Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: EarphoneBluetooth

Test Model: BluePods 104

Environmental Conditions

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

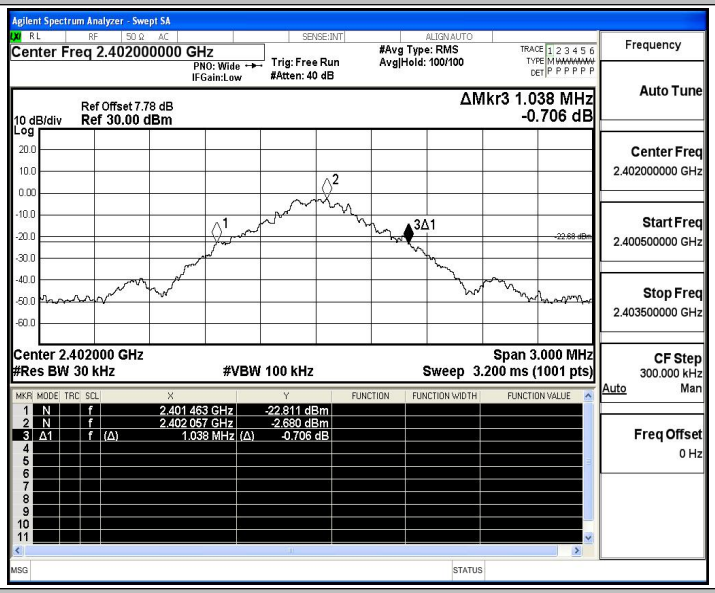
A.1 20dB Emission Bandwidth

Test Result

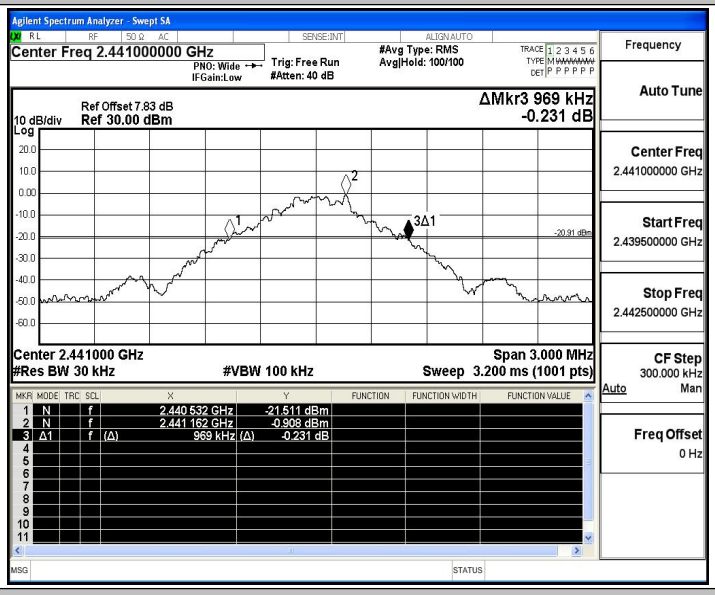
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	1.038	2401.463	2402.501	---	PASS
		2441	0.969	2440.532	2441.501	---	PASS
		2480	1.029	2479.463	2480.492	---	PASS
2DH5	Ant1	2402	1.317	2401.340	2402.657	---	PASS
		2441	1.314	2440.349	2441.663	---	PASS
		2480	1.317	2479.340	2480.657	---	PASS
3DH5	Ant1	2402	1.350	2401.325	2402.675	---	PASS
		2441	1.275	2440.352	2441.627	---	PASS
		2480	1.314	2479.343	2480.657	---	PASS

