Digital Imaging and Communications in Medicine (DICOM)

Supplement 129: Electrophysiology Structured Reports and Procedure Log Templates

Prepared by: Electrophysiology Editorial Group of DICOM WG-1 (Cardiac and Vascular Information)

DICOM Standards Committee, Working Group 6

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VERSION: Public Comment 28 August 2007

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Document History

Version	Date	Author	Notes
01	2006 Aug 03	Dick Donker	On behalf of the EP subcommittee Electrophysiology; Working Group EP-Workflow
02	2006 Aug 03	Dick Donker	Minor changes
03	2006 Oct 11	Dick Donker/Claudio Mejia	Restructuring following DICOM WG01 comments
04	2006 Oct 12	Claudio Mejia	Updated per review with EP Workflow sub-committee.
05	2006 Nov 08	Claudio Mejia	Updated doc per WG01 Review in Wash DC
06	2006 Nov 09	Claudio Mejia	Contains mark-ups and misc. edits from the 11/9 TCON
07	2006 Nov 17	Dick Donker	Misc. edits from the 11/9 TCON
08	2006 Nov 29	Claudio Mejia/Bryan Byrd	Updates to Arrhythmia Summary, Mapping Point Entry, Conduction Interval Measurements, EP Meas Group, Ablation Lesion Info, Ablation Measurement
09	2006 Nov 30	Claudio Mejia/Bryan Byrd	Updated per Bryan input (38x3. 38x4, Annex D)
10	2006 Dec 5	Claudio Mejia/Minoru Mashimo/Dick Donker	Updated Stimulation objects/EP Report diagram
11	2006 Dec 6	Claudio Mejia	Updated Ablation Lesion and Ablation Measurement, Mapping Point entry per 12/6 TCON
12	2006 Dec 14	Claudio Mejia	Incorporated updates provided by Minoru and Dick regarding Stimulation objects (TID 38x7, TID 31x2, TID 31x3)
13	2006 Dec 18	Claudio Mejia/Minoru Mashimo	Incorporated updates to TID 31x3.
14	2007 Jan 10	Claudio Mejia	Incorporated Harry's comments
15	2007 Jan 15	Claudio Mejia	Reviewed comments/Stimulation objects
16	2007 Jan 23	Claudio Mejia	Finalized document for WG06 "First Read" submission. Removed Stimulation objects.
17	2007 Jan 24	Dick Donker	Additional corrections
18	2007 Mar 15	Claudio Mejia/Minoru Mashimo	Added the Stimulation objects
19	2007 Mar 16	Dick Donker/Claudio Mejia	Included comments from Dick. Misc. updates and inclusion of Stimulation object in the procedure log TID3001.
20	2007 Mar 20	Dick Donker/Minoru	In Stimulation templates, renamed

		Mashimo/Claudio Mejia	the field "Target Anatomy" To "Target Location" and renamed the filed "Location" for "Stimulation Site" for consistency. Also, clarified its use. Lastly, clarified the descriptions for the Stimulation templates.
21	2007 Mar 29	Claudio Mejia	Updated TID 38x6 Arrhythmia Summary with missing descriptors for Cardiac Rhythm, Morphology Type, and Arrhythmia type description.
22	2007 May 7	Claudio Mejia	Changed row 6 of TID 38x7 from CODE to TEXT and row 6 of TID 31x3 from CODE to TEXT
23	2007 Aug 27	Claudio Mejia/Dick Donker/Minoru Mashimo/Bryan Byrd	Misc. document updates for WG-06 Review
24	2007 Aug 27	Claudio Mejia/Bryan Byrd	Updated document per WG-06 8-27-07 review at NEMA HQ.
25	2007 Aug 28	Claudio Mejia/Bryan Byrd	Updated document per WG-06 8-28-07 review at NEMA HQ.
26 (PC)	2007 Aug 28	Harry Solomon	Final WG6 review for Public Comment release

Scope and Field of Application

In electrophysiology laboratory ablation procedures, specialized catheters are placed into the heart to identify and eliminate sources for arrhythmia. The EP lab is also used to implant and adjust cardiac rhythm control devices (pacemakers, cardioverter defibrillators, and cardiac resynchronization therapy devices).

The EP lab is a multi-modality mix of many types of equipment. One of the systems used in the EP-lab is the "EP waveform recording equipment / catheter sensors" also known as the "EP-recorder".

This supplement to the DICOM standard introduces the templates to format the results of

- Electrophysiology recording system measurements during an implantation/ablation procedure.

- Electrophysiology recording system procedure log

This document is a Supplement to the DICOM Standard. It is an extension to the following parts of the published DICOM Standard:

PS 3.16   -   Content Mapping Resource

Questions for Public Comment

1.	Is the level of nesting for EP Measurements as described in EP Recording Report (TID 38x0 Row 7 and TID 38x0) acceptable? The container of TID 38x0 is technically unnecessary; does it provide useful structure for the receiver of the SOP Instance?
2.	Is the grouping of each EP Measurement by Type and then by Phase/Patient Condition acceptable? Note that the Hemodynamics Report Template groups by phase, and then by measurement type.
3.	Does the structure provide sufficient identification of the Phase/Patient Condition for display applications? Does this need to be a coded value? What codes would be appropriate?
4.	Is the way to describe the Min/Max/Mean values for Ablation measurements acceptable? Refer to TID 38x4.
5.	Are the parameters defined in TID 38x4 sufficient to fully describe an ablation shape?
6.	Are there any other Arrhythmias that need to be added to CID 36x8? Should any concepts be removed?

Changes to NEMA Standards Publication PS 3.16-2007

Digital Imaging and Communications in Medicine (DICOM)

Part 16: Content Mapping Resource

Add the following templates to Annex A

Annex A   Structured Reporting Templates (Normative)

Note to the editor: Add the following diagram.EP Recording REPORT SR IOD TEMPLATES

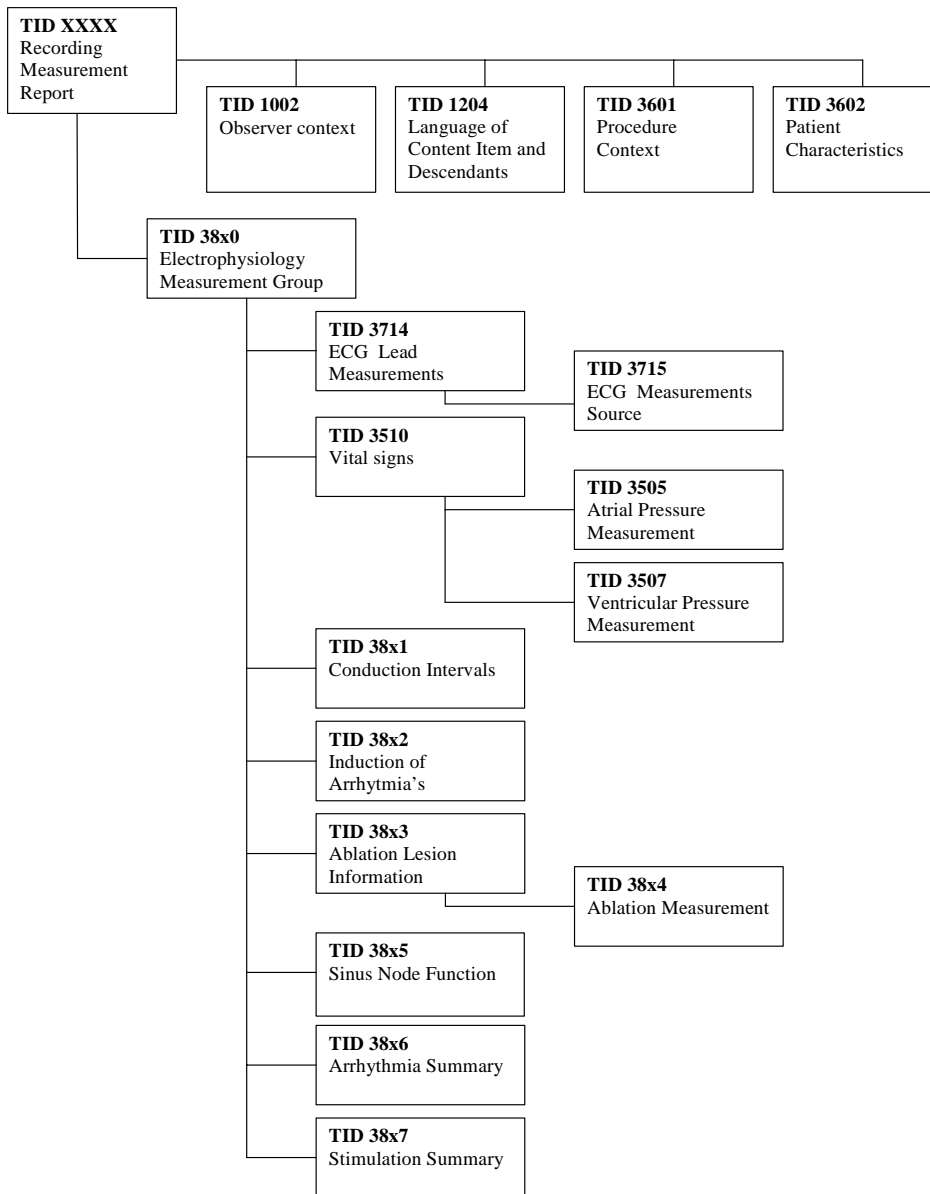The templates that comprise the EP Recording SR are interconnected as in Figure A-X.1:

Figure A-X.1: EP Recording Report SR IOD Template Structure

> **Note to the editor: Add the following section.**

TID 38x0   EP Recording Report

The EP Recording Report provides the overall clinical results of the electrophysiology recorder during an implementation / ablation procedure. In many cases, more detailed information is optionally available in other reports (Hemodynamic Measurements, Procedure Log, etc.). That information is collected and summarized in this report (and referenced when available).

