

DICOM Conformance Statement for CP150

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1 Conformance Statement Overview

The Welch Allyn CP150 DICOM software is able to query a DICOM modality worklist server and display the resulting worklist. The software has the ability to automatically send acquired ECGs as DICOM ECG Waveform objects. The table below gives a list of DICOM services supported:

1.1 Network Services

Table 1.1.1 DICOM Network Services Supported

DICOM SOP Class Name	User of Service (SCU)	Provider of Service (SCP)
Verification		
Verification SOP Class	Yes	No
Transfer		
General ECG Waveform Storage	Yes	No
12-Lead ECG Waveform Storage	Yes	No
Workflow Management		
Modality Worklist Information Model - FIND	Yes	No

1.2 Media Services

NA

2 Introduction

2.1 Audience

This document is the DICOM Conformance Statement for Welch Allyn CP150 device with DICOM Communication option. It is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

2.2 Remarks

The final purpose of this DICOM Conformance Statement is to facilitate the integration between DICOM-enabled CP150 and other DICOM projects. The Conformance Statement should be read and understood in conjunction with the DICOM standard. DICOM by itself does not guarantee interoperability. However, the Conformance Statement provides a first-level comparison for interoperability between different systems supporting compatible DICOM functionalities.

This Conformance Statement is not intended for replacing additional validation protocols to ensure proper exchange of information with other DICOM products.

2.3 Terms and Definitions

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Table 2.3.1 Definitions

Abstract Syntax	The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, General ECG Waveform Storage.
Application Entity (AE)	An end point of a DICOM information exchange, including the DICOM network or media interface software. (i.e. the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities).
Application Entity Title (AET)	The externally known name of an Application Entity, used to identify a DICOM application to other DICOM applications on the network.
Application Context	The specification of the type of communication used between Application Entities. Example: DICOM network protocol.
Association	A network communication channel set up between Application Entities.
Attribute	A unit of information in an object definition; a data element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower level data elements.

	Examples: Patient ID (0010, 0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).
Information Object Definition (IOD)	<p>The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties.</p> <p>The Attributes are specified as following:</p> <ul style="list-style-type: none"> • Mandatory (Type 1), • Required but possibly unknown (Type 2) • Optional (Type 3). • There may be conditions associated with the use of an Attribute (Types 1C and 2C). <p>Examples: General ECG Waveform IOD.</p>
Media Application Profile	The specification of DICOM information objects and encoding exchanged on removable media (e.g., USB)
Module	<p>A set of Attributes within an Information Object Definition that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.</p> <p>The Usage of Module Group is described below:</p> <ul style="list-style-type: none"> • Mandatory is abbreviated as "M" • Conditional is abbreviated as "C" • User Option is abbreviated as "U"
Negotiation	First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.
Presentation Context	The set of DICOM network services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.
Protocol Data Unit (PDU)	A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
Security Profile	A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data
Service Class Provider (SCP)	<p>Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User).</p> <p>Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).</p>
Service Class User (SCU)	<p>Role of an Application Entity that uses a DICOM network service; typically, a client.</p> <p>Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU).</p>
Service/Object Pair Class (SOP Class)	The specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM

	interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
Service/Object Pair Instance (SOP Instance)	An information object; a specific occurrence of information exchanged in a SOP Class. Examples: a specific x-ray image.
Tag	A 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the "group" and the "element".
Transfer Syntax	The encoding used for exchange of DICOM information objects and messages. Examples: little endian explicit value representation.
Unique Identifier (UID)	A globally unique "dotted decimal" string that identifies a specific object or a class of objects.
Value Representation (VR)	The format type of an individual DICOM data element, such as text, an integer, a person's name, or a code.
SCPECG	Standard Communications Protocol for Computer-Assisted Electrocardiography, Draft proposal for ISO Standard, AAMI, Revision 1.3
MDC	ISO/IEEE 11073 Medical Device Nomenclature, including all its subsections(-10101, -10102, etc.), encoded as decimal strings <partition>:<element>

2.4 Abbreviations

- MWL → Modality Worklist
- MPPS → Modality Performed Procedure Step
- PACS → Picture Archiving and Communications System

2.5 References

[DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1–3.18, 2015b

2.6 DICOM solution software components

The following software components are required for the CP150 DICOM solution:

1. CP150 2.10.06

2.7 SUPPORT OF EXTENDED CHARACTER SETS

CP150 supports the following character sets when processing MWL responses:

Table 2.7.1 Character Set

Character Set Description	Defined Term
Latin alphabet No. 1	ISO_IR 100

Character Set Description	Defined Term
Latin alphabet No. 2	ISO_IR 101
Simplified Chinese	GB18030
Cyrillic	ISO_IR 144
Unicode in UTF-8	ISO_IR 192
Thai	ISO_IR 166

CP150 supports the following character sets for Storage:

Table 2.7.2 Character set for Storage

Character Set Description	Defined Term
Unicode in UTF-8	ISO_IR 192

3 Networking

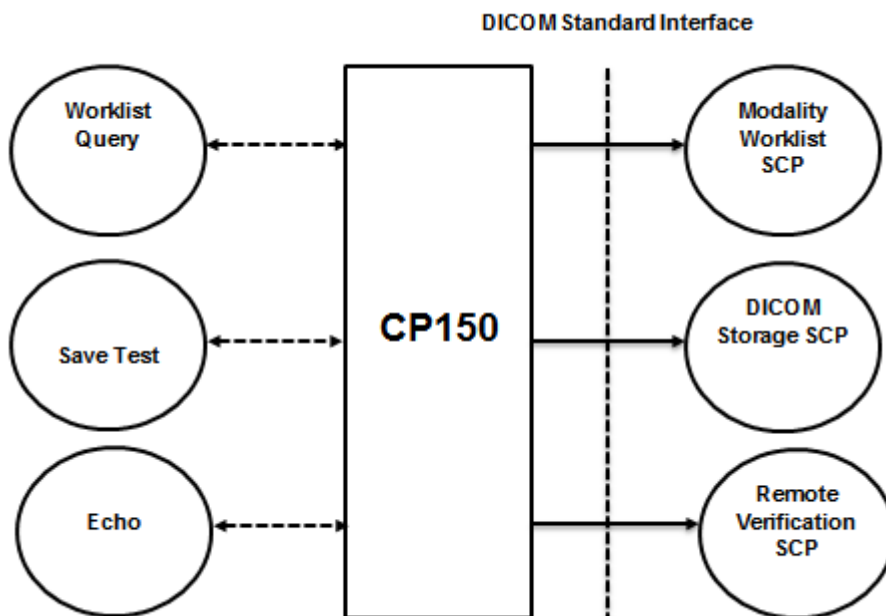
3.1 Implementation Model

3.1.1 Application Dataflow Diagram

The CP150 with DICOM option is designed to query a configured DICOM Modality Worklist server for a worklist. CP150 DICOM displays the result of the worklist query and allows user to select from worklist and perform test.

