

Annex.A: WG3 Activity – Trigger Method Evaluation



			Representability	Repeatability	Reproducibility	Applicability to cell type	Applicability to position in pack	Amount of added energy	Shipment of DUT	Tamper resistancy	Extent of DUT modification	Influence of DUT modification	Remarks
	Rating Scale: Poor = 1 neural = 2 good = 3	Weighting scale unimportant = 0 minor importance = 1 important = 2 very important = 3											
Internal Short	Internal short seed	Insertion of a defined defect into the cell which can be triggered by moderate heating/cycling											
	Internal micro heater	Insertion of a microheater which will generate a localized hot spot											
	Mechanically induced deformation	Blunt nail indentation or cell pinching causing internal short to form between one or more electrode layers											
External Short	External short of a module	shorting of a battery module inside the pack											
	External short of a cell	Shortening of a single cell inside the battery											
Nail Penetration	Mild steel nail	Penetration of cells perpendicular or parallel to electrodes to produce an internal short, Parallel and perpendicular penetration are not equivalent!											
	Metal tip ceramic or metal-coated nail												
Over-heating	Heating device (electrical)	Heating device (resistive) is built inside battery to heat single cell: Heating plate for P and L cells, Wire or mat for C											
	Heating device (electrical) cell replacement	Heating device (resistive) mimics thermal runaway of a single cell											
	TRIM heater (el.)	Miniature fast heater attached to cell surface, the test method developed by Canada	2	3	2	3	2	2	2	1	2	2	an example from the WG3
	Shock heater (el.) cell replacement	Miniature fast heater attached to cell surface											
	Laser	Laser heating of single cell											
	Chemical heating (cell replacement)	Cell is replaced by a dummy cell with chemical charge (e.g. Thermite, electrolyte and oxidizer)											
	Chemical heating (implantable device)	Micro-device (e.g. thermite) attached to cell surface											
Overcharge		One single cell is overcharged											

Can you explain how this evaluation was established. Is it An example as the method is not use or Familiar by anyone else at this stage?