

Appendix for Bluetooth

Model: VNE-N41

BTL-FCCP-1-2204C233

Content

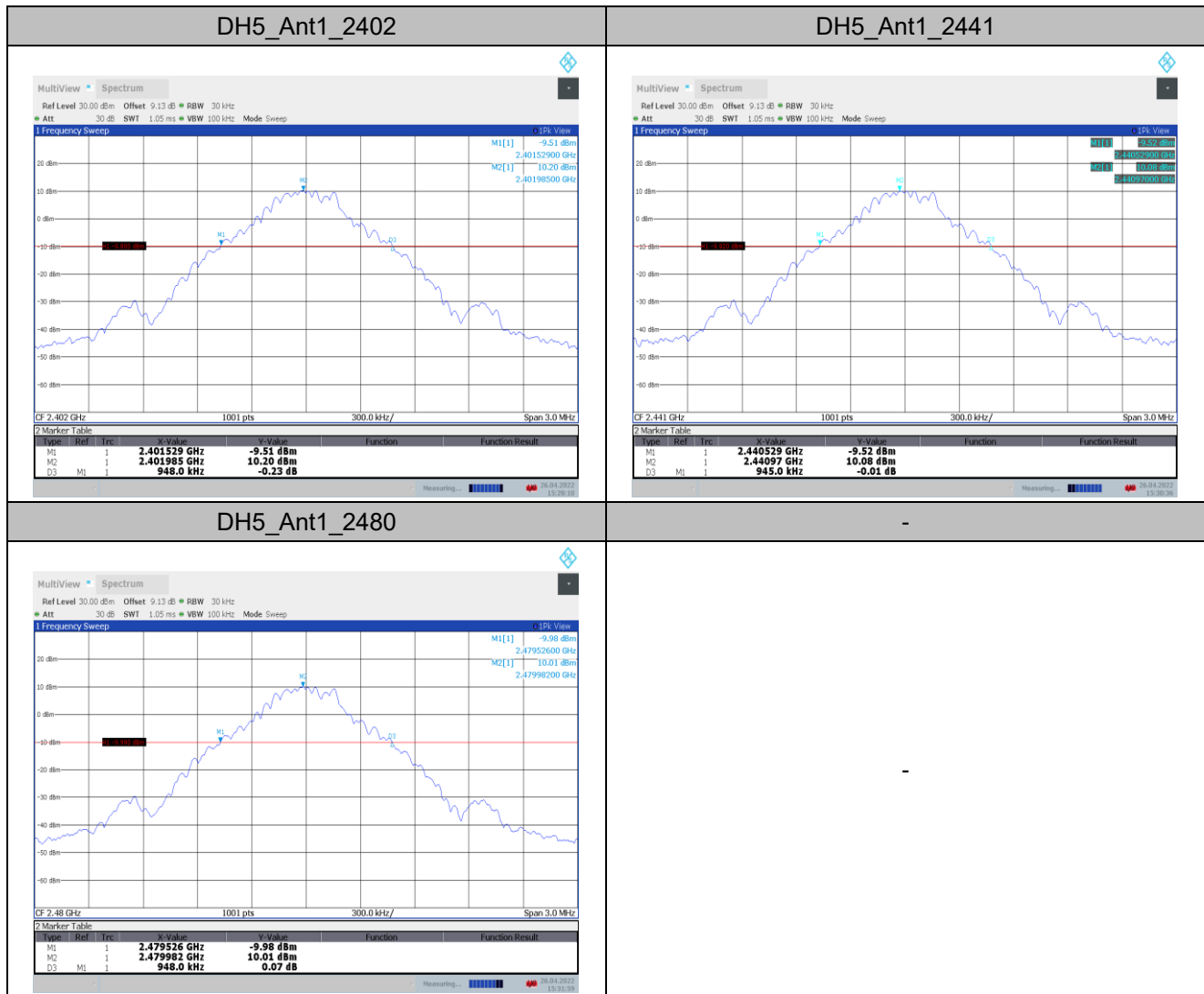
1. Appendix A: 6 dB Bandwidth	3
1.1. Test Result	3
1.2. Test Graphs	4
2. Appendix B: 99% Emission Bandwidth.....	7
2.1. Test Result	7
2.2. Test Graphs	8
3. Appendix C: Carrier frequency separation	11
3.1. Test Result	11
3.2. Test Graphs	12
4. Appendix D: Number of hopping channels	13
4.1. Test Result	13
4.2. Test Graphs	14
5. Appendix E: Time of occupancy	15
5.1. Test Result	15
5.2. Test Graphs	16
6. Appendix F: Maximum conducted output power	19
6.1. Test Result	19
6.2. Test Graphs	20
7. Appendix G: Band edge measurements.....	23
7.1. Test Result	23
7.2. Test Graphs	24
8. Appendix H: Conducted Spurious Emission.....	27
8.1. Test Result	27
8.2. Test Graphs	28
9. Appendix I: Duty Cycle	31
9.1. Test Result	31
9.2. Test Graphs	32

1. Appendix A: 6 dB Bandwidth

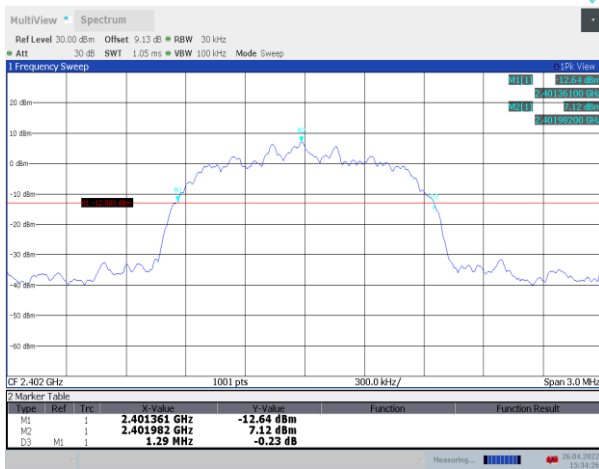
1.1. Test Result

TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.95	2401.53	2402.48	---	PASS
		2441	0.95	2440.53	2441.47	---	PASS
		2480	0.95	2479.53	2480.47	---	PASS
2DH5	Ant1	2402	1.29	2401.36	2402.65	---	PASS
		2441	1.29	2440.36	2441.65	---	PASS
		2480	1.31	2479.34	2480.65	---	PASS
3DH5	Ant1	2402	1.30	2401.35	2402.65	---	PASS
		2441	1.30	2440.35	2441.64	---	PASS
		2480	1.30	2479.34	2480.65	---	PASS

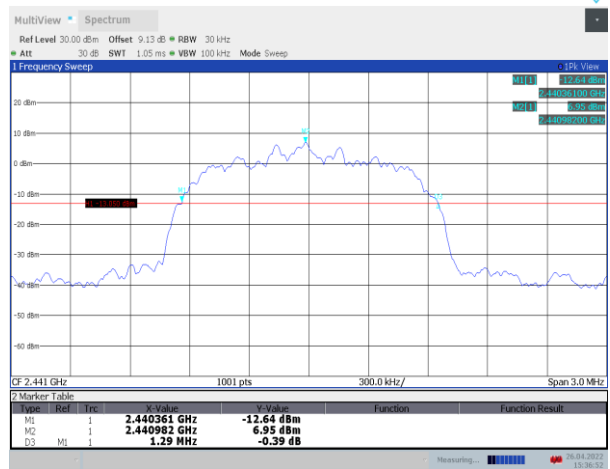
1.2. Test Graphs



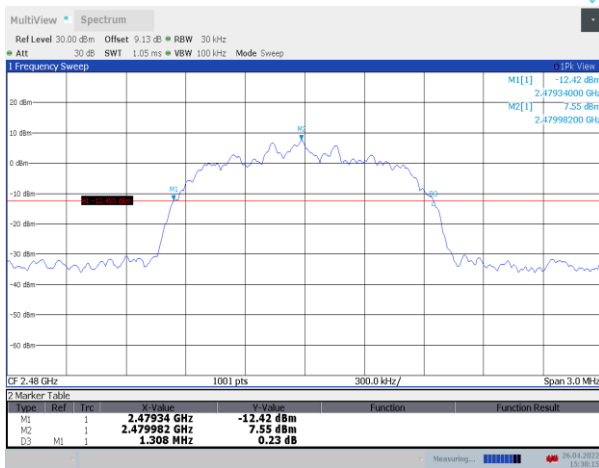
2DH5_Ant1_2402



2DH5_Ant1_2441

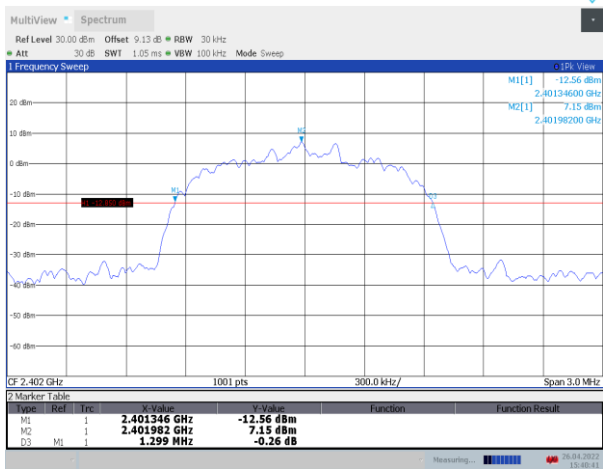


2DH5_Ant1_2480

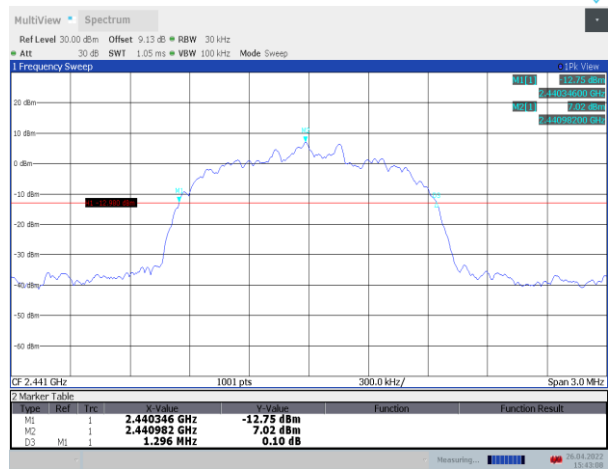


-

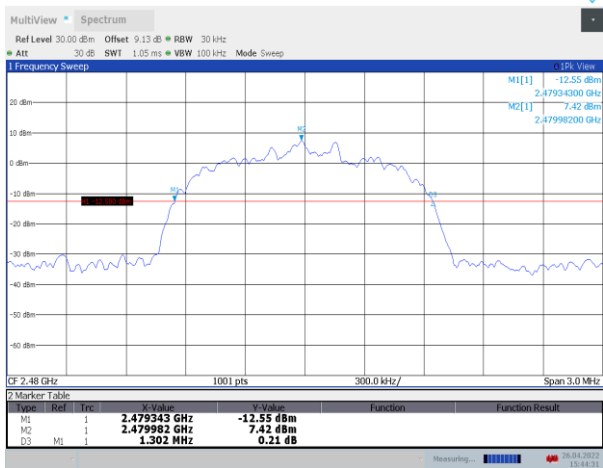
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



