

DICOM Change Proposal

STATUS	Assigned
Date of Last Update	2025/08/27
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Submission Date	2025/03/20

Change Number	CP-2531
Log Summary:	Harmonize description of Exposure Modulation Type Attribute
Name of Standard	PS3.4, PS3.16
Rationale for Change:	<p>The definition of the Exposure Modulation Type Attribute (0018,9323) is not consistent throughout the standard.</p> <p>This CP makes a common definition at all occurrences of the attribute, taking the Performed CT Acquisition Module as a base while introducing one more Defined Term "ADJUSTED_CONSTANT"</p>
Change Wording:	

Modify C.34.10 Performed CT Acquisition Module

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Table C.34.10-1. Performed CT Acquisition Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
>>Exposure Modulation Type	(0018,9323)	1	<p>A multi-valued label describing the type of current modulation used for the purpose of limiting the dose.</p> <p>Defined Terms:</p> <p>NONE</p> <p><u>Current is not modulated. Current is as defined in the protocol.</u></p> <p>ANGULAR</p> <p>Current is modulated over different tube angles.</p> <p>LONGITUDINAL</p> <p>Current is modulated along the axis of the table.</p> <p>ECG_BASED</p>

Attribute Name	Tag	Type	Attribute Description
			<p>Current is modulated based on the cardiac phase.</p> <p>ORGAN_BASED</p> <p>Current is modulated based on the organs in the field of view.</p> <p><u>ADJUSTED CONSTANT</u></p> <p><u>Current is set based on the mean effective patient diameter and remains constant during the scan. Current is not modulated during scan.</u></p> <p><u>If the value NONE is present, then no other values shall be present.</u></p>
...			

Modify C.8.2.1 CT Image Module

Table C.8-3. CT Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
Exposure Modulation Type	(0018,9323)	3	<p>A <u>multi-valued</u> label describing the type of exposure modulation used for the purpose of limiting the dose.</p> <p>Defined Terms:</p> <p>NONE</p> <p><u>Current is not modulated. Current is as defined in the protocol.</u></p> <p><u>ANGULAR</u></p> <p><u>Current is modulated over different tube angles.</u></p> <p><u>LONGITUDINAL</u></p> <p><u>Current is modulated along the axis of the table.</u></p> <p><u>ECG BASED</u></p>

Attribute Name	Tag	Type	Attribute Description
			<p><u>Current is modulated based on the cardiac phase.</u></p> <p><u>ORGAN BASED</u></p> <p><u>Current is modulated based on the organs in the field of view.</u></p> <p><u>ADJUSTED CONSTANT</u></p> <p><u>Current is set based on the mean effective patient diameter and remains constant during the scan. Current is not modulated during scan.</u></p> <p><u>If the value NONE is present, then no other values shall be present.</u></p>
...			

Modify C.8.15.3.8 CT Exposure Macro

Table C.8-124. CT Exposure Macro Attributes

Attribute Name	Tag	Type	Attribute Description
...			
>Exposure Modulation Type	(0018,9323)	1C	<p>A <u>multi-valued</u> label describing the type of exposure modulation used for the purpose of limiting the dose.</p> <p>Defined Terms:</p> <p>NONE</p> <p><u>Current is not modulated. Current is as defined in the protocol.</u></p> <p><u>ANGULAR</u></p> <p><u>Current is modulated over different tube angles.</u></p> <p><u>LONGITUDINAL</u></p> <p><u>Current is modulated along the axis of the table.</u></p> <p><u>ECG BASED</u></p>

Attribute Name	Tag	Type	Attribute Description
			<p><u>Current is modulated based on the cardiac phase.</u></p> <p><u>ORGAN BASED</u></p> <p><u>Current is modulated based on the organs in the field of view.</u></p> <p><u>ADJUSTED CONSTANT</u></p> <p><u>Current is set based on the mean effective patient diameter and remains constant during the scan. Current is not modulated during scan.</u></p> <p><u>If the value NONE is present, then no other values shall be present.</u></p> <p>Required if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL or Image Type (0008,0008) Value 1 is ORIGINAL. May be present otherwise.</p>
...			

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Modify TID 10013 CT Irradiation Event Data

Table TID 10013. CT Irradiation Event Data

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
		...						
36	>	CONTAINS	TEXT	EV (113842, DCM, "X-Ray Modulation Type")	1	U	<u>XOR Row 36a</u>	
<u>36a</u>	<u>≥</u>	<u>CONTAINS</u>	<u>CODE</u>	<u>EV (113842, DCM, "X-Ray Modulation Type")</u>	<u>1-n</u>	<u>U</u>	<u>XOR Row 36</u>	<u>DCID zzzzz1 "X-Ray Modulation Type"</u>
		...						

20 Content Item Descriptions

...	
Row 36	The type of exposure modulation. May use the value of Exposure Modulation Type (0018,9323) from the <u>CT Exposure Macro</u> or from the <u>CT Image Module</u> .

Row 36a	<u>Shall be the value of Exposure Modulation Type (0018,9323) from the CT Exposure Macro or from the CT Image Module</u>
...	

Add CID zzzzz1 X-Ray Modulation Type

CID zzzzz1 X-Ray Modulation Type

Resources: [HTML](#) | [FHIR JSON](#) | [FHIR XML](#) | [IHE SVS XML](#)
Keyword: XrayModulationType
FHIR Keyword: dicom-cid-zzzzz1-XrayModulationType
Type: Extensible
Version: yyyymmdd
UID: xxxxxxxx.uidz1

Table CID zzzzz1 X-Ray Modulation Type

Coding Scheme Designator	Code Value	Code Meaning
DCM	aaaaa0	No modulation
DCM	aaaaa1	Angular modulation
DCM	aaaaa2	Longitudinal modulation
DCM	aaaaa3	ECG-based modulation
DCM	aaaaa4	Organ-based modulation
DCM	aaaaa5	Adjusted Constant

Add definitions to PS 3.16 Annex D

Table D-1. DICOM Controlled Terminology Definitions

Code Value	Code Meaning	Definition	Notes
...			
aaaaa0	No modulation	Current is not modulated. Current is as defined in the protocol.	
aaaaa1	Angular modulation	Current is modulated over different tube angles.	
aaaaa2	Longitudinal modulation	Current is modulated along the axis of the table.	
aaaaa3	ECG-based modulation	Current is modulated based on the cardiac phase.	
aaaaa4	Organ-based modulation	Current is modulated based on the organs in the field of view.	

aaaaa5	Adjusted Constant	Current is set based on the mean effective patient diameter and remains constant during the scan. Current is not modulated during scan.	
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