









**Table 1:** BER Measurements of Different Schemes

| S. No | SNR   | BER      |                 |                |                |                |             |
|-------|-------|----------|-----------------|----------------|----------------|----------------|-------------|
|       |       | FFT OFDM | DWT OFDM (Haar) | DWT OFDM (db2) | DWT OFDM (db3) | DWT OFDM (db4) | DT-WPT OFDM |
| 1.    | 6 dB  | 0.095    | 0.037           | 0.039          | 0.040          | 0.040          | 0.023       |
| 2.    | 8 dB  | 0.070    | 0.022           | 0.020          | 0.020          | 0.020          | 0.006       |
| 3.    | 10 dB | 0.039    | 0.006           | 0.005          | 0.007          | 0.007          | 0.001       |

## 5. Conclusion

In this paper, we implemented three multi-carrier modulation schemes using FFT, DWT and DT-WPT. Modulation employed in all those schemes is BPSK and the performance of all the schemes are compared over the AWGN channel. We investigated DWT-OFDM system using different wavelets like haar, daubechies. Observations from the obtained results suggest that DT-WPT OFDM system outweighs the other compared schemes by satisfying the shift variance and perfect reconstruction property. Using the wavelets in OFDM, spectral efficiency can be increased since no cyclic-prefix (CP) is used. OFDM scheme using wavelets are more robust to inter symbol interference (ISI) and Inter Carrier Interference (ICI).

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