

## UN38.3 Lithium Battery Test Summary

<b>(a) Name of product</b> BLE Asset Tracker	<b>(b) Product manufacturer's contact information</b> TEKTELIC Communications Inc. 7657 10 <sup>th</sup> St. NE, Calgary, AB Canada, T2E 8X2 1.403.338.6900 <a href="mailto:info@tektelic.com">info@tektelic.com</a> <a href="http://www.tektelic.com">www.tektelic.com</a>
<b>(c) Name of the test laboratory</b> Refer to attached Battery Test Summary	
<b>(d) Unique test report identification number</b> Refer to attached Battery Test Summary	
<b>(e) Date of test report</b> Refer to attached Battery Test Summary	<b>(f) Description of cell or battery</b> Saft model LS14500 Tadiran model SL-360/S Tadiran model TL-4903/S Tadiran model TL-5903/S XENO model XL-060F STD Refer to attached Battery Test Summary
<b>(g) List of tests conducted</b> Refer to attached Battery Test Summary	<b>(h) Reference to assembled battery testing requirements</b> Refer to attached Battery Test Summary
<b>(i) Reference edition of the Manual of Tests and Criteria</b> Refer to attached Battery Test Summary	<b>(j) Signature with name and title of signatory</b> Refer to attached Battery Test Summary
<b>Identification number of this document</b> T0005946_TS	<b>Date of release for this document</b> Dec. 11, 2019

# UN 38.3 Test Summary Report

Lithium Cell or Battery Test Summary in Accordance with Section 2.9.4 UN Model Regulations and Sub-section 38.3 of the UN Manual of Tests and Criteria, Part III, subsection 38.3.5

[a]  Cell  Battery  Product  
 **Tested Type Part** 06417B  
 **Same Type Part # see list**

[d] Unique report ID: LS14500 -05-2018-2

[e] Report date: 2018.05.29

[b] **Manufacturer**  
 Saft Civil Electronics Division  
 Saft SAS  
 Rue Georges Leclanché, BP1039  
 86000 Poitiers  
 T. +33 (0) 5. 49 55 48.48  
 Lithiumsales.fr@saftbatteries.com  
 https://www.saftbatteries.com

[c] **Test Laboratory**  
 Saft Civil Electronics Division  
 Saft SAS  
 Rue Georges Leclanché, BP1039  
 86000 Poitiers  
 T. +33 (0) 5. 49 55 48.48  
 Lithiumsales.fr@saftbatteries.com  
 https://www.saftbatteries.com

**Same Type Part Numbers # (all):** All LS14500 cell versions that just vary by their termination mode or labelling

[f] (i)  Li-ion  Li-metal.

(iv) **Description:** Primary AA sized single cell

(ii) Mass: 16.6 g

(iii)  Watt hour rating or  Lithium content: 0.7 g.

(v)  Cell  Battery  Product. Model number/Part number: LS14500

[g] List of Tests Conducted	Result (Pass / Fail / N.A.)	Test record reference
38.3.4.1 T.1: Altitude simulation	Pass	T0008-18
38.3.4.2 T.2: Thermal test	Pass	T0008-18
38.3.4.3 T.3: Vibration	Pass	T0008-18
38.3.4.4 T.4: Shock	Pass	T0008-18
38.3.4.5 T.5: External short circuit	Pass	T0008-18
38.3.4.6 T.6: Impact/Crush (cell only test)	Pass	T0008-18
38.3.4.7 T.7: Overcharge (N.A for Li-metal only)	NA	NA
38.3.4.8 T.8: Forced discharge (cell only test)	Pass	T0008-18

[h] Battery assembly:  Not Applicable.  UN38.3.3 (f)  UN38.3.3 (g)

[i] Test Reference: UN Manual of Tests and Criteria, Part III, sub-section 38.3. Revision 6th

[j] Signatory A. Date: 2018.05.29

Name: Pascal Foucoïn

Title: Quality Mgr – C.E. Div- Poitiers site

Signature:




[j] Signatory B. Date: 2018.05.29

Name: Catherine Lepiller

Title: Primary cell Technical Manager

Signature:



**Important!** The above signatory / signatories affirm that this document is a true and correct summary of the original individual tests and test data. The original test data is confidential information available to competent State Authorities with valid identification and only upon their formal request. Disclosure of the original test data to any other entity upon its request will be considered by Saft and, should Saft consider this request is with merit, may be subject to the prior execution of a nondisclosure agreement.

