



RADIO TEST REPORT

Applicant	:	Tonly Technology Co., Ltd.
Address of Applicant	:	Section 37, Zhongkai High-tech Development Zone, Huizhou City, Guangdong Province, P.R. China
Manufacturer	:	Tonly Technology Co., Ltd.
Address of Manufacturer	:	Section 37, Zhongkai High-tech Development Zone, Huizhou City, Guangdong Province, P.R. China
Equipment under Test	:	BDX Character Robot
Model No.	:	BDX-PROD-01
FCC ID	:	ZVAOH000037
IC	:	9976A-OH000037
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, ANSI C63.10-2020, RSS-247 Issue 4 July 24, 2025, RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021), ANSI C63.10-2020+Cor.1-2023+C63.10a- 2024+Errata to C63.10a-2024
Report No.	:	DDT-RE26030329-2E14
Issue Date	:	2026/04/24
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

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Address of Applicant	:	Section 37, Zhongkai High-tech Development Zone, Huizhou City, Guangdong Province, P.R. China
Equipment under Test	:	BDX Character Robot
Model No.	:	BDX-PROD-01
Manufacturer	:	Tonly Technology Co., Ltd.
Address of Manufacturer	:	Section 37, Zhongkai High-tech Development Zone, Huizhou City, Guangdong Province, P.R. China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C,
ANSI C63.10-2020,
RSS-247 Issue 4 July 24, 2025,
RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021),
ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024

We Declare:

The equipment described above is tested by Guangdong Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE26030329-2E14		
Date of Receipt:	2026/03/05	Date of Test:	2026/03/05 - 2026/04/18

Created: Chen Ziqin	Reviewed: Zoe Peng	Approved: Ella Gong
		
2026/04/17	2026/04/24	2026/04/24

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Version	Revision Content	Issue Date	Approved
V0	Initial issue	2026/04/24	Ella Gong

1 Summary of test results

No.	Test Parameter	Clause No.	Condition	Result
1	6 dB Bandwidth and 99% Bandwidth	47 CFR Part 15 15.247(a)(2), RSS-247 clause 6.3.1, RSS-Gen clause 6.7	/	Pass
2	Peak Output Power	47 CFR Part 15 15.247(b)(3), RSS-247 clause 6.3.2	/	Pass
3	Power Spectral Density	47 CFR Part 15 15.247(e), RSS-247 clause 6.3.1	/	Pass
4	RF Conducted Spurious Emissions	47 CFR Part 15 15.247(d), RSS-247 clause 6.6	/	Pass
5	Radiated Emission	47 CFR Part 15 15.205, 47 CFR Part 15 15.209, 47 CFR Part 15 15.247(d), RSS-247 clause 6.6, RSS-Gen clause 8.9, RSS-Gen clause 8.10	/	Pass
6	Band Edge Compliance	47 CFR Part 15 15.205, 47 CFR Part 15 15.209, 47 CFR Part 15 15.247(d), RSS-247 clause 6.6, RSS-Gen clause 8.9, RSS-Gen clause 8.10	/	Pass
7	Antenna Requirement	47 CFR Part 15 15.203, RSS-Gen clause 6.8	/	Pass
8	Power Line Conducted Emissions	47 CFR Part 15 15.207(a), RSS-Gen clause 8.8	/	N/A
9	Carrier Frequency Separation	47 CFR Part 15 15.247(a)(1), RSS-247 clause 6.2.3.1(a)	/	Pass
10	Number of Hopping Channel	47 CFR Part 15 15.247(a)(1)(iii), RSS-247 clause 6.2.3.1(b)	/	Pass
11	Dwell Time	47 CFR Part 15 15.247(a)(1)(iii), RSS-247 clause 6.2.3.1(b)	/	Pass
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.				

2 General test information

2.1. Description of EUT

EUT Name	: BDX Character Robot
Model Number	: BDX-PROD-01
EUT function description	: /
Power supply	: DC 22.2V from Rechargeable Li-ion Battery
Antenna	: FPC Antenna
Max Antenna Gain(dBi)	: -0.87

Technical Specification of Lora DTS	
Operating Frequency	: 904.6MHz, 923.3 - 927.5MHz
Type of Modulation	: Lora
Data Rate	: SF8 / DR4 for 904.6MHz SF7 – SF12 / DR8 – DR13 for 923.3 - 927.5MHz
Channel Number	: 8 channels for 923.3 - 927.5MHz
Occupied Bandwidth	: 500 KHz

Technical Specification of Lora Hybrid	
Operating Frequency	: 903.9MHz - 905.3MHz
Type of Modulation	: Lora
Data Rate	: SF7 – SF10 / DR0 – DR3
Channel Number	: 8 channel
Channel Separation	: 200 KHz
Occupied Bandwidth	: 125 KHz

RF Channel and Frequency of Lora Hybrid (FHSS Mode)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	903.9	3	904.5	6	905.1
1	904.1	4	904.7	7	905.3
2	904.3	5	904.9		

RF Channel and Frequency of Lora DTS (DTS Mode)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	923.3	3	925.1	6	926.9
1	923.9	4	925.7	7	927.5
2	924.5	5	926.3		

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
Adapter Connector	N/A	N/A	N/A

2.3. Assistant equipment used for test

Accessories	Manufacturer	Model number	Description
LoRa Backpack	N/A	LBP-001	N/A
Battery charging cradle	N/A	CC-001	N/A
Remote control	N/A	N/A	N/A
Rechargeable Li-ion Battery	N/A	I0971A	Nominal Voltage: 22.2V DC Rated Capacity: 5600mAh
SWITCHING ADAPTER	Shenzhen SOY Technology Co., Ltd.	SOY-2401000-244-B	Input: 100-240V ~ 50/60Hz 3.0A Max.Output: 24.0V  10.0A 240W

2.4. Block diagram of EUT configuration for test

EUT

2.5. Decision of final test mode

According pre-test, the worst test modes were reported as below:

Test software: sscom.exe

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table:

The pathloss of external cable: 0.5dB (According to the manufacturer's claims)

Tested mode, channel, information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
Lora Hybrid SF7	1	0	903.9
	1	3	904.5
	1	7	905.3
Lora Hybrid SF9	1	0	903.9
	1	3	904.5
	1	7	905.3
Lora Hybrid SF10	1	0	903.9
	1	3	904.5
	1	7	905.3

Tested mode, channel, information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
Lora DTS SF7	3	0	923.3
	3	3	925.1
	3	7	927.5
Lora DTS SF12	3	0	923.3
	3	3	925.1
	3	7	927.5
Lora DTS SF8	3	0	904.6

2.6. Deviations of test standard

No Deviation.

2.7. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

2.8. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No.17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.9. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power(Conducted)(Spectrum analyzer)	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.38dB (3.6GHz ≤ f < 8GHz)
Peak Output Power(Conducted)(Power Sensor)	0.74dB
Power Spectral Density	0.74dB (10 MHz ≤ f < 3.6GHz);
	1.38dB (3.6GHz ≤ f < 8GHz)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86dB (10 MHz ≤ f < 3.6GHz);
	1.40dB (3.6GHz ≤ f < 8GHz)
	1.66dB (8GHz ≤ f < 22GHz)
Uncertainty for radio frequency (RBW<20kHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (9 kHz-30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10dB (1-6GHz)
	4.40dB (6GHz-18GHz)
	3.54dB (18GHz-26GHz)
	4.30dB (26GHz-40GHz)
Uncertainty for Power line conduction emission test	3.32dB (150kHz-30MHz)

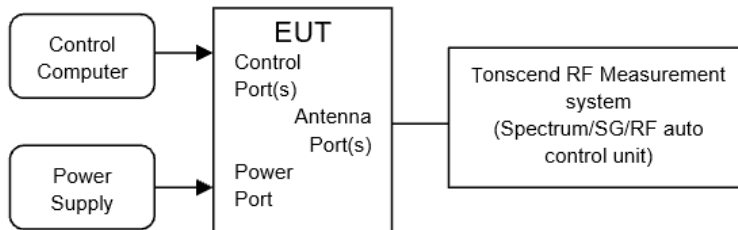
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 Equipment Used During Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date
☑RF Connected Test (RF Measurement System 5#)				
Signal &Spectrum analyzer	R&S	FSV40-N	102836	2027/02/27
Wideband Radio Communication Tester	R&S	CMW500	132871	2027/01/15
EXG Vector Generator	Agilent	N5172B	MY53051914	2027/01/07
MXG Vector Signal Generator	Agilent	N5173B	MY62220219	2027/03/19
RF Control Unit	Tonscend	JS0806-2	23180620727	2027/03/17
Electronic thermometer	Youshang	YSWS3020	DDT-ZC02228	2026/08/12
Test Software	Tonscend	JS1120-3	V3.6.21	N/A

4. 20 dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3. Test procedure

- (1) The test according to ANSI C63.10 clause 6.9.2.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (4) Use the following spectrum analyzer settings for the 20 dB bandwidth measurement:

RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Span:	between 2 times and 5 times the OBW
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Max hold

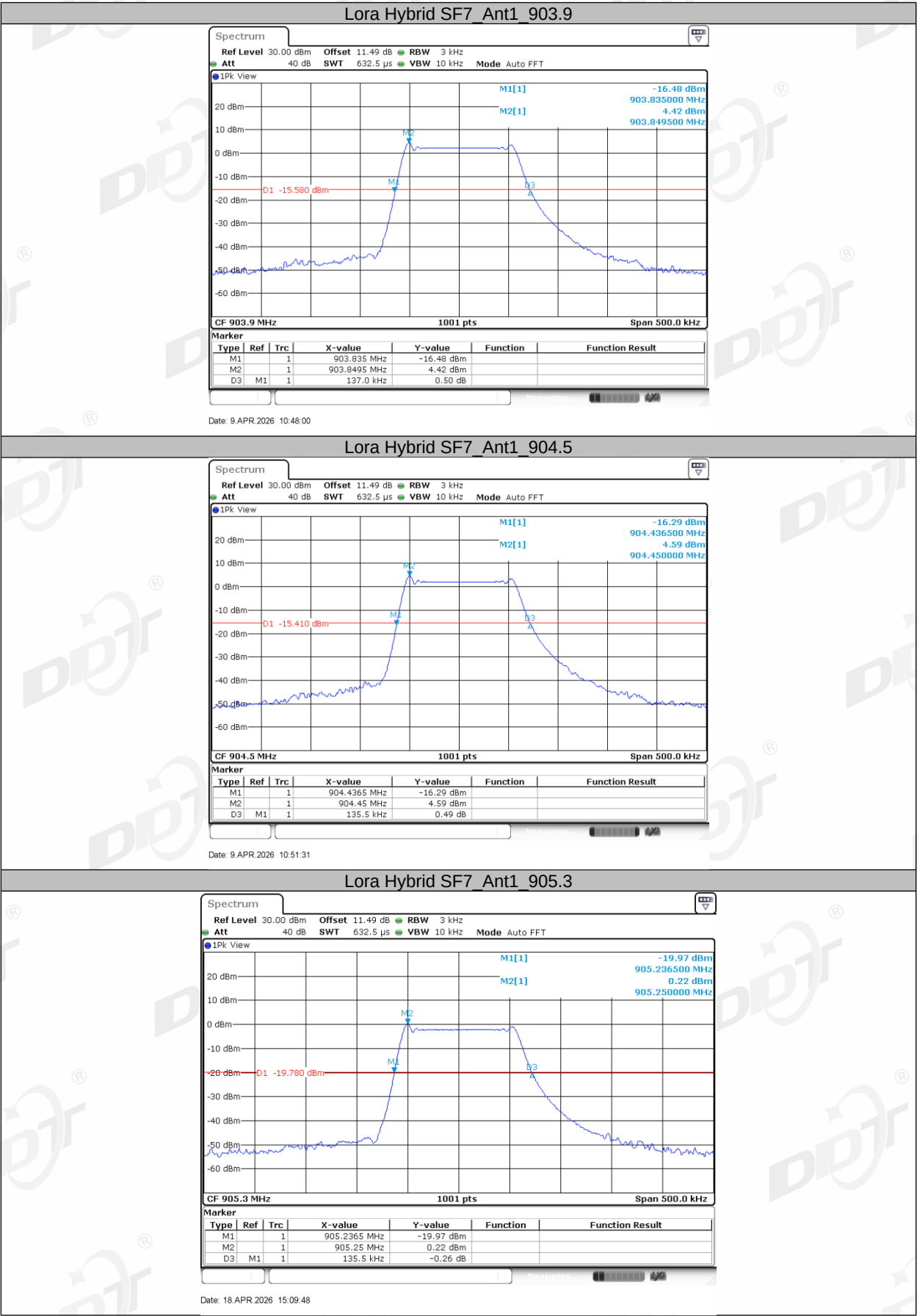
- (5) Measure and record the results in the report.

