

ISO 14813-1:2024-08 (E)

Intelligent transport systems - Reference model architecture(s) for the ITS sector - Part 1: ITS service domains, service groups and services

Contents		Page
Foreword		vii
Introduction		viii
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	3
5	General requirements	3
5.1	ITS service domains, service groups and services	3
5.1.1	Characteristics of ITS service domains	3
5.1.2	Characteristics of ITS service groups	4
5.1.3	Characteristics of ITS services	4
5.2	ITS users	5
6	The structure of ITS service domains	5
6.1	ITS service domains	5
6.2	Cooperative-ITS	6
6.3	Service domain structure	6
6.4	ITS service groups for each domain	11
6.5	Use of ITS services to provide Object Identifiers for data concepts	11
7	Traveller Information service domain	12
7.1	Overview	12
7.2	Real-time transport status information	12
7.2.1	Overview	12
7.2.2	Constituent ITS services	12
7.3	Real-time in-vehicle display	14
7.3.1	Overview	14
7.3.2	Constituent ITS services	15
7.4	Real-time route guidance and information	17
7.4.1	Overview	17
7.4.2	Constituent ITS services	17
7.5	Guidance to EV charging facilities	19
7.5.1	Overview	19
7.5.2	Constituent ITS services	19
7.6	Multi-modal trip planning	19
7.6.1	Overview	19
7.6.2	Constituent ITS services	20
7.7	Travel services information	20
7.7.1	Introduction	20
7.7.2	Constituent ITS services	21
8	Traffic management and operations service domain	22
8.1	Overview	22
8.2	Traffic management and control	22
8.2.1	Overview	22

8.2.2	Constituent ITS services	23
8.3	Transport-related incident management	29
8.3.1	Overview	29
8.3.2	Constituent ITS services	29
8.4	Demand management	31
8.4.1	Overview	31
8.4.2	Constituent ITS services	32
8.5	Surface transport systems infrastructure maintenance management	34
8.5.1	Overview	34
8.5.2	Constituent ITS services	35
8.6	Policing/enforcing traffic regulations	36
8.6.1	Overview	36
8.6.2	Constituent ITS services	37
8.7	Safety enhancements for vulnerable road users	39
8.7.1	Overview	39
8.7.2	Constituent ITS services:	40
8.8	Safety provisions for pedestrians using intelligent junctions and links	41
8.8.1	Overview	41
8.8.2	Constituent ITS services	41
8.9	Advanced warnings provided by intelligent junctions	41
8.9.1	Overview	41
8.9.2	Constituent ITS services	42
8.10	Monitoring and management of suspicious vehicles	42
8.10.1	Overview	42
8.10.2	Constituent ITS services	43
9	Vehicle services domain	44
9.1	Overview	44
9.2	Automated vehicle operation	44
9.2.1	Overview	44
9.2.2	Constituent ITS services	45
9.3	Collision mitigation/avoidance	48
9.3.1	Overview	48
9.3.2	Constituent ITS Services	49
9.4	Driver warning or advisory	50
9.4.1	Overview	50
9.4.2	Constituent ITS services	50
9.5	Safety warning	51
9.5.1	Introduction	51
9.5.2	Constituent service	51
9.6	Management of suspicious vehicles	51
9.6.1	Introduction	51
9.6.2	Constituent service	52
10	Freight transport services domain	52
10.1	Overview	52
10.2	Commercial vehicle pre-clearance	53
10.2.1	Overview	53
10.2.2	Constituent ITS services	53
10.3	Commercial vehicle administrative processes	54
10.3.1	Introduction	54
10.3.2	Constituent ITS services	54
10.4	Automated roadside safety inspection	57
10.4.1	Overview	57
10.4.2	Constituent ITS services	57
10.5	Commercial vehicle on-board safety monitoring	58
10.5.1	Overview	58
10.5.2	Constituent ITS services	59
10.6	Intercity freight transport fleet management	60
10.6.1	Introduction	60
10.6.2	Constituent ITS services	60

10.7	Intermodal information management	61
10.7.1	Overview	61
10.7.2	Constituent ITS services	61
10.8	Management and control of intermodal centres	62
10.8.1	Introduction	62
10.8.2	Constituent ITS services	62
10.9	Management of dangerous freight	63
10.9.1	Introduction	63
10.9.2	Constituent ITS services	63
10.10	Management of heavy goods vehicles	65
10.10.1	Overview	65
10.10.2	Constituent ITS services	65
10.11	Management of local delivery vehicles	66
10.11.1	Overview	66
10.11.2	Constituent ITS services	66
10.12	Telematics applications for regulated commercial freight vehicles (TARV)	67
10.12.1	Overview	67
10.12.2	Constituent ITS services	68
10.13	Freight transport content management	70
10.13.1	Overview	70
10.13.2	Constituent ITS services	70
11	Public transport service domain	71
11.1	Overview	71
11.2	Public transport management	71
11.2.1	Introduction	71
11.2.2	Constituent ITS services	72
11.3	Demand responsive and shared transport	74
11.3.1	Introduction	74
11.3.2	Constituent ITS services	74
11.4	Automated vehicle operation	75
11.4.1	Overview	75
11.4.2	Constituent ITS services	75
11.5	Public travel security	75
11.5.1	Overview	75
11.5.2	Constituent ITS services	76
12	Emergency services service domain	77
12.1	Overview	77
12.2	Transport-related emergency notification and personal security	77
12.2.1	Overview	77
12.2.2	Constituent ITS services	77
12.3	After theft vehicle recovery	79
12.3.1	Overview	79
12.3.2	Constituent ITS services	79
12.4	Emergency vehicle management	80
12.4.1	Introduction	80
12.4.2	Constituent ITS services	80
12.5	Hazardous materials and incident notification	81
12.5.1	Overview	81
12.5.2	Constituent ITS services	81
13	Payment for transport-related services domain	82
13.1	Overview	82
13.2	Transport infrastructure usage	82
13.2.1	Overview	82
13.2.2	Constituent ITS services	82
13.3	Mobility service usage	84
13.3.1	Overview	84
13.3.2	Constituent ITS services	84
13.4	Transport-related services	85

13.4.1	Overview	85
13.4.2	Constituent ITS services	85
14	Weather and environmental conditions monitoring services domain	86
14.1	Introduction	86
14.2	Weather monitoring	87
14.2.1	Overview	87
14.2.2	Constituent ITS services	87
14.3	Environmental conditions monitoring	88
14.3.1	Overview	88
14.3.2	Constituent ITS services	88
15	Disaster response management and co-ordination services domain	89
15.1	Overview	89
15.2	Disaster data management	89
15.2.1	Overview	89
15.2.2	Constituent ITS services	89
15.3	Disaster response and evacuation management	90
15.3.1	Overview	90
15.3.2	Constituent ITS services	91
15.4	Coordination with emergency agencies	93
15.4.1	Introduction	93
15.4.2	Constituent ITS services	93
16	Traffic management performance domain	93
16.1	Overview	93
16.2	Data storage	94
16.2.1	Introduction	94
16.2.2	Constituent ITS services	94
16.3	Simulation	94
16.3.1	Overview	94
16.3.2	Constituent ITS services	95
Annex A (informative)	Mapping of services to the US National ITS Architecture (ARC-IT) Service Packages	97
Annex B (informative)	Mapping of services to the European ITS Framework Architecture (FRAME) User Needs Services and Topics	108
Bibliography	121