



Appendix A

RF Test Data for BT V5.0(DSS) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: N/A

Test Model: V8

Environmental Conditions

Temperature:	21.1℃
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan



A.1 20dB Emission Bandwidth

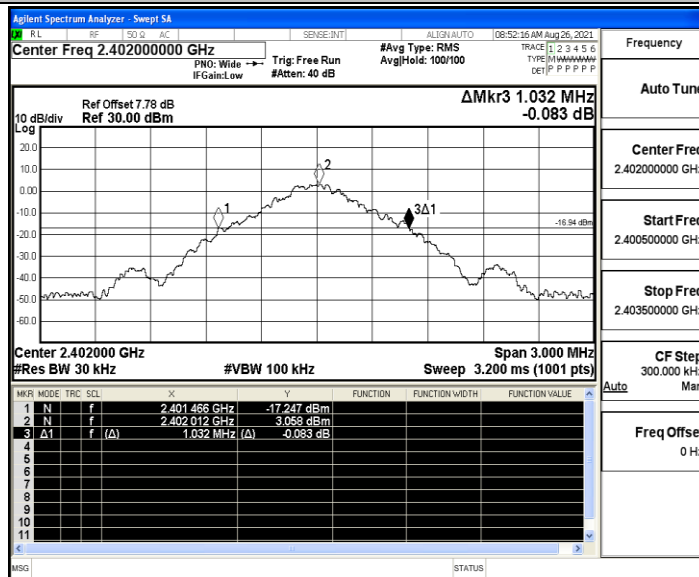
Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.032	2401.466	2402.498	---	PASS
		2441	0.981	2440.520	2441.501	---	PASS
		2480	1.041	2479.460	2480.501	---	PASS
2DH5	Ant1	2402	1.308	2401.346	2402.654	---	PASS
		2441	1.317	2440.340	2441.657	---	PASS
		2480	1.332	2479.331	2480.663	---	PASS
3DH5	Ant1	2402	1.311	2401.346	2402.657	---	PASS
		2441	1.299	2440.349	2441.648	---	PASS
		2480	1.311	2479.346	2480.657	---	PASS

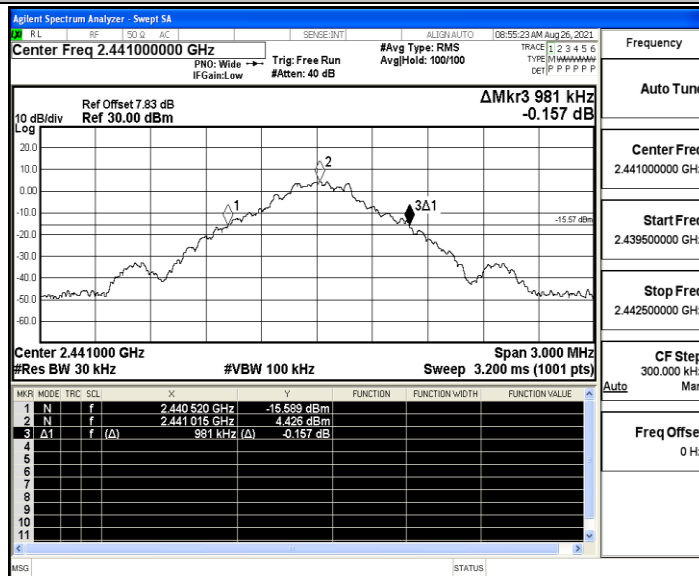


Test Graphs

DH5_Ant1_2402

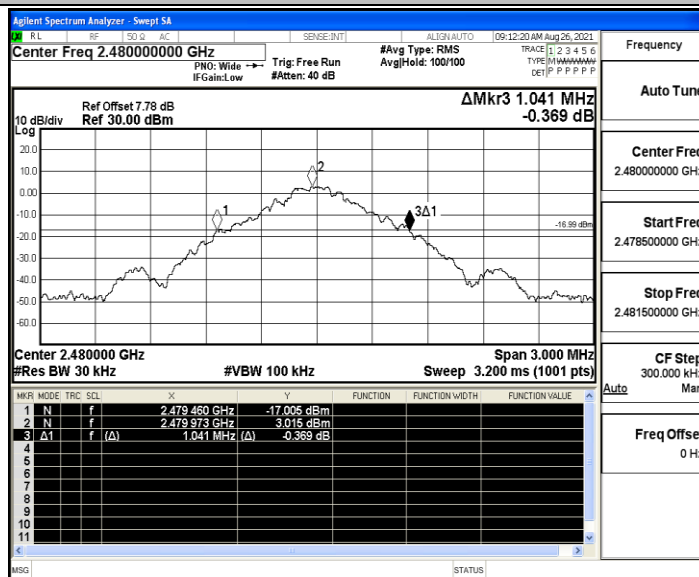


DH5_Ant1_2441

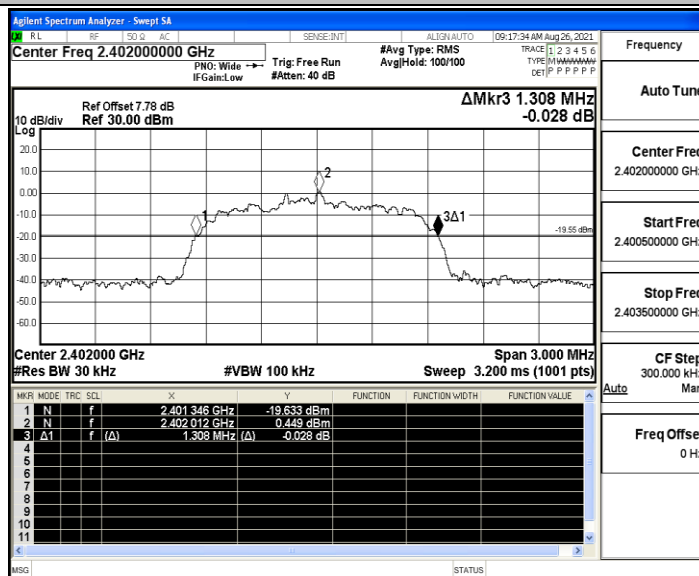




DH5_Ant1_2480

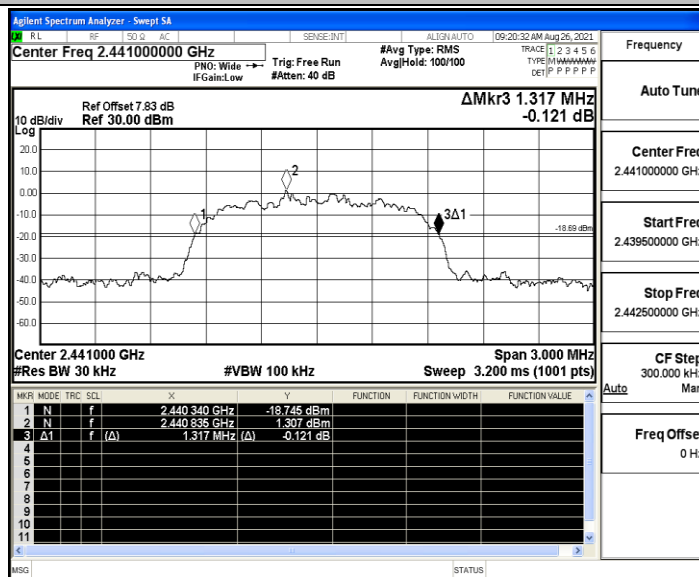


2DH5_Ant1_2402

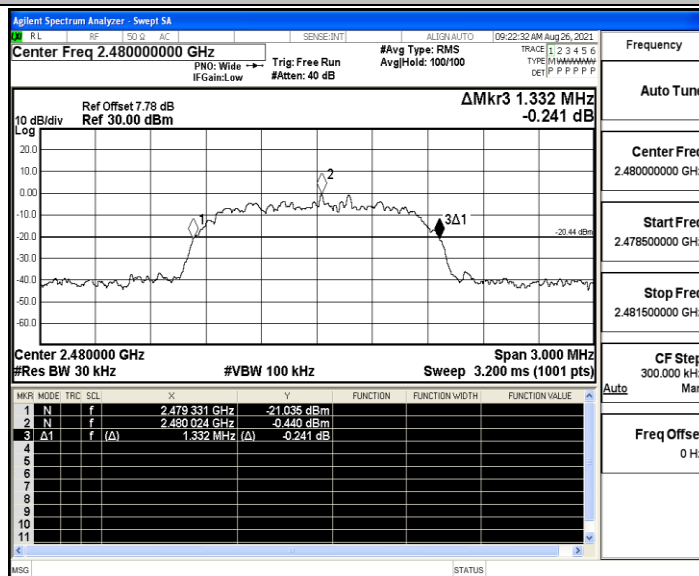




2DH5_Ant1_2441

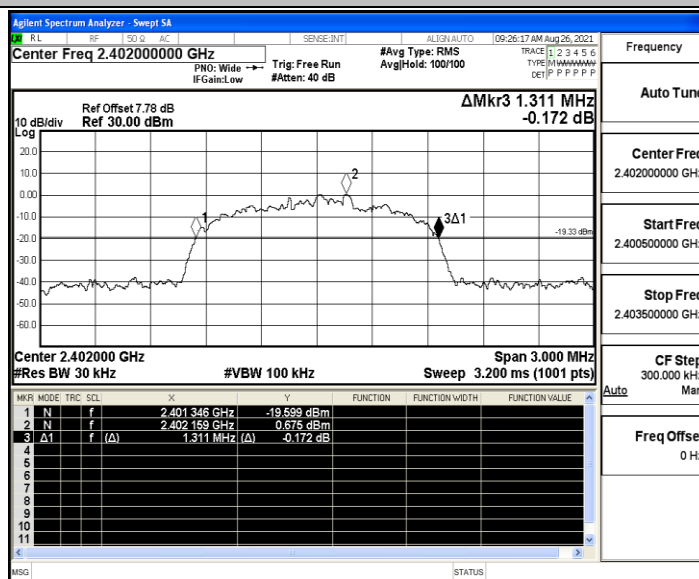


2DH5_Ant1_2480

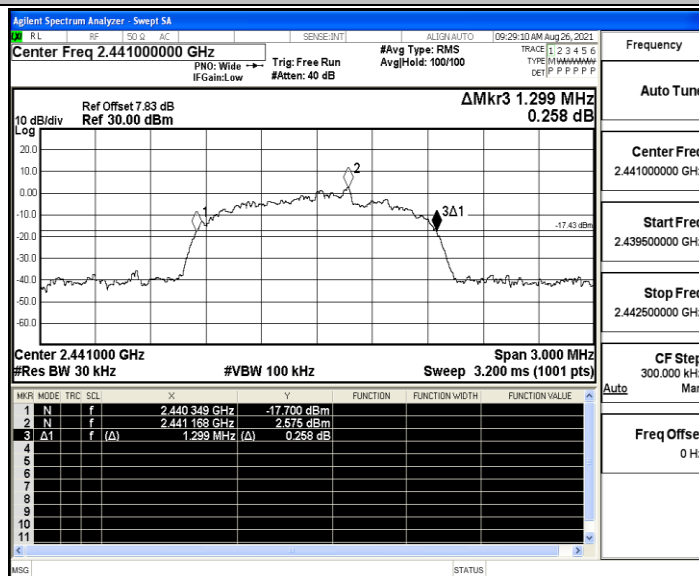




3DH5_Ant1_2402

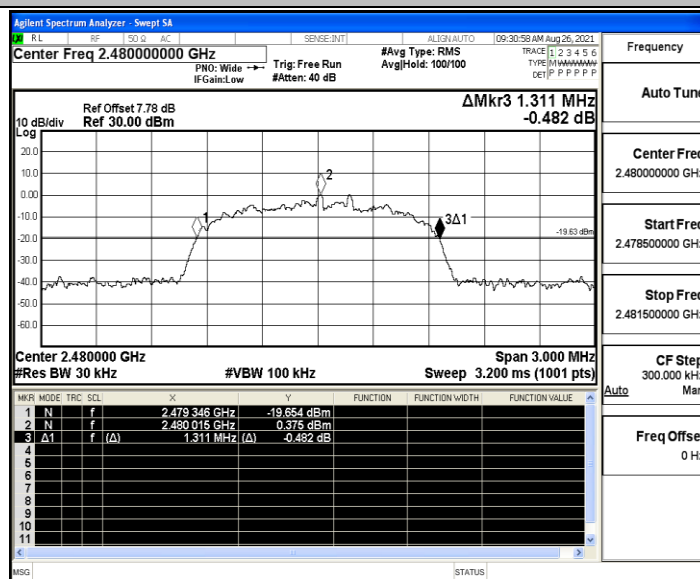


3DH5_Ant1_2441





3DH5_Ant1_2480





A.2 Maximum peak conducted output power

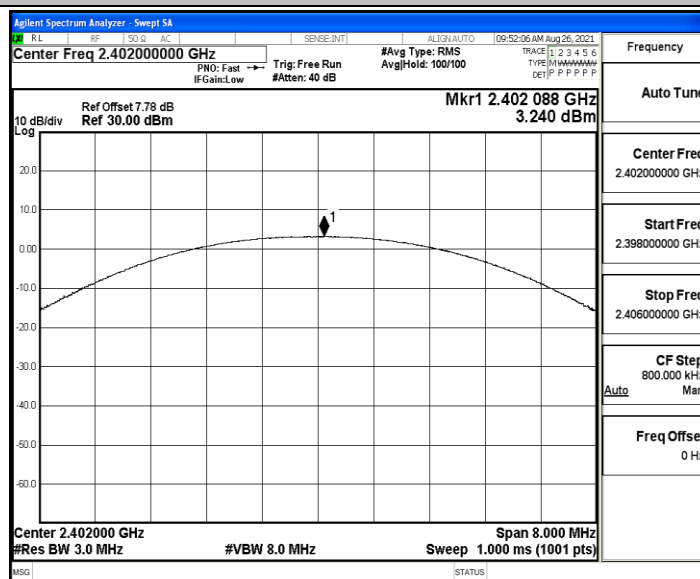
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	3.24	≤20.97	PASS
		2441	4.47	≤20.97	PASS
		2480	3.07	≤20.97	PASS
2DH5	Ant1	2402	2.26	≤20.97	PASS
		2441	3.45	≤20.97	PASS
		2480	2.09	≤20.97	PASS
3DH5	Ant1	2402	2.46	≤20.97	PASS
		2441	3.75	≤20.97	PASS
		2480	2.32	≤20.97	PASS