Test Graphs

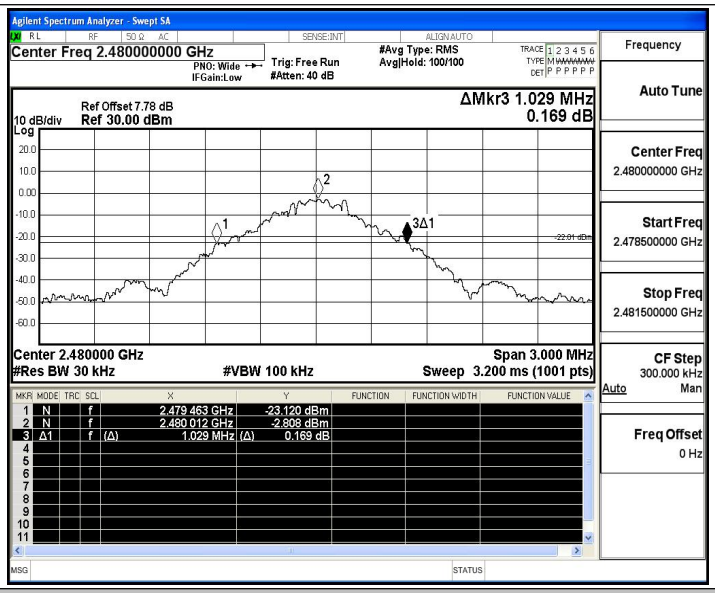
DH5_Ant1_2402



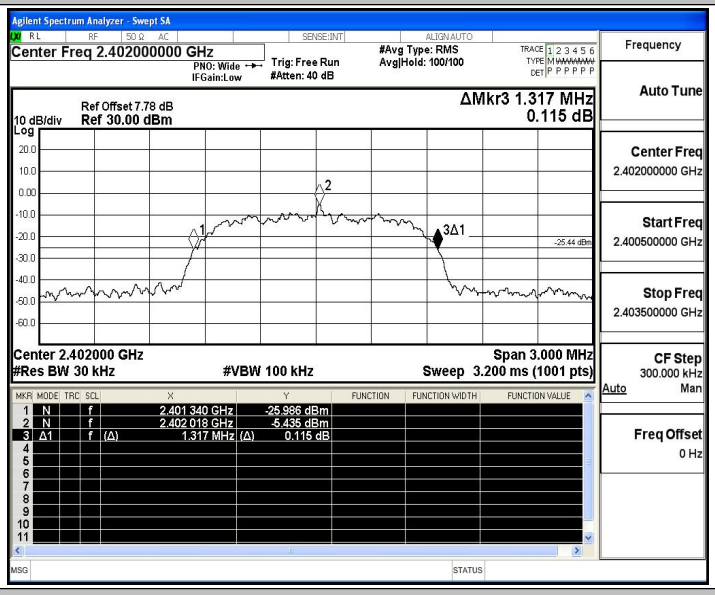
DH5_Ant1_2441



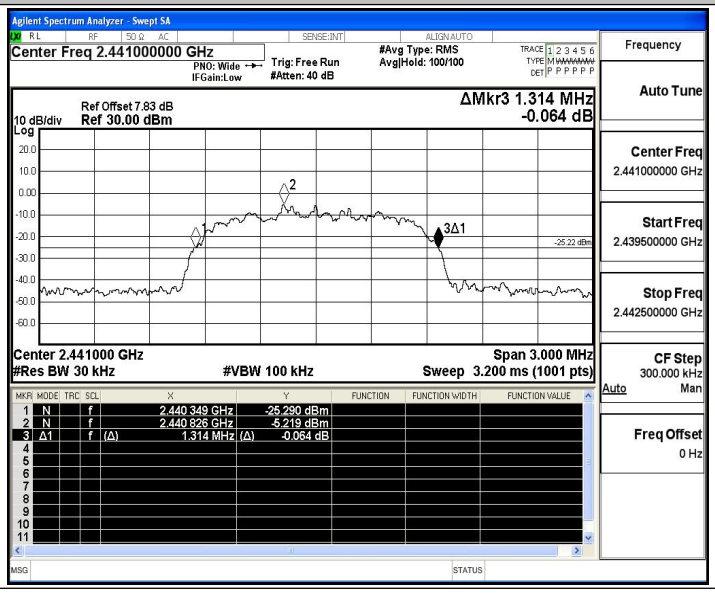
DH5_Ant1_2480



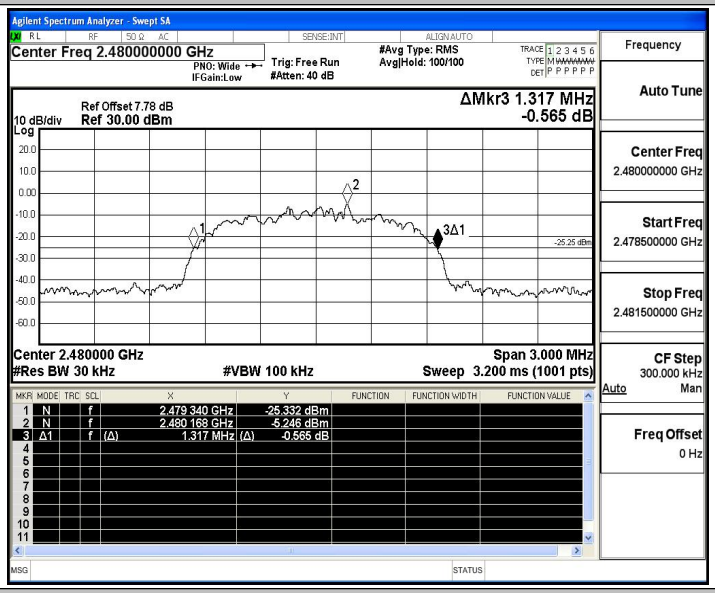
2DH5_Ant1_2402



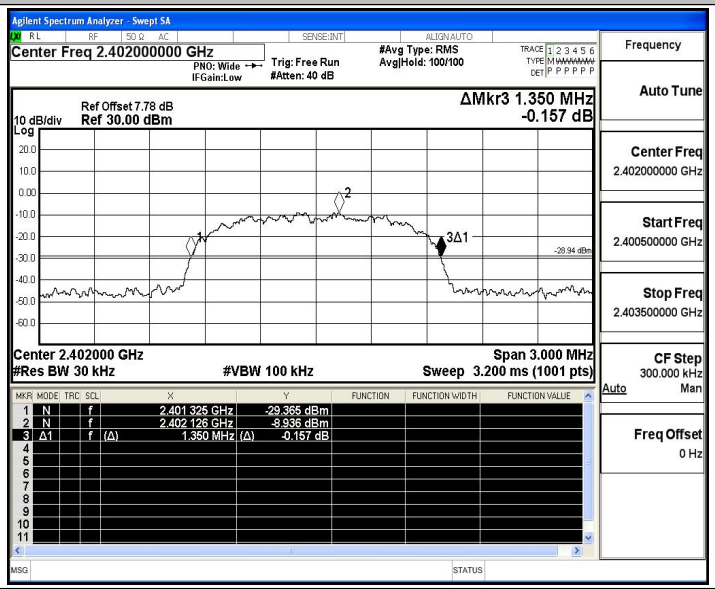
2DH5_Ant1_2441



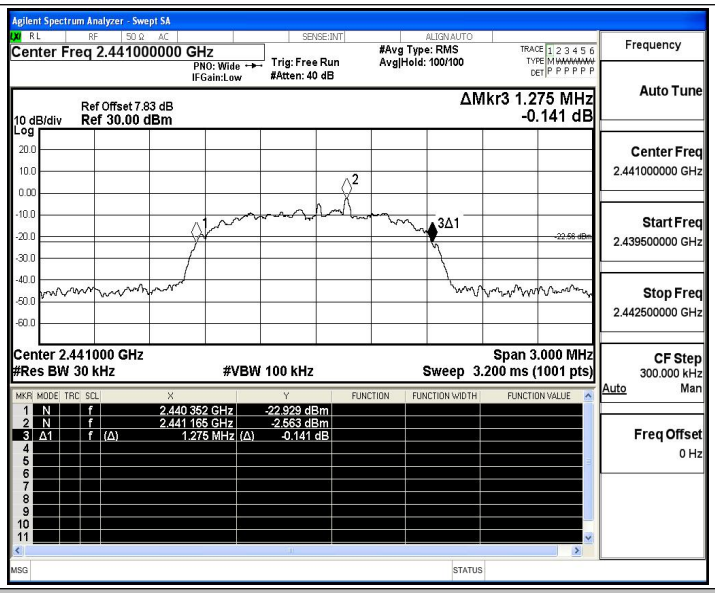
2DH5_Ant1_2480



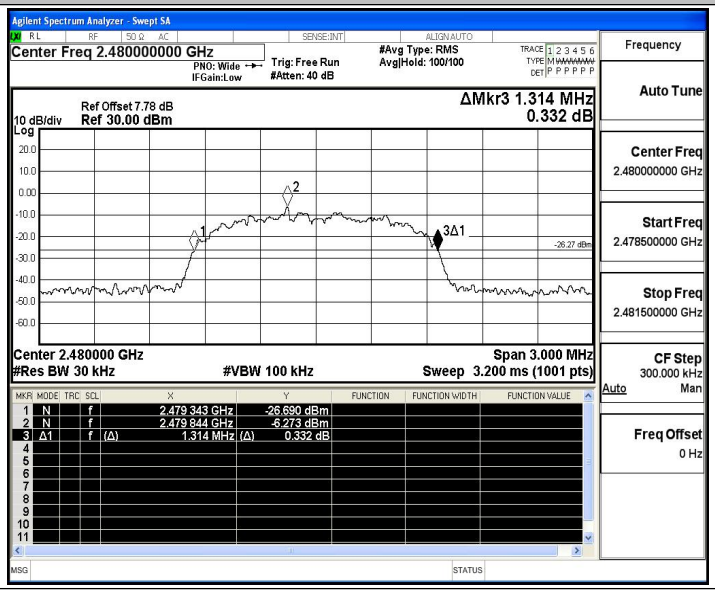
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



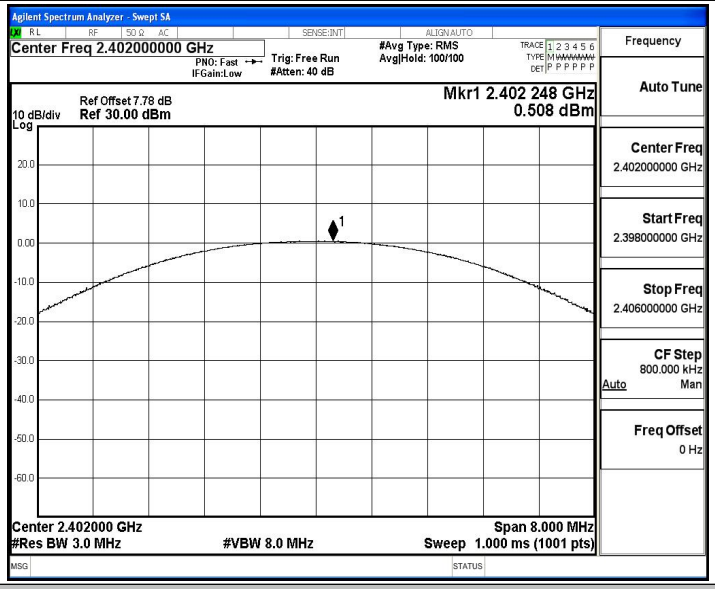
A.2 Maximum conducted output power

Test Result

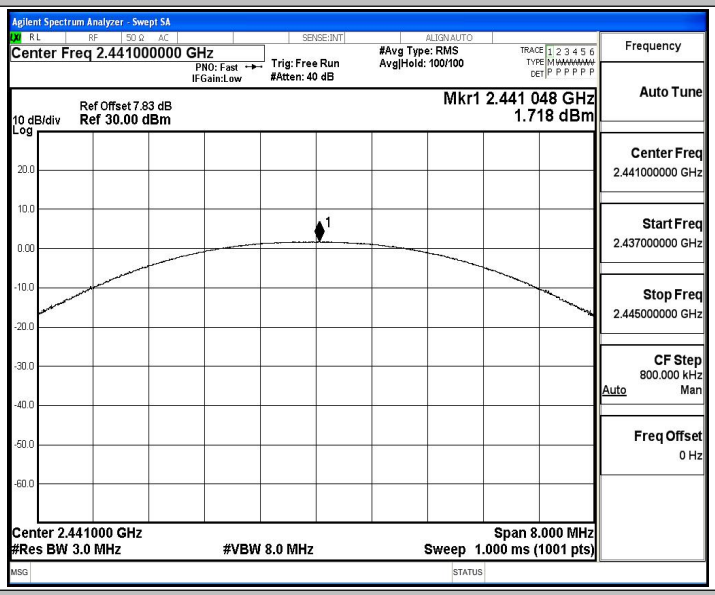
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.51	≤20.97	PASS
		2441	1.72	≤20.97	PASS
		2480	0.27	≤20.97	PASS
2DH5	Ant1	2402	-0.41	≤20.97	PASS
		2441	0.81	≤20.97	PASS
		2480	-0.49	≤20.97	PASS
3DH5	Ant1	2402	-0.25	≤20.97	PASS
		2441	0.95	≤20.97	PASS
		2480	-0.48	≤20.97	PASS

