DICOM Correction Proposal

STATUS	Final Text
Date of Last Update	2025/11/11
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Correction Number CP-2508
Log Summary: correct Waveform Module attribute descriptions
Name of Standard: PS3.3 2025d
Rationale for Correction: Some sequence attribute descriptions in Waveform Module do not follow the proposed convention to express the required / expected number of items. One attribute description requires correction. *[Ed. Note: All these changes were addressed in LB of supplement 236 Waveform Presentation State.]*
Correction Wording:

Apply the following changes to PS3.3 C.10.9 Waveform Module

C.10.9 Waveform Module

…

Table C.10-9. Waveform Module Attributes

Attribute Name	Tag	Type	Description
…			
>>Channel Sensitivity	(003A,0210)	1C	Nominal numeric value of unit quantity of sample. Required if samples represent defined (not arbitrary) units.
>>Channel Sensitivity Units Sequence	(003A,0211)	1C	A coded descriptor of the Units of measure for the Channel Sensitivity. Only a single Item shall be included in this Sequence. (see Section C.10.9.1.4.2). Required if Channel Sensitivity (003A,0210) is present.
>>Channel Sensitivity Correction Factor	(003A,0212)	1C	Multiplier to be applied to encoded sample values to match units specified in Channel Sensitivity **Units Sequence** (003A,021~~0~~**1**) (e.g., based on calibration data). See Section C.10.9.1.4.2. Required if Channel Sensitivity (003A,0210) is present.
>>Filter Low Frequency Characteristics Sequence	(003A,0318)	1C	The properties of low frequency (high-pass) filters used for the waveform acquisition.

			Required if Waveform Amplifier Type (003A,0317) is AC and Filter Low Frequency (003A,0220) is not present. May be present otherwise unless Waveform Amplifier Type (003A,0317) is DC. ~~**At least one item shall be included in this Sequence.**~~ **One or more Items shall be included in this Sequence**.
…			
>>Filter High Frequency Characteristics Sequence	(003A,0319)	1C	The properties of high frequency (low-pass) filters used for the waveform acquisition. Required if Waveform Amplifier Type (003A,0317) is present and Filter High Frequency (003A,0221) is not present. May be present otherwise. ~~**At least one item shall be included in this Sequence.**~~ **One or more Items shall be included in this Sequence**.
…			
>>Notch Filter Characteristics Sequence	(003A,0320)	3	The properties of notch filters used for the waveform acquisition. **One or more Items are permitted in this Sequence.**
…			

for reference:

C.10.9.1.4.2 Channel Sensitivity and Channel Sensitivity Units

Channel Sensitivity (003A,0210) is the nominal value of one unit (i.e., the least significant bit) of each waveform sample in Waveform Data (5400,1010). It includes both the amplifier gain and the analog-digital converter resolution. It does not relate the vertical scaling of a waveform on a particular display.

Note

A previous release specified Channel Sensitivity Units Sequence (003A,0211) DCID 3082 “Cardiology Measurement Unit (Retired)”. CID 3082 “Cardiology Measurement Unit (Retired)” was a subset of CID 82 “Measurement Unit”, and has been retired in favor of the more general CID 82 “Measurement Unit”. See PS3.3-2011.

Channel Sensitivity Correction Factor (003A,0212) is the ratio of the actual (calibrated) value to the nominal channel sensitivity specified in Channel Sensitivity (003A,0210). Thus a waveform sample value multiplied by the Channel Sensitivity value provides the nominal measured value in Channel Sensitivity Units, and that nominal value multiplied by the Channel Sensitivity Correction Factor provides the calibrated measured value.