

TEST REPORT

Applicant: Shanghai O-Film Tech. Co., Ltd.
Address: Room 101, Building 6, No.2222 Huangcheng Road.
Juyuan New District. Jiading District, Shanghai, P. R.
China
Equipment Type: Body Domain Controller
Model Name: ZZNISSAN P20
Brand Name: OFILM
FCC ID: 2BWZX-ZZNISSANP20
Test Standard: 47 CFR Part 15 Subpart C
ANSI C63.10-2020
Sample Arrival Date: Jul. 03, 2026
Test Date: Jul. 04, 2026
Date of Issue: Jul. 09, 2026

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.



Tested by: Yongming Liang **Checked by:** Xiong Chong **Approved by:** Tolan Tu
(Testing Director)

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Jul. 09, 2026</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	601, Building 2, Intelligent Connected Vehicle Industrial Park, No.55, Xiangshan Road, Luotian Community, Yanluo Sub-district, Bao'an District, Shenzhen
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Building 2, Intelligent Connected Vehicle Industrial Park, No.55, Xiangshan Road, Luotian Community, Yanluo Sub-district, Bao'an District, Shenzhen, Guangdong
	☐ 1/F., Building B, Ganghongji High-Tech Intelligent Industrial Park, No.1008, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The certification body is American Association for Laboratory Accreditation (A2LA).

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai O-Film Tech. Co., Ltd.
Address	Room 101, Building 6, No.2222 Huangcheng Road. juyuan New District. Jiading District, shanghai, P. R. China

2.2 Manufacturer Information

Manufacturer	Shanghai O-Film Tech. Co., Ltd.
Address	Room 101, Building 6, No.2222 Huangcheng Road. juyuan New District. Jiading District, shanghai, P. R. China

2.3 General Description for Equipment under Test (EUT)

EUT Name	Body Domain Controller
Model Name Under Test	ZZNISSAN P20
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	H01.01.02.260120
Software Version	S05.06.01.260210
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	433.42MHz/433.92MHz/434.42MHZ (only RX),125kHz(only TX)
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The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	ASK
Operating Frequency	125 kHz
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Antenna Type	Internal antenna
About Product	The EUT support the Qi technology, and they have the same operating frequency.

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional Radiators
2	ANSI C63.10-2020	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	Verdict
1	Antenna Requirement	15.203	Pass ^{Note 1}
2	Radiated Emission	15.209,15.215(b)	Pass
3	Conducted Emission, AC Ports	15.207	N/A ^{Note 2}
4	20 dB Bandwidth	15.215(c)	Pass
Note 1: The use of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the requirement FCC 15.203.			
Note 2: This product is an in-vehicle product, so this test item is not applicable.			

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Radiated emissions (9 kHz-30 MHz)	3.8 dB
Radiated emissions (30 MHz-1 GHz)-10m#2	4.4 dB

