

## **Analysis of Linear Equalizers for Cooperative Multi-User MIMO Based Reporting System**

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**Abstract :** In this paper, we consider a multi user multiple input multiple output (MU-MIMO) based cooperative reporting system for cognitive radio network. In the reporting network, the secondary users forwards the primary user data to the common fusion center (FC). The FC is equipped with linear equalizers and an energy detector to make the decision about the spectrum. The primary user data is considered to be a digital video broadcasting - terrestrial (DVB-T) signal. The sensing channel and the reporting channel is assumed to be an additive white Gaussian noise and an independent identically distributed Raleigh fading respectively. We analyzed the detection probability of MU-MIMO system with linear equalizers and arrived at closed form expression for average detection probability. Also the system performance is investigated under various MIMO scenarios through Monte Carlo simulations.

**Keywords :** Cooperative MU-MIMO, DVB-T, Linear Equalizers

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