DICOM Conformance Statement

Glaucoma Workplace Version 3.5

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1 Conformance Statement Overview

Glaucoma Workplace is an optional, additional application to FORUM®, which is offered separately. It integrates the following complementary functions into FORUM:

- Processing and displaying visual field data and optical coherence tomography (OCT) data
- Generating visual field reports (OPV IOD)
- Generating reports that contain results from perimetry, OCT, and fundus photography (EPDF IOD)
- Providing CIRRUS algorithms and databases for retinal nerve fiber layer thickness (RNFL), ganglion cell plus inner plexiform thickness, optic nerve head (ONH) measurement, and Guided Progression Analysis (GPA)
- Providing Humphrey Field Analyzer (HFA) algorithms and databases for visual field measurements and GPA
- Aiding trained healthcare professionals in the detection, measurement, and management of visual field defects and progression of visual field loss.

This document is structured as suggested in the DICOM Standard (PS 3.2: Conformance).

As Glaucoma Workplace is an optional add on software to FORUM, the overall DICOM communication is managed by FORUM. For information on FORUM supported network services and the FORUM Implementation Model please refer to the FORUM DICOM Conformance Statement.

This document only describes the specifics for Glaucoma Workplace, which are mainly configuration parameters and Storage IODs.

2 Table of Contents

3 Introduction

3.1 Revision History

Document Version	Date	Author	Changes
I	2019-07-02	rms	Contributing Equipment Sequence added to OPV and EPDF. Changed Document title in EPDF. Changed handling of General Study Attributes.

3.2 Audience

This document is written for the people that need to understand how Glaucoma Workplace will integrate into their healthcare facility. This includes both those responsible for overall imaging network policy and architecture, as well as integrators who need to have a detailed understanding of the DICOM features of the product. This document contains some basic DICOM definitions so that any reader may understand how this product implements DICOM features. However, integrators are expected to fully understand all the DICOM terminology, how the tables in this document relate to the product's functionality, and how that functionality integrates with other devices that support compatible DICOM features..

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between Glaucoma Workplace and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability. The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

- The comparison of different Conformance Statements is just the first step towards assessing interconnectivity and interoperability between the product and other DICOM conformant equipment.
- Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.

3.4 Definitions and Terms

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.

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, Computed Radiography Image Storage SOP Class.

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

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)

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. The Attributes may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).

Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Joint Photographic Experts Group (JPEG)

a set of standardized image compression techniques, available for use by DICOM applications.

Media Application Profile

the specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs)

Module

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.

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.

Query Key

A input value for a query process. Query Keys denote the set of DICOM tags that are sent from the SCU to SCP and thus control the query result.

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)

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).

Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU)

role of an Application Entity that uses a DICOM network service; typically, a client.

Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

Service/Object Pair (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 (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”. If the “group” number is odd, the tag is for a private (manufacturer-specific) data element.

Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

Transfer Syntax

the encoding used for exchange of DICOM information objects and messages.

Examples: JPEG compressed (images), little endian explicit value representation.

Unique Identifier (UID)

a globally unique “dotted decimal” string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier.

Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR)

the format type of an individual DICOM data element, such as text, an integer, a person’s name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5 Abbreviations

Table 3-1 Abbreviations used in this document

Abbreviation	Definition
AE	Application Entity
AET	Application Entity Title
DICOM	Digital Imaging and Communications in Medicine
EMR	Electronic Medical Record
EPDF	Encapsulated Portable Document Format
IOD	Information Object Definition
OPV	Ophthalmic Visual Field
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair, union of a specific DICOM service and related IOD.
UI	User Interface
UID	Unique Identifier

3.6 References

NEMA PS3 / ISO 12052, Digital Imaging and Communications in Medicine (DICOM) Standard, National Electrical Manufacturers Association, Rosslyn, VA, USA (available free at http://medical.nema.org/)

FORUM DICOM Conformance Statements (available at http://www.zeiss.com/dicom).

4 Networking

4.1 Implementation Model

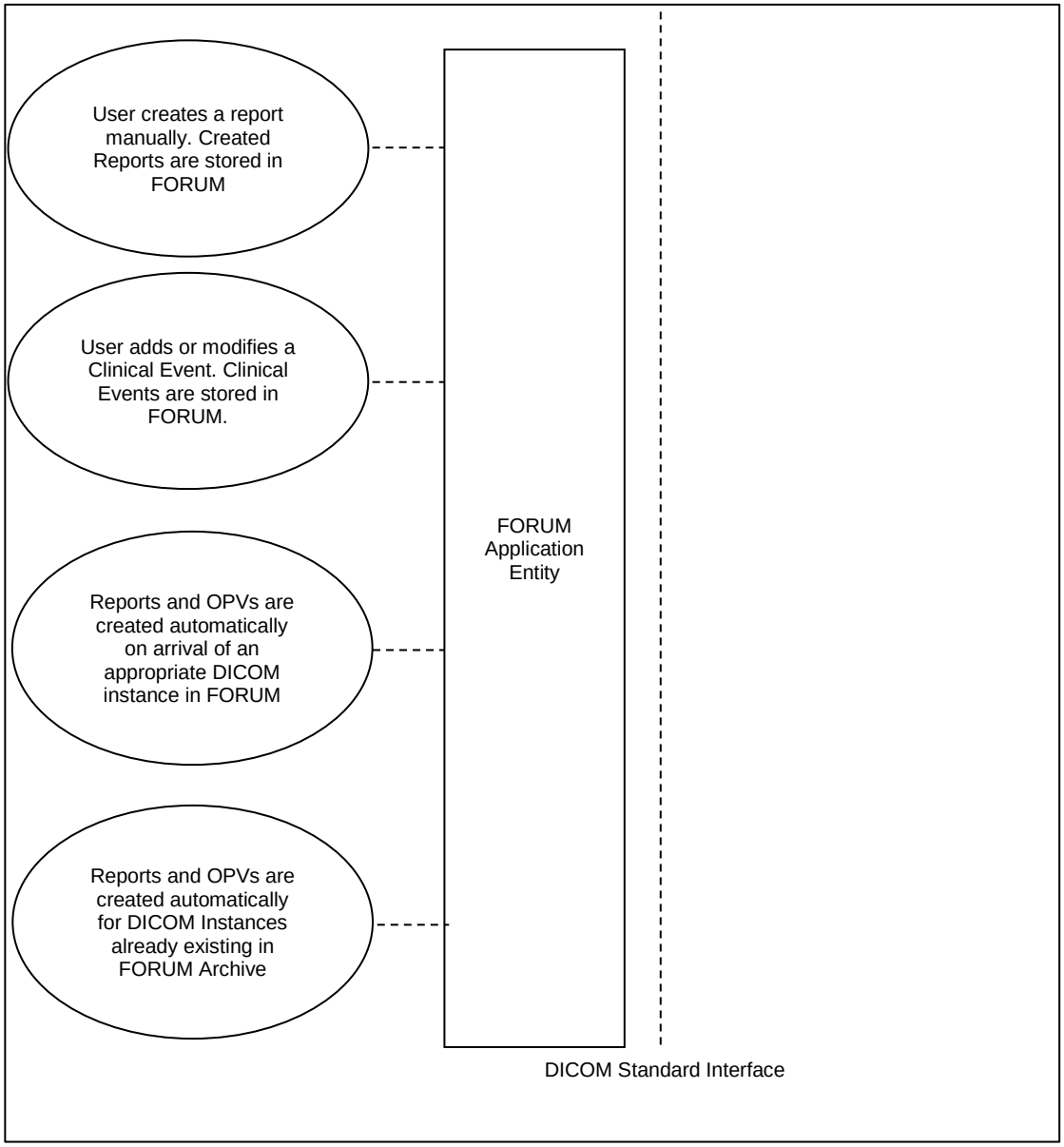
4.1.1 Application Data Flow

Figure 4-1 FORUM Archive - Functional Overview

See FORUM DICOM Conformance Statement.

Figure 4-2 Glaucoma Workplace - Functional Overview

The local activities described in Figure 4-2 below are additional activities to the functional range of FORUM Archive described in Figure 4-1 FORUM Archive - Functional Overview of the FORUM DICOM Conformance Statement. These additional activities are added with the installation of the Glaucoma Workplace as software plugin to FORUM. All DICOM related local and real world activities of FORUM Archive as described in the FORUM DICOM Conformance Statement remain valid.



4.1.2 Functional Definition of AEs

4.1.2.1 Functional Definition of FORUM Application Entity

See FORUM DICOM Conformance Statement.

4.1.2.2 Functional Definition of FORUM Worklist Application Entity

See FORUM DICOM Conformance Statement.

4.1.2.3 Functional Definition of Glaucoma Workplace

Glaucoma Workplace is an optional, additional application to FORUM, which is offered separately. It integrates the following complementary functions into FORUM:

- Processing and displaying visual field data and optical coherence tomography (OCT) data
- Generating visual field reports (OPV IOD)
- Generating reports that contain results from perimetry, OCT, and fundus photography (EPDF IOD)
- Providing CIRRUS algorithms and databases for retinal nerve fiber layer thickness (RNFL), ganglion cell plus inner plexiform thickness, optic nerve head (ONH) measurement, and Guided Progression Analysis (GPA).
- Providing Humphrey Field Analyzer (HFA) algorithms and databases for visual field measurements and GPA.
- Aiding trained healthcare professionals in the detection, measurement, and management of visual field defects and progression of visual field loss.

4.1.3 Sequencing of Real-World Activities

See FORUM DICOM Conformance Statement.

4.1.3.1 Glaucoma Workplace Activities

DICOM EPDF Report Creation

Glaucoma Workplace creates DICOM EPDF reports when:

- the user creates a report using the Glaucoma Workplace UI.
- a HFA perimetry Raw Data IOD is stored and the automatic report creation is enabled (see Table 4-1 Glaucoma Workplace Configuration)
- the creation of single exam reports for already existing IODs is enabled (see Table 4-1 Glaucoma Workplace Configuration). Glaucoma Workplace generates reports for all existing IODs in FORUM which qualifies for Glaucoma Workplace reports, if no report for this IOD exists.

DICOM OPV Creation

Glaucoma Workplace creates OPV IODs when:

- a HFA perimetry Raw Data IOD is stored and the OPV creation is enabled (see Table 4-1 Glaucoma Workplace Configuration)
- the creation of reports for already existing IODs is enabled and the creation of OPVs is enabled (see Table 4-1 Glaucoma Workplace Configuration). Glaucoma Workplace generates OPVs for all existing IODs in FORUM which qualifies for the OPV creation in Glaucoma Workplace, if no OPV for this IOD exists.

4.2 AE Specifications

See FORUM DICOM Conformance Statement

4.3 Network Interfaces

See FORUM DICOM Conformance Statement

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

See FORUM DICOM Conformance Statement for AE Title settings (local/remote) settings.

4.4.2 Parameters

4.4.2.1 General Parameters

See FORUM DICOM Conformance Statement.

4.4.2.2 Glaucoma Workplace Configuration

Glaucoma Workplace can be configured to create reports automatically. This configuration can be performed by the operator via GUI. Also some of the IOD content is part of the configuration.

The automatic report creation is triggered when a DICOM Instance is stored in FORUM.

Table 4-1 Glaucoma Workplace Configuration

Parameter	Configurable (Yes/No) Description	Default Value
General Settings		
GPA report type	Yes. Type of the created GPA Report, options are: GPA Summary, Full GPA, SFA GPA or GPA Last Three Follow-up.	GPA Summary
Automatic Report Creation		
Create single exam reports.	Yes. Creates a single exam report, if the stored IOD qualifies for it.	Disabled
Create Overview for 24-2/30-2	Yes. Creates a new Overview report for the patient if the stored IOD is a 24-2/30-2 visual field test.	Disabled
Create Overview for 10-2	Yes. Creates a new Overview report for the patient if the stored IOD is a 10-2 test.	Disabled
Create GPA report	Yes. Creates a GPA report for the patient, if all necessary data is available. Which type of GPA report is created, can be configured with the "GPA report type" setting.	Disabled
Create Structure-Function OU (Single Exam) report	Yes. Creates a combined structure-function report, if all necessary data for the report creation is available	Disabled
Create single exam reports for existing exams	Yes. A single exam report for every Visual Field IOD stored in FORUM that qualifies for report creation is created.	Disabled

	Only one report is created, if a report for this IOD already exists, none is created.	
Data Export Option		
Create DICOM OPV format for Visual Fields	Yes. For every Visual Field IOD containing Raw Data of an HFA in FORUM and that qualifies for OPV, an Ophthalmic Visual Field Static Perimetry instance is created.	Disabled

5 Media Interchange

See FORUM DICOM Conformance Statement.

6 Support of Character Sets

6.1 Accepted Character Sets

See FORUM DICOM Conformance Statement.

6.2 Returned Character Sets

See FORUM DICOM Conformance Statement.

