

DICOM Correction Item

Correction Number	CP-600
Log Summary: Add spatial information to multiframe secondary capture	
Type of Modification	Name of Standard
Addition	PS 3.3 2006
<p>Rationale for Correction</p> <p>There is a family of applications that generates information as a result of processing that not modality specific and often contains color information, but which to be useful requires preservation of spatial location information in a 3D patient-relative coordinate system.</p> <p>The current multi-frame secondary capture grayscale and true color IODs are suitable for this type of information, except that there is no 3D information encoded.</p> <p>It is proposed to add the Pixel Measures and Plane Position and Plane Orientation Functional Group Macros as optional (but required together if present) to the existing IODs.</p> <p>This will not affect existing implementations since the information can be ignored, but will facilitate the use of applications that can make use of the additional information if present.</p> <p>In addition, the Frame of Reference and Dimension Modules are added to support this extended use.</p> <p>The Synchronization Module is also added, since there is already timing information potentially present in these IODs, which need to be linked to a suitable temporal frame of reference.</p>	
Sections of documents affected PS 3.3 A.8.3, A.8.4, A.8.5	
Correction Wording:	

A.8.3.3 Multi-frame Grayscale Byte SC Image IOD Module Table

**Table A.8-3
 MULTI-FRAME GRAYSCALE BYTE SC IMAGE IOD MODULES**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
<u>Frame of Reference</u>	<u>Frame of Reference</u>	<u>C.7.4.1</u>	<u>C – Required if Pixel Measures or Plane Position or Plane Orientation Functional Group</u>

			<u>Macros Present</u>
	<u>Synchronization</u>	<u>C.7.4.2</u>	<u>U</u>
Equipment	General Equipment	C.7.5.1	U
	SC Equipment	C.8.6.1	M
Image	General Image	C.7.6.1	M
	Image Pixel	C.7.6.3	M
	Cine	C.7.6.5	C – Required if Frame Increment Pointer (0028,0009) is Frame Time (0018,1063) or Frame Time Vector (0018,1065)
	Multi-frame	C.7.6.6	M
	Frame Pointers	C.7.6.9	U
	SC Image	C.8.6.2	U
	SC Multi-frame Image	C.8.6.3	M
	SC Multi-frame Vector	C.8.6.4	C – Required if Number of Frames is greater than 1
	<u>Multi-frame Functional Groups</u>	<u>C.7.6.16</u>	<u>U</u>
	<u>Multi-frame Dimension</u>	<u>C.7.6.17</u>	<u>U</u>
	VOI LUT	C.11.2	C – Required if the VOI LUT stage is not an identity transformation
	SOP Common	C.12.1	M

A.8.3.4 Multi-frame Grayscale Byte SC Image IOD Content Constraints

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A.8.3.5 Multi-frame Grayscale Byte SC Image Functional Group Macros

Table A.8-3b specifies the use of the Functional Group macros used in the Multi-frame Functional Groups Module for the Multi-frame Grayscale Byte SC Image IOD.

**Table A.8-3b
 MULTI-FRAME GRAYSCALE BYTE SC IMAGE FUNCTIONAL GROUP MACROS**

<u>Functional Group Macro</u>	<u>Section</u>	<u>Usage</u>
<u>Pixel Measures</u>	<u>C.7.6.16.2.1</u>	<u>C – Required if Plane Position or Plane Orientation Macros Present</u>
<u>Plane Position</u>	<u>C.7.6.16.2.3</u>	<u>C – Required if Pixel Measures or Plane Orientation Macros Present</u>
<u>Plane Orientation</u>	<u>C.7.6.16.2.4</u>	<u>C – Required if Pixel Measures or Plane Position Macros Present</u>

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A.8.4.3 Multi-frame Grayscale Word SC Image IOD Module Table

