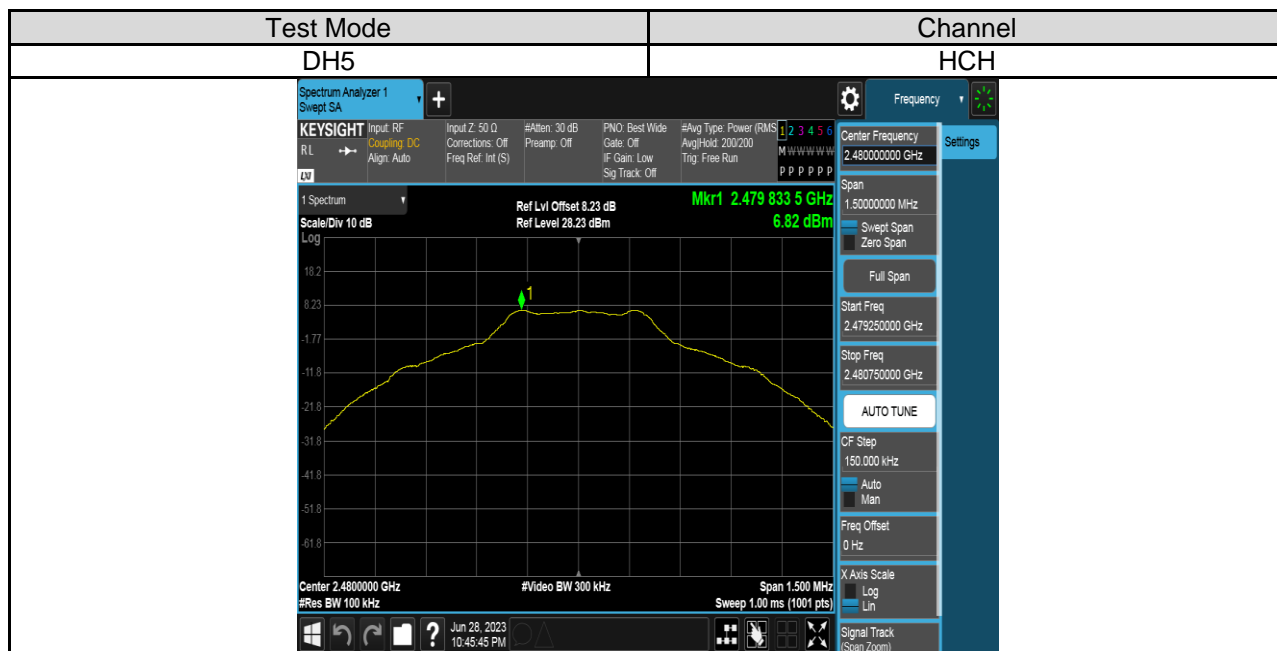
TEST RESULTS TABLE

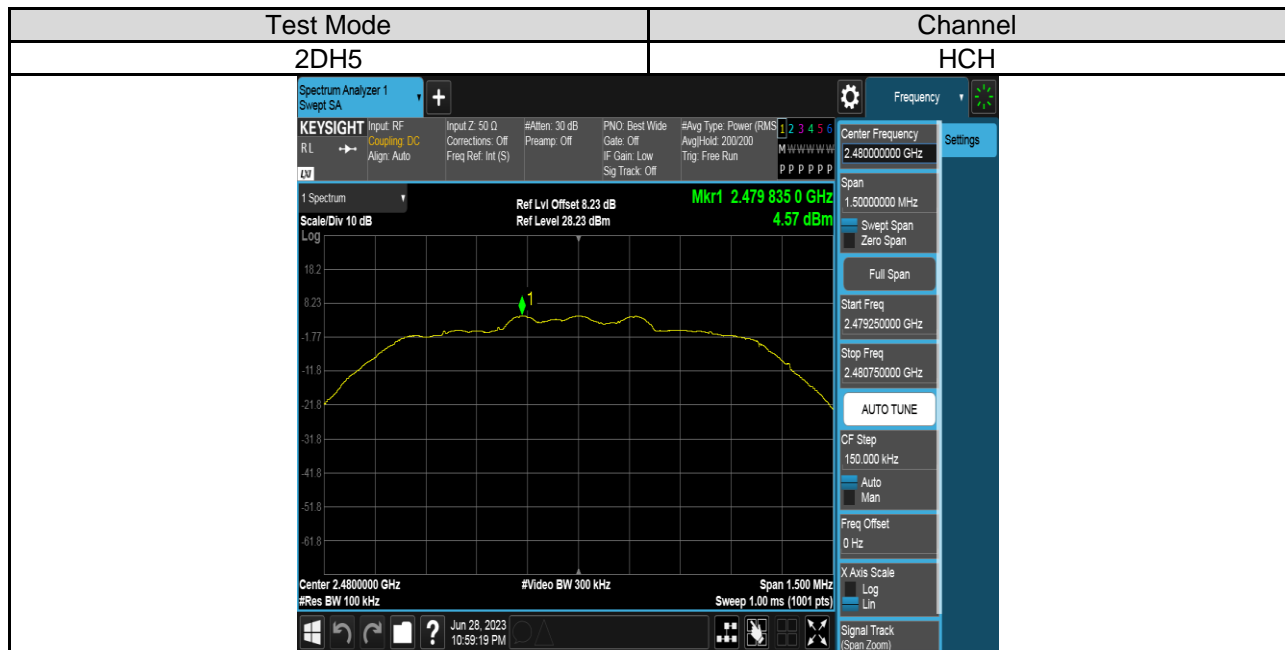
Module 1:

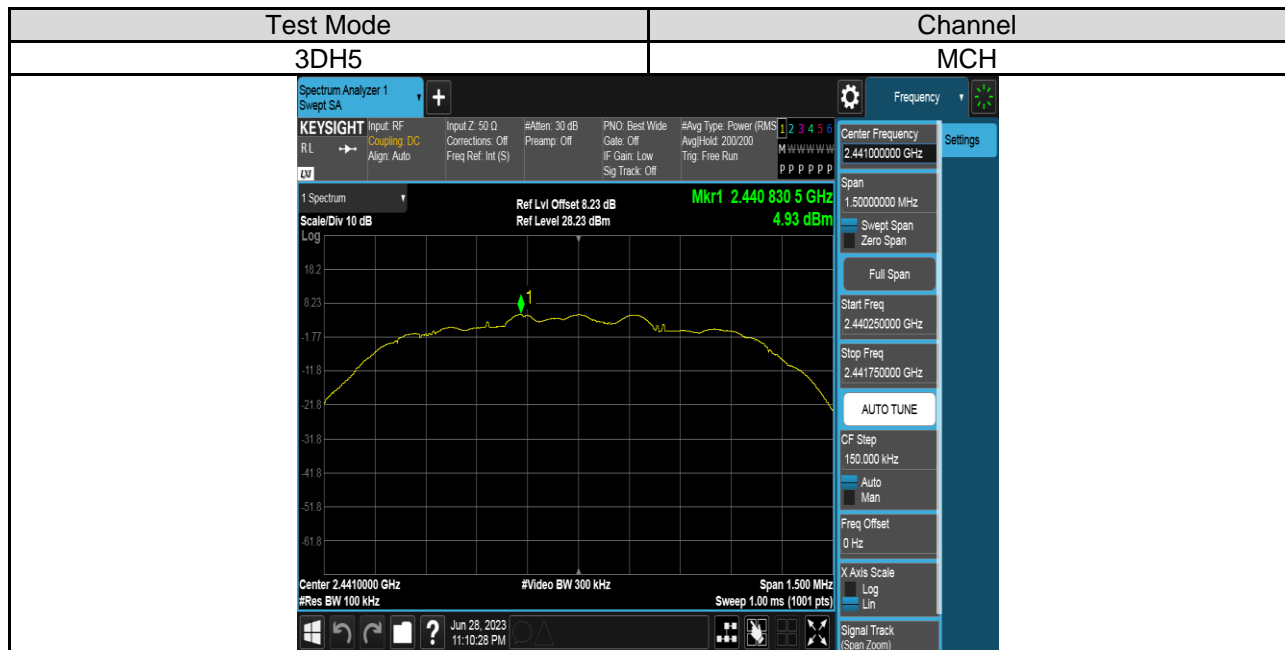
Test Mode	Test Channel	Result[dBm]
DH5	LCH	6.07
	MCH	7.14
	HCH	6.82
2DH5	LCH	3.44
	MCH	4.94
	HCH	4.57
3DH5	LCH	3.45
	MCH	4.93
	HCH	4.56

