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APPROVED
TOPCON

DICOM Conformance Statement
for
OCT Software

3D OCT-2000 series and 3D OCT-1 series
with Capture Software version 8.3x/8.4x/8.5x
and
OCT Viewer Software version 6.7x/6.8x/8.5x

Ver.2.0

2017/3/29

TOPCON Corporation

1. CONFORMANCE STATEMENT OVERVIEW

This document declares conformance to DICOM 3.0 standard of Software for 3D OCT-2000 / 3D OCT-1 (OCT Software).

The following table provides an overview of the network services supported.

Table 1-1 NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Ophthalmic Photography 8 Bit Image Storage	Yes	No
Ophthalmic Tomography Image Storage	Yes	No
Encapsulated PDF Storage	Yes	No
Workflow Management		
Storage Commitment Push Model SOP Class	Yes	No

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3. INTRODUCTION

3.1. REVISON HISTORY

Document Version	Date of Issue	Author	Description
1.0	2014/9/29	System Engineering Dept.	Initial revision
2.0	2017/3/29	IT Solution Development Dept.	Update applied software version Capture： Ver.8.3x -> Ver.8.3x/8.4x/8.5x Viewer： Ver.6.7x -> Ver.6.7x/6.8x/8.5x

3.2. ABBREVIATIONS

- AE Application Entity
- DICOM Digital Imaging and Communication in Medicine
- IE Information Entity
- IOD Information Object Definition
- ISO International Standards Organization
- JPEG Joint Photographic Experts Group
- NEMA National Electrical Manufacture Association
- OP Ophthalmic Photography
- SC Secondary Capture
- SCP Service Class Provider
- SCU Service Class User
- SOP Service Object-Pair
- TCP/IP Transmission Control Protocol/Internet Protocol
- UID Unique Identifier
- VR Value Representation

3.3. REFERENCES

- NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

4. NETWORKING

4.1. IMPLEMENTATION MODEL

4.1.1. Application Data Flow

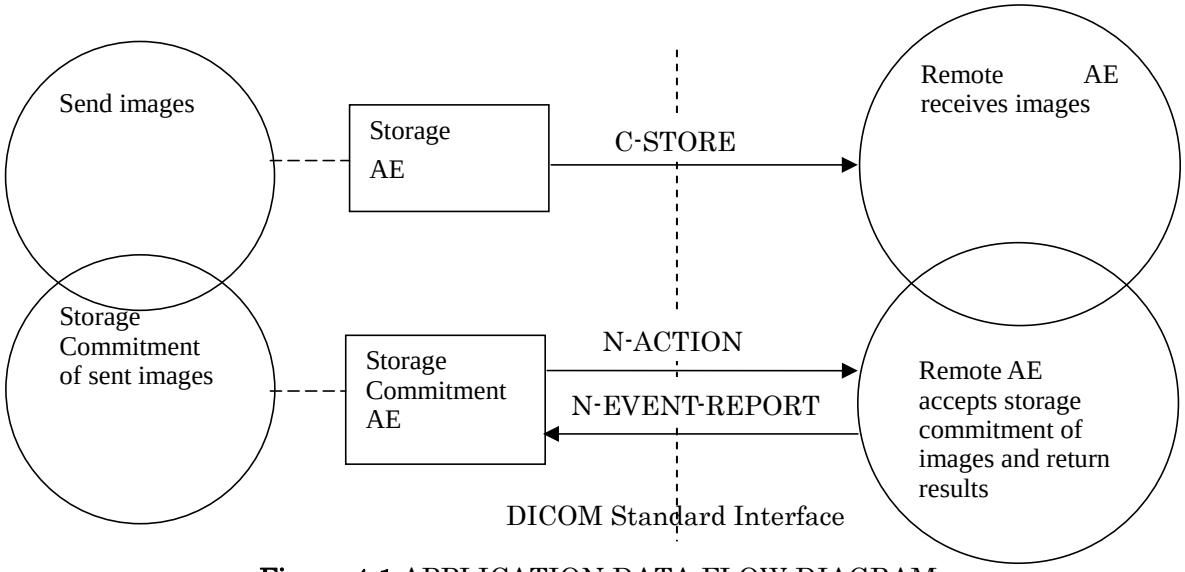

Figure 4-1 APPLICATION DATA FLOW DIAGRAM

4.1.2. Function Definition of AE's

4.1.2.1. Functional Definition of Storage AE

Storage AE corresponds to E-PDF, OPT and OP SOP Classes. Image transmission starts if an association request is sent to a transmission destination AE and the association negotiation succeeds.

4.1.2.2. Functional Definition of Storage Commitment AE

Storage commitment AE will notify a storage commitment demand, if an association is established with a remote AE.