Notes: 1. The information required for such a submission must sometimes be reformatted from a single concept in these templates to multiple data elements in an application's database, or vice versa.
2. This Template is expected to be used with the Enhanced SR IOD.

TID 38x0
EP Recording Report
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0001, 99sup129, "EP Recording Report")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (121058, DCM, "Procedure reported")	1	M		DCID (3254) Electrophysiology Procedure Phase Type
3	>	HAS CONCEPT MOD	INCLUDE	DTID (1204) Language of Content Item and Descendants	1	M		
4	>	HAS OBS CONTEXT	INCLUDE	DTID (1002) Observer Context	1-n	U		
5	>	CONTAINS	INCLUDE	DTID (3601) Procedure Context	1	M		
6	>	CONTAINS	INCLUDE	DTID (3602) Patient Characteristics	1	U		
7	>	CONTAINS	INCLUDE	DTID (38x0) Electrophysiology Measurement Group	1	M		
8	>	CONTAINS	NUM	EV (113730, DCM, "Total Fluoro Time")	1	U		Units = EV (s, UCUM, "s")

> **Note to the editor: For references purposes only.**

TID 3601   Procedure Context

The Procedure Context template describes acquisition context for measurements made or events recorded in a procedure.

TID 3601
Procedure Context
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		HAS ACQ CONTEXT	TEXT	EV (121065, DCM, "Procedure Description")	1	U		Defaults to Study Description (0008,1030) of the General Study Module
2		HAS ACQ CONTEXT	CODE	EV (G-C0E8, SRT, "Has Intent")	1	U		BCID (3629) Procedure Intent
3		HAS ACQ CONTEXT	CODE	EV (G-C09C, SRT, "Procedure Priority")	1	U		BCID (3414) Procedure Urgency
4		HAS OBS CONTEXT	CODE	EV (121023, DCM, "Procedure Code")	1-n	U		Defaults to Procedure Code Sequence (0008,1032) of General Study Module

> **Note to the editor: For references purposes only. This Template is updated in Supplement 128.**

TID 3602   Cardiovascular Patient Characteristics

Patient Characteristic concepts in this template, which may replicate attributes in the Patient Study Module, are included here as possible targets of by-reference relationships from other content items in the SR tree.

Note: Several of the concepts in this template duplicate concepts in TID 1007 "Subject Context, Patient". The difference in use is that this template has those concepts as primary observations of the patient, while in TID 1007 the concepts are used to set (or reset) the context for other observations.

TID 3602
Cardiovascular Patient Characteristics
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (121118, DCM, "Patient Characteristics")	1	M		
2	>	CONTAINS	NUM	EV (121033, DCM, "Subject Age")	1	M		Units = DCID (7456) Units of Measure for Age
3	>	CONTAINS	CODE	EV (121032, DCM, "Subject Sex")	1	M		DCID (7455) Sex
4	>	CONTAINS	NUM	EV (8302-2, LN, "Patient Height")	1	M		UNITS = EV (cm, UCUM, "cm")
5	>	CONTAINS	NUM	EV (29463-7, LN, "Patient Weight")	1	M		UNITS = EV (kg, UCUM, "kg")
6	>	CONTAINS	NUM	EV (122221, DCM, "Thorax diameter, sagittal")	1	U		UNITS = EV (cm, UCUM, "cm")
7	>	CONTAINS	NUM	EV (8277-6, LN, "Body Surface Area")	1	M		UNITS = EV (m2, UCUM, "m^2")
8	>>	INFERRED FROM	CODE	EV (8248-4, LN, "Body Surface Area Formula")	1	U		BCID (3663) Body Surface Area Equations
9	>	CONTAINS	NUM	EV (F-01860, SRT, "Body Mass Index")	1	U		UNITS = EV (kg/m2, UCUM, "kg/m^2")
10	>>	INFERRED FROM	CODE	EV (121420, DCM, "Equation")	1	U		DT (122265, DCM, "BMI = Wt/Ht^2")
11	>	CONTAINS	NUM	EV (8867-4, LN, "Heart Rate")	1	U		UNITS = EV ("{H.B.}/min", UCUM, "BPM")
12	>	CONTAINS	NUM	EV (F-008EC, SRT, "Systolic Blood Pressure")	1	U		Units = DCID (3500)
13	>	CONTAINS	NUM	EV (F-008ED, SRT, "Diastolic Blood Pressure")	1	U		Units = DCID (3500)

Note to the editor: Add the following section.

TID 38x0   Electrophysiology Measurement Group

The Electrophysiology Measurement Group template provides a structure for measurements acquired during an electrophysiology study.

**TID 38x0
Electrophysiology Measurement Group
Type: Extensible**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (0014, 99sup129, "Electrophysiology Measurement Group")	1	M		
2	>	CONTAINS	INCLUDE	DTID (3714) ECG Lead Measurements	1-n	U		
3	>	CONTAINS	INCLUDE	DTID (3510) Vital Signs	1-n	U		
4	>	CONTAINS	INCLUDE	DTID (38x1) Conduction Intervals	1-n	U		$Direction = DT (R-42047, SRT, "Antegrade")
5	>	CONTAINS	INCLUDE	DTID (38x1) Conduction Intervals	1-n	U		$Direction = DT (R-42E61, SRT, "Retrograde")
6	>	CONTAINS	INCLUDE	DTID (38x1) Conduction Intervals	1-n	U		$Direction = DT (T-32850, SRT, "Accessory Pathway")
7	>	CONTAINS	INCLUDE	DTID (38x2) Induction of Arrhythmias	1-n	U		
8	>	CONTAINS	INCLUDE	DTID (38x3) Ablation Lesion Information	1-n	U		
9	>	CONTAINS	INCLUDE	DTID (38x5) Sinus Node Function	1-n	U		
10	>	CONTAINS	INCLUDE	DTID (38x6) Arrhythmia Summary)	1-n	U		
11	>	CONTAINS	INCLUDE	DTID (38x7) Stimulation Summary)	1-n	U		

> **Note to the editor: Modify the following section. This Template is undergoing revision to IEEE Medical Device Nomenclature under DICOM CP729.**

TID 3714　　　ECG Lead Measurements

The ECG Lead Measurements Template provides a structure for measurements calculated on individual ECG leads.

TID 3714
ECG Lead Measurements
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (122159, DCM, "ECG Lead Measurements")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (122148, DCM, "Lead ID")	1	M		BCID (3001) ECG Leads
3	>	HAS OBS CONTEXT	INCLUDE	DTID (3715) ECG Measurement Source	1	U		
4	>	CONTAINS	NUM	DCID (3687) Electrophysiology Waveform Durations	1-n	U		UNITS = EV (ms, UCUM, "ms")
5	>	CONTAINS	NUM	DCID (3688) Electrophysiology Waveform Voltages	1-n	U		UNITS = EV (mv, UCUM, "mv")
6	>	CONTAINS	CODE	EV (5.13.5-47, SCPECG [1.3], "T Morphology Description")	1	U		DCID (3679) ECG Morphology Descriptions
7	>	CONTAINS	CODE	EV (5.13.5-45, SCPECG [1.3], "P Morphology Description")	1	U		DCID (3679) ECG Morphology Descriptions
8	>	CONTAINS	NUM	EV (5.13.5-43, SCPECG [1.3], "ST Slope")	1	U		UNITS = EV (uV/s, UCUM, "uV/s ")
9	>	CONTAINS	CODE	DCID (3680) ECG Lead Noise Descriptions	1-n	U		DCID (3681) ECG Lead Noise Modifiers
10	**≥**	**CONTAINS**	**NUM**	**EV (5.10.2.5-5, SCPECG[1.3], "QT Corrected Duration")**	**1**	**U**		**UNITS = EV (ms, UCUM, "ms")**
11	**≥**	**CONTAINS**	**CODE**	**EV (5.10.2.5-7, SCPECG[1.3], "Correction Algorithm")**	**1**	**U**		**DCID (3678) QT Correction Algorithms**
12	**≥**	**CONTAINS**	**TEXT**	**EV (x0002, 99sup129, "Pacing Location")**	**1**	**U**		
13	**≥**	**CONTAINS**	**TEXT**	**EV (x0010, 99sup129, "Patient Condition / Phase")**	**1**	**U**		

> **Note to the editor: For references purposes only.**

TID 3715   ECG Measurement Source

The ECG Measurement Source Template provides a structure for identifying the particular cardiac cycle, or beat, in an analyzed ECG waveform used for the measurement group for which this template provides Observation Context. The cardiac cycle is identified by beat number, and optionally by specific temporal coordinates within a DICOM ECG waveform SOP Instance.

TID 3715
ECG Measurement Source
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (122149, DCM, "Beat Number")	1	U		Up to three numeric characters
2			CODE	EV (G-C036, SRT, "Measurement Method")	1	U		DCID (3676) Lead Measurement Technique
3			TCOORD	EV (121112, DCM, "Source of measurement")	1	U		
4	>	SELECTED FROM	WAVEFORM		1	U		

Content Item Descriptions

Row 1 Beat Number is specified as a numeric text string, and shall be treated as the ordinal of the beat (cardiac cycle) within the waveform acquisition for this lead that was analyzed for the measurements in this container (i.e., "1" for the first beat, "2" for the second, etc.). If absent, the measurements may have been made by a technique across multiple cycles as specified in Row 2 Measurement Method.

