

TEST REPORT

Report number : KR22-SRT0062

Issue date : 2022-11-22

Applicant : SUPREMA INC
17F-5, Parkview officetower,, 248, Jeongjail-ro, Bundang-gu,
Seongnam-si, Gyeonggi-do 13554 Korea (Republic Of)
TEL : 010-8834-1131
FAX : 031-783-4516

Equipment under test (EUT) : BioStation3

Model name : BS3-APWB

Date of test : 2022-09-27 ~ 2022-09-29

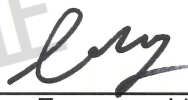
Test place : Eurofins KCTL Co.,Ltd.
65 Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do,
Korea

Test results : PASS

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

This report shall not be re-produced except in full without the written approval of **Eurofins KCTL Inc.**

Tested by;



Eunseong Lim

Approved by;



Heesu Ahn

1. Summary of Test

1. Purpose of test

Ordinance on Technical Standards Conformity Certification of Specified Radio Equipment
2.4GHz Band wide band low power data communication System

2. Standards

Certification Ordinance Article 2 Clause 1 Item19

1) Test Methods

Ministry of Internal Affairs and Communications Notification Article 88 Appendix 43

2) Deviation from standards

None

3. List of applied test to the EUT

Article 88 Appendix 43	Classification of EUT	Condition	Result
3	Frequency Tolerance	Conducted	PASS
4	Occupied Bandwidth	Conducted	PASS
5	Unwanted (Spurious) Emission Strength	Conducted	PASS
6	RF Output Power Tolerance	Conducted	PASS
7	Secondary Emittted Radio Wave Strength	Conducted	PASS
8	Carrier Sensing Function	Conducted	N/A
12	Interference Prevention Function	Conducted	PASS

1) Test set up

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2) Modification to the EUT by laborator

None

1. Test Information

1. Applicant

SUPREMA INC

17F-5, Parkview officetower,, 248, Jeongjail-ro, Bundang-gu, Seongnam-si, Gyeonggi-do 13554 Korea
(Republic Of)

2. Equipment under test

BioStation3

3. Model number

BS3-APWB

4. Serial number

N/A

5. Size

(W) 82.5 x (D) 23.4 x (H) 171

6. Terminal limitation

-20°C to 50°C

7. RF Specification Frequency range

2402-2480MHz

8. Number of RF Channels

40 Channels

9. Modulation method

GFSK

10. Data rate

1 Mbps

10. Variation of the family model(s)

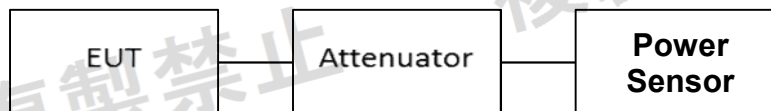
None

2. Configuration of equipment

1. Frequency tolerance, RF output power tolerance, Occupied Bandwidth, Unwanted(Spurious) emission strength, Secondary emitted radio wave strength, Interference Prevention Function



2. RF output power tolerance



3. Test results (Rated voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	12.0	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.3936 ms
	OFF TIME (0.1sec or more)	0.2314 ms
	Ratio	0.6298 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	2.4GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-39ch)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency	MHz	2402	2440	2480	Result	Limit	Note
Channel Number	Ch.	0	19	39	---	---	
Frequency Measurements	MHz	2401.973	2439.973	2479.972	---	---	
Frequency Tolerance	ppm	-11.318	-11.092	-11.187	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	1.079	1.081	1.087	PASS	26MHz or below	
RF Output Power	mW	0.701	0.714	0.630	PASS	10mW/MHz or below	
RF Output Power Tolerance	%	-29.931	-28.628	-37.002		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.006	0.005	0.006	PASS	2.5uW/MHz or below
		MHz	2357.600	2221.000	2352.900	-----	
	2387 to 2400MHz	uW/MHz	1.528	0.007	0.003	PASS	25uW/MHz or below
		MHz	2399.994	2394.890	2388.799	-----	
	2483.5 to 2496.5MHz	uW/MHz	0.003	0.006	0.068	PASS	25uW/MHz or below
		MHz	2492.610	2485.013	2483.571	-----	
	2496.5 to 12500MHz	uW/MHz	0.050	0.048	0.056	PASS	2.5uW/MHz or below
		MHz	7208.500	7318.500	7438.500	-----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.469	0.406	0.409	PASS	4nW or below
		MHz	885.170	191.340	191.340	-----	
	1000 to 12500MHz	nW	0.600	0.538	0.640	PASS	20nW or below
		MHz	7497.000	7359.000	7416.000	-----	
Interference Prevention Function	Good				PASS		
Transmitting antenna absolute gain	-				-----	*1	
Angular width of the main radiation of the transmitting antenna	-				-----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

3. Test results (-10% voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	10.8	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.3936 ms
	OFF TIME (0.1sec or more)	0.2314 ms
	Ratio	0.6298 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	2.4GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-39ch)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency	MHz	2402	2440	2480	Result	Limit	Note
Channel Number	Ch.	0	19	39	---	---	
Frequency Measurements	MHz	2401.973	2439.973	2479.972	---	---	
Frequency Tolerance	ppm	-11.344	-11.190	-11.267	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	1.079	1.082	1.085	PASS	26MHz or below	
RF Output Power	mW	0.716	0.715	0.635	PASS	10mW/MHz or below	
RF Output Power Tolerance	%	-28.431	-28.464	-36.478		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.007	0.006	0.006	PASS	2.5uW/MHz or below
		MHz	2369.300	2249.300	2352.900	-----	
	2387 to 2400MHz	uW/MHz	1.549	0.008	0.003	PASS	25uW/MHz or below
		MHz	2399.994	2394.786	2397.318	-----	
	2483.5 to 2496.5MHz	uW/MHz	0.002	0.007	0.067	PASS	25uW/MHz or below
		MHz	2484.948	2485.091	2483.545	-----	
	2496.5 to 12500MHz	uW/MHz	0.052	0.049	0.055	PASS	2.5uW/MHz or below
		MHz	7208.500	7318.500	7438.500	-----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.444	0.417	0.399	PASS	4nW or below
		MHz	886.140	191.340	191.340	-----	
	1000 to 12500MHz	nW	0.617	0.571	0.594	PASS	20nW or below
		MHz	7439.000	7439.000	7485.000	-----	
Interference Prevention Function	Good				PASS		
Transmitting antenna absolute gain	-				-----	*1	
Angular width of the main radiation of the transmitting antenna	-				-----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

3. Test results (+10% voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	13.2	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.3936 ms
	OFF TIME (0.1sec or more)	0.2314 ms
	Ratio	0.6298 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	2.4GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-39ch)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency	MHz	2402	2440	2480	Result	Limit	Note
Channel Number	Ch.	0	19	39	---	---	
Frequency Measurements	MHz	2401.973	2439.973	2479.972	---	---	
Frequency Tolerance	ppm	-11.358	-11.224	-11.348	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	1.079	1.081	1.085	PASS	26MHz or below	
RF Output Power	mW	0.708	0.716	0.626	PASS	10mW/MHz or below	
RF Output Power Tolerance	%	-29.185	-28.447	-37.393		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.007	0.006	0.007	PASS	2.5uW/MHz or below
		MHz	2371.700	2221.000	2352.900	----	
	2387 to 2400MHz	uW/MHz	1.510	0.007	0.002	PASS	25uW/MHz or below
		MHz	2399.994	2394.383	2389.032	----	
	2483.5 to 2496.5MHz	uW/MHz	0.002	0.006	0.071	PASS	25uW/MHz or below
		MHz	2483.766	2484.974	2483.506	----	
	2496.5 to 12500MHz	uW/MHz	0.047	0.048	0.053	PASS	2.5uW/MHz or below
		MHz	7208.500	7318.500	7438.500	----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.412	0.393	0.412	PASS	4nW or below
		MHz	191.340	191.340	191.340	----	
	1000 to 12500MHz	nW	0.607	0.610	0.614	PASS	20nW or below
		MHz	7405.000	7462.000	7474.000	----	
Interference Prevention Function	Good				PASS		
Transmitting antenna absolute gain	-				----	*1	
Angular width of the main radiation of the transmitting antenna	-				----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

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5. Uncertainty

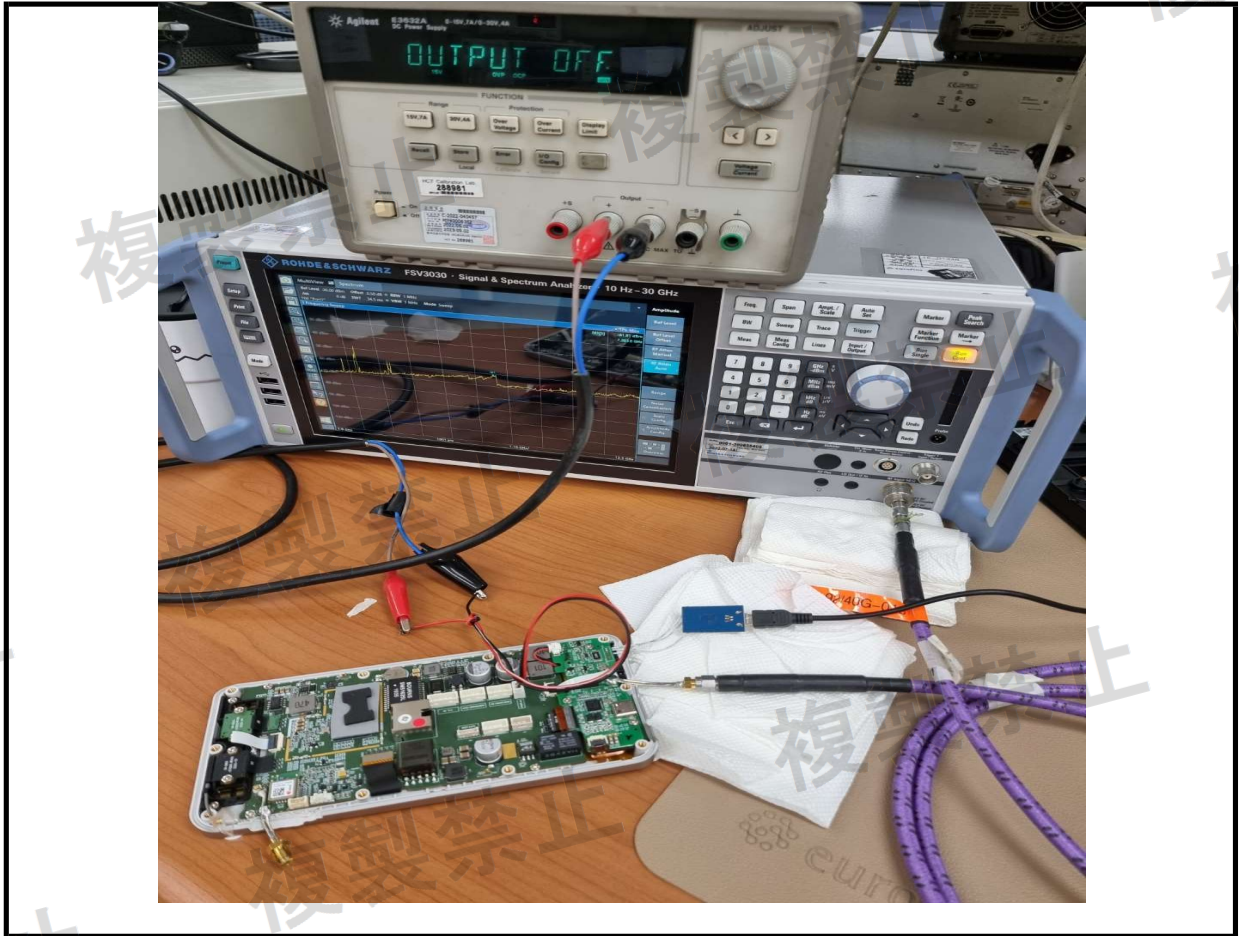
About uncertainty of measured value

Parameter	Uncertainty
Total RF power conducted	$\pm 0.9\text{dB}$
Spurious emissions conducted	$\pm 1.1\text{dB}$
Temperature	$\pm 0.9^{\circ}\text{C}$
Humidity	$\pm 4.6\%$

Judge	Measured value and standard limit value	
PASS	Standard limit value Case1 +Uncertainty -Uncertainty Measured value Even if it takes uncertainty into consideration, a standard limit value is fulfilled.	
	Case2 Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.	
FAIL	Case3 Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.	
	Case4 Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.	

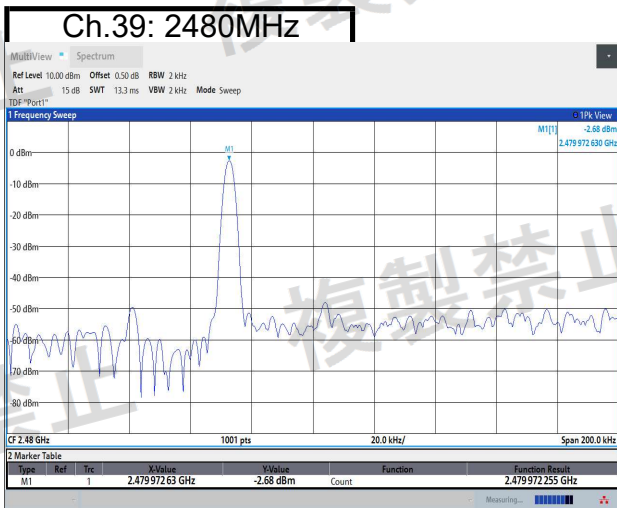
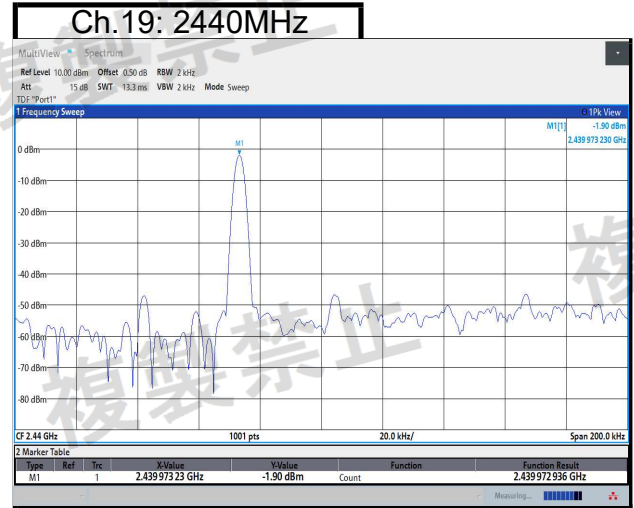
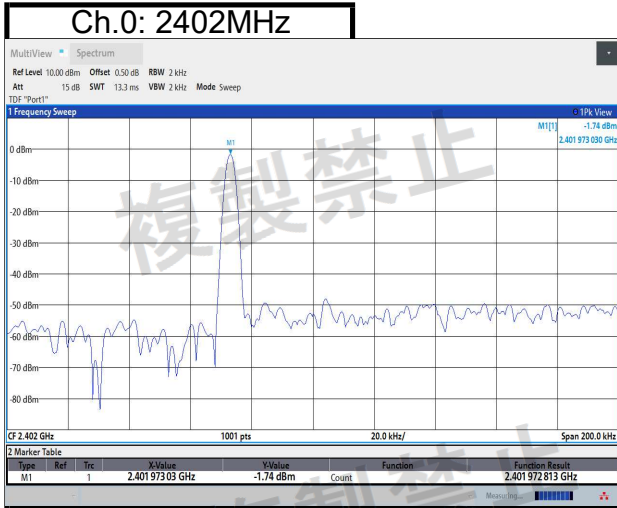
6. Photographs

Conducted Measurement Photo



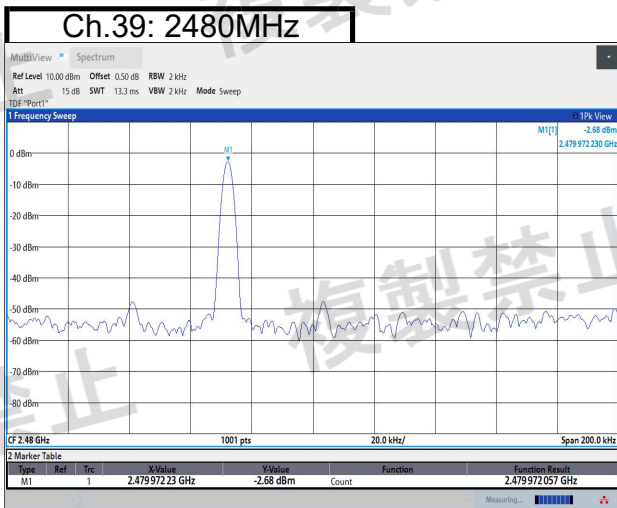
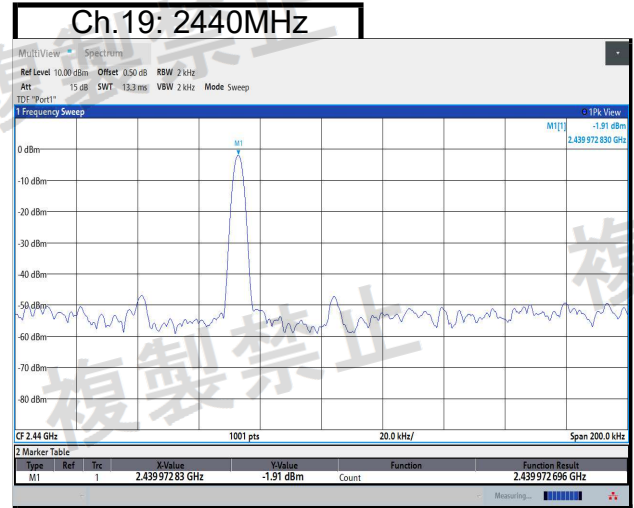
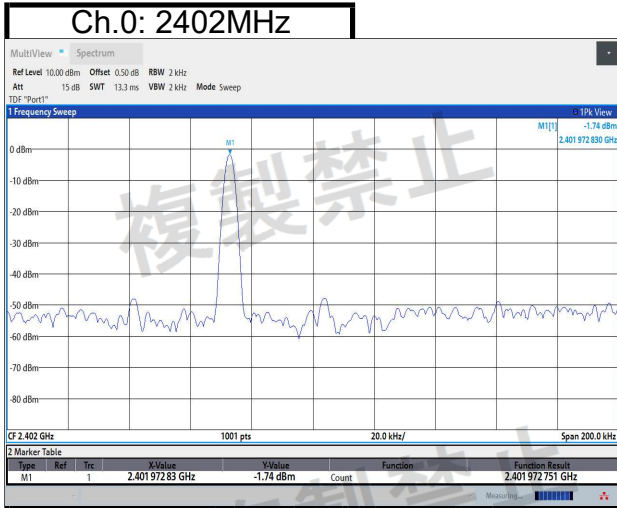
7. Test chart

7.1 Frequency tolerance (Rated voltage)



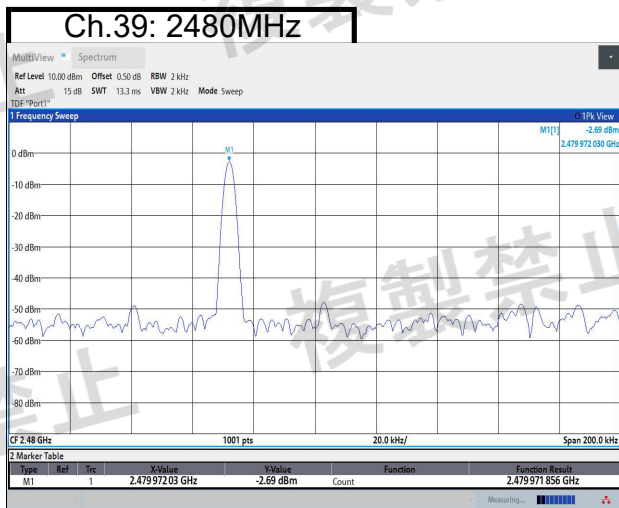
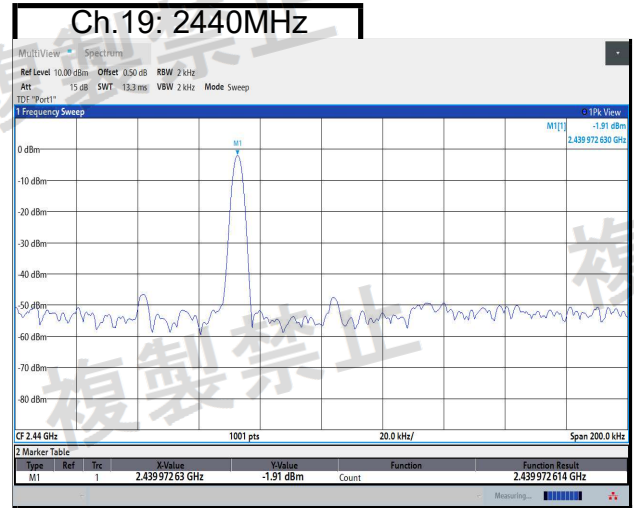
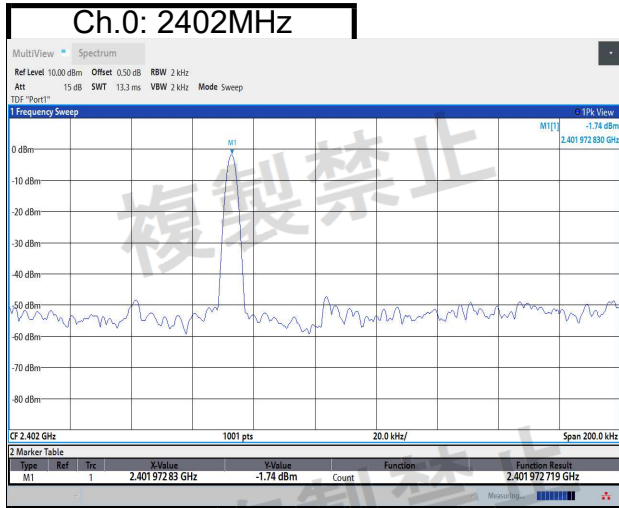
7. Test chart