**Table A.8-4
 MULTI-FRAME GRAYSCALE WORD SC IMAGE IOD MODULES**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
Frame of Reference	Frame of Reference	C.7.4.1	C – Required if Pixel Measures or Plane Position or Plane Orientation Functional Group Macros Present
	Synchronization	C.7.4.2	U
Equipment	General Equipment	C.7.5.1	U
	SC Equipment	C.8.6.1	M
Image	General Image	C.7.6.1	M
	Image Pixel	C.7.6.3	M
	Cine	C.7.6.5	C – Required if Frame Increment Pointer (0028,0009) is Frame Time (0018,1063) or Frame Time Vector (0018,1065)
	Multi-frame	C.7.6.6	M
	Frame Pointers	C.7.6.9	U
	SC Image	C.8.6.2	U
	SC Multi-frame Image	C.8.6.3	M
	SC Multi-frame Vector	C.8.6.4	C – Required if Number of Frames is greater than 1
	Multi-frame Functional Groups	C.7.6.16	U
	Multi-frame Dimension	C.7.6.17	U
	VOI LUT	C.11.2	C – Required if the VOI LUT stage is not an identity transformation
SOP Common	C.12.1	M	

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A.8.4.5 Multi-frame Grayscale Word SC Image Functional Group Macros

Table A.8-4b specifies the use of the Functional Group macros used in the Multi-frame Functional Groups Module for the Multi-frame Grayscale Word SC Image IOD.

**Table A.8-4b
 MULTI-FRAME GRAYSCALE WORD SC IMAGE FUNCTIONAL GROUP MACROS**

<u>Functional Group Macro</u>	<u>Section</u>	<u>Usage</u>
<u>Pixel Measures</u>	<u>C.7.6.16.2.1</u>	<u>C – Required if Plane Position or Plane Orientation Macros Present</u>
<u>Plane Position</u>	<u>C.7.6.16.2.3</u>	<u>C – Required if Pixel Measures or Plane Orientation Macros Present</u>
<u>Plane Orientation</u>	<u>C.7.6.16.2.4</u>	<u>C – Required if Pixel Measures or Plane Position Macros Present</u>

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A.8.5.3 Multi-frame True Color SC Image IOD Module Table

**Table A.8-5
 MULTI-FRAME TRUE COLOR SC IMAGE IOD MODULES**

<u>IE</u>	<u>Module</u>	<u>Reference</u>	<u>Usage</u>
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
<u>Frame of Reference</u>	<u>Frame of Reference</u>	<u>C.7.4.1</u>	<u>C – Required if Pixel Measures or Plane Position or Plane Orientation Functional Group Macros Present</u>
	<u>Synchronization</u>	<u>C.7.4.2</u>	<u>U</u>
Equipment	General Equipment	C.7.5.1	U
	SC Equipment	C.8.6.1	M
Image	General Image	C.7.6.1	M
	Image Pixel	C.7.6.3	M
	Cine	C.7.6.5	C – Required if Frame Increment Pointer (0028,0009) is Frame Time (0018,1063) or Frame Time Vector (0018,1065)
	Multi-frame	C.7.6.6	M
	Frame Pointers	C.7.6.9	U
	SC Image	C.8.6.2	U
	SC Multi-frame Image	C.8.6.3	M
	SC Multi-frame Vector	C.8.6.4	C – Required if Number of Frames is greater than 1
	<u>Multi-frame Functional Groups</u>	<u>C.7.6.16</u>	<u>U</u>
	<u>Multi-frame Dimension</u>	<u>C.7.6.17</u>	<u>U</u>

	SOP Common	C.12.1	M
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A.8.5.5 Multi-frame True Color SC Image Functional Group Macros

Table A.8-5b specifies the use of the Functional Group macros used in the Multi-frame Functional Groups Module for the Multi-frame True Color SC Image IOD.

**Table A.8-5b
MULTI-FRAME TRUE COLOR SC IMAGE FUNCTIONAL GROUP MACROS**

<u>Functional Group Macro</u>	<u>Section</u>	<u>Usage</u>
<u>Pixel Measures</u>	<u>C.7.6.16.2.1</u>	<u>C – Required if Plane Position or Plane Orientation Macros Present</u>
<u>Plane Position</u>	<u>C.7.6.16.2.3</u>	<u>C – Required if Pixel Measures or Plane Orientation Macros Present</u>
<u>Plane Orientation</u>	<u>C.7.6.16.2.4</u>	<u>C – Required if Pixel Measures or Plane Position Macros Present</u>