Test Graphs

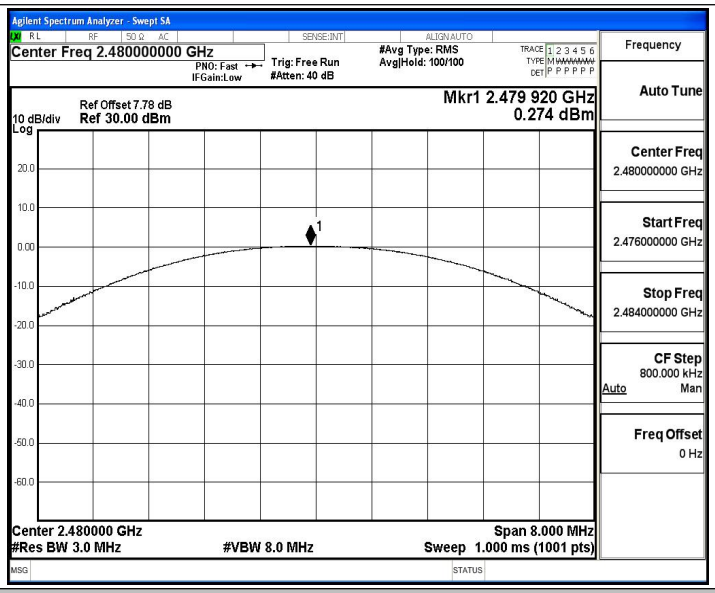
DH5_Ant1_2402



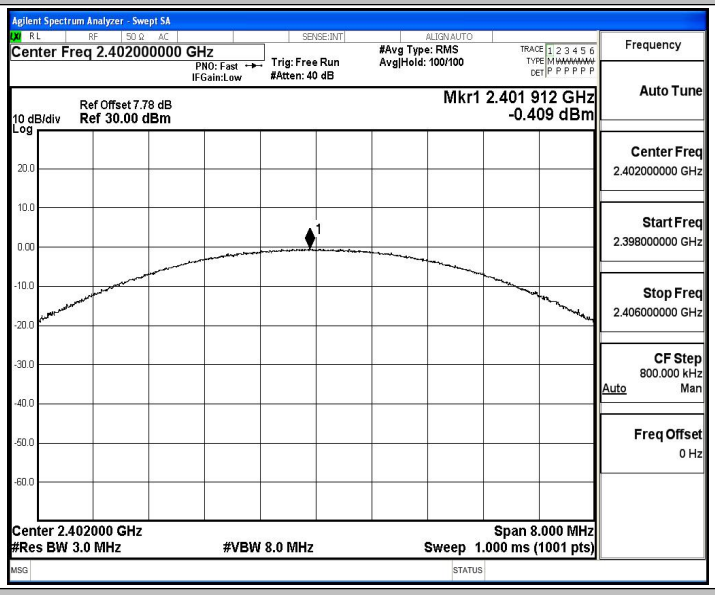
DH5_Ant1_2441



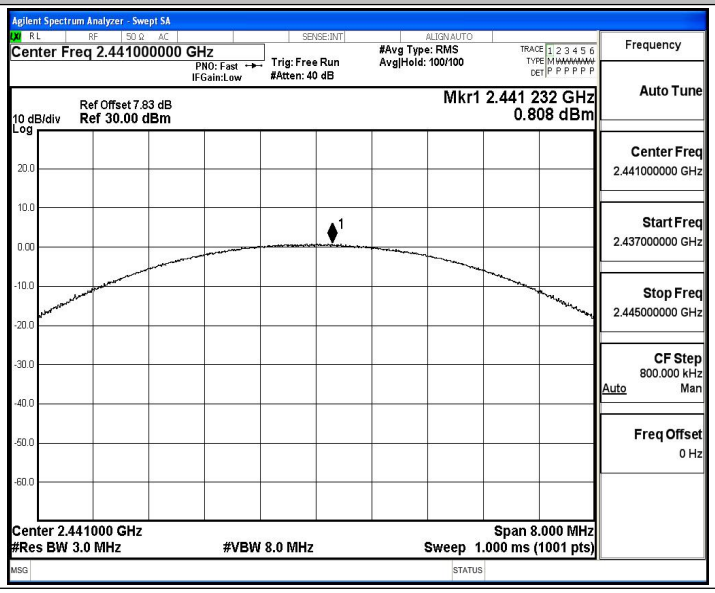
DH5_Ant1_2480



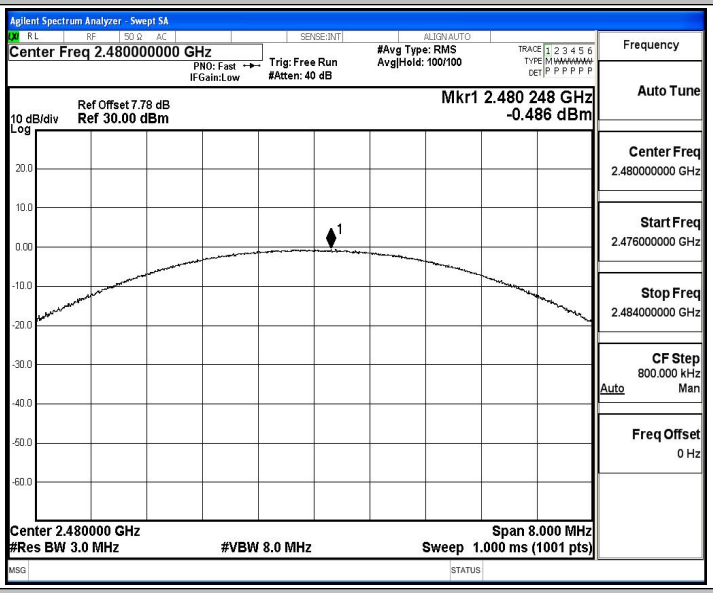
2DH5_Ant1_2402



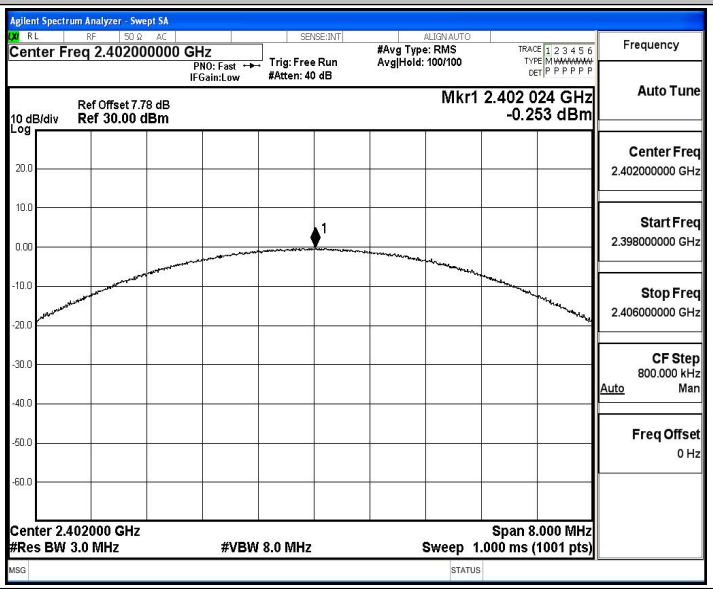
2DH5_Ant1_2441



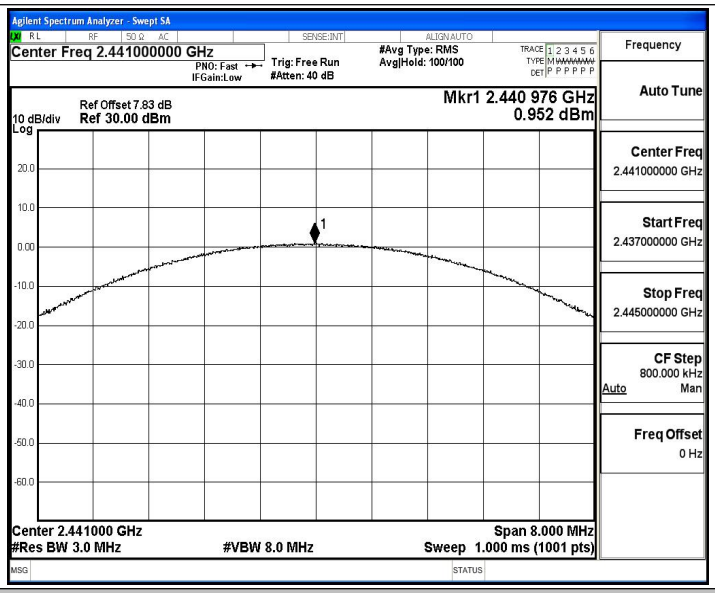
2DH5_Ant1_2480



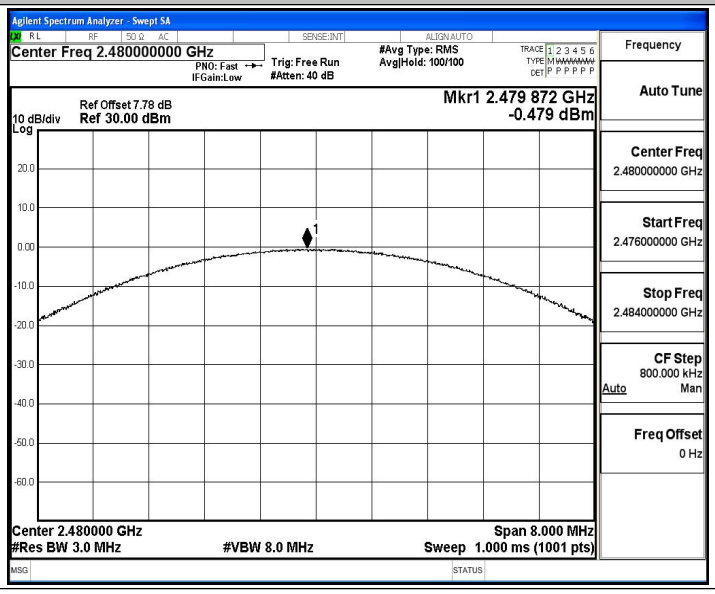
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



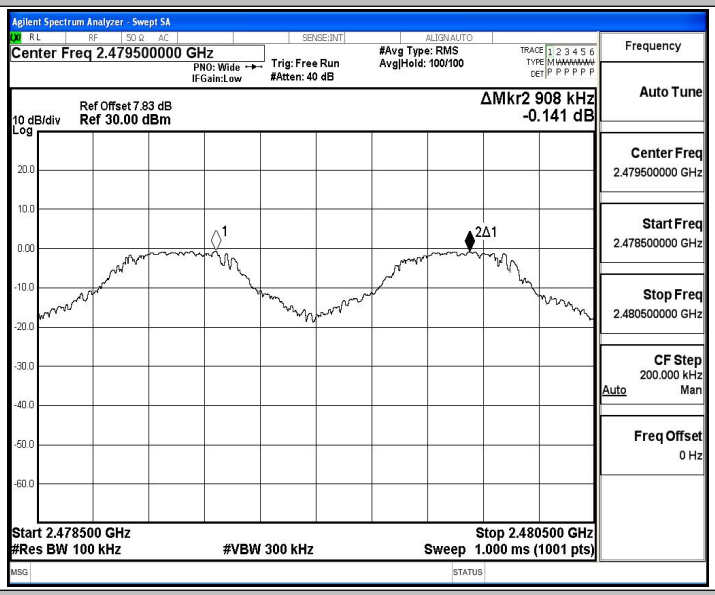
A.3 Carrier frequency separation

Test Result

