ISO 4272:2022-09 (E)

Intelligent transport systems - Truck platooning systems (TPS) - Functional and operational requirements

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Symbols and abbreviated terms **4**
4.1 Abbreviated terms 4

5 Types of truck platooning systems **4**
5.1 Top-down-managed platooning 4
5.1.1 LV-managed platooning 4
5.1.2 BO- and LV-managed platooning 5
5.2 Peer-to-peer platooning 5

6 Types of truck platoon formation **5**
6.1 Overview 5
6.2 Formation on the motorway 5
6.2.1 General 5
6.2.2 Ad-hoc platoon formation on the motorway 5
6.2.3 Planned platoon formation on the motorway 5
6.3 Formation at the staging area 6
6.3.1 Ad-hoc platoon formation at the staging area 6
6.3.2 Planned platoon formation at the staging area 6

7 Operation state diagram **6**
7.1 General 6
7.2 Operation state diagram of platooning operations 6

8 Platooning operation control function (POCF) **7**
8.1 General 7
8.2 Join 7
8.3 Leave 8
8.4 Operation 9
8.4.1 Join operation 9
8.4.2 Leave operation 10
8.5 Requirements 10
8.5.1 Join requirements 10
8.5.2 Leave requirements 11

9 Platooning manoeuvre control function (PMCF) **11**
9.1 General 11
9.2 Longitudinal control 11
9.3 Lateral control 14
9.4 Longitudinal control operations 15
9.4.1 Join manoeuvre 15
9.4.2 Cruising operation 15
9.4.3 Leave manoeuvre 15
9.4.4 Cut-in operation 15
9.4.5 Cut-out operation 16
9.5 Lateral control operations 16
9.5.1 Cruising (in-lane) operation 16

9.5.2 Lane change operation 16
9.6 Longitudinal control requirements 17
9.6.1 Join manoeuvre requirements 17
9.6.2 Cruising requirements 17
9.6.3 Leave manoeuvre requirements 17
9.6.4 Cut-in requirements 18
9.6.5 Cut-out requirements 18
9.7 Lateral control requirements 18
9.7.1 Cruising requirements 18
9.7.2 Lane change requirements 18
10 Communication data (V2V/V2I) 19
10.1 General 19
10.2 Requirements of communication 19
10.3 Communication data 19
10.3.1 General 19
10.3.2 Communication data for PMM 19
10.3.3 Communication data for PCM 22
11 Functional evaluation test method 23
11.1 Evaluation test conditions 23
11.2 Evaluation test method 23
11.2.1 General 23
11.2.2 Join evaluation test 23
11.2.3 Leave evaluation test 26
11.2.4 Cruising evaluation test 27
11.2.5 Cut-in evaluation test 28
11.2.6 Cut-out evaluation test 30
Annex A (informative) **Use cases of POCF 32**
Annex B (informative) **Use cases of PMCF 37**
Bibliography 42