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## A wireless precoding technique for millimetre-wave MIMO system based on SIC-MMSE (Article) [\(Open Access\)](#)

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### Abstract

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A communication method is proposed using Minimum Mean Square Error (MMSE) precoding and Successive Interference Cancellation (SIC) technique for millimetre-wave multiple-input multiple-output (mm-Wave MIMO) based wireless communication system. The mm-Wave MIMO technology for wireless communication system is the base potential technology for its high data transfer rate followed by data instruction and low power consumption compared to Long-Term Evolution (LTE). The mm-Wave system is already available in indoor hotspot and Wi-Fi backhaul for its high bandwidth availability and potential lead to rate of numerous Gbps/user. But, in mobile wireless communication system this technique is lagging because the channel faces relative orthogonal coordination and multiple node detection problems while rapid movement of nodes (transmitter and receiver) occur. To improve the conventional mm-wave MIMO nodal detection and coordination performance, the system processes data using symbolized error vector technique for linearization. Then the MMSE precoding detection technique improves the link strength by constantly fitting the channel coefficients based on number of independent service antennas (M), Signal to Noise Ratio (SNR), Channel Matrix (CM) and mean square errors (MSE). To maintain sequentially encoded user data connectivity and to overcome data loss, SIC method is used in combination with MMSE. MATLAB was used to validate the proposed system performance. © 2019, Universitas Ahmad Dahlan.

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