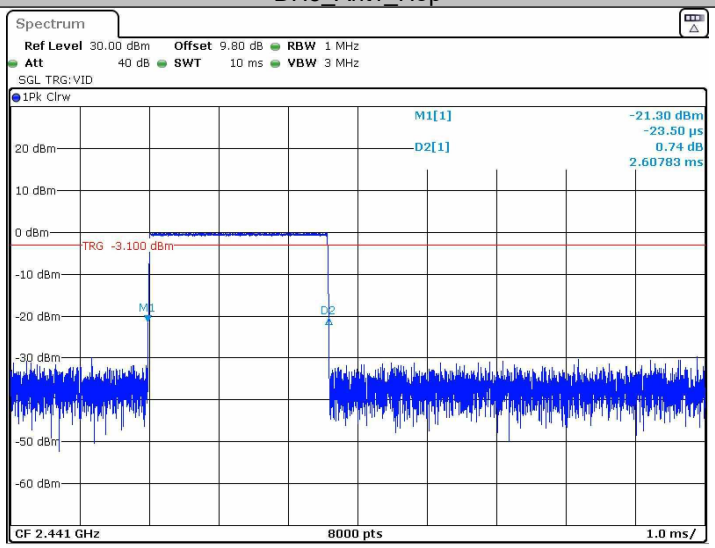
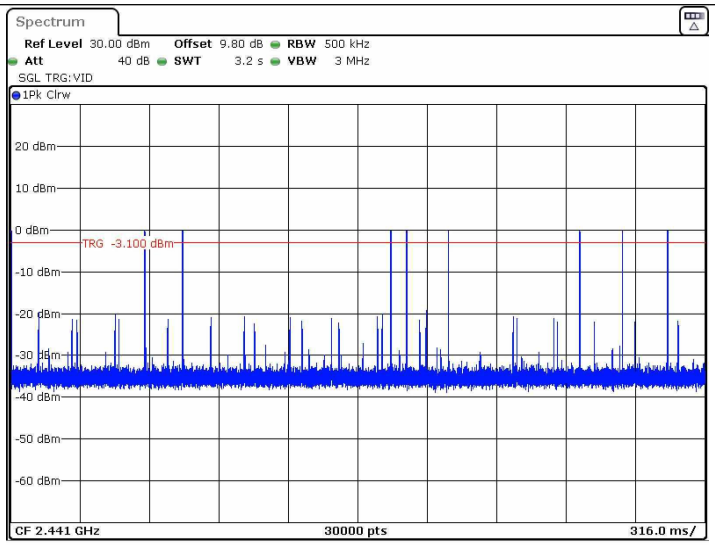
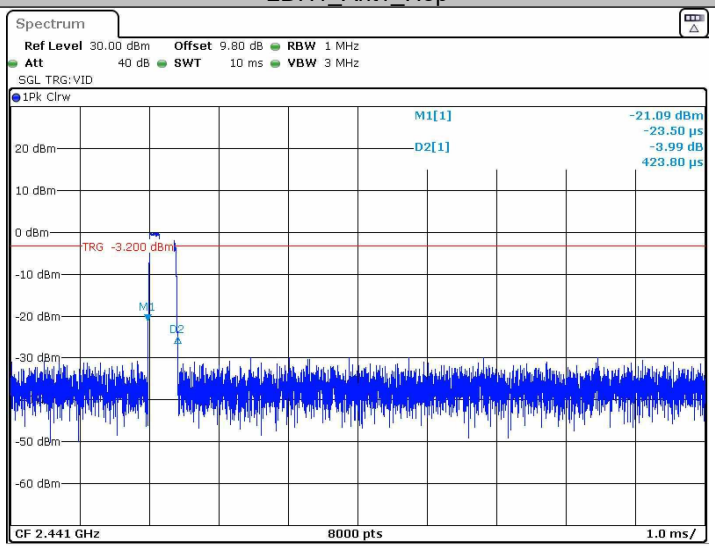
DH5_Ant1_Hop

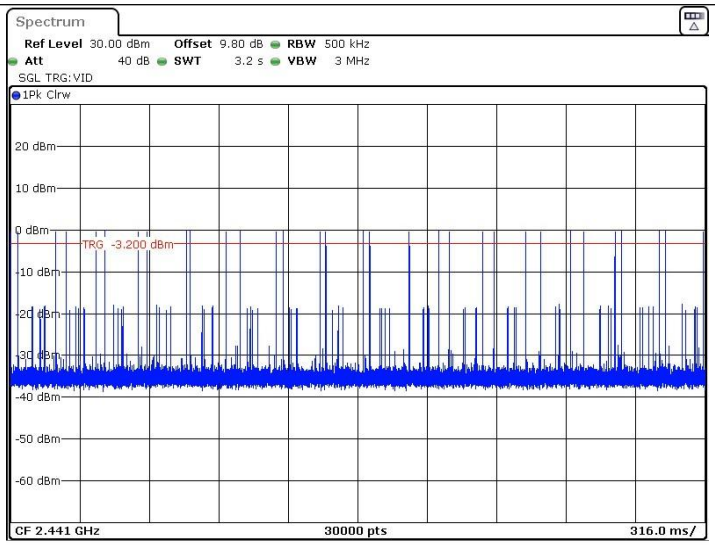

Spectrum
Ref Level 30.00 dBm Offset 9.80 dB RBW 1 MHz
Att 40 dB SWT 10 ms VBW 3 MHz
SGL TRG: VID
1Pk Clrw
M1[1] -21.30 dBm
-23.50 µs
D2[1] 0.74 dB
2.60783 ms
20 dBm
10 dBm
0 dBm
TRG -3.100 dBm
-10 dBm
-20 dBm
-30 dBm
-50 dBm
-60 dBm
M1
D2
CF 2.441 GHz
8000 pts
1.0 ms/
Date: 21.JAN.2022 04:00:38


Spectrum
Ref Level 30.00 dBm Offset 9.80 dB RBW 500 kHz
Att 40 dB SWT 3.2 s VBW 3 MHz
SGL TRG: VID
1Pk Clrw
20 dBm
10 dBm
0 dBm
TRG -3.100 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.441 GHz
30000 pts
316.0 ms/
Date: 21.JAN.2022 04:00:44

