

RF Test Data for Bluetooth (BDR+EDR) (Conducted Measurements)

General Description of EUT	
Product Name:	Heltec Indoor Hotspot
Test Model:	HT-M2808
Sample ID:	20210603-15-2#
Environmental Conditions	
Temperature:	24.3℃
Relative Humidity:	52%
Test Voltage:	DC 12V
Test Engineer:	Huang jianping
Note: For a more detailed features description, please refer to the report TB-RF183068.	

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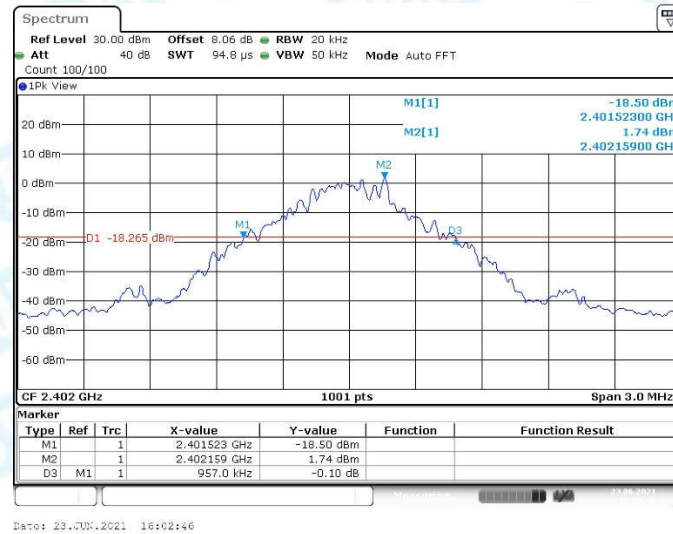
1. 20dB Emission Bandwidth

1.1. Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.957	2401.523	2402.159	---	PASS
		2441	0.960	2440.526	2441.486	---	PASS
		2480	0.960	2479.529	2480.489	---	PASS
2DH5	Ant1	2402	1.344	2401.334	2402.678	---	PASS
		2441	1.347	2440.337	2441.684	---	PASS
		2480	1.344	2479.343	2480.687	---	PASS
3DH5	Ant1	2402	1.320	2401.331	2402.651	---	PASS
		2441	1.302	2440.352	2441.654	---	PASS
		2480	1.305	2479.358	2480.663	---	PASS

1.2. Test Graphs

DH5_Ant1_2402



DH5_Ant1_2441



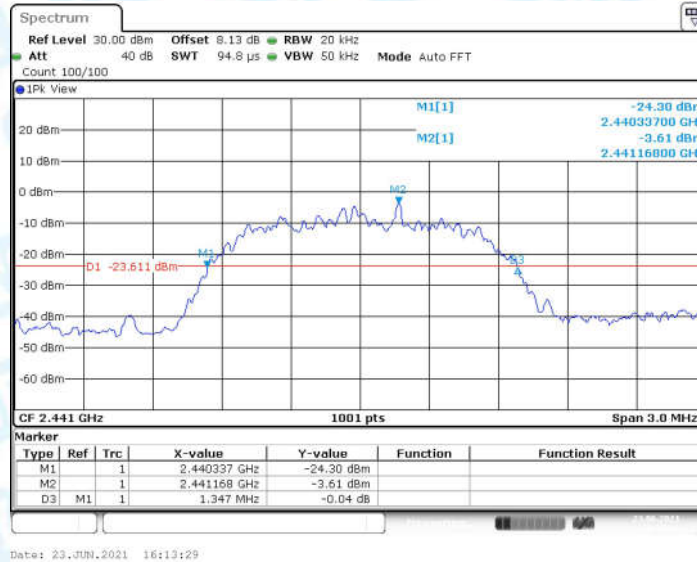
DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



2. Occupied Channel Bandwidth

2.1. Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.905	2401.547	2402.453	---	PASS
		2441	0.905	2440.553	2441.459	---	PASS
		2480	0.908	2479.556	2480.465	---	PASS
2DH5	Ant1	2402	1.217	2401.398	2402.614	---	PASS
		2441	1.223	2440.401	2441.623	---	PASS
		2480	1.226	2479.404	2480.629	---	PASS
3DH5	Ant1	2402	1.217	2401.389	2402.605	---	PASS
		2441	1.22	2440.392	2441.611	---	PASS
		2480	1.223	2479.395	2480.617	---	PASS

