

**TECHNICAL SPECIFICATION**  
**FOR**  
**ALKALINE MANGANESE DIOXIDE BUTTON CELL**  
**TYPE: LR44H**

|                     |                  |                       |               |
|---------------------|------------------|-----------------------|---------------|
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Guangdong TIANQIU Electronics Technology Co. Ltd.

ADD: 9/F TianQiu Business Building No.16-30, He Yi Rd., San Yuan Li Ave., GuangZhou China

Tel: 8620-36322277 Fax: 8620-36323339 P.C:510410

Website: <http://www.tmmq.cn> Email: [office@tmmq.com](mailto:office@tmmq.com)

### 1. Scope

This specification is applicable to the Alkaline Manganese Dioxide Button Cell LR44H supplied by Guangdong TIANQIU Electronics Technology Co. Ltd.

### 2. Designations

#### 2.1 Defining

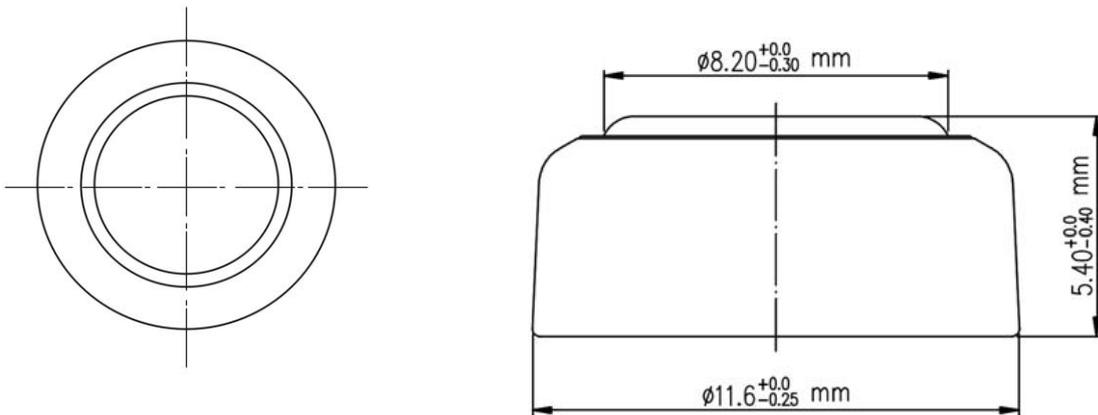
Continuously discharge at  $20 \pm 2^\circ\text{C}$  under  $1\text{k}\Omega$  to 0.9V

### 3. Designations and Dimensions

#### 3.1 Designations:

LR44H Alkaline Zinc-Manganese Dioxide Button Cell

#### 3.2 Dimensions



### 4. Technical Specifications

| Item               | Characteristic  |
|--------------------|---|
| Nominal capacity   | 136mAh  |
| Nominal voltage    | 1.5V  |
| End point voltage  | 0.9V  |
| Storage humidity   | $60 \pm 15\%$ RH (no condensate)                                |
| Dimensions         | maximum height: 5.4mm<br>maximum diameter: $\Phi 11.6\text{mm}$ |
| Approximate weight | 1.90g (only for reference)                                      |

## 5. Performance

### 5.1 Test conditions

Unless otherwise specified, the test conditions shall be, as a general rule, at the temperature of  $20\pm 2^{\circ}\text{C}$  and the relative humidity of  $60\pm 15\%$ .

### 5.2 Electrical characteristics

| NO.   | Item                    | Test condition   | Requirement   |
|-------|-------------------------|--|---|
| 5.2.1 | storage characteristics | Sampling plan: MIL-STD-105E, General Inspection Lever II, Single Sampling, AQL=0.4<br>Remark: Load voltage test method: 6.8K $\Omega$ /0.3S, The initial samples shall be tested within 30 days after delivery | Open Circuit Voltage(V) load voltage(V)<br>Initial: $\geq 1.55$ $\geq 1.50$ |
| 5.2.2 | Service output          | Load resistance:6.8k $\Omega$ ;<br>Discharge method:24h/d continuously discharge; End point voltage 1.2V<br>Remark: The initial samples shall be tested within 30 days after delivery.                         | Initial $\geq 600$ hrs<br>12 months @ RT $\geq 540$ hrs                     |
|       |                         | Load resistance:1k $\Omega$ ;<br>Discharge method:24h/d continuously discharge; End point voltage 0.9V<br>Remark: The initial samples shall be tested within 30 days after delivery.                           | Initial $\geq 90$ hrs<br>12 months @ RT $\geq 81$ hrs                       |
| 5.2.3 | Short circuit test      | The battery short circuit test in $20\pm 2^{\circ}\text{C}$ environment, discharge for 24hrs   | No explosion<br>N=5, Ac=0, Re=1.  |

#### 5.2.2&5.2.3 Acceptance test:

- 1) 9 pieces of battery will be tested for each discharging method.
- 2) The average discharging time from each discharging method shall be equal to or greater than the specified figure, and no more than one battery has a service output less than 80% of the specified figure.
- 3) One retest is allowed to confirm the results if the first test didn't meet the requirements.

### 5.3 Shelf life

One year after delivery under normal storage conditions. 90% of the initial capacity will be maintained after one year storage.

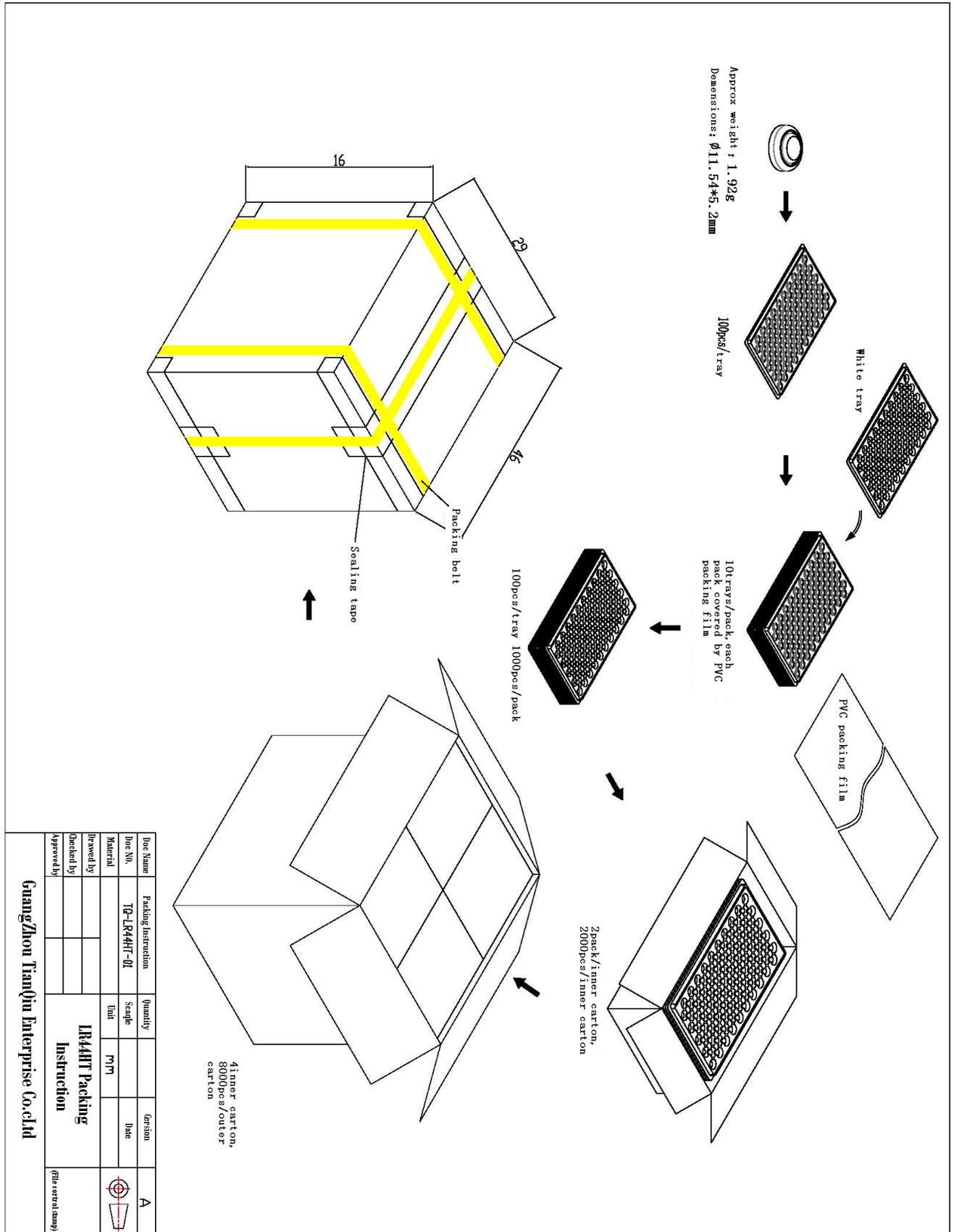
## **6. Packing and Marking**

Any specific design and packing requirements will be accommodated as required. But as a general, the following markings will be printed, stamped or impressed on the body of the battery:

### 6.1 Marking

- 1) Designation: LR44H.
- 2) Manufacturer's logo "  " and/or its name "TIANQIU".
- 3) Polarity Marking: " BUTTON CELL + " on the cathode can.

## 6.2 Packing



## **7. Caution for Use**

- 1) Since the battery is not designed to be charged, there are risks of electrolyte leakage or causing damage to the device if the battery is charged.
- 2) The battery shall be installed with its "+" and "-" polarity in correct position, otherwise may cause the battery to be charged or over-discharged.
- 3) Short-circuiting, heating, disposing of in fire and disassembling the battery are prohibited.
- 4) Battery cannot be forced discharge, which lead to excess internal gas generation and, may result in bulging, leakage and explosion.
- 5) New and used batteries cannot be mix used at the same time, when replaced batteries, it is recommend to replace all and with the same brand type.
- 6) Exhausted batteries should be removed from compartment to prevent over-discharge, which cause leakage and damage to the device.
- 7) Direct soldering is not allowed, which will damage the battery.
- 8) Keep the battery out of the reach of children to prevent swallow, in case of accident should contact physician at once.
- 9) The battery should not be dismantled and deformed.

### **caution:**

- » If a battery is leakage and materials contact eyes, flush immediately with running water for at least 15 minutes. Consult an ophthalmologist at once.
- » If battery emits an odor, fever, discoloration, deformation or any abnormal phenomena appeared in the process of use/storage, removed the battery immediately from the device and dispose of the battery.

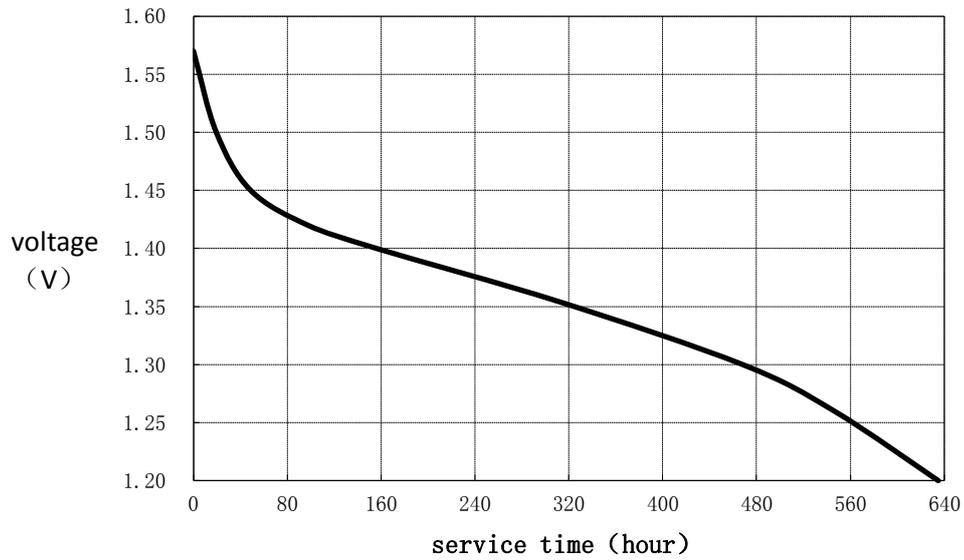
## **8. Referenced Standards**

IEC 60086-1:2015 –Primary Batteries –Part 1: General

IEC 60086-2:2015 –Primary Batteries –Part 2: Physical and electrical specifications

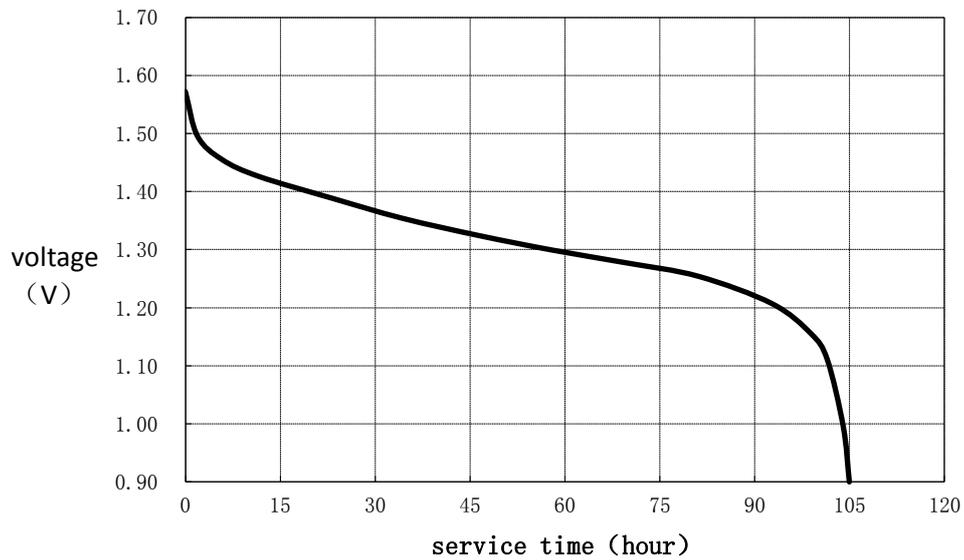
IEC 60086-3:2016 –Primary Batteries –Part 3: Watch batteries

IEC 60086-5:2016 –Primary Batteries –Part 5: Safety of batteries with aqueous electrolyte

**9. Discharge Curves**


**Discharge method: 6.8kΩ, 24hours/day, E.V. 1.2V**

**Temperature: 20±2°C**



**Discharge method: 1kΩ, 24hours/day, E.V. 0.9V**

**Temperature: 20±2°C**