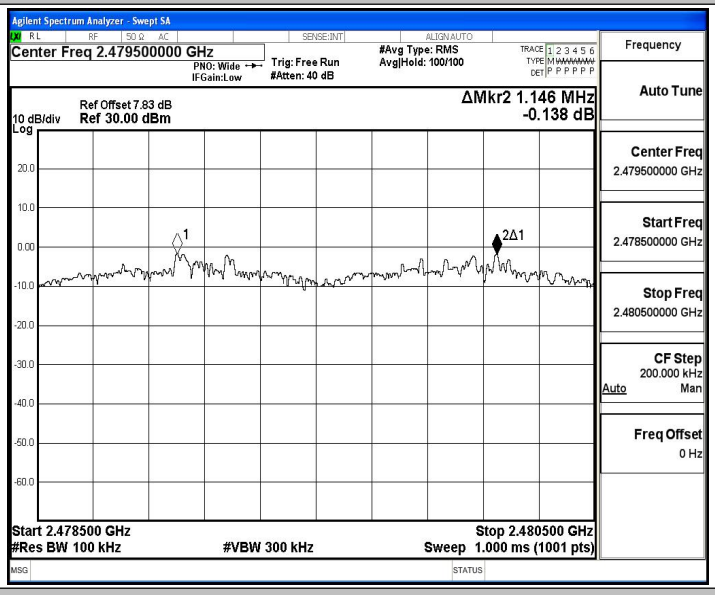
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	Hop	0.908	≥0.692	PASS
2DH5	Ant1	Hop	1.146	≥0.878	PASS
3DH5	Ant1	Hop	1.028	≥0.900	PASS

Test Graphs

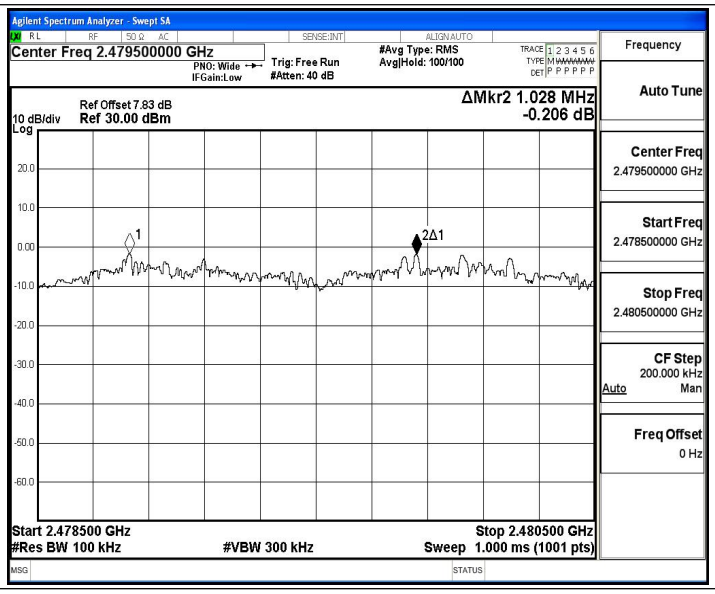
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.479500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
Ref Offset 7.83 dB
10 dB/div
Log
Ref 30.00 dBm
ΔMkr2 1.028 MHz
-0.206 dB
Start 2.478500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.480500 GHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

