DICOM Correction Item

Correction Number	CP-362

Log Summary: X-Ray table position attribute names clarification	

Type of Modification	Name of Standard
Clarification	PS 3.3 –2006

Rationale for Correction

The descriptions of the table position module attributes have definitions both in an equipment coordinate system (Vertical, Longitudinal, and Lateral) *and* in a patient-centric system (x, y, z, CRA, LAO). In typical patient orientations these have a consistent mapping as shown in Figure C.8-2, but in unusual orientations the mapping is different. We need to decide whether the equipment or patient coordinate system is to be definitive for these attributes.

The text of Section C.8.7.4.1.1 specifies the patient oriented coordinate system as base for positions. However, the attributes names vertical, longitudinal and lateral specify an equipment system. E.g., note that Lateral, as used, is not patient lateral (RAO-LAO), but relative to a person standing table-side and facing the patient (and thus CRA-CAU in patient system).

This Module is used in both angio (where the positioner angles are patient-centric), and in RF (where the positioner is equipment-centric). It is not absolutely necessary for the positioner and table attributes to use the same coordinate system.

Sections of documents affected	

PS 3.3: C.8.7.4

Correction Wording:

C.8.7.4 X-Ray Table Module

Table C.8-29 contains Attributes that describe X-Ray images acquired with movement of the patient imaging table.

Table C.8-29
X-RAY TABLE MODULE ATTRIBUTES

| Attribute Name	Tag	Type	Attribute Description
Table Motion	(0018,1134)	2	Defined terms: STATIC DYNAMIC
Table Vertical Increment	(0018,1135)	2C	Incremental change in Vertical position of the table relative to first frame of Multi-frame image given in mm. Required if Table Motion is DYNAMIC.
Table Longitudinal Increment	(0018,1137)	2C	Incremental change in Longitudinal position of the table relative to first frame of Multi-frame image in mm. Table motion towards ~~LAO~~ **+90°position of the primary angle of the positioner** is positive. **See C.8.7.4.1.2.** Required if Table Motion is DYNAMIC.
Table Lateral Increment	(0018,1136)	2C	Incremental change in Lateral position of the table relative to first frame of Multi-frame image given in mm. Table motion towards ~~CRA~~ **+90°position of the secondary angle of the positioner** is positive. **See C.8.7.4.1.3.** Required if Table Motion is DYNAMIC.
Table Angle	(0018,1138)	3	Angle of table plane in degrees relative to horizontal plane [Gravity plane]. Positive values indicate that the head of the table is upwards.

C.8.7.4.1   X-Ray Table Attribute Descriptions

C.8.7.4.1.1   Table Motion ~~I~~ncrements

This section is replaced by section C.8.7.4.1.4

### C.8.7.4.1.2   Table Longitudinal Increment

The direction of the longitudinal movement is perpendicular to the primary axis of rotation of the positioner. A positive value of Table Longitudinal Increment (0018,1137) attributes indicates a movement towards the +90° position of the positioner, see figure C.8-9a.

0°

+90°

Table Longitudinal
Direction

-90°

Positioner Primary Axis of
Rotation

+/- 180°
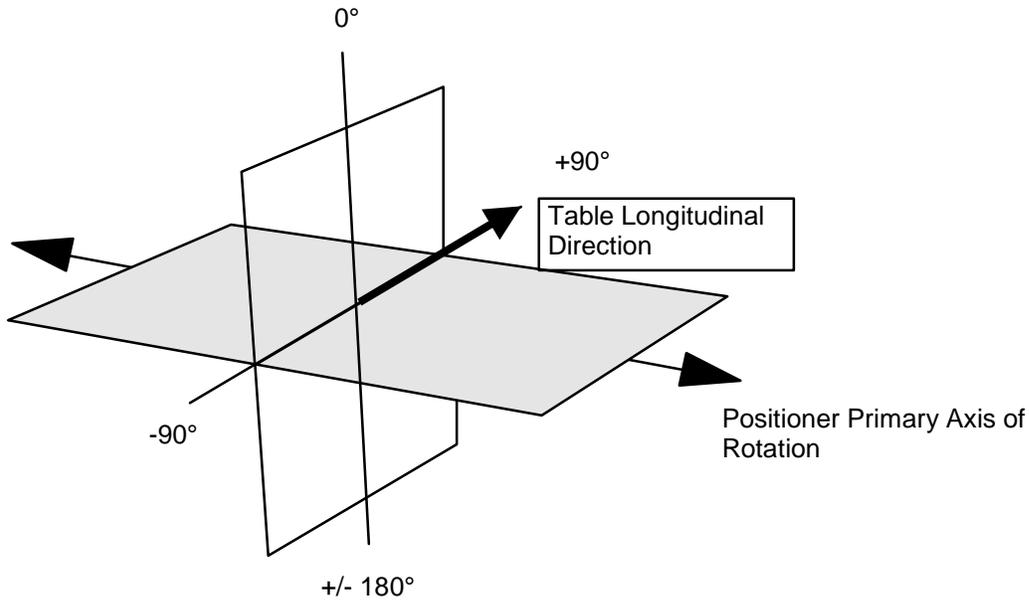
Figure C.8-9a
Table Longitudinal Movement

C.8.7.4.1.3   Table Lateral Increment

The direction of the lateral movement is perpendicular to the secondary axis of rotation of the positioner. A positive value of Table Lateral Increment (0018,1136) attributes indicates a movement towards the +90° position of the positioner, see figure C.8-9b.