4 GENERAL TEST CONFIGURATIONS

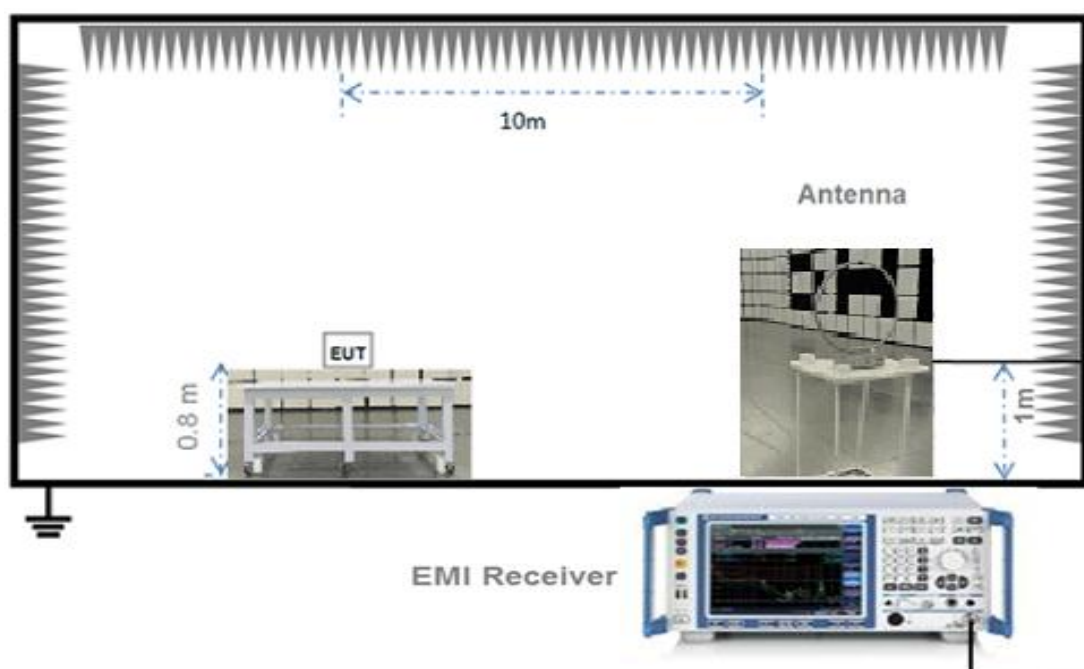
4.1 Test Environments

Relative Humidity	30% to 60%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+25°C
Working Voltage of the EUT	NV (Normal Voltage)	12V

4.2 Test Setups

Test Setup 1

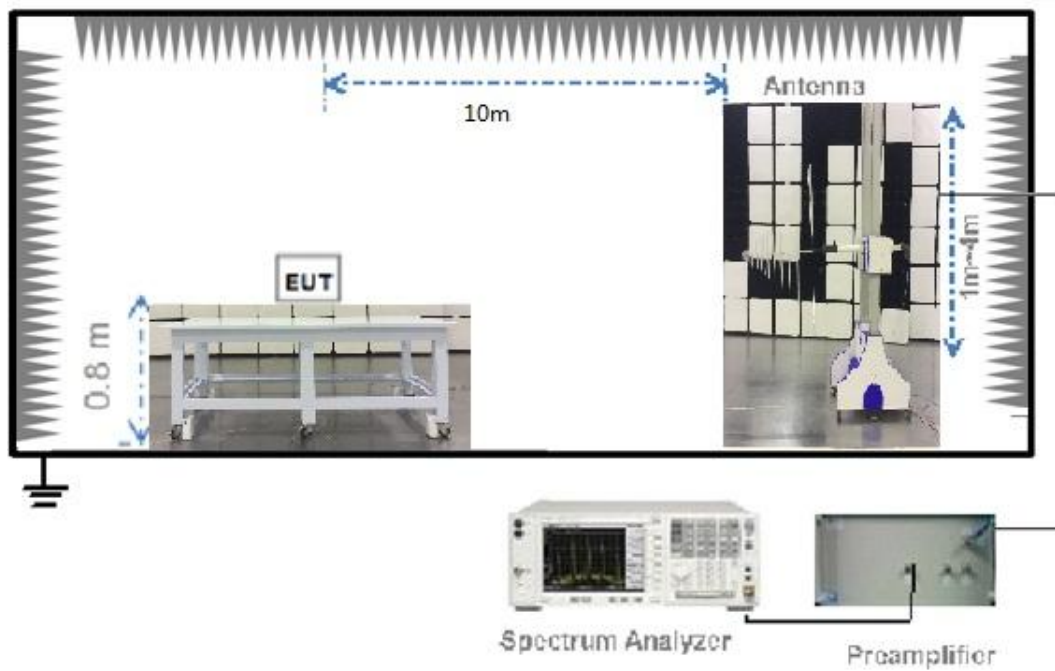
Radiated Test (Below 30 MHz)



