IEC 61375-3-1

Edition 1.0 2012-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electronic railway equipment – Train communication network (TCN) – Part 3-1: Multifunction Vehicle Bus (MVB)

Matériel électronique ferroviaire – Réseau embarqué de train (TCN) – Partie 3-1: Bus de Véhicule Multifonctions (MVB)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRONIC RAILWAY EQUIPMENT – TRAIN COMMUNICATION NETWORK (TCN) –

Part 3-1: Multifunction Vehicle Bus (MVB)

FOREWORD

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International Standard IEC 61375-3-1 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This first edition cancels and replaces the clauses of IEC 61375-1, second edition, published in 2007, relevant to the specification of MVB and constitutes a technical revision.

It was prepared taking into account IEC 61375-1 third edition.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/1644/FDIS	9/1668/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61375 series, under the general title *Electronic railway equipment – Train communication network (TCN)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This part of IEC 61375 specifies one component of the Train Communication Network, the Multifunction Vehicle Bus (MVB), a serial data communication bus designed primarily, but not exclusively, for interconnecting equipment where interoperability and interchangeability are needed.

This part specifies:

a) the physical media in single-line and double-line configurations;
b) the signalling and the redundancy handling;
c) the format and timing of the transmitted frame and telegrams;
d) the organisation of the bus traffic;
e) the allocation of Mastership;
f) the management of the bus;
g) the Link Layer interface and the layer management interface.

This part is structured following the OSI layers of a reference MVB device as shown in Figure 1:

Caluse 4 Physical Layer
- Electrical medium for short distance (RS-485, 20,0 m)
- Electrical medium for middle distance (transformer-coupled, 200,0 m)
- Optical fibre for long distances (glass fibres, 2,0 km)

Clause 5 Medium-dependent signalling
- Frame encoding and decoding
- Line Unit interface
- Physical redundancy handling

Clause 6 Frames and telegrams
- Master Frame and Slave Frame encoding, Telegram timing

Clause 7 Link Layer Control
- Addressing
- Master Frame and Slave Frame format

Clause 8 Medium allocation
- Periodic Polling
- Event Polling
- Devices Scan

Clause 9 Mastership transfer
- Regular and exceptional mastership transfer

Clause 10 Link Layer Interface
- Link Process Data Interface (LPI),
- Link Message Data Interface (LMI),
- Link Supervision Interface (LSI).

Clause 11 Real-Time Protocols

Clause 12 Gateway Function

Clause 13 Network Management

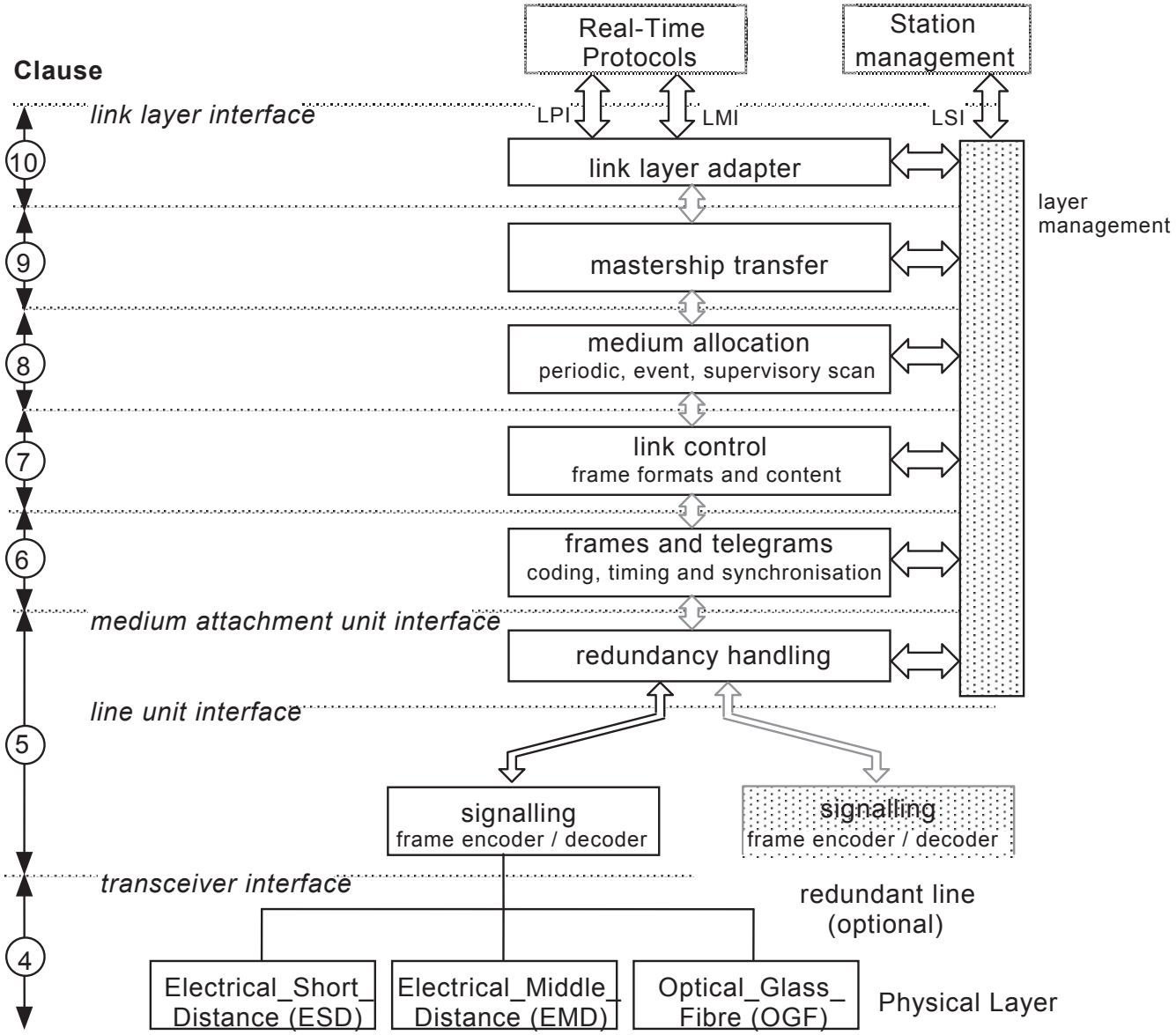

Figure 1 – Reference device and structure of the document