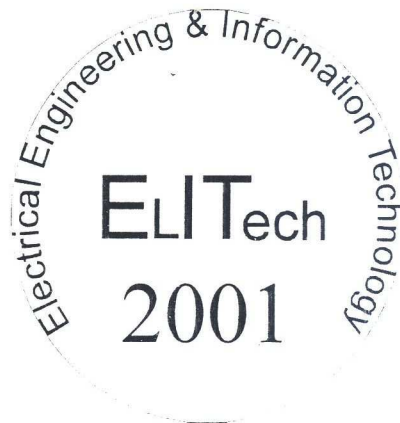


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CHARACTERIZATION OF MICROWAVE DEVICES

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A program for control of Vector Network Analyzer together with extension set for on-wafer measurements has been created. Functions for graphical output using rectangular, polar and Smith charts and for measured data processing were implemented inside the program. Measured scattering (S) parameters could be recalculated to Z, Y and H parameters. Other interesting results like transistor parameters, position of short on transmission line, deviation from linear phase could be obtained from measured data. The simplex optimization method for transmission lines model identification was implemented. This method was successfully applied for extraction of HSPICE micro-strip transmission line model. Measured and modeled coplanar wave-guide properties were compared using HSPICE in frequency range 100 MHz up to 20 GHz. Simulated curves very precisely correspond to measured results. Then the extracted model could be used as the proper model of coplanar wave-guide in circuit simulation.

INVESTIGATION OF 1.8 GHz VCO USING HSPICE

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This paper presents investigation and simulation of 1.8 GHz fully integrated CMOS voltage controlled oscillator (VCO). The oscillator is tuned by accumulation mode NMOS capacitor witch was compared with a typical NMOS capacitor. The range of tuning voltage is up to 3 V. The inductances are made by short length of bondwire. The oscillation frequency can be varied in the range of 1.7 to 1.9 GHz and power supply voltage is 3 V. The capacitor as well as VCO has been investigated using HSPICE. The VCO has been designed and implemented in a standard digital 0.5 μm CMOS technology. The layout has been made using CADENCE.