

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