

ABSTRACT

This project objective is to design the configuration of Adaptive Spatial Modulation MIMO-OFDM system. By using this system it can not only improve the performance, but also can cope with the fluctuation of the channel conditions against time which related to multipath fading and other interference's fluctuation of the channel. This system will combine adaptive scheme of modulation and spatial at MIMO which consist of the diversity mode (mode 1), mixed mode (mode 2), spatial multiplexing mode (mode 3).

MIMO-OFDM performance is conducted by designing the transmission scheme of each mode in spatial MIMO with different channel conditions and it will be analysed which is the best mode at this channel conditions. Adaptive scheme of MIMO-OFDM will send the information channel conditions from receiver to transmitter, to predict which mode will be used to the channel conditions at the moment.

The simulation result show that the adaptive scheme have the best performance, because this scheme following the best mode of different channel conditions. At the end this process will get a threshold by choosing the next transmission mode. Mode 3 is used if the under threshold and mode 2 is used if the above threshold. To reach BER 10^{-4} as a target, adaptive scheme will follow mode 2, so this result will improve the performance of equal 7 dB compared by mode 3 (fixed) when user is moving with 2,7 km/hour velocity.

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