Report No.: DDT-R21060405-2E01

Issued Date: Aug. 06, 2021

ARIB STD-T66 TEST REPORT

FOR

Applicant	:	TCL Technoly Electronics (Huizhou) Co., Ltd
Address	:	Section 37, Zhongkai High-tech Development Zone, Huizhou City, Guangdong Province, China, 516006
Equipment under Test	:	HOME THEATER SYSTEM
Model No.	:	SIGNA S4 SOUND BAR
Trade Mark	:	Polk
Manufacturer	:	Sound United, LLC.
Address	:	5541 Fermi Court Carlsbad, CA 92008, USA

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, http://www.dgddt.com

REPORT

複製禁止

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Test Report Declare

Applicant	:	TCL Technoly Electronics (Huizhou) Co., Ltd
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Manufacturer	:	Sound United, LLC.
Address	:	5541 Fermi Court Carlsbad, CA 92008, USA

Test Standard Used: ARIB STD-T66 Version 3.7/2014-10, Second-Generation Low-Power Data Communication System/wireless LAN System, Article 2 paragraph 1 item (19).

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standard specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above ARIB standard.

Report No.:	DDT-R21060405-2E01		
Date of Receipt:	Jun. 08, 2021	**Date of Test:**	Jun. 08, 2021 ~ Jul. 07, 2021

Prepared By: ***Approved By:***

Sam Li

Sam Li/Engineer ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Aug. 06, 2021	

1. Summary of Test Results

CLAUSE (ARIB STD-T66)	TEST PARAMETER	RESULTS
3.2 (2)	Antenna Power	**Pass**
3.2 (3)	Tolerances for Antenna Power	**Pass**
3.2 (4)	Frequency Tolerance	**Pass**
3.2 (5)	Transmission Rate	**N/A**
3.2 (7)	Occupied Frequency Bandwidth	**Pass**
3.2 (8)	Spread Bandwidth	**Pass**
3.2 (9)	Spreading Factor	**Pass**
3.2 (10)	Number of Carriers	**N/A**
3.2 (11)	Dwell Time	**Pass**
3.2 (6)	Spurious Emissions	**Pass**
---	Carrier Sense	**N/A**
3.6	Process Gain	**N/A**
3.3 (1)	Secondary Radiated Emissions	**Pass**
N/A is an abbreviation for Not Applicable.		

2. General Test Information

2.1. Description of EUT

EUT* Name	:	HOME THEATER SYSTEM
Model Number	:	SIGNA S4 SOUND BAR
EUT Function Description	:	Please reference user manual of this device
Power Supply	:	AC 100-120V~ 50/60Hz 40W
Radio Specification	:	Bluetooth V5.0
Operation Frequency	:	2402 MHz - 2480 MHz
Modulation	:	GFSK, π/4-DQPSK, 8DPSK
Data Rate	:	1 Mbps, 2 Mbps, 3 Mbps
Antenna Gain	:	3.8 dBi
Serial Number	:	N/A

Note: EUT is the abbreviation of equipment under test.

Channel Information

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

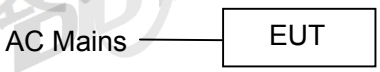
2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
Optical Cable	TCL	N/A	Length: 1.80m, unshielded
HDMI Cable	TCL	N/A	Length: 1.40m, unshielded
AC Cable	TCL	N/A	Length: 1.40m, unshielded

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.
Test software: BT FCC Tool V2.24

Tested mode, channel, information			
Mode	Setting Tx Power	Channel	Frequency (MHz)
GFSK hopping on Tx mode	4	CH0 to CH78	2402 to 2480
π/4-DQPSK hopping on Tx mode	4	CH0 to CH78	2402 to 2480
8DPSK hopping on Tx mode	4	CH0 to CH78	2402 to 2480
GFSK hopping off Tx mode	4	CH0	2402
	4	CH39	2441
	4	CH78	2480
π/4-DQPSK hopping off Tx mode	4	CH0	2402
	4	CH39	2441
	4	CH78	2480
8DPSK hopping off Tx mode	4	CH0	2402
	4	CH39	2441
	4	CH78	2480
Rx mode	/	CH0	2402
	/	CH39	2441
	/	CH78	2480

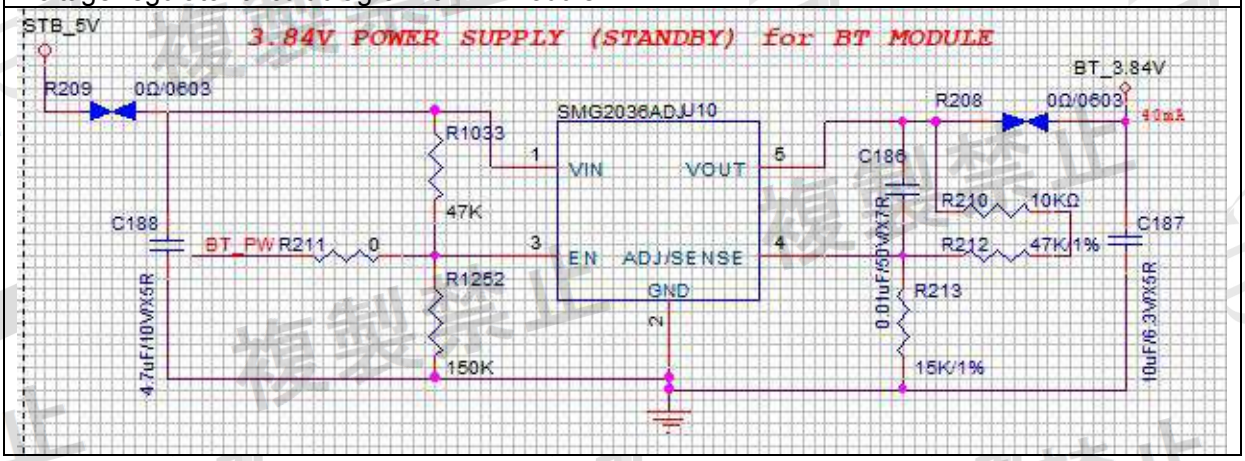
2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

/	Normal Conditions
Temperature range	23.8 ℃
Humidity range	46.0%
Pressure range	101.4 kPa
Power supply	AC 100V (When the input voltage to equipment fluctuated ±10%, the RF unit circuit voltage fluctuation under 1%, therefore all test performed on the rated voltage for equipment.)

The measurement result of the voltage fluctuation at RF circuit when AC 100V +/- 10%.	
Input voltage	RF module voltage
AC 110V	DC 3.84V
AC 100V	DC 3.84V
AC 90V	DC 3.84V

Voltage regulator circuit diagram of BT module



2.6. Deviations of test standard

No deviation.

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Occupied Channel Bandwidth	±1%
Uncertainty for radio frequency	1×10^{-9}
RF Output Power, Conducted	±0.6 dB
Power Spectral Density, Conducted	±1.2 dB
Unwanted Emissions, Conducted	±0.6 dB
Temperature	±0.2 ℃
Humidity	±1%
DC and Low frequency voltage	±0.5%
Time	±1%
Duty Cycle	±1%
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment Used During Test

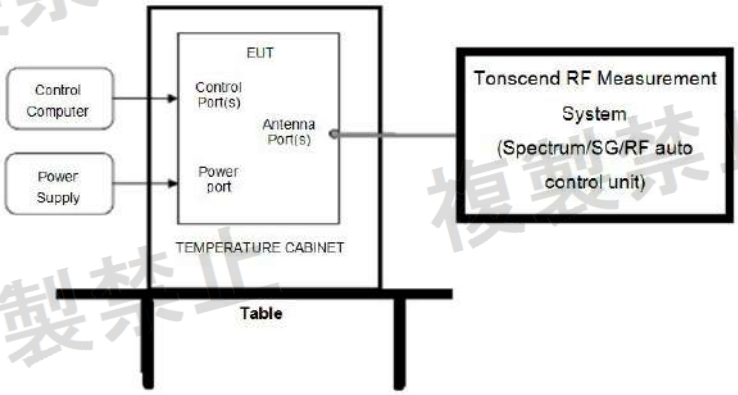
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Calibration body
RF Connected Test (Tonscend RF Measurement System)						
Spectrum analyzer	R&S	FSU26	200071	Sep. 25, 2020	1 Year	GRGT
RF Control Unit	Tonsend	JS0806-2	DDT-ZC0290	Jun. 01, 2021	1 Year	CCIC
DC Power Source	MESTEK	DP3010B	0025914	Apr. 17, 2021	1 Year	CCIC
MULTIMETER	FLUKE	179	11400838	Sep. 27, 2020	1 Year	GRGT
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A	N/A
Remark: Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).						

4. Antenna Power and Tolerances for Antenna Power

4.1. Limit

Limit	3 mW/MHz
Tolerance	+20%, -80%

4.2. Block diagram of test setup



4.3. Test procedure

(1) Connect each EUT's antenna output to power sensor by RF cable and attenuator.

(2) For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured.

Note: The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

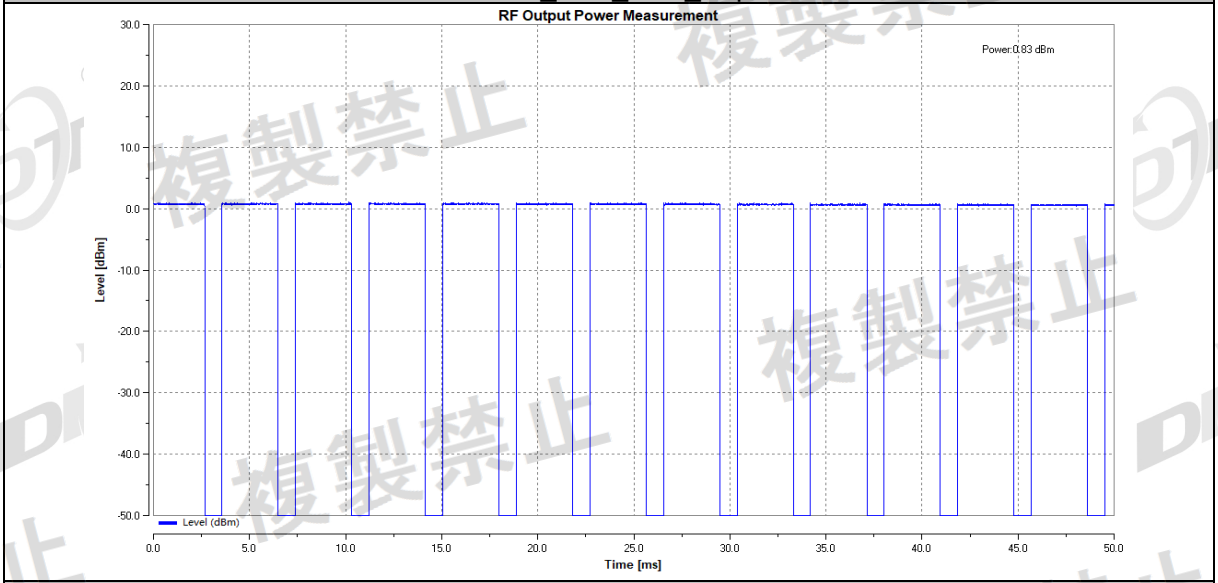
4.4. Test result

Antenna Power							
Mode	Ant	Measured		Burst Ratio	Spread Bandwidth	Result	Limit
		dBm	mW		MHz	mW/MHz	mW/MHz
GFSK Tx mode Hopping	Ant1	0.83	1.21	0.77	71.560	0.022	3
π/4-DQPSK Tx mode Hopping	Ant1	-0.55	0.88	0.77	71.810	0.016	3
8DPSK Tx mode Hopping	Ant1	-0.58	0.87	0.77	71.810	0.016	3
Note 1: Output Power Density (mW/MHz) = Total Output Power (mW) / Burst Ratio / Spread Bandwidth (MHz) Note 2: Burst Ratio = ON Time / (ON Time + OFF Time)							

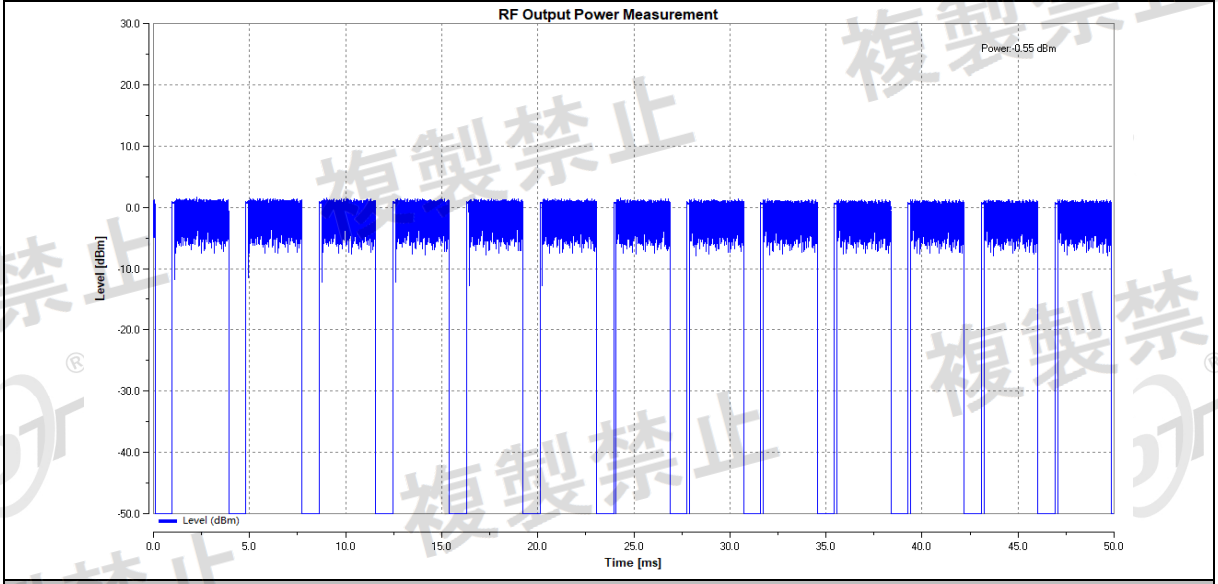
Mode	Ant	Stated power	Result	Tolerance	Limit
		mW/MHz	mW/MHz	%	%
GFSK Tx mode Hopping	Ant1	0.04	0.022	-45.00	+ 20%≥ and ≥ -80
π/4-DQPSK Tx mode Hopping	Ant1	0.03	0.016	-46.67	+ 20%≥ and ≥ -80
8DPSK Tx mode Hopping	Ant1	0.03	0.016	-46.67	+ 20%≥ and ≥ -80
Tolerances for Antenna Power Limit: + 20%≥ and ≥-80%					
Verdict：Pass					

4.5. Original test data

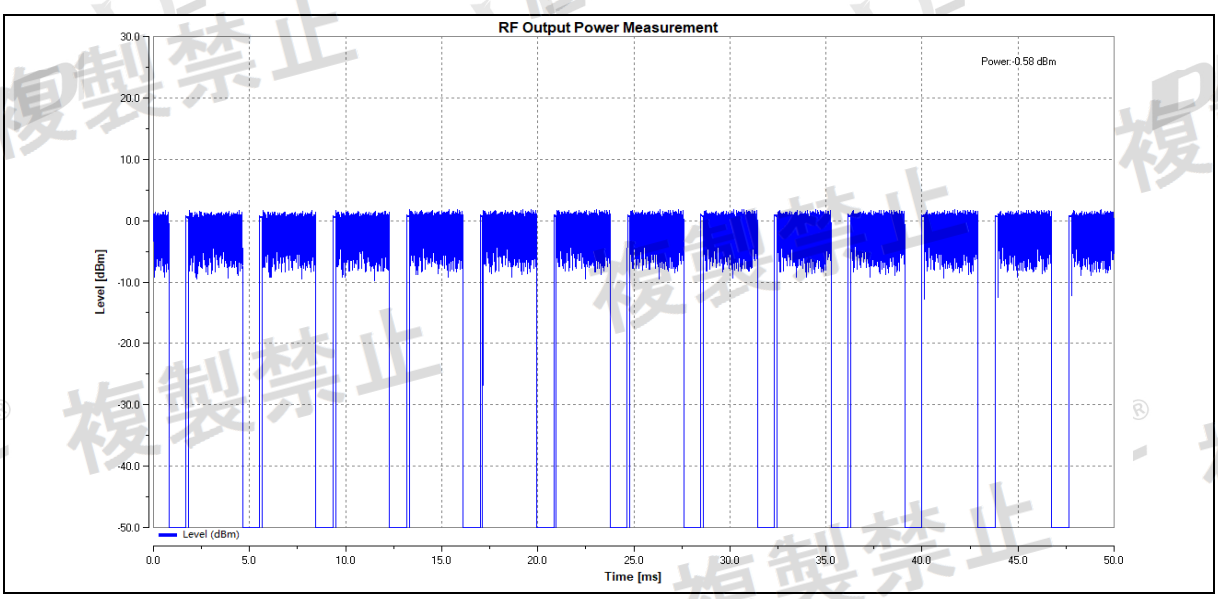
NTNV_DH5_Ant1_Hop



NTNV_2DH5_Ant1_Hop



NTNV_3DH5_Ant1_Hop

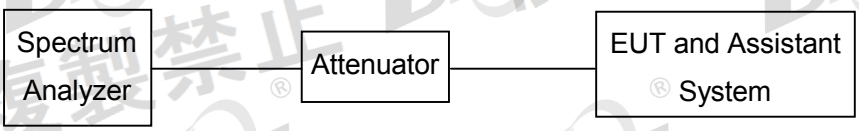

RF Output Power Measurement
Power: 0.58 dBm
Level [dBm]
Time [ms]
Level (dBm)
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0

5. Frequency Tolerance

5.1. Limit

+/- 50 x 10^{-6} or less (50 ppm)

5.2. Block diagram of test setup



5.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 10 kHz.

Video BW: 10 kHz.

Span: 1 MHz.

Detector: Peak.

Trace Mode: Max Hold.

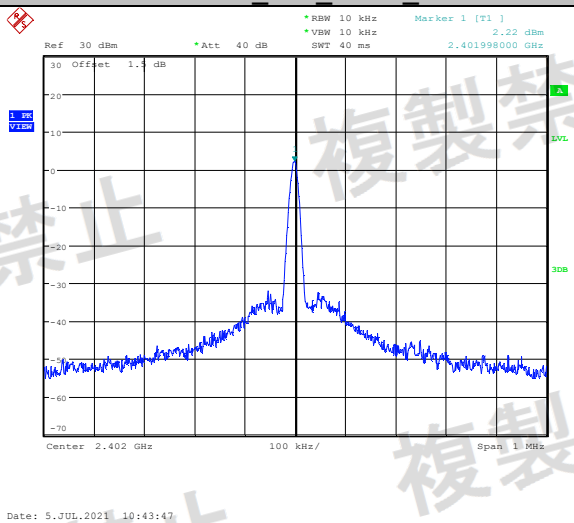
(2) When the trace is complete, find the peak value of the power envelope and record the frequency.

5.4. Test result

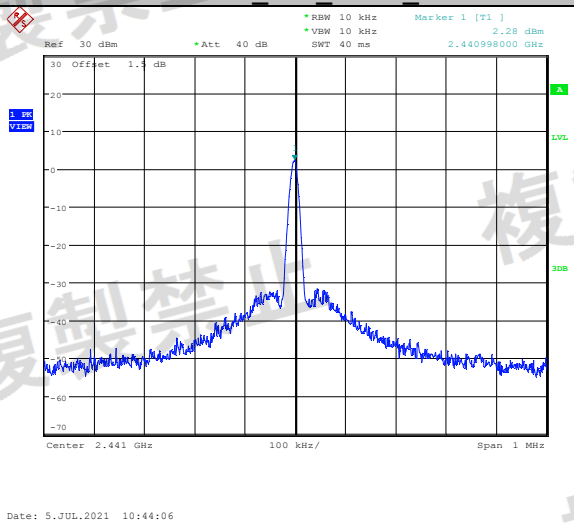
Mode	CH (MHz)	Result			Limit
		Measured (MHz)	Tolerance (kHz)	Tolerance (ppm)	(ppm)
Carrier Tx mode	CH0: 2402	2401.998	-2	-0.83	+/-50
	CH39: 2441	2440.998	-2	-0.82	+/-50
	CH78: 2480	2479.998	-2	-0.81	+/-50
Verdict：Pass					

5.5. Original test data

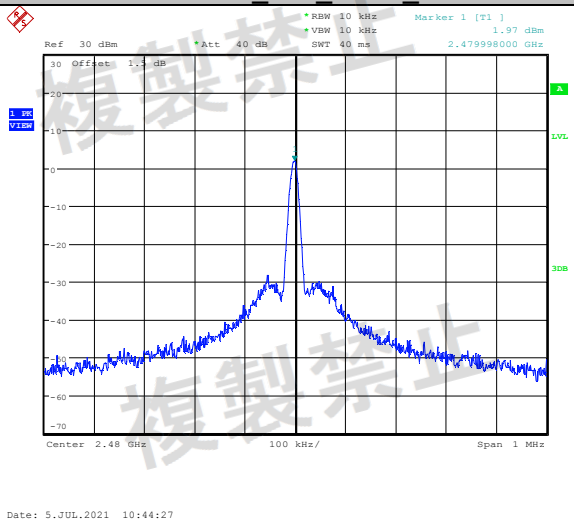
NTNV_CW_ANT1_2402



NTNV_CW_ANT1_2441



NTNV_CW_ANT1_2480

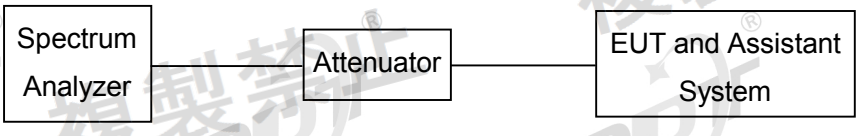


6. Occupied Frequency Bandwidth

6.1. Limit

Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a system other than any of the above shall be 26 MHz or less.

6.2. Block diagram of test setup



6.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.
Hopping off:
Resolution BW: 30 kHz
Video BW: 30 kHz
Hopping on:
Resolution BW: 1 MHz
Video BW: 1 MHz
Span: Wide enough to cover the complete power envelope of the signal of the EUT.
Detector: Peak.
Trace Mode: Max Hold.

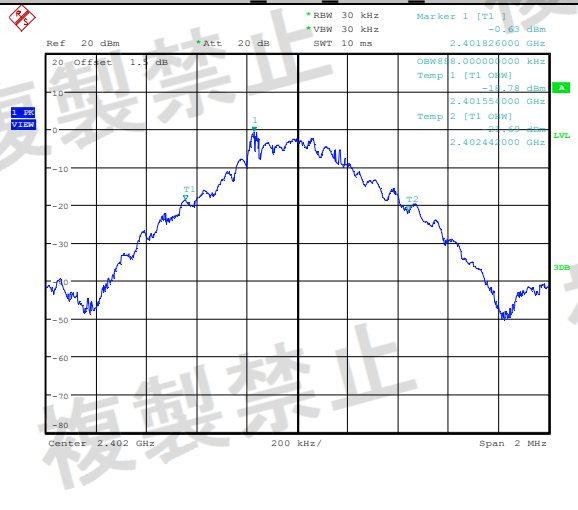
(2) When the trace is complete, measure the occupied bandwidth (99% bandwidth) with spectrum analyzer's bandwidth measure function.

