

Appendix: LoRa(FHSS)

Contents

Appendix A: 20dB Emission Bandwidth 3

 Test Result 3

 Test Graphs 4

Appendix B: Occupied Channel Bandwidth5

 Test Result 5

 Test Graphs 6

Appendix C: Maximum conducted output power7

 Test Result Peak7

 Test Graphs 8

Appendix D: Carrier frequency separation9

 Test Result 9

 Test Graphs 10

Appendix E: Time of occupancy 11

 Test Result 11

 Test Graphs 12

Appendix F: Number of hopping channels13

 Test Result 13

 Test Graphs 14

Appendix G: Band edge measurements 15

 Test Result 15

 Test Graphs 16

Appendix H: Conducted Spurious Emission 17

 Test Result 17

 Test Graphs 18

Appendix I: Duty Cycle 19

 Test Result 19

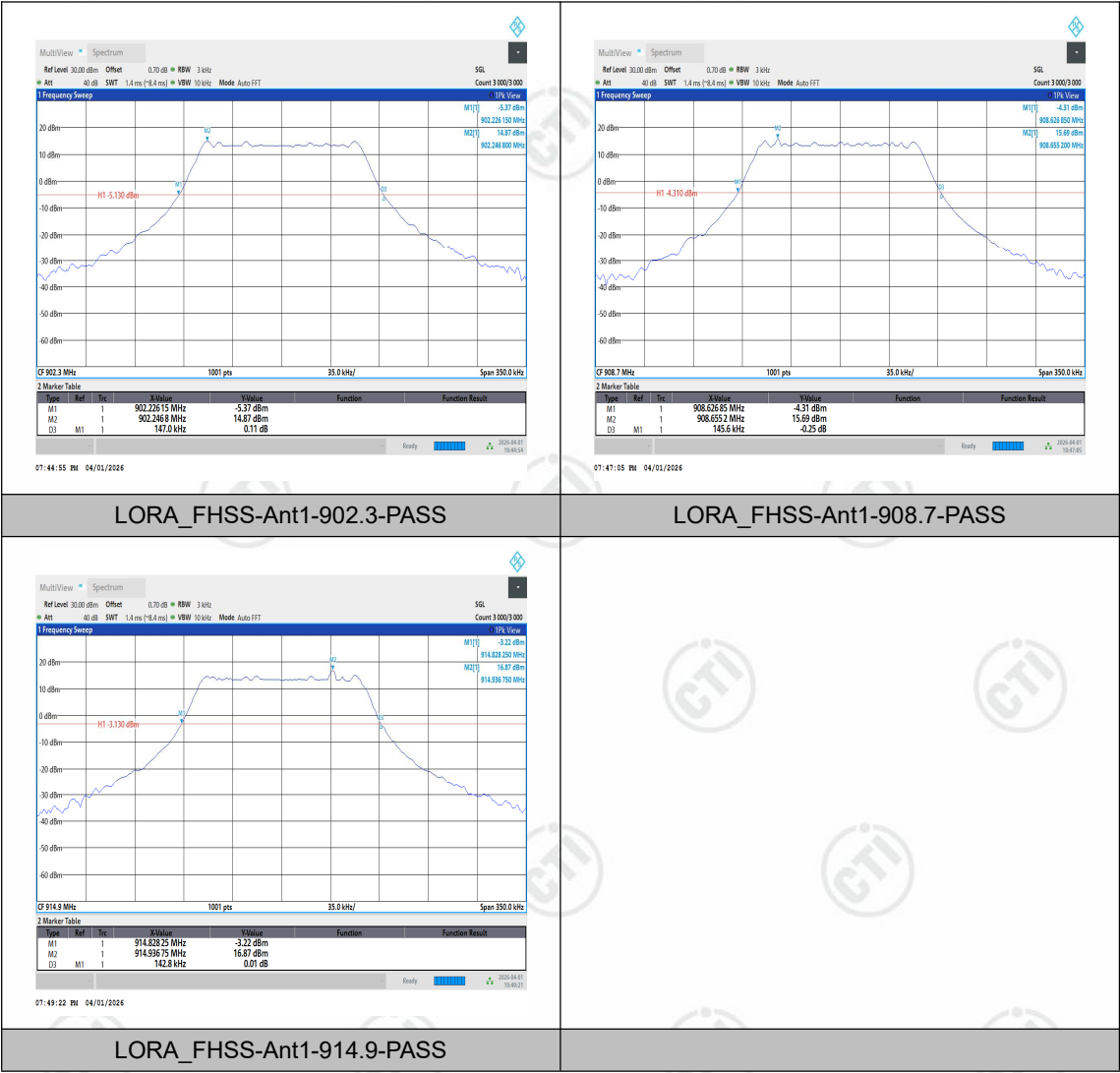
 Test Graphs 20

Appendix A: 20dB Emission Bandwidth

Test Result

TestMode	Antenna	Frequenc y[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
LORA_FHSS	Ant1	902.3	0.15	902.23	902.37	≤0.5	PASS
LORA_FHSS	Ant1	908.7	0.15	908.63	908.77	≤0.5	PASS
LORA_FHSS	Ant1	914.9	0.14	914.83	914.97	≤0.5	PASS