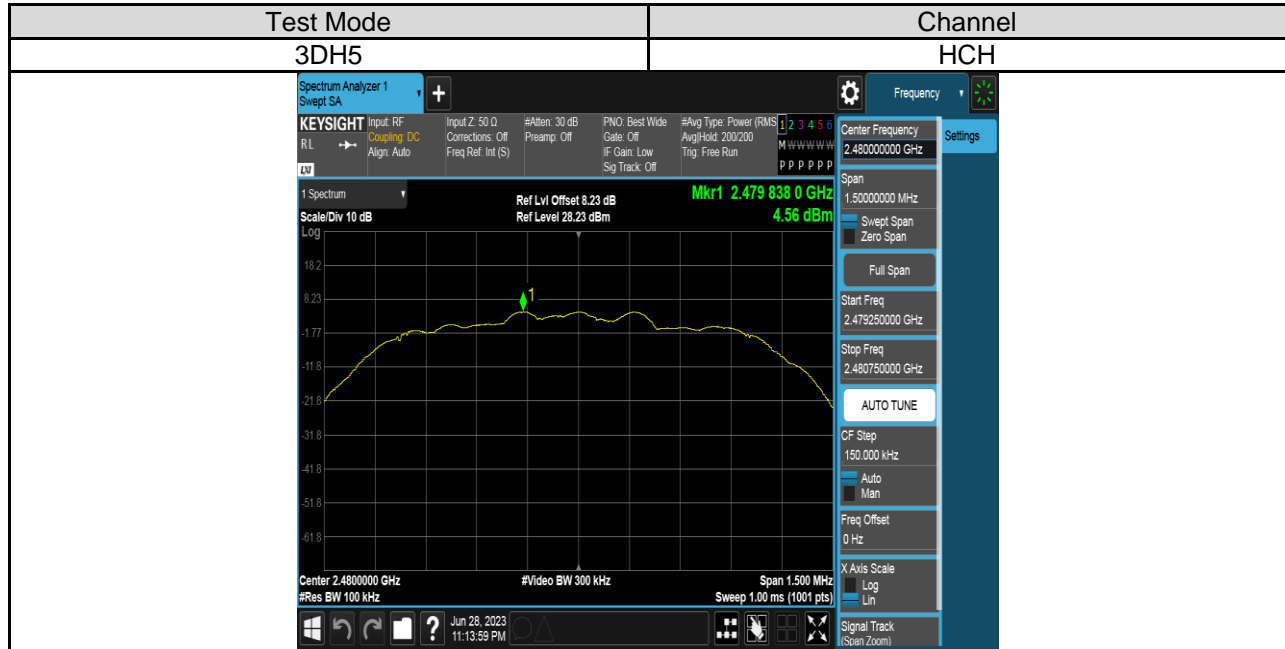
Module 2:

Test Mode	Test Channel	Result[dBm]
DH5	LCH	6.43
	MCH	7.22
	HCH	6.93
2DH5	LCH	3.71
	MCH	4.72
	HCH	4.61
3DH5	LCH	3.73
	MCH	4.74
	HCH	4.63

