



JAPAN RADIO TEST REPORT

Applicant : BrightSign, LLC

Address : 550 S Winchester Blvd Suite 100, San Jose,
CA 95128, United States

Equipment : Solid State Digital Sign Computer

Model No. : MD455, MD455-WW

Trade Name : BrightSign

Output Power : 802.11b: 9.84 mW/MHz
802.11g: 7.05 mW/MHz
802.11n (HT20): 6.59 mW/MHz
802.11n (HT40): 3.15 mW/MHz

Carrier Sense : ☒Yes ☐No

I HEREBY CERTIFY THAT:

The sample was received on Jun. 24, 2025 and the testing was completed on Jul. 04, 2025 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approval by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





Contents

1. Summary of Test Procedure and Test Results	4
1.1 Applicable Standards	4
2. Test Configuration of Equipment under Test	5
2.1 Feature of Equipment under Test	5
2.2 Carrier Frequency of Channels	6
2.3 Test Mode and Test Software	7
2.4 Description of Test System	7
2.5 General Information of Test	8
2.6 Measurement Uncertainty	8
3. Test Equipment and Ancillaries Used for Tests	9
4. Transmitter Parameters	10
4.1 Frequency Error	10
4.2 Occupied Bandwidth	11
4.3 RF Output Power Tolerance	14
4.4 Carrier Sensing Function	16
4.5 Spurious Emissions	17
4.6 Interference Prevention Function	32
5. Receiver Parameters	33
5.1 Spurious Emissions	33
6. Angular Width of Principal Radiation	43
6.1 Test Result	43
7. Power Supply Voltage Fluctuation Test	44
8. Construction Protection Confirmation	45



History of this test report

Report No.	Issued Date	Description
25060441-TRMIC01	Jul. 18, 2025	Original



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

“MIC Notification No. 88, Appendix No. 43”

TELEC-T401 (2023-11):

- Item 19 of Article 2

Description	Result
Frequency Error	Pass
Occupied Bandwidth	Pass
RF Output Power Tolerance	Pass
Carrier Sensing Function	Pass
Spurious Emissions(TX)	Pass
Spurious Emissions(RX)	Pass
Interference Prevention Function	Pass
Angular Width of Principal Radiation	Pass
Construction Protection Confirmation	Pass

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement, measurement uncertainty evaluation is not considered.

* The following reference test guidance is not within the scope of accreditation of TAF.

-“MIC Notification No. 88, Appendix No. 43”

- Item 19 of Article 2

*The differences is list below:

1. Model No.: MD455, MD455-WW is MD435, MD435-WW add LCD Board.
2. Add Audio cable, HDMI cable, RJ45 cable and Conn adaptor.

*After engineering evaluation, the following item need to retest:

1. Power supply voltage fluctuation test

Refer to original report for other test categories.

Test report number: 24090226-TRMIC01.



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Operation Frequency Range	802.11b/g/n: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5250-5350MHz, 5470-5725MHz
Center Frequency Range	802.11b/g/n: 2412MHz-2472MHz 802.11a/n/ac: 5180-5240MHz, 5260-5320MHz, 5500-5720MHz
Modulation Type	2.4GHz: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 5GHz: 802.11n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM
Data Rate	2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	Dipole Antenna
Antenna Gain	2400-2500MHz: 1.95dBi 5180-5240MHz: 2.37dBi 5260-5320MHz: 2.49dBi 5500-5700MHz: 3.64dBi
Adapter	RISUNIC \ R0182-1201500US APD \ WB-18U12R
Firmware No.	5.10.198+bs9.0.166.1
Audio Cable	MDLINK \ 11200008
HDMI Cable	MDLINK \ 11500004
RJ45 Cable	MDLINK \ 10600049
Conn Adaptor	MDLINK \ 11200009

Note:

1. EUT support TPC Function.
2. EUT support DFS Client Mode, without radar detection.
3. For more details, please refer to the User's manual of the EUT.

Difference description:

1. All the Model No. are marketing purpose.
2. The Test Model No.: MD455.



2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*01	2412	08	2447
02	2417	09	2452
03	2422	10	2457
04	2427	11	2462
05	2432	12	2467
06	2437	*13	2472
*07	2442	---	---

802.11n HT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	08	2447
---	---	09	2452
*03	2422	10	2457
04	2427	*11	2462
05	2432	---	---
06	2437	---	---
*07	2442	---	---

Note: Channels remarked * are selected to perform test.



2.3 Test Mode and Test Software

- An executive program, "rtwpriv command" was executed to transmit and receive data via WLAN.
- The test model no. is MD455. The following test modes were performed for the test:

Test Mode	Operating Description
Test Mode 1	802.11b (1Mbps)
Test Mode 2	802.11g (6Mbps)
Test Mode 3	802.11n HT20 (6.5Mbps)
Test Mode 4	802.11n HT40 (13.5Mbps)

Modulation Type	TX CONFIGURATION
802.11b	1TX
802.11g	1TX
802.11n HT20	1TX
802.11n HT40	1TX

2.4 Description of Test System

For 25060441

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord /Length/Type
Notebook	lenovo	S1GL2W	N/A	N/A
RJ45 Cable	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A

For 24090226

Carrier Sensing				
Equipment	Brand	Model	Length/Type	Power cord /Length/Type
Notebook	Lenovo	L440	N/A	Adapter / 1.8m / NS
Notebook	Lenovo	T460	N/A	Adapter / 1.8m / NS
AP	NETGEAR	R7800	N/A	Adapter / 1.5m / NS
RJ45 Cable*2	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A



2.5 General Information of Test

Organization	CerpPASS Technology Corp.		
☒ Test Site	CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881		
	FCC	TW1439, TW1079	
	IC	4934E-1, 4934E-2	
	Test Condition	Normal Voltage: 100 V Extreme Voltage: 90 V and 110 V	

For 25060441

Test Item	Test Site	Test Period	Environmental Conditions	Tested by
RF Conducted	RFCON01-NK	2025/07/04	25.1°C / 52%	Leon Huang

For 24090226

Test Item	Test Site	Test Period	Environmental Conditions	Tested by
Carrier Sensing	RFDFS01-NK	2024/10/07	24.7°C / 46%	Eason Hsu

2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Item	Uncertainty
Output power	±2.0dB
Unwanted Emissions Strength	±2.2dB
Bandwidth	±6.5%
Frequency tolerance	±0.78KHz
Dwell Time	±3.5%



3. Test Equipment and Ancillaries Used for Tests

For 25060441

Test Item	RF Conducted						
Test Site	RFCON01-NK						
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date	Calibration authority	Calibration method
Spectrum Analyzer	R&S	FSP 40	100047	2025/03/03	2026/03/02	ETC	C
Attenuator	KEYSIGHT	8491B	MY39250703	2025/02/12	2026/02/11	ETC	C
Cable-0.5m (30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2024/10/24	2025/10/23	ETC	C
Power Meter	Anritsu	ML2495A	1224005	2025/02/12	2026/02/11	ETC	C
Power Sensor	Anritsu	MA2411B	1207295	2025/02/12	2026/02/11	ETC	C
Switch Box	Theda	1-4	TW5451159	NA	NA	N/A	N/A

For 24090226

Test Item	Carrier Sensing						
Test Site	RFDFS01-NK						
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date	Calibration authority	Calibration method
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100291	2023/10/11	2024/10/10	ETC	C
MXG-B RF Vector Signal Generator + Frequency Extender	KEYSIGHT	N5182B+ N5182BX07	MY53051383+ MY59362519	2024/02/16	2025/02/15	ETC	C
N7607C Signal Studio	KEYSIGHT	v1.5.5.0	NA	NA	NA	N/A	N/A
InService MonitorUtility	Theda	v10.0.0.0	NA	NA	NA	N/A	N/A

Note: Calibration Method

- Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
- Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.
- Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
- Calibration conducted by using other equipment that listed above from a) to c).



4. Transmitter Parameters

4.1 Frequency Error

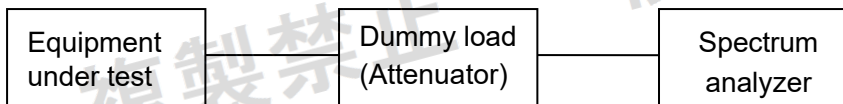
4.1.1 Test Limit

Limits: $\pm 50 \times 10^{-6}$, 50ppm

4.1.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43, Test item frequency error measuring procedures.

4.1.3 Test Setup



4.1.4 Test Result and Data

For 24090226

802.11b/g/n HT20					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Measured Frequency	MHz	2411.9856	2441.9865	2471.9872
Vnom	Frequency Error	ppm	-5.97	-5.53	-5.18

802.11n HT40					
Test Conditions					
Voltage	Test Frequency	MHz	2422	2442	2462
Vnom	Measured Frequency	MHz	2421.9854	2441.9854	2461.9853
Vnom	Frequency Error	ppm	-6.03	-5.98	-5.97



4.2 Occupied Bandwidth

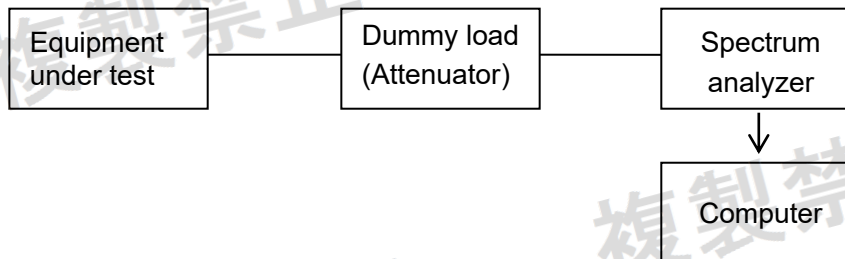
4.2.1 Test Limit

Modulation type	Occupied Band Width
FHSS、FHSS+DSSS、FHSS+OFDM	< 83.5 MHz
DSSS	< 26 MHz
OFDM	< 26 MHz
802.11n HT40、VHT40、802.11ax HE40	26 -40MHz

4.2.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43, test item occupied bandwidth and spreading bandwidth, measuring procedures.

4.2.3 Test Setup



4.2.4 Test Result and Data

For 24090226

802.11b					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Occupied Bandwidth	MHz	15.05	15.05	15.00

802.11g					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Occupied Bandwidth	MHz	17.40	17.40	17.25

802.11n HT20					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Occupied Bandwidth	MHz	18.20	18.25	18.25

802.11n HT40					
Test Conditions					
Voltage	Test Frequency	MHz	2422	2442	2462
Vnom	Occupied Bandwidth	MHz	36.50	36.50	36.40



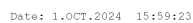
For 24090226
Modulation Standard: 802.11b, CH01



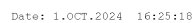
Modulation Standard: 802.11b, CH07



Modulation Standard: 802.11g, CH07



Modulation Standard: 802.11b, CH13



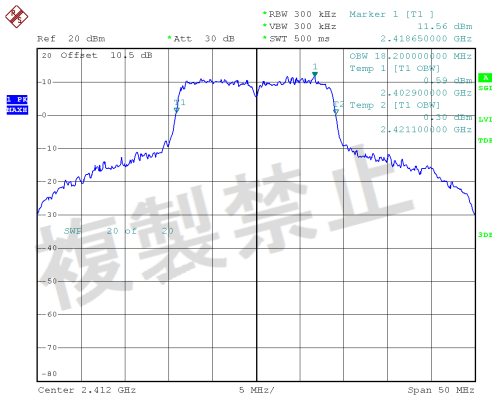
Modulation Standard: 802.11g, CH13



Date: 1.OCT.2024 16:29:47

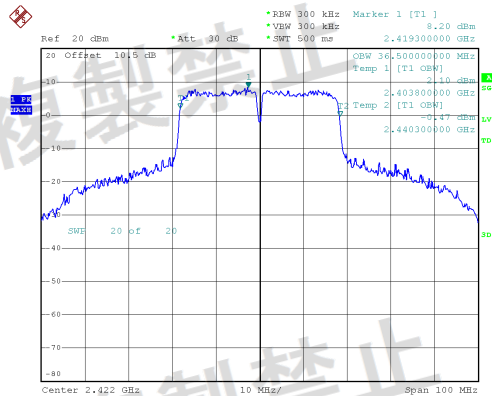


Modulation Standard: 802.11n HT20, CH01



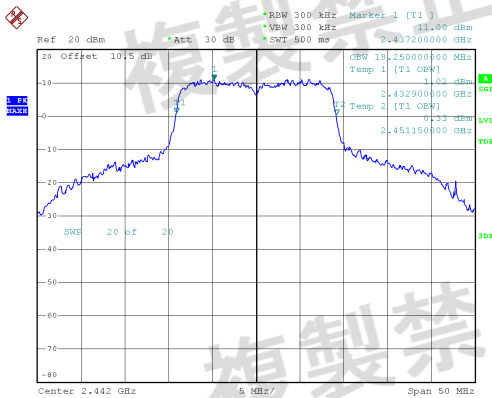
Date: 1.OCT.2024 16:39:00

Modulation Standard: 802.11n HT40, CH03



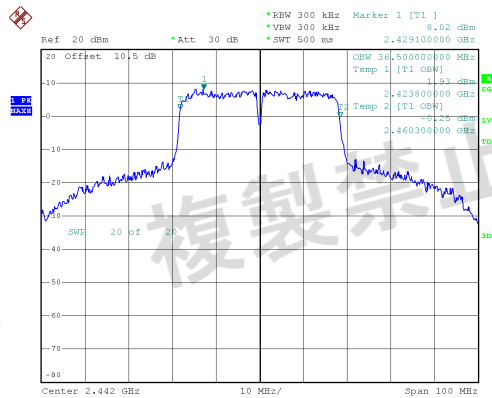
Date: 1.OCT.2024 17:04:49

Modulation Standard: 802.11n HT20, CH07



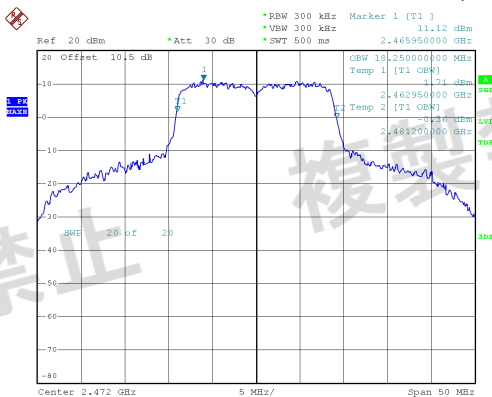
Date: 1.OCT.2024 16:44:00

Modulation Standard: 802.11n HT40, CH07



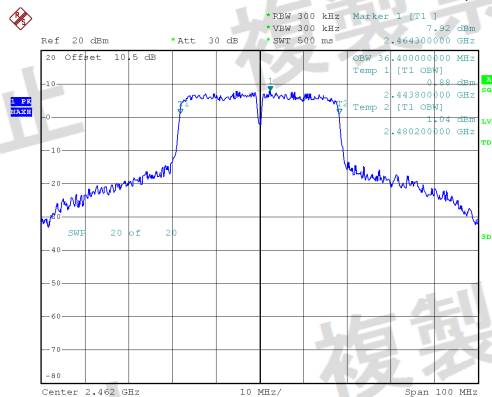
Date: 1.OCT.2024 17:10:18

Modulation Standard: 802.11n HT20, CH13



Date: 1.OCT.2024 16:48:36

Modulation Standard: 802.11n HT40, CH11



Date: 1.OCT.2024 17:25:16



4.3 RF Output Power Tolerance

4.3.1 Test Limit

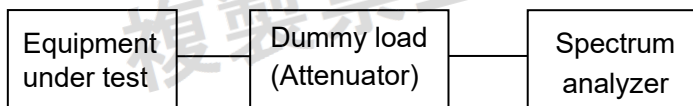
1. tolerance: +20 %
2. output power:

Modulation type	Occupied Band Width	output power
FHSS+DSSS or OFDM (2424MHz -2470.75MHz)	< 83.5 MHz	< 3mW/MHz
FHSS+DSSS or OFDM (2400MHz -2483.5MHz except 2424MHz -2470.75MHz)	< 83.5 MHz	< 10mW/MHz
DSSS	< 26 MHz	< 10mW/MHz
OFDM	< 26 MHz	< 10mW/MHz
	26-40MHz	< 5mW/MHz
Other	< 26 MHz	< 10mW/MHz

4.3.2 Test Procedure

According to Notification No. 88 of MIC, 2004, Annex 43, test item antenna power error measuring procedure.

4.3.3 Test Setup



4.3.4 Declared Rated Power

For 24090226

802.11b: 9.84 mW/MHz

802.11g: 7.05 mW/MHz

802.11n (HT20): 6.59 mW/MHz

802.11n (HT40): 3.15 mW/MHz



4.3.5 Test Result and Data

For 24090226

802.11b					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Antenna Power	mW/MHz	9.75	9.84	9.38
Vnom	Antenna Power Error	%	-0.92	0.00	-4.72

802.11g					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Antenna Power	mW/MHz	7.05	7.01	6.84
Vnom	Antenna Power Error	%	0.00	-0.46	-2.95

802.11n HT20					
Test Conditions					
Voltage	Test Frequency	MHz	2412	2442	2472
Vnom	Antenna Power	mW/MHz	6.59	6.50	6.31
Vnom	Antenna Power Error	%	0.00	-1.37	-4.28

802.11n HT40					
Test Conditions					
Voltage	Test Frequency	MHz	2422	2442	2462
Vnom	Antenna Power	mW/MHz	3.15	3.13	2.89
Vnom	Antenna Power Error	%	0.00	-0.46	-8.17



4.4 Carrier Sensing Function

4.4.1 Test Result and Data

For 24090226

802.11n HT40					
Test Conditions	Test Frequency	MHz	2422	2442	2462
	Mini. Antenna Gain	dBi	1.60	1.60	1.60
Voltage	Carrier Level	dBm	-43.29	-43.36	-43.44
Vnom	Result	Good/Fail	Good	Good	Good



4.5 Spurious Emissions

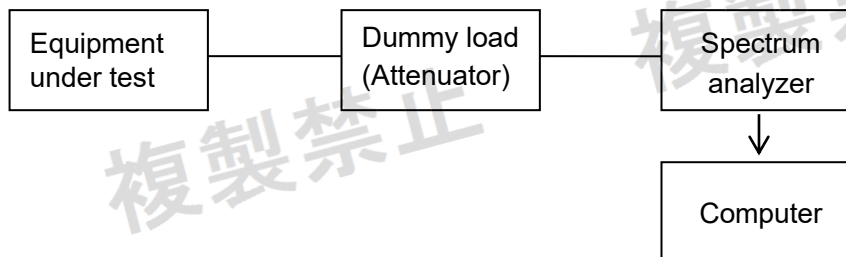
4.5.1 Test Limit

	Frequency Band (For 2400 ~ 2483.5 MHz)	Limit
*1	<2387MHz	2.5 μ W/MHz
*2	2387MHz ~ 2400MHz	25 μ W/MHz
*3	2483.5MHz ~ 2496.5MHz	25 μ W/MHz
*4	>2496.5MHz	2.5 μ W/MHz

4.5.2 Test Procedure

According to Notification No. 88 of MIC, 2004, Annex 43 Spurious and unwanted emission intensity measuring procedure.

4.5.3 Test Setup





4.5.4 Test Result and Data

For 24090226

802.11b									
Test Conditions				ANT			Sum All Port		
Voltage	Frequency Band	Test Freq.	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 2387MHz	Unwanted Emission Frequency	MHz	2386.71	703.81	733.56	-	-	-
Vnom	2387MHz ~ 2400MHz		MHz	2397.12	2399.89	2387.35	-	-	-
Vnom	2483.5MHz ~ 2496.5MHz		MHz	2493.36	2488.51	2483.50	-	-	-
Vnom	2496.5MHz ~ 12500MHz		MHz	3230.51	3189.24	2497.75	-	-	-
Vnom	30MHz ~ 2387MHz	Unwanted Emission Intensity	μW/MHz	0.0508	0.0260	0.0277	0.0508	0.0260	0.0277
Vnom	2387MHz ~ 2400MHz		μW/MHz	3.7844	0.0505	0.0382	3.7844	0.0505	0.0382
Vnom	2483.5MHz ~ 2496.5MHz		μW/MHz	0.0290	0.0368	0.3784	0.0290	0.0368	0.3784
Vnom	2496.5MHz ~ 12500MHz		μW/MHz	0.0414	0.0371	0.0516	0.0414	0.0371	0.0516

802.11g									
Test Conditions				ANT			Sum All Port		
Voltage	Frequency Band	Test Freq.	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 2387MHz	Unwanted Emission Frequency	MHz	2385.23	2383.46	734.15	-	-	-
Vnom	2387MHz ~ 2400MHz		MHz	2398.55	2394.62	2399.57	-	-	-
Vnom	2483.5MHz ~ 2496.5MHz		MHz	2485.30	2484.75	2483.52	-	-	-
Vnom	2496.5MHz ~ 12500MHz		MHz	3669.41	2500.25	2496.50	-	-	-
Vnom	30MHz ~ 2387MHz	Unwanted Emission Intensity	μW/MHz	0.1107	0.0867	0.0311	0.1107	0.0867	0.0311
Vnom	2387MHz ~ 2400MHz		μW/MHz	13.5207	0.5236	0.0299	13.5207	0.5236	0.0299
Vnom	2483.5MHz ~ 2496.5MHz		μW/MHz	0.0288	0.7727	17.9061	0.0288	0.7727	17.9061
Vnom	2496.5MHz ~ 12500MHz		μW/MHz	0.0394	0.0492	0.1702	0.0394	0.0492	0.1702