Test Graphs

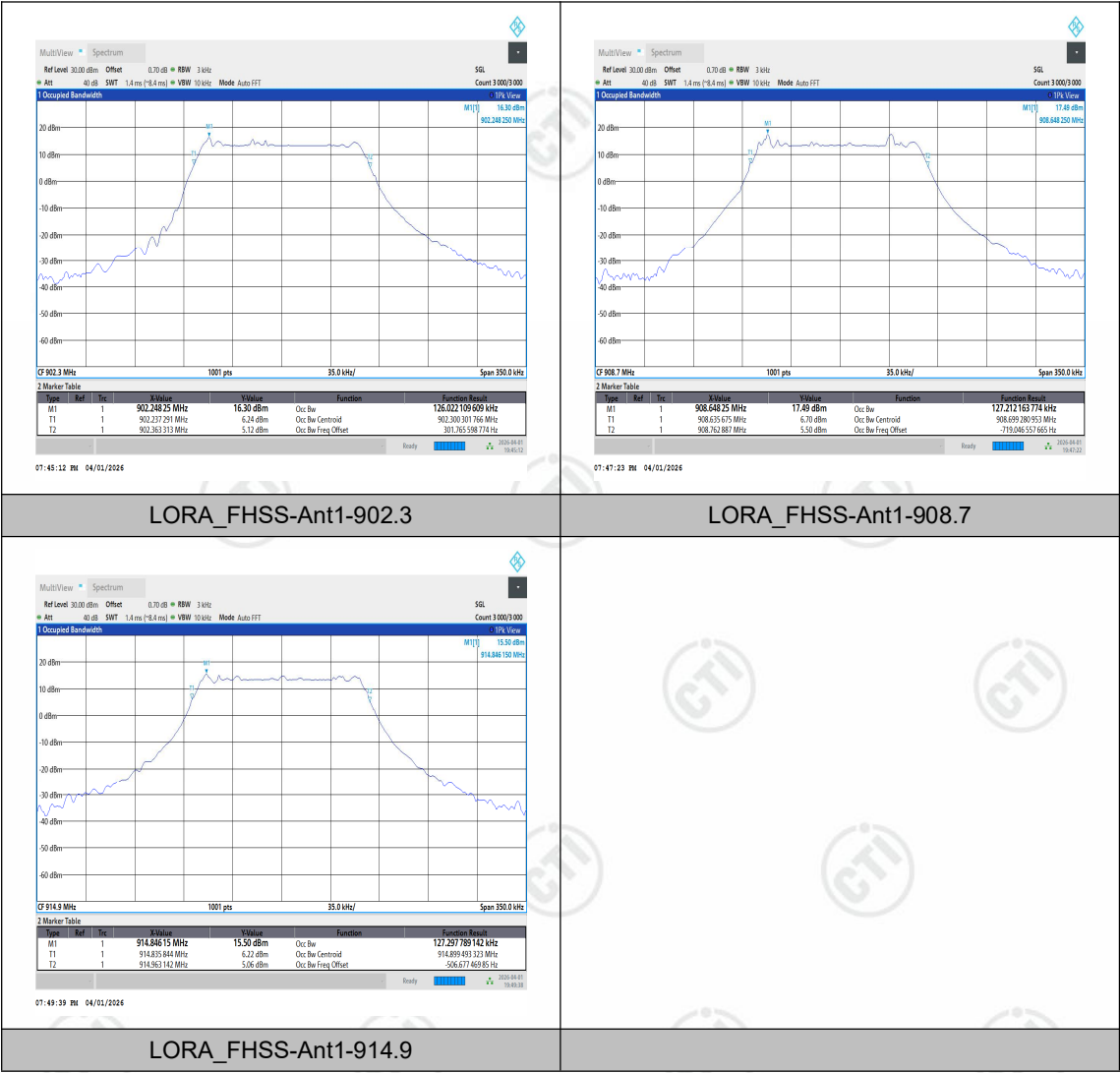


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequenc y[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
LORA_FHSS	Ant1	902.3	0.12602	902.2373	902.3633	---	---
LORA_FHSS	Ant1	908.7	0.12721	908.6357	908.7629	---	---
LORA_FHSS	Ant1	914.9	0.12730	914.8358	914.9631	---	---

