

ABSTRACT**Train and method for safely determining the composition of such a train**

This method for determining the composition of a train (1) including a plurality of vehicles grouped in successive units (10A, 10B, 10C) connected to each other, the train including:

- one safety management device (24A, 24B, 24C) per unit (10A, 10B, 10C), each device (24A, 24B, 24C) having two identifiers which are specific to it,
- one coupling communication link (12, 14) for each pair of adjacent units,
- a general network (18) for connecting all the devices (24A, 24B, 24C) to each other,

comprises an initial step for transmitting, with each device (24A, 24B, 24C), over the general network (18), a non-secured broadcast message and a step for receiving, with each device (24A, 24B, 24C), messages including the identifiers of the other modules.

The method comprises the following steps:

- transmitting, over the general network (18) and over each coupling communication link (12, 14), with at least one device (24A, 24B, 24C), a secured message to one of the adjacent devices (24A, 24B, 24C) to said device (24A, 24B, 24C), the message including one of the identifiers of said device (24A, 24B, 24C),

- transmitting, over the general network (18), with each device (24A, 24B, 24C) having received an identifier of another device (24A, 24B, 24C) connected through a coupling communication link (12, 14), at least one restoration message including both identifiers of said device as well as the received identifier,

- receiving, with each device (24A, 24B, 24C), transmitted restoration messages, and

- determining, with at least one device (24A, 24B, 24C), the composition of the train.

Fig. 2