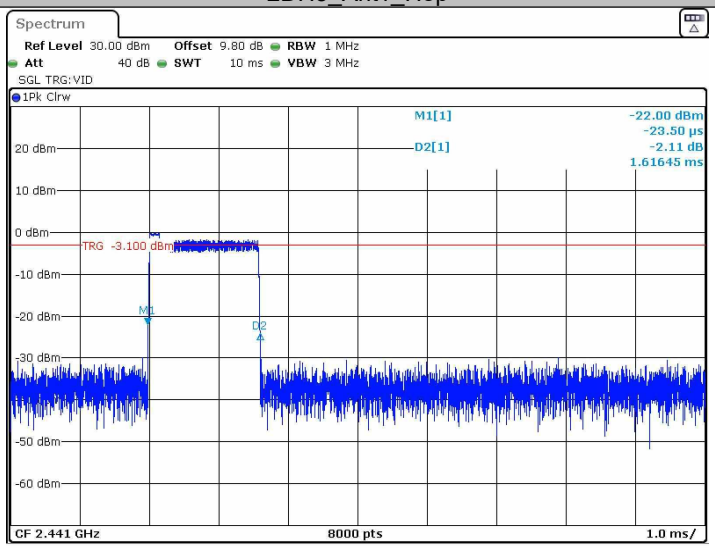
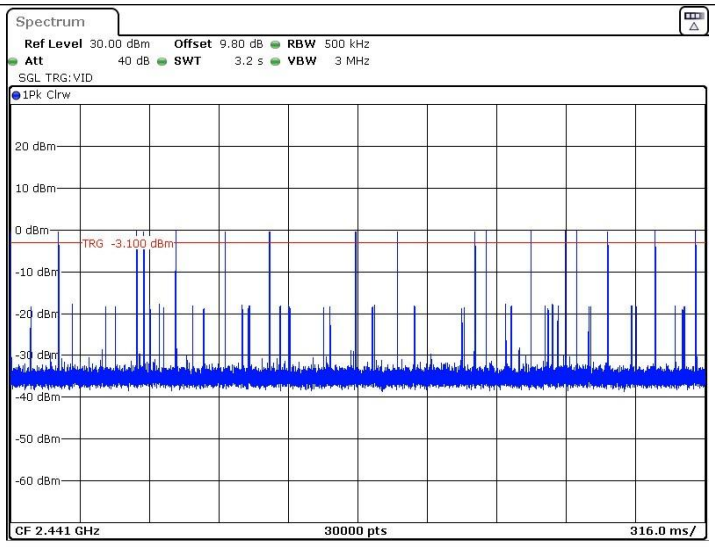
2DH1_Ant1_Hop

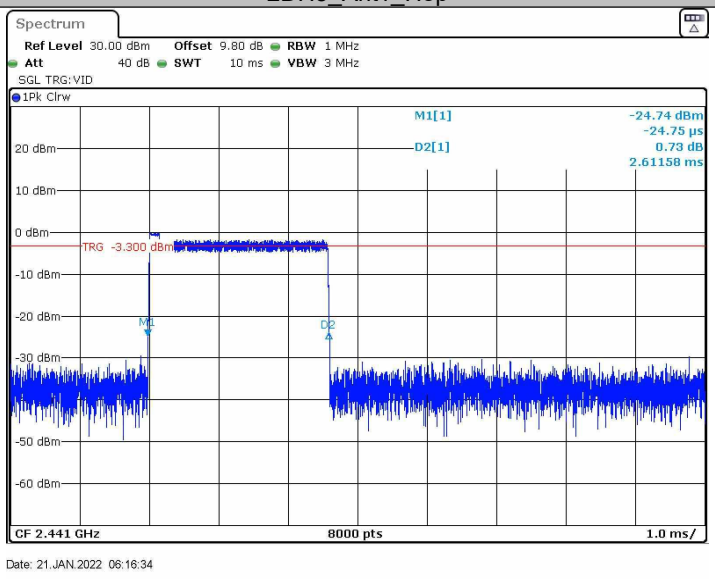
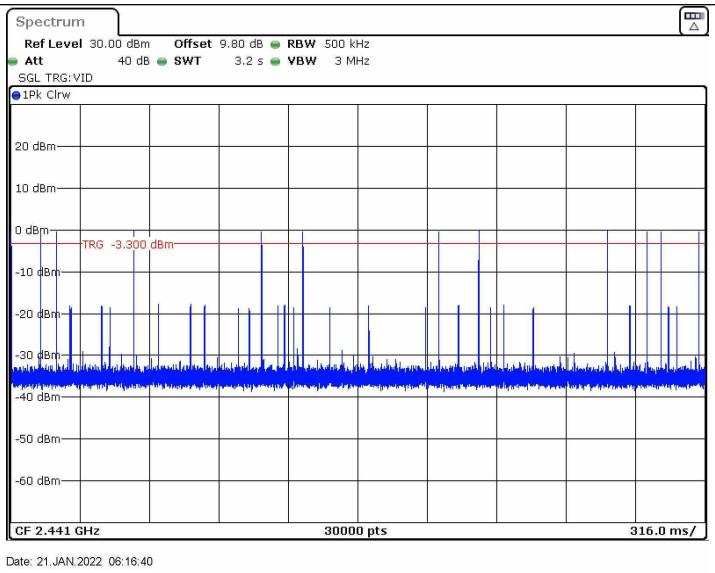


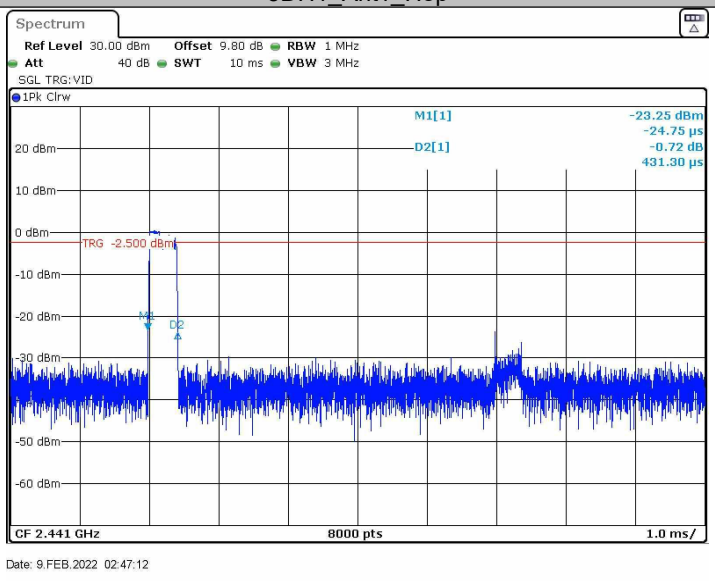
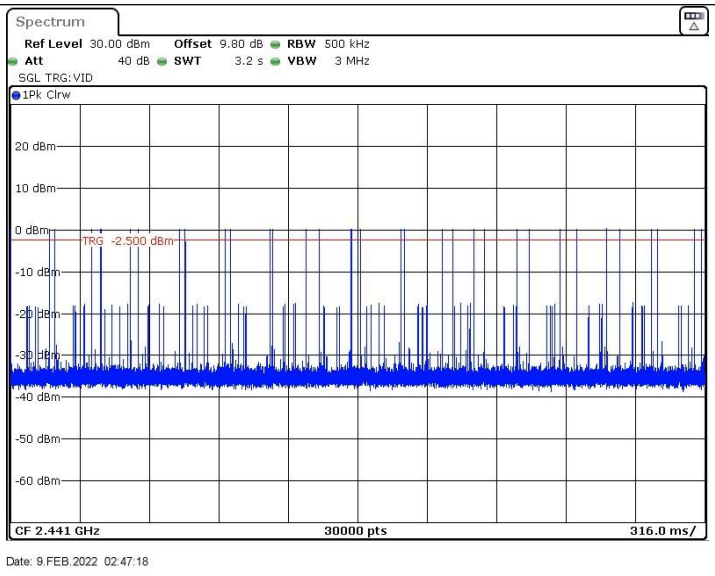
Date: 21.JAN.2022 06:17:21

