CARL ZEISS MEDITEC

DICOM Conformance Statement

Visante AC-OCT

Version 3.0

Carl Zeiss Meditec, Inc.

5160 Hacienda Drive

Dublin, CA 94568

USA

www.meditec.zeiss.com

1 Conformance Statement Overview

This document is structured as suggested in the DICOM Standard (PS 3.2, 2008).

The Visante 3.0 supports these SOP Classes, as shown:

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Encapsulated PDF Storage	Yes	No
Multi-Frame True Color SC Image	Yes	No
Workflow Management		
Modality Worklist Information Model - FIND	Yes	No

The Visante 3.0 does not support Media Interchange.

2 Table Of Contents

3 Introduction

3.1 Revision History

Document Version	Author	Date
C	Peter Ellis	9/03/2009
B	Peter Ellis	7/28/2009
A	Steve Deutsch	5/26/2009

3.2 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. The reader should have a basic understanding of DICOM.

3.3 Remarks

If another device matches this conformance statement based on the comparison with its own conformance statement, there is a chance, but no guarantee, that they interoperate. DICOM only deals with communication; it does not specify what is needed for certain applications to run on a device.

3.4 Definitions, Terms and Abbreviations

| Abbreviation	Definition
AE	Application Entity
AET	Application Entity Title
DICOM	Digital Imaging and Communications in Medicine
ILE	Implicit Little Endian
IOD	Information Object Definition
JPG-1	JPEG Coding Process 1; JPEG Baseline; ISO 10918-1
MWL	Modality Work List
RLE	Run Length Encoding
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair, pair of user and provider.
TCP/IP	Transmission Control Protocol / Internet Protocol
UID	Unique Identifier

3.5 References

Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-3.18, 2008.

4 Networking

4.1 Implementation Model

4.1.1 Application Data Flow
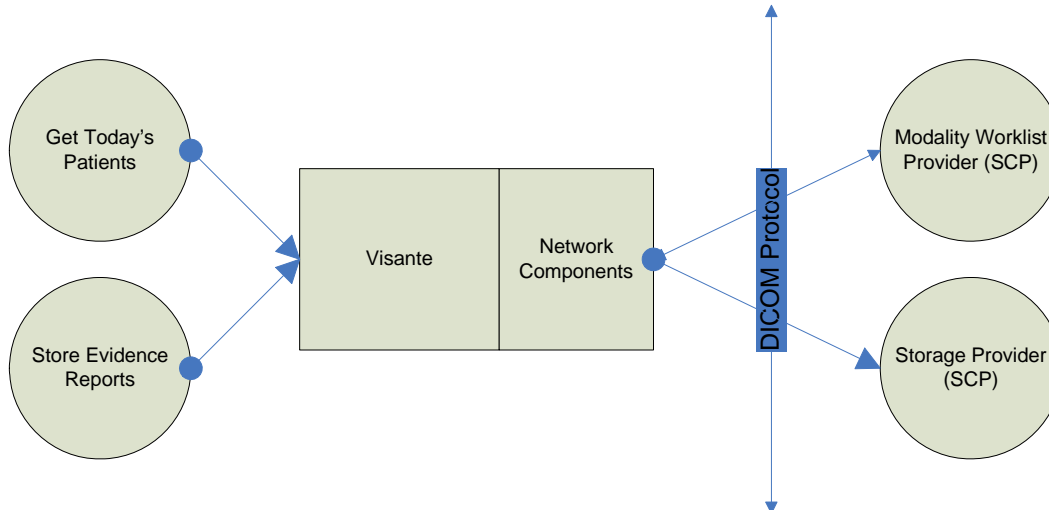
The Visante 3.0 Software works together with network components to provide connectivity to a DICOM network.

### 4.1.2 Functional Definition Of AEs

4.1.2.1 Visante 3.0 Overview

Visante software version 3.0 provides primarily new features for 6-map comprehensive topography and relative pachymetry. Features include:

- Integration with ATLAS (corneal topographer) data
- 6-map Comprehensive topography analysis using a combination of ATLAS and Visante corneal surface data
- Holladay report
- Advanced pachymetry with relative pachymetry map
- Patient auto alignment
- DICOM connectivity
- Reference video eye image

