

Prüfbericht-Nr.: Test report no.:	CN25YQ6W 001	Auftrags-Nr.: Order no.:	180343662	Seite 1 von 21 Page 1 of 21
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2025.08.14	
Auftraggeber: Client:	Nanik Japan, Inc. 2-31-4, Hatsudai, Shibuya-ku, Tokyo JAPAN			
Prüfgegenstand: Test item:	Waterproof Emitter			
Bezeichnung / Typ-Nr.: Identification / Type no.:	NK-D1629			
Auftrags-Inhalt: Order content:	TÜV Rheinland – RF Report Service			
Prüfgrundlage: Test specification:	Article 2-1-8 of the Certification Ordinance MIC Notification. No.88 Annex 22-2 ARIB STD-T67 (V2.0)			
Wareneingangsdatum: Date of sample receipt:	2025.08.19			
Prüfmuster-Nr.: Test sample no.:	A004071790-002			
Prüfzeitraum: Testing period:	2025.08.19 - 2025.09.26			
Ort der Prüfung: Place of testing:	Refer to section 1.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	<i>Keda Zhou</i>		genehmigt von: authorized by:	<i>Chonghai Liang</i>
Datum: Date:	2025.11.11		Ausstelldatum: Issue date:	2025.11.11
Stellung / Position:	Keda Zhou/PE		Stellung / Position:	Chonghai Liang/Authorizer
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:				
Prüfmuster vollständig und unbeschädigt Test item complete and undamaged				
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

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Anmerkungen
Remarks

- | | |
|---|--|
| 1 | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhäuses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.
Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p> |
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| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.
Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i>
<i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p> |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p> |



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Test Summary

4.1.1 ANTENNA POWER, ANTENNA POWER TOLERANCE AND EIRP

RESULT: Pass

4.1.2 FREQUENCY TOLERANCE

RESULT: Pass

4.1.3 OCCUPIED BANDWIDTH

RESULT: Pass

4.1.4 TRANSMITTER SPURIOUS EMISSIONS

RESULT: Pass

4.1.5 ADJACENT CHANNEL LEAKAGE POWER

RESULT: Pass

4.2.1 RECEIVER SPURIOUS EMISSIONS

RESULT: N/A

4.3.1 TRANSMITTER ANTENNA GAIN

RESULT: Pass

4.3.2 INTERFERENCE PREVENTION FUNCTION

RESULT: Pass

4.3.3 TRANSMISSION TIME RESTRICTION

RESULT: Pass

4.3.4 CARRIER SENSING FUNCTION

RESULT: N/A

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1. Test Sites

1.1 Test Facilities

Laboratory: TÜV Rheinland /CCIC (Ningbo) Co., Ltd.

1st Floor, Building 11, Scholar Innovation Park, No.1188 Zhongguan Road, Zhenhai District, Ningbo 315200 P.R. China

The test equipment used is in accordance with CISPR 16-1 series standards.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment, Laboratory

Equipment	Type	Serial No.	Calibrated until	Calibration Body	Calibration Method
Spectrum analyzer	FSV40	101412	2025.10.22	CEPREI	C
RF control Unit	JS0806-2	22G8060598	2025.10.24	CEPREI	C
Mains control unit	JS0806-4ADC	21L8060536	2025.10.22	CEPREI	C

Calibration Method:

- 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) of the Radio Law.
- Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan calibration Service System.
- 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).
- 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).

1.3 Uncertainty of Measurement

Table 2: Measurement Uncertainty

Parameter	Uncertainty
Frequency Error	$\pm 1 \times 10^{-8}$
Occupied Channel Bandwidth	$\pm 3 \%$
RF power conducted	$\pm 1.5 \text{ dB}$
Spurious Emissions, Conducted	$\pm 3 \text{ dB}$
Supply Voltages	$\pm 3 \%$
Time	$\pm 5 \%$

2. General Product Information

2.1 Product Function and Intended Use

The EUT is a Waterproof Emitter

For more detailed information, refer to the user's manual.