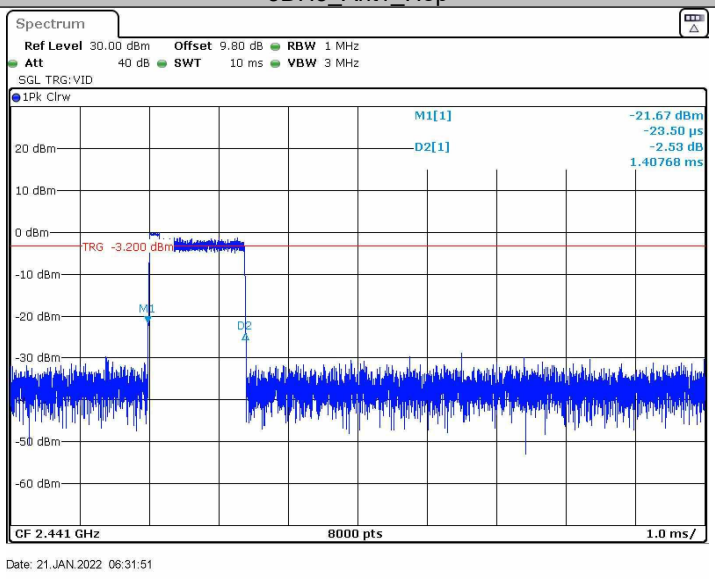
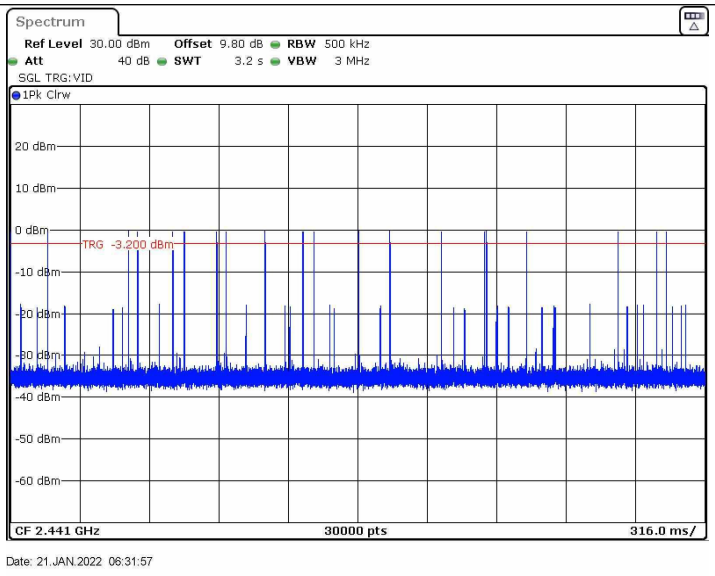


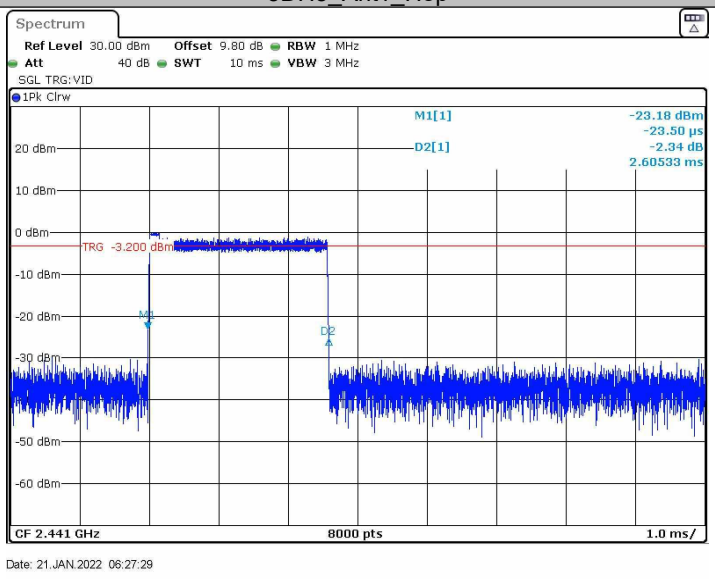
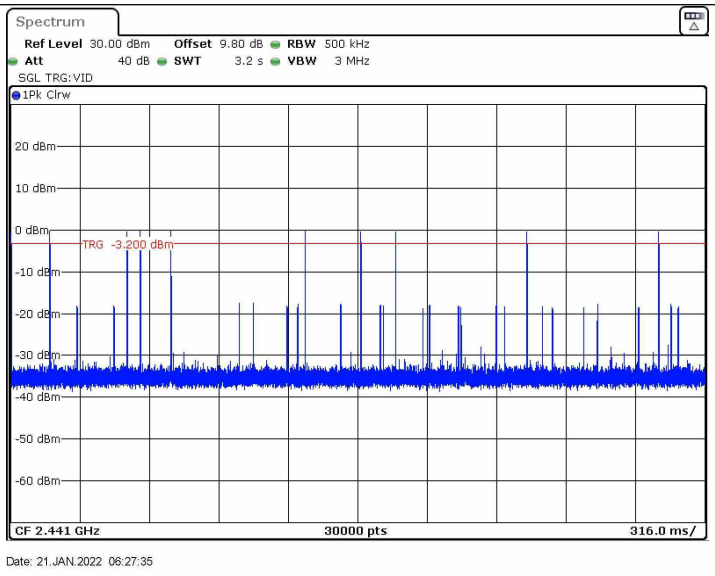
Date: 21.JAN.2022 06:17:27

2DH3_Ant1_Hop



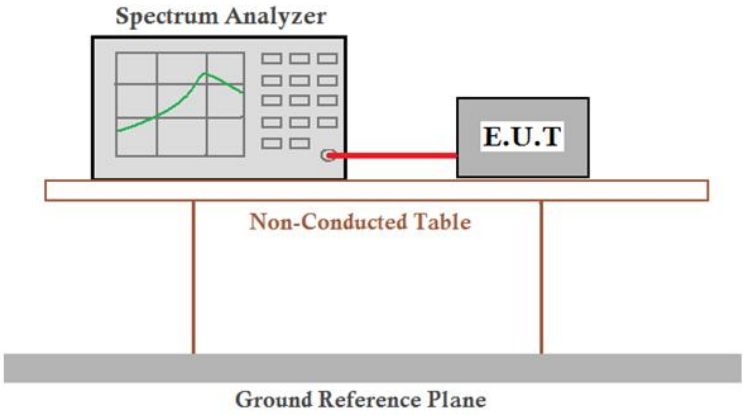
2DH5_Ant1_Hop



3DH1_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop



5.8 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Hopping and Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.
Test Results:	Pass

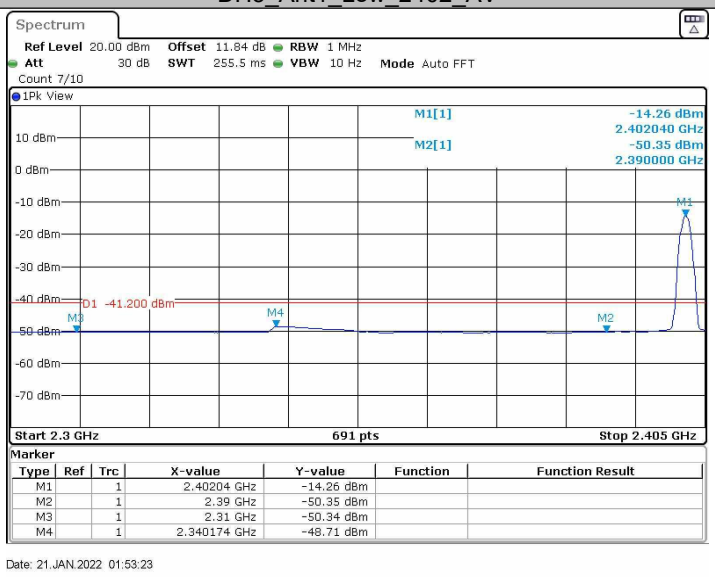
Measurement Data

TestMode	Antenna	ChName	Channel	Detector	Freq	Result	Limit	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-50.34	≤-41.20	PASS
				AV	2340.174	-48.71	≤-41.20	PASS
				AV	2390.000	-50.35	≤-41.20	PASS
				Peak	2310.000	-38.55	≤-21.20	PASS
				Peak	2386.739	-34.65	≤-21.20	PASS
				Peak	2390.000	-38.89	≤-21.20	PASS
		High	2480	AV	2483.500	-49.29	≤-41.20	PASS
				AV	2483.681	-49.29	≤-41.20	PASS
				AV	2500.000	-50.37	≤-41.20	PASS
				Peak	2483.500	-29.68	≤-21.20	PASS
				Peak	2483.913	-27.91	≤-21.20	PASS
				Peak	2500.000	-38.53	≤-21.20	PASS
		Low	Hop_2402	Peak	2310.000	-37.74	≤-21.20	PASS
				Peak	2363.457	-36.99	≤-21.20	PASS
				Peak	2390.000	-38.74	≤-21.20	PASS
		High	Hop_2480	Peak	2483.500	-40.58	≤-21.20	PASS
				Peak	2495.971	-36.96	≤-21.20	PASS
				Peak	2500.000	-38.79	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-50.34	≤-41.20	PASS
				AV	2340.478	-48.74	≤-41.20	PASS
				AV	2390.000	-50.37	≤-41.20	PASS
				Peak	2310.000	-38.41	≤-21.20	PASS
				Peak	2340.935	-36.26	≤-21.20	PASS
				Peak	2390.000	-38.09	≤-21.20	PASS
		High	2480	AV	2483.500	-47.94	≤-41.20	PASS
				AV	2483.565	-48.04	≤-41.20	PASS
				AV	2500.000	-50.38	≤-41.20	PASS
				Peak	2483.500	-37.02	≤-21.20	PASS
				Peak	2484.493	-34.81	≤-21.20	PASS
				Peak	2500.000	-39.09	≤-21.20	PASS
		Low	Hop_2402	Peak	2310.000	-38.78	≤-21.20	PASS
				Peak	2350.674	-36.94	≤-21.20	PASS
				Peak	2390.000	-39.39	≤-21.20	PASS
		High	Hop_2480	Peak	2483.500	-39.32	≤-21.20	PASS
				Peak	2491.797	-36.99	≤-21.20	PASS
				Peak	2500.000	-38.54	≤-21.20	PASS

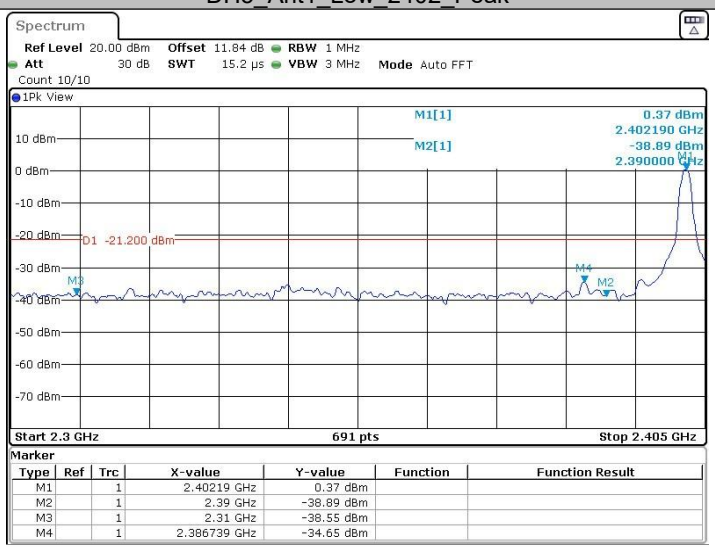
3DH5	Ant1	Low	2402	AV	2310.000	-50.34	≤-41.20	PASS
				AV	2340.022	-48.73	≤-41.20	PASS
				AV	2390.000	-50.41	≤-41.20	PASS
				Peak	2310.000	-37.72	≤-21.20	PASS
				Peak	2328.000	-35.76	≤-21.20	PASS
				Peak	2390.000	-38.61	≤-21.20	PASS
		High	2480	AV	2483.500	-47.96	≤-41.20	PASS
				AV	2483.565	-48.05	≤-41.20	PASS
				AV	2500.000	-50.42	≤-41.20	PASS
				Peak	2483.500	-31.49	≤-21.20	PASS
				Peak	2483.797	-29.64	≤-21.20	PASS
				Peak	2500.000	-38.49	≤-21.20	PASS
		Low	Hop_2402	Peak	2310.000	-39.5	≤-21.20	PASS
				Peak	2340.630	-34.47	≤-21.20	PASS
				Peak	2390.000	-38.82	≤-21.20	PASS
		High	Hop_2480	Peak	2483.500	-39.49	≤-21.20	PASS
				Peak	2490.406	-37.42	≤-21.20	PASS
				Peak	2500.000	-37.74	≤-21.20	PASS

