

DICOM Item

Correction Number		CP- 765
Log Summary: CT system with multiple X-Ray sources		
Type of Modification	Name of Standard	
Correction, Addition	PS3.3, 3-6 – 2007	
Rationale for Correction		
<p>CT systems with multiple X-Ray sources are used in patient examination, especially for cardiac examination or for an examination with more than one energies. The DICOM header shall indicate and support a least a dual X-ray source system.</p> <p>Additional values shall be stored within C.8.2.1, C.8.15.3.8 CT Image Module Attribute</p>		
Sections of documents affected		
PS 3.3 Sections A.38-2, C.8.2.1, C.8.15.3., PS 3.6 Section 6		
Correction Wording:		

Add to PS 3.3 Section A.38.1.4

A.38.1.4 Enhanced CT Image Functional Group Macros

Table A.38-2 specifies the use of the Functional Group macros used in the Multi-frame Functional Group Module for the Enhanced CT Image IOD.

**Table A.38-2
 ENHANCED CT IMAGE FUNCTIONAL GROUP MACROS**

Function Group Macro	Section	Usage
CT Pixel Value Transformation	C.8.15.3.10	M
<u>CT Additional X-ray Source</u>	<u>C.8.15.3.x</u>	<u>C – Required if the image is reconstructed from a system with multiple X-Ray sources</u>

Add to PS 3.3, Table C.8-3

C.8.2.1 CT Image Module

The table in this Section contains IOD Attributes that describe CT images.

**Table C.8-3
 CT IMAGE MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
...			
Include 'General Anatomy Optional Macro' Table 10-7			Defined Context ID for the Anatomic Region Sequence is 4030.

<u>CT Additional X-Ray Source Sequence</u>	<u>(0018,9360)</u>	<u>3</u>	<u>Contains the attributes defining the data acquisition in a multiple X-Ray source system beyond the primary X-Ray source. The primary X-Ray source is specified in other attributes of this module.</u> <u>One or more items may be present.</u>
<u>>kVP</u>	<u>(0018,0060)</u>	<u>1</u>	<u>Peak kilo voltage output of the X-Ray generator used.</u>
<u>>X-ray Tube Current in mA</u>	<u>(0018,9330)</u>	<u>1</u>	<u>Nominal X-Ray tube current in milliamperes.</u>
<u>>Data Collection Diameter</u>	<u>(0018,0090)</u>	<u>1</u>	<u>The diameter in mm of the region over which data were collected.</u>
<u>>Focal Spot(s)</u>	<u>(0018,1190)</u>	<u>1</u>	<u>Used nominal size of the focal spot in mm.</u>
<u>>Filter Type(s)</u>	<u>(0018,1160)</u>	<u>1</u>	<u>Type of filter(s) inserted into the X-Ray beam.</u>
<u>>Filter Material</u>	<u>(0018,7050)</u>	<u>1</u>	<u>The X-Ray absorbing material used in the filter.</u>

Add new section to PS 3.3 after C.8.15.3

C.8.15.3 Enhanced CT Image Functional Group Macros

...

C.8.15.3.x CT Additional X-Ray Source Macro

Table C.8-xxx specifies the attributes of the CT Additional X-Ray Source Macro. This sequence may be multi-valued, depending on the number of additional active X-Ray sources. It defines the X-Ray source parameters beyond the basic system.

**Table C.8-xxx
CT MULTIPLE X-RAY SOURCE MACRO ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
CT Additional X-Ray Source Sequence	(0018,9360)	1	Contains the attributes defining the data acquisition in a multiple X-Ray source system beyond the primary source. The primary X-Ray source is specified in the CT X-ray Details Sequence. One or more items may be present.
>kVP	(0018,0060)	1	Peak kilo voltage output of the X-Ray generator used.
>X-ray Tube Current in mA	(0018,9330)	1	Nominal X-Ray tube current in milliamperes.
>Data Collection Diameter	(0018,0090)	1	The diameter in mm of the region over which data were collected.
>Focal Spot(s)	(0018,1190)	1	Used nominal size of the focal spot in mm.

>Filter Type(s)	(0018,1160)	1	Type of filter(s) inserted into the X-Ray beam.
>Filter Material	(0018,7050)	1	The X-Ray absorbing material used in the filter.

Add to PS 3.6, Section 6

6 Registry of DICOM data elements

Tag	Name	VR	VM
...			
<u>(0018,9360)</u>	<u>CT Additional X-Ray Source Sequence</u>	<u>SQ</u>	<u>1</u>