Chapter 4

1 Objectives of this Research

The sensitivity improvement of a mobile receiver is not a recent problem; rather this need was there since from the early days of the receiver design. So, there are some prior art exists for improving the sensitivity level of a receiver. These are mentioned in the respective chapters. But, some of these are either not applicable in a low cost mobile terminals or some areas are not explored properly. These gaps are identified in various receiver module designs and mentioned in the appropriate chapters. So, here to fill these gaps, all the possible areas in the receiver design including RF and Baseband are explored and different new techniques are suggested for sensitivity improvement. Here, the objective of this research work is to explore different areas of the receiver design, as given below and to find out the optimum solution and propose the new design solutions to achieve this.

i. Optimum RF architecture Exploration for sensitivity boosting
ii. Optimum Filter structure Exploration for sensitivity boosting
iii. Baseband Channel Estimation Algorithm Explorations for sensitivity boosting
iv. Baseband Equalizer and Demodulator Explorations for sensitivity boosting
v. Iterative Receiver Structure Explorations for sensitivity boosting
vi. Reconfigurable novel receiver architecture for sensitivity boosting with minimal complexity