Appendix A

RF Test Data for BT 5.1 (Conducted Measurement)

Product Name: Vivi Wireless Presentation

Trade Mark: Vivi

Test Model: VWP-210-16

Environmental Conditions

Temperature:	22.5 ° C
Relative Humidity:	53%
ATM Pressure:	100.0 kPa
Test Engineer:	Wunder Wu
Supervised by:	Li Huan

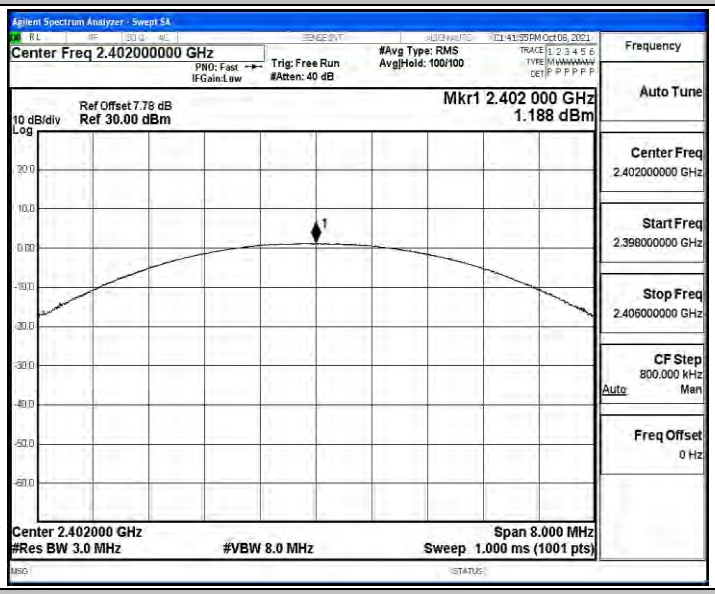
Appendix A.1: Maximum conducted output power

Test Result

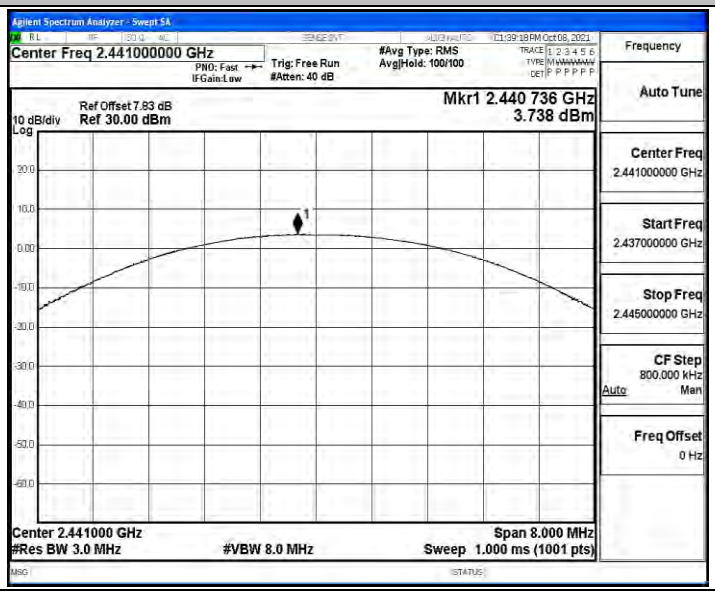
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	1.19	≤20.97	PASS
		2441	3.74	≤20.97	PASS
		2480	7.7	≤20.97	PASS
2DH5	Ant1	2402	7.88	≤20.97	PASS
		2441	7.81	≤20.97	PASS
		2480	8.42	≤20.97	PASS
3DH5	Ant1	2402	8.02	≤20.97	PASS
		2441	7.92	≤20.97	PASS
		2480	8.63	≤20.97	PASS

Test Graphs

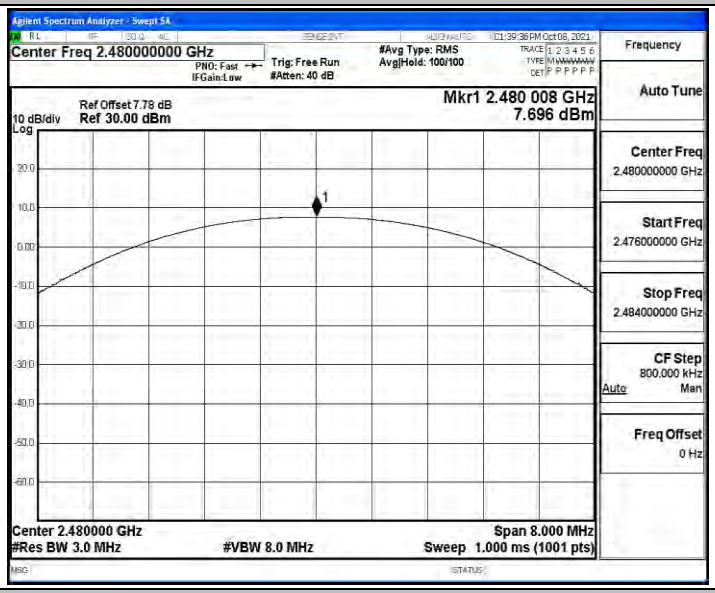
DH5_Ant1_2402



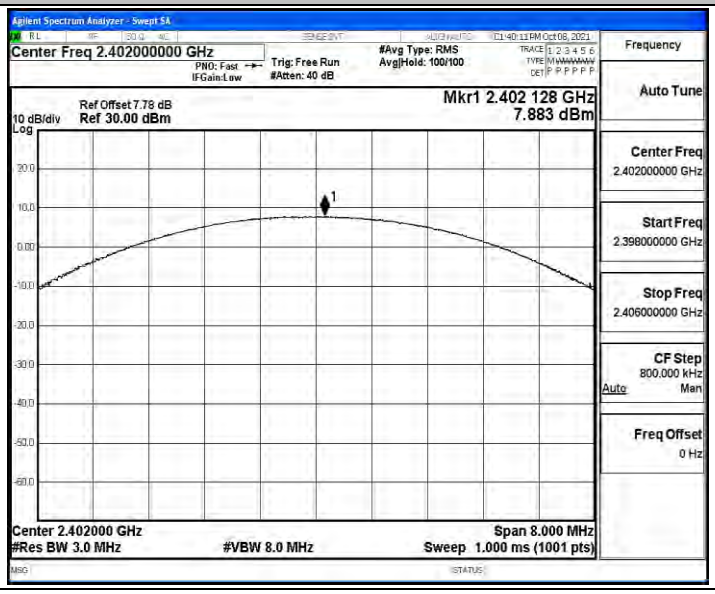
DH5_Ant1_2441

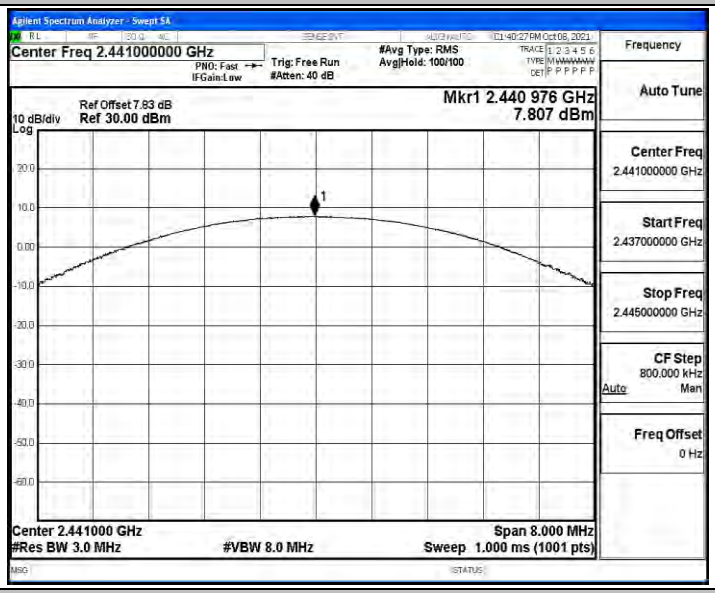


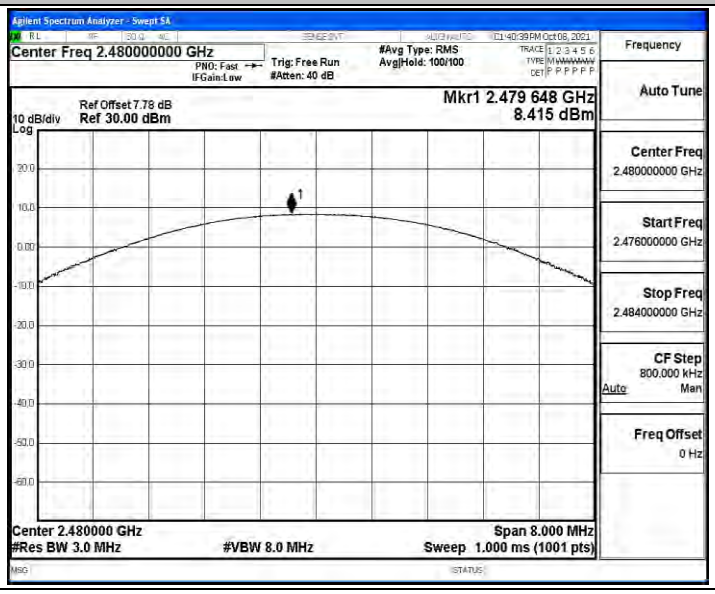
DH5_Ant1_2480



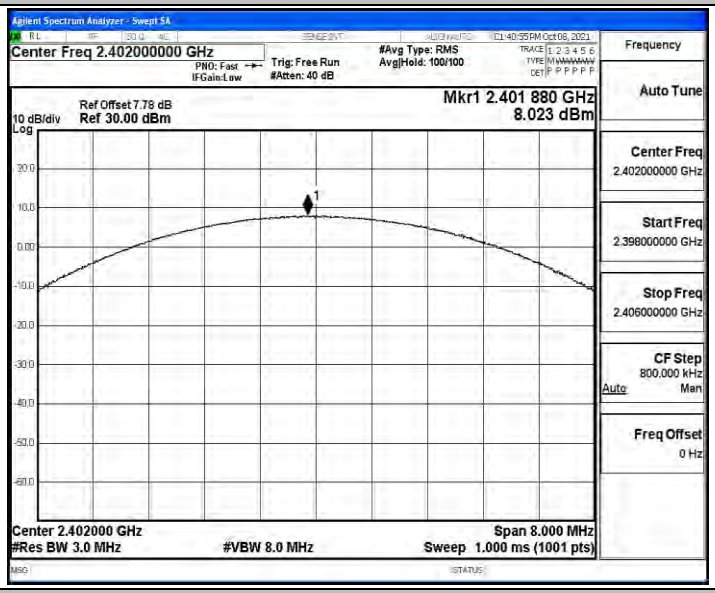
2DH5_Ant1_2402



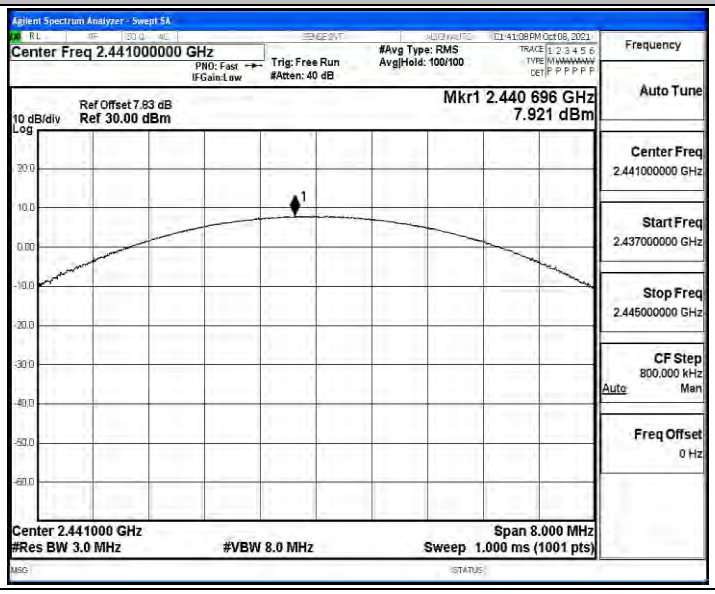
2DH5_Ant1_2441


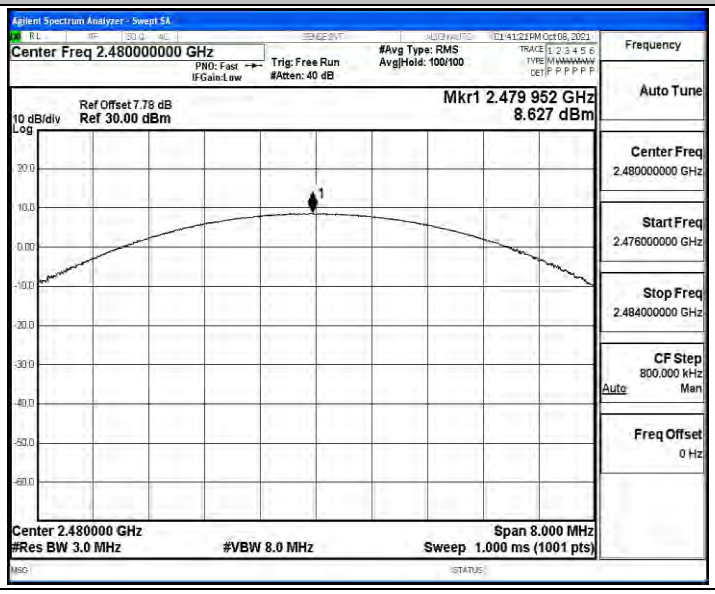
2DH5_Ant1_2480


3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


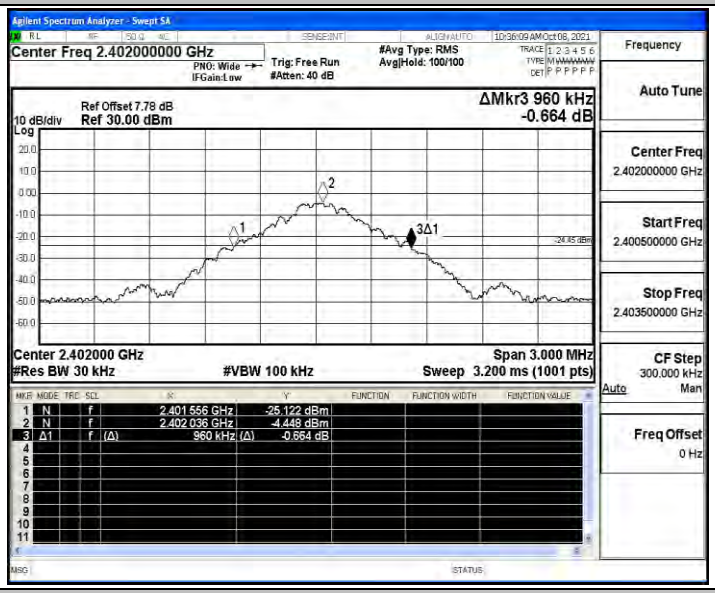
Appendix A.2.1: 20dB Emission Bandwidth

Test Result

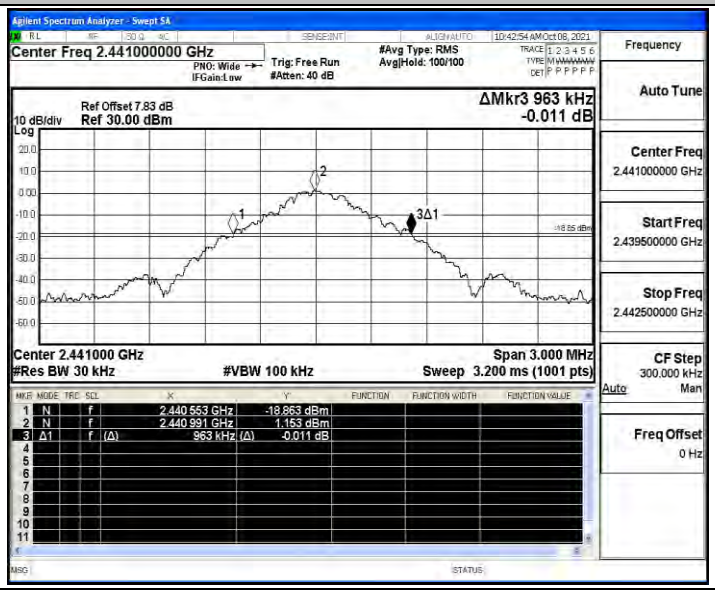
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.960	2401.556	2402.516	---	PASS
		2441	0.963	2440.553	2441.516	---	PASS
		2480	0.933	2479.562	2480.495	---	PASS
2DH5	Ant1	2402	1.332	2401.370	2402.702	---	PASS
		2441	1.413	2440.310	2441.723	---	PASS
		2480	1.371	2479.331	2480.702	---	PASS
3DH5	Ant1	2402	1.371	2401.337	2402.708	---	PASS
		2441	1.371	2440.325	2441.696	---	PASS
		2480	1.377	2479.325	2480.702	---	PASS