7.1 Frequency tolerance (-10% voltage)



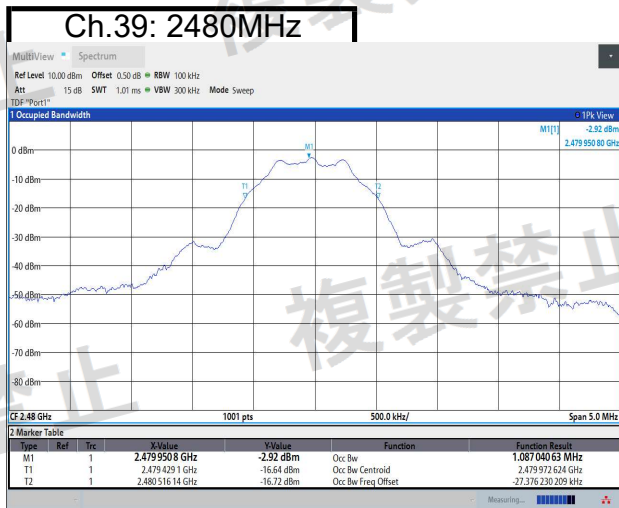
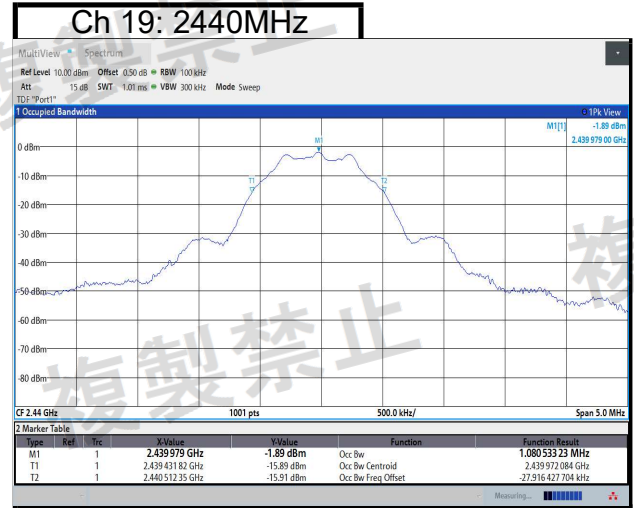
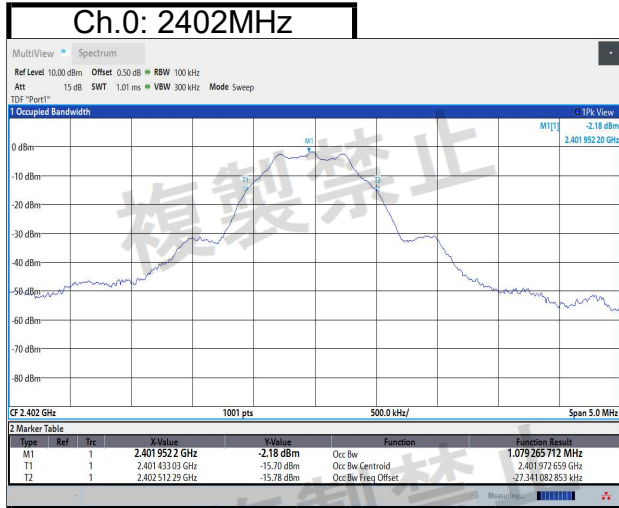
7. Test chart

7.1 Frequency tolerance (+10% voltage)



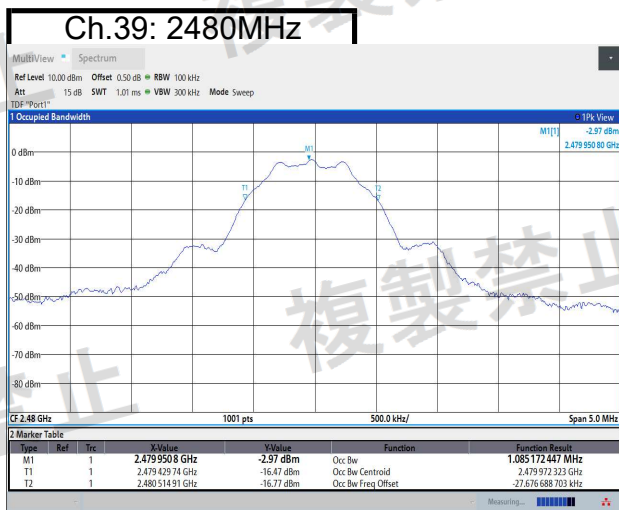
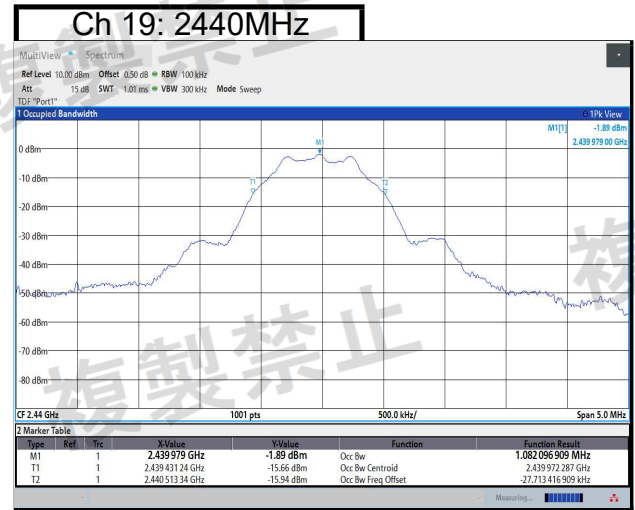
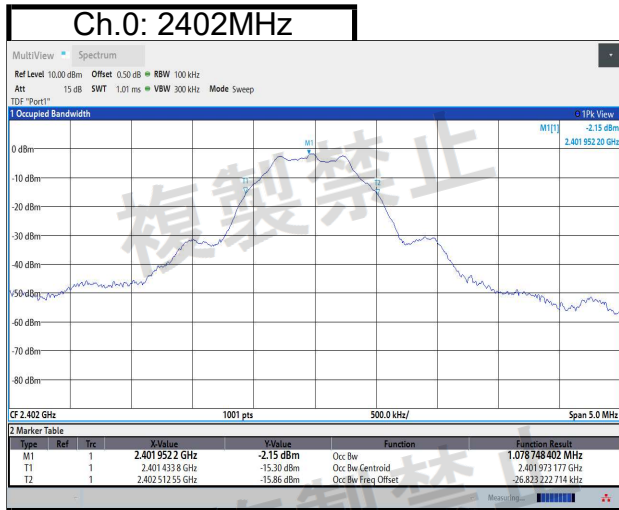
7. Test chart

7.2 Occupied bandwidth (Rated voltage)



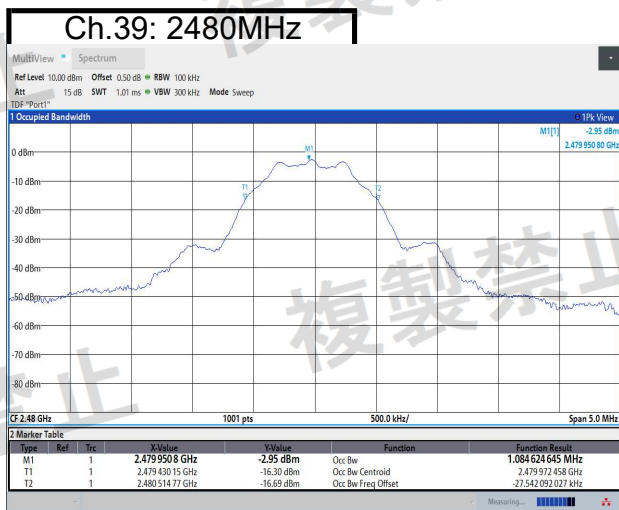
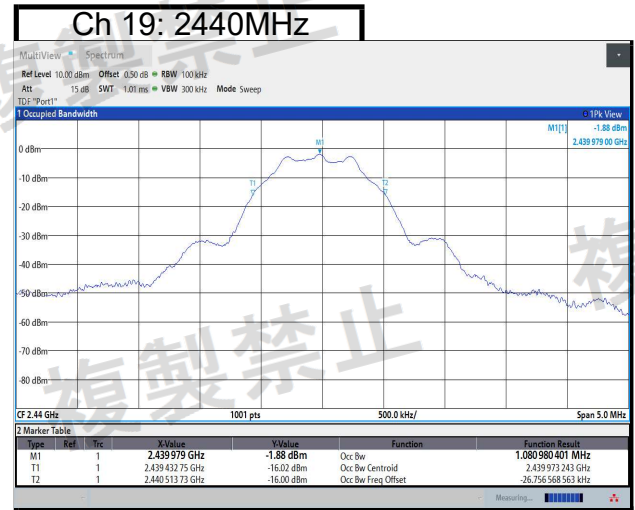
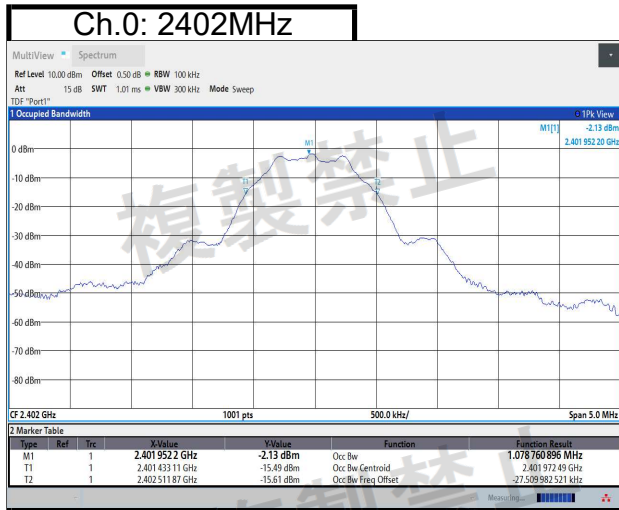
7. Test chart

7.2 Occupied bandwidth (-10% voltage)



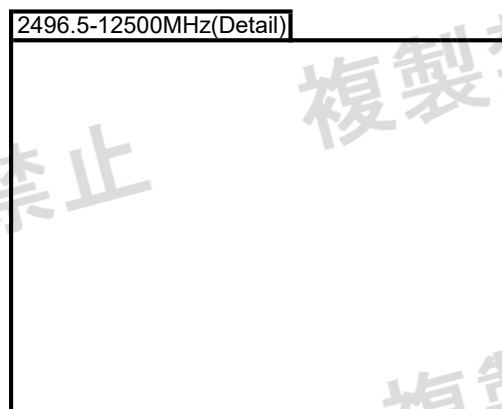
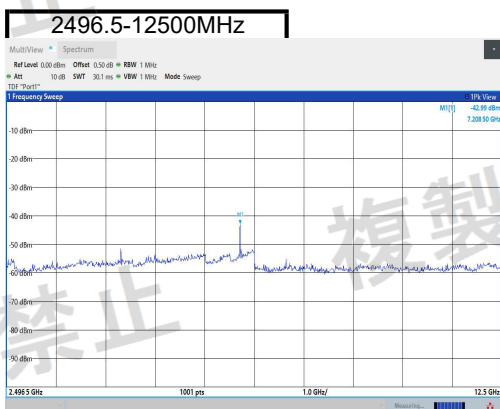
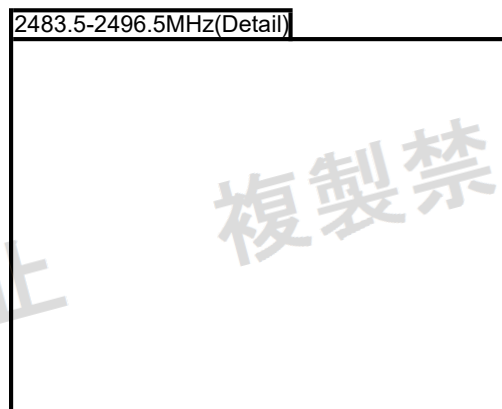
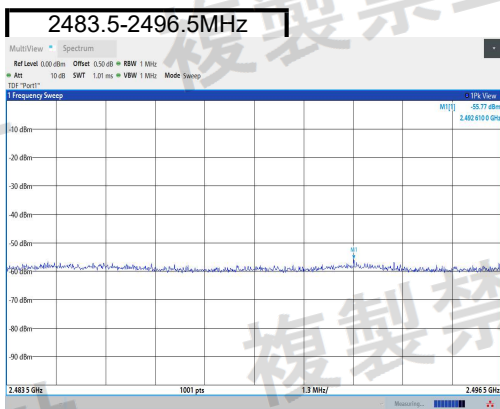
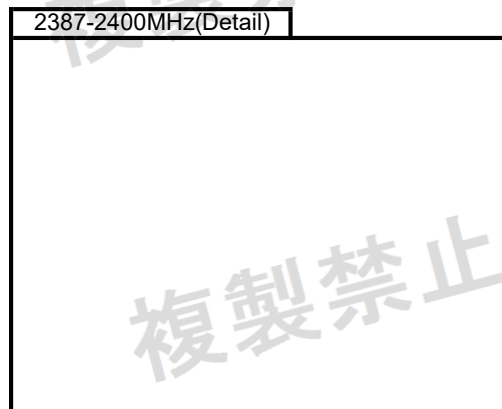
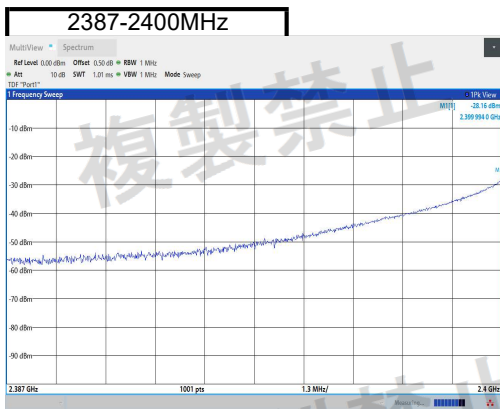
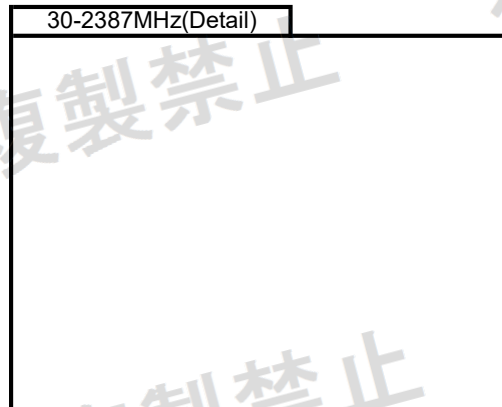
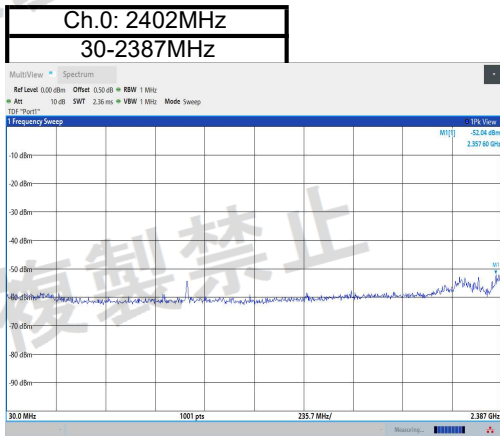
7. Test chart

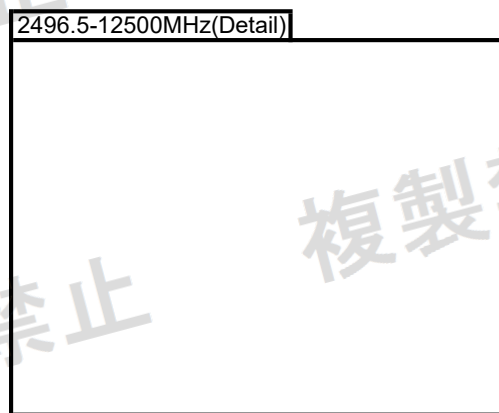
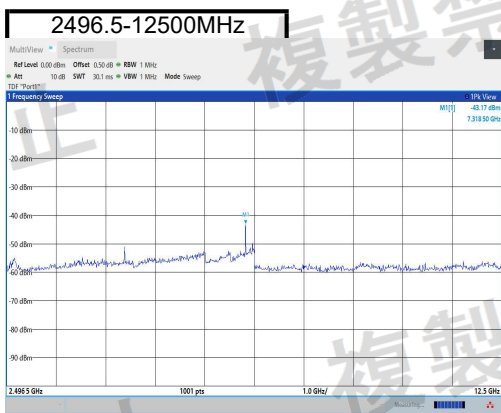
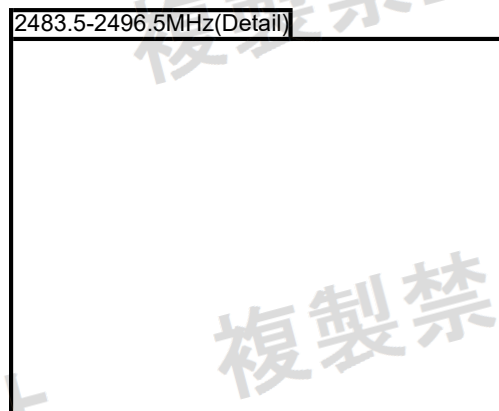
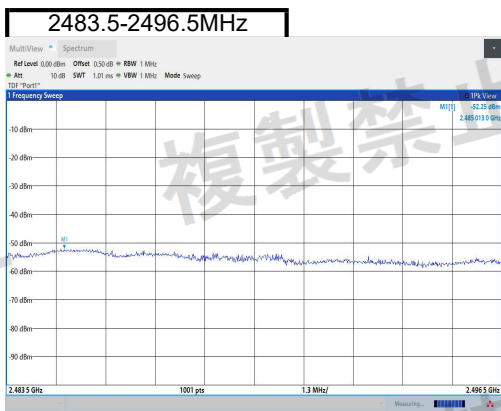
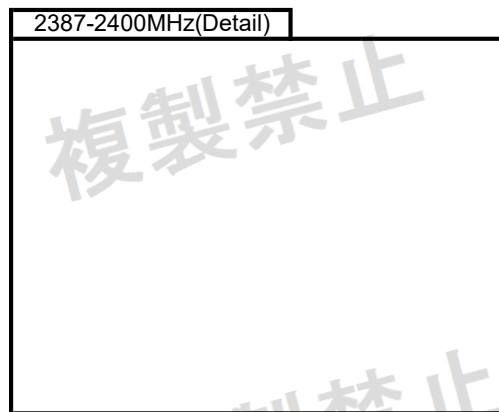
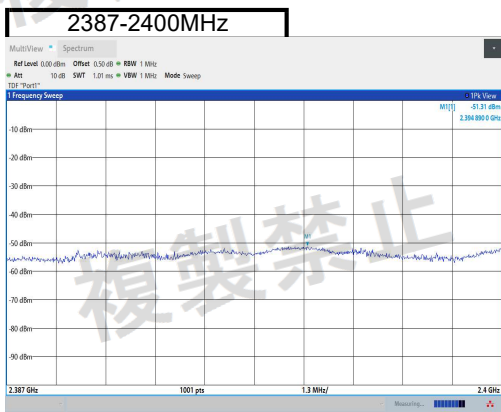
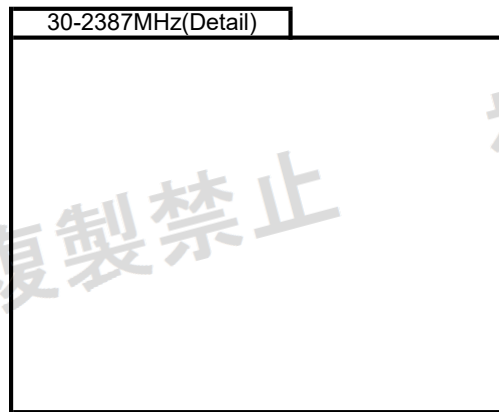
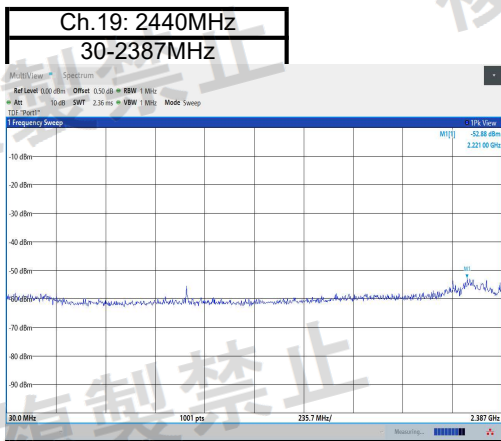
7.2 Occupied bandwidth (+10% voltage)

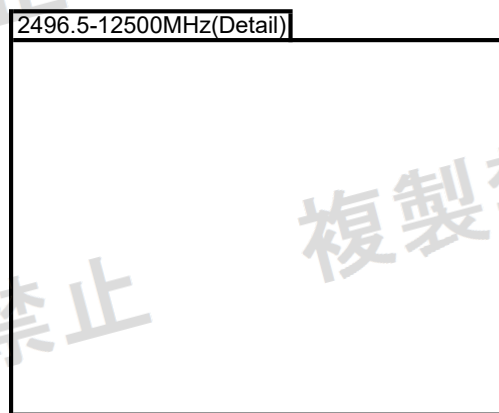
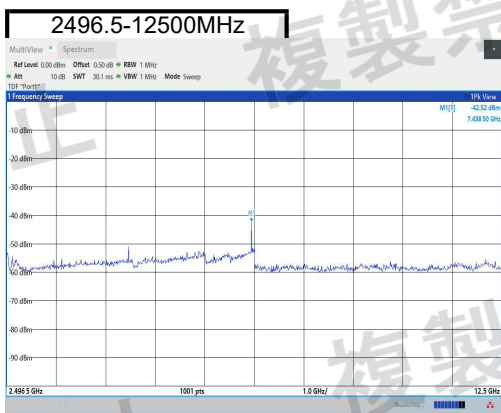
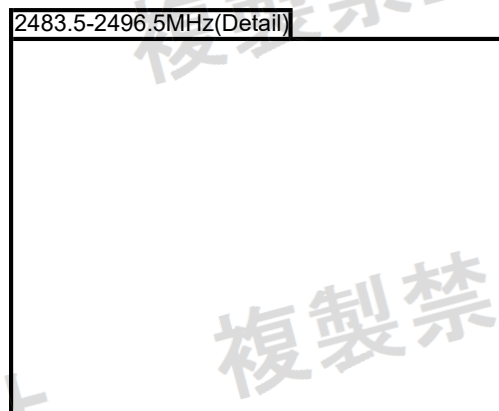
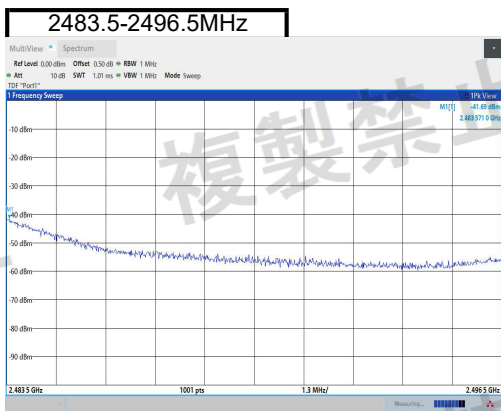
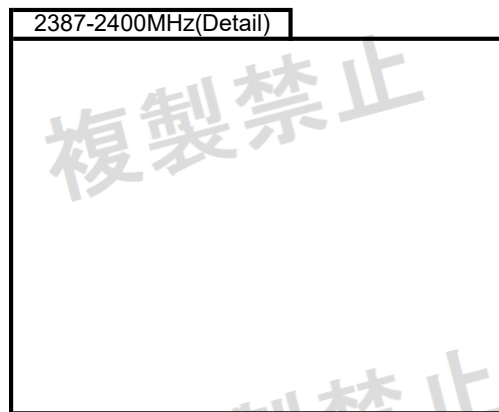
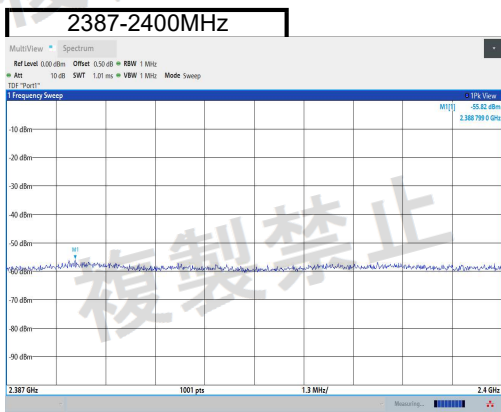
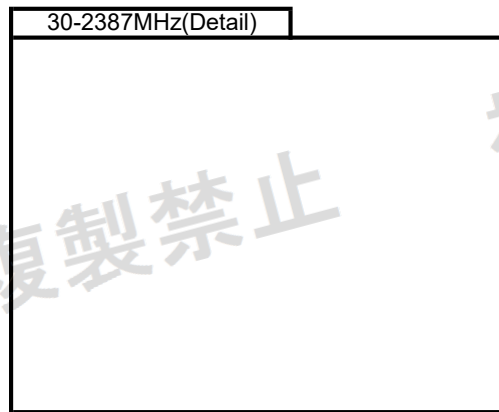
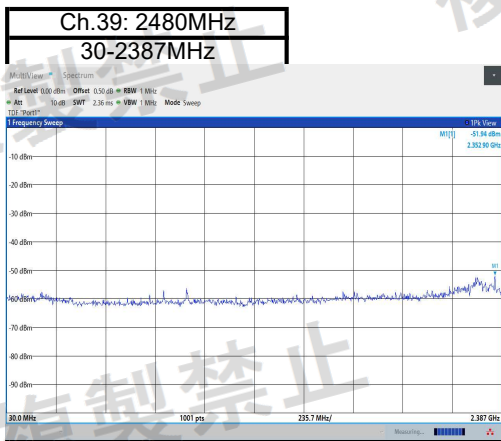


7. Test chart

7.3 Unwanted(Spurious) emission strength (Rated voltage)

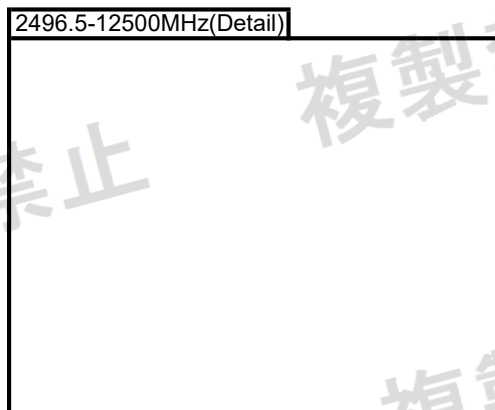
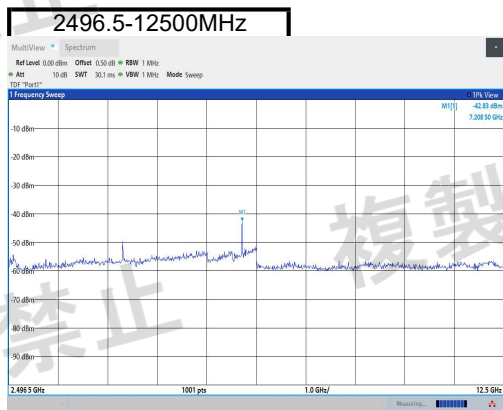
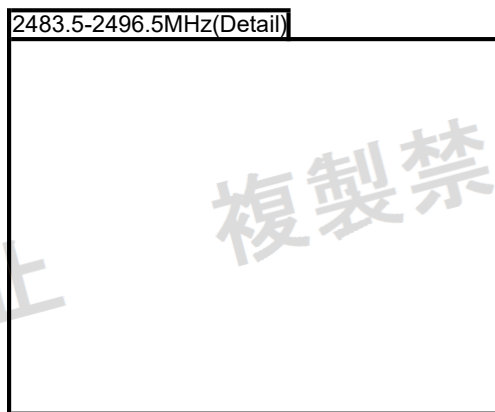
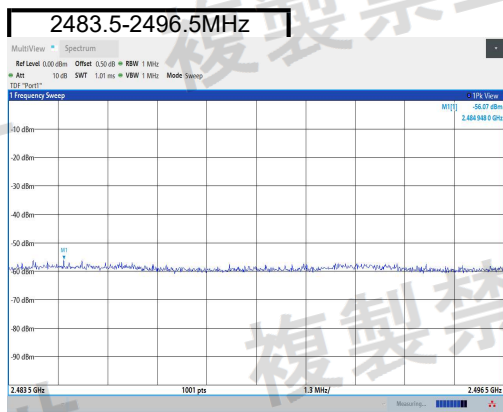
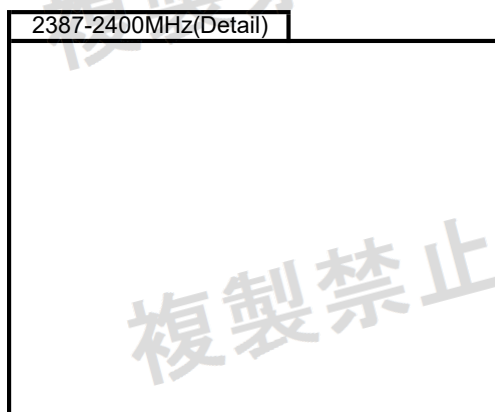
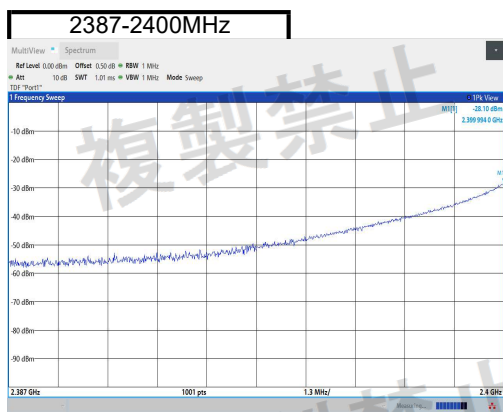
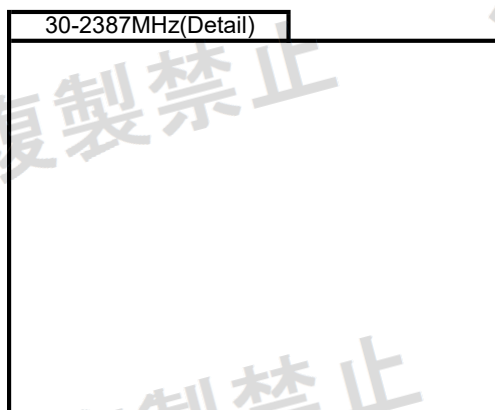
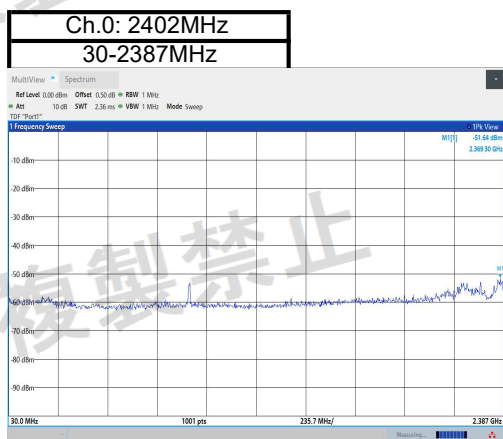


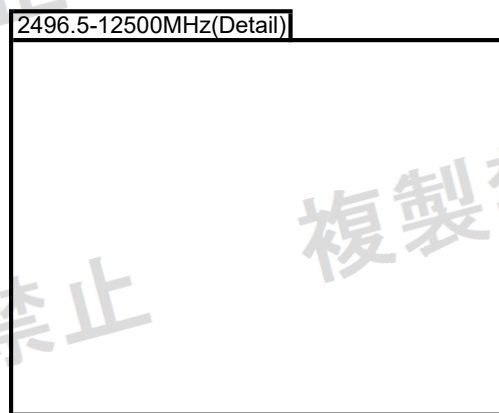
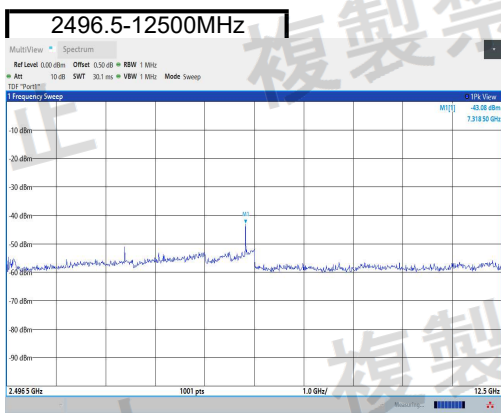
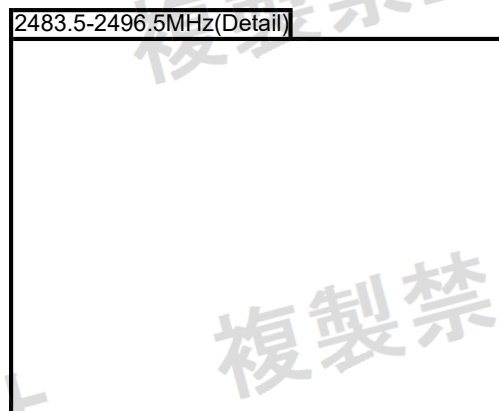
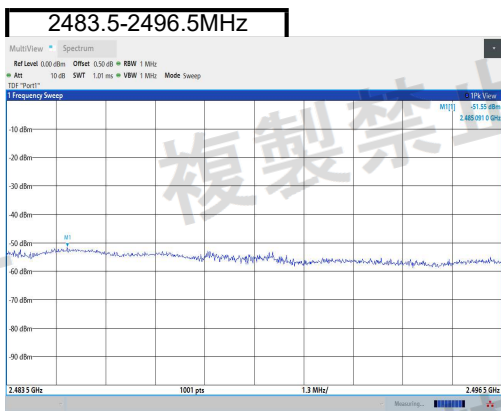
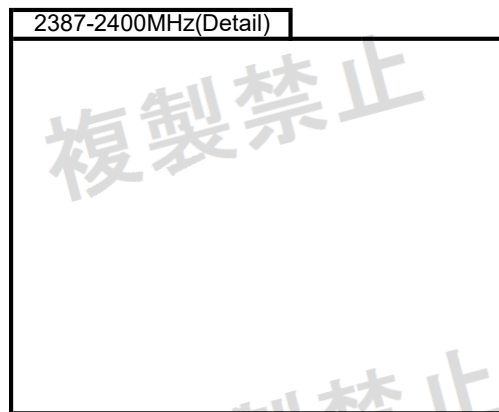
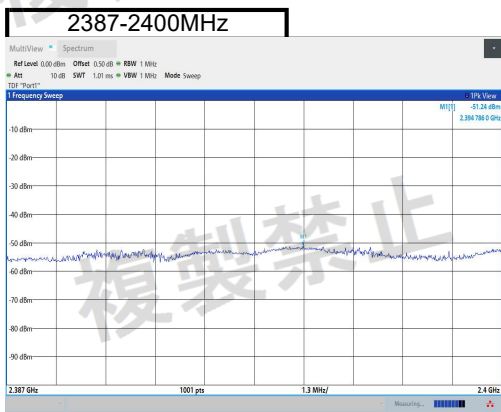
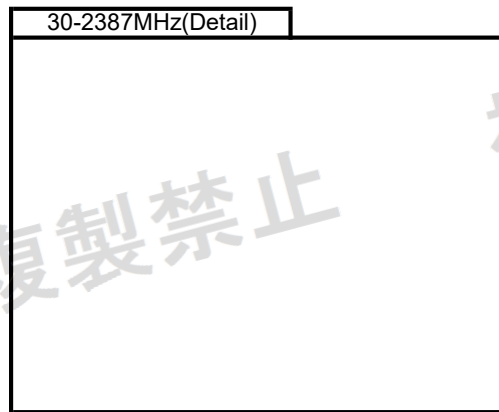
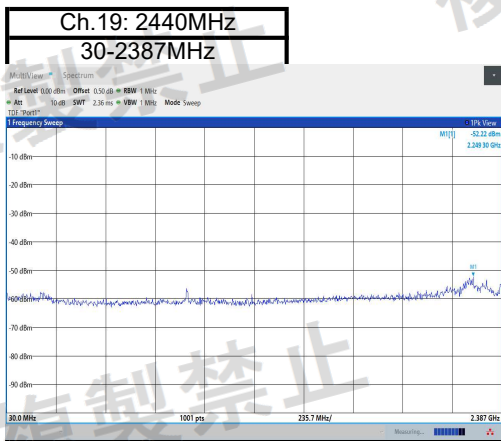


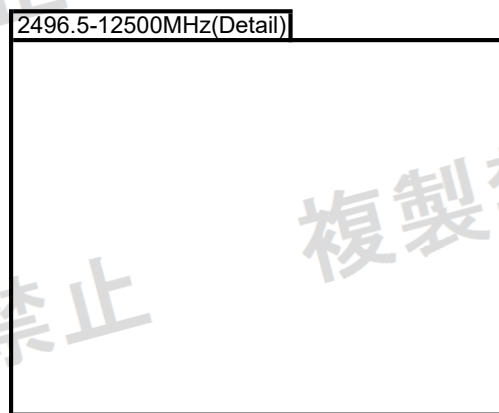
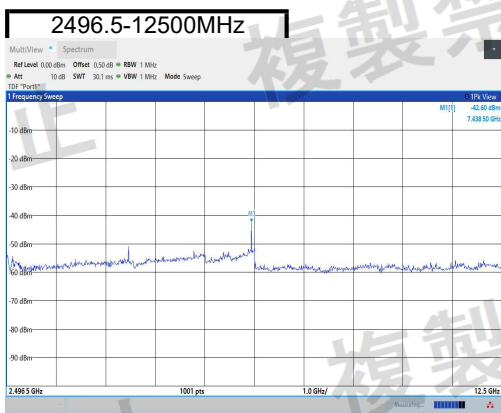
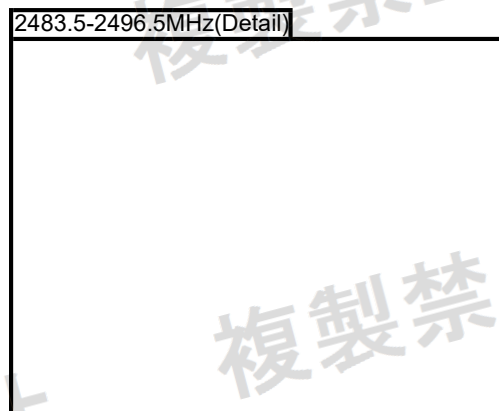
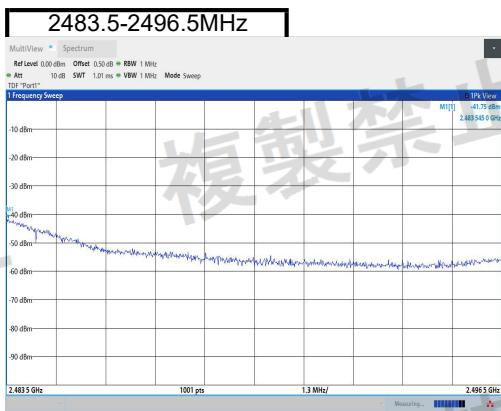
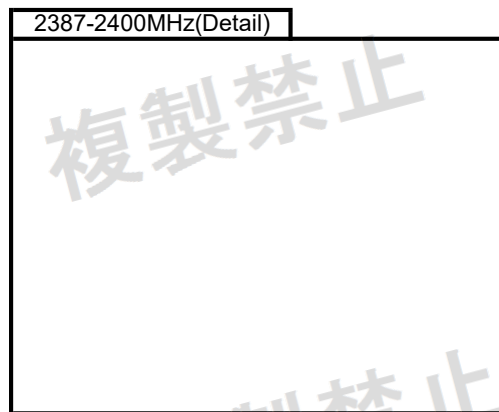
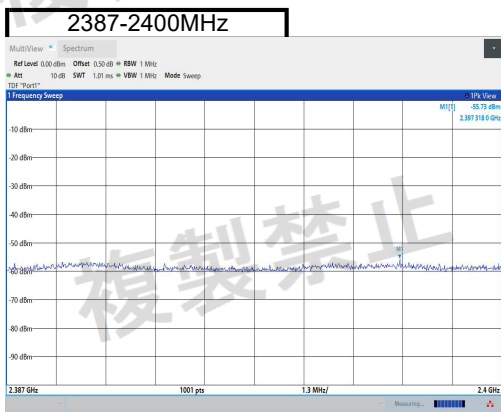
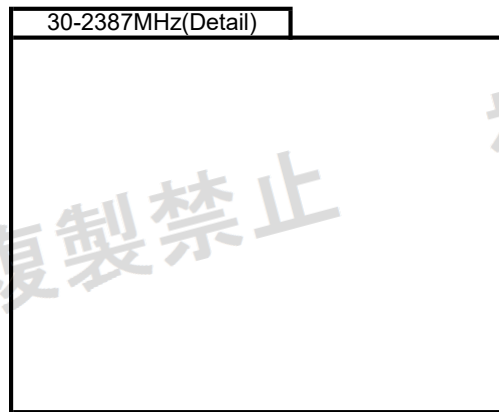
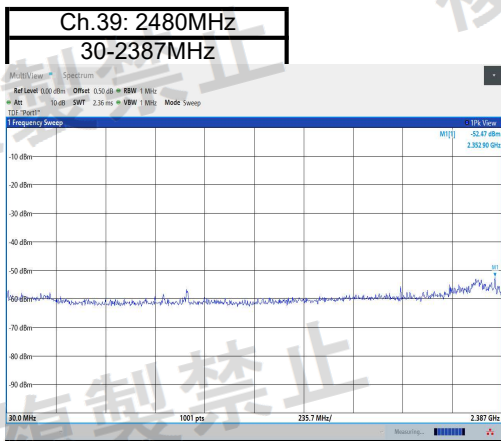


