

DICOM Correction Proposal

STATUS	Final Text
Date of Last Update	2020/07/04
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Correction Number	CP-1596
Log Summary:	Modality LUT in Volumetric Presentation State
Name of Standard	PS3.4 2020b
Rationale for Correction:	<p>The specification of the display pipeline in Volumetric Presentation State begins with a VOI LUT. However, as in Grayscale Presentation State, the actual first transform of pixel values is through a Modality LUT / Rescale Slope+Intercept (if applicable). For Volumetric Presentation State, we should be explicit that the Modality LUT / Rescale Slope+Intercept in the source input images is applied before the VPS pipeline VOI LUT stage.</p> <p>In GSPS, the semantics are that the Modality LUT of the source input images is replaced by the single LUT / Rescale in the GSPS object. This has been problematic for acquisitions that vary the Modality LUT on a frame-by-frame basis (as allowed by the Standard).</p> <p>Note that there is no benefit in replacing the source image Modality LUT with one in the VPS, as that transformation is known best by the modality itself, not the creator of the Presentation State object.</p>
Correction Wording:	

Amend PS3.4 Section FF.2.1.1

FF.2.2 Volumetric Inputs, Registration and Cropping

A Volumetric Presentation State can take multiple volumes as input. A volume is defined in Section C.11.23.1 "Presentation Input Type Volume Input Requirements" in PS3.3. The same source data can be referenced in more than one input.

For each input volume, the Modality LUT or Rescale Slope and Rescale Intercept transformation(s) as specified in the source image(s) is applied first to the pixel data, otherwise an identity transformation shall be assumed.

Note

In enhanced multi-frame IODs this is specified in the Pixel Value Transformation Functional Group.

The VOI LUT encoded in the Volumetric Presentation State, **if any, is next applied to the input data, otherwise an identity transformation shall be assumed.**