Rows 3 and 4 Source of measurement identify the specific channel and time period within a DICOM ECG Waveform SOP Instance that was analyzed for the measurements in this container.

Note to the editor: Modify the following section.

TID 3510   Vital Signs

The Vital Signs template consists of a CONTAINER containing the various vital signs measurements. These measurements may be acquired automatically from patient monitoring equipment, or may be entered based on manual measurements.

TID 3510
Vital Signs
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (8716-3, LN, "Vital Signs")	1	M		
2	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (F-008EC, SRT, "Systolic blood pressure") $Units = DCID (3500) $Method = BCID (3560) Blood Pressure Methods
3	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (F-008ED, SRT, "Diastolic blood pressure") $Units = DCID (3500)
4	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (8867-4, LN, "Heart rate") $Units = EV ("{H.B.}/min", UCUM, "BPM")
5	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (8310-5, LN, "Body temperature") $Units = EV (Cel, UCUM, "°C")
6	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = DCID (3526) Blood gas saturation $Units = EV (%, UCUM, "%")
7	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (F-043E7, SRT, "Respiration rate") $Units = EV (/min, UCUM, "breaths/min")
8	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (122195, DCM, "Pulse Strength") $Units = DT("{0:4}", UCUM, "range 0:4")
9	>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (F-009EA, SRT, "Pain Score") $Units = DT("{1:10}", UCUM, "range 1:10")
10	>	CONTAINS	CODE	DT (8884-9, LN, "Cardiac Rhythm")	1	U		BCID (3415) Cardiac Rhythms
11	>	CONTAINS	CODE	DT (9304-7, LN, "Respiration Rhythm")	1	U		BCID (3416) Respiration Rhythms
12	**≥**	**CONTAINS**	**INCLUDE**	**TID (300) Measurement**	**1**	**U**		**$Measurement = EV (x0060, 99sup129, "Conscious Sedation Score")**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
								$Units = DT("{1:10}", UCUM, "range 1:10")
13	**≥**	**CONTAINS**	**INCLUDE**	**DTID (3505) Atrial Pressure Measurement**	**1**	**U**		
14	**≥**	**CONTAINS**	**INCLUDE**	**DTID (3507) Ventricular Pressure Measurement**	**1**	**U**		
15	**≥**	**CONTAINS**	**TEXT**	**EV (x0010, 99sup129,"Patient Condition / Phase")**	**1**	**U**		

Note to the editor: Add the following section.

TID 38x1   Conduction Intervals

The Conduction Intervals Template provides a structure for the recording of Antegrade, Retrograde and Accessory conduction measurements This structure is instantiated by inclusion of this Template with specific contextual parameters from a parent Template.

TID 38x1 Parameters

Parameter Name	Parameter Usage
$Directions	Coded term specifying the direction of the conduction interval: Antegrade, Retrograde or Accessory

TID 38x1
Conduction Intervals
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0014, 99sup129, "Conduction Intervals")	1	M		
2	>	CONTAINS	CONTAINER	EV (121070, DCM,"Findings")	1-n	M		
3	>>	HAS CONCEPT MOD	CODE	EV (x0085, 99sup129, "Conduction Interval Direction")	1	U		$Directions
4	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site"	1	U		DCID (3011) Electrophysiology Anatomic Locations
5	>>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
6	>>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = DCID (36x4) Conduction Interval Measurements $Units = EV (ms, UCUM, "ms")

> **Note:**   The time associated with the measurement is inherent in the DICOM SR Content Item definition, in the attribute Observation Datetime (0040,A032). Therefore, there is no need to add another row to indicate the time at which the measurement was performed.

Note to the editor: Add the following section.

TID 38x2   Induction of Arrhythmias

The Induction of Arrhythmias Template provides a structure for the recording measurements after induction or attempted induction of arrhythmia.

TID 38x2
Induction of Arrhythmias
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0033, 99sup129, "Induction of Arrhythmias")	1	M		
2	>	CONTAINS	CONTAINER	EV (121070, DCM,"Findings")	1-n	M		
3	>>	HAS CONCEPT MOD	CODE	EV (G-C504, SRT, "Associated Morphology")	1	M		EV (D3-30000, SRT, "Arrhythmia")
4	>>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	1	U		DCID (3011) Electrophysiology Anatomic Locations
5	>>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
6	>>	CONTAINS	CODE	EV (x0034, 99sup129, "Induced Rhythm ")	1	U		BCID (3415) Cardiac Rhythms
7	>>	CONTAINS	TEXT	EV (xev202, 99sup129, "Recovery of induced Arrhythmia")	1	U		
8	>>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = DCID (36x4) Conduction Interval Measurement $Units = EV (ms, UCUM, "ms")

> **Note to the editor: Add the following section**

TID 38x3   Ablation Lesion Information

The Ablation Lesion Information Template provides a structure for the recording of measurements during catheter ablation.

**TID 38x3
Ablation Lesion Information
Type: Extensible**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0035, 99sup129, "Ablation Lesion Information")	1	M		
2	>	CONTAINS	CONTAINER	EV (xev301, DCM, "Ablation Lesion Generation")	1-n	M		
3	>>	CONTAINS	CODE	EV (x0036, 99sup129, "Ablation Type")	1	U		DCID (36x1) Ablation type $Measurement = EV (x0037, 99sup129, "Ablation Type")
4	>>	CONTAINS	CODE	EV (x0037, 99sup129, "Ablation Site")	1	U		DCID (3011) Electrophysiology Anatomic Locations
5	>>	CONTAINS	TEXT	EV (121070, DCM,"Findings")	1	U		
6	>>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
7	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (x0039, 99sup129, "Ablation Duration") $Units = EV (s, UCUM, "s")
8	>>	CONTAINS	INCLUDE	DTID (38x4) Ablation Measurement	1-n	U		

Row 2	Contains the measurements taken during one ablation lesion generation.

<div style="border:1px solid black; padding:8px;">

Note to the editor: Add the following section

</div>

TID 38x4   Ablation Measurement

The Ablation Measurement Template provides a structure for recording measurement values during catheter ablation. The values can be discrete measurement values or a cummulative maximum, minimum or mean.

Several measurements can be performed when performing an ablation as indicated in Rows 2-6. These measurement can consist of Value AND/OR Min AND/OR Max AND/OR Mean for a given measurement. In case of discrete values the $Derivation parameter SHALL be empty. The system populating this template should include all the data that is available for each type of measurement. Depending of the EP Recording system and the type of ablation generator, all of only a limited set of these values may be able to be populated.

TID 38x4
Ablation Measurement
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (xev401, 99sup129, "Ablation Measurement")	1	M		
2	>	HAS ACQ CONTEXT	CODE	EV (xev402, 99sup129, "Ablation Shape")	1	M		$ModType = DCID(36x7) Ablation shape
3	>	CONTAINS	INCLUDE	TID (300) measurement	1-n	MC	IFF an Electrode Temperature is included in Row 2, MUST also specify the Electrode ID. Default Electrode ID is 1st Distal Electrode	$Measurement = EV (x0041, 99sup129, "Ablation Temperature") $Derivation = DCID (3488) Min/Max/Mean $ModType = DCID (36x3) Ablation Electrode Identification $Units = EV (Cel, UCUM, "°C")
4	>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (R-10043, SRT, "Ablation Power") $Derivation = DCID (3488) Min/Max/Mean $Units = EV (W, UCUM, "W")
5	>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (x0042, 99sup129, "Ablation Impedance") $Derivation = DCID (3488) Min/Max/Mean $Units = EV (Ohm, UCUM, "ohm")
6	>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (x0043, 99sup129, "Ablation Current") $Derivation = DCID (3488) Min/Max/Mean $Units = EV (mA, UCUM, "mA")

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
7	>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = EV (x0044, 99sup129, "Ablation Voltage") $Derivation = DCID(3488) Min/Max/Mean $Units = EV (V, UCUM, "V")

Note to the editor: Add the following section.

TID 38x5   Sinus Node Function

TID 38x5
Sinus Node Function
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0011, 99sup129, "Sinus Node Function")	1	M		
2	>	CONTAINS	CONTAINER	EV (121070, DCM,"Findings")	1-n	M		
3	>>	CONTAINS	CODE	EV (x0037, 99sup129, "Ablation Site")	1	U		DCID (3011) Electrophysiology Anatomic Locations
4	>>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
5	>>	CONTAINS	INCLUDE	TID (300) Measurement	1-n	U		$Measurement = DCID (36x6) Stimulation Interval Measurements $Units = EV (ms, UCUM, "ms")
6	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (0012, 99sup129, "Sinus Node Recovery Time") $Units = EV (ms, UCUM, "ms")
7	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (122237, DCM, "Corrected Sinus Node Recovery Time") $Units = EV (ms, UCUM, "ms")
8	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (0013, 99sup129, "Sino-atrial conduction time") $Units = EV (ms, UCUM, "ms")

Note to the editor: Add the following section.

