

DICOM Correction Proposal

STATUS	Letter Ballot
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Person Assigned	Steve Nichols steven.nichols@ge.com
Submitter Name	Steve Nichols steven.nichols@ge.com
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Correction Number	CP-2267
Log Summary:	Correct inconsistencies in Mammography Image Type tables
Name of Standard	PS3.3
Rationale for Correction:	<p>C.8.11.7.1.4 Image Type and C.8.21.6.1.1 Image Type and Frame Type include various inconsistencies.</p> <ul style="list-style-type: none"> • Heading rows for tables C.8-74d, C.8-74e, and C.8.21.6-1c read “Enumerated Values” and should read “Defined Terms” see cp1342. • Example Image Type Values do not differentiate between “-“ and “empty”. • Informative tables are missing titles
Correction Wording:	

Update C.8.11.7.1.4 Image Type as follows:

C.8.11.7.1.4 Image Type

Image Type (0008,0008) Value 1 and Value 2 shall identify the Pixel Data Characteristics in accordance with Section C.8.11.3.1.1.

Value 3 shall be present and have zero length (null value), except when used to identify a stereotactic mammography image, digital breast tomosynthesis projection or generated 2D image, or contrast enhanced image.

Notes

- *In a previous version of PS3.3, Value 3 was required to be zero length (null value). If Value 3 is zero length, the image may or may not be a stereotactic mammography image, digital breast tomosynthesis projection or generated 2D image, or contrast enhanced image, if the Instance was created before these terms were defined.*
- **See PS3.5, Section 6.4 for value delimitation**

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Value 4 shall be present for images acquired using contrast enhanced digital X-Ray imaging of the breast (but may be empty if none of the Defined Terms applies), and for mathematically generated 2D images. For other images Value 4 remains optional and implementation specific.

Table C.8-74d. Defined Terms of Image Type (0008,0008) Value 4 for Contrast Enhanced and Generated 2D Images

Enumerated Value Defined Terms	Definition
GENERATED_2D	Mathematically generated 2D view.
ADDITION	Created through Pixel by pixel addition operation.
SUBTRACTION	Created through Pixel by pixel subtraction operation.

If more than one characteristic (contrast enhanced, tomosynthesis) applies to an image, Value 4 shall contain the contrast enhanced image type. If contrast enhanced is not involved, Value 4 shall contain the generated 2D image type.

Value 5 shall be present for images acquired using contrast enhanced digital X-Ray imaging of the breast, but may be empty if none of the Defined Terms applies. For non-contrast images Value 5 remains optional and implementation specific.

Table C.8-74e. Defined Terms of Image Type (0008,0008) Value 5 for Contrast Enhanced 2D Images

Enumerated Value Defined Terms	Definition
LOW_ENERGY	Low energy image.
HIGH_ENERGY	High energy image.

Note

*A recipient may use the different values for biopsy, tomosynthesis and contrast views to determine how to display them, for example in hanging protocols. **See examples in Table C.8-74f.***

Table C.8-74f. Example Image Type Values for Mammography Biopsy, Tomosynthesis and Contrast Views (Informative)

	Image Type (0008,0008) Value 3	Image Type (0008,0008) Value 4	Image Type (0008,0008) Value 5
Conventional 2D mammography	empty	-	-
Stereotactic post-biopsy	POSTBIOPSY	-	-
Pre-contrast 2D	PRE_CONTRAST	empty	empty
Post-contrast 2D low energy	POST_CONTRAST	<u>-empty</u>	LOW_ENERGY
Post-contrast 2D addition	POST_CONTRAST	ADDITION	empty
Stereotactic scout pre-contrast	STEREO_SCOUT	empty	empty
Stereotactic stereo post-contrast high energy	STEREO_PLUS	empty	HIGH_ENERGY
Stereotactic post-fire post-contrast subtraction	POSTFIRE_MINUS	SUBTRACTION	empty
Tomosynthesis generated 2D	TOMOSYNTHESIS	GENERATED_2D	-
Tomosynthesis biopsy scout generated 2D	TOMO_SCOUT	GENERATED_2D	-
Tomosynthesis generated 2D post-contrast low energy	TOMOSYNTHESIS	GENERATED_2D	LOW_ENERGY
Tomosynthesis generated 2D post-contrast subtraction	TOMOSYNTHESIS	SUBTRACTION	empty