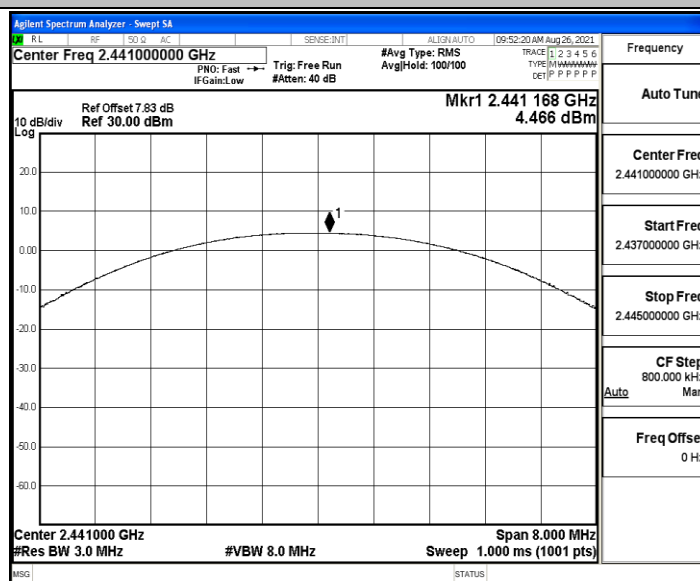


Test Graphs

DH5_Ant1_2402

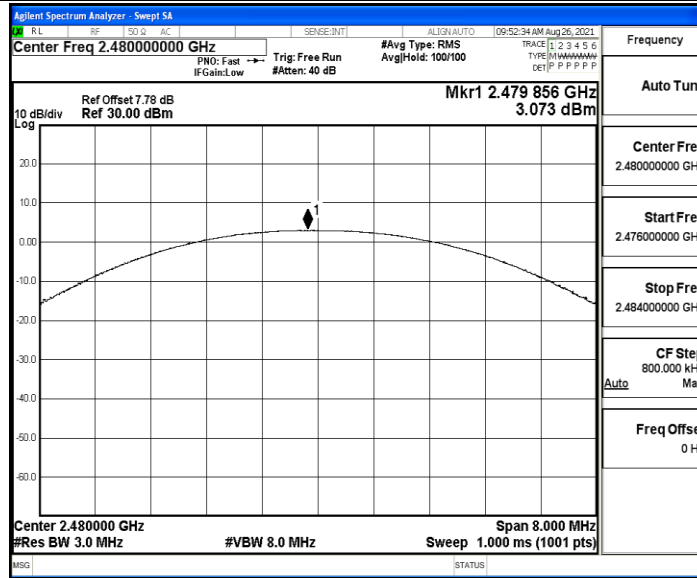


DH5_Ant1_2441

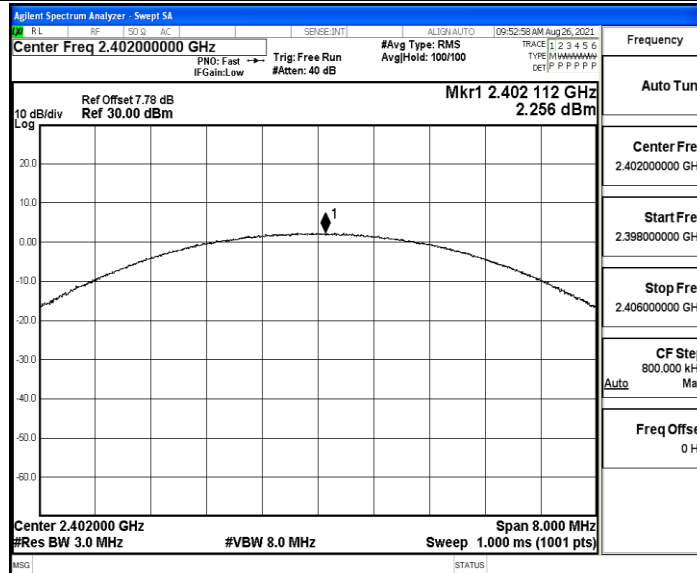




DH5_Ant1_2480

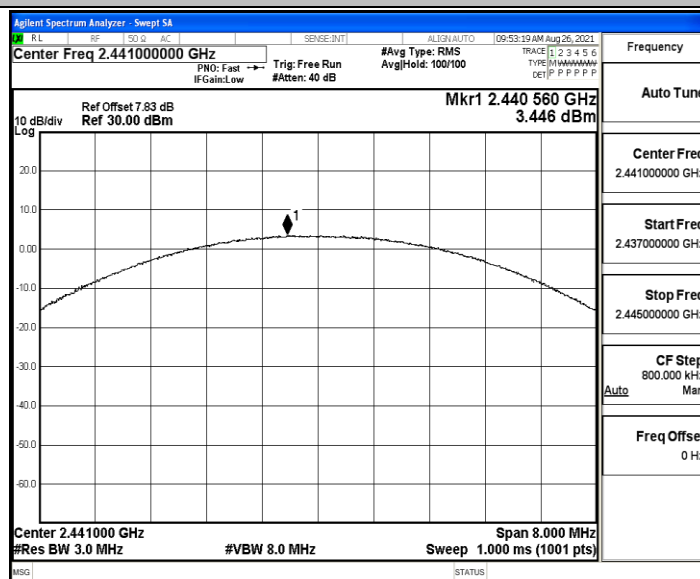


2DH5_Ant1_2402

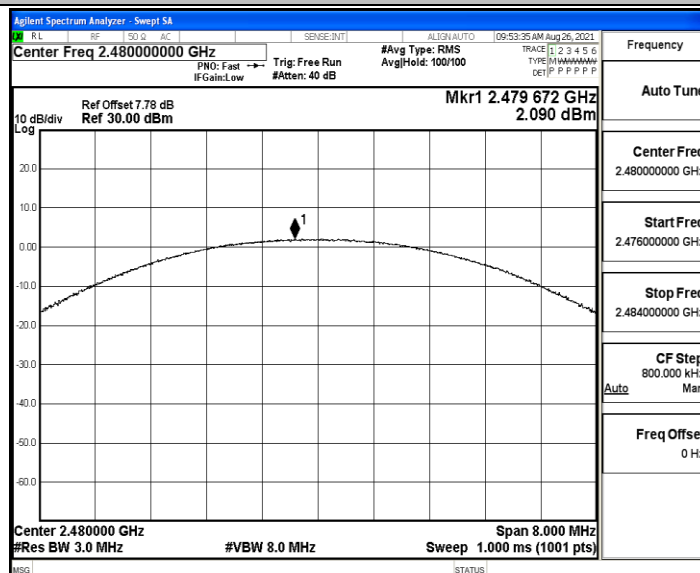




2DH5_Ant1_2441

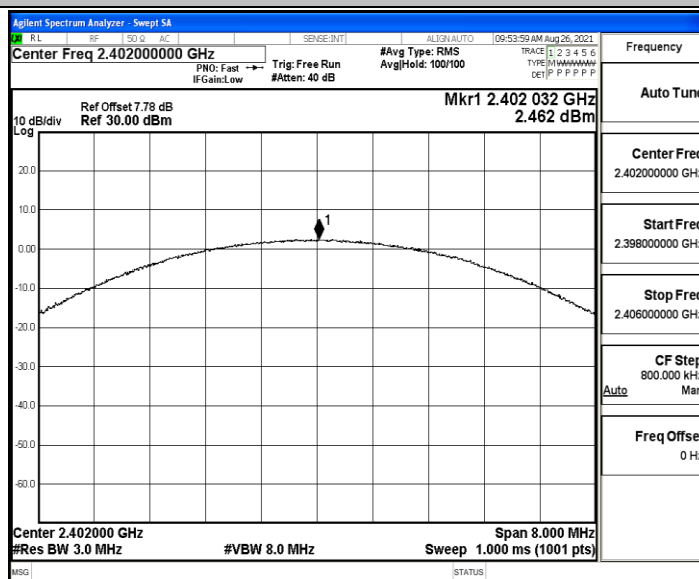


2DH5_Ant1_2480

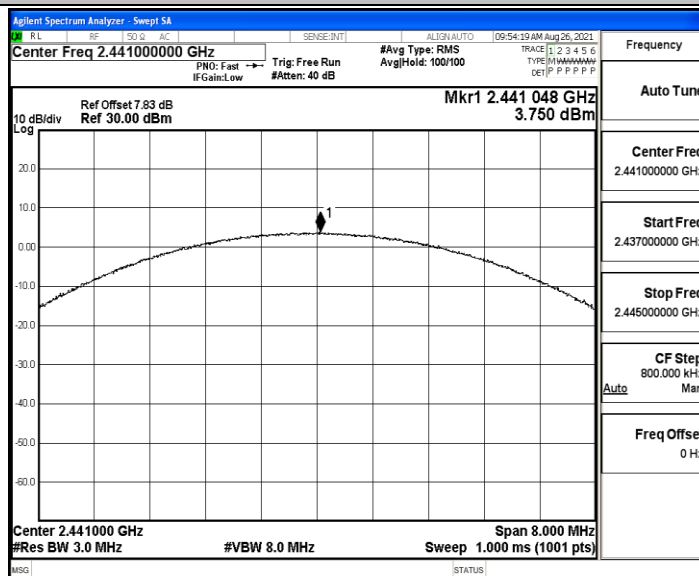




3DH5_Ant1_2402

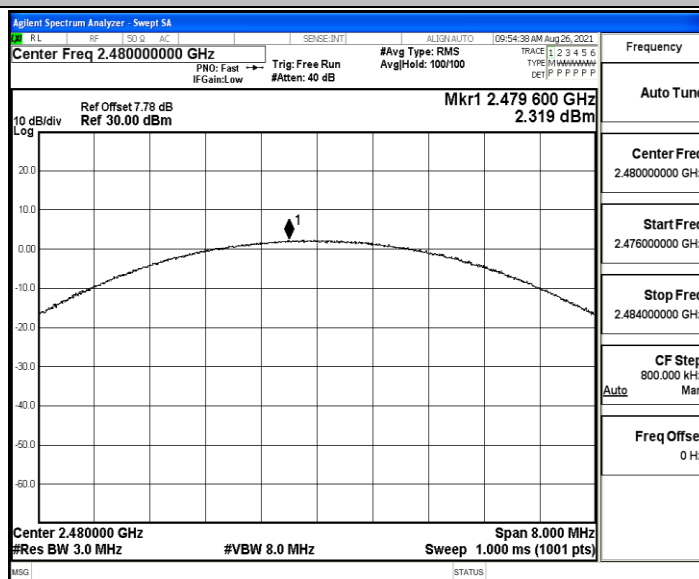


3DH5_Ant1_2441





3DH5_Ant1_2480





A.3 Carrier frequency separation

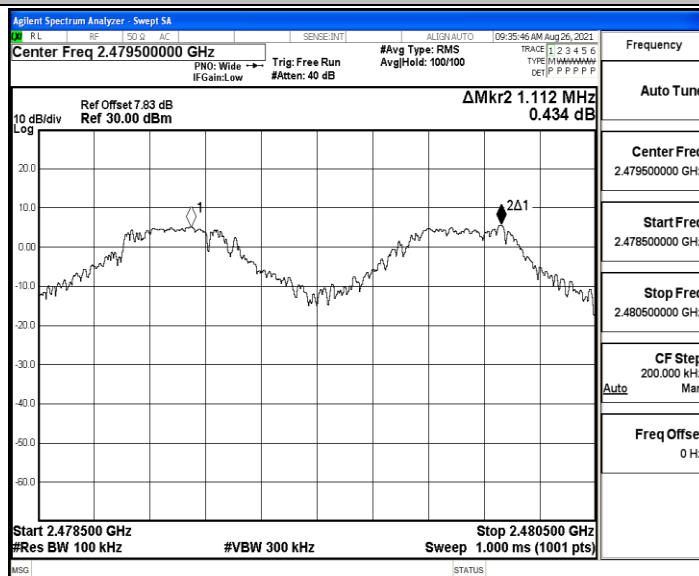
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	1.112	≥ 0.694	PASS
2DH5	Ant1	Hop	1.016	≥ 0.888	PASS
3DH5	Ant1	Hop	0.904	≥ 0.874	PASS

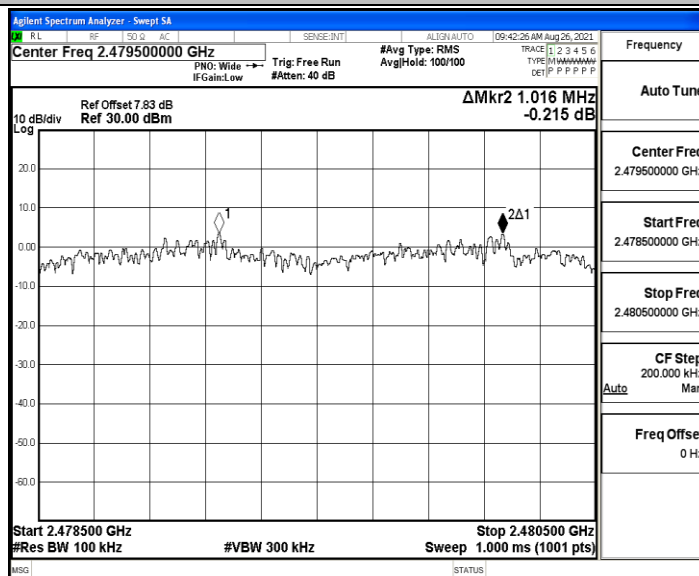


Test Graphs

DH5_Ant1_Hop

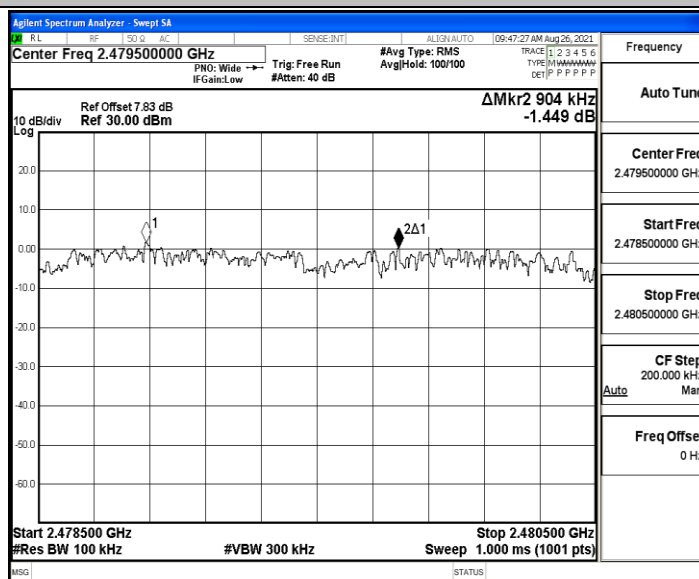


2DH5_Ant1_Hop





3DH5_Ant1_Hop





A.4 Time of occupancy

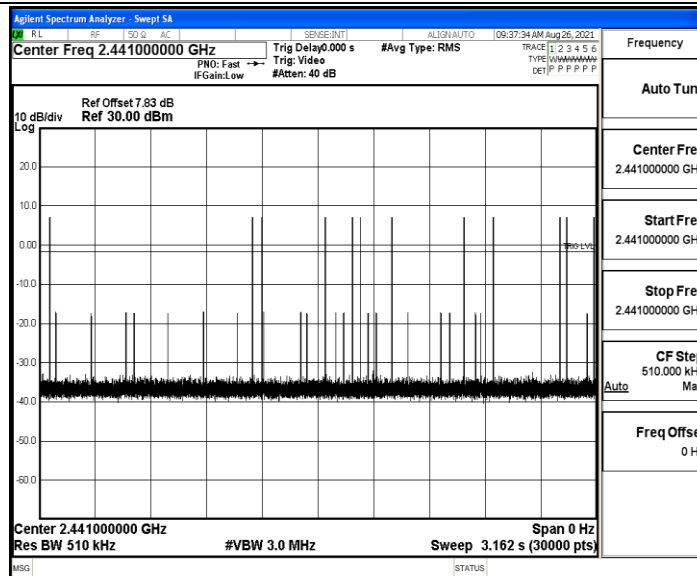
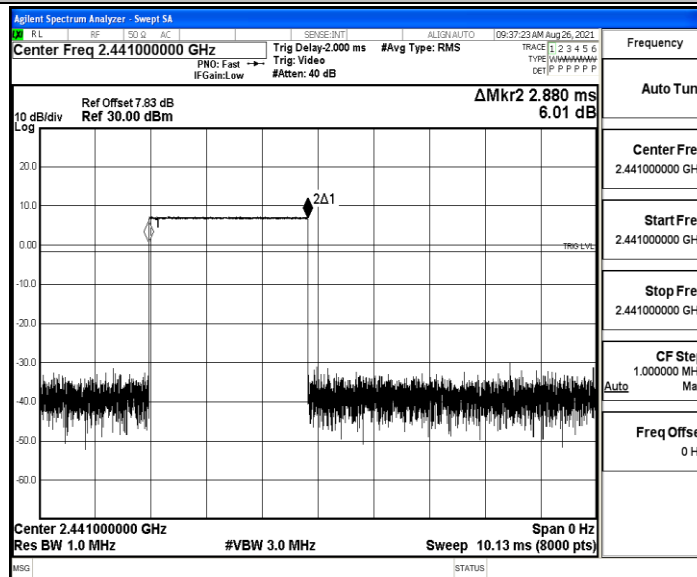
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	130	0.374	≤0.4	PASS
2DH5	Ant1	Hop	2.88	90	0.259	≤0.4	PASS
3DH5	Ant1	Hop	2.89	80	0.231	≤0.4	PASS



Test Graphs

DH5_Ant1_Hop





Agilent Spectrum Analyzer - Sweep SA

RL RF SO G AC SENSE:INT ALIGN: AUTO [09:43:16 AM Aug 26, 2021]

Center Freq 2.441000000 GHz Trig Delay: 2.000 ms #Avg Type: RMS TRACE [1 2 3 4 5 6]
 PNO: Fast IF Gain: Low Trig: Video #Atten: 40 dB TYPE: [00000000] DET: [P P P P P P]

10 dB/div Ref Offset 7.83 dB Δ Mkr2 2.883 ms
 Log Ref 30.00 dBm 3.40 dB

Center 2.441000000 GHz Span 0 Hz
 Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8000 pts)

Frequency Auto Tune

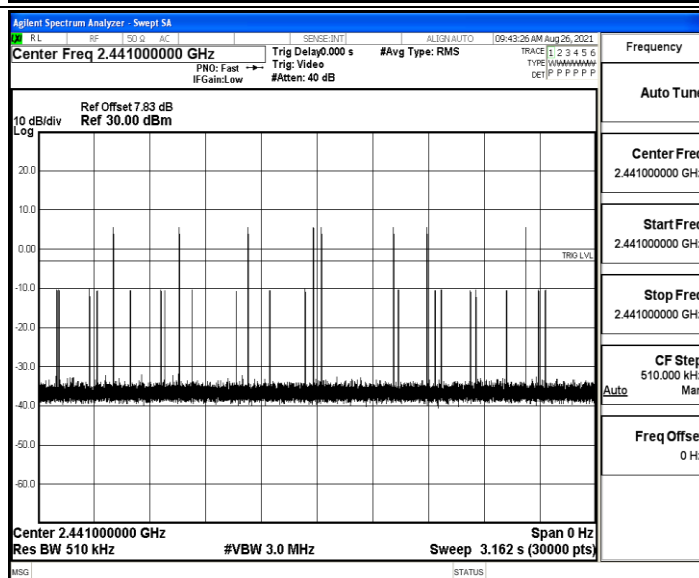
Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz
 Auto Manual

Freq Offset 0 Hz



Agilent Spectrum Analyzer - Sweep SA

RL RF SO Q AC

SENSE:INT

ALIGN:AUTO

09:48:18 AM Aug 26, 2021

Center Freq 2.441000000 GHz

Trig Delay: 2.000 ms

#Avg Type: RMS

TRACE 1 2 3 4 5 6

TYPE: (UUUUUUUUUU)

DE[P] P P P P P

PNO: Fast

IF Gain: Low

#Attenu: 40 dB

Frequency

Auto Tune

Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Auto

Freq Offset 0 Hz

Ref Offset 7.83 dB

Ref 30.00 dBm

Δ Mkr2 2.887 ms

12.29 dB

10 dB/div

Log

20.0

10.0

0.0

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

TRO LVL

2A1

Center 2.441000000 GHz

Res BW 1.0 MHz

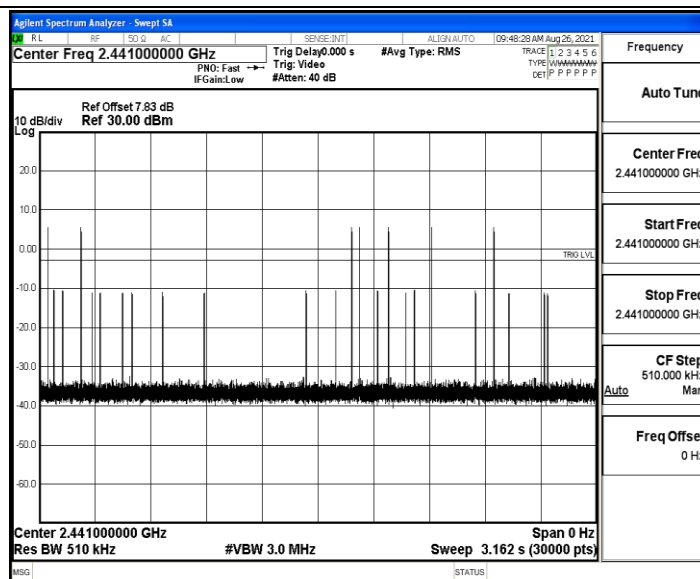
#VBW 3.0 MHz

Sweep 10.13 ms (8000 pts)

Span 0 Hz

MSO

STATUS

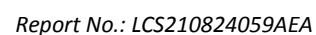




A.5 Number of hopping channels

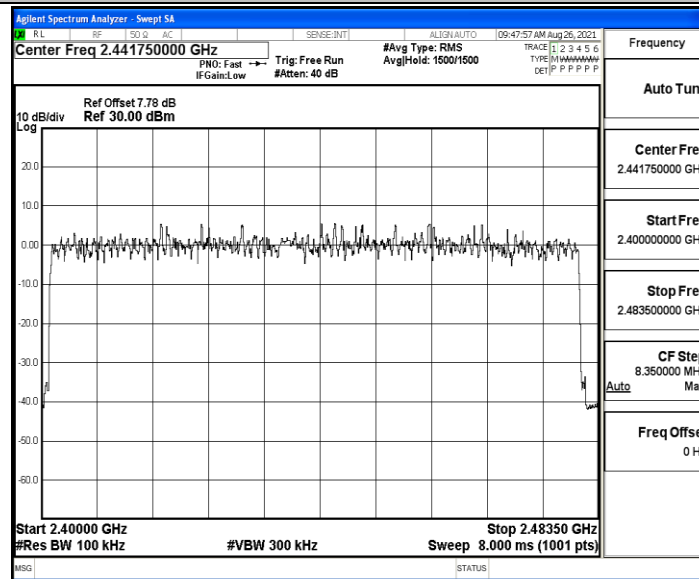
Test Result

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





3DH5_Ant1_Hop





A.6 Band edge measurements

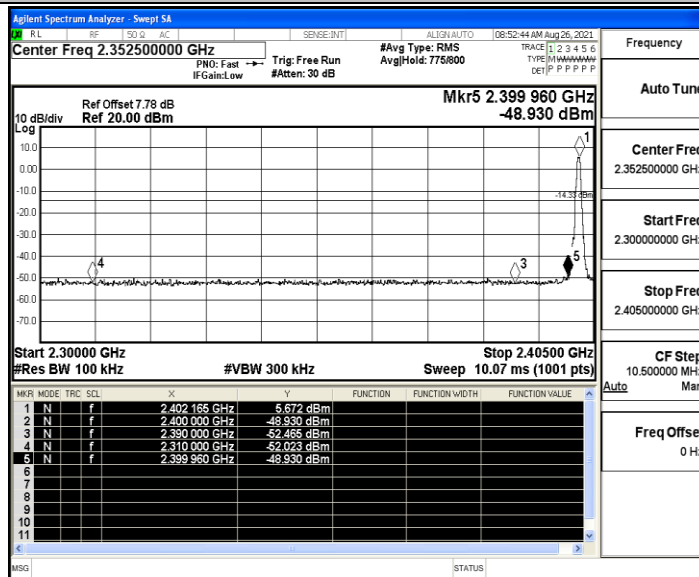
Test Result

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	5.67	-48.93	≤ -14.33	PASS
		High	2480	5.60	-48.33	≤ -14.4	PASS
		Low	Hop_2402	5.68	-48.46	≤ -14.32	PASS
		High	Hop_2480	5.80	-48.36	≤ -14.2	PASS
2DH5	Ant1	Low	2402	3.77	-47.91	≤ -16.23	PASS
		High	2480	3.73	-47.68	≤ -16.27	PASS
		Low	Hop_2402	2.95	-49.83	≤ -17.05	PASS
		High	Hop_2480	3.65	-48.76	≤ -16.35	PASS
3DH5	Ant1	Low	2402	4.18	-49.18	≤ -15.82	PASS
		High	2480	4.08	-48.17	≤ -15.92	PASS
		Low	Hop_2402	1.37	-49.3	≤ -18.63	PASS
		High	Hop_2480	4.50	-47.67	≤ -15.5	PASS

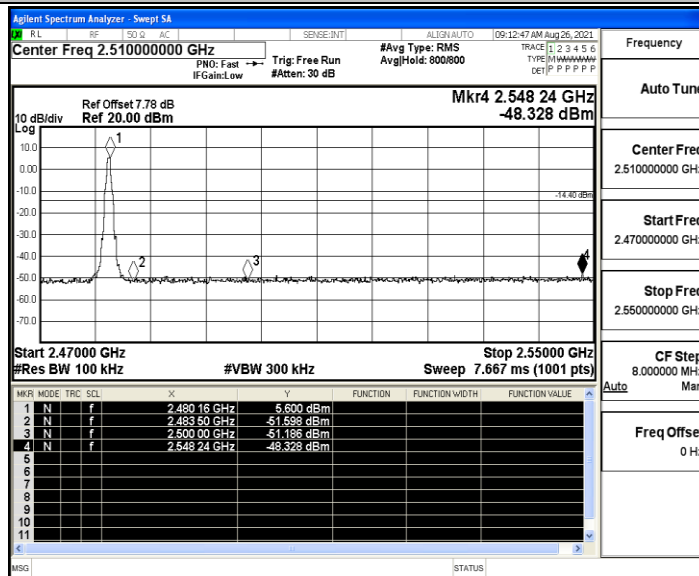


Test Graphs

DH5_Ant1_Low_2402

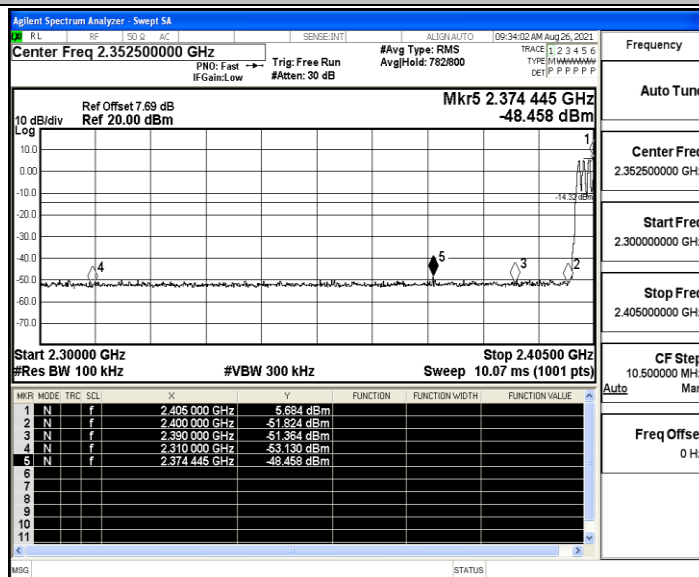


DH5_Ant1_High_2480

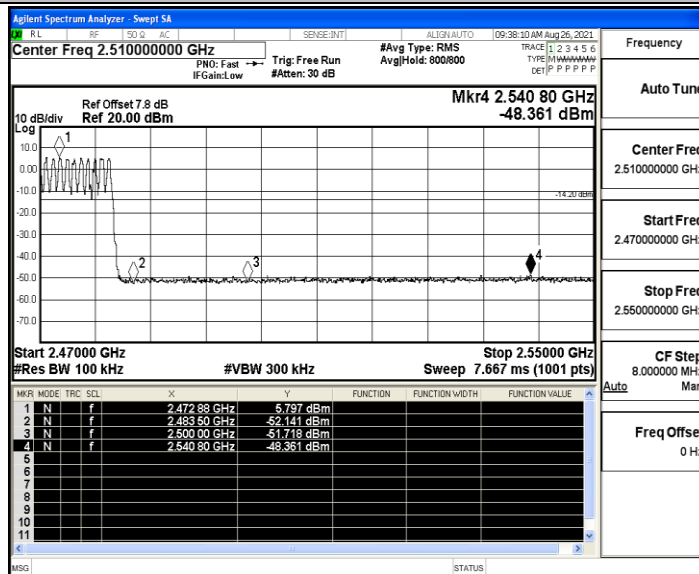




DH5_Ant1_Low_Hop_2402

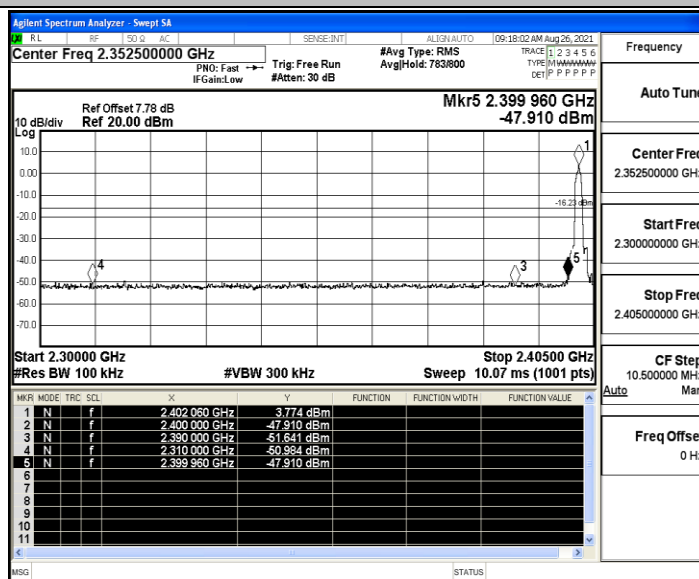


DH5_Ant1_High_Hop_2480

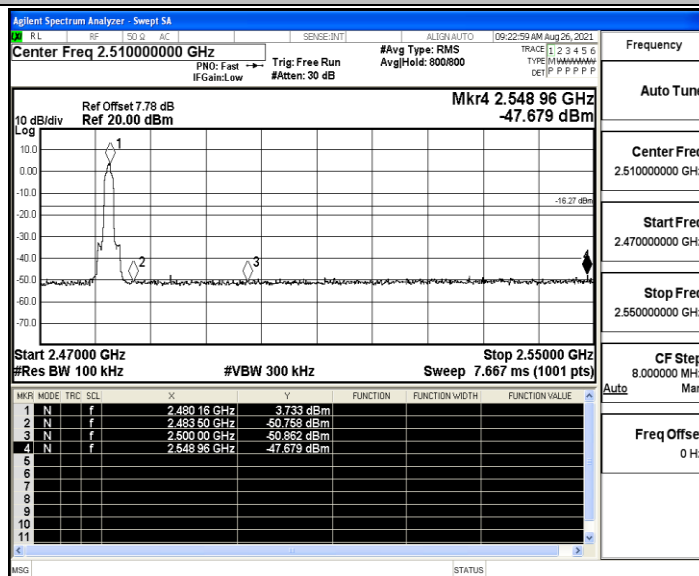




2DH5_Ant1_Low_2402

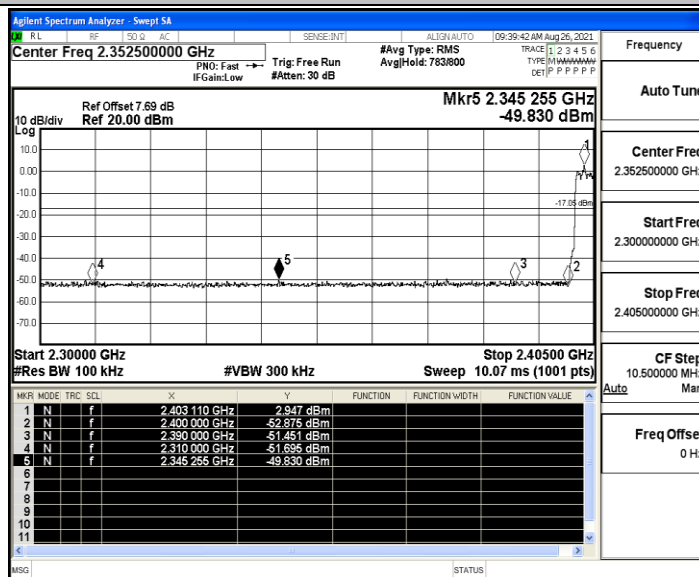


2DH5_Ant1_High_2480

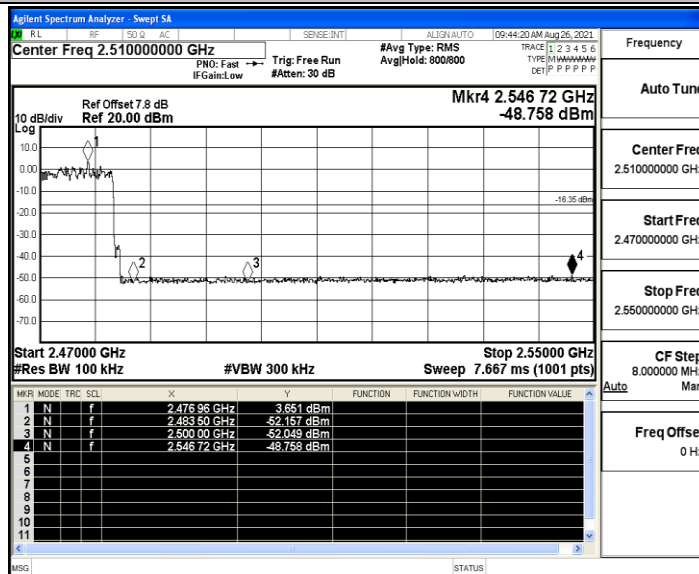




2DH5_Ant1_Low_Hop_2402

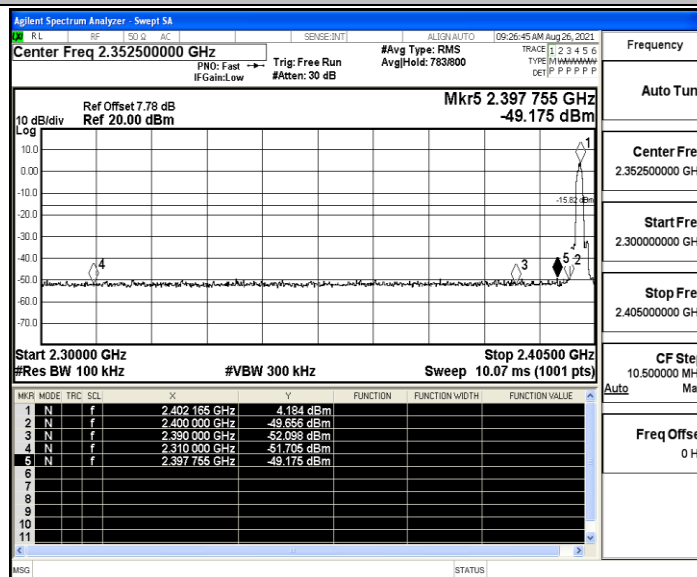


2DH5_Ant1_High_Hop_2480

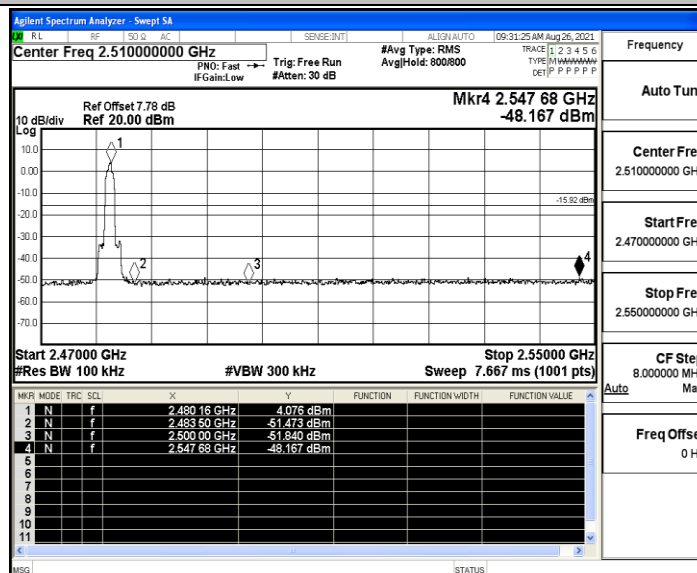




3DH5_Ant1_Low_2402

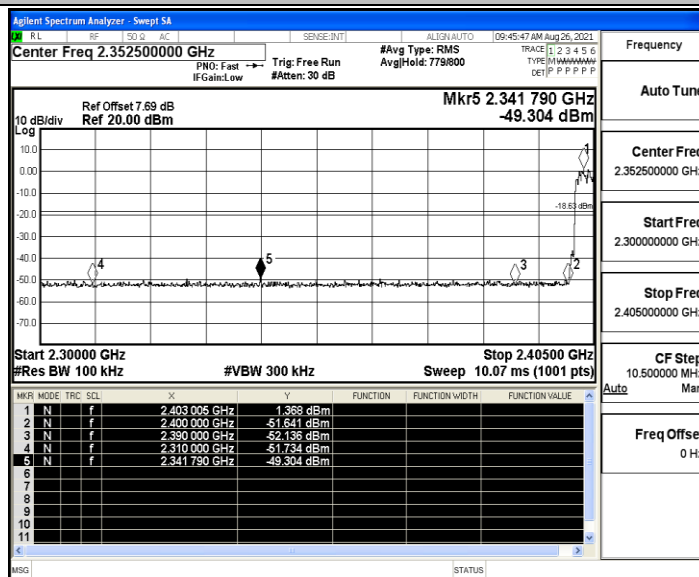


3DH5_Ant1_High_2480

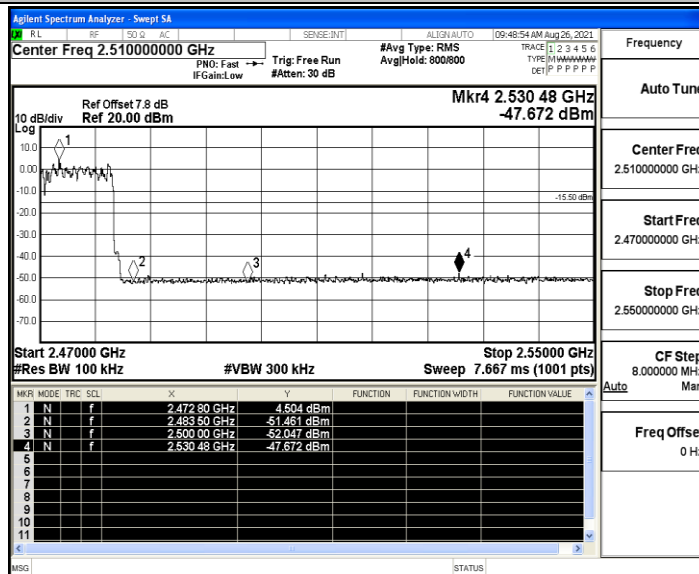




3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480





A.7 Conducted Spurious Emission

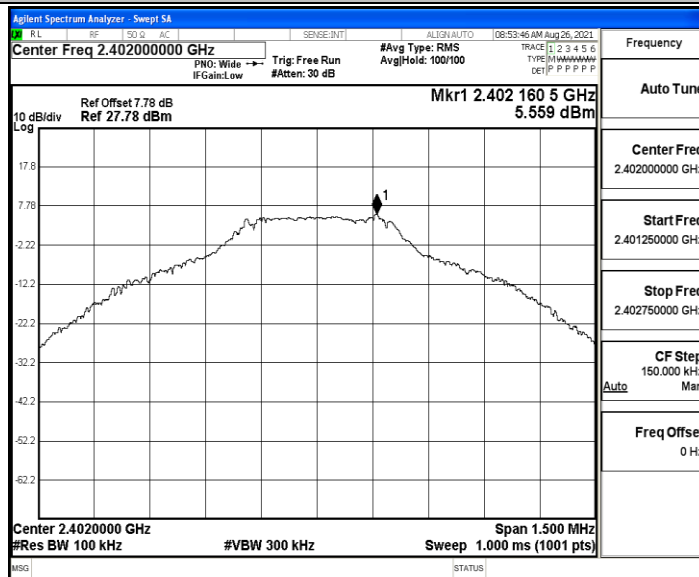
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	5.56	5.56	---	PASS
			30~1000	5.56	-61.12	≤-14.44	PASS
			1000~26500	5.56	-48	≤-14.44	PASS
		2441	Reference	6.70	6.70	---	PASS
			30~1000	6.70	-61.69	≤-13.3	PASS
			1000~26500	6.70	-47.79	≤-13.3	PASS
		2480	Reference	5.50	5.50	---	PASS
			30~1000	5.50	-61.06	≤-14.5	PASS
			1000~26500	5.50	-47.92	≤-14.5	PASS
2DH5	Ant1	2402	Reference	3.30	3.30	---	PASS
			30~1000	3.30	-61.88	≤-16.7	PASS
			1000~26500	3.30	-47.85	≤-16.7	PASS
		2441	Reference	5.22	5.22	---	PASS
			30~1000	5.22	-61.99	≤-14.78	PASS
			1000~26500	5.22	-47.68	≤-14.78	PASS
		2480	Reference	3.73	3.73	---	PASS
			30~1000	3.73	-61.53	≤-16.27	PASS
			1000~26500	3.73	-47.92	≤-16.27	PASS
3DH5	Ant1	2402	Reference	3.56	3.56	---	PASS
			30~1000	3.56	-61.83	≤-16.44	PASS
			1000~26500	3.56	-47.83	≤-16.44	PASS
		2441	Reference	5.23	5.23	---	PASS
			30~1000	5.23	-61.81	≤-14.77	PASS
			1000~26500	5.23	-46.94	≤-14.77	PASS
		2480	Reference	3.75	3.75	---	PASS
			30~1000	3.75	-61.19	≤-16.26	PASS
			1000~26500	3.75	-47.36	≤-16.26	PASS

