Appendix A

RF Test Data for 902.3-914.9 (Conducted Measurement)

Product Name: MClimate Vicki LoRaWAN

Test Model: MC-LW-V02-BI

Environmental Conditions

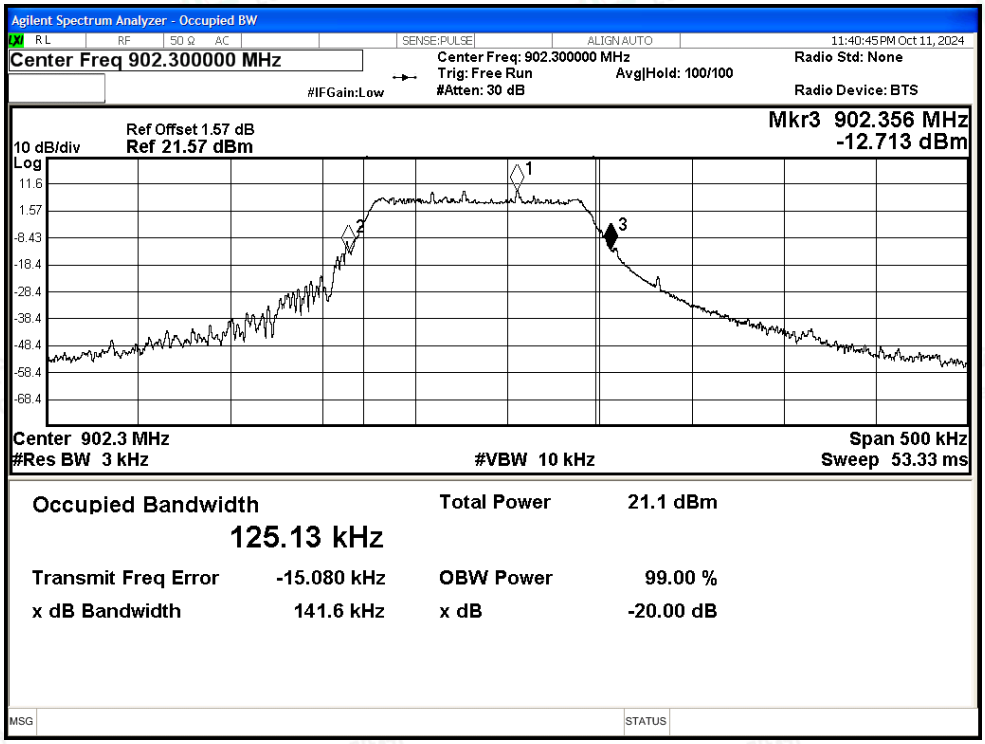
Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

A.1 20dB Emission Bandwidth

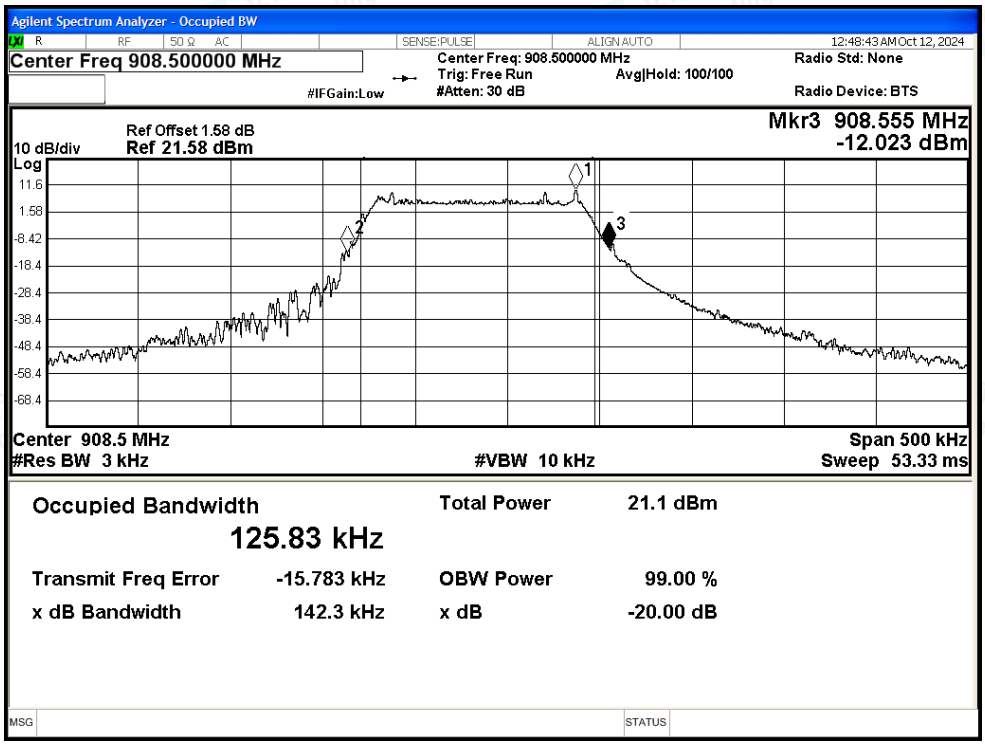
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	LoRa	902.3	Ant1	0.142	N/A	Pass
NVNT	LoRa	908.5	Ant1	0.142	N/A	Pass
NVNT	LoRa	914.9	Ant1	0.141	N/A	Pass