6.4. Test result

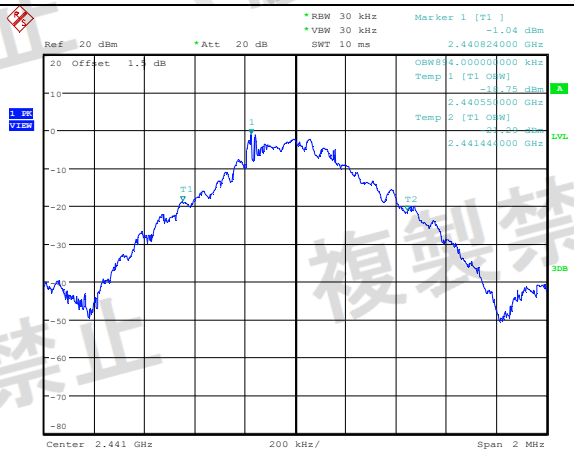
Mode	CH	Result (MHz)	Limit (MHz)
GFSK Tx mode Hopping off	CH0	0.888	83.5
	CH39	0.894	83.5
	CH78	0.896	83.5
π/4-DQPSK Tx mode Hopping off	CH0	1.182	83.5
	CH39	1.182	83.5
	CH78	1.182	83.5
8DPSK Tx mode Hopping off	CH0	1.176	83.5
	CH39	1.166	83.5
	CH78	1.170	83.5
GFSK Tx mode Hopping on	/	78.824	83.5
π/4-DQPSK Tx mode Hopping on	/	78.908	83.5
8DPSK Tx mode Hopping on	/	78.908	83.5
Verdict：Pass			

6.5. Original test data

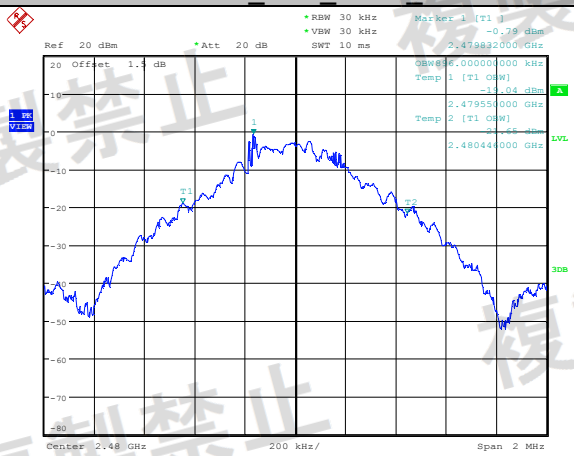
NTNV_DH5_ANT1_2402



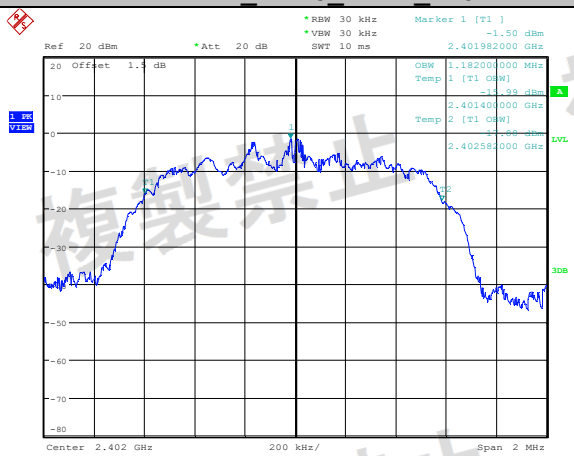
NTNV_DH5_ANT1_2441



NTNV_DH5_ANT1_2480



NTNV_2DH5_ANT1_2402



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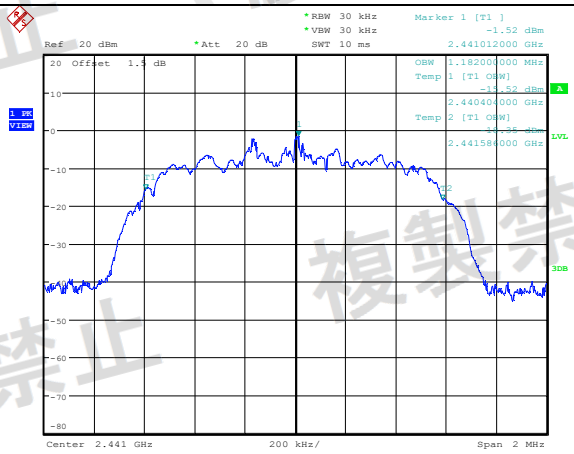
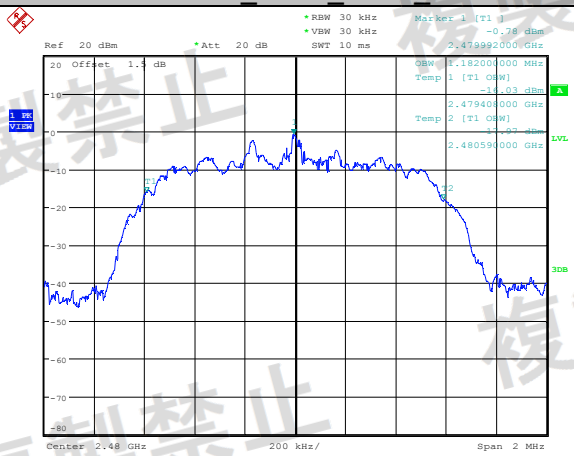
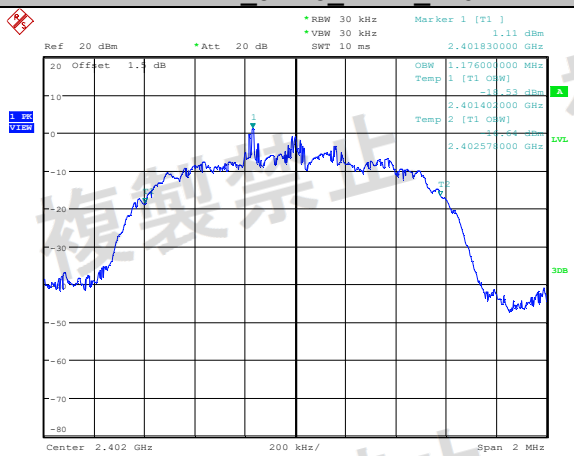


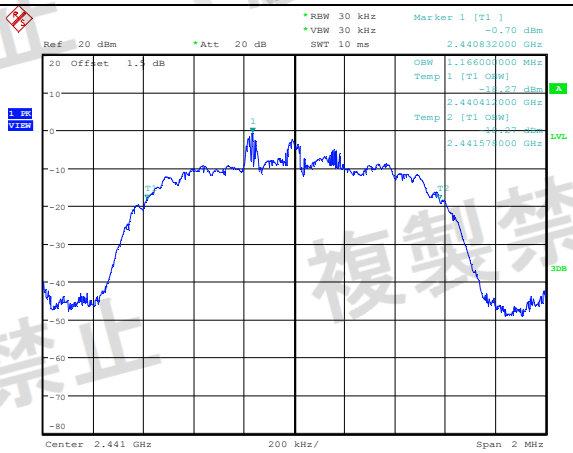
NTNV_2DH5_ANT1_2480



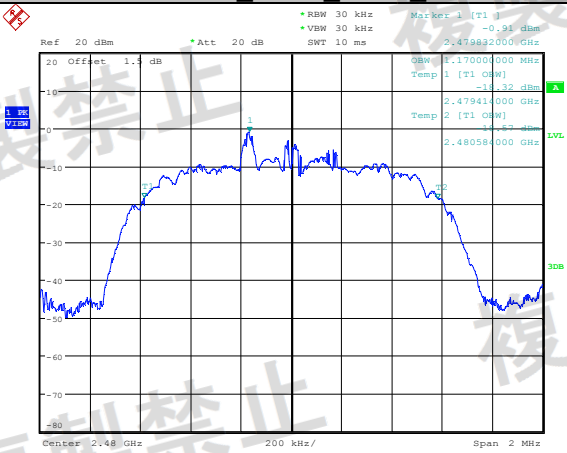
NTNV_3DH5_ANT1_2402



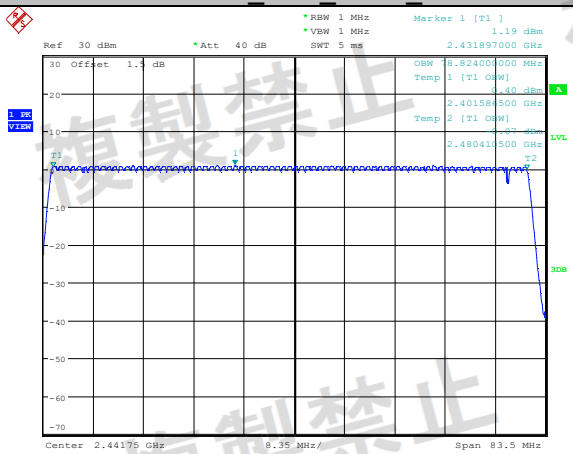
NTNV_3DH5_ANT1_2441



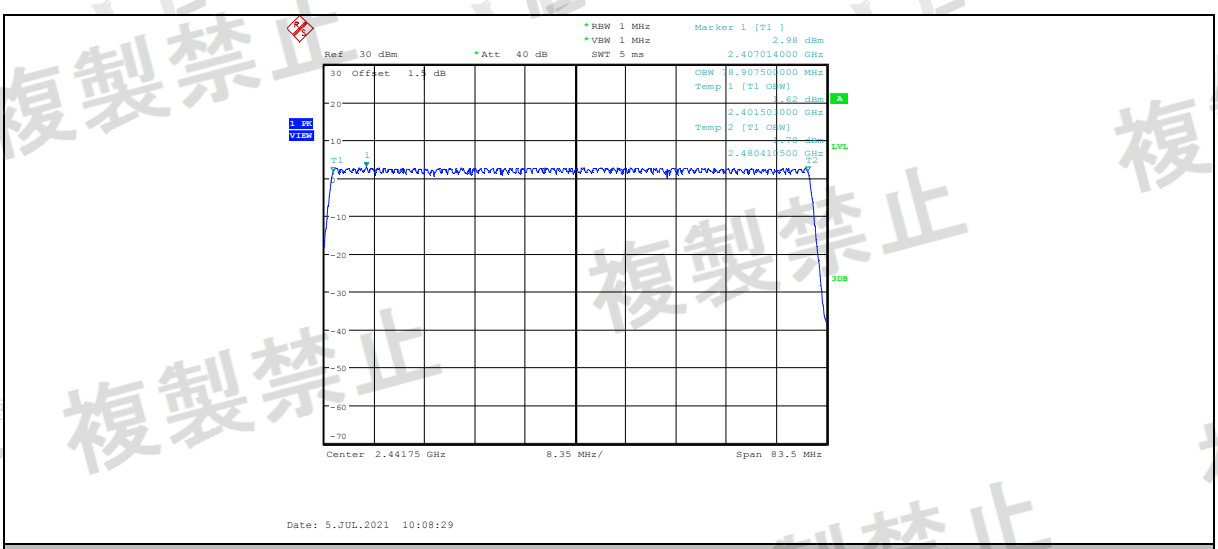
NTNV_3DH5_ANT1_2480



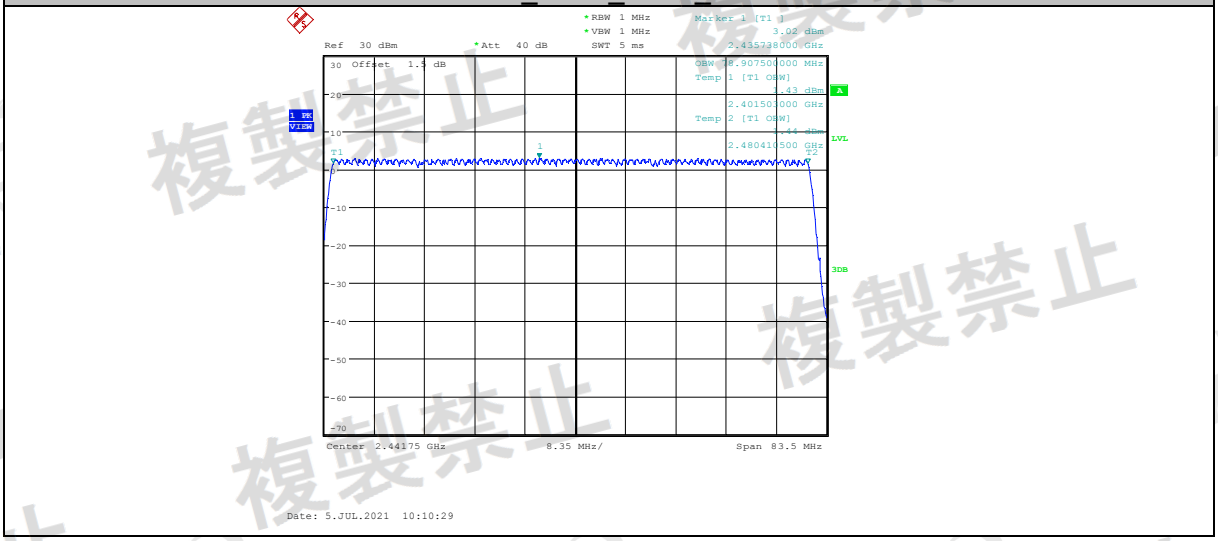
NTNV_DH5_ANT1_HOP



NTNV_2DH5_ANT1_HOP



NTNV_3DH5_ANT1_HOP

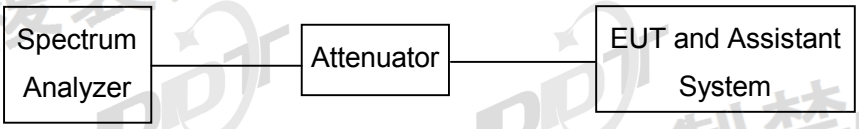


7. Spread Bandwidth

7.1. Limit

In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5 % of the total mean power radiated; this also applies hereafter) shall be 500 kHz or more.

7.2. Block diagram of test setup



7.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 1 MHz.

Video BW: 1 MHz.

Span: Wide enough to cover the complete power envelope of the signal of the EUT.

Detector: Peak.

Trace Mode: Max Hold.

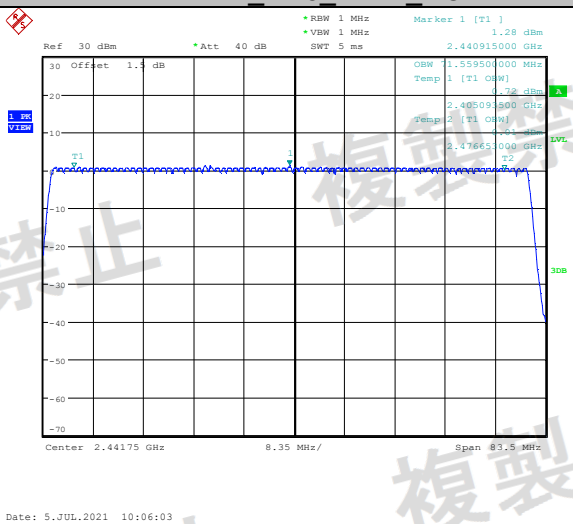
(2) When the trace is complete, measure the spread bandwidth (90% bandwidth) with spectrum analyzer's bandwidth measure function.

7.4. Test result

Mode	Condition	CH	Result (MHz)	Limit (kHz)	Spreading factor	Limit
GFSK Tx mode Hopping on	Normal	79 channels (2402~2480)	71.560	500	71.560	≥5
π/4-DQPSK Tx mode Hopping on	Normal	79 channels (2402~2480)	71.810	500	35.905	≥5
8DPSK Tx mode Hopping on	Normal	79 channels (2402~2480)	71.810	500	23.937	≥5
Verdict：Pass						
Note: Spreading factor =Spread bandwidth (actual measurement value)/Transmission rate.						

7.5. Original test data

NTNV_DH5_ANT1_HOP



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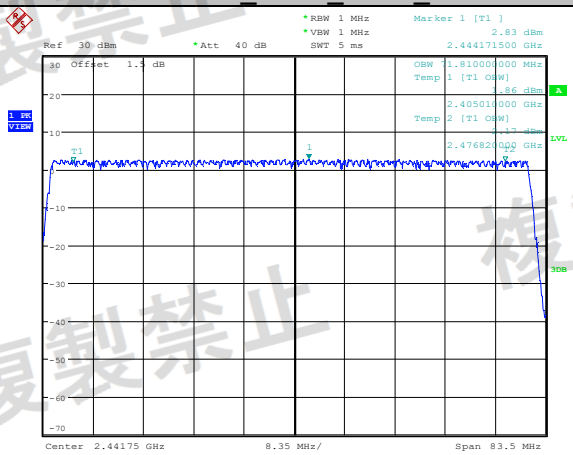
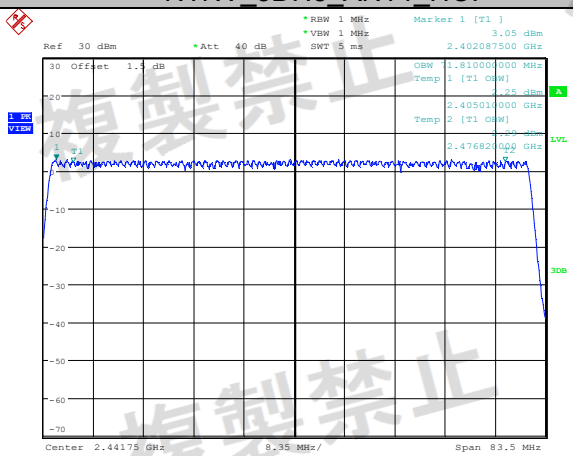
NTNV_2DH5_ANT1_HOP



Date: 5.JUL.2021 10:08:38

NTNV_3DH5_ANT1_HOP



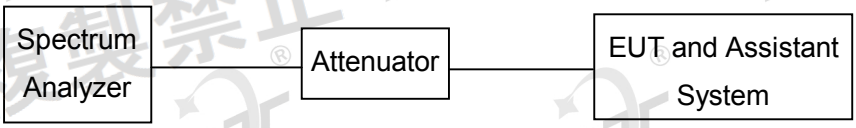
Date: 5.JUL.2021 10:10:42

8. Dwell Time

8.1. Limit

Frequency dwell time (time during which radio waves continue to be emitted at a specified frequency) of a transmitting equipment using the FHSS system shall be 0.4 seconds or less.

8.2. Block diagram of test setup



8.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 1 MHz.

Video BW: 1 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Max Hold.

Sweep: Video Trigger

(2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

(3) Calculate dwell time follow below formula:

Dwell time = (0.4(s) x spreading rate x sending time of 1 burst(s))/(burst cycle(s) x No. of hopping channel)

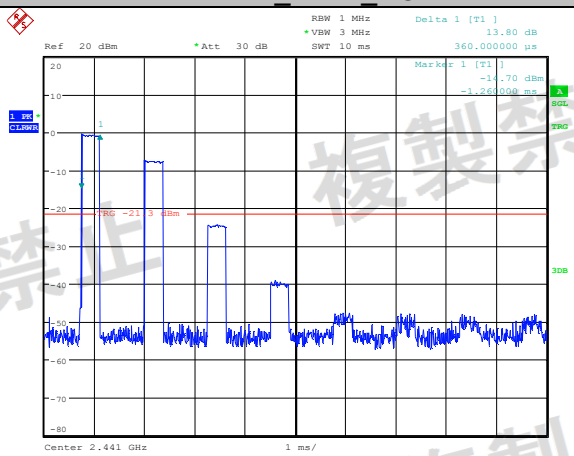
Spreading rate = Spread bandwidth (actual measurement value)/Transmission rate.

8.4. Test result

Test Mode	Antenna	Channel [MHz]	Burst Width [ms]	Total Hops	Result [s]	Limit [s]	Verdict
DH1	ANT1	HOP	0.36	320	0.115	0.4	Pass
DH3	ANT1	HOP	1.60	159	0.254	0.4	Pass
DH5	ANT1	HOP	2.86	107	0.306	0.4	Pass
2DH1	ANT1	HOP	0.36	319	0.115	0.4	Pass
2DH3	ANT1	HOP	1.62	160	0.259	0.4	Pass
2DH5	ANT1	HOP	2.88	107	0.308	0.4	Pass
3DH1	ANT1	HOP	0.37	319	0.118	0.4	Pass
3DH3	ANT1	HOP	1.62	159	0.258	0.4	Pass
3DH5	ANT1	HOP	2.87	106	0.304	0.4	Pass

8.5. Original test data

DH1_ANT1_HOP



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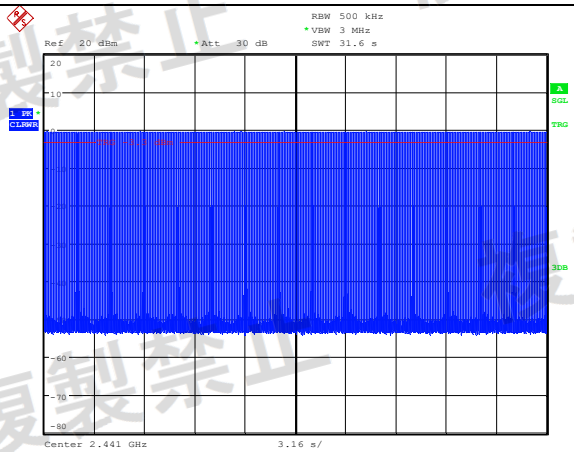

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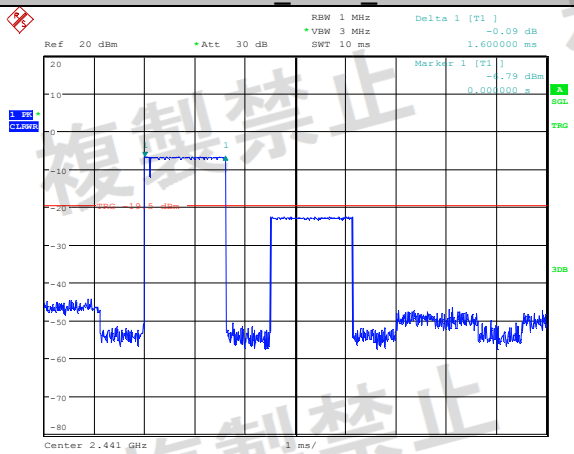
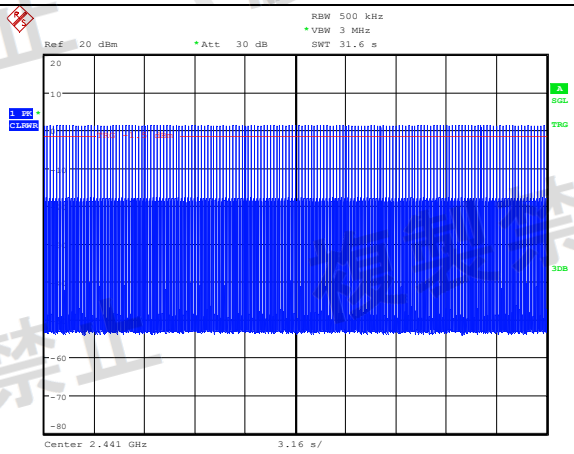
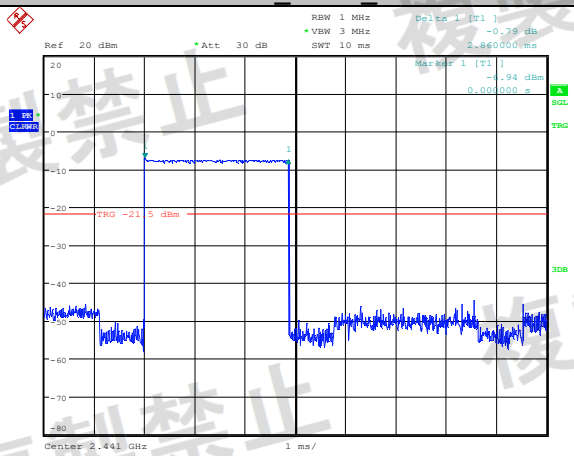
DH3_ANT1_HOP