7 Security

See FORUM DICOM Conformance Statement.

8 Annexes

8.1 IOD Contents

8.1.1 Created SOP Instance(s)

Glaucoma Workplace can generate visual field reports, and reports that contain results from Perimetry, Optical Coherence Tomography and Fundus Photography. These reports are created in the DICOM Encapsulated PDF (EPDF) format. Furthermore, Glaucoma Workplace can create DICOM Ophthalmic Visual Field Static Perimetry objects from HFA data stored in FORUM. A Glaucoma Workplace user can create and modify clinical events which are stored in FORUM as DICOM Raw Data instances.

In case new UIDs are created, they contain a constant prefix as follows:

Study Instance UID: 1.2.276.0.75.2.5.80.25.1

Series Instance UID: 1.2.276.0.75.2.5.80.25.2

SOP Instance UID: 1.2.276.0.75.2.5.80.25.3

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 is not always present – Applicable for Type 3

ALWAYS
Attribute is 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

CONFIG
The attribute value source is a configurable parameter

ACQUISITION
The sources of data come from data acquisition process. Include Image and data relate to Image

ANALYSIS
The sources of data come from data generate by application or add/edit/update by user when images are analyzed.

SRC
The attribute value is the same as the value in the selected patient or source dataset

For Glaucoma Workplace generated IODs the following is valid:
The attribute value is the same as in the DICOM IOD which contains the source raw data set of the report. In case of multiple sources, the latest source is used.

SRC/AUTO
The attribute value is the same as in the DICOM IOD which contains the raw data source of the report, if the source was a single exam. If the sources are multiple exams (multi exam reports), this value is generated automatically.

8.1.1.1 Encapsulated PDF Information Object Defintion

IE	Module	Presence of Module
Patient		
	Patient	ALWAYS
	ClinicalTrialSubject	NEVER
Study		
	General Study	ALWAYS
	PatientStudy	NEVER
	ClinicalTrialStudy	NEVER
Series		
	Encapsulated Document Series	ALWAYS
	ClinicalTrialSeries	NEVER
	CZM-HFA-Series	Only available if the encapsulated document is a HFA report.
	CZM Encapsulated Pdf Series Extension	ALWAYS
Equipment		
	General Equipment	ALWAYS
	Sc Equipment	ALWAYS
EncapsulatedDocument		
	Encapsulated Document	ALWAYS
	Sop Common	ALWAYS
	Specialized Encapsulated Document	ALWAYS
	Solln Encapsulated Document	Only available if the encapsulated document is a HFA report.
	CZM-HFA-Analysis	Only available if the encapsulated document is a HFA report.
	Solln Combined Report Encapsulated Document	Only available if the encapsulated document is a combined report.
	CZM Nim Internal	ALWAYS

Table 8-1 Encapsulated PDF IOD – File Meta Information

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0002,0001)	1	OB	File Meta Information Version	00\01	ALWAYS	AUTO
(0002,0002)	1	UI	Media Storage SOP Class UID	1.2.840.10008.5.1.4.1.1.104.1 (Encapsulated PDF Storage)	ALWAYS	AUTO
(0002,0003)	1	UI	Media Storage SOP Instance UID	The SOP instance UID has a prefix of 1.2.276.0.75.2.5.80.25.3.	ALWAYS	AUTO
(0002,0010)	1	UI	Transfer Syntax UID	1.2.840.10008.1.2.1 (Explicit VR Little Endian)	ALWAYS	AUTO
(0002,0012)	1	UI	Implementation Class UID	1.2.276.0.75.2.5.30	ALWAYS	AUTO
(0002,0013)	3	SH	Implementation Version Name	Implementation Version Name of FORUM Server	ALWAYS	AUTO

(0002,0016)	3	AE	Source Application Entity Title	Generated dynamically	ALWAYS	AUTO

Table 8-2 Encapsulated PDF IOD – Module "Patient"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name from source raw data.	ALWAYS	SRC
(0010,0020)	2	LO	Patient ID	Patient ID from source raw data.	ALWAYS	SRC
(0010,0021)	3	LO	Issuer of Patient ID	Issuer of Patient ID from source raw data.	ANAP	SRC
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient from source raw data.	ALWAYS	SRC
(0010,0040)	2	CS	Patient's Sex	Sex of the named patient from source raw data. Enumerated Values: M = male F = female O = other Can be empty if empty in source raw data.	VNAP	SRC
(0010,1000)	3	LO	Other Patient IDs	Other patient IDs from source raw data.	ANAP	SRC
(0010,2160)	3	SH	Ethnic Group	Ethnic group or race of the patient from source raw data.	ANAP	SRC
(0010,4000)	3	LT	Patient Comments	Patient Comments from source raw data.	ANAP	SRC

Table 8-3 Encapsulated PDF IOD – Module "General Study"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0020,000D)	1	UI	Study Instance UID	Study Instance UID from source raw data.	ALWAYS	SRC
(0008,0020)	2	DA	Study Date	Study Date from source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0008,0030)	2	TM	Study Time	Study Time from source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0008,0090)	2	PN	Referring Physician's Name	Name of the patient's referring physician from source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0020,0010)	2	SH	Study ID	Study ID from source raw data Can be empty if empty in the source raw data.	VNAP	SRC
(0008,0050)	2	SH	Accession Number	Accession Number from source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0008,1030)	3	LO	Study Description	Study Description from source raw data. Not available if not present in the source raw data.	ANAP	SRC
(0008,1032)	3	SQ	Procedure Code Sequence	Procedure Code Sequence from source raw data. Not available if not present in the source raw data.	ANAP	SRC

(0008,1110)	3	SQ	Referenced Study Sequence	Referenced Study Sequence from source raw data. Not available if not present in the source raw data.	ANAP	SRC

Table 8-4 Encapsulated PDF IOD – Module "Encapsulated Document Series"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0060)	1	CS	Modality	"OPV" for perimetry reports, "DOC" for combined reports.	ALWAYS	AUTO
(0020,000E)	1	UI	Series Instance UID	Newly created series instance UID with root: 1.2.276.0.75.2.5.80.25.2	ALWAYS	AUTO
(0020,0011)	1	IS	Series Number	Newly created and set to "1".	ALWAYS	AUTO
(0008,103E)	3	LO	Series Description	Name of the report: SFA, GPA, OVERVIEW, COMBINED_REPORT, STHRESHOLD, STHRESHOLD_OU, KINETIC_30, KINETIC_90, KINETIC_TABLE, NUMERIC, THREE_IN_ONE	ALWAYS	AUTO
(0040,0275)	3	SQ	Request Attributes Sequence	Request Attributes Sequence from source raw data. Not available if not present in the source raw data.	ANAP	SRC
>(0032,1060)	3	LO	Requested Procedure Description	Requested Procedure Description from source raw data.	ANAP	SRC
>(0040,0009)	1C	SH	Scheduled Procedure Step ID	Scheduled Procedure Step ID from source raw data.	ANAP	SRC
>(0040,0007)	3	LO	Scheduled Procedure Step Description	Scheduled Procedure Step Description from source raw data.	ANAP	SRC
>(0040,0008)	3	SQ	Scheduled Protocol Code Sequence	Scheduled Protocol Code Sequence from source raw data.	ANAP	SRC
(0040,0253)	3	SH	Performed Procedure Step ID	Performed Procedure Step ID from raw source data for single exam report. Newly created for multi exam reports.	ANAP	SRC/ AUTO
(0040,0244)	3	DA	Performed Procedure Step Start Date	Performed Procedure Step Start Date from raw source data for single field report. Newly created for multi exam reports, set to current date	ANAP	SRC/ AUTO
(0040,0245)	3	TM	Performed Procedure Step Start Time	Performed Procedure Step Start Time from raw source data for single field report. Newly created for multi exam reports, set to current time.	ANAP	SRC/ AUTO
(0040,0254)	3	LO	Performed Procedure Step Description	Name of the report: SFA, GPA, OVERVIEW, COMBINED_REPORT, STHRESHOLD, STHRESHOLD_OU, KINETIC_30,	ALWAYS	AUTO

				KINETIC_90, KINETIC_TABLE, NUMERIC, THREE_IN_ONE		

Table 8-5 Encapsulated PDF IOD – Module "CZM Encapsulated PDF Series Extension"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0020,0060)	3	CS	Laterality	Laterality from source raw data exam. Enumerated Values: R = right, L = left, B = both	ALWAYS	SRC

Table 8-6 Encapsulated PDF IOD – Module "General Equipment"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0070)	2	LO	Manufacturer	Set to “Carl Zeiss Meditec”	ALWAYS	AUTO
(0008,0080)	3	LO	Institution Name	Institution Name from the configuration.	ANAP	CONFIG
(0008,0081)	3	ST	Institution Address	Institution Address from the configuration.	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	Hostname of the machine used for creating the report.	ALWAYS	AUTO
(0008,1090)	3	LO	Manufacturer's Model Name	Set to “Forum Glaucoma Workplace”	ALWAYS	AUTO
(0018,1020)	3	LO	Software Version(s)	Multi valued: 1. Glaucoma Workplace version 2. Glaucoma Workplace language pack version (empty if no language pack installed)	ALWAYS	AUTO

Table 8-7 Encapsulated PDF IOD – Module "SC Equipment"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0064)	1	CS	Conversion Type	Set to: SYN = Synthetic Image	ALWAYS	AUTO

Table 8-8 Encapsulated PDF IOD – Module "Encapsulated Document"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0020,0013)	1	IS	Instance Number	Set to 1.	ALWAYS	AUTO
(0008,0023)	2	DA	Content Date	Set to current date.	ALWAYS	AUTO
(0008,0033)	2	TM	Content Time	Set to current time.	ALWAYS	AUTO
(0008,002A)	2	DT	Acquisition Datetime	Acquisition Datetime from raw data exam	VNAP	SRC
(0020,0062)	3	CS	Image Laterality	Laterality from source raw data exam. Enumerated Values: R = right, L = left, B = both.	ALWAYS	SRC
(0028,0301)	1	CS	Burned In Annotation	Set to “YES”	ALWAYS	AUTO
(0042,0013)	1C	SQ	Source Instance Sequence	Contains the UIDs from all source documents. Minimum one sequence item.	ALWAYS	AUTO
>(0008,1150)	1	UI	Referenced SOP Class UID	SOP Class UID from the source data.	ALWAYS	AUTO

>(0008,1155)	1	UI	Referenced SOP Instance UID	SOP Instance UID from the source data.	ALWAYS	AUTO
(0042,0010)	2	ST	Document Title	For single exam perimetry reports (report type: SFA, STHRESHOLD, KINETIC_30, KINETIC_90, KINETIC_TABLE, NUMERIC, THREE_IN_ONE): ‹Laterlity›_‹ReportType›_‹PatternType› For multi exam reports, name of the report: GPA, OVERVIEW, COMBINED_REPORT, STHRESHOLD_OU, Structure-Function GPA	ALWAYS	AUTO
(0040,A043)	2	SQ	Concept Name Code Sequence	This sequence is always empty.	EMPTY	
(0042,0012)	1	LO	MIME Type of Encapsulated Document	Set to “application/pdf”	ALWAYS	AUTO
(0042,0011)	1	OB	Encapsulated Document	Encapsulated Document stream, containing the pdf report.	ALWAYS	ANALYSIS

Table 8-9 Encapsulated PDF IOD – Module "SOP Common"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0016)	1	UI	SOP Class UID	Set to: “1.2.840.10008.5.1.4.1.1.104.1”	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Newly created with root: 1.2.276.0.75.2.5.80.25.3.	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Set to: “ISO_IR 192” (Unicode encoding)	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Current date.	ALWAYS	AUTO
(0018,A001)	3	SQ	Contributing Equipment Sequence	Contains information about the equipment used to create the source data shown in the report. In overview and GPA reports only the equipment in the latest instance is listed.	ANAP	SRC
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	Set to: “109101”, “DCM”, “Acquisition Equipment”	ALWAYS	AUTO
>(0008,0070)	1	LO	Manufacturer	Manufacturer of the equipment that contributed to the composite instance.	ALWAYS	SRC
>(0008,0080)	3	LO	Institution Name	Institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,0081)	3	ST	Institution Address	Address of the institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,1010)	3	SH	Station Name	User defined name identifying the machine that contributed to the composite instance.	ANAP	SRC

>(0008,1090)	3	LO	Manufacturer's Model Name	Manufacturer's model name of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1000)	3	LO	Device Serial Number	Manufacturer's serial number of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1020)	3	LO	Software Version(s)	Manufacturer's designation of the software version of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1200)	3	DA	Date of Last Calibration	Date when the image acquisition device calibration was last changed in any way.	ANAP	SRC

Table 8-10 Encapsulated PDF IOD – Module "SpecializedEncapsulatedDocument"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(22A1,xx01)	3	LO	Document Type	Is set to: "SFA" for SFA Reports "GPA" for GPA Reports "OVERVIEW" for Overview Reports "COMBINED_REPORT" for Combined Reports "STHRESHOLD" or "STHRESHOLD_OU" for Suprathreshold Reports "KINETIC_30" or "KINETIC_90" or "KINETIC_TABLE" for Kinetic Reports "NUMERIC" for Numeric Reports "THREE_IN_ONE" for Three-in-One Reports "Structure-Function GPA" for structure function GPA Reports.	ALWAYS	AUTO

Table 8-11 Encapsulated PDF IOD – Module "SollnEncapsulatedDocument"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(2501,xx00)	3	CS	Report Type	The CS value for the type of the report STHRESHOLD, STHRESHOLD_OU, KINETIC_30, KINETIC_90, KINETIC_TABLE, NUMERIC, THREE_IN_ONE Values for GPA: 00=GpaSummary 01=SfaGpa 02=GpaComplete 03=GpaLastThreeFollowUp 04=GpaInteractive with prefix GPA_ Values for Overview:	ALWAYS	AUTO

				00=OVERVIEW_10_2 01=OVERVIEW_24_2_30_2White 02=OVERVIEW_24_2_30_2BlueOnYellow with prefix OVR_		
(2501,xx07)	3	CS	HFA Test Strategy	The CS value for the HFA Test Strategy from HFA Raw Data Exam 00=NONE, 01=FULL_THRESHOLD, 02=FASTPAC, 04=SITA_STANDARD, 05=FULL_FROM_PRIOR, 06=TWO_ZONE, 07=THREE_ZONE, 08=QUANTIFIED_DEFECTS, 10=OPTIMA, 11=SITA_FAST, 13=SITA_SWAP, 16=SITA_FASTER Not present for Overview Reports.	ANAP	SRC
(2501,xx08)	3	CS	HFA Test Pattern	The CS value for the HFA Test Pattern from HFA Raw Data Exam 00=NONE, 01=CENTRAL_30_1_THRESHOLD_TEST, 02=CENTRAL_30_2_THRESHOLD_TEST, 03=PERIPHERAL_60_1_THRESHOLD_TEST, 04=PERIPHERAL_60_4_THRESHOLD_TEST, 05=TEMPORAL_CRESCENT_THRESHOLD_TEST, 06=NEUROLOGICAL_20_THRESHOLD_TEST, 07=NEUROLOGICAL_50_THRESHOLD_TEST, 08=MACULA_THRESHOLD_TEST, 09=NASAL_STEP_THRESHOLD_TEST, 10=CENTRAL_10_2_THRESHOLD_TEST, 11=CENTRAL_ARMALY_SCREENING_TEST, 12=FULL_FIELD_ARMALY_SCREENING_TEST, 13=CENTRAL_40_POINT_SCREENING_TEST, 14=PERIPHERAL_60_POINT_SCREENING_TEST, 15=CENTRAL_80_POINT_SCREENING_TEST, 16=CENTRAL_166_POINT_SCREENING_TEST, 17=FULL_FIELD_81_POINT_SCREENING_TEST, 18=FULL_FIELD_120_POINT_SCREENING_TEST, 19=FULL_FIELD_246_POINT_SCREENING_TEST, 20=AUTO_DIAGNOSTIC_TEST, 21=SUPERIOR_64_POINT_SCREENING_TEST, 22=NASAL_STEP_SCREENING_TEST, 23=CENTRAL_76_POINT_SCREENING_TEST, 24=CENTRAL_24_1_THRESHOLD_TEST, 25=CENTRAL_24_2_THRESHOLD_TEST, 26=BLINDENGELDGUTACHTEN, 27=FUEHRERSCHEINGUTACHTEN, 28=ESTERMAN_MONOCULAR, 29=ESTERMAN_BINOCULAR, 30=CENTRAL_64_POINT_SCREENING_TEST, 31=FULL_FIELD_12_POINT_QA_TEST, 32=USER_DEFINED_THRESHOLD_TEST, 33=USER_DEFINED_SCREENING_TEST, 34=KINETICTEST, 35=FULL_FIELD_135_POINT_SCREENING_TEST, 36=SUPERIOR_36_POINT_SCREENING_TEST, 37=CENTRAL_24_2C_THRESHOLD_TEST, 83=CUSTOM_SCREENING_TEST, 84=CUSTOM_THRESHOLD_TEST Not present for GPA and Overview Reports.	ANAP	SRC

Table 8-12 Encapsulated PDF IOD – Module "SolInCombinedReportEncapsulatedDocument"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(2501,xx00)	3	CS	Report Type	The CS value for the type of the Combined Report: values: OCT_CR_00=OCTPerimetry_10_2 OCT_CR_01=OCTPerimetry_24_2_30_2 GPA_CR = Structure Function GPA.	ALWAYS	AUTO
(2501,xx01)	3	CS	Generated automatically	Information if the combined report creation was automatically (TRUE) or manually (FALSE) triggered	ALWAYS	AUTO
(2501,xx02)	3	SQ	Combined Report Source Instance Sequence	Sequence newly created by Glaucoma Workplace, and filled with additional information about the source documents. Values taken from the source Documents.	ALWAYS	AUTO
› (2501,xx03)	1	UI	Combined Report Source Instance UID	Taken from the source documents: for each source document the value of element 'SOP Instance UID' (0008,0018)	ALWAYS	SRC
› (2501,xx04)	1	UI	Combined Report Source Class UID	Taken from the source documents: for each source document the value of element 'SOP Class UID' (0008,0016)	ALWAYS	SRC
› (2501,xx05)	1	CS	Combined Report Source Laterality	Taken from the source documents: for each source document the value of element Laterality (0020,0060	ALWAYS	SRC
› (2501,xx06)	1	LO	Combined Report Source IOD Meta Name	Taken from the source documents: for each source document the value of element 'IOD Meta Name Info (2201,xx00) ' which is written by the NIM during creation of the source document	ALWAYS	SRC

Table 8-13 Encapsulated PDF IOD – Module "CZM-HFA-Series"

Tag	Type	VR	Name	Description	PoV	Source
(7717,xx01)	1	LO	Test Name	Name indicating test pattern and test type (Threshold, Screening, Kinetic) The following test names are defined for HFA tests. "Central 30-2 Threshold Test", "Peripheral 60-4 Threshold Test", "Macula Threshold Test", "Nasal Step Threshold Test", "Central 10-2 Threshold Test", "Central Armaly Screening Test", "Full Field Armaly Screening Test", "Central 40 Point Screening Test", "Peripheral 60 Point Screening Test", "Central 80 Point Screening Test", "Central 166 Point Screening Test", "Full Field 81 Point Screening Test", "Full Field 120 Point Screening Test", "Full Field 246 Point Screening Test", "Superior 64 Point Screening Test", "Nasal Step Screening Test", "Central 76 Point Screening Test", "Central 24-2 Threshold Test",	ALWAYS	SRC

				"Blindengeldgutachten", "Fuehrerscheingutachten", "Esterman Monocular", "Esterman Binocular", "Central 64 Point Screening Test", "Full Field 12 Point QA Test", "User Defined Threshold Test", "User Defined Screening Test", "Kinetic Test", "Full Field 135 Point Screening Test", "Superior 36 Point Screening Test", "Custom Screening Test", "Custom Threshold Test", “Central 24-2C Threshold Test”		
(7717,xx02)	1	LO	Test Strategy	Strategy (algorithm) used to perform the test. The following test strategies are defined for HFA tests. "Full Threshold", "FASTPAC", "SITA-Standard", "Full From Prior", "Two-Zone", "Three-Zone", "Quantify Defects", "Optima", "SITA-Fast", "Kinetic", "SITA-SWAP", “SITA Faster”	ALWAYS	SRC
(7717,xx03)	1C	CS	Stimulus Size	Goldmann size of the stimulus being presented. NOTE: Not present if test strategy (7717,xx02) is Kinetic Possible values are: I, II, III, IV, V, VI	ANAP	SRC
(7717,xx04)	1C	SH	Stimulus Color	Color of stimulus being presented. NOTE: Not present if test strategy (7717,xx02) is Kinetic Possible values are: "White", "Red", "Green", "Blue"	ANAP	SRC
(7717,xx05)	1C	SH	Background State	Indicates the color of background illumination used to perform the test. NOTE: Not present if test strategy (7717,xx02) is Kinetic Possible values are: "White", "Yellow"	ANAP	SRC
(7717,xx06)	1C	CS	Foveal Result	Threshold result ("NOT TESTED", "SEEN", "NOT SEEN") of the test point at coordinates (0, 0) with respect to the fixation target. NOTE: Present only if test is a Threshold Test	ANAP	ANALYSIS
(7717,xx07)	1C	LO	Screening Mode	Indicates how starting stimulus intensities were chosen for screening tests NOTE: Present only if test is a Screening Test Possible values are: "Threshold Related", "Age Corrected", "Single Intensity"	ANAP	SRC
(7717,xx08)	1C	IS	Fixation Trials	Number of stimulus presentations in the determined blind spot.	ANAP	ANALYSIS

				NOTE: Present only if Fixation Monitor is "Gaze / Blind Spot" or "Blind Spot"		
(7717,xx09)	1C	IS	Fixation Errors	Number of stimulus presentations in the determined blind spot SEEN by the patient. NOTE: Present only if Fixation Monitor is "Gaze / Blind Spot" or "Blind Spot"	ANAP	ANALYSIS
(7717,xx10)	1C	DS	False Positive Percent	Estimated percent of False Positives. NOTE: Present only if Test Strategy (7717,xx02) is SITA-Standard, SITA-Fast or SITA-SWAP.	ANAP	ANALYSIS
(7717,xx11)	1C	IS	False Positive Trials	Number of false positive questions – stimulus is not actually presented, but time is allotted to it. NOTE: Present only if test strategy (7717,xx02) is NOT SITA-Standard, SITA-Fast, SITA-SWAP or Kinetic	ANAP	ANALYSIS
(7717,xx12)	1C	IS	False Positive Errors	Number of false positive questions the patient responds to. Required if test strategy (7717,xx02) is NOT SITA-Standard, SITA-Fast, SITA-SWAP or Kinetic	ANAP	ANALYSIS
(7717,xx13)	1C	DS	False Negative Percent	Estimated percent of False Negatives. NOTE: Present only if test strategy (7717,xx02) is SITA-Standard, SITA-Fast or SITA-SWAP	ANAP	ANALYSIS
(7717,xx14)	1C	IS	False Negative Trials	Number of false negative questions – stimulus is presented several dB brighter than determined threshold for a given test point. NOTE: Present only if test strategy (7717,xx02) is NOT SITA-Standard, SITA-Fast, SITA-SWAP or Kinetic	ANAP	ANALYSIS
(7717,xx15)	1C	IS	False Negative Errors	Number of false negative questions the patient DOES NOT respond to. NOTE: Present only if test strategy (7717,xx02) is NOT SITA-Standard, SITA-Fast, SITA-SWAP or Kinetic.	ANAP	ANALYSIS
(7717,xx24)	1	LO	Fixation Monitor	Method by which patient's fixation was monitored during testing. Possible values are: "Gaze/Blind Spot", "Gaze Track", "Blind Spot", "OFF"	ALWAYS	SRC
(7717,xx25)	1C	LO	Fixation Target	Location on the bowl where patient is to fixate. All test point locations are with respect to this location. Possible values are: "Central", "Large Diamond", "Small Diamond", "Bottom LED"	ANAP	SRC
(7717,xx26)	3	DS	Pupil Diameter	Diameter of patient's pupil in mm. NOTE: Not present for binocular tests.	ANAP	SRC
(7717,xx27)	3	DS	Sphere	Spherical corrective lens used during patient testing	ANAP	ANALYSIS

				NOTE: not present for binocular tests.		
(7717,xx28)	3	DS	Cylinder	Cylindrical corrective lens used during patient testing NOTE: not present for binocular tests.	ANAP	ANALYSIS
(7717,xx29)	3	IS	Axis	Meridian Cylinder correction is placed on. NOTE: not present for binocular tests.	ANAP	ANALYSIS
(7717,xx30)	3	SH	Visual Acuity	Patient's visual acuity NOTE: Not present for binocular tests.	ANAP	ANALYSIS
(7717,xx32)	1	DA	Test Date	Start date of most recent (key) exam.	ALWAYS	SRC
(7717,xx33)	1	TM	Test Time	Start time of most recent (key) exam	ALWAYS	SRC

Table 8-14 Encapsulated PDF IOD – Module "CZM-HFA-Analysis"