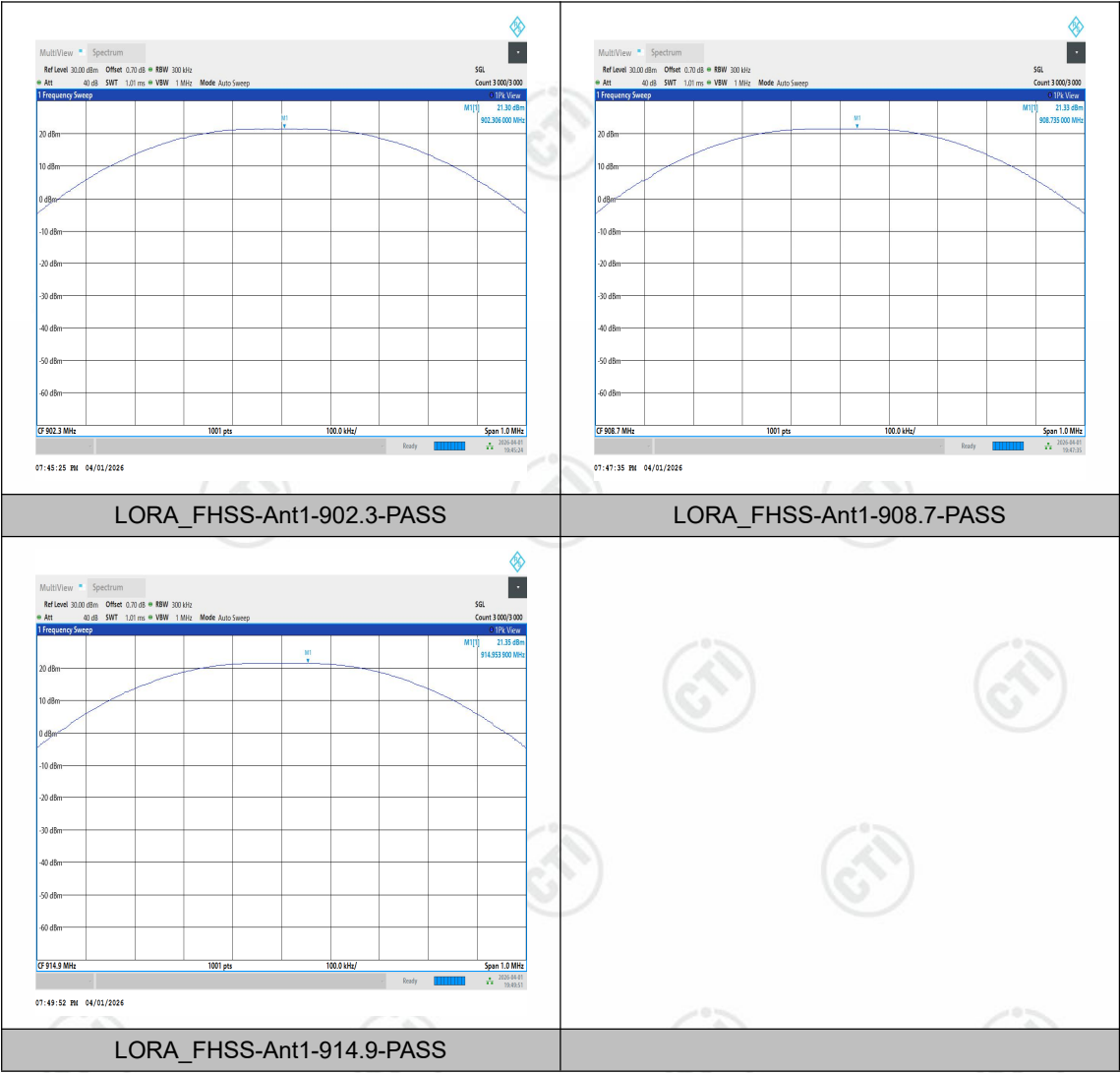
Test Graphs



Appendix C: Maximum conducted output power**Test Result Peak**

Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
LORA_FHSS	Ant1	902.3	21.30	≤30	PASS
LORA_FHSS	Ant1	908.7	21.33	≤30	PASS
LORA_FHSS	Ant1	914.9	21.35	≤30	PASS

Test Graphs



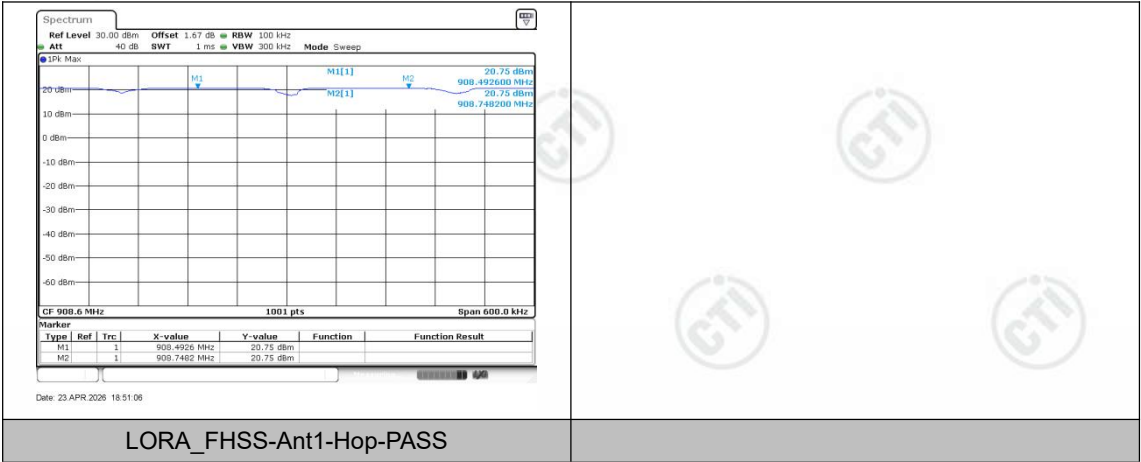
Appendix D: Carrier frequency separation

Test Result

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
LORA_FHSS	Ant1	Hop	0.200	≥0.025	PASS

Note: The all channel distributions are uniform.

Test Graphs



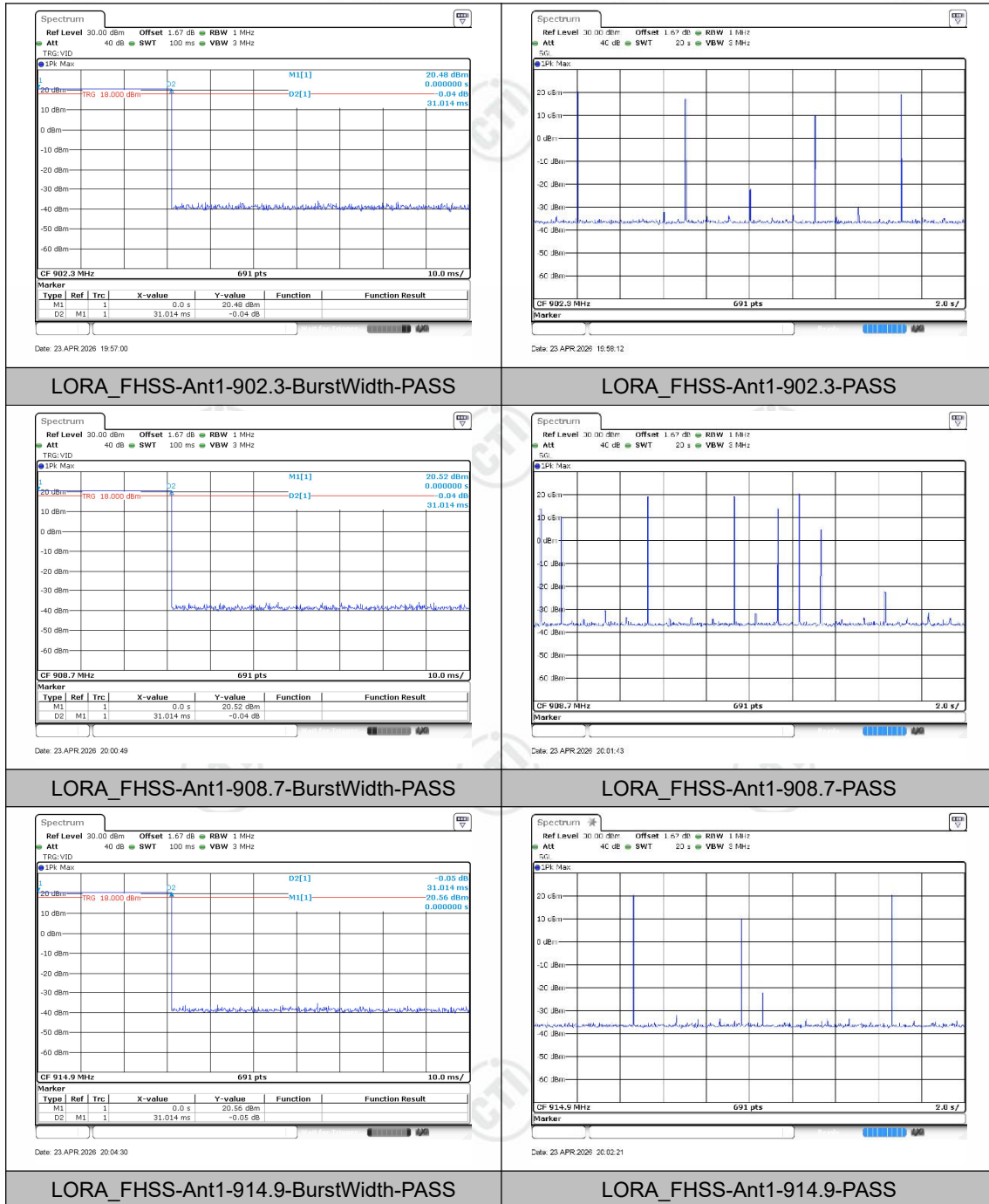
Note: During the test, RBW was already as close as possible to 30% of the channel spacing.