When CP150 acquires an ECG, the software converts the ECG to a Waveform object. The software then sends this object to a pre-configured Storage SCP, normally a PACS.

Figure 3.1.1 Network Dataflow Diagram



3.1.2 Functional Definitions of Application Entities

3.1.2.1 Functional Definition of Worklist query

Modality worklist is used to get the worklist through a selected query on CP150 device. When an association is established to a remote AE, worklist items matching with specified criteria are transferred through the open association.

Worklist items pertaining to ECG are transferred through the open Association. The results will be displayed in CP150.

3.1.2.2 Functional Definition of Storage

After acquiring one or more ECGs, the operator can initiate a single or batch transmission of ECGs from CP150 to the configured Storage SCP. Each ECG is sent as either a General ECG waveform object or a 12-Lead ECG waveform object based on configuration. (Refer to 3.4)

On saving test to Workstation request, CP150 initiates an association, a C-STORE request is sent to Storage SCP. Based on server's response status, CP150 shall update locally-saved test record's transfer status.

3.1.2.3 Functional Definition of Echo Request

An Echo Request is sent from CP150 to verify that SCP is awake and listening

3.1.3 Sequencing of Real World Activities

A scheduled test follows below sequence of activities as described below:

1. User queries for worklist from CP150
2. Worklist is displayed in CP150 and Clinician selects work item from Worklist
3. Clinician complete ECG acquisition
4. Send ECG test as Composite instance

Note: Modality worklist query is not applicable in case of an unscheduled test. Rest of the sequence of activities remains same.

3.2 AE Specifications

3.2.1 Application Entity Specification

3.2.1.1 SOP Classes

CP150 provides Standard Conformance to the following SOP classes:

Table 3.2.1 SOP Classes for AE Work Flow

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Yes	No

This Application Entity provides Standard Extended Conformance to the following SOP Classes:

3.2.1.2 Standard Extended SOP Classes

Table 3.2.2 Extended SOP Class for ECG Waveform

SOP Class Name	SOP Class UID	SCU	SCP
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
12-Lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No

3.2.1.3 Association Policies

3.2.1.3.1 General

The standard Application Context Name is used:

Table 3.2.3 DICOM Application Context for AE Workflow

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

3.2.1.3.2 Number of Associations

Table 3.2.4 Number of Associations as an Association Initiator

Maximum number of simultaneous associations	1
---	---

Table 3.2.5 Number of Associations as an Association Acceptor

Maximum number of simultaneous associations	0
---	---

3.2.1.3.3 Asynchronous Nature

Table 3.2.6 Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	0
---	---

3.2.1.3.4 Implementation Identifying Information

Table 3.2.7 DICOM Implementation Class and Version for AE Work flow

Implementation Class UID	1.3.6.1.4.1.46931.150.2.10.06
Implementation Version Name	CP150_2_10_06

3.2.1.4 Association Initiation Policy

3.2.1.4.1 Real-World Activity: Modality Worklist Query

3.2.1.4.1.1 Description and Sequencing of Real World Activities

See section 3.1.2.1 for a description of Modality Worklist Query

3.2.1.4.1.2 Proposed Presentation Contexts

Table 3.2.8 Proposed Presentation Contexts for Modality Worklist Update

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.1.4.1.3 SOP Specific Conformance for Modality Worklist

The following elements can be used as query fields to filter the Modality Worklist.

Table 3.2.9 Modality Worklist C-FIND Request Identifiers

Attribute Name	Tag	Comment	Type
Modality	(0008,0060)	Default is "ECG"	1
Scheduled Procedure Step Start Date	(0040,0002)	The scheduled dates of procedures of interest can be specified for query by selecting a specific date range. CP150 Device shall use current date in UTC time to form date range matching criteria.	1
Scheduled Procedure Step Start Time	(0040,0003)	Leave as blank.	1

Scheduled Station AE Title	(0040,0001)	Based on configuration. (Refer to 3.4.1) From CP150 GUI (Local AE Title).	1
Current Patient Location	(0038,0300)	Based on configuration. (Refer to 3.4.1) From CP150 GUI (Device ID)	2
Institution Name	(0008,0080)	Based on configuration. (Refer to 3.4.1) From CP150 GUI (Practice ID)	2
Patient ID	(0010,0020)	Patient Search functionality (Patient ID) Input shall be appended with wild card “*”.	1
Patient Name	(0010,0010)	Patient Search functionality (Last Name) Input shall be appended with wild card “*”.	1
Specific Character Set	(0008,0005)	“ISO_IR 192”. (Default to UTF-8 encoding) Refer to section 2.7 for supported values in MWL response processing.	1C

The following elements are used from the returned Modality Worklist.

Table 3.2.10 Modality Worklist C-FIND Response

Attribute Name	Tag	Comment	Type
Scheduled Procedure Step Sequence	(0040,0100)	The Attributes of the Scheduled Procedure Step shall only be retrieved with Sequence Matching.	1
>Scheduled Station AE Title	(0040,0001)	Not displayed.	1
>Scheduled Procedure Step Start Date	(0040,0002)	CP150 device shall do further filtering based on current date in UTC time. Not displayed.	1
>Scheduled Procedure Step Start Time	(0040,0003)	CP150 device shall do further filtering based on current date in UTC time. Not displayed.	1
>Modality	(0008,0060)	Expected as “ECG”.	1
>Scheduled Procedure Step Description	(0040,0007)	Not displayed. It is saved so it can be included in the DICOM object.	1C

>Scheduled Station Name	(0040,0010)	Not displayed.	2
>Scheduled Procedure Step Location	(0040,0011)	Not displayed.	2
>Scheduled Procedure Step ID	(0040,0009)	Not displayed. It is saved so it can be included in the DICOM object.	1
Requested Procedure ID	(0040,1001)	Not displayed. It is saved so it can be included in the DICOM object.	1
Requested Procedure Description	(0032,1060)	Not displayed. It is saved so it can be included in the DICOM object.	1C
Study Instance UID	(0020,000D)	Unique identifier to be used to identify the Study. Displayed as Order ID when Accession Number is empty. It is saved so it can be included in the DICOM object.	1
Accession Number	(0008,0050)	A number that identifies the order for the study (Order ID). It is saved so it can be included in the DICOM object.	2
Referring Physician's Name	(0008,0090)	Not displayed. It is saved so it can be included in the DICOM object.	2
Admission ID	(0038,0010)	Not displayed. It is saved so it can be included in the DICOM object.	2
Patient's Name	(0010,0010)	Patient's full name. (Patient Last name, First name, Middle initial).	1
Patient ID	(0010,0020)	Primary hospital identification number or code for the patient. (Patient ID).	1
Patients Birth Date	(0010,0030)	Date of birth of the named patient. (Birth date)	2
Patient's Sex	(0010,0040)	Sex of the named Patient. (Gender) Enumerated Values: M = male F = female	2

		O = other	
Patient's Weight	(0010,1030)	Weight of the patient in kilograms. (Weight)	2
Patient's Size	(0010,1020)	Patient's height or length in meters. (Height)	3
Ethnic Group	(0010,2160)	Ethnic group or race of the patient. Refer to Appendix A for CP150's supported Ethnic Group values.(Race)	3

3.2.1.4.2 Real-World Activity: Save ECG

3.2.1.4.2.1 Description and Sequencing of Activities

See section 3.1.2.2 for a description of ECG saving activity.

