

Emerging innovations in health metrology for diagnostic imaging

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Abstract-

The Spanish National Metrology Center (CEM) is dedicated to advance the understanding of the essential role of measurements in the healthcare sector.

CEM has created a laboratory in healthcare metrology to ensure the accuracy of measurements in medical equipment, including computed tomography (CT). The primary objective of this project is to design a system considered as a standard, called Phantometer, which allows the traceability of dimensional measurements obtained from diagnostic imaging to the International System of Units (SI).

For this purpose, the Phantometer has been graphically designed and numerical simulations have been performed to examine its response to environmental conditions and to evaluate the relative contributions of uncertainty to the dimensional measurements, primarily due to thermal and mechanical forces and torsion sources.

Subsequently, the standard undergoes metrological characterization in dimensional terms, and the results are disseminated to the research community.

Index Terms- CEM; Diagnostic imaging; Health; Phantometer; Standard; Traceability; Uncertainty

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