

DIN EN ISO 18243:2020-09 (E)

Electrically propelled mopeds and motorcycles - Test specifications and safety requirements for lithium-ion battery systems (ISO 18243:2017)

Contents		Page
European foreword		4
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Symbols and abbreviated terms	10
5	General requirements	11
5.1	General conditions	11
5.2	Tests	11
5.3	Test procedure	12
5.4	Preparation of the DUT for testing	13
5.4.1	Preparation of battery pack	13
5.4.2	Preparation of battery system	13
6	General test methods	14
6.1	Pre-conditioning cycles	14
6.1.1	Purpose	14
6.1.2	Test procedure	14
6.2	Standard cycle (SC)	14
6.2.1	Purpose	14
6.2.2	Test procedure	14
7	Performance test	15
7.1	Energy and capacity at RT	15
7.1.1	Purpose	15
7.1.2	Test procedure	15
7.1.3	Requirement	16
7.2	Energy and capacity at different temperature and discharge rates	16
7.2.1	Purpose	16
7.2.2	Test procedure	16
7.2.3	Requirements	18
7.3	Power and internal resistance	19
7.3.1	Purpose	19
7.3.2	Pulse power characterization profile	19
7.3.3	Test procedure	23
7.3.4	Requirements	24
7.4	No load SOC loss	25
7.4.1	Purpose	25
7.4.2	Test procedure	25
7.4.3	Test sequence	26
7.4.4	Requirement	26
7.5	SOC loss at storage	27
7.5.1	Purpose	27
7.5.2	Test procedure	27
7.5.3	Test sequence	27
7.5.4	Requirement	28
7.6	Cycle life	28
7.6.1	Purpose	28
7.6.2	Test procedure	28
7.6.3	Requirements	28

8	Safety and reliability test	29
8.1	Vibration.....	29
	8.1.1 Purpose.....	29
	8.1.2 Test procedure.....	29
	8.1.3 Requirements.....	29
8.2	Mechanical shock.....	29
	8.2.1 Purpose.....	29
	8.2.2 Test procedure.....	29
	8.2.3 Requirements.....	30
8.3	Drop.....	30
	8.3.1 Purpose.....	30
	8.3.2 Test procedure.....	30
	8.3.3 Requirements.....	30
8.4	Thermal shock.....	30
	8.4.1 Purpose.....	30
	8.4.2 Test procedure.....	30
	8.4.3 Requirements.....	30
8.5	Water immersion.....	31
	8.5.1 Purpose.....	31
	8.5.2 Test procedure.....	31
	8.5.3 Requirements.....	31
8.6	Fire.....	31
	8.6.1 Purpose.....	31
	8.6.2 Test procedure.....	31
	8.6.3 Requirements.....	32
8.7	Overtemperature condition.....	32
	8.7.1 Purpose.....	32
	8.7.2 Test procedure.....	32
	8.7.3 Requirements.....	32
8.8	Short circuit protection.....	33
	8.8.1 Purpose.....	33
	8.8.2 Test procedure.....	33
	8.8.3 Requirements.....	33
8.9	Overcharge protection.....	33
	8.9.1 Purpose.....	33
	8.9.2 Test procedure.....	33
	8.9.3 Requirements.....	34
8.10	Over discharge protection.....	34
	8.10.1 Purpose.....	34
	8.10.2 Test procedure.....	34
	8.10.3 Requirements.....	34
8.11	Dewing.....	35
	8.11.1 Purpose.....	35
	8.11.2 Test procedure.....	35
	8.11.3 Requirements.....	35
8.12	Salt spray.....	36
	8.12.1 Purpose.....	36
	8.12.2 Test procedure.....	37
	8.12.3 Requirements.....	37
	Annex A (informative) Battery pack and system	38
	Annex B (informative) Description of the screen referenced in 8.6	42
	Bibliography	43