

ISO 15765-2:2016-04 (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, definitions and abbreviated terms	2
3.1	Terms and definitions	2
3.2	Abbreviated terms	2
4	Conventions	3
5	Document overview	3
6	ISO 11898-1 CAN data link layer extension	4
6.1	CLASSICAL CAN and CAN FD frame feature comparison	4
6.2	Illustration of CAN parameters for transport protocol and network layer services	5
6.3	Additional requirements for CAN FD	6
7	Network layer overview	7
7.1	General	7
7.2	Services provided by network layer to higher layers	7
7.3	Internal operation of network layer	8
8	Network layer services	10
8.1	General	10
8.2	Specification of network layer service primitives	11
8.2.1	N_USData.request	11
8.2.2	N_USData.confirm	11
8.2.3	N_USData_FF.indication	11
8.2.4	N_USData.indication	12
8.2.5	N_ChangeParameters.request	12
8.2.6	N_ChangeParameter.confirm	13
8.3	Service data unit specification	13
8.3.1	Mtype, message type	13
8.3.2	N_AI, address information	13
8.3.3	<Length>	16
8.3.4	<MessageData>	16
8.3.5	<Parameter>	16
8.3.6	<Parameter_Value>	16
8.3.7	<N_Result>	16
8.3.8	<Result_ChangeParameter>	17
9	Transport layer protocol	18
9.1	Protocol functions	18
9.2	SingleFrame transmission	18
9.2.1	SingleFrame transmission with TX_DL = 8	18
9.2.2	SingleFrame transmission with TX_D > 8	19
9.3	Multiple-frame transmission	19

9.4	Transport layer protocol data units	21
9.4.1	Protocol data unit types	21
9.4.2	SF N_PDU	21
9.4.3	FF N_PDU	21
9.4.4	CF N_PDU	21
9.4.5	FC N_PDU	21
9.4.6	Protocol data unit field description	22
9.5	Transmit data link layer data length (TX_DL) configuration	22
9.5.1	Definition of TX_DL configuration values	22
9.5.2	Creating CAN frames based on N_TAtype and TX_DL	23
9.5.3	Verifying the correctness of received CAN frames	23
9.5.4	Receiver determination RX_DL	25
9.6	Protocol control information specification	25
9.6.1	N_PCI	25
9.6.2	SingleFrame N_PCI parameter definition	26
9.6.3	FirstFrame N_PCI parameter definition	28
9.6.4	ConsecutiveFrame N_PCI parameter definition	29
9.6.5	FlowControl N_PCI parameter definition	30
9.7	Maximum number of FC.WAIT frame transmissions (N_WFTmax)	33
9.8	Network layer timing	33
9.8.1	Timing parameters	33
9.8.2	Network layer timeouts	37
9.8.3	Unexpected arrival of N_PDU	37
9.8.4	Wait frame error handling	39
9.9	Interleaving of messages	39
10	Data link layer usage	39
10.1	Data link layer service parameters	39
10.2	Data link layer interface services	39
10.2.1	L_Data.request	39
10.2.2	L_Data.confirm	39
10.2.3	L_Data.indication	40
10.3	Mapping of the N_PDU fields	40
10.3.1	Addressing formats	40
10.3.2	Normal addressing	40
10.3.3	Normal fixed addressing	41
10.3.4	Extended addressing	41
10.3.5	Mixed addressing	42
10.4	CAN frame data length code (DLC)	43
10.4.1	DLC parameter	43
10.4.2	CAN frame data	43
10.4.3	Data length code (DLC) error handling	45
Annex A (normative) Use of normal fixed and mixed addressing with data link layer according to SAE J1939		46
Annex B (normative) Reserved CAN IDs		49
Bibliography		50