



**Eclipse Ocular Proton
Planning**

DICOM Conformance Statement

Abstract This document provides information about the DICOM Conformance of the Eclipse Ocular Proton Planning product version 11.0.

Manufacturer and European Representative	Manufacturer:	European Authorized Representative:
	Varian Medical Systems, Inc. Ltd. 3100 Hansen Way Palo Alto, CA 94304-1030, U.S.A.	Varian Medical Systems UK Ltd. Gatwick Road, Crawley West Sussex RH10 9RG United Kingdom

Notice Information in this document is subject to change without notice and does not represent a commitment on the part of Varian. Varian is not liable for errors contained in this document or for incidental or consequential damages in connection with the furnishing or use of this material.

This document contains proprietary information protected by copyright. No part of this document may be reproduced, translated, or transmitted without the express written permission of Varian Medical Systems, Inc.

Trademarks ARIA®, Varian®, VMS® are registered trademarks.

ARIA™ is trademark of Varian Medical Systems, Inc.

Microsoft®, Windows NT® and Windows® are registered trademarks of Microsoft Corporation.

All other trademarks or registered trademark are the property of their respective owners.

Copyright© 2012 Varian Medical Systems Inc., Oncology Systems
All rights reserved.

Document History

11.0.03	Apr 07, 2012	Version for 11.0
10.0.01	May 26, 2010	Version for 10.0
8.9.03	Mar 24, 2010	Version for 8.9

(This page is intentionally left blank)

Contents

1.1	Audience.....	8
1.2	Overview.....	8
1.3	Remarks	8
1.4	References	9
1.5	Abbreviations.....	9
1.6	Contact Varian Customer Support	9
3.1	Implementation Model	13
3.1.1	Application Data Flow Diagram	13
3.1.2	Functional definitions of AEs	13
3.1.3	Sequencing of Real World Activities.....	14
3.1.4	File Meta Information for Implementation Class and Version	14
3.2	AE Specifications.....	14
3.2.1	Eclipse Ocular Proton Planning - Specification	14
3.3	Augmented and Private Application Profiles	15
3.3.1	Augmented Application Profiles.....	15
4.1	Overview.....	16
4.2	Display Behavior.....	16
5.1	Security Profiles.....	17
5.2	Association Level Security	17
5.2.1	Eclipse Ocular Proton Planning.....	17
5.3	Application Level Security	17
5.3.1	Eclipse Ocular Proton Planning.....	17
A.1	IOD Contents.....	18
A.1.1	Created SOP Instances.....	18
A.1.2	Usage of Attributes from received IODs.....	18
A.1.3	Attribute Mapping.....	18
A.1.4	Coerced/Modified Fields.....	18
A.2	Data Dictionary of Private Attributes	18
A.2.1	Private Attributes used by the Eclipse Ocular Proton Planning Application Entity.....	19
A.3	Coded Terminology and Templates	19
A.3.1	Context Groups.....	19
A.3.2	Template Specifications	19
A.3.3	Private Code Definitions	19
A.4	Grayscale Image Consistency.....	19
A.5	Standard Extended/Specialized/Private SOP Classes	20
A.5.1	Standard Extended SOP Classes	20
A.6	Private Transfer Syntaxes	20
B.1	RT Image Matching Criteria	21
C.1	Supported IODs.....	22
C.1.1	RT Image – A.17.3.....	22
C.1.2	RT Ion Plan – A.49.2	22
C.2	Modules and Attributes.....	24

C.2.1	Patient – C.7.1.1	24
C.2.2	General Study – C.7.2.1	29
C.2.3	Frame of Reference – C.7.4.1	35
C.2.4	General Equipment – C.7.5.1	35
C.2.5	General Image – C.7.6.1	37
C.2.6	Image Pixel – C.7.6.3	47
C.2.7	RT Series – C.8.8.1	50
C.2.8	RT Image – C.8.8.2	59
C.2.9	RT General Plan – C.8.8.9	71
C.2.10	RT Prescription – C.8.8.10	73
C.2.11	RT Patient Setup – C.8.8.12	76
C.2.12	RT Fraction Scheme – C.8.8.13	81
C.2.13	Approval – C.8.8.16	86
C.2.14	RT Ion Tolerance Tables – C.8.8.24	86
C.2.15	RT Ion Beams – C.8.8.25	88
C.2.16	Curve – C.10.2	114
C.2.17	SOP Common – C.12.1	116

List of Figures

Figure 3-1: Application Data flow Diagram.....	13
--	----

List of Tables

Table 1-1: List of supported Media File SOP Classes	8
Table 3-1: IODS, SOP Classes and Transfer Syntaxes for Eclipse Ocular Proton Planning (export).....	14
Table 3-2: IODS, SOP Classes and Transfer Syntaxes for Eclipse Ocular Proton Planning (import).....	15
Table A-1: Private Creator Identification Strings	18
Table A-2: Private Attributes used by the Eclipse Ocular Proton Planning Application Entity.....	19
Table A-3: Standard Attributes added to RT General Module	20
Table A-4: Standard Attributes added to RT Ion Tolerance Tables Module	20
Table A-5: Standard Attributes added to RT Ion Beams Module.....	20
Table C-1: RT Image IOD Modules Support	22
Table C-2: RT Ion Plan IOD Modules Support.....	23

1. Introduction

1.1 Audience

This document is intended for the following groups of persons:

- Customers and hospital staff who want to use DICOM with Eclipse Ocular Proton Planning application
- System integrators of medical equipment
- Other vendors offering interfacing via DICOM
- Marketing and sales persons

It is assumed that the reader is familiar with the DICOM standard.

The document is structured strictly in accordance with the template definition as specified in Part 2 of the DICOM standard.

1.2 Overview

The Eclipse Ocular Proton Planning application is treatment planning software for ocular proton radiotherapy. To support that function, the application uses the following DICOM services for sending diagnostic imaging modalities and radiotherapy objects.

Table 1-1 lists Media File SOP Classes supported for file-based export by Eclipse Ocular Proton Planning.

SOP Classes	DICOM Media File Export	DICOM Media File Import
RT Image Storage	Option	Option
RT Ion Plan Storage	Option	No

Table 1-1: List of supported Media File SOP Classes

The product in the scope of this Conformance Statement is the Eclipse Ocular Proton Planning application.

The Eclipse Ocular Proton Planning application runs on Microsoft Windows 7 64-bit platform.

1.3 Remarks

The scope of this Conformance Statement is to facilitate the communication with Eclipse Ocular Proton Planning application and other vendors' medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM standard [1].

The DICOM standard in the current version evolved in 1993 with DICOM 3.0. The definition of the DICOM standard for radiotherapy data started in 1994 and has now reached a productive state. Nowadays DICOM is the primary choice for exchanging data with an open standard protocol for the majority of vendors and institutions. Varian Medical Systems is committed to this notion of standard-based cross-vendor interoperability as well as making use of the DICOM protocol among its own products.

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

Because the DICOM standard is subject to ongoing changes, enhancements and improvements, Varian Medical Systems reserves the right to advance their products by making use of upcoming DICOM features without prior announcement.

1.4 References

- (1) Digital Imaging and Communications in Medicine (DICOM), Parts 1-18 (2008)
National Electrical Manufacturers Association (NEMA)
Rosslyn, VA
United States of America

1.5 Abbreviations

This section provides the definitions of terms, acronyms, and abbreviations which are used throughout the document. An arrow sign (→) to the left of a word indicates that it can be looked up in this table.

AE	Application Entity (→DICOM term)
DB	Database
DICOM	Digital Imaging and Communications in Medicine, a standard on image communications in medical applications
EMPTY	Attribute is sent without a value
EOPP	Eclipse Ocular Proton Planning
FSC	File-set Creator (→ DICOM term)
FSR	File-set Reader (→ DICOM term)
IE	Information Entity
IOD	Information Object Definition (→DICOM term)
Multi-frame Image	Image that contains multiple two-dimensional pixel planes
NEMA	National Electrical Manufacturers Association
SOP	Service-Object-Pair, a definition of an information object (like an image) and of a service (like storage) that can be performed for the object (→DICOM term)
UID	Unique Identifier used to identify an object by a worldwide unique identifier (→DICOM term)
VR	Value Representation, a data encoding method in →DICOM

1.6 Contact Varian Customer Support

Support services are available without charge during the initial warranty period. Use this contact information to get additional copies of documentation or to search for documentation online.

The best way to get support is at My.Varian.com. You must have a Varian account to get online customer support.

Create a Varian Account

1. Go to: <http://my.varian.com/>
2. Click **Create New Account** and follow the instructions.

Establishing an account may take a few days.

Contact Online Support

1. Go to: <http://my.varian.com/>
2. Click **Contact Us** at the top of the window.
3. From the Contact Us page:
 - Use the appropriate link to send an e-mail to Varian support.
 - Call the contact number displayed in the upper right corner.
 - Click the **International** support link to display a complete list of international e-mail addresses and telephone numbers.

Find Local Support for Service, Parts, or Training

1. Go to: <http://my.varian.com/>
2. In the Services & Support menu, choose **Oncology Support**.
3. Click **Contact Varian Oncology** on the right side of the screen.
4. Select the geographical area for the support you want.

E-Mail Addresses

If possible, send all e-mail inquiries through the my.varian.com website. Otherwise, use the appropriate e-mail address for support:

- | | |
|---|--|
| • North America | support-americas@varian.com |
| • Latin America | soporte.al@varian.com |
| • Europe | support-emea@varian.com |
| • Australia, New Zealand, and Australasia | support-anz@varian.com |
| • China | china.apps.helpdesk@varian.com |
| • Japan | japan.apps.helpdesk@varian.com |
| • South East Asia | SEasia.apps.helpdesk@varian.com |
| • Brachytherapy Systems | brachyhelp@varian.com |
| • Medical Oncology | vmosupport@varian.com |

Phone Numbers for Support

For information not included in this publication, call Varian Medical Systems support at:

- United States and Canada telephone support + 1 888 827 4265
- United States and Canada Direct telephone support + 1 650 213 1000
- European telephone Support + 41 41 749 8844
- Fax (US) + 1 702 938 4754
- Fax (Service Europe) + 41 41 740 3340
- All other countries Call your local Varian office.

Browse for CTBs and Other Documents

Customer Technical Bulletins, manuals, and other resources are available for Varian Oncology products.

1. Go to: <http://my.varian.com/>
2. From the MyVarian home page, click **Product Information** on the left side of the screen.
3. Click the name of the product for which you want information on the left side of the screen.

Documents include:

- Manuals
- CTBs
- Release Notes
- Education Materials
- Webinars
- Application Quick Tips

Phone Numbers to Order Documents

Call Varian Medical Systems support at:

- North America + 1 888 827 4265
(Press 2 for parts)
- Global Call your local Varian office.

2. Networking

Eclipse Ocular Proton Planning does not support any network roles.

3. Media Interchange

3.1 Implementation Model

The Implementation Model shall identify the DICOM Application Entities in a specific implementation and relate the Application Entities to Real-World Activities.

3.1.1 Application Data Flow Diagram

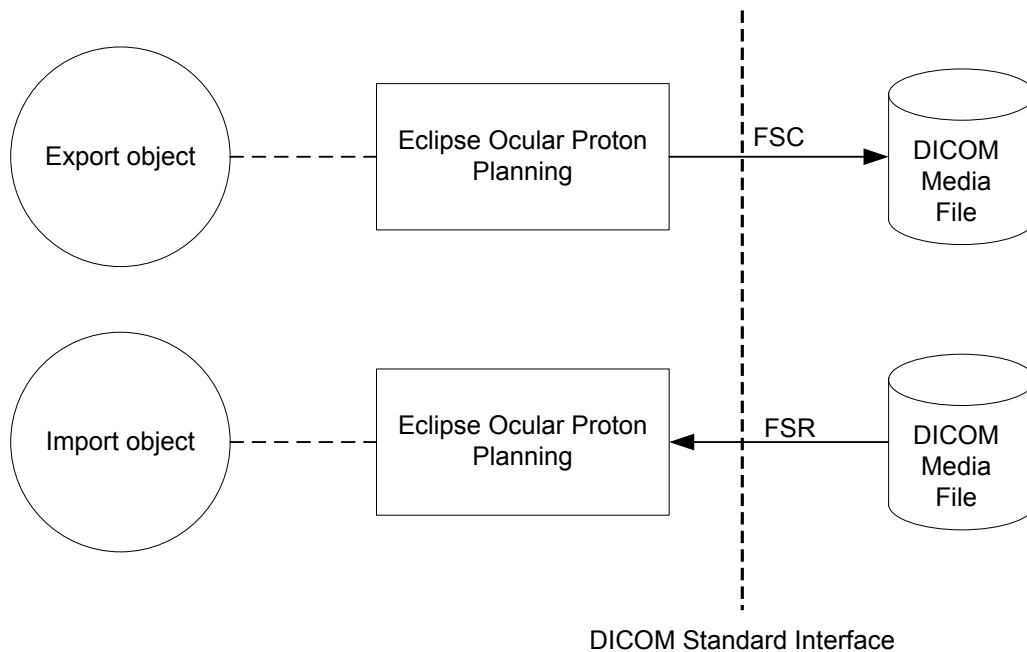


Figure 3-1: Application Data flow Diagram

Eclipse Ocular Proton Planning Application Entity

Eclipse Ocular Proton Planning Application Entity is invoked by the user from the Eclipse Ocular Proton Planning application to export RT images and RT Ion Plans to DICOM media files and to import RT Images from DICOM media files.

3.1.2 Functional definitions of AEs

3.1.2.1 Functional Definition of Eclipse Ocular Proton Planning Application Entity

The Eclipse Ocular Proton Planning Application Entity supports treatment plans for ocular proton treatments. The beamline for such treatments is a fixed beamline. A treatment plan can contain a block and wedges. Compensators or bolus are not supported. X-ray images of the patient's eye can be imported as RT images to the application entity. Treatment plans can be exported as RT Ion Plans and setup images can be exported as RT Images.

3.1.3 Sequencing of Real World Activities

Not applicable because importing and exporting objects can take place in any sequence and independently of each other.

3.1.4 File Meta Information for Implementation Class and Version

File Meta Information Version: 0x0\0x1

Implementation Class UID: 1.2.246.352.70.2.1.7

3.2 AE Specifications

3.2.1 Eclipse Ocular Proton Planning - Specification

3.2.1.1 File Meta Information for Eclipse Ocular Proton Planning

Not used.

3.2.1.2 Real-World Activities

3.2.1.2.1 Activity - Export Object

The Eclipse Ocular Proton Planning Application Entity acts as a File-set Creator (FSC) when requested to export SOP Instances.

A dialog will be presented allowing the user to change the suggested export location.

3.2.1.2.1.1 Media Storage Application Profile

The Eclipse Ocular Proton Planning Application Entity writes DICOM Media Files but does not comply with any Media Storage Application Profile.

3.2.1.2.1.1.1 Options

The Eclipse Ocular Proton Planning Application Entity supports the SOP Classes and Transfer Syntaxes listed in the Table below:

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Implicit VR Little Endian	1.2.840.10008.1.2
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Implicit VR Little Endian	1.2.840.10008.1.2

Table 3-1: IODS, SOP Classes and Transfer Syntaxes for Eclipse Ocular Proton Planning (export)

3.2.1.2.2 Activity - Import Object

The Eclipse Ocular Proton Planning Application Entity acts as a File-set Reader (FSR) when requested to import SOP Instances.

Dialogs will be presented allowing the user to choose the import locations and files.

3.2.1.2.2.1 Media Storage Application Profile

The Eclipse Ocular Proton Planning Application Entity reads DICOM Media Files but does not comply with any Media Storage Application Profile.

3.2.1.2.2.1.1 Options

The Eclipse Ocular Proton Planning Application Entity supports the SOP Classes and Transfer Syntaxes listed in the Table below:

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1

Table 3-2: IODS, SOP Classes and Transfer Syntaxes for Eclipse Ocular Proton Planning (import)

3.3 Augmented and Private Application Profiles

3.3.1 Augmented Application Profiles

Eclipse Ocular Proton Planning does not support any augmented or private Application Profiles.

4. Support of Character Sets

4.1 Overview

No dedicated support for Character Sets beyond the Default Character Repertoire is available. However, text fields containing characters not in the Default Character Repertoire when importing an Instance will appear unchanged when re-exporting the same Instance again.

4.2 Display Behavior

Correct display of characters not in the Default Character Repertoire depends on available/configured operating system support.

5. Security

5.1 Security Profiles

No Security Profiles are supported.

5.2 Association Level Security

5.2.1 Eclipse Ocular Proton Planning

Eclipse Ocular Proton Planning does not support Association Level Security.

5.3 Application Level Security

5.3.1 Eclipse Ocular Proton Planning

Any users logging on to an Eclipse Ocular Proton Planning application must identify themselves with a username and a password.

Appendix A Specialization

A.1 IOD Contents

A.1.1 Created SOP Instances

IODs created by Eclipse Ocular Proton Planning Application Entity are listed in Appendix C along with the supported modules.

A.1.2 Usage of Attributes from received IODs

Eclipse Ocular Proton Planning Application Entity requires all Type 1 Attributes to be present.

A.1.3 Attribute Mapping

Mapping Attributes between different SOP Classes is typically straightforward. For details, see Appendix C.

A.1.4 Coerced/Modified Fields

N/A

A.2 Data Dictionary of Private Attributes

All private Attributes in use in Eclipse Ocular Proton Planning Application Entity are listed in the following section.

The following table shows private creator identification strings for each private group. The placeholder “ee” is by default replaced by “10” when creating Instances; however, this is not guaranteed under all circumstances.

Tag	Private Creator Identification String
(300B,00ee)	IMPAC

Table A-1: Private Creator Identification Strings

A.2.1 Private Attributes used by the Eclipse Ocular Proton Planning Application Entity

Tag	Name	VR	VM
(300B,ee01)	Distal Target Distance Tolerance	FL	1
(300B,ee02)	Maximum Collimated Field Diameter (Field Size)	FL	1
(300B,ee04)	Range (Planned Distal Target Distance)	FL	1
(300B,ee08)	Beam Line Data Table Version	SH	1
(300B,ee0E)	Nominal SOBP Width	FL	1
(300B,ee11)	Nominal SOBP Width Tolerance	FL	1

Table A-2: Private Attributes used by the Eclipse Ocular Proton Planning Application Entity

A.3 Coded Terminology and Templates

A.3.1 Context Groups

Information will be published in a future version of this document.

A.3.2 Template Specifications

No standard templates are extended and no private templates are used.

A.3.3 Private Code Definitions

There are no private code definitions.

A.4 Grayscale Image Consistency

Not supported.

A.5 Standard Extended/Specialized/Private SOP Classes

A.5.1 Standard Extended SOP Classes

A.5.1.1 RT General Plan

The following Standard Attributes are additional to the RT General Plan Module:

Attribute Name	Tag	Type	Attribute Description
Operators' Name	(0008,1070)	2	Name of operator(s) creating treatment plan.

Table A-3: Standard Attributes added to RT General Module

A.5.1.2 RT Ion Tolerance Tables

The following Standard Attributes are additional to the RT Ion Tolerance Tables Module:

Attribute Name	Tag	Type	Attribute Description
> Gantry Pitch Angle Tolerance	(300A,014E)	3	Maximum permitted difference (in degrees) between planned and delivered Gantry Pitch Angle.

Table A-4: Standard Attributes added to RT Ion Tolerance Tables Module

A.5.1.3 RT Ion Beams

The following Standard Attributes are additional to the RT Ion Beams Module:

Attribute Name	Tag	Type	Attribute Description
>>Nominal Beam Energy Unit	(300A,0015)	1C	Units used for Nominal Beam Energy (300A,0114). Required if Nominal Beam Energy (300A,0114) is sent. Defined Terms: MV = Megavolt MEV = Mega electron-Volt If Radiation Type (300A,00C6) is PHOTON, Nominal Beam Energy Unit (300A,0015) shall be MV. If Radiation Type (300A,00C6) is ELECTRON, Nominal Beam Energy Unit (300A,0015) shall be MEV.

Table A-5: Standard Attributes added to RT Ion Beams Module

A.6 Private Transfer Syntaxes

No private Transfer Syntaxes are used.

Appendix B Object Matching Criteria

B.1 RT Image Matching Criteria

When a DICOM RT Image is imported, the following tag is always matched against that of an already existing tag in the local storage:

(0010,0020) Patient ID

If the Patient ID in the imported DICOM RT Image does not match with the Patient ID of the patient to which the RT Image is imported, the Eclipse Ocular Proton Planning Application Entity displays a warning/confirmation dialog to the user. The dialog states that the Patient ID does not match with the patient data and asks if the user wants to continue.

Appendix C IOD Details

C.1 Supported IODs

For better reference with DICOM Standard (1), section titles of the following sub-sections are decorated with section number of DICOM Standard Part 3 where the corresponding IOD Module table can be found.