TID 38x6   Arrhythmia Summary

TID 38x6
Arrhythmia Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (x0011, 99sup129, "Arrhythmia Summary")	1	M		
2	>	CONTAINS	CONTAINER	EV (121070, DCM,"Findings")	1-n	M		
3	>>	HAS CONCEPT MOD	CODE	EV (xev601, 99sup129, "Arrhythmia Type Descriptor")	1	M		DCID (36X8) Arrhythmia Type Descriptor
4	>>	CONTAINS	CODE	DT (8884-9, LN, "Cardiac Rhythm")	1	U		BCID (3415) Cardiac Rhythms
5	>>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
6	>>	CONTAINS	NUM	EV (xev602, 99sup129, "Arrhythmia Duration")	1	U		Units = EV (s, UCUM, "s")
7	>>	CONTAINS	NUM	EV (xev603, 99sup129, "Number of cycles")	1	U		Units = EV {hb}, UCUM, "Heart Beat")
8	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (xcid412, 99sup129, "Ventricular Cycle Length") $Units = EV (ms, UCUM, "ms")
9	>>	CONTAINS	INCLUDE	TID (300) Measurement	1	U		$Measurement = EV (xcid413, 99sup129, "Atrial Cycle Length") $Units = EV (ms, UCUM, "ms")
10	>>	CONTAINS	TEXT	EV (xev604, 99sup129, "Patient Tolerance of Arrhythmia")	1	U		
11	>>	CONTAINS	TEXT	EV (xev605, 99sup129, "Initiation Comment")	1	U		
12	>>	CONTAINS	TEXT	EV (xev606, 99sup129, "Termination Comment")	1	U		
13	>>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	1	U		

Note to the editor: Add the following section.

TID 38x7   Stimulation Summary

The Stimulation Summary Template provides a structure to report general stimulation information for a procedure or provide useful parameters of a stimulator for any EP measurement(s) derived by using programmed electrical stimulators. The Stimulation Summary template is used to document other uses of stimulation and not limited to those generated in the course of an ablation procedure (e.g. Sinus Node function procedure).

TID 38x7
Stimulation Summary
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (xev701, 99sup129, "Stimulation Summary")	1	M		
2	>	CONTAINS	TEXT	EV (xev702, 99sup129, "Stimulation Description"	1	U		
3	>	CONTAINS	TEXT	EV (x0010, 99sup129, "Patient Condition / Phase")	1	U		
4	>	CONTAINS	CONTAINER	EV (xev703,DCM, "Stimulation Information"	1-n	U		
5	>>	CONTAINS	CODE	EV (xev704, 99sup129, "Stimulation Site")	1	U		DCID (3011) Electrophysioloy Anatomic Locations
6	>>	CONTAINS	TEXT	EV (xev705, 99sup129, "Target Location")	1	U	Included if "Stimulation Site" as indicated in Row 5 must be further specified	
7	>>	CONTAINS	NUM	EV (xev706, 99sup129, "Pulse Current")	1	U		Units = EL (mA, UCUM, "mA")
8	>>	CONTAINS	NUM	EV (xev707, 99sup129, "Stimulation Intervals")	1	U		Units = EV (ms, UCUM, "ms")
9	>>	CONTAINS	TEXT	EV (xev708, 99sup129, "Stimulation Protocol Description")	1	U	Included when specifying a "Stimulation Interval" as indicated in Row 8 to further specify the Stimulation Protocol being used.	
10	>>	CONTAINS	NUM	EV (xev709, 99sup129, "Pulse Width")	1	U		Units = EV (ms, UCUM, "ms")
11	>>	CONTAINS	NUM	EV (xev710, 99sup129, "Pulse Voltage")	1	U		Units = EV (V,UCUM,"V")

TID 38x7 Stimulation Summary Content Item Descriptions

Row 1	Stimulation Type Summary Reports type of stimulators used
Row 4	Identifies a series of Stimulation Sequences
Row 6	Target anatomy is different than Stimulation Site. An example would be AV-Node. This value should be used if the "Stimulation Site" as indicated in Row 5 must be further specified.
Row 9	When using a Stimulation Interval as specified in Row 8, an example of the value for a Stimulation Protocol Description in Row 9 would be "S2S3"

> **Note to the editor: Modify the following section.**

PROCEDURE LOG IOD TEMPLATES

TID 3001   Procedure Log

The Procedure Log template is intended for the representation of reports or logs of time-stamped events occurring during an image-guided interventional or other procedure.

This Template does not require a particular ordering of the subsidiary Content Items.

Notes: 1. The Procedure Log IOD (PS3.3) requires ordering by Observation Datetime; thus log entries of different types (i.e., specified by different Rows in the Template) may appear in any order.
2. While this Template is extensible, the Procedure Log IOD forbids Container Content Items subsidiary to the top level Container.

TID 3001
Procedure Log
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DCID (3400) Procedure Log Titles	1	M		
2	>		INCLUDE	DTID (1002) Observer Context	1-n	M		
3	>		INCLUDE	DTID (3601) Procedure Context	1	M		
4	>	HAS ACQ CONTEXT	TEXT	EV (121121, DCM, "Room identification")	1	U		
5	>	HAS ACQ CONTEXT	TEXT	EV (121122, DCM, "Equipment identification")	1-n	U		
6	>	CONTAINS	TEXT	DCID (3401) Types of Log Notes	1-n	U		
7	>>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
8	>	CONTAINS	CODE	EV (121123, DCM, "Patient Status or Event")	1-n	U		DCID (3402) Patient Status and Events
9	>>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
10	>	CONTAINS	PNAME	DCID (3404) Staff Actions	1-n			
11	>>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
12	>	CONTAINS	TEXT	DCID (3427) Equipment Events	1-n	U		Equipment identifier
13	>>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
14	>	CONTAINS	INCLUDE	DTID (3100) Procedure Action	1-n	U		
15	>	CONTAINS	INCLUDE	DTID (3101) Image Acquisition	1-n	U		
16	>	CONTAINS	INCLUDE	DTID (3102) Waveform	1-n	U		

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
				Acquisition				
17	>	CONTAINS	INCLUDE	DTID (3103) Referenced Object	1-n	U		
18	>	CONTAINS	INCLUDE	DTID (3104) Consumables	1-n	U		
19	>	CONTAINS	INCLUDE	DTID (3105) Lesion Identification and Properties	1-n	U		
20	>	CONTAINS	INCLUDE	DTID (3106) Drugs/Contrast Administered	1-n	U		
21	>	CONTAINS	INCLUDE	DTID (3107) Device Used	1-n	U		
22	>	CONTAINS	INCLUDE	DTID (3108) Intervention	1-n	U		
23	>	CONTAINS	CODE	EV (DD-60002, SRT, "Complication of Procedure")	1-n	U		DCID (3413) Adverse Outcomes
24	>>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
25	>	CONTAINS	INCLUDE	DTID (3109) Measurements	1-n	U		
26	>	CONTAINS	INCLUDE	DTID (3110) Impressions or Findings	1-n	U		
27	>	CONTAINS	INCLUDE	DTID (3111) Percutaneous Entry	1-n	U		
28	>	CONTAINS	INCLUDE	DTID (3112) Specimen Obtained	1-n	U		
29	>	CONTAINS	INCLUDE	DTID (3113) Patient Support	1-n	U		
30	>	CONTAINS	INCLUDE	DTID (3114) Patient assessment	1-n	U		
31	>	CONTAINS	INCLUDE	DTID (3115) ECG ST assessment	1-n	U		
32	**≥**	**CONTAINS**	**INCLUDE**	**DTID (31x1) Mapping Point Entry**	**1-n**	**U**		
33	**≥**	**CONTAINS**	**INCLUDE**	**DTID (31x2) Stimulation Entry**	**1-n**	**U**		

Content Item Descriptions

Row 2 includes TID 1002 Observer Context. TID 1002 shall be used to record the identity of the person responsible for recording the log, as well as all other participants in the procedure, even though these personnel may not technically be "observers" of the Procedure Log. As participants in the procedure, they are potential sources for events and observations recorded in the Log. TID 1002 allows the specification of the person's role in the organization (e.g., physician, nurse), as well as the role in the procedure (e.g., circulating, performing, etc.).

Row 5 shall be used to record the identity of the major equipment used in the procedure.

Row 6 may be used to record any event not covered by a specific log entry template.

TID 3109   Measurements

The Measurements Template allows recording of significant measurements, such as vital signs, laboratory results, hemodynamic measurements, electrophysiology measurements, or quantitative analysis measurements. These measurements are often quoted from another source, which would be documented in the included TID 3010 Log Entry Qualifiers.

**TID 3109
Measurements
Type: Extensible**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	No BCID	1	U		
2	>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		
3	>	HAS PROPERTIES	INCLUDE	DTID (310) Measurement Properties	1	U		
4			CODE	No BCID	1	U		
5	>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		

Content Item Descriptions

The time associated with the measurement is inherent in the DICOM SR object definition. Therefore, there is no need to add another row to indicate the time at which the measurement was performed.

Note to the editor: Add the following section.

TID 31x1   Mapping Point Acquisition

**TID 31x1
Mapping Point Acquisition
Type: Extensible**

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (xev31101, 99sup129, "Name of Acquired Map")	1	M		
3	>	HAS PROPERTIES	TEXT	EV (xev31107, 99sup129, "Point Identifier")	1	U		
4	>	HAS PROPERTIES	NUM	EV (xev31102, 99sup129, "Local Activation Time")	1	U		Units = EV (ms, UCUM, "ms")
5	>	HAS PROPERTIES	NUM	EV (xev31103, 99sup129, "Unipolar Voltage")	1	U		Units = EV (uV, UCUM, "uV")
6	>	HAS PROPERTIES	NUM	EV (xev31104, 99sup129, "Bipolar Voltage")	1	U		Units = EV (uV, UCUM, "uV")
7	>	HAS PROPERTIES	TEXT	EV (xev31105, 99sup129, "Map Type")	1	U		
8	>	HAS PROPERTIES	TEXT	EV (xev31106, 99sup129, "Map Tag")	1	U		
9	>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		

> **Note to the editor: Add the following section.**

TID 31x2   Stimulation Applied

The Stimulation Applied template provides a structure to record the stimulation information used during a series of stimulations. The stimulation information could consist of specific EP measurements performed during the stimulation sequence and/or the specific stimulation parameters used in the stimulator.