(Diagram 1)

Test Setup 2

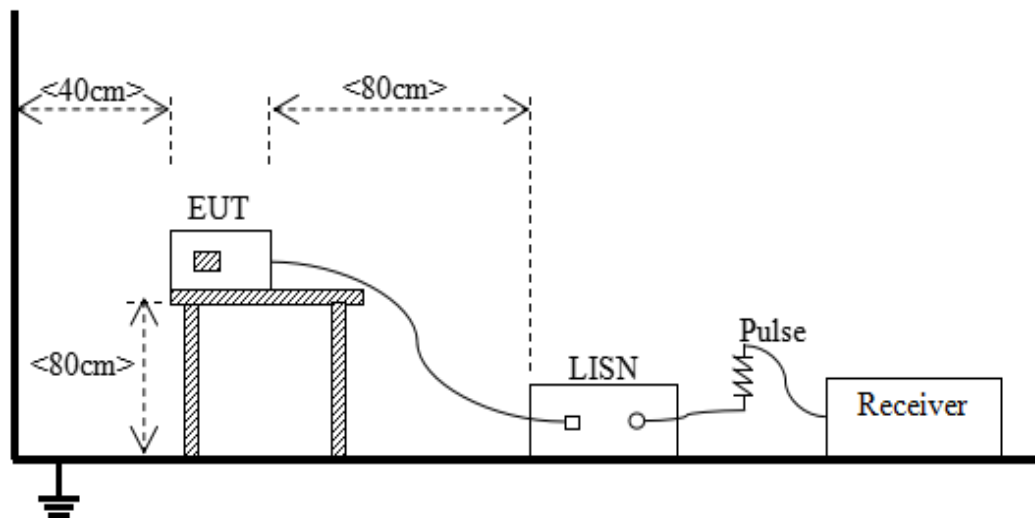
Radiated Test (30 MHz-1 GHz)



(Diagram 2)

Test Setup 3

AC Power Supply Port Test



(Diagram 3)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer EUT internal photos.

5.2 Emission Tests

5.2.1 Radiated Emission

5.2.1.1 Limit

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

NOTE:

- 1) Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \cdot \log [\text{Field Strength } (\mu\text{V/m})]$.
- 2) In the emission tables above, the tighter limit applies at the band edges.
- 3) For above 1000 MHz, limit field strength of harmonics: $54 \text{ dB}\mu\text{V/m}@3 \text{ m (AV)}$ and $74 \text{ dB}\mu\text{V/m}@3 \text{ m (PK)}$
- 4) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). For example, at the frequency 9 kHz, limit @10m = $20 \cdot \log (2400/f) + 40 \log (d_{\text{limit}}/d_{\text{measure}})$ where limit = 300m, $d_{\text{measure}}=10\text{m}$. limit @10m = $20 \cdot \log (2400/9) + 40 \log (300/10) = 107.5 \text{ (dB}\mu\text{V/m)}$.
- 5) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided, When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements). For example, at the frequency 30 MHz, limit @10m = $20 \cdot \log (100) + 20 \log (d_{\text{limit}}/d_{\text{measure}})$ where limit = 3m, $d_{\text{measure}}=10\text{m}$. limit @10m = $20 \cdot \log (100) + 20 \log (3/10) = 29.5 \text{ (dB}\mu\text{V/m)}$.

5.2.1.2 Test Setup

Refer to 4.2 section (test setup 1 to test setup 2) for radiated emission test, the photo of test setup please refer to ANNEX B.

5.2.1.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360° , and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test

condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $30 \text{ MHz} < f < 1 \text{ GHz}$, 10 kHz for $150 \text{ kHz} < f < 30 \text{ MHz}$,
300 Hz for $f < 150 \text{ kHz}$

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.2.1.4 Test Result and Test Equipment List

Please refer to ANNEX A.1.