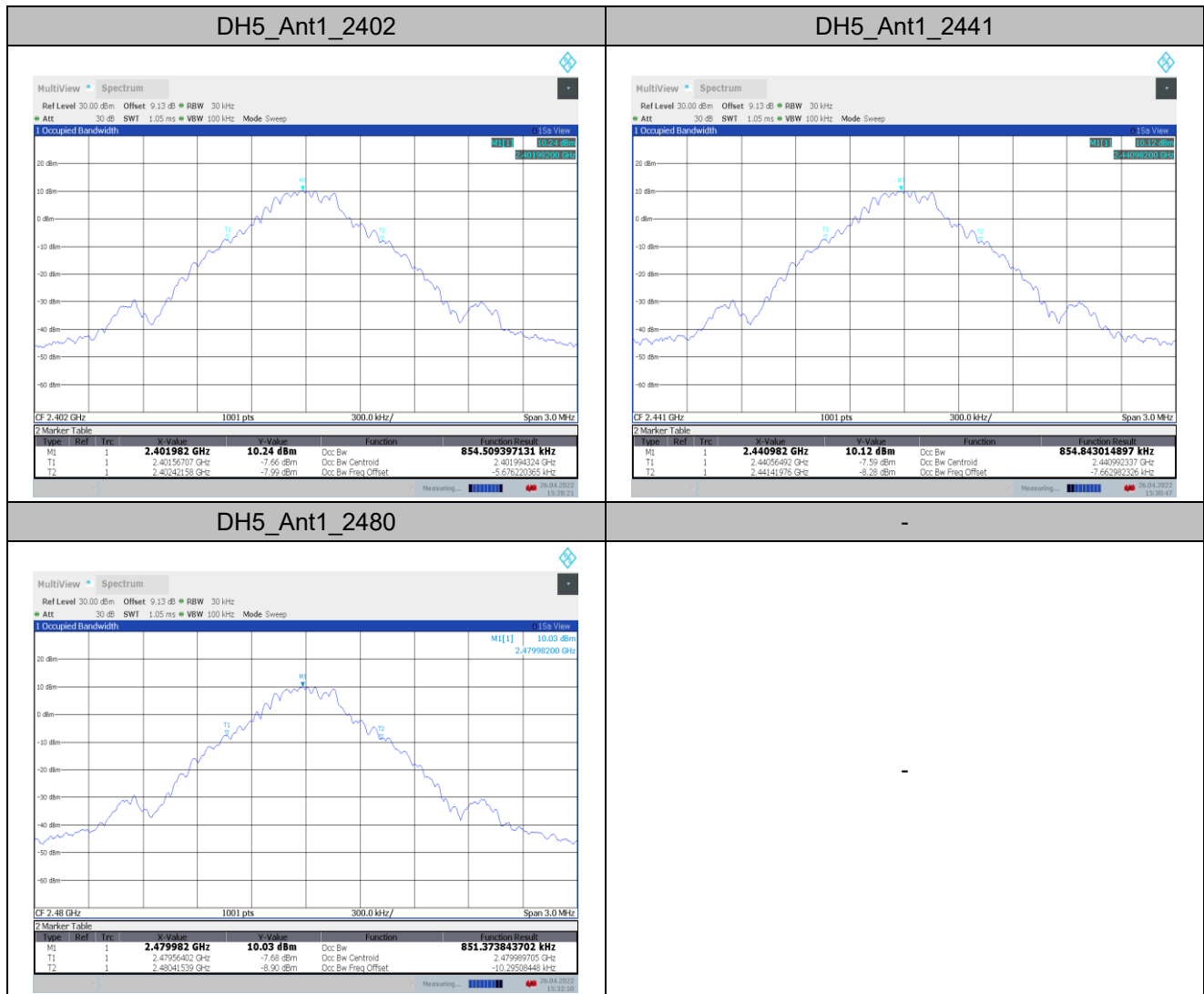
-

2. Appendix B: 99% Emission Bandwidth

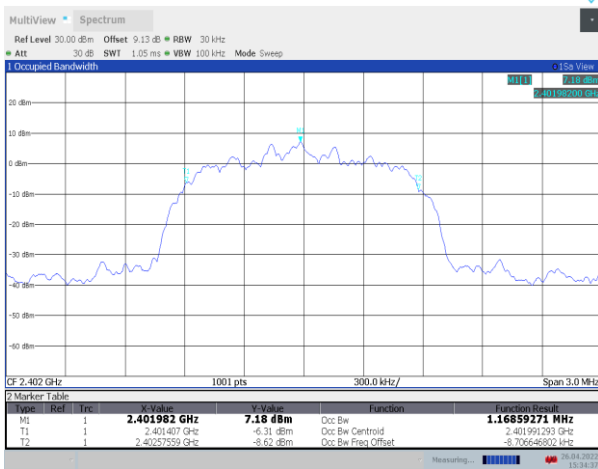
2.1. Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.855	2401.567	2402.422	---	PASS
		2441	0.855	2440.565	2441.420	---	PASS
		2480	0.851	2479.564	2480.415	---	PASS
2DH5	Ant1	2402	1.169	2401.407	2402.576	---	PASS
		2441	1.168	2440.406	2441.574	---	PASS
		2480	1.172	2479.404	2480.576	---	PASS
3DH5	Ant1	2402	1.172	2401.409	2402.582	---	PASS
		2441	1.171	2440.409	2441.581	---	PASS
		2480	1.178	2479.404	2480.582	---	PASS

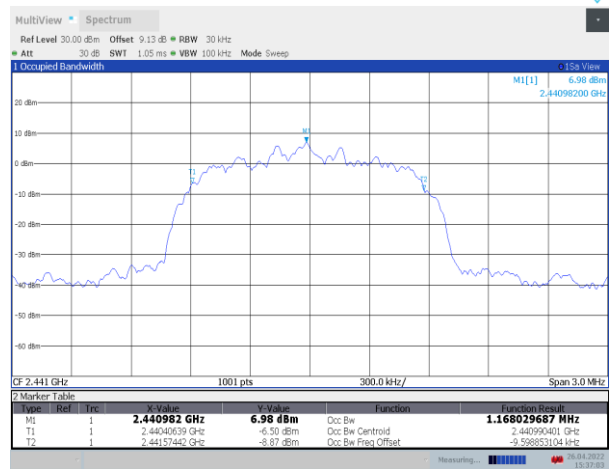
2.2. Test Graphs



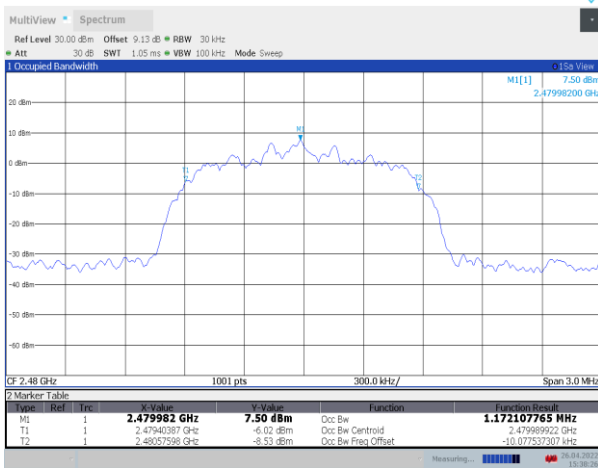
2DH5_Ant1_2402



2DH5_Ant1_2441

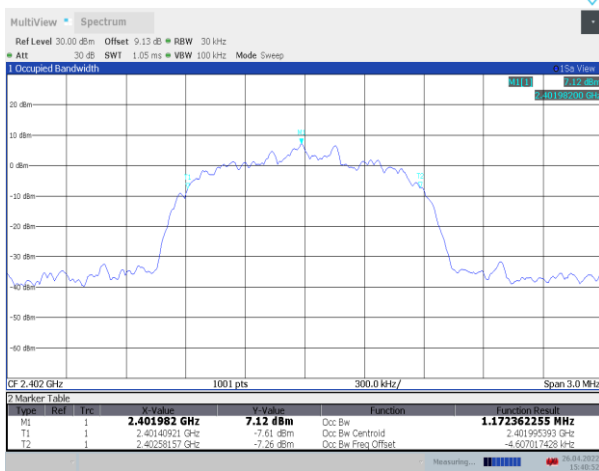


2DH5_Ant1_2480

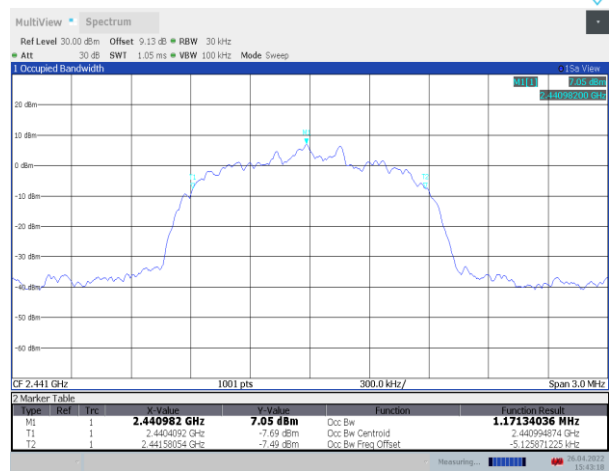


-

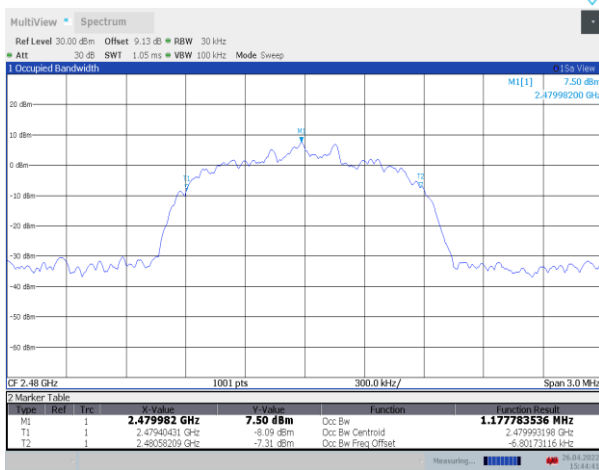
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