3.2.1.4.2.2 Proposed Presentation Contexts

Table 3.2.11 Proposed Presentation Context to Save ECG

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
12-Lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.1.4.2.3 SOP Specific Conformance for ECG Waveform Storage

The behavior of the CP150 (as Storage SCU) when encountering status codes in a C-STORE response is summarized in the table below:

Table 3.2.12 C-STORE Response Status Handling Behavior

Service Status	Status Code	Behavior
Success	0000	Storage is considered as success.
Warning	Bxxx	Storage is considered as success. Known warning status shall be logged.
*	Any other status code.	Storage is considered as failure. Known error status shall be logged.

The content of 12-Lead / General ECG Waveform SOP Instances created by CP150 DICOM are summarized in following tables. All attributes conform to the 12-Lead and the General ECG Waveform SOP class specification (refer to Table A.34.3 and Table A.34.4 in DICOM Standard PS 3.3). Attributes not listed in tables shall be considered as "Not used".

Table 3.2.13 ECG Waveform IOD Modules

IE	Module	Reference	Usage
Patient	Patient	Patient Module Attributes	M
Study	General Study	General Study Module Attributes	M
	Patient Study	Patient Study Module Attributes	U
Series	General Series	General Series Module Attributes	M
Equipment	General Equipment	General Equipment Module Attributes	M
Waveform	Waveform Identification	Waveform Identification Module Attributes	M
	Waveform	Waveform Module Attributes	M
	Acquisition Context	Acquisition Context Module Attributes	M
	Waveform Annotation	Waveform Annotation Module Attributes	C
	SOP Common	SOP Common Module Attributes	M
N.A.	Visit Status	Additional Attributes	U

Table 3.2.14 Patient Module Attributes

Attribute Name	Tag	Comment	Type
Patient's Name	(0010,0010)	From MWL Response or User input (Patient Last name / First name / Middle initial) Note: Patient's Name shall contain the value of Component Group 0 only.	2
Patient ID	(0010,0020)	From MWL Response or User input (Patient ID)	2
Patient's Birth Date	(0010,0030)	From MWL Response or User input (Birth date)	2
Patient's Sex	(0010,0040)	From MWL Response or User input (Gender)	2
Patient Comments	(0010,4000)	User-defined additional information about the patient. (Comments)	3
Ethnic Group	(0010,2160)	From MWL Response or User input (Race) Refer to Appendix A for CP150's supported Ethnic Group values.	3

Table 3.2.15 General Study Module Attributes

Attribute Name	Tag	Attribute Description	Type
Study Instance UID	(0020,000D)	From MWL Response or Unique value generated by CP150 in case of Unscheduled test	1
Study Date	(0008,0020)	ECG acquisition date (device local time)	2
Study Time	(0008,0030)	ECG acquisition time (device local time)	2
Referring Physician's Name	(0008,0090)	From MWL Response or empty in case of Unscheduled test	2
Study ID	(0020,0010)	From MWL Response's <i>Requested Procedure ID (0040,1001)</i> or set to "1" in case of Unscheduled test.	2
Accession Number	(0008,0050)	From MWL Response or empty in case of Unscheduled test	2

Table 3.2.16 Patient Study Module Attributes

Attribute Name	Tag	Attribute Description	Type
Patient's Size	(0010,1020)	From MWL Response or User input (Height)	3
Patient's Weight	(0010,1030)	From MWL Response or User input (Weight)	3
Patient's Age	(0010,1010)	Age of the patient	3
Admission ID	(0038,0010)	From MWL Response or empty in case of Unscheduled test	3

Table 3.2.17 General Series Module Attributes

Attribute Name	Tag	Attribute Description	Type
Modality	(0008,0060)	"ECG"	1
Series Instance UID	(0020,000E)	Uniquely generated by CP150.	1
Series Number	(0020,0011)	Empty.	2
Performing Physician's Name	(0008,1050)	User input (Physician)	3
Referenced Performed Procedure Step Sequence	(0008,1111)	Uniquely identifies the Performed Procedure Step SOP Instance to which the Series is related. Only a single Item is permitted in this sequence.	3
>Referenced SOP Class UID	(0008,1150)	Performed Procedure Step SOP Class "1.2.840.10008.3.1.2.3.3"	1
>Referenced SOP Instance UID	(0008,1155)	Uniquely generated by CP150.	1
Protocol Name	(0018,1030)	Not supported.	3
Request Attributes Sequence	(0040,0275)	From MWL response. Otherwise not included.	3
>Requested Procedure ID	(0040,1001)	From MWL response	1C
>Requested Procedure	(0032,1060)	From MWL response	3

Attribute Name	Tag	Attribute Description	Type
Description			
>Scheduled Procedure Step ID	(0040,0009)	From MWL response	1C
>Scheduled Procedure Step Description	(0040,0007)	From MWL response	3
Performed Protocol Code Sequence	(0040,0260)	Sequence describing the Protocol performed for the Procedure Step creating the sources. One or more Items shall be included in this Sequence. Required if present and consistent in the contributing SOP Instances Needed to distinguish resting ECGs from other ECG types. ONLY PRESENT FOR GENERAL ECG WAVEFORM SOP CLASS OUTPUT.	1
> Code Value	(0008,0100)	"P2-3120A"	1C
>Coding Scheme Designator	(0008,0102)	"SRT"	1C
>Code Meaning	(0008,0104)	"12-lead ECG"	1C

Table 3.2.18 General Equipment Module Attributes

Attribute Name	Tag	Attribute Description	Type
Manufacturer	(0008,0070)	Manufacturer of the equipment that produced the composite instances. "Welch Allyn"	2
Station Name	(0008,1010)	User defined name identifying the machine that produced the composite instances. Set to CP150's Serial number	3
Institution Name	(0008,0080)	Institution where the equipment that produced the composite instances is located. (Practice ID)	3
Manufacturer's	(0008,1090)	Manufacturer's model name of the equipment that	3