2.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Description of EUT	
Operating Voltage:	DC 3V
Protection Class:	Class III
Operating Temperature Range:	-10°C~50°C
Technical Specification of SRD (429MHz)	
Frequency Allocation:	429.1750 ~ 429.7375MHz
Channel Interval:	12.5kHz
Channel Frequency:	429.1875MHz
Communication Method:	Simplex
Modulation:	GFSK
Antenna Type:	PCB Antenna
Antenna Gain:	-15dB

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or User Manual for more detailed description.

2.3 Independent Operation Modes

There are some modes:

Mode A: Transmitting On

Mode B: Off

Refer to the user's manual for further information.

2.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

2.5 Submitted Documents

- Circuit Diagram
- Instruction Manual

- PCB Layout
- Label

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3. Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

3.2 Physical Configuration for Testing

NT: Normal Temperature (5 ~ 35°C)

NV: Normal Voltage (DC 3V)

LV: Low Voltage (DC 2.5V)

HV: High Voltage (DC 3.3V)

For more details refer to the related paragraph of this report.

3.3 Test Operation and Test Software

For more details refer to the related paragraph of this report.

3.4 Special Accessories and Auxiliary Equipment

Table 4: List of Auxiliary Equipment

Description	Manufacturer	Model No.
N/A	N/A	N/A

3.5 Countermeasures to Achieve ERM Compliance

The test sample which has been tested contained the noise suppression parts as described in the Circuit Diagram. No additional measures were employed to achieve compliance.



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4. Test Results RF

4.1 Transmitter Requirement

4.1.1 Antenna Power, Antenna Power Tolerance and EIRP

RESULT: **Pass**

Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : Antenna Power ≤ 1000 mW
Antenna Power Tolerance: -50% to +20%
EIRP ≤ 12.93 dBm
Kind of test site : Shielding Room

Test Setup

Date of testing : 2025.09.11
Test Environment: : Normal and extreme test condition
Operation mode : See below table
Ambient temperature : 25°C
Relative humidity : 57%
Atmospheric pressure : 101kPa

Table 5: Test result of Antenna Power

Test Condition	Test Mode	Freq. (MHz)	Result (dBm)	Result (mW)	Limit (mW)	Verdict
NTNV	A	429.1875	2.58	1.81	≤ 1000	Pass
NTLV	A	429.1875	2.70	1.86	≤ 1000	Pass
NTHV	A	429.1875	2.57	1.81	≤ 1000	Pass

Table 6: Test result of Antenna Power Tolerance

Test Condition	Test Mode	Freq. (MHz)	Power (mW)	Rated Power (mW)	Result (%)	Limit (%)	Verdict
NTNV	A	429.1875	1.81	2	-9.5	-50 to +20	Pass
NTLV	A	429.1875	1.86	2	-7.0	-50 to +20	Pass
NTHV	A	429.1875	1.81	2	-9.5	-50 to +20	Pass

Table 7: Test result of EIRP

Test Condition	Test Mode	Freq. (MHz)	Antenna Gain (dBi)	Result (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
NTNV	A	429.1875	-15	2.58	-12.42	≤ 12.93	Pass
NTLV	A	429.1875	-15	2.70	-12.30	≤ 12.93	Pass
NTHV	A	429.1875	-15	2.57	-12.43	≤ 12.93	Pass

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4.1.2 Frequency Tolerance

RESULT:

Pass

Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : Frequency Tolerance: ± 4 ppm
Kind of test site : Shielding Room

Test Setup

Date of testing : 2025.09.11
Test Environment: : Normal and extreme test condition
Operation mode : See below table
Ambient temperature : 25°C
Relative humidity : 57%
Atmospheric pressure : 101kPa

Table 8: Test result of Frequency Tolerance

Test Condition	Test Mode	Freq. (MHz)	Center Freq. (MHz)	Result (ppm)	Limit (ppm)	Verdict
NTNV	A	429.1875	429.18721	-0.68	± 4	Pass
NTLV	A	429.1875	429.18721	-0.68	± 4	Pass
NTHV	A	429.1875	429.18721	-0.68	± 4	Pass



