



Appendix A

RF Test Data for BT V4.2(DSS) (Conducted Measurement)

Product Name: Car Audio

Trade Mark: NAKAMICHI

Test Model: NQ822B

Environmental Conditions

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



A.1 20dB Emission Bandwidth

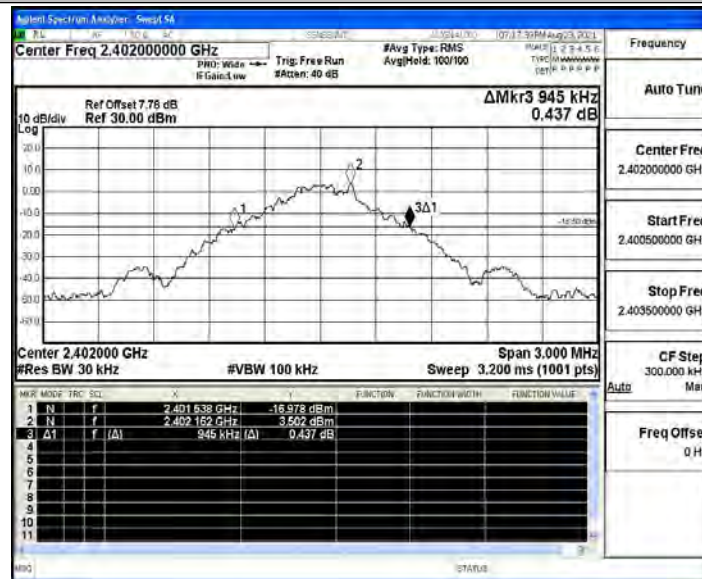
Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.945	2401.538	2402.483	---	PASS
		2441	1.041	2440.463	2441.504	---	PASS
		2480	1.023	2479.478	2480.501	---	PASS
2DH5	Ant1	2402	1.338	2401.331	2402.669	---	PASS
		2441	1.290	2440.364	2441.654	---	PASS
		2480	1.320	2479.340	2480.660	---	PASS
3DH5	Ant1	2402	1.305	2401.349	2402.654	---	PASS
		2441	1.314	2440.346	2441.660	---	PASS
		2480	1.299	2479.349	2480.648	---	PASS

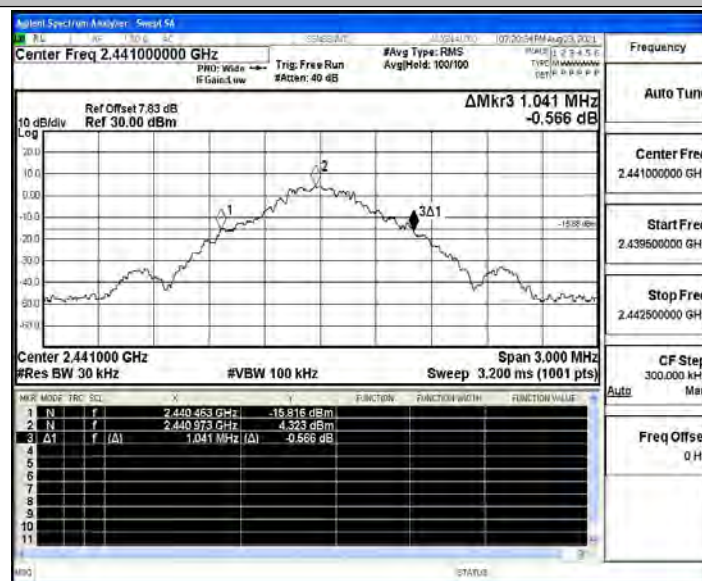


Test Graphs

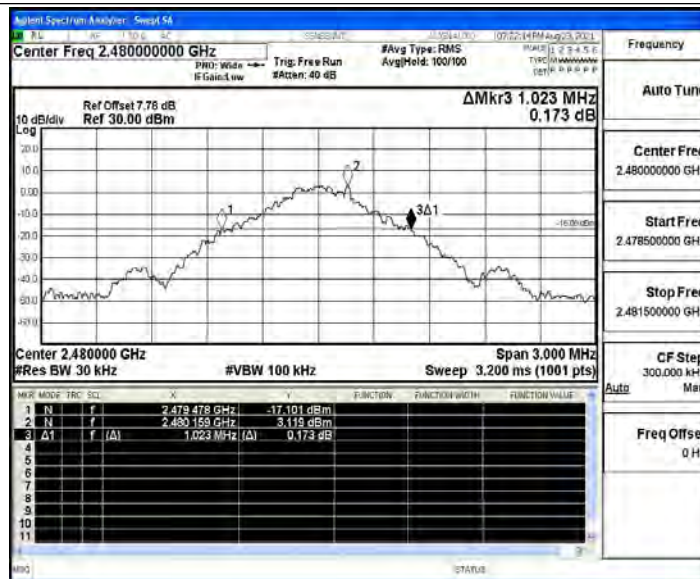
DH5_Ant1_2402



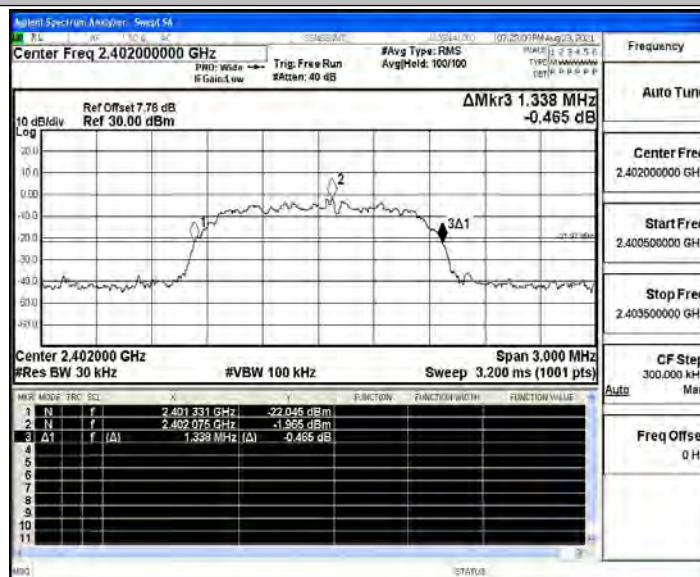
DH5_Ant1_2441



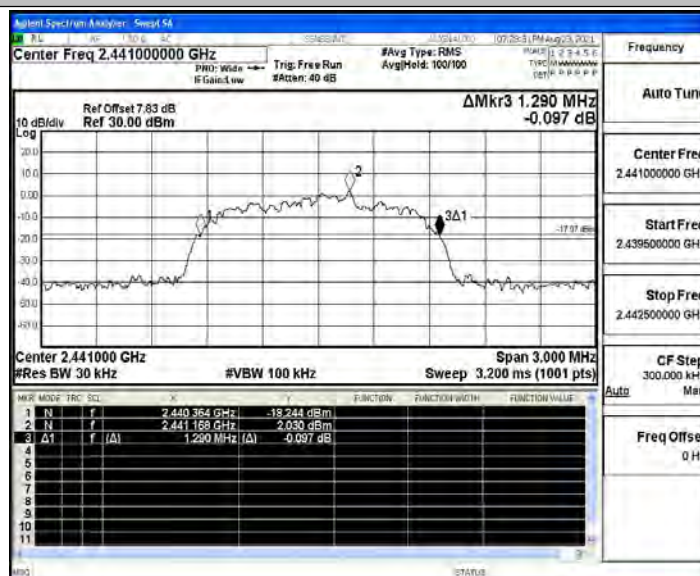
DH5_Ant1_2480



2DH5_Ant1_2402

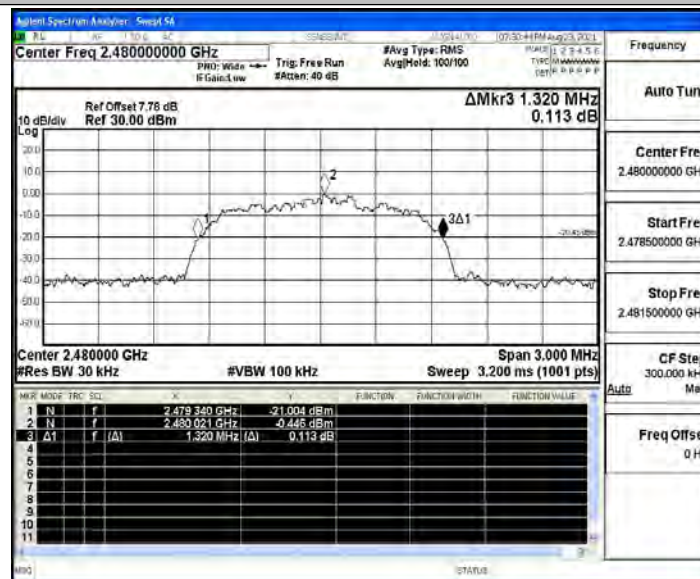


2DH5_Ant1_2441

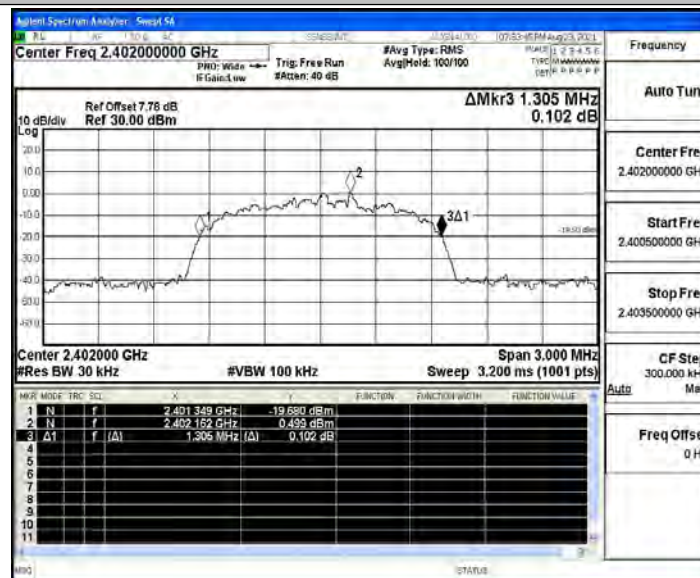




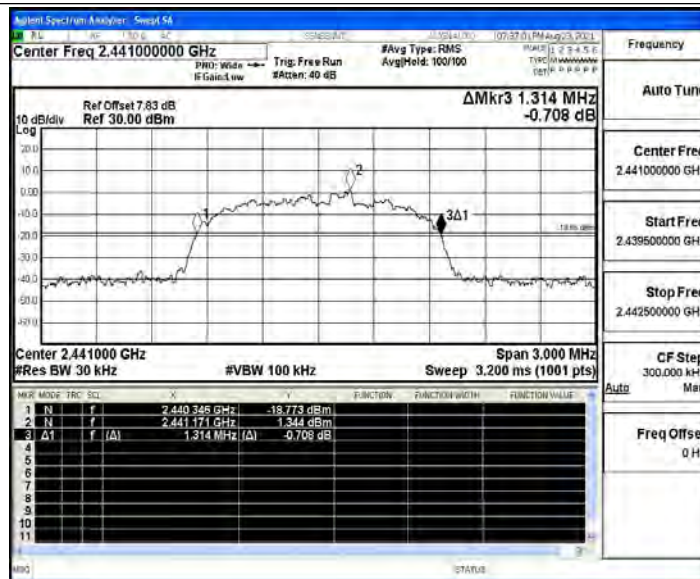
2DH5_Ant1_2480



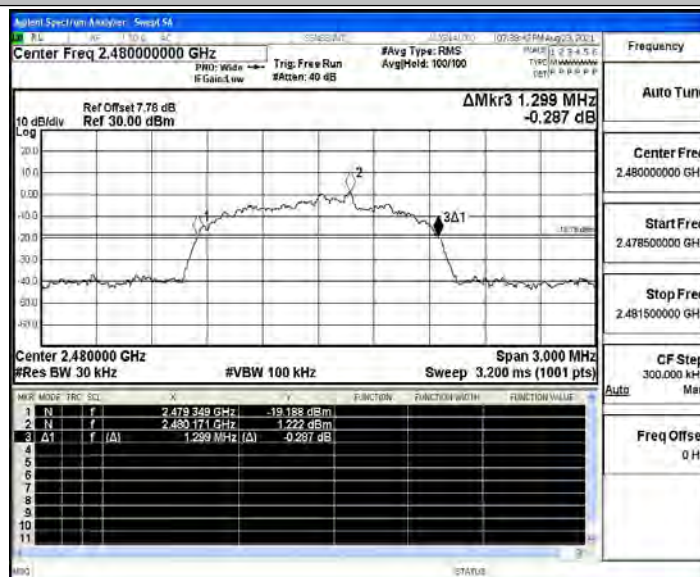
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480





A.2 Maximum peak conducted output power

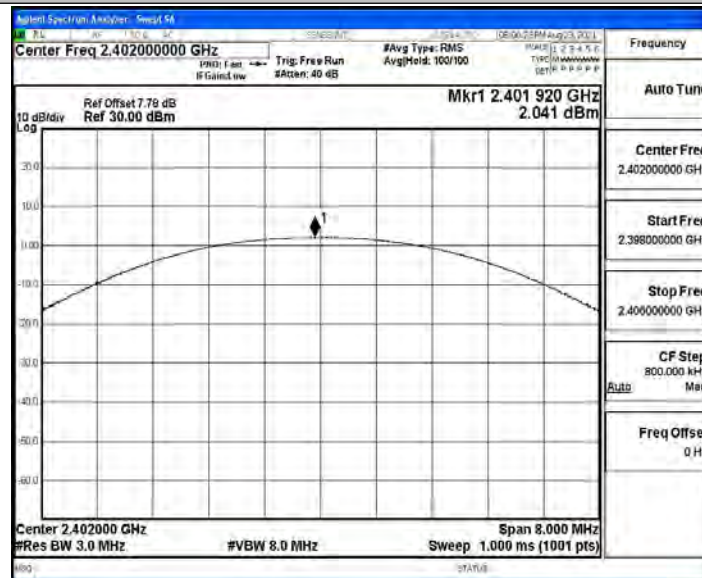
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	2.04	≤ 20.97	PASS
		2441	1.62	≤ 20.97	PASS
		2480	1.57	≤ 20.97	PASS
2DH5	Ant1	2402	0.88	≤ 20.97	PASS
		2441	2.44	≤ 20.97	PASS
		2480	1.04	≤ 20.97	PASS
3DH5	Ant1	2402	1.28	≤ 20.97	PASS
		2441	2.55	≤ 20.97	PASS
		2480	1.18	≤ 20.97	PASS