4.1.3 Sequencing of Real-World Activities

To realize the real world activities, the different entities work together. The sequence diagrams shall depict the intended workflow.
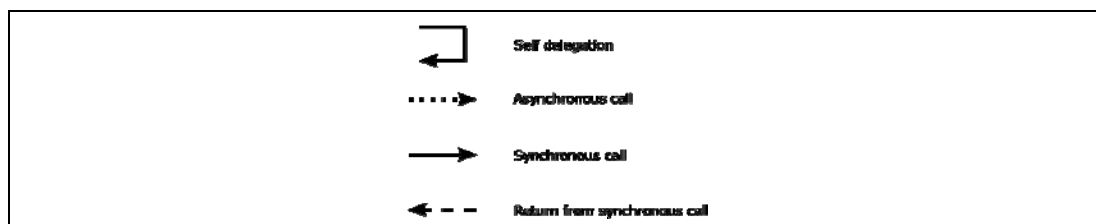
The diagrams uses slightly modified UML symbols. The asynchronous call is not depicted as suggested in UML. Some objects do have more than one dashed line. It symbolizes more than one thread.
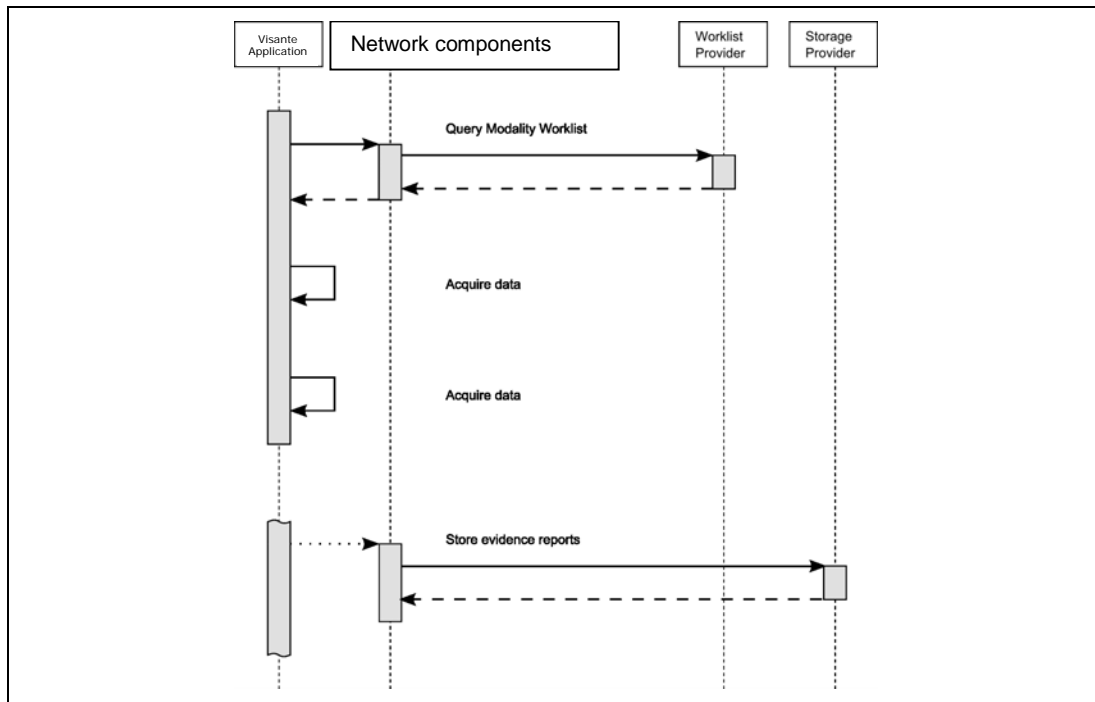
All activities are initiated by an operator.

Query Modality Worklist

Visante 3.0 queries for work items related to the current day's worklist. According to the transferred data Visante 3.0 creates entries in the local database (Patient, Study (Requested Procedure), Procedure Steps).The list of imported patients is displayed to the operator in the patient Browser. The operator can now select the patient for data acquisition.

Acquire data

The operator acquires data from patient's eye using Visante 3.0.

Store evidence reports

The operator can trigger this activity by a click on a button.

4.2 AE Specifications

4.2.1 Visante 3.0 Application Entity Specification

4.2.1.1 SOP Classes

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No

4.2.1.2 Associations Policies

4.2.1.2.1 General

DICOM standard Application Context Name is DICOM 3.0.

Application Context Name	1.2.840.10008.3.1.1.1

4.2.1.2.2 Number of Associations

Maximum number of simultaneous associations	1

4.2.1.2.3 Asynchronous Nature

Visante 3.0 does not support multiple outstanding transactions over a single Association.