Test Graphs

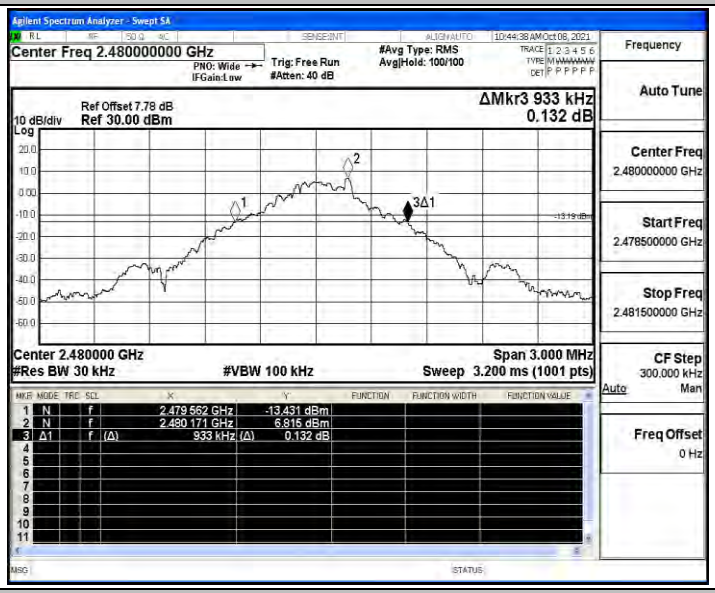
DH5_Ant1_2402



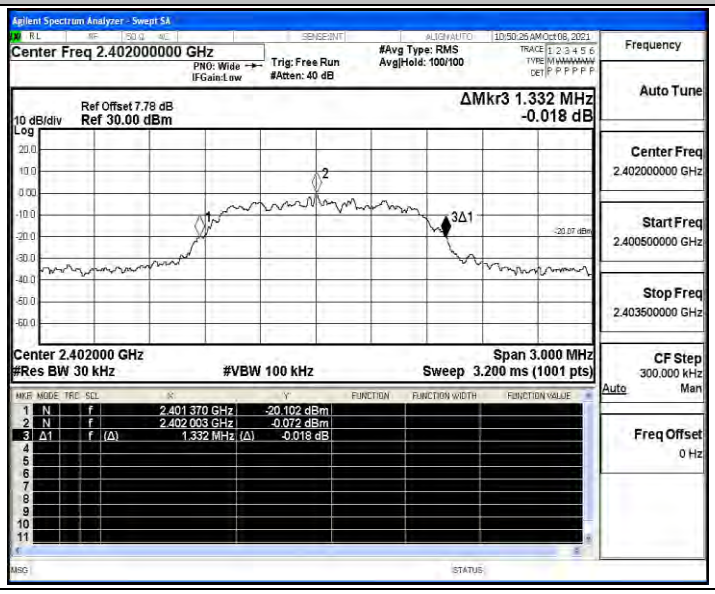
DH5_Ant1_2441



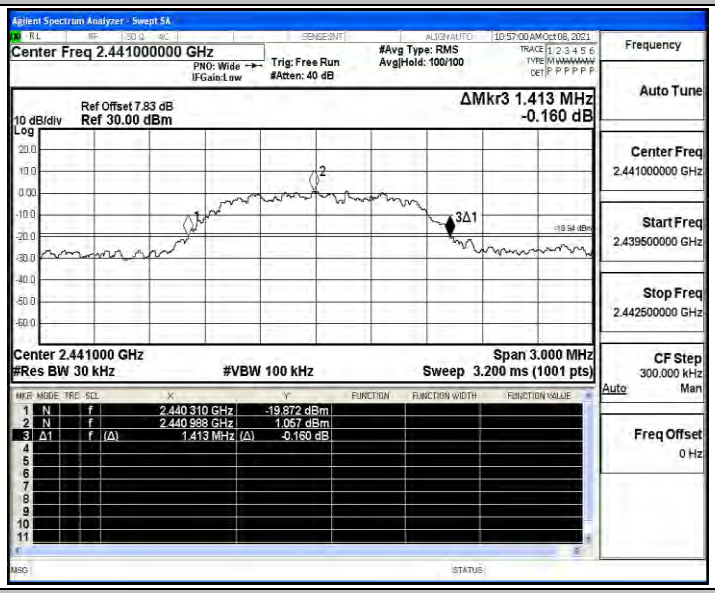
DH5_Ant1_2480



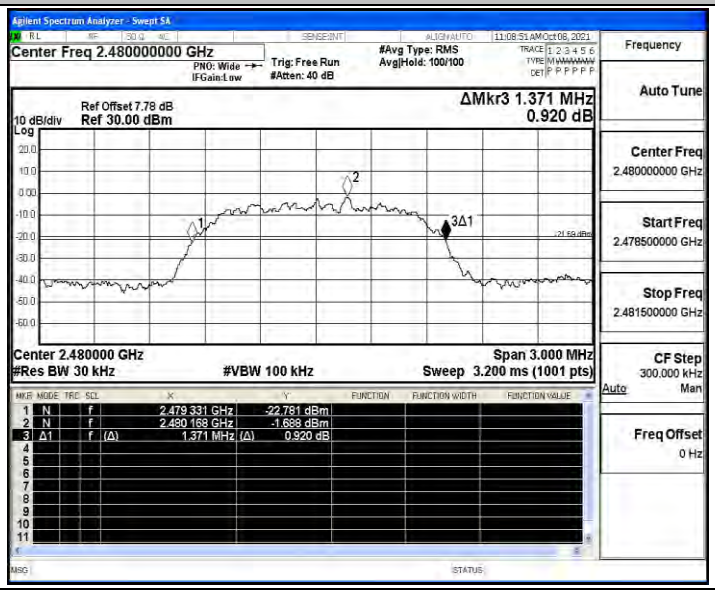
2DH5_Ant1_2402



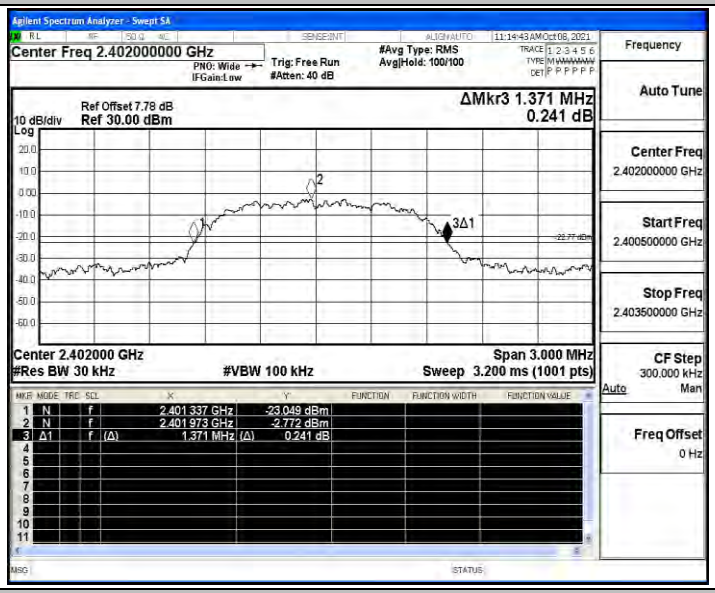
2DH5_Ant1_2441



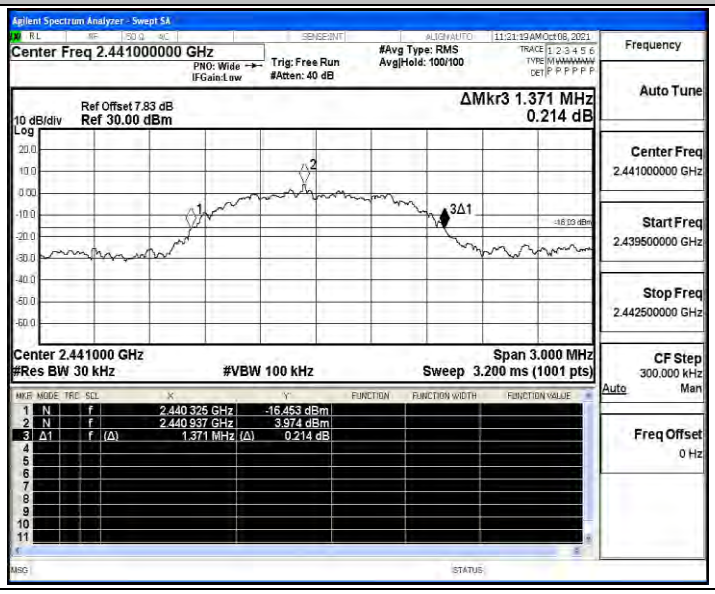
2DH5_Ant1_2480

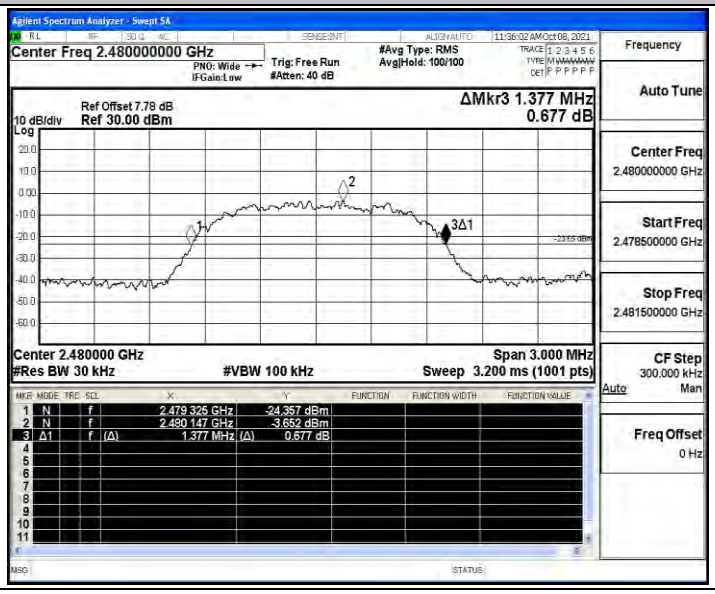


3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


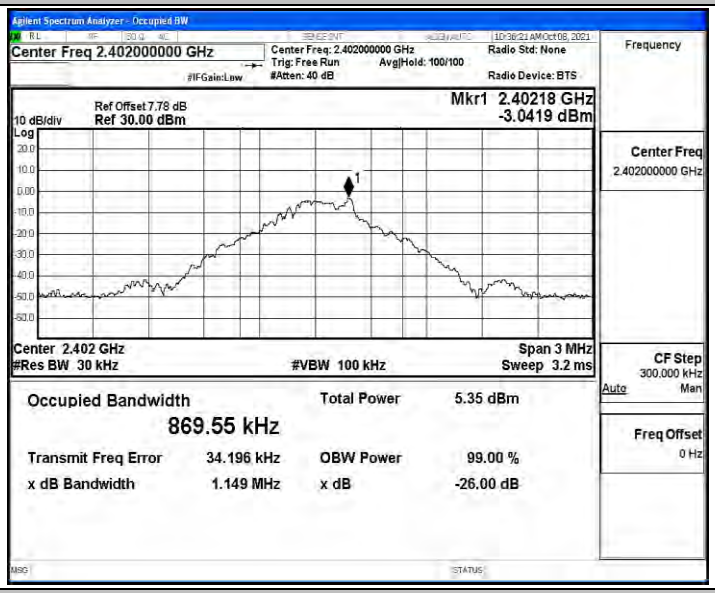
Appendix A.2.2: Occupied Channel Bandwidth

Test Result

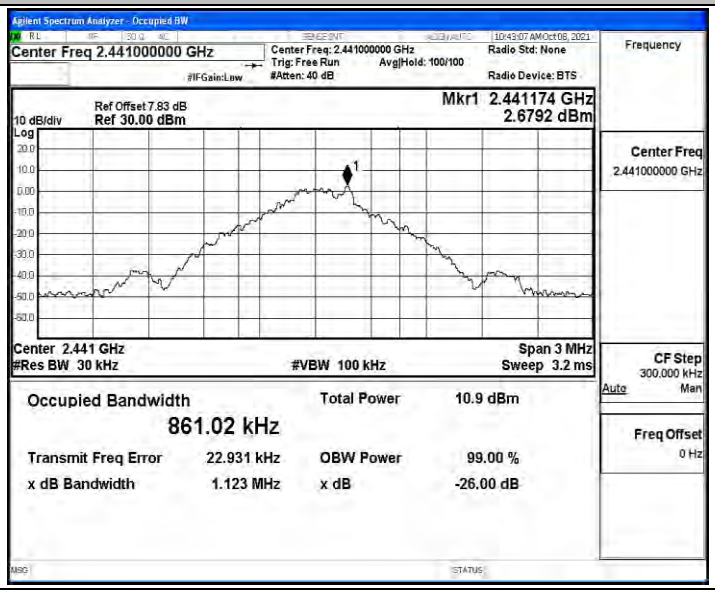
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.86955	2401.599	2402.469	---	PASS
		2441	0.86102	2440.592	2441.453	---	PASS
		2480	0.88373	2479.578	2480.461	---	PASS
2DH5	Ant1	2402	1.2274	2401.416	2402.644	---	PASS
		2441	1.2919	2440.379	2441.671	---	PASS
		2480	1.2141	2479.409	2480.624	---	PASS
3DH5	Ant1	2402	1.2132	2401.419	2402.632	---	PASS
		2441	1.2645	2440.387	2441.652	---	PASS
		2480	1.2196	2479.400	2480.620	---	PASS