Tag	Type	VR	Name	Description	PoV	Source
7717,xx16)	3	DS	Mean Deviation	Weighted average deviation from the age corrected normal field, in dB.	ANAP	ANALYSIS
(7717,xx17)	3	LO	Mean Deviation Probability	Probability of normality for the Mean Deviation from Normal value, in percent. Not present for 10-2 pattern tested with non-SITA test strategies.	ANAP	ANALYSIS
(7717,xx18)	3	DS	Pattern Standard Deviation	Weighted square root of loss variance, in dB.	ANAP	ANALYSIS
(7717,xx19)	3	LO	Pattern Standard Deviation Probability	Probability of normality for the Pattern Standard Deviation from Normal value, in percent. Not present for 10-2 pattern tested with non-SITA strategies	ANAP	ANALYSIS
(7717,xx20)	3	DS	Short-term Fluctuatio n	Average deviation of sensitivity for the repeated test locations, in dB. This is used to determine the consistency of the patient’s responses. Not present for SITA test strategies.	ANAP	ANALYSIS
(7717,xx21)	3	DS	Corrected Pattern Standard Deviation	Weighted square root of loss variance corrected for short term fluctuation, in dB. Not present for SITA test strategies.	ANAP	ANALYSIS
(7717,xx22)	3	DS	Corrected Pattern Standard Deviation Probability	Probability of normality for the Corrected Pattern Standard Deviation from Normal value, in percent. Not present for SITA test strategies.	ANAP	ANALYSIS
(7717,xx23)	3	LO	Glaucoma Hemifield Test	A test of asymmetry between zones of the superior and inferior visual field. It is designed to be specific for defects due to glaucoma.	ANAP	ANALYSIS

				Not present if the test strategy (7717,xx02) is FASTPAC		
(7717,xx31)	3	LO	Short-term Fluctuation Probability	Probability of normality for the Pattern Deviation from Normal value, in percent. Not present for SITA test strategies.	ANAP	ANALYSIS
(7717,xx34)	3	DS	Visual Field Index	Index of a patient's remaining visual field normalized for both age and generalized defect, in percent. Not present if the test strategy (7717,xx02) is FASTPAC.	ANAP	ANALYSIS
(7717,xx40)	3	SQ	VFM Sequence	Visual Field Map. Containing items for the tested sections and the value of this section. Sequence shall contain 6 items if present. Present only for SITA-Standard or SITA-Fast test strategy (7717,xx02) and 24-2 or 30-2 test pattern.	ANAP	ANALYSIS
›(7717,xx41)	1	IS	Section Number	1 - 6	ALWAYS	AUTO
›(7717,xx42)	1	LO	Section Value	Defined Terms: "0" = Not Significant, "1" = P ‹ 5%, "2" = P ‹ 1%	ALWAYS	ANALYSIS

Table 8-15 Encapsulated PDF IOD – Module CZM-NIM-INTERNAL

Tag	Type	VR	Name	Description	PoV	Source
(2201,xx00)	1	LT	IOD name meta info	Name of the Information Object Definition as specified by CZM-XML.	ALWAYS	AUTO
(2201,xx01)	1	LT	CZM-XML Version	Version of the CZM-XML used to create this IOD.	ALWAYS	AUTO
(2201,xx02)	3	LT	Private module names and versions	Names and versions of the private modules used in this IOD.	ALWAYS	AUTO

8.1.1.2 Ophthalmic Visual Field Static Perimetry Measurement Information Object Definition

IE	Module	Presence of Module
Patient		
	Patient	ALWAYS
	ClinicalTrialSubject	NEVER
Study		
	General Study	ALWAYS
	Patient Study	NEVER
	ClinicalTrialStudy	NEVER
Series		
	General Series	ALWAYS
	ClinicalTrialSeries	NEVER
	Visual Field Static Perimetry Measurements Series	ALWAYS
Equipment		
	General Equipment	ALWAYS
	Enhanced General Equipment	ALWAYS
Measurements		
	Visual Field Static Perimetry Test Parameters	ALWAYS
	Visual Field Static Perimetry Test Reliability	ALWAYS
	Visual Field Static Perimetry Test Measurements	ALWAYS
	Visual Field Static Perimetry Test Results	ALWAYS
	Ophthalmic Patient Clinical Information And Test Lens Parameters	Only available if the values are in the binary data of the source HFA raw data.
	SOP Common	ALWAYS
	CZM Ophthalmic Visual Field Static Perimetry Measurements Extension	ALWAYS
	HFA Visual Field Static Perimetry Test Results	ALWAYS
	CZM NIM Internal	ALWAYS

Table 8-16 Ophthalmic Visual Field IOD – File Meta Information

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0002,0001)	1	OB	File Meta Information Version	00\01	ALWAYS	AUTO
(0002,0002)	1	UI	Media Storage SOP Class UID	1.2.840.10008.5.1.4.1.1.80.1 (Ophthalmic Visual Field Static Perimetry Measurement)	ALWAYS	AUTO
(0002,0003)	1	UI	Media Storage SOP Instance UID	The SOP instance UID has a prefix of 1.2.276.0.75.2.5.80.25.3.	ALWAYS	AUTO

(0002,0010)	1	UI	Transfer Syntax UID	1.2.840.10008.1.2.1 (Explicit VR Little Endian)	ALWAYS	AUTO
(0002,0012)	1	UI	Implementation Class UID	1.2.276.0.75.2.5.30	ALWAYS	AUTO
(0002,0013)	3	SH	Implementation Version Name	Implementation Version Name of FORUM Server	ALWAYS	AUTO
(0002,0016)	3	AE	Source Application Entity Title	Generated dynamically	ALWAYS	AUTO

Table 8-17 Ophthalmic Visual Field IOD – Module "Patient"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name from source HFA raw data.	ALWAYS	SRC
(0010,0020)	2	LO	Patient ID	Primary hospital identification number or code for the patient from source HFA raw data.	ALWAYS	SRC
(0010,0021)	3	LO	Issuer of Patient ID	Identifier of the Assigning Authority (system, organization, agency, or department) that issued the Patient ID from source HFA raw data.	ANAP	SRC
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient from source HFA raw data.	VNAP	SRC
(0010,0040)	2	CS	Patient's Sex	Sex of the named patient from source HFA raw dataEnumerated Values: M = male F = female O = other Can be empty if empty in source HFA raw data.	VNAP	SRC
(0010,1000)	3	LO	Other Patient IDs	Other identification numbers or codes used to identify the patient from source HFA raw data.	ANAP	SRC
(0010,2160)	3	SH	Ethnic Group	Ethnic group or race of the patient from source HFA raw data.	ANAP	SRC
(0010,4000)	3	LT	Patient Comments	User-defined additional information about the patient from source HFA raw data.	ANAP	SRC

Table 8-18 Ophthalmic Visual Field IOD – Module "General Study"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0020,000D)	1	UI	Study Instance UID	Unique identifier for the Study, from source HFA raw data.	ALWAYS	SRC
(0008,0020)	2	DA	Study Date	Date the Study started, from source HFA raw data. Can be empty if empty in source HFA raw data.	VNAP	SRC
(0008,0030)	2	TM	Study Time	Time the Study started, from source raw data. Can be empty if empty in source HFA raw data.	VNAP	SRC

(0008,0090)	2	PN	Referring Physician's Name	Name of the patient's referring physician, from source HFA raw data. Can be empty if empty in source HFA raw data.	VNAP	SRC
(0020,0010)	2	SH	Study ID	User or equipment generated Study identifier, from source HFA raw data. Can be empty if empty in source HFA raw data.	VNAP	SRC
(0008,0050)	2	SH	Accession Number	A RIS generated number that identifies the order for the Study, from source HFA raw data. Can be empty if empty in source HFA raw data.	VNAP	SRC
(0008,1030)	3	LO	Study Description	Institution-generated description or classification of the Study (component) performed from source HFA raw Data	ANAP	SRC
(0008,1032)	3	SQ	Procedure Code Sequence	A Sequence that conveys the type of procedure performed. One or more Items are permitted in this Sequence. Procedure Code Sequence from source HFA raw data, including all items in the source.	ANAP	SRC

Table 8-19 Ophthalmic Visual Field IOD – Module "General Series"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0020,000E)	1	UI	Series Instance UID	Unique identifier of the Series. Newly created with root: 1.2.276.0.75.2.5.80.25.2	ALWAYS	AUTO
(0020,0011)	2	IS	Series Number	Set to: “1”	ALWAYS	AUTO
(0020,0060)	2C	CS	Laterality	Laterality from source HFA raw data.	ALWAYS	SRC
(0018,1030)	3	LO	Protocol Name	Protocol Name from source HFA raw data.	ANAP	SRC
(0008,103E)	3	LO	Series Description	Set to “OPV”	ALWAYS	AUTO

Table 8-20 Ophthalmic Visual Field IOD – Module "Visual Field Static Perimetry Measurements Series"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0060)	1	CS	Modality	Set to: “OPV”	ALWAYS	AUTO
(0040,0275)	3	SQ	Request Attributes Sequence	Sequence that contains attributes from the Imaging Service Request. One or more Items are permitted in this sequence. The values are from the source HFA raw data. Available if the sequence is in the source.	ANAP	SRC
>(0040,1001)	1C	SH	Requested Procedure ID		ANAP	SRC

				Requested Procedure ID from source HFA raw data.		
>(0032,1060)	3	LO	Requested Procedure Description	Requested Procedure from source HFA raw data.	ANAP	SRC
>(0040,0009)	1C	SH	Scheduled Procedure Step ID	Scheduled Procedure Step ID from source HFA raw data.	ANAP	SRC
>(0040,0007)	3	LO	Scheduled Procedure Step Description	Scheduled Procedure Step Description from source HFA raw data	ANAP	SRC
>(0040,0008)	3	SQ	Scheduled Protocol Code Sequence	Scheduled Protocol Code Sequence from source HFA raw data.	ANAP	SRC
(0040,0253)	3	SH	Performed Procedure Step ID	Performed Procedure Step ID from source HFA raw data.	ANAP	SRC
(0040,0244)	3	DA	Performed Procedure Step Start Date	Date on which the Performed Procedure Step started, from source HFA raw data..	ANAP	SRC
(0040,0245)	3	TM	Performed Procedure Step Start Time	Time on which the Performed Procedure Step started, from source HFA raw data.	ANAP	SRC
(0040,0254)	3	LO	Performed Procedure Step Description	Set to: “OPV”.	ALWAYS	AUTO
(0040,0260)	3	SQ	Performed Protocol Code Sequence	Sequence describing the Protocol performed for this Procedure Step.	ALWAYS	AUTO
> Include ‘Code Sequence Macro’				Contains sequence items for Test-Pattern and Test-Strategy from RAW Data Exam. Including Elements, from extended ContextIDs 4250 and 4251: - Code Value - Code Meaning - Coding Scheme Designator - Coding Scheme Version - only available if CZM Extension. See chapter 8.3 for details.	ALWAYS	AUTO
>(0040,0440)	3	SQ	Protocol Context Sequence	Sequence that specifies the context for the Performed Protocol Code Sequence Item. One or more Items are permitted in this sequence. The Protocol Context Sequence is used to provide whether the test was taken for screening or diagnostic purposes. Concept Name Code Sequence with values from ContextID 4256 for screening or diagnostic test.	ALWAYS	AUTO
>>(0040,A040)	1	CS	Value Type	Set to: “CODE”	ALWAYS	AUTO
>>(0040,A043)	1	SQ	Concept Name Code Sequence	Concept Name Code Sequence with coded values to differentiate between screening or diagnostic tests	ALWAYS	AUTO

>>> Include 'Code Sequence Macro'	Possible values: Coded values taken from DICOM Context ID 4256 Visual Field Procedure Modifier (SRT, R-42453, "Screening") or (SRT, R-408C3, "Diagnostic")	ALWAYS	AUTO

Table 8-21 Ophthalmic Visual Field IOD – Module "General Equipment"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0080)	3	LO	Institution Name	Institution Name from Glaucoma Workplace configuration.	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	User defined name identifying the machine that produced the composite instances. Hostname of the machine used for creating the OPV.	ALWAYS	AUTO

Table 8-22 Ophthalmic Visual Field IOD – Module "Enhanced General Equipment"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0070)	1	LO	Manufacturer	Set to: "Carl Zeiss Meditec"	ALWAYS	AUTO
(0008,1090)	1	LO	Manufacturer's Model Name	Set to: "FORUM Glaucoma Workplace"	ALWAYS	AUTO
(0018,1000)	1	LO	Device Serial Number	Device serial number from source HFA raw data.. If empty, set to: "not available"	ALWAYS	SRC
(0018,1020)	1	LO	Software Version(s)	Multi valued: 1. Glaucoma Workplace version. 2. Glaucoma Workplace language pack version (empty if no language pack installed) 3. Perimeter Versions	ALWAYS	AUTO

