

Radio Test Report

Silicon Laboratories Finland Oy

Main Model: SiW917Y1GA

Series Model: SiW917Y1GN



In accordance with ARIB STD-T66
(2.4 GHz WLAN)

TUV
SUD

Digitally signed
by TUV SUD
Date: 2026.05.11
09:42:54 +01'00'

Prepared for: Silicon Laboratories Finland Oy
Bertel Jungin Aukio 3
Alberga Business Park
02600 Espoo
Finland

COMMERCIAL-IN-CONFIDENCE

Document 75960833-06 Issue 04

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Matthew Russell	Chief Engineer, RF	Authorised Signatory	08 May 2026

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with ARIB STD-T66: 3.8 (2024-03) for the tests detailed in section 1.3.



DISCLAIMER AND COPYRIGHT

This non-binding report has been prepared by TÜV SÜD with all reasonable skill and care. The document is confidential to the potential Client and TÜV SÜD. No part of this document may be reproduced without the prior written approval of TÜV SÜD. © 2026 TÜV SÜD. This report relates only to the actual item/items tested.

ACCREDITATION

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited). Results of tests covered by our Flexible UKAS Accreditation Schedule are marked FS (Flexible Scope).

TÜV SÜD
is a trading name of TÜV SÜD Ltd
Registered in Scotland at East Kilbride,
Glasgow G75 0QF, United Kingdom
Registered number: SC215164

TÜV SÜD Ltd is a
TÜV SÜD Group Company

Phone: +44 (0) 1489 558100
Fax: +44 (0) 1489 558101
www.tuvsud.com/en

TÜV SÜD
Octagon House
Concorde Way
Fareham
Hampshire PO15 5RL
United Kingdom



Contents

1	Report Summary	2
1.1	Report Modification Record	2
1.2	Introduction	2
1.3	Brief Summary of Results	4
1.4	Application Form	5
1.5	Product Information	11
1.6	Deviations from the Standard	11
1.7	EUT Modification Record	11
1.8	Test Location	12
2	Test Details	14
2.1	Antenna Power	14
2.2	Frequency Deviation	21
2.3	Permissible Value of Spurious or Unnecessary Radiation Intensity	32
2.4	Allowable Value for Occupied Bandwidth	86
2.5	Limit on Secondary Radiation	97
2.6	Interference Protection Function	107
2.7	Antenna Gain	110
3	Photographs	112
3.1	Equipment Under Test (EUT)	112
4	Measurement Uncertainty	114
Annex A	Antenna Power at Extreme Voltages	A.2
Annex B	Antenna Data	B.2



1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	02-September-2024
2	Corrected page numbering in footer	04-September-2024
3	Asterisk in table 22 moved from column header to each row as it is not applicable to for devices operating from 2471 MHz to 2497 MHz. Spread factor result added to CH14 result in table 40. Limit corrected to 10 for devices operating from 2471 MHz to 2497 MHz.	04-February-2026
4	Change ARIB STD-T66 3.7 to ARIB STD-T66 3.8 Power measurements for Channel 14 added Corrections to Brief Summary of Results table specifications	08-May-2026

Table 1

1.2 Introduction

Applicant	Silicon Laboratories Finland Oy
Manufacturer	Silicon Laboratories Finland Oy
Model Number(s)	Main Model SiW917Y1GA Series Model: SiW917Y1GN
Serial Number(s)	WLAN MAC address: ec:f6:4c:a0:ac:c WLAN MAC address: ec:f6:4c:a0:f:4 WLAN MAC address: ec:f6:4c:a0:1:a0
Hardware Version(s)	1.0
Software Version(s)	Stack's "Connectivity Firmware" version 2.10.1.2.0.4 (WLAN) Stack's "Connectivity Firmware" version 2.10.1.3.0.7 (Channel 14)
Number of Samples Tested	3
Test Specification/Issue/Date	ARIB STD-T66 3.8 (2024-03) RCR STD-33 5.4 (2010-04) – (Channel 14)
Order Number	PTP ~ 6000530772
Date	08-March-2024
Date of Receipt of EUT	21-February-2024 and 04-March-2024
Start of Test	10-April-2024
Finish of Test	02-May-2024
Name of Engineer(s)	Jayvir Makwana, Roscoe Harrison, Ahmad Javid, Stefan Gifedder and George Williams
Related Document(s)	Radio Equipment Regulations, Article 24 Radio Equipment Regulations, Article 14



Article 2 Paragraph 1 Item (19)
Article 2 Paragraph 1 Item (19)-2
MIC Notice No.88 Appendix No.43 & No.44
RCR STD-33
Radio Equipment Regulations, Article 5 Table 1
Radio Equipment Regulations, Article 7, Table 3
Radio Equipment Regulations, Article 6, Table 2
Radio Equipment Regulations, Article 49-20
Radio Equipment Regulations, Article 9-4



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with ARIB STD-T66 is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: 2.4GHz WLAN Receive				
2.5	3.3 (1)	Limit on Secondary Radiation	Pass	Radio Equipment Regulations, Article 24
Configuration and Mode: 2.4 GHz WLAN Conducted Tests				
2.1	3.2 (2)	Antenna Power	Pass	Radio Equipment Regulations, Article 14 Article 2 Paragraph 1 Item (19) Article 2 Paragraph 1 Item (19)-2 MIC Notice No.88 Appendix No.43 & No.44 RCR STD-33 (Channel 14)
2.2	3.2 (4)	Frequency Deviation	Pass	Radio Equipment Regulations, Article 5 Table 1
2.3	3.2 (6)	Permissible Value of Spurious or Unnecessary Radiation Intensity	Pass	Radio Equipment Regulations, Article 7, Table 3
2.4	3.2 (7)	Allowable Value for Occupied Bandwidth	Pass	Radio Equipment Regulations, Article 6, Table 2
2.6	3.4 (1)	Interference Protection Function	Pass	Radio Equipment Regulations, Article 9-4
2.7	3.6 (2)	Antenna Gain	Pass	Radio Equipment Regulations, Article 49-20
Configuration and Mode: 2.4 GHz WLAN - Extreme Voltages				
-	3.2 (2)	Antenna Power at Extreme Voltages	Pass	Refer to Annex A

Table 2



1.4 Application Form

Equipment Description

Technical Description: (Please provide a brief description of the intended use of the equipment)	Bluetooth Low Energy (LE), and Wi-Fi 802.11b/g/n/ax wireless radio module
Legal Manufacturer:	Silicon Laboratories Finland Oy
Model:	Main Model: SiW917Y1GA (with integral antenna) Series Model: SiW917Y1GN (with no integral antenna but RF pin)
Part Number:	Not Applicable
Hardware Version:	1.0
Software Version:	Stack's "Connectivity Firmware" version 2.10.1.2.0.4 (WLAN) Stack's "Connectivity Firmware" version 2.10.1.3.0.7 (Channel 14)

Table 3

The type of Wideband Data Transmission Equipment

FHSS ☐	non-FHSS ☒
-------------------------------	--

Table 4

The different transmit operating modes (tick all that apply)

Operating mode 1: Single Antenna Equipment	☒
Equipment with only one antenna	☒
Equipment with two diversity antennas but only one antenna active at any moment in time	☐
Smart Antenna Systems with two or more antennas but operating in a (legacy) mode where only one antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)	☐
Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming	☐
Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)	☐
High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1	☐
High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2	☐
Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming	☐
Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)	☐
High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1	☐
High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2	☐
NOTE: Add more lines if more channel bandwidths are supported.	

Table 5



In case of Smart Antenna Systems

The number of Receive chains:		
The number of Transmit chains:		
symmetrical power distribution	☐	
asymmetrical power distribution	☐	
In case of beam forming, the maximum (additional) beam forming gain:		dB
NOTE: The additional beam forming gain does not include the basic gain of a single antenna.		

Table 6

Operating Frequency Range(s) of the Equipment

Operating Frequency Range 1:	2412	MHz to	2484	MHz
Operating Frequency Range 2:		MHz to		MHz
NOTE: Add more lines if more Frequency Ranges are supported.				

Table 7

Nominal Channel Bandwidth

Nominal Channel Bandwidth 1:	20	MHz
Nominal Channel Bandwidth 2:		MHz
NOTE: Add more lines if more channel bandwidths are supported.		

Table 8

Type of Equipment (stand-alone, combined, plug-in radio device, etc.)

Stand-alone:			☐
Combined Equipment:			☐
Plug-in radio device:			☐
Other:	☒	Please specify:	Radio module meant for integration in host systems

Table 9



The normal and extreme operating conditions that apply to the equipment

Normal operating conditions (if applicable):					
Operating temperature:		23		°C	
Other (please specify if applicable):				°C	
Extreme operating conditions:					
Operating temperature:	Minimum	-40	°C to Maximum	+85	°C
Other (please specify if applicable):	Minimum		°C to Maximum		°C
Details provided are for the:					
stand-alone equipment					☒
combined equipment					☐
test jig / validation, characterization, and certification host board					☒

Table 10

The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels

Antenna Type:			
Integral Antenna (information to be provided in case of conducted measurements)			☒
Antenna Gain:	2.26		dBi
If applicable, additional beamforming gain (excluding basic antenna gain):			dB
Temporary RF connector provided			☐
No temporary RF connector provided			☐
Dedicated Antennas (equipment with antenna connector or radio module with RF pin)			☒
Single power level with corresponding antenna(s)			☒
Multiple power settings and corresponding antenna(s)			☐
Number of different Power Levels:			
Power Level 1			dBm
Power Level 2			dBm
NOTES: Add more lines in case the equipment has more power levels. These power levels are conducted power levels (at antenna connector).			
For each of the power levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable			
Power Level 1 (or single power level) of Dedicated Antennas			dBm
Number of antenna assemblies provided for this power level:			1
Assembly #	Gain (dBi)	e.i.r.p (dBm)	Part number or model number
1	4.28	Max: 22.28 dBm	
2			
3			
NOTE: Add more rows in case more antenna assemblies are supported for this power level.			



Power Level 2 of Dedicated Antennas			dBm
Number of antenna assemblies provided for this power level:			
Assembly #	Gain (dBi)	e.i.r.p (dBm)	Part number or model number
1			
2			
3			
NOTE: Add more rows in case more antenna assemblies are supported for this power level.			

Table 11

The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined equipment or test jig in case of plug-in devices

Details provided are for the:			
stand-alone equipment			☒
combined equipment			☐
test jig			☐
Supply Voltage			
AC mains	☐	AC voltage:	V
DC	☒	DC voltage:	Nominal 3.3, Min 3.0, Max: 3.63 V
In case of DC, indicate the type of power source			
Internal Power Supply			☐
External Power Supply or AC/DC adapter			☐
Battery			☐
Other:	☒	Please specify:	Module under scope is partially internally regulated. Regulated DC supply is provided to the module by the host board (or by an external power source during compliance testing in the lab, when applicable)

Table 12



Describe the test modes available which can facilitate testing

--

Table 13

The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3] IEEE 802.15.4™, proprietary, etc.)

IEEE 802.11b/g/n/ax (Wi-Fi)

Table 14

Modulation

ITU Class(es) of emission:	20M0 G1D/D1D/D2D			
Can the transmitter operate unmodulated?	Yes	☒	No	☐
Notes:	Module can transmit an unmodulated Carrier Wave (CW, Constant Tone Signal) only in Test Mode, for compliance testing in the lab			

Table 15

Duty Cycle

The transmitter is intended for:	
Continuous duty	☒
Intermittent duty	☐
Continuous operation possible for testing purposes	☐

Table 16

About the UUT

The equipment submitted are representative production models	☐
If not, the equipment submitted are pre-production models?	☒
If pre-production equipment are submitted, the final production equipment will be identical in all respects with the equipment tested	☒
If not, supply full details:	

Table 17



Additional items and/or supporting equipment provided

Spare batteries (e.g. for portable equipment)	☐
Battery charging device	☐
External Power Supply or AC/DC adapter	☐
Test Jig or interface box	☐
RF test fixture (for equipment with integrated antennas)	☐
Combined equipment	☐
Manufacturer:	☐
Model:	☐
Model Name:	☐
User Manual	☒
Technical documentation (Handbook and circuit diagrams)	☒

Table 18

Data in the tables above is provided by the Manufacturer.



1.5 Product Information

1.5.1 Technical Description

Bluetooth Low Energy (LE), and Wi-Fi 802.11b/g/n/ax wireless radio module.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: SiW917Y1GA, Serial Number: WLAN MAC address: ec:f6:4c:a0:ac:c			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: SiW917Y1GN, Serial Number: WLAN MAC address: ec:f6:4c:a0:f:4			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: SiW917Y1GN, Serial Number: WLAN MAC address: ec:f6:4c:a0:1:a0			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 19

Note: The serial numbers used throughout this report are the MAC addresses of the equipment under test.



1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4GHz WLAN Receive		
Limit on Secondary Radiation	Ahmad Javid	UKAS
Configuration and Mode: 2.4 GHz WLAN Conducted Tests		
Antenna Power	Roscoe Harrison	UKAS
Frequency Deviation	Roscoe Harrison	UKAS
Permissible Value of Spurious or Unnecessary Radiation Intensity	Roscoe Harrison	UKAS
Allowable Value for Occupied Bandwidth	Roscoe Harrison	UKAS
Interference Protection Function	Roscoe Harrison	UKAS
Antenna Gain	Roscoe Harrison	UKAS
Configuration and Mode: 2.4 GHz WLAN Extreme Voltages		
Antenna Power at Extreme Voltages	George Williams	UKAS

Table 20

Office Address:

TÜV SÜD
Octagon House
Concorde Way
Fareham
Hampshire
PO15 5RL
United Kingdom



TÜV SÜD conducted the following tests at our Concorde Park Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz WLAN Conducted Tests		
Antenna Power	Jayvir Makwana	UKAS
Frequency Deviation	Jayvir Makwana	UKAS
Allowable Value for Occupied Bandwidth	Jayvir Makwana	UKAS
Interference Protection Function	Stefan Galfedder	UKAS
Antenna Gain	Jayvir Makwana	UKAS

Table 21

Office Address:

TÜV SÜD
Concorde Park
Concorde Way
Fareham
Hampshire
PO15 5FG
United Kingdom



2 Test Details

2.1 Antenna Power

2.1.1 Specification Reference

ARIB STD-T66, Clause 3.2 (2)

2.1.2 Equipment Under Test and Modification State

SiW917Y1GN, S/N: WLAN MAC address: ec:f6:4c:a0:f:4- Modification State 0

2.1.3 Date of Test

10-April-2024

2.1.4 Test Method

The Power Spectral Density was measured using a spectrum analyser which was tuned to the test frequency with the relevant RBW to match the limit. The max hold function on the analyser was used to obtain output power. A percentage deviation from the measured power to the declared power was calculated and assessed against the tolerance limits.

A power meter was used to obtain the total conducted output power and included in the report for information.

The EUT was supplied with 3.3 VDC by means of a regulator residing in the host certification board, which was in turn being powered over the host certification board's USB connector.

2.1.5 Environmental Conditions

Ambient Temperature	20.2 °C
Relative Humidity	41.3 %



2.1.6 Test Results

2.4 GHz WLAN Conducted Tests

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (2) 3.2 (3)	Test Method(s):	Refer to Test Method
Additional Reference(s):	3.6		

DUT Configuration			
Mode:	802.11b	Duty Cycle (%):	100.0
Data Rate:	1 Mbps	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	4.28#
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Conducted Output Power (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (mW/MHz)	Limit (%)
2412 (CH1)	15	5.61	6.3	-10.94	10.00	$-80 \leq n \leq +20^*$
2442 (CH7)	15	5.19	6.3	-17.65	10.00	$-80 \leq n \leq +20^*$
2472 (CH13)	15	5.70	6.3	-9.50	10.00	$-80 \leq n \leq +20^*$
2484 (CH14)	16	5.73	6.3	-9.08	10.00	$-80 \leq n \leq +20$

Table 22 – PSD Results

Test Frequency (MHz)	Power Index	Conducted Output Power	
		dBm	mW
2412 (CH1)	15	15.54	35.81
2442 (CH7)	15	15.30	33.88
2472 (CH13)	15	15.64	36.64
2484 (CH14)	16	16.88	48.75

Table 23 - Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (2) 3.2 (3)	Test Method(s):	Refer to Test Method
Additional Reference(s):	3.6		

DUT Configuration			
Mode:	802.11g	Duty Cycle (%):	100.0
Data Rate:	6 Mbps	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	4.28#
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Conducted Output Power (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (mW/MHz)	Limit (%)*
2412 (CH1)	16	3.68	4.8	-23.31	10.00	$-80 \leq n \leq +20$
2442 (CH7)	18	4.61	6	-23.11	10.00	$-80 \leq n \leq +20$
2472 (CH13)	14	2.43	3	-18.93	10.00	$-80 \leq n \leq +20$

Table 24 - PSD Results

Test Frequency (MHz)	Power Index	Conducted Output Power	
		dBm	mW
2412 (CH1)	16	16.83	48.19
2442 (CH7)	18	17.89	61.52
2472 (CH13)	14	15.11	32.43

Table 25 - Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (2) 3.2 (3)	Test Method(s):	Refer to Test Method
Additional Reference(s):	3.6		

DUT Configuration			
Mode:	802.11n HT20	Duty Cycle (%):	100.0
Modulation Coding Scheme:	MCS0	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	4.28 [#]
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Conducted Output Power (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (mW/MHz)	Limit (%) [*]
2412 (CH1)	14	2.13	2.3	-7.26	10.00	-80 ≤ n ≤ +20
2442 (CH7)	18	4.33	5.6	-22.77	10.00	-80 ≤ n ≤ +20
2472 (CH13)	14	1.88	2.3	-18.29	10.00	-80 ≤ n ≤ +20

Table 26 - PSD Results

Test Frequency (MHz)	Power Index	Conducted Output Power	
		dBm	mW
2412 (CH1)	14	14.78	30.06
2442 (CH7)	18	17.91	61.80
2472 (CH13)	14	14.29	26.85

Table 27 - Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (2) 3.2 (3)	Test Method(s):	Refer to Test Method
Additional Reference(s):	3.6		

DUT Configuration			
Mode:	802.11ax HE20 SU	Duty Cycle (%):	100.0
Modulation Coding Scheme:	MCS0x1	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	4.28 [#]
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Conducted Output Power (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (mW/MHz)	Limit (%) [*]
2412 (CH1)	8	0.73	1.0	-26.72	10.00	-80 ≤ n ≤ +20
2442 (CH7)	9	0.77	1.0	-22.73	10.00	-80 ≤ n ≤ +20
2472 (CH13)	9	0.76	1.0	-23.97	10.00	-80 ≤ n ≤ +20

Table 28 - PSD Results

Test Frequency (MHz)	Power Index	Conducted Output Power	
		dBm	mW
2412 (CH1)	8	10.56	11.38
2442 (CH7)	9	10.83	12.11
2472 (CH13)	9	10.76	11.91

Table 29 - Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (2) 3.2 (3)	Test Method(s):	Refer to Test Method
Additional Reference(s):	3.6		

DUT Configuration			
Mode:	802.11ax HE20 RU26	Duty Cycle (%):	100.0
Modulation Coding Scheme:	MCS0x1	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	4.28 [#]
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Conducted Output Power (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (mW/MHz)	Limit (%) [*]
2412 (CH1)	8	5.14	6.2	-17.09	10.00	-80 ≤ n ≤ +20
2442 (CH7)	9	5.82	6.3	-7.60	10.00	-80 ≤ n ≤ +20
2472 (CH13)	9	5.75	6.3	-8.66	10.00	-80 ≤ n ≤ +20

Table 30 - PSD Results

Test Frequency (MHz)	Power Index	Conducted Output Power	
		dBm	mW
2412 (RU26.0) (CH1)	8	9.79	9.53
2442 (RU26.0) (CH7)	9	10.38	10.91
2472 (RU26.8) (CH13)	9	10.36	10.86

Table 31 - Output Power Results



ARIB STD T-66, Limit Clause 3.2 (3)

PSD:
 $\leq 10 \text{ mW/1MHz}$

Total Power:

The upper and lower allowable deviations in antenna power are 20% and 80%, respectively. However, these limits are for maximum rate antenna power. If the antenna power is reduced for communication reasons, there are no regulated upper or lower allowable deviations.

* Only the upper antenna tolerance of +20% applies to the Radio Equipment Regulations Article 14(8)(3) for radio stations of low-power data communications systems using radio waves with frequencies exceeding 2400 MHz and up to 2483.5 MHz.

The maximum antenna gain for this unit to pass the requirements has been found to be 4.28 dBi for antennas with a maximum half power beamwidth of 360 degrees. This is due to the max measurement of 6.11 mW/MHz (See Annex A). Higher gain antennas may be used so long as the half power beamwidth passes the requirements in ARIB STD-T66 3.6(2).

2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 14.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
MXA Signal Analyser	Keysight Technologies	N9020B	6417	24	26-Feb-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6518	12	16-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6529	12	16-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6587	12	13-Feb-2025
Hygrometer	Rotronic	I-1000	3068	12	07-Nov-2024

Table 32



2.2 Frequency Deviation

2.2.1 Specification Reference

ARIB STD-T66, Clause 3.2 (4)

2.2.2 Equipment Under Test and Modification State

SiW917Y1GN, S/N: WLAN MAC address: ec:f6:4c:a0:f:4- Modification State 0

2.2.3 Date of Test

10-April-2024

2.2.4 Test Method

The frequency of the spectrum was measured using a spectrum analyser by finding the centre point of the 10 dB bandwidth. The deviation of the measured value from the assigned frequency was calculated in ppm.

The EUT was supplied with 3.3 VDC by means of a regulator residing in the host certification board, which was in turn being powered over the host certification board's USB connector..

2.2.5 Environmental Conditions

Ambient Temperature	22.4 °C
Relative Humidity	47.5 %



2.2.6 Test Results

2.4 GHz WLAN Conducted Tests

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (4)	Test Method(s):	Refer to Test Method
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11b	Duty Cycle (%):	-
Data Rate:	1 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Frequency Error (ppm)				Limit (ppm)
		A	B	C	D	
2412	15.00	-9.121	-	-	-	±50.0
2442	15.00	-10.647	-	-	-	±50.0
2472	15.00	-10.518	-	-	-	±50.0
2484	16.00	-20.129	-	-	-	±50.0

Table 33 - Frequency Tolerance Results

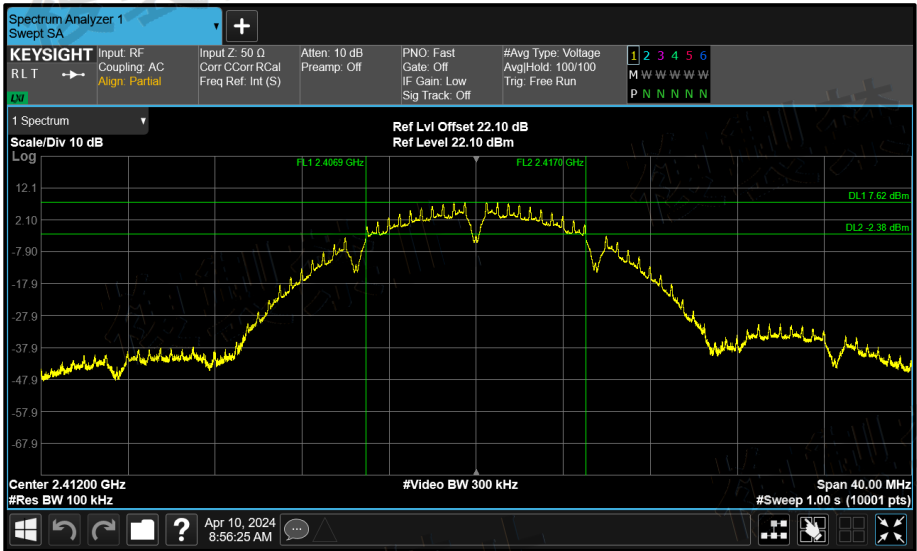


Figure 1 - A (A) 2412 MHz (CH1) Pre-scan

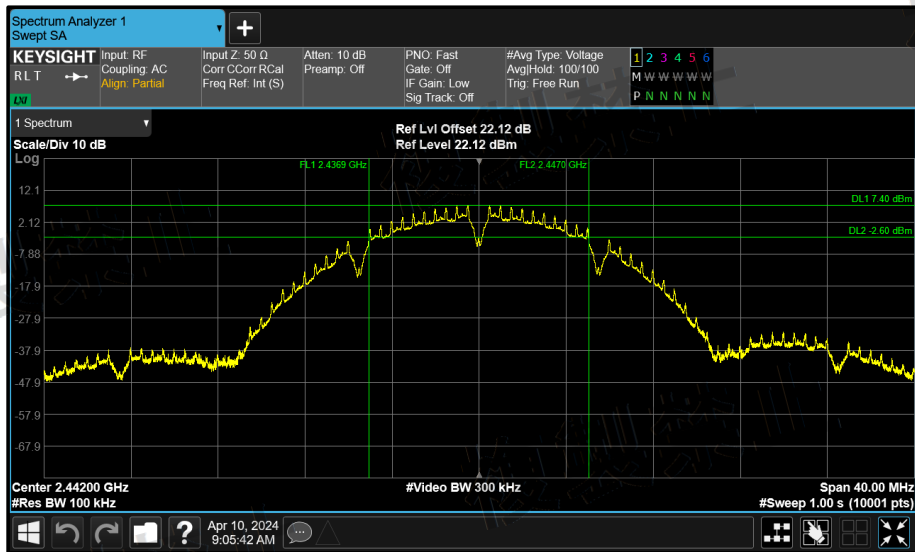


Figure 2 - A (A) 2442 MHz (CH7) Pre-scan

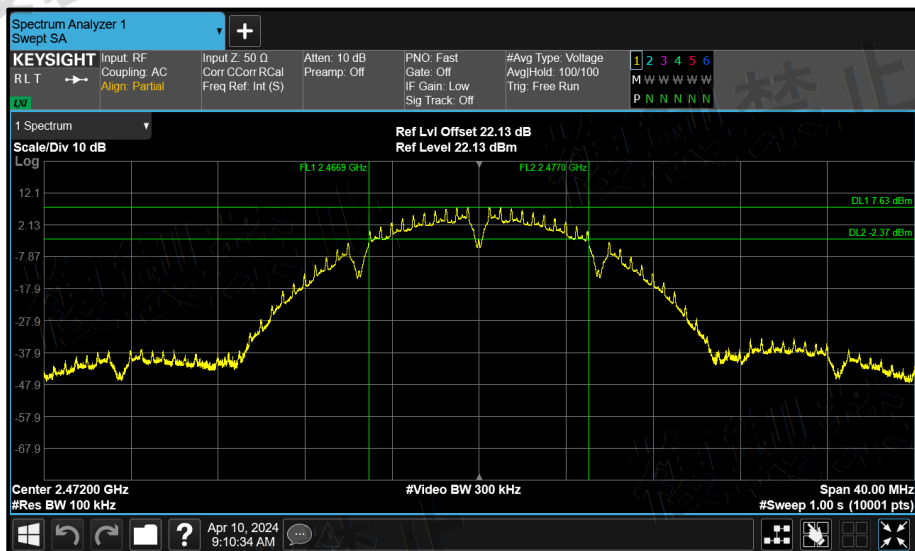


Figure 3 - A (A) 2472 MHz (CH13) Pre-scan

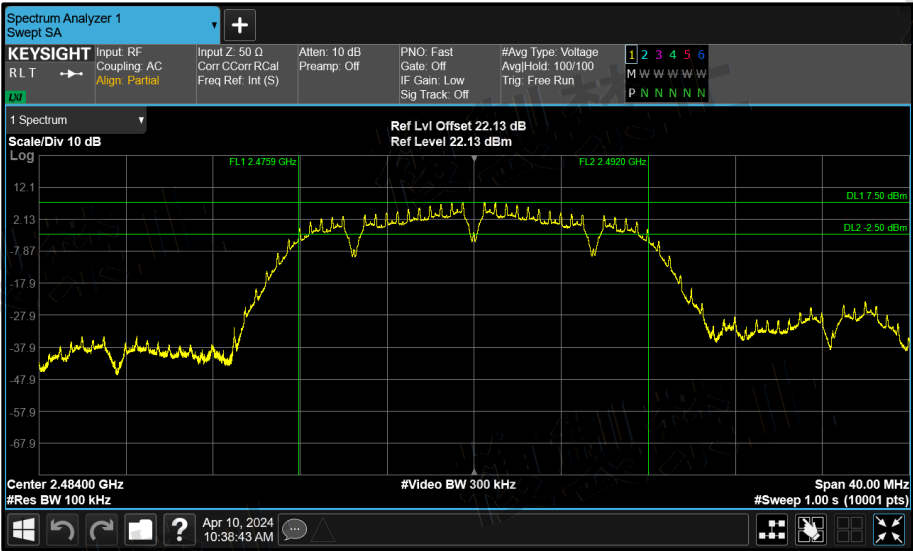


Figure 4 - A (A) 2484 MHz (CH14) Pre-scan

DUT Configuration			
Mode:	802.11g	Duty Cycle (%):	-
Data Rate:	6 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Table 34 - Frequency Tolerance Results

