

DICOM Correction Item

Correction Number		CP- 617
Log Summary: Support for Patient Positioner Pitch and Roll Angles		
Type of Modification	Name of Standard	
Addition	PS 3.3 2007	
<p>Rationale for Correction:</p> <p>The motion of modern patient support devices is no longer limited to rotations around the Z-axis in the IEC Fixed Coordinate system. The latest generation of patient support tables can perform additional rotations – rolling around the longitudinal axis and pitching around the transverse axis. Another possibility is a robotic arm, that may have 3 rotational and 3 translational degrees of freedom. Furthermore, it is quite common in proton therapy to use a treatment chair, where the patient can be rotated and tilted, while the beamline has a fixed direction.</p>		
<p>Sections of documents affected:</p> <p>Part 3 (Information Object Definitions),</p> <p style="padding-left: 40px;">Section C.8.8.2 (RT Image Module)</p> <p style="padding-left: 40px;">Section C.8.8.11 (RT Tolerance Table Module)</p> <p style="padding-left: 40px;">Section C.8.8.14 (RT Beams Module)</p> <p style="padding-left: 40px;">Section C.8.8.21 (RT Beams Session Record Module)</p>		
Correction Wording:		

In Part 3.3, Section C.8.8.2, Table C.8-38 (RT Image Module Attributes), add the following attributes after Table Top Eccentric Angle (300A,0125):

Attribute Name	Tag	Type	Attribute Description
...
Table Top Eccentric Angle	(300A,0125)	3	Table Top (non-isocentric) angle, i.e. orientation of IEC TABLE TOP ECCENTRIC coordinate system with respect to IEC PATIENT SUPPORT system (degrees).
<u>Table Top Pitch Angle</u>	<u>(300A,0140)</u>	3	<u>Table Top Pitch Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). See C.8.8.25.6.2</u>
<u>Table Top Roll Angle</u>	<u>(300A,0144)</u>	3	<u>Table Top Roll Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the Y-axis of the IEC TABLE TOP coordinate system (degrees). See C.8.8.25.6.2</u>
Table Top Vertical Position	(300A,0128)	3	Table Top Vertical position in IEC TABLE TOP coordinate system (mm).
...

In Part 3.3, Section C.8.8.14, Table C.8-50 (RT Beams Module Attributes), add the following attributes after Table Top Eccentric Rotation Direction (300A,0126):

Attribute Name	Tag	Type	Attribute Description
Beam Sequence	(300A,00B0)	1	Introduces sequence of treatment beams for current RT Plan. One or more items may be included in this sequence.
...			
>Control Point Sequence	(300A,0111)	1	Introduces sequence of machine configurations describing treatment beam. Two or more items may be included in this sequence. See C.8.8.14.5 and C.8.8.14.6.
...			
>>Table Top Eccentric Rotation Direction	(300A,0126)	1C	Direction of Table Top Eccentric Rotation when viewing table from above, for segment following Control Point. Required for first item of Control Point Sequence, or if Table Top Eccentric Rotation Direction changes during Beam. See C.8.8.14.8. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation
>> Table Top Pitch Angle	(300A,0140)	1C	<u>Table Top Pitch Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Pitch Angle changes during Beam, shall be present in all subsequent items of Control Point Sequence. See C.8.8.25.6.2.</u>
>> Table Top Pitch Rotation Direction	(300A,0142)	1C	<u>Direction of Table Top Pitch Rotation when viewing the table along the positive X-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Pitch Rotation Direction changes during Beam, shall be present in all subsequent items of Control Point Sequence. See C.8.8.14.8 and C.8.8.25.6.2.</u> <u>Enumerated Values:</u> <u>CW = clockwise</u> <u>CC = counter-clockwise</u> <u>NONE = no rotation</u>
>> Table Top Roll Angle	(300A,0144)	1C	<u>Table Top Roll Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the IEC Y-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be</u>

