URS PRODUCTS AND TESTING PVT LTD

ULR No. : ULR-TC646822000002945F

DOC No.	:	F-3, Sector - 6, Noida, Gautam Buddha Nagar, Uttar Pradesh, India - 201301
Telephone	:	+91 9871062220
FAX	:	-
E-Mail	:	testing@ursindia.com
BO Code	:	NA

Test REPORT AS PER : IS 16046 : Part 1 (2018)

QR Code/Barcode : 114201CRS

REPORT NO : SC22EPF11381_1 DATE : 27 Aug, 2022

PART A. PARTICULARS OF SAMPLE SUBMITTED

a) Customer Name & Address	:	Shenzhen Gmcell Technology Co., Ltd. HUALIAN PANORAMA INTERNATIONAL BUILDING 27 DISTRICT, BAO'AN SHENZHEN 51800 CHINA, NA, GUANGDONG, China - 518101
b) Nature of sample	:	-
c) Grade/Variety/Type/Class Size etc	:	NA
d) Declare values, if any	:	-
e) Batch No. & Date of Manufacture	:	/
f) Quantity	:	76
g) Date of Receipt	:	13 Jul, 2022
h) BIS Seal	:	Verified by Sample Cell
i) IO's Signature	:	Verified by Sample Cell
j) Any other Information / Expiry Date, If any	:	/
k) Date of Commencement of Testing	:	13 Jul, 2022
l) Date of Completion of Testing	:	27 Aug, 2022
m) Section Code	:	22EDC22N
n) Section Report No.	:	22EDC22N_1
o) Report Type	:	New
p) Reference Report No.	:	
q) Remarks	:	OK

MONIKA VERMA
OIC SAMPLE CELL
(Authorized Signatory)
Authorized on: 27 Aug, 2022 15:35 PM

1. URS PRODUCTS AND TESTING PVT LTD

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PART B. SUPPLEMENTARY INFORMATION

1.	Reference to sampling procedure, wherever applicable.	Not Applicable
2.	Supporting documents for the measurements taken and results derived like graphs, table sketches and or photographs as appropriate to test report, if any.	Yes
3.	Deviation from the test methods as prescribed in relevant ISS/Work instruction, if any.	Not Applicable

Ankit Kumar
OIC Electrical
(Authorized Signatory)
Authorized on: 27 Aug, 2022 15:33 PM

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PART C. TEST RESULT

S.No.	Clause No Table No. Sl. No	Parameter - Method of test	Test Description	Min Limit	Max Limit	Unit	Result/ Observation
1	10	Packaging	-	-	-	-	Satisfactory
2	9.4	Other information	-	-	-	-	complied
3	9.3	Caution for ingestion of small cells and batteries	-	-	-	-	This is not a small cell
4	9.2	Battery Marking	-	-	-	-	Product is Sealed Rechargeable Ni-MH Cell
5	9.1	Cell Marking	-	-	-	-	Cells marked as specified in the applicable cell standards: IEC 61951-1
6	9	Marking	-	-	-	-	complied
7	8.2	Small Cell and battery safety information	-	-	-	-	This is not a small Cell
8	8.1	General	-	-	-	-	complied
9	8	Information for safety	-	-	-	-	complied
10	7.3	Reasonably foreseeable misuse	-	-	-	-	complied
11	7.2	Intended Use	-	-	-	-	complied
12	7.1	Charging procedure for test purposes	-	-	-	-	complied
13	7	Specific requirements and tests	-	-	-	-	complied
14	6	Tyoe Test amd Sample Size	-	-	-	-	complied
15	5.7	Quality Plan	-	-	-	-	The manufactures provide an ISO 9001 Certificate for reference
16	5.6	Assembly of Cells into batteries	-	-	-	-	Considered for battery pack only
17	5.5	Terminal Contacts	-	-	-	-	complied
18	5.4	Temperature, Voltage and Current Management	-	-	-	-	Considered for battery pack only
19	5.3	Venting	-	-	-	-	complied
20	5.2	Insulation and Wiring	-	-	-	-	Considered for battery Pack only
21	5.1	General	-	-	-	-	Cell is designed and constructed to operate safe under conditions of intended use and reasonably foreseeable misuse
22	5	General Safety Considerations	-	-	-	-	complied
23	4	Parameter Measurement Tolerances	-	-	-	-	All controlled and measured values were within the tolerances

Ankit Kumar
OIC Electrical
(Authorized Signatory)
Authorized on: 27 Aug, 2022 15:33 PM

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PART D. REMARKS

ok

Ankit Kumar
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(Authorized Signatory)
Authorized on: 27 Aug, 2022 15:33 PM

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CIN NO U21014UP1987PTC008956

TC-6468

SUMMARY OF TEST REPORT

TEST REPORT NO:SC22EPF11381_1 DATED: 27/08/2022

(Number of pages in test report: Page no. 1 to 37) URS Ref. : URS/LAB /01/RID/22-23/1603

TEST FORMAT AS PER IS 16046(Part 1):2018/IEC 62133-1:2017

1.Name of Manufacturer:	Shenzhen Gmcell Technology Co., Ltd.
2.Product:	Sealed Rechargeable Ni-MH Cell
3.Model(s):	Lead Model:Ni-MH AA 2500mAh 1.2V, Series Model:Ni-MH AA 2300mAh 1.2V, Ni-MH AA 1600mAh 1.2V, Ni-MH AA 1100mAh 1.2V, Ni-MH AA 1000mAh 1.2V, Ni-MH AA 800mAh 1.2V, Ni-MH AAA 850mAh 1.2V, Ni-MH AAA 750mAh 1.2V, Ni-MH AAA 600mAh 1.2V
4.Model differences provided (if applicable):	Yes
5.Model differences verified as per MEITY Guidelines for series formulation:	Yes
6.Test Results:	See below

S No.	TEST REQUIREMENT	CLAUSE	VERDICT
1	Parameter measurement tolerances	4.0	Pass
2	General safety considerations	5.0	Pass
3	Venting	5.3	Pass
4	Temperature, Voltage and Current management	5.4	N/A
5	Terminal contacts	5.5	Pass
6	Assembly of cells into batteries	5.6	N/A
7	Quality plan	5.7	Pass
8	Type test and sample size	6.0	Pass

9	Charging procedure for test purposes	7.1	Pass
10	Intended use	7.2	Pass
11	Reasonably foreseeable misuse	7.3	Pass
12	Information for Safety	8.0	Pass
13	Marking	9.0	Pass
14	Packaging	10.0	Pass
15	Recommendations to equipment manufacturers and battery assemblers	ANNEX A	Pass
16	Recommendation to the end-users	ANNEX B	Pass
17	Packaging	ANNEX C	Pass

General Information:
The conformity certificates of critical components are verified to ensure complete testing of apparatus under test and details regarding harmonized IEC standards (where IEC standards are not available) are also provided in the list of critical component.

CONCLUSION:
1.) Sample meets all relevant requirements of IS 16046(Part 1):2018/IEC 62133-1:2017 : YES

2.) Sample fails to meet the following test requirements: N/A

3.) I hereby, undertake that the verdict stated in the test report for all the tests matches with the test results.

(Signature of Authorized person with Stamp)

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Manufacturer	Shenzhen Gmcell Technology Co., Ltd. HUALIAN PANORAMA INTERNATIONAL BUILDING 27 DISTRICT, BAO'AN SHENZHEN 51800 CHINA, GUANGDONG, 518101		
Test item:	Sealed Rechargeable Ni-MH Cell		
Identification	Lead Model:Ni-MH AA 2500mAh 1.2V Series Model:Ni-MH AA 2300mAh 1.2V, Ni-MH AA 1600mAh 1.2V, Ni-MH AA 1100mAh 1.2V, Ni-MH AA 1000mAh 1.2V, Ni-MH AA 800mAh 1.2V, Ni-MH AAA 850mAh 1.2V, Ni-MH AAA 750mAh 1.2V, Ni-MH AAA 600mAh 1.2V	Serial No.:	Nil
Receipt No.:	URS/LAB/BSC/22-23/2068 / 22EDC22N	Date of receipt:	13/07/2022
Testing laboratory and its address:	URS PRODUCTS AND TESTING PRIVATE LIMITED F-3, Sector-6 Noida-201301		
Test specification:	IS 16046 (Part 1):2018 / IEC 62133-1:2017		
Test Result:	The test item passed the test specification(s)		

Other Aspects:

- Equipment under test(EUT) is Sealed Rechargeable Ni-MH Cell Lead Model "Ni-MH AA 2500mAh 1.2V" has been tested as per IS 16046 (Part 1):2018 / IEC 62133-1:2017 complies to all the applicable parameters.
- P=Pass, F=Fail, N/A=Not Applicable
- Compliance statement in this report has been made considering decision rule as inherent in its test standard and latest version of ILAC G-8.

This test report relates to the test sample submitted and list of documents attached.

Tested by:	Approved by / Authorized Signatory:	Issued by:
Sabrez Khan , Analyst	Ankit Kumar , Manager Technical	Md Fakhre Alam , Sr. Technical Manager
27/08/2022	27/08/2022	27/08/2022

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TC-6468

TEST REPORT
IS 16046 (Part 1):2018 / IEC 62133-1:2017
Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes — Safety Requirements for Portable Sealed Secondary Cells and for Batteries Made from Them for Use in Portable Applications Part 1 Nickel Systems

Report Reference No. :	SC22EPF11381_1
Date of issue :	27/08/2022
Total number of pages	37
Testing Laboratory	URS PRODUCTS AND TESTING PRIVATE LIMITED
Address	F-3, Sector-6 Noida-201301
Manufacturer's name :	Shenzhen Gmcell Technology Co., Ltd.
Address	HUALIAN PANORAMA INTERNATIONAL BUILDING 27 DISTRICT, BAO'AN SHENZHEN 51800 CHINA, GUANGDONG, 518101
Test specification:	
Standard	IS 16046 (Part 1):2018 / IEC 62133-1:2017
Test procedure	BIS Compliance Report
Non-standard test method	N/A
Test Report Form No:	BIS_BAT/SCAB_IS16046(PART1)_V1.0
Test Report Form(s) Originator	Bureau of Indian Standards
Master TRF	10.01.2019
Test item description:	Sealed Rechargeable Ni-MH Cell
Trade Mark	GMCELL
Model/Type reference	Lead Model:Ni-MH AA 2500mAh 1.2V Series Model:Ni-MH AA 2300mAh 1.2V, Ni-MH AA 1600mAh 1.2V, Ni-MH AA 1100mAh 1.2V, Ni-MH AA 1000mAh 1.2V, Ni-MH AA 800mAh 1.2V, Ni-MH AAA 850mAh 1.2V, Ni-MH AAA 750mAh 1.2V, Ni-MH AAA 600mAh 1.2V
Ratings	1.2Vdc, 2500mAh, 3Wh (Copy of marking label page no. 05)
Other Documents submitted	Please refer to Table – List of Attachments at Page No. 04

Tested by:	Approved by / Authorized Signatory:	Issued by:
Sabrez Khan , Analyst	Ankit Kumar , Manager Technical	Md Fakhre Alam , Sr. Technical Manager
27/08/2022	27/08/2022	27/08/2022

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Description	Measurement/ testing	Total No. of tests	Total no. of applicable tests/ Req.	No. of tests/ Req. passed	Page No.
General Requirements	Parameter measurement tolerances	01	01	01	12
General safety considerations	Insulation and wiring	08	02	02	13
General safety considerations	Venting	03	02	02	14
General safety considerations	Temperature/ voltage/Current management	04	00	N/A	15
General safety considerations	Terminal contacts	04	04	04	16
General safety considerations	Assembly of cells into batteries	07	00	N/A	17
General safety considerations	Quality plan	02	02	02	19
Type test and sample size	Type test conditions	03	03	03	20
Specific requirements and tests	Charging procedure for test purposes	02	02	02	21
Specific requirements and tests	Intended use	10	07	07	22
Specific requirements and tests	Reasonably foreseeable misuse	28	24	24	23
Information for safety	Information for safety	12	03	03	25
Marking Requirements	Marking Requirements	16	06	06	27
Packaging	Packaging	03	02	02	29

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

(Approving Authority)

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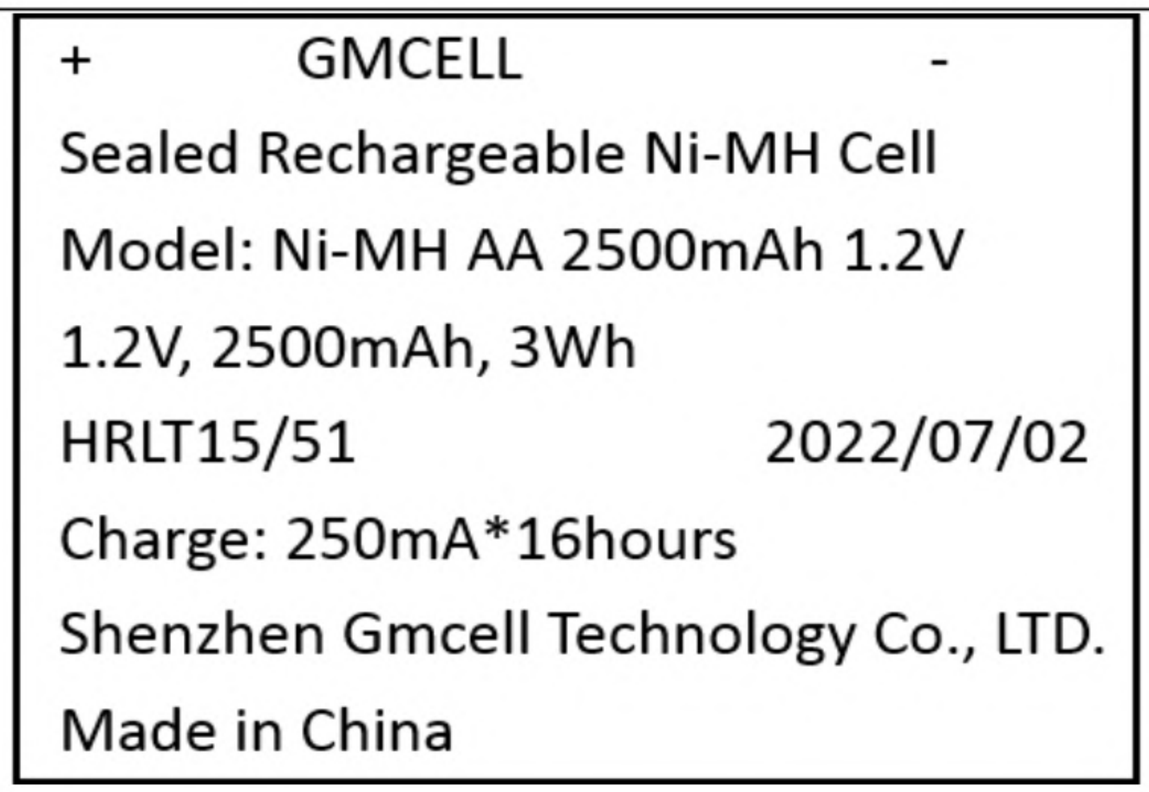
Table – List of Attachments

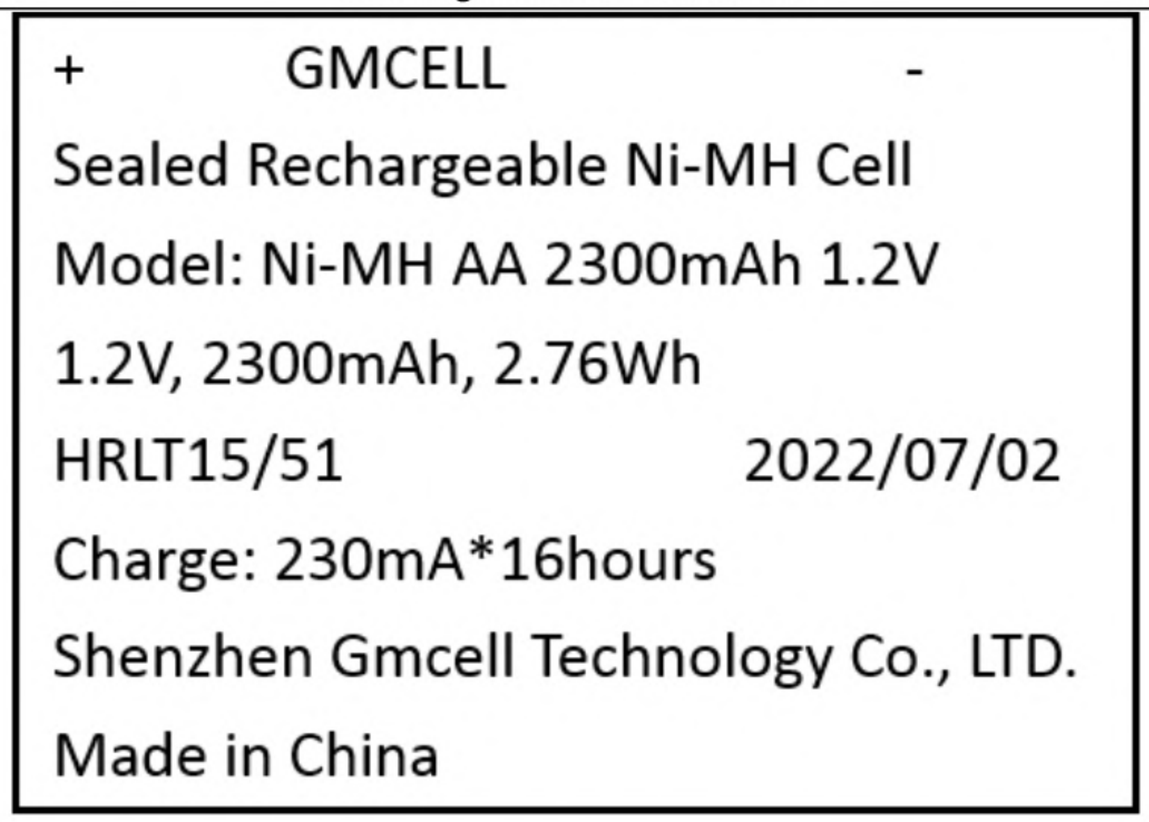
Attachment No.	Attachment Description	No. of pages in Attachment
Attachment-1	Photo document	37-37

Copy of marking plate:

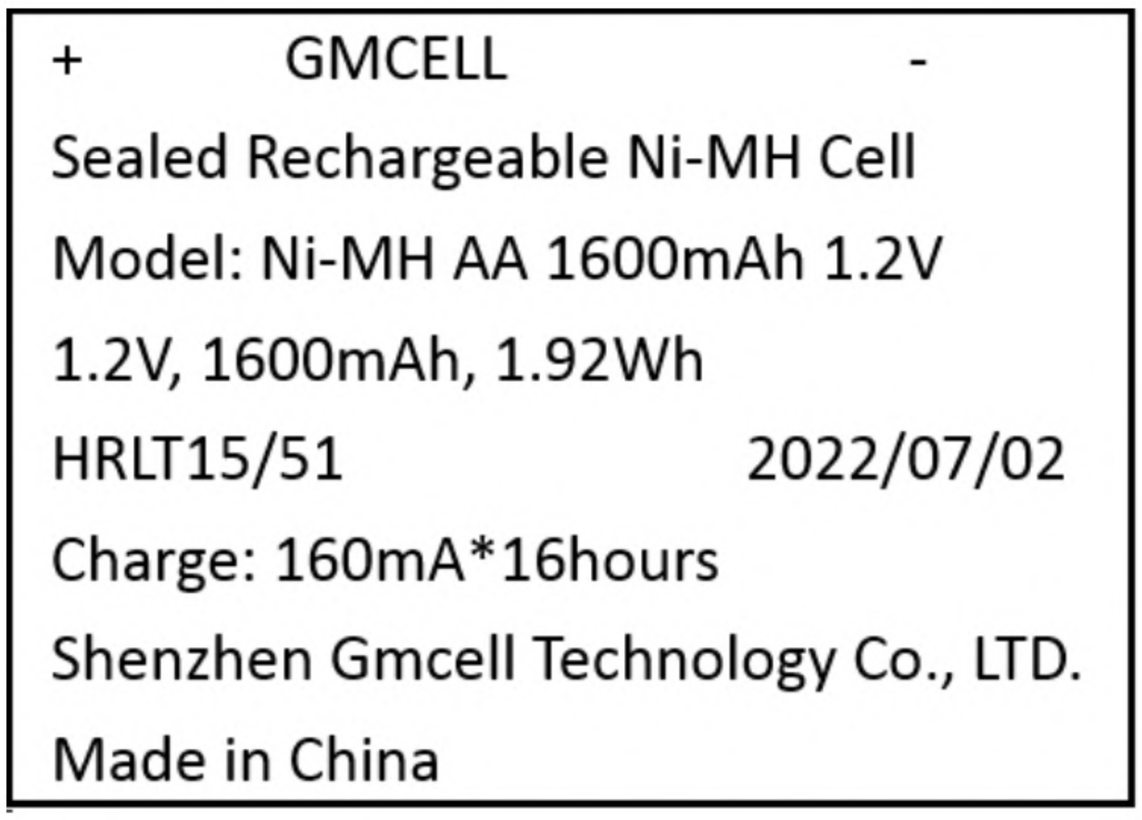
Copy of marking label:



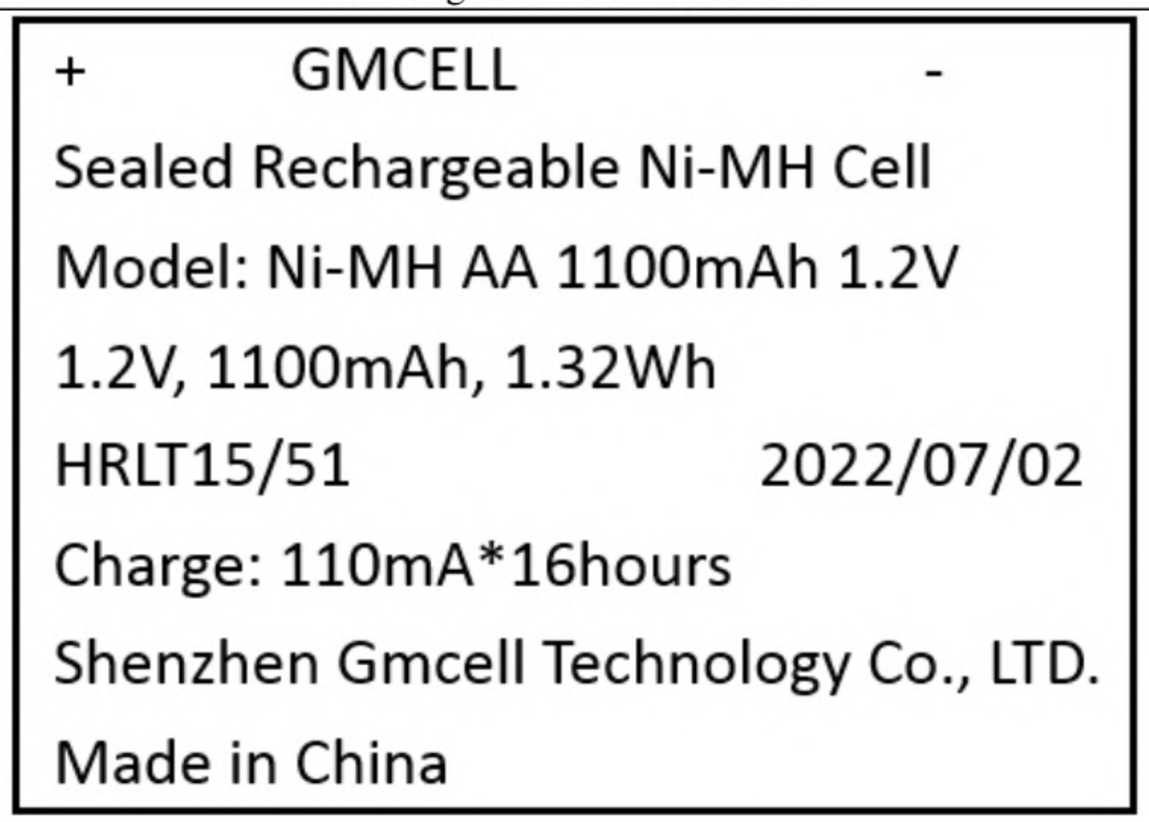
Marking Label of Lead Model



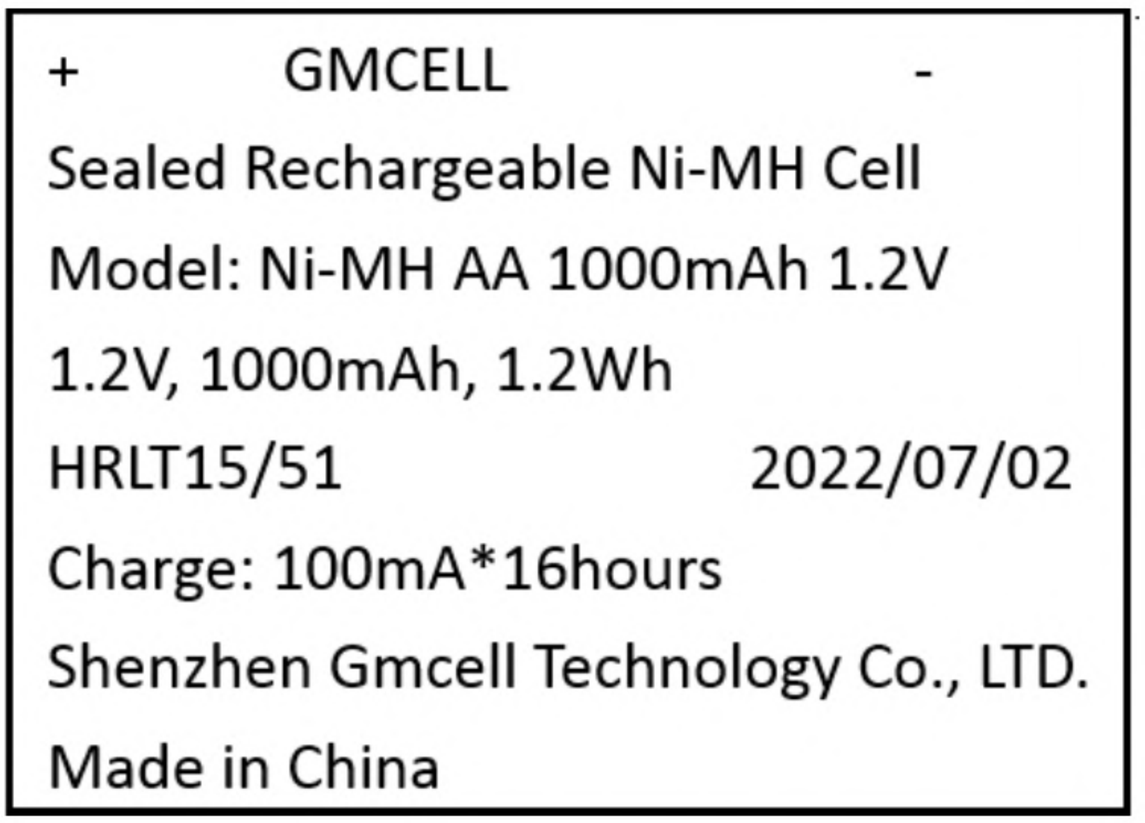
Marking Label of Series Model



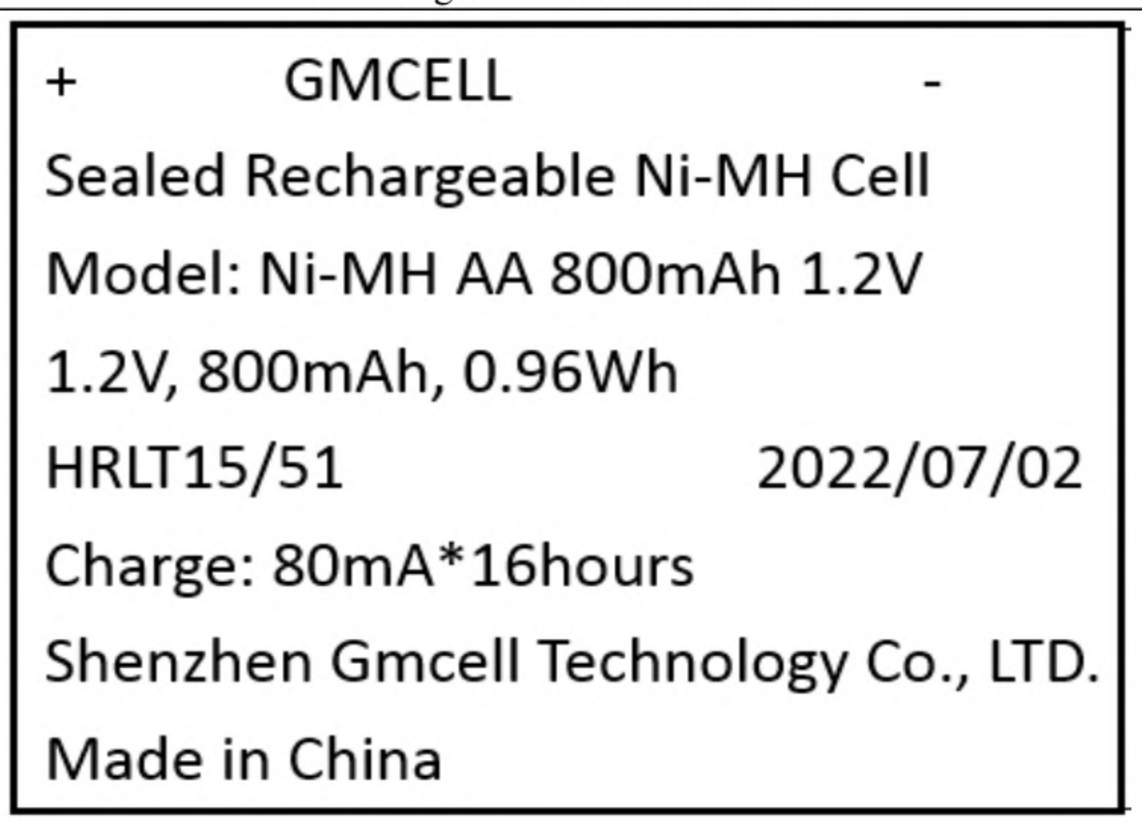
Marking Label of Series Model



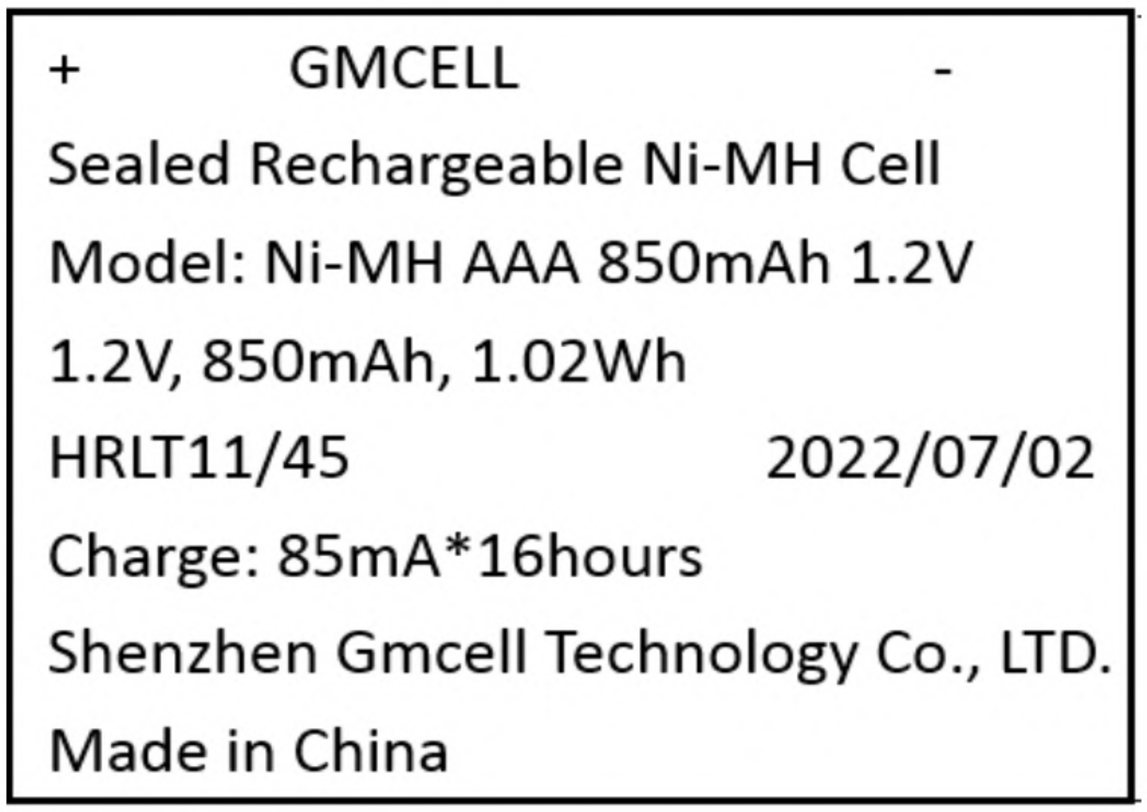
Marking Label of Series Model



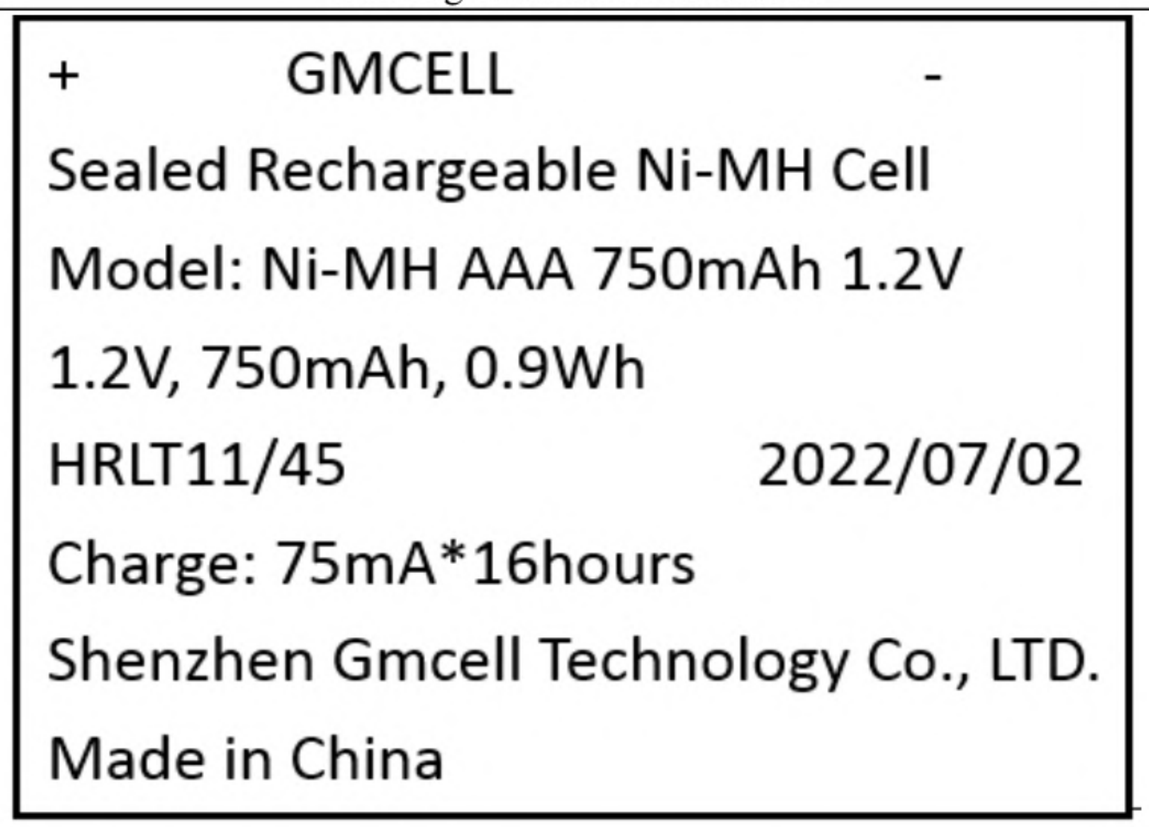
Marking Label of Series Model



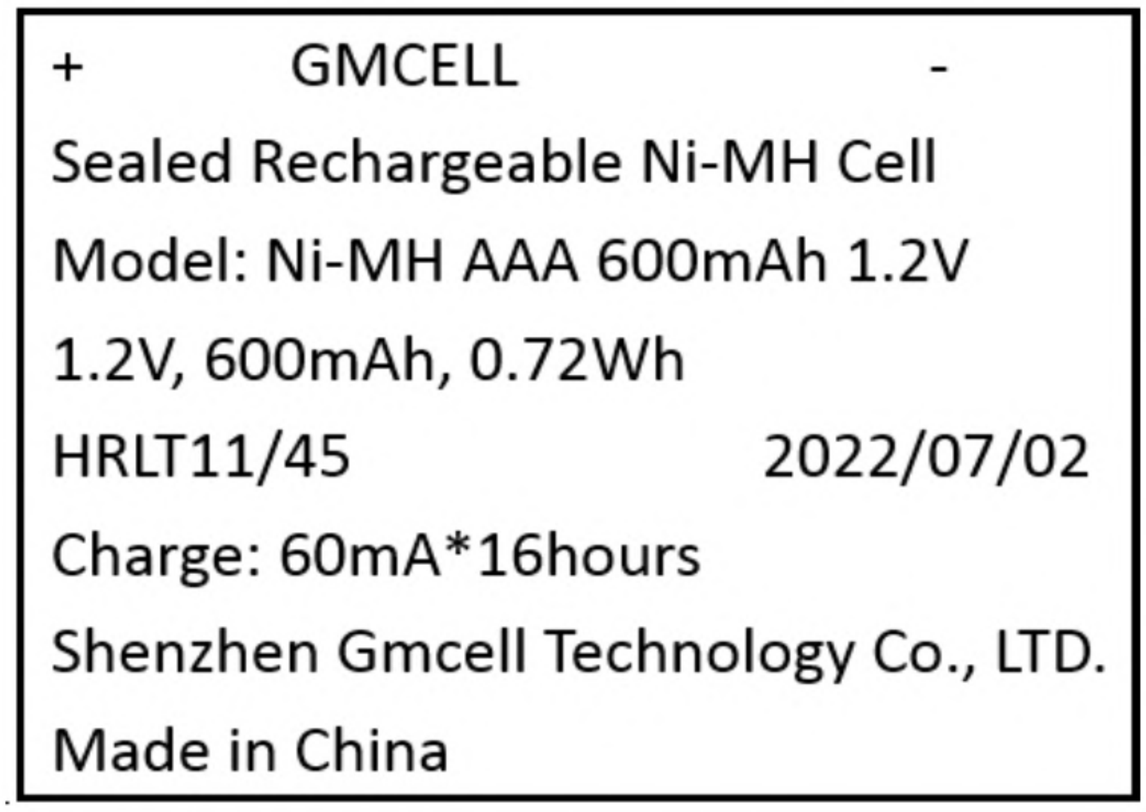
Marking Label of Series Model



Marking Label of Series Model



Marking Label of Series Model



Marking Label of Series Model

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Test item particulars	Sealed Rechargeable Ni-MH Cell
Classification of installation and use	Class III & used in the portable application
Supply Connection	Not directly connected to mains
Recommend charging method declared by the manufacturer	CC/CV
Discharge current (0,2 It A)	500mA
Specified final voltage	1.0V (Discharging Voltage)

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:	13/07/2022
Date(s) of performance of tests:	13/07/2022 to 27/08/2022

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.

Laboratory conditions

Ambient Temperature:	(20 ± 5)°C
Ambient Humidity:	(60 ± 15)%RH

General product information:

1) Application details / Description of the product:

The Equipment under test(EUT) is Sealed Rechargeable Ni-MH Cell Lead Model "Ni-MH AA 2500mAh 1.2V" has been tested as per IS 16046 (Part 2):2018 / IEC 62133-2:2017 complies to all the applicable parameters.

Equipment under test(EUT) details mention below:

Test Item: Sealed Rechargeable Ni-MH Cell

Brand Name: GMCELL

Model Name: Lead Ni-MH AA 2500mAh 1.2V, Series Model: Ni-MH AA 2300mAh 1.2V, Ni-MH AA 1600mAh 1.2V, Ni-MH AA 1100mAh 1.2V, Ni-MH AA 1000mAh 1.2V, Ni-MH AA 800mAh 1.2V, Ni-MH AAA 850mAh 1.2V, Ni-MH AAA 750mAh 1.2V, Ni-MH AAA 600mAh 1.2V

Electrical Rating: 1.2Vdc, 2500mAh, 3Wh

(Copy of marking label page no. 05)

Model	Charging Voltage (Vdc)	Standard Charging Current (mA)	Maximum Charging Current (mA)	Discharging Current (mA)	End Discharge Voltage (Vdc)	Cut-off Current(mA)
Ni-MH AA 2500mAh 1.2V	1.5	250	2500	500	1.0	--

Max. specified ambient temperature (°C) : Charging Temperature(0°C~45°C), Discharging Temperature(-20°C~60°C)

2) Differences between the models:

Similarities:

a) Same Nominal Voltage

b) Same construction Design

c) Same type of Electrode/Electrolytes used

Differences:

a) Model Name

b) Rated Capacity

Model Name	Voltage (V)	Capacity(mAh)
Ni-MH AA 2500mAh 1.2V(Lead Model)	1.2	2500
Ni-MH AA 2300mAh 1.2V	1.2	2300
Ni-MH AA 1600mAh 1.2V	1.2	1600
Ni-MH AA 1100mAh 1.2V	1.2	1100
Ni-MH AA 1000mAh 1.2V	1.2	1000
Ni-MH AA 800mAh 1.2V	1.2	800
Ni-MH AAA 850mAh 1.2V	1.2	850
Ni-MH AAA 750mAh 1.2V	1.2	750
Ni-MH AAA 600mAh 1.2V	1.2	600

Model No. tested with-in the family series

Ni-MH AA 2500mAh 1.2V (Worst Case)

3) Options:

The equipment was tested without any optional accessory installed. Hence, this report does not cover parameters that are influenced by the installation of optional accessory that might affect safety in the meaning of this standard.

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Clause	Requirement + Test	Result - Remark	Verdict
4	Parameter measurement tolerances	All controlled and measured values were within the tolerances.	P

*- Total number of Requirements to be observed / inspected =01
Total No. of applicable Requirement =01
No. of Requirements for which the sample passed =01
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
5	General safety considerations	See below	P
5.1	General	Cell is designed and constructed to operate safe under conditions of intended use and reasonably foreseeable misuse.	P
5.2	Insulation and wiring	See below	N/A
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ	Considered for battery Pack only	N/A
	Insulation resistance (MΩ)	As above	N/A
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	As above	N/A
	Orientation of wiring maintains adequate creepage and clearance distances between conductors	As above	N/A
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse	As above	N/A

*- Total number of Requirements to be observed / inspected =02
Total No. of applicable Requirement =02
No. of Requirements for which the sample passed =02
Total number of tests to be conducted =06
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

(Approving Authority)

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Clause	Requirement + Test	Result - Remark	Verdict
5.3	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 edge of packing which next to terminal was considered as the pressure relief mechanism, which can release pressure during the abnormal condition	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	The cell is a built-in product, which shall be enclosed in a rigid case, and will be evaluated in a final system	N/A

*- Total number of Requirements to be observed / inspected =01
Total No. of applicable Requirement =01
No. of Requirements for which the sample passed =01
Total number of tests to be conducted =02
Total No. of applicable Tests =01
No. of tests for which the sample passed =01
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

(Approving Authority)

Clause	Requirement + Test	Result - Remark	Verdict
5.4	Temperature, voltage and current management	Considered for battery pack only	N/A
	Batteries are designed such that abnormal temperature-rise conditions are prevented	As above	N/A
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	As above	N/A
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that associated chargers are designed to maintain charging within the temperature, voltage and current limits specified	As above	N/A

*- Total number of Requirements to be observed / inspected =00
Total No. of applicable Requirement =00
No. of Requirements for which the sample passed =N/A
Total number of tests to be conducted =04
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be not applicable in the requirement tested.

(Approving Authority)

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Clause	Requirement + Test	Result - Remark	Verdict
5.5	Terminal contacts	See below	P
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	The size and shape of the terminal contacts are suitable for the maximum anticipated current	P
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance	In compliance	P
	Terminal contacts are arranged to minimize the risk of short circuits	In compliance	P

*- Total number of Requirements to be observed / inspected =04
Total No. of applicable Requirement =04
No. of Requirements for which the sample passed =04
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

(Approving Authority)

Clause	Requirement + Test	Result - Remark	Verdict
5.6	Assembly of cells into batteries	Considered for battery pack only	N/A
5.6.1	If there is more than one battery housed in a single battery case, cells used in the assembly of each battery have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer	As above	N/A
	Battery has some type of safety device or feature for charging.	As above	N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer /designer may ensure proper design and assembly	As above	N/A
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturerBatteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer	As above	N/A
	Protective circuit components are added as appropriate and consideration given to the end-device application	As above	N/A
	When testing a battery, the manufacturer of the battery provides a test report confirming the compliance according to this document	As above	N/A

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TC-6468

*- Total number of Requirements to be observed / inspected =07
Total No. of applicable Requirement =00
No. of Requirements for which the sample passed =N/A
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be not applicable in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
5.7	Quality plan	See below	P
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery	The manufactures provide an ISO 9001 Certificate for reference	P

*- Total number of Requirements to be observed / inspected =02
Total No. of applicable Requirement =02
No. of Requirements for which the sample passed =02
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
6	Type test and sample size	See below	P
	Tests were made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old	Provided Samples are complied within 6 month from the manufacturing date	P
	Unless noted otherwise in the test methods, testing was conducted in an ambient of 20°C± 5°C.	Testing was conducted in an ambient of 20°C±5°C	P

*- Total number of Requirements to be observed / inspected =03
Total No. of applicable Requirement =03
No. of Requirements for which the sample passed =03
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
7	Specific requirements and tests	See below	P
7.1	Charging procedure for test purposes	In compliance	P

*- Total number of Requirements to be observed / inspected =01
Total No. of applicable Requirement =01
No. of Requirements for which the sample passed =01
Total number of tests to be conducted =01
Total No. of applicable Tests =01
No. of tests for which the sample passed =01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
7.2	Intended use	See below	P
7.2.1	Continuous low-rate charging (cells)	Fully charged cells are subjected for 28 days to a charge as specified by the manufacture	P
	Results: No fire. No explosion	No Fire, No Explosion	P
7.2.2	Vibration	Five fully charged cells were tested as per cl.no.7.2.2	P
	Results: No fire. No explosion. No leakage	No fire, No explosion, No leakage	P
7.2.3	Case stress at high ambient temperature(batteries)	Considered for battery pack only	N/A
	Oven temperature (°C)	As above	N/A
	Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells	As above	N/A
7.2.4	Temperature cycling	Five fully charged cells were tested as per cl.no.7.2.4	P
	Results: No fire. No explosion. No leakage.	No fire, No explosion, No leakage	P

*- Total number of Requirements to be observed / inspected =08
Total No. of applicable Requirement =05
No. of Requirements for which the sample passed =05
Total number of tests to be conducted =02
Total No. of applicable Tests =02
No. of tests for which the sample passed =02
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
7.3	Reasonably foreseeable misuse	In compliance	P
7.3.1	Incorrect installation (cells)	Complies	P
	The test was carried out using: - Four fully charged cells of the same brand, type, size and age connected in series, with one of them reversed; or	Followed the requirement	P
	- A stabilized dc power supply.	Not used	N/A
	Results: No fire. No explosion	No fire, no explosion occurred during and after the test. (See appended table 7.3.1)	P
7.3.2	External short circuit	In compliance	P
	The cells or batteries were tested until one of the following occurred: - 24 hours elapsed; or	No such conditions are observed.	N/A
	- The case temperature declined by 20% of the maximum temperature rise	Cell case temperature declined by 20% of the maximum temperature rise.	P
	Results: No fire. No explosion	No fire, No explosion occurred as a result of the test	P
7.3.3	Free fall	In compliance	P
	Results: No fire. No explosion.	No fire and No explosion occurred as a result of the test	P
7.3.4	Mechanical shock (crash hazard)	Followed the requirement given in Cl.no. 7.3.4	P
	Results: No fire. No explosion. No leakage.	No fire, No explosion and No leakage observed as a result of the test	P
7.3.5	Thermal abuse (cells)	In compliance	P
	Oven temperature (°C)	Fully charged cells stabilized at ambient temperature 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 30 minutes before the test was terminated.	p
	Results: No fire. No explosion.	No fire and No explosion observed as a result of the test.	P
7.3.6	Crushing of cells	In compliance	P
	The crushing force was released upon: - The maximum force of 13 kN ± 0.78 kN has been applied; or	No such conditions are observed.	N/A
	- An abrupt voltage drop of one-third of the original voltage has been obtained	An abrupt voltage drop of one-third of the original voltage has been obtained	P
	The cell is prismatic type and a second set of samples was tested, rotated 90° around longitudinal axis compared to the first set	Cylindrical cells are used	N/A

	Results: No fire. No explosion	No fire, No explosion during and after the test	P
7.3.7	Low pressure (cells)	In compliance	P
	Chamber pressure (kPa)	Three fully charged cells were kept inside the sealing chamber at 11.6kPa pressure inside the chamber	P
	Results: No fire. No explosion. No leakage.	No fire, no explosion, and no leakage observed as a result of the test	P
7.3.8	Overcharge	complied	P
	Results: No fire. No explosion	No fire, No explosion observed (See appended table 7.3.8)	P
7.3.9	Forced discharge	Followed the requirement given in Cl.no. 7.3.9	P
	Results: No fire. No explosion	No fire, no explosion observed (See appended table 7.3.9)	P

*- Total number of Requirements to be observed / inspected =14
Total No. of applicable Requirement =12
No. of Requirements for which the sample passed =12
Total number of tests to be conducted =14
Total No. of applicable Tests =12
No. of tests for which the sample passed =12
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
8	Information for safety	Complied	P
8.1	General	See below	P
	The manufacturer of secondary cells ensures that information is provided about current, voltage and temperature limits of their products.	Current, voltage and temperature limits information provided in product specification	P
	The manufacturer of batteries ensures that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards.	Consider for battery pack only	N/A
	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product	Consider for battery pack only	N/A
	As appropriate, information relating to hazard avoidance resulting from a system analysis is provided to the end user	Consider for battery pack only	N/A
	Guidance is provided in IEC TR 62188 on the design are provided for information in Annex A and Annex B.	Consider for battery pack only	N/A
8.2	Small cell and battery safety information	See below	N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:	No such type of small cells	N/A
	-Keep small cells and batteries which are considered swallowable out of the reach of children.	As above	N/A
	-Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2h of ingestion.	As above	N/A
	-In case of ingestion of a cell or battery, seek medical assistance promptly.	As above	N/A

*- Total number of Requirements to be observed / inspected =12
Total No. of applicable Requirement =03

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No. of Requirements for which the sample passed =03
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
9	Marking	See below	P
9.1	Cell marking	Marked (See copy of marking plate of page no. 5)	P
	Cells marked as specified in the applicable cell standards: IEC 61951-1 or IEC 61951-2.	Marked (See copy of marking plate of page no. 5)	P
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked.	Appropriate marking label provided on the sample	N/A
	However, cell marking can be indicated with the battery, the instructions and/or the specifications.	Appropriate marking label provided on the sample	N/A
9.2	Battery marking	See below	N/A
	Batteries marked as specified in the applicable cell standards: IEC 61951-1 or IEC 61951-2.	Product is Sealed Rechargeable Ni-MH Cell	N/A
	Batteries marked with an appropriate caution statement.	As above	N/A
	Terminals have clear polarity marking on the external surface of the battery.	As above	N/A
	Batteries with keyed external connector need not be marked with polarity markings if the design of the external connector prevents reverse polarity connections	As above	N/A
9.3	Caution for ingestion of small cells and batteries	No such type of Cell	N/A
	Small cells and batteries determined to be small are including a caution statement regarding the hazards of ingestion in accordance with 8.2.	As above	N/A
	Small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion are given on the immediate package.	As above	N/A
9.4	Other information	See below	P
	Storage and disposal instructions	Storage and Disposal Instruction provide in the instructions	P

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	marked on or supplied with the battery.	sheet	
	Recommended charging instructions marked on or supplied with the battery.	Charging specification provided on manufacturer specification	P

*- Total number of Requirements to be observed / inspected =16
Total No. of applicable Requirement =06
No. of Requirements for which the sample passed =06
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Result - Remark	Verdict
10	Packaging	See below	P
	Packaging for button cells are not be small enough to fit within the limits of the ingestion gauge of Figure 2	This is not a Coin Cell	N/A
	Annex C for information regarding packaging	Satisfactory	P

*- Total number of Requirements to be observed / inspected =03
Total No. of applicable Requirement =02
No. of Requirements for which the sample passed =02
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Clause	Requirement + Test	Verdict
Annex A (informative)	Recommendations to equipment manufacturers and battery assemblers	P

Clause	Requirement + Test	Verdict
Annex B (informative)	Recommendations to the end-users	P

Clause	Requirement + Test	Verdict
Annex C (informative)	Packaging	P

TABLE: Critical components information | P

Object/part No.	Manufacturer/ trademark	Type/Model	Technical Data	Standard	Marks of Conformity
Electrolyte	Guangzhou Zhonghua Chemical Co., Ltd	KOH+NaOH Aqueous Solution	KOH, NaOH, LiOH	IS 16046 (Part 1):2018 / IEC 62133-1:2017	Tested with Cell
Separator	ShenZhen EVERICH CO.,LTD	FV4304	PP, Shutdown Temperature:130°C	IS 16046 (Part 1):2018 / IEC 62133-1:2017	Tested with Cell
Positive electrode	Henan Kelong New Energy Co.,Ltd	Ni(OH)2 Nickel Foam	Nickel (57%) Cobalt (6.0%) Zinc (3.0%)	IS 16046 (Part 1):2018 / IEC 62133-1:2017	Tested with Cell
Negative electrode	JiangXiJXTC HAOYUN HIGH-TECH CO.,Ltd	Hydrogen Storage Alloy Powder	Nickel (55.0%) Cobalt (6.1%) Manganese (4.8%) Aluminium (1.9%)	IS 16046 (Part 1):2018 / IEC 62133-1:2017	Tested with Cell
Cell Case	XinXiang Zengyuan Technology Electric Rosource Material Co., Ltd.	14.20mm*13.9mm* 51.2mm	Nickel plated steel can, 0.2mm thick	IS 16046 (Part 1):2018 / IEC 62133-1:2017	Tested with Cell

Supplementary information:
Evidence provided by the manufacturer for the listed components are verified by us and the evidence is are conforming to the requirements of the relevant standard.

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7.2.1	TABLE: Continuous charging at constant voltage (cells)	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
Ni-MH AA 2500mAh 1.2V	CC/CV	1.50	0.25	1.49	A
Ni-MH AA 2500mAh 1.2V	CC/CV	1.50	0.25	1.48	A
Ni-MH AA 2500mAh 1.2V	CC/CV	1.50	0.25	1.49	A
Ni-MH AA 2500mAh 1.2V	CC/CV	1.50	0.25	1.49	A
Ni-MH AA 2500mAh 1.2V	CC/CV	1.50	0.25	1.48	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.2.2	TABLE: Vibration	P

Model	OCV at start of test, (Vdc)	Results
Ni-MH AA 2500mAh 1.2V	1.48 at X, Y & Z	A & B
Ni-MH AA 2500mAh 1.2V	1.47 at X, Y & Z	A & B
Ni-MH AA 2500mAh 1.2V	1.48 at X, Y & Z	A & B
Ni-MH AA 2500mAh 1.2V	1.49 at X, Y & Z	A & B
Ni-MH AA 2500mAh 1.2V	1.49 at X, Y & Z	A & B

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.3.1	TABLE: Incorrect installation (cells)	P

Model	OCV at start of test, (Vdc)	Results
Ni-MH AA 2500mAh 1.2V	1.47	A
Ni-MH AA 2500mAh 1.2V	1.49	A
Ni-MH AA 2500mAh 1.2V	1.48	A
Ni-MH AA 2500mAh 1.2V	1.48	A
Ni-MH AA 2500mAh 1.2V	1.47	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.3.2	TABLE: External short-circuit	P

Model	Ambient (at 20°C ± 5°C or 55°C ± 5°C)	OCV at start of test, (Vdc)	Resistance of circuit, (mΩ)	Maximum case temperature rise ΔT, (K)	Results
Ni-MH AA 2500mAh 1.2V	(20°C ±5)°C	1.49	88	35.8	A
Ni-MH AA 2500mAh 1.2V	(20°C ±5)°C	1.48	87	36.8	A
Ni-MH AA 2500mAh 1.2V	(20°C ±5)°C	1.49	83	35.7	A
Ni-MH AA 2500mAh 1.2V	(20°C ±5)°C	1.48	81	35.9	A
Ni-MH AA 2500mAh 1.2V	(20°C ±5)°C	1.49	86	36.4	A
Ni-MH AA 2500mAh 1.2V	(55°C ±5)°C	1.48	83	36.2	A
Ni-MH AA 2500mAh 1.2V	(55°C ±5)°C	1.49	84	35.9	A
Ni-MH AA 2500mAh 1.2V	(55°C ±5)°C	1.47	85	36.5	A
Ni-MH AA 2500mAh 1.2V	(55°C ±5)°C	1.49	88	36.9	A
Ni-MH AA 2500mAh 1.2V	(55°C ±5)°C	1.48	83	35.7	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.3.6	TABLE: Crush		P
Model	OCV before test, (Vdc)	OCV at removal of crushing force, (Vdc)	Results
Ni-MH AA 2500mAh 1.2V	1.47	1.46	A
Ni-MH AA 2500mAh 1.2V	1.46	1.46	A
Ni-MH AA 2500mAh 1.2V	1.49	1.47	A
Ni-MH AA 2500mAh 1.2V	1.48	1.47	A
Ni-MH AA 2500mAh 1.2V	1.48	1.48	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.3.8	TABLE: Overcharge			
Model	**OCV prior to charging, (Vdc)**	**Maximum charge current (A)**	**Time for charging, (hours)**	**Results**
Ni-MH AA 2500mAh 1.2V	1.12	0.625	10	A
Ni-MH AA 2500mAh 1.2V	1.11	0.625	10	A
Ni-MH AA 2500mAh 1.2V	1.12	0.625	10	A
Ni-MH AA 2500mAh 1.2V	1.10	0.625	10	A
Ni-MH AA 2500mAh 1.2V	1.12	0.625	10	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

7.3.9	TABLE: Forced discharge (cells)			P
Model	**OCV before application of reverse charge, (Vdc)**	**Measured Reverse charge It, (A)**	**Time for reversed charge, (minutes)**	**Results**
Ni-MH AA 2500mAh 1.2V	1.10	2.50	90	A
Ni-MH AA 2500mAh 1.2V	1.11	2.50	90	A
Ni-MH AA 2500mAh 1.2V	1.11	2.50	90	A
Ni-MH AA 2500mAh 1.2V	1.12	2.50	90	A

Ni-MH AA 2500mAh 1.2V	1.13	2.50	90	A

Supplementary information:
A: No fire or explosion
B: No leakage
C: Leakage
D: Fire
E: Explosion
F: Bulge
G: Others (please explain)

Attachment-1

Cell View