DICOM Correction Item

Correction Number CP-791	
Log Summary: RT Block/Compensator Transmission and Thickness	
Type of Modification Modification	Name of Standard PS 3.3 2007
Rationale for Correction: There is a need to be able to send both transmission and thickness together in block and compensator sequences, to support milling machines (thickness) as well as transferring/archiving the complete plan attributes resulting from dose calculation (transmission).	
Sections of documents affected PS 3.3	
Correction Wording:	

In PS 3.3, Section C.8.8.14 (RT Beams Module), Table C.8-50, change the following descriptions:

Attribute Name	Tag	Type	Attribute Description
>>Block Thickness	(300A,0100)	2C	Physical thickness of block (in mm) parallel to radiation beam axis. Required if **Block Sequence (300A,00F4) is sent and** Material ID (300A,00E1) is non-zero length. **May be present if Material ID (300A,00E1) is zero length.** See C.8.8.14.4 **and C.8.8.14.11**.
>>Block Transmission	(300A,0102)	2C	Transmission through the block (between 0 and 1) at the beam energy specified by the Nominal Beam Energy (300A,0114) of the first Control Point of the Control Point Sequence (300A,0111). Required if **Block Sequence (300A,00F4) is sent and** Material ID (300A,00E1) is zero length. **May be present if Material ID (300A,00E1) is non-zero length.** See C.8.8.14.4 **and C.8.8.14.11**.

Attribute Name	Tag	Type	Attribute Description
>>Compensator Transmission Data	(300A,00EB)	1C	A data stream of the pixel samples which comprise the compensator, expressed as broad-beam transmission values (between 0 and 1) along a ray line passing through the pixel, at the beam energy specified by the Nominal Beam Energy (300A,0114) of the first Control Point of the Control Point Sequence (300A,0111). The order of pixels sent is left to right, top to bottom, i.e., the upper left pixel is sent first followed by the remainder of the first row, followed by the first pixel of the 2nd row, then the remainder of the 2nd row and so on) when viewed from the radiation source. Required if ~~Compensator Sequence (300A,00E3) is sent and~~ Material ID (300A,00E1) is zero length. **May be present if Material ID (300A,00E1) is non-zero length.** See C.8.8.14.10 **and C.8.8.14.11**. Note: Compensator Transmission Data may not be properly encoded if Explicit-VR transfer syntax is used and the VL of this attribute exceeds 65534 bytes.
>>Compensator Thickness Data	(300A,00EC)	1C	A data stream of the pixel samples which comprise the compensator, expressed as thicknesses (in mm). The order of pixels sent is left to right, top to bottom, i.e., the upper left pixel is sent first followed by the remainder of the first row , followed by the first pixel of the 2nd row, then the remainder of the 2nd row and so on) when viewed from the radiation source. Required if ~~Compensator Sequence (300A,00E3) is sent and~~ Material ID (300A,00E1) is non-zero length. **May be present if Material ID (300A,00E1) is zero length.** See C.8.8.14.9 and C.8.8.14.10 **and C.8.8.14.11**. Note: Compensator Thickness Data may not be properly encoded if Explicit-VR transfer syntax is used and the VL of this attribute exceeds 65534 bytes.

Attribute Name	Tag	Type	Attribute Description
>>Source to Compensator Distance	(300A,02E2)	1C	A data stream of the pixel samples which comprise the distance from the radiation source to the compensator surface closest to the radiation source (in mm). The order of pixels sent is left to right, top to bottom (upper left pixel, followed by the remainder of row 1, followed by the remainder of the columns). Required if ~~Compensator Sequence (300A,00E3) is sent,~~ Material ID (300A,00E1) is non-zero length, and Compensator Mounting Position (300A,02E1) is DOUBLE_SIDED. **May be present if Material ID (300A,00E1) is zero length and Compensator Mounting Position (300A,02E1) is DOUBLE_SIDED**. See C.8.8.14.9 **and C.8.8.14.11**.

In PS 3.3, Section C.8.8.14 (RT Beams Module), Table C.8-50, add the following section:

C 8.8.14.11   Block and Compensator Precedence for Dosimetric Calculations

If Block Thickness (300A,0100) and Block Transmission (300A,0102) are present, Block Transmission shall have precedence for dosimetric calculations. If Compensator Transmission Data (300A,00EB) and Compensator Thickness Data (300A,00EC) are present, Compensator Transmission Data shall have precedence for dosimetric calculations.