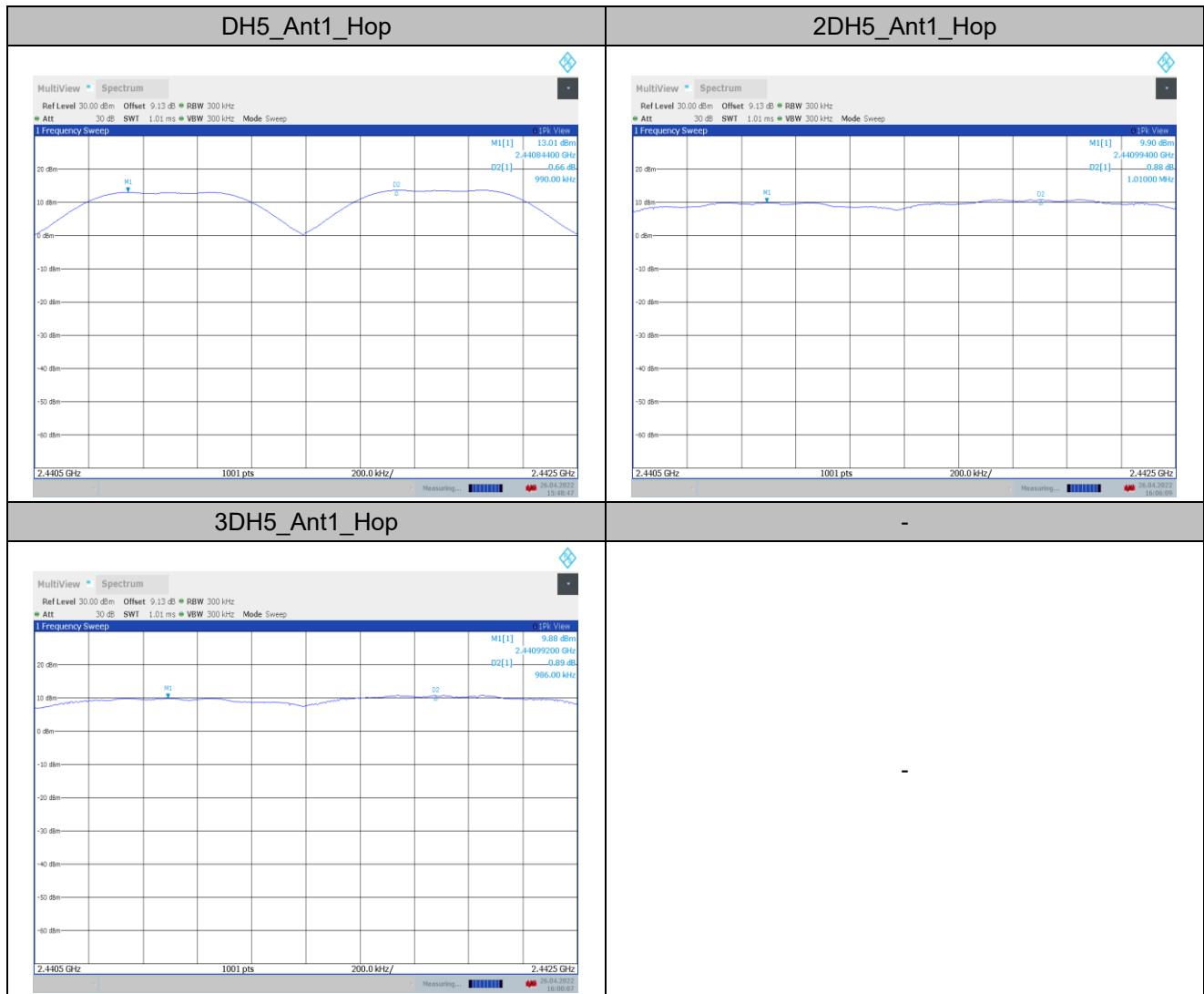
-

3. Appendix C: Carrier frequency separation

3.1. Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.99	≥ 0.950	PASS
2DH5	Ant1	Hop	1.01	≥ 0.873	PASS
3DH5	Ant1	Hop	0.986	≥ 0.867	PASS