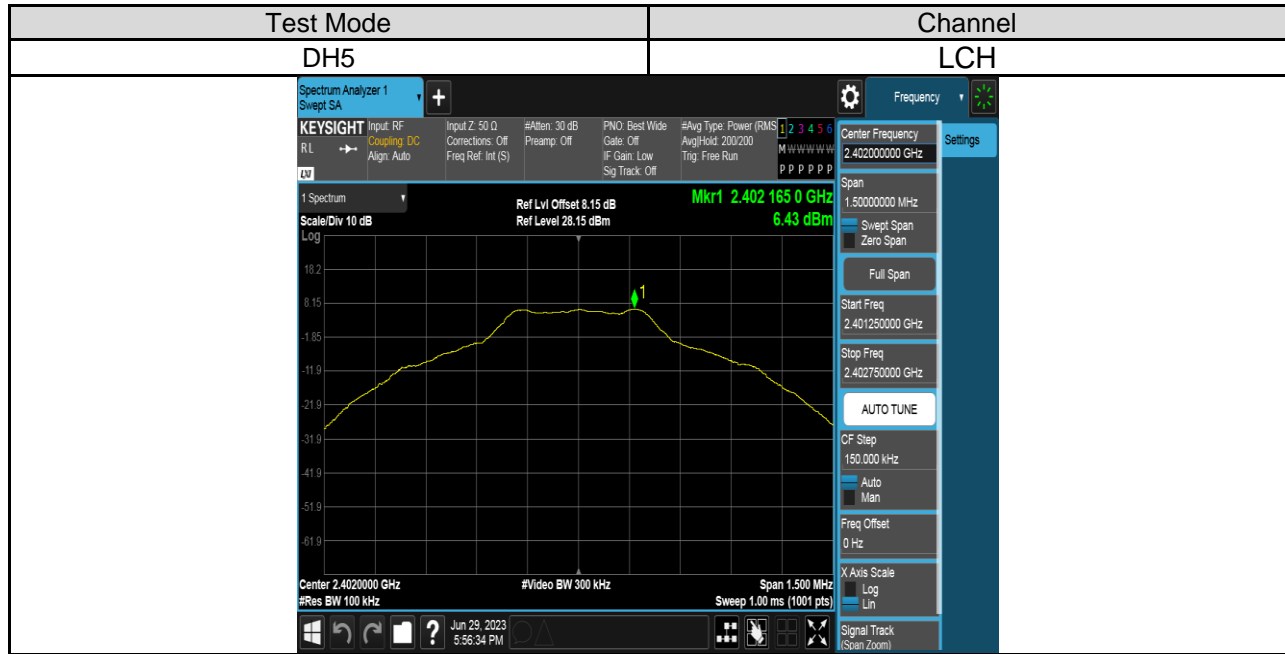


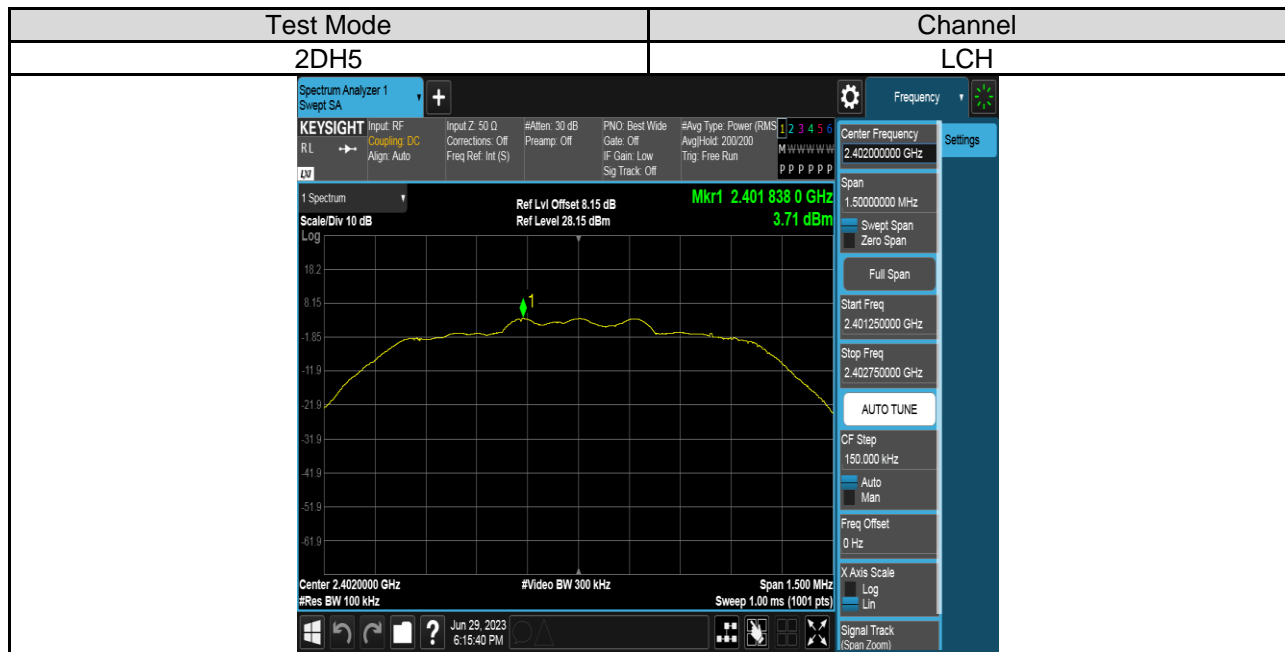


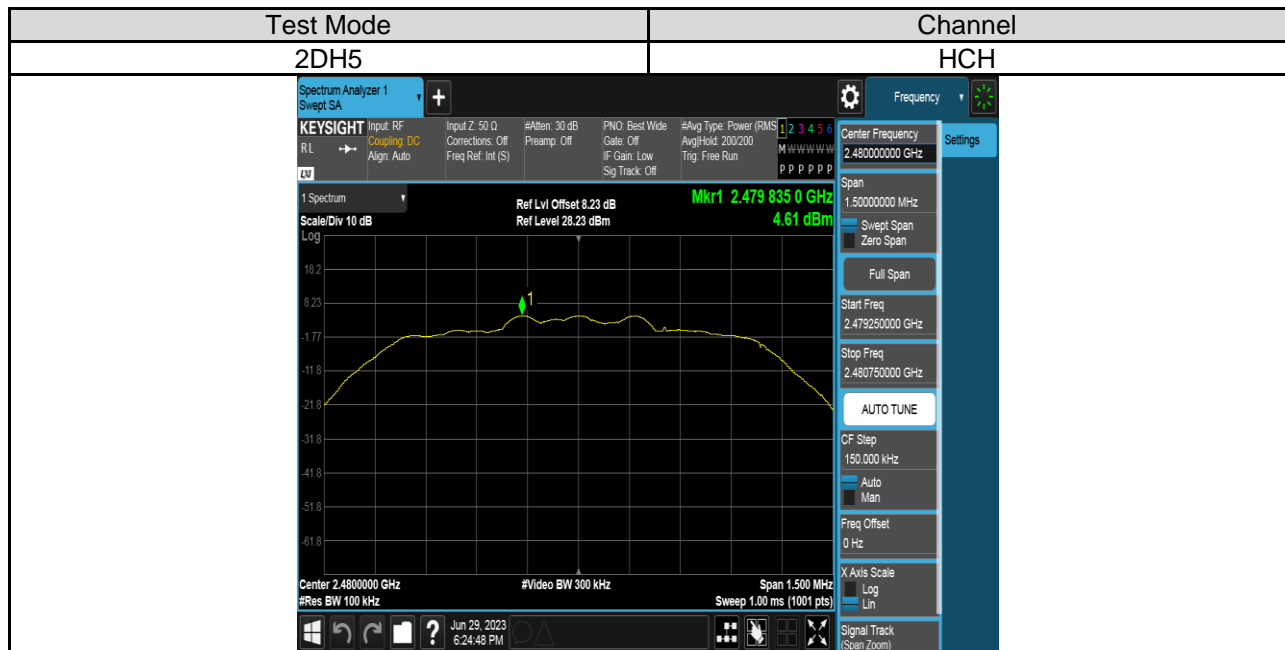
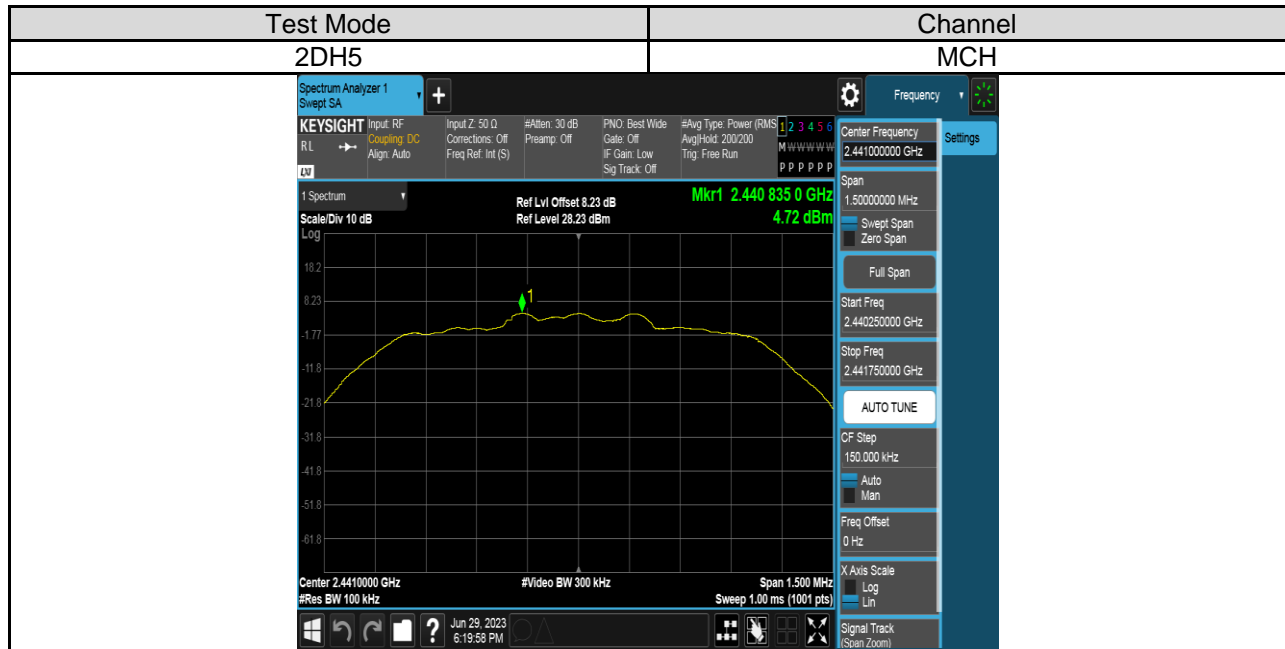


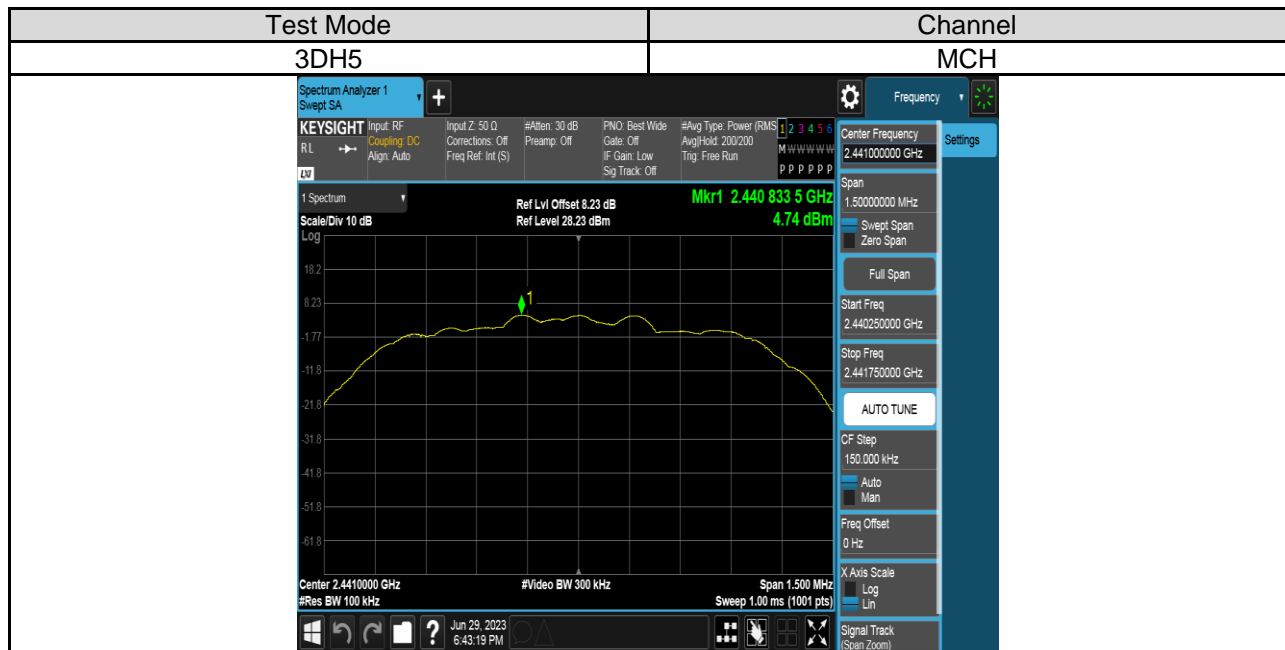
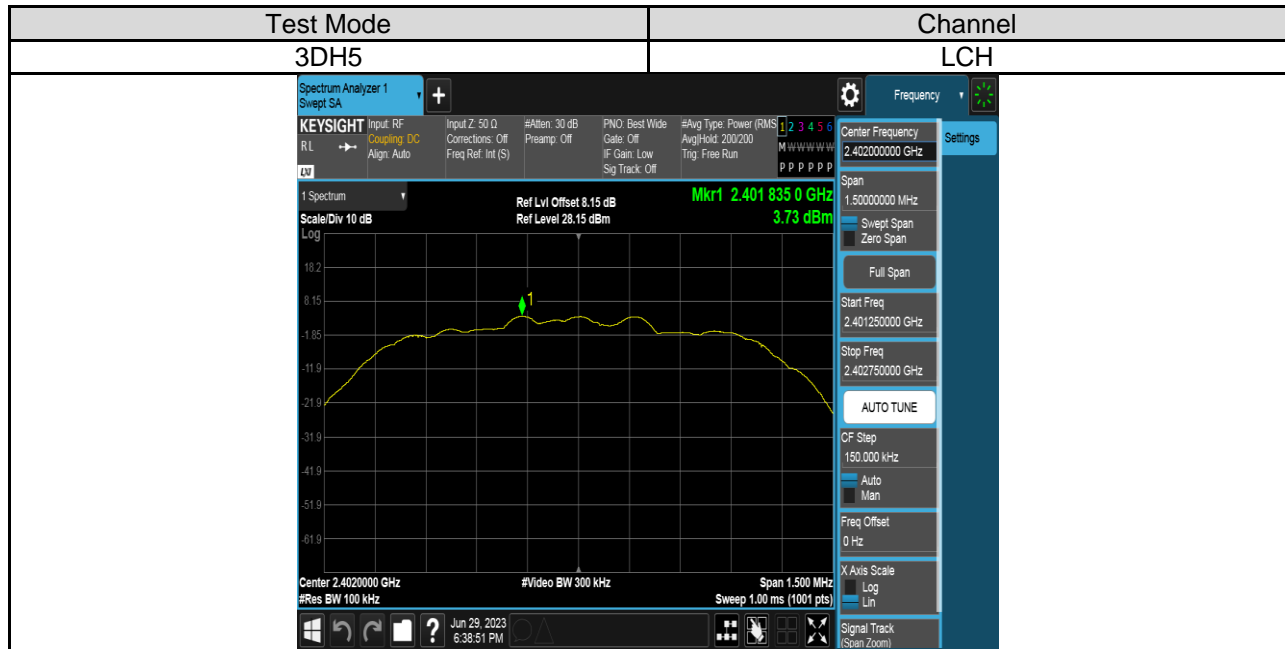


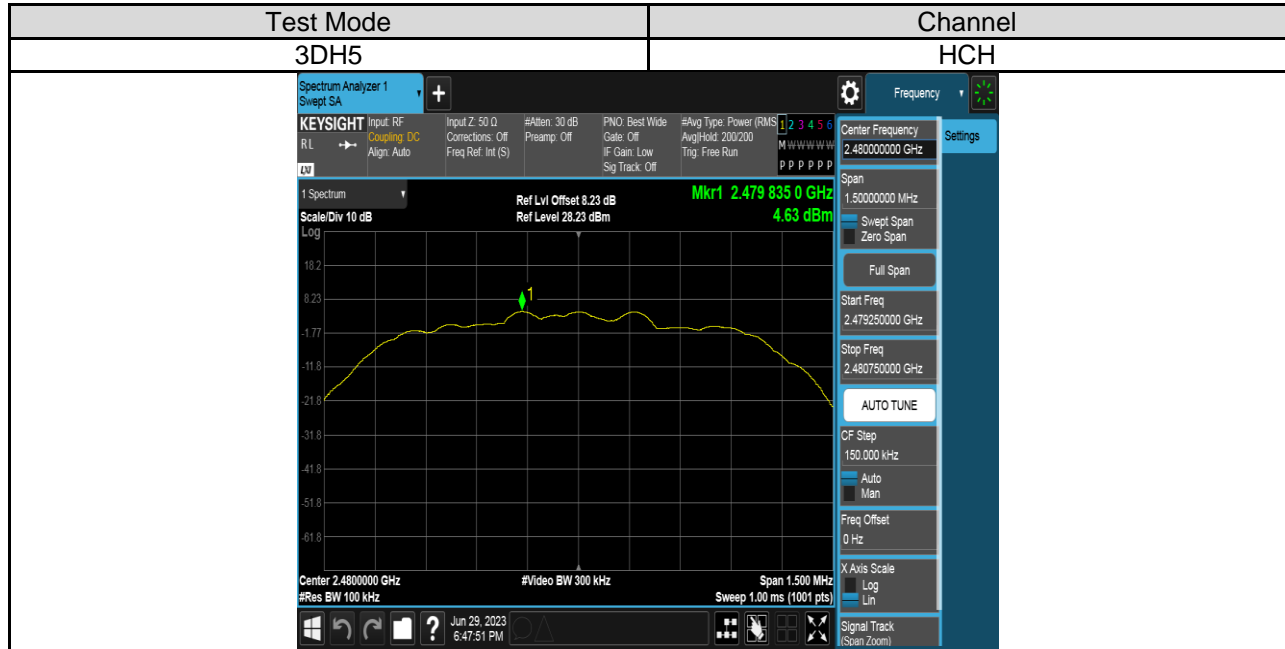
Module 2:











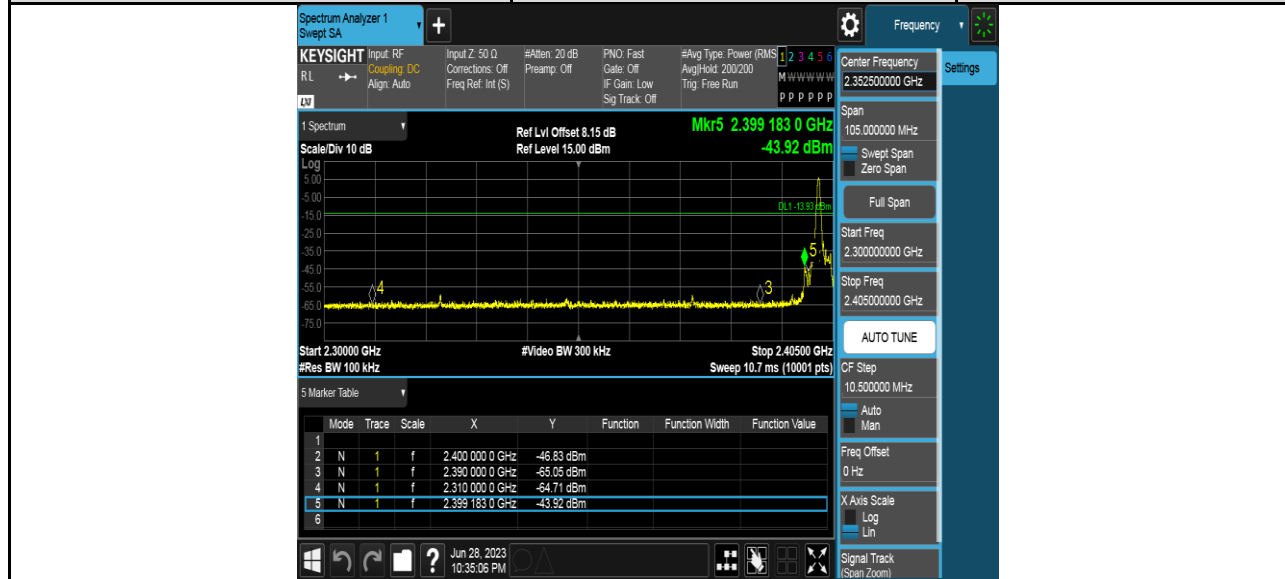
PART 2: CONDUCTED BANDEDGE**TEST RESULTS TABLE**

Test Mode	Test Channel	Result	Verdict
DH5	LCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS
2DH5	LCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS
3DH5	LCH	Refer to the Test Graph	PASS
	HCH	Refer to the Test Graph	PASS

TEST GRAPHS

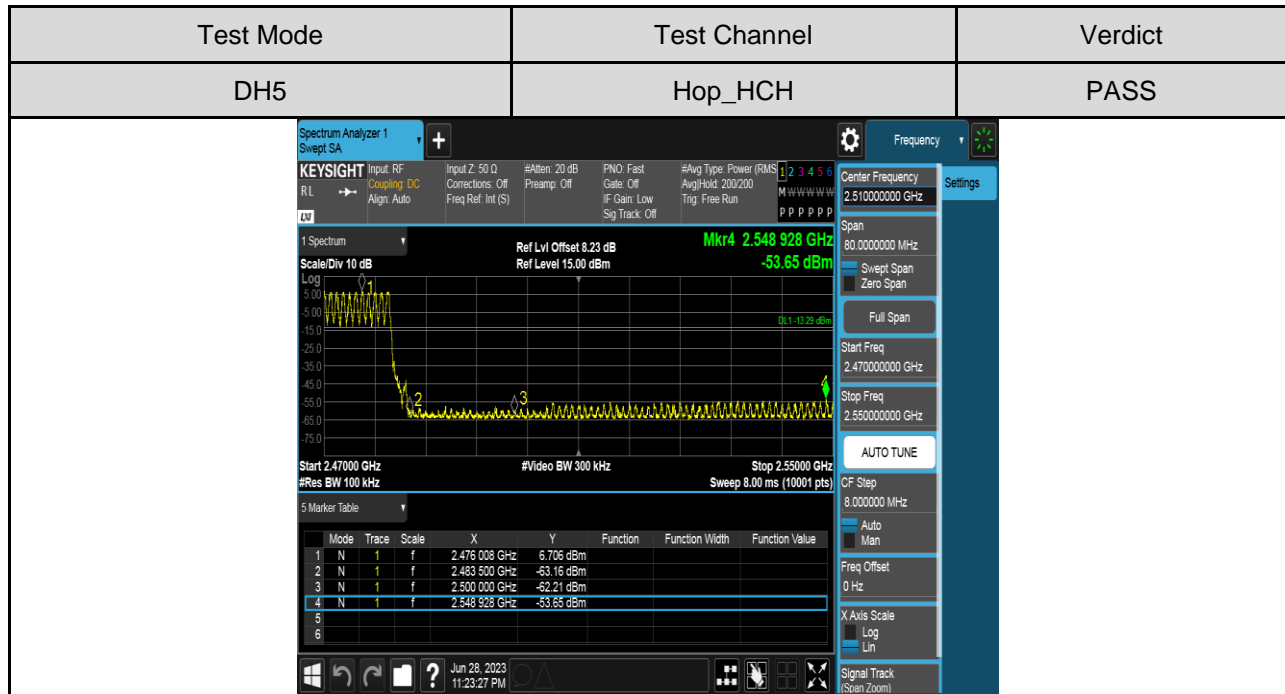
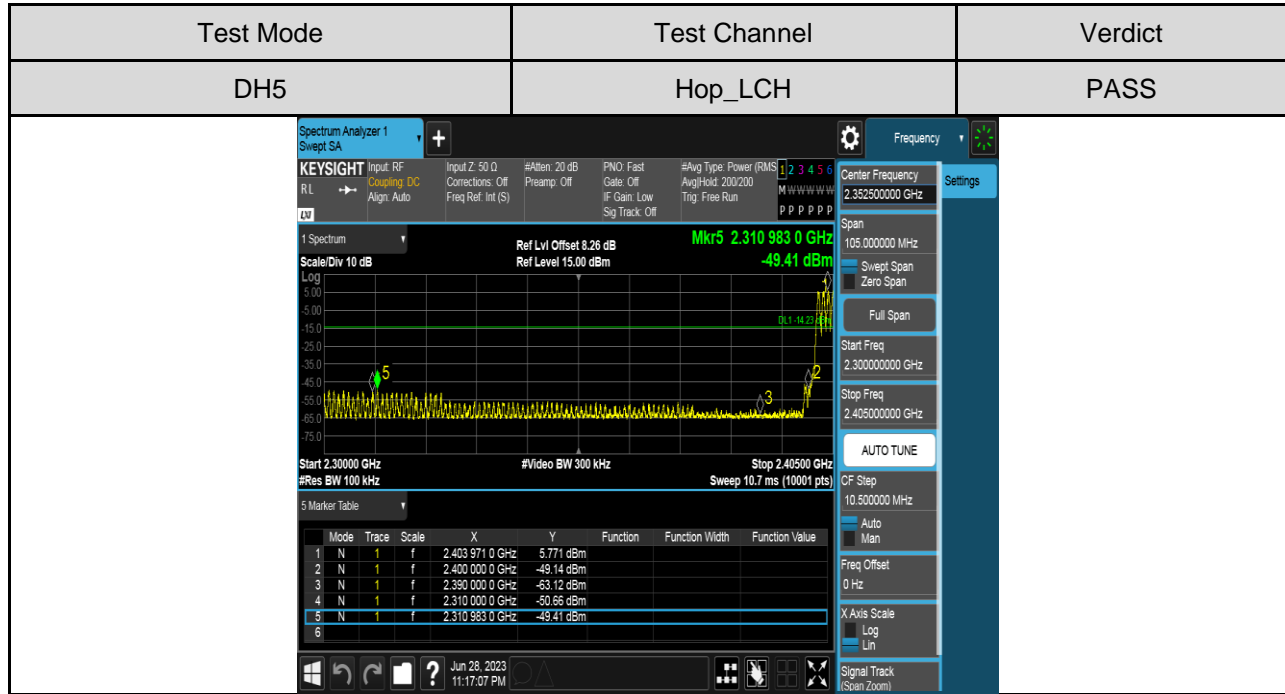
Module 1:

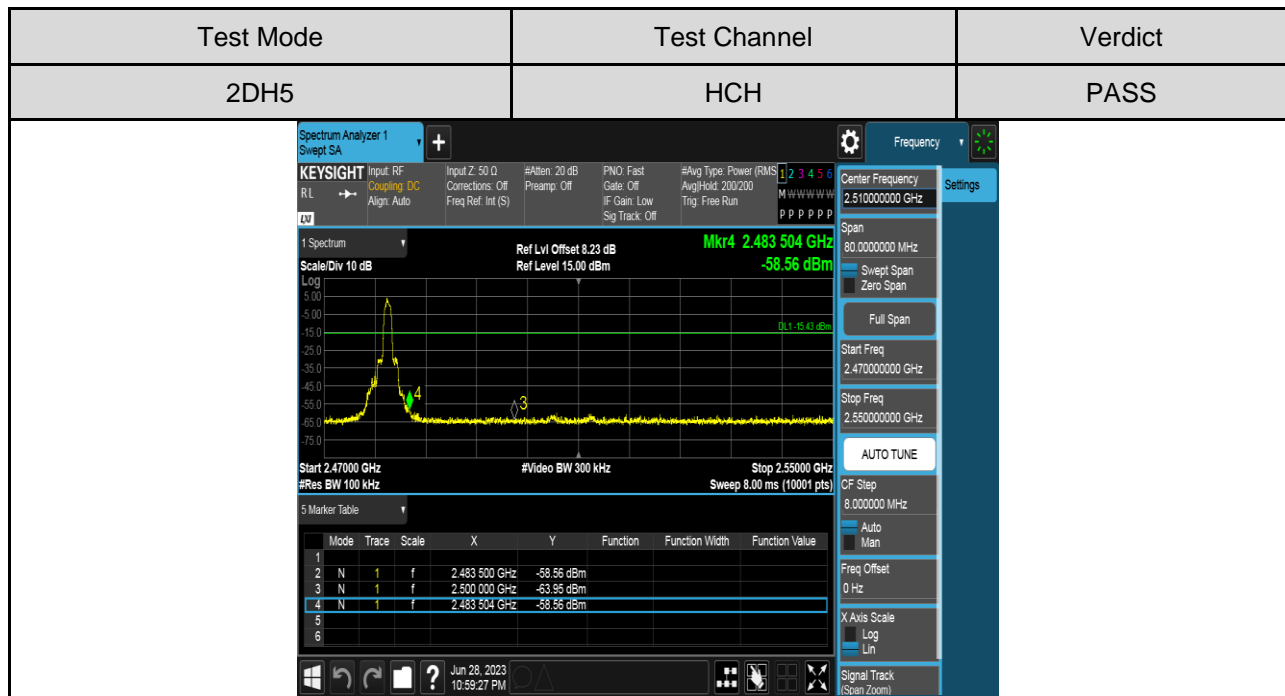
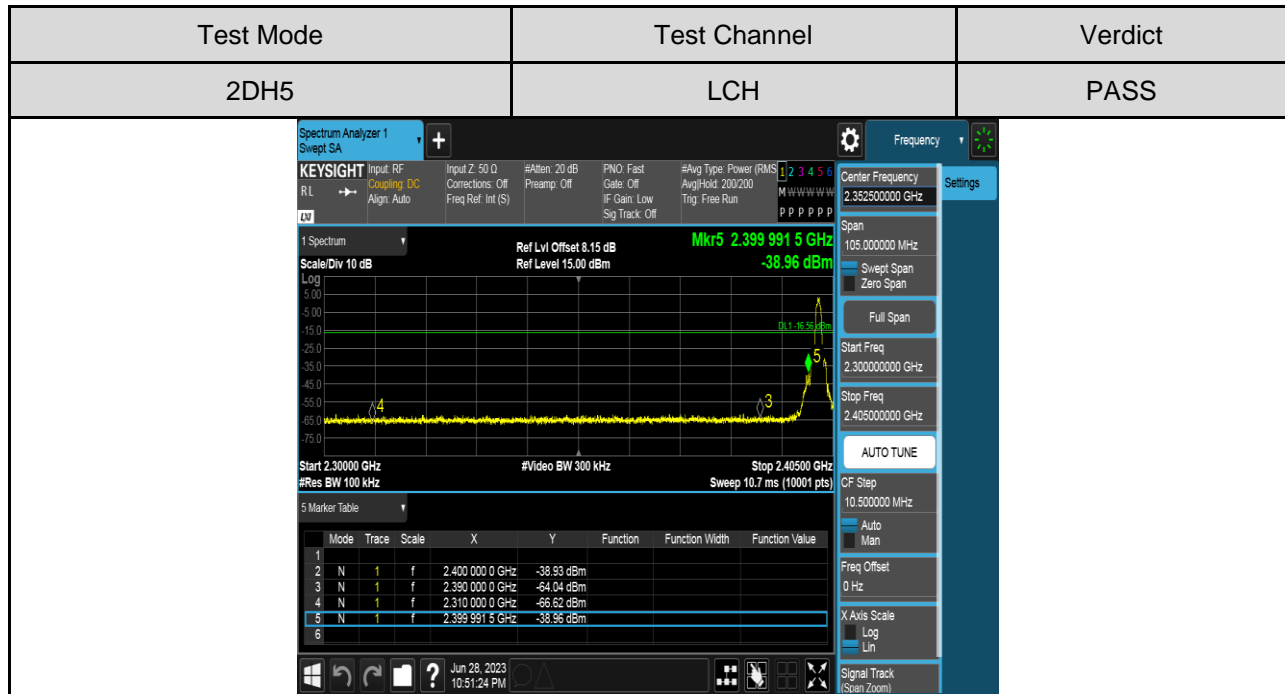
Test Mode	Test Channel	Verdict
DH5	LCH	PASS

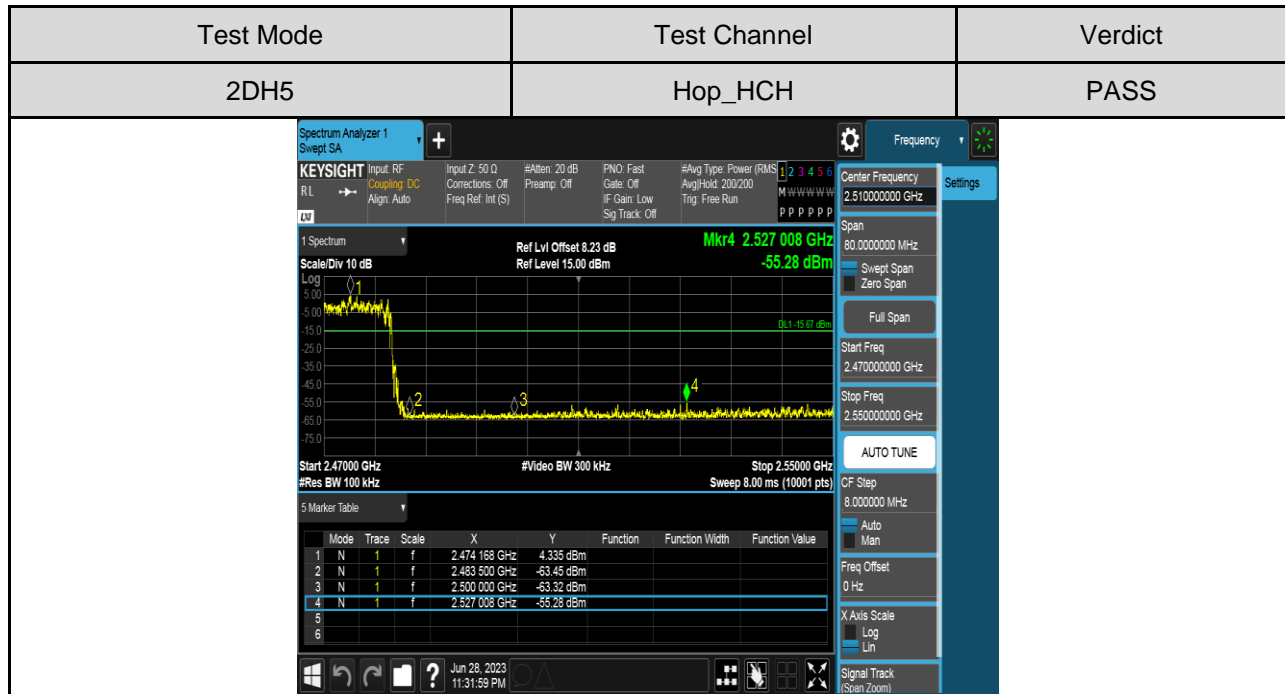
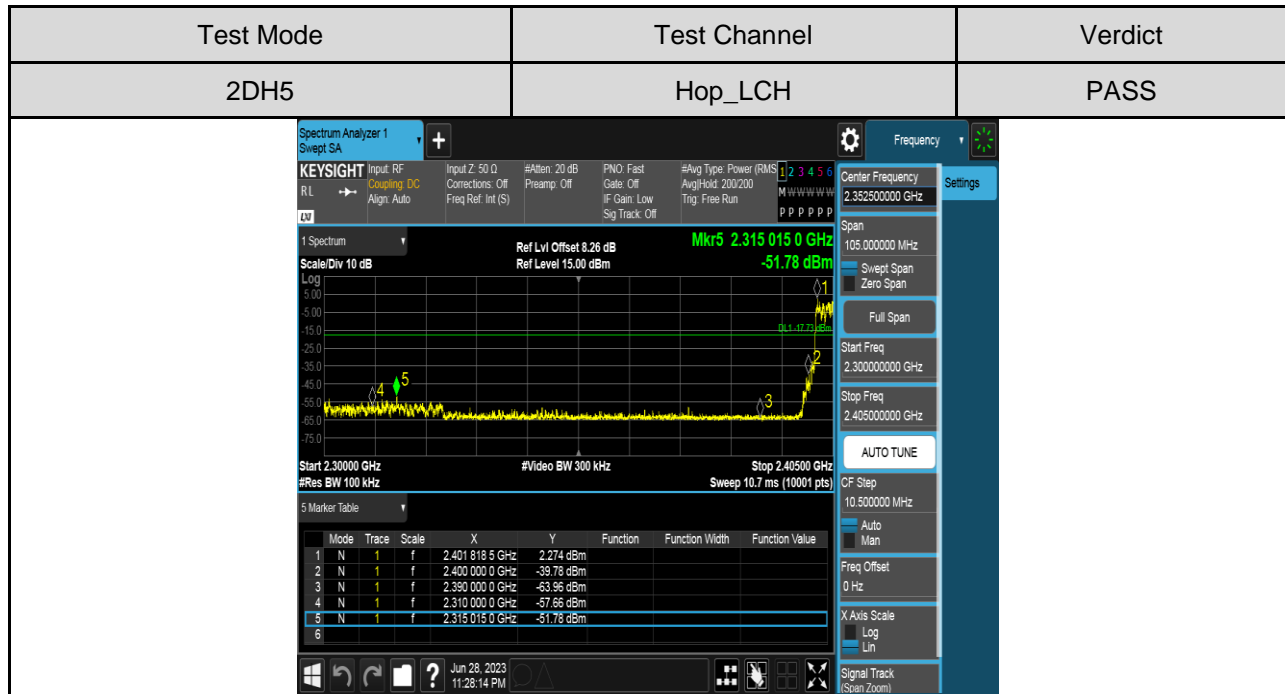


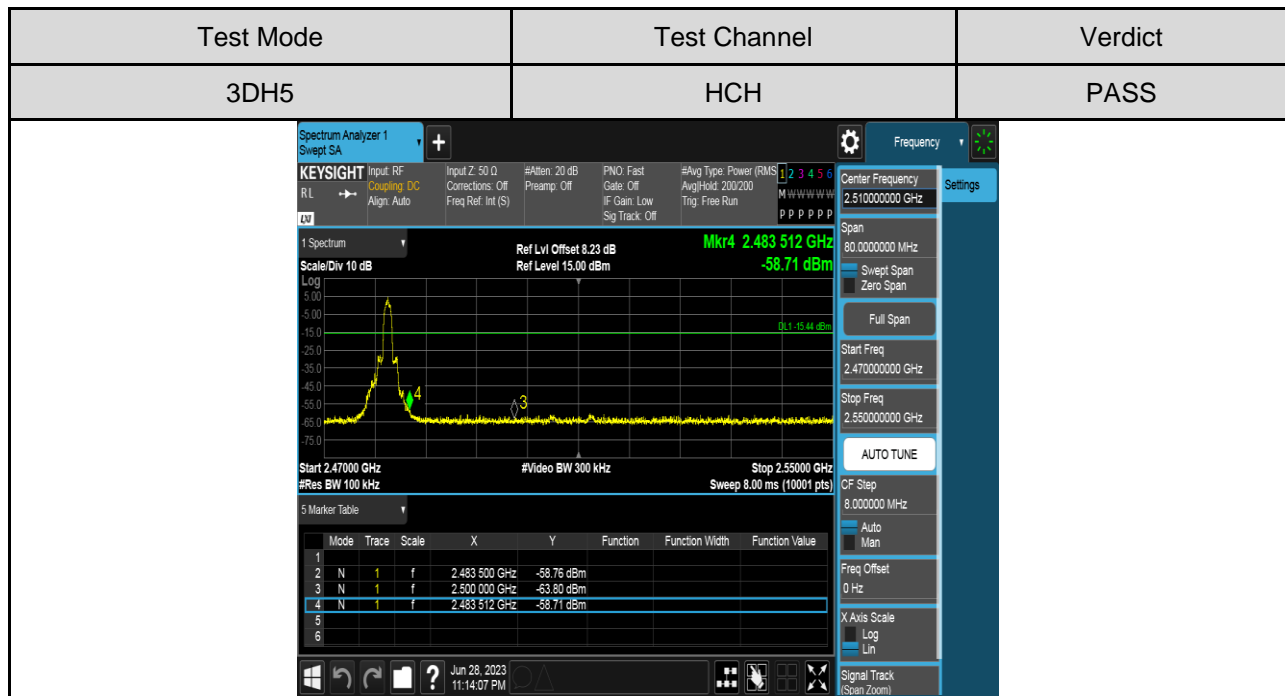
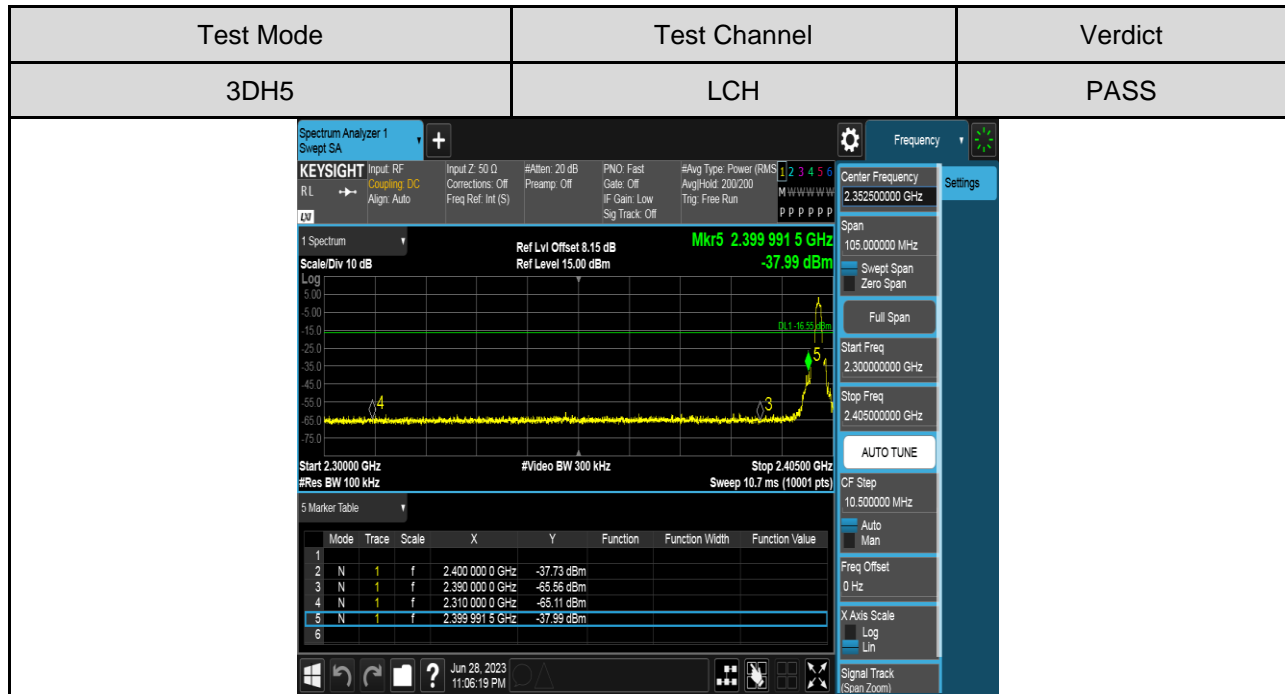
Test Mode	Test Channel	Verdict
DH5	HCH	PASS

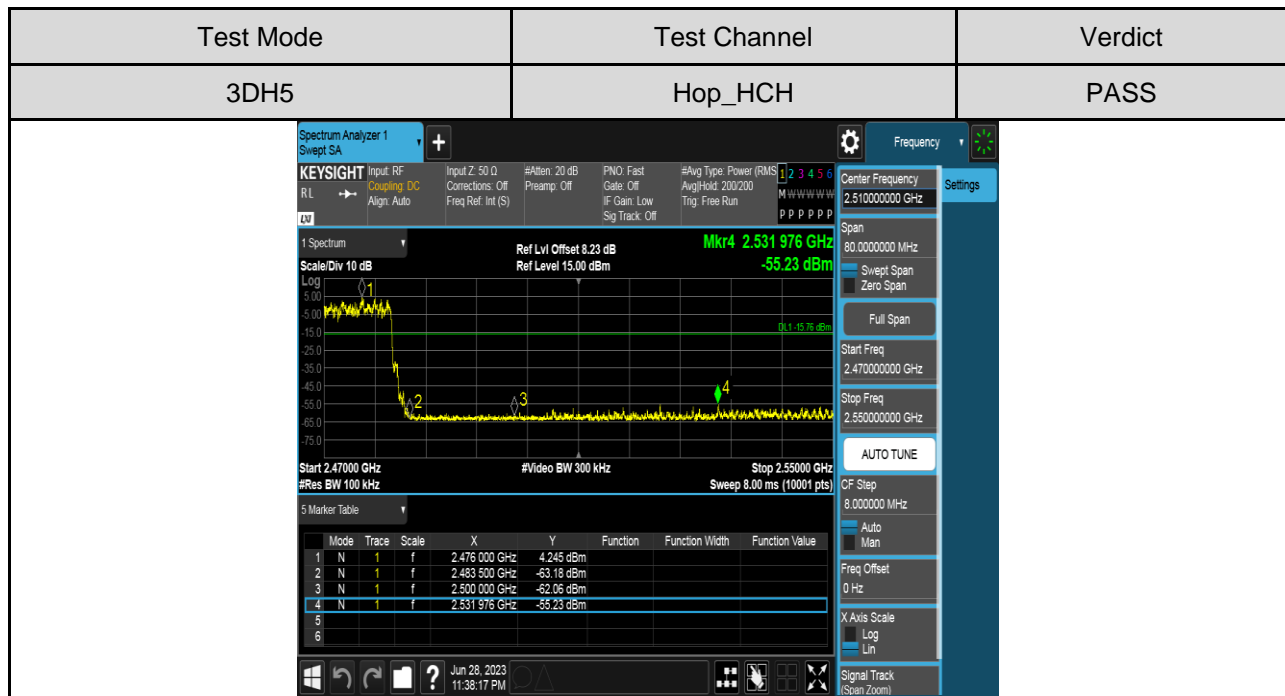
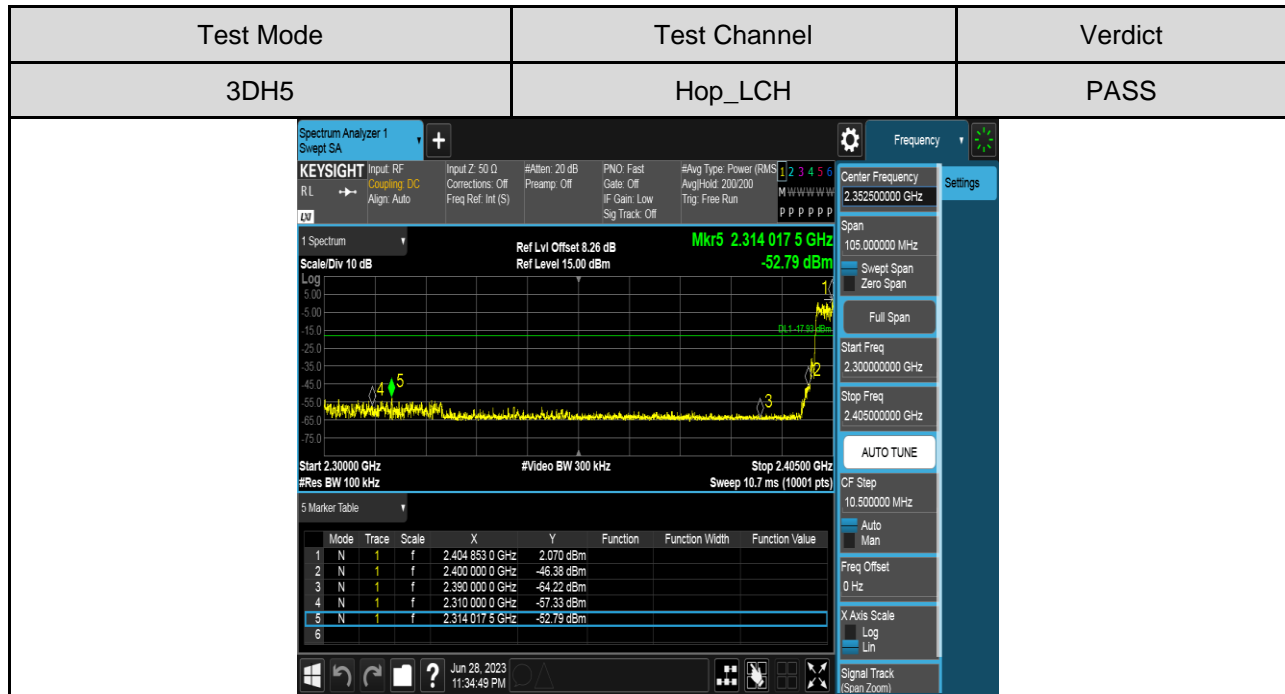












Module 2:

Test Mode	Test Channel	Verdict																																																
DH5	LCH	PASS																																																
<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>2.400 000 0 GHz</td> <td>-43.01 dBm</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.390 000 0 GHz</td> <td>-55.27 dBm</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.310 000 0 GHz</td> <td>-55.56 dBm</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.399 141 0 GHz</td> <td>-43.13 dBm</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>N</td> <td>1</td> <td>f</td> <td>2.399 141 0 GHz</td> <td>-43.13 dBm</td> <td></td> <td></td> </tr> </tbody> </table>			Mode	Trace	Scale	X	Y	Function	Function Width	Function Value	1	N	1	f	2.400 000 0 GHz	-43.01 dBm			2	N	1	f	2.390 000 0 GHz	-55.27 dBm			3	N	1	f	2.310 000 0 GHz	-55.56 dBm			4	N	1	f	2.399 141 0 GHz	-43.13 dBm			5	N	1	f	2.399 141 0 GHz	-43.13 dBm		
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value																																											
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Mode	Trace	Scale	X	Y	Function	Function Width	Function Value																																			
1	N	1	f	2.483 500 GHz	-59.98 dBm																																					
2	N	1	f	2.500 000 GHz	-53.52 dBm																																					
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