2.2. Test Graphs

DH5_Ant1_2402



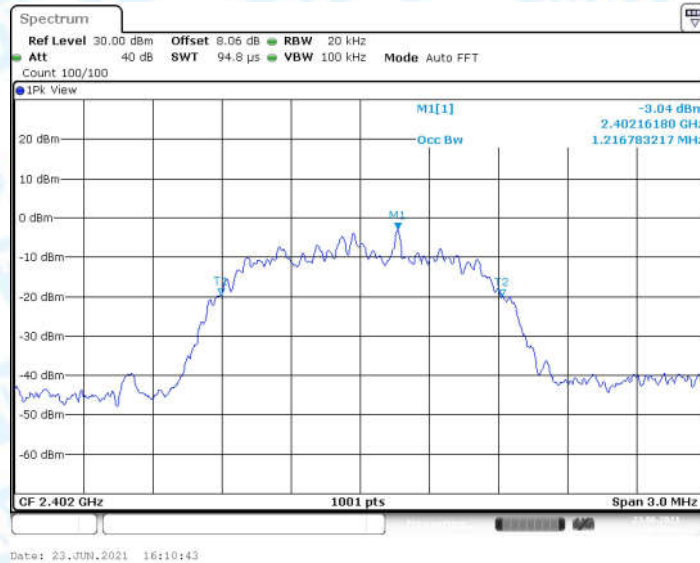
DH5_Ant1_2441



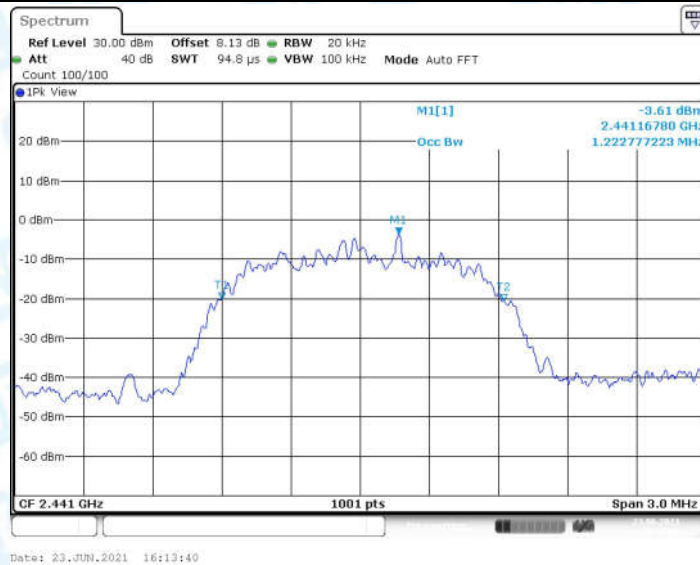
DH5_Ant1_2480



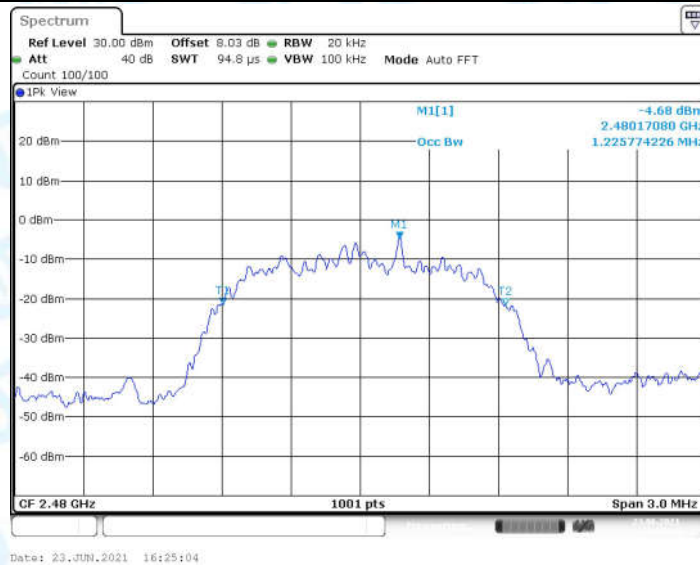
2DH5_Ant1_2402



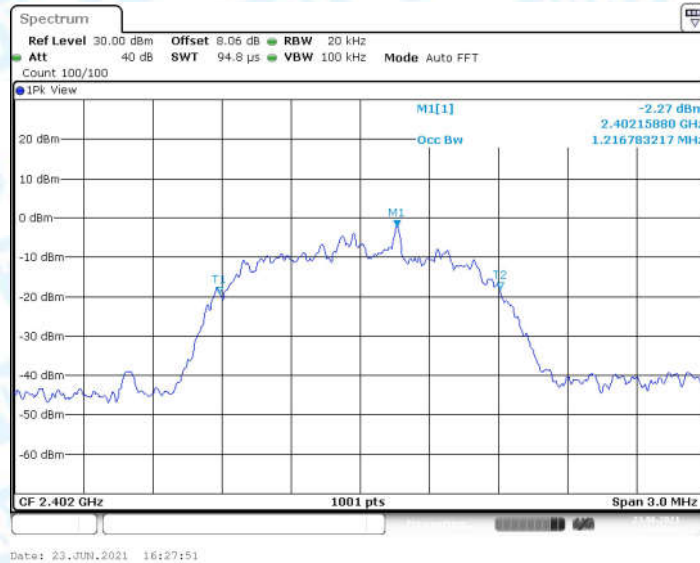
2DH5_Ant1_2441



2DH5_Ant1_2480



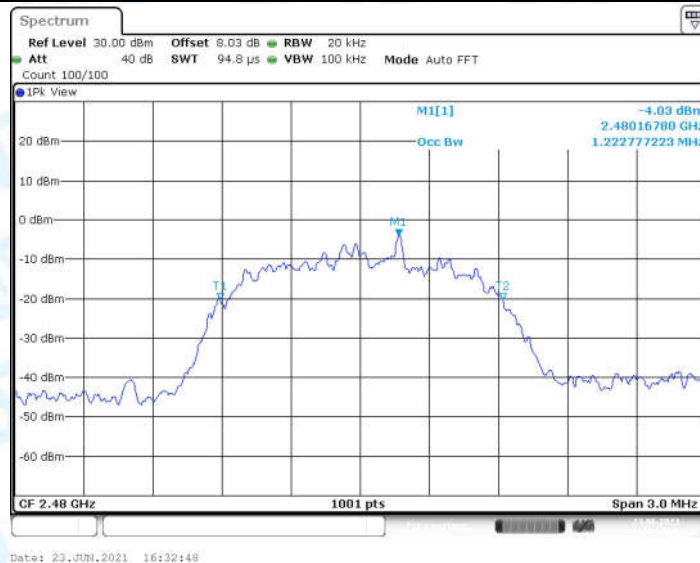
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



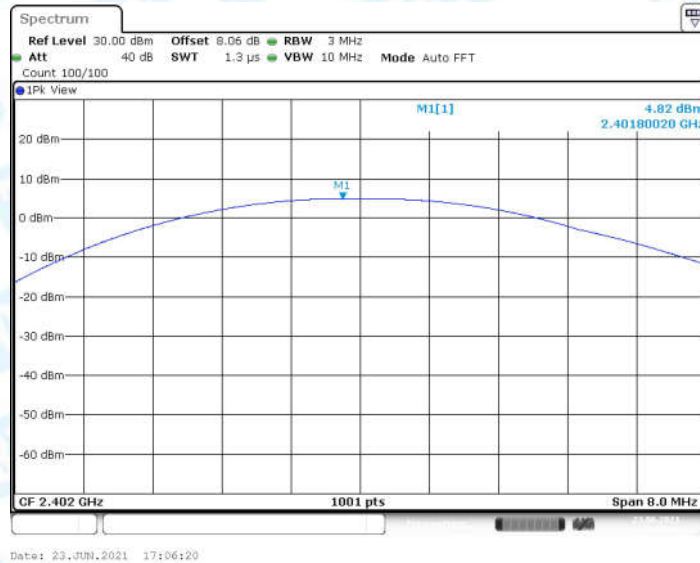
3. Maximum conducted output power

3.1. Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	4.82	<=20.97	PASS
		2441	4.15	<=20.97	PASS
		2480	3.24	<=20.97	PASS
2DH5	Ant1	2402	2.77	<=20.97	PASS
		2441	2.1	<=20.97	PASS
		2480	0.99	<=20.97	PASS
3DH5	Ant1	2402	3.05	<=20.97	PASS
		2441	2.28	<=20.97	PASS
		2480	1.07	<=20.97	PASS

3.2. Test Graphs

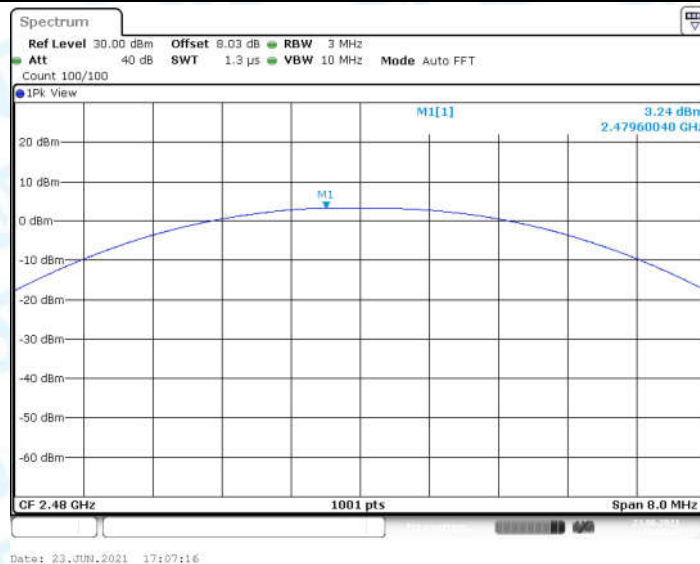
DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



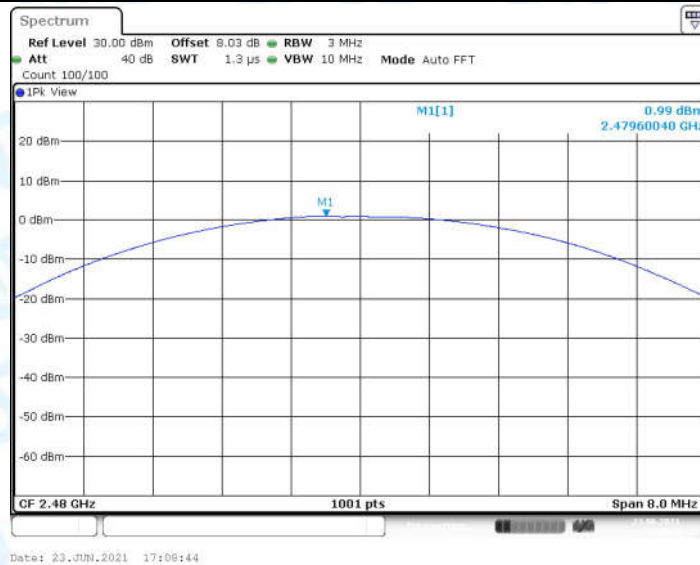
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



4. Carrier frequency separation

4.1. Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.994	≥ 0.960	PASS
2DH5	Ant1	Hop	1.006	≥ 0.898	PASS
3DH5	Ant1	Hop	1.096	≥ 0.880	PASS