7. Test chart

7.3 Unwanted(Spurious) emission strength (-10% voltage)

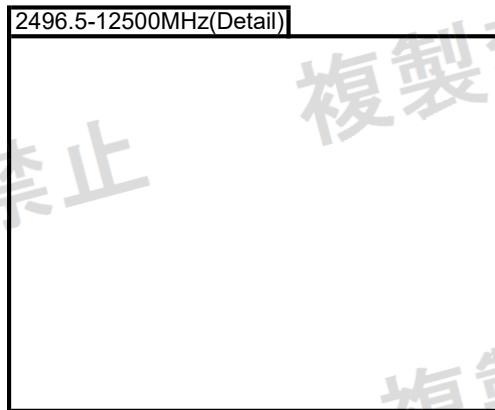
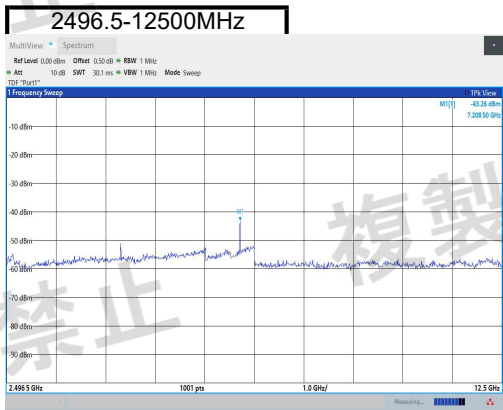
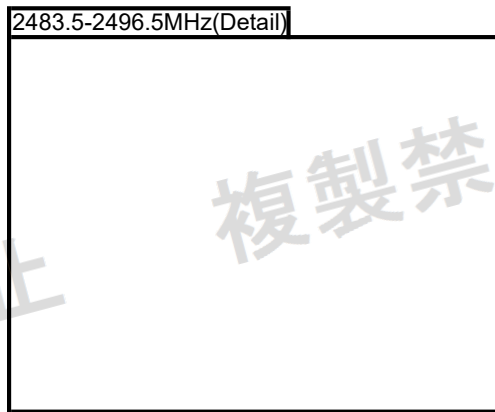
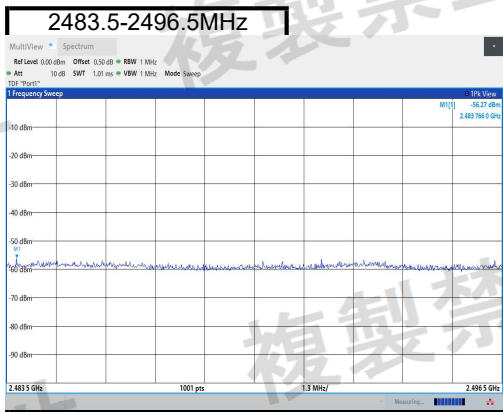
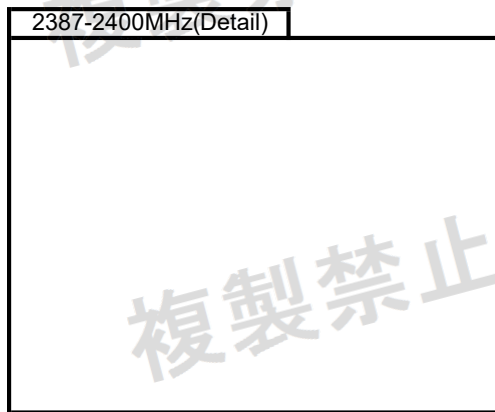
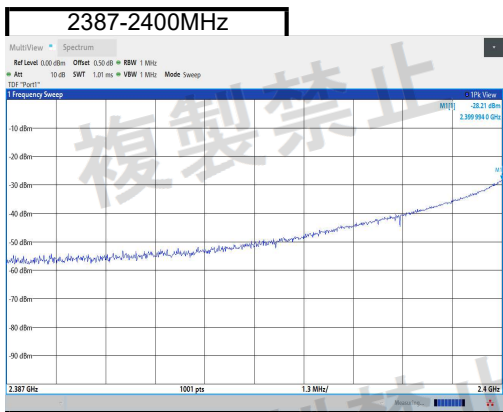
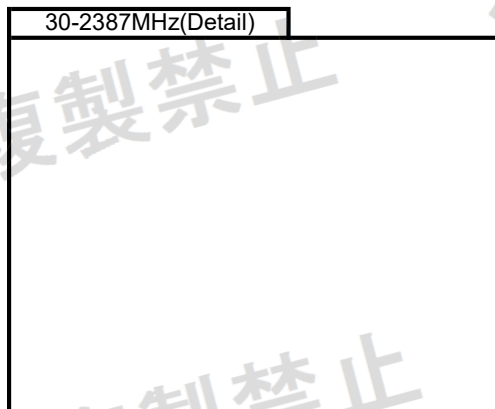
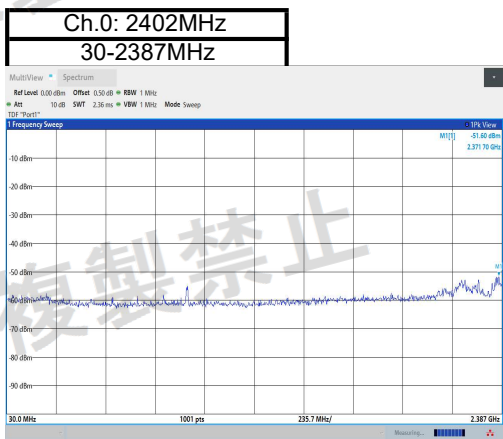


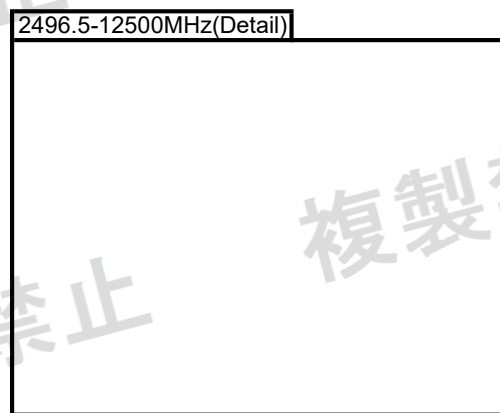
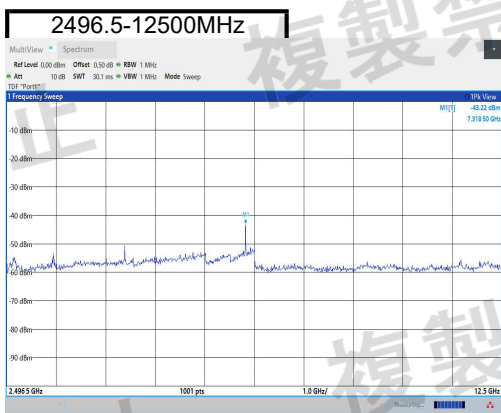
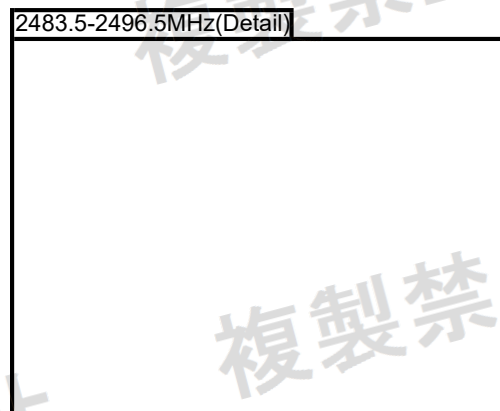
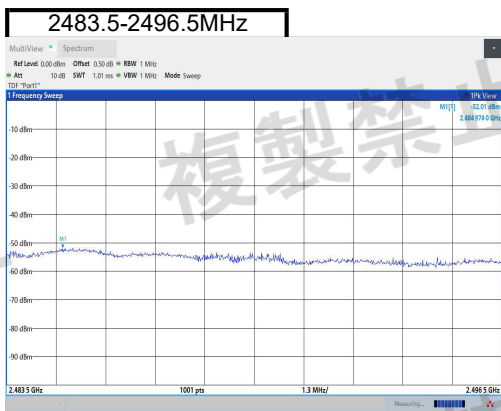
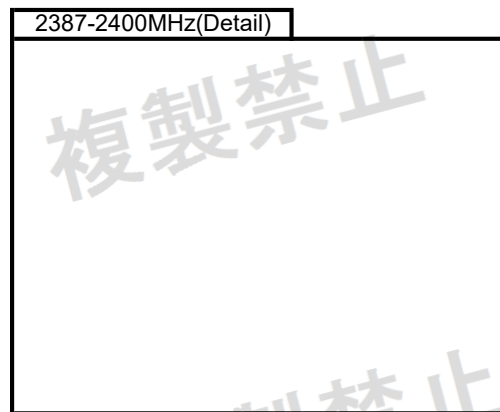
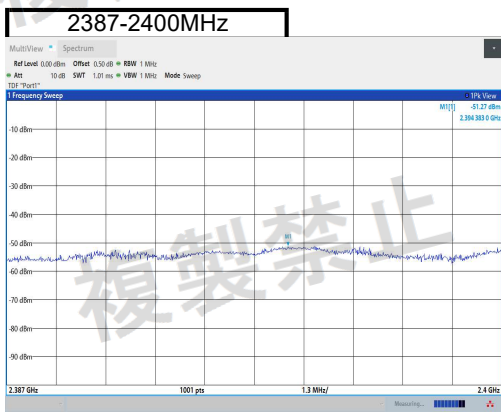
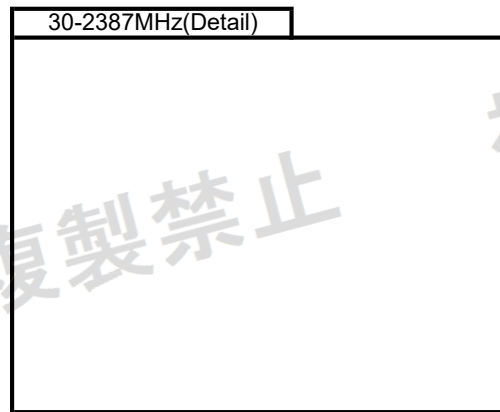
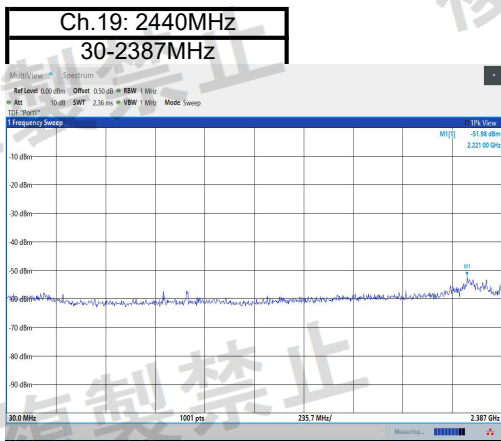


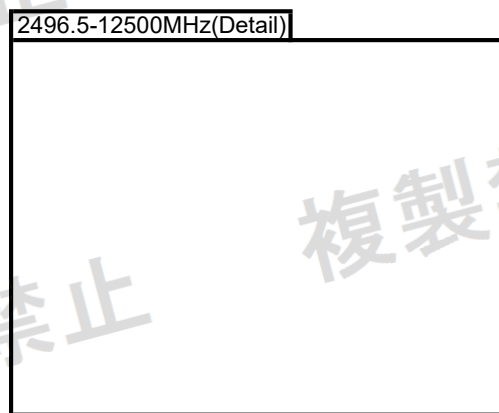
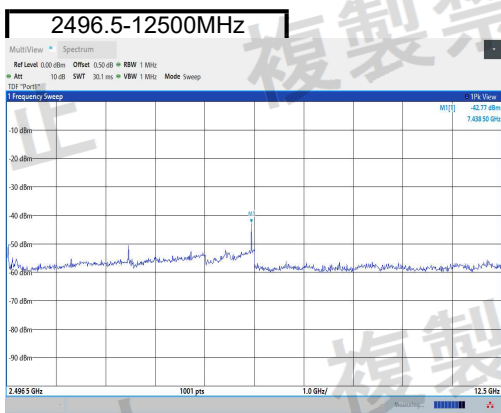
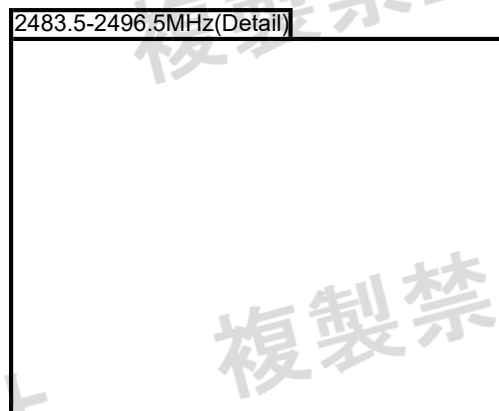
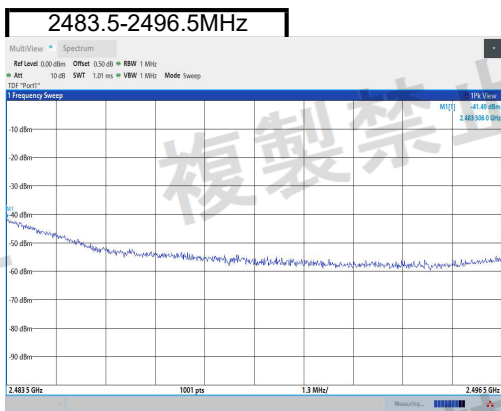
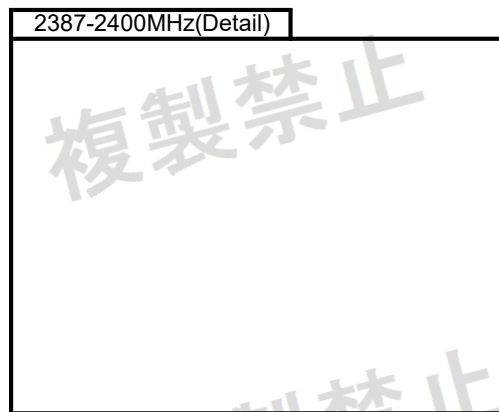
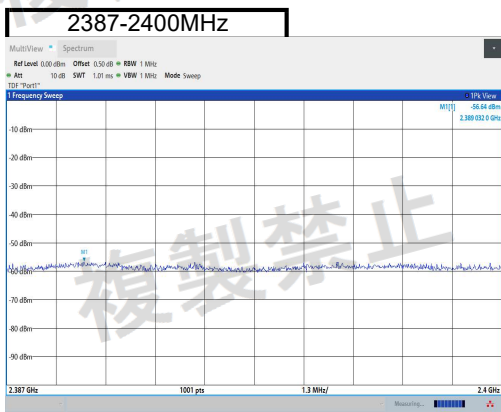
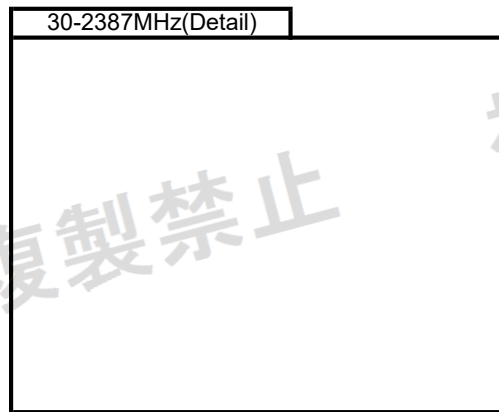
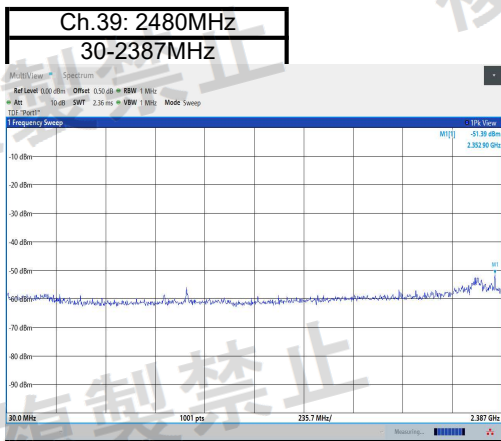


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7.3 Unwanted(Spurious) emission strength (+10% voltage)

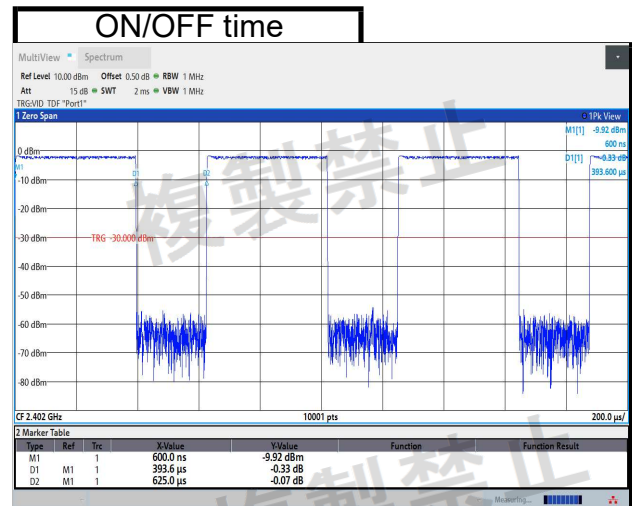
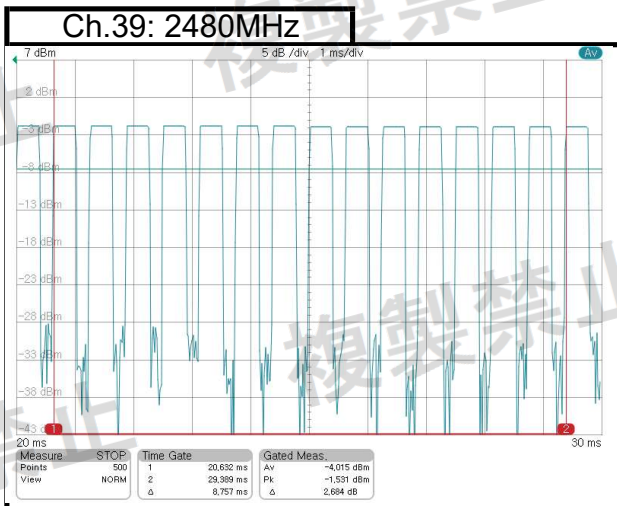
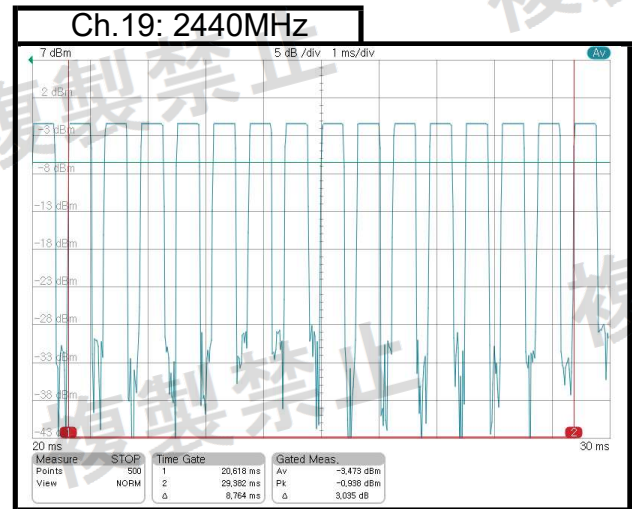
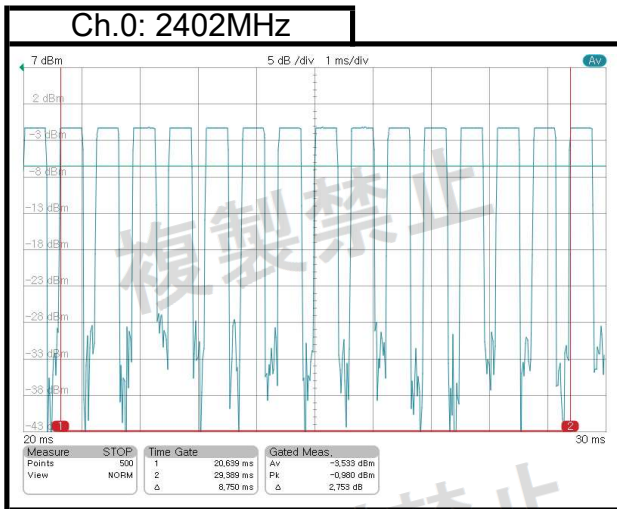