802.11n HT20									
Test Conditions				ANT			Sum All Port		
Voltage	Frequency Band	Test Freq.	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 2387MHz	Unwanted Emission Frequency	MHz	2386.41	2386.41	734.74	-	-	-
Vnom	2387MHz ~ 2400MHz		MHz	2398.18	2398.10	2397.40	-	-	-
Vnom	2483.5MHz ~ 2496.5MHz		MHz	2484.31	2488.30	2483.50	-	-	-
Vnom	2496.5MHz ~ 12500MHz		MHz	3244.26	2496.50	2496.50	-	-	-
Vnom	30MHz ~ 2387MHz	Unwanted Emission Intensity	μW/MHz	0.1811	0.1346	0.0276	0.1811	0.1346	0.0276
Vnom	2387MHz ~ 2400MHz		μW/MHz	12.5893	0.6209	0.0258	12.5893	0.6209	0.0258
Vnom	2483.5MHz ~ 2496.5MHz		μW/MHz	0.0319	0.7362	20.3236	0.0319	0.7362	20.3236
Vnom	2496.5MHz ~ 12500MHz		μW/MHz	0.0483	0.1211	0.3614	0.0483	0.1211	0.3614

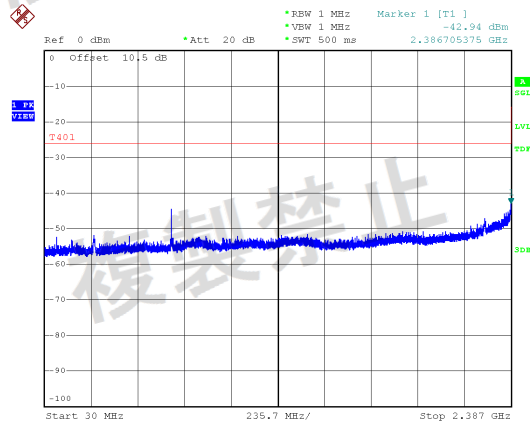
802.11n HT40									
Test Conditions				ANT			Sum All Port		
Voltage	Frequency Band	Test Freq.	MHz	2422	2442	2462	2422	2442	2462
Vnom	30MHz ~ 2387MHz	Unwanted Emission Frequency	MHz	2383.17	2386.71	2385.82	-	-	-
Vnom	2387MHz ~ 2400MHz		MHz	2399.99	2398.86	2399.89	-	-	-
Vnom	2483.5MHz ~ 2496.5MHz		MHz	2483.89	2484.94	2485.89	-	-	-
Vnom	2496.5MHz ~ 12500MHz		MHz	2496.50	2496.50	2501.50	-	-	-
Vnom	30MHz ~ 2387MHz	Unwanted Emission Intensity	μW/MHz	1.8408	1.0940	0.2438	1.8408	1.0940	0.2438
Vnom	2387MHz ~ 2400MHz		μW/MHz	9.9770	0.9247	0.8570	9.9770	0.9247	0.8570
Vnom	2483.5MHz ~ 2496.5MHz		μW/MHz	5.1404	1.2735	6.0954	5.1404	1.2735	6.0954
Vnom	2496.5MHz ~ 12500MHz		μW/MHz	0.0230	0.1016	1.3804	0.0230	0.1016	1.3804

Note: 1. "---" means that no emissions were detected and there for it is a "PASS"

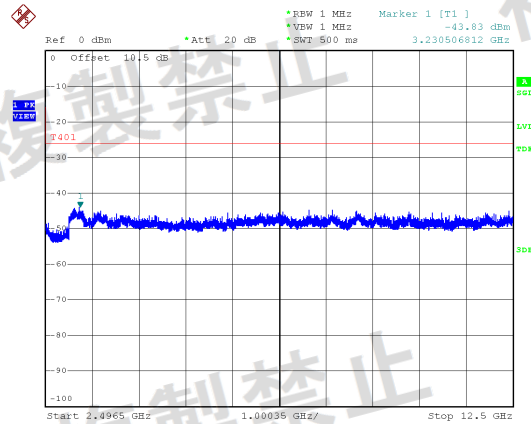
2. *The test result calculated as follows: $uW = 10^{(\text{Measurement Value(dBm)}/10)} * 1000$



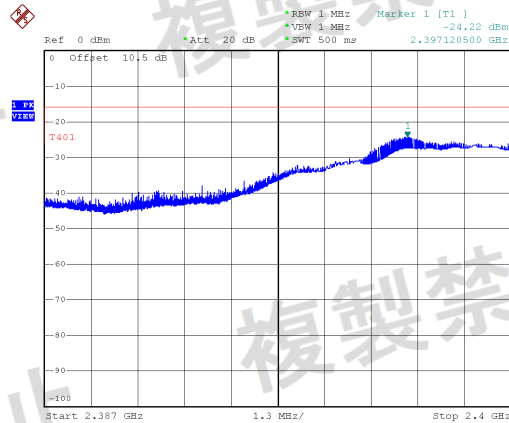
For 24090226
Modulation Type: 802.11b CH01



