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**Electronic railway equipment – Train communication network (TCN) –
Part 2-1: Wire Train Bus (WTB)**

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**Matériel électronique ferroviaire – Réseau embarqué de train (TCN) –
Partie 2-1: Bus de Train Filaire (WTB)**

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Part 2-1: Wire Train Bus (WTB)**

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INTRODUCTION

This part of IEC 61375 specifies one component of the Train Communication Network, the Wire Train Bus (WTB), a serial data communication bus designed primarily, but not exclusively, for interconnecting consists which are frequently coupled and uncoupled, as is the case of international UIC trains.

Figure 1 illustrates the WTB application.

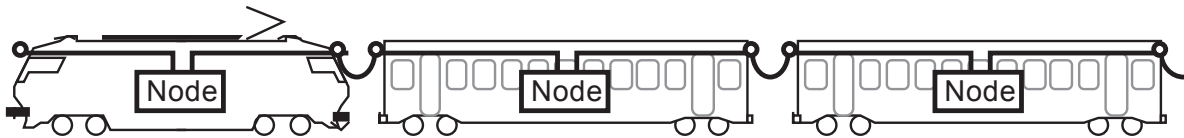


Figure 1 – Wire Train Bus

This standard defines these interfaces as connections to a data communication network, called the Train Communication Network (TCN).

The TCN has a hierarchical structure with two levels of networks, a Train Backbone and a Consist network:

- a) for interconnecting consists in Open Trains (see definition) such as international UIC trains, this standard specifies a Train Bus called the Wire Train Bus (WTB);
- b) for connecting standard on-board equipment a Consist network e.g. the Multifunction Vehicle Bus (MVB) can be used.

In the TCN architecture, WTB features Real-Time Protocols, which offer two communication services:

- c) Process Variables, a distributed, real-time database, periodically refreshed through broadcasting;
- d) messages, transmitted on demand either as:
 - unicast messages (point-to-point) or/and
 - multicast messages.

WTB in the TCN offers a common Network Management, which allows debugging, commissioning and maintenance over the network.

The Consist network MVB shares Real-Time Protocols and Network Management with WTB. Other implementations of consist networks need adaption to the Real-Time Protocols and Network Management of WTB.

The TCN is structured similarly to the Open System Interconnection model defined in ISO/IEC 7498-1 (see Figure 2).