Appendix E: Time of occupancy

Test Result

TestMode	Antenna	Frequency [MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
LORA_FHSS	Ant1	902.3	31.014	3	0.093042	0.4	PASS
LORA_FHSS	Ant1	908.7	31.014	7	0.217098	0.4	PASS
LORA_FHSS	Ant1	914.9	31.014	3	0.093042	0.4	PASS

Test Graphs

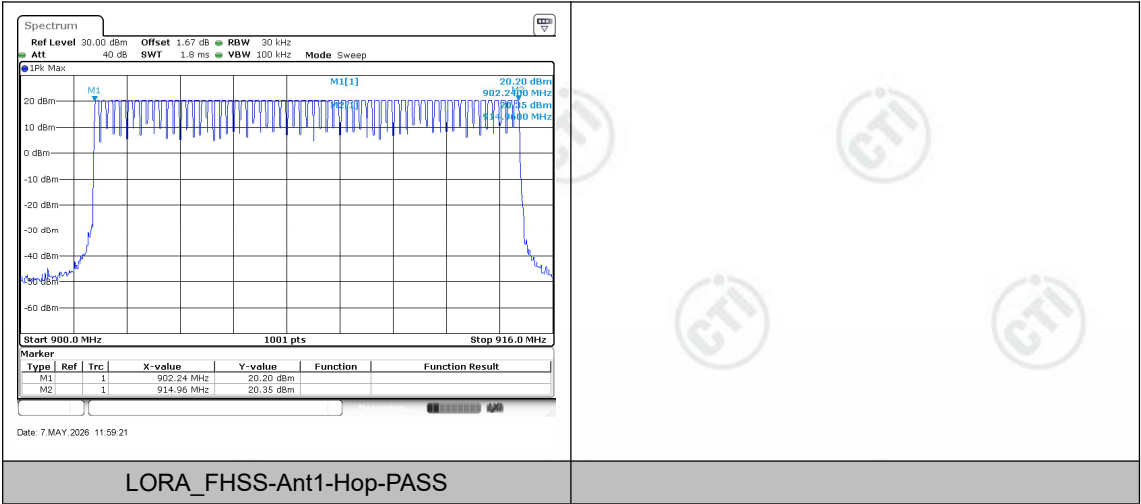


Appendix F: Number of hopping channels

Test Result

TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
LORA_FHSS	Ant1	Hop	63	≥15	PASS

