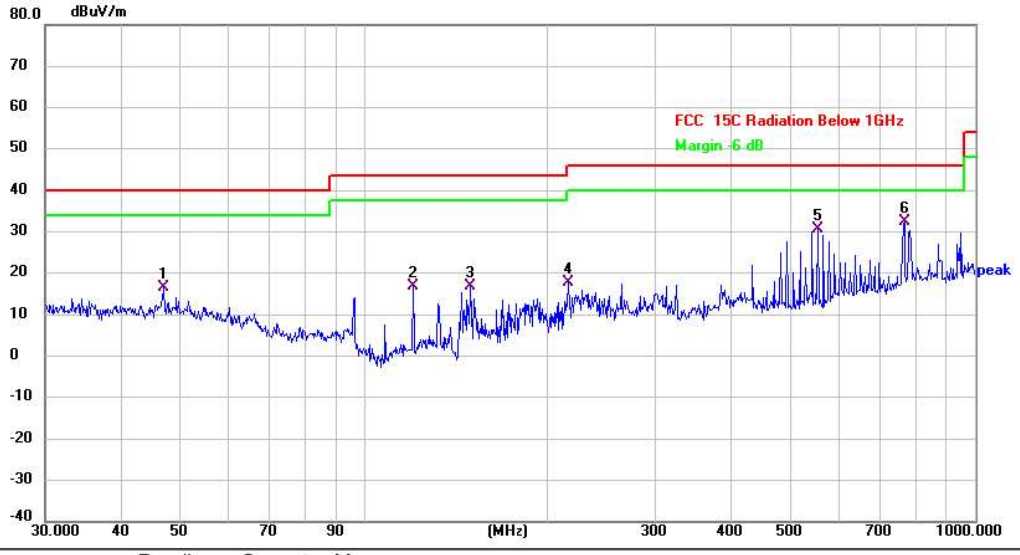
6.9.3 Test Data:

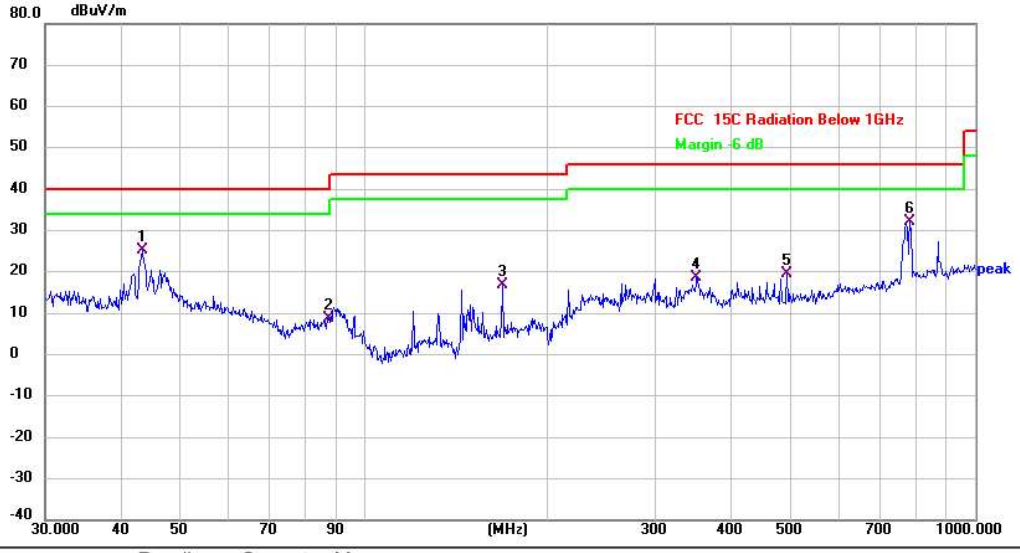
ALP-BT-SPK01

Mode2 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		46.8303	31.88	-15.39	16.49	40.00	-23.51	QP	
2		119.8556	41.12	-24.28	16.84	43.50	-26.66	QP	
3		148.9625	8.72	8.14	16.86	43.50	-26.64	QP	
4		216.0240	7.83	9.92	17.75	46.00	-28.25	QP	
5		552.8832	15.09	15.66	30.75	46.00	-15.25	QP	
6	*	766.0571	11.83	20.62	32.45	46.00	-13.55	QP	

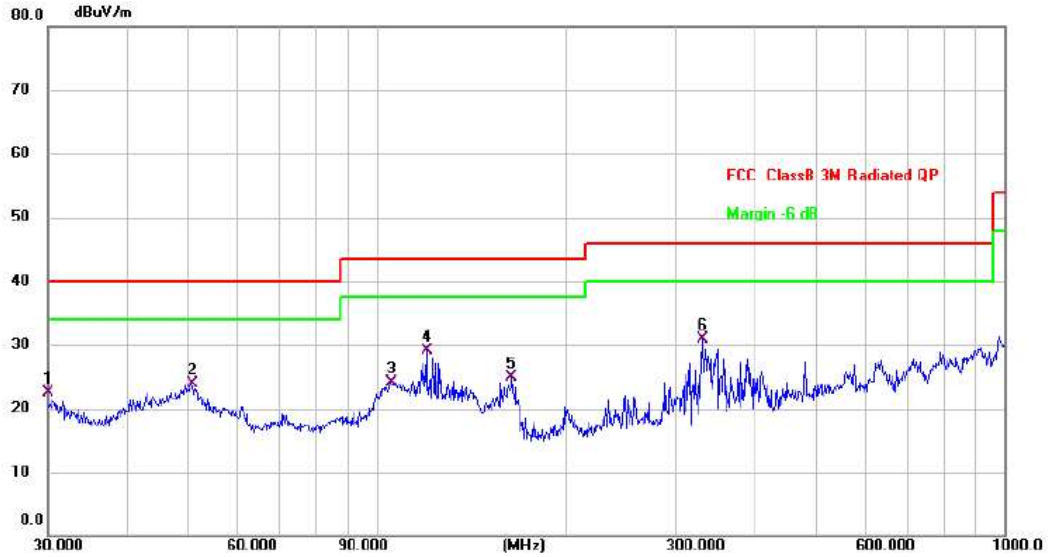
Mode2 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		43.2017	49.37	-24.10	25.27	40.00	-14.73	QP	
2		87.4177	18.96	-10.17	8.79	40.00	-31.21	QP	
3		167.8243	5.90	11.00	16.90	43.50	-26.60	QP	
4		350.4768	5.49	13.07	18.56	46.00	-27.44	QP	
5		492.4685	4.02	15.41	19.43	46.00	-26.57	QP	
6	*	782.3453	11.88	20.40	32.28	46.00	-13.72	QP	

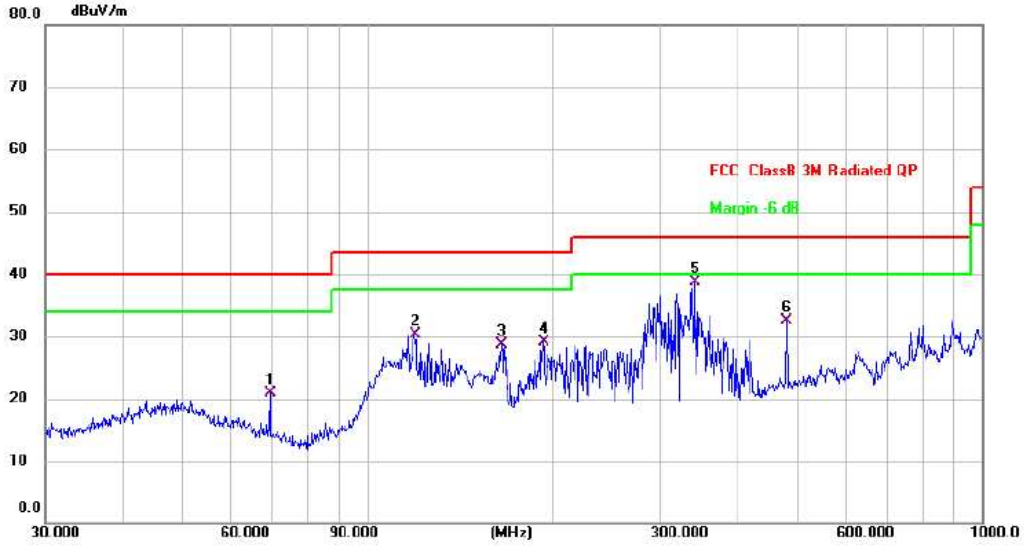
TS-X6

Mode2 / Polarization: Horizontal / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		30.0000	33.67	-11.21	22.46	40.00	-17.54	QP	
2		50.7637	31.16	-7.25	23.91	40.00	-16.09	QP	
3		105.2718	31.33	-7.28	24.05	43.50	-19.45	QP	
4	*	120.2766	38.91	-9.78	29.13	43.50	-14.37	QP	
5		164.3301	35.93	-11.03	24.90	43.50	-18.60	QP	
6		330.1949	36.15	-5.28	30.87	46.00	-15.13	QP	

Mode2 / Polarization: Vertical / CH: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		69.6005	32.01	-11.08	20.93	40.00	-19.07	QP	
2		119.4361	39.37	-9.00	30.37	43.50	-13.13	QP	
3		165.4866	39.91	-11.11	28.80	43.50	-14.70	QP	
4		193.0945	38.82	-9.80	29.02	43.50	-14.48	QP	
5	*	340.7817	42.49	-3.86	38.63	46.00	-7.37	QP	
6		480.5276	36.28	-3.76	32.52	46.00	-13.48	QP	

6.10 Radiated emissions (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`
Test Limit:	

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

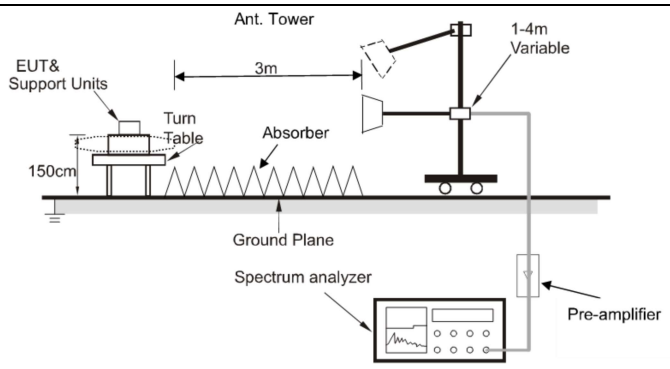
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method:	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013 section 6.6.4

6.10.1 E.U.T. Operation:

Operating Environment:					
Temperature:	24 °C	Humidity:	54 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode2) is recorded in the report				
Note: Test frequency are from 1GHz to 25GHz, the amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported. All modes of operation of the EUT were investigated, and only the worst-case results are reported.					

6.10.2 Test Setup Diagram:



6.10.3 Test Data:

Mode2 / Polarization: Horizontal / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4804.000	45.81	1.16	46.97	74.00	-27.03	peak
2		4804.000	35.31	1.16	36.47	54.00	-17.53	AVG
3		7206.000	15.64	42.58	58.22	74.00	-15.78	peak
4	*	7206.000	6.22	42.58	48.80	54.00	-5.20	AVG
5		9608.000	11.37	44.16	55.53	74.00	-18.47	peak
6		9608.000	1.52	44.16	45.68	54.00	-8.32	AVG

Mode2 / Polarization: Vertical / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4804.000	44.01	1.16	45.17	74.00	-28.83	peak
2		4804.000	33.98	1.16	35.14	54.00	-18.86	AVG
3		7206.000	11.53	42.58	54.11	74.00	-19.89	peak
4		7206.000	2.07	42.58	44.65	54.00	-9.35	AVG
5		9608.000	10.17	44.16	54.33	74.00	-19.67	peak
6	*	9608.000	0.68	44.16	44.84	54.00	-9.16	AVG

Mode2 / Polarization: Horizontal / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4882.000	46.16	0.77	46.93	74.00	-27.07	peak
2		4882.000	35.79	0.77	36.56	54.00	-17.44	AVG
3		7323.000	15.79	42.28	58.07	74.00	-15.93	peak
4	*	7323.000	5.98	42.28	48.26	54.00	-5.74	AVG
5		9764.000	9.36	44.43	53.79	74.00	-20.21	peak
6		9764.000	-0.96	44.43	43.47	54.00	-10.53	AVG

Mode2 / Polarization: Vertical / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4882.000	43.31	0.77	44.08	74.00	-29.92	peak
2		4882.000	33.44	0.77	34.21	54.00	-19.79	AVG
3		7323.000	9.64	42.28	51.92	74.00	-22.08	peak
4		7323.000	-0.60	42.28	41.68	54.00	-12.32	AVG
5		9764.000	10.79	44.43	55.22	74.00	-18.78	peak
6	*	9764.000	0.78	44.43	45.21	54.00	-8.79	AVG

Mode2 / Polarization: Horizontal / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4960.000	45.94	1.06	47.00	74.00	-27.00	peak
2		4960.000	38.56	1.06	39.62	54.00	-14.38	AVG
3		7440.000	14.12	42.46	56.58	74.00	-17.42	peak
4	*	7440.000	6.16	42.46	48.62	54.00	-5.38	AVG
5		9920.000	9.83	44.60	54.43	74.00	-19.57	peak
6		9920.000	1.75	44.60	46.35	54.00	-7.65	AVG

