

Proposal on Test T.5: External short Circuit

(UN manual of Tests and Criteria Rev.5 Am.1 Part III, Section 38.3)

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Introduction

Background

- In 38.3.4.5 Test T.5: External short circuit of the Manual of Tests and Criteria fifth revised edition amendment 1, external resistance value is unclearly specified as 'less than 0.1 ohm'.
- Due to this unclear resistance specification, it had been raised many questions and disagreement during the testing. And some testing labs and system makers interpret that 'less than 0.1 ohm' means 'From zero to 0.1 ohm' and cell & battery should endure short circuit with any resistance range between 0 to 0.1 ohm.
- But test result could be varied between resistance 0 to 0.1 ohm, and short with near zero resistance(50mohm, 30mohm or less) could lead the test failure.

Reference

- T5. External short circuit test procedure (38.3.4.5.2)

38.3.4.5.2 Test procedure

The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 55 ± 2 °C and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 55 ± 2 °C. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 55 ± 2 °C.

Proposal

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- Harmonization with industrial standards.
- > External resistance of external short circuit shall be clearly specify from 'less than 0.1 ohm' to '80 ±20 mohm' in UN Manual.

Reference:

- External resistance in industrial standards

Standard	External resistance	Remark
IEC62133 (2nd rev.)	80±20mΩ	
UL1642 (5th rev.)	80±20mΩ	
UL2054 (2nd rev.)	80±20mΩ	
CTIA CRD.	80±20mΩ	
PSE	80±20mΩ	
GB/T 18287 - 2013	80±20mΩ	
KC	less than 0.1Ω	- Standard is under revision. - External resistance will be harmonized with IEC62133 2 nd edition(80±20mΩ) from 2014.
UN	less than 0.1Ω	

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