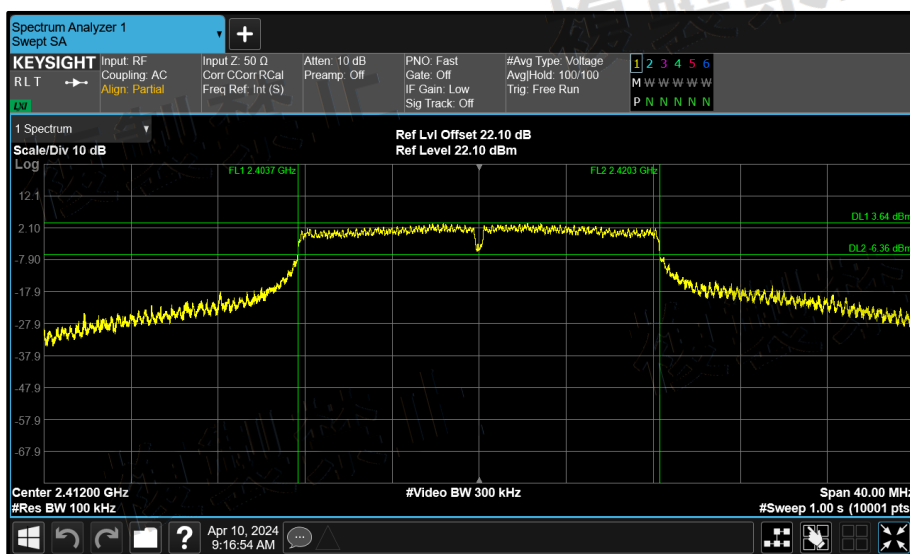


Figure 5 - A (A) 2412 MHz (CH1) Pre-scan

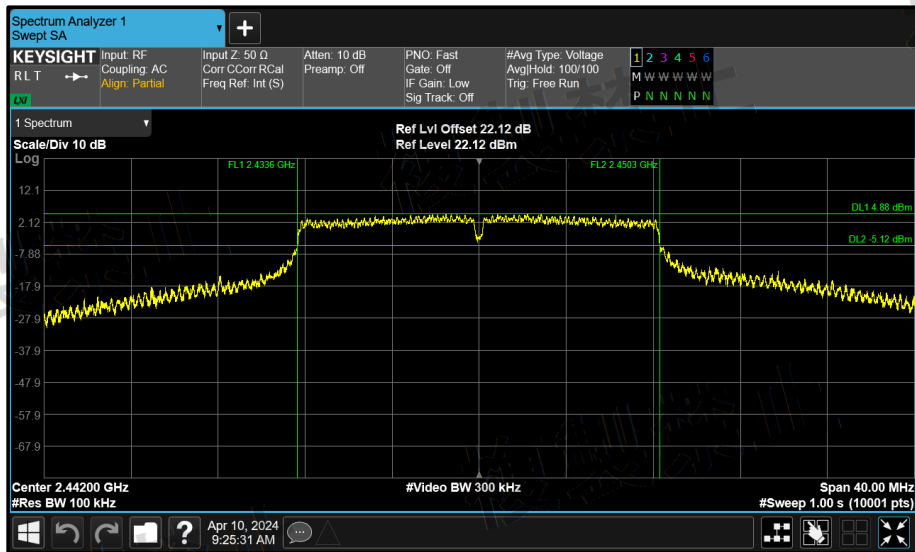


Figure 6 - A (A) 2442 MHz (CH7) Pre-scan

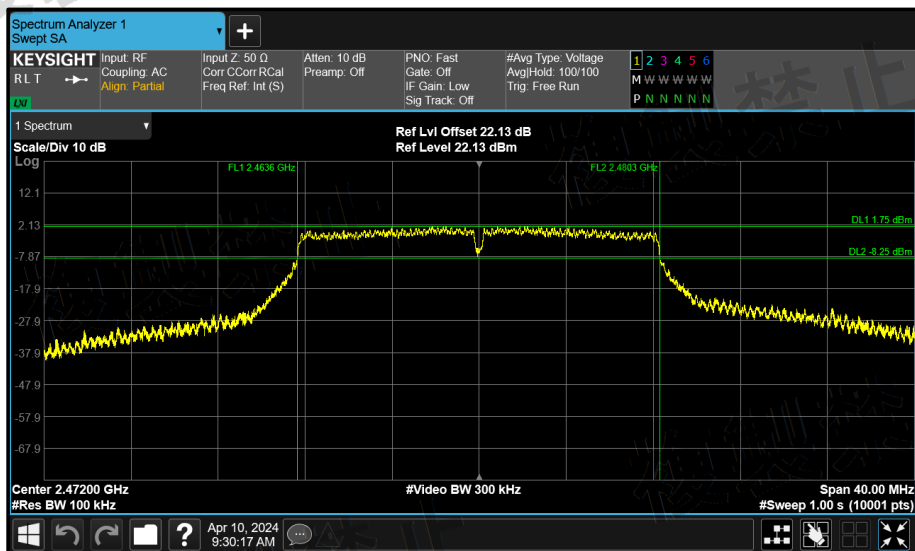


Figure 7 - A (A) 2472 MHz (CH13) Pre-scan



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (4)	Test Method(s):	Refer to Test Method
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11n HT20	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS0	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Frequency Error (ppm)				Limit (ppm)
		A	B	C	D	
2412	14.00	-5.804	-	-	-	±50.0
2442	18.00	-26.208	-	-	-	±50.0
2472	14.00	-21.036	-	-	-	±50.0

Table 35 - Frequency Tolerance Results

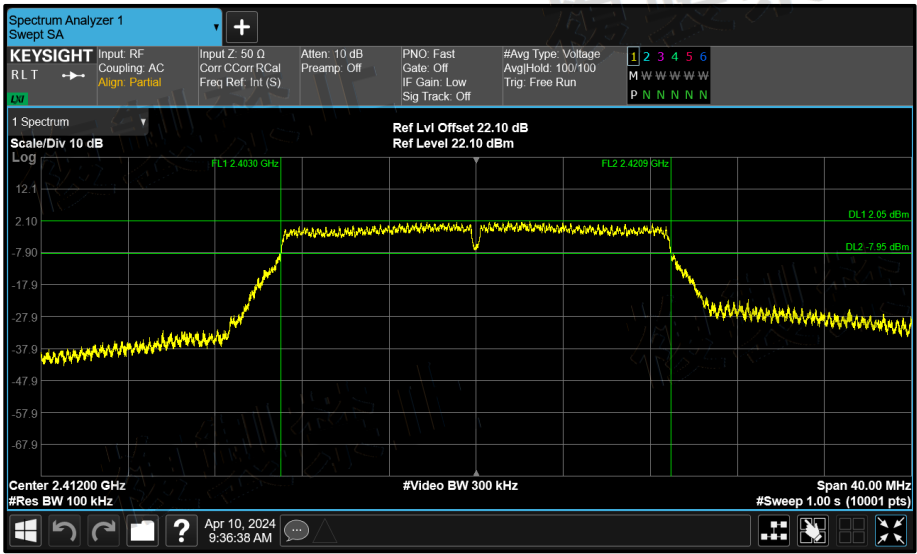


Figure 8 - A (A) 2412 MHz (CH1) Pre-scan

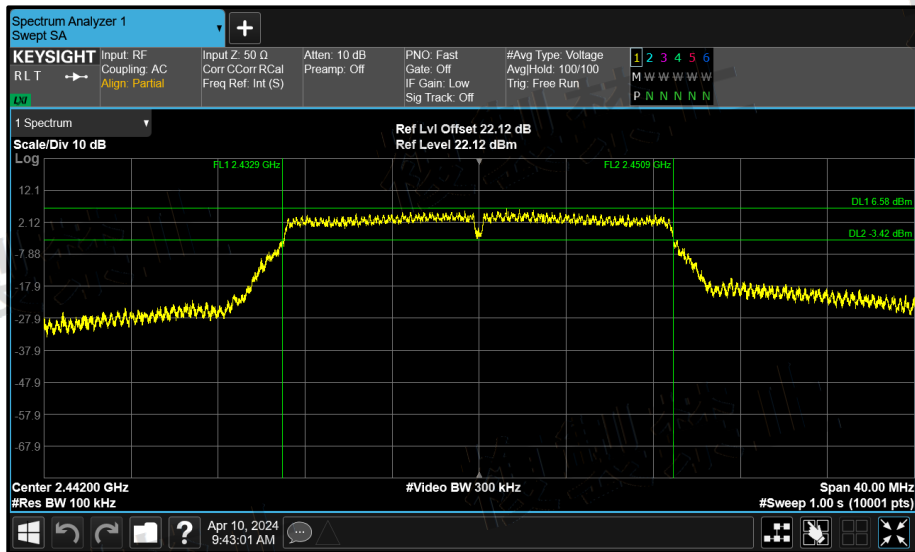


Figure 9 - A (A) 2442 MHz (CH7) Pre-scan

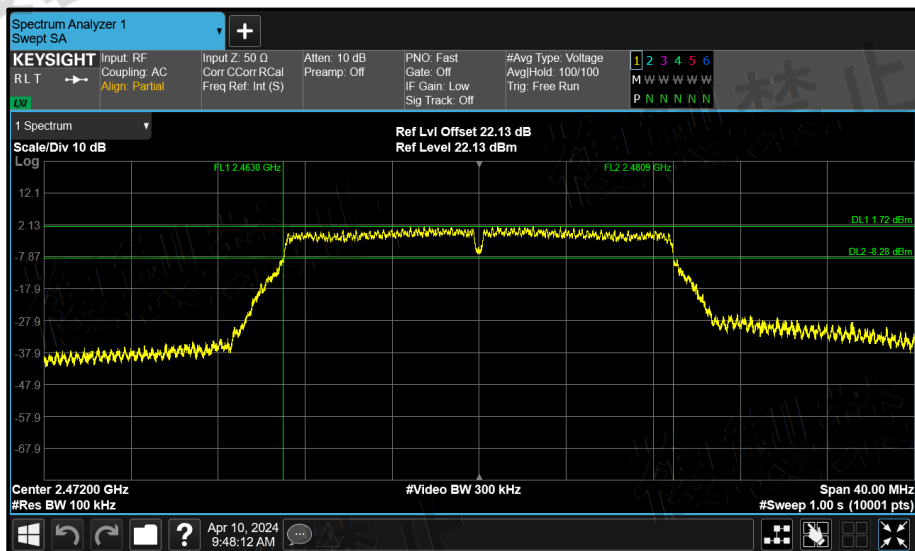


Figure 10 - A (A) 2472 MHz (CH13) Pre-scan



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz (WW)
Limit Clause(s):	3.2 (4)	Test Method(s):	Refer to Test Method
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU	Duty Cycle (%):	-
Modulation Coding Scheme:	MCS0x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Supply Voltage:	3.30 V	TX Mode:	Continuous Modulated Stream

Test Frequency (MHz)	Power Index	Frequency Error (ppm)				Limit (ppm)
		A	B	C	D	
2412	8.00	-6.633	-	-	-	±50.0
2442	9.00	-8.190	-	-	-	±50.0
2472	9.00	-8.900	-	-	-	±50.0

Table 36 - Frequency Tolerance Results

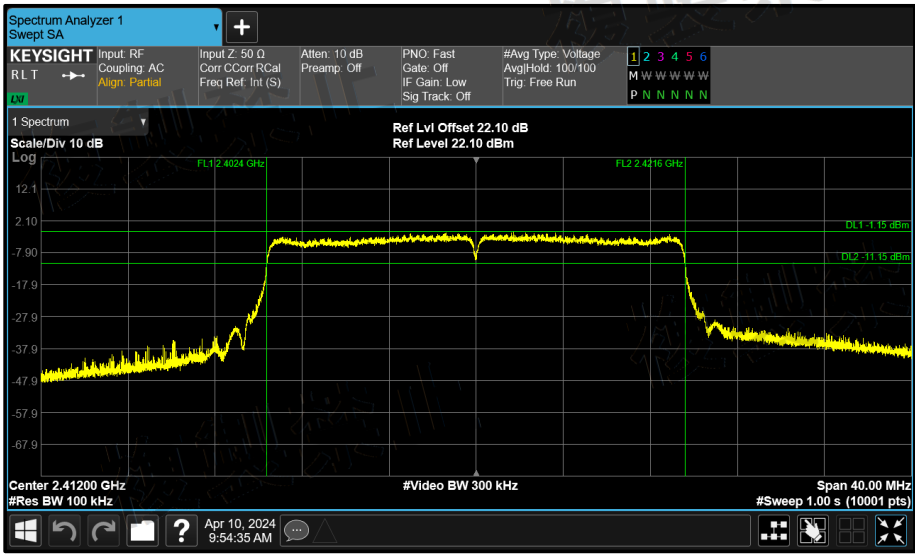


Figure 11 - A (A) 2412 MHz (CH1) Pre-scan

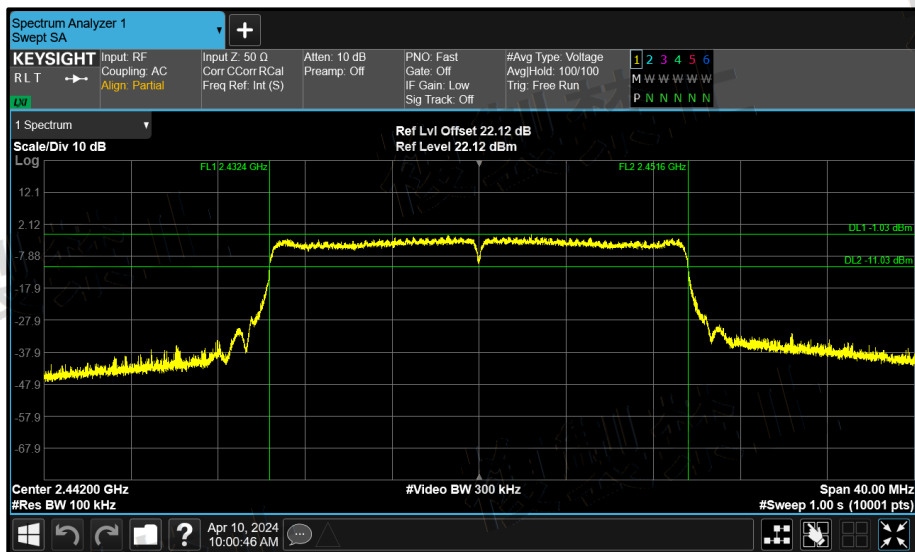


Figure 12 - A (A) 2442 MHz (CH7) Pre-scan

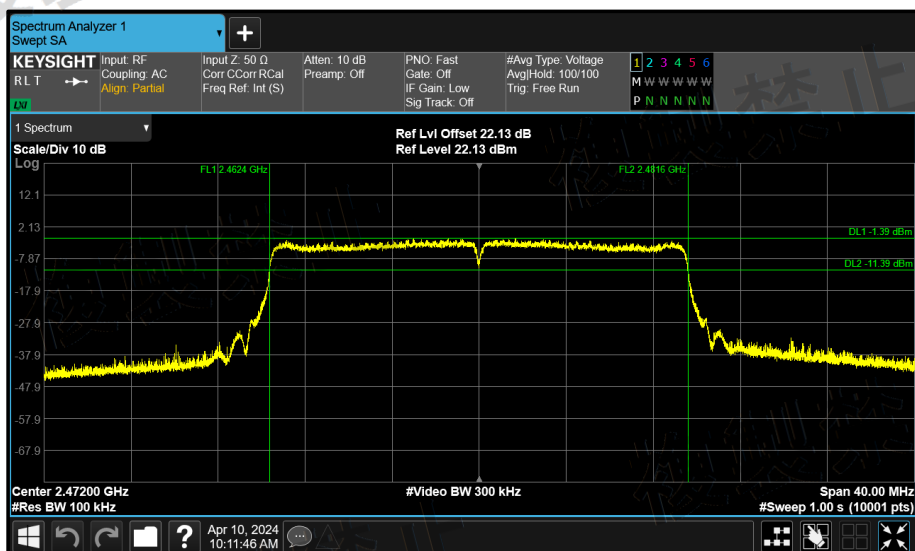


Figure 13 - A (A) 2472 MHz (CH13) Pre-scan

ARIB STD T-66, Limit Clause 3.2 (4)

$\pm 50 \times 10^{-6}$.



2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 14.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	I-1000	3068	12	07-Nov-2024
MXA Signal Analyser	Keysight Technologies	N9020B	6417	24	26-Feb-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6518	12	16-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6529	12	16-Feb-2025

Table 37



2.3 Permissible Value of Spurious or Unnecessary Radiation Intensity

2.3.1 Specification Reference

ARIB STD-T66, Clause 3.2 (6)

2.3.2 Equipment Under Test and Modification State

SiW917Y1GN, S/N: WLAN MAC address: ec:f6:4c:a0:1:a0 - Modification State 0

2.3.3 Date of Test

23-April-2024 to 26-April-2024

2.3.4 Test Method

For all tested channels excluding 2484 MHz. This test has been performed in accordance with ARIB STD-T66 v3.7 standard, clause 3.2 6) using the test method described in ANSI C63.26 clause 5.7.3 d) for measurement of average power of a narrow-band signal using a spectrum analyser.

For tests performed at 2484 MHz. The test has been performed in accordance with "Regulation No. 18 of the Radio Supervisory Commission of Showa 25 (relevant Japanese standard) using the test method described in ANSI C63.26 clause 5.7.3 d) for measurement of average power of a narrow-band signal using a spectrum analyser.

The EUT was supplied with 3.3 VDC by means of a regulator residing in the host certification board, which was in turn being powered over the host certification board's USB connector..

The Power Settings used for testing are as follows:

802.11b Channel 1, 15; Channel 7, 15; Channel 13, 15; Channel 14, 16

802.11g Channel 1, 16; Channel 7, 18; Channel 13, 14

802.11n Channel 1, 14; Channel 7, 18; Channel 13, 14

802.11ax Channel 1, 8; Channel 7, 9; Channel 13, 9

2.3.5 Environmental Conditions

Ambient Temperature 20.9 - 23.1 °C

Relative Humidity 35.2 - 36.6 %

2.3.6 Test Results

2.4 GHz WLAN

3.3 V DC Supply

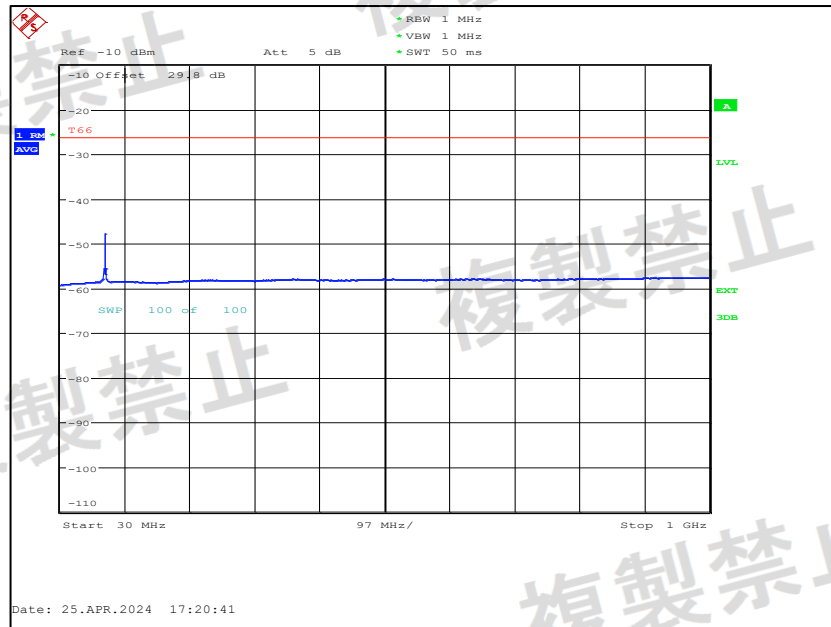


Figure 14 – 2412 MHz, 30 MHz to 1000 MHz, WLAN 802.11b Mode, Ch1

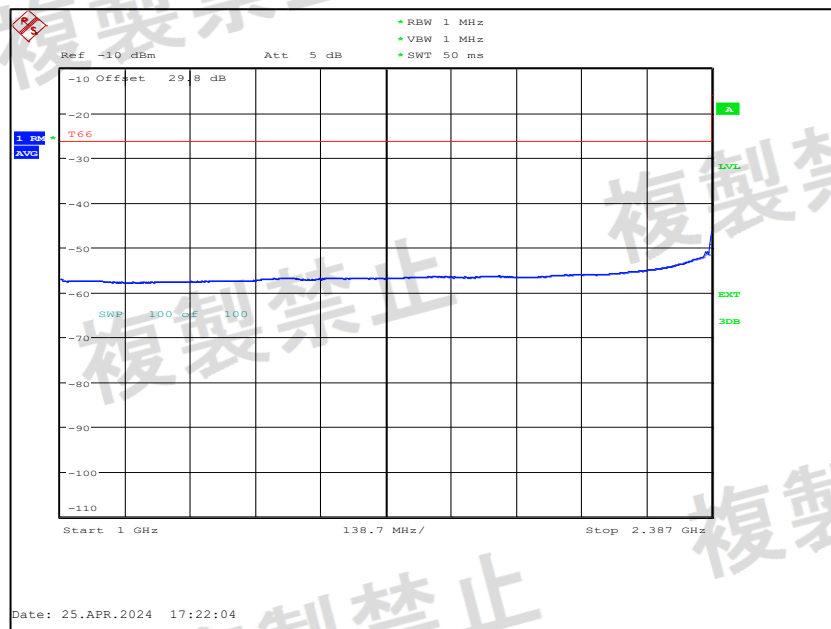


Figure 15 – 2412 MHz, 1000 MHz to 2387 MHz, WLAN 802.11b Mode, Ch1



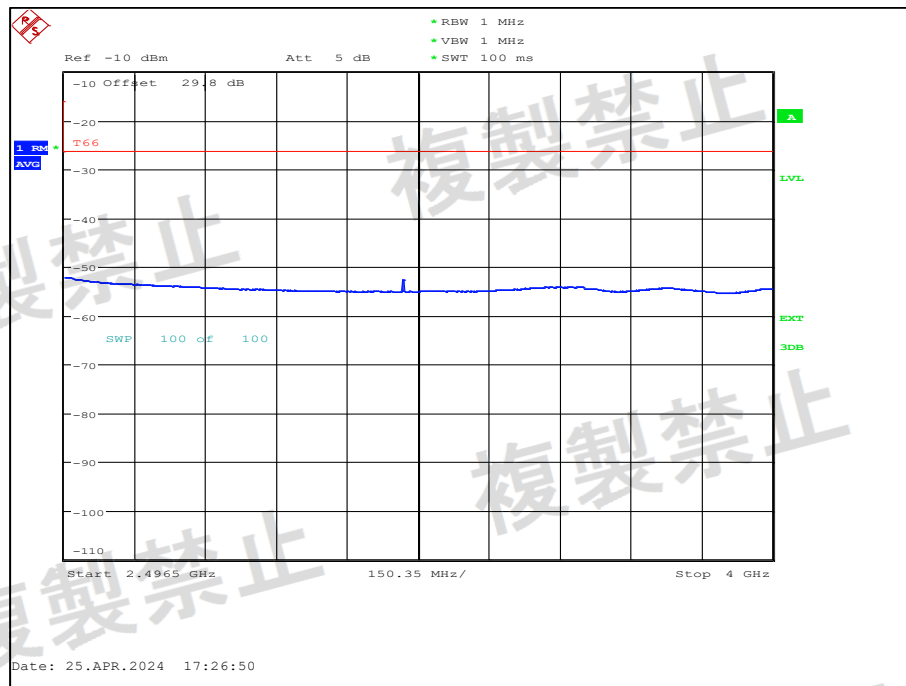


Figure 18 – 2412 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11b Mode, Ch1

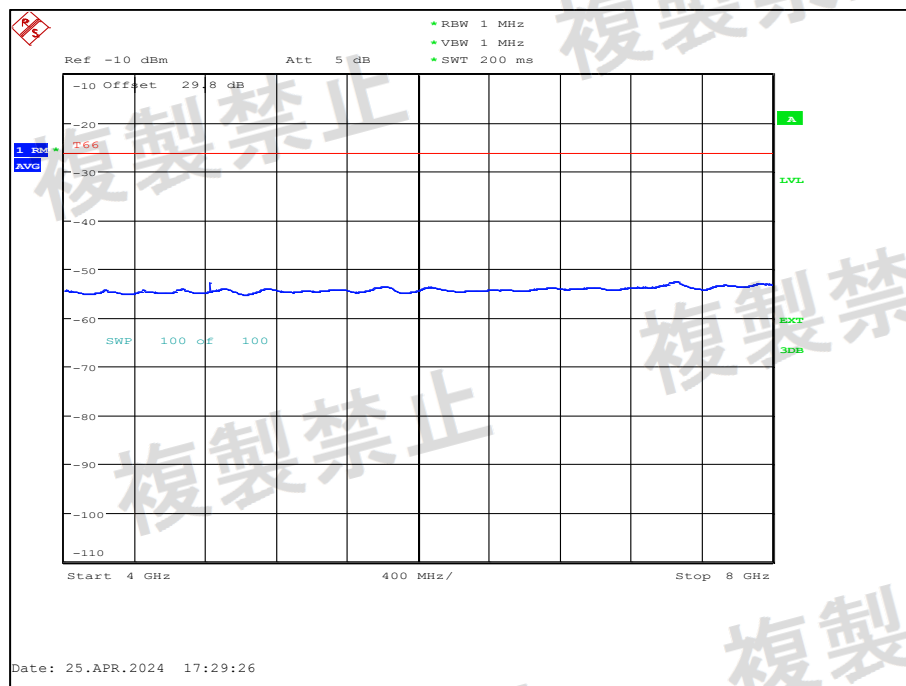


Figure 19 – 2412 MHz, 4000 MHz to 8000 MHz, WLAN 802.11b Mode, Ch1

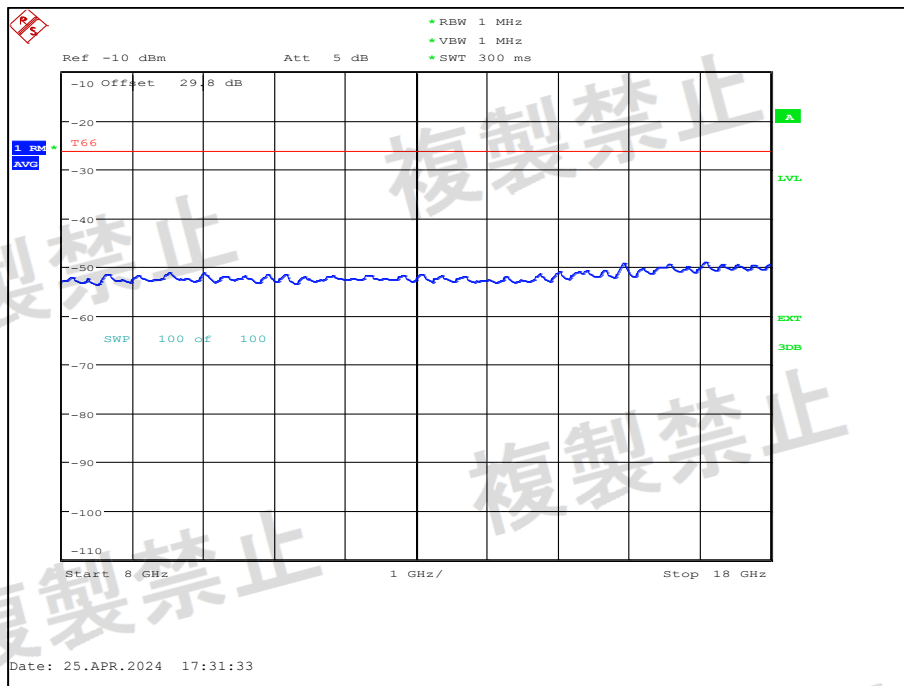


Figure 20 – 2412 MHz, 8000 MHz to 18000 MHz, WLAN 802.11b Mode, Ch1

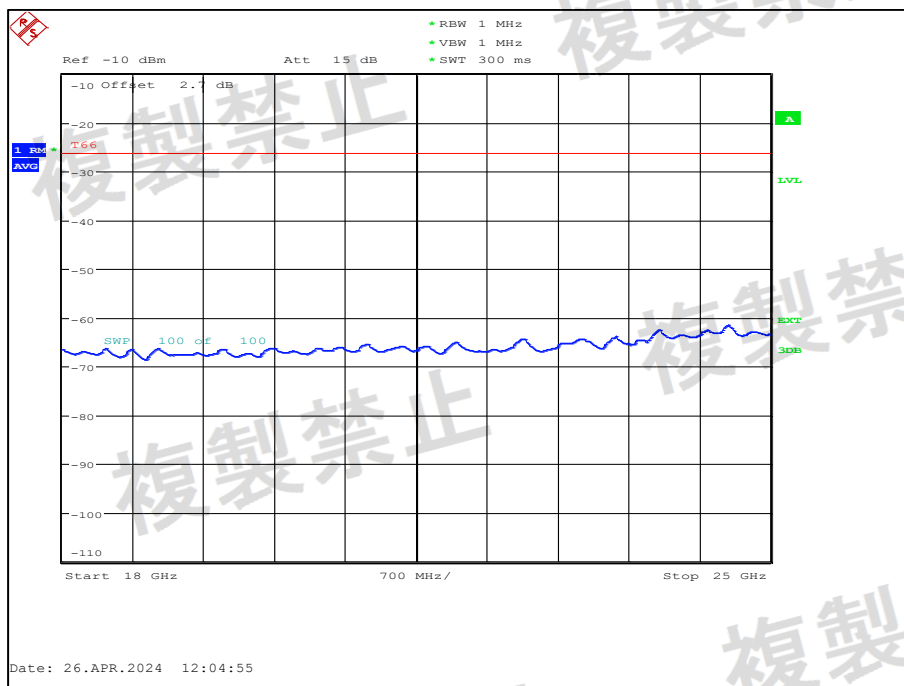


Figure 21 – 2412 MHz, 18000 MHz to 25000 MHz, WLAN 802.11b Mode, Ch1

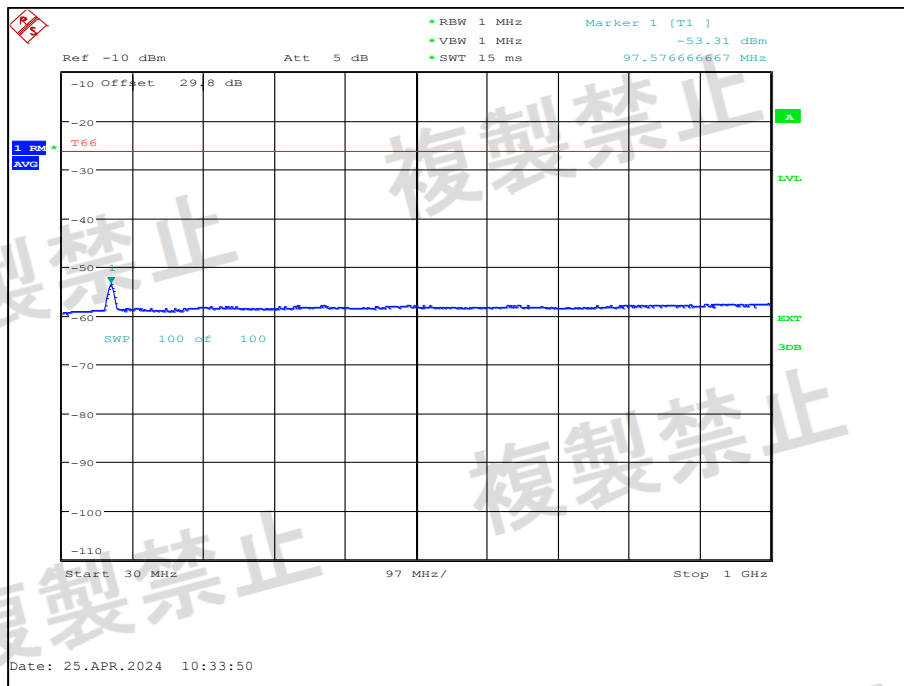


Figure 22 – 2412MHz, 30 MHz to 1000 MHz, WLAN 802.11g Mode, Ch1

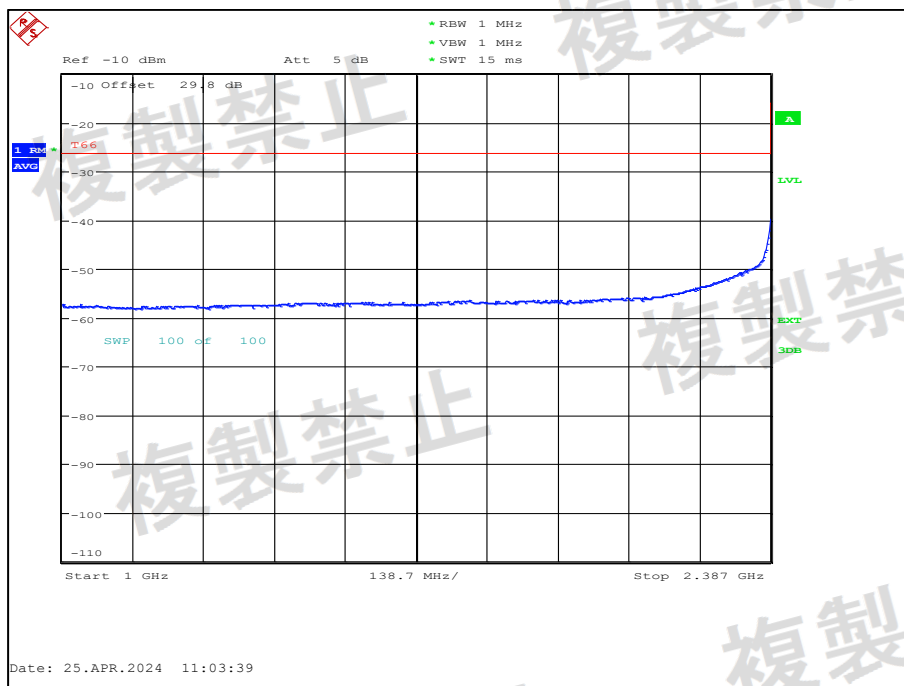


Figure 23 – 2412 MHz, 1000 MHz to 2387 MHz, WLAN 802.11g Mode, Ch1



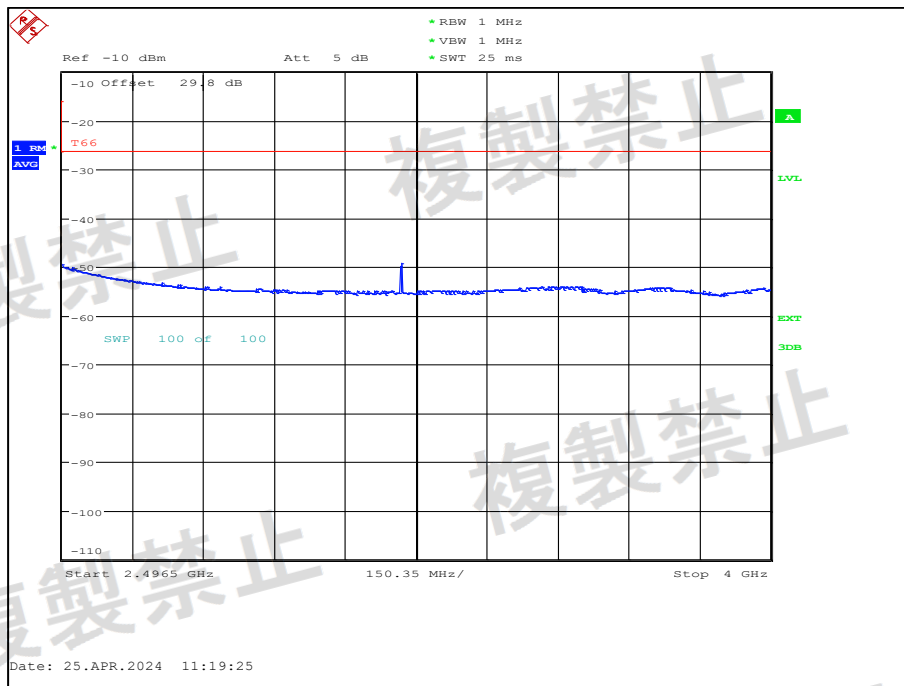


Figure 26 – 2412 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11g Mode, Ch1

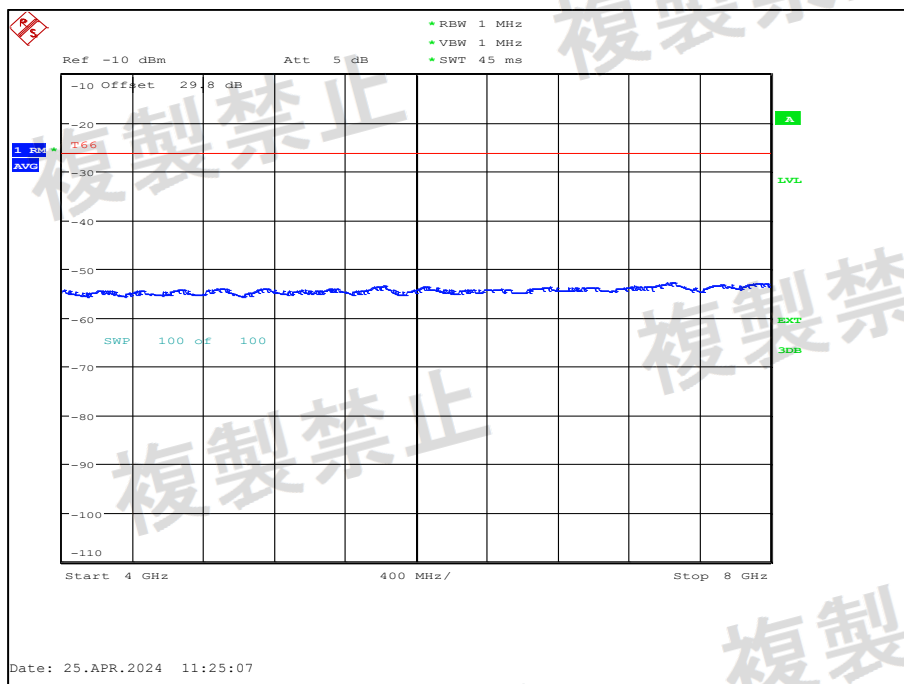


Figure 27 – 2412 MHz, 4000 MHz to 8000 MHz, WLAN 802.11g Mode, Ch1

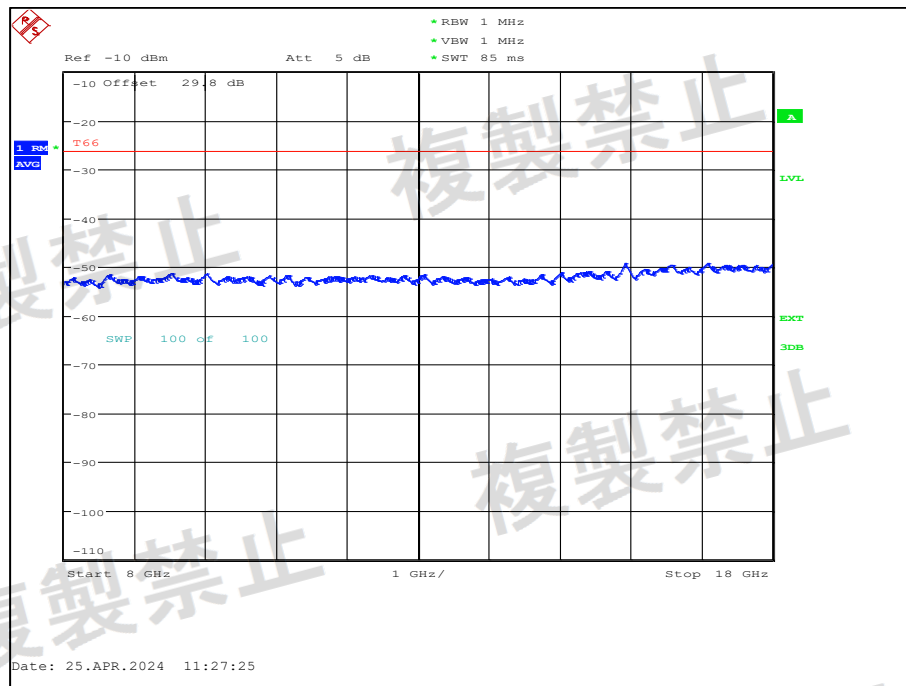


Figure 28 – 2412 MHz, 8000 MHz to 18000 MHz, WLAN 802.11g Mode, Ch1

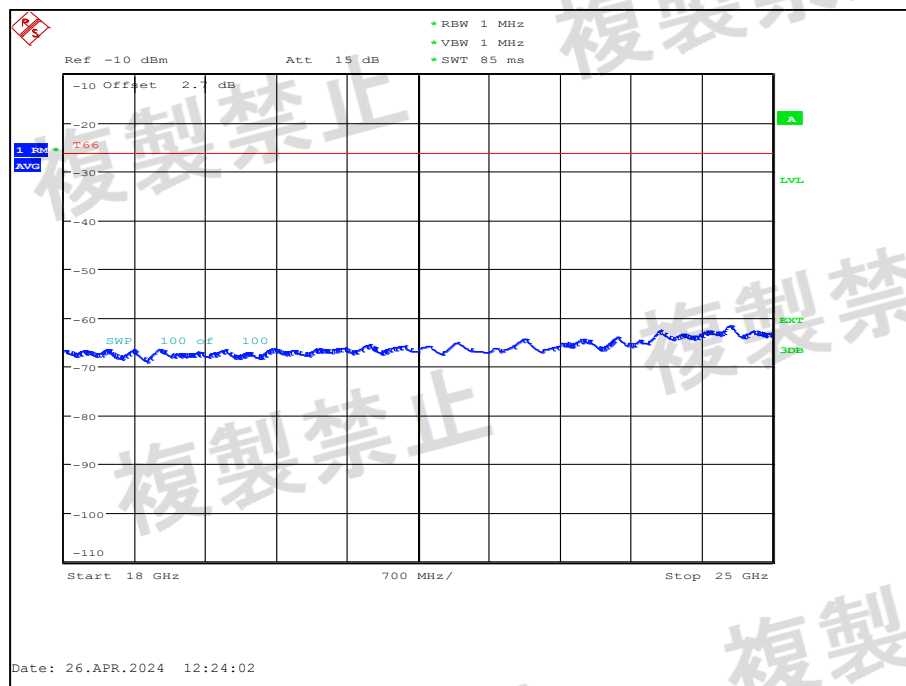


Figure 29 – 2412 MHz, 18000 MHz to 25000 MHz, WLAN 802.11g Mode, Ch1

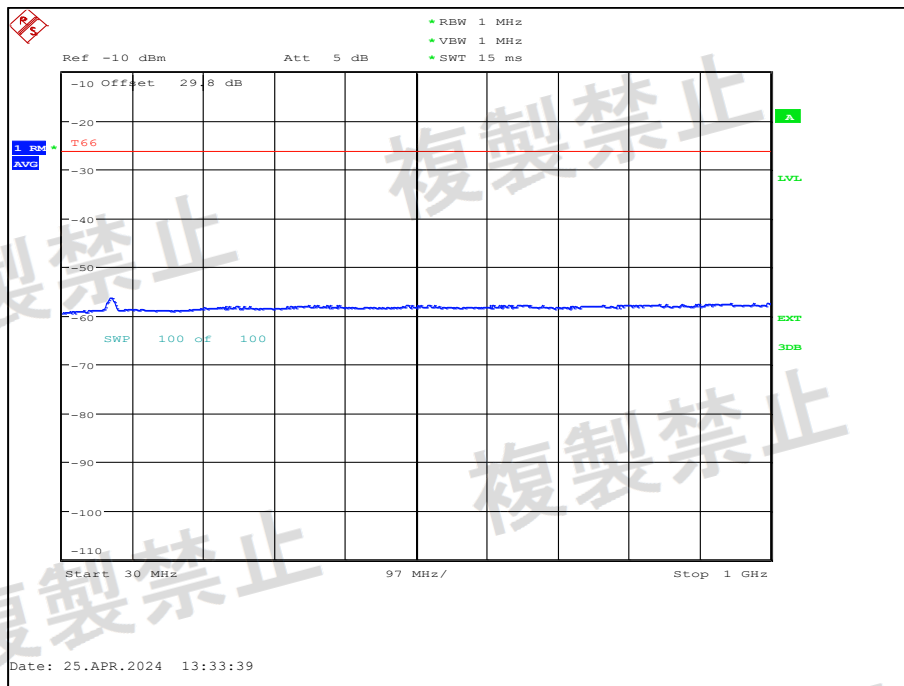


Figure 30 – 2412 MHz, 30 MHz to 1000 MHz, WLAN 802.11n20 Mode, Ch1

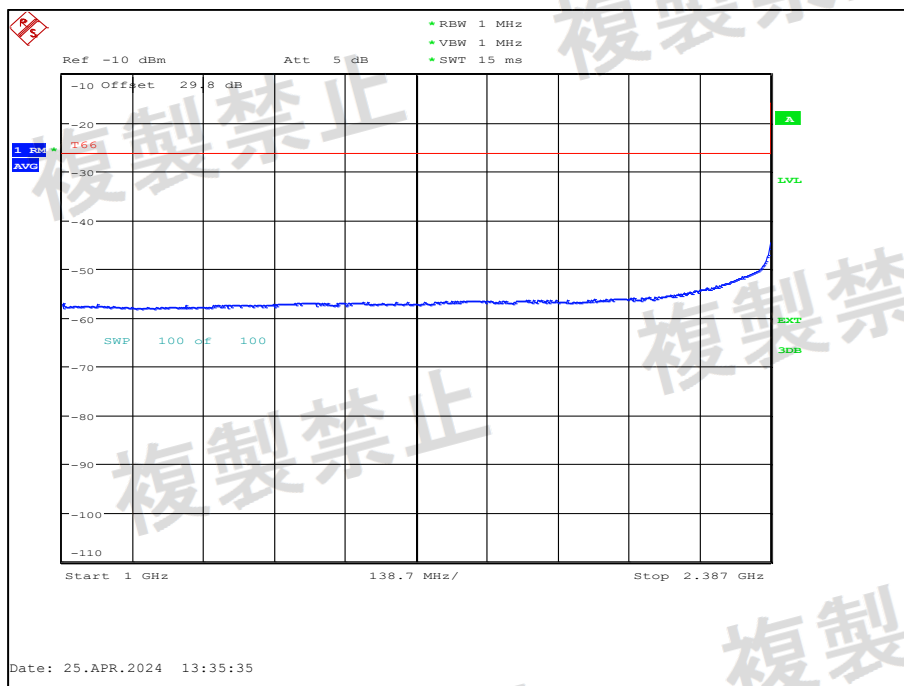


Figure 31 – 2412 MHz, 1000 MHz to 2387 MHz, WLAN 802.11n20 Mode, Ch1



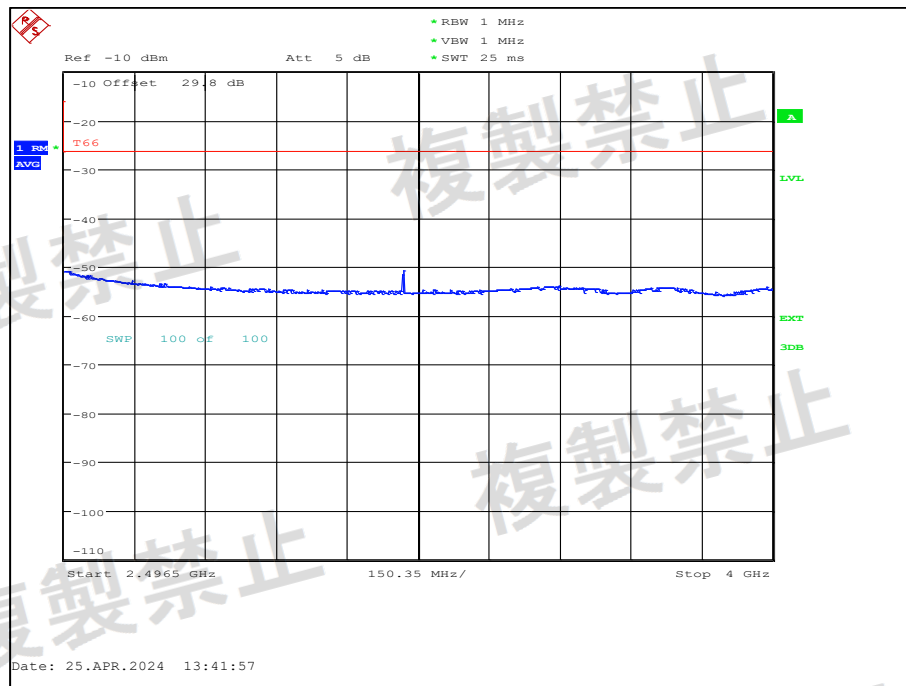


Figure 34 – 2412 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11n20 Mode, Ch1

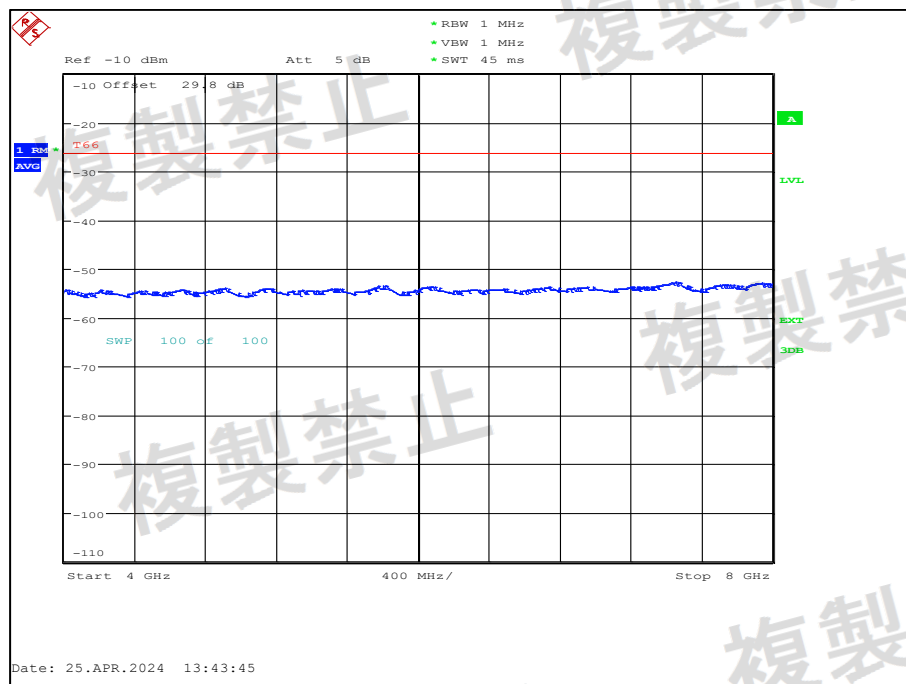


Figure 35 – 2412 MHz, 4000 MHz to 8000 MHz, WLAN 802.11n20 Mode, Ch1

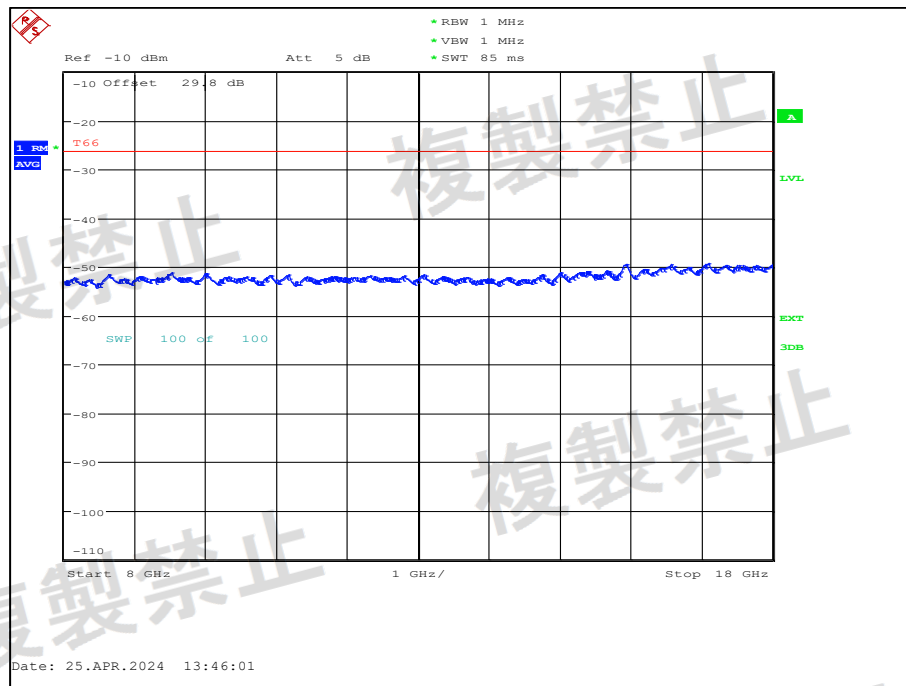


Figure 36 – 2412 MHz, 8000 MHz to 18000 MHz, WLAN 802.11n20 Mode, Ch1

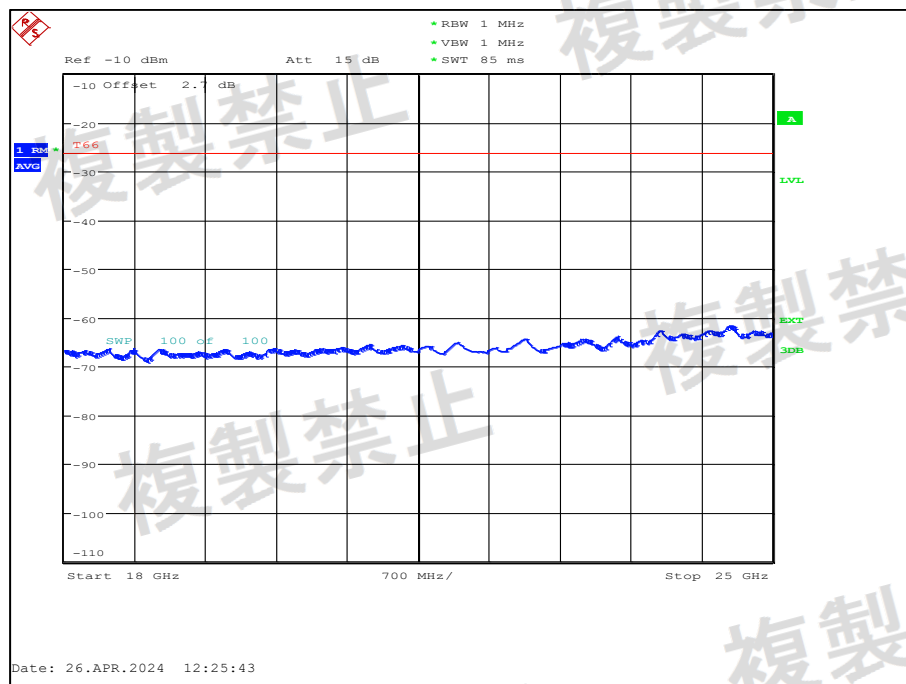


Figure 37 – 2412MHz, 18000 MHz to 25000 MHz, WLAN 802.11n20 Mode, Ch1

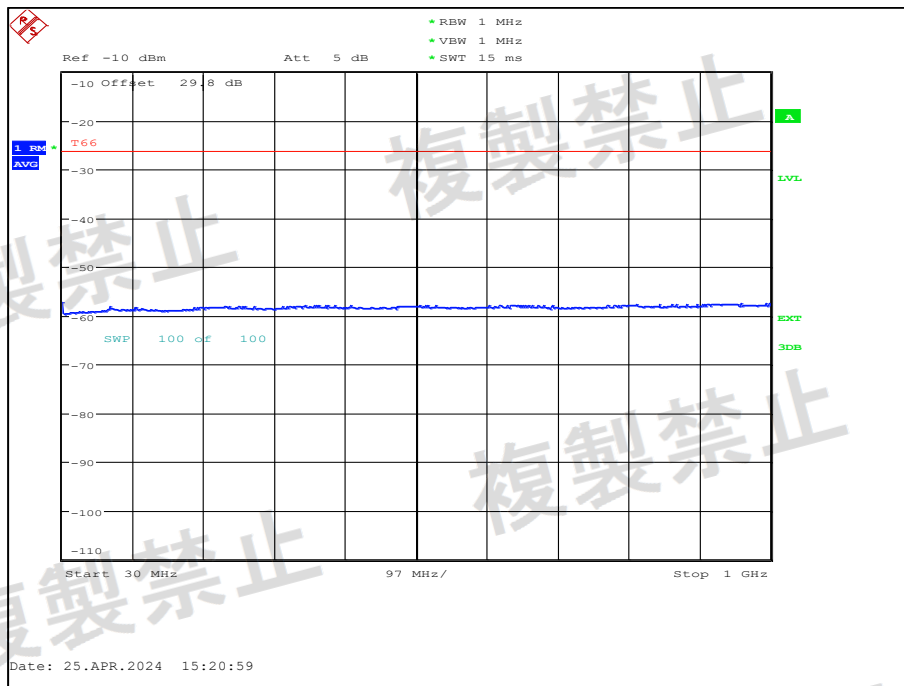


Figure 38 – 2412 MHz, 30 MHz to 1000 MHz, WLAN 802.11ax20 Mode, Ch1

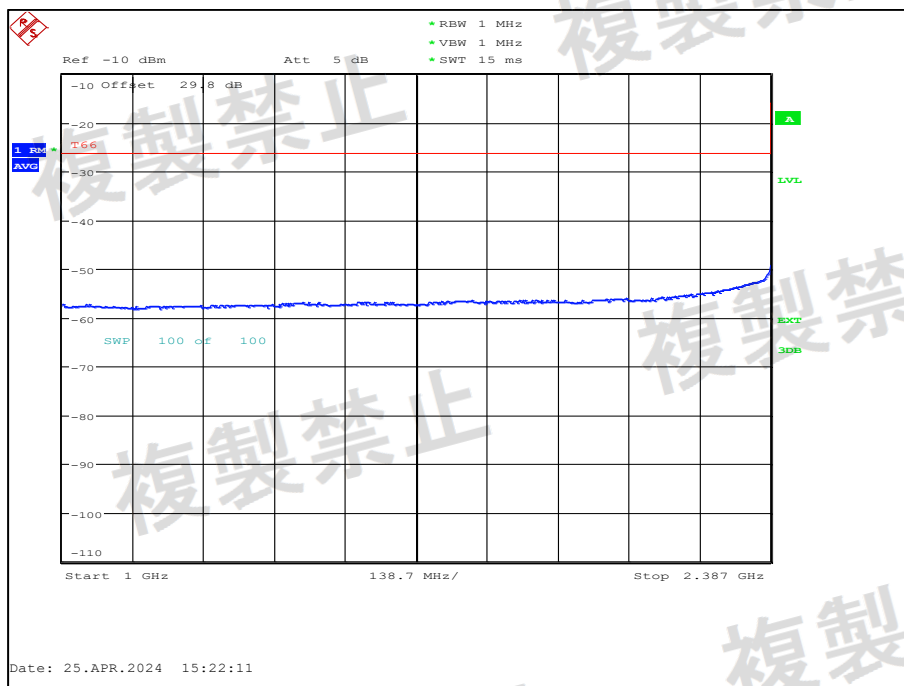


Figure 39 – 2412 MHz, 1000 MHz to 2387 MHz, WLAN 802.11ax20 Mode, Ch1



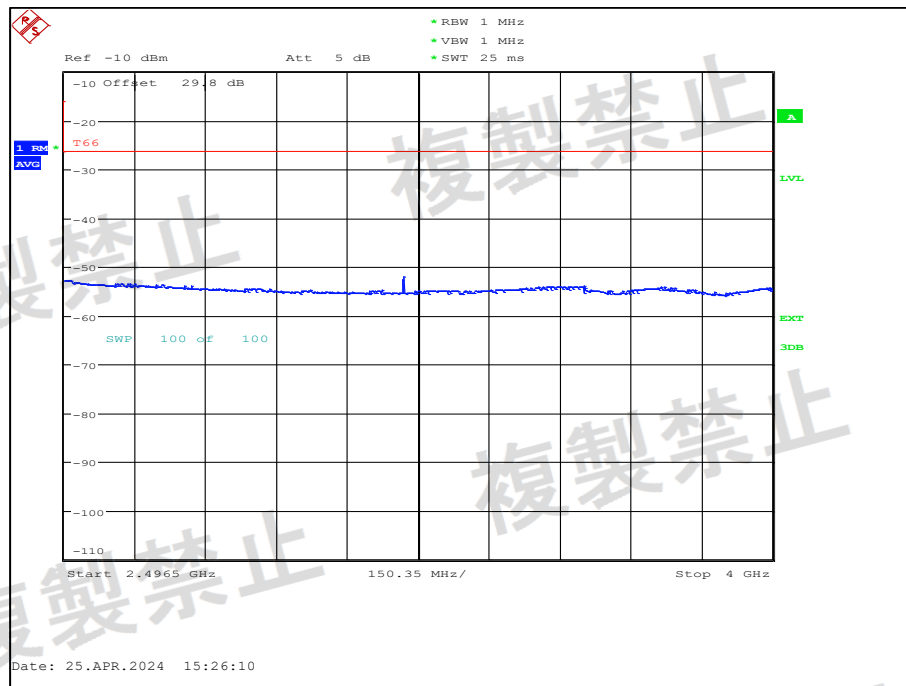


Figure 42 – 2412 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11ax20 Mode, Ch1

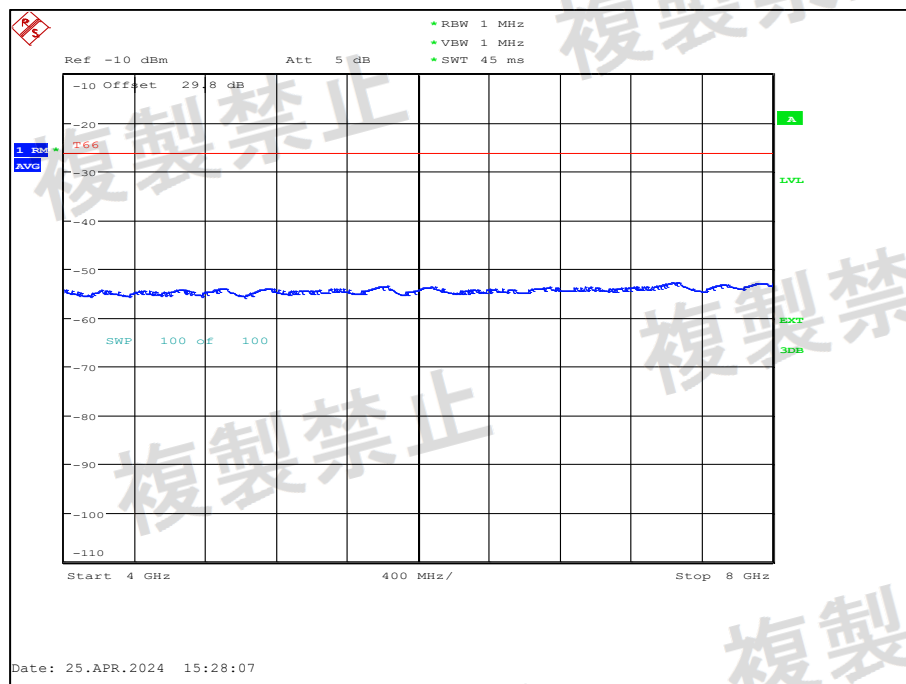


Figure 43 – 2412 MHz, 4000 MHz to 8000 MHz, WLAN 802.11ax20 Mode, Ch1

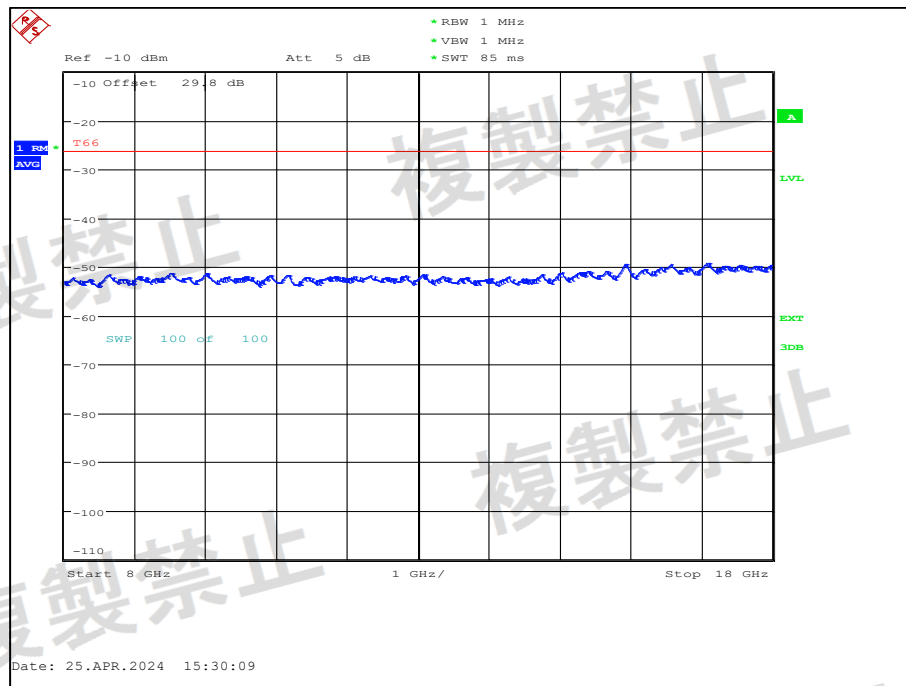


Figure 44 – 2412 MHz, 8000 MHz to 18000 MHz, WLAN 802.11ax20 Mode, Ch1

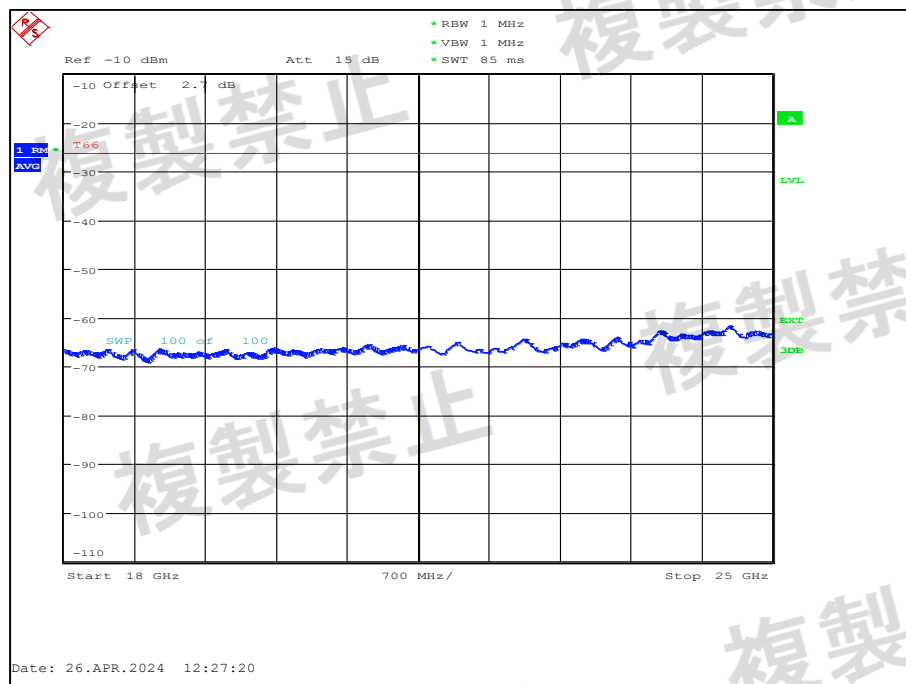


Figure 45 – 2412 MHz, 18000 MHz to 25000 MHz, WLAN 802.11ax20 Mode, Ch1

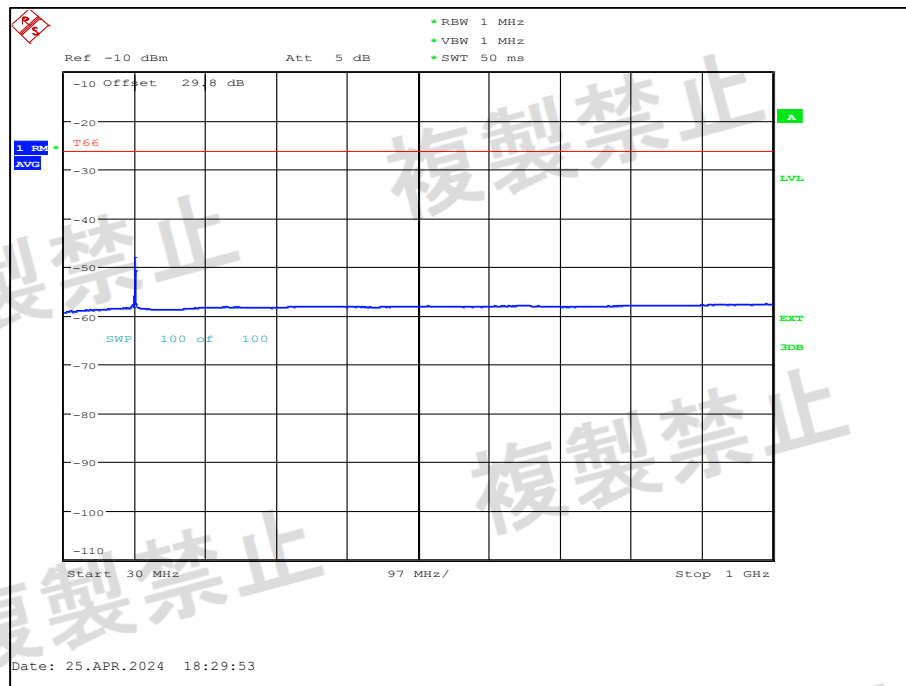


Figure 46 – 2442 MHz, 30 MHz to 1000 MHz, WLAN 802.11b Mode, Ch7

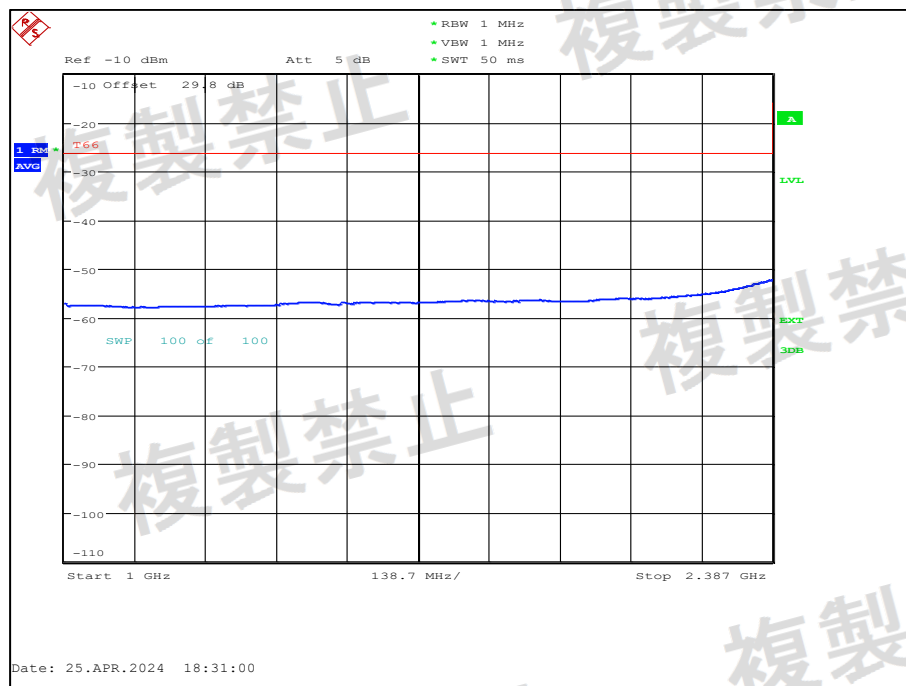


Figure 47 – 2442 MHz, 1000 MHz to 2387 MHz, WLAN 802.11b Mode, Ch7

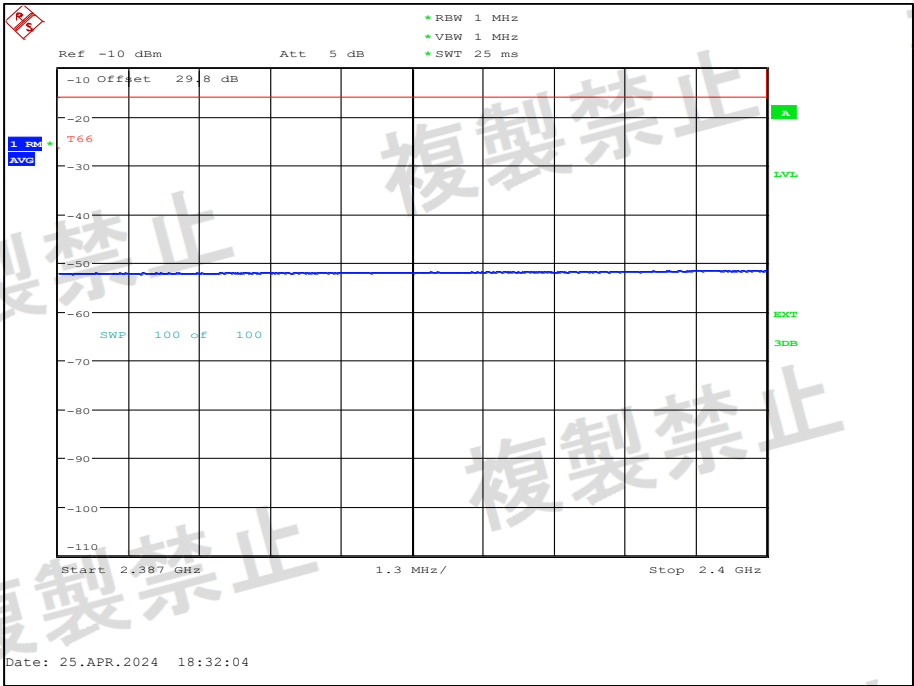


Figure 48 – 2442 MHz, 2387 MHz to 2400 MHz, WLAN 802.11b Mode, Ch7

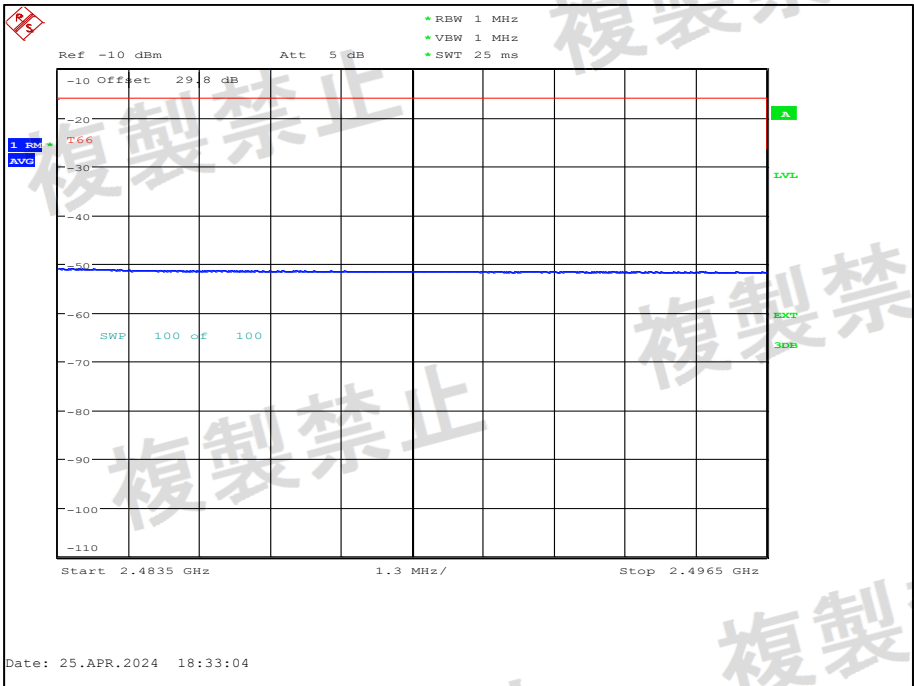


Figure 49 – 2442 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11b Mode, Ch7

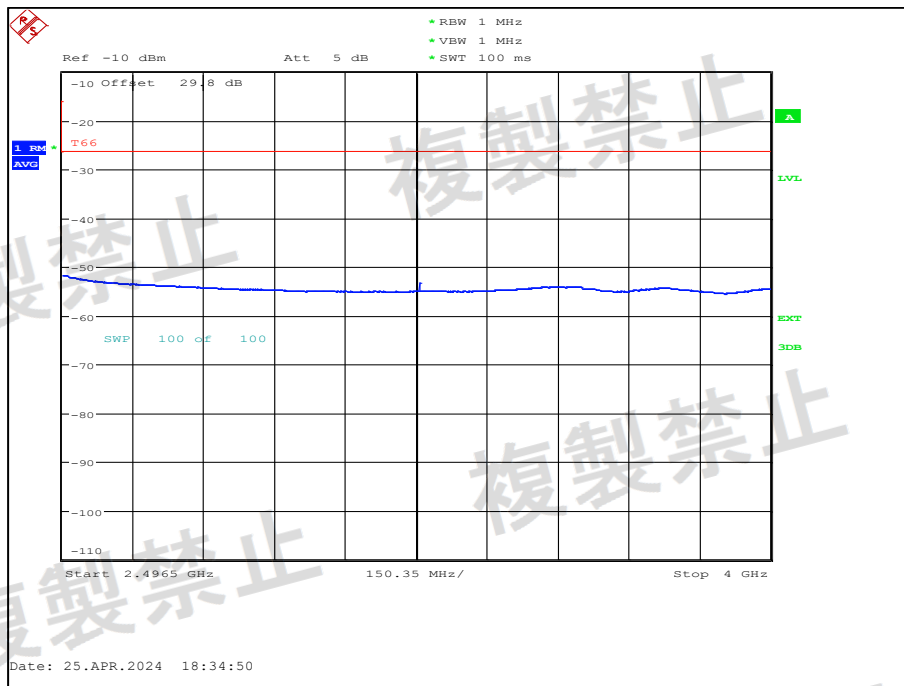


Figure 50 – 2442 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11b Mode, Ch7

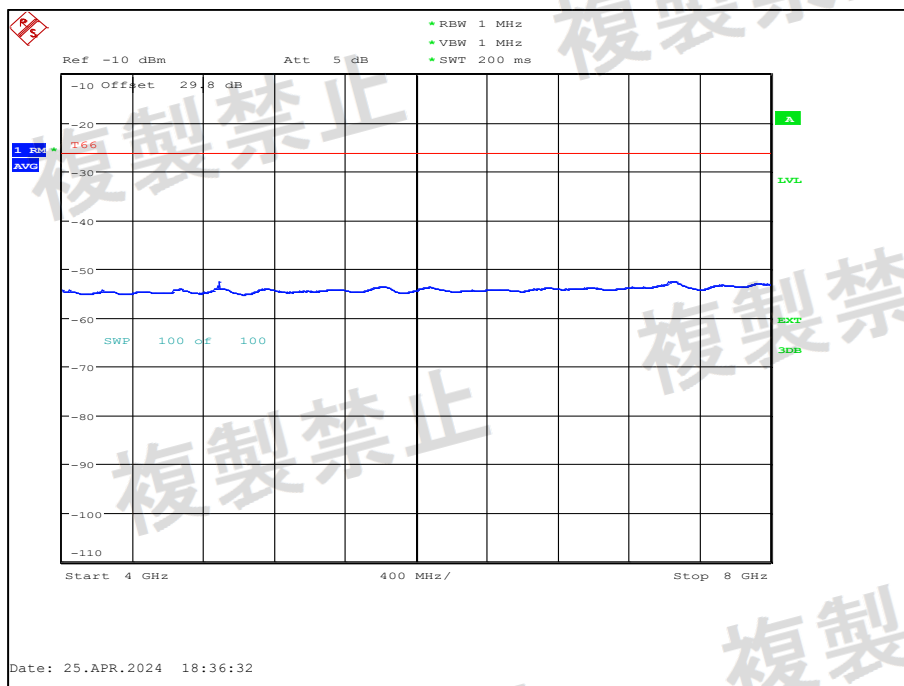


Figure 51 – 2442 MHz, 4000 MHz to 8000 MHz, WLAN 802.11b Mode, Ch7

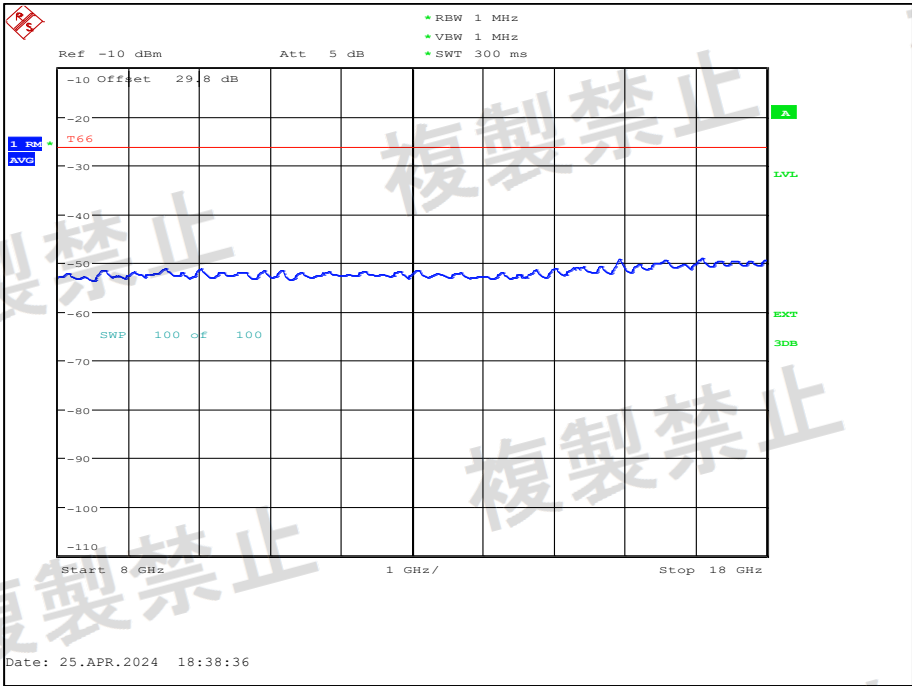


Figure 52 – 2442 MHz, 8000 MHz to 18000 MHz, WLAN 802.11b Mode, Ch7

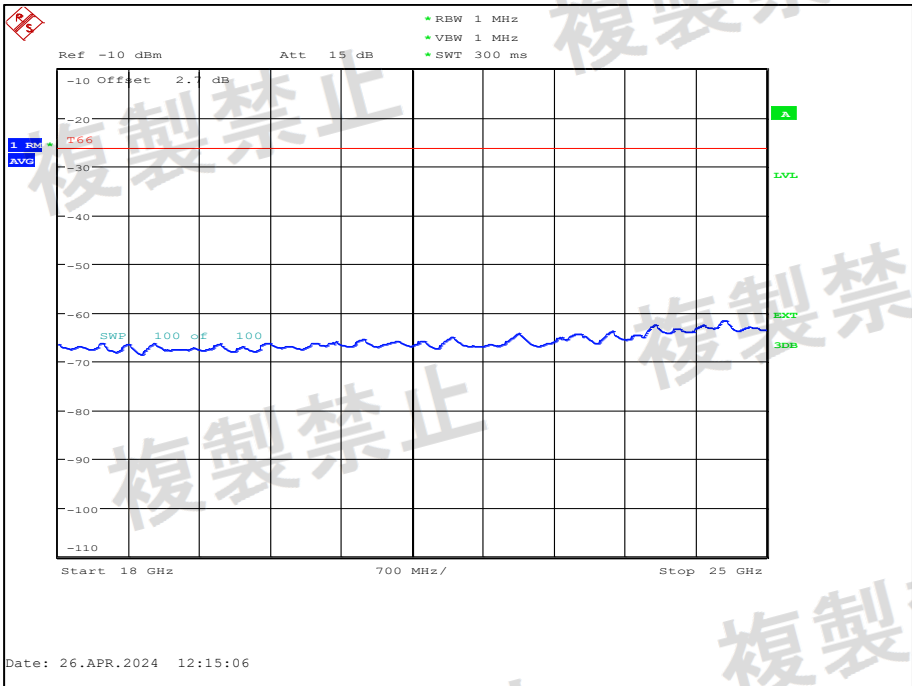


Figure 53 – 2442 MHz, 18000 MHz to 25000 MHz, WLAN 802.11b Mode, Ch7

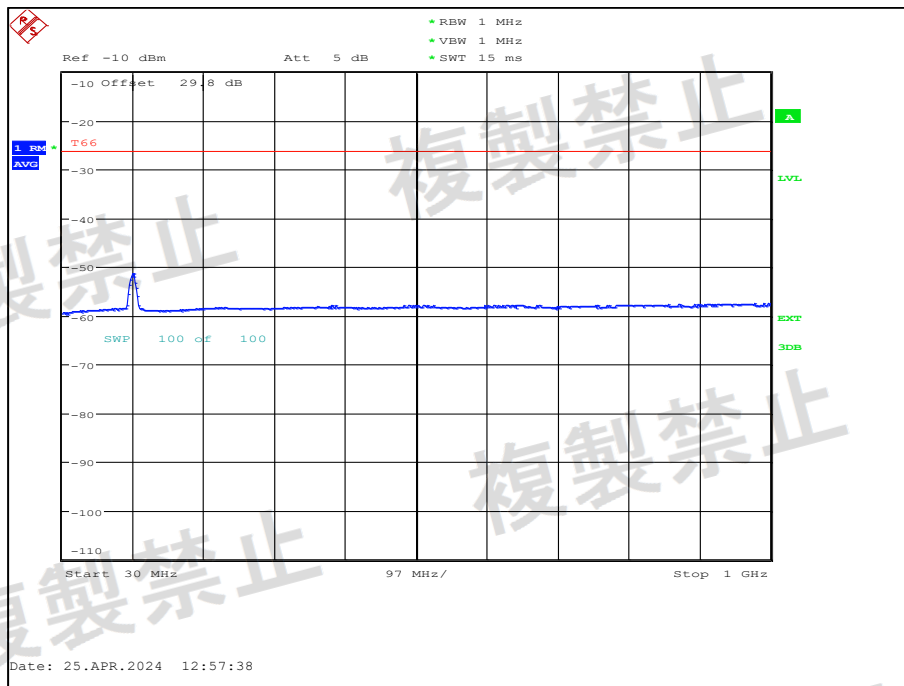


Figure 54 – 2442 MHz, 30 MHz to 1000 MHz, WLAN 802.11g Mode, Ch7

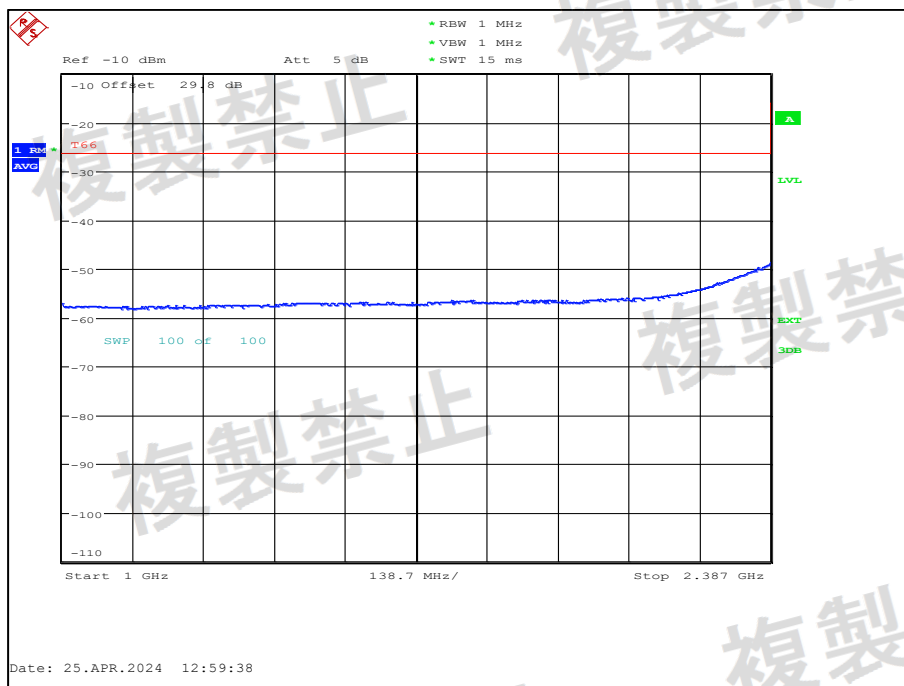


Figure 55 – 2442 MHz, 1000 MHz to 2387 MHz, WLAN 802.11g Mode, Ch7

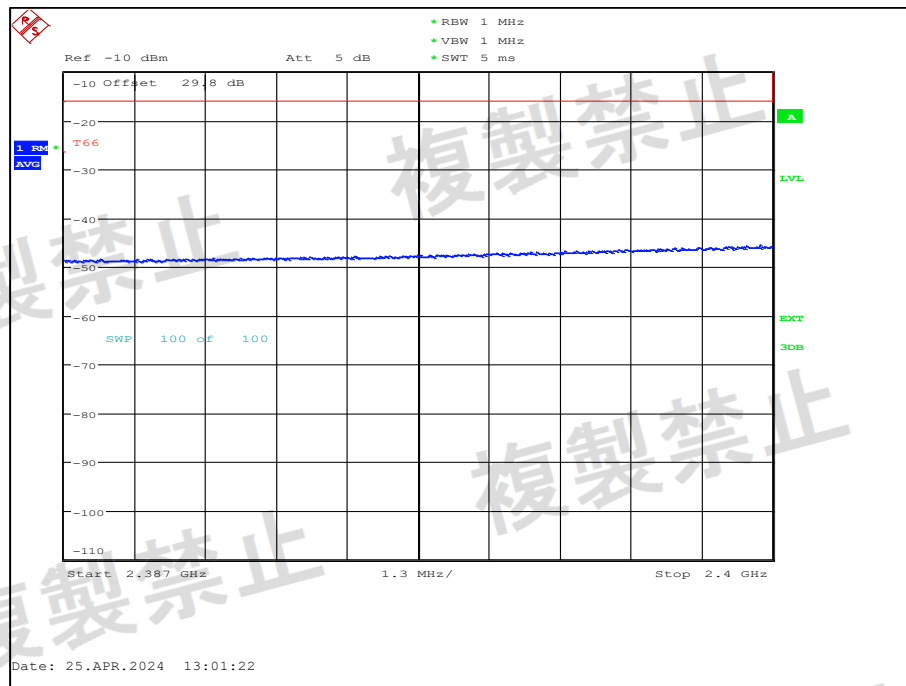


Figure 56 -2442 MHz, 2387 MHz to 2400 MHz, WLAN 802.11g Mode, Ch7

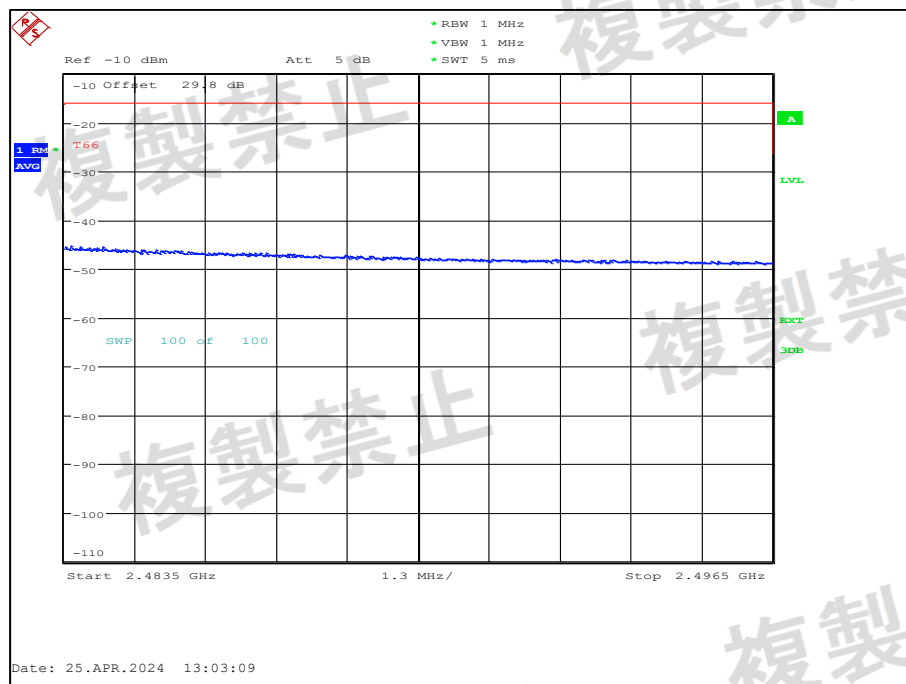


Figure 57 - 2442 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11g Mode, Ch7

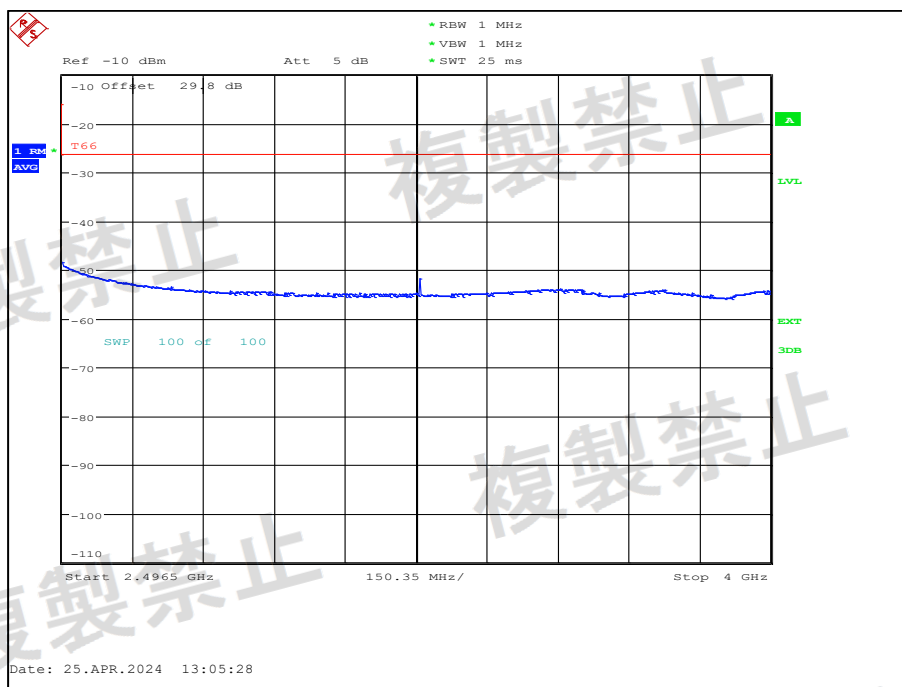


Figure 58 – 2442 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11g Mode, Ch7

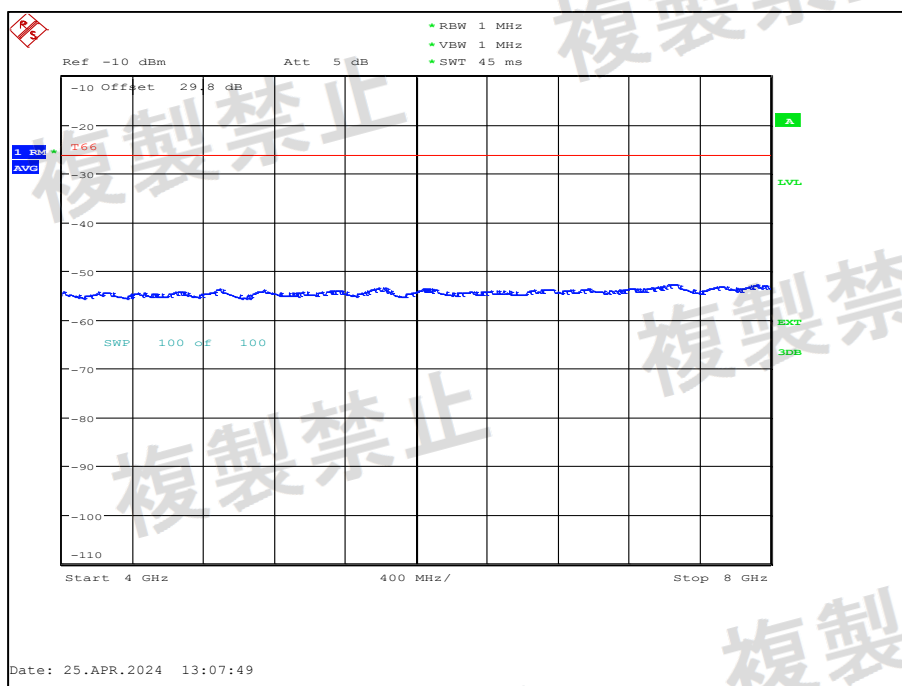


Figure 59 – 2442 MHz, 4000 MHz to 8000 MHz, WLAN 802.11g Mode, Ch7

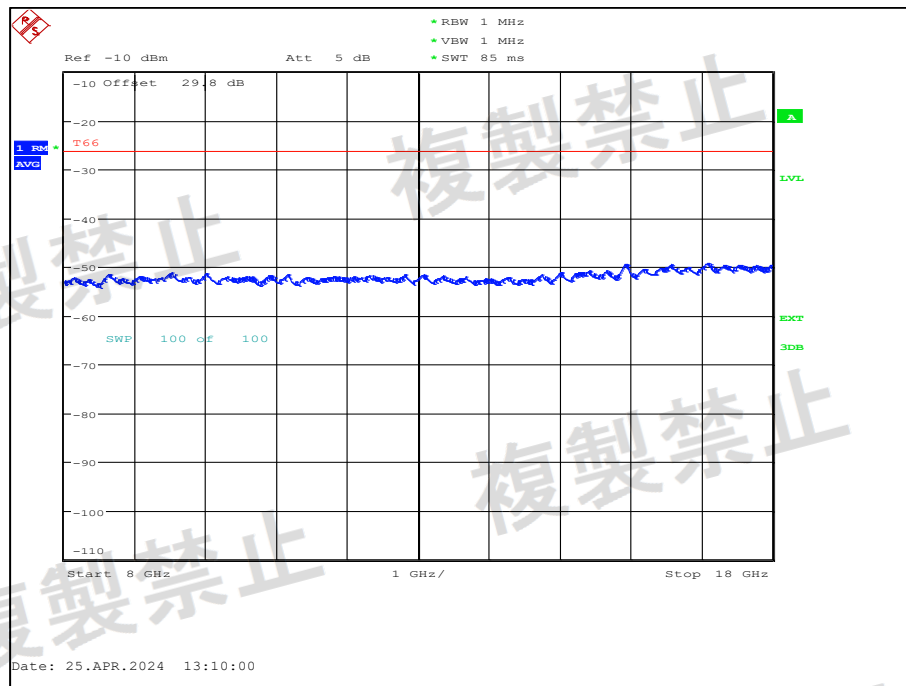


Figure 60 – 2442MHz, 8000 MHz to 18000 MHz, WLAN 802.11g Mode, Ch7

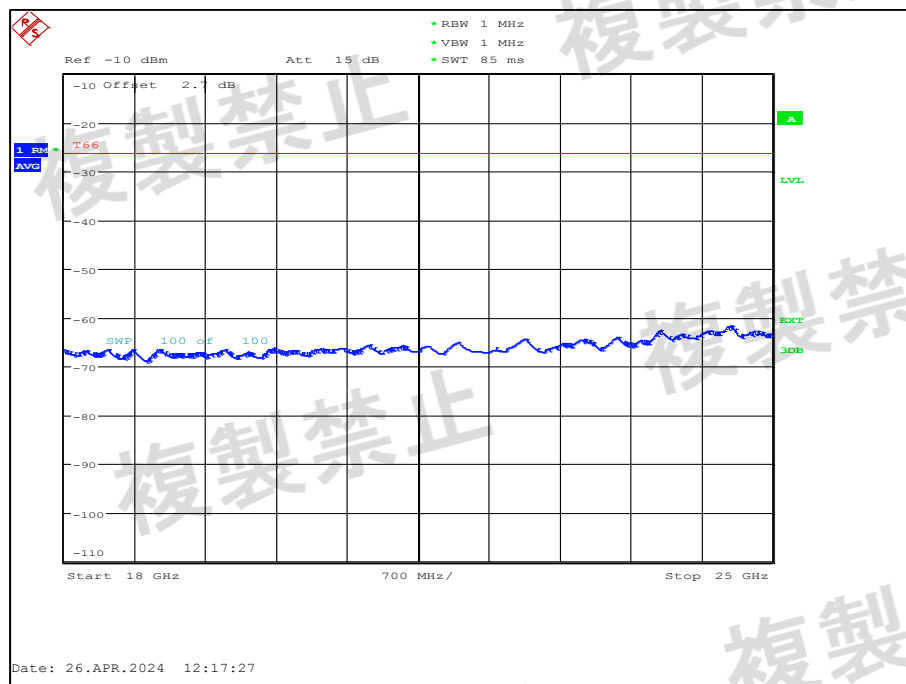


Figure 61 – 2442 MHz, 18000 MHz to 25000 MHz, WLAN 802.11g Mode, Ch7

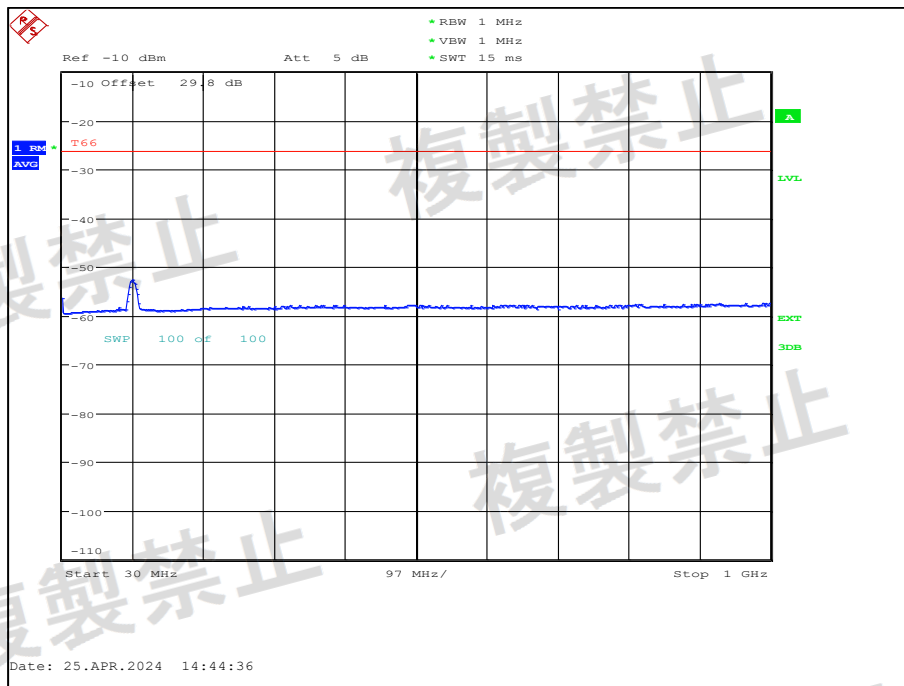


Figure 62 – 2442 MHz, 30 MHz to 1000 MHz, WLAN 802.11n20 Mode, Ch7

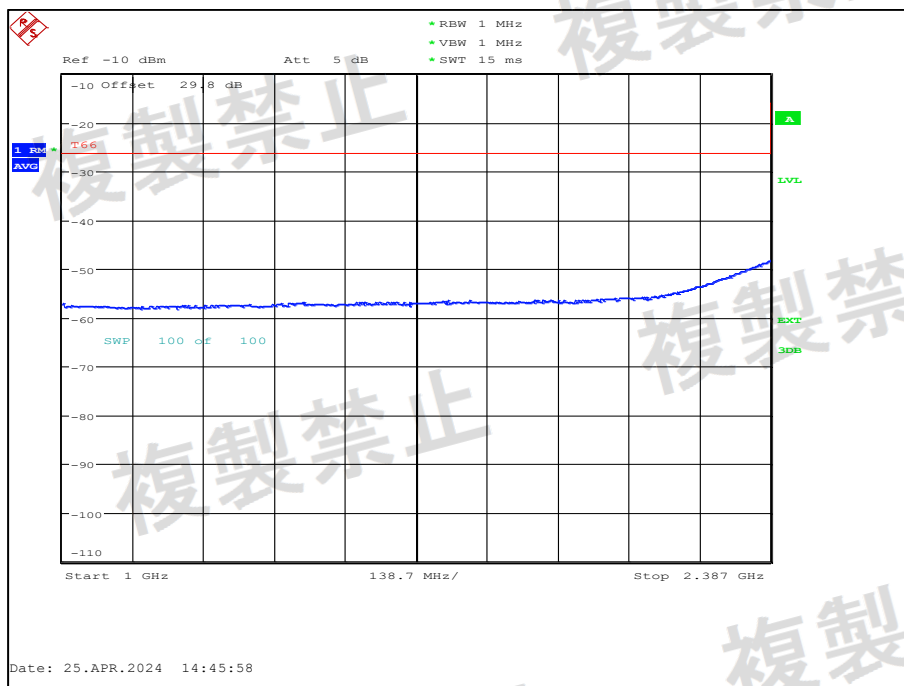


Figure 63 – 2442 MHz, 1000 MHz to 2387 MHz, WLAN 802.11n20 Mode, Ch7

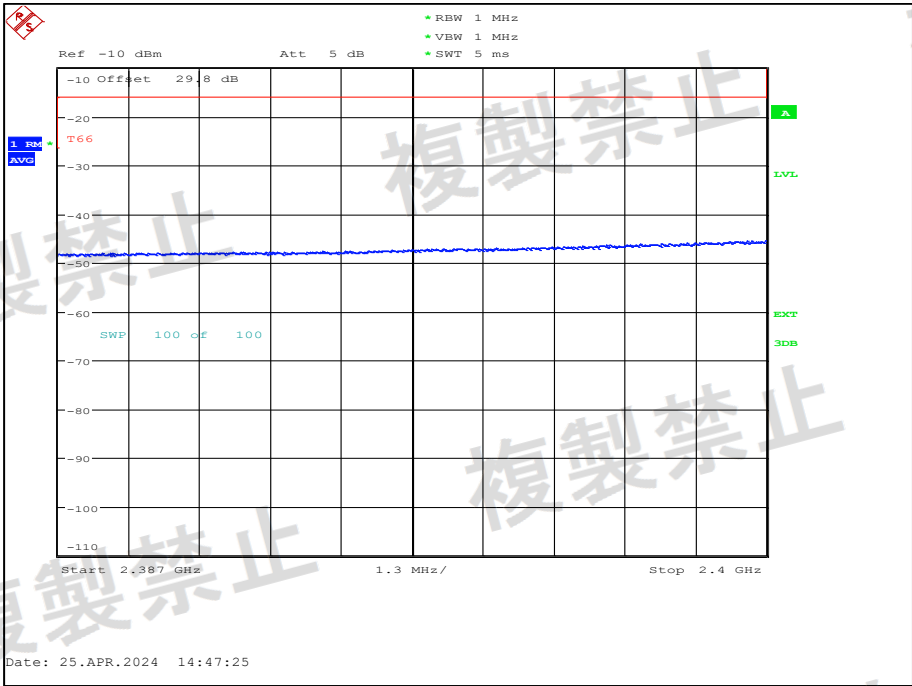


Figure 64 – 2442 MHz, 2387 MHz to 2400 MHz, WLAN 802.11n20 Mode, Ch7

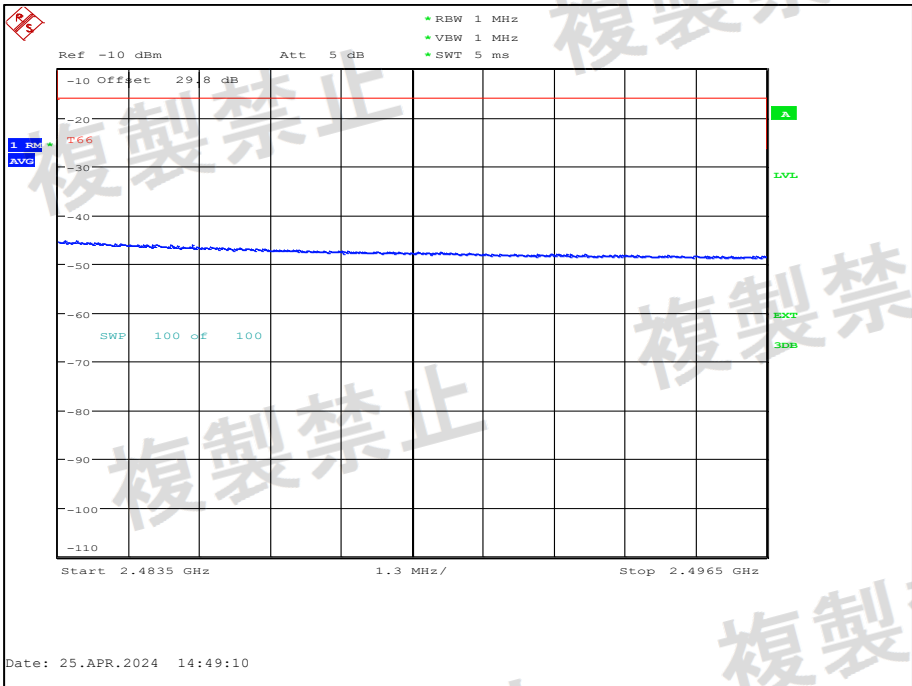


Figure 65 – 2442 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11n20 Mode, Ch7

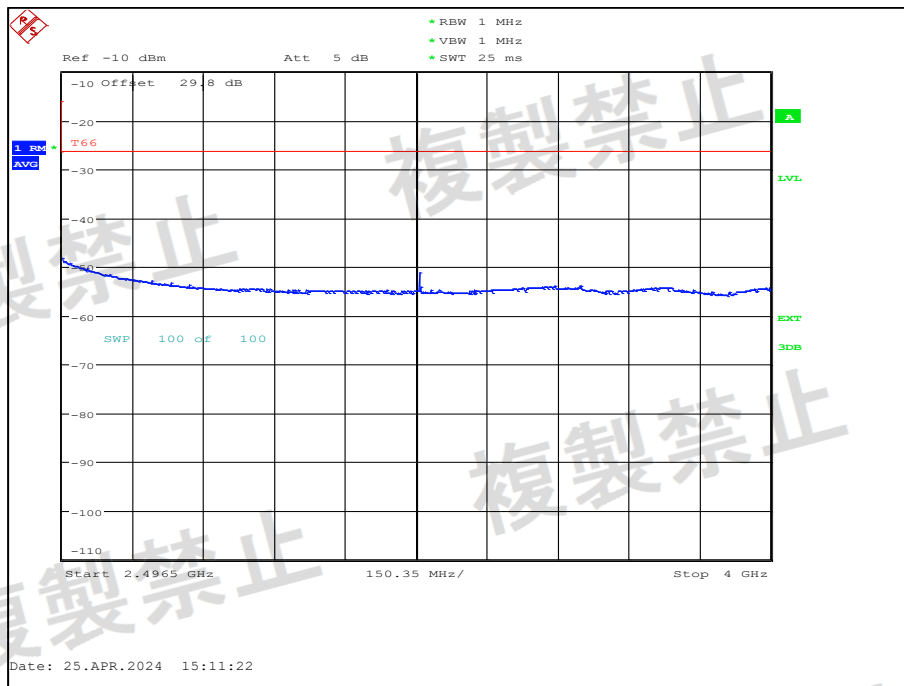


Figure 66 – 2442 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11n20 Mode, Ch7

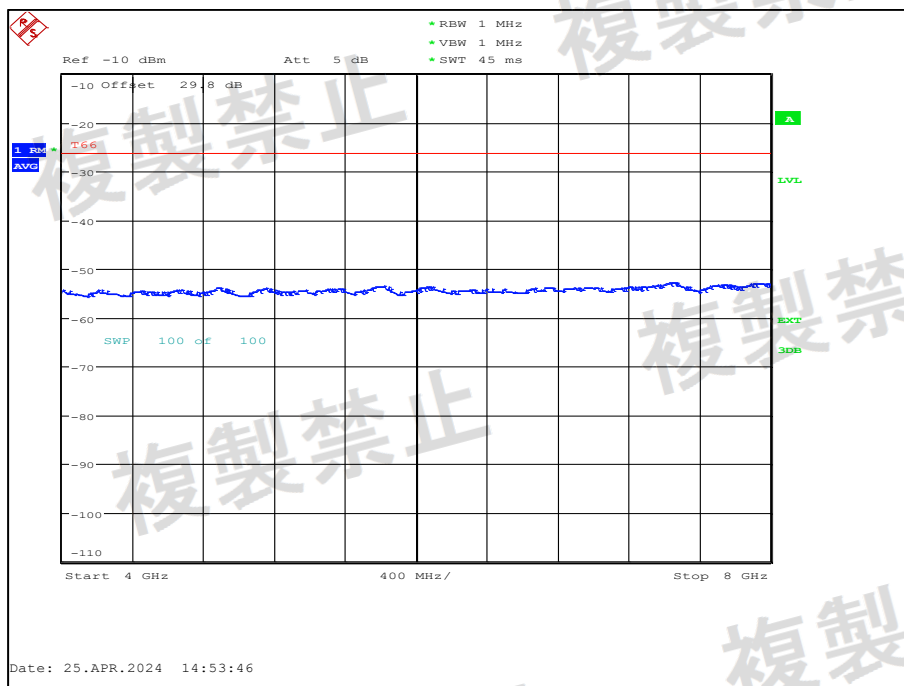


Figure 67 – 2442 MHz, 4000 MHz to 8000 MHz, WLAN 802.11n20 Mode, Ch7

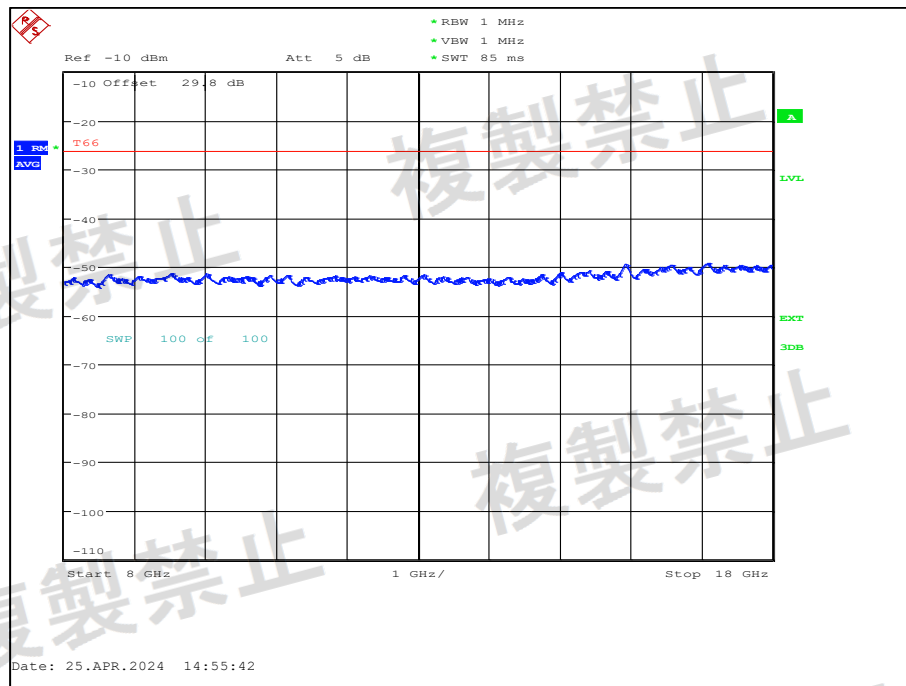


Figure 68 – 2442 MHz, 8000 MHz to 18000 MHz, WLAN 802.11n20 Mode, Ch7

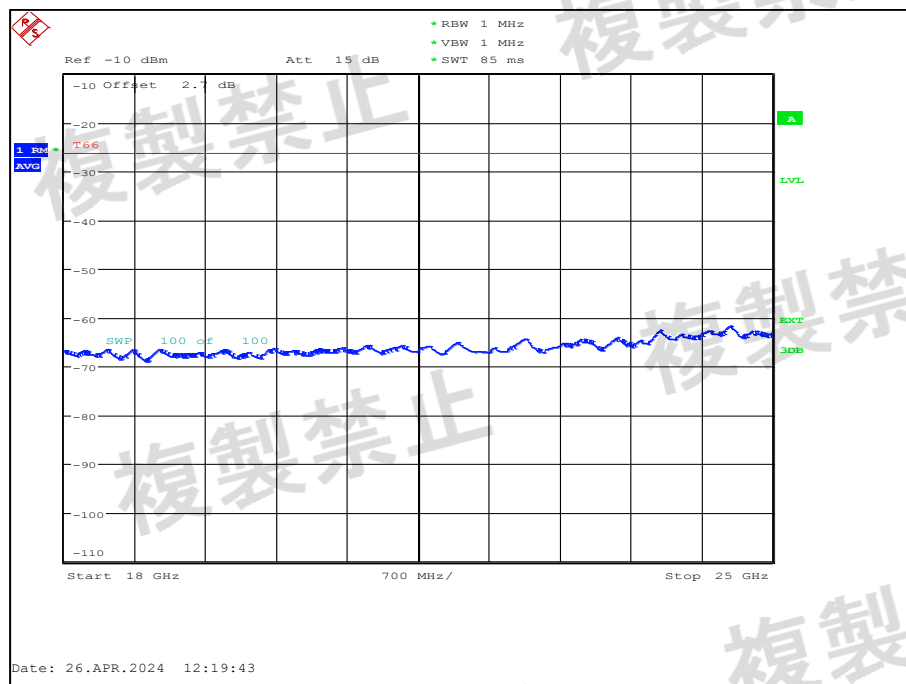


Figure 69 –2442 MHz, 18000 MHz to 25000 MHz, WLAN 802.11n20 Mode, Ch7

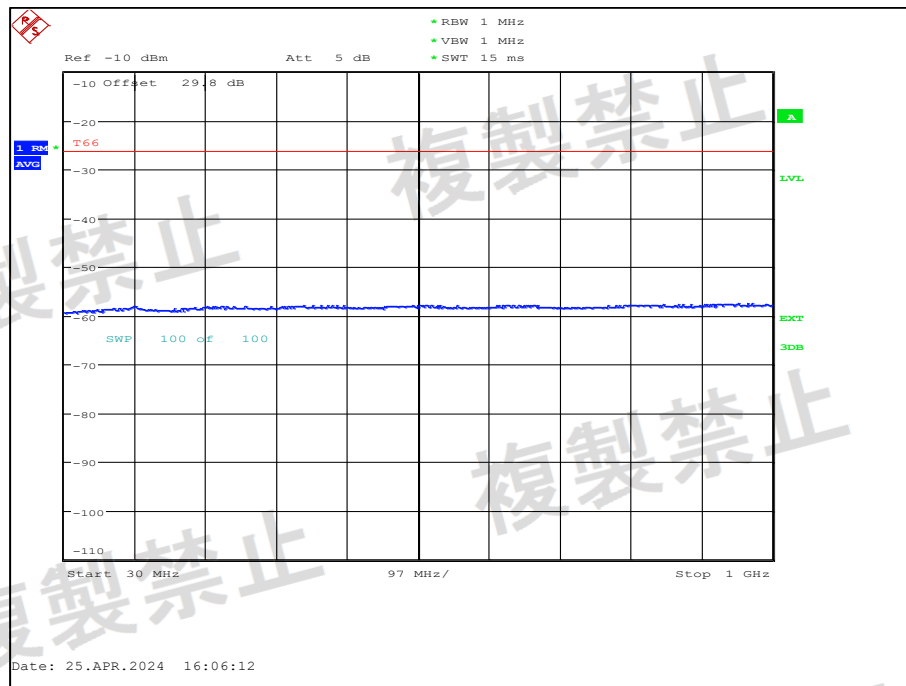


Figure 70 – 2442 MHz, 30 MHz to 1000 MHz, WLAN 802.11ax20 Mode, Ch7

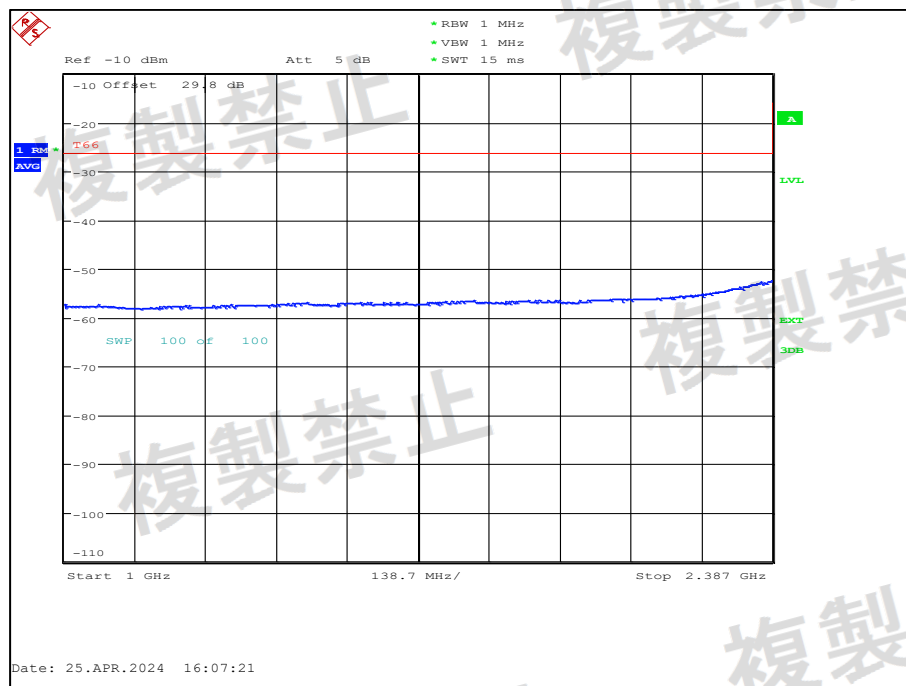


Figure 71 – 2442 MHz, 1000 MHz to 2387 MHz, WLAN 802.11ax20 Mode, Ch7

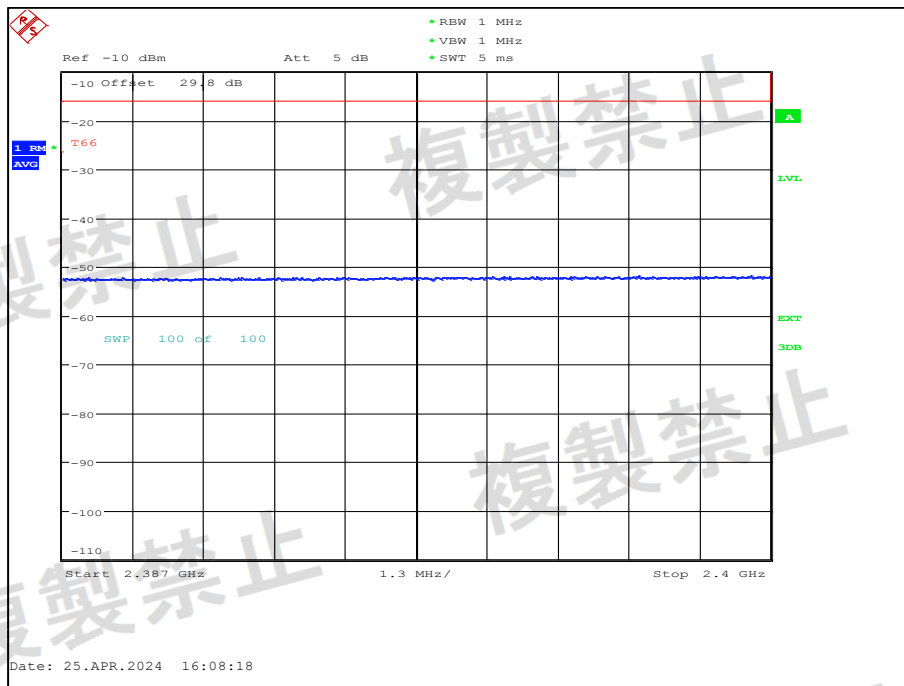


Figure 72 – 2442 MHz, 2387 MHz to 2400 MHz, WLAN 802.11ax20 Mode, Ch7

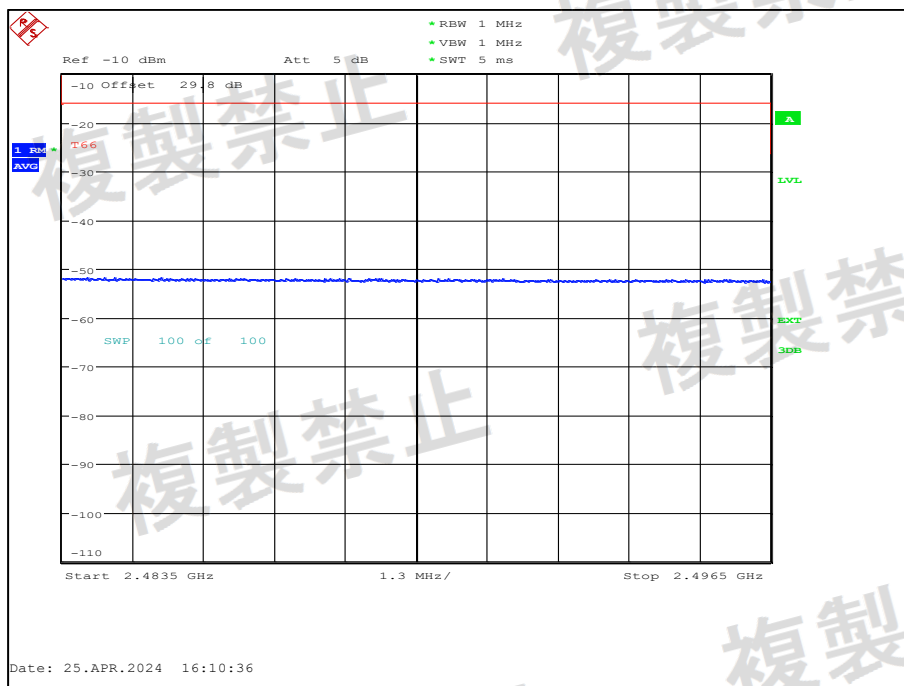


Figure 73 – 2442 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11ax20 Mode, Ch7

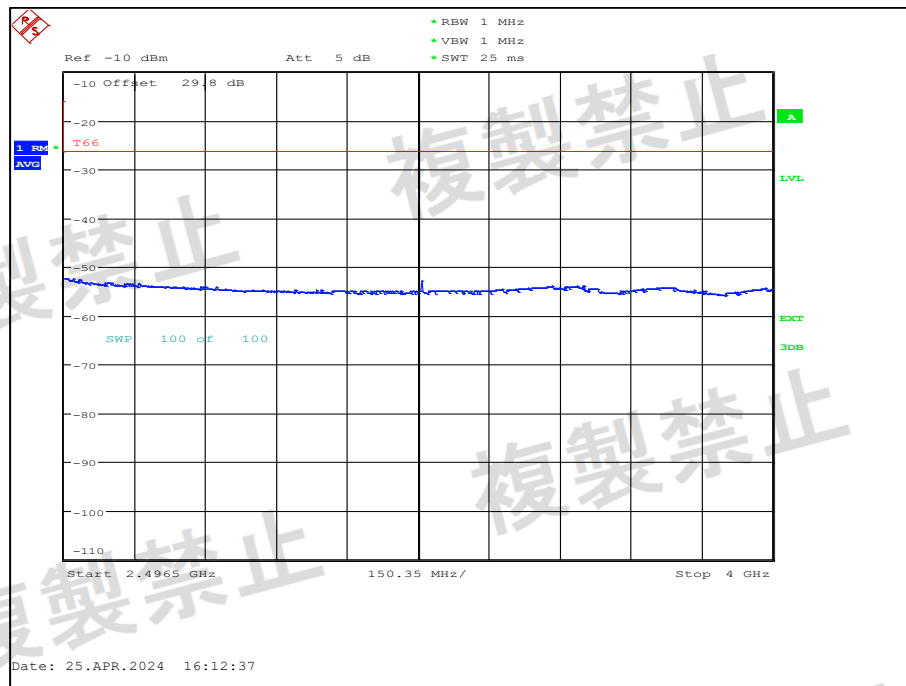


Figure 74 – 2442 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11ax20 Mode, Ch7

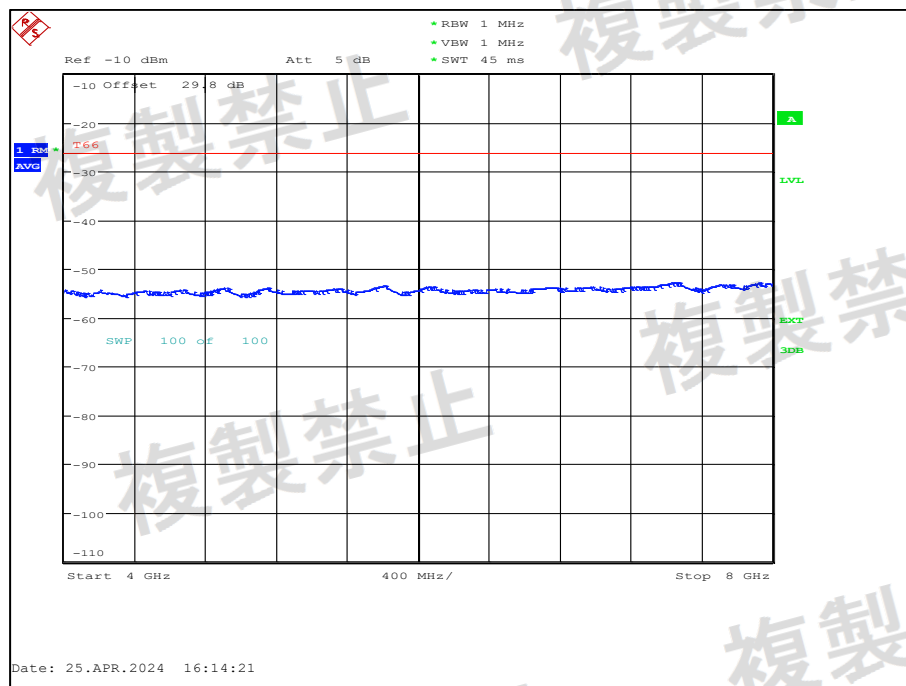


Figure 75 – 2442 MHz, 4000 MHz to 8000 MHz, WLAN 802.11ax20 Mode, Ch7

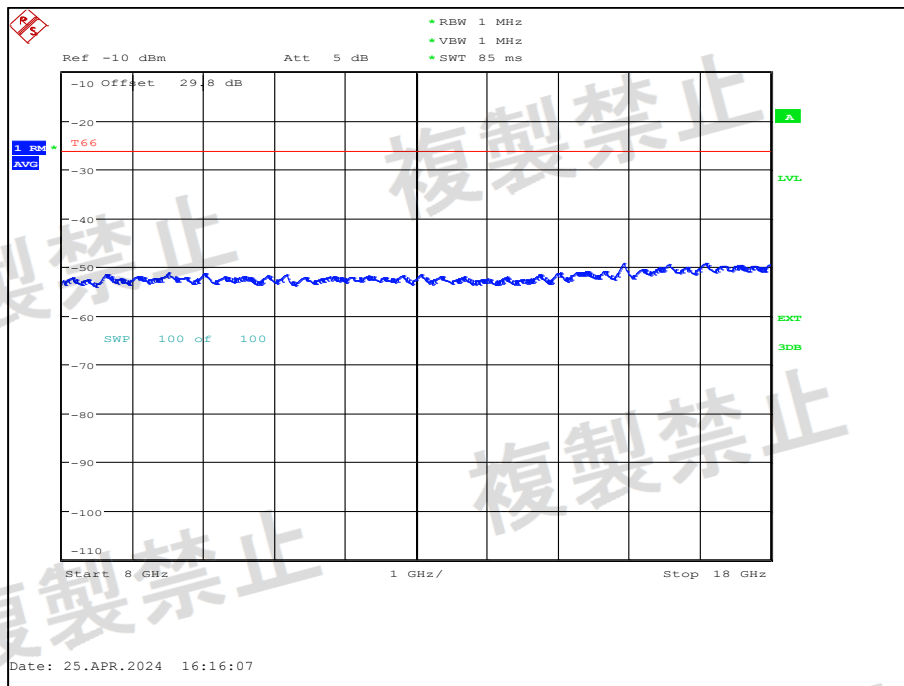


Figure 76 – 2442 MHz, 8000 MHz to 18000 MHz, WLAN 802.11ax20 Mode, Ch7

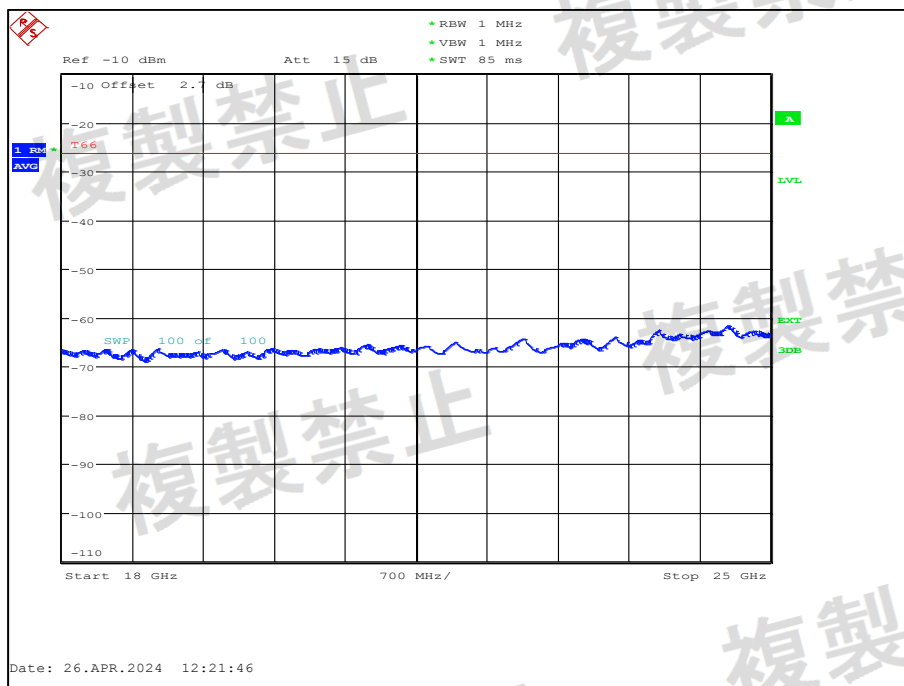


Figure 77 – 2442 MHz, 18000 MHz to 25000 MHz, WLAN 802.11ax20 Mode, Ch7

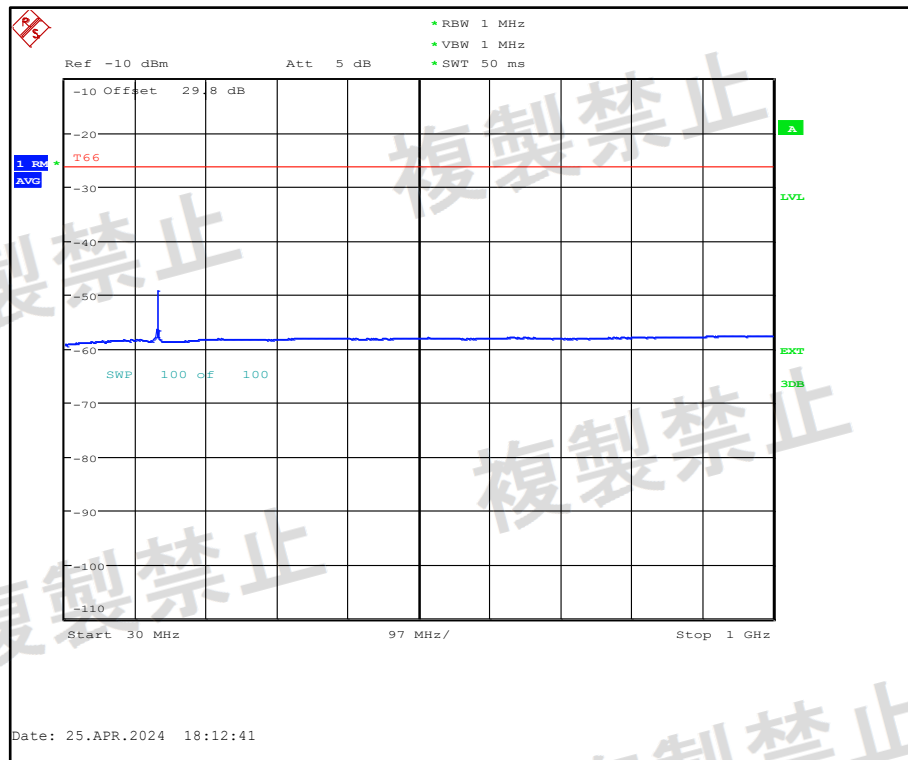


Figure 78 – 2472 MHz, 30 MHz to 1000 MHz, WLAN 802.11b Mode, Ch13

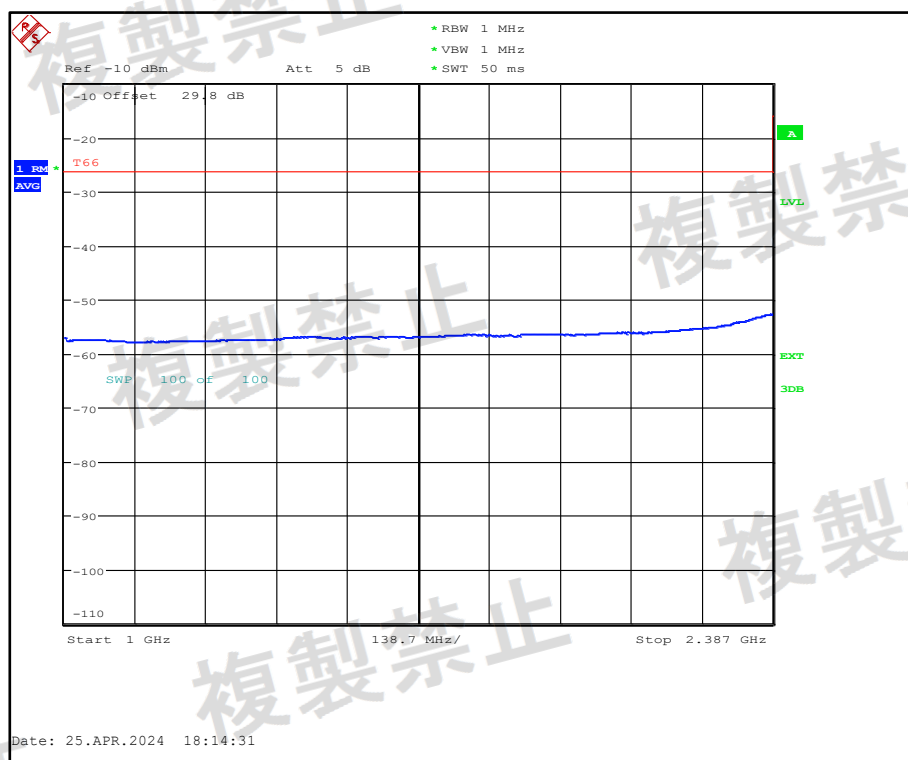


Figure 79 – 2472 MHz, 1000 MHz to 2387 MHz, WLAN 802.11b Mode, Ch13

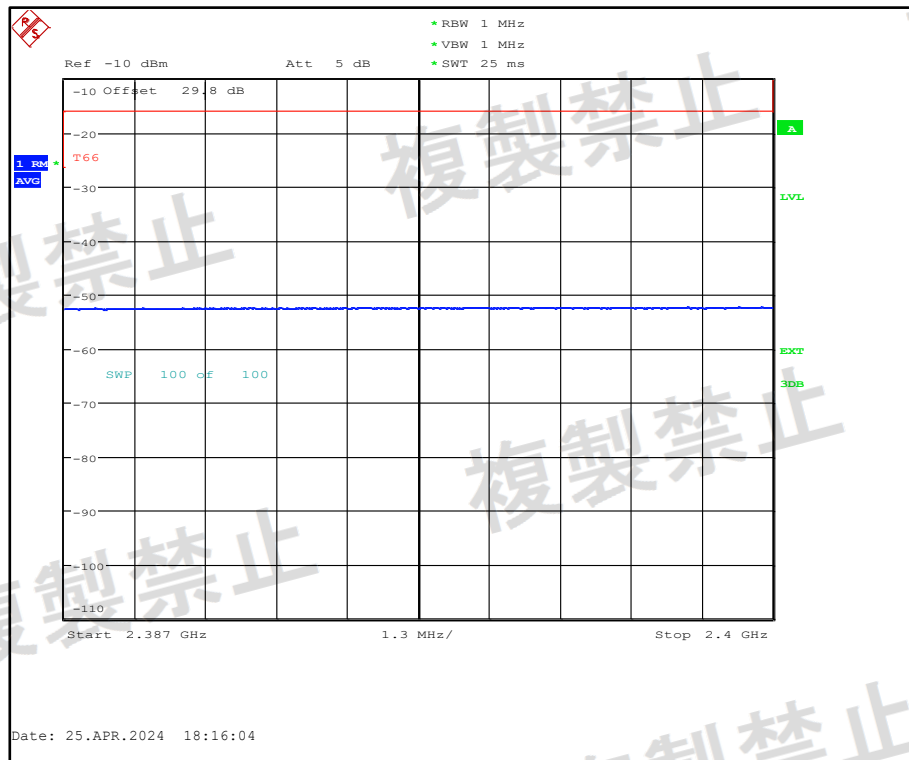


Figure 80 – 2472 MHz, 2387 MHz to 2400 MHz, WLAN 802.11b Mode, Ch13

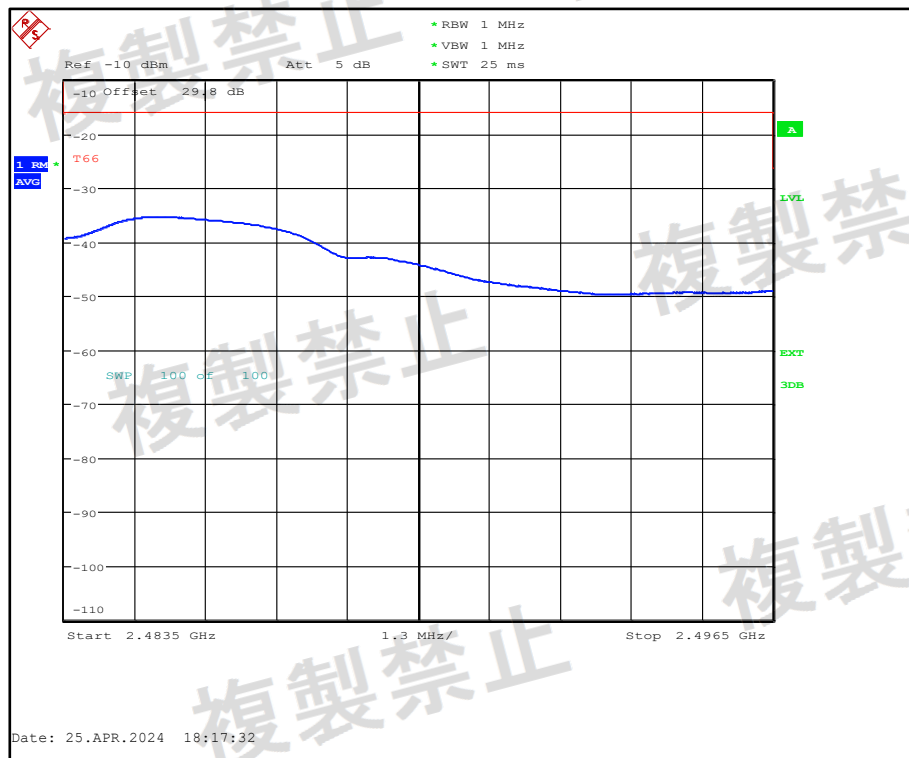


Figure 81 – 2472 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11b Mode, Ch13

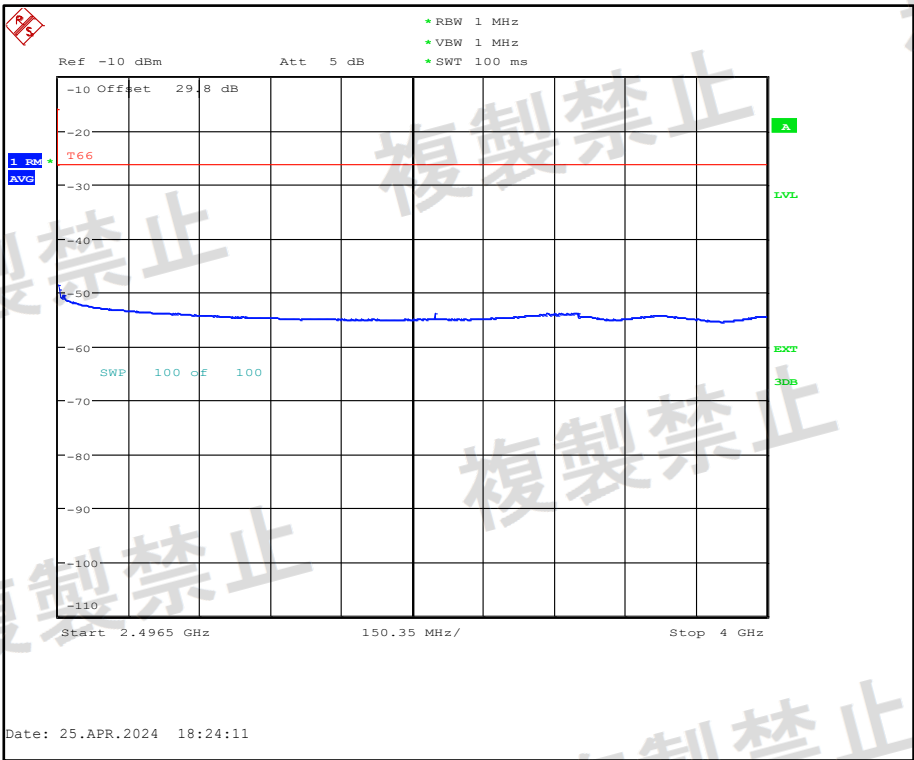


Figure 82 – 2472 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11b Mode, Ch13

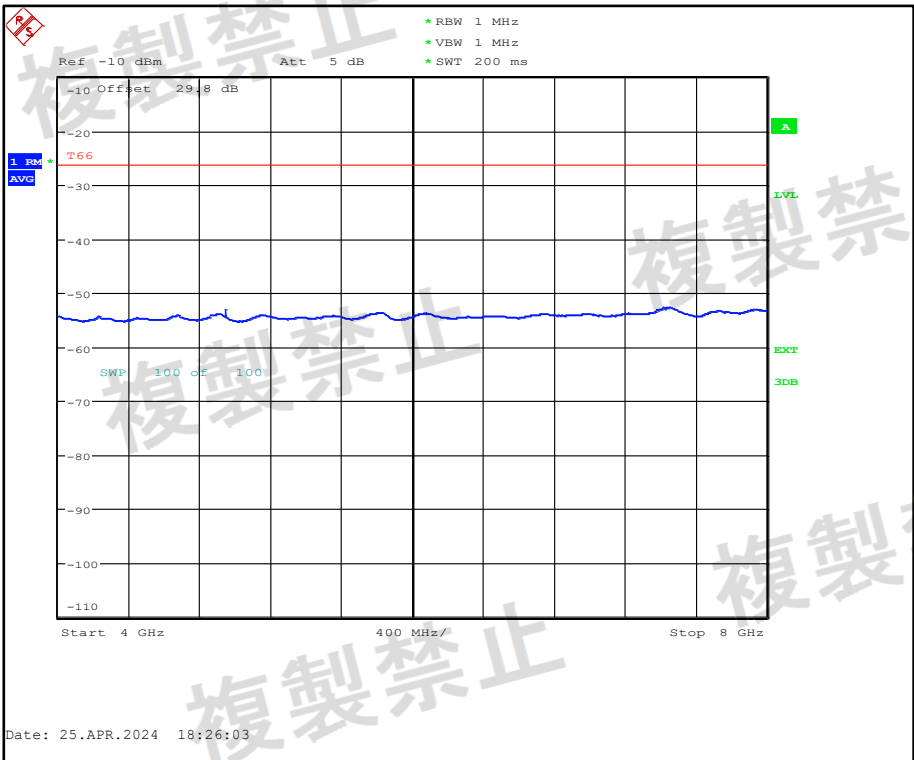


Figure 83 – 2472 MHz, 4000 MHz to 8000 MHz, WLAN 802.11b Mode, Ch13

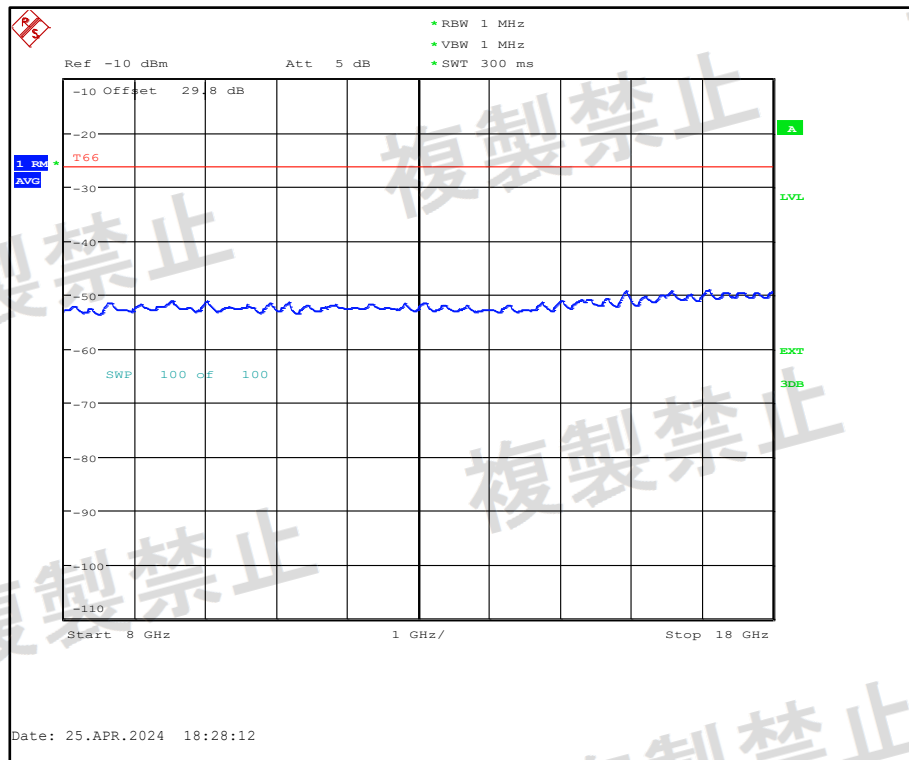


Figure 84 - 2472 MHz, 8000 MHz to 18000 MHz, WLAN 802.11b Mode, Ch13

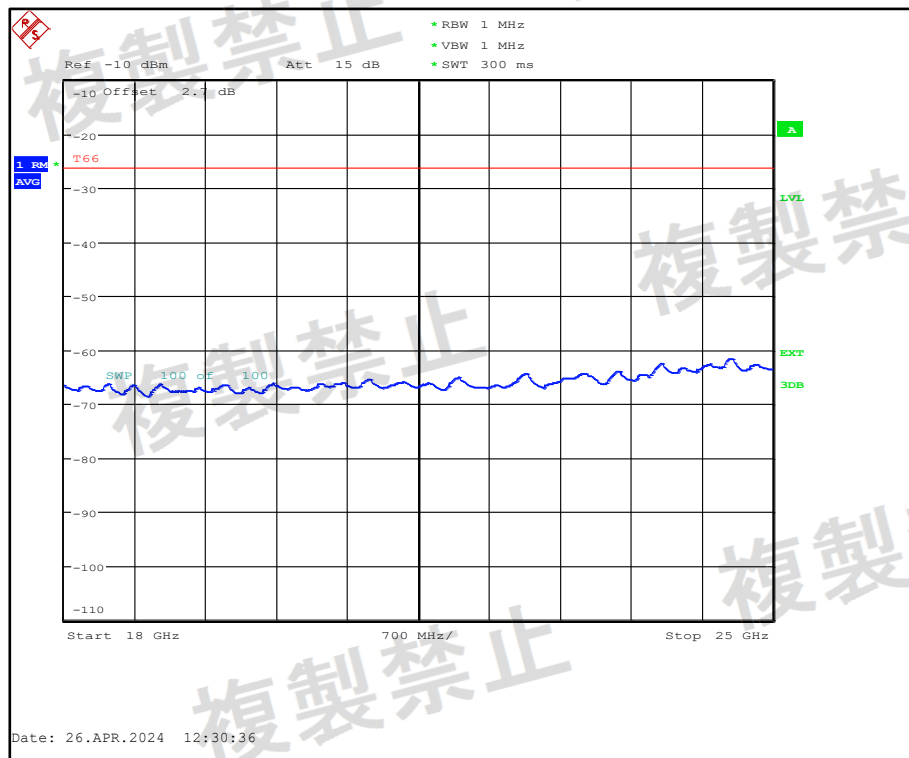


Figure 85 – 2472 MHz, 18000 MHz – 25000 MHz, WLAN 802.11b Mode, Ch13

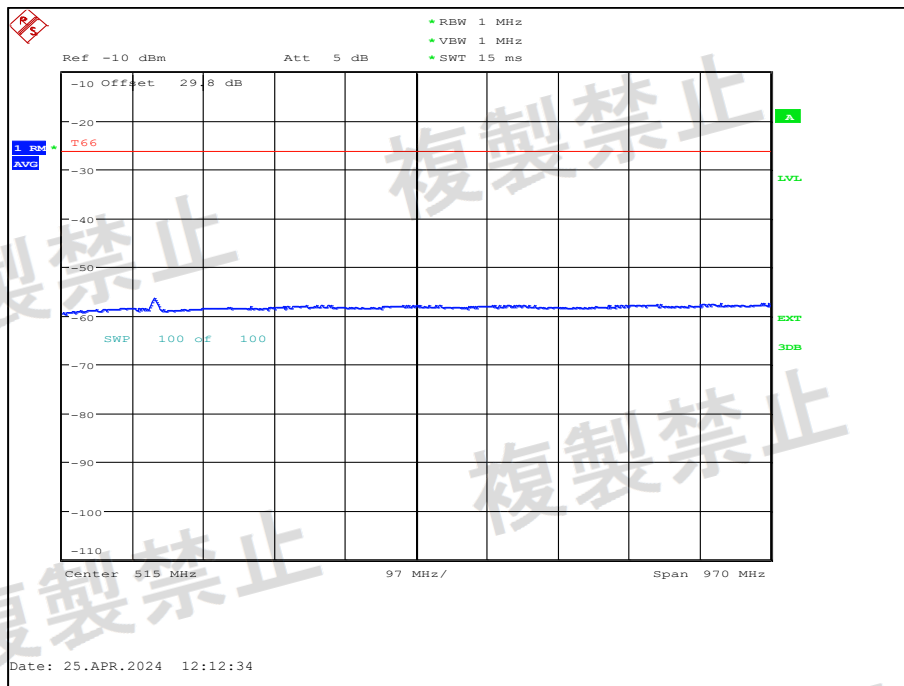


Figure 86 – 2472 MHz, 30 MHz to 1000 MHz, WLAN 802.11g Mode, Ch13

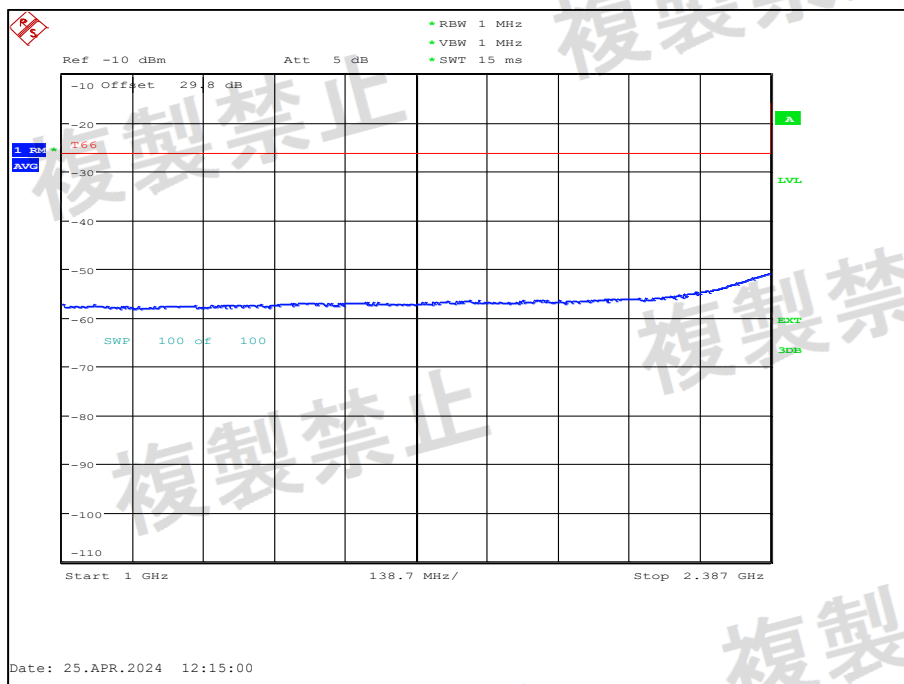


Figure 87 –2472 MHz, 1000 MHz to 2387 MHz, WLAN 802.11g Mode, Ch13

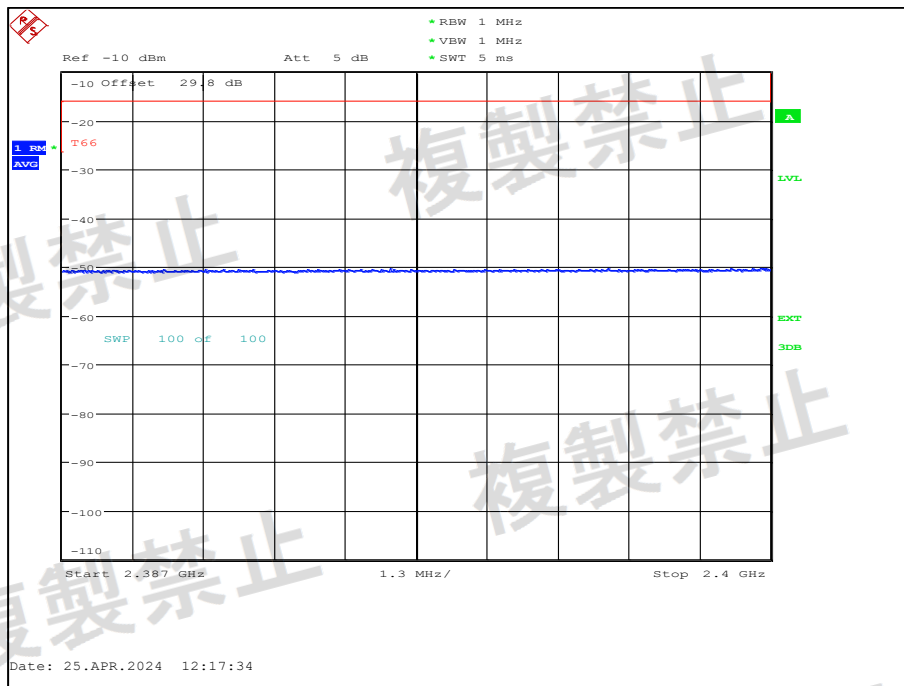


Figure 88 – 2472 MHz, 2387 MHz to 2400 MHz, WLAN 802.11g Mode, Ch13

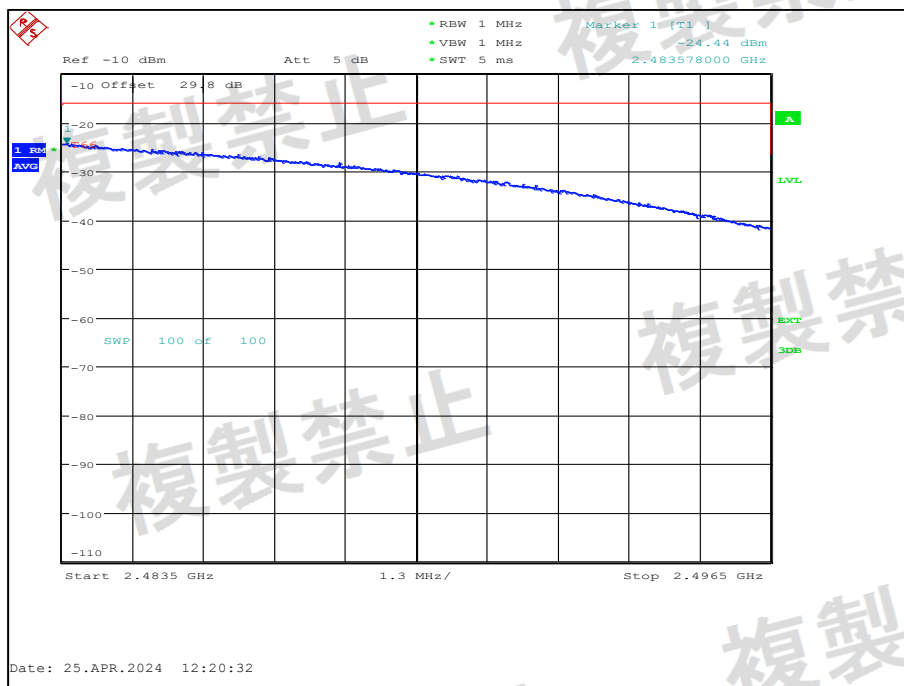


Figure 89 – 2472 MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11g Mode, Ch13

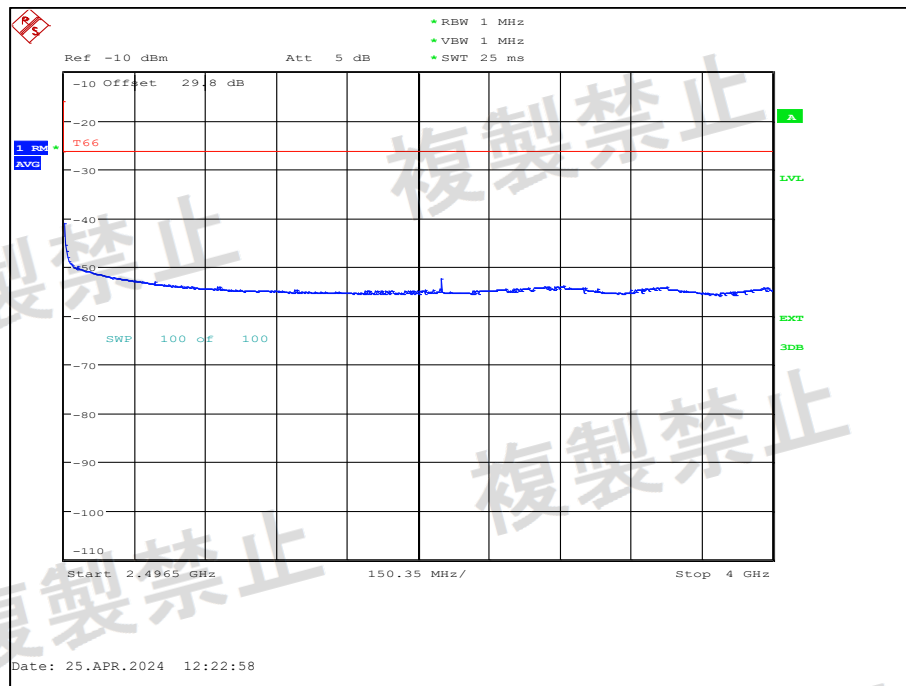


Figure 90 - 2472 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11g Mode, Ch13

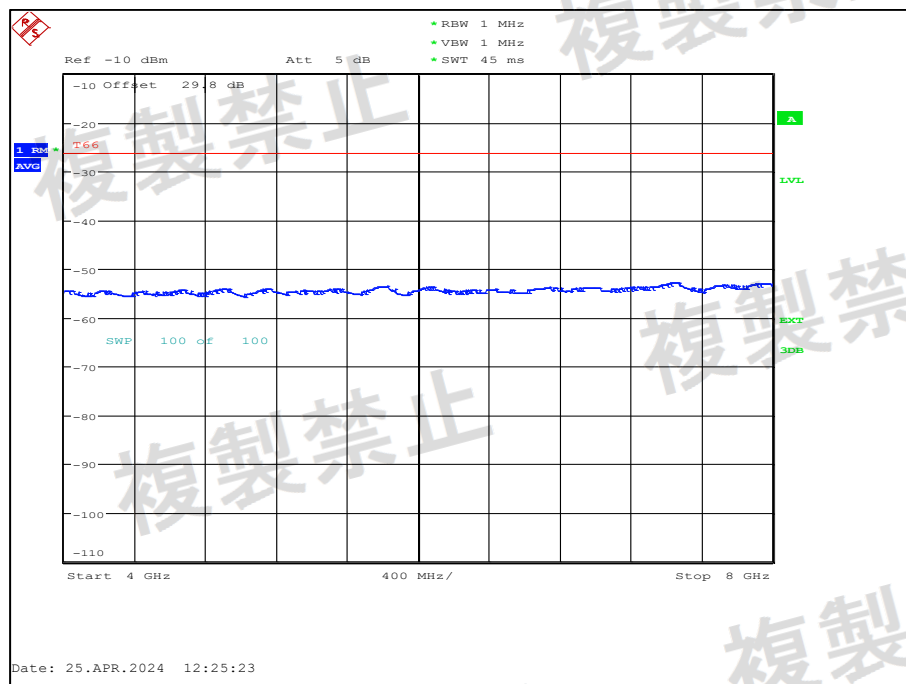


Figure 91 – 2472 MHz, 4000 MHz to 8000 MHz, WLAN 802.11g Mode, Ch13

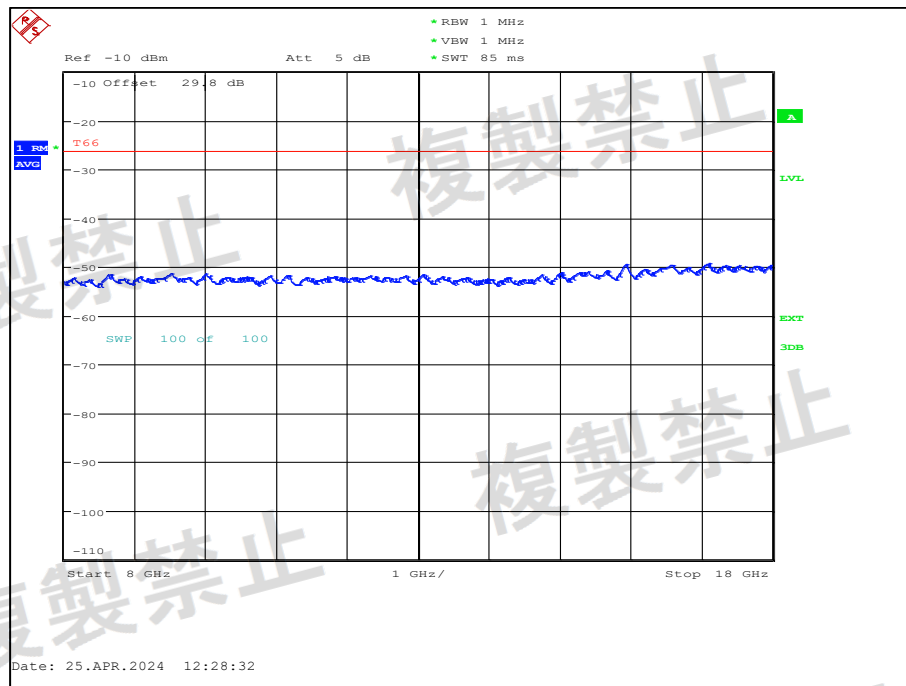


Figure 92 – 2472 MHz, 8000 MHz to 18000 MHz, WLAN 802.11g Mode, Ch13

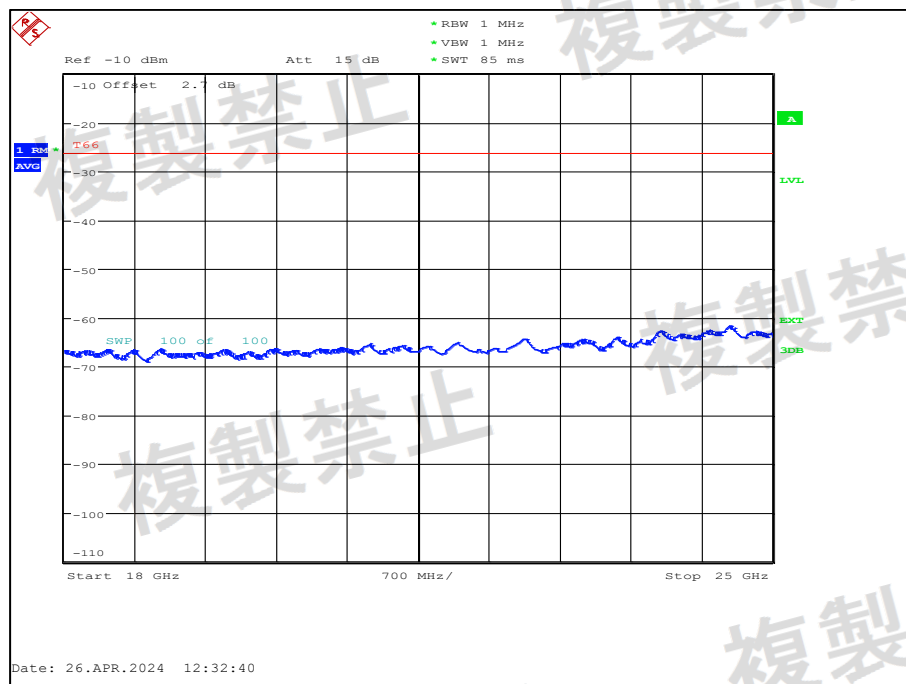


Figure 93 – 2472 MHz, 18000 MHz to 25000 MHz, WLAN 802.11g Mode, Ch13

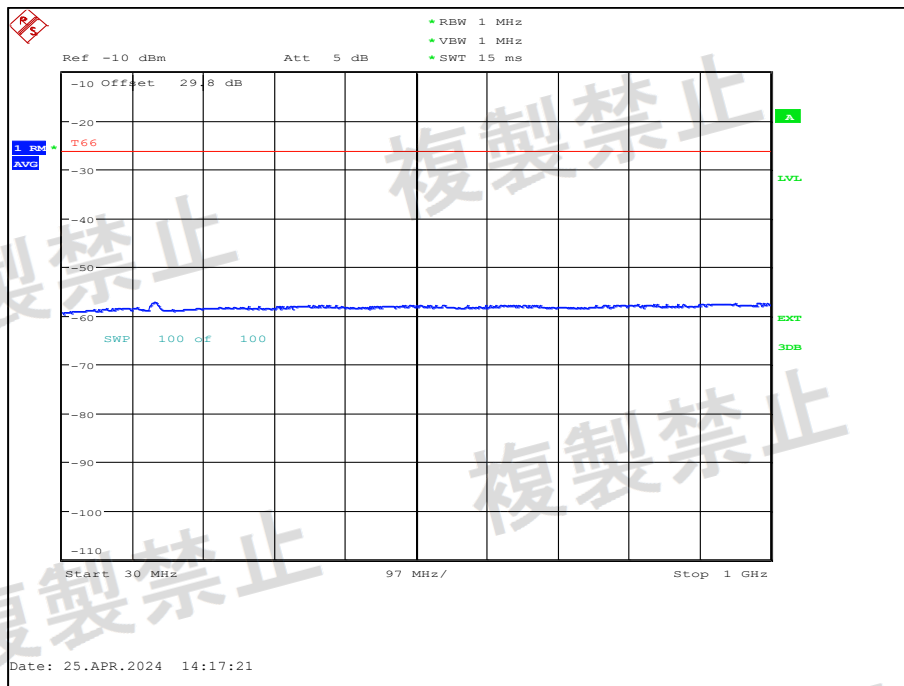


Figure 94 – 2472 MHz, 30 MHz to 1000 MHz, WLAN 802.11n20 Mode, Ch13

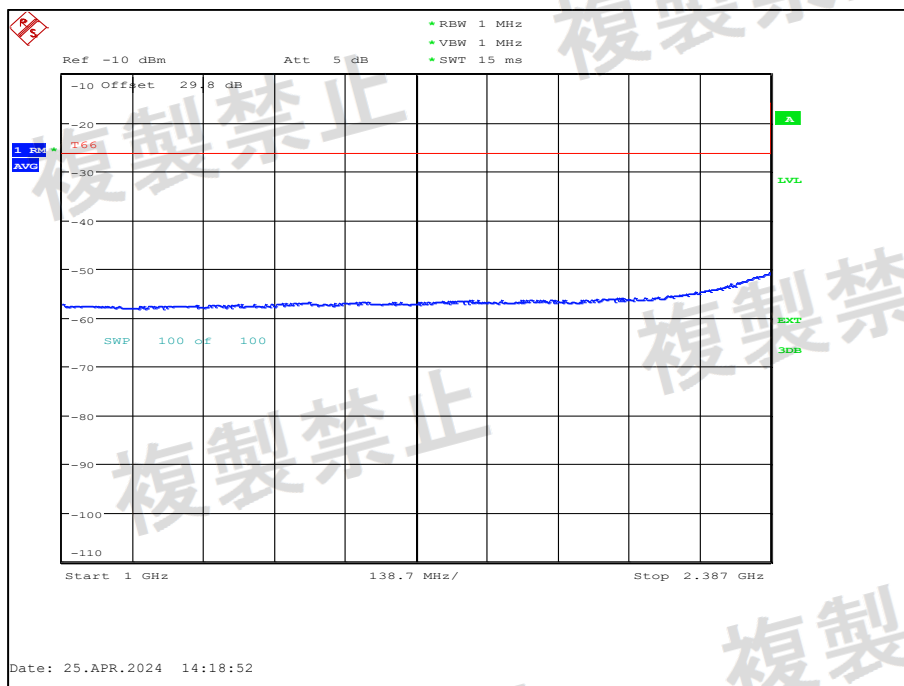


Figure 95 – 2472 MHz, 1000 MHz to 2387 MHz, WLAN 802.11n20 Mode, Ch13

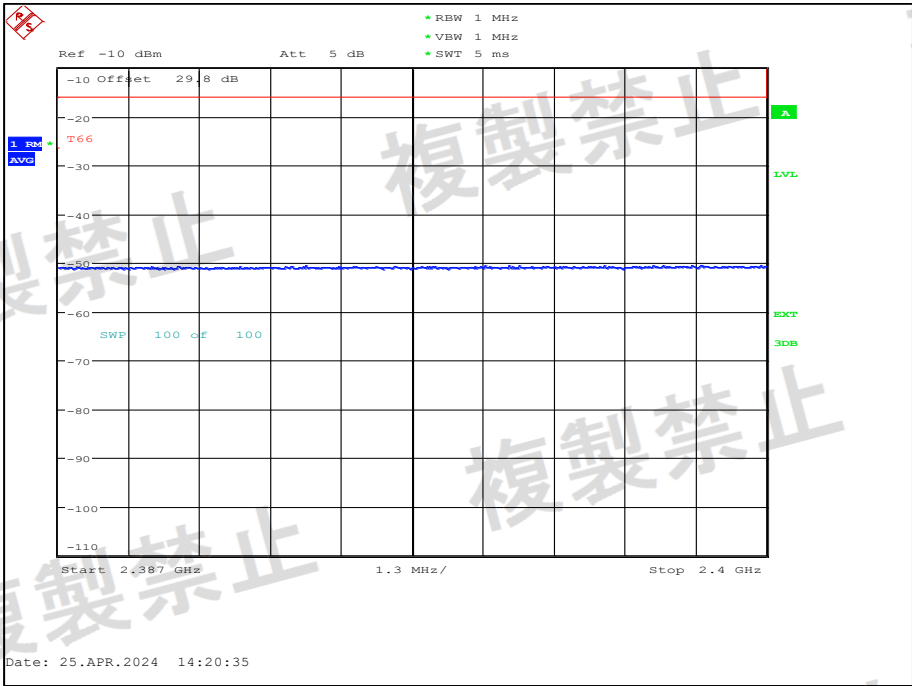


Figure 96 –2472 MHz, 2387 MHz to 2400 MHz, WLAN 802.11n20 Mode, Ch13

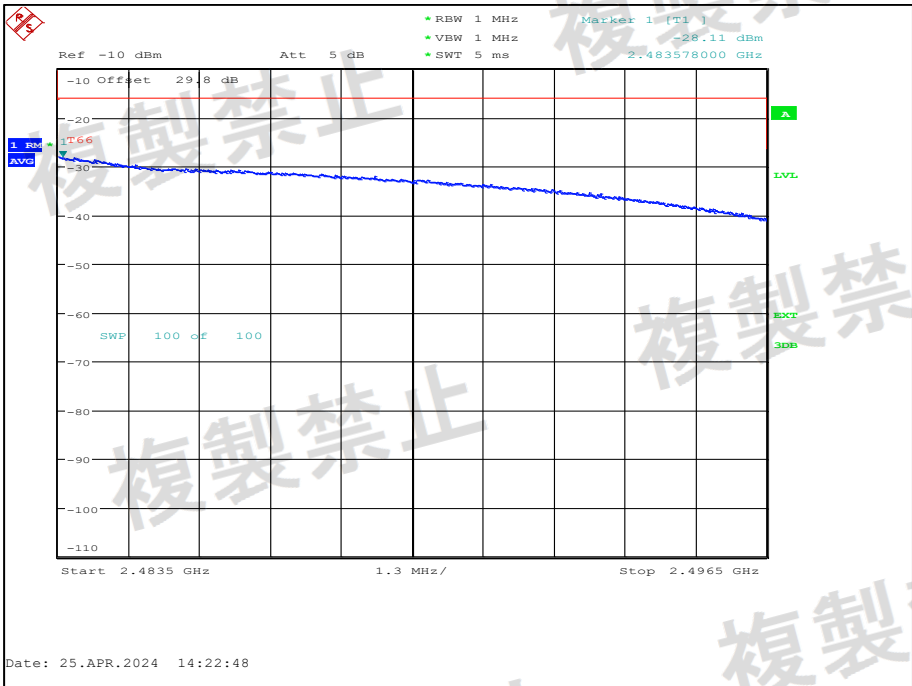


Figure 97 – 2472MHz, 2483.5 MHz to 2496.5 MHz, WLAN 802.11n20 Mode, Ch13

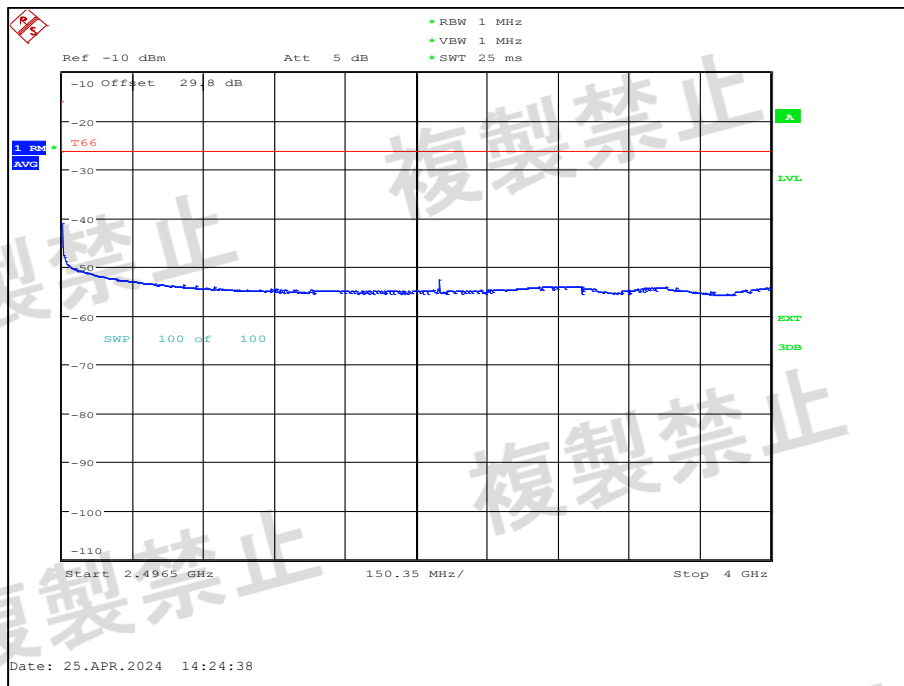


Figure 98 – 2472 MHz, 2496.5 MHz to 4000 MHz, WLAN 802.11n20 Mode, Ch13

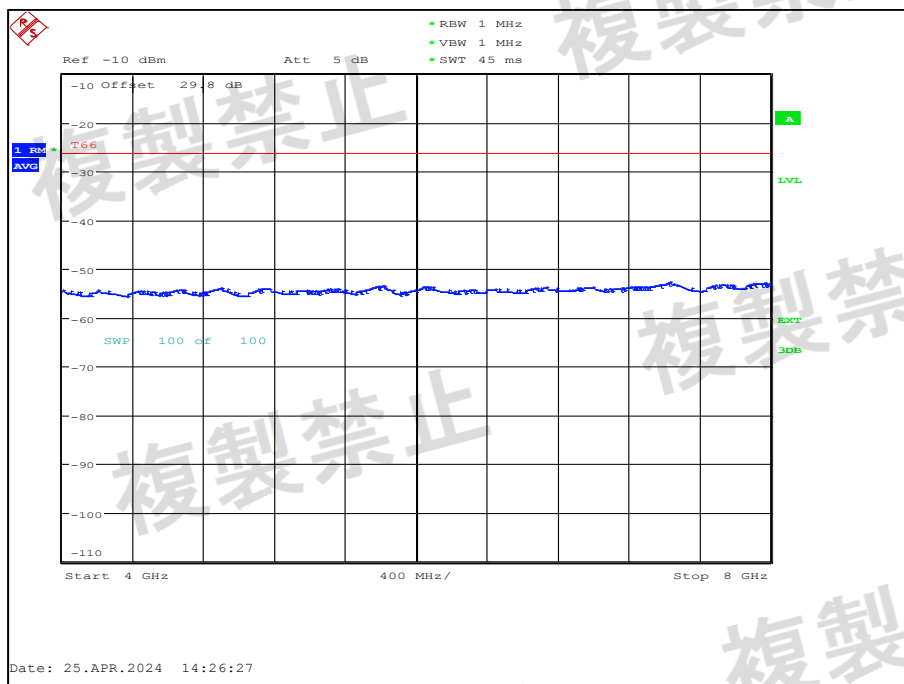


Figure 99 – 2472 MHz, 4000 MHz to 8000 MHz, WLAN 802.11n20 Mode, Ch13

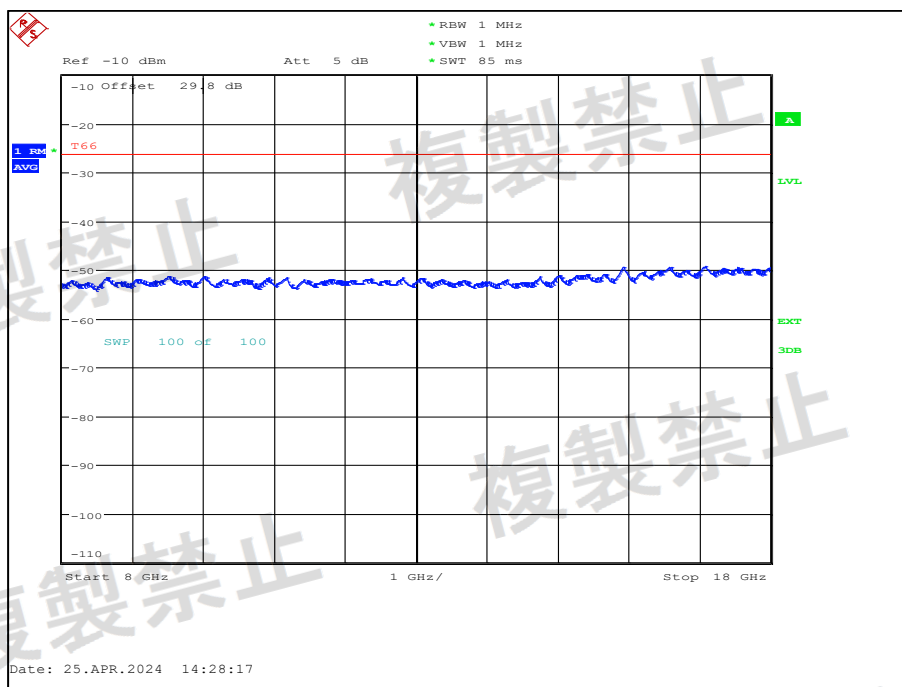


Figure 100 – 2472 MHz, 8000 MHz to 18000 MHz, WLAN 802.11n20 Mode, Ch13

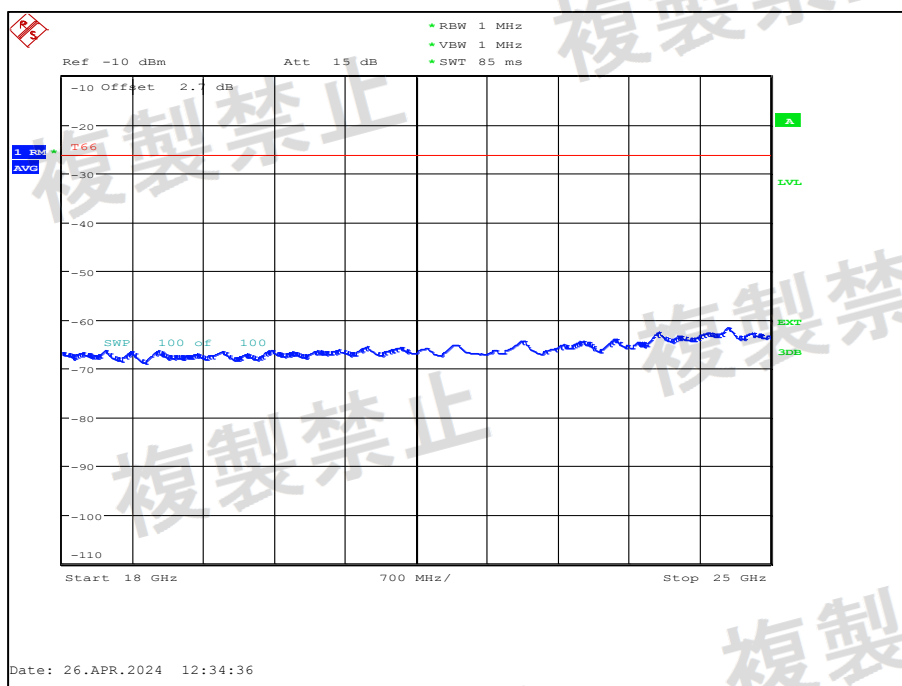


Figure 101 – 2472 MHz, 18000 MHz to 25000 MHz, WLAN 802.11n20 Mode, Ch13

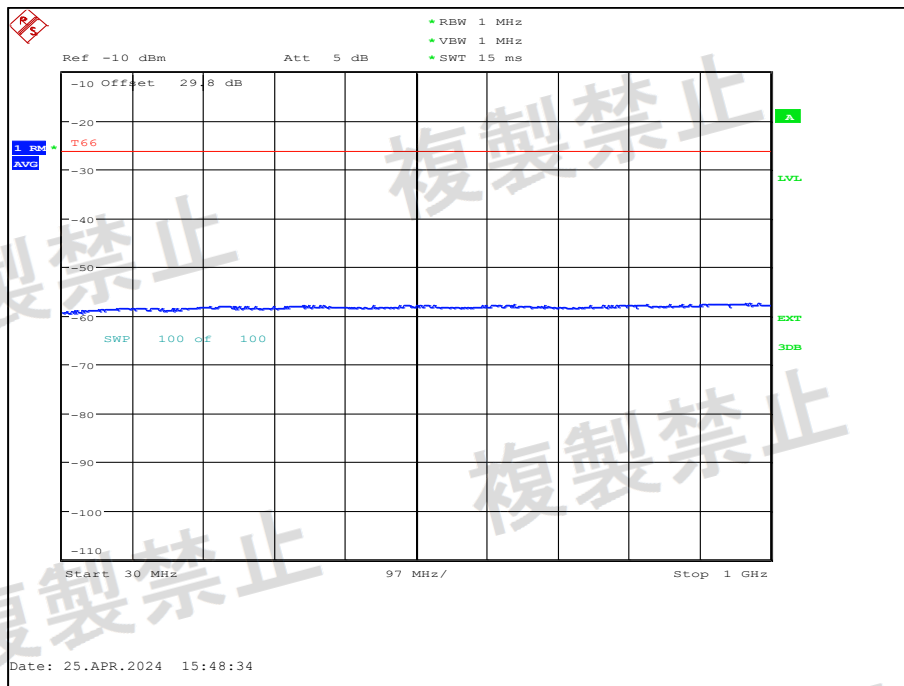


Figure 102 – 2472 MHz, 30 MHz to 1000 MHz, WLAN 802.11ax20 Mode, Ch13

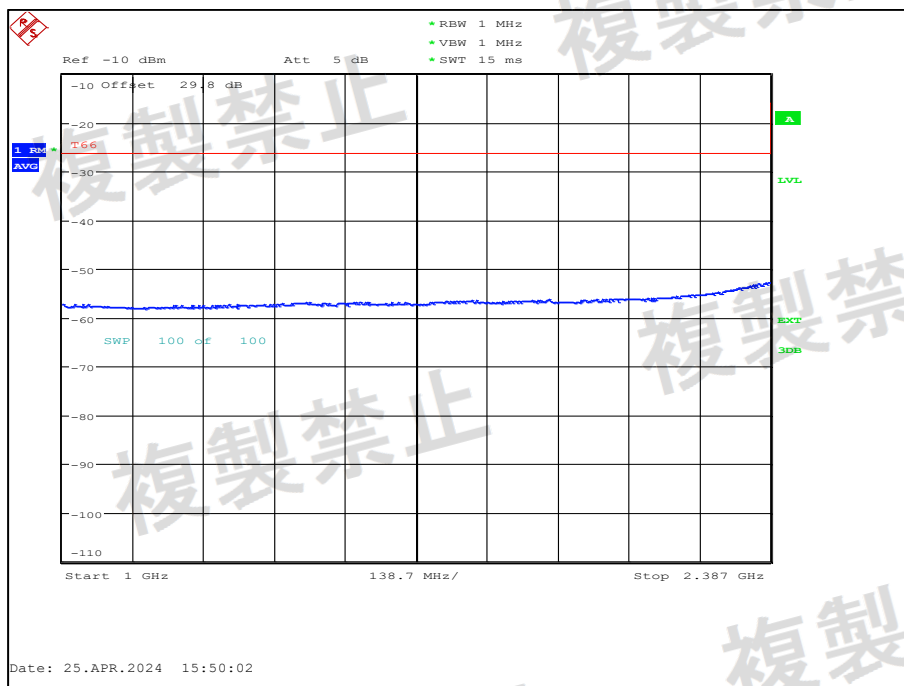


Figure 103 – 2472 MHz, 1000 MHz to 2387 MHz, WLAN 802.11ax20 Mode, Ch13