Test Graphs

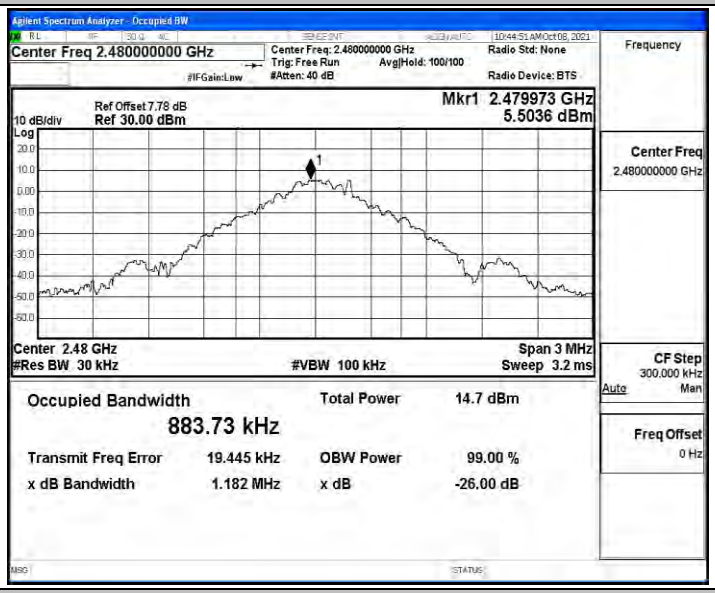
DH5_Ant1_2402



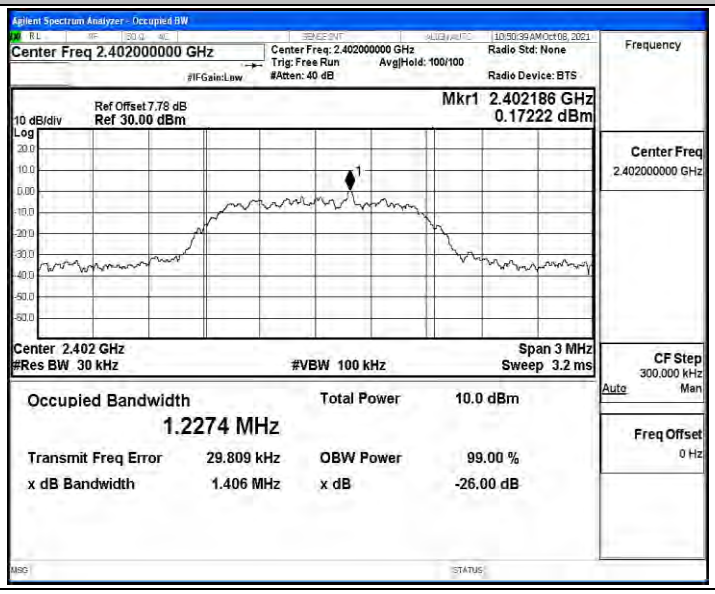
DH5_Ant1_2441



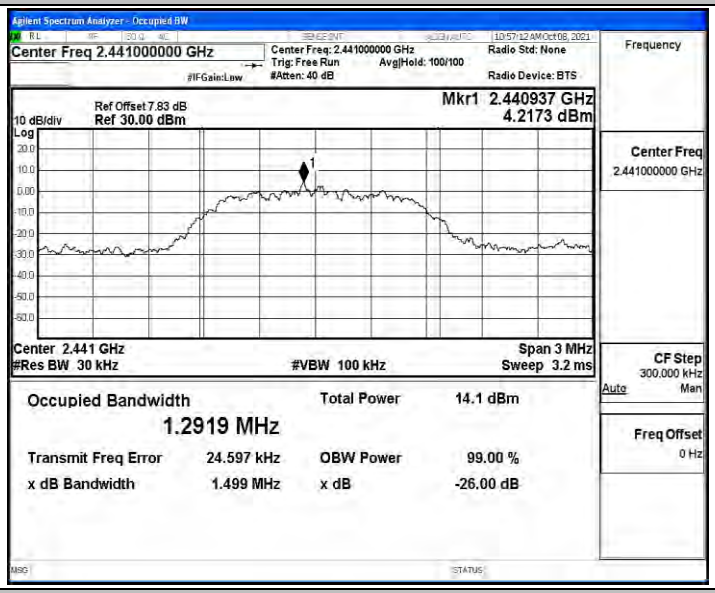
DH5_Ant1_2480



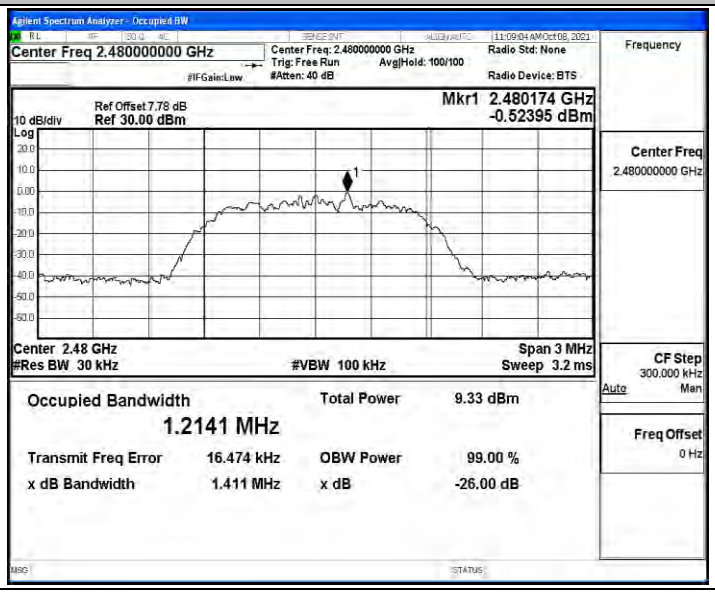
2DH5_Ant1_2402



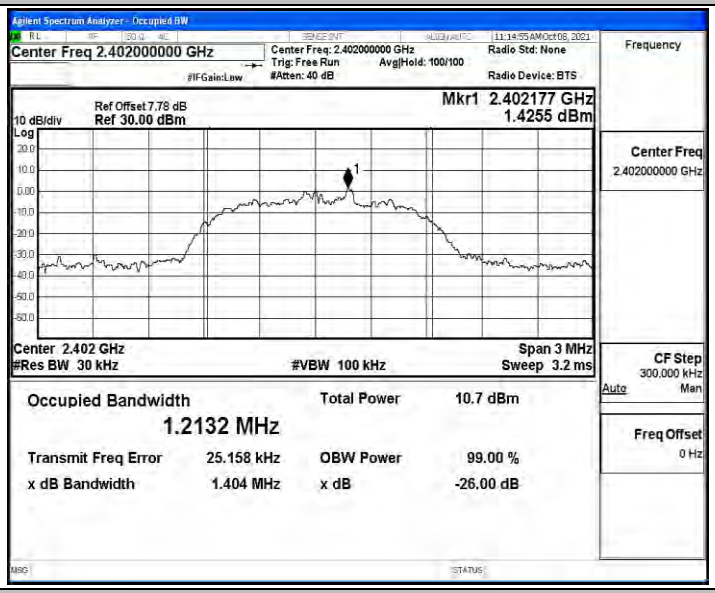
2DH5_Ant1_2441



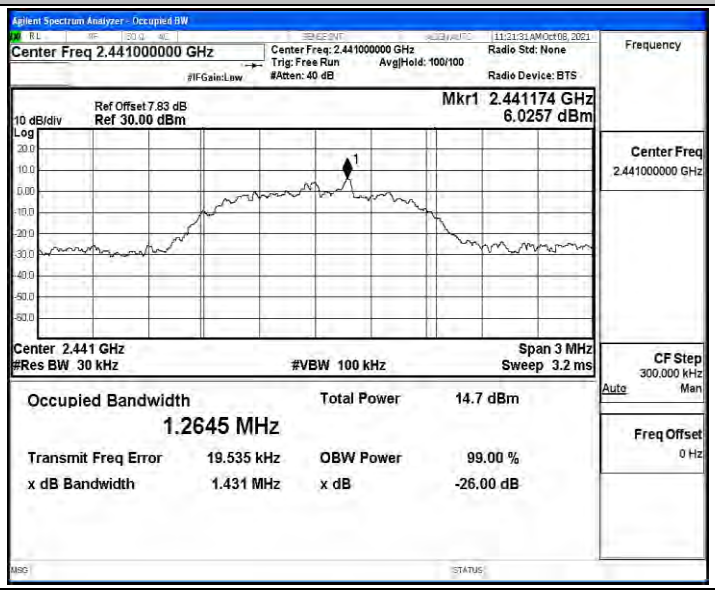
2DH5_Ant1_2480

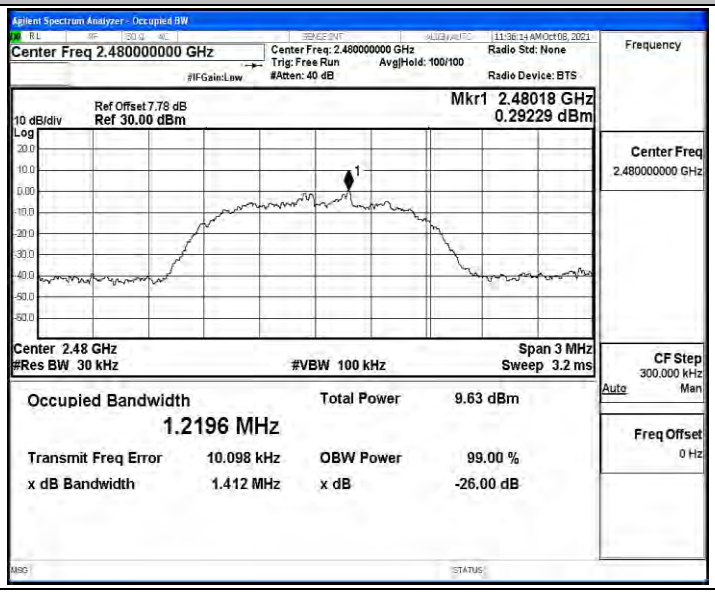


3DH5_Ant1_2402



3DH5_Ant1_2441



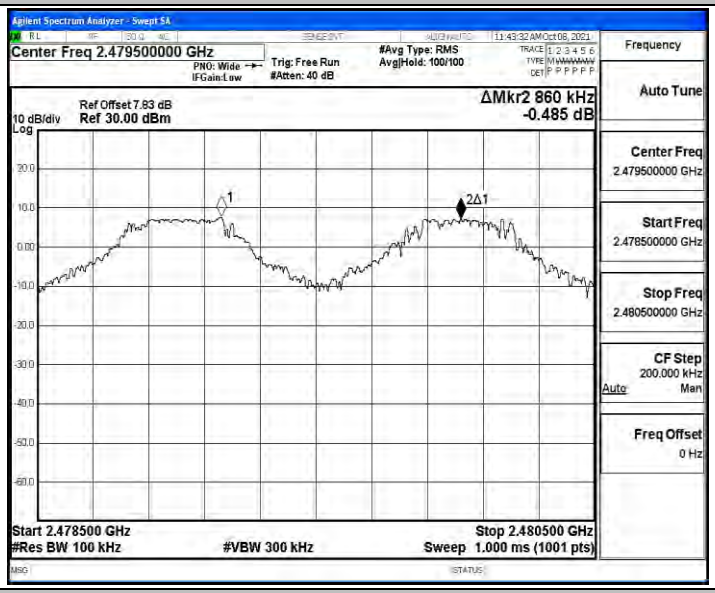
3DH5_Ant1_2480


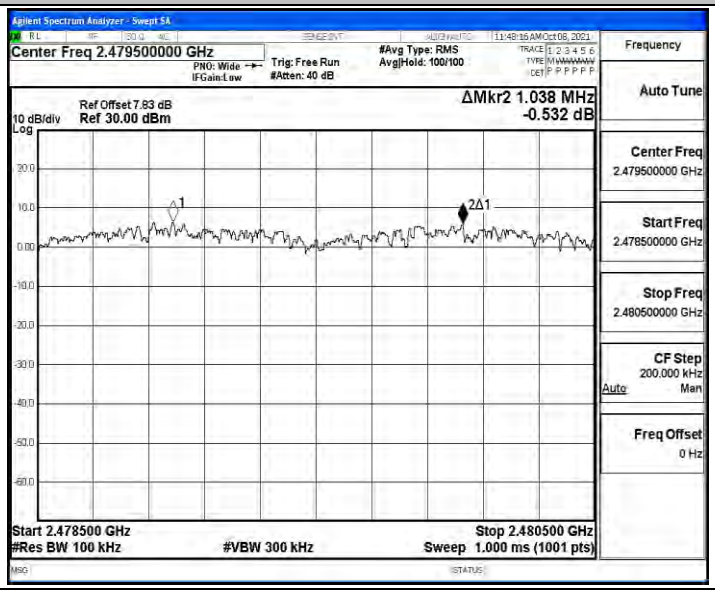
Appendix A.3: Carrier frequency separation

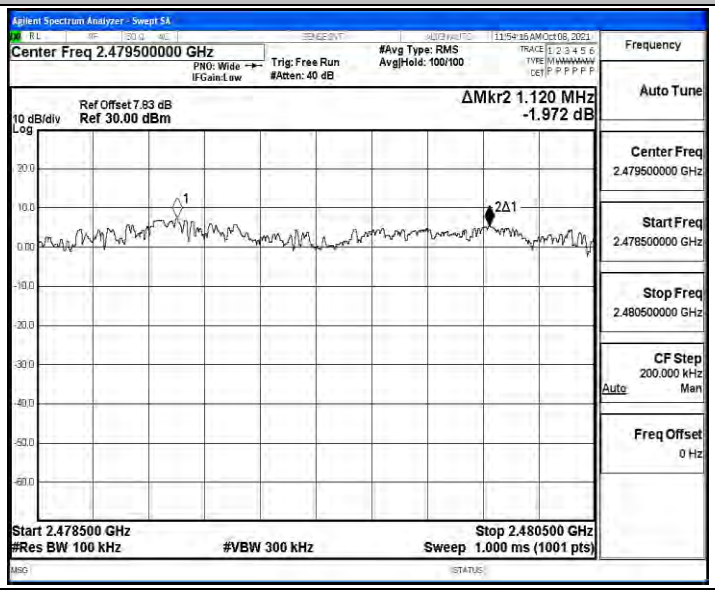
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	0.86	≥0.642	PASS
2DH5	Ant1	Hop	1.038	≥0.942	PASS
3DH5	Ant1	Hop	1.12	≥0.918	PASS

Test Graphs

DH5_Ant1_Hop


2DH5_Ant1_Hop


3DH5_Ant1_Hop


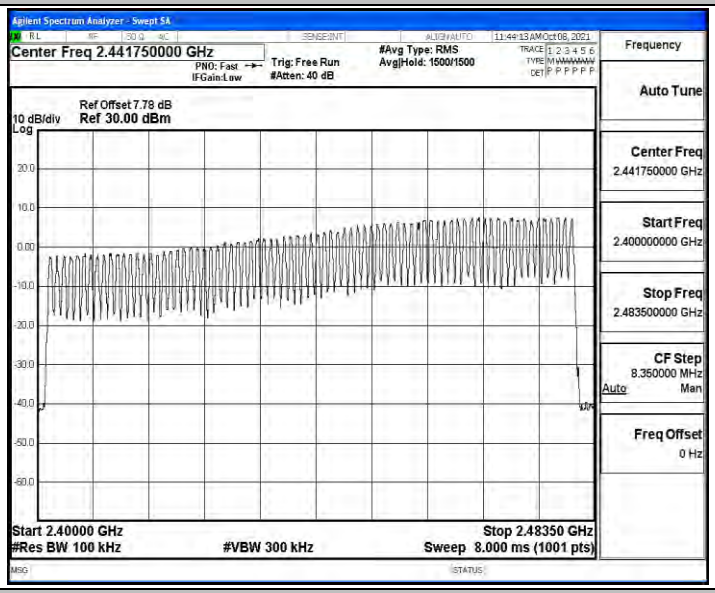
Appendix A.4: Number of hopping channels

Test Result

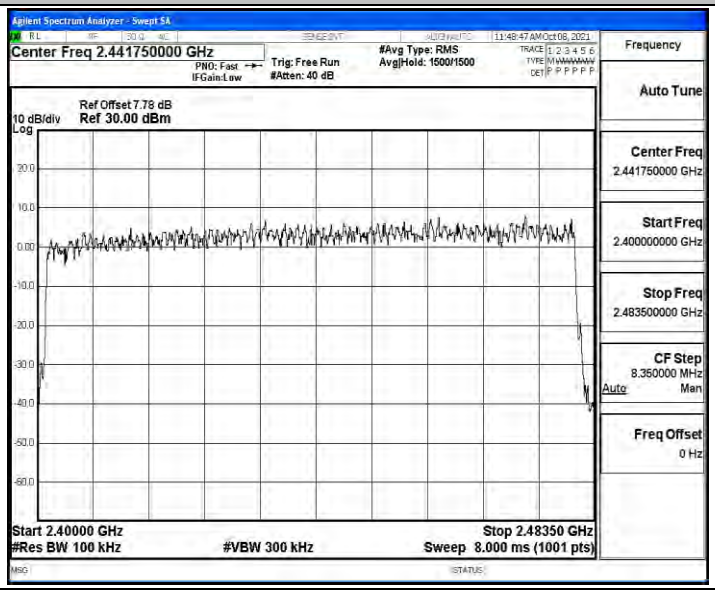
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

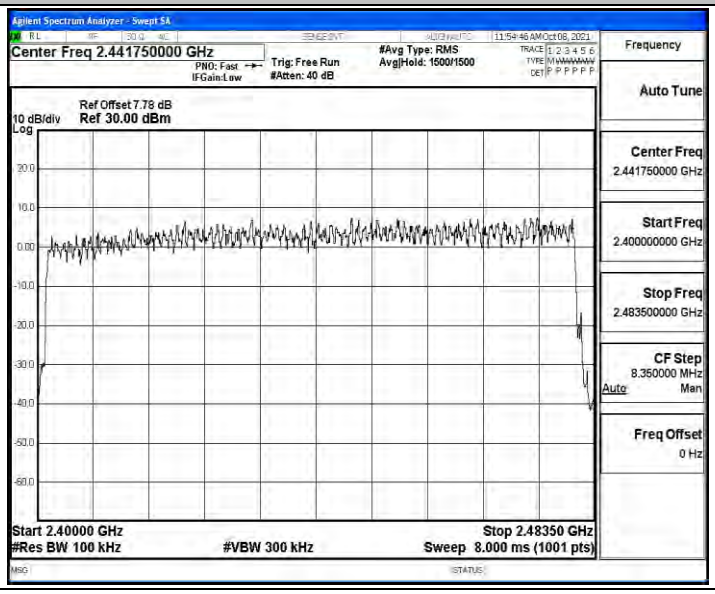
Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop



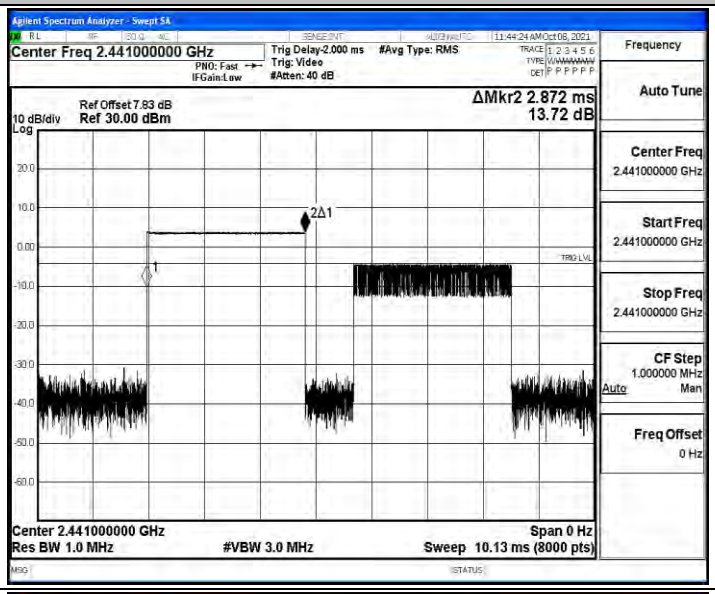
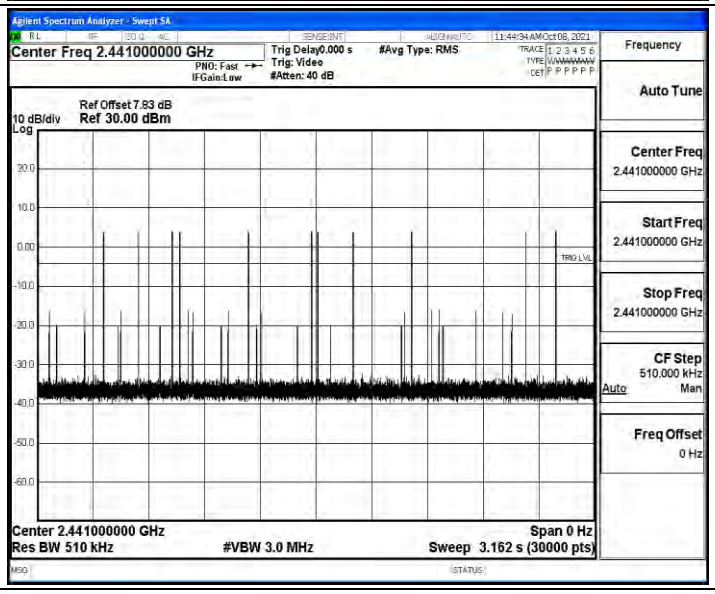
3DH5_Ant1_Hop


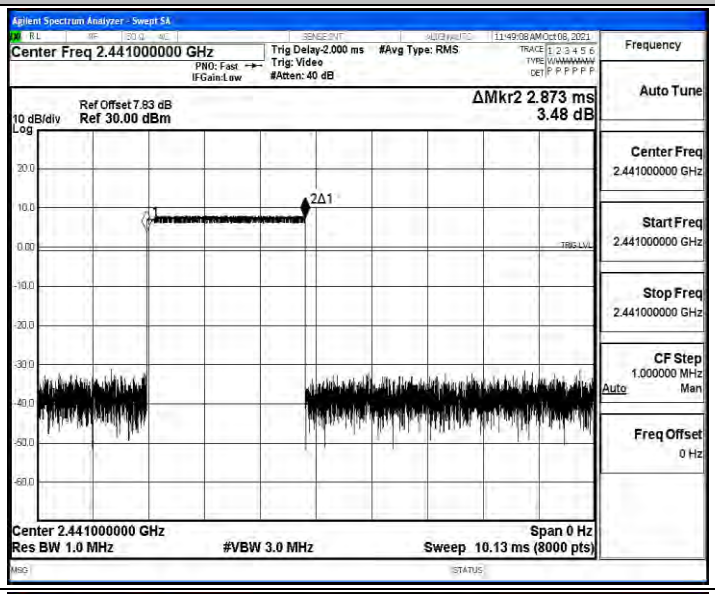
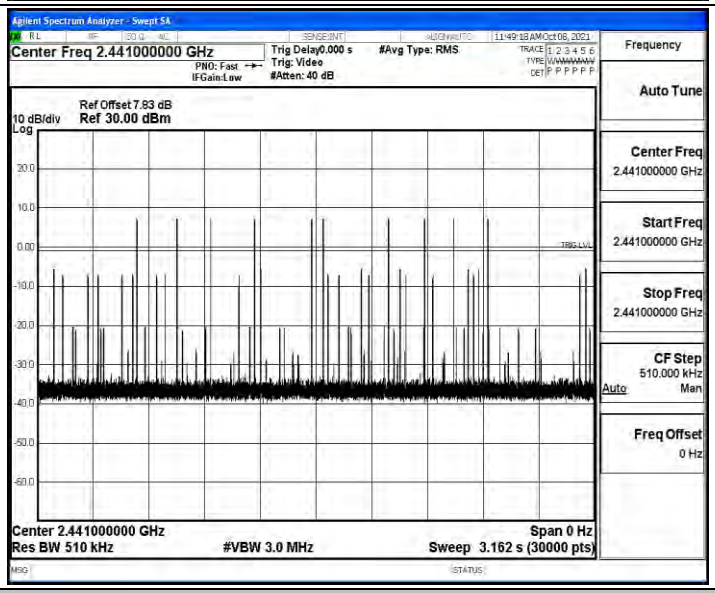
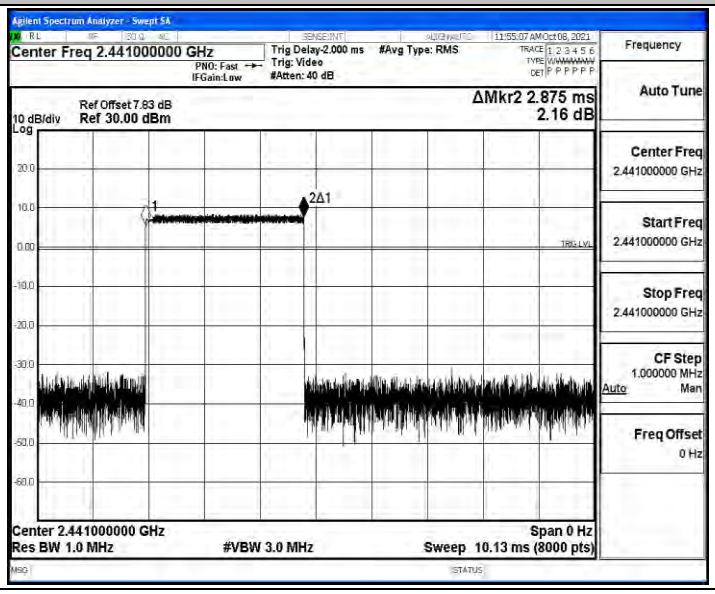
Appendix A.5.1: Time of occupancy

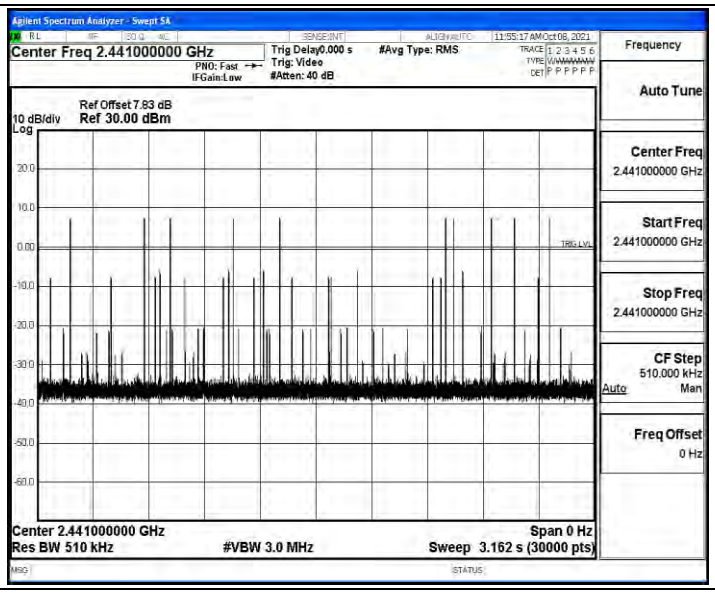
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.87	120	0.345	≤0.4	PASS
2DH5	Ant1	Hop	2.87	110	0.316	≤0.4	PASS
3DH5	Ant1	Hop	2.88	110	0.316	≤0.4	PASS

Test Graphs

DH5_Ant1_Hop



2DH5_Ant1_Hop


3DH5_Ant1_Hop



Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
Trig Delay0.000 s
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
11:55:17 AM Oct 08, 2021
Frequency
Auto Tune
Ref Offset 7.83 dB
10 dB/div
Ref 30.00 dBm
Log
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
Center 2.441000000 GHz
Span 0 Hz
Res BW 510 kHz
#VBW 3.0 MHz
Sweep 3.162 s (30000 pts)

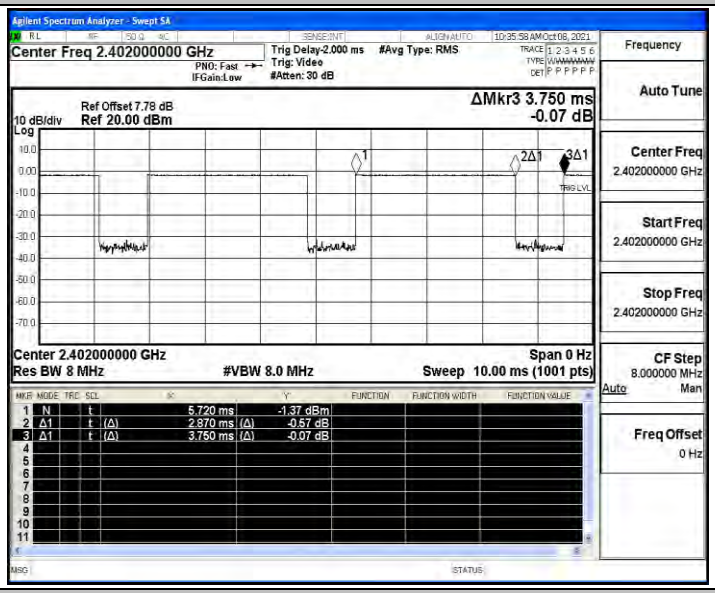
Appendix A.5.2: Duty Cycle

Test Result

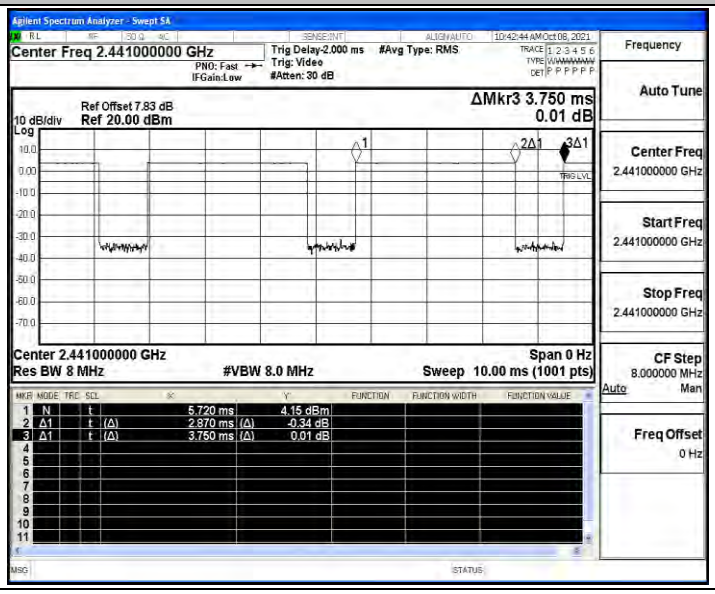
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
DH5	Ant1	2402	2.87	3.75	0.7653	76.53	1.16	---	PASS
		2441	2.87	3.75	0.7653	76.53	1.16	---	PASS
		2480	2.87	3.75	0.7653	76.53	1.16	---	PASS
2DH5	Ant1	2402	2.88	3.75	0.7680	76.80	1.15	---	PASS
		2441	2.88	3.75	0.7680	76.80	1.15	---	PASS
		2480	2.88	3.75	0.7680	76.80	1.15	---	PASS
3DH5	Ant1	2402	2.87	3.75	0.7653	76.53	1.16	---	PASS
		2441	2.88	3.75	0.7680	76.80	1.15	---	PASS
		2480	2.88	3.75	0.7680	76.80	1.15	---	PASS

Test Graphs

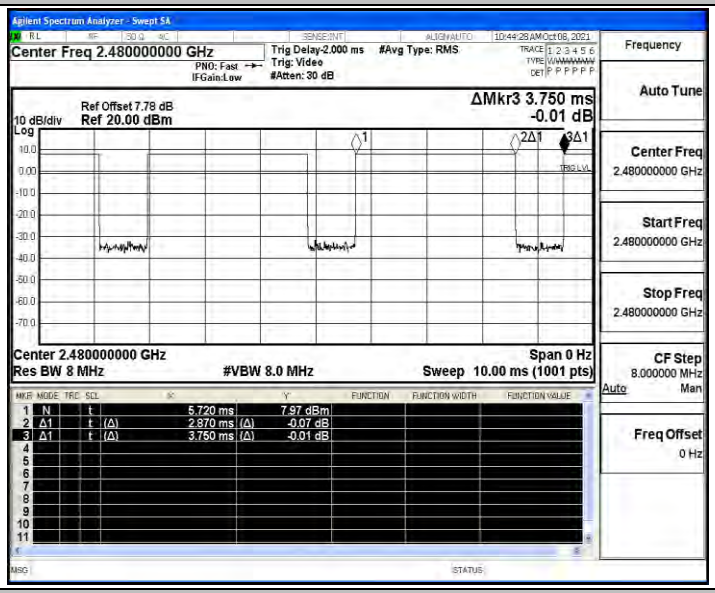
DH5_Ant1_2402



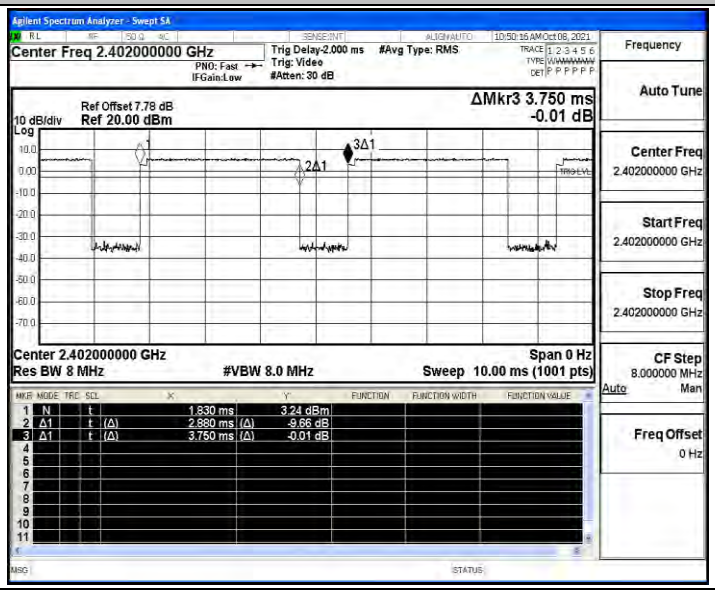
DH5_Ant1_2441



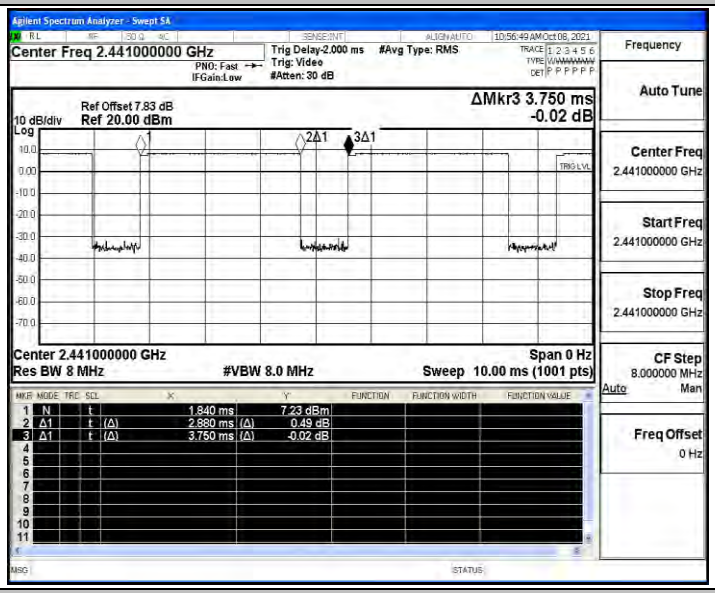
DH5_Ant1_2480



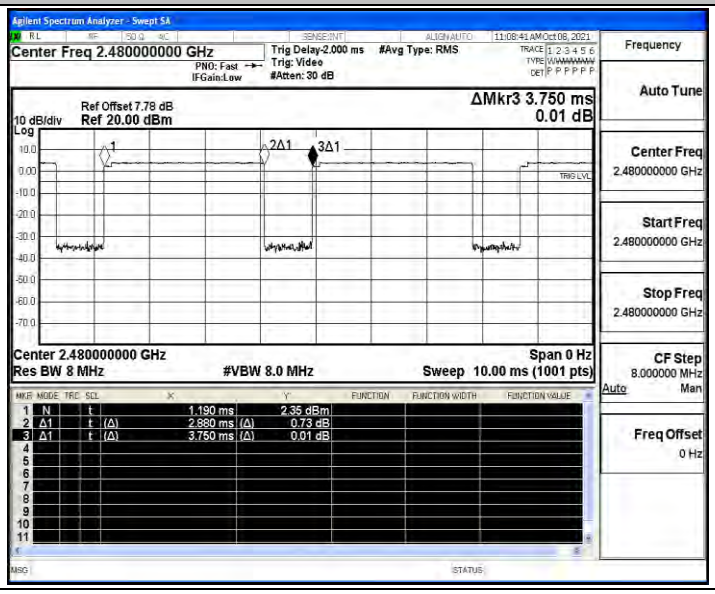
2DH5_Ant1_2402



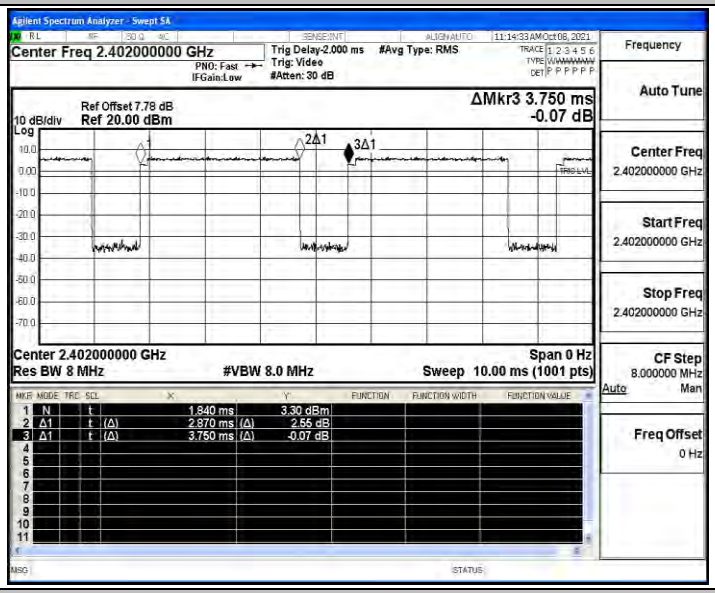
2DH5_Ant1_2441



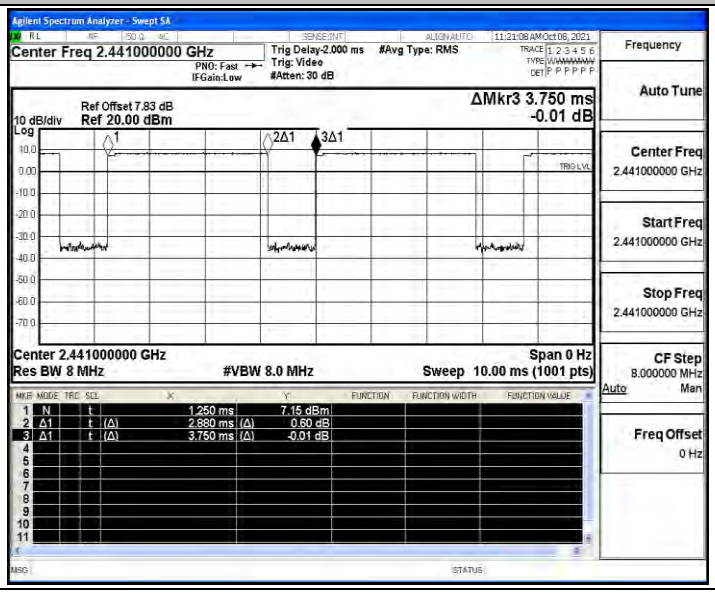
2DH5_Ant1_2480

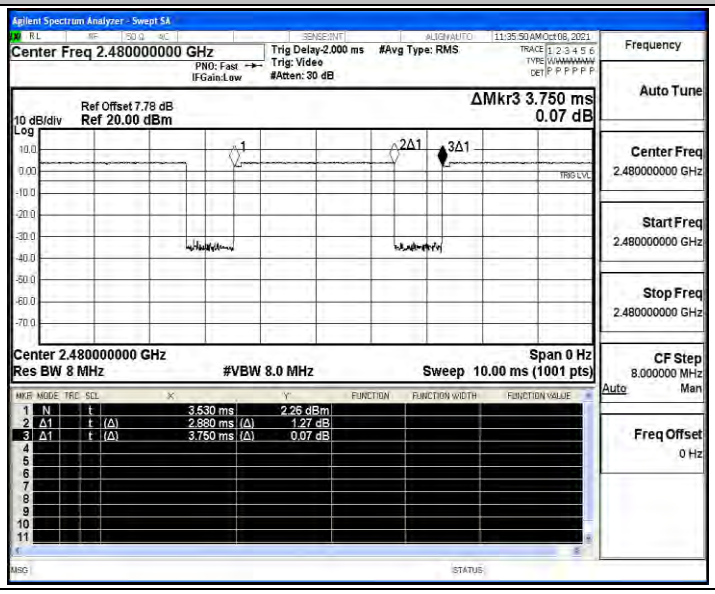


3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480


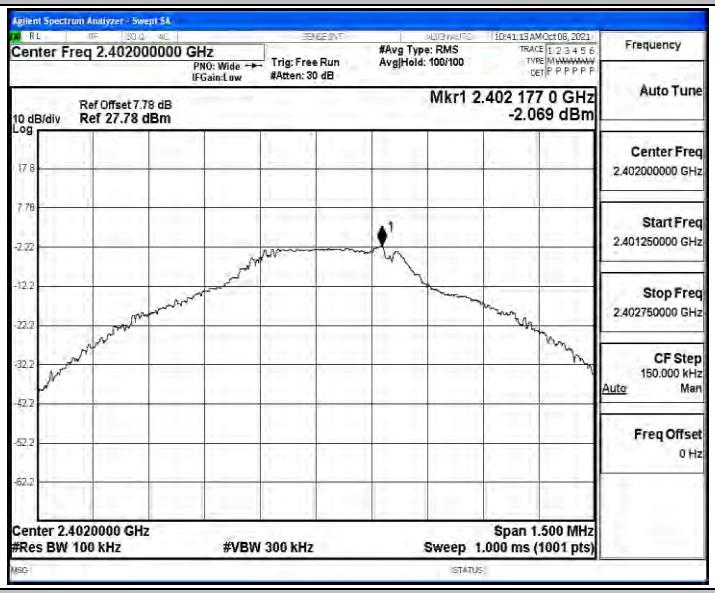
Appendix A.6: Conducted Spurious Emission

Test Result

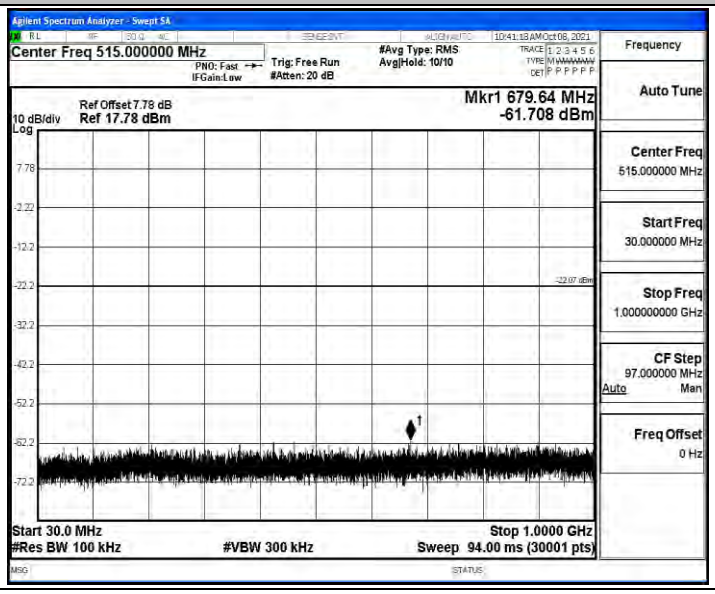
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	-2.07	-2.07	---	PASS
			30~1000	-2.07	-61.71	≤-22.07	PASS
			1000~26500	-2.07	-47.88	≤-22.07	PASS
		2441	Reference	3.43	3.43	---	PASS
			30~1000	3.43	-61.31	≤-16.57	PASS
			1000~26500	3.43	-46.13	≤-16.57	PASS
		2480	Reference	7.13	7.13	---	PASS
			30~1000	7.13	-61.64	≤-12.87	PASS
			1000~26500	7.13	-47.83	≤-12.87	PASS
2DH5	Ant1	2402	Reference	2.64	2.64	---	PASS
			30~1000	2.64	-61.17	≤-17.36	PASS
			1000~26500	2.64	-47.45	≤-17.36	PASS
		2441	Reference	6.42	6.42	---	PASS
			30~1000	6.42	-62	≤-13.59	PASS
			1000~26500	6.42	-47.76	≤-13.59	PASS
		2480	Reference	0.52	0.52	---	PASS
			30~1000	0.52	-61.61	≤-19.48	PASS
			1000~26500	0.52	-47.19	≤-19.48	PASS
3DH5	Ant1	2402	Reference	1.13	1.13	---	PASS
			30~1000	1.13	-61.85	≤-18.87	PASS
			1000~26500	1.13	-47.76	≤-18.87	PASS
		2441	Reference	6.99	6.99	---	PASS
			30~1000	6.99	-61.97	≤-13.01	PASS
			1000~26500	6.99	-47.51	≤-13.01	PASS
		2480	Reference	0.53	0.53	---	PASS
			30~1000	0.53	-61.39	≤-19.47	PASS
			1000~26500	0.53	-47.72	≤-19.47	PASS