Table 8-23 Ophthalmic Visual Field IOD – Module "Visual Field Static Perimetry Test Parameters"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0024,0010)	1	FL	Visual Field Horizontal Extent	The maximum horizontal angular subtend (diameter or width) of the tested visual field, in degrees, extracted from the binary data in the source HFA raw data.	AUTO	ANALYSIS
(0024,0011)	1	FL	Visual Field Vertical Extent	The maximum vertical angular subtend (diameter or height) of the tested visual field, in degrees, extracted from the binary data in the source HFA raw data.	AUTO	ANALYSIS
(0024,0012)	1	CS	Visual Field Shape	Always set to "CIRCLE"	AUTO	AUTO
(0024,0016)	1C	SQ	Screening Test Mode Code Sequence	The values in this CS are extracted from the source HFA raw data. Only present if the test is a screening test.	ANAP	ANALYSIS
> Include ‚Code Sequence Macro'				(111839, DCM, "Threshold Related") or (111838, DCM, "Age Corrected") or (111840, DCM, "Single Luminance")	ALWAYS	ANALYSIS
(0024,0018)	1	FL	Maximum Stimulus Luminance	Maximum luminance of stimulus, in candelas per square meter (cd/m²). Calculated from values in the binary data in the source HFA raw data.	ALWAYS	ANALYSIS

(0024,0020)	1	FL	Background Luminance	Background luminance of the device, in candelas per square meter (cd/m²).Note: This value is easily convertible to apostilb, which is used only in perimetry and is not a standardized unit. Calculated from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0021)	1	SQ	Stimulus Color Code Sequence	Color of light stimulus presented to the patient. Only a single Item shall be included in this sequence. Extracted from binary data in the source HFA raw data.	ALWAYS	AUTO
> Include ‚Code Sequence Macro'				(G-A12B, SRT, "WHITE") or (G-A11A, SRT, "RED") or (G-A12E, SRT, "GREEN") or (G-A11F, SRT, "BLUE")	ALWAYS	ANALYSIS
(0024,0024)	1	SQ	Background Illumination Color Code Sequence	Color of the background illumination of the visual field device. Only a single Item shall be included in this sequence. Extracted from binary data in the source HFA raw data.	ALWAYS	AUTO
> Include ‚Code Sequence Macro'				(G-A12B, SRT, "WHITE") or (G-A11D, SRT, "YELLOW")	ALWAYS	ANALYSIS
(0024,0025)	1	FL	Stimulus Area	A calculated value of the surface area of the Goldmann stimulus used in the test. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0028)	1	FL	Stimulus Presentation Time	The duration of time that a light stimulus is presented to a patient per each individual test point, in milliseconds. Note: This time is the same for each stimulus presentation. Set to: 500ms for Estermann tests, 200 for all others. The information if the test is an Estermann is extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS

Table 8-24 Ophthalmic Visual Field IOD – Module "Visual Field Static Perimetry Test Reliability"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0024,0032)	1	SQ	Fixation Sequence	The patient's gaze stability information during the visual field test. Extracted from binary data in the source HFA raw data	ALWAYS	AUTO
>(0024,0033)	1	SQ	Fixation Monitoring Code Sequence	The device strategy used to monitor the patient's fixation. Extracted from binary data in the source HFA raw data	ALWAYS	AUTO

>> Include ‚Code Sequence Macro‘				(111844, DCM, “Blind Spot Monitoring”) or (111843, DMC, “Automated Optical”) or (R-40775, SRT, “NONE”)	ALWAYS	ANALYSIS
>(0024,0035)	1C	US	Fixation Checked Quantity	The number of times that the patient’s gaze fixation is checked. Required if Fixation Monitoring Code Sequence (0024,0033) contains an item with the value (111844, DCM, "Blind Spot Monitoring") . Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0036)	1C	US	Patient Not Properly Fixated Quantity	The number of times the patient’s gaze is not properly fixated. Required if Fixation Monitoring Code Sequence (0024,0033) contains an item with the value (111844, DCM, "Blind Spot Monitoring") . Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0039)	1	CS	Excessive Fixation Losses Data Flag	“YES” if blind spot monitoring is enabled, “NO” otherwise. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0040)	1C	CS	Excessive Fixation Losses	The number of fixation losses is outside of implementation-specific limits. YES if losses > = 20%, NO otherwise. Condition: If Excessive Fixation Losses Data Flag is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0034)	1	SQ	Visual Field Catch Trial Sequence	The reliability of the patient’s responses to the visual field test. Extracted from binary data in the source HFA raw data.	ALWAYS	AUTO
>(0024,0055)	1	CS	Catch Trials Data Flag	Whether catch trials data were performed. Enumerated Values: YES NO. Extracted from binary data in the source HFA raw data source	ALWAYS	ANALYSIS
>(0024,0048)	1C	US	Negative Catch Trials Quantity	Total number of times the patient’s visual attention was tested using stimuli brighter than previously seen luminance (negative catch trials). Required if Catch Trials Data Flag (0024,0055) is YES Extracted from binary data in the source HFA raw data..	ANAP	ANALYSIS
>(0024,0050)	1C	US	False Negatives Quantity	Total number of stimuli that were not seen by the patient but were previously seen at a lower luminance earlier in the visual field test (false negatives). Required if Catch Trials Data Flag (0024,0055) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS

>(0024,0045)	1	CS	False Negatives Estimate Flag	Whether the device was able to estimates false negatives. Enumerated Values: YES NO YES if Test is a SITA Test. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0046)	1C	FL	False Negatives Estimate	Estimated percentage of all stimuli that were not seen by the patient but were previously seen at a lower luminance earlier in the visual field test (false negative responses), as percent. Required if False Negatives Estimate Flag (0024,0045) is YES. Extracted from binary data in the source HFA raw data..	ANAP	ANALYSIS
>(0024,0051)	1	CS	Excessive False Negatives Data Flag	Whether the device was able to determine excessive false negatives. Enumerated Values: YES NO YES if Non-SITA Threshold test. NO otherwise. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0052)	1C	CS	Excessive False Negatives	The false negative estimate is outside of implementation-specific limits. Enumerated Values: YES NO Required if Excessive False Negatives Data Flag (0024,0051) is YES. If not SITA and FN Errors / FN Trials ›= 33% then YES. NO otherwise. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0056)	1C	US	Positive Catch Trials Quantity	The total number of times the device behaved as if it was going to present a visual stimulus but did not actually present the stimulus (positive catch trials). Required if Catch Trials Data Flag (0024,0055) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0060)	1C	US	False Positives Quantity	The total number of patient responses that occurred at a time when no visual stimulus was present (false positive responses). Required if Catch Trials Data Flag (0024,0055) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0053)	1	CS	False Positives Estimate Flag	Whether the device was able to estimate false positives. Enumerated Values: YES NO YES if SITA test, NO otherwise Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0054)	1C	FL	False Positives Estimate	Estimated percentage of all patient responses that occurred at a time when no visual stimulus was present (false positive responses), as percent. Required if False Positives Estimate Flag (0024,0053) is YES.	ANAP	ANALYSIS

				Extracted from binary data in the source HFA raw data.		
>(0024,0061)	1	CS	Excessive False Positives Data Flag	Always set to: YES.	ALWAYS	AUTO
>(0024,0062)	1C	CS	Excessive False Positives	The false positive estimate is outside of implementation-specific limit. Enumerated Values: YES NO Required if Excessive False Positives Data Flag (0024,0061) is YES. If not SITA and FP Errors / FP Trials ›= 33% or if SITA and FP Estimate ›= 15% then YES. NO otherwise. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0069)	3	LO	Patient Reliability Indicator	"*** Excessive High False Positives ***" if Excessive False Positives is YES. "*** Low Test Reliability ***" if Excessive False Negatives is YES or Excessive Fixation Losses is YES and the test was not a SITA-SWAP test.	ANAP	ANALYSIS

Table 8-25 Ophthalmic Visual Field IOD – Module "Visual Field Static Perimetry Test Measurements"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0024,0113)	1	CS	Measurement Laterality	Laterality from source HFA raw data.	ALWAYS	SRC
(0024,0037)	1	CS	Presented Visual Stimuli Data Flag	Always set to "NO"	ALWAYS	AUTO
(0024,0088)	1	FL	Visual Field Test Duration	Total time the visual field machine was actively presenting visual stimuli to patient, in seconds. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0086)	1	CS	Foveal Sensitivity Measured	Whether foveal sensitivity was measured. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0087)	1C	FL	Foveal Sensitivity	Foveal Sensitivity is the reciprocal of foveal threshold (1/foveal threshold), in dB. Foveal Threshold is the minimum amount of luminance increment on a uniform background that can be detected by the patient at coordinates 0,0 (relative to the center of the patient's fixation). See section C.8.26.4.1.2 for further explanation. Required if the value for Foveal Sensitivity Measured (0024,0086) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS

(0024,0117)	1	CS	Foveal Point Normative Data Flag	Existence of normative data base for the foveal point sensitivity. Enumerated Values: YES, NO This is YES if the test qualifies for a Single Field Analysis report. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0118)	1C	FL	Foveal Point Probability Value	The percentile of the foveal point sensitivity within an age corrected normal visual field, in percent. Required if the value for Foveal Sensitivity Measured (0024,0086) is YES and Foveal Point Normative Data Flag (0024,0117) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0120)	1	CS	Screening Baseline Measured	Whether visual field screening baseline was measured. Enumerated Values: YES, NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0122)	1C	SQ	Screening Baseline Measured Sequence	Information about the starting luminance screening values. One or more Items shall be included in this sequence. Required if the value for Screening Baseline Measured (0024,0120) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0124)	1	CS	Screening Baseline Type	Method used to determine starting luminance screening values. Enumerated Values: CENTRAL PERIPHERAL Extracted from binary data in the source HFA raw data	ALWAYS	ANALYSIS
>(0024,0126)	1	FL	Screening Baseline Value	Visual Field screening baseline value, in dB. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0106)	1	CS	Blind Spot Localized	Whether the blind spot was measured. Enumerated Values: YES, NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0107)	1C	FL	Blind Spot X-Coordinate	The horizontal coordinate of the patient's blind spot relative to the center of the patient's fixation, in degrees, such that toward the right is positive. Required if the value for Blind Spot Localized (0024,0106) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0108)	1C	FL	Blind Spot Y-Coordinate	The vertical coordinate of the patient's blind spot relative to the center of the patient fixation, in degrees, such that up is positive. Required if the value for	ANAP	ANALYSIS

				Blind Spot Localized (0024,0106) is YES. Extracted from binary data in the source HFA raw data.		
(0024,0105)	1	FL	Minimum Sensitivity Value	The minimum sensitivity value generated by the equipment used for this visual field test, in dB. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0057)	1	CS	Test Point Normals Data Flag	Existence of normative data base for this set of test points. Enumerated Values: YES NO YES if the tests qualifies for a Single Field Analysis report, NO otherwise Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0058)	1C	SQ	Test Point Normals Sequence	Normative data base used for this test sequence. Only a single Item shall be included in this sequence. Required if Test Point Normals Data Flag (0024,0057) is YES.	ANAP	AUTO
>(0024,0306)	1	LO	Data Set Name	Set to: “HFA test point normative data”	ALWAYS	AUTO
>(0024,0307)	1	LO	Data Set Version	Set to: “1.0”	ALWAYS	AUTO
>(0024,0308)	1	LO	Data Set Source	Set to: “CZMI”	ALWAYS	AUTO
(0024,0065)	1C	SQ	Age Corrected Sensitivity Deviation Algorithm Sequence	Software algorithm used to provide the probability that the age corrected sensitivity deviation values at each test point belong to a normal visual field. Only a single Item shall be included in this sequence. Required if Test Point Normals Data Flag (0024,0057) is YES.	ANAP	AUTO
>(0066,002F)	1	SQ	Algorithm Family Code Sequence	The family of algorithm(s) that best describes the software algorithm used. Only a single item shall be included in this sequence.	ALWAYS	AUTO
>> Include ‚Code Sequence Macro‘				(PERIMETRY, 99CZM_PERIMETRY, "CZM Perimetry Algorithms")	ALWAYS	AUTO
>(0066,0036)	1	LO	Algorithm Name	Set to: “Total Deviation”	ALWAYS	AUTO
>(0066,0031)	1	LO	Algorithm Version	Set to: “1.0”	ALWAYS	AUTO
(0024,0067)	1C	SQ	Generalized Defect Sensitivity Deviation Algorithm Sequence	Software algorithm used to provide the probability that the sensitivity deviation values at each test point belong to a normal visual field. Only a single Item shall be included in this sequence. Required if Test Point Normals Data Flag (0024,0057) is YES.	ANAP	AUTO

