CMC TESTING 众检检验

中国认可 国际互认 检测 TESTING CNAS L13807

TEST REPORT
PSE
Circular Notice of Interpretation for the Ministerial Order to provide of Technical Standards for Electrical Appliances and Materials
Appendix Table 9 (Lithium Ion Secondary)

Report Number.....:	CMC211013017
Date of issue .....:	2021-12-16
Total number of pages .....:	20 pages
Tested by (name, signature).....:	May Huang
Reviewed by (name, signature)....:	Meiko Ma
Approved by (name, signature)....:	Dylan Dou
Testing Laboratory .....:	**CMC Testing International (Shenzhen) Co., Ltd.**
Address.....:	101, Building B, Kaihuimao Industrial Park, Liyuan Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Applicant's name .....:	**KHADAS TECHNOLOGY CO., LTD.**
Address.....:	D#2101A, Caifugang Building, Baoyuan Road, Xixiang Street, Bao'an District Shenzhen City, China
Manufacturer's name.....:	**GUANGDONG ZHAONENG TECHNOLOGY CO.,LTD**
Address.....:	No.8, Nanda Road, Jinsha Chengnan Industrial Zone, Danzao, Nanhai District, Foshan City, Guangdong, P.R.China
Test specification:	
Standard .....:	Interpretation for METI Ordinance of Technical Requirements (R01.12.25) Appendix 9: Lithium ion secondary batteries
Test procedure.....:	Type approved
Non-standard test method .....:	N/A
Test result.....:	Pass
Test item description.....:	Lithium-ion Polymer Rechargeable Battery
Trade Mark.....:	KHADAS
Model/Type reference.....:	ZN-285565
Ratings.....:	3.8V, 1160mAh, 4.41Wh

General disclaimer:

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 CMC. The authenticity of this Test Report and its contents can be verified by contacting the CMC, responsible for this Test Report.

List of Attachments (including a total number of pages in each attachment):

Attachment 1: Photo documentation (on pages 17 to 19).

Test item particulars:

Designation	:	ZN-285565
Nominal voltage	:	3.8V
Rated capacity	:	1160mAh
Maximum charge voltage	:	4.35V
Maximum charge current	:	580mA
Final voltage	:	3.0V
Max Ambient Temperature	:	45°C max (charge), 60°C max (discharge)
Manufacturer's charge method	:	Charge at constant current 232mA until the voltage reaches 4.35V, then charge at 4.35V till charge current is 11.6mA.
Sample No.	:	SN211013017C001- SN211013017C096, SN211013017B001- SN211013017B032

Possible test case verdicts:

Test case does not apply to the test object	:	N(/A)
Test object does meet the requirement	:	P(ass)
Test object does not meet the requirement	:	F(ail)

Testing:

Date of receipt of test item	:	2021-11-03
Date(s) of performance of tests	:	2021-11-03 to 2021-12-03
Test Environment Condition	:	Ambient temperature: 20ºC±5ºC

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.
"(CXXX)" refers to sample number of batteries, "X" is 0~9;
"(BXXX)" refers to sample number of batteries, "X" is 0~9;
"(See Enclosure)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Copy of marking plate:

The artwork below may be only a draft

XXXX株式会社：Here represents the Japanese Notifying Supplier.

Remark:

Code of YYMMDD:

YY: Year, MM: Month, DD: Day.

Summary of testing:

The batteries were evaluated and tested according to Interpretation for METI Ordinance of Technical Requirements (R01.12.25) Appendix 9.

Test items:

cl.2.(1) Continuous Low Rate Charge;
cl.2.(2) Vibration;
cl.2.(3) Battery enclosure test at high ambient temperature;
cl.2.(4) Temperature cycling;
cl.3.(1) External short circuit;
cl.3.(2) Free fall;
cl.3.(3) Mechanical shock (crash hazard);
cl.3.(4) Thermal abuse;
cl.3.(5) Crushing of cells;
cl.3.(6) Low pressure;
cl.3.(7) Overcharge;
cl.3.(8) Forced discharge;
cl.3.(9) Cell protection against a high charging rate;
cl.3.(11) Function of the overvoltage protection of batteries.

General product information:

The battery is constructed with single lithium-ion cell, and has overcharge, over-discharge, over current and short-circuits proof circuit.
The charging temperature range for this battery is: 10ºC ~45ºC

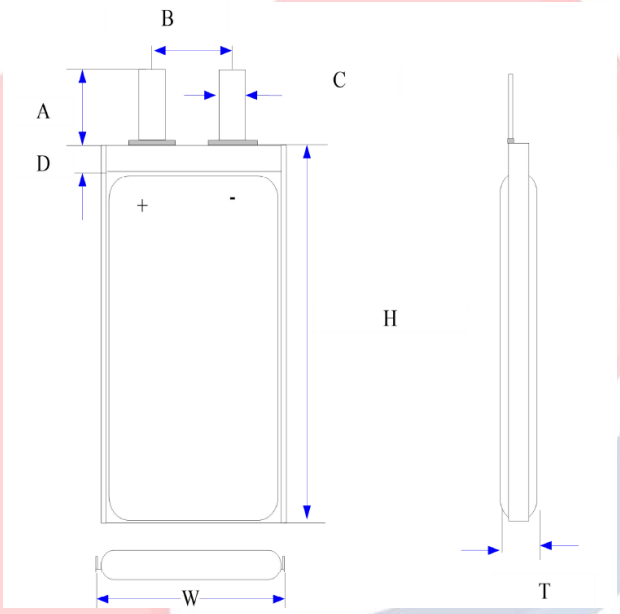
The main features of the battery pack are shown as below:

Model	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Cut-off Voltage
ZN-285565	1160mAh	3.8V	232mA	232mA	580mA	1160mA	4.35V	3.0V

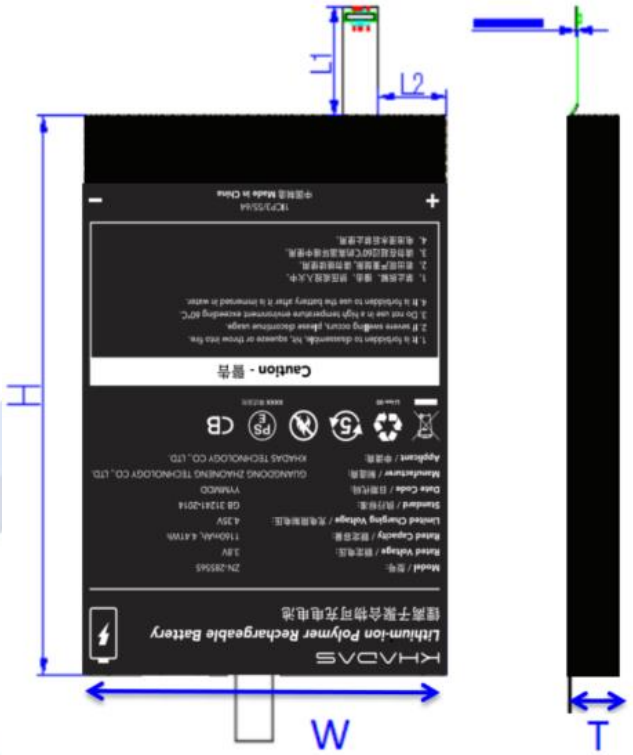
The main features of the cell in the battery pack are shown as below:

Model	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Cut-off Voltage
ZN-285565	1160mAh	3.8V	232mA	232mA	580mA	1160mA	4.35V	3.0V

Constuction:

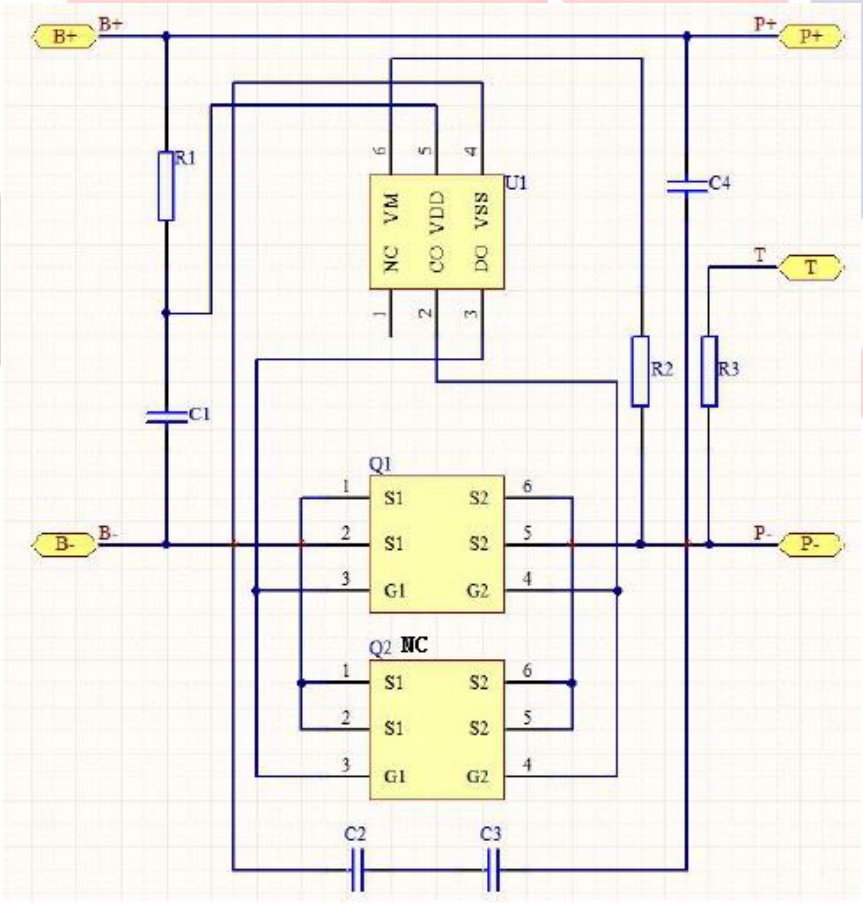


(Maximum) Dimension: T: 2.8mm, W: 54.6mm, H: 64.0mm
Cell



(Maximum) Dimension: T: 3.0mm, W: 54.8mm, H: 66.0mm
Battery

Circuit diagram:



Clause	Requirement - Test	Result - Remark	Verdict
1.	**Basic Design**		P
1.(1)	**Insulation and Wiring**		P
	a) Insulation Resistance between an accessible metal case (excluding electrical contacts) and positive terminals ≥ 5MΩ.	No other metal parts which do not connected to electrodes.	N/A
	b) Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	See tests of clause 2 and clause 3.	P
	c) Orientation of wiring maintains adequate creepage and clearance distances between conductors. Mechanical integrity of internal connections are sufficient to accommodate conditions of reasonably foreseeable misuse.	See tests of clause 2 and clause 3.	P
1.(2)	**Inner Pressure Reduction Mechanism**		P
	a) Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition.	Venting mechanism exists on narrow side of the prismatic cell.	P
	b) The support material is used to fix cells within the battery case, type of support material and method of fixing cells shall not inhibit pressure relief, and the battery shall not induce overheating during normal use of the battery.		N/A
1.(3)	**Temperature and current management**		P
	The batteries are designed such that abnormal temperature rise conditions are prevented.	Overcharge, over-discharge, over current and short-circuit proof circuit used in this battery. See tests of clause 3.	P
	Means is provided to limit current to safe levels during charge and discharge.	Overcharge, over-discharge, over current and short-circuit proof circuit used in this battery. See tests of clause 3.	P
1.(4)	**Terminal contacts**		P
	a) Terminals have a clear polarity marking on the external surface of the battery or be designed with no fear of misconnection.	The “+”, “-” marked on surface of the battery.	P
	b) The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current.	Complied.	P
	c) External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance.		P
	Terminal contacts are arranged to minimize the risk of short circuits.		P

Clause	Requirement - Test	Result - Remark	Verdict
1.(5)	**Assembly of cells into batteries**	1S1P	P
	Cells used in the battery assembly have closely matched capacities, are of the same design, and are of the same chemistry and same manufacturer.		N/A
	The battery incorporates separate circuitry to prevent cell reversal from uneven charges as the pack is designed for the selective discharge of a portion of its series connected cells.		N/A
2.	**Intended Use**		P
2.(1)	**Continuous Low Rate Charge**		P
	Fully charged cells are subjected for 28 days to a charge as specified by the manufacturer.	Arrange the test as required.	P
	Ambient temperature when testing	50°C	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage.	P
2.(2)	**Vibration**		P
	The measured open circuit voltage of the fully charged cells or batteries is within anticipated parameters	See test below.	P
	The cells or batteries are subjected to a vibration sequence with amplitude of 0.76 mm and a total maximum excursion of 1.52 mm. The frequency was varied at the rate of 1 Hz/min between the limits of 10 Hz and 55 Ha. The entire range of frequencies (10 Hz to 55 Hz) and return (55 Hz to 10 Hz) was traversed in 90 min ± 5 min for each mounting position.	Arrange the test as required.	P
	The vibration was applied in each of three mutually perpendicular directions.	Arrange the test as required.	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage.	P
2.(3)	**Battery enclosure test at high ambient temperature**	No enclosure exists.	N/A
	Fully charged batteries were placed in an air-circulating oven at a temperature of 70°C ± 2°C for 7 hours. Afterwards, they are removed and allowed to return to room temperature.		N/A
	Results: no physical distortion of the battery casing resulting in exposure if internal components.		N/A
2.(4)	**Temperature cycling**		P
	Fully charged cells or batteries were subjected to temperature cycling (+75°C, +20°C, -20°C, +20°C) in forced draught chambers according to the procedure.	Arrange the test as required.	P
	After the fifth cycle, the cells or batteries were stored at 20 ± 5°C for 7 days prior to examination.	Arrange the test as required.	P

Clause	Requirement - Test	Result - Remark	Verdict
	Results: No fire, no explosion, no leakage	No fire, no explosion, no leakage.	P
3	**Reasonably foreseeable misuse**		P
3.(1)	**External short circuit**		P
	a) Fully charged cells were subjected to a short circuit test at 55°C ± 5°C.	Arrange the test as required. Each 5pcs cells charged at ambient temperature 50°C and 5°C respectively prepared for the test.	P
	The external resistance did not exceed 80 ± 20 mΩ.	Total external resistance: 80 ± 20 mΩ.	P
	The cells were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise.	Tested until the case temperature declined by 20% of the maximum temperature rise.	P
	b) Fully charged batteries were subjected to a short circuit test at 20°C ± 5°C.	Arrange the test as required on batteries. Each 5pcs batteries charged at ambient temperature 50°C and 5°C respectively prepared for the test.	P
	The external resistance did not exceed 80 ± 20 mΩ.	Total external resistance: 80 ± 20 mΩ.	P
	The batteries were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise.		N/A
	If battery incorporates protective device or protective circuit and the current has stopped, then for one hour after the current stopped.		P
	Results: no fire, no explosion.	No fire, no explosion	P
3.(2)	**Free fall**		P
	Fully charged cells or batteries were dropped 3 times from a height of 1.0 m onto a concrete floor.	Arrange the test as required.	P
	Provided that this does not apply to charged batteries weighting more than 7 kg.		P
	Results: no fire, no explosion	No fire, no explosion.	P
3.(3)	**Mechanical shock (crash hazard)**		P
	a) Fully charged cells or batteries were subjected to a total of three shocks of equal magnitude applied in each of three mutually perpendicular directions.	Arrange the test as required.	P
	b) During the initial 3 milliseconds, the minimum average acceleration was 735 m/s^2. The peak acceleration was between 1228 m/s^2 and 1716 m/s^2.		P
	Results: no fire, no explosion, no leakage	No explosion, no leakage.	P
3.(4)	**Thermal abuse**		P

Clause	Requirement - Test	Result - Remark	Verdict
	Fully charged cells were placed in a gravity or circulating air-convention oven. The oven temperature was raised at a rate of 5°C/min ± 2°C/min to a temperature of 130°C ± 2°C. The cell remained at that temperature for 10 minutes before the test was discontinued.	Arrange the test as required on all sources of cells. Each 5pcs cells charged at ambient temperature 50°C and 5°C respectively prepared for the test.	P
	Results: no fire, no explosion	No fire, no explosion.	P
3.(5)	**Crushing of cells**		P
	a) Fully charged cells were crushed between two flat surfaces and a force of 13±1kN shall be applied by a crushing apparatus.	Arrange the test as required on all sources of cells. Each 5pcs cells charged at ambient temperature 50°C and 5°C respectively prepared for the test.	P
	b) The force was released when		P
	(1) the maximum forces applied		P
	(2) an abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	(3) There was 10% deformation of battery height		N/A
	c) A cylindrical or prismatic cell was crushed with its longitudinal axis parallel to the flat surfaces of the crushing apparatus.	Prismatic cells.	P
	A second set of prismatic cells was tested, rotated 90 degrees around their longitudinal axis compared to the first set.		P
	Ambient temperature when testing	Ambient temperature 50°C and 5°C respectively.	P
	Results: no fire, no explosion.	No fire, no explosion.	P
3.(6)	**Low pressure**		P
	Fully charged cells are placed in a vacuum chamber whose internal pressure was gradually reduced to a pressure equal to or less than 11.6 kPa and held at that value for 6 hours.	Arrange the test as required on all sources of cells.	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage.	P
3.(7)	**Overcharge**		P
	A discharged cell was charged from a power supply of ≥ 10 V, at a charging current I_{rec} recommended by the manufacturer for 2.5 C_5/I_{rec} hours or until it reach the test voltage.	Arrange the test as required on all sources of cells. Each 5pcs cells overcharged at ambient temperature 50°C and 5°C respectively during the test.	P
	Ambient temperature when testing	Ambient temperature 50°C and 5°C respectively.	P
	Results: no fire, no explosion.	No fire, no explosion.	P
3.(8)	**Forced discharge**		P

Clause	Requirement - Test	Result - Remark	Verdict
	Discharged cells intended for use in multi-cell applications, were subjected to a reverse charge at 1.0 I_t (A) for 90 minutes.	Arrange the test as required on all sources of cells. Each 5pcs cells forced discharged at ambient temperature 50°C and 5°C respectively during the test.	P
	Ambient temperature when testing	Ambient temperature 50°C and 5°C respectively.	P
	Results: no fire, no explosion	No fire, no explosion.	P
3.(9)	**Cell protection against a high charging rate**		P
	Discharged cells were charged at three times the charging current recommended by the manufacturer until	Arrange the test as required on all sources of cells. Each 5pcs cells high charged at ambient temperature 50°C and 5°C respectively during the test.	P
	the cells was fully charged, or		P
	A protective devices in the equipment or battery cut off the charge current before the cell became fully charged.	No protective device exists.	N/A
	Ambient temperature when testing	Ambient temperature 50°C and 5°C respectively.	P
	Results: no fire, no explosion	No fire, no explosion.	P
3.(10)	**Forced internal short circuit of cells**	Client requests no evaluation	N/A
	Pressed the winding core of charged cell (except when electrolyte is not liquid) by pressing jig under condition that nickel peace was inserted.		N/A
	Inserted between the positive active material and negative active material		N/A
	Inserted between the uncoated current collector of positive electrode and the active material coated negative active electrode		N/A
	Test was stopped when voltage drop of over 50 mV was obtained, or		N/A
	Stopped when the pressure reached 800 N (for prismatic cells, 400N).		N/A
	Ambient temperature when testing		N/A
	Number of test sample		N/A
	Results: no fire, no explosion		N/A
3.(11)	**Function of the overvoltage protection of batteries**		P
	The cell block in the battery shall not exceed the upper limited charging voltage at 20 ± 5°C ambient temperature.		P

Clause	Requirement - Test	Result - Remark	Verdict
	a) For batteries made of a one cell block, the voltage applied to the cell block during charging shall be measured	Arrange the test as required The max. voltage 4.35V measured are not exceed 4.35V the limit.	P
	b) For batteries consisting of a series of two pieces or more of cell blocks, it shall be charged while measuring the voltage of each cell block and at the same time, one cell block shall forcibly be discharged and the voltages of the other cell blocks shall gradually be measured		N/A
	c) For batteries consisting of a series of connection of two pieces or more of cell blocks, a voltage exceeding the upper limited charging voltage specified in Annex Table 1-2 shall be applied to the cell block while measuring the voltage of each cell block. When the charging stops, the voltage shall be measured		N/A
3.(12)	**Free fall of appliance**		N/A
	The charged battery shall be installed to be used, and shall be dropped once a concrete floor or iron plate in a direction considered to most likely affect the battery in a negative manner.		N/A
	An equivalent load shall be applied to the battery		N/A
	Kind of equipment		N/A
	Weight of appliance		N/A
	Applicable standard		N/A
	Height in drop testing		N/A
	Results: no short-circuiting		N/A

4	**Labeling**		P
	Labeling for batteries shall be provided as below on surface where it can easily be seen but not easily faded.	The label of battery meets the requirements.	P
	Rated voltage	See copy of the marking plate	P
	Rated capacity	See copy of the marking plate	P

	TABLE: List of Critical Components				P
Object/part No.	Manufacturer/ trademark	Type/Model	Technical Data	Standard	Marks of Conformity
Cell	GUANGDONG ZHAONENG TECHNOLOGY CO., LTD.	ZN-285565	3.8V, 1160mAh, 4.41Wh	Interpretation for METI Ordinance of Technical Req. (R01.12.25), Appendix 9	Tested with appliance
- Electrolyte	Anhui Xingli New Energy Co., Ltd.	ZN-82	$LiPF_6$+EC+DEC	--	--
- Separator	ShenZhen Xuran Electronic Co., Ltd.	60.0mm*14um	PE+AL_2O_3, Shutdown temperature: 135~140°C	--	--
-Negative electrode	Long Time Technology Co., Ltd.	16HY	Graphite, CMC, SBR, Distilled Water, Conductive Additive	--	--
-Positive electrode	Jiangmen KanHoo Industry Co., Ltd.	LCO-4	$LiCoO_2$, Carbon black, NMP, PVDF, Conductive Additive	--	--
PCB	XIAMEN G&P ELECTRONICS CO., LTD	2C	V-0, 130°C	UL 796 UL 94	UL E230743
PCB (Alt.)	Interchangeable	Interchangeable	V-0, 130°C	UL 94 UL 796	UL approved
IC (U1)	HYCON Technology Corp.	3OBH0A	Over-charge Threshold Voltage: 4.40V±0.025V@Topt=25°C; Over-discharge Threshold Voltage: 2.80V±0.05V; Topt: -40°C ~ 85°C	--	Tested with appliance
MOSFET (Q1)	SHENZHEN TUOFENG SEMICONDUCTOR TECHNOLOGY CO., LTD	2009 TFX80C	V_{DS}:20V, V_{GS}: ±12V I_D(at Ta=25°C): 9A T_{STG}: -55°C ~ 150°C	--	Tested with appliance
DC Connector	JAPAN AVIATION ELECTRONICS INDUSTRY., LTD	WP10-P004VA	Number of Positions: 4 pos. (Signal terminal, +4 Power terminals); Rated Current: 0.4 A (Signal)/ 5.0 A (Power); Rated Voltage: AC, DC 50 V; Operating Temperature Range: -40 deg. C to +85 deg. C	--	Tested with appliance
NTC	Shenzhen Sunlord Electronics Co., Ltd.	SDNT1005 Series	Resistance at 25°C (K ohm): 10K, Tmoa (°C): 125°C	--	Tested with appliance
Supplementary information: --					

	TABLE: 2.(1) – Continuous Low Rate Charge Test				P
Model (cell)	Recommended Charging Method, CC, CV, or CC/CV	Recommended Charging Voltage Vc, Vdc	Recommended Charging Current Irec, mA	OCV at Start of Test, Vdc	Results
ZN-285565	CC/CV	4.35	580	4.35	P
ZN-285565	CC/CV	4.35	580	4.35	P
ZN-285565	CC/CV	4.35	580	4.35	P
ZN-285565	CC/CV	4.35	580	4.35	P
ZN-285565	CC/CV	4.35	580	4.35	P
supplementary information: - No Fire or Explosion - No Leakage					

	TABLE: 2.(2) – Vibration Test (Cell)		P
Model	OCV at Start of Test, Vdc	Results	
ZN-285565	4.34	P	
ZN-285565	4.33	P	
ZN-285565	4.33	P	
ZN-285565	4.34	P	
ZN-285565	4.34	P	
supplementary information: - No Fire or Explosion - No Leakage			

	TABLE: 2.(2) – Vibration Test (Battery)		P
Model	OCV at Start of Test, Vdc	Results	
ZN-285565	4.34	P	
ZN-285565	4.34	P	
ZN-285565	4.33	P	
ZN-285565	4.34	P	
ZN-285565	4.34	P	
supplementary information: - No Fire or Explosion - No Leakage			

	TABLE: 3.(1) – External Short Circuit Test (Cell)					P
Model	Charge Temperature High (At 50°C)	Test Temperature (At 55°C ± 5ºC)	OCV at start of test, Vdc	Resistance of Circuit, mΩ	Maximum Case Temperature ~~Rise ΔT,~~ °C	Results
ZN-285565	50	55.7	4.31	82	109.6	P
ZN-285565	50	55.7	4.30	78	114.2	P
ZN-285565	50	55.7	4.31	84	103.8	P
ZN-285565	50	55.7	4.31	85	102.7	P
ZN-285565	50	55.7	4.30	84	108.2	P
Model	Charge Temperature Low (At 5°C)	Test Temperature (At 55°C ± 5ºC)	OCV at start of test, Vdc	Resistance of Circuit, mΩ	Maximum Case Temperature ~~Rise ΔT,~~ °C	Results
ZN-285565	5	55.6	4.26	87	115.8	P
ZN-285565	5	55.6	4.27	85	112.7	P
ZN-285565	5	55.6	4.26	85	109.2	P
ZN-285565	5	55.6	4.26	87	105.6	P
ZN-285565	5	55.6	4.27	86	102.6	P
supplementary information: - No Fire or Explosion - No Leakage						

	TABLE: 3.(1) – External Short Circuit Test (Battery)					P
Model	Charge Temperature High (At 50°C)	Test Temperature (At 20°C ± 5ºC)	OCV at start of test, Vdc	Resistance of Circuit, mΩ	Maximum Case Temperature ~~Rise ΔT,~~ °C	Results
ZN-285565	50	23.3	4.33	82	23.8	P
ZN-285565	50	23.3	4.32	85	23.7	P
ZN-285565	50	23.3	4.32	84	23.8	P
ZN-285565	50	23.3	4.33	85	23.6	P
ZN-285565	50	23.3	4.33	76	23.6	P
Model	Charge Temperature Low (At 5°C)	Test Temperature (At 20°C ± 5ºC)	OCV at start of test, Vdc	Resistance of Circuit, mΩ	Maximum Case Temperature ~~Rise ΔT,~~ °C	Results
ZN-285565	5	23.2	4.27	83	23.5	P
ZN-285565	5	23.2	4.27	81	23.7	P
ZN-285565	5	23.2	4.26	85	23.8	P
ZN-285565	5	23.2	4.27	84	23.6	P
ZN-285565	5	23.2	4.27	83	23.8	P
supplementary information: - No Fire or Explosion - No Leakage						

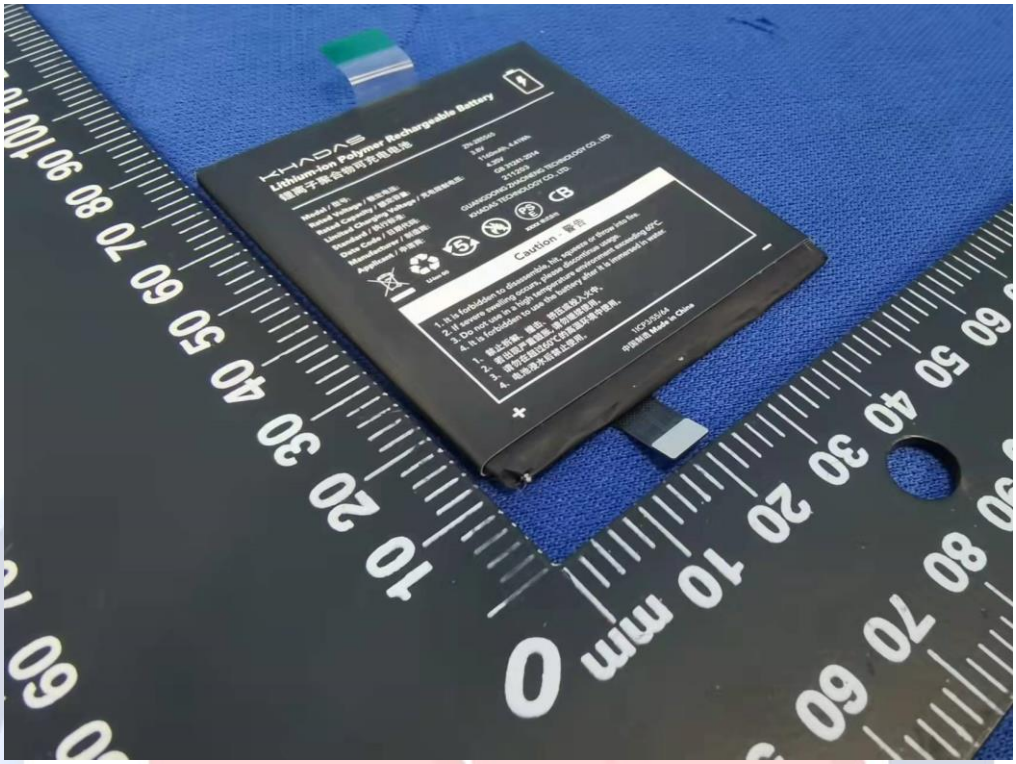
	TABLE: 3.(7) – Overcharge Tests				P
Model	OCV at start of test, Vdc	Maximum Charging Current, mA	Maximum Charging Voltage, Vdc	Total Time of Charging, h	Results
ZN-285565	3.41	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.42	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.44	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.43	580	10.0	5	P
ZN-285565	3.41	580	10.0	5	P
supplementary information: - No Fire or Explosion - No Leakage					

	TABLE: 3.(8) – Forced Discharge Test			P
Model	OCV before application of reverse charge, Vdc	Measured Reverse Charge It, mA	Total Time for Reversed Charge Application, Min	Results
ZN-285565	3.40	1160	90	P
ZN-285565	3.41	1160	90	P
ZN-285565	3.39	1160	90	P
ZN-285565	3.40	1160	90	P
ZN-285565	3.38	1160	90	P
ZN-285565	3.42	1160	90	P
ZN-285565	3.43	1160	90	P
ZN-285565	3.41	1160	90	P
ZN-285565	3.41	1160	90	P
ZN-285565	3.41	1160	90	P
supplementary information: - No Fire or Explosion - No Leakage				

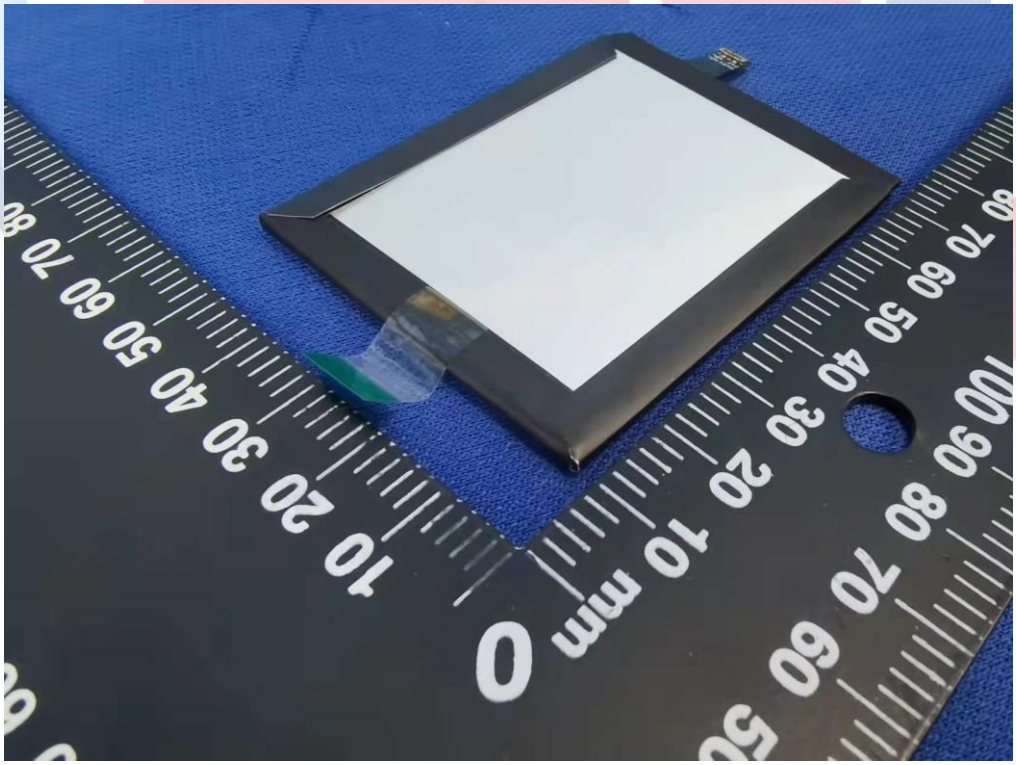
	TABLE: 3.(9) – Cell Protection Against a High Charging Rate Test (Lithium Systems)			P
Model	OCV at start of test, Vdc	Maximum Charging Current, mA	Maximum Charging Voltage, Vdc	Results
ZN-285565	3.38	1740	4.35	P
ZN-285565	3.36	1740	4.35	P
ZN-285565	3.37	1740	4.35	P
ZN-285565	3.41	1740	4.35	P
ZN-285565	3.38	1740	4.35	P
ZN-285565	3.39	1740	4.35	P
ZN-285565	3.40	1740	4.35	P
ZN-285565	3.38	1740	4.35	P
ZN-285565	3.39	1740	4.35	P
ZN-285565	3.38	1740	4.35	P
supplementary information: - No Fire or Explosion - No Leakage				

	TABLE: 3.(10) – Forced internal short circuit of cells			N/A
Model	Dew Point (°C)	Maximum Pressure (N)	Voltage Drop (ΔmV)	Results
supplementary information: - No Fire or Explosion				

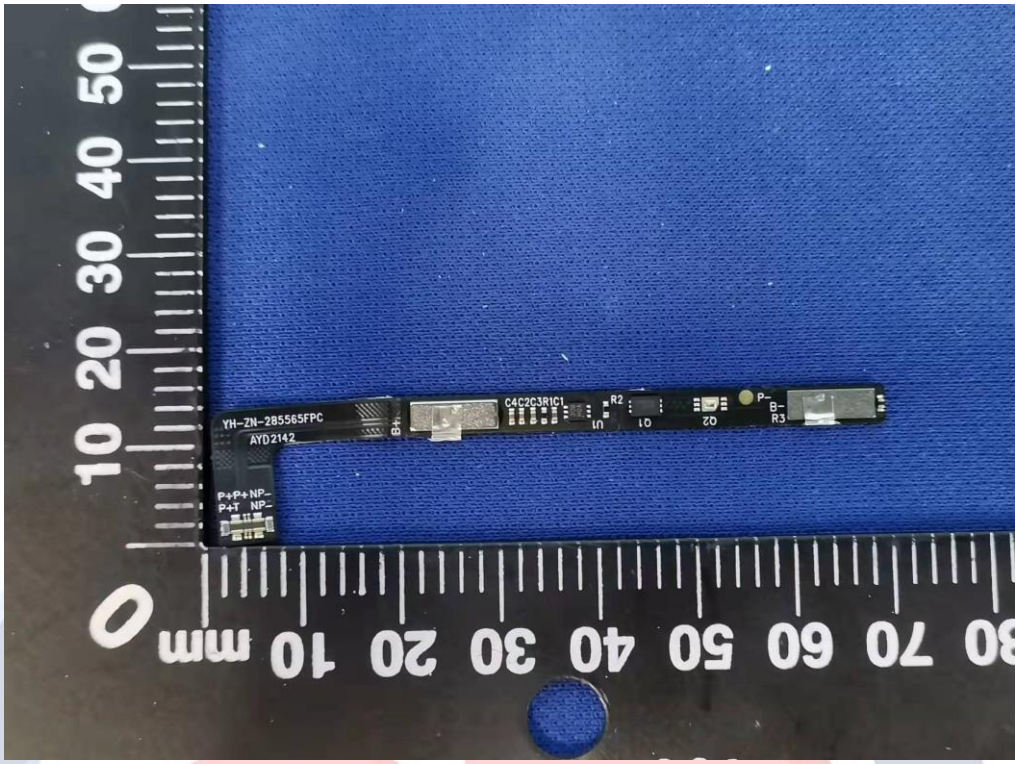
Attachment 1: Photo documentation



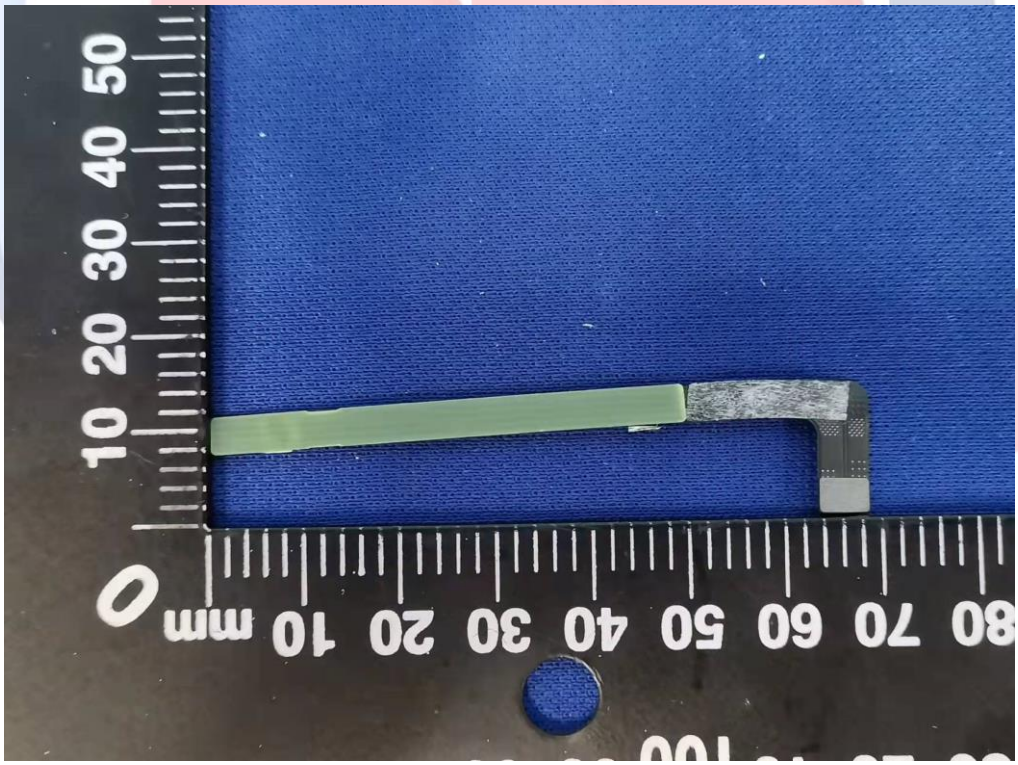
Picture 1. Front view of battery



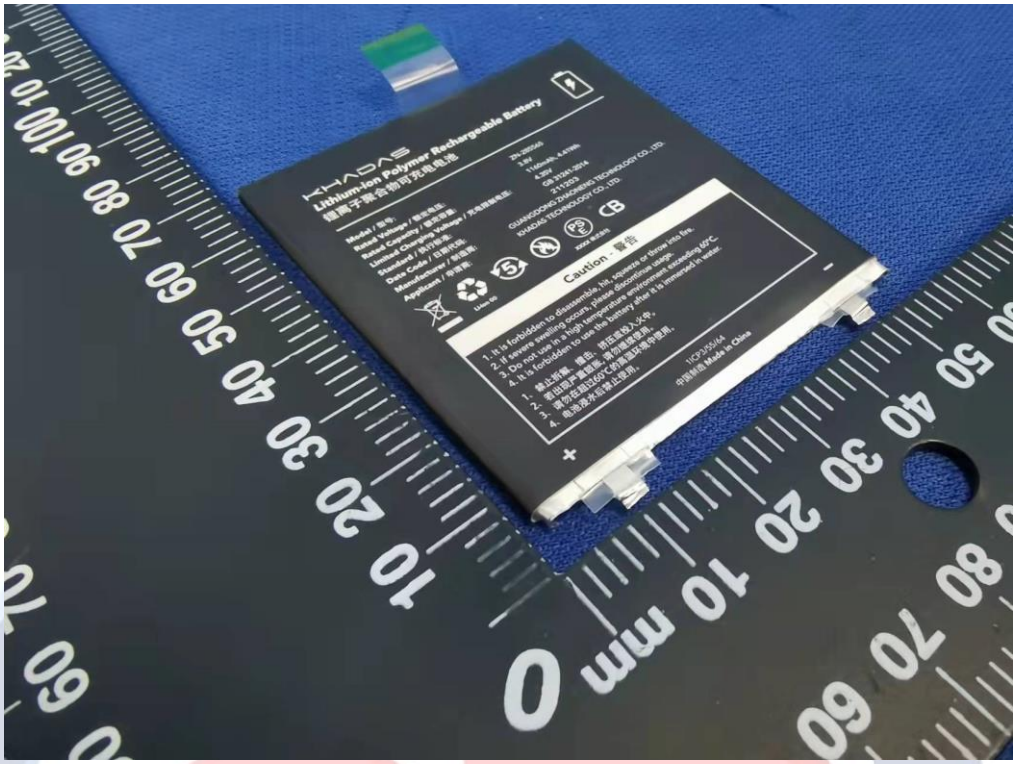
Picture 2. Back view of battery



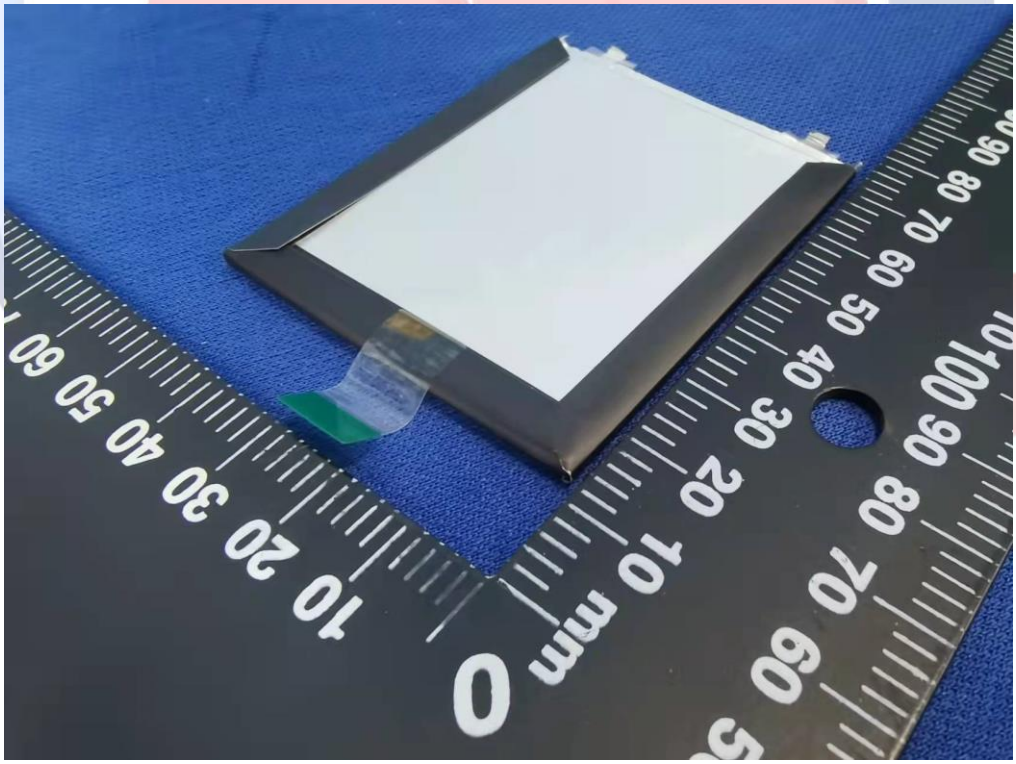
Picture 3. Front view of PCM



Picture 4. Back view of PCM



Picture 5. Front view of cell



Picture 6. Back view of cell

Important

1.The test report is invalid if it is not affixed the official seal of the laboratory to it.

2.Copies of the test report without the official seal of the laboratory are invalid.

3.It is forbidden to copy the test report partially without the written approval of the laboratory.

4.The test report is invalid without the signatures of Approver, Reviewer and Testing engineer.

5.The test report is invalid if it is blotted out.

6.Objections to the test report must be submitted to CMC within 15 days.

7.The test report is valid for the tested samples only.

8.As for the Verdict, “-” means “no need for judgement”, “P” means “pass”, “F” means “fail” and “N/A” means “not applicable”.

Testing laboratory: CMC Testing International (Shenzhen) Co., Ltd.

Address: 101, Building B, Kaihuimao Industrial Park, Liyuan Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, Guangdong, China

Tel: 400-1668-320

E-mail: info@cmczj-lab.com

http://www.cmczj-lab.com

-- End of Report --