TID 31x2
Stimulation Applied
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			TEXT	EV (xev31201, 99sup129, "Stimulation Applied")	1	M		
2	>	HAS PROPERTIES	CODE	EV (xev704, 99sup129, "Stimulation Site")	1	U		DCID (3011) Electrophysiology Anatomic Locations
3	>	HAS PROPERTIES	TEXT	EV (121106, DCM, "Comment")	1	U		
4	>	HAS PROPERTIES	INCLUDE	DTID (31x3) Stimulation Configuration	1-n	U		
5	>		INCLUDE	DTID (3010) Log Entry Qualifiers	1	U		

Note to the editor: Add the following section.

TID 31x3   Stimulation Configuration

The Stimulation Configuration Template provides a structure to describe the EP measurements performed during the stimulation sequence and/or to specify the stimulation parameters used in the stimulator.

TID 31x3
Stimulation Configuration
Type: Extensible

	NL	Relation with Parent	Value Type	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CODE	EV (xev31301, 99sup129, "Stimulation Sequence"	1	M		DCID (36x6) Stimulation Intervals
2	>	HAS PROPERTIES	NUM	EV (xev31302, 99sup129, "Coupling Interval (cycle length)")	1	U		Units = EV (ms, UCUM, "ms")
3	>	HAS PROPERTIES	TEXT	EV (xev31303, 99sup129, "Synchronized To"	1	U		
4	>	HAS PROPERTIES	TEXT	EV (xev31304, 99sup129, "Channel Name")	1	U		
5	>	HAS PROPERTIES	TEXT	EV (xev705, 99sup129, "Target Location")	1	U	Included if "Stimulation Site" as indicated in Row 3 of 31x2 must be further specified	
6	>	HAS PROPERTIES	NUM	EV (xev706, 99sup129, "Pulse Current")	1	U		Units = EV (mA, UCUM, "mA")
7	>	HAS PROPERTIES	NUM	EV (xev709, 99sup129, "Pulse Width")	1	U		Units = EV (ms, UCUM, "ms")
8	>	HAS PROPERTIES	NUM	EV (xev710, 99sup129, "Pulse Voltage")	1	U		Units = EV (V,UCUM,"V")
9	>	HAS PROPERTIES	TEXT	EV (xev31305, 99sup129, "Purpose")	1	U		
10	>	HAS PROPERTIES	CODE	EV (xev31306, 99sup129, "Electrode Configuration")	1	U		DCID (36x3) "Ablation Electrode Identification"

Annex B   DCMR Context Groups (Normative)

> **Note to the editor: Modify the following section. This Context Group is undergoing revision to IEEE Medical Device Nomenclature under DICOM CP729.**

CID 3687   Electrophysiology Waveform Durations

Context ID 3687
Electrophysiology Waveform Durations
Type: Extensible   Version: ~~20030327~~ yyyymmdd

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning
SCPECG	1.3	5.13.5-5	P Duration
SCPECG	1.3	5.13.5-7	PR Interval
SCPECG	1.3	5.13.5-9	QRS Duration
SCPECG	1.3	5.13.5-11	QT Interval
SCPECG	1.3	5.13.5-13	Q Duration
SCPECG	1.3	5.13.5-15	R Duration
SCPECG	1.3	5.13.5-17	S Duration
SCPECG	1.3	5.13.5-19	R' Duration
SCPECG	1.3	5.13.5-21	S' Duration
SCPECG	1.3	5.13.5-49	Isoelectric Segment duration at the onset of QRS
SCPECG	1.3	5.13.5-51	Isoelectric Segment duration at the end of QRS
SCPECG	1.3	5.13.5-53	Intrisicoid Deflection duration
DCM		**122182**	**R-R Interval**
99sup129		**x0049**	**P-P Interval**
99sup129		**x0050**	**A-H Interval**
99sup129		**x0051**	**H-V Interval**
99sup129		**x0052**	**A-A Interval**
99sup129		**x0053**	**V-V Interval**
99sup129		**x0054**	**H-H Interval**
99sup129		**x0055**	**P-A Interval**
99sup129		**x0056**	**V-A Interval**
99sup129		**x0057**	**A-V Interval**

Note to the editor: Modify the following section.

CID 3526   Blood Gas Saturation

Context ID 3526
Blood Gas Saturation
Type: Extensible   Version: ~~20030327~~ yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
DCM	122187	Blood Carbon dioxide saturation
LN	20564-1	Blood Oxygen saturation
LN	2708-6	Arterial Oxygen saturation
LN	2711-0	Venous Oxygen saturation
LN	2709-4	Capillary Blood Oxygen Saturation
LN	2710-2	Capillary Blood Oxygen Saturation, by Oximetry
99sup129	**x0062**	**End Tidal Carbon Dioxide**

Note to the editor: Modify the following section.

CID 3400   Procedure Log Titles

Context ID 3400
Procedure Log Titles
Type: Extensible   Version: ~~20030327~~ yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
DCM	121120	Cath Lab Procedure Log
DCM	**xcid001**	**EP Lab Procedure Log**

Note to the editor: For references purposes only.

CID 3254   Electrophysiology Procedure Phase

Context ID 3254
Electrophysiology Procedure Phase
Type: Extensible Version: 20020904

Coding Scheme	Code Value	Code Meaning
SRT	G-729D	Atrial Effective Refractory Period, evaluation of
SRT	G-7304	Carotid Sinus Massage procedure phase
SRT	G-7306	Electrophysiology Mapping phase
SRT	G-729A	Electrophysiology procedure baseline phase
SRT	G-7408	Post-ablation phase
SRT	G-7305	Post-defibrillation procedure phase
SRT	G-729F	Radiofrequency Ablation procedure phase
SRT	G-729C	Sinus Node Recovery Time, evaluation of
SRT	G-729E	Ventricular Effective Refractory Period, evaluation of

Note to the editor: For references purposes only. This Context Group is undergoing revision in Supplement 128.

CID 3678   QT Correction Algorithms

Context ID 3678
QT Correction Algorithms
Type: Extensible   Version: 20030327

Coding Scheme Designator	Coding Scheme Version	Code Value	Code Meaning
SCPECG	1.3	5.10.2.5-7-1	Bazett QT Correction Algorithm
SCPECG	1.3	5.10.2.5-7-2	Hodges QT Correction Algorithm
SCPECG	1.3	5.10.2.5-7-3	Other QT Correction Algorithm

> **Note to the editor: For references purposes only. This Context Group is undergoing revision to IEEE Medical Device Nomenclature under DICOM CP729 and Supplement 128.**

CID 3001　　　　　ECG Leads

**Context ID 3001
ECG Leads**

Type: Extensible Version: 20020904

Coding Scheme	Coding Scheme Version	Code Value	Code Meaning
SCPECG	1.3	5.6.3-9-73	Defibrillator lead: anterior-lateral
SCPECG	1.3	5.6.3-9-74	External pacing lead: anterior-posterior
SCPECG	1.3	5.6.3-9-27	Lead A
SCPECG	1.3	5.6.3-9-71	Lead A (Nehb – Anterior)
SCPECG	1.3	5.6.3-9-75	Lead A1 (Auxiliary unipolar lead 1)
SCPECG	1.3	5.6.3-9-76	Lead A2 (Auxiliary unipolar lead 2)
SCPECG	1.3	5.6.3-9-77	Lead A3 (Auxiliary unipolar lead 3)
SCPECG	1.3	5.6.3-9-78	Lead A4 (Auxiliary unipolar lead 4)
SCPECG	1.3	5.6.3-9-57	Lead A-cal
SCPECG	1.3	5.6.3-9-84	Lead A-cal (cal for Nehb – Anterior)
SCPECG	1.3	5.6.3-9-64	Lead aVF
SCPECG	1.3	5.6.3-9-63	Lead aVL
SCPECG	1.3	5.6.3-9-62	Lead aVR
SCPECG	1.3	5.6.3-9-65	Lead -aVR
SCPECG	1.3	5.6.3-9-26	Lead C
SCPECG	1.3	5.6.3-9-19	Lead CC5
SCPECG	1.3	5.6.3-9-49	Lead CC5-cal
SCPECG	1.3	5.6.3-9-56	Lead C-cal
SCPECG	1.3	5.6.3-9-20	Lead CM5
SCPECG	1.3	5.6.3-9-50	Lead CM5-cal
SCPECG	1.3	5.6.3-9-70	Lead D (Nehb – Dorsal)
SCPECG	1.3	5.6.3-9-83	Lead D-cal (cal for Nehb – Dorsal)
SCPECG	1.3	5.6.3-9-25	Lead E
SCPECG	1.3	5.6.3-9-55	Lead E-cal
SCPECG	1.3	5.6.3-9-29	Lead F
SCPECG	1.3	5.6.3-9-59	Lead F-cal
SCPECG	1.3	5.6.3-9-30	Lead H
SCPECG	1.3	5.6.3-9-60	Lead H-cal
SCPECG	1.3	5.6.3-9-1	Lead I (Einthoven)
SCPECG	1.3	5.6.3-9-24	Lead I (Frank)

