Uplink Spectral Efficiency for Non-Orthogonal Multiple Access in Rayleigh Fading

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***Abstract*— This paper introduces original analysis on the uplink spectral efficiency of non-orthogonal multiple access (NOMA) in Rayleigh fading environment. According to the accurate Gaussian-based evaluation, a closed-form expression of the spectral efficiency is proposed. Also, this work is extended to the practical case in which the number of active users is random. Validated by the simulation, the presented closed form benefits us to calculate the exact average of uplink NOMA spectral efficiency at different system parameters, such as signal-to-noise ratio, active probability, number of employed subcarriers.**

***Keyword*— non orthogonal multiple access, uplink, spectral efficiency, future radio access, Rayleigh fading**

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