

August 25, 2015

ZLand[®] GEN2 (3C)

FairfieldNodal Lithium Ion Battery Pack Testing – 221.7895.0002

**UN Manual of Tests and Criteria, Part III, Subsection 38.3
Intertek Testing Services NA, Inc., October 6, 2014, their reference 101740523DET-001.**



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Test Report for:

Fairfield Nodal
Attn: Mr. Jason Kuntz

UN 38.3 BATTERY TESTING
GEN2 NODE
Lithium Battery Packs

Client PO No.: PN7566

Scott Souter
Associate Engineer

Nick Diamond
Sr. Associate Engineer

October 6, 2014
Report No.: 101740523DET-001

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TEST VERIFICATION OF CONFORMITY

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 #: 5th Edition, Amendment 1
Effective Date: April 2012

SAMPLE DESCRIPTION: Eight (8) GEN2 NODE Lithium Battery Packs

MANUFACTURER: Fairfield Nodal

SPECIFICATION SECTIONS T1 through T5 and T7:

Eight (8) GEN2 NODE Lithium Battery Packs, sample numbers:

- SN 1
- SN 2
- SN 3
- SN 4
- SN 5
- SN 6
- SN 7
- SN 8

Condition of Test Sample: Production

DATE RECEIVED: 07/23/2014

DATES TESTED: 07/29/2014 through 10/03/2014

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	Overcharge	Conforms



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August 19, 2015

ZLand® GEN2 (3-C) 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 **221.7895.0002** by **Intertek Testing Services NA, Inc.** on **October 6, 2014**, their reference **101740523DET-001**. Testing under this reference number was done on the battery pack contained in the unit case.

I confirm FairfieldNodal lithium ion battery pack part number; **221.7895.0012** is the same design, manufacturing process and does not differ from the tested type outlined in 38.3.2.2 shown below.

This battery pack is used in the following ZLand Nodes;
ZLand GEN2 Nodes (3-C); 221.7900.0001, 221.8400.0001

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

FAIRFIELDNODAL

John Downey

Manager, Advanced Development Group

Date 8/22/15

Validated

William Guyton

Manager of Engineering

Date 8/28/15

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.