# UN 38.3 Test Summary Report

Lithium Cell or Battery Test Summary in Accordance with Section 2.9.4 UN Model Regulations and Sub-section 38.3 of the UN Manual of Tests and Criteria, Part III, subsection 38.3.5

[a]  Cell  Battery  Product  
 **Tested Type Part #:** SL-360  
 **Same Type Part #:**

[b] **Manufacturer**  
Tadiran Batteries GmbH  
Industriestrasse 22  
63654 Buedingen  
Germany  
T. +49 6042 954 0  
[info@tadiranbatteries.de](mailto:info@tadiranbatteries.de)  
[www.tadiranbatteries.de](http://www.tadiranbatteries.de)

[d] Unique report ID: 15Q-605

[e] Report date: 2016.02.01

[c] **Test Laboratory**  
Tadiran Batteries Ltd.  
P.O. Box 1  
Kiryat Ekron  
Israel 70500  
T. +972 8 9 44 560  
[sales@tadiran-batt.com](mailto:sales@tadiran-batt.com)  
[www.tadiran.com](http://www.tadiran.com)

**Same Type Part Numbers # (all):** Standard: 11 1 03601 00, Tags: 11 1 03602 00, Pins: 11 1 03603 00, Pins radial: 11 1 03606 00, Polarised tags: 11 1 03608 00, all other configurations with harness and cable of this cell with part number: 11 1 0360x xx or 14 1 0360x xx.

[f] (i)  Li-ion  Li-metal.


(iv) **Description:** Primary (non-rechargeable) 3.7 V Lithium Thionyl Chloride (Li-SOCl<sub>2</sub>) battery, assembled from 1 (one) "AA" sized SL-360 cell. The SL-360 cell may come with optional suffixes consisting of a "f" followed by one or more letters and a digit. These suffixes indicate different types of finishing to the cell (for example, S-Standard, T-Tab, P-Pin, etc.).  
Tadiran manufactures all cells/batteries under a quality management system as required under this regulation.

(ii) Mass: 20 g  
(iii)  Watt hour rating or  Lithium content: 0.65 g  
(v)  Cell  Battery  Product. Model number/Part number: SL-360


[g] List of Tests Conducted	Result (Pass / Fail / N.A.)	Test record reference
38.3.4.1 T.1: Altitude simulation	Pass	Page 5
38.3.4.2 T.2: Thermal test	Pass	Page 6
38.3.4.3 T.3: Vibration	Pass	Page 7
38.3.4.4 T.4: Shock	Pass	Page 8
38.3.4.5 T.5: External short circuit	Pass	Page 9
38.3.4.6 T.6: Impact/Crush (cell only test)	Pass	Page 10
38.3.4.7 T.7: Overcharge (N.A for Li-metal only)	N.A.	N.A.
38.3.4.8 T.8: Forced discharge (cell only test)	Pass	Page 11

[h] Battery assembly:  Not Applicable.  UN38.3.3 (f)  UN38.3.3 (g)

[i] Test Reference: UN Manual of Tests and Criteria, Part III, sub-section 38.3. *Sixth revised edition*

[j] Signatory A. Date: 2018.02.12  
Name: Marc Henn  
Title: Application Engineering Manager  
Signature:  




[j] Signatory B. Date: 2018.02.12  
Name: Olaf G. Lichtlein  
Title: General Manager  
Signature:  


**Important!** The above signatory / signatories affirm that this document is a true and correct summary of the original individual tests and test data. The original test data is confidential information available to competent State Authorities with valid identification and only upon their formal request. Disclosure of the original test data to any other entity upon its request will be considered by Tadiran and, should Tadiran consider this request is with merit, may be subject to the prior execution of a nondisclosure agreement.

# UN 38.3 Test Summary Report

Lithium Cell or Battery Test Summary in Accordance with Section 2.9.4 UN Model Regulations and Sub-section 38.3 of the UN Manual of Tests and Criteria, Part III, subsection 38.3.5

[a]  Cell  Battery  Product  
 **Tested Type Part #:** TL-4903  
 **Same Type Part #:**

[b] **Manufacturer**  
Tadiran Batteries Ltd.  
44 Yitzhak Rabin Blvd,  
Kiryat Ekron,  
Israel 7695001  
T. +972 8 9 44 503  
[sales@tadiran-batt.com](mailto:sales@tadiran-batt.com)  
[www.tadiran.com](http://www.tadiran.com)

[d] Unique report ID: 15Q-606

[e] Report date: January 2013

[c] **Test Laboratory**  
Tadiran Batteries Ltd.  
44 Yitzhak Rabin Blvd,  
Kiryat Ekron,  
Israel 7695001  
T. +972 8 9 44 560  
[aya-d@tadiran-batt.com](mailto:aya-d@tadiran-batt.com)  
[www.tadiran.com](http://www.tadiran.com)

**Same Type Part Numbers # (all):** covers all the **TL-4903/xxx, TL-5104/xxx, SL-860/xxx, SL-360/xxx** part numbers with various contact terminations / harness.

[f] (i)  Li-ion  Li-metal.


(iv) **Description:** TL-4903 is a primary (non-rechargeable), 3.7V lithium metal battery and can be transported as a lithium metal battery under UN numbers 3090 and 3091. The battery may come with optional suffixes consisting of a "f" followed by one or more letters and a digit. These suffixes indicate different types of finishing to the battery, e.g., TL-4903/S, TL-4903/TP, TL-4903/PT, TL-4903/PT2, TL-4903/T, etc.  
Tadiran manufactures all cells/batteries under a quality management system as required under this regulation.

(ii) Mass: 21 g  
(iii)  Watt hour rating or  Lithium content: 0.66 g  
(v)  Cell  Battery  Product. Model number/Part number: TL-4903


[g] List of Tests Conducted	Result (Pass / Fail / N.A.)	Test record reference
38.3.4.1 T.1: Altitude simulation	Pass	15Q-606
38.3.4.2 T.2: Thermal test	Pass	15Q-606
38.3.4.3 T.3: Vibration	Pass	15Q-606
38.3.4.4 T.4: Shock	Pass	15Q-606
38.3.4.5 T.5: External short circuit	Pass	15Q-606
38.3.4.6 T.6: Impact/Crush (cell only test)	Pass	15Q-932
38.3.4.7 T.7: Overcharge (N.A for Li-metal only)	N.A.	N.A.
38.3.4.8 T.8: Forced discharge (cell only test)	Pass	15Q-606

[h] Battery assembly:  Not Applicable.  UN38.3.3 (f)  UN38.3.3 (g)

[i] Test Reference: UN Manual of Tests and Criteria, Part III, sub-section 38.3. *Fifth revised edition*

[j] Signatory A. Date: 2019.01.01  
Name: Aya Daniel  
Title: Quality Manager  
Signature:  




[j] Signatory B. Date: 2019.01.01  
Name: Kobi Pinsky  
Title: VP Marketing and Sales  
Signature:  


**Important!** The above signatory / signatories affirm that this document is a true and correct summary of the original individual tests and test data. The original test data is confidential information available to competent State Authorities with valid identification and only upon their formal request. Disclosure of the original test data to any other entity upon its request will be considered by Tadiran and, should Tadiran consider this request is with merit, may be subject to the prior execution of a nondisclosure agreement.

# UN 38.3 Test Summary Report

Lithium Cell or Battery Test Summary in Accordance with Section 2.9.4 UN Model Regulations and Sub-section 38.3 of the UN Manual of Tests and Criteria, Part III, subsection 38.3.5

[a]  Cell  Battery  Product  
 **Tested Type Part #:** TL-5903  
 **Same Type Part #:**

[b] **Manufacturer**  
Tadiran Batteries Ltd.  
44 Yitzhak Rabin Blvd,  
Kiryat Ekron,  
Israel 7695001  
T. +972 8 9 44 503  
[sales@tadiran-batt.com](mailto:sales@tadiran-batt.com)  
[www.tadiran.com](http://www.tadiran.com)

[d] Unique report ID: 15Q-605

[e] Report date: January 2013

[c] **Test Laboratory**  
Tadiran Batteries Ltd.  
44 Yitzhak Rabin Blvd,  
Kiryat Ekron,  
Israel 7695001  
T. +972 8 9 44 560  
[aya-d@tadiran-batt.com](mailto:aya-d@tadiran-batt.com)  
[www.tadiran.com](http://www.tadiran.com)

**Same Type Part Numbers # (all):** covers all the **TL-5903/xxx, TLL-5903/xxx, TL-2100/xxx, SL-760/xxx**, part numbers with various contact terminations / harness.

[f] (i)  Li-ion  Li-metal.


(iv) **Description:** TL-5903 is a primary (non-rechargeable), 3.7V lithium metal battery and can be transported as a lithium metal battery under UN numbers 3090 and 3091. The battery may come with optional suffixes consisting of a "f" followed by one or more letters and a digit. These suffixes indicate different types of finishing to the battery, e.g., TL-5903/S, TL-5903/TP, TL-5903/PT, TL-5903/PT2, TL-5903/T, etc.  
Tadiran manufactures all cells/batteries under a quality management system as required under this regulation.

(ii) Mass: 21 g  
(iii)  Watt hour rating or  Lithium content: 0.66 g  
(v)  Cell  Battery  Product. Model number/Part number: TL-5903


[g] List of Tests Conducted	Result (Pass / Fail / N.A.)	Test record reference
38.3.4.1 T.1: Altitude simulation	Pass	15Q-605
38.3.4.2 T.2: Thermal test	Pass	15Q-605
38.3.4.3 T.3: Vibration	Pass	15Q-605
38.3.4.4 T.4: Shock	Pass	15Q-605
38.3.4.5 T.5: External short circuit	Pass	15Q-605
38.3.4.6 T.6: Impact/Crush (cell only test)	Pass	15Q-935
38.3.4.7 T.7: Overcharge (N.A for Li-metal only)	N.A.	N.A.
38.3.4.8 T.8: Forced discharge (cell only test)	Pass	15Q-605

[h] Battery assembly:  Not Applicable.  UN38.3.3 (f)  UN38.3.3 (g)

[i] Test Reference: UN Manual of Tests and Criteria, Part III, sub-section 38.3. *Fifth revised edition*


[j] Signatory A. Date: 2019.01.01  
Name: Aya Daniel  
Title: Quality Manager  
Signature:  




[j] Signatory B. Date: 2019.01.01  
Name: Kobi Pinsky  
Title: VP Marketing and Sales  
Signature:  


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## UN 38.3 Test Summary Report

<p>[a] Name of cell, battery or product manufacturer, as applicable</p> <p>Item Number : XL-060F          Item Name : Cell          Item Description : 3.6V / 2.4Ah          Same Type Part          - STD : Standard(with no terminal)          - Terminal type            · Tag : T1, T2, T3, T3R, T3EU, T3EUR            · Pin : AX            · Harness and cable : C&amp;W</p>	<p>[b] Cell, battery, or product manufacturer's contact information to include address, phone number, email address and website for more information;</p> <p>Xenoenergy Co., Ltd.          70-7, Muha-ro, Hwaseong-city, Kyounggi-do          Republic of Korea, 18729          Tel : +82 31 355 3511          E-mail : global@xenoenergy.com          Website : www.xenoenergy.com</p>																								
<p>[c] Name of the test laboratory to include address, phone number, email address and website for more information;</p> <p>Xenoenergy Co., Ltd.          70-7, Muha-ro, Hwaseong-city, Kyounggi-do          Republic of Korea, 18729          Tel : +82 31 355 3511          E-mail : R&amp;D@xenoenergy.com          Website :www.xenoenergy.com</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; padding: 5px;"> <p>[d] A unique test report identification number;</p> <p style="text-align: center;">Xeno Q110408</p> </td> <td style="width: 40%; padding: 5px;"> <p>[e] Date of test report;</p> <p style="text-align: center;">April. 08, 2011</p> </td> </tr> </table>	<p>[d] A unique test report identification number;</p> <p style="text-align: center;">Xeno Q110408</p>	<p>[e] Date of test report;</p> <p style="text-align: center;">April. 08, 2011</p>																						
<p>[d] A unique test report identification number;</p> <p style="text-align: center;">Xeno Q110408</p>	<p>[e] Date of test report;</p> <p style="text-align: center;">April. 08, 2011</p>																								
<p>[f] 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.</p> <p>Cell used in implantable medical devices, such as : Pacemaker(IPG),Neuro-Stimulators or Implantable Defibrillators(ICD)</p> <p>( i ) Lithium metal          ( ii ) Mass : max. 20g          ( iii ) Lithium content : 0.7g          ( iv ) ELC or W/h rating : 3.6V / 2.4Ah          ( v ) Model number: XL-060F</p>	<p>[g] List of tests conducted and results (i.e., pass/fail);</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;"><input checked="" type="checkbox"/></td> <td style="width: 75%;">Test T.1 : Altitude simulation</td> <td style="width: 20%;">T1 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.2 : Thermal test</td> <td>T2 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.3 : Vibration</td> <td>T3 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.4 : Shock</td> <td>T4 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.5 : External short circuit</td> <td>T5 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.6 : Impact/Crush(cell only test)</td> <td>T6 Test Pass</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.7 : Overcharge(N.A for Li-metal only)</td> <td>Not Applicable</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Test T.8 : Forced discharge(cell only test)</td> <td>T8 Test Pass</td> </tr> </table> <p>Testing additional comments :</p> <p style="text-align: center;">No additional information</p>	<input checked="" type="checkbox"/>	Test T.1 : Altitude simulation	T1 Test Pass	<input checked="" type="checkbox"/>	Test T.2 : Thermal test	T2 Test Pass	<input checked="" type="checkbox"/>	Test T.3 : Vibration	T3 Test Pass	<input checked="" type="checkbox"/>	Test T.4 : Shock	T4 Test Pass	<input checked="" type="checkbox"/>	Test T.5 : External short circuit	T5 Test Pass	<input checked="" type="checkbox"/>	Test T.6 : Impact/Crush(cell only test)	T6 Test Pass	<input checked="" type="checkbox"/>	Test T.7 : Overcharge(N.A for Li-metal only)	Not Applicable	<input checked="" type="checkbox"/>	Test T.8 : Forced discharge(cell only test)	T8 Test Pass
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<p>[h] Reference to assembled battery testing requirements, if applicable (i.e. 38.3.3 (f) and 38.3.3 (g));</p> <p>Not Applicable.</p>	<p>[i] Reference to the revised edition of the Manual of Tests and Criteria used and to amendments thereto, if any;</p> <p>UN Manual of Tests and Criteria, Part III, sub-section 38.3.  <i>sixth revised edition</i></p>																								
<p>[j] Signature with name and title of signatory as an indication of the validity of information provided.</p> <p>Assistant Managing Director          Director of R&amp;D Center</p> <div style="text-align: center; margin-top: 20px;">   <p style="font-size: 1.2em; font-weight: bold;">JR Kim</p> </div>	<p>Date this document was generated.</p> <p style="text-align: center;">Oct. 21, 2019</p>																								