**1. Type designation:**

IEC LR6
JIS: AM3
ANSI：AA



**2. Chemical system:**

Electrolyte-zinc-manganese dioxide (mercury & cadmium free)

**3. Dimension:**

Ø 13.5-14.5
Height: 49.2-50.5

**4. Norminal voltage:**

1.5 Volts

**5. Norminal weight:**

The weight of each battery is approximately 24.0 g.

**6. Heavy Metal content (%):**

| Mercury content | Cadmium | Lead |
|---|---|---|
| ≤ 1ppm | ≤ 10ppm | ≤ 40ppm |

**7. Appearance and terminal:**

Battery shall be clean and have no dirt, no leakage, and no deformation which may affect their performance and actual use and shall have clearly visible markings.

**8. Battery capacity:** (Test environment：20℃±2,60%±15%R.H)

(Load resistance:**43ohms**, Daily period:**24h/d**, Cut off voltage:**0.9V** ; According to as the above the same discharge condition, the capacity of each battery is approximately:**2600mAh)**

**9. Storage characteristics:**

After 12 months storage at 20℃, 90% capacitance of fresh cells.

After 24 months storage at 20℃, 85% capacitance of fresh cells.

## 10. Electrical characteristics:

(Test environment:20℃±2,60%±15%R.H)(Load resistance: **3.9ohms,** Measure time**: 0.3S**)
(All samples shall be normalized for a minimum of 8 hours at the above environment prior to measurement)

| | OCV (V) | CCV (V) | SCC (A) |
|---|---|---|---|
| Initial | ≥ 1.59 | ≥ 1.45 | ≥ 10 |
| After 12 months storage | ≥ 1.57 | ≥ 1.43 | ≥ 8 |

Remark: OCV: Open Circuit Voltage; CCV: Close Circuit Voltage; SCC: Short Circuit Current

## 11. Discharge test (service life) (Test environment: 20℃±2,45%--75%R.H)

| LOAD Resistance | 10Ω | 24Ω | 3.9Ω | 10Ω | 43Ω | 1000mA |
|---|---|---|---|---|---|---|
| Daily Period | 24h/d | pulse | 1h/day | 1h/day | 1h/d | 10s/min, 1h/d |
| Cut off Voltage | 0.9V | 1.0V | 0.8V | 0.9V | 0.9V | 0.9V |
| Initial | ≥ 19.0h | ≥ 43h | ≥ 7.0h | ≥ 19.0h | ≥ 90h | ≥ 350times |
| After 12 months storage | ≥ 18.0h | ≥ 40h | ≥ 6.5h | ≥ 18.0h | ≥ 85h | ≥ 320times |
| Application | / | control | Motor, toy | Tape recorder | radio | Camera flash light |

Remark: The initial discharge test shall commence within 30 days of manufacture.
The discharge time is the minimum average duration (MAD).
Test quantity: n=9pcs (for per discharge test)

## 12. Discharge curve:

① 10ohms 24h/d to 0.9V continuous discharge curve (Appendix 1)
② 10ohms 1h/d to 0.9V discharge curve ( Appendix 1)
③ 3.9ohms 1h/d to 0.8V discharge curve ( Appendix 1)
④ 24ohms 15s/min,8h/d to 1.0V discharge curve (Appendix 2)
⑤ 43ohms 4h/d to 0.9V discharge curve (Appendix 2)
⑥ 1000mA, 10s/min, 1h/d to 0.9V discharge curve (Appendix 2)

## 13. Leakage-proof structure:

① The top seal is made of imported special nylon from DUPONT, has a much stable vent pressure.
② The sealing location of the battery is provided with double beading scores to make the structure tighter.
③ Using imported special sealing glue, with more reliable leakage-proof performance.

**14. Safety test (Test environment: 20℃±2,60%±15%R.H)**

| Test item | Test method | Test pcs | Requirements |
|---|---|---|---|
| Over-discharge leakage test | 10ohms (24h/d) 48hours | 9pcs | No leakage |
| | 3.9ohms (4min/h,8h/d) to 0.6V | 9pcs | No leakage |
| | 1000mA (10s/min, 1h/d) to 0.6V | 9pcs | No leakage |
| | 10ohms (1h/d) to 0.6V | 9pcs | No leakage |
| | 43ohms (4h/d) to 0.6V | 9pcs | No leakage |
| | 24ohms (15s/mn, 8h/d) to 0.6V | 9pcs | No leakage |
| High temperature test | 60±2℃,RH:90±5%, after 20 days storage, the cells shall be stored in an ambient temperature of 20±2℃,RH:60±5%, for 4-24hours. | 40 | No leakage |
| One piece of battery Short circuit test | The terminal of an un-discharged battery is connected by wire. The circuit is completely for 24hours or until the case temperature has return to environment. | 10 | No leakage<br>No explosion |
| Reversible charge | 4 pieces of battery are in series connected and one of them is under incorrect polarity for 24 hours or until the case temperature has return to environment.. | 40 | No explosion |
| Over discharge | One battery discharge 43ohms to 0.6V, then in series connect with 3 pieces of new battery with 20ohm 24h | 36 | No explosion |
| Four pieces of battery in series Short circuit test | The terminal of four pieces of battery is connected by wire. The circuit is completely for 24hours or until the case temperature has return to environment. | 40 | No explosion |
| Free fall test | The battery free drops from one-meter height for 6 times, then store for 1h | 10 | No explosion |
| Impact under high and low temperature | Un-discharged battery store in test box under 70±2℃ for 24h,then change to -20℃ for 24h, repeat the above condition for 10 cycles. | 20 | No explosion |
| Storage after partial discharge | 50% discharged battery stored under 45±5℃ for 30days | 9 | No leakage<br>No explosion |

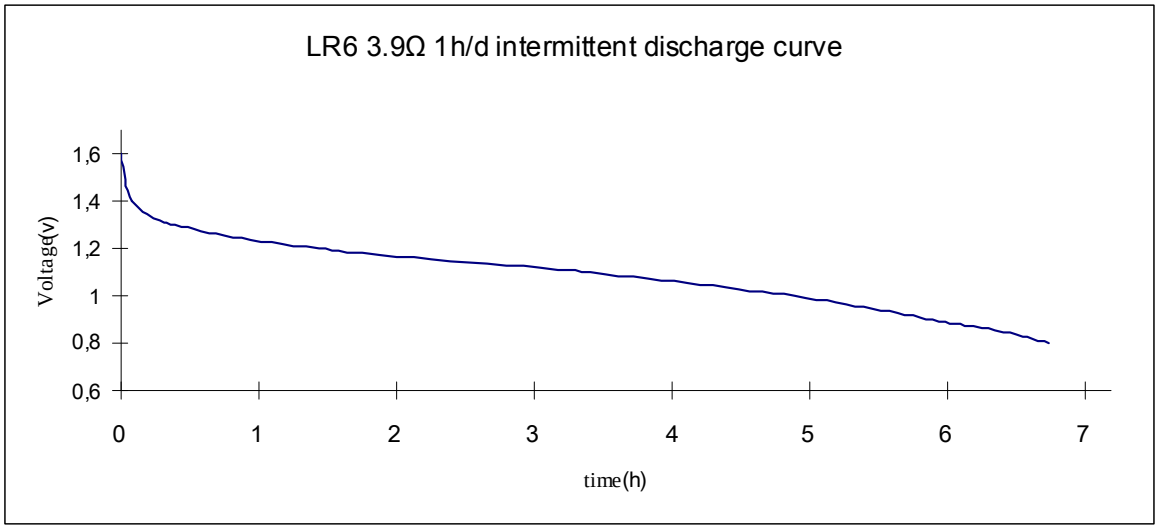
**15. Expiry period:**

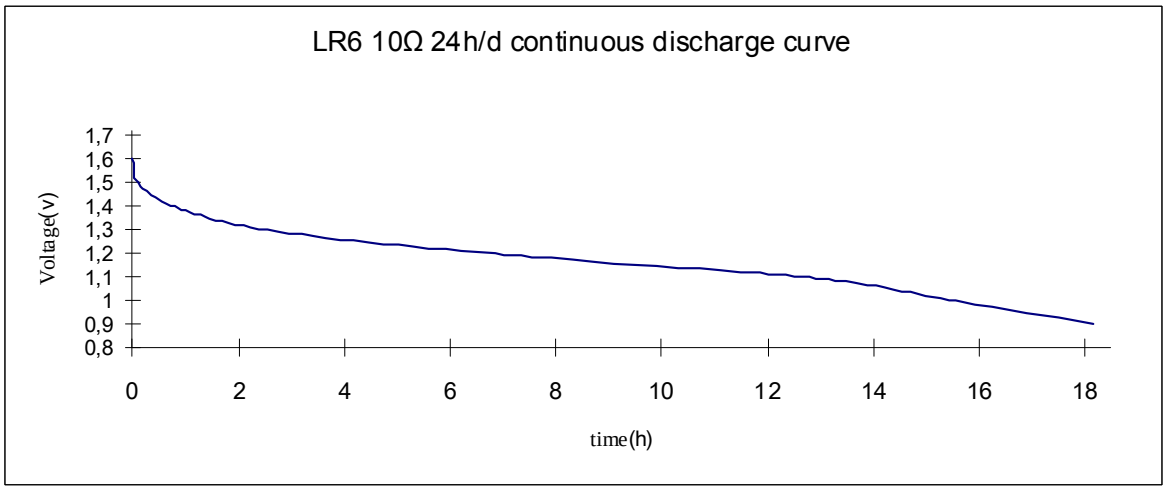
7 years

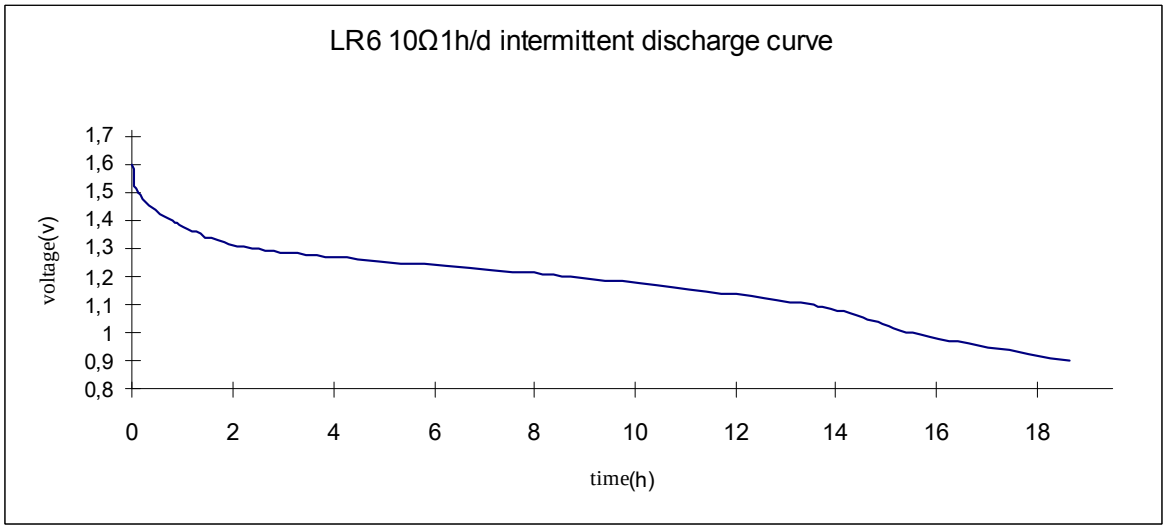
**16. Expiry period marking:**

Expiry date marked on the bottom plate of finished battery . For example: 2015-08 means the Expiry date is August 2015.

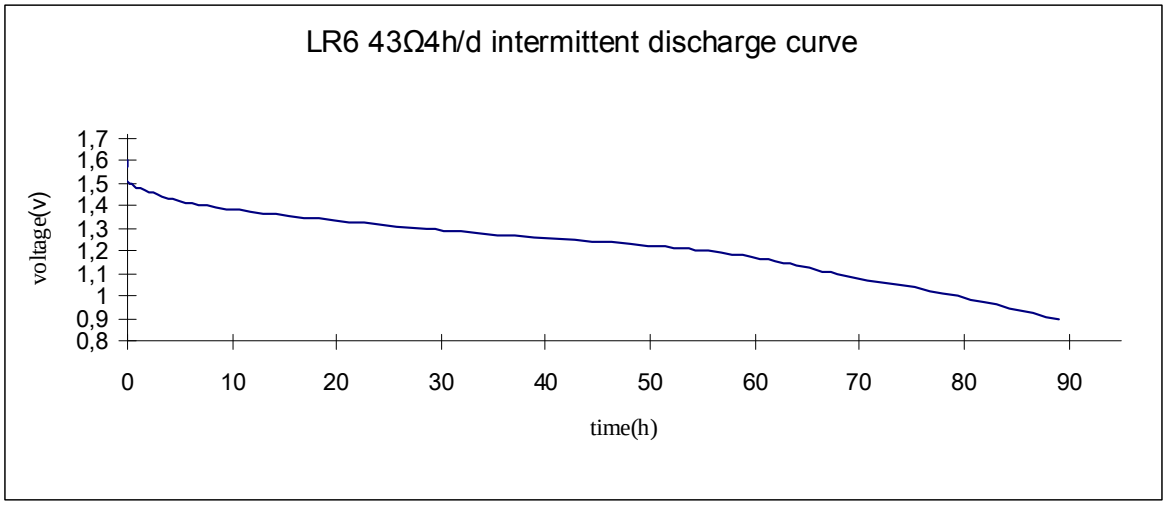
**Appendix 1**

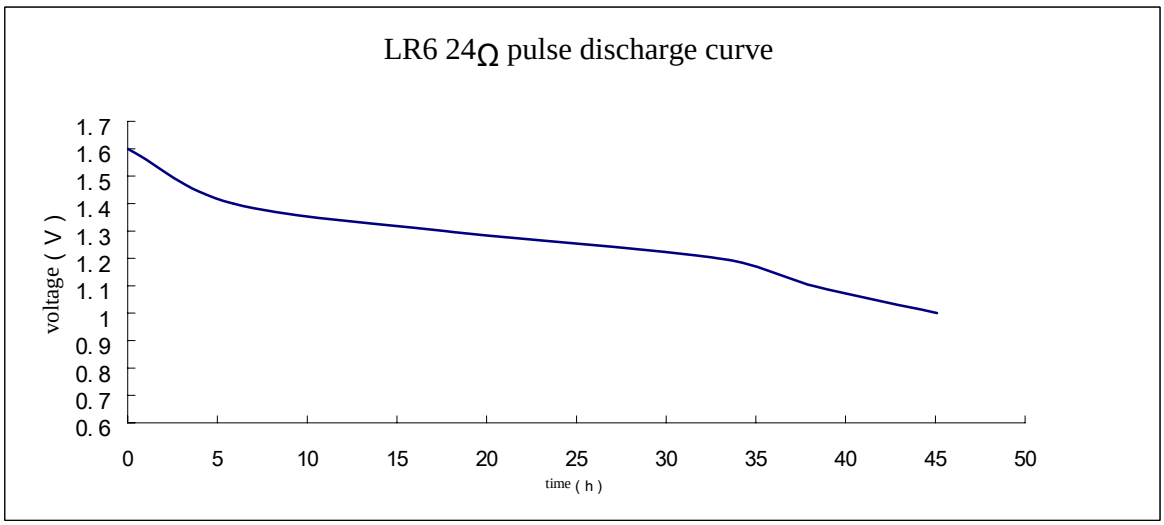

LR6 3.9Ω 1h/d intermittent discharge curve
Voltage(v)
1,6
1,4
1,2
1
0,8
0,6
0
1
2
3
4
5
6
7
time(h)

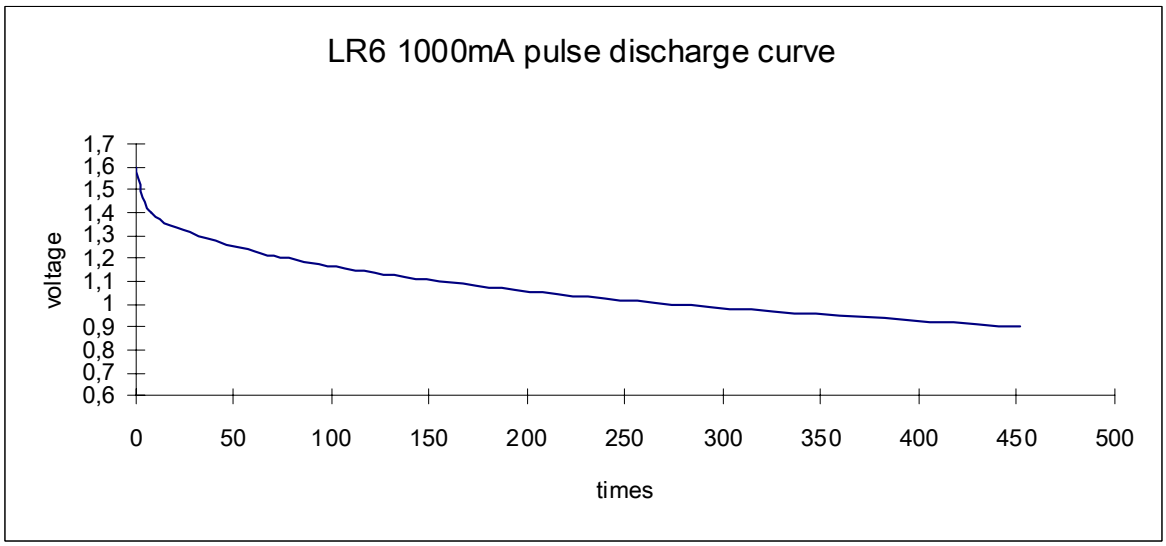

LR6 10Ω 24h/d continuous discharge curve
Voltage(v)
1,7
1,6
1,5
1,4
1,3
1,2
1,1
1
0,9
0,8
0
2
4
6
8
10
12
14
16
18
time(h)


LR6 10Ω1h/d intermittent discharge curve
voltage(v)
1,7
1,6
1,5
1,4
1,3
1,2
1,1
1
0,9
0,8
0
2
4
6
8
10
12
14
16
18
time(h)

**Appendix 2**


LR6 43Ω4h/d intermittent discharge curve
voltage(v)
1,7
1,6
1,5
1,4
1,3
1,2
1,1
1
0,9
0,8
0
10
20
30
40
50
60
70
80
90
time(h)


LR6 24Ω pulse discharge curve
voltage ( V )
1. 7
1. 6
1. 5
1. 4
1. 3
1. 2
1. 1
1
0. 9
0. 8
0. 7
0. 6
0
5
10
15
20
25
30
35
40
45
50
time ( h )


LR6 1000mA pulse discharge curve
voltage
1,7
1,6
1,5
1,4
1,3
1,2
1,1
1
0,9
0,8
0,7
0,6
0
50
100
150
200
250
300
350
400
450
500
times