4.2.1.2.4 Implementation Identifying Information

Implementation Class UID	1.2.276.0.75.2.5.10
Implementation Version Name	1.3.4.0606

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – Query Modality Worklist

4.2.1.3.1.1 Description and Sequencing of Activities

Visante 3.0 supports only a "Today's Patients" MWL query. This query is a broad query based on Scheduled Procedure Step Date and Scheduled Station AE Title. The sequencing flow is shown in the figure in Section 4.1.3

New Procedure Step Created for MWL (Modality Worklist). Software version 3.0 deletes procedure steps for acquisition sessions that are canceled without saving any scans. A patient imported from MWL may not use the proper Study Instance UID and Accession Number if, after the import, the user enters data acquisition but cancels it without saving any scans. The imported patient in this case will not retain MWL imported data unless the user goes back to View Today's Patient and re-imports this patient.

4.2.1.3.1.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	ILE	1.2.840.10008.1.2	SCU	No

4.2.1.3.1.3 SOP Specific Conformance for Modality Worklist SOP Class

Service Status	Further Meaning	Error Code	Behavior
Success	Matching is complete	0000	Visante 3.0 finishes receiving worklist items.
Pending	Matches are continuing	FF00, FF01	If the number of received items oversteps 100 then the SCU sends an ABORT to the SCP and the operator gets a request to specify query keys more accurate.
*	*	Any other status code	The status label of the dialog shows an error message.

Tags	Tag Name	Used in Today's Patients Query	Used from Reply
(0008,1120)	Referenced Patient Sequence	Not Used	Not Used
(0010,0010)	Patients Name	Not Used	Used
(0010,0020)	Patient ID	Not Used	Used
(0010,0021)	Issuer Of Patient ID	Not Used	Used
(0010,0030)	Patients Birth Date	Not Used	Used
(0010,0040)	Patients Sex	Not Used	Used
(0010,0032)	Patients Birth Time	Not Used	Not Used
(0010,1000)	Other Patient IDs	Not Used	Not Used
(0010,1001)	Other Patient Names	Not Used	Not Used
(0010,2160)	Ethnic Group	Not Used	Not Used
(0010,4000)	Patient Comments	Not Used	Used
(0010,2000)	Medical Alerts	Not Used	Not Used
(0010,2110)	Contrast Allergies	Not Used	Not Used
(0010,21C0)	Pregnancy Status	Not Used	Not Used
(0038,0050)	Special Needs	Not Used	Not Used
(0038,0500)	Patient State	Not Used	Not Used
(0008,0050)	Accession Number	Not Used	Used
(0008,0090)	Referring Physicians Name	Not Used	Used
(0020,000D)	Study Instance UID	Not Used	Used
(0032,1032)	Requesting Physician	Not Used	Used
(0032,4000)	Study Comments	Not Used	Not Used
(0008,1110)	Referenced Study Sequence	Not Used	Not Used
(0032,1060)	Requested Procedure Description	Not Used	Not Used
(0032,1064)	Requested Procedure Code Sequence	Not Used	Not Used
(0040,1001)	Requested Procedure ID	Not Used	Used
(0040,0100)	Scheduled Procedure Step Sequence	Not Used	Not Used
>(0008,0060)	Modality	Not used	Not Used

Tags	Tag Name	Used in Today's Patients Query	Used from Reply
>(0040,0001)	Scheduled Station Application Entity Title	Used	Not Used
>(0040,0003)	Scheduled Procedure Step Start Time	Not Used	Not Used
>(0040,0002)	Scheduled Procedure Step Start Date	Used	Used
>(0040,0006)	Scheduled Performing Physicians Name	Not Used	Not Used
>(0040,0007)	Scheduled Procedure Step Description	Not Used	Not Used
>(0040,0008)	Scheduled Protocol Code Sequence	Not Used	Not Used
>(0040,0009)	Scheduled Procedure Step ID	Not Used	Not Used
>(0040,2016)	Placer Order Number Imaging Service Request	Not Used	Not Used

4.2.1.3.2 Activity – Store evidence reports

4.2.1.3.2.1 Description and Sequencing of Activities

Refer to Section 4.1.3 for sequencing flow diagram.

4.2.1.3.2.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Multi-frame True Color SC Image Storage	1.2.840.10008.5.1.4.1.1.7.4	ILE	1.2.840.10008.1.2	SCU	No
		JPG-1	1.2.840.10008.1.2.4.50	SCU	No
		RLE	1.2.840.10008.1.2.5	SCU	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	ILE	1.2.840.10008.1.2	SCU	No

4.2.1.3.2.3 SOP Specific Conformance for Image Storage SOP Class

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The belonging job gets a success state and will be removed from list.
*	*	Any other status code	The job gets an error state.

4.2.1.4 Association Acceptance Policy

The Visante 3.0 does not accept Associations.

4.3 Network Interfaces

4.3.1 Physical Network Interface

The physical network interface is not visible for the applications. The application uses the communication stack as offered by the Operating System.

4.3.2 Additional Protocols

No additional protocols are supported.