Test plot as follows:

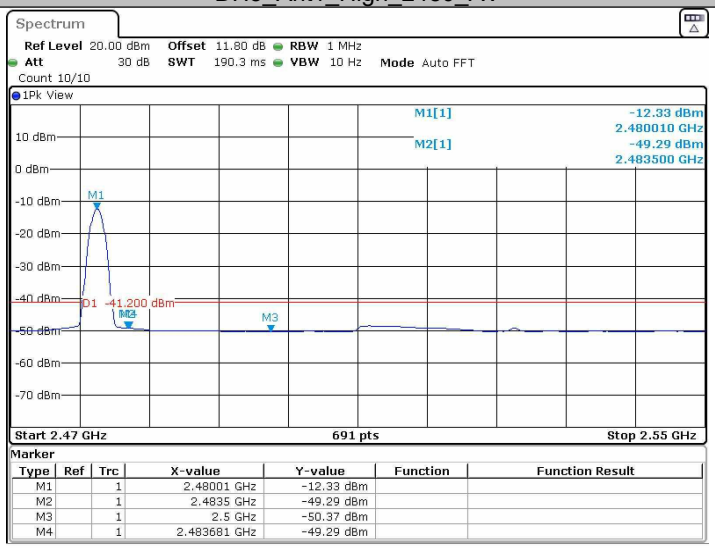
DH5_Ant1_Low_2402_AV



DH5_Ant1_Low_2402_Peak



DH5_Ant1_High_2480_AV

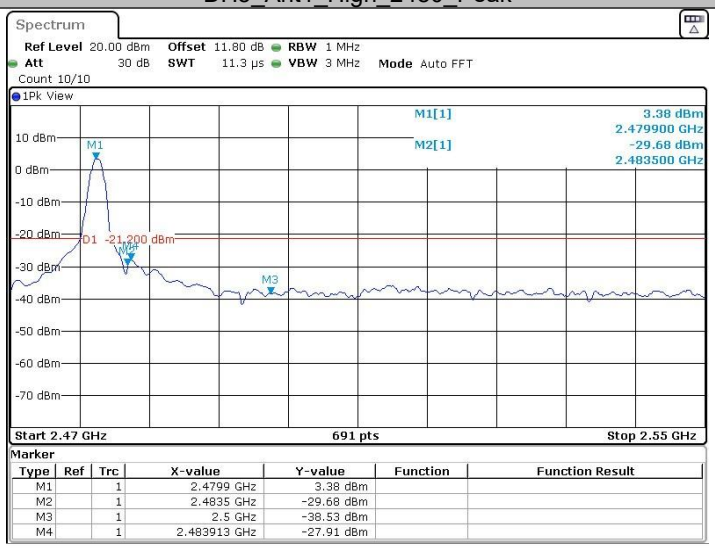


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	-12.33 dBm		
M2		1	2.4835 GHz	-49.29 dBm		
M3		1	2.5 GHz	-50.37 dBm		
M4		1	2.483681 GHz	-49.29 dBm		

Date: 21.JAN.2022 02:04:09

DH5_Ant1_High_2480_Peak

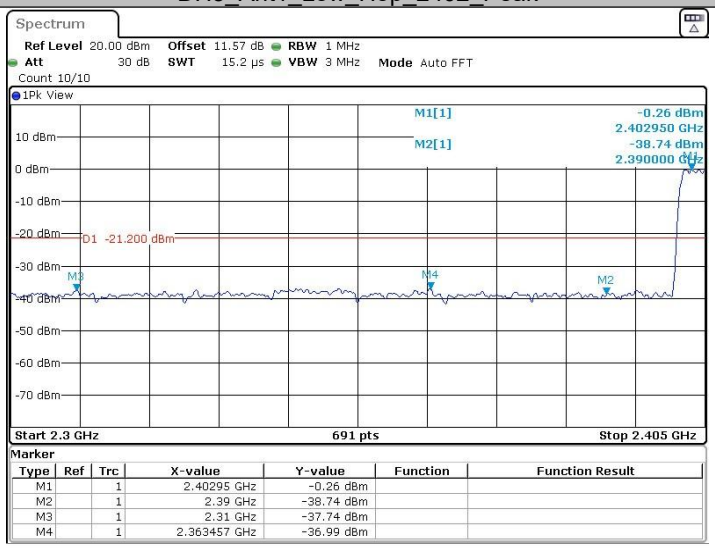


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4799 GHz	3.38 dBm		
M2		1	2.4835 GHz	-29.68 dBm		
M3		1	2.5 GHz	-38.53 dBm		
M4		1	2.483913 GHz	-27.91 dBm		

Date: 21.JAN.2022 02:03:59

DH5_Ant1_Low_Hop_2402_Peak

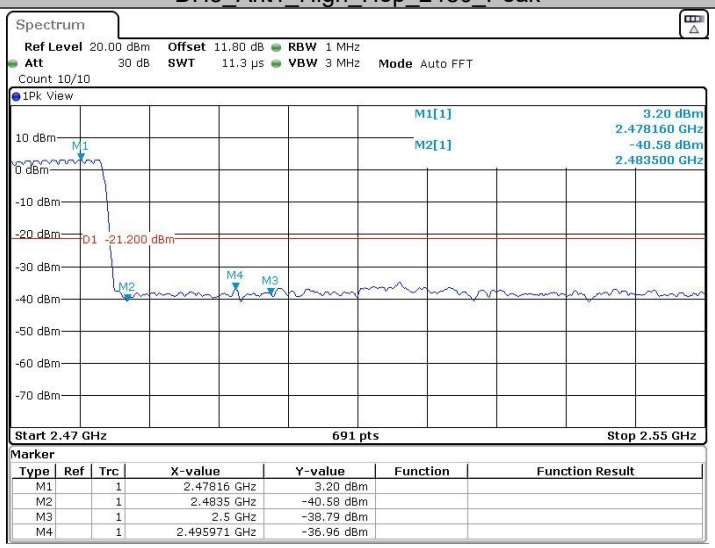


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40295 GHz	-0.26 dBm		
M2		1	2.39 GHz	-38.74 dBm		
M3		1	2.31 GHz	-37.74 dBm		
M4		1	2.363457 GHz	-36.99 dBm		