SCPECG	1.3	5.6.3-9-31	Lead I-cal (Einthoven)
SCPECG	1.3	5.6.3-9-54	Lead I-cal (Frank)
SCPECG	1.3	5.6.3-9-2	Lead II
SCPECG	1.3	5.6.3-9-32	Lead II-cal
SCPECG	1.3	5.6.3-9-61	Lead III
SCPECG	1.3	5.6.3-9-72	Lead J (Nehb – Inferior)
SCPECG	1.3	5.6.3-9-85	Lead J-cal (cal for Nehb – Inferior)
SCPECG	1.3	5.6.3-9-21	Lead Left Arm
SCPECG	1.3	5.6.3-9-51	Lead Left Arm-cal
SCPECG	1.3	5.6.3-9-23	Lead Left Leg
SCPECG	1.3	5.6.3-9-53	Lead Left Leg-cal
SCPECG	1.3	5.6.3-9-28	Lead M
SCPECG	1.3	5.6.3-9-58	Lead M-cal
SCPECG	1.3	5.6.3-9-22	Lead Right Arm
SCPECG	1.3	5.6.3-9-52	Lead Right Arm-cal
SCPECG	1.3	5.6.3-9-3	Lead V1
SCPECG	1.3	5.6.3-9-33	Lead V1-cal
SCPECG	1.3	5.6.3-9-4	Lead V2
SCPECG	1.3	5.6.3-9-34	Lead V2-cal
SCPECG	1.3	5.6.3-9-10	Lead V2R
SCPECG	1.3	5.6.3-9-40	Lead V2R-cal
SCPECG	1.3	5.6.3-9-5	Lead V3
SCPECG	1.3	5.6.3-9-35	Lead V3-cal
SCPECG	1.3	5.6.3-9-11	Lead V3R
SCPECG	1.3	5.6.3-9-41	Lead V3R-cal
SCPECG	1.3	5.6.3-9-6	Lead V4
SCPECG	1.3	5.6.3-9-36	Lead V4-cal
SCPECG	1.3	5.6.3-9-12	Lead V4R
SCPECG	1.3	5.6.3-9-42	Lead V4R-cal
SCPECG	1.3	5.6.3-9-7	Lead V5
SCPECG	1.3	5.6.3-9-37	Lead V5-cal
SCPECG	1.3	5.6.3-9-13	Lead V5R
SCPECG	1.3	5.6.3-9-43	Lead V5R-cal
SCPECG	1.3	5.6.3-9-8	Lead V6
SCPECG	1.3	5.6.3-9-38	Lead V6-cal
SCPECG	1.3	5.6.3-9-14	Lead V6R
SCPECG	1.3	5.6.3-9-44	Lead V6R-cal
SCPECG	1.3	5.6.3-9-9	Lead V7
SCPECG	1.3	5.6.3-9-39	Lead V7-cal

SCPECG	1.3	5.6.3-9-15	Lead V7R
SCPECG	1.3	5.6.3-9-45	Lead V7R-cal
SCPECG	1.3	5.6.3-9-66	Lead V8
SCPECG	1.3	5.6.3-9-79	Lead V8-cal
SCPECG	1.3	5.6.3-9-68	Lead V8R
SCPECG	1.3	5.6.3-9-81	Lead V8R-cal
SCPECG	1.3	5.6.3-9-67	Lead V9
SCPECG	1.3	5.6.3-9-80	Lead V9-cal
SCPECG	1.3	5.6.3-9-69	Lead V9R
SCPECG	1.3	5.6.3-9-82	Lead V9R-cal
SCPECG	1.3	5.6.3-9-16	Lead X
SCPECG	1.3	5.6.3-9-46	Lead X-cal
SCPECG	1.3	5.6.3-9-17	Lead Y
SPECG	1.3	5.6.3-9-47	Lead Y-cal
SCPECG	1.3	5.6.3-9-18	Lead Z
SCPECG	1.3	5.6.3-9-48	Lead Z-cal
SCPECG	1.3	5.6.3-9-0	Unspecified lead

Add the following context groups to Annex B

CID 36x1   Ablation type

Context ID 36x1
Ablation type
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
99sup129	xcid103	RF
99sup129	xcid104	Cryo
99sup129	xcid105	DC
99sup129	xcid106	Thermal
99sup129	xcid107	Laser
99sup129	xcid108	High Frequency Ultrasound

CID 36x2   Conduction Interval Directions

Context ID 36x2
Conduction Interval Directions
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-42047	Antegrade
SRT	R-42E61	Retrograde
SRT	T-32850	Accessory Pathway

CID 36x3   Ablation Electrode Identification

Context ID 36x3
Ablation Electrode Identification
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
DCM	xcid301	First Distal Electrode
DCM	xcid302	Second Distal Electrode
DCM	xcid303	Third Distal Electrode
DCM	xcid304	Fourth Distal Electrode

CID 36x4   Conduction Interval Measurements

Context ID 36x4
Conduction Interval Measurements
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
Include CID 36x6		
DCM	xcid401	AVNERP
DCM	xcid402	AVNFRP
DCM	xcid403	AERP
DCM	xcid404	AFRP
DCM	xcid405	VERP
DCM	xcid406	VFRP
DCM	xcid407	APERP
DCM	xcid408	APFRP
DCM	xcid409	APWCL-APBCL
DCM	xcid410	WCL-AVBCL
DCM	xcid411	WCL-VABCL

CID 36x5   Arrhythmia Duration

Context ID 36x5
Arrhythmia Duration
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
SRT	R-4076B	Short Duration
SRT	R-420E6	Sustained

CID 36x6   Stimulation Interval Measurements

Context ID 36x6
STIMULATION INTERVALS
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
DCM	xcid601	S1
DCM	xcid602	S2
DCM	xcid603	S3
DCM	xcid604	S4

DCM	xcid605	S5
DCM	xcid606	S6

CID 36x7   Ablation Shape

Context ID 36x7
Ablation Shape
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
DCM	xcid701	Single electrode
DCM	xcid702	Circular
DCM	xcid703	Linear
DCM	xcid704	Balloon
DCM	xcid705	External clamp

CID 36x8   Arrhythmia Type Descriptor

Context ID 36x8
ARRHYTHMIA TYPE DESCRIPTOR
Type: Extensible   Version: yyyymmdd

Coding Scheme Designator	Code Value	Code Meaning
SRT	251167004	aberrant premature complexes
SRT	251183004	aberrantly conducted complex
SRT	16797001	accelerated atrioventricular conduction
SRT	61277005	accelerated idioventricular rhythm
SRT	422348008	Andersen Tawil syndrome
SRT	17869006	anomalous atrioventricular excitation
SRT	76887001	anterior fascicular block, posterior fascicular block AND incomplete right bundle branch block
SRT	233899006	antidromic atrioventricular re-entrant tachycardia
SRT	300997008	asymptomatic sinoatrial node dysfunction
SRT	397829000	asystole
SRT	17366009	atrial arrhythmia
SRT	251173003	atrial bigeminy
SRT	251187003	atrial escape complex
SRT	49436004	atrial fibrillation
SRT	195080001	atrial fibrillation and flutter
SRT	5370000	atrial flutter
SRT	251188008	atrial parasystole
SRT	195069001	atrial paroxysmal tachycardia
SRT	287057009	atrial premature complex
SRT	276796006	atrial tachycardia
SRT	251174009	atrial trigeminy
SRT	233917008	atrioventricular block
SRT	418341009	atrioventricular conduction disorder
SRT	50799005	atrioventricular dissociation
SRT	278482008	atrioventricular tachycardia
SRT	251163000	AV junctional (nodal) arrest
SRT	251165007	AV junctional (nodal) tachycardia
SRT	11849007	AV junctional rhythm
SRT	251166008	AV nodal re-entry tachycardia
SRT	88412007	AV node arrhythmia
SRT	251162005	AV-junctional (nodal) bradycardia

SRT	74021003	Bifascicular block
SRT	20143001	bilateral bundle branch block
SRT	251170000	blocked premature atrial contraction
SRT	421869004	bradyarrhythmia
SRT	418818005	brugada syndrome
SRT	6374002	bundle branch block
SRT	410429000	cardiac arrest
SRT	16574001	cardiac arrest after obstetrical surgery AND/OR other procedure including delivery
SRT	62657007	cardiac arrest AND/OR failure following anesthesia AND/OR sedation in labor AND/OR delivery
SRT	213213007	cardiac arrest as a complication of care
SRT	423191000	cardiac arrest due to cardiac disorder
SRT	424571008	cardiac arrest due to drowning
SRT	424390001	cardiac arrest due to electrocution
SRT	78240009	cardiac arrest due to pacemaker failure
SRT	423168004	cardiac arrest due to respiratory disorder
SRT	422970001	cardiac arrest due to trauma
SRT	86152005	cardiac arrest during AND/OR resulting from a procedure
SRT	198867001	cardiac arrest following abortive pregnancy
SRT	179924009	cardiac arrest in fetus OR newborn
SRT	233927002	cardiac arrest with successful resuscitation
SRT	410430005	cardiorespiratory arrest
SRT	419671004	catecholaminergic polymorphic ventricular tachycardia
SRT	426749004	chronic atrial fibrillation
SRT	425615007	chronic atrial flutter
SRT	26950008	chronic ectopic atrial tachycardia
SRT	261195002	circulatory arrest
SRT	27885002	complete atrioventricular block
SRT	6180003	complete left bundle branch block
SRT	251123001	complete right bundle branch block
SRT	233922008	concealed accessory pathway
SRT	44808001	conduction disorder of the heart
SRT	82580003	congenital complete atrioventricular block
SRT	204383001	congenital complete atrioventricular heart block
SRT	302944009	congenital complete heart block
SRT	315027009	congenital conduction defect
SRT	46619002	congenital heart block