>(0066,002F)	1	SQ	Algorithm Family Code Sequence	The family of algorithm(s) that best describes the software algorithm used. Only a single item shall be included in this sequence.	ALWAYS	AUTO
>> Include ‚Code Sequence Macro‘				(PERIMETRY, 99CZM_PERIMETRY, "CZM Perimetry Algorithms")	ALWAYS	AUTO
>(0066,0036)	1	LO	Algorithm Name	Set to: “Pattern Deviation”	ALWAYS	AUTO
>(0066,0031)	1	LO	Algorithm Version	Set to: “1.0”	ALWAYS	AUTO
(0024,0089)	1	SQ	Visual Field Test Point Sequence	Information for each test point in the visual field. One or more items shall be included in this sequence. The values of the test points are extracted from the binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0090)	1	FL	Visual Field Test Point X-Coordinate	The horizontal coordinate of a single test point relative to the center of the patient fixation, in degrees, such that toward the right is positive. The x coordinate of the test point, extracted from the binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0091)	1	FL	Visual Field Test Point Y-Coordinate	The vertical coordinate of a single test point relative to the center of the patient fixation, in degrees, such that up is positive. The y coordinate of the test point, extracted from the binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0093)	1	CS	Stimulus Results	Whether the patient saw a stimulus presented at a luminance other than maximum, a presentation at maximum luminance, or did not see any presented stimulus. Enumerated Values: SEEN = stimulus seen at a luminance value less than maximum NOT SEEN = stimulus not seen SEEN AT MAX = stimulus seen at the maximum luminance possible for the instrument Note: SEEN AT MAX is a value only relevant to Screening tests. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0094)	1C	FL	Sensitivity Value	Extracted from binary data in the source HFA raw data, only available for threshold tests.	ANAP	ANALYSIS
>(0024,0095)	3	CS	Retest Stimulus Seen	Whether the retested stimulus presented was seen by the patient. Enumerated Values: YES NO	ANAP	ANALYSIS

				The second threshold result, may only be available for non-SITA Threshold tests. Extracted from binary data in the source HFA raw data.		
>(0024,0096)	3	FL	Retest Sensitivity Value	If the Retest Stimulus Seen (0024,0095) is YES, then this value is the sensitivity, in dB. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0098)	3	FL	Quantified Defect	Difference between the expected and the determined sensitivity, each in dB. Only for screening tests with strategy quantified defects. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0097)	1C	SQ	Visual Field Test Point Normals Sequence	Information about normal values for each visual field test point. One or more items shall be included in this sequence. Required if Test Point Normals Data Flag (0024,0057) is YES. Extracted from binary data in the source HFA raw data.	ANAP	AUTO
>>(0024,0092)	1	FL	Age Corrected Sensitivity Deviation Value	Difference between the patient's local sensitivity and the age corrected normal sensitivity, in dB. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0024,0100)	1	FL	Age Corrected Sensitivity Deviation Probability Value	The percentile of the age corrected sensitivity deviation within the normal population of visual field, in percent. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0024,0102)	1	CS	Generalized Defect Corrected Sensitivity Deviation Flag	Set to: "YES"	ALWAYS	AUTO
>>(0024,0103)	1C	FL	Generalized Defect Corrected Sensitivity Deviation Value	The age corrected sensitivity deviation after correction for the Generalized Defect, in dB. Generalized defect is proportional to the loss in sensitivity shared by all points in the visual field. Required if Generalized Defect Corrected Sensitivity Deviation Flag (0024,0102) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>>(0024,0104)	1C	FL	Generalized Defect Corrected Sensitivity Deviation Probability Value	The percentile of the generalized defect corrected sensitivity deviation within the normal population of visual field, in percent. Required if Generalized Defect Corrected Sensitivity Deviation Flag (0024,0102) is YES.	ANAP	ANALYSIS

				Extracted from binary data in the source HFA raw data.		

Table 8-26 Ophthalmic Visual Field IOD – Module "Visual Field Static Perimetry Test Results"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0024,0070)	1C	FL	Visual Field Mean Sensitivity	Average sensitivity of the test points of the visual field, in dB. Only available for Threshold tests. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0063)	1	CS	Visual Field Test Normals Flag	Whether normals exist for this patient's results. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0064)	1C	SQ	Results Normals Sequence	Information that represents the statistically normal results for patients from a referenced data base. Only a single Item shall be included in this sequence. Required if Visual Field Test Normals Flag (0024,0063) is YES. Extracted from binary data in the source HFA raw data.	ANAP	AUTO
>(0024,0306)	1	LO	Data Set Name	Set to: "HFA visual field test normative data"	ALWAYS	AUTO
>(0024,0307)	1	LO	Data Set Version	Set to: "1.0"	ALWAYS	AUTO
>(0024,0308)	1	LO	Data Set Source	Set to: "CZMI"	ALWAYS	AUTO
>(0024,0066)	1	FL	Global Deviation From Normal	Weighted average deviation from the age corrected normal field, in dB. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0059)	1	CS	Global Deviation Probability Normals Flag	Whether normals exist for the global deviation probability. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0083)	1C	SQ	Global Deviation Probability Sequence	Probability value and software algorithm used to provide the normality for the global deviation. Required if Global Deviation Probability Normals Flag (0024,0059) is YES. Extracted from binary data in the source HFA raw data.	ANAP	AUTO
>>(0024,0071)	1	FL	Global Deviation Probability	The percentile of the Global Deviation from Normal (0024,0066) value within the normal population, in percent. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0066,002F)	1	SQ	Algorithm Family Code Sequence	The family of algorithm(s) that best describes the software algorithm used.	ALWAYS	AUTO

>>> Include ‚Code Sequence Macro‘				(PERIMETRY, 99CZM_PERIMETRY, "CZM Perimetry Algorithms")	ALWAYS	AUTO
>>(0066,0036)	1	LO	Algorithm Name	Set to: “MD Probability”	ALWAYS	AUTO
>>(0066,0031)	1	LO	Algorithm Version	Set to: “1.0”	ALWAYS	AUTO
>(0024,0068)	1	FL	Localized Deviation from Normal	Weighted square root of loss variance, in dB. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0024,0072)	1	CS	Local Deviation Probability Normals Flag	Whether normals exist for the local deviation probability. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data..	ALWAYS	ANALYSIS
>(0024,0085)	1C	SQ	Localized Deviation Probability Sequence	Probability value and software algorithm used to provide the normality for the local deviation. Required if Local Deviation Probability Normals Flag (0024,0072) is YES. Extracted from binary data in the source HFA raw data..	ANAP	AUTO
>>(0024,0073)	1	FL	Localized Deviation Probability	The percentile of the Localized Deviation from Normal (0024,0068) value within the normal population, in percent. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0066,002F)	1	SQ	Algorithm Family Code Sequence	The family of algorithm(s) that best describes the software algorithm used. Only a single item shall be included in this sequence.	ALWAYS	AUTO
>>> Include ‚Code Sequence Macro‘				(PERIMETRY, 99CZM_PERIMETRY, "CZM Perimetry Algorithms")	ALWAYS	AUTO
>>(0066,0036)	1	LO	Algorithm Name	Set to: “PSD Probability”	ALWAYS	AUTO
>>(0066,0031)	1	LO	Algorithm Version	Set to: “1.0”	ALWAYS	AUTO
(0024,0074)	1	CS	Short Term Fluctuation Calculated	Whether the short term fluctuation was calculated. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0075)	1C	FL	Short Term Fluctuation	Average deviation of sensitivity for the repeated test locations, in dB. This is used to determine the consistency of the patient’s responses. Required if Short Term Fluctuation Calculated (0024,0074) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS

(0024,0076)	1	CS	Short Term Fluctuation Probability Calculated	Whether the short term fluctuation probability was calculated. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0077)	1C	FL	Short Term Fluctuation Probability	The percentile of the Short Term Fluctuation (0024,0075) value within the normal population, in percent. Required if Short Term Fluctuation Probability Calculated (0024,0076) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0078)	1	CS	Corrected Localized Deviation From Normal Calculated	Whether the corrected localized deviation from normal was calculated. Enumerated Values: YES NO Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0079)	1C	FL	Corrected Localized Deviation From Normal	Weighted square root of loss variance corrected for short term fluctuation, in dB. Required if Corrected Localized Deviation From Normal Calculated (0024,0078) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0080)	1	CS	Corrected Localized Deviation From Normal Probability Calculated	Whether the corrected localized deviation from Normal probability was calculated. Enumerated Values: YES NO Extracted from binary data in the raw data source.	ALWAYS	ANALYSIS
(0024,0081)	1C	FL	Corrected Localized Deviation From Normal Probability	The percentile of the Corrected Localized Deviation From Normal (0024,0079) value within the normal population, in percent. Required if Corrected Localized Deviation From Normal Probability Calculated (0024,0080) is YES. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
(0024,0320)	3	SQ	Visual Field Global Results Index Sequence	Information about various visual field indexes related to test results. Values extracted from binary data in the source HFA raw data.	ANAP	AUTO
>(0024,0325)	1	SQ	Data Observation Sequence	Information about various visual field global indexes. Only a single Item shall be included in this sequence.	ALWAYS	AUTO
>>(0040,A040)	1	CS	Value Type	Set to: “NUMERIC”	ALWAYS	AUTO
>>(0040,A043)	1	SQ	Concept Name Code Sequence	Coded concept name of this name-value Item. Only a single Item shall be included in this Sequence.	ALWAYS	AUTO
>>> Include ‚Code Sequence Macro‘				(111852, DCM, “Visual Field Index”)	ALWAYS	AUTO

>>(0040,A30A)	1C	DS	Numeric Value	Numeric value for this name-value Item. Required if Value Type (0040,A040) is NUMERIC. Extracted from binary data in the source HFA raw data. Valid values are 0 to 100	ALWAYS	ANALYSIS
>>(0040,08EA)	1C	SQ	Measurement Units Code Sequence	The Code Sequence for %	ALWAYS	AUTO
>>> Include ‚Code Sequence Macro‘				(%, UCUM, “percent”)	ALWAYS	AUTO
>(0024,0338)	1	CS	Index Normals Flag	Set to: “NO”	ALWAYS	AUTO
>(0024,0325)	1	SQ	Data Observation Sequence	Information about various visual field global indexes. Only a single Item shall be included in this sequence.	ALWAYS	AUTO
>>(0040,A040)	1	CS	Value Type	Set to: “CODE”	ALWAYS	AUTO
>>(0040,A043)	1	SQ	Concept Name Code Sequence	Coded concept name of this name-value Item. Only a single Item shall be included in this Sequence.	ALWAYS	AUTO
>>> Include ‚Code Sequence Macro‘				(111855, DCM, “Glaucoma Hemifield Test Analysis”)	ALWAYS	AUTO
>>(0040,A168)	1C	SQ	Concept Code Sequence	Concept Code Sequence (0040,A168) uses Context ID 4254.	ALWAYS	AUTO
>>> Include ‚Code Sequence Macro‘				(111847, DCM, “Outside normal limits”) or (111848, DCM, “Borderline”) or (111849, DCM, “Abnormally high sensitivity”) or (111850, DCM, “General reduction in sensitivity”) or (111851, DCM, “Borderline and general reduction in sensitivity”) or (M-00101, SRT, “Within normal limits”)	ALWAYS	ANALYSIS
>(0024,0338)	1	CS	Index Normals Flag	Set to: “NO”	ALWAYS	AUTO

Table 8-27 Ophthalmic Visual Field IOD – Module "Ophthalmic Patient Clinical Information and Test Lens Parameters"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0024,0114)	1C	SQ	Ophthalmic Patient Clinical Information Left Eye Sequence	Information used to represent a patient’s clinical parameters during an ophthalmic test. Only a single Item shall be included in this sequence. Required if Measurement Laterality (0024,0113) is L or B. Because the module is optional, this sequence is only included and filled if the data is available. Extracted from binary data in the source HFA raw data.	ANAP	AUTO

>(0024,0112)	2	SQ	Refractive Parameters Used on Patient Sequence	Refractive parameters used when performing visual field test. Zero or one Item shall be included in this sequence.	ALWAYS	AUTO
>>(0022,0007)	1	FL	Spherical Lens Power	Sphere value in diopters. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0022,0008)	1	FL	Cylinder Lens Power	Cylinder value in diopters. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0022,0009)	1	FL	Cylinder Axis	Axis value in degrees. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0046,0044)	2	FD	Pupil Size	The horizontal diameter measurement of the pupil, in mm. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0022,000D)	2	CS	Pupil Dilated	Is always empty	EMPTY	
>(0022,000B)	3	FL	Intra Ocular Pressure	Value of intraocular pressure in mmHg. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0110)	3	SQ	Visual Acuity Measurement Sequence	Measurements of a patient's visual acuity. Only a single Item is permitted in this sequence. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>>(0046,0137)	1	FD	Decimal Visual Acuity	A patient's visual acuity specified in decimal. The value is derived from two values in a fraction where the numerator of the fraction is the nominal distance to the chart that the patient is reading. The denominator represents the line of smallest optotypes of which the patient can see more than half. Notes: 1. Typical examples--reference standard is 1, severe vision loss is 0.1 2. See PS 3.17 Ophthalmic Refractive Reports Use Cases for guidance in converting Decimal Visual Acuity to other customarily used display notation such as 20/20 in the US and 6/6 in Britain. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
(0024,0115)	1C	SQ	Ophthalmic Patient Clinical Information Right Eye Sequence	Information used to represent a patient's clinical parameters during an ophthalmic test. Only a single Item shall be included in this sequence. Required if Measurement Laterality (0024,0113) is R or B. Filled if the data is available. Because the module is optional, this sequence is only than available. Extracted from binary data in the source HFA raw data.	ANAP	AUTO

>(0024,0112)	2	SQ	Refractive Parameters Used on Patient Sequence	Refractive parameters used when performing visual field test. Zero or one Item shall be included in this sequence.	ALWAYS	AUTO
>>(0022,0007)	1	FL	Spherical Lens Power	Sphere value in diopters. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0022,0008)	1	FL	Cylinder Lens Power	Cylinder value in diopters. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>>(0022,0009)	1	FL	Cylinder Axis	Axis value in degrees. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0046,0044)	2	FD	Pupil Size	The horizontal diameter measurement of the pupil, in mm. Extracted from binary data in the source HFA raw data.	ALWAYS	ANALYSIS
>(0022,000D)	2	CS	Pupil Dilated	Is always empty	EMPTY	
>(0022,000B)	3	FL	Intra Ocular Pressure	Value of intraocular pressure in mmHg. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>(0024,0110)	3	SQ	Visual Acuity Measurement Sequence	Measurements of a patient's visual acuity. Only a single Item is permitted in this sequence. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS
>>(0046,0137)	1	FD	Decimal Visual Acuity	A patient's visual acuity specified in decimal. The value is derived from two values in a fraction where the numerator of the fraction is the nominal distance to the chart that the patient is reading. The denominator represents the line of smallest optotypes of which the patient can see more than half. Notes: 1. Typical examples--reference standard is 1, severe vision loss is 0.1 2. See PS 3.17 Ophthalmic Refractive Reports Use Cases for guidance in converting Decimal Visual Acuity to other customarily used display notation such as 20/20 in the US and 6/6 in Britain. Extracted from binary data in the source HFA raw data.	ANAP	ANALYSIS

Table 8-28 Ophthalmic Visual Field IOD – Module "SOP Common"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,0016)	1	UI	SOP Class UID	Set to: "1.2.840.10008.5.1.4.1.1.80.1"	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Newly created with UID prefix of: 1.2.276.0.75.2.5.80.25.3	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Set to: "ISO_IR 192" (Unicode encoding)	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Date the SOP Instance was created. Set to current date.	ALWAYS	AUTO

(0008,0013)	3	TM	Instance Creation Time	Time the SOP Instance was created. Set to current time	ALWAYS	AUTO
(0018,A001)	3	SQ	Contributing Equipment Sequence	Contains information about the equipment used to create the perimetry source data.	ANAP	SRC
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	Set to: “109101”, “DCM”, “Acquisition Equipment”	ALWAYS	AUTO
>(0008,0070)	1	LO	Manufacturer	Manufacturer of the equipment that contributed to the composite instance.	ALWAYS	SRC
>(0008,0080)	3	LO	Institution Name	Institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,0081)	3	ST	Institution Address	Address of the institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,1010)	3	SH	Station Name	User defined name identifying the machine that contributed to the composite instance.	ANAP	SRC
>(0008,1090)	3	LO	Manufacturer's Model Name	Manufacturer’s model name of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1000)	3	LO	Device Serial Number	Manufacturer’s serial number of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1020)	3	LO	Software Version(s)	Manufacturer’s designation of the software version of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1200)	3	DA	Date of Last Calibration	Date when the image acquisition device calibration was last changed in any way.	ANAP	SRC

Table 8-29 Ophthalmic Visual Field IOD – Module "CZM Ophthalmic Visual Field Static Perimetry Measurements Extension"

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0008,114A)	3	SQ	Referenced Instance Sequence	This is a CZM specific extension. The referenced Instances are related to this Instance with a purpose for that reference. The sequence may contain zero, one or more items. Contains the reference to the source HFA raw data.	ALWAYS	AUTO
>(0008,1150)	1	UI	Referenced SOP Class UID	Uniquely identifies the referenced SOP Class. Set to: 1.2.840.10008.5.1.4.1.1.66	ALWAYS	AUTO
>(0008,1155)	1	UI	Referenced SOP Instance UID	Uniquely identifies the referenced SOP Instance. The instance UID of the raw instance containing the source data of this instance.	ALWAYS	AUTO
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	The sequence shall contain one and may contain more items. The codes applied shall be CZM specific.	ALWAYS	AUTO
>> Include ‚Code Sequence Macro‘				(RAW DATA SRC, 99CZM_PERIMETRY, " CZM Perimetry Source Exam ")	ALWAYS	AUTO

Table 8-30 Ophthalmic Visual Field IOD – Module "Hfa Visual Field Static Perimetry Test Results"

Tag	Type	VR	Name	Description	PoV	Source
(0305,xx01)	3	LO	Fixation Target Type	The fixation target type.	ANAP	ANALYSIS

Table 8-31 Ophthalmic Visual Field IOD – Module CZM-NIM-INTERNAL

Tag	Type	VR	Name	Description	PoV	Source
(2201,xx00)	1	LT	IOD name meta info	Name of the Information Object Definition as specified by CZM-XML.	ALWAYS	AUTO
(2201,xx01)	1	LT	CZM-XML Version	Version of the CZM-XML used to create this IOD.	ALWAYS	AUTO
(2201,xx02)	3	LT	Private module names and versions	Names and versions of the private modules used in this IOD.	ALWAYS	AUTO

8.1.1.3 Raw Data Information Object Definition

IE	Module	Usage
Patient		
	Patient	ALWAYS
Study		
	General Study	ALWAYS
Series		
	General Series	ALWAYS
Equipment		
	General Equipment	ALWAYS
RawData		
	Acquisition Context	ALWAYS
	Raw Data	ALWAYS
	Sop Common	ALWAYS
Raw Data (clinical event data)		
	CZM NIM Internal	ALWAYS

Table 8-32 Raw Data IOD - Module "Patient"

Tag	Type	VR	Name	Description	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name from FORUM.	VNAP	USER
(0010,0020)	2	LO	Patient ID	Patient ID from Forum.	VNAP	USER
(0010,0021)	3	LO	Issuer of Patient ID	Issuer of patient id from Forum.	ANAP	USER
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient.	VNAP	USER
(0010,0040)	2	CS	Patient's Sex	Sex of the patient. Enumerated Values: M = male F = female O = other	VNAP	USER

Table 8-33 Raw Data IOD - Module "General Study "

Tag	Type	VR	Name	Description	PoV	Source
(0020,000D)	1	UI	Study Instance UID	A new UID is generated with a UID prefix of 1.2.276.0.75.2.5.80.25.1	ALWAYS	AUTO
(0008,0020)	2	DA	Study Date	Date the event was created. Current date.	ALWAYS	AUTO
(0008,0030)	2	TM	Study Time	Time the event was created. Current time.	ALWAYS	AUTO
(0008,0090)	2	PN	Referring Physician's Name	Information not available for clinical events.	EMPTY	
(0020,0010)	2	SH	Study ID	A newly generated Study identifier-	ALWAYS	AUTO
(0008,0050)	2	SH	Accession Number	No accession number available for a clinical event. (clinical events are unscheduled cases)	EMPTY	

(0008,1030)	3	LO	Study Description	“clinical event”	ALWAYS	AUTO

Table 8-34 Raw Data IOD - Module "General Series”

Tag	Type	VR	Name	Description	PoV	Source
(0008,0060)	1	CS	Modality	Set to “DOC”.	ALWAYS	AUTO
(0020,000E)	1	UI	Series Instance UID	Newly created series instance UID with root: 1.2.276.0.75.2.5.80.25.2	ALWAYS	AUTO
(0020,0011)	2	IS	Series Number	“1”	ALWAYS	AUTO
(0008,0021)	3	DA	Series Date	Date the event was created. Current date.	ALWAYS	AUTO
(0008,0031)	3	TM	Series Time	Time the event was created. Current time.	ALWAYS	AUTO
(0008,103E)	3	LO	Series Description	“clinical event”	ALWAYS	AUTO

Table 8-35 Raw Data IOD – Module “General Equipment”

Tag	Type	VR	Name	Description	PoV	Source
(0008,0070)	2	LO	Manufacturer	Set to “Carl Zeiss Meditec AG”	ALWAYS	AUTO
(0008,0080)	3	LO	Institution Name	Institution from Forum config.	ANAP	CONFIG
(0008,0081)	3	ST	Institution Address	Institution from Forum config.	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	Hostname of the machine used for creating the clinical event.(Forum plugin Server)	ALWAYS	AUTO
(0008,1090)	3	LO	Manufacturer's Model Name	Set to: “FORUM Glaucoma Workplace”	ALWAYS	AUTO
(0018,1020)	3	LO	Software Version(s)	Multi valued 1. Glaucoma Workplace version. 2. Glaucoma Workplace language pack version (empty if no language pack installed)	ALWAYS	AUTO

Table 8-36 Raw Data IOD – Module “Acquisition Context”

Tag	Type	VR	Name	Description	PoV	Source
(0040,0555)	2	SQ	Acquisition Context Sequence	Empty, no acquisition done for the creation of clinical events.	EMPTY	

Table 8-37 Raw Data IOD – Module “Raw Data”

Tag	Type	VR	Name	Description	PoV	Source
(0020,0013)	2	IS	Instance Number	“1”	ALWAYS	AUTO
(0008,0023)	1	DA	Content Date	Current date.	ALWAYS	AUTO
(0008,0033)	1	TM	Content Time	Current time.	ALWAYS	AUTO
(0008,002A)	3	DT	Acquisition Datetime	Current date and time.	ALWAYS	AUTO
(0020,0062)	3	CS	Image Laterality	Laterality of the clinical event. e.g. left for an event like surgery left eye.	ALWAYS	AUTO/USER

				Enumerated Values: R = right L = left U = unpaired B = both left and right		
(0008,9123)	1	UI	Creator-Version UID	Set to 1.2.276.0.75.2.5.80.25.6.<Glaucoma Workplace version >	ALWAYS	AUTO
(0008,114A)	3	SQ	Referenced Instance Sequence	Contains the predecessor of a clinical event in case of a changed or deleted event. Used to mark changes of a event, or that the event is deleted. Not present for the initial version of a clinical event.	ANAP	AUTO
>(0008,1150)	1	UI	Referenced SOP Class UID	SOP Class of the referenced clinical event, "1.2.840.10008.5.1.4.1.1.66"	ALWAYS	AUTO
>(0008,1155)	1	UI	Referenced SOP Instance UID	The UID of the instance containing the previous state of the clinical event. The event that was changed or deleted.	ALWAYS	AUTO
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	Describes the purpose for which the reference is made. Only a single Item shall be included in this sequence. Contains the action that was performed with the linked clinical event. Contains values for “Changed” and “Deleted”.	ALWAYS	AUTO
>> Include ‚Code Sequence Macro‘				(EVENT_CHANGED, 99CZM, “CZM clinical event changed“) or (EVENT_DELETED, 99CZM, “CZM clinical event deleted“)		

Table 8-38 Raw Data IOD - Module "Sop Common”

Tag	Type	VR	Name	Description	PoV	Source
(0008,0016)	1	UI	SOP Class UID	Set to Raw Data Storage "1.2.840.10008.5.1.4.1.1.66"	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Newly created with UID prefix of: 1.2.276.0.75.2.5.80.25.3	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Set to: “ISO_IR 192” (Unicode encoding)	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Date the SOP Instance was created. Current date.	ALWAYS	AUTO
(0008,0013)	3	TM	Instance Creation Time	Time the SOP Instance was created. Current time.	ALWAYS	AUTO

Table 8-39 Raw Data IOD – Module CZM-NIM-INTERNAL

Tag	Type	VR	Name	Description	PoV	Source
(2201,xx00)	1	LT	IOD name meta info	Name of the Information Object Definition as specified by CZM-XML.	ALWAYS	AUTO
(2201,xx01)	1	LT	CZM-XML Version	Version of the CZM-XML used to create this IOD.	ALWAYS	AUTO
(2201,xx02)	3	LT	Private module	Names and versions of the private modules used in this IOD.	ALWAYS	AUTO

			names and versions			

8.1.2 Usage of Attributes from Received IOD's

See FORUM DICOM Conformance Statement.

8.1.3 Attribute Mapping

See FORUM DICOM Conformance Statement for FORUM generated DICOM objects.

Table 8-40 Attribute Mapping from Source Raw Data IOD into Glaucoma Workplace generated OPV or EPDF IODs

Source Raw Data IOD	OPV or EPDF IOD	Editable
Study Instance UID	Study Instance UID [1)]	No
Study Date	Study Date [1)]	No
Study Time	Study Time [1)]	No
Study ID	Study ID [1)]	No
Study Description	Study Description [1)]	No
Accession Number	Accession Number	No
Procedure Code Sequence	Procedure Code Sequence	No
Request Attributes Sequence > Requested Procedure ID	Request Attributes Sequence > Requested Procedure ID	No
Request Attributes Sequence > Requested Procedure Description	Request Attributes Sequence > Requested Procedure Description	No
Request Attributes Sequence > Scheduled Procedure Step Description	Request Attributes Sequence > Scheduled Procedure Step Description	No
Request Attributes Sequence > Scheduled Procedure Step ID	Request Attributes Sequence > Scheduled Procedure Step ID	No
Request Attributes Sequence > Scheduled Protocol Code Sequence	Request Attributes Sequence > Scheduled Protocol Code Sequence	No
Performed Procedure Step ID	Performed Procedure Step ID [1)]	No
Performed Procedure Step Start Date	Performed Procedure Step Start Date [1)]	No
Performed Procedure Step Start Time	Performed Procedure Step Start Time [1)]	No
Laterality	Laterality	No
Acquisition Date Time	Acquisition Date Time	No
Image Laterality	Image Laterality	No
Referring Physicians Name	Referring Physicians Name	No
Patients Name	Patients Name	No
Patient ID	Patient ID	No
Issuer of Patient ID	Issuer of Patient ID	No
Other Patient IDs	Other Patient IDs	No
Patients Birth Date	Patients Birth Date	No
Patients Sex	Patients Sex	No
Patient Comments	Patient Comments	No
Ethnic Group	Ethnic Group	No

1) Only applies when the source is a single raw data object. In case of multiple source raw data sets the values in the resulting OPV and EPDF IODs are newly generated and not mapped from the source.

8.1.4 Coerced/Modified Files

See FORUM DICOM Conformance Statement.

8.2 Data Dictionary of Private Attributes

Glaucoma Workplace may use the following private attributes listed in the tables below. Glaucoma Workplaces ves blocks with group numbers 2201, 22A1, 2501, 7717 and 0305.

Table 8-41 Private Dictionary Group (2201,00xx) = "99CZM_NIM_INTERNAL_01"

Occurs in all instances generated by Glaucoma Workplace

Tag	Attribute Name	VR	VM
(2201,00xx)	Private Creator	LO	1
(2201,xx00)	iod_name_meta_info	LT	1
(2201,xx01)	czm_xml_version	LT	1
(2201,xx02)	private_module_names_and_versions	LT	1

Table 8-42 Private Dictionary Group (22A1,00xx) = "99CZM_SpecializedEncapsulatedDocument

Occurs in: EPDF SOP Instance generated by Glaucoma Workplace

Tag	Attribute Name	VR	VM
(22A1,00xx)	Private Creator	LO	1
(22A1,xx01)	Document Type	LO	1

Table 8-43 Private Dictionary Group (2501,00xx) = "99CZM_SolIn

Occurs in: EPDF SOP Instance generated by Glaucoma Workplace

Tag	Attribute Name	VR	VM
(2501,00xx)	Private Creator	LO	1
(2501,xx00)	Report Type	CS	1
(2501,xx01)	Generated automatically	CS	1
(2501,xx02)	Combined Report Source Instance Sequence	SQ	0..n
(2501,xx03)	Combined Report Source Instance UID	UI	1
(2501,xx04)	Combined Report Source Class UID	UI	1
(2501,xx05)	Combined Report Source Laterality	CS	1
(2501,xx06)	Combined Report Source IOD Meta Name	LO	1
(2501,xx07)	HFA Test Strategy	CS	1
(2501,xx08)	HFA Test Pattern	CS	1

Group ID: 7717

Private Creator String: 99CZM_HFA_EMR_2

Occurs in EPDF SOP Instance generated by Glaucoma Workplace

Table 8-44 Private Dictionary Group (7717,00xx) = "99CZM_HFA_EMR_2"

Tag	Attribute Name	VR	VM

(7717,00xx)	Private Creator	LO	1
(7717,xx01)	test_name	LO	1
(7717,xx02)	test_strategy	LO	1
(7717,xx03)	stimulus_size	CS	1
(7717,xx04)	stimulus_color	SH	1
(7717,xx05)	background_state	SH	1
(7717,xx06)	foveal_result	CS	1
(7717,xx07)	screening_mode	LO	1
(7717,xx08)	fixation_trials	IS	1
(7717,xx09)	fixation_errors	IS	1
(7717,xx10)	false_positive_percent	DS	1
(7717,xx11)	false_positive_trials	IS	1
(7717,xx12)	false_positive_errors	IS	1
(7717,xx13)	false_negative_percent	DS	1
(7717,xx14)	false_negative_trials	IS	1
(7717,xx15)	false_negative_errors	IS	1
(7717,xx16)	mean_deviation	DS	1
(7717,xx17)	mean_deviation_probability	LO	1
(7717,xx18)	pattern_standard_deviation	DS	1
(7717,xx19)	pattern_standard_deviation_probability	LO	1
(7717,xx20)	short_term_fluctuation	DS	1
(7717,xx21)	corrected_pattern_standard_deviation	DS	1
(7717,xx22)	corrected_pattern_standard_deviation_probability	LO	1
(7717,xx23)	glaucoma_hemifield_test	LO	1
(7717,xx24)	fixation_monitor	LO	1
(7717,xx25)	fixation_target	LO	1
(7717,xx26)	pupil_diameter	DS	1
(7717,xx27)	sphere	DS	1
(7717,xx28)	cylinder	DS	1
(7717,xx29)	axis	IS	1
(7717,xx30)	visual_acuity	SH	1
(7717,xx31)	short_term_fluctuation_probability	LO	1
(7717,xx32)	test_date	DA	1
(7717,xx33)	test_time	TM	1

(7717,xx34)	visual_field_index	DS	1
(7717,xx40)	vfm_sequence	SQ	1
(7717,xx41)	section_number	IS	1
(7717,xx42)	section_value	LO	1

Table 8-45 Private Dictionary Group (0305,00xx) = "99CZM_Hfa_OphtalmicVisualFieldStaticPerimetry"

Occurs in EPDF SOP Instance generated by Glaucoma Workplace

Tag	Attribute Name	VR	VM
(0305,00xx)	Private Creator	LO	1
(0305,xx01)	fixation_target_type	LO	1

Table 8-46 Private Dictionary Group (22C1,00xx) = "99CZM_Clinical_Event_RawData"

Occurs in Raw Data SOP Instance generated by Glaucoma Workplace

Tag	Attribute Name	VR	VM
(22C1,00xx)	Private Creator	LO	1

8.3 Coded Terminology and Templates

Glaucoma Workplace uses (0040,A170) Purpose of Reference Code Sequence with following codes to track the history of a clinical event.

Occurs in: Raw Data IOD

Table 8-47 Purpose of Reference Code Sequence

Code Value	Coding Scheme Designator	Code Meaning
EVENT_CHANGED	99CZM	"CZM clinical event changed "
EVENT_DELETED	99CZM	“CZM clinical event deleted”

Glaucoma Workplace uses (0066,002F) Algorithm Family Code Sequence with following codes to specify the algorithms used.

Occurs in: Ophthalmic Visual Field Static Perimetry IOD

Table 8-48 Algorithm Family Code Sequence

Code Value	Coding Scheme Designator	Code Meaning
PERIMETRY	99CZM_PERIMETRY	"CZM Perimetry Algorithms"

Glaucoma Workplace uses (0008,114A) Referenced Instance Sequence with following codes to specify the source HFA raw data.

Occurs in: Ophthalmic Visual Field Static Perimetry IOD

Table 8-49 Referenced Instance Sequence

Code Value	Coding Scheme Designator	Code Meaning
RAW DATA SRC	99CZM_PERIMETRY	"CZM Perimetry Source Exam"

Glaucoma Workplace uses (0040,0260) Performed Protocol Code Sequence with the following codes to specify test pattern and test strategy.

The standard Context IDs 4250 and 4251 are extended.

Occurs in: Ophthalmic Visual Field Static Perimetry IOD

Extension of CID 4250 Visual Field Static Perimetry Test Patterns

Table 8-50 Performed Protocol Code Sequence – Extension of CID 4250.

Code Value	Coding Scheme Designator	Code Meaning	Coding Scheme Version
OPVTP100	99CZM	Visual Field Central 30-1 Threshold Test Pattern	20140605
OPVTP101	99CZM	Visual Field Peripheral 60-1 Threshold Test Pattern	20140605
OPVTP102	99CZM	Visual Field Temporal Crescent Threshold Test Pattern	20140605
OPVTP103	99CZM	Visual Field Neurological 20 Threshold Test Pattern	20140605
OPVTP104	99CZM	Visual Field Neurological 50 Threshold Test Pattern	20140605
OPVTP105	99CZM	Visual Field Nasal Step Threshold Test Pattern	20140605
OPVTP106	99CZM	Visual Field Central Armaly Screening Test Pattern	20140605
OPVTP107	99CZM	Visual Field Full Field Armaly Screening Test Pattern	20140605
OPVTP108	99CZM	Visual Field Central 80 Point Screening Test Pattern	20140605
OPVTP109	99CZM	Visual Field Central 166 Point Screening Test Pattern	20140605
OPVTP110	99CZM	Visual Field Full Field 246 Point Screening Test Pattern	20140605
OPVTP111	99CZM	Visual Field Auto Diagnostic Test Pattern	20140605
OPVTP112	99CZM	Visual Field Superior 64 Point Screening Test Pattern	20140605
OPVTP113	99CZM	Visual Field Nasal Step Screening Test Pattern	20140605
OPVTP114	99CZM	Visual Field Central 24-1 Threshold Test Pattern	20140605
OPVTP115	99CZM	Visual Field Blindengutachten Test Pattern	20140605
OPVTP116	99CZM	Visual Field Fuehrerscheingutachten Test Pattern	20140605
OPVTP117	99CZM	Visual Field Esterman Monocular Test Pattern	20140605
OPVTP118	99CZM	Visual Field Esterman Binocular Test Pattern	20140605
OPVTP119	99CZM	Visual Field Central 64 Point Screening Test Pattern	20140605
OPVTP120	99CZM	Visual Field Full Field 12 Point QA Test Pattern	20140605
OPVTP121	99CZM	Visual Field User Defined Threshold Test Pattern	20140605
OPVTP122	99CZM	Visual Field User Defined Screening Test Pattern	20140605
OPVTP123	99CZM	Visual Field Kinetic Test Pattern	20140605
OPVTP124	99CZM	Visual Field Full Field 135 Point Screening Test Pattern	20140605
OPVTP125	99CZM	Visual Field Superior 36 Point Screening Test Pattern	20140605
OPVTP126	99CZM	Visual Field Custom Screening Test Pattern	20140605
OPVTP127	99CZM	Visual Field Custom Threshold Test Pattern	20140605
OPVTP128	99CZM	Visual Field 24-2C Test Pattern	20160921

Occurs in: Ophthalmic Visual Field Static Perimetry IOD

Extension of CID 4251 Visual Field Static Perimetry Test Strategies

Table 8-51 Performed Protocol Code Sequence – Extension of CID 4251.

Code Value	Coding Scheme Designator	Code Meaning	Coding Scheme Version
OPVTS100	99CZM	Visual Field Threshold Fast Test Strategy	20140605
OPVTS101	99CZM	Visual Field SITA-Faster Test Strategy	20160921

8.4 Greyscale Image Consistency

This chapter is not applicable.

8.5 Standard Extended / Specialized/ Private SOP Classes

The following standard extensions are used in the IODs described in chapter 8.1.1 Created SOP Instance(s).

Table 8-5 Encapsulated PDF IOD – Module "CZM Encapsulated PDF Series Extension"

Table 8-10 Encapsulated PDF IOD – Module "SpecializedEncapsulatedDocument"

Table 8-11 Encapsulated PDF IOD – Module “SollnEncapsulatedDocument”

Table 8-12 Encapsulated PDF IOD – Module "SollnCombinedReportEncapsulatedDocument"

Table 8-13 Encapsulated PDF IOD – Module “CZM-HFA-Series"

Table 8-14 Encapsulated PDF IOD – Module "CZM-HFA-Analysis"

Table 8-15 Encapsulated PDF IOD – Module CZM-NIM-INTERNAL

Table 8-29 Ophthalmic Visual Field IOD – Module "CZM Ophthalmic Visual Field Static Perimetry Measurements Extension"

Table 8-30 Ophthalmic Visual Field IOD – Module "Hfa Visual Field Static Perimetry Test Results"

Table 8-31 Ophthalmic Visual Field IOD – Module CZM-NIM-INTERNAL

Table 8-40 Raw Data IOD – Module CZM-NIM-INTERNAL

8.6 Private Transfer Syntaxes

No Private Transfer Syntax is supported.

The product meets the essential requirements stipulated in Annex I of the 93/42/EEC Directive governing medical devices. The product is labeled with:

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