Appendix Test Data

Project No.:	18220WC101747	Test Date:	2021.8.4
Test Engineer:	Tony.He	Auditor:	Edward.Pan
Temperature:	24.3℃	Relative Humidity:	56.8 %
Pressure:	1012 hPa		

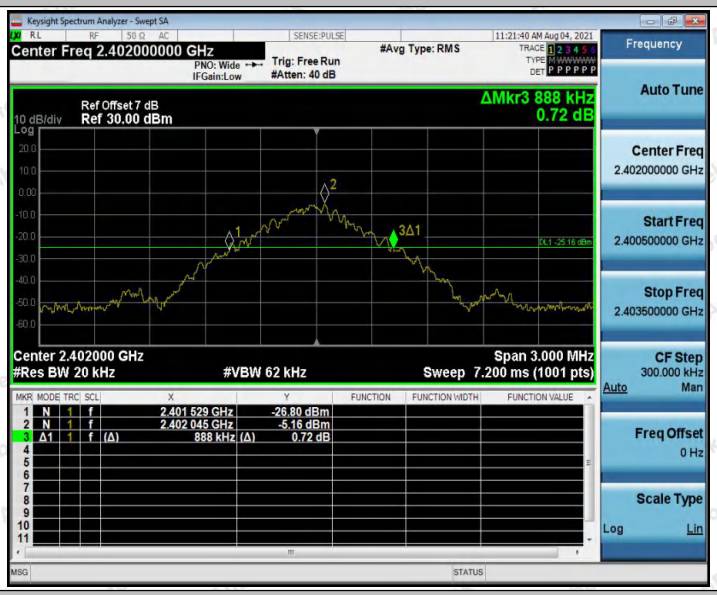
Appendix A: 20dB Emission Bandwidth

Test Result

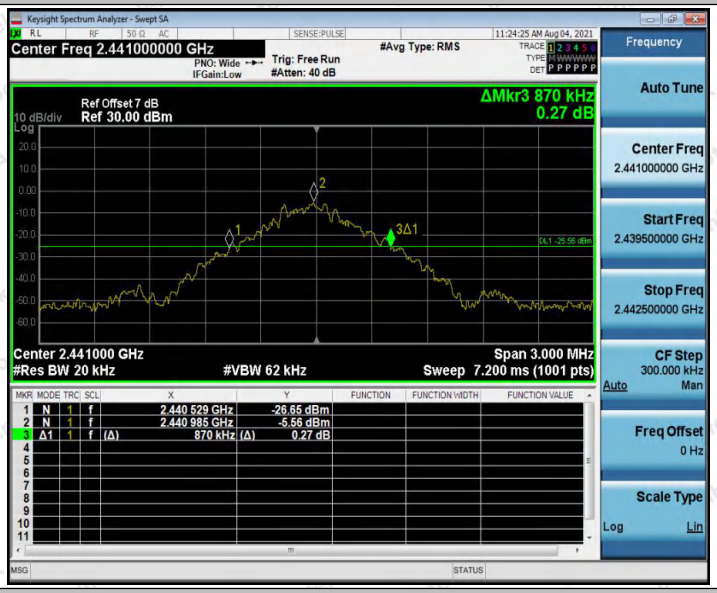
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.888	2401.529	2402.417	---	PASS
		2441	0.870	2440.529	2441.399	---	PASS
		2480	0.885	2479.535	2480.420	---	PASS
2DH5	Ant1	2402	1.314	2401.328	2402.642	---	PASS
		2441	1.329	2440.322	2441.651	---	PASS
		2480	1.260	2479.355	2480.615	---	PASS

Test Graphs

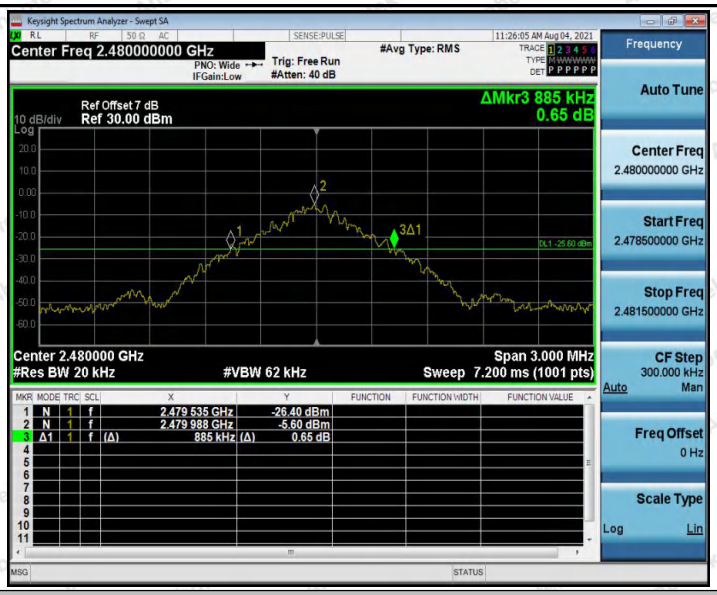
DH5_Ant1_2402



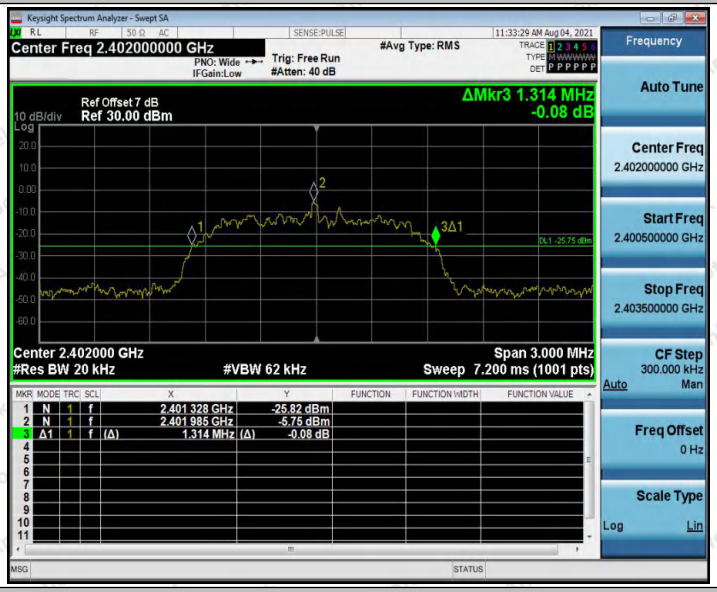
DH5_Ant1_2441



DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441

2DH5_Ant1_2480

Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.84610	2401.555	2402.401	---	PASS
		2441	0.85957	2440.555	2441.414	---	PASS
		2480	0.86022	2479.551	2480.411	---	PASS
2DH5	Ant1	2402	1.1944	2401.386	2402.581	---	PASS
		2441	1.2043	2440.383	2441.588	---	PASS
		2480	1.1989	2479.385	2480.584	---	PASS

Test Graphs

DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402

2DH5_Ant1_2441

2DH5_Ant1_2480

Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-1.16	<=20.97	PASS
		2441	-1.78	<=20.97	PASS
		2480	-1.74	<=20.97	PASS
2DH5	Ant1	2402	-0.51	<=20.97	PASS
		2441	-1.35	<=20.97	PASS
		2480	-1.25	<=20.97	PASS

