



## **DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING**

**Montréal, 1 to 5 October 2018**

- Agenda Item 3: Managing safety risks posed by the carriage of lithium batteries by air**  
**3.5: Consider the need for specific measures to mitigate safety risks posed by lithium batteries packed with or contained in equipment**

### **LITHIUM BATTERY TEST SUMMARY: QUESTIONS, ANSWERS, AND EXAMPLES**

(Presented by G. Kerchner)

#### **SUMMARY**

This information paper includes a guidance document on complying with new requirements for manufacturers and subsequent distributors of lithium cells or batteries to make available the test summary specified in the UN *Manual of Tests and Criteria* from 1 January 2020. The document was developed by PRBA — The Rechargeable Battery Association, RECHARGE the Advanced Rechargeable & Lithium Batteries Association, and the Medical Device Battery Transport Council.





The Advanced Rechargeable & Lithium Batteries Association

## **Lithium Battery Test Summary: Questions, Answers, and Examples**

Beginning January 1, 2020, the UN Model Regulations, IMDG Code, ICAO Technical Instructions, IATA Dangerous Goods Regulations and other related national and international dangerous goods regulations will require manufacturers and distributors of lithium cells and batteries and equipment powered by cells and batteries make available a “Test Summary” as specified in the UN Manual of Tests and Criteria, [Sixth Revised Edition, Amend 1](#), Part III, sub-section 38.3, paragraph 38.3.5.

PRBA – The Rechargeable Battery Association, RECHARGE the Advanced Rechargeable & Lithium Batteries Association, and the Medical Device Battery Transport Council have prepared this document to provide information on the Test Summary and answer frequently asked questions regarding this new regulatory requirement. The information in this document also was filed with the UN Sub-Committee of Experts on the Transport of Dangerous Goods in June 2018. The official document is available on the UN Sub-Committee’s [website](#).

We expect this document to be updated on a regular basis as companies prepare for the January 1, 2020 compliance deadline and dangerous goods transport authorities develop regulations to enforce this new requirement. For more information, contact PRBA at 202.719.4978 or [prbatt@gmail.com](mailto:prbatt@gmail.com).

## **Questions and Answers Related to Lithium Battery Test Summary**

**1. Does the test summary apply to products and cells or batteries contained within products/parts or just standalone cells or batteries?**

The test summary applies to the cells and batteries themselves which ship as standalone cells or batteries and subsequently to the cells and batteries contained in equipment at such time when the cell or battery is added to a product.

**2. Can multiple batteries/manufacturers/products be listed on one report?**

Yes, it is acceptable to have a single document that addresses multiple batteries/manufacturers/products, provided all required information is stated. For example, a tablet manufacturer may purchase lithium ion batteries from three different battery manufacturers. The test summary for the product will therefore list batteries and all related information (*e.g.*, Watt-hours, test labs) from the three battery manufacturers without naming the manufacturer due to confidentiality issues.

**3. Is it acceptable to list the various test houses, tests and range of revisions tested to for the UN 38.3 revision and amendments?**

Yes, it is acceptable to have multiple test houses and their addresses, email information, etc. listed provided all required information is stated. The test house is not required to be aligned to a specific battery or product on the test summary when the test summary covers multiple batteries/products. It is required to have the test report number and date of test for each cell/battery/product listed on the test summary.

**4. What is meant by physical description of cell or battery?**

A physical description is intended to provide a check for the person requesting the test summary to know that it applies to the cell/battery/product covered by the test summary. *i.e.* if a cellular phone is the product being shipped, the invoice description or marketing name of the product as the physical description could be used on the test summary.

**5. What does availability of report mean: “When requested?”**

Any individual or entity in the supply chain may request the test summary *i.e.* regulator, consumer, or transport provider.

**6. Can the test summary provider require a requestor to obtain the document from a website?**

Yes, it is acceptable for the provider to require the requestor to obtain a document electronically from a provider's website. The provider must ensure that the cell/battery/product has appropriate identifiers to align to the test summary.

- 7. If a manufacturer considers their suppliers, test house and battery data confidential and competitive information, how would test summary compliance be achieved?**

All 10 data elements and listed subsets of information is required to be on the test summary. As indicated above, the test house information may be listed to cover a range of products.

- 8. Is there a mandated format for the test summary that manufacturers and distributors must follow?**

No. Manufacturers and distributors may compile the information required in the test summary using any format.

- 9. If a test summary is requested by a dangerous goods enforcement agency, how quickly must the test summary be made available? For example, would a manufacturer be expected to immediately produce a test summary or provide it within a certain amount of time (e.g., 72 hours)**

Due to the large volume of lithium batteries and lithium battery powered products that are shipped daily, manufacturers and distributors should not be expected to immediately provide a test summary for every product they ship. Manufacturers and distributors should be provided a reasonable amount of time to provide the required test summary.

- 10. Would manufacturers and distributors of battery powered vehicles (UN3171) and hybrid vehicles containing a lithium battery (UN3166) be expected to provide a test summary?**

Yes. The test summary requirement applies to manufacturers and distributors of lithium battery powered vehicles and other vehicles containing lithium batteries.

## Example 1 of Lithium ion Battery Test Summary

### LITHIUM CELLS OR BATTERIES TEST SUMMARY IN ACCORDANCE WITH SUB-SECTION 38.3 OF UN MANUAL OF TESTS AND CRITERIA

Revision Date: March 27, 2017      Revision Number: 001

Product Manufacturer: Beta Bell Phone Company  
123 Beta Bell Lane  
Bellweather, Arizona 99999

Telephone: 800-999-4545  
Email: [betabell@gmail.com](mailto:betabell@gmail.com)  
Web: [www.betabell.com](http://www.betabell.com)

Beta Bell's product lithium ion cells and batteries have been successfully tested and comply with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3.

PERFORMED TESTS		RESULTS	
38.3.4.1	T1	Altitude Simulation	Pass
38.3.4.2	T2	Thermal Test	Pass
38.3.4.3	T3	Vibration	Pass
38.3.4.4	T4	Shock	Pass
38.3.4.5	T5	External Short Circuit	Pass
38.3.4.6	T6	Impact / Crush	Pass
38.3.4.7	T7	Overcharge	Pass
38.3.4.8	T8	Forced Discharge	Pass

The UN38.3 tests were performed by one of the following test houses and were tested to UN Manual Test and Criteria Revision 3 Amendment 1 or subsequent revisions or amendments.

Test House A 123 Alpha Street Shanghai China E: <a href="mailto:testhousea@gmail.com">testhousea@gmail.com</a> T: 086-0310-04566 U: <a href="http://www.testhousea.com">www.testhousea.com</a>	Test House C 123 Chi Street Shanghai China E: <a href="mailto:testhouseC@gmail.com">testhouseC@gmail.com</a> T: 086-0310-04588 U: <a href="http://www.testhousec.com">www.testhousec.com</a>
Test House B 123 Beta Street Shanghai China E: <a href="mailto:testhouseb@gmail.com">testhouseb@gmail.com</a> T: 086-0310-04577 U: <a href="http://www.testhouseb.com">www.testhouseb.com</a>	Test House D 123 Delta Street Shanghai China E: <a href="mailto:testhoused@gmail.com">testhoused@gmail.com</a> T: 086-0310-04599 U: <a href="http://www.testhoused.com">www.testhoused.com</a>

**LITHIUM CELLS OR BATTERIES TEST SUMMARY  
IN ACCORDANCE WITH SUB-SECTION 38.3  
OF UN MANUAL OF TESTS AND CRITERIA**

**Product Test Information**

Model numbers	Physical Description	Battery weight (kg) Mass	Wh rating	Test report number	Test report date
BB12389	Li ion polymer Cell phone Alpha A	0.035	6.25	RTS123, NMD456PO98 N4569-2 BN890A	03.02.2010 03.07.2010 03.10.2010 03.15.2010
BB12450	Li ion polymer Cell Phone Beta B	0.090	6.76	TYh765-KL-09 567-908HGT	08.09.2012 09.01.2012
BB67896	Li ion polymer Cell phone Chi C	0.026	5.25	89065RT-90 NHI-kl09	07.07.2010 07.04.2010
etc					

**Signature** \_\_\_\_\_  
**Name, Title**

## Example 2 of Lithium ion Battery Test Summary

<b>UN38.3 Lithium Battery Test Summary for GreenTech Tablet Model No. T54321</b>	
<b>1</b>	<b>Battery Manufacturer</b> <i>Confidential and Proprietary GreenTech Information</i>
<b>2</b>	<b>Product Manufacturer</b> GreenTech 123 Main Street Annapolis, MD 21012 888.111.2345 contact@greentech.com; www1.greentech.com
<b>3</b>	<b>UN38.3 Test Lab</b> Bob's Battery Test Lab 1600 Pennsylvania Avenue Smithfield, VA 12345 Phone: 211.789.2345 bob@testlab.org; www.testlab.org
<b>4</b>	<b>Test Report Number</b> Liion621345
<b>5</b>	<b>Date of Test Report</b> April 1, 2017
<b>6</b>	<b>Description of Cell or Battery</b> 7.4 V, 1800 mAh, 13.32 Wh Li ion battery, Model No. P1789 Small, rectangular plastic case, 100 grams
<b>7</b>	<b>UN38.3 Tests Performed and Successfully Passed</b> T.1, T.2, T.3, T.4, T.5, and T.7. (Note that T.6 and T.8 are not applicable to batteries.)
<b>8</b>	<b>Assembled Battery Testing Requirements</b> Not Applicable
<b>9</b>	<b>Edition of UN Manual of Tests and Criteria Used</b> Sixth Revised Edition
<b>10</b>	<b>Name and Title of Signatory</b>  <i>Jason Alexander</i>  Jason Alexander GreenTech Staff Engineer

## Example 3 of Lithium ion Cell Test Summary

LITHIUM CELLS OR BATTERIES TEST SUMMARY IN ACCORDANCE WITH SUB-SECTION 38.3 OF MANUAL OF TESTS AND CRITERIA		
<b>BATTERY TRANSPORTATION INFORMATION</b>		
Name of cell, battery or product manufacturer, as applicable: Item Number : 4A23123 Item Name : Battery Alpha Prime Item Description : Lithium Metal Battery (Primary)	Cell, battery or product manufacturer's contact information to include address, phone number, email address and website for more information: Manufacturer XYZ 3480 Lithium cells Rd Lithiumionville, CA 98765 United States (+1-987) 987-6543 email@xyz.com	
Name of the test laboratory to include address, phone number, email address and website for more information: Test Lab A 1919 Alpha St Testcity, IA 55555 USA (+1-333) 555-1122 email@testlab.com	A unique test report identification number: ABC12345	Date of the test report: 03-Apr-2013
Description of cell or battery to include at a minimum: Lithium ion or Lithium metal cell or battery; Mass; Watt-hour rating, or lithium content; Physical description of the cell/battery; and Model numbers:  Battery used in consumer power tools  Cell/battery Type : Lithium metal Cell or Battery : Cell LC or W/h rating : LC (g): >0.3 <= 1 Cell or Battery Weight : 12.00 Grams	List of tests conducted and results (i.e., pass/fail):  Test T.1: Altitude Simulation : Pass Test T.2: Thermal Test : Pass Test T.3: Vibration : Pass Test T.4: Shock : Pass Test T.5: External short circuit : Pass Test T.6: Impact/Crush : Pass Test T.7: Overcharge : Not applicable Test T.8: Forced discharge : Pass  Testing additional comments:	
Reference to assembled battery testing requirements, if applicable (i.e., 38.3.3(f) and 38.3.3(g)): Not applicable	Reference to the revised edition of the Manual of Tests and Criteria used and to amendments thereto, if any: Revision 5	For air transport only: Does the cell or battery comply with the 30% State of Charge? Not Applicable
PRODUCT CLASSIFICATION FOR TRANSPORT (According to UN - DGP)		
UN Classification: <b>UN 3090</b>	Proper Shipping Name: <b>Lithium metal batteries</b>	
Signature with name and title of signatory as an indication of the validity of information provided: Wayne Purple Testing Manager	This document remains valid as long as no changes, modifications, or additions are made to the model(s) described in this document, after being transported from a Manufacturer XYZ facility. The model(s) has (have) been classified according to the applicable transport regulations and the UN Manual of Tests and Criteria as of the date of the certification. The model(s) must be packaged, labeled, and documented according to country and other international regulations for transportation.	
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