4.1.3. Sequencing of Real World Activities

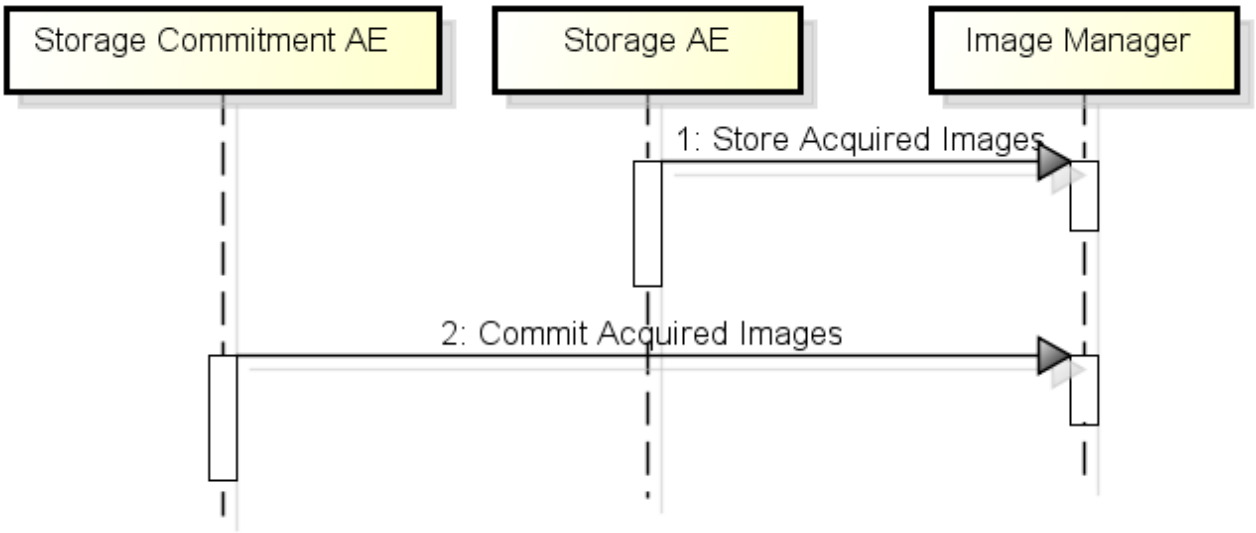

Figure 4-2 SEQUENCING CONSTRAINTS

4.2. AE SPECIFICATIONS:

4.2.1. Storage AE

As shown below, the storage AE provides standard conformance as an SCU of the DICOM V3.0 SOP class:

4.2.1.1. SOP Classes

Table 4-1 SOP Classes for Storage AE

SOP Class Name	SOP Class UID	SCU	SCP
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No

4.2.1.2. Association Policies

4.2.1.2.1. General

The Storage AE uses an application context name.

Table 4-2 DICOM Application Context for Storage AE

DICOM V3.0 Application Context	1.2.840.10008.3.1.1.1

4.2.1.2.2. Number of Associations

The Storage AE can establish only one association simultaneously.

4.2.1.2.3. Asynchronous Nature

Since the Storage AE allows only a single operation for an association, asynchronous operation is not supported.

4.2.1.2.4. Implementation Identifying Information

The Storage AE specifies the following Implementation Identifying Information:

Table 4-3 DICOM Implementation Class and Version for Storage AE

Implementation class UID	1.2.392.200106.1610.2.2
Implementation version name	TOPCON_OCT_101

4.2.1.3. Association Initiation Policy

4.2.1.3.1. Activity – Send Images

4.2.1.3.1.1. Description and Sequencing of Activities

A user can select images and request them to be sent to a destination.

The Storage AE attempts to initiate a new Association in order to issue a Storage request (C-STORE).

If the process successfully establishes an Association to a remote Application Entity, it will transfer marked instance via the open Association.

If the Storage AE wants to send multiple images, it will perform the establishment and destruction of association for each image.

If the C-STORE Response from the remote Application contains a status other than Success or Warning, the Association is aborted and the related Job is switched to a failed state.

4.2.1.3.1.2. Proposed Presentation Contexts

The presentation contexts proposed by AE are as follows:

Table 4-4 Proposed Presentation Contexts for Activity Send Images

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Baseline Lossy Compression (*1)	1.2.840.10008.1.2.4.50	SCU	None
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		JPEG Baseline Lossy Compression (*1)	1.2.840.10008.1.2.4.50	SCU	None
Encapsulated PDF Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.5.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

(*1) JPEG Baseline (Process 1)

4.2.1.3.1.3. SOP Specific Conformance

The Storage AE does not prohibit the re-transmission of the image which has been transmitted.

The same image will be always sent in the same Instance UID.

In case of saving multiple images, even if it failed to save one image, it will continue to save all images.

Only if a communication error occurs, the transmission of the image is not maintained after that.

4.2.1.4. Association Acceptance Policy

The Storage AE does not receive the association initiated by a remote AE.

4.2.2. Storage commitment AE

4.2.2.1. SOP Classes

Storage commitment AE provides the following standard conformity as the DICOM V3.0 SOP class of the SCU:

Table 4-5 SOP Classes corresponding to storage commitment AE

SOP Class Name	SOP Class UID
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1

4.2.2.2. Association policy

4.2.2.2.1. General

Storage commitment AE uses application context name.

Table 4-6 DICOM application context corresponding to storage commitment AE

DICOM V3.0 application context	1.2.840.10008.3.1.1.1

4.2.2.2.2. Number of associations

Storage commitment AE can establish only one association simultaneously.

4.2.2.2.3. Asynchronous Nature

Since the storage commitment AE allows only a single operation for an association, asynchronous operation is not supported.

4.2.2.2.4. Implementation Identifying Information

The storage commitment AE specifies the following implementation identifying information:

Table 4-7 DICOM Application Context for Storage Commitment AE

Implementation class UID	1.2.392.200106.1610.2.4
Implementation version name	TOPCON_OCT_101

4.2.2.3. Association Initiation Policy

4.2.2.3.1. Activity – Storage Commitment

4.2.2.3.1.1. Description and Sequencing of Activities

If Storage Commitment setting is enabled, the Storage Commitment AE attempts to initiate a new Association in order to issue a Storage Commitment request after transmitting the image by the Storage AE.

If established association, transmit a single Storage Commitment request (N-ACTION).

Upon receiving the N-ACTION response the Storage AE will delay releasing the Association for a configurable amount of time.

If no N-EVENT-REPORT is received within this time period the Association will be immediately released (i.e. notification of Storage Commitment success or failure will be received over a separate association). (See note)

