

Technical Note: Bias Tee Option 5546

Many diode laser applications require high frequency modulation of the injection current. Typical examples are lock-in measurements, and noise compensation schemes, like the Pound Drever Hall stabilization for external cavity diode lasers.

Therefore, we include within the protection circuit of our laser heads a high frequency Bias Tee. The idea behind the use of a Bias Tee is to set the laser above the threshold using a DC current source and to independently modulate the power around its average value determined by the DC current.

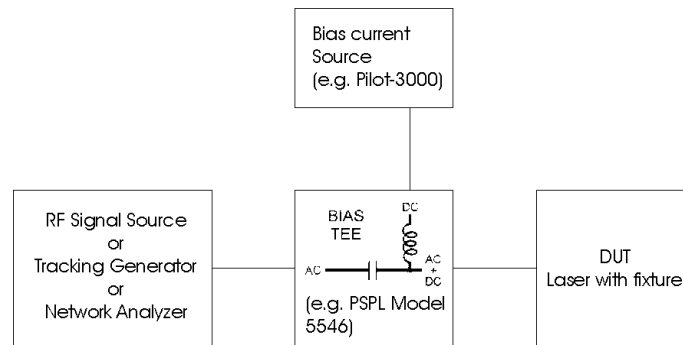


Figure 1: Schematic drawing of measurement setup

More details on the Model 5546 Bias Tee may be obtained from the technical document section <http://data.sacher-laser.com/techdocs/bt5546.pdf> of Sacher Lasertechnik.

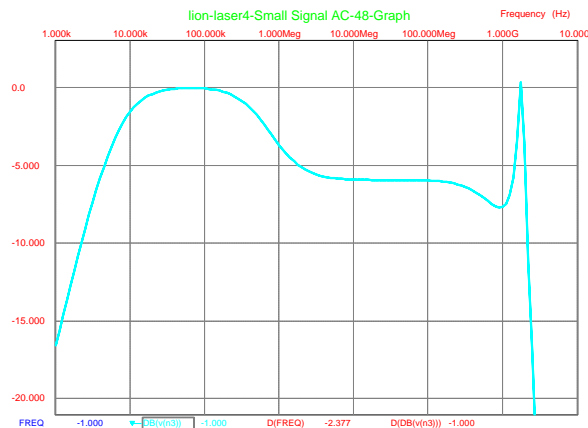


Figure 2: Frequency response of the laser head obtained from a SPICE simulation

The laser current can be modulated from 3.7kHz to the relaxation oscillation frequency of the laser. The relaxation frequency of diode lasers increases with bias current, and has been set to 2GHz for the above plot.

The Bias Tee offers good transmission from 3.7kHz to the relaxation frequency of the individual laser diode, and 50ohms impedance matching starting from 1MHz. This transmission function is suitable for most laser applications.

Document: <http://data.sacher-laser.com/techdocs/BT5546PSPL.pdf>
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 Note: Specifications are subject to change without further notice

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