Abstract

Long Term Evaluation (LTE) Advanced networks are popular due to very high data rates with ultra-wide bandwidth spectrum, and broad coverage and are currently adopted as 4G standard. In spite of vast benefits of LTE Advanced, the propagation loss occurs due to low signal-to-noise-ratio (SNR) and results in low coverage and channel capacity at the cell boundaries. To overcome these problems, cooperative communication network is used by deploying relay nodes. In this paper, we conduct the performance analysis of LTE Advanced relay system on WINNER channel model with various communication scenarios. The simulations environment for the LTE Advanced network and WINNER channel models is created using Matlab. For easiness, only one base station and user equipment are used in the simulation setup. We observe the effect on LTE performance using one or two relay nodes in the LTE network. We conduct the experiments for four different environments and six scenarios. We analyze the performance using symbol-error-rate for different SNR. The results show that LTE Advanced network using relay nodes performs much better than other environments. It also provides least latencies, even wider coverage, and higher data rate with minimum outage.
References

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Index Terms

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Keywords