Mode2 / Polarization: Vertical / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4960.000	45.23	1.06	46.29	74.00	-27.71	peak
2		4960.000	37.20	1.06	38.26	54.00	-15.74	AVG
3		7440.000	10.30	42.46	52.76	74.00	-21.24	peak
4		7440.000	2.13	42.46	44.59	54.00	-9.41	AVG
5		9920.000	8.84	44.60	53.44	74.00	-20.56	peak
6	*	9920.000	0.97	44.60	45.57	54.00	-8.43	AVG

Photographs of the test setup

Refer to Appendix - Test Setup Photos

Photographs of the EUT

Refer to Appendix - EUT Photos

Appendix

Appendix A: 20dB Emission Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	20db EBW [MHz]
DH5	Ant1	2402	0.939
		2441	0.921
		2480	0.948
2DH5	Ant1	2402	1.359
		2441	1.335
		2480	1.332

Test Graphs

DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441

2DH5_Ant1_2480

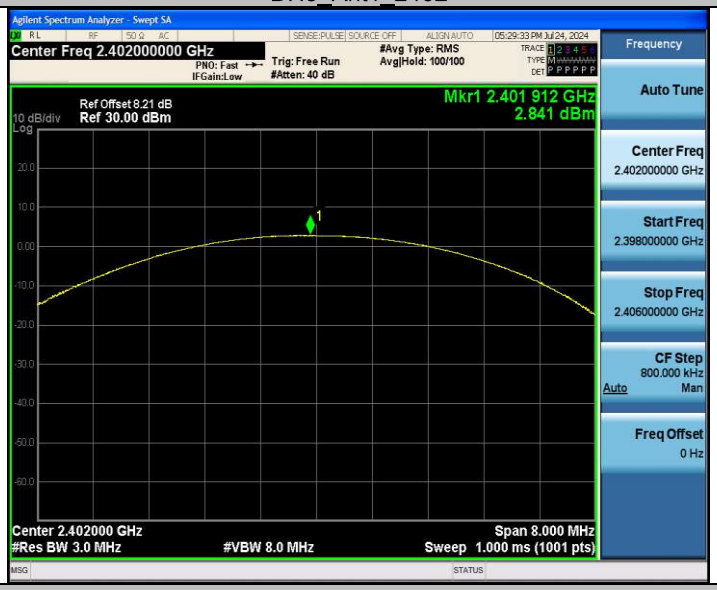
Appendix B: Maximum conducted output power

Test Result Peak

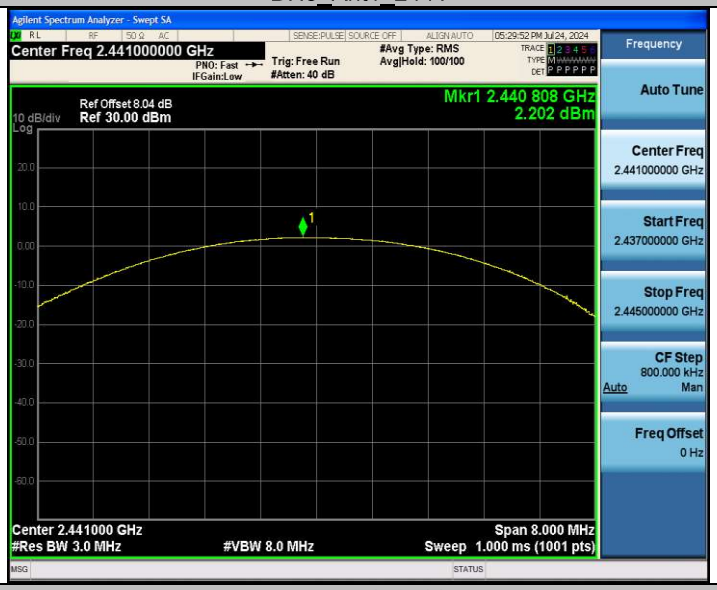
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	2.84	≤20.97	PASS
		2441	2.20	≤20.97	PASS
		2480	1.59	≤20.97	PASS
2DH5	Ant1	2402	2.27	≤20.97	PASS
		2441	2.83	≤20.97	PASS
		2480	2.23	≤20.97	PASS

