



AA Portable Power Corp (<http://www.batteryspace.com>)
 Address: 860 S, 19th St, Unit A, Richmond, CA, 94804
 Tel: 510-525-2328
 Fax: 510-439-2808
 Email: Sales@batteryspace.com

VER:A

Date:2009. 12. 2

Customer No.: _____

Li-ion Cylindrical Battery Specification

Model: IFR14430

Prepared	Auditing	Approve

	Confirm	Date
Customer		

History of revisions				
<u>Edition</u>	<u>Description</u>	<u>Prepared by</u>	<u>Approved by</u>	<u>Date</u>
A	<u>First Edition</u>			



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1. Foreword

This specification is applied to IFR14430 Manufactured by AA Portable Power Corp

2. Model

IFR14430-400mAh

3. Reference

IEC 61960-1: 2000 Secondary lithium cells and batteries for portable applications-Part1:

Secondary lithium cells

4. Productspecification

	Item	spec	
1	Standard Voltage	3.2V	
2	Typical Capacity	400mAh @ 0.2C Discharging with 0.2C	
3	Min Capacity	350mAh @ 0.2C Discharging with 0.2C	
4	Cut off Voltage of Discharging	2.0V	
5	Cut off Voltage of charging	3.65V	
6	The highest Voltage of Charging	3.80V	
7	Impedance New Cell Max.(mΩ)	≤150mΩ (20°C±5°C) Testing after the standard charging	
8	Standard charge	Constant Current 0.2C ₅ A Constant Voltage 3.65V ,0.01 C ₅ A cut-off	
9	Standard discharge	Constant current 0.2 C ₅ A to end voltage at 2.0V	
10	Self-Discharge	Store the for 28 days In the condition 23±2 °C ,after standard charging the cells Self-Discharge Rate≤10%	
11	Maximum Continuous Charge Current	400mA	
12	Maximum Continuous Discharge Current	800mA	
13	Operation Temperature Range	Charge: 0~45°C	Hydrology 60±25%R.H
		Discharge: -20~60°C	
14	Storage Temperature Range	Less than 1 year: -20~25°C	Hydrology 60±25%R.H
		Less than 3 months: -20~40°C	
15	Weight	15g(approx)	Bare Cell
16	Dimension	Diameter: Max. 14.0±0.2mm High: Max. 43.0±0.6mm	



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5.

Performance And Test Conditions

5.1 Measuring Instrument or Apparatus

5.1.1 Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

5.1.2 Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than $10k\Omega/V$

5.1.3 Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω

5.1.4 Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method(1kHz LCR meter)

5.2 Standard Test Conditions

5.2.1 Temperature & humidity

Test should be conducted with new batteries within one week after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of 25 ± 5 and relative humidity of 45~85%.

5.2.2 Standard Charge\Discharge

a..Standard Charge : Test procedure and its criteria are referred as follows: $0.2C_5A = 80mA$

Charging shall consist of charging at a $0.2C_5A$ constant current rate until the cell reaches 3.65V. The cell shall then be charged at constant voltage of 3.65 volts while tapering the charge current. Charging shall be terminated when the charging current has tapered to $0.01C_5A$. Charge time : Approx 8.0h.

b. Standard Discharge

$0.2C_5A = 80mA$

Cells shall be discharged at a constant current of $0.2 C_5A$ to 2.0 volts @ 25 ± 5 °C



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5.3 Initial Performance Test

No	Item	Test	Standard
1	Open-Circuit Voltage	The open-circuit voltage shall be measured within 24 hours after standard charge.	≥ 3.2 V
2	AC Impedance Resistance	The Impedance shall be measured in an alternating current method (1kHz LCR meter) after standard charge at 20 ± 5 .	≤ 150 m Ω
3	Nominal Capacity	The capacity on $0.2C_5A$ discharge at end voltage 2.0V shall be measured after standard charge.	400mAh
4	Cycle Life ($0.2 C_5A$)	Carry out 1000cycle charging/Discharging in the below condition. <ul style="list-style-type: none"> • $0.2C C_5A$, Charge: Standard Charge $0.2C_5A=80$mAh • $0.2C C_5A$, Discharge: $0.2 C_5A$ to 2.0V • Rest Time between charge/discharge: 30min. • Temperature: $20 \pm 5^\circ C$ 	Higher than 70% of the Initial Capacities of the Cells after 1000 cycle test.
5	Self-Discharge	Store the cells for 28 days according to the per 5.2.1 condition and with $0.2 C_5A$ discharge at the end voltage 2.0V	90%. Higher than 90% discharge capacity of the Initial Capacities of the Cells

5.4 No Safety use Test

1	Short Circuit	Each test sample battery, in turn, is to be short-circuited by connecting the (+) and (-) terminals of the battery with a $Cu (< 50m \Omega)$ wire for 1 day. Tests are to be conducted at room temperature ($20 \pm 2^\circ C$).	No Fire, No Blast The Temperature of the surface $\leq 150^\circ C$
2	Over-Discharge	Discharge at a current of 1CmA for 2.5h	No Fire, No Blast
3	Over-Charge	o continue charge with $3 C_5A$ until to 10V and Keep 12V charging for 1 hour after standard charge	No Fire, No Blast Surface Tem $\leq 150^\circ C$



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5.5 Ruinous machine test

No.	Item	test	Standard
1	Vibrate	Keep the vibrate with 10~55hz,seing 2mm for 90minute	No leak,No Blast,No Fire Open-Circuit Voltage change \leq 0.02V
2	Impact	A 56mm diameter bar is inlayed into the bottom of a 10kg weight. And the weight is to be dropped from a height of 1m onto a sample battery and then the bar will be across the center of the sample.	No Blast, No Fire.
3	Crush	30min. Crush between two flat plates. Applied force is about 13kN(1.72Mpa) for 30min.	No Blast, No Fire.

5.6 Environment test

No.	Item	test condition	Standard
1	High temperature	Store cells for 7days with 60 °C after full voltage and then discharge 0.2C to end voltage 2.0V in 20+/-0.5 °C	Resume capacity more than 90%
2	Falling off	Drop from 1m high to floor 6 times and every time 2aspect after full voltage.	No Leak,No Blast,No Fire.

5.7 Check appearance

There shall be no such defect as flaw, crack, rust, leakage, which may adversely affect commercial value of battery.



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6. CAUTIONS IN USE

To ensure proper use of the battery please read the manual carefully before using it.

Handling

- Do not expose to, dispose of the battery in fire.
- Do not put the battery in a charger or equipment with wrong terminals connected.
- Avoid shorting the battery
- Avoid excessive physical shock or vibration

- Do not disassemble or deform the battery.
- Do not immerse in water.

- Do not use the battery mixed with other different make, type, or model batteries.
- Keep out of the reach of children

贮存 storage

- Store the battery in a cool, dry and well-ventilated area.

Period of Warranty

The period of warranty is 3 months from the date of shipment. Guarantee to give a replacement in case of cells with defects proven due to manufacturing process instead of the customers abuse and misuse.

disposal

- Regulations vary for different countries.
- Dispose of in accordance with local regulations.

7、 Remark:

Any other items which are not covered in this specification shall be agreed by both parties.



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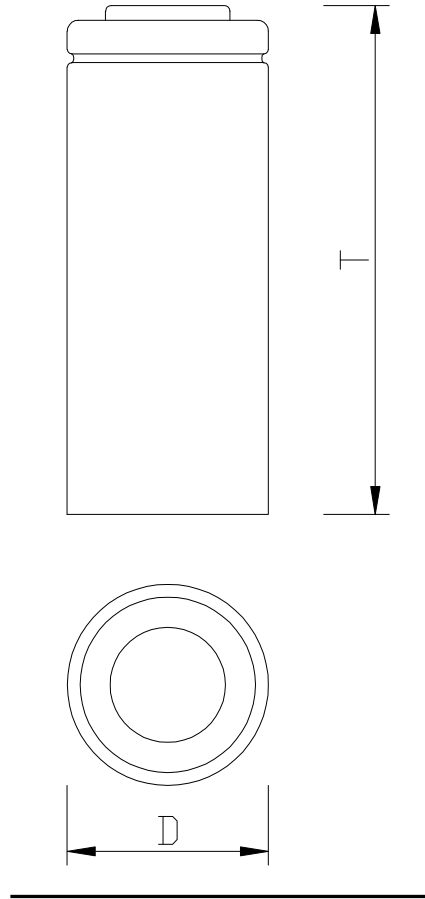
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8. Initial Dimension:



D	Max:14.0± 0.2mm	H	Max: 43.0± 0.6mm	Units	mm
<u>Drawer</u>	<u>Checked</u>	<u>Approved</u>	<u>Date</u>		
			IFR14430-400 DRAWING		
<u>Drawing ID</u>					



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