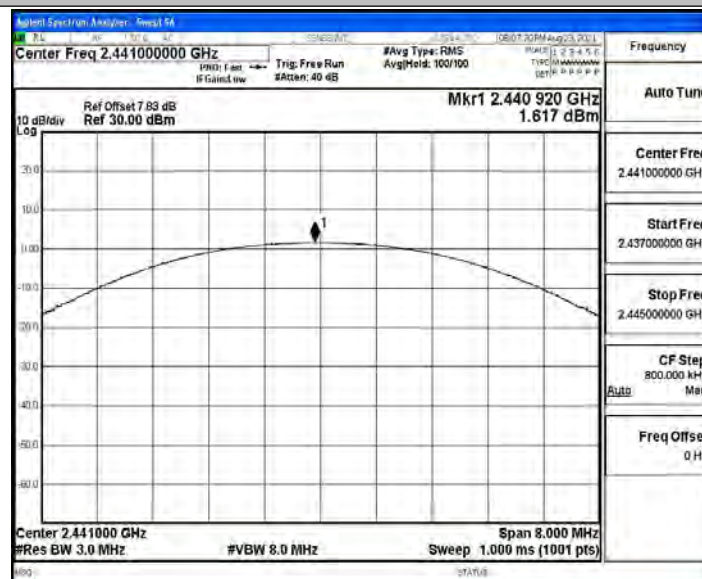


Test Graphs

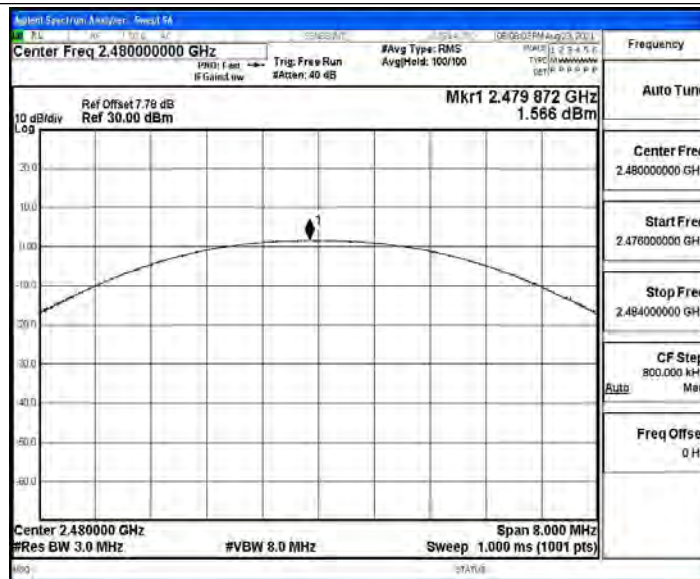
DH5_Ant1_2402



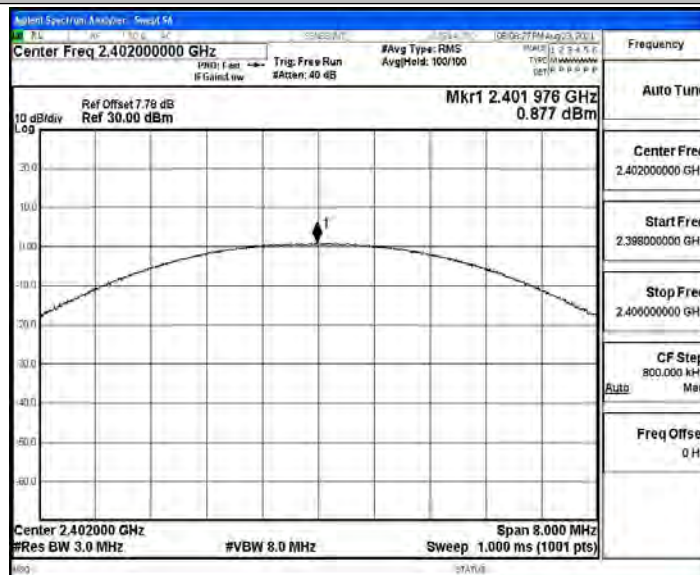
DH5_Ant1_2441



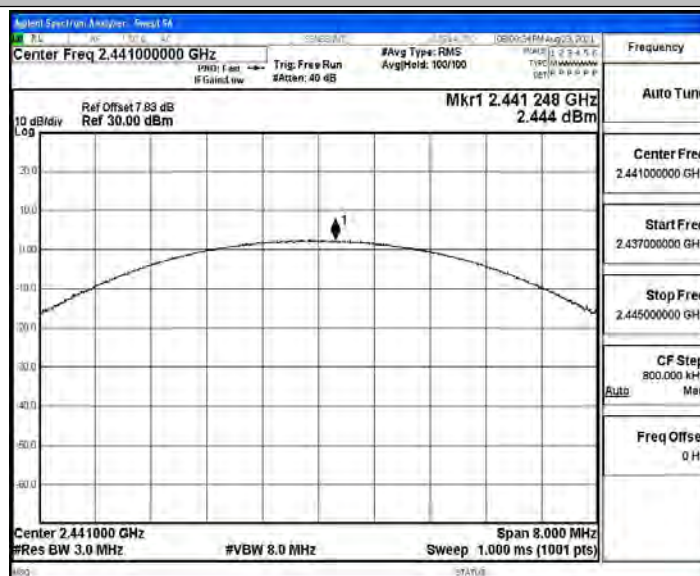
DH5_Ant1_2480



2DH5_Ant1_2402

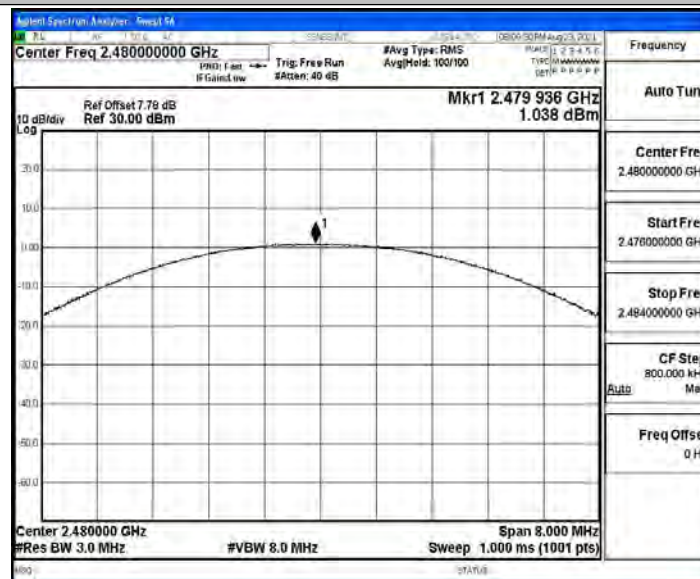


2DH5_Ant1_2441

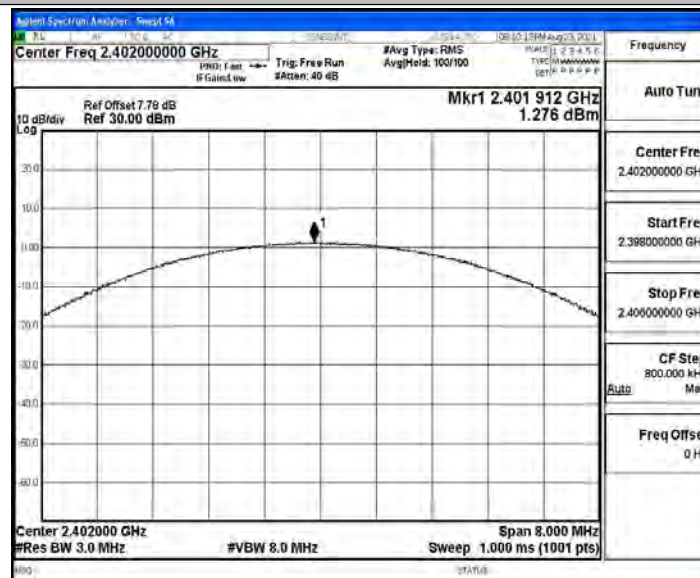




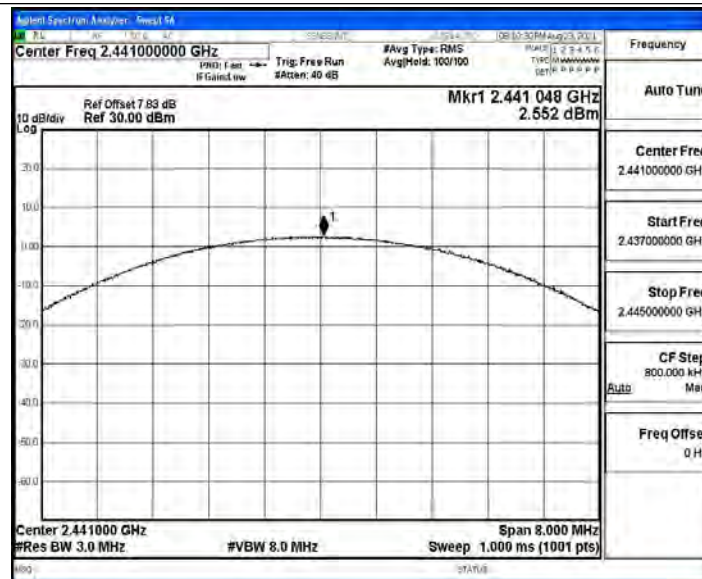
2DH5_Ant1_2480



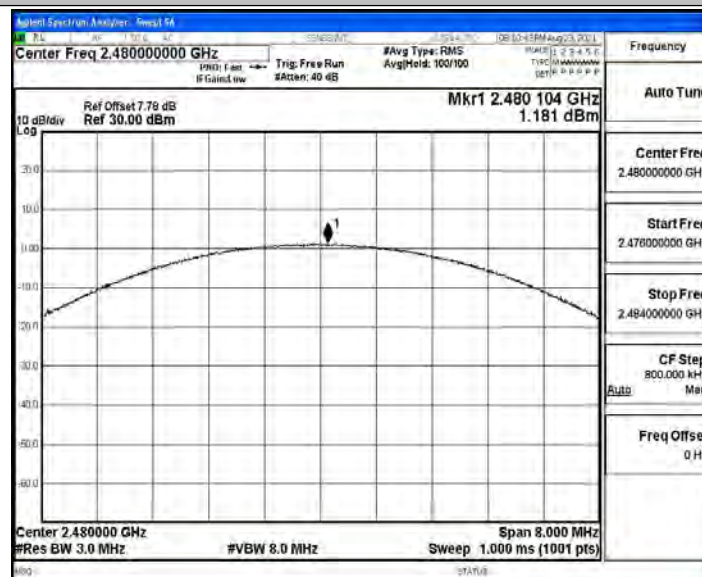
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480





A.3 Carrier frequency separation

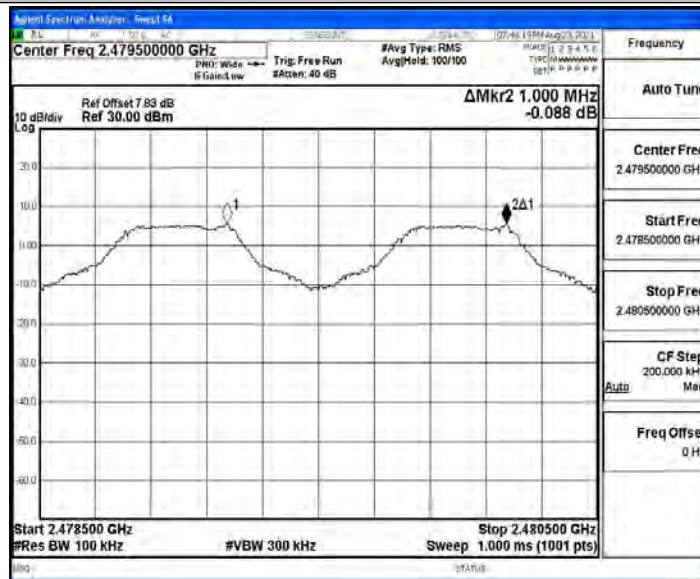
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	1	≥ 0.694	PASS
2DH5	Ant1	Hop	1.3	≥ 0.892	PASS
3DH5	Ant1	Hop	0.99	≥ 0.876	PASS

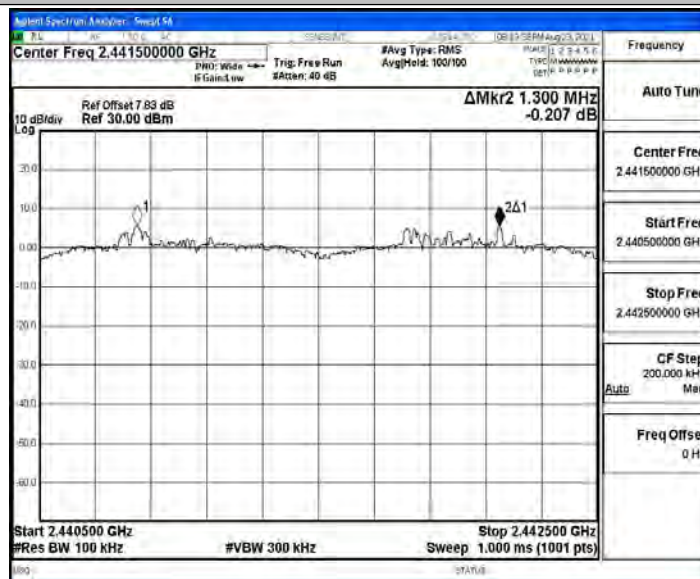


Test Graphs

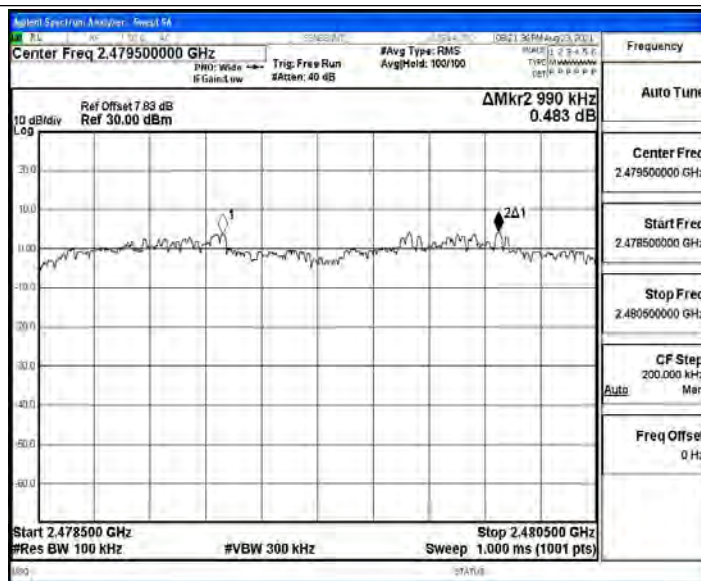
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop





A.4 Time of occupancy

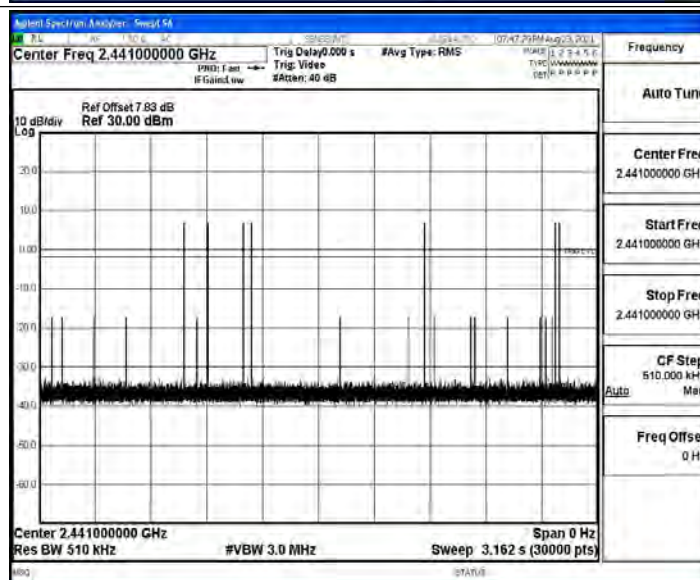
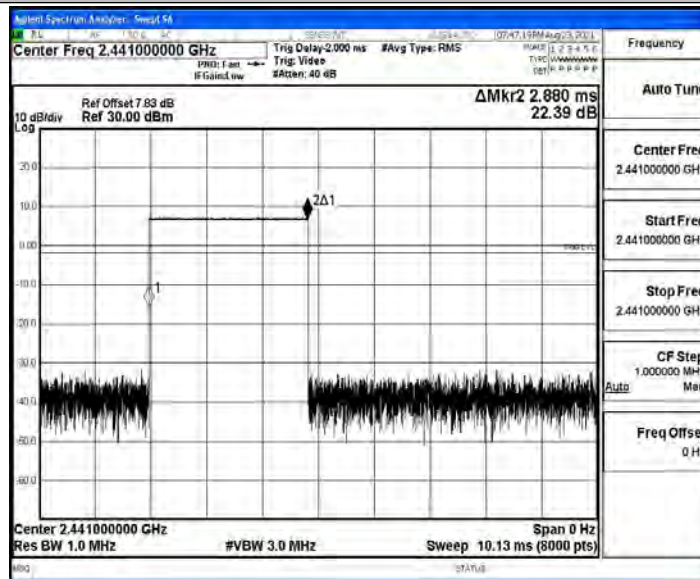
Test Result

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	80	0.23	≤0.4	PASS
2DH5	Ant1	Hop	2.88	110	0.317	≤0.4	PASS
3DH5	Ant1	Hop	2.89	120	0.346	≤0.4	PASS

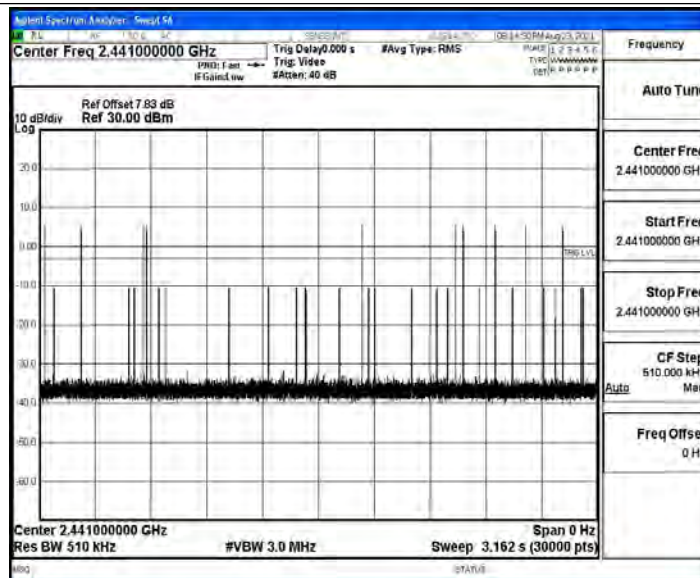
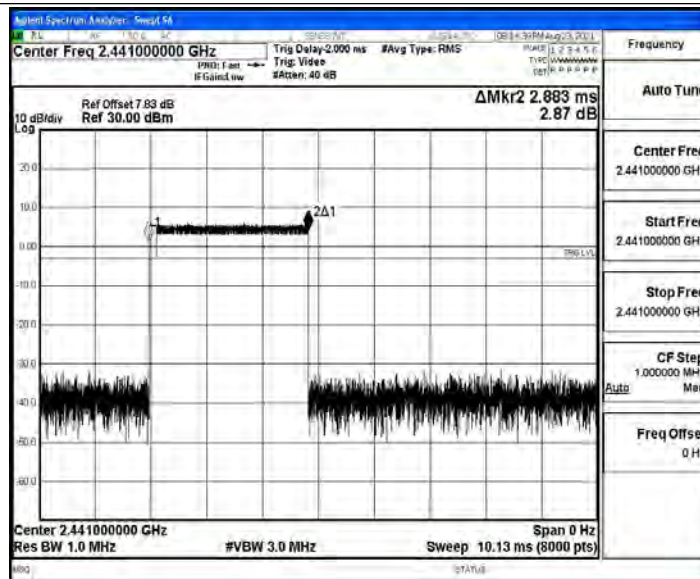


Test Graphs

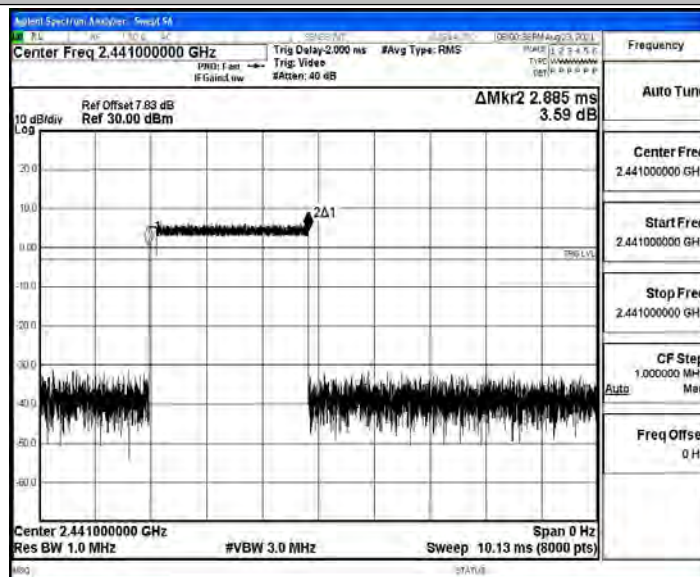
DH5_Ant1_Hop

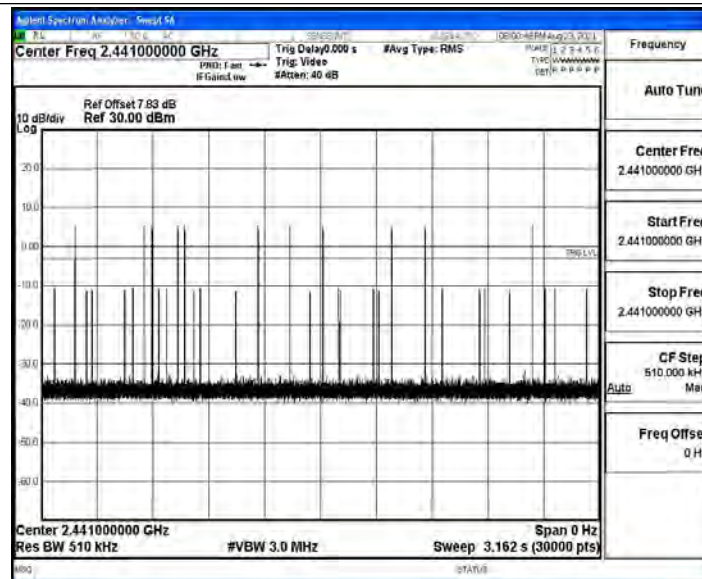


2DH5_Ant1_Hop



3DH5_Ant1_Hop







A.5 Number of hopping channels

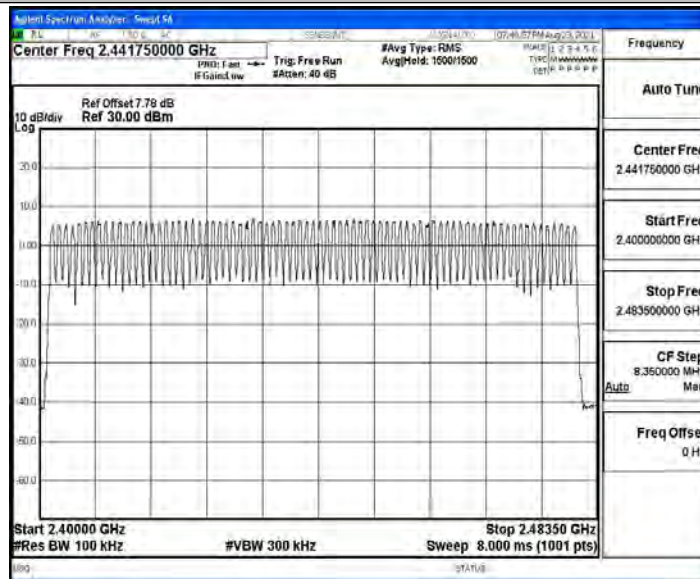
Test Result

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

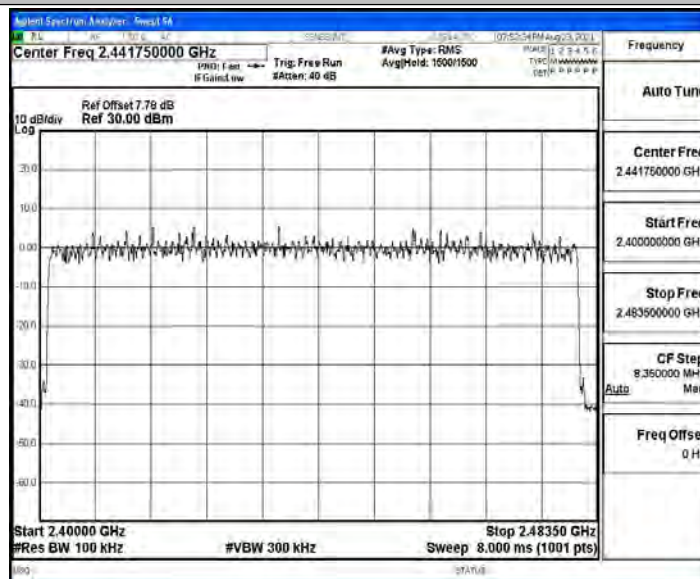


Test Graphs

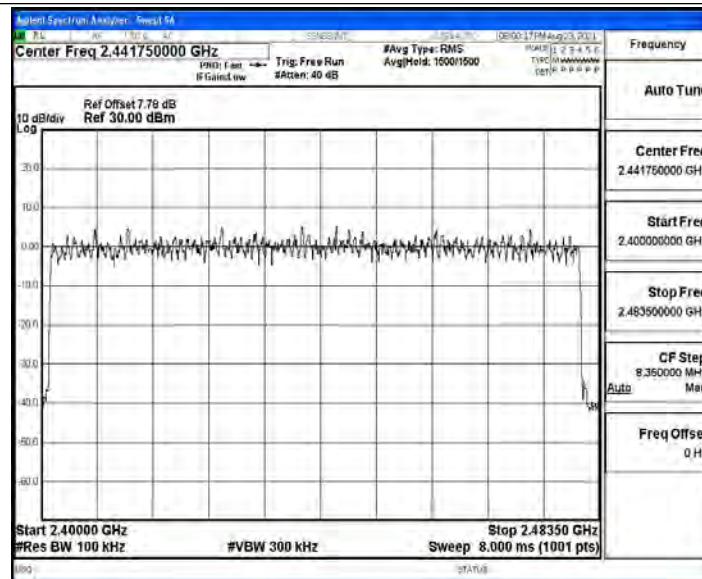
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop





A.6 Band edge measurements

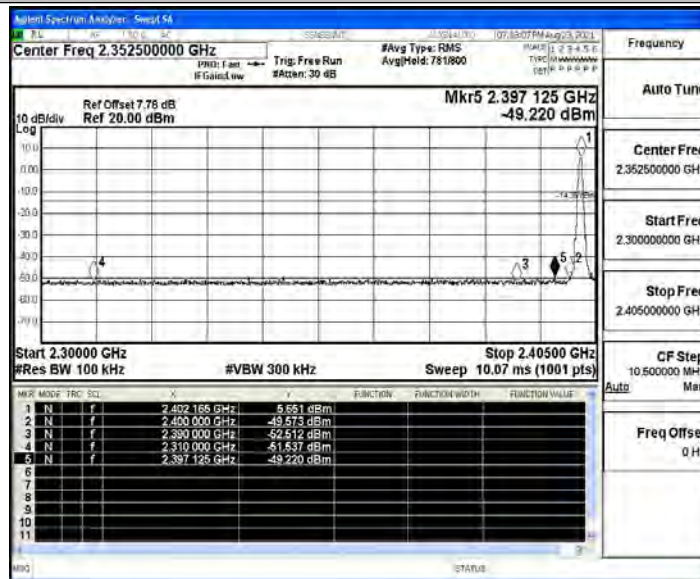
Test Result

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	5.64	-49.22	≤ -14.36	PASS
		High	2480	5.46	-48.89	≤ -14.55	PASS
		Low	Hop_2402	4.97	-49.64	≤ -15.03	PASS
		High	Hop_2480	5.45	-47.96	≤ -14.55	PASS
2DH5	Ant1	Low	2402	3.69	-49.66	≤ -16.31	PASS
		High	2480	3.68	-47.62	≤ -16.32	PASS
		Low	Hop_2402	-0.39	-49.25	≤ -20.39	PASS
		High	Hop_2480	2.00	-48.8	≤ -18	PASS
3DH5	Ant1	Low	2402	3.59	-49.29	≤ -16.41	PASS
		High	2480	3.99	-48.49	≤ -16.01	PASS
		Low	Hop_2402	1.56	-50.08	≤ -18.44	PASS
		High	Hop_2480	3.67	-48.8	≤ -16.33	PASS