Test Graphs

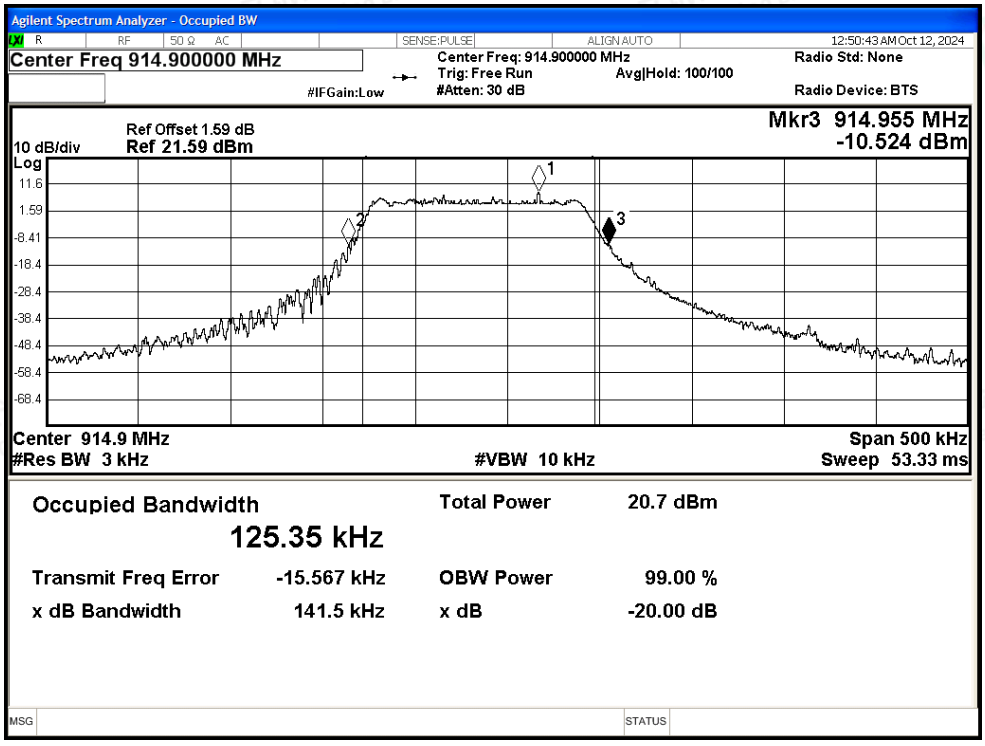
-20dB Bandwidth NVNT LoRa 902.3MHz Ant1



-20dB Bandwidth NVNT LoRa 908.5MHz Ant1



-20dB Bandwidth NVNT LoRa 914.9MHz Ant1



A.2 Maximum Peak Conducted Output Power

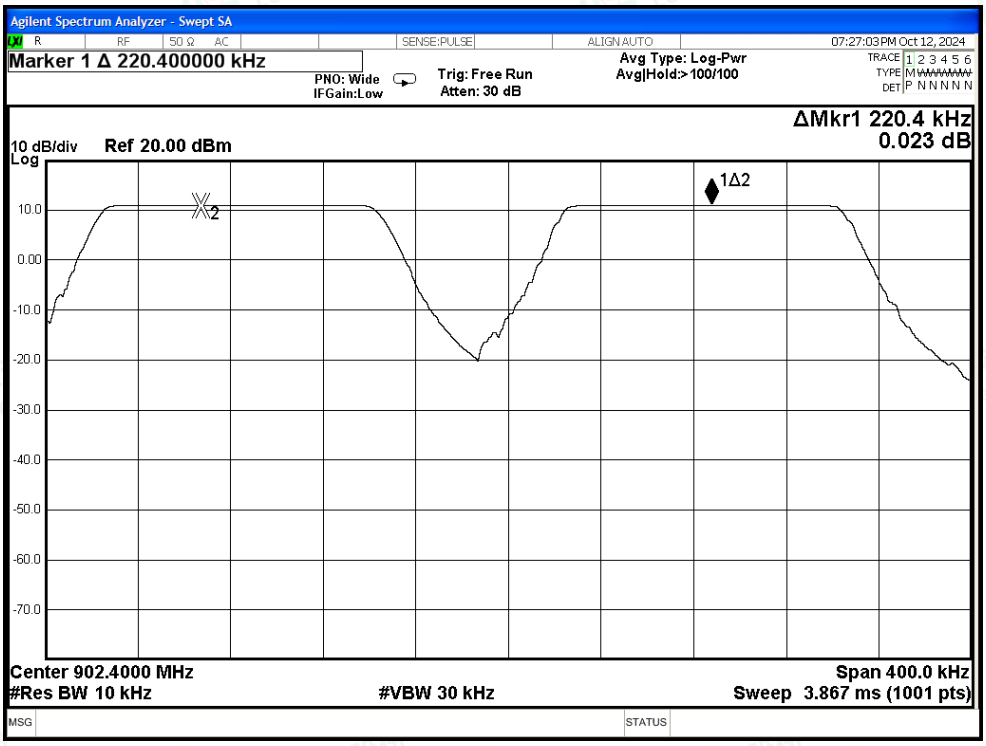
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	LoRa	902.3	Ant1	10.90	30	Pass
NVNT	LoRa	908.5	Ant1	10.91	30	Pass
NVNT	LoRa	914.9	Ant1	10.52	30	Pass

A.3 Carrier frequency separation

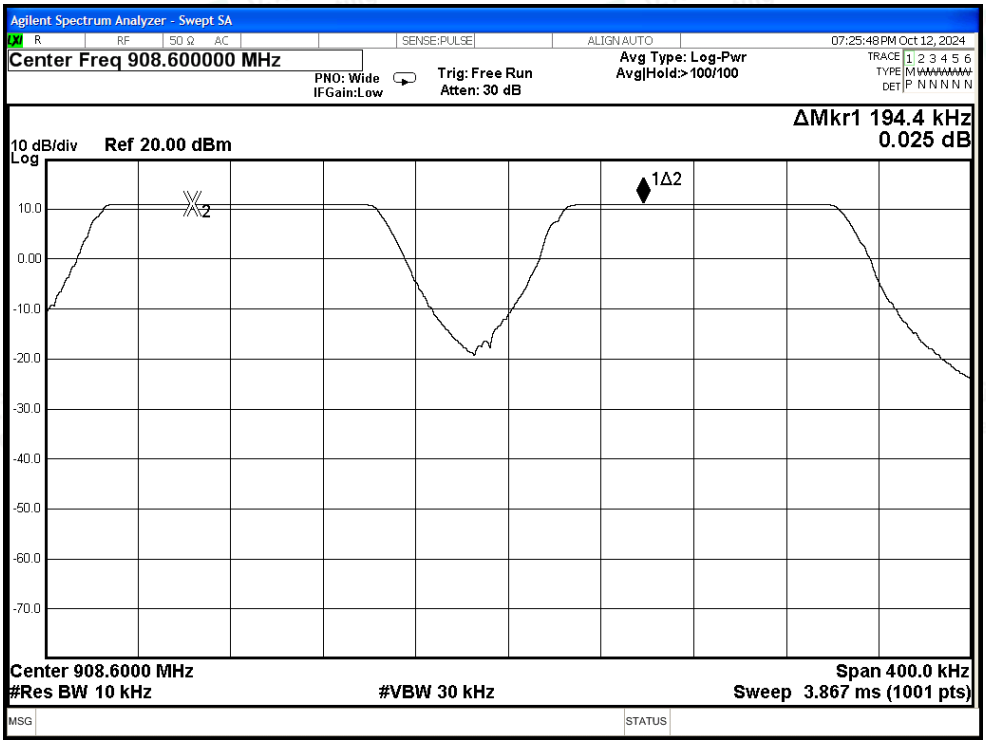
Condition	Mode	Antenna	HFS (MHz)	Limit (MHz)	Verdict
NVNT	LoRa	Ant1	0.2204	0.095	Pass
NVNT	LoRa	Ant1	0.1944	0.095	Pass
NVNT	LoRa	Ant1	0.1940	0.094	Pass

