

**August 25, 2015**

**Z100<sup>®</sup>**

**FairfieldNodal Lithium Ion Battery Pack Testing – 221.8167.0001**

**UN Manual of Tests and Criteria, Part III, Subsection 38.3  
Intertek Testing Services NA, Inc., May 8, 2015, their reference 102015328DET-001.**

**Test Report for:**

**FAIRFIELD NODAL**

**Attn: Mr. Jason Kuntz**

**UN 38.3 BATTERY TESTING  
Model Number: Z100 (12V / 6Ah)  
Lithium Ion Battery Packs**

**Client PO No.: PNY976**



Kirk Palmer	Nick Diamond
Project Engineer	Sr. Associate Engineer
May 8, 2015	
Report No.: 102015328DET-001	Page 1 of 34



## TEST VERIFICATION OF CONFORMANCE

**TEST METHOD:** UN Manual of Tests and Criteria "Recommendations on the Transport of Dangerous Goods," section 38.3 "Lithium Batteries"

Document number ST/SG/AC.10/11/Rev.5, Amend 1  
Revision #: 5<sup>th</sup> Edition, Amendment 1  
Effective Date: April 2012

**SAMPLE DESCRIPTION:** Sixteen (16) Z100 (12V-6Ah) Lithium Ion Battery Packs

**MANUFACTURER:** Fairfield Nodal

**SPECIFICATION SECTIONS T1 through T5:**

Eight (8) Z100 (12V-6Ah) Lithium Ion Battery Packs, sample numbers:

50 Cycle

- SN 1
- SN 2
- SN 3
- SN 4

1 cycle

- SN 5
- SN 6
- SN 7
- SN 8

**SPECIFICATION SECTION T7:**

Eight (8) Z100 (12V-6Ah) Lithium Ion Battery Packs, sample numbers:

50 Cycle

- SN 9
- SN 10
- SN 11
- SN 12

1 cycle

- SN 13
- SN 14
- SN 15
- SN 16



Condition of Test Sample: Production.

**DATE RECEIVED:** 03/04/2015

**DATES TESTED:** 03/6/2015 through 05/08/2015

**RESULT SUMMARY:** The tested samples met the test requirements. See below breakout for tests performed.

Specification Section	Test Description	Results
T1	Altitude Simulation	Conforms
T2	Thermal Test	Conforms
T3	Vibration	Conforms
T4	Shock	Conforms
T5	External Short Circuit	Conforms
T7	Over-Charge	Conforms

	
Kirk Palmer Project Engineer	Nick Diamond Sr. Associate Engineer
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August 19, 2015

**Z100<sup>®</sup> UN 38.3 Battery Pack Testing**

Testing required under UN Manual of Tests and Criteria, Part III, Subsection 38.3 was successfully completed on the FairfieldNodal lithium ion battery pack part number **221.8167.0001** by **Intertek Testing Services NA, Inc.** on **May 8, 2015**, their reference **102015328DET-001**.

I confirm there are no other FairfieldNodal lithium ion battery pack part numbers for this product as of this date.

This battery pack is used in the following;  
*Z100<sup>®</sup> Node; 221.8072.0001*

I do hereby certify these facts to be true and correct to the best of my knowledge.

FAIRFIELDNODAL

Phil Richards



Date 8/26/2015

Land Product Development Manager

Validated

William Guyton



Date 8/27/15

Manager of Engineering

38.3.2.2 Lithium metal and lithium ion cells and batteries shall be subjected to the tests, as required by special provisions 188 and 230 of Chapter 3.3 of the Model Regulations prior to the transport of a particular cell or battery type. Cells or batteries which differ from a tested type by:

- (a) For primary cells and batteries, a change of more than 0.1 g or 20% by mass, whichever is greater, to the cathode, to the anode, or to the electrolyte;
- (b) For rechargeable cells and batteries, a change in nominal energy in Watt-hours of more than 20% or an increase in nominal voltage of more than 20%; or
- (c) A change that would lead to failure of any of the tests, shall be considered a new type and shall be subjected to the required tests.

**NOTE:** The type of change that might be considered to differ from a tested type, such that it might lead to failure of any of the test results, may include, but is not limited to:

- (a) A change in the material of the anode, the cathode, the separator or the electrolyte;
- (b) A change of protective devices, including hardware and software;
- (c) A change of safety design in cells or batteries, such as a venting valve;
- (d) A change in the number of component cells; and
- (e) A change in connecting mode of component cells.

In the event that a cell or battery type does not meet one or more of the test requirements, steps shall be taken to correct the deficiency or deficiencies that caused the failure before such cell or battery type is retested.