Attribute Name	Tag	Attribute Description	Type
Model Name		produced the composite instances.	
Device Serial Number	(0018,1000)	Manufacturer's serial number of the equipment that produced the composite instances. CP150's Serial number	3
Software Versions	(0018,1020)	Manufacturer's designation of software version of the equipment that produced the composite instances CP150's software version.	3

Table 3.2.19 Waveform Identification Module Attributes

Attribute Name	Tag	Attribute Description	Type
Instance Number	(0020,0013)	A number that identifies this Waveform. This shall be "1".	1
Content Date	(0008,0023)	ECG acquisition date (device local time)	1
Content Time	(0008,0033)	ECG acquisition time (device local time)	1
Acquisition Date Time	(0008,002A)	ECG acquisition date/time (device local time)	1

Table 3.2.20 Waveform Module Attributes

Attribute Name	Tag	Attribute Description	Type
Waveform Sequence	(5400,0100)	Sequence of one or more Items, each representing one waveform multiplex group. Ordering of Items in this Sequence is significant for external reference to specific multiplex groups. This shall have 1 or 2 multiplex groups, one for rhythm data (first group) and one for median data (second group, if present).	1
>Waveform Originality	(003A,0004)	Rhythm: "ORIGINAL" Median: "DERIVED"	1
>Number of Waveform	(003A,0005)	Number of channels (leads) for this multiplex group. This shall be "12".	1

Attribute Name	Tag	Attribute Description	Type
Channels			
>Number of Waveform Samples	(003A,0010)	Number of samples per channel (lead) in this multiplex group.	1
>Sampling Frequency	(003A,001A)	Frequency in Hz. This shall be "500" or "1000".	1
>Multiplex Group Label	(003A,0020)	Label for multiplex group Rhythm: "RHYTHM" Median: "MEDIAN_BEAT"	3
>Channel Definition Sequence	(003A,0200)	There shall be 12 items, one for each channel (lead)	1
>>Channel Label	(003A,0203)	Text label for channel, which may be used for display purposes	3
>>Channel Status	(003A,0205)	One or more values for the status of this channel within this SOP Instance. Defined Terms: OK INVALID	3
>>Channel Source Sequence	(003A,0208)	Context ID CID 3001 ECG Leads	1

Attribute Name	Tag	Attribute Description	Type																																							
>>> Code Value	(0008,0100)	Possible values: <table border="1" data-bbox="715 407 1198 1214"> <thead> <tr> <th>Lead</th> <th>MDC</th> <th>SCPECG</th> </tr> </thead> <tbody> <tr> <td>Lead I</td> <td>"2:1"</td> <td>"5.6.3-9-1"</td> </tr> <tr> <td>Lead II</td> <td>"2:2"</td> <td>"5.6.3-9-2"</td> </tr> <tr> <td>Lead III</td> <td>"2:61"</td> <td>"5.6.3-9-61"</td> </tr> <tr> <td>Lead aVR</td> <td>"2:62"</td> <td>"5.6.3-9-62"</td> </tr> <tr> <td>Lead aVL</td> <td>"2:63"</td> <td>"5.6.3-9-63"</td> </tr> <tr> <td>Lead aVF</td> <td>"2:64"</td> <td>"5.6.3-9-64"</td> </tr> <tr> <td>Lead V1</td> <td>"2:3"</td> <td>"5.6.3-9-3"</td> </tr> <tr> <td>Lead V2</td> <td>"2:4"</td> <td>"5.6.3-9-4"</td> </tr> <tr> <td>Lead V3</td> <td>"2:5"</td> <td>"5.6.3-9-5"</td> </tr> <tr> <td>Lead V4</td> <td>"2:6"</td> <td>"5.6.3-9-6"</td> </tr> <tr> <td>Lead V5</td> <td>"2:7"</td> <td>"5.6.3-9-7"</td> </tr> <tr> <td>Lead V6</td> <td>"2:8"</td> <td>"5.6.3-9-8"</td> </tr> </tbody> </table>	Lead	MDC	SCPECG	Lead I	"2:1"	"5.6.3-9-1"	Lead II	"2:2"	"5.6.3-9-2"	Lead III	"2:61"	"5.6.3-9-61"	Lead aVR	"2:62"	"5.6.3-9-62"	Lead aVL	"2:63"	"5.6.3-9-63"	Lead aVF	"2:64"	"5.6.3-9-64"	Lead V1	"2:3"	"5.6.3-9-3"	Lead V2	"2:4"	"5.6.3-9-4"	Lead V3	"2:5"	"5.6.3-9-5"	Lead V4	"2:6"	"5.6.3-9-6"	Lead V5	"2:7"	"5.6.3-9-7"	Lead V6	"2:8"	"5.6.3-9-8"	1C
Lead	MDC	SCPECG																																								
Lead I	"2:1"	"5.6.3-9-1"																																								
Lead II	"2:2"	"5.6.3-9-2"																																								
Lead III	"2:61"	"5.6.3-9-61"																																								
Lead aVR	"2:62"	"5.6.3-9-62"																																								
Lead aVL	"2:63"	"5.6.3-9-63"																																								
Lead aVF	"2:64"	"5.6.3-9-64"																																								
Lead V1	"2:3"	"5.6.3-9-3"																																								
Lead V2	"2:4"	"5.6.3-9-4"																																								
Lead V3	"2:5"	"5.6.3-9-5"																																								
Lead V4	"2:6"	"5.6.3-9-6"																																								
Lead V5	"2:7"	"5.6.3-9-7"																																								
Lead V6	"2:8"	"5.6.3-9-8"																																								
>>>Coding Scheme Designator	(0008,0102)	For MDC: "MDC". For SCPECG: "SCPECG".	1C																																							
>>> Code Scheme Version	(0008,0103)	For MDC: this shall not be present. For SCPECG: this shall be "1.3".	1C																																							

Attribute Name	Tag	Attribute Description	Type																								
>>>Code Meaning	(0008,0104)	Lead name <table border="1" data-bbox="715 409 1080 1153"> <tr><td>Lead I</td><td>"Lead I"</td></tr> <tr><td>Lead II</td><td>"Lead II"</td></tr> <tr><td>Lead III</td><td>"Lead III"</td></tr> <tr><td>Lead aVR</td><td>"Lead aVR"</td></tr> <tr><td>Lead aVL</td><td>"Lead aVL"</td></tr> <tr><td>Lead aVF</td><td>"Lead aVF"</td></tr> <tr><td>Lead V1</td><td>"Lead V1"</td></tr> <tr><td>Lead V2</td><td>"Lead V2"</td></tr> <tr><td>Lead V3</td><td>"Lead V3"</td></tr> <tr><td>Lead V4</td><td>"Lead V4"</td></tr> <tr><td>Lead V5</td><td>"Lead V5"</td></tr> <tr><td>Lead V6</td><td>"Lead V6"</td></tr> </table>	Lead I	"Lead I"	Lead II	"Lead II"	Lead III	"Lead III"	Lead aVR	"Lead aVR"	Lead aVL	"Lead aVL"	Lead aVF	"Lead aVF"	Lead V1	"Lead V1"	Lead V2	"Lead V2"	Lead V3	"Lead V3"	Lead V4	"Lead V4"	Lead V5	"Lead V5"	Lead V6	"Lead V6"	1C
Lead I	"Lead I"																										
Lead II	"Lead II"																										
Lead III	"Lead III"																										
Lead aVR	"Lead aVR"																										
Lead aVL	"Lead aVL"																										
Lead aVF	"Lead aVF"																										
Lead V1	"Lead V1"																										
Lead V2	"Lead V2"																										
Lead V3	"Lead V3"																										
Lead V4	"Lead V4"																										
Lead V5	"Lead V5"																										
Lead V6	"Lead V6"																										
>>Channel Sensitivity	(003A,0210)	This is the Least Significance Bit in microvolts.	1C																								
>>Channel Sensitivity Units Sequence	(003A,0211)	A coded descriptor of the Units of measure for the Channel Sensitivity. Only a single Item shall be permitted in this sequence.	1C																								
>>> Code Value	(0008,0100)	"uV"	1C																								
>>>Coding Scheme Designator	(0008,0102)	"UCUM"	1C																								
>>> Coding Scheme Version	(0008,0103)	"1.4"	1C																								
>>>Code Meaning	(0008,0104)	"microvolt"	1C																								
>>Channel Sensitivity Correction Factor	(003A,0212)	This shall be "1".	1C																								
>>Channel	(003A,0213)	This shall be "0".	1C																								

Attribute Name	Tag	Attribute Description	Type
Baseline			
>>Channel Sample Skew	(003A,0215)	This shall be "0".	1C
>>Waveform Bits Stored	(003A,021A)	This shall be "16".	1
>>Filter Low Frequency	(003A,0220)	Nominal 3dB point of lower frequency of pass band; in Hz (Low Pass filter)	3
>>Filter High Frequency	(003A,0221)	Nominal 3dB point of upper frequency of pass band; in Hz (High Pass filter)	3
>>Notch Filter Frequency	(003A,0222)	Center frequency of notch filter(s); in Hz	3
>Waveform Bits Allocated	(5400,1004)	This shall be "16".	1
>Waveform Sample Interpretation	(5400,1006)	Data representation of the waveform data points. This shall be "SS", i.e. signed short.	1
>Waveform Data	(5400,1010)	Encoded ECG data samples - channel multiplexed.	1

Table 3.2.21 Acquisition Context Module Attributes

Attribute Name	Tag	Attribute Description	Type						
Acquisition Context Sequence	(0040,0555)	Template TID 3401 can be used. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>VT</th> <th>Concept Name</th> <th>Value Set Constraint</th> </tr> </thead> <tbody> <tr> <td>CODE</td> <td>DT (10:11345, MDC, "Lead System") or (5.4.5-33-1, SCPECG, 1.3, "Electrode Placement")</td> <td>BCID 3263 "Electrode Placement Values"</td> </tr> </tbody> </table>	VT	Concept Name	Value Set Constraint	CODE	DT (10:11345, MDC, "Lead System") or (5.4.5-33-1, SCPECG, 1.3, "Electrode Placement")	BCID 3263 "Electrode Placement Values"	2
		VT	Concept Name	Value Set Constraint					
CODE	DT (10:11345, MDC, "Lead System") or (5.4.5-33-1, SCPECG, 1.3, "Electrode Placement")	BCID 3263 "Electrode Placement Values"							
>Value Type	(0040,A040)	The type of the value encoded in this Item.	3						

Attribute Name	Tag	Attribute Description	Type
		Defined Terms: CODE	
>Concept Name Code Sequence	(0040,A043)	A concept that constrains the meaning of (i.e., defines the role of) the Observation Value. The "Name" component of a Name/Value pair. Only a single Item shall be included in this sequence.	1
>> Code Value	(0008,0100)	For MDC: "10:11345" For SCPECG: "5.4.5-33-1"	1C
>> Coding Scheme Designator	(0008,0102)	For MDC: "MDC". For SCPECG: "SCPECG".	1C
>> Code Scheme Version	(0008,0103)	For MDC: this shall not be present. For SCPECG: this shall be "1.3".	1C
>> Code Meaning	(0008,0104)	For MDC: "Lead System". For SCPECG: "Electrode Placement".	1C
>Concept Code Sequence	(0040,A168)	CID 3263 can be used	1C
>> Code Value	(0008,0100)	For MDC: This shall be "10:11265". For SCPECG: this shall be "5.4.5-33-1-1".	1C
>>Coding Scheme Designator	(0008,0102)	For MDC: "MDC". For SCPECG: "SCPECG".	1C
>> Code Scheme Version	(0008,0103)	For MDC: this shall not be present. For SCPECG: this shall be "1.3".	1C
>>Code Meaning	(0008,0104)	For MDC: "Standard 12-lead positions, electrodes placed individually". For SCPECG: "Standard 12-lead positions: limb leads placed at extremities".	1C