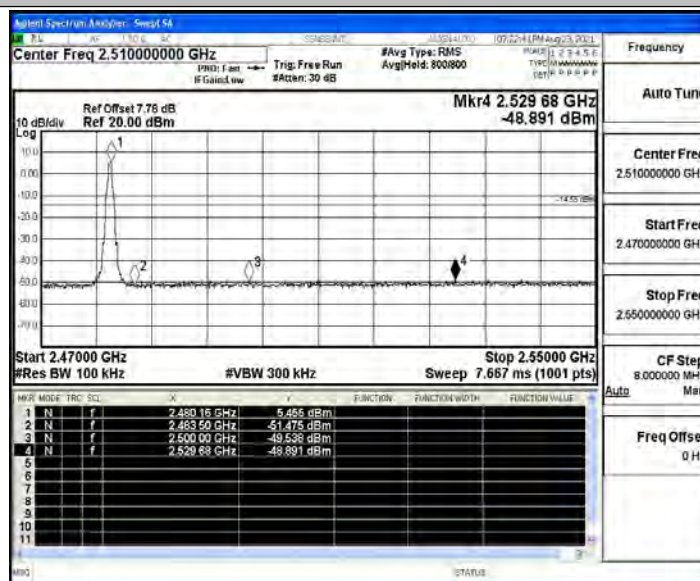


Test Graphs

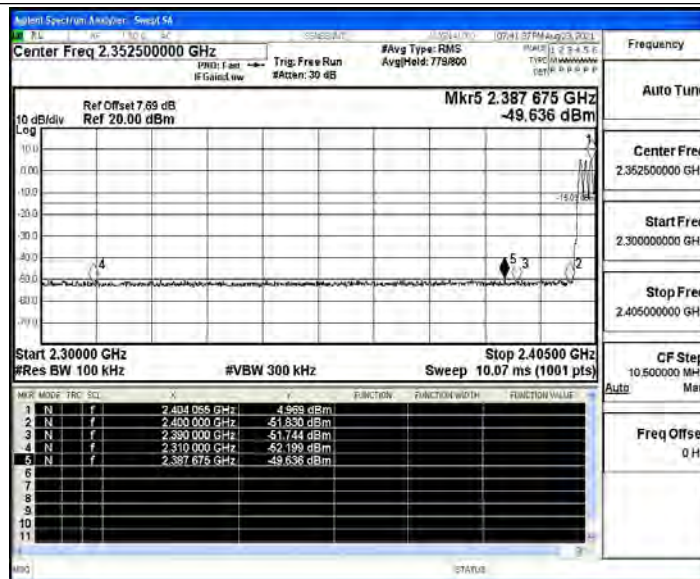
DH5_Ant1_Low_2402



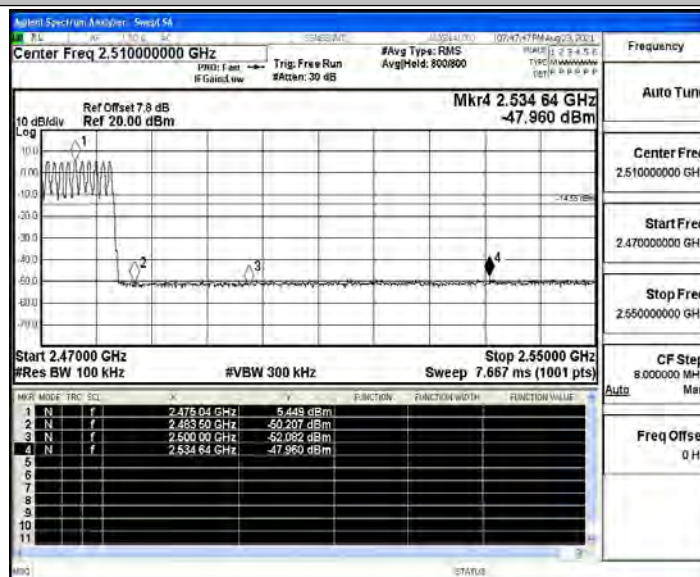
DH5_Ant1_High_2480



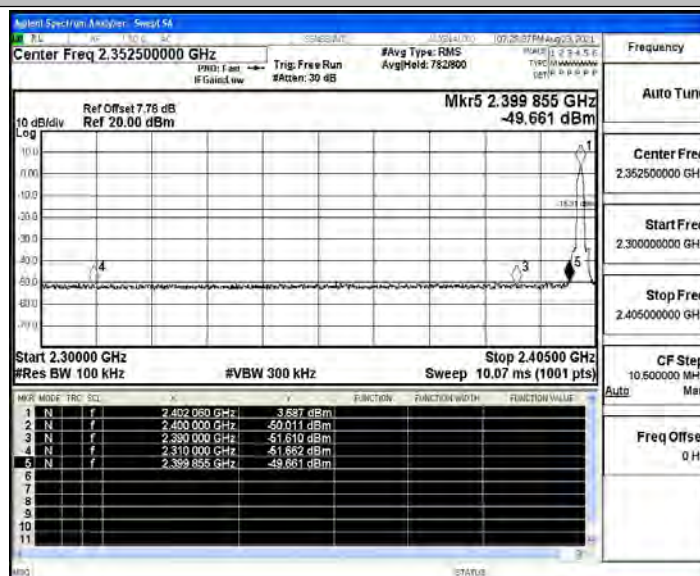
DH5_Ant1_Low_Hop_2402



DH5_Ant1_High_Hop_2480

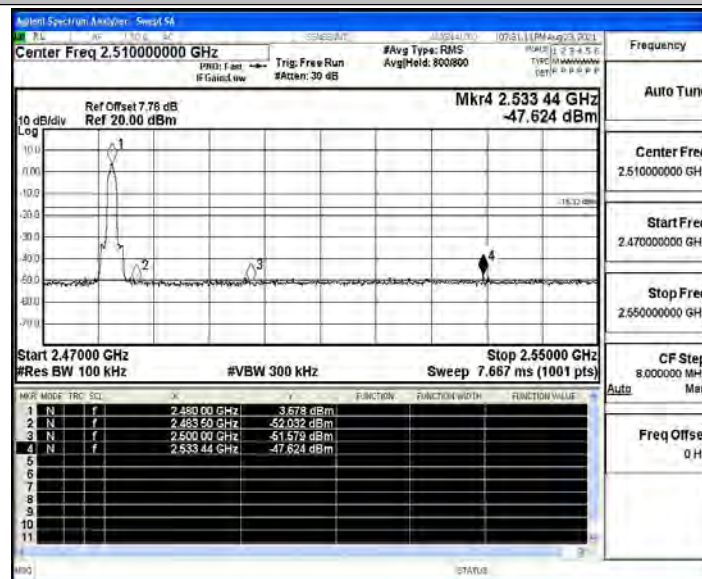


2DH5_Ant1_Low_2402

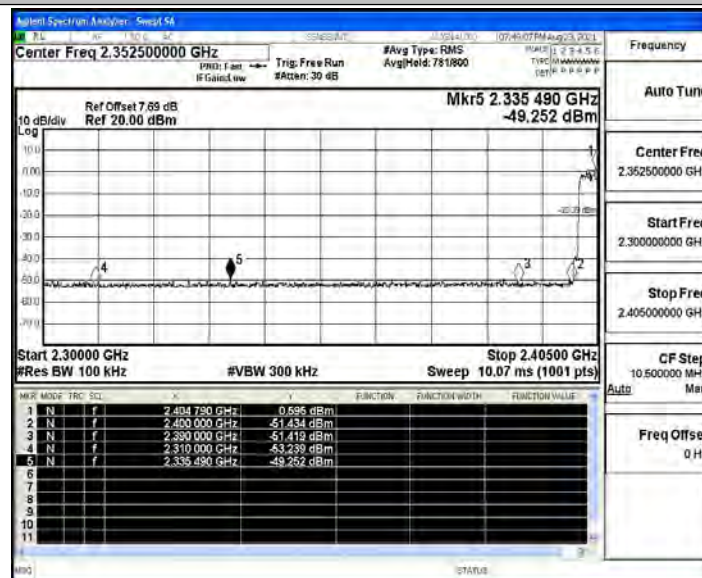




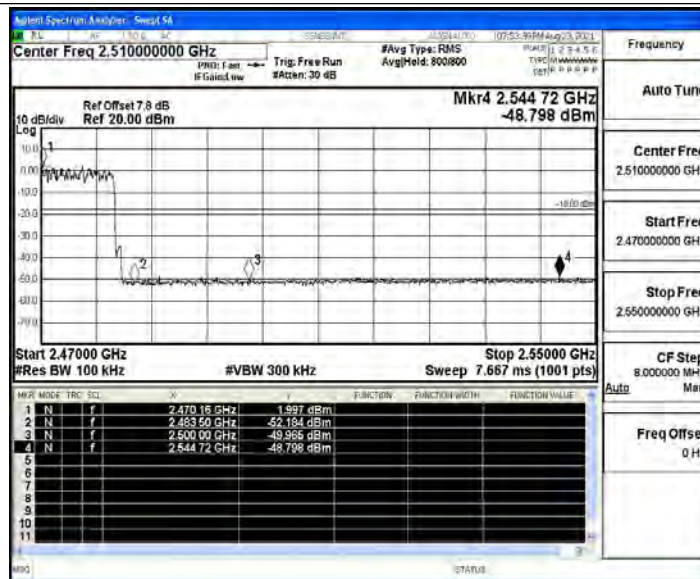
2DH5_Ant1_High_2480



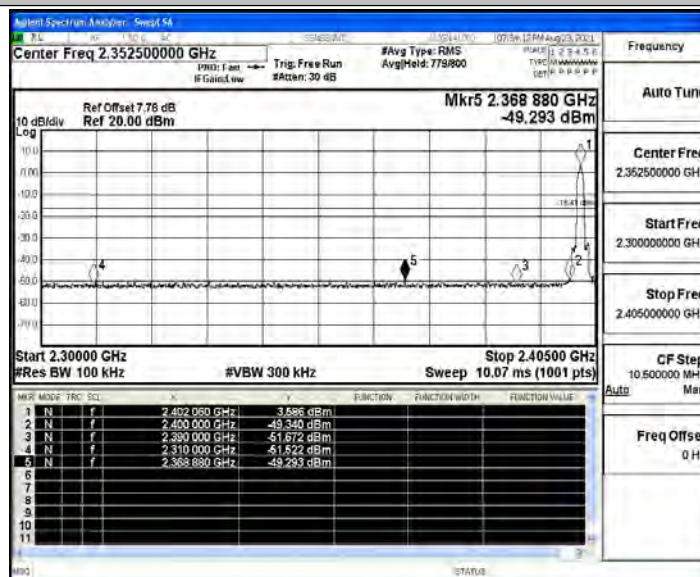
2DH5_Ant1_Low_Hop_2402



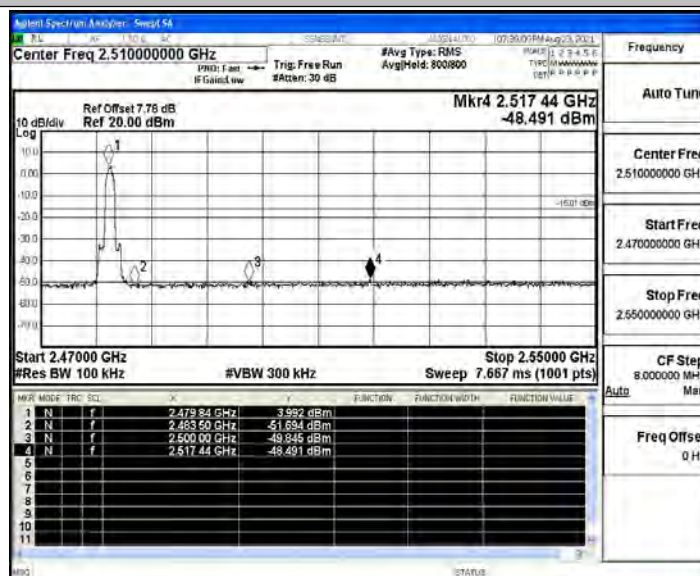
2DH5_Ant1_High_Hop_2480



3DH5_Ant1_Low_2402

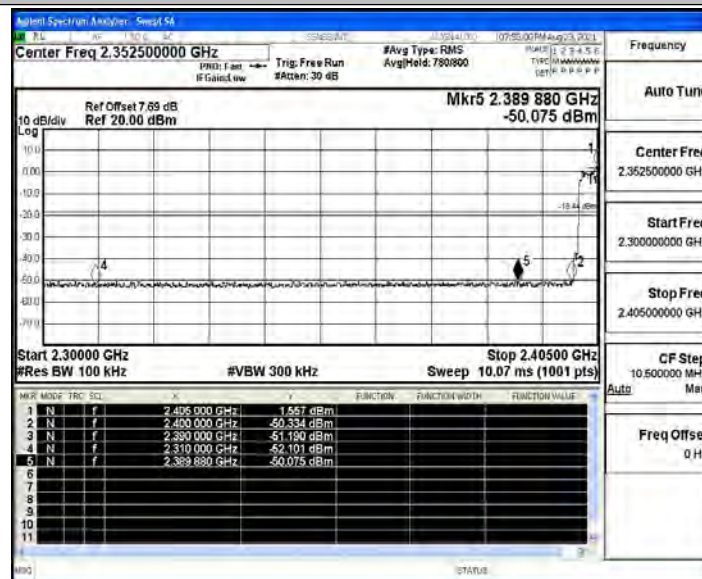


3DH5_Ant1_High_2480

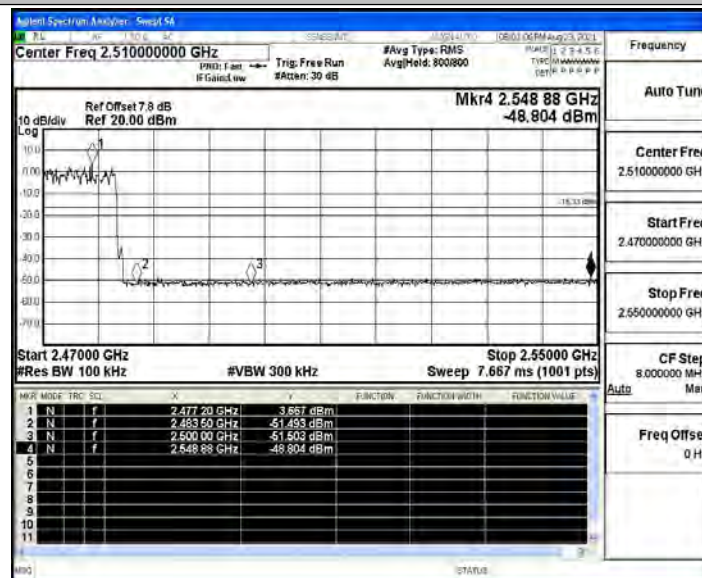




3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480





A.7 Conducted Spurious Emission

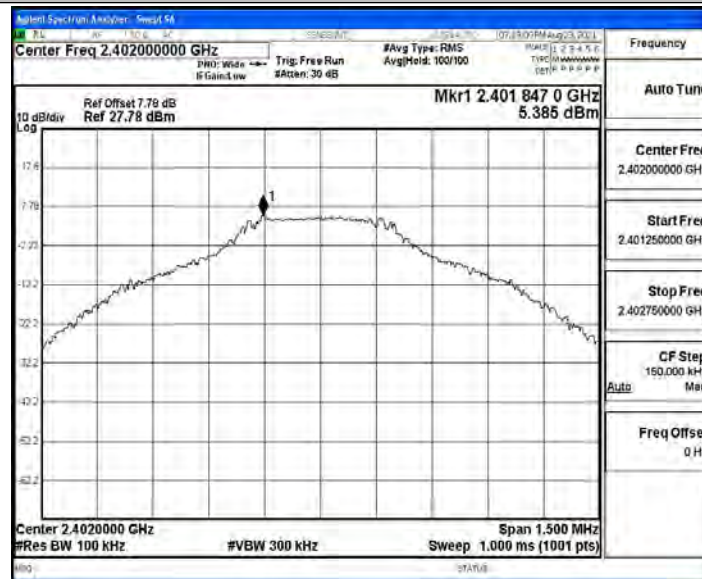
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	5.39	5.39	---	PASS
			30~1000	5.39	-59.15	≤ -14.62	PASS
			1000~26500	5.39	-48.11	≤ -14.62	PASS
		2441	Reference	6.74	6.74	---	PASS
			30~1000	6.74	-59.85	≤ -13.26	PASS
			1000~26500	6.74	-47.66	≤ -13.26	PASS
		2480	Reference	5.17	5.17	---	PASS
			30~1000	5.17	-59.16	≤ -14.83	PASS
			1000~26500	5.17	-47.41	≤ -14.83	PASS
2DH5	Ant1	2402	Reference	3.20	3.20	---	PASS
			30~1000	3.20	-57.29	≤ -16.8	PASS
			1000~26500	3.20	-48.03	≤ -16.8	PASS
		2441	Reference	5.11	5.11	---	PASS
			30~1000	5.11	-59.86	≤ -14.89	PASS
			1000~26500	5.11	-47.14	≤ -14.89	PASS
		2480	Reference	3.87	3.87	---	PASS
			30~1000	3.87	-58.33	≤ -16.14	PASS
			1000~26500	3.87	-47.47	≤ -16.14	PASS
3DH5	Ant1	2402	Reference	3.97	3.97	---	PASS
			30~1000	3.97	-57.19	≤ -16.03	PASS
			1000~26500	3.97	-47.11	≤ -16.03	PASS
		2441	Reference	4.80	4.80	---	PASS
			30~1000	4.80	-58.07	≤ -15.2	PASS
			1000~26500	4.80	-47.67	≤ -15.2	PASS
		2480	Reference	2.44	2.44	---	PASS
			30~1000	2.44	-58.66	≤ -17.56	PASS
			1000~26500	2.44	-46.95	≤ -17.56	PASS

