

X-Ray Detector Calibrations at the PTB

Stefan Pojtinger

Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

The Physikalisch-Technische Bundesanstalt (PTB) is the national metrology institute of Germany. PTB offers a wide range of services for X-ray detector calibrations for the quantities air kerma and absorbed dose to water. All services are based on primary standards developed by PTB. PTB operates three free-air ionization chambers for the primary realization of air kerma in the range of 7.5 kV to 400 kV, and dose to water up to a generating voltage of 70 kV. The primary realization of dose to water for X-rays is realized by calorimetry for generating voltages from 70 kV to 280 kV. Calibrations against primary standards are available for all radiation conditions described in IEC 61267 and ISO 4037, as well as for a wide range of custom radiation conditions (e.g., for mammography) developed by PTB. This leads to more than 300 possible anode/filter/voltage combinations available.

This talk gives an overview of these capabilities and introduces the standards and guides followed and developed by PTB.