



FCC RF Test Report

APPLICANT : Amazon.com Services LLC
EQUIPMENT : Digital Media Device
MODEL NAME : SP24NE
FCC ID : 2A4DH-2945
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System
TEST DATE(S) : Sep. 10, 2025 ~ Oct. 20, 2025

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Product Feature of Equipment Under Test.....	5
1.3 Product Specification of Equipment Under Test.....	5
1.4 Modification of EUT	6
1.5 Testing Location	6
1.6 Test Software.....	6
1.7 Applicable Standards.....	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 Carrier Frequency and Channel	8
2.2 Test Mode.....	8
2.3 Connection Diagram of Test System.....	9
2.4 Support Unit used in test configuration and system	10
2.5 EUT Operation Test Setup	10
2.6 Measurement Results Explanation Example.....	11
3 TEST RESULT	12
3.1 6dB and 99% Bandwidth Measurement	12
3.2 Output Power Measurement.....	13
3.3 Power Spectral Density Measurement	16
3.4 Conducted Band Edges and Spurious Emission Measurement	18
3.5 Radiated Band Edges and Spurious Emission Measurement	19
3.6 AC Conducted Emission Measurement.....	23
3.7 Antenna Requirements.....	25
4 LIST OF MEASURING EQUIPMENT	26
5 MEASUREMENT UNCERTAINTY	27
APPENDIX A. CONDUCTED TEST RESULTS	
APPENDIX B. AC CONDUCTED EMISSION TEST RESULT	
APPENDIX C. RADIATED SPURIOUS EMISSION	
APPENDIX D. DUTY CYCLE PLOTS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4N2622-01C	Rev. 01	Initial issue of report	Oct. 23, 2025
FR4N2622-01C	Rev. 02	1. Updated the information of Equipment name 2. Updated the version of ANSI C63.10 This report is an updated version, replacing the report issued on Oct. 23, 2025.	Feb. 09, 2026
FR4N2622-01C	Rev. 03	Updated description in Section 2.3 This report is an updated version, replacing the report issued on Feb. 09, 2026.	Apr. 08, 2026

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	99% Bandwidth	-	Report Only	-
3.2	15.247(b)	Conducted Output Power	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.01 dB at 2485.60 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 9.60 dB at 0.170 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Amazon.com Services LLC

410 Terry Avenue N, Seattle, WA 98109-5210, United States

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Device
Model Name	SP24NE
FCC ID	2A4DH-2945
SN Code	Conducted: PN446P0253440212 Conduction: GN44D1015344002F Radiation: GN44D1015344001X

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2472 MHz
Maximum (Peak) Output Power to antenna	<Ant 1> 802.11b : 22.55 dBm (0.1799 W) 802.11g : 24.25 dBm (0.2661 W) <Ant 3> 802.11b : 22.70 dBm (0.1862 W) 802.11g : 25.26 dBm (0.3357 W) <MIMO Ant 1+3> 802.11n HT20 : 27.66 dBm (0.5834 W) 802.11ax HE20 : 27.68 dBm (0.5861 W)
99% Occupied Bandwidth	802.11b : 12.699MHz 802.11g : 17.573MHz 802.11n HT20 : 18.486MHz 802.11ax HE20 : 19.172MHz
Antenna Type / Gain	<Ant 1 > : Cavity Antenna type with gain 1.1 dBi <Ant 3> : Cavity Antenna type with gain 0.5 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ax : OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Note:

1. WLAN 802.11b/g supports SISO mode only.
2. WLAN 802.11n/ax support SISO and STBC MIMO mode.
3. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.
4. 802.11ax support OFDMA full RU tone and partial RU tone, both full RU and partial RU-left (for low



CH) and partial RU-right (for high CH) test output power, the full RU power/PSD > partial RU, therefore the full RU perform full, and partial RU verify bandedge/spurious.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH06-KS TH01-KS	CN1257	314309

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH06-KS	AUDIX	E3	210616
3.	CO01-KS	AUDIX	E3	6.2009-8-24



1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 15 Subpart C §15.247
- ♦ FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2020+Cor.1-2023

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442	-	-

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

SISO Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps

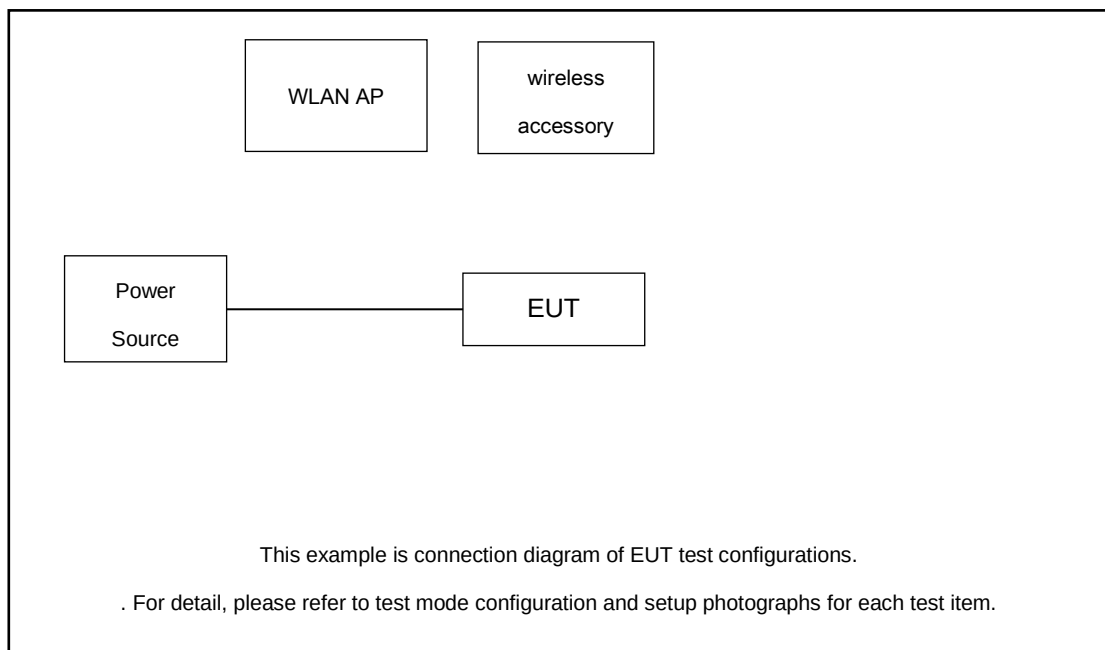
MIMO Antenna

Modulation	Data Rate
802.11n HT20	MCS0
802.11ax HE20	MCS0

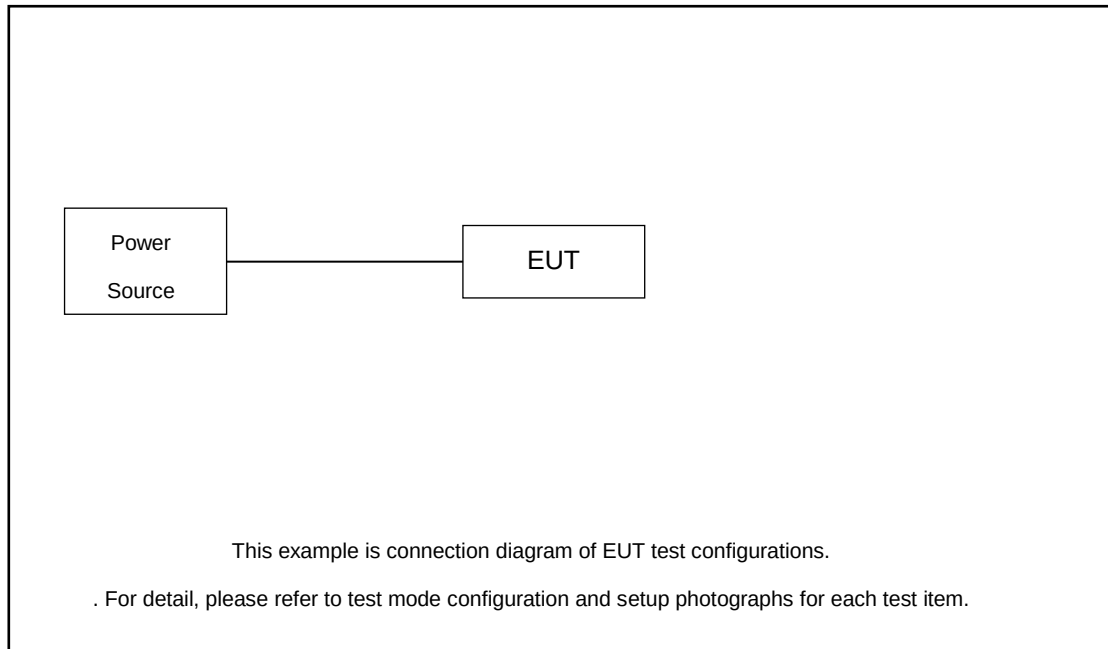
Test Cases	
AC Conducted Emission	Mode 1 :BT Link + WLAN Link(2.4G) + adaptor + USB Cable
Remark: For Radiated Test Cases, the tests were performance with Adapter and USB Cable.	

2.3 Connection Diagram of Test System

For Conducted Emission



For Radiated Emission



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Adaptor	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.



2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor which are included in RF test system.

$$\text{Offset(dB)} = 21.92 \text{ (dB)}$$

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

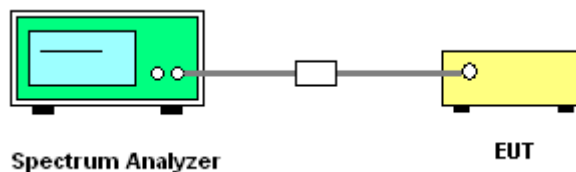
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2020 clause 11.8.1 for 6dB BW and 6.9.3 for 99% occupied bandwidth measurements
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. Set the Video bandwidth (VBW) $\geq 3 \times \text{RBW}$. Detector = Peak. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1%~5% of OBW and set the Video bandwidth (VBW) approximately three times the RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

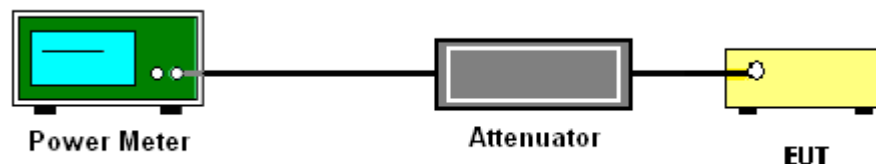
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2020 clause 11.9.1.2 PKPM1 Peak power meter or ANSI C63.10-2020 clause 11.9.2.3.1 Method AVGPM method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup





3.2.5 Test Result of Peak Output Power

TEST RESULTS DATA																			
Peak Output Power																			
2.4GHz Band																			
Mode						Power Setting	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)	Gain(dBi)			EIRP Power (dBm)			EIRP Power Limit (dBm)	Pass/Fail	
Band	N _{TX}	Channel	Freq (MHz)	Data Rate	RU Config		Ant 1	Ant 3	Ant 1+3		Ant 1	Ant 3	Ant 1+3	Ant 1	Ant 3	Ant 1+3			Ant 1+3
11b	2	1	2412	1Mbps	-	23	22.55	22.7	-	30.00	1.10	0.50	1.10	23.65	23.20	-	36.00	Pass	
11b	2	6	2437	1Mbps	-	23	22.41	22.51	-	30.00	1.10	0.50	1.10	23.51	23.01	-	36.00	Pass	
11b	2	11	2462	1Mbps	-	23	22.29	22.28	-	30.00	1.10	0.50	1.10	23.39	22.78	-	36.00	Pass	
11b	2	12	2467	1Mbps	-	23	22.09	21.99	-	30.00	1.10	0.50	1.10	23.19	22.49	-	36.00	Pass	
11b	2	13	2472	1Mbps	-	21	20.22	19.98	-	30.00	1.10	0.50	1.10	21.32	20.48	-	36.00	Pass	
11g	2	1	2412	6Mbps	-	19.5	23.49	23.82	-	30.00	1.10	0.50	1.10	24.59	24.32	-	36.00	Pass	
11g	2	6	2437	6Mbps	-	20	24.254	25.26	-	30.00	1.10	0.50	1.10	25.35	25.76	-	36.00	Pass	
11g	2	11	2462	6Mbps	-	19	22.12	22.46	-	30.00	1.10	0.50	1.10	23.22	22.96	-	36.00	Pass	
11g	2	12	2467	6Mbps	-	20	23.11	22.39	-	30.00	1.10	0.50	1.10	24.21	22.89	-	36.00	Pass	
11g	2	13	2472	6Mbps	-	15.5	19.33	19.06	-	30.00	1.10	0.50	1.10	20.43	19.56	-	36.00	Pass	
HT20	2	1	2412	MCS0	-	19	23.45	23.43	26.45	30.00	1.10	0.50	1.10	24.55	23.93	27.55	36.00	Pass	
HT20	2	6	2437	MCS0	-	20	24.08	25.15	27.66	30.00	1.10	0.50	1.10	25.18	25.65	28.76	36.00	Pass	
HT20	2	11	2462	MCS0	-	20	23.15	22.93	26.05	30.00	1.10	0.50	1.10	24.25	23.43	27.15	36.00	Pass	
HT20	2	12	2467	MCS0	-	20	23.31	23.62	26.48	30.00	1.10	0.50	1.10	24.41	24.12	27.58	36.00	Pass	
HT20	2	13	2472	MCS0	-	15.5	21.52	21.37	24.46	30.00	1.10	0.50	1.10	22.62	21.87	25.56	36.00	Pass	
HE20	2	1	2412	MCS0	Full	18	23.51	23.44	26.49	30.00	1.10	0.50	1.10	24.61	23.94	27.59	36.00	Pass	
HE20	2	1	2412	MCS0	RU 26/0	8	16.05	16.01	19.04	30.00	1.10	0.50	1.10	17.15	16.51	20.14	36.00	Pass	
HE20	2	1	2412	MCS0	RU 52/37	11	20.02	19.74	22.89	30.00	1.10	0.50	1.10	21.12	20.24	23.99	36.00	Pass	
HE20	2	1	2412	MCS0	RU 106/53	13	21.86	21.69	24.79	30.00	1.10	0.50	1.10	22.96	22.19	25.89	36.00	Pass	
HE20	2	6	2437	MCS0	Full	20	24.11	25.17	27.68	30.00	1.10	0.50	1.10	25.21	25.67	28.78	36.00	Pass	
HE20	2	6	2437	MCS0	RU 26/0	11	18.82	18.85	21.85	30.00	1.10	0.50	1.10	19.92	19.35	22.95	36.00	Pass	
HE20	2	6	2437	MCS0	RU 52/37	13.5	21.5	21.11	24.32	30.00	1.10	0.50	1.10	22.60	21.61	25.42	36.00	Pass	
HE20	2	6	2437	MCS0	RU 106/53	15.5	23.18	22.98	26.09	30.00	1.10	0.50	1.10	24.28	23.48	27.19	36.00	Pass	
HE20	2	11	2462	MCS0	Full	19.5	23.36	23.67	26.53	30.00	1.10	0.50	1.10	24.46	24.17	27.63	36.00	Pass	
HE20	2	11	2462	MCS0	RU 26/8	10.5	18.23	17.53	20.90	30.00	1.10	0.50	1.10	19.33	18.03	22.00	36.00	Pass	
HE20	2	11	2462	MCS0	RU 52/40	13	21.37	20.79	24.10	30.00	1.10	0.50	1.10	22.47	21.29	25.20	36.00	Pass	
HE20	2	11	2462	MCS0	RU 106/54	14.5	23.04	22.94	26.00	30.00	1.10	0.50	1.10	24.14	23.44	27.10	36.00	Pass	
HE20	2	12	2467	MCS0	Full	20	23.46	24.07	26.79	30.00	1.10	0.50	1.10	24.56	24.57	27.89	36.00	Pass	
HE20	2	12	2467	MCS0	RU 26/8	11	19.04	18.62	21.85	30.00	1.10	0.50	1.10	20.14	19.12	22.95	36.00	Pass	
HE20	2	12	2467	MCS0	RU 52/40	13.5	22.02	21.68	24.86	30.00	1.10	0.50	1.10	23.12	22.18	25.96	36.00	Pass	
HE20	2	12	2467	MCS0	RU 106/54	15	23.43	23.38	26.42	30.00	1.10	0.50	1.10	24.53	23.88	27.52	36.00	Pass	
HE20	2	13	2472	MCS0	Full	14.5	21.56	21.42	24.50	30.00	1.10	0.50	1.10	22.66	21.92	25.60	36.00	Pass	
HE20	2	13	2472	MCS0	RU 26/8	2.5	10.58	9.79	13.21	30.00	1.10	0.50	1.10	11.68	10.29	14.31	36.00	Pass	
HE20	2	13	2472	MCS0	RU 52/40	4.5	13.61	12.96	16.31	30.00	1.10	0.50	1.10	14.71	13.46	17.41	36.00	Pass	
HE20	2	13	2472	MCS0	RU 106/54	6	14.28	13.16	16.77	30.00	1.10	0.50	1.10	15.38	13.66	17.87	36.00	Pass	



