



# Improvement in convergence rate and stability: ICMA for Smart antenna system

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## Abstract

Smart antenna attracts immense attention while implementing it in the wideband wireless communication systems, highlighting the importance of these techniques in Wireless Interoperability Microwave Access (WiMAX), which consists of Orthogonal Frequency Division Multiplexing (OFDM)-based system. Nonblind adaptive beamforming algorithms such as Least Mean Square (LMS), Improved Least Mean Square (ILMS), LLMS and blind algorithms such as Constant Modulation Algorithm (CMA), newly developed Improved CMA formulated for Smart Antenna (SA) which will be applied in wideband wireless networks are analysed. Simulation of LMS, LLMS, ILMS, CM and ICMA adaptive beamforming algorithms is carried out to calculate the error by using MATLAB. The error curve shows that the ILMS and ICMA converge faster than traditional LMS and CMA. The error for ICMA is least as compared to other algorithms because of variable step size. The error of newly developed ICMA algorithms were compared with the errors presented in previously presented papers.

**Keywords:** Smart Antenna, LMS, CMA, ICMA, adaptive algorithm.

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