

Waveform Annotation SR

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**Digital Imaging and Communications in Medicine (DICOM)**

*Supplement 239: Waveform Annotation SR*

*Prepared by: Working Group 32 Neurophysiology Waveforms*

**DICOM Standards Committee, Working Group 6**

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## Scope and Field of Application

72 This Supplement introduces SOP Classes for storage and exchange of waveform annotations. It applies  
73 to all modalities in which waveform objects are created and applications used to review them.

74 Waveform annotations can be stored in the waveform object itself expressing physical or environmental  
75 circumstances noted by the recording device at recording time.

76 The new IOD can be used to store additional clinical information added at recording time or later provided  
77 either by a human reviewer (for example a neurologist or a technologist) or by an automated analysis  
78 software.

79 This Supplement

- 80 • adds a SOP Class to store observations and measurements in a Waveform Annotation SR
- 81 • defines a new Root Template derived from TID 1500, a waveform analogy to TID 1600 Image
- 82 Library, and some included templates to store annotations as codes or free text and
- 83 measurements.
- 84 • Defines the Context Groups used in these Templates
- 85

86 **Changes to NEMA Standards Publications PS3.3**  
 87 **Digital Imaging and Communications in Medicine (DICOM)**  
 88 **Part 3: Information Object Definitions**

89

90 *Add new IODs to Overview Table PS3.3 Table A.1-7b:*

91 **Table A.1-7b. Composite Information Object Modules Overview – More Structured Reports**

<b>IODs Modules</b>	<b>RD SR</b>	<b>...</b>	<b>Perf IA Admin SR</b>	<b>WF Ann SR</b>
Patient	M		M	<u>M</u>
Clinical Trial Subject	U		U	<u>U</u>
General Study	M		M	<u>M</u>
Patient Study	U		U	<u>U</u>
Clinical Trial Study	U		U	<u>U</u>
Clinical Trial Series	U		U	<u>U</u>
SR Document Series	M		M	<u>M</u>
Key Object Document Series				
Sync.	C		M	<u>C</u>
General Equip.	M		M	<u>M</u>
Enhanced General Equip.	M		M	<u>M</u>
SR Document General	M		M	<u>M</u>
SR Document Content	M		M	<u>M</u>
Key Object Document				
Timezone				
SOP Common	M		M	<u>M</u>

92

93 *Add the following new content to PS3.3 Section A.35.23 ...*

94 **A.35.23 Waveform Annotation SR IOD**95 **A.35.23.1 Waveform Annotation SR IOD Description**

96 The Waveform Annotation SR Information Object Definition (IOD) conveys observations and  
 97 measurements detected in waveform data by either a human reviewer or analysis software. The content  
 98 may include both text and encoded information, numerical measurements, time coordinates or intervals,  
 99 and references to waveform SOP instances and dedicated channels within them.

100 **A.35.23.2 Waveform Annotation SR IOD Entity-Relationship Model**

101 This IOD uses the E-R Model in Section A.1-2, with only the SR Document IE below the Series IE.

102 **A.35.23.3 Waveform Annotation SR IOD Module Table**

103 Table A.35.23-1 specifies the Modules of the Waveform Annotation SR IOD.

104 **Table A.35.23-1 Waveform Annotation SR IOD Modules**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	SR Document Series	C.17.1	M
	Clinical Trial Series	C.7.3.2	U
Frame of Reference	Synchronization	C.7.4.2	C – shall be present if system time is synchronized to an external reference. May be present otherwise.
Equipment	General Equipment	C.7.5.1	M
	Enhanced General Equipment	C.7.5.2	M
SR Document	SR Document General	C.17.2	M
	SR Document Content	C.17.3	M
	SOP Common	C.12.1	M

105

106 **A.35.23.3.1 Waveform Annotation SR IOD Content Constraints**107 **A.35.23.3.1.1 Template**

108 The document shall be constructed from TID 3750 “Waveform Annotations” invoked at the root node.

109 **A.35.23.3.1.4 Value Type**

110 Value Type (0040,A040) in Content Sequence (0040,A730) of the SR Document Content Module is constrained to  
 111 the following Enumerated Values (see Table C.17.3-7 for Value Type definitions):

112 Enumerated Values:

113 **TEXT**  
 114 **CODE**  
 115 **NUM**

Waveform Annotation SR

116 **TCOORD**  
 117 **WAVEFORM**  
 118 **CONTAINER**  
 119 **DATE**  
 120 **TIME**  
 121 **UIDREF**  
 122 **PNAME**  
 123 **DATETIME**

124  
 125

126 **A.35.23.3.1.5 Relationship Constraints**

127 The Waveform Annotation SR IOD allows for by-reference INFERRED FROM and by-reference  
 128 SELECTED FROM relationships. Other relationships in the content of this IOD shall be conveyed by-  
 129 value. Table A.35.23-2 specifies the relationship constraints of this IOD. See Table C.17.3-8 for  
 130 Relationship Type definitions.

131 **Table A.35.23-2. Relationship Content Constraints for Waveform Annotation SR IOD**  
 132

Source Value Type	Relationship Type (Enumerated Values)	Target Value Type
CONTAINER	CONTAINS	TEXT, CODE, NUM, TCOORD, WAVEFORM, CONTAINER
CONTAINER, CODE, NUM, TEXT	HAS OBS CONTEXT	CODE, PNAME, TEXT, UIDREF, DATE, NUM, CONTAINER
CONTAINER, WAVEFORM <sup>1</sup>	HAS ACQ CONTEXT	CODE, DATE, TIME, DATETIME, NUM, UIDREF
CONTAINER, CODE, NUM, TEXT	HAS CONCEPT MOD	CODE <sup>2</sup> , TEXT
CODE, NUM, TEXT	HAS PROPERTIES	CODE, TEXT, NUM
CODE, NUM, TEXT	INFERRED FROM	WAVEFORM, TCOORD
TCOORD	SELECTED FROM	WAVEFORM

133

134 **Note:**

- 135 1. The SOP Classes to which an WAVEFORM Value Type may refer, is documented in the Conformance  
 136 Statement for an Application (see PS3.2 and PS3.4).  
 137 2. The HAS CONCEPT MOD relationship is used to modify the meaning of the concept name of a parent node  
 138 (or Source Content Item), with a modifier or qualifier in a child (target node) to provide a more  
 139 descriptive explanation, a different coded language translation, or to define a post-coordinated concept.

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**Changes to NEMA Standards Publications PS 3.4**  
**Digital Imaging and Communications in Medicine (DICOM)**  
**Part 4: Service Class Specifications**

144 *Add new Elements to PS3.4 B.5 Table B.5-1. Standard SOP Classes*

145

SOP Class Name	SOP Class UID	IOD Specification (defined in PS3.3)	Specialization
...			
<b><u>1.2.840.10008.5.1.4.1.1.88.77</u></b>	<b><u>Waveform Annotation SR Storage</u></b>	<b><u>Waveform Annotation SR IOD</u></b>	<b><u>B.5.1.5</u></b>

146

147 *Amend B.5.1.5*

148 The requirements of Annex O apply to the following SOP Classes:

- 149 • Basic Text SR
- 150 • ...
- 151 • **Waveform Annotation SR**

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**Changes to NEMA Standards Publications PS 3.6**  
**Digital Imaging and Communications in Medicine (DICOM)**  
**Part 6: Data Dictionary**

157 *Add new SOP Classes to PS3.6 Annex A Table A-1:*

158

UID Value	UID Name	UID Keyword	UID Type	Part
...				
<b><u>1.2.840.10008.5.1.4.1.1.88.77</u></b>	<b><u>Waveform Annotation SR Storage</u></b>	<b><u>WaveformAnnotationSRStorage</u></b>	<b><u>SOP Class</u></b>	<b><u>PS3.4</u></b>
...				

159

160 *Add new Context Group UID Values to Table A-3:*

Waveform Annotation SR

161

<b>Context UID</b>	<b>Context Identifier</b>	<b>Context Group Name</b>	<b>Comment</b>
...	...	...	
<b><u>1.2.840.10008.6.1.1487</u></b>	<b><u>CID 3047</u></b>	<b><u>Waveform Annotation Classification</u></b>	
<b><u>1.2.840.10008.6.1.1488</u></b>	<b><u>CID 3048</u></b>	<b><u>Waveform Annotations Document Title</u></b>	
<b><u>1.2.840.10008.6.1.1489</u></b>	<b><u>CID 3049</u></b>	<b><u>EEG Procedure</u></b>	
<b><u>1.2.840.10008.6.1.1490</u></b>	<b><u>CID 3050</u></b>	<b><u>Patient Consciousness</u></b>	
...			

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**Changes to NEMA Standards Publications PS3.15**  
**Digital Imaging and Communications in Medicine (DICOM)**  
**Part 15: Security and System Management Profiles**

168 Add new Codes to PS3.15 Annex E:

169

170 **Table E.3.4-1. Application Level Confidentiality Profile Clean Structured Content Option Content**  
171 **Item Concept Name Codes**

Code Meaning	Code Value	Coding Scheme Designator	Value Type	Retd. (from PS3.16 )	In Std. Tmpl. (from PS3.16 )	Basic Prof.	Rtn. UIDs Opt.	Rtn. Dev. Id. Opt.	Rtn. Inst. Id. Opt.	Rtn. Pat. Chars. Opt.	Rtn. Long. Full Dates Opt.	Rtn. Long. Modif. Dates Opt.	Clean Desc. Opt.
...													
<u>Acquisition DateTime</u>	<u>130884</u>	<u>DCM</u>	<u>DATETIME</u>	<u>N</u>	<u>Y</u>	<u>X</u>					<u>K</u>	<u>C</u>	
<u>Synchronization Frame of Reference UID</u>	<u>130885</u>	<u>DCM</u>	<u>UIDREF</u>	<u>N</u>	<u>Y</u>	<u>X</u>	<u>K</u>						
...													

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**Changes to NEMA Standards Publications PS3.16**  
**Digital Imaging and Communications in Medicine (DICOM)**  
**Part 16: Content Mapping Resource**

177 Amend Annex A by adding a new Section and the following Templates

178 **Waveform Annotation Templates**

179

180 **TID 3750 Waveform Annotations**

181 This Root Template encodes a list of annotations for waveform data consisting of measurements or  
182 observations added at recording time or later provided either by a human reviewer (such as a  
183 cardiologist, neurologist, or technologist) or by an automated analysis algorithm.

184  
 185 **Type:** Extensible  
 186 **Order:** Non-Significant  
 187 **Root:** Yes  
 188  
 189

Table TID 3750. Waveform Annotations

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	BCID 3048 "Waveform Annotations Document Title"	1	M		Root node
2	>	HAS CONCEPT MOD	INCLUDE	DTID 1204 "Language of Content Item and Descendants"	1	U		
3	>	HAS OBS CONTEXT	INCLUDE	DTID 1001 "Observation Context"	1	M		
4	>	HAS CONCEPT MOD	CODE	EV (130871, DCM, "Procedure annotated")	1-n	U		BCID 3670 "ECG Procedure Type"  BCID 3049 "EEG Procedure"
5	>	HAS OBS CONTEXT	CODE	EV (1185780006, SCT, "Relative Time")	1	U		DCID 61 "Time Relative to Procedure"
6	>	CONTAINS	INCLUDE	DTID 3754 "Waveform Library"	1	U		
7	>	CONTAINS	CONTAINER	EV (130870, DCM, "Waveform Annotations")	1	M		
8	>>	HAS CONCEPT MOD	INCLUDE	DTID 4019 "Algorithm Identification"	1	U		
9	>>	CONTAINS	CONTAINER	EV (130872, DCM, "Waveform Annotation Group")	1-n	M		
10	>>>	HAS OBS	NUM	EV (130873,	1	M		UNITS = (1,