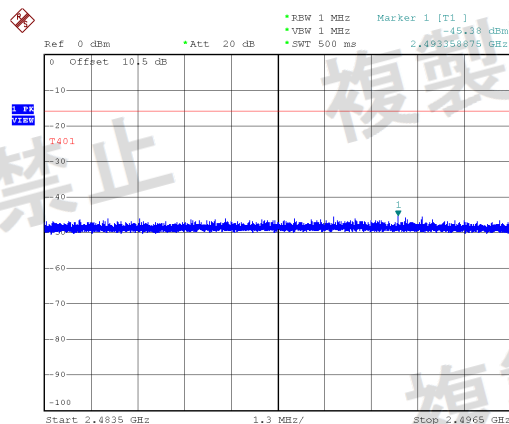
Date: 1.OCT.2024 15:52:57



Date: 1.OCT.2024 15:55:52



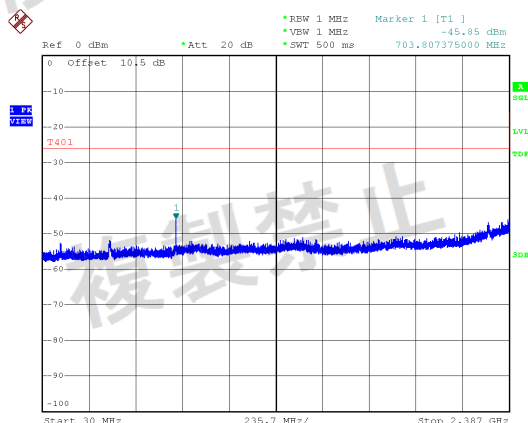
Date: 1.OCT.2024 15:54:39



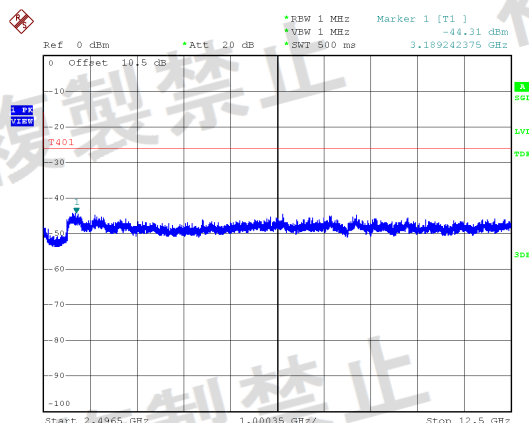
Date: 1.OCT.2024 15:55:15



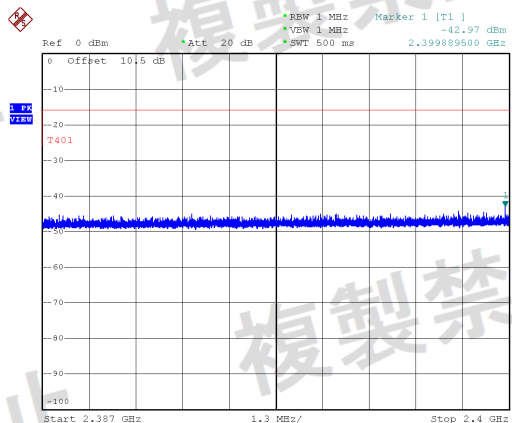
Modulation Type: 802.11b CH07



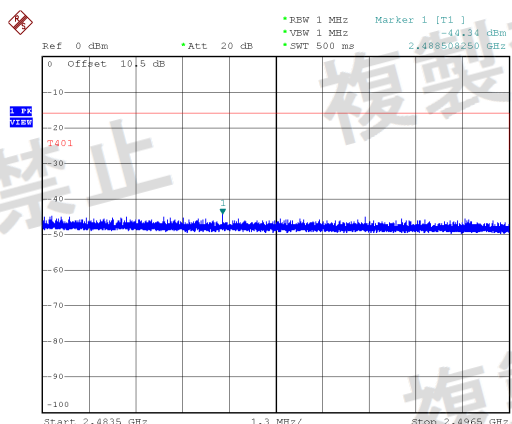
Date: 1.OCT.2024 15:59:47



Date: 1.OCT.2024 16:01:36



Date: 1.OCT.2024 16:00:23



Date: 1.OCT.2024 16:01:00

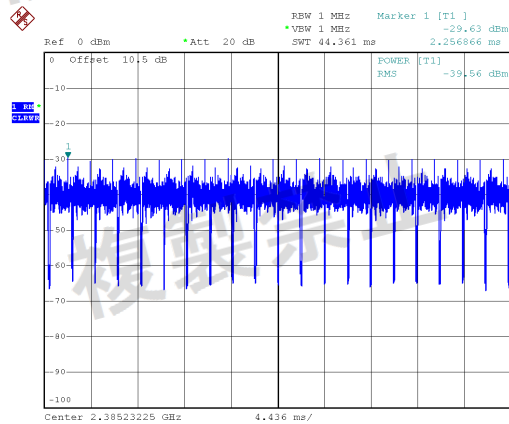


Modulation Type: 802.11b CH13

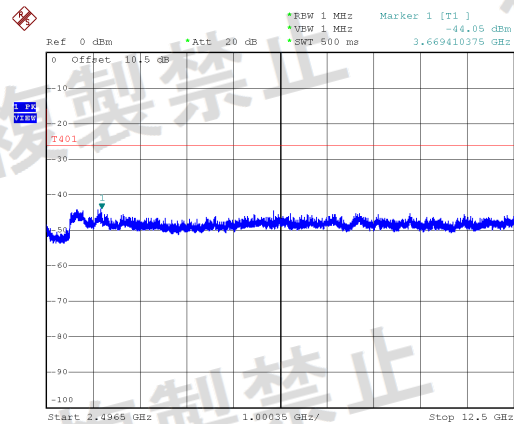




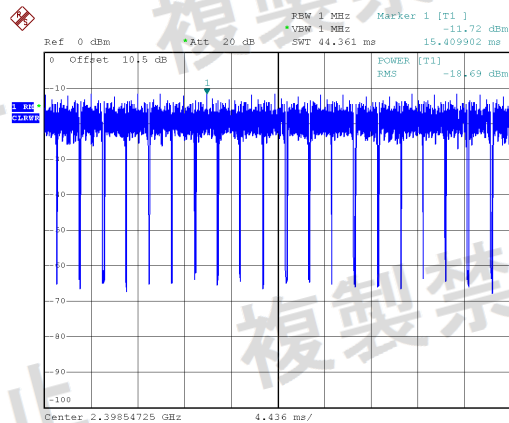
Modulation Type: 802.11g CH01



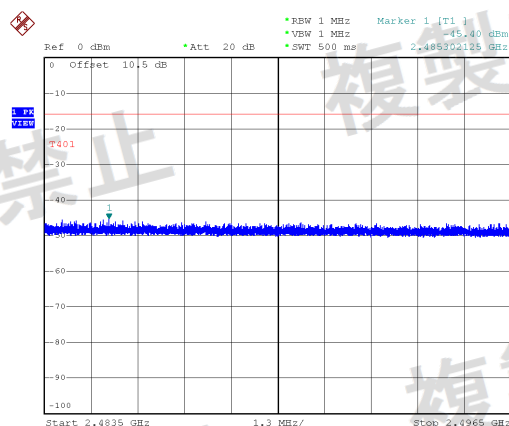
Date: 1.OCT.2024 16:21:21



Date: 1.OCT.2024 16:23:08



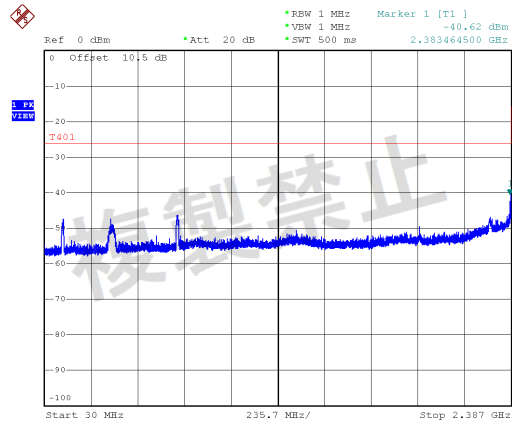
Date: 1.OCT.2024 16:22:06



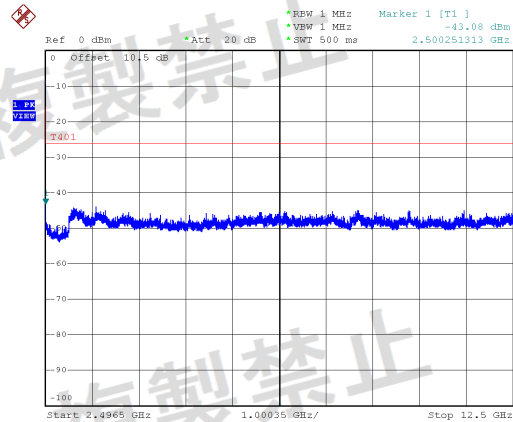
Date: 1.OCT.2024 16:22:31



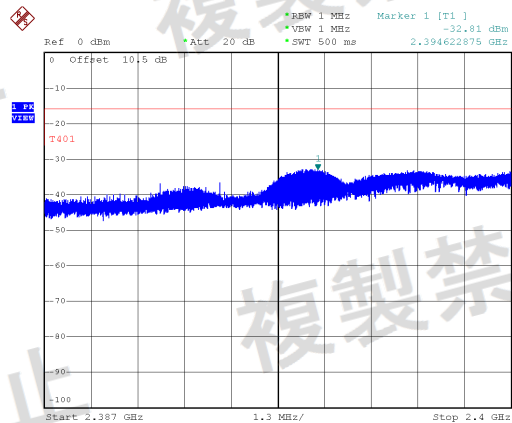
Modulation Type: 802.11g CH07



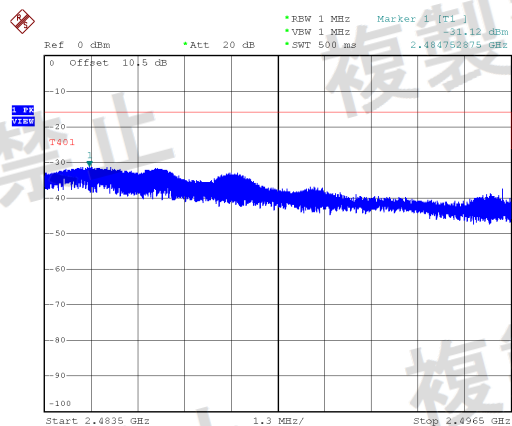
Date: 1.OCT.2024 16:25:41



Date: 1.OCT.2024 16:27:32



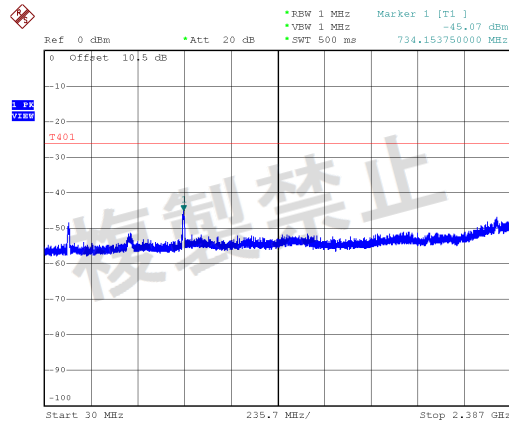
Date: 1.OCT.2024 16:26:18



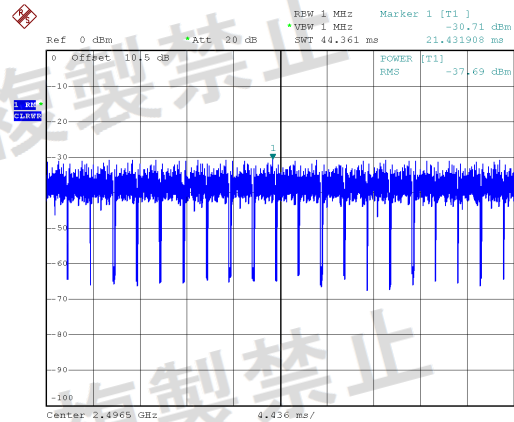
Date: 1.OCT.2024 16:26:55



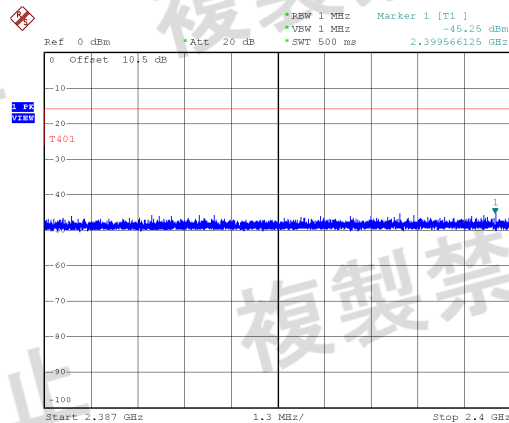
Modulation Type: 802.11g CH13



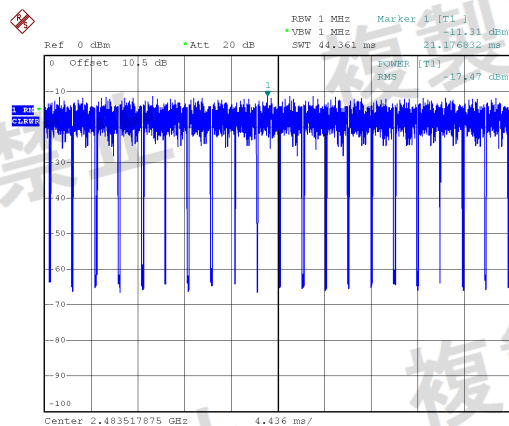
Date: 1.OCT.2024 16:30:10



Date: 1.OCT.2024 16:32:27



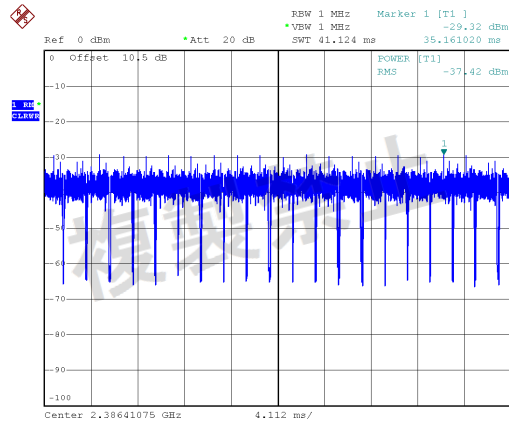
Date: 1.OCT.2024 16:30:47



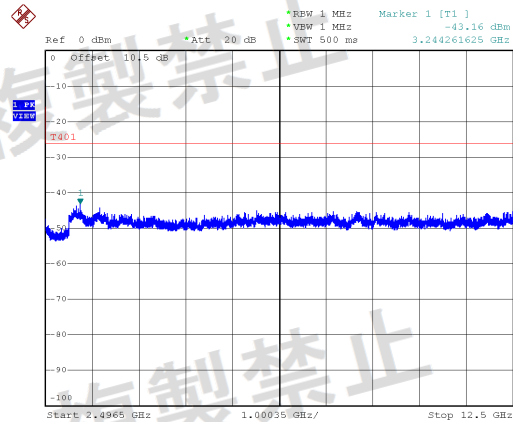
Date: 1.OCT.2024 16:31:42



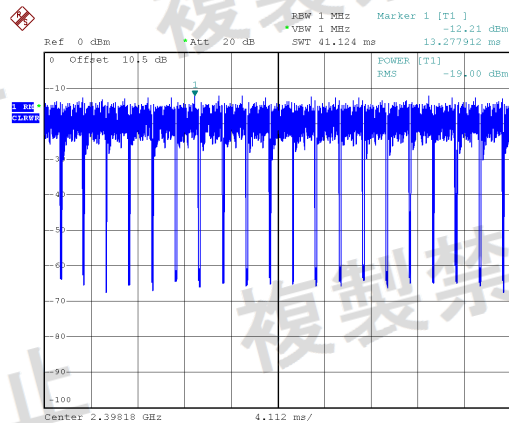
Modulation Type: 802.11n HT20 CH01



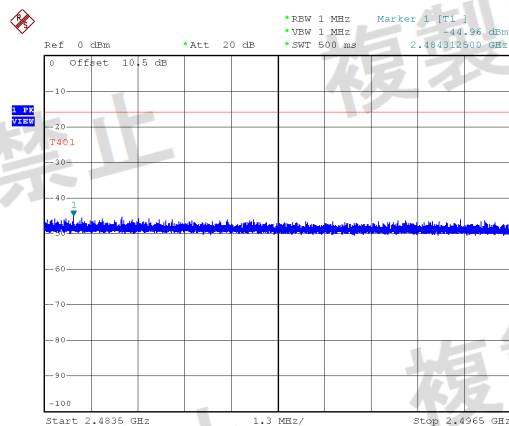
Date: 1.OCT.2024 16:39:44



Date: 1.OCT.2024 16:41:30



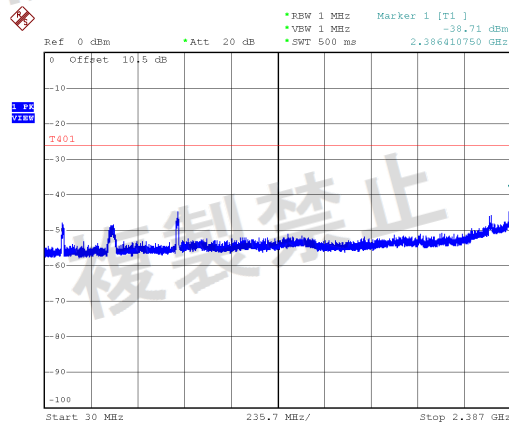
Date: 1.OCT.2024 16:40:28



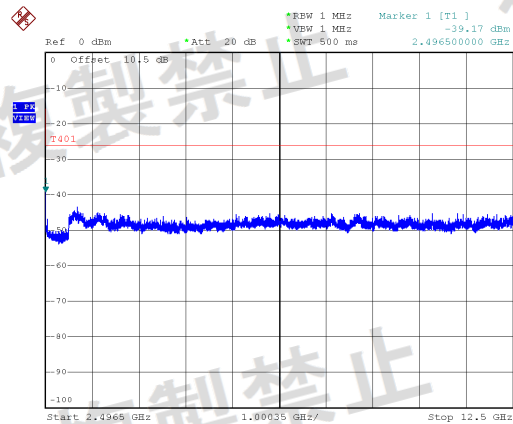
Date: 1.OCT.2024 16:40:53



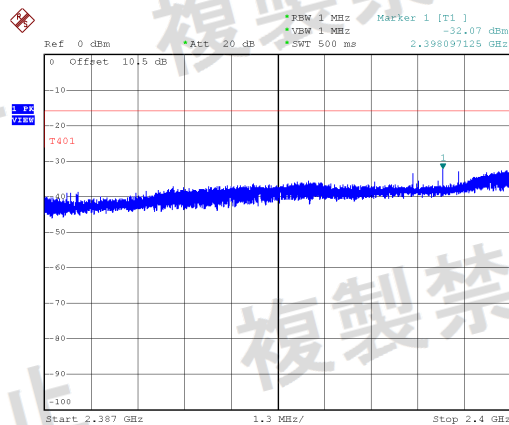
Modulation Type: 802.11n HT20 CH07



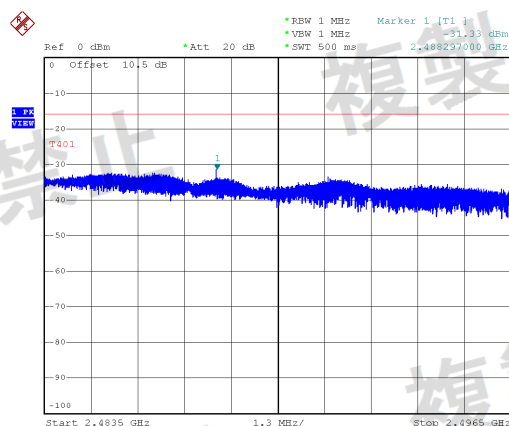
Date: 1.OCT.2024 16:44:23



Date: 1.OCT.2024 16:46:14



