



A. Basic

Type		Sealed Rechargeable Ni-MH
Model		CYH-44AAA600
Size		AAA
Nominal Voltage (V)		1.2
Nominal Capacity (mAh)		600
Dimension	Diameter (mm)	10.5 ⁺⁰ _{-0.7}
	Height (mm)	44.0 ^{±0.5}
Standard Charging	Current (mA)	60
	Time (h)	16
Quick Charging	Current (mA)	180
	Time (h)	4
Rapid Charging	Current (mA)	600
	Time (h)	1.2
Operation Temperature(°C)	Standard Charging	0~45
	Rapid Charging	10~40
	Discharging	-20~65
	Storage	-20~35(RH≤85%)
Permanent Charging Current (mA)		18~30
Maximum Discharging Current (mA)(continuous)		1800
Charge Impedance (mΩ)		≤45 (1000Hz)
Discharge Cut-off Voltage (V)		1.00
Charge Retention (20°C)		≥60%
Weight Approx. (g)		12

B. Test Report

Tests are carried out within one month of delivery under the following condition:

1. Ambient Conditions:

- Room Temperature 20±5 °C
- Relative Humidity 65%±20%

2. Capacity Testing

2.1 Standard Charging

- 0.2C discharge to 1.00V/cell
- 0.1C charging for 16 hours
- Rest for 1 hours
- 0.2C discharge to 1.00V/cell.
- Within 3 charge/discharge cycles, the capacity is no less than 600mAh .



2.2 Quick Charging

0.2C discharge to 1.00V/cell

0.3C charging for 4 hours

Rest for 1 hours

0.2C discharge to 1.00V/cel

Within 3 charge/discharge cycles, the capacity is no less than 570mAh .

2.3 Rapid Charging

1C discharge to 1.00V/cell.

1C charging for 72 minutes or

$-\Delta V=10\text{mV/cell}$.

Rest for 1 hours

1C discharge to 1.00V/cell.

Within 3 charging/discharging cycles, the capacity is no less than 540mAh .

3. Open Circuit Voltage (OCV)

After the battery is fully charged with 0.1C for 16h, within 1 hour, the OCV is greater than 1.25V/cell

4. Internal Impedance

After the battery is fully charged with 0.1C for 16h, within 1 hour, the impedance is not greater than 45 mΩ, as tested by 1000Hz AC source.

5. Charge Retention

The fully charged (with 0.1C for 16h) battery is held under temperature of $20\pm 2^\circ\text{C}$ for 28 days, the discharged capacity is no less than 360mAh .

6. Overcharging

Under temperature of $20\pm 5^\circ\text{C}$, After 0.2C to 1.00V, the battery is charged at 0.1C rate for 48 hours. No de-deformation of the battery can be found. Standard capacity can be attained under normal discharging operation.

7. Cycle Life

7.1 Normal Cycling Test(IEC standard):

Cycle No.	Charge	Rest	Discharge
1	0.1C × 16hrs	None	0.25C × 2hrs 20mins
2~48	0.25C × 3hrs 10mins	None	0.25C × 2hrs 20mins
49	0.25C × 3hrs 10mins	None	0.25C to 1.00V/cell
50	0.1C × 16hrs	1~4hrs	0.2C to 1.00V/cell
Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3hrs			

After 500 cycles of charging/discharging, capacity 360mAh (60%) can be maintained under the cycling test.

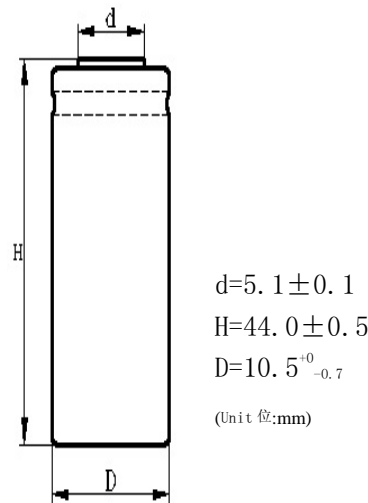


Figure of CYH-44AAA600 cell (with tube)

Note: All the above values subject to change without prior notice.

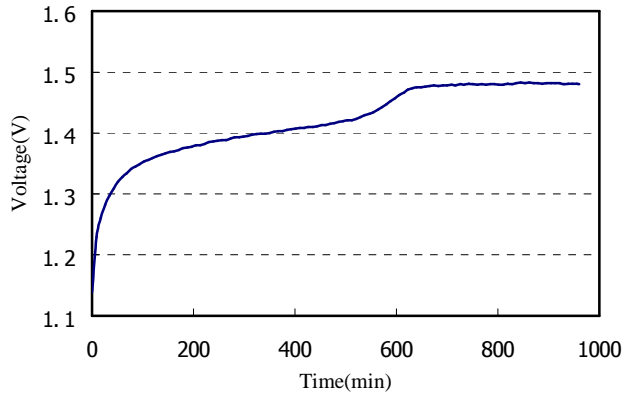


C. Abuse Test

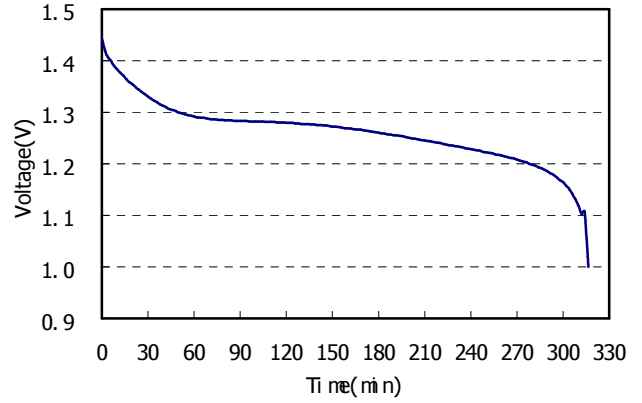
Items	Test conditions	Test results
Short circuit test	After 0.2C to 1.00V, cell is fully charged with 0.1C for 16hours(or with 0.5C for 2.2hours), then shorted for 1hour or longer with a 50~100mΩ load or less	No fire No explosion
Overcharge test	Cell is discharged with 0.2C to 1.00V, then 0.1C for 48 hours	No explosion Leakage may occur
	Cell is discharged with 0.2C to 1.00V, then 0.5C for 5 hours	
Over discharge test	Cell is discharged with 0.2C to 0.00V, then with 1C forced discharged for 1hours	No explosion
Drop test	After 0.2C to 1.00V, cell is fully charged with 0.1C for 16hours ,then cell is dropped 3 times from a 1.9m height onto solid wood (10mm thick) with random orientation	No abruption No leakage No explosion
Vibration test	Cell is vibrated continuously lengthwise for 60minutes Amplitude: 4mm Frequency: 1000times/minutes	No physical change No leakage Cell electrical performances unchanged
High temperature test	After 0.2C to 1.00V, cell is fully charged with 0.1C for 16hours(or with 0.5C for 2.2hours), cell is placed to the baking oven which its set-up temperature is 150±5℃	Cell don't explosion before 15 minutes
Penetration test (Hole drilling)	After 0.2C to 1.00V, cell is fully charged with 0.1C for 16hours or 0.5C for 2.2hours, cell is drilled diameter wise with a 4mm Φ drill at a depth of less than 1mm	No explosion
Water immersion test	a. Cell is immersed in water for one month b. Cell is immersed in salt water with a 5% concentration for one month	No explosion

Attention: The object of abuse test is unit cell.

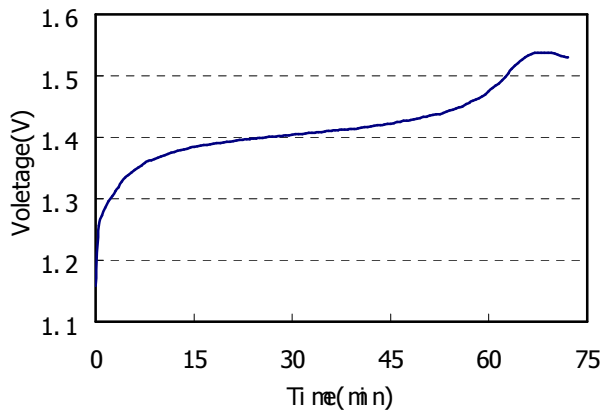
Warning: please consult Cyber-Power before performing those destructive tests.



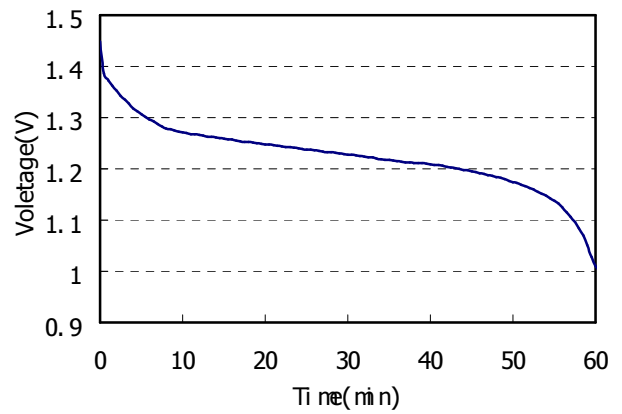
(Fig2 0.1C Charging curve)



(Fig3 0.2C discharging curve)



(Fig4 1C Charging curve)



(Fig5 1C discharging curve)

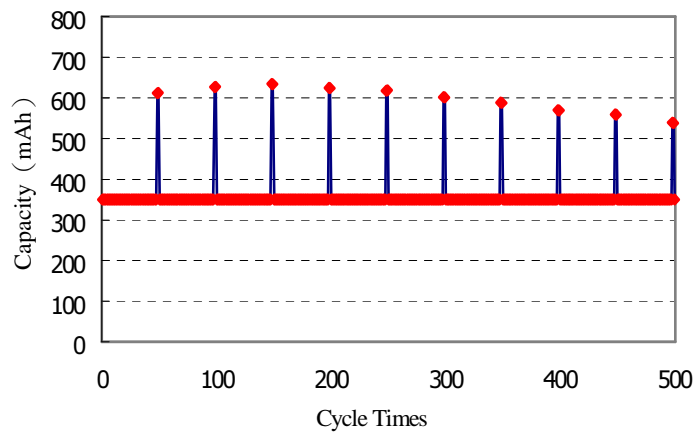


Fig6. Cycle life curve (Normal cycling test)