DRAFT INTERNATIONAL STANDARD

ISO/DIS 21806-8

ISO/TC **22**/SC **31**

Secretariat: **DIN**

Voting begins on:
2019-10-10

Voting terminates on:
2020-01-02

Road vehicles — Media oriented systems transport (MOST) framework —

Part 8:
150 Mbit/s optical physical layer

Véhicules routiers — Environnement du système axé sur les médias —

Partie 8: Couche optique physique de 150 Mbit/s

ICS: 43.040.15

This document is circulated as received from the committee secretariat.

Reference number
ISO/DIS 21806-8:2019(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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 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.

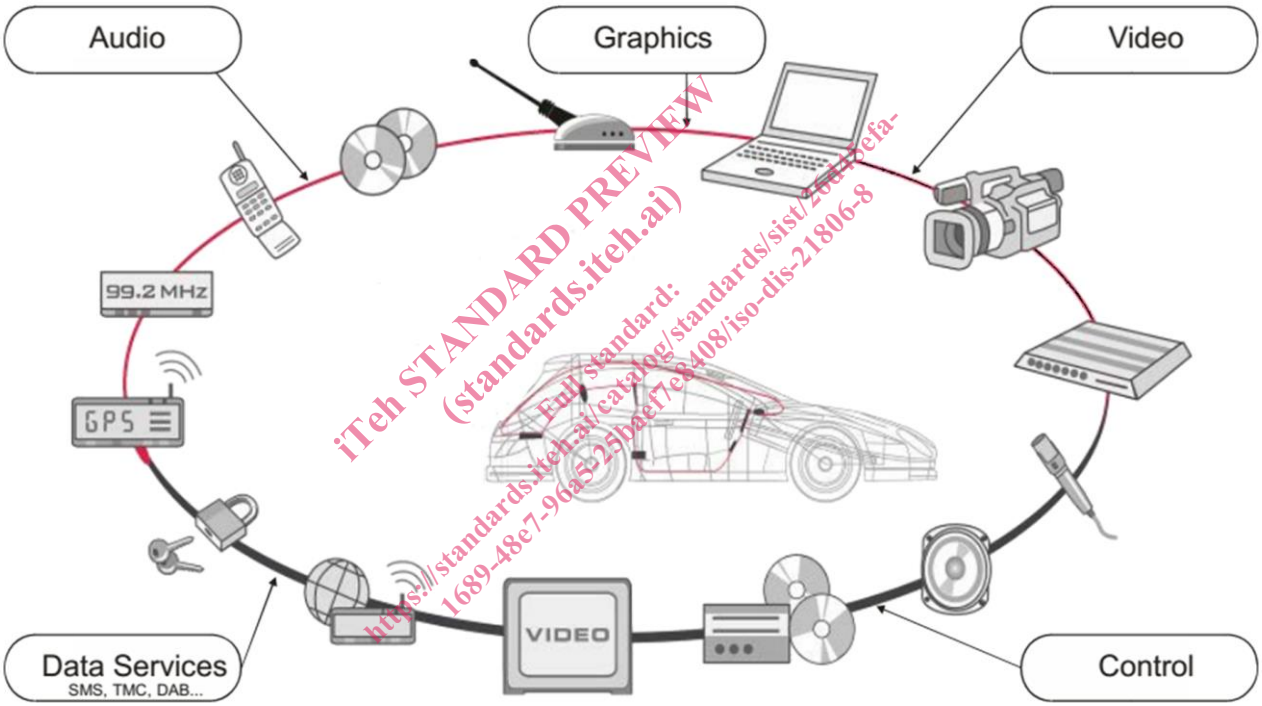


Figure 1 — MOST network example

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.

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.

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.

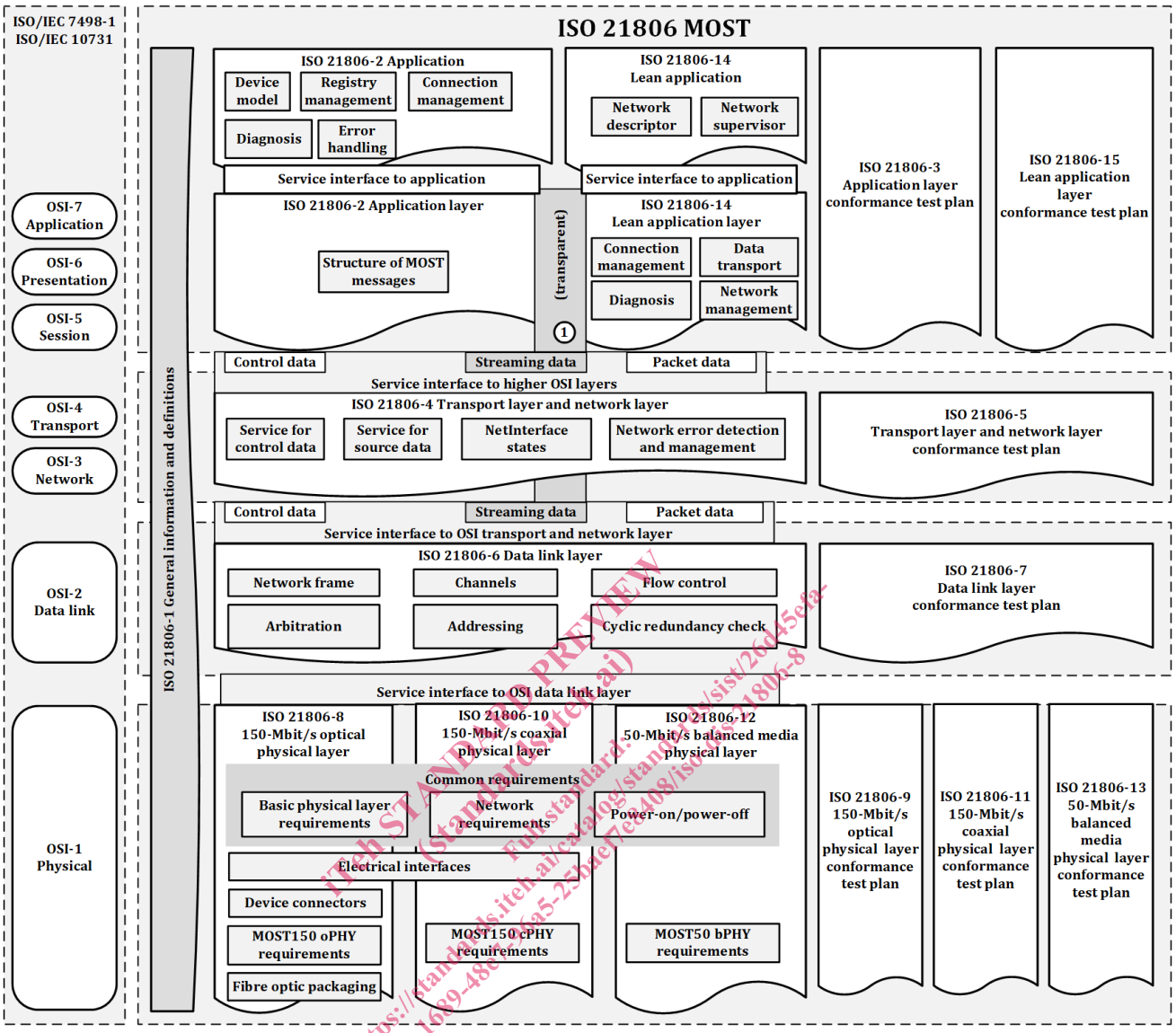
In summary, MOST is a network that has mechanisms to transport the various signals and data streams that occur in multimedia and infotainment systems.

The ISO Standards Maintenance Portal (http://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.

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.

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 [2], which structures communication systems into seven layers as shown in Figure 2.



Key

1 Stream transmission application uses a direct stream data interface (transparent) to the data link layer

Figure 2 — ISO 21806 documents reference according to the OSI model

Road vehicles — Media oriented systems transport (MOST) framework —

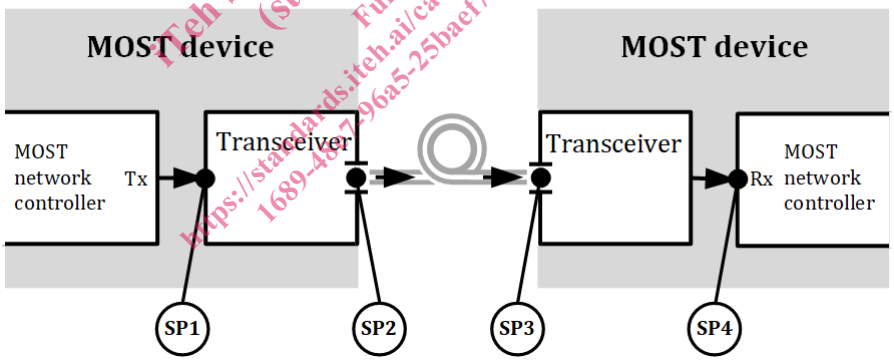
Part 8:
150 Mbit/s optical physical layer

1 Scope

This document specifies the transportation media MOST150 optical physical layer (oPHY). All MOST150 oPHY networks operate as synchronous rings regardless of physical layer media or bit rate. Therefore, all MOST networks require the same basic types of timing measurements. These actual timing requirements are specific for the combination of physical layer and bit rate; the measurement methods are generalized into a strategy used to specify any MOST150 oPHY network and guarantee operation.

This document outlines the basic measurement techniques, parameters and the 150-Mbit/s oPHY bit rate dependant values of the measurements, methods and actual parameter values. It also contains the constraints that govern and define interfaces and parameters, which are the base for development of real products.

A physical connection of two MOST devices is called a link. This document describes measurements taken at specific locations along a link. These locations are called specification points. The location of the specification points is shown in Figure 3.



Key

Tx	MOST network controller transmit terminal
Rx	MOST network controller receive terminal
SP1	Specification point 1
SP2	Specification point 2
SP3	Specification point 3
SP4	Specification point 4

Figure 3 — Location of specification points along a link

SP1 and SP4 define the electrical signal requirements between a MOST network controller (MNC) with its input Rx and output Tx and a converter. SP1 and SP2 define the transmit converter while SP3 and SP4 define the receive converter. SP2 and SP3 define the properties of the interface between a MOST device and a wiring harness (e.g., signal timing, signal amplitude, connector interface drawings).

Beside the link, there are also requirements covering the stability of the MOST network. Examples are requirements regarding jitter transfer through MOST devices and jitter accumulation around the MOST network.

This document summarizes all parameters and definitions required for individual specification points, as well as MOST network requirements.

The specified parameters in this document are minimum values to ensure functionality of the MOST network in a wide range of environment conditions. Real hardware may have better performance than requested by the standard to provide operating margin for the MOST network.

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.

ISO 21806-1, *Road vehicles – Media Oriented Systems Transport (MOST) – Part 1: General information and definitions*

ISO 21806-4, *Road vehicles – Media Oriented Systems Transport (MOST) – Part 4: Transport layer and network layer*

ISO 21806-6, *Road vehicles – Media Oriented Systems Transport (MOST) – Part 6: Data link layer*

AEC-Q100: *Failure Mechanism Based Stress Test Qualification For Integrated Circuits*
[SOURCE: http://www.aecouncil.com/AECDocuments.html]

JEDEC MS-013E, *Standard – Very Thick Profile, Plastic Small Outline (SO) Family, 1,27 mm pitch, 7,50 mm (.300 inch) Body Width. B1R-PDSO/SOP/SOIC* [SOURCE: http://www.jedec.org/]

JEDEC No. JESD8C.01, *Interface Standard for Nominal 3 V/3,3 V Supply Digital Integrated Circuits* [SOURCE: http://www.jedec.org/]

TIA/EIA-644-A-2001, *Electrical Characteristics of Low Voltage Differential Signaling (LVDS) Interface Circuits* [SOURCE: http://www.tiaonline.org/standards/]