TEST REPORT

Report number	:	**KR21200715A**
Issue date	:	**2020/07/15**

Applicant	:	DMBH Co.Ltd #401-603, Bucheon Techno-park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon-si, Gyeonggi-do Korea Tel. +82-32-203-8889 Fax. +82-32-712-4907
Model name	:	InBirdie TEMPO
Serial number	:	N/A
Test procedure	:	Radio equipment according to Certification Ordinance Article 2 Section 1 No. 19
Date of test	:	2020/7/1
Name of facility	:	KRL Co., Ltd.

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 KRL Co.,Ltd.

Tested by : Sang-Hyuk.Seo

Approved by : Kyu-Hyun, LEE

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	28B	9205-00369	KTICC	ハ(c)	Oct. 2020	Oct. 17, 2019
	SPECTRUM ANALYZER	ROHDE&SCHWARZ	FSP	100665	KTICC	ハ(c)	Nov. 2020	Nov. 11, 2019
X	SYSTEM DC POWER SUPPLY	HP	6654A	3639A02180	BCS	ハ(c)	Aug. 2020	Aug. 9, 2019
	TEMP & HUMI. CHAMBER	HITACHI	EC-25MHHPS	U5539026	KTICC	ハ(c)	Nov. 2020	Nov. 20, 2019
X	SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ26	100044	KTICC	ハ(c)	Jan. 2021	Jan. 8, 2020
X	USB Average Power Sensor	AGILENT	U2001H	MY51140028	BCS	ハ(c)	Sep. 2020	Sep. 11, 2019
	POWER DIVIDER	HP	11636A	03871	BCS	ハ(c)	Jan. 2021	Jan. 9, 2020
	STEP ATTENUATOR	AEROFLEX	AF9010-60-31	12987	BCS	ハ(c)	Jan. 2021	Jan. 9, 2020
	AC POWER SUPPLY	DAELIM	D-45	KRL-002	BCS	二(d)	Aug. 2020	Aug. 9, 2019
	FIXED ATTENUATOR	XMA CORP	4882-6140-10	KRL-010	KTICC	ハ(c)	Oct. 2020	Oct. 17, 2019

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

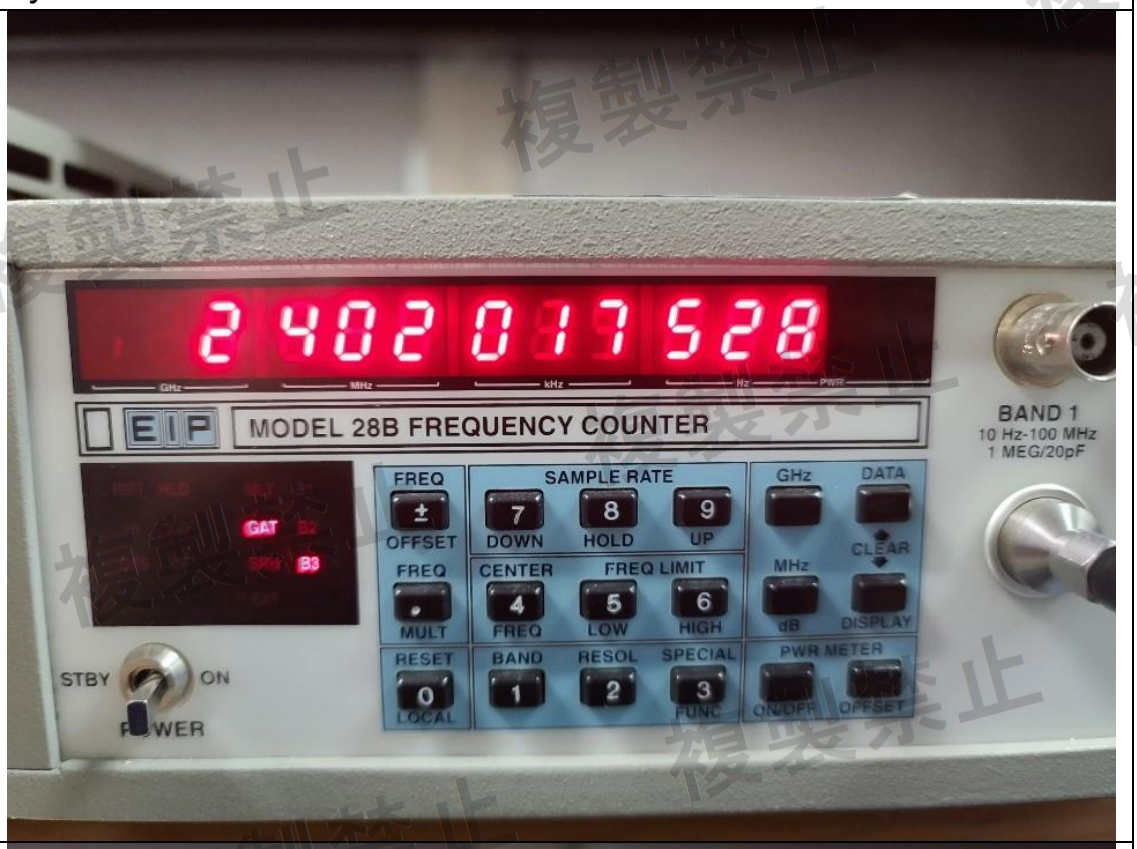
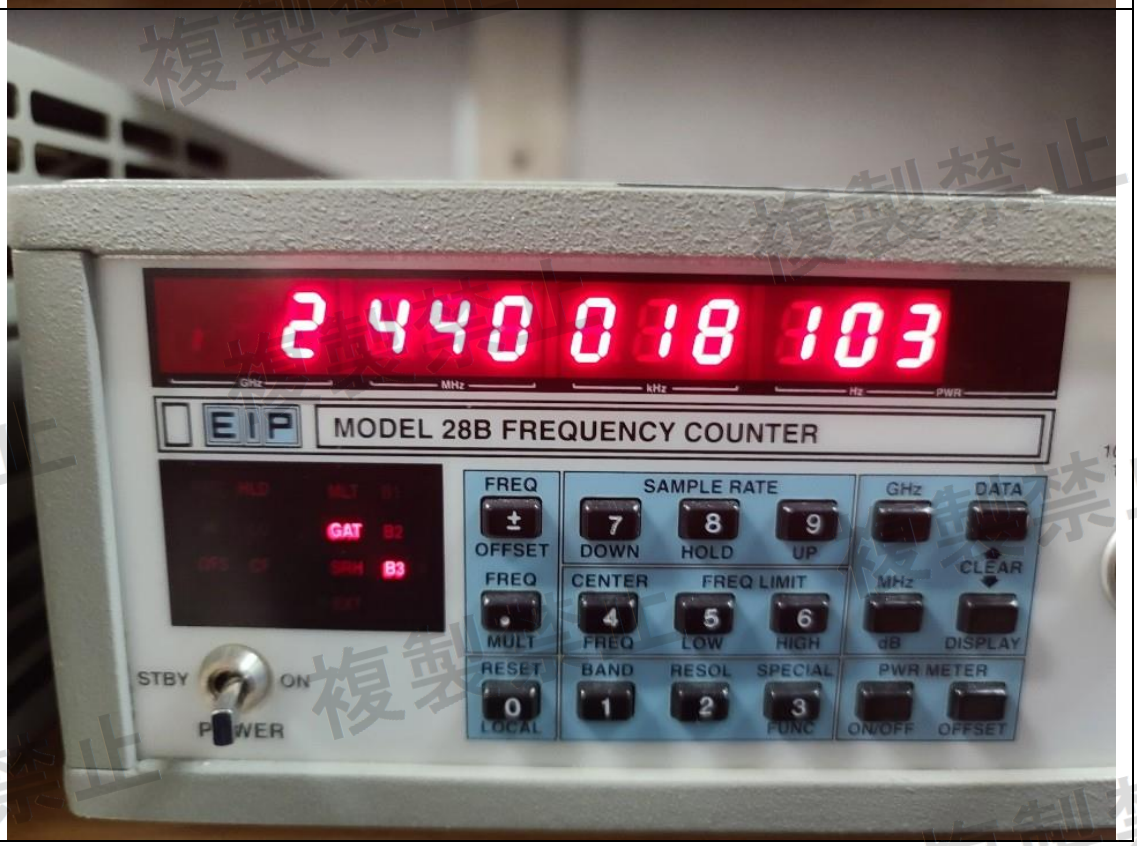
Test Date : 2020-07-01

