

Test Report

Test report no.: 26012360-49421-0

Date of issue: 2026-04-01

Test result: The test item - **passed** - and **complies** with below listed standards.

Applicant

trinamiX GmbH

Manufacturer

trinamiX GmbH

Test Item

PAL Two

RF-Spectrum Testing according to:

Public notice of MIC No. 88 test method of specified radio equipment
Annex 43. Article 2 paragraph 1 item 19.

Tested by
(name, function, signature)

Karsten Gerald
Lab Manager RF


signature

Approved by
(name, function, signature)

Andreas Bender
Deputy Managing Director


signature

Applicant and Test item details

Applicant	trinamiX GmbH Industriestraße 35 67063, Ludwigshafen, Germany
Manufacturer	trinamiX GmbH Industriestraße 35 67063, Ludwigshafen, Germany
Test item description	The trinamiX PAL Two is a portable spectrometer for various applications, such as quality control, on-site analysis, agriculture, plastic sorting, and laboratory use.
Model/Type reference	PAL Two
Standard specific information	
Technology	Bluetooth Low Energy (BLE)
Frequency band	2400 – 2483.5 MHz
Antenna	PCB antenna
Power supply	3.6 V DC (via battery) / 5.0 V DC (via USB-C)
Temperature range	0 °C – +40 °C

Disclaimer and Notes

The content of this report relates to the mentioned test sample(s) only.

IBL-Lab GmbH does not take samples. The samples used for testing are provided by the applicant.

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The last valid version is available at [TAMSys®](#).

Signatures are done electronically, if signer does not match stated signer, it is signed per order.

Information supplied by the applicant can affect the validity of results. The data is marked accordingly.

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Within this test report, a ☒ point / ☐ comma is used as a decimal separator.

If otherwise, a detailed note is added adjoined to its use.

Decision rule:

Decision rule based on simple acceptance without guard bands, binary statement, based on mutually agreed uncertainty tolerances with expansion factor k=2 according to ILAC-G8:09/2019

1 TABLE OF CONTENTS

1	TABLE OF CONTENTS	3
2	GENERAL INFORMATION	4
2.1	Administrative details	4
2.2	Possible test case verdicts	5
2.3	Observations	5
2.4	Opinions and interpretations	5
2.5	Revision history	5
2.6	Further documents	5
3	ENVIRONMENTAL & TEST CONDITIONS	6
3.1	Environmental conditions of test laboratory	6
3.2	Normal and extreme test conditions	6
4	TEST STANDARDS AND REFERENCES	6
5	EQUIPMENT UNDER TEST (EUT)	7
5.1	Product description	7
5.2	Description of test item	7
5.3	Technical Data of Equipment	7
5.4	Additional Information	7
5.5	Test modes	8
6	SUMMARY OF TEST RESULTS	9
7	TEST RESULTS	10
7.1	Antenna power / Antenna power tolerance / EIRP	10
7.2	Occupied bandwidth (99% OBW)	15
7.3	Frequency tolerance	19
7.4	Tx Spurious emissions and unwanted emissions	23
7.5	Secondary (Rx) spurious emissions	26
7.6	Antenna Gain	28
8	TEST SETUP DESCRIPTION	29
8.1	Conducted measurements BT/WLAN test system	30
9	MEASUREMENT UNCERTAINTIES	31
Annex A	EUT Photographs	32
Annex B	Test Setup Photographs	35

2 GENERAL INFORMATION

2.1 Administrative details

Testing laboratory	IBL-Lab GmbH Heinrich-Hertz-Allee 7 66386 St. Ingbert / Germany Fon: +49 6894 38938-0 Fax: +49 6894 38938-99 URL: https://ib-lenhardt.com/ E-Mail: info@ib-lenhardt.com
Accreditation / Designation	The testing laboratory is accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) in compliance with DIN EN ISO/IEC 17025:2018. Scope of testing and registration number: • Attachment to the accreditation certificate D-PL-21375-01-00 ○ Electronics ○ Electromagnetic Compatibility ○ Radio ○ Electromagnetic Compatibility and Telecommunication (FCC requirements) ○ Telecommunication (TC) and Electromagnetic Compatibility (EMC) for Canadian Standards ○ Automotive EMC Website DAkkS: https://www.dakks.de/ The Deutsche Akkreditierungsstelle GmbH (DAkkS) is also a signatory to the ILAC Mutual Recognition Arrangement. • Designations ○ FCC Testing Laboratory Designation Number DE0024 ○ ISED ISED Company Number 27156 Testing Laboratory CAB Identifier DE0020 ○ Kraftfahrt-Bundesamt KBA-P 00120-23
Testing location	IBL-Lab GmbH Heinrich-Hertz-Allee 7 66386 St. Ingbert / Germany
Date of receipt of test samples	2026-02-20
Start – End of tests	2026-03-10 – 2026-03-16

2.2 Possible test case verdicts

Test sample meets the requirements	P (PASS) – the measured value is below the acceptance limit, AL = TL
Test sample does not meet the requirements	F (FAIL) – the measured value is above the acceptance limit, AL = TL
Test case does not apply to the test sample	N/A (Not applicable)
Test case not performed	N/P (Not performed)

2.3 Observations

No additional observations other than the reported observations within this test report have been made.

2.4 Opinions and interpretations

No appropriate opinions or interpretations according ISO/IEC 17025:2017 clause 7.8.7 are within this test report.

2.5 Revision history

-0 Initial Version

2.6 Further documents

List of further applicable documents belonging to the present test report:
– no additional documents –

3 ENVIRONMENTAL & TEST CONDITIONS

3.1 Environmental conditions of test laboratory

Temperature	20°C ± 5°C
Relative humidity	25-75 % r.H.
Barometric Pressure	860-1060 mbar
Power supply	230 V / 50 Hz

3.2 Normal and extreme test conditions

	minimum	nominal	maximum
Temperature	-/- °C	+22 °C	-/- °C
Relative humidity	-/-	45 % r.h.	-/-
Power supply	4.5 V DC	5.0 V DC	5.5 V DC

4 TEST STANDARDS AND REFERENCES

Test standard (not accredited)

Public notice of MIC No. 88 test method of specified radio equipment
Annex 43. Article 2 paragraph 1 item 19.

Reference	Description
– none –	– none –

5 EQUIPMENT UNDER TEST (EUT)

5.1 Product description

The trinamiX PAL Two is a portable spectrometer for various applications, such as quality control, on-site analysis, agriculture, plastic sorting, and laboratory use.

*: as declared by applicant

5.2 Description of test item

Model name*	PAL Two
Serial number*	P200010035
Hardware status*	EVT1e
Software status*	1.7.2

*: as declared by applicant

5.3 Technical Data of Equipment

Technology*	Bluetooth Low Energy (BLE)
Operational frequency band*	2400 – 2483.5 MHz
Operational carrier frequency*	2402 – 2480 MHz
Modulation type*	GFSK
Data rate*	LE 1M PHY
Number of channels*	40 (3 advertising channels, 37 data channels)
Channel bandwidth*	2 MHz
Channel spacing*	2 MHz
Receiver category*	1
Antenna*	PCB antenna
Antenna gain*	4.04 dBi
RF Output Power*	max. 6.1 dBm
Power supply*	3.6 V DC (via battery) / 5.0 V DC (via USB-C)
Temperature range*	0 °C – +40 °C

*: as declared by applicant; further details in clause 5.4.1 of test specification

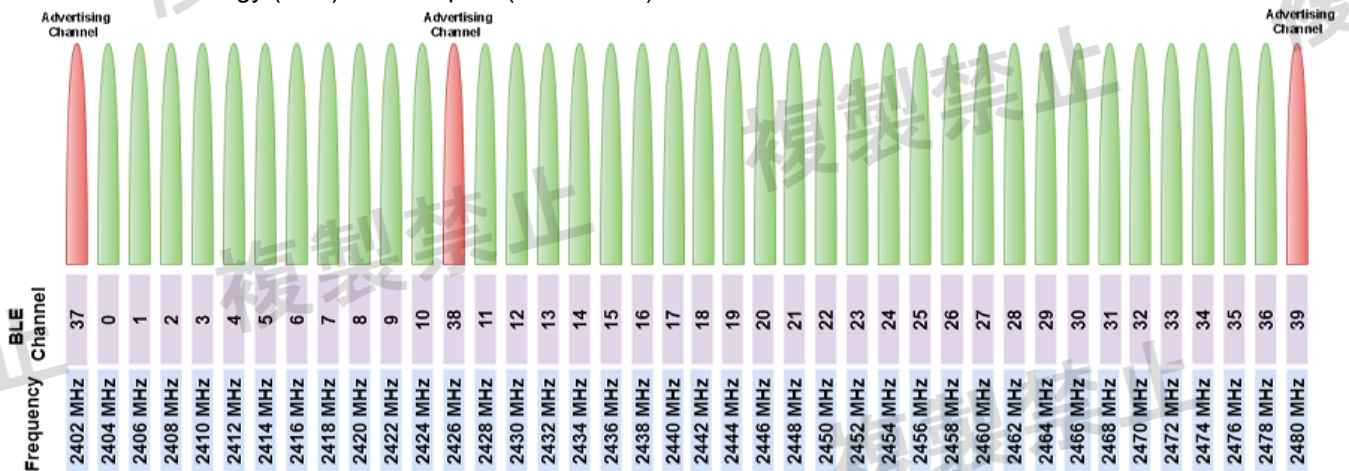
5.4 Additional Information

Model differences	– none –
Ancillaries tested with	– none –
Additional equipment used for testing	Notebook with Espressif EspRFTTestTool v5.2 Adapter cable from USB to UART

5.5 Test modes

Mode 1	GFSK, 1 Mbit/s, Tx power setting = 10 dBm, PRBS9, payload length 250
Mode 2	Rx-Mode
Low Channel	CH37 = 2402 MHz
Mid Channel	CH17 = 2440 MHz
High Channel	CH39 = 2480 MHz

Bluetooth Low Energy (BLE) channel plan (informative):

© <https://de.mathworks.com>

6 SUMMARY OF TEST RESULTS

Test specification

Public notice of MIC No. 88 test method of specified radio equipment
Annex 43. Article 2 paragraph 1 item 19.

Requirement / Test Case	Remark	Result	Verdict
Antenna power & Antenna power tolerance & EIRP	$V_{\min} / V_{\text{nom}} / V_{\max}$	6.11 dBm +0.2% / -31.6% 10.15 dBm	- PASS -
Occupied bandwidth	$V_{\min} / V_{\text{nom}} / V_{\max}$	1043 kHz	- PASS -
Frequency tolerance	$V_{\min} / V_{\text{nom}} / V_{\max}$	-2.8 ppm	- PASS -
Tx spurious emissions / unwanted emissions	$V_{\min} / V_{\text{nom}} / V_{\max}$	< limit	- PASS -
Secondary (Rx) spurious emissions	$V_{\min} / V_{\text{nom}} / V_{\max}$	< limit	- PASS -
Antenna gain	-/-	4.04 dBi	- PASS -

Comments and observations

– none –

7 TEST RESULTS

7.1 Antenna power / Antenna power tolerance / EIRP

Description

The radiated mean (average) power (e.i.r.p.) of the EUT, at a particular frequency is the product of the mean power supplied to the antenna times the antenna gain in a given direction relative to an isotropic antenna under the specified conditions of measurement. The maximum mean power (e.i.r.p.) is the mean power radiated in the direction of the maximum level (usually the boresight of the antenna) under the specified conditions of measurement. This radiated power is to be measured in the operating frequencies ranges.

The value is given in dBm.

Limits

The radar device's conducted mean power shall not exceed 10 mW / 10 dBm within the occupied bandwidth. The antenna power tolerance is limited to nominal antenna power +20% and -80%.

Test procedure

Method with spectrum analyser

A spectrum analyser with the following settings is used as measuring receiver in the test set-up described in clause 5:

- Start frequency: lower than the lower edge of the operating frequency range.
- Stop frequency: higher than the upper edge of the operating frequency range.
- Resolution bandwidth: 1 MHz.
- Video bandwidth: $VBW \geq RBW$.
- Detector mode: RMS.
- Display mode: clear write.
- Averaging time: larger than one EUT cycle time.
- Sweep time: averaging time $\times$ number of sweep points.

Channel Power function needs to be used to calculate the average power. Boundaries for the calculation needs to be defined. This is typically the operating frequency range.

