Abstracts

Phase Shift Technique for the Measurement of Chromatic Dispersion in Optical Fibers Using LED's

B. Costa, D. Mazzoni, M. Puleo and E. Vezzoni. "Phase Shift Technique for the Measurement of Chromatic Dispersion in Optical Fibers Using LED's." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1497-1503.

A sinusoidal technique is reported, which allows simple and accurate measurements of chromatic dispersion in optical fibers. It is based on the phase shift which a sinusoidally modulated light beam undergoes while traveling along a fiber when its wavelength is changed. The choice of a multiple LED's source permits the continuous spectral covering from 750 to 1600 nm; easily available instrumentation and devices are needed for the measurement setup. The technique is reported in detail by showing results obtained in multimode fibers; statistical evaluation of its accuracy and a comparison with conventional methods are carried out. An accuracy of a few picosecond in relative delay and of /spl I.chemc/1 ps/nm /spl dot/ km in chromatic dispersion are demonstrated, that compare very favorably with the existing techniques.

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