NOTE:

1. Results (dB μ V/m) = Reading (dB μ V) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB)

3. Margin = Limit – Results

5.2.2 Conduct Emission

5.2.2.1 Test Limit

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- 1) The limit is applicable to Class B ITE.
- 2) The lower limit shall apply at the band edges.
- 3) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

5.2.2.2 Test Setup

Refer to 4.2 section test (test setup 3) for conducted emission, the photo of test setup please refer to ANNEX B.

5.2.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω /50 μ H of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.2.2.4 Test Result and Test Equipment List

Please refer to ANNEX A.2.

NOTE:

1. Results (dB μ V) = Reading (dB μ V) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor = Insertion loss + Cable loss
3. Margin = Limit – Results

5.2.3 20 dB Bandwidth

5.2.3.1 Limit

FCC §15.215(c)

The 20 dB bandwidth is known as the 99% emission bandwidth, or 20 dB bandwidth ($10 \cdot \log 1\% = 20$ dB) taking the total RF output power.

5.2.3.2 Test Setup

Refer to 4.2 section test (test setup 1) for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3.3 Test Procedure

The 20dB bandwidth is measured with a spectrum analyzer connected via a receiver antenna placed near the EUT while the EUT is operating in transmission mode.

Use the following spectrum analyzer settings:

Span = between 2 to 5 times the OBW

RBW = 1% to 5% the OBW

VBW $\geq$ 3RBW

Sweep = auto

Detector function = peak

Trace = max hold

The 99% emission bandwidth is measured with a spectrum analyzer connected via a receiver antenna placed near the EUT while the EUT is operating in transmission mode.

Use the following spectrum analyzer settings:

Span = between 1.5 to 5 times the OBW

RBW = 1% to 5% OBW

VBW $\geq$ 3RBW

Sweep = auto

Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate, Allow the trace to stabilize.

5.2.3.4 Test Result and Test Equipment List

Please refer to ANNEX A.3.