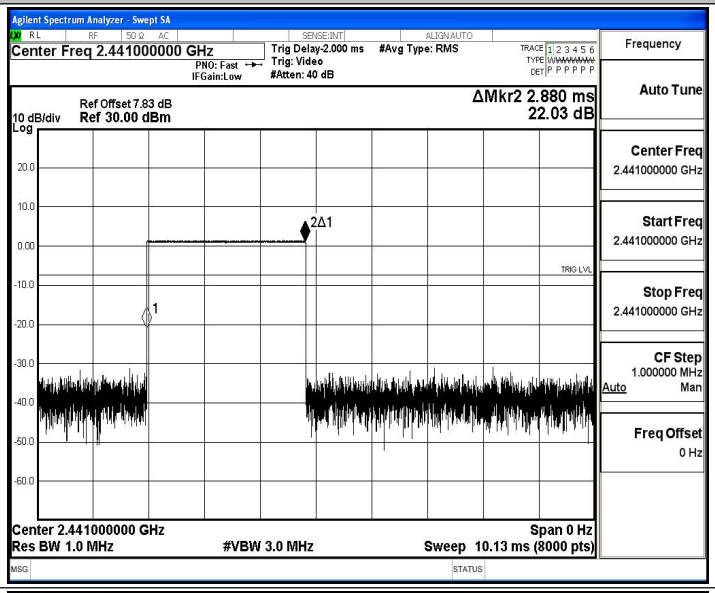
A.4 Time of occupancy

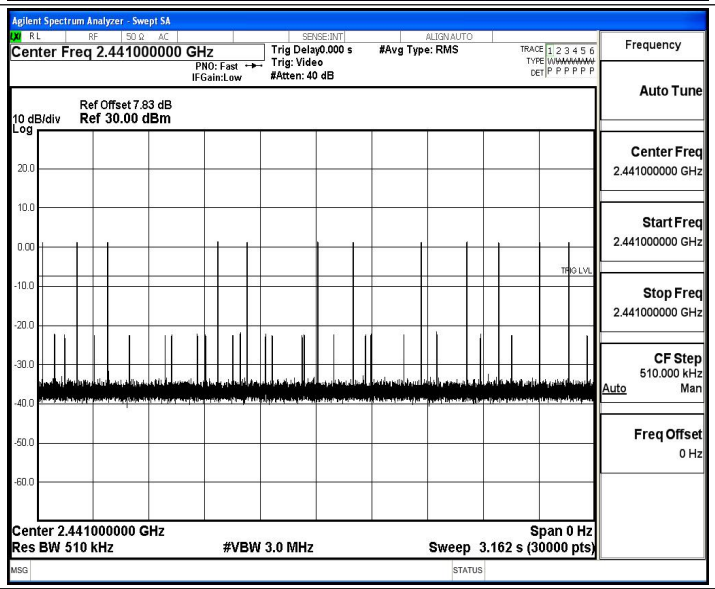
Test Result

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	70	0.202	≤0.4	PASS
3DH5	Ant1	Hop	2.89	110	0.317	≤0.4	PASS

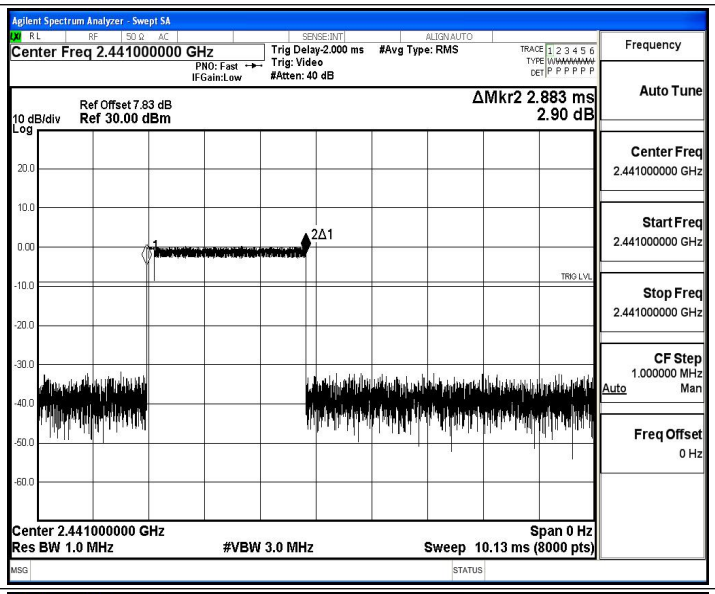
Test Graphs

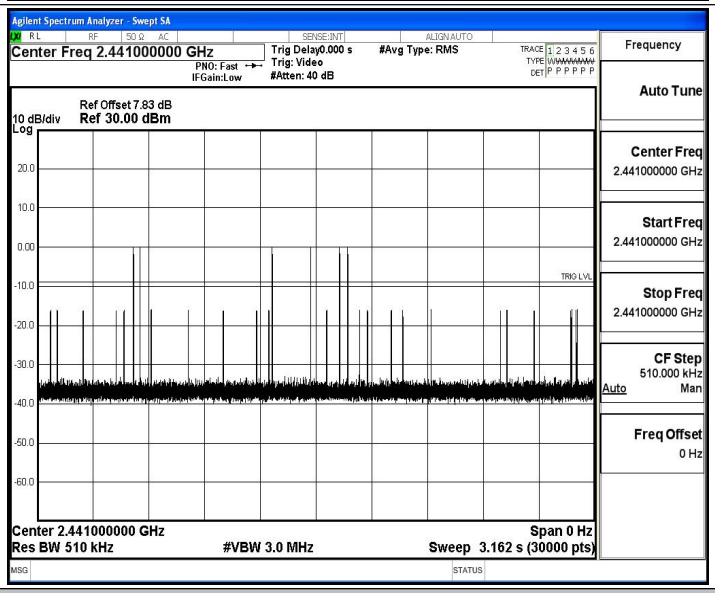
DH5_Ant1_Hop



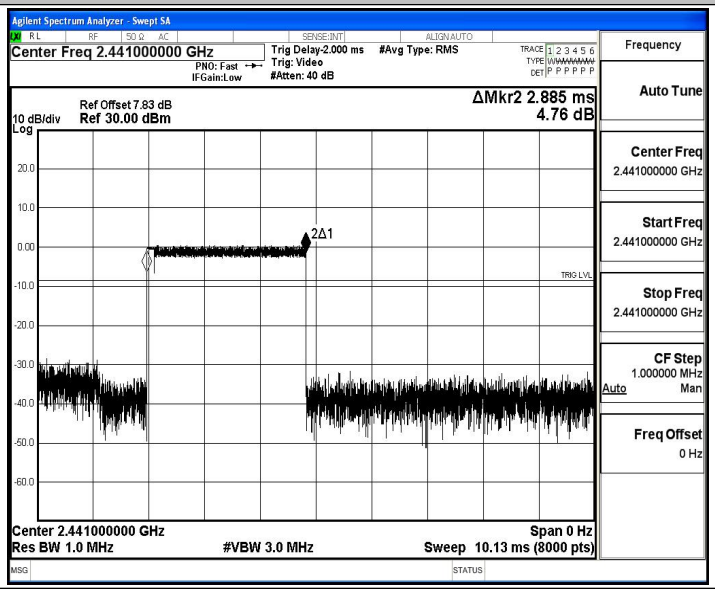


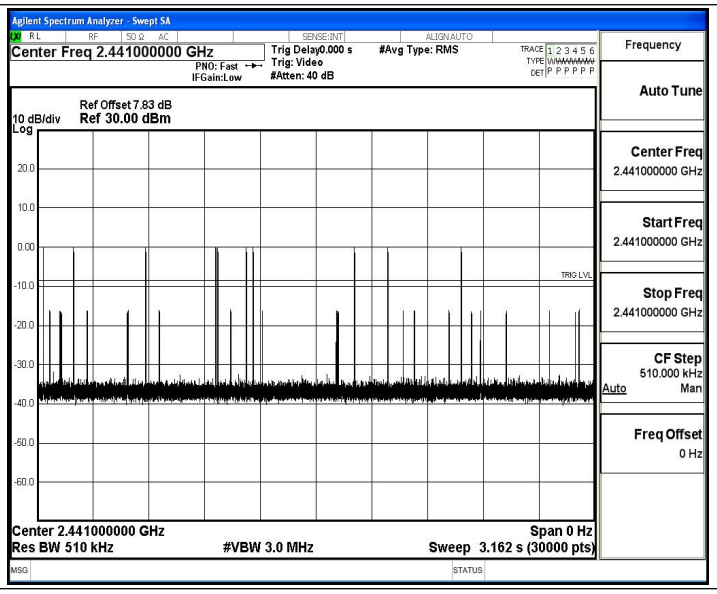
2DH5_Ant1_Hop





3DH5_Ant1_Hop




Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig Delay0.000 s
Trig: Video
#Atten: 40 dB
#Avg Type: RMS
Ref Offset 7.83 dB
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
TRIG LVL
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
MSG
STATUS

