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Road vehicles — Media Oriented Systems Transport (MOST) —

Part 1: General information and definitions

Véhicules routiers — Système de transport axé sur les médias —

Partie 1: Information générale et définitions

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Foreword

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 21806 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The Media Oriented Systems Transport (MOST) communication technology was initially developed at the end of the 1990s in order to support complex audio applications in cars. The MOST Cooperation was founded in 1998 with the goal to develop and enable the technology for the automotive industry. Today, MOST[1)] enables the transport of high quality of service (QoS) audio and video together with packet data and real-time control to support modern automotive multimedia and similar applications. MOST is a function-oriented communication technology to network a variety of multimedia devices comprising one or more MOST nodes.

Figure 1 shows a MOST network example.

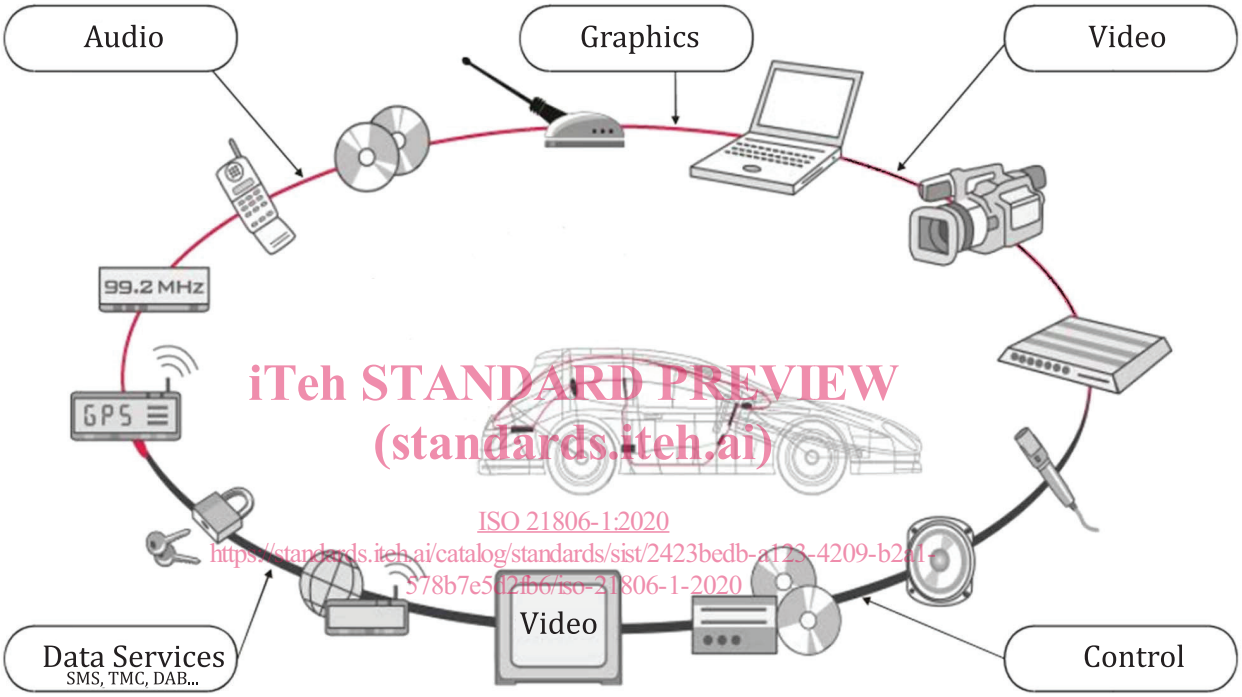

Figure 1 — MOST network example

The MOST communication technology provides:

— synchronous and isochronous streaming,

— small overhead for administrative communication control,

— a functional and hierarchical system model,

— API standardization through a function block (FBlock) framework,

— free partitioning of functionality to real devices,

— service discovery and notification, and

— flexibly scalable automotive-ready Ethernet communication according to ISO/IEC/IEEE 8802-3[2].

MOST is a synchronous time-division-multiplexing (TDM) network that transports different data types on separate channels at low latency. MOST supports different bit rates and physical layers. The network clock is provided with a continuous data signal.

1) MOST® is the registered trademark of Microchip Technology Inc. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO.

Within the synchronous base data signal, the content of multiple streaming connections and control data is transported. For streaming data connections, bandwidth is reserved to avoid interruptions, collisions, or delays in the transport of the data stream.

MOST specifies mechanisms for sending anisochronous, packet-based data in addition to control data and streaming data. The transmission of packet-based data is separated from the transmission of control data and streaming data. None of them interfere with each other.

A MOST network consists of devices that are connected to one common control channel and packet channel.

In summary, MOST is a network that has mechanisms to transport the various signals and data streams that occur in multimedia and infotainment systems.

The ISO standards maintenance portal (https://standards.iso.org/iso/) provides references to MOST specifications implemented in today's road vehicles because easy access via hyperlinks to these specifications is necessary. It references documents that are normative or informative for the MOST versions 4V0, 3V1, 3V0, and 2V5.

The ISO 21806 series has been established in order to specify requirements and recommendations for implementing the MOST communication technology into multimedia devices and to provide conformance test plans for implementing related test tools and test procedures.

To achieve this, the ISO 21806 series is based on the open systems interconnection (OSI) basic reference model in accordance with ISO/IEC 7498-1[1] and ISO/IEC 10731[3], which structures communication systems into seven layers as shown in Figure 2. Stream transmission applications use a direct stream data interface (transparent) to the data link layer.

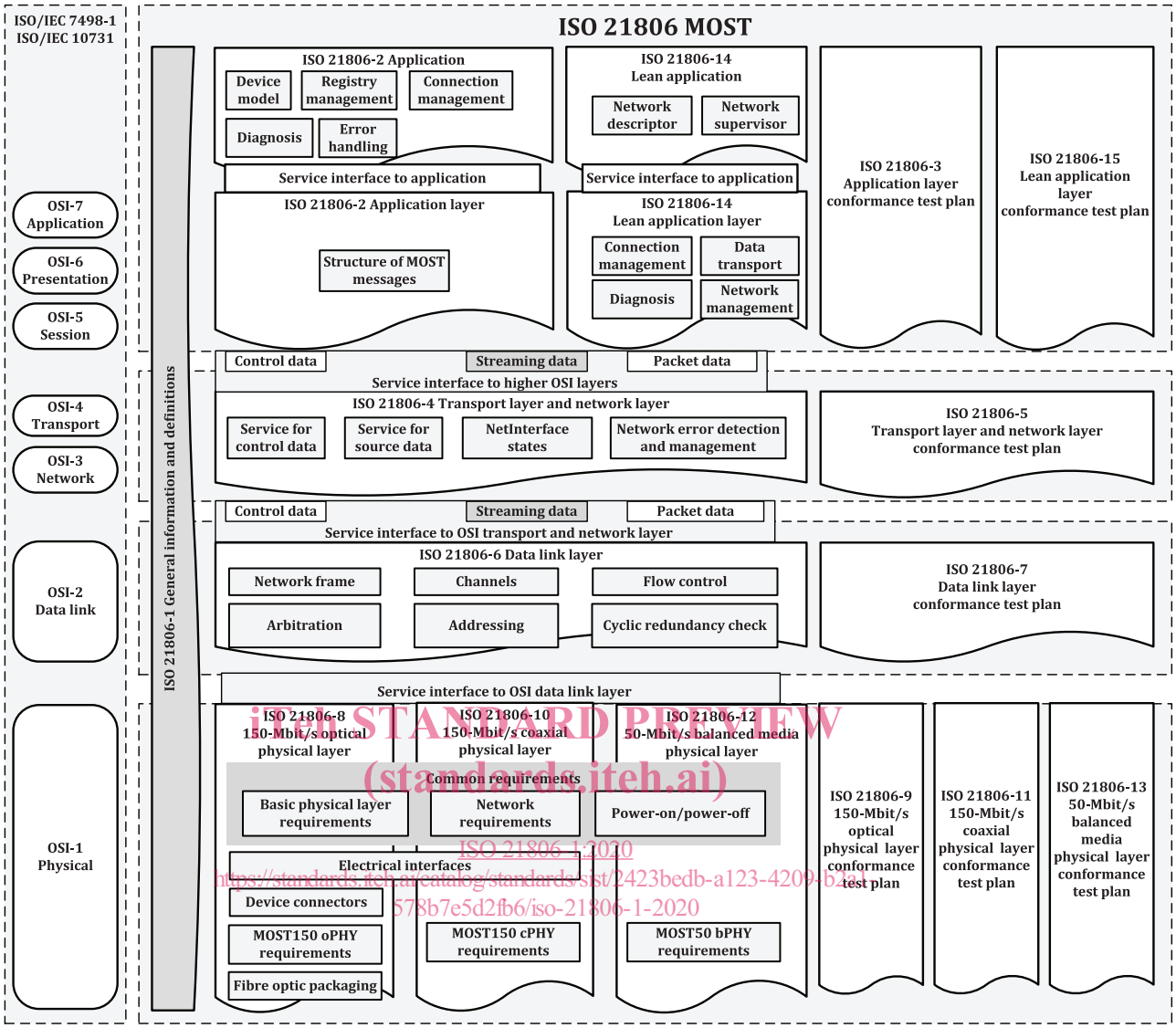

Figure 2 — The ISO 21806 series reference according to the OSI model

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Road vehicles — Media Oriented Systems Transport (MOST) —

Part 1: General information and definitions

1 Scope

This document provides general information and definitions for Media Oriented Systems Transport (MOST), a synchronous time-division-multiplexing network.

This document describes the access to MOST specifications, which are referenced by the ISO 21806 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

MOST Specification Rev. 2.5.0, 10/2006[2)]

MOST Specification Rev. 3.0.0E2, 07/2010[3)]

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
accumulated jitter
portion of *jitter* (3.31) at any point in a *MOST network* (3.43) that is made up entirely of the *transferred jitter* (3.84) from all previous *nodes* (3.57)

3.2
accumulated phase variation
portion of *phase variation* (3.61) at any point in a *MOST network* (3.43) that is made up entirely of the *transferred jitter* (3.84) and *transferred wander* (3.85) from all previous *nodes* (3.57)

3.3
alignment jitter
AJ
jitter (3.31) that affects the reception of data by degrading the receiver eye with horizontal closure

2) See Annex A.

3) See Annex A.

3.4
anisochronous
DEPRECATED: asynchronous
qualifying a time-varying phenomenon, a timescale or a signal the consecutive significant instants of which are separated by time intervals which are not all constrained to have the same rated duration or to have rated durations equal to integral multiples of a unit duration

[SOURCE: IEC Electropedia, 702-04-15, modified — Note 1 to entry was deleted.]

3.5
average pulse width distortion
APWD
average deviation of the signal pulses from their ideal width

3.6
bit rate
BR
number of binary digits transferred per second

[SOURCE: IEC Electropedia, 704-16-07, modified — The term "binary digit rate" was deleted.]

3.7
bits per frame
BPF
number of bits in a *network frame* (3.54)

3.8
boundary descriptor
value that determines the amount of bandwidth allocated for *streaming data* (3.75) and *packet data* (3.60)

3.9
bypass
mechanism that forwards data from Rx to Tx, performing data recovery and clock recovery

3.10
channel
means of transmission of signals in one direction between two points

[SOURCE: IEC Electropedia, 701-02-01, modified — The term was originally "transmission channel" and Notes 1 and 2 to entry were deleted.]

3.11
channel frame
frame (3.26) that is transported on a *channel* (3.10)

3.12
connection label
CL
identifier for a *streaming connection* (3.74)

3.13
control channel
channel (3.10) that is used to transport *control data* (3.14)

3.14
control data
small data packets with low latency

3.15
control frame
frame (3.26) that transports *control data* (3.14)

3.16
critical unlock
CU
unlock (3.88) or series of unlocks that exceed a certain time

3.17
data-dependent jitter
DDJ
jitter (3.31) generated by changes in the transmitted data pattern

3.18
duplex
pertaining to a mode of operation in which information can be transmitted in both directions simultaneously between two points

[SOURCE: IEC Electropedia, 701-03-171, modified — The deprecated term "full duplex" was deleted.]

3.19
electrical wake-up line
external line that initiates a network wake-up event

3.20
electromagnetic compatibility
EMC
ability of equipment or a system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

[SOURCE: IEC Electropedia, 161-01-07]

3.21
electromagnetic interference
EMI

degradation of the performance of an equipment, transmission *channel* (3.10) or system caused by an electromagnetic disturbance

[SOURCE: IEC Electropedia, 161-01-06, modified — Notes 1 and 2 to entry were deleted.]

3.22
electronic control unit
ECU
unit adjustable by other than mechanical means (e.g. sensing unit), containing electronic components and controlling the output via electronic components

[SOURCE: IEC Electropedia, 442-04-22]

3.23
established MOST specification
documents that comply with MOST version 3V0, or 2V5

3.24
eye diagram
"eye-shaped" oscilloscope pattern obtained from the superposition of the signal waveforms from successive time intervals each allocated to one digit

Note 1 to entry: The eye diagram is used to indicate the amplitude and time margins available to decode the digital signal.

[SOURCE: IEC Electropedia, 723-10-75, modified — The term "eye pattern" was deleted and "the" was removed from the beginning of the definition.]

3.25
fall time
time interval between the instants at which the instantaneous value of a pulse again reaches a specified upper value and then a specified lower value

Note 1 to entry: Unless otherwise specified, the upper and lower values are fixed at 90 % and 10 % of the pulse magnitude.

[SOURCE: IEC Electropedia, 702-03-06, modified — The term "decay time" was deleted.]

3.26
frame
repetitive set of consecutive time-slots constituting a complete cycle of a signal or of another process in which the relative position of each time-slot in the cycle can be identified

[SOURCE: Electropedia, 704-14-01, modified — Notes 1 and 2 to entry were deleted.]

3.27
frequency reference
device, usually crystal controlled, that provides an accurate and low drift frequency standard for the *MOST network controller* (3.44) and *MOST network* (3.43) timing

3.28
Golden PLL
hardware or software entity that is used to recover the clock required to form an *eye diagram* (3.24)

3.29
isochronous
qualifying a time-varying phenomenon, a timescale, or a signal the consecutive significant instants of which are separated by time intervals that all have the same rated duration or have rated durations equal to integral multiples of a unit duration

[SOURCE: IEC Electropedia, 702-04-13, modified — The deprecated term "synchronous" was deleted and the Note 1 to entry was deleted.]

3.30
isochronous channel
channel (3.10) that is used to transport *isochronous* (3.29) data on the *network frame* (3.54)

3.31
jitter
set of short-term non-cumulative variations in the significant instants of a digital signal from their ideal positions in time

[SOURCE: IEC Electropedia, 704-16-13, modified — Notes 1 and 2 to entry were deleted.]

3.32
link
signal path between a sending *MOST network controller* (3.44) and a receiving MOST network controller

3.33
listen-only node
node (3.57) that does not change the content of *network frames* (3.54)

3.34
lock
reception of three consecutive PREAMBLEs that are aligned to the bit stream and occur at the correct bit location in the *network frame* (3.54)

3.35
lock flag
flag that the *TimingMaster* (3.81) sets when it reaches stable *lock* (3.34)