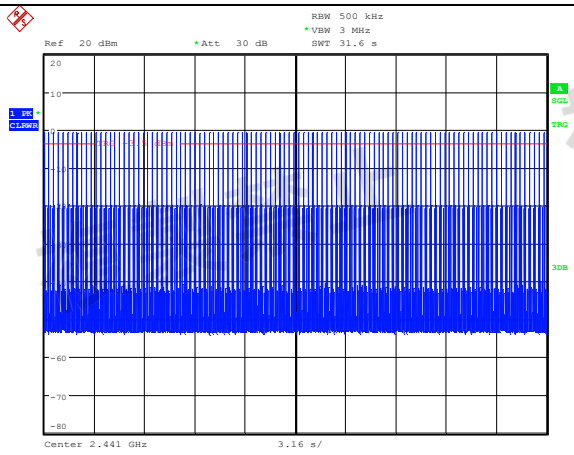


Date: 5.JUL.2021 10:25:46

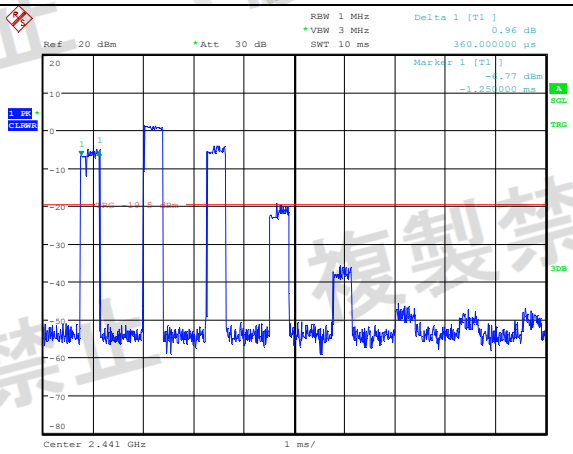


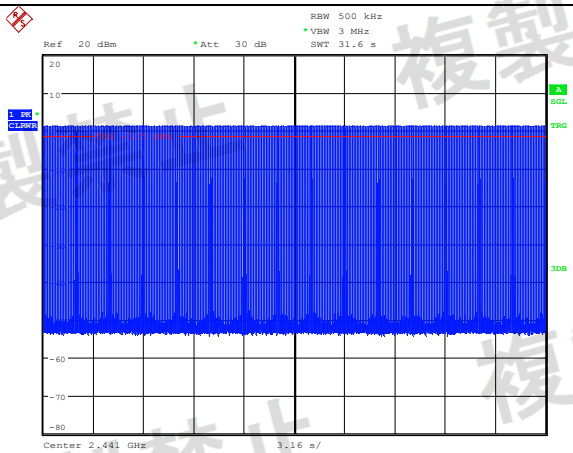
DH5_ANT1_HOP



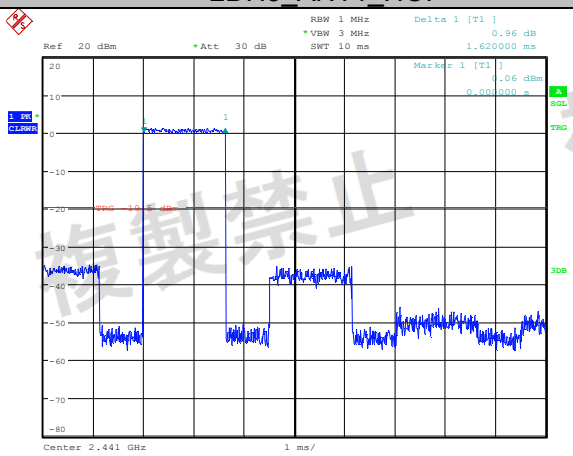


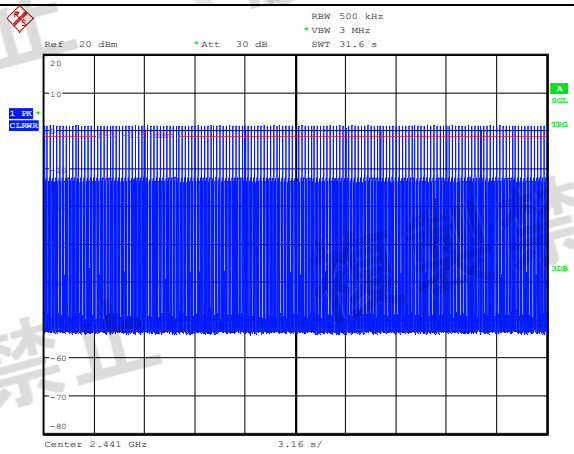
2DH1_ANT1_HOP





2DH3_ANT1_HOP





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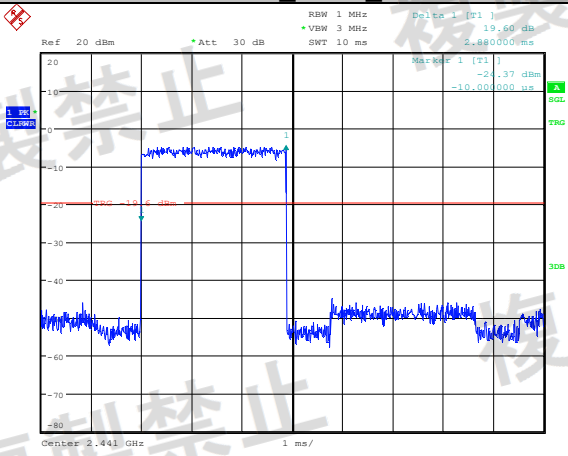
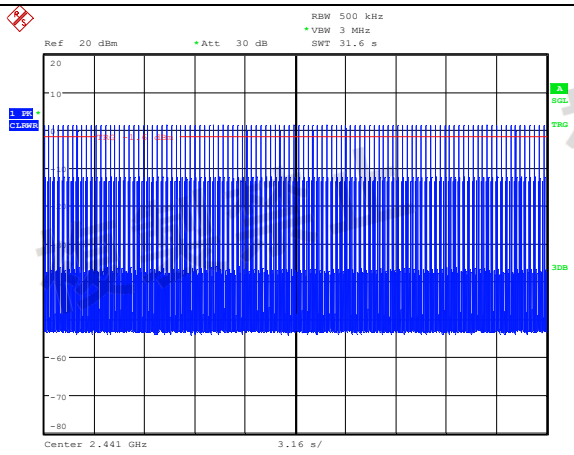
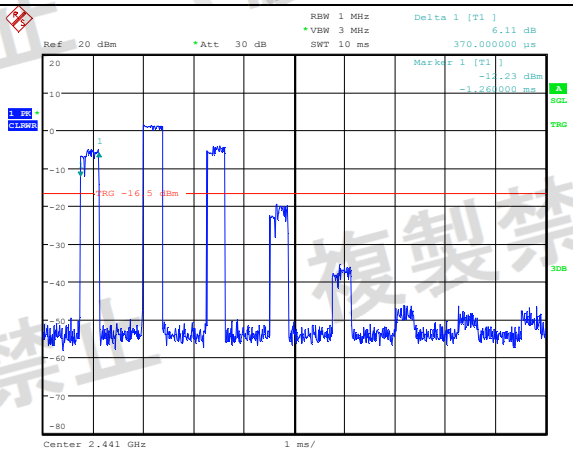
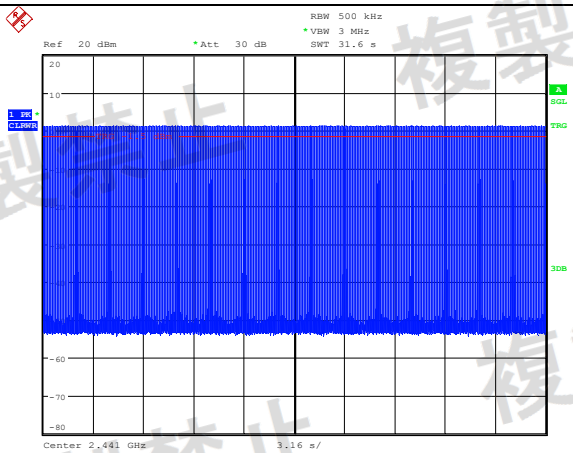


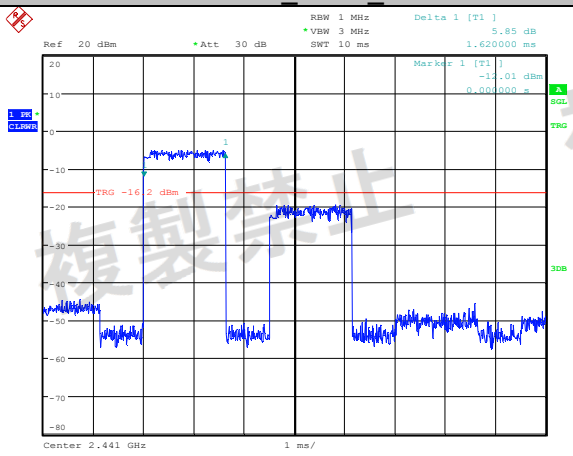


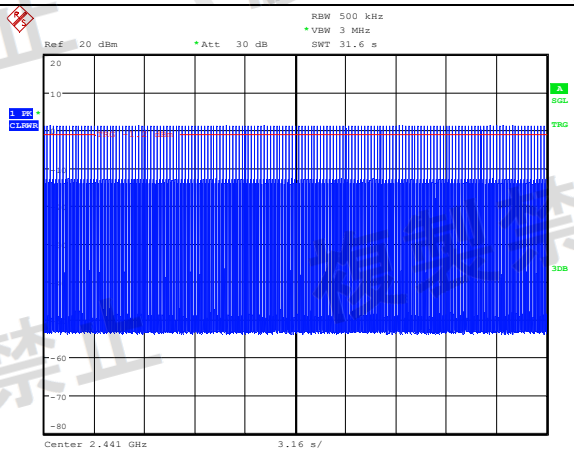
3DH1_ANT1_HOP





3DH3_ANT1_HOP





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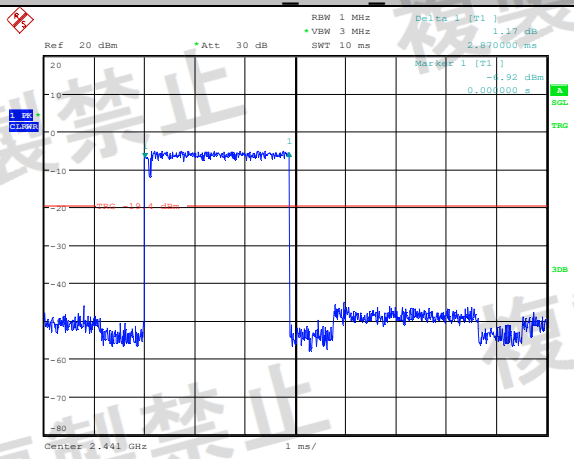
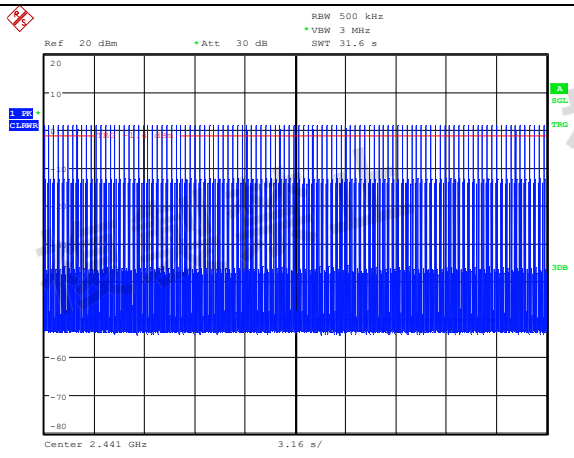




9. Transmitter Spurious Emissions (Conducted)

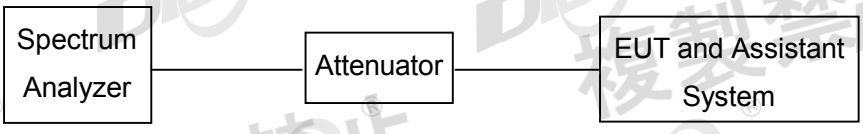
9.1. Limit

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

a. 2,387MHz ≤ f ≤ 2,400MHz and 2,483.5MHz < f ≤ 2,496.5MHz 25 μW or less

b. 2,387MHz > f and 2,496.5MHz < f 2.5 μW or less

9.2. Block diagram of test setup



9.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Resolution BW: 1 MHz. Video BW: 1 MHz. Detector: Peak. Trace Mode: Max Hold.

(2) All the emissions from 30 MHz to 13 GHz were measured and record.

9.4. Test result

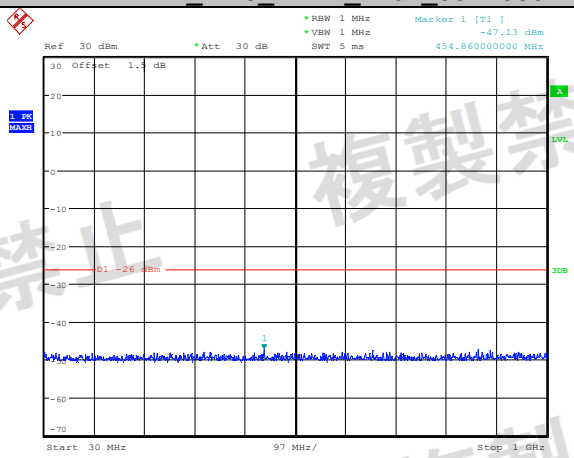
Test Condition	Test Mode	Antenna	Channel (MHz)	Freq. Range (MHz)	Result (dBm)	Limit (dBm)	Verdict
NTNV	DH5	ANT1	2402	30~1000	-47.13	-26	Pass
NTNV	DH5	ANT1	2402	1000~2387	-45.35	-26	Pass
NTNV	DH5	ANT1	2402	2387~2400	-42.25	-16	Pass
NTNV	DH5	ANT1	2402	2483.5~2496.5	-49.54	-16	Pass
NTNV	DH5	ANT1	2402	2496.5~13000	-50.60	-26	Pass
NTNV	DH5	ANT1	2441	30~1000	-46.68	-26	Pass
NTNV	DH5	ANT1	2441	1000~2387	-46.64	-26	Pass
NTNV	DH5	ANT1	2441	2387~2400	-50.17	-16	Pass
NTNV	DH5	ANT1	2441	2483.5~2496.5	-48.89	-16	Pass
NTNV	DH5	ANT1	2441	2496.5~13000	-51.32	-26	Pass
NTNV	DH5	ANT1	2480	30~1000	-47.33	-26	Pass
NTNV	DH5	ANT1	2480	1000~2387	-47.21	-26	Pass
NTNV	DH5	ANT1	2480	2387~2400	-48.74	-16	Pass
NTNV	DH5	ANT1	2480	2483.5~2496.5	-41.73	-16	Pass
NTNV	DH5	ANT1	2480	2496.5~13000	-51.60	-26	Pass
NTNV	2DH5	ANT1	2402	30~1000	-47.19	-26	Pass

NTNV	2DH5	ANT1	2402	1000~2387	-47.62	-26	Pass
NTNV	2DH5	ANT1	2402	2387~2400	-40.24	-16	Pass
NTNV	2DH5	ANT1	2402	2483.5~2496.5	-50.08	-16	Pass
NTNV	2DH5	ANT1	2402	2496.5~13000	-50.42	-26	Pass
NTNV	2DH5	ANT1	2441	30~1000	-46.91	-26	Pass
NTNV	2DH5	ANT1	2441	1000~2387	-45.14	-26	Pass
NTNV	2DH5	ANT1	2441	2387~2400	-50.03	-16	Pass
NTNV	2DH5	ANT1	2441	2483.5~2496.5	-49.03	-16	Pass
NTNV	2DH5	ANT1	2441	2496.5~13000	-50.40	-26	Pass
NTNV	2DH5	ANT1	2480	30~1000	-47.43	-26	Pass
NTNV	2DH5	ANT1	2480	1000~2387	-48.25	-26	Pass
NTNV	2DH5	ANT1	2480	2387~2400	-50.01	-16	Pass
NTNV	2DH5	ANT1	2480	2483.5~2496.5	-42.88	-16	Pass
NTNV	2DH5	ANT1	2480	2496.5~13000	-51.42	-26	Pass
NTNV	3DH5	ANT1	2402	30~1000	-46.25	-26	Pass
NTNV	3DH5	ANT1	2402	1000~2387	-45.65	-26	Pass
NTNV	3DH5	ANT1	2402	2387~2400	-39.91	-16	Pass
NTNV	3DH5	ANT1	2402	2483.5~2496.5	-49.83	-16	Pass
NTNV	3DH5	ANT1	2402	2496.5~13000	-50.06	-26	Pass
NTNV	3DH5	ANT1	2441	30~1000	-46.80	-26	Pass
NTNV	3DH5	ANT1	2441	1000~2387	-49.81	-26	Pass
NTNV	3DH5	ANT1	2441	2387~2400	-51.67	-16	Pass
NTNV	3DH5	ANT1	2441	2483.5~2496.5	-51.17	-16	Pass
NTNV	3DH5	ANT1	2441	2496.5~13000	-52.52	-26	Pass
NTNV	3DH5	ANT1	2480	30~1000	-47.05	-26	Pass
NTNV	3DH5	ANT1	2480	1000~2387	-46.13	-26	Pass
NTNV	3DH5	ANT1	2480	2387~2400	-52.40	-16	Pass
NTNV	3DH5	ANT1	2480	2483.5~2496.5	-43.21	-16	Pass
NTNV	3DH5	ANT1	2480	2496.5~13000	-51.88	-26	Pass

Note: If spurious emissions are greater than [limit -3dB] in 1MHz RBW, then more detailed measurements are required. Repeat the test in 30 kHz RBW, the spurious emission value using following the formula below:
Calculated Value = (Measured Value + 15.2 dB)
15.2 dB adjustment is derived from the Conversion Factor of RBW
Conversion Factor of RBW = 10 x Log (Reference Bandwidth / RBW of measurement) = 15.2[dB]
Where: Reference Bandwidth = 1 MHz
RBW of measurement = 30 kHz

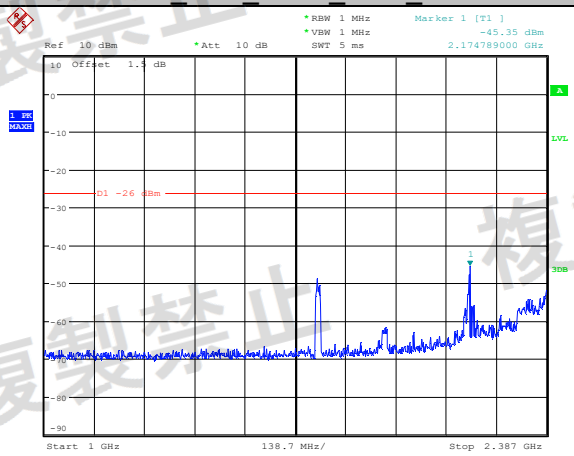
9.5. Original test data

NTNV_DH5_ANT1_2402_30~1000



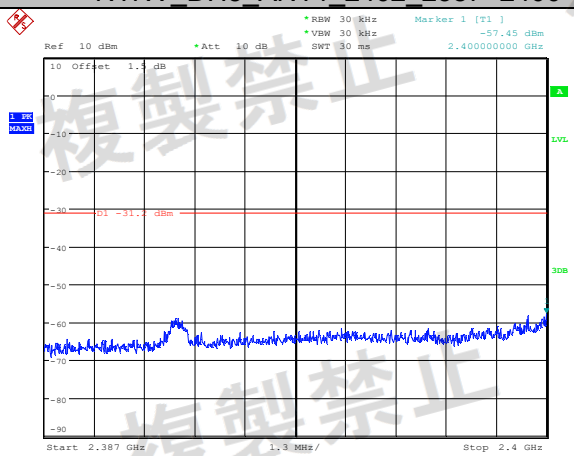
Date: 5.JUL.2021 09:46:30

NTNV_DH5_ANT1_2402_1000~2387



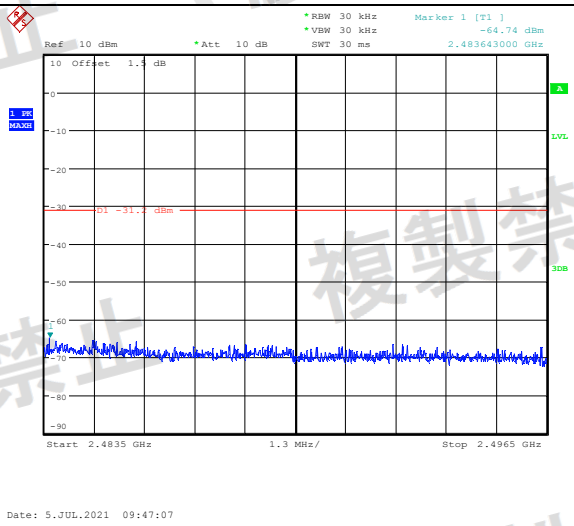
Date: 5.JUL.2021 09:46:41

NTNV_DH5_ANT1_2402_2387~2400

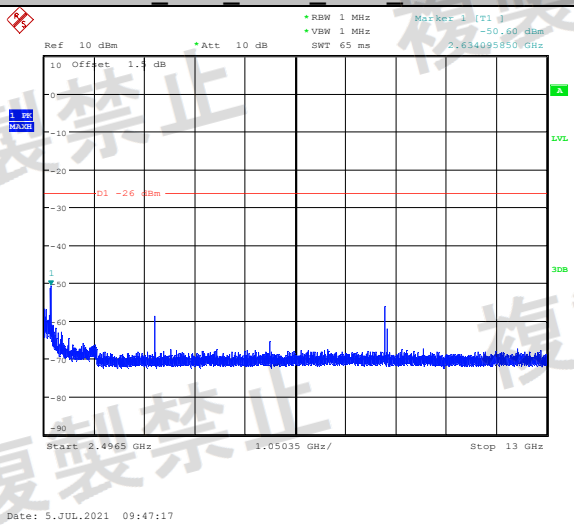


Date: 5.JUL.2021 09:46:51

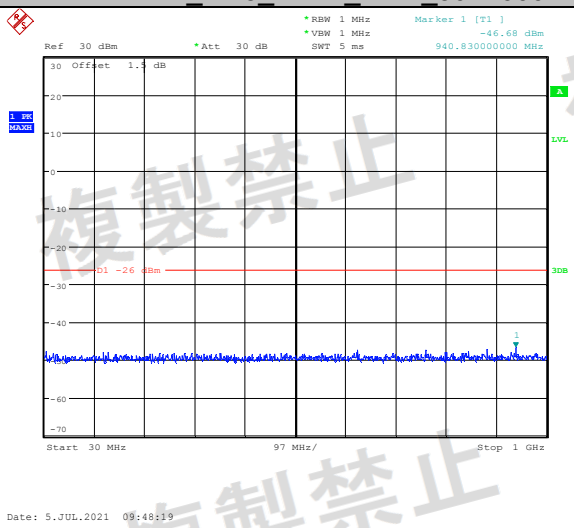
NTNV_DH5_ANT1_2402_2483.5~2496.5



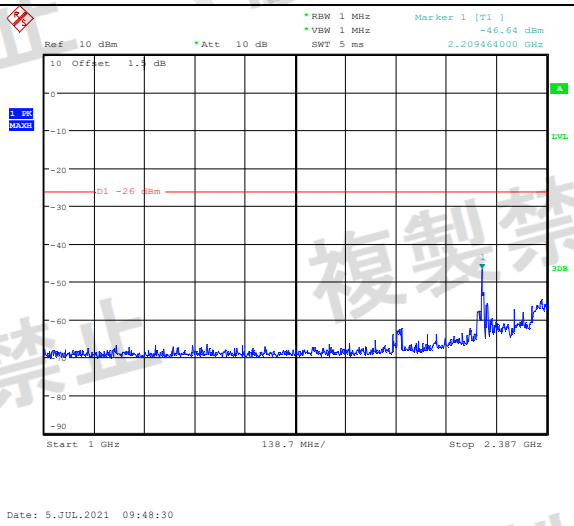
NTNV_DH5_ANT1_2402_2496.5~13000



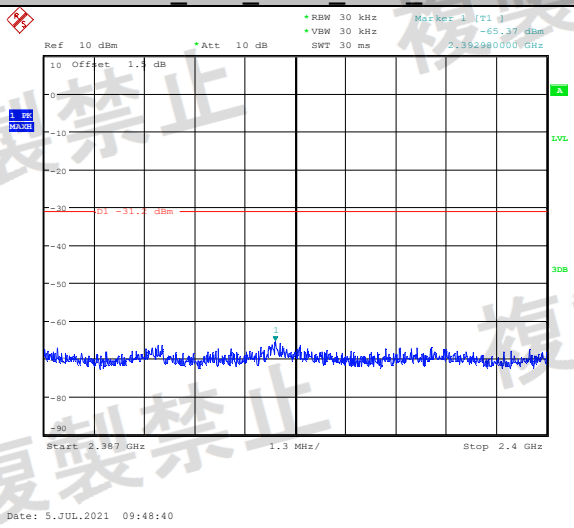
NTNV_DH5_ANT1_2441_30~1000



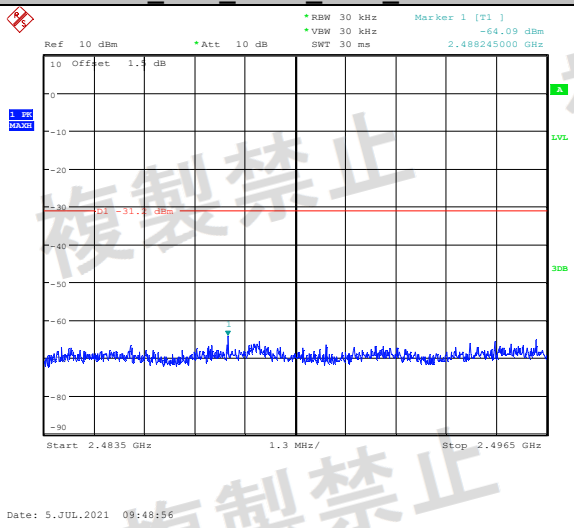
NTNV_DH5_ANT1_2441_1000~2387



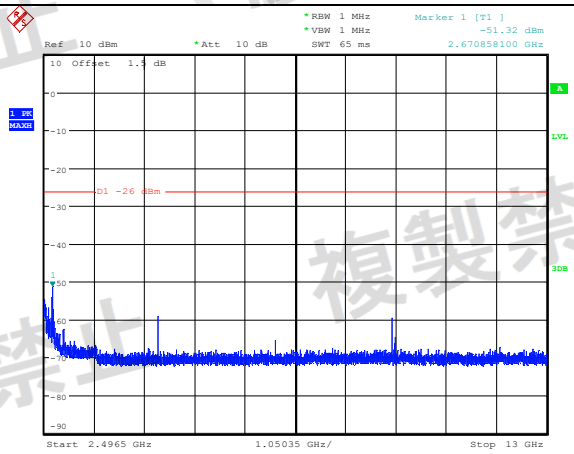
NTNV_DH5_ANT1_2441_2387~2400



NTNV_DH5_ANT1_2441_2483.5~2496.5



NTNV_DH5_ANT1_2441_2496.5~13000



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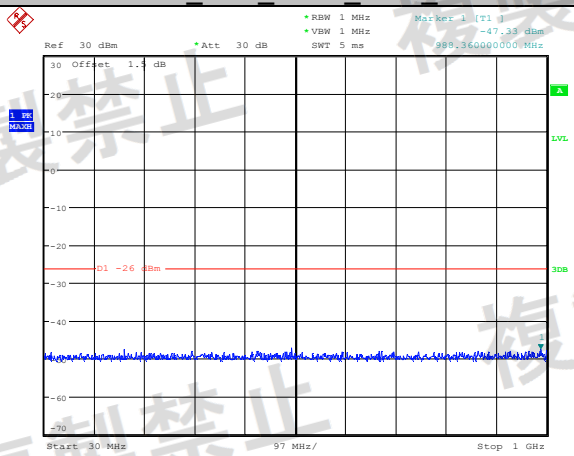

