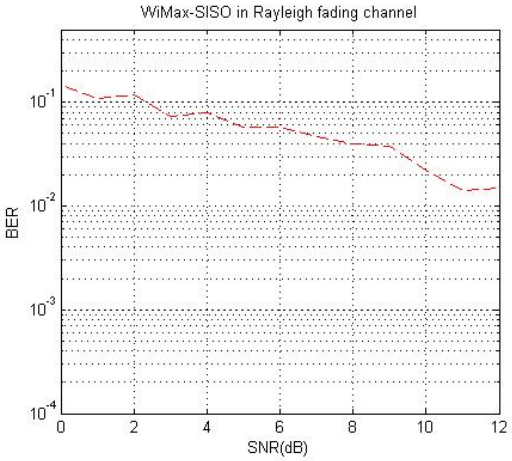

Figure 8: SISO Wimax in Rayleigh fading.

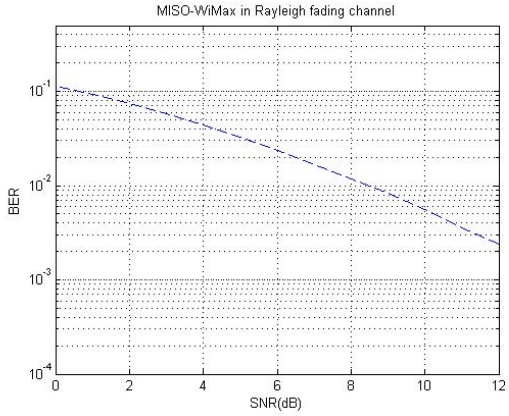

Figure 9: MISO Wimax in Rayleigh fading.

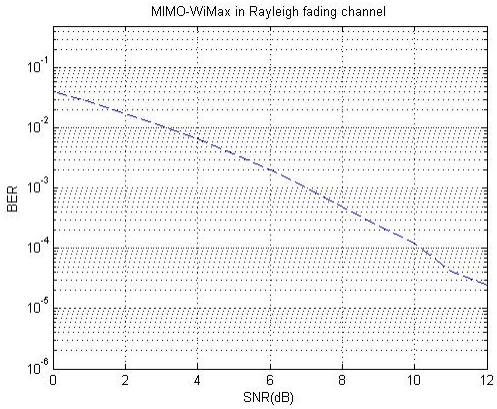

Figure 10: MIMO Wimax in Rayleigh fading.

From (SISO-MISO-MIMO) Wimax graphs using Rayleigh fading, it is clear that In MIMO channel, when the number of transmission and reception antenna increased, the performance enhances. The highest BER value obtained in SISO technique, medium value obtained at MISO (2X1) technique and the lowest value of BER was obtained when the multiple antenna technique (MIMO-Wimax 2X2) is used This shown in Fig 8, Fig 9 and Fig 10 respectively.

7. Conclusion

This paper shows that the performance of WiMAX sytem can be improved using MIMO techniques. Therefore multiple antenna techniques offer diversity gain and it can be used to increase system coverage with low bit error rate. A comparison between three techniques included SISO, MISO and MIMO was done. The performance in term of BER was obtained and the results showed that for SISO WiMax the best BER values were taking when there are no fading channels. For MISO Wimax from the results it was clear that it enhances the BER comparing to SISO technique. The results showed by MIMO Wimax technique offer the best values of BER. Therefor increasing in the number of antennas at the both transmitting side and receiving side would help to increase capacity and provide low BER.

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