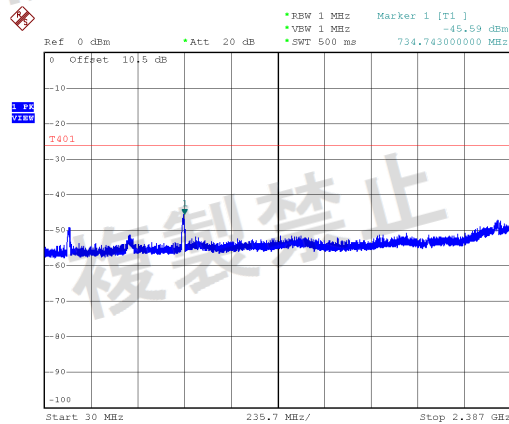
Date: 1.OCT.2024 16:45:00



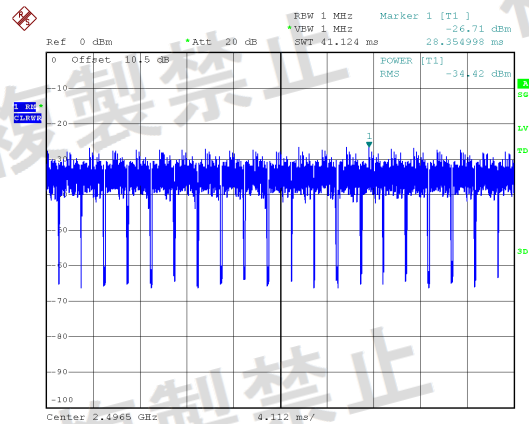
Date: 1.OCT.2024 16:45:37



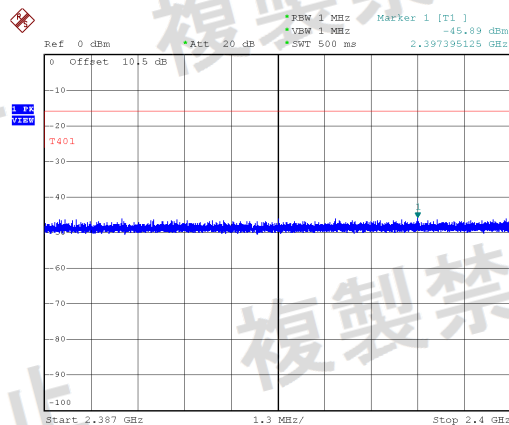
Modulation Type: 802.11n HT20 CH13



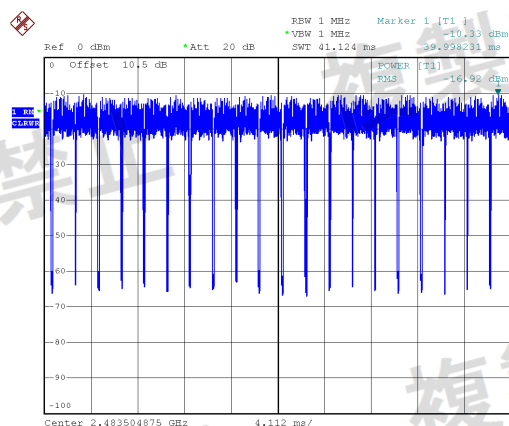
Date: 1.OCT.2024 16:48:59



Date: 1.OCT.2024 16:51:16



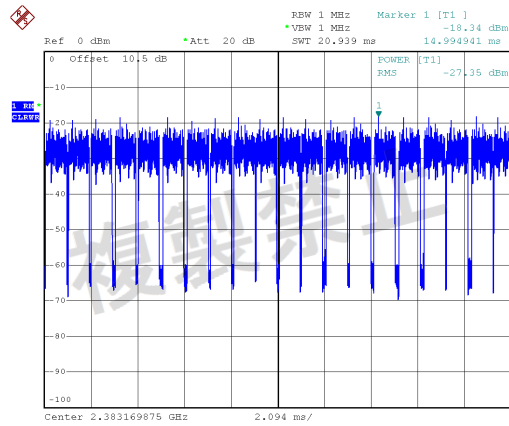
Date: 1.OCT.2024 16:49:36



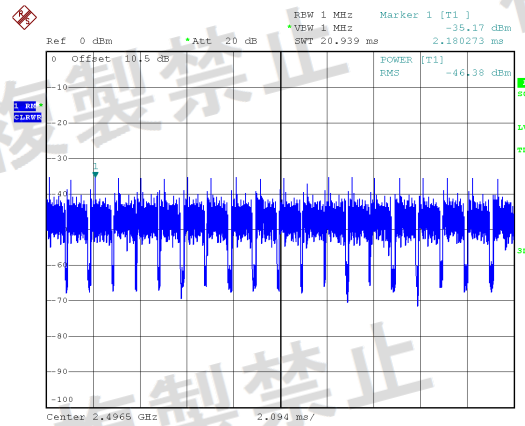
Date: 1.OCT.2024 16:50:32



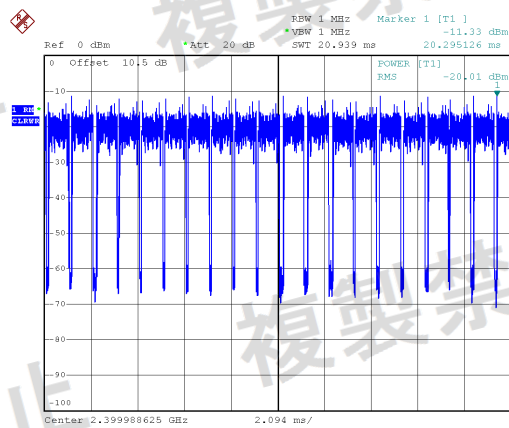
Modulation Type: 802.11n HT40 CH03



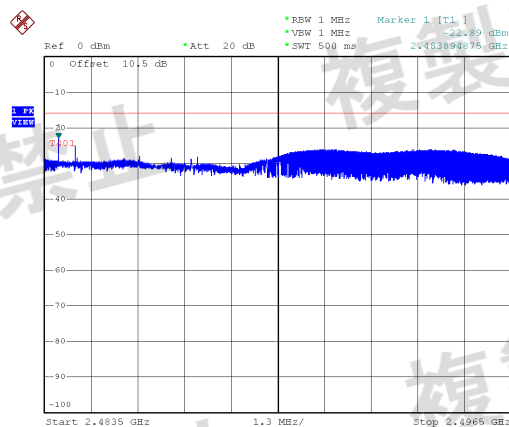
Date: 1.OCT.2024 17:05:33



Date: 1.OCT.2024 17:07:41



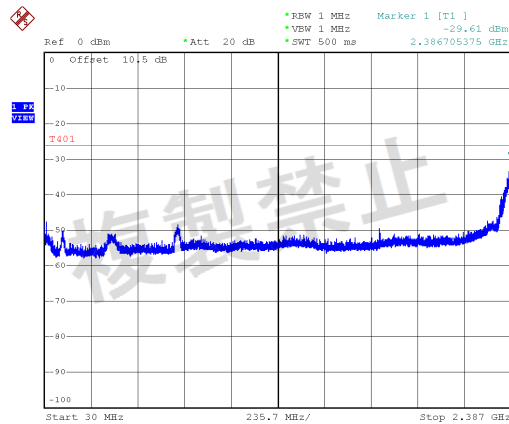
Date: 1.OCT.2024 17:06:18



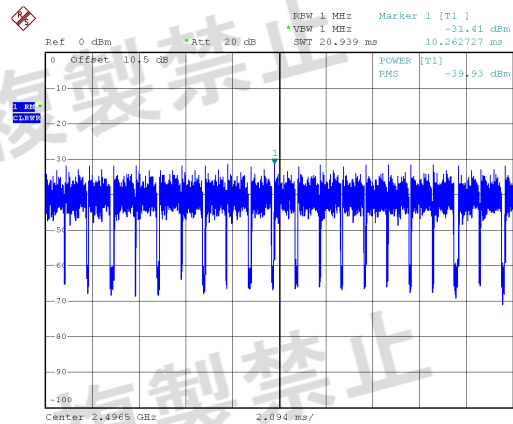
Date: 1.OCT.2024 17:06:43



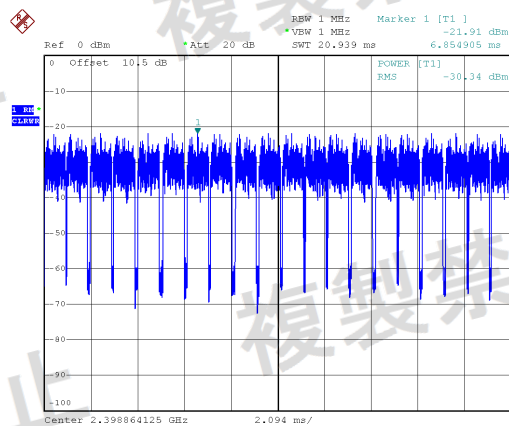
Modulation Type: 802.11n HT40 CH07



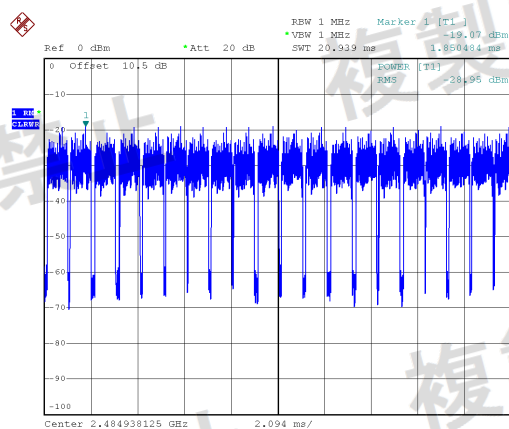
Date: 1.OCT.2024 17:10:41



Date: 1.OCT.2024 17:13:09



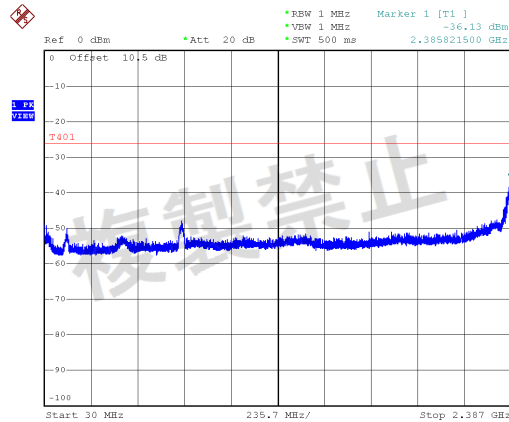
Date: 1.OCT.2024 17:11:39



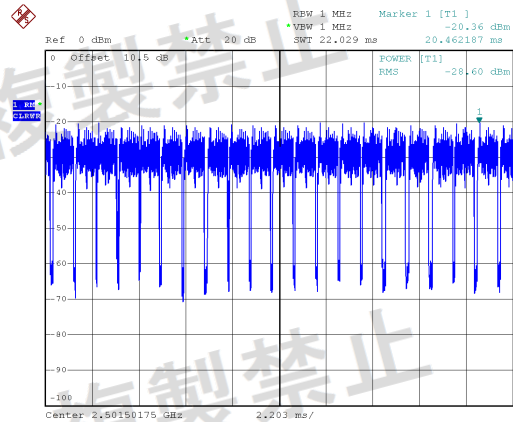
Date: 1.OCT.2024 17:12:23



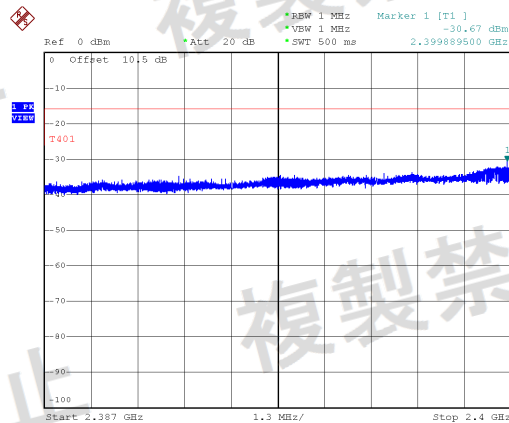
Modulation Type: 802.11n HT40 CH11



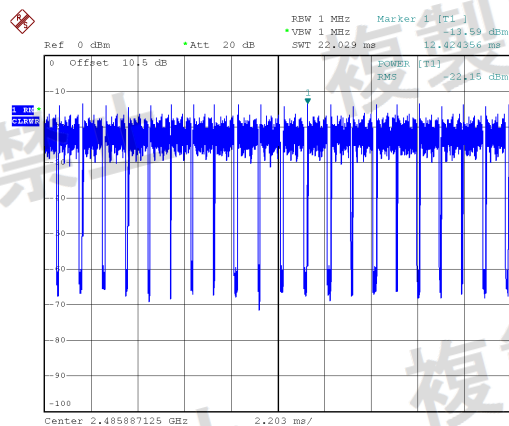
Date: 1.OCT.2024 17:25:39



Date: 1.OCT.2024 17:27:57



Date: 1.OCT.2024 17:26:16



Date: 1.OCT.2024 17:27:12



4.6 Interference Prevention Function

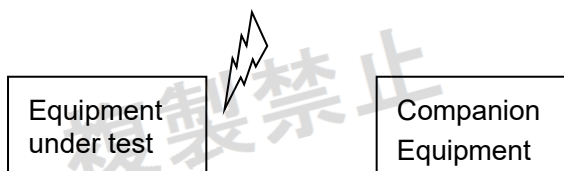
4.6.1 Test Limit

Identification code ≥ 48 bits

4.6.2 Test Procedures

1. Set EUT under operation mode and link up with companion equipment.
2. Check communication status between EUT and companion equipment is normal.
3. Confirm the MAC address of EUT.

4.6.3 Test Setup



4.6.4 Test Result

ID Code	MAC Address : 90:AC:3F:31:45:C2
Result: PASS	



5. Receiver Parameters

5.1 Spurious Emissions

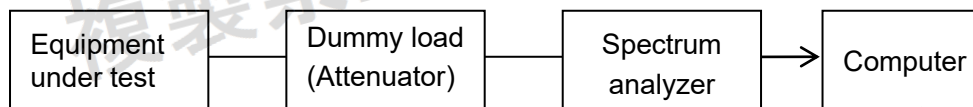
5.1.1 Test Limit

Frequency Band	Limit
<1GHz	4nW
1GHz ~ 12.5GHz	20nW

5.1.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43 Limit of secondary radiated emissions measuring procedure.

