

DICOM Correction Item

Change Proposal Number: CP-198	
Log Summary: Change the definition for Exposure Attributes	
Type of Change Proposal: Correction	
Name of Document: Part 3: Information Object Definitions	Version Number: PS 3.3-1999
Rationale for correction: The DICOM Standard defines Exposure (0018,1152) as “The product of exposure time and X-ray Tube Current expressed in mAs.”, which was a sensible definition for CT tomograms. CT scanning has evolved, however, and spiral scanning brought ahead the influence of table feed per rotation into exposure. Manufacturers are obliged to provide exposure values corrected for the table feed per rotation (but still in mAs) to the medical user (conform IEC 60601-1-5 and 60601-2-44). Not a formula but a description should be given. Similarly, the description for Exposure in μ As (0018,1153) should be updated too. Both descriptions apply to other modules for other modality types as well. Additionally, for the CT IMAGE MODULE and the X-RAY ACQUISITION MODULE, only Exposure (0018,1152) in mAs is defined. Exposure in μ As (0018,1153) is present in most modules, except for these two modules. These two modules are updated accordingly.	

Sections of document affected:

Part 3

Section C.8.1.2 CR Image Module, Table C.8-2 CR IMAGE MODULE ATTRIBUTES

Section C.8.2.1 CT Image Module, Table C.8-3 CT IMAGE MODULE ATTRIBUTES

Section C.8.7.2 X-Ray Acquisition Module, Table C.8-27 X-RAY ACQUISITION MODULE ATTRIBUTES

Section C.8.7.8 X-Ray Acquisition Dose Module, Table C.8-33 X-RAY ACQUISITION DOSE MODULE ATTRIBUTES

Section C.8.7.9 X-Ray Generation Module, Table C.8-34 X-RAY GENERATION MODULE ATTRIBUTES

Correction Wording:

Part 3

Change the entry in Table C.8-2 with the following wording

Exposure	(0018,1152)	3	The product of exposure time and X-Ray Tube Current expressed in mAs. The exposure expressed in mAs, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-2 with the following wording

Exposure in μ As	(0018,1153)	3	The product of exposure time and X-Ray Tube Current expressed in μAs. The exposure expressed in μAs, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-3 with the following wording

Exposure	(0018,1152)	3	The product of exposure time and X-Ray Tube Current expressed in mAs. The exposure expressed in mAs, for example calculated from Exposure Time and X-ray Tube Current.
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Add the following entry in Table C.8-3 right after the entry for Exposure with the following wording

Exposure in μAs	(0018,1153)	3	The exposure expressed in μAs, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-27 with the following wording

Exposure	(0018,1152)	2C	The product of exposure time and X-Ray Tube Current expressed in mAs. The exposure expressed in mAs, for example calculated from Exposure Time and X-ray Tube Current. Required if either Exposure Time (0018,1150) or X-Ray Tube Current (0018,1151) are not present.
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Add the following entry in Table C.8-27 right after the entry for Exposure with the following wording

Exposure in μ As	(0018,1153)	3	The exposure expressed in μ As, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-33 with the following wording

Exposure	(0018,1152)	3	The product of exposure time and X-Ray Tube Current expressed in mAs. The exposure expressed in mAs, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-33 with the following wording

Exposure in μ As	(0018,1153)	3	The product of exposure time and X-Ray Tube Current expressed in μAs. The exposure expressed in μ As, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-34 with the following wording

Exposure	(0018,1152)	3	The product of exposure time and X-Ray Tube Current expressed in mAs. The exposure expressed in mAs, for example calculated from Exposure Time and X-ray Tube Current.
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Change the entry in Table C.8-34 with the following wording

Exposure in μ As	(0018,1153)	3	The product of exposure time and X-Ray Tube Current expressed in μAs. The exposure expressed in μ As, for example calculated from Exposure Time and X-ray Tube Current.
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