Test Graphs

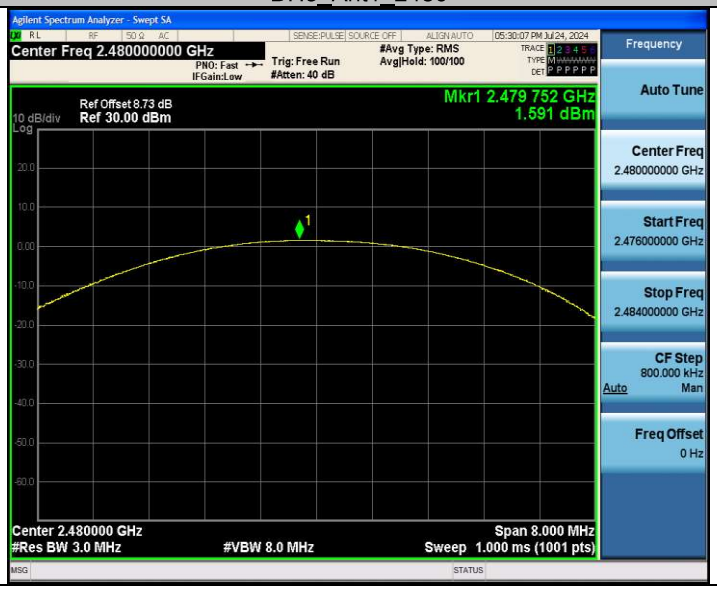
DH5_Ant1_2402



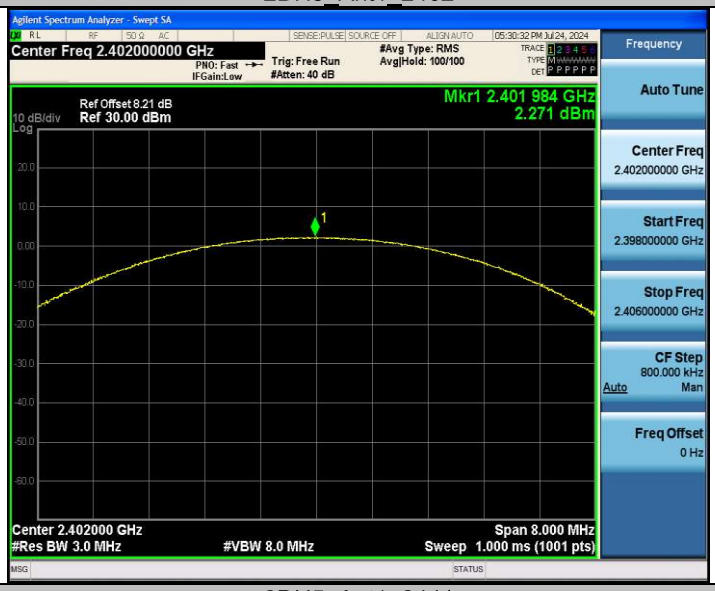
DH5_Ant1_2441



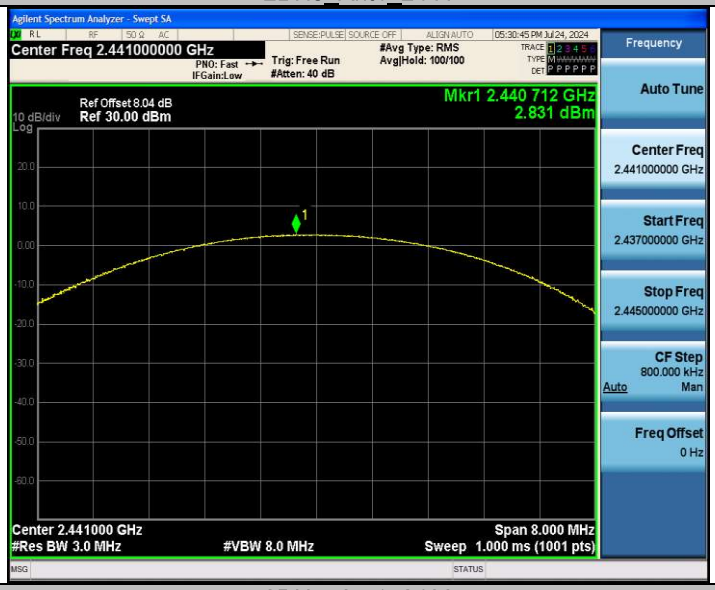
DH5_Ant1_2480



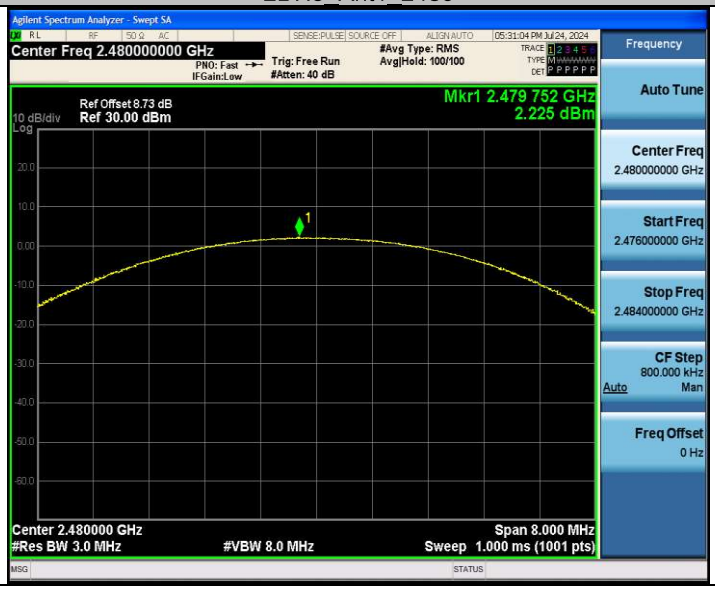
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



Appendix C: Carrier frequency separation

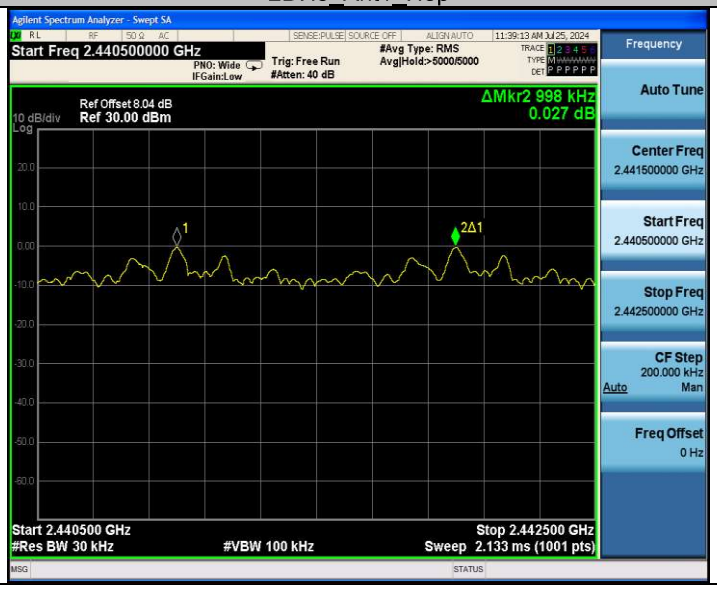
Test Result

Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
DH5	Ant1	Hop	1	≥0.948	PASS
2DH5	Ant1	Hop	0.998	≥0.906	PASS

Test Graphs

DH5_Ant1_Hop

2DH5_Ant1_Hop



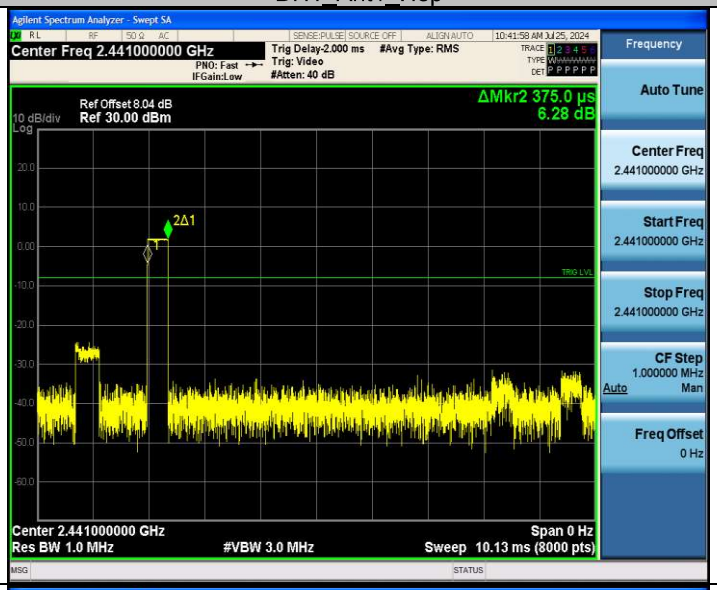
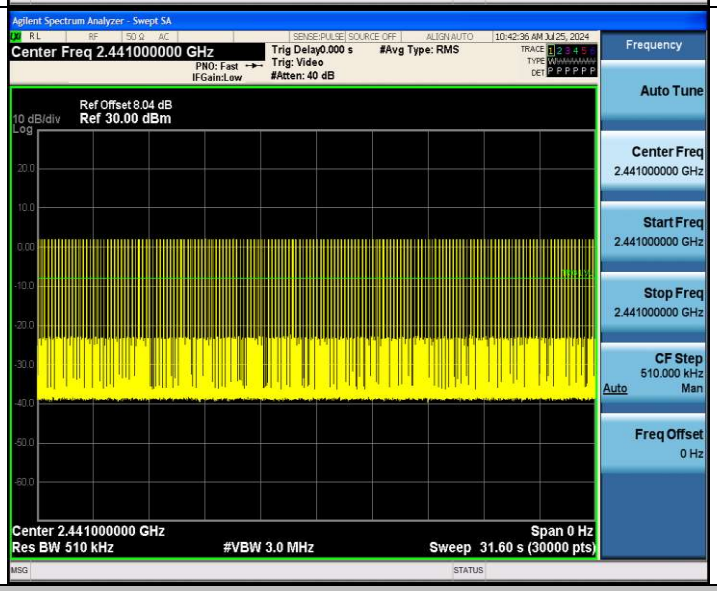
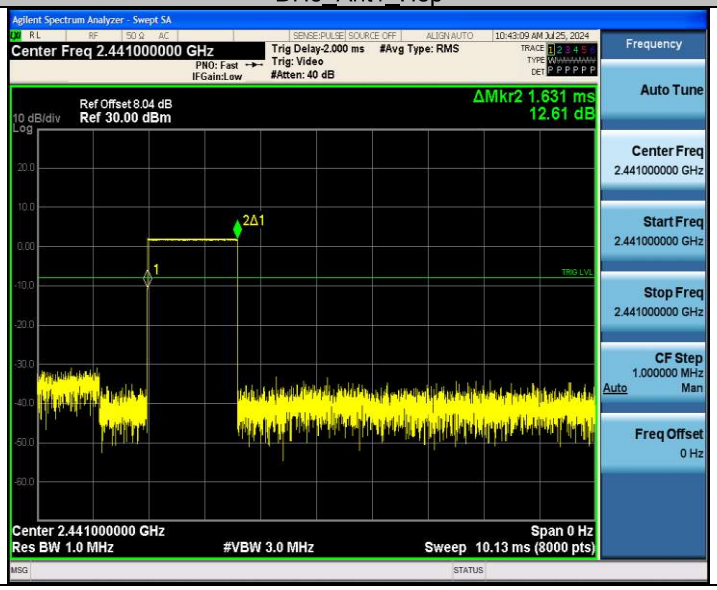
Appendix D: Time of occupancy

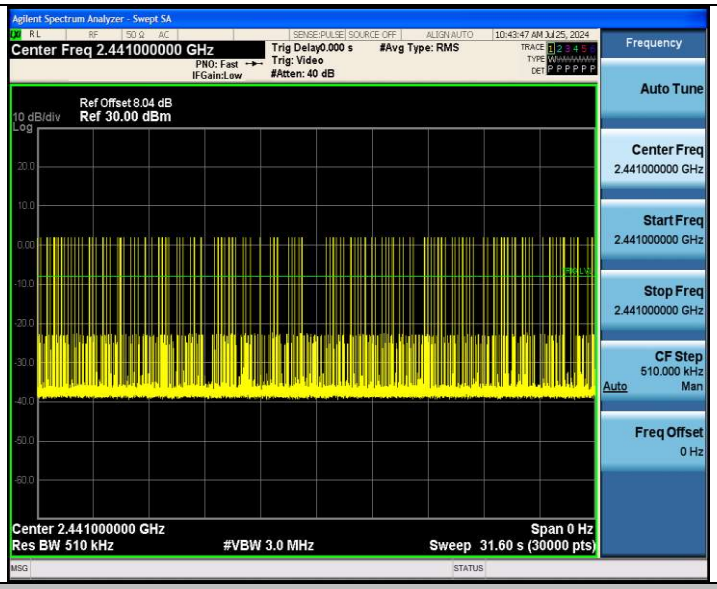
Test Result

Test Mode	Antenna	Frequency [MHz]	BurstWidth [ms]	Hops in 31.6s [Num]	Result [s]	Limit [s]	Verdict
DH1	Ant1	Hop	0.375	314	0.118	≤0.4	PASS
DH3	Ant1	Hop	1.631	156	0.254	≤0.4	PASS
DH5	Ant1	Hop	2.879	107	0.308	≤0.4	PASS
2DH1	Ant1	Hop	0.385	316	0.122	≤0.4	PASS
2DH3	Ant1	Hop	1.638	164	0.269	≤0.4	PASS
2DH5	Ant1	Hop	2.885	106	0.306	≤0.4	PASS

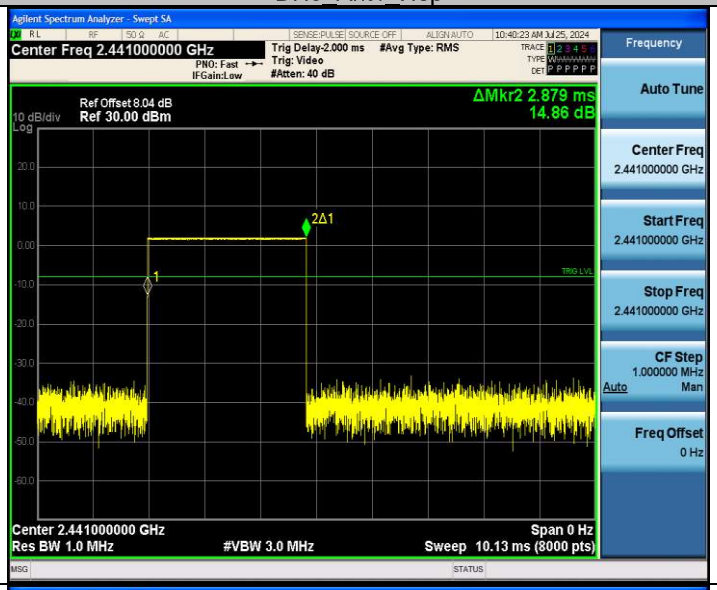
Notes:
1. Period time = 0.4s * 79 = 31.6s
2. Result (Time of occupancy) = BurstWidth[ms] * Hops in 31.6s [Num]

