

## DICOM Correction Item

Correction Number CP-577	
Log Summary: Clarification for Delivered Meterset in Treatment Records	
Type of Modification Clarification	Name of Standard PS 3 2004
<p>Rationale for Correction:</p> <p>The items of the Control Point Delivery Sequence (3008,0040) in the RT Beams Session Record Module contain for each control point the Specified Meterset (3008,0042) and the Delivered Meterset (3008,0044). Typically a resumption of a partial treatment will continue at the meterset, where the last treatment ended. The recording of this poses no problems. However, this may not be always the case due to technical or clinical reasons. So subsequent partial treatment may not start exactly at the MU setting, where the previous treatment ended. For example, in certain Proton techniques, this will play an important role, but also for upcoming Photon techniques it must be known where the treatment was resumed after a first partial. The Treatment Record has to be able to record this situation correctly, e.g. for evaluation of possible dose differences compared with normal treatments. Therefore the Delivered Meterset of a control point shall tell, at which point in the whole range of Metersets the treatment was started.</p> <p>This change proposal adds a note to the Treatment Session Record module to clarify the use of specified and delivered metersets.</p>	
Sections of documents affected PS 3.3	
Correction Wording:	

*In PS 3.3, Section C.8.8.21 (RT Beams Session Record Module), Table C.8-53, add the following text:*

Attribute Name	Tag	Type	Attribute Description
>>Specified Meterset	(3008,0042)	2	Desired machine setting for current control point. <b>See C.8.8.21.2.</b>
>>Delivered Meterset	(3008,0044)	1	Machine setting actually delivered at current control point. <b>See C.8.8.21.2.</b>

*In PS 3.3, Section C.8.8.21 (RT Beams Session Record Module), Table C.8-53, add the following normative section after Section C.8.8.21.1:*

### 8.8.21.2 Specified and Delivered Meterset Values

**Specified Meterset (3008,0042) contains the MU as specified in the corresponding RT Plan at a given control point.**

**Delivered Meterset (3008,0044) shall contain one of the following three values:**

- the Meterset value at which the delivery of the current beam started
- the Specified Meterset
- the Meterset value at which the delivery of the current beam ended

**Control points which already have been treated in an earlier session shall contain the Meterset value at which the delivery of the current beam started. Control points which have been completely treated during the current session shall contain the Specified Meterset value for this Control Point. Control Points which have not yet been treated or not completely shall contain the total delivered MU up to the point where the interruption has occurred (i.e. the last control point treated).**

This can be expressed by the following equation:

$$DelMS[CP_n] = \text{MAX} ( \text{StartMS}, \text{MIN} ( \text{SpecMS}[CP_n], \text{EndMS} ) )$$

with

**DelMS[CP<sub>n</sub>]:** Delivered Meterset value at control point n

**SpecMS[CP<sub>n</sub>]:** Specified Meterset value at control point n

**StartMS:** Meterset value where delivery of current beam started

**EndMS:** Meterset value where delivery of current beam ended

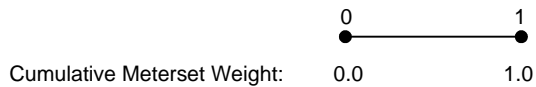
By this definition it is unambiguously recorded, which 'segments' of control points have been delivered in case of partial treatments.

