

TEST REPORT

Applicant:	Shanghai Xiangcheng Communication Technology Co.,Ltd	
Address:	6th Floor, Building 10, No.3000 Longdong Avenue, Pudong New District, Shanghai	
Equipment Type:	POS	
Model Name:	N4	
Brand Name:	KOZEN	
FCC ID:	2A2UU-N4	
To at Standards	47 CFR Part 15 Subpart C	
Test Standard.	ANSI C63.10-2013	
Sample Receipt Date:	Nov. 20, 2024	
Test Date:	Nov. 21, 2024	
Date of Issue:	Jan. 02, 2025	

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center

Tested by: Chai Yong

Checked by: Huang Chengkun

Chai Yong

Huang Chongkun

att. AL Approved by: Chen Zidong (Technical Director) hen Jeloy



Revision History		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Jan. 02, 2025</u>	Initial Issue
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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center	
Addross	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town,	
Address	Pudong New District, Shanghai	

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center	
Location	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town,	
Location	Pudong New District, Shanghai	
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a	
	accredited testing laboratory. The designation number is CN1352.	



2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai Xiangcheng Communication Technology Co.,Ltd	
Address	6th Floor, Building 10, No.3000 Longdong Avenue, Pudong New District,	
	Shanghai	

2.2 Manufacturer Information

Manufacturer	Shanghai Xiangcheng Communication Technology Co.,Ltd
Address	6th Floor, Building 10, No.3000 Longdong Avenue, Pudong New District,
	Shanghai

2.3 General Description for Equipment under Test (EUT)

EUT Name	POS	
Series Model Name	N4	
Description of Model		
name differentiation		
Sample No.	N/A	
Hardware Version	N40005152511000	
Software Version	6101.30.001.241.00	
Dimensions (Approx.)	N/A	
Weight (Approx.)	N/A	



2.4 Technical Information

	2G Network GPRS/EDGE 850/1900 MHz
	3G Network WCDMA/HSDPA/HSUPA Band 2/4/5
4G Network FDD LTE Band 2/4/5/7/12/17/25/26	
Network and Wireless	TDD LTE Band 38/41
connectivity	Bluetooth (BR+EDR+BLE)
	2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40)
	5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80)
	5.8G SRD, NFC, GPS, BDS, GLONASS, Galileo

The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	ASK	
Product Type	Portable	
	Fix Location	
Frequency Range	13.56 MHz	
Receiver Categorization	3	
Number of Channel	1	
Tested Channel	1	
Antenna Type	Coil Antenna	



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		American National Standard of Procedures for
	ANSI C03. 10-2013	Compliance Testing of Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	Test Result	Verdict			
1	Antenna Requirement	15.203		Pass Note			
2	Emissions Bandwidth	15.215	ANNEX A.1	Pass			
3	Field Strength of Fundamental Emissions	15.225(a)	ANNEX A.2	Pass			
4	Radiated Emissions	15.225(d) 15.209	ANNEX A.3	Pass			
5	Frequency Stability	15.225(e)	ANNEX A.4	Pass			
6	6 Conducted Emission 15.207 ANNEX A.5 Pas						
Note: The EUT has a permanently and irreplaceable attached antenna, which complies with the							
requir	ement FCC 15.203.						



3.3 Decision Rule

- No Need
- \boxtimes Use General conformity decision rule (Consider uncertainty or not \boxtimes No \square Yes)
- □ Use Special Conformity Decision Rule (Consider uncertainty or not □ No □ Yes)

3.4 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
Conducted emissions (150 kHz-30 MHz)	2.6 dB
Radiated emissions (9 kHz-30 MHz)	4.3 dB
Radiated emissions (30 MHz-1 GHz)	4.4 dB



4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	30% to 60%			
Atmospheric Pressure	100 kPa to 102 kPa			
Temperature	NT (Normal Temperature)	+22℃ to +25℃		
Working Voltage of the EUT	NV (Normal Voltage)	3.6 V		



4.2 Description of Test Setup

4.2.1 For Radiated Test (Below 30 MHz)



(Diagram 1)

4.2.2 For Radiated Test (30 MHz-1 GHz)



(Diagram 2)



4.2.3 For 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 Bandwidth

5.2.1 Definition

15.215(c);

Intentional radiators operating under the alternative provisions to the general emission limits must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

• The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.

• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

5.2.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 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 ≥ 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 ≥ 3RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.2.4 Test Result

Please refer to ANNEX A.1



5.3 Field Strength of Fundamental Emissions and Radiated Emissions

5.3.1 Limit

FCC §15.225(a), (b), (c)

According to FCC section 15.225, for <30 MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 kHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT)

There was no detected Restricted bands and Radiated spurious emission below 30MHz. The 30m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows; 3 m Limit($dB\mu V/m$) = $20log(X)+40log(30/3)=20log(15848)+40log(30/3)=124dB\mu V$

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency range	Field Stre	ength@30m	Field Strength@10m	Field Strength@3m	
(MHz)	μV/m	dBµV/m	dBµV/m	dBµV/m	
Below 13.110	30	29.5	48.58	69.5	
13.110 ~ 13.410	13.110 ~ 13.410 106		59.58	80.5	
13.410 ~ 13.553	334	50.5	69.58	90.5	
13.553 ~13.567	13.553 ~13.567 15848		103.08	124	
13.567 ~ 13.710	334	50.5	69.58	90.5	
13.710 ~14.010	106	40.5	59.58	80.5	
Above 14.010	30	29.5	48.58	69.5	

NOTE:

1. Field Strength (dB μ V/m) = 20*log[Field Strength (μ V/m)].

2. In the emission tables above, the tighter limit applies at the band edges.

FCC §15.225(d)

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement distance (meters)		
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. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- For above 1000 MHz, limit field strength of harmonics: 54dBµV/m@3m (AV) and 74dBµV/m@3m (PK).

5.3.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 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 $f \ge 1$ GHz, 100 kHz for f < 1 GHz VBW \ge RBW Sweep = auto Detector function = peak Trace = max hold

5.3.4 Test Result

Please refer to ANNEX A.2 and A.3

NOTE:

1. Results $(dB\mu V/m)$ = Reading $(dB\mu V/m)$ + 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. Over limit = Results – Limit.



5.4 Frequency Tolerance

5.4.1 Limit

FCC §15.225(e)

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

5.4.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

- 1. The test is performed in a Temperature Chamber.
- 2. The EUT is configured as MS + DC Power Supply.

5.4.4 Test Result

Please refer to ANNEX A.4.



5.5 Conducted Emission

5.5.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μ H/50 Ω line impedance stabilization network (LISN).

Eroquonov rongo (MHz)	Conducted Limit (dBµV)					
	Quai-peak	Average				
0.15 - 0.50	66 to 56	56 to 46				
0.50 - 5	56	46				
0.50 - 30	60	50				

5.5.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels 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. Refer to recorded points and plots below.

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.

5.5.4 Test Result

Please refer to ANNEX A.5.

NOTE:

1. Results $(dB\mu V)$ = Reading $(dB\mu V)$ + Factor (dB)

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

2. Factor = Insertion loss + Cable loss

3. Over limit = Results – Limit.



ANNEX A TEST RESULT

A.1 Emission Bandwidth

Sample No.	S03	Temperature	23.1°C	
Humidity	56%RH	Test Voltage	AC 120V/60Hz	
Test Engineer	Chai Yong	Test Date	2024.11.21	

Test Data

Frequency	Emission Bandwidth(20dB down)	Occupied Bandwidth(99%)		
(MHz)	(kHz)	(kHz)		
13.56	24.89	20.839		



Test plots

Emission Bandwidth

Receive	r	Spe	ectrum	X								
Ref Lev	el 10)7.00 dB	VμV		RBW 10	kHz						(-
Att		10	dB SWT	189.8 µs	VBW 30	kHz	Mode A	uto FF	⊺ Input	DC		
∋1Pk Max												
100 ID II							MI	l[1]			9	1.54 dBµV
100 aBhA-						M1		D			13.50	50460 MHz
90 dBi//						_	nu Bu	в			24 9000	20.00 QB
JO GODI							01	factor			24.0500	544.8
80 dBµV—	-			200	4	_		1		-		
					S			T	2			
70 dBµV—						_						
60 dBu)(1								
oo abpv				1								
50 dBµV—	_			4		_						
											-	
40 dBµV—	-	_				-						
30 aBhA-												
20 dBuV—						_						
10 dBµV—												
CF 13.56	MHz				69	1 pts					Span	80.0 kHz
Marker								. 1				
Type R M1	et '	Trc	12 560		Y-value	10.02	Function Func		Function	n Result	24 00 kuz	
T1		1	13.500	08 MHz	71.48 c	BuV	nub down				20.00 dB	
T2		1	13.572	97 MHz	71.57 c	IBµV	Qf	actor				544.8
								oadv			2	1.11.2024

