Demodulation of 4x4 MIMO Signal using Single RF

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Abstract— **Beam switching in the receiving antenna generates replicas in frequency domain, which enables MIMO decoding by using just single RF. It is fascinating to demodulate MIMO signals using single RF, which relieves the volume expansion by MIMO. However, this scheme has not been verified through a test-bed especially in 4x4 MIMO case.**

This paper presents test results of 4x4 MIMO receiver using single RF chain and beam switching antenna. Test results show the constellation and SNR of decoded 4x4 MIMO signal. When beam switching scheme applies, measured SNR was 12.95 dB on average and 17.85 dB at its maximum. This scheme can apply to massive MIMO system which requires quite a number of antennas and RF circuits.

***(Pt9)Keyword*—Compact, MIMO, Antenna, Beam-switching, ESPAR**

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