Lattice-Reduction aided Soft-Output Detector for Spectrally Efficient FDM System

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***Abstract*—In this paper, we propose the lattice-reduction (LR) aided soft-output detector in conjunction with channel decoder for spectrally efficient frequency division multiplexing (SE-FDM) system. The SE-FDM system can increase spectral efficiency by overlapping the subcarrier closer than the orthogonality condition, but result in inter-carrier-interference (ICI) at receiver. Thus, we utilize the LR-aided detector to achieve near optimum performance by reducing the basis of ICI term in equalization process. In addition, we also study the soft-output LR-aided detector with convolutional coding. Through the Momte Calro simulation, the LR-aided detector shows good trade-off between complexity and performance for both uncoded and coded SE-FDM system.**

***Keyword*—Spectrally efficient FDM, lattice reduction, Soft-output.**

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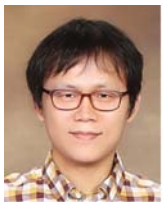

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