5.1.3 Test Setup



5.1.4 Test Result and Data

For 24090226

802.11b									
Test Conditions							Sum All Port		
Voltage	Frequency Band	Test Frequency	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 1000MHz	Spurious Emission Frequency	MHz	932.34	101.05	932.71	-	-	-
Vnom	1000MHz ~ 12500MHz		MHz	6432.31	6511.38	6591.88	-	-	-
Vnom	30MHz ~ 1000MHz	Spurious Emission Intensity	nW	0.0285	0.0359	0.0348	0.0285	0.0359	0.0348
Vnom	1000MHz ~ 12500MHz		nW	1.6596	1.3836	1.1324	1.6596	1.3836	1.1324



802.11g									
Test Conditions							Sum All Port		
Voltage	Frequency Band	Test Frequency	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 1000MHz	Spurious Emission Frequency	MHz	932.46	940.71	932.22	-	-	-
Vnom	1000MHz ~ 12500MHz		MHz	6432.31	6512.81	6591.88	-	-	-
Vnom	30MHz ~ 1000MHz	Spurious Emission Intensity	nW	0.0396	0.0269	0.0419	0.0396	0.0269	0.0419
Vnom	1000MHz ~ 12500MHz		nW	1.6866	1.3740	1.0965	1.6866	1.3740	1.0965

802.11n HT20									
Test Conditions							Sum All Port		
Voltage	Frequency Band	Test Frequency	MHz	2412	2442	2472	2412	2442	2472
Vnom	30MHz ~ 1000MHz	Spurious Emission Frequency	MHz	932.10	947.14	932.71	-	-	-
Vnom	1000MHz ~ 12500MHz		MHz	6432.31	6511.38	6591.88	-	-	-
Vnom	30MHz ~ 1000MHz	Spurious Emission Intensity	nW	0.0392	0.0247	0.0249	0.0392	0.0247	0.0249
Vnom	1000MHz ~ 12500MHz		nW	1.6788	1.2246	1.1803	1.6788	1.2246	1.1803

802.11n HT40									
Test Conditions							Sum All Port		
Voltage	Frequency Band	Test Frequency	MHz	2422	2442	2462	2422	2442	2462
Vnom	30MHz ~ 1000MHz	Spurious Emission Frequency	MHz	931.49	964.23	932.59	-	-	-
Vnom	1000MHz ~ 12500MHz		MHz	6459.63	6512.81	6566.00	-	-	-
Vnom	30MHz ~ 1000MHz	Spurious Emission Intensity	nW	0.0356	0.0341	0.0261	0.0356	0.0341	0.0261
Vnom	1000MHz ~ 12500MHz		nW	1.5596	1.2912	1.4421	1.5596	1.2912	1.4421

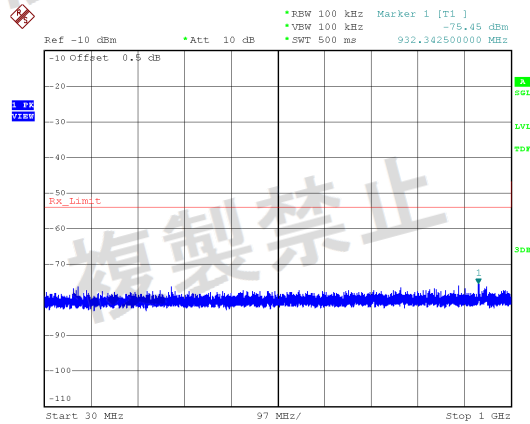
Note: 1. "----" means that no emissions were detected and there for it is a "PASS"

2.*The test result calculated as follows: nW= 10^(Measurement Value(dBm)/10) *1000000