4.2. Test Graphs

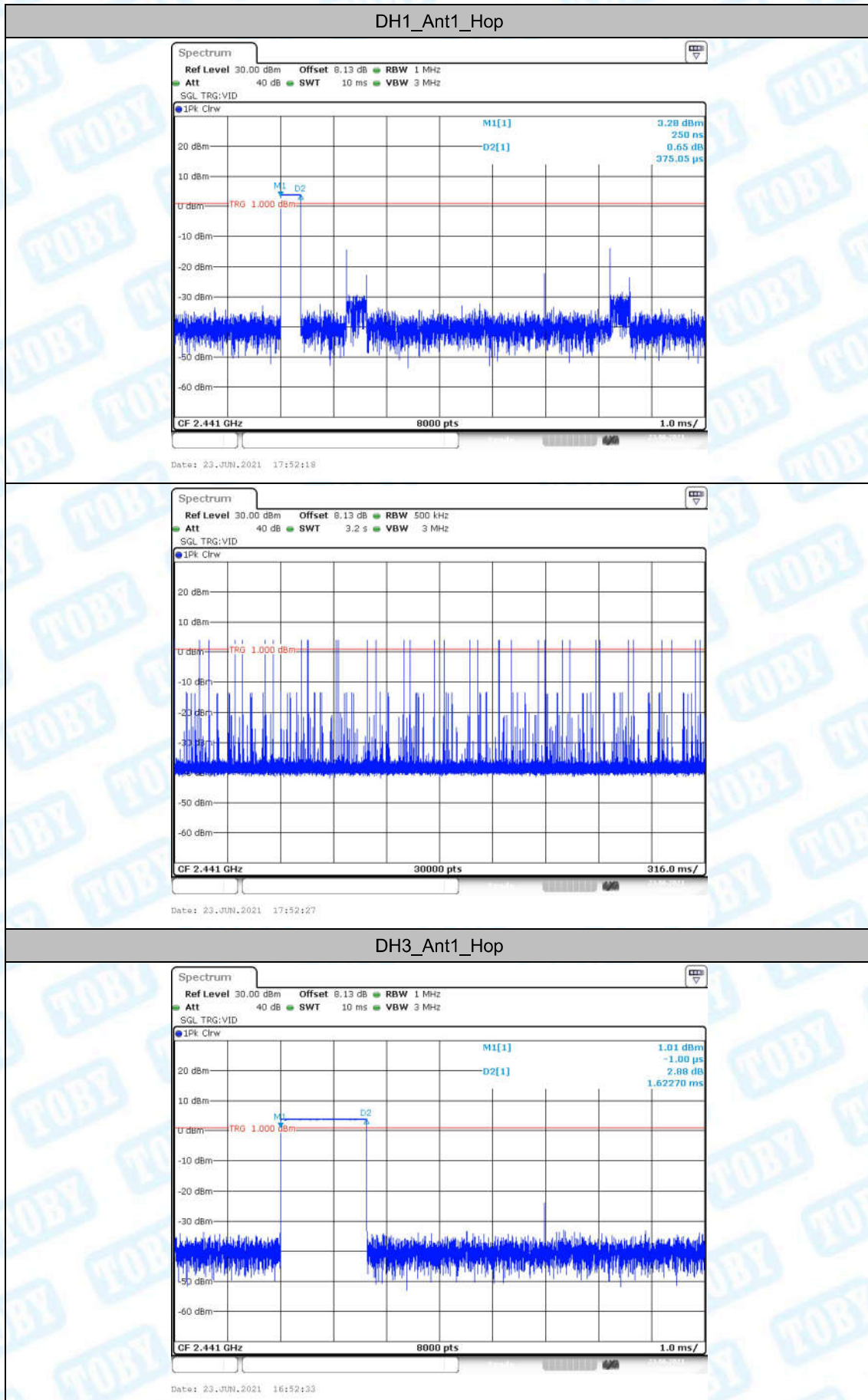


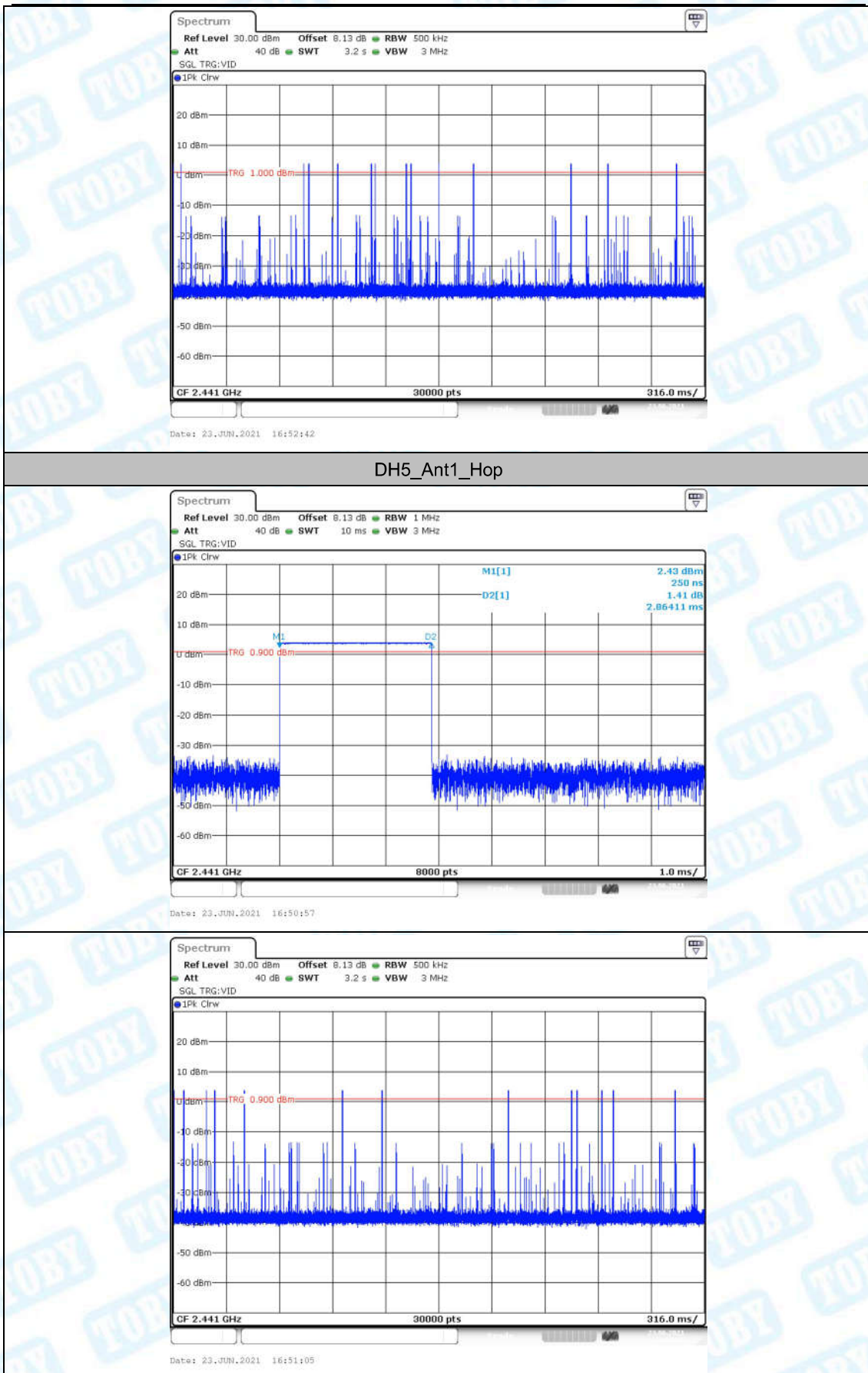
5. Time of occupancy

5.1. Test Result

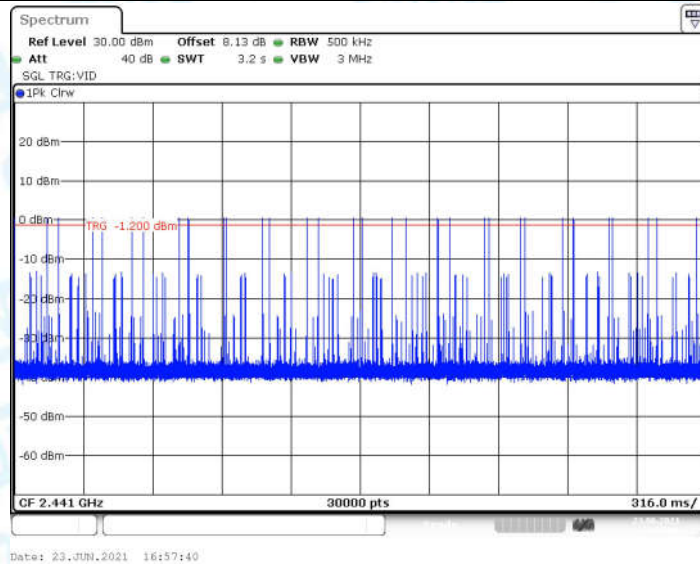
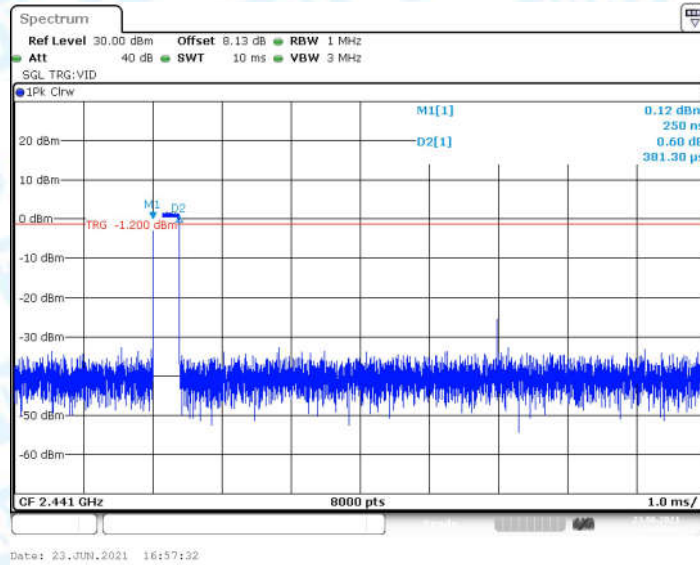
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.38	330	0.124	≤ 0.4	PASS
DH3	Ant1	Hop	1.62	140	0.227	≤ 0.4	PASS
DH5	Ant1	Hop	2.86	130	0.372	≤ 0.4	PASS
2DH1	Ant1	Hop	0.38	330	0.126	≤ 0.4	PASS
2DH3	Ant1	Hop	1.63	160	0.26	≤ 0.4	PASS
2DH5	Ant1	Hop	2.87	110	0.315	≤ 0.4	PASS
3DH1	Ant1	Hop	0.38	330	0.126	≤ 0.4	PASS
3DH3	Ant1	Hop	1.63	160	0.26	≤ 0.4	PASS
3DH5	Ant1	Hop	2.87	130	0.373	≤ 0.4	PASS

