DICOM Correction Proposal

STATUS	Final Text
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Person Assigned	David Clunie dclunie@dclunie.com
Submitter Name	David Clunie dclunie@dclunie.com
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Correction Number CP-1317
Log Summary: Refactor Accumulated Projection X-Ray Dose Templates
Name of Standard PS 3.16 2011
Rationale for Correction: CP 1077 introduced new templates for various degrees of integration of components of an X-Ray system, including new accumulated dose templates, and replicated some, but not all, of the content of an existing template, without factoring out the commonality. This makes it difficult to detect and validate the pattern of the common content, which can be refactored without changing the meaning or the encoding
Correction Wording:

Refactor templates in PS 3.16:

TID 10002 Accumulated X-Ray Dose

This general template provides detailed information on projection X-Ray dose value accumulations over several irradiation events from the same equipment (typically a study or a performed procedure step).

Parameter Name	Parameter Usage
$Plane	Coded term identifying to which acquisition plane the encoded information belongs.

TID 10002
ACCUMULATED X-RAY DOSE
Type: Extensible Order: Non-Significant

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (113702, DCM, ”Accumulated X-Ray Dose Data”)	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (113764, DCM, “Acquisition Plane”	1	M		$Plane
3	>	CONTAINS	CONTAINER	EV (122505, DCM, “Calibration”)	1-n	MC	IFF Calibration Data is available	
4	>>	HAS CONCEPT MOD	CODE	EV (113794, DCM, “Dose Measurement Device”)	1	M		DCID (10010) Dose Measurement Devices
5	>>	CONTAINS	DATETIME	EV (113723, DCM, “Calibration Date”)	1	M		
6	>>	CONTAINS	NUM	EV (122322, DCM,	1	M		Units = EV (1, UCUM, “no

				"Calibration Factor")				units")
7	>>	CONTAINS	NUM	EV (113763, DCM, "Calibration Uncertainty")	1	M		Units = EV (%, UCUM, "Percent")
8	>>	CONTAINS	TEXT	EV (113724, DCM, "Calibration Responsible Party")	1	M		
9	>	CONTAINS	INCLUDE	DTID (10004) Accumulated **Fluoroscopy and Acquisition** Projection X-Ray Dose	1	MC	IFF TID (10001) Row 4 = (113957, DCM, "Fluoroscopy-Guided Projection Radiography System") or TID (10001) Row 2 = (113704, DCM, "Projection X-Ray") and TID (10001) Row 4 is absent)	
10	>	CONTAINS	INCLUDE	DTID (10005) Accumulated Mammography X-Ray Dose	1	MC	IFF TID (10001) Row 2 = (P5-40010, SRT, "Mammography")	
11	>	CONTAINS	INCLUDE	DTID (10007) Accumulated ~~**Integrated**~~ **Total** Projection Radiography Dose	1	MC	IFF TID (10001) Row 4 = (113958, DCM, "Integrated Projection Radiography System") **or TID (10001) Row 4 = (113957, DCM, "Fluoroscopy-Guided Projection Radiography System") or TID (10001) Row 2 = (113704, DCM, "Projection X-Ray") and TID (10001) Row 4 is absent)**	
12	>	CONTAINS	INCLUDE	DTID (10006) Accumulated Cassette-based Projection Radiography Dose	1	MC	IFF TID (10001) Row 4 = (113959, DCM, "Cassette-based Projection Radiography System")	
13	>	CONTAINS	INCLUDE	DTID (1021) Device Participant	1	MC	Required if the irradiating device is not the recording device and the dose was accumulated on a single device.	$DeviceProcedureRole = EV (113859, DCM, "Irradiating Device")

Content Item Descriptions

Row 5	Date that the calibration of the equipment's dose indicators was performed
Row 6	Factor by which the measured dose area product total was multiplied to obtain the Dose Area Product Total (Row 10).
Row 7	Value range from 0 to 100 percent. Uncertainty of the 'actual' value expressed as +/- of the mean.
Row 8	Identifies Individual or organization responsible for calibration
Row 13	The device which produced the irradiation accumulated in this template. I.e. the X-Ray source. This is not required to be present if the information is the same as that already recorded in the Device Observer Context (TID 1004) encoded via the inclusion of Observer Context (TID 1002) in TID 10001 Row 4, which in turn may be absent if identical to the content in the Enhanced General Equipment Module, or if more than one device produced the accumulated irradiation.

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TID 10004 Accumulated Fluoroscopy and Acquisition Projection X-Ray Dose

This general template provides detailed information on projection X-Ray dose value accumulations over several irradiation events from the same equipment (typically a study or a performed procedure step).

TID 10004
ACCUMULATED FLUOROSCOPY AND ACQUISITION PROJECTION X-RAY DOSE
Type: Extensible Order: Non-Significant

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
~~1~~			~~NUM~~	~~EV (113722, DCM, "Dose Area Product Total")~~	~~1~~	~~M~~		~~Units = EV (Gy.m2, UCUM, "Gy.m2")~~
~~2~~			~~NUM~~	~~EV (113725, DCM, "Dose (RP) Total")~~	~~1~~	~~MC~~	~~IF any of the values of TID (10001) Row 18 are not (113858, DCM, "MPPS Content"). May be present otherwise.~~	~~Units = EV (Gy, UCUM, "Gy")~~
3			NUM	EV (113726, DCM, "Fluoro Dose Area Product Total")	1	MC	IFF TID(10003) Row 7 value = (P5-06000, SRT, "Fluoroscopy") for at least one irradiation event	Units = EV (Gy.m2, UCUM, "Gy.m2")
4			NUM	EV (113728, DCM, "Fluoro Dose (RP) Total")	1	MC	IFF TID(10003) Row 7 value = (P5-06000, SRT, "Fluoroscopy") for at least one irradiation event AND any of the values of TID (10001) Row 18 are not (113858, DCM, "MPPS Content").	Units = EV (Gy, UCUM, "Gy")
5			NUM	EV (113730, DCM, "Total Fluoro Time")	1	MC	IFF TID(10003) Row 7 value = (P5-06000, SRT, "Fluoroscopy") for at least one irradiation event.	Units = EV (s, UCUM, "s")
6			NUM	EV (113727, DCM, "Acquisition Dose Area Product Total")	1	M		Units = EV (Gy.m2, UCUM, "Gy.m2")
7			NUM	EV (113729, DCM, "Acquisition Dose (RP) Total")	1	MC	IF any of the values of TID (10001) Row 18 are not (113858, DCM, "MPPS Content"). May be present otherwise.	Units = EV (Gy, UCUM, "Gy")
8			NUM	EV (113855, DCM, "Total Acquisition Time")	1	M		Units = EV (s, UCUM, "s")
~~9~~			~~NUM~~	~~EV (113731, DCM, "Total Number of Radiographic Frames")~~	~~1~~	~~U~~		~~Units = EV (1, UCUM, "no units")~~
~~10~~			~~CODE~~	~~EV (113780, DCM, "Reference Point Definition")~~	~~1~~	~~MC~~	~~IF Row 2, Row 4 or Row 7 is present and Row 11 is not present.~~	~~DCID (10025) Radiation Dose Reference Points~~
~~11~~			~~TEXT~~	~~EV (113780, DCM, "Reference Point Definition")~~	~~1~~	~~MC~~	~~IF Row 2, Row 4 or Row 7 is present and Row 10 is not present.~~	

Content Item Descriptions

~~Row 1~~	~~Sum of acquisition and fluoroscopy~~
~~Row 2~~	~~Sum of acquisition and fluoroscopy, relative to reference point.~~
Rows 3-5	Fluoroscopic component only
Rows 6-8	Acquisition component only
~~Row 10~~	~~A coded definition of the Reference Point (RP) used for RP-related dose values.~~
~~Row 11~~	~~A text definition of the Reference Point (RP) used for RP-related dose values.~~

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TID 10007 Accumulated ~~Integrated~~ Total Projection Radiography Dose

This template provides information on **total** Projection Radiography dose values accumulated on Integrated **or combined fluoroscopy/acquisition** systems over one or more irradiation events (typically a study or a performed procedure step) from the same equipment.

TID 10007
ACCUMULATED ~~INTEGRATED~~ TOTAL PROJECTION RADIOGRAPHY DOSE
Type: Extensible Order: Non-Significant

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	EV (113722, DCM, "Dose Area Product Total")	1	M		Units = EV (Gy.m2, UCUM, "Gy.m2")
2			NUM	EV (113725, DCM, "Dose (RP) Total")	1	M**C**	**IF TID (10001) Row 4 = (113958, DCM, "Integrated Projection Radiography System") or any of the values of TID (10001) Row 18 are not (113858, DCM, "MPPS Content").**	Units = EV (Gy, UCUM, "Gy")
3			NUM	EV (113731, DCM, "Total Number of Radiographic Frames")	1	U		Units = EV (1, UCUM, "no units")
4			CODE	EV (113780, DCM, "Reference Point Definition")	1	MC	IF **any of (113725, DCM, "Dose (RP) Total"), (113728, DCM, "Fluoro Dose (RP) Total") or (113729, DCM, "Acquisition Dose (RP) Total") are present, and** Row 5 is not present.	DCID (10025) Radiation Dose Reference Points
5			TEXT	EV (113780, DCM, "Reference Point Definition")	1	MC	IF **any of (113725, DCM, "Dose (RP) Total"), (113728, DCM, "Fluoro Dose (RP) Total") or (113729, DCM, "Acquisition Dose (RP) Total") are present, and** Row 4 is not present.	

Content Item Descriptions

Row 1	Accumulated Dose Area Product
Row 2	Accumulated dose relative to reference point.
Row 4	A coded definition of the Reference Point (RP) used for RP-related dose values.
Row 5	A text definition of the Reference Point (RP) used for RP-related dose values.