Method with power meter

The power meter shall be connected to the measurement antenna. The frequency correction factor shall be taken into account. The power meter shall be a true RMS power meter. The measurement time shall be equal or longer than the EUT cycle time.

Test procedure used: Method with Power Meter

Test setup: 8.1

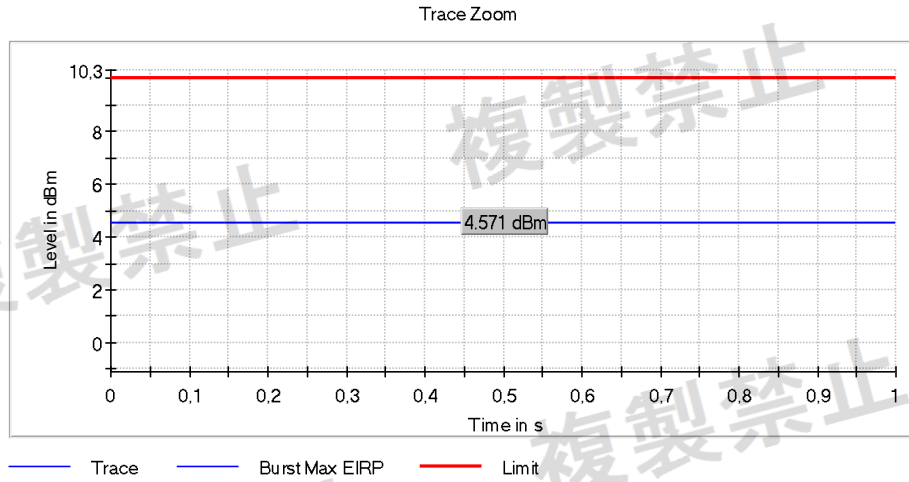
Test results:

Channel	Conditions	Antenna power [dBm]	Antenna gain [dBi]	EIRP [dBm]
Low	$T_{\text{nom}} / V_{\text{min}}$	4.57	4.04 dBi	8.61
	$T_{\text{nom}} / V_{\text{nom}}$	4.45		8.49
	$T_{\text{nom}} / V_{\text{max}}$	4.42		8.46
Mid	$T_{\text{nom}} / V_{\text{min}}$	6.11	4.04 dBi	10.15
	$T_{\text{nom}} / V_{\text{nom}}$	4.96		9.00
	$T_{\text{nom}} / V_{\text{max}}$	5.97		10.01
High	$T_{\text{nom}} / V_{\text{min}}$	5.51	4.04 dBi	9.55
	$T_{\text{nom}} / V_{\text{nom}}$	4.76		8.80
	$T_{\text{nom}} / V_{\text{max}}$	5.38		9.42

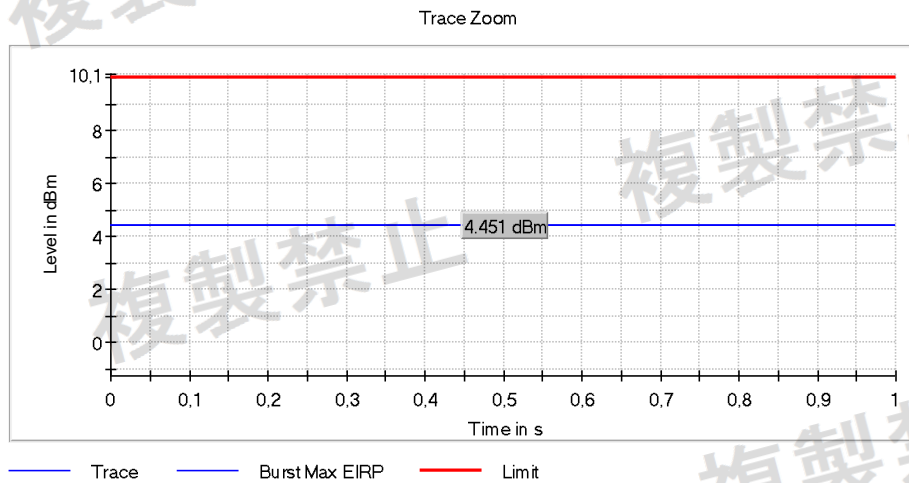
Channel	Conditions	Antenna power [dBm] / [mW]	Rated antenna power [dBm] / [mW]	Power tolerance [%]
Low	$T_{\text{nom}} / V_{\text{min}}$	4.57 / 2.86	6.1 / 4.07	-29.7
	$T_{\text{nom}} / V_{\text{nom}}$	4.45 / 2.79	6.1 / 4.07	-31.6
	$T_{\text{nom}} / V_{\text{max}}$	4.42 / 2.77	6.1 / 4.07	-32.1
Mid	$T_{\text{nom}} / V_{\text{min}}$	6.11 / 4.08	6.1 / 4.07	0.2
	$T_{\text{nom}} / V_{\text{nom}}$	4.96 / 3.13	6.1 / 4.07	-23.1
	$T_{\text{nom}} / V_{\text{max}}$	5.97 / 3.95	6.1 / 4.07	-2.9
High	$T_{\text{nom}} / V_{\text{min}}$	5.51 / 3.56	6.1 / 4.07	-12.7
	$T_{\text{nom}} / V_{\text{nom}}$	4.76 / 2.99	6.1 / 4.07	-26.5
	$T_{\text{nom}} / V_{\text{max}}$	5.38 / 3.45	6.1 / 4.07	-15.3

Comment:

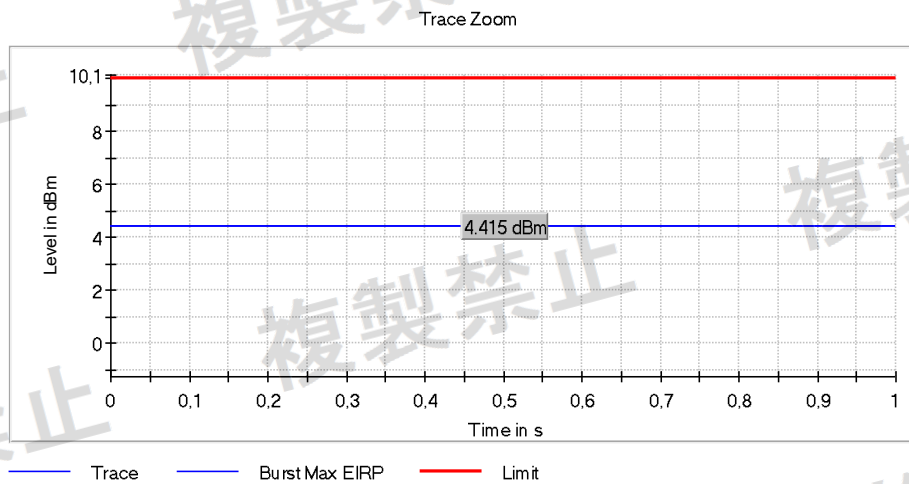
Plot 1: Mode 1, RF Output Power, low channel, $T_{\text{nom}}/V_{\text{min}}$



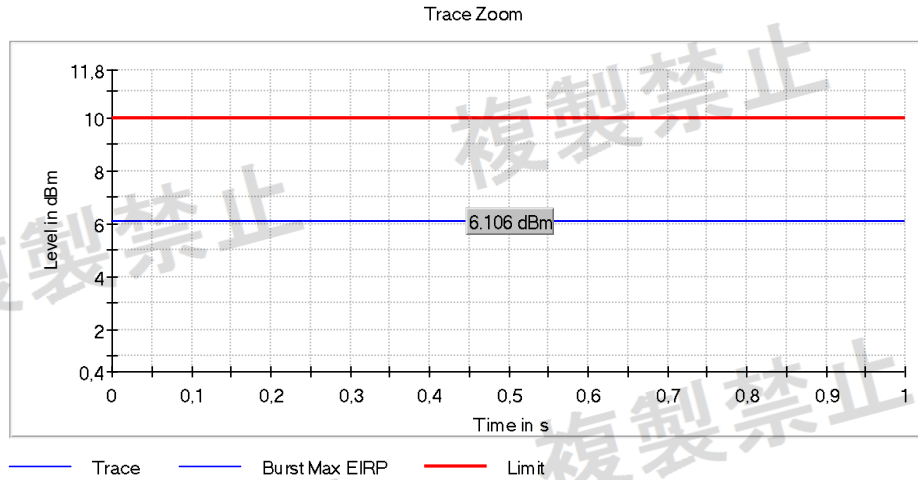
Plot 2: Mode 1, RF Output Power, low channel, $T_{\text{nom}}/V_{\text{nom}}$



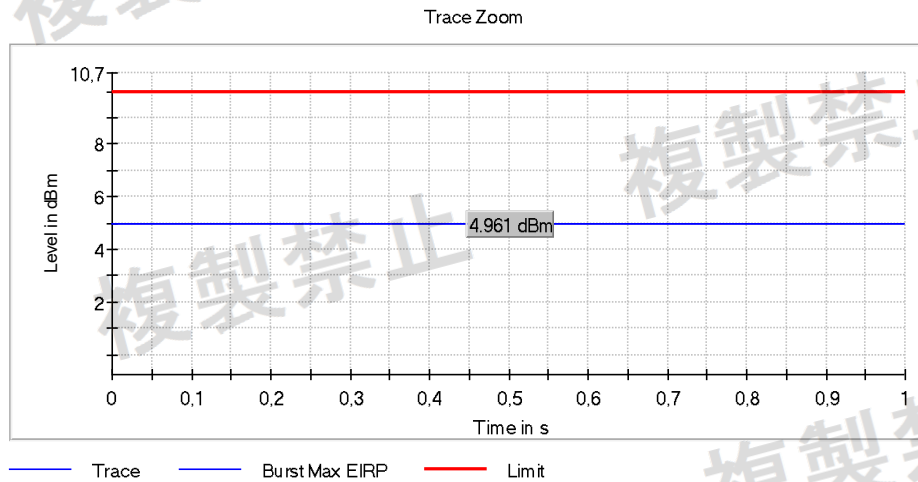
Plot 3: Mode 1, RF Output Power, low channel, $T_{\text{nom}}/V_{\text{max}}$



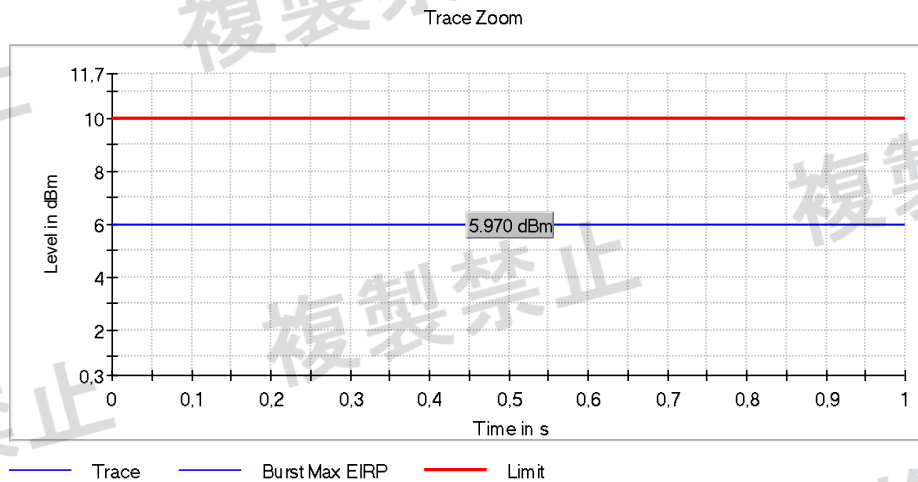
Plot 4: Mode 1, RF Output Power, mid channel, T_{nom}/V_{min}



