

# Voltage references, voltage standards and Josephson voltage standards (PTB)

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When a digitizer or an Analogue to Digital converter (ADC) is used to measure voltage, a fundamental contribution to the quality and stability of the measurement is the voltage reference used for that measurement. Semiconductor manufacturers specify ADCs as a “stand alone” component, but a high-resolution digitizer combines, or is limited by, the performance of the ADC and the voltage reference employed.

After an introduction to the Allan deviation concept and its use in electrical metrology, typical voltage references will be reviewed.

Performance of semiconductor based voltage standards will be covered, leading to voltage standards based on the Josephson effect providing the realization of the SI unit Volt.

An overview of DC voltage metrology will finish the talk.

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