

## SUMMARY

The initial purpose of this work is to analyse the PCB how well it can be tested. To select the most appropriate testing methods for the PCB. The theoretical overview about different testing methods and approaches is done in chapter 2. In the work the PPVS concept of testing was used to analyse the testability of PCB.

The analysis of the initial PCB showed that it can be tested with AOI and FPT methods. AOI is traditionally used as a very first method of testing after manufacturing and can be applied for most PCBs, however, the FPT is quite an expensive and complicated method to apply for such a small and simple PCB.

To make the board testable by other methods as well the changes needed to be introduced in the design. Test Points were added on several traces, to increase the testability. That makes it possible to use ICT and test analog components for their values.

The initial conditions allowed the use of AOI and ICT test methods. (It is also possible to use FPT instead of ICT, but due to significantly higher price and necessity in more precise equipment it is left out of scope). The initial test coverage was 66,04%. After the DfT analysis there were suggestions to add test points on the bottom side of the PCB. That will allow us to test analog components. To test the general functionality of the board, connectors and interfaces the functional tests are introduced.

The final test strategy includes AOI with 3D technology, ICT, FCT. AOI allows testing the general presence of components and soldering defects. The ICT tests the analog components for correct values. The FCT tests interfaces and general working capability of IC. The test coverage of this strategy is 98,87%, which is 32,83% more.