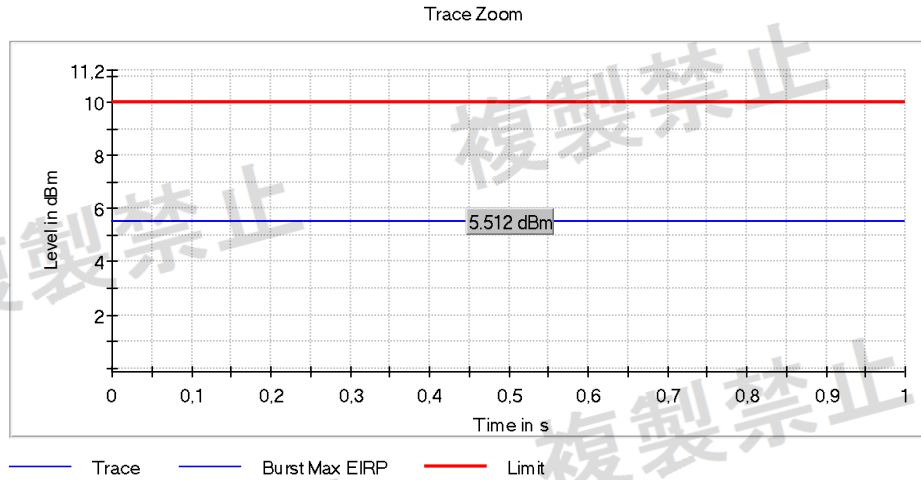
Plot 5: Mode 1, RF Output Power, mid channel, T_{nom}/V_{nom}



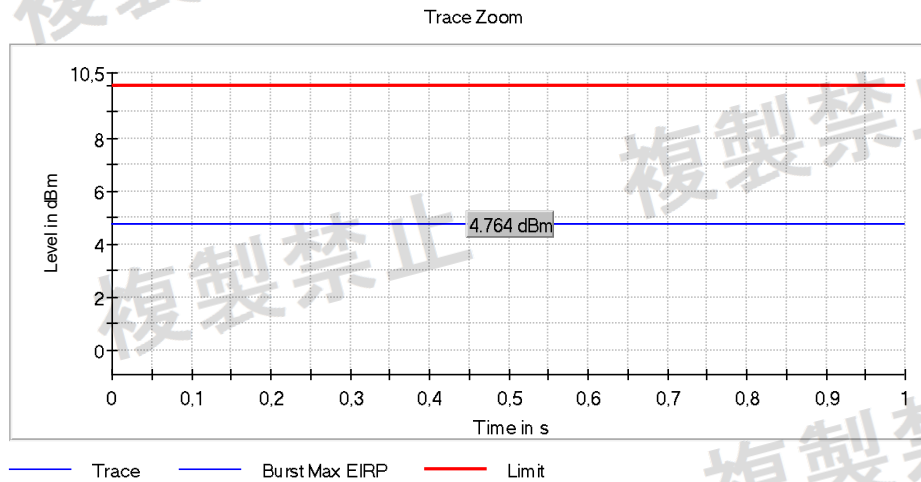
Plot 6: Mode 1, RF Output Power, mid channel, T_{nom}/V_{max}



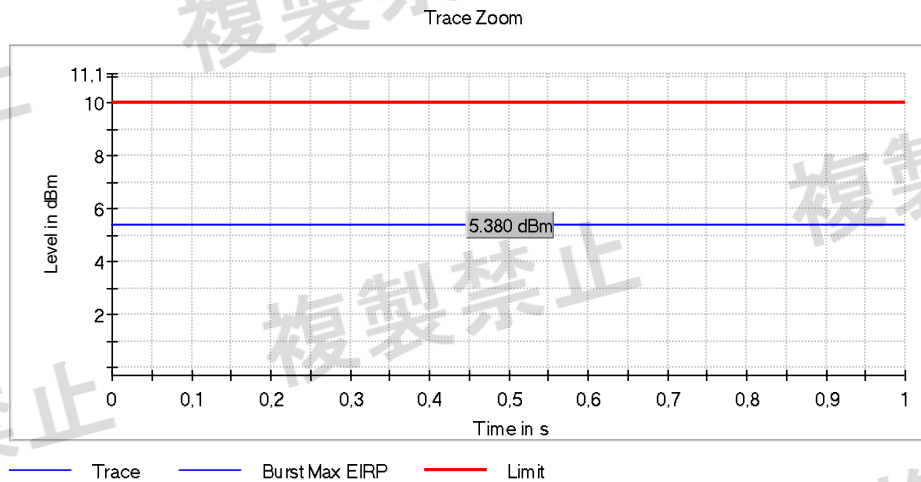
Plot 7: Mode 1, RF Output Power, high channel, T_{nom}/V_{min}



Plot 8: Mode 1, RF Output Power, high channel, T_{nom}/V_{nom}



Plot 9: Mode 1, RF Output Power, high channel, T_{nom}/V_{max}



7.2 Occupied bandwidth (99% OBW)

Description

The operating frequency range is the frequency range over which the equipment is transmitting. The occupied frequency range of the equipment is determined by the lowest (f_L) and the highest frequency (f_H) as occupied by the power envelope.

Limits

The upper and lower limits of the operating frequency range shall meet the following conditions:
 $f_L \geq 2400 \text{ MHz}$ // $f_H \leq 2483.5 \text{ MHz}$

Test procedure

A spectrum analyser with the following settings is used as measuring receiver in the test set-up:

- Start frequency: lower than the lower edge of the permitted frequency range.
- Stop frequency: higher than the upper edge of the permitted frequency range.
- Resolution Bandwidth: e.g 10 kHz.
- Video Bandwidth: $\geq 3 \times$ Resolution Bandwidth.
- Detector mode: Positive peak (OTCR, Annex 1, Appendix 22-14)
- Display mode: Maxhold.

The 99 % OBW function is then used to determine the operating frequency range.

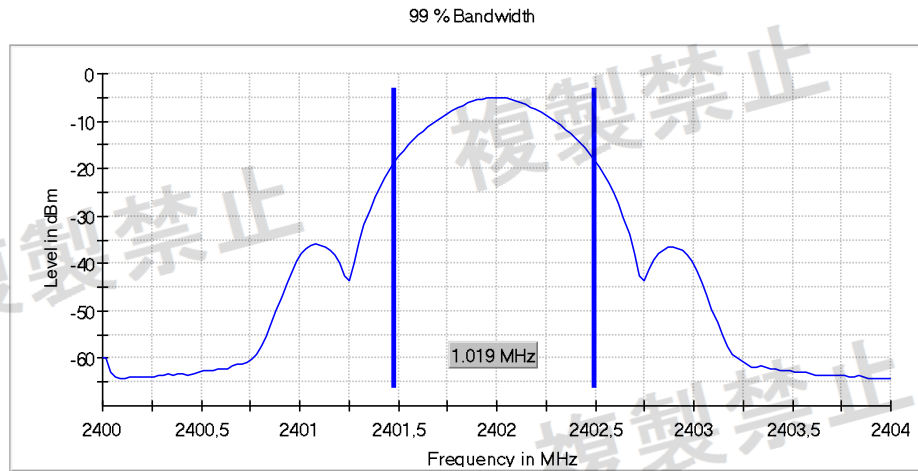
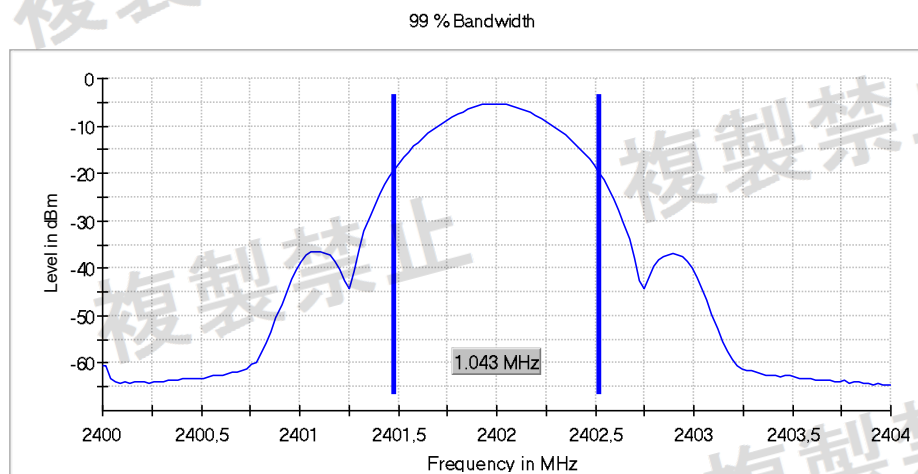
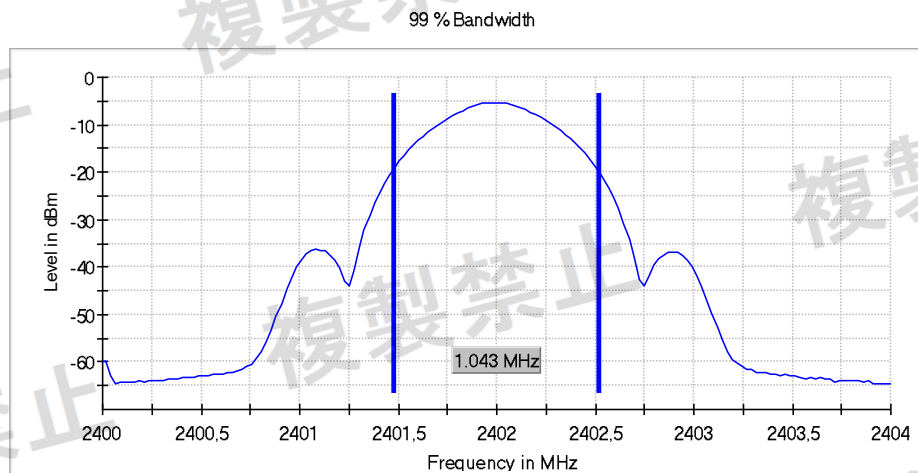
- f_H is determined. f_H is the frequency of the upper marker resulting from the OBW.
- f_L is determined. f_L is the frequency of the lower marker resulting from the OBW.

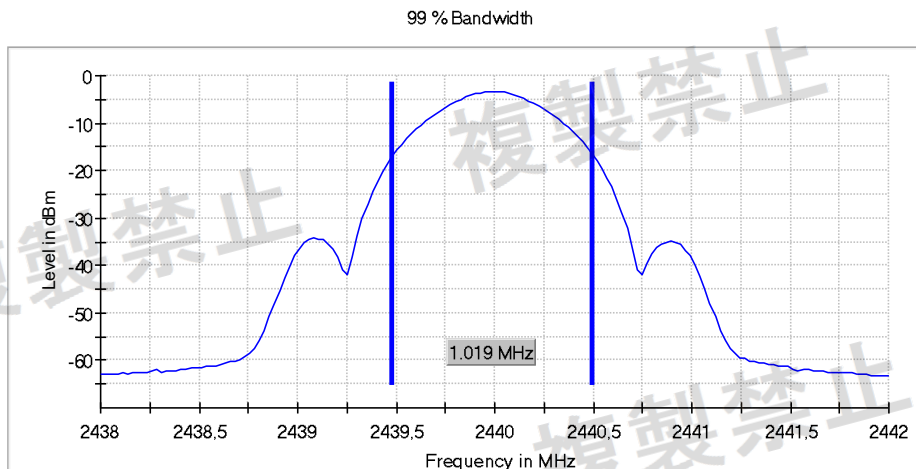
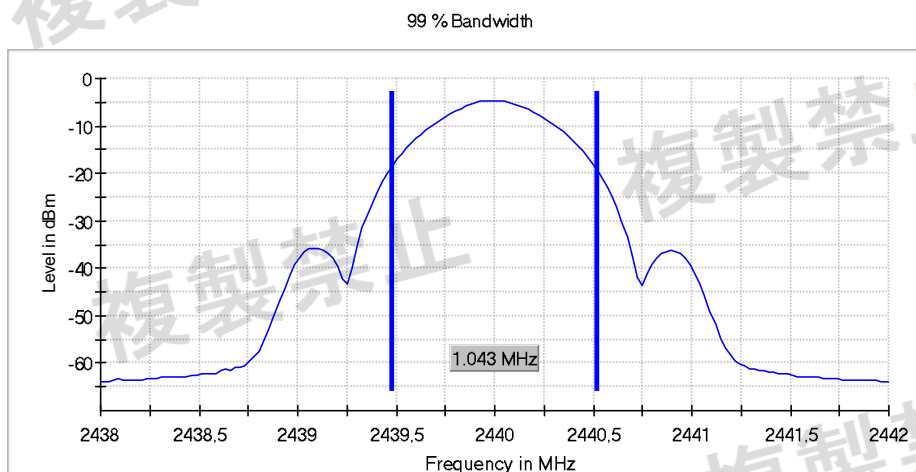
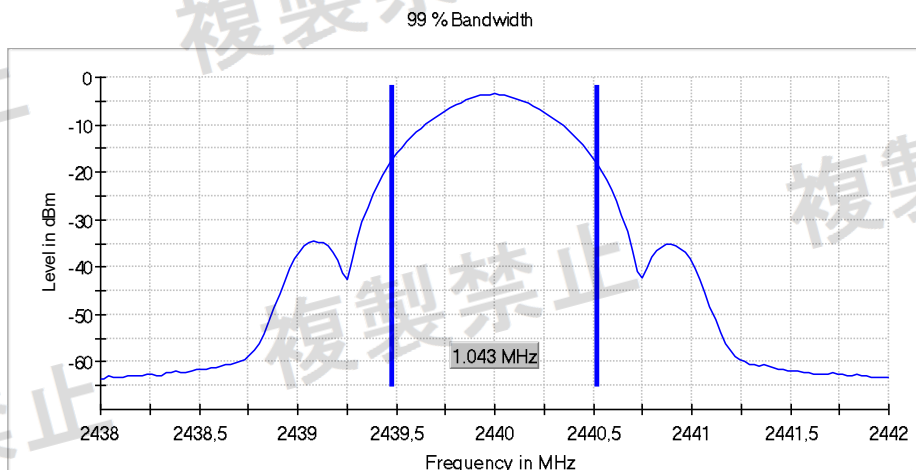
Test setup: 8.1