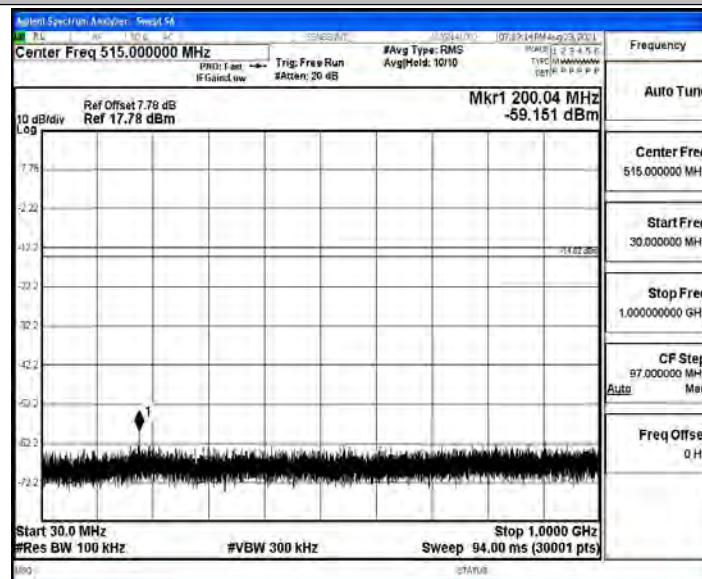


Test Graphs

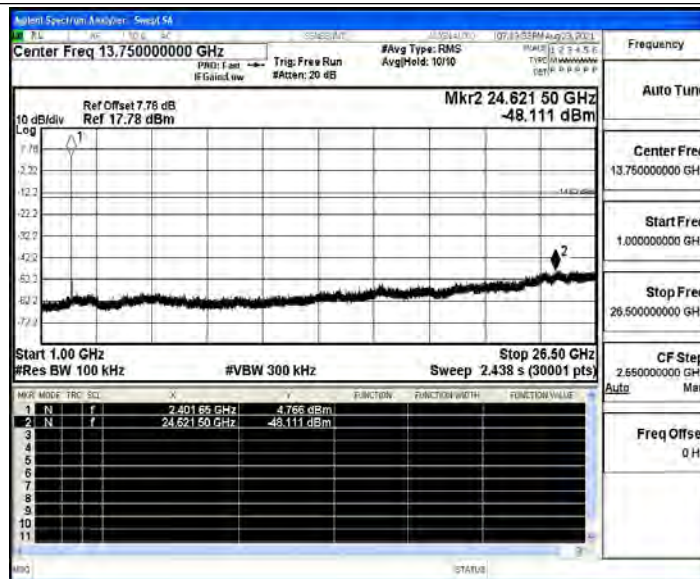
DH5_Ant1_2402_0~Reference



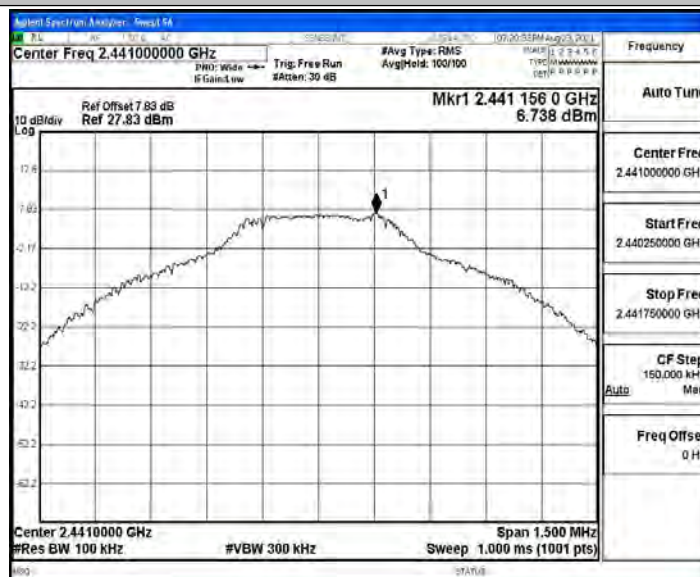
DH5_Ant1_2402_30~1000



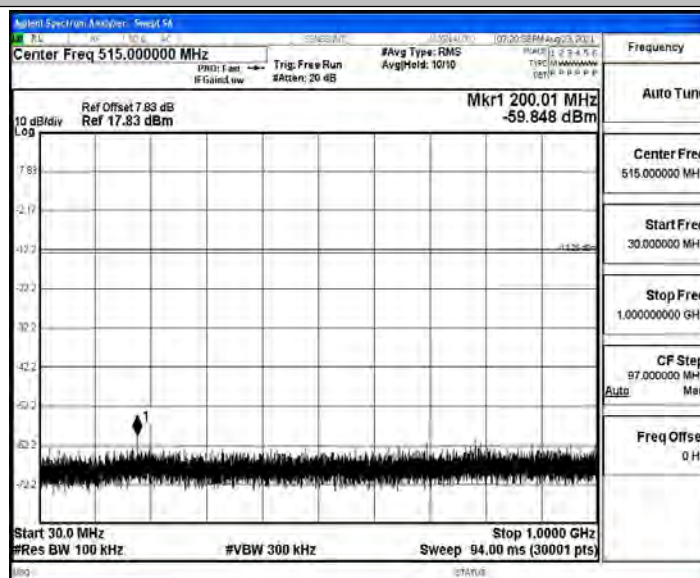
DH5_Ant1_2402_1000~26500



DH5_Ant1_2441_0~Reference

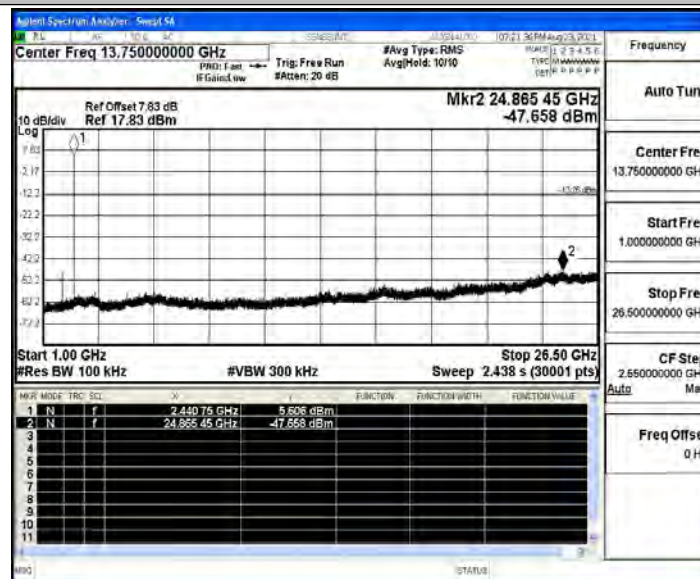


DH5_Ant1_2441_30~1000

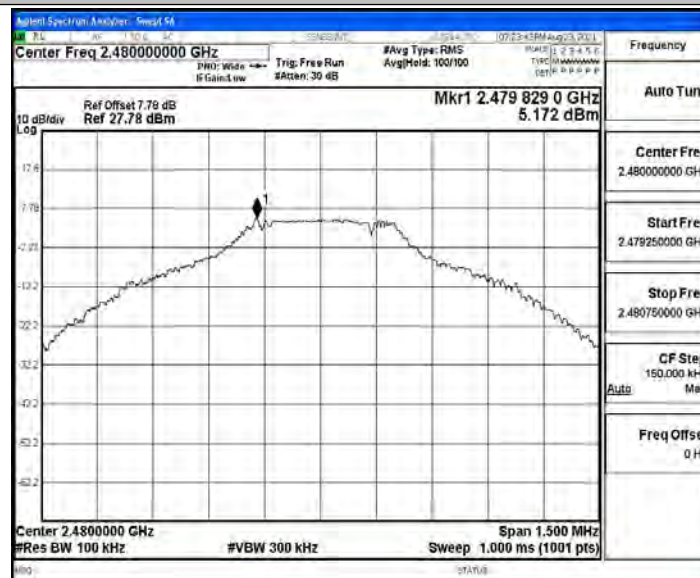




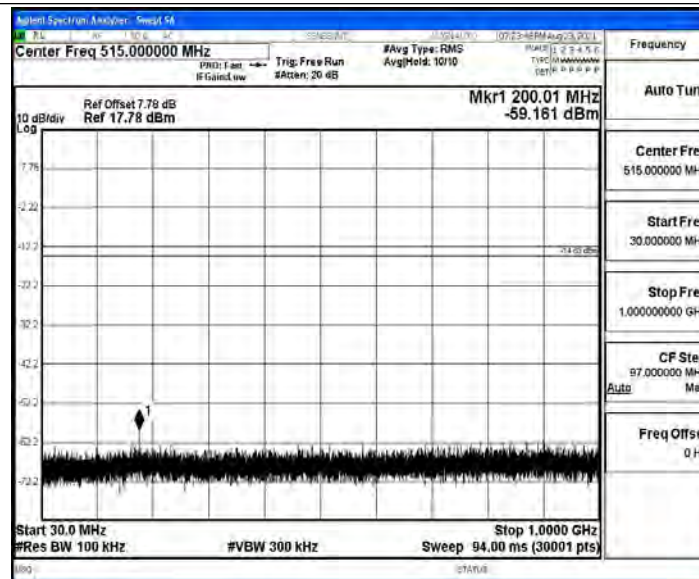
DH5_Ant1_2441_1000~26500



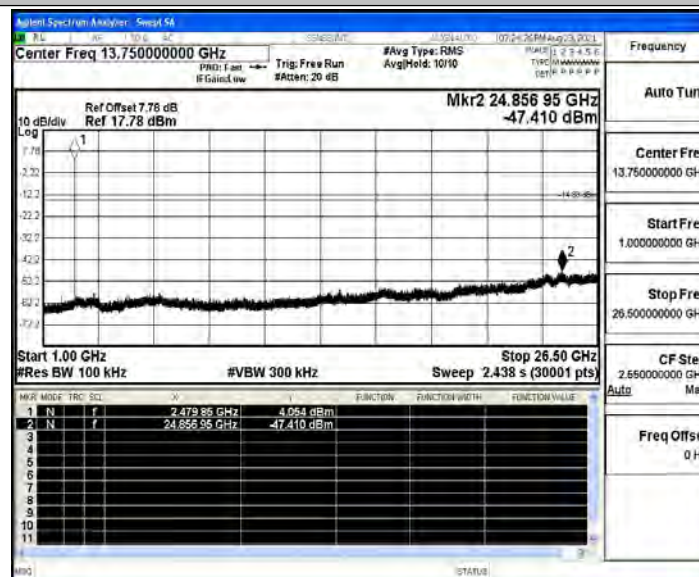
DH5_Ant1_2480_0~Reference



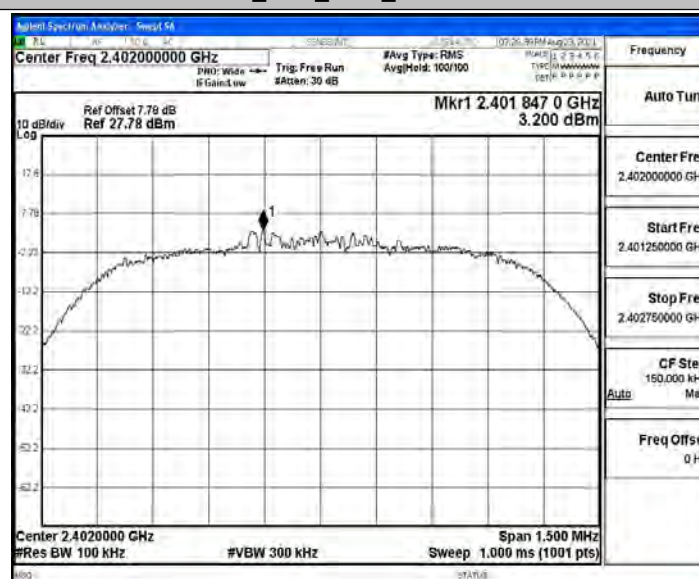
DH5_Ant1_2480_30~1000



DH5_Ant1_2480_1000~26500

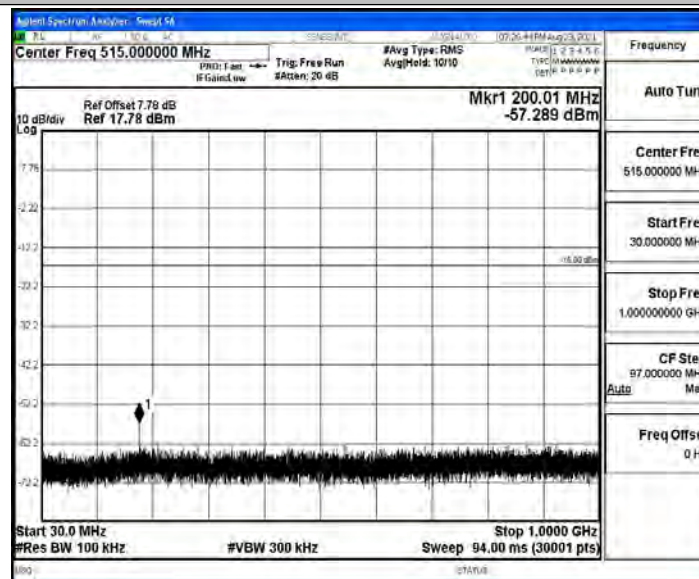


2DH5_Ant1_2402_0~Reference

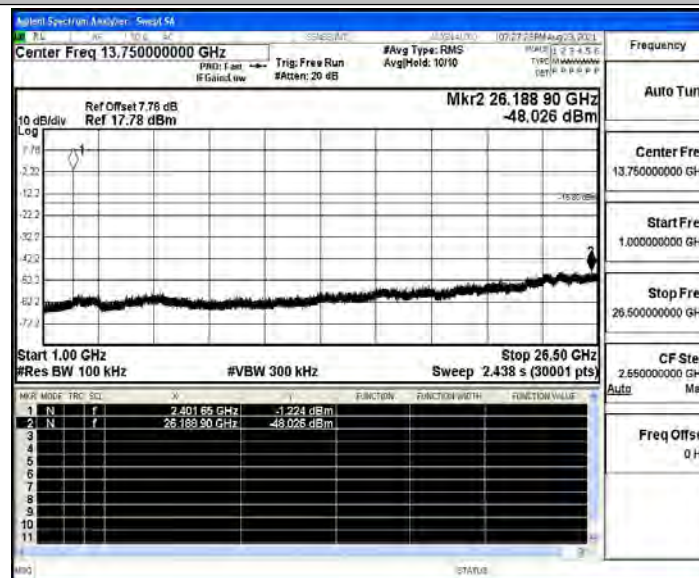




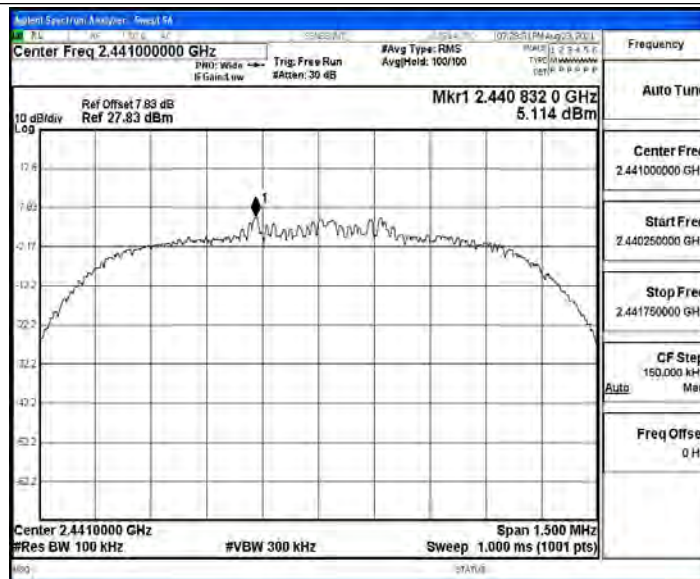
2DH5_Ant1_2402_30~1000



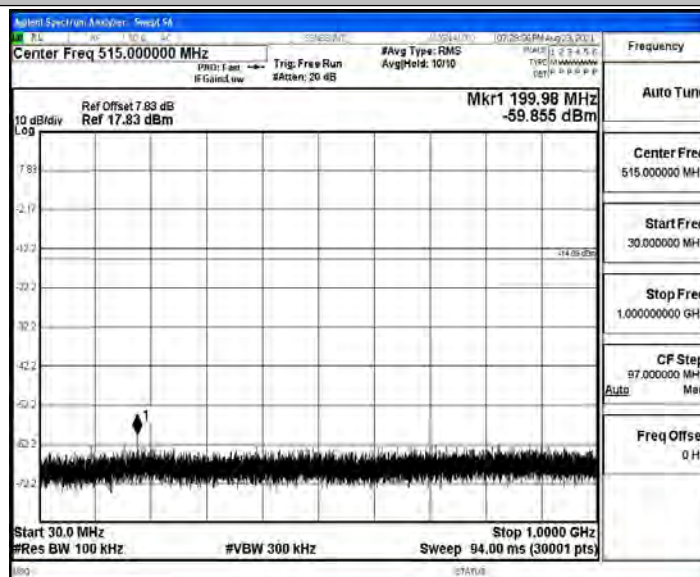
2DH5_Ant1_2402_1000~26500



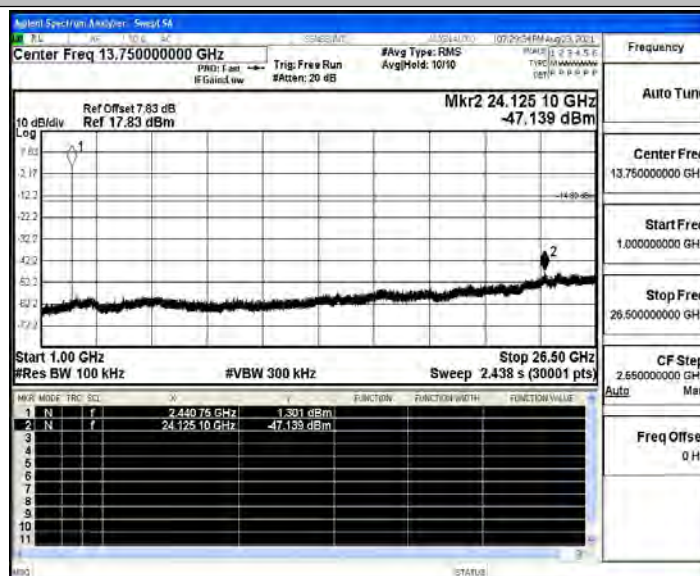
2DH5_Ant1_2441_0~Reference



2DH5_Ant1_2441_30~1000

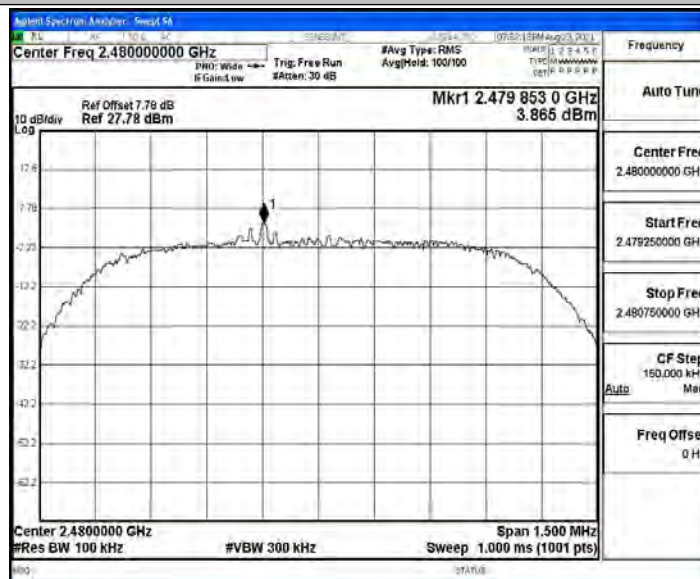


2DH5_Ant1_2441_1000~26500

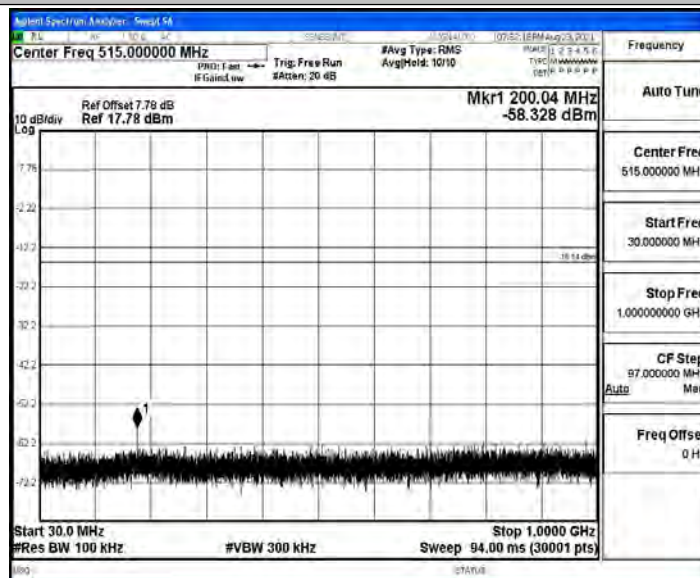




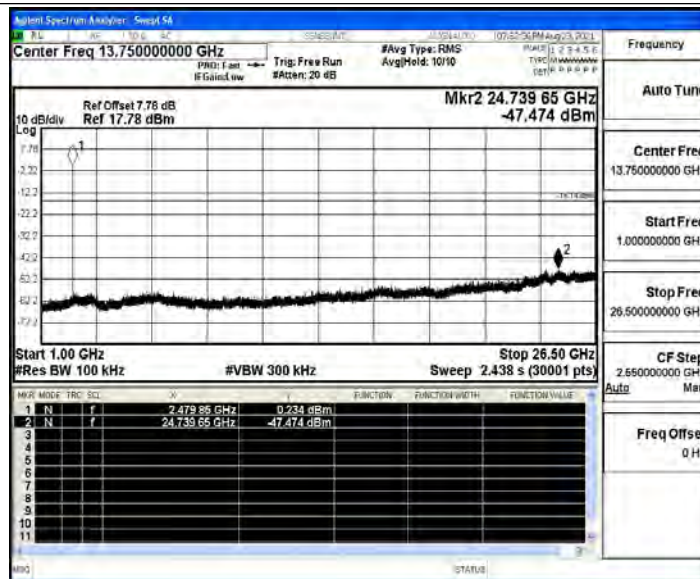
2DH5_Ant1_2480_0~Reference



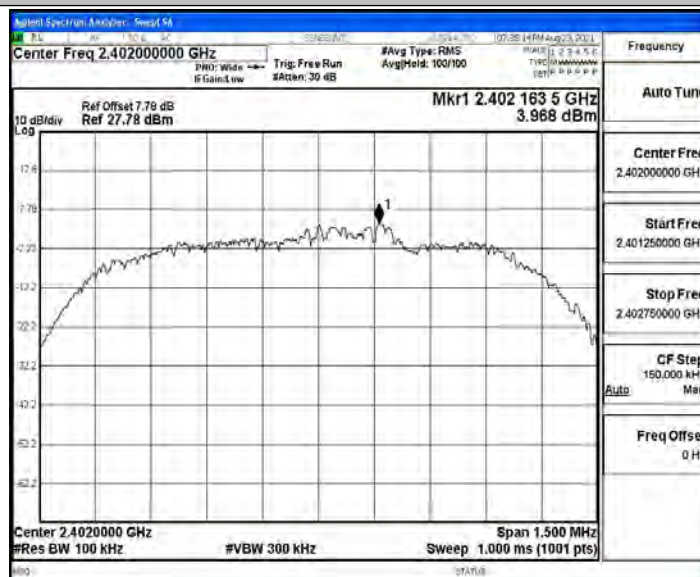
2DH5_Ant1_2480_30~1000



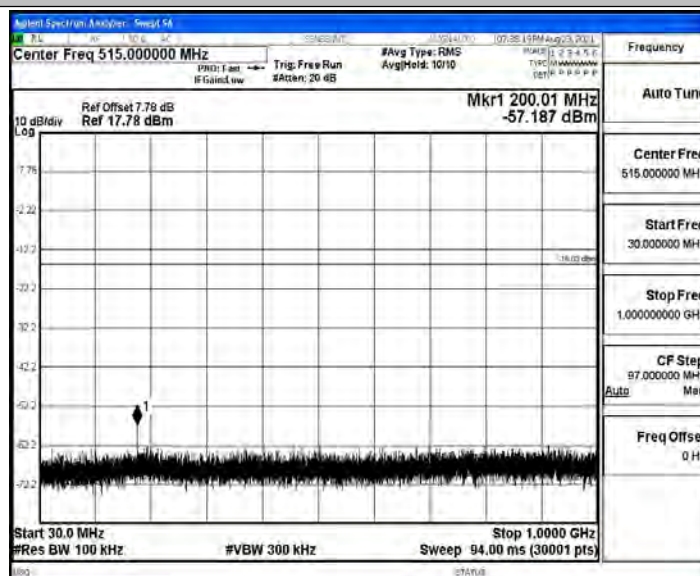
2DH5_Ant1_2480_1000~26500



3DH5_Ant1_2402_0~Reference



3DH5_Ant1_2402_30~1000





Autent Spectrum Analyzer - Screenshot

Center Freq 13.750000000 GHz

Mkr2 24.725 20 GHz

Start Freq 1.00 GHz

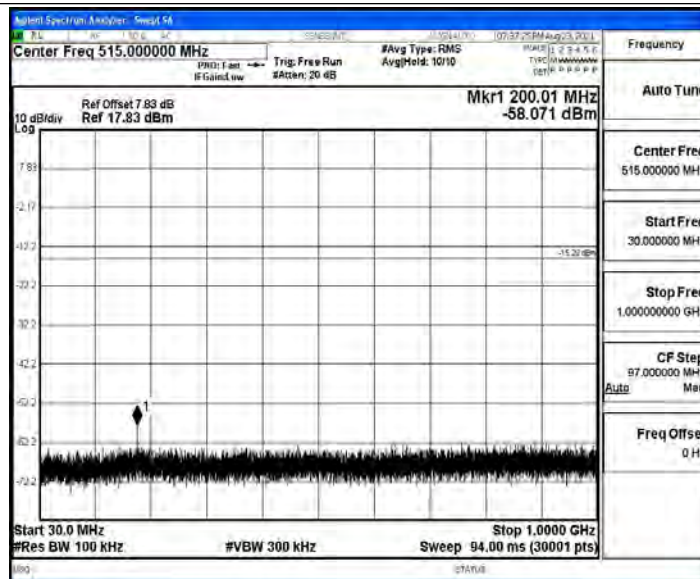
Stop Freq 26.500 GHz

Sweep 2.438 s (30001 pts)

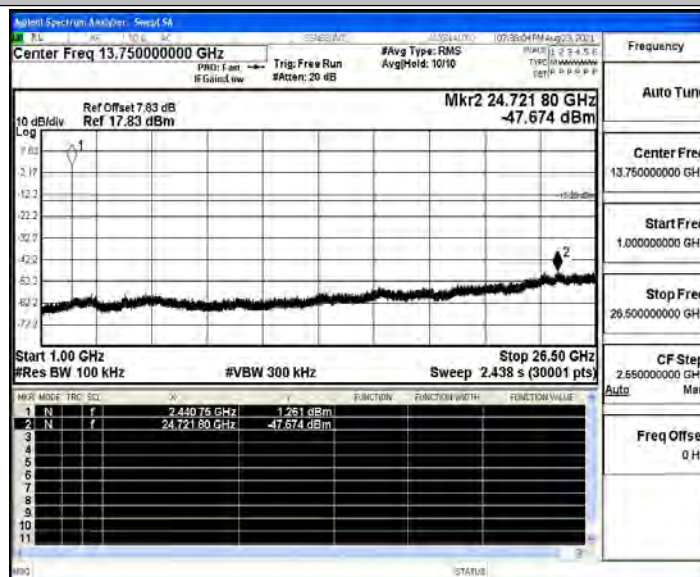
MRK	MODE	FREQ	SCAL	Y	FUNCTION	FUNCTION WITH	FUNCTION VALUE
1	N	f		2.402 50 GHz		3.528 dBm	
2	N	f		24.725 20 GHz		-47.114 dBm	

Autent Spectrum Analyzer - Asset 5A
 File: 107.0 107.0 3.47
 Center Freq 2.441000000 GHz
 DNM: Wide W Span: Low
 Trig: Free Run
 #Avg Type: RMS
 AvgPeriod: 100/100
 107.37 107.37 Aug 23, 2011
 Power: 1 2 3 4 5 6
 Type: 0 0 0 0 0 0 0 0 0 0
 (0) H 0 0 0 0 0 0 0 0 0 0
 Frequency
 Auto Tuning
 Center Freq
 2.441000000 GHz
 Start Freq
 2.440250000 GHz
 Stop Freq
 2.441750000 GHz
 CF Step
 150.000 kHz
 Auto
 Freq Offset
 0 Hz
 Center 2.4410000 GHz
 #Res BW 100 kHz
 #VBW 300 kHz
 Span 1.500 MHz
 Sweep 1.000 ms (1001 pts)

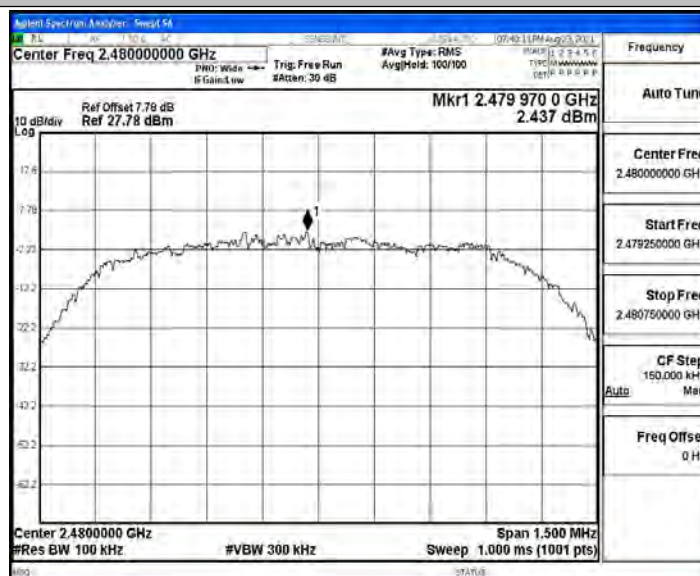