Date: 21.NOV.2024 10:23:50

99% Occupied Bandwidth

Recei	ver	s	pectrum	×						
Ref L	evel	107.00	dBµV	100 0	RBW 10 kH	2 Mode		T Innut DC		
			10 UB 3 WI	199.9 hz 🖷	VEW JUKH	2 Moue	AULU FF	i input be		
⊖1Pk M	ax									
100 dBj	100 dBuV 92.10 dBµV 92.10 dBµV									
					IV.	0	cc Bw		20.8393	63242 kHz
90 dBµ\	/									
80 dBut				T1			T2			
00 000							X			
70 dBµ\	/						<u> </u>	<u></u>		
				1				\mathbf{N}		
60 dBµ\				1						
50 dBuy	/			(**						
			/					Δ		
40 dBµ\										~
00 d0 3										
30 aBLA										1
20 dBu	/									>
10 dBµ\	/									
CF 13.	56 MH	IZ			691	pts			Spar	80.0 kHz
Marker		- 1				1 -				
Type	Ref	1	<u>X-value</u> 13 5604	16 MHz	92 10 dBu	Func	tion	Fund	ction Result	
T1		1	13.55004	13 MHz	78.30 dBµ	v o	cc Bw		20.8393	63242 kHz
T2		1	13.57088	3 MHz	78.33 dBµ	V				
							eady		1/0	1.11.2024

Date: 21.NOV.2024 11:12:20

Report No.: BL-SH24B0858-402



Equipment Information									
Description	Manufacturer	Manufacturer Model Equipment No. Cal. Date				Use			
EMI Receiver	ROHDE&SCHWA RZ	ESRP3	BH-EMC-L010	2024.02.19	2025.02.18				
Test Antenna- Loop	SCHWARZBECK	FMZB 1519B	BH-EMC-L067	2024.03.11	2026.03.10				
Anechoic Chamber	YiHeng	9m*6m*6m	BH-EMC-L001	2024.04.18	2027.04.17				



A.2 Field Strength of Fundamental Emissions

Note: Field Strength of Fundamental 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.	S03	Temperature	23.1°C
Humidity	56%RH	Test Voltage	AC 120V/60Hz
Test Engineer	Chai Yong	Test Date	2024.11.21

Test Data

Field Strength of Fundamental Emissions Value								
Frequency (MHz)DetectorField Strength (dBµV/m)Limit @3m (dBµV/m)EUTMargin (dB)								
13.560 PEAK 83.67 124.0 X axis 40.33								

Test Plot

Test Antenna-LOOP, EUT X axis





	Equipment Information									
Description	Manufacturer	Model	Equipment No.	Cal. Date	Cal. Due	Use				
EMI Receiver	KEYSIGHT	N9038A	BH-EMC-L015	2024.07.09	2025.07.08	\square				
Test Antenna-		FMZB		2024 02 11	2026 02 10					
Loop	SCHWARZDECK	1519B		2024.03.11	2020.03.10					
Anechoic	Villang	0 *0 *0		2024 04 19	2027.04.47					
Chamber	Theng			2024.04.10	2027.04.17					
Description	Manufacturer	Name	Version		ĺ	Use				
Test Software	BALUN	BL410-E	V21.919	/						



A.3 Radiated Emissions

Note 1: This frequency which near 13.560 MHz with circle should be ignored because they are NFC carrier frequency.

Note 2: 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.	S03	Temperature	23.1°C
Humidity	56%RH	Test Voltage	AC 120V/60Hz
Test Engineer	Chai Yong	Test Date	2024.11.21

The Data and Plots (9 kHz ~ 30 MHz)(at 10m chamber)

Below 30 MHz, Test Antenna LOOP, EUT X axis



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	0.010	61.42	19.91	127.2	65.78	Peak	42.00	100	Vertical	Pass
2	0.039	66.28	19.24	115.8	49.52	Peak	102.00	100	Vertical	Pass
3	0.158	52.47	19.05	103.6	51.13	Peak	107.00	100	Vertical	Pass
4	0.522	41.62	19.00	73.3	31.68	Peak	290.00	100	Vertical	Pass
5	2.211	36.48	19.30	69.5	33.02	Peak	268.00	100	Vertical	Pass
6	13.556	83.45	19.21	69.5	-13.95	Peak	182.00	100	Vertical	N/A



Equipment Information									
Description	Manufacturer Model Equipment No Cal.			Cal. Date	Cal. Due	Use			
EMI Receiver	KEYSIGHT	N9038A	BH-EMC-L015	2024.07.09	2025.07.08	\boxtimes			
Test Antenna-		EM78 15108		2024 02 11	2027 02 10	Z			
Loop	SCHWARZDECK	FINZE 1519D	BH-EIVIC-LU07	2024.03.11	2027.03.10				
Anechoic	Villong	0.000 * 0.000 * 0.000		2024 04 19	0007 04 17				
Chamber	ппену			2024.04.10	2027.04.17				
Description	Manufacturer	Name	Version		/	Use			
Test Software	BALUN	BL410-E	V21.919		/				



Test Data and Plots (30 MHz ~ 10th Harmonic)

30 MHz to 1 GHz, Test Antenna Vertical, EUT X axis



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	31.455	34.50	-28.96	40.0	5.50	Peak	269.00	100	Vertical	Pass
2	40.670	35.56	-25.71	40.0	4.44	Peak	264.00	100	Vertical	Pass
3	52.553	31.92	-24.73	40.0	8.08	Peak	244.00	100	Vertical	Pass
4	93.002	40.21	-27.18	43.5	3.29	Peak	1.00	100	Vertical	Pass
5	180.932	24.51	-27.70	43.5	18.99	Peak	0.00	200	Vertical	Pass
6	433.957	27.01	-19.73	46.0	18.99	Peak	208.00	100	Vertical	Pass



30 MHz to 1 GHz, Test Antenna Horizontal, EUT X axis





No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	32.619	29.83	-28.54	40.0	10.17	Peak	360.00	100	Horizontal	Pass
2	93.244	39.80	-27.12	43.5	3.70	Peak	25.00	200	Horizontal	Pass
3	181.223	25.75	-27.68	43.5	17.75	Peak	90.00	100	Horizontal	Pass
4	284.916	23.10	-23.36	46.0	22.90	Peak	274.00	100	Horizontal	Pass
5	433.908	24.14	-19.73	46.0	21.86	Peak	97.00	200	Horizontal	Pass
6	926.959	30.92	-8.86	46.0	15.08	Peak	220.00	200	Horizontal	Pass

Radiated Emissions									
Description	Manufacturer	Model	Model Serial No.		Cal. Due	Use			
EMI Receiver	KEYSIGHT	N9038A	BH-EMC-L015	2024.07.09	2025.07.08	\square			
Test Antenna-				2024 02 11	2027 02 10	M			
Bi-Log	SCHWARZDECK	VOLD 9103		2024.03.11	2027.03.10				
Anechoic	Villang	0;;		2024 04 19	2027 04 17				
Chamber	TIFIEIIg			2024.04.10	2027.04.17				
Description	Manufacturer	Name		Version		Use			
Test Software	BALUN	BL	410-E	V21					



A.4 Frequency Stability

Note 1: Because the 85%(3.06V) of the rated supply voltage value exceeds the cut-off voltage lower(3.2V) limit of the manufacturer, the cut-off voltage of EUT is test here.

Note 2: The operatin	g temperature	range of the El	UT is -20°C to 50°C.
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Sample No.	S03	Temperature	23.1°C
Humidity	56%RH	Test Voltage	DC
Test Engineer	Chai Yong	Test Date	2024.11.21

OPERATING FREQUENCY:	13560000 Hz
REFERENCE VOLTAGE:	3.6 V
DEVIATION LIMIT:	±0.01%

	Test Conditions				
VOLTAGE (%)	Power	Temperatur	Frequency(Hz)	Deviation(%)	Verdict
	(VDC)	e (°C)			
100		-20	13559792	-0.001534	
100		-10	13560000	0.000000	
100		0	13559792	-0.001534	
100	26	+10	13560000	0.000000	
100	3.0	+20	13560000	0.000000	
100		+25	13560025	0.000184	
100		+30	13560025	0.000184	Pass
100		+40	13560000	0.000000	
100		+50	13559792	-0.001534	
MAX(Battery	2.06	1.20	12560000	0.00000	
End Point, 85)	3.00	+20	13500000	0.000000	
MIN(Battery	4.0 .00		12550702	0.001534	
End Point, 115)	4.2	+20	15559792	-0.001554	



Equipment Information									
Description	Manufacturer	Model	Equipment No.	Cal. Date	Cal. Due	Use			
EMI Receiver	KEYSIGHT	N9038A	BH-EMC-L015	2024.07.09	2025.07.08	\square			
Test Antenna- Loop	SCHWARZBECK	FMZB 1519B	BH-EMC-L067	2024.03.11	2027.03.10	\boxtimes			
Temperature Chamber	YOMA	DTL-0035	TJ8980-012	2024.04.12	2025.04.12				
Anechoic Chamber	YiHeng	9m*6m*6m	BH-EMC-L001	2024.04.18	2027.04.17				



A.5 Conducted Emissions

Note 1: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Sample No.	S03	Temperature	22.0°C
Humidity	67%RH	Test Voltage	AC 120V/60Hz
Test Engineer	Xu Ying	Test Date	2024.11.21



No.	Frequency	Results	Factor	Limit	Margin	Detector	Line	Verdict
	(MHz)	(dBuV)	(dB)	(dBuV)	(dB)			
1	0.156	53.47	9.75	65.67	12.20	Peak	L	Pass
1**	0.156	34.73	9.75	55.67	20.94	AV	L	Pass
2	0.504	41.25	9.74	56.00	14.75	Peak	L	Pass
2**	0.504	27.74	9.74	46.00	18.26	AV	L	Pass
3	1.136	36.30	9.70	56.00	19.70	Peak	L	Pass
3**	1.136	23.20	9.70	46.00	22.80	AV	L	Pass
4	2.984	35.77	9.66	56.00	20.23	Peak	L	Pass
4**	2.984	20.31	9.66	46.00	25.69	AV	L	Pass
5	5.602	33.01	9.62	60.00	26.99	Peak	L	Pass
5**	5.602	19.68	9.62	50.00	30.32	AV	L	Pass
6	19.946	37.29	8.93	60.00	22.71	Peak	L	Pass
6**	19.946	22.61	8.93	50.00	27.39	AV	L	Pass



	riedency (miz)							
No.	Frequency	Results	Factor	Limit	Margin	Detector	Line	Verdict
	(MHz)	(dBuV)	(dB)	(dBuV)	(dB)			
1	0.158	50.76	9.70	65.57	14.81	Peak	N	Pass
1**	0.158	31.43	9.70	55.57	24.14	AV	N	Pass
2	0.500	43.95	9.80	56.00	12.05	Peak	N	Pass
2**	0.500	31.45	9.80	46.00	14.55	AV	N	Pass
3	1.034	39.26	9.86	56.00	16.74	Peak	N	Pass
3**	1.034	24.78	9.86	46.00	21.22	AV	N	Pass
4	2.544	36.96	9.86	56.00	19.04	Peak	N	Pass
4**	2.544	23.59	9.86	46.00	22.41	AV	N	Pass
5	5.294	36.06	9.82	60.00	23.94	Peak	N	Pass
5**	5.294	23.18	9.82	50.00	26.82	AV	N	Pass
6	18.132	39.01	9.27	60.00	20.99	Peak	N	Pass
6**	18.132	24.51	9.27	50.00	25.49	AV	N	Pass

Equipment Information									
Description	Manufacturer	Model	Equipment No.	Cal. Date	Cal. Due	Use			
EMI Receiver	KEYSIGHT	N9038A	BH-EMC-L127	2024.02.19	2025.02.18	\square			
LISN	SCHWARZBECK	NSLK 8127	BH-EMC-L011	2024.02.25	2025.02.24				
10dB Limiter	SCHWARZBECK	VTSD 9561-F	BH-EMC-L014	2024.02.19	2025.02.18	\boxtimes			
Shielded Room	YiHeng	5m*4m*3.2m	BH-EMC-L006	2024.02.22	2027.02.21				
Description	Manufacturer	N	ame	Vers	sion	Use			
Test Software	BALUN	BL₄	410-E	V19	.618				





ANNEX B TEST SETUP PHOTOS

Please refer the document "BL-SH24B0858-AE-1.PDF".

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document "BL-SH24B0858-AW.PDF".

ANNEX D EUT INTERNAL PHOTOS

Please refer the document "BL-SH24B0858-AI.PDF".



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2. For the report with Accreditation Symbol, the items marked with "☆" are not within the accredited scope.

3. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the test report stamp.

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6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--