

# **Effect Of Doppler Frequency On Pilot Arrangements In Wireless OFDM Systems**

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## **Summary**

This paper describes in detail the effect of Doppler frequency on different pilot arrangements in wireless OFDM systems, under Rayleigh faded channel conditions. This paper also addresses the issue, of how to arrange the location of pilot tones, and a new pilot insertion scheme is proposed and compared. It is shown, that for lower Doppler frequencies the proposed scheme performs better than other existing pilot schemes. It is shown via simulations that over Rayleigh multipath faded channels it is more efficient to use fewer pilot tones in all symbols, instead of using all tones as pilot tones in some symbols. Another important observation from the simulation results is, that comb-type pilot estimation is less effected by Doppler frequency. The reason is the existence of inter carrier interference (ICI) caused by Doppler shifts.

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