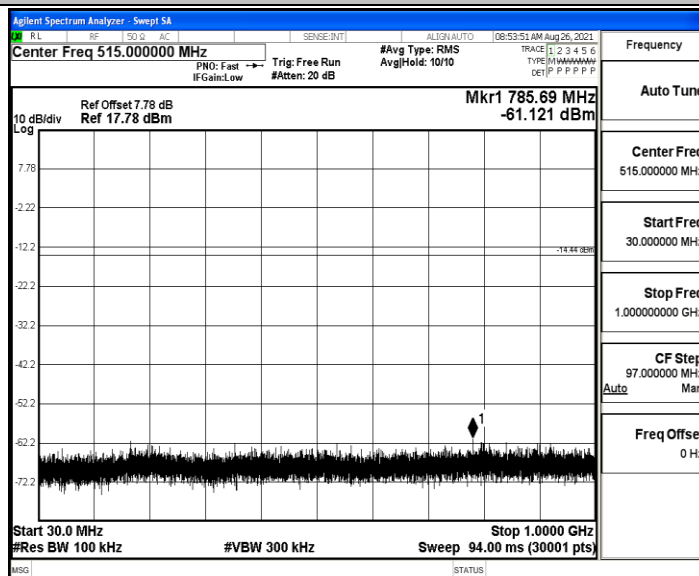


Test Graphs

DH5_Ant1_2402_0-Reference

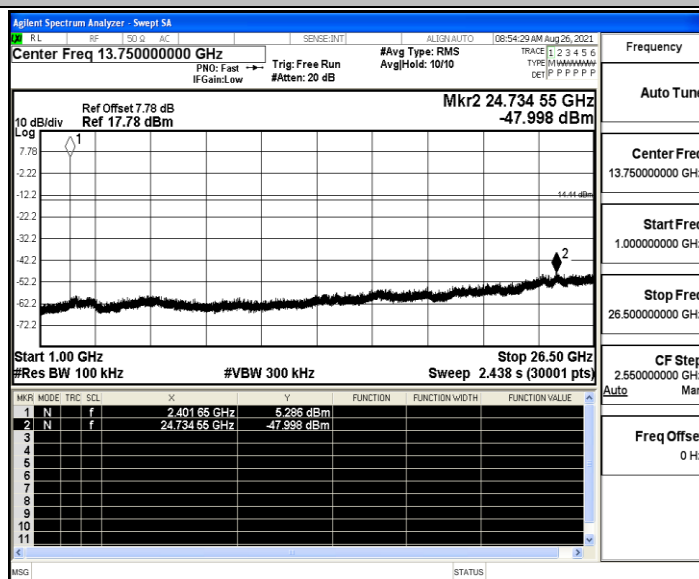


DH5_Ant1_2402_30-1000

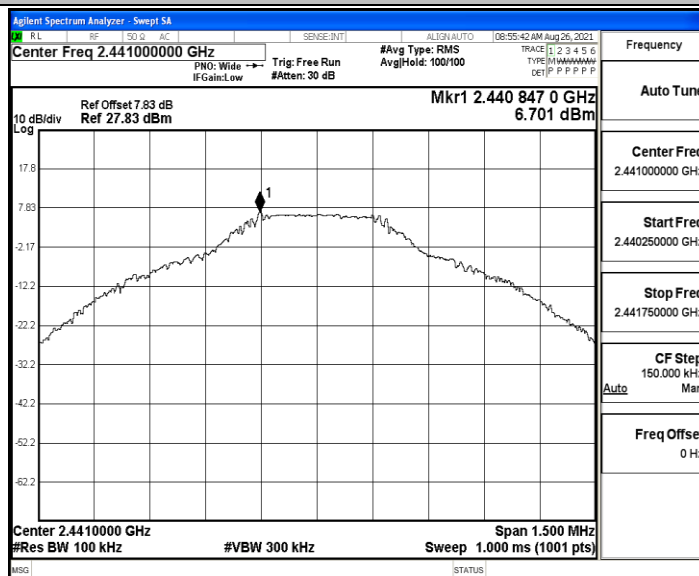




DH5_Ant1_2402_1000~26500

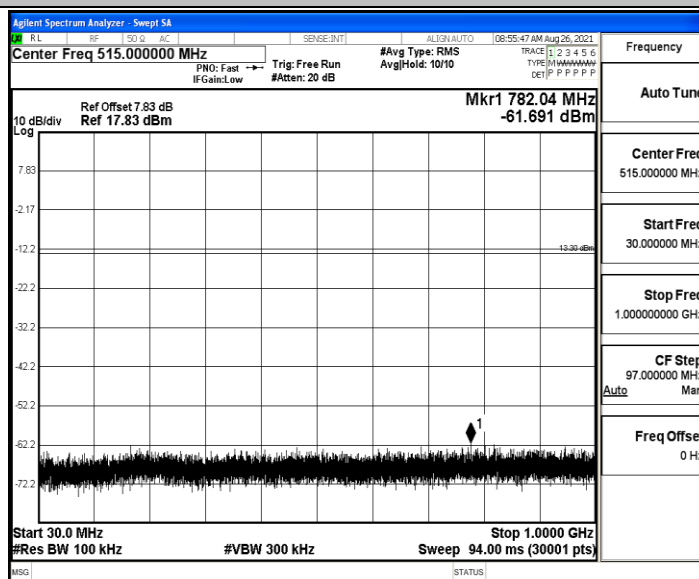


DH5_Ant1_2441_0~Reference

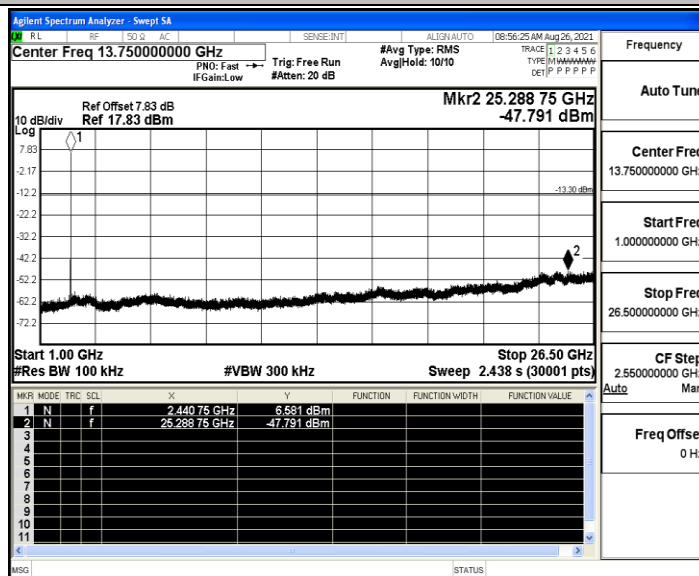




DH5_Ant1_2441_30~1000

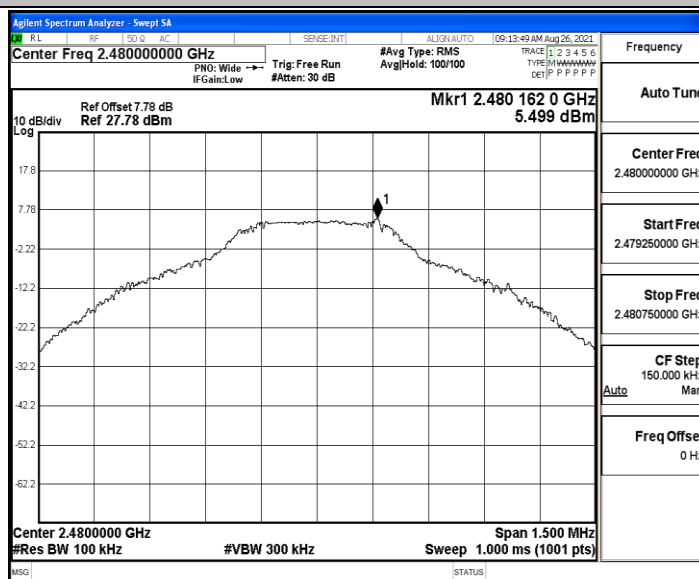


DH5_Ant1_2441_1000~26500

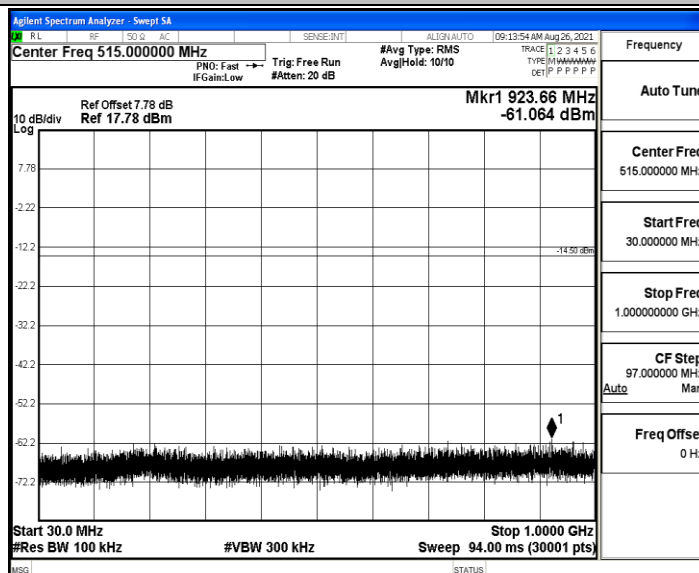




DH5_Ant1_2480_0~Reference

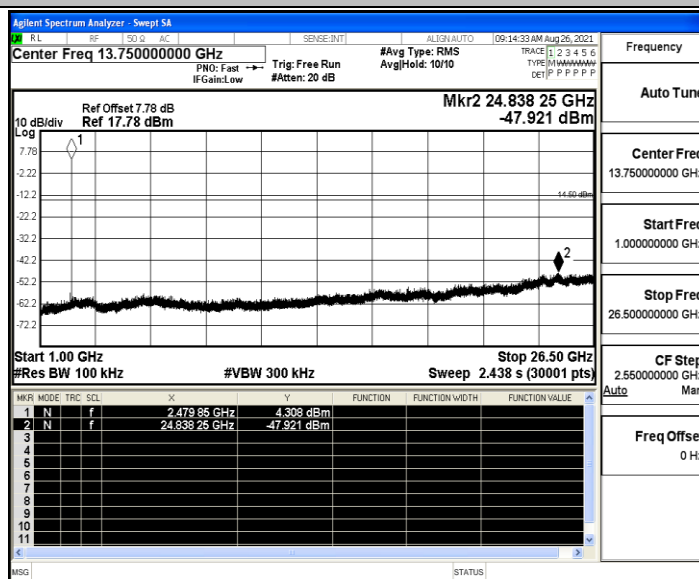


DH5_Ant1_2480_30~1000

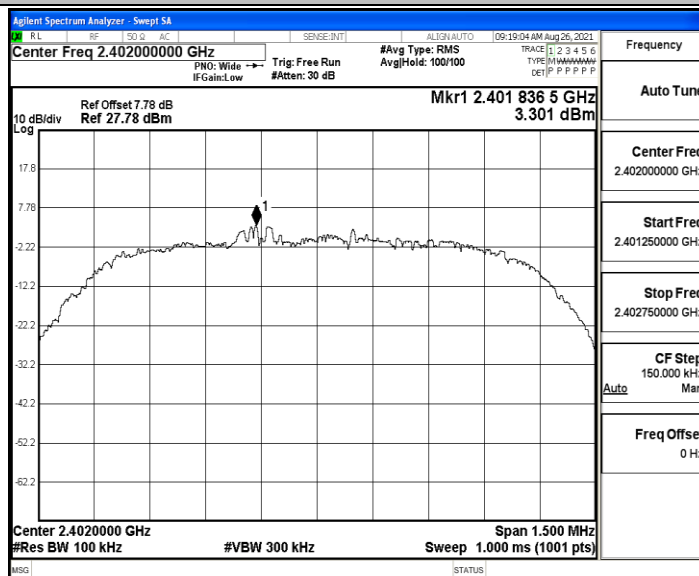




DH5_Ant1_2480_1000~26500

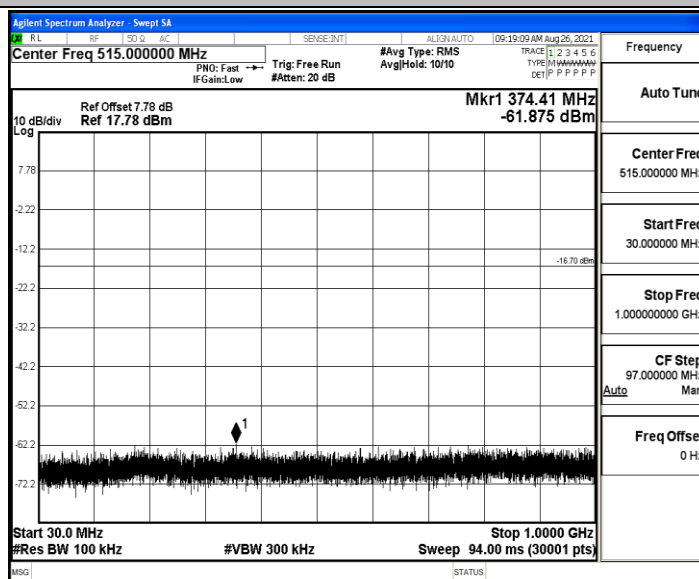


2DH5_Ant1_2402_0~Reference

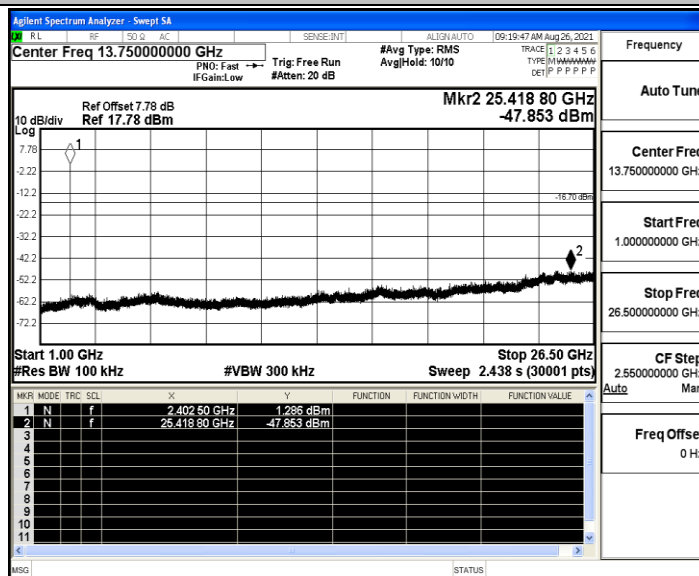




2DH5_Ant1_2402_30~1000

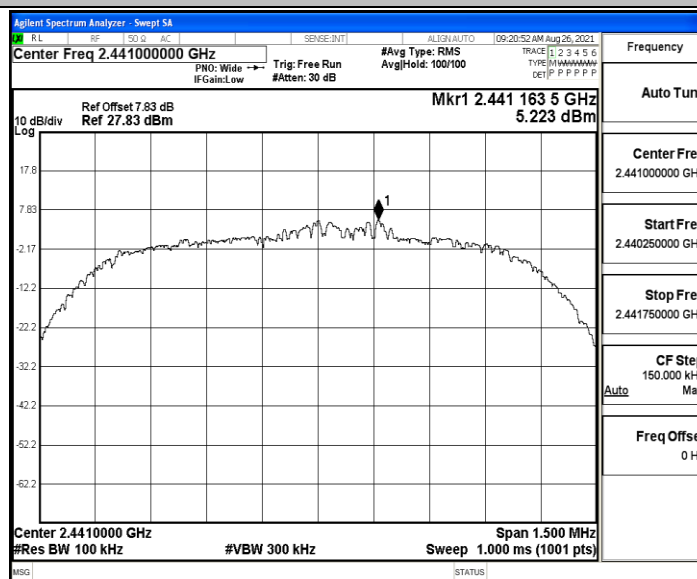


2DH5_Ant1_2402_1000~26500

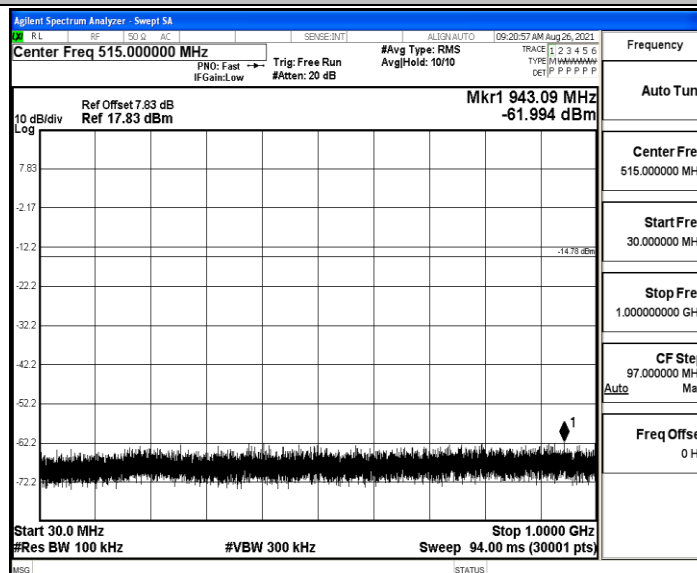




2DH5_Ant1_2441_0~Reference

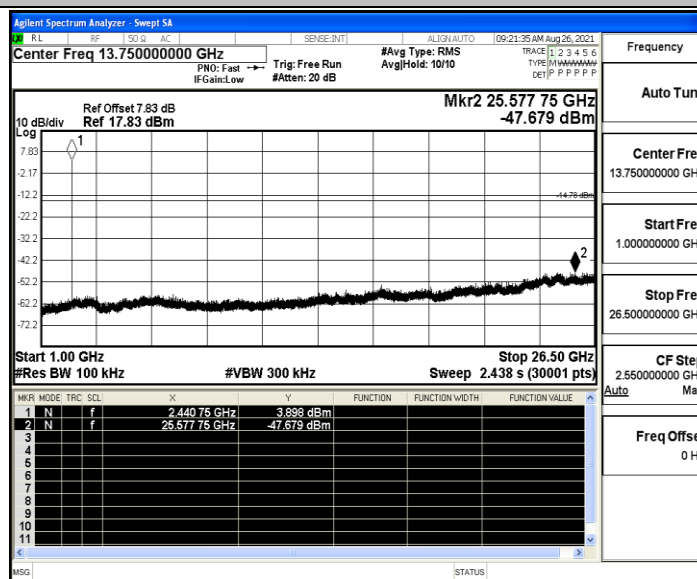


2DH5_Ant1_2441_30~1000

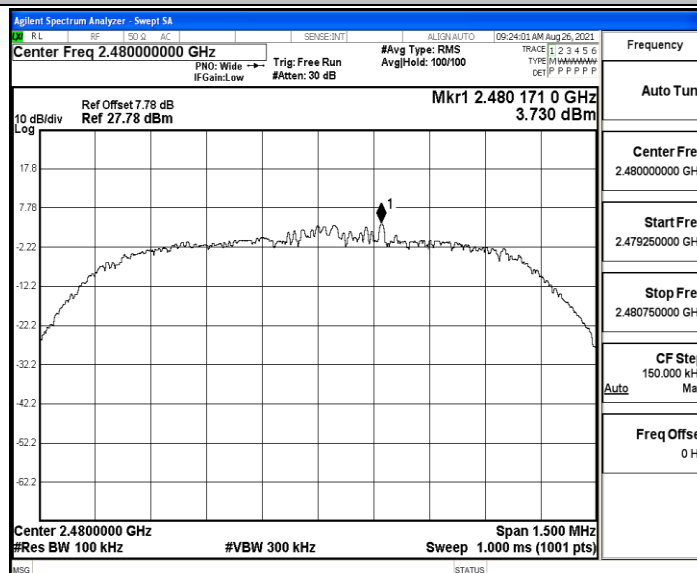




2DH5_Ant1_2441_1000-26500

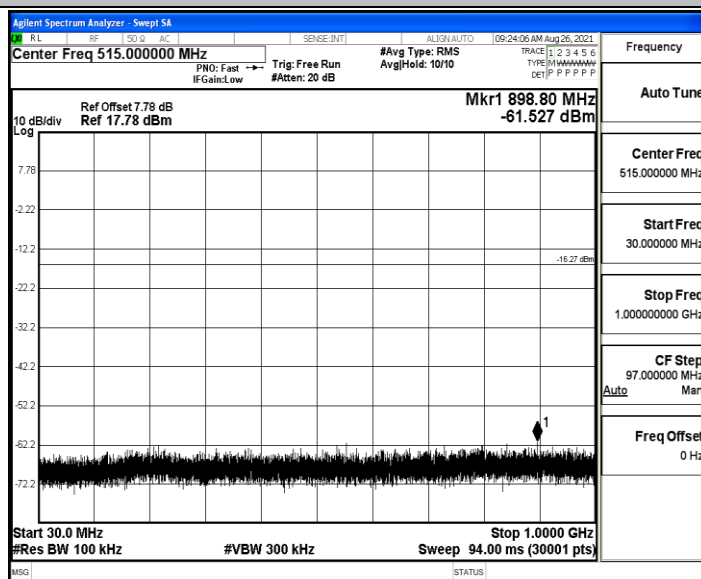


2DH5_Ant1_2480_0-Reference

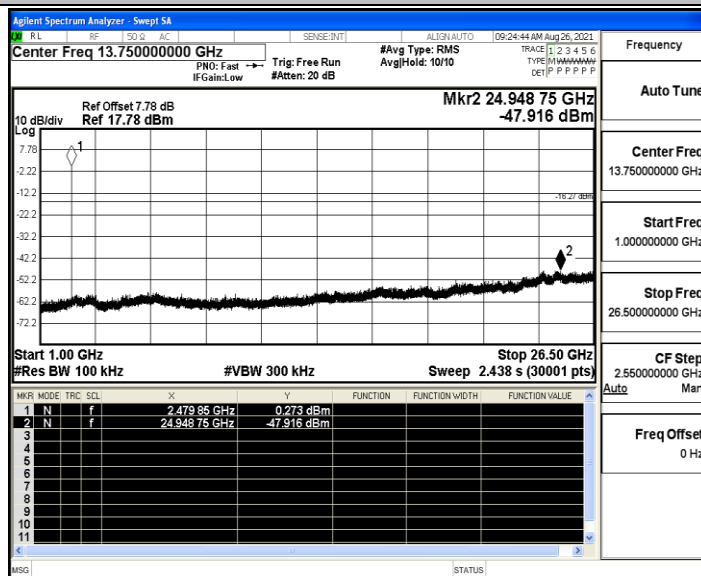




2DH5_Ant1_2480_30~1000

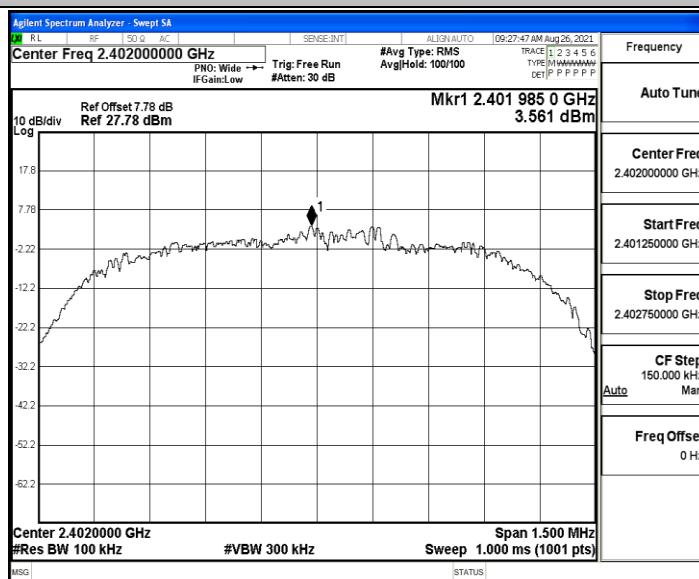


2DH5_Ant1_2480_1000~26500

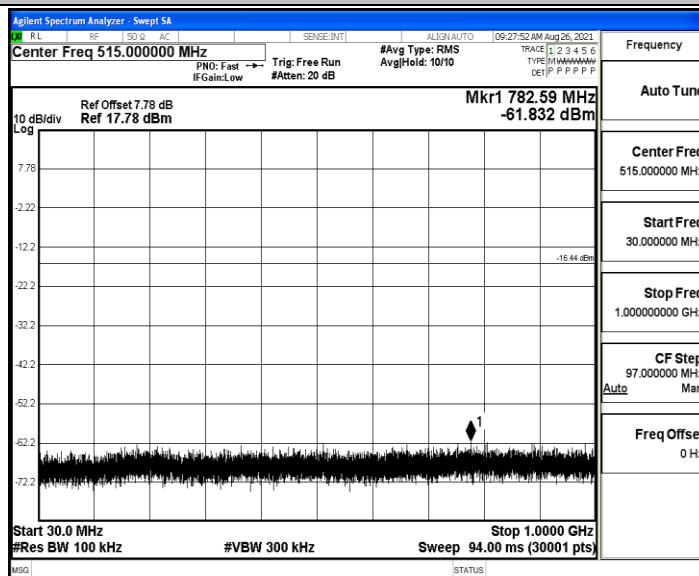