3.2.6 Test Result of Average Output Power (Reporting Only)

TEST RESULTS DATA																			
Average Output Power																			
2.4GHz Band																			
Mode						Power Setting	Power Setting	Average Conducted Power with duty factor(dBm)			Conducted Power Limit (dBm)	Gain(dBi)			EIRP Power (dBm)			EIRP Power Limit (dBm)	Pass/Fail
								Ant 1	Ant 3	Ant 1+3		Ant 1	Ant 3	Ant 1+3	Ant 1	Ant 3	Ant 1+3		
Band	N _{TX}	Channel	Freq (MHz)	Data Rate	RU Config	Ant 1	Ant 3	Ant 1	Ant 3	Ant 1+3		Ant 1	Ant 3	Ant 1+3	Ant 1	Ant 3	Ant 1+3		
11b	2	1	2412	1Mbps	-	23	23	19.79	20.15	-	30.00	1.10	0.50	1.10	20.89	20.65	-	36.00	Pass
11b	2	6	2437	1Mbps	-	23	23	19.78	19.92	-	30.00	1.10	0.50	1.10	20.88	20.42	-	36.00	Pass
11b	2	11	2462	1Mbps	-	23	23	19.69	19.77	-	30.00	1.10	0.50	1.10	20.79	20.27	-	36.00	Pass
11b	2	12	2467	1Mbps	-	23	23	19.42	19.51	-	30.00	1.10	0.50	1.10	20.52	20.01	-	36.00	Pass
11b	2	13	2472	1Mbps	-	21	21	17.62	17.66	-	30.00	1.10	0.50	1.10	18.72	18.16	-	36.00	Pass
11g	2	1	2412	6Mbps	-	19.5	20	17.39	17.62	-	30.00	1.10	0.50	1.10	18.49	18.12	-	36.00	Pass
11g	2	6	2437	6Mbps	-	20	20	17.52	17.51	-	30.00	1.10	0.50	1.10	18.62	18.01	-	36.00	Pass
11g	2	11	2462	6Mbps	-	19	20	16.30	17.02	-	30.00	1.10	0.50	1.10	17.40	17.52	-	36.00	Pass
11g	2	12	2467	6Mbps	-	20	20	17.20	17.06	-	30.00	1.10	0.50	1.10	18.30	17.56	-	36.00	Pass
11g	2	13	2472	6Mbps	-	15.5	15.5	13.18	13.07	-	30.00	1.10	0.50	1.10	14.28	13.57	-	36.00	Pass
HT20	2	1	2412	MCS0	-	19		15.95	15.93	18.95	30.00	1.10	0.50	1.10	17.05	16.43	20.05	36.00	Pass
HT20	2	6	2437	MCS0	-	20		17.42	17.65	20.54	30.00	1.10	0.50	1.10	18.52	18.15	21.64	36.00	Pass
HT20	2	11	2462	MCS0	-	20		16.90	16.73	19.82	30.00	1.10	0.50	1.10	18.00	17.23	20.92	36.00	Pass
HT20	2	12	2467	MCS0	-	20		17.20	17.25	20.23	30.00	1.10	0.50	1.10	18.30	17.75	21.33	36.00	Pass
HT20	2	13	2472	MCS0	-	15.5		12.60	12.37	15.49	30.00	1.10	0.50	1.10	13.70	12.87	16.59	36.00	Pass
HE20	2	1	2412	MCS0	Full	18		16.16	16.10	19.14	30.00	1.10	0.50	1.10	17.26	16.60	20.24	36.00	Pass
HE20	2	1	2412	MCS0	RU 26/0	8		6.48	6.11	9.31	30.00	1.10	0.50	1.10	7.58	6.61	10.41	36.00	Pass
HE20	2	1	2412	MCS0	RU 52/37	11		9.83	9.41	12.64	30.00	1.10	0.50	1.10	10.93	9.91	13.74	36.00	Pass
HE20	2	1	2412	MCS0	RU 106/53	13		11.65	11.22	14.45	30.00	1.10	0.50	1.10	12.75	11.72	15.55	36.00	Pass
HE20	2	6	2437	MCS0	Full	20		17.62	17.82	20.73	30.00	1.10	0.50	1.10	18.72	18.32	21.83	36.00	Pass
HE20	2	6	2437	MCS0	RU 26/0	11		9.21	8.32	11.79	30.00	1.10	0.50	1.10	10.31	8.82	12.89	36.00	Pass
HE20	2	6	2437	MCS0	RU 52/37	13.5		11.58	10.79	14.21	30.00	1.10	0.50	1.10	12.68	11.29	15.31	36.00	Pass
HE20	2	6	2437	MCS0	RU 106/53	15.5		13.99	13.76	16.89	30.00	1.10	0.50	1.10	15.09	14.26	17.99	36.00	Pass
HE20	2	11	2462	MCS0	Full	19.5		17.11	16.92	20.03	30.00	1.10	0.50	1.10	18.21	17.42	21.13	36.00	Pass
HE20	2	11	2462	MCS0	RU 26/8	10.5		8.64	7.62	11.17	30.00	1.10	0.50	1.10	9.74	8.12	12.27	36.00	Pass
HE20	2	11	2462	MCS0	RU 52/40	13		11.04	10.12	13.62	30.00	1.10	0.50	1.10	12.14	10.62	14.72	36.00	Pass
HE20	2	11	2462	MCS0	RU 106/54	14.5		12.97	12.73	15.86	30.00	1.10	0.50	1.10	14.07	13.23	16.96	36.00	Pass
HE20	2	12	2467	MCS0	Full	20		17.40	17.44	20.43	30.00	1.10	0.50	1.10	18.50	17.94	21.53	36.00	Pass
HE20	2	12	2467	MCS0	RU 26/8	11		9.29	8.74	12.03	30.00	1.10	0.50	1.10	10.39	9.24	13.13	36.00	Pass
HE20	2	12	2467	MCS0	RU 52/40	13.5		11.63	11.11	14.39	30.00	1.10	0.50	1.10	12.73	11.61	15.49	36.00	Pass
HE20	2	12	2467	MCS0	RU 106/54	15		13.79	13.70	16.76	30.00	1.10	0.50	1.10	14.89	14.20	17.86	36.00	Pass
HE20	2	13	2472	MCS0	Full	14.5		12.79	12.54	15.68	30.00	1.10	0.50	1.10	13.89	13.04	16.78	36.00	Pass
HE20	2	13	2472	MCS0	RU 26/8	2.5		0.92	-0.27	3.37	30.00	1.10	0.50	1.10	2.02	0.23	4.47	36.00	Pass
HE20	2	13	2472	MCS0	RU 52/40	4.5		3.11	1.94	5.58	30.00	1.10	0.50	1.10	4.21	2.44	6.68	36.00	Pass
HE20	2	13	2472	MCS0	RU 106/54	6		4.43	3.35	6.93	30.00	1.10	0.50	1.10	5.53	3.85	8.03	36.00	Pass



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

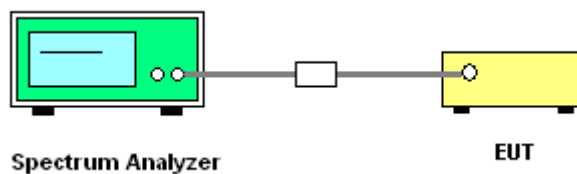
3.3.3 Test Procedures

1. The testing follows Measurement Procedure of ANSI C63.10-2020 clause 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01:

Method (b): Measure and sum spectral maxima across the outputs.

The measurement on each individual output were performed with the same span and number on each individual output. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

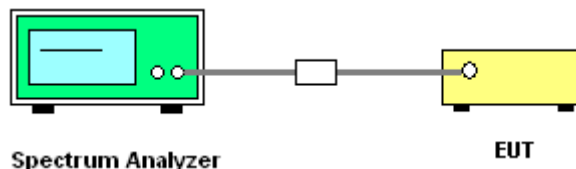
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2020 clause 11.11.3
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Please refer to Appendix A.



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

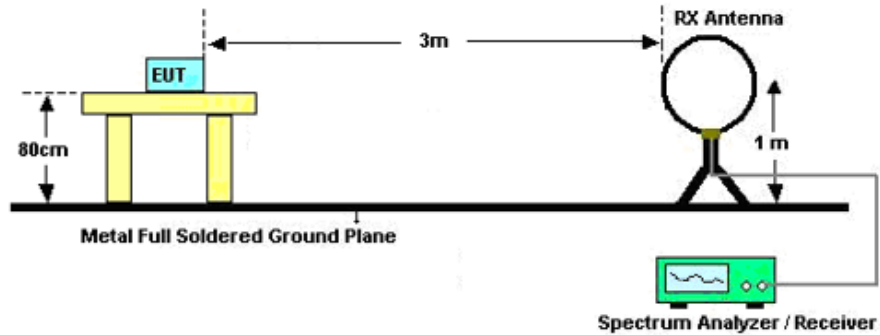
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

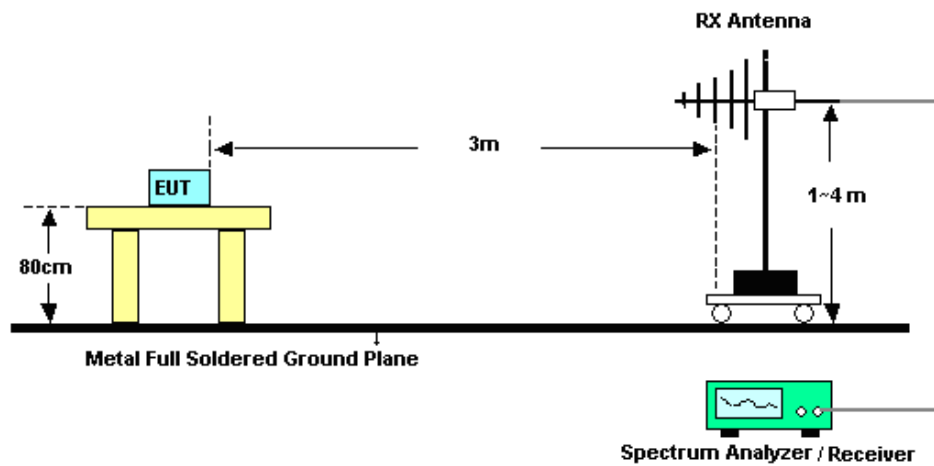
1. The testing follows ANSI C63.10-2020 clause 6.3, 6.5, 6.6, 11.11 and 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

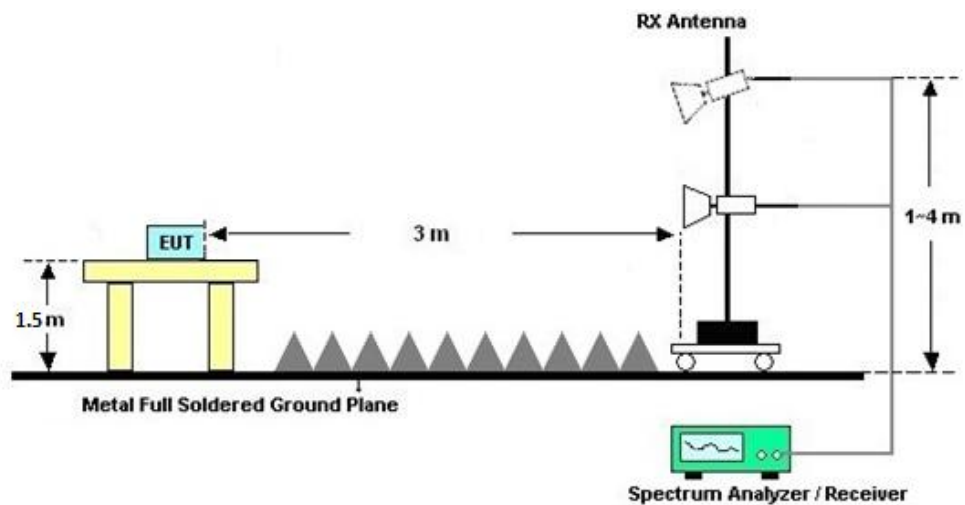
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