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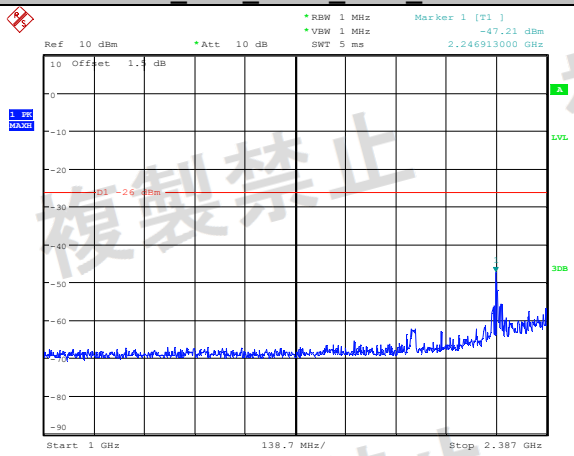

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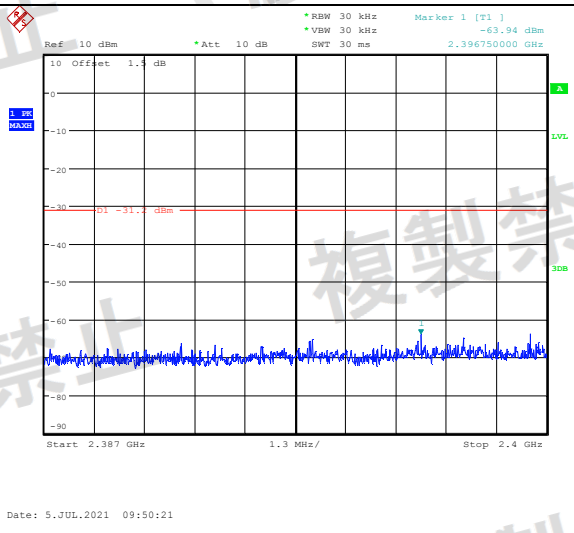

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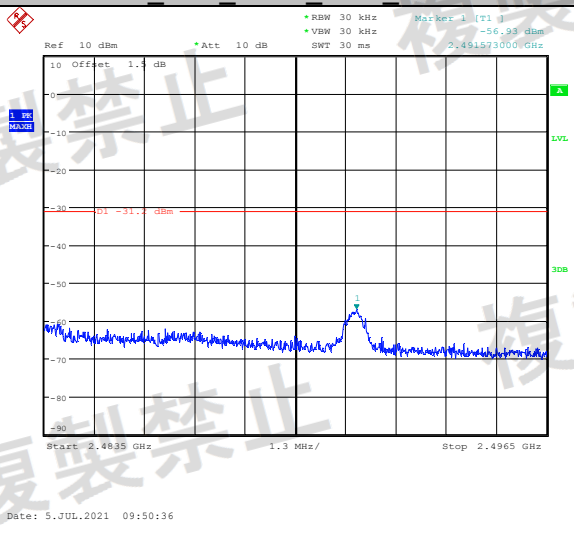

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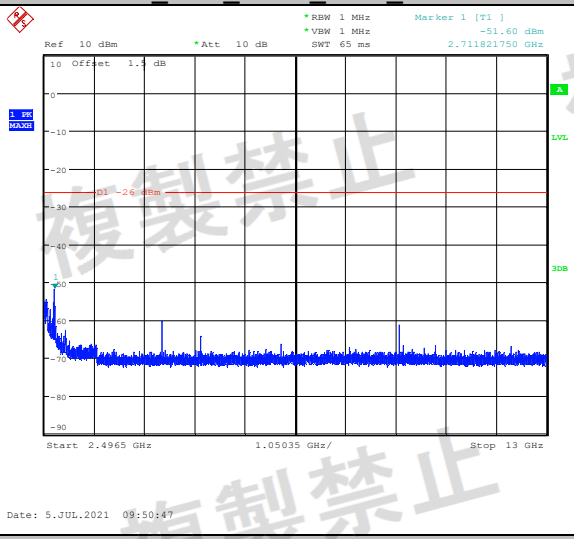
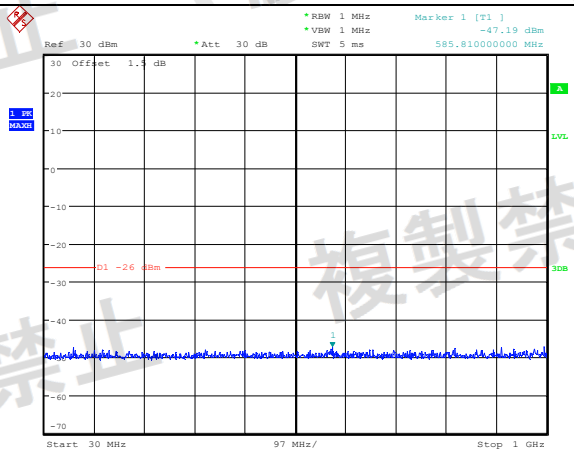
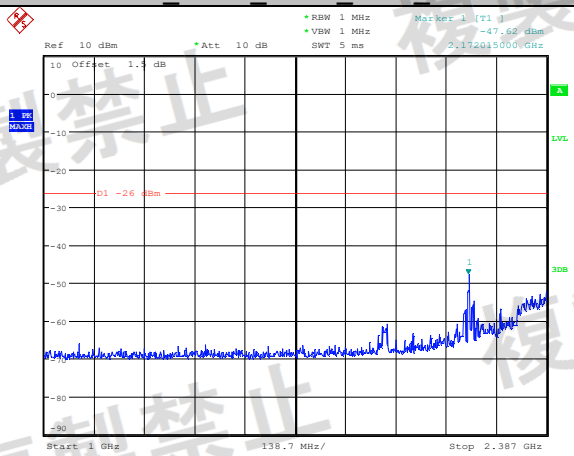


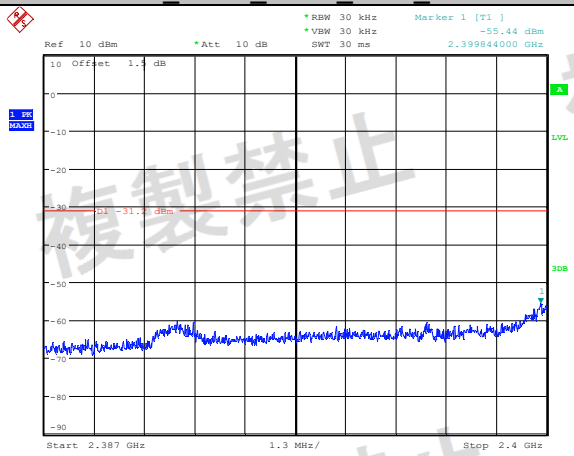
NTNV_2DH5_ANT1_2402_30~1000



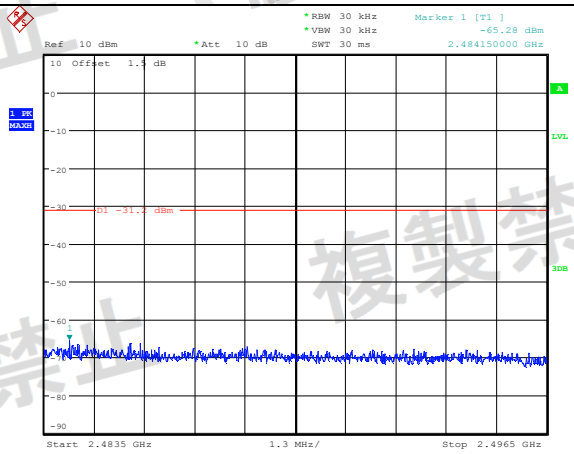
NTNV_2DH5_ANT1_2402_1000~2387



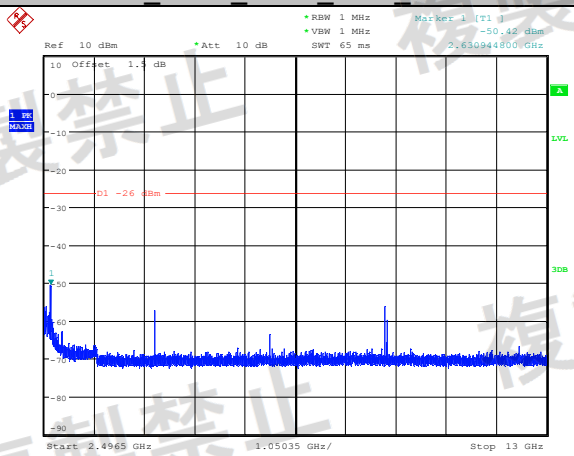
NTNV_2DH5_ANT1_2402_2387~2400



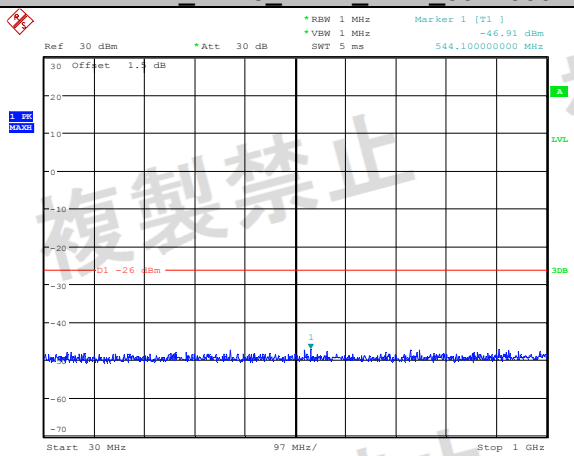
NTNV_2DH5_ANT1_2402_2483.5~2496.5



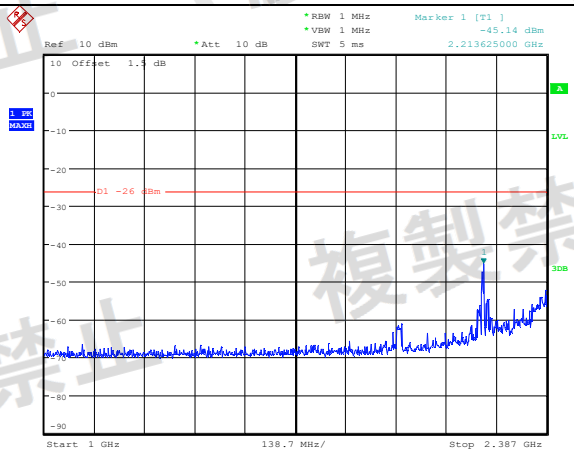
NTNV_2DH5_ANT1_2402_2496.5~13000



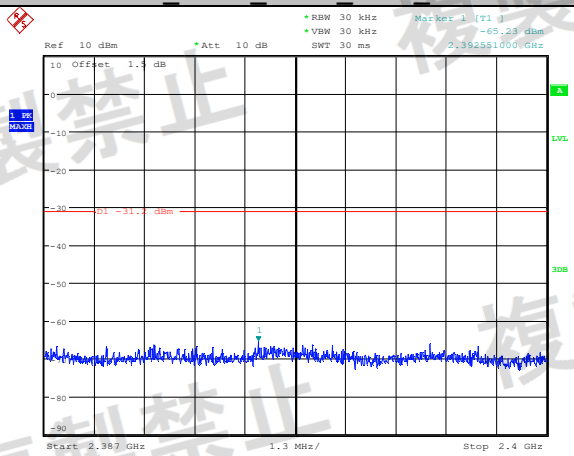
NTNV_2DH5_ANT1_2441_30~1000



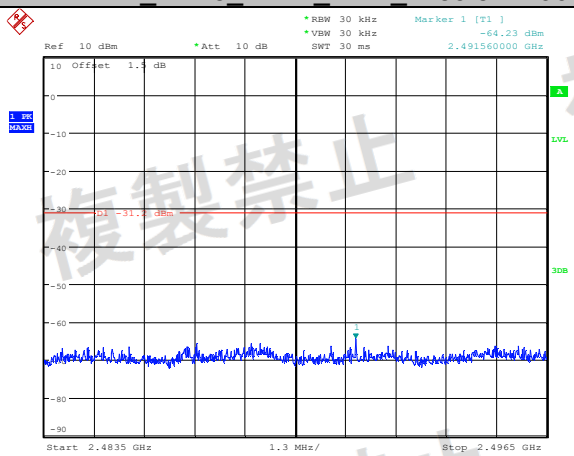
NTNV_2DH5_ANT1_2441_1000~2387



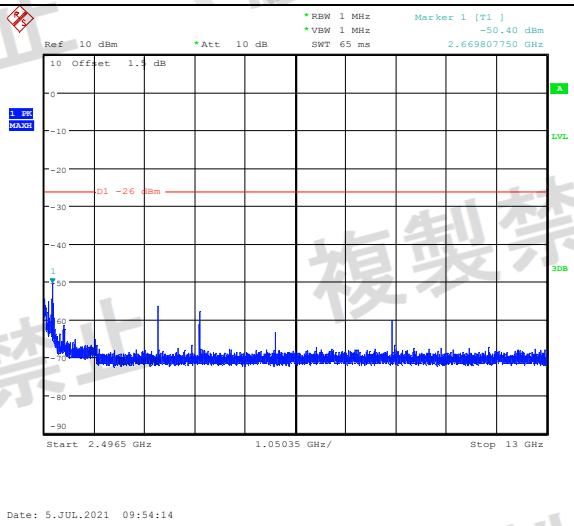
NTNV_2DH5_ANT1_2441_2387~2400



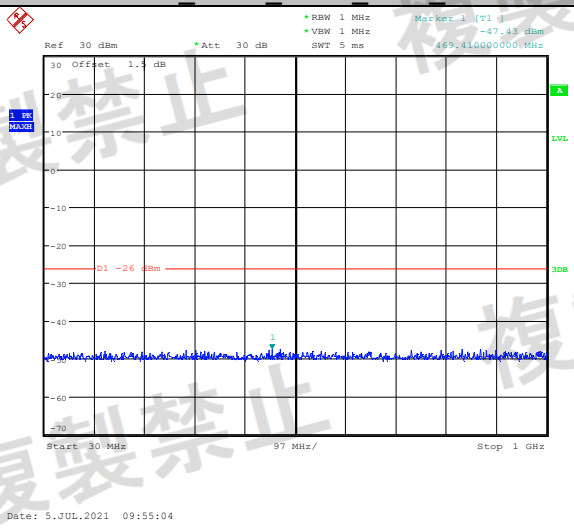
NTNV_2DH5_ANT1_2441_2483.5~2496.5



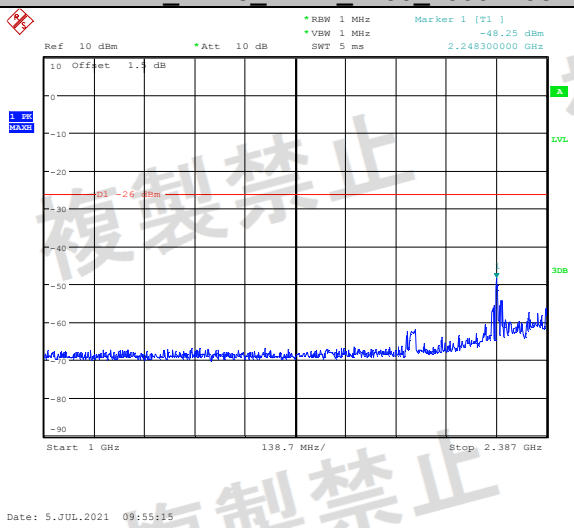
NTNV_2DH5_ANT1_2441_2496.5~13000



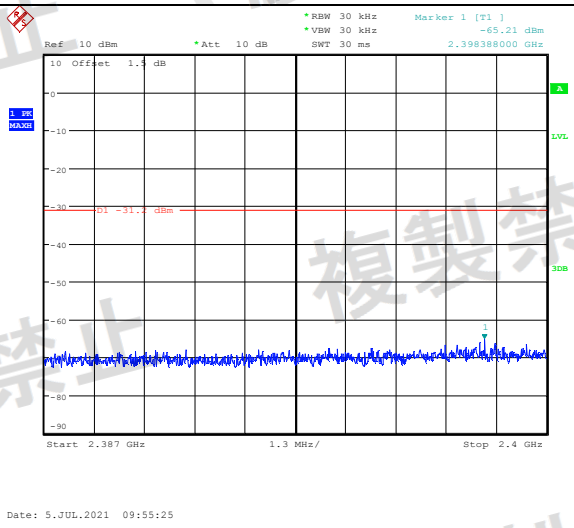
NTNV_2DH5_ANT1_2480_30~1000



NTNV_2DH5_ANT1_2480_1000~2387



NTNV_2DH5_ANT1_2480_2387~2400



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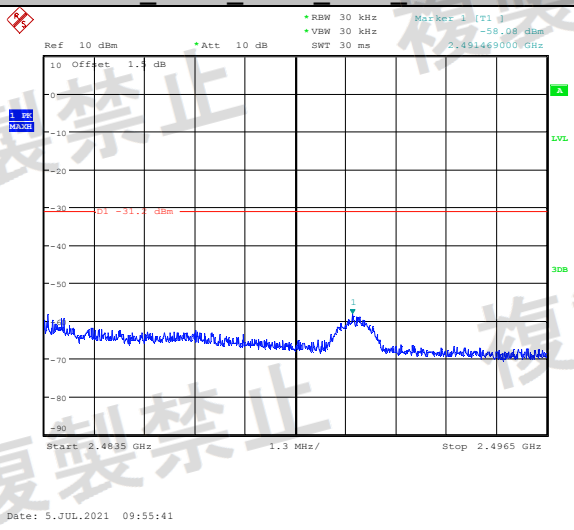

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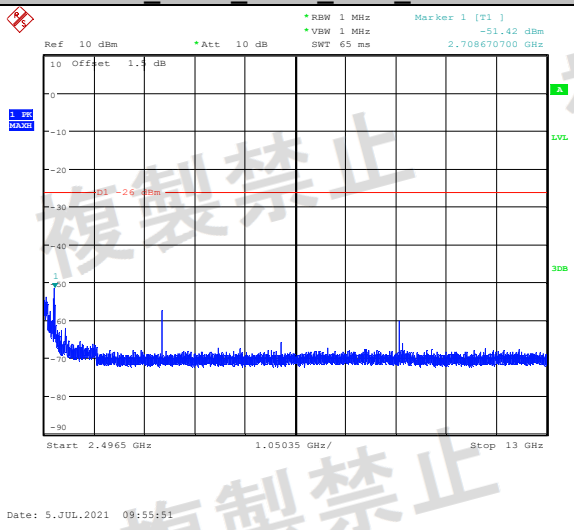
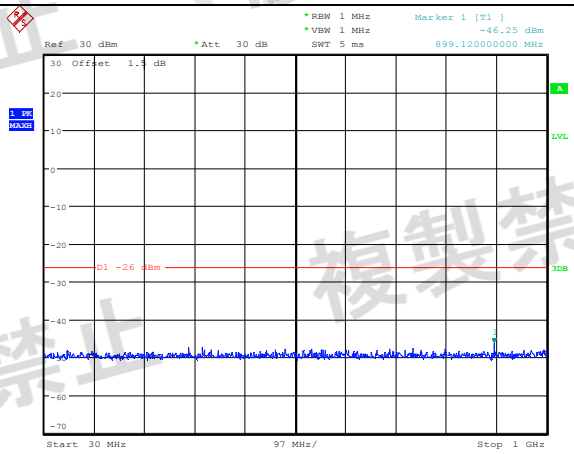
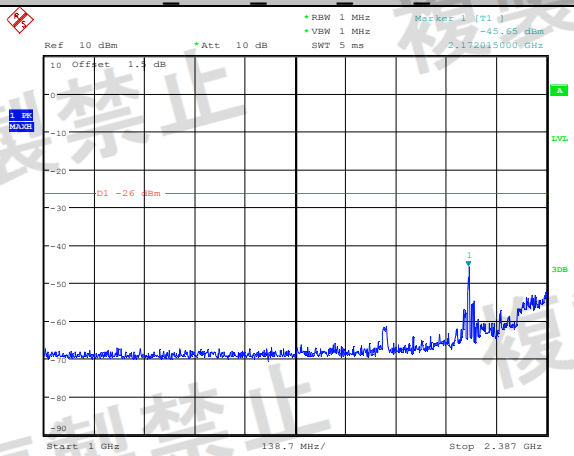


NTNV_3DH5_ANT1_2402_30~1000



NTNV_3DH5_ANT1_2402_1000~2387



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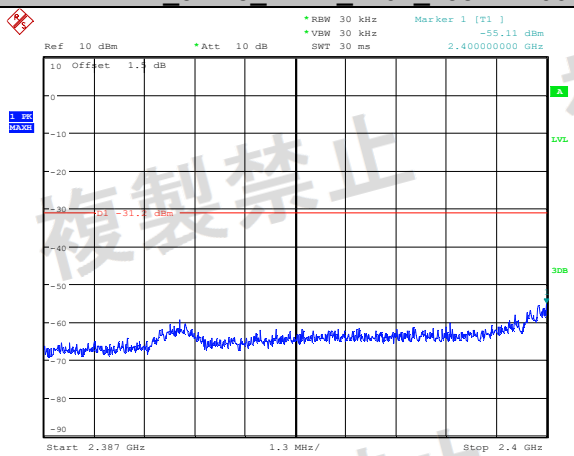
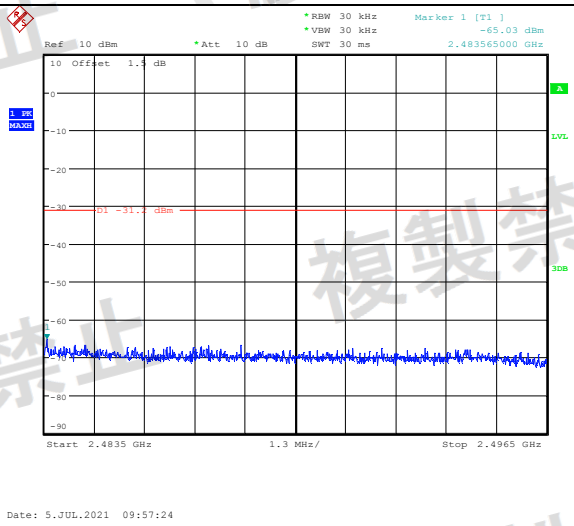
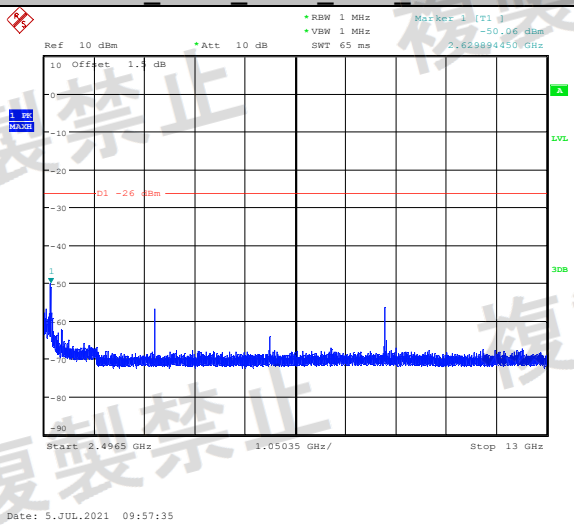