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		CONTEXT		DCM, "Waveform Annotation Group Number")				UCUM, "no units")
11	>>>	HAS OBS CONTEXT	TEXT	EV (130874, DCM, "Waveform Annotation Group Label")	1	U		
12	>>>	CONTAINS	INCLUDE	DTID 3751 "Waveform Pattern or Event"	1-n	U		\$Annotation Classification = EV (130860, DCM, "Pattern Event")  \$Annotation Code = BCID 3038 "Pattern Event"
13	>>>	CONTAINS	INCLUDE	DTID 3751 "Waveform Pattern or Event"	1-n	U		\$Annotation Classification = EV (130861, DCM, "EEG Annotation")  \$Annotation Code = BCID 3035 "EEG Annotation – Neurophysiologic Enumeration"
14	>>>	CONTAINS	INCLUDE	DTID 3751 "Waveform Pattern or Event"	1-n	U		\$Annotation Classification = EV (130862, DCM, "EMG Annotation")  \$Annotation Code = BCID 3036 "EMG Annotation – Neurophysiologic Enumeration"
15	>>>	CONTAINS	INCLUDE	DTID 3751 "Waveform	1-n	U		\$Annotation Classification

Waveform Annotation SR

				Pattern or Event”				= EV (130863, DCM, “EOG Annotation”)  \$Annotation Code = BCID 3037 “EOG Annotation – Neurophysiol ogical Enumeration”
16	>>>	CONTAINS	INCLUDE	DTID 3751 “Waveform Pattern or Event”	1-n	U		\$Annotation Classification = EV (130864, DCM, “Device- related and Environment- related Event”)  \$Annotation Code = BCID 3039 “Device- related and Environment- related Event”
17	>>>	CONTAINS	INCLUDE	DTID 3751 “Waveform Pattern or Event”	1-n	U		\$Annotation Classification = EV (130865, DCM, “Patient Consciousne ss”)  \$Annotation Code = BCID 3050 “Patient Consciousne ss”
18	>>>	CONTAINS	INCLUDE	DTID 3751 “Waveform Pattern or Event”	1-n	U		\$Annotation Classification = EV (130866, DCM, “ECG

Waveform Annotation SR

								Annotation") \$Annotation Code = BCID 3335 "ECG Annotation"
19	>>>	CONTAINS	INCLUDE	DTID 3752 "Waveform Measurement"	1-n	U		\$Measurement = BCID 3040 "EEG Annotation – Neurological Monitoring Measurement"
20	>>>	CONTAINS	INCLUDE	DTID 3753 "Annotation Note"	1-n	U		

190

191 **Content Item Description**

Row 4	A coded descriptor of the sort of procedure the annotations apply to.
Row 5	Indicates the point in time when the annotations have been made relative to the waveform recording procedure.
Row 6	The Waveform Library provides potentially relevant characteristics of the waveform objects associated with the annotations. There is no requirement to include all, or any, of the waveform objects referenced in the annotations and measurements elsewhere in this template. The template may also include waveform objects that are associated with, but not directly referenced in, the annotations and measurements.  The Waveform Library is not replicating the content of the SOP Instance Reference Macro.
Row 10	Defines an identifier for a group of annotations analogously to Annotation Group Number (0040,A180) in PS3.3 Section C.10.10.1.4, which may be used for example for display purposes.  The number itself is not semantically significant, no ordering is required.
Row 11	A descriptive label for a group of annotations, e.g., to be used for display purpose.

192

193

194 **TID 3751 Waveform Pattern or Event**

195 This Template encodes a Waveform Annotation represented by a coded concept.

196

197

**Table TID 3751. Parameters**

Parameter Name	Parameter Usage
\$AnnotationClassification	A coded term or Context Group for Concept Name of annotation

Waveform Annotation SR

	type that determines the value set constraint.
\$AnnotationCode	A code or a context group with codes representing the observation.

198  
 199 **Type:**       **Non-Extensible**  
 200 **Order:**       **Significant**  
 201 **Root:**         **No**  
 202  
 203

**Table TID 3751. Waveform Pattern or Event**

	N L	Rel with Parent	VT	Concept Name	V M	Req Type	Conditio n	Value Set Constraint
1			CODE	\$AnnotationClassificati on	1	M		\$AnnotationCo de
2	>	HAS PROPERTIE S	CODE	EV (130875, DCM, “Waveform Annotation Modifier”)	1- n	U		
3	>	HAS OBS CONTEXT	INCLUD E	DTID 1001 “Observation Context”	1	U		
4	>	HAS CONCEPT MOD	INCLUD E	DTID 4019 “Algorithm Identification”	1	U		
5	>		INCLUD E	DTID 321 “Waveform or Temporal Coordinates”	1- n	M		\$Purpose = EV (260753009, SCT, “Source”)
6	>	HAS PROPERTIE S	TEXT	EV (125309, DCM, “Short Label”)	1	U		

204  
 205 **Content Item Description**

Row 2	Contains additional qualifiers, if the value in Row 1 does not fully define the annotation. For example, this might be information about the location of an observation or the frequentness of a pattern.
Row 6	This may be used to label the coded annotation when space is limited on the screen or report page.  Note Short Labels are not standardized and may omit details of the annotation; thus, it is not recommended to use them for purposes such as matching.

206  
 207  
 208 **TID 3752 Waveform Measurement**  
 209 This Template encodes a Waveform Annotation expressing a measurement.  
 210

211

**Table TID 3752. Parameters**

Parameter Name	Parameter Usage
\$Measurement	Coded term or Context Group for Concept Name of measurement.

212

213

214 **Type:** Non-Extensible215 **Order:** Significant216 **Root:** No

217

218

**Table TID 3752. Waveform Measurement**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	\$Measurement	1	M		
2	>	HAS PROPERTIES	CODE	EV (130875, DCM, "Waveform Annotation Modifier")	1-n	U		
3	>	HAS OBS CONTEXT	INCLUDE	DTID 1001 "Observation Context"	1	U		
4	>	HAS CONCEPT MOD	INCLUDE	DTID 4019 "Algorithm Identification"	1	U		
5	>		INCLUDE	DTID 321 "Waveform or Temporal Coordinates"	1-n	M		\$Purpose = EV (121112, DCM, "Source of Measurement")
6	>	HAS PROPERTIES	TEXT	EV (125309, DCM, "Short Label")	1	U		

219

220 **Content Item Description**

Row 6	<p>This may be used to label the measurement value when space is limited on the screen or report page.</p> <p>Note</p> <p>Short Labels are not standardized and may omit details of the measurement; thus, it is not recommended to use them for purposes such as matching.</p>
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222 **TID 3753 Annotation Note**

223 This Template defines a Waveform Annotation in the form of a text note.

224

225 **Type:** Non-Extensible

226 **Order:** Significant  
 227 **Root:** No  
 228  
 229

Table TID 3753. Annotation Note

	N L	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (130876, DCM, "Annotation Note")	1	M		
2	>	HAS OBS CONTEXT	INCLUDE	DTID 1001 "Observation Context"	1	U		
3	>	HAS CONCEPT MOD	INCLUDE	DTID 4019 "Algorithm Identification"	1	U		
4	>		INCLUDE	DTID 321 "Waveform or Temporal Coordinates"	1-n	M		\$Purpose = EV (260753009, SCT, "Source")
5	>	HAS PROPERTIES	TEXT	EV (125309, DCM, "Short Label")	1	U		

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 231

**Content Item Description**

Row 5	This may be used to label the text value when space is limited on the screen or report page.  Note Short Labels are not standardized and may omit details of the Annotation Note text; thus, it is not recommended to use them for purposes such as matching.
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**TID 3754 Waveform Library**

The Waveform Library contains references to waveform objects and selected attributes describing them that facilitate analysis without having to retrieve the entire set of referenced objects.

**Type:** Extensible  
**Order:** Non-Significant  
**Root:** No

Table TID 3754. Waveform Library

	N L	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (130877, DCM, "Waveform Library")	1	M		



2	>	CONTAINS	CONTAINER	EV (130878, DCM, "Waveform Library Group")	1-n	U		
3	>>	HAS ACQ CONTEXT	INCLUDE	DTID 3756 "Waveform Library Entry Descriptors")	1	U		
4	>>	CONTAINS	INCLUDE	DTID 3755 "Waveform Library Entry"	1-n	U		

243

Row 3	These Waveform Library Entry Descriptors apply to all Waveform Library Entries in this Waveform Library Group.
-------	----------------------------------------------------------------------------------------------------------------

244

245

246

247 **TID 3755 Waveform Library Entry**

248 Each instance of the Waveform Library Entry Template contains the SOP Class and Instance UIDs, and  
 249 selected attributes for a waveform that facilitate analysis without having to retrieve the entire set of  
 250 referenced waveforms.

