Low BER for MIMO-OFDM using Time-Varying ETU and SUI Channels

Ms. PINKU KUMARI[1], Ms. JYOTSNA SAGAR[2]

[1]*M. tech Research Scholar, Department of Electronics and Communication Engineering. Sri Satya Sai University of Technology and Medical Sciences, Sehore, Bhopal, Madhya Pradesh, India*

[2]*Assistant Professor, Department of Electronics and Communication Engineering. Sri satya sai university of technology and Medical Sciences, Sehore, Bhopal, Madhya Pradesh, India*

Abstract- In this paper, a method is proposed to reduce BER (Bit Error Rate) in MIMO-OFDM specially for Time-Varying Channels under SUI (Stanford University Interim) channels and ETU (Extended Typical Urban). Multi input multi output OFDM system (MIMO-OFDM) needed channel estimation on no transmission overhead over SUI channel and ETU (Extended Typical Urban). Time-varying channels in an OFDM network result in damages to orthogonality between subcarriers resulting in intercarrier interference with OFDM system. In this situation, intercarrier disruption is induced. In the ICI reducing frame, a time domain strategy is used to decrees time differences. The result that the proposed work can sufficiently suppress the LTI channel by comparing LTI Extended Typical Urban and LTI Stanford University Interim channel.

I. INTRODUCTION

In order to improve the performance of wireless communication, high-speed data transmission is required. High-speed data speeds are provided using orogenic frequency division multiplexing (OFDM). It is an appealing technique in tandem with the use of the computationally efficient Fourier Transformations (FFTs) in large areas of broadband networks by a large number of orthogonal suppliers. If a stream is not stable while a single OFDM signal is broadcast, inter-carrier interference (ICI) takes place. Different channels contribute to ICI and break the sub-carrying orthogonality, which in turn lowers the system's efficiency. The Multi Input Multi Output (MMIO) design makes the problem harder and much more complex because the transmitter signals are mixed together with other signals. Cross-cargo interference (ICI), orthogonality between sub computers and system performance would be affected on time-driven networks.

II. PROPOSED METHODOLOGY

In order to improve the performance of wireless communication, high-speed data transmission is required. High-speed data speeds are provided using orthogenic frequency division multiplexing (OFDM). The bit error rate is the per-unit time number of bit errors. Urban channel models are among the most used in testing, standardization and cellular network dimensioning. The stream was always defined by its time dispersion, often as the determining factor in the quality evaluation such as bit error rate and realistic throughput.

III. IMPLEMENTATION

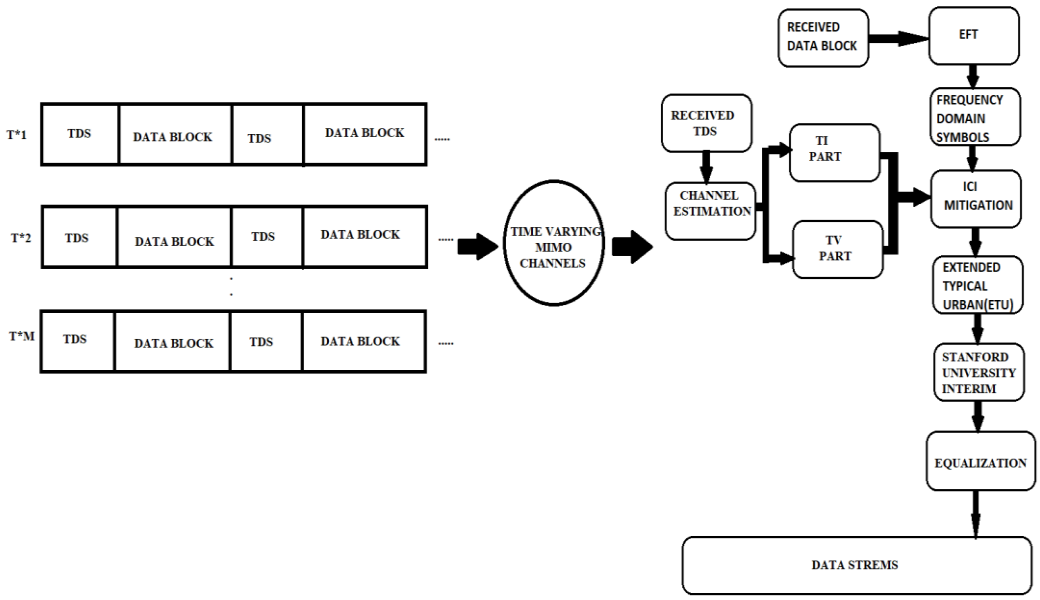

Figure 1: MIMO TDS-OFDM and receiver side ICI mitigation

The above figure 1 shows the MIMO TDS-OFDM and receiver side ICI mitigation Frame structure.

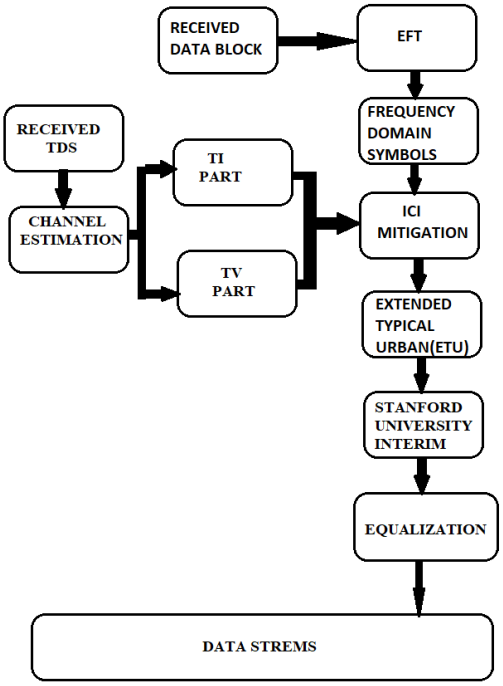

Figure 2: MIMO TDS-OFDM With ICI Mitigation of Proposed System in Receiver Section

The above shows the Receiver Section of MIMO TDS-OFDM With ICI Mitigation of Proposed System.in proposed system comparing the digital data is transmitted by using ETU (Extended Typical Urban) and SUI (Stanford University Interim) channels.

IV. RESULTS

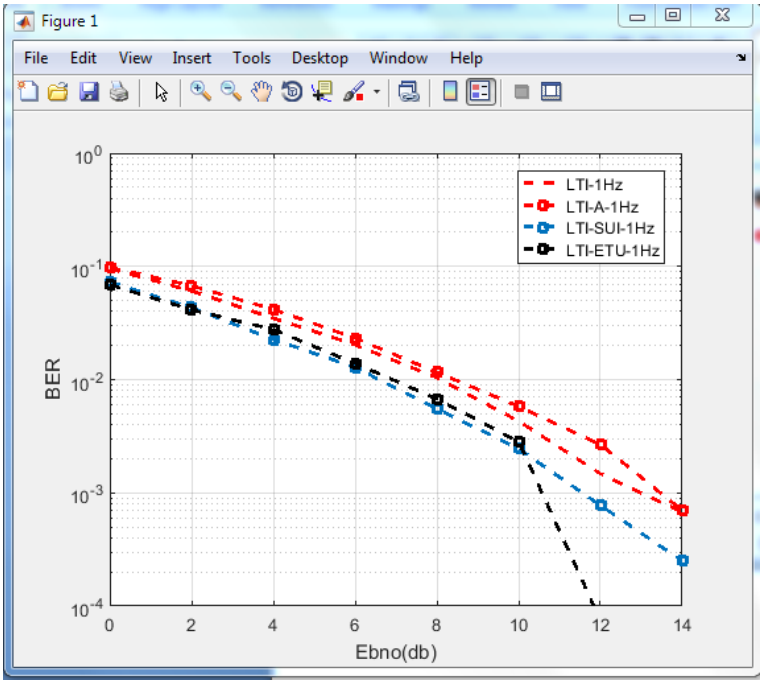

Figure 3: Comparison Graph of Ber And Normalized Signal to Noise Ratio (Eb/No)

In Figure 3 above the Ber and Normalized Noise Ratio Contrast Graph (Eb / No) is shown. The variability in BER is shown in this graph. The LTI stream ETU reduces here.

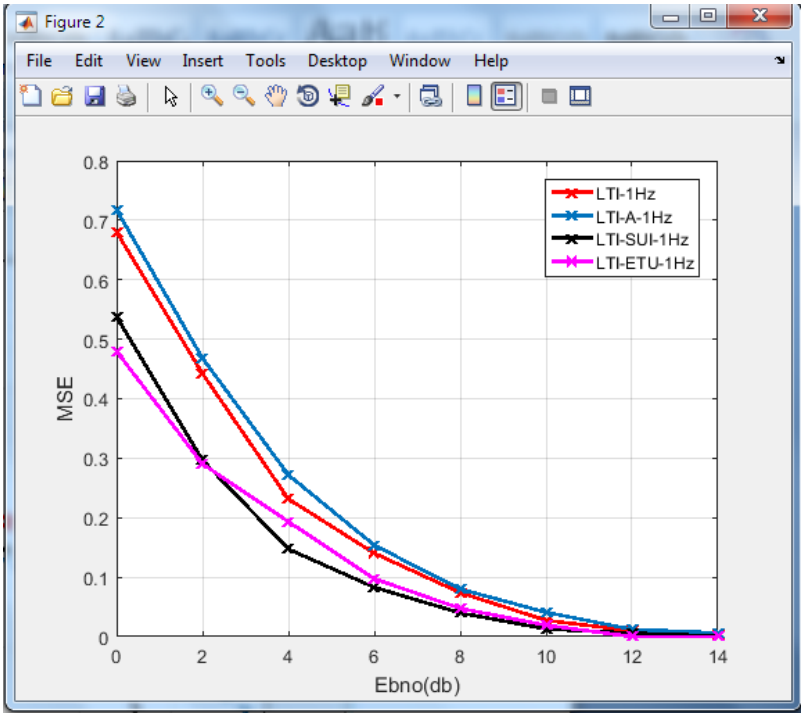

Figure 4: Comparison graph of MSE and Normalized signal to noise ratio (Eb/NO)

This figure 4 shows the comparison chart MSE and the normalized noise signal (Eb / NO). Usually, people who use BER curves can describe the performance of a digital system of communication. In general, optical communication uses BER (dB) versus receiving power (dBm).

V. CONCLUSION

The MATLAB simulation results show considerable improvement in BER performance in MIMO-OFDM specially for Time-Varying Channels under ETU (Extended Typical Urban) and SUI (Stanford University Interim) channels. The receiver senses the input symbols using the simple formula of minimum distance, which reduces the sophistication of the receiver by equalization at the end of the transmitter. This method as seen in results gives better BER and MSE output. Also, its complexity is reduced by the use of SUI and ETU channels. Further, this proposed work can be used in all time varying channels where the issue of interference is prevailing.

VI. REFERENCE

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