0°

+90°

Table Lateral
direction

-90°

Positioner Secondary Axis of
Rotation
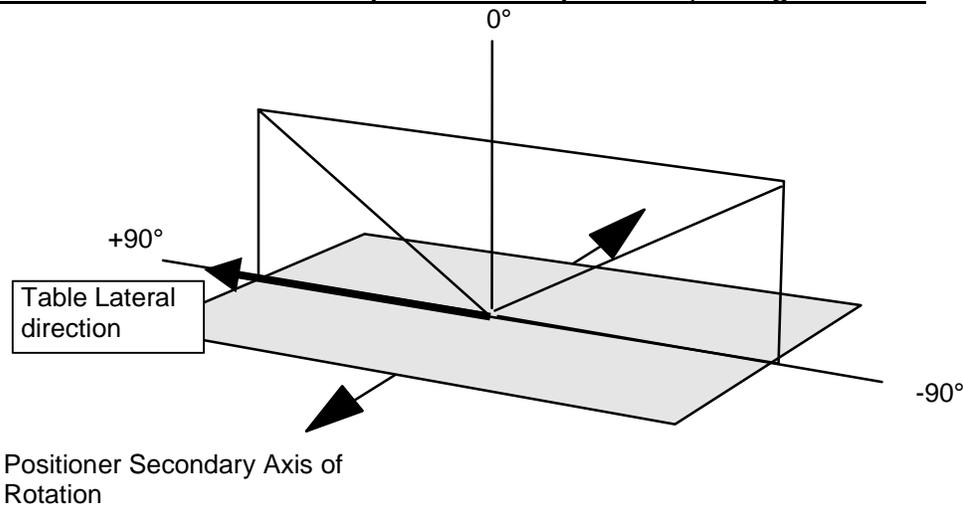
Figure C.8-9b
Table Lateral Movement

Note: The terms "longitudinal" and "lateral" are relative to an operator standing tableside, and facing the patient. Thus lateral movement is to the left and right of the operator, and longitudinal movement is towards or away from the operator.

Move the text from section C.8.7.4.1.1 to this place and change the contents

C.8.7.4.1.4 Table Motion ~~Increments~~ with Patient in relation to Imaging Chain

The table moves the Patient with respect to the imaging chain. This is being tracked as a motion of the imaging chain with respect to a coordinate system **(X, Y, Z)** attached to the patient (assumption is that the patient does not move with respect to the table). The coordinate system origin is fixed with respect to the patient at the time of the first frame. The X-axis is increasing to the left hand side of the patient. The ~~y~~**Y**-axis is increasing to the posterior side of the patient. The Z-axis is increasing toward the head of the patient **(see Section C.7.6.2.1.1)**. ~~The X and Z axis as drawn in Figure C.8-2 are parallel to the Patient Plane.~~ **The Patient Plane is then defined by the X and Z-axes as drawn in Figure C.8-10).**

Note**s:** **1.** Table motion causes the apparent locus of imaging to move in the opposite direction. For instance, with **the patient supine and** the table motion towards ~~LAO~~**+90°of the primary axis of rotation of the positioner**, the area of the patient imaged moves toward ~~RAO~~**the right hand side of the patient**.

2. When the patient is positioned prone or supine (Figure C.8-2 showing the supine position) the Table Longitudinal Increment (0018,1137) table motion takes place along the patient X-axis and the Table Lateral Increment (0018,0036) along the Z-axis. For patient positioned left or right decubitus, the Table Longitudinal Increment takes place along the Y-axis, the other direction is not changed.
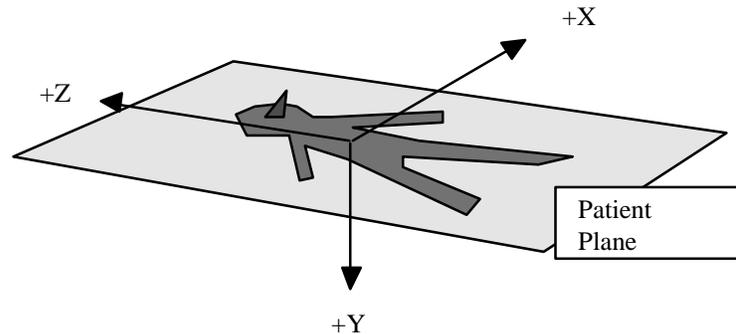
**Figure C.8-10
Table Motion Vector Coordinates**