Date: 21.JAN.2022 03:44:00

DH5_Ant1_High_Hop_2480_Peak

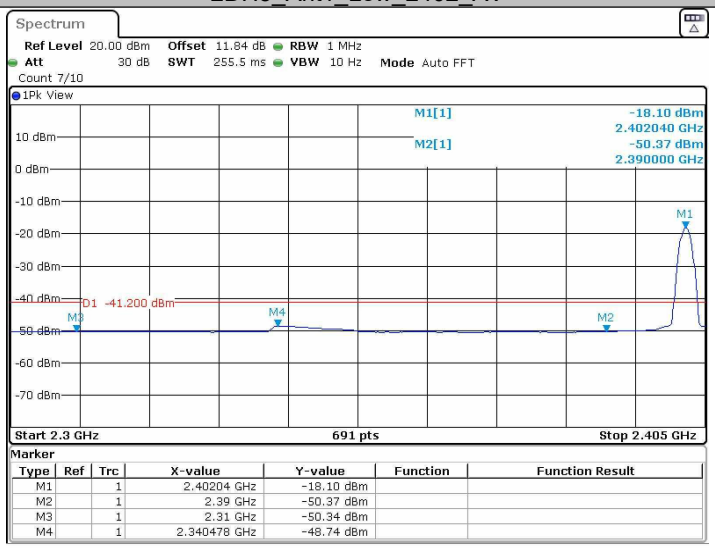


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47816 GHz	3.20 dBm		
M2		1	2.4835 GHz	-40.58 dBm		
M3		1	2.5 GHz	-38.79 dBm		
M4		1	2.495971 GHz	-36.96 dBm		

Date: 21.JAN.2022 06:10:26

2DH5_Ant1_Low_2402_AV

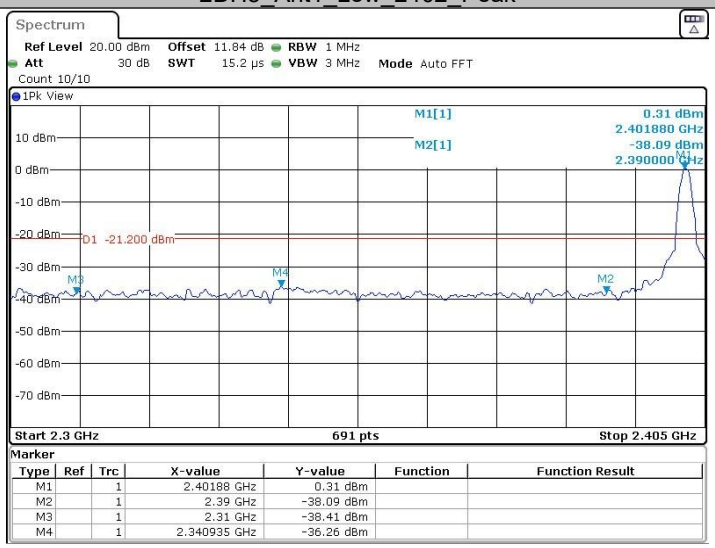


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40204 GHz	-18.10 dBm		
M2		1	2.39 GHz	-50.37 dBm		
M3		1	2.31 GHz	-50.34 dBm		
M4		1	2.340478 GHz	-48.74 dBm		

Date: 21.JAN.2022 02:08:46

2DH5_Ant1_Low_2402_Peak

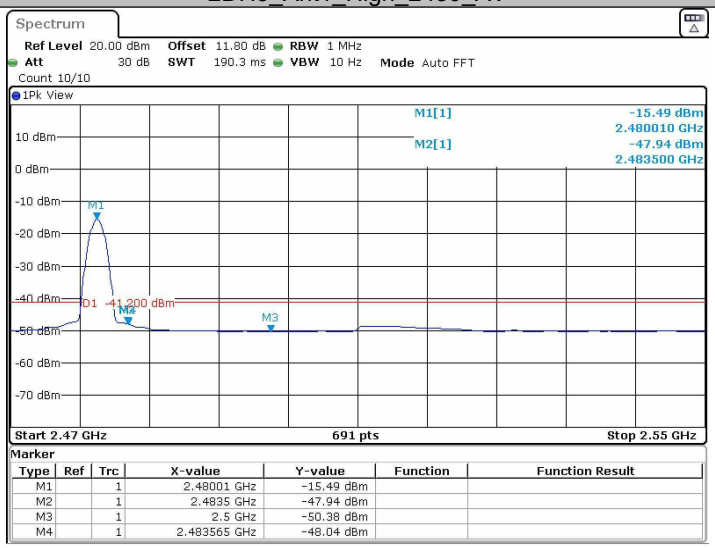


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40188 GHz	0.31 dBm		
M2		1	2.39 GHz	-38.09 dBm		
M3		1	2.31 GHz	-38.41 dBm		
M4		1	2.340935 GHz	-36.26 dBm		

Date: 21.JAN.2022 02:08:36

2DH5_Ant1_High_2480_AV

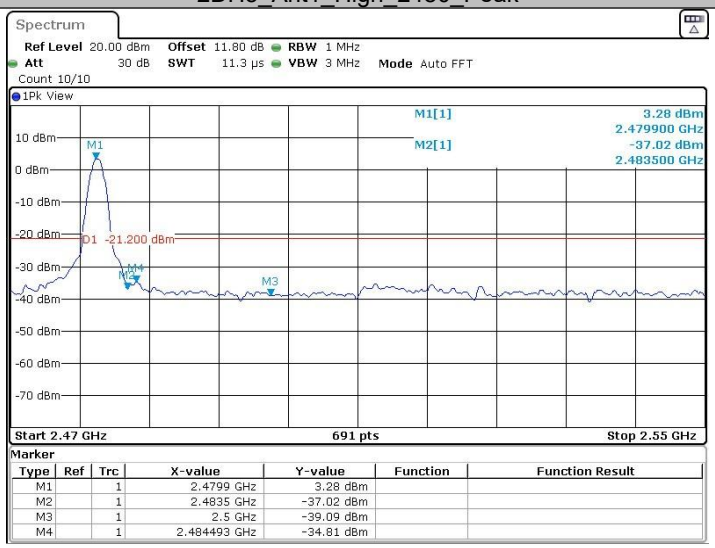


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	-15.49 dBm		
M2		1	2.4835 GHz	-47.94 dBm		
M3		1	2.5 GHz	-50.38 dBm		
M4		1	2.483565 GHz	-48.04 dBm		

