

DICOM Correction Proposal

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Correction Number	CP-2345
Log Summary: Add Requirement for Selected Frames in Sparse MF Module	
Name of Standard	PS3.3 2024a
Rationale for Correction: In the course of introducing the Enhanced Continuous RT Image IOD by Supplement 213 “Enhanced RT Image and RT Patient Position Acquisition Instruction”, the Module C.7.6.29 Sparse Multi-frame Functional Groups was added. However, the definition of the requirement for the Selected Frame Functional Groups Sequence (3002,0101) in this Module was lost. This requirement is added. The requirement is defined in the same way as for the Per-frame Functional Groups Sequence (5200,9230) in the C.7.6.16 Multi-frame Functional Groups Module, since the presence of Items depends on whether there are non-empty functional groups. The only difference is that the collection it refers to is not the entire set of frames, but the selected subset of frames as described in the introductory text for this Module.	
Correction Wording:	

In PS3.3, amend C.7.6.29 as follows:

C.7.6.29 Sparse Multi-frame Functional Groups Module

Table C.7.6.29-1 specifies the Attributes of the Sparse Multi-frame Functional Groups Module. This Module is included in SOP Instances which contain frames acquired continuously with a high frame rate, resulting in a high number of frames.

Unlike the Per-frame Functional Groups Sequence (5200,9230) where functional groups that are not shared must be populated on every frame, the Selected Frame Functional Groups Sequence (3002,0101) allows a selected subset of frames to be populated. For Frames that are not selected, the functional groups that are not shared are not present. The Selected Frame Functional Groups Sequence (3002,0101) allows frames to be omitted, but does not allow required Attributes within the selected frames to be omitted.

The Per-frame Functional Group Macros of a frame shall be populated if any value of the required Attributes of the per-frame Functional Group Macro changes; the definition of the change is up to the discretion of the implementer and shall be documented in the Conformance Statement.

Per-frame Functional Group Macros for Frames may also be populated even if all required Attribute values do not change, e.g., when frames are populated with a constant sampling rate.

The frames in this SOP Instance are identified by a number. The first frame is identified as frame number 1 and subsequent frames are identified by a number incremented by 1. The values in Selected Frame Number (3002,0100) correspond to these numbered frames.

The rest of the semantics of Section C.7.6.16 Multi-frame Functional Groups Module applies to this Module.

Table C.7.6.29-1. Sparse Multi-frame Functional Groups Module Attributes

Attribute Name	Tag	Type	Attribute Description
Shared Functional Groups Sequence	(5200,9229)	1	<p>Sequence that contains the Functional Group Macros that are shared for all frames in this SOP Instance and Concatenation.</p> <p>Note</p> <p>The contents of this Sequence are the same in all SOP Instances that comprise a Concatenation. Only a single Item shall be included in this Sequence. See Section C.7.6.16.1.1 for further explanation.</p>
<p><i>>Include one or more Functional Group Macros that are shared by all frames. The selected Functional Group Macros shall not be present in the Selected Frame Functional Groups Sequence (3002,0101).</i></p>			<p><i>For each IOD that includes this Module, a table is defined in which the permitted Functional Group Macros and their usage is specified.</i></p> <p><i>The Item may be empty if the requirements for inclusion of the Functional Groups are not satisfied.</i></p>
Selected Frame Functional Groups Sequence	(3002,0101)	1C	<p>Sequence that contains the Functional Group Sequence Attributes corresponding to selected frames of the Multi-frame Image.</p> <p>One or more Items shall be included in this Sequence. The number of Items shall be greater than zero and the less as the number of frames in the Multi-frame image. See Section C.7.6.29.1.1 for further explanation.</p> <p><u>Required if for any frame of the selected subset of frames, there are Per-Frame Functional Groups that are not empty.</u></p>
>Selected Frame Number	(3002,0100)	1	Identifies the corresponding frame in the SOP Instance.
<p><i>>Include one or more Functional Group Macros.</i></p>			<p><i>For each IOD that includes this Module, a table is defined in which the permitted Functional Group</i></p>

Attribute Name	Tag	Type	Attribute Description
			<i>Macros and their usage is specified.</i>
Instance Number	(0020,0013)	1	A number that identifies this Instance. The value shall be the same for all SOP Instances of a Concatenation, and different for each separate Concatenation and for each SOP Instance not within a Concatenation in a Series.
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C.7.6.29.1 Sparse Multi-frame Functional Groups Module Attribute Descriptions

C.7.6.29.1.1 Selected Frame Functional Groups Sequence

The Selected Frame Functional Groups Sequence (3002,0101) Attribute consists of a Sequence of Items. Each Item describes a frame in the multi-frame pixel data, identified by Selected Frame Number (3002,0100). Frames are implicitly numbered starting from 1. See Figure C.7.6.29-1.

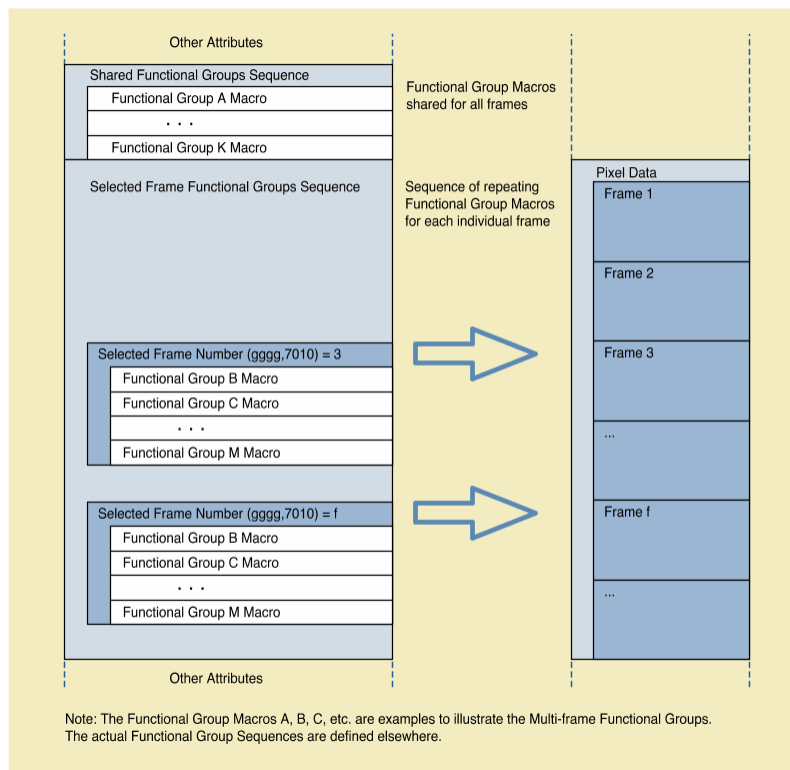


Figure C.7.6.29-1. A Graphical Presentation of the Multi-frame Functional Groups Structure for Sparse Multi-frame Functional Groups