3.2. Test Graphs

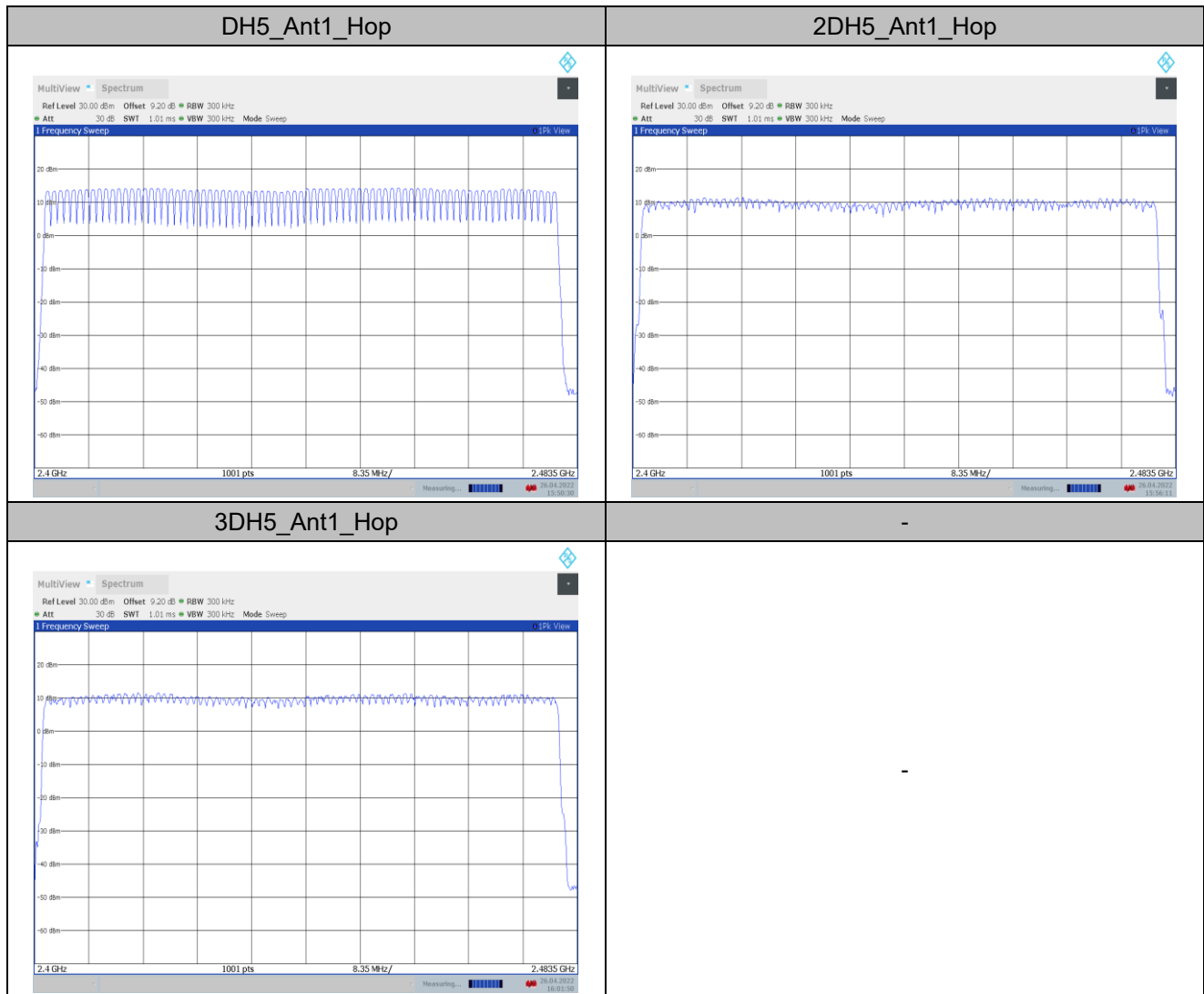


4. Appendix D: Number of hopping channels

4.1. Test Result

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

4.2. Test Graphs

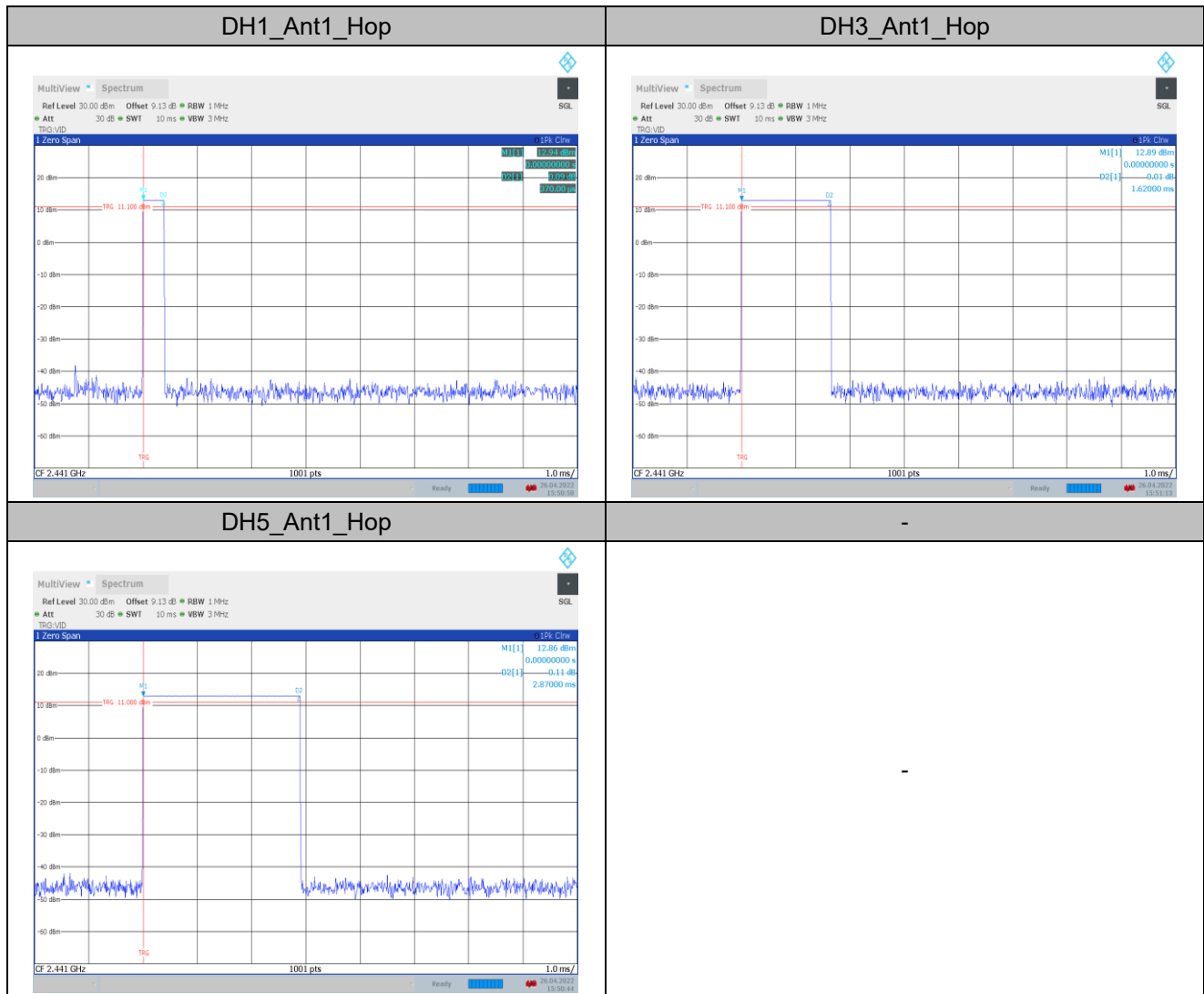


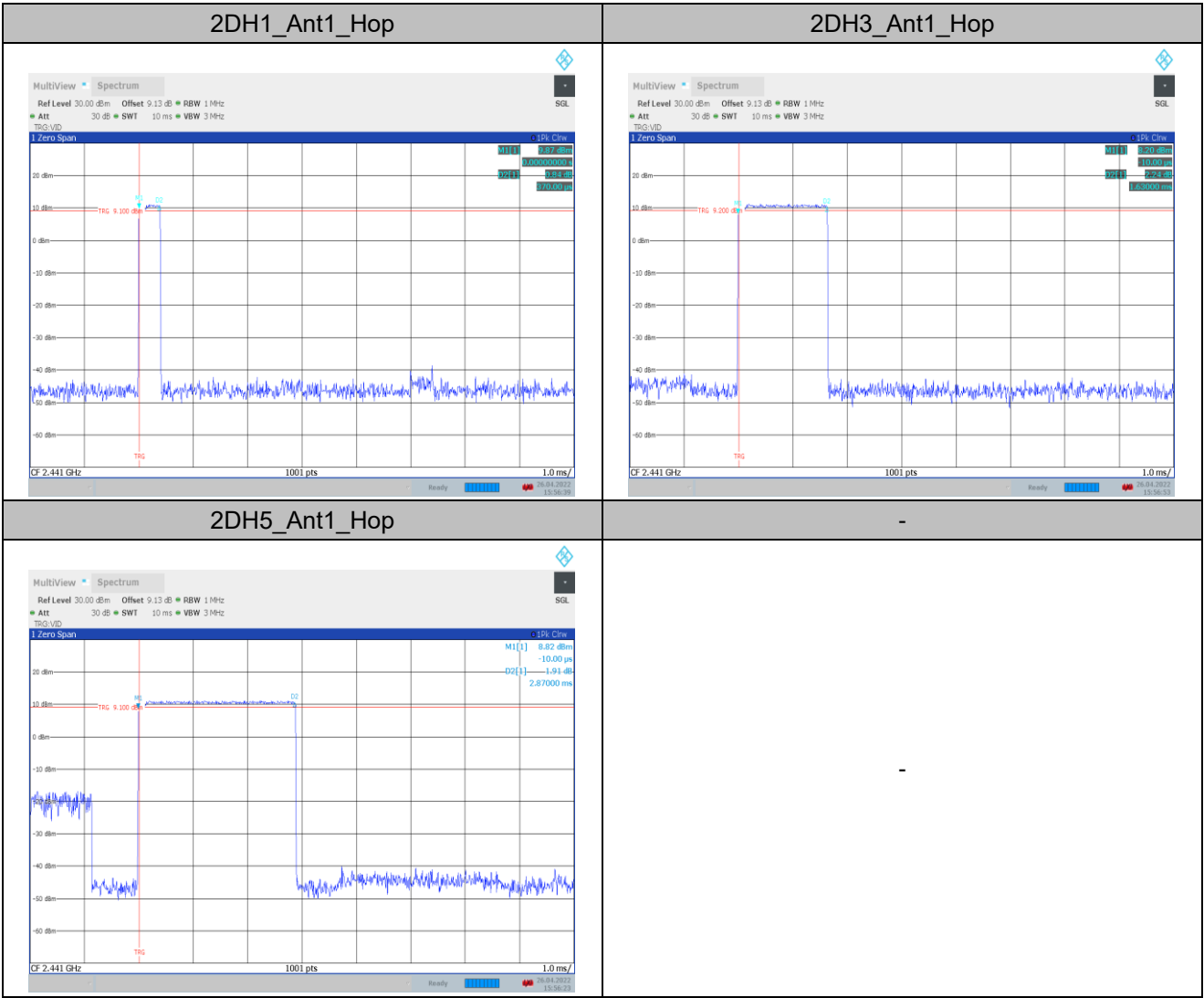
5. Appendix E: Time of occupancy

5.1. Test Result

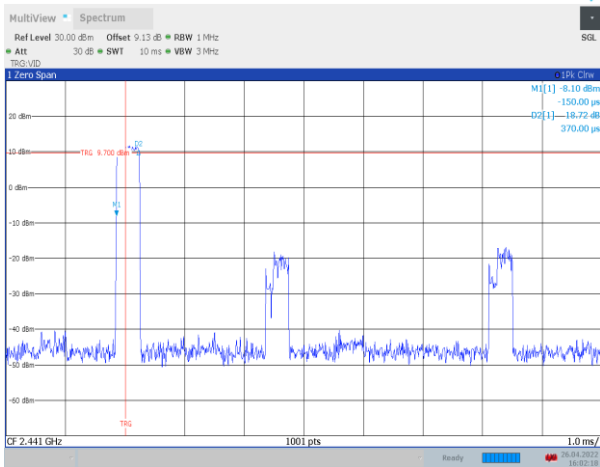
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.37	320	0.118	≤0.4	PASS
DH3	Ant1	Hop	1.62	160	0.259	≤0.4	PASS
DH5	Ant1	Hop	2.87	106.67	0.306	≤0.4	PASS
2DH1	Ant1	Hop	0.37	320	0.118	≤0.4	PASS
2DH3	Ant1	Hop	1.63	160	0.261	≤0.4	PASS
2DH5	Ant1	Hop	2.87	106.67	0.306	≤0.4	PASS
3DH1	Ant1	Hop	0.37	320	0.118	≤0.4	PASS
