

# Low Dispersive Interdigitated Coplanar Waveguides (CPWs)

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NNIN Facilities utilized: Nanofabrication Center and Characterization Facility

- ◆ The goal of the work is to develop a low dispersive interdigitated coplanar waveguide for ultra wideband applications.
- ◆ The interdigitated CPWs were characterized using the S-parameters, loss, and effective dielectric constant.
- ◆ Design guidelines for the interdigitated CPWs were developed.

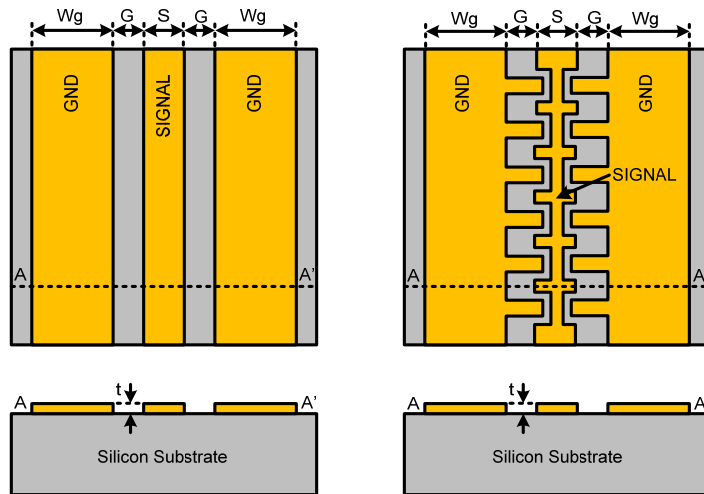


Fig. 1. Conventional coplanar waveguide and slow wave coplanar waveguide

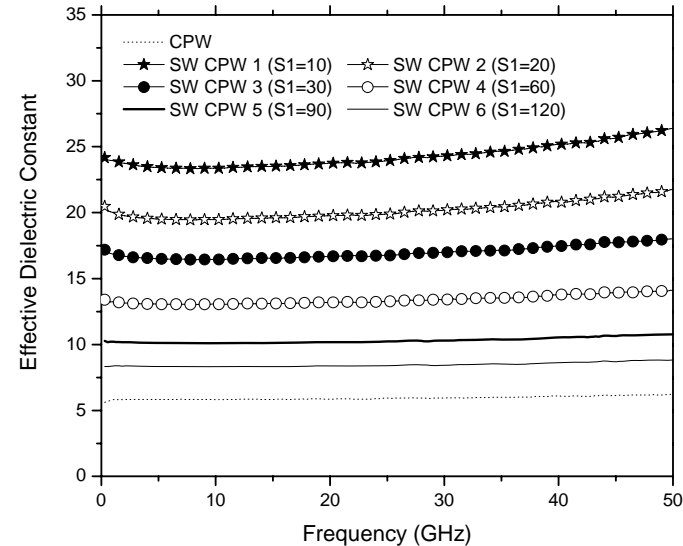


Fig. 2. The effective dielectric constant of the interdigitated CPWs designed

## MAJOR OBSERVATIONS

- ◆ The effective dielectric constant of the interdigitated CPWs increases from 6 to approximately 25 based on the geometry dimensions.
- ◆ As the  $S1$  is reduced, the effective dielectric constant increases and tends to become slightly dispersive with increased frequency for small  $S1$  value.
- ◆ The characteristic impedance of the interdigitated CPWs is maintained for various  $S1$  values.