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

The mapping from AE Title to TCP/IP addresses and ports is configurable and set at the time of installation by Installation Personnel.

4.4.1.1 Local AE Titles

The IP is administrated by the Operating System and networking environment. The calling AET is configurable. The calling AET is the AET of the Visante 3.0.

4.4.1.2 Remote AE Titles

The mapping of external AE Titles to TCP/IP addresses and ports is configurable. The Visante 3.0 allows setting up one AE as Modality Worklist Provider and one AE as Storage Provider. For both AEs, the host or IP, the Port and the Application Entity Title must be known.

4.4.2 Parameters

4.4.2.1 Storage SCU Parameters

The association initiation timeout is configurable. Default is 10 seconds.

For Visante 3.0 the selectable compressions for the IODs are:
- Multi-frame True Color Secondary Capture
  - No Compression
  - RLE Compression
  - JPEG Baseline Compression
- Encapsulated PDF
  - No selection possible

5 Media Interchange

Media Interchange is not scope of this document since Media Interchange is not supported via Network Broker.

6 Support Of Character Sets

In addition to the default character repertoire, the Specific Character Set ISO_IR 100 ("Latin alphabet No. 1") is supported.

7 Security

The DICOM capabilities of the Visante 3.0 Application do not support any specific security measures.

It is assumed that Visante 3.0 Application is used within a secured environment. It is assumed that a secured environment includes at a minimum:

- Firewall or router protections to ensure that only approved external hosts have network access to Visante 3.0 Application.
- Firewall or router protections to ensure that Visante 3.0 Application has network access to approved external hosts and services.
- Any communication with external hosts and services outside the locally secured environment use appropriate secure network channels (e.g. such as a Virtual Private Network (VPN))

8 Annexes

8.1 IOD Contents

Abbreviations used for presence of values:
VNAP   Value Not Always Present (attribute sent zero length if no value is present) – Applicable for
               Type 2, 2C.
ANAP   Attribute Not Always Present – Applicable for Type 3
ALWAYS   Always Present with a value – Applicable for Type 1
EMPTY   Attribute is sent without a value – Applicable for Type 2

Abbreviations used for sources of data:
USER   the attribute value source is from User input
AUTO   the attribute value is generated automatically
MWL, MPPS, etc. the attribute value is the same as the value received using a DICOM service such as Modality
               Worklist, Modality Performed Procedure Step, etc.
CONFIG   the attribute value source is a configurable parameter

8.1.1 Encapsulated PDF IOD

The table shows the content of the **Encapsulated PDF IOD**.

The rows of not supported modules or tags are grey.

IE	Module	Reference	Usage	Presence of Module
Patient	Patient	C.7.1.1	M	Always
Study	General Study	C.7.2.1	M	Always
	Patient Study	C.7.2.2	U	Always
Series	Encapsulated Document Series	C.24.1	M	Always
Equipment	General Equipment	C.7.5.1	M	Always
	SC Equipment	C.8.6.1	M	Always
Encapsulated Document	Encapsulated Document	C.24.2	M	Always
	SOP Common	C.12.1	M	Always

		Tag	VR	Name	Value	Presence of Value	Source
Information Entity 'Patient'							
	Module 'Patient'						
		(0010,0010)	PN	Patient's Name	Patient's full name.	ALWAYS	MWL or USER
		(0010,0020)	LO	Patient ID	Primary hospital identification number or code for the patient.	ALWAYS	MWL or USER
		(0010,0021)	LO	Issuer of Patient ID	Identifier of the Assigning Authority that issued the Patient ID.	ALWAYS	MWL or AUTO
		(0010,0030)	DA	Patient's Birth Date	Birth date of the patient.	ALWAYS	MWL or USER
		(0010,0040)	CS	Patient's Sex	Sex of the named patient. Enumerated Values: M = male F = female O = other	ALWAYS	
		(0010,4000)	LT	Patient Comments	User-defined additional information about the patient.	VNAP	MWL or USER
Information Entity 'Study'							
	Module 'General Study'						
		(0008,0020)	DA	Study Date	Date the Study started.	ALWAYS	AUTO
		(0008,0030)	TM	Study Time	Time the Study started.	ALWAYS	AUTO
		(0008,0050)	SH	Accession Number	A RIS generated number that identifies the order for the Study.	VNAP	MWL or EMTPY
		(0008,0090)	PN	Referring Physician's	Name of the patient's referring	VNAP	MWL or