3DH3	Ant1	Hop	1.62	160	0.259	≤0.4	PASS
3DH5	Ant1	Hop	2.87	106.67	0.306	≤0.4	PASS

5.2. Test Graphs

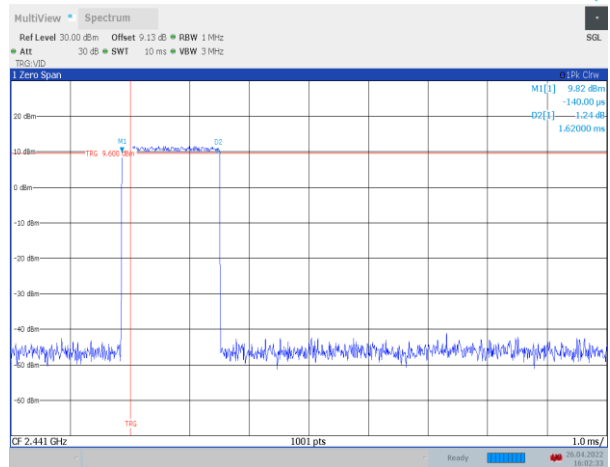




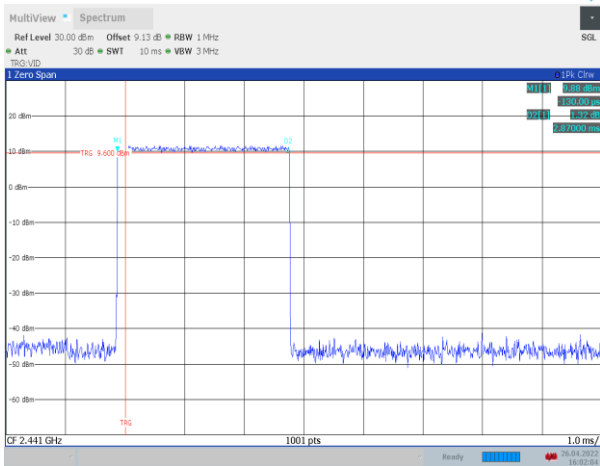
3DH1_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop

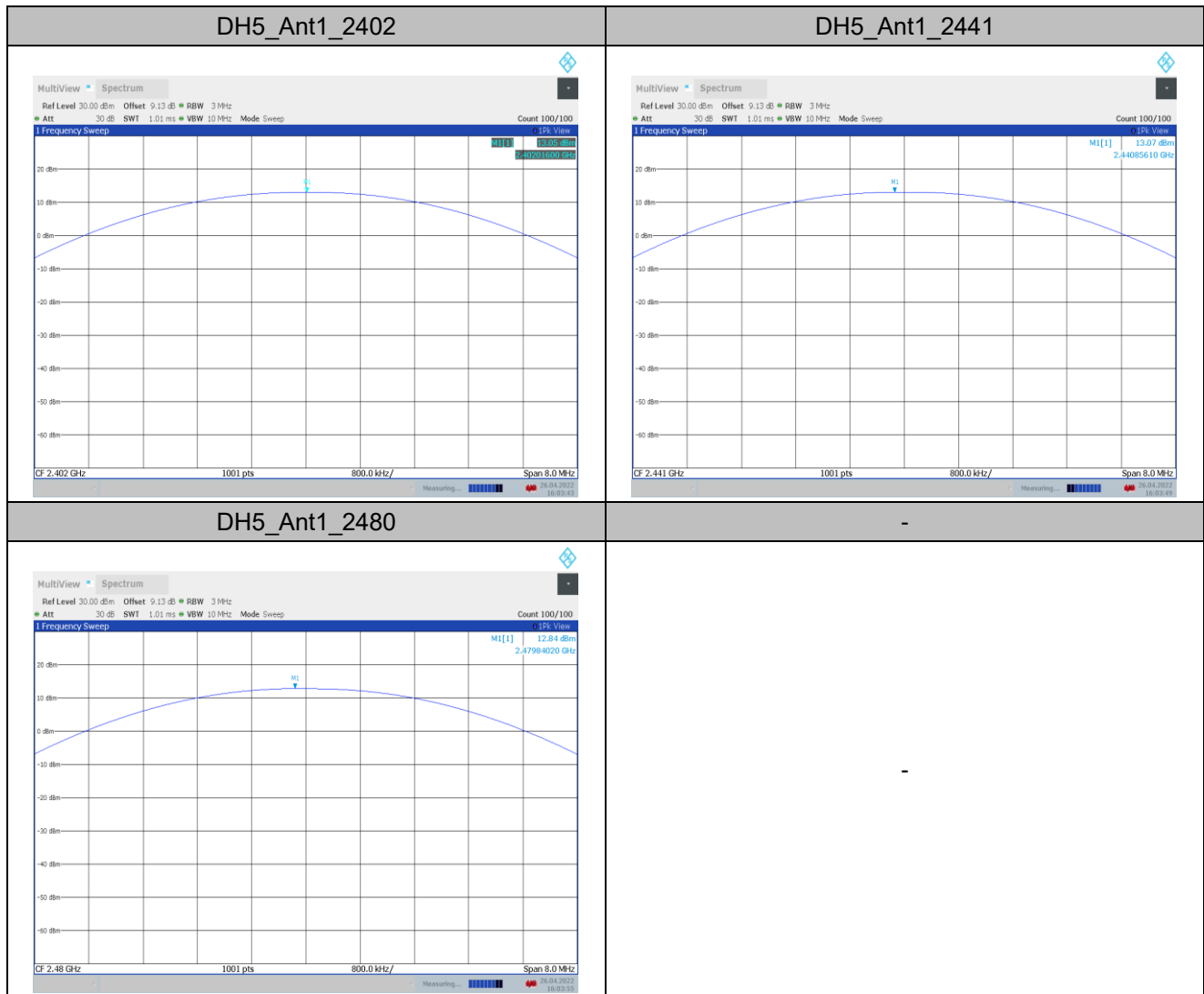


6. Appendix F: Maximum conducted output power

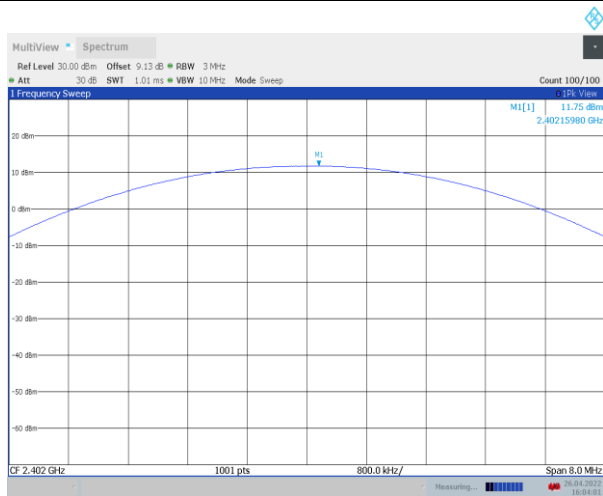
6.1. Test Result

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	13.05	≤20.97	PASS
		2441	13.07	≤20.97	PASS
		2480	12.84	≤20.97	PASS
2DH5	Ant1	2402	11.75	≤20.97	PASS
		2441	11.74	≤20.97	PASS
		2480	11.91	≤20.97	PASS
3DH5	Ant1	2402	12.02	≤20.97	PASS
		2441	12.09	≤20.97	PASS
		2480	12.1	≤20.97	PASS