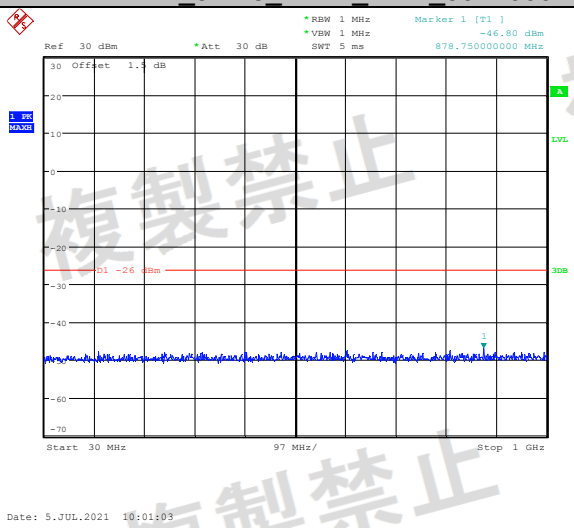
NTNV_3DH5_ANT1_2402_2483.5~2496.5



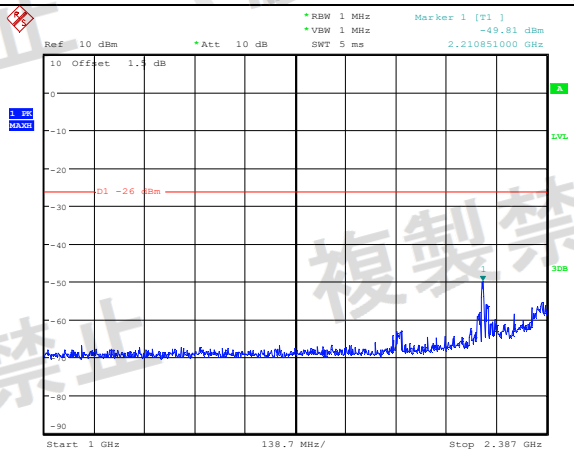
NTNV_3DH5_ANT1_2402_2496.5~13000



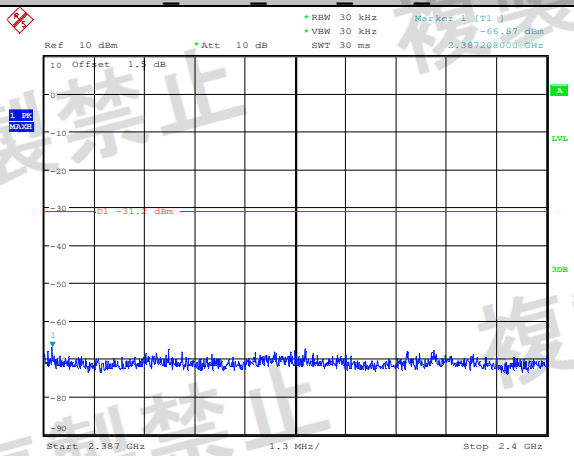
NTNV_3DH5_ANT1_2441_30~1000



NTNV_3DH5_ANT1_2441_1000~2387



NTNV_3DH5_ANT1_2441_2387~2400



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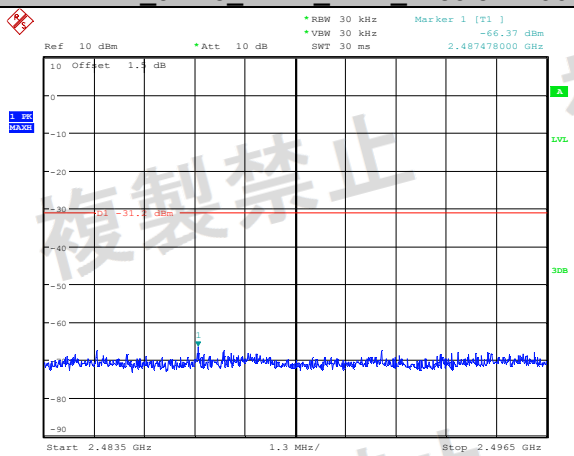

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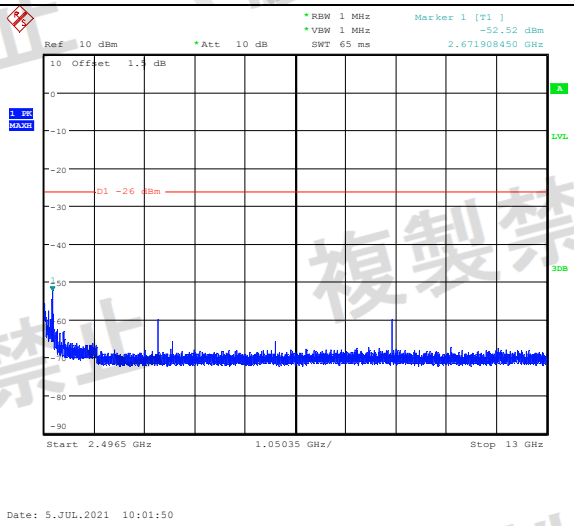
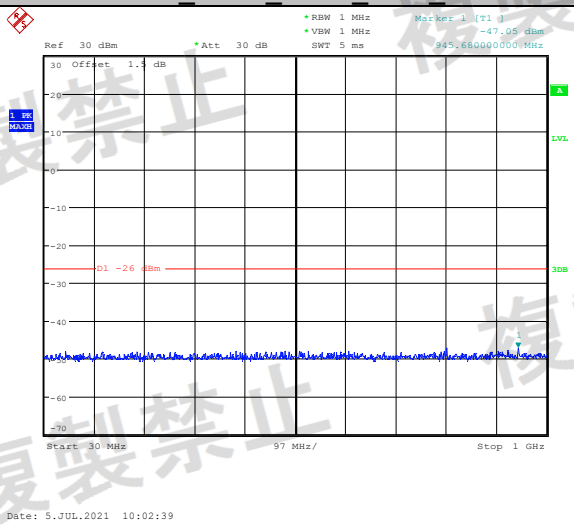


NTNV_3DH5_ANT1_2480_30~1000



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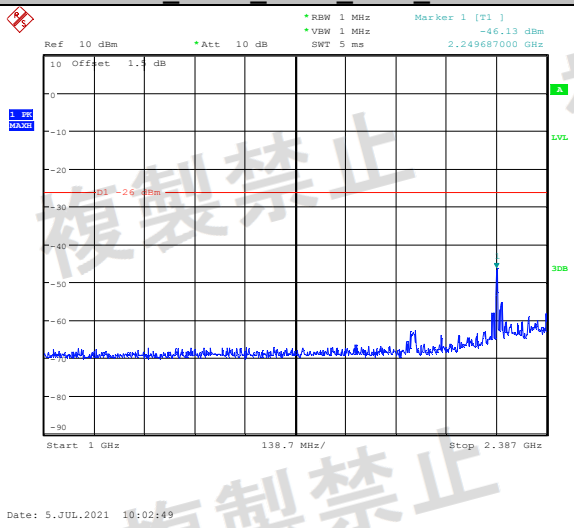

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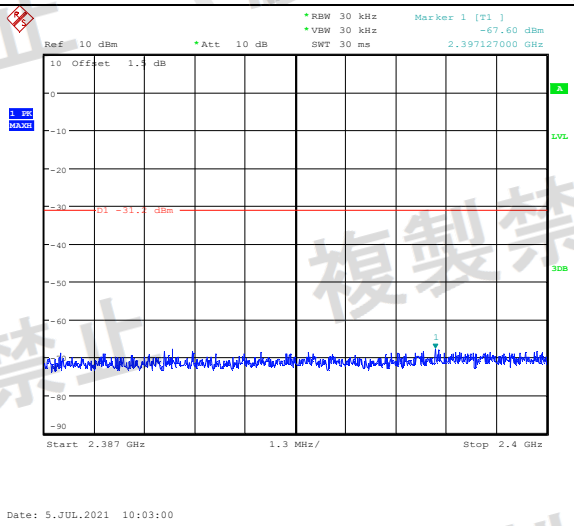
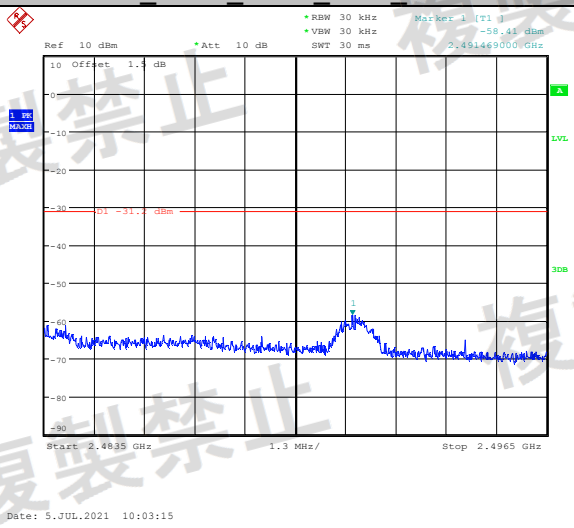
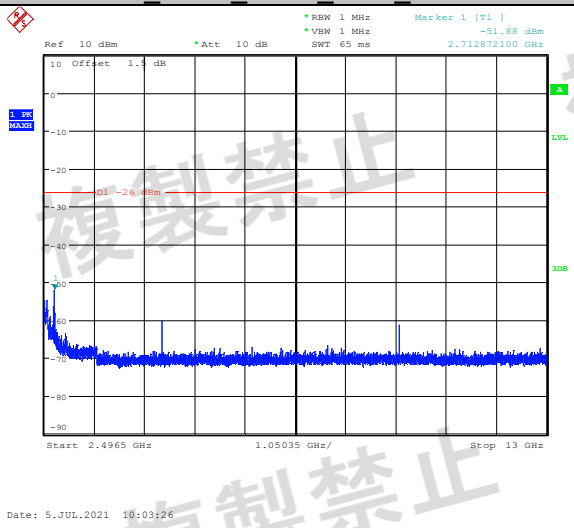


NTNV_3DH5_ANT1_2480_2483.5~2496.5



NTNV_3DH5_ANT1_2480_2496.5~13000

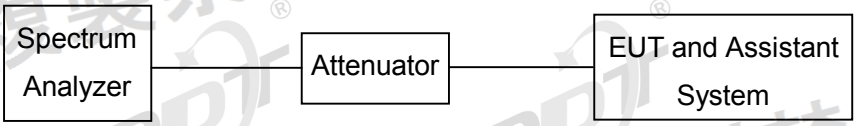


10. Secondary Radiated Emissions

10.1. Limit

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW or less at a frequency below 1 GHz and 20 nW or less at a frequency of 1 GHz or higher as measured using the circuit.

10.2. Block diagram of test setup



10.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Resolution BW: 100 kHz for frequency below 1 GHz and 1 MHz for frequency above 1 GHz

Video BW: 100 kHz for frequency below 1 GHz and 1 MHz for frequency above 1 GHz

Detector: Peak.

Trace Mode: Max Hold.

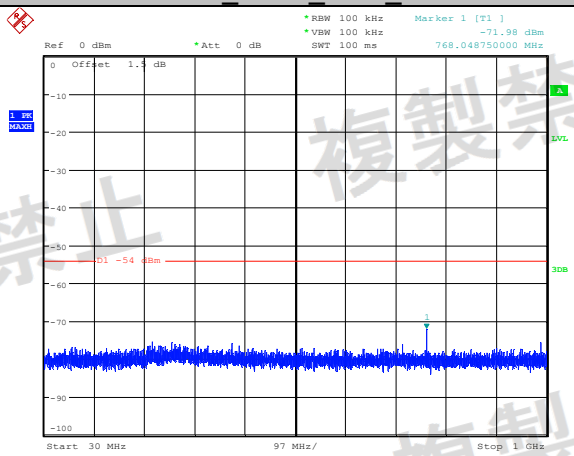
(2) All the emissions from 30 MHz to 13 GHz were measured and record.

10.4. Test result

Test Condition	Antenna	Channel	Freq. Range	Result (dBm)	Limit	Verdict
NTNV	ANT1	2402	30~1000	-71.98	-54	Pass
NTNV	ANT1	2402	1000~13000	-59.26	-47	Pass
NTNV	ANT1	2441	30~1000	-72.11	-54	Pass
NTNV	ANT1	2441	1000~13000	-54.21	-47	Pass
NTNV	ANT1	2480	30~1000	-72.17	-54	Pass
NTNV	ANT1	2480	1000~13000	-60.01	-47	Pass

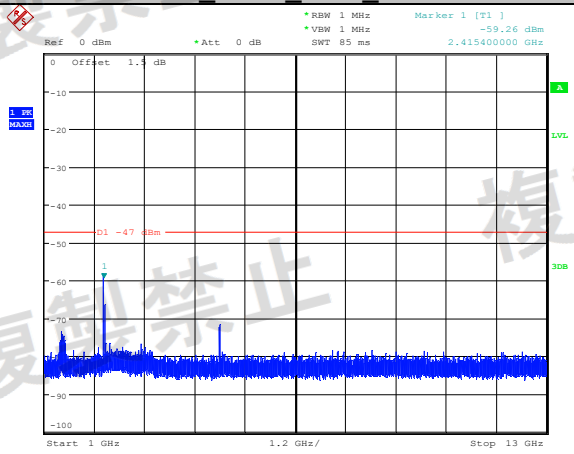
10.5. Original test data

NTNV_ANT1_2402_30~1000



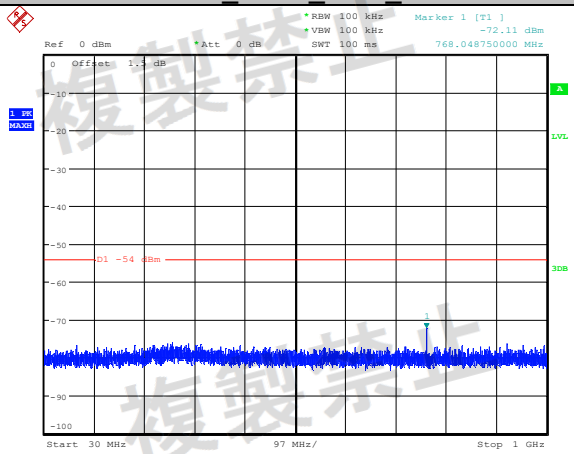
Date: 5.JUL.2021 10:13:34

NTNV_ANT1_2402_1000~13000



Date: 5.JUL.2021 10:13:43

NTNV_ANT1_2441_30~1000



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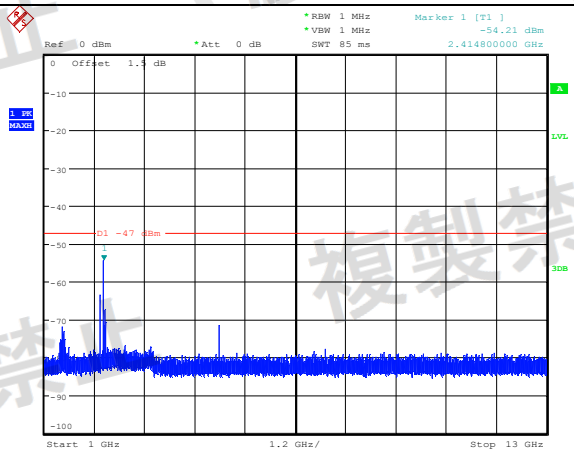
NTNV_ANT1_2441_1000~13000



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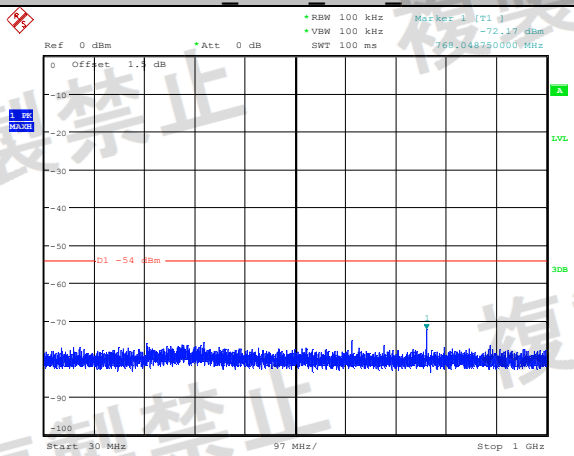
NTNV_ANT1_2480_30~1000



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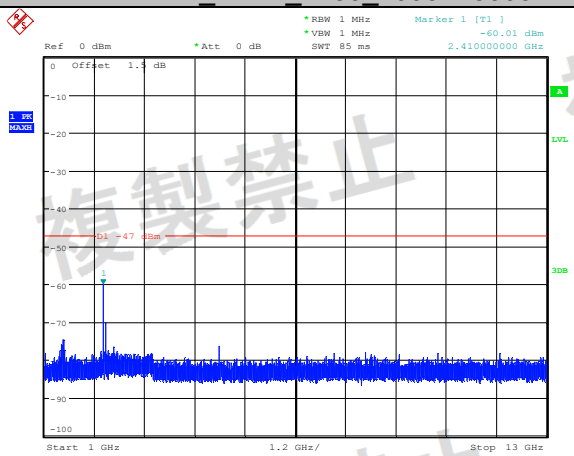
NTNV_ANT1_2480_1000~13000

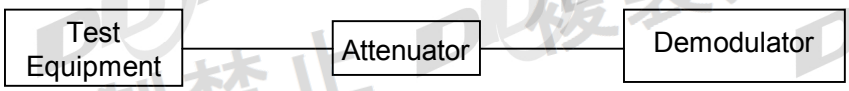


Date: 5.JUL.2021 10:15:19

11. Interference Prevention Function

11.1. Measurement system diagram

1) When transmitting identification code



2) Condition of measuring instrument

Demodulator must be able to demodulate the transmitting signal emitted by test equipment and to indicate the identification code.

3) Condition of test equipment the mode of normal use.

11.2. Measuring operation procedure

1) When test equipment has the function to transmit identification code automatically:

A) Transmit the predetermined identification code from test equipment.

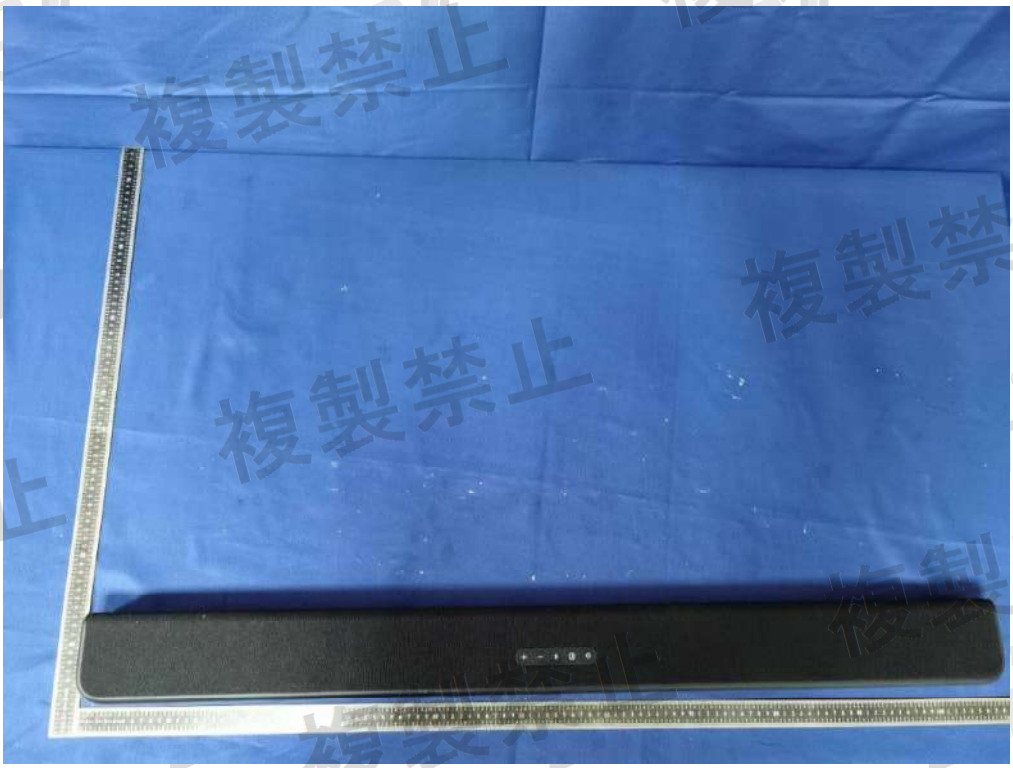
B) Confirm the transmitted identification code by demodulator.

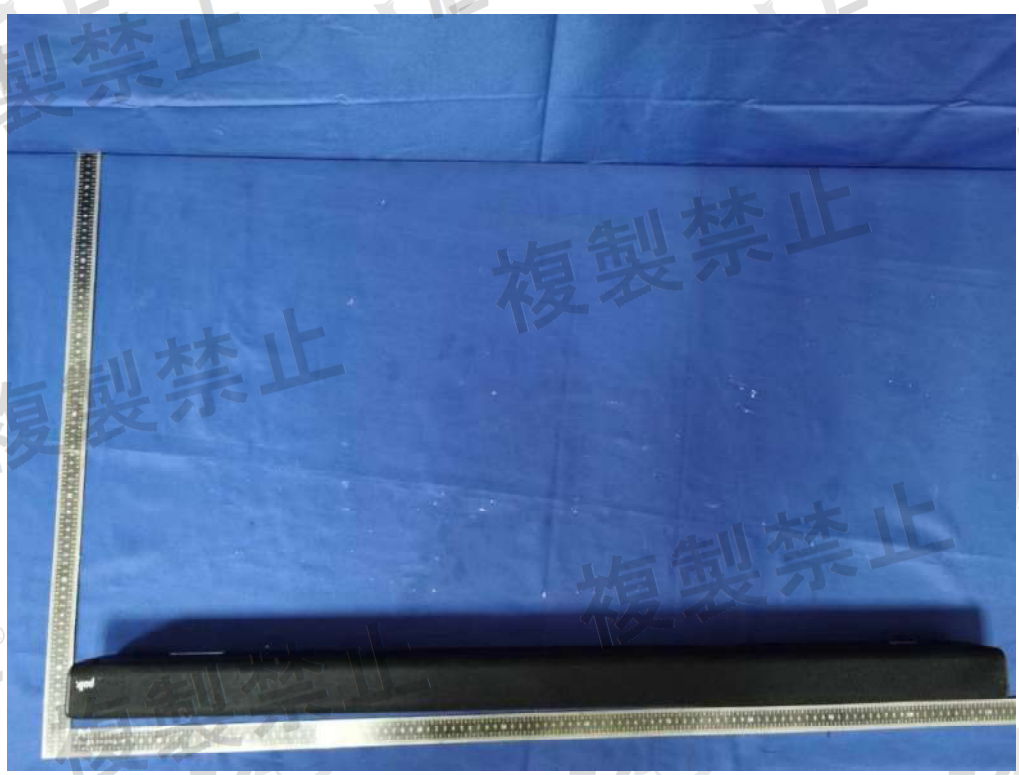
11.3. Test result: The unit does meet the requirements (Good).