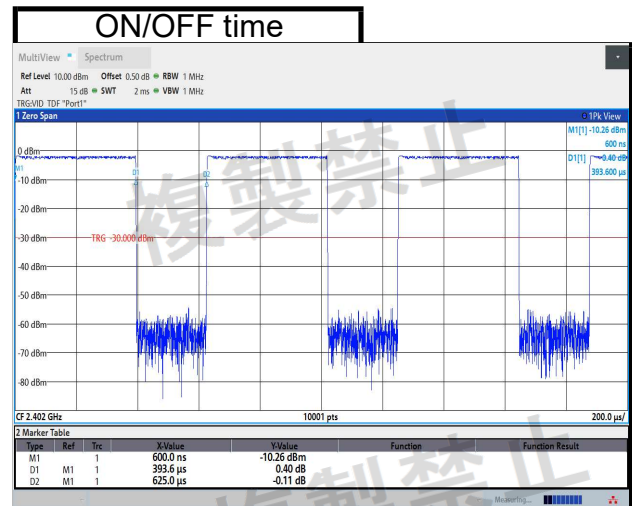
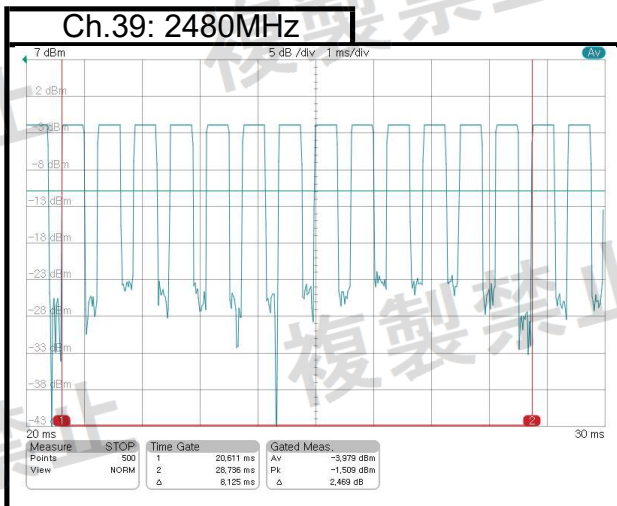
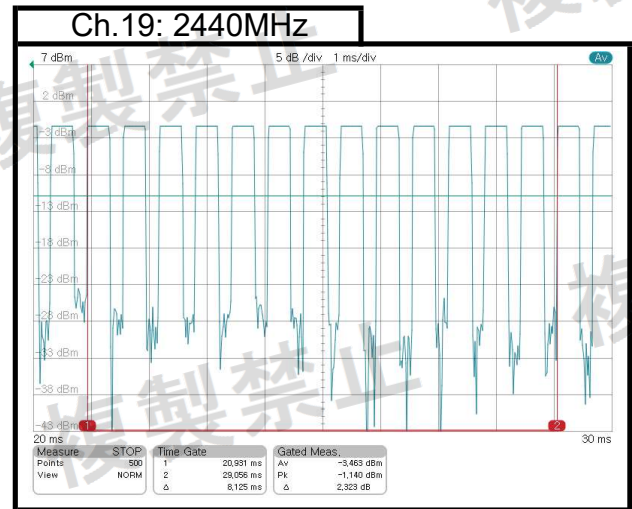
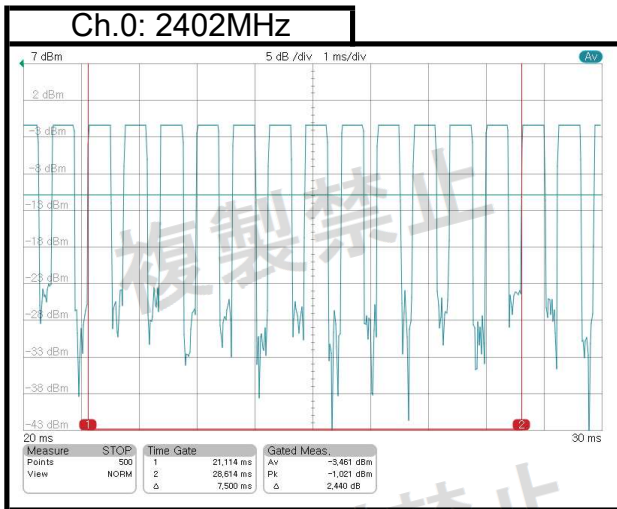
7. Test chart

7.4 RF output power tolerance (Rated voltage)



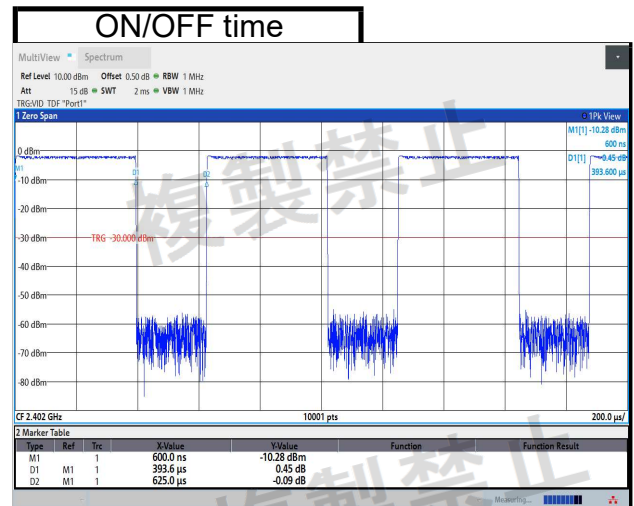
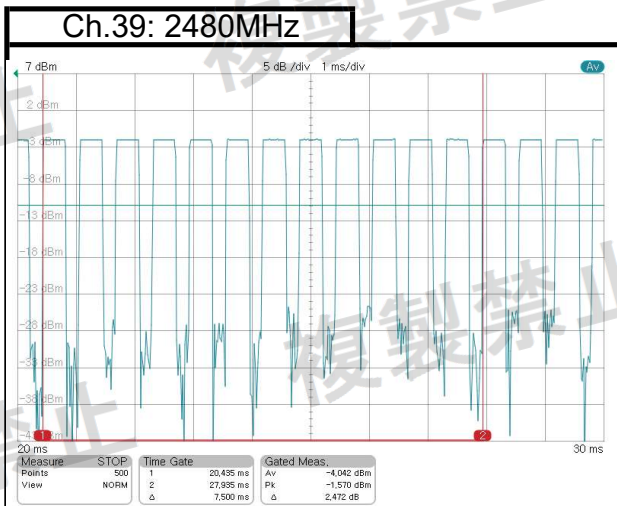
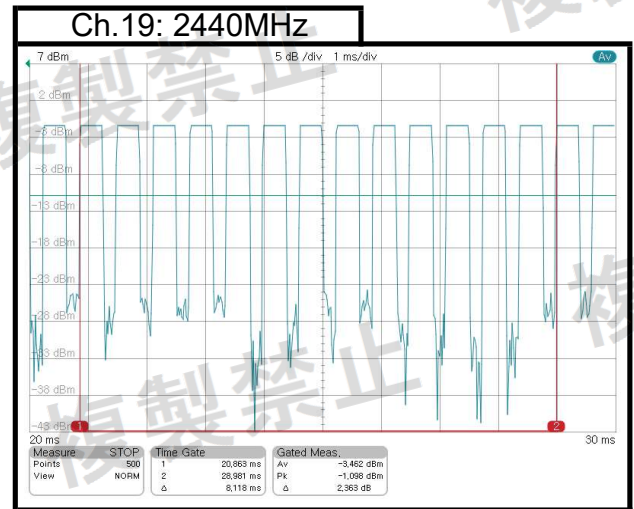
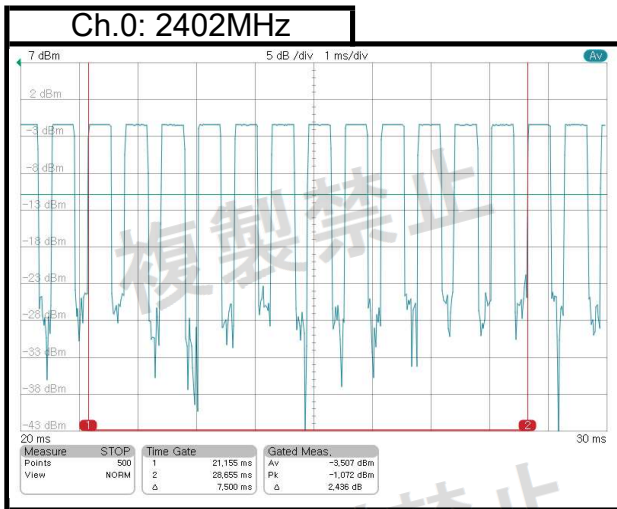
7. Test chart

7.4 RF output power tolerance (-10% voltage)



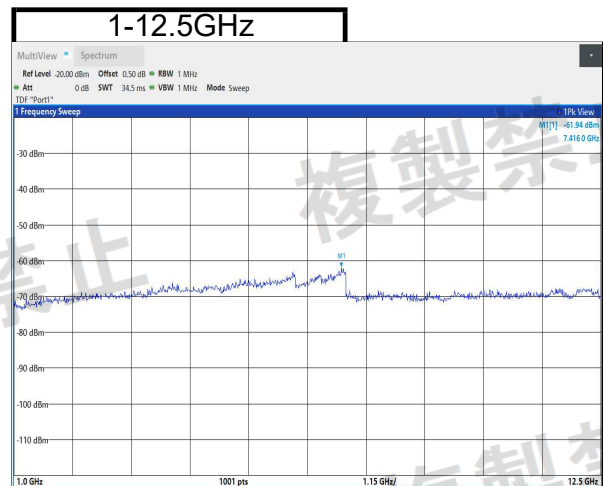
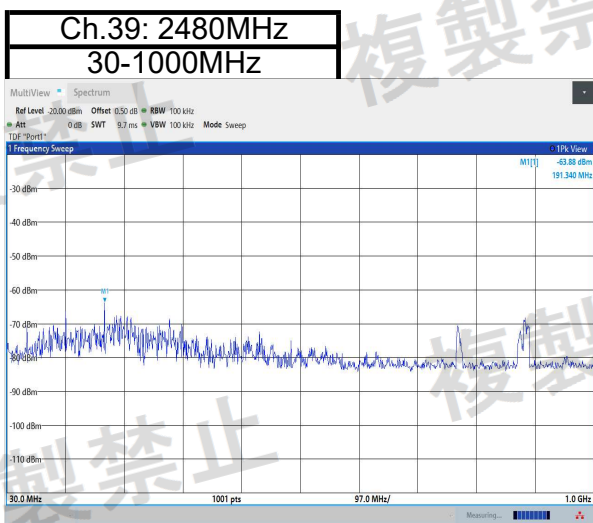
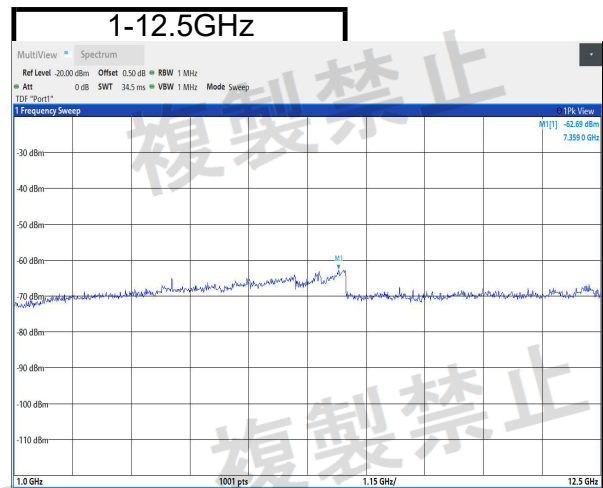
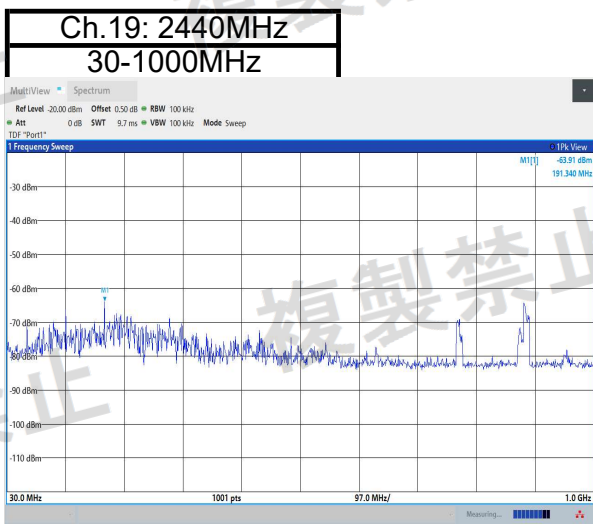
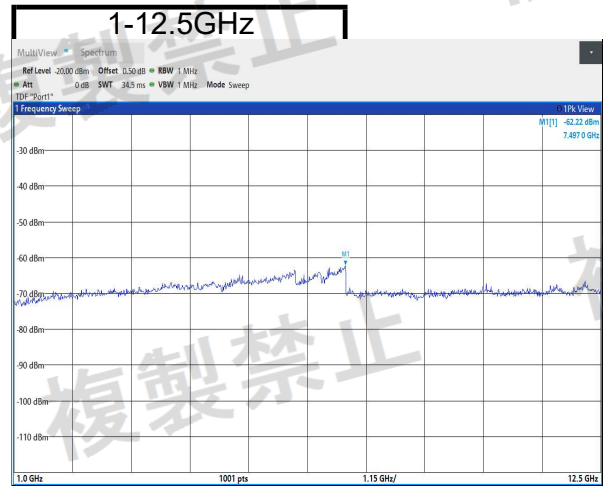
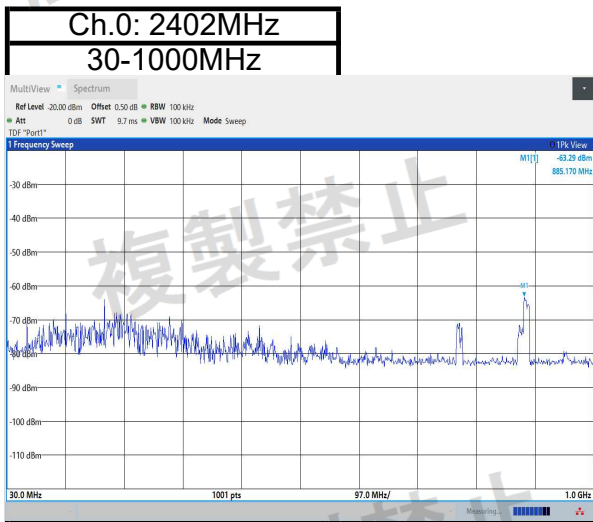
7. Test chart

7.4 RF output power tolerance (+10% voltage)



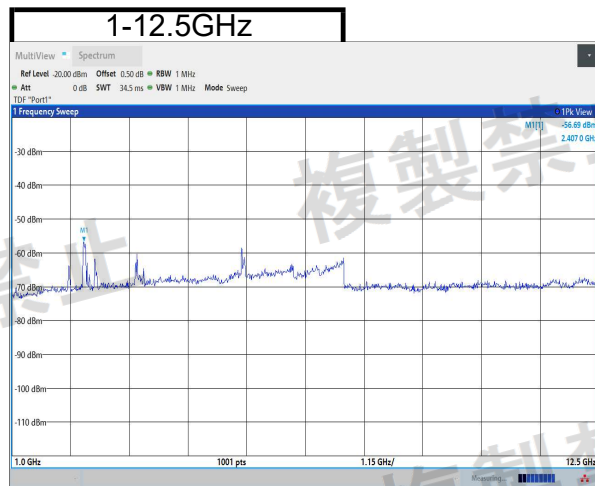
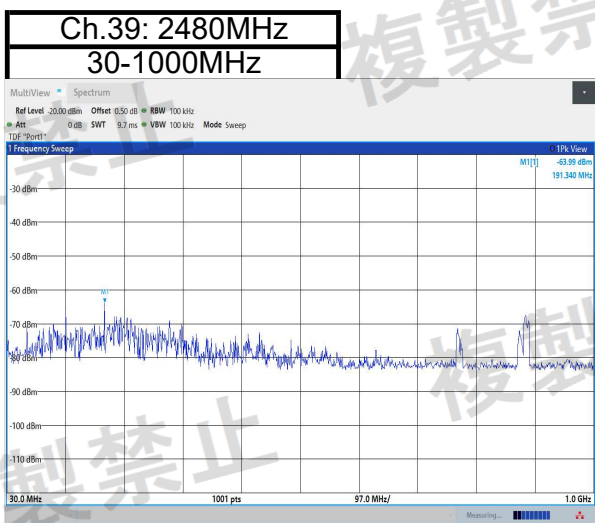
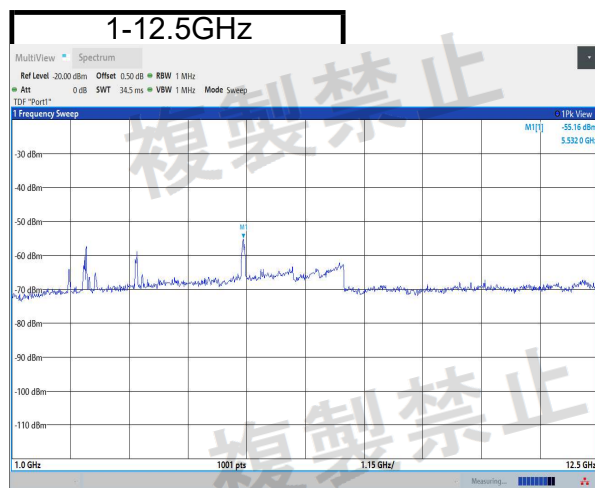
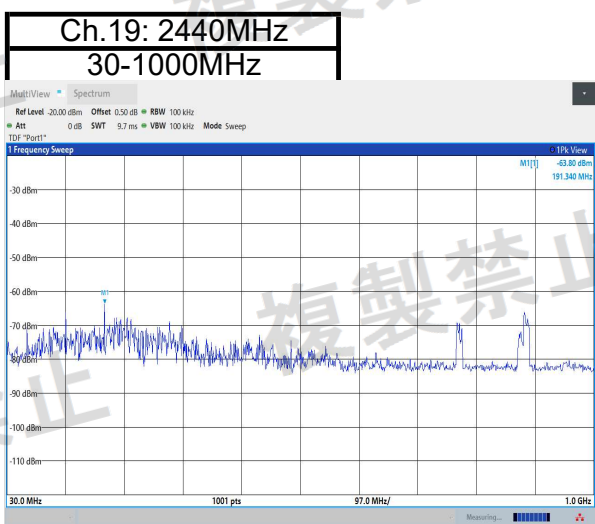
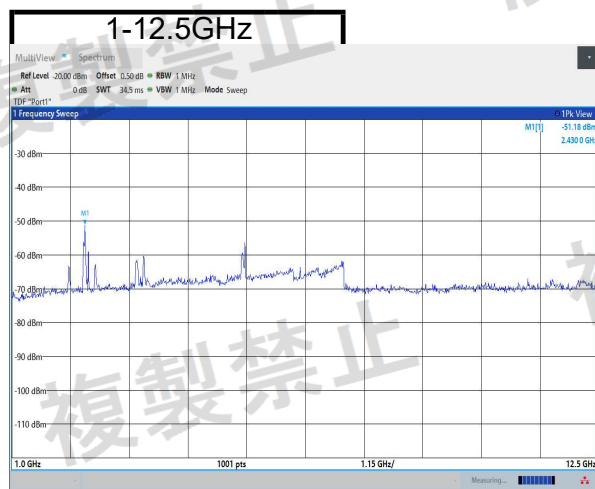
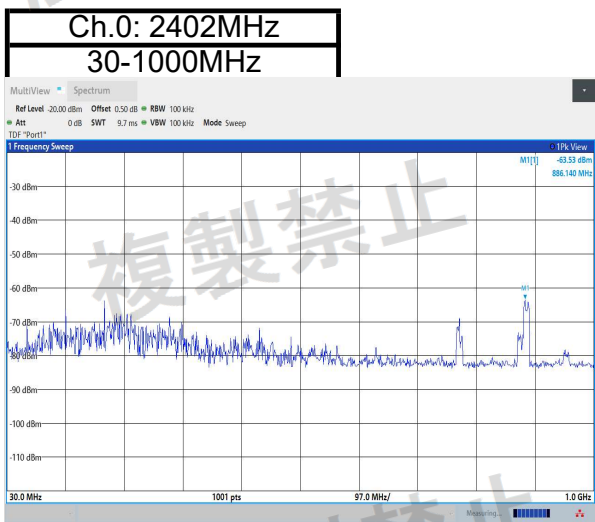
7. Test chart

7.5 Secondary emitted radio wave strength (Rated voltage)



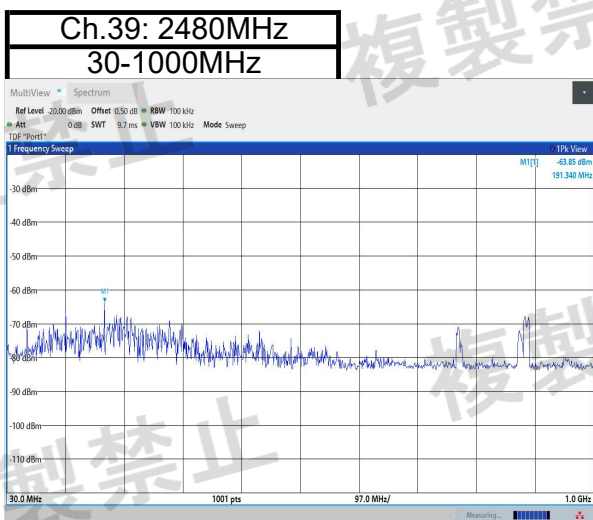
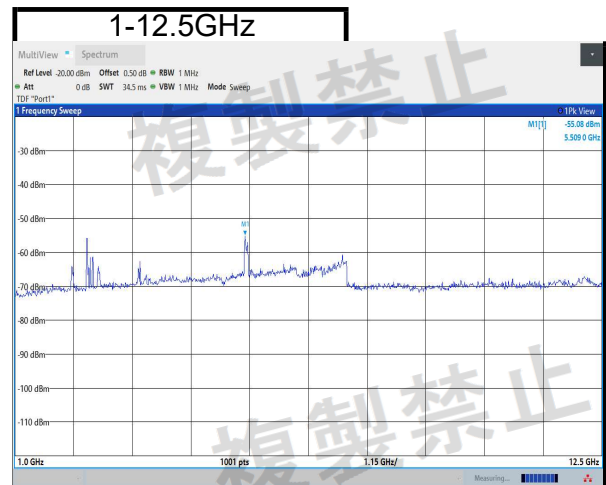
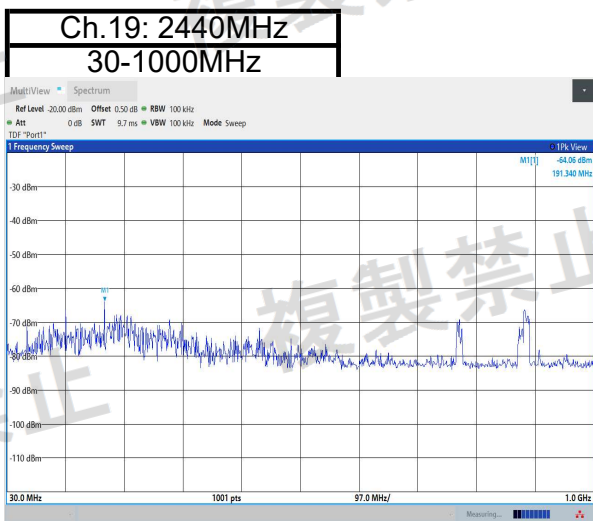
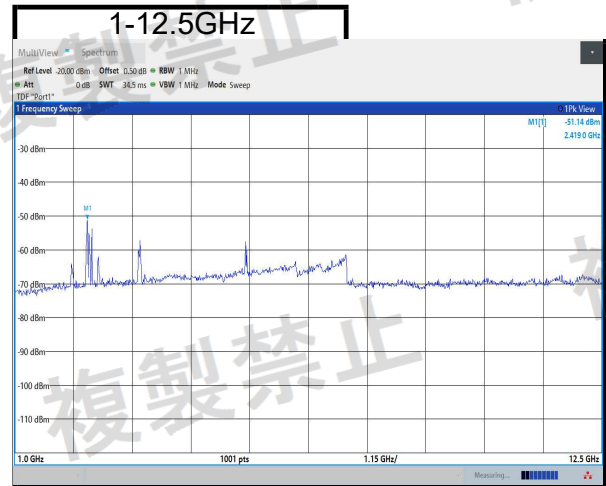
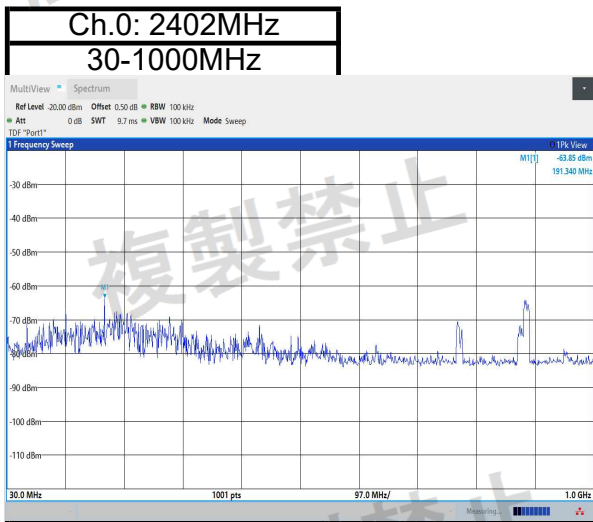
7. Test chart