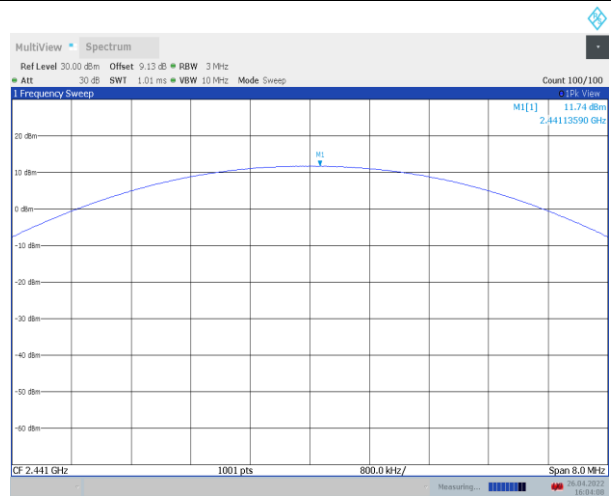
6.2. Test Graphs



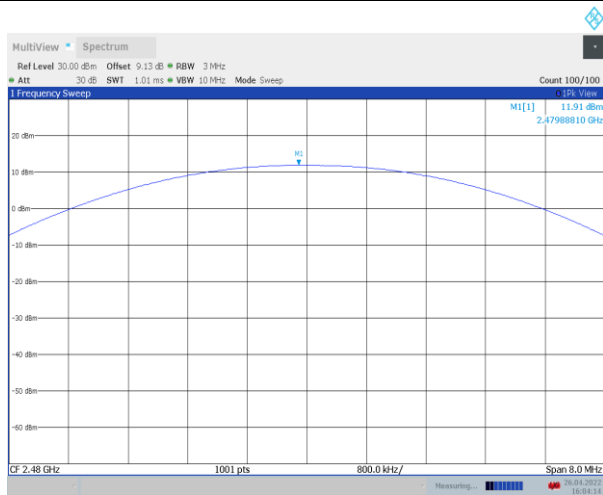
2DH5_Ant1_2402



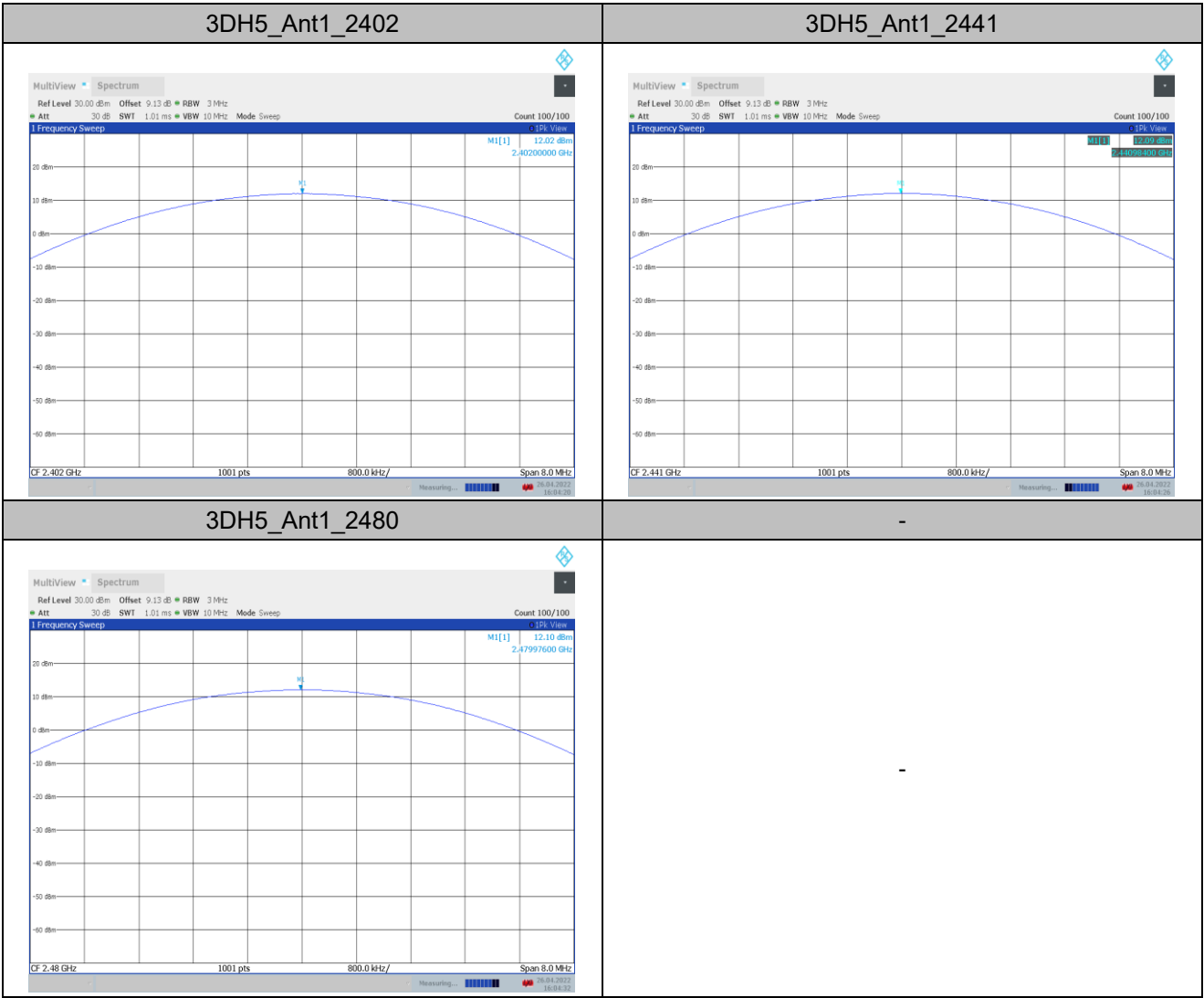
2DH5_Ant1_2441



2DH5_Ant1_2480



-

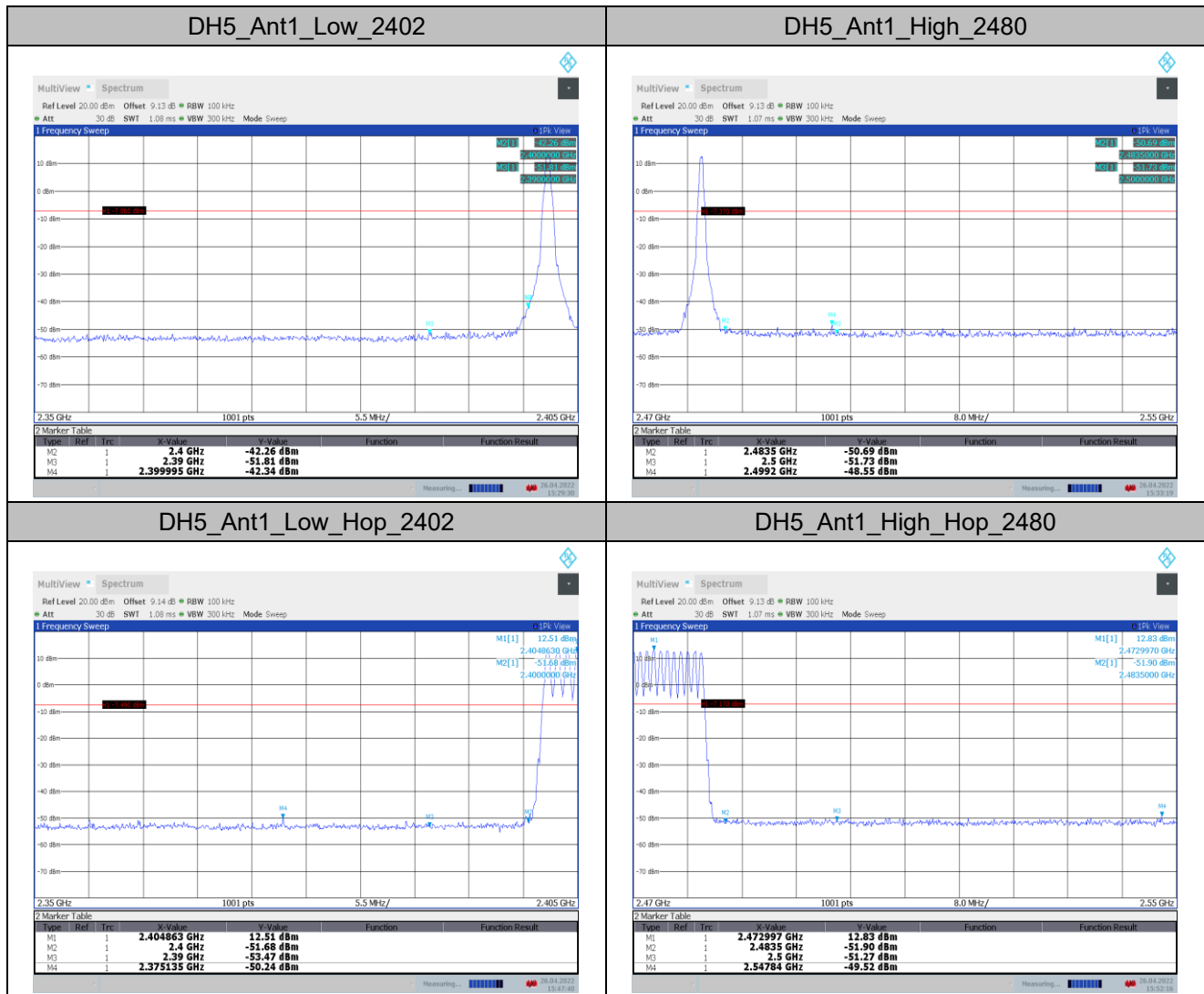


7. Appendix G: Band edge measurements

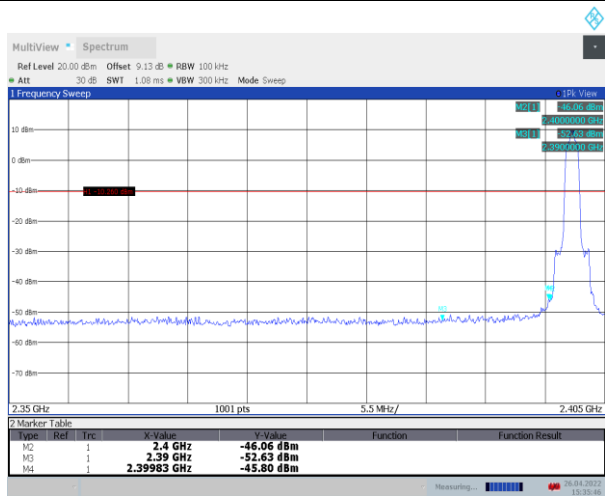
7.1. Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	12.94	-42.34	≤ -7.06	PASS
		High	2480	12.63	-48.55	≤ -7.37	PASS
		Low	Hop_2402	12.51	-50.24	≤ -7.49	PASS
		High	Hop_2480	12.83	-49.52	≤ -7.17	PASS
2DH5	Ant1	Low	2402	9.74	-45.8	≤ -10.26	PASS
		High	2480	10.23	-49.4	≤ -9.77	PASS
		Low	Hop_2402	9.77	-51.12	≤ -10.23	PASS
		High	Hop_2480	10.55	-49.13	≤ -9.45	PASS
3DH5	Ant1	Low	2402	9.86	-46.03	≤ -10.14	PASS
		High	2480	10.22	-48.95	≤ -9.78	PASS
		Low	Hop_2402	9.32	-50.61	≤ -10.68	PASS
		High	Hop_2480	10.89	-49.54	≤ -9.11	PASS