				Name	physician		EMPTY
		(0008,1030)	LO	Study Description	Institution-generated description or classification of the Study (component) performed.	EMPTY	
		(0008,1048)	PN	Physician(s) of Record	Names of the physician(s) who are responsible for overall patient care at time of Study (see Section C.7.3.1 for Performing Physician)	VNAP	MWL or EMPTY
		(0020,000D)	UI	Study Instance UID	Unique identifier for the Study. "1.2.276.0.75.2.2.20." as constant prefix if the value has been generated by the application.	ALWAYS	MWL or AUTO
		(0020,0010)	SH	Study ID	User or equipment generated Study identifier.	ALWAYS	AUTO
	Module 'Patient Study'						
		(0010,1020)	DS	Patient's Size	Length or size of the Patient, in meters.	EMPTY	
		(0010,1030)	DS	Patient's Weight	Weight of the Patient, in kilograms.	EMPTY	
		(0010,2180)	SH	Occupation	Occupation of the Patient.	EMPTY	
		(0010,21B0)	LT	Additional Patient's History	Additional information about the Patient's medical history.	EMPTY	
Information Entity 'Series'							
	Module 'Encapsulated Document Series'						
		(0008,0060)	CS	Modality	"OPT"	ALWAYS	AUTO
		(0008,103E)	LO	Series Description	User provided description of the Series	EMPTY	
		(0020,000E)	UI	Series Instance UID	Unique identifier of the Series. "1.2.276.0.75.2.2.20." as constant prefix for generated UIDs.	ALWAYS	AUTO
		(0020,0011)	IS	Series Number	A number that identifies the Series.	ALWAYS	AUTO
		(0040,0244)	DA	Performed Procedure Step Start Date	Date on which the Performed Procedure Step started.	EMPTY	
		(0040,0245)	TM	Performed Procedure Step Start Time	Time on which the Performed Procedure Step started.	EMPTY	
		(0040,0253)	SH	Performed Procedure Step ID	User or equipment generated identifier of that part of a Procedure that has been carried out within this step.	EMPTY	
		(0040,0254)	LO	Performed Procedure Step Description	Institution-generated description or classification of the Procedure Step that was performed.	EMPTY	
		(0040,0275)	SQ	Request Attributes Sequence	Sequence that contains attributes from the Imaging Service Request. The sequence may have one or more Items.	ANAP	
		>(0040,0009)	SH	Scheduled Procedure Step ID	Identifier that identifies the Scheduled Procedure Step. Required if Sequence Item is present.	ANAP	AUTO
		>(0040,1001)	SH	Requested Procedure ID	Identifier that identifies the Requested Procedure in the Imaging Service Request. Required if Sequence Item is present.	ANAP	MWL
		(0040,0280)	ST	Comments on the Performed Procedure Step	User-defined comments on the Performed Procedure Step.	EMPTY	
Information Entity 'Equipment'							
	Module 'General Equipment'						
		(0008,0070)	LO	Manufacturer	Manufacturer of the equipment that produced the composite instances. "Carl Zeiss Meditec"	ALWAYS	AUTO

(0008,0080)	LO	Institution Name	Institution where the equipment that produced the composite instances is located.	VNAP	USER
(0008,0081)	ST	Institution Address	Mailing address of the institution where the equipment that produced the composite instances is located.	EMPTY	
(0008,1010)	SH	Station Name	User defined name identifying the machine that produced the composite instances.	VNAP	USER
(0008,1040)	LO	Institutional Department Name	Department in the institution where the equipment that produced the composite instances is located.	EMPTY	
(0008,1090)	LO	Manufacturer's Model Name	Manufacturer's model name of the equipment that produced the composite instances. "Visante OCT 1000"	ALWAYS	AUTO
(0018,1000)	LO	Device Serial Number	Manufacturer's serial number of the equipment that produced the composite instances. Note: This identifier corresponds to the device that actually created the images, such as a CR plate reader or a CT console, and may not be sufficient to identify all of the equipment in the imaging chain, such as the generator or gantry or plate.	ALWAYS	AUTO
(0018,1020)	LO	Software Versions	Manufacturer's designation of software version of the equipment that produced the composite instances.	ALWAYS	AUTO
(0018,1050)	DS	Spatial Resolution	The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the series, the value at the image center.	EMPTY	
(0028,0120)	US/ SS	Pixel Padding Value	Value of pixels not present in the native image added to an image to pad to rectangular format. See C.7.5.1.1.2 for further explanation. Note: The Value Representation of this Attribute is determined by the value of Pixel Representation (0028,0103).	EMPTY	
Module 'SC Equipment'					
(0008,0064)	CS	Conversion Type	"SYN" - Synthetic Image	ALWAYS	AUTO
Information Entity 'Encapsulated Document'					
Module 'Encapsulated Document'					
(0008,0023)	DA	Content Date	The date the document content creation was started.	ALWAYS	AUTO
(0008,002A)	DT	Acquisition Datetime	The date and time that the original generation of the data in the document started.	ALWAYS	AUTO
(0008,0033)	TM	Content Time	The time the document content creation was started.	ALWAYS	AUTO
(0020,0013)	IS	Instance Number	A number that identifies this SOP Instance. The value shall be unique within a series.	ALWAYS	AUTO
(0028,0301)	CS	Burned In Annotation	"YES"	ALWAYS	AUTO
(0040,A043)	SQ	Concept Name Code Sequence	Has never an item.	EMPTY	
(0042,0010)	ST	Document Title	The value of the "Title" entry in the "Document Information Directory" as encoded in the PDF data.	ALWAYS	AUTO
(0042,0011)	OB	Encapsulated Document	Encapsulated Document stream,	ALWAYS	AUTO