Test Graphs

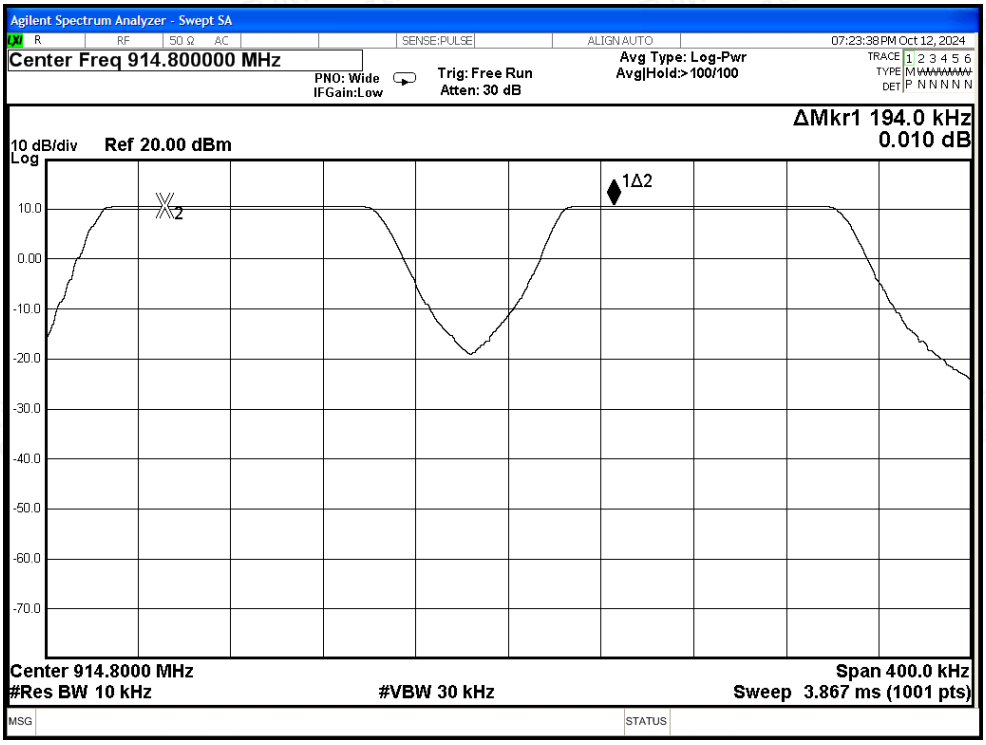
CFS NVNT LoRa 902.3MHz Ant1



CFS NVNT LoRa 908.5MHz Ant1



CFS NVNT LoRa 914.9MHz Ant1

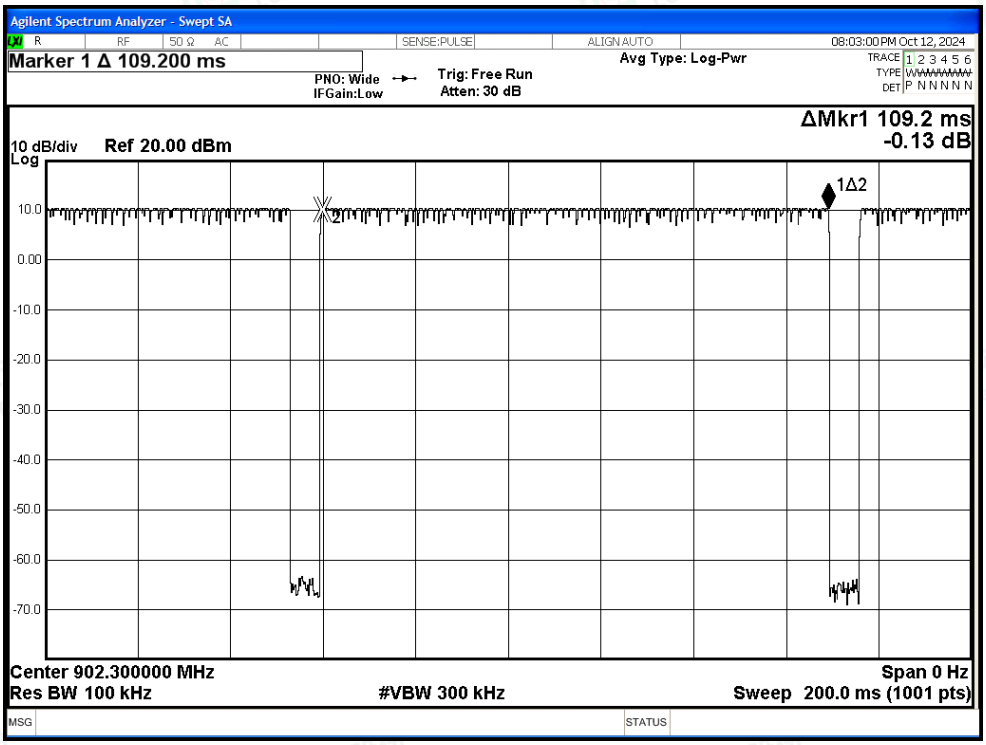


A.4 Time of occupancy

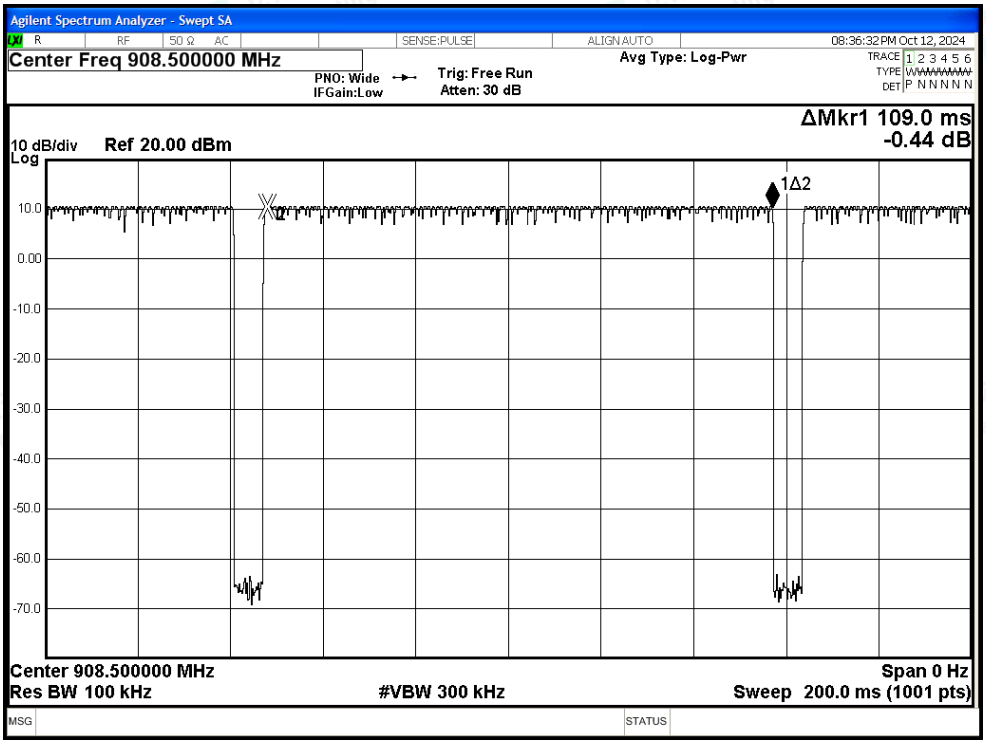
Condition	Mode	Frequency (MHz)	Antenna	Total Dwell Time (ms)	Limit (ms)	Verdict
NVNT	LoRa	902.3	Ant1	109.2	400	PASS
NVNT	LoRa	908.5	Ant1	109.0	400	PASS
NVNT	LoRa	914.9	Ant1	108.8	400	PASS