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3DH5_Ant1_2441_1000~26500

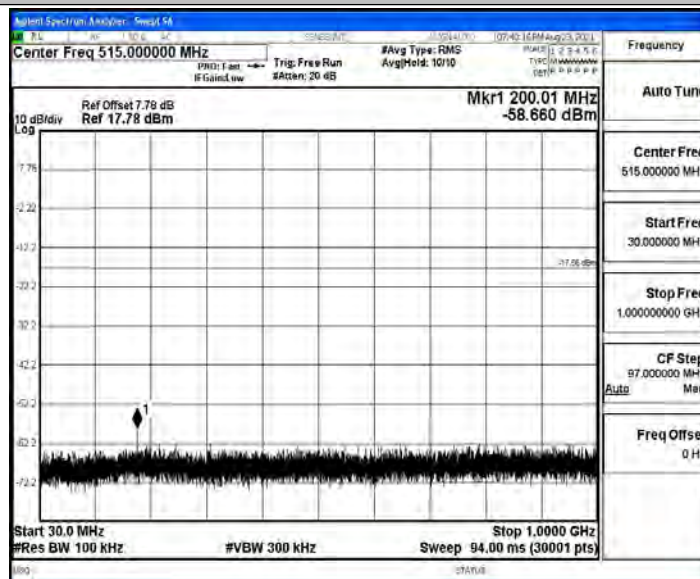


3DH5_Ant1_2480_0~Reference

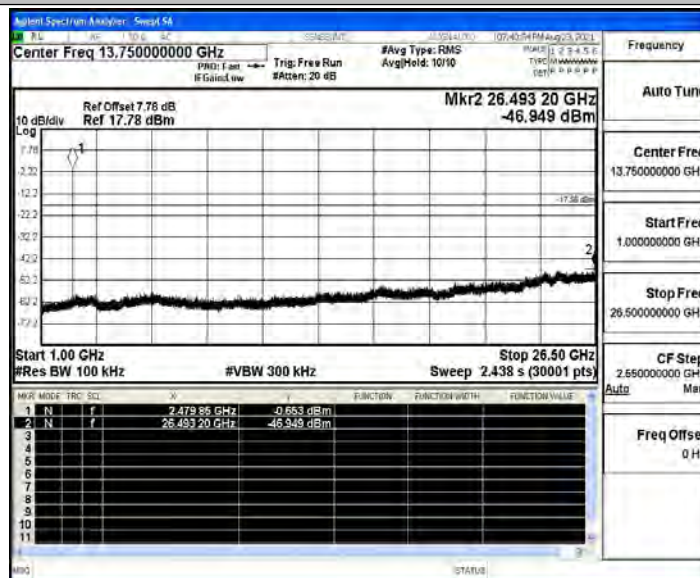




3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500





A.8 Emissions in Restricted Bands

Test Result

TestMod e	Antenn a	ChNam e	Chann el	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/ m]	Limit [dBuV/ m]	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-49.48	≤-41.20	45.72	≤54	PASS
				AV	2386.100	-48.82	≤-41.20	46.38	≤54	PASS
				AV	2390.000	-49.06	≤-41.20	46.14	≤54	PASS
				Peak	2310.000	-52.46	≤-21.20	42.74	≤74	PASS
				Peak	2312.600	-40.79	≤-21.20	54.41	≤74	PASS
				Peak	2390.000	-48.17	≤-21.20	47.03	≤74	PASS
		High	2480	AV	2483.500	-47.66	≤-41.20	47.54	≤54	PASS
				AV	2483.520	-47.66	≤-41.20	47.54	≤54	PASS
				AV	2500.000	-48.62	≤-41.20	46.58	≤54	PASS
				Peak	2483.500	-45.64	≤-21.20	49.56	≤74	PASS
				Peak	2490.480	-41.46	≤-21.20	53.74	≤74	PASS
				Peak	2500.000	-47.87	≤-21.20	47.33	≤74	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-49.28	≤-41.20	45.92	≤54	PASS
				AV	2386.205	-48.66	≤-41.20	46.54	≤54	PASS
				AV	2390.000	-49.14	≤-41.20	46.06	≤54	PASS
				Peak	2310.000	-44.78	≤-21.20	50.42	≤74	PASS
				Peak	2374.340	-41.48	≤-21.20	53.72	≤74	PASS
				Peak	2390.000	-53.77	≤-21.20	41.43	≤74	PASS
		High	2480	AV	2483.500	-47.37	≤-41.20	47.83	≤54	PASS
				AV	2483.520	-47.36	≤-41.20	47.84	≤54	PASS
				AV	2500.000	-48.46	≤-41.20	46.74	≤54	PASS
				Peak	2483.500	-47.37	≤-21.20	47.83	≤74	PASS
				Peak	2490.640	-39.81	≤-21.20	55.39	≤74	PASS
				Peak	2500.000	-46.93	≤-21.20	48.27	≤74	PASS
3DH5	Ant1	Low	2402	AV	2310.000	-49.31	≤-41.20	45.89	≤54	PASS
				AV	2389.040	-48.74	≤-41.20	46.46	≤54	PASS
				AV	2390.000	-49.08	≤-41.20	46.12	≤54	PASS
				Peak	2310.000	-48.42	≤-21.20	46.78	≤74	PASS
				Peak	2313.965	-40.44	≤-21.20	54.76	≤74	PASS
				Peak	2390.000	-43.89	≤-21.20	51.31	≤74	PASS
		High	2480	AV	2483.500	-47.7	≤-41.20	47.50	≤54	PASS
				AV	2483.520	-47.7	≤-41.20	47.50	≤54	PASS
				AV	2500.000	-48.38	≤-41.20	46.82	≤54	PASS
				Peak	2483.500	-44.9	≤-21.20	50.30	≤74	PASS
				Peak	2497.280	-40.15	≤-21.20	55.05	≤74	PASS
				Peak	2500.000	-51.94	≤-21.20	43.26	≤74	PASS



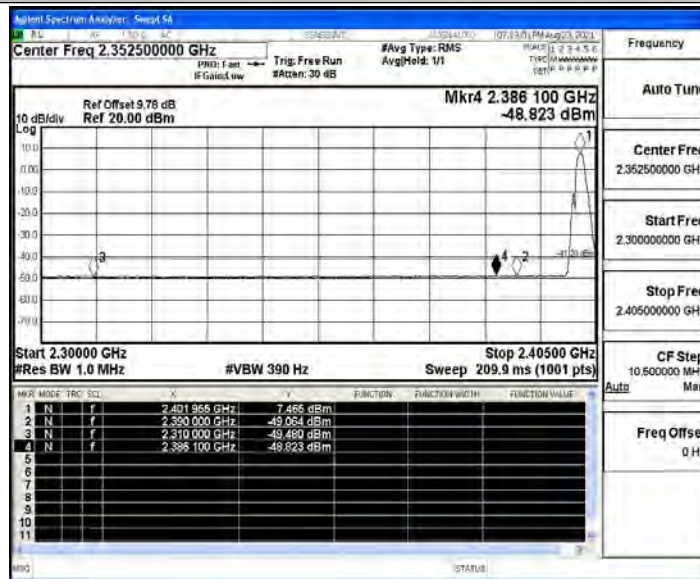
Note:

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.

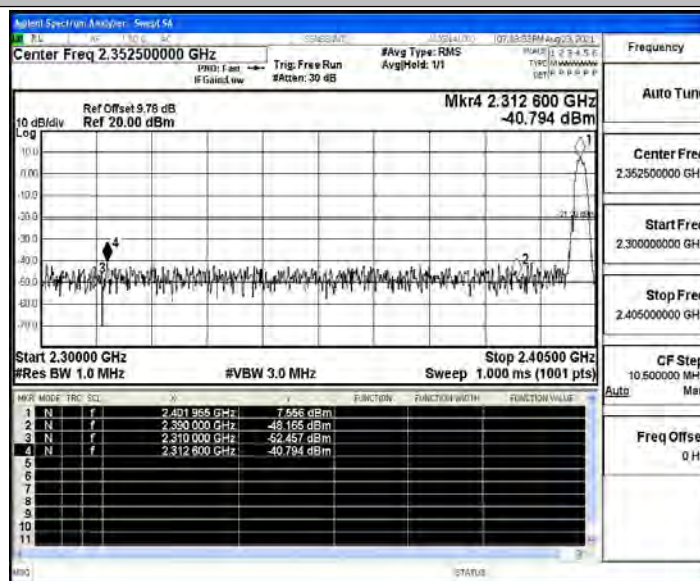


Test Graphs

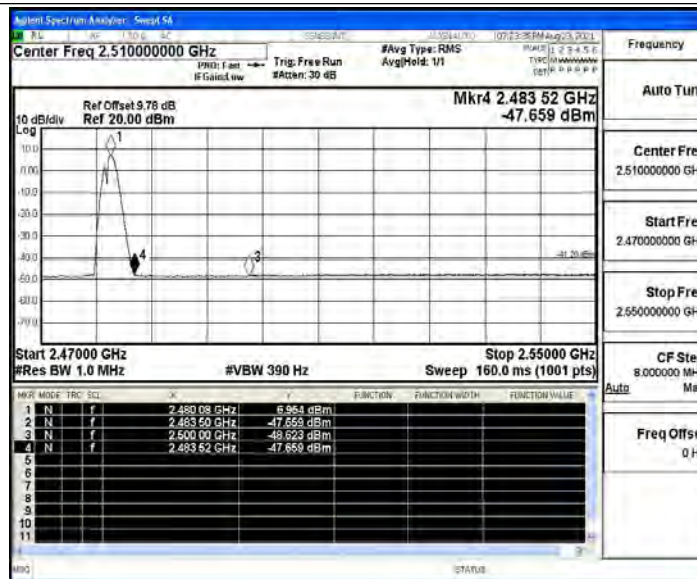
DH5_Ant1_Low_2402_AV



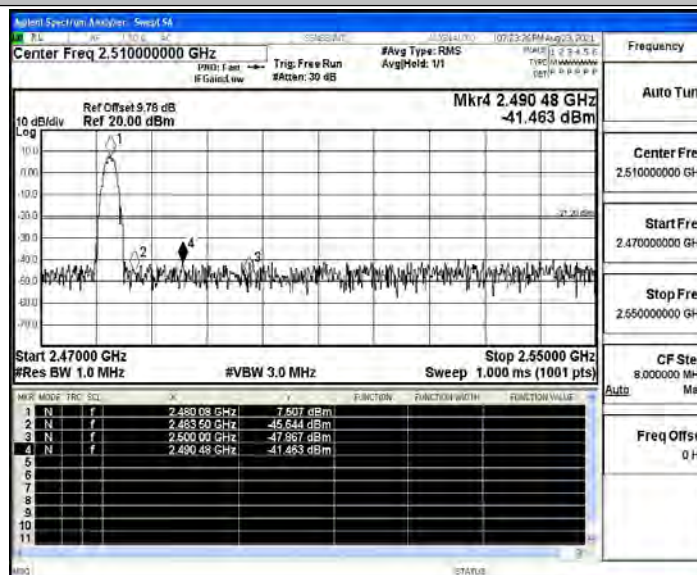
DH5_Ant1_Low_2402_Peak



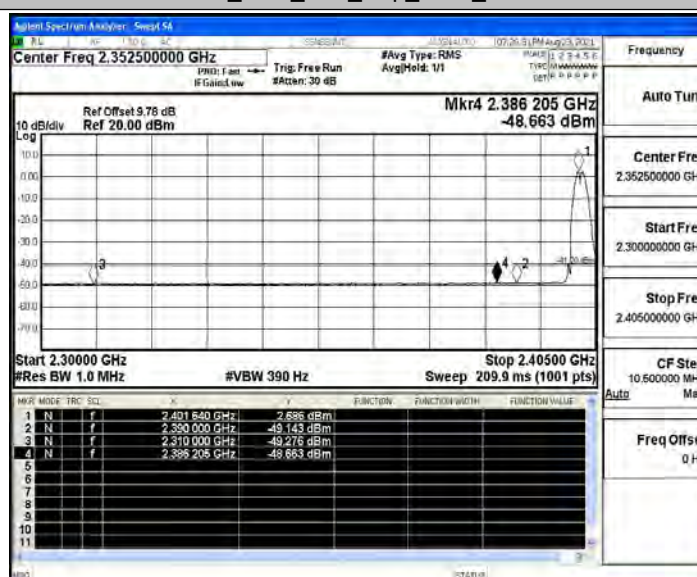
DH5_Ant1_High_2480_AV



DH5_Ant1_High_2480_Peak

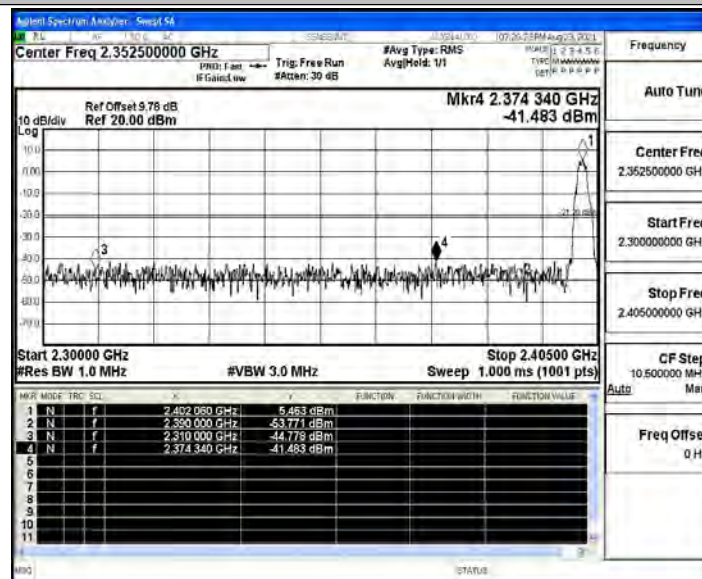


DH5_Ant1_Low_Hop_2402_Peak

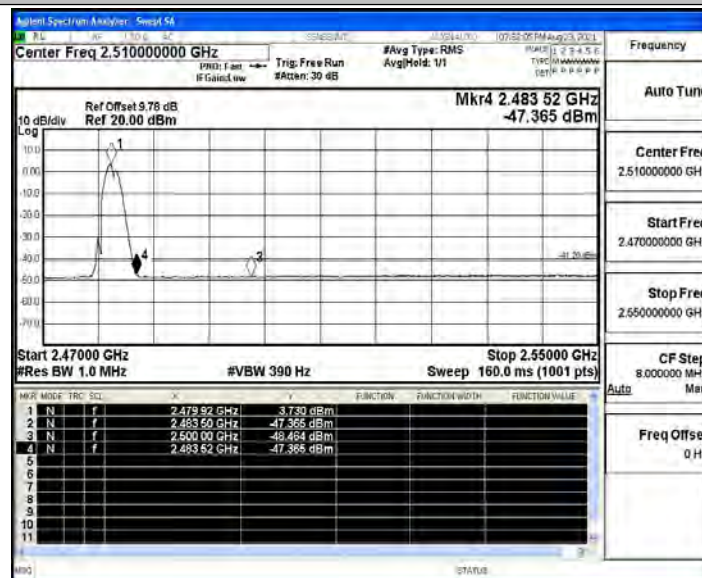




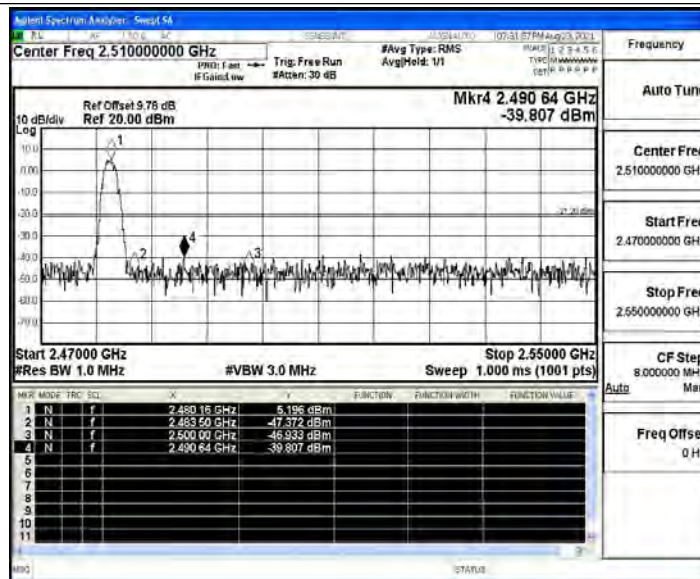
2DH5_Ant1_Low_2402_Peak



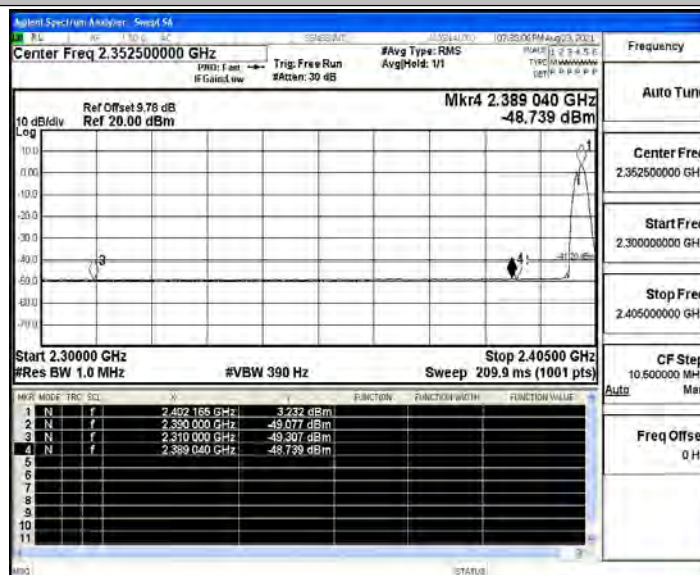
2DH5_Ant1_High_2480_AV



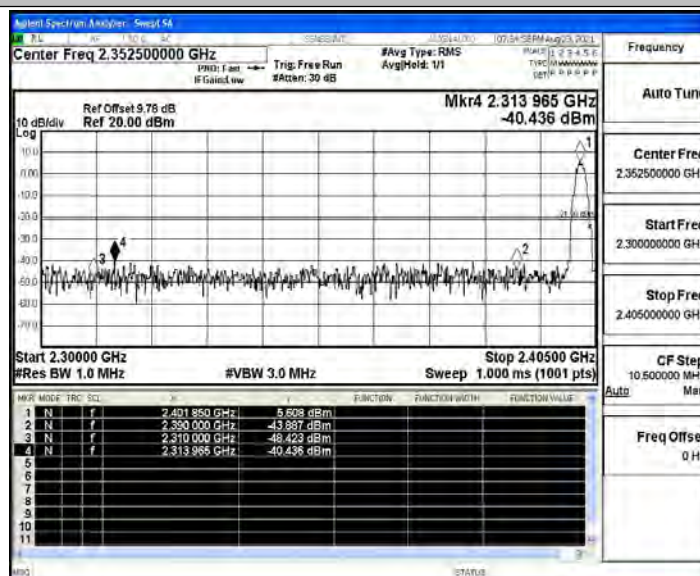
2DH5_Ant1_High_2480_Peak



3DH5_Ant1_Low_2402_AV

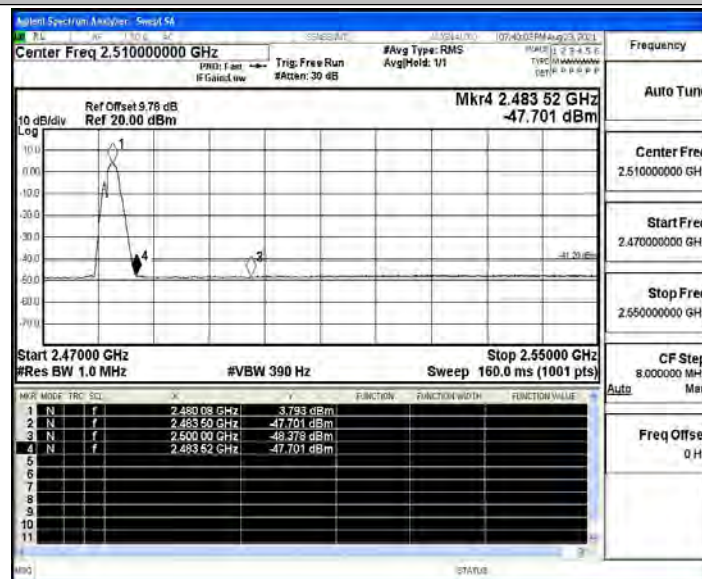


3DH5_Ant1_Low_2402_Peak





3DH5_Ant1_High_2480_AV



3DH5_Ant1_High_Hop_2480_Peak