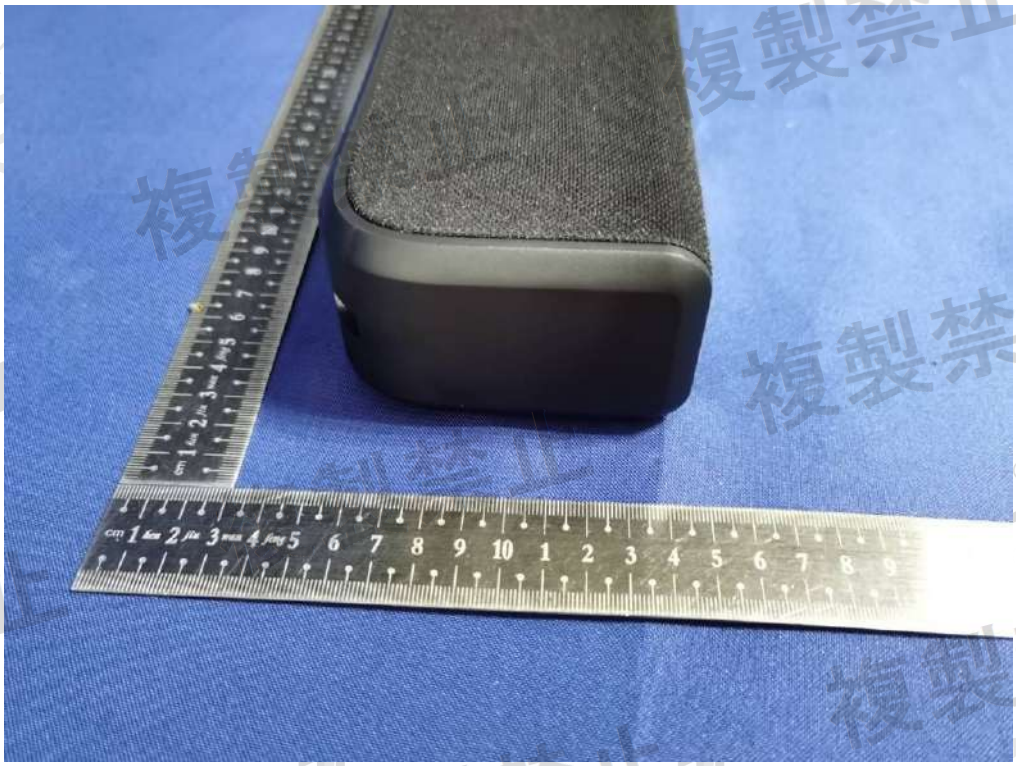
Test result: The unit does meet the requirements.
Pass

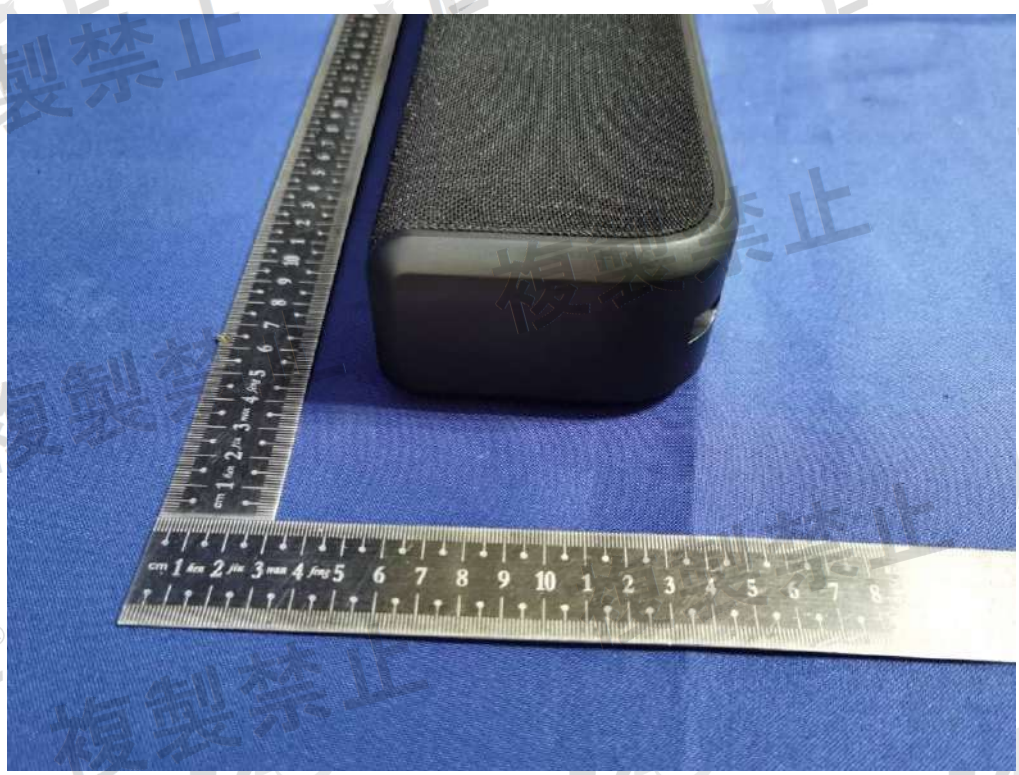
12. Test Setup Photograph

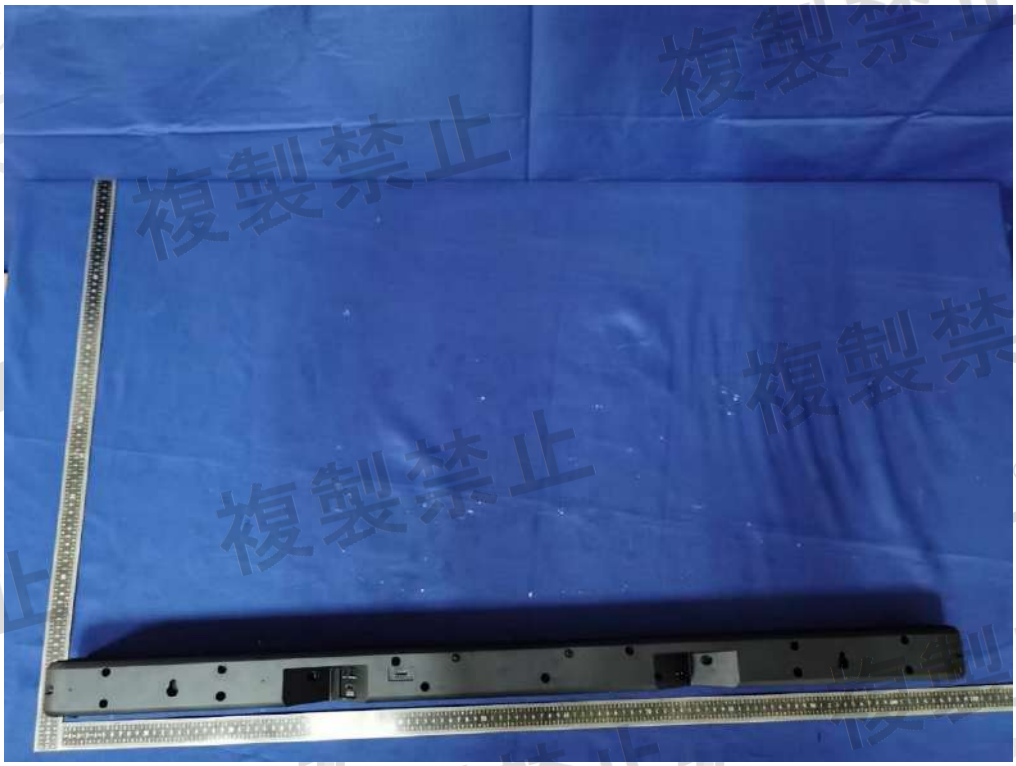
13. Photos of the EUT

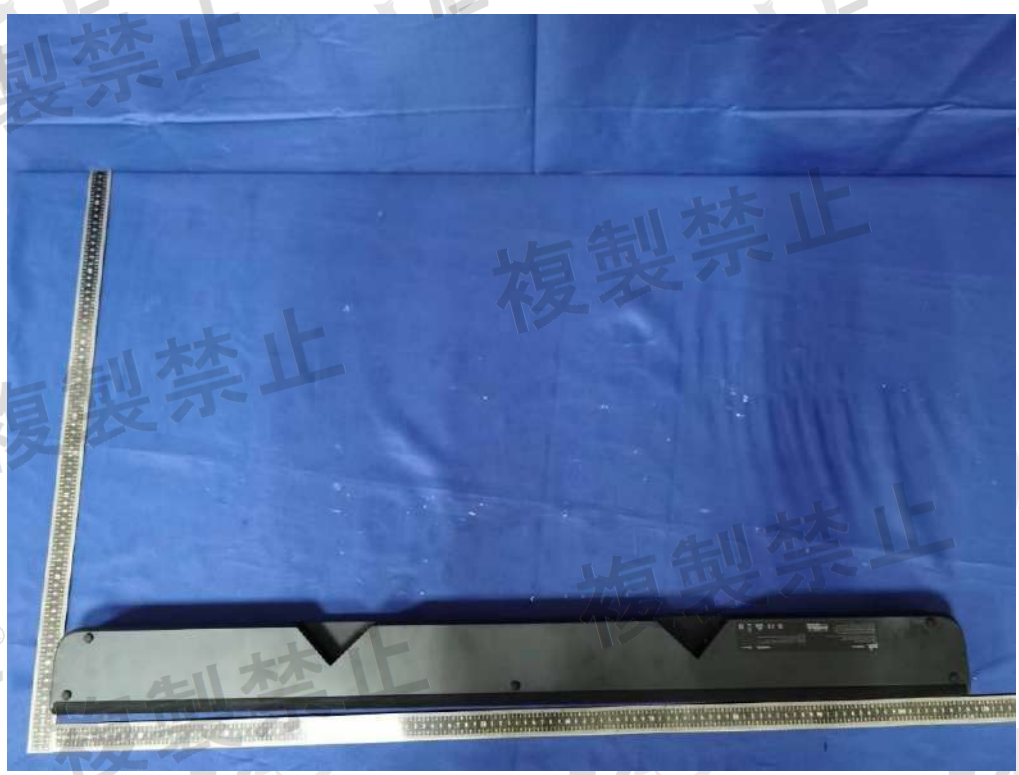


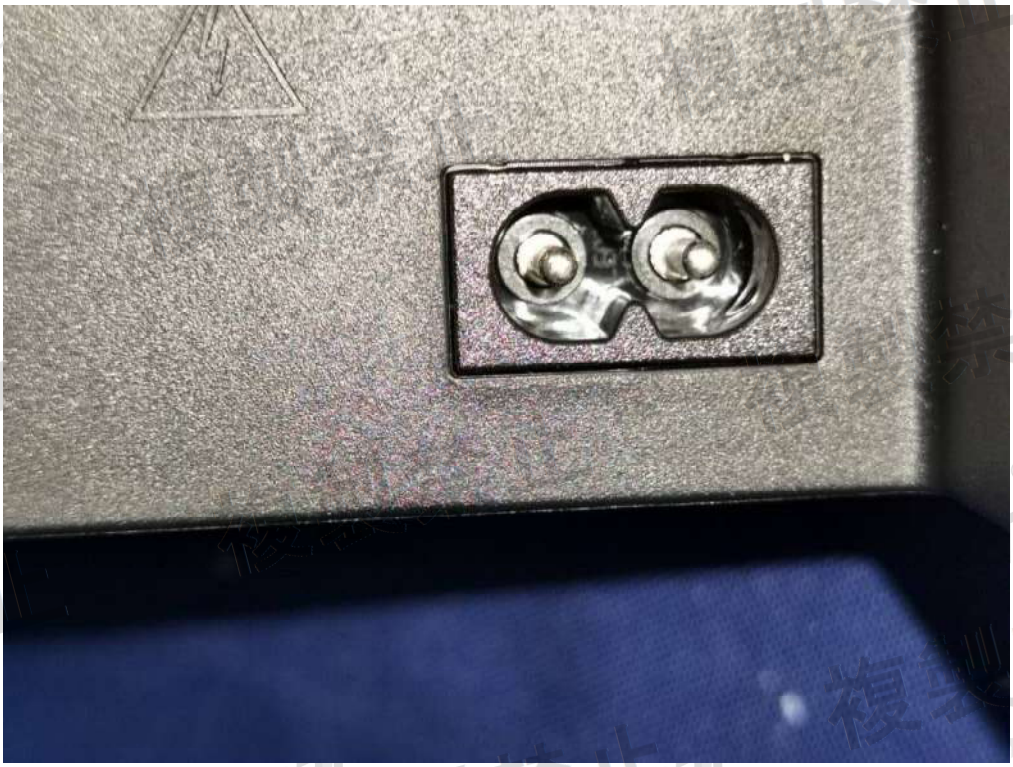












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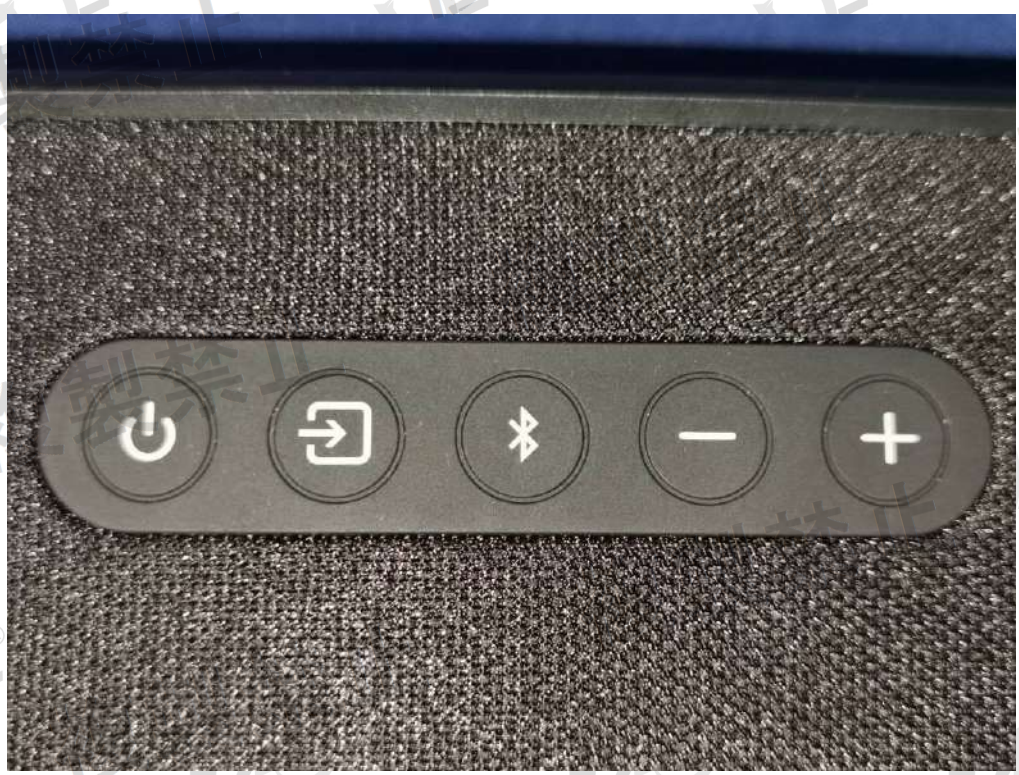
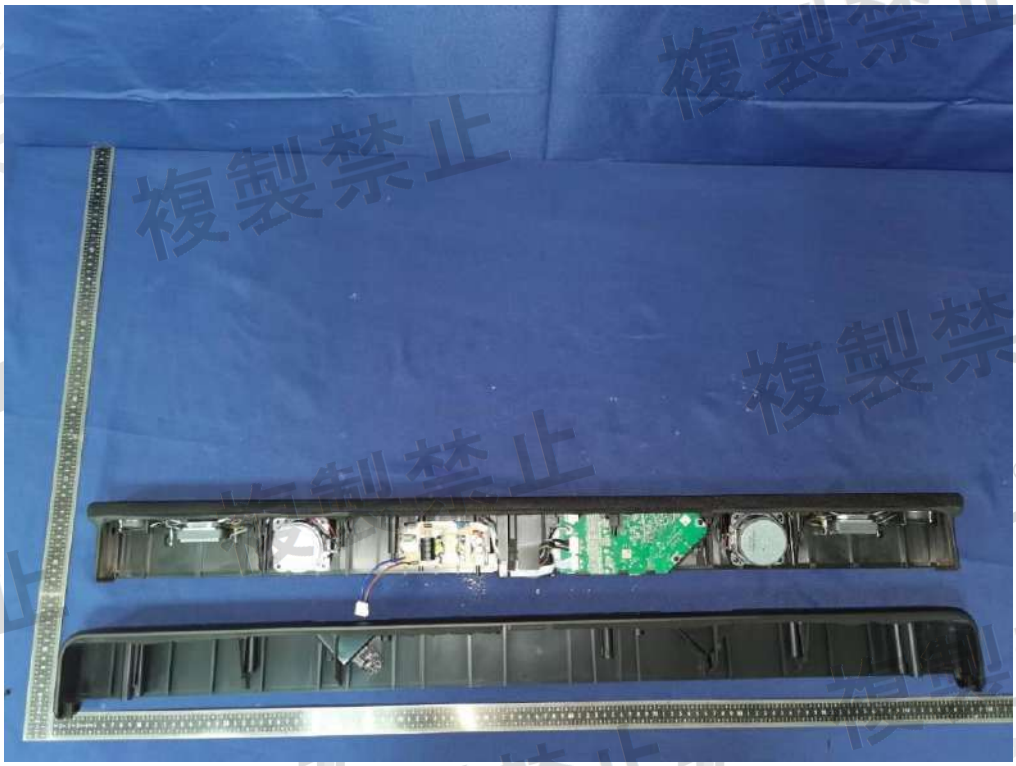
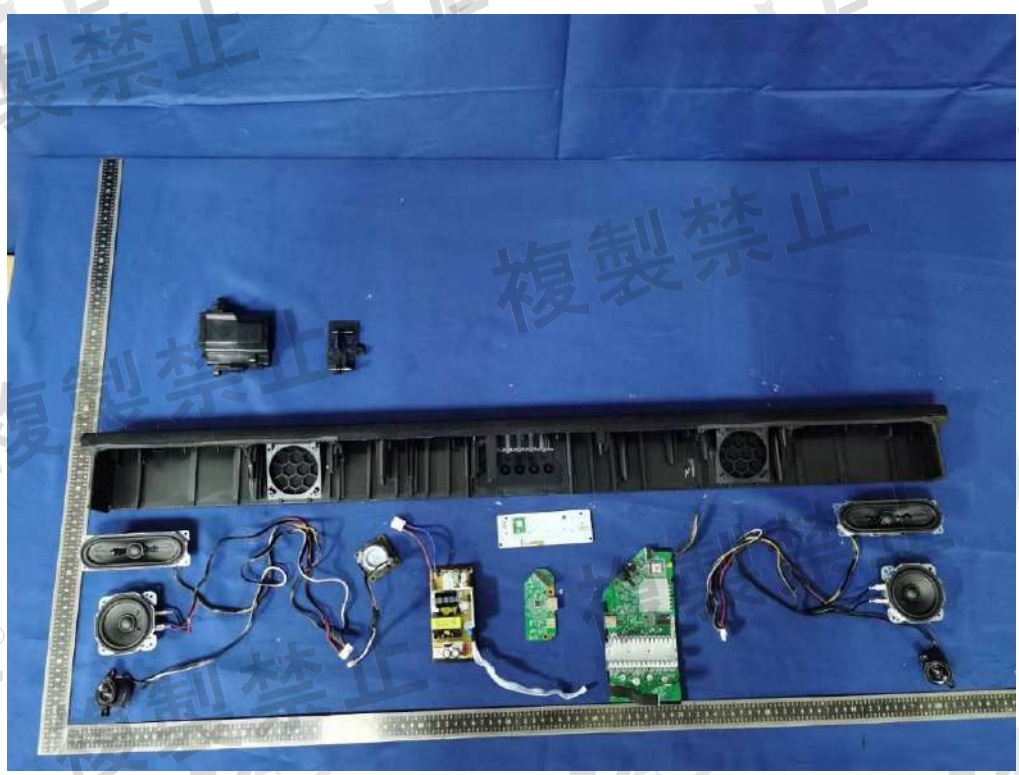
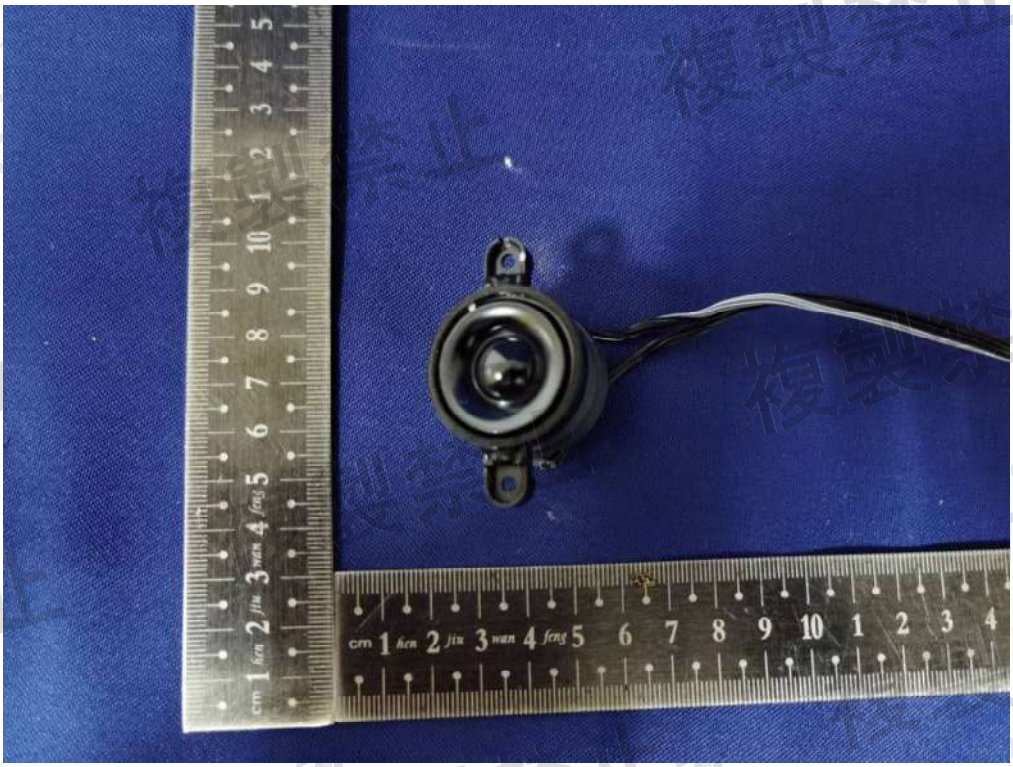
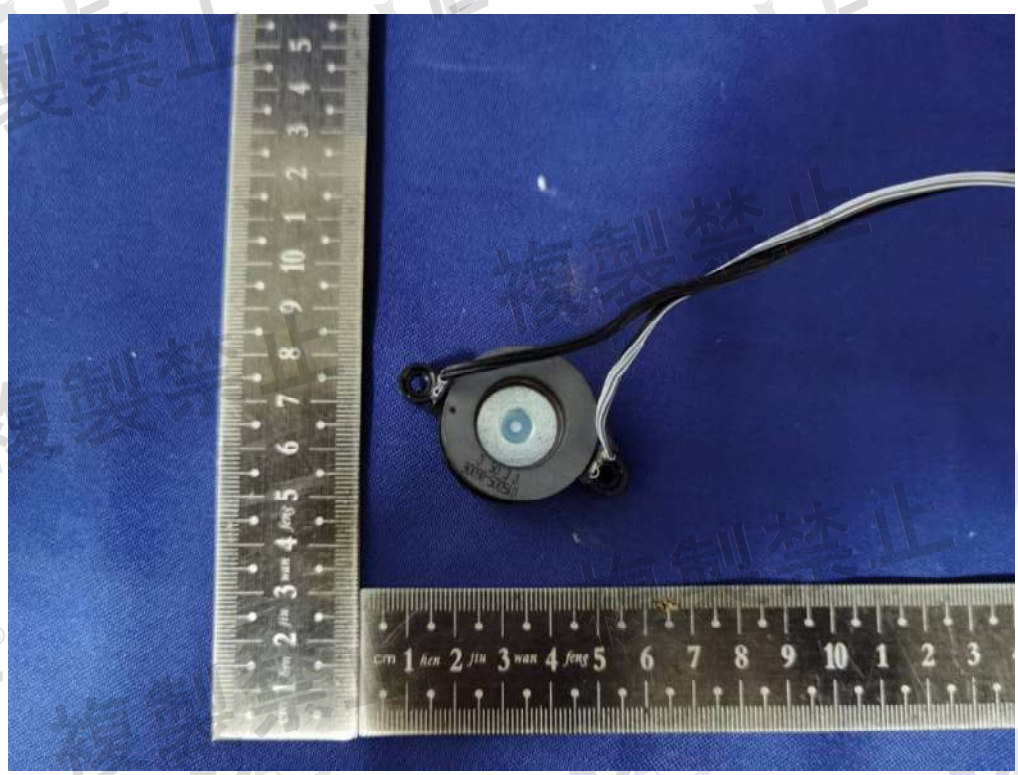
TV (HDMI)
eARC/ARC

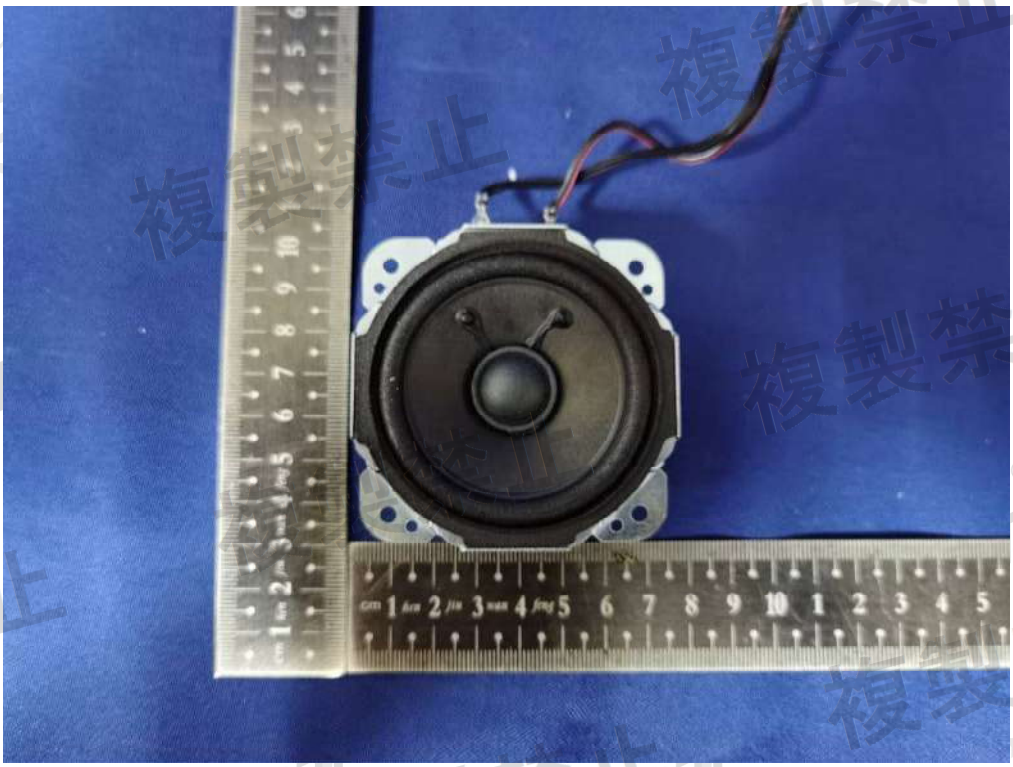


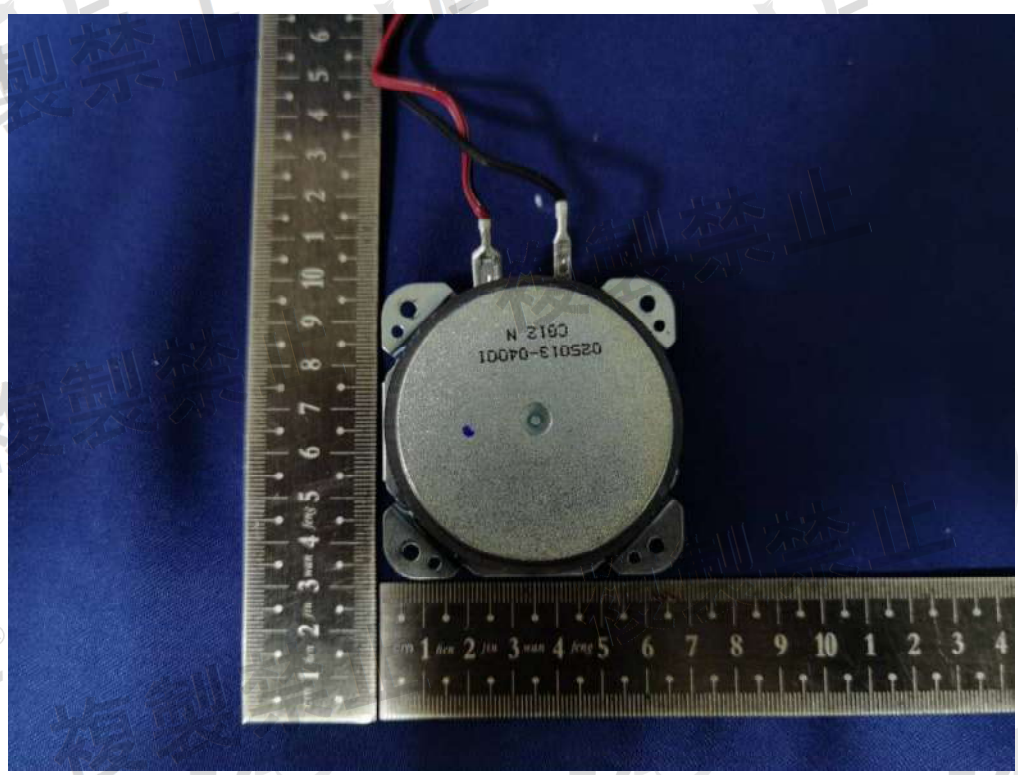








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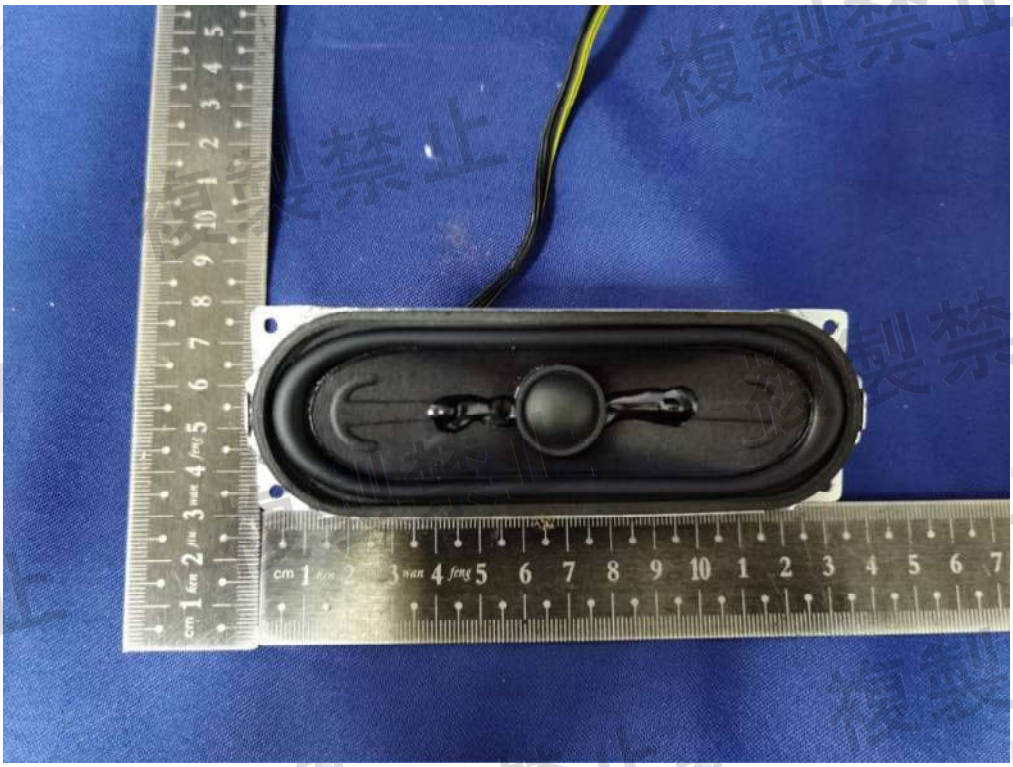