3DH5_Ant1_2402_0~Reference

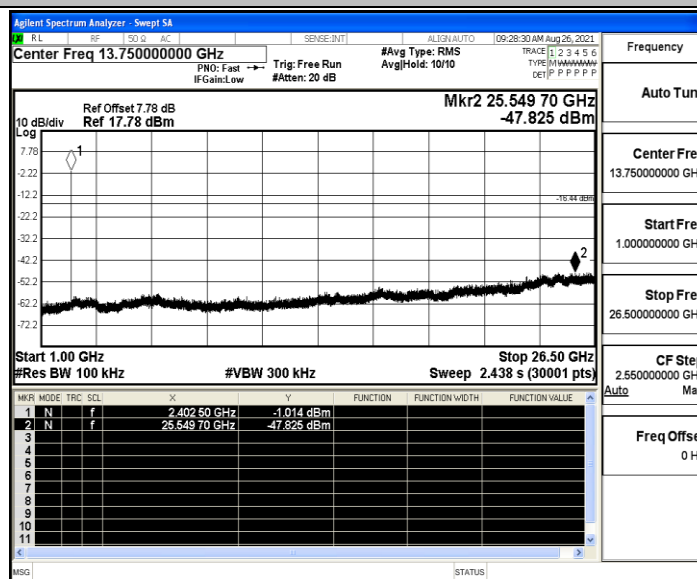


3DH5_Ant1_2402_30~1000

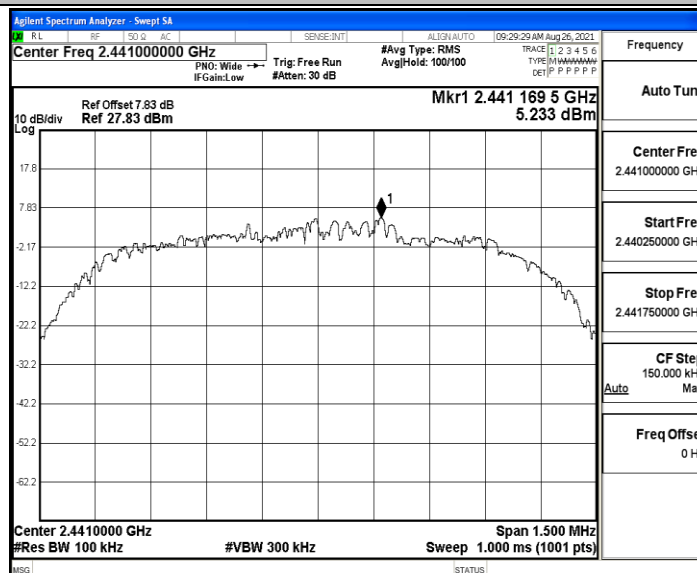




3DH5_Ant1_2402_1000-26500

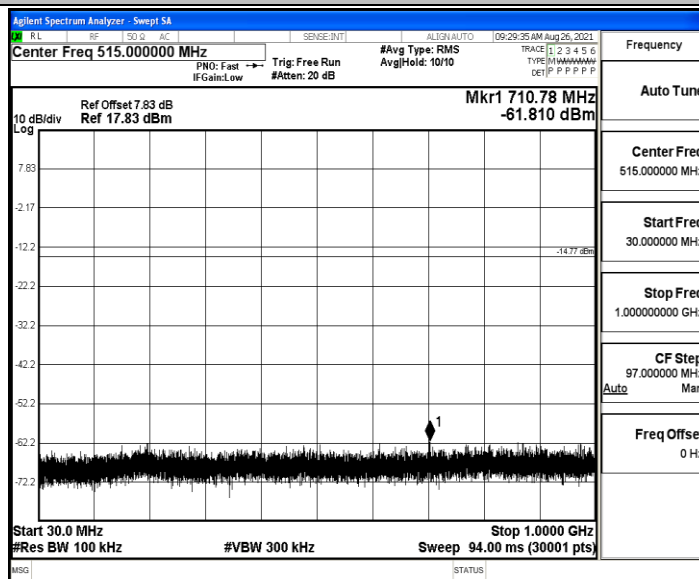


3DH5_Ant1_2441_0-Reference

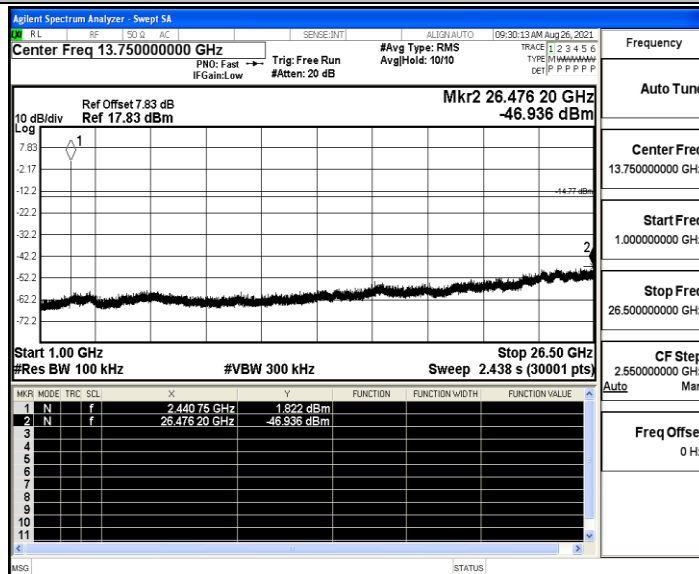




3DH5_Ant1_2441_30~1000

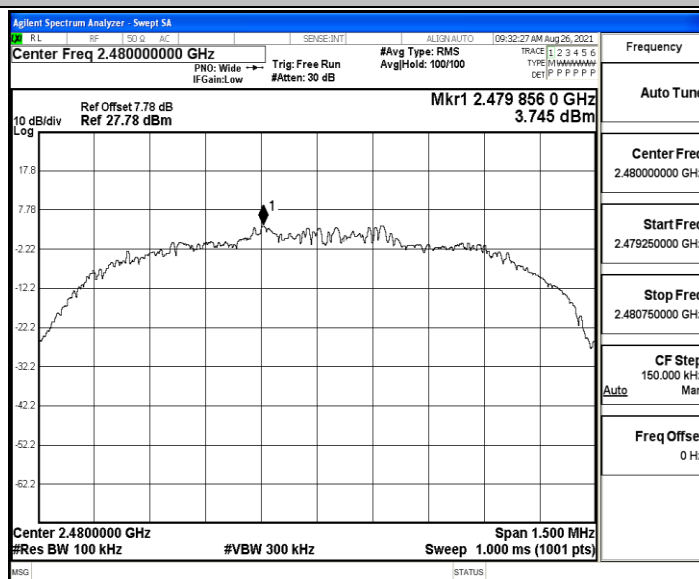


3DH5_Ant1_2441_1000~26500

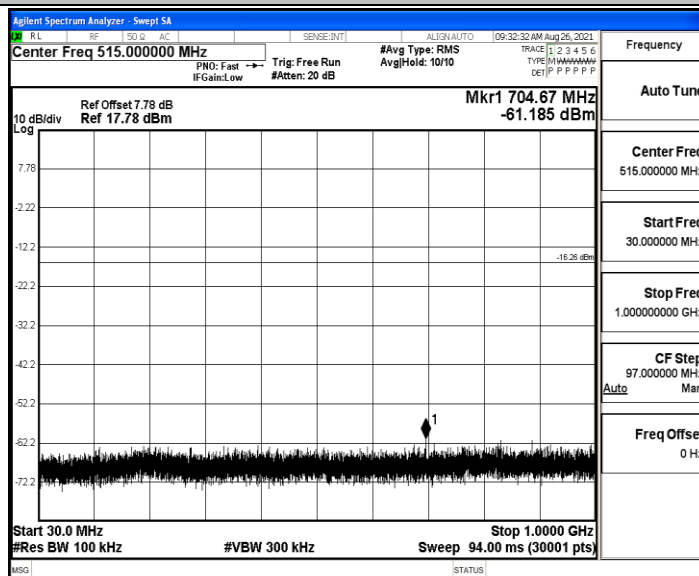




3DH5_Ant1_2480_0~Reference

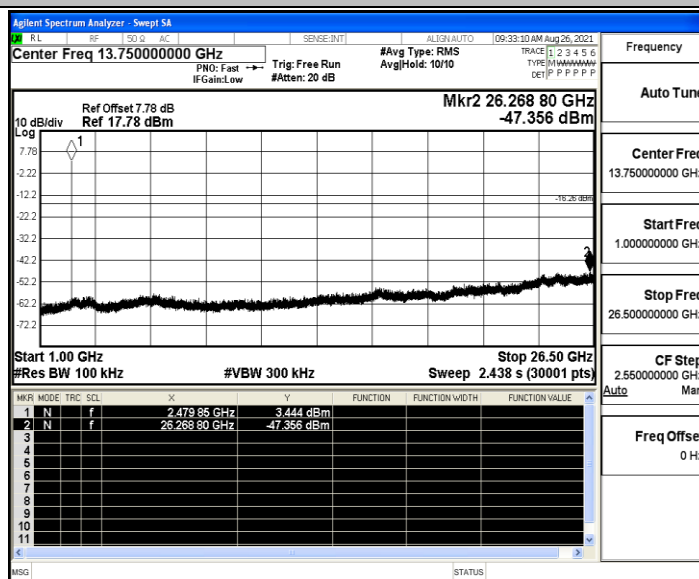


3DH5_Ant1_2480_30~1000





3DH5_Ant1_2480_1000-26500





A.8 Emissions in Restricted Bands

Test Result

TestMod e	Antenn a	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/ m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.54	≤-41.20	45.66	≤54	PASS
				AV	2387.570	-48.77	≤-41.20	46.43	≤54	PASS
				AV	2390.000	-49.1	≤-41.20	46.10	≤54	PASS
				Peak	2310.000	-43.33	≤-21.20	51.87	≤74	PASS
				Peak	2335.385	-41.39	≤-21.20	53.81	≤74	PASS
				Peak	2390.000	-45.42	≤-21.20	49.78	≤74	PASS
		High	2480	AV	2483.500	-47.61	≤-41.20	47.59	≤54	PASS
				AV	2483.520	-47.61	≤-41.20	47.59	≤54	PASS
				AV	2500.000	-48.26	≤-41.20	46.94	≤54	PASS
				Peak	2483.500	-41.75	≤-21.20	53.45	≤74	PASS
				Peak	2483.600	-40.64	≤-21.20	54.56	≤74	PASS
				Peak	2500.000	-45.18	≤-21.20	50.02	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.28	≤-41.20	45.92	≤54	PASS