SRT	**233902009**	**congenital His bundle tachycardia**
SRT	**64872007**	**congenital incomplete atrioventricular block**
SRT	**204384007**	**congenital incomplete atrioventricular heart block**
SRT	**300996004**	**controlled atrial fibrillation**
SRT	**82226007**	**diffuse intraventricular block**
SRT	**406461004**	**ectopic atrial beats**
SRT	**233892002**	**ectopic atrial tachycardia**
SRT	**233895000**	**ectopic atrioventricular node tachycardia**
SRT	**33413000**	**ectopic beats**
SRT	**29320008**	**ectopic rhythm**
SRT	**234172002**	**electromechanical dissociation**
SRT	**309809007**	**electromechanical dissociation with successful resuscitation**
SRT	**233919006**	**familial isolated complete right bundle branch block**
SRT	**233913007**	**familial sick sinus syndrome**
SRT	**233906007**	**familial ventricular tachycardia**
SRT	**418872003**	**fascicular ventricular tachycardia**
SRT	**276512006**	**fetal dysrhythmia**
SRT	**240298005**	**fetal tachycardia**
SRT	**4006006**	**fetal tachycardia affecting management of mother**
SRT	**40593004**	**fibrillation**
SRT	**270492004**	**first degree atrioventricular block**
SRT	**13640000**	**fusion beats**
SRT	**233916004**	**heart block**
SRT	**251155001**	**His Bundle (junctional ectopic) tachycardia**
SRT	**233901002**	**His bundle tachycardia**
SRT	**69730002**	**idiojunctional tachycardia**
SRT	**49260003**	**idioventricular rhythm**
SRT	**425582007**	**inappropriate sinus tachycardia**
SRT	**233894001**	**incessant atrial tachycardia**
SRT	**233908008**	**incessant infant ventricular tachycardia**
SRT	**419400008**	**incisional tachycardia**
SRT	**77221000**	**incomplete atrioventricular block with atrioventricular response**
SRT	**251120003**	**incomplete left bundle branch block**
SRT	**251124007**	**incomplete right bundle branch block**
SRT	**233907003**	**induced ventricular tachycardia**
SRT	**251114004**	**intermittent second degree atrioventricular block**
SRT	**38274001**	**interpolated PVCs**
SRT	**4554005**	**intraventricular conduction defect**

SRT	**82838007**	**irregular tachycardia**
SRT	**373905003**	**jervell and Lange-Nielson syndrome**
SRT	**419166005**	**junctional ectopic tachycardia**
SRT	**47830009**	**junctional escape beats**
SRT	**251164006**	**junctional premature complex**
SRT	**251164006**	**junctional premature complex**
SRT	**37760005**	**left anterior fascicular block**
SRT	**420002000**	**left atrial incisional tachycardia**
SRT	**63467002**	**left bundle branch block**
SRT	**4973001**	**left bundle branch hemiblock**
SRT	**4973001**	**left bundle branch hemiblock**
SRT	**195046004**	**left main stem bundle branch block**
SRT	**62026008**	**left posterior fascicular block**
SRT	**93130009**	**Lenegre's disease**
SRT	**283645003**	**lev's syndrome**
SRT	**233910005**	**lone atrial fibrillation**
SRT	**9651007**	**long QT syndrome**
SRT	**55475008**	**Lown-Ganong-Levine syndrome**
SRT	**251152003**	**marked sinus arrhythmia**
SRT	**251125008**	**minor intraventricular conduction defect**
SRT	**54016002**	**Mobitz type I incomplete atrioventricular block**
SRT	**28189009**	**Mobitz type II atrioventricular block**
SRT	**2374000**	**Monofascicular block**
SRT	**49982000**	**multifocal atrial tachycardia**
SRT	**63232000**	**multifocal premature beats**
SRT	**10626002**	**multifocal PVCs**
SRT	**251171001**	**multiple atrial premature complexes**
SRT	**251176006**	**multiple premature ventricular complexes**
SRT	**251179004**	**multiple ventricular interpolated complexes**
SRT	**251157009**	**narrow QRS ventricular tachycardia**
SRT	**413341007**	**neonatal bradycardia**
SRT	**180906006**	**neonatal cardiac arrest**
SRT	**181869007**	**neonatal cardiorespiratory arrest**
SRT	**276513001**	**neonatal dysrhythmia**
SRT	**413342000**	**neonatal tachycardia**
SRT	**71792006**	**nodal rhythm disorder**
SRT	**39260000**	**nonparoxysmal AV nodal tachycardia**
SRT	**233911009**	**non-rheumatic atrial fibrillation**
SRT	**162710004**	**O/E - collapse -cardiac arrest**

SRT	233898003	orthodromic atrioventricular re-entrant tachycardia
SRT	129575004	pacemaker twiddler's syndrome
SRT	251182009	paired ventricular premature complexes
SRT	10164001	parasystole
SRT	282825002	paroxysmal atrial fibrillation
SRT	427665004	paroxysmal atrial flutter
SRT	39357005	paroxysmal atrial tachycardia with block
SRT	195070000	paroxysmal atrioventricular tachycardia
SRT	233915000	paroxysmal familial ventricular fibrillation
SRT	195071001	paroxysmal junctional tachycardia
SRT	195072008	paroxysmal nodal tachycardia
SRT	67198005	paroxysmal supraventricular tachycardia
SRT	12026006	paroxysmal tachycardia
SRT	66657009	paroxysmal ventricular tachycardia
SRT	195039008	partial atrioventricular block
SRT	233904005	permanent junctional reciprocating tachycardia
SRT	44602002	persistent sinus bradycardia
SRT	233918003	postoperative complete heart block
SRT	233903004	postoperative His bundle tachycardia
SRT	233914001	postoperative sinoatrial disease
SRT	284470004	premature atrial contraction
SRT	29717002	premature beats
SRT	405806007	pulseless ventricular tachycardia
SRT	314208002	rapid atrial fibrillation
SRT	233893007	re-entrant atrial tachycardia
SRT	233896004	re-entrant atrioventricular node tachycardia
SRT	233897008	re-entrant atrioventricular tachycardia
SRT	195105007	re-entry ventricular arrhythmia
SRT	418493005	right atrial incisional tachycardia
SRT	73459006	right branch block, incomplete anterior fascicular block AND incomplete posterior fascicular block
SRT	59118001	right bundle branch block
SRT	43906007	right bundle branch block AND incomplete left bundle branch block
SRT	30667004	right bundle branch block AND left anterior fascicular block
SRT	46319007	right bundle branch block AND left posterior fascicular block
SRT	32758004	right bundle branch block with left bundle branch block

SRT	**38566003**	**right bundle branch block, anterior fascicular block AND incomplete left bundle branch block**
SRT	**41863008**	**right bundle branch block, anterior fascicular block AND incomplete posterior fascicular block**
SRT	**32425009**	**right bundle branch block, anterior fascicular block AND posterior fascicular block**
SRT	**66568003**	**right bundle branch block, posterior fascicular block AND incomplete anterior fascicular block**
SRT	**14718009**	**right bundle branch block, posterior fascicular block AND incomplete left bundle branch block**
SRT	**233909000**	**right ventricular outflow tract ventricular tachycardia**
SRT	**20852007**	**Romano-Ward syndrome**
SRT	**251172008**	**run of atrial premature complexes**
SRT	**251177002**	**run of ventricular premature complexes**
SRT	**195042002**	**second degree atrioventricular block**
SRT	**49044005**	**severe sinus bradycardia**
SRT	**36083008**	**sick sinus syndrome**
SRT	**13395001**	**sinoatrial arrest with nodal/ventricular escape**
SRT	**65778007**	**sinoatrial block**
SRT	**419752005**	**sinoatrial nodal reentrant tachycardia**
SRT	**233891009**	**sinoatrial node tachycardia**
SRT	**5609005**	**sinus arrest**
SRT	**251092003**	**sinus arrest with atrial escape**
SRT	**251093008**	**sinus arrest with junctional escape**
SRT	**251094002**	**sinus arrest with ventricular escape**
SRT	**49710005**	**sinus bradycardia**
SRT	**60423000**	**sinus node dysfunction**
SRT	**251161003**	**slow ventricular response**
SRT	**46935006**	**Stokes-Adams syndrome**
SRT	**13620007**	**Stokes-Adams-Morgagni syndrome**
SRT	**72654001**	**supraventricular arrhythmia**
SRT	**251168009**	**supraventricular bigeminy**
SRT	**63593006**	**supraventricular premature beats**
SRT	**6456007**	**supraventricular tachycardia**
SRT	**6456007**	**supraventricular tachycardia**
SRT	**233900001**	**supraventricular tachycardia with functional bundle branch block**
SRT	**426525004**	**sustained ventricular tachycardia**
SRT	**6285003**	**tachyarrhythmia**

