

3. Radio Design

The radio is the radio front-end of a mobile terminal. The radio consists of three major sub-systems: the transmitter, the receiver and the synthesizer. The radio has two identical receivers for the antenna diversity purposes. Additionally, the power control (PC), automatic frequency control (AFC) and automatic gain control (AGC) sub-circuits are essential for the W-CDMA system objectives. The digital-to-analog converters (DAC) and the analog-to-digital converters (ADC) are used for the interfaces between the radio and the baseband processor. Appendix B is a full block diagram of the radio.

The discussion in this chapter includes three major sections. Each section describes one of the sub-systems. The beginning of each section is the block diagram of the sub-system. Referring to the block diagram, the technical specification, the design approach and analysis, and the circuit implementation are presented.