

DICOM Correction Proposal

STATUS	Letter Ballot
Date of Last Update	2025/01/19
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Submission Date	2024/04/17

Correction Number	CP-2425
Log Summary:	Generalize CTDI phantom options
Name of Standard	PS3.3, PS3.6, PS3.16
Rationale for Correction:	<p>Supplement 214 introduced an additional CTDI phantom size as part of CID 4052 “Dose Phantom Devices” to account for the use of a smaller, 10 cm CTDI phantom on certain systems. This CP removes the IEC restrictions on CTDI phantom sizes in the attribute descriptions, content item descriptions, and concept definition. While the vast majority of systems generating and reporting CTDI use the typical 16 and 32 cm phantoms, there is no technical reason that CTDI couldn’t be measured and reported using a different size phantom.</p> <p>The CP also creates a new CID for the CTDI-specific phantoms from those in CID 4052 to make it clear that the CTDI Phantom Type must be a CTDI-type phantom.</p>
Correction Wording:	

Modify PS3.3 as follows:

Table C.8-3. CT Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
CTDI Phantom Type Code Sequence	(0018,9346)	3	The type of phantom used for CTDI measurement according to [IEC 60601-2-44] . Only a single Item is permitted in this Sequence.
>Include Table 8.8-1 “Code Sequence Macro Attributes”			DCID 4052 aaaa “ CTDI Phantom Device”
...			

Modify PS3.3 as follows:

Table C.8-124. CT Exposure Macro Attributes

Attribute Name	Tag	Type	Attribute Description
...			

CTDI Phantom Type Code Sequence	(0018,9346)	3	The type of phantom used for CTDI measurement according to [IEC 60601-2-44] . Only a single Item is permitted in this Sequence.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			DCID 4052aaaa " CTDI Phantom Device"
...			

Modify PS3.3 as follows:

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

Attribute Name	Tag	Type	Attribute Description
...			
CTDI Phantom Type Code Sequence	(0018,9346)	1C	The type of phantom used for CTDI measurement according to [IEC 60601-2-44] . Required if CTDIvol (0018,9345) is present. Only a single Item is permitted in this Sequence.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			DCID 4052aaaa " CTDI Phantom Device"
...			

Modify PS3.16 as follows:

TID 10013 CT Irradiation Event Data

...

Type: Extensible
Order: Significant
Root: No

Table TID 10013. CT Irradiation Event Data

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (113819, DCM, "CT Acquisition")	1	M		
...								
21	>	CONTAINS	CONTAINER	EV (113829, DCM, "CT Dose")	1	MC	IF Row 4 does not equal (113805, DCM, "Constant Angle Acquisition")	
22	>>	CONTAINS	NUM	EV (113830, DCM, "Mean CTDIvol")	1	M		UNITS = EV (mGy, UCUM, "mGy")
23	>>	CONTAINS	CODE	EV (113835, DCM, "CTDIw Phantom Type")	1	M		DCID 4052aaaa " CTDI Phantom Device"

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
...								

Content Item Descriptions

...	
Row 23	The type of phantom used for CTDI measurement according to IEC 60601-2-44 (e.g., Head 16 cm diameter PMMA, Body 32 cm diameter PMMA, <u>etc.</u>).
...	

Modify PS3.16 as follows:

TID 10042 Irradiation Event Summary Data

This template documents irradiation event-level summary data.

Type: Extensible
Order: Non-Significant
Root: No

Table TID 10042. Irradiation Event Summary Data

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (130501, DCM, "Irradiation Event Summary Data")	1	M		
...								
27	>	CONTAINS	CONTAINER	EV (113829, DCM, "CT Dose")	1	U		
28	>>	CONTAINS	NUM	EV (113830, DCM, "Mean CTDIvol")	1	M		UNITS = EV (mGy, UCUM, "mGy")
29	>>	CONTAINS	CODE	EV (113835, DCM, "CTDIw Phantom Type")	1	M		DCID 4052aaaa " <u>CTDI</u> Phantom Device"
...								

Content Item Descriptions

...	
Row 29	The type of phantom used for CTDI measurement according to IEC 60601-2-44 (e.g., Head 16 cm diameter PMMA, Body 32 cm diameter PMMA, <u>etc.</u>).
...	

Modify PS3.16 as follows:

Table D-1. DICOM Controlled Terminology Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition	Notes
...
113835	CTDIw Phantom Type	A label describing the type of phantom used for CTDI _w measurement according to IEC 60601-2-44] (Head 16 cm diameter PMMA, Body 32 cm diameter PMMA).	
...

Modify PS3.16 as follows:

CID 4052 Phantom Device

Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML
 Keyword: PhantomDevice
 FHIR Keyword: dicom-cid-4052-PhantomDevice
 Type: Extensible
 Version: 20221224
 UID: 1.2.840.10008.6.1.315

Table CID 4052. Phantom Device

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
<u>Include CID aaaa "CTDI Phantom Device"</u>				
SCT	706342009	Phantom	R-FE0C7	
DCM	113682	ACR Accreditation Phantom - CT		
DCM	113683	ACR Accreditation Phantom - MR		
DCM	113684	ACR Accreditation Phantom - Mammography		
DCM	113685	ACR Accreditation Phantom - Stereotactic Breast Biopsy		
DCM	113686	ACR Accreditation Phantom - ECT		
DCM	113687	ACR Accreditation Phantom - PET		
DCM	113688	ACR Accreditation Phantom - ECT/PET		

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
DCM	113689	ACR Accreditation Phantom - PET Faceplate		
DCM	113690	IEC Head Dosimetry Phantom		
DCM	113691	IEC Body Dosimetry Phantom		
DCM	113692	NEMA XR21-2000 Phantom		
DCM	130541	10 cm Dosimetry Phantom		

Add to PS3.16 as follows:

CID aaaa CTDI Phantom Device

Keyword: CTDIPhantomDevice
 FHIR Keyword: dicom-cid-aaaa-CTDIPhantomDevice
 Type: Extensible
 Version: yyyyymmdd
 UID: 1.2.840.10008.6.1.uuuu

Table CID aaaa. CTDI Phantom Device

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-RT ID	UMLS Concept Unique ID
DCM	113690	IEC Head Dosimetry Phantom		
DCM	113691	IEC Body Dosimetry Phantom		
DCM	130541	10 cm Dosimetry Phantom		

Add to PS3.6 as follows:

Table A-3. Context Group UID Values

Context Group UID	Context Group Identifier	Context Group Name	Comment
1.2.840.10008.6.1.uuuu	CID aaaa	CTDI Phantom Device	