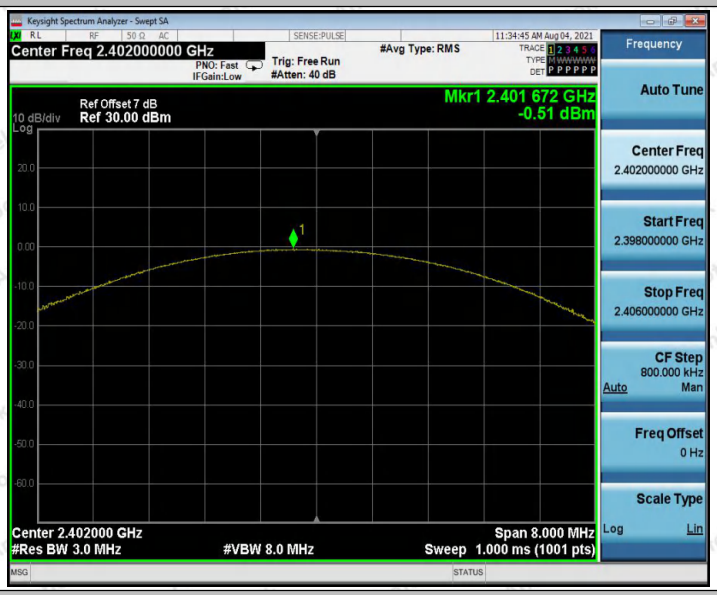
Test Graphs

DH5_Ant1_2402

DH5_Ant1_2441

DH5_Ant1_2480

2DH5_Ant1_2402



2DH5_Ant1_2441

2DH5_Ant1_2480

Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.03	>=0.888	PASS
2DH5	Ant1	Hop	0.998	>=0.886	PASS

Test Graphs

DH5_Ant1_Hop

2DH5_Ant1_Hop

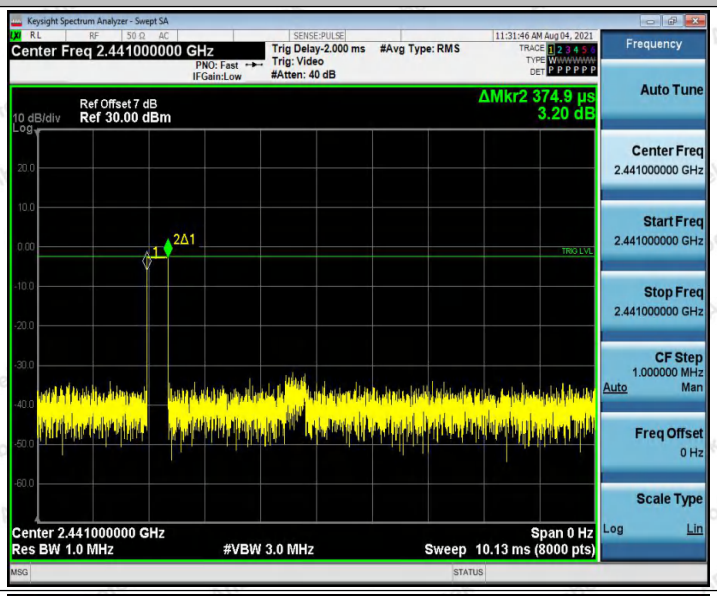
Appendix E: Time of occupancy

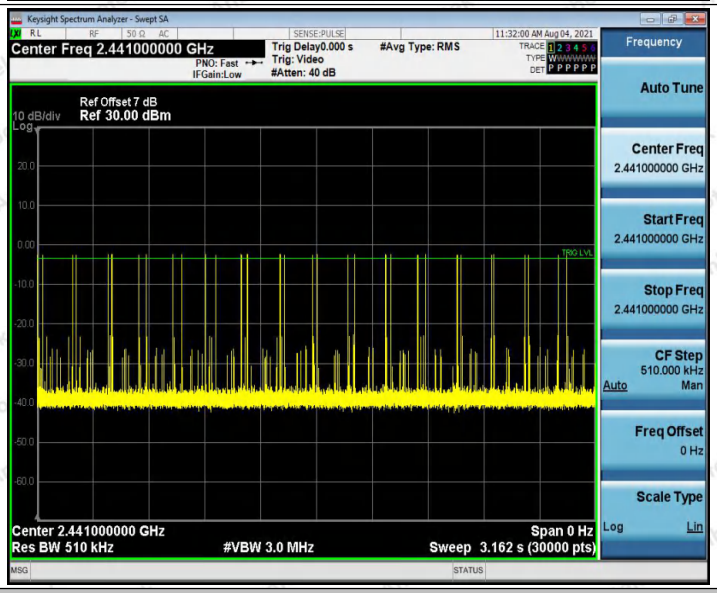
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.37	330	0.124	<=0.4	PASS
DH3	Ant1	Hop	1.63	140	0.228	<=0.4	PASS
DH5	Ant1	Hop	2.88	70	0.201	<=0.4	PASS
2DH1	Ant1	Hop	0.39	330	0.127	<=0.4	PASS
2DH3	Ant1	Hop	1.64	160	0.262	<=0.4	PASS
2DH5	Ant1	Hop	2.88	80	0.231	<=0.4	PASS

