

DICOM Item

Correction Number		CP-763
Log Summary: CT Calibration Factors for the Mass Score of the Calcium Scoring evaluation		
Type of Modification	Name of Standard	
Addition	PS3.3, 3.6 – 2007	
<p>Rationale for Correction</p> <p>Calcium Scoring is a method to quantify the plaque load of the coronary arteries. The international Consortium for Multi-Detector CT Evaluation of Coronary Calcium is working to standardize the Calcium Scoring evaluation. All major vendors are members of the Consortium. To quantify the images, 3 calibration factors are needed. There is a factor for small patients, for medium patients and for large patients.</p> <p>DICOM attributes on image level shall be defined to hold the factors and the measured patient size. All values are optional for CT images.</p> <p>Remark:</p> <p>According to the Consortium, the patient size is divided into 3 categories:</p> <ul style="list-style-type: none"> Small: < 32.0 cm lateral thickness Medium: 32.0 – 38.0 cm lateral thickness Large: > 38.0 cm lateral thickness <p>where the lateral thickness is measured from skin-to-skin, at the level of the proximal ascending aorta, from an A/P localizer image (e.g. Scout, Topogram, Pilot, Scanogram, Surview, Preview, etc.).</p> <p>Because it is not possible to define the thickness of the patient always at the time of scanning, the three device dependent parameters can be stored additionally and optionally. This make it possible to set up an evaluation and subsequent choice of the relevant parameter.</p> <p>Reference:</p> <p>Cynthia H. McCollough, Ph.D A multi-institutional, multi-manufacturer, international standard for the quantification of coronary artery calcium using cardiac CT Radiology 2007, publish in May</p> <p>International Consortium on Standardization of Cardiac CT Cynthia H. McCollough, Ph.D. Mayo Clinic College of Medicine Department of Radiology, E2-A 200 1st Street SW Rochester, Minnesota 55905 e-mail: mcollough.cynthia@mayo.edu</p>		
Sections of documents affected		
PS 3.3 Sections 2,C.8.2.1 and C.8.15.3.9 and PS 3.6 Section 6		
Correction Wording:		

Add to PS 3.3, Section 2 Normative References

OTHER REFERENCES

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McCollough, C.H. A multi-institutional, multi-manufacturer, international standard for the quantification of coronary artery calcium using cardiac CT. Radiology May 2007

Add to PS 3.3, Section C.8.2.1

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
...			
<i>Include 'General Anatomy Optional Macro' Table 10-7</i>			Defined Context ID for the Anatomic Region Sequence is 4030.
<u>Calcium Scoring Mass Factor Patient</u>	<u>(0018,9351)</u>	<u>3</u>	<u>The calibration factor for the calcium mass score. These factors incorporate the effects of</u> <ul style="list-style-type: none"> • <u>KV value of the CT image</u> • <u>the patient size.</u> • <u>machine specific corrections</u> <u>See C.8.2.1.1.X.</u>
<u>Calcium Scoring Mass Factor Device</u>	<u>(0018,9352)</u>	<u>3</u>	<u>The calibration factors for the calcium mass score of the device. These factors incorporate the effects of</u> <ul style="list-style-type: none"> • <u>KV value of the CT image</u> • <u>machine specific corrections</u> <u>This a multi-value attribute, the first value specifies the mass factor for a small patient size, the second value for a medium patient size and the third value for a large patient size.</u> <u>See C.8.2.1.1.X.</u>

C.8.2.1.1 CT Image Attribute Descriptions

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C.8.2.1.1.X Calcium Scoring Mass Factor Patient and Calcium Scoring Mass Factor Device

The calibration factors for the Calcium Scoring Mass Factor Patient (0018,9351) and Calcium Scoring Mass Factor Device (0018,9352) attributes are defined by the International

Consortium for Multi-Detector CT Evaluation of Coronary Calcium, see McCollough, C.H. "A multi-institutional, multi-manufacturer, international standard for the quantification of coronary artery calcium using cardiac CT".

Add to PS 3.3, Table C.8-125

C.8.15.3.9 CT X-ray Details Macro

Table C.8-125 specifies the attributes of the CT X-ray Details Functional Group macro.

**Table C.8-125
 CT X-RAY DETAILS SEQUENCE MACRO ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
...			
>Filter Material	(0018,7050)	1C	<p>The X-Ray absorbing material used in the filter. May be multi-valued.</p> <p>Defined Terms: MOLYBDENUM ALUMINUM COPPER RHODIUM NIOBIUM EUROPIUM LEAD MIXED</p> <p>Note: MIXED may be used to indicate a filter type of complex composition for which listing the individual materials would be excessive or undesirable; it is not intended to mean "unknown".</p> <p>Required if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL and the value of Filter Type (0018,1160) is other than NONE. May be present otherwise.</p>
<u>>Calcium Scoring Mass Factor Patient</u>	<u>(0018,9351)</u>	<u>3</u>	<p><u>The calibration factor for the calcium mass score. These factors incorporate the effects of</u></p> <ul style="list-style-type: none"> • <u>KV value of the CT image</u> • <u>the patient size.</u> • <u>machine specific corrections</u> <p><u>See C.8.2.1.1.X.</u></p>

<u>>Calcium Scoring Mass Factor Device</u>	<u>(0018,9352)</u>	<u>3</u>	<p><u>The calibration factors for the calcium mass score of the device. These factors incorporate the effects of</u></p> <ul style="list-style-type: none"> • <u>KV value of the CT image</u> • <u>machine specific corrections</u> <p><u>and cover the standard patient size small, medium and large</u></p> <p><u>This a multi-value attribute, the first value specifies the mass factor for a small patient size, the second value for a medium patient size and the third value for a large patient size.</u></p> <p><u>See C.8.2.1.1.X.</u></p>
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Add to PS 3.6, Section 6

6 Registry of DICOM data elements

Tag	Name	VR	VM
...			
<u>(0018,9351)</u>	<u>Calcium Scoring Mass Factor Patient</u>	<u>FL</u>	<u>1</u>
<u>(0018,9352)</u>	<u>Calcium Scoring Mass Factor Device</u>	<u>FL</u>	<u>3</u>