C.1.1 RT Image – A.17.3

IE	Module	Reference	Usage	Presence
Patient	Patient	C.7.1.1	M	
	Clinical Trial Subject	C.7.1.3	U	Not supported
Study	General Study	C.7.2.1	M	
	Patient Study	C.7.2.2	U	Not supported
	Clinical Trial Study	C.7.2.3	U	Not supported
Series	RT Series	C.8.8.1	M	
	Clinical Trial Series	C.7.3.2	U	Not supported
Frame of Reference	Frame of Reference	C.7.4.1	M	
Equipment	General Equipment	C.7.5.1	M	
Image	General Image	C.7.6.1	M	
	Image Pixel	C.7.6.3	M	
	Contrast/Bolus	C.7.6.4	C	Not supported
	Cine	C.7.6.5	C	Not supported
	Multi-Frame	C.7.6.6	C	Not supported
	Device	C.7.6.12	C	Not supported
	RT Image	C.8.8.2	M	
	Modality LUT	C.11.1	U	Not supported
	VOI LUT	C.11.2	U	Not supported
	Approval	C.8.8.16	U	Not supported
	Curve (Retired)	C.10.2	U	
	SOP Common	C.12.1	M	

Table C-1: RT Image IOD Modules Support

C.1.2 RT Ion Plan – A.49.2

IE	Module	Reference	Usage	Presence
Patient	Patient	C.7.1.1	M	

IE	Module	Reference	Usage	Presence
	Clinical Trial Subject	C.7.1.3	U	Not supported
Study	General Study	C.7.2.1	M	
	Patient Study	C.7.2.2	U	Not supported
	Clinical Trial Study	C.7.2.3	U	Not supported
Series	RT Series	C.8.8.1	M	
	Clinical Trial Series	C.7.3.2	U	Not supported
Frame of Reference	Frame of Reference	C.7.4.1	M	
Equipment	General Equipment	C.7.5.1	M	
Plan	RT General Plan	C.8.8.9	M	
	RT Prescription	C.8.8.10	U	
	RT Ion Tolerance Tables	C.8.8.24	U	
	RT Patient Setup	C.8.8.12	U	
	RT Fraction Scheme	C.8.8.13	U	
	RT Ion Beams	C.8.8.25	C	
	Approval	C.8.8.16	U	
	SOP Common	C.12.1	M	

Table C-2: RT Ion Plan IOD Modules Support

C.2 Modules and Attributes

For better reference with DICOM Standard (1) section titles of the following sub-sections are decorated with section number of DICOM Standard Part 3 where the corresponding Module Attribute table can be found.

The first four columns in the following tables contain definitions from the DICOM standard. References in those columns refer to the DICOM standard and not to this document.

The “Handling” column describes for each Attribute whether it is supported and eventually, how the attribute is used in the application. A value of “*** Not Implemented ***” indicates that an Attribute is unknown and therefore ignored by the application. A value of “*** Not Used ***” indicates that an Attribute is validated, but its value is not saved on the database.

C.2.1 Patient – C.7.1.1

Attribute Name	Tag	T	Description	Handling
Patient's Name	(0010,0010)	2	Patient's full name.	Export supported.
Patient ID	(0010,0020)	2	Primary hospital identification number or code for the patient.	Export and import supported. Used as the primary patient identification on the user interface. Case-insensitive searches are performed if user selects a patient by ID.
Issuer of Patient ID	(0010,0021)	3	Identifier of the Assigning Authority that issued the Patient ID.	*** Not Implemented ***
Patient's Birth Date	(0010,0030)	2	Birth date of the patient.	Export supported.
Patient's Sex	(0010,0040)	2	Sex of the named patient. Enumerated Values: M = male F = female O = other	Export supported. 'Female': F, 'Male': M, anything else: O
Referenced Patient Sequence	(0008,1120)	3	A sequence that provides reference to a Patient SOP Class/Instance pair. Only a single Item shall be permitted in this Sequence.	*** Not Implemented ***

> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Patient Sequence (0008,1120) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Patient Sequence (0008,1120) is sent.	*** Not Implemented ***
Patient's Birth Time	(0010,0032)	3	Birth time of the Patient.	*** Not Implemented ***
Other Patient IDs	(0010,1000)	3	Other identification numbers or codes used to identify the patient.	*** Not Implemented ***
Other Patient IDs Sequence	(0010,1002)	3	A sequence of identification numbers or codes used to identify the patient, which may or may not be human readable, and may or may not have been obtained from an implanted or attached device such as an RFID or barcode. If present, shall contain one or more items.	*** Not Implemented ***
> Patient ID	(0010,0020)	1	An identification number or code used to identify the patient.	*** Not Implemented ***
> Issuer of Patient ID	(0010,0021)	1	Identifier of the Assigning Authority that issued the Patient ID.	*** Not Implemented ***
> Type of Patient ID	(0010,0022)	1	The type of identifier in this item. Defined Terms: TEXT RFID BARCODE Note: The identifier is coded as a string regardless of the type, not as a binary value.	*** Not Implemented ***
Other Patient Names	(0010,1001)	3	Other names used to identify the patient.	*** Not Implemented ***
Ethnic Group	(0010,2160)	3	Ethnic group or race of the patient.	*** Not Implemented ***

Patient Comments	(0010,4000)	3	User-defined additional information about the patient.	*** Not Implemented ***
Patient Species Description	(0010,2201)	1C	The species of the patient. Required if the patient is an animal and if Patient Species Code Sequence (0010,2202) is not present. May be present otherwise.	*** Not Implemented ***
Patient Species Code Sequence	(0010,2202)	1C	The species of the patient. One Item shall be present. Required if the patient is an animal and if Patient Species Description (0010,2201) is not present. May be present otherwise.	*** Not Implemented ***
> Code Value	(0008,0100)	1	See Section 8.1 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1	See Section 8.3 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
Patient Breed Description	(0010,2292)	2C	The breed of the patient. Required if the patient is an animal and if Patient Breed Code Sequence (0010,2293) is empty. May be present otherwise.	*** Not Implemented ***
Patient Breed Code Sequence	(0010,2293)	2C	The breed of the patient. Zero or more Items shall be present. Required if the patient is an animal.	*** Not Implemented ***
> Code Value	(0008,0100)	1	See Section 8.1 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***

> Coding Scheme Designator	(0008,0102)	1	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1	See Section 8.3 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
Breed Registration Sequence	(0010,2294)	2C	Information identifying an animal within a breed registry. Zero or more Items shall be present. Required if the patient is an animal.	*** Not Implemented ***
> Breed Registration Number	(0010,2295)	1	Identification number of an animal within the registry.	*** Not Implemented ***
> Breed Registry Code Sequence	(0010,2296)	1	Identification of the organization with which an animal is registered. One Item shall be present.	*** Not Implemented ***
> Code Value	(0008,0100)	1	See Section 8.1 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1	See Section 8.3 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
Responsible Person	(0010,2297)	2C	Name of person with medical decision making authority for the patient. Required if the patient is an animal. May be present otherwise.	*** Not Implemented ***

Responsible Person Role	(0010,2298)	1C	Relationship of Responsible Person to the patient. Defined Terms: OWNER Required if Responsible Person is present and has a value.	*** Not Implemented ***
Responsible Organization	(0010,2299)	2C	Name of organization with medical decision making authority for the patient. Required if patient is an animal. May be present otherwise.	*** Not Implemented ***
Patient Identify Removed	(0012,0062)	3	The true identity of the patient has been removed from the Attributes and the Pixel Data Enumerated Values: YES NO	*** Not Implemented ***
De-identification Method	(0012,0063)	1C	A description or label of the mechanism or method use to remove the patient's identity. May be multi-valued if successive de-identification steps have been performed. Note: This may be used to describe the extent or thoroughness of the de- identification, for example whether or not the de-identification is for a "Limited Data Set" (as per HIPAA Privacy Rule). Required if Patient Identity Removed (0012,0062) is present and has a value of YES and De-identification Method Code Sequence (0012,0064) is not present.	*** Not Implemented ***
De-identification Method Code Sequence	(0012,0064)	1C	A code describing the mechanism or method use to remove the patient's identity. One or more Items shall be present. Multiple items are used if successive de-identification steps have been performed Required if Patient Identity Removed (0012,0062) is present and has a value of YES and De-identification Method (0012,0063) is not present.	*** Not Implemented ***
> Code Value	(0008,0100)	1C	See Section 8.1 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***

> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1C	See Section 8.3 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***

C.2.2 General Study – C.7.2.1

Attribute Name	Tag	T	Description	Handling
Study Instance UID	(0020,000D)	1	Unique identifier for the Study.	Export and import supported.
Study Date	(0008,0020)	2	Date the Study started.	Export and import are supported.
Study Time	(0008,0030)	2	Time the Study started.	Export and import are supported.
Referring Physician's Name	(0008,0090)	2	Name of the patient's referring physician	Export and import are supported.
Referring Physician Identification Sequence	(0008,0096)	3	Identification of the patient's referring physician. Only a single item shall be permitted in this sequence.	*** Not Implemented ***
> Person Identification Code Sequence	(0040,1101)	1	A coded entry which identifies a person. The Code Meaning attribute, though it will be encoded with a VR of LO, may be encoded according to the rules of the PN VR (e.g. caret '^' delimiters shall separate name components), except that a single component (i.e. the whole name unseparated by caret delimiters) is not permitted. Name component groups for use with multi-byte character sets are permitted, as long as they fit within the 64 characters (the length of the LO VR). One or more Items may be permitted in this Sequence.	*** Not Implemented ***

>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Person's Address	(0040,1102)	3	Person's mailing address	*** Not Implemented ***
> Person's Telephone Numbers	(0040,1103)	3	Person's telephone number(s)	*** Not Implemented ***
> Institution Name	(0008,0080)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Code Sequence (0008,0082) is present.	*** Not Implemented ***
> Institution Address	(0008,0081)	3	Mailing address of the institution or organization to which the identified individual is responsible or accountable.	*** Not Implemented ***
> Institution Code Sequence	(0008,0082)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Name (0008,0080) is present. Only a single Item shall be permitted in this Sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***

>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Study ID	(0020,0010)	2	User or equipment generated Study identifier.	Export and import supported.
Accession Number	(0008,0050)	2	A RIS generated number that identifies the order for the Study.	Export: Value is always EMPTY.
Issuer of Accession Number Sequence	(0008,0051)	3	Identifier of the Assigning Authority that issued the Accession Number. Only a single Item shall be permitted in this sequence.	*** Not Implemented ***
Study Description	(0008,1030)	3	Institution-generated description or classification of the Study (component) performed.	*** Not Implemented ***
Physician(s) of Record	(0008,1048)	3	Names of the physician(s) who are responsible for overall patient care at time of Study (see Section C.7.3.1 for Performing Physician)	*** Not Implemented ***
Physician(s) of Record Identification Sequence	(0008,1049)	3	Identification of the physician(s) who are responsible for overall patient care at time of Study. One or more items shall be included in this sequence. If more than one Item, the number and order shall correspond to the value of Physician(s) of Record (0008,1048), if present.	*** Not Implemented ***
> Person Identification Code Sequence	(0040,1101)	1	A coded entry which identifies a person. The Code Meaning attribute, though it will be encoded with a VR of LO, may be encoded according to the rules of the PN VR (e.g. caret '^' delimiters shall separate name components), except that a single component (i.e. the whole name unseparated by caret delimiters) is not permitted. Name component groups for use with multi-byte character sets are permitted, as long as they fit within the 64 characters (the length of the LO VR). One or more Items may be permitted in this Sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***

>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Person's Address	(0040,1102)	3	Person's mailing address	*** Not Implemented ***
> Person's Telephone Numbers	(0040,1103)	3	Person's telephone number(s)	*** Not Implemented ***
> Institution Name	(0008,0080)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Code Sequence (0008,0082) is present.	*** Not Implemented ***
> Institution Address	(0008,0081)	3	Mailing address of the institution or organization to which the identified individual is responsible or accountable.	*** Not Implemented ***
> Institution Code Sequence	(0008,0082)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Name (0008,0080) is present. Only a single Item shall be permitted in this Sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Name of Physician(s) Reading Study	(0008,1060)	3	Names of the physician(s) reading the Study.	*** Not Implemented ***

Physician(s) Reading Study Identification Sequence	(0008,1062)	3	Identification of the physician(s) reading the Study. One or more items shall be included in this sequence. If more than one Item, the number and order shall correspond to the value of Name of Physician(s) Reading Study (0008,1060), if present.	*** Not Implemented ***
> Person Identification Code Sequence	(0040,1101)	1	A coded entry which identifies a person. The Code Meaning attribute, though it will be encoded with a VR of LO, may be encoded according to the rules of the PN VR (e.g. caret '^' delimiters shall separate name components), except that a single component (i.e. the whole name unseparated by caret delimiters) is not permitted. Name component groups for use with multi-byte character sets are permitted, as long as they fit within the 64 characters (the length of the LO VR). One or more Items may be permitted in this Sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Person's Address	(0040,1102)	3	Person's mailing address	*** Not Implemented ***
> Person's Telephone Numbers	(0040,1103)	3	Person's telephone number(s)	*** Not Implemented ***
> Institution Name	(0008,0080)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Code Sequence (0008,0082) is present.	*** Not Implemented ***

> Institution Address	(0008,0081)	3	Mailing address of the institution or organization to which the identified individual is responsible or accountable.	*** Not Implemented ***
> Institution Code Sequence	(0008,0082)	1C	Institution or organization to which the identified individual is responsible or accountable. Shall not be present if Institution Name (0008,0080) is present. Only a single Item shall be permitted in this Sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Referenced Study Sequence	(0008,1110)	3	A sequence that provides reference to a Study SOP Class/Instance pair. The sequence may have zero or more Items.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Study Sequence (0008,1110) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Study Sequence (0008,1110) is sent.	*** Not Implemented ***
Procedure Code Sequence	(0008,1032)	3	A Sequence that conveys the type of procedure performed. One or more Items may be included in this Sequence.	*** Not Implemented ***
> Code Value	(0008,0100)	1C	See Section 8.1 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***

> Coding Scheme Version	(0008,0103)	1C	See Section 8.2 of DICOM standard (1) Part 3. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1C	See Section 8.3 of DICOM standard (1) Part 3. Required if a sequence item is present.	*** Not Implemented ***
Reason For Performed Procedure Code Sequence	(0040,1012)	3	Coded reason(s) for performing this procedure. Note: May differ from the values in Reason for the Requested Procedure (0040,100A) in Request Attribute Sequence (0040,0275), for example if what was performed differs from what was requested. One or more Items may be included in this Sequence.	*** Not Implemented ***

C.2.3 Frame of Reference – C.7.4.1

Attribute Name	Tag	T	Description	Handling
Frame of Reference UID	(0020,0052)	1	Uniquely identifies the frame of reference for a Series. See C.7.4.1.1.1 for further explanation.	Export supported.
Position Reference Indicator	(0020,1040)	2	Part of the patient's anatomy used as a reference, such as the iliac crest, orbital- medial, sternal notch, symphysis pubis, xiphoid, lower costal margin, external auditory meatus. See C.7.4.1.1.2 for further explanation.	Export supported. Value: RIGHT EYE or LEFT EYE

C.2.4 General Equipment – C.7.5.1

Attribute Name	Tag	T	Description	Handling
Manufacturer	(0008,0070)	2	Manufacturer of the equipment that produced the composite instances.	Export supported.
Institution Name	(0008,0080)	3	Institution where the equipment that produced the composite instances is located.	*** Not Implemented ***

Institution Address	(0008,0081)	3	Mailing address of the institution where the equipment that produced the composite instances is located.	*** Not Implemented ***
Station Name	(0008,1010)	3	User defined name identifying the machine that produced the composite instances.	*** Not Implemented ***
Institutional Department Name	(0008,1040)	3	Department in the institution where the equipment that produced the composite instances is located.	*** Not Implemented ***
Manufacturer's Model Name	(0008,1090)	3	Manufacturer's model name of the equipment that produced the composite instances.	Export supported.
Device Serial Number	(0018,1000)	3	Manufacturer's serial number of the equipment that produced the composite instances.	*** Not Implemented ***
Software Versions	(0018,1020)	3	Manufacturer's designation of software version of the equipment that produced the composite instances.	Export supported.
Gantry ID	(0018,1008)	3	Identifier of the gantry or positioner.	*** Not Implemented ***
Spatial Resolution	(0018,1050)	3	The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the series, the value at the image center.	*** Not Implemented ***
Date of Last Calibration	(0018,1200)	3	Date when the image acquisition device calibration was last changed in any way. Multiple entries may be used for additional calibrations at other times. See C.7.5.1.1.1 for further explanation.	*** Not Implemented ***
Time of Last Calibration	(0018,1201)	3	Time when the image acquisition device calibration was last changed in any way. Multiple entries may be used. See C.7.5.1.1.1 for further explanation.	*** Not Implemented ***
Pixel Padding Value	(0028,0120)	3	Value of pixels not present in the native image added to an image to pad to rectangular format. See C.7.5.1.1.2 for further explanation. Note: The Value Representation of this Attribute is determined by the value of Pixel Representation (0028,0103).	*** Not Implemented ***

C.2.5 General Image – C.7.6.1

Attribute Name	Tag	T	Description	Handling
Instance Number	(0020,0013)	2	A number that identifies this image. Note: This Attribute was named Image Number in earlier versions of this Standard.	*** Not Implemented ***
Patient Orientation	(0020,0020)	2C	Patient direction of the rows and columns of the image. Required if image does not require Image Orientation (Patient) (0020,0037) and Image Position (Patient) (0020,0032). See C.7.6.1.1.1 for further explanation. Note: IOD's may have attributes other than Patient Orientation, Image Orientation, or Image Position (Patient) to describe orientation in which case this attribute will be zero length.	*** Not Implemented ***
Content Date	(0008,0023)	2C	The date the image pixel data creation started. Required if image is part of a series in which the images are temporally related. Note: This Attribute was formerly known as Image Date.	*** Not Implemented ***
Content Time	(0008,0033)	2C	The time the image pixel data creation started. Required if image is part of a series in which the images are temporally related.	*** Not Implemented ***
Image Type	(0008,0008)	3	Image identification characteristics. See C.7.6.1.1.2 for Defined Terms and further explanation.	Export: Value is always "ORIGINAL"/"SECONDARY"/"DRR"/"".
Acquisition Number	(0020,0012)	3	A number identifying the single continuous gathering of data over a period of time that resulted in this image.	*** Not Implemented ***
Acquisition Date	(0008,0022)	3	The date the acquisition of data that resulted in this image started	*** Not Implemented ***

Acquisition Time	(0008,0032)	3	The time the acquisition of data that resulted in this image started	*** Not Implemented ***
Acquisition DateTime	(0008,002A)	3	The date and time that the acquisition of data that resulted in this image started. Note: The synchronization of this time with an external clock is specified in the Synchronization Module in Acquisition Time Synchronized (0018,1800).	*** Not Implemented ***
Referenced Image Sequence	(0008,1140)	3	A sequence that references other images significantly related to this image (e.g. post-localizer CT image or Mammographic biopsy or partial view images). One or more Items may be included in this sequence.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	*** Not Implemented ***
> Referenced Frame Number	(0008,1160)	1	Identifies the frame numbers within the Referenced SOP Instance to which the reference applies. The first frame shall be denoted as frame number 1. Note: This Attribute may be multi-valued. Required if the Referenced SOP Instance is a multi-frame image and the reference does not apply to all frames.	*** Not Implemented ***
> Purpose of Reference Code Sequence	(0040,A170)	3	Describes the purpose for which the reference is made. Only a single Item shall be permitted in this sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***

>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Derivation Description	(0008,2111)	3	A text description of how this image was derived. See C.7.6.1.1.3 for further explanation.	*** Not Implemented ***
Derivation Code Sequence	(0008,9215)	3	A coded description of how this image was derived. See C.7.6.1.1.3 for further explanation. One or more Items may be included in this Sequence. More than one Item indicates that successive derivation steps have been applied.	*** Not Implemented ***
> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Source Image Sequence	(0008,2112)	3	A Sequence that identifies the set of Image SOP Class/Instance pairs of the Images that were used to derive this Image. Zero or more Items may be included in this Sequence. See C.7.6.1.1.4 for further explanation.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	*** Not Implemented ***

> Referenced Frame Number	(0008,1160)	1	Identifies the frame numbers within the Referenced SOP Instance to which the reference applies. The first frame shall be denoted as frame number 1. Note: This Attribute may be multi-valued. Required if the Referenced SOP Instance is a multi-frame image and the reference does not apply to all frames.	*** Not Implemented ***
> Purpose of Reference Code Sequence	(0040,A170)	3	Describes the purpose for which the reference is made, that is what role the source image or frame(s) played in the derivation of this image. Only a single Item shall be permitted in this sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***

<p>> Spatial Locations Preserved</p>	<p>(0028,135A)</p>	<p>3</p>	<p>The extent to which the spatial locations of all pixels are preserved during the processing of the source image that resulted in the current image Enumerated Values: YES NO REORIENTED_ONLY - A projection radiograph that has been flipped, and/or rotated by a multiple of 90 degrees</p> <p>Notes: 1. This applies not only to images with a known relationship to a 3D space, but also to projection images. For example, a projection radiograph such as a mammogram that is processed by a point image processing operation such as contrast enhancement, or a smoothing or edge enhancing convolution, would have a value of YES for this attribute. A projection radiograph that had been magnified or warped geometrically would have a value of NO for this attribute. A projection radiograph that has been flipped, and/or rotated by a multiple of 90 degrees, such that transformation of pixel locations is possible by comparison of the values of Patient Orientation (0020,0020) would have a value of REORIENTED_ONLY. This attribute is typically of importance in relating images with Presentation Intent Type (0008,0068) values of FOR PROCESSING and FOR PRESENTATION. 2. When the value of this attribute is NO, it is not possible to locate on the current image any pixel coordinates that are referenced relative to the source image, such as for example, might be required for rendering CAD findings derived from a referenced FOR PROCESSING image on the current FOR PRESENTATION image.</p>	<p>*** Not Implemented ***</p>
<p>> Patient Orientation</p>	<p>(0020,0020)</p>	<p>1C</p>	<p>The Patient Orientation values of the source image. Required if the value of Spatial Locations Preserved (0028,135A) is REORIENTED_ONLY.</p>	<p>*** Not Implemented ***</p>

Referenced Instance Sequence	(0008,114A)	3	A sequence which provides reference to a set of non-image SOP Class/Instance pairs significantly related to this Image, including waveforms that may or may not be temporally synchronized with this image . One or more Items may be included in this sequence.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	*** Not Implemented ***
> Purpose of Reference Code Sequence	(0040,A170)	1	Code describing the purpose of the reference to the Instance(s). Only a single Item shall be permitted in this sequence.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Images in Acquisition	(0020,1002)	3	Number of images that resulted from this acquisition of data	*** Not Implemented ***
Image Comments	(0020,4000)	3	User-defined comments about the image	*** Not Implemented ***

Quality Control Image	(0028,0300)	3	Indicates whether or not this image is a quality control or phantom image. Enumerated Values: YES NO If this Attribute is absent, then the image may or may not be a quality control or phantom image.	*** Not Implemented ***
Burned In Annotation	(0028,0301)	3	Indicates whether or not image contains sufficient burned in annotation to identify the patient and date the image was acquired. Enumerated Values: YES NO If this Attribute is absent, then the image may or may not contain burned in annotation.	*** Not Implemented ***
Lossy Image Compression	(0028,2110)	3	Specifies whether an Image has undergone lossy compression. Enumerated Values: 00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression. See C.7.6.1.1.5	*** Not Implemented ***
Lossy Image Compression Ratio	(0028,2112)	3	Describes the approximate lossy compression ratio(s) that have been applied to this image. See C.7.6.1.1.5 for further explanation. May be multivalued if successive lossy compression steps have been applied. Notes: 1. For example, a compression ratio of 30:1 would be described in this Attribute with a single value of 30. 2. For historical reasons, the lossy compression ratio may also be described in Derivation Description (0008,2111).	*** Not Implemented ***

Lossy Image Compression Method	(0028,2114)	3	A label for the lossy compression method(s) that have been applied to this image. See C.7.6.1.1.5 for further explanation. May be multivalued if successive lossy compression steps have been applied; the value order shall correspond to the values of Lossy Image Compression Ratio (0028,2112). Note: For historical reasons, the lossy compression method may also be described in Derivation Description (0008,2111).	*** Not Implemented ***
Icon Image Sequence	(0088,0200)	3	This icon image is representative of the Image.	*** Not Implemented ***
> Samples per Pixel	(0028,0002)	1	Number of samples (planes) in this image. See C.7.6.3.1.1 for further explanation.	*** Not Implemented ***
> Photometric Interpretation	(0028,0004)	1	Specifies the intended interpretation of the pixel data. See C.7.6.3.1.2 for further explanation.	*** Not Implemented ***
> Rows	(0028,0010)	1	Number of rows in the image.	*** Not Implemented ***
> Columns	(0028,0011)	1	Number of columns in the image.	*** Not Implemented ***
> Bits Allocated	(0028,0100)	1	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. See PS 3.5 for further explanation.	*** Not Implemented ***
> Bits Stored	(0028,0101)	1	Number of bits stored for each pixel sample. Each sample shall have the same number of bits stored. See PS 3.5 for further explanation.	*** Not Implemented ***
> High Bit	(0028,0102)	1	Most significant bit for pixel sample data. Each sample shall have the same high bit. See PS 3.5 for further explanation.	*** Not Implemented ***

> Pixel Representation	(0028,0103)	1	Data representation of the pixel samples. Each sample shall have the same pixel representation. Enumerated Values: 0000H = unsigned integer. 0001H = 2's complement	*** Not Implemented ***
> Pixel Data	(7FE0,0010)	1C	A data stream of the pixel samples that comprise the Image. See C.7.6.3.1.4 for further explanation. Required if Pixel Data Provider URL (0028,7FE0) is not present.	*** Not Implemented ***
> Planar Configuration	(0028,0006)	1C	Indicates whether the pixel data are sent color-by-plane or color-by-pixel. Required if Samples per Pixel (0028,0002) has a value greater than 1. See C.7.6.3.1.3 for further explanation.	*** Not Implemented ***
> Pixel Aspect Ratio	(0028,0034)	1C	Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio is not 1 and the Image Plane Module or the Pixel Measures Macro is not applicable to this Image. See C.7.6.3.1.7.	*** Not Implemented ***
> Smallest Image Pixel Value	(0028,0106)	3	The minimum actual pixel value encountered in this image.	*** Not Implemented ***
> Largest Image Pixel Value	(0028,0107)	3	The maximum actual pixel value encountered in this image.	*** Not Implemented ***
> Red Palette Color Lookup Table Descriptor US or	(0028,1101)	1C	Specifies the format of the Red Palette Color Lookup Table Data (0028,1201) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***
> Green Palette Color Lookup Table Descriptor US or	(0028,1102)	1C	Specifies the format of the Green Palette Color Lookup Table Data (0028,1202) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***

> Blue Palette Color Lookup Table Descriptor US or	(0028,1103)	1C	Specifies the format of the Blue Palette Color Lookup Table Data (0028,1203) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***
> Red Palette Color Lookup Table Data	(0028,1201)	1C	Red Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
> Green Palette Color Lookup Table Data	(0028,1202)	1C	Green Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
> Blue Palette Color Lookup Table Data	(0028,1203)	1C	Blue Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
> ICC Profile	(0028,2000)	3	An ICC Profile encoding the transformation of device-dependent color stored pixel values into PCS-Values. See Section C.11.15.1.1.1. When present, defines the color space of color Pixel Data (7FE0,0010) values, and the output of Palette Color Lookup Table. Data (0028,1201-1203). Note: The profile applies only to the Pixel Data (7FE0,0010) attribute at the same level of the dataset and not to any icons nested within sequences, which may or may not have their own ICC profile specified.	*** Not Implemented ***

Presentation LUT Shape	(2050,0020)	3	When present, specifies an identity transformation for the Presentation LUT such that the output of all grayscale transformations, if any, are defined to be in P-Values. Enumerated Values are: IDENTITY = output is in P-Values - shall be used if Photometric Interpretation (0028,0004) is MONOCHROME2 or any color photometric interpretation. INVERSE = output after inversion is in P- Values - shall be used if Photometric Interpretation (0028,0004) is MONOCHROME1. When this attribute is used with a color photometric interpretation then the luminance component is in P-Values.	*** Not Implemented ***
Irradiation Event UID	(0008,3010)	3	Unique identification of the irradiation event(s) associated with the acquisition of this image. See C.7.6.1.1.7.	*** Not Implemented ***

C.2.6 Image Pixel – C.7.6.3

Attribute Name	Tag	T	Description	Handling
Samples per Pixel	(0028,0002)	1	Number of samples (planes) in this image. See C.7.6.3.1.1 for further explanation.	Export: Value is always 1.
Photometric Interpretation	(0028,0004)	1	Specifies the intended interpretation of the pixel data. See C.7.6.3.1.2 for further explanation.	Export: Value is always MONOCHROME2.
Rows	(0028,0010)	1	Number of rows in the image.	Export and import supported.
Columns	(0028,0011)	1	Number of columns in the image.	Export and import supported.
Bits Allocated	(0028,0100)	1	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. See PS 3.5 for further explanation.	Export: Value is always 8.
Bits Stored	(0028,0101)	1	Number of bits stored for each pixel sample. Each sample shall have the same number of bits stored. See PS 3.5 for further explanation.	Export: The same value as Bits Allocated.

High Bit	(0028,0102)	1	Most significant bit for pixel sample data. Each sample shall have the same high bit. See PS 3.5 for further explanation.	Export: Value: Bits Allocated - 1.
Pixel Representation	(0028,0103)	1	Data representation of the pixel samples. Each sample shall have the same pixel representation. Enumerated Values: 0000H = unsigned integer. 0001H = 2's complement	Export: Value is always 0.
Pixel Data	(7FE0,0010)	1C	A data stream of the pixel samples that comprise the Image. See C.7.6.3.1.4 for further explanation. Required if Pixel Data Provider URL (0028,7FE0) is not present.	Export supported, but with a blank image (image data is filled with zeros). Import supported.
Planar Configuration	(0028,0006)	1C	Indicates whether the pixel data are sent color-by-plane or color-by-pixel. Required if Samples per Pixel (0028,0002) has a value greater than 1. See C.7.6.3.1.3 for further explanation.	*** Not Implemented ***
Pixel Aspect Ratio	(0028,0034)	1C	Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio is not 1 and the Image Plane Module or the Pixel Measures Macro is not applicable to this Image. See C.7.6.3.1.7.	*** Not Implemented ***
Smallest Image Pixel Value	(0028,0106)	3	The minimum actual pixel value encountered in this image.	*** Not Implemented ***
Largest Image Pixel Value	(0028,0107)	3	The maximum actual pixel value encountered in this image.	*** Not Implemented ***
Red Palette Color Lookup Table Descriptor US or	(0028,1101)	1C	Specifies the format of the Red Palette Color Lookup Table Data (0028,1201) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***

Green Palette Color Lookup Table Descriptor US or	(0028,1102)	1C	Specifies the format of the Green Palette Color Lookup Table Data (0028,1202) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***
Blue Palette Color Lookup Table Descriptor US or	(0028,1103)	1C	Specifies the format of the Blue Palette Color Lookup Table Data (0028,1203) Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.5 for further explanation.	*** Not Implemented ***
Red Palette Color Lookup Table Data	(0028,1201)	1C	Red Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
Green Palette Color Lookup Table Data	(0028,1202)	1C	Green Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
Blue Palette Color Lookup Table Data	(0028,1203)	1C	Blue Palette Color Lookup Table Data. Required if Photometric Interpretation (0028,0004) has a value of PALETTE COLOR or Pixel Presentation (0008,9205) at the image level equals COLOR or MIXED. See C.7.6.3.1.6 for further explanation.	*** Not Implemented ***
ICC Profile	(0028,2000)	3	An ICC Profile encoding the transformation of device-dependent color stored pixel values into PCS-Values. See Section C.11.15.1.1.1. When present, defines the color space of color Pixel Data (7FE0,0010) values, and the output of Palette Color Lookup Table. Data (0028,1201-1203). Note: The profile applies only to the Pixel Data (7FE0,0010) attribute at the same level of the dataset and not to any icons nested within sequences, which may or may not have their own ICC profile specified.	*** Not Implemented ***

Pixel Data Provider URL	(0028,7FE0)	1C	A URL of a provider service that supplies the pixel data of the Image. Required if the image is to be transferred in one of the following presentation contexts identified by Transfer Syntax UID: 1.2.840.10008.1.2.4.94 (DICOM JPIP Referenced Transfer Syntax) 1.2.840.10008.1.2.4.95 (DICOM JPIP Referenced Deflate Transfer Syntax)	*** Not Implemented ***
Pixel Padding Range Limit	(0028,0121)	1C	Pixel value that represents one limit (inclusive) of a range of padding values used together with Pixel Padding Value (0028,0120) as defined in the General Equipment Module. See C.7.5.1.1.2 for further explanation. Required if pixel padding is to be defined as a range rather than a single value. Notes: 1. The Value Representation of this Attribute is determined by the value of Pixel Representation (0028,0103). 2. Pixel Padding Value (0028,0120) is also required when this Attribute is present.	*** Not Implemented ***

C.2.7 RT Series – C.8.8.1

Attribute Name	Tag	T	Description	Handling
Modality	(0008,0060)	1	Type of equipment that originally acquired the data. Enumerated Values: RTIMAGE = RT Image RTDOSE = RT Dose RTSTRUCT = RT Structure Set RTPLAN = RT Plan RTRECORD = RT Treatment Record See C.8.8.1.1.	Export: Value: RTPLAN or RTIMAGE.

Series Instance UID	(0020,000E)	1	Unique identifier of the series.	Export and import supported.
Series Number	(0020,0011)	2	A number that identifies this series.	Export supported.
Series Description	(0008,103E)	3	User provided description of the series.	*** Not Implemented ***
Series Description Code Sequence	(0008,103F)	3	A coded description of the Series.	*** Not Implemented ***
Operators' Name	(0008,1070)	2	Name(s) of the operator(s) supporting the Series.	*** Not Implemented ***
Referenced Performed Procedure Step Sequence	(0008,1111)	3	Uniquely identifies the Performed Procedure Step SOP Instance to which the Series is related (e.g. a Modality or General-Purpose Performed Procedure Step SOP Instance). One or more items may be included in this sequence.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Performed Procedure Step Sequence (0008,1111) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Performed Procedure Step Sequence (0008,1111) is sent.	*** Not Implemented ***
Request Attributes Sequence	(0040,0275)	3	Sequence that contains attributes from the Imaging Service Request. The sequence may have one or more Items.	*** Not Implemented ***
> Requested Procedure ID	(0040,1001)	1	Identifier that identifies the Requested Procedure in the Imaging Service Request.	*** Not Implemented ***
> Reason for the Requested Procedure	(0040,1002)	3	Reason for requesting this procedure.	*** Not Implemented ***

> Reason for Requested Procedure Code Sequence	(0040,100A)	3	Coded Reason for requesting this procedure.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Scheduled Procedure Step ID	(0040,0009)	1	Identifier that identifies the Scheduled Procedure Step.	*** Not Implemented ***
> Scheduled Procedure Step Description	(0040,0007)	3	Institution-generated description or classification of the Scheduled Procedure Step to be performed.	*** Not Implemented ***
> Scheduled Protocol Code Sequence	(0040,0008)	3	Sequence describing the Scheduled Protocol following a specific coding scheme. This sequence contains one or more Items.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***

>> Protocol Context Sequence	(0040,0440)	3	Sequence that specifies the context for the Scheduled Protocol Code Sequence Item. One or more items may be included in this sequence.	*** Not Implemented ***
>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>>> Content Item Modifier Sequence	(0040,0441)	3	Sequence that specifies modifiers for a Protocol Context Content Item. One or more items may be included in this sequence. See Section C.4.10.1.	*** Not Implemented ***
>>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
Performed Procedure Step ID	(0040,0253)	3	User or equipment generated identifier of that part of a Procedure that has been carried out within this step.	*** Not Implemented ***
Performed Procedure Step Start Date	(0040,0244)	3	Date on which the Performed Procedure Step started.	*** Not Implemented ***

Performed Procedure Step Start Time	(0040,0245)	3	Time on which the Performed Procedure Step started.	*** Not Implemented ***
Performed Procedure Step Description	(0040,0254)	3	Institution-generated description or classification of the Procedure Step that was performed.	*** Not Implemented ***
Performed Protocol Code Sequence	(0040,0260)	3	Sequence describing the Protocol performed for this Procedure Step. One or more Items may be included in this Sequence.	*** Not Implemented ***
> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Protocol Context Sequence	(0040,0440)	3	Sequence that specifies the context for the Performed Protocol Code Sequence Item. One or more items may be included in this sequence.	*** Not Implemented ***
>> Value Type	(0040,A040)	1	The type of the value encoded in this name-value Item. Defined Terms: DATETIME DATE TIME PNAME UIDREF TEXT CODE NUMERIC.	*** Not Implemented ***

>> Concept Name Code Sequence	(0040,A043)	1	Coded concept name of this name-value Item.	*** Not Implemented ***
>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>> DateTime	(0040,A120)	1C	Datetime value for this name-value Item. Required if Value Type (0040,A040) is DATETIME.	*** Not Implemented ***
>> Date	(0040,A121)	1C	Date value for this name-value Item. Required if Value Type (0040,A040) is DATE.	*** Not Implemented ***
>> Time	(0040,A122)	1C	Time value for this name-value Item. Required if Value Type (0040,A040) is TIME.	*** Not Implemented ***
>> Person Name	(0040,A123)	1C	Person name value for this name-value Item. Required if Value Type (0040,A040) is PNAME.	*** Not Implemented ***
>> UID	(0040,A124)	1C	UID value for this name-value Item. Required if Value Type (0040,A040) is UIDREF.	*** Not Implemented ***
>> Text Value	(0040,A160)	1C	Text value for this name-value Item. Required if Value Type (0040,A040) is TEXT.	*** Not Implemented ***
>> Concept Code Sequence	(0040,A168)	1C	Coded concept value of this name-value Item. Required if Value Type (0040,A040) is CODE.	*** Not Implemented ***
>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***

>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>> Numeric Value	(0040,A30A)	1C	Numeric value for this name-value Item. Required if Value Type (0040,A040) is NUMERIC.	*** Not Implemented ***
>> Measurement Units Code Sequence	(0040,08EA)	1C	Units of measurement for a numeric value in this namevalue Item. Required if Value Type (0040,A040) is NUMERIC.	*** Not Implemented ***
>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>> Content Item Modifier Sequence	(0040,0441)	3	Sequence that specifies modifiers for a Protocol Context Content Item. One or more items may be included in this sequence. See Section C.4.10.1.	*** Not Implemented ***

>>> Value Type	(0040,A040)	1	The type of the value encoded in this name-value Item. Defined Terms: DATETIME DATE TIME PNAME UIDREF TEXT CODE NUMERIC.	*** Not Implemented ***
>>> Concept Name Code Sequence	(0040,A043)	1	Coded concept name of this name-value Item.	*** Not Implemented ***
>>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>>> DateTime	(0040,A120)	1C	Datetime value for this name-value Item. Required if Value Type (0040,A040) is DATETIME.	*** Not Implemented ***
>>> Date	(0040,A121)	1C	Date value for this name-value Item. Required if Value Type (0040,A040) is DATE.	*** Not Implemented ***
>>> Time	(0040,A122)	1C	Time value for this name-value Item. Required if Value Type (0040,A040) is TIME.	*** Not Implemented ***
>>> Person Name	(0040,A123)	1C	Person name value for this name-value Item. Required if Value Type (0040,A040) is PNAME.	*** Not Implemented ***

>>> UID	(0040,A124)	1C	UID value for this name-value Item. Required if Value Type (0040,A040) is UIDREF.	*** Not Implemented ***
>>> Text Value	(0040,A160)	1C	Text value for this name-value Item. Required if Value Type (0040,A040) is TEXT.	*** Not Implemented ***
>>> Concept Code Sequence	(0040,A168)	1C	Coded concept value of this name-value Item. Required if Value Type (0040,A040) is CODE.	*** Not Implemented ***
>>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
>>> Numeric Value	(0040,A30A)	1C	Numeric value for this name-value Item. Required if Value Type (0040,A040) is NUMERIC.	*** Not Implemented ***
>>> Measurement Units Code Sequence	(0040,08EA)	1C	Units of measurement for a numeric value in this namevalue Item. Required if Value Type (0040,A040) is NUMERIC.	*** Not Implemented ***
>>>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>>>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***

>>>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
-------------------	-------------	----	--	-------------------------

C.2.8 RT Image – C.8.8.2

Attribute Name	Tag	T	Description	Handling
Samples per Pixel	(0028,0002)	1	Number of samples (planes) in this image. See C.8.8.2.6.1 for specialization.	Export: Value is always 1.
Photometric Interpretation	(0028,0004)	1	Specifies the intended interpretation of the pixel data. See C.8.8.2.6.2 for specialization.	Export: Value is always MONOCHROME2.
Bits Allocated	(0028,0100)	1	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. See C.8.8.2.6.3 for specialization.	Export: Value is always 8.
Bits Stored	(0028,0101)	1	Number of bits stored for each pixel sample. Each sample shall have the same number of bits stored. See C.8.8.2.6.4 for specialization.	Export: The same value as Bits Allocated.
High Bit	(0028,0102)	1	Most significant bit for each pixel sample. Each sample shall have the same high bit. See C.8.8.2.6.5 for specialization.	Export: Value: Bits Allocated - 1.
Pixel Representation	(0028,0103)	1	Data representation of the pixel samples. Each sample shall have the same pixel representation. See C.8.8.2.6.6 for specialization.	Export: Value is always 0.
Pixel Intensity Relationship	(0028,1040)	3	The relationship between the Pixel sample values and the X-Ray beam intensity. Enumerated Values: LIN = Linearly proportional to X-Ray beam intensity LOG = Logarithmically proportional to X-Ray beam intensity See C.8.11.3.1.2 for further explanation.	*** Not Implemented ***

Pixel Intensity Relationship Sign	(0028,1041)	1C	The sign of the relationship between the Pixel sample values stored in Pixel Data (7FE0,0010) and the X-Ray beam intensity. Required if Pixel Intensity Relationship (0028,1040) is present. Enumerated Values; 1 = Lower pixel values correspond to less X-Ray beam intensity -1 = Higher pixel values correspond to less X-Ray beam intensity See C.8.11.3.1.2 for further explanation.	*** Not Implemented ***
RT Image Label	(3002,0002)	1	User-defined label for RT Image.	Export: Value: AXIAL or LATERAL Used as Image ID.
RT Image Name	(3002,0003)	3	User-defined name for RT Image.	*** Not Implemented ***
RT Image Description	(3002,0004)	3	User-defined description of RT Image.	*** Not Implemented ***
Image Type	(0008,0008)	1	Image identification characteristics (see Section C.7.6.1.1.2). RT Images shall use one of the following Defined Terms for Value 3: DRR = digitally reconstructed radiograph PORTAL = digital portal image or portal film image SIMULATOR = conventional simulator image RADIOGRAPH = radiographic image BLANK = image pixels set to background value FLUENCE = fluence map	Export: Value is always "ORIGINAL"/"SECONDARY"/"DRR"/".
Conversion Type	(0008,0064)	2	Describes the kind of image conversion. Defined Terms: DV = Digitized Video DI = Digital Interface DF = Digitized Film WSD = Workstation	Export: Value is always WSD.

Reported Values Origin	(3002,000A)	2C	Describes the origin of the parameter values reported in the image. Required if Value 3 of Image Type (0008,0008) is SIMULATOR or PORTAL. Enumerated Values: OPERATOR = manually entered by operator PLAN = planned parameter values ACTUAL = electronically recorded	*** Not Implemented ***
RT Image Plane	(3002,000C)	1	Describes whether or not image plane is normal to beam axis. Enumerated Values: NORMAL = image plane normal to beam axis NON_NORMAL = image plane non-normal to beam axis	Export: Value is always NORMAL.
X-Ray Image Receptor Translation	(3002,000D)	3	Position in (x,y,z) coordinates of origin of IEC X-RAY IMAGE RECEPTOR System in the IEC GANTRY coordinate system (mm). See Note 2.	Export: Value is always 0.0/0.0/0.0. Import supported.
X-Ray Image Receptor Angle	(3002,000E)	2	X-Ray Image Receptor Angle i.e. orientation of IEC X-RAY IMAGE RECEPTOR coordinate system with respect to IEC GANTRY coordinate system (degrees). See C.8.8.2.2.	Export: Value is always 0.0. Import supported.
RT Image Orientation	(3002,0010)	2C	The direction cosines of the first row and the first column with respect to the IEC XRAY IMAGE RECEPTOR coordinate system. Required if RT Image Plane (3002,000C) is NON_NORMAL. May be present otherwise.	*** Not Implemented ***
Image Plane Pixel Spacing	(3002,0011)	2	Physical distance (in mm) between the center of each image pixel, specified by a numeric pair - adjacent row spacing (delimiter) adjacent column spacing. See C.8.8.2.3.	Export and import are supported.
RT Image Position	(3002,0012)	2	The x and y coordinates (in mm) of the upper left hand corner of the image, in the IEC X-RAY IMAGE RECEPTOR coordinate system. This is the center of the first pixel transmitted. See C.8.8.2.7.	Export and import are supported.

Radiation Machine Name	(3002,0020)	2	User-defined name identifying radiation machine used in acquiring or computing image (i.e. name of conventional simulator, electron accelerator, X-ray device, or machine modeled when calculating DRR).	Export: Value is always EMPTY.
Primary Dosimeter Unit	(300A,00B3)	2	Measurement unit of machine dosimeter. Enumerated Values: MU = Monitor Unit MINUTE = minute	Export: Value is always EMPTY.
Radiation Machine SAD	(3002,0022)	2	Radiation source to Gantry rotation axis distance of radiation machine used in acquiring or computing image (mm).	Export supported.
Radiation Machine SSD	(3002,0024)	3	Source to patient surface distance (in mm) of radiation machine used in acquiring or computing image.	*** Not Implemented ***
RT Image SID	(3002,0026)	2	Distance from radiation machine source to image plane (in mm) along radiation beam axis. See C.8.8.2.3.	Export supported.
Source to Reference Object Distance	(3002,0028)	3	Source to reference object distance (in mm), as used for magnification calculation of RADIOGRAPH and SIMULATOR images.	*** Not Implemented ***
Referenced RT Plan Sequence	(300C,0002)	3	Introduces sequence of one Class/Instance pair describing RT Plan associated with image. Only a single item shall be permitted in this sequence.	
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced RT Plan Sequence (300C,0002) is sent.	Export: Value is always 1.2.840.10008.5.1.4.1.1.481.8.
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced RT Plan Sequence (300C,0002) is sent.	Export supported. Plan UID of the Plan where this image is a reference image.

Referenced Beam Number	(300C,0006)	3	Uniquely identifies the corresponding N- segment treatment beam specified by Beam Number (300A,00C0) within Beam Sequence in RT Beams Module within the RT Plan referenced in Referenced RT Plan Sequence (300C,0002).	*** Not Implemented ***
Referenced Fraction Group Number	(300C,0022)	3	Identifier of Fraction Group within RT Plan referenced in Referenced RT Plan Sequence (300C,0002).	*** Not Implemented ***
Fraction Number	(3002,0029)	3	Fraction Number of fraction during which image was acquired, within Fraction Group referenced by Referenced Fraction Group Number (300C,0022) within RT Plan referenced in Referenced RT Plan Sequence (300C,0002).	*** Not Implemented ***
Start Cumulative Meterset Weight	(300C,0008)	3	Cumulative Meterset Weight within Beam referenced by Referenced Beam Number (300C,0006) at which image acquisition starts.	*** Not Implemented ***
End Cumulative Meterset Weight	(300C,0009)	3	Cumulative Meterset Weight within Beam referenced by Referenced Beam Number (300C,0006) at which image acquisition ends.	*** Not Implemented ***
Exposure Sequence	(3002,0030)	3	Introduces sequence of Exposure parameter sets, corresponding to exposures used in generating the image. One or more items may be included in this sequence. See C.8.8.2.4.	*** Not Implemented ***
> Referenced Frame Number	(0008,1160)	1C	Identifies corresponding image frame in multi-frame image. Required if Exposure Sequence (3002,0030) is sent, there is more than one item in Exposure Sequence (3002,0030), and image is a multi-frame image.	*** Not Implemented ***
> KVP	(0018,0060)	2C	Peak kilo voltage output (kV) of X-ray generator used to acquire image. Required if Value 3 of Image Type (0008,0008) is PORTAL, SIMULATOR or RADIOGRAPH and Exposure Sequence (3002,0030) is sent.	*** Not Implemented ***
> Primary Fluence Mode Sequence	(3002,0050)	3	Sequence defining whether the primary fluence of the treatment beam uses a nonstandard fluence-shaping. Only a single item shall be present.	*** Not Implemented ***

>> Fluence Mode	(3002,0051)	1	Describes whether the fluence shaping is the standard mode for the beam or an alternate. Enumerated Values: STANDARD = Uses standard fluenceshaping NON_STANDARD = Uses a non-standard fluence-shaping mode	*** Not Implemented ***
> X-ray Tube Current	(0018,1151)	2C	Imaging device X-ray Tube Current (mA). Required if Value 3 of Image Type (0008,0008) is SIMULATOR or RADIOGRAPH and Exposure Sequence (3002,0030) is sent.	*** Not Implemented ***
> Exposure Time	(0018,1150)	2C	Time of X-ray exposure (msec). Required if Value 3 of Image Type (0008,0008) is SIMULATOR or RADIOGRAPH and Exposure Sequence (3002,0030) is sent.	*** Not Implemented ***
> Meterset Exposure	(3002,0032)	2C	Treatment machine Meterset duration over which image has been acquired, specified in Monitor units (MU) or minutes as defined by Primary Dosimeter Unit (300A,00B3). Required if Value 3 of Image Type (0008,0008) is PORTAL and Exposure Sequence (3002,0030) is sent.	*** Not Implemented ***
> Diaphragm Position	(3002,0034)	3	Positions of diaphragm jaw pairs (in mm) in IEC BEAM LIMITING DEVICE coordinate axis in the IEC order X1, X2, Y1, Y2.	*** Not Implemented ***
> Beam Limiting Device Sequence	(300A,00B6)	3	Introduces sequence of beam limiting device (collimator) jaw or leaf (element) positions for given exposure. One or more items may be included in this sequence.	*** Not Implemented ***

>> RT Beam Limiting Device Type	(300A,00B8)	1C	Type of beam limiting device (collimator). Required if Beam Limiting Device Sequence (300A,00B6) is sent. Enumerated Values: X = symmetric jaw pair in IEC X direction Y = symmetric jaw pair in IEC Y direction ASYMX = asymmetric jaw pair in IEC X direction ASYMY = asymmetric pair in IEC Y direction MLCX = multileaf (multi-element) jaw pair in IEC X direction MLCY = multileaf (multi-element) jaw pair in IEC Y direction	*** Not Implemented ***
>> Source to Beam Limiting Device Distance	(300A,00BA)	3	Radiation source to beam limiting device (collimator) distance (mm).	*** Not Implemented ***
>> Number of Leaf/Jaw Pairs	(300A,00BC)	1C	Number of leaf (element) or jaw pairs (equal to 1 for standard beam limiting device jaws). Required if Beam Limiting Device Sequence (300A,00B6) is sent.	*** Not Implemented ***
>> Leaf Position Boundaries	(300A,00BE)	2C	Boundaries (in mm) of beam limiting device (collimator) leaves (elements) in IEC BEAM LIMITING DEVICE coordinate axis appropriate to RT Beam Limiting Device Type (300A,00B8), i.e. X-axis for MLCY, Y- axis for MLCX. Contains N+1 values, where N is the Number of Leaf/Jaw Pairs (300A,00BC), starting from Leaf (Element) Pair 1. Required if RT Beam Limiting Device Type (300A,00B8) is MLCX or MLCY.	*** Not Implemented ***
>> Leaf/Jaw Positions	(300A,011C)	1C	Positions of beam limiting device (collimator) leaf or jaw (element) pairs (in mm) in IEC BEAM LIMITING DEVICE coordinate axis appropriate to RT Beam Limiting Device Type (300A,00B8), e.g. X- axis for MLCX, Y-axis for MLCY). Contains 2N values, where N is the Number of Leaf/Jaw Pairs (300A,00BC), in IEC leaf (element) subscript order 101, 102, ... 1N, 201, 202, ... 2N. Required if Beam Limiting Device Sequence (300A,00B6) is sent.	*** Not Implemented ***

> Applicator Sequence	(300A,0107)	3	Introduces sequence of Applicators associated with Beam. Only a single item shall be permitted in this sequence.	*** Not Implemented ***
>> Applicator ID	(300A,0108)	1C	User or machine supplied identifier for Applicator. Required if Applicator Sequence (300A,0107) is sent.	*** Not Implemented ***
>> Applicator Type	(300A,0109)	1C	Type of Applicator. Required if Applicator Sequence (300A,0107) is sent. Defined Terms: ELECTRON_SQUARE = square electron applicator ELECTRON_RECT = rectangular electron applicator ELECTRON_CIRC = circular electron applicator ELECTRON_SHORT = short electron applicator ELECTRON_OPEN = open (dummy) electron applicator INTRAOPERATIVE = intraoperative (custom) applicator STEREOTACTIC = stereotactic applicator	*** Not Implemented ***
>> Applicator Description	(300A,010A)	3	User-defined description for Applicator.	*** Not Implemented ***
> General Accessory Sequence	(300A,0420)	3	Sequence of General Accessories associated with the beam producing this image. One or more items may be included in this sequence.	*** Not Implemented ***
>> General Accessory Number	(300A,0424)	1	Identification Number of the General Accessory. The value shall be unique within the sequence.	*** Not Implemented ***
>> General Accessory ID	(300A,0421)	1	User or machine supplied identifier for General Accessory.	*** Not Implemented ***
>> General Accessory Description	(300A,0422)	3	User supplied description of General Accessory.	*** Not Implemented ***

>> General Accessory Type	(300A,0423)	3	Specifies the type of accessory. Defined Terms: GRATICULE = Accessory tray with a radioopaque grid IMAGE_DETECTOR = Image acquisition device positioned in the beam line RETICLE = Accessory tray with radiotransparent markers or grid	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	Machine-readable identifier for this accessory	*** Not Implemented ***
> Number of Blocks	(300A,00F0)	1C	Number of shielding blocks associated with Beam. Required if Exposure Sequence (3002,0030) is sent.	*** Not Implemented ***
> Block Sequence	(300A,00F4)	2C	Introduces sequence of blocks associated with Beam. Required if Number of Blocks (300A,00F0) is non-zero. One or more items may be included in this sequence.	*** Not Implemented ***
>> Block Tray ID	(300A,00F5)	3	User-supplied identifier for block tray.	*** Not Implemented ***
>> Source to Block Tray Distance	(300A,00F6)	2C	Radiation Source to attachment edge of block tray assembly (mm). Required if Block Sequence (300A,00F4) is sent.	*** Not Implemented ***
>> Block Type	(300A,00F8)	1C	Type of block. Required if Block Sequence (300A,00F4) is sent. Enumerated Values: SHIELDING = blocking material is inside contour APERTURE = blocking material is outside contour	*** Not Implemented ***
>> Block Divergence	(300A,00FA)	2C	Indicates presence or otherwise of geometrical divergence. Required if Block Sequence (300A,00F4) is sent. Enumerated Values: PRESENT = block edges are shaped for beam divergence ABSENT = block edges are not shaped for beam divergence	*** Not Implemented ***

>> Block Mounting Position	(300A,00FB)	3	Indicates on which side of the Block Tray the block is mounted. Enumerated Values: PATIENT_SIDE = the block is mounted on the side of the Block Tray which is towards the patient. SOURCE_SIDE = the block is mounted on the side of the Block Tray which is towards the radiation source.	*** Not Implemented ***
>> Block Number	(300A,00FC)	1C	Identification Number of the Block. The value of Block Number (300A,00FC) shall be unique within the Beam in which it is created. Required if Block Sequence (300A,00F4) is sent.	*** Not Implemented ***
>> Block Name	(300A,00FE)	3	User-defined name for block.	*** Not Implemented ***
>> Material ID	(300A,00E1)	2C	User-supplied identifier for material used to manufacture Block. Required if Block Sequence (300A,00F4) is sent.	*** Not Implemented ***
>> Block Thickness	(300A,0100)	3	Physical thickness of block (in mm) parallel to radiation beam axis.	*** Not Implemented ***
>> Block Number of Points	(300A,0104)	2C	Number of (x,y) pairs defining the block edge. Required if Block Sequence (300A,00F4) is sent.	*** Not Implemented ***
>> Block Data	(300A,0106)	2C	A data stream of (x,y) pairs which comprise the block edge. The number of pairs shall be equal to Block Number of Points (300A,0104), and the vertices shall be interpreted as a closed polygon. Coordinates are projected onto the machine isocentric plane in the IEC BEAM LIMITING DEVICE coordinate system (mm). Required if Block Sequence (300A,00F4) is sent.	*** Not Implemented ***
Fluence Map Sequence	(3002,0040)	1C	A Sequence of data describing the fluence map attributes for a radiotherapy beam. Only one item may be included in this sequence. Required if the third value of Image Type (0008,0008) is FLUENCE.	*** Not Implemented ***

> Fluence Data Source	(3002,0041)	1	Source of fluence data. Enumerated Values: CALCULATED = Calculated by a workstation MEASURED = Measured by exposure to a film or detector.	*** Not Implemented ***
> Fluence Data Scale	(3002,0042)	3	The meterset corresponding with a fluence map cell value of 1.0 expressed in units specified by Primary Dosimeter Units (300A,00B3). This is the meterset value used for treatment, not the meterset used to expose the film as defined by Meterset Exposure (3002,0032).	*** Not Implemented ***
Gantry Angle	(300A,011E)	3	Treatment machine gantry angle, i.e. orientation of IEC GANTRY coordinate system with respect to IEC FIXED REFERENCE coordinate system (degrees).	Export supported.
Gantry Pitch Angle	(300A,014A)	3	Gantry Pitch Angle. i.e. the rotation of the IEC GANTRY coordinate system about the X-axis of the IEC GANTRY coordinate system (degrees). See C.8.8.25.6.5.	Export supported.
Beam Limiting Device Angle	(300A,0120)	3	Treatment machine beam limiting device (collimator) angle, i.e. orientation of IEC BEAM LIMITING DEVICE coordinate system with respect to IEC GANTRY coordinate system (degrees).	Export supported.
Patient Support Angle	(300A,0122)	3	Patient Support angle, i.e. orientation of IEC PATIENT SUPPORT coordinate system with respect to IEC FIXED REFERENCE coordinate system (degrees).	Export supported.
Table Top Eccentric Axis Distance	(300A,0124)	3	Distance (positive) from the IEC PATIENT SUPPORT vertical axis to the IEC TABLE TOP ECCENTRIC vertical axis (mm).	*** Not Implemented ***
Table Top Eccentric Angle	(300A,0125)	3	Table Top (non-isocentric) angle, i.e. orientation of IEC TABLE TOP ECCENTRIC coordinate system with respect to IEC PATIENT SUPPORT system (degrees).	*** Not Implemented ***
Table Top Pitch Angle	(300A,0140)	3	Table Top Pitch Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). See C.8.8.25.6.2.	*** Not Implemented ***

Table Top Roll Angle	(300A,0144)	3	Table Top Roll Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the Y-axis of the IEC TABLE TOP coordinate system (degrees). See C.8.8.25.6.2.	*** Not Implemented ***
Table Top Vertical Position	(300A,0128)	3	Table Top Vertical position in IEC TABLE TOP coordinate system (mm).	Export supported.
Table Top Longitudinal Position	(300A,0129)	3	Table Top Longitudinal position in IEC TABLE TOP coordinate system (mm).	Export supported.
Table Top Lateral Position	(300A,012A)	3	Table Top Lateral position in IEC TABLE TOP coordinate system (mm).	Export supported.
Isocenter Position	(300A,012C)	3	Isocenter coordinates (x,y,z), in mm. Specifies the location of the machine isocenter in the patient-based coordinate system associated with the Frame of Reference. It allows transformation from the equipment-based IEC coordinate system to the patient-based coordinate system.	Export supported.
Patient Position	(0018,5100)	1C	<p>Patient position descriptor relative to the patient support device.</p> <p>Required if Isocenter Position (300A,012C) is present. May be present otherwise. See Section C.7.3.1.1.2 for Defined Terms and further explanation.</p> <p>Note:</p> <p>The orientation of the patient relative to the patient support device is denoted in the same manner as in the RT Patient Setup module. It defines the relation of the patient-based DICOM coordinate system identified by the frame of reference module of the RT Image to the IEC coordinate system and together with the Isocenter Position (300A,012C) allows the RT Image to be placed into the patient frame of reference. It also allows a system using an RT Image to verify that the patient is setup in a similar position relative to the patient support device.</p>	Export supported.

C.2.9 RT General Plan – C.8.8.9

Attribute Name	Tag	T	Description	Handling
RT Plan Label	(300A,0002)	1	User-defined label for treatment plan.	Export supported. Used as Plan ID.
RT Plan Name	(300A,0003)	3	User-defined name for treatment plan.	Export supported. Used as Plan Name.
RT Plan Description	(300A,0004)	3	User-defined description of treatment plan.	Export supported.
Instance Number	(0020,0013)	3	A number that identifies this object instance.	*** Not Implemented ***
Operators' Name	(0008,1070)	2	Name of operator(s) creating treatment plan.	Export supported.
RT Plan Date	(300A,0006)	2	Date treatment plan was last modified.	Export supported.
RT Plan Time	(300A,0007)	2	Time treatment plan was last modified.	Export supported.
Treatment Protocols	(300A,0009)	3	Planned treatment protocols.	*** Not Implemented ***
Plan Intent	(300A,000A)	3	Intent of this plan. Defined Terms: CURATIVE = curative therapy on patient PALLIATIVE = palliative therapy on patient PROPHYLACTIC = preventative therapy on patient VERIFICATION = verification of patient plan using phantom MACHINE_QA = Quality assurance of the delivery machine (independently of a specific patient) RESEARCH = Research project SERVICE = Machine repair or maintenance operation	Export supported.
Treatment Sites	(300A,000B)	3	Planned treatment sites.	*** Not Implemented ***

RT Plan Geometry	(300A,000C)	1	Describes whether RT Plan is based on patient or treatment device geometry. See C.8.8.9.1. Defined Terms: PATIENT = RT Structure Set exists TREATMENT_DEVICE = RT Structure Set does not exist	Export: Value is always TREATMENT_DEVICE.
Referenced Structure Set Sequence	(300C,0060)	1C	Introduces sequence of one Class/Instance pair describing instance of RT Structure Set on which the RT Plan is based. Only a single item shall be permitted in this sequence. Required if RT Plan Geometry (300A,000C) is PATIENT.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Structure Set Sequence (300C,0060) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Structure Set Sequence (300C,0060) is sent.	*** Not Implemented ***
Referenced Dose Sequence	(300C,0080)	3	Introduces sequence of related SOP Class/Instance pairs describing related instances of RT Dose (for grids and named/unnamed point doses). One or more items may be included in this sequence. See Note 1.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced RT Dose Sequence (300C,0080) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced RT Dose Sequence (300C,0080) is sent.	*** Not Implemented ***
Referenced RT Plan Sequence	(300C,0002)	3	Introduces sequence of related SOP Class/Instance pairs describing related instances of RT Plan. One or more items may be included in this sequence.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced RT Plan Sequence (300C,0002) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced RT Plan Sequence (300C,0002) is sent.	*** Not Implemented ***

> RT Plan Relationship	(300A,0055)	1C	Relationship of referenced plan with respect to current plan. Required if Referenced RT Plan Sequence (300C,0002) is sent. Defined Terms: PRIOR = plan delivered prior to current treatment ALTERNATIVE = alternative plan prepared for current treatment PREDECESSOR = plan used in derivation of current plan VERIFIED_PLAN = plan which is verified using the current plan. This value shall only be used if Plan Intent (300A,000A) is present and has a value of VERIFICATION.	*** Not Implemented ***
Beam Line Data Table Version	(300B,1008)	3	Version Number that is set for Look-up Table (and/or for each beam tune in Look-up Table in future)	Export supported.

C.2.10 RT Prescription – C.8.8.10

Attribute Name	Tag	T	Description	Handling
Prescription Description	(300A,000E)	3	User-defined description of treatment prescription.	*** Not Implemented ***
Dose Reference Sequence	(300A,0010)	3	Introduces sequence of Dose References. One or more items may be included in this sequence.	
> Dose Reference Number	(300A,0012)	1C	Identification number of the Dose Reference. The value of Dose Reference Number (300A,0012) shall be unique within the RT Plan in which it is created. Required if Dose Reference Sequence (300A,0012) is sent.	Export supported.
> Dose Reference UID	(300A,0013)	3	A unique identifier for a Dose Reference that can be used to link the same entity across multiple RT Plan objects.	*** Not Implemented ***

> Dose Reference Structure Type	(300A,0014)	1C	Structure type of Dose Reference. Required if Dose Reference Sequence (300A,0010) is sent. Defined Terms: POINT = dose reference point specified as ROI VOLUME = dose reference volume specified as ROI COORDINATES = point specified by Dose Reference Point Coordinates (300A,0018) SITE = dose reference clinical site	Export: Value is always SITE.
> Dose Reference Description	(300A,0016)	3	User-defined description of Dose Reference.	Export supported.
> Referenced ROI Number	(3006,0084)	1C	Uniquely identifies ROI representing the dose reference specified by ROI Number (3006,0022) in Structure Set ROI Sequence (3006,0020) in Structure Set Module within RT Structure Set in Referenced Structure Set Sequence (300C,0060) in RT General Plan Module. Required if Dose Reference Structure Type (300A,0014) is POINT or VOLUME and Dose Reference Sequence (300A,0010) is sent.	*** Not Implemented ***
> Dose Reference Point Coordinates	(300A,0018)	1C	Coordinates (x,y,z) of Reference Point in the patient based coordinate system described in C.7.6.2.1.1 (mm). Required if Dose Reference Structure Type (300A,0014) is COORDINATES and Dose Reference Sequence (300A,0010) is sent.	*** Not Implemented ***
> Nominal Prior Dose	(300A,001A)	3	Dose (in Gy) from prior treatment to this Dose Reference (e.g. from a previous course of treatment).	*** Not Implemented ***
> Dose Reference Type	(300A,0020)	1C	Type of Dose Reference. Required if Dose Reference Sequence (300A,0010) is sent. Defined Terms: TARGET = treatment target (corresponding to GTV, PTV, or CTV in ICRU50) ORGAN_AT_RISK = Organ at Risk (as defined in ICRU50)	Export: Value is always TARGET.

> Constraint Weight	(300A,0021)	3	Relative importance of satisfying constraint, where high values represent more important constraints.	*** Not Implemented ***
> Delivery Warning Dose	(300A,0022)	3	The dose (in Gy) which when reached or exceeded should cause some action to be taken.	*** Not Implemented ***
> Delivery Maximum Dose	(300A,0023)	3	The maximum dose (in Gy) which can be delivered to the dose reference.	*** Not Implemented ***
> Target Minimum Dose	(300A,0025)	3	Minimum permitted dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) is TARGET.	*** Not Implemented ***
> Target Prescription Dose	(300A,0026)	3	Prescribed dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) is TARGET.	*** Not Implemented ***
> Target Maximum Dose	(300A,0027)	3	Maximum permitted dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) is TARGET.	*** Not Implemented ***
> Target Underdose Volume Fraction	(300A,0028)	3	Maximum permitted fraction (in percent) of Target to receive less than the Target Prescription Dose if Dose Reference Type (300A,0020) is TARGET and Dose Reference Structure Type (300A,0014) is VOLUME. See C.8.8.10.1.	*** Not Implemented ***
> Organ at Risk Full-volume Dose	(300A,002A)	3	Maximum dose (in Gy) to entire Dose Reference if Dose Reference Type (300A,0020) is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) is VOLUME.	*** Not Implemented ***
> Organ at Risk Limit Dose	(300A,002B)	3	Maximum permitted dose (in Gy) to any part of Dose Reference if Dose Reference Type (300A,0020) is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) is VOLUME.	*** Not Implemented ***
> Organ at Risk Maximum Dose	(300A,002C)	3	Maximum dose (in Gy) to non-overdosed part of Dose Reference if Dose Reference Type (300A,0020) is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) is VOLUME.	*** Not Implemented ***

> Organ at Risk Overdose Volume Fraction	(300A,002D)	3	Maximum permitted fraction (in percent) of the Organ at Risk to receive more than the Organ at Risk Maximum Dose if Dose Reference Type (300A,0020) is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) is VOLUME.	*** Not Implemented ***
--	-------------	---	---	-------------------------

C.2.11 RT Patient Setup – C.8.8.12

Attribute Name	Tag	T	Description	Handling
Patient Setup Sequence	(300A,0180)	1	Introduces sequence of patient setup data for current plan. One or more items may be included in this sequence.	Export supported.
> Patient Setup Number	(300A,0182)	1	Identification number of the Patient Setup. The value of Patient Setup Number (300A,0182) shall be unique within the RT Plan in which it is created.	Export: Value is always 1.
> Patient Setup Label	(300A,0183)	3	The user-defined label for the patient setup.	*** Not Implemented ***
> Patient Position	(0018,5100)	1C	Patient position descriptor relative to the equipment. Required if Patient Additional Position (300A,0184) is not present. See Section C.7.3.1.1.2 for Defined Terms and further explanation.	Export supported. Value: Additionally to the Terms defined in the DICOM standard, we support the value 'SITTING' for 'Face First - Sitting'. Value is HFS or SITTING.
> Patient Additional Position	(300A,0184)	1C	User-defined additional description of patient position. Required if Patient Position (0018,5100) is not present.	*** Not Implemented ***
> Referenced Setup Image Sequence	(300A,0401)	3	Introduces sequence of setup verification images for this patient setup. One or more items may be included in this sequence. See C.8.8.12.1.1 of DICOM standard (1)Part 3.	Export supported.
>> Setup Image Comment	(300A,0402)	3	Comment on the Setup Image.	*** Not Implemented ***

>> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	Export: Value is always 1.2.840.10008.5.1.4.1.1.481.1.
>> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	Export supported.
> Fixation Device Sequence	(300A,0190)	3	Introduces sequence of Fixation Devices used in Patient Setup. One or more items may be included in this sequence.	*** Not Implemented ***
>> Fixation Device Type	(300A,0192)	1C	Type of Fixation Device used during in Patient Setup. Required if Fixation Device Sequence (300A,0190) is sent. Defined Terms: BITEBLOCK HEADFRAME MASK MOLD CAST HEADREST BREAST_BOARD BODY_FRAME VACUUM_MOLD WHOLE_BODY_POD RECTAL_BALLOON	*** Not Implemented ***
>> Fixation Device Label	(300A,0194)	2C	User-defined label identifier for Fixation Device. Required if Fixation Device Sequence (300A,0190) is sent.	*** Not Implemented ***
>> Fixation Device Description	(300A,0196)	3	User-defined description of Fixation Device.	*** Not Implemented ***
>> Fixation Device Position	(300A,0198)	3	Position/Notch number of Fixation Device.	*** Not Implemented ***

>> Fixation Device Pitch Angle	(300A,0199)	3	The Fixation Device Pitch Angle, i.e. orientation of PITCHED FIXATION DEVICE coordinate system with respect to IEC PATIENT SUPPORT coordinate system (degrees). Pitching is the rotation around IEC PATIENT SUPPORT X-axis.	*** Not Implemented ***
>> Fixation Device Roll Angle	(300A,019A)	3	The Fixation Device Roll Angle, i.e. orientation of ROLLED FIXATION DEVICE coordinate system with respect to IEC PITCHED FIXATION DEVICE coordinate system (degrees). Rolling is the rotation around IEC PATIENT SUPPORT Y-axis.	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	An identifier for the accessory intended to be read by a device such as a bar-code reader.	*** Not Implemented ***
> Shielding Device Sequence	(300A,01A0)	3	Introduces sequence of Shielding Devices used in Patient Setup. One or more items may be included in this sequence.	*** Not Implemented ***
>> Shielding Device Type	(300A,01A2)	1C	Type of Shielding Device used in Patient Setup. Required if Shielding Device Sequence (300A,01A0) is sent. Defined Terms: GUM EYE GONAD	*** Not Implemented ***
>> Shielding Device Label	(300A,01A4)	2C	User-defined label for Shielding Device. Required if Shielding Device Sequence (300A,01A0) is sent.	*** Not Implemented ***
>> Shielding Device Description	(300A,01A6)	3	User-defined description of Shielding Device.	*** Not Implemented ***
>> Shielding Device Position	(300A,01A8)	3	Position/Notch number of Shielding Device.	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	An identifier for the accessory intended to be read by a device such as a bar-code reader.	*** Not Implemented ***

> Setup Technique	(300A,01B0)	3	Setup Technique used in Patient Setup. Defined Terms: ISOCENTRIC FIXED_SSD TBI BREAST_BRIDGE SKIN_APPOSITION	*** Not Implemented ***
> Setup Technique Description	(300A,01B2)	3	User-defined description of Setup Technique.	Export supported.
> Setup Device Sequence	(300A,01B4)	3	Introduces sequence of devices used for patient alignment in Patient Setup. One or more items may be included in this sequence.	*** Not Implemented ***
>> Setup Device Type	(300A,01B6)	1C	Type of Setup Device used for Patient alignment. Required if Setup Device Sequence (300A,01B4) is sent. Defined Terms: LASER_POINTER DISTANCE_METER TABLE_HEIGHT MECHANICAL_PTR ARC	*** Not Implemented ***
>> Setup Device Label	(300A,01B8)	2C	User-defined label for Setup Device used for patient alignment. Required if Setup Device Sequence (300A,01B4) is sent.	*** Not Implemented ***
>> Setup Device Description	(300A,01BA)	3	User-defined description for Setup Device used for patient alignment.	*** Not Implemented ***
>> Setup Device Parameter	(300A,01BC)	2C	Setup Parameter for Setup Device in appropriate IEC 61217 coordinate system. Units shall be mm for distances and degrees for angles. Required if Setup Device Sequence (300A,011B4) is sent.	*** Not Implemented ***
>> Setup Reference Description	(300A,01D0)	3	User-defined description of Setup Reference used for patient alignment.	*** Not Implemented ***

> Table Top Vertical Setup Displacement	(300A,01D2)	3	Vertical Displacement in IEC TABLE TOP coordinate system (in mm) relative to initial Setup Position, i.e. vertical offset between patient positioning performed using setup and treatment position.	*** Not Implemented ***
> Table Top Longitudinal Setup Displacement	(300A,01D4)	3	Longitudinal Displacement in IEC TABLE TOP coordinate system (in mm) relative to initial Setup Position, i.e. longitudinal offset between patient positioning performed using setup and treatment position.	*** Not Implemented ***
> Table Top Lateral Setup Displacement	(300A,01D6)	3	Lateral Displacement in IEC TABLE TOP coordinate system (in mm) relative to initial Setup Position, i.e. lateral offset between patient positioning performed using setup and treatment position.	*** Not Implemented ***
> Motion Synchronization Sequence	(300A,0410)	3	Introduces sequence of Motion Synchronization. One or more items may be included in this sequence.	*** Not Implemented ***
>> Respiratory Motion Compensation Technique	(0018,9170)	1	Technique applied to reduce respiratory motion artifacts. Defined Terms: NONE BREATH_HOLD REALTIME = image acquisition shorter than respiratory cycle GATING = Prospective gating TRACKING = prospective throughplane or in-plane motion tracking PHASE_ORDERING = prospective phase ordering PHASE_RESCANNING = prospective techniques, such as real-time averaging, diminishing variance and motion adaptive gating RETROSPECTIVE = retrospective gating CORRECTION = retrospective image correction UNKNOWN = technique not known	*** Not Implemented ***

>> Respiratory Signal Source	(0018,9171)	1	Signal source from which respiratory motion is derived. Defined Terms: NONE BELT NASAL_PROBE CO2_SENSOR NAVIGATOR = MR navigator and organ edge detection MR_PHASE = phase (of center k-space line) ECG = baseline demodulation of the ECG SPIROMETER = Signal derived from flow sensor EXTERNAL_MARKER = Signal determined from external motion surrogate INTERNAL_MARKER = Signal determined from internal motion surrogate IMAGE = Signal derived from an image UNKNOWN = Signal source not known	*** Not Implemented ***
>> Respiratory Motion Compensation Technique Description	(0018,9185)	3	Description of respiratory motion compensation technique.	*** Not Implemented ***
>> Respiratory Signal Source ID	(0018,9186)	3	Identifies the device providing the respiratory signal.	*** Not Implemented ***

C.2.12 RT Fraction Scheme – C.8.8.13

Attribute Name	Tag	T	Description	Handling
Fraction Group Sequence	(300A,0070)	1	Introduces sequence of Fraction Groups in current Fraction Scheme. One or more items may be included in this sequence.	Export: Always only one item.

> Fraction Group Number	(300A,0071)	1	Identification number of the Fraction Group. The value of Fraction Group Number (300A,0071) shall be unique within the RT Plan in which it is created.	Export supported.
> Fraction Group Description	(300A,0072)	3	The user defined description for the fraction group.	*** Not Implemented ***
> Referenced Dose Sequence	(300C,0080)	3	Introduces sequence of related SOP Class/Instance pairs describing related instances of RT Dose (for grids, isodose curves and named/unnamed point doses). One or more items may be included in this sequence. See Note 1.	*** Not Implemented ***
>> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Dose Sequence (300C,0080) is sent.	*** Not Implemented ***
>> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Dose Sequence (300C,0080) is sent.	*** Not Implemented ***
> Referenced Dose Reference Sequence	(300C,0050)	3	Introduces sequence of Dose References for the current Fraction Group. One or more items may be included in this sequence.	*** Not Implemented ***
>> Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) within Dose Reference Sequence (300A,0010) in RT Prescription Module. Required if Referenced Dose Reference Sequence (300C,0050) is sent.	*** Not Implemented ***
>> Constraint Weight	(300A,0021)	3	Relative importance of satisfying constraint, where high values represent more important constraints.	*** Not Implemented ***
>> Delivery Warning Dose	(300A,0022)	3	The dose (in Gy) which when reached or exceeded should cause some action to be taken.	*** Not Implemented ***
>> Delivery Maximum Dose	(300A,0023)	3	The maximum dose (in Gy) which can be delivered to the dose reference.	*** Not Implemented ***
>> Target Minimum Dose	(300A,0025)	3	Minimum permitted dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is TARGET.	*** Not Implemented ***

>> Target Prescription Dose	(300A,0026)	3	Prescribed dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is TARGET.	*** Not Implemented ***
>> Target Maximum Dose	(300A,0027)	3	Maximum permitted dose (in Gy) to Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is TARGET.	*** Not Implemented ***
>> Target Underdose Volume Fraction	(300A,0028)	3	Maximum permitted fraction (in percent) of Target to receive less than the Target Prescription Dose (300A,0027) if Dose Reference Type (300A,0020) of referenced Dose Reference is TARGET and Dose Reference Structure Type (300A,0014) of referenced Dose Reference is VOLUME.	*** Not Implemented ***
>> Organ at Risk Full-volume Dose	(300A,002A)	3	Maximum dose (in Gy) to entire Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) of referenced Dose Reference is VOLUME.	*** Not Implemented ***
>> Organ at Risk Limit Dose	(300A,002B)	3	Maximum permitted dose (in Gy) to any part of Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) of referenced Dose Reference is VOLUME.	*** Not Implemented ***
>> Organ at Risk Maximum Dose	(300A,002C)	3	Maximum dose (in Gy) to non-overdosed part of Dose Reference if Dose Reference Type (300A,0020) of referenced Dose Reference is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) of referenced Dose Reference is VOLUME.	*** Not Implemented ***
>> Organ at Risk Overdose Volume Fraction	(300A,002D)	3	Maximum permitted fraction (in percent) of Organ at Risk to receive more than the Organ at Risk Maximum Dose if Dose Reference Type (300A,0020) of referenced Dose Reference is ORGAN_AT_RISK and Dose Reference Structure Type (300A,0014) of referenced Dose Reference is VOLUME.	*** Not Implemented ***
> Number of Fractions Planned	(300A,0078)	2	Total number of treatments (Fractions) prescribed for current Fraction Group.	Export supported.

> Number of Fraction Pattern Digits Per Day	(300A,0079)	3	Number of digits in Fraction Pattern (300A,007B) used to represent one day. See Note 2.	*** Not Implemented ***
> Repeat Fraction Cycle Length	(300A,007A)	3	Number of weeks needed to describe treatment pattern. See Note 2.	*** Not Implemented ***
> Fraction Pattern	(300A,007B)	3	String of 0's (no treatment) and 1's (treatment) describing treatment pattern. Length of string is 7 x Number of Fraction Pattern Digits Per Day x Repeat Fraction Cycle Length. Pattern shall start on a Monday. See Note 2.	*** Not Implemented ***
> Number of Beams	(300A,0080)	1	Number of Beams in current Fraction Group. If Number of Beams is greater than zero, Number of Brachy Application Setups (300A,00A0) shall equal zero.	Export: Value is always 1.
> Referenced Beam Sequence	(300C,0004)	1C	Introduces sequence of treatment beams in current Fraction Group. Required if Number of Beams (300A,0080) is greater than zero. One or more items may be included in this sequence.	Export supported.
>> Referenced Beam Number	(300C,0006)	1C	Uniquely identifies Beam specified by Beam Number (300A,00C0) within Beam Sequence (300A,00B0) in RT Beams Module. Required if Referenced Beam Sequence (300C,0004) is sent.	Export supported.
>> Beam Dose Specification Point	(300A,0082)	3	Coordinates (x,y,z) of point at which Beam Dose is specified in the patient based coordinate system described in C.7.6.2.1.1 (mm). See Note 3.	*** Not Implemented ***
>> Beam Dose	(300A,0084)	3	Dose (in Gy) at Beam Dose Specification Point (300A,0082) due to current Beam.	Export: Value: Dose per fraction of the primary reference point.
>> Beam Dose Point Depth	(300A,0088)	3	The depth (in mm) in the patient along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082).	*** Not Implemented ***
>> Beam Dose Point Equivalent Depth	(300A,0089)	3	The radiological depth in mm (waterequivalent depth, taking tissue heterogeneity into account) in the patient along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082).	*** Not Implemented ***

>> Beam Dose Point SSD	(300A,008A)	3	Source to patient surface distance along a ray from the source to the dose point specified by the Beam Dose Specification Point (300A,0082).	*** Not Implemented ***
>> Beam Meterset	(300A,0086)	3	Machine setting to be delivered for current Beam, specified in Monitor Units (MU) or minutes as defined by Primary Dosimeter Unit (300A,00B3) (in RT Beams Module) for referenced Beam. See Note 4.	Export: Value is always 0.0.
> Number of Brachy Application Setups	(300A,00A0)	1	Number of Brachy Application Setups in current Fraction Group. If Number of Brachy Application Setups is greater than zero, Number of Beams (300A,0080) shall equal zero.	Export: Value is always 0.
> Referenced Brachy Application Setup Sequence	(300C,000A)	1C	Introduces sequence of treatment Brachy Application Setups in current Fraction Group. Required if Number of Brachy Application Setups (300A,00A0) is greater than zero. One or more items may be included in this sequence.	*** Not Implemented ***
>> Referenced Brachy Application Setup Number	(300C,000C)	1C	Uniquely identifies Brachy Application Setup specified by Brachy Application Setup Number (300A,0234) within Brachy Application Setup Sequence (300A,0230) in RT Brachy Application Setups Module. Required if Referenced Brachy Application Setup Sequence (300C,000A) is sent.	*** Not Implemented ***
>> Brachy Application Setup Dose Specification Point	(300A,00A2)	3	Coordinates (x,y,z) of point in the patient based coordinate system described in C.7.6.2.1.1 at which Brachy Application Setup Dose (300A,00A4) is specified (mm).	*** Not Implemented ***
>> Brachy Application Setup Dose	(300A,00A4)	3	Dose (in Gy) at Brachy Application Setup Dose Specification Point (300A,00A2) due to current Brachy Application Setup.	*** Not Implemented ***

C.2.13 Approval – C.8.8.16

Attribute Name	Tag	T	Description	Handling
Approval Status	(300E,0002)	1	Approval status at the time the SOP Instance was created. Enumerated Values: APPROVED = Reviewer recorded that object met an implied criterion UNAPPROVED = No review of object has been recorded REJECTED = Reviewer recorded that object failed to meet an implied criterion	Export: Value is UNAPPROVED or APPROVED.
Review Date	(300E,0004)	2C	Date on which object was reviewed. Required if Approval Status (300E,0002) is APPROVED or REJECTED.	Export supported.
Review Time	(300E,0005)	2C	Time at which object was reviewed. Required if Approval Status (300E,0002) is APPROVED or REJECTED.	Export supported.
Reviewer Name	(300E,0008)	2C	Name of person who reviewed object. Required if Approval Status (300E,0002) is APPROVED or REJECTED.	Export supported.

C.2.14 RT Ion Tolerance Tables – C.8.8.24

Attribute Name	Tag	T	Description	Handling
Ion Tolerance Table Sequence	(300A,03A0)	1	Introduces sequence of ion tolerance tables to be used for delivery of treatment plan. One or more items shall be included in this sequence. See Note 1.	
> Tolerance Table Number	(300A,0042)	1	Identification number of the Tolerance Table. The value of Tolerance Table Number (300A,0042) shall be unique within the RT Ion Plan in which it is created.	Export: Value is always 1.

> Tolerance Table Label	(300A,0043)	3	User-defined label for Tolerance Table.	Export supported.
> Gantry Angle Tolerance	(300A,0044)	3	Maximum permitted difference (in degrees) between planned and delivered Gantry Angle.	Export supported.
> Gantry Pitch Angle Tolerance	(300A,014E)	3	Maximum permitted difference (in degrees) between planned and delivered Gantry Pitch Angle.	Export supported.
> Beam Limiting Device Angle Tolerance	(300A,0046)	3	Maximum permitted difference (in degrees) between planned and delivered Beam Limiting Device Angle.	Export supported.
> Beam Limiting Device Tolerance Sequence	(300A,0048)	3	Introduces sequence of beam limiting device (collimator) tolerances. One or more items may be included in this sequence.	*** Not Implemented ***
>> RT Beam Limiting Device Type	(300A,00B8)	1	Type of beam limiting device (collimator). Enumerated Values: X = symmetric jaw pair in IEC X direction Y = symmetric jaw pair in IEC Y direction ASYMX = asymmetric jaw pair in IEC X direction ASYMY = asymmetric pair in IEC Y direction MLCX = multileaf (multi-element) jaw pair in IEC X direction MLCY = multileaf (multi-element) jaw pair in IEC Y direction	*** Not Implemented ***
>> Beam Limiting Device Position Tolerance	(300A,004A)	1	Maximum permitted difference (in mm) between planned and delivered leaf (element) or jaw positions for current beam limiting device (collimator).	*** Not Implemented ***
> Patient Support Angle Tolerance	(300A,004C)	3	Maximum permitted difference (in degrees) between planned and delivered Patient Support Angle.	Export supported.
> Table Top Vertical Position Tolerance	(300A,0051)	3	Maximum permitted difference (in mm) between planned and delivered Table Top Vertical Position. Attribute Name Tag Type Description	Export supported.

> Table Top Longitudinal Position Tolerance	(300A,0052)	3	Maximum permitted difference (in mm) between planned and delivered Table Top Longitudinal Position.	Export supported.
> Table Top Lateral Position Tolerance	(300A,0053)	3	Maximum permitted difference (in mm) between planned and delivered Table Top Lateral Position.	Export supported.
> Table Top Pitch Angle Tolerance	(300A,004F)	3	Maximum permitted difference (in degrees) between planned and delivered Table Top Pitch Angle.	Export supported.
> Table Top Roll Angle Tolerance	(300A,0050)	3	Maximum permitted difference (in degrees) between planned and delivered Table Top Roll Angle.	*** Not Implemented ***
> Snout Position Tolerance	(300A,004B)	3	Maximum permitted difference (in mm) between planned and delivered Snout Position.	Export supported.
> Distal Target Distance Tolerance	(300B,1001)	3	Maximum permitted difference (in mm) between planned and delivered Distal Target Distance.	Export supported.
> Nominal SOBP Width Tolerance	(300B,1011)	3	Maximum permitted difference (in mm) between planned and delivered Nominal SOBP Width.	Export supported.

C.2.15 RT Ion Beams – C.8.8.25

Attribute Name	Tag	T	Description	Handling
Ion Beam Sequence	(300A,03A2)	1	Introduces sequence of treatment beam for current RT Ion Plan. One and only one item shall always be included in this sequence.	Export supported.
> Beam Number	(300A,00C0)	1	Identification number of the Beam. The value of Beam Number (300A,00C0) shall be unique within the RT Ion Plan in which it is created. See section C.8.8.25.1.	Export: Value is always 1.
> Beam Name	(300A,00C2)	1	User-defined name for Beam. See section C.8.8.25.1.	Export supported. Used as Field ID.
> Beam Description	(300A,00C3)	3	User-defined description for Beam. See section C.8.8.25.1.	Export supported.

> Beam Type	(300A,00C4)	1	Motion characteristic of Beam. Enumerated Values: STATIC = all beam parameters remain unchanged during delivery DYNAMIC = one or more beam parameters changes during delivery	Only STATIC is supported
> Radiation Type	(300A,00C6)	1	Particle type of Beam. Attribute Name Tag Type Description Defined Terms: PHOTON PROTON ION	Only PROTON is supported
> Radiation Mass Number	(300A,0302)	1C	Mass number of radiation. Required if Radiation Type (300A,00C6) is ION	*** Not Implemented ***
> Radiation Atomic Number	(300A,0304)	1C	Atomic number of radiation. Required if Radiation Type (300A,00C6) is ION	*** Not Implemented ***
> Radiation Charge State	(300A,0306)	1C	Charge state of radiation. Required if Radiation Type (300A,00C6) is ION	*** Not Implemented ***
> Scan Mode	(300A,0308)	1	The method of beam scanning to be used during treatment. Defined Terms: NONE = No beam scanning is performed. UNIFORM = The beam is scanned between control points to create a uniform lateral fluence distribution across the field. MODULATED = The beam is scanned between control points to create a modulated lateral fluence distribution across the field.	Only NONE supported.
> Treatment Machine Name	(300A,00B2)	2	User-defined name identifying treatment machine to be used for beam delivery. See section C.8.8.25.2.	Export supported.
> Manufacturer	(0008,0070)	3	Manufacturer of the equipment to be used for beam delivery.	Export supported.

> Institution Name	(0008,0080)	3	Institution where the equipment is located that is to be used for beam delivery.	*** Not Implemented ***
> Institution Address	(0008,0081)	3	Mailing address of the institution where the equipment is located that is to be used for beam delivery.	*** Not Implemented ***
> Institutional Department Name	(0008,1040)	3	Department in the institution where the equipment is located that is to be used for beam delivery.	*** Not Implemented ***
> Manufacturer's Model Name	(0008,1090)	3	Manufacturer's model name of the equipment that is to be used for beam delivery.	Export supported.
> Device Serial Number	(0018,1000)	3	Manufacturer's serial number of the equipment that is to be used for beam delivery.	*** Not Implemented ***
> Primary Dosimeter Unit	(300A,00B3)	1	Measurement unit of machine dosimeter. Enumerated Values: MU = Monitor Unit NP = number of particles	Export: Value is always MU.
> Referenced Tolerance Table Number	(300C,00A0)	3	Uniquely identifies Tolerance Table Attribute Name Tag Type Description specified by Tolerance Table Number (300A,0042) within Tolerance Table Sequence in RT Ion Tolerance Tables Module. These tolerances are to be used for verification of treatment machine settings.	Export: Value is always 1.
> Virtual Source-Axis Distances	(300A,030A)	1	Distance (in mm) from virtual source position to gantry rotation axis or nominal isocenter position (fixed beam-lines) of the equipment to be used for beam delivery. Specified by a numeric pair - the VSAD in the IEC Gantry X direction followed by the VSAD in the IEC Gantry Y direction. The VSAD is commonly used for designing apertures in contrast to the effective source-axis-distance (ESAD) that is commonly used with the inverse square law for calculating the dose decrease with distance. See section C.8.8.25.4.	Export supported.
> Ion Beam Limiting Device Sequence	(300A,03A4)	3	Introduces sequence of beam limiting device (collimator) jaw or leaf (element) sets. One or more items may be included in this sequence.	*** Not Implemented ***

>> RT Beam Limiting Device Type	(300A,00B8)	1	Type of beam limiting device (collimator). Enumerated Values: X = symmetric jaw pair in IEC X direction Y = symmetric jaw pair in IEC Y direction ASYMX = asymmetric jaw pair in IEC X direction ASYMY = asymmetric pair in IEC Y direction MLCX = multileaf (multi-element) jaw pair in IEC X direction MLCY = multileaf (multi-element) jaw pair in IEC Y direction	*** Not Implemented ***
>> Isocenter to Beam Limiting Device Distance	(300A,00BB)	2	Isocenter to beam limiting device (collimator) distance (in mm) of the equipment that is to be used for beam delivery. See section C.8.8.25.4.	*** Not Implemented ***
>> Number of Leaf/Jaw Pairs	(300A,00BC)	1	Number of leaf (element) or jaw pairs (equal to 1 for standard beam limiting device jaws).	*** Not Implemented ***
>> Leaf Position Boundaries	(300A,00BE)	1C	Boundaries of beam limiting device (collimator) leaves (in mm) in IEC BEAM LIMITING DEVICE coordinate axis appropriate to RT Beam Limiting Device Type (300A,00B8), i.e. X-axis for MLCY, Y Attribute Name Tag Type Description axis for MLCX. Contains N+1 values, where N is the Number of Leaf/Jaw Pairs (300A,00BC), starting from Leaf (Element) Pair 1. Required if RT Beam Limiting Device Type (300A,00B8) is MLCX or MLCY. See section C.8.8.25.3.	*** Not Implemented ***
> Referenced Patient Setup Number	(300C,006A)	3	Uniquely identifies Patient Setup to be used for current beam, specified by Patient Setup Number (300A,0182) within Patient Setup Sequence of RT Patient Setup Module.	Export: Value is always 1.
> Referenced Reference Image Sequence	(300C,0042)	3	Introduces sequence of reference images used for validation of current beam. One or more items may be included in this sequence.	*** Not Implemented ***
>> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	*** Not Implemented ***

>> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	*** Not Implemented ***
>> Reference Image Number	(300A,00C8)	1	Uniquely identifies Reference Image within Referenced Reference Image Sequence (300C,0042).	*** Not Implemented ***
> Treatment Delivery Type	(300A,00CE)	1	Delivery Type of treatment. Defined Terms: TREATMENT = normal patient treatment OPEN_PORTFILM = portal image acquisition with open field (the source of radiation is specified by Radiation Type (300A,00C6)) TRMT_PORTFILM = portal image acquisition with treatment port (the source of radiation is specified by Radiation Type (300A,00C6)) CONTINUATION = continuation of interrupted treatment SETUP = no treatment beam is applied for this RT Beam. To be used for specifying the gantry, couch, and other machine positions where X-ray set-up images or measurements shall be taken.	Export: Value is always TREATMENT.
> Referenced Dose Sequence	(300C,0080)	3	Introduces sequence of related SOP Class/Instance pairs describing related instances of RT Dose (for grids, isodose curves, and named/unnamed point doses). One or more items may be included in this sequence.	*** Not Implemented ***
>> Referenced SOP Class UID	(0008,1150)	1	Uniquely identifies the referenced SOP Class.	*** Not Implemented ***
>> Referenced SOP Instance UID	(0008,1155)	1	Uniquely identifies the referenced SOP Instance.	*** Not Implemented ***
> Number of Wedges	(300A,00D0)	1	Number of wedges associated with current Attribute Name Tag Type Description beam.	Export supported.
> Total Wedge Tray Water-Equivalent Thickness	(300A,00D7)	3	Shift of the wedge tray induced on the range of the ion beam as measured in water (in mm).	Export: Value is always 0.

> Ion Wedge Sequence	(300A,03AA)	1C	Introduces sequence of treatment wedges. Required if Number of Wedges (300A,00D0) is non-zero. The number of items shall be identical to the value of Number of Wedges (300A,00D0).	Export supported.
>> Wedge Number	(300A,00D2)	1	Identification number of the Wedges. The value of Wedge Number (300A,00D2) shall be unique within the Beam in which it was created.	Export supported.
>> Wedge Type	(300A,00D3)	2	Type of wedge (if any) defined for Beam. Defined Terms: STANDARD = standard (static) wedge MOTORIZED = single wedge that can be removed from beam remotely. PARTIAL_STANDARD = wedge does not extend across the whole field and is operated manually. PARTIAL_MOTORIZED = wedge does not extend across the whole field and can be removed from beam remotely.	Export supported.
>> Wedge ID	(300A,00D4)	3	User-supplied identifier for Wedge.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Wedge Angle	(300A,00D5)	2	Nominal wedge angle (degrees).	Export supported.
>> Wedge Orientation	(300A,00D8)	2	Orientation of wedge, i.e. orientation of IEC WEDGE FILTER coordinate system with respect to the IEC BEAM LIMITING DEVICE coordinate systems (degrees).	Export supported.
>> Isocenter to Wedge Tray Distance	(300A,00D9)	1	Isocenter to downstream edge of wedge tray (mm). See section C.8.8.25.4	Export supported.
> Number of Compensators	(300A,00E0)	1	Number of compensators associated with current Beam.	Export supported.

> Total Compensator Tray Water-Equivalent Thickness	(300A,02E3)	3	Water-Equivalent thickness of the compensator tray (in mm) parallel to radiation beam axis.	*** Not Implemented ***
> Ion Range Compensator Sequence	(300A,02EA)	1C	Introduces sequence of compensators. Required if Number of Compensators (300A,00E0) is non-zero. The number of items shall be identical to the value of Number of Compensators (300A,00E0). Attribute Name Tag Type Description	*** Not Implemented ***
>> Compensator Description	(300A,02EB)	3	User defined description for the compensator.	*** Not Implemented ***
>> Compensator Number	(300A,00E4)	1	Identification number of the Compensator. The value of Compensator Number (300A,00E4) shall be unique within the Beam in which it is created.	*** Not Implemented ***
>> Material ID	(300A,00E1)	2	User-supplied identifier for material used to manufacture Compensator.	*** Not Implemented ***
>> Compensator ID	(300A,00E5)	3	User-supplied identifier for the compensator.	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Isocenter to Compensator Tray Distance	(300A,02E4)	1C	Isocenter to compensator tray attachment edge distance (in mm) for current range compensator. Required if Compensator Mounting Position (300A,02E1) is not DOUBLE_SIDED. See section C.8.8.25.4	*** Not Implemented ***
>> Compensator Divergence	(300A,02E0)	1	Indicates presence or absence of geometrical divergence of the range compensator. Enumerated Values: PRESENT = the range compensator is shaped according to the beam geometrical divergence. ABSENT = the range compensator is not shaped according to the beam geometrical divergence.	*** Not Implemented ***

>> Compensator Mounting Position	(300A,02E1)	1	Indicates on which side of the Compensator Tray the compensator is mounted. Enumerated Values: PATIENT_SIDE = the Compensator is mounted on the side of the Compensator Tray that is towards the patient. SOURCE_SIDE = the Compensator is mounted on the side of the Compensator Tray that is towards the radiation source. DOUBLE_SIDED = the Compensator has a shaped (i.e. non-flat) surface on both sides of the Compensator Tray.	*** Not Implemented ***
>> Compensator Rows	(300A,00E7)	1	Number of rows in the range compensator.	*** Not Implemented ***
>> Compensator Columns	(300A,00E8)	1	Number of columns in the range compensator.	*** Not Implemented ***
>> Compensator Pixel Spacing	(300A,00E9)	1	Physical distance (in mm) between the center of each pixel projected onto machine isocentric plane. Specified by a numeric pair - adjacent row spacing followed by adjacent column spacing.	*** Not Implemented ***
>> Compensator Position	(300A,00EA)	1	The x and y coordinates of the upper left hand corner (first pixel transmitted) of the range compensator, projected onto the Attribute Name Tag Type Description machine isocentric plane in the IEC BEAM LIMITING DEVICE coordinate system (mm).	*** Not Implemented ***
>> Compensator Column Offset	(300A,02E5)	1C	The offset distance (in mm) applied to the x coordinate of the Compensator Position (300A,00EA) for even numbered rows. Required if the compensator pattern is hexagonal.	*** Not Implemented ***

>> Compensator Thickness Data	(300A,00EC)	1	A data stream of the pixel samples that comprise the range compensator, expressed as physical thickness (in mm), either parallel to radiation beam axis if Compensator Divergence (300A,02E0) equals ABSENT, or divergent according to the beam geometrical divergence if Compensator Divergence (300A,02E0) equals PRESENT. The order of pixels sent is left to right, top to bottom (upper left pixel, followed by the remainder of row 1, followed by the remainder of the rows).	*** Not Implemented ***
>> Isocenter to Compensator Distances	(300A,02E6)	1C	A data stream of the pixel samples that comprise the distance from the isocenter to the compensator surface closest to the radiation source (in mm). The order of pixels sent is left to right, top to bottom (upper left pixel, followed by the remainder of row 1, followed by the remainder of the rows). Required if Material ID (300A,00E1) is non-zero length, and Compensator Mounting Position (300A,02E1) is DOUBLE_SIDED. See sections C.8.8.14.9 and C.8.8.25.4	*** Not Implemented ***
>> Compensator Relative Stopping Power Ratio	(300A,02E7)	3	Compensator Linear Stopping Power Ratio, relative to water, at the beam energy specified by the Nominal Beam Energy (300A,0114) of the first Control Point of the Ion Control Point Sequence (300A,03A8).	*** Not Implemented ***
>> Compensator Milling Tool Diameter	(300A,02E8)	3	The diameter (in mm) of the milling tool to be used to create the compensator. The diameter is expressed as the actual physical size and not a projected size at isocenter.	*** Not Implemented ***
> Number of Boli	(300A,00ED)	1	Number of boli associated with current Beam.	Export supported.
> Referenced Bolus Sequence	(300C,00B0)	1C	Introduces sequence of boli associated with Beam. Required if Number of Boli (300A,00ED) is non-zero. The number of items shall be identical to the value of Number of Boli (300A,00ED).	*** Not Implemented ***

>> Referenced ROI Number	(3006,0084)	1	Uniquely identifies ROI representing the Bolus specified by ROI Number Attribute Name Tag Type Description (3006,0022) in Structure Set ROI Sequence (3006,0020) in Structure Set Module within RT Structure Set in Referenced Structure Set Sequence (300C,0060) in RT General Plan Module.	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
> Number of Blocks	(300A,00F0)	1	Number of shielding blocks associated with Beam.	Export supported.
> Total Block Tray Water-Equivalent Thickness	(300A,00F3)	3	Water-Equivalent thickness of the block tray (in mm) parallel to radiation beam axis.	Export supported.
> Ion Block Sequence	(300A,03A6)	1C	Introduces sequence of blocks associated with Beam. Required if Number of Blocks (300A,00F0) is non-zero. The number of items shall be identical to the value of Number of Blocks (300A,00F0).	
>> Block Tray ID	(300A,00F5)	3	User-supplied identifier for block tray.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Isocenter to Block Tray Distance	(300A,00F7)	1	Isocenter to downstream edge of block tray (mm). Required if Block Sequence (300A,00F4) is sent. See section C.8.8.25.4	Export supported.
>> Block Type	(300A,00F8)	1	Type of block. See section C.8.8.14.4. Enumerated Values: SHIELDING = blocking material is inside contour APERTURE = blocking material is outside contour	Export supported.

>> Block Divergence	(300A,00FA)	1	Indicates presence or otherwise of geometrical divergence. Enumerated Values: PRESENT = block edges are shaped for beam divergence ABSENT = block edges are not shaped for beam divergence	Only ABSENT supported
>> Block Mounting Position	(300A,00FB)	1	Indicates on which side of the Block Tray the block is mounted. Enumerated Values; PATIENT_SIDE = the block is mounted on the side of the Block Tray that is towards the patient. SOURCE_SIDE = the block is mounted on the side of the Block Tray that is towards the radiation source.	Export: Value is always SOURCE_SIDE.
>> Block Number	(300A,00FC)	1	Identification number of the Block. The Attribute Name Tag Type Description value of Block Number (300A,00FC) shall be unique within the Beam in which it is created.	Export supported.
>> Block Name	(300A,00FE)	3	User-defined name for block.	Export supported. Used as the block ID.
>> Material ID	(300A,00E1)	2	User-supplied identifier for material used to manufacture Block.	Export supported.
>> Block Thickness	(300A,0100)	1	Physical thickness of block (in mm) parallel to radiation beam axis. See section C.8.8.14.4.	Export supported.
>> Block Number of Points	(300A,0104)	1	Number of (x,y) pairs defining the block edge.	Export supported. Number of shape points.
>> Block Data	(300A,0106)	1	A data stream of (x,y) pairs that comprise the block edge. The number of pairs shall be equal to Block Number of Points (300A,0104), and the vertices shall be interpreted as a closed polygon. Coordinates are projected onto the machine isocentric plane in the IEC BEAM LIMITING DEVICE coordinate system (mm).	Export supported. Graphic node array of shape points.

> Snout Sequence	(300A,030C)	3	Introduces sequence of Snouts associated with Beam. Only a single item shall be permitted in this sequence.	
>> Snout ID	(300A,030F)	1	User or machine supplied identifier for Snout.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
> Applicator Sequence	(300A,0107)	3	Introduces sequence of Applicators associated with Beam. Only a single item shall be permitted in this sequence.	*** Not Implemented ***
>> Applicator ID	(300A,0108)	1	User or machine supplied identifier for Applicator. See section C.8.8.14.12	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Applicator Type	(300A,0109)	1	Type of applicator. Defined Terms: ION_SQUARE = square ion applicator ION_RECT = rectangular ion applicator ION_CIRC = circular ion applicator ION_SHORT = short ion applicator ION_OPEN = open (dummy) ion applicator INTEROPERATIVE = interoperative (custom) applicator STEREOTACTIC = stereotactic applicator Attribute Name Tag Type Description	*** Not Implemented ***
>> Applicator Description	(300A,010A)	3	User-defined description for Applicator.	*** Not Implemented ***
> General Accessory Sequence	(300A,0420)	3	Introduces a Sequence of General Accessories associated with this Beam. One or more items may be included in this sequence.	*** Not Implemented ***
>> General Accessory Number	(300A,0424)	1	Identification Number of the General Accessory. The value shall be unique within the sequence.	*** Not Implemented ***

>> General Accessory ID	(300A,0421)	1	User or machine supplied identifier for General Accessory.	*** Not Implemented ***
>>General Accessory Description	(300A,0422)	3	User supplied description of General Accessory.	*** Not Implemented ***
>> General Accessory Type	(300A,0423)	3	Specifies the type of accessory. Defined Terms: GRATICULE = Accessory tray with a radioopaque grid IMAGE_DETECTOR = Image acquisition device positioned in the beam line RETICLE = Accessory tray with radiotransparent markers or grid	*** Not Implemented ***
>> Accessory Code	(300A,00F9)	3	Machine-readable identifier for this accessory	*** Not Implemented ***
> Number of Range Shifters	(300A,0312)	1	Number of range shifters associated with current beam.	Export supported.
> Range Shifter Sequence	(300A,0314)	1C	Introduces sequence of range shifters associated with Beam. Required if Number of Range Shifters (300A,0312) is non-zero. The number of items shall be identical to the value of Number of Range Shifters (300A,0312).	Export supported.
>> Range Shifter Number	(300A,0316)	1	Identification number of the Range Shifter. The value of Range Shifter Number (300A,0316) shall be unique within the Beam in which it is created.	Export supported.
>> Range Shifter ID	(300A,0318)	1	User or machine supplied identifier for Range Shifter.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***

>> Range Shifter Type	(300A,0320)	1	Type of Range Shifter. Defined Terms: ANALOG = Device is variable thickness and is composed of opposing sliding wedges, water column or similar mechanism. BINARY = Device is composed of different thickness materials that can be moved in or out of the beam in various stepped combinations.	Export supported.
>> Range Shifter Description	(300A,0322)	3	User defined description of Range Shifter.	*** Not Implemented ***
> Number of Lateral Spreading Devices	(300A,0330)	1	Number of lateral spreading devices associated with current beam.	Export supported.
> Lateral Spreading Device Sequence	(300A,0332)	1C	Introduces sequence of lateral spreading devices associated with Beam. Required if Number of Lateral Spreading Devices (300A,0330) is non-zero. The number of items shall be identical to the value of Number of Lateral Spreading Devices (300A,0330).	
>> Lateral Spreading Device Number	(300A,0334)	1	Identification number of the Lateral Spreading Device. The value of Lateral Spreading Device Number (300A,0334) shall be unique within the Beam in which it is created.	Export supported.
>> Lateral Spreading Device ID	(300A,0336)	1	User or machine supplied identifier for Lateral Spreading Device.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Lateral Spreading Device Type	(300A,0338)	1	Type of Lateral Spreading Device. Attribute Name Tag Type Description Defined Terms: SCATTERER = metal placed into the beam path to scatter charged particles laterally. MAGNET = nozzle configuration of magnet devices to expand beam laterally.	Export supported.

>> Lateral Spreading Device Description	(300A,033A)	3	User-defined description for lateral spreading device.	*** Not Implemented ***
> Number of Range Modulators	(300A,0340)	1	Number of range modulators associated with current beam.	Export supported.
> Range Modulator Sequence	(300A,0342)	1C	Introduces sequence of range modulators associated with Beam. Required if Number of Range Modulators (300A,0340) is nonzero. The number of items shall be identical to the value of Number of Range Modulators (300A,0340).	
>> Range Modulator Number	(300A,0344)	1	Identification number of the Range Modulator. The value of Range Modulator Number (300A,0344) shall be unique within the Beam in which it is created.	Export supported.
>> Range Modulator ID	(300A,0346)	1	User or machine supplied identifier for Range Modulator.	Export supported.
>> Accessory Code	(300A,00F9)	3	An accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
>> Range Modulator Type	(300A,0348)	1	Type of Range Modulator. Defined Terms: FIXED = fixed modulation width and weights using ridge filter or constant speed wheel with constant beam current WHL_FIXEDWEIGHTS = selected wheel/track (Range Modulator ID) is spinning at constant speed. Modulation width is adjusted by switching constant beam current on and off at wheel steps indicated by Range Modulator Gating Values. WHL_MODWEIGHTS = selected wheel/track (Range Modulator ID) is spinning at constant speed. Weight per wheel step is adjusted by modulating beam current according to selected Beam Current Modulation ID (300A,034C). Only one item in the Range Modulator Sequence (300A,0342) can have a Range Modulator Type (300A,0348) of WHL_MODWEIGHTS.	Export supported.

>> Range Modulator Description	(300A,034A)	3	User-defined description of Range Modulator. Attribute Name Tag Type Description	*** Not Implemented ***
>> Beam Current Modulation ID	(300A,034C)	1C	User-supplied identifier for the beam current modulation pattern. Required if Range Modulator Type (300A,0348) is WHL_MODWEIGHTS	Export supported.
> Patient Support Type	(300A,0350)	1	Defined terms: TABLE = Treatment delivery system table CHAIR = Treatment delivery system chair See section C.8.8.25.6.3.	Export supported.
> Patient Support ID	(300A,0352)	3	User-specified identifier for manufacturer specific patient support devices.	Export supported.
> Patient Support Accessory Code	(300A,0354)	3	A Patient Support accessory identifier to be read by a device such as a bar code reader.	*** Not Implemented ***
> Fixation Light Azimuthal Angle	(300A,0356)	3	Azimuthal angle (degrees) of the fixation light coordinate around IEC BEAM LIMITING DEVICE Y-axis. Used for eye treatments. See section C.8.8.25.6.4.	Export supported.
> Fixation Light Polar Angle	(300A,0358)	3	Polar angle (degrees) of the fixation light coordinate. Used for eye treatments. See section C.8.8.25.6.4.	Export supported.
> Final Cumulative Meterset Weight	(300A,010E)	1C	Value of Cumulative Meterset Weight (300A,0134) for final Control Point in Ion Control Point Sequence (300A,03A8). Required if Cumulative Meterset Weight is non-null in Control Points specified within Ion Control Point Sequence. See section C.8.8.14.1.	Export: Value is always 1.
> Number of Control Points	(300A,0110)	1	Number of control points in Beam. Value shall be greater than or equal to 2.	Export supported.
> Ion Control Point Sequence	(300A,03A8)	1	Introduces sequence of machine configurations describing Ion treatment beam. The number of items shall be identical to the value of Number of Control Points (300A,0110).	Export supported.
>> Control Point Index	(300A,0112)	1	Index of current Control Point, starting at 0 for first Control Point.	Export supported.

>> Cumulative Meterset Weight	(300A,0134)	2	Cumulative weight to current control point. Cumulative Meterset Weight for the first item in Control Point Sequence shall always be zero. Cumulative Meterset Weight for the final item in Ion Control Point Sequence shall always be equal to Final Cumulative Meterset Weight.	Export: Value is 0 or 1.
>> Referenced Dose Reference Sequence	(300C,0050)	3	Introduces a sequence of Dose References for current Beam. One or more items may be included in this sequence.	*** Not Implemented ***
>>> Referenced Dose Reference Number	(300C,0051)	1	Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module.	*** Not Implemented ***
>>> Cumulative Dose Reference Coefficient	(300A,010C)	2	Coefficient used to calculate cumulative dose contribution from this Beam to the referenced Dose Reference at the current Control Point.	*** Not Implemented ***
>> Nominal Beam Energy	(300A,0114)	1C	Nominal Beam Energy at control point in MeV per nucleon. Defined at nozzle entrance before all Beam Modifiers. Attribute Name Tag Type Description Required for first item of Control Point Sequence, or if Nominal Beam Energy changes during Beam, and KVp (0018,0060) is not present.	Export supported.
>>Nominal Beam Energy Unit	(300A,0015)	1C	Units used for Nominal Beam Energy (300A,0114). Required if Nominal Beam Energy (300A,0114) is sent. Defined Terms: MV = Megavolt MEV = Mega electron-Volt If Radiation Type (300A,00C6) is PHOTON, Nominal Beam Energy Unit (300A,0015) shall be MV. If Radiation Type (300A,00C6) is ELECTRON, Nominal Beam Energy Unit (300A,0015) shall be MEV.	Export: Only MEV supported.

>> KVp	(0018,0060)	1C	Peak kilo voltage output of the setup X-Ray generator to be used. Required for first item of Control Point Sequence, or if KVp changes during setup, and Nominal Beam Energy (300A,0114) is not present.	*** Not Implemented ***
>> Meterset Rate	(300A,035A)	3	Specifies the speed of delivery of the specified dose in units specified by Primary Dosimeter Unit (300A,00B3) per minute.	Export supported.
>> Ion Wedge Position Sequence	(300A,03AC)	1C	Introduces sequence of Wedge positions for current control point. Required for first item of Ion Control Point Sequence if Number of Wedges (300A,00D0) is non-zero, and in subsequent control points if Wedge Position (300A,0118) or Wedge Thin Edge Position (300A,00DB) changes during beam. The number of items shall be identical to the value of Number of Wedges (300A,00D0).	Export supported.
>>> Referenced Wedge Number	(300C,00C0)	1	Uniquely references Wedge described by Wedge Number (300A,00D2) in Wedge Sequence (300A,00D1).	Export supported.
>>> Wedge Position	(300A,0118)	1	Position of Wedge at current Control Point. Enumerated Values: IN OUT	Export: Only IN supported.
>>> Wedge Thin Edge Position	(300A,00DB)	1C	Closest distance from the central axis of the beam along a wedge axis to the thin edge as projected to the machine isocentric plane (mm). Value is positive if the wedge does not cover the central axis, negative if it does. Required if Wedge Type (300A,00D3) of the wedge referenced by Referenced Wedge Number (300C,00C0) is PARTIAL_STANDARD or PARTIAL_MOTORIZED. See section C.8.8.25.6.4.	Export supported.
>> Range Shifter Settings Sequence	(300A,0360)	1C	Introduces sequence of Range Shifter settings for the current control point. One or more items shall be included in this sequence. Required for first item of Control Point Sequence if Number of Range Shifters (300A,0312) is non-zero, or if Range Shifter Setting (300A,0362) Attribute Name Tag Type Description changes during Beam.	Export supported.

>>> Referenced Range Shifter Number	(300C,0100)	1	Uniquely references Range Shifter described by Range Shifter Number (300A,0316) in Range Shifter Sequence (300A,0314).	Export supported.
>>> Range Shifter Setting	(300A,0362)	1	Machine specific setting attribute for the range shifter. The specific encoding of this value should be documented in a Conformance Statement. See section C.8.8.25.5.	Export supported.
>>> Isocenter to Range Shifter Distance	(300A,0364)	3	Isocenter to downstream edge of range shifter (mm) at current control point. See section C.8.8.25.4	*** Not Implemented ***
>>> Range Shifter Water Equivalent Thickness	(300A,0366)	3	Water equivalent thickness (in mm) of the range shifter at the central axis for the beam energy incident upon the device.	Export supported.
>> Lateral Spreading Device Settings Sequence	(300A,0370)	1C	Introduces sequence of Lateral Spreading Device settings for the current control point. One or more items shall be included in this sequence. Required for first item of Control Point Sequence if Number of Lateral Spreading Devices (300A,0330) is non-zero, or if Lateral Spreading Device Setting (300A,0372) changes during Beam.	Export supported.
>>> Referenced Lateral Spreading Device Number	(300C,0102)	1	Uniquely references Lateral Spreading Device described by Lateral Spreading Device Number (300A,0334) in Lateral Spreading Device Sequence (300A,0332).	Export supported.
>>> Lateral Spreading Device Setting	(300A,0372)	1	Machine specific setting attribute for the lateral spreading device. The specific encoding of this value should be documented in a Conformance Statement. See section C.8.8.25.5.	Export supported.
>>> Isocenter to Lateral Spreading Device Distance	(300A,0374)	3	Isocenter to downstream edge of Lateral Spreading Device (mm) at current control point. See section C.8.8.25.4	*** Not Implemented ***
>>> Lateral Spreading Device Water Equivalent Thickness	(300A,033C)	3	Water equivalent thickness (in mm) of the lateral spreading device at the central axis for the beam energy incident upon the device.	Export supported.

>> Range Modulator Settings Sequence	(300A,0380)	1C	Introduces sequence of Range Modulator Settings for current control point. One or more items shall be included in this sequence. Required for first item of Control Point Sequence if Number of Range Modulators (300A,0340) is non-zero, or if Range Modulator Setting changes during Beam.	Export supported.
>>> Referenced Range Modulator Number	(300C,0104)	1	Uniquely references Range Modulator Attribute Name Tag Type Description Number described by Range Modulator Number (300A,0344) in Range Modulator Sequence (300A,0342).	Export supported.
>>> Range Modulator Gating Start Value	(300A,0382)	1C	Start position defines the range modulator position at which the beam is switched on. Required if Range Modulator Type (300A,0348) of the range modulator referenced by Referenced Range Modulator Number (300C,0104) is WHL_MODWEIGHTS or WHL_FIXEDWEIGHTS	Export supported.
>>> Range Modulator Gating Stop Value	(300A,0384)	1C	Stop position defines the range modulator position at which the beam is switched off. Required if Range Modulator Type (300A,0348) of the range modulator referenced by Referenced Range Modulator Number (300C,0104) is WHL_MODWEIGHTS or WHL_FIXEDWEIGHTS	Export supported.
>>> Range Modulator Gating Start Water Equivalent Thickness	(300A,0386)	3	If Range Modulator Type (300A,0348) is WHL_MODWEIGHTS or WHL_FIXEDWEIGHTS: Water equivalent thickness (in mm) of the range modulator at the position specified by Range Modulator Gating Start Value (300A,0382). If Range Modulator Type (300A,0348) is FIXED: Minimum water equivalent thickness (in mm) of the range modulator.	Export supported.
>>> Range Modulator Gating Stop Water Equivalent Thickness	(300A,0388)	3	If Range Modulator Type (300A,0348) is WHL_MODWEIGHTS or WHL_FIXEDWEIGHTS: Water equivalent thickness (in mm) of the range modulator at the position specified by Range Modulator Gating Stop Value (300A,0384). If Range Modulator Type (300A,0348) is FIXED: Maximum water equivalent thickness (in mm) of the range modulator.	Export supported.

>>> Isocenter to Range Modulator Distance	(300A,038A)	3	Isocenter to downstream edge of range modulator (mm) at current control point. See section C.8.8.25.4	*** Not Implemented ***
>> Beam Limiting Device Position Sequence	(300A,011A)	1C	Introduces sequence of beam limiting Sequence device (collimator) jaw or leaf (element) positions. Required if Ion Beam Limiting Device Sequence (300A,03A4) is included and for first item of Control Point Sequence, or if Beam Limiting Device changes during Beam. One or more items shall be included in this sequence.	*** Not Implemented ***
>>> RT Beam Limiting Device Type	(300A,00B8)	1	Type of beam limiting device (collimator). The value of this attribute shall correspond to RT Beam Limiting Device Type (300A,00B8) defined in an item of Ion Beam Limiting Device Sequence (300A,03A4). Enumerated Values: X = symmetric jaw pair in IEC X direction Y = symmetric jaw pair in IEC Y direction ASYMX = asymmetric jaw pair in IEC X direction ASYMY = asymmetric pair in IEC Y direction MLCX = multileaf (multi-element) jaw pair in IEC X direction MLCY = multileaf (multi-element) jaw pair in IEC Y direction.	*** Not Implemented ***
>>> Leaf/Jaw Positions	(300A,011C)	1	Positions of beam limiting device (collimator) leaf (element) or jaw pairs (in mm) in IEC BEAM LIMITING DEVICE coordinate axis appropriate to RT Beam Limiting Device Type (300A,00B8), e.g. X-axis for MLCX, Y-axis for MLCY. Contains 2N values, where N is the Number of Leaf/Jaw Pairs (300A,00BC) in Ion Beam Limiting Device Sequence (300A,03A4). Values shall be listed in IEC leaf (element) subscript order 101, 102, ... 1N, 201, 202, ... 2N. See section C.8.8.25.3.	*** Not Implemented ***
>> Gantry Angle	(300A,011E)	1C	Gantry angle of radiation source, i.e. orientation of IEC GANTRY coordinate system with respect to IEC FIXED REFERENCE coordinate system Attribute Name Tag Type Description (degrees). Required for first item of Control Point Sequence, or if Gantry Angle changes during Beam.	Export supported.

>> Gantry Rotation Direction	(300A,011F)	1C	<p>Direction of Gantry Rotation when viewing gantry from isocenter, for segment following Control Point. Required for first item of Control Point Sequence, or if Gantry Rotation Direction changes during Beam. See section C.8.8.14.8.</p> <p>Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation</p>	<p>Export: Only NONE supported.</p>
>> Gantry Pitch Angle	(300A,014A)	2C	<p>Gantry Pitch Angle of the radiation source, i.e. the rotation of the IEC GANTRY coordinate system about the X-axis of the IEC GANTRY coordinate system (degrees). Required for first item of Control Point Sequence, or if Gantry Pitch Rotation Angle changes during Beam. See C.8.8.25.6.5.</p>	<p>Export: Only 0 (zero) supported.</p>
>>Gantry Pitch Rotation Direction	(300A,014C)	3	<p>Direction of Gantry Pitch Angle when viewing along the positive X-axis of the IEC GANTRY coordinate system, for segment following Control Point. If used, must be present for first item of Control Point Sequence, or if used and Gantry Pitch Rotation Direction changes during Beam, must be present. See C.8.8.14.8 and C.8.8.25.6.5.</p> <p>Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation</p>	<p>Export: Only NONE supported</p>
>> Beam Limiting Device Angle	(300A,0120)	1C	<p>Beam Limiting Device angle, i.e. orientation of IEC BEAM LIMITING DEVICE coordinate system with respect to IEC GANTRY coordinate system (degrees). Required for first item of Control Point Sequence, or if Beam Limiting Device Angle changes during Beam.</p>	<p>Export supported.</p>

>> Beam Limiting Device Rotation Direction	(300A,0121)	1C	Direction of Beam Limiting Device Rotation when viewing beam limiting device (collimator) from radiation source, for segment following Control Point. Required for first item of Control Point Sequence, or if Beam Limiting Device Rotation Direction changes during Beam. See section C.8.8.14.8. Attribute Name Tag Type Description Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation	Export: Value is always NONE.
>> Scan Spot Tune ID	(300A,0390)	1C	User-supplied or machine code identifier for machine configuration to produce beam spot. This may be the nominal spot size or some other machine specific value. Required if Scan Mode (300A,0308) is MODULATED.	*** Not Implemented ***
>> Number of Scan Spot Positions	(300A,0392)	1C	Number of spot positions used to specify scanning pattern for current segment beginning at control point. Required if Scan Mode (300A,0308) is MODULATED.	*** Not Implemented ***
>> Scan Spot Position Map	(300A,0394)	1C	The x and y coordinates of the scan spots are defined as projected onto the machine isocentric plane in the IEC GANTRY coordinate system (mm). Required if Scan Mode (300A,0308) is MODULATED. Contains 2N values where N is the Number of Scan Spot Positions (300A,0392).	*** Not Implemented ***
>> Scan Spot Meterset Weights	(300A,0396)	1C	A data set of meterset weights corresponding to scan spot positions. The order of weights matches the positions in Scan Spot Positions (300A,0394). The sum contained in all meterset weights shall match the difference of the cumulative meterset weight of the current control point to the following control point. Required if Scan Mode (300A,0308) is MODULATED.	*** Not Implemented ***
>> Scanning Spot Size	(300A,0398)	3	The Scanning Spot Size as calculated using the Full Width Half Maximum (FWHM). Specified by a numeric pair - the size measured in air at isocenter in IEC GANTRY X direction followed by the size in the IEC GANTRY Y direction (mm).	*** Not Implemented ***

>> Number of Paintings	(300A,039A)	1C	The number of times the scan pattern given by Scan Spot Position Map (300A,0394) and Scan Spot Meterset Weights (300A,0396) shall be applied at the current control point. To obtain the meterset weight per painting, the values in the Scan Spot Meterset Weights (300A,0396) should be divided by the value of this attribute. Required if Scan Mode (300A,0308) is MODULATED.	*** Not Implemented ***
>> Patient Support Angle	(300A,0122)	1C	Patient Support angle, i.e. orientation of IEC PATIENT SUPPORT (turntable) coordinate system with respect to IEC FIXED REFERENCE coordinate system Attribute Name Tag Type Description (degrees). Required for first item of Control Point Sequence, or if Patient Support Angle changes during Beam.	Export supported.
>> Patient Support Rotation Direction	(300A,0123)	1C	Direction of Patient Support Rotation when viewing table from above, for segment following Control Point. Required for first item of Control Point Sequence, or if Patient Support Rotation Direction changes during Beam. See section C.8.8.14.8. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation	Export: Value is always NONE.
>> Table Top Pitch Angle	(300A,0140)	2C	Table Top Pitch Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). Required for first item of Control Point Sequence, or if Table Top Pitch Angle changes during Beam. See section C.8.8.25.6.2.	Export supported.

>> Table Top Pitch Rotation Direction	(300A,0142)	2C	Direction of Table Top Pitch Rotation when viewing the table along the positive X-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. Required for first item of Control Point Sequence, or if Table Top Pitch Rotation Direction changes during Beam. See C.8.8.14.8 and C.8.8.25.6.2. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation	Export: Value is always NONE.
>> Table Top Roll Angle	(300A,0144)	2C	Table Top Roll Angle, i.e. the rotation of the IEC TABLE TOP coordinate system about the Y-axis of the IEC TABLE TOP coordinate system (degrees). Required for first item of Control Point Sequence, or if Table Top Roll Angle changes during Beam. See section C.8.8.25.6.2.	Export: Value is always 0.
>> Table Top Roll Roll Rotation Direction	(300A,0146)	2C	Direction of Table Top Roll Rotation when viewing the table along the positive Y-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. Required for first item of Control Point Sequence, or if Table Top Roll Rotation Direction changes during Beam. See C.8.8.14.8 and C.8.8.25.6.2. Enumerated Values: Attribute Name Tag Type Description CW = clockwise CC = counter-clockwise NONE = no rotation.	Export: Value is always NONE.
>> Head Fixation Angle	(300A,0148)	3	Angle (in degrees) of the head fixation for eye treatments with respect to the Table Top Pitch Angle (300A,0140) coordinate system. Positive head fixation angle is the same direction as positive Table Top pitch. See section C.8.8.25.6.4.	Export supported.
>> Table Top Vertical Position	(300A,0128)	2C	Table Top Vertical position in IEC TABLE TOP coordinate system (mm). Required for first item of Control Point Sequence, or if Table Top Vertical Position changes during Beam. See section C.8.8.14.6.	Export supported. Value must not change between control points.

>> Table Top Longitudinal Position	(300A,0129)	2C	Table Top Longitudinal position in IEC TABLE TOP coordinate system (mm). Required for first item of Control Point Sequence, or if Table Top Longitudinal Position changes during Beam. See section C.8.8.14.6.	Export supported.
>> Table Top Lateral Position	(300A,012A)	2C	Table Top Lateral position in IEC TABLE TOP coordinate system (mm). Required for first item of Control Point Sequence, or if Table Top Lateral Position changes during Beam. See section C.8.8.14.6.	Export supported. Value must not change between control points.
>> Snout Position	(300A,030D)	2C	Axial position of the snout (in mm) measured from isocenter to the downstream side of the snout (without consideration of variable length elements such as blocks, MLC and/or compensators). Required for first item in Control Point Sequence, or if Snout Position changes during Beam.	Export: Value is always EMPTY.
>> Isocenter Position	(300A,012C)	2C	Isocenter coordinates (x,y,z) in the patient based coordinate system described in C.7.6.2.1.1 (mm). Required for first item of Segment Control Point Sequence, or if Segment Isocenter Position changes during Beam.	Export supported.
>> Surface Entry Point	(300A,012E)	3	Patient surface entry point coordinates (x,y,z), along the central axis of the beam, in the patient based coordinate system described in C.7.6.2.1.1 (mm).	*** Not Implemented ***
> Maximum Collimated Field Diameter (Field Size)	(300B,1002)	3	The maximum diameter (mm) of a circle, centered around the beam axis, which contains collimated field. Calculated by TPS and used for machine setting calculation and clinical verification in TCS.	Export supported. Calculated as diameter of aperture circumference centered on beam axis.
> Range (Planned Distal Target Distance)	(300B,1004)	3	Maximum required water equivalent beam range (mm) to cover planned target distally with safety margins. Range is calculated from patient specific geometric eye model, user defined tumor including safety margins, and wedge if associated with the field.	Export supported.

> Nominal SOBP Width	(300B,100E)	3	Required water-equivalent beam modulation (mm) to cover planned target width with safety margins. SOBP width is calculated from patient specific geometric eye model, user defined tumor including safety margins, and wedge if associated with the field.	Export supported.
----------------------	-------------	---	--	-------------------

C.2.16 Curve – C.10.2

Attribute Name	Tag	T	Description	Handling
Curve Dimensions	(50XX,0005)	1	Number of dimensions for these data. The dimensions may be any number from 1 to n.	Export: Value is always 2.
Number of Points	(50XX,0010)	1	Number of data points in this Curve	Export supported.
Type of Data	(50XX,0020)	1	Type of data in this curve. See C.10.2.1.1 for Defined Terms.	Export: Value is always POLY.
Data Value Representation	(50XX,0103)	1	Data representation of the curve data points. See C.10.2.2 for Enumerated Values and further explanation.	Export: Value is always 0003H (floating point double).
Curve Data	(50XX,3000)	1	Curve data. See C.10.2.1.4 for further explanation.	Export supported.
Curve Description	(50XX,0022)	3	User-defined comments about the Curve	*** Not Implemented ***
Axis Units	(50XX,0030)	3	Units of measure for the axes. See C.10.2.1.3 for Defined Terms.	*** Not Implemented ***
Axis Labels	(50XX,0040)	3	Text labels for each axis. One label for each axis.	*** Not Implemented ***
Minimum Coordinate Value	(50XX,0104)	3	The minimum value in the set of data. One value for each dimension.	*** Not Implemented ***
Maximum Coordinate Value	(50XX,0105)	3	The maximum value in the set of data. One value for each dimension.	*** Not Implemented ***

Curve Range	(50XX,0106)	3	A minimum-maximum pair for each dimension for defining the range of the curve representation, in the same units as Axis Units.	*** Not Implemented ***
Curve Data Descriptor	(50XX,0110)	1C	Specifies the format of the Curve Data. Required if any dimensions of the data are described by interval spacing. See C.10.2.1.5 for further explanation.	*** Not Implemented ***
Coordinate Start Value	(50XX,0112)	1C	The starting point of a one dimensional data list. Required if Curve Data Descriptor is used. One value for each dimension. The Value Representation is given in Data Value Representation (50xx,0103).	*** Not Implemented ***
Coordinate Step Value	(50XX,0114)	1C	The interval spacing between two successive points. Required if Curve Data Descriptor is used. One value for each dimension. The Value Representation is given in Data Value Representation (50xx,0103).	*** Not Implemented ***
Curve Label	(50XX,2500)	3	A user defined text string which may be used to label or name this curve.	Export supported.
Curve Referenced Overlay Sequence	(50XX,2600)	3	A Sequence which provides reference to a set of related overlays used to generate this curve.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Overlay Sequence (50xx,2600) is sent.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Overlay Sequence (50xx,2600) is sent.	*** Not Implemented ***
> Referenced Overlay Group	(50XX,2610)	1C	The Group number of the related overlay. Required if Referenced Overlay Sequence (50xx,2600) is sent.	*** Not Implemented ***

C.2.17 SOP Common – C.12.1

Attribute Name	Tag	T	Description	Handling
SOP Class UID	(0008,0016)	1	Uniquely identifies the SOP Class. See C.12.1.1.1 for further explanation. See also PS 3.4.	Export: Value is always 1.2.840.10008.5.1.4.1.1.481.1.
SOP Instance UID	(0008,0018)	1	Uniquely identifies the SOP Instance. See C.12.1.1.1 for further explanation. See also PS 3.4.	Export supported.
Specific Character Set	(0008,0005)	1C	Character Set that expands or replaces the Basic Graphic Set. Required if an expanded or replacement character set is used. See C.12.1.1.2 for Defined Terms.	*** Not Implemented ***
Instance Creation Date	(0008,0012)	3	Date the SOP Instance was created.	*** Not Implemented ***
Instance Creation Time	(0008,0013)	3	Time the SOP Instance was created.	*** Not Implemented ***
Instance Creator UID	(0008,0014)	3	Uniquely identifies device which created the SOP Instance.	*** Not Implemented ***
Related General SOP Class UID	(0008,001A)	3	Uniquely identifies a Related General SOP Class for the SOP Class of this Instance. See PS 3.4.	*** Not Implemented ***
Original Specialized SOP Class UID	(0008,001B)	3	The SOP Class in which the Instance was originally encoded, but which has been replaced during a fall-back conversion to the current Related General SOP Class. See PS 3.4.	*** Not Implemented ***
Coding Scheme Identification Sequence	(0008,0110)	3	Sequence of items that map values of Coding Scheme Designator (0008,0102) to an external coding system registration, or to a private or local coding scheme. One or more items may be present in the sequence.	*** Not Implemented ***
> Coding Scheme Designator	(0008,0102)	1	The value of a Coding Scheme Designator, used in this SOP Instance, which is being mapped.	*** Not Implemented ***

> Coding Scheme Registry	(0008,0112)	1C	The name of the external registry where further definition of the identified coding scheme may be obtained. Required if coding scheme is registered. Defined term: HL7	*** Not Implemented ***
> Coding Scheme UID	(0008,010C)	1C	The coding scheme UID identifier. Required if coding scheme is identified by an ISO 8824 object identifier compatible with the UI VR.	*** Not Implemented ***
> Coding Scheme External ID	(0008,0114)	2C	The coding scheme identifier as defined in an external registry. Required if coding scheme is registered and Coding Scheme UID (0008,010C) is not present.	*** Not Implemented ***
> Coding Scheme Name	(0008,0115)	3	The coding scheme full common name	*** Not Implemented ***
> Coding Scheme Version	(0008,0103)	3	The coding scheme version associated with the Coding Scheme Designator (0008,0102).	*** Not Implemented ***
> Coding Scheme Responsible Organization	(0008,0116)	3	Name of the organization responsible for the Coding Scheme. May include organizational contact information.	*** Not Implemented ***

<p>Timezone Offset From UTC</p>	<p>(0008,0201)</p>	<p>3</p>	<p>Contains the offset from UTC to the timezone for all DA and TM Attributes present in this SOP Instance, and for all DT Attributes present in this SOP Instance that do not contain an explicitly encoded timezone offset.</p> <p>Encoded as an ASCII string in the format “&ZZXX”. The components of this string, from left to right, are & = “+” or “-”, and ZZ = Hours and XX = Minutes of offset. Leading space characters shall not be present.</p> <p>The offset for UTC shall be +0000; -0000 shall not be used. Notes: 1. This encoding is the same as described in PS 3.5 for the offset component of the DT Value Representation. 2. This Attribute does not apply to values with a DT Value Representation, that contains an explicitly encoded timezone offset. 3. The corrected time may cross a 24 hour boundary. For example, if Local Time = 1.00 a.m. and Offset = +0200, then UTC = 11.00 p.m. (23.00) the day before. 4. The “+” sign may not be omitted.</p> <p>Time earlier than UTC is expressed as a negative offset. Note: For example: UTC = 5.00 a.m. Local Time = 3.00 a.m. Offset = -0200</p> <p>The local timezone offset is undefined if this Attribute is absent.</p>	<p>*** Not Implemented ***</p>
<p>Contributing Equipment Sequence</p>	<p>(0018,A001)</p>	<p>3</p>	<p>Sequence of Items containing descriptive attributes of related equipment which has contributed to the acquisition, creation or modification of the composite instance. One or more Items may be included in this Sequence. See C.12.1.1.5 for further explanation.</p>	<p>*** Not Implemented ***</p>

> Purpose of Reference Code Sequence	(0040,A170)	1	Describes the purpose for which the related equipment is being reference. Only a single Item shall be permitted in this sequence. See C.12.1.1.5 for further explanation.	*** Not Implemented ***
>> Code Value	(0008,0100)	1C	See Section 8.1. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Designator	(0008,0102)	1C	See Section 8.2. Required if a sequence item is present.	*** Not Implemented ***
>> Coding Scheme Version	(0008,0103)	1C	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	*** Not Implemented ***
>> Code Meaning	(0008,0104)	1C	See Section 8.3. Required if a sequence item is present.	*** Not Implemented ***
> Manufacturer	(0008,0070)	1	Manufacturer of the equipment that contributed to the composite instance.	*** Not Implemented ***
> Institution Name	(0008,0080)	3	Institution where the equipment that contributed to the composite instance is located.	*** Not Implemented ***
> Institution Address	(0008,0081)	3	Address of the institution where the equipment that contributed to the composite instance is located.	*** Not Implemented ***
> Station Name	(0008,1010)	3	User defined name identifying the machine that contributed to the composite instance.	*** Not Implemented ***
> Institutional Department Name	(0008,1040)	3	Department in the institution where the equipment that contributed to the composite instance is located.	*** Not Implemented ***
> Operators' Name	(0008,1070)	3	Name(s) of the operator(s) of the contributing equipment.	*** Not Implemented ***
> Operator Identification Sequence	(0008,1072)	3	Identification of the operator(s) of the contributing equipment. One or more items shall be included in this sequence. The number and order of Items shall correspond to the the number and order of values of Operators' Name (0008,1070), if present.	*** Not Implemented ***

> Manufacturer's Model Name	(0008,1090)	3	Manufacturer's model name of the equipment that contributed to the composite instance.	*** Not Implemented ***
> Device Serial Number	(0018,1000)	3	Manufacturer's serial number of the equipment that contributed to the composite instance.	*** Not Implemented ***
> Software Versions	(0018,1020)	3	Manufacturer's designation of the software version of the equipment that contributed to the composite instance.	*** Not Implemented ***
> Spatial Resolution	(0018,1050)	3	The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the series, the value at the image center.	*** Not Implemented ***
> Date of Last Calibration	(0018,1200)	3	Date when the image acquisition device calibration was last changed in any way. Multiple entries may be used for additional calibrations at other times. See C.7.5.1.1.1 for further explanation.	*** Not Implemented ***
> Time of Last Calibration	(0018,1201)	3	Time when the image acquisition device calibration was last changed in any way. Multiple entries may be used. See C.7.5.1.1.1 for further explanation.	*** Not Implemented ***
> Contribution DateTime	(0018,A002)	3	The Date & Time when the equipment contributed to the composite instance.	*** Not Implemented ***
> Contribution Description	(0018,A003)	3	Description of the contribution the equipment made to the composite instance.	*** Not Implemented ***
Instance Number	(0020,0013)	3	A number that identifies this Composite object instance.	*** Not Implemented ***

SOP Instance Status	(0100,0410)	3	<p>A flag that indicates the storage status of the SOP Instance. Not Specified (NS) implies that this SOP Instance has no special storage status, and hence no special actions need be taken. Original (OR) implies that this is the primary SOP instance for the purpose of storage, but that it has not yet been authorized for diagnostic use. Authorized Original (AO) implies that this is the primary SOP instance for the purpose of storage, which has been authorized for diagnostic use. Any copies of an Authorized Original should be given the status of Authorized Copy. Authorized Copy (AC) implies that this is a copy of an Authorized Original SOP Instance.</p> <p>Enumerated Values: NS, OR, AO, AC</p> <p>Note: Proper use of these flags is specified in Security Profiles. Implementations that do not conform to such Security Profiles may not necessarily handle these flags properly.</p>	*** Not Implemented ***
SOP Authorization DateTime	(0100,0420)	3	The date and time when the SOP Instance Status (0100,0410) was set to AO.	*** Not Implemented ***
SOP Authorization Comment	(0100,0424)	3	Any comments associated with the setting of the SOP Instance Status (0100,0410) to AO.	*** Not Implemented ***
Authorization Equipment Certification Number	(0100,0426)	3	The certification number issued to the Application Entity that set the SOP Instance Status (0100,0410) to AO.	*** Not Implemented ***
Digital Signatures Sequence	(FFFA,FFFA)	3	Sequence holding one or more Digital Signatures.	*** Not Implemented ***
> MAC ID Number	(0400,0005)	1	A number used to identify which MAC Parameters Sequence item was used in the calculation of this Digital Signature.	*** Not Implemented ***
> Digital Signature UID	(0400,0100)	1	A UID that can be used to uniquely reference this signature.	*** Not Implemented ***

> Digital Signature DateTime	(0400,0105)	1	The date and time the Digital Signature was created. The time shall include an offset (i.e., time zone indication) from Coordinated Universal Time. Note: This is not a certified timestamp, and hence is not completely verifiable. An application can compare this date and time with those of other signatures and the validity date of the certificate to gain confidence in the veracity of this date and time.	*** Not Implemented ***
> Certificate Type	(0400,0110)	1	The type of certificate used in (0400,0115). Defined Term: X509_1993_SIG Note: Digital Signature Security Profiles (see PS 3.15) may require the use of a restricted subset of these terms.	*** Not Implemented ***
> Certificate of Signer	(0400,0115)	1	A certificate that holds the identity of the entity producing this Digital Signature, that entity's public key or key identifier, and the algorithm and associated parameters with which that public key is to be used. Algorithms allowed are specified in Digital Signature Security Profiles (see PS 3.15). Notes: 1. As technology advances, additional encryption algorithms may be allowed in future versions. Implementations should take this possibility into account. 2. When symmetric encryption is used, the certificate merely identifies which key was used by which entity, but not the actual key itself. Some other means (e.g., a trusted third party) must be used to obtain the key.	*** Not Implemented ***
> Signature	(0400,0120)	1	The MAC generated as described in Section 12.2.1.1 and encrypted using the algorithm, parameters, and private key associated with the Certificate of the Signer (0400,0115). See Section C.12.1.1.3.1.2.	*** Not Implemented ***
> Certified Timestamp Type	(0400,0305)	1C	The type of certified timestamp used in the Certified Timestamp (0400,0310) Attribute. Required if Certified Timestamp (0400,0310) is present. Defined Terms: CMS_TSP û Internet X.509 Public Key Infrastructure Time Stamp Protocol Note: Digital Signature Security Profiles (see PS 3.15) may require the use of a restricted subset of these terms.	*** Not Implemented ***

> Certified Timestamp	(0400,0310)	3	A certified timestamp of the Digital Signature (0400,0120) Attribute Value, which shall be obtained when the Digital Signature is created. See Section C.12.1.1.3.1.3.	*** Not Implemented ***
Encrypted Attributes Sequence	(0400,0500)	1C	Sequence of Items containing encrypted DICOM data. One or more Items shall be present. Required if application level confidentiality is needed and certain recipients are allowed to decrypt all or portions of the Encrypted Attributes Data Set. See C.12.1.1.4.1.	*** Not Implemented ***
> Encrypted Content Transfer Syntax UID	(0400,0510)	1	Transfer Syntax used to encode the encrypted content. Only Transfer Syntaxes that explicitly include the VR and use Little Endian encoding shall be used.	*** Not Implemented ***
> Encrypted Content	(0400,0520)	1	Encrypted data. See C.12.1.1.4.2.	*** Not Implemented ***
Original Attributes Sequence	(0400,0561)	3	Sequence of Items containing all attributes that were removed or replaced by other values in the main dataset. One or more Items may be permitted in this sequence.	*** Not Implemented ***
> Source of Previous Values	(0400,0564)	2	The source that provided the SOP Instance prior to the removal or replacement of the values. For example, this might be the Institution from which imported SOP Instances were received.	*** Not Implemented ***
> Attribute Modification DateTime	(0400,0562)	1	Date and time the attributes were removed and/or replaced.	*** Not Implemented ***
> Modifying System	(0400,0563)	1	Identification of the system which removed and/or replaced the attributes.	*** Not Implemented ***
> Reason for the Attribute Modification	(0400,0565)	1	Reason for the attribute modification. Defined terms are: COERCE = Replace values of attributes such as Patient Name, ID, Accession Number, for example, during import of media from an external institution, or reconciliation against a master patient index. CORRECT = Replace incorrect values, such as Patient Name or ID, for example, when incorrect worklist item was chosen or operator input error.	*** Not Implemented ***

> Modified Attributes Sequence	(0400,0550)	1	Sequence containing a single item that contains all the Attributes, with their previous values, that were modified or removed from the main data set.	*** Not Implemented ***
HL7 Structured Document Reference Sequence	(0040,A390)	1C	Sequence of items defining mapping and/or access mechanism for HL7 Structured Documents referenced from the current SOP Instance. One or more Items may be included in this sequence. See C.12.1.1.6. Required if HL7 Structured Documents are referenced within the Instance.	*** Not Implemented ***
> Referenced SOP Class UID	(0008,1150)	1	Unique identifier for the class of HL7 Structured Document.	*** Not Implemented ***
> Referenced SOP Instance UID	(0008,1155)	1	Unique identifier for the HL7 Structured Document as used in DICOM instance references.	*** Not Implemented ***
> HL7 Instance Identifier	(0040,E001)	1	Instance Identifier of the referenced HL7 Structured Document, encoded as a UID (OID or UUID), concatenated with a caret ("^") and Extension value (if Extension is present in Instance Identifier).	*** Not Implemented ***
> Retrieve URI	(0040,E010)	3	Retrieval access path to HL7 Structured Document. Includes fully specified scheme, authority, path, and query in accordance with RFC 2396	*** Not Implemented ***

Appendix D Extended Interface

No Extended Interface is provided to the supported IODs.

(This page is intentionally left blank.)