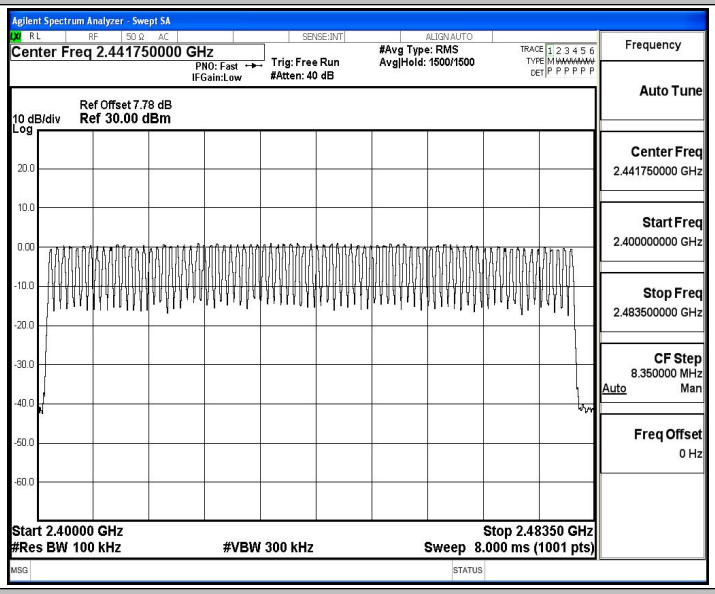
A.5 Number of hopping channels

Test Result

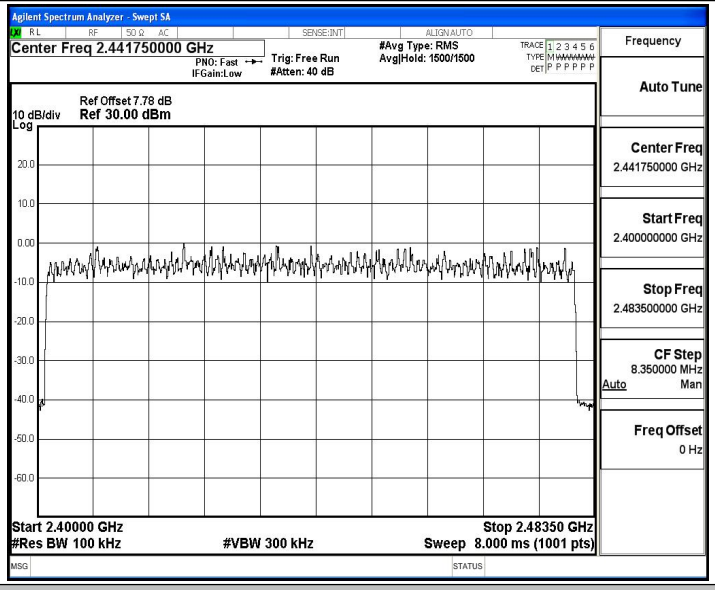
TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

Test Graphs

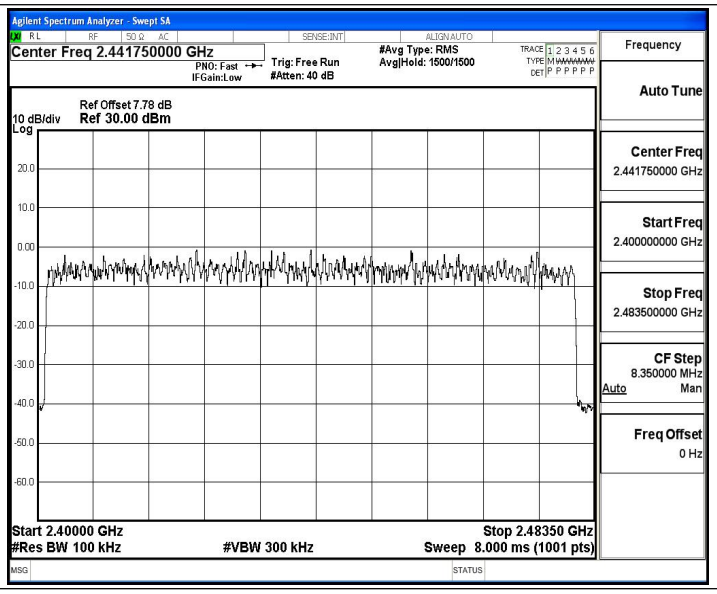
DH5_Ant1_Hop



2DH5_Ant1_Hop



3DH5_Ant1_Hop


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 1500/1500
Ref Offset 7.78 dB
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441750000 GHz
Start Freq
2.400000000 GHz
Stop Freq
2.483500000 GHz
CF Step
8.350000 MHz
Auto
Man
Freq Offset
0 Hz

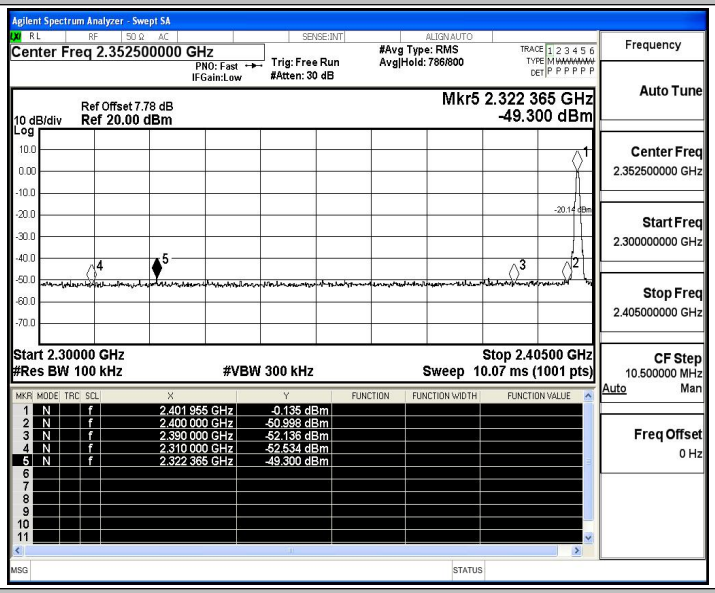
A.6 Band edge measurements

Test Result

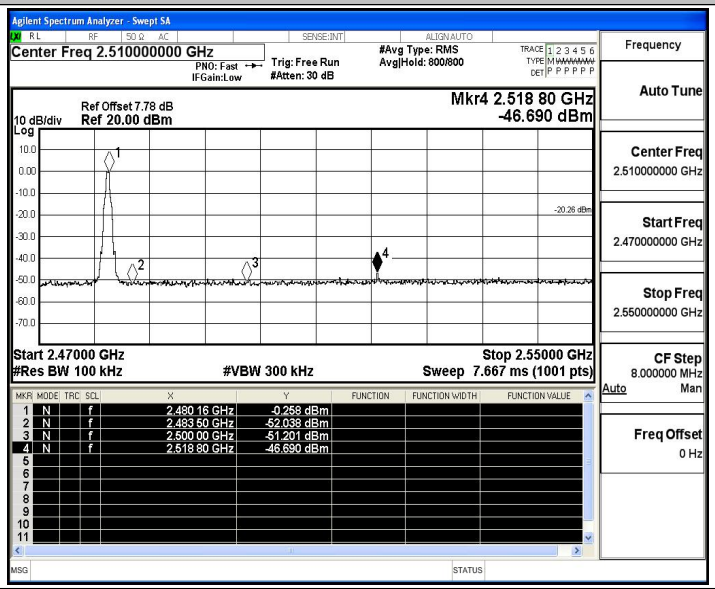
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.14	-49.3	≤-20.14	PASS
		High	2480	-0.26	-46.69	≤-20.26	PASS
		Low	Hop_2402	0.04	-49.88	≤-19.96	PASS
		High	Hop_2480	-0.20	-48.45	≤-20.2	PASS
2DH5	Ant1	Low	2402	-3.27	-49.04	≤-23.27	PASS
		High	2480	-1.62	-48.92	≤-21.62	PASS
		Low	Hop_2402	-5.08	-49.9	≤-25.08	PASS
		High	Hop_2480	-2.64	-48.49	≤-22.64	PASS
3DH5	Ant1	Low	2402	-1.51	-48.88	≤-21.51	PASS
		High	2480	-1.69	-48.42	≤-21.69	PASS
		Low	Hop_2402	-2.95	-49.83	≤-22.95	PASS
		High	Hop_2480	-4.29	-48.72	≤-24.29	PASS