251

252 **Type: Extensible**

253 **Order: Non-Significant**

254 **Root: No**

255

256

**Table TID 3755. Waveform Library Entry**

	N L	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			WAVEFORM		1	M		
2	>	HAS ACQ CONTEXT	INCLUDE	DTID 3756 "Waveform Library Entry Descriptors")	1	U		

257

Row 2	These Waveform Library Entry Descriptors apply to the WAVEFORM in Row 1 and override descriptors in Row 3 of Section TID 3754 in case of conflict.
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260

261 **TID 3756 Waveform Library Entry Descriptors**

262 This Template contains selected attributes for a waveform or a group of waveforms. The descriptive  
 263 information may be copied from the waveforms or derived.

264

265 **Type: Extensible**

266 **Order: Non-Significant**

267 **Root: No**

268

269

**Table TID 3756. Waveform Library Entry Descriptors**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		HAS ACQ CONTEXT	CODE	EV (121139, DCM, "Modality")	1	U		DCID 29 „Acquisition Modality“
2		HAS ACQ CONTEXT	DATE	EV (111060, DCM, "Study Date")	1	U		
3		HAS ACQ CONTEXT	TIME	EV (111061, DCM, "Study Time")	1	U		
4		HAS ACQ CONTEXT	DATE	EV (111018, DCM, "Content Date")	1	U		
5		HAS ACQ CONTEXT	TIME	EV (111019, DCM, "Content Time")	1	U		
6		HAS ACQ CONTEXT	DATETIME	EV (130884, DCM, "Acquisition DateTime")	1	U		
7		HAS ACQ CONTEXT	UIDREF	EV (130885, DCM, "Synchronization Frame of Reference UID")	1	U		
8		CONTAINS	INCLUDE	DTID 3757 "Waveform Library Entry Multiplex Group Descriptors"	1-n	U		

270

271

**TID 3757 Waveform Library Entry Multiplex Group Descriptors**

273 This Template contains selected attributes for a waveform multiplex group within a waveform object or a  
 274 group of waveform objects. The descriptive information may be copied from the waveform objects or  
 275 derived.

276

277 **Type:** Extensible278 **Order:** Non-Significant279 **Root:** No

280

281

**Table TID 3757. Waveform Library Entry Multiplex Group Descriptors**

	N	Rel with	VT	Concept Name	VM	Req	Condition	Value Set
--	---	----------	----	--------------	----	-----	-----------	-----------

	L	Parent				Type		Constraint
1			CONTAINER	EV (130879, DCM, "Waveform Library Entry Multiplex Group Descriptors")	1-n	M		
2	>	HAS ACQ CONTEXT	NUM	EV (130880, DCM, "Multiplex Group Number")	1	U		UNITS = (1, UCUM, "no units")
3	>	HAS ACQ CONTEXT	UIDREF	EV (130881, DCM, "Multiplex Group UID")	1	U		
4	>	HAS ACQ CONTEXT	NUM	EV (130882, DCM, "Sampling Frequency")	1	U		UNITS = (Hz, UCUM, "Hz")
5	>	HAS ACQ CONTEXT	NUM	EV (130883, DCM, "Number of Channels")	1	U		UNITS = EV ({channels}, UCUM, "channels")

282

283

284 *Add new context groups to Annex C*285 **CID 3047 Waveform Annotation Classification**

286 This Context Group lists codes to classify Waveform Annotations.

287

288 **Resources:** HTML | FHIR JSON | FHIR XML | IHE SVS XML289 **Keyword:** WaveformAnnotationClassification290 **FHIR Keyword:** dicom-cid-3047-WaveformAnntotationClassification291 **Type:** Extensible292 **Version:** 20240616293 **UID:** 1.2.840.10008.6.1.1487

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**Table CID 3047 Waveform Annotation Classification**

Coding Scheme Designator	Code Value	Code Meaning
DCM	130860	Pattern Event
DCM	130861	EEG Annotation
DCM	130862	EMG Annotation
DCM	130863	EOG Annotation
DCM	130864	Device-related and Environment-related Event
DCM	130865	Patient Consciousness

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297 **CID 3048 Waveform Annotations Document Title**

