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|---|---------------------|----------------------------------|
| 1 | Status              | Jan 2019 Voting Packet           |
| 2 | Date of Last Update | 2018/11/12                       |
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| 7 | Submission Date     | 2018/06/19                       |

|    |                                                                                                                                  |  |
|----|----------------------------------------------------------------------------------------------------------------------------------|--|
| 8  | Correction Number CP-1842                                                                                                        |  |
| 9  | Log Summary: Referenced Frame Numbers used in Acquisition Context is limited by 16 bit VR                                        |  |
| 10 | Name of Standard                                                                                                                 |  |
| 11 | PS3.3, PS3.6                                                                                                                     |  |
| 12 | Rationale for Correction:                                                                                                        |  |
| 13 | The Acquisition Context Module references frames by attribute Referenced Frame Numbers (0040,A136), which is of VR US, i.e.      |  |
| 14 | 16 bit wide. That would practically limit Number of Frames usage in an indirect way.                                             |  |
| 15 | By comparison, the Referenced Frame Number (0008,1160) attribute used elsewhere is of VR IS, which allows $2^{31}-1$ frames, and |  |
| 16 | matches the Number of Frames (0028,0008) attribute in this respect.                                                              |  |
| 17 | Change all uses of Referenced Frame Numbers (0040,A136) to Referenced Frame Number (0008,1160) and retire Referenced             |  |
| 18 | Frame Numbers (0040,A136).                                                                                                       |  |
| 19 | This affects the Acquisition Context Module and the Wide Field Ophthalmic Photography 3D Coordinates Module only.                |  |
| 20 | Correction Wording:                                                                                                              |  |

Amend DICOM PS3.3 as follows (changes to existing text are bold and underlined for additions and ~~struckthrough~~ for removals):

## A.5 Nuclear Medicine Image IOD

### A.5.4.1 Acquisition Context Module

The Acquisition Context Sequence (0040,0555) shall always apply to all frames in the Image. Patient State shall always apply to all frames in the Image, therefore, neither Referenced Frame Numbers (0040,A136) nor Referenced Frame Number (0008,1160) shall **not** be present.

### C.7.6.14 Acquisition Context Module

#### Note

- Each Item of the Acquisition Context Sequence (0040,0555) contains one Item of the Concept Name Code Sequence (0040,A043) and one of the mutually-exclusive Observation-value Attributes: Concept Code Sequence (0040,A168), the pair of Numeric Value (0040,A30A) and Measurement Units Code Sequence (0040,08EA), Date (0040,A121), Time (0040,A122), Person Name (0040,A123) or Text Value (0040,A160).
- If this SOP Instance is a Multi-frame SOP Instance, each Item of the Acquisition Context Sequence (0040,0555) may be configured to describe one frame, all frames, or any specifically enumerated subset set of frames of the Multi-frame SOP Instance. **Previously, Referenced Frame Numbers (0040,A136) was used to enumerate which frames were described, but its length was limited, so it has been replaced by Referenced Frame Number (0008,1160).**

**Table C.7.6.14-1. Acquisition Context Module Attributes**

| Attribute Name               | Tag                                            | Type | Attribute Description                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acquisition Context Sequence | (0040,0555)                                    | 2    | A Sequence of Items that describes the conditions present during the acquisition of the data of the SOP Instance.<br><br>Zero or more Items shall be included in this Sequence.                                                                        |
| >Value Type                  | (0040,A040)                                    | 3    | The type of the value encoded in this Item ...                                                                                                                                                                                                         |
| >Observation DateTime        | (0040,A032)                                    | 3    | The date and time on which this Item was completed. For the purpose of recording measurements or logging events, completion time is defined as the ending time of data acquisition of the measurement, or the ending time of occurrence of the event.  |
| >Concept Name Code Sequence  | (0040,A043)                                    | 1    | A concept that constrains the meaning of (i.e., defines the role of) the Observation Value. The "Name" component of a Name/Value pair.<br><br>Only a single Item shall be included in this Sequence.                                                   |
| >>Include ???                |                                                |      | No Baseline Context is defined.                                                                                                                                                                                                                        |
| >Referenced Frame Numbers    | <del>(0040,A136)</del> <b><u>0008,1160</u></b> | 1C   | References one or more frames in a Multi-frame SOP Instance. The first frame shall be denoted as frame number one.<br><br>Required if this SOP Instance is a Multi-frame SOP Instance and the values in this Sequence Item do not apply to all frames. |

| Attribute Name | Tag         | Type | Attribute Description                                                                                                                                                                                                                                                                                                                     |
|----------------|-------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| >Numeric Value | (0040,A30A) | 1C   | This is the Value component of a Name/Value pair when the Concept implied by Concept Name Code Sequence (0040,A043) is a set of one or more numeric values.<br><br>Required if the value that Concept Name Code Sequence (0040,A043) requires (implies) is a set of one or more integers or real numbers. Shall not be present otherwise. |
| ...            |             |      |                                                                                                                                                                                                                                                                                                                                           |

## C.8.17.12 Wide Field Ophthalmic Photography 3D Coordinates Module

**Table C.8.17.12-1. Wide Field Ophthalmic Photography 3D Coordinates Module Attributes**

| Attribute Name                                    | Tag                                            | Type | Attribute Description                                                                                                                                                                                                                                                    |
|---------------------------------------------------|------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ...                                               |                                                |      |                                                                                                                                                                                                                                                                          |
| Two Dimensional to Three Dimensional Map Sequence | (0022,1518)                                    | 1    | A sparsely sampled map of 2D image pixels (with sub pixel resolution) to 3D coordinates.<br><br>Each frame shall be referenced once and only once in this Sequence in Referenced Frame Numbers (0040,A136).<br><br>One or more Items shall be included in this Sequence. |
| >Referenced Frame Numbers                         | <del>(0040,A136)</del> <b><u>0008,1160</u></b> | 1    | References one or more frames within this SOP Instance to which this Sequence Item applies. The first frame shall be denoted as frame number one.                                                                                                                        |
| >Number of Map Points                             | (0022,1530)                                    | 1    | The number of points in the map. Shall include one or more points.                                                                                                                                                                                                       |
| >Two Dimensional to Three Dimensional Map Data    | (0022,1531)                                    | 1    | See ??? for further explanation.                                                                                                                                                                                                                                         |

Amend DICOM PS3.6 as follows (changes to existing text are bold and underlined for additions and ~~struckthrough~~ for removals):

**Table 6-1. Registry of DICOM Data Elements**

| Tag         | Name                            | Keyword                       | VR        | VM         |                   |
|-------------|---------------------------------|-------------------------------|-----------|------------|-------------------|
| (0008,1160) | Referenced Frame Number         | ReferencedFrameNumber         | IS        | 1-n        |                   |
| (0028,0008) | Number of Frames                | NumberOfFrames                | IS        | 1          |                   |
| (0040,A136) | <i>Referenced Frame Numbers</i> | <i>ReferencedFrameNumbers</i> | <i>US</i> | <i>1-n</i> | <b><u>RET</u></b> |