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Testing thermometry bridges using the Resistance Bridge Calibrator

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[nonlinearity Resistance Bridge Calibrator thermometry bridges](#)

Abstract

The International Temperature Scale of 1990 defines temperature fixed points and their numerical values. For the temperature range from the triple point of equilibrium hydrogen to the freezing point of silver, standard platinum resistance thermometers (SPRT) are used as interpolation instruments. In this type of thermometers, the temperature measurement is based on the change of sensor resistance which is dependent of the change of temperature. The temperature values of the ITS-90 fixed points are specified with the error of 0,1 mK. Achieving such an accuracy requires the error of thermometer resistance measurement not worse than 10 $\mu\Omega$ in its entire temperature range. The accuracy of the temperature scale realization depends largely on the accuracy of resistance measurement. This paper presents the results of determination of the measurement errors of thermometry bridges.

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