# Correction Wording:

The Enhanced US Volume IOD requires the use of equally spaced parallel slices, as described in the IOD itself. It also introduced Dimension Organization Type, with Defined Terms for "3D" and "3D_TEMPORAL", though described them only as parallel slices, without mentioning equal spacing, though it is believed that was intended.

A recipient may want to recognize an equally spaced set of parallel slices from Dimensions with indices that point to a Stack rather than the position attributes, or to position attributes that are other than those in the traditional patient-relative coordinate system (such as the new volume-based coordinate system introduced in the Enhanced US Volume IOD, or without understanding the details of the coordinate system. Making the Defined Terms of Dimension Organization Type would make that possible. Note that a Volumetric Properties value of VOLUME does not imply either parallel or equal spacing, so is not helpful in this respect.

Also, though the in-plane Pixel Spacing is always conveyed in the Enhanced family of objects, Spacing Between Slices is not encoded in most Enhanced IODs. If it were, however, a recipient without knowledge of the coordinate system could make use of the volume for MPRs and measurements. Since the existing Pixel Measures functional group macro already includes Slice Thickness, it makes sense to add Spacing Between Slices to it. Since Spacing Between Slices is encoded optionally in the top-level Data Set in the Enhanced MR Image IODs, it is removed for consistency in favor of the functional group macro.
Amend DICOM PS3.3 as follows:

C.7.6.17 Multi-frame Dimension Module

Table C.7.6.17-1. Multi-frame Dimension Module Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Type</th>
<th>Attribute Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension Organization Type</td>
<td>(0020,9311)</td>
<td>3</td>
<td>Dimension organization of the instance.</td>
</tr>
</tbody>
</table>

Defined Terms:

3D Spatial Multi-frame image of equally spaced parallel planes (3D volume set)
3D_TEMPORAL Temporal loop of equally spaced parallel-plane 3D volume sets.

C.7.6.16.2.1 Pixel Measures Macro

Table C.7.6.16-2 specifies the attributes of the Pixel Measures Functional Group Macro.

Table C.7.6.16-2. Pixel Measures Macro Attributes

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Type</th>
<th>Attribute Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pixel Measures Sequence</td>
<td>(0028,9110)</td>
<td>1</td>
<td>Identifies the physical characteristics of the pixels of this frame. Only a single Item shall be included in this sequence.</td>
</tr>
<tr>
<td>&gt;Pixel Spacing</td>
<td>(0028,0030)</td>
<td>1C</td>
<td>Physical distance in the imaging target (patient, specimen, or phantom) between the centers of each pixel, specified by a numeric pair - adjacent row spacing (delimiter) adjacent column spacing in mm. See ??? for further explanation of the value order.</td>
</tr>
<tr>
<td>&gt;Slice Thickness</td>
<td>(0018,0050)</td>
<td>1C</td>
<td>Nominal reconstructed slice thickness (for tomographic imaging) or depth of field (for optical non-tomographic imaging), in mm. See ??? for further explanation.</td>
</tr>
</tbody>
</table>

Note

In the case of CT images with an Acquisition Type (0018,9302) of CONSTANT_ANGLE, the pixel spacing is that in a plane normal to the central ray of the diverging X-Ray beam as it passes through the data collection center.

Required if Volumetric Properties (0008,9206) is other than DISTORTED or SAMPLED. May be present otherwise.

Note

Depth of field may be an extended depth of field created by focus stacking (see ???).

Required if Volumetric Properties (0008,9206) is VOLUME or SAMPLED. May be present otherwise.
C.8.13.1 Enhanced MR Image Module

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