Test Graphs

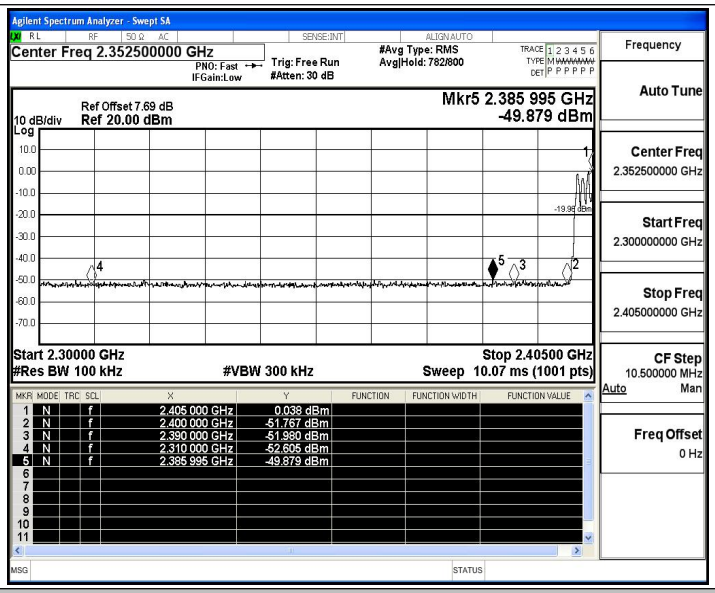
DH5_Ant1_Low_2402



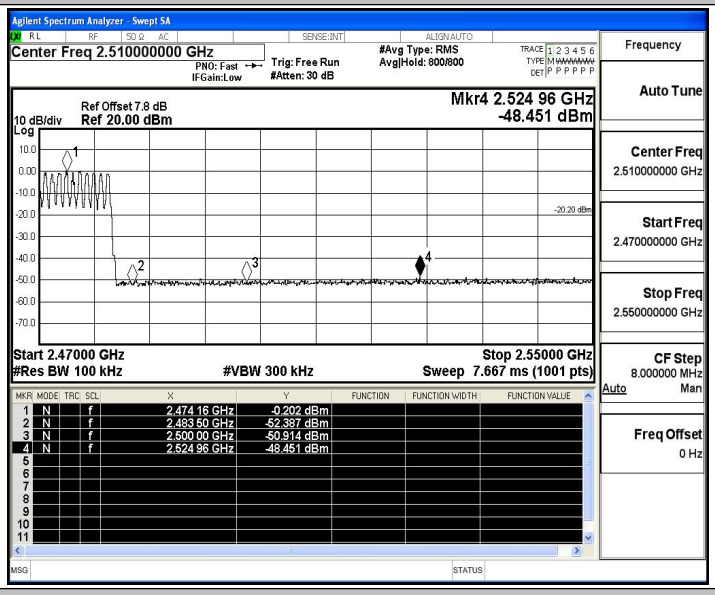
DH5_Ant1_High_2480



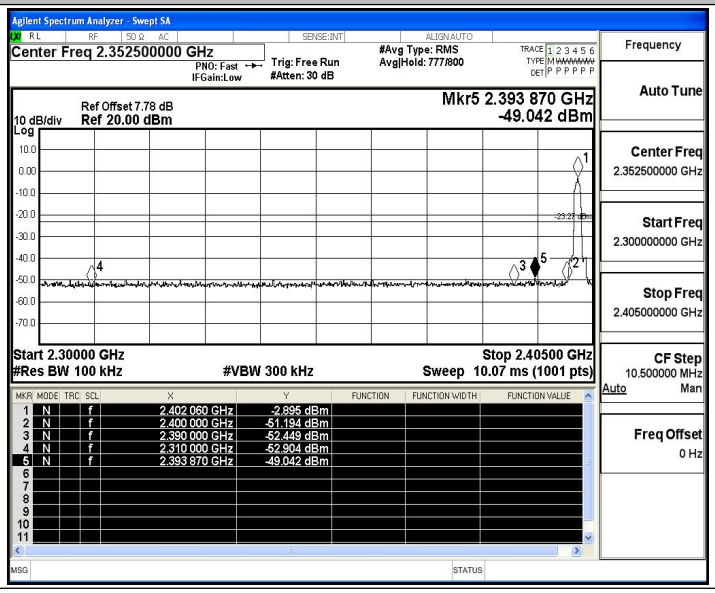
DH5_Ant1_Low_Hop_2402



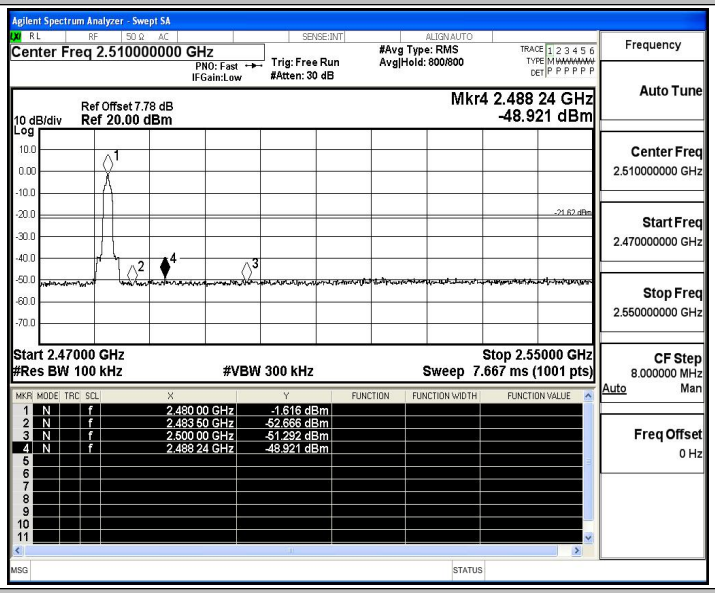
DH5_Ant1_High_Hop_2480



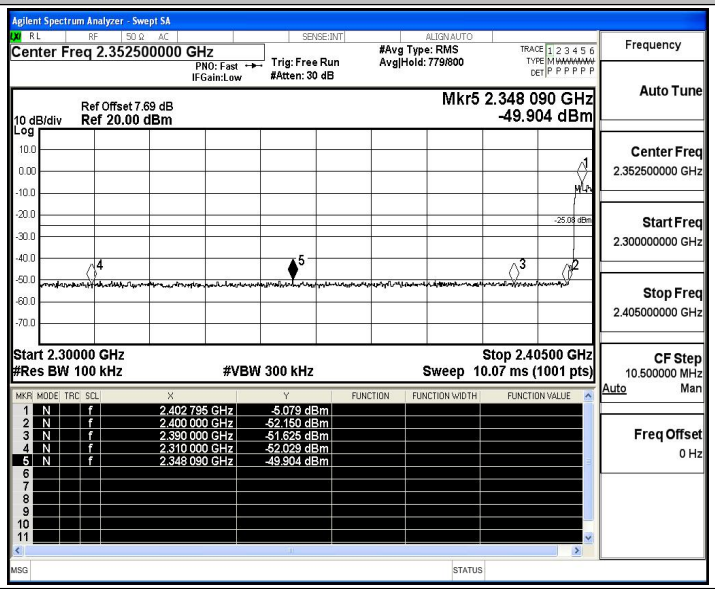
2DH5_Ant1_Low_2402



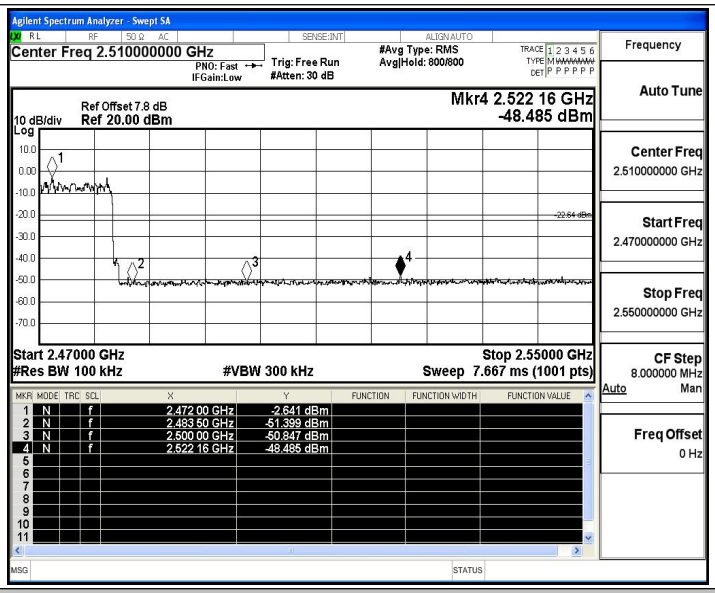
2DH5_Ant1_High_2480



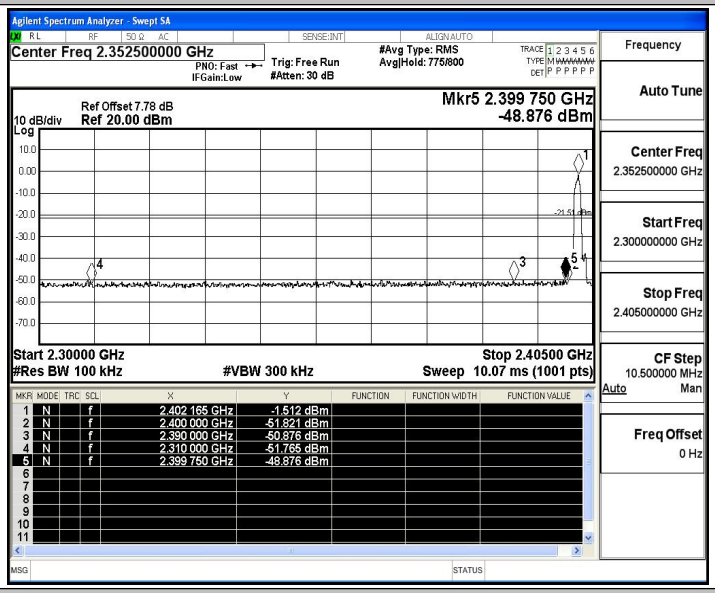
2DH5_Ant1_Low_Hop_2402



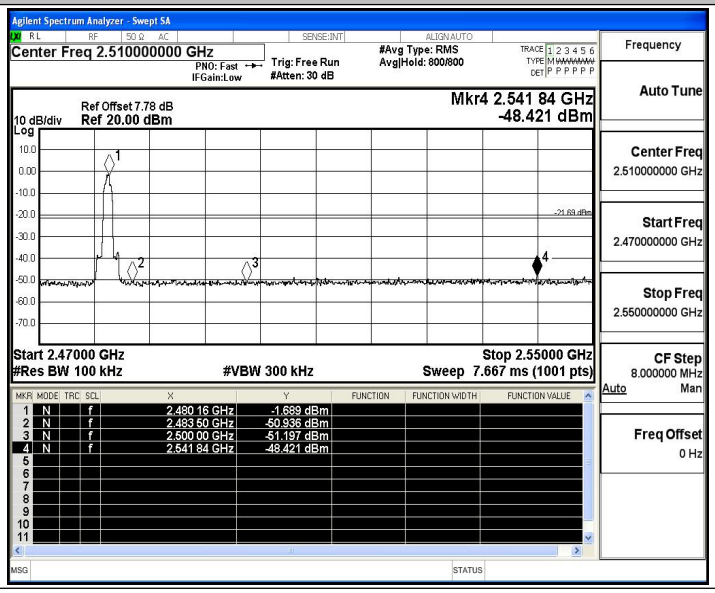
2DH5_Ant1_High_Hop_2480

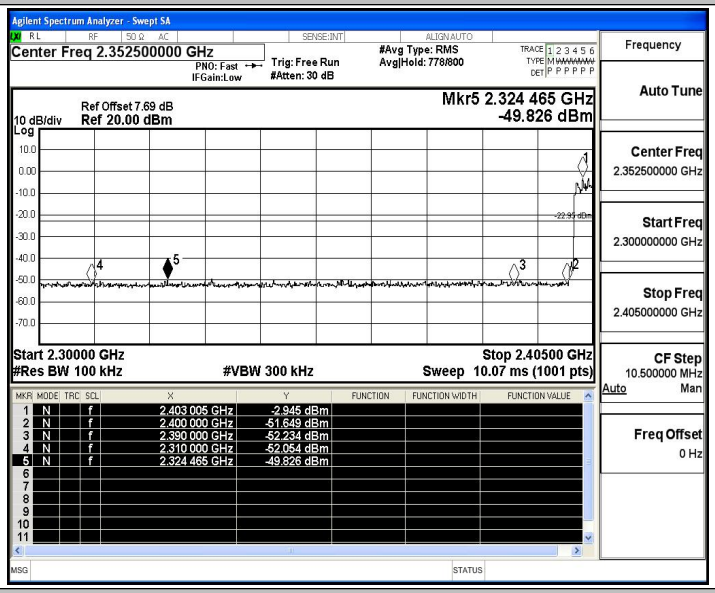
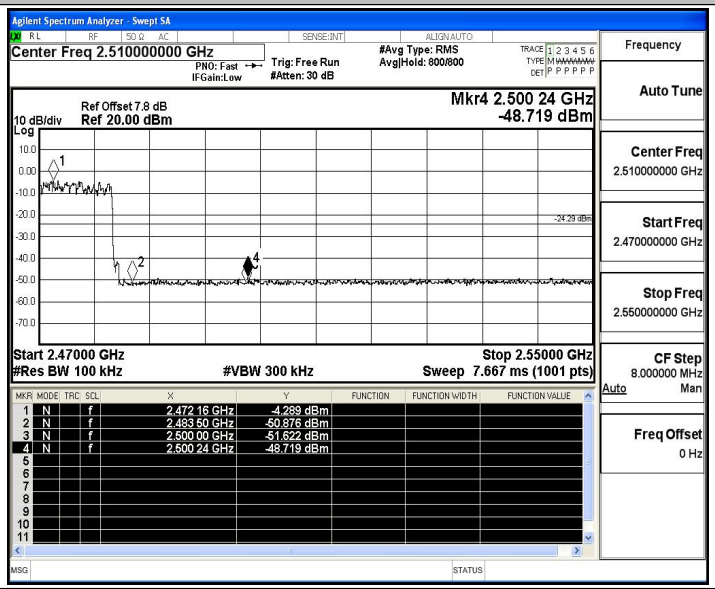


3DH5_Ant1_Low_2402



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	-0.04	-0.04	---	PASS
			30~1000	-0.04	-61.43	≤-20.04	PASS
			1000~26500	-0.04	-47.97	≤-20.04	PASS
		2441	Reference	0.56	0.56	---	PASS
			30~1000	0.56	-62.07	≤-19.44	PASS