SRT	**74615001**	**tachycardia-bradycardia**
SRT	**46220003**	**tic-tac rhythm**
SRT	**31722008**	**Torsades de pointes**
SRT	**86014007**	**trifascicular block**
SRT	**233923003**	**unidirectional retrograde accessory pathway**
SRT	**27337007**	**unifocal PVCs**
SRT	**29894000**	**vagal autonomic bradycardia**
SRT	**44103008**	**ventricular arrhythmia**
SRT	**11157007**	**ventricular bigeminy**
SRT	**75532003**	**ventricular escape beat**
SRT	**251186007**	**ventricular escape complex**
SRT	**81898007**	**ventricular escape rhythm**
SRT	**71908006**	**ventricular fibrillation**
SRT	**195083004**	**ventricular fibrillation and flutter**
SRT	**111288001**	**ventricular flutter**
SRT	**251178007**	**ventricular interpolated complexes**
SRT	**59272004**	**ventricular parasystole**
SRT	**195060002**	**ventricular pre-excitation**
SRT	**17338001**	**ventricular premature beats**
SRT	**251175005**	**ventricular premature complex**
SRT	**251181002**	**ventricular quadrigeminy**
SRT	**25569003**	**ventricular tachycardia**
SRT	**233905006**	**ventricular tachycardia with normal heart**
SRT	**251158004**	**ventricular tachycardia, monomorphic**
SRT	**251159007**	**ventricular tachycardia, polymorphic**
SRT	**251160002**	**ventricular tachycardia, polymorphic without Q-T prolongation**
SRT	**251180001**	**ventricular trigeminy**
SRT	**406462006**	**wandering pacemaker**
SRT	**251156000**	**wide QRS ventricular tachycardia**
SRT	**184004**	**withdrawal arrhythmia**
SRT	**74390002**	**Wolff-Parkinson-White pattern**

Add the following Definitions to Annex D

Annex D   DICOM Controlled Terminology Definitions (Normative)

DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")

Code Value	Code Meaning	Definition	Notes
x0001	EP Recording Report	Electrophysiology Recording Report	
x0002	Pacing Location	The location where pacing energy is applied inside or outside the heart.	
x0010	Patient Condition / Phase	The combination of the patient rhythm, drug interaction and current phase of the EP study.	
x0011	Sinus Node Function	An assessment of the Sinus Node Function.	
x0012	SNRT	Sinus Node Recovery Time	
x0013	SACT	Sino Atrial Conduction Time	
x0014	Antegrade Conduction Intervals	Antegrade Conduction Intervals, report section	
x0026	Retrograde Conduction Intervals	Retrograde Conduction Intervals, report section	
x0030	Accessory Conduction Intervals	Accessory Conduction Intervals, report section	
x0034	Induction of Arrhythmias	Induction of Arrhythmias, report section	
x0035	Target Arrhythmia	The arrhythmia that is targeted for mapping and ablation.	
x0036	Ablation Measurements	Ablation Measurements, report section	
x0037	Ablation Type	The type of ablation energy source applied.	
x0038	Ablation Site	The location inside or outside the heart where ablation energy was applied.	
x0039	Ablation Duration	The length of time ablation energy was applied.	
x0040	Ablation Power	The ablation power applied during any part of the ablation.	

x0041	Ablation Temperature	The resulting electrode temperature measured during any part of the ablation.	
x0042	Ablation Impedance	The resulting electrode impedance measured during any part of the ablation.	
x0043	Ablation Current	The ablation current applied during any part of the ablation.	
x0044	Ablation Voltage	The ablation voltage applied during any part of the ablation.	
x0049	P-P Interval	The interval in time between sequential P waves as located from surface ECG signals.	
x0050	A-H Interval	The interval in time between the A wave and the next HIS bundle H wave as located from intracardiac signals.	
x0051	H-V Interval	The interval in time between the HIS bundle H wave and the next V wave as located from intracardiac signals.	
x0052	A-A Interval	The interval in time between sequential A waves as located from intracardiac signals.	
x0053	V-V Interval	The interval in time between sequential V waves as located from intracardiac signals.	
x0054	H-H Interval	The interval in time between sequential HIS bundle H waves as located from intracardiac signals.	
x0055	P-A Interval	The interval in time between the P wave, as located from surface ECG signals and the same A wave as located from intracardiac signals.	
x0056	V-A Interval	The interval in time between the V wave and the next A wave as located from intracardiac signals.	
x0057	A-V Interval	The interval in time between the HIS bundle H wave and the next V wave as located from intracardiac signals.	
x0060	EP Recurring Measurements	EP Recurring Measurements, report section	
x0061	Conscious Sedation Score	A numerical assessment of patient conscious sedation.	
x0062	End Tidal Carbon Dioxide	A measurement of the end-tidal respiration carbon dioxide level.	
x0063	Ablation Summary	Ablation Summary, report section	
x0065	Ablation electrode	The location where ablation energy is applied inside or outside the heart.	
x0066	Ablation Location Site	The location inside or outside the heart where ablation energy was applied.	

x0085	Conduction Interval Direction	Conduction Interval Direction	
Xev202	Recovery of induced Arrhythmia	A comment on the recovery of the patient	
Xev301	Ablation Lesion Generation	An ablation lession generated during applied ablation energy.	
Xev401	Albation Measurement	A measurement of ablation parameters.	
Xev402	Ablation Shape	A description of the ablation catheter delivery system used.	
Xev601	Arrhythmia Type Descriptor	A description of the type of arrhythmia.	
Xev602	Arrhythmia Duration	The duration in time the arrhythmia was measured to occur.	
xev603	Number of cycles	The number of sequential cardiac cycles during the arrhythmia.	
xev604	Patient Tolerance	A comment on the patient tolerance to the arrhythmia.	
xev605	Initiation Comment	A comment on the method to initiate the arrhythmia.	
xev606	Termination Comment	A comment on the method to terminate the arrhythmia.	
Xev701	Stimulation Summary	A summary of stimulation events.	
Xev702	Stimulation Description	A description of an applied stimulation events or trains.	
Xev703	Stimulation Information	Information about the stimulation event or train.	
Xev704	Stimulation Site	The catheter site where stimulation was delivered.	
Xev705	Target Location	The anatomical site where stimulation was delivered if different that xev704.	
Xev706	Pulse Current	The amount of stimulation current delivered during a pacing pulse.	
Xev707	Stimulation Intervals	The interval in time between sequential stimulation pulses.	
Xev708	Stimulation Protocol Description	A description of the stimulation protocol used to describe the pacing train.	
Xev709	Pulse Width	The width of the delivered stimulation pulse.	
Xev710	Pulse Voltage	The amount of stimulation voltage delivered during a pacing pulse.	
xev31101	Map Name	The name of acquired map.	
xev31102	Local Activation Time	The time between a reference signal and a mapping signal.	

xev31103	Unipolar Voltage	The unipolar voltage of the mapping electrode signal to a distant ground	
xev31104	Bipolar Voltage	The bipolar voltage of the mapping signal between two adjacent mapping electrodes.	
Xev31105	Map Type	The mapping system description of the type of mapping point acquired.	
Xev31106	Map Tag	A tag on the Map Type for further definition.	
Xev31107	Point Identifier	A unique text identifier as an index to the mapping point.	
Xev31201	Stimulation Applied	A description of an applied stimulation events or trains.	
Xev31203	Comment	A comment about the stimulation train or events.	
Xev31301	Stimulation Sequence	A sequence or train of stimulation pulses.	
Xev31302	Coupling Interval (cycle length)	The cycle length between an intrinsic patient signal and the next stimulation pulse.	
Xev31303	Synchronized To	The signal name of the synchonization signal.	
Xev31304	Channel Name	The name of the stimulation channel.	
xev31305	Purpose	A description of the purpose of the stimulation protocol.	
Xev31306	Electrode Configuration	A description of the stimulation electrode configuration.	
Xcid001	EP Lab Procedure Log	A log kept during an EP lab procedure.	
Xcid103	RF	Radio Frequency Ablation	
Xcid104	Cryo	Cryogenic Ablation	
Xcid105	DC	Direct Current Ablation	
Xcid106	Thermal	Thermal Ablation	
Xcid107	Laser	Laser Ablation	
Xcid108	High Frequency Ultrasound	High Frequency Ultrasound	
Xcid301	First Distal Electrode	The ablation catheter 1st distal electrode.	
Xcid302	Second Distal Electrode	The ablation catheter 2nd distal electrode.	
Xcid303	Third Distal Electrode	The ablation catheter 3rd distal electrode.	
Xcid304	Fourth Distal Electrode	The ablation catheter 4th distal electrode.	
Xcid401	AVNERP	Atrio Ventricular Node Effective Refractory Period	

Xcid402	AVNFRP	Atrio Ventricular Node Functional Refractory Period	
Xcid403	AERP	Atrial Effective Refractory Period	
Xcid404	AFRP	Atrial Functional Refractory Period	
Xcid405	VERP	Ventricular Effective Refractory Period	
Xcid406	VFRP	Ventricular Functional Refractory Period	
Xcid407	APERP	Accessory Pathway Effective Refractory Period	
Xcid408	APFRP	Accessory Pathway Functional Refractory Period	
Xcid409	APWCL-APBCL	Accessory Pathway Wenckebach Cycle Length Accessory Pathway Block Cycle Length	
Xcid410	WCL-AVBCL	Wenckebach Cycle Length Atrio Ventricular Block Cycle Length	
Xcid411	WCL-VABCL	Wenckebach Cycle Length Ventricular Atrial Block Cycle Length	
Xcid412	Ventricular Cycle Length	The R-R or V-V interval.	
Xcid413	Atrial Cycle Length	The P-P or A-A interval.	
Xcid601	S1	Stimulus Interval 1	
Xcid602	S2	Stimulus Interval 2	
Xcid603	S3	Stimulus Interval 3	
Xcid604	S4	Stimulus Interval 4	
Xcid605	S5	Stimulus Interval 5	
Xcid606	S6	Stimulus Interval 6	
xcid701	Single electrode	A single ablation electrode.	
xcid702	Circular	A circular ablation array of electrodes or single circular electrode.	
xcid703	Linear	A long linear ablation electrode or array of electrodes.	
xcid704	Balloon	A balloon shaped device use to deliver ablation energy.	
xcid705	External clamp	An external clamp used to deliver ablation energy.	