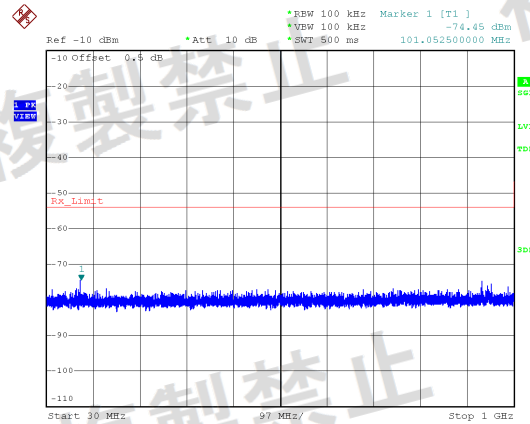
For 24090226

Modulation Type: 802.11b CH01

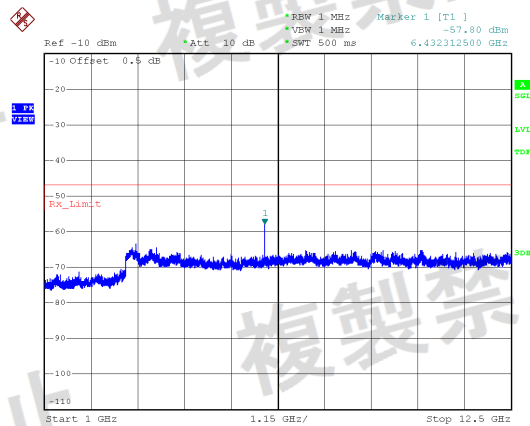


Date: 1.OCT.2024 17:42:28

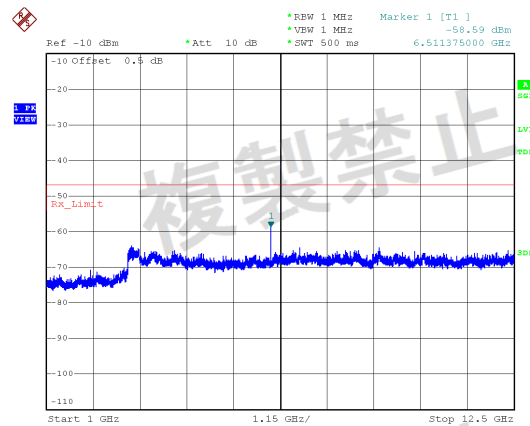
Modulation Type: 802.11b CH07



Date: 1.OCT.2024 17:47:36



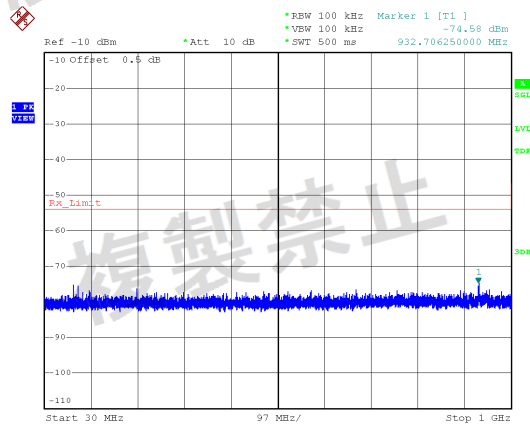
Date: 1.OCT.2024 17:43:05



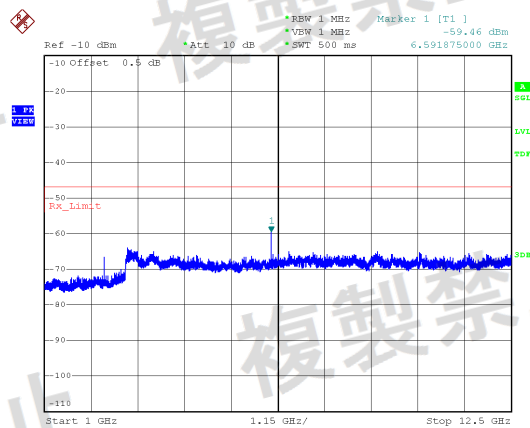
Date: 1.OCT.2024 17:48:13



Modulation Type: 802.11b CH13



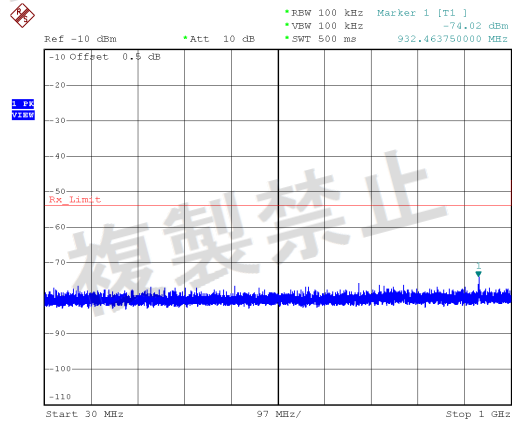
Date: 1.OCT.2024 17:50:00



Date: 1.OCT.2024 17:50:37

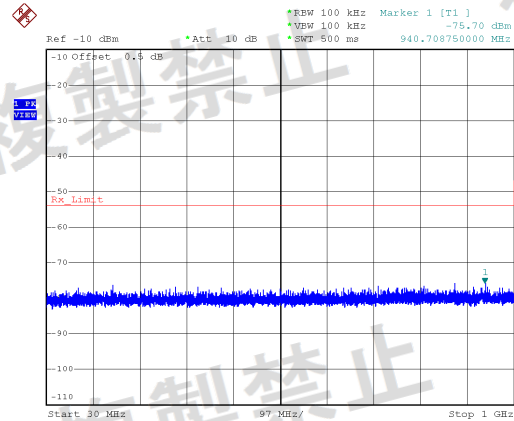


Modulation Type: 802.11g CH01

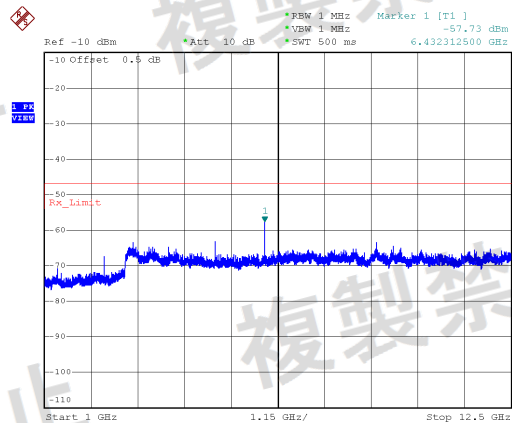


Date: 1.OCT.2024 17:55:43

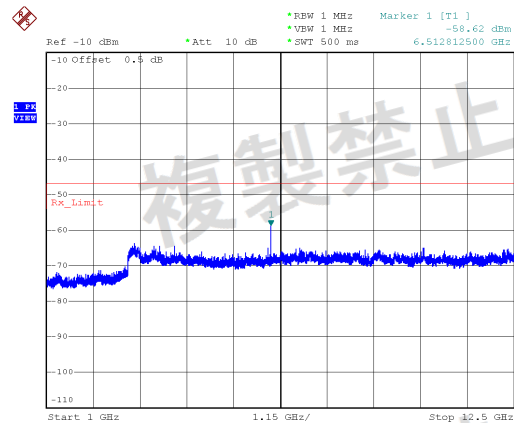
Modulation Type: 802.11g CH07



Date: 1.OCT.2024 17:57:37



Date: 1.OCT.2024 17:56:20



Date: 1.OCT.2024 17:58:14

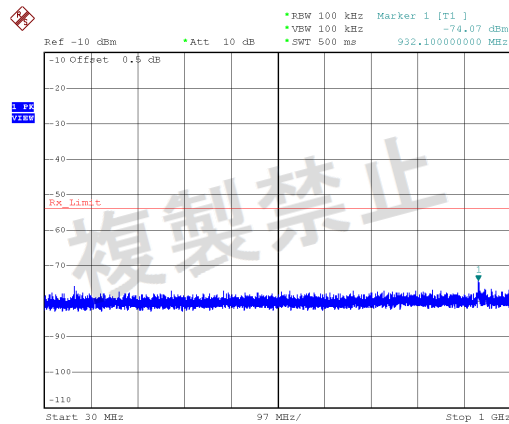


Modulation Type: 802.11g CH13



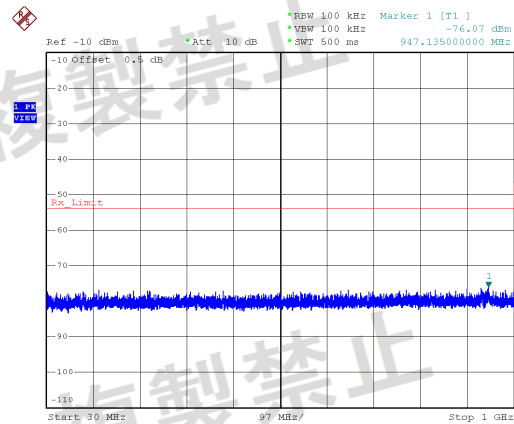


Modulation Type: 802.11n HT20 CH01

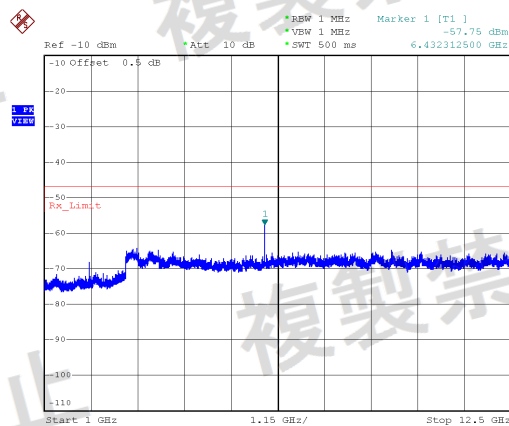


Date: 1.OCT.2024 18:06:34

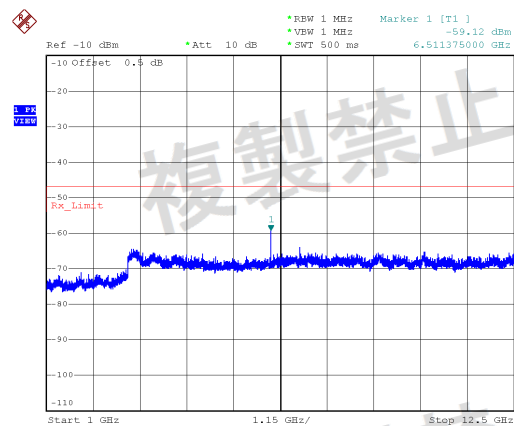
Modulation Type: 802.11n HT20 CH07



Date: 1.OCT.2024 18:09:02



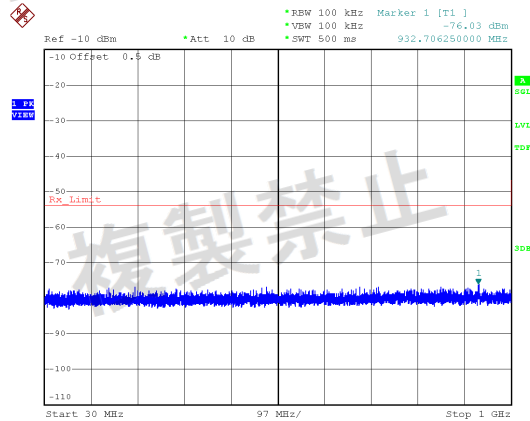
Date: 1.OCT.2024 18:07:10



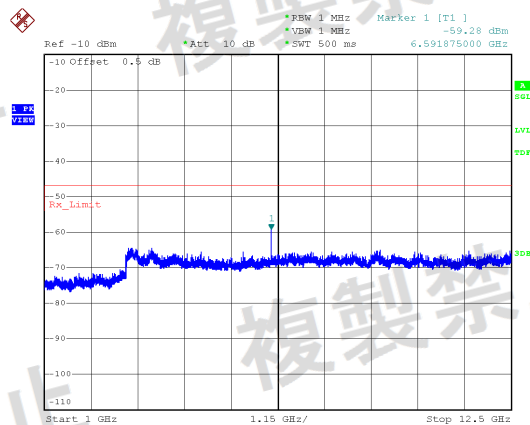
Date: 1.OCT.2024 18:09:39



Modulation Type: 802.11n HT20 CH13



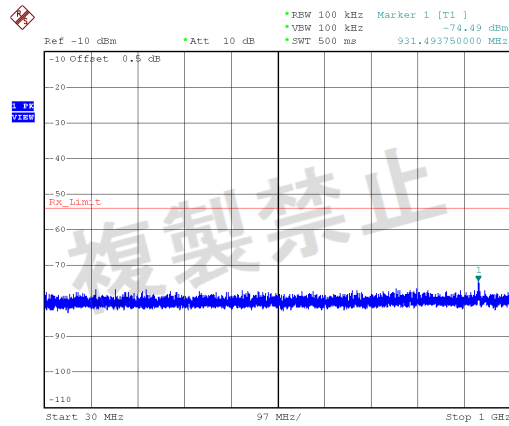
Date: 1.OCT.2024 18:11:14



Date: 1.OCT.2024 18:11:51

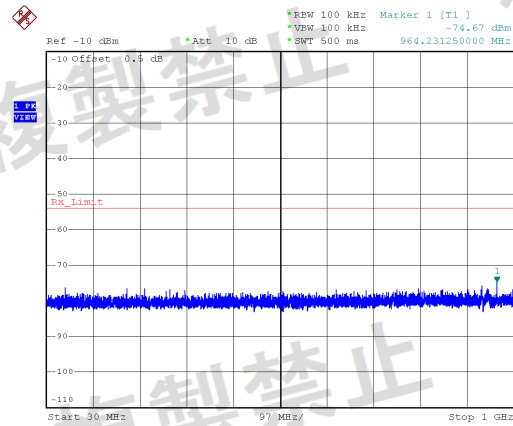


Modulation Type: 802.11n HT40 CH03

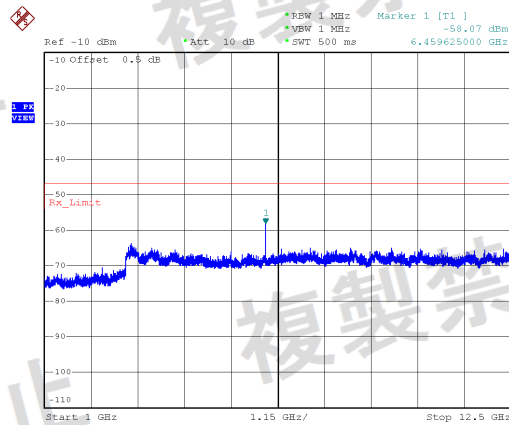


Date: 1.OCT.2024 18:16:08

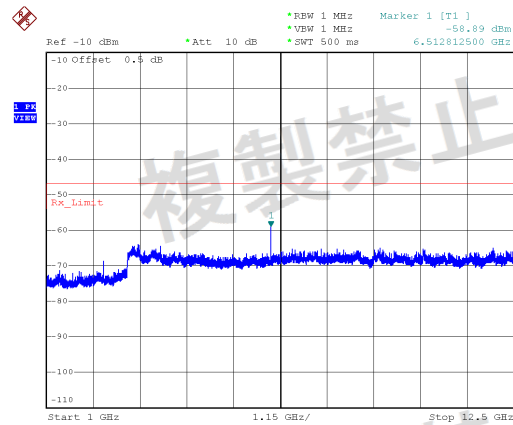
Modulation Type: 802.11n HT40 CH07



Date: 1.OCT.2024 18:18:07



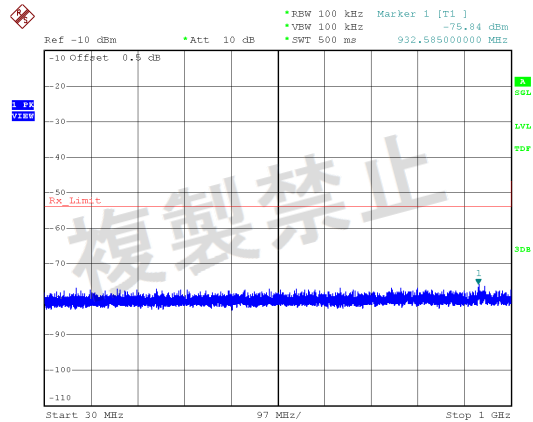
Date: 1.OCT.2024 18:16:45



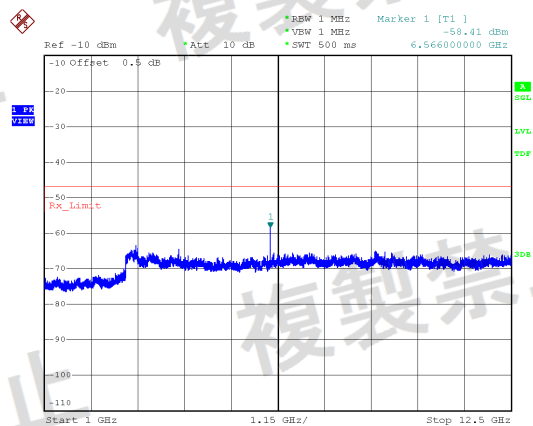
Date: 1.OCT.2024 18:18:45



Modulation Type: 802.11n HT40 CH11



Date: 1.OCT.2024 18:20:04



Date: 1.OCT.2024 18:20:41



