

ISO 5474-1:2024-06 (E)

Electrically propelled road vehicles - Functional and safety requirements for power transfer between vehicle and external electric circuit - Part 1: General requirements for conductive power transfer

Contents	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
3.1 General.....	2
3.2 AC and DC power transfer.....	5
4 System architecture.....	7
5 Environmental and operational conditions.....	9
6 Safety requirements.....	9
6.1 General.....	9
6.2 Protection of persons against electric shock.....	9
6.2.1 General.....	9
6.2.2 Compatibility with external safety devices.....	10
6.2.3 Insulation resistance.....	10
6.2.4 Touch current.....	10
6.2.5 Insulation coordination.....	10
6.2.6 Protective conductor.....	10
6.2.7 Basic protection when connected to an external electric circuit.....	11
6.2.8 Requirements for unmated vehicle contacts.....	12
6.3 Protection against thermal incident.....	13
6.3.1 Requirements for normal operation.....	13
6.3.2 Overcurrent protection.....	14
6.3.3 Residual energy after disconnection related to thermal incident.....	14
6.3.4 Arc protection.....	14
6.4 Vehicle movement.....	15
6.5 AC or DC electric power at the same contacts.....	15
7 Electromagnetic compatibility (EMC).....	15
8 Protection in case of unintended power transfer.....	15
9 Functional requirements.....	15
10 Additional requirements for reverse power transfer.....	15
11 Owner's manual and marking.....	16
11.1 Owner's manual.....	16
11.2 Marking.....	16
12 Test.....	16
12.1 General.....	16
12.2 Resistance of protective conductor.....	17
12.3 Insulation resistance.....	17
Bibliography.....	18