7.5 Secondary emitted radio wave strength (-10% voltage)



7. Test chart

7.5 Secondary emitted radio wave strength (+10% voltage)



3. Test results (Rated voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	24.0	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.39 ms
	OFF TIME (0.1sec or more)	0.24 ms
	Ratio	0.6190 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	3GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-3)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency	MHz	2402	2440	2480	Result	Limit	Note
Channel Number	Ch.	0	19	39	---	---	
Frequency Measurements	MHz	2401.973	2439.972	2479.971	---	---	
Frequency Tolerance	ppm	-11.398	-11.345	-11.495	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	1.080	1.082	1.084	PASS	26MHz or below	
RF Output Power	mW	0.731	0.679	0.608	PASS	10mW/MHz or below	
RF Output Power Tolerance	%	-26.873	-32.130	-39.218		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.009	0.005	0.006	PASS	2.5uW/MHz or below
		MHz	2369.300	2249.300	2261.000	-----	
	2387 to 2400MHz	uW/MHz	1.567	0.008	0.002	PASS	25uW/MHz or below
		MHz	2399.968	2394.344	2389.526	-----	
	2483.5 to 2496.5MHz	uW/MHz	0.002	0.007	0.068	PASS	25uW/MHz or below
		MHz	2492.766	2485.052	2483.558	-----	
	2496.5 to 12500MHz	uW/MHz	0.050	0.051	0.052	PASS	2.5uW/MHz or below
		MHz	7208.500	7318.500	7438.500	-----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.412	0.426	0.412	PASS	4nW or below
		MHz	191.340	191.340	191.340	-----	
	1000 to 12500MHz	nW	0.695	0.635	0.644	PASS	20nW or below
		MHz	7474.000	7474.000	7474.000	-----	
Interference Prevention Function	Good				PASS		
Transmitting antenna absolute gain	-				-----	*1	
Angular width of the main radiation of the transmitting antenna	-				-----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

3. Test results (-10% voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	21.6	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.39 ms
	OFF TIME (0.1sec or more)	0.24 ms
	Ratio	0.6190 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	2.4GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-39ch)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency	MHz	2402	2440	2480	Result	Limit	Note
Channel Number	Ch.	0	19	39	---	---	
Frequency Measurements	MHz	2401.972	2439.972	2479.971	---	---	
Frequency Tolerance	ppm	-11.488	-11.387	-11.579	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	1.079	1.082	1.084	PASS	26MHz or below	
RF Output Power	mW	0.715	0.676	0.640	PASS	10mW/MHz or below	
RF Output Power Tolerance	%	-28.488	-32.427	-35.986		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.007	0.005	0.006	PASS	2.5uW/MHz or below
		MHz	2369.300	2230.400	2352.900	----	
	2387 to 2400MHz	uW/MHz	1.542	0.007	0.002	PASS	25uW/MHz or below
		MHz	2399.981	2394.565	2397.149	----	
	2483.5 to 2496.5MHz	uW/MHz	0.002	0.007	0.065	PASS	25uW/MHz or below
		MHz	2484.688	2485.338	2483.558	----	
	2496.5 to 12500MHz	uW/MHz	0.050	0.047	0.061	PASS	2.5uW/MHz or below
		MHz	7208.500	7318.500	7438.500	----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.409	0.401	0.428	PASS	4nW or below
		MHz	191.340	191.340	191.340	----	
	1000 to 12500MHz	nW	0.619	0.719	0.537	PASS	20nW or below
		MHz	7405.000	7451.000	7416.000	----	
Interference Prevention Function	Good				PASS		
Transmitting antenna absolute gain	-				----	*1	
Angular width of the main radiation of the transmitting antenna	-				----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

3. Test results (+10% voltage)

S/N : N/A

Environment of test room	Date of test	2022-09-27	2022-09-28	2022-09-29
	Temperature	23 °C	21 °C	25 °C
	Humidity	51 %	58 %	52 %

Peak Antenna Gain	-2.42	dBi
Declaration Output Power	1	mW
Declaration Output Power	0.0000	dBm
E.I.R.P.	-2.4200	dBm
Input Power Voltage	26.4	VDC

Tested Circuit Insertion Loss	0	dB
Frequency equal to the Transmission rate	-	MHz
Transmission Time	ON TIME (1sec or less)	0.39 ms
	OFF TIME (0.1sec or more)	0.24 ms
	Ratio	0.6190 %
Packet Type (Mode)	Not Applicable	mode
Transmit Speed	Not Applicable	MHz

Using TDF and offset function in Spectrum Analyzer.
Measurement of plots are included Loss value.

(Att : 10dB + Cable loss + EUT cable: 0.5dB offset)

Test category :	3GHz Band Low-Power Data Communication System (GFSK/BLE 1Mbps 37Packet/0-3)
The reason why the tests are performed only at rated voltage :	

Measurement Frequency		MHz	2402	2440	2480	Result	Limit	Note
Channel Number		Ch.	0	19	39	---	---	
Frequency Measurements		MHz	2401.972	2439.972	2479.971	---	---	
Frequency Tolerance		ppm	-11.478	-11.408	-11.637	PASS	±50×10 ⁻⁶ (50ppm)	
Occupied Bandwidth		MHz	1.079	1.080	1.084	PASS	26MHz or below	
RF Output Power		mW	0.719	0.678	0.638	PASS	10mW/MHz or below	
RF Output Power Tolerance		%	-28.109	-32.224	-36.207		+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.007	0.005	0.015	PASS	2.5uW/MHz or below	
		MHz	2369.300	2221.000	1924.300	----		
	2387 to 2400MHz	uW/MHz	1.514	0.008	0.002	PASS	25uW/MHz or below	
		MHz	2399.994	2394.448	2396.669	----		
	2483.5 to 2496.5MHz	uW/MHz	0.002	0.006	0.066	PASS	25uW/MHz or below	
		MHz	2484.701	2485.416	2483.558	----		
	2496.5 to 12500MHz	uW/MHz	0.048	0.052	0.047	PASS	2.5uW/MHz or below	
		MHz	7208.500	7318.500	7438.500	----		
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	0.407	0.407	0.404	PASS	4nW or below	
		MHz	191.340	191.340	191.340	----		
	1000 to 12500MHz	nW	0.571	0.628	0.601	PASS	20nW or below	
		MHz	7485.000	7370.000	7439.000	----		
Interference Prevention Function			Good			PASS		
Transmitting antenna absolute gain			-			----	*1	
Angular width of the main radiation of the transmitting antenna			-			----	*1	

*1 Measurement only if the E.I.R.P. exceeds 12.14dBm/MHz

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5. Uncertainty

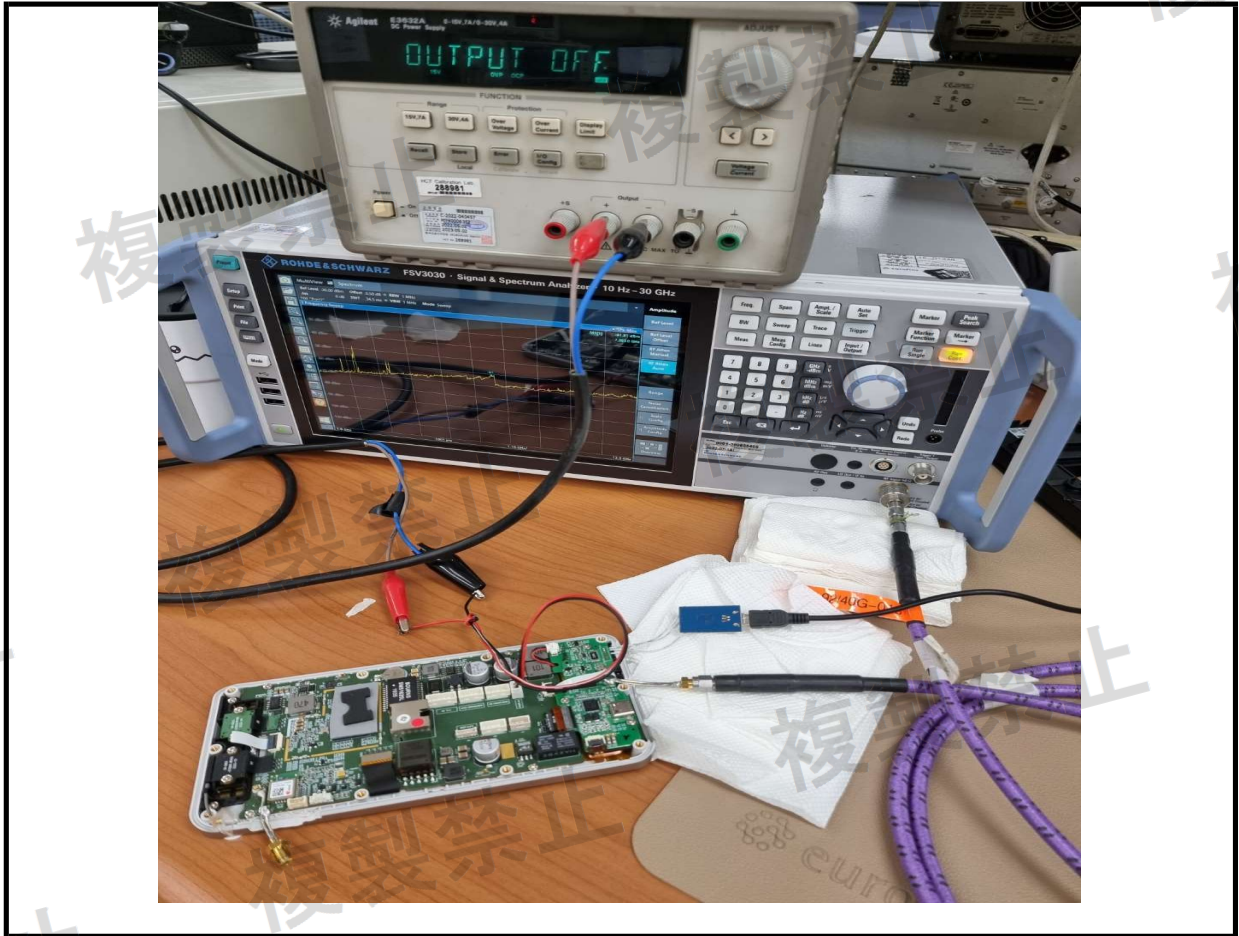
About uncertainty of measured value

Parameter	Uncertainty
Total RF power conducted	$\pm 0.9\text{dB}$
Spurious emissions conducted	$\pm 1.1\text{dB}$
Temperature	$\pm 0.9^{\circ}\text{C}$
Humidity	$\pm 4.6\%$

Judge	Measured value and standard limit value	
PASS	Standard limit value Case1 Even if it takes uncertainty into consideration, a standard limit value is fulfilled.	
	Case2 Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.	
FAIL	Case3 Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.	
	Case4 Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.	

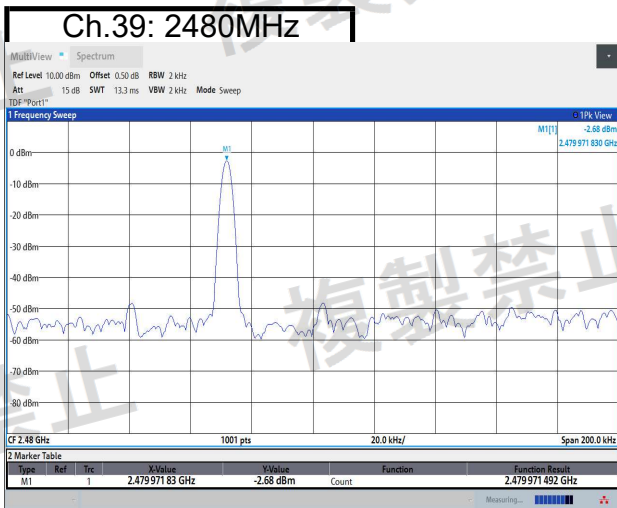
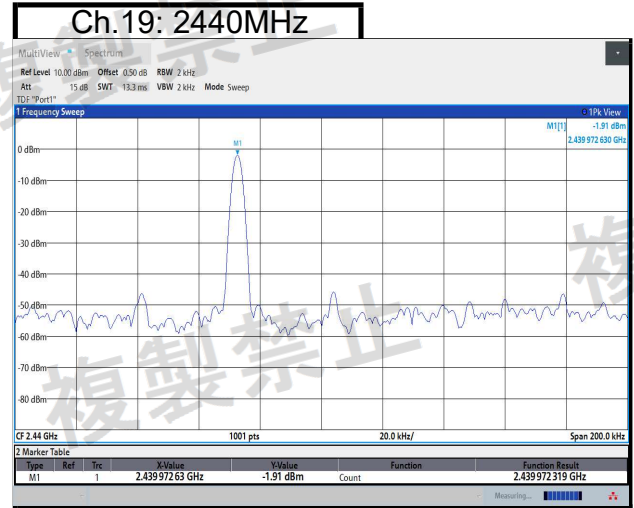
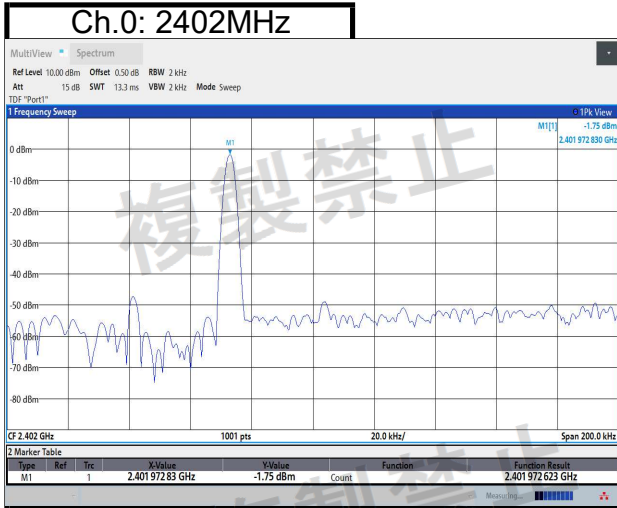
6. Photographs

Conducted Measurement Photo



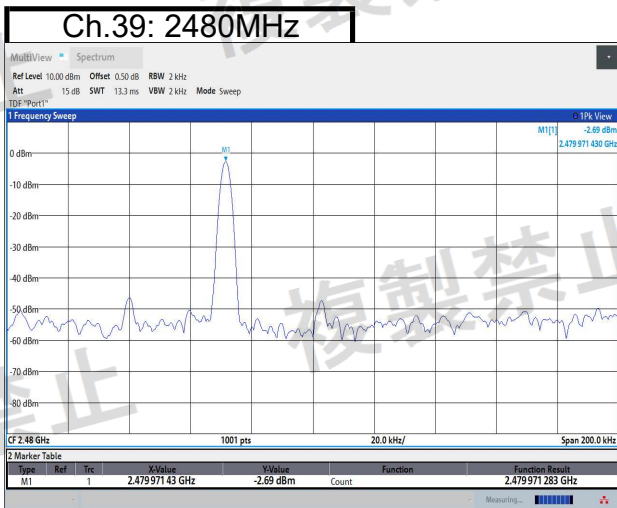
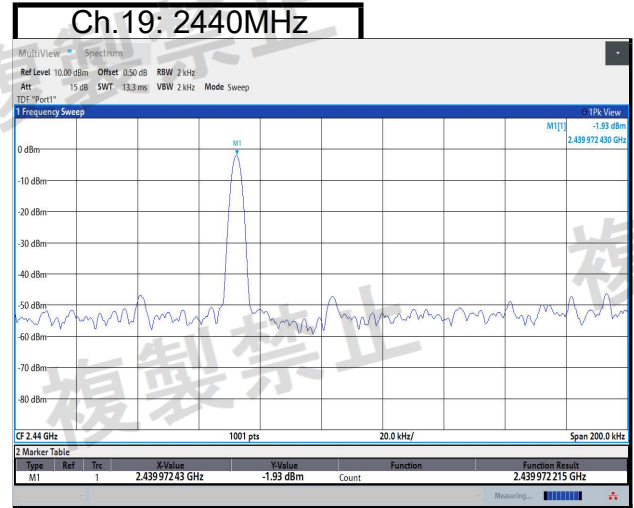
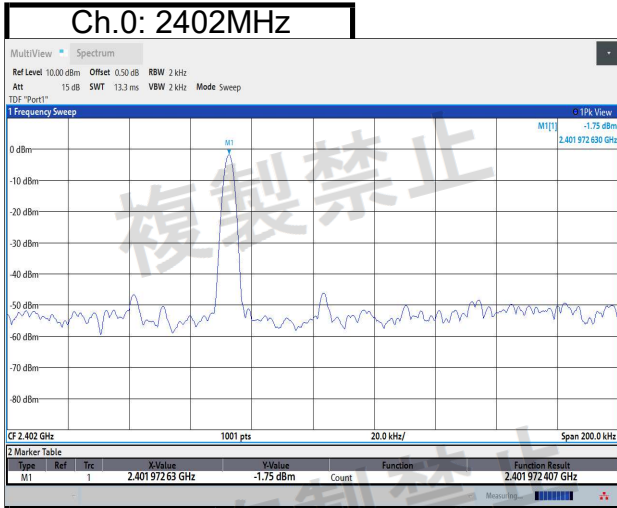
7. Test chart

7.1 Frequency tolerance (Rated voltage)



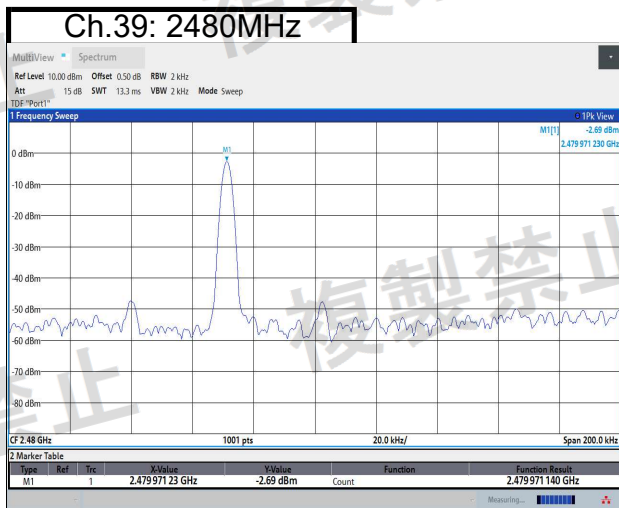
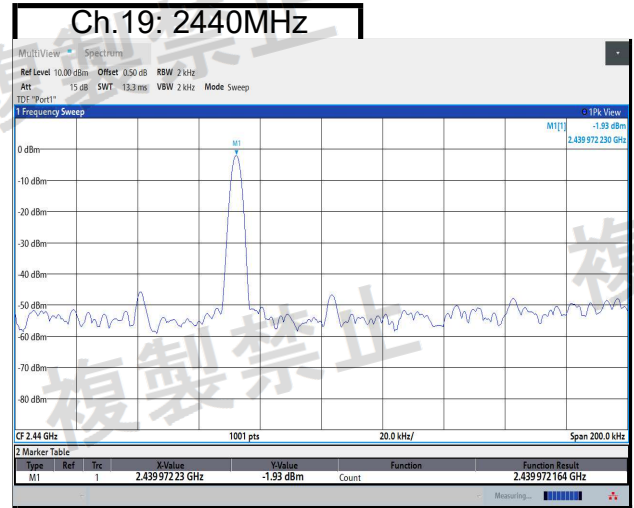
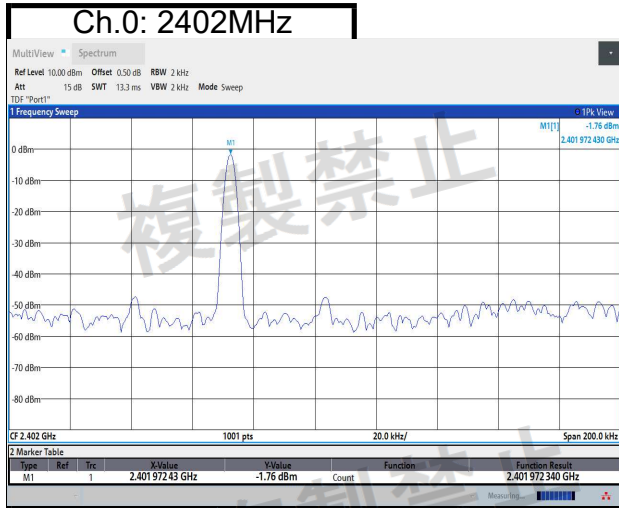
7. Test chart

7.1 Frequency tolerance (-10% voltage)



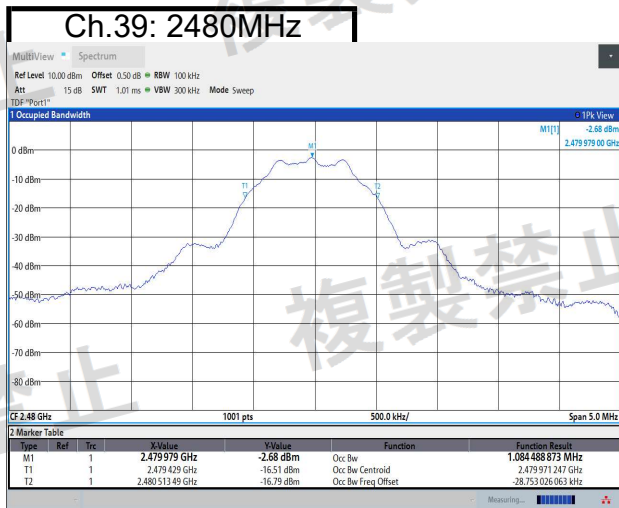
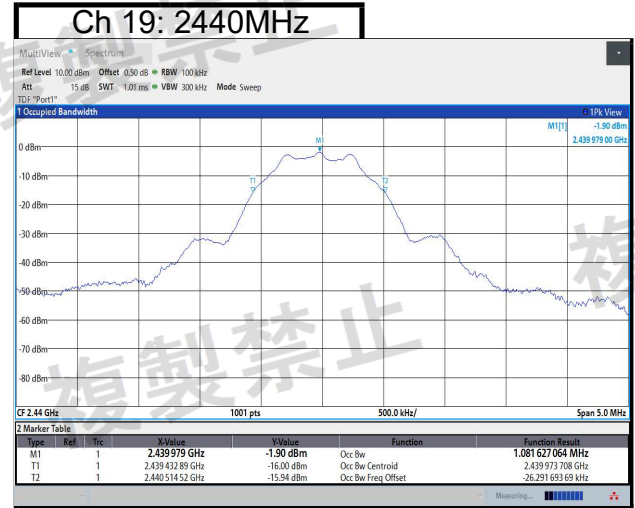
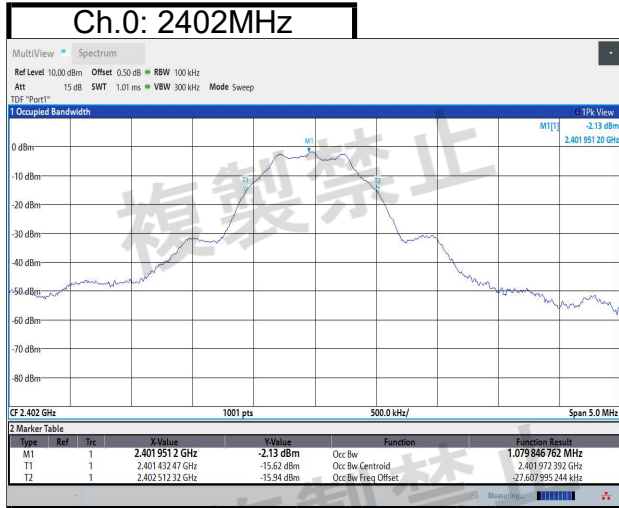
7. Test chart

7.1 Frequency tolerance (+10% voltage)



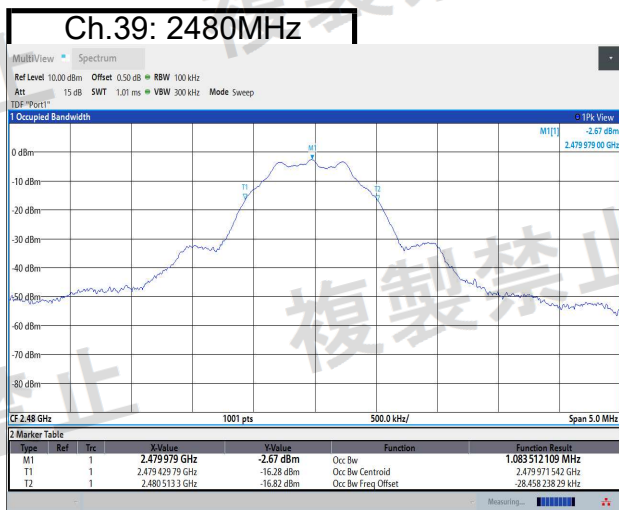
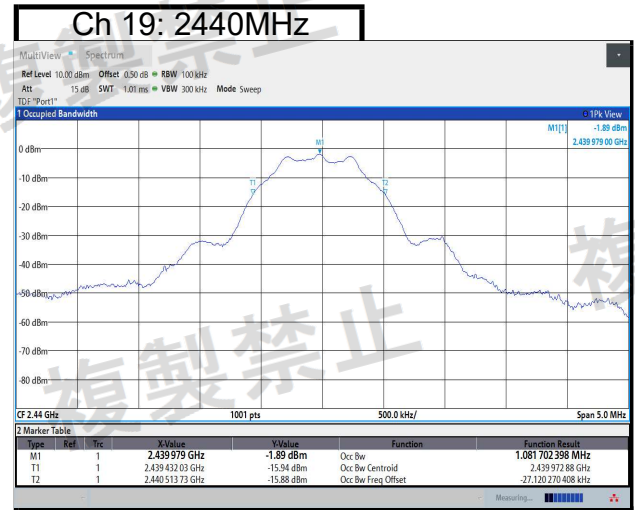
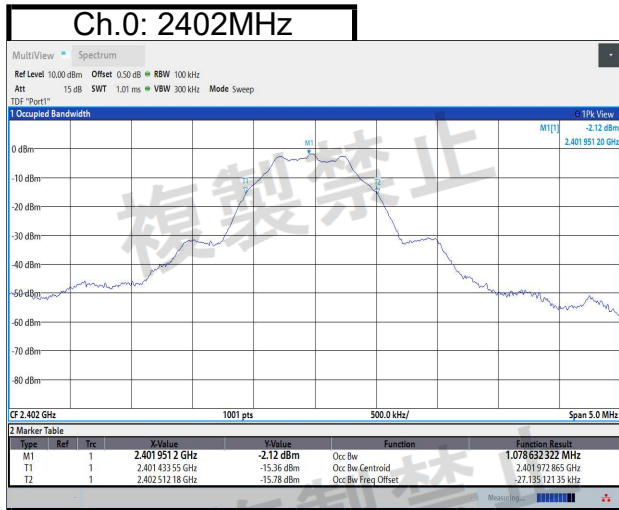
7. Test chart

7.2 Occupied bandwidth (Rated voltage)



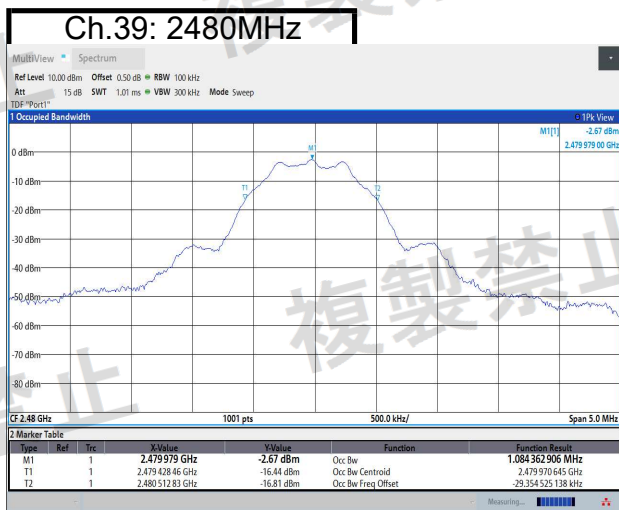
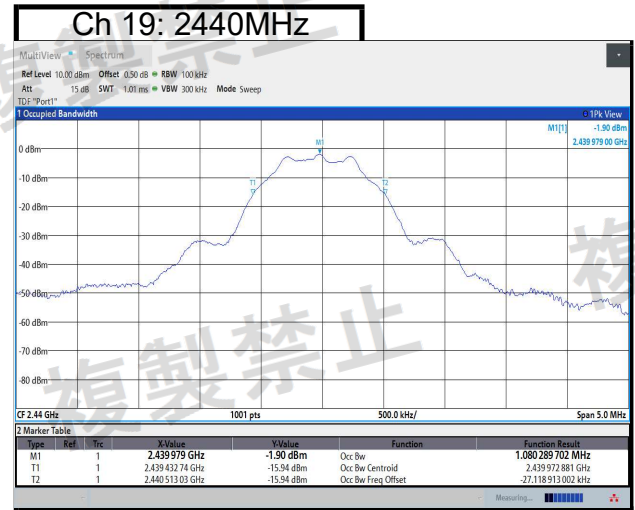
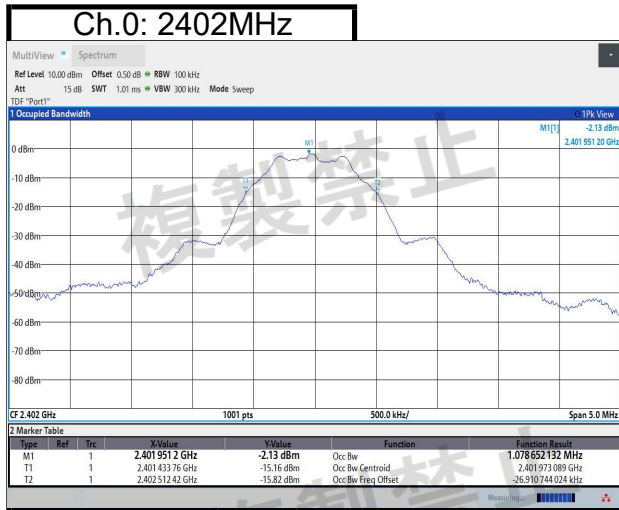
7. Test chart

7.2 Occupied bandwidth (-10% voltage)



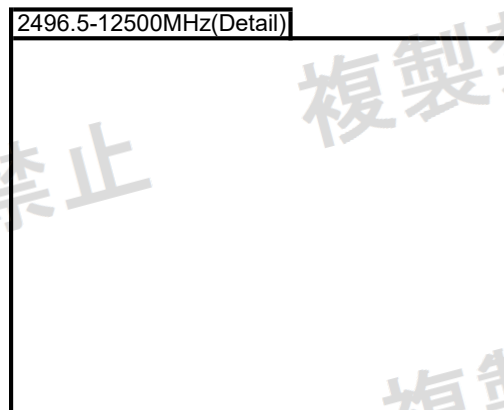
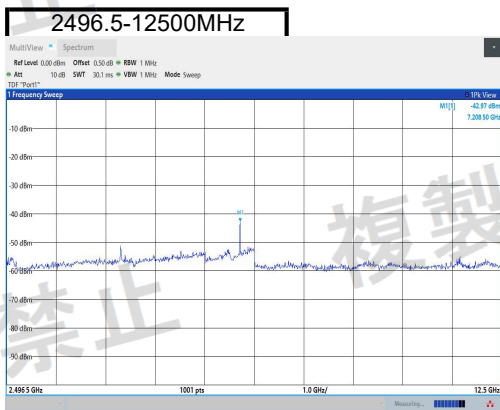
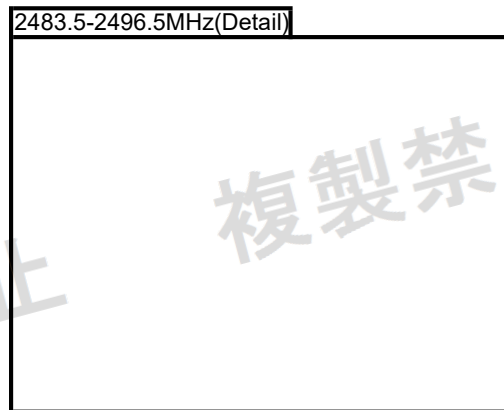
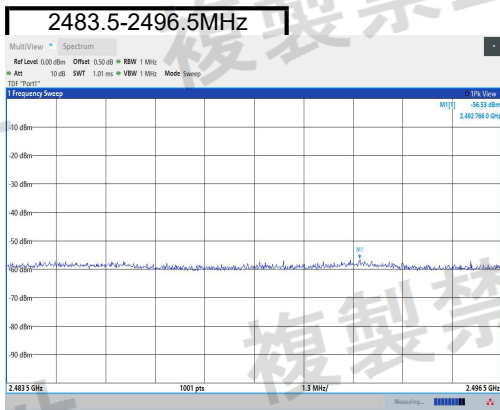
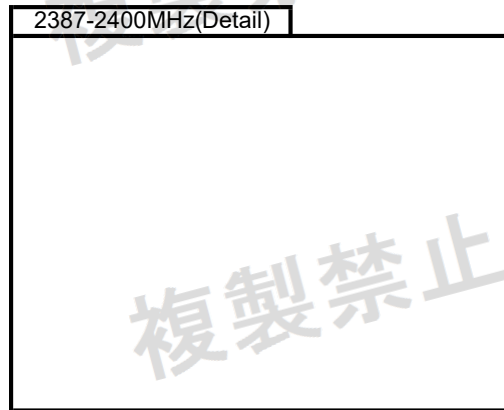
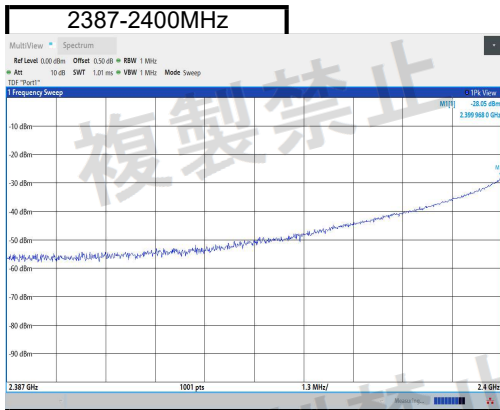
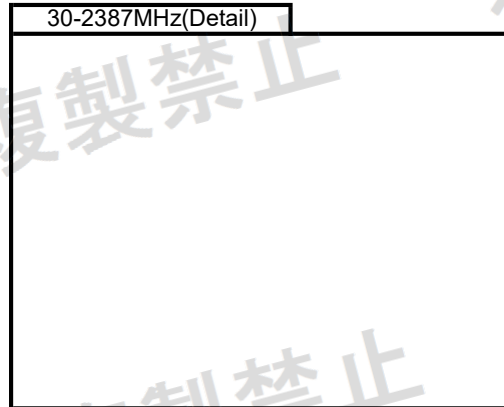
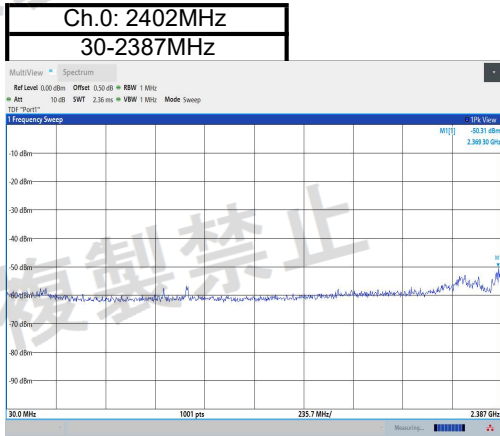
7. Test chart

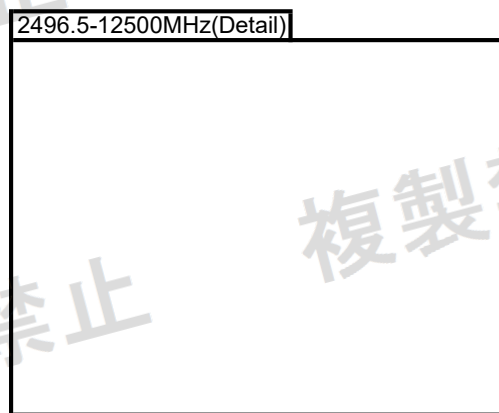
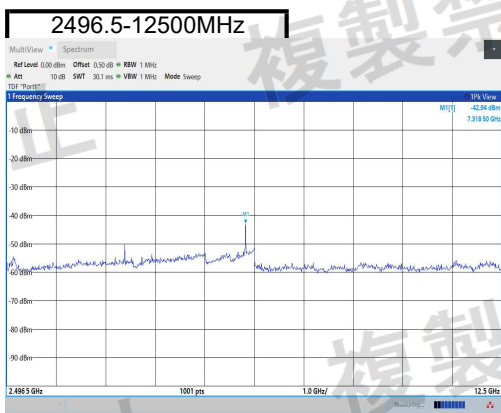
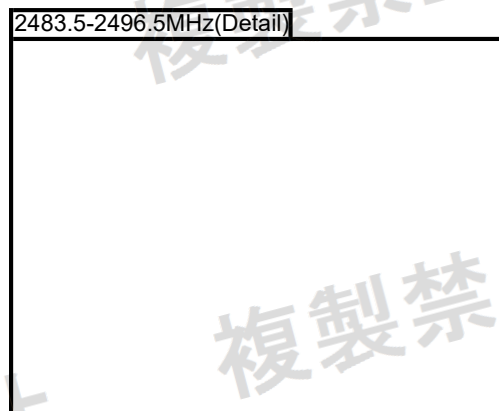
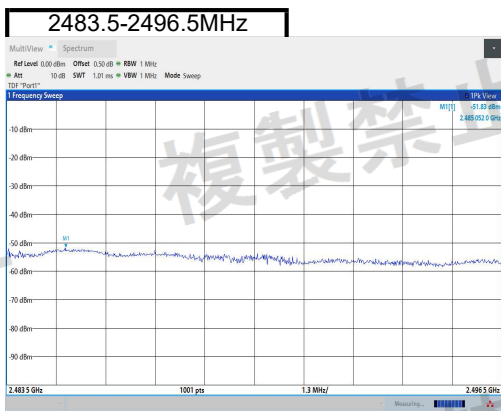
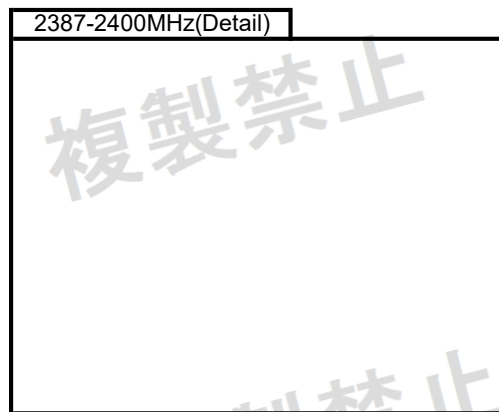
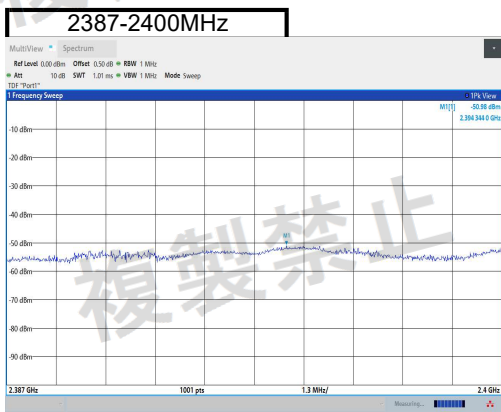
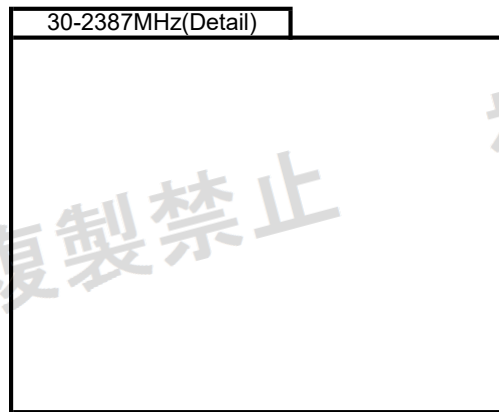
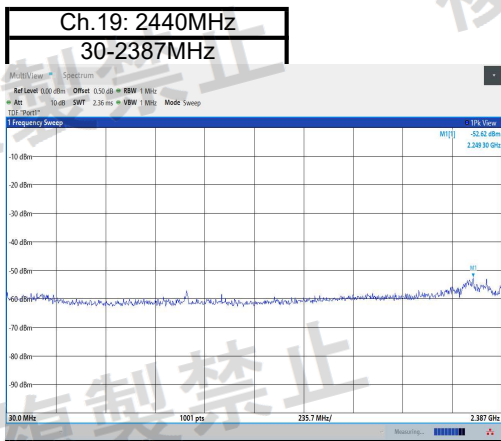
7.2 Occupied bandwidth (+10% voltage)

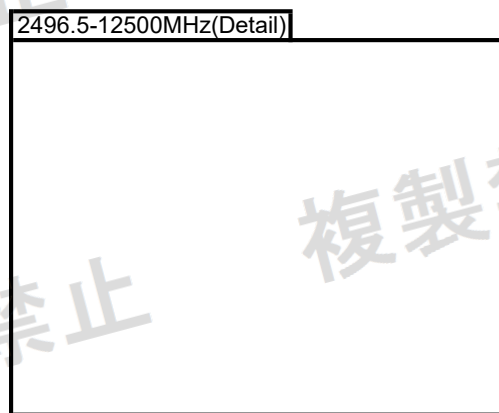
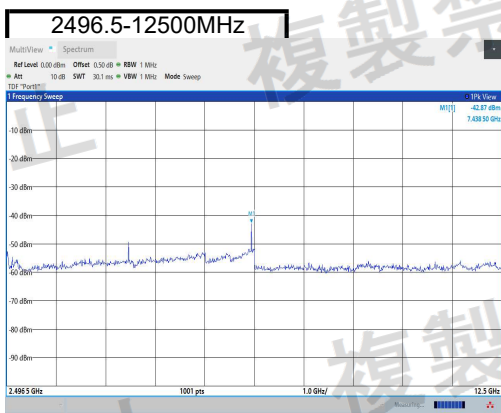
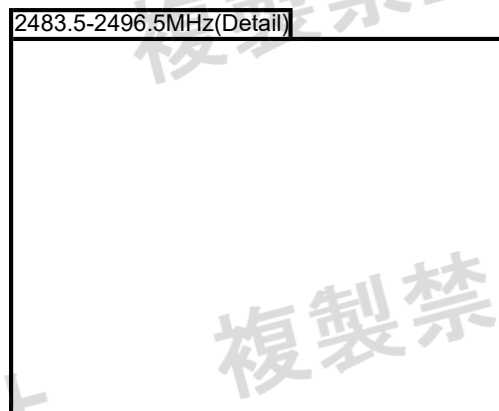
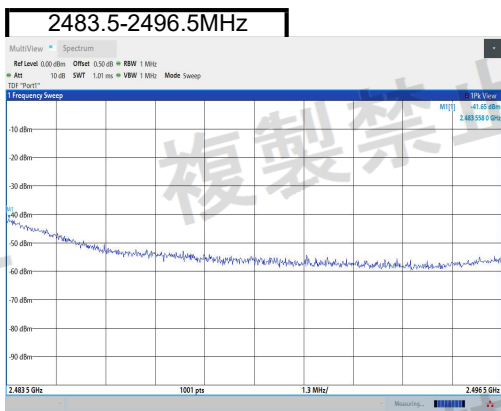
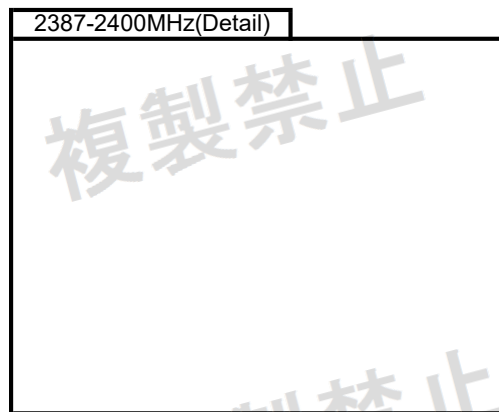
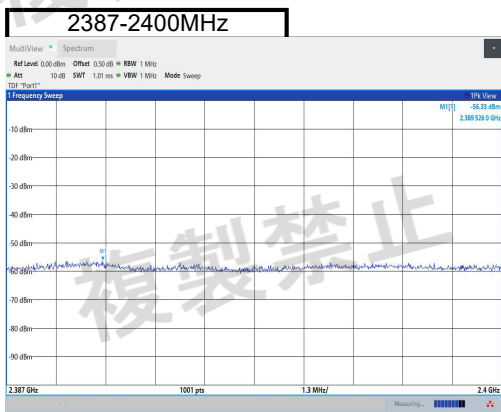
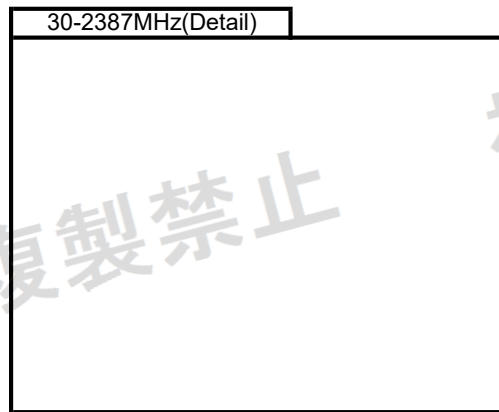
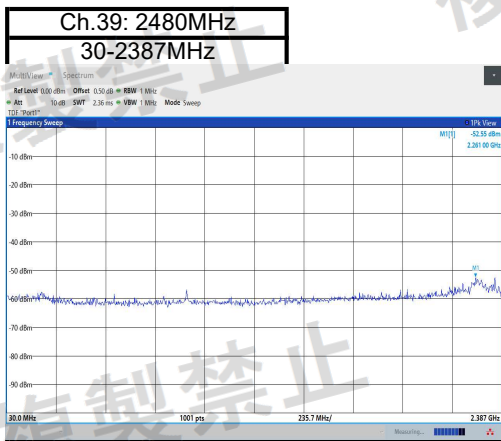


7. Test chart

7.3 Unwanted(Spurious) emission strength (Rated voltage)

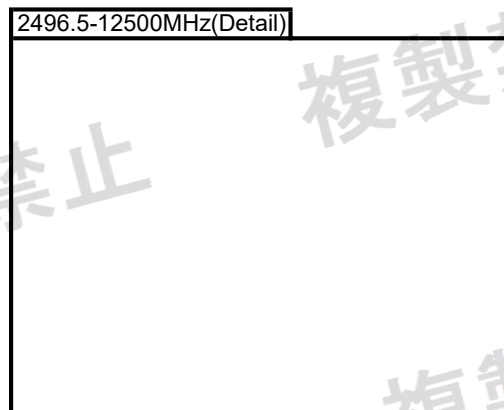
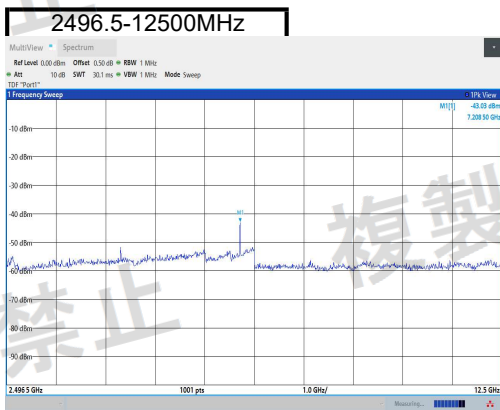
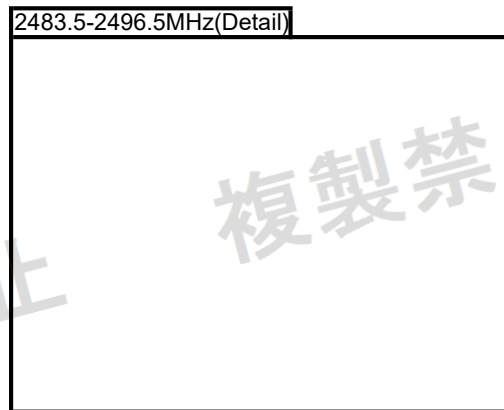
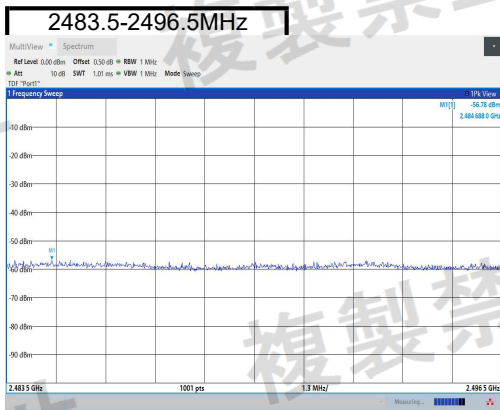
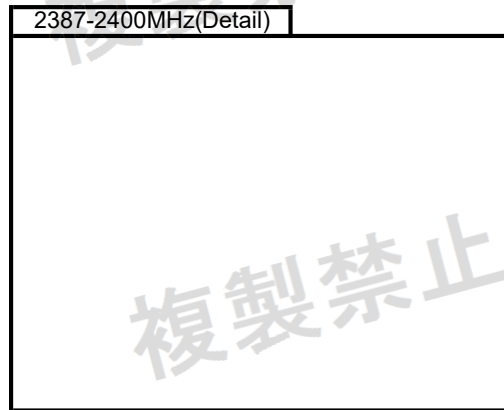
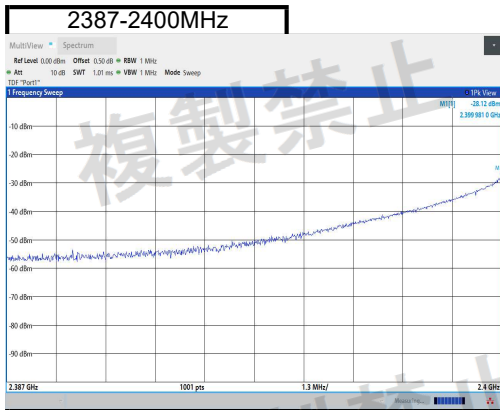
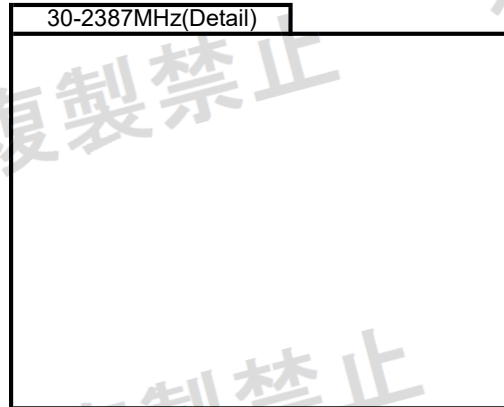
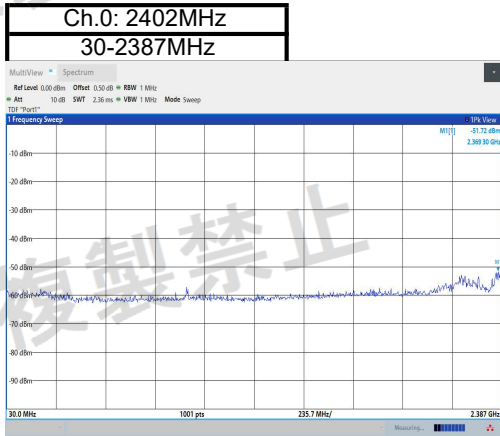


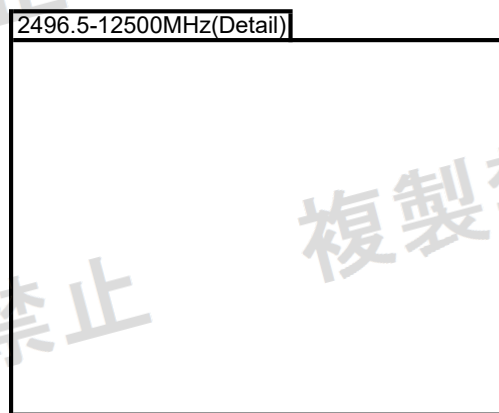
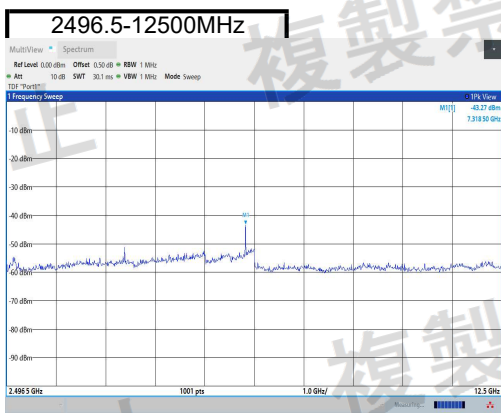
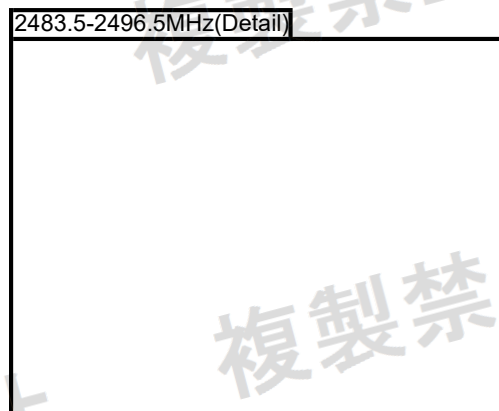
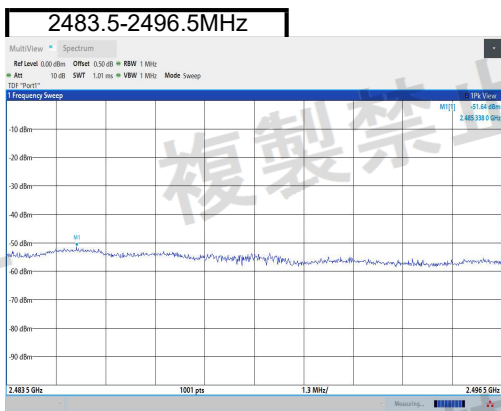
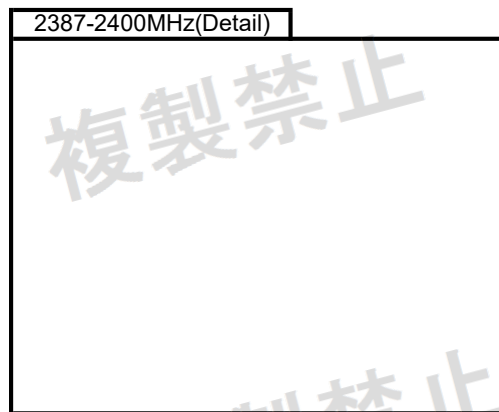
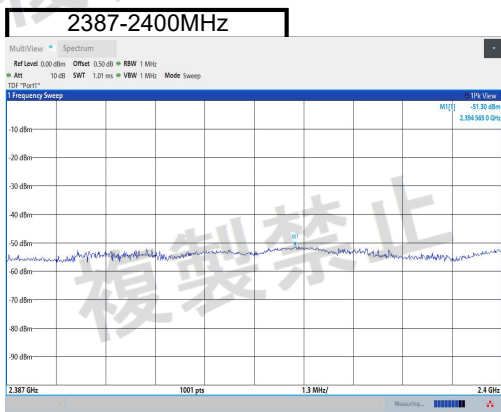
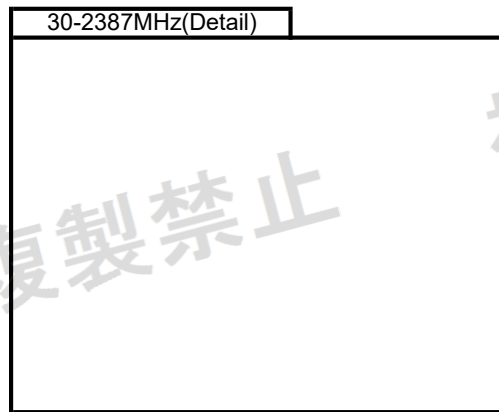
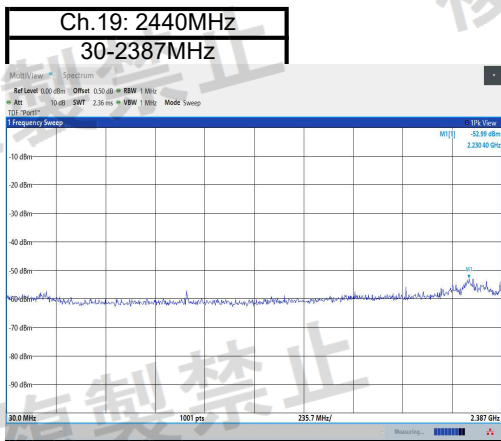


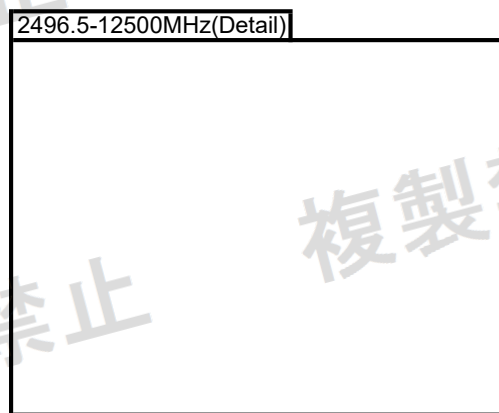
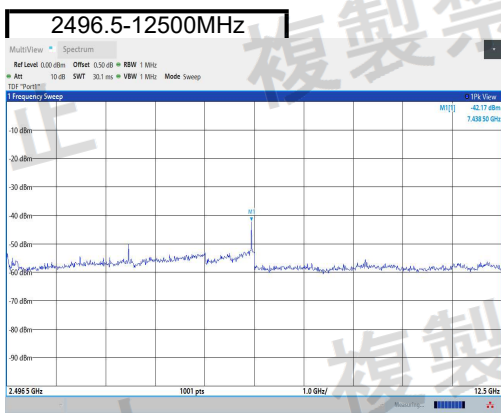
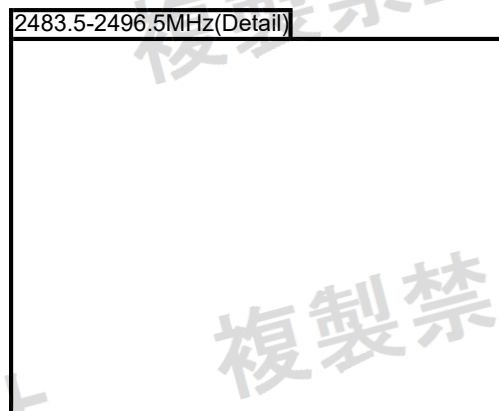
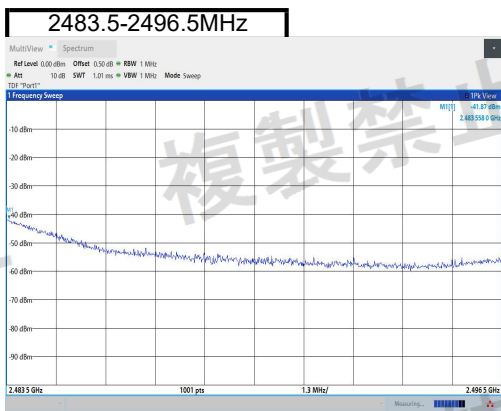
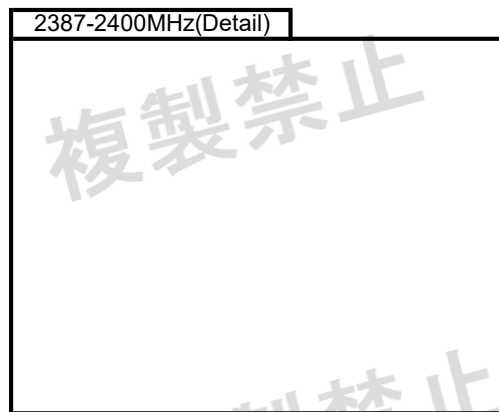
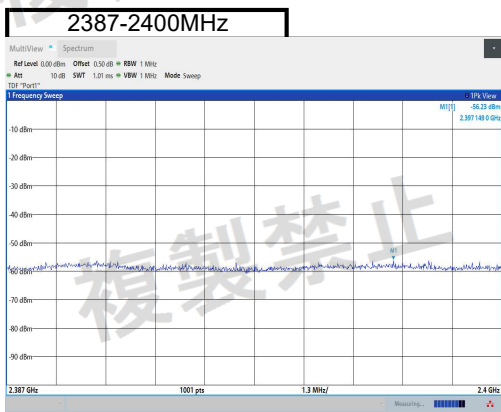
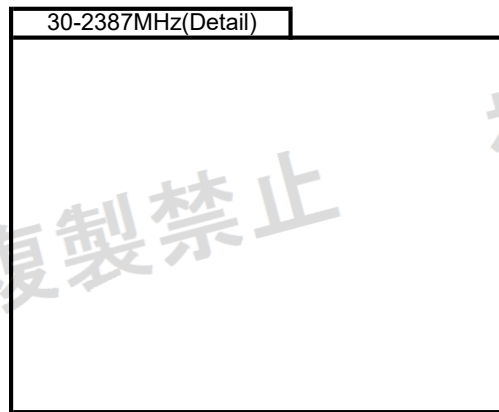
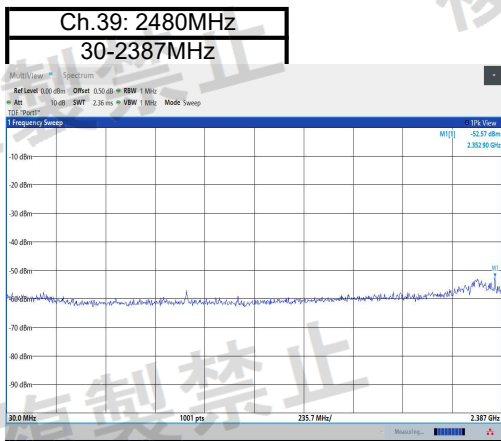


7. Test chart

7.3 Unwanted(Spurious) emission strength (-10% voltage)







複製禁止

7.3 Unwanted(Spurious) emission strength (+10% voltage)

