DICOM Change Proposal

STATUS	Letter Ballot
Date of Last Update	2026/01/28
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Change Number	CP-2575
Log Summary: Add metal artifact reduction metadata in CT	
Name of Standard PS3 2025b	
Rationale for Change: The DICOM standard does not provide a mechanism to explicitly indicate when metal artifact reduction (MAR) has been applied or to identify the algorithm used. This information is relevant to interpretability, quality assurance, clinical documentation, and regulatory oversight. This CP adds: • A flag to indicate whether or not MAR was used • A sequence to identify the MAR algorithm using the existing Algorithm Identification Macro • A CID for MAR algorithm family Related work is underway in IEC to include requirements in 60601-2-44 to record MAR details in DICOM metadata.	
Change Wording:	

> **Modify PS3.6 Section 6 Table 6-1 (Registry of DICOM Data Elements) as shown.**

5 **Table 6-1 Registry of DICOM Data Elements**

Tag	Name	Keyword	VR	VM
…				
(0018,xxxx)	**Metal Artifact Reduction Applied**	**MetalArtifactReductionApplied**	**CS**	**1**
(0018,yyyy)	**Metal Artifact Reduction Algorithm Identification Sequence**	**MetalArtifactReductionAlgorithm IdentificationSequence**	**SQ**	**1**
…				

Modify PS3.6 Annex A Table A-3 as shown:

TABLE A-3 CONTEXT GROUP UID VALUES

Context UID	Context Identifier	Context Group Name
...	...	…
1.2.840.10008.6.1.xxx1uid	**xxx1**	**Metal Artifact Reduction Algorithm Family**

Modify PS3.3 Table C.8-3 (CT Image Module Attributes) as shown.

Table C.8-3 CT Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
…			
Convolution Kernel	(0018,1210)	3	A label describing the convolution kernel or algorithm used to reconstruct the data.
Metal Artifact Reduction Applied	**(0018, xxxx)**	**3**	**Indicates whether or not metal artifact reduction (MAR) was applied.** **Enumerated Values:** **YES** **NO** **If this Attribute is absent, then metal artifact reduction may or may not have been applied.**
Metal Artifact Reduction Algorithm Identification Sequence	**(0018, yyyy)**	**3**	**Algorithm used for metal artifact reduction.** **Only a single item is permitted in this Sequence.**
>*Include Table 10-19 "Algorithm Identification Macro Attributes"*			**Algorithm Family Code Sequence BCID xxx1 "Metal Artifact Reduction Algorithm Family".**
Revolution Time	(0018,9305)	3	The time in seconds of a complete revolution of the source around the gantry orbit.
…			

Modify PS3.3 Table C.8-114 (Enhanced CT Image Module Attributes) as shown.

Table C.8-114 Enhanced CT Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
…			
Recognizable Visual Features	(0028,0302)	3	Indicates whether or not the image contains sufficiently recognizable visual features to allow the image or a reconstruction from a set of images to identify the patient. Enumerated Values:

			YES NO If this Attribute is absent, then the image may or may not contain recognizable visual features.
Metal Artifact Reduction Applied	**(0018,xxxx)**	**3**	**Indicates whether or not metal artifact reduction (MAR) was applied.** **Enumerated Values:** **YES** **NO** **If this Attribute is absent, then metal artifact reduction may or may not have been applied.**
Metal Artifact Reduction Algorithm Identification Sequence	**(0018,yyyy)**	**3**	**Algorithm used for metal artifact reduction.** **Only a single item is permitted in this Sequence.**
>Include Table 10-19 "Algorithm Identification Macro Attributes"			**Algorithm Family Code Sequence BCID xxx1 "Metal Artifact Reduction Algorithm Family".**
Lossy Image Compression	(0028,2110)	1C	Specifies whether an Image has undergone lossy compression (at a point in its lifetime). Enumerated Values: 00 Image has not been subjected to lossy compression. 01 Image has been subjected to lossy compression. Once this Attribute has been set to a Value of "01" it shall not be reset. See Section C.7.6.1.1.5. Required if SOP Class UID (0008,0016) is not "1.2.840.10008.5.1.4.1.1.2.2" (Legacy Converted CT Image Storage). May be present otherwise.
…			

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Modify PS3.3 Table 10-19 as shown.

Table 10-19 Algorithm Identification Macro Attributes

Attribute Name	Tag	Type	Attribute Description
Algorithm Family Code Sequence	(0066,002F)	1	The family of algorithm(s) that best describes the software algorithm used. Only a single Item shall be included in this Sequence.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			*CID may be defined in the Macro invocation.*
Algorithm Name Code Sequence	(0066,0030)	3	The code assigned by a manufacturer to a specific software algorithm. Only a single Item is permitted in this Sequence.

>*Include Table 8.8-1 "Code Sequence Macro Attributes"*			*CID may be defined in the Macro invocation.*
Algorithm Name	(0066,0036)	1	The name assigned by a manufacturer to a specific software algorithm.
Algorithm Version	(0066,0031)	1	The software version identifier assigned by a manufacturer to a specific software algorithm.
Algorithm Parameters	(0066,0032)	3	The input parameters used by a manufacturer to configure the behavior of a specific software algorithm.
Algorithm Source	(0024,0202)	3	Source of the algorithm, e.g., the name of the manufacturer, researcher, university, etc.

20 **Code values introduced by the implementer are expected to be described in the Conformance Statement.**

Add new Context Groups PS3.16 as shown

CID xxx1   **Metal Artifact Reduction Algorithm Family**

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Type: **Extensible**
25 **Version:**   <u>**yyyymmdd**</u>
UID: **1.2.840.10008.6.1.xxx1uid**

Table CID xxx1. Metal Artifact Reduction Algorithm Family

Coding Scheme Designator	Code Value	Code Meaning	
DCM	Newcode00	Iterative MAR	
DCM	Newcode01	Image-Space MAR	
DCM	Newcode02	Projection-Space MAR	
DCM	Newcode05	Multi-Energy MAR	
DCM	Newcode07	AI-Based MAR	

Add definitions to PS 3.16 Annex D

Table D-1. DICOM Controlled Terminology Definitions

Code Value	Code Meaning	Definition	Notes
…			
Newcode00	Iterative MAR	Metal Artifact Reduction that uses iterative reconstruction techniques.	
Newcode01	Image-Space MAR	Metal Artifact Reduction that is applied after reconstruction in the image domain.	
Newcode02	Projection-Space MAR	Metal Artifact Reduction that is applied in the raw projection data domain.	
Newcode05	Multi-Energy MAR	Metal Artifact Reduction that utilizes spectral separation of materials with multi-energy CT (MECT).	
Newcode07	AI-Based MAR	Metal Artifact Reduction that employs artificial intelligence or machine learning.	