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Design of a Two-Port Network Analyser Implementing the Software Defined Radio Paradigm

ABSTRACT - Masterthesis

This thesis work explored the GNU Radio with the objective to implement a Two Port Network Analyzer. Currently microwave network analyzers are designed using expensive, high performing microwave components integrated in a complex measurement system. With the advent of GNU Radio for microwave frequencies, network analyzers can be designed using the GNU Radio and USRP. USRP gives rapidly design and implement powerful software radio systems. GNU radio along with USRP provide immense implementation flexibility and motivated community. We observed that currently there are some limitations with the GNU Radio that can be removed and performance can be improved by making use of Python. An automatic sweep signal can be generated for USRP and output can be saved into a separate text file which cannot be possible in GNU Radio Software.