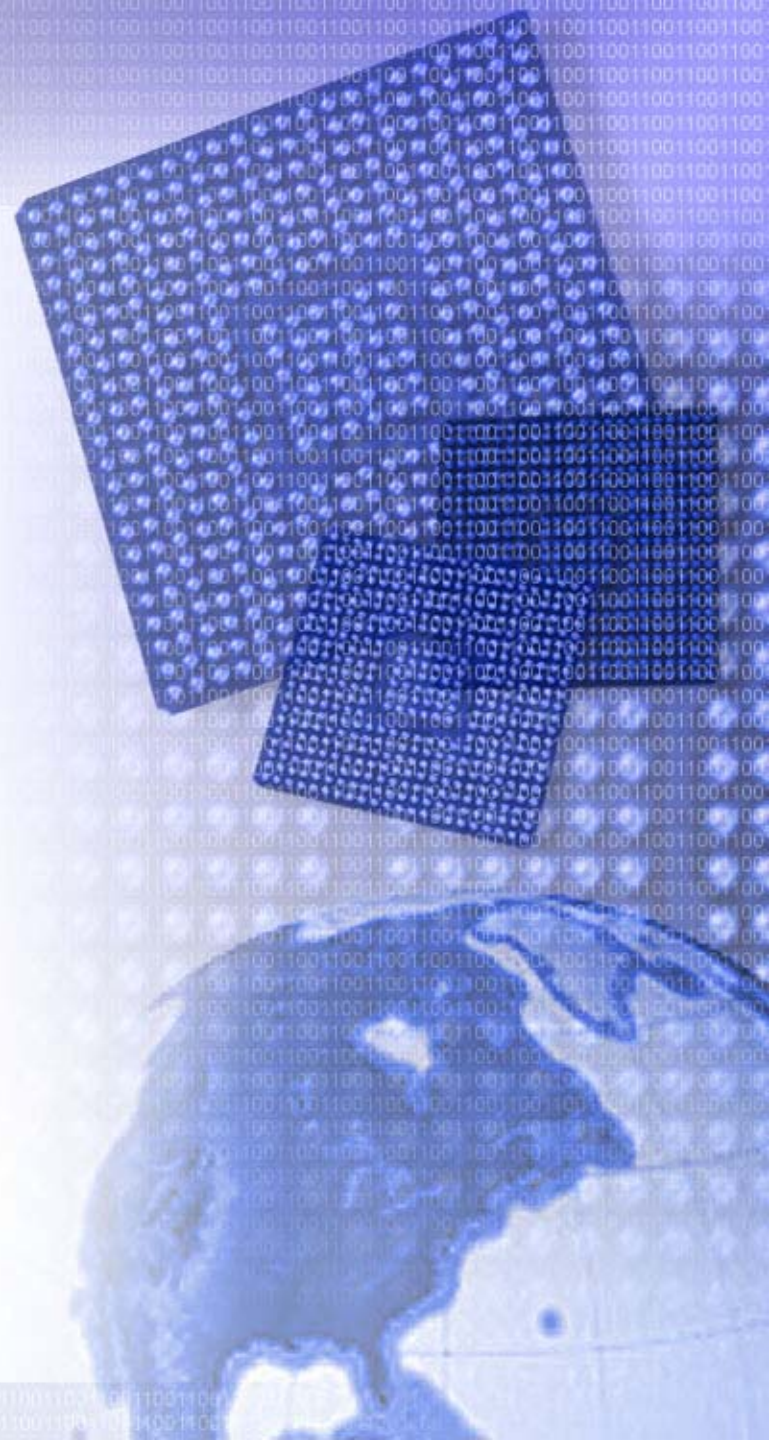




Bounding Channel Phase

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Bounding Channel Phase

- It appears the quantity of interest should be “Phase Delay” rather than “Group Delay”.

$$\text{PhaseDelay} := \frac{-\theta}{\omega} \qquad \text{GroupDelay} := -\left(\frac{d}{d\omega}\theta\right)$$

- Phase Delay is the delay of each frequency component [units sec].
- Group Delay is the delay of an envelope formed by narrow-band modulation [units sec].
- Phase Delay requires unwrapped phase, which we have. Phase Delay may require less measurement averaging.
- Group Delay is very sensitive to frequency variation in materials and has numerical issues with derivative. Group Delay has more noise the finer the measurement resolution. Can measure Group Delay with only wrapped phase.