6. Angular Width of Principal Radiation

6.1 Test Result

For 24090226

802.11b/g/n HT20

Antenna Type	Dipole
Antenna Gain	1.95
Cable Loss (dB)	0.50
EIRP (dBm/MHz)	11.88
Half Power Beam Angles (deg)	360.00
Limit of E.I.R.P (dBm/MHz)	12.14
Result	Pass

802.11n HT40

Antenna Type	Dipole
Antenna Gain	1.95
Cable Loss (dB)	0.50
EIRP (dBm/MHz)	6.93
Half Power Beam Angles (deg)	360.00
Limit of E.I.R.P (dBm/MHz)	9.13
Result	Pass



7. Power Supply Voltage Fluctuation Test

For 25060441

Adapter: APD \ WB-18U12R

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input AC Power	100	110	90
Output DC Power	3.318	3.321	3.312
Voltage Variation (%)	-	0.09%	-0.18%

Note: Voltage Variation(%)=(Output High or Low Voltage - Output Normal Voltage)/Output Normal Voltage X 100 During the supply voltage to the EUT from the external power source is varied by +/- 10%,if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%, Exempt extremely high and low supply voltage condition tests ,EUT only operated in normal voltage to test all regulations.

Adapter: RISUNIC \ R0182-1201500US

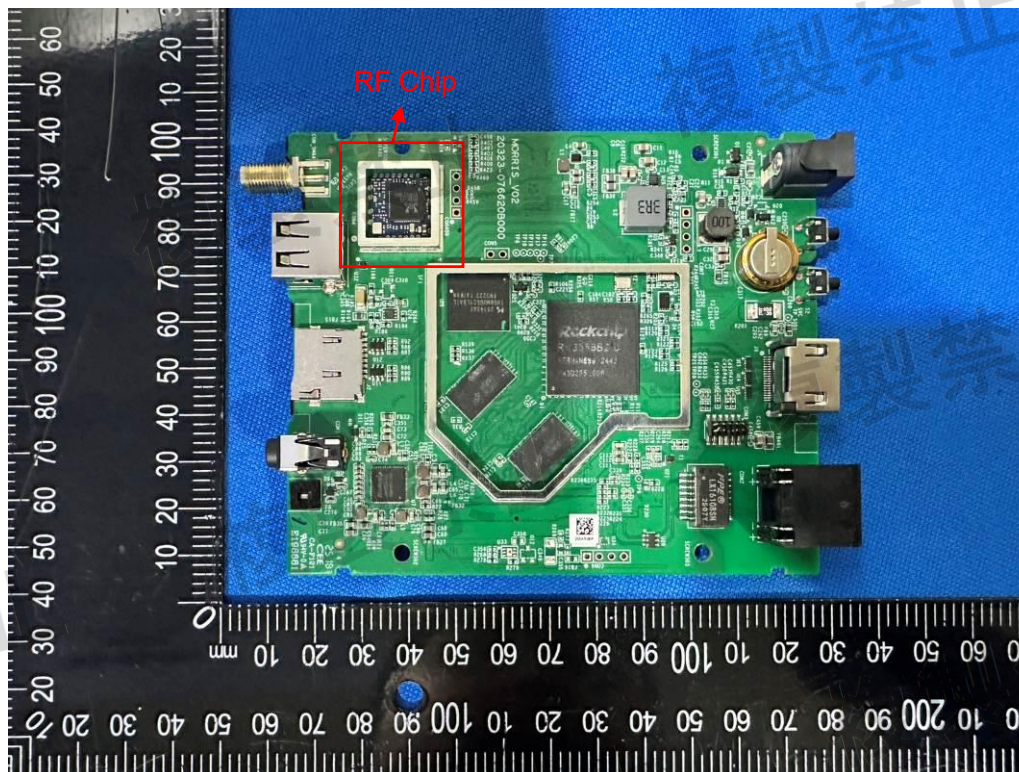
Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input AC Power	100	110	90
Output DC Power	3.314	3.319	3.310
Voltage Variation (%)	-	0.15%	-0.12%

Note: Voltage Variation(%)=(Output High or Low Voltage - Output Normal Voltage)/Output Normal Voltage X 100 During the supply voltage to the EUT from the external power source is varied by +/- 10%,if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%, Exempt extremely high and low supply voltage condition tests ,EUT only operated in normal voltage to test all regulations.



8. Construction Protection Confirmation

The Radio Equipment:
☐ Use Special Screw
☒ Metal Shielding is Soldered
☐ Use Ball Grid Array (BGA)
☐ The RF part is covered by glue.
☐ Ultrasonic Welding
Module/Chip:
☐ RF module/Chip Pins > 20 and Chip Pins distance < 1.5 mm



-----THE END OF REPORT-----