

TABLE OF FIGURES

Figure 1: A Snapshot of the spectrum utilization up to 6GHz in an urban area [18]	2
Figure 2: Spectrum Allocations in United States.....	3
Figure 3: Cognitive Cycle	4
Figure 4: Dynamic Spectrum Access.....	5
Figure 5: QPSK signal constellation.....	6
Figure 6: Block diagram of Sequential Energy Detector [14]	11
Figure 7: Conceptual block diagram of Energy Detector	14
Figure 8: Conceptual block diagram of Cyclostationary Feature Detector	16
Figure 9: Cyclostationary Detector.....	19
Figure 10: Sequential Energy Detector.....	27
Figure 11: Model of SED-CFD.....	29
Figure 12: Implementation Process	31
Figure 13: Performance of Energy Detector under different <i>PFA</i>	32
Figure 14: PD vs PFA, ROC curve for ED	33
Figure 15: Sample Numbers for ED at different <i>SNR</i> values.....	34
Figure 16: Average Sample Numbers for different values of <i>SNR</i> for SED	35
Figure 17: ASN for different values of SNR for SED and ED, <i>PFA</i> = <i>PMD</i> = 0.01	36
Figure 18: ASN for different values of SNR for SED and ED, <i>PFA</i> = <i>PMD</i> = 0.05	36
Figure 19: SCD plot at <i>SNR</i> = -25dB	37
Figure 20: SCD plot at SNR = -10dB.....	38
Figure 21: SCD plot with noise only	39
Figure 22: ROC Curves for Cyclostationary Detector at different <i>SNR</i> values	39
Figure 23: Performance comparison of truncated SED and Combined Detector	40
Figure 24: Performance comparison of truncated SED and Combined Detector	40