

Broadband system to increase bitrate in train communication networks

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Abstract-

MVB (Multifunction Vehicle Bus), defined in IEC 61375, has been broadly adopted as the communication standard between embedded control systems on-board modern trains. In this work a new method to take advantage of the full bandwidth of the channel using an OFDM technique is described. With this new method it is possible to share the physical medium between standard MVB traffic and new OFDM traffic. A 90 Mbps theoretical bitrate can be achieved. The results of this work have been validated in a test bench including standard MVB nodes transmitting on a line similar to a real vehicle bus.

Index Terms- IEC 61375; MVB; OFDM; Programmable logic; Bandwidth optimization

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