**Example 1: 2 Control Points, 2 complete Partial Treatments**

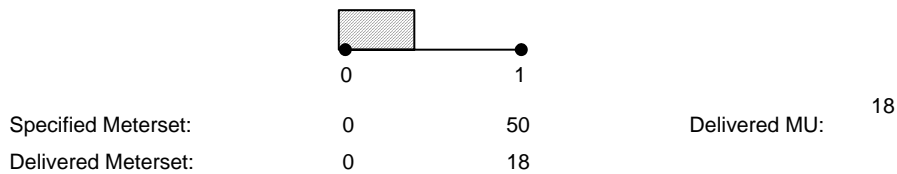
**Total Meterset: 50**

**Interruption at: 18 MU**

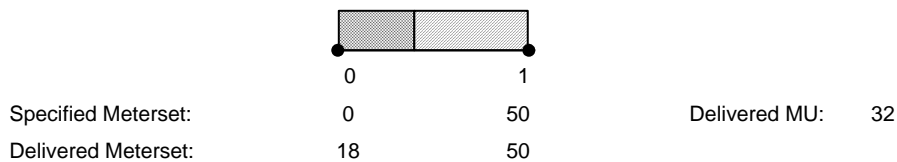
**RT Plan:**



**RT Treatment Record 1 of 2**



**RT Treatment Record 2 of 2**

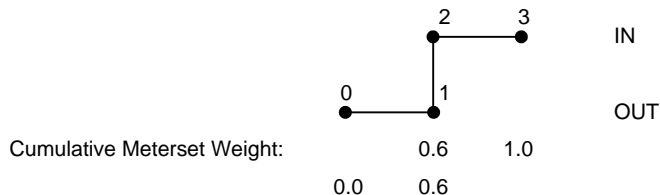


**Example 2: 4 Control Points, 3 complete Partial Treatments**

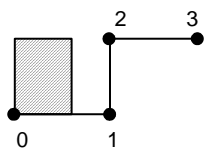
**Total Meterset: 50**

**Interruption at: 25, 30 MU**

**RT Plan:**



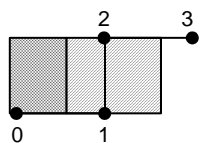
**RT Treatment Record 1 of 3**



Specified Meterset:	0	30	50
Delivered Meterset:	0	30	25
	0	25	

Delivered MU: 25  
 Wedge Dose: 0.0 (0 MU)

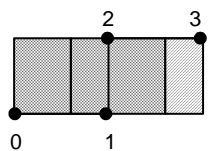
**RT Treatment Record 2 of 3**



Specified Meterset:	0	30	50
Delivered Meterset:	0	30	45
	25	30	

Delivered MU: 20  
 Wedge Dose: 0.75 (15 MU)

**RT Treatment Record 3 of 3**



Specified Meterset:	0	30	50
Delivered Meterset:	0	30	50
	45	45	

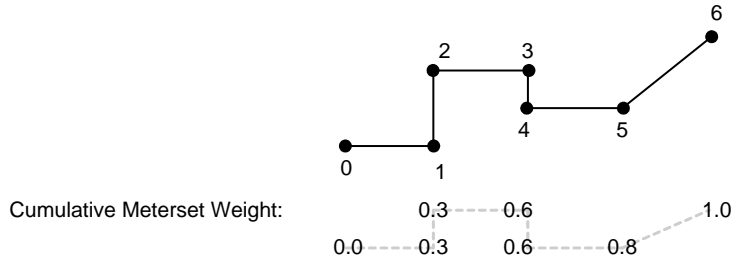
Delivered MU: 5  
 Wedge Dose: 1.0 (5 MU)

**Example 3: 7 Control Points, 2 Partial Treatments with small gap**

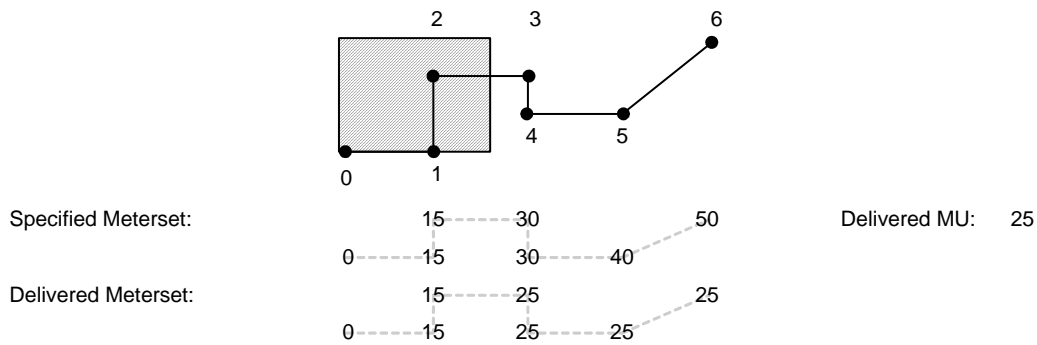
**Total Meterset: 50**

**Interruption at: 25 MU, Resumption at 30 MU**

**RT Plan:**



**RT Treatment Record 1 of 2**



**RT Treatment Record 2 of 2**