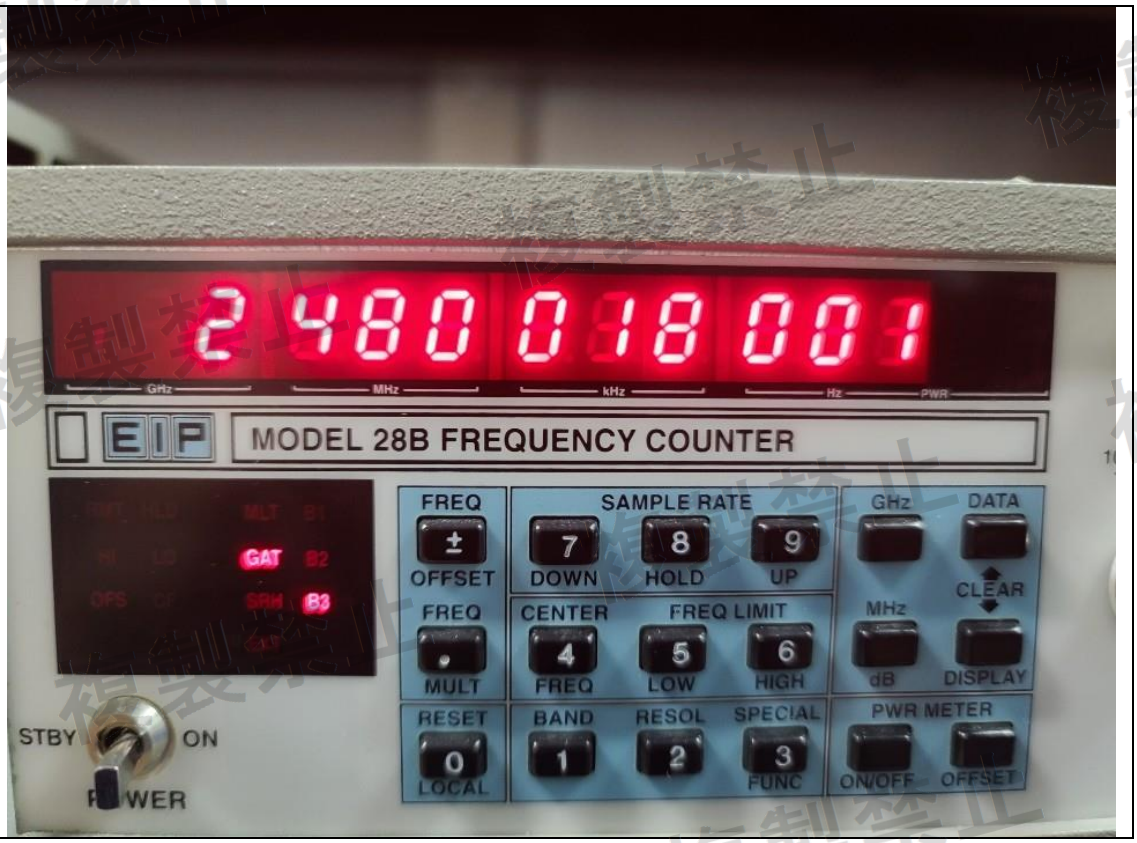
Class: Article 2 Paragraph 1 Item 19		Frequency :	(2 402 ~ 2 480) MHz
Rated Power (mW) :	0.05 mW	Antenna Gain :	1.9 dBi
Rated Power (dBm) :	-13.01 dBm	E.I.R.P :	-11.11 dBm
Emission Designator : F1D			
Model Name : InBirdie TEMPO		Test Location :	RF TEST ROOM
Serial No. : N/A		Temp / Humid.	25.8℃ / 47%
Type of Emission : BLE		Tested By :	Sang-Hyuk.Seo

No.	Test Items	Test ch	Test Frequency MHz	Test Result			Unit	Technical Regulations
				Voltage				
				DC 5.0 V				
1	Frequency Tolerance	0	2402.0	2402.017528			MHz	50 PPM or less
				7.297			PPM	
		19	2440.0	2440.018103			MHz	
				7.419			PPM	
		39	2480.0	2480.018001			MHz	
				7.258			PPM	
2	Occupied Bandwidth	0	2402.0	1.074			MHz	26MHz or less
		19	2440.0	1.074			MHz	
		39	2480.0	1.074			MHz	
3	Spurious Emission Intensity	0	2402 (1)	-61.10			dBm	(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 (2)	-32.70			dBm	
			2402 (3)	-67.78			dBm	
			2402 (4)	-48.86			dBm	
		19	2440 (1)	-63.98			dBm	
			2440 (2)	-67.83			dBm	
			2440 (3)	-67.73			dBm	
			2440 (4)	-49.42			dBm	
		39	2480 (1)	-63.05			dBm	
			2480 (2)	-66.81			dBm	
			2480 (3)	-48.33			dBm	
			2480 (4)	-51.63			dBm	
4	Antenna Power	0	2402.0	0.000024			W	0.01 W or less Error＋20%-80%
				-52.00			%	
		19	2440.0	0.000021			W	
				-58.00			%	
		39	2480.0	0.000016			W	
				-68.00			%	
5	Spread-spectrum Bandwidth	0	2402.0				kHz	500kHz or more
		19	2440.0				kHz	
		39	2480.0				kHz	
6	Secondary Radiated Emissions	0	2402 (1)	-75.67			dBm	(1) Below 1 GHz : -54dBm (2) 1 GHz or higher : -47dBm
			2402 (2)	-64.27			dBm	
		19	2440 (1)	-75.37			dBm	
			2440 (2)	-65.04			dBm	
		39	2480 (1)	-75.74			dBm	
			2480 (2)	-65.22			dBm	
7	Holding Time	0	2402.0				Sec	less than 0.4sec
		19	2440.0				Sec	
		39	2480.0				Sec	
8	Radio Interference Prevention Function	ID Code		MAC ADDRES : BF:4C:D7:A5:9G:11				Carrier sense is not required

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

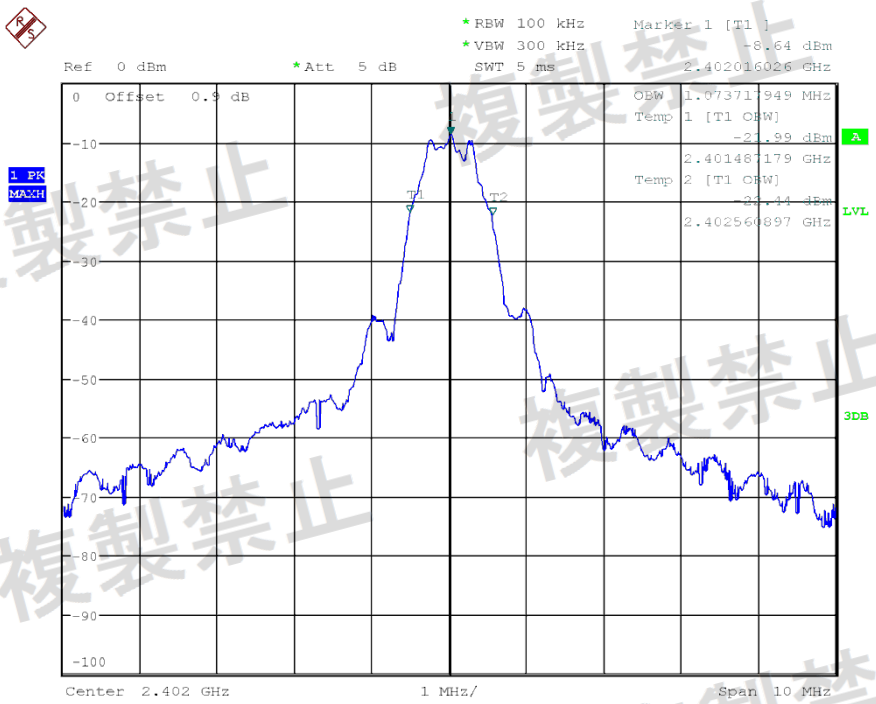
BLE Test Result

Frequency error	
LOW	
MID	

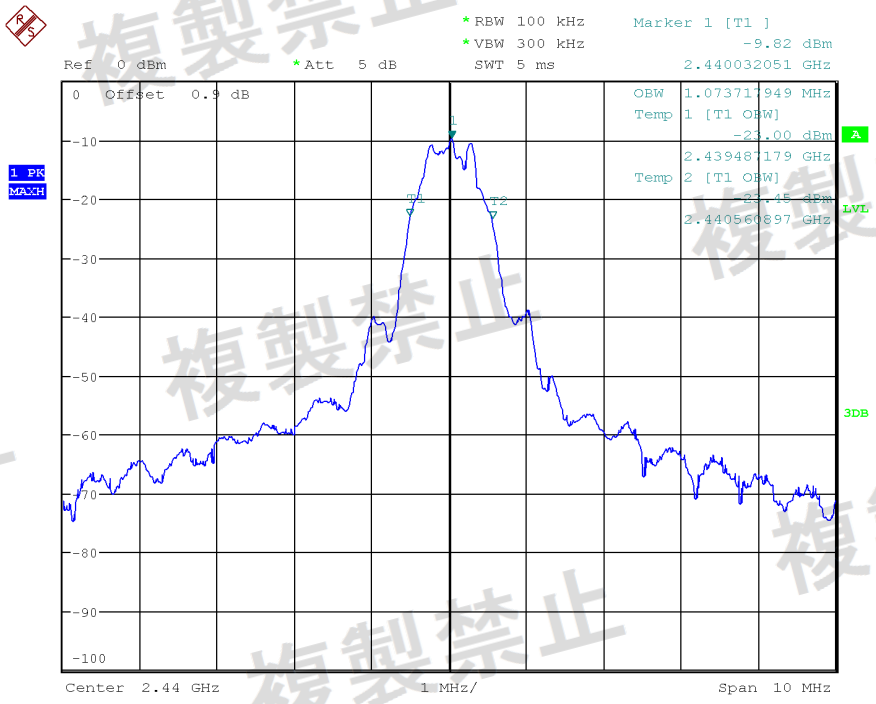
HIGH	 2480 018 001 GHz MHz kHz Hz PWR EIP MODEL 28B FREQUENCY COUNTER GAT B2 B3 FREQ ± OFFSET SAMPLE RATE 7 DOWN 8 HOLD 9 UP GHz DATA CLEAR FREQ . MULT CENTER FREQ LIMIT 4 FREQ 5 LOW 6 HIGH MHz dB DISPLAY RESET 0 LOCAL BAND RESOL SPECIAL 1 2 3 FUNC PWR METER ON/OFF OFFSET STBY ON POWER