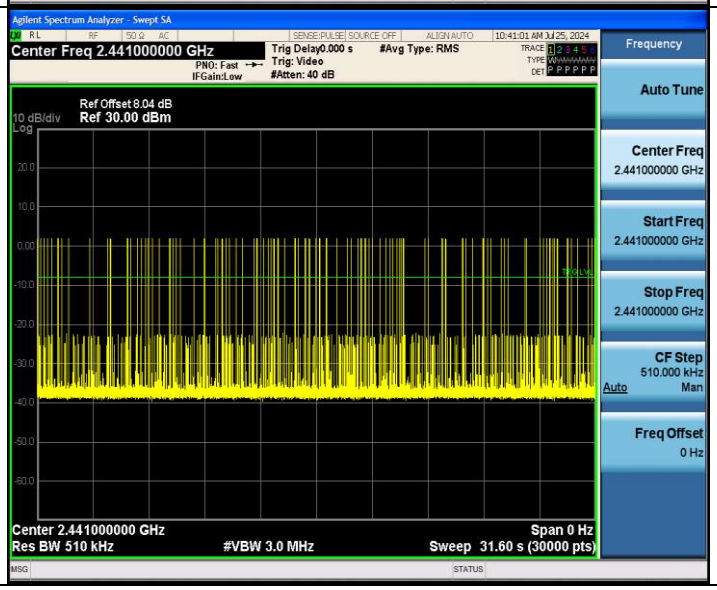
Test Graphs

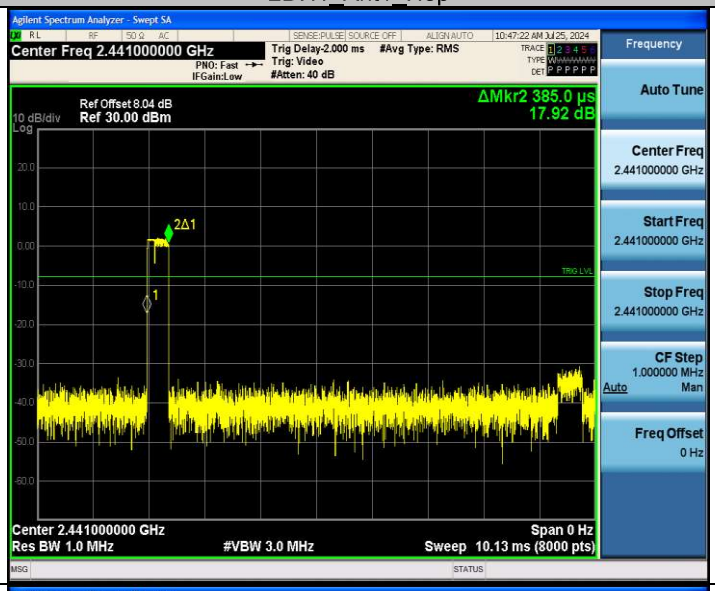
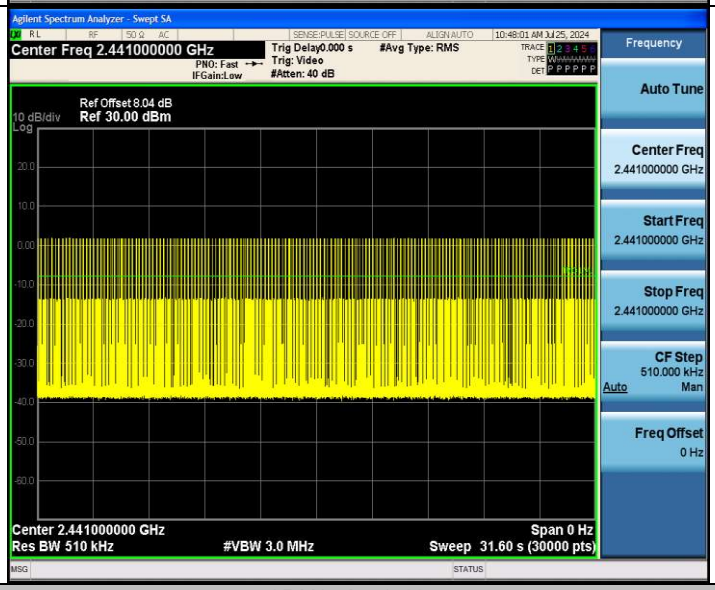
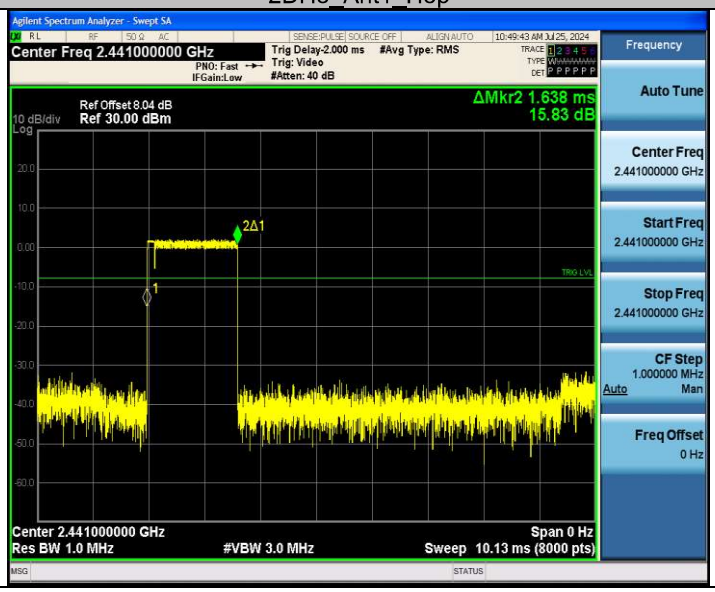
DH1_Ant1_Hop


DH3_Ant1_Hop


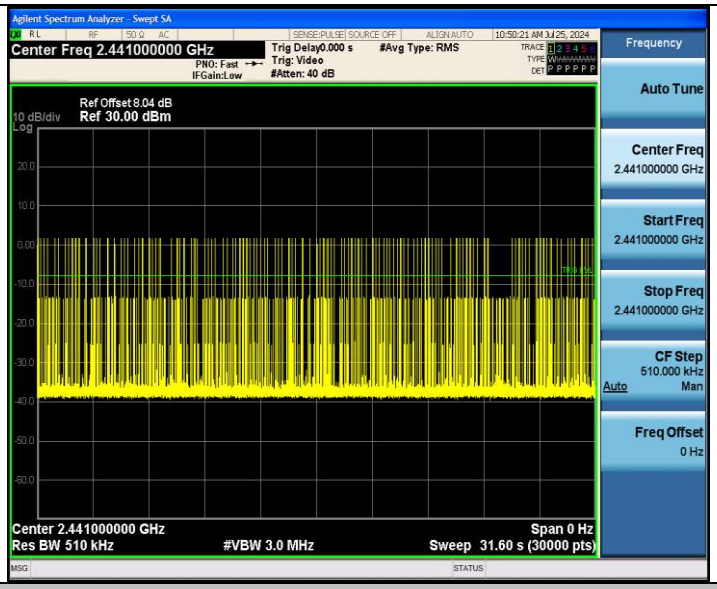

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay 0.000 s
Trig: Video
#Avg Type: RMS
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 8.04 dB
10 dB/div
Ref 30.00 dBm
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz

DH5_Ant1_Hop

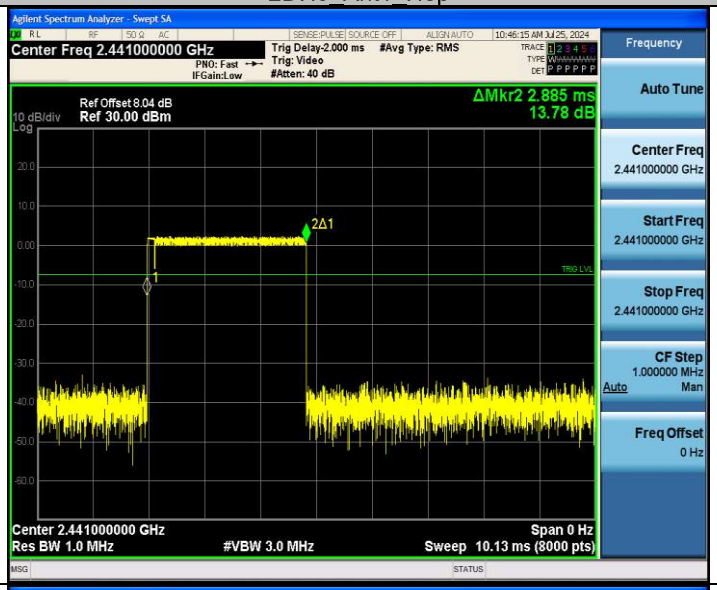

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay -2.000 ms
Trig: Video
#Avg Type: RMS
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 8.04 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 2.879 ms
14.86 dB
2Δ1
1
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 10.13 ms (8000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

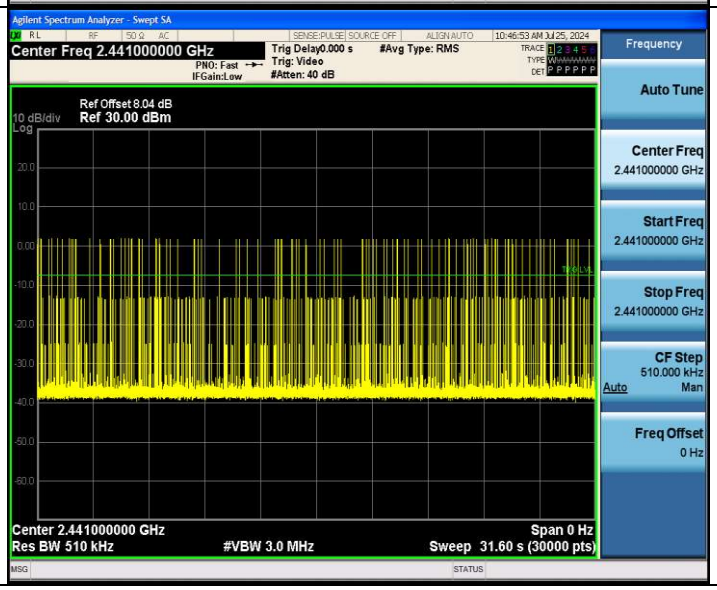

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay 0.000 s
Trig: Video
#Avg Type: RMS
#Atten: 40 dB
PNO: Fast
IFGain:Low
Ref Offset 8.04 dB
10 dB/div
Ref 30.00 dBm
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 31.60 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
510.000 kHz
Auto
Man
Freq Offset
0 Hz

2DH1_Ant1_Hop


2DH3_Ant1_Hop




2DH5_Ant1_Hop





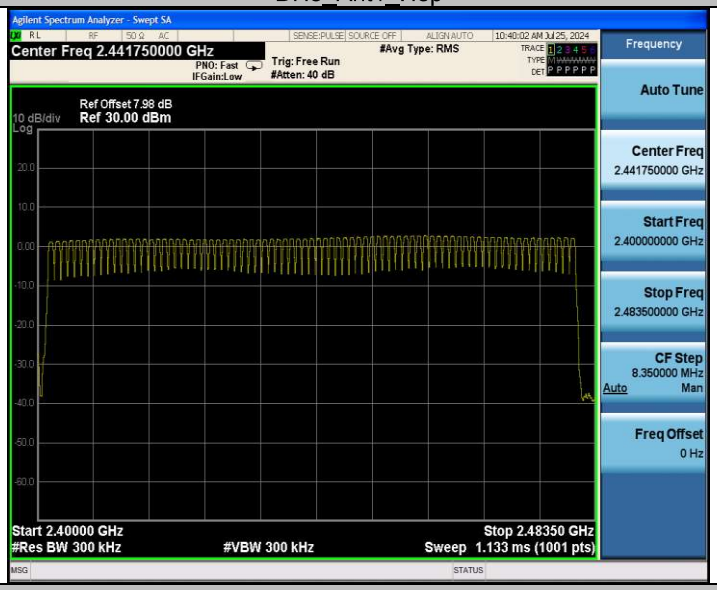
Appendix E: Number of hopping channels

Test Result

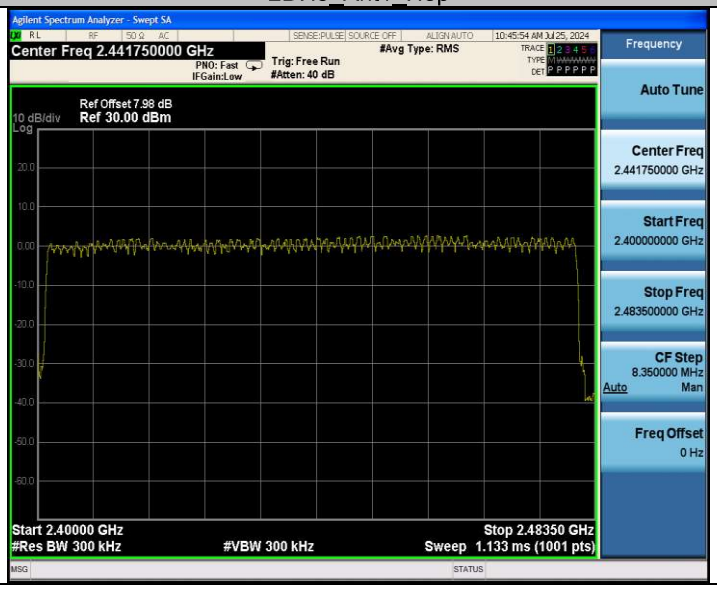
Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

