

## DICOM Correction Item

Correction Number CP-265	
Log Summary: Modify numeric measurement templates	
Type of Modification	Name of Standard
Clarification	PS 3.16 2001
Rationale for Correction	
<p>The Templates specified for numeric measurement under TID 2000 require clarification for measurements made on images.</p> <ol style="list-style-type: none"><li>1. In TID 1400, Linear measurements do not provide for measurements across multiple images (e.g., ends of a linear path in different cross-sectional planes). This CP provides for linear paths to be defined by SCOORDs of vertices in multiple images. [Note: By virtue of the current definition of TID 1402, implementations handling TID 2000 must deal with multiple SCOORDs subsidiary to a NUM.]</li><li>2. The SCOORD content item (Row 2) in the Linear Measurement Template is specified with Requirement Type of "M", mandatory. This is intended to be a template for general use, and there are use cases where a numeric measurement may be defined without having the capability to associate the measurement with a specific coordinate path on an image. This content item should be "U", user optional. [Note: The corresponding SCOORD content item in TID 1401 Area Measurement Template is "MC", required only with concept name "Area of Defined Region" for the numeric measurement, and in TID 1402 Volume Measurement Template is "U".]</li><li>3. In TID 1402, Volumes may be represented by intersection with the identified image, rather than projection. [Note that this may be implied by Value Multiplicity of 1-n on the Volume SCOORDs.] This CP clarifies that use.</li><li>4. Definition of Concept Names for SCOORDs are incomplete (Defined vs. Enumerated). Similarly in the Path definition, "can be" might imply Defined (can be this, or can be something else) or Enumerated (can only be this). This CP clarifies those items.</li></ol>	
Sections of documents affected	
PS 3.16 Annex A and D	
Correction Wording:	

## TID 1400 Linear Measurement Template

TID 1400  
LINEAR MEASUREMENT

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		NUM	DCID (7470) "Linear Measurements"	1	M		UNITS = DCID(7460) "Units of Linear Measurement"
2	>	INFERRED FROM	SCOORD	EV (121055, DCM, "Path")	1	<del>M</del> UC	XOR Row 5
3	>>	R-SELECTED FROM	IMAGE		1	MC	XOR Row 4
4	>>	SELECTED FROM	IMAGE		1	MC	XOR Row 3
5	>	INFERRED FROM	SCOORD	EV (121230, DCM, "Path Vertex")	2-n	UC	XOR Row 2
6	>>	R-SELECTED FROM	IMAGE		1	MC	XOR Row 7
7	>>	SELECTED FROM	IMAGE		1	MC	XOR Row 6

## Content Item Descriptions

Row 2 "Path"

**Path shall represent the measured path or a projection of the measured path in the image. The Graphic Type (0070,0023) of the Path SCOORD can shall be:**

- an open POLYLINE with two different points (to measure length, diameter, distance, proximity, etc),
- a CIRCLE or ELLIPSE (to measure circumference) or
- an open or closed POLYLINE (closed polygon) to measure path length (open) or perimeter (closed).

Row 5 "Path Vertex"

**A measured path that traverses two or more images (e.g., the ends of the path are in different cross-sectional plane images) shall be identified by vertices along the path. The Path Vertices shall be ordered by the order of their SCOORD Content Items to identify the measured path. The Graphic Type (0070,0023) of each SCOORD shall be POINT**

## TID 1401 Area Measurement Template

TID 1401  
AREA MEASUREMENT

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		NUM	DCID ( <del>CID</del> 7471) "Area Measurements"	1	M		Value shall be > 0 UNITS = DCID (7461) "Units of Area Measurement"
2	>	INFERRED FROM	SCOORD	EV (121056, DCM, "Area Outline")	1	MC	Shall be present if concept name of Row 1 is (121202,DCM, "Area of Defined Region"). May be present otherwise. Graphic <del>data</del> -Type shall not be MULTIPOINT

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
3	>>	R-SELECTED FROM	IMAGE		1	MC	XOR Row 4	
4	>>	SELECTED FROM	IMAGE		1	MC	XOR Row 3	

### Content Item Descriptions

**Row 2 "Area Outline"** A Graphic **Data** Type of POINT implies that the object is a single pixel and the object's area is the area of the pixel. Otherwise the type shall be a closed POLYLINE (start and end point the same) or a CIRCLE or an ELLIPSE.

### TID 1402 Volume Measurement Template

#### TID 1402 VOLUME MEASUREMENT

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	DCID ( <b>CID</b> 7472) "Volume Measurements"	1	M		Value shall be > 0 UNITS = DCID(7462) "Units of Volume Measurement"
2	>	INFERRED FROM	SCOORD	<b>EV</b> (121057, DCM, "Perimeter Outline")	1-n	UC		Graphic <b>data</b> Type shall not be MULTIPOINT
3	>>	R-SELECTED FROM	IMAGE		1	MC	XOR Row 4	
4	>>	SELECTED FROM	IMAGE		1	MC	XOR Row 3	

### Content Item Descriptions

**Row 2 "Perimeter Outline"**

The two dimensional perimeter of the volume's **intersection with or** projection into the image.

A Graphic Data Type of POINT implies that the volume's **intersection or** projection in a plane is a single pixel. A single pixel projection perimeter cannot cause a volume calculation to become 0.

Otherwise the type shall be a closed POLYLINE (start and end point the same) or a CIRCLE or an ELLIPSE.

**DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")**

<b>Code Value</b>	<b>Code Meaning</b>	<b>Definition</b>
<b><u>121230</u></b>	<b><u>Path Vertex</u></b>	<b><u>Coordinates of a point on a defined path</u></b>