5.2. Test Graphs

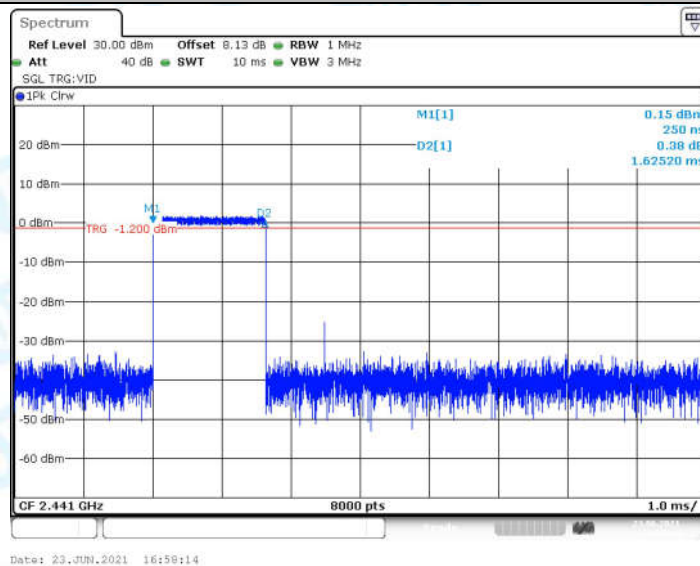


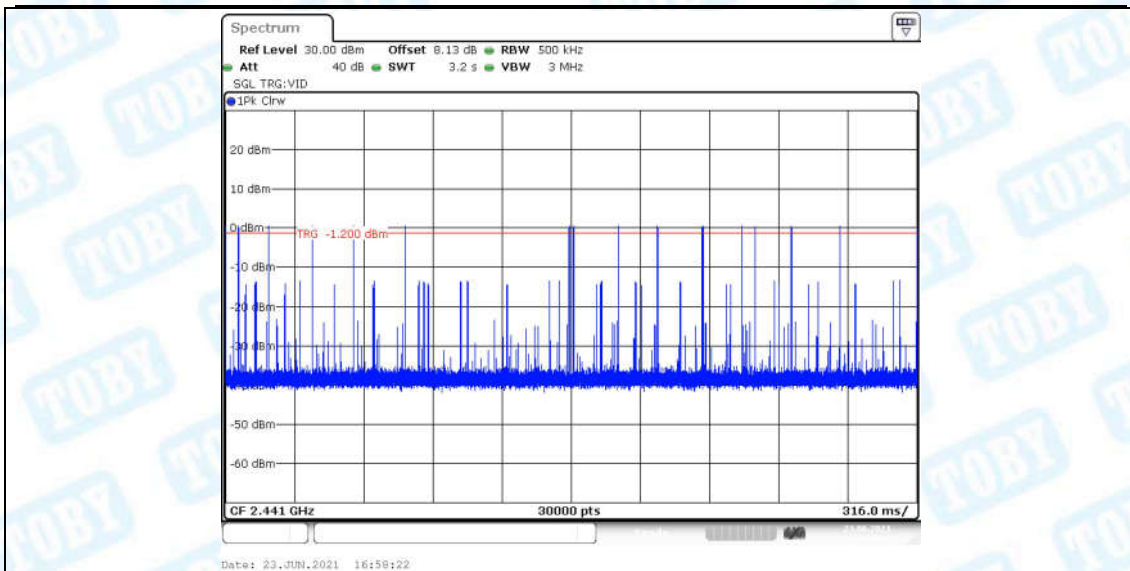


2DH1_Ant1_Hop

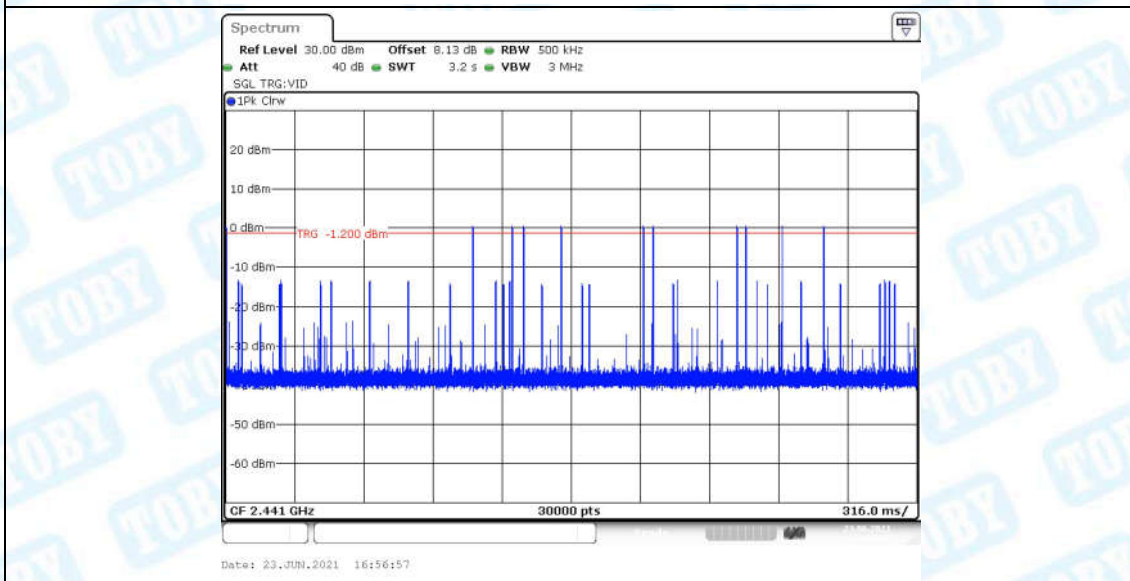
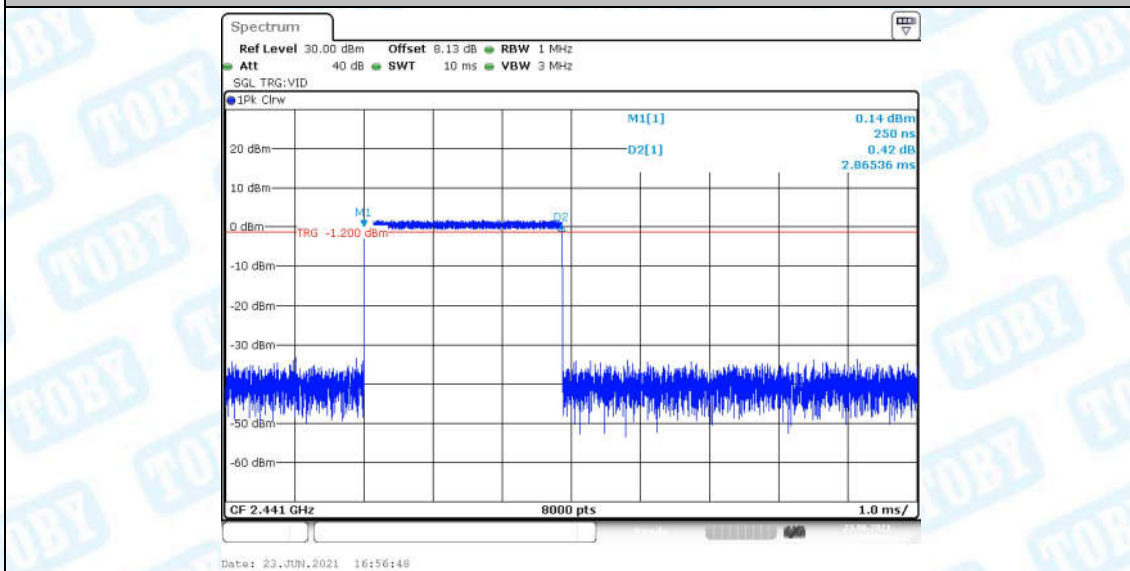


2DH3_Ant1_Hop

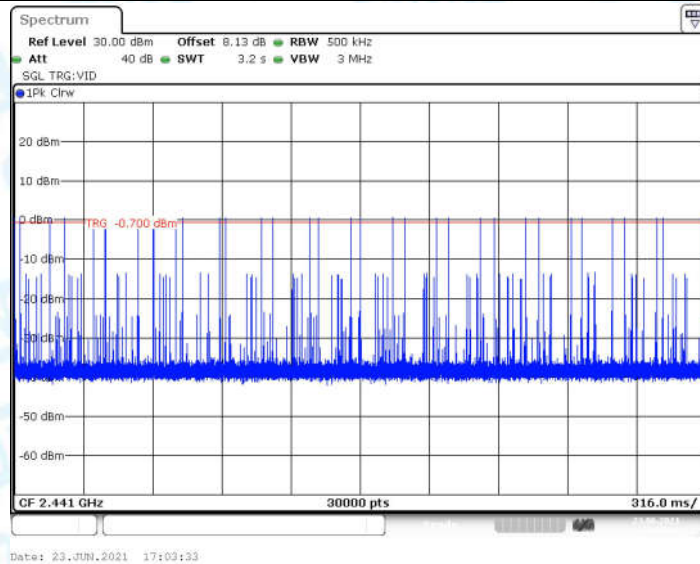
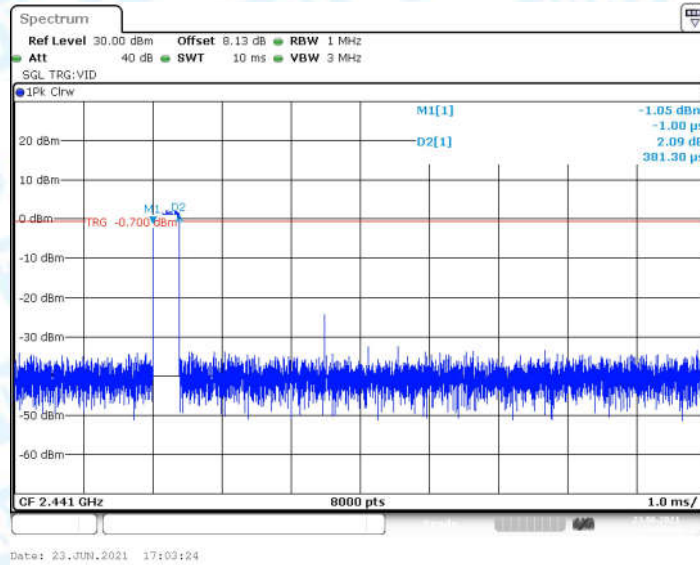




