

**Lithium Polymer Battery Pack
Specification**

Model: PCLP115577

ZEUS CONFIDENTIAL

191 Covington Drive, Bloomingdale, IL 60108
Phone: 630-295-6800 Fax: 630-295-6801
Toll Free: 877-469-4255

Amendment History

Rev	Description	Date	Name
Pre	Initial release	11-29-16	Kevin Oh
Pre 1.1	Modified to battery pack specification	12-20-16	Kevin Oh

Customer Approval

Company/Customer Name	Department	Date	Signature

- **For Air Shipments:** A 30% state of charge (SOC) limit on secondary lithium-ion cells and batteries, including Section II cells and batteries, will now apply. This does not apply to batteries packed with or contained in equipment (Effective April1, 2016).
- Lithium cells/battery packs must be charged within 45 days of receipt to avoid over discharge.
- Shipping lithium materials must be done through a licensed shipper with appropriate packaging & labeling to meet current regulations.

These amendments are detailed in a lithium battery update document found on the International Air Transport Association (IATA) website: <http://www.iata.org/whatwedo/cargo/dgr/Documents/lithium-battery-update.pdf>.

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1. Scope

This product specification applies to rechargeable Lithium Polymer battery supplied by Zeus Battery Products.

2. Description and Model

Model: PCLP115577

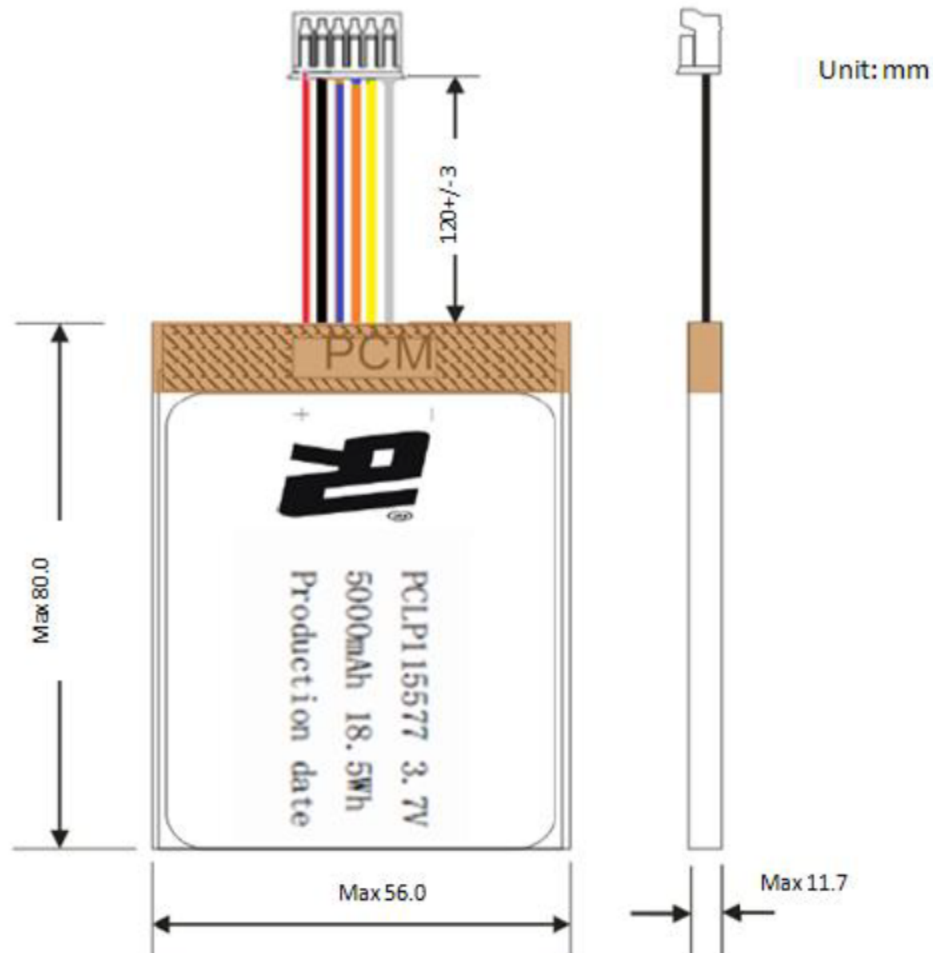
Description: 3.7V 5000mAh

3. Nominal Specifications

No.	Item	Specification	Remark
1	Nominal Capacity	5000mAh	@ 0.2C discharge, room temperature
2	Nominal Voltage	3.7V	
3	Charge Voltage	4.20V	
4	Standard Charge current	1.0A	0.2C
5	Max. continuous charge current	1.3A	Based TE connector specified by customer
6	Max. continuous discharge current	1.5A	
7	Discharge cut-off Voltage	3.0V	
8	Internal Impedance	TBD	
9	Operating temperature	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C	
10	Storage temperature	1 yr: -10 ~ 25°C 6 months: -10 ~ 45°C 1 month: -10 ~ 55°C	At SOC 50%
11	Cycle Life	≥300 cycles	@ 0.2C discharge, room temperature
12	Weight	TBD	

*Note on Air transport: Lithium ion cells and batteries must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity

3. Battery Pack Dimension



3.1 Protection Parameters (TBD)

4. Standard Test Conditions

4.1 Environmental Conditions

Unless otherwise specified, all tests stated in this specification are conducted at $25\pm 5^{\circ}\text{C}$ and $60\pm 20\%$ humidity.

4.2 Measuring Equipment

- 1) Ammeter and Voltmeter

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Standard class specified in the national standard or more sensitive class

2) Slide caliper

The slide caliper should have 0.01mm accuracy.

3) Impedance meter

An impedance meter with 1kHz AC should be used.

5. Environmental Tests

No	Items	Test Method and Condition	Criteria
1	Free fall test	The battery is to be fully charged in accordance with standard charge condition, then drop the battery three times from a height of 1,0 m onto a concrete floor. The batteries are dropped so as to obtain impacts in random orientations.	No Fire,
2	Vibration test	After standard, install battery on the vibration table; adjust the equipment according to the following vibration and amplitude frequency. From X,Y,Z three directions in 10Hz~55Hz sweep vibration to sweep for 30mins with the sweep frequency speed rate at 1oct/min: Vibration frequency: 10Hz~30 Hz(single amplitude) Displacement amplitude(single): 0.38mm; Amplitude frequency: 30Hz~55 Hz(single amplitude) Displacement amplitude (single): 0.19mm	No explosion, No leakage, No fire
3	Shock Test	Affix the battery through the fixture from the three perpendicular X,Y,Z axes respectively to the vibration table, then following the requests below to adjust the acceleration, pulse duration time for crash test: Pulse peak acceleration: 100m/s ² , Collision frequency per min: 40~80 Pulse duration time: 16mins collision Frequency: 1000±10	No explosion, No fire
4	Shock test	The fully charged battery is to be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of the cell or battery. The battery is subjected to a total of three shocks of equal magnitude. The shocks are applied in each of three mutually perpendicular directions. At least one of them shall be perpendicular to a flat face. For each shock the cell or battery is accelerated in such a manner that during the initial 3 milliseconds the minimum average acceleration is 75gn. The peak acceleration shall be between 125gn and 175gn. Cells or batteries are tested in an ambient temperature of 20~25°C	No explosion, No leakage, No fire

6. Battery Handling Precautions

- ◆ Don't immerse battery in water or allow it to get wet!
- ◆ Don't charge, use and store battery near a heat source such as fire or a heater! If the battery leaks or releases strange odor, please remove from heat source immediately.
- ◆ Don't reverse the positive and negative polarity!
- ◆ Always recharge before first time use!
- ◆ Don't short-circuit battery with wire or other metal objects!
- ◆ Don't disassemble the battery in any way!
- ◆ Don't put the battery into microwave oven or pressure vessel!
- ◆ Don't use battery in a very hot environment, such as under direct sunlight or in car on hot day. The battery can overheat which will affect battery performance and shorten battery life!
- ◆ If the battery leaks and electrolyte leakage enters into the eyes, don't rub, rinse with water immediately and seek immediate medical assistance.
- ◆ Ambient temperature will affect the discharge capacity of battery, if the ambient temperature is beyond the standard environment ($23\pm 2^{\circ}\text{C}$), the discharge capacity will be changed.

7. Warranty

Products supplied by Zeus Battery Products contain 12 months warranty against manufacturing defects. Any damage resulting either from user misuse or abuse will void the warranty.

Note: This product specification is subject to change without prior notice.