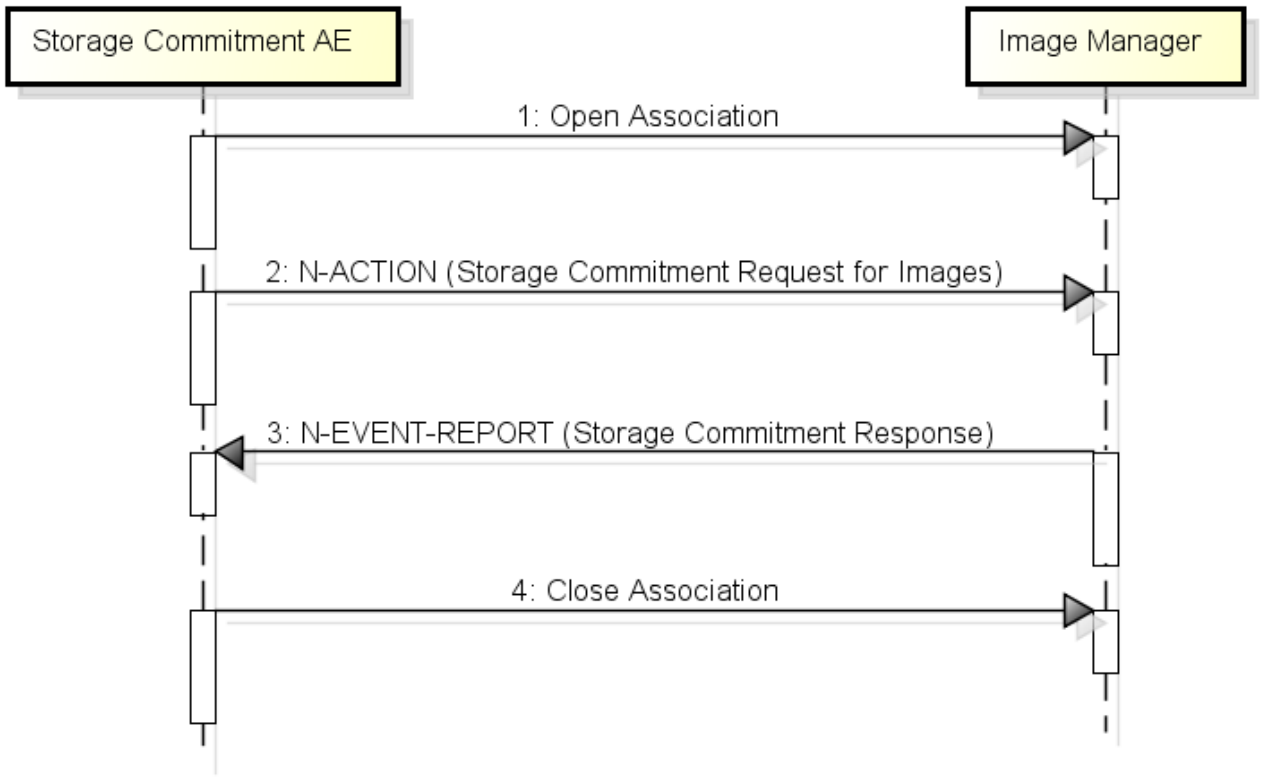

Figure 4-3 SEQUENCING OF ACTIVITY – STORAGE COMMITMENT

A sequence of between the Storage Commitment AE and an Image Manager (e.g. a storage or archive device supporting the Storage and Storage Commitment SOP Classes as an SCP) is illustrated in Figure 4-3:

1. The Storage Commitment AE opens an association with the Image Manager
2. An N-ACTION request is transmitted to the Image Manager to obtain storage commitment of previously transmitted images. The Image Manager replies with an N-ACTION response indicating the request has been received and is being processed.
3. The Image Manager immediately transmits an N-EVENT-REPORT request notifying the Storage Commitment AE of the status of the Storage Commitment Request (sent in step 2 using the N-ACTION message). The Storage Commitment AE replies with an N-EVENT-REPORT response confirming receipt. The Image Manager could omit it entirely in favor of transmitting the N-EVENT-REPORT over a separate dedicated association. (See note)

4. The Storage Commitment AE closes the association with the Image Manager.

NOTE: Many other message sequences are possible depending on the number of images to be stored, support for Storage Commitment and when the SCP sends the N-EVENT-REPORT. The N-EVENT-REPORT can also be sent over a separate association initiated by the Image Manager. (See Section 4.2.2.4.1 Activity – Receive Storage Commitment Response)

4.2.2.3.1.2. Proposed Presentation Context

The presentation context proposed by the storage commitment AE is as follows:

Table 4-8 Proposed Presentation Context Corresponding to Storage Commitment AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

A Presentation Context for the Storage Commitment Push Model will only be proposed if the Remote AE is configured as an archive device.

4.2.2.3.1.3. SOP Specific Conformance for Storage Commitment SOP Class

4.2.2.3.1.3.1. Storage Commitment Operations (N-ACTION)

The Storage Commitment AE will request storage commitment for instances of the SOP Class if the remote AE is configured as an archive device and a presentation context for the Storage Commitment Push Model has been accepted.

The Storage AE will consider Storage Commitment failed if no N-EVENT-REPORT is received for a Transaction UID within a configurable time period after receiving a successful N-ACTION response (duration of applicability for a Transaction UID).

4.2.2.3.1.3.2. Storage Commitment Notifications (N-EVENT-REPORT)

The Storage Commitment AE is capable of receiving an N-EVENT-REPORT notification if it has successfully associations established.

4.2.2.4. Association Acceptance Policy

4.2.2.4.1. Activity – Receive Storage Commitment Response

4.2.2.4.1.1. Description and Sequencing of Activities

The Storage Commitment AE will accept associations in order to receive responses to a Storage Commitment Request.

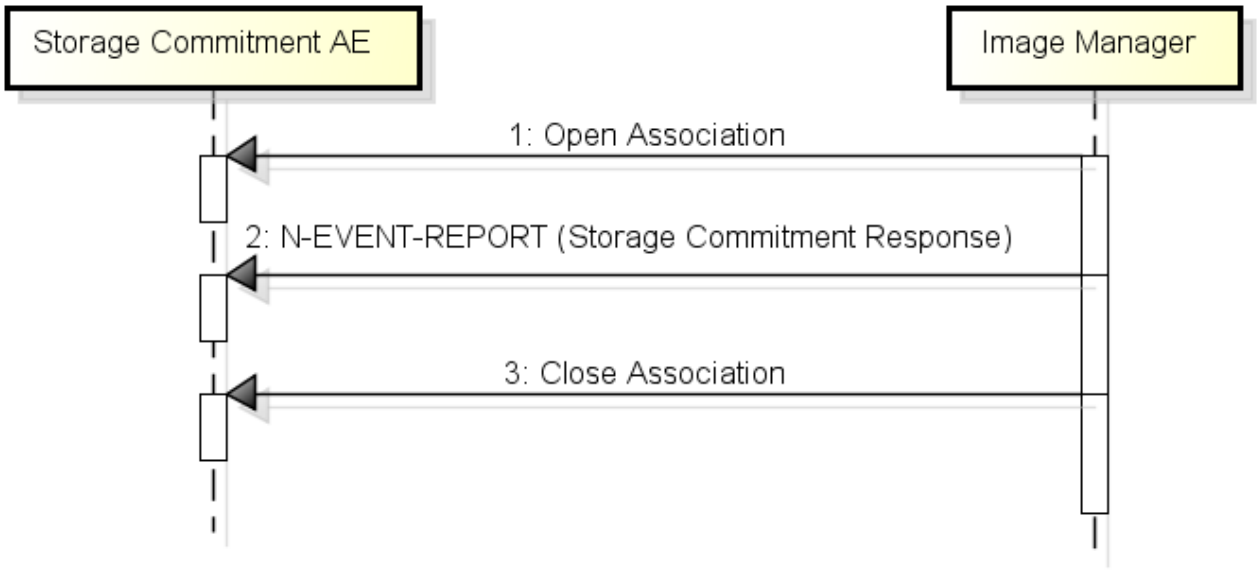

Figure 4-4 SEQUENCING OF ACTIVITY – RECEIVE STORAGE COMMITMENT RESPONSE

4.2.2.4.1.2. Proposed Presentation Context

The Storage AE will accept Presentation Contexts as shown in the Table below.

Table 4-9 Acceptable Presentation Contexts for Activity Receive Storage Commitment Response

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

The Storage Commitment AE will only accept the SCU role within a Presentation Context for the Storage Commitment Push Model SOP Class.

4.2.2.4.1.3. SOP Specific Conformance for Storage Commitment SOP Class

4.2.2.4.1.3.1. Storage Commitment Notifications (N-EVENT-REPORT)

The Storage Commitment AE is capable of receiving an N-EVENT-REPORT notification if it has successfully associations established.

4.3. NETWORK INTERFACES

4.3.1. Physical Network Interface

An AE depends on the TCP/IP of the Windows system in which the AE is executed.

For AE, it is not important in which physical network medium the TCP/IP is executed. This is because it depends on the computer system where the physical network medium is executed.

4.3.2. Additional Protocols

No additional protocols are supported.

4.3.3. IPv4 and IPv6 Support

This product only supports IPv4 connections.

4.4. Configuration

4.4.1. AE Title/Presentation Address Mapping

An AE title can be specified for an SCP and an SCU.

One port number and one SCP AE title can be specified for each SCP.

4.4.2. Parameters

Many parameters for general operation can be configured using a configuration user interface. The following shows the configurable parameters for DICOM communication:

Table 4-10 Parameters

	Parameter	Description
Storage	Server AE Title	AE Title of SCP to support the Storage SOP Class
	Server IP Address	IP Address of SCP to support the Storage SOP Class
	Server Port Number	Port Number of SCP to support the Storage SOP Class
	Client AE Title	AE Title of Storage AE
	Timeout (sec.)	Timeout of Storage Default: 15
	Enable Storage Commitment.	If storage was successful, it does storage commitment. Default: Not done
Storage Commitment	Server AE Title	AE Title of SCP to support the Storage Commitment SOP Class
	Server IP Address	IP Address of SCP to support the Storage Commitment SOP Class
	Server Port Number	Port Number of SCP to support the Storage Commitment SOP Class
	Client AE Title	AE Title of Storage Commitment AE
	Client Port Number	Port Number of Storage Commitment AE
	Timeout (sec.)	Timeout of Storage Commitment Default: 15

Transfer Syntax	OP 8 Bit Image Storage	Transfer Syntax of OP 8 Bit Image Storage - Implicit VR Little Endian - Explicit VR Little Endian (Default) - JPEG Baseline (Process 1)
	OPT Image Storage	Transfer Syntax of OPT Image Storage - Implicit VR Little Endian - Explicit VR Little Endian (Default) - JPEG Baseline (Process 1)
	E-PDF Storage	Transfer Syntax of E-PDF Storage - Implicit VR Little Endian - Explicit VR Little Endian (Default)
	Storage Commitment	Transfer Syntax of Storage Commitment - Implicit VR Little Endian - Explicit VR Little Endian (Default)

5. MEDIA INTERCHANGE

This product does not support Media Storage.

6. SUPPORT OF CHARACTER SETS

An AE supports the following character codes:

ISO-IR 6

7. SECURITY

This product does not support any specific security measures.

8. ANNEXES

8.1. IOD Contents

The following shows IODs and modules defined in OCT software.

8.1.1. Created SOP Instances

8.1.1.1. IOD

8.1.1.1.1. Ophthalmic Photography 8 Bit Image IOD

Table 8-1 Ophthalmic Photography 8 Bit Image IOD

Information Entity	Module	Reference	Usage[*1]
Patient	Patient	8.1.1.2.1.1	M
Study	General Study	8.1.1.2.2.1	M
Series	General Series	8.1.1.2.3.1	M
	Ophthalmic Photography Series	8.1.1.2.3.2	M
Frame Of Reference	Synchronization	8.1.1.2.4.2	M
Equipment	General Equipment	8.1.1.2.5.1	M
Image	General Image	8.1.1.2.6.1	M
	Image Pixel	8.1.1.2.6.2	M
	Cine	8.1.1.2.6.3	C
	Multi-Frame	8.1.1.2.6.4	M
	Ophthalmic Photography Image	8.1.1.2.6.5	M
	Ocular Region Imaged	8.1.1.2.6.6	M

	Ophthalmic Photography Acquisition Parameters	8.1.1.2.6.7	M
	Ophthalmic Photographic Parameters	8.1.1.2.6.8	M
	SOP Common	8.1.1.2.6.9	M

