

Overhead Reduction by Channel Estimation Using Linear Interpolation for Single Carrier Frequency Domain Equalization Transmission

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Abstract : This paper proposes a new method to reduce the overhead by pilots for single carrier frequency domain equalization (SC-FDE) transmission. In the conventional SC-FDE transmission structure, the overhead by transmitting pilot is heavy because the pilot are transmitted at every SC-FDE block. The proposed SC-FDE structure has fewer pilots and many SC-FCE blocks are transmitted between pilots. The channel estimation and equalization is performed at the pilot period and the channels between pilots are estimated through linear interpolation. This reduces the pilot overhead by reducing the pilot transmission compared with the conventional structure, and enables reliable channel estimation and equalization.

Keywords : channel estimation, linear interpolation, pilot overhead, SC-FDE

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