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TEST REPORT

UL 2034

Standard for Single and Multiple Station Carbon Monoxide Alarms

Report reference No. .....:	CTL2301092051-Q
Original Report No. ..... :	CTL2301092041-Q
Tested by (name + signature) ..... :	Nelson Li
Supervised by (name + signature) .. :	Bright Gao
Approved by (name + signature) ..... :	Ethan Chen
Date of issue..... :	Jan. 11, 2023
Testing Laboratory Name .....:	**Shenzhen CTL Testing Technology Co., Ltd.**
Address .....:	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Applicant's Name .....:	Guangdong Yiru Keji Wenhua Chuanmei Youxiangongsi
Address .....:	101b, No. 53, Jiangyu Street, Jiangdong Village, Dalong Street, Panyu District, Guangzhou, China
Test specification	
Standard .....:	UL2034-2022
Test procedure .....:	N/A
Non-standard test method .....:	N/A
Test Report Form No. .....:	UL2034
TRF originator.....:	CTL
Master TRF .....:	Dated 2022-12
Test item description .....:	Gas Detector
Trademark .....:	GZAIR
Manufacturer.....:	Guangdong Yiru Keji Wenhua Chuanmei Youxiangongsi 101b, No. 53, Jiangyu Street, Jiangdong Village, Dalong Street, Panyu District, Guangzhou, China
Model and/or type reference .....:	SA103
Ratings.....:	9Vdc

Summary of testing:

Testing location:

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Tests performed (name of test and test clause):

This test report shows that submitted sample(s) have been evaluated and tested to comply with applicable standard requirements in Standard for Single and Multiple Station Carbon Monoxide Alarms, UL2034-2022.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

Annex 1: Photos

Summary of compliance with National Differences: N/A

Copy of marking plate:

GZAIR

Gas Detector

Model: SA103

IP67

Guangdong Yiru Keji Wenhua Chuanmei Youxiangongsi

101b, No. 53, Jiangyu Street, Jiangdong Village, Dalong Street, Panyu District, Guangzhou, China

Made In China

Remark: the marking plates of other models are in the same pattern.

The above marking are in the minimum requirements required by safety standard. For the final production sample, the marking which do not give rise to misunderstand may be add.

Possible test case verdicts:

- test case does not apply to the test object ..... : N (N/A)
- test object does meet the requirement ..... : P (Pass)
- test object does not meet the requirement ..... : F (Fail)

Testing ..... :

Date of receipt of test item..... : Jan. 09, 2023

Date(s) of performance of tests..... : Jan. 09, 2023 to Jan. 11, 2023

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

General product information:

Gas Detector, powered by battery, electronic components mounted on PCB, housed with enclosure.

Remark:

IP test according to IEC 60529:1989+A1:1999+A2:2013 was not considered in this report，see test report No.: CTL1910302031-IP for detail test result.

Remark:

This test report is copied from previous test report Ref No.: CTL2301092041-Q , with the following changes:

1. *Change the Applicant's Name and address;*
2. *Change the Manufacturer's Name and address;*
3. *Change the Trademark.*

UL2034			
Clause	Requirement	Remark	Result
INTRODUCTION			
1	Scope		P
2	Components		P
3	Units of measurement		P
4	Undated references		P
5	Glossary		P
6	Alarm Reliability Prediction		P
7	Battery Removal Indicator	A warning flag	P
8	Alarm Reset/Silence Button		P
9	Voltage Classification	Extra-Low-Voltage Circuit	P
10	Lifetime	>3years	P
Construction			
11	General		P
11.1	Accessories		P
11.2	Sensitivity adjustment		P
11.3	Supplementary signaling feature		N
12	Service and Maintenance Protection	No hazardous-voltage circuit within the enclosure	N
12.1	General		N
12.2	Sharp edges	smooth and rounded	P
13	Enclosure		P
13.1	General		P
13.2	Cast metal enclosures		N
13.3	Sheet metal enclosures		N
13.4	Nonmetallic enclosures		P
13.5	Ventilating openings	No such parts	N
13.6	Covers		N
13.7	Transparent panels		N
14	Corrosion Protection		N
POWER SUPPLY			
15	Primary Power Supply		P
16	Secondary Power Supply		P
17	Batteries		P
17.1	General		P
17.2	Battery connections		P
18	Supplementary Signaling Circuits		N
FIELD WIRING			
19	Permanent Connection		N
19.1	General		N

UL2034			
Clause	Requirement	Remark	Result
19.2	Field-wiring compartment for hazardous voltage connection		N
19.3	Field-wiring terminals		N
19.4	Field-wiring leads		N
19.5	Grounded supply terminals and leads		N
20	Power Supply Cord		N
21	Equipment Grounding		N
21.1	General		N
21.2	Permanently-connected units		N
21.3	Cord-connected units		N
22	Remote Power Supply Leads		N
INTERNAL WIRING			
23	General		P
24	Wireways		P
25	Splices		P
26	Barriers		P
27	Grounding and Bonding		N
ELECTRICAL COMPONENTS			
28	General		P
28.1	Mounting of components		P
28.2	Operating components		P
28.3	Current-carrying parts		P
28.4	Electrical insulating material		P
29	Bushings		N
30	Lampholders and Lamps	No such parts	N
31	Protective Devices		N
32	Printed-Wiring Boards		P
33	Switches		N
34	Transformers and Coils		N
35	Dropping Resistors		N
36	Spacings		N
PERFORMANCE			
37	General		P
37.1	Test units and data		P
37.2	Accessories		N
37.3	Test voltages		P
37.4	Component reliability data		P
38	Normal Operation Test		P
39	Circuit Measurement Test		P

UL2034			
Clause	Requirement	Remark	Result
39.1	Current input		N
39.2	Battery trouble voltage determination		P
39.3	Battery trouble silence		P
40	Electrical Supervision Test		P
40.1	General		P
40.2	AC powered units		N
40.3	Battery Powered Primary or secondary units		P
40.4	Component failure		P
40.5	External wiring		N
41	Sensitivity Test		P
41.1	General		P
41.2	Test equipment		P
41.3	Test method		P
41.4	Uniformity of operation		P
42	Selectivity Test		P
43	Sensitivity Test Feature		P
44	Stability Tests		P
45	Temperature Test		P
46	Overload Test		N
46.1	Alarm		N
46.2	Separately energized circuits		N
47	Endurance Test		P
47.1	Alarm		P
47.2	Separately energized circuits		N
47.3	Audible signaling appliance		P
47.4	Test means		P
48	Variable Ambient Temperature Test		P
48.1	Operation in high and low ambient		P
48.2	Effect of shipping and storage		P
49	Humidity Test		P
49.1	High humidity (non-condensing)	52°C, 95%, 168h	P
49.2	Low humidity	15°C, 22%, 168h	P
49.3	Sensitivity measurements		P
50	Leakage Current Test		N
51	Transient Tests		P
51.1	General		P
51.2	Supply line (hazardous-voltage) transients		N
51.3	Internally induced transients		N

UL2034			
Clause	Requirement	Remark	Result
51.4	Extraneous transients		P
51.5	Supply line (extra-low-voltage) circuit transients		N
52	Surge Immunite Test(Combination Wave)		N
53	Surge Current Test		N
54	Dielectric Voltage-Withstand Test		N
55	Abnormal Operation Test		P
56	Overvoltage Test		N
57	Undervoltage Test		P
58	Dust Test		P
59	Static Discharge Test		N
60	Vibration Test	Comply with 38.1.1	P
61	Replacement Test, Head and Cover		N
62	Jarring Test		P
63	Corrosion test		N
64	Battery Tests		P
65	Audibility Test		P
65.1	General		P
65.2	Sound output measurement		P
65.3	Alarm duration test		P
65.4	Supplementary remote sounding appliances		N
66	Tests of Thermoplastic Materials		P
66.1	General		P
66.2	Accelerated air-oven aging test		N
66.3	Flame test (3/4 inch)		P
66.4	Flame test (5 inch)		P
66.5	Impact test	No damage, no hazard	P
67	Paint Loading Test		P
68	Battery Replacement Test		P
69	Polarity Reversal Test		N
70	Electric Shock Current Test		N
71	Strain Relief Test		N
71.1	General		N
71.2	Power-supply cord		N
71.3	Field-wiring leads		N
71.4	Special connector		N
72	Power Supply Tests		N
72.1	General		N
72.2	Volt-amperes capacity		N
72.3	Burnout test		N

UL2034			
Clause	Requirement	Remark	Result
73	Drop Test	five drops, feet (2.1 m)	P
CARBON MONOXIDE ALARMS FOR USE IN RECREATIONAL VEHICLES AND UNCONDITIONED AREAS			
74	General		N
74.2	Marking		N
75	Variable Ambient Temperature and Humidity Test		N
76	Corrosion (Salt Spray) Test		N
77	Vibration Test		N
78	Contamination Test (Cooking By-Products)		N
79	Carbon Monoxide Alarms for Use on Recreational Boats		N
79.1	General		N
79.2	Operation tests following conditioning		N
79.3	Watertightness test		N
79.4	Drip test		N
79.5	Abnormal operation tests		N
79.6	Salt-Spray Corrosion Test		N
79.7	Marking		N
79.8	Operating and installation instructions		N
MANUFACTURING AND PRODUCTION TESTS			
80	General		P
81	Sensitivity Calibration Tests		P
82	Measurement of In-Service Reliability		P
82.1	Required in-service reliability		P
82.2	Sample frequency and sample size		P
82.3	Test results and record keeping		P
83	Production Line Dielectric Voltage-Withstand Tests		N
84	Production Line Grounding Continuity Tests		N
85	Audibility Test		P
86	Alarm Shipment		P
MARKING			
87	General		P
INSTRUCTIONS			
88	General		P
89	Installation and Operating Instruction For Evaluation		P

UL2034			
Clause	Requirement	Remark	Result

Critical components information:

Only following safety critical components were evaluated and/or tested, and were confirmed to comply with the standard requirements mentioned in this test report. Use of components not listed here may lead to non-compliance test results, and it's the sole responsibilities of the manufacturer to make sure all products should be produced in consistent way and only approved components can be used.

Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Plastic enclosure	SABIC JAPAN L L C	KB5252	V-0,130°C	UL 94	UL E207780
Alt.	Interchangeable	Interchangeable	V-0,130°C	UL 94	UL
Internal wire	Interchangeable	Interchangeable	VW-1, 18-22AWG, 80°C, 300V	UL 758	UL
PCB	SHENZHEN DINYE ELECTRONIC CO LTD	DY-06	Min.V-0, 130℃	UL796	UL E340369
Alt.	interchangeable	interchangeable	Min.V-0, 130℃	UL796	UL

39	Table: Input Test					N
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Supplementary information:						

45	TABLE: Temperature Test					P
Maximum measured temperature T of part/at::	Measured temperature rise (K)					Limit (K)
Conditions	Normal standby	--		--	--	
Plastic enclosure outside	1.8	--		--	--	25
Button	0.8					25
Screen	1.5					25
Ambient	25.0°C	--		--	--	--
supplementary information:						

45	TABLE: Temperature Test		P
Maximum measured temperature T of part/at::	Measured temperature rise (K)		Limit (K)

UL2034			
Clause	Requirement	Remark	Result

Conditions	Alarm condition	--		--	--	
Plastic enclosure outside	2.1	--		--	--	65
Button	1.0					65
Screen	2.2					65
Ambient	25.0°C	--		--	--	--
supplementary information:						

54	**TABLE: Dielectric strength Test**			N
Test voltage applied between:		Test voltage (V)	Breakdown Yes / No	Insulation resistance (Ω)
Supplementary information:				

55	**TABLE: Abnormal Operation Test**					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Motor	Locked	9V	7h10min	--	--	Unit shut down immediately, unrecoverable, No damage, No hazard
Supplementary information:						

Photo documentation

Photo 1 Overall view

Photo 2 Side view

Photo 3 Side view

Photo 4 Back view

Photo 5 Open view

Photo 6 Internal view

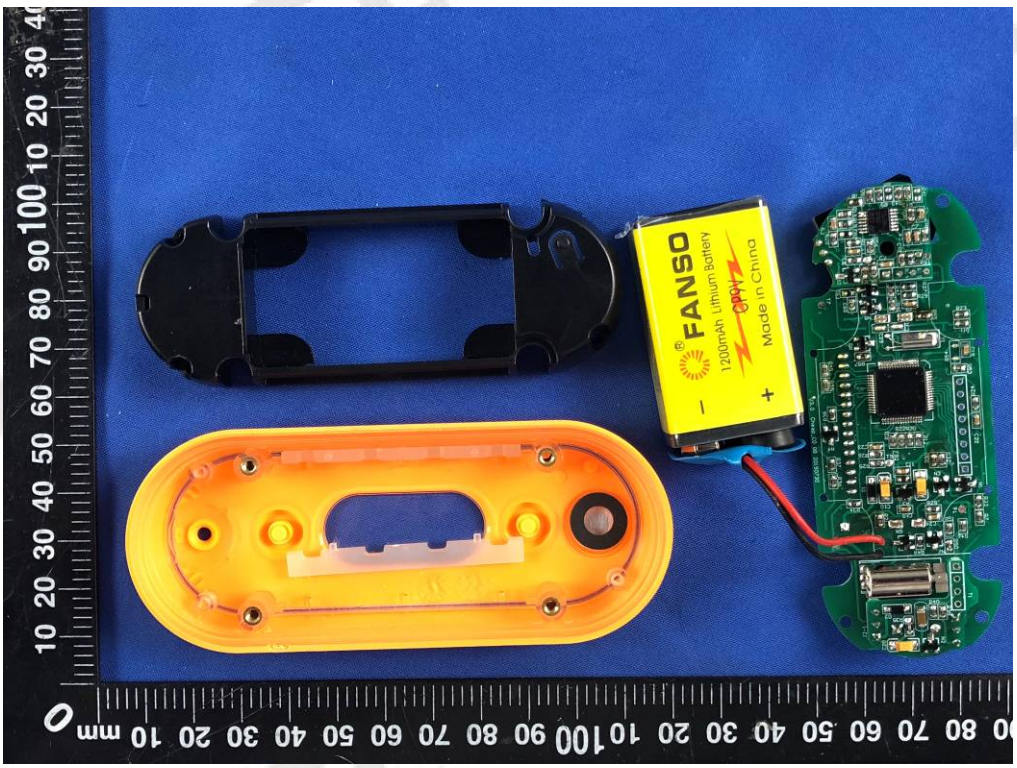


Photo 7 PCB view

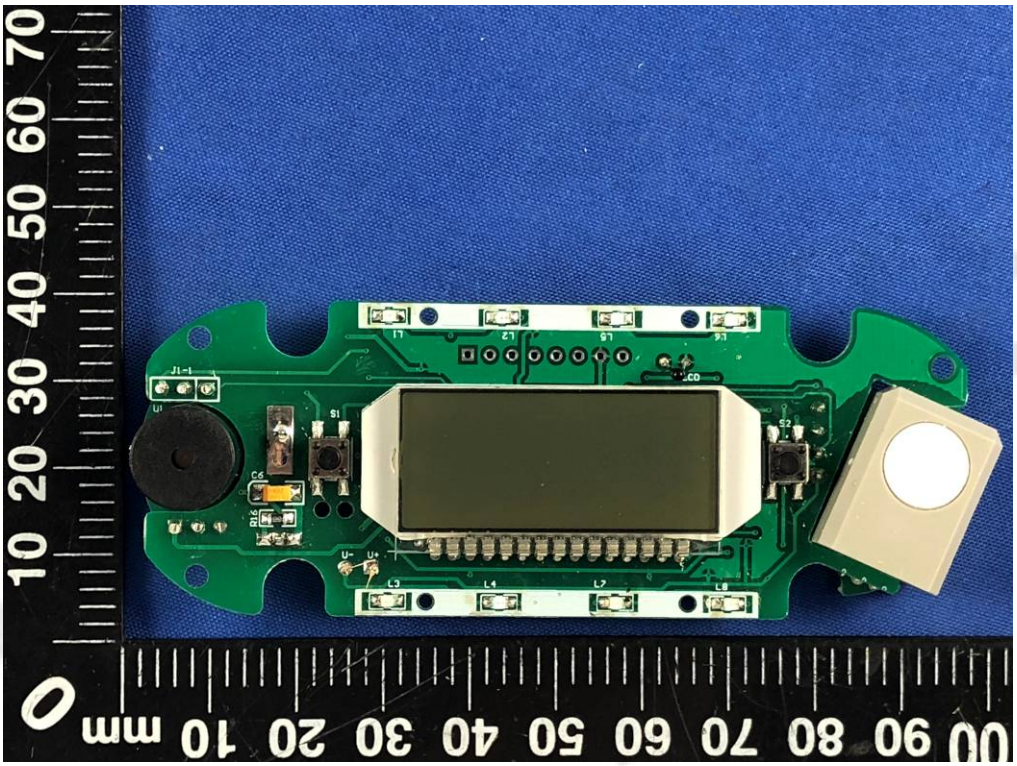


Photo 8 PCB view

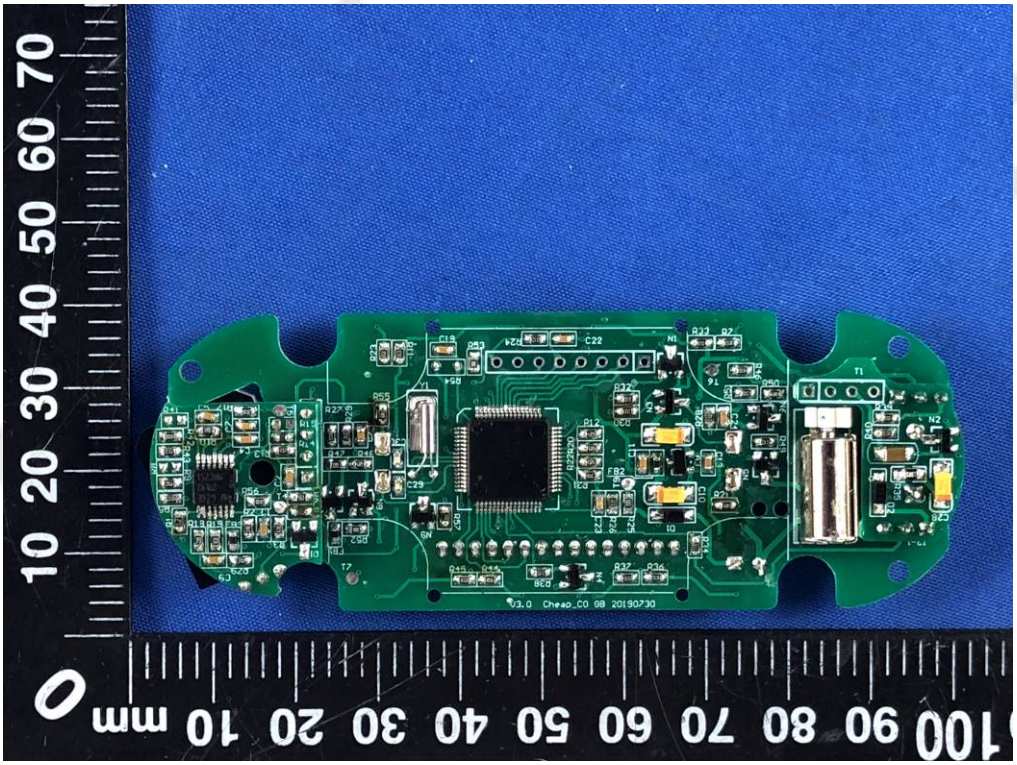
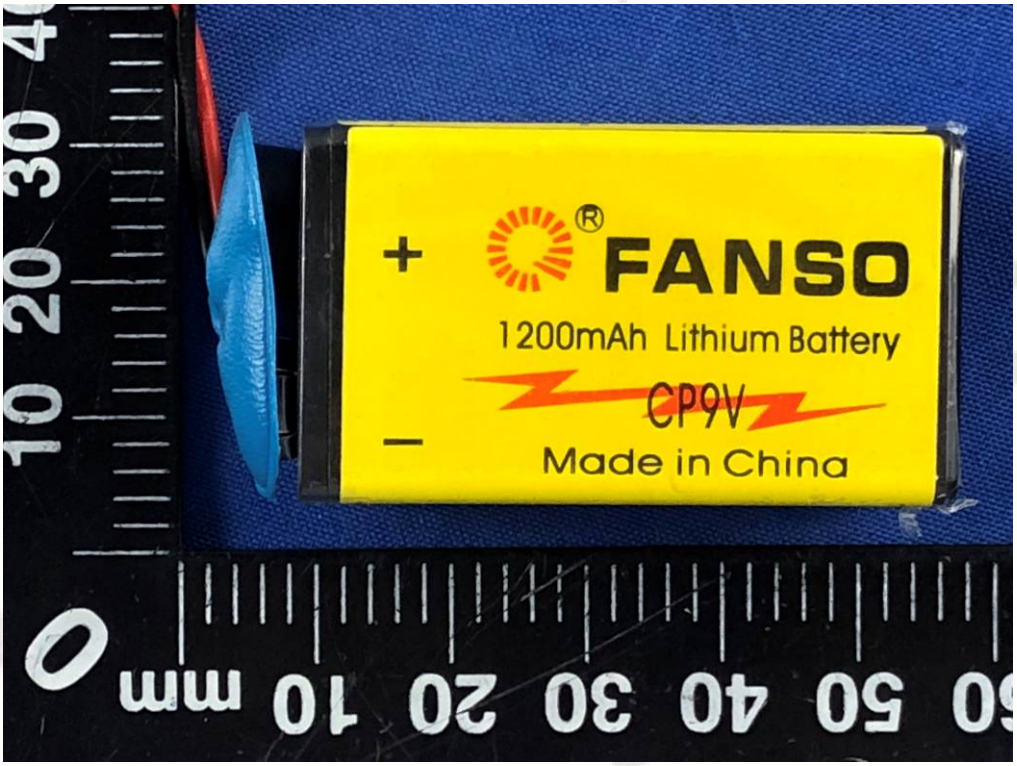


Photo 9 Battery View



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