4.4. Test result

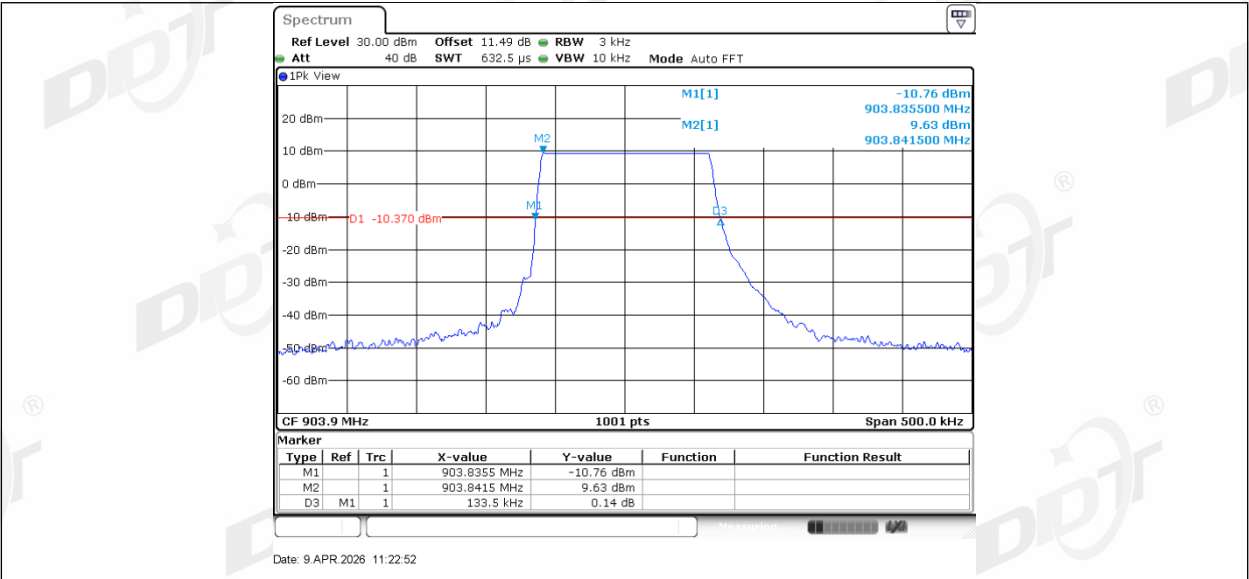
Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2℃,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

Test Mode	Antenna	Frequency [MHz]	20dB EBW[MHz]
Lora Hybrid SF7	Ant1	903.9	0.14
		904.5	0.14
		905.3	0.14
Lora Hybrid SF9	Ant1	903.9	0.14
		904.5	0.14
		905.3	0.14
Lora Hybrid SF10	Ant1	903.9	0.13
		904.5	0.13
		905.3	0.13

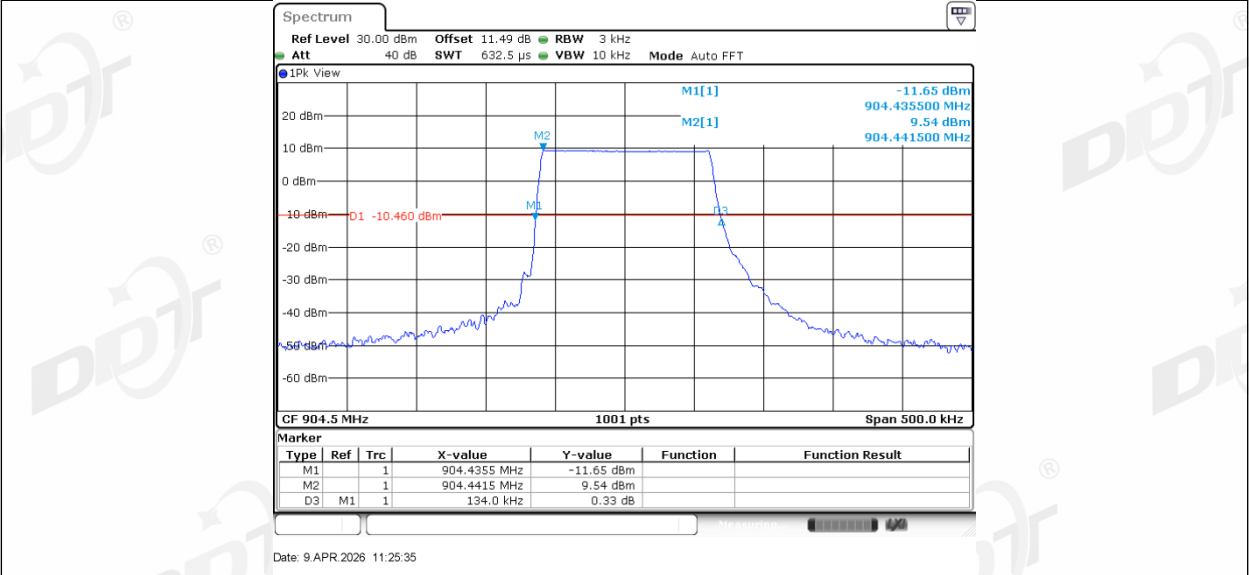
4.5. Test graphs



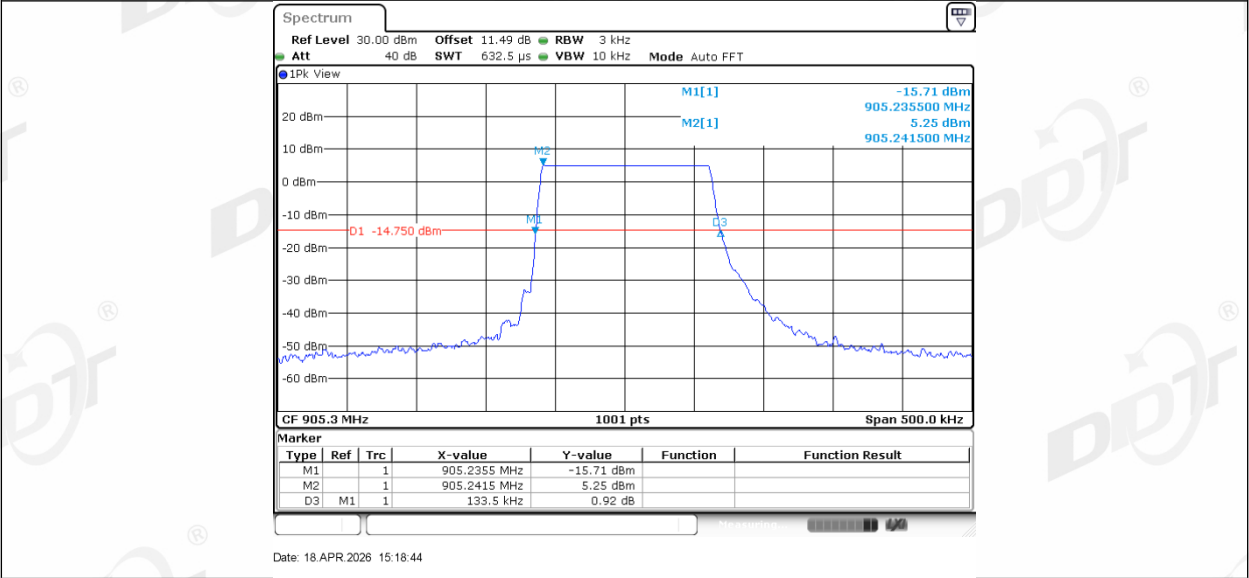




Lora Hybrid SF10_Ant1_904.5

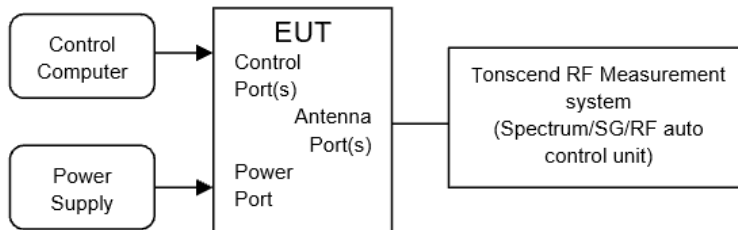


Lora Hybrid SF10_Ant1_905.3



5. 6 dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz

5.3. Test procedure

- (6) The test according to ANSI C63.10 clause 11.8.
- (7) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (8) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (9) Use the following spectrum analyzer settings for 6 dB Bandwidth:

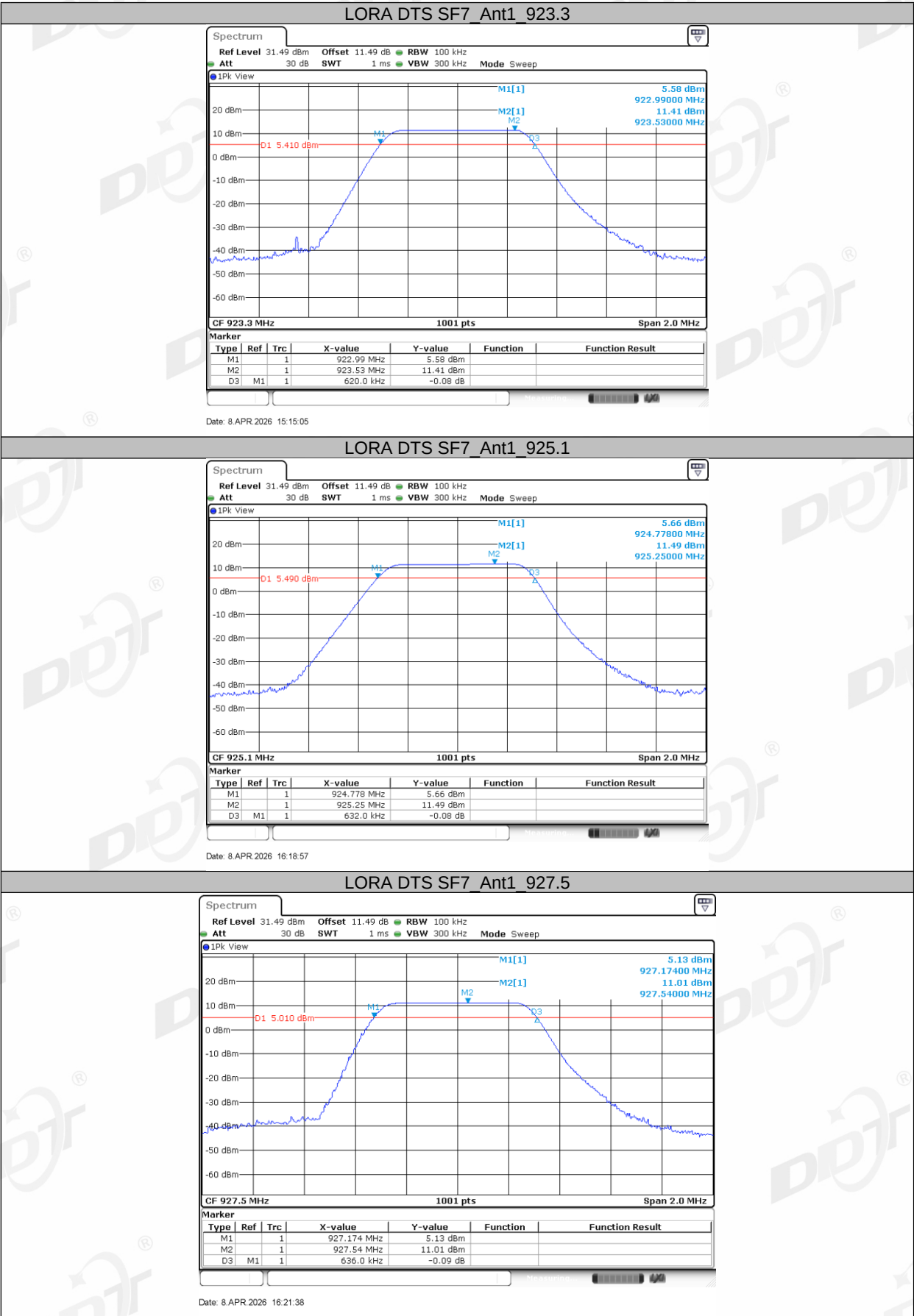
RBW:	100 kHz
VBW:	$\geq [3 \times \text{RBW}]$
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold
- (10) Allow the trace to stabilize, measure the 6 dB bandwidth of signal, and record the results in the report.

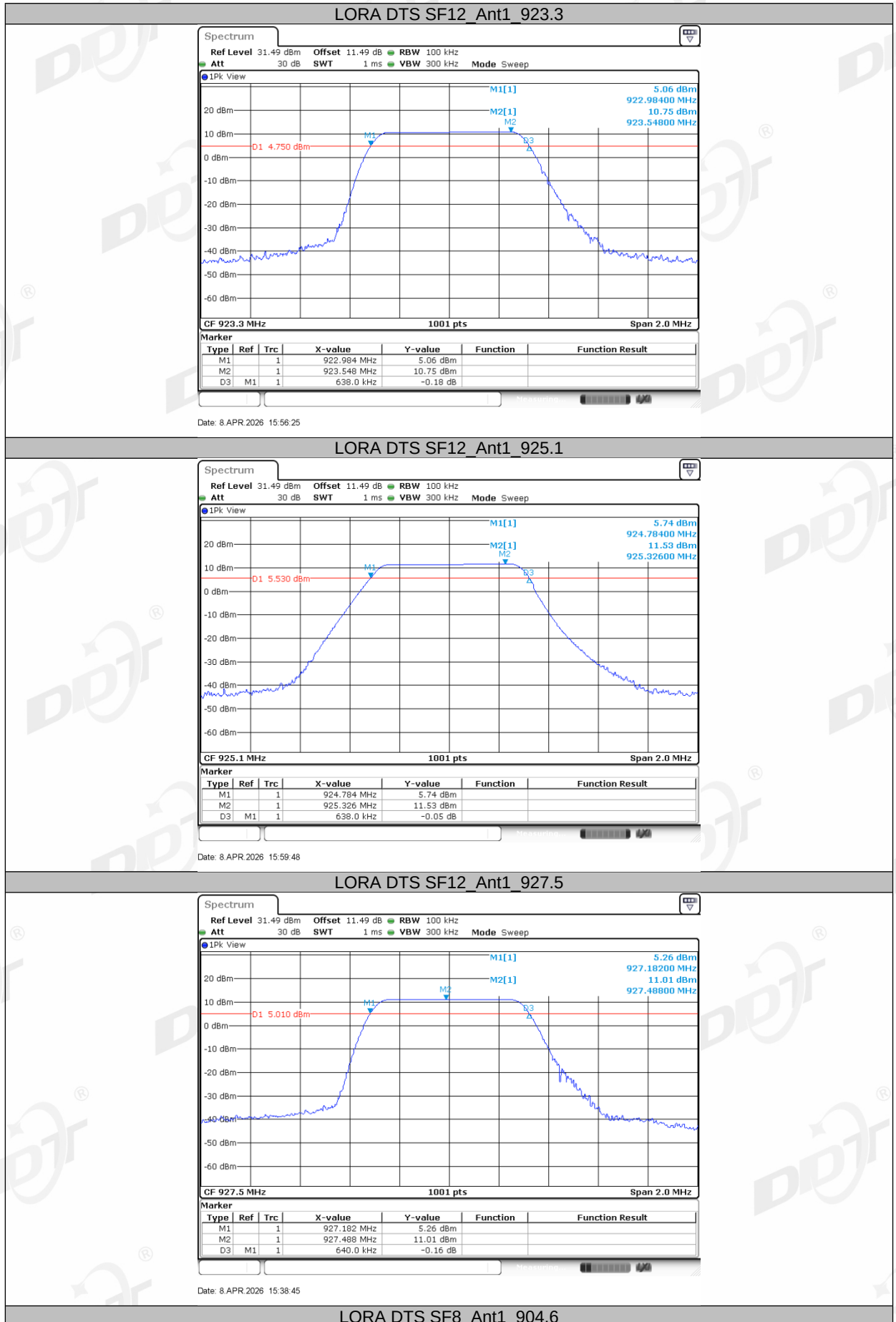
5.4. Test result

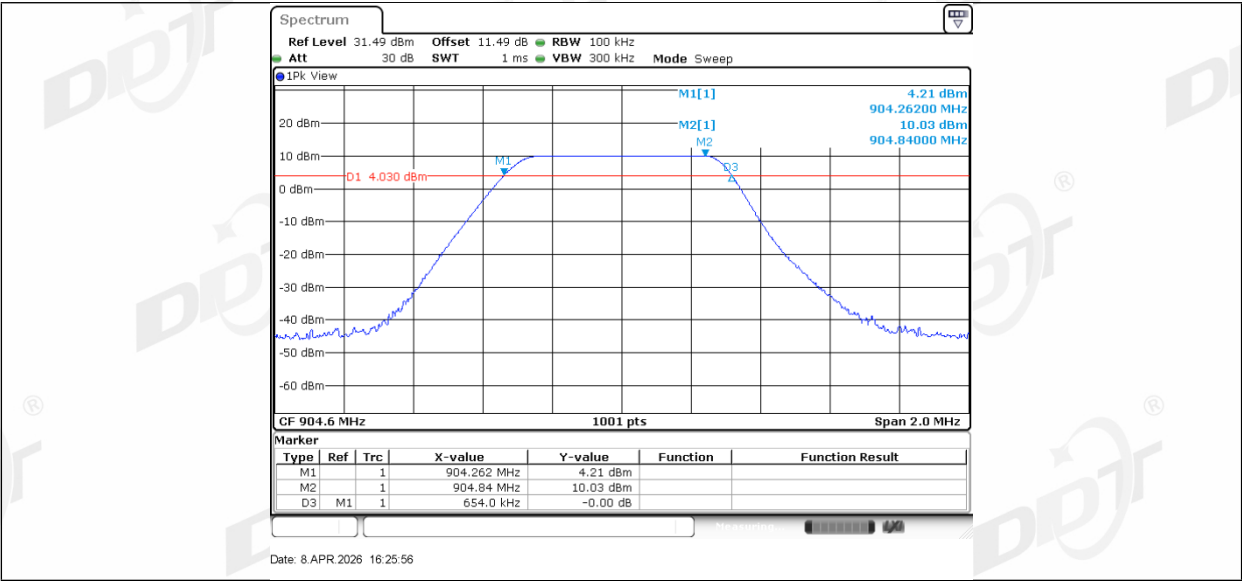
Test Engineer:	NA	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2°C,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
LORA DTS SF7	Ant1	923.3	0.62	922.99	923.61	0.5	PASS
		925.1	0.63	924.78	925.41	0.5	PASS
		927.5	0.64	927.17	927.81	0.5	PASS
LORA DTS SF12	Ant1	923.3	0.64	922.98	923.62	0.5	PASS
		925.1	0.64	924.78	925.42	0.5	PASS
		927.5	0.64	927.18	927.82	0.5	PASS
LORA DTS SF8	Ant1	904.6	0.65	904.26	904.92	0.5	PASS

5.5. Test graphs

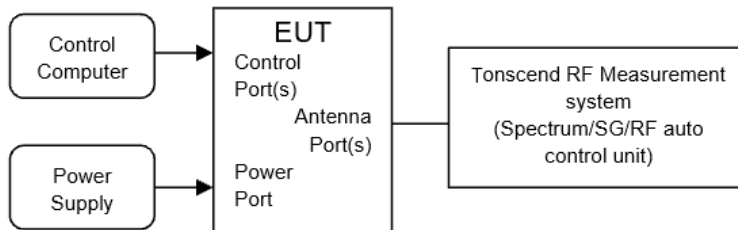






6. 99% Bandwidth

6.1. Block diagram of test setup



6.2. Limits

Just for Report.

6.3. Test procedure

- (1) The test according to ANSI C63.10 clause 6.9.3.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (4) Use the following spectrum analyzer settings for the 99% bandwidth measurement:

RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Span:	between 1.5 times and 5.0 times the OBW
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Max hold
- (5) Measure and record the results in the report.

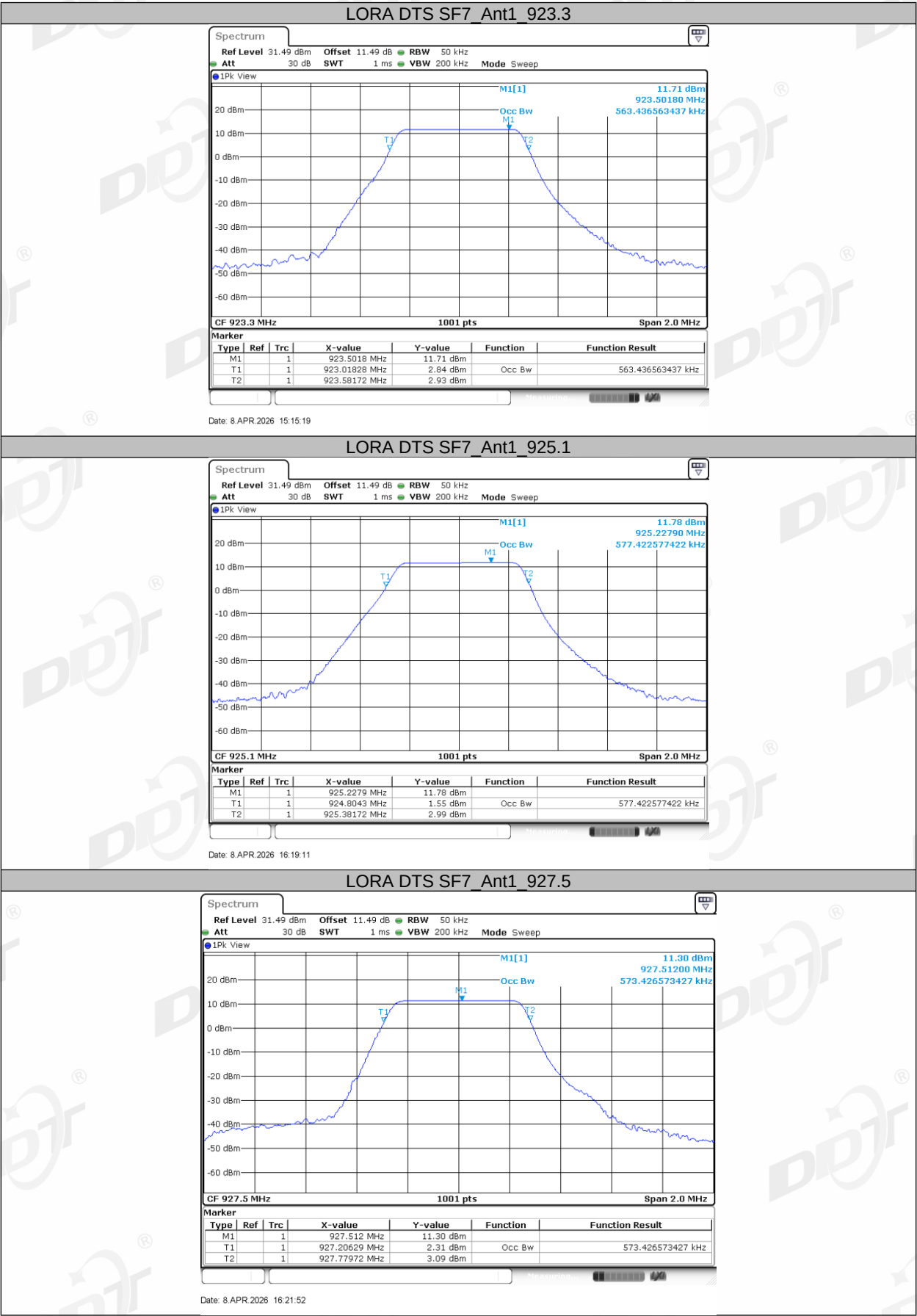
6.4. Test result

Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2℃,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

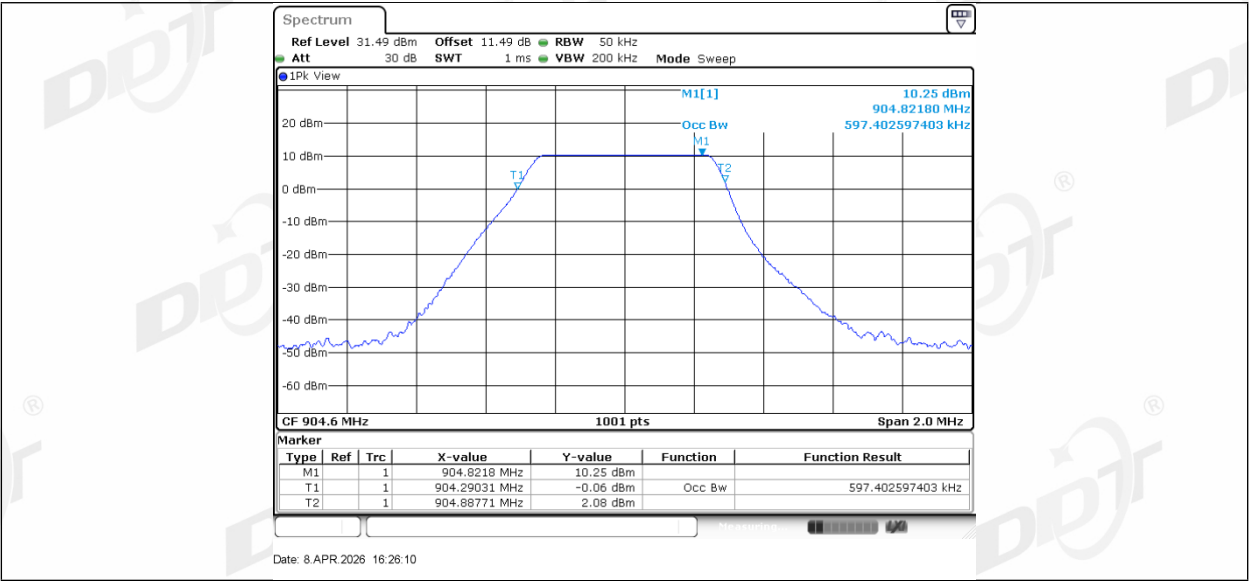
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
Lora Hybrid SF7	Ant1	903.9	0.12138	903.8416	903.9629
		904.5	0.12038	904.4426	904.5629
		905.3	0.12038	905.2426	905.3629
Lora Hybrid SF9	Ant1	903.9	0.12338	903.8391	903.9624
		904.5	0.12338	904.4396	904.5629
		905.3	0.12388	905.2391	905.3629
Lora Hybrid SF10	Ant1	903.9	0.12288	903.8396	903.9624
		904.5	0.12338	904.4396	904.5629
		905.3	0.12338	905.2396	905.3629

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
Lora DTS SF7	Ant1	923.3	0.56344	923.0183	923.5817
		925.1	0.57742	924.8043	925.3817
		927.5	0.57343	927.2063	927.7797
Lora DTS SF7 SF12	Ant1	923.3	0.57343	923.0183	923.5917
		925.1	0.57143	924.8203	925.3917
		927.5	0.57542	927.2163	927.7917
Lora DTS SF7 SF8	Ant1	904.6	0.59740	904.2903	904.8877

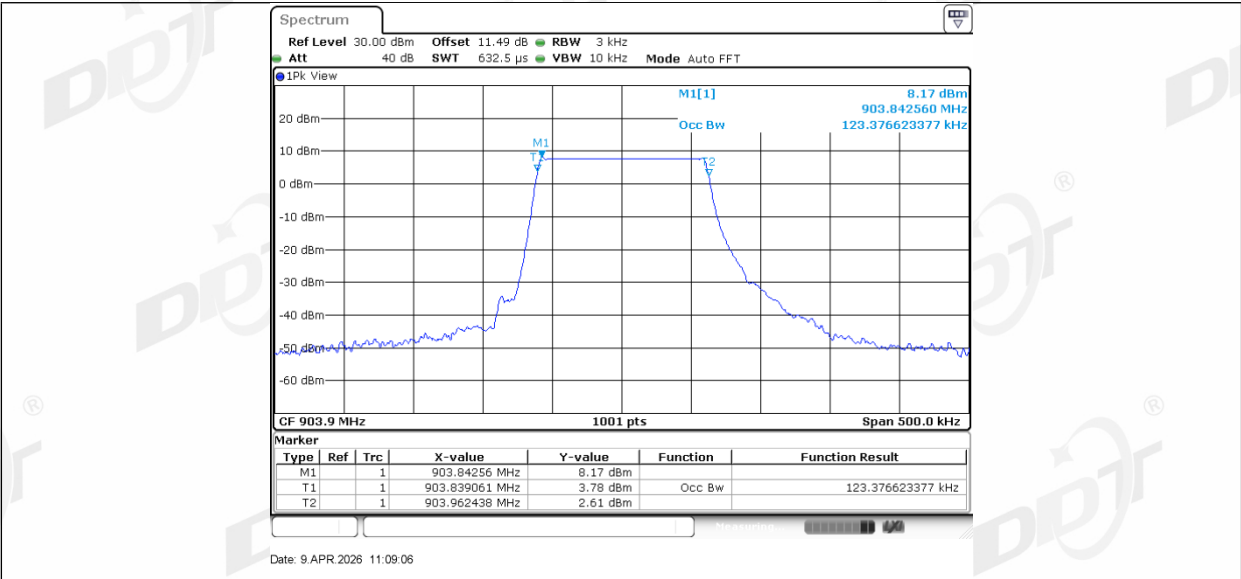
6.5. Test graphs



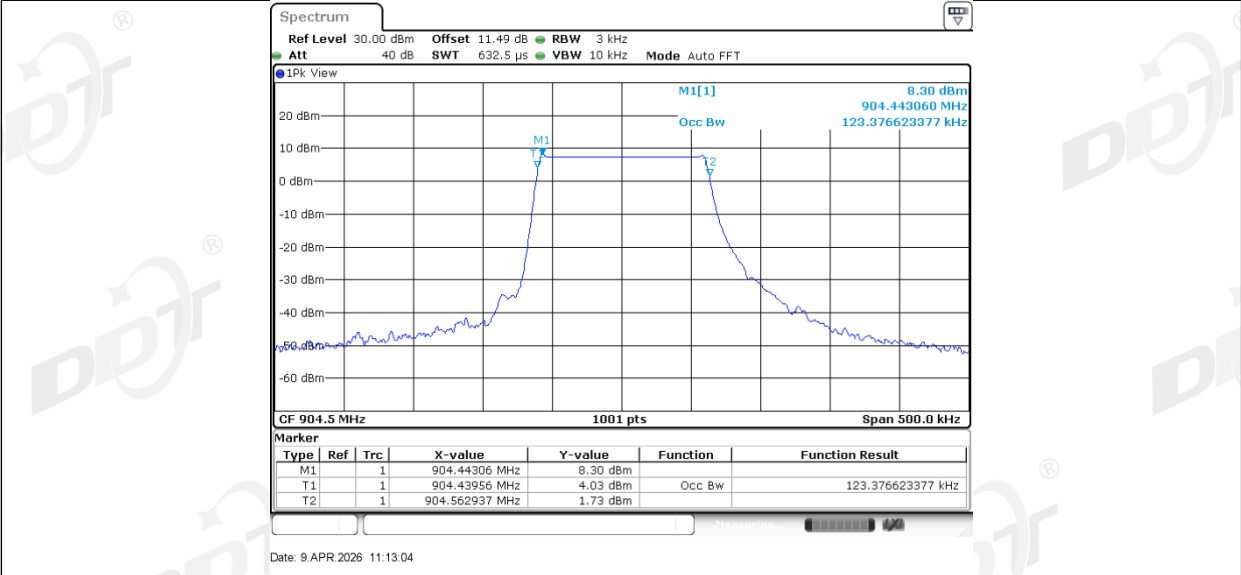




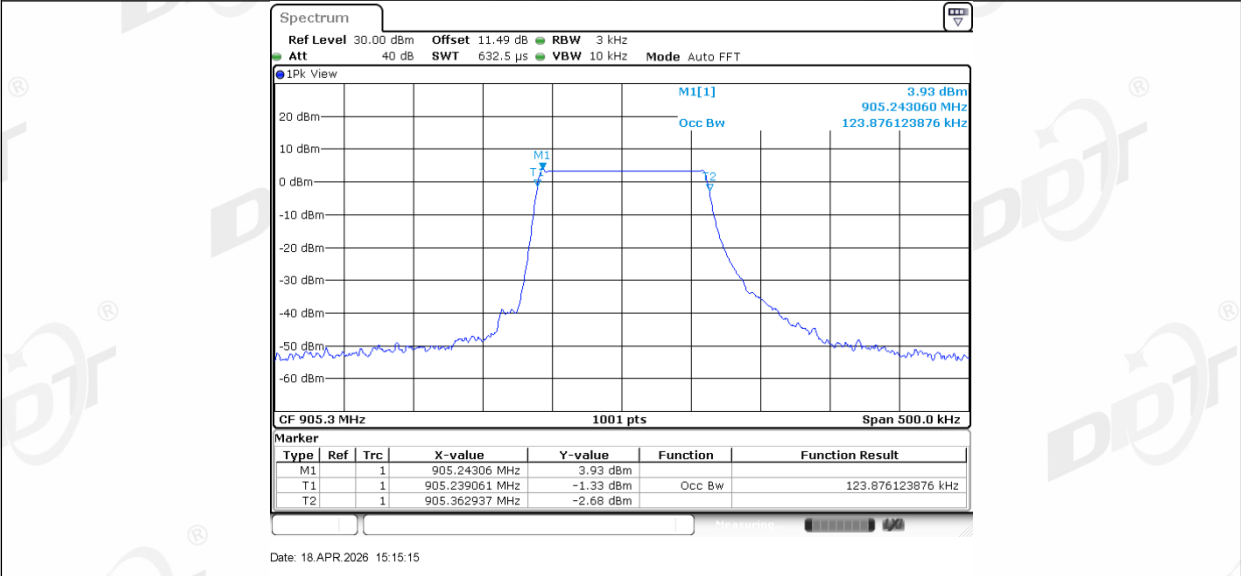




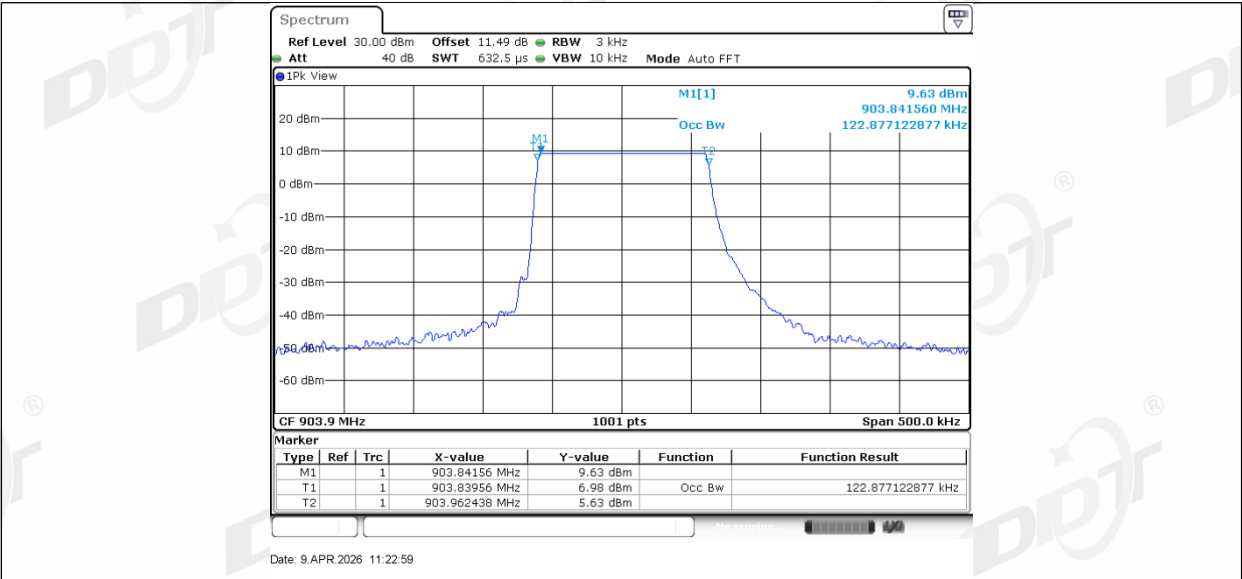
Lora Hybrid SF9_Ant1_904.5



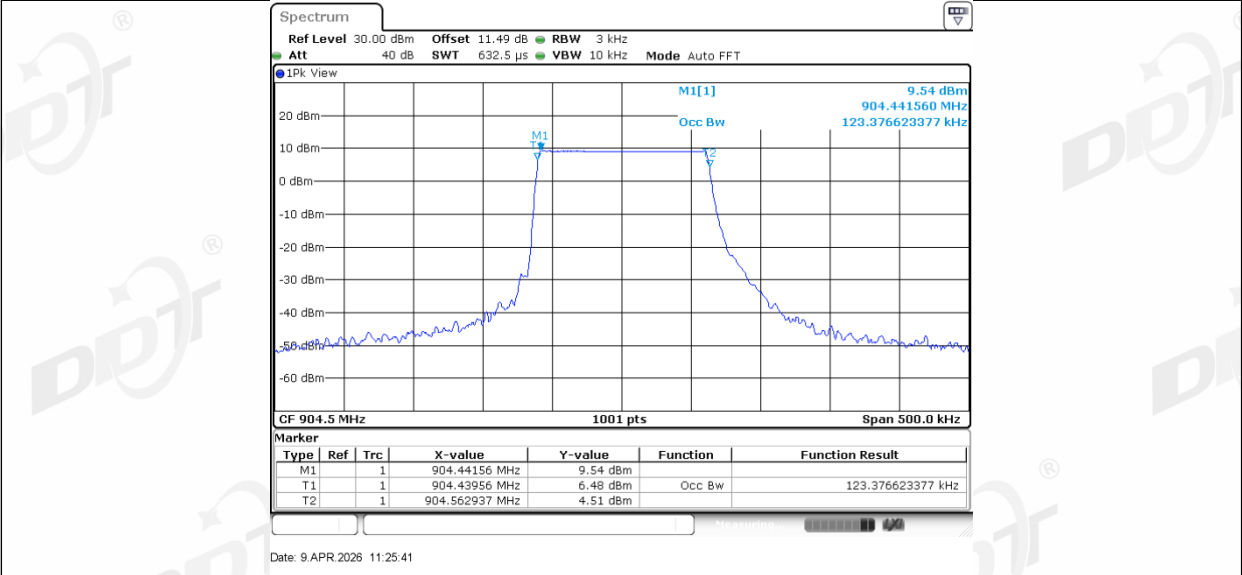
Lora Hybrid SF9_Ant1_905.3



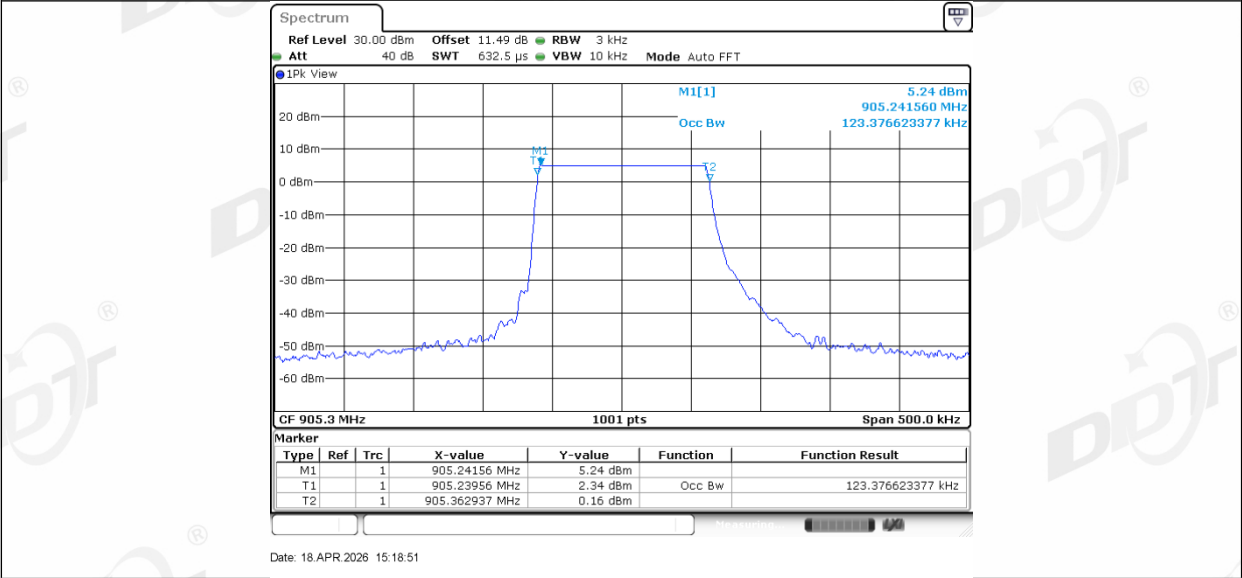
Lora Hybrid SF10_Ant1_903.9



Lora Hybrid SF10_Ant1_904.5

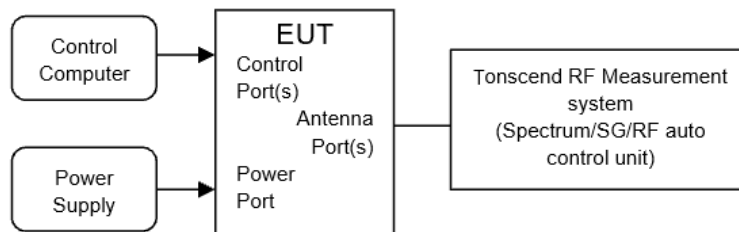


Lora Hybrid SF10_Ant1_905.3



7. Maximum Peak Output Power

7.1. Block diagram of test setup



7.2. Limits

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W.

7.3. Test procedure

- (1) The test according to ANSI C63.10 clause 7.8.5.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
- (4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

RBW:	> 20 dB bandwidth of the emission being measured.
VBW:	VBW $\geq$ RBW.
Span:	Approximately five times the 20 dB bandwidth, centered on a hopping channel.
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Max hold
- (5) Use the marker-to-peak function to set the marker to the peak of the emission and record the results in the report.