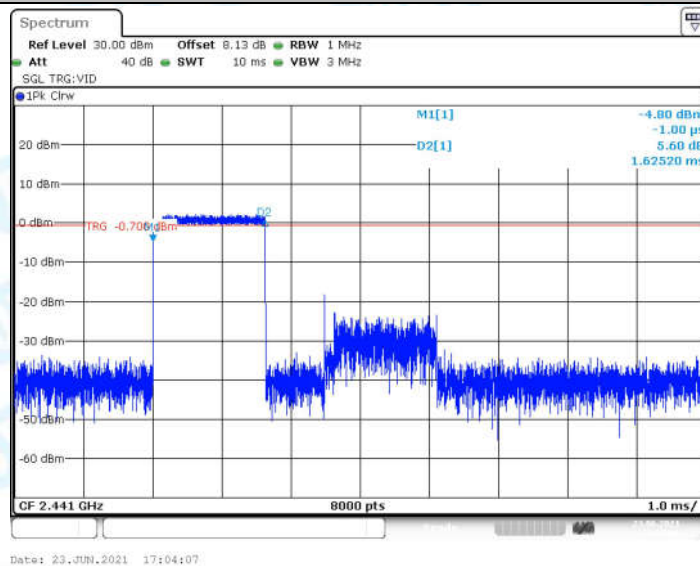
2DH5_Ant1_Hop

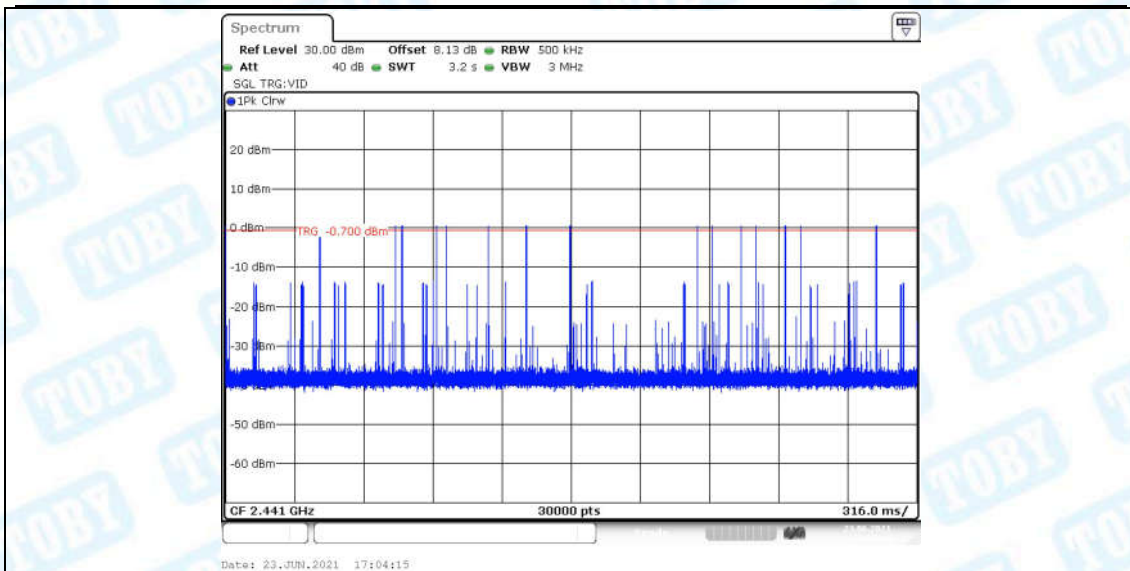


3DH1_Ant1_Hop

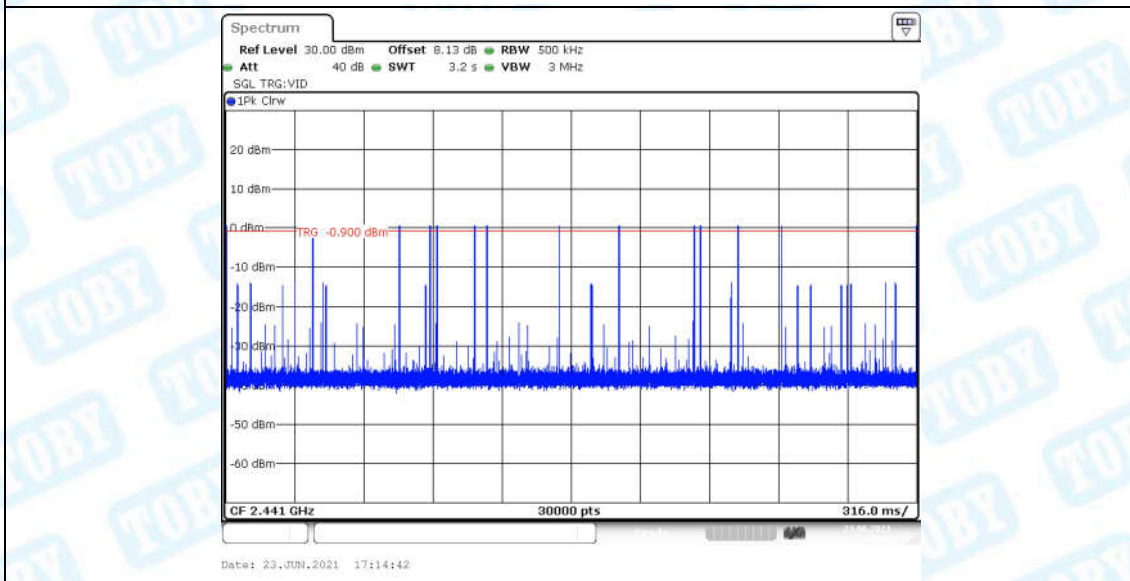
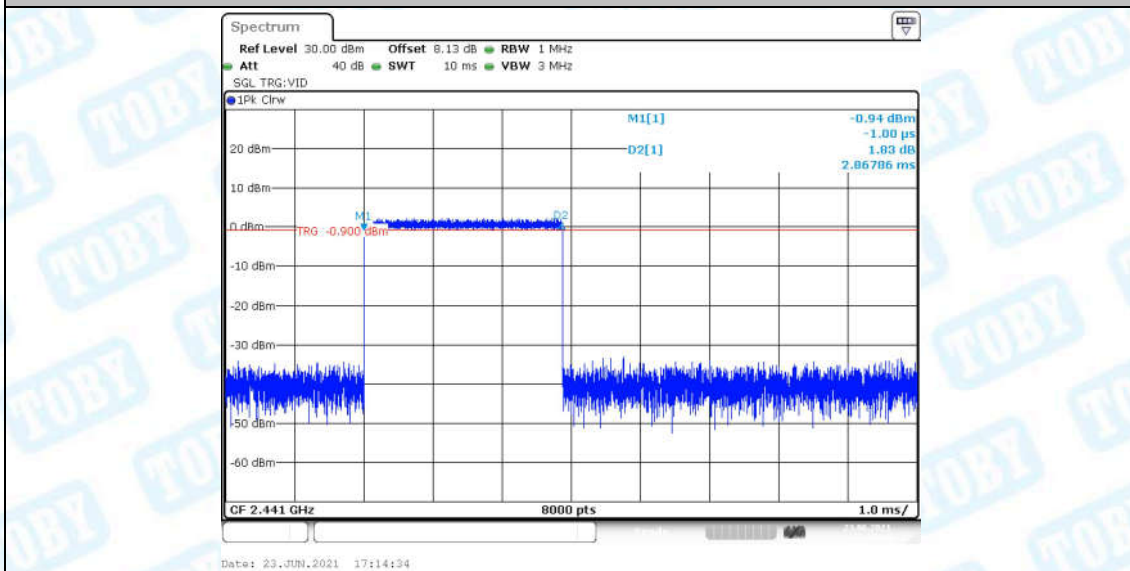


3DH3_Ant1_Hop





3DH5_Ant1_Hop



6. Number of hopping channels

6.1. 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

6.2. Test Graphs



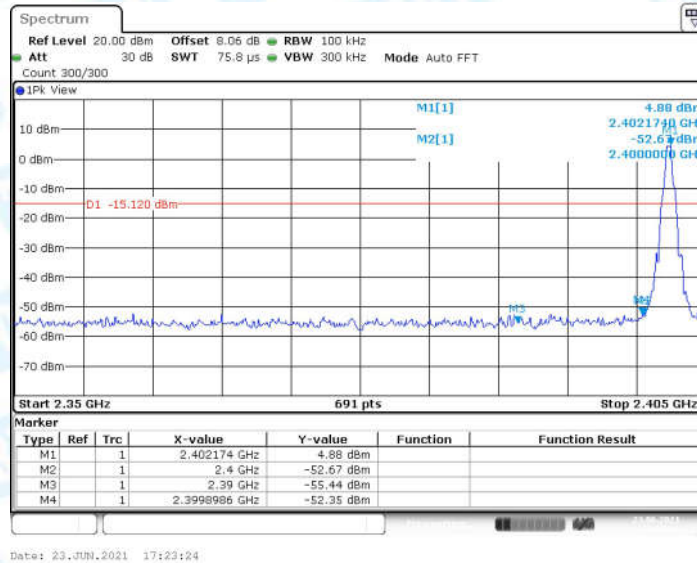
7. Band edge measurements

7.1. Test Result

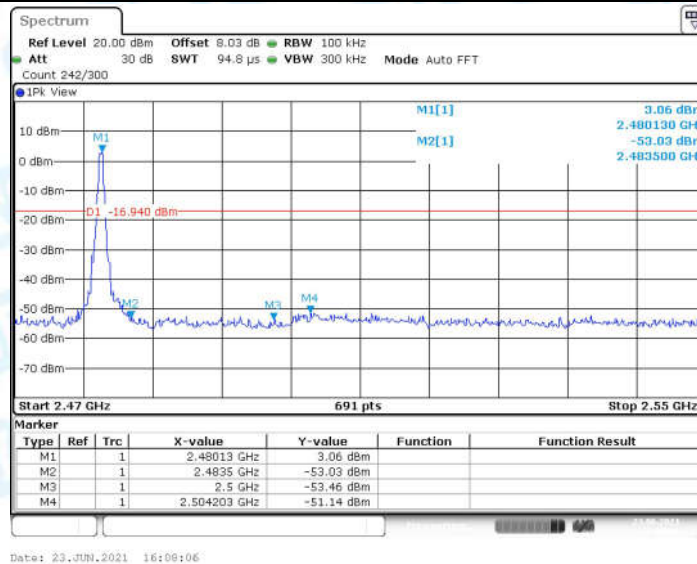
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	4.88	-52.35	<=-15.12	PASS
		High	2480	3.06	-51.14	<=-16.94	PASS
		Low	Hop_2402	3.81	-52.93	<=-16.19	PASS
		High	Hop_2480	2.45	-51.07	<=-17.55	PASS
2DH5	Ant1	Low	2402	0.25	-40.88	<=-19.75	PASS
		High	2480	-2.55	-50.63	<=-22.55	PASS
		Low	Hop_2402	-1.99	-52.71	<=-21.99	PASS
		High	Hop_2480	-1.40	-51.17	<=-21.4	PASS
3DH5	Ant1	Low	2402	0.84	-51.74	<=-19.16	PASS
		High	2480	-2.53	-51.31	<=-22.53	PASS
		Low	Hop_2402	-2.76	-53.15	<=-22.76	PASS
		High	Hop_2480	-2.68	-51.72	<=-22.68	PASS