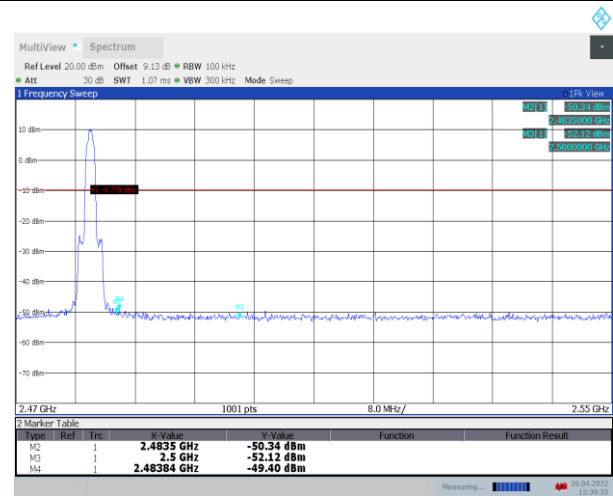
7.2. Test Graphs



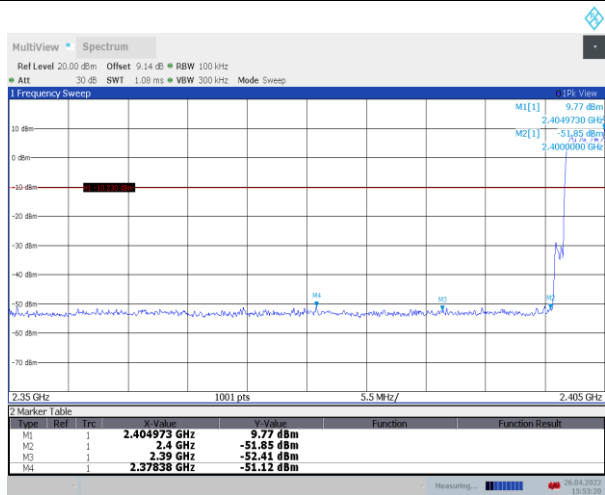
2DH5_Ant1_Low_2402



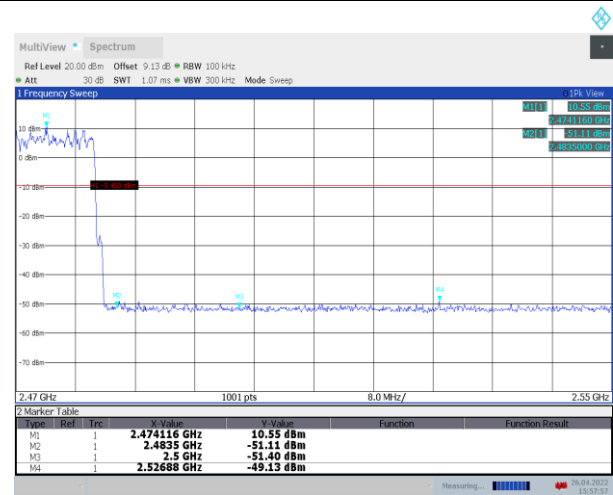
2DH5_Ant1_High_2480



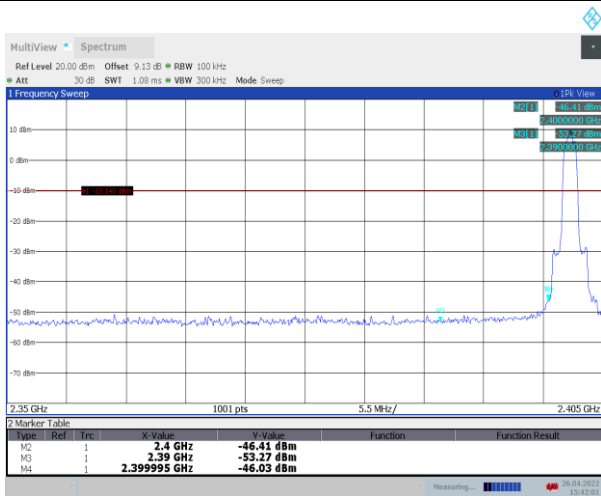
2DH5_Ant1_Low_Hop_2402



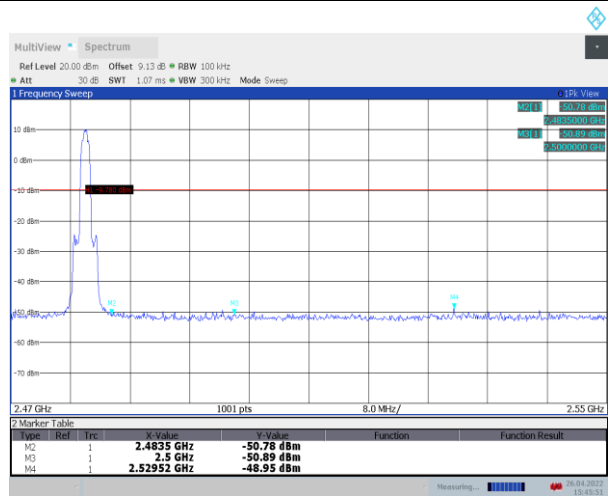
2DH5_Ant1_High_Hop_2480



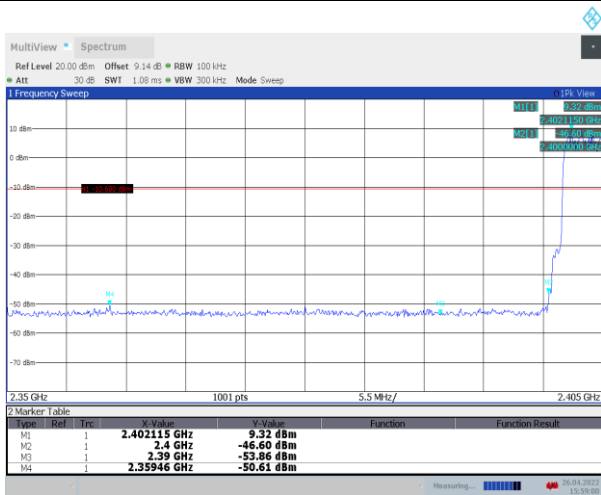
3DH5_Ant1_Low_2402



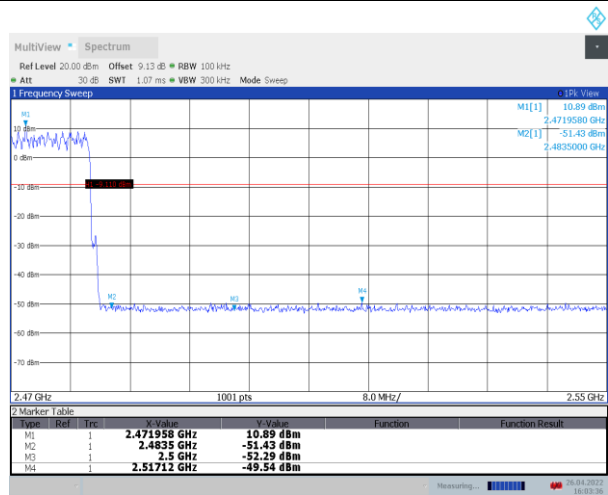
3DH5_Ant1_High_2480



3DH5_Ant1_Low_Hop_2402



3DH5_Ant1_High_Hop_2480

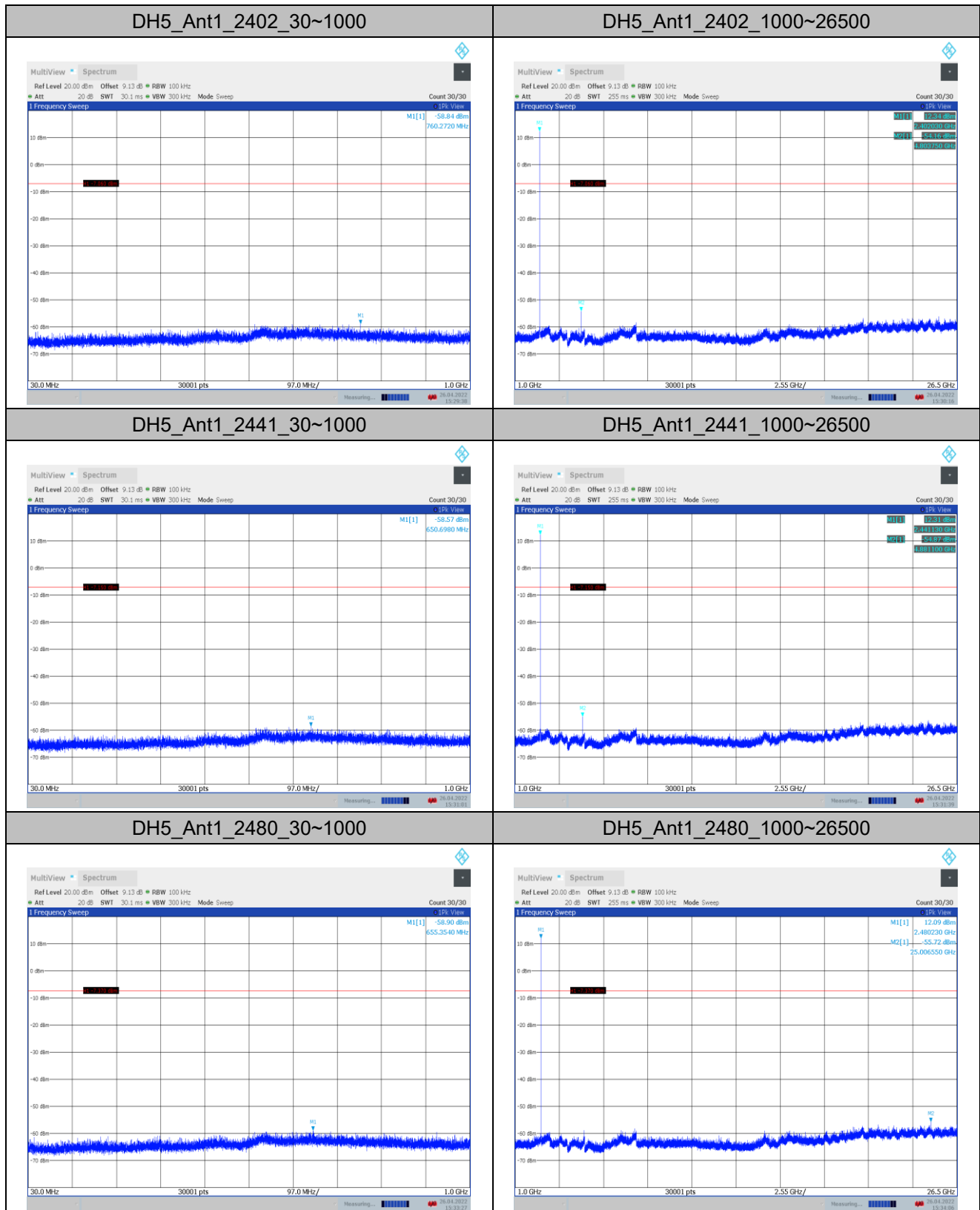


8. Appendix H: Conducted Spurious Emission

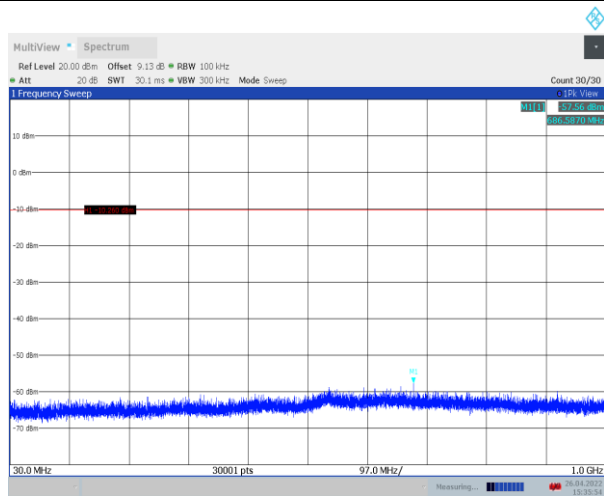
8.1. Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	30~1000	12.94	-58.84	≤ -7.06	PASS
			1000~26500	12.94	-54.16	≤ -7.06	PASS
		2441	30~1000	12.85	-58.57	≤ -7.15	PASS
			1000~26500	12.85	-54.87	≤ -7.15	PASS
		2480	30~1000	12.63	-58.9	≤ -7.37	PASS
			1000~26500	12.63	-55.72	≤ -7.37	PASS
2DH5	Ant1	2402	30~1000	9.74	-57.56	≤ -10.26	PASS
			1000~26500	9.74	-56.32	≤ -10.26	PASS
		2441	30~1000	9.68	-57.41	≤ -10.32	PASS
			1000~26500	9.68	-56.6	≤ -10.32	PASS
		2480	30~1000	10.23	-58.79	≤ -9.77	PASS
			1000~26500	10.23	-56.42	≤ -9.77	PASS
3DH5	Ant1	2402	30~1000	9.86	-58.87	≤ -10.14	PASS
			1000~26500	9.86	-56.79	≤ -10.14	PASS
		2441	30~1000	9.69	-58.39	≤ -10.31	PASS
			1000~26500	9.69	-55.96	≤ -10.31	PASS
		2480	30~1000	10.22	-58.65	≤ -9.78	PASS
			1000~26500	10.22	-55.68	≤ -9.78	PASS

