**Locally Optimum (LO) Detectors:**

A detection mechanism like locally optimum (LO) of random signals over a weakly correlated noise model over fading channels is implemented. In case of correlated noise environments, rather than simple detection techniques we use to implement LO detection techniques. False alarm and detection probabilities are used to define LO detection. The above said probabilities depend on channel gain hand we need to take average of h in order to get final average false alarm and detection probabilities. In this paper, we derive some averages of these two probabilities in a large no. of channel gains and averages are taken. From the probabilities we can determine that simulation results obtained are matching well with theoretical results. When compared simple energy detection with locally optimum detection it is clear that later has better performance

The signal detection problem in noisy observations has been considered in many previous studies. Among the various signal detection problems, weak signal detection has been of much interest in detection theory and applications. Among the typical investigations on locally optimum (LO) detectors are those considered

It has been commonly assumed that the additive noise samples are statistically independent. In practice, however, this assumption is often violated, and the optimum detectors designed under this assumption are no longer optimum in practice. Such a situation becomes more realistic as the sampling rate gets higher. Thus, investigations on signal detections in dependent noise should be considered.