



Development and Analysis of DVB System for Ground based communication

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This paper deals with the usage of the DVB technology for ground based communication. So the authors aim is to test its performance under different channel conditions like: AWGN and RICE channel.

1 System Modelling:



Figure 1: Block Diagram of the system

Figure 1 shows the block diagram of DVB system designed. WARP v2 board has been used as transceiver over a distance of 80 m approx. at the 2.4 GHz.

2 Result & Analysis:

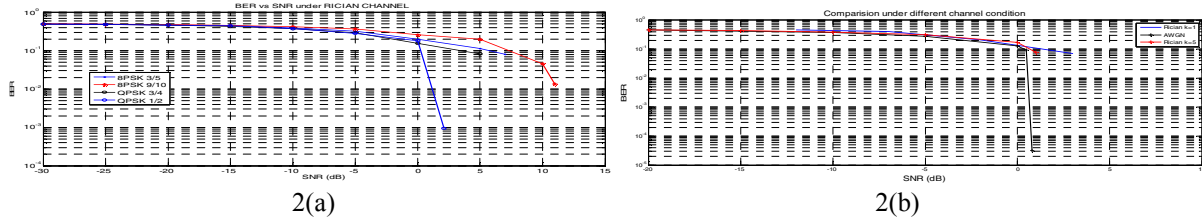


Figure 2: BER vs SNR performance of DVB system for different modulation and code rate under (a) Rice channel (K=5) and (b) Under different channel condition: varying the channel condition for AWGN, rice (K=5), rice (K=1) with fixed Modulation: QPSK and Code Rate: $\frac{1}{2}$

Image Transfer:

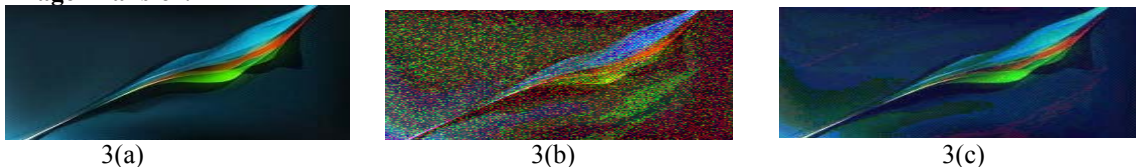


Figure 3(a): Original Transmitted Image; Figure 3(c): Received image @ SNR= 10dB (Rice channel); Figure 3(d): Received image @SNR=30dB (Rice channel)

Fig 3 indicates the image transmission under different channel condition at varying SNR.

4. Conclusion

DVB technology for ground based wireless communication shows a promising result. Authors have used the system to transfer image under different channel conditions. Rice channel with $k=1$ requires 30dB SNR for proper image. The same system is further updated for audio and real time communication.

References

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