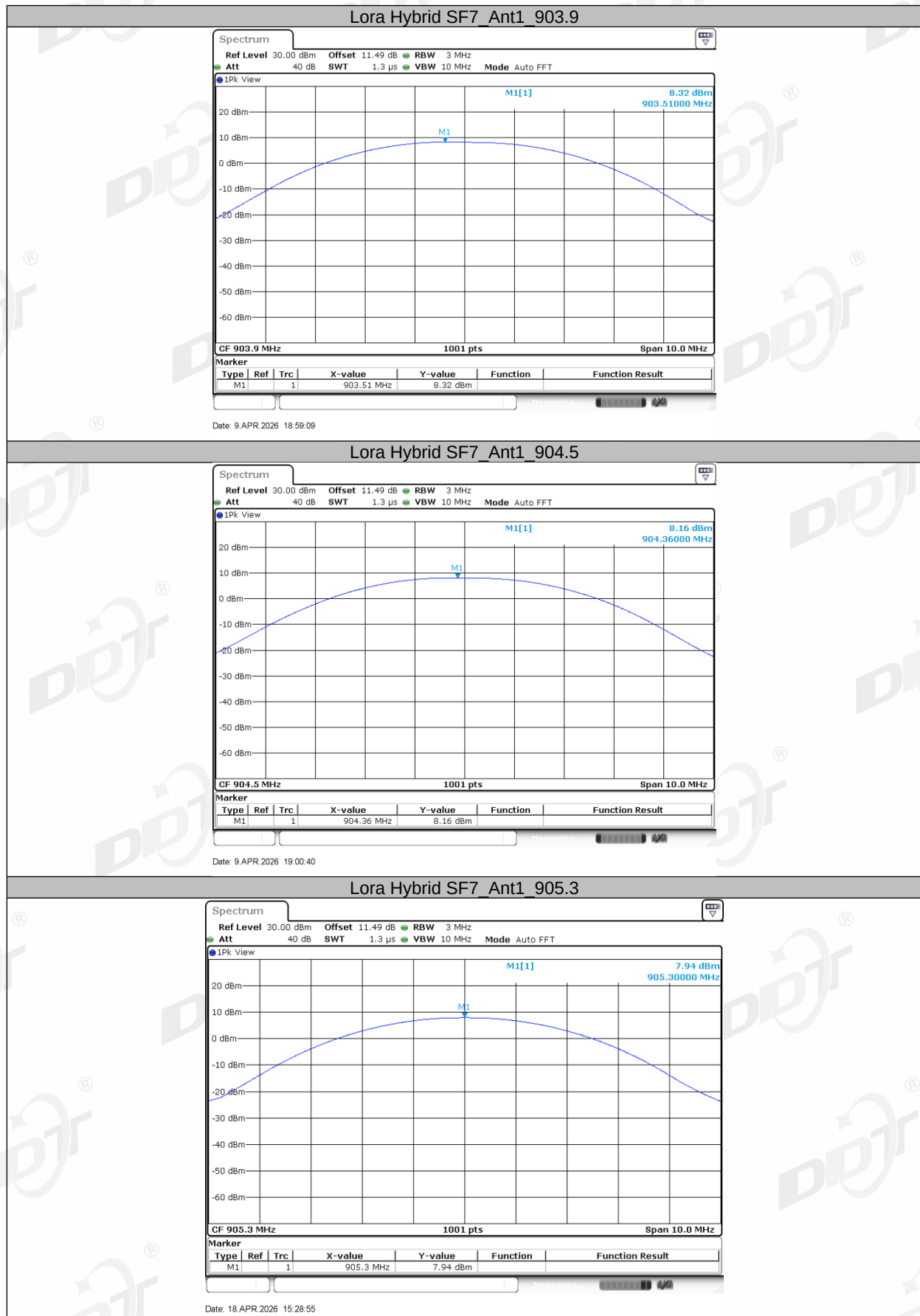
7.4. Test result

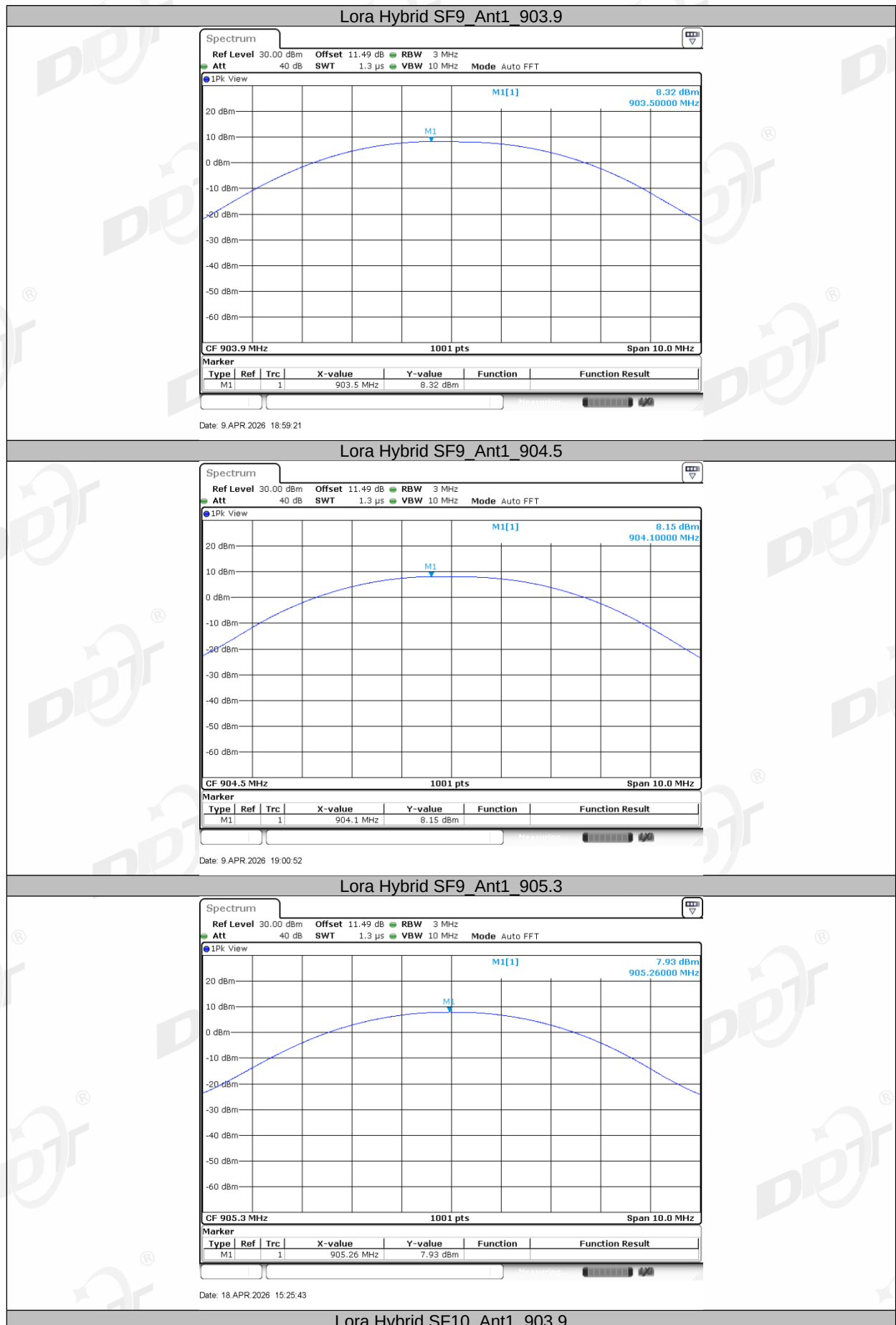
Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2℃,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

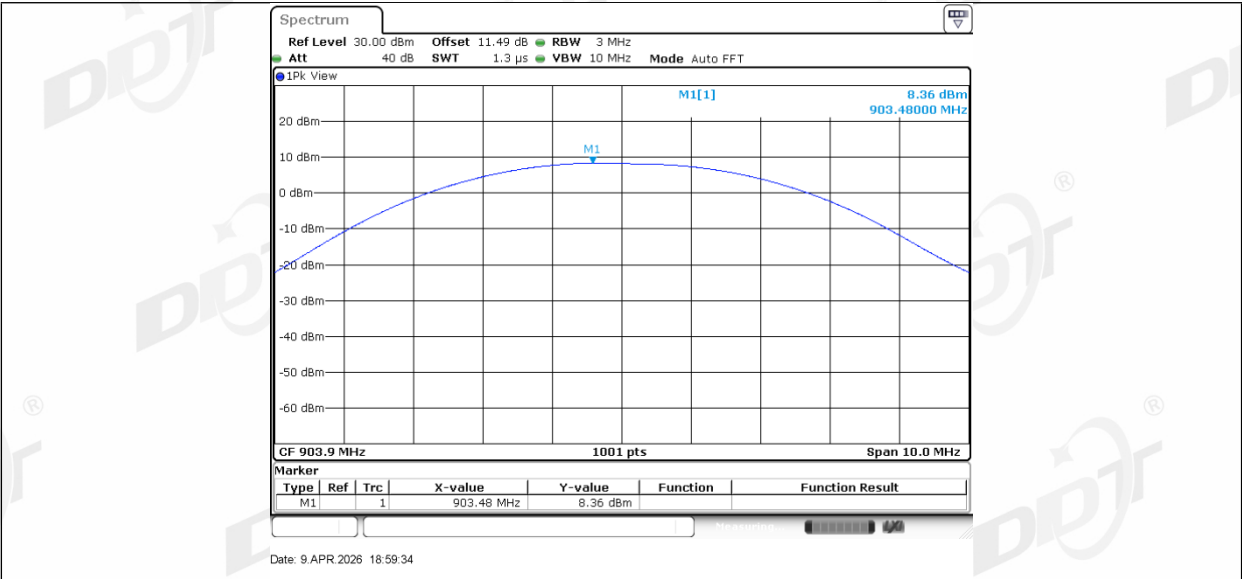
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
Lora Hybrid SF7	Ant1	903.9	8.32	≤20.97	7.45	≤36	PASS
		904.5	8.16	≤20.97	7.29	≤36	PASS
		905.3	7.94	≤20.97	7.07	≤36	PASS
Lora Hybrid SF9	Ant1	903.9	8.32	≤20.97	7.45	≤36	PASS
		904.5	8.15	≤20.97	7.28	≤36	PASS
		905.3	7.93	≤20.97	7.06	≤36	PASS
Lora Hybrid SF10	Ant1	903.9	8.36	≤20.97	7.49	≤36	PASS
		904.5	8.15	≤20.97	7.28	≤36	PASS
		905.3	7.94	≤20.97	7.07	≤36	PASS

Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
Lora DTS SF7	Ant1	923.3	10.79	≤30	9.92	≤36	PASS
		925.1	11.53	≤30	10.66	≤36	PASS
		927.5	11.06	≤30	10.19	≤36	PASS
Lora DTS SF7 SF12	Ant1	923.3	10.76	≤30	9.89	≤36	PASS
		925.1	11.58	≤30	10.71	≤36	PASS
		927.5	11.08	≤30	10.21	≤36	PASS
Lora DTS SF7 SF8	Ant1	904.6	10.09	≤30	9.22	≤36	PASS

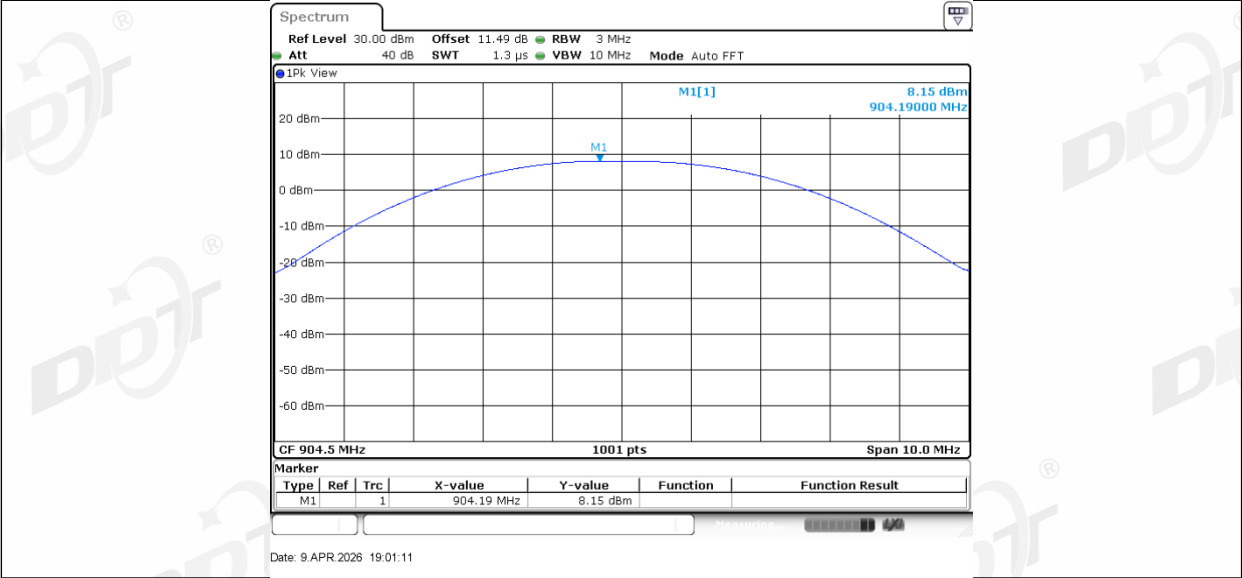
7.5. Test graphs



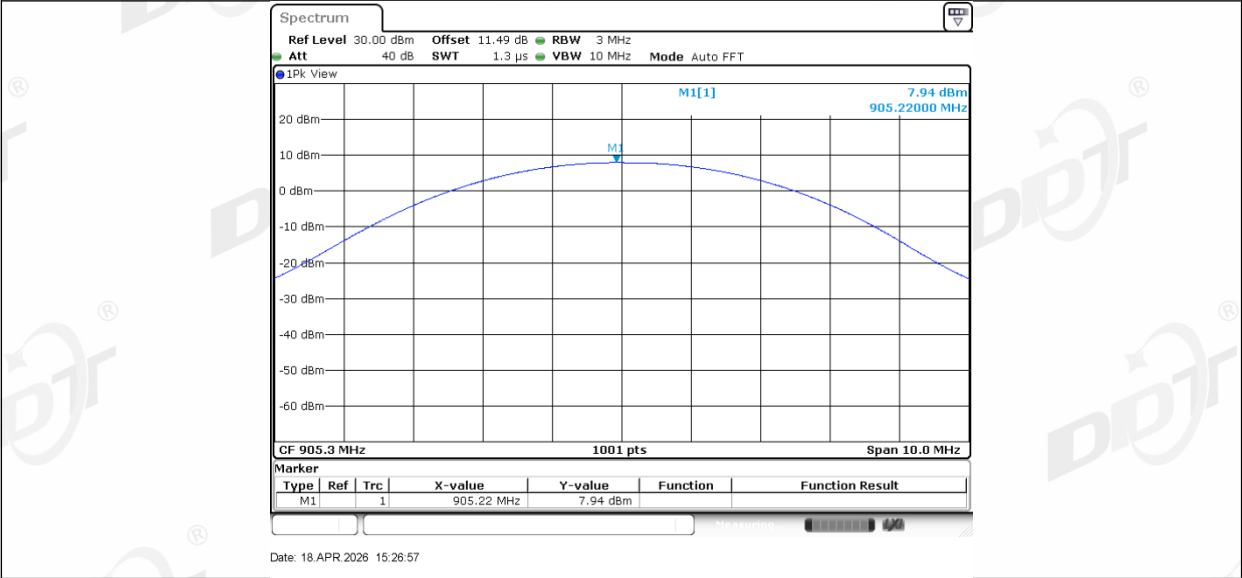




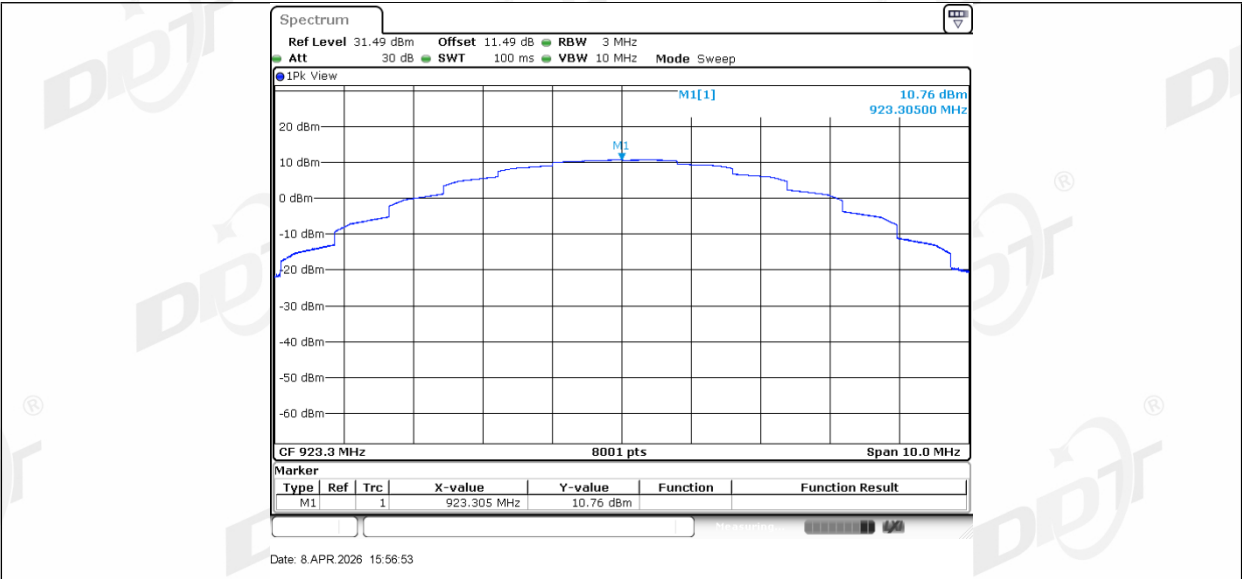
Lora Hybrid SF10 Ant1 904.5



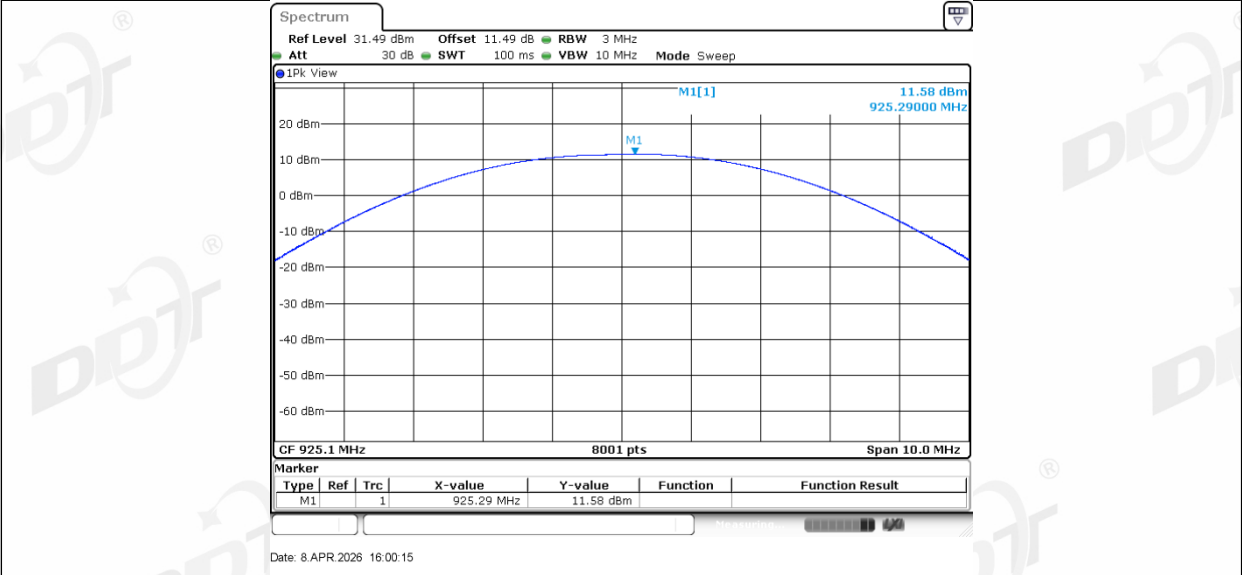
Lora Hybrid SF10 Ant1 905.3



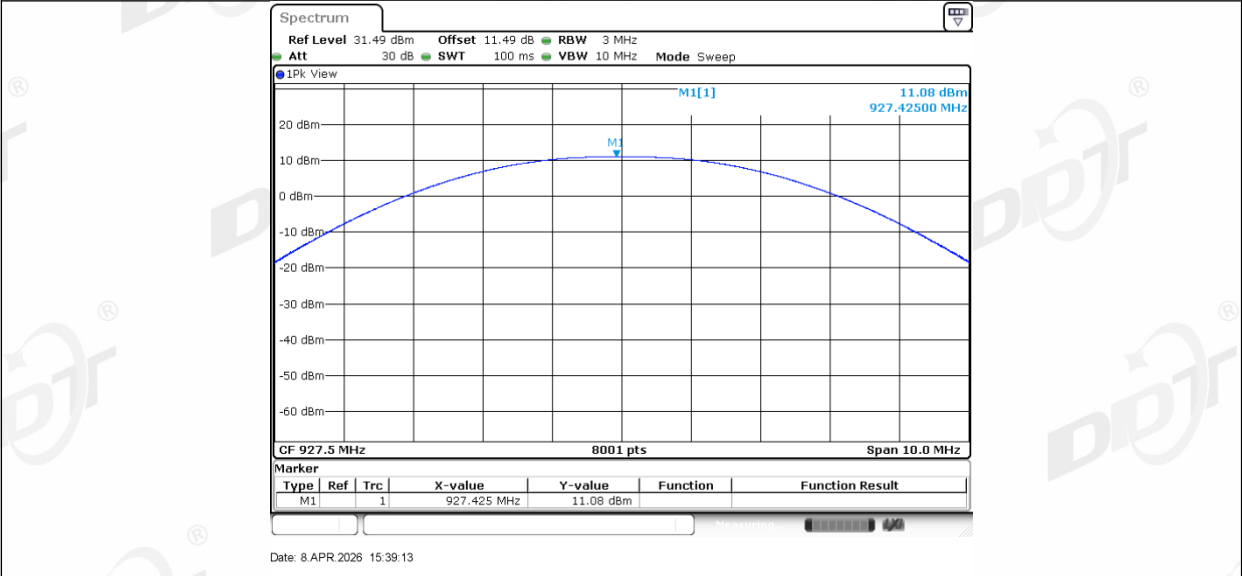




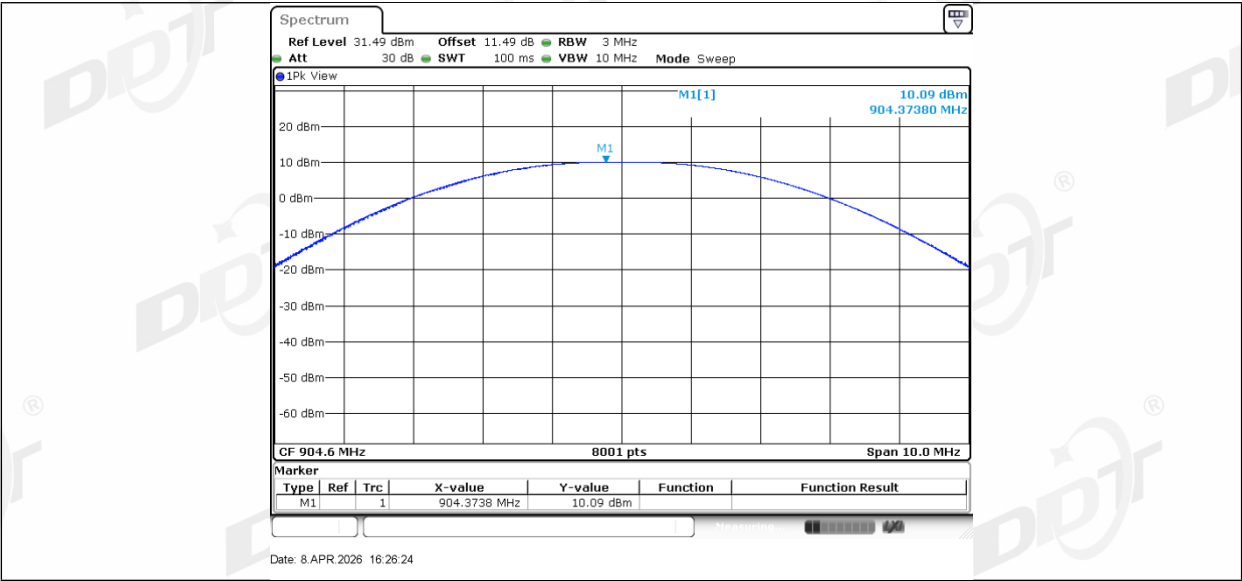
LORA DTS SF12 Ant1 925.1



LORA DTS SF12 Ant1 927.5

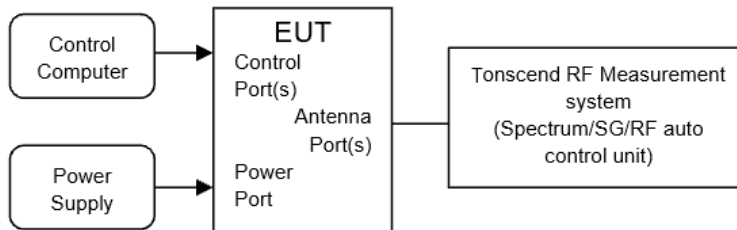


LORA DTS SF8 Ant1 904.6



8. POWER SPECTRAL DENSITY

8.1. Block diagram of test setup



8.2. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3. Test procedure

- (1) The test according to ANSI C63.10 clause 11.10.2.
 - (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
 - (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
 - (4) Use the following spectrum analyzer settings for Power Spectral Density measurement:

Center frequency	DTS Channel center frequency
RBW:	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW:	$\geq 3\text{RBW}$
Span	1.5 times the DTS bandwidth
Detector Mode:	Peak
Sweep time:	Auto
Trace mode	Max hold
 - (5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