Test Graphs

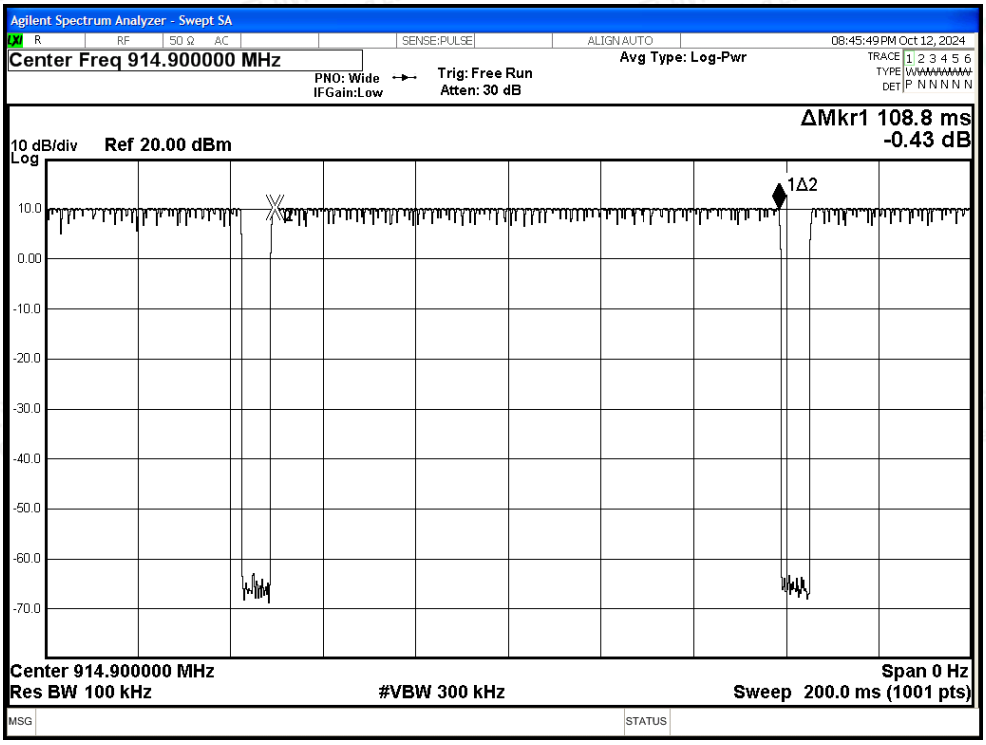
Dwell NVNT LoRa 902.3MHz Ant1



Dwell NVNT LoRa 908.5MHz Ant1



Dwell NVNT LoRa 914.9MHz Ant1

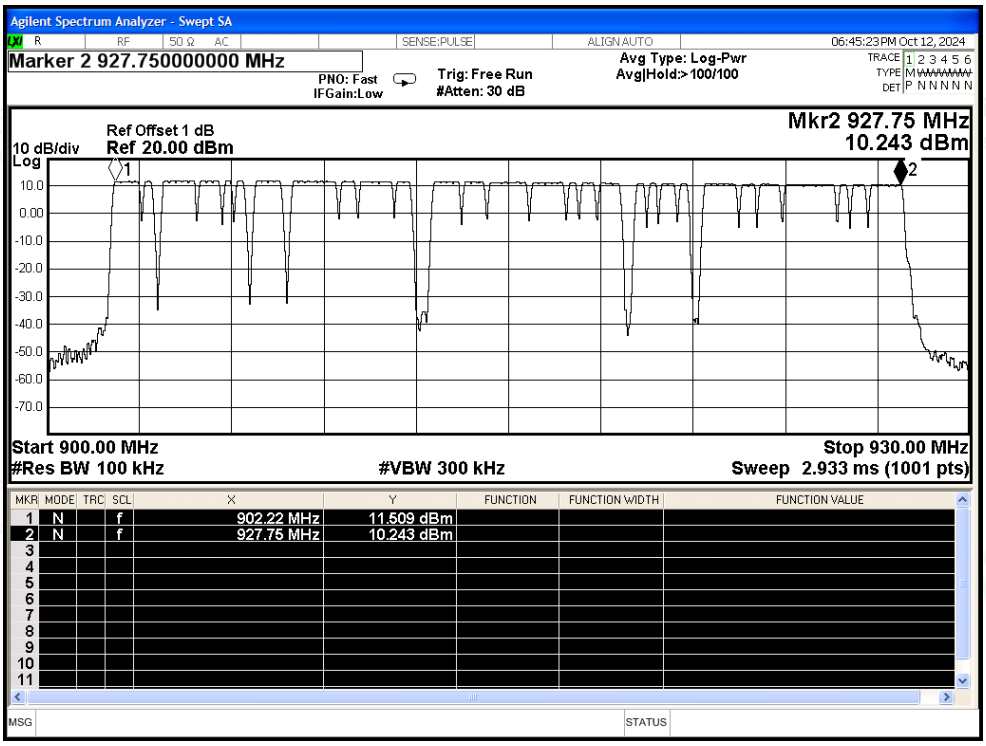


A.5 Number of hopping channels

Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	LoRa	Ant1	64	50	Pass

Test Graphs

Hopping No. NVNT LoRa Ant1

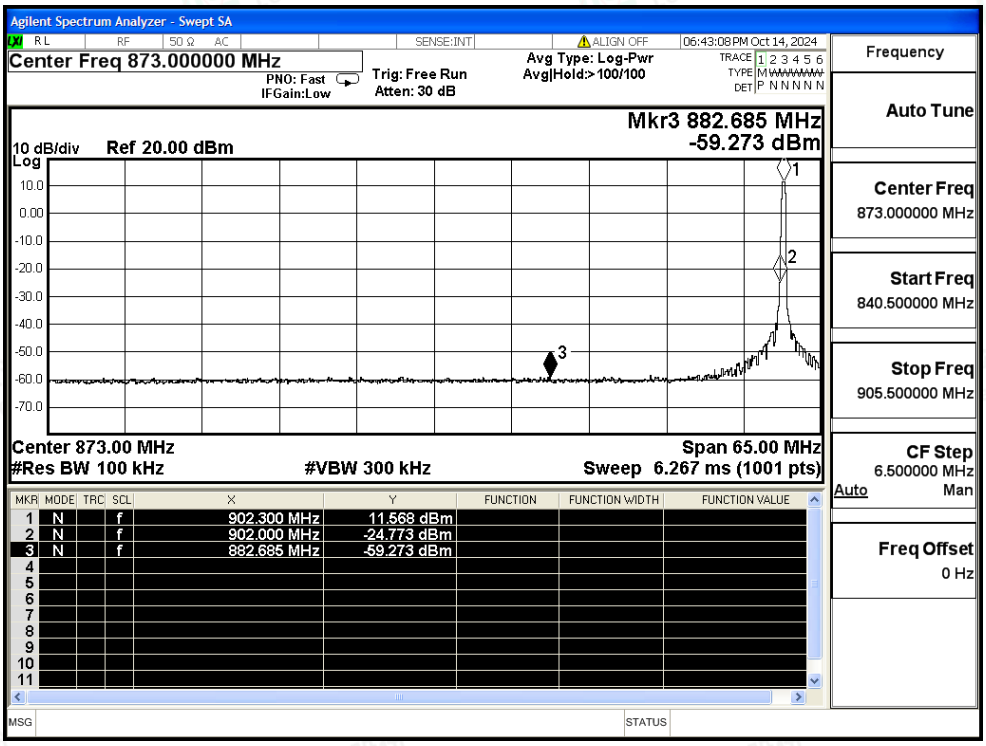


A.6 Band edge measurements

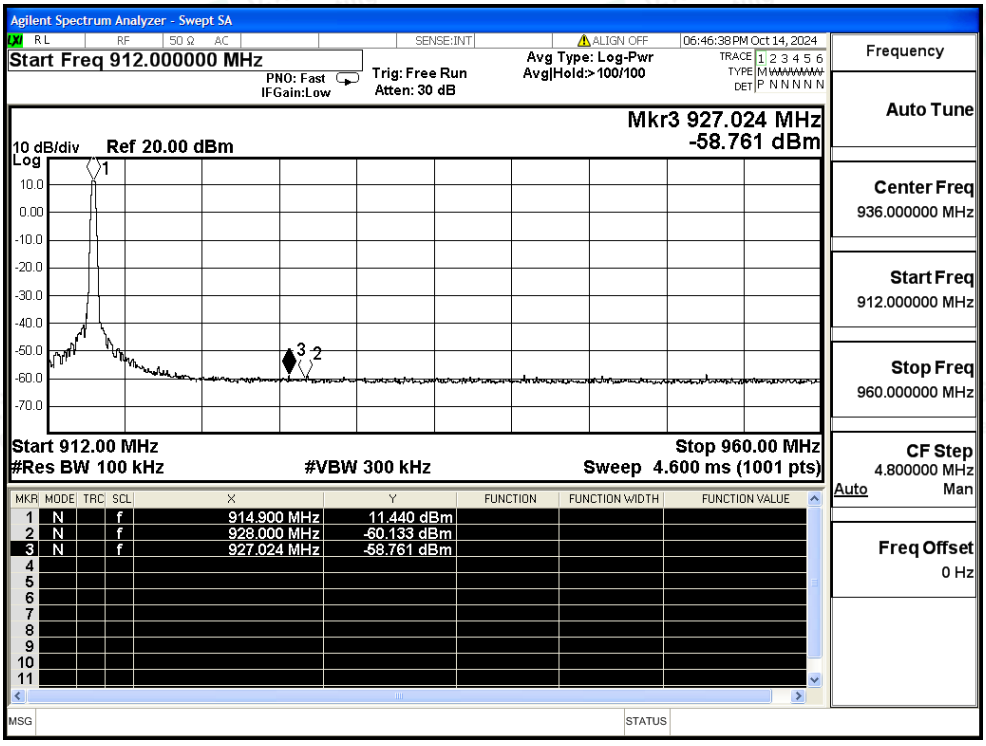
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	LoRa	902.3	Ant1	No-Hopping	-36.34	-20	PASS
NVNT	LoRa	914.9	Ant1	No-Hopping	-71.57	-20	PASS
NVNT	LoRa	902.3	Ant1	Hopping	-74.02	-20	PASS
NVNT	LoRa	914.9	Ant1	Hopping	-71.57	-20	PASS

Test Graphs

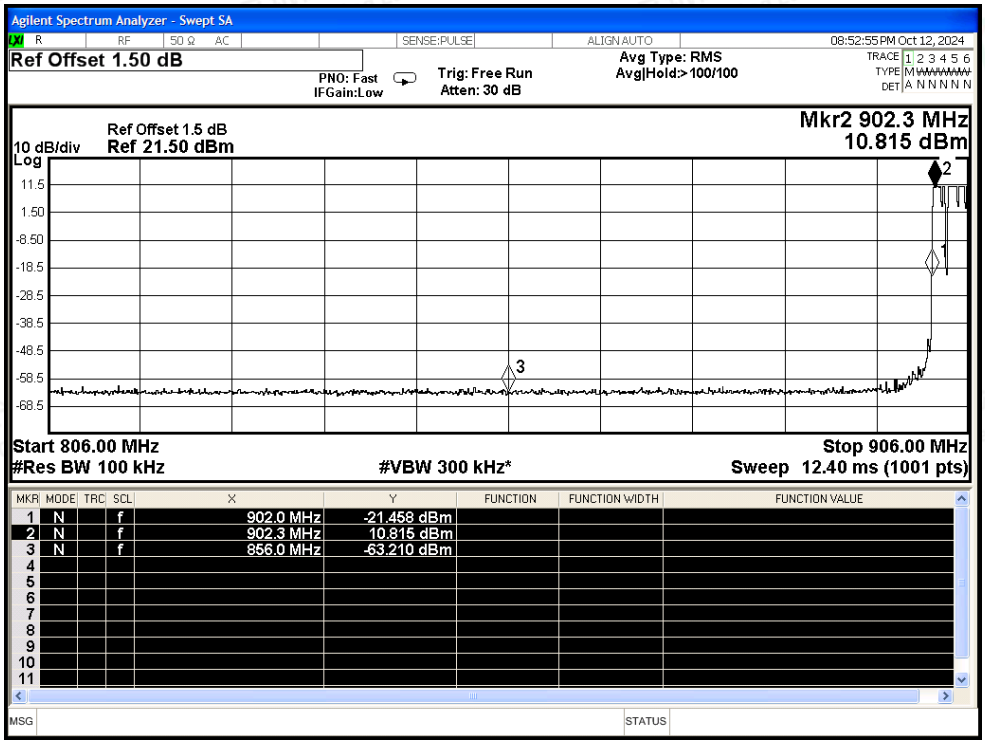
Band Edge(Hopping) NVNT LoRa 902.3MHz Ant1 No-Hopping



