

OFDM-MFSK as a Special Case of Noncoherent Communication Based on Subspaces

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Abstract:

The combination of OFDM and FSK leads to attractive wireless transmission methods for fast time-varying channels because no channel knowledge is required in the receiver. Their drawback is the moderate or bad bandwidth efficiency. We show that OFDM-MFSK and its multitone variant are special cases of more general methods which use vector subspaces for transmission and which are commonly discussed in MIMO context. Beside a better theoretical understanding this opens a window for future work with the goal to increase the bandwidth efficiency of OFDM-MFSK while keeping its robustness with respect to fast time-varying channels..