ANNEX A TEST RESULTS

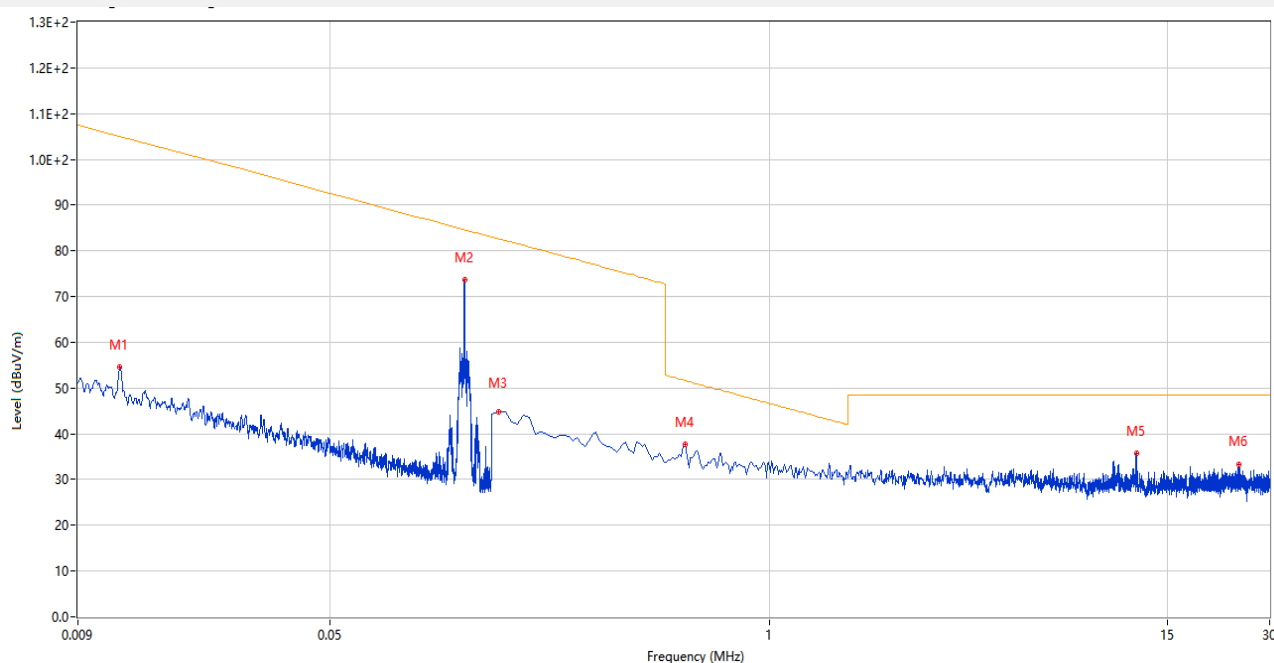
A.1 Radiated Emission

Note : All Radiated Emissions tests were performed in X, Y, Z axis direction of EUT. And only the worst axis test condition was recorded in this test report.

Sample No.	AT26070010-001-S05	Temperature	23.3℃
Humidity	64%RH	Pressure	100.3kPa
Test Engineer	Zhou Haonan	Test Date	2026.07.04

Test Data and Plot

9 kHz to 30 MHz, ANT-V



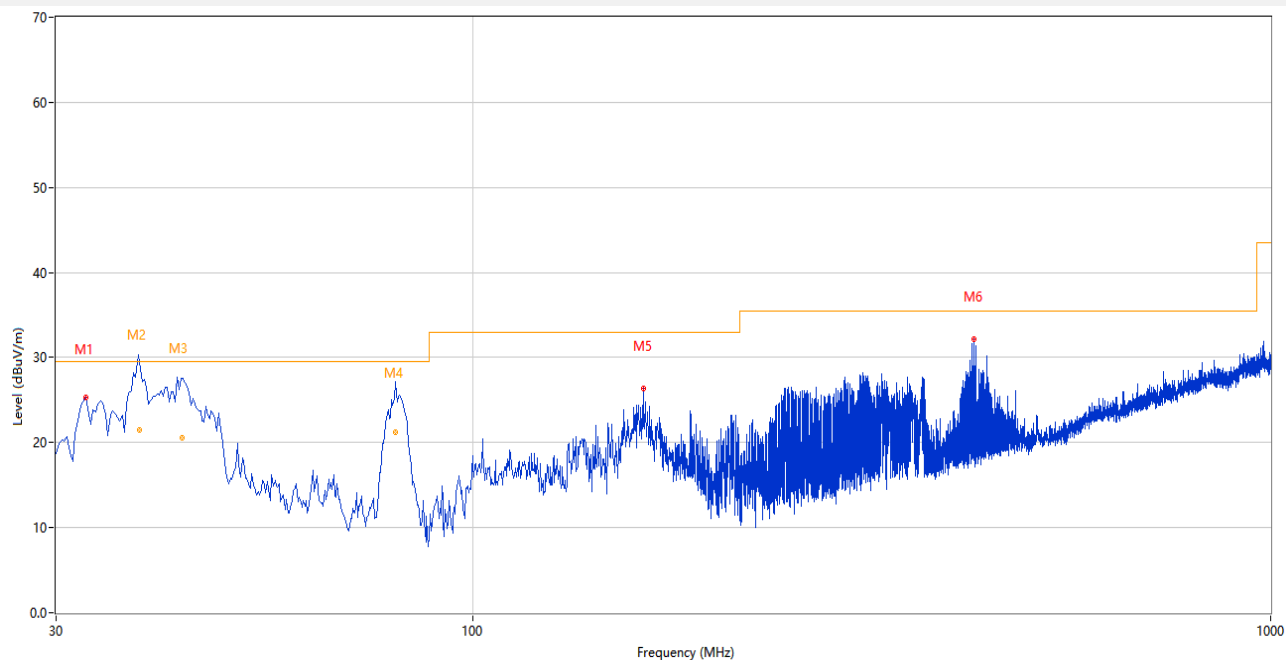
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	0.012	54.54	19.74	105.0	50.46	Peak	5.00	100	Vertical	Pass
2	0.125	73.64	19.84	84.6	10.96	Peak	116.00	100	Vertical	Pass
3	0.157	44.68	19.84	82.6	37.92	Peak	131.00	100	Vertical	Pass
4	0.560	37.68	19.87	51.6	13.92	Peak	175.00	100	Vertical	Pass
5	12.097	35.68	20.89	48.5	12.82	Peak	358.00	100	Vertical	Pass
6	24.254	33.31	21.38	48.5	15.19	Peak	343.00	100	Vertical	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESR7	103027	2025.10.30	2026.10.29	☒
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2027.01.22	☒
Anechoic Chamber(10m#2)	YiHeng	21m*11m*8m	101-1	2025.10.16	2028.10.15	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