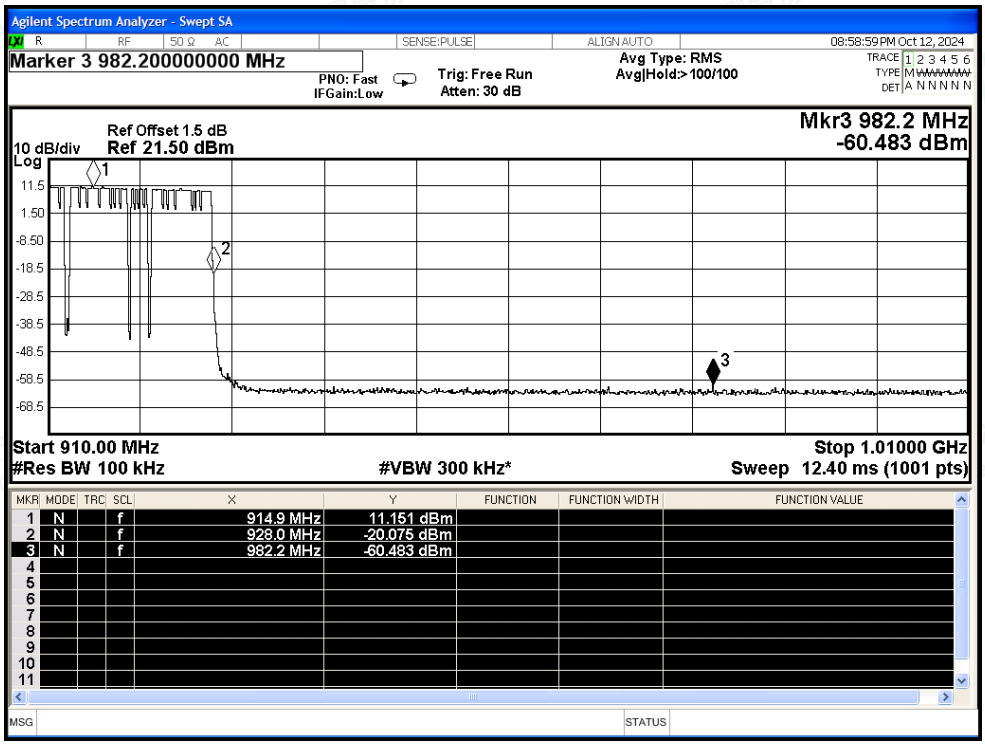
Band Edge(Hopping) NVNT LoRa 914.9MHz Ant1 No-Hopping



Band Edge(Hopping) NVNT LoRa 902.3MHz Ant1 Hopping



Band Edge(Hopping) NVNT LoRa 914.9MHz Ant1 Hopping

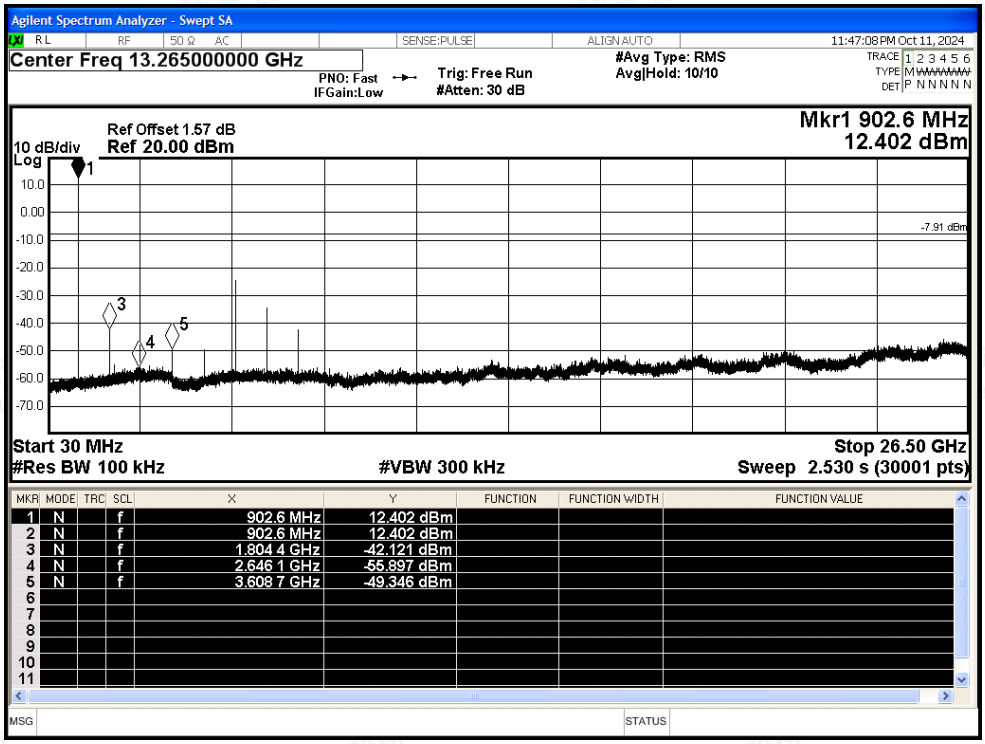


A.7 Conducted Spurious Emission

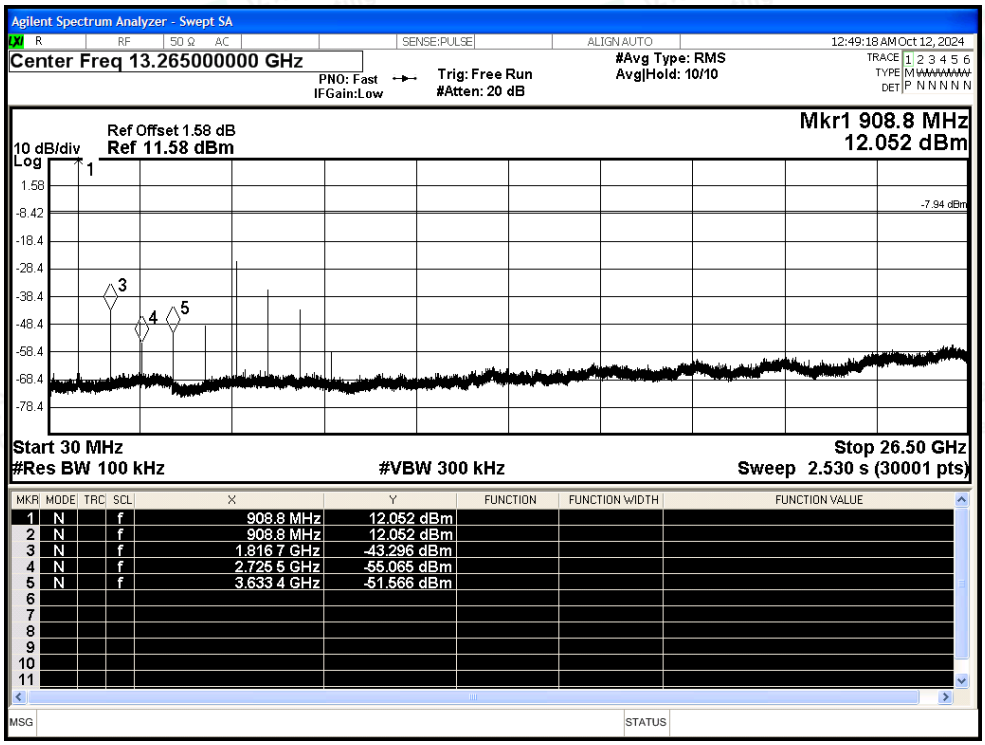
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	LoRa	902.3	Ant1	0.31	-20	PASS
NVNT	LoRa	908.5	Ant1	-0.01	-20	PASS
NVNT	LoRa	914.9	Ant1	0	-20	PASS

