

DICOM Correction Proposal

STATUS	May 2024 Voting Packet
Date of Last Update	2024/03/20
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Correction Number	CP-2295
Log Summary:	KVP attribute in CT Image Module may also be filled in multi-energy case
Name of Standard	PS 3.3 2023
Rationale for Correction:	<p>With introduction of Sup188 a constraint was added to the description of (Type2) KVP attribute (0018,0060) in CT Image Module: "Shall be empty if this Attribute is present in Multi-energy CT Acquisition Sequence (0018,9362)."</p> <p>All other (Type3) attributes in CT Image Module have a similar but more relaxed constraint, adding "and the value of this Attribute is not the same in all Items of the Multi-energy CT Acquisition Sequence (0018,9362)."</p> <p>So even if the KVP value is identical for all CT Acquisition Sequences within that image it is currently not allowed to have this value also in CT Image Module.</p> <p>As there are several multi-energy use cases where KVP may be or is the same value (Twin Beam, Photon-Counting, Dual-Layer-Detectors) this CP also relaxes the constraint for KVP, making it consistent with the other ME-relevant attributes on the same level. This change might also re-enable display of the KVP value (at least for above mentioned cases) on viewers which have not yet been updated to Sup188 yet.</p> <p>The change is seen as non-breaking.</p>
Correction Wording:	

Table C.8-3. CT Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
KVP	(0018,0060)	2	<p>Peak kilo voltage output of the X-Ray generator used.</p> <p>Shall be empty if this Attribute is present in Multi-energy CT Acquisition Sequence (0018,9362) and the value of this Attribute is not the same in all Items of the Multi-energy CT Acquisition Sequence (0018,9362).</p> <p><u>Note</u></p> <p><u>In the context of a Multi-Energy acquisition the concerned energy spectrum needs to be considered on multiple layers:</u></p> <ol style="list-style-type: none"> 1. <u>Energy spectrum emitted by the source, see KVP values in Table C.8-3 and in Table C.8-27.</u> 2. <u>Energy spectrum effectively consumed by the detector, see Multi-energy CT X-Ray Detector Macro in Table C.8.2.2-3.</u> 3. <u>Nominal energy level associated with the image – if applicable - see Monoenergetic Energy Equivalent (0018,937C) in Multi-energy CT Characteristics Macro in Table C.8.15.3.12-1.</u> <p><u>In case there is only one KVP value for a Multi-energy acquisition, for examples Twin Beam, Photon-Counting, Dual-Layer-Detectors), the effective energies contributing to the image might be derived from the Multi-energy CT X-Ray Detector Macro in Table C.8.2.2-3.</u></p>
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