298 **Resources:** HTML | FHIR JSON | FHIR XML | IHE SVS XML

299 **Keyword:** WaveformAnnotationsDocumentTitle

300 **FHIR Keyword:** dicom-cid-3048-WaveformAnnotationsDocumentTitle

301 **Type:** Extensible

302 **Version:** 20240616

303 **UID:** 1.2.840.10008.6.1.1488

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**Table CID 3048 Waveform Annotations Document Title**

<b>Coding Scheme Designator</b>	<b>Code Value</b>	<b>Code Meaning</b>
DCM	130867	Neurophysiology Recording Annotations
DCM	130868	Neurophysiology Post-hoc Review Annotations
DCM	130869	Neurophysiology Automated Analysis Annotations

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307 **CID 3049 EEG Procedure**

308 **Resources:** HTML | FHIR JSON | FHIR XML | IHE SVS XML

309 **Keyword:** EEGProcedure

310 **FHIR Keyword:** dicom-cid-3049-EEGProcedure

311 **Type:** Extensible

312 **Version:** 20240616

313 **UID:** 1.2.840.10008.6.1.1489

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**Table CID 3049 EEG Procedure**

<b>Coding Scheme Designator</b>	<b>Code Value</b>	<b>Code Meaning</b>
SCT	54550000	EEG
SCT	252735006	Ambulatory EEG
SCT	252721009	Scalp EEG
SCT	18648009	Sleep EEG
SCT	252738008	Video EEG

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318 **CID 3050 Patient Consciousness**

319 **Resources:** HTML | FHIR JSON | FHIR XML | IHE SVS XML

320 **Keyword:** PatientConsciousness

321 **FHIR Keyword:** dicom-cid-3050-PatientConsciousness

322 **Type:** Extensible

323 **Version:** 20240616

324 **UID:** 1.2.840.10008.6.1.1490

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**Table CID 3050 Patient Consciousness**

Coding Scheme Designator	Code Value	Code Meaning
SCT	248220008	Asleep
SCT	248218005	Awake
SCT	271782001	Drowsy

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*Amend existing context groups, correct inconsistent naming of Context Group 3038:*

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**CID 3035 EEG Annotation – Neurophysiologic Enumeration**

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Version: **2020062320240616**

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**Table CID 3035. EEG Annotation – Neurophysiologic Enumeration**

Coding Scheme Designator	Code Value	Code Meaning	ISO/IEE 11073 MDC Equivalent Reference ID (Informative)
...			
<b>DCM</b>	<b>130886</b>	<b>Line noise artifact</b>	
...			

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**CID 3038 Pattern Event**

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**Table CID 3038. Pattern Events**

Coding Scheme Designator	Code Value	Code Meaning	ISO/IEE 11073 MDC Equivalent Reference ID (Informative)
...			

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**CID 3039 Device-related and Environment-related Event**

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Version: **2020062320240616**

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**Table CID 3039. Device-related and Environment-related Event**

Coding Scheme Designator	Code Value	Code Meaning	ISO/IEE 11073 MDC Equivalent Reference ID (Informative)
...			
<b>DCM</b>	<b>130887</b>	<b>Video recording on</b>	
<b>DCM</b>	<b>130888</b>	<b>Video recording off</b>	
<b>DCM</b>	<b>130889</b>	<b>Preamplifier connected</b>	
<b>DCM</b>	<b>130890</b>	<b>Preamplifier disconnected</b>	
<b>DCM</b>	<b>130891</b>	<b>Breakout box connected</b>	
<b>DCM</b>	<b>130892</b>	<b>Breakout box disconnected</b>	

<b>DCM</b>	<b>130893</b>	<b>Event button pressed</b>	
<b>DCM</b>	<b>130894</b>	<b>Event button test</b>	
<b>DCM</b>	<b>130895</b>	<b>Tap test begin</b>	
<b>DCM</b>	<b>130896</b>	<b>Tap test end</b>	

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344 *Add new concepts to Annex D Table D-1*

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346 **D DICOM Controlled Terminology Definitions**

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**Table D-1. DICOM Controlled Terminology Definitions (...)**