Test Graphs

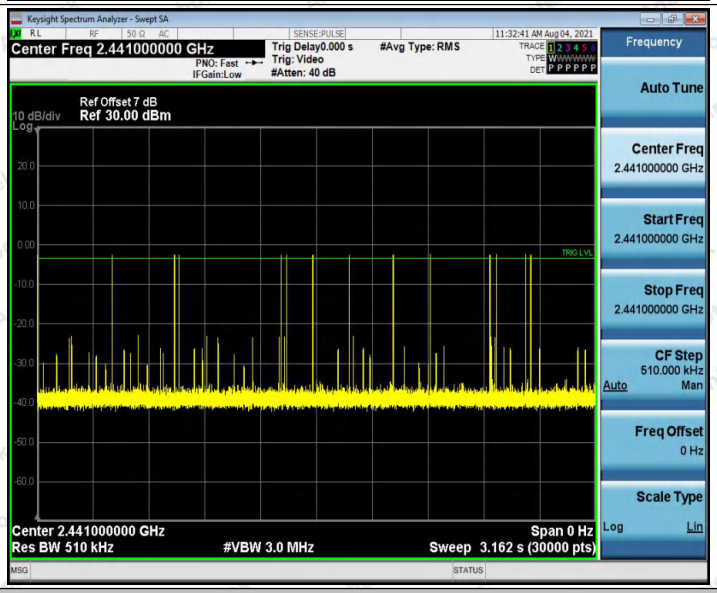
DH1_Ant1_Hop



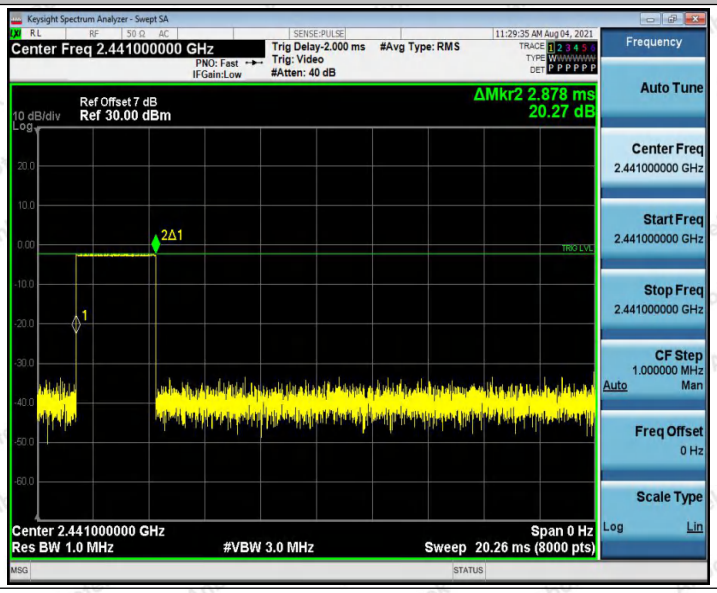


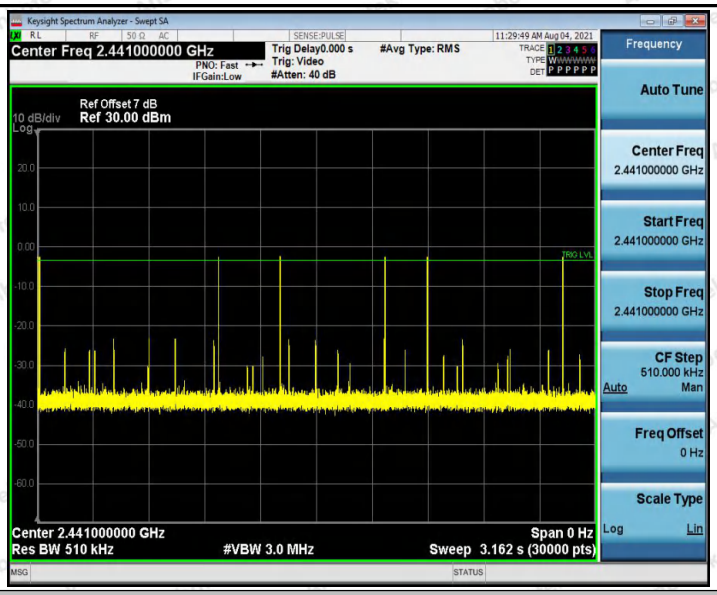
DH3_Ant1_Hop

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
11:32:28 AM Aug 04, 2021
Ref Offset 7 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 1.631 ms
13.28 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
Scale Type
Log
Lin

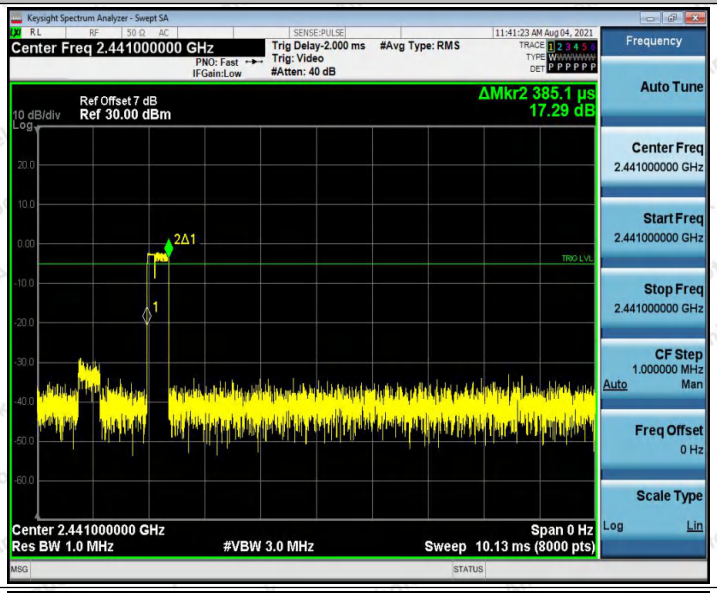

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay0.000 s
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
11:32:41 AM Aug 04, 2021
Ref Offset 7 dB
10 dB/div
Ref 30.00 dBm
Center 2.441000000 GHz
Res BW 510 kHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.162 s (30000 pts)
Frequency
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
Scale Type
Log
Lin

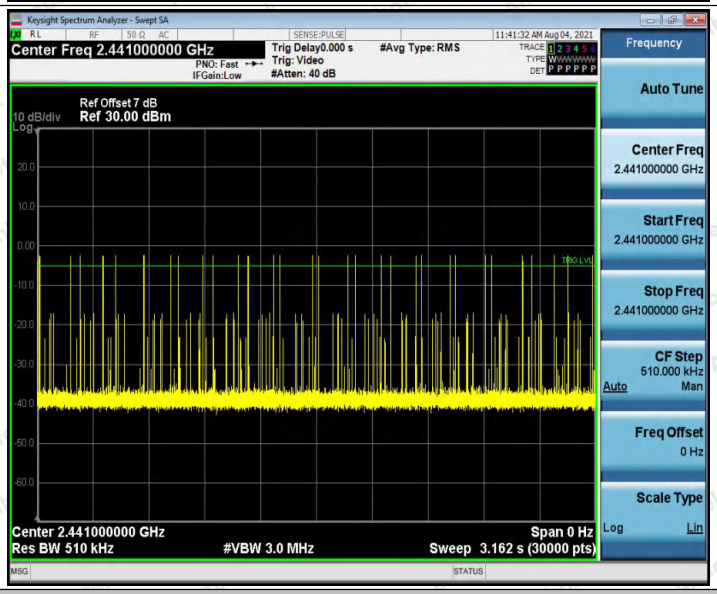
DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay-2.000 ms
#Avg Type: RMS
Trig: Video
#Atten: 40 dB
PNO: Fast
IFGain:Low
11:29:35 AM Aug 04, 2021
Ref Offset 7 dB
10 dB/div
Ref 30.00 dBm
ΔMkr2 2.878 ms
20.27 dB
2Δ1
1
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 20.26 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
Scale Type
Log
Lin

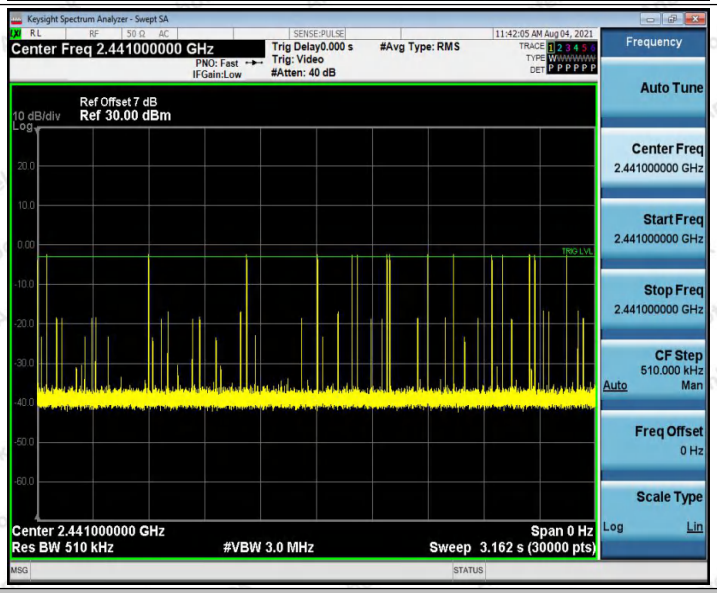


2DH1_Ant1_Hop

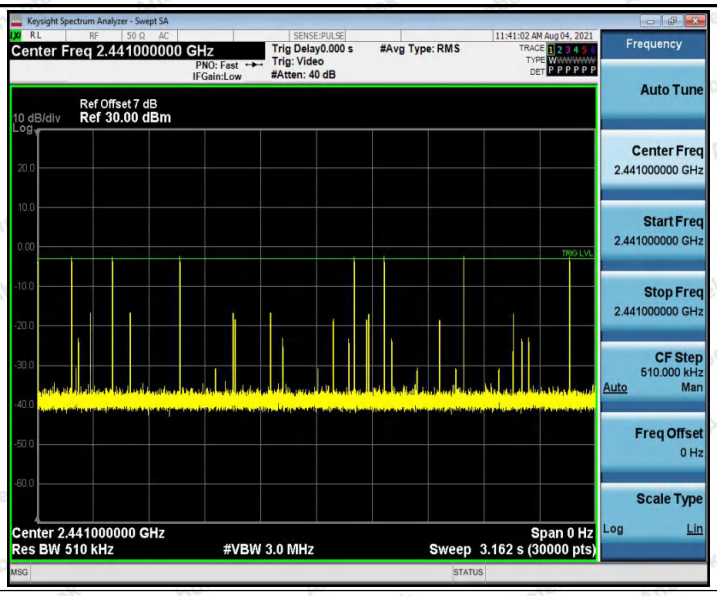




2DH3_Ant1_Hop



2DH5_Ant1_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay0.000 s
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
11:41:02 AM Aug 04, 2021
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
Scale Type
Log
Lin
Ref Offset 7 dB
10 dB/div
Ref 30.00 dBm
Log
Center 2.441000000 GHz
Span 0 Hz
Res BW 510 kHz
#VBW 3.0 MHz
Sweep 3.162 s (30000 pts)

