Abstract

Nowadays, wireless communication is an integral part of our lives. The topic of my thesis is to design and accomplish a software defined radio which is able to receive the short wave radio amateur band. At my BSc thesis and project laboratories my task was to implement several component of this kind of radio. In this present thesis, with the gained experience and knowledge I aim to implement the whole system. First – based on various points of view – I chose parts considered to be best for the application, then I have designed the schematics. For critical components, I also simulated some of the schematics. The components' footprints were designed based on some standards, which guarantees the good solderability. I continued the work with the PCB (Printed Circuit Board) design. Because the circuits are complex enough, and some of the components needs, I used 4 copper layer PCB. After manufacturing, I have soldered the components, and tested the PCBs. I should have also correct some flaws which had been inadvertently included at the design phase. Then I designed the software architecture, and implemented it. During the implementation some minor hardware modifications were also necessary. After the basic software components were implemented successfully, I have designed and implemented two signal processing algorithm: an SSB demodulator and a RTTY decoder. Finally I measured some parameters of the radio.