				containing a document encoded according to the MIME Type.		
	(0042,0012)	LO	MIME Type of Encapsulated Document	"application/pdf"	ALWAYS	AUTO
Module 'SOP Common'						
	(0008,0012)	DA	Instance Creation Date	Date the SOP Instance was created.	ALWAYS	AUTO
	(0008,0013)	TM	Instance Creation Time	Time the SOP Instance was created.	ALWAYS	AUTO
	(0008,0016)	UI	SOP Class UID	"1.2.840.10008.5.1.4.1.1.104.1"	ALWAYS	AUTO
	(0008,0018)	UI	SOP Instance UID	Uniquely identifies the SOP Instance. See C.12.1.1.1 for further explanation. See also PS 3.4. "1.2.276.0.75.2.2.20." as constant prefix for generated UIDs.	ALWAYS	AUTO

8.1.2 Multi-frame True Color SC Image

The rows of not supported modules or tags are grey.

		IE	Module	Reference	Usage
		Patient	Patient	C.7.1.1	M
		Study	General Study	C.7.2.1	M
			Patient Study	C.7.2.2	U
		Series	General Series	C.7.3.1	M
		Equipment	General Equipment	C.7.5.1	U
			SC Equipment	C.8.6.1	M
		Image	General Image	C.7.6.1	M
			Image Pixel	C.7.6.3	M
			Multi-frame	C.7.6.6	M
			SC Image	C.8.6.2	U
			SC Multi-frame Image	C.8.6.3	M
			SC Multi-frame Vector	C.8.6.4	C - Required if Number of Frames is greater than 1
			SOP Common	C.12.1	M

		Tag	VR	Name	Value	Presence of Value	Source
Information Entity 'Patient'							
	Module 'Patient '						
		(0010,0010)	PN	Patient's Name	Patient's full name.	ALWAYS	MWL or USER
		(0010,0020)	LO	Patient ID	Primary hospital identification number or code for the patient.	ALWAYS	MWL or USER
		(0010,0021)	LO	Issuer of Patient ID	Identifier of the Assigning Authority that issued the Patient ID.	VNAP	MWL or AUTO
		(0010,0030)	DA	Patient's Birth Date	Birth date of the patient.	ALWAYS	MWL or USER
		(0010,0040)	CS	Patient's Sex	Sex of the named patient. Enumerated Values: M = male F = female O = other	ALWAYS	MWL or USER
		(0010,4000)	LT	Patient Comments	User-defined additional information about the patient.	VNAP	MWL or USER
Information Entity 'Study'							
	Module 'General Study'						
		(0008,0020)	DA	Study Date	Date the Study started.	ALWAYS	AUTO
		(0008,0030)	TM	Study Time	Time the Study started.	ALWAYS	AUTO
		(0008,0050)	SH	Accession Number	A RIS generated number that identifies the order for the Study.	VNAP	MWL or EMPTY
		(0008,0090)	PN	Referring Physician's Name	Name of the patient's referring physician	VNAP	MWL or EMPTY
		(0008,1030)	LO	Study Description	Institution-generated description or classification of the Study (component) performed.	EMPTY	
		(0008,1048)	PN	Physician(s) of Record	Names of the physician(s) who are responsible for overall patient care at time of Study (see Section C.7.3.1 for Performing Physician)	VNAP	MWL or EMPTY
		(0020,000D)	UI	Study Instance UID	Unique identifier for the Study. "1.2.276.0.75.2.2.20." as constant	ALWAYS	MWL or AUTO

				prefix if the value has been generated by the application.		
	(0020,0010)	SH	Study ID	User or equipment generated Study identifier.	ALWAYS	AUTO
Module 'Patient Study'						
	(0010,1020)	DS	Patient's Size	Length or size of the Patient, in meters.	EMPTY	
	(0010,1030)	DS	Patient's Weight	Weight of the Patient, in kilograms.	EMPTY	
	(0010,2180)	SH	Occupation	Occupation of the Patient.	EMPTY	
	(0010,21B0)	LT	Additional Patient's History	Additional information about the Patient's medical history.	EMPTY	
Information Entity 'Series'						
Module 'General Series'						
	(0008,0021)	DA	Series Date	Date the Series started.	ALWAYS	AUTO
	(0008,0031)	TM	Series Time	Time the Series started.	ALWAYS	AUTO
	(0008,103E)	LO	Series Description	User provided description of the Series	EMPTY	
	(0018,1030)	LO	Protocol Name	User-defined description of the conditions under which the Series was performed. Note: This attribute conveys series-specific protocol identification and may or may not be identical to the one presented in the Performed Protocol Code Sequence (0040,0260).	EMPTY	
	(0018,5100)	CS	Patient Position	Patient position descriptor relative to the equipment. Required for CT and MR images; shall not be present if Patient Orientation Code Sequence (0054,0410) is present; may be present otherwise. See C.7.3.1.1.2 for Defined Terms and further explanation.	EMPTY	
	(0020,000E)	UI	Series Instance UID	Unique identifier of the Series. "1.2.276.0.75.2.2.20." as constant prefix for generated UIDs.	ALWAYS	AUTO
	(0020,0011)	IS	Series Number	A number that identifies this Series.	ALWAYS	AUTO
	(0020,0060)	CS	Laterality	Laterality of (paired) body part examined. Required if the body part examined is a paired structure and Image Laterality (0020,0062) or Frame Laterality (0020,9072) are not sent. Enumerated Values: R = right L = left Note: Some IODs support Image Laterality (0020,0062) at the Image level or Frame Laterality(0020,9072) at the Frame level in the Frame Anatomy functional group macro, which can provide a more comprehensive mechanism for specifying the laterality of the body part(s) being examined.	ALWAYS	AUTO
	(0028,0108)	US/ SS	Smallest Pixel Value in Series	The minimum value of all images in this Series.	EMPTY	
	(0028,0109)	US/ SS	Largest Pixel Value in Series	The maximum value of all images in this Series.	EMPTY	
	(0040,0244)	DA	Performed Procedure Step Start Date	Date on which the Performed Procedure Step started.	EMPTY	
	(0040,0245)	TM	Performed Procedure Step Start Time	Time on which the Performed Procedure Step started.	EMPTY	

	(0040,0253)	SH	Performed Procedure Step ID	User or equipment generated identifier of that part of a Procedure that has been carried out within this step.	EMPTY	
	(0040,0254)	LO	Performed Procedure Step Description	Institution-generated description or classification of the Procedure Step that was performed.	EMPTY	
	(0040,0280)	ST	Comments on the Performed Procedure Step	User-defined comments on the Performed Procedure Step.	EMPTY	
Information Entity 'Equipment'						
	Module 'General Equipment '					
	(0008,0070)	LO	Manufacturer	Manufacturer of the equipment that produced the composite instances. "Carl Zeiss Meditec"	ALWAYS	AUTO
	(0008,0080)	LO	Institution Name	Institution where the equipment that produced the composite instances is located.	VNAP	USER
	(0008,0081)	ST	Institution Address	Mailing address of the institution where the equipment that produced the composite instances is located.	EMPTY	
	(0008,1010)	SH	Station Name	User defined name identifying the machine that produced the composite instances.	VNAP	USER
	(0008,1040)	LO	Institutional Department Name	Department in the institution where the equipment that produced the composite instances is located.	EMPTY	
	(0008,1090)	LO	Manufacturer's Model Name	Manufacturer's model name of the equipment that produced the composite instances. "Visante OCT 1000"	ALWAYS	AUTO
	(0018,1000)	LO	Device Serial Number	Manufacturer's serial number of the equipment that produced the composite instances. Note: This identifier corresponds to the device that actually created the images, such as a CR plate reader or a CT console, and may not be sufficient to identify all of the equipment in the imaging chain, such as the generator or gantry or plate.	ALWAYS	AUTO
	(0018,1020)	LO	Software Versions	Manufacturer's designation of software version of the equipment that produced the composite instances.	ALWAYS	AUTO
	(0018,1050)	DS	Spatial Resolution	The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the series, the value at the image center.	EMPTY	
	(0028,0120)	US/ SS	Pixel Padding Value	Value of pixels not present in the native image added to an image to pad to rectangular format. See C.7.5.1.1.2 for further explanation. Note: The Value Representation of this Attribute is determined by the value of Pixel Representation (0028,0103).	EMPTY	
	Module 'SC Equipment '					
	(0008,0060)	CS	Modality	"OPT"	ALWAYS	AUTO
	(0008,0064)	CS	Conversion Type	"SYN"	ALWAYS	AUTO

Information Entity 'Image'						
Module 'General Image'						
	(0008,0022)	DA	Acquisition Date	The date the acquisition of data that resulted in this image started	ALWAYS	AUTO
	(0008,0023)	DA	Content Date		ALWAYS	AUTO
	(0008,002A)	DT	Acquisition Datetime	The date and time that the acquisition of data that resulted in this image started. Note: The synchronization of this time with an external clock is specified in the Synchronization Module in Acquisition Time Synchronized (0018,1800).	ALWAYS	AUTO
	(0008,0032)	TM	Acquisition Time	The time the acquisition of data that resulted in this image started	ALWAYS	AUTO
	(0008,0033)	TM	Content Time		ALWAYS	AUTO
	(0008,2111)	ST	Derivation Description	A text description of how this image was derived. See C.7.6.1.1.3 for further explanation.	EMPTY	
	(0020,0012)	IS	Acquisition Number	A number identifying the single continuous gathering of data over a period of time that resulted in this image.	EMPTY	
	(0020,0013)	IS	Instance Number		ALWAYS	AUTO
	(0020,0020)	CS	Patient Orientation	Patient direction of the rows and columns of the image. Required if image does not require Image Orientation (Patient) (0020,0037) and Image Position (Patient) (0020,0032). See C.7.6.1.1.1 for further explanation. Note: IOD's may have attributes other than Patient Orientation, Image Orientation, or Image Position (Patient) to describe orientation in which case this attribute will be zero length.	EMPTY	
	(0020,1002)	IS	Images in Acquisition	Number of images that resulted from this acquisition of data	EMPTY	
	(0020,4000)	LT	Image Comments	User-defined comments about the image	EMPTY	
	(0028,0301)	CS	Burned In Annotation	Overwrote by 'SC Multi-frame Image' "YES"	ALWAYS	AUTO
	(0028,2110)	CS	Lossy Image Compression	Specifies whether an Image has undergone lossy compression. Enumerated Values: 00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression. See C.7.6.1.1.5	ALWAYS	AUTO
Module 'Image Pixel '						
	(0028,0002)	US	Samples per Pixel	"3"	ALWAYS	AUTO
	(0028,0004)	CS	Photometric Interpretation	"RGB"	ALWAYS	AUTO
	(0028,0006)	US	Planar Configuration	"0"	ALWAYS	AUTO
	(0028,0010)	US	Rows		ALWAYS	AUTO
	(0028,0011)	US	Columns		ALWAYS	AUTO
	(0028,0100)	US	Bits Allocated	"8"	ALWAYS	AUTO
	(0028,0101)	US	Bits Stored	"8"	ALWAYS	AUTO

		(0028,0102)	US	High Bit	"7"	ALWAYS	AUTO
		(0028,0103)	US	Pixel Representation	"0"	ALWAYS	AUTO
		(7FE0,0010)	OW/OB	Pixel Data	Contains the image pixel	ALWAYS	AUTO
Module 'Multi-frame '							
		(0028,0008)	IS	Number of Frames		ALWAYS	AUTO
Module 'SC Multi-frame Image '							
		(0028,0301)	CS	Burned In Annotation	Indicates whether or not image contains sufficient burned in annotation to identify the patient and date the image was acquired. Enumerated Values: YES, NO "YES"	ALWAYS	AUTO
Module 'SC Multi-frame Vector '							
		(0018,2001)	IS	Page Number Vector	Multi-valued, the number of the pages in increasing order.	ALWAYS	AUTO
Module 'SOP Common'							
		(0008,0012)	DA	Instance Creation Date	Date the SOP Instance was created.	ALWAYS	AUTO
		(0008,0013)	TM	Instance Creation Time	Time the SOP Instance was created.	ALWAYS	AUTO
		(0008,0016)	UI	SOP Class UID	"1.2.840.10008.5.1.4.1.1.7.4"	ALWAYS	AUTO
		(0008,0018)	UI	SOP Instance UID	"1.2.276.0.75.2.2.20." as constant prefix for generated UIDs.	ALWAYS	AUTO
		(0020,0013)	IS	Instance Number	A number that identifies this Composite object instance.	ALWAYS	AUTO

8.2 Coded Terminology And Templates

Not applicable.

8.3 Grayscale Image Constistency

Not applicable.

8.4 Standard Extended / Specialized/ Private SOP Classes

Specialized SOP Classes are supported.

8.5 Private Transfer Syntaxes

No Private Transfer Syntaxes are supported.