DH5_Ant1_Hop



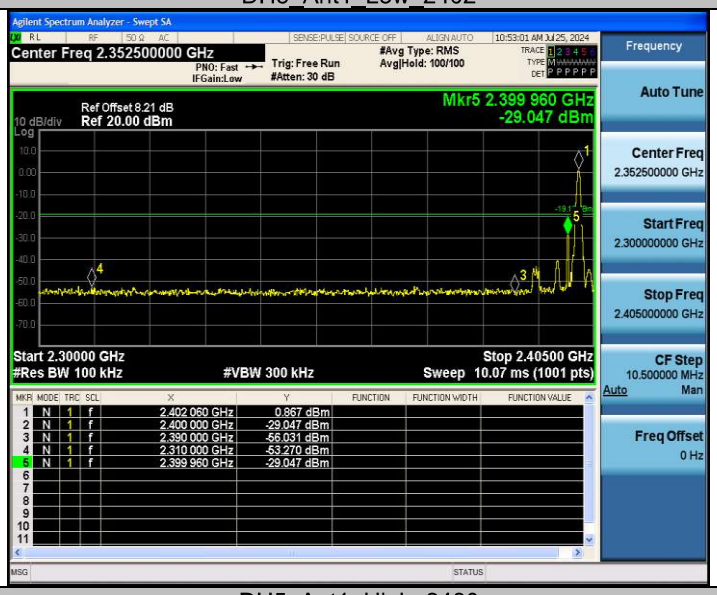
2DH5_Ant1_Hop



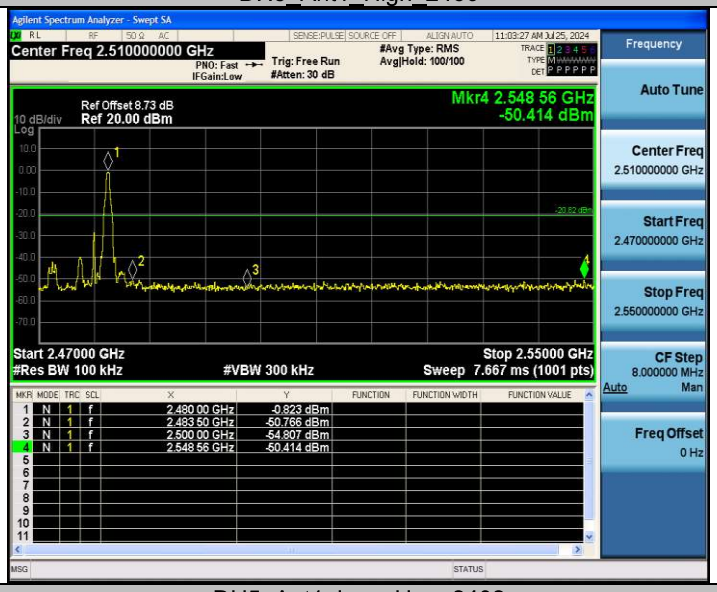
Appendix F: Band edge measurements

Test Graphs

DH5_Ant1_Low_2402



DH5_Ant1_High_2480



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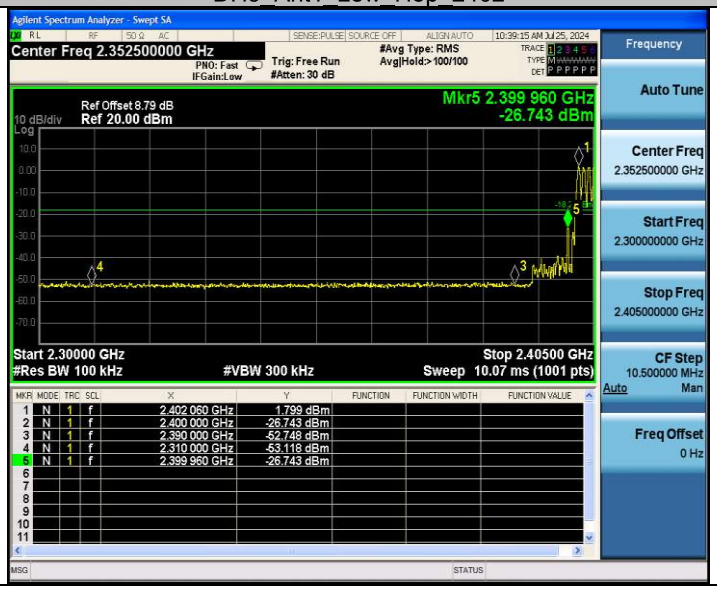

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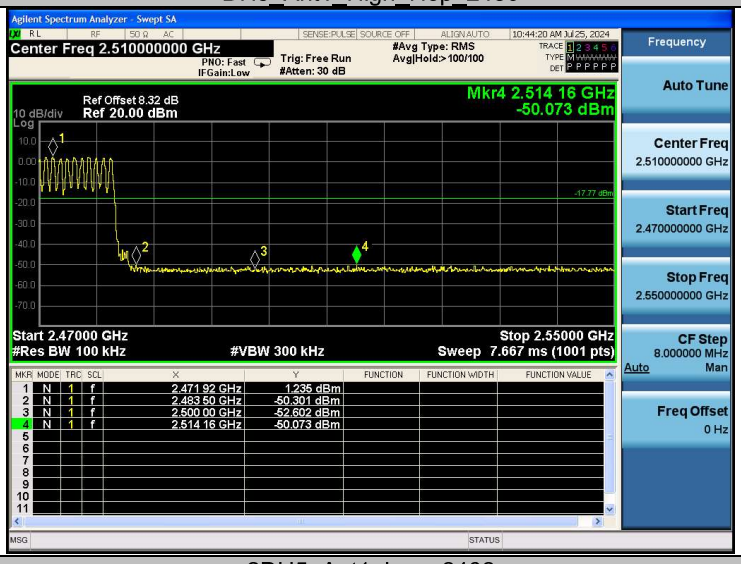

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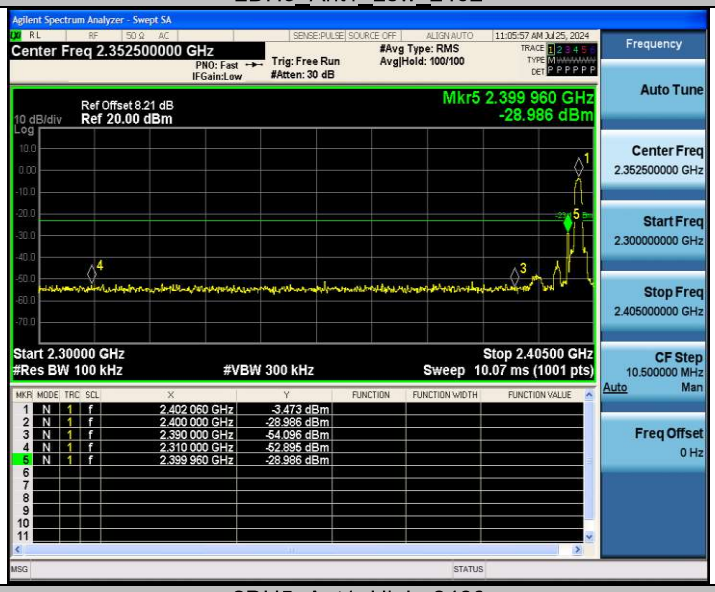

2DH5_Ant1_High_2480