Test Graphs

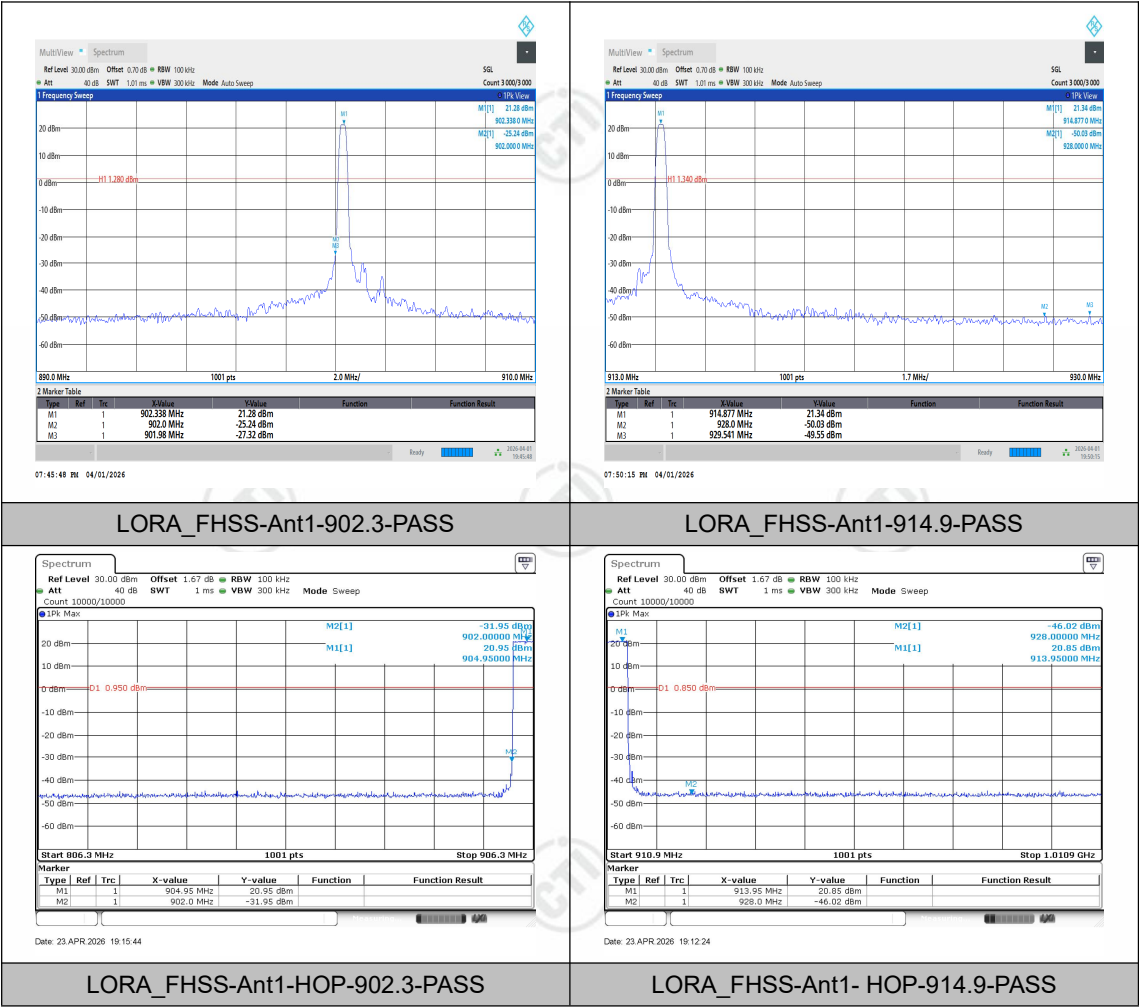


Appendix G: Band edge measurements

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
LORA_FHSS	Ant1	Low	902.3	21.28	-27.32	≤1.28	PASS
LORA_FHSS	Ant1	High	914.9	21.34	-49.55	≤1.34	PASS
LORA_FHSS	Ant1	Hopping	902.3	20.95	-31.95	≤0.95	PASS
LORA_FHSS	Ant1	Hopping	914.9	20.85	-46.02	≤0.85	PASS