*1: M=Mandatory, C=Conditional, U=User option

8.1.1.1.2. Ophthalmic Tomography Image IOD

Table 8-2 Ophthalmic Tomography Image IOD

Information Entity	Module	Reference	Usage*1
Patient	Patient	8.1.1.2.1.1	M
Study	General Study	8.1.1.2.2.1	M
Series	General Series	8.1.1.2.3.1	M
	Ophthalmic Tomography Series	8.1.1.2.3.3	M
Frame of Reference	Frame of Reference	8.1.1.2.4.1	C
	Synchronization	8.1.1.2.4.2	C
Equipment	General Equipment	8.1.1.2.5.1	M
	Enhanced General Equipment	8.1.1.2.5.2	M
Image	Image Pixel	8.1.1.2.6.2	M
	Multi-frame Functional Groups	8.1.1.2.6.10	M
	Multi-frame Dimension	8.1.1.2.6.11	M
	Acquisition Context	8.1.1.2.6.12	M
	Ophthalmic Tomography Image	8.1.1.2.6.13	M
	Ophthalmic Tomography Acquisition Parameters	8.1.1.2.6.14	M
	Ophthalmic Tomography Parameters	8.1.1.2.6.15	M
	Ocular Region Imaged	8.1.1.2.6.6	M
	SOP Common	8.1.1.2.6.9	M

*1: M=Mandatory, C=Conditional, U=User option

8.1.1.1.3. Encapsulated PDF IOD

Table 8-3 Encapsulated PDF IOD

Information Entity	Module	Reference	Usage*1
Patient	Patient	8.1.1.2.1.1	M
Study	General Study	8.1.1.2.2.1	M
Series	Encapsulated Document Series	8.1.1.2.3.4	M
Equipment	General Equipment	8.1.1.2.5.1	U
	SC Equipment	8.1.1.2.5.3	M
Encapsulated Document	Encapsulated Document	8.1.1.2.7.1	M
	SOP Common	8.1.1.2.6.9	M

*1: M=Mandatory, C=Conditional, U=User option

8.1.1.2. Module

8.1.1.2.1. Patient IE

8.1.1.2.1.1. Patient Module

Tag	Name	OP	OPT	PDF
(0010,0010)	Patient's Name	Patient Name The value that is managed by modality.	Patient Name The value that is managed by modality.	Patient Name The value that is managed by modality.
(0010,0020)	Patient ID	Patient ID The value that is managed by modality.	Patient ID The value that is managed by modality.	Patient ID The value that is managed by modality.
(0010,0030)	Patient's Birth Date	Patient's Birth Date The value that is managed by modality.	Patient's Birth Date The value that is managed by modality.	Patient's Birth Date The value that is managed by modality.
(0010,0040)	Patient's Sex	Patient's Sex The value that is managed by modality.	Patient's Sex The value that is managed by modality.	Patient's Sex The value that is managed by modality.

8.1.1.2.2. Study IE

8.1.1.2.2.1. General Study Module

Tag	Name	OP	OPT	PDF
(0020,000D)	Study Instance UID	The value that is generated by the modality.	The value that is generated by the modality.	The value that is generated by the modality.
(0008,0020)	Study Date	Capture Date The value that is managed by modality.	Capture Date The value that is managed by modality.	Capture Date The value that is managed by modality.
(0008,0030)	Study Time	Capture Time The value that is managed by modality.	Capture Time The value that is managed by modality.	Capture Time The value that is managed by modality.
(0008,0090)	Referring Physician's Name	(Empty)	(Empty)	(Empty)
(0020,0010)	Study ID	Dataset ID The value that is managed by modality.	Dataset ID The value that is managed by modality.	Dataset ID of source data The value that is managed by modality.
(0008,0050)	Accession Number	(Empty)	(Empty)	(Empty)

8.1.1.2.3. Series IE

8.1.1.2.3.1. General Series Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0060)	Modality	OP (Fixed)	OPT (Fixed)	
(0020,000E)	Series Instance	The value that is	The value that is	

	UID	generated by the modality.	generated by the modality.	
(0020,0011)	Series Number	2 (Fixed)	1 (Fixed)	
(0008,0021)	Series Date	Capture Date The value that is managed by modality.	Capture Date The value that is managed by modality.	
(0028,0301)	Burned In Annotation	NO (Fixed)	NO (Fixed)	

8.1.1.2.3.2. Ophthalmic Photography Series Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0060)	Modality	OP (Fixed)		

8.1.1.2.3.3. Ophthalmic Tomography Series Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0060)	Modality		OPT (Fixed)	
(0020,0011)	Series Number		1 (Fixed)	

8.1.1.2.3.4. Encapsulated Document Series Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0060)	Modality			OPT (Fixed)
(0020,000E)	Series Instance UID			The value that is generated by the modality.
(0020,0011)	Series Number			3 (Fixed)

8.1.1.2.4. Frame Of Reference IE

8.1.1.2.4.1. Frame Of Reference Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,0052)	Frame of Reference UID		The value that is generated by the modality.	
(0020,1040)	Position Reference Indicator		(Empty)	

8.1.1.2.4.2. Synchronization Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,0200)	Synchronization Frame of Reference UID	The value that is generated by the modality.	The value that is generated by the modality.	
(0018,106A)	Synchronization Trigger	NO TRIGGER (Fixed)	NO TRIGGER (Fixed)	
(0018,1800)	Acquisition Time Synchronized	N (Fixed)	N (Fixed)	

8.1.1.2.5. Equipment IE

8.1.1.2.5.1. General Equipment Module

Attribute Tag	Attribute Name	OP	OPT	PDF

(0008,0070)	Manufacturer	TOPCON (Fixed)	TOPCON (Fixed)	TOPCON (Fixed)
(0008,0080)	Institution Name	(Empty)	(Empty)	(Empty)
(0008,1010)	Station Name	(Empty)	(Empty)	(Empty)
(0008,1090)	Manufacturer's Model Name	Equipment Model Name The value that is managed by modality.	Equipment Model Name The value that is managed by modality.	Equipment Model Name The value that is managed by modality.
(0018,1000)	Device Serial Number	Equipment Serial Number The value that is managed by modality.	Equipment Serial Number The value that is managed by modality.	Equipment Serial Number The value that is managed by modality.
(0018,1020)	Software Versions	Equipment Software Version The value that is managed by modality.	Equipment Software Version The value that is managed by modality.	Equipment Software Version The value that is managed by modality.
(0018,1200)	Date of Last Calibration	Calibration Date The value that is managed by modality.	Calibration Date The value that is managed by modality.	Calibration Date The value that is managed by modality.
(0018,1201)	Time of Last Calibration	Calibration Time The value that is managed by modality.	Calibration Time The value that is managed by modality.	Calibration Time The value that is managed by modality.

8.1.1.2.5.2. Enhanced General Equipment Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0070)	Manufacturer		TOPCON (Fixed)	
(0008,1090)	Manufacturer's Model Name		Equipment Model Name The value that is managed by modality.	
(0018,1000)	Device Serial Number		Equipment Serial Number The value that is managed by modality.	
(0018,1020)	Software Versions		Equipment Software Version The value that is managed by modality.	

8.1.1.2.5.3. SC Equipment Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0064)	Conversion Type			WSD (Fixed)
(0008,0060)	Modality			OPT (Fixed)

8.1.1.2.6. Image IE

8.1.1.2.6.1. General Image Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,0013)	Instance Number	1 (Fixed)		
(0020,0020)	Patient Orientation	L¥F (Fixed)		
(0008,0023)	Content Date	Capture Date The value that is managed by modality.		
(0008,0033)	Content Time	Capture Time The value that is managed by modality.		
(0008,0008)	Image Type	ORIGINAL¥PRIMARY (Fixed)		
(0020,0012)	Acquisition Number	1 (Fixed)		
(0008,002A)	Acquisition DateTime	Capture Date The value that is managed by modality.		
(0028,0301)	Burned In Annotation	NO (Fixed)		
(0028,2110)	Lossy Image Compression	00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression.		
(0028,2112)	Lossy Image Compression Ratio	Compression Ratio (Only JPEG Baseline (Process 1) Transfer Syntax)		
(0028,2114)	Lossy Image Compression Method	ISO_10918_1 (Fixed) (Only JPEG Baseline (Process 1) Transfer Syntax)		
(0008,2111)	Derivation Description	Lossy compression with JPEG baseline, IJG quality factor 90, compression ratio *.**** (Only JPEG Baseline (Process 1) Transfer Syntax)		
(0008,9215)	Derivation Code Sequence	— (Only JPEG Baseline (Process 1) Transfer Syntax)		
>(0008,0100)	Code Value	113040 (Fixed)		

		(Only JPEG Baseline (Process 1) Transfer Syntax)		
>(0008,0102)	Coding Scheme Designator	DCM (Fixed) (Only JPEG Baseline (Process 1) Transfer Syntax)		
>(0008,0104)	Coding Scheme Version	Lossy Compression (Fixed) (Only JPEG Baseline (Process 1) Transfer Syntax)		

8.1.1.2.6.2. Image Pixel Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0028,0002)	Samples per Pixel	3 (Fixed)	1 (Fixed)	
(0028,0004)	Photometric Interpretation	RGB (Implicit VR Little Endian, Explicit VR Little Endian) YBR_FULL_422 (JPEG Baseline (Process 1))	MONOCHROME2 (Fixed)	
(0028,0010)	Rows	Image Height The value that is managed by modality.	Image Height The value that is managed by modality.	
(0028,0011)	Columns	Image Width The value that is managed by modality.	Image Width The value that is managed by modality.	
(0028,0100)	Bits Allocated	8 (Fixed)	8 (Fixed)	
(0028,0101)	Bits Stored	8 (Fixed)	8 (Fixed)	
(0028,0102)	High Bit	7 (Fixed)	7 (Fixed)	
(0028,0103)	Pixel Representation	0 (Fixed)	0 (Fixed)	
(7FE0,0010)	Pixel Data	Image Data The value that is managed by modality.	Image Data The value that is managed by modality.	
(0028,0006)	Planar Configuration	0 (Fixed)		

8.1.1.2.6.3. Cine Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0018,1063)	Frame Time	0 (Fixed)		

8.1.1.2.6.4. Multi-Frame Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0028,0008)	Number of Frames	1 (Fixed)		
(0028,0009)	Frame Increment	(0018,1063) (Fixed)		

	Pointer			

8.1.1.2.6.5. Ophthalmic Photography Image Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0008)	Image Type	ORIGINAL¥PRIMARY (Fixed)		
(0020,0013)	Instance Number	1 (Fixed)		
(0028,0002)	Samples per Pixel	3 (Fixed)		
(0028,0004)	Photometric Interpretation	RGB (Implicit VR Little Endian, Explicit VR Little Endian) YBR_FULL_422 (JPEG Baseline (Process 1))		
(0028,0103)	Pixel Representation	0 (Fixed)		
(0028,0006)	Planar Configuration	0 (Fixed)		
(0028,0030)	Pixel Spacing	Pixel Spacing The value that is managed by modality. * If there is no value, it will be "0¥0".		
(0008,0033)	Content Time	Capture Time The value that is managed by modality.		
(0008,0023)	Content Date	Capture Date The value that is managed by modality.		
(0008,002A)	Acquisition DateTime	Capture Date Time The value that is managed by modality.		
(0028,2110)	Lossy Image Compression	00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression.		
(0028,2112)	Lossy Image Compression Ratio	Compression Ratio (Only JPEG Baseline (Process 1) Transfer Syntax)		
(0028,2114)	Lossy Image Compression Method	ISO_10918_1 (Fixed) (Only JPEG Baseline (Process 1) Transfer Syntax)		
(0028,0301)	Burned In	NO (Fixed)		

	Annotation			

8.1.1.2.6.6. Ocular Region Imaged Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,0062)	Image Laterality	Measurement Eye The value that is managed by modality.	Measurement Eye The value that is managed by modality.	
General Anatomy Mandatory Macro				
(0008,2218)	Anatomic Region Sequence	—	—	
>(0008,0100)	Code Value	T-AA610 (Fixed)	T-AA610 (Fixed)	
>(0008,0102)	Anatomic Region Sequence	SRT (Fixed)	SRT (Fixed)	
>(0008,0104)	Code Meaning	Retina (Fixed)	Retina (Fixed)	

8.1.1.2.6.7. Ophthalmic Photography Acquisition Parameters Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0022,0005)	Patient Eye Movement Commanded	(Empty)		
OPHTHALMIC ACQUISITION PARAMETERS MACRO				
(0022,001B)	Refractive State Sequence	—		
(0022,000A)	Emmetropic Magnification	(Empty)		
(0022,000B)	Intra Ocular Pressure	(Empty)		
(0022,000C)	Horizontal Field of View	Angle of View The value that is managed by modality.		
(0022,000D)	Pupil Dilated	(Empty)		