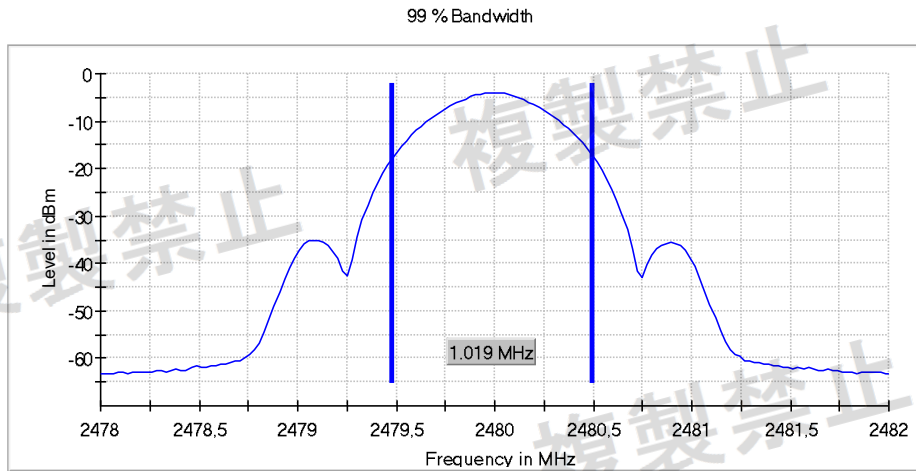
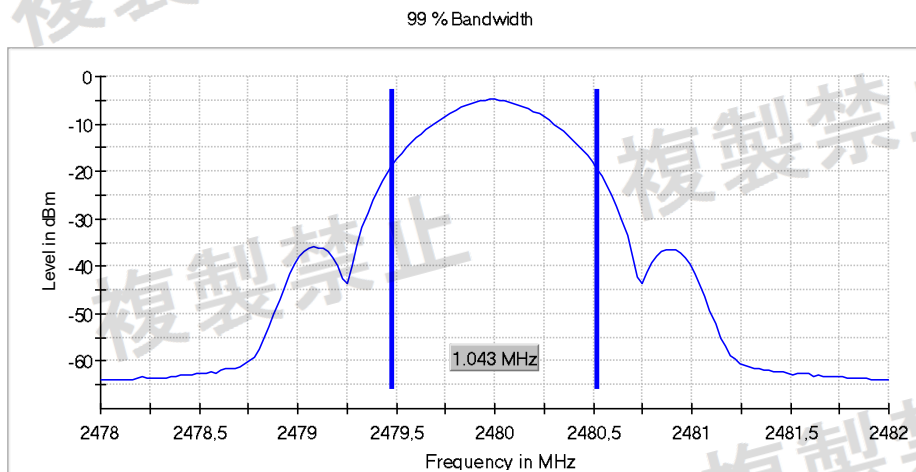
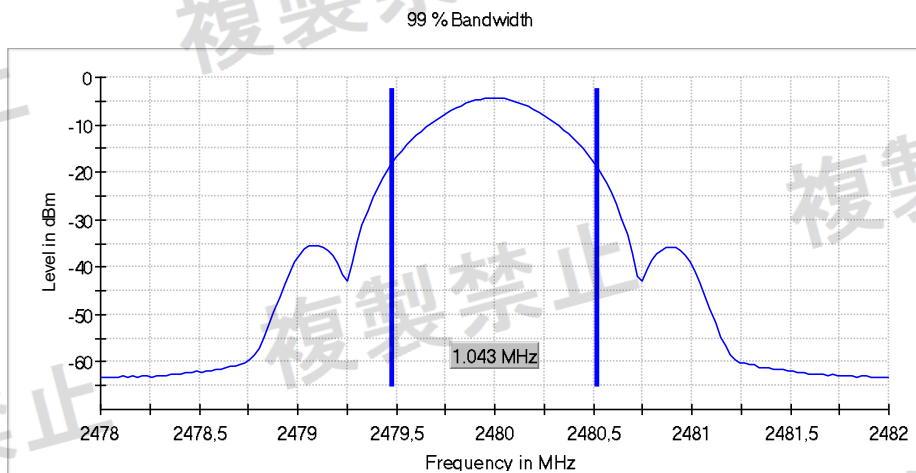
Test results:

Channel	Conditions	f_L [MHz]	f_H [MHz]	99% OBW [kHz]
Low	T_{nom} / V_{min}	2401.478	2402.497	1019
	T_{nom} / V_{nom}	2401.478	2402.522	1043
	T_{nom} / V_{max}	2401.478	2402.522	1043
Mid	T_{nom} / V_{min}	2439.478	2440.497	1019
	T_{nom} / V_{nom}	2439.478	2440.521	1043
	T_{nom} / V_{max}	2439.478	2440.521	1043
High	T_{nom} / V_{min}	2479.478	2480.497	1019
	T_{nom} / V_{nom}	2479.478	2480.522	1043
	T_{nom} / V_{max}	2479.478	2480.522	1043

Comment:

Plot 10: Mode 1, OBW, low channel, $T_{\text{nom}}/V_{\text{min}}$ Plot 11: Mode 1, OBW, low channel, $T_{\text{nom}}/V_{\text{nom}}$ Plot 12: Mode 1, OBW, low channel, $T_{\text{nom}}/V_{\text{max}}$ 

Plot 13: Mode 1, OBW, mid channel, $T_{\text{nom}}/V_{\text{min}}$ Plot 14: Mode 1, OBW, mid channel, $T_{\text{nom}}/V_{\text{nom}}$ Plot 15: Mode 1, OBW, mid channel, $T_{\text{nom}}/V_{\text{max}}$ 

Plot 16: Mode 1, OBW, high channel, $T_{\text{nom}}/V_{\text{min}}$ Plot 17: Mode 1, OBW, high channel, $T_{\text{nom}}/V_{\text{nom}}$ Plot 18: Mode 1, OBW, high channel, $T_{\text{nom}}/V_{\text{max}}$ 

7.3 Frequency tolerance

Description

The frequency tolerance is defined as the difference between the nominal carrier frequency and the measured carrier frequency in ppm.

Limits

± 50 ppm

Test procedure

In cases an unmodulated carrier is available:

Use a frequency counter or a spectrum analyzer with frequency counter function.

In cases no unmodulated carrier is available:

A spectrum analyser with the following settings is used as measuring receiver in the test set-up:

- Start frequency: lower than the lower edge of the permitted frequency range.
- Stop frequency: higher than the upper edge of the permitted frequency range.
- Resolution Bandwidth: 10 kHz.
- Video Bandwidth: ≥ 3 x resolution bandwidth.
- Detector mode: Positive peak (OTCR, Annex 1, Appendix 22-14)
- Display mode: Maxhold.

The 99 % OBW function is then used to determine the operating frequency range.

- f_H is determined. f_H is the frequency of the upper marker resulting from the OBW.
- f_L is determined. f_L is the frequency of the lower marker resulting from the OBW.
- f_c is the calculated centre frequency based on f_H and f_L .

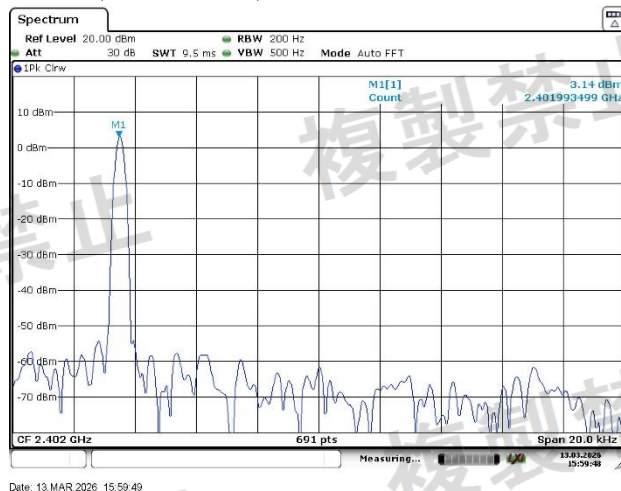
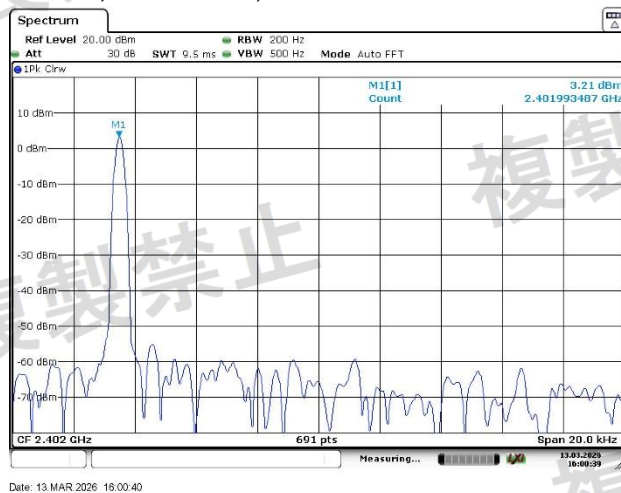
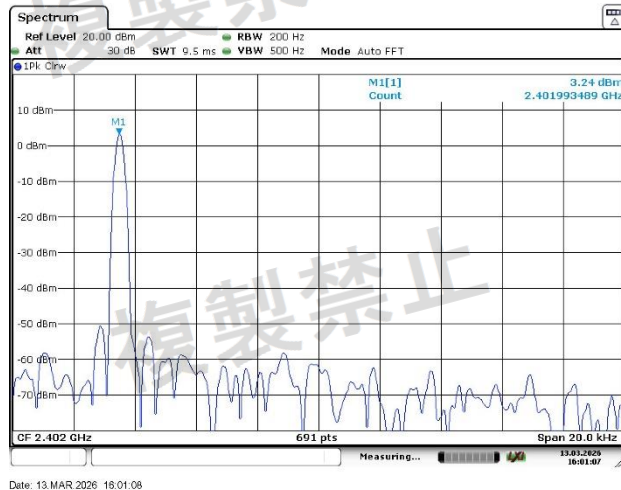
Test setup: 8.1