<b>Code Value</b>	<b>Code Meaning</b>	<b>Definition</b>	<b>Notes</b>
130860	Pattern Event	Classification of a Waveform annotation as a pattern.	
130861	EEG Annotation	Classification of a Waveform annotation as belonging to EEG.	
130862	EMG Annotation	Classification of a Waveform annotation as belonging to ECG.	
130863	EOG Annotation	Classification of a Waveform annotation as belonging to EOG.	
130864	Device-related and Environment-related Event	Classification of a Waveform annotation as an event, which occurred in the recording device or in the environment (e.g. the room).	
130865	Patient Consciousness	Classification of a Waveform annotation as a description of the patient's consciousness.	
130866	ECG Annotation	Classification of a Waveform annotation as belonging to ECG.	
130867	Neurophysiology Recording Annotations	A Waveform annotation report comprising neurophysiology annotations added during recording.	
130868	Neurophysiology Post-hoc Review Annotations	A Waveform annotation report containing neurophysiology annotations resulting from post-hoc review.	
130869	Neurophysiology Automated Analysis Annotations	A Waveform annotation report containing neurophysiology annotations resulting from automated analysis.	
130870	Waveform Annotations	A container that groups waveform annotations.	
130871	Procedure annotated	The neurophysiology or cardiology procedure to which annotations apply.	

Waveform Annotation SR

130872	Waveform Annotation Group	A container that groups a set of associated waveform annotations.	
130873	Waveform Annotation Group Number	A number identifying a set of associated annotations.	
130874	Waveform Annotation Group Label	A text describing a set of associated annotations.	
130875	Waveform Annotation Modifier	Coded modifier for a coded waveform annotation.	
130876	Annotation Note	A free text information.	
130877	Waveform Library	A container that references properties of involved waveforms	
130878	Waveform Library Group	A container that groups common information about a set of involved waveforms	
130879	Waveform Library Entry Multiplex Group Descriptors	A container that groups common information about a waveform multiplex group comprising a set of recording channel	
130880	Multiplex Group Number	Identifying number of a waveform multiplex group	
130881	Multiplex Group UID	Unique identifier of a waveform multiplex group	
130882	Sampling Frequency	Frequency of waveform digitalization	
130883	Number of Channels	Number of channels in a waveform multiplex group	
130884	Acquisition DateTime	Date and Time of an Acquisition	
130885	Synchronization Frame of Reference UID	UID of common synchronization environment.	
130886	Line noise artifact	50 Hz or 60 Hz line noise artifact from a power supply	
130887	Video recording on	Video recording turned on automatically or by the operator	
130888	Video recording off	Video recording turned off automatically or by the operator	
130889	Preamplifier connected	Machine code for when the preamplifier (the headbox in case of EEG recordings) is connected to the recording device.	
130890	Preamplifier disconnected	Machine code for when preamplifier (the headbox in case of EEG recordings) is disconnected.	

Waveform Annotation SR

130891	Breakout box connected	A breakout box was connected or reconnected.	A breakout box is a box into which electrode cables are plugged, but the analog electrical signal of those cables is passed from the breakout box to the preamplifier (the headbox in case of EEG recordings) through another cable, so there is no preamp or A/D conversion in the box.
130892	Breakout box disconnected	A breakout box was disconnected.	A breakout box is a box into which electrode cables are plugged, but the analog electrical signal of those cables is passed from the breakout box to the preamplifier (the headbox in case of EEG recordings) through another cable, so there is no preamp or A/D conversion in the box.
130893	Event button pressed	The event button was pressed for the purpose of capturing an event.	The event button is a button that a medical staff member, patient, or family/friend of patient can press when the patient (who is getting the recording) has an event (such as an abnormal movement or seizure).



Waveform Annotation SR

130894	Event button test	The event button was pressed for the purpose of testing.	Testing the event button usually occurs at the beginning of a neurophysiology recording to make sure the mechanism is working.
130895	Tap test begin	A tap test has started.	A tap test is when the operator taps each electrode in sequence to verify that each electrode is plugged into the correct channel of the preamplifier (the headbox in case of EEG recordings).
130896	Tap test end	A tap test has finished.	A tap test is when the operator taps each electrode in sequence to verify that each electrode is plugged into the correct channel of the preamplifier (the headbox in case of EEG recordings).