Table 3.2.22 Waveform Annotation Module Attributes

Attribute Name	Tag	Attribute Description	Type																		
Waveform Annotation Sequence	(0040,B020)	Sequence of Annotation Items. One or more items shall be included in this sequence.	1																		
<i>For the Interpretation Statements: The Annotation Group Number will be "0" and there will be one item per statement.</i>																					
>Annotation Group Number	(0040,A180)	Number identifying associated annotations. This shall be "0".	3																		
>Unformatted Text Value	(0070,0006)	Text Observation Value (annotation). Note: Interpretation statement text	1C																		
>Referenced Waveform Channels	(0040,A0B0)	List of channels in waveform to which annotation applies. This shall be "0001 0000"	1																		
<i>For the Global Measurements: The Annotation Group Number will be "1" and there will be one item per measurement. Only measurements that have a value will be present.</i>																					
>Annotation Group Number	(0040,A180)	Number identifying associated annotations. This shall be "1".	3																		
>Concept Name Code Sequence	(0040,A043)	Code representing the fully specified name of the NUMERIC measurement or CODED concept. Only a single Item shall be included in this sequence. Mutually exclusive with Text Value (0070,0006).	1C																		
>> Code Value	(0008,0100)	Measurement code value <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code Meaning</th> <th>MDC</th> <th>SCPECG</th> </tr> </thead> <tbody> <tr> <td>VRate</td> <td>"2:16016"</td> <td>"5.10.2.5-1"</td> </tr> <tr> <td>P Duration</td> <td>"2:16184"</td> <td>"5.13.5-5"</td> </tr> <tr> <td>PQ Duration</td> <td>"2:16144"</td> <td>N.A.</td> </tr> <tr> <td>PR Interval</td> <td>"2:15872"</td> <td>"5.13.5-7"</td> </tr> <tr> <td>QRS Duration</td> <td>"2:16156"</td> <td>"5.13.5-9"</td> </tr> </tbody> </table>	Code Meaning	MDC	SCPECG	VRate	"2:16016"	"5.10.2.5-1"	P Duration	"2:16184"	"5.13.5-5"	PQ Duration	"2:16144"	N.A.	PR Interval	"2:15872"	"5.13.5-7"	QRS Duration	"2:16156"	"5.13.5-9"	1C
Code Meaning	MDC	SCPECG																			
VRate	"2:16016"	"5.10.2.5-1"																			
P Duration	"2:16184"	"5.13.5-5"																			
PQ Duration	"2:16144"	N.A.																			
PR Interval	"2:15872"	"5.13.5-7"																			
QRS Duration	"2:16156"	"5.13.5-9"																			

Attribute Name	Tag	Attribute Description	Type																				
		<table border="1"> <tr> <td>QT Interval</td> <td>"2:16160"</td> <td>"5.13.5-11"</td> </tr> <tr> <td>QTc Interval</td> <td>"2:15876"</td> <td>"5.10.2.5-5"</td> </tr> <tr> <td>P Axis</td> <td>"2:16128"</td> <td>"5.10.3-11"</td> </tr> <tr> <td>QRS Axis</td> <td>"2:16132"</td> <td>"5.10.3-13"</td> </tr> <tr> <td>T Axis</td> <td>"2:16136"</td> <td>"5.10.3-15"</td> </tr> </table>	QT Interval	"2:16160"	"5.13.5-11"	QTc Interval	"2:15876"	"5.10.2.5-5"	P Axis	"2:16128"	"5.10.3-11"	QRS Axis	"2:16132"	"5.10.3-13"	T Axis	"2:16136"	"5.10.3-15"						
QT Interval	"2:16160"	"5.13.5-11"																					
QTc Interval	"2:15876"	"5.10.2.5-5"																					
P Axis	"2:16128"	"5.10.3-11"																					
QRS Axis	"2:16132"	"5.10.3-13"																					
T Axis	"2:16136"	"5.10.3-15"																					
>>Coding Scheme Designator	(0008,0102)	For MDC: "MDC". For SCPECG: "SCPECG".	1C																				
>> Code Scheme Version	(0008,0103)	For MDC: this shall not be present. For SCPECG: this shall be "1.3".	1C																				
>>Code Meaning	(0008,0104)	Measurement name: <table border="1"> <tr> <td>VRate</td> <td>"Ventricular Heart Rate"</td> </tr> <tr> <td>P Duration</td> <td>"P Duration"</td> </tr> <tr> <td>PQ Duration</td> <td>"PQ Duration"</td> </tr> <tr> <td>PR Interval</td> <td>"PR Interval"</td> </tr> <tr> <td>QRS Duration</td> <td>"QRS Duration"</td> </tr> <tr> <td>QT Interval</td> <td>"QT Interval"</td> </tr> <tr> <td>QTc Interval</td> <td>"QTc Interval"</td> </tr> <tr> <td>P Axis</td> <td>"P Axis"</td> </tr> <tr> <td>QRS Axis</td> <td>"QRS Axis"</td> </tr> <tr> <td>T Axis</td> <td>"T Axis"</td> </tr> </table>	VRate	"Ventricular Heart Rate"	P Duration	"P Duration"	PQ Duration	"PQ Duration"	PR Interval	"PR Interval"	QRS Duration	"QRS Duration"	QT Interval	"QT Interval"	QTc Interval	"QTc Interval"	P Axis	"P Axis"	QRS Axis	"QRS Axis"	T Axis	"T Axis"	1
VRate	"Ventricular Heart Rate"																						
P Duration	"P Duration"																						
PQ Duration	"PQ Duration"																						
PR Interval	"PR Interval"																						
QRS Duration	"QRS Duration"																						
QT Interval	"QT Interval"																						
QTc Interval	"QTc Interval"																						
P Axis	"P Axis"																						
QRS Axis	"QRS Axis"																						
T Axis	"T Axis"																						
>Numeric Value	(0040,A30A)	Numeric measurement value or values	3																				
>Measurement Units Code Sequence	(0040,08EA)	Units of measurement. Only a single Item is permitted in this sequence.	3																				

Attribute Name	Tag	Attribute Description	Type																				
>> Code Value	(0008,0100)	Measurement unit designator <table border="1"> <tr> <td>VRate</td> <td>"{H.B.}/min "</td> </tr> <tr> <td>P Duration</td> <td>"ms"</td> </tr> <tr> <td>PQ Duration</td> <td>"ms"</td> </tr> <tr> <td>PR Interval</td> <td>"ms"</td> </tr> <tr> <td>QRS Duration</td> <td>"ms"</td> </tr> <tr> <td>QT Interval</td> <td>"ms"</td> </tr> <tr> <td>QTc Interval</td> <td>"ms"</td> </tr> <tr> <td>P Axis</td> <td>"deg"</td> </tr> <tr> <td>QRS Axis</td> <td>"deg"</td> </tr> <tr> <td>T Axis</td> <td>"deg"</td> </tr> </table>	VRate	"{H.B.}/min "	P Duration	"ms"	PQ Duration	"ms"	PR Interval	"ms"	QRS Duration	"ms"	QT Interval	"ms"	QTc Interval	"ms"	P Axis	"deg"	QRS Axis	"deg"	T Axis	"deg"	1C
VRate	"{H.B.}/min "																						
P Duration	"ms"																						
PQ Duration	"ms"																						
PR Interval	"ms"																						
QRS Duration	"ms"																						
QT Interval	"ms"																						
QTc Interval	"ms"																						
P Axis	"deg"																						
QRS Axis	"deg"																						
T Axis	"deg"																						
>>Coding Scheme Designator	(0008,0102)	"UCUM"	1C																				
>> Coding Scheme Version	(0008,0103)	"1.4"	1C																				
>>Code Meaning	(0008,0104)	<table border="1"> <tr> <td>VRate</td> <td>"heart beats per minute"</td> </tr> <tr> <td>P Duration</td> <td>"millisecond"</td> </tr> <tr> <td>PQ Duration</td> <td>"millisecond"</td> </tr> <tr> <td>PR Interval</td> <td>"millisecond"</td> </tr> <tr> <td>QRS Duration</td> <td>"millisecond"</td> </tr> <tr> <td>QT Interval</td> <td>"millisecond"</td> </tr> <tr> <td>QTc Interval</td> <td>"millisecond"</td> </tr> <tr> <td>P Axis</td> <td>"degree"</td> </tr> <tr> <td>QRS Axis</td> <td>"degree"</td> </tr> <tr> <td>T Axis</td> <td>"degree"</td> </tr> </table>	VRate	"heart beats per minute"	P Duration	"millisecond"	PQ Duration	"millisecond"	PR Interval	"millisecond"	QRS Duration	"millisecond"	QT Interval	"millisecond"	QTc Interval	"millisecond"	P Axis	"degree"	QRS Axis	"degree"	T Axis	"degree"	1C
VRate	"heart beats per minute"																						
P Duration	"millisecond"																						
PQ Duration	"millisecond"																						
PR Interval	"millisecond"																						
QRS Duration	"millisecond"																						
QT Interval	"millisecond"																						
QTc Interval	"millisecond"																						
P Axis	"degree"																						
QRS Axis	"degree"																						
T Axis	"degree"																						
>Referenced Waveform Channels	(0040,A0B0)	List of channels in waveform to which annotation applies. This shall be "0001 0000"	1																				