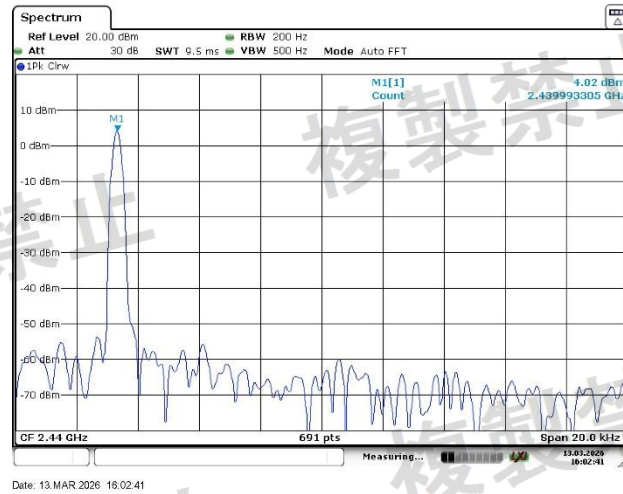
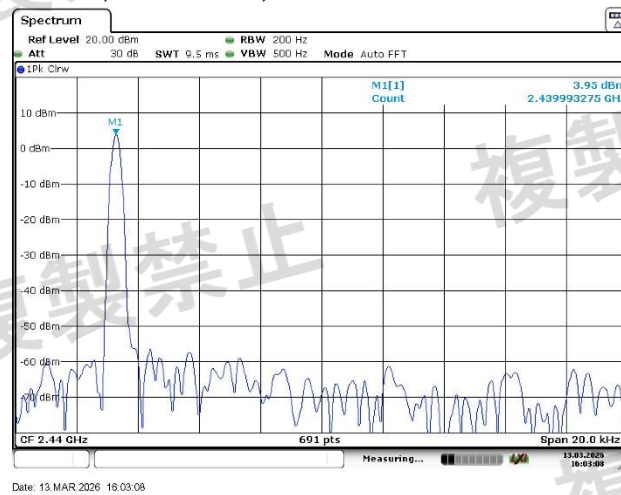
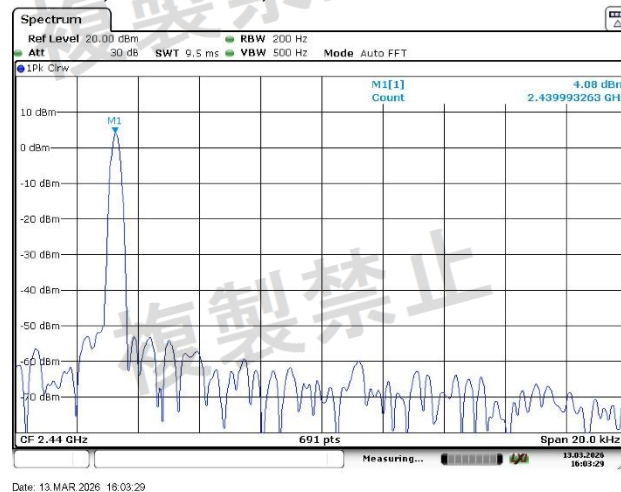
Test results:

Channel	Conditions	f_L [MHz]	f_H [MHz]	f_c [MHz]	Tolerance [ppm]
Low	T_{nom} / V_{min}	-/-	-/-	2401.9935	-2.71
	T_{nom} / V_{nom}	-/-	-/-	2401.9935	-2.71
	T_{nom} / V_{max}	-/-	-/-	2401.9935	-2.71
Mid	T_{nom} / V_{min}	-/-	-/-	2439.9933	-2.75
	T_{nom} / V_{nom}	-/-	-/-	2439.9933	-2.75
	T_{nom} / V_{max}	-/-	-/-	2439.9933	-2.75
High	T_{nom} / V_{min}	-/-	-/-	2479.9930	-2.82
	T_{nom} / V_{nom}	-/-	-/-	2479.9930	-2.82
	T_{nom} / V_{max}	-/-	-/-	2479.9930	-2.82

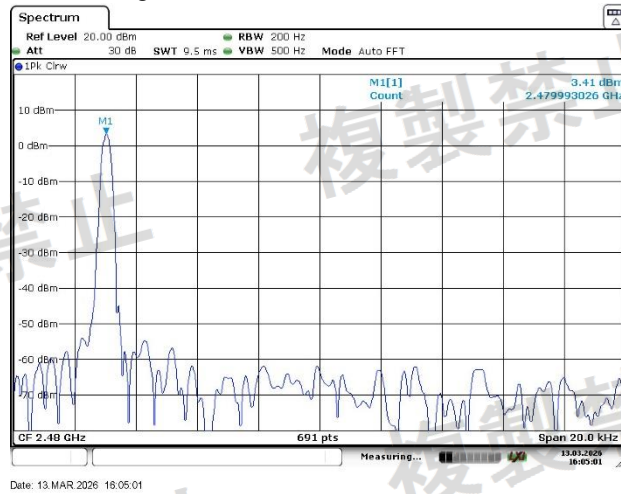
Comment:

unmodulated carrier and frequency counter function used for testing

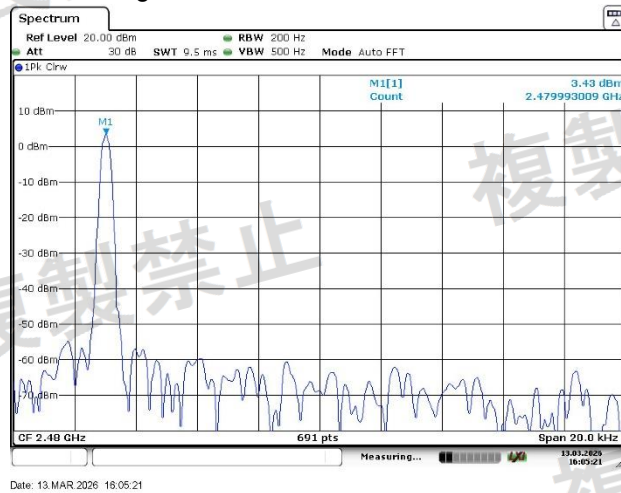
Plot 19: Mode 1, Frequency Tolerance, low channel, $T_{\text{nom}}/V_{\text{min}}$ Plot 20: Mode 1, Frequency Tolerance, low channel, $T_{\text{nom}}/V_{\text{nom}}$ Plot 21: Mode 1, Frequency Tolerance, low channel, $T_{\text{nom}}/V_{\text{max}}$ 

Plot 22: Mode 1, Frequency Tolerance, mid channel, $T_{\text{nom}}/V_{\text{min}}$ Plot 23: Mode 1, Frequency Tolerance, mid channel, $T_{\text{nom}}/V_{\text{nom}}$ Plot 24: Mode 1, Frequency Tolerance, mid channel, $T_{\text{nom}}/V_{\text{max}}$ 

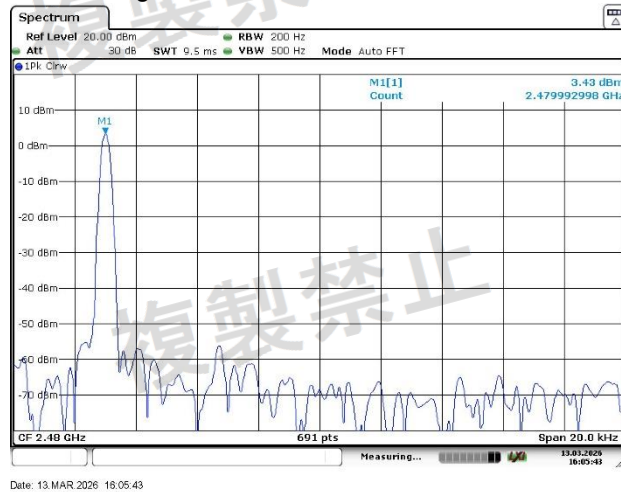
Plot 25: Mode 1, Frequency Tolerance, high channel, $T_{\text{nom}}/V_{\text{min}}$



Plot 26: Mode 1, Frequency Tolerance, high channel, $T_{\text{nom}}/V_{\text{nom}}$



Plot 27: Mode 1, Frequency Tolerance, high channel, $T_{\text{nom}}/V_{\text{max}}$



7.4 Tx Spurious emissions and unwanted emissions

Description

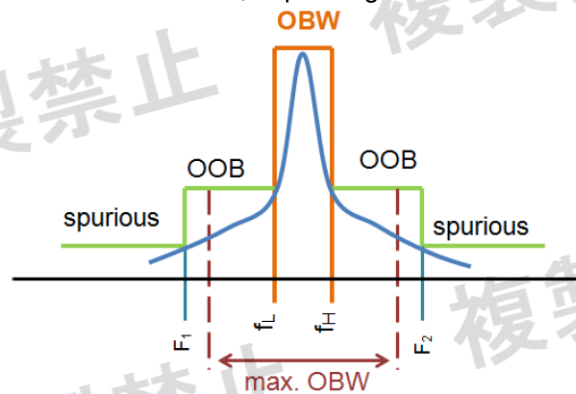
Unwanted emissions are emissions on a frequency or frequencies immediately outside the necessary bandwidth which results from the modulation process, but excluding spurious emissions.

The measurement results of f_H and f_L of the occupied bandwidth measurement will be used to determine the operating BW of the device.

Spurious emissions are emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Boundaries of unwanted emissions and spurious emissions are given by the test specification.

Exemplary overview spurious/ unwanted emissions, depending on OBW:



Boundaries are given as listed below:

- 30 MHz – 2387 MHz (F1)
- 2387 MHz (F1) – 2400 MHz (f_L)
- 2483.5 MHz (f_H) – 2496.5 MHz (F2)
- 2496.5 MHz (F2) – 12.5 GHz

Limits

The mean power spectral density of any spurious emission / unwanted emission shall be not greater than the values given in table below:

Frequency range	Limit
Spurious emissions	2.5 μ W/MHz (-26 dBm)
Unwanted emissions	25 μ W/MHz (-16 dBm)

Test setup: 8.1

Test results:

Channel / EUT Mode	Frequency [GHz]	Detector	Level [dBm]	Limit [dBm]	Margin [dB]
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)

* all detected peaks are more than 6 dB below the limit

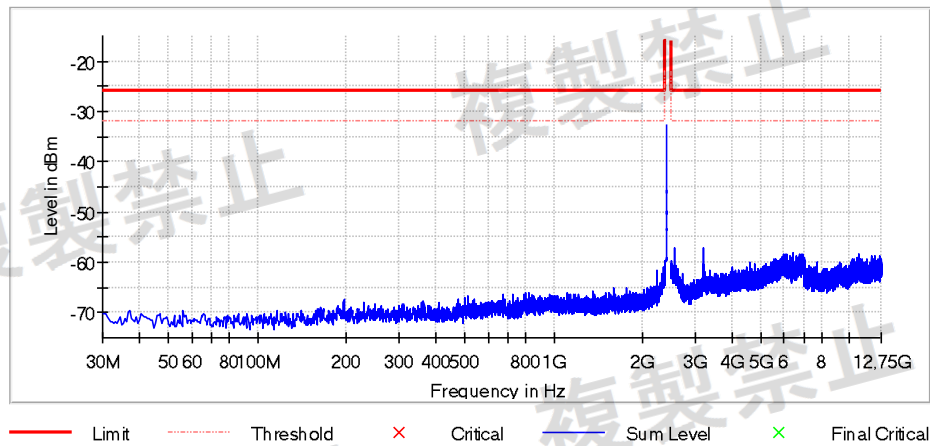
Comment:

TR No.: 26012360-49421-0

2026-04-01

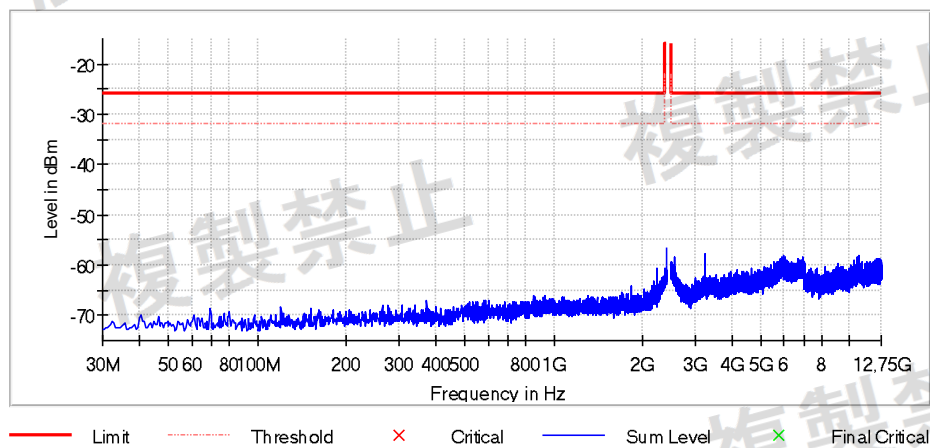
Plot 28: Mode 1, Tx unwanted emissions, 30 MHz – 12.75 GHz, low channel, $T_{nom}/V_{min-max}$

Spurious



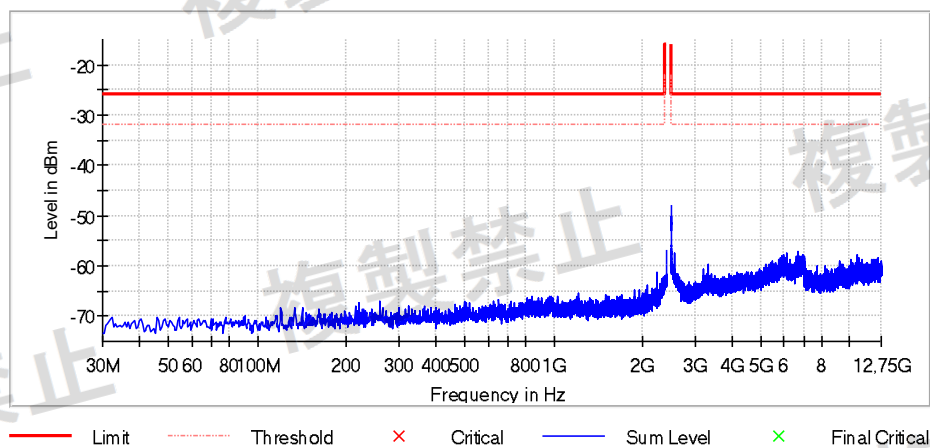
Plot 29: Mode 1, Tx unwanted emissions, 30 MHz – 12.75 GHz, mid channel, $T_{nom}/V_{min-max}$

Spurious



Plot 30: Mode 1, Tx unwanted emissions, 30 MHz – 12.75 GHz, high channel, $T_{nom}/V_{min-max}$

Spurious



7.5 Secondary (Rx) spurious emissions

Description

Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode.

Limits

The quasi peak / mean power spectral density of any secondary (Rx) spurious emission shall be not greater than the values given in table below:

Frequency range	Limit
30 MHz – 1 GHz	4 nW (-54 dBm)
1 GHz – 12.5 GHz	20 nW (-47 dBm)

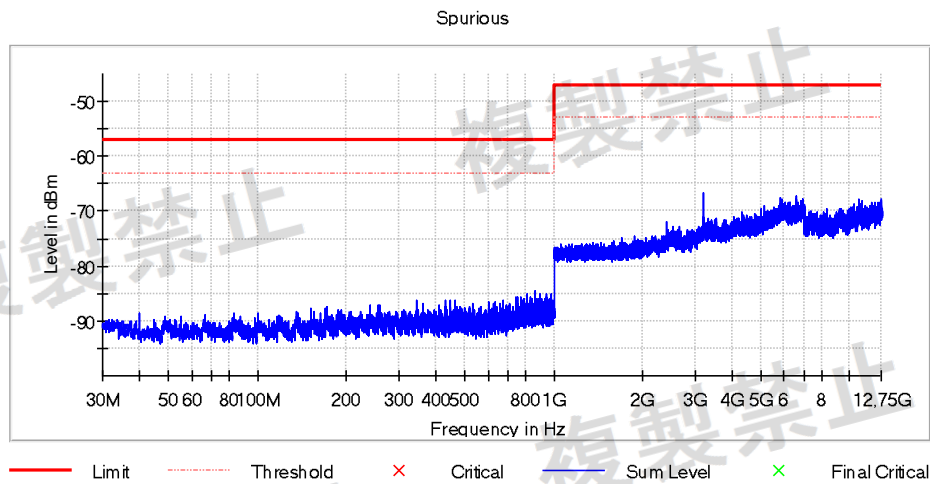
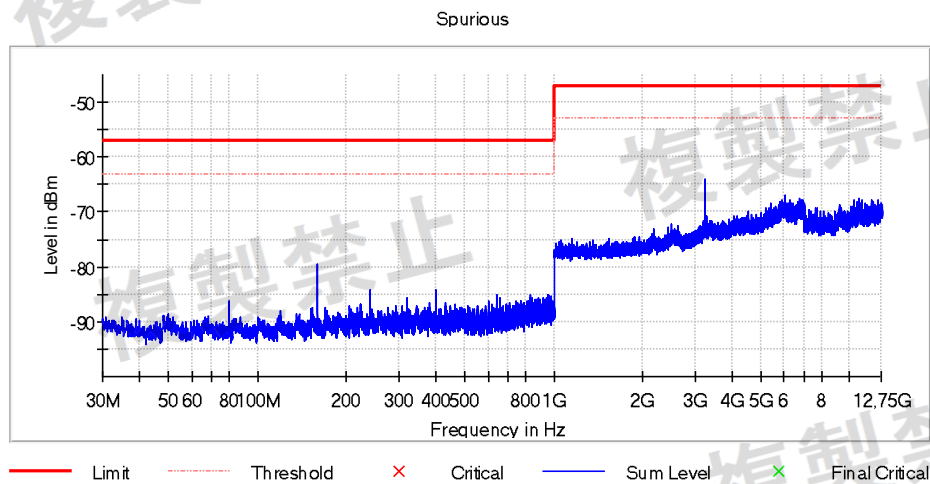
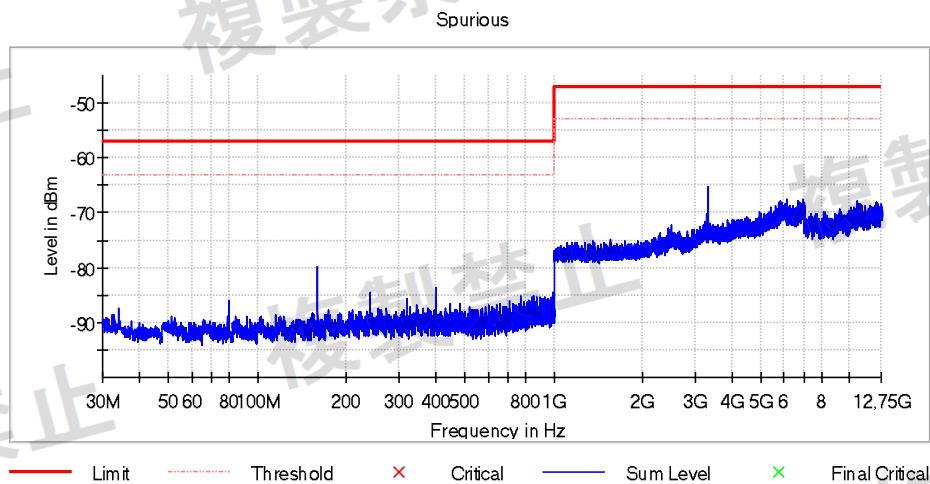
Test setup: 8.1

Test results:

Channel / EUT Mode	Frequency [GHz]	Detector	Level [dBm]	Limit [dBm]	Margin [dB]
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)
(see plots)	(see plots)	(see plots)	(see plots)	(see plots)	(see plots)

* all detected peaks are more than 6 dB below the limit

Comment:

Plot 31: Mode 1, conducted Rx spurious emissions, low channel, $T_{nom}/V_{min-max}$

 Plot 32: Mode 1, conducted Rx spurious emissions, mid channel, $T_{nom}/V_{min-max}$

 Plot 33: Mode 1, conducted Rx spurious emissions, high channel, $T_{nom}/V_{min-max}$


7.6 Antenna Gain

Description

The antenna gain is declared by the antenna manufacturer. Please see antenna data sheet.

Limit

Antenna gain is 12.14 dBi or less.

Test Results

Antenna type	low channel [dBi]	mid channel [dBi]	high channel [dBi]	Limit [dBi]
PCB antenna	4.04 dBi	4.04 dBi	4.04 dBi	≤12.14

Comment:

Antenna gain as declared by applicant / antenna manufacturer.

8 TEST SETUP DESCRIPTION

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Cyclic chamber inspections and range calibrations are performed. Where possible, RF generating and signalling equipment as well as measuring receivers and analysers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

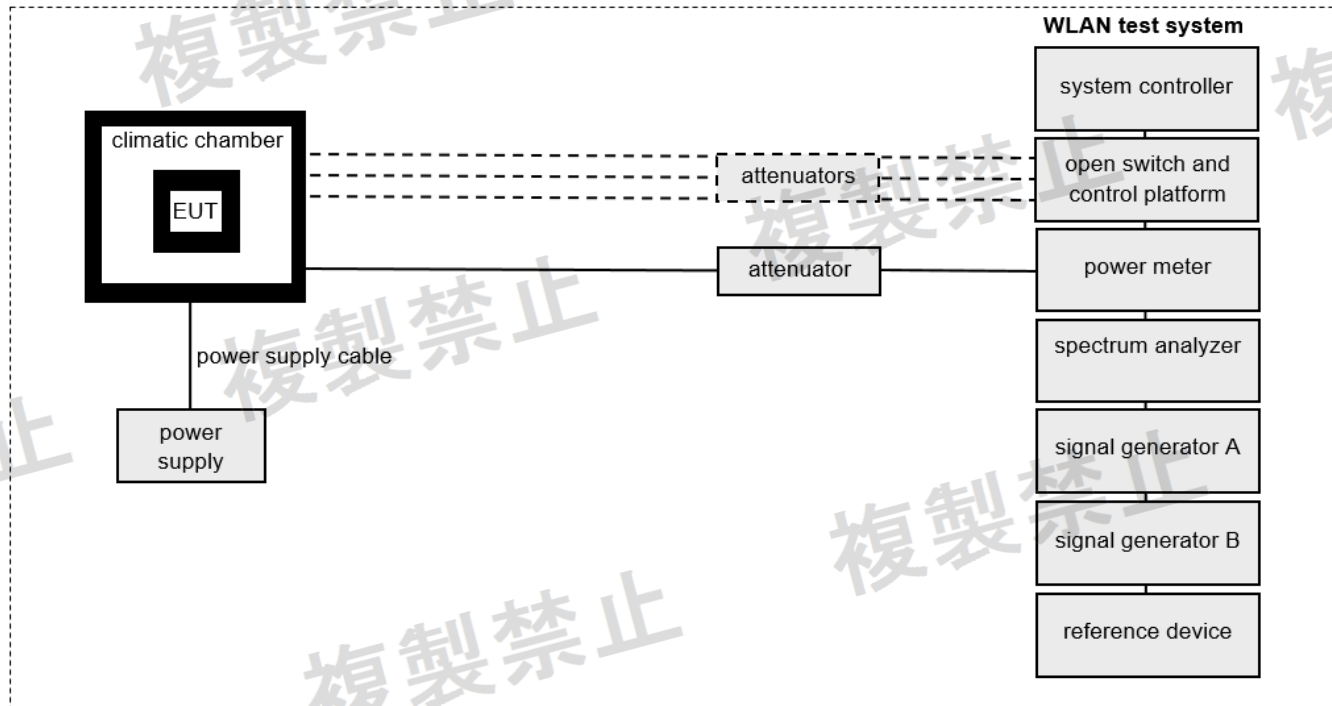
In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

Kind of calibration (abbreviations):

- C = calibrated
- CM = cyclic maintenance
- NR = not required
- L = locked

8.1 Conducted measurements BT/WLAN test system

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The losses for all signal paths are first checked within a calibration. The measurement readings on the signalling unit/spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



EMC32/WMS32 software version: 12.20.00

List of test equipment used:

#	Equipment	Manufacturer	Type	S/N	IBL/N	Kind of calibration	Last / Next calibration
RF - BT/WLAN-Lab - TS8997							
1	Open Switch and Control Platform	Rohde & Schwarz	OSP-B157W8Plus	100830	LAB000358	C	2025-06-17 → 12M → 2026-06-17
2	TS8997	Rohde & Schwarz	TS8997-Rack	100829	LAB000322	NR	-
3	Open Switch and Control Platform	Rohde & Schwarz	OSP-B157WX	101247	LAB000280	NR	-
4	Spectrum Analyser	Rohde & Schwarz	FSV40	101403	LAB000278	C	2025-06-13 → 12M → 2026-06-13
5	Radio Communication Tester	Rohde & Schwarz	CMW270	101479	LAB000275	NR	-
6	Power Supply	Elektro-Automatik GmbH & Co. KG	EA-PS 2042-10 B	2878350263	LAB000190	NR	-
7	Coaxial Cable	Huber & Suhner	ST18/48"	2276454-01	LAB000157	CM	2026-02-02 → 12M → 2027-02-02
8	Coaxial Cable	Huber & Suhner	ST18/36"	2248909-02	LAB000156	CM	2025-04-25 → 12M → 2026-04-25
9	Multimeter	Keysight	U1242B	MY59110034	LAB000009	C	2025-09-05 → 12M → 2026-09-05
10	USB Power Injector	-	-	-	-	NR	-

9 MEASUREMENT UNCERTAINTIES

Radio frequency	$\leq \pm 1 \times 10^{-7}$
RF power, conducted	$\leq \pm 0,75 \text{ dB}$
Power Spectral Density	$\leq \pm 3 \text{ dB}$
Maximum frequency deviation	$\leq \pm 5 \%$
Deviation limitation Duty Cycle, Tx-sequence, Tx-gap	$\leq \pm 5 \%$
Occupied Channel Bandwidth	$\leq \pm 5 \%$
Conducted spurious emission of transmitter	$\leq \pm 4 \text{ dB}$
Conducted emission of receivers	$\leq \pm 4 \text{ dB}$
Radiated emission of transmitter	$\leq \pm 6 \text{ dB}$
Radiated emission of receiver	$\leq \pm 6 \text{ dB}$
Temperature	$\leq \pm 2,5 \text{ }^{\circ}\text{C}$
Humidity	$\leq \pm 10 \%$

The indicated expanded measurement uncertainty corresponds to the standard measurement uncertainty for the measurement results multiplied by the coverage factor $k = 2$. It was determined in accordance with EA-4/02 M:2013. The true value is located in the corresponding interval with a probability of 95 %.

Annex A EUT Photographs

Photo No. 1:



Photo No. 2:



Photo No. 3:

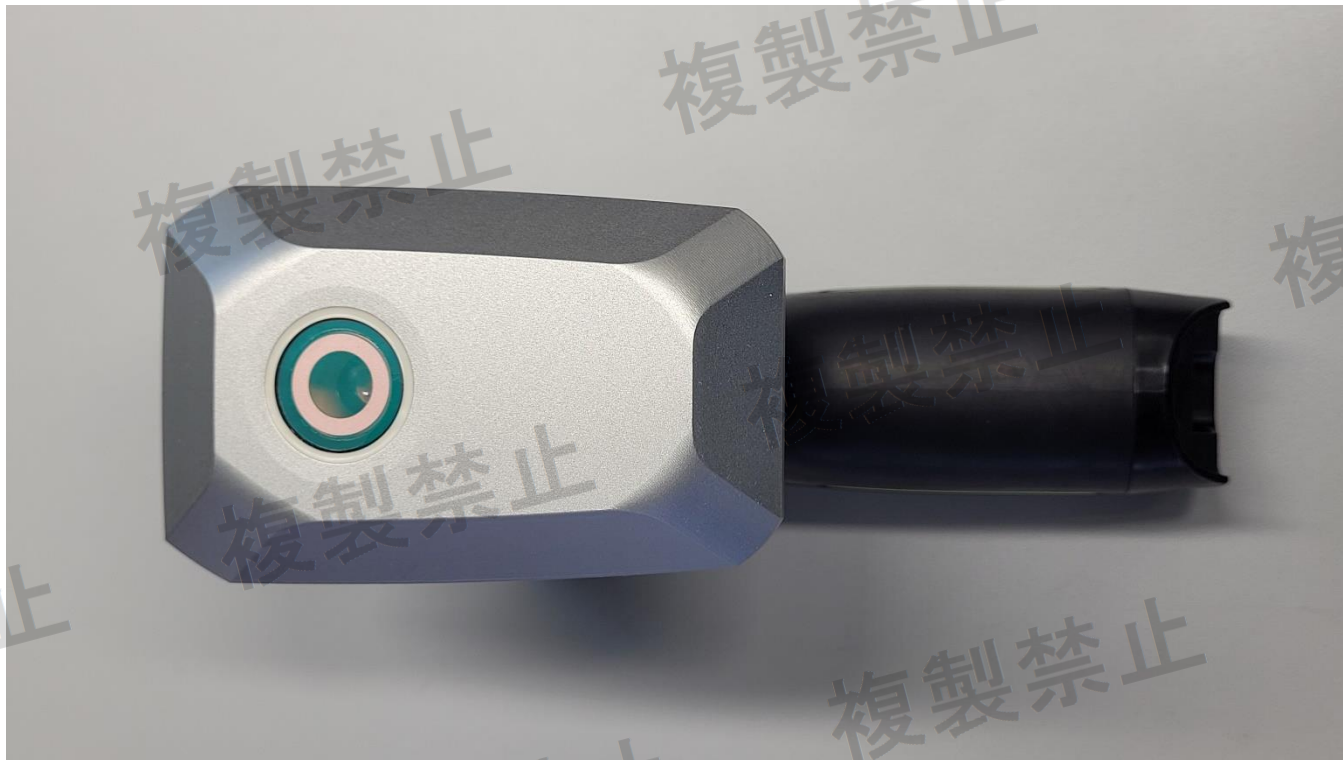


Photo No. 4:

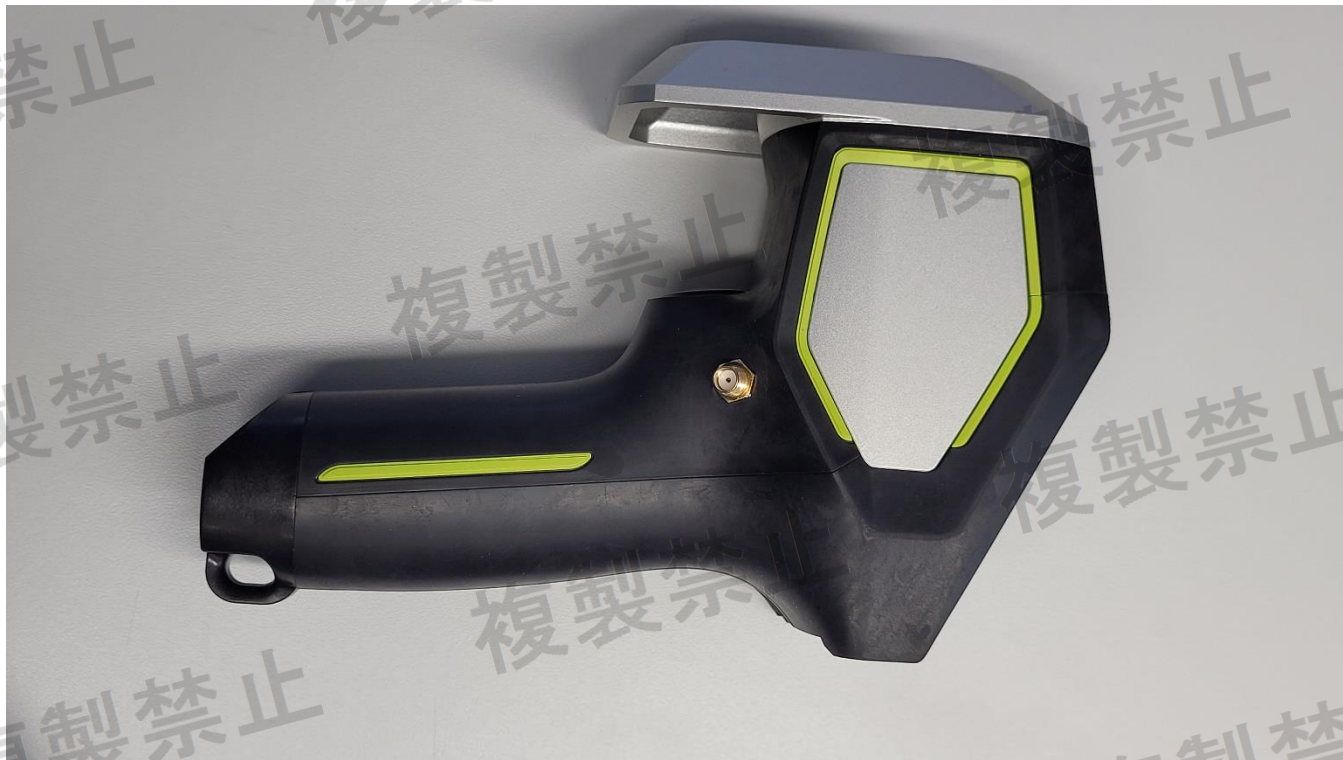
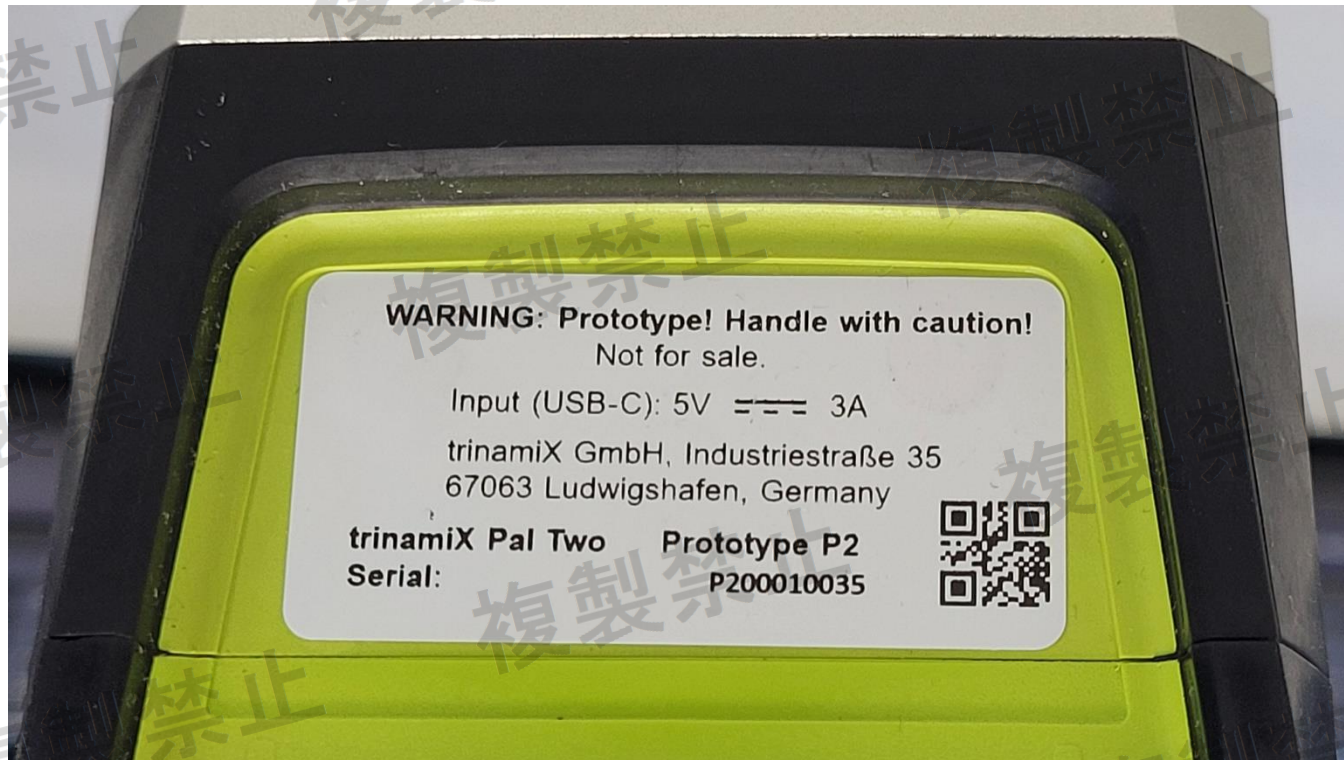


Photo No. 5:



Photo No. 6:



Annex B Test Setup Photographs

Photo No. 7:

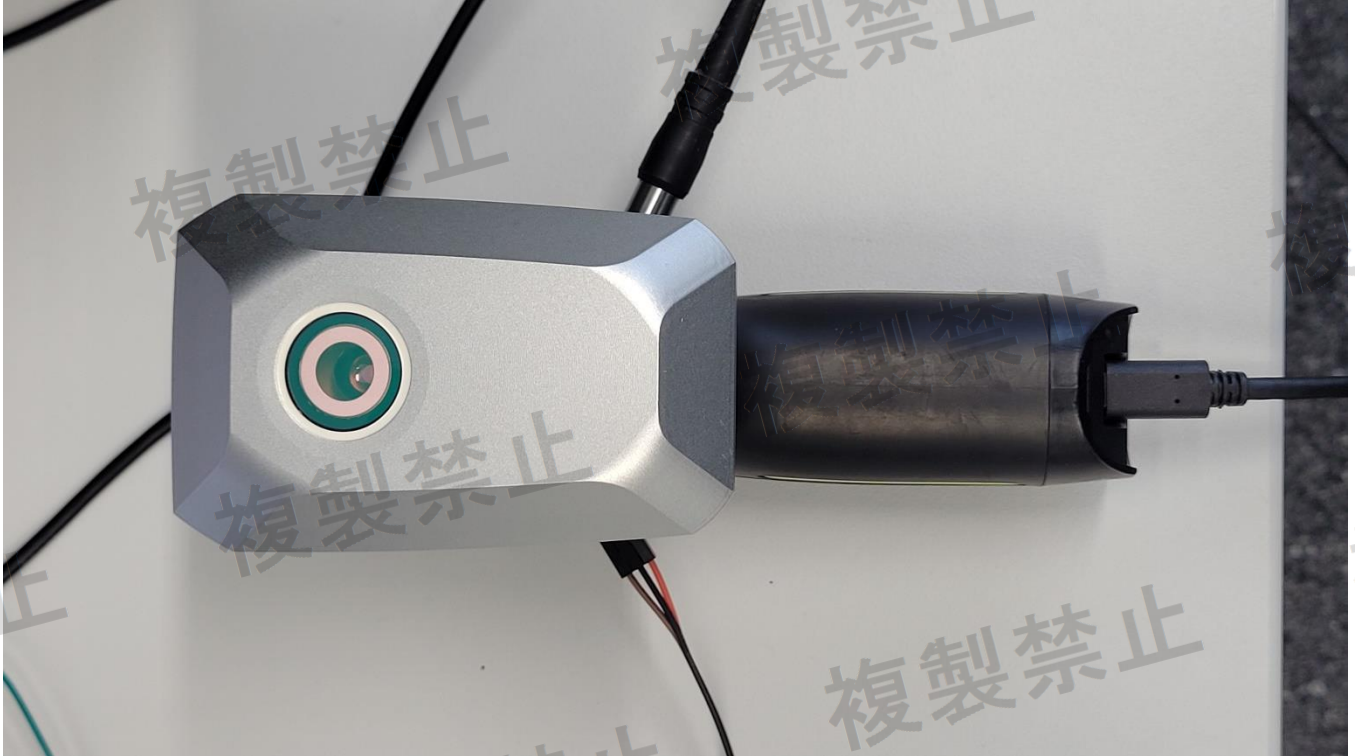


Photo No. 8:



Photo No. 9:

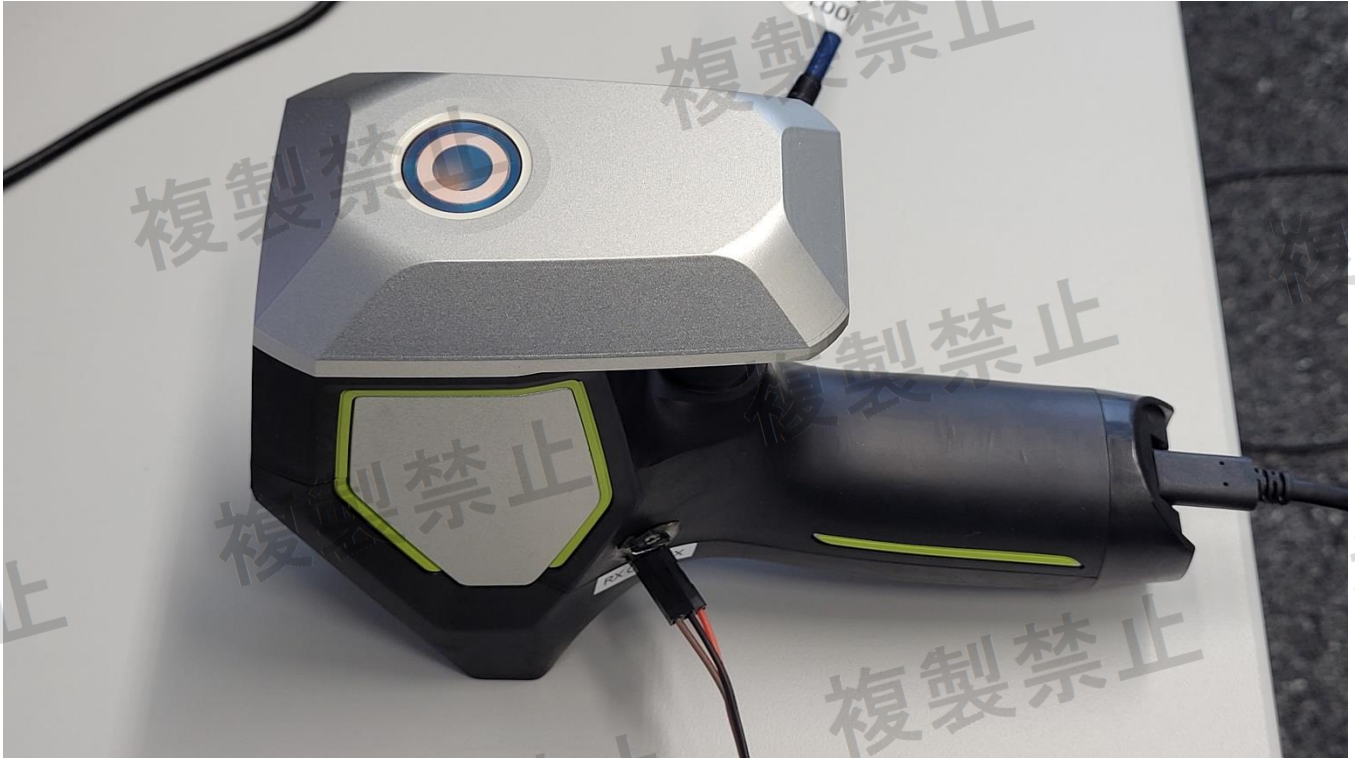


Photo No. 10:

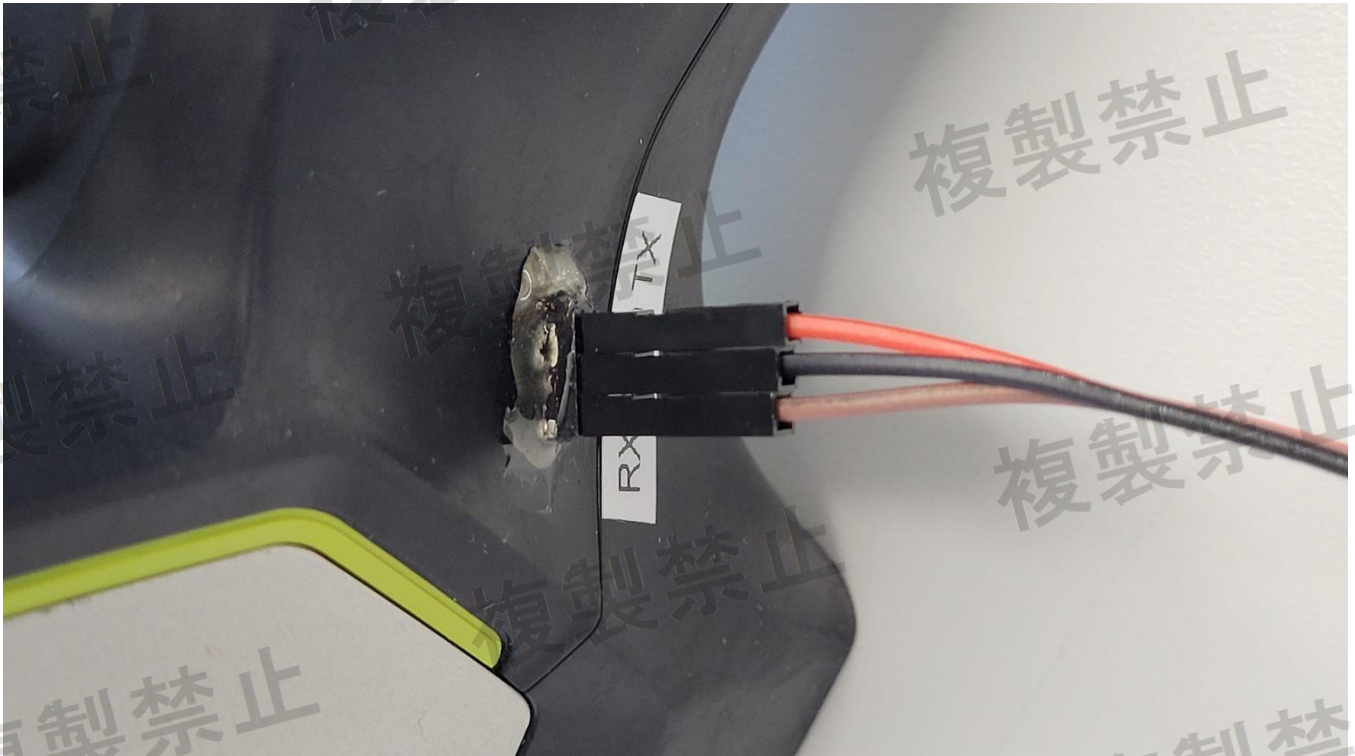
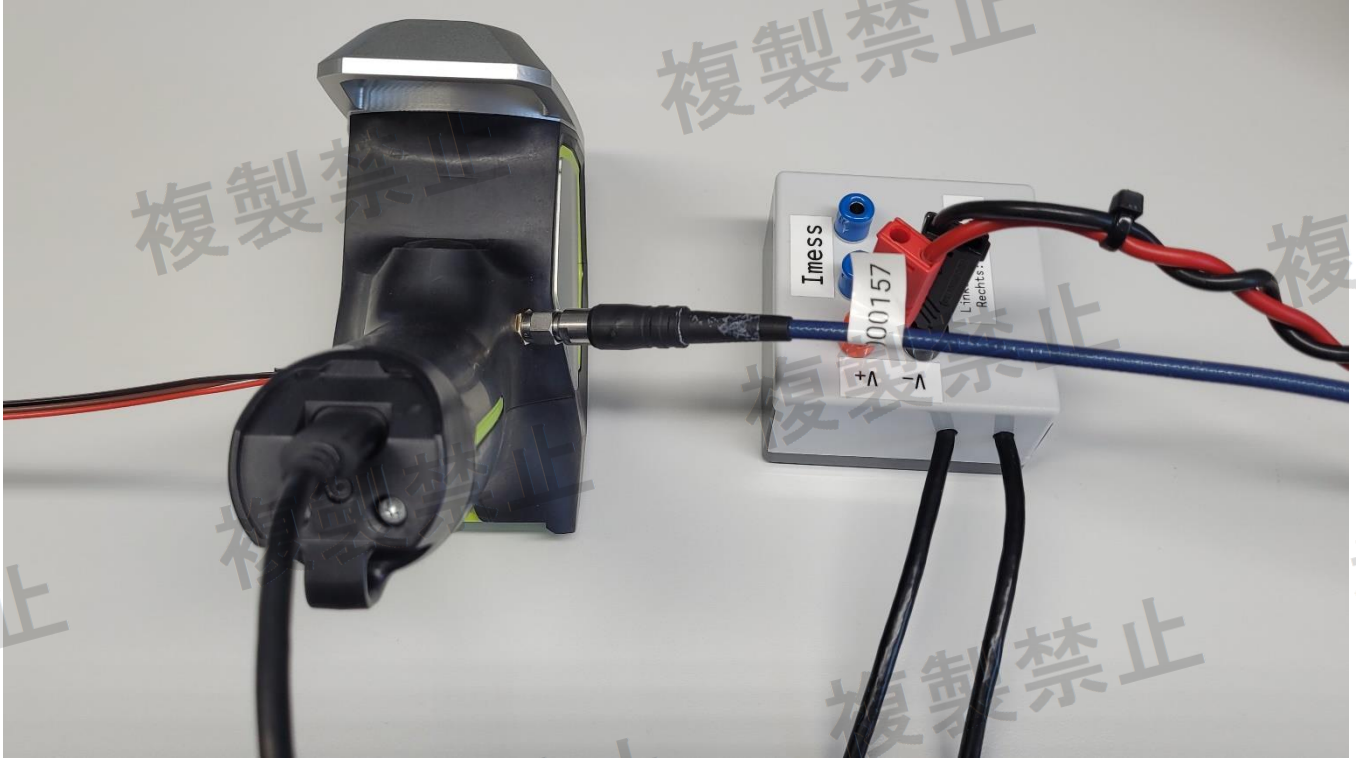


Photo No. 11: setup with USB-Power-injector for testing extreme conditions



End of Test Report
