

NEMA XR 25-2019

Standard for Computed Tomography Dose Check



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Computed Tomography Dose Check

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Foreword

This Standard is intended to be used by medical imaging device manufacturers in the design and manufacture of CT scanner equipment.

This Standard was developed by the CT Group of the X-Ray Imaging Section of the Medical Imaging & Technology Alliance (MITA), a division of NEMA. Inquiries, comments, and proposed or recommended revisions should be submitted to the X-Ray Imaging Section by contacting:

Executive Director
MITA
1300 North 17th Street
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Rosslyn, Virginia 22209

Member Company List

At the time of the approval of the Standard, the CT Group was composed of the following members: GE

Healthcare
Hitachi Medical Systems America, Inc.
NeuroLogica, a subsidiary of Samsung Electronics
Neusoft Medical Systems, USA, Inc.
Philips Healthcare
Planmed
Siemens Healthineers
Toshiba America Medical Systems
United Imaging Healthcare
Xoran Technologies, LLC

At the time of the approval of the Standard, the X-Ray Imaging Section was composed of the following members:

Agfa HealthCare	Medtronic, Inc.
Canon Healthcare Solutions	Modus Medical Devices Inc.
CurveBeam LLC	NeuroLogica A Subsidiary of Samsung Electronics
EIZO Corporation	Neusoft Medical Systems, USA, Inc.
EOS imaging	Philips
FUJIFILM Medical Systems U.S.A., Inc.	Planmed
GE Healthcare	Samsung Medical Devices
Hitachi Healthcare Americas	Shimadzu Medical Systems USA
Hologic Inc.	Siemens Healthineers
Konica Minolta Medical Imaging USA, Inc.	Swissray International, Inc.
Laekle Inc.	Toshiba America Medical Systems
Libbe Flarsheim a wholly owned subsidiary of Guerbet Group	United Imaging Healthcare
MEDIAN Technologies, Inc.	Ziehm Imaging, Inc.

History

This is the second edition of this Standard. Changes from the first edition include:

- a. An accommodation is incorporated to the dose alert feature such that the alert triggers only once for procedures deemed interventional by the user or manufacturer.
 1. There are two options for this accommodation: a pre-determined protocol element or protocol element group that is identified for CT guided interventional procedures or a user-activated feature that indicates a CT guided interventional procedure.
 2. While the dose alert only goes off only one time, a passive alert continues.
 3. In interventional mode, the Z position of the highest dose and the associated CTDI_{vol} value is displayed.

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Section 1 Overview

1.1 Scope

This Standard applies to particular dose-related notification and alert messages appearing on the operating consoles of CT scanners.

This Standard is not intended to define all notification, alert, or other messages resident on any CT scanner.

1.2 Rationale

This Standard intends to notify and alert the operating personnel, generally technologists that prepare and set the scan parameters—prior to starting a scan—whether the estimated dose index is above the value defined and set by the operating group, practice, or organization (hereafter referred to as “institution”) to warrant notification to the operator.

In order to accommodate a range of different operational and QA-related features adapted from a variety of technological advances in current and prospective scanner models, dose messages to the operator are not limited to those specified in this Standard.

The IEC 60601-2-44 Ed. 3.1 (*Particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography*) Standard currently specifies dose notifications and alerts that were included in the first edition of NEMA XR 25. This edition incorporates the portions of IEC 60601-2-44 that contain dose notifications and alert information. However, changes made in this edition of XR 25 are not included in the current IEC 60601-2-44 Ed. 3.1.

1.3 References

1.3.1 Normative References

The following normative documents contain provisions, which through reference in this text, constitute provisions of this Standards publication. By reference herein these publications are adopted, in whole or in part as indicated, in this Standards publication. For updated references, the latest edition of the publication referred to applies (including amendments).

International Electrotechnical Commission

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Switzerland

IEC 60601-2-44 Ed. 3.1 *Particular requirements for the basic safety and essential performance of x-ray equipment for computed tomography*

International Organization for Standardization (ISO)

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