Influence of the Error of Sensor for Atmospheric Pressure Over Uncertainty of Measurement of Length Using Lazer Interferometers

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The contribution of error of sensor for atmospheric pressure /$\Delta p \cong 1$ mm Hg/ to expanded uncertainty of measurement of 1 m length using laser interferometer is examined.

A prognosis of uncertainty is drawn up. The air refraction ratio is determined using refractometer before and after measurements. The values of this coefficient could be replaced with theoretically determined ones, calculated on the results of measurement of atmospheric pressure using appropriate sensor and the uncertainty sensor's calibration certificate. New uncertainty budget could be drawn up. The results of research demonstrate that contribution to uncertainty of measurement of 1 m length is about 0, 217 μm at atmospheric pressure error 1 mm Hg.