Sample No.	AT26070010-001-S05	Temperature	23.3℃
Humidity	64%RH	Pressure	100.3kPa
Test Engineer	Zhou Haonan	Test Date	2026.07.04

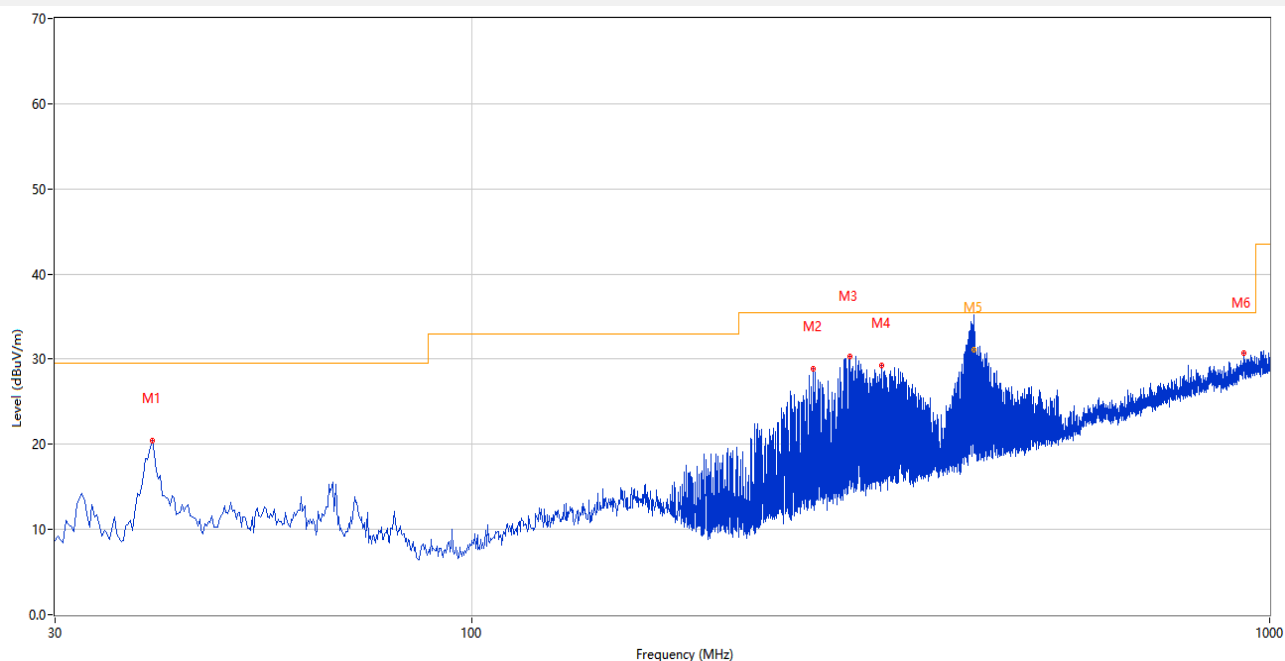
Test Data and Plot

30 MHz to 1 GHz, ANT-V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	32.667	25.35	-30.51	29.5	4.15	Peak	282.00	100	Vertical	Pass
2	38.124	28.44	-29.91	29.5	1.06	Peak	142.00	102	Vertical	N/A
2*	38.124	21.50	-29.91	29.5	8.00	QP	142.00	102	Vertical	Pass
3	43.124	25.37	-29.16	29.5	4.13	Peak	99.00	118	Vertical	N/A
3*	43.124	20.54	-29.16	29.5	8.96	QP	99.00	118	Vertical	Pass
4	80.014	25.77	-33.22	29.5	3.73	Peak	211.00	198	Vertical	N/A
4*	80.014	21.16	-33.22	29.5	8.34	QP	211.00	198	Vertical	Pass
5	163.342	26.38	-28.07	33.0	6.62	Peak	168.00	100	Vertical	Pass
6	424.449	32.14	-22.89	35.5	3.36	Peak	200.00	100	Vertical	Pass

30 MHz to 1 GHz, ANT-H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	39.698	20.49	-29.65	29.5	9.01	Peak	48.00	100	Horizontal	Pass
2	267.348	28.88	-28.06	35.5	6.62	Peak	94.00	200	Horizontal	Pass
