

ISO 4426:2021 (E)

Intelligent transport systems — Lower layer protocols for usage in the European digital tachograph

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Abbreviated terms and symbols
5	Digital tachograph interrogation
5.1	General
5.2	SDTC protocol stack
5.2.1	Simplified OSI layered
5.2.2	SDTC L1
5.2.3	SDTC L2
5.2.4	SDTC L7
5.3	SDTC profiles
6	Test methods
Annex A (normative) SDTC physical layer	
A.1	Overview and relation to CEN EN 12253
A.2	SDTC link parameters
A.2.1	General
A.2.2	Downlink parameters
A.2.3	Uplink parameters
Annex B (normative) SDTC data link layer	
B.1	Overview and relation to CEN EN 12795
B.2	Frame format
B.2.1	Frame structures and bit streams
B.2.2	Flags
B.2.3	Link address field
B.2.3.1	General
B.2.3.2	Private LID
B.2.3.3	Broadcast LID
B.2.3.4	Multicast LID
B.2.4	MAC control field
B.2.5	LPDU format
B.2.6	Frame check sequence
B.2.7	Bit order
B.2.8	Transparency
B.3	Address establishment
B.3.1	General
B.3.2	Broadcast SAP establishment
B.3.3	Mobile private SAP establishment
B.3.4	Fixed private SAP establishment
B.4	Medium Access Control (MAC) sublayer
B.4.1	Overview
B.4.2	MAC service primitives

- B.4.2.1 General
- B.4.2.2 Fixed MAC service primitives
- B.4.2.2.1 F-M-DATA.request
- B.4.2.2.2 F-M-DATA.indication
- B.4.2.3 Mobile MAC service primitives
- B.4.2.3.1 F-MA-DATA.request
- B.4.2.3.2 M-MA-DATA.indication
- B.4.3 Window management
- B.4.3.1 Overview
- B.4.3.2 MAC control field
- B.4.3.2.1 General
- B.4.3.2.2 MAC control field of the downlink
- B.4.3.2.3 MAC control field of the uplink
- B.4.3.3 Downlink windows
- B.4.3.4 Uplink windows
- B.4.3.4.1 General
- B.4.3.4.2 Private uplink windows
- B.4.3.4.3 Public uplink windows
- B.4.3.4.4 Public uplink window selection
- B.4.4 MAC elements of procedure
- B.4.4.1 Private medium response flag
- B.4.4.2 Fixed equipment MAC procedures
- B.4.4.2.1 Frame reception
- B.4.4.2.1.1 Validity of frame
- B.4.4.2.1.2 Information transfer
- B.4.4.2.1.3 Private uplink window request
- B.4.4.2.2 Frame transmission
- B.4.4.2.2.1 Information transfer
- B.4.4.2.2.2 Private uplink window allocation
- B.4.4.2.2.3 Private uplink window reallocation
- B.4.4.2.2.4 Public uplink window allocation
- B.4.4.3 Mobile equipment MAC procedures
- B.4.4.3.1 Frame reception
- B.4.4.3.1.1 Validity of frame
- B.4.4.3.1.2 Information transfer
- B.4.4.3.1.3 Private uplink window allocation
- B.4.4.3.1.4 Public uplink window allocation
- B.4.4.3.2 Frame transmission
- B.4.4.3.2.1 Information transfer
- B.4.4.3.2.2 Private uplink window request
- B.5 Logical Link Control (LLC) sublayer
- B.5.1 Overview
- B.5.1.1 General
- B.5.1.2 Unacknowledged connectionless-mode service
- B.5.1.3 Acknowledged connectionless-mode service
- B.5.2 LLC service primitives
- B.5.2.1 General
- B.5.2.2 Unacknowledged connectionless data transfer
- B.5.2.3 Acknowledged connectionless data transfer
- B.5.2.4 Acknowledged connectionless data exchange
- B.5.3 LPDU format
- B.5.3.1 General
- B.5.3.2 C/R bit
- B.5.3.3 LLC control field
- B.5.3.3.1 General
- B.5.3.3.2 Unacknowledged connectionless
- B.5.3.3.3 Acknowledged connectionless
- B.5.3.4 LLC Status Subfield
- B.5.3.5 Information field
- B.5.3.6 Invalid LPDU
- B.5.4 LLC elements of procedure
- B.5.4.1 Overview
- B.5.4.2 Unacknowledged commands
- B.5.4.2.1 General

- B.5.4.2.2 Transmitting UI commands
- B.5.4.2.3 Receiving UI commands
- B.5.4.3 Acknowledged commands/responses
 - B.5.4.3.1 General
 - B.5.4.3.2 State variables
 - B.5.4.3.2.1 General
 - B.5.4.3.2.2 Transmit sequence state variable, Vtx
 - B.5.4.3.2.3 Receive sequence state variable, Vrx
 - B.5.4.3.2.4 Procedure for link set-up
 - B.5.4.3.3 Procedure for the use of the P/F bit
 - B.5.4.3.4 Transmitting ACn commands
 - B.5.4.3.5 Receiving ACn commands
 - B.5.4.3.5.1 General
 - B.5.4.3.5.2 Non-duplicate ACn command
 - B.5.4.3.5.3 Duplicate ACn commands
 - B.5.4.3.6 Transmitting ACn responses
 - B.5.4.3.7 Receiving acknowledgement
 - B.5.4.3.8 Maximum number of transmissions, N11
 - B.5.4.3.9 Acknowledgement time, N13
- B.5.4.4 Bit order
- B.6 Data link layer parameters
- B.7 Data link layer overhead
- B.8 Evolution of the MAC sequence bit
- B.9 Address establishment
- B.10 State transitions

Annex C (normative) SDTC application layer

- C.1 Overview and relation to CEN EN 12834
- C.2 Requirements
- C.2.1 General
- C.2.2 Context and structure of the application layer core
- C.2.3 Parameters of service primitives
- C.2.4 Octet alignment
- C.2.5 ASN.1 type and value definitions
- C.2.6 Declaration of application layer features supported

Annex D (normative) SDTC profiles

- D.1 Overview and relation to CEN EN 13372
- D.2 SDTC profiles overview
- D.3 SDTC parameters and subsets
 - D.3.1 Physical layer
 - D.3.1.1 Overview
 - D.3.1.2 Set L1-A
 - D.3.1.3 Set L1-B
 - D.3.2 Data link layer
 - D.3.2.1 Overview
 - D.3.2.2 Set L2
 - D.3.3 Application layer
 - D.3.3.1 Overview
 - D.3.3.2 Set L7
 - D.3.4 Interlayer subsets
 - D.3.4.1 Overview
 - D.3.4.2 Set Int
- D.4 SDTC procedures
 - D.4.1 Initialization
 - D.4.1.1 Detailed procedure
 - D.4.1.2 Use of certain data elements of BST
 - D.4.1.3 Use of certain data elements of VST
 - D.4.2 Late response
 - D.4.2.1 General
 - D.4.2.2 Procedure I
 - D.4.2.3 Procedure II
 - D.4.3 Termination
 - D.5 SDTC profiles
 - D.6 Private profiles