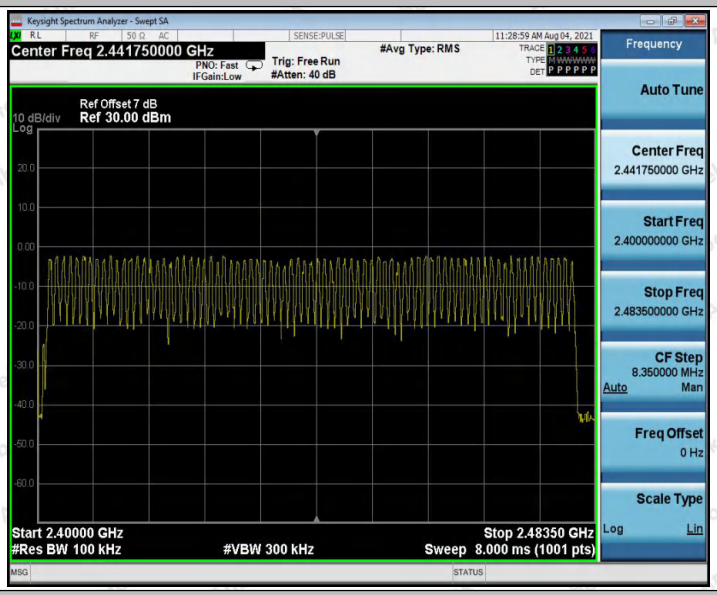
Appendix F: Number of hopping channels

Test Result

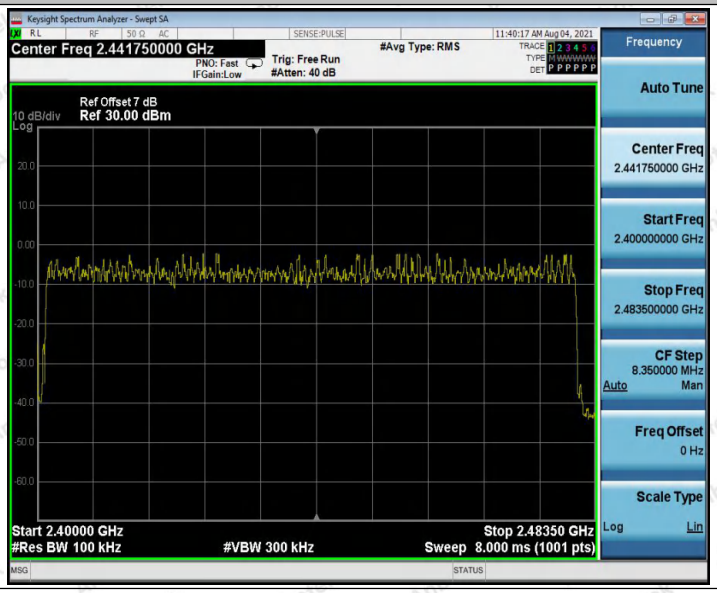
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	>=15	PASS
2DH5	Ant1	Hop	79	>=15	PASS

Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



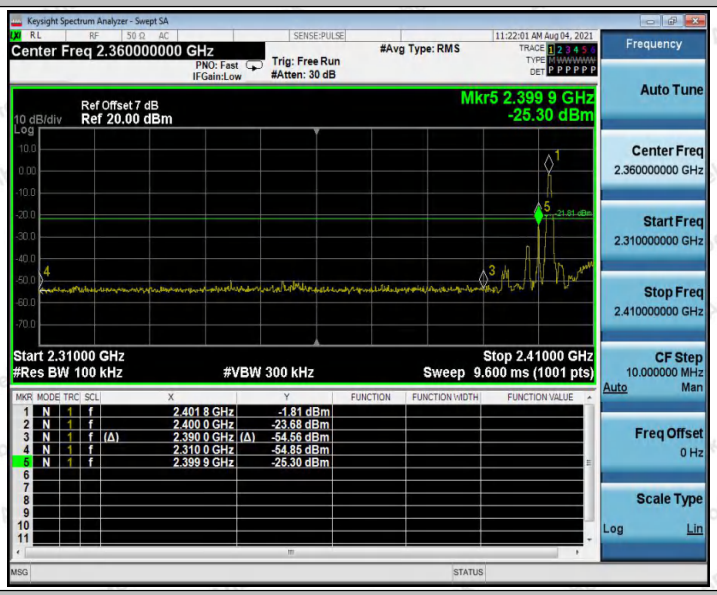
Appendix G: Band edge measurements

Test Result

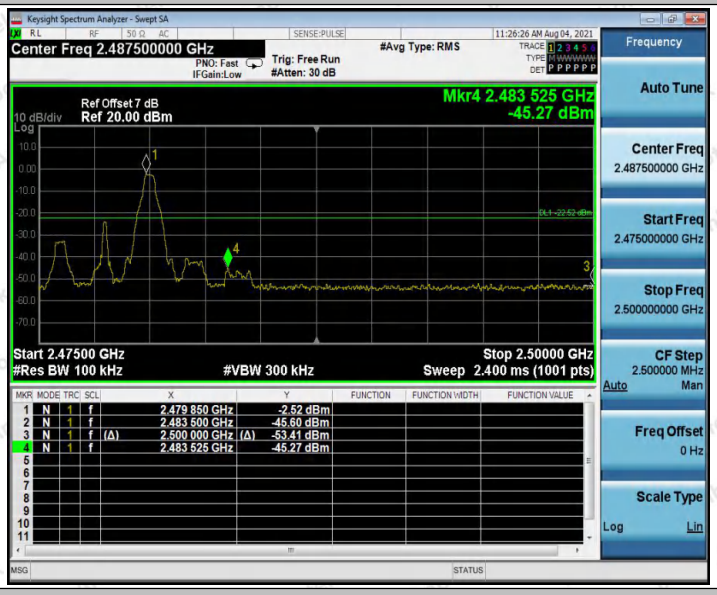
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-1.81	-25.3	<=-21.81	PASS
		High	2480	-2.52	-45.27	<=-22.52	PASS
		Low	Hop	-2.13	-50.86	<=-22.13	PASS
		High	Hop	-2.69	-50.5	<=-22.69	PASS
2DH5	Ant1	Low	2402	-1.86	-25.52	<=-21.86	PASS
		High	2480	-2.46	-44.43	<=-22.46	PASS
		Low	Hop	-4.33	-52.04	<=-24.33	PASS
		High	Hop	-2.45	-54.4	<=-22.45	PASS

