ABSTRACT

Antenna on mobile communication has an important role to transmit radio wave through the air interface. But, until today the antenna system that mainly used still having a fixed beam pattern. Smart Antenna Technology which used a current adaptive algorithm is a way to increase the performance of mobile communication system.

Smart Antenna system that has been implemented is using Eigenbeamforming algorithm and being used in a communication system based on 802.16e standard. This algorithm has been implemented on TMS320C6713 which used to get the weighting vector for the array antenna element. The parameters that will be studied in a single user environment is the impact of gaussian noise level to the system and in a multi user environment is the impact of interferers number on desired user SNIR.

The performance results are the more Gaussian noise level will effect on radiation pattern stability that indicate degradation of the channel estimation accuracy. Degradation on user SNIR will also be occur with the appearance of interferers. TMS320C6713 can be used as platform to implement Smart Antenna system. A recommendation is also given to optimize the used of channel communication buffer on DSP to increase data rate transfer from TMS320C6713 to PC.

Keywords : beam, Smart Antenna, Eigenbeamforming, TMS320C6713