			1000~26500	0.56	-47.61	≤-19.44	PASS
		2480	Reference	-0.54	-0.54	---	PASS
			30~1000	-0.54	-62.03	≤-20.54	PASS
			1000~26500	-0.54	-47.44	≤-20.54	PASS
2DH5	Ant1	2402	Reference	-1.68	-1.68	---	PASS
			30~1000	-1.68	-61.62	≤-21.68	PASS
			1000~26500	-1.68	-47.9	≤-21.68	PASS
		2441	Reference	-0.48	-0.48	---	PASS
			30~1000	-0.48	-61.44	≤-20.48	PASS
			1000~26500	-0.48	-48.09	≤-20.48	PASS
		2480	Reference	-1.92	-1.92	---	PASS
			30~1000	-1.92	-61.9	≤-21.92	PASS
			1000~26500	-1.92	-47.77	≤-21.92	PASS
3DH5	Ant1	2402	Reference	-2.61	-2.61	---	PASS
			30~1000	-2.61	-62.18	≤-22.61	PASS
			1000~26500	-2.61	-48.11	≤-22.61	PASS
		2441	Reference	-0.53	-0.53	---	PASS
			30~1000	-0.53	-62.24	≤-20.53	PASS
			1000~26500	-0.53	-47.68	≤-20.53	PASS
		2480	Reference	-2.60	-2.60	---	PASS
			30~1000	-2.60	-61.55	≤-22.6	PASS
			1000~26500	-2.60	-47.8	≤-22.6	PASS