Test Graphs

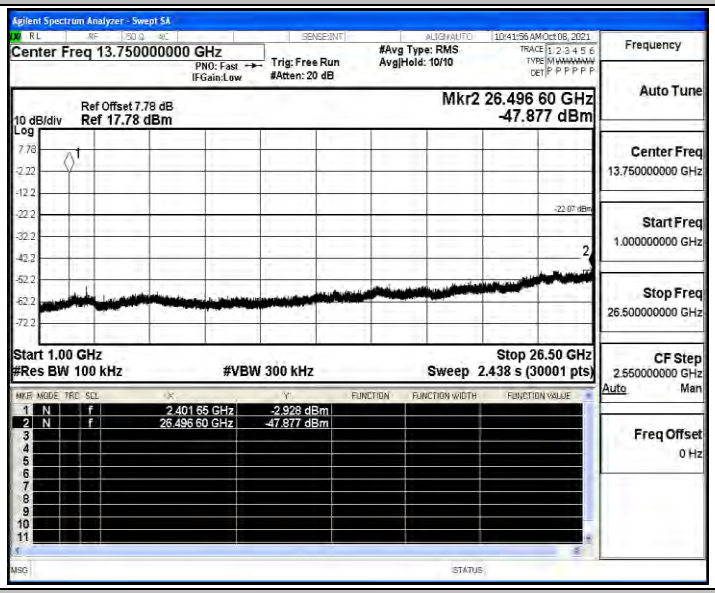
DH5_Ant1_2402_0~Reference



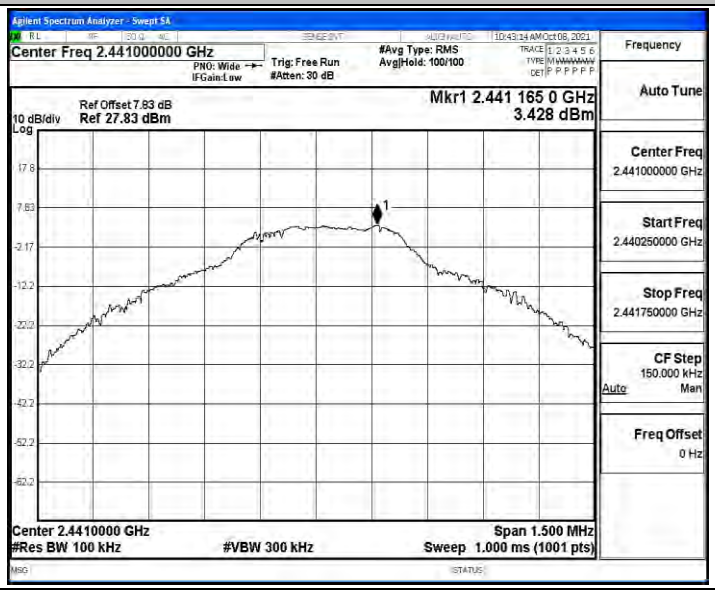
DH5_Ant1_2402_30~1000



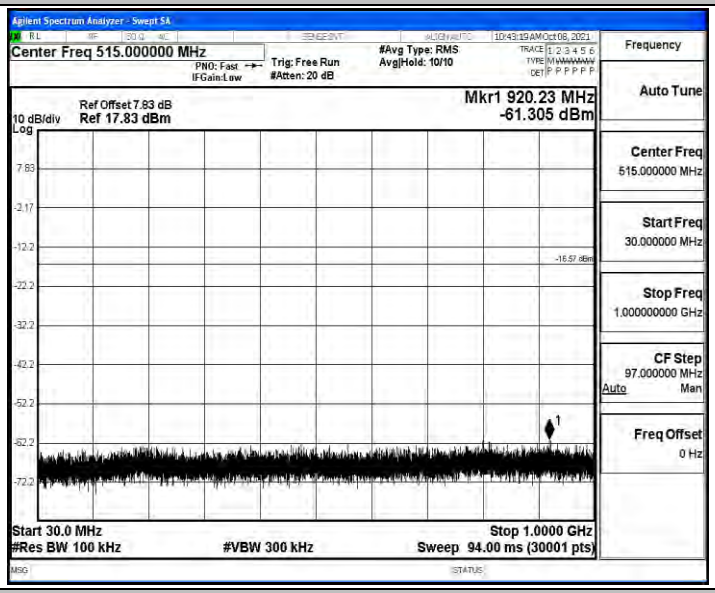
DH5_Ant1_2402_1000~26500



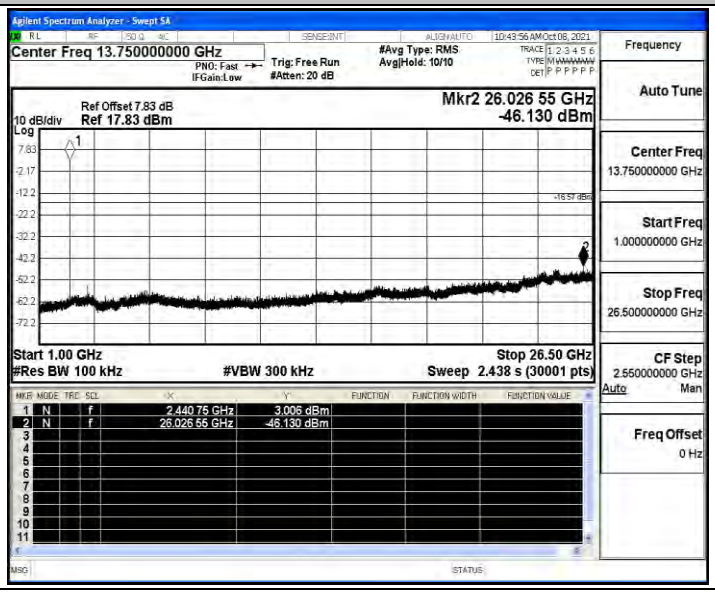
DH5_Ant1_2441_0~Reference



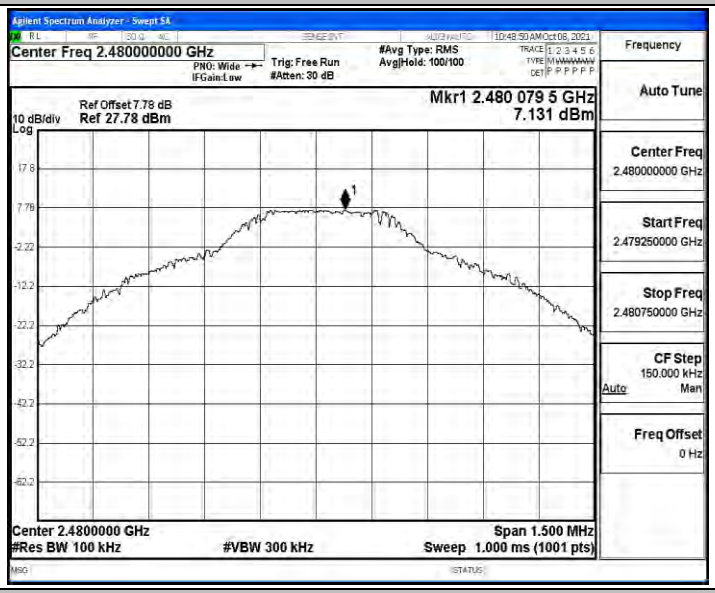
DH5_Ant1_2441_30~1000



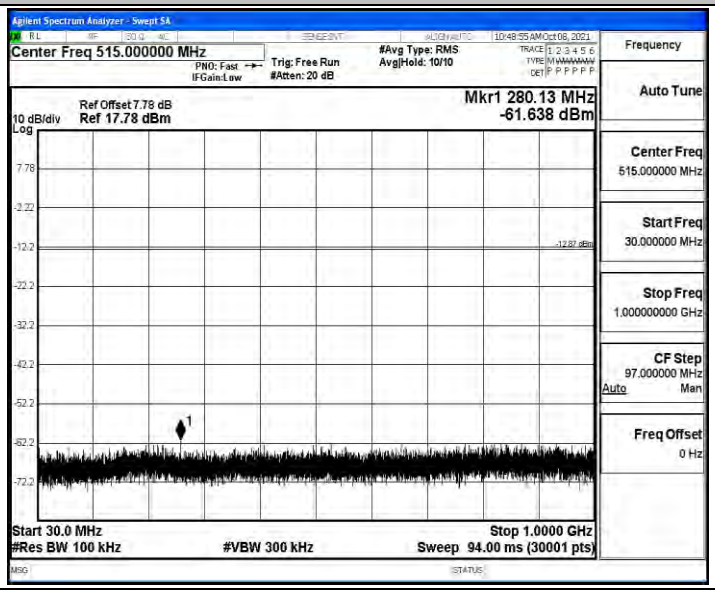
DH5_Ant1_2441_1000~26500



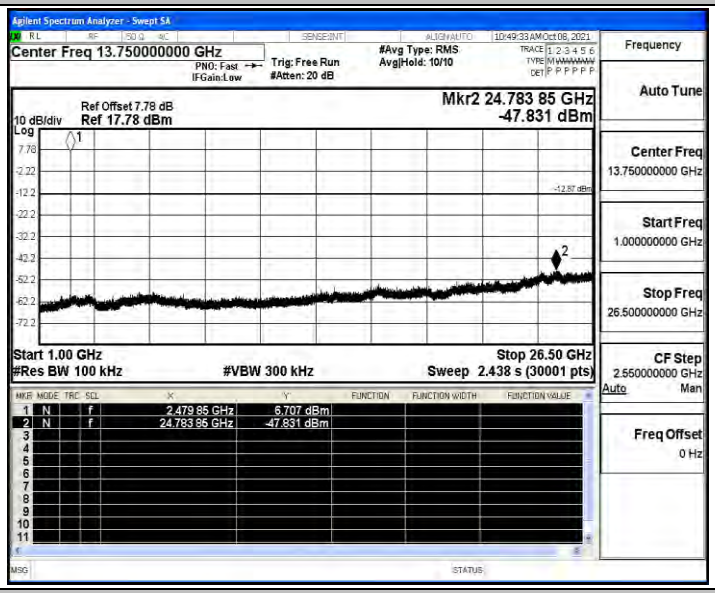
DH5_Ant1_2480_0~Reference



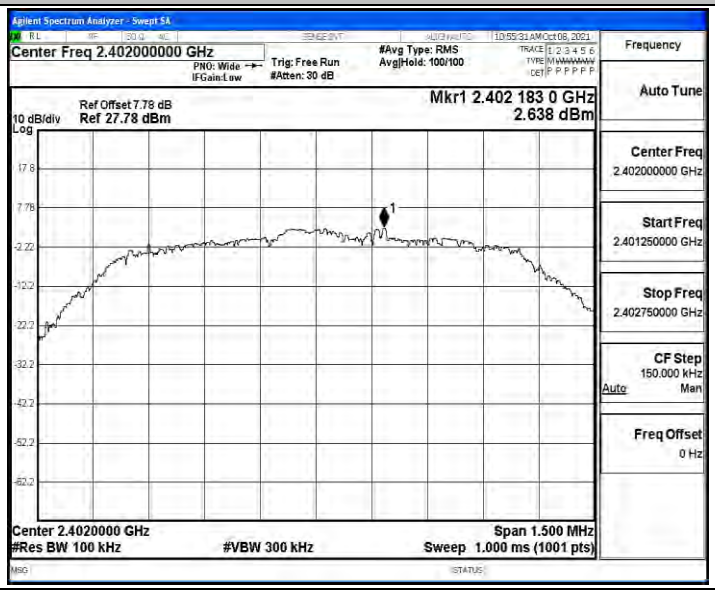
DH5_Ant1_2480_30~1000



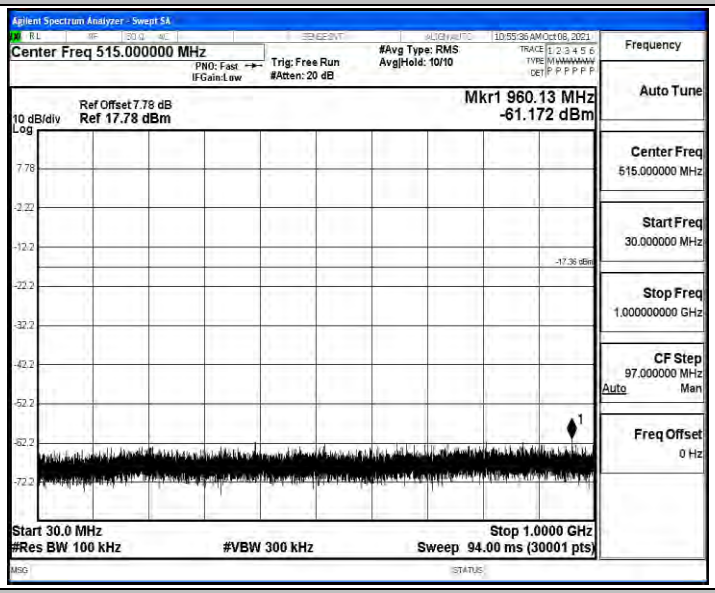
DH5_Ant1_2480_1000~26500



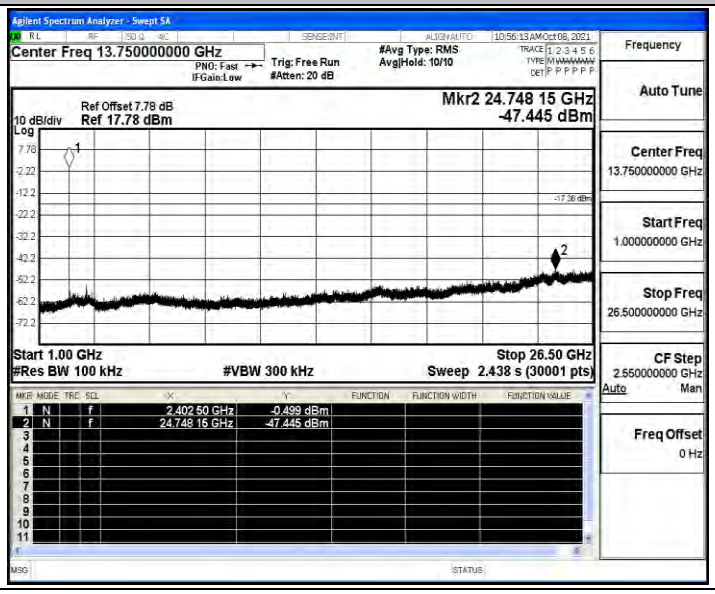
2DH5_Ant1_2402_0~Reference



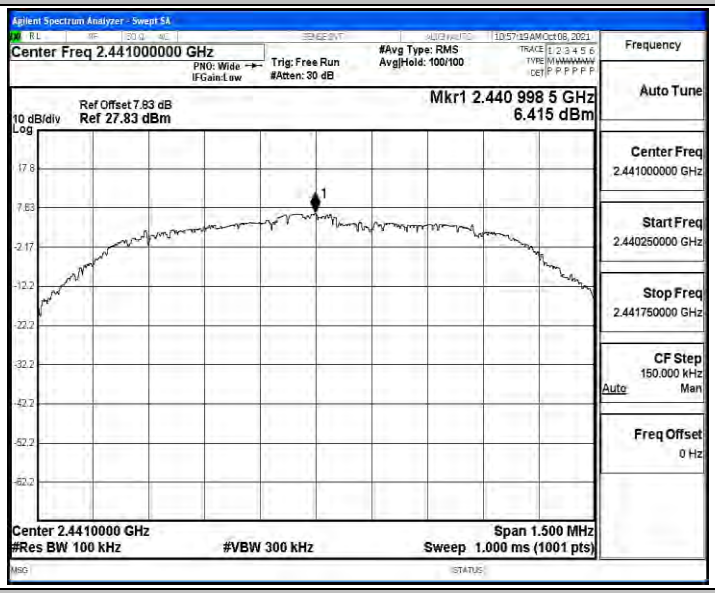
2DH5_Ant1_2402_30~1000



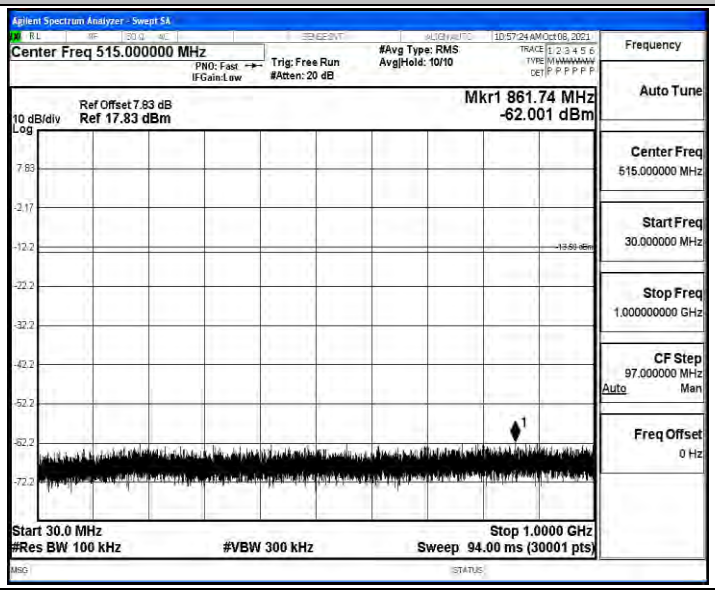
2DH5_Ant1_2402_1000~26500



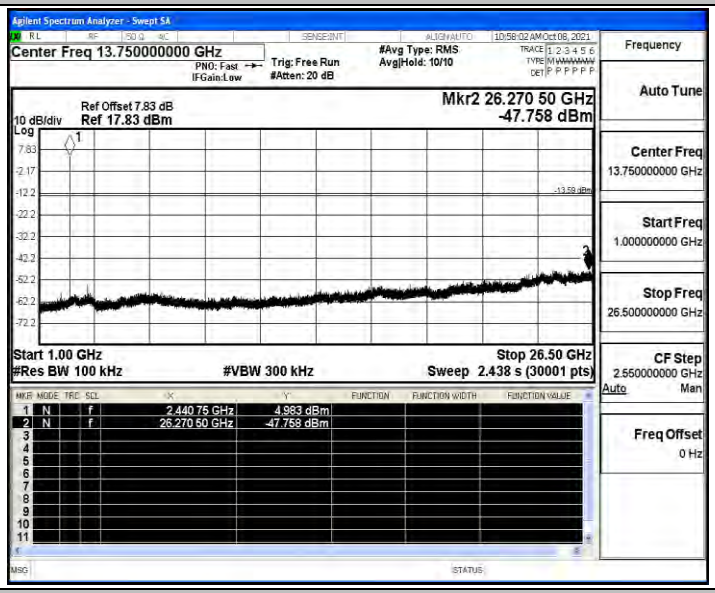
2DH5_Ant1_2441_0~Reference



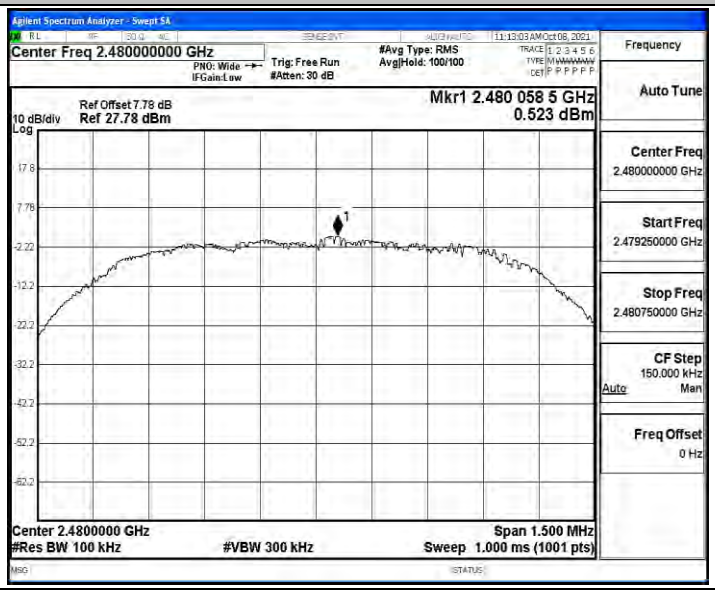
2DH5_Ant1_2441_30~1000



2DH5_Ant1_2441_1000~26500



2DH5_Ant1_2480_0~Reference



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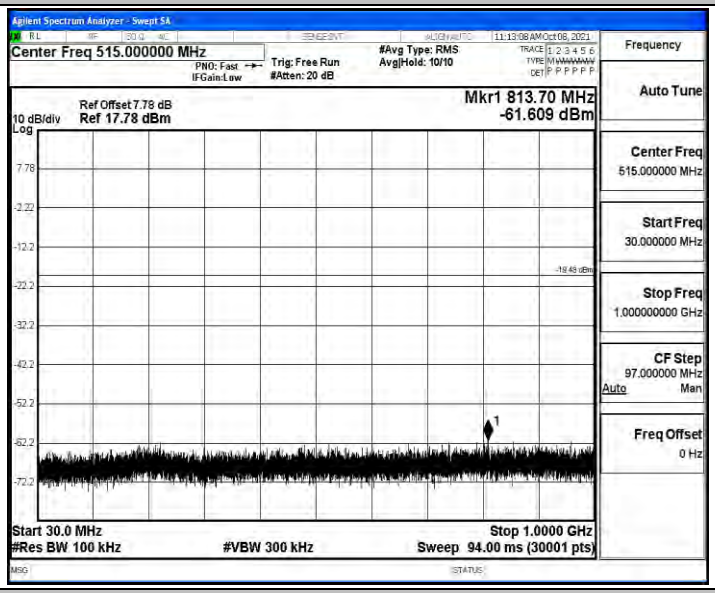
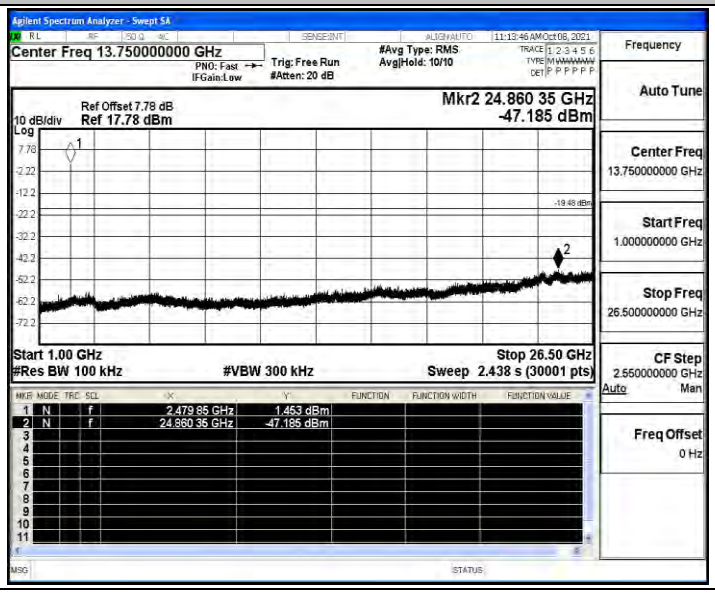
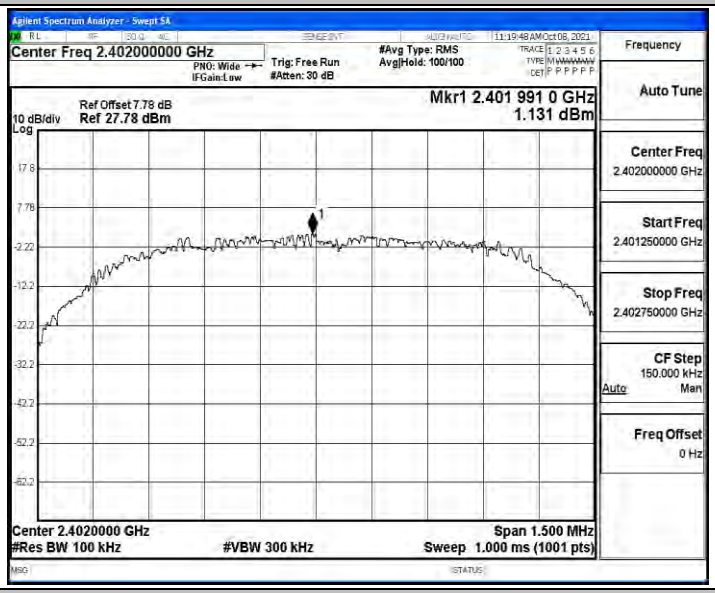