Date: 21.JAN.2022 02:24:11

2DH5_Ant1_High_2480_Peak

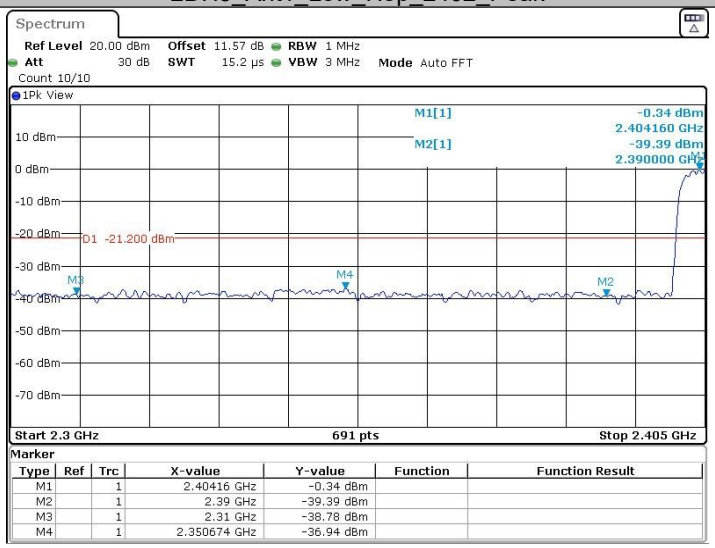


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4799 GHz	3.28 dBm		
M2		1	2.4835 GHz	-37.02 dBm		
M3		1	2.5 GHz	-39.09 dBm		
M4		1	2.484493 GHz	-34.81 dBm		

Date: 21.JAN.2022 02:24:01

2DH5_Ant1_Low_Hop_2402_Peak

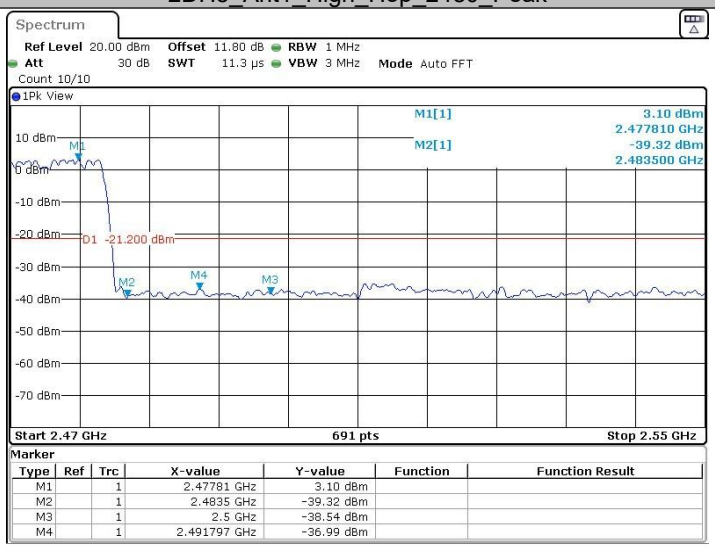


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40416 GHz	-0.34 dBm		
M2		1	2.39 GHz	-39.39 dBm		
M3		1	2.31 GHz	-38.78 dBm		
M4		1	2.350674 GHz	-36.94 dBm		

Date: 21.JAN.2022 06:13:11

2DH5_Ant1_High_Hop_2480_Peak

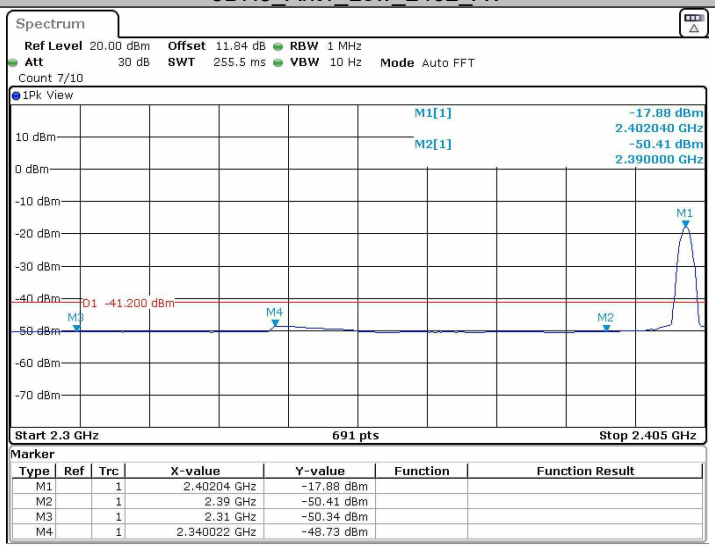


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47781 GHz	3.10 dBm		
M2		1	2.4835 GHz	-39.32 dBm		
M3		1	2.5 GHz	-38.54 dBm		
M4		1	2.491797 GHz	-36.99 dBm		

Date: 21.JAN.2022 06:21:42

3DH5_Ant1_Low_2402_AV

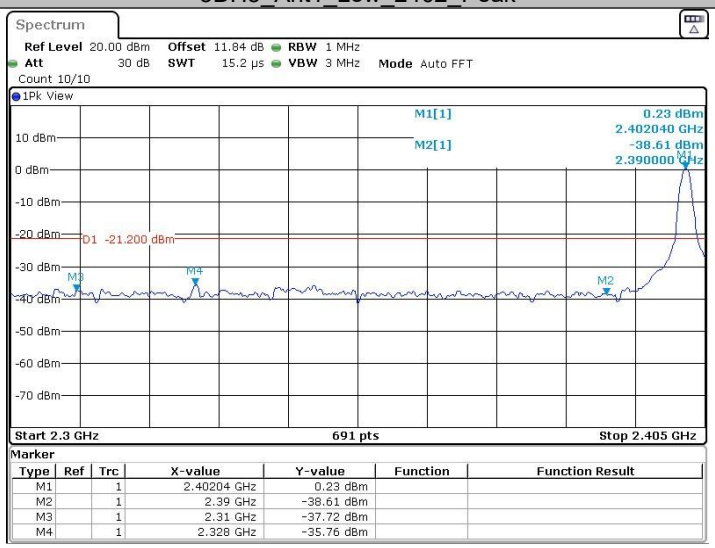


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40204 GHz	-17.88 dBm		
M2		1	2.39 GHz	-50.41 dBm		
M3		1	2.31 GHz	-50.34 dBm		
M4		1	2.340022 GHz	-48.73 dBm		

Date: 21.JAN.2022 02:30:41

3DH5_Ant1_Low_2402_Peak

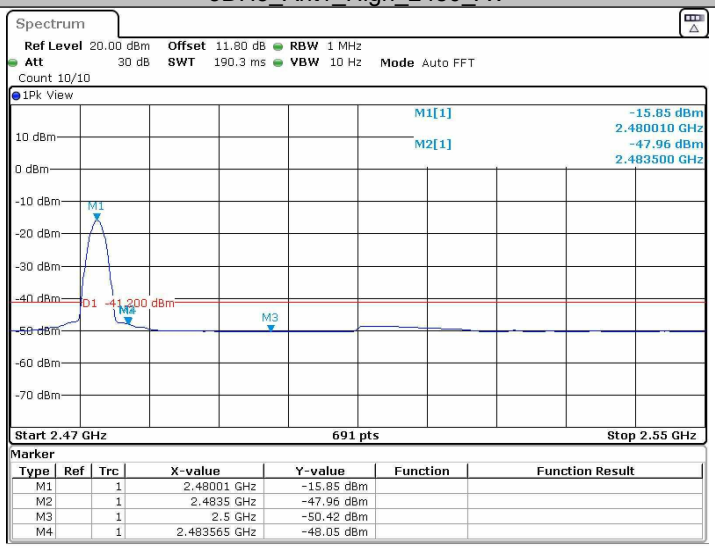


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40204 GHz	0.23 dBm		
M2		1	2.39 GHz	-38.61 dBm		
M3		1	2.31 GHz	-37.72 dBm		
M4		1	2.328 GHz	-35.76 dBm		