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4.1.3 Occupied Bandwidth

RESULT:

Pass

Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : Occupied Bandwidth: ≤ 8.5 kHz
Kind of test site : Shielding Room

Test Setup

Date of testing : 2025.09.11
Test Environment: : Normal and extreme test condition
Operation mode : See below table
Ambient temperature : 25°C
Relative humidity : 57%
Atmospheric pressure : 101 kPa

Table 9: Test result of Occupied Bandwidth

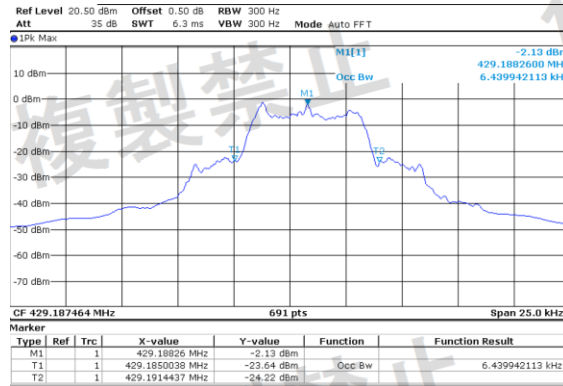
Test Condition	Test Mode	Freq. (MHz)	Result (kHz)	Limit (kHz)	Verdict
NTNV	A	429.1875	6.44	≤ 8.5	Pass
NTLV	A	429.1875	6.40	≤ 8.5	Pass
NTHV	A	429.1875	6.48	≤ 8.5	Pass

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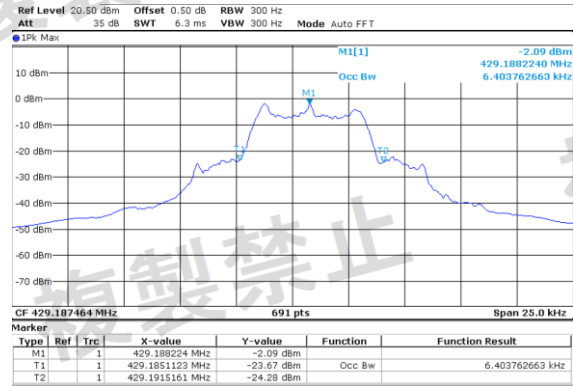
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Figure 1: Test result of Occupied Channel Bandwidth

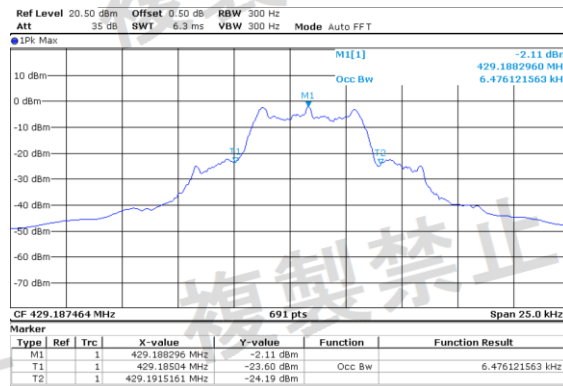
NTNV



NTLV



NTHV





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4.1.4 Transmitter Spurious Emissions

RESULT:

Pass

Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)

Limit : $\leq 2.5\mu\text{W}$

Kind of test site : Shielding Room

Test Setup

Date of testing : 2025.09.11

Test Environment: : Normal and extreme test condition

Operation mode : See below table

Ambient temperature : 25°C

Relative humidity : 57%

Atmospheric pressure : 101kPa

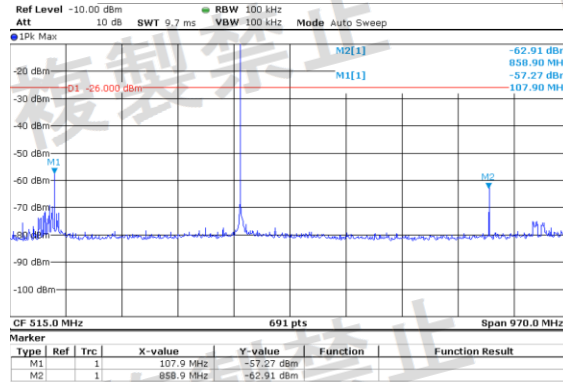
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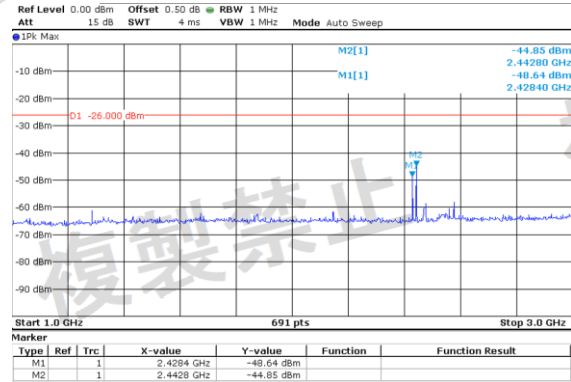
Figure 2: Test result of Transmitter Spurious Emissions

NTNV

30MHz ~ 1GHz

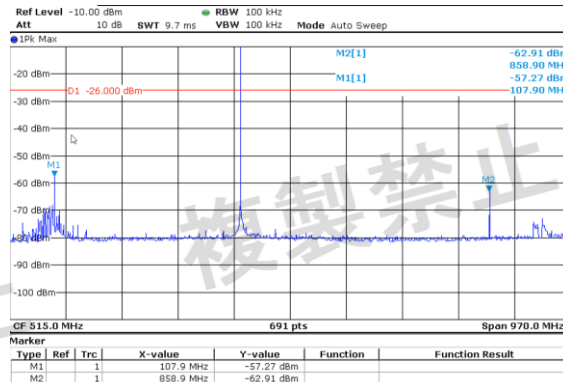


1GHz ~ 3GHz

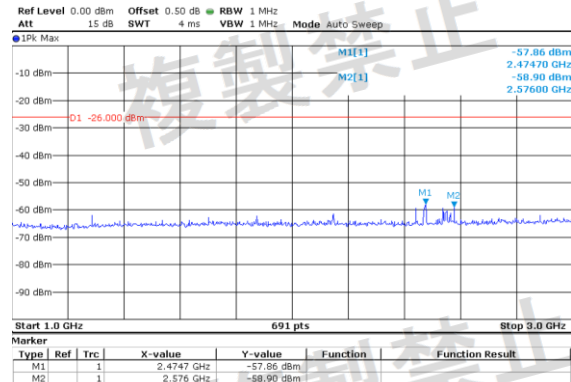


NTLV

30MHz ~ 1GHz

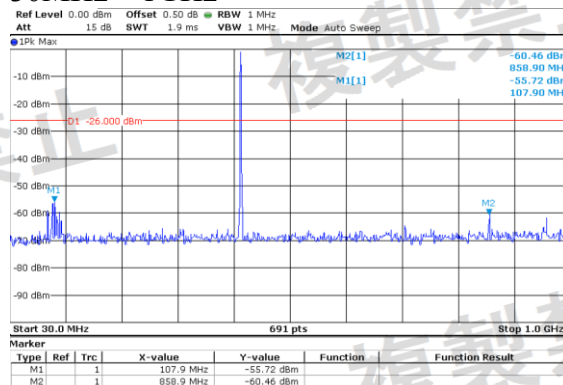


1GHz ~ 3GHz

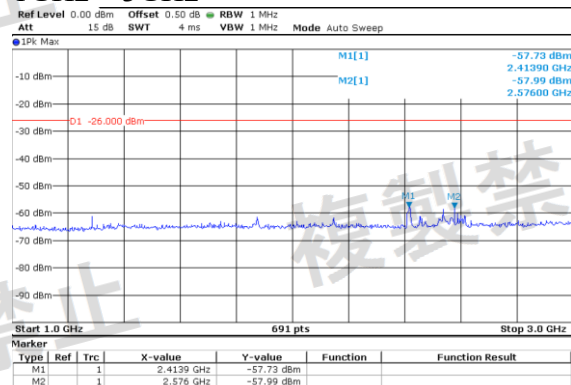


NTHV

30MHz ~ 1GHz



1GHz ~ 3GHz



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4.1.5 Adjacent Channel Leakage Power

RESULT:

Pass

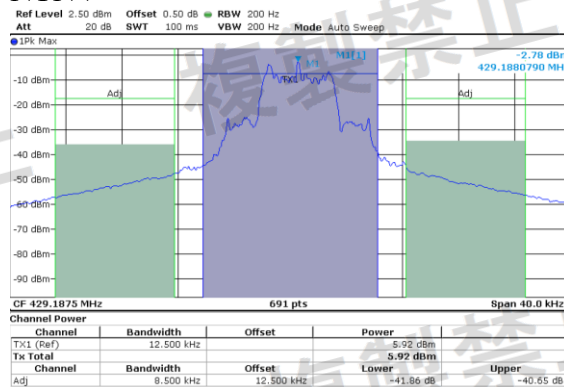
Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : Adjacent Channel Leakage Power: ≤ -40 dBc
Kind of test site : Shielding Room

Test Setup

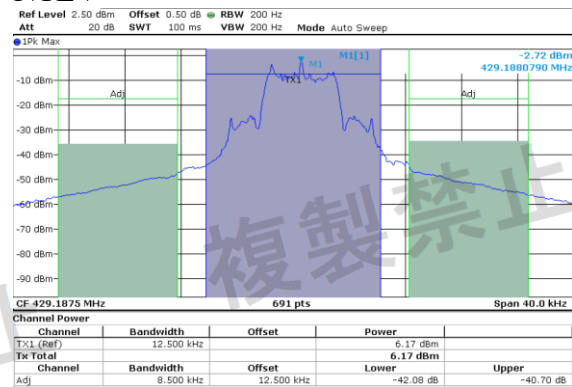
Date of testing : 2025.09.20
Test Environment: : Normal and extreme test condition
Operation mode : See below table
Ambient temperature : 25°C
Relative humidity : 57%
Atmospheric pressure : 101kPa

Figure 3: Test result of Adjacent Channel Leakage Power

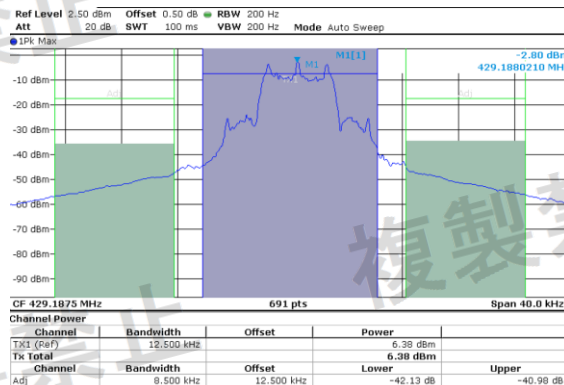
NTNV



NTLV



NTHV





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4.2 Receiver Requirement

4.2.1 Receiver Spurious Emissions

RESULT:

N/A

Test standard	:	Article 2-1-8 of the Certification Ordinance MIC Notification. No.88 Annex 22-2 ARIB STD-T67 (V2.0)
Limit	:	$\leq 4\text{nW}$

Conclusion

The EUT only supports transmission mode, so this test item is not applicable.



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4.3 Others

4.3.1 Transmitter Antenna Gain

RESULT:

Pass

Test standard	:	Article 2-1-8 of the Certification Ordinance ARIB STD-T67 (V2.0)
Limit	:	$\leq 2.14\text{dB}$

Test Result

The Antenna Gain is -15dB that declared by manufacturer.

Conclusion

The EUT is deemed to fulfill the relevant requirements.



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4.3.2 Interference Prevention Function

RESULT:

Pass

Test standard : Article 2-1-8 of the Certification Ordinance
ARIB STD-T67 (V2.0)

Test Procedures

According to Chapter 3.4.1 of ARIB STD-T67 (V2.0),
When not connected to a telecommunications circuit
Function of 1) or 2) below:

- 1) Function for automatically transmitting or receiving an identification sign in the radio equipment of a radio station used primarily on the same premises
- 2) Function for enabling the user to switch frequencies or easily deactivate radio-frequency transmission

Test Result

This EUT is a Remote Controller and is not connected to a telecommunications circuit. It is easily deactivated radio-frequency transmission by user.

Conclusion

The EUT is deemed to fulfill the relevant requirements.

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4.3.3 Transmission Time Restriction

RESULT:

Pass

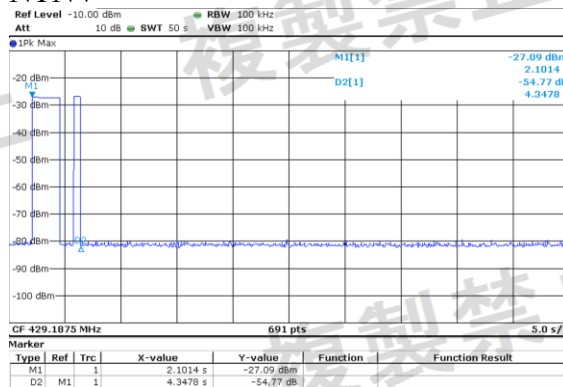
Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : Transmission ON : within 40 sec.
Transmission OFF : over 2 sec.
Kind of test site : Shielding Room

Test Setup

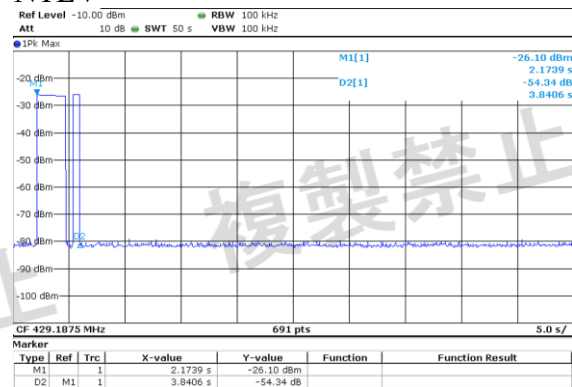
Date of testing : 2025.09.26
Test Environment: : Normal and extreme test condition
Operation mode : See below table
Ambient temperature : 25°C
Relative humidity : 57%
Atmospheric pressure : 101kPa

Figure 4: Test result of Transmission Time Restriction

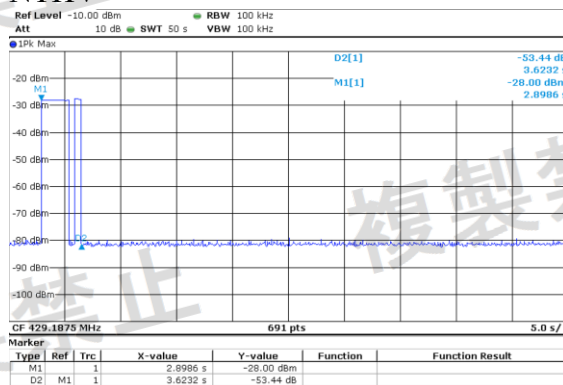
NTNV



NTLV



NTHV





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4.3.4 Carrier Sensing Function

RESULT:

N/A

Test standard : Article 2-1-8 of the Certification Ordinance
MIC Notification. No.88 Annex 22-2
ARIB STD-T67 (V2.0)
Limit : -96 dBm or more

Test Result

N/A

Conclusion

The Antenna Power is not exceeding 10 dBm, So this test item is not applicable for EUT.

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5. Photographs of the Test Set-Up

Photograph 1: Set-up for RF test



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