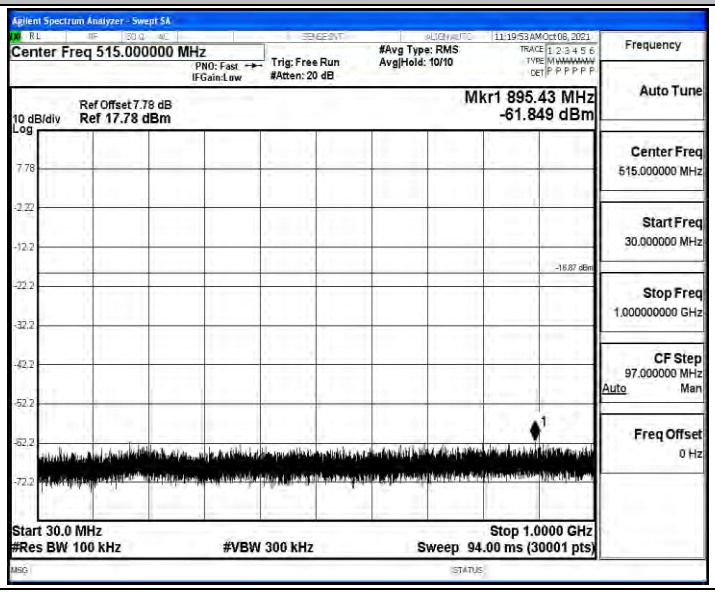
2DH5_Ant1_2480_1000~26500



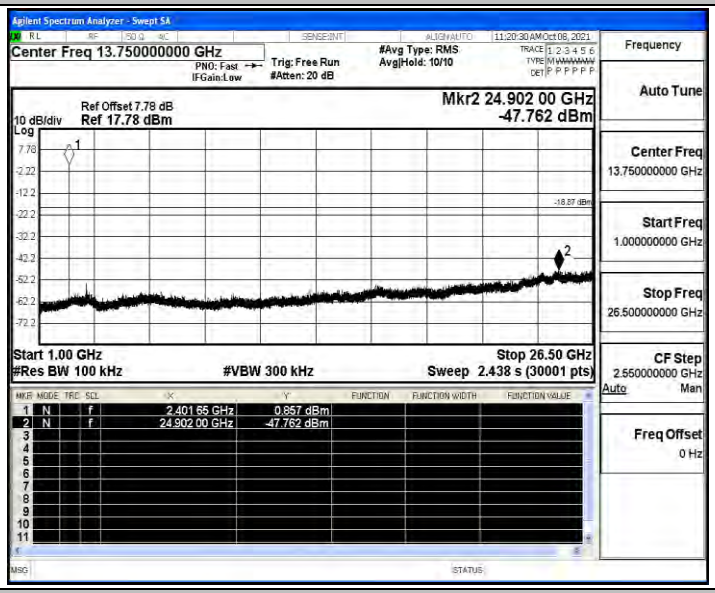
3DH5_Ant1_2402_0~Reference



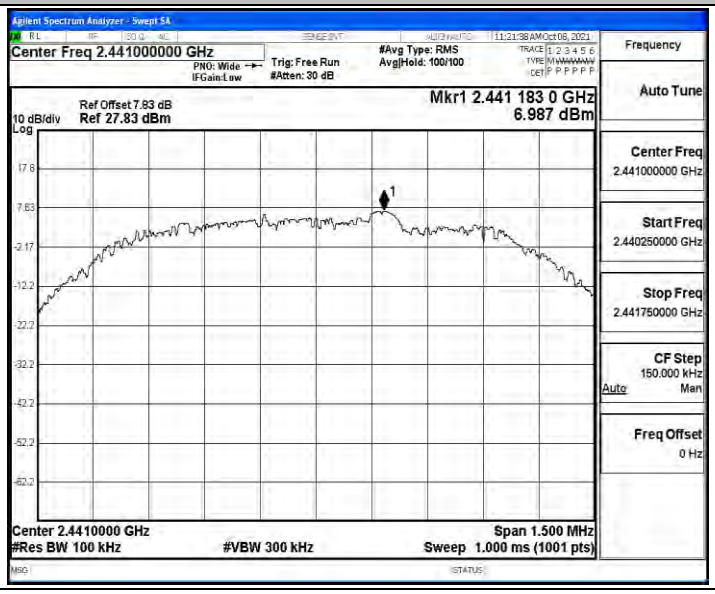
3DH5_Ant1_2402_30~1000



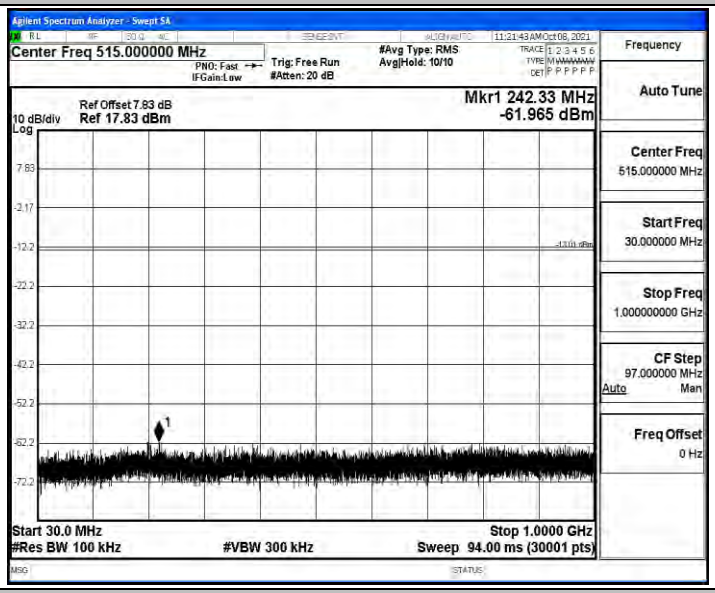
3DH5_Ant1_2402_1000~26500



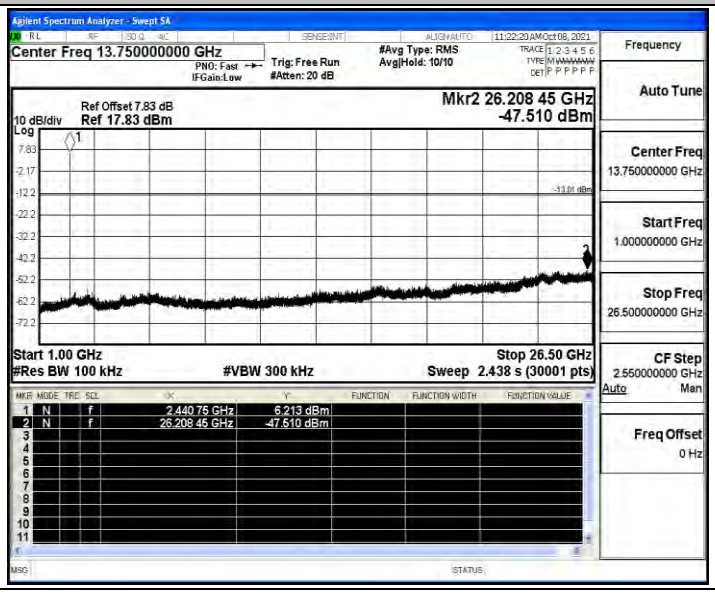
3DH5_Ant1_2441_0~Reference



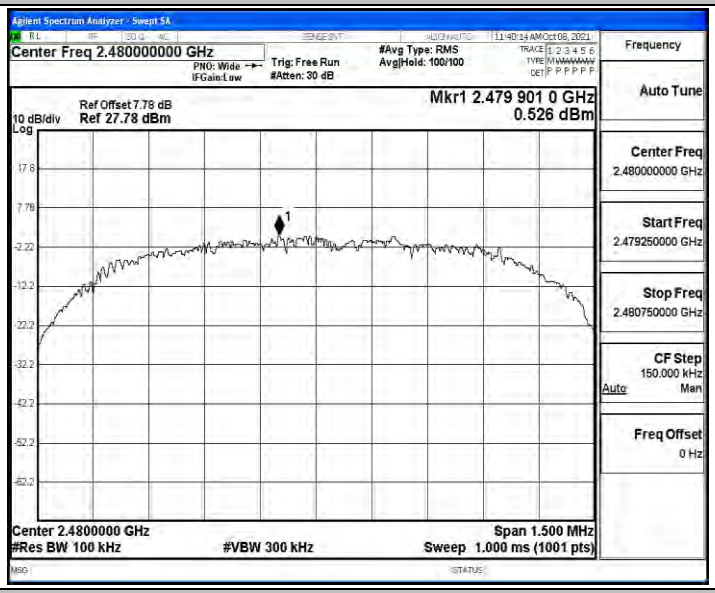
3DH5_Ant1_2441_30~1000



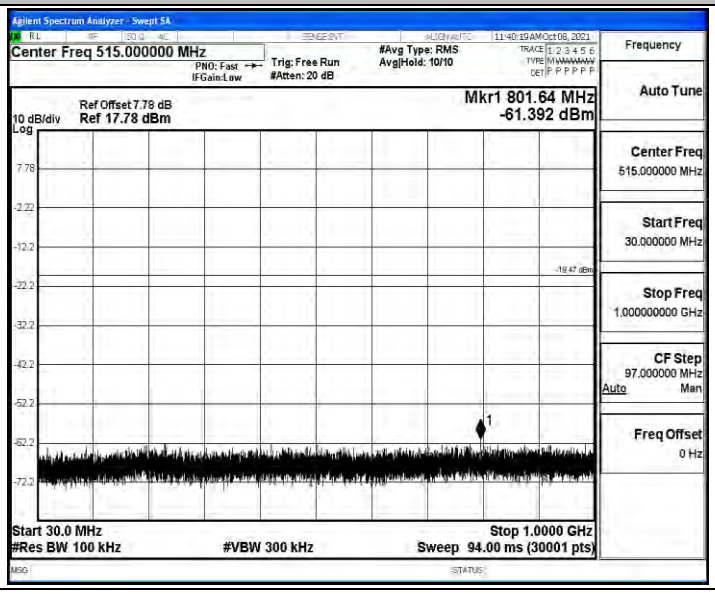
3DH5_Ant1_2441_1000~26500



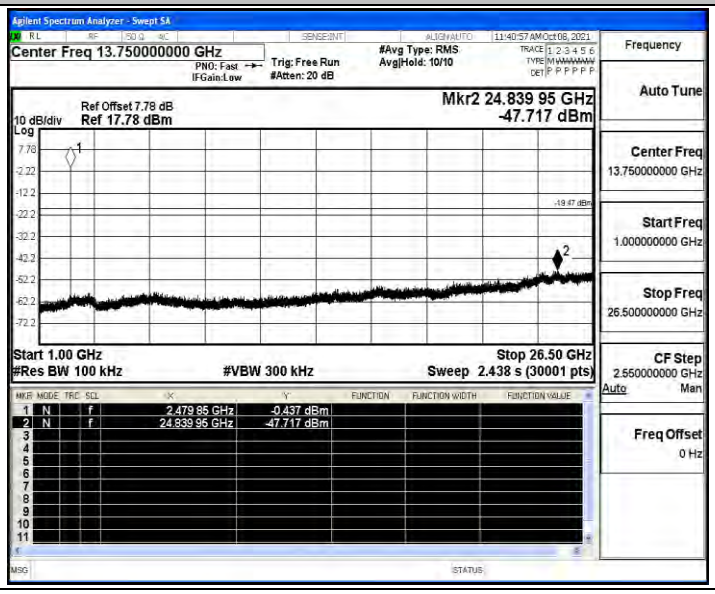
3DH5_Ant1_2480_0~Reference



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500



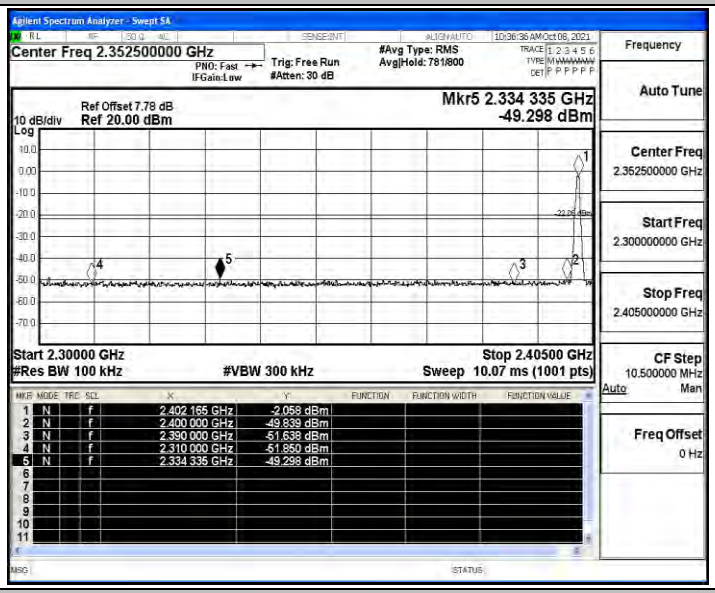
Appendix A.7: Band edge measurements

Test Result

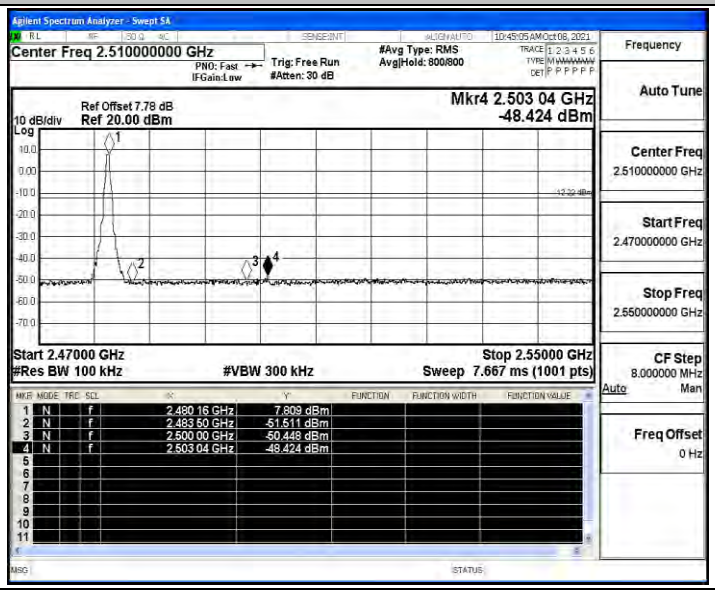
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-2.06	-49.3	≤-22.06	PASS
		High	2480	7.78	-48.42	≤-12.22	PASS
		Low	Hop_2402	-2.46	-49.84	≤-22.46	PASS
		High	Hop_2480	7.43	-48.53	≤-12.57	PASS
2DH5	Ant1	Low	2402	2.59	-41.6	≤-17.41	PASS
		High	2480	1.73	-48.34	≤-18.27	PASS
		Low	Hop_2402	1.13	-49.68	≤-18.87	PASS
		High	Hop_2480	7.33	-48.62	≤-12.67	PASS
3DH5	Ant1	Low	2402	2.73	-41.67	≤-17.27	PASS
		High	2480	1.90	-48.16	≤-18.1	PASS
		Low	Hop_2402	1.54	-49.56	≤-18.46	PASS
		High	Hop_2480	6.86	-48.65	≤-13.14	PASS

Test Graphs

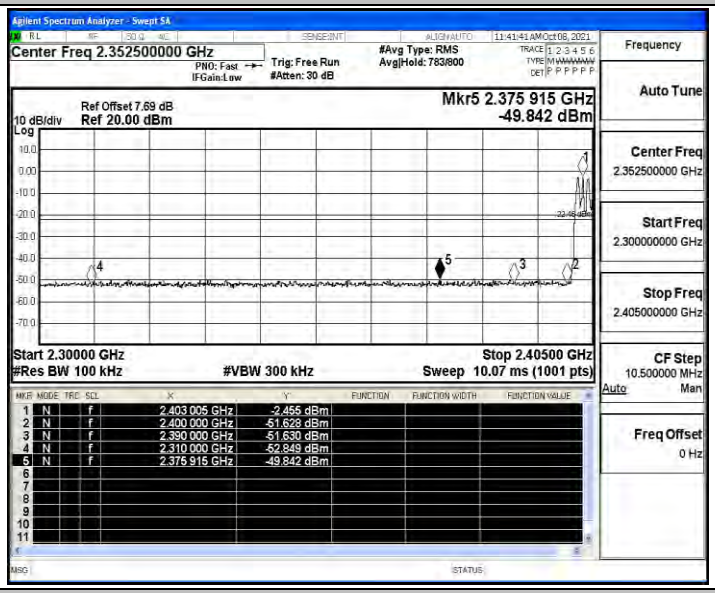
DH5_Ant1_Low_2402



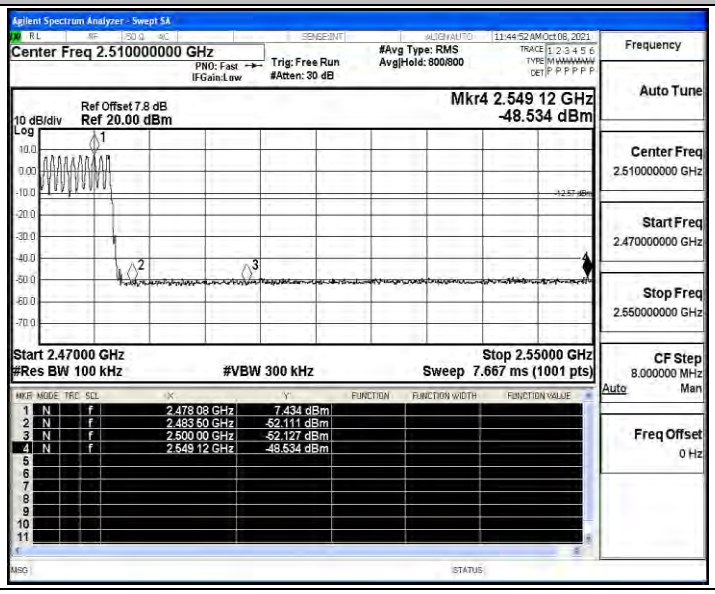
DH5_Ant1_High_2480



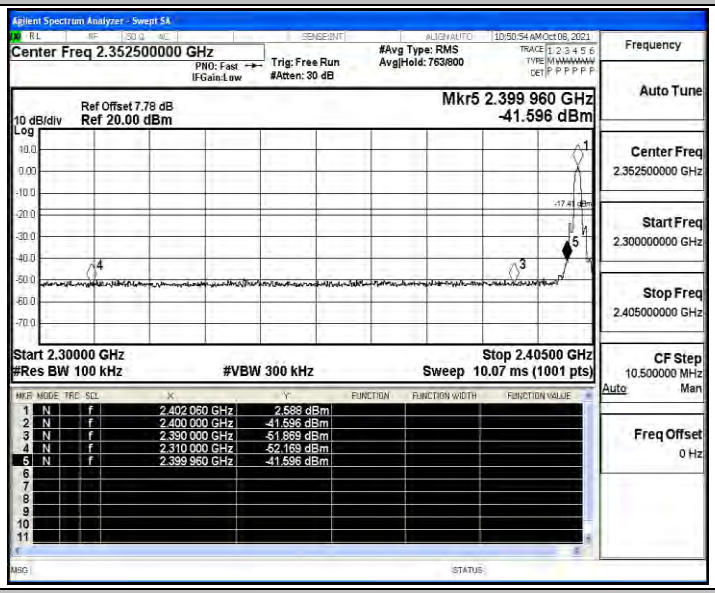
DH5_Ant1_Low_Hop_2402



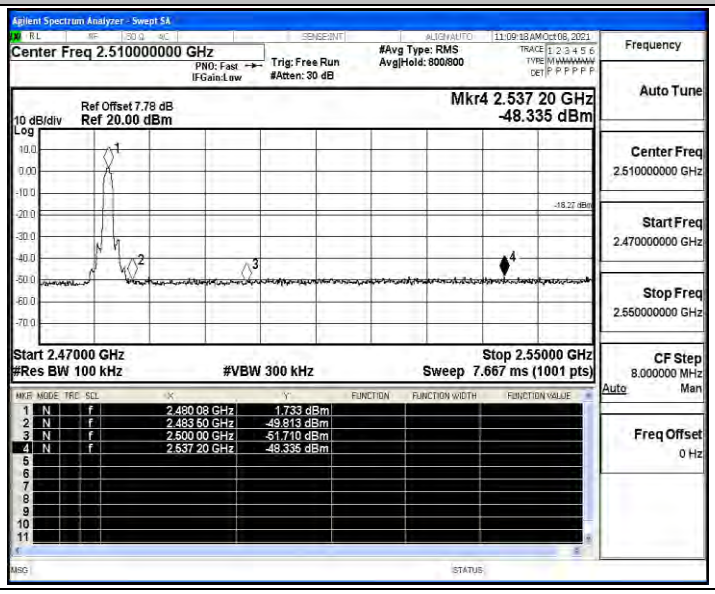
DH5_Ant1_High_Hop_2480



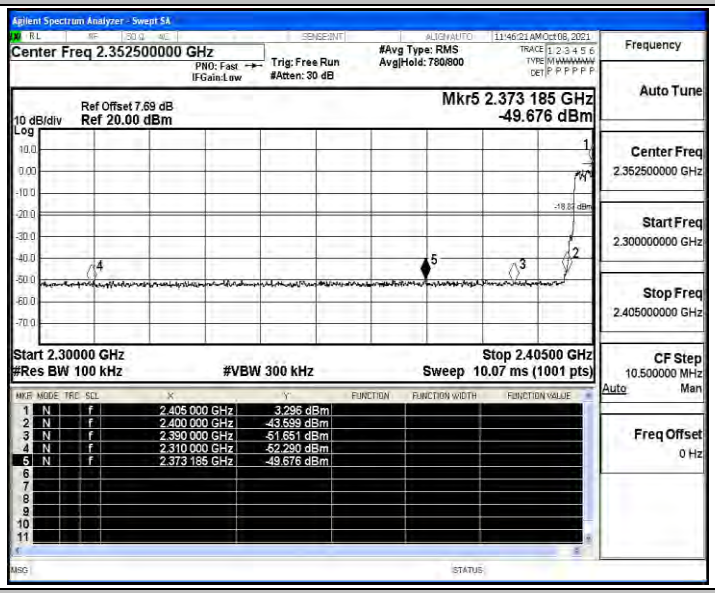
2DH5_Ant1_Low_2402



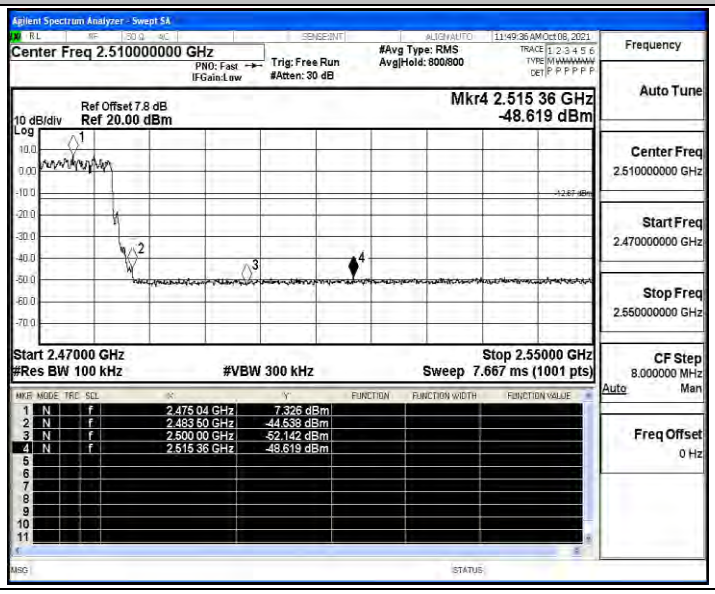
2DH5_Ant1_High_2480



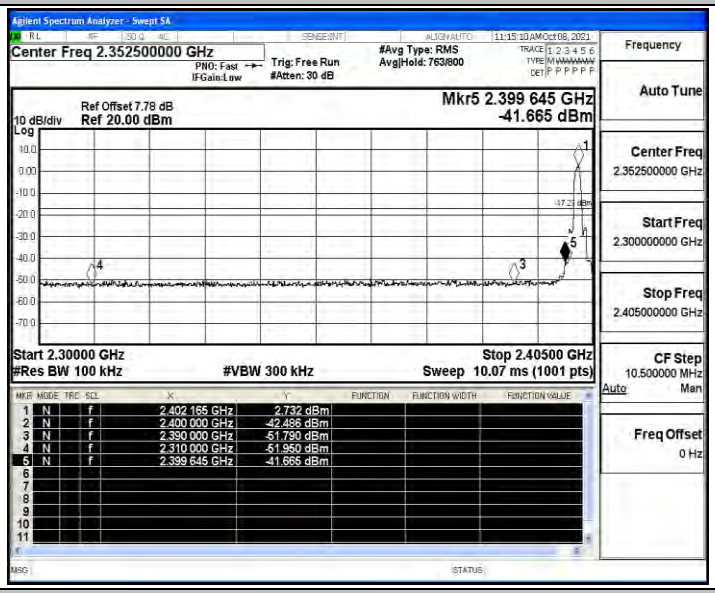
2DH5_Ant1_Low_Hop_2402



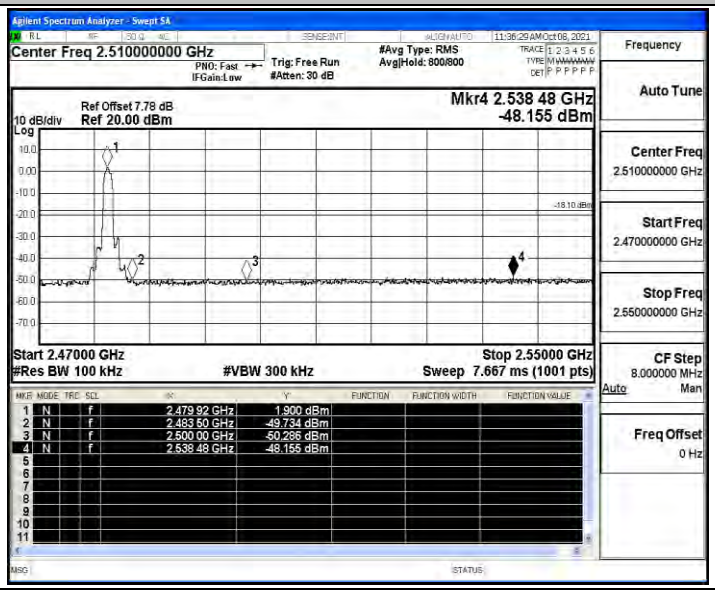
2DH5_Ant1_High_Hop_2480



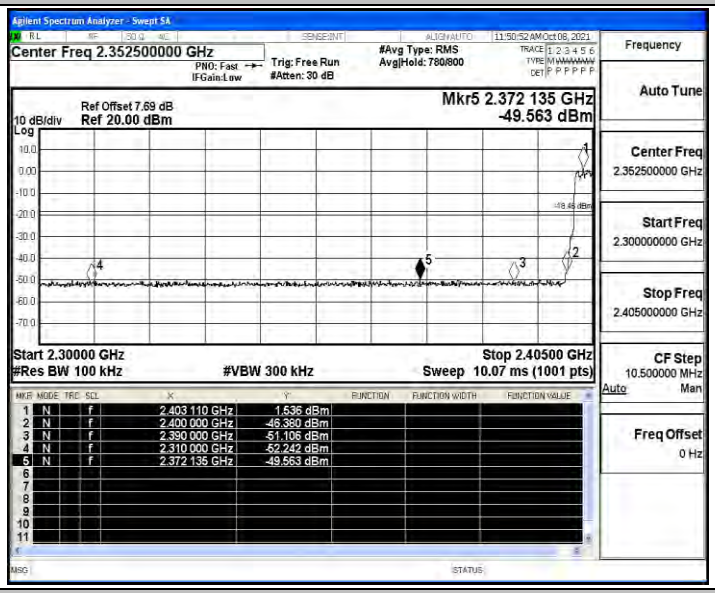
3DH5_Ant1_Low_2402



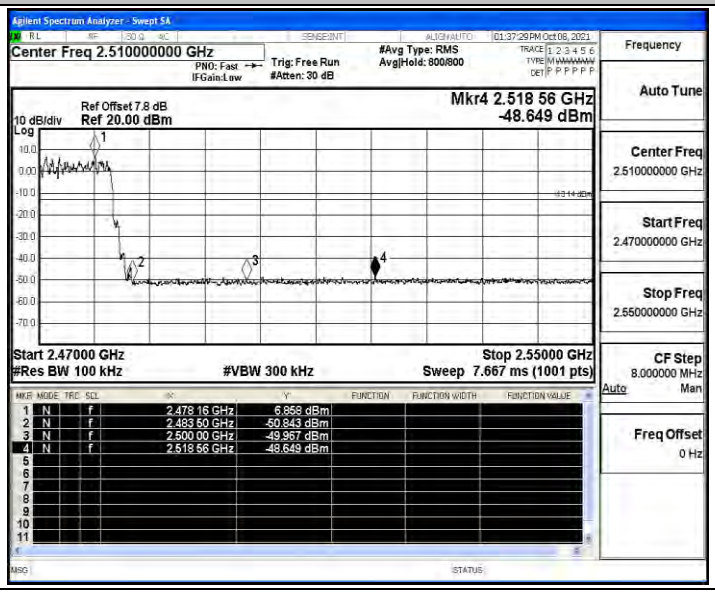
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



Appendix A.8: Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-48.76	≤-41.20	46.44	≤54	PASS
				AV	2387.255	-48.29	≤-41.20	46.91	≤54	PASS
				AV	2390.000	-48.42	≤-41.20	46.78	≤54	PASS
				Peak	2310.000	-38.62	≤-21.20	56.58	≤74	PASS
				Peak	2310.080	-38.18	≤-21.20	57.02	≤74	PASS
				Peak	2390.000	-40.41	≤-21.20	54.79	≤74	PASS
		High	2480	AV	2483.500	-46.5	≤-41.20	48.70	≤54	PASS
				AV	2483.520	-46.5	≤-41.20	48.70	≤54	PASS
				AV	2500.000	-47.85	≤-41.20	47.35	≤54	PASS
				Peak	2483.500	-38.86	≤-21.20	56.34	≤74	PASS
				Peak	2486.240	-37.65	≤-21.20	57.55	≤74	PASS
				Peak	2500.000	-39.61	≤-21.20	55.59	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-40.19	≤-21.20	55.01	≤74	PASS
				Peak	2349.560	-38.3	≤-21.20	56.90	≤74	PASS
				Peak	2390.000	-39.06	≤-21.20	56.14	≤74	PASS
		High	Hop_2480	Peak	2483.500	-40.22	≤-21.20	54.98	≤74	PASS
				Peak	2498.240	-37.55	≤-21.20	57.65	≤74	PASS
				Peak	2500.000	-39.8	≤-21.20	55.40	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-48.9	≤-41.20	46.30	≤54	PASS
				AV	2385.890	-48.38	≤-41.20	46.82	≤54	PASS
				AV	2390.000	-48.46	≤-41.20	46.74	≤54	PASS
				Peak	2310.000	-39.93	≤-21.20	55.27	≤74	PASS
				Peak	2356.175	-37.59	≤-21.20	57.61	≤74	PASS
				Peak	2390.000	-40.95	≤-21.20	54.25	≤74	PASS
		High	2480	AV	2483.500	-46.66	≤-41.20	48.54	≤54	PASS
				AV	2483.520	-46.66	≤-41.20	48.54	≤54	PASS
				AV	2500.000	-47.94	≤-41.20	47.26	≤54	PASS
				Peak	2483.500	-38.98	≤-21.20	56.22	≤74	PASS
				Peak	2496.320	-38.32	≤-21.20	56.88	≤74	PASS
				Peak	2500.000	-40.13	≤-21.20	55.07	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-40.24	≤-21.20	54.96	≤74	PASS
				Peak	2373.290	-37.43	≤-21.20	57.77	≤74	PASS
				Peak	2390.000	-40.43	≤-21.20	54.77	≤74	PASS
		High	Hop_2480	Peak	2483.500	-34.6	≤-21.20	60.60	≤74	PASS
				Peak	2483.600	-31.12	≤-21.20	64.08	≤74	PASS
				Peak	2500.000	-39.16	≤-21.20	56.04	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-48.87	≤-41.20	46.33	≤54	PASS

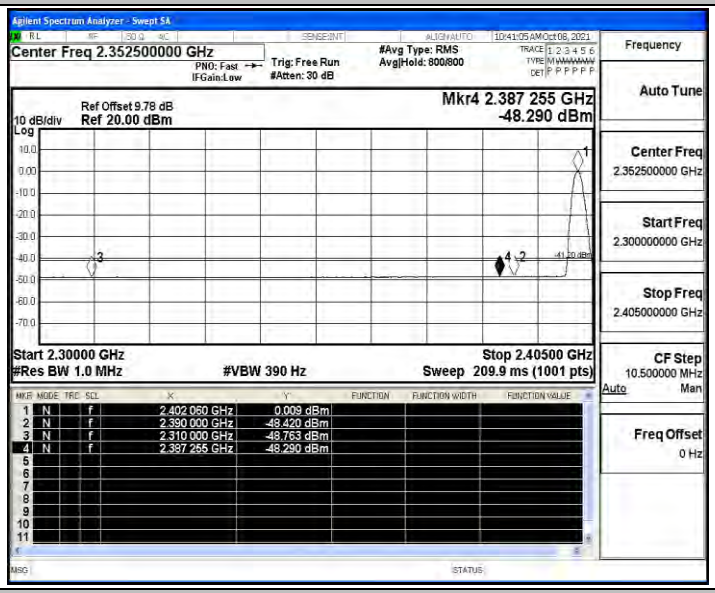
				AV	2385.470	-48.34	≤-41.20	46.86	≤54	PASS
				AV	2390.000	-48.55	≤-41.20	46.65	≤54	PASS
				Peak	2310.000	-40.22	≤-21.20	54.98	≤74	PASS
				Peak	2377.385	-38.2	≤-21.20	57.00	≤74	PASS
				Peak	2390.000	-40.62	≤-21.20	54.58	≤74	PASS
		High	2480	AV	2483.500	-46.59	≤-41.20	48.61	≤54	PASS
				AV	2483.520	-46.59	≤-41.20	48.61	≤54	PASS
				AV	2500.000	-47.93	≤-41.20	47.27	≤54	PASS
				Peak	2483.500	-39.66	≤-21.20	55.54	≤74	PASS
				Peak	2499.280	-37.29	≤-21.20	57.91	≤74	PASS
				Peak	2500.000	-37.62	≤-21.20	57.58	≤74	PASS
		Low	Hop_2402	Peak	2310.000	-41.04	≤-21.20	54.16	≤74	PASS
				Peak	2327.720	-37.76	≤-21.20	57.44	≤74	PASS
				Peak	2390.000	-40.32	≤-21.20	54.88	≤74	PASS
		High	Hop_2480	Peak	2483.500	-33.74	≤-21.20	61.46	≤74	PASS
				Peak	2500.000	-39.26	≤-21.20	55.94	≤74	PASS

Note：

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

DH5_Ant1_Low_2402_AV



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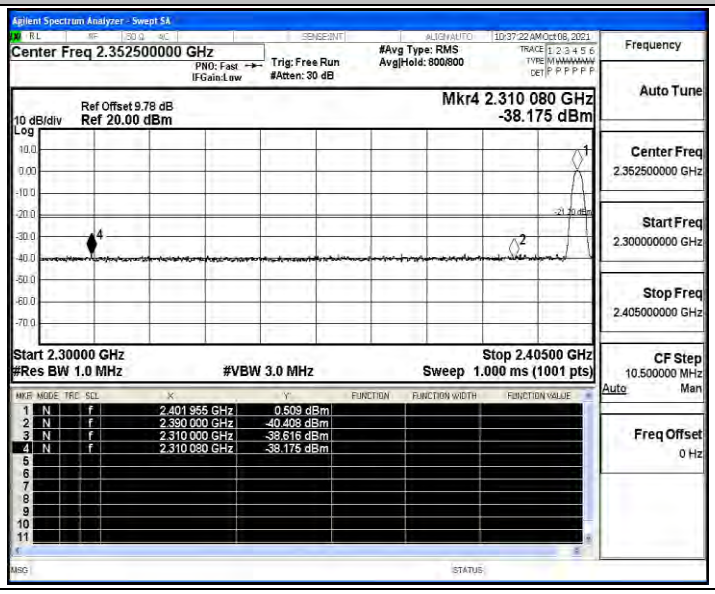

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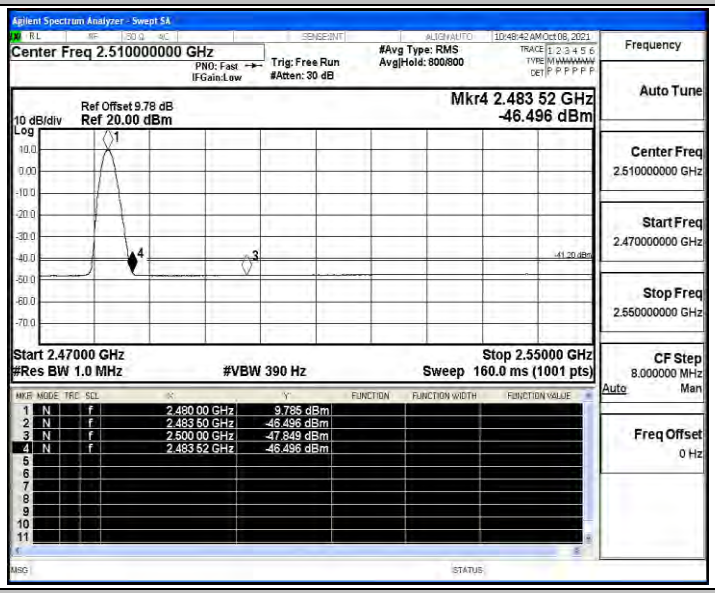

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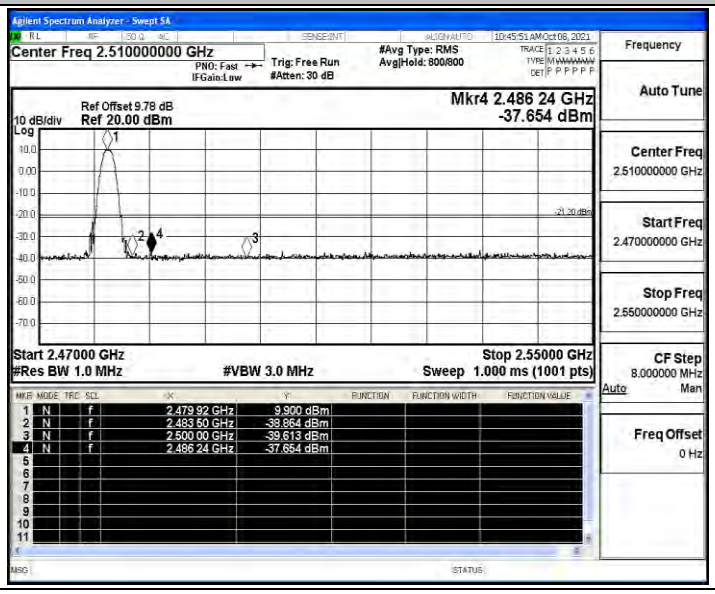