Date: 21.JAN.2022 02:30:31

3DH5_Ant1_High_2480_AV

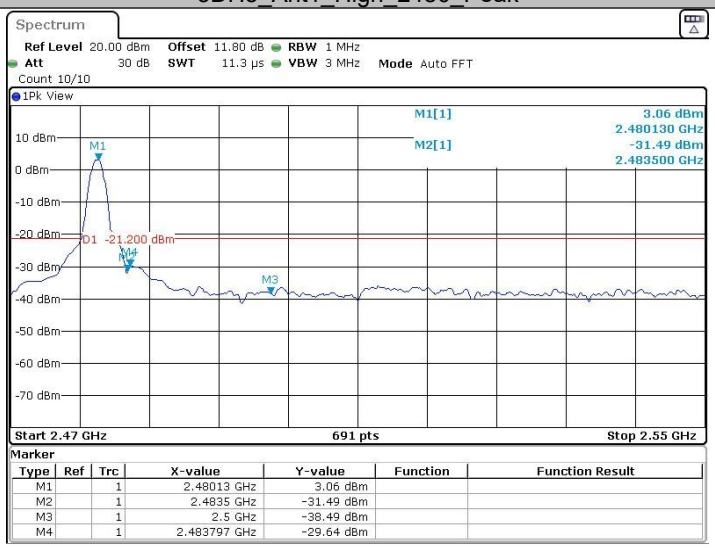


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	-15.85 dBm		
M2		1	2.4835 GHz	-47.96 dBm		
M3		1	2.5 GHz	-50.42 dBm		
M4		1	2.483565 GHz	-48.05 dBm		

Date: 21.JAN.2022 03:39:47

3DH5_Ant1_High_2480_Peak

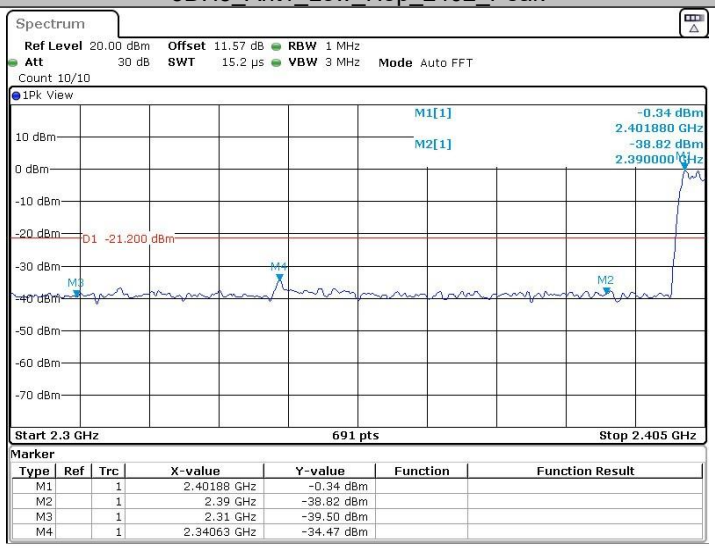


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48013 GHz	3.06 dBm		
M2		1	2.4835 GHz	-31.49 dBm		
M3		1	2.5 GHz	-38.49 dBm		
M4		1	2.483797 GHz	-29.64 dBm		

Date: 21.JAN.2022 03:39:37

3DH5_Ant1_Low_Hop_2402_Peak

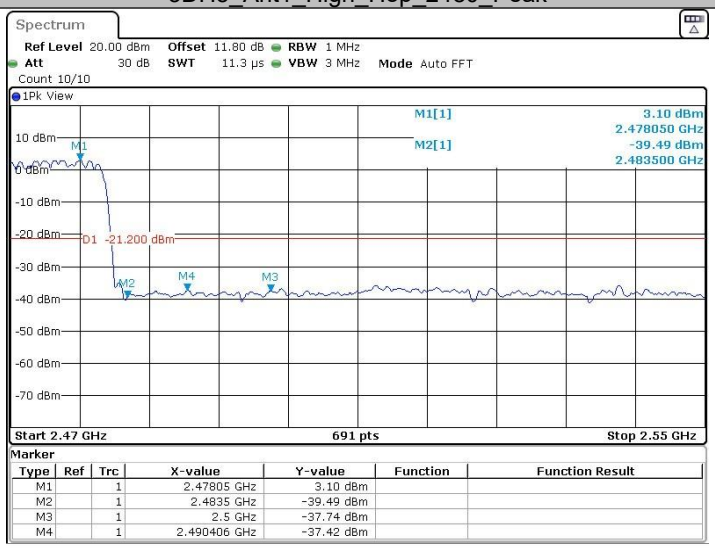


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40188 GHz	-0.34 dBm		
M2		1	2.39 GHz	-38.82 dBm		
M3		1	2.31 GHz	-39.50 dBm		
M4		1	2.34063 GHz	-34.47 dBm		

Date: 21.JAN.2022 06:23:12

3DH5_Ant1_High_Hop_2480_Peak

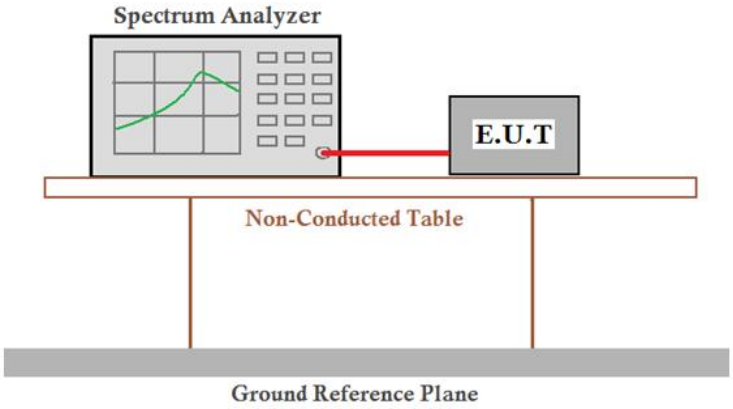


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47805 GHz	3.10 dBm		
M2		1	2.4835 GHz	-39.49 dBm		
M3		1	2.5 GHz	-37.74 dBm		
M4		1	2.490406 GHz	-37.42 dBm		

Date: 21.JAN.2022 06:33:42

5.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	 *Remark: Offset=cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π/4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass