

TEST REPORT

Report number : KR21230619A

Issue date : 2023/06/19

Applicant : JS TECHWIN
79-4, Cheombok-ro, Dong-gu, Dae-gu, Republic of Korea
Tel. +82-10-2725-4596 Fax. +82-53-955-4596

Model name : RRPD/RRPD-s/RRPD-square

Varinat model name : N/A

Serial number : N/A

Test procedure : Radio equipment according to Certification Ordinance
Article 2 Section 1 No. 19


Date of test : 2023/6/16

Name of facility : KRL Co., Ltd.


The results in this report are applicable only to the equipment tested.

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Tested by :


Moo-Hong, KIM

Approved by :


Kyu-Hyun, LEE

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Summary of Test Results

Test report No.	Description	Result
1	Frequency Tolerance	Pass
2	Occupied Bandwidth	Pass
3	Spurious emission intensity	Pass
4	Antenna Power	Pass
5	Spread-spectrum Bandwidth	NA
6	Secondary radiated emission	Pass
7	Holding Time	NA
8	Radio Interference Prevention Function	Pass

Measurement equipment list

USE	Equipment	Company	Model No.	Serial No.	Calibrated by	Cal. Method	Cal. Due	Cal. Date
X	FREQUENCY COUNTER	EIP	25B	9105-00535	KTICC	ㄆ(c)	Oct. 2023	Oct. 13, 2022
X	SYSTEM DC POWER SUPPLY	HP	6654A	3639A02180	BCS	ㄆ(c)	Aug. 2024	Aug. 5, 2023
	TEMP & HUMI. CHAMBER	HITACHI	EC-25MHPS	U5539026	KTICC	ㄆ(c)	Nov. 2023	Nov. 18, 2022
X	SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ26	100044	KTICC	ㄆ(c)	Jan. 2024	Jan. 3, 2023
X	USB Average Power Sensor	AGILENT	U2004A	MY53340013	KTICC	ㄆ(c)	Oct. 2023	Oct. 13, 2022
	POWER DIVIDER	WILTRON	K240C	890093	KTICC	ㄆ(c)	Oct. 2023	Oct. 13, 2022
	STEP ATTENUATOR	AEROFLEX	AF9010-60-31	12987	BCS	ㄆ(c)	Jan. 2024	Jan. 6, 2023
	AC POWER SUPPLY	DAELIM	D-45	KRL-002	BCS	ㄷ(d)	Aug. 2023	Aug. 5, 2022
	FIXED ATTENUATOR	XMA CORP	4882-6140-06	KRL-009	KTICC	ㄆ(c)	Oct. 2023	Oct. 13, 2022

Note1: The calibration of measurement equipment is valid for one year period.

Note2: "X" used equipment.

Note3: Cal.Method ...

a): Calibration conducted by the National Institute of Information and Communications Technology(NICT)(hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)

b): Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)

c): 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)

d): Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

Specified Radio Equipment Test Report

Test Date : 2023-06-16

Class: Article 2 Paragraph 1 Item 19	Frequency : (2 402 ~ 2 480) MHz
Rated Power (mW) : 1 mW	Antenna Gain : -4.00 dBi
Rated Power (dBm) : 0.00 dBm	E.I.R.P : -4.00 dBm
Emission Designator : F1D	
Model Name : RRPD/RRPD-s/RRPD-square	Test Location : RF TEST ROOM
Serial No. : N/A	Temp / Humid. 20℃ / 50%
Type of Emission : BLE	Tested By : MooHong, Kim

No.	Test Items	Test ch	Test Frequency MHz	Test Result			Unit	Technical Regulations
				Voltage	Voltage	Voltage		
1	Frequency Tolerance	0	2402.0		DC 3.70 V			50 PPM or less
					2401.999131		MHz	
		19	2440.0		-0.362		PPM	
					2439.999291		MHz	
					-0.291		PPM	
2	Occupied Bandwidth	39	2480.0		2479.999390		MHz	26MHz or less
					-0.246		PPM	
					1.360		MHz	
3	Spurious Emission Intensity	0	2402.0 (1)		1.370		MHz	(1) Below 2387 MHz : -26dBm (2) 2387 to 2400 MHz : -16dBm (3) 2483.5 to 2496.5 MHz : -16dBm (4) Over 2496.5 MHz : -26dBm
			2402.0 (2)		1.370		MHz	
			2402.0 (3)		1.370		MHz	
			2402.0 (4)		1.370		MHz	
		19	2440.0 (1)		1.370		MHz	
			2440.0 (2)		1.370		MHz	
			2440.0 (3)		1.370		MHz	
			2440.0 (4)		1.370		MHz	
		39	2480.0 (1)		1.370		MHz	
			2480.0 (2)		1.370		MHz	
			2480.0 (3)		1.370		MHz	
			2480.0 (4)		1.370		MHz	
4	Antenna Power	0	2402.0		-55.55		dBm	0.01 W or less Error +20%-80%
					-26.13		dBm	
		19	2440.0		-63.38		dBm	
					-51.75		dBm	
					-56.69		dBm	
5	Spread-spectrum Bandwidth	0	2402.0		-63.66		dBm	500kHz or more
					-63.29		dBm	
					-51.46		dBm	
6	Secondary Radiated Emissions	0	2402.0		-56.06		dBm	(1) Below 1 GHz : -54dBm (2) 1 GHz or higher : -47dBm
					-63.00		dBm	
		19	2440.0		-37.37		dBm	
					-54.12		dBm	
					0.000378		W	
7	Holding Time	0	2402.0		-62.20		%	less than 0.4sec
					0.000412		W	
					-58.80		%	
8	Radio Interference Prevention Function	ID Code	MAC ADDRES : FD:1F:4E:A9:F6:C4		0.000430		W	Carrier sense is not required
					-57.00		%	

The input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

BT LE-1 Mbps Test Result

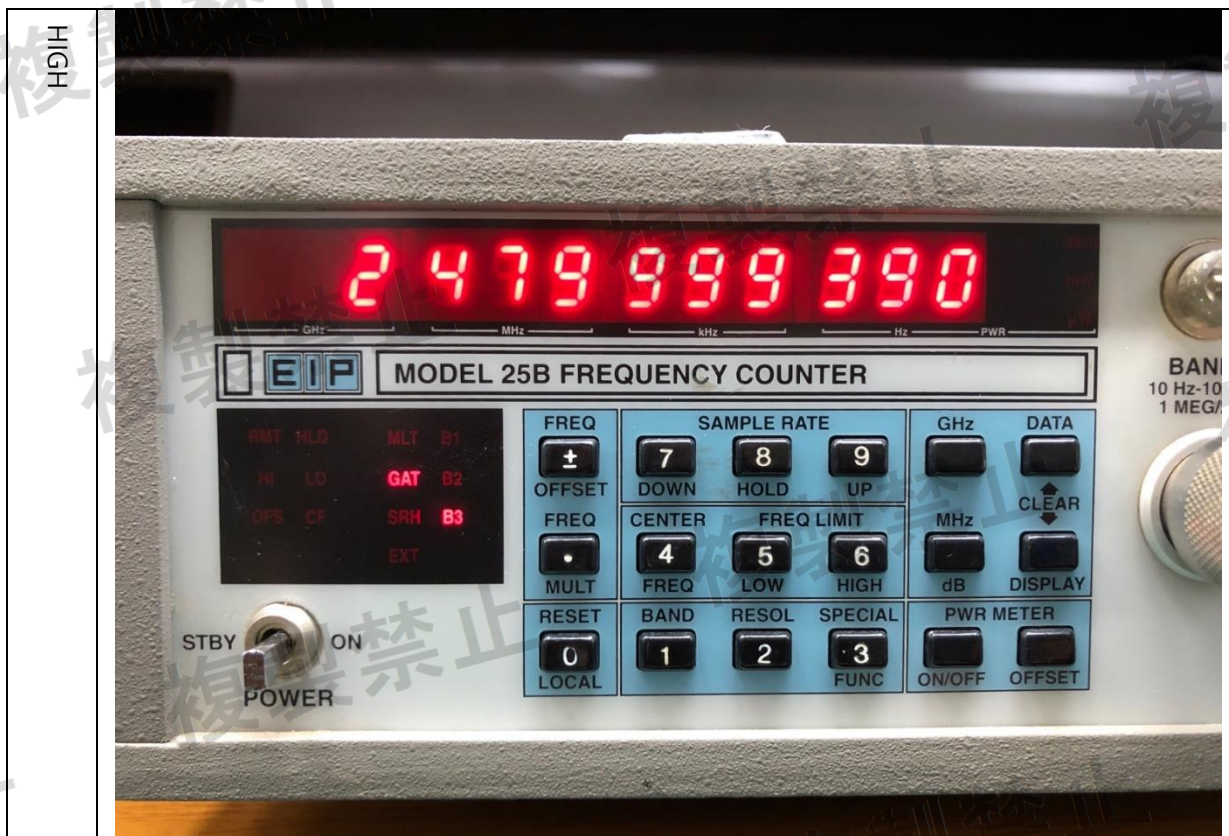
Frequency error

LOW



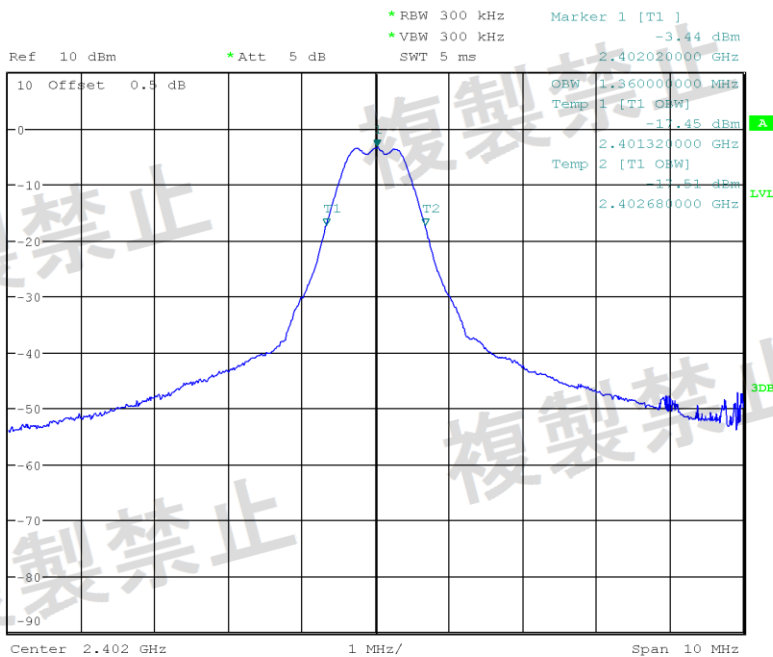
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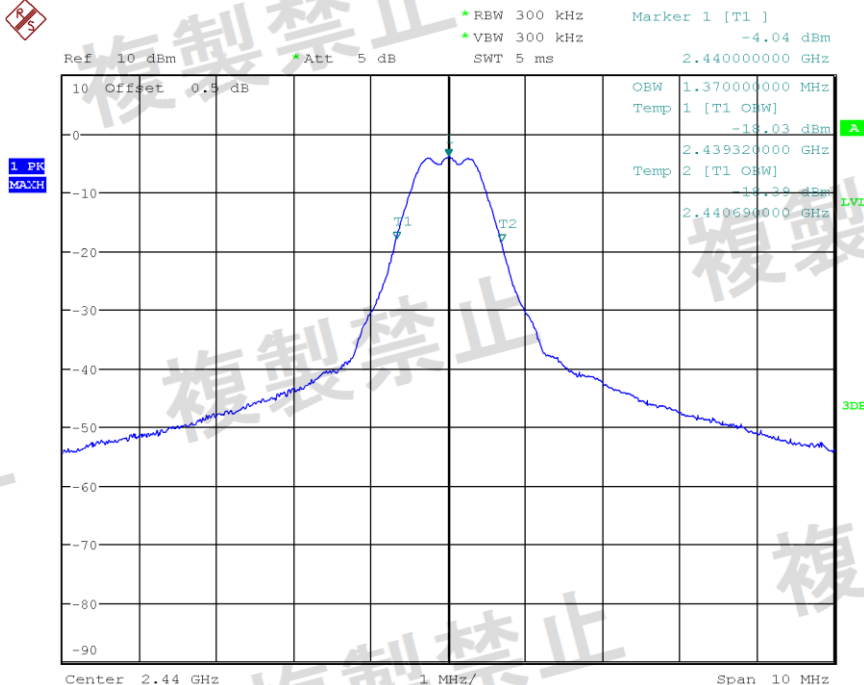
Occupied Bandwidth

LOW

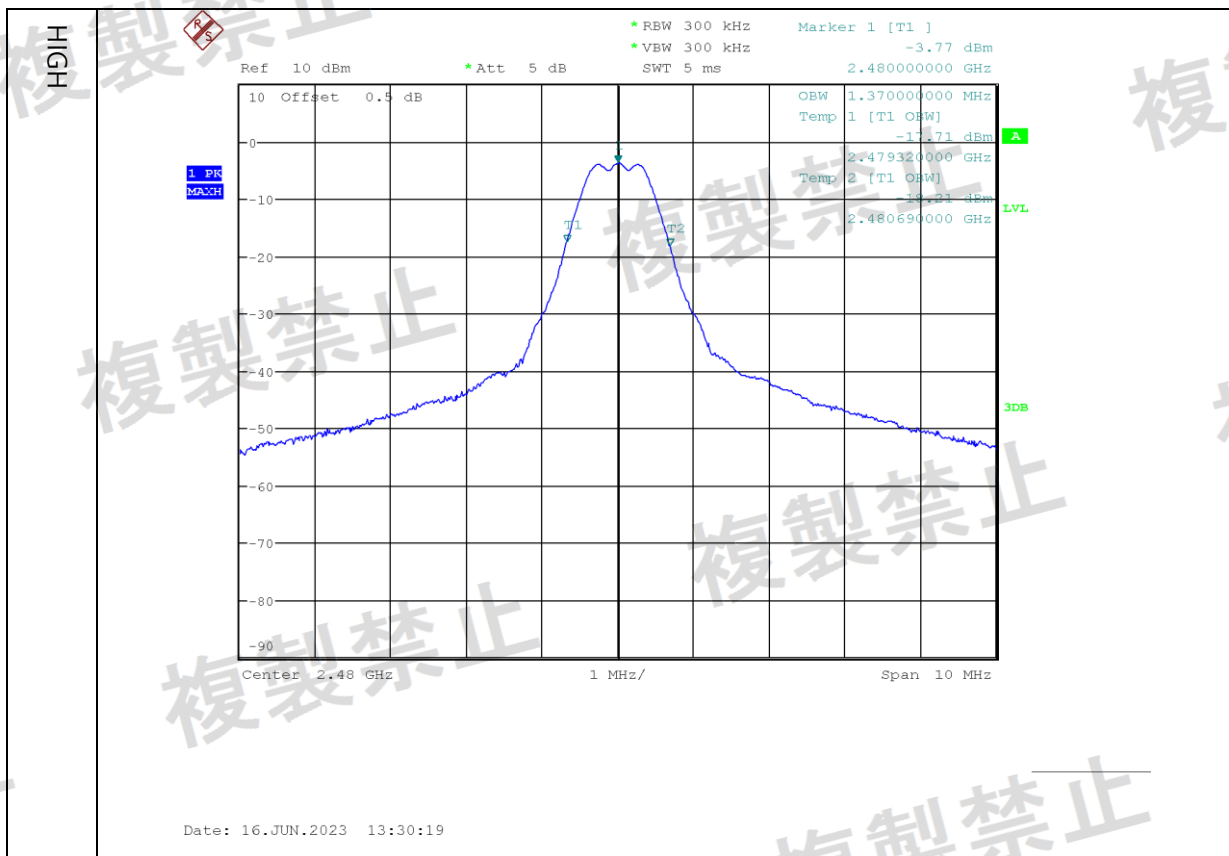


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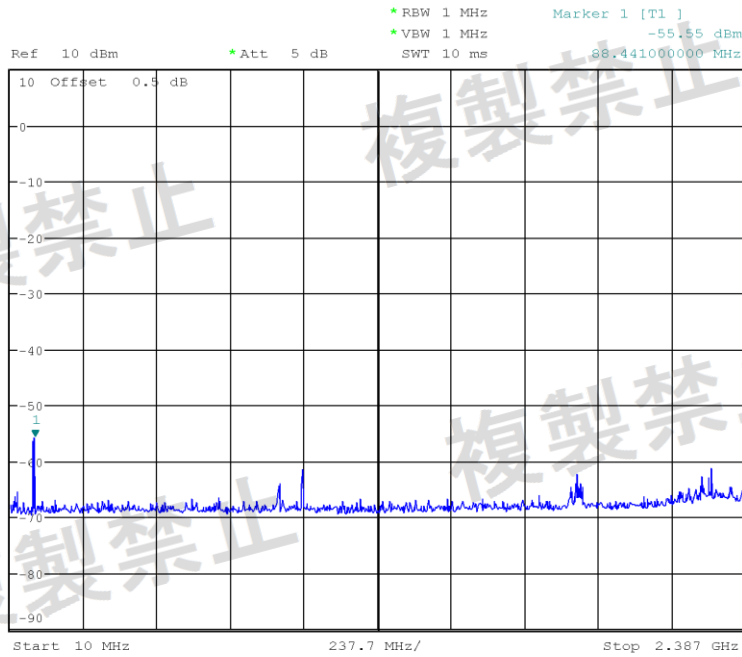


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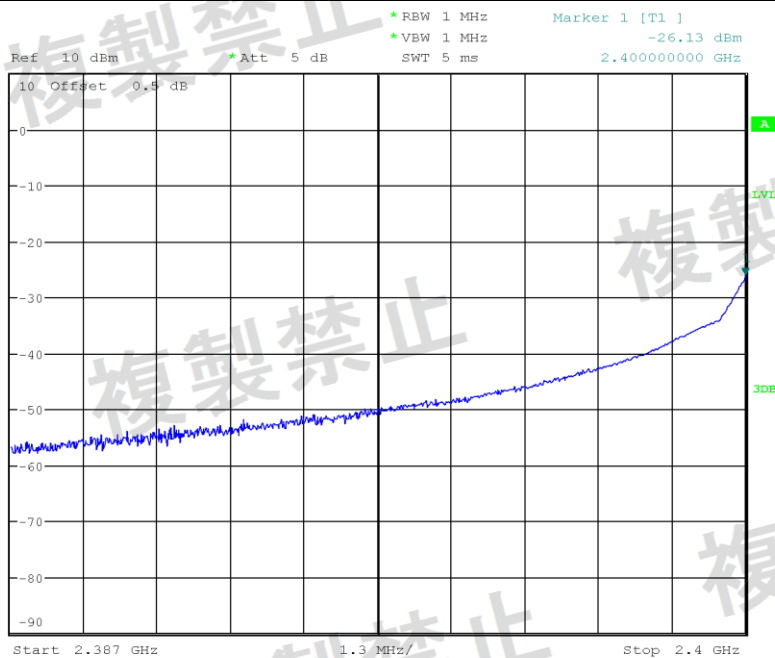


Spurious Emission Intensity

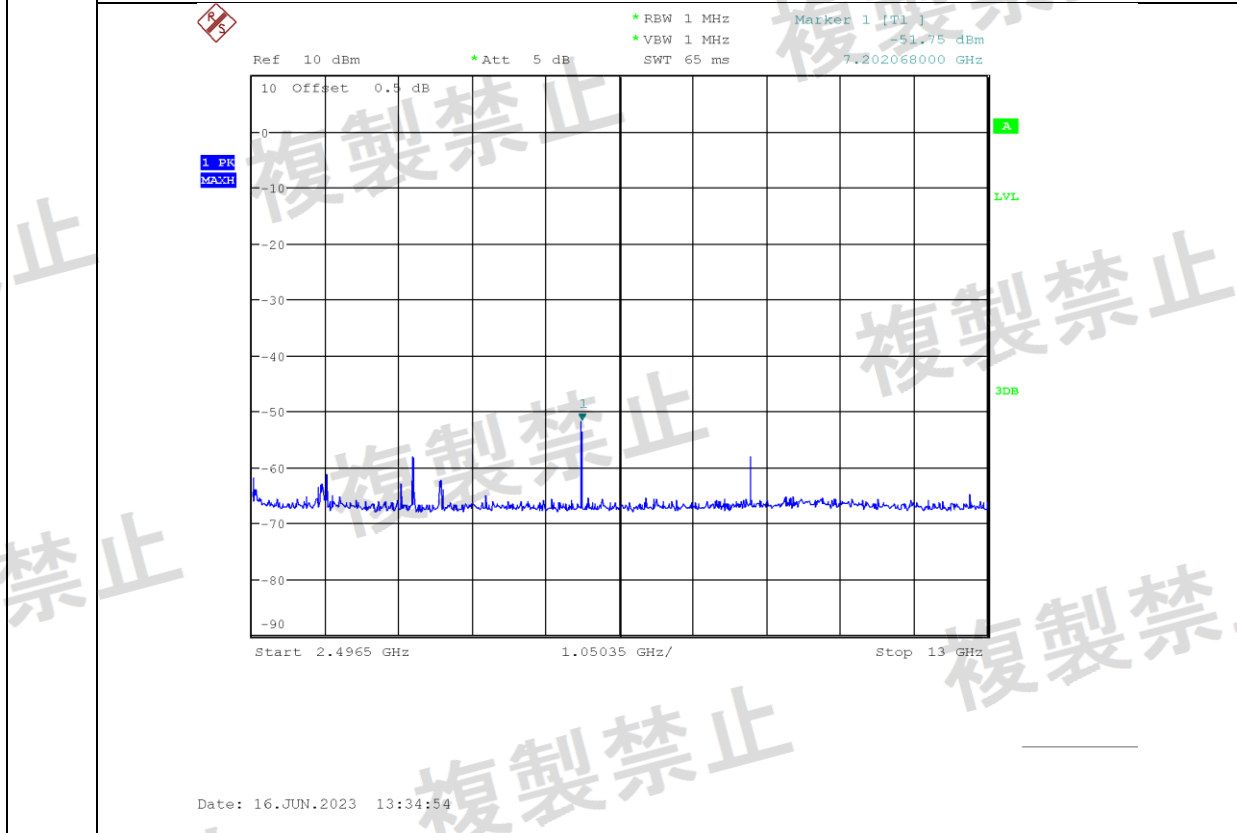
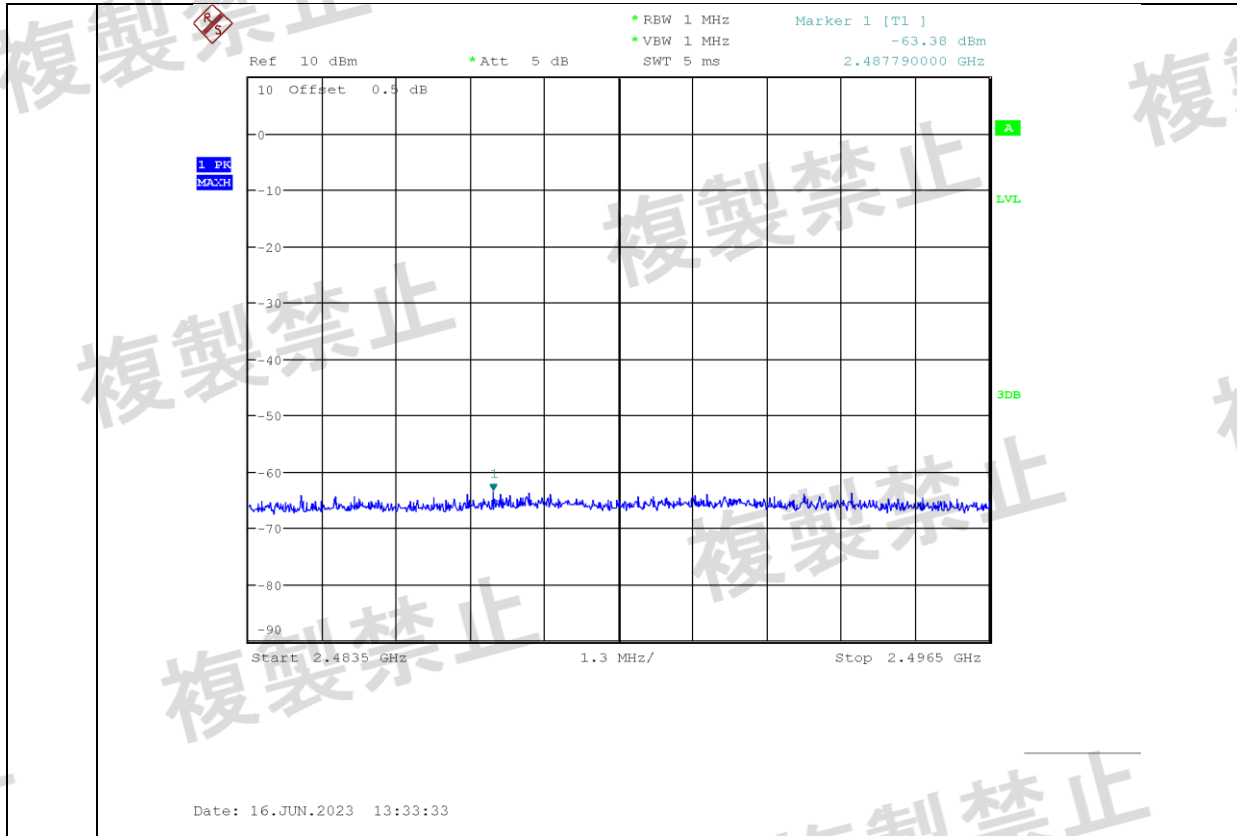
LOW



Date: 16.JUN.2023 13:31:55



Date: 16.JUN.2023 13:32:48

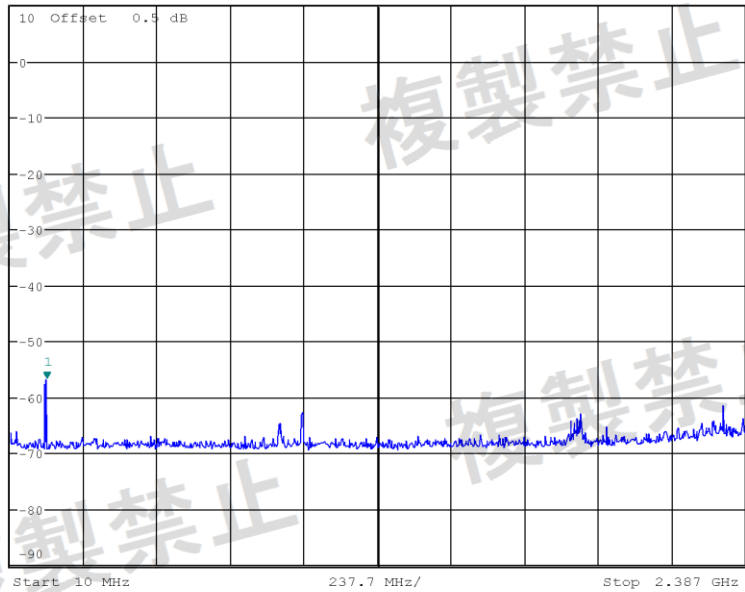


Spurious Emission Intensity

MID



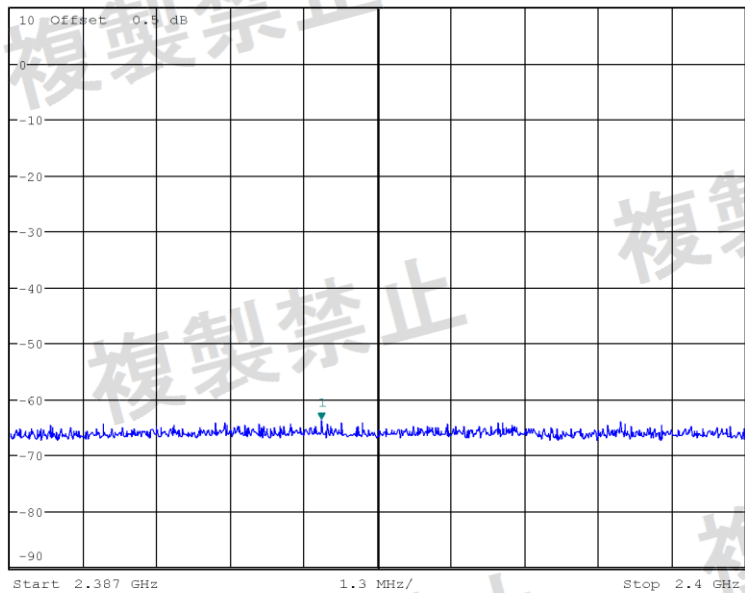
Ref 10 dBm *Att 5 dB *RBW 1 MHz *VBW 1 MHz SWT 10 ms Marker 1 [T1] -56.69 dBm 126.47300000 MHz



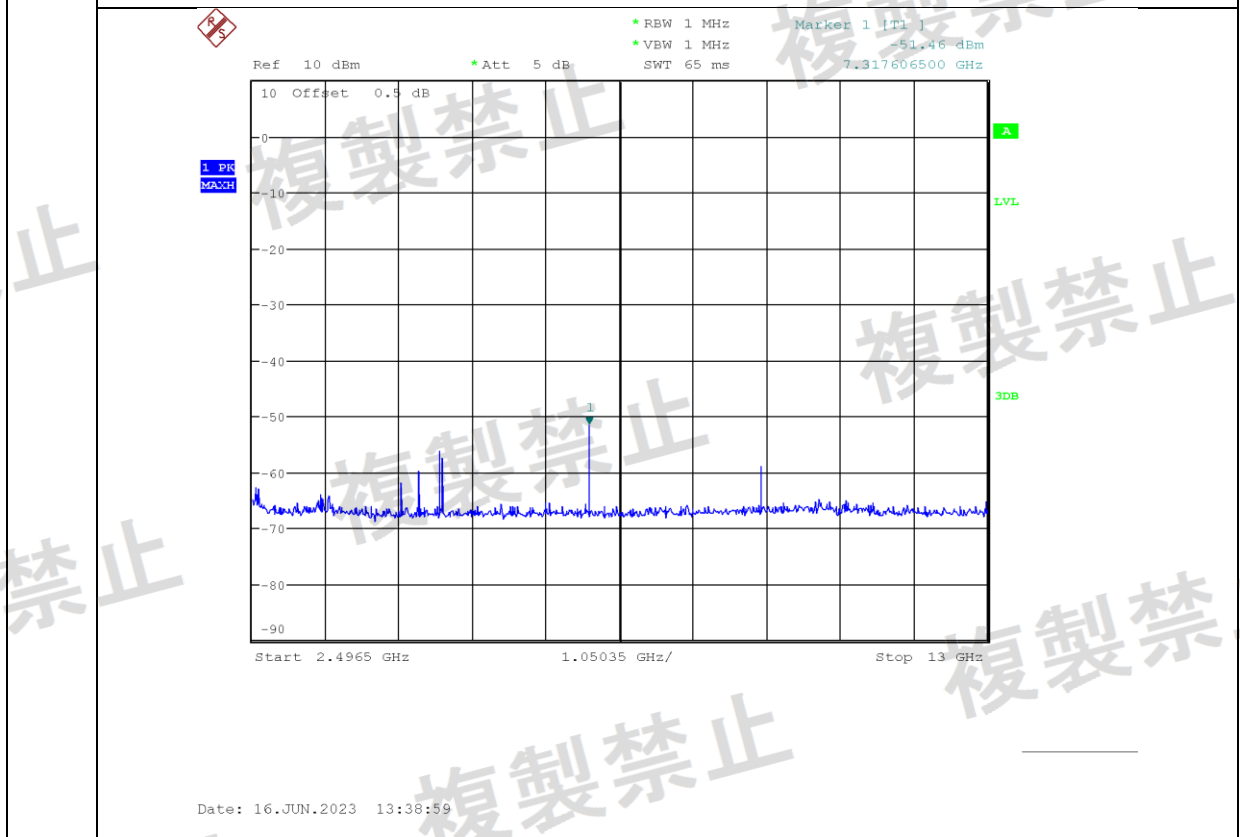
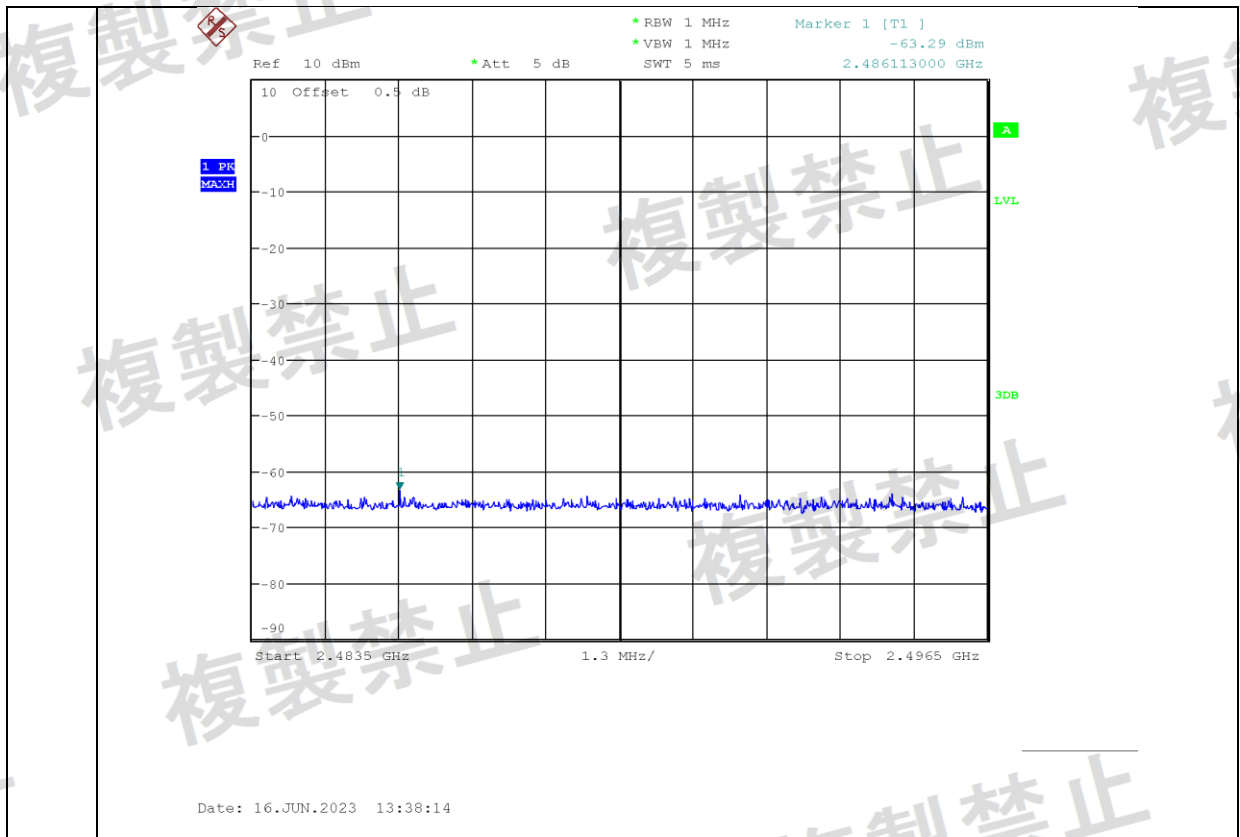
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Ref 10 dBm *Att 5 dB *RBW 1 MHz *VBW 1 MHz SWT 5 ms Marker 1 [T1] -63.66 dBm 2.392499000 GHz



Date: 16.JUN.2023 13:36:38



Spurious Emission Intensity

HIGH



Ref 10 dBm

*Att 5 dB

*RBW 1 MHz

*VBW 1 MHz

SWT 10 ms

Marker 1 [T1]

-56.06 dBm

164.50500000 MHz

10 Offset 0.5 dB

0

-10

-20

-30

-40

-50

-60

-70

-80

-90

Start 10 MHz

237.7 MHz/

Stop 2.387 GHz

Date: 16.JUN.2023 13:40:17



Ref 10 dBm

*Att 5 dB

*RBW 1 MHz

*VBW 1 MHz

SWT 5 ms

Marker 1 [T1]

-63.00 dBm

2.393916000 GHz

10 Offset 0.5 dB

0

-10

-20

-30

-40

-50

-60

-70

-80

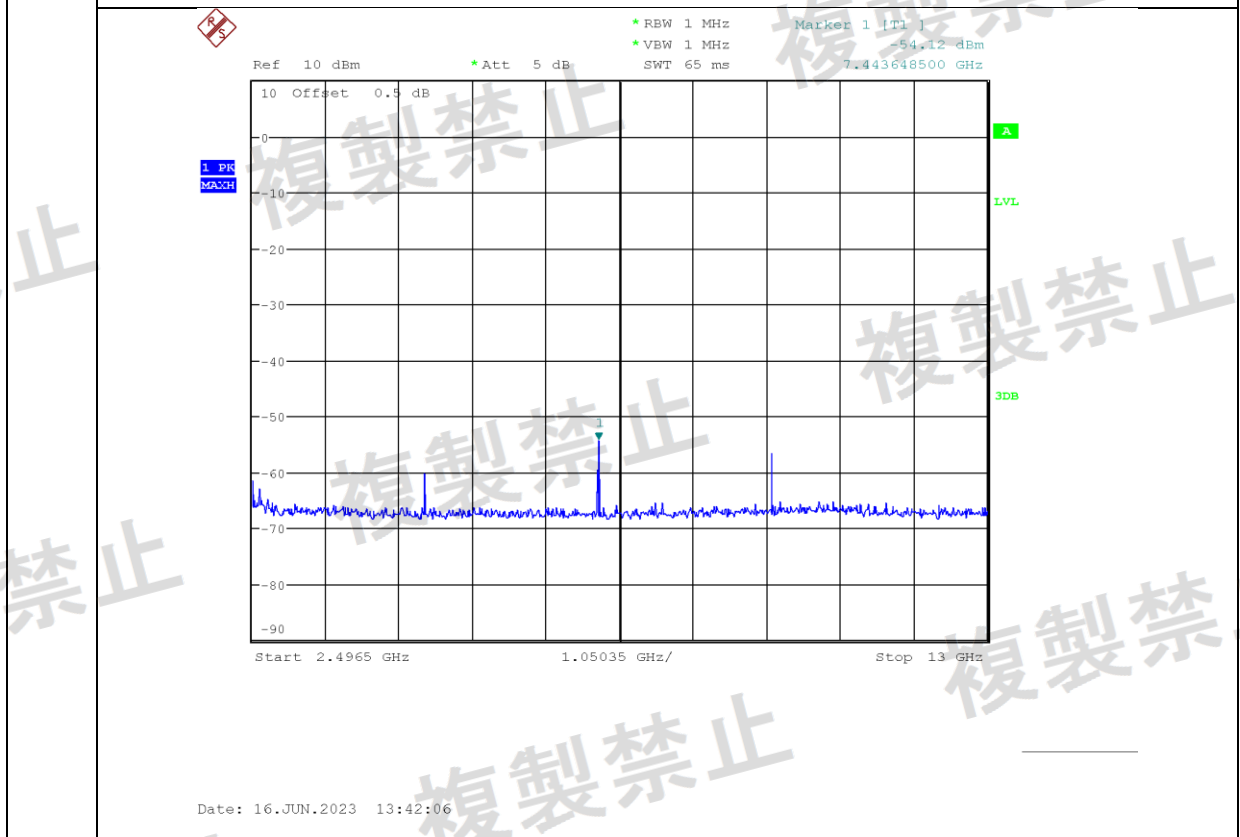
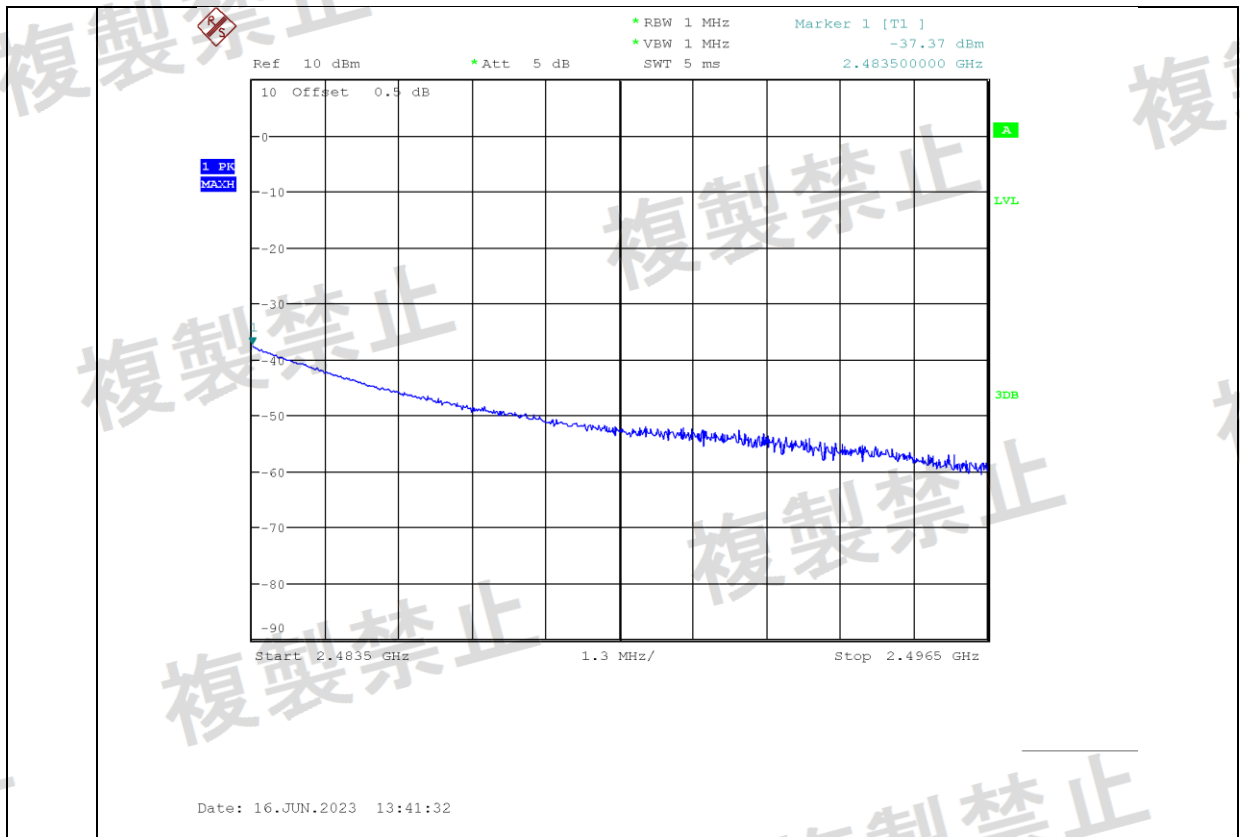
-90

Start 2.387 GHz

1.3 MHz/

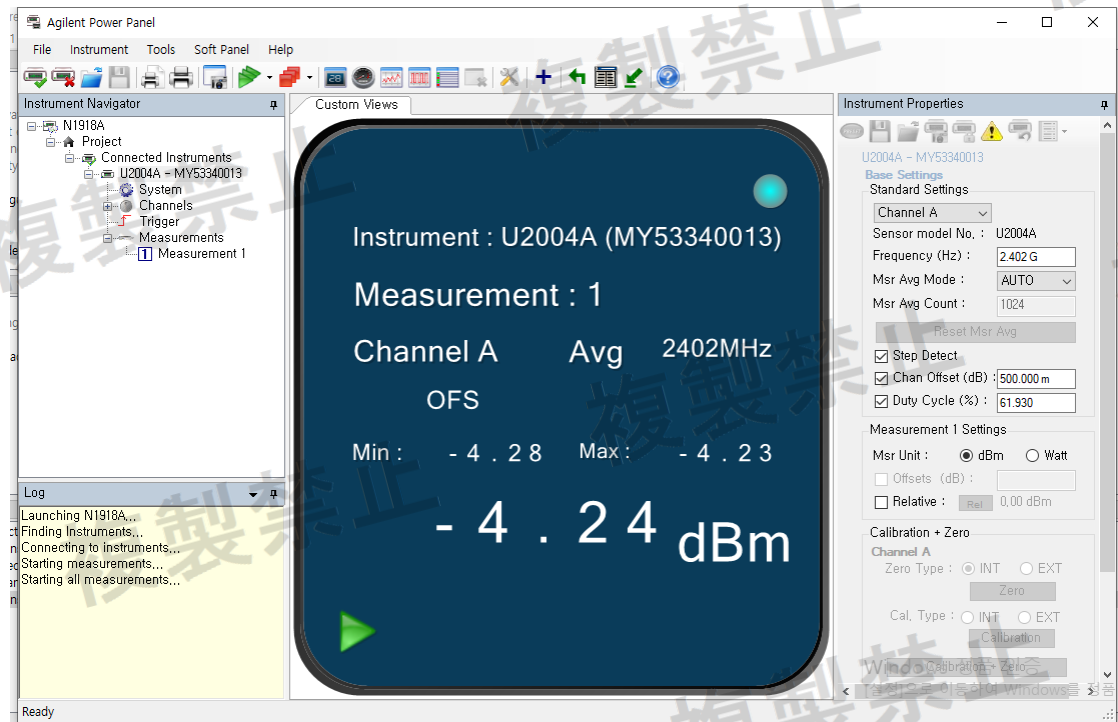
Stop 2.4 GHz

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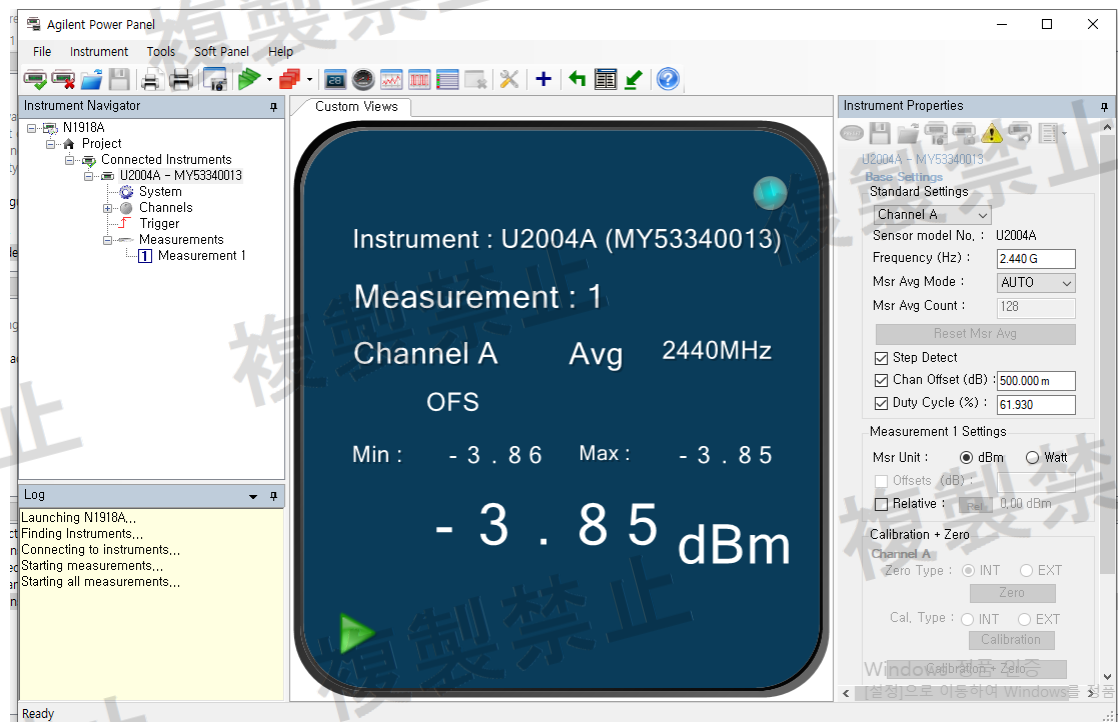


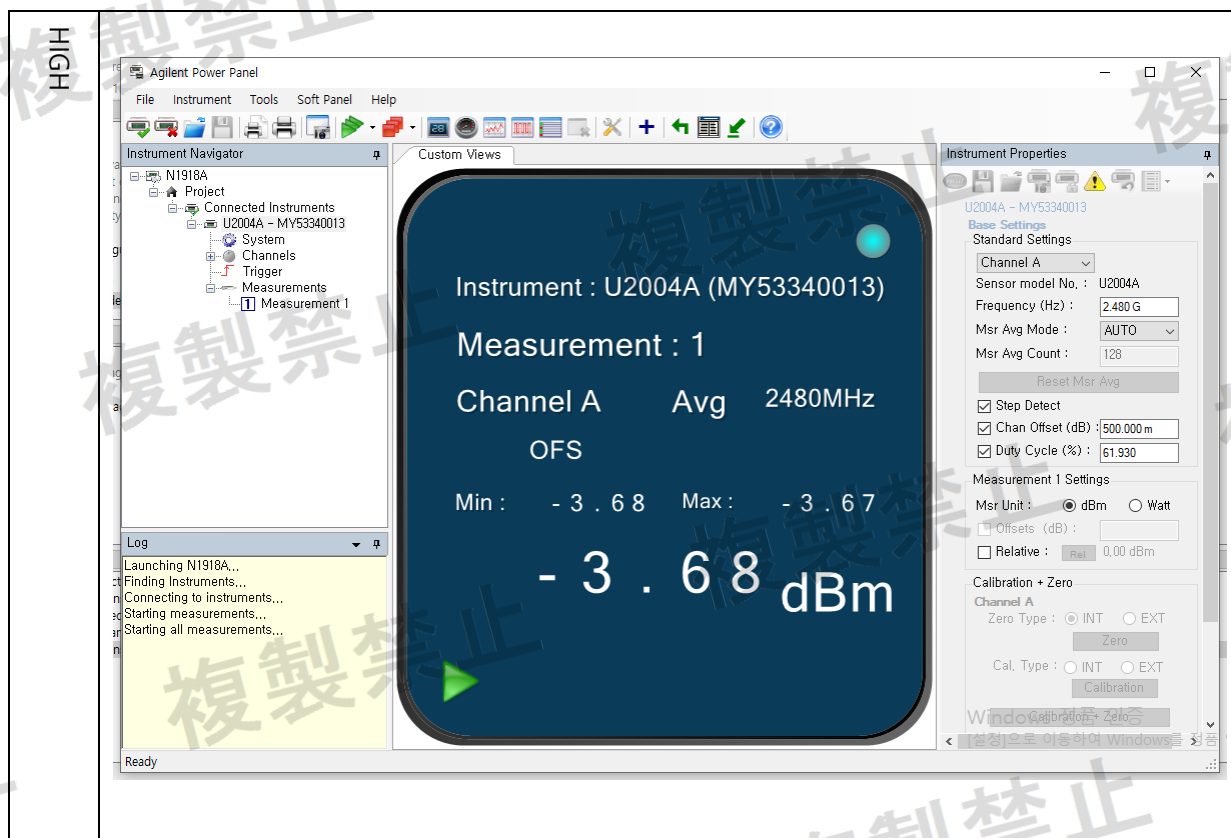
Antenna Power

LOW



MID



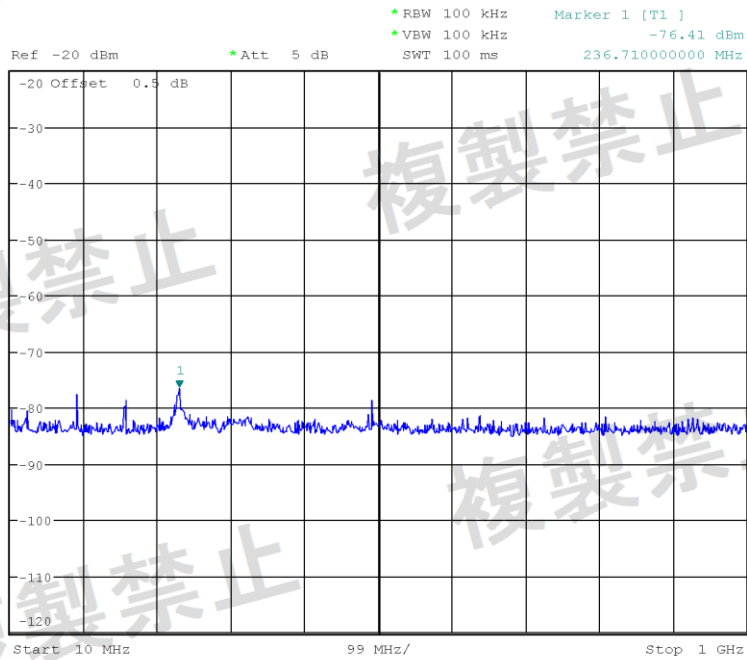


Secondary Radiated Emissions

LOW



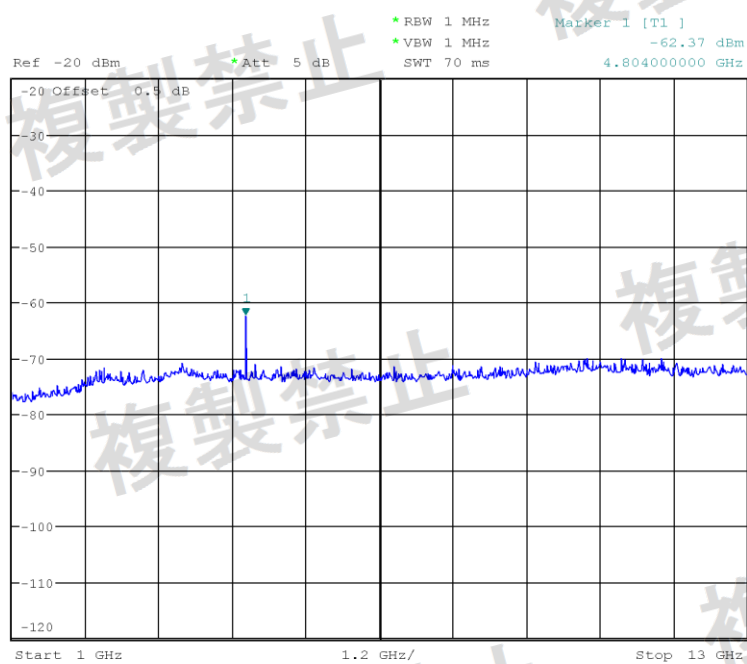
1 PK
MAXH



Date: 16.JUN.2023 13:43:02



1 PK
MAXH



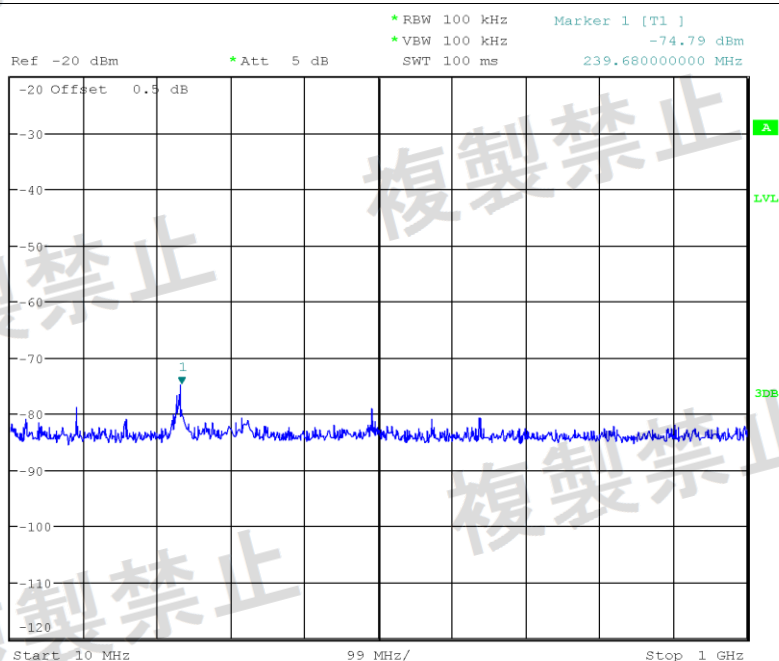
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Secondary Radiated Emissions

MID



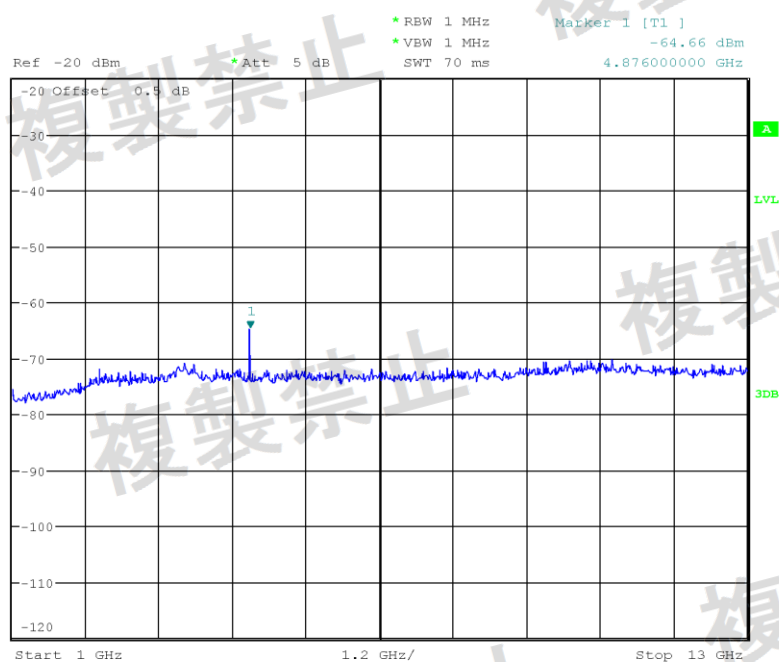
1 PK
MAXH



Date: 16.JUN.2023 13:44:41



1 PK
MAXH



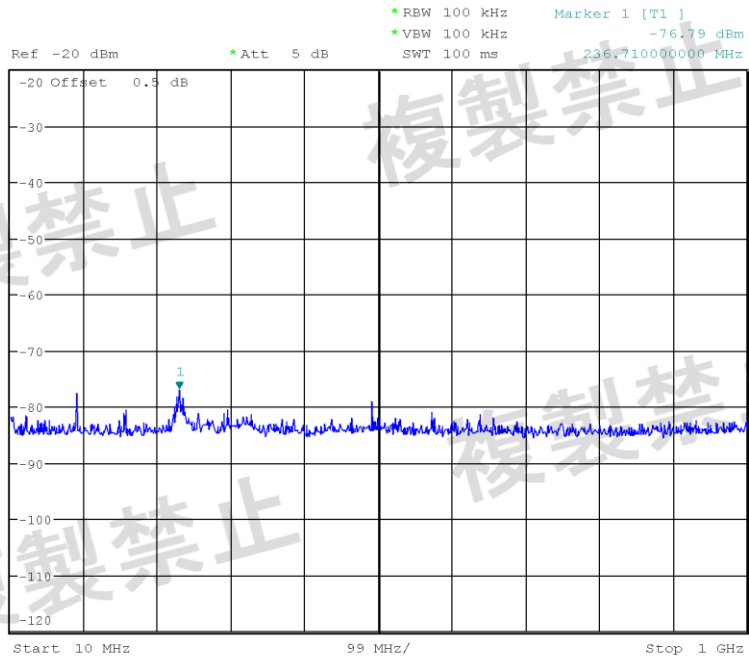
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Secondary Radiated Emissions

HIGH



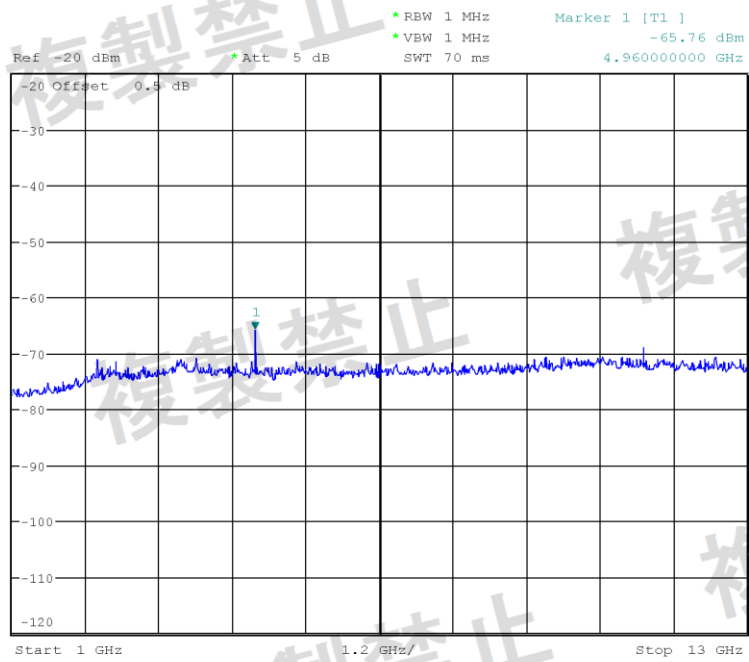
1 PK
MAXH



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1 PK
MAXH



Date: 16.JUN.2023 13:47:45