7.2. Test Graphs

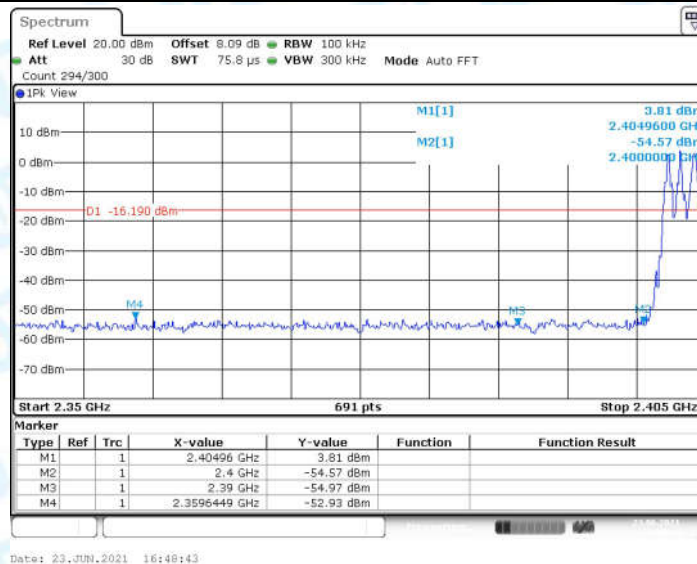
DH5_Ant1_Low_2402



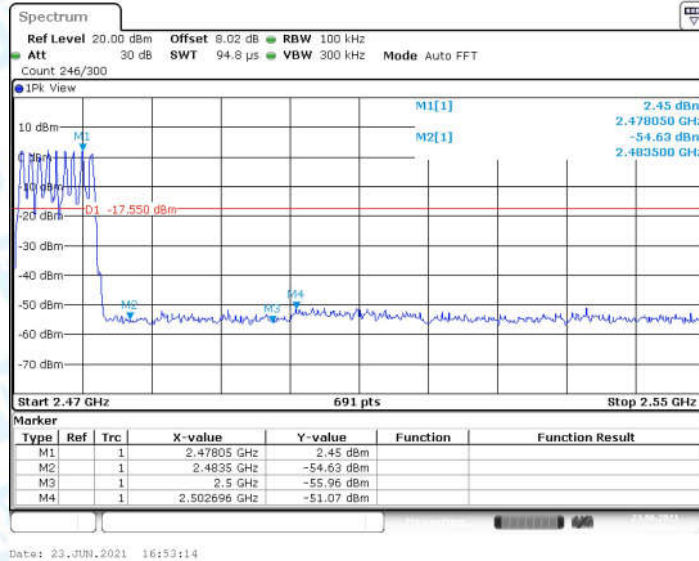
DH5_Ant1_High_2480



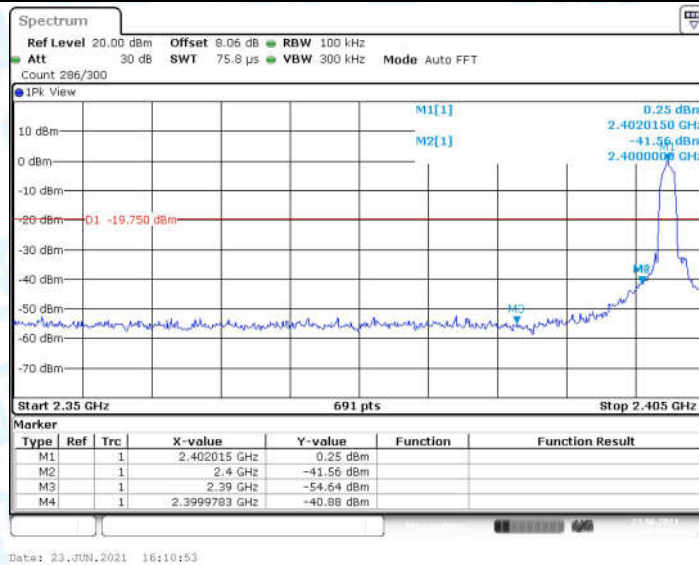
DH5_Ant1_Low_Hop_2402



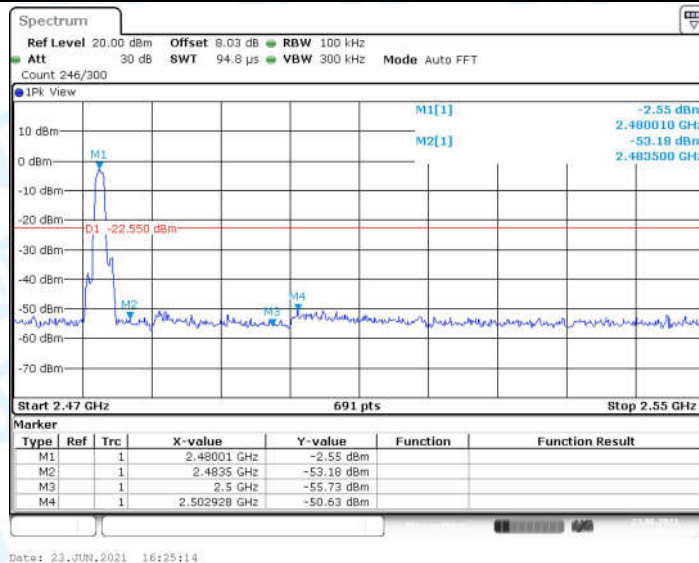
DH5_Ant1_High_Hop_2480



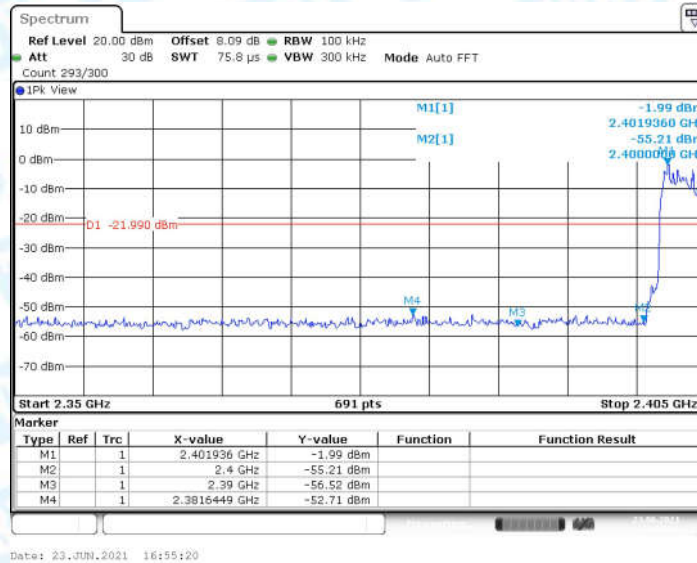
2DH5_Ant1_Low_2402



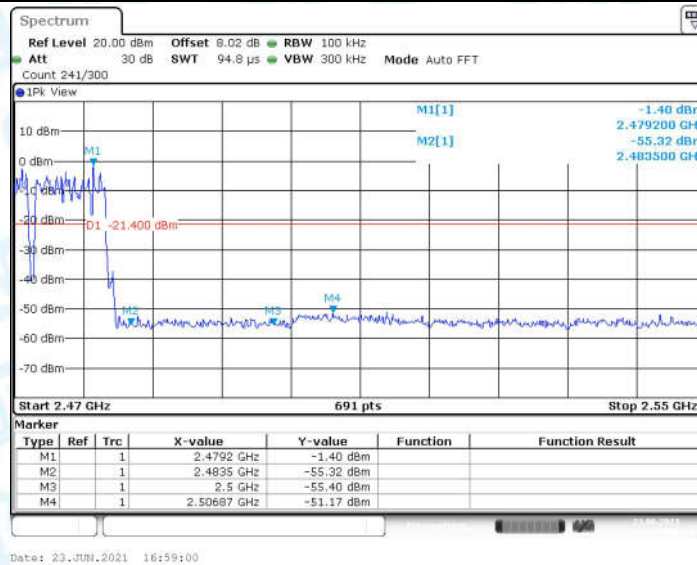
2DH5_Ant1_High_2480



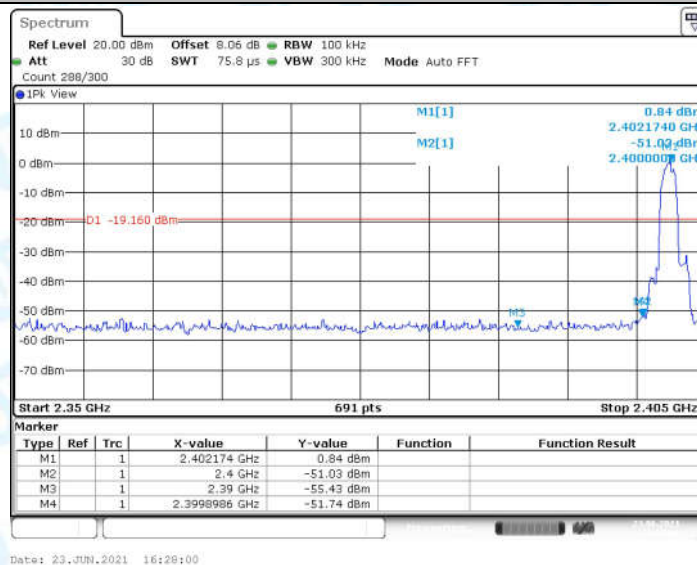
2DH5_Ant1_Low_Hop_2402



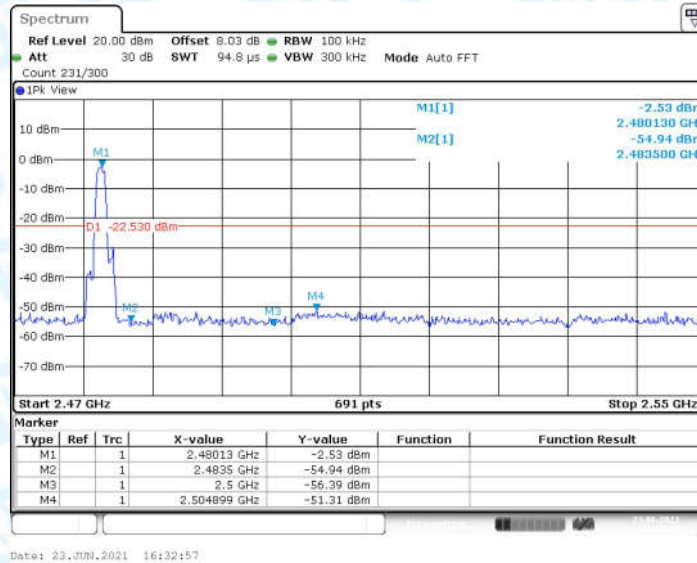
2DH5_Ant1_High_Hop_2480



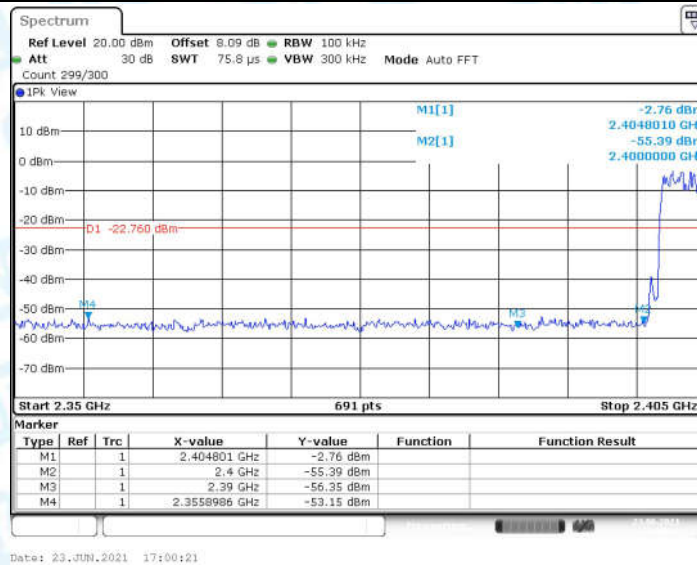
3DH5_Ant1_Low_2402



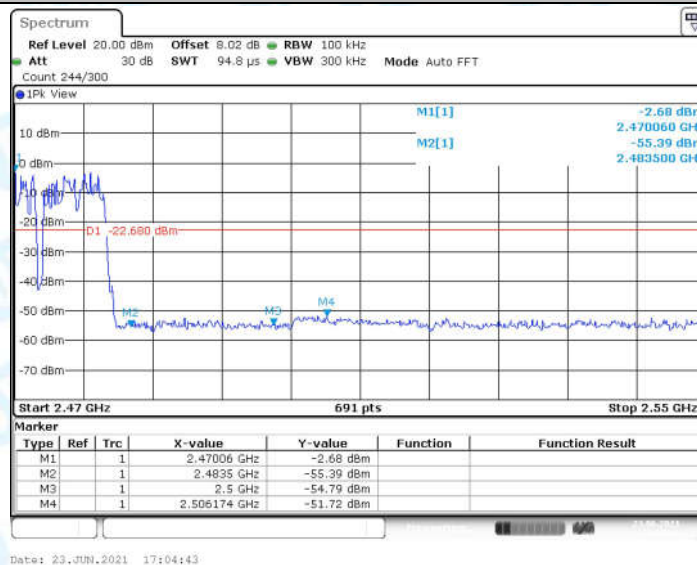
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480



8. Conducted Spurious Emission

8.1. Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	4.77	4.77	---	PASS
			30~1000	4.77	-63.84	<=-15.23	PASS
			1000~26500	4.77	-52.79	<=-15.23	PASS
		2441	Reference	4.01	4.01	---	PASS
			30~1000	4.01	-62.87	<=-15.99	PASS
			1000~26500	4.01	-53.36	<=-15.99	PASS
		2480	Reference	3.00	3.00	---	PASS
			30~1000	3.00	-62.41	<=-17	PASS
			1000~26500	3.00	-53.99	<=-17	PASS
2DH5	Ant1	2402	Reference	0.59	0.59	---	PASS
			30~1000	0.59	-61.75	<=-19.41	PASS
			1000~26500	0.59	-52.42	<=-19.41	PASS
		2441	Reference	-0.06	-0.06	---	PASS
			30~1000	-0.06	-63.1	<=-20.06	PASS
			1000~26500	-0.06	-53.58	<=-20.06	PASS
		2480	Reference	-1.21	-1.21	---	PASS
			30~1000	-1.21	-63.59	<=-21.21	PASS
			1000~26500	-1.21	-52.94	<=-21.21	PASS
3DH5	Ant1	2402	Reference	0.74	0.74	---	PASS
			30~1000	0.74	-61.92	<=-19.26	PASS
			1000~26500	0.74	-53.68	<=-19.26	PASS
		2441	Reference	0.16	0.16	---	PASS
			30~1000	0.16	-63.44	<=-19.84	PASS
			1000~26500	0.16	-53.96	<=-19.84	PASS
		2480	Reference	-1.31	-1.31	---	PASS
			30~1000	-1.31	-62.06	<=-21.31	PASS
			1000~26500	-1.31	-52.35	<=-21.31	PASS

8.2. Test Graphs

