



Designation: E2738 – 11

Standard Practice for Digital Imaging and Communication Nondestructive Evaluation (DICONDE) for Computed Radiography (CR) Test Methods¹

This standard is issued under the fixed designation E2738; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This practice facilitates the interoperability of computed radiography (CR) imaging and data acquisition equipment by specifying image data transfer and archival storage methods in commonly accepted terms. This practice is intended to be used in conjunction with Practice E2339 on Digital Imaging and Communication in Nondestructive Evaluation (DICONDE). Practice E2339 defines an industrial adaptation of the NEMA Standards Publication titled Digital Imaging and Communications in Medicine (DICOM, see <http://medical.nema.org>), an international standard for image data acquisition, review, storage and archival storage. The goal of Practice E2339, commonly referred to as DICONDE, is to provide a standard that facilitates the display and analysis of NDE results on any system conforming to the DICONDE standard. Toward that end, Practice E2339 provides a data dictionary and a set of information modules that are applicable to all NDE modalities. This practice supplements Practice E2339 by providing information object definitions, information modules and a data dictionary that are specific to computed radiography test methods.

1.2 This practice has been developed to overcome the issues that arise when analyzing or archiving data from CR test equipment using proprietary data transfer and storage methods. As digital technologies evolve, data must remain decipherable through the use of open, industry-wide methods for data transfer and archival storage. This practice defines a method where all standard CR technique parameters and test results are communicated and stored in a standard manner regardless of changes in digital technology.

1.3 This practice does not specify:

1.3.1 A testing or validation procedure to assess an implementation's conformance to the standard.

1.3.2 The implementation details of any features of the standard on a device claiming conformance.

1.3.3 The overall set of features and functions to be expected from a system implemented by integrating a group of devices each claiming DICONDE conformance.

1.4 Although this practice contains no values that require units, it does describe methods to store and communicate data that do require units to be properly interpreted. The SI units required by this practice are to be regarded as standard. No other units of measurement are included in this practice.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E1316 Terminology for Nondestructive Examinations
E1475 Guide for Data Fields for Computerized Transfer of Digital Radiological Examination Data
E2339 Practice for Digital Imaging and Communication in Nondestructive Evaluation (DICONDE)

2.2 Other Documentation:

National Electrical Manufacturers Association Standard for Digital Imaging and Communication in Medicine (DICOM), 2011.

3. Terminology

3.1 Definitions:

3.1.1 Nondestructive evaluation terms used in this practice can be found in Terminology E1316.

3.1.2 DICONDE terms used in this practice are defined in Practice E2339.

¹ This practice is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.11 on Digital Imaging and Communication in Nondestructive Evaluation (DICONDE).

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard