Digital Imaging and Communications in Medicine (DICOM)

Supplement 62:

4.1 Gbyte MOD Medium format and use in CT/MR profiles

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Foreword

The American College of Radiology (ACR) and the National Electrical Manufacturers Association (NEMA) formed a joint committee to develop a standard for Digital Imaging and Communication in Medicine (DICOM). This DICOM Standard was developed according to the NEMA procedures.

This Standard is developed in liaison with other standardization organizations including CEN TC251 in Europe and JIRA in Japan, with review also by other organizations including IEEE, HL7 and ANSI in the USA.

The DICOM Standard is structured as a multi-part document using the guidelines established in the following document:

- ISO/IEC Directives, 1989 Part 3: Drafting and Presentation of International Standards.

This document is a Supplement to the DICOM Standard. It is an extension to Part 11 and 12 of the published DICOM Standard which consists of the following parts:

PS 3.1	-	Introduction and Overview
PS 3.2	-	Conformance
PS 3.3	-	Information Object Definitions
PS 3.4	-	Service Class Specifications
PS 3.5	-	Data Structures and Encoding
PS 3.6	-	Data Dictionary
PS 3.7	-	Message Exchange
PS 3.8	-	Network Communication Support for Message Exchange
PS 3.9	-	Point-to-Point Communication Support for Message Exchange
PS 3.10	-	Media Storage and File Format for Data Interchange
PS 3.11	-	Media Storage Application Profiles
PS 3.12	-	Media Formats and Physical Media for Data Interchange
PS 3.13	-	Print Management Point-to-Point Communication Support
PS 3.14	-	Grayscale Standard Display Function
PS 3.15	-	Security Profiles
PS 3.16	-	Content Mapping Resource

These parts are related but independent documents. Their development level and approval status may differ. Additional parts may be added to this multi-part standard. PS 3.1 should be used as the base reference for the current parts of this standard.

Supplement 62: 4.1 Gbyte MOD Medium format and use in CT/MR profiles

Introduction - will not appear in final standard

I.1 INTRODUCTION

This supplement introduces the 4.1 Gbyte MOD medium for DICOM storage. It is intended for CT/MR SOP Classes.

Two changes to the DICOM standard are introduced:

1. Part 11 is extended with a CT/MR application profile for 4.1 Gbyte MOD
2. Part 12 is extended with the medium specification for 4.1 Gbyte MOD

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Changes to NEMA Standards Publication PS 3.11-2001

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Part 11: **Media Storage Application Profiles**

Add to following entry to Table E.1-1 -STD-CTMR Profiles

Table E.1-1 - STD-CTMR Profiles

Application Profile	Identifier	Description
CT/MR Studies on 650MB MOD	STD-CTMR-MOD650	Handles single frame 8, 12 or 16 bit grayscale and 8 bit palette color, uncompressed and lossless compressed images.
CT/MR Studies on 1.2GB MOD	STD-CTMR-MOD12	Handles single frame 8, 12 or 16 bit grayscale and 8 bit palette color, uncompressed and lossless compressed images.
CT/MR Studies on 2.3GB MOD	STD-CTMR-MOD23	Handles single frame 8, 12 or 16 bit grayscale and 8 bit palette color, uncompressed and lossless compressed images.
CT/MR Studies on 4.1GB MOD	**STD-CTMR-MOD41**	**Handles single frame 8, 12 or 16 bit grayscale and 8 bit palette color, uncompressed and lossless compressed images.**
CT/MR Studies on CD-R	STD-CTMR-CD	Handles single frame 8, 12 or 16 bit grayscale and 8 bit palette color, uncompressed and lossless compressed images.

Add the following definition to section E.3.2

E.3.2 Physical Medium And Medium Format

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The STD-CTMR-MOD41 application profile requires the 130 mm 4.1GB R/W MOD physical medium with the PCDOS Media Format, as defined in PS 3.12.

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Changes to NEMA Standards Publication PS 3.12-2001

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115 Part 12: Media Formats and Physical Media for Data Interchange

Add a reference:

2 Normative references

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ISO/IEC IS 15286:1999 Data Interchange on 130mm Optical Disk Cartridges - Capacity 5.2GB Per Cartridge.

Add a new annex X

Annex X (Normative) 130 mm 4.1GB Magneto-Optical Disk

X.1 DICOM MAPPING TO MEDIA FORMATS

Only one DICOM File-set shall be stored onto each side of a single 130 mm disk.

X.2 MEDIA FORMATS

The media format comprises two distinct components:

a. The Recording format, which addresses magnetic recording, track definition, sector headers, etc.

b. The Logical format, which addresses the organization of the data portion of sectors to support semantics of the file system.

X.2.1 Recording Format

The low level formatting shall be done using the ISO/IEC 15286:1999 standard. The Secondary Defect List shall be used.

X.2.2 Logical Format

The Logical Format for the 130 mm 4.1GB disk shall be the PC File System (see Annex A).

The boot sector defined in Annex A shall have the following values.

Table X.2-1
Boot Parameter Values for 130mm 4.1GB Magneto-Optical Disk

Byte(s)	Value	Description
13	40H or 80H	Sectors / cluster, either 64 or 128. See Note.
21	F8H	Flag for disk type F8H = Hard Disk.
24 - 25	003EH (Nominal)	Nominally 62 sectors/track, but may vary, and any value should not affect interoperability.
26 - 27	0001H (Nominal)	Nominally 1 head, but may vary, and any value should not affect interoperability.

Note: Lower values would not utilize all the disk sectors on a side.

X.3 PHYSICAL MEDIA

The physical media shall be the 130 mm Magneto-Optical Re-writable Disk with 512 bytes per sector. It shall be compatible with the standard defined in the ISO/IEC 15286:1999 Data Interchange on 130mm Optical Disk Cartridges - Capacity 5.2GB Per Cartridge standard.

Note: The 4.1GB nomenclature refers to the capacity when formatted with 512 bytes per sector compared to the 5.2 GB nomenclature when formatted with 1024 bytes per sector.