Attribute Name	Tag	Attribute Description	Type										
<p><i>For the Global Position Markers: the Annotation Group Number will be "2" and there will be one item per sample position. Only markers that have a value will be present.</i></p>													
>Annotation Group Number	(0040,A180)	Number identifying associated annotations. This shall be "2".	3										
>Concept Name Code Sequence	(0040,A043)	Code representing the fully specified name of the NUMERIC measurement or CODED concept. Only a single Item shall be included in this sequence. Mutually exclusive with Text Value (0070,0006).	1C										
>> Code Value	(0008,0100)	<table border="1"> <tr> <td>P Onset</td> <td>"5.10.3-1"</td> </tr> <tr> <td>P Offset "</td> <td>"5.10.3-2"</td> </tr> <tr> <td>QRS Onset</td> <td>"5.10.3-3"</td> </tr> <tr> <td>QRS Offset</td> <td>"5.10.3-4"</td> </tr> <tr> <td>T Offset</td> <td>"5.10.3-5"</td> </tr> </table>	P Onset	"5.10.3-1"	P Offset "	"5.10.3-2"	QRS Onset	"5.10.3-3"	QRS Offset	"5.10.3-4"	T Offset	"5.10.3-5"	1C
P Onset	"5.10.3-1"												
P Offset "	"5.10.3-2"												
QRS Onset	"5.10.3-3"												
QRS Offset	"5.10.3-4"												
T Offset	"5.10.3-5"												
>>Coding Scheme Designator	(0008,0102)	"SCPECG"	1C										
>> Coding Scheme Version	(0008,0103)	"1.3"	1C										
>>Code Meaning	(0008,0104)	<table border="1"> <tr> <td>P Onset</td> <td>" P Onset "</td> </tr> <tr> <td>P Offset</td> <td>" P Offset "</td> </tr> <tr> <td>QRS Onset</td> <td>" QRS Onset "</td> </tr> <tr> <td>QRS Offset</td> <td>"QRS Offset "</td> </tr> <tr> <td>T Offset</td> <td>" T Offset "</td> </tr> </table>	P Onset	" P Onset "	P Offset	" P Offset "	QRS Onset	" QRS Onset "	QRS Offset	"QRS Offset "	T Offset	" T Offset "	1
P Onset	" P Onset "												
P Offset	" P Offset "												
QRS Onset	" QRS Onset "												
QRS Offset	"QRS Offset "												
T Offset	" T Offset "												
>Temporal Range	(0040,A130)	Required if Annotation does not apply to entire	1C										

Attribute Name	Tag	Attribute Description	Type
Type		Referenced Waveform Channels; shall not be present if Annotation applies to entire temporal extent of referenced channels. This shall be "POINT".	
>Referenced Sample Positions	(0040,A132)	List of samples within a multiplex group specifying temporal points for annotation. Position of first sample is 1. There shall be only one sample position.	1C
>Referenced Waveform Channels	(0040,A0B0)	List of channels in waveform to which annotation applies. This shall be "0001 0000"	1
<i>For the Pacing Markers the Annotation Group Number will be "3" and there will be one item per sample position.</i>			
>Annotation Group Number	(0040,A180)	Number identifying associated annotations. This shall be "3".	3
>Concept Name Code Sequence	(0040,A043)	Code representing the fully specified name of the NUMERIC measurement or CODED concept. Only a single Item shall be included in this sequence.	1C
>> Code Value	(0008,0100)	"5.10.1.2"	1C
>>Coding Scheme Designator	(0008,0102)	"SCPECG"	1C
>> Coding Scheme Version	(0008,0103)	"1.3"	1C
>>Code Meaning	(0008,0104)	"Pacemaker spike"	1
>Temporal Range Type	(0040,A130)	Required if Annotation does not apply to entire Referenced Waveform Channels; shall not be present if Annotation applies to entire temporal extent of referenced channels. This shall be "POINT".	1C
>Referenced Sample Positions	(0040,A132)	List of samples within a multiplex group specifying temporal points for annotation. Position of first sample is 1. There shall be only one sample	1C

Attribute Name	Tag	Attribute Description	Type
		position.	
>Referenced Waveform Channels	(0040,A0B0)	List of channels in waveform to which annotation applies. This shall be "0001 0000"	1

Table 3.2.23 SOP Common Module Attributes

Attribute Name	Tag	Attribute Description	Type
SOP Class UID	(0008,0016)	Uniquely identifies the SOP Class. Depending on configuration 3.4, this shall be either General ECG Waveform Storage SOP Class UID "1.2.840.10008.5.1.4.1.1.9.1.2" or 12-lead ECG Waveform Storage SOP Class "1.2.840.10008.5.1.4.1.1.9.1.1".	1
SOP Instance UID	(0008,0018)	Uniquely generated by the equipment	1
Specific Character Set	(0008,0005)	Use UTF-8 encoding: "ISO_IR 192".	1C
Instance Creation Date	(0008,0012)	Date the SOP Instance was created.(Device local time)	3
Instance Creation Time	(0008,0013)	Time the SOP Instance was created.(Device local time)	3

Table 3.2.24 Additional Attributes

Attribute Name	Tag	Attribute Description	Type
Current Patient Location	(0038,0300)	The current known location of the patient (Device ID)	3

3.2.1.4.3 Real-World Activity: Echo Request

3.2.1.4.3.1 Description and Sequencing of Activities

See section 3.1.2.3 for a description of Echo Request

3.2.1.4.3.2 Proposed Presentation Contexts

Table 3.2.25 Proposed Presentation Contexts for Real-World Activity Verification

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.1.5 Association Acceptance Policy

CP150 DICOM does not accept any association. All associations are initiated by CP150 DICOM.

3.3 Network Interfaces

3.3.1 Physical Network Interface

CP150 DICOM can use 10/100 Mb/s Ethernet and 802.11a/b/g/n wireless LAN.

3.3.2 Additional Protocols

None.

3.4 Configuration

The solution supports the following configuration parameters

Table 3.4.1 Configuration Parameters

Parameter	Configurable	Default Value
Modality Worklist SCP Configuration		
Modality Worklist SCP AE Title (AE Title of MWL SCP as seen by CP150 DICOM)	Yes	None
Modality Worklist SCP IP Address	Yes	None
Modality Worklist SCP Port Number	Yes	None
Modality	No	“ECG”
Modality Worklist SCU time-out waiting for the final response to a C-FIND-RQ	No	30 s

Maximum number of Worklist Items	No	50
Location filter options (Off / Local AE Title / Device ID, Practice ID) Refer to 3.4.1	Yes	Off
Local AE configuration		
Local AE Title: through CP150 UI, DICOM configuration	Yes	None
Remote Storage SCP Configuration		
Remote Storage SCP AE Title	Yes	None
Remote Storage SCP IP Address or hostname.	Yes	None
Remote Storage SCP Port Number	Yes	None
Storage SCU time-out waiting for a response to a C-STORE-RQ	No	30 s
ECG Waveform Storage (12-Lead / General) Refer to 3.4.2	Yes	12-Lead
Coding scheme (SCPECG / MDC) Refer to 3.4.3	Yes	SCPECG
General Parameters		
Support of Character Sets	No	Refer to section 2.7
Max PDU Receive Size	No	16384(16k) Max = 131072 (128k)
Maximum number of times a retry for a failed connection	No	1

3.4.1 MWL Location filter

Table 3.4.2 Location Filter Mapping

Settings	CP150	MWL Query
OFF	{empty}	Scheduled Station AE Title (0040,0001)
	{empty}	Institution Name(0008,0080)
	{empty}	Current Patient Location (0038,0300)
Local AE Title	Local AE Title	Scheduled Station AE Title (0040,0001)
	{empty}	Institution Name (0008,0080)
	{empty}	Current Patient Location (0038,0300)
Device ID / Practice ID	{empty}	Scheduled Station AE Title (0040,0001)
	Practice ID	Institution Name(0008,0080)
	Device ID	Current Patient Location (0038,0300)

3.4.2 ECG Waveform Storage output

When **12-Lead** ECG Waveform storage output is selected, CP150 device shall send ECG test record as 12-lead ECG IOD object. When **General** ECG Waveform storage output is selected, CP150 device shall send test records as General ECG IOD.

NOTE: When **12-Lead** ECG output is selected and recorded waveform sample count exceeds 16384 (i.e. pediatric tests with 20 seconds test format), CP150 shall output as General ECG IOD instead.

3.4.3 Coding scheme

This configuration shall indicate when to use SCPECG or MDC terms within ECG Storage object if coded terms available (refer to 3.2.1.4.2.3).

4 Appendix A

Supported Ethnic Group values according to CP150's system language:

English	Dansk	Nederlands (Dutch)	Suomi (Finnish)	Français (French)	Deutsch (German)	Italiano (Italian)
None	Ingen	Geen	Ei mikään	Aucun	Keines	Ness
Caucasian	Kaukasisk	Blank	Valkoihoinen	Caucasien	Kaukasier	Bianco
Asian	Asiatisk	Aziatisch	Aasialainen	Asiatique	Asiatisch	Asiat
Black	Sort	Negroïde	Musta	Noir	Schwarz	Nero
Native American	Indiansk	Amerindiaans	Alkup. amerikkal	Américain natif	Indianer	Nativo americano
Hispanic	Latinamerikan sk	Latijns-Amerik.	Latin.amer	Hispanique	Hispanisch	Ispanico
Aboriginal	Aboriginer	Aboriginal	Aboriginaali	Aborigène	Austr. Aborigine	Aborigeno
Polynesian	Polynesisk	Polynesisch	Polynesiälaine n	Polynésien	Polynesier	Polinesiano
Indian	Indisk	Indiaas	Intialainen	Indien	Inder	Indiano
Eskimo	Eskimo	Eskimo	Eskimo	Esquimau	Inuit	Eschimese
Hawaiian	Hawaiiensk	Hawaïaans	Hawaijilainen	Hawaïen	Hawaiianer	Hawaiano
Pacific Islander	Stillehavsoyper	Oceanisch	Tyynenm saart as	Insulaire Pacif.	Pazifikinsulaner	Abit isole Pacif
Other	Anden	Overige	Muut	Autre	Anderes	Altro

English	Norsk (Norwegian)	português (Portugal)	Português (Brasil)	Русский (Russian)	中文 (Chinese)	Español (Spanish)	Svenska (Swedish)
None	Ingen	Nenhum	Nenhum	Нет	无	Ninguno	Inget
Caucasian	Hvit	Caucasiano	Caucasiano	Европейская	高加索人	Blanco	Kaukasisk
Asian	Asiatisk	Asiático	Asiático	Азиатская	亚洲人	Asiático	Asiat
Black	Svart	Africano	Preto	Африканская	黑人	Negro	Svart
Native American	Am. Urinnbygger	Americano-nativo	Americano Nativo	Амер. индеец	美国土著居民	Nativo americano	Am. urinvånare
Hispanic	Latinamerikansk	Hispânico	Hispânico	Латиноамериканец	西班牙裔	Hispano	Latinamerikansk
Aboriginal	Aborigin	Aborígene	Aborígene	Туземец	土著居民	Indígena	Aborigin
Polynesian	Polynesisk	Polinésio	Polinésio	Полинезиец	波利尼西亚人	Polinesio	Polynesisk
Indian	Indisk	Indiano	Indiano	Индиец	印第安人	Indio	Indier

Eskimo	Inuitt	Esquimó	Esquimó	Эскимос	爱斯基摩人	Esquimal	Inuit
Hawaiian	Hawaier	Havaiano	Havaiano	Гавайский	夏威夷人	Hawaiano	Hawaiian
Pacific Islander	Stillehavsøboer	Nat. ilha Pac.	Nab. Ilhas Pacíf	Житель тих. о-в	太平洋岛民	Oceánico	Stillahavsöin v.
Other	Annet	Outro	Outro	Другой	其他	Otro	Övriga