## ABSTRACT

Full duplex single channel millimeter wave massive MIMO offers high performance and high capacities for future wireless communication. There is selfinterference problem in this technique. The interference can be cancelled using selfinterference cancellation scheme. Self-interference cancellation scheme is using near-field estimation in previous research which is complicated for massive MIMO.

This research proposes dual polarized antenna decoupling for full duplex single channel communications. Massive MIMO antenna are modelled using circular disk proximity coupled planar antenna at 43 GHz with 16 planar array using single-polarized and dual-polarized configurations. These models are evaluated based on ECC and performance on full duplex single channel. Antenna is tested using several self-interference signal power ratio and uncertainly of antenna's parameter.

Antenna models show that dual-polarized massive MIMO has better performance compared to single-polarized massive MIMO if self-interference cancellation is not applied. It has been shown by lower BER on dual polarized configuration and lower transitive region of self-interference signal power ratio. Dual-polarized configuration also offers better independency compared to singlepolarized configuration.

Keywords: millimeter wave, MIMO, self-interference, full duplex single channel