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# Standard Guide for Data Fields for Computerized Transfer of Digital Radiological ~~Test~~Examination Data[1]

This standard is issued under the fixed designation E 1475; 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.

## 1. Scope

1.1 This guide provides a listing and description of the fields that are recommended for inclusion in a digital radiological ~~test~~examination data base to facilitate the transfer of such data. This guide sets guidelines for the format of data fields for computerized transfer of digital ~~images~~image files obtained from radiographic, radioscopic, computed radiographic, or other radiological examination systems. The field listing includes those fields regarded as necessary for inclusion in the data base: (*1*) regardless of the radiological examination method (as indicated by Footnote C in Table 1), (*2*) for radioscopic examination (as indicated by Footnote E in Table 1), and (*3*) for radiographic examination (as indicated by Footnote D in Table 1). In addition, other optional fields are listed as a reminder of the types of information that may be useful for additional understanding of the data or applicable to a limited number of applications.

1.2 It is recognized that organizations may have in place an internal format for the storage and retrieval of radiological ~~test~~examination data. This guide should not impede the use of such formats since it is probable that the necessary fields are already included in such internal data bases, or that the few additions can easily be made. The numerical listing and its order indicated in this guide is only for convenience; the specific numbers and their order carry no inherent significance and are not part of the data file.

1.3 The types of radiological ~~test~~examination systems that appear useful in relation to this guide include radioscopic systems as described in Guide E 1000, Practices E 1255, E 1411 and ~~E1411~~E 2033, and radiographic systems as described in Guide E 94 and Practices E 748 and E 1742. Many of the terms used are defined in ~~Terminologies E1013 and~~ Terminology E 1316.

1.4 *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]



E 94 Guide for Radiographic ~~Testing~~ Examination
E 748 Practices for Thermal Neutron Radiography of Materials
E 1000~~Guide for Radioscopy~~[2]
~~E1013Terminology Relating to Computerized Systems~~ Guide for Radioscopy
E 1255 Practice for Radioscopy
E 1316 Terminology for Nondestructive Examinations
E 1411 Practice for Qualification of Radioscopic Systems
E~~1416Test Method for Radioscopic Examination of Weldments~~[2] 1416 Test Method for Radioscopic Examination of Weldments
E 1742 Practice for Radiographic Examination
E 2033 Practice for Computed Radiology (Photostimulable Luminescence Method)

## 3. Significance and Use

3.1 The primary use of this guide is to provide a standardized approach for the data file to be used for the transfer of digital radiological data from one user to another where the two users are working with dissimilar systems. This guide describes the contents, both required and optional for an intermediate data file that can be created from the native format of the radiological

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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* ~~, Vol 03.03.~~volume information, refer to the standard's Document Summary page on the ASTM website.

system on which the data was collected and that can be converted into the native format of the receiving radiological data analysis system. The development of translator software to accomplish these data format conversions is being addressed under a separate effort; this will include specific items needed for the data transfer, for example, language used, memory requirements, and intermediate specification. This guide will also be useful in the archival storage and retrieval of radiological data as either a data format specifier or as a guide to the data elements which should be included in the archival file.

**TABLE 1 Field Listing**

| Field Number[A] | Field Name and Description | Category Sets, Values and Units[B] |
|---|---|---|
| *Header Information:* | | |
| 1[C,D] | Intermediate file name | Alphanumeric string |
| 2[C,D] | Format revision code | Alphanumeric string |
| 3[C,D] | Format revision date | yy/mm/dd |
| 4[C,D] | Source file name | Alphanumeric string |
| 5 | Examination file description notes | Alphanumeric string |
| 6[C,D] | Examining company/location | Alphanumeric string |
| 7[C,D] | Examination date | yy/mm/dd |
| 8 | Examination time | hh/mm/ss |
| 9[C,D] | Type of examination | Alphanumeric string |
| 10 | Other examinations performed | Alphanumeric string |
| 11[C,D] | Operator name | Alphanumeric string |
| 12[C,D] | Operator identification code | Alphanumeric string |
| ~~13[C,D]~~ | ~~ASTM, ISO or other applicable standard inspection specification~~ | ~~Alphanumeric string~~ |
| 13[C,D] | ASTM, ISO or other applicable standard specification | Alphanumeric string |
| 14 | Date of applicable standard | yy/mm/dd |
| 15[C,D] | Acceptance criteria | Alphanumeric string |
| 16 | Notes | Alphanumeric string |
| *Examination System Description:* | | |
| 17 | Examination system manufacturer(s) | Alphanumeric string |
| 18 | Examination system model | Alphanumeric string |
| 19 | Examination system serial number | Alphanumeric string |
| *Source Section:* | | |
| 20[C,D] | Radiologic source manufacturer | Alphanumeric string |
| 21[C,D] | Radiological source model | Alphanumeric string |
| 22 | General source description | Alphanumeric string |
| 23 | Last calibration date | Alphanumeric string |
| 24 | Notes on source section | Alphanumeric string |
| *Image Receptor Section:* | | |
| 25[C,D] | Receptor type | Alphanumeric string |
| 26[C,D] | Convertor type | Alphanumeric string |
| 27 | Receptor manufacturer | Alphanumeric string |
| 28 | Receptor model number | Alphanumeric string |
| 29[C,D] | Notes on receptor section | Alphanumeric string |
| *Exposure Section:* | | |
| 30[C,D] | Peak radiation energy used, or | kV |
| 31[C,D] | Isotope source (use either 30 or 31) | Alphanumeric string |
| 32 | Tube current | mA |
| 33 | Radiation dosage rate | mR/min |
| 34 | Radiation exposure time | min |
| 35[C] | Source-detector distance (SDD) | m |
| 36[C] | Source-object distance (SOD) | m |
| ~~37[C]~~ | ~~Image magnification of source side of inspection object~~ | ~~%~~ |
| 37[C] | Image magnification of source side of examination object | % |
| 38[D] | Notes on exposure section | Alphanumeric string |
| *Processing Section (Film/Paper):* | | |
| 39[E] | Process description | Automated or manual |
| 40[E] | Process method | Wet or dry |
| 41 | Processor type | Alphanumeric string |
| 42 | Processor model number | Alphanumeric string |
| 43 | Notes on processor section | Alphanumeric string |
| *Image Processing Description:* | | |
| 44[C,D] | Image processing used for image data | Alphanumeric string |
| 45 | Image processor hardware manufacturer | Alphanumeric string |
| 46 | Image processor hardware model | Alphanumeric string |
| 47 | Image processor software source | Alphanumeric string |
| 48 | Image processor software version | Alphanumeric string |
| 49[D] | Pixel resolution | Pixels per cm |
| 50 | Notes on image processor | Alphanumeric string |
| *Examination Sample or Part Description:* | | |
| 51[C] | Sample or part name | Alphanumeric string |
| 52 | Sample or part name description | Alphanumeric string |
| 53[C] | Sample or part identification code | Alphanumeric string |
| 54[C] | Sample or part material | Alphanumeric string |
| 55 | Notes on sample or part | Alphanumeric string |
| 56[C] | Number of image segments for sample | Integer number |
| 57[C] | Reference standard identification | Alphanumeric string |
| 58 | Reference standard description | Alphanumeric string |
| 59[C] | Reference standard file name | Alphanumeric string |
| 60 | Reference standard file location | Alphanumeric string |
| *Coordinate System and Scan Description:* | | |
| 61[F] | Machine coordinate system scan axis | Alphanumeric string |
| 62[F] | Machine coordinate system index axis | Alphanumeric string |
| 63[F] | Machine coordinate system *z*-axis | Alphanumeric string |