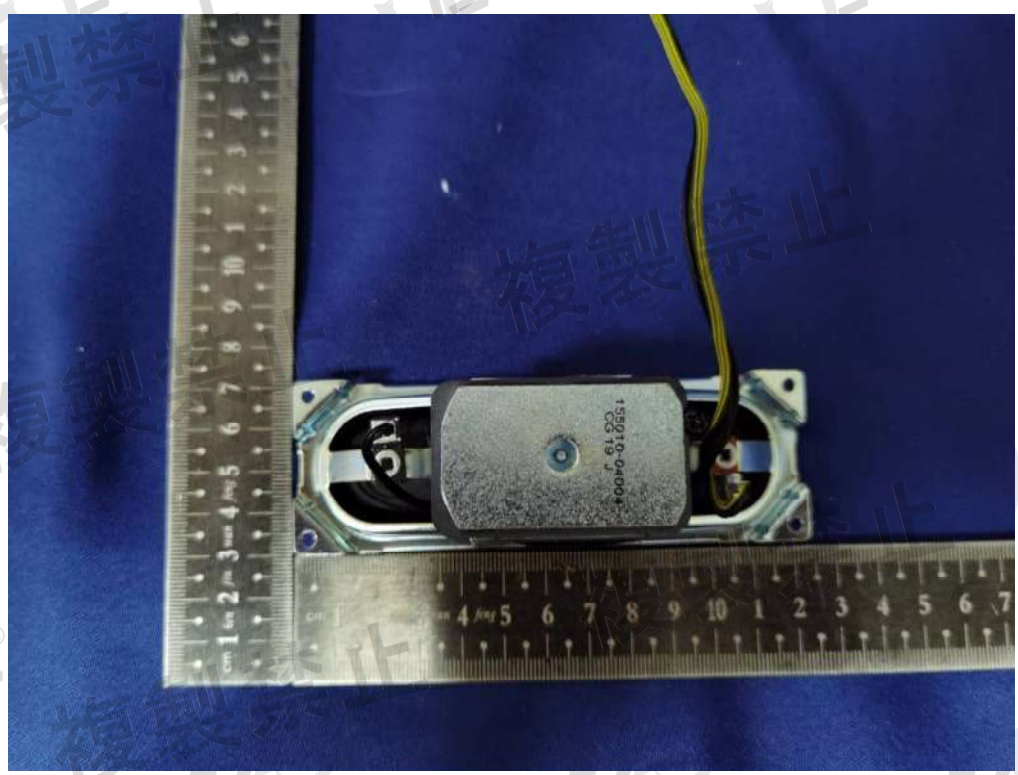

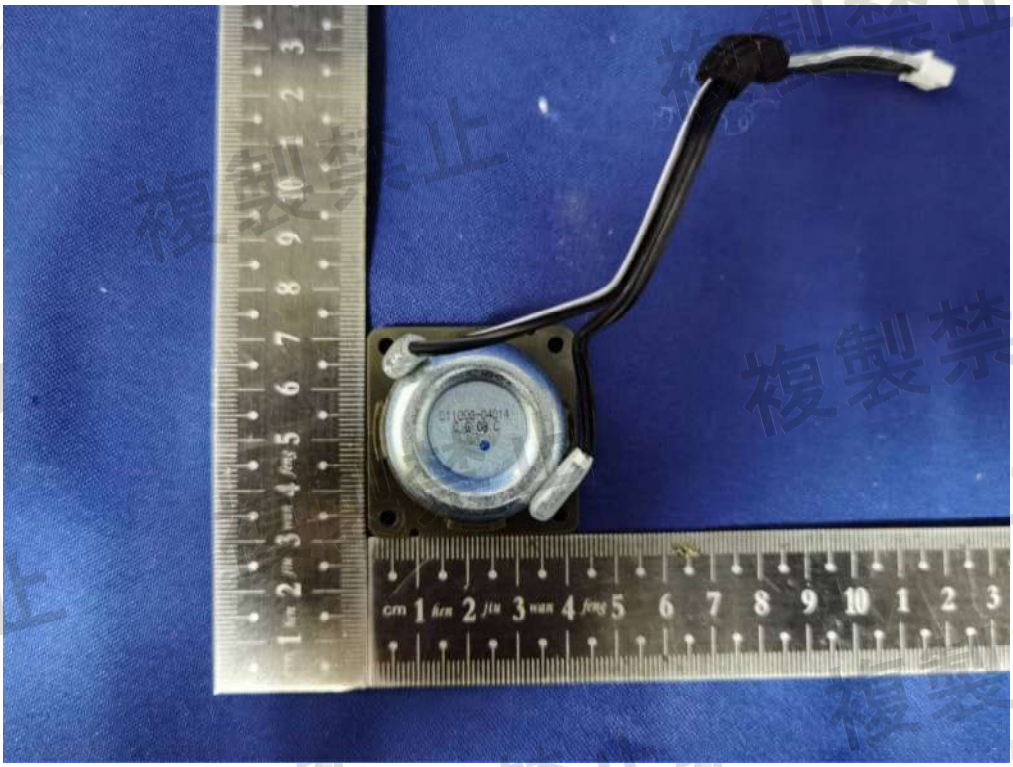

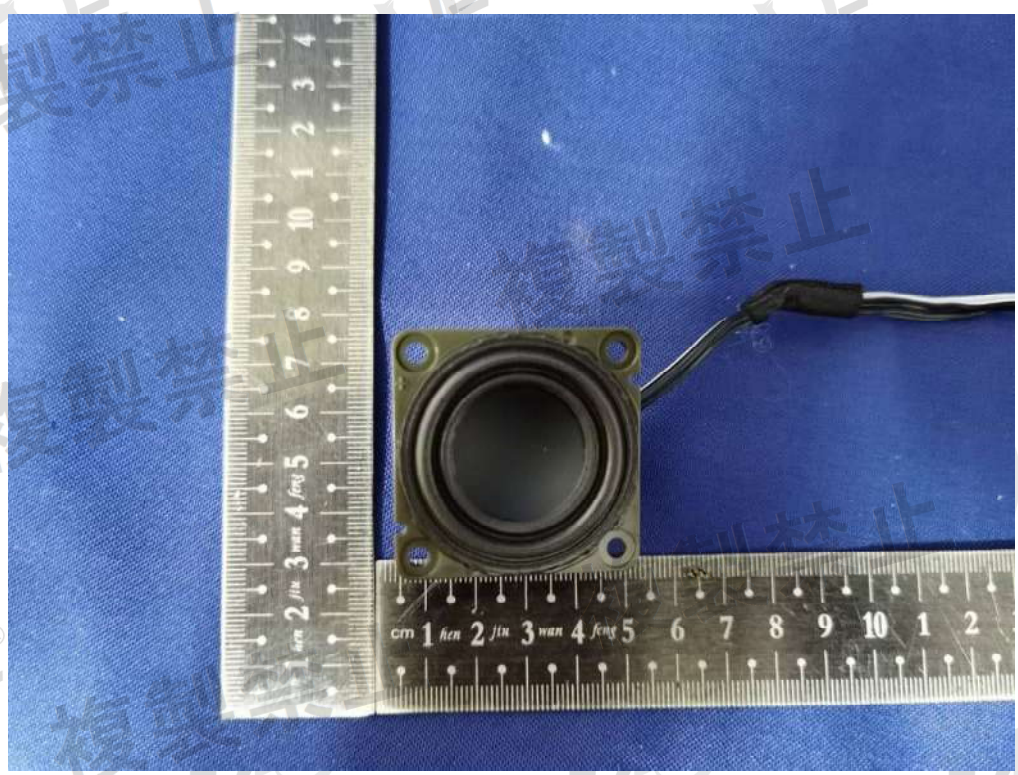

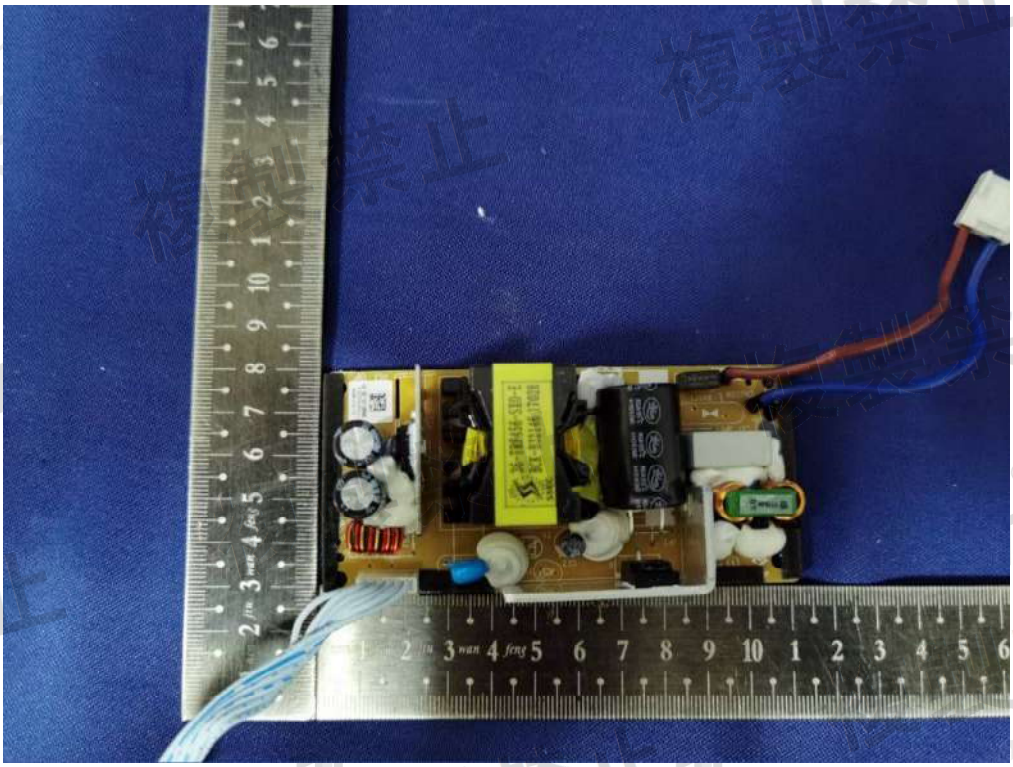

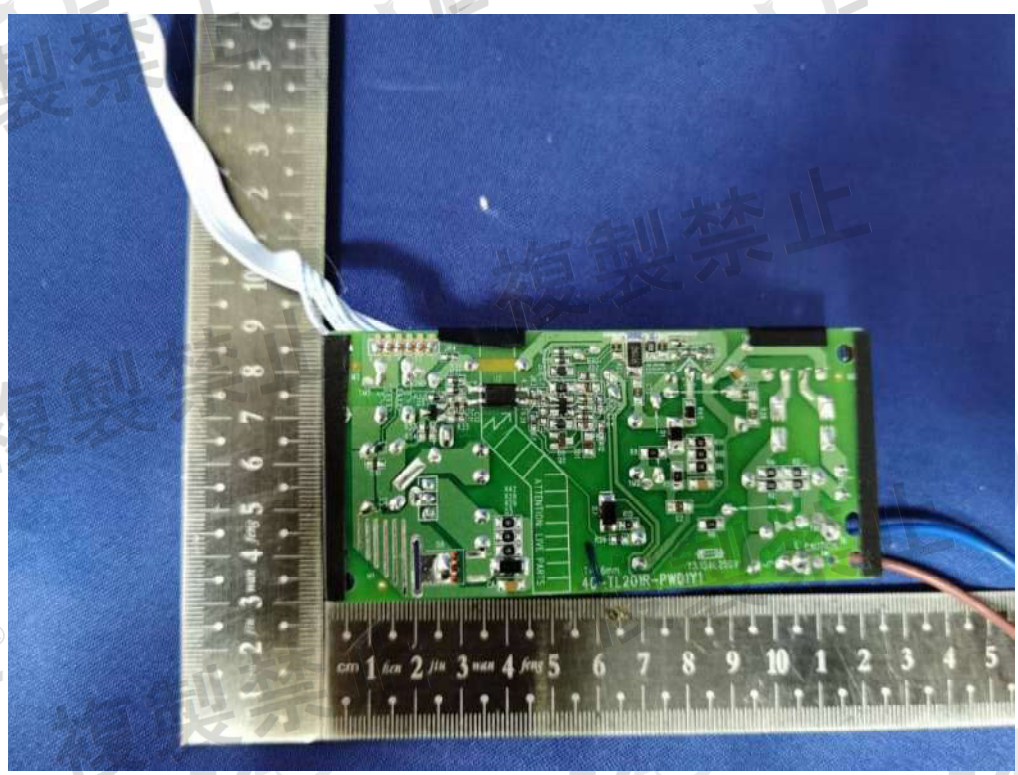

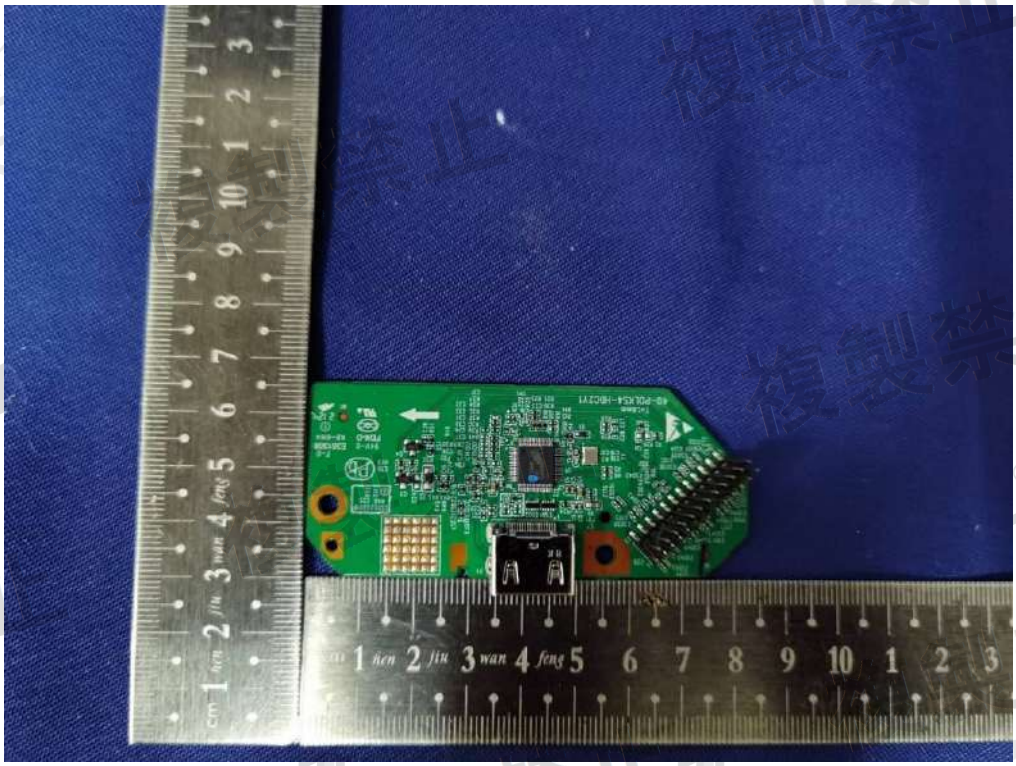

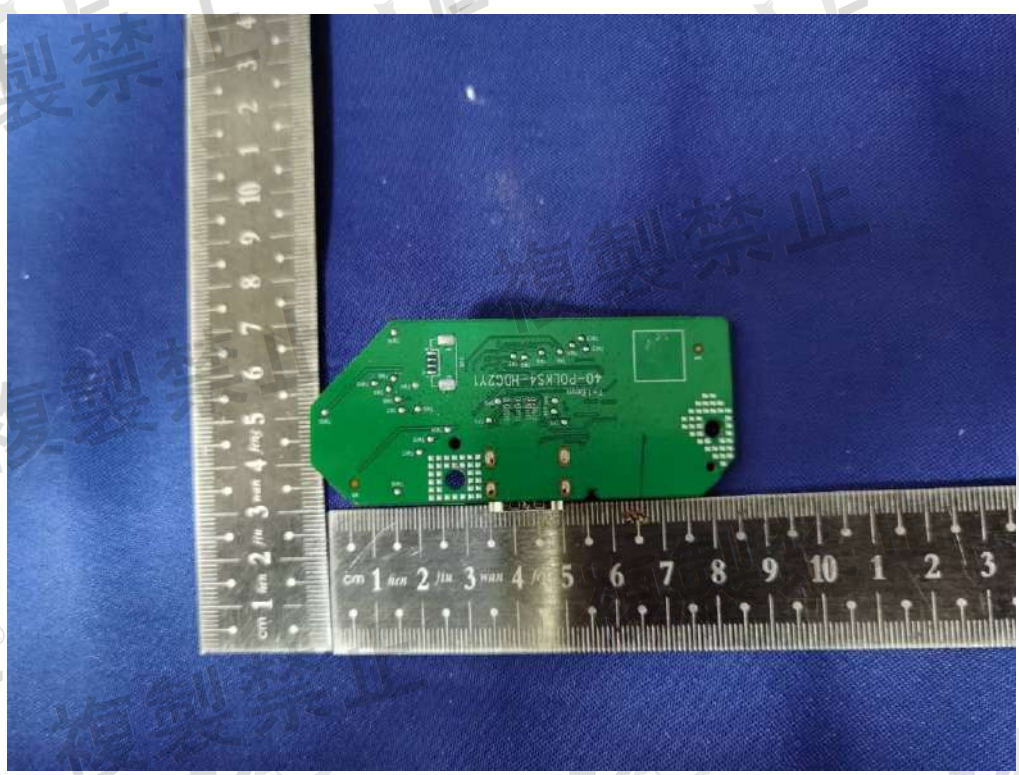

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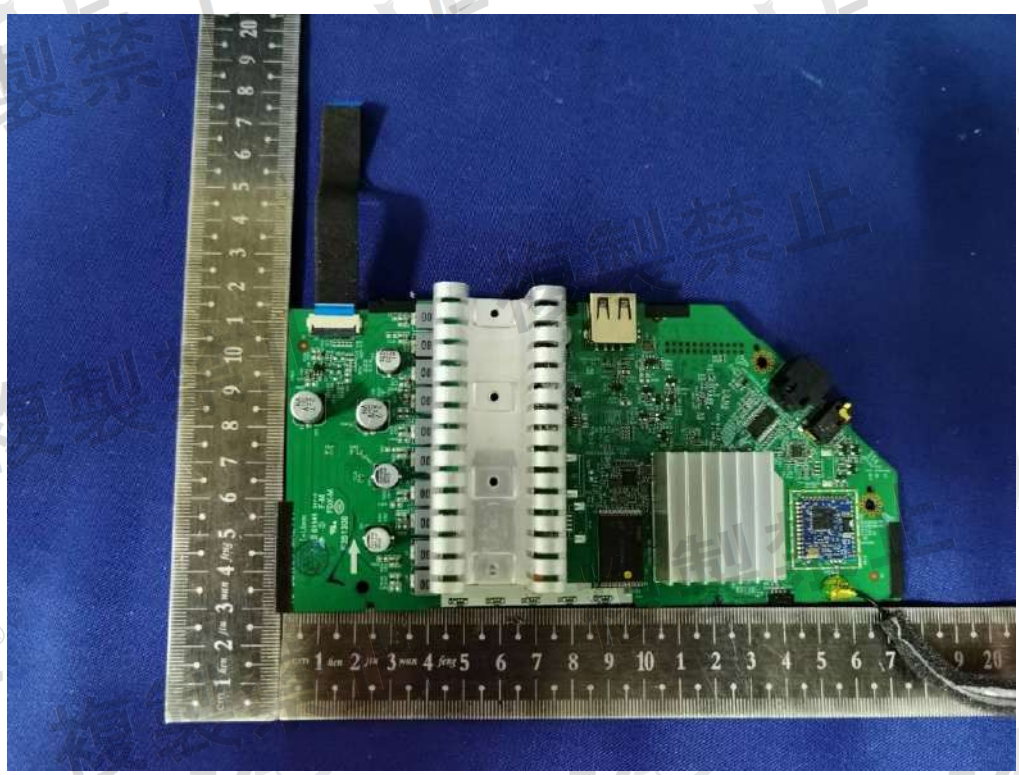

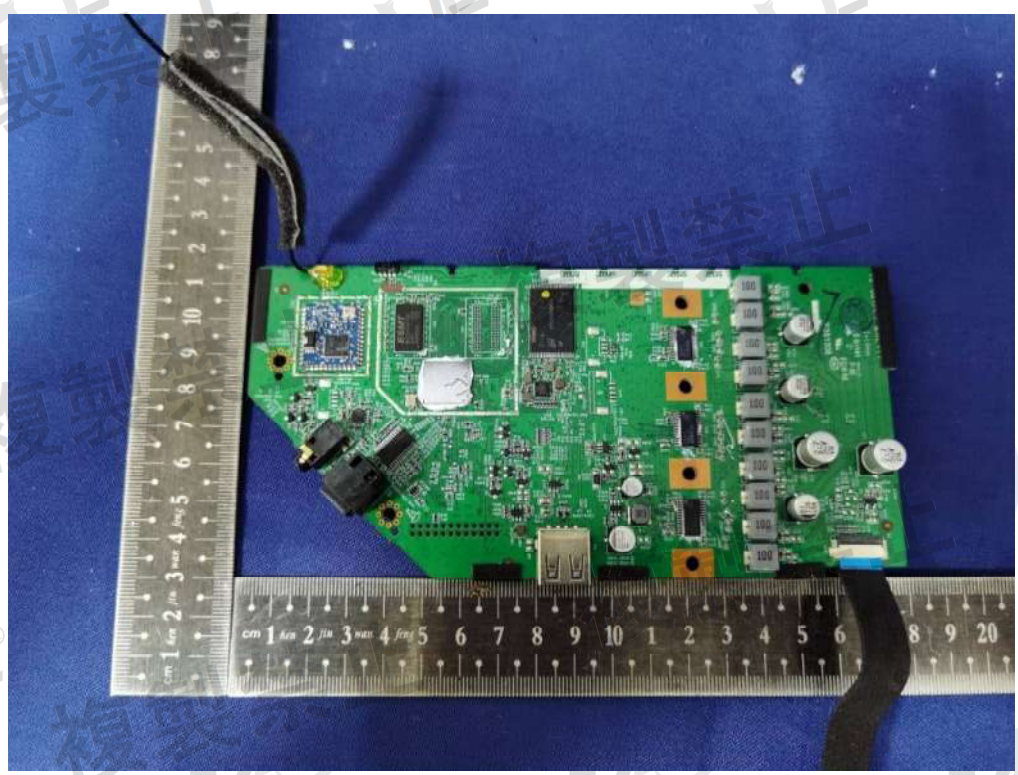

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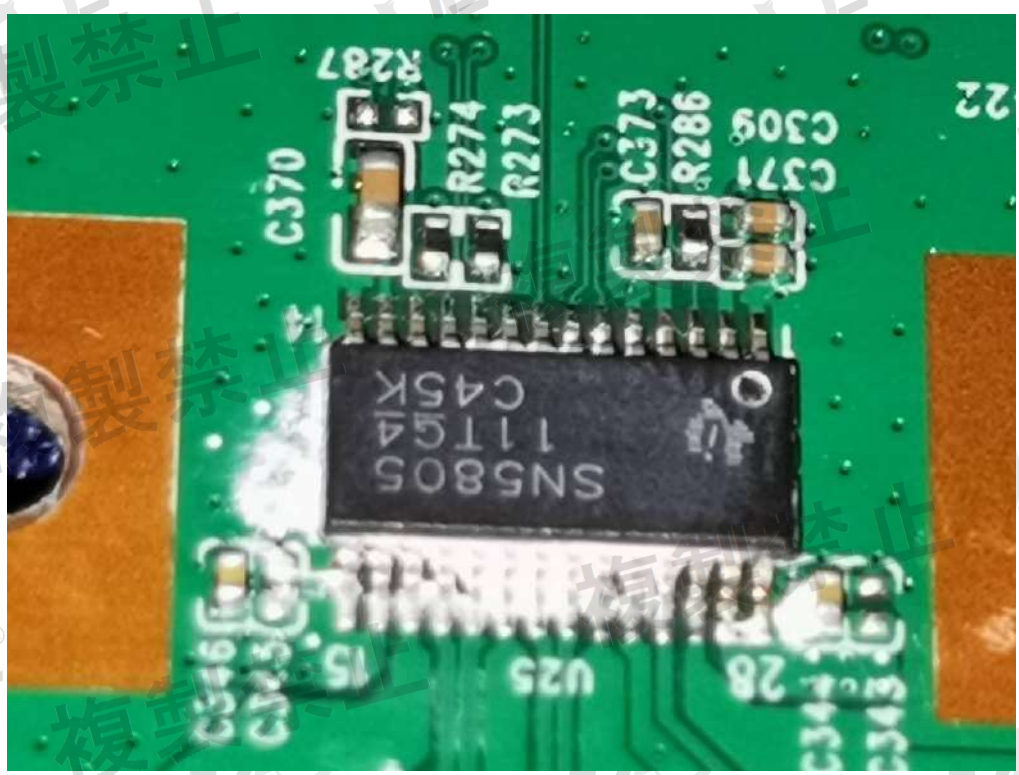
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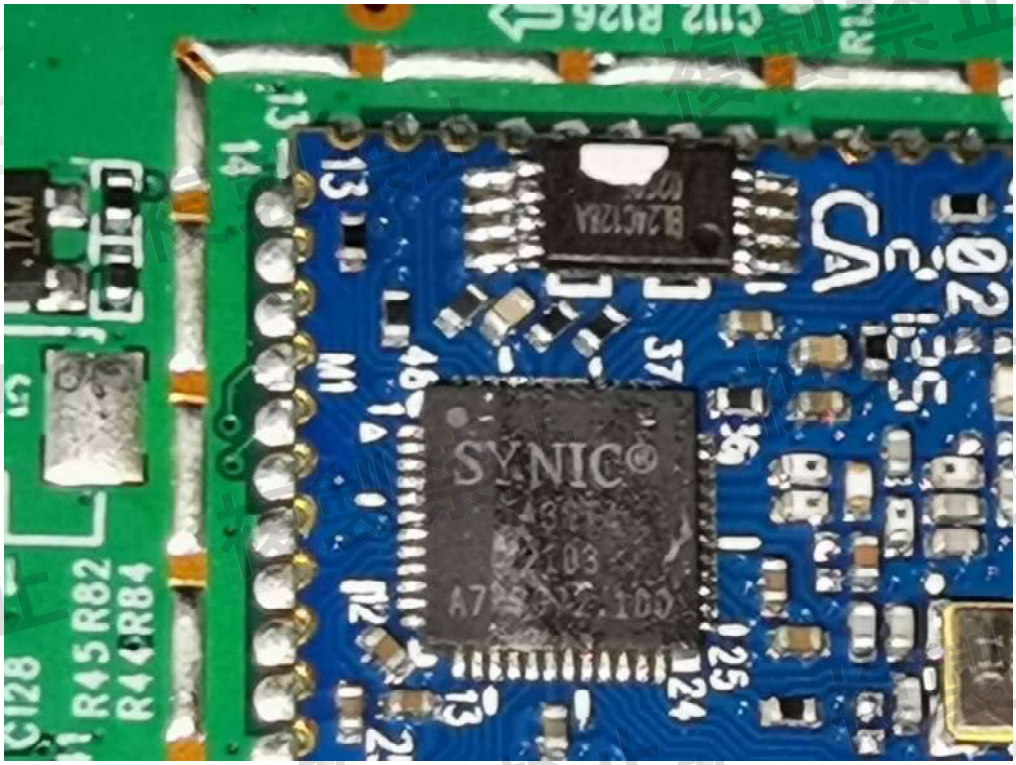
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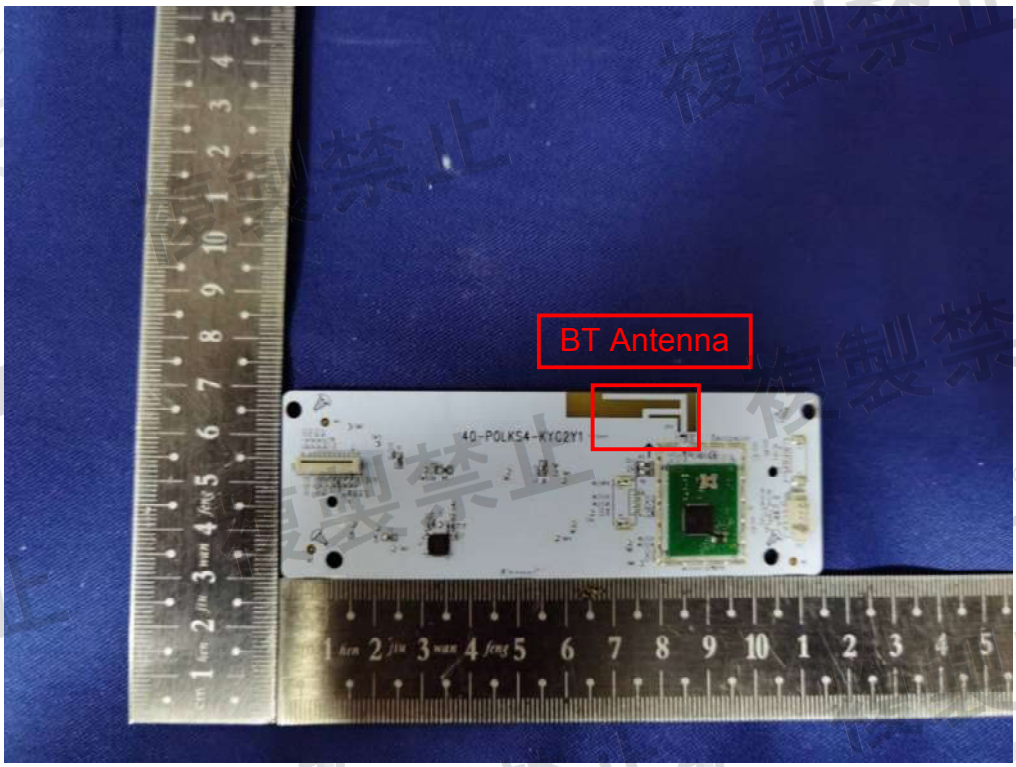
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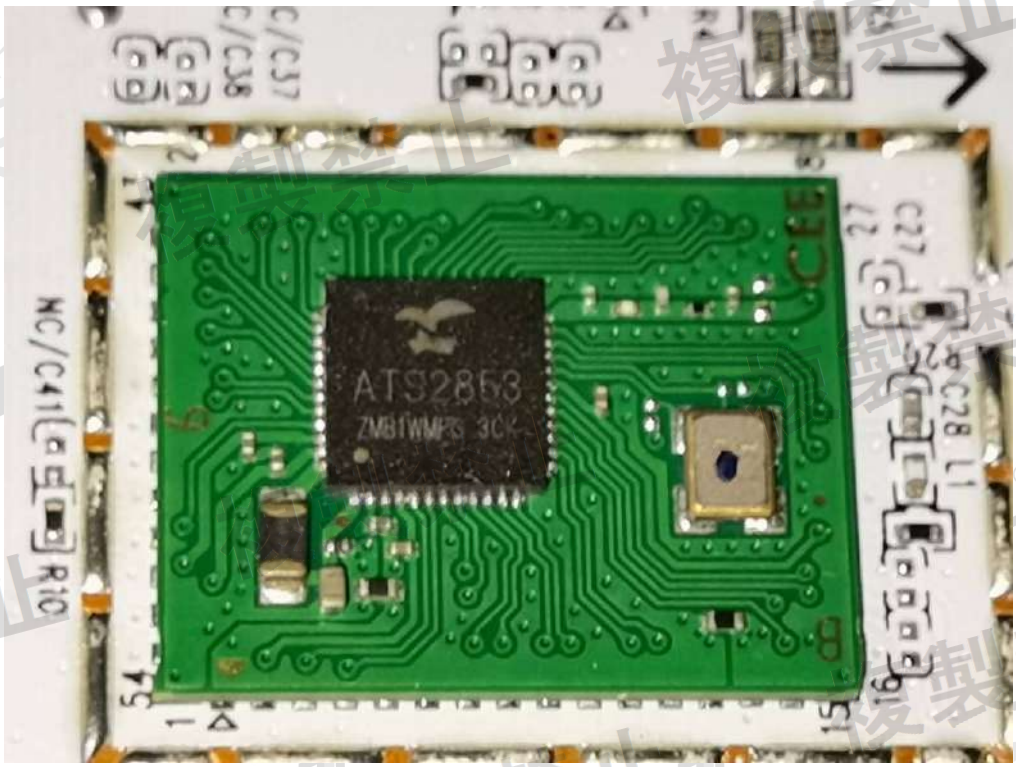
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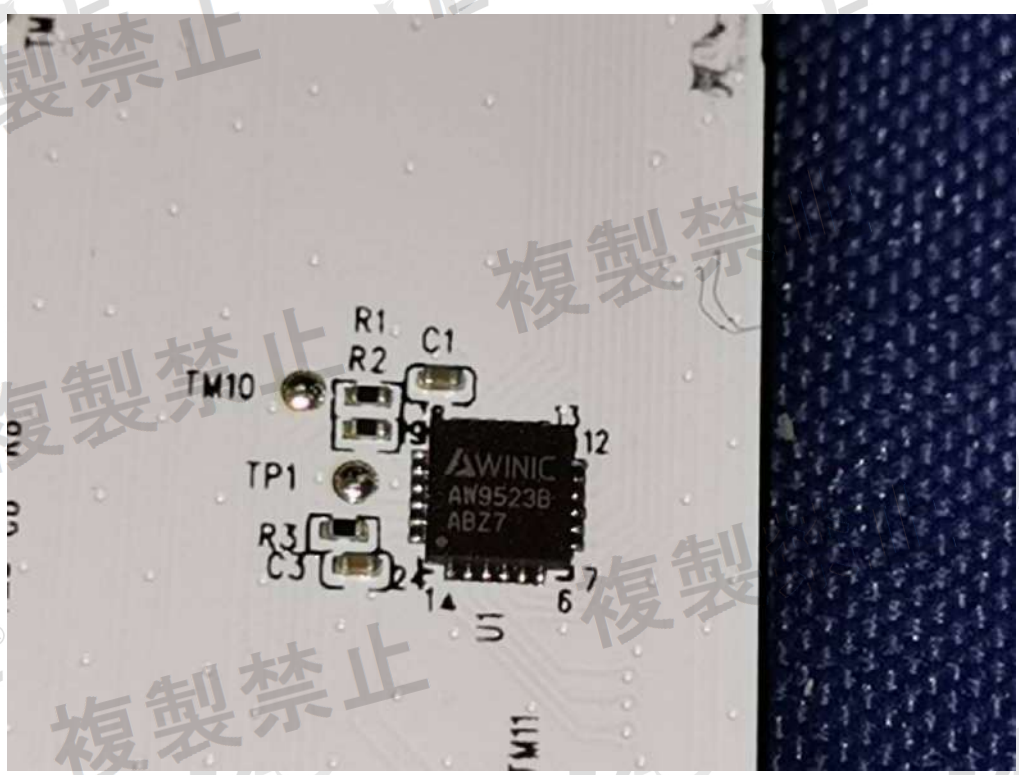
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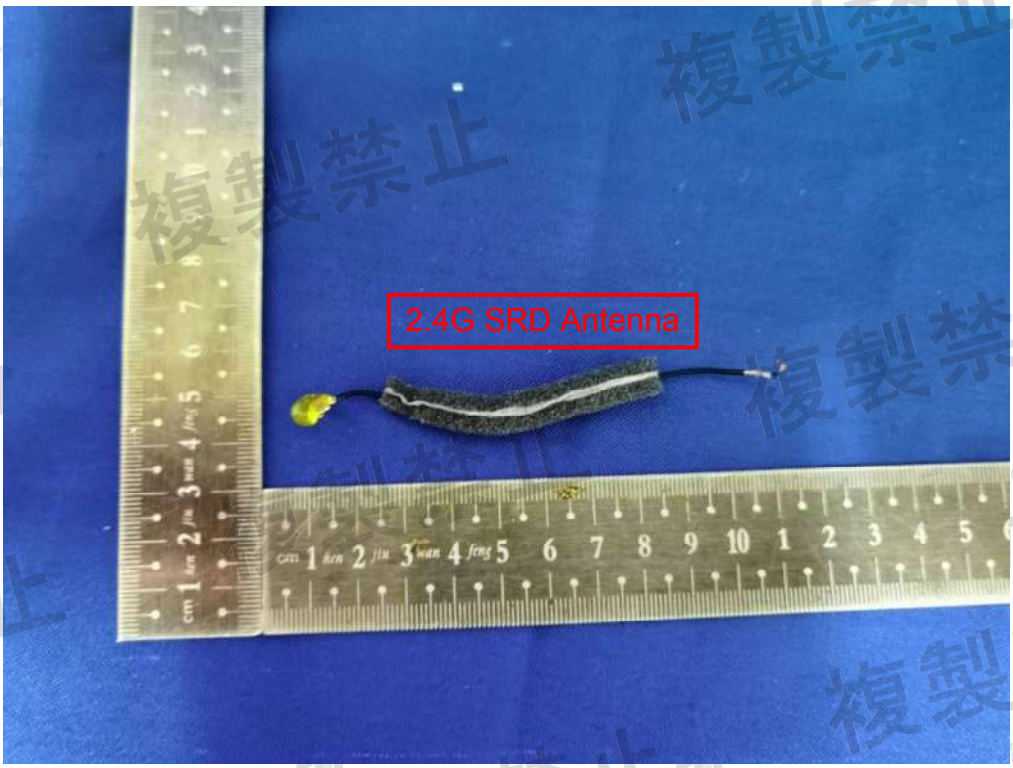
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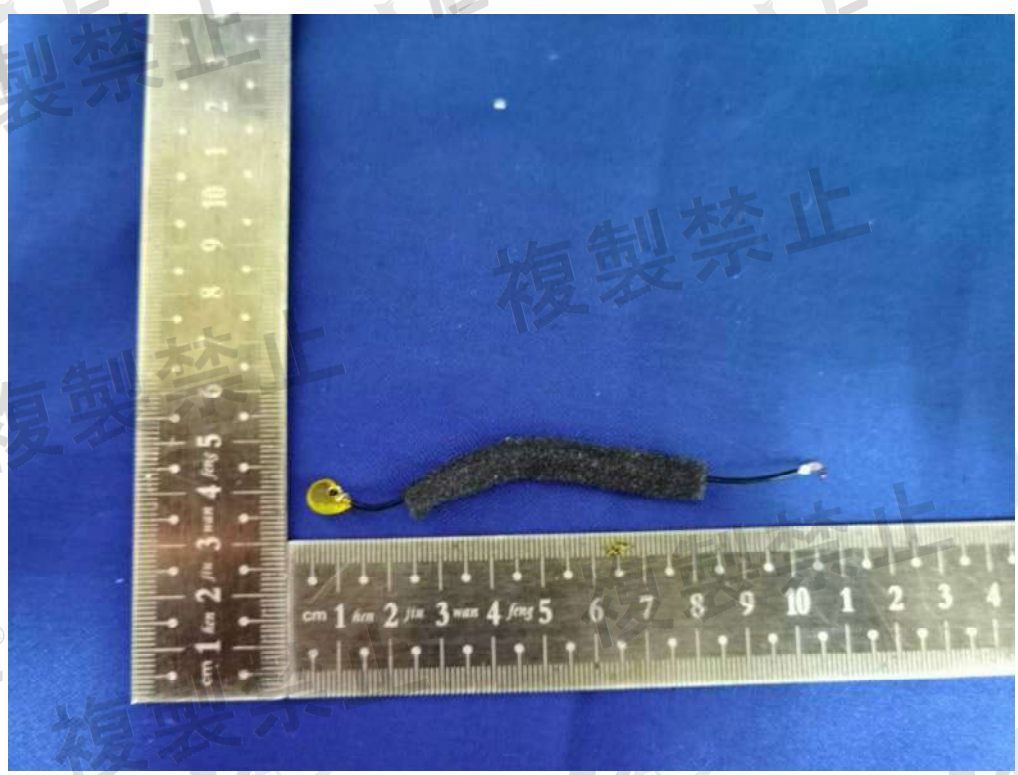

polk
VOICE ASSIST
VOL
BASS

END OF REPORT