Test Report No.:	**TDBDMJ-WTW-P21040525**		
Client			
Name :	**E-ONE MOLI ENERGY CORP.**		
Address :	**Southern Taiwan Science Park, No.10, Dali 2nd Rd. Shanhua Dist. Tainan 74144 Taiwan**		
Test Item :	**Lithium-Ion Rechargeable Battery Cell**		
Identification :	**INR-18650-P28A**		
Testing laboratory			
Name :	**Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories**		
Address :	**No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan**		
Test specification			
Standard :	**DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries**		
Test Result :	The test item passed.		
Prepared By :	Antony Hung Signature Antony Hung Project handler	2021-06-24 Date	
Approved By:	Joseph Tsai Signature Joseph Tsai Reviewer	2021-06-24 Date Bureau Veritas Consumer Products Services	數位簽署者：Bureau Veritas Consumer Products Services 日期：2021.06.24 15:10:36 +08'00'

The completed test report includes the following documents:
DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries
Test report(28 pages)

ilac-MRA TAF Testing Laboratory 2021

TEST REPORT

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries

Report Reference No. .... : TDBDMJ-WTW-P21040525

Compiled by .... : See cover sheet

Approved by .... : See cover sheet

Date of issue .... : 2021-06-24

Total number of pages 28

Testing Laboratory

Name: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories

Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Testing location: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories

Address: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, TAIWAN

Applicant's name.............................. : E-ONE MOLI ENERGY CORP.

Address.. : Southern Taiwan Science Park, No.10, Dali 2nd Rd. Shanhua Dist. Tainan 74144 Taiwan

Test specification:

Standard .... : DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries

Test item description .... Rechargeable Li-Ion Battery Cell

Trade Mark .... : Molicel or MOLICEL®

Manufacturer................................... : E-ONE MOLI ENERGY CORP.

Model/Type reference .... : INR-18650-P28A

Ratings... : 3.6V, 2.8Ah(Typical), 2.7Ah(Minimum)

Summary of testing:

The load conditions used during testing: The battery cell is charged and discharged according to its rating.

Nominal capacity (mAh):	2800
Nominal voltage (Vdc):	3.6
Charge protection voltage (Vdc):	4.2
Discharge protection voltage (Vdc):	2.5
Standard charge current (mA):	2800
Maximum charge current (mA):	8400
Maximum discharge current (mA):	35000

Note:

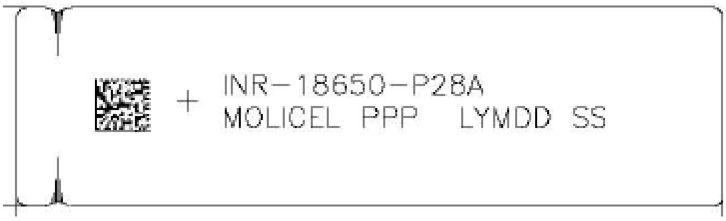
(1) Unless otherwise stated, the charging procedure for test purposes is carried out in an ambient temperature of 20±5°C, using the method declared by the manufacturer.

(2) Prior to charging, the battery shall have been discharged at 20±5°C at a constant current of 0.2 It A down to a specified final voltage.

Tests performed (name of test and test clause):

Reference Standard	Clause	Contents of Test
1) General safety consideration		
JIS C 8712	2.1	Insulation and Wiring
JIS C 8712	2.2	Venting
JIS C 8712	2.3	Temperature / current management
JIS C 8712	2.4	Terminal contacts
JIS C 8712	2.5	Assembly of cells into batteries
2) Intended use		
JIS C 8712	4.2.1	Continuous charging at constant voltage
JIS C 8712	4.2.2	Vibration
JIS C 8712	4.2.4	Temperature cycling
3) Reasonably foreseeable misuse		
JIS C 8714	5.3	External short circuit
JIS C 8712	4.3.2	
JIS C 8712	4.3.3	Free fall
JIS C 8712	4.3.4	Mechanical shock
JIS C 8712	4.3.5	Thermal abuse
JIS C 8714	5.2	Crushing of cell
JIS C 8712	4.3.7	Low pressure
JIS C 8712	4.3.9	Overcharge
JIS C 8712	4.3.10	Forced discharge
JIS C 8712	4.3.11	Cell protection against a high charging rate
JIS C 8714	5.5	Forced internal short circuit of cell

Copy of marking plate:



Explanation of date Code:

2Dimensional code: , includes (PPP LYMDD SS)

Cell Date Code: YMDDSS

Y: indicates calendar year, 9=2009, A=2010, B=2011, C=2012, D=2013, E=2014, F=2015, G=2016, H=2017, I=2018, J=2019 etc.

M: indicates calendar month, 1~9, 10=A, 11=B, 12=C

DD: indicates calendar date of a month, 01~31

SS: indicates the sequence number in a day, 01, 02, etc.

Test item particulars .... :	
Classification of installation and use .... :	Built-in
Supply Connection .... :	Customized terminal
.... :	
Possible test case verdicts:	
- test case does not apply to the test object.................:	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 ....:	2021-04-16
Date (s) of performance of tests ....:	2021-04-16 to 2021-05-28

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.

Throughout this report a point is used as the decimal separator.

General product information:

(1) The equipment under test (EUT) model INR-18650-P28A (INR19/66) is a Lithium-ion Battery Cell.

(2) The battery cell maximum ambient temperature is specified as 60°C for Charging and 60°C for Discharging.

(3) Overall approx. 18.6 mm by 65.2 mm (Max).

(4) Battery cell weight: approx. 48 g (Max).

Test condition:
Temperature: 20±5°C
Relative humidity: 60%
Air pressure: 950 mbar

The test sample was a pre-production sample without serial number.

1) General safety consideration			
JIS C 8712 clause 2.1	**Insulation and Wiring**	See below	N/A
	–Insulation Resistance between an accessible metal case (excluding electrical contacts) and positive terminals ≥ 5MΩ.	Not a battery pack.	N/A
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	Not a battery pack.	N/A
	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.	Not a battery pack.	N/A
JIS C 8712 clause 2.2	**Venting**	See below.	P
	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.	The positive terminal of cell provided the pressure vent.	P
	Encapsulant used to support cells within an outer casing does not cause the battery to overheat during normal operation no inhibit pressure relief.	The cell is a built in product, which shall be enclosed in a rigid case, and will be evaluated in the final battery pack.	N/A
JIS C 8712 clause 2.3	**Temperature / current management**	See below.	N/A
	The batteries are designed such that abnormal temperature rise conditions are prevented.	The cell is a built in product, its protection will be evaluated in the final battery pack.	N/A
	Means is provided to limit current to safe levels during charge and discharge.	The cell is a built in product, its protection will be evaluated in the final battery pack.	N/A
JIS C 8712 clause 2.4	**Terminal contacts**	See below.	P
	Terminals have a clear polarity marking on the external surface of the battery	Not a battery pack.	N/A
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current.	The cross section area is considered enough to carry the rating current of the cell.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance.	The cell is a built in product, the dedicated leads of the cell which described in the spec. can prevent the corrosion. The mechanical strength of external terminal contact surfaces should be evaluated in the final battery pack.	P
	Terminal contacts are arranged to minimize the risk of short circuits.	The distance between the terminals is considered enough to minimize the possibility of short circuits.	P
JIS C 8712 clause 2.5	**Assembly of cells into batteries**	See below.	N/A
	Cells used in the battery assembly have closely matched capacities, are of the same design, and are of the same chemistry and same manufacturer.	Not a battery pack.	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.	Not a battery pack.	N/A

2) Intended use			
JIS C 8712 clause 4.2.1	**Continuous charging at constant voltage**	See below.	P
	Fully charged cells are subjected for 28 days to a charge as specified by the manufacturer.	5 fully charged cells were submitted to 28 days test.	P
	Nickel systems: no fire, no explosion	This is not a nickel system.	N/A
	Lithium systems: no fire, no explosion, no leakage	No fire, no explosion, no leakage during and after the test.	P
JIS C 8712 clause 4.2.2	**Vibration**	See below.	P
	The measured open circuit voltage of the fully charged cells or batteries is within anticipated parameters	Five cells were fully charged according to Table 2.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	The cells or batteries are subjected to a vibration sequence as outlined in Table 2 of JIS C 8712 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 Hz. 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.	Considered for the test.	P
	The vibration was applied in each of three mutually perpendicular directions.	Considered for the test.	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage during and after the vibration test. (See Table 4.2.2.)	P
JIS C 8712 clause 4.2.3	**Moulded case stress at high ambient temperature**	See below.	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.	The cell is a built in product, which shall be enclosed in a rigid case, and will be evaluated in the final battery pack.	N/A
	Results: no physical distortion of the battery casing resulting in exposure if internal components.	The cell is a built in product, which shall be enclosed in a rigid case, and will be evaluated in the final battery pack.	N/A
JIS C 8712 clause 4.2.4	**Temperature cycling**	See below.	P
	Fully charged cells or batteries were subjected to temperature cycling (-20°C, +75°C) in forced draught chambers according to the procedure outlined in 4.2.4 b) and Fig. 1 of JIS C 8712	The cells were fully charged and tested for these conditions.	P
	After the fifth cycle, the cells or batteries were stored for 7 days prior to examination.	Considered.	P
	Results: No fire, no explosion, no leakage	No fire, no explosion, no leakage after the test.	P

3) Reasonably foreseeable misuse			
JIS C 8714 clause 5.3 **JIS C 8712 clause 4.3.2**	**External short circuit**	See below.	P
	The batteries were charged at highest test temperature and lowest test temperature and were subjected to a short circuit test at 20°C ± 5°C.	Not a battery pack.	N/A
	The cells were charged at highest test temperature and lowest test temperature and were subjected to a short circuit test at 55°C ± 5°C.	Ten cells were tested (five cells charged at highest test temperature (65 °C), another five cells charged at lowest test temperature (-5 °C)) for this condition. The testing was conducted at 56.8°C.	P
	The external resistance did not exceed 80 mΩ± 20mΩ.	The external resistance is measured Max. 80 mΩ.	P
	The cells or batteries were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise.	The cells were tested for temperature declined by 20% of the maximum temperature rise.	P
	Results: no fire, no explosion.	No fire, no explosion after the test. See Table 4.3.2.	P
JIS C 8712 clause 4.3.3	**Free fall**	See below.	P
	Fully charged cells or batteries were dropped 3 times from a height of 1.0 m onto a concrete floor.	Three cells were fully charged and tested for this condition.	P
	Results: no fire, no explosion	No fire, no explosion after the test.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict

JIS C 8712 clause 4.3.4	**Mechanical shock**	See below.	P
	Fully charged cells or batteries were subjected to a total of three shocks of equal magnitude applied in each of three mutually perpendicular directions. At least on of the directions was perpendicular to a flat face. During the initial 3 milliseconds, the minimum average acceleration was 735m/s^2 (75 g_n). The peak acceleration was between 1228 m/s^2 and 1716 m/s^2 (125 g_n and 175 g_n).	Five cells were fully charged and tested for this condition. Refer to the photos and test charts for detail.	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage after the test. (See Table 4.3.4)	P
JIS C 8712 clause 4.3.5	**Thermal abuse**	See below.	P
	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.	Ten cells were tested (five cells charged at highest test temperature (65 °C), another five cells charged at lowest test temperature (-5 °C)) for this condition.	P
	Results: no fire, no explosion	No fire, no explosion after the test.	P
JIS C 8714 clause 5.2	**Crushing of cells**	Ten cells were tested (five cells charged and tested at highest test temperature (65 °C), another five cells charged and tested at lowest test temperature (-5 °C) for this condition. Two sets of ten cells were fully charged and tested for these conditions.	P
	Fully charged cells were crushed between two flat surfaces with a hydraulic ram exerting a force of 13 kN ± 1 kN.	First set of ten cells.	P
	A cylindrical or prismatic cell was crushed with its longitudinal axis parallel to the flat surfaces of the crushing apparatus.	Second set of ten cells.	P
	A second set of prismatic cells was tested, rotated 90 degrees around their longitudinal axis compared to the first set.	No fire, no explosion after the test.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	Results: no fire, no explosion.	Ten cells were tested (five cells charged and tested at highest test temperature (65 °C), another five cells charged and tested at lowest test temperature (-5 °C) for this condition. Two sets of ten cells were fully charged and tested for these conditions.	P
JIS C 8712 clause 4.3.7	**Low pressure**	See below.	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.	Three cells were fully charged and tested for these conditions.	P
	Results: no fire, no explosion, no leakage	No fire, no explosion, no leakage after the test.	P
JIS C 8712 clause 4.3.9	**Overcharge**	See below.	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 (250% of rated capacity).	Ten cells were tested (five cells charged and tested at highest test temperature (65 °C), another five cells charged and tested at lowest test temperature (-5 °C) for this condition. Ten cells were charged by 15 Vdc power sources for 2.5 hrs.	P
	Results: no fire, no explosion.	No fire, no explosion after the test.	P
JIS C 8712 clause 4.3.10	**Forced discharge**	See below	P
	Discharged cells intended for use in multi-cell applications, were subjected to a reverse charge at 1.0 I_t A for 90 minutes.	Ten cells were tested (five cells charged and tested at highest test temperature (65 °C), another five cells charged and tested at lowest test temperature (-5 °C) for this condition. Ten cells were forced discharged at 2800mA for 90 min.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	Results: no fire, no explosion	No fire, no explosion after the test.	P
JIS C 8712 clause 4.3.11	**Cell protection against a high charging rate**	See below.	P
	Discharged cells were charged at three times the charging current recommended by the manufacturer until the cells was fully charged or an internal safety devices cut off the charge current before the cell became fully charged.	Ten cells were tested (five cells charged and tested at highest test temperature (65 °C), another five cells charged and tested at lowest test temperature (-5 °C) for this condition. Ten discharged cells were fully charged as required.	P
	Results: no fire, no explosion	No fire, no explosion after the test.	P
JIS C 8714 clause 5.5	**Forced internal short circuit of cells**	See below.	P
	At an ambient temperature of 20 ± 5°C and the dew point of -25°C or below, the sample charged cell shall be dismantled and the winding core shall be removed from the charged cell enclosure. Then a small L-shaped piece of metallic nickel (0.2-mm high by 0.1-mm wide, with each side 1-mm long) shall be inserted between the positive active material and negative active material. If uncoated current collector of positive electrode is faced an active material coated negative electrode, said position shall be tested as well. Provided that, if inserting a small piece of metallic nickel makes the test difficult, then it is permissible to use a pressing jig, laid out so that pressure can be applied with the winding core in contact with the center of the inserted part of the small piece of metallic nickel.	Ten charged cells were inserted L-shaped piece of metallic nickel between the positive active material and negative active material.	P
	After inserting the small piece, the winding core shall be reassembled to its original form, and sealed into a bag without permeability of electrolyte vapors. The time period between dismantling of the charged cell and closing of the bag shall be within 30 minutes.	Ten charged cells were reassembled to its original form, and sealed into a bag within 30 minutes.	P
	The closed bag containing the winding core shall be stored for 45 ± 15 minutes at each the highest test temperature and the lowest test temperature specified in Annex Table A.1. Then the winding core shall be taken out from the bag.	Ten charged cells were stored for 45 minutes at each the highest test temperature and the lowest test temperature specified in Annex Table A.1.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	Immediately after taking out the winding core from the bag, a pressing jig shall touch on the winding core, where said small piece of metallic nickel is inserted, and the pressing jig shall be lowered at a rate of 0.1mm/second at the highest and the lowest test temperatures specified in Annex Table A.1	Ten charged cells were touched with pressing jig on the winding core where small piece of metallic nickel is inserted, and the pressing jig lowered at a rate of 0.1mm/second at the highest and the lowest test temperatures specified in Annex Table A.1.	P
	The lowering of the pressing jig shall be stopped when a voltage drop of over 50 mV is obtained or the pressure reaches 800 N (whichever occurs earlier). Provided that, for prismatic cells, the lowering of the pressing jig shall be stopped when the pressure reaches 400 N.	The pressing force 800 N has been reached.	P
	The test shall be conducted from steps 1 to 5 until five samples prove to have undergone a voltage drop. Provided that there is a maximum number of ten test samples.	Ten cells were tested (five cells tested at highest test temperature (65 °C), another five cells tested at lowest test temperature (-5 °C)) for this condition. Ten charged cells were conducted from steps 1 to 5.	P
	Results: no fire, no explosion.	No fire after the test.	P
JIS C 8714 clause 5.8	**Function of the overcharge protection of batteries**	See below	N/A
	For batteries made of a one cell block, the voltage applied to the cell block during charging shall be measured.	Not a battery pack.	N/A
	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.	Not a battery pack.	N/A
	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.	Not a battery pack.	N/A
	Results: Upper limited charging voltage of a cell in the battery or of a cell block made of cells in a parallel connection shall not exceed the value, which is specified in table 2.	Not a battery pack.	N/A
JIS C 8714 clause 5.6	**Free fall of appliance**	See below	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict
	Unless otherwise specified, the battery is charged by the condition of 5.1 is installed in the portable electronic applications to be used.	See below. Free fall sample ID: Battery cell: INR-18650-P28A / 026; INR-18650-P28A / 027; INR-18650-P28A / 028.	P
	Drop once in the direction most likely to affect in a negative manner from the height, which is specified in JIS C 6950 or JISC 6065, according to the portable electronic applications, in which these batteries are assumed to be installed, on to a concrete floor.	See below.	P
	Result: External and internal short circuit shall not be caused.	After testing, external and internal short circuit not be caused.	P

DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict

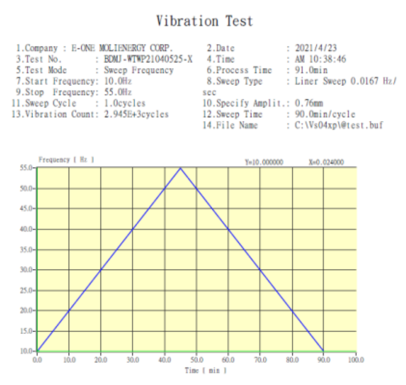
TABLE: List of critical Components					**N/A**
Object/part No.	Manufacturer/ trademark	Type/Model	Technical Data	Standard	Marks of Conformity
supplementary information:					

TABLE: 4.2.1 Continuous Low Rate Charge Test (JIS C 8712)					**P**
Model	Recommended Charging Method, CC, CV, or CC/CV	Recommended Charging Voltage Vc, Vdc	Recommended Charging Current Irec, A	OCV at Start of Test, Vdc	Results
INR-18650-P28A (sample # 001)	CC/CV	4.20	2.8	4.19	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 002)	CC/CV	4.20	2.8	4.19	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 003)	CC/CV	4.20	2.8	4.19	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 004)	CC/CV	4.20	2.8	4.19	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 005)	CC/CV	4.20	2.8	4.19	No Fire, no explosion, no Leakage
Supplementary information: Resistance of test wire 90mΩ maximum.					

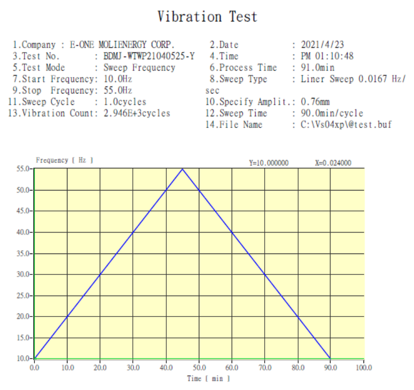
DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE: 4.2.2 – Vibration Test (JIS C 8712)		**P**
Model	OCV at Start of Test (Vdc)	Results
INR-18650-P28A (sample # 006)	4.24 (at X / Y / Z axis)	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 007)	4.24 (at X / Y / Z axis)	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 008)	4.23 (at X / Y / Z axis)	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 009)	4.23 (at X / Y / Z axis)	No Fire, no explosion, no Leakage
INR-18650-P28A (sample # 010)	4.24 (at X / Y / Z axis)	No Fire, no explosion, no Leakage
supplementary information:		
Vibration charts as following table:		
X axis	Y axis	Z axis

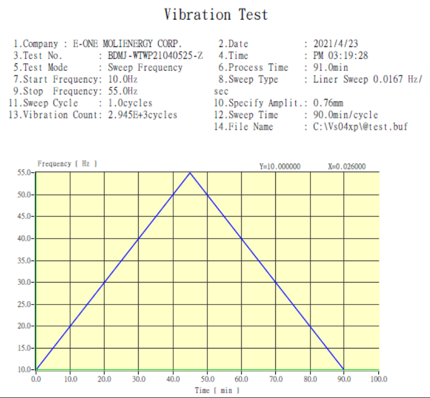
X axis



Y axis



Z axis

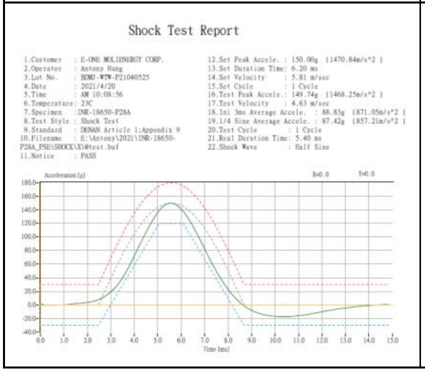


DENAN Ordinance Article 1; Appendix 9 Lithium Ion Secondary Batteries			
Clause	Requirement + Test	Result - Remark	Verdict

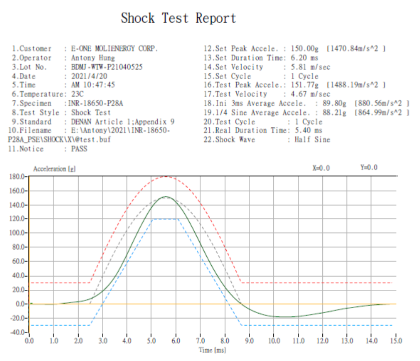
TABLE: 4.3.2 – External Short Circuit Test (JIS C 8712)					**P**
Model	Ambient (At 20°C ± 5ºC or 55°C ± 5°C)	OCV at start of test (Vdc)	Resistance of Circuit, Ω	Maximum Case Temperature Rise ΔT, °C	Results
Charging at 65°C					
INR-18650-P28A (sample # 011)	56.8	4.24	0.08	46.1	No fire, no explosion
INR-18650-P28A (sample # 012)	56.8	4.24	0.07	47.6	No fire, no explosion
INR-18650-P28A (sample # 013)	56.8	4.24	0.08	43.0	No fire, no explosion
INR-18650-P28A (sample # 014)	56.8	4.24	0.07	56.3	No fire, no explosion
INR-18650-P28A (sample # 015)	56.8	4.24	0.07	48.9	No fire, no explosion
Charging at -5°C					
INR-18650-P28A (sample # 016)	56.8	4.23	0.08	57.8	No fire, no explosion
INR-18650-P28A (sample # 017)	56.8	4.23	0.08	57.6	No fire, no explosion
INR-18650-P26A (sample # 018)	56.8	4.23	0.07	52.4	No fire, no explosion
INR-18650-P28A (sample # 019)	56.8	4.22	0.07	58.3	No fire, no explosion
INR-18650-P28A (sample # 020)	56.8	4.22	0.06	56.5	No fire, no explosion
supplementary information: The cells were tested for temperature declining by 20%.					

TABLE: 4.3.4 –Mechanical shock (JIS C 8712)		P
Model	OCV at start of test (Vdc)	Results / Observation
INR-18650-P28A (sample # 021)	4.23 (± X, ± Y, ± Z axis)	No fire, no explosion, no leakage
INR-18650-P28A (sample # 022)	4.23 (± X, ± Y, ± Z axis)	No fire, no explosion, no leakage
INR-18650-P28A (sample # 023)	4.24 (± X, ± Y, ± Z axis)	No fire, no explosion, no leakage
INR-18650-P28A (sample # 024)	4.24 (± X, ± Y, ± Z axis)	No fire, no explosion, no leakage
INR-18650-P28A (sample # 025)	4.24 (± X, ± Y, ± Z axis)	No fire, no explosion, no leakage
supplementary information:		
Shock charts as following table:		

X axis



Y axis



Z axis

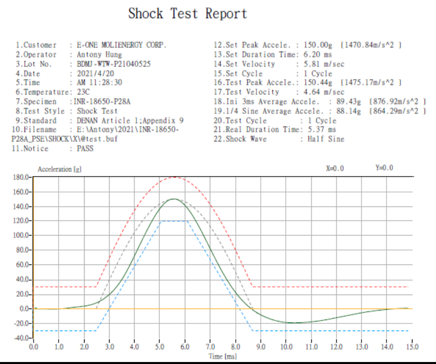


TABLE: 4.3.9 – Overcharge Tests (JIS C 8712)					P
Model	OCV at start of test, Vdc	Maximum Charging Current, mA	Maximum Charging Voltage, Vdc	Total Time of Charging, h	Results
Charging at 65°C					
INR-18650-P28A (sample # 029)	2.51	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 030)	2.51	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 031)	2.52	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 032)	2.51	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 033)	2.52	25200	15	2.5	No fire, no explosion
Charging at -5°C					
INR-18650-P28A (sample # 034)	2.52	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 035)	2.51	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 036)	2.53	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 037)	2.52	25200	15	2.5	No fire, no explosion
INR-18650-P28A (sample # 038)	2.51	25200	15	2.5	No fire, no explosion
supplementary information: - No Fire or Explosion					

TABLE: 4.3.10 – Forced Discharge Test (JIS C 8712)				P
Model	OCV before application of reverse charge, Vdc	Measured Reverse Charge It, A	Total Time for Reversed Charge Application, Min	Results
Charging at 65°C				
INR-18650-P28A (sample # 039)	2.51	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 040)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 041)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 042)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 043)	2.52	2.8	90	No fire, no explosion
Charging at -5°C				
INR-18650-P28A (sample # 044)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 045)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 046)	2.51	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 047)	2.52	2.8	90	No fire, no explosion
INR-18650-P28A (sample # 048)	2.53	2.8	90	No fire, no explosion
supplementary information: - No Fire or Explosion				

TABLE: 4.3.11 – Cell Protection Against a High Charging Rate Test (JIS C 8712)				**P**
Model	OCV at start of test, Vdc	Maximum Charging Current, mA	Maximum Charging Voltage, Vdc	Results
Charging at 65°C				
INR-18650-P28A (sample # 049)	2.52	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 050)	2.52	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 051)	2.51	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 052)	2.53	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 053)	2.52	25200	4.25	No fire, no explosion
Charging at -5°C				
INR-18650-P28A (sample # 054)	2.53	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 055)	2.52	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 056)	2.51	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 057)	2.52	25200	4.25	No fire, no explosion
INR-18650-P28A (sample # 058)	2.51	25200	4.25	No fire, no explosion

supplementary information:

Customer agrees to use three times the maximum charging current value (8400mA) by manufacturer recommend as the test current.

- No Fire or Explosion

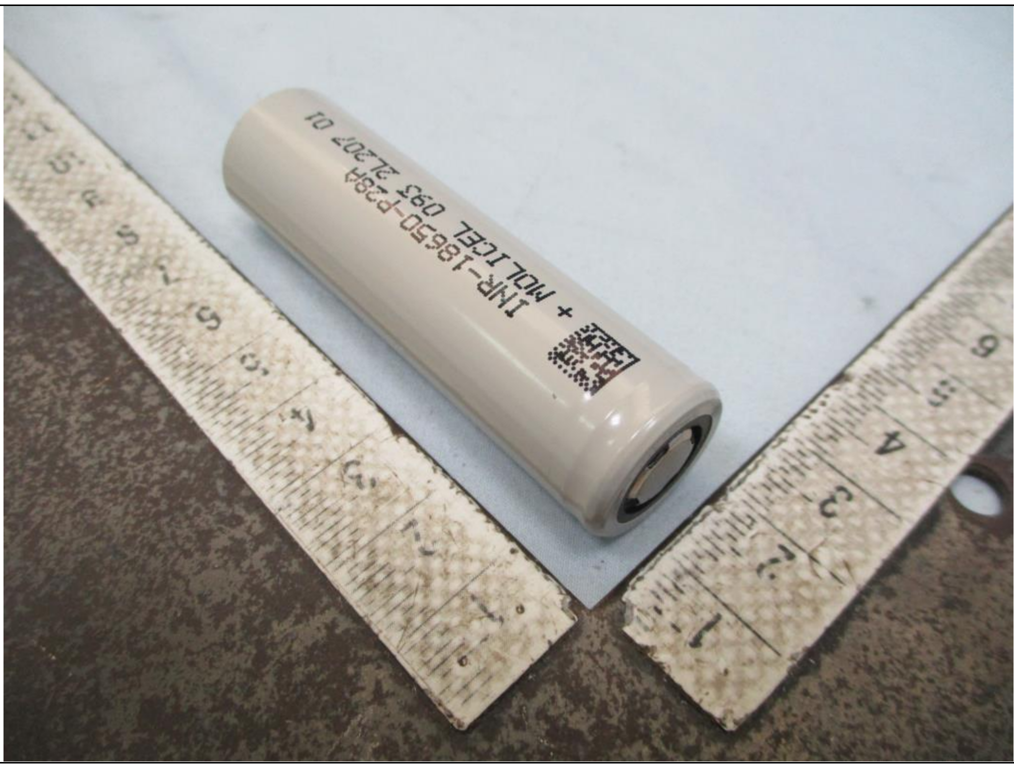
5.5 (JIS C 8714)	Forced internal short circuit of cell				P
Sample no.	**Chamber ambient T (°C)**	**OCV before test (Vdc)**	**Particle location 1)**	**Maximum applied pressure (N)**	**Results**
Samples charged at charging temperature upper limit (65°C)					
INR-18650-P28A (sample # 87)	45	4.24	1	800	No fire
INR-18650-P28A (sample # 88)	45	4.23	1	800	No fire
INR-18650-P28A (sample # 89)	45	4.24	1	800	No fire
INR-18650-P28A (sample # 90)	45	4.24	1	800	No fire
INR-18650-P28A (sample # 91)	45	4.24	1	800	No fire
Samples charged at charging temperature lower limit (-5°C)					
INR-18650-P28A (sample # 92)	10	4.21	1	800	No fire
INR-18650-P28A (sample # 93)	10	4.21	1	800	No fire
INR-18650-P28A (sample # 94)	10	4.21	1	800	No fire
INR-18650-P28A (sample # 95)	10	4.21	1	800	No fire
INR-18650-P28A (sample # 96)	10	4.21	1	800	No fire

Supplementary information:

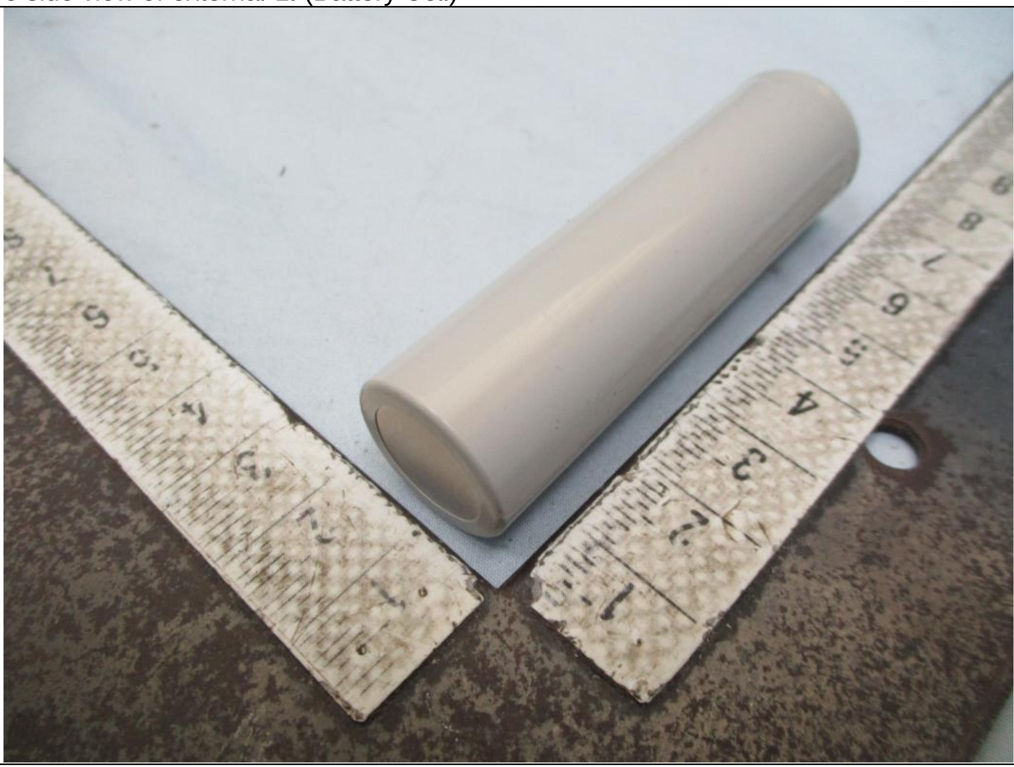
1) Identify one of the following:
1: Nickel particle inserted between positive and negative (active material) coated area.
2: Nickel particle inserted between positive aluminium foil and negative active material coated area.

- No fire or explosion
- Others (please explain)

Photos:



Three side view of external-1. (Battery Cell)

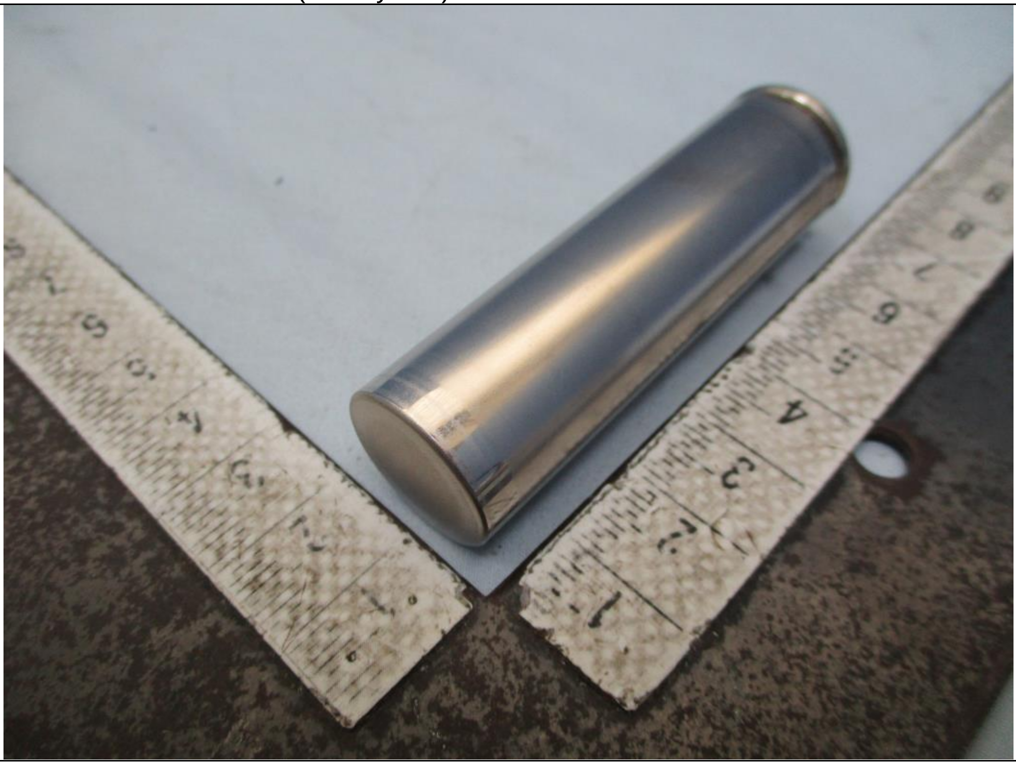


Three side view of external-2. (Battery Cell)

Front view of the cell. (“+” terminal and pressure vent)

Back view of the cell. (“-” terminal)

Three side view of internal-1. (Battery Cell)



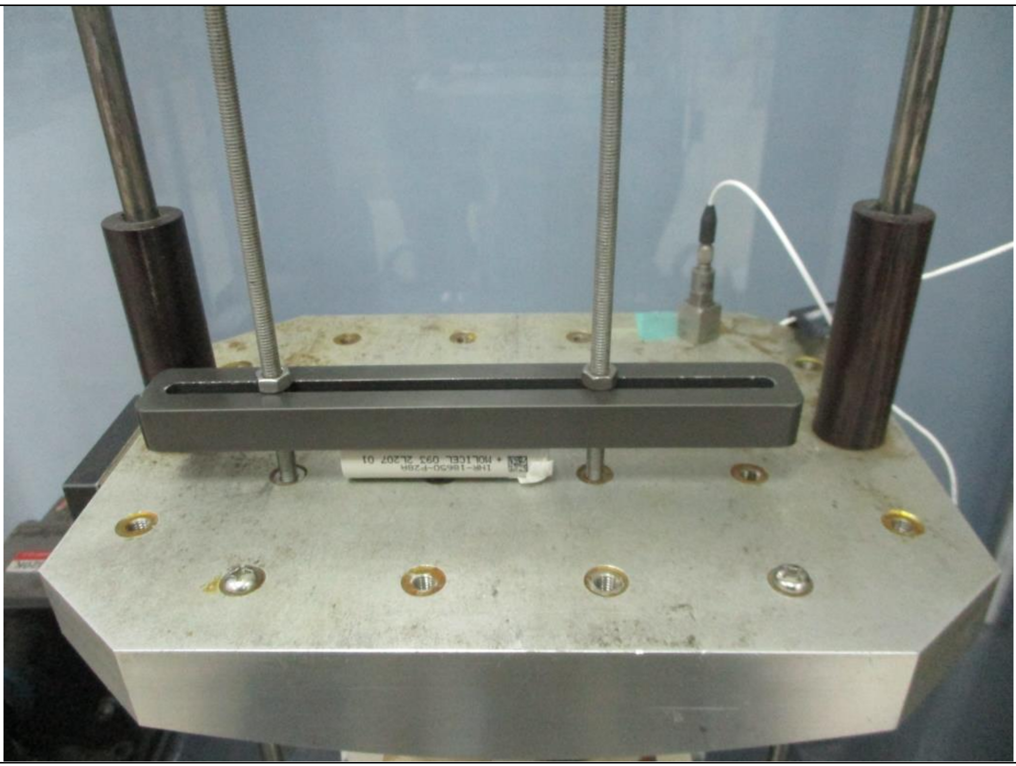
Three side view of internal-2. (Battery Cell)

Vibration test condition-1 (X axis direction)

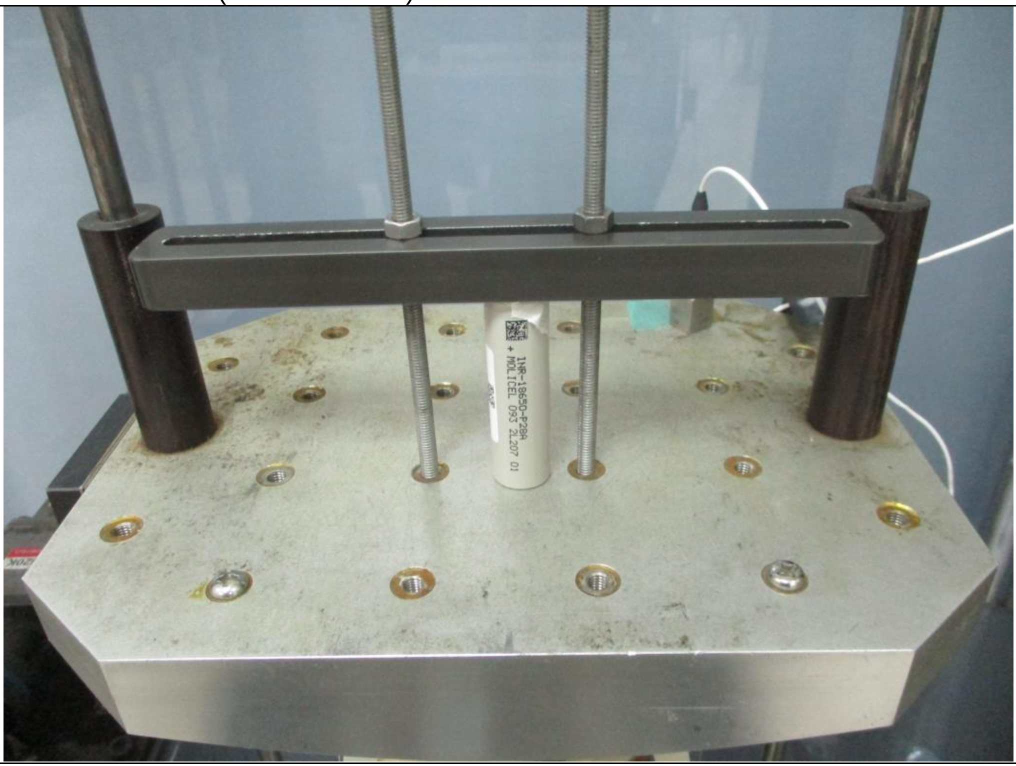
Vibration test condition-2 (Y axis direction)

Vibration test condition-3 (Z axis direction)

Shock test condition-1 (X axis direction)



Shock test condition-2 (Y axis direction)



Shock test condition-3 (Z axis direction)