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**Digital Imaging and Communications in Medicine (DICOM)**

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*Supplement 176: Second Generation Radiotherapy –  
Additional RT Treatment Modalities*

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16 **DICOM Standards Committee, Working Group 7, Radiation Therapy**

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90 **Foreword**

92 This Supplement specifies additional IODs necessary to support the new Second Generation Radiotherapy IODs and operations.

This document is an extension to the following parts of the published DICOM Standard:

94	PS 3.2	Conformance
	PS 3.3	Information Object Definitions
96	PS 3.4	Service Class Specifications
	PS 3.6	Data Dictionary
98	PS 3.16	Content Mapping Resource

**Scope and Field of Application**

100 **Introduction**

102 The scope of this supplement is the introduction of new RT Radiation IODs for non-C-Arm treatment devices. The C-Arm treatment devices and the general concepts for RT Radiation IODs are covered in Supplement 175.

104 The Supplement makes use of the real-world model and specifications defined in the DICOM Standard and Supplement 175. References, definitions, etc. not present in this supplement can be found in the DICOM Standard and Supplement 175. Such references can be identified recognizing the presence of '175' in their identifiers (e.g. CID SUP175003), except for attribute tags.

108

**Part 2 Addendum**

110 **Add new SOP Classes to PS3.2 Table A.1-2 UID Values:**

UID Value	UID Name	Category
1.2.840.10008.5.1.4.1.1.481.XN.5.1	Tomotherapeutic Radiation Storage	Transfer
1.2.840.10008.5.1.4.1.1.481.XN.5.4	Multiple Fixed Source Radiation Storage	Transfer
1.2.840.10008.5.1.4.1.1.481.XN.5.5	Robotic Radiation Storage	Transfer

112

**Part 3 Addendum**

114

116 **Add the following columns in PS3.3 Section A.1.4, Table A.1-4b COMPOSITE INFORMATION OBJECT MODULES OVERVIEW – RADIOTHERAPY**

IODs Modules	<u>Tomo Rad</u>	<u>Multi-Fixed Rad</u>	<u>Rob Rad</u>
Patient	<u>M</u>	<u>M</u>	<u>M</u>
Clinical Trial Subject	<u>U</u>	<u>U</u>	<u>U</u>
General Study	<u>M</u>	<u>M</u>	<u>M</u>
Patient Study	<u>U</u>	<u>U