				AV	2389.670	-48.71	≤-41.20	46.49	≤54	PASS
				AV	2390.000	-48.83	≤-41.20	46.37	≤54	PASS
				Peak	2310.000	-52.59	≤-21.20	42.61	≤74	PASS
				Peak	2376.020	-40.9	≤-21.20	54.30	≤74	PASS
				Peak	2390.000	-52.01	≤-21.20	43.19	≤74	PASS
		High	2480	AV	2483.500	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2483.520	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2500.000	-48.29	≤-41.20	46.91	≤54	PASS
				Peak	2483.500	-41.75	≤-21.20	53.45	≤74	PASS
				Peak	2483.600	-40.64	≤-21.20	54.56	≤74	PASS
				Peak	2500.000	-45.18	≤-21.20	50.02	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-49.35	≤-41.20	45.85	≤54	PASS
				AV	2381.270	-48.73	≤-41.20	46.47	≤54	PASS
				AV	2390.000	-49.15	≤-41.20	46.05	≤54	PASS
				Peak	2310.000	-46.19	≤-21.20	49.01	≤74	PASS
				Peak	2322.470	-39.57	≤-21.20	55.63	≤74	PASS
				Peak	2390.000	-47.63	≤-21.20	47.57	≤74	PASS
		High	2480	AV	2483.500	-47.25	≤-41.20	47.95	≤54	PASS
				AV	2483.520	-47.25	≤-41.20	47.95	≤54	PASS
				AV	2500.000	-48.33	≤-41.20	46.87	≤54	PASS
				Peak	2483.500	-41.75	≤-21.20	53.45	≤74	PASS
				Peak	2483.600	-40.64	≤-21.20	54.56	≤74	PASS
				Peak	2500.000	-45.18	≤-21.20	50.02	≤74	PASS



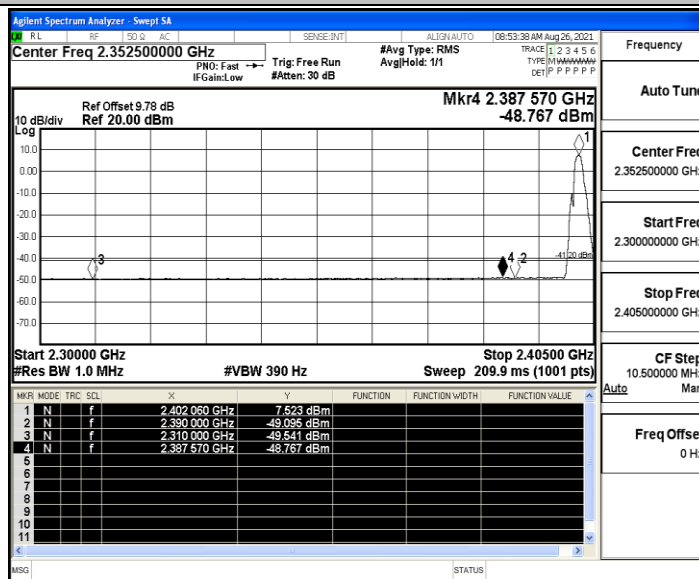
Note:

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.