Test Graphs

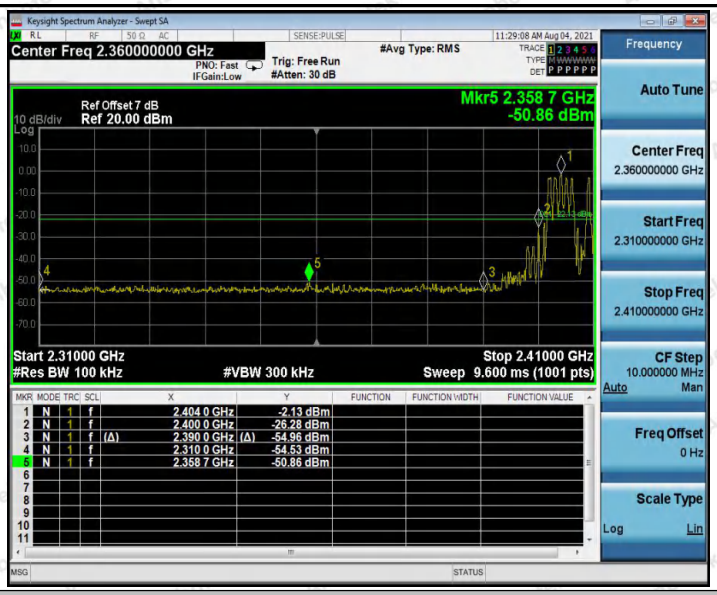
DH5_Ant1_Low_2402



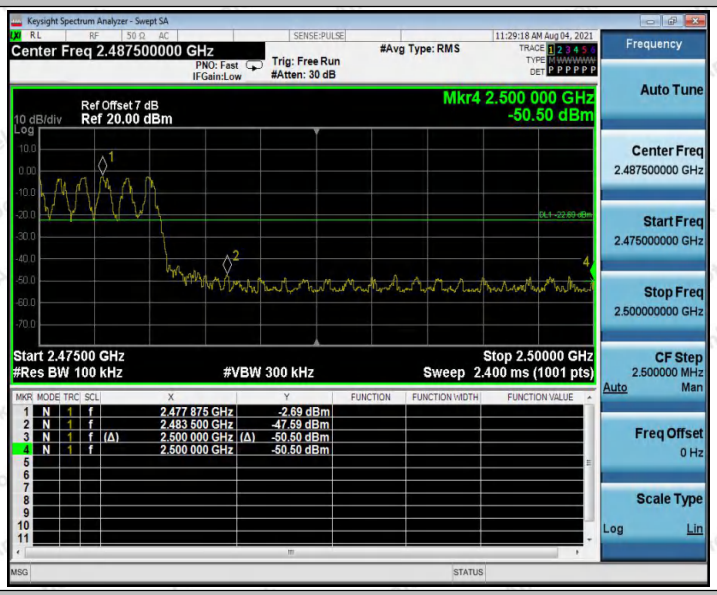
DH5_Ant1_High_2480



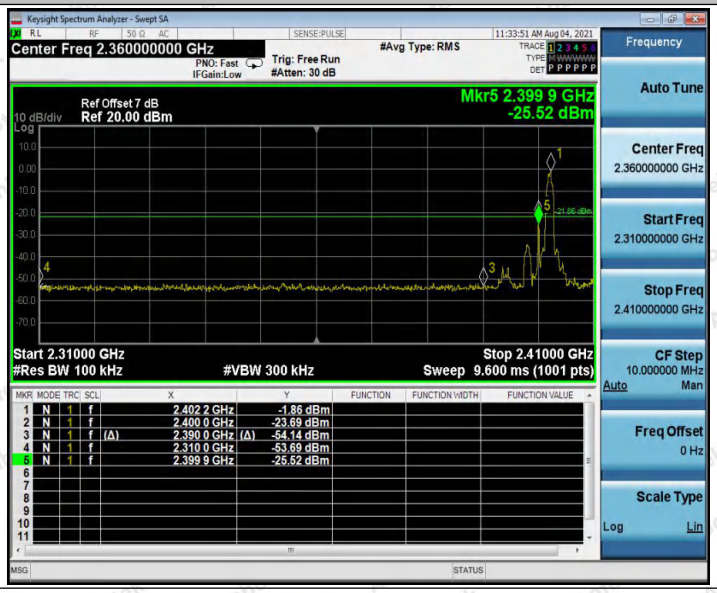
DH5_Ant1_Low_Hop



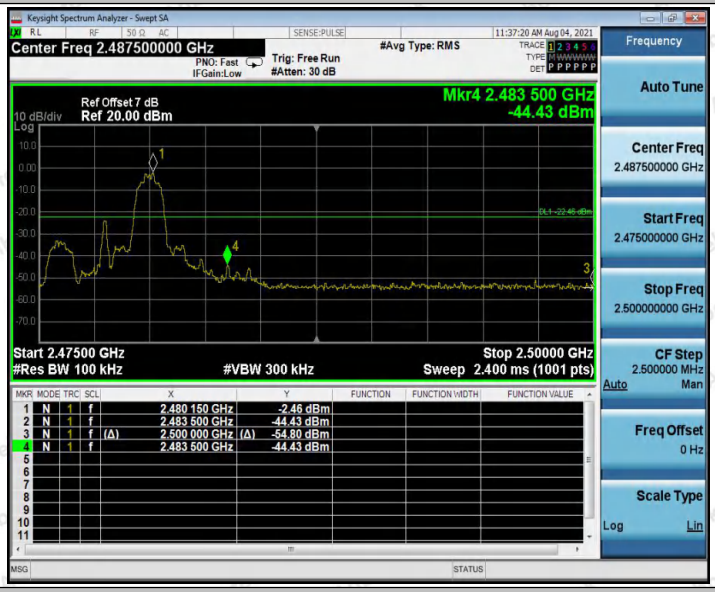
DH5_Ant1_High_Hop



2DH5_Ant1_Low_2402

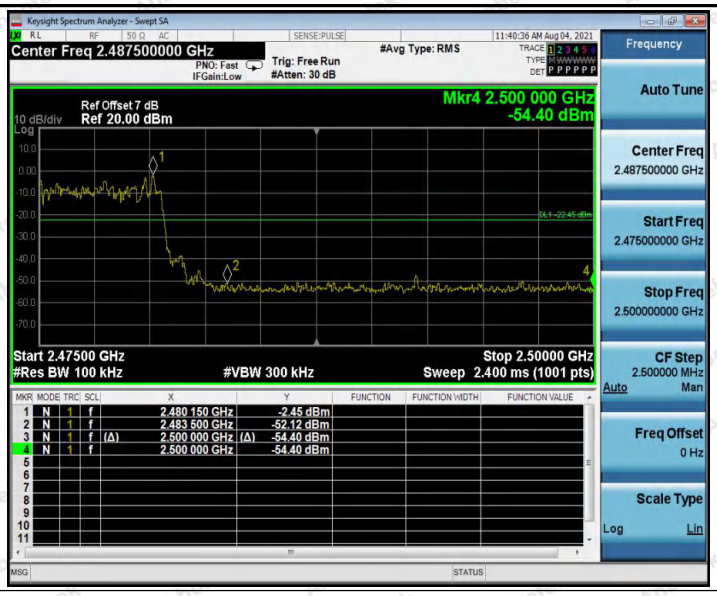


2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop

2DH5_Ant1_High_Hop


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.487500000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
11:40:36 AM Aug 04, 2021
Ref Offset 7 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr4 2.500 000 GHz
-54.40 dBm
Start 2.47500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 2.400 ms (1001 pts)
1 N 1 f 2.480 150 GHz -2.45 dBm
2 N 1 f 2.483 500 GHz -52.12 dBm
3 N 1 f (Δ) 2.500 000 GHz (Δ) -54.40 dBm
4 N 1 f 2.500 000 GHz -54.40 dBm
Frequency
Auto Tune
Center Freq
2.487500000 GHz
Start Freq
2.475000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.500000 MHz
Auto Man
Freq Offset
0 Hz
Scale Type
Log Lin

Appendix H: Conducted Spurious Emission

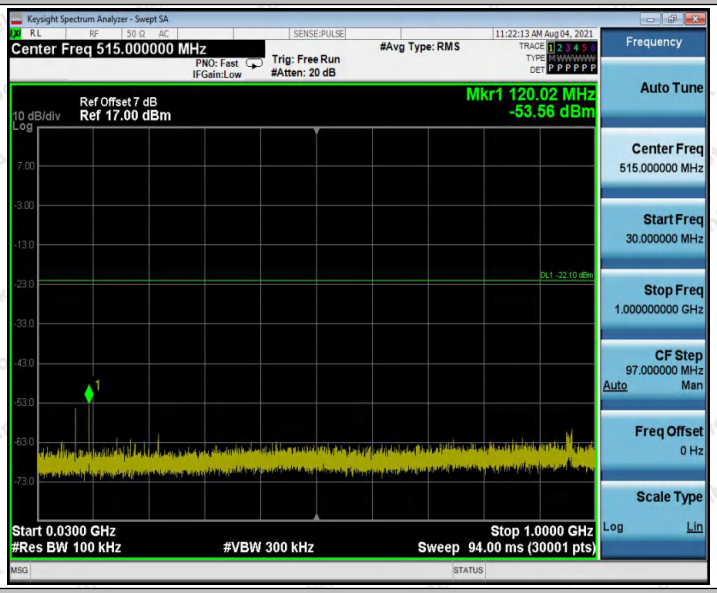
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-2.10	-2.10	---	PASS
			30~1000	-2.10	-53.56	<=-22.1	PASS
			1000~26500	-2.10	-42.74	<=-22.1	PASS
		2441	Reference	-2.62	-2.62	---	PASS
			30~1000	-2.62	-54.24	<=-22.62	PASS
			1000~26500	-2.62	-43.01	<=-22.62	PASS
		2480	Reference	-2.47	-2.47	---	PASS
			30~1000	-2.47	-53.38	<=-22.47	PASS
			1000~26500	-2.47	-42.29	<=-22.47	PASS
2DH5	Ant1	2402	Reference	-1.91	-1.91	---	PASS
			30~1000	-1.91	-53	<=-21.91	PASS
			1000~26500	-1.91	-45.71	<=-21.91	PASS
		2441	Reference	-2.62	-2.62	---	PASS
			30~1000	-2.62	-53.35	<=-22.62	PASS
			1000~26500	-2.62	-45.3	<=-22.62	PASS
		2480	Reference	-2.52	-2.52	---	PASS
			30~1000	-2.52	-53.28	<=-22.52	PASS
			1000~26500	-2.52	-40.61	<=-22.52	PASS