Attribute Name	Tag	Type	Attribute Description
			present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Angle changes during Beam, shall be present in all subsequent items of Control Point Sequence. See C.8.8.25.6.2.
>> Table Top Roll Rotation Direction	(300A,0146)	1C	Direction of Table Top Roll Rotation when viewing the table along the positive Y-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Rotation Direction changes during Beam, shall be present in all subsequent items of Control Point Sequence. See C.8.8.14.8 and C.8.8.25.6.2. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation
>>Table Top Vertical Position	(300A,0128)	2C	Table Top Vertical position in IEC TABLE TOP coordinate system (mm). Required for first item of Control Point Sequence, or if Table Top Vertical Position changes during Beam. See C.8.8.14.6.
...

In Part 3.3, Section C.8.8.21, Table C.8-57 (RT Beams Session Module Attributes), add the following attributes after Table Top Eccentric Rotation Direction (300A,0126):

Attribute Name	Tag	Type	Attribute Description
...
Treatment Session Beam Sequence	(3008,0020)	1	Introduces sequence of Beams administered during treatment session. The sequence may contain one or more items.
...			
>Control Point Delivery Sequence	(3008,0040)	1	Introduces sequence of beam control points for current treatment beam. The sequence may contain one or more items. See C.8.8.21.1.
...			
>>Table Top Eccentric Rotation Direction	(300A,0126)	1C	Direction of Table Top Eccentric Rotation when viewing table from above, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Eccentric Rotation Direction changes during beam administration. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation

Attribute Name	Tag	Type	Attribute Description
>> Table Top Pitch Angle	(300A,0140)	1C	Table Top Pitch Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Pitch Angle changes during Beam Delivery, shall be present in all subsequent items of Control Point Sequence. See C.8.8.25.6.2.
>> Table Top Pitch Rotation Direction	(300A,0142)	1C	Direction of Table Top Pitch Rotation when viewing the table along the positive X-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Pitch Rotation Direction changes during Beam Delivery, shall be present in all subsequent items of Control Point Sequence. See C.8.8.14.8 and C.8.8.25.6.2. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation
>> Table Top Roll Angle	(300A,0144)	1C	Table Top Roll Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the Y-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Angle changes during Beam Delivery, shall be present in all subsequent items of Control Point Sequence. See C.8.8.25.6.2
>> Table Top Roll Rotation Direction	(300A,0146)	1C	Direction of Table Top Roll Rotation when viewing the table along the positive Y-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Rotation Direction changes during Beam Delivery, shall be present in all subsequent items of Control Point Sequence. See C.8.8.14.8 and C.8.8.25.6.2. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation
>>Table Top Vertical Position	(300A,0128)	2C	Table Top Vertical position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Vertical Position changes during beam

Attribute Name	Tag	Type	Attribute Description
			administration.
...

In PS 3.3, Section C.8.8.11, Table C.8-47 (RT Tolerance Tables Module Attributes), add the following attributes after Table Top Eccentric Angle Tolerance (300A,004E):

Attribute Name	Tag	Type	Attribute Description
Tolerance Table Sequence	(300A,0040)	3	Introduces sequence of tolerance tables to be used for delivery of treatment plan. One or more items may be included in this sequence. See Note 1.
...			
>Table Top Eccentric Angle Tolerance	(300A,004E)	3	Maximum permitted difference (in degrees) between planned and delivered Table Top Eccentric Angle.
> Table Top Pitch Angle Tolerance	(300A,004F)	3	Maximum permitted difference (in degrees) between the planned and delivered Table Top Pitch Angle.
> Table Top Roll Angle Tolerance	(300A,0050)	3	Maximum permitted difference (in degrees) between the planned and delivered Table Top Roll Angle.
>Table Top Vertical Position Tolerance	(300A,0051)	3	Maximum permitted difference (in mm) between planned and delivered Table Top Vertical Position.
...