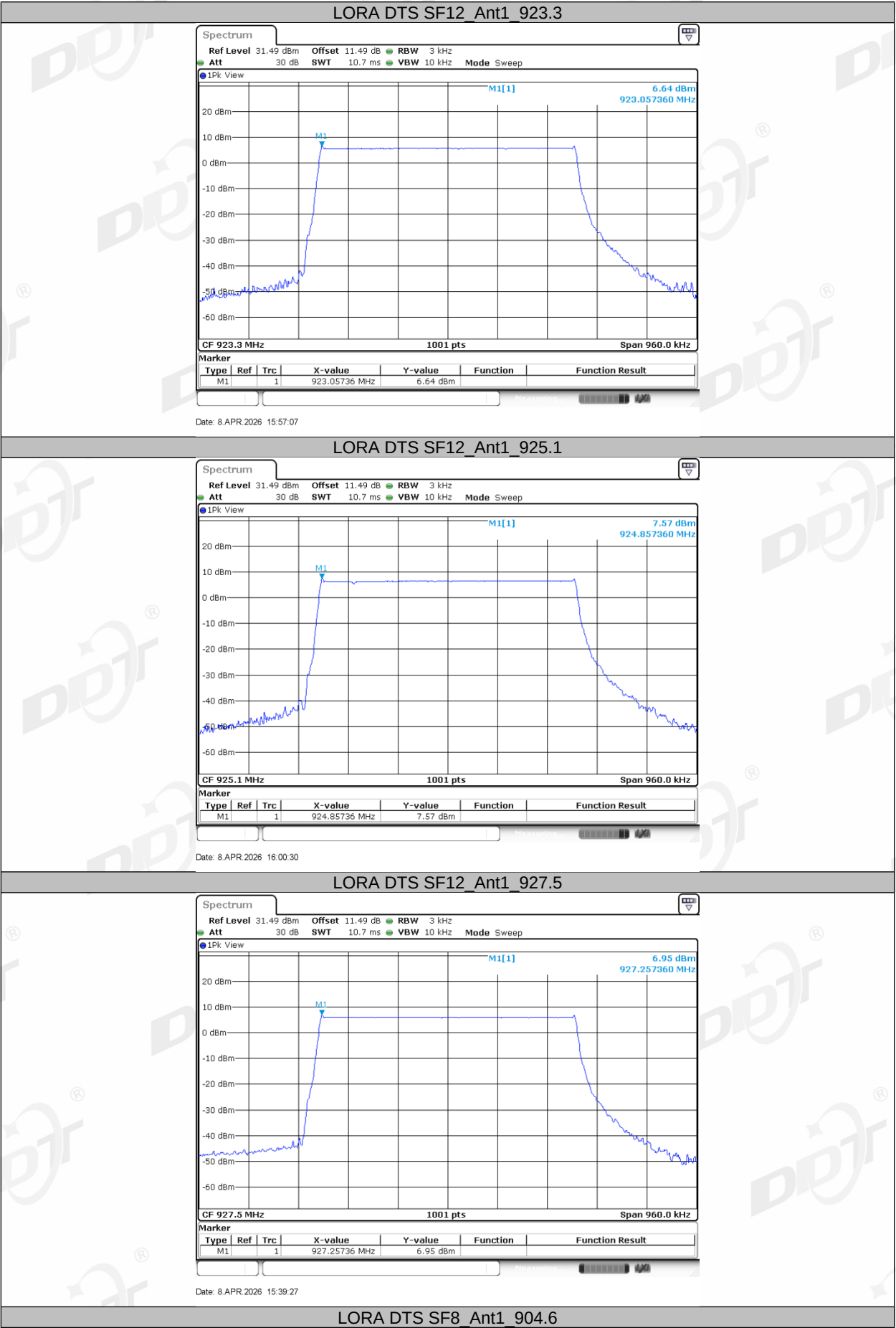
8.4. Test result

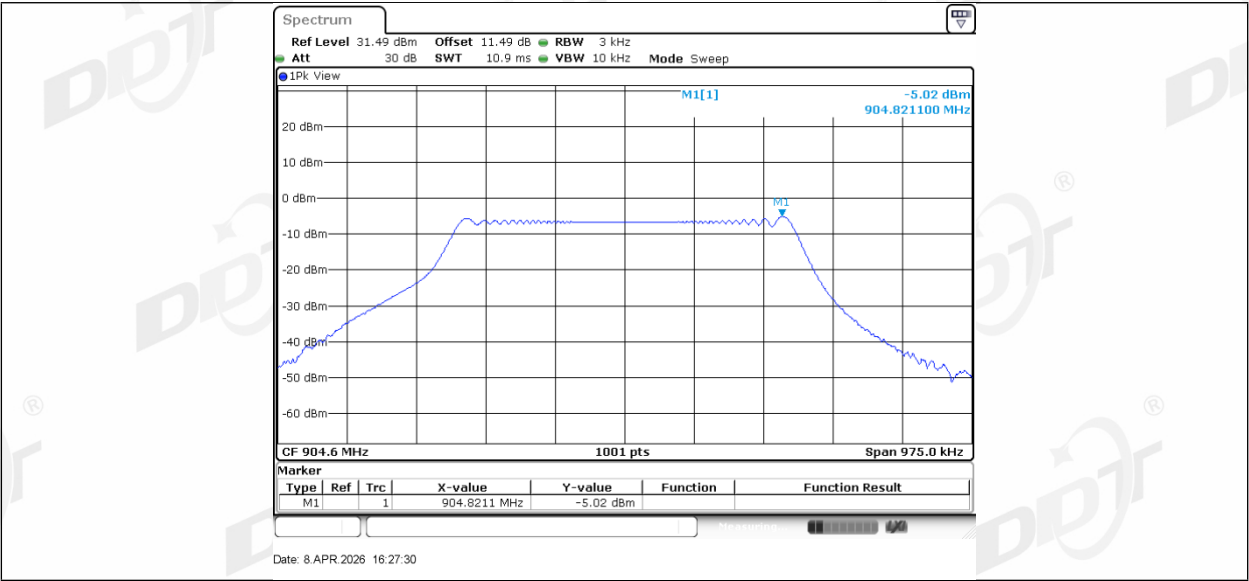
Test Engineer:	NA	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2°C,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
Lora DTS SF7	Ant1	923.3	-6.95	≤8.00	PASS
		925.1	-6.19	≤8.00	PASS
		927.5	-6.69	≤8.00	PASS
Lora DTS SF7 SF12	Ant1	923.3	6.64	≤8.00	PASS
		925.1	7.57	≤8.00	PASS
		927.5	6.95	≤8.00	PASS
Lora DTS SF7 SF8	Ant1	904.6	-5.02	≤8.00	PASS

8.5. Test graphs

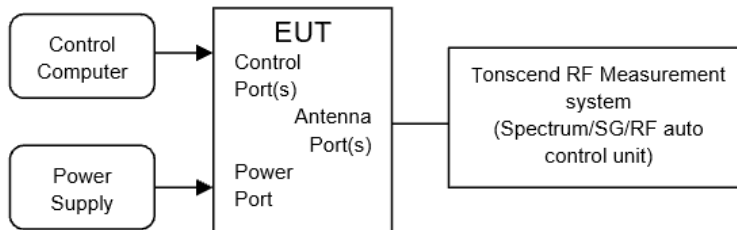






9. Carrier Frequency Separation

9.1. Block diagram of test setup



9.2. Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

9.3. Test procedure

- (1) The test according to ANSI C63.10 clause 7.8.2.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
- (4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

RBW:	approximately 30% of the channel spacing
VBW:	$VBW \geq RBW$.
Span:	Wide enough to capture the peaks of two adjacent channels.
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Max hold
- (5) Use the marker-delta function to determine the separation between the peaks of the adjacent channels and record the results in the report.

9.4. Test result

Test Engineer:	Tan Shaofeng	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2℃,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

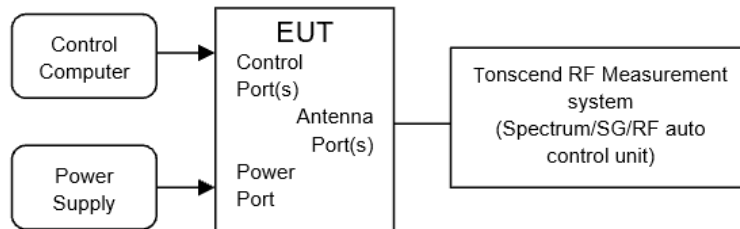
Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
Lora Hybrid SF7	Ant1	Hop	0.200	≥0.14	PASS
Lora Hybrid SF9	Ant1	Hop	0.200	≥0.14	PASS
Lora Hybrid SF10	Ant1	Hop	0.200	≥0.13	PASS

9.5. Test graphs



10. Number of Hopping Channel

10.1. Block diagram of test setup



10.2. Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

10.3. Test procedure

- (1) The test according to ANSI C63.10 clause 7.8.3.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
- (4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

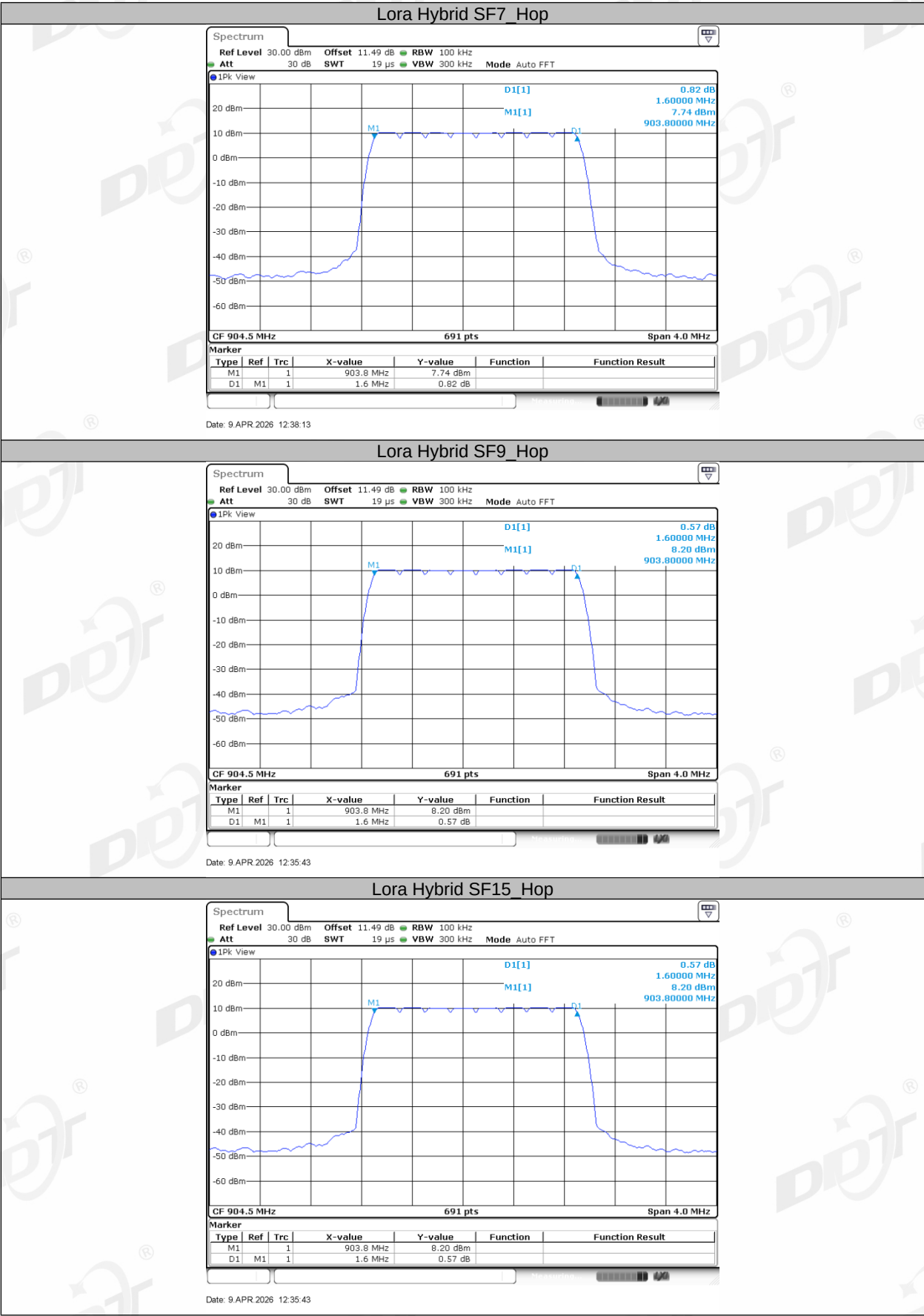
RBW:	RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
VBW:	$VBW \geq RBW$.
Span:	The frequency band of operation
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Max hold
- (5) Measure the hopping number and record the results in the report.
- (6) Measure and record the results in the report.

10.4. Test result

Test Engineer:	NA	Test Site:	RF Test System 5#
Ambient Condition:	24.3-27.2°C,39.2-44.2%RH	Test Date:	2026.4.8
Test Power Supply:	DC 5V from PC	Sample Number:	DDT-Q26030329

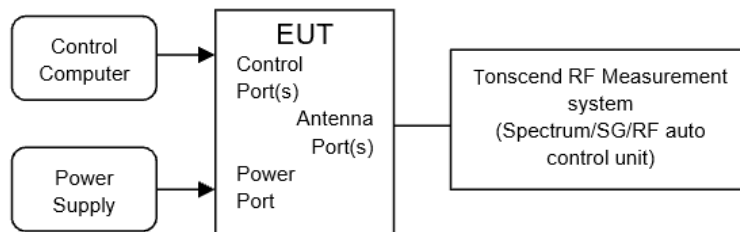
Test Mode	Antenna	Frequency [MHz]	Result [Num]	Limit [Num]	Verdict
Lora Hybrid SF7	Ant1	Hop	8	/	PASS
Lora Hybrid SF9	Ant1	Hop	8	/	PASS
Lora Hybrid SF15	Ant1	Hop	8	/	PASS

10.5. Test graphs



11. Dwell Time

11.1. Block diagram of test setup



11.2. Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

11.3. Test procedure

- (1) The test according to ANSI C63.10 clause 7.8.4.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
- (4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

RBW:	$\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$
VBW:	$VBW \geq RBW$.
Span:	Zero span, centered on a hopping channel.
Detector Mode:	Peak
Sweep time:	Auto
Trace mode:	Clear Write.
- (5) The test period: $T = 0.4 \text{ Second/Channel} \times 79 \text{ Channel} = 31.6 \text{ s}$
- (6) Measure the hopping number and on time of each pulse with spectrum analyzer in zero span set, and calculate dwell time with formula Dwell time = total hops * pulse's on time.
- (7) Measure and record the results in the report.