

ISO 15765-2:2024-04 (E)

Road vehicles - Diagnostic communication over Controller Area Network (DoCAN) - Part 2: Transport protocol and network layer services

Contents		Page
Foreword.....		v
Introduction.....		vi
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Symbols and abbreviated terms		2
4.1 Symbols.....		2
4.2 Abbreviated terms.....		3
5 Conventions		4
6 ISO 11898-1 CAN data link layer extension		5
6.1 CAN CC and CAN FD frame feature comparison.....		5
6.2 Mapping of transport and network layer attributes to CAN data frames.....		5
7 T_Data abstract service primitive interface definition		7
7.1 T_Data services.....		7
7.2 T_Data interface.....		7
7.3 Data type definitions.....		8
8 Transport and network layer services		8
8.1 General.....		8
8.2 Transport and network layer abstract service primitives.....		9
8.2.1 Data.req.....		9
8.2.2 Data.con.....		10
8.2.3 Data_FF.ind.....		10
8.2.4 Data.ind.....		10
8.2.5 ChangeParameter.req.....		11
8.2.6 ChangeParameter.con.....		11
8.3 Service data unit specification.....		12
8.3.1 Mtype, message type.....		12
8.3.2 AI, address information.....		12
8.3.3 <Length>.....		14
8.3.4 <MessageData>.....		14
8.3.5 <Parameter>.....		14
8.3.6 <Parameter_Value>.....		14
8.3.7 <Result>.....		15
8.3.8 <Result_ChangeParameter>.....		16
8.4 ASP T_Data to TL_Data interface parameter mapping.....		16
9 Transport layer protocol		17
9.1 Protocol functions.....		17
9.2 Single frame message transmission.....		17
9.3 Multiple frame message transmission.....		17
9.4 Transport layer protocol data units.....		19
9.4.1 Protocol data unit types.....		19
9.4.2 SF TL_PDU.....		19
9.4.3 FF TL_PDU.....		19
9.4.4 CF TL_PDU.....		19
9.4.5 FC TL_PDU.....		19
9.4.6 TL_PDU field specification.....		19

9.5	Transmit data length (TX_DL) configuration.....	20
9.5.1	Definition of TX_DL configuration values.....	20
9.5.2	Verifying the correctness of received CAN frames.....	20
9.5.3	Receiver determination RX_DL.....	21
9.6	Protocol control information specification.....	22
9.6.1	TL_PCI.....	22
9.6.2	SingleFrame TL_PCI parameter definition.....	23
9.6.3	FirstFrame TL_PCI parameter definition.....	25
9.6.4	ConsecutiveFrame TL_PCI parameter definition.....	26
9.6.5	FlowControl TL_PCI parameter definition.....	27
9.7	Maximum number of FC.WAIT frame transmissions (C_{TL_WFTmax}).....	31
9.8	Transport layer timing.....	31
9.8.1	Timing parameters.....	31
9.8.2	Transport layer timeouts.....	35
9.8.3	Unexpected arrival of TL_PDU.....	35
9.8.4	Wait frame error handling.....	36
9.9	Interleaving of messages.....	37
10	Network layer protocol.....	37
10.1	Protocol data unit field specification.....	37
10.1.1	NL_PDU format.....	37
10.1.2	Address information (NL_AI).....	37
10.2	Creating CAN frames based on NL_TAtype and TX_DL.....	37
10.3	Mapping of the NL_PDU fields.....	37
10.3.1	Addressing formats.....	37
10.3.2	Normal addressing.....	37
10.3.3	Normal fixed addressing.....	38
10.3.4	Extended addressing.....	39
10.3.5	Mixed addressing.....	39
11	Data link layer usage.....	40
11.1	Data link layer service parameters.....	40
11.2	Data link layer interface services.....	41
11.3	CAN frame data length code (DLC).....	41
11.3.1	DLC parameter.....	41
11.3.2	CAN frame data.....	41
11.3.3	Data length code (DLC) error handling.....	42
Annex A (normative) Use of normal fixed and mixed addressing according to SAE J1939-21.....		43
Annex B (normative) Reserved CAN IDs.....		46
Bibliography.....		47