Test Graphs

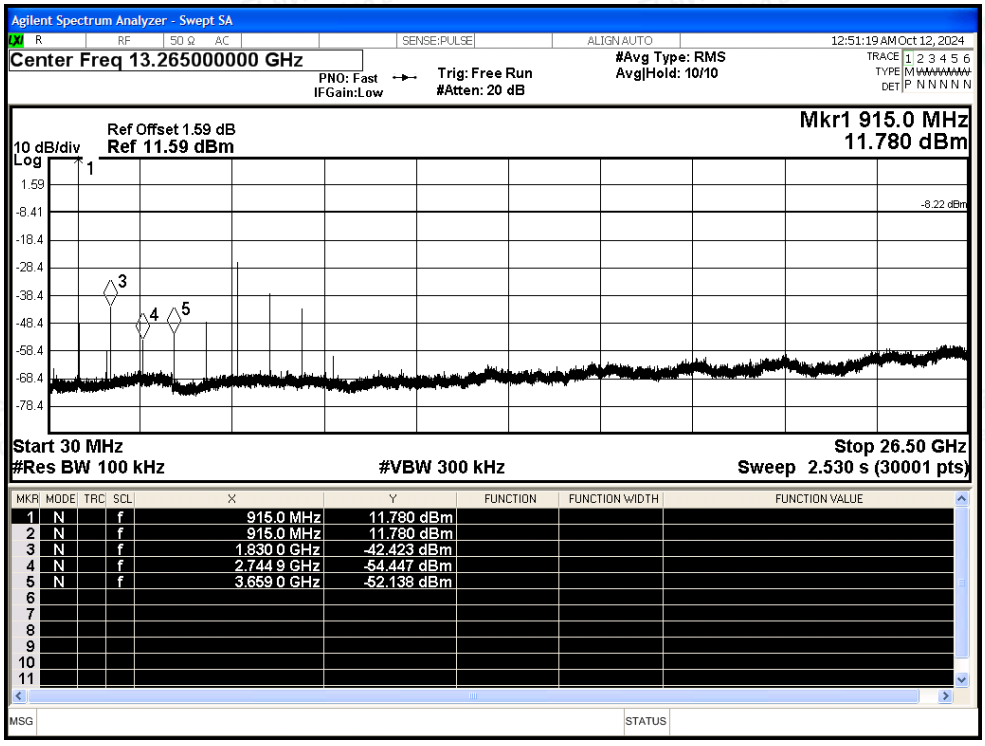
Tx. Spurious NVNT LoRa 902.3MHz Ant1



Tx. Spurious NVNT LoRa 908.5MHz Ant1



Tx. Spurious NVNT LoRa 914.9MHz Ant1

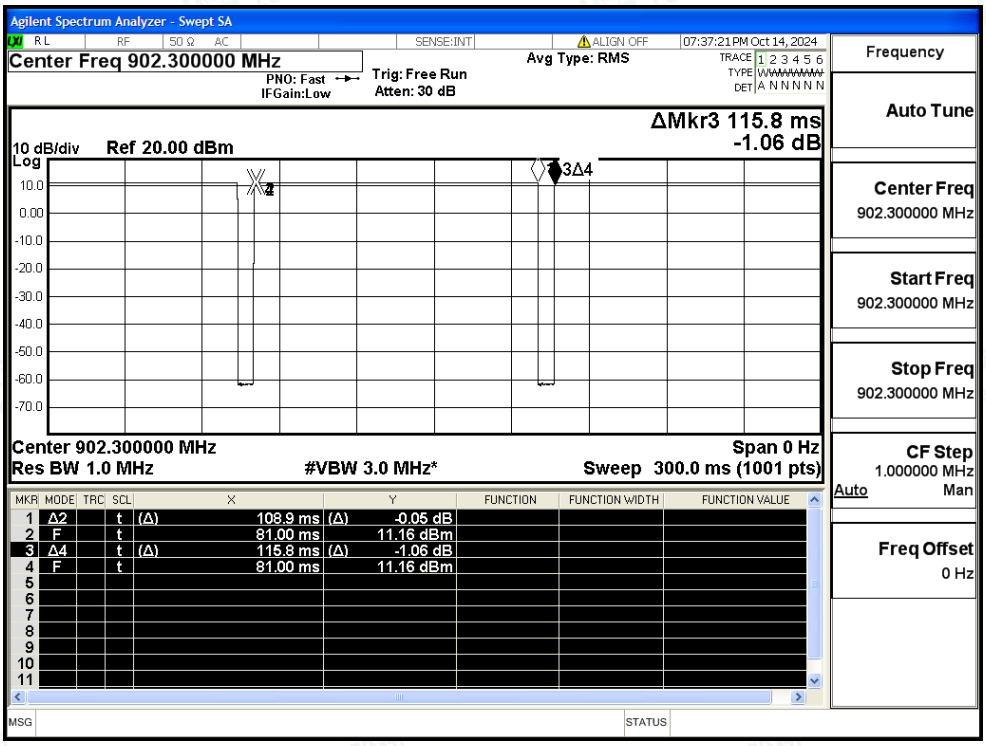


A.8 Duty Cycle

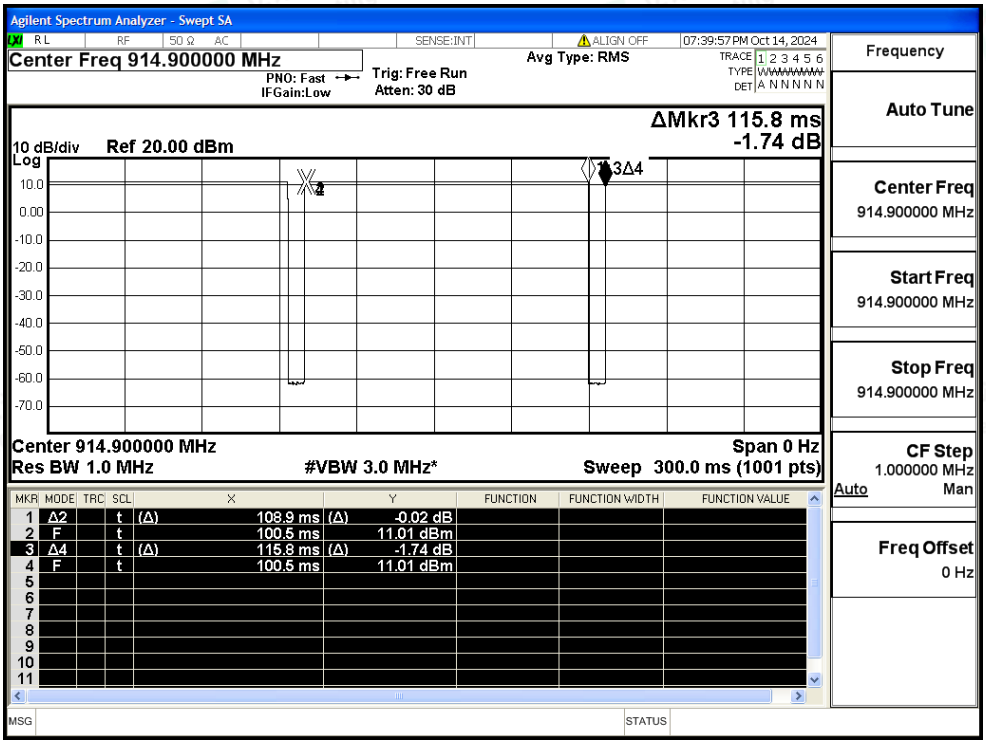
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	LoRa	902.3	Ant1	94.04	0.27	0.01
NVNT	LoRa	914.9	Ant1	94.04	0.27	0.01

