

## DICOM Correction Item

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| Correction Number CP-935  |                  |
| Log Summary: Beam Dose Depth  |                  |
| Type of Modification  | Name of Standard |
| Correction  | PS 3 2008        |
| Rationale for Correction:<br><p>The changes introduced by Change Proposal 614 "Effective Depth at Beam Dose Specification Point" are potentially insufficient for multi-segment arc therapy. The values for Beam Dose Point Depth (300A,0088), Beam Dose Point Equivalent Depth (300A,0089), and Beam Dose Point SSD (300A,008A) vary with a changing gantry angle. Therefore a definition at a control point level where the gantry angle is defined is necessary.</p> |                  |
| Sections of documents affected  |                  |
| PS 3.3  |                  |
| Correction Wording:   |                  |

In PS 3.3, Section C.8.8.13 RT Fraction Scheme Module, Table C.8-49, make the following changes:

**Table C.8-49 RT FRACTION SCHEME MODULE ATTRIBUTES**

| Attribute Name                     | Tag          | Type | Attribute Description   |
|------------------------------------|--------------|------|---|
| Fraction Group Sequence            | (300A,0070)  | 1    | Introduces sequence of Fraction Groups in current Fraction Scheme. One or more items may be included in this sequence   |
| ...                                |              |      |   |
| >Referenced Beam Sequence          | (300C,0004)  | 1C   | Introduces sequence of treatment beams in current Fraction Group. Required if Number of Beams (300A,0080) is greater than zero. One or more items may be included in this sequence.   |
| ...                                |              |      |   |
| >>Beam Dose                        | (300a,0084)  | 3    | Dose (in Gy) at Beam Dose Specification Point (300A,0082) due to current beam.  |
| >>Beam Dose Point Depth            | (300A,0088)  | 3    | The depth (in mm) in the patient along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082). <b>See Note 6.</b>   |
| >>Beam Dose Point Equivalent Depth | (300A 0089)  | 3    | The radiological depth in mm (water-equivalent depth, taking tissue heterogeneity into account) in the patient along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082). <b>See Note 6.</b> |
| >>Beam Dose Point SSD              | (300A, 008A) | 3    | Source to patient surface distance along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082). <b>See Note 6.</b>   |

Notes:

...

5. Attribute Referenced Patient Setup Number (300C,006A) was previously defined. Its use in this Module is now retired (see PS3.3 2004).

**6. The values defined by this attribute are related to the gantry angle of the first control point referenced by Referenced Beam Number (300C,0006) of this sequence item.**

In PS 3.3, Section C.8.8.14 RT Beams Module, Table C.8-50, make the following changes:

**Table C.8-50 RT BEAMS MODULE ATTRIBUTES**

| 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.   |
| ...  |                            |                 |  |
| >>Referenced Dose Reference Sequence                       | (300C,0050)                | 3               | Introduces a sequence of Dose References for current Beam. One or more items may be included in this sequence.   |
| >>>Referenced Dose Reference Number                        | (300C,0051)                | 1C              | Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module. Required if Referenced Dose Reference Sequence (300C,0050) is sent.  |
| >>>Cumulative Dose Reference Coefficient                   | (300A,010C)                | 2C              | Coefficient used to calculate cumulative dose contribution from this Beam to the referenced Dose Reference at the current Control Point. Required if Referenced Dose Reference Sequence (300C,0050) is sent. See C.8.8.14.7.   |
| <b><u>&gt;&gt;&gt;Beam Dose Point Depth</u></b>            | <b><u>(300A,0088)</u></b>  | <b><u>3</u></b> | <b><u>The depth (in mm) in the patient along a ray from the source to the referenced Dose Reference at the current Control Point. This value should be provided only if the referenced Dose Reference Structure Type (300A,0014) is COORDINATES. The depth shall take into account the stated Gantry Angle (300A,011E), Beam Limiting Device Angle (300A,0120), and Patient Support Angle (300A,0122) of the current Control Point.</u></b>  |
| <b><u>&gt;&gt;&gt;Beam Dose Point Equivalent Depth</u></b> | <b><u>(300A 0089)</u></b>  | <b><u>3</u></b> | <b><u>The radiological depth in mm (water-equivalent depth, taking tissue heterogeneity into account) in the patient along a ray from the source to the referenced Dose Reference at the current Control Point. This value should be provided only if the referenced Dose Reference Structure Type (300A,0014) is COORDINATES. The radiological depth shall take into account the stated Gantry Angle (300A,011E), Beam Limiting Device Angle (300A,0120), and Patient Support Angle (300A,0122) of the current Control Point.</u></b> |
| <b><u>&gt;&gt;&gt;Beam Dose Point SSD</u></b>              | <b><u>(300A, 008A)</u></b> | <b><u>3</u></b> | <b><u>Source to patient surface distance along a ray from the source to the referenced Dose Reference at the current Control Point. This value should be provided only if the referenced Dose Reference Structure Type (300A,0014) is COORDINATES. The Source to patient surface distance shall take into account the stated</u></b>   |

|                            |             |    |  |
|----------------------------|-------------|----|--|
|                            |             |    | <b><u>Gantry Angle (300A,011E), Beam Limiting Device Angle (300A,0120), and Patient Support Angle (300A,0122) of the current Control Point.</u></b>  |
| >>Referenced Dose Sequence | (300C,0080) | 1C | Sequence describing related instances of RT Dose (for grids, isodose curves, and named/unnamed point doses). One or more items may be included in this sequence.<br>Required if RT Dose is being sent, and Dose Summation Type (3004,000A) equals CONTROL_POINT. |