

## DICOM Correction Proposal

STATUS	Final Text
Date of Last Update	2015/03/18
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Correction Number	CP-1421
Log Summary: Support for Mean Excitation Energy In Structure Physical Properties	
Name of Standard PS 3.3 2015a	
Rationale for Correction:  The existing material physical property REL_STOP_RATIO does not take into account that the stopping power can vary depending on modality and energy. For a dose engine to be able to calculate a modality and energy specific stopping power, some models (e.g. Bethe-Block) require the material's mean excitation energy (together with the mass density and material composition).  A simple way to enable support for Mean Excitation Energy in RT Structure Sets is to expand the list of defined terms in ROI Physical Property (3006,00B2) in the ROI Physical Properties Sequence (3006,00B0) to also include the term "MEAN_EXCI_ENERGY = Mean Excitation Energy of the material [eV]"  At the same time, the description for the defined term REL_STOP_RATIO should be corrected,	
Correction Wording:	

*In PS 3.3, Table C.8-44—RT ROI Observations Module, make the following changes:*

### C.8.8.8 RT ROI Observations Module

The RT ROI Observations module specifies the identification and interpretation of an ROI specified in the Structure Set and ROI Contour modules.

**Table C.8-44. RT ROI Observations Module Attributes**

Attribute Name	Tag	Type	Attribute Description
RT ROI Observations Sequence	(3006,0080)	1	Sequence of observations related to ROIs defined in the ROI Module. One or more items shall be included in this sequence.
>Observation Number	(3006,0082)	1	Identification number of the Observation. The value of Observation Number (3006,0082) shall be unique within the RT ROI Observations Sequence (3006,0080).

...			
>ROI Physical Properties Sequence	(3006,00B0)	3	Introduces sequence describing physical properties associated with current ROI interpretation. One or more items are permitted in this sequence.
>>ROI Physical Property	(3006,00B2)	1	Physical property specified by ROI Physical Property Value (3006,00B4). Defined Terms: REL_MASS_DENSITY = mass density relative to water REL_ELEC_DENSITY = electron density relative to water EFFECTIVE_Z = effective atomic number EFF_Z_PER_A = ratio of effective atomic number to mass (AMU <sup>-1</sup> ) REL_STOP_RATIO = <b>ratio of linear stopping power <u>ratio of material relative</u> to <u>linear stopping power of water</u></b> ELEM_FRACTION = elemental composition of the material <b><u>MEAN EXCI ENERGY = Mean Excitation Energy of the material (eV)</u></b>