Test Graphs

Duty Cycle NVNT LoRa 902.3MHz Ant1



Duty Cycle NVNT LoRa 914.9MHz Ant1

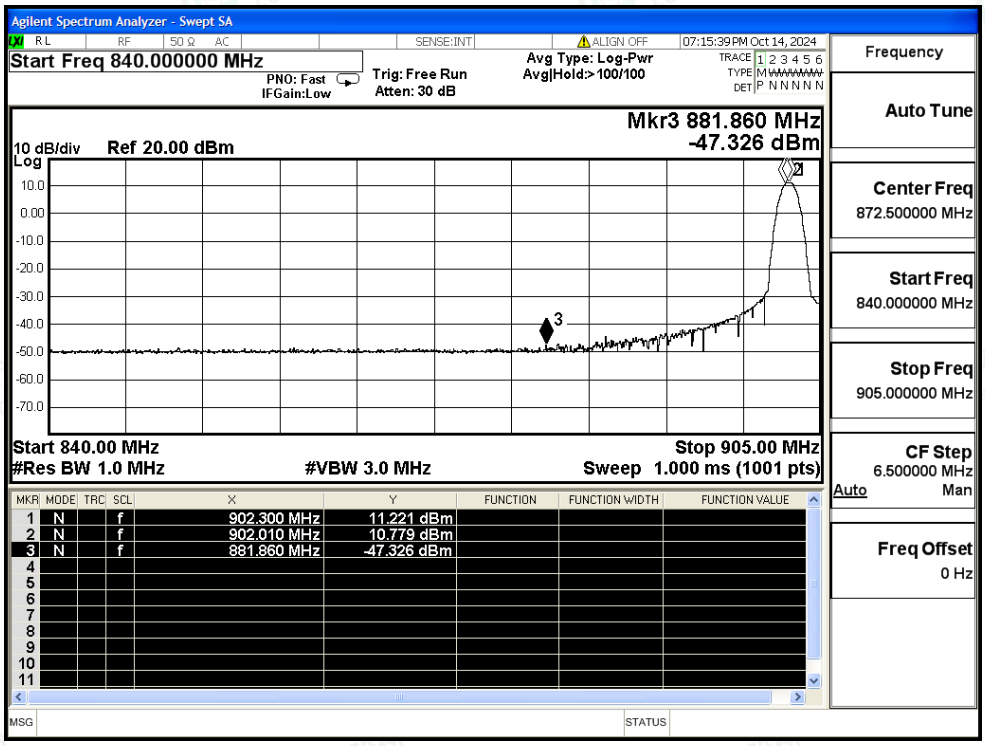
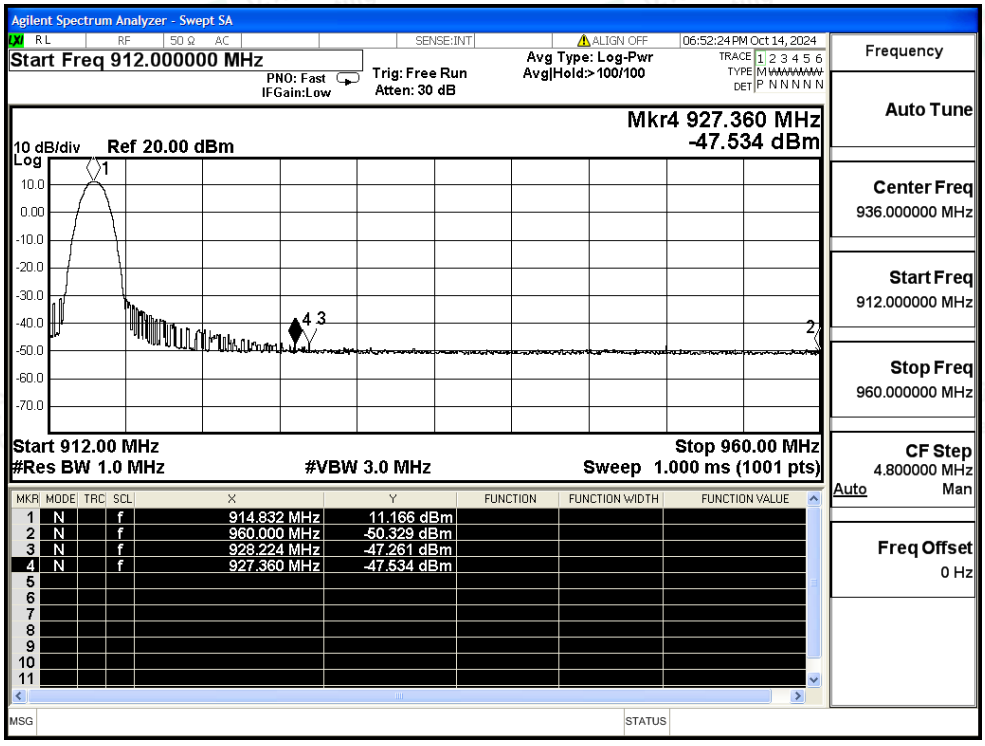


A.9 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	LoRa	902.3	Ant1	848	-52.26	2	45.00	Peak	74	Pass
NVNT	LoRa	902.3	Ant1	881.86	-47.33	2	49.93	Peak	74	Pass
NVNT	LoRa	902.3	Ant1	901.5	-32.74	2	64.52	Peak	74	Pass
NVNT	LoRa	914.9	Ant1	927.36	-47.53	2	49.73	Peak	74	Pass
NVNT	LoRa	914.9	Ant1	928.22	-47.26	2	50.00	Peak	74	Pass
NVNT	LoRa	914.9	Ant1	960	-50.33	2	46.93	Peak	74	Pass

Test Graphs

Restrict Band NVNT LoRa 902.3MHz Ant1



Restrict Band NVNT LoRa 914.9MHz Ant1