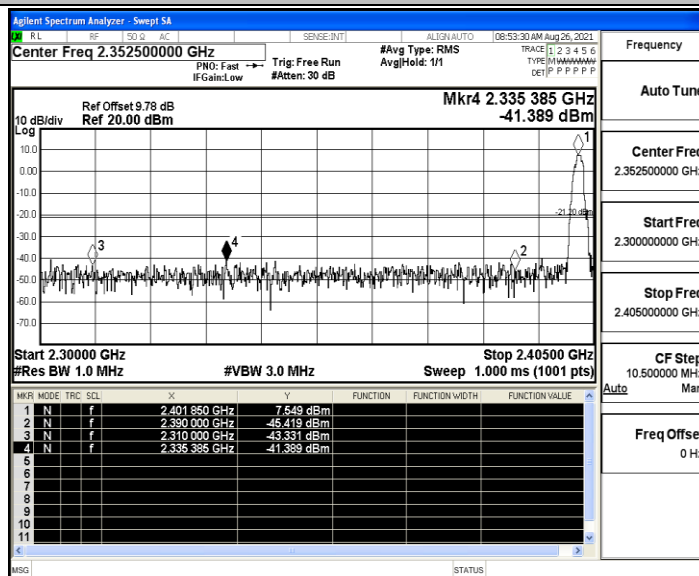


Test Graphs

DH5_Ant1_Low_2402_AV

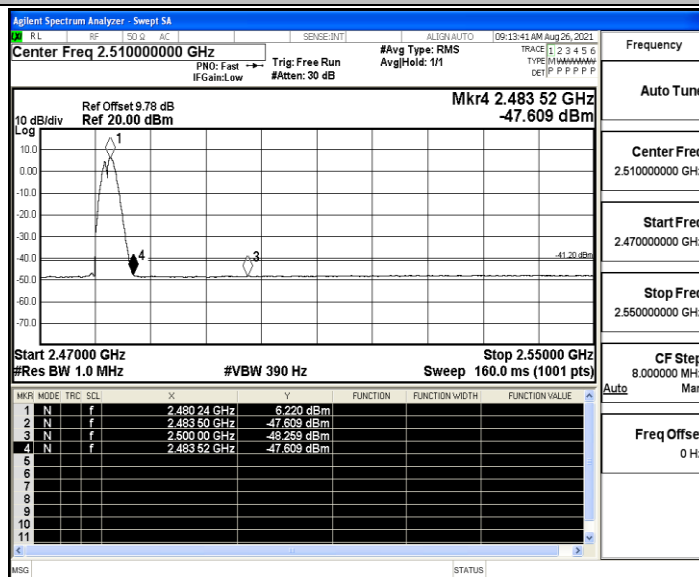


DH5_Ant1_Low_2402_Peak

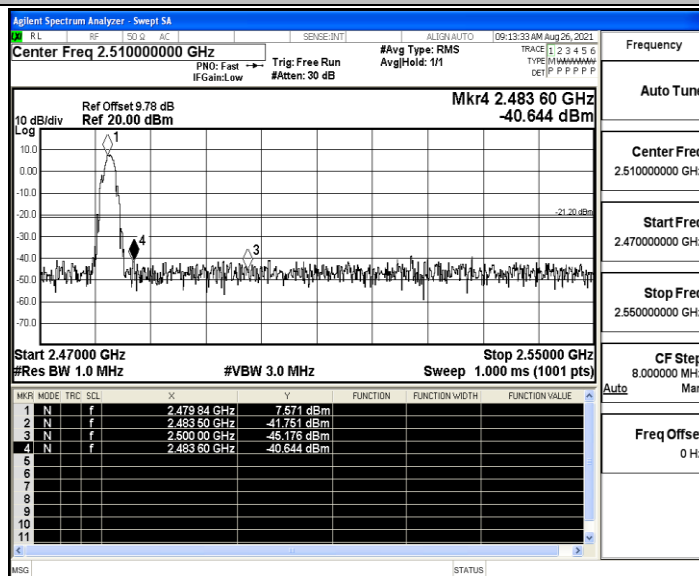




DH5_Ant1_High_2480_AV

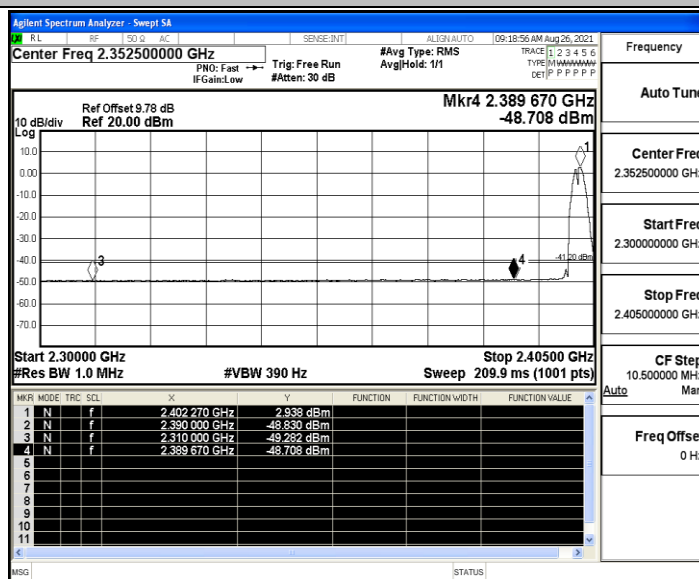


DH5_Ant1_High_2480_Peak

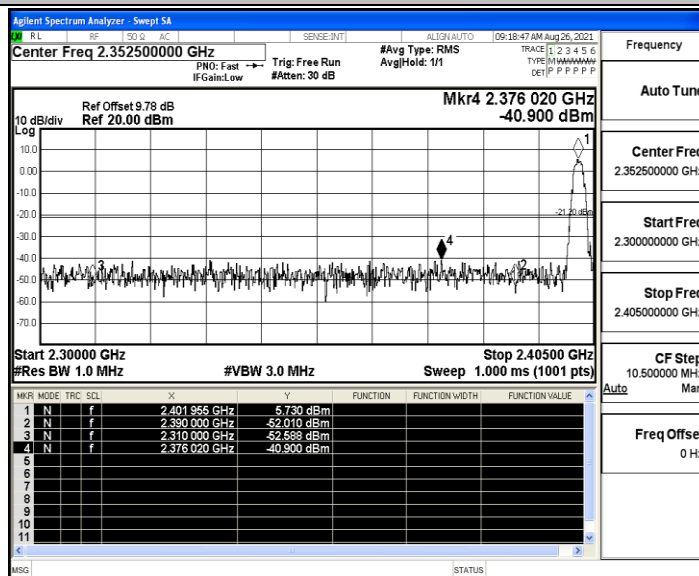




2DH5_Ant1_Low_2402_AV

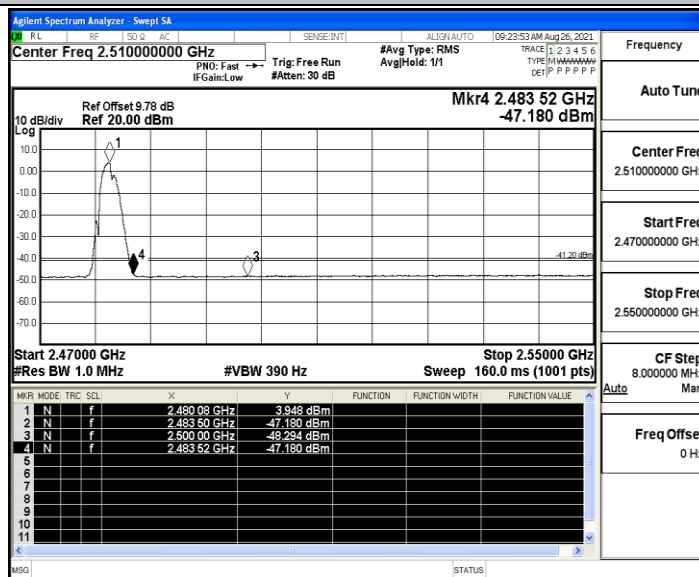


2DH5_Ant1_Low_2402_Peak

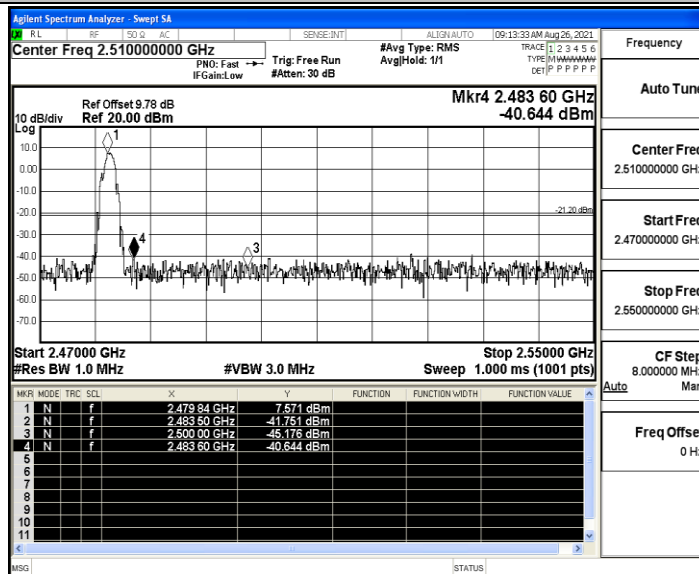




2DH5_Ant1_High_2480_AV

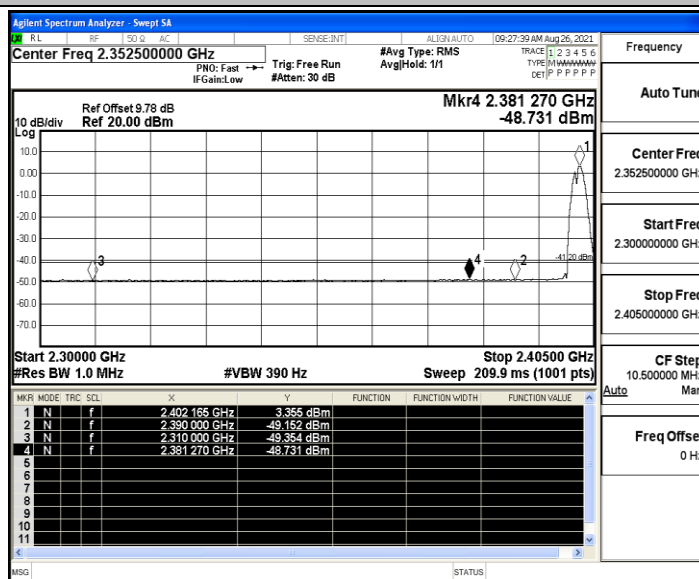


2DH5_Ant1_High_2480_Peak

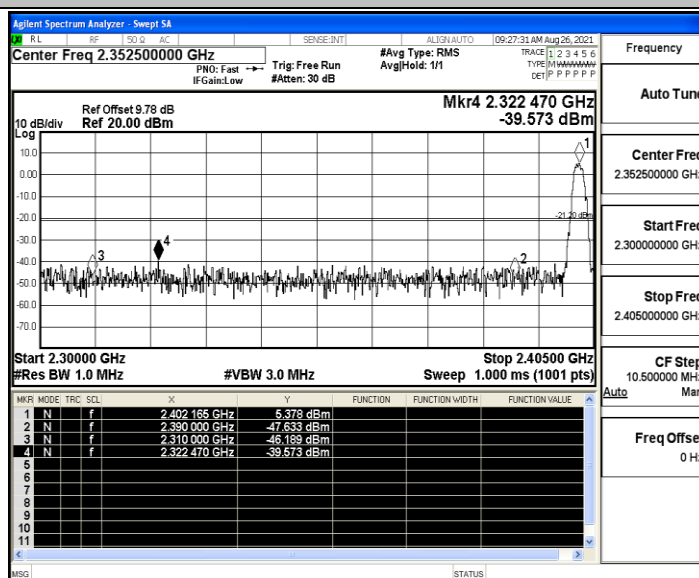




3DH5_Ant1_Low_2402_AV

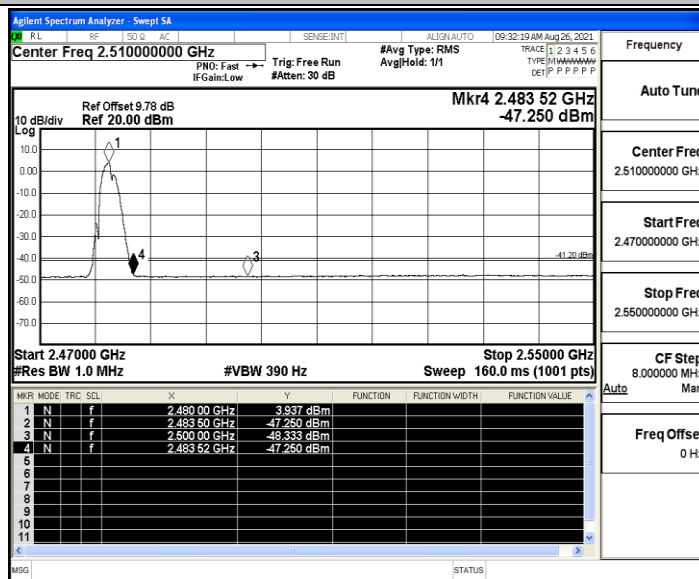


3DH5_Ant1_Low_2402_Peak





3DH5_Ant1_High_2480_AV



3DH5_Ant1_High_2480_Peak

