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**