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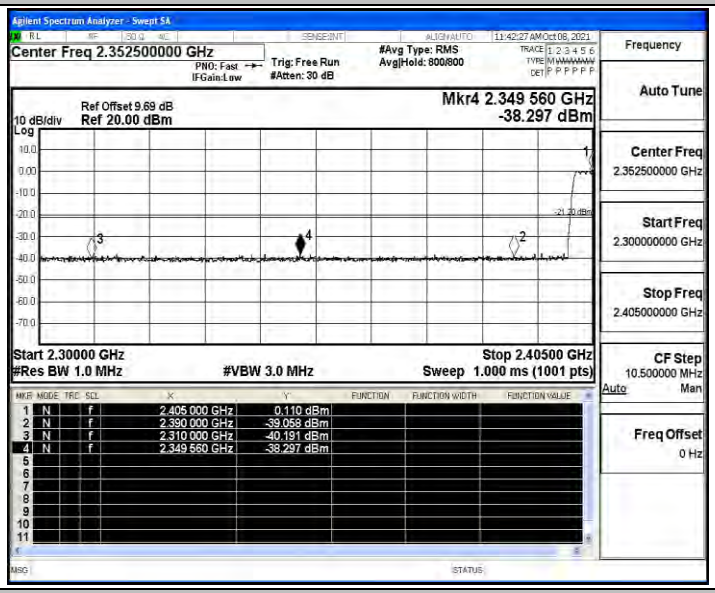

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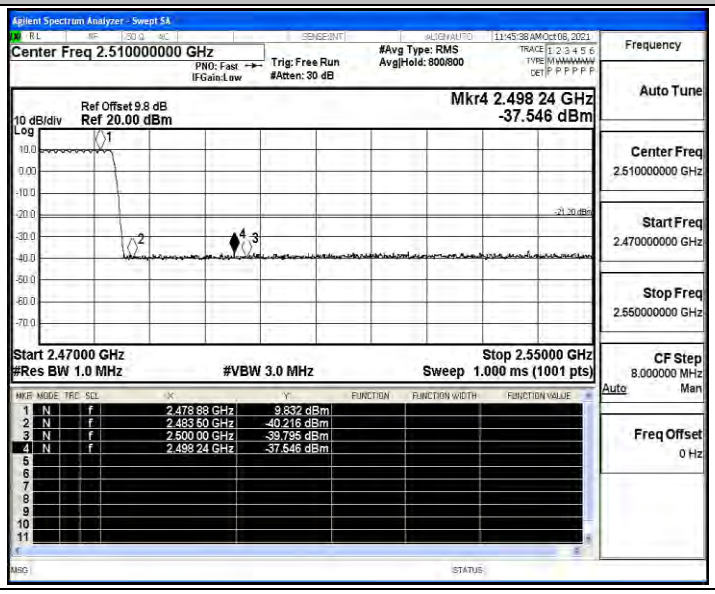

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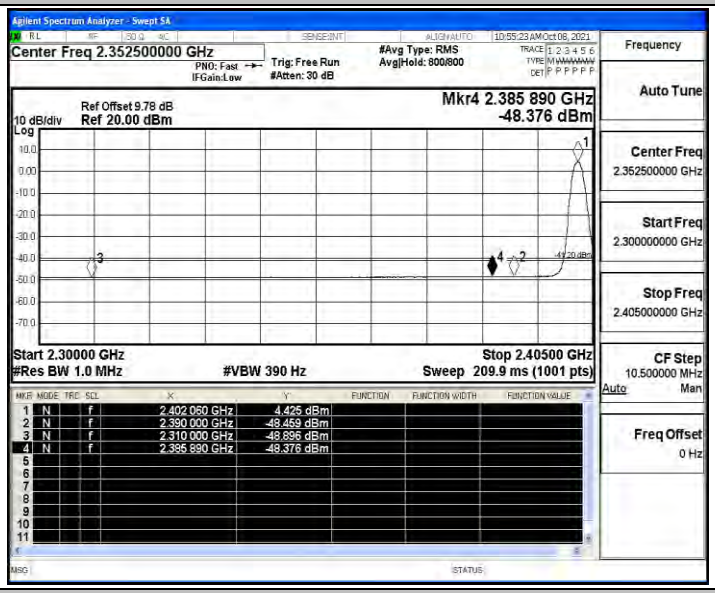

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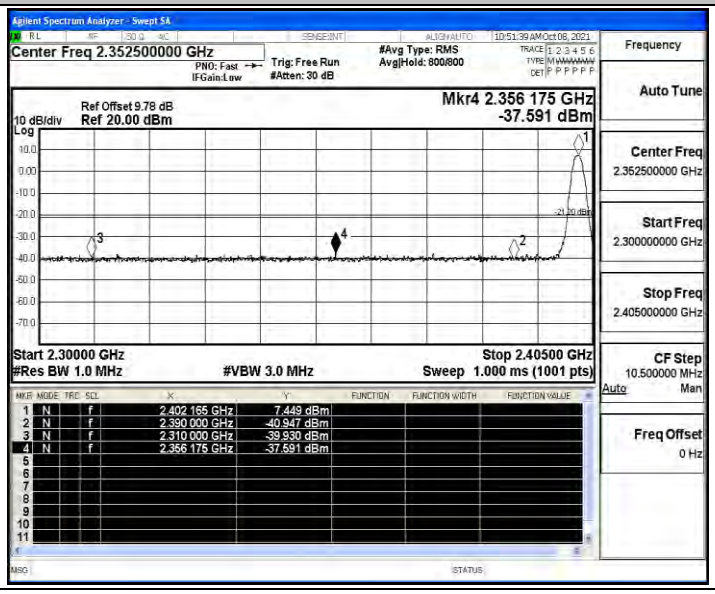

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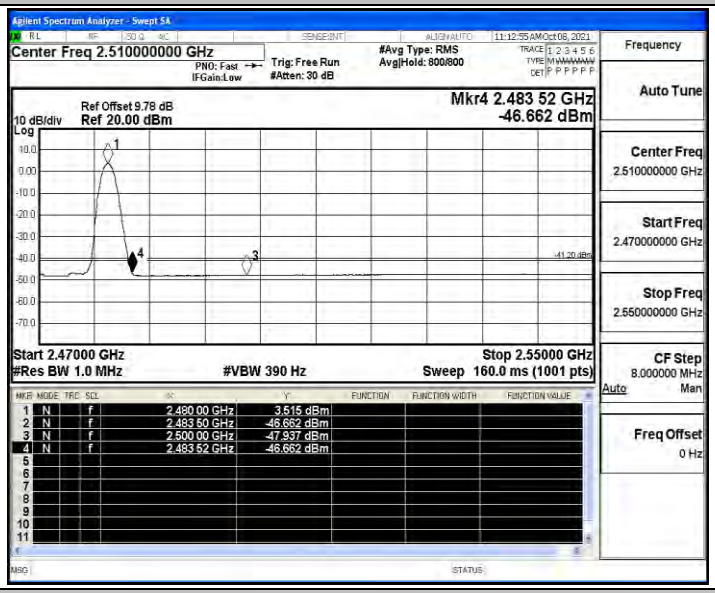

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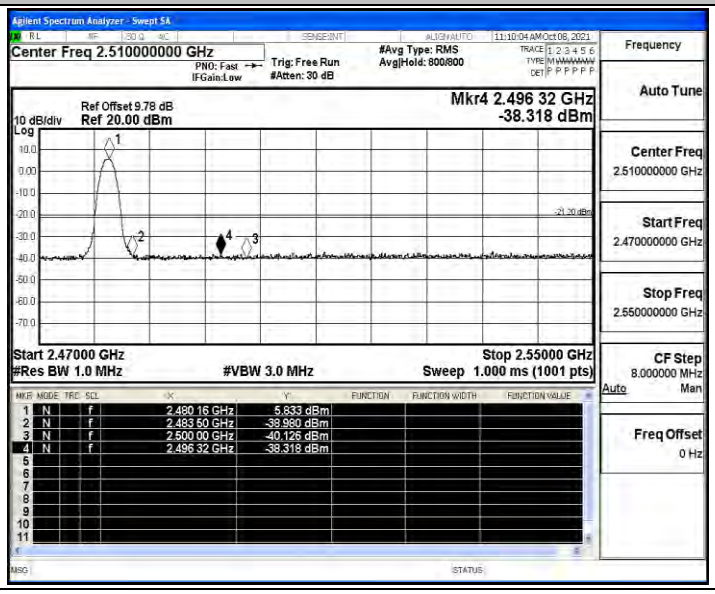

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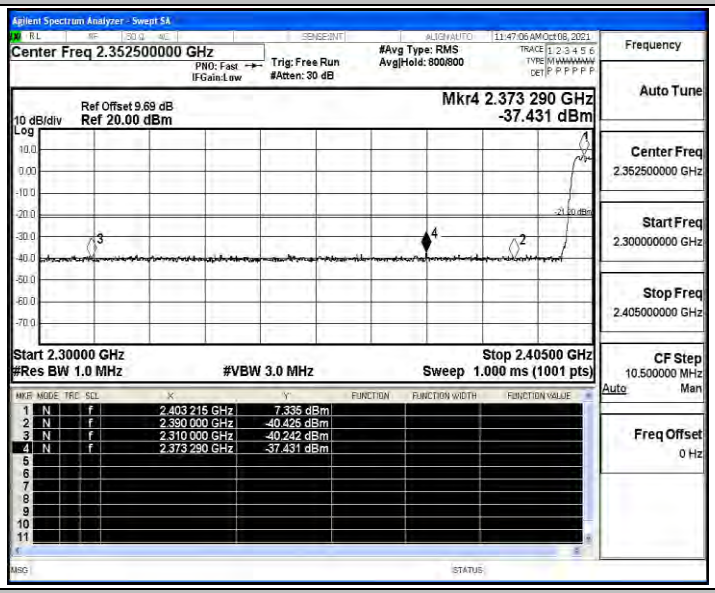

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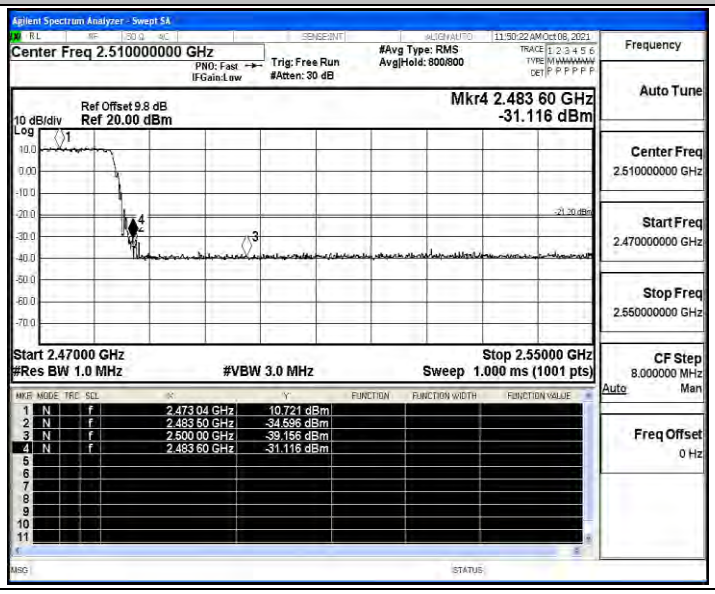

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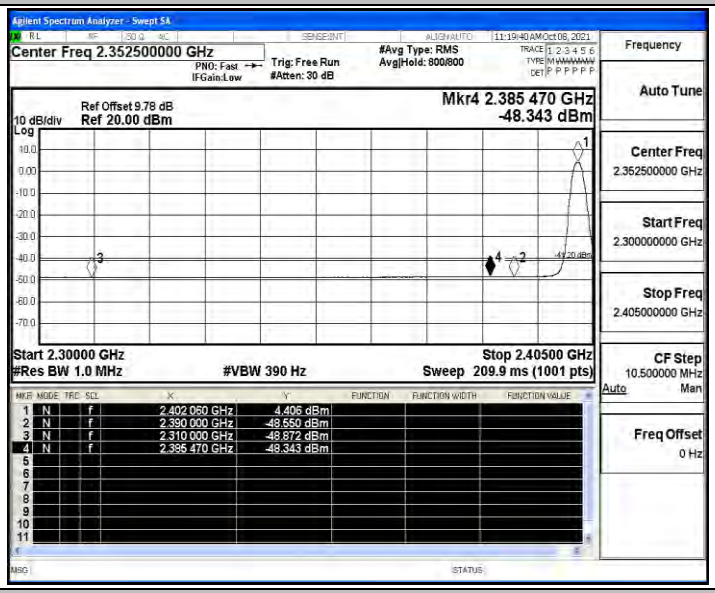

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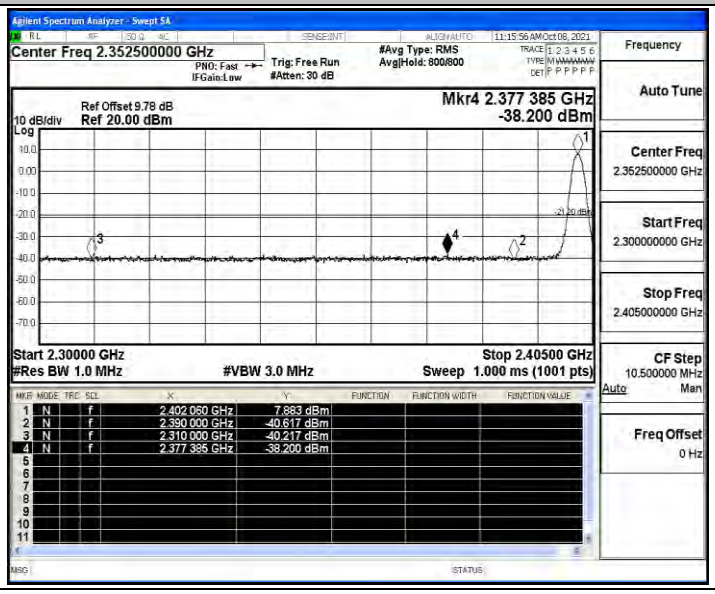

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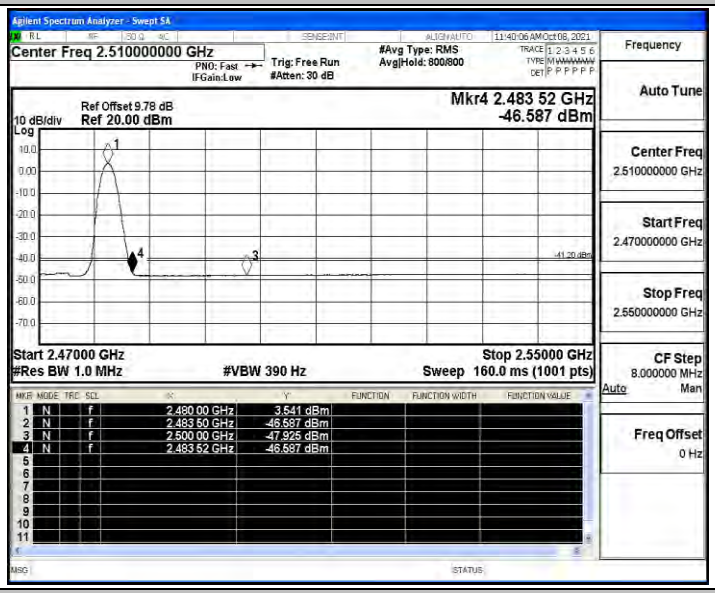

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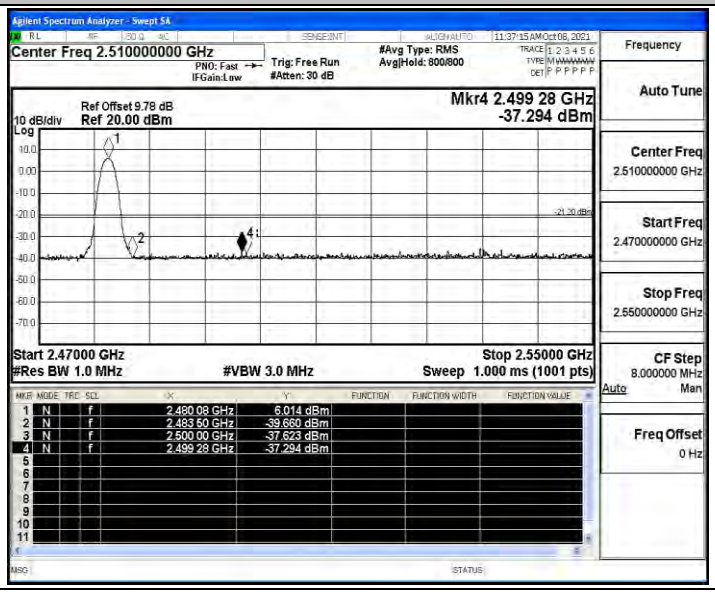

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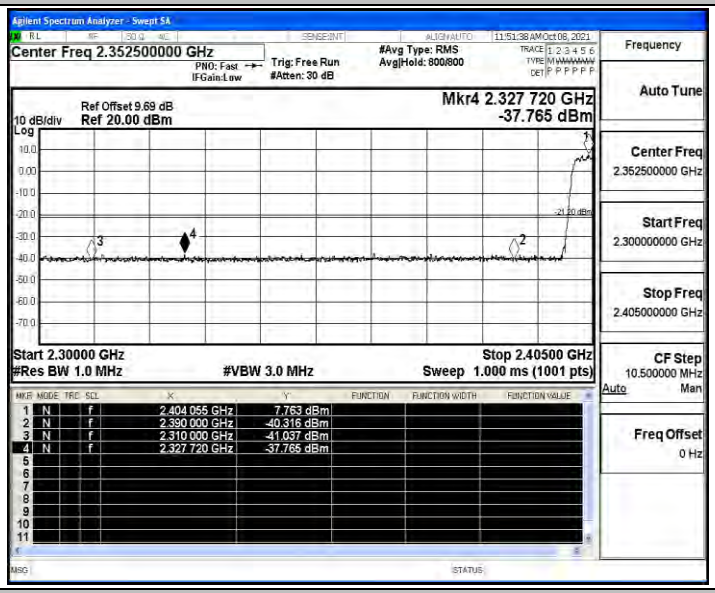
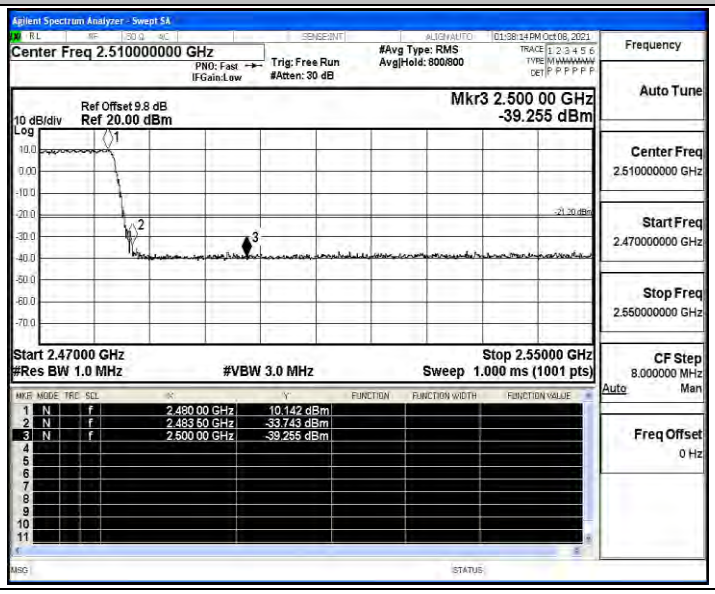
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