Test Graphs

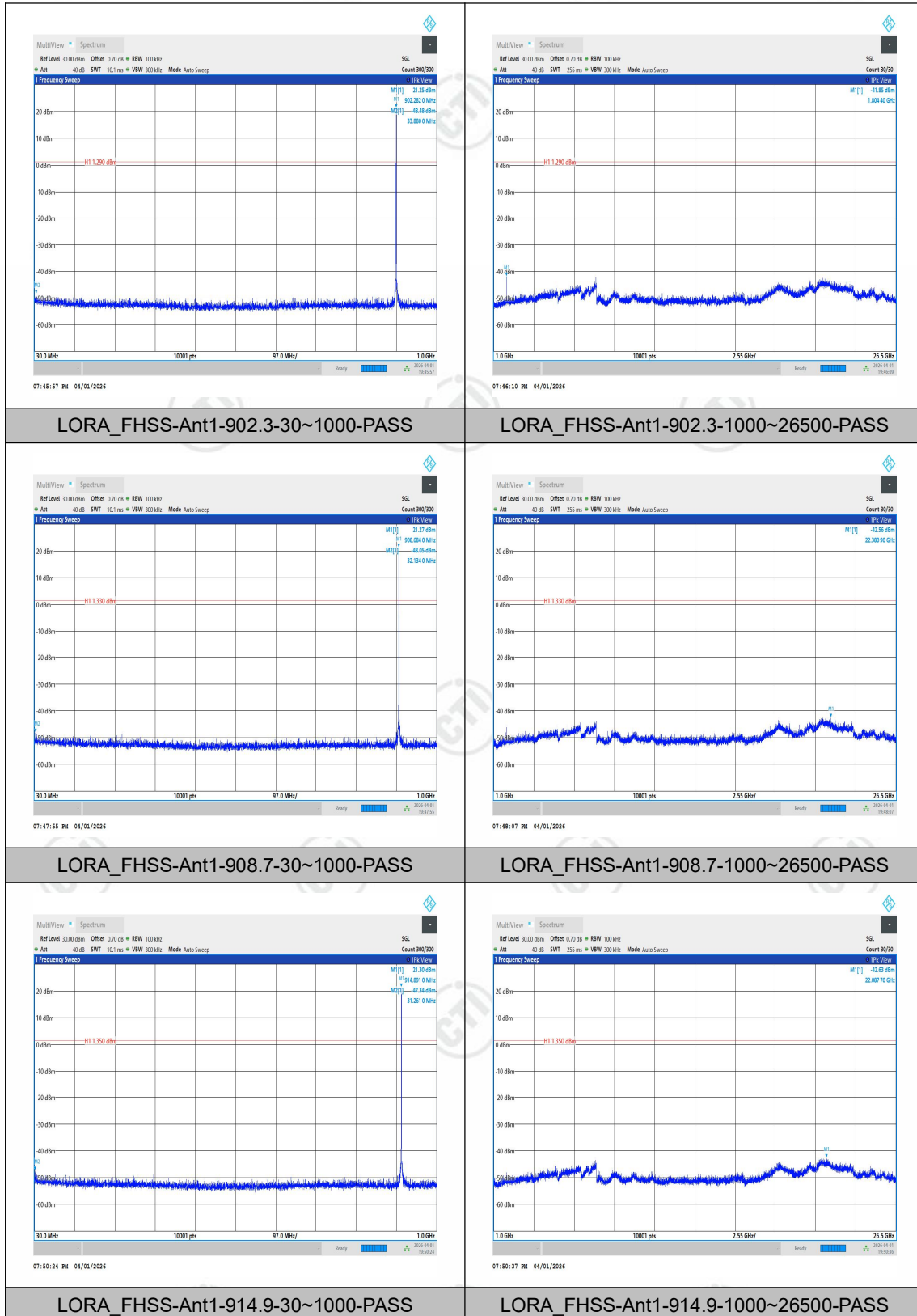


Appendix H: Conducted Spurious Emission

Test Result

TestMode	Antenn a	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
LORA_FHSS	Ant1	902.3	30~1000	21.29	-48.48	≤1.29	PASS
LORA_FHSS	Ant1	902.3	1000~26500	21.29	-41.85	≤1.29	PASS
LORA_FHSS	Ant1	908.7	30~1000	21.33	-48.05	≤1.33	PASS
LORA_FHSS	Ant1	908.7	1000~26500	21.33	-42.56	≤1.33	PASS
LORA_FHSS	Ant1	914.9	30~1000	21.35	-47.34	≤1.35	PASS
LORA_FHSS	Ant1	914.9	1000~26500	21.35	-42.63	≤1.35	PASS

Test Graphs



Appendix I: Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	ON Time[ms]	Period[ms]	Duty Cycle[%]	Duty Cycle Factor[dB]
LORA_FHSS	Ant1	902.3	30.00	1035.00	2.90	15.38
LORA_FHSS	Ant1	908.7	30.00	1035.00	2.90	15.38
LORA_FHSS	Ant1	914.9	30.00	1035.00	2.90	15.38

Test Graphs



*** End of Report ***