3	297.411	30.37	-26.82	35.5	5.13	Peak	81.00	200	Horizontal	Pass
4	326.503	29.21	-25.79	35.5	6.29	Peak	108.00	200	Horizontal	Pass
5	425.509	33.21	-22.85	35.5	2.29	Peak	53.00	198	Horizontal	N/A
5*	425.509	31.14	-22.85	35.5	4.36	QP	53.00	198	Horizontal	Pass
6	927.026	30.75	-11.97	35.5	4.75	Peak	360.00	200	Horizontal	Pass

Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESR7	103027	2025.10.30	2026.10.29	☒
Amplifier (30MHz-1GHz)	COM-MV	ZT30-1000M	B2018054558	2025.11.26	2026.11.25	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	00883	2025.03.23	2028.03.22	☒
Anechoic Chamber(10m#2)	YiHeng	21m*11m*8m	101-1	2025.10.16	2028.10.15	☒
Description	Supplier	Name	Version	/		Use
Test Software	BALUN	BL410-E	V22.930	/		☒

A.2 Conducted Emission

Note: Not applicable.

A.3 20 dB Bandwidth

Note: Because the measured signal is CW adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

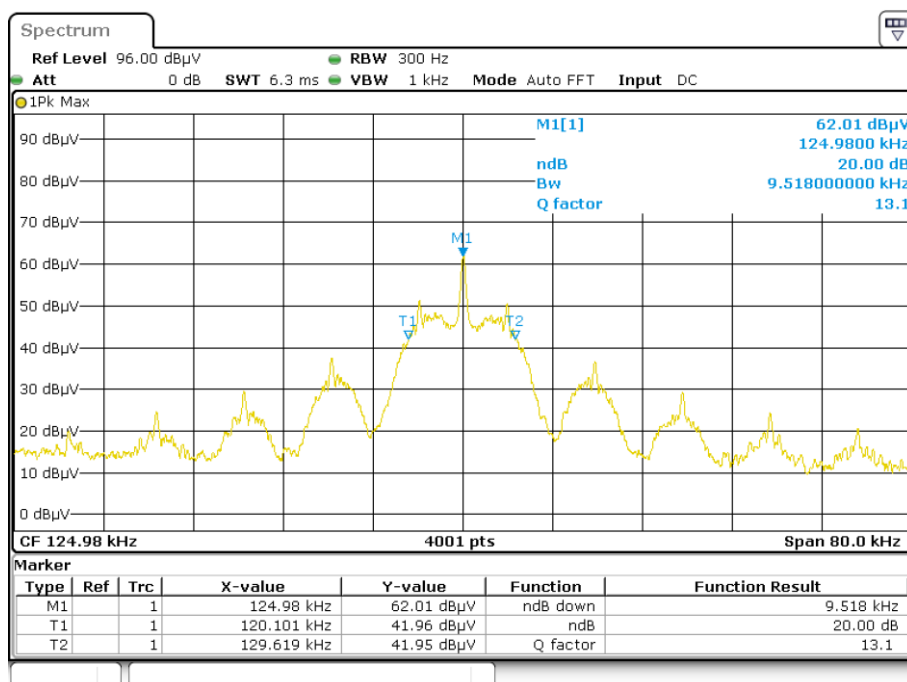
Sample No.	AT26070010-001-S05	Temperature	23.3°C
Humidity	64%RH	Pressure	100.3kPa
Test Engineer	Zhou Haonan	Test Date	2026.07.04

Test Data

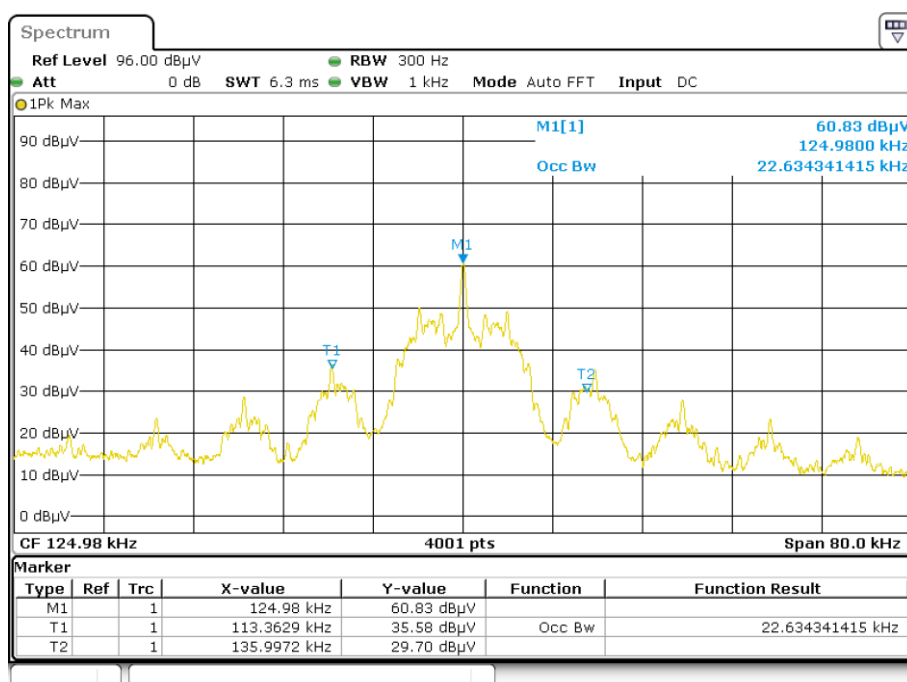
Frequency (MHz)	Emission Bandwidth (20dB down) (kHz)	Occupied Bandwidth (99%) (kHz)
0.12498	9.51800	22.63434

Test Plots

Emission Bandwidth



99% Occupied Bandwidth



Equipment Information						
Equipment Name	Supplier	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHW ARZ	ESR7	103027	2025.10.30	2026.10.29	☒
Test Antenna- Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2027.01.22	☒
Anechoic Chamber(10m#2)	YiHeng	21m*11m*8 m	101-1	2025.10.16	2028.10.15	☒

ANNEX B TEST SETUP PHOTOS

Please refer the document “Ti-AT26070065-AE-2.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “Ti-AT26070065-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “Ti-AT26070065-AI.PDF”.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--