Abstracts

The Dynamical Behavior of a Single-Mode Optical Fiber Strain Gage

M. Martinelli. "The Dynamical Behavior of a Single-Mode Optical Fiber Strain Gage." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 512-516.

A comparison is reported between the dynamical response of a single-mode fiber optic and resistive strain gages in the frequency range 25-250 Hz. The integral phase change of the laser light propagation into the vibrating fiber optic is evaluated. A mechanical system was designed to exactly delimitate the put of the optical fiber which is subjected to vibration. The frequency spectrum of the phase change signal and the resistive strain gage signal show equivalent behavior. This result is in good agreement with the theoretically expected shares and confirms the validity of the analysis performed.

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