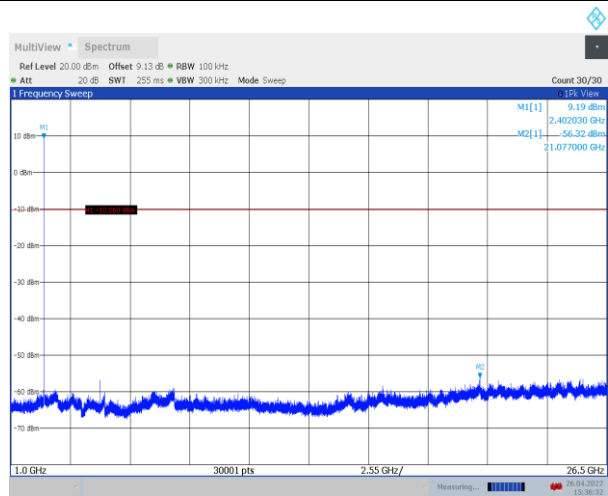
8.2. Test Graphs



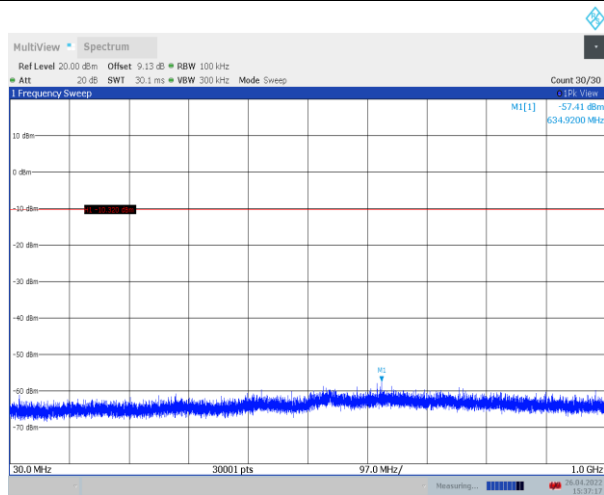
2DH5_Ant1_2402_30~1000



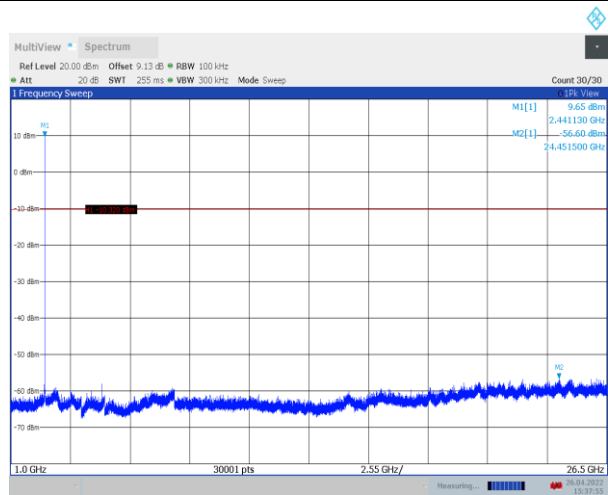
2DH5_Ant1_2402_1000~26500



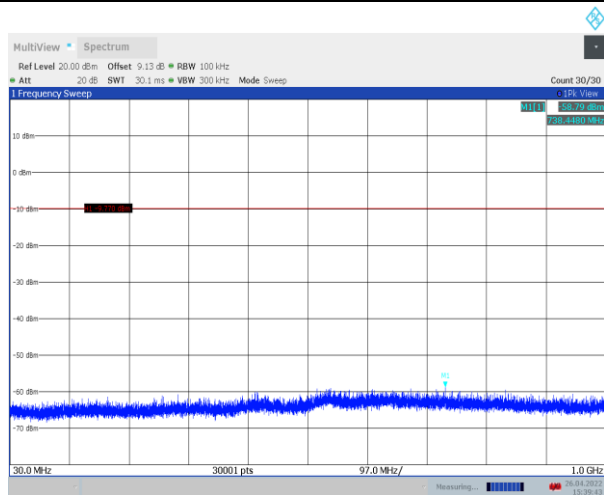
2DH5_Ant1_2441_30~1000



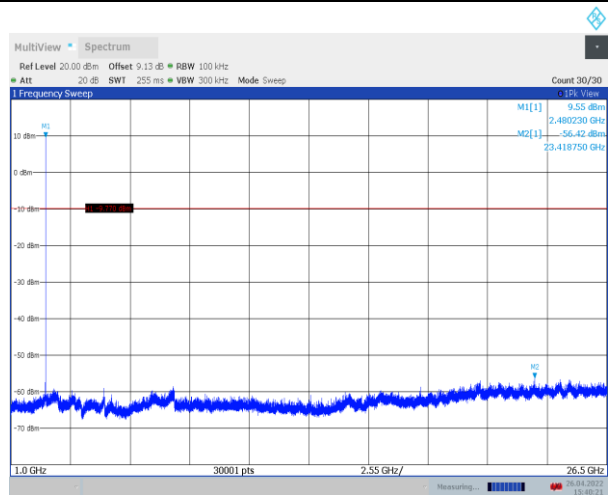
2DH5_Ant1_2441_1000~26500



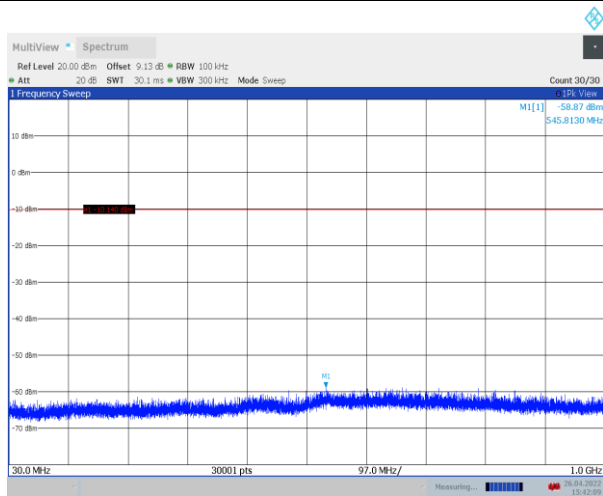
2DH5_Ant1_2480_30~1000



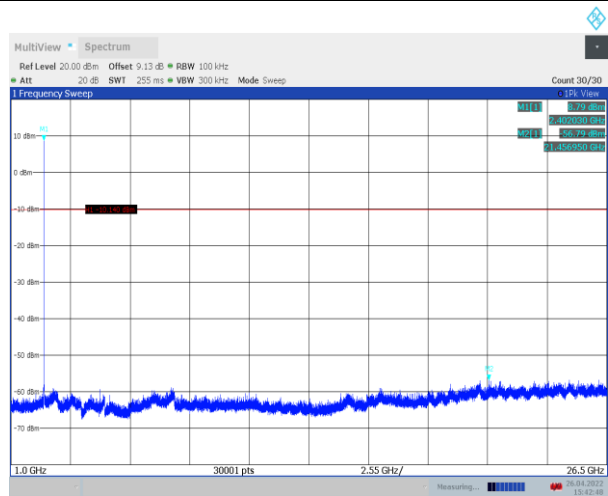
2DH5_Ant1_2480_1000~26500



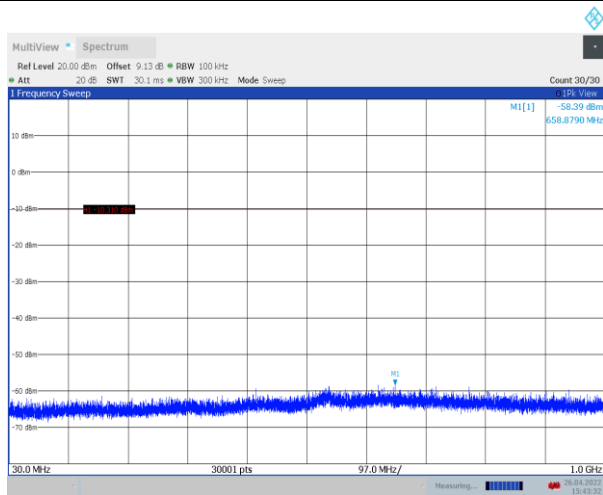
3DH5_Ant1_2402_30~1000



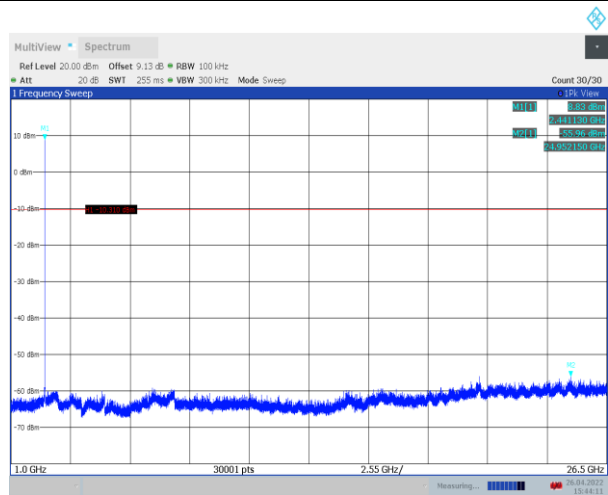
3DH5_Ant1_2402_1000~26500



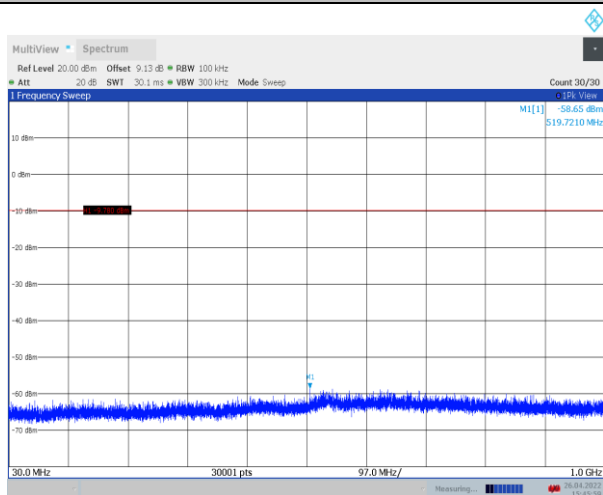
3DH5_Ant1_2441_30~1000



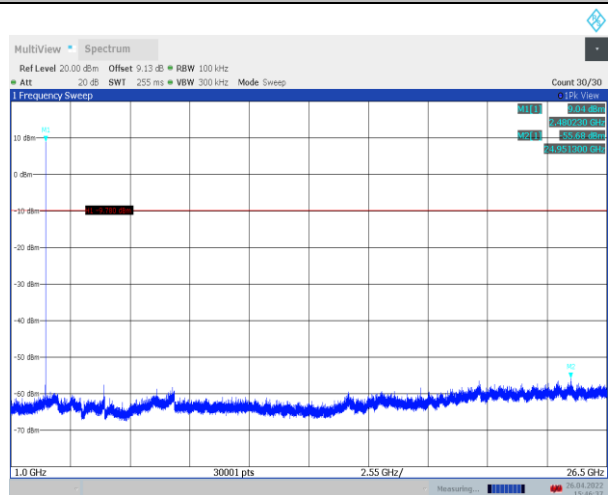
3DH5_Ant1_2441_1000~26500



3DH5_Ant1_2480_30~1000



3DH5_Ant1_2480_1000~26500

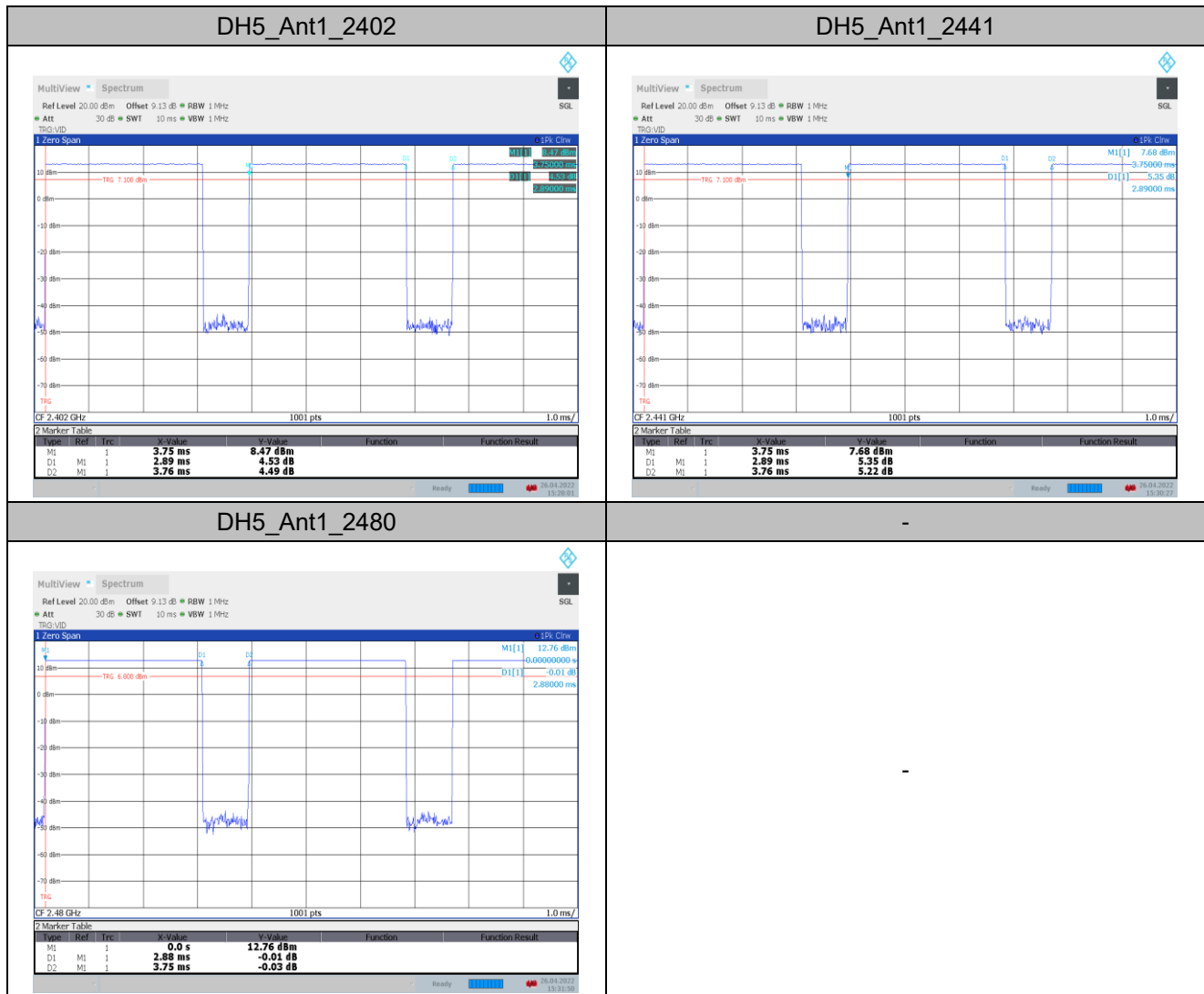


9. Appendix I: Duty Cycle

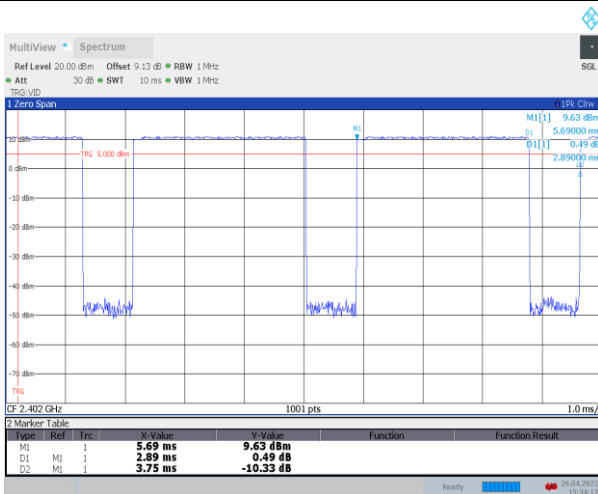
9.1. Test Result

TestMode	Antenna	Frequency[M Hz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
DH5	Ant1	2402	2.89	3.76	76.86	1.14
		2441	2.89	3.76	76.86	1.14
		2480	2.88	3.75	76.80	1.15
2DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.89	3.75	77.07	1.13
		2480	2.89	3.76	76.86	1.14
3DH5	Ant1	2402	2.89	3.75	77.07	1.13
		2441	2.89	3.75	77.07	1.13
		2480	2.89	3.75	77.07	1.13

9.2. Test Graphs



2DH5_Ant1_2402



2DH5_Ant1_2441



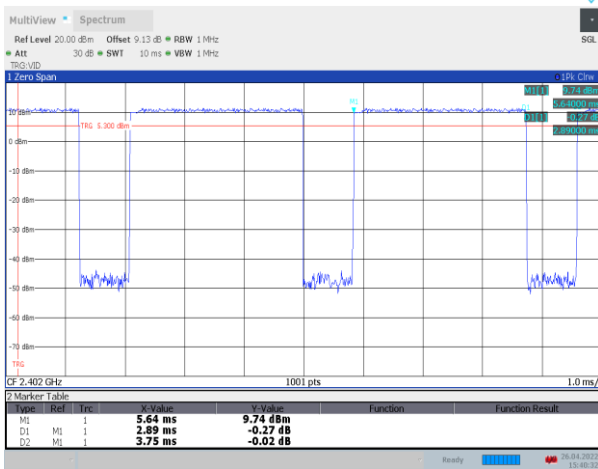
2DH5_Ant1_2480



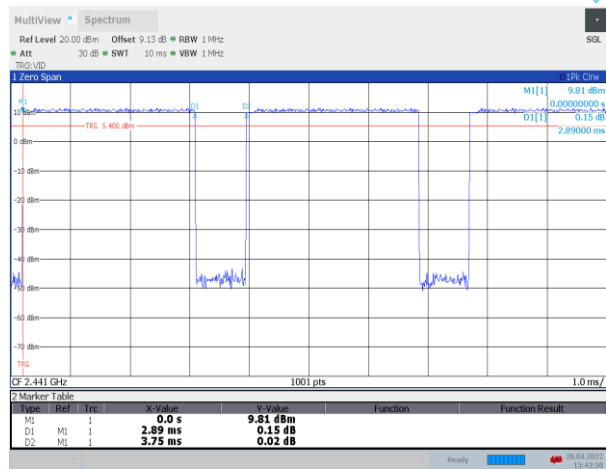
-

-

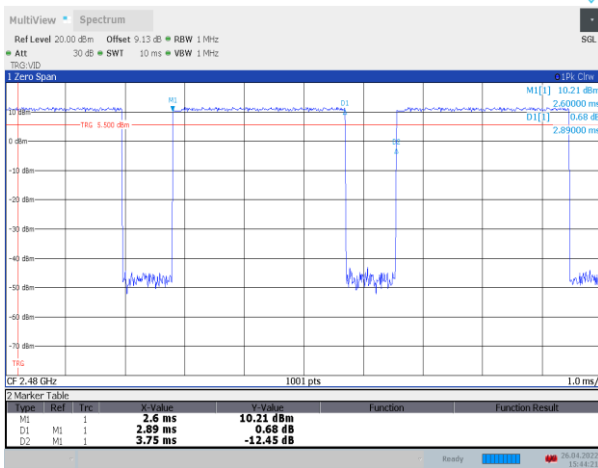
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



-

End of Test Report