**3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)**

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

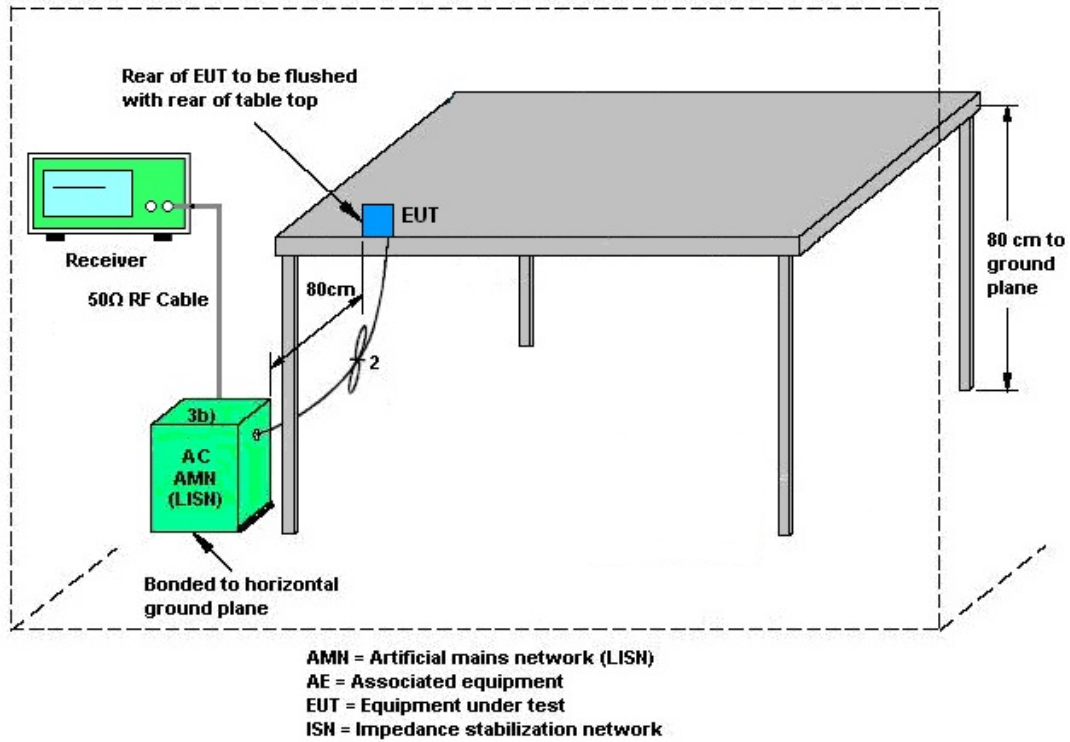
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<STBC Modes>

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

The EUT supports STBC mode for 802 11n/ax

For completely uncorrelated transmissions, directional gain is calculated as,

Directional gain = GANT MAX(Ant.1 Gain, Ant.3 Gain,...), as following table:

<STBC Modes>						
			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant. 1	Ant. 3	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	1.10	0.50	1.10	1.10	0.00	0.00



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 10, 2024	Sep. 21, 2025~ Sep. 24, 2025	Oct. 09, 2025	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2025	Sep. 21, 2025~ Sep. 24, 2025	Jan. 01, 2026	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2025	Sep. 21, 2025~ Sep. 24, 2025	Jan. 01, 2026	Conducted (TH01-KS)
RF Test System	Tonscend	TS1120-3	N/A	N/A	NCR	Sep. 21, 2025~ Sep. 24, 2025	NCR	Conducted (TH01-KS)
automation control unit	Tonscend	JS0806-2	21H8060473	N/A	NCR	Sep. 21, 2025~ Sep. 24, 2025	NCR	Conducted (TH01-KS)
power control unit	Tonscend	JS0806-4ADC	21J8060495	N/A	NCR	Sep. 21, 2025~ Sep. 24, 2025	NCR	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY57290157	3Hz~8.5GHz;Max 30dBm	Feb. 22, 2025	Sep. 10, 2025~ Sep. 13, 2025	Feb. 21, 2026	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471084	10Hz~44GHz	Jul. 04, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jul. 03, 2026	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2025	Sep. 10, 2025~ Sep. 13, 2025	Sep. 07, 2026	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz~1GHz	Sep. 03, 2025	Sep. 10, 2025~ Sep. 13, 2025	Sep. 02, 2026	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251694	1GHz~18GHz	Jul. 06, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jul. 05, 2026	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101116	18GHz~40GHz	Oct. 22, 2024	Sep. 10, 2025~ Sep. 13, 2025	Oct. 21, 2025	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 04, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jul. 03, 2026	Radiation (03CH06-KS)
Amplifier	EM	EM18G40GA	060728	18~40GHz	Jan. 03, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jan. 02, 2026	Radiation (03CH06-KS)
high gain Amplifier	EM	EM01G18GA	060845	1Ghz-18Ghz	Jan. 03, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jan. 02, 2026	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY57280119	500MHz~26.5GHz	Oct. 09, 2024	Sep. 10, 2025~ Sep. 13, 2025	Oct. 08, 2025	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Sep. 10, 2025~ Sep. 13, 2025	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Sep. 10, 2025~ Sep. 13, 2025	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Sep. 10, 2025~ Sep. 13, 2025	NCR	Radiation (03CH06-KS)
6db attenuator	TOJOIN	SMA(JK)	EMC02	2W/DC-18G	Jul. 30, 2025	Sep. 10, 2025~ Sep. 13, 2025	Jul. 29, 2026	Radiation (03CH06-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr 16, 2025	Oct. 20, 2025	Apr 15, 2026	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Aug. 20, 2025	Oct. 20, 2025	Aug. 19, 2026	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Dec. 24, 2024	Oct. 20, 2025	Dec. 23, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000811	AC 0V~300V, 45Hz~1000Hz	Oct. 09, 2025	Oct. 20, 2025	Oct. 08, 2026	Conduction (CO01-KS)

NCR: No Calibration Required



5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	±2.00 dB
Occupied Channel Bandwidth	±0.384%
Conducted Power	±0.90 dB
Conducted Power Spectral Density	±0.90 dB
Frequency	±0.38 Hz

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.84 dB
---	---------

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.3 dB
---	--------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.18 dB
---	---------

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.88 dB
---	---------

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.36 dB
---	---------

----- THE END -----



Appendix A. Conducted Test Results



Ambient Condition: 25 °C, 45 %RH

According Standard: ■Part15C

Test Date: 2025.9.21~2025.9.24

Test Engineer: Jiang Jun

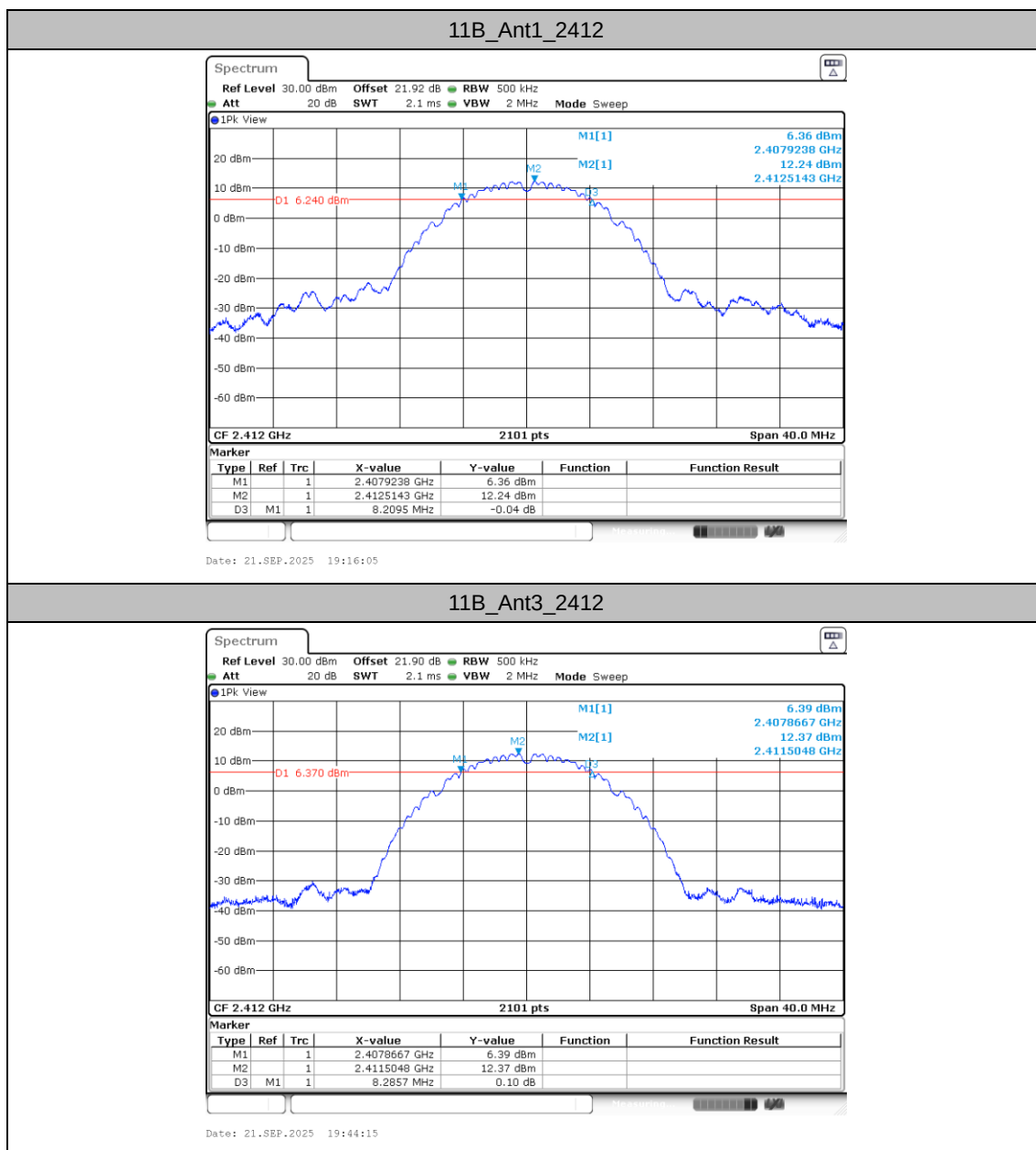
DTS Bandwidth

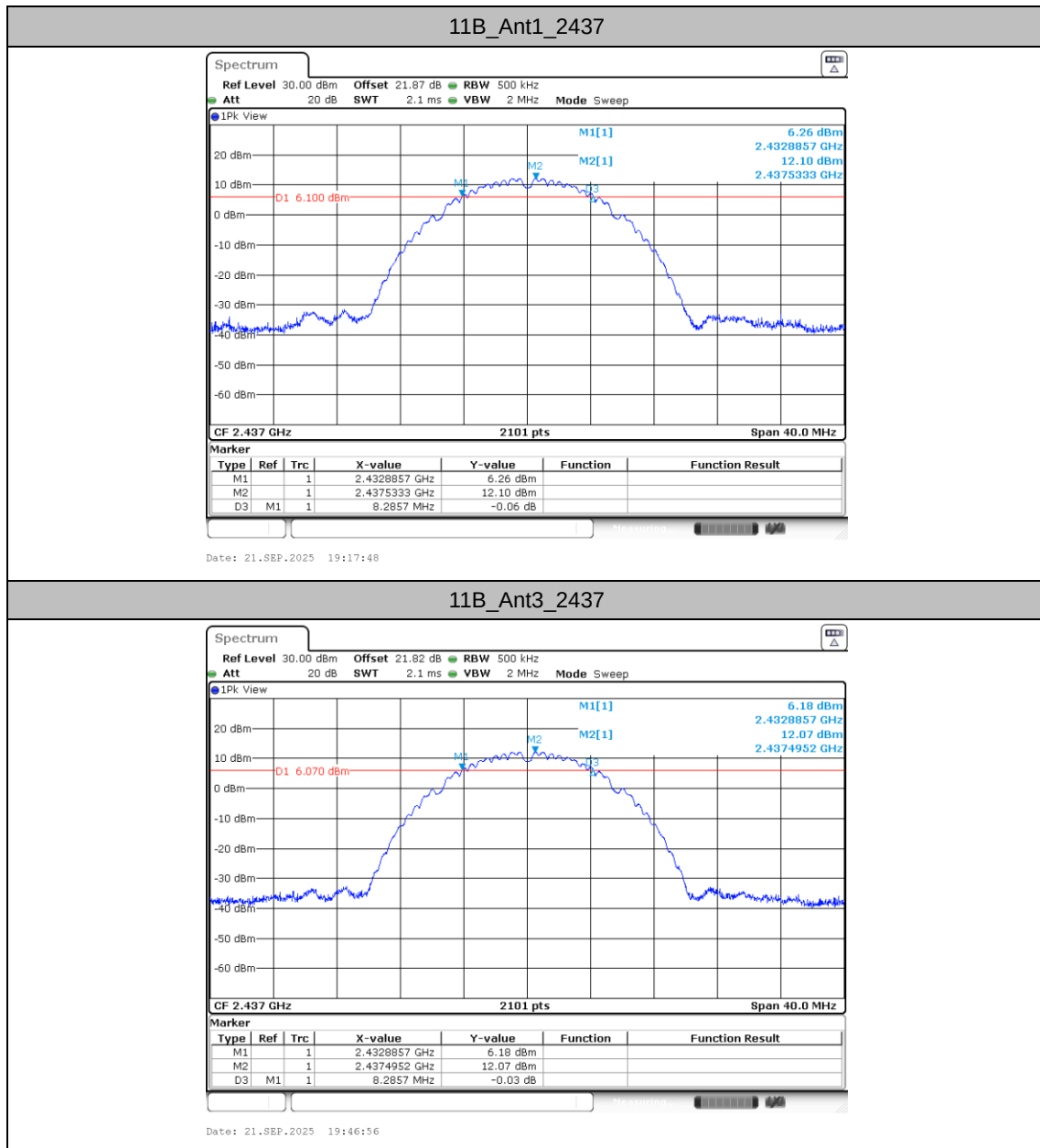
Test Result

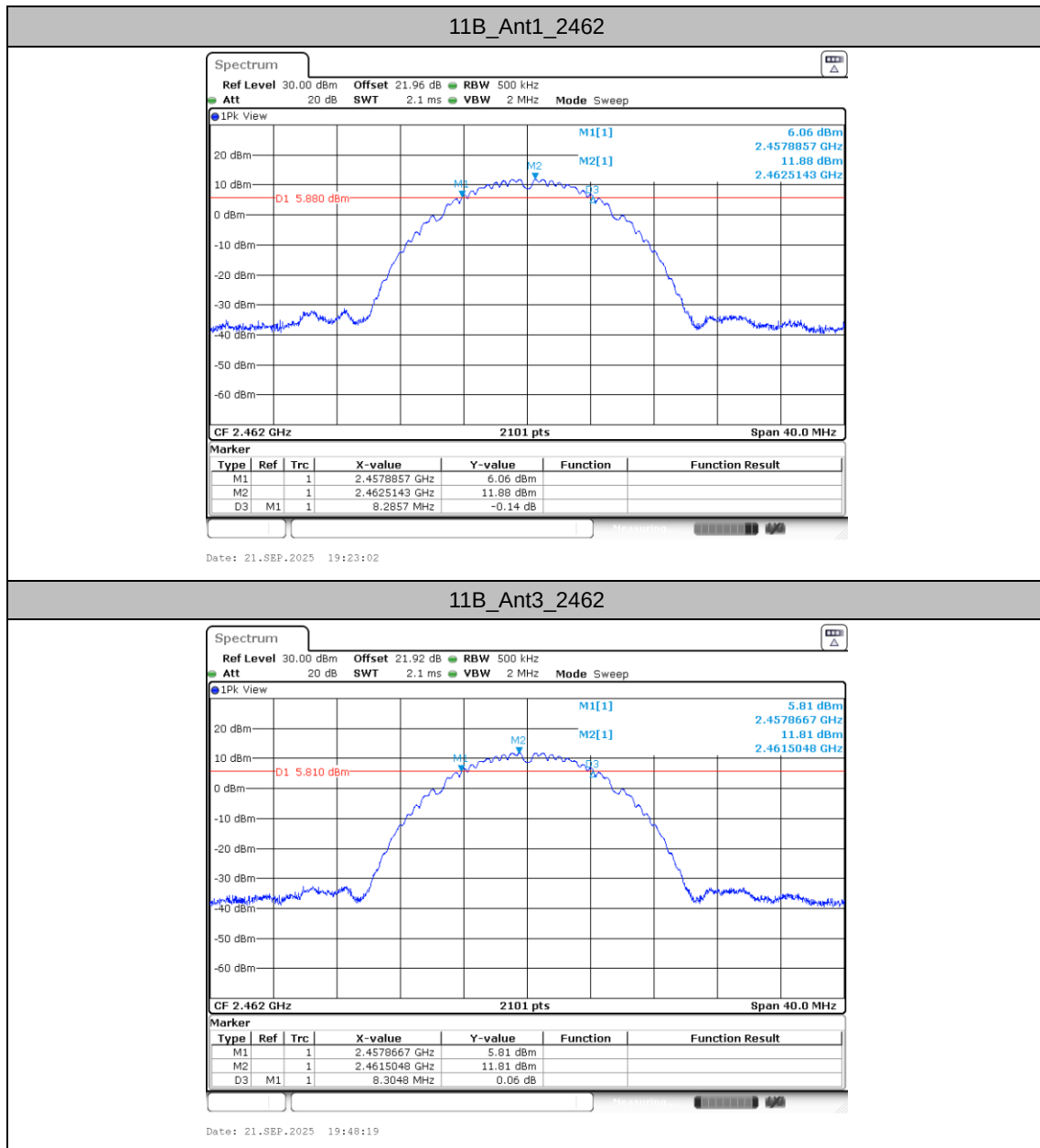
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.21	2407.92	2416.13	0.5	PASS
	Ant3	2412	8.29	2407.87	2416.15	0.5	PASS
	Ant1	2437	8.29	2432.89	2441.17	0.5	PASS
	Ant3	2437	8.29	2432.89	2441.17	0.5	PASS
	Ant1	2462	8.29	2457.89	2466.17	0.5	PASS
	Ant3	2462	8.30	2457.87	2466.17	0.5	PASS
	Ant1	2467	8.30	2462.87	2471.17	0.5	PASS
	Ant3	2467	8.29	2462.89	2471.17	0.5	PASS
	Ant1	2472	8.30	2467.87	2476.17	0.5	PASS
11G	Ant3	2472	8.29	2467.87	2476.15	0.5	PASS
	Ant1	2412	16.53	2403.64	2420.17	0.5	PASS
	Ant3	2412	16.51	2403.70	2420.21	0.5	PASS
	Ant1	2437	16.34	2428.89	2445.23	0.5	PASS
	Ant3	2437	16.36	2428.87	2445.23	0.5	PASS
	Ant1	2462	16.38	2453.85	2470.23	0.5	PASS
	Ant3	2462	16.38	2453.85	2470.23	0.5	PASS
	Ant1	2467	16.38	2458.87	2475.25	0.5	PASS
	Ant3	2467	16.36	2458.85	2475.21	0.5	PASS
11N20MIMO	Ant1	2472	16.40	2463.87	2480.27	0.5	PASS
	Ant3	2472	16.46	2463.83	2480.29	0.5	PASS
	Ant1	2412	17.73	2403.07	2420.80	0.5	PASS
	Ant3	2412	17.56	2403.18	2420.74	0.5	PASS
	Ant1	2437	17.56	2428.26	2445.82	0.5	PASS
	Ant3	2437	16.91	2428.54	2445.46	0.5	PASS
	Ant1	2462	17.56	2453.22	2470.78	0.5	PASS
	Ant3	2462	17.33	2453.33	2470.67	0.5	PASS
	Ant1	2467	17.68	2458.16	2475.84	0.5	PASS
11AX20MIMO	Ant3	2467	17.60	2458.26	2475.86	0.5	PASS
	Ant1	2472	17.62	2463.20	2480.82	0.5	PASS
	Ant3	2472	17.52	2463.33	2480.86	0.5	PASS
	Ant1	2412	18.93	2402.51	2421.45	0.5	PASS
	Ant3	2412	18.97	2402.53	2421.50	0.5	PASS
	Ant1	2437	18.74	2427.69	2446.43	0.5	PASS
	Ant3	2437	18.78	2427.65	2446.43	0.5	PASS
	Ant1	2462	18.86	2452.55	2471.41	0.5	PASS
	Ant3	2462	18.93	2452.55	2471.49	0.5	PASS
	Ant1	2467	18.91	2457.55	2476.47	0.5	PASS
	Ant3	2467	18.86	2457.59	2476.45	0.5	PASS
	Ant1	2472	18.93	2462.57	2481.50	0.5	PASS
	Ant3	2472	18.93	2462.57	2481.50	0.5	PASS

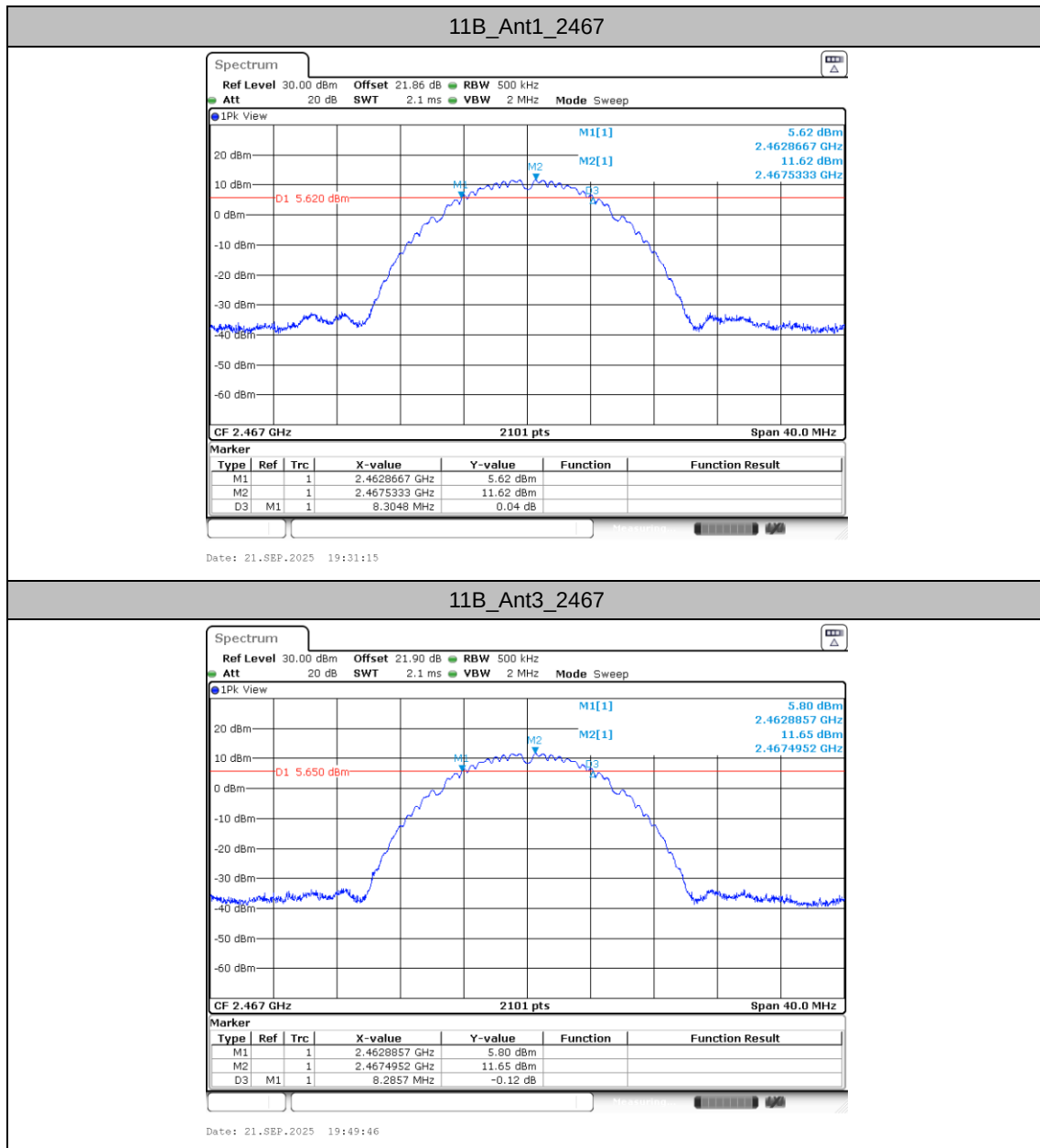


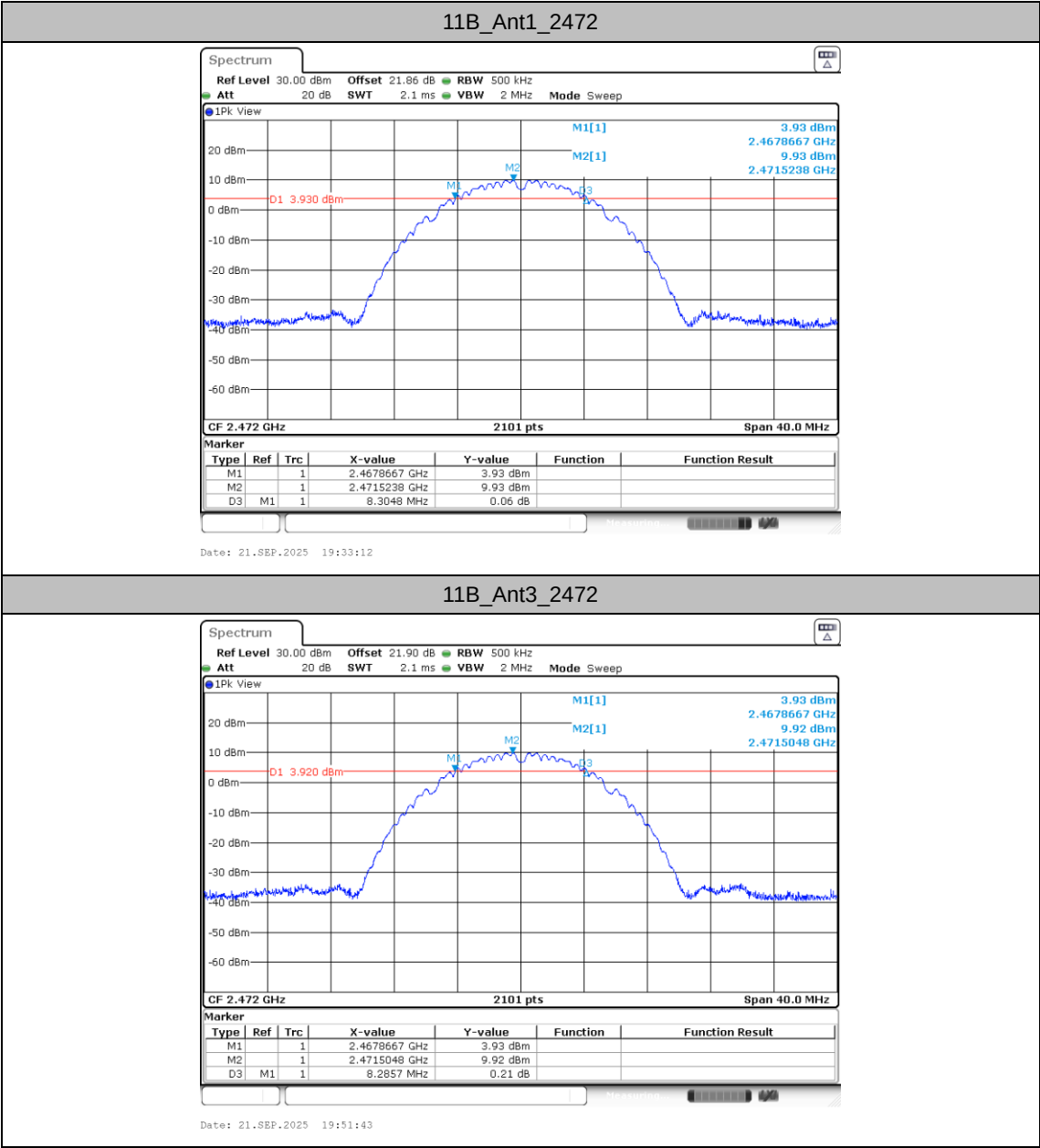
Test Graphs

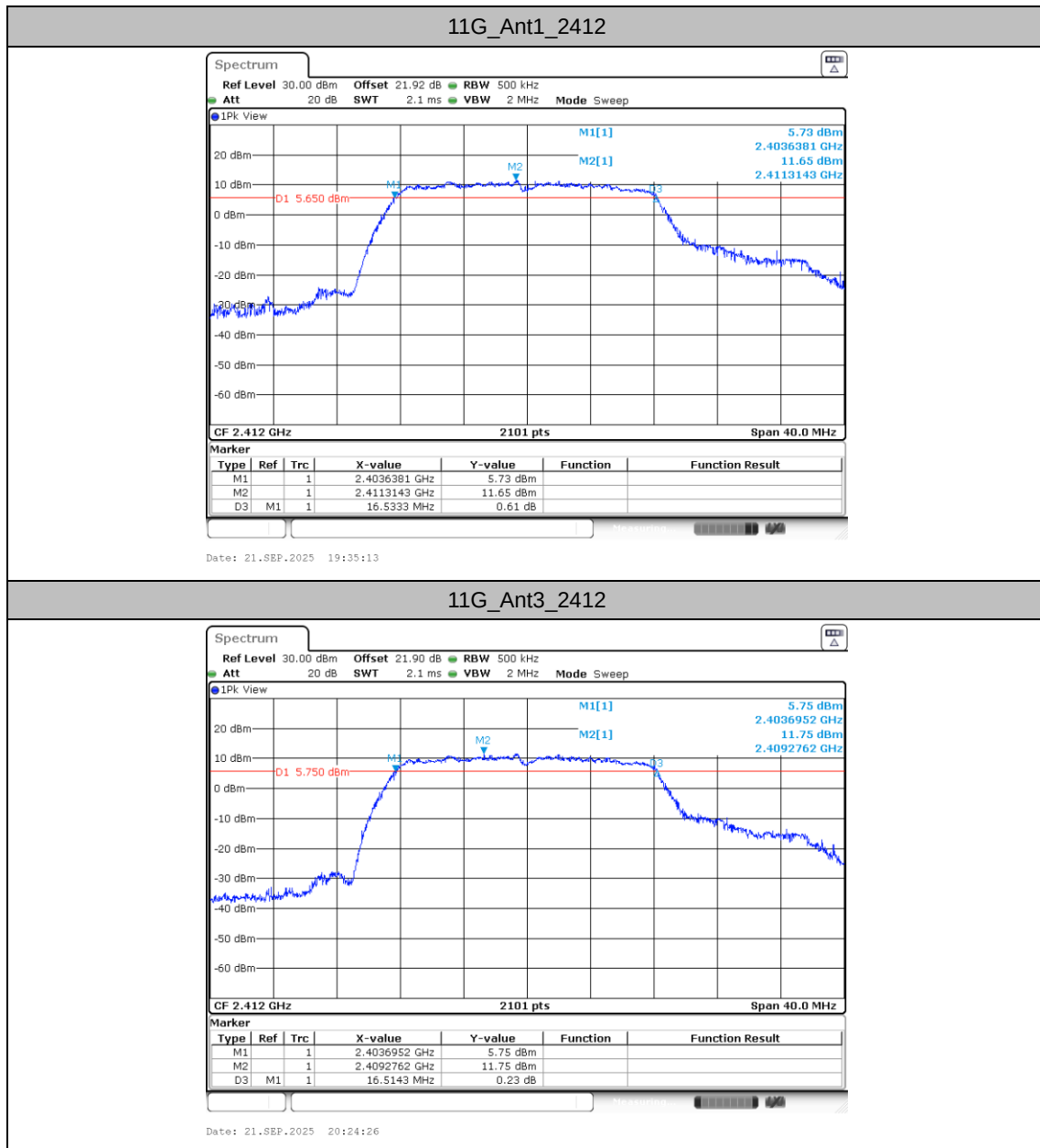


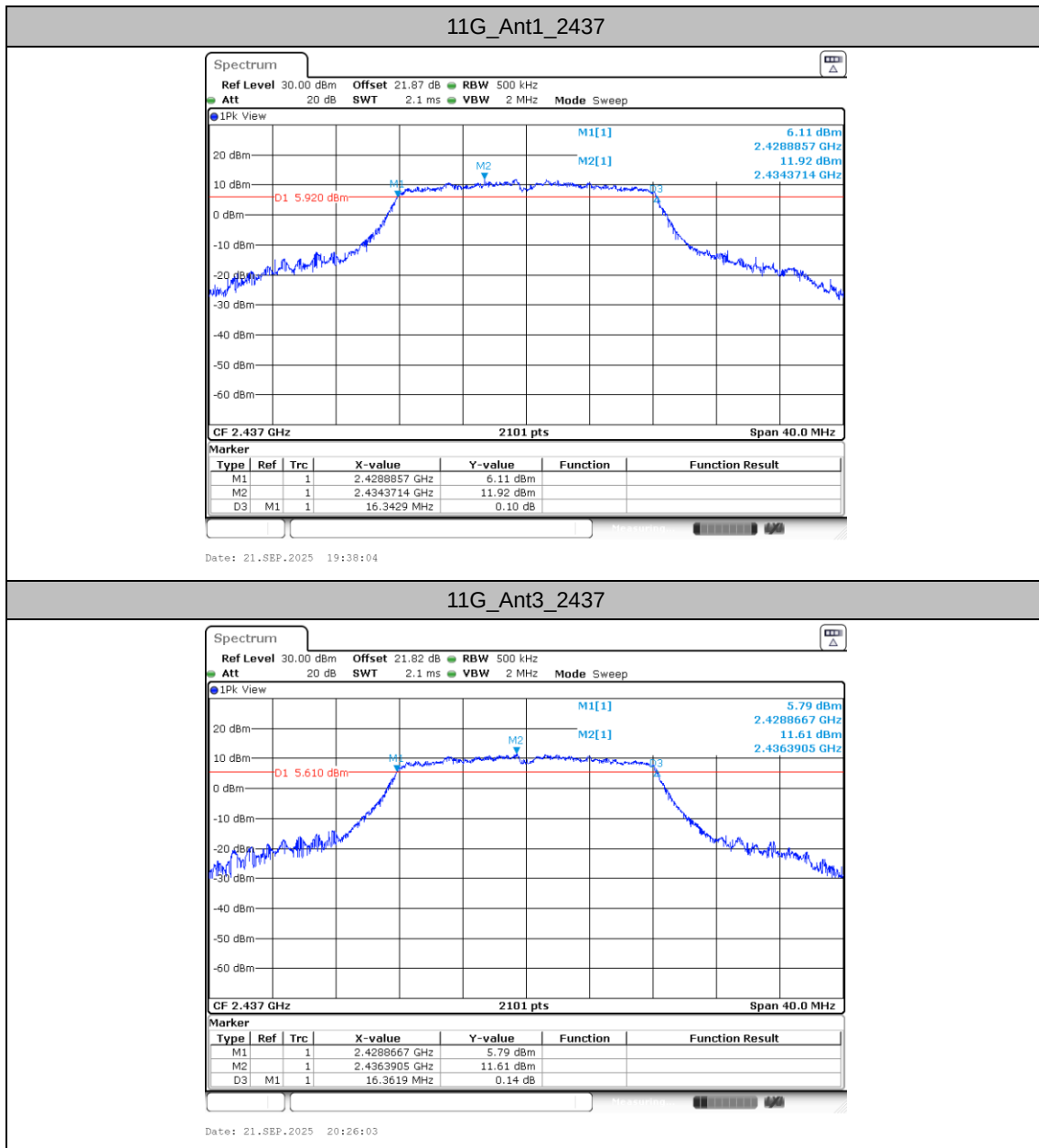


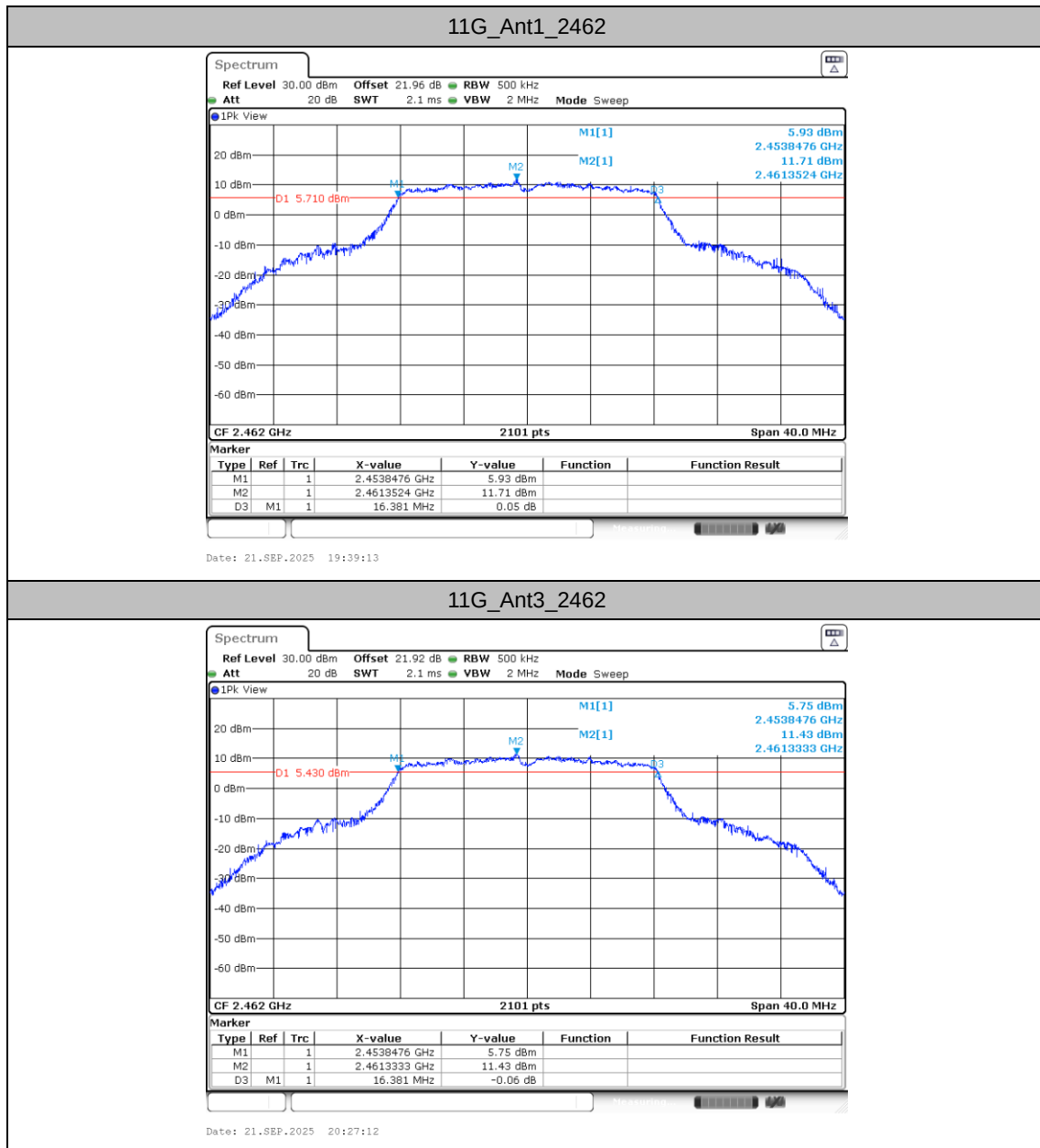


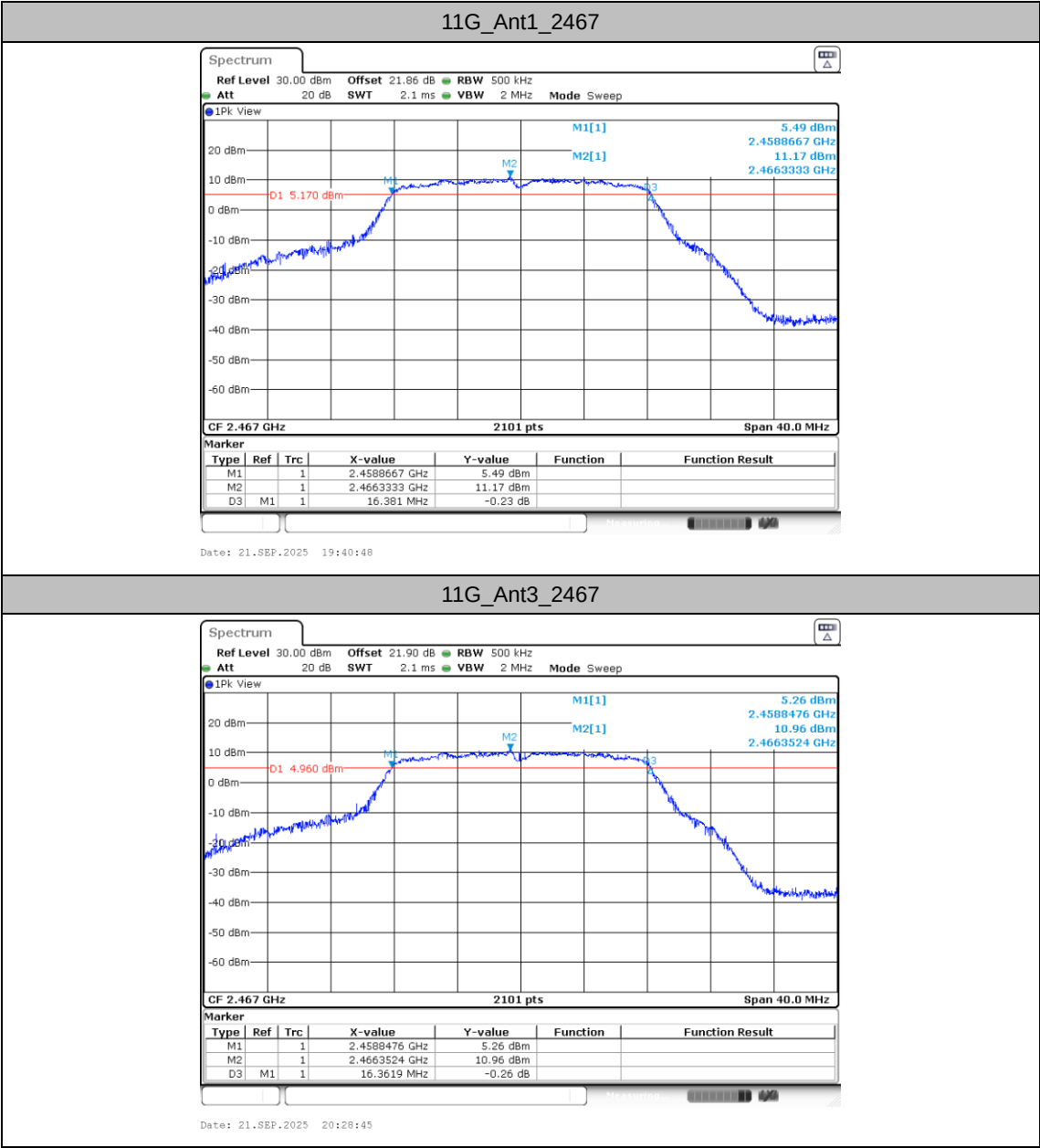


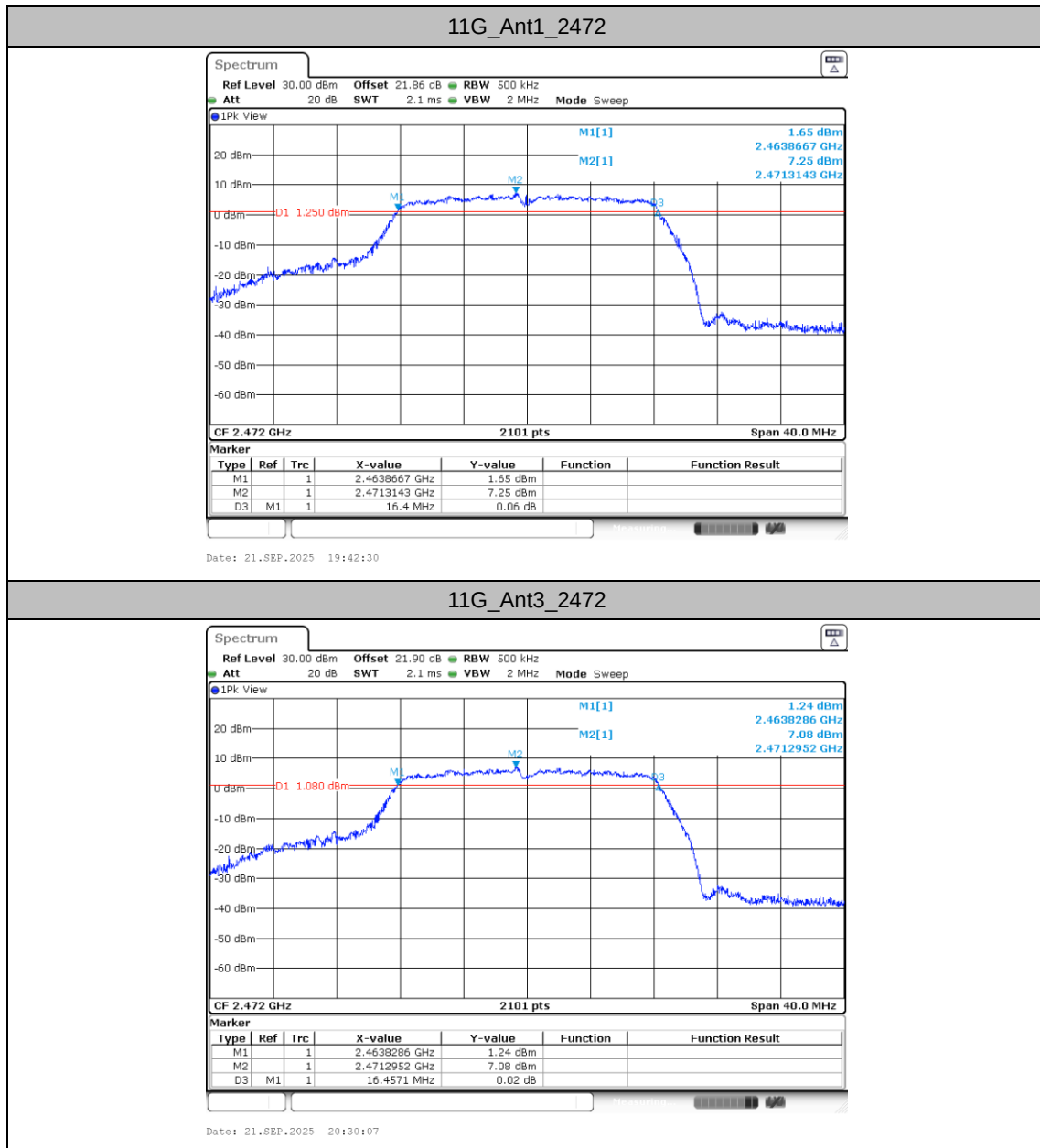


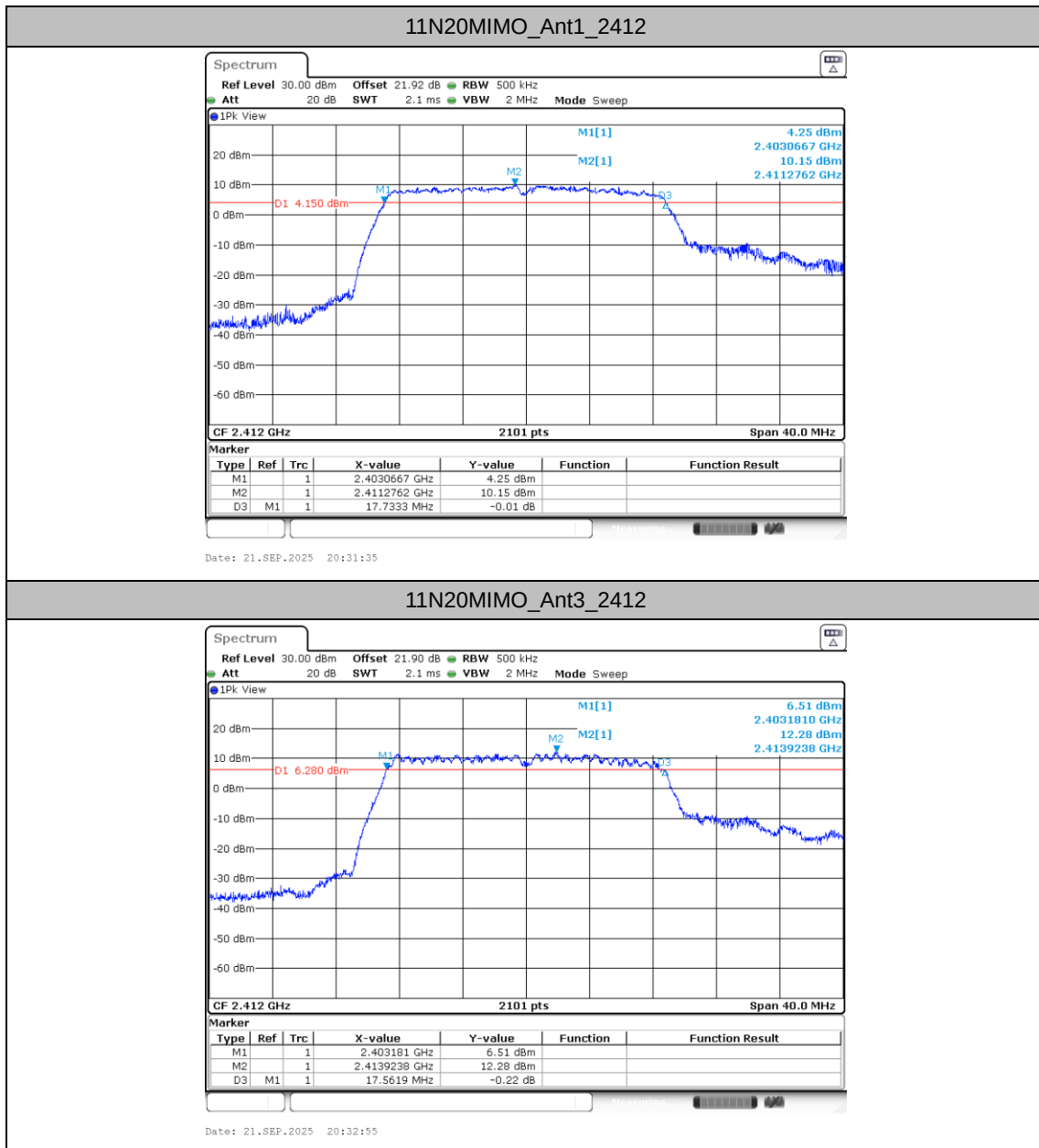


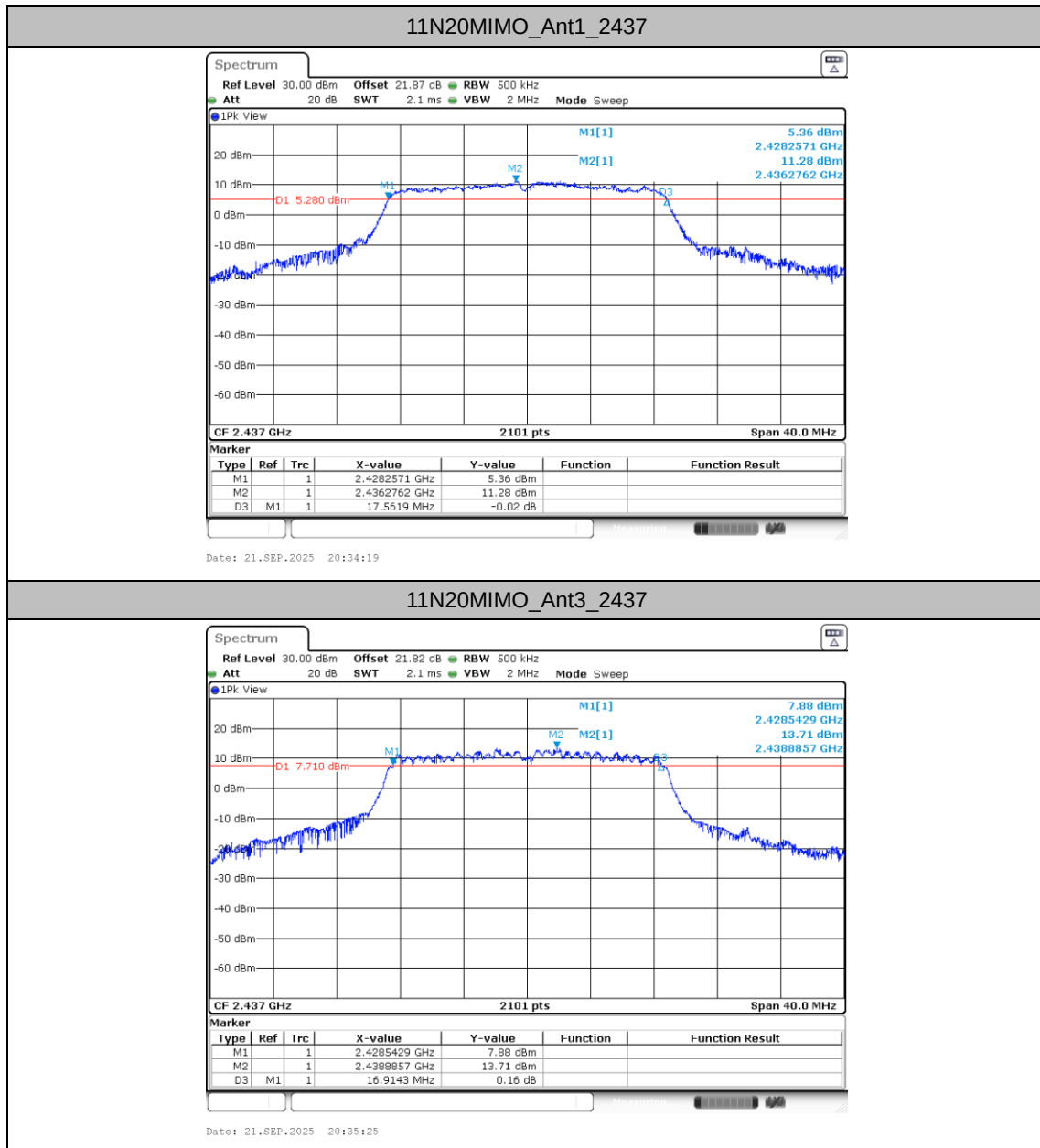


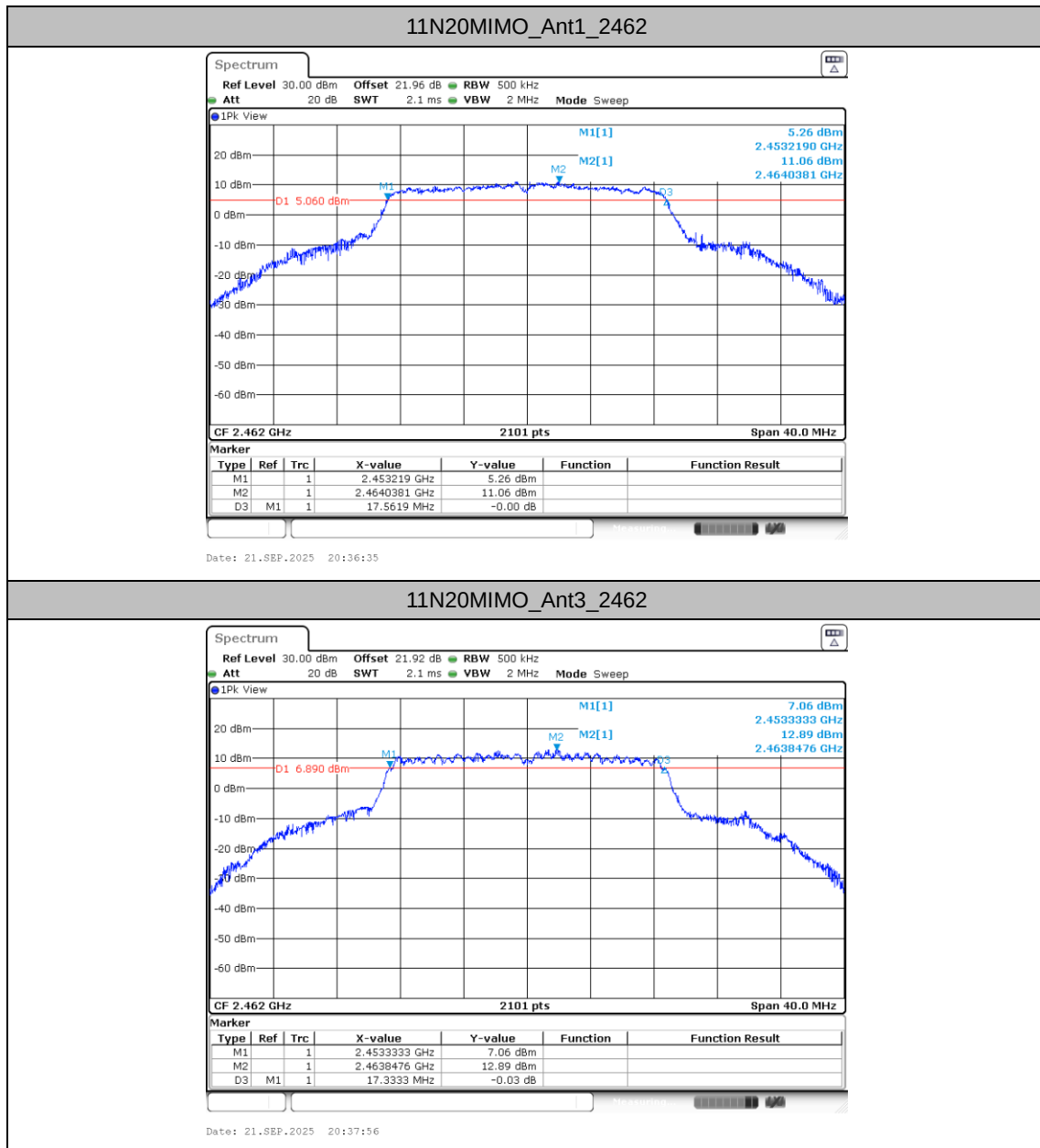


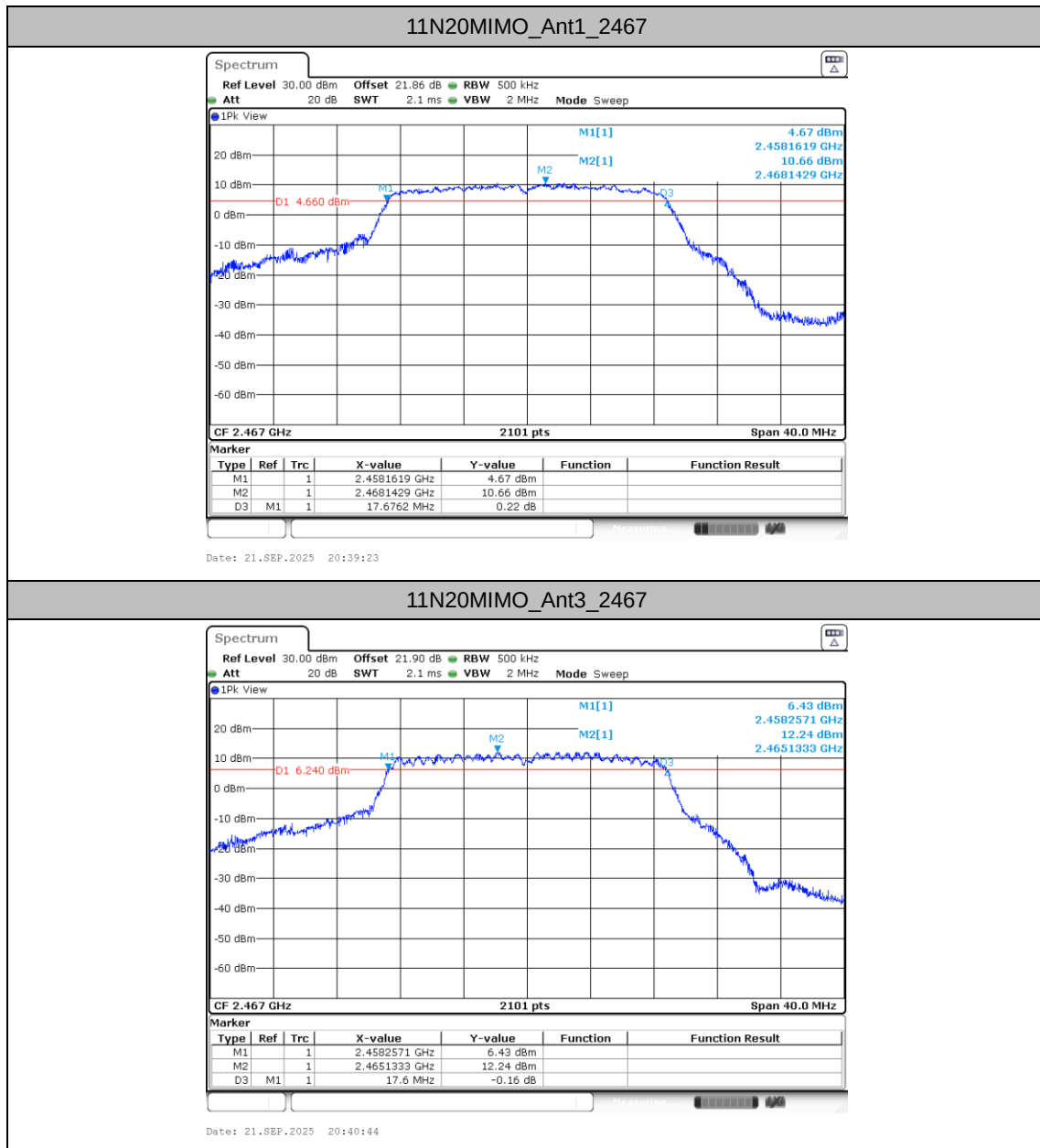


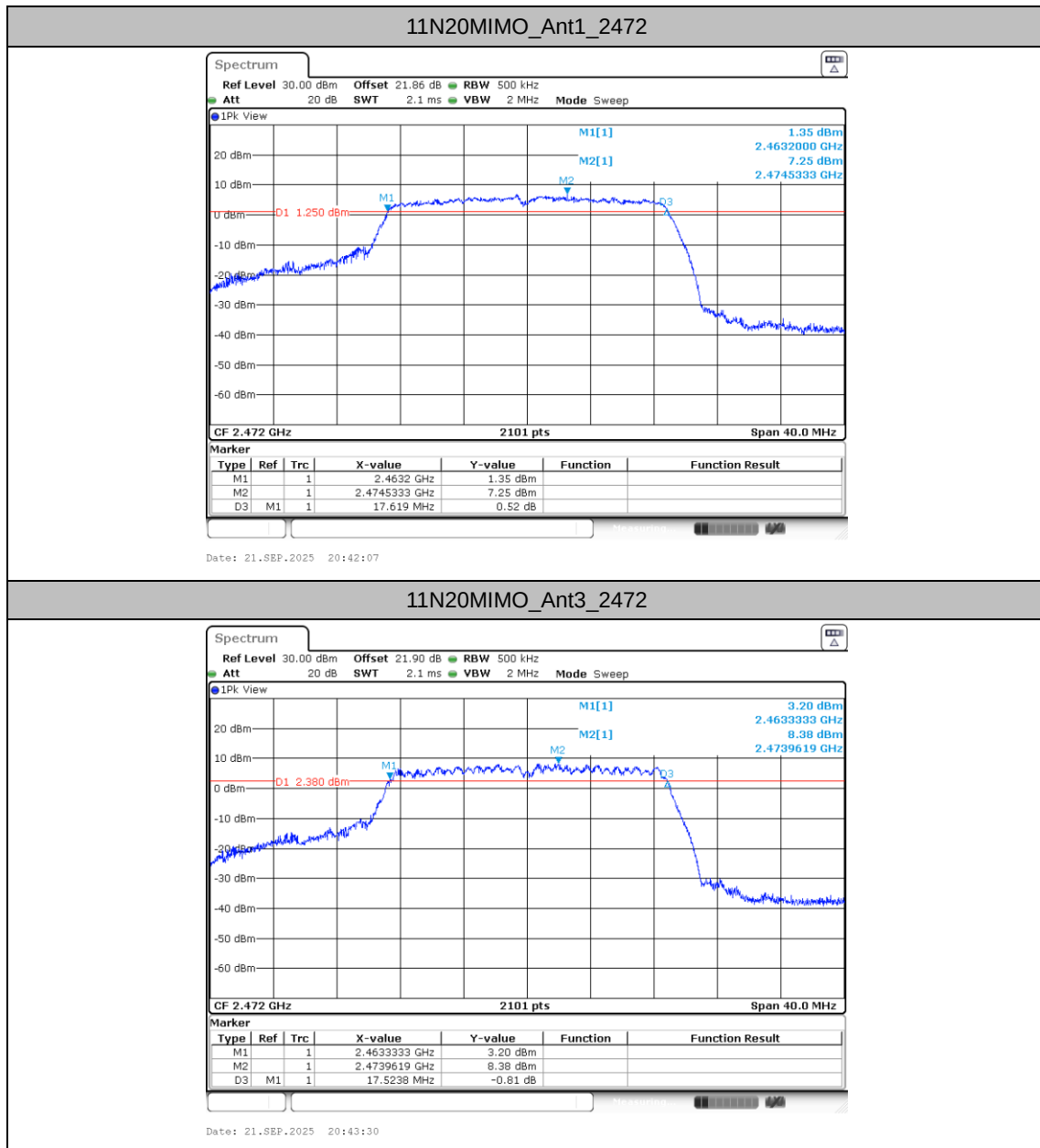


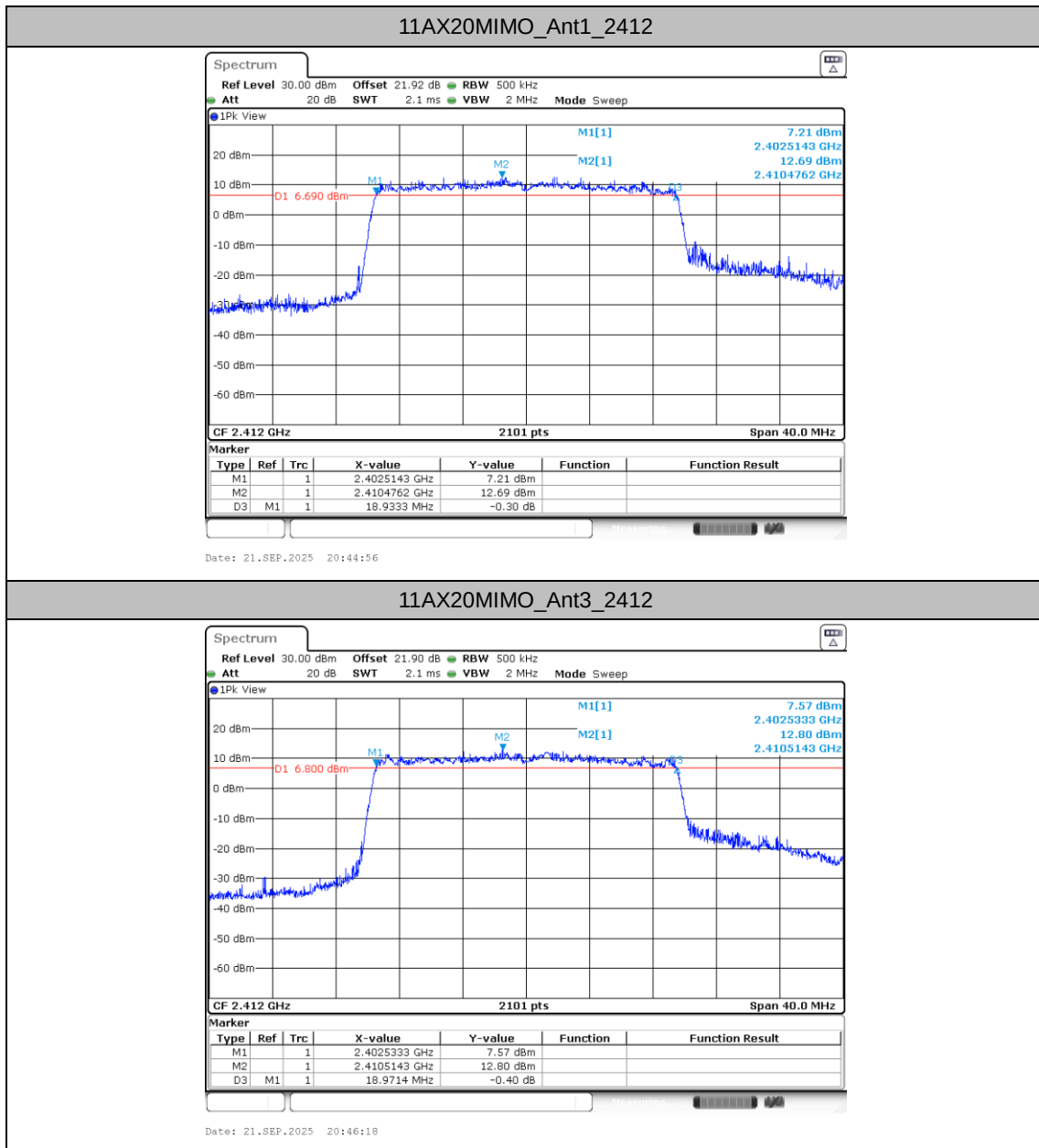


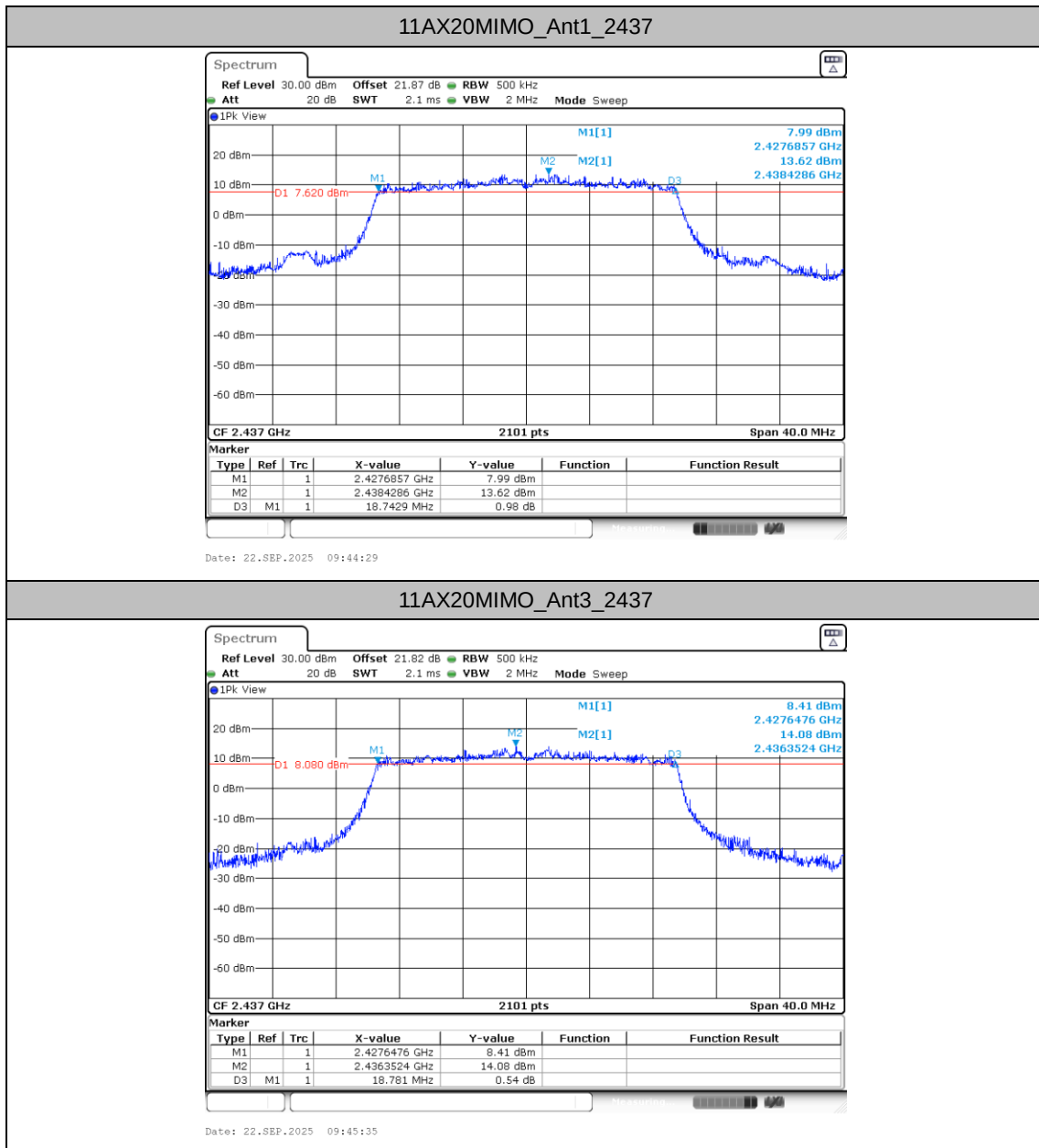


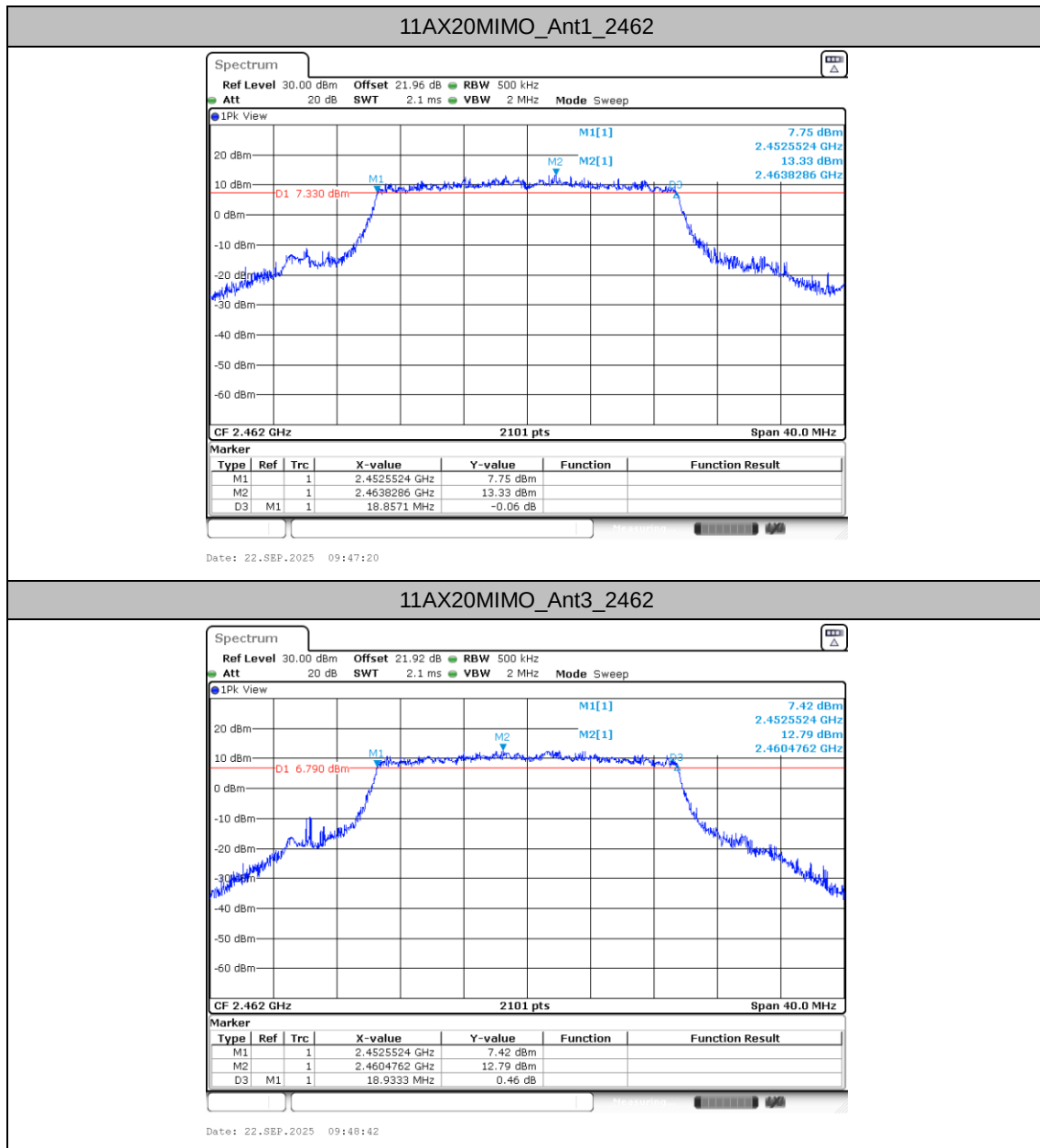


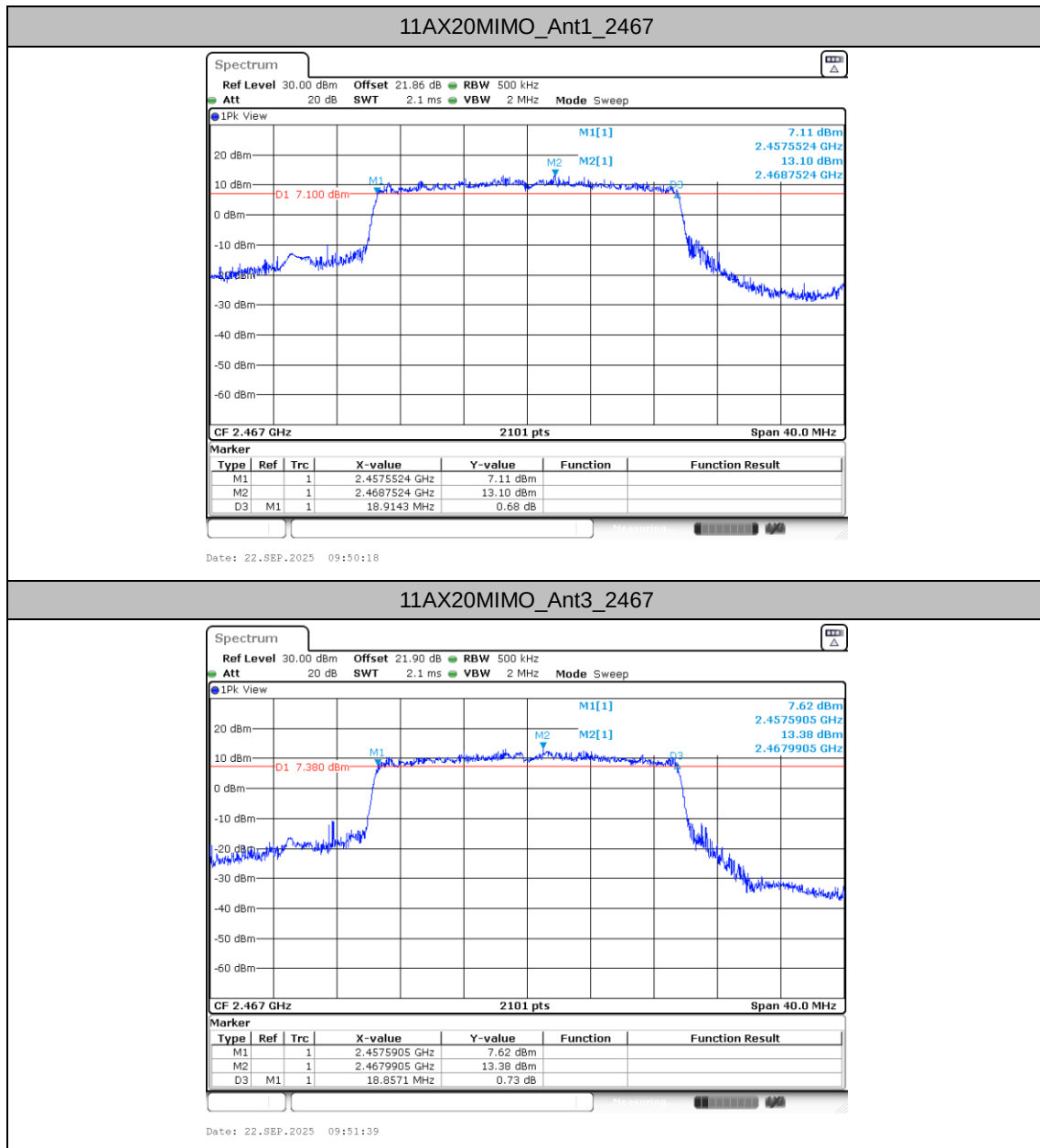


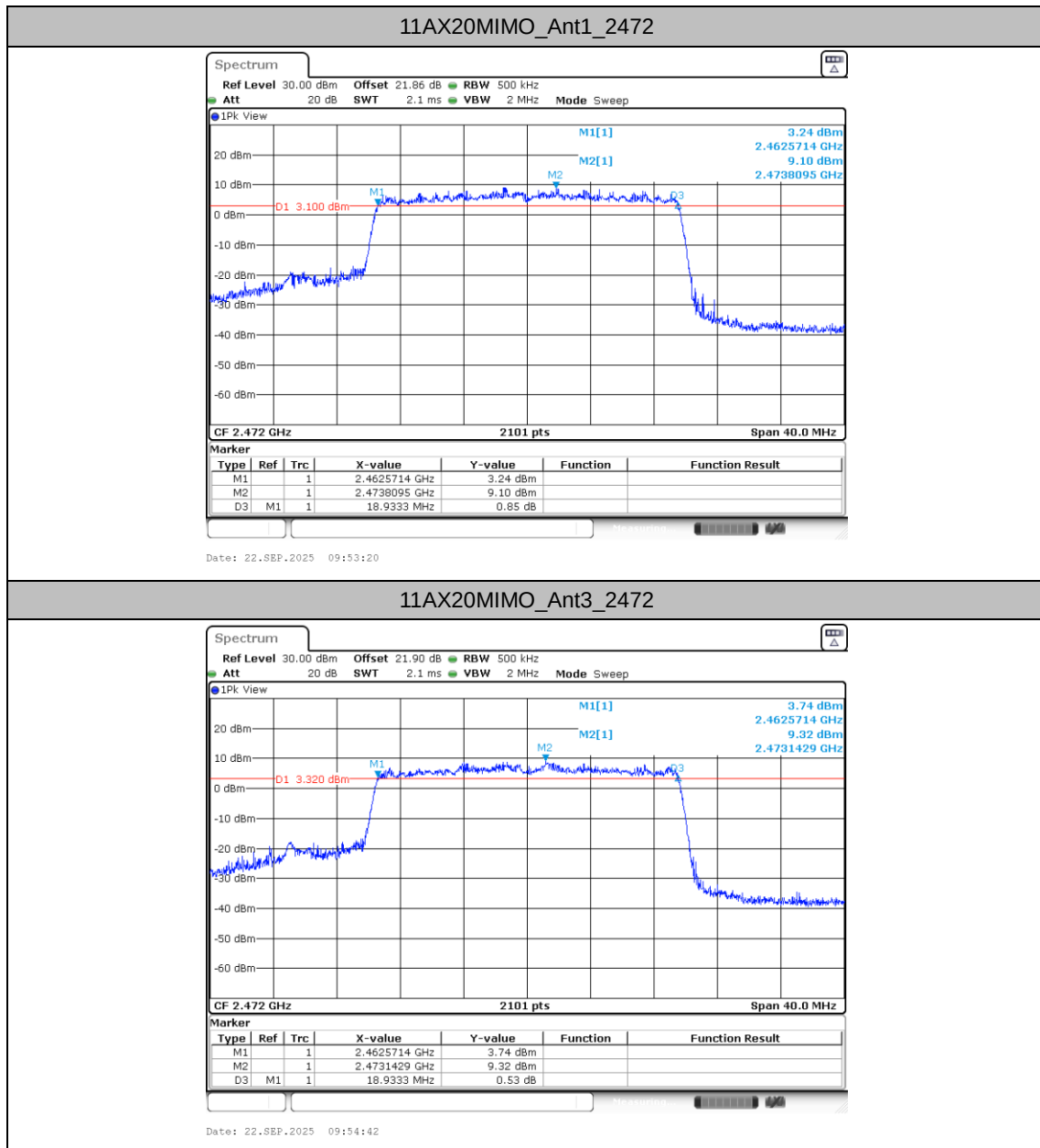














Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.128	2405.9838	2418.1114	---	---
	Ant3	2412	12.527	2405.7363	2418.2637	---	---
	Ant1	2437	12.642	2430.7363	2443.3779	---	---
	Ant3	2437	12.623	2430.7363	2443.3589	---	---
	Ant1	2462	12.661	2455.6982	2468.3589	---	---
	Ant3	2462	12.68	2455.6792	2468.3589	---	---
	Ant1	2467	12.642	2460.7173	2473.3589	---	---
	Ant3	2467	12.661	2460.6982	2473.3589	---	---
	Ant1	2472	12.68	2465.6792	2478.3589	---	---
11G	Ant3	2472	12.699	2465.6602	2478.3589	---	---
	Ant1	2412	17.458	2403.3184	2420.7768	---	---
	Ant3	2412	17.42	2403.3755	2420.7958	---	---
	Ant1	2437	17.268	2428.3755	2445.6435	---	---
	Ant3	2437	17.192	2428.3946	2445.5864	---	---
	Ant1	2462	17.573	2453.1851	2470.7577	---	---
	Ant3	2462	17.554	2453.1851	2470.7387	---	---
	Ant1	2467	17.344	2458.2232	2475.5673	---	---
	Ant3	2467	17.382	2458.2232	2475.6054	---	---
11N20MIMO	Ant1	2472	17.439	2463.1851	2480.6245	---	---
	Ant3	2472	17.42	2463.1661	2480.5864	---	---
	Ant1	2412	18.486	2402.8805	2421.3670	---	---
	Ant3	2412	18.068	2403.0709	2421.1385	---	---
	Ant1	2437	18.258	2427.8996	2446.1575	---	---
	Ant3	2437	17.839	2428.0900	2445.9291	---	---
	Ant1	2462	18.486	2452.7853	2471.2718	---	---
	Ant3	2462	18.144	2452.9186	2471.0624	---	---
	Ant1	2467	18.372	2457.7282	2476.1004	---	---
11AX20MIMO	Ant3	2467	18.068	2457.8805	2475.9481	---	---
	Ant1	2472	18.353	2462.7473	2481.1004	---	---
	Ant3	2472	18.087	2462.8805	2480.9672	---	---
	Ant1	2412	19.039	2402.4807	2421.5193	---	---
	Ant3	2412	19	2402.4998	2421.5002	---	---
	Ant1	2437	19.172	2427.4617	2446.6335	---	---
	Ant3	2437	19.115	2427.4426	2446.5574	---	---
	Ant1	2462	19.153	2452.4236	2471.5764	---	---
	Ant3	2462	19.115	2452.4236	2471.5383	---	---
	Ant1	2467	19.02	2457.4998	2476.5193	---	---
	Ant3	2467	18.962	2457.5378	2476.5002	---	---
	Ant1	2472	19.02	2462.4998	2481.5193	---	---
	Ant3	2472	18.981	2462.5188	2481.5002	---	---



Test Graphs