Occupied Bandwidth

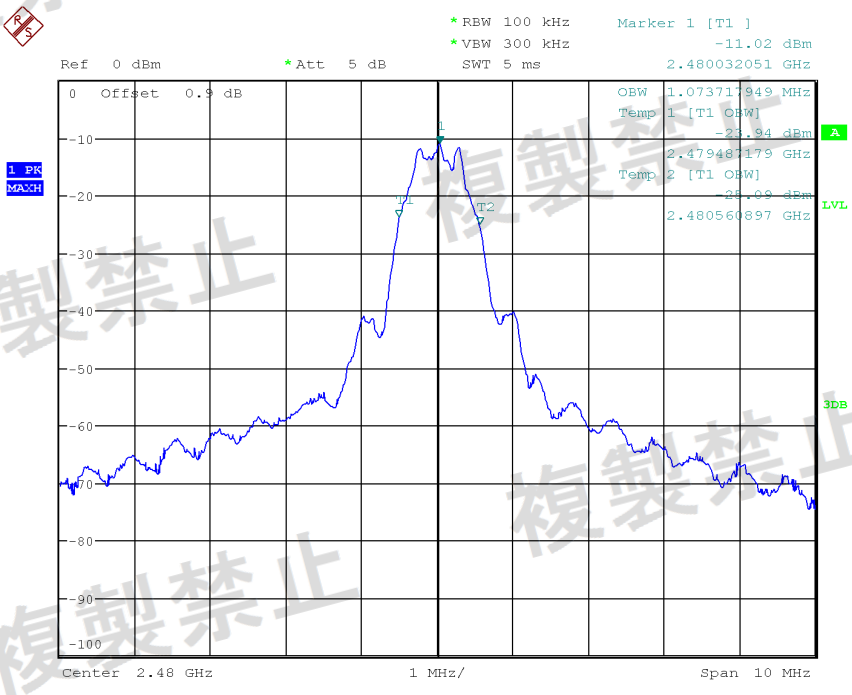
LOW



MID

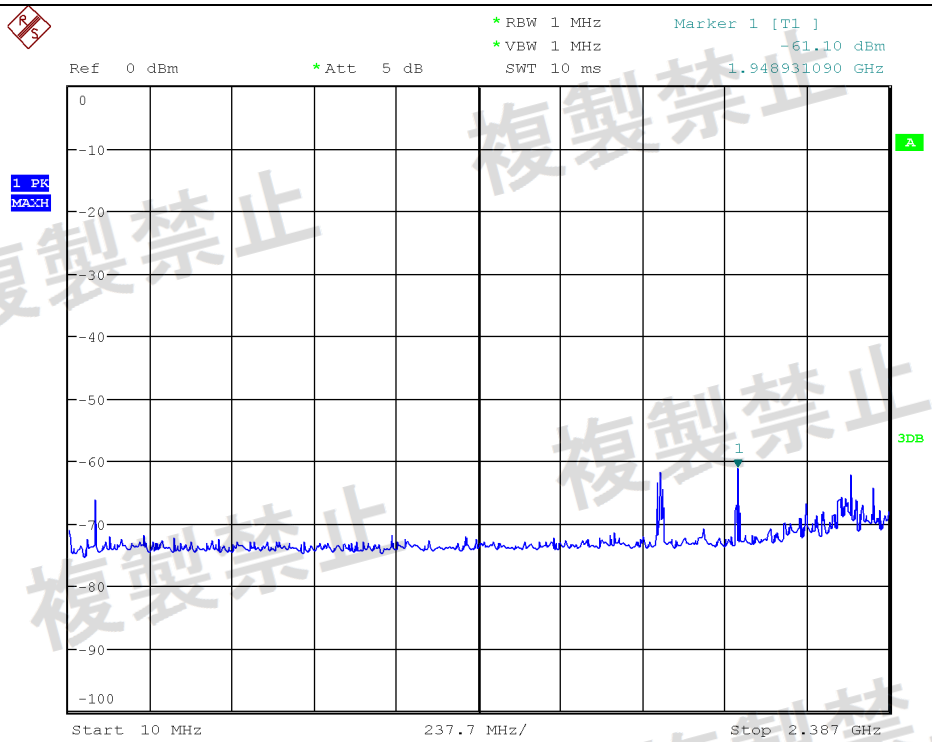


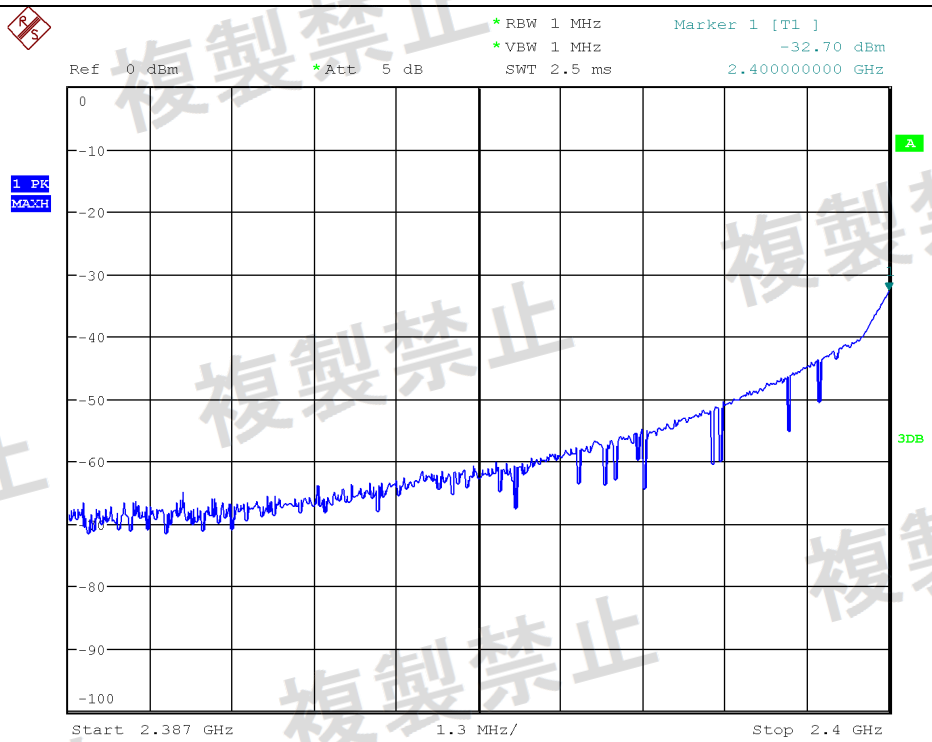
HIGH

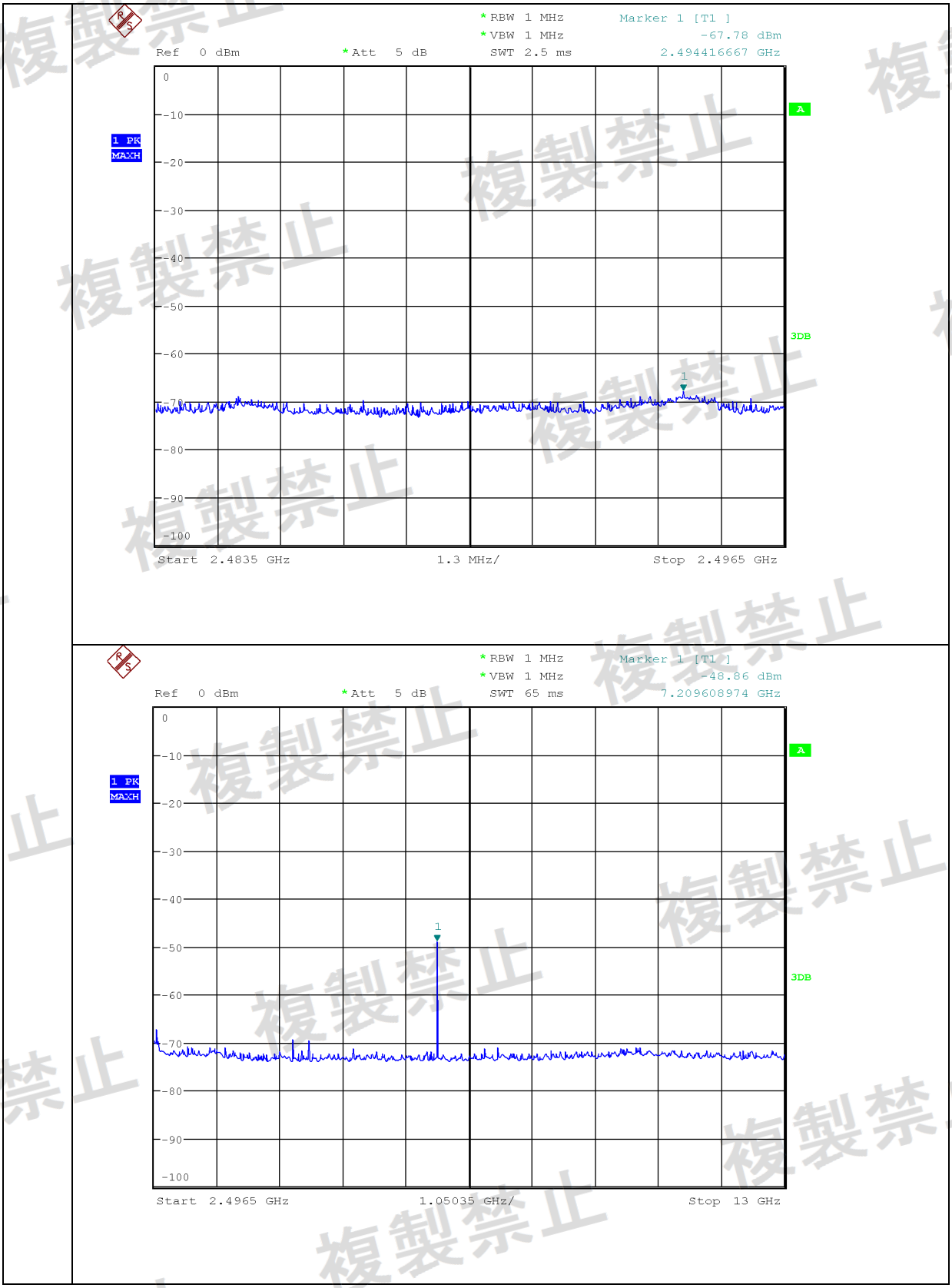

*RBW 100 kHz
*VBW 300 kHz
SWT 5 ms
Marker 1 [T1]
-11.02 dBm
2.480032051 GHz
Ref 0 dBm
*Att 5 dB
0 Offset 0.9 dB
OBW 1.073717949 MHz
Temp 1 [T1 OBW]
-23.94 dBm
2.479487179 GHz
Temp 2 [T1 OBW]
-25.09 dBm
2.480560897 GHz
1 PK
MAXH
A
LVL
3DB
T1
T2
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
Center 2.48 GHz
1 MHz/
Span 10 MHz

Spurious Emission Intensity

LOW

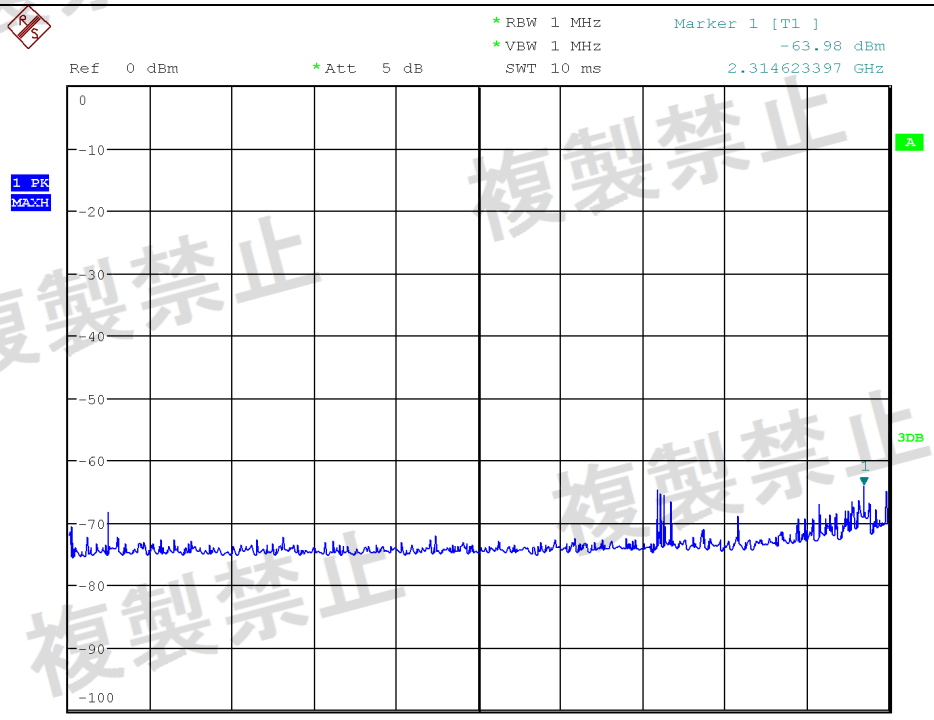


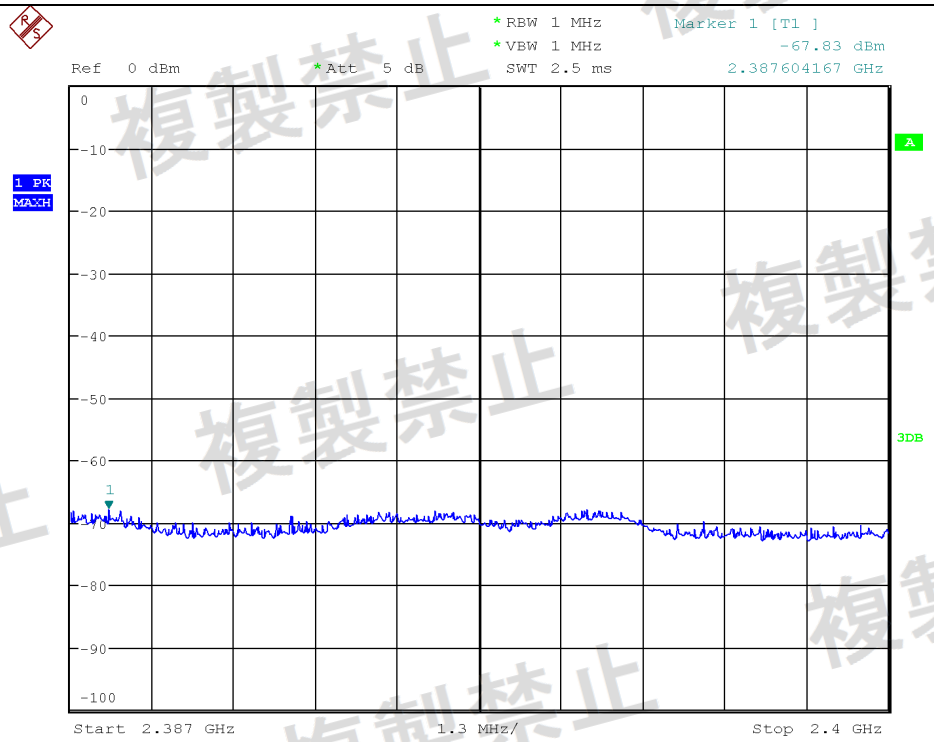


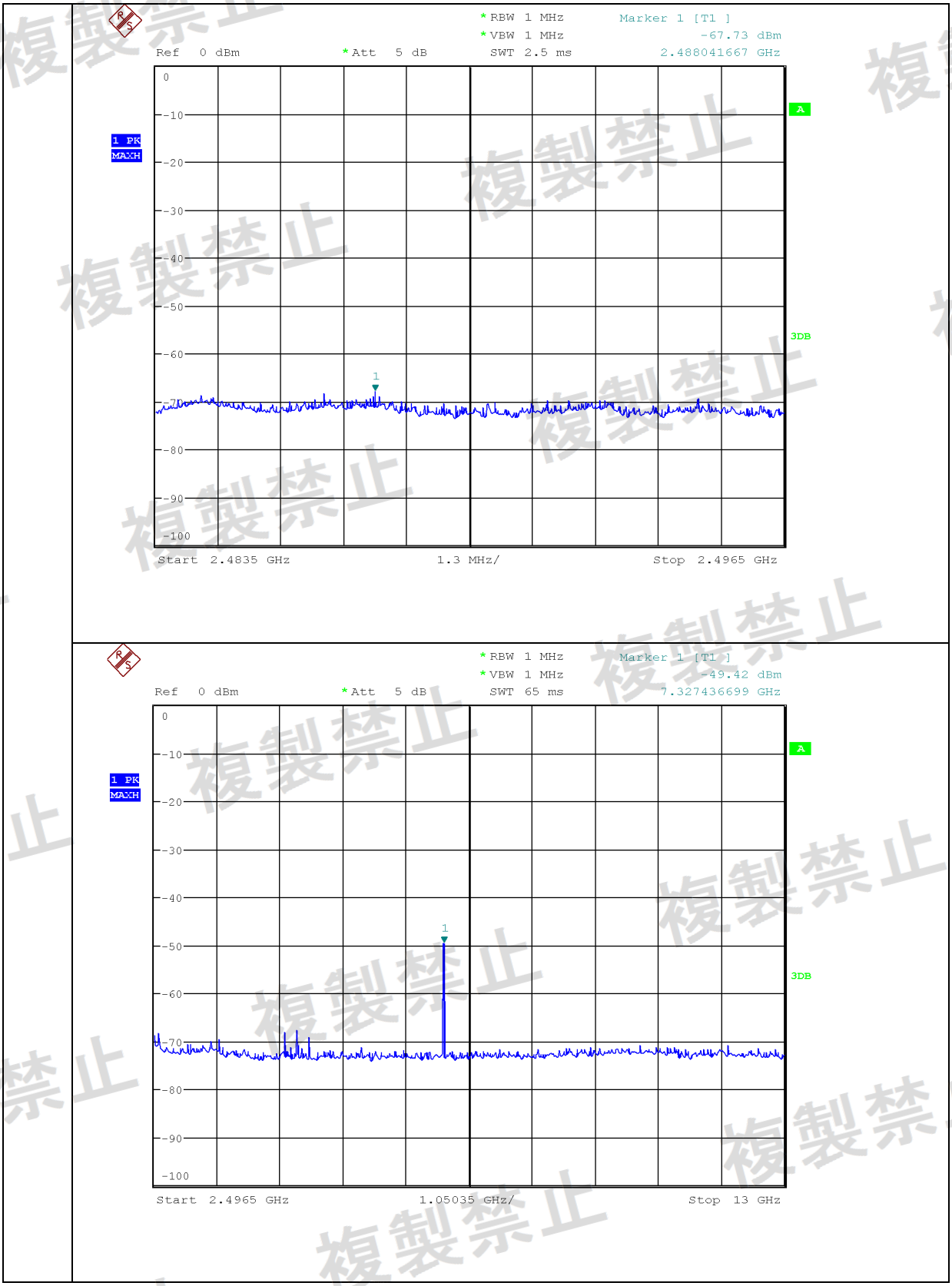

RBW 1 MHz
VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
-67.78 dBm
2.494416667 GHz
Ref 0 dBm
Att 5 dB
1 PK
MAXH
A
3DB
Start 2.4835 GHz
1.3 MHz/
Stop 2.4965 GHz
RBW 1 MHz
VBW 1 MHz
SWT 65 ms
Marker 1 [T1]
-48.86 dBm
7.209608974 GHz
Ref 0 dBm
Att 5 dB
1 PK
MAXH
A
3DB
Start 2.4965 GHz
1.05035 GHz/
Stop 13 GHz

Spurious Emission Intensity

MID

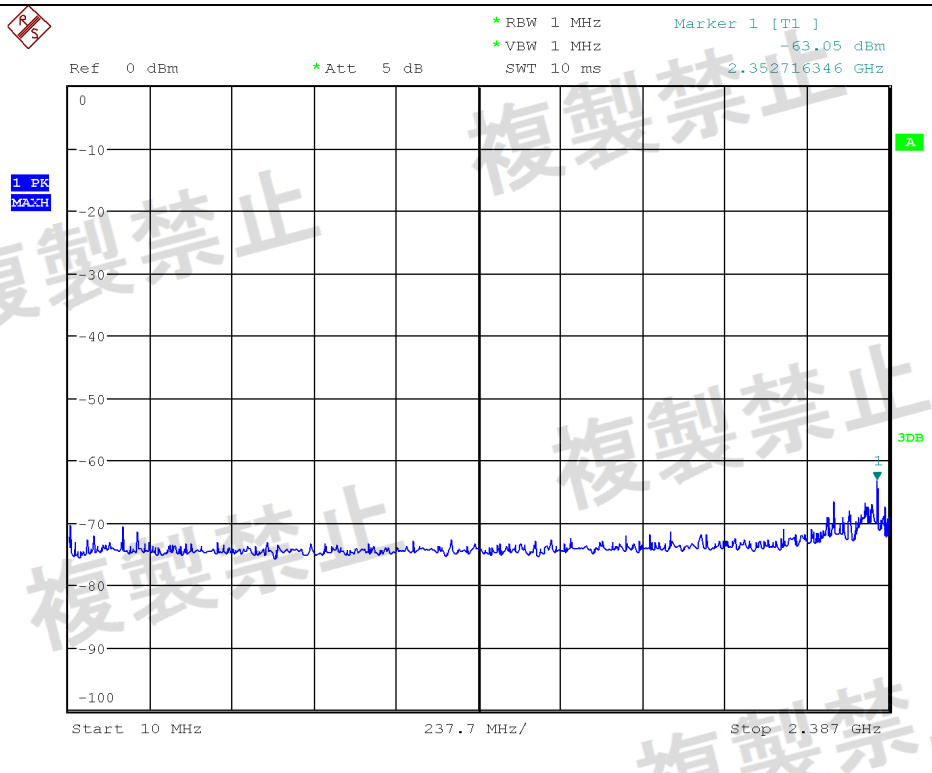


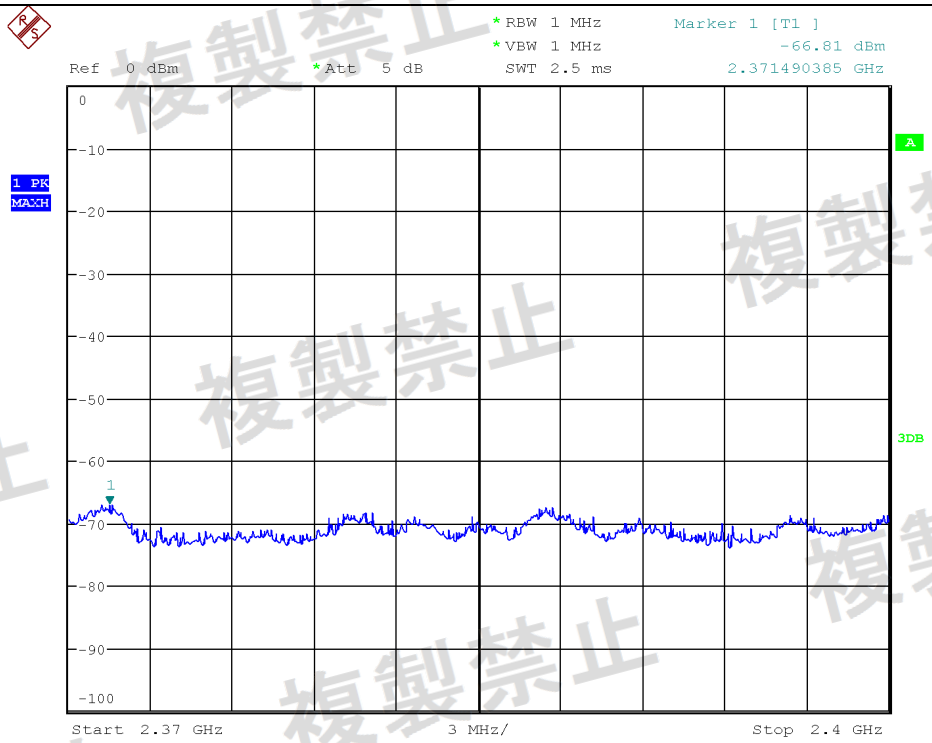


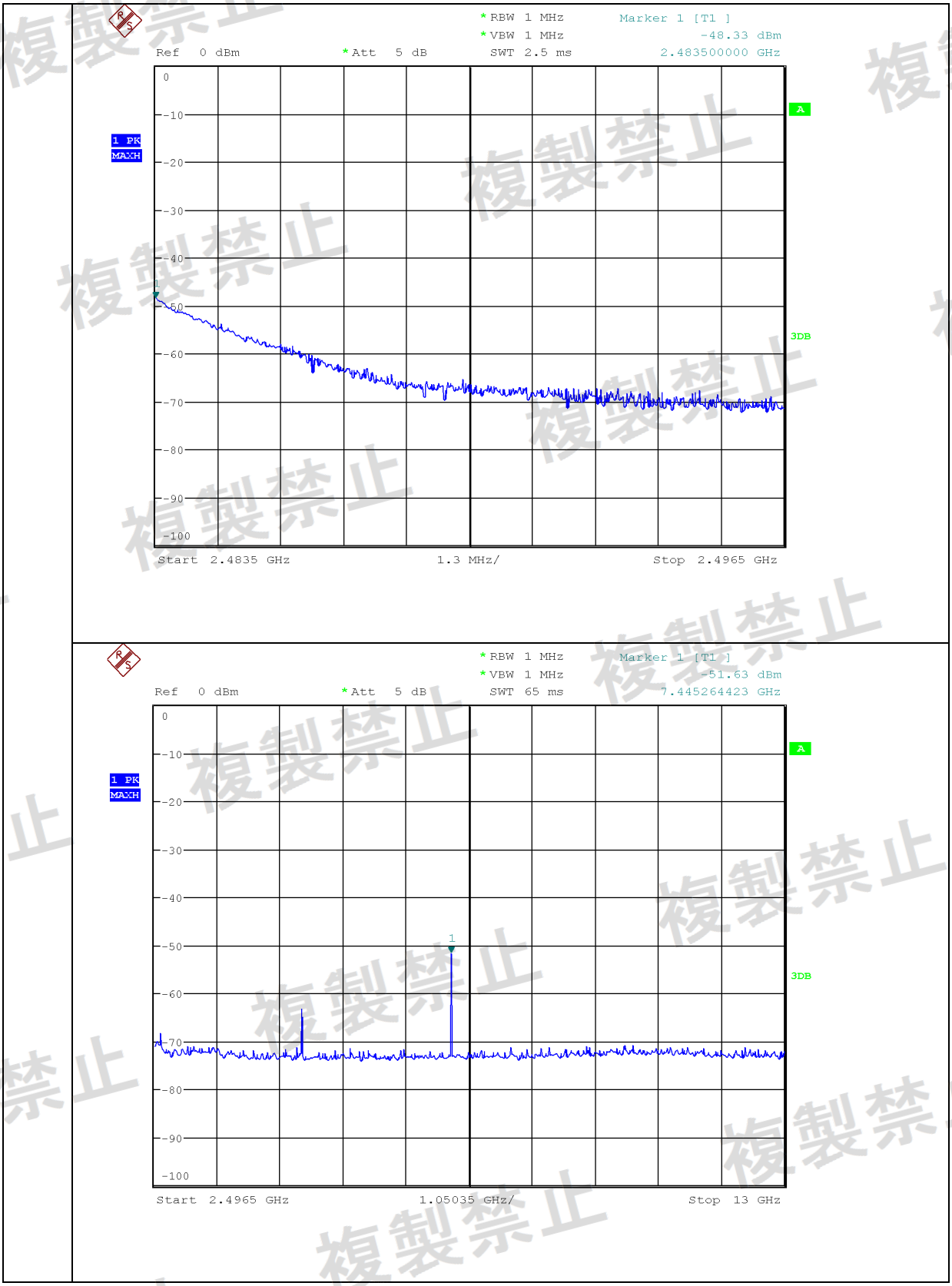

*RBW 1 MHz
*VBW 1 MHz
Ref 0 dBm
*Att 5 dB
SWT 2.5 ms
Marker 1 [T1]
-67.73 dBm
2.488041667 GHz
1 PK
MAXH
A
3DB
Start 2.4835 GHz
1.3 MHz/
Stop 2.4965 GHz
*RBW 1 MHz
*VBW 1 MHz
Ref 0 dBm
*Att 5 dB
SWT 65 ms
Marker 1 [T1]
-49.42 dBm
7.327436699 GHz
1 PK
MAXH
A
3DB
Start 2.4965 GHz
1.05035 GHz/
Stop 13 GHz

Spurious Emission Intensity

HIGH

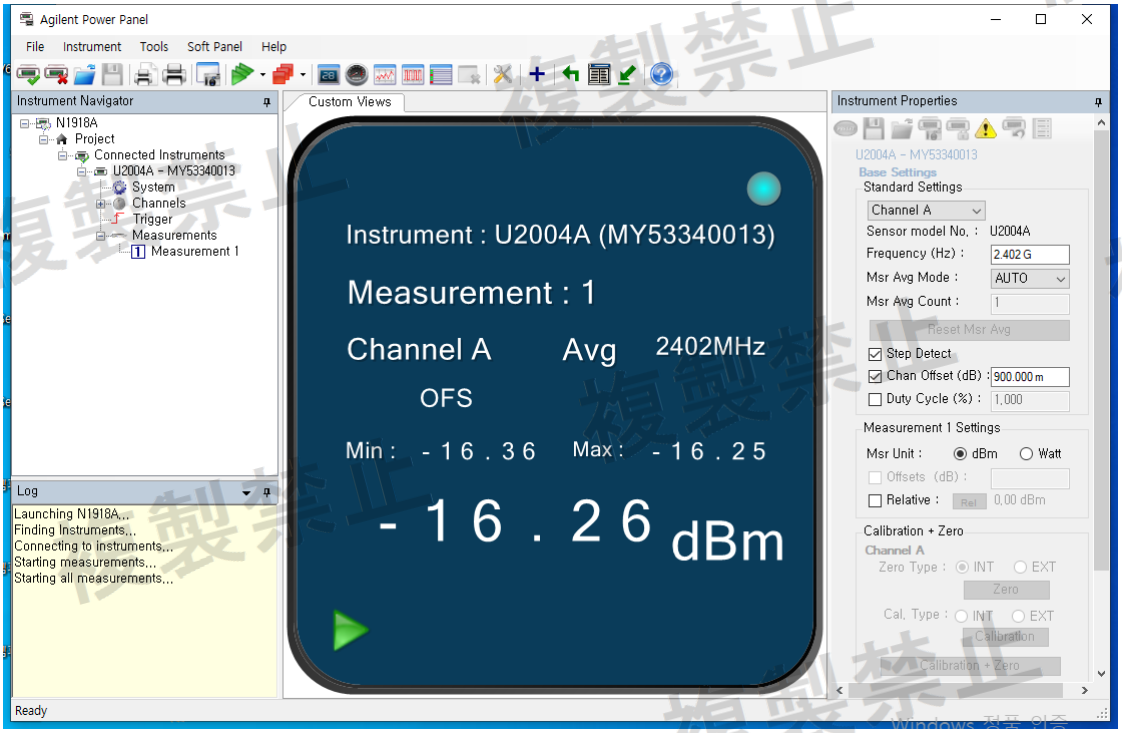




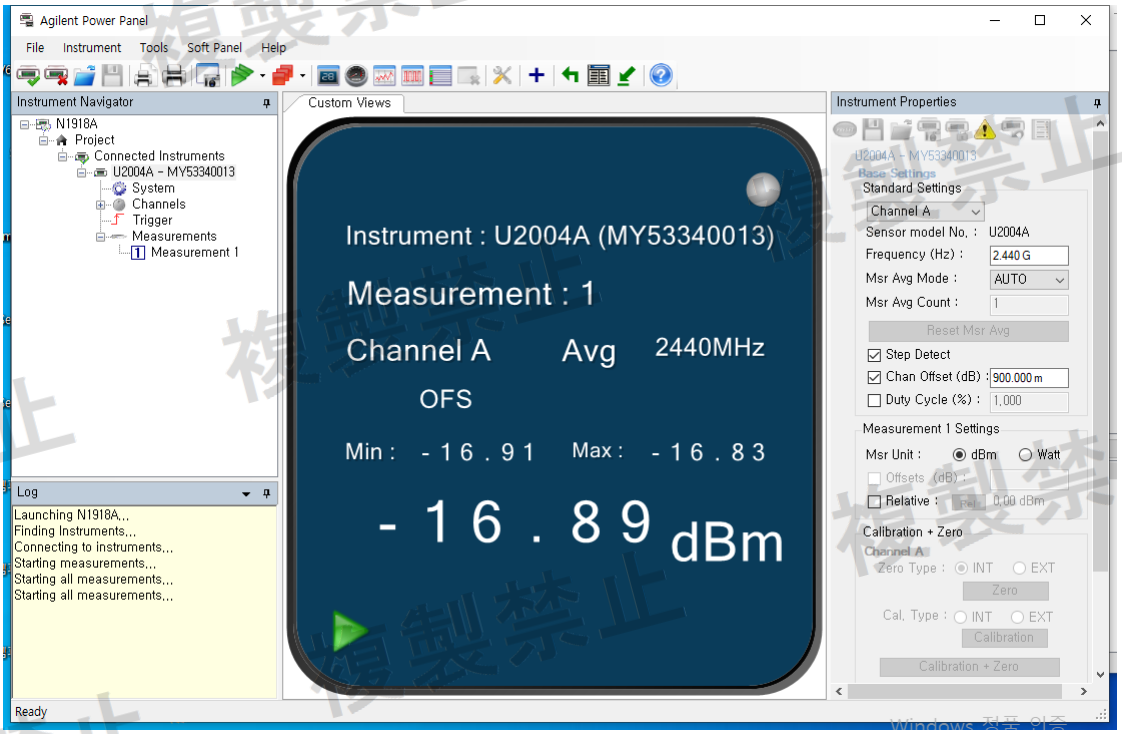

RBW 1 MHz
VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
-48.33 dBm
2.483500000 GHz
Ref 0 dBm
Att 5 dB
1 PK
MAXH
A
3DB
Start 2.4835 GHz
1.3 MHz/
Stop 2.4965 GHz
RBW 1 MHz
VBW 1 MHz
SWT 65 ms
Marker 1 [T1]
-51.63 dBm
7.445264423 GHz
Ref 0 dBm
Att 5 dB
1 PK
MAXH
A
3DB
Start 2.4965 GHz
1.05035 GHz/
Stop 13 GHz

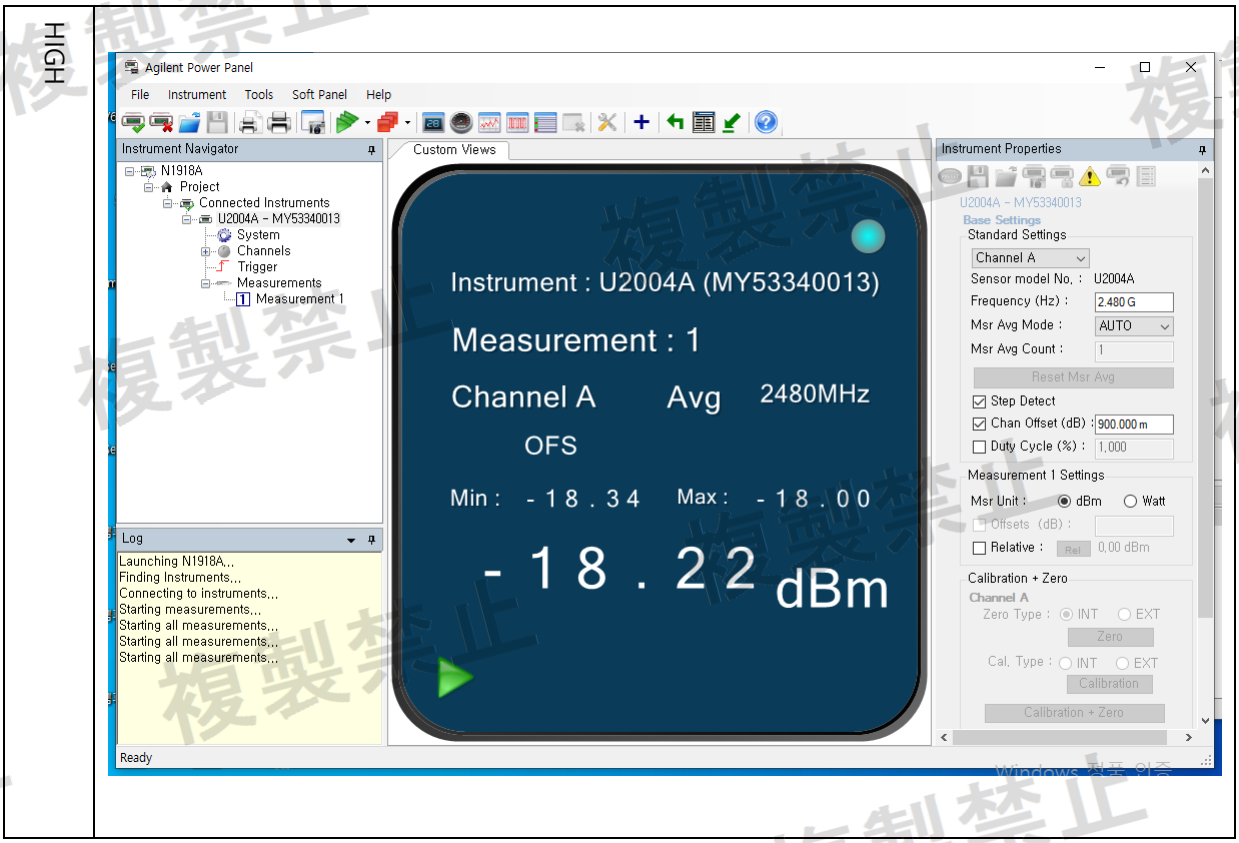
Antenna Power

LOW



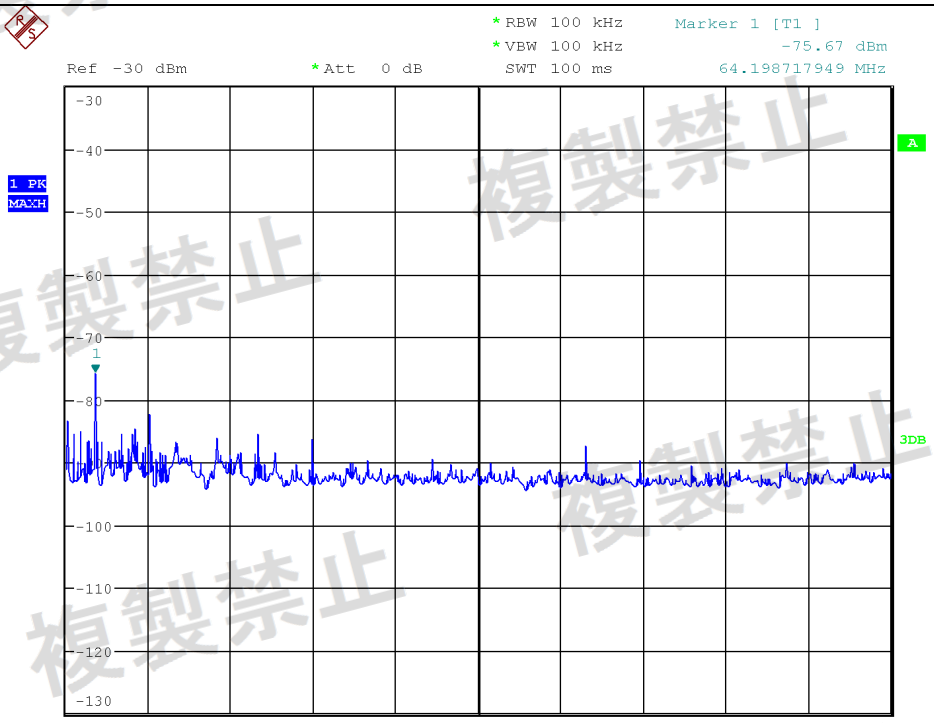
MID

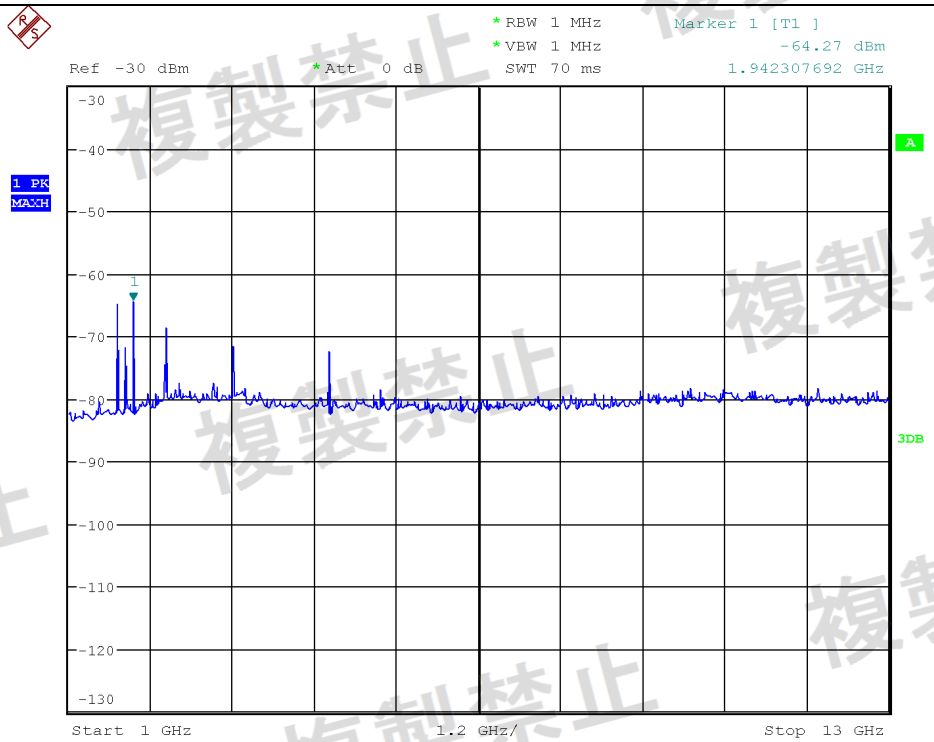



HIGH
Agilent Power Panel
File
Instrument
Tools
Soft Panel
Help
Instrument Navigator
N1918A
Project
Connected Instruments
U2004A - MY53340013
System
Channels
Trigger
Measurements
Measurement 1
Custom Views
Instrument : U2004A (MY53340013)
Measurement : 1
Channel A
Avg
2480MHz
OFS
Min : -18.34
Max : -18.00
-18.22 dBm
Instrument Properties
U2004A - MY53340013
Base Settings
Standard Settings
Channel A
Sensor model No. : U2004A
Frequency (Hz) : 2.480 G
Msr Avg Mode : AUTO
Msr Avg Count : 1
Reset Msr Avg
Step Detect
Chan Offset (dB) : 900.000 m
Duty Cycle (%) : 1.000
Measurement 1 Settings
Msr Unit : dBm Watt
Offsets (dB) :
Relative : Rel 0.00 dBm
Calibration + Zero
Channel A
Zero Type : INT EXT
Zero
Cal. Type : INT EXT
Calibration
Calibration + Zero
Log
Launching N1918A...
Finding Instruments...
Connecting to instruments...
Starting measurements...
Starting all measurements...
Starting all measurements...
Starting all measurements...
Ready

Secondary Radiated Emissions

LOW





Secondary Radiated Emissions

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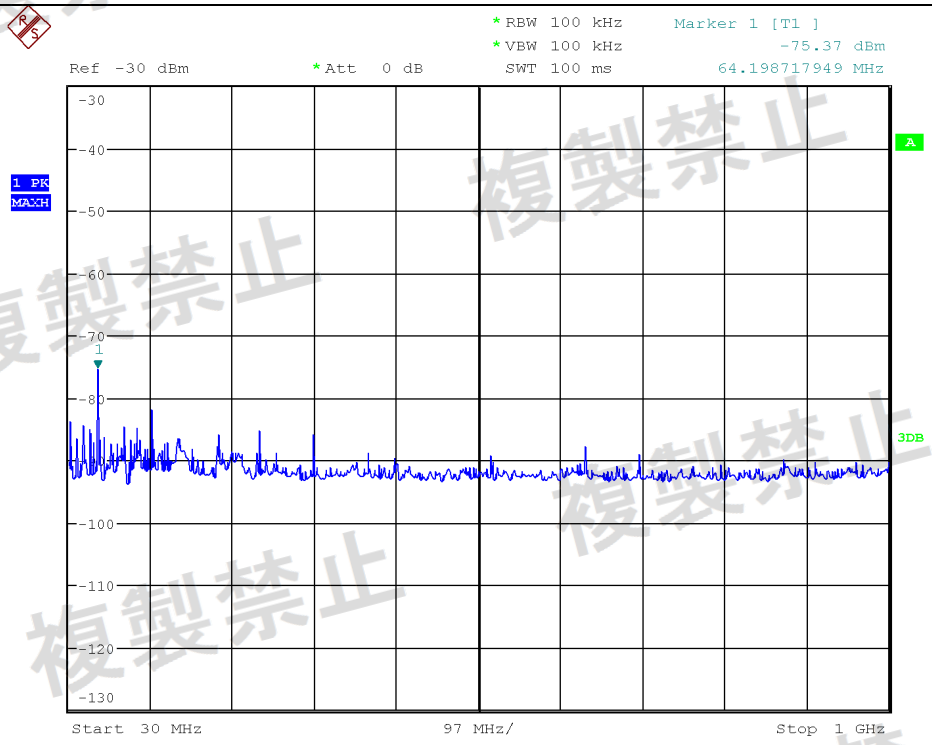

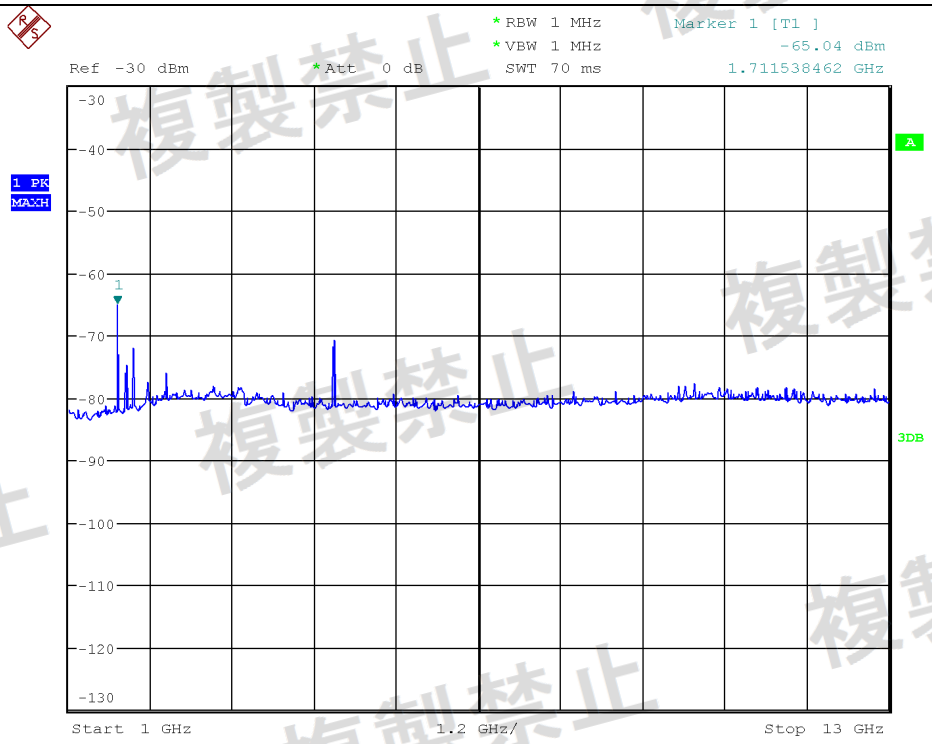

Secondary Radiated Emissions

HIGH