8.1.1.2.6.8. Ophthalmic Photographic Parameters Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0022,0015)	Acquisition Device Type Code Sequence	—		
>(0008,0100)	Code Value	R-1021A (Fixed)		
>(0008,0102)	Coding Scheme Designator	SRT (Fixed)		
>(0008,0104)	Code Meaning	Fundus Camera (Fixed)		
(0022,0016)	Illumination Type Code Sequence	—		
(0022,0017)	Light Path Filter Type Stack Code Sequence	—		
(0022,0018)	Image Path Filter Type Stack Code Sequence	—		
(0022,0019)	Lenses Code	—		

	Sequence			
(0018,7004)	Detector Type	(Empty)		

8.1.1.2.6.9. SOP Common Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0016)	SOP Class UID	1.2.840.10008.5.1.4.1.1.77.1.5.1 (Fixed)	1.2.840.10008.5.1.4.1.1.77.1.5.4 (Fixed)	1.2.840.10008.5.1.4.1.1.104.1 (Fixed)
(0008,0018)	SOP Instance UID	The value that is generated by the modality.	The value that is generated by the modality.	The value that is generated by the modality.
(0008,0005)	Specific Character Set	ISO_IR 6 (Fixed)	ISO_IR 6 (Fixed)	ISO_IR 6 (Fixed)
(0008,0012)	Instance Creation Date	Creation Date of Transfer Data	Creation Date of Transfer Data	Creation Date of Transfer Data
(0008,0013)	Instance Creation Time	Creation Time of Transfer Data	Creation Time of Transfer Data	Creation Time of Transfer Data
(0020,0013)	Instance Number	1 (Fixed)	1 (Fixed)	1 (Fixed)

8.1.1.2.6.10. Multi-frame Functional Groups Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(5200,9229)	Shared Functional Groups Sequence		—	
>C.8.17.10 Ophthalmic Tomography Functional Group Macros				
>C.7.6.16.2.1 Pixel Measures Macro				
>(0028,9110)	Pixel Measures Sequence		—	
>>(0028,0030)	Pixel Spacing		Pixel Spacing The value that is managed by modality. * If there is no value, it will be "0¥0".	
>>(0018,0050)	Slice Thickness		Slice Thickness The value that is managed by modality. * If there is no value, it will be "0".	
>C.7.6.16.2.4 Plane Orientation (Patient) Macro				
>(0020,9116)	Plane Orientation Sequence		—	
>>(0020,0037)	Image Orientation (Patient)		1.000000¥0.000000¥0.000000¥0.000000¥1.000000¥0.000000 (Fixed)	
>C.7.6.16.2.5 Referenced Image Macro				
>(0008,1140)	Referenced Image Sequence		—	
>>(0008,1150)	Referenced SOP Class UID		1.2.840.10008.5.1.4.1.1.77.1.5.1 (Fixed)	
>>(0008,1155)	Referenced SOP Instance UID		Instance UID of OP which is created by same procedure.	

>>(0040,A170)	Purpose of Reference Code Sequence		—	
>>>(0008,0100)	Code Value		121311 (Fixed)	
>>>(0008,0102)	Coding Scheme Designator		DCM (Fixed)	
>>>(0008,0104)	Code Meaning		Localizer (Fixed)	
>C.7.6.16.2.6 Derivation Image Macro				
>(0008,9124)	Derivation Image Sequence		—	
(0008,2111)	Derivation Description		Lossy compression with JPEG baseline, IJG quality factor 90, compression ratio *.**** (Only JPEG Baseline (Process 1) Transfer Syntax)	
(0008,9215)	Derivation Code Sequence		— (Only JPEG Baseline (Process 1) Transfer Syntax)	
>(0008,0100)	Code Value		113040 (Only JPEG Baseline (Process 1) Transfer Syntax)	
>(0008,0102)	Coding Scheme Designator		DCM (Only JPEG Baseline (Process 1) Transfer Syntax)	
>(0008,0104)	Coding Scheme Version		Lossy Compression (Only JPEG Baseline (Process 1) Transfer Syntax)	
>C.7.6.16.2.8 Frame Anatomy Macro				
>(0020,9071)	Frame Anatomy Sequence		—	
>>(0020,9072)	Frame Laterality		Measurement Eye The value that is managed by modality.	
>>General Anatomy Mandatory Macro				
>>(0008,2218)	Anatomic Region Sequence		—	
>>>(0008,0100)	Code Value		T-AA610 (Fixed)	
>>>(0008,0102)	Coding Scheme Designator		SRT (Fixed)	
>>>(0008,0104)	Code Meaning		Retina (Fixed)	
(5200,9230)	Per-frame Functional Groups Sequence		—	
>C.8.17.10 Ophthalmic Tomography Functional Group Macros				
>C.7.6.16.2.2 Frame Content Macro				
>(0020,9111)	Frame Content Sequence		—	

>>(0018,9151)	Frame Reference DateTime		(Empty)	
>>(0018,9074)	Frame Acquisition DateTime		(Empty)	
>>(0018,9220)	Frame Acquisition Duration		(Empty)	
>>(0020,9157)	Dimension Index Values		1 , Frame Number	
>>(0020,9056)	Stack ID		1 (Fixed)	
>>(0020,9057)	In-Stack Position Number		Frame Number	
>C.7.6.16.2.3 Plane Position (Patient) Macro				
>(0020,9113)	Plane Position Sequence		—	
>>(0020,0032)	Image Position (Patient)		(Empty)	
>>(0040,A170)	Purpose of Reference Code Sequence		—	
>>>(0008,0100)	Code Value		121311 (Fixed)	
>>>(0008,0102)	Coding Scheme Designator		DCM (Fixed)	
>>>(0008,0104)	Code Meaning		Localizer (Fixed)	
>C.8.17.10.1 Ophthalmic Frame Location Macro				
>(0022,0031)	Ophthalmic Frame Location Sequence		—	
>>(0008,1150)	Referenced SOP Class UID		1.2.840.10008.5.1.4.1.1.77.1.5.1 (Fixed)	
>>(0008,1155)	Referenced SOP Instance UID		Instance UID of OP which is created by same procedure.	
>>(0022,0032)	Reference Coordinates		The value calculated from scan position information The value that is managed by modality.	
>>(0022,0039)	Ophthalmic Image Orientation		LINEAR (Fixed)	
(0020,0013)	Instance Number		1 (Fixed)	
(0008,0023)	Content Date		Capture Date The value that is managed by modality.	
(0008,0033)	Content Time		Capture Time The value that is managed by modality.	
(0028,0008)	Number of Frames		Number of Frames The value that is managed by modality.	
(0020,9228)	Concatenation		0 (Fixed)	

	Frame Offset Number			
(0028,6010)	Representative Frame Number		1 (Fixed)	
(0020,9161)	Concatenation UID		The value that is generated by the modality.	
(0020,0242)	SOP Instance UID of Concatenation Source		The value that is generated by the modality.	
(0020,9162)	In-concatenation Number		1 (Fixed)	
(0020,9163)	In-concatenation Total Number		1 (Fixed)	

8.1.1.2.6.11. Multi-frame Dimension Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,9221)	Dimension Organization Sequence		—	
>(0020,9164)	Dimension Organization UID		The value that is generated by the modality.	
(0020,9311)	Dimension Organization Type		3D (Fixed)	
(0020,9222)	Dimension Index Sequence		—	
>(0020,9165)	Dimension Index Pointer		(0020,9056) (Fixed)	
>(0020,9167)	Functional Group Pointer		(0020,9111) (Fixed)	
>(0020,9165)	Dimension Index Pointer		(0020,9057) (Fixed)	
>(0020,9167)	Functional Group Pointer		(0020,9111) (Fixed)	

8.1.1.2.6.12. Acquisition Context Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0040,0555)	Acquisition Context Sequence		—	

8.1.1.2.6.13. Ophthalmic Tomography Image Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0008,0008)	Image Type		ORIGINAL¥PRIMARY (Fixed)	
(0028,0002)	Samples per Pixel		1 (Fixed)	
(0008,002A)	Acquisition DateTime		Capture Date Time The value that is managed by modality.	
(0020,0012)	Acquisition Number		1 (Fixed)	

(0028,0004)	Photometric Interpretation		MONOCHROME2 (Fixed)	
(0028,0103)	Pixel Representation		0 (Fixed)	
(0028,0100)	Bits Allocated		8 (Fixed)	
(0028,0101)	Bits Stored		8 (Fixed)	
(0028,0102)	High Bit		7 (Fixed)	
(2050,0020)	Presentation LUT Shape		IDENTITY (Fixed)	
(0028,2110)	Lossy Image Compression		00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression.	
(0028,2112)	Lossy Image Compression Ratio		Compression Ratio (Only JPEG Baseline (Process 1) Transfer Syntax)	
(0028,2114)	Lossy Image Compression Method		ISO_10918_1 (Fixed) (Only JPEG Baseline (Process 1) Transfer Syntax)	
(0028,0301)	Burned In Annotation		NO (Fixed)	
(0020,9228)	Concatenation Frame Offset Number		0 (Fixed)	
(0020,9162)	In-concatenation Number		1 (Fixed)	
(0020,9163)	In-concatenation Total Number		1 (Fixed)	

8.1.1.2.6.14. Ophthalmic Tomography Acquisition Parameters Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0022,0030)	Axial Length of the Eye		(Empty)	
(0022,000C)	Horizontal Field of View		(Empty)	
Ophthalmic Acquisition Parameters Macro				
(0022,001B)	Refractive State Sequence		—	
(0022,000A)	Emmetropic Magnification		(Empty)	
(0022,000B)	Intra Ocular Pressure		(Empty)	
(0022,000D)	Pupil Dilated		(Empty)	

8.1.1.2.6.15. Ophthalmic Tomography Parameters Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0022,0015)	Acquisition Device Type Code Sequence		—	
>(0008,0100)	Code Value		A-00FBE (Fixed)	
>(0008,0102)	Anatomic Region		SRT (Fixed)	

	Sequence			
>(0008,0104)	Code Meaning		Optical Coherence Tomography Scanner	
(0022,0017)	Light Path Filter Type Stack Code Sequence		—	
(0018,7004)	Detector Type		CCD (Fixed)	
(0022,0055)	Illumination Wave Length		840 or 1050 (Depend on model)	
(0022,0056)	Illumination Power		650 or 1050 (Depend on model)	
(0022,0057)	Illumination Bandwidth		50 or 60 (Depend on model)	
(0022,0035)	Depth Spatial Resolution		6 or 8 (Depend on model)	
(0022,0036)	Maximum Depth Distortion		0.5 (Fixed)	
(0022,0037)	Along-scan Spatial Resolution		20 (Fixed)	
(0022,0038)	Maximum Along-scan Distortion		0.5 (Fixed)	
(0022,0048)	Across-scan Spatial Resolution		20 (Fixed)	
(0022,0049)	Maximum Across-scan Distortion		0.5 (Fixed)	

8.1.1.2.7. Encapsulated Document IE

8.1.1.2.7.1. Encapsulated Document Module

Attribute Tag	Attribute Name	OP	OPT	PDF
(0020,0013)	Instance Number			1 (Fixed)
(0008,0023)	Content Date			Creation Date of Report
(0008,0033)	Content Time			Creation Time of Report
(0008,002A)	Acquisition DateTime			Capture Date Time The value that is managed by modality.
(0020,0062)	Image Laterality			Measurement Eye The value that is managed by modality.
(0028,0301)	Burned In Annotation			YES (Fixed)
(0042,0010)	Document Title			Title of Report
(0040,A043)	Concept Name Code Sequence			—
(0042,0012)	MIME Type of Encapsulated Document			application/pdf (Fixed)
(0042,0011)	Encapsulated Document			PDF Data

8.2. Data Dictionary for a Private Attribute

A private attribute is not supported.

8.3. Standard Extended/Specialized/Private SOPs

Standard Extended/Specialized/Private SOPs are not supported.

End of report