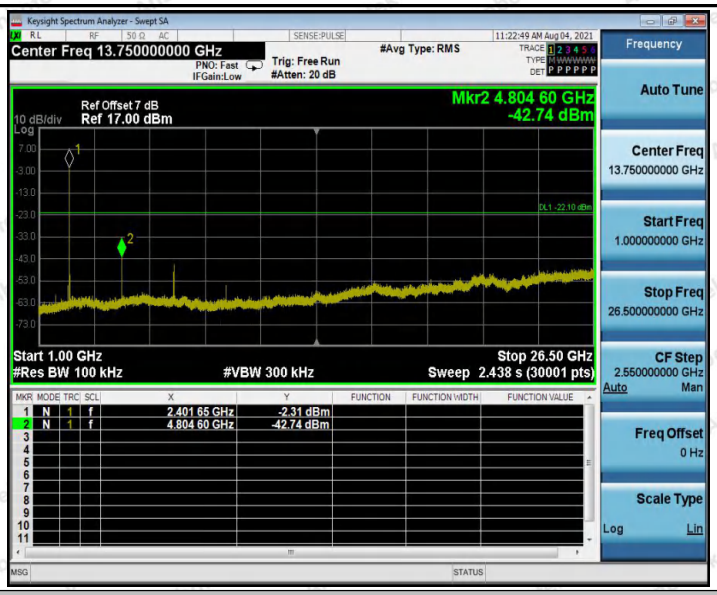
Test Graphs

DH5_Ant1_2402_0~Reference

DH5_Ant1_2402_30~1000

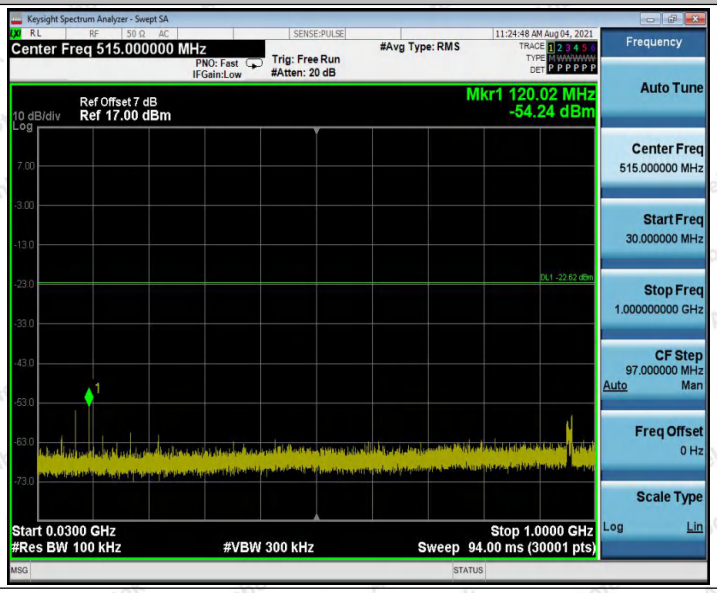


DH5_Ant1_2402_1000~26500

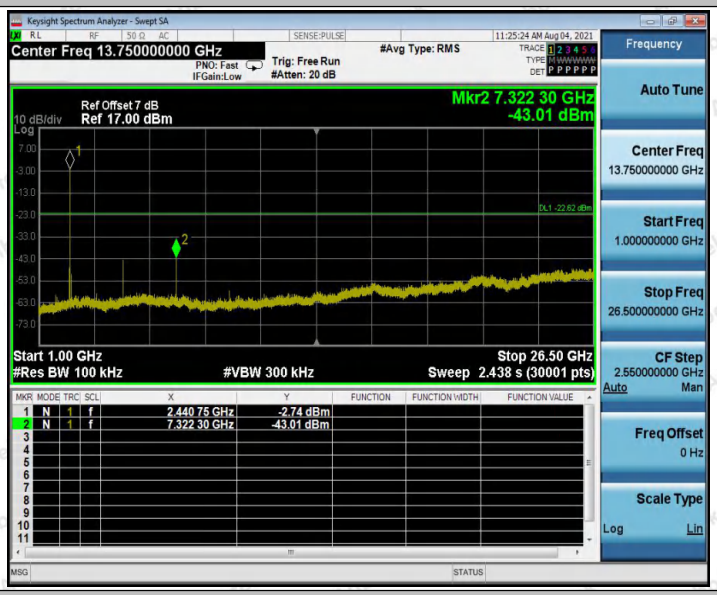


DH5_Ant1_2441_0~Reference

DH5_Ant1_2441_30~1000

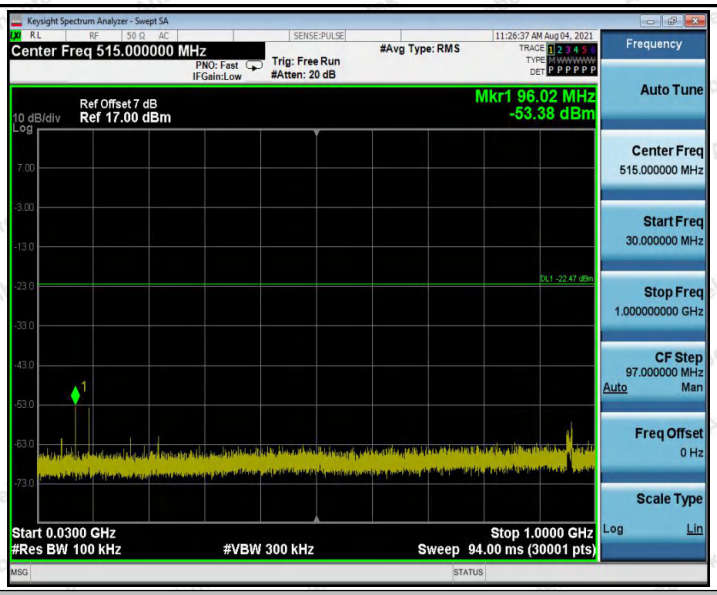


DH5_Ant1_2441_1000~26500

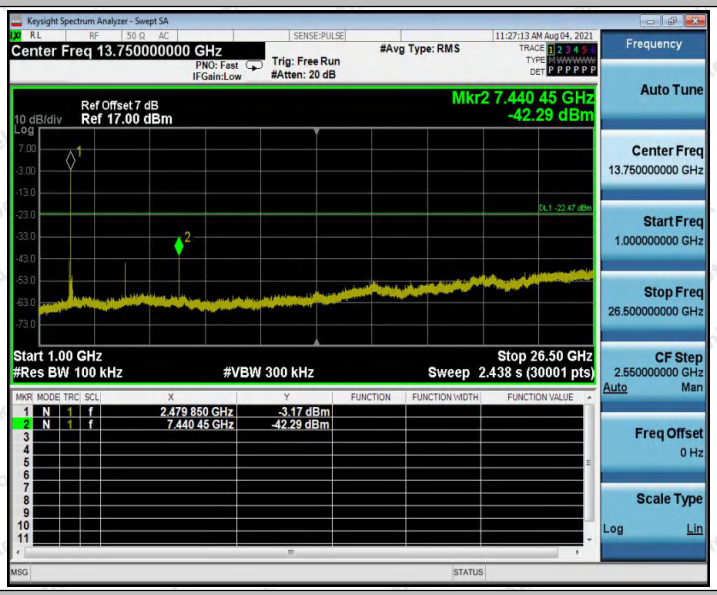


DH5_Ant1_2480_0~Reference

DH5_Ant1_2480_30~1000

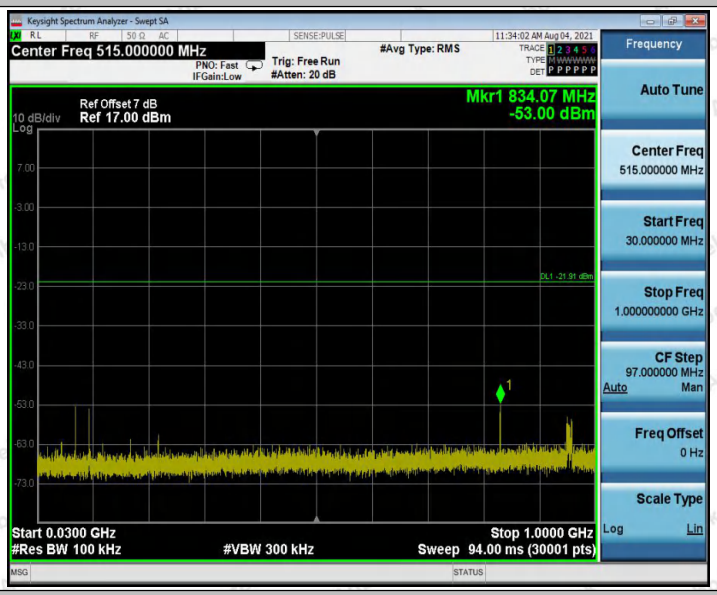


DH5_Ant1_2480_1000~26500

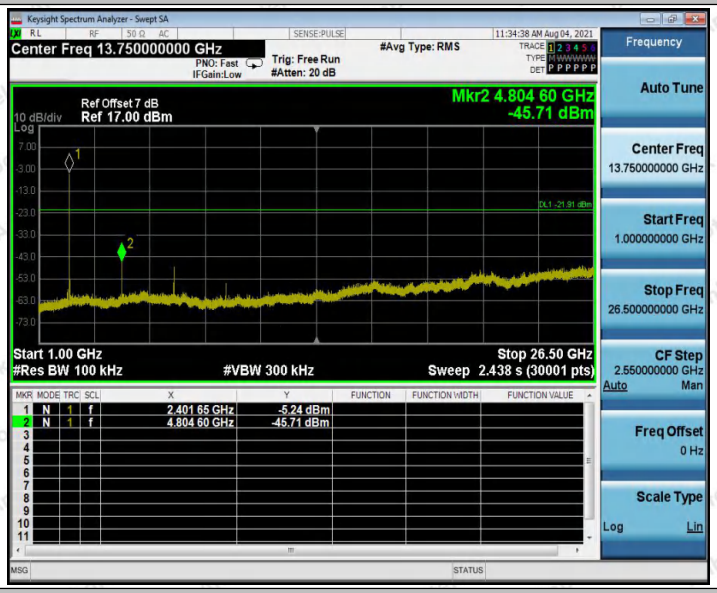


2DH5_Ant1_2402_0~Reference

2DH5_Ant1_2402_30~1000

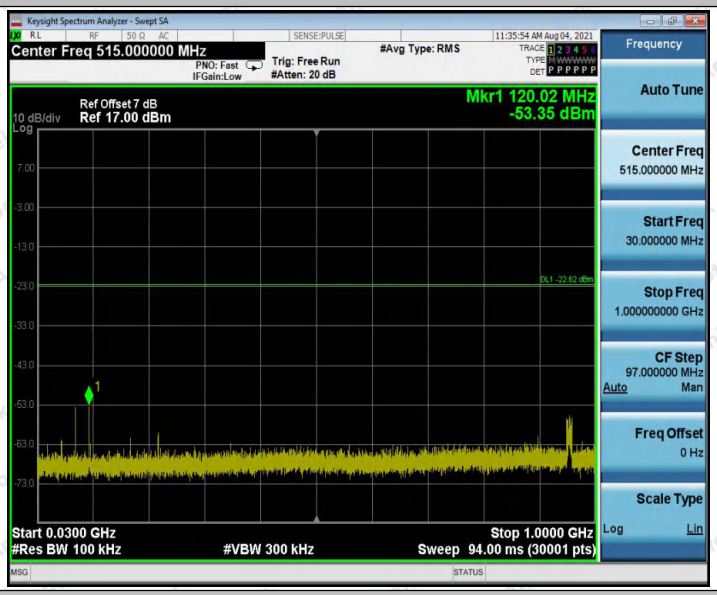


2DH5_Ant1_2402_1000~26500

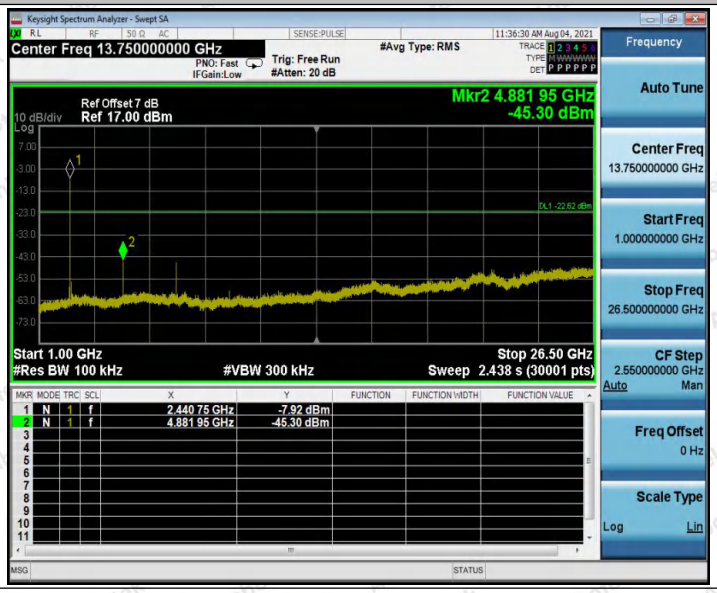


2DH5_Ant1_2441_0~Reference

2DH5_Ant1_2441_30~1000

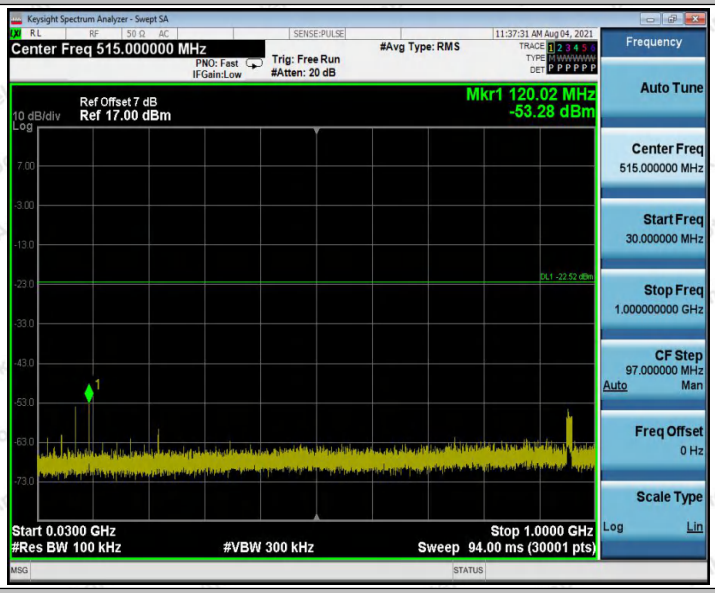


2DH5_Ant1_2441_1000~26500

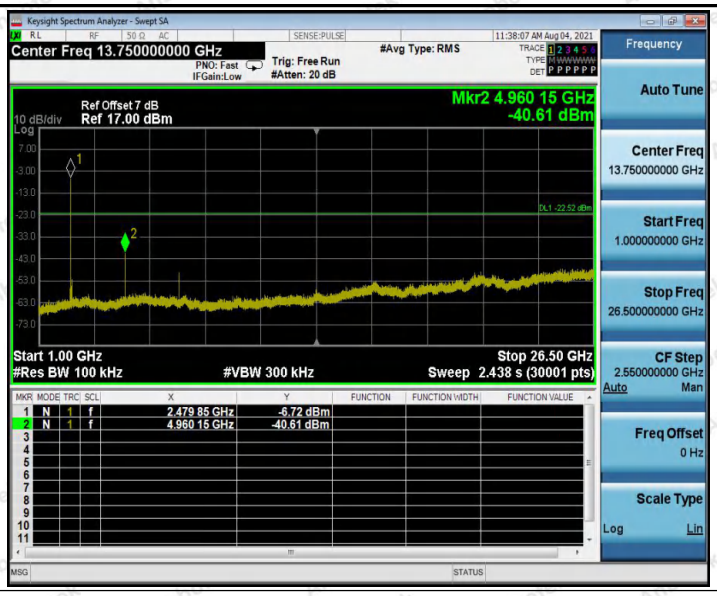


2DH5_Ant1_2480_0~Reference

2DH5_Ant1_2480_30~1000



2DH5_Ant1_2480_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
11:38:07 AM Aug 04, 2021
Ref Offset 7 dB
10 dB/div
Ref 17.00 dBm
Mkr2 4.960 15 GHz
-40.61 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -6.72 dBm
2 N 1 f 4.960 15 GHz -40.61 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto Man
Freq Offset
0 Hz
Scale Type
Log Lin

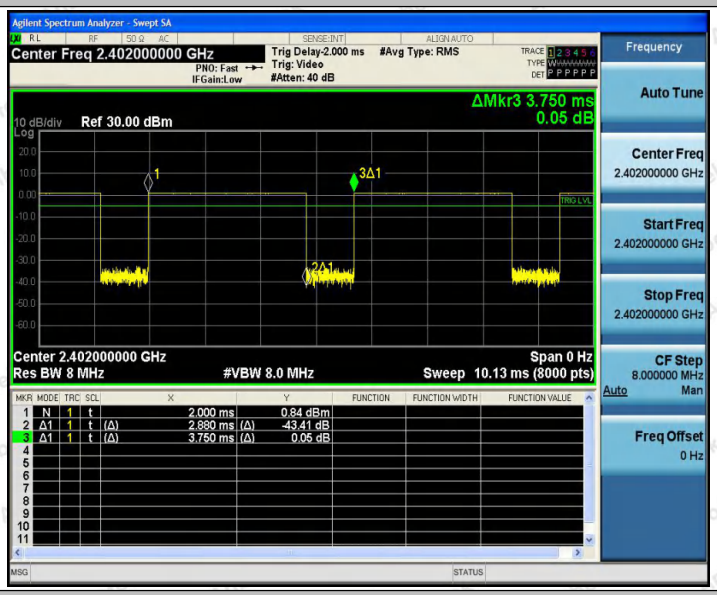
Appendix I: Duty Cycle

Test Result

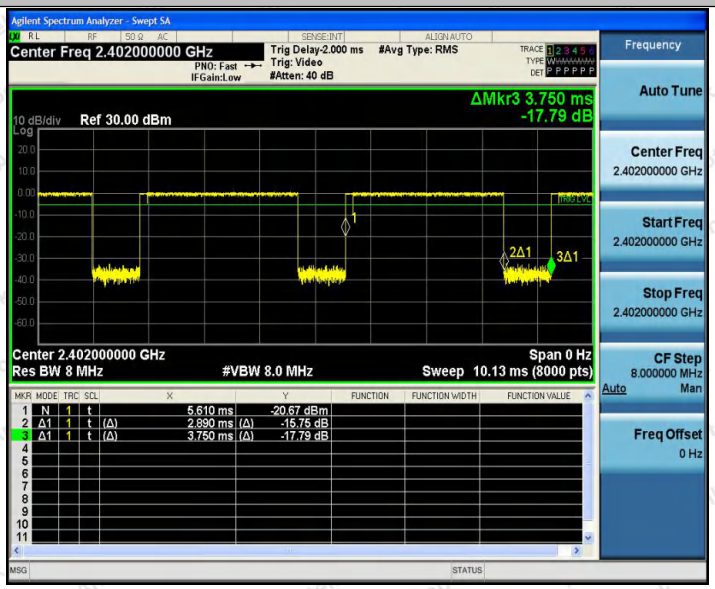
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.88	3.75	0.7680	76.80	1.15	---	PASS
2DH5	Ant1	2402	2.89	3.75	0.7707	77.07	1.13	---	PASS

Test Graphs

DH5_Ant1_2402



2DH5_Ant1_2402



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