	Image Type (0008,0008) Value 3	Image Type (0008,0008) Value 4	Image Type (0008,0008) Value 5
Tomosynthesis projection	TOMO_PROJ	-	-
Tomosynthesis projection post-biopsy	POSTBIOPSY	-	-
Tomosynthesis projection post-biopsy post-contrast subtraction	POSTBIOPSY	SUBTRACTION	empty

Notes

1. ***“empty” indicates that the value is present with zero length and a trailing delimiter (e.g. “Pre-contrast 2D” would be expressed as ORIGINALPRIMARYPRE CONTRAST\)***
2. ***“-” indicates that the value is not present (e.g. “Stereotactic post-biopsy” would be expressed as ORIGINALPRIMARYPOSTBIOPSY)***

Note to editor: please bold the trailing “\” delimiters in the first note so that no one would assume a typo

Update C.8.21.6.1.1 Image Type and Frame Type as follows:

Value 5 shall be present for images acquired using contrast enhanced digital X-Ray imaging of the breast, but may be empty if none of the Defined Terms applies. For non-contrast images Value 5 remains optional and implementation specific.

Table C.8.21.6-1c. Defined Terms of Image Type (0008,0008) Value 5 for Contrast Enhanced Images

Enumerated Value Defined Terms	Definition
LOW_ENERGY	Low energy image.
HIGH_ENERGY	High energy image.

Note

*A recipient may use the different values for biopsy, tomosynthesis and contrast views to determine how to display them, for example in hanging protocols. **See examples in Table C.8.21.6-1d.***

Table C.8.21.6-1d. Example Image Type Values for the Breast View Module (Informative)

	Image Type (0008,0008) Value 3	Image Type (0008,0008) Value 4	Image Type (0008,0008) Value 5
Tomosynthesis thin reconstructed slices	TOMOSYNTHESIS	NONE	-
Tomosynthesis thick reconstructed slices	TOMOSYNTHESIS	MAXIMUM	-
Tomosynthesis generated 2D	TOMOSYNTHESIS	GENERATED_2D	-
Tomosynthesis projections	TOMO_PROJ	NONE	-
Tomosynthesis thin reconstructed slices biopsy post-fire	POSTFIRE	NONE	-
Tomosynthesis thick reconstructed slices post-biopsy	POSTBIOPSY	MEAN	-
Tomosynthesis generated 2D biopsy pre-fire	PREFIRE	GENERATED_2D	-

Tomosynthesis projections biopsy scout	TOMO_SCOUT	NONE	-
Tomosynthesis thick reconstructed slices pre-contrast	TOMOSYNTHESIS	MAXIMUM	empty
Tomosynthesis thin reconstructed slices post-contrast subtraction	TOMOSYNTHESIS	SUBTRACTION	empty
Tomosynthesis thick reconstructed slices post-contrast subtraction	TOMOSYNTHESIS	SUBTRACTION	empty
Tomosynthesis generated 2D post-contrast addition	TOMOSYNTHESIS	ADDITION	empty
Tomosynthesis generated 2D post-contrast low energy	TOMOSYNTHESIS	GENERATED_2D	LOW_ENERGY
Tomosynthesis projections post-contrast high energy	TOMO_PROJ	NONE	HIGH_ENERGY
Tomosynthesis thick reconstructed slices biopsy scout pre-contrast	TOMO_SCOUT	MAXIMUM	empty
Tomosynthesis thin reconstructed slices biopsy pre-fire post-contrast subtraction	PREFIRE	SUBTRACTION	empty
Tomosynthesis thick reconstructed slices biopsy post-fire post-contrast subtraction	POSTFIRE	SUBTRACTION	empty
Tomosynthesis generated 2D post-biopsy post-contrast addition	POSTBIOPSY	ADDITION	empty
Tomosynthesis generated 2D biopsy scout post-contrast low energy	TOMO_SCOUT	GENERATED_2D	LOW_ENERGY
Tomosynthesis projections post-biopsy post-contrast high energy	POSTBIOPSY	NONE	HIGH_ENERGY

Notes

1. **“empty” indicates that the value is present with zero length and a trailing delimiter (e.g. “Tomosynthesis thick reconstructed slices pre-contrast” would be expressed as ORIGINAL\PRIMARY\TOMOSYNTHESIS\MAXIMUM\)**
2. **“-” indicates that the value is not present (e.g. “Tomosynthesis thin reconstructed slices” would be expressed as ORIGINAL\PRIMARY\TOMOSYNTHESIS\NONE)**

Note to editor: please bold the trailing “\” delimiter in the first note so that no one would assume a typo