fairfieldnodal
SYSTEMS ACQUISITION LICENSING PROCESSING IMAGING

February 9, 2016

ZLand® GEN2 (3C)

FairfieldNodal Lithium Ion Battery Pack only Testing – 221.7895.0002

UN Manual of Tests and Criteria, Part III, Subsection 38.3
Intertek Testing Services NA, Inc., December 28, 2015, their reference 102277162DET-001.

45000 Helm Street
Suite 150
Plymouth Twp., MI 48170

Telephone: 734-582-2900
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Test Report for:

FAIRFIELD NODAL
Attn: Mr. Jason Kuntz

UN 38.3 BATTERY TESTING
Model Number: ZLand Gen2 3C (17.4V / 12Ah)
Lithium Ion Battery Packs

Client PO No.: PNW616-00

Kirk Palmer	Nick Diamond
Project Engineer	Sr. Associate Engineer
December 28, 2015	
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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 2
Revision #: 5th Edition, Amendment 2
Effective Date: 2013

SAMPLE DESCRIPTION: Sixteen (16) Rechargeable Lithium Ion Battery Packs

MANUFACTURER: Fairfield Nodal

MODEL NUMBER: ZLand Gen2 3C (17.4V-12Ah)

SPECIFICATION SECTIONS T1 through T5:
Eight (8) ZLand Gen2 3C (17.4V-12Ah) Lithium Ion Battery Packs, sample numbers:

50 Cycles
- SN 1
- SN 2
- SN 3
- SN 4

1 Cycle
- SN 5
- SN 6
- SN 7
- SN 8

SPECIFICATION SECTION T7:
Eight (8) ZLand Gen2 3C (17.4V-12Ah) Lithium Ion Battery Packs, sample numbers:

50 Cycles
- 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: 11/20/2015
DATES TESTED: 12/01/2015 through 12/24/2015

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	Overcharge	Conforms

Kirk Palmer	Nick Diamond
Project Engineer	Sr. Associate Engineer
December 28, 2015	
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SYSTEMS ACQUISITION LICENSING PROCESSING IMAGING

March 9, 2016

ZLand® GEN2 (3-C) UN 38.3 Battery Pack Testing – Uncased Battery Pack

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 December 28, 2015, their reference **102277162DET-001**. Testing under this reference number was done on the battery pack alone, not 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.

These battery packs are used in the following ZLand Nodes:

ZLand Gen2 Node (3-C)	Battery Pack
221.7900.0001	221.7895.0002
221.8400.0001	221.7895.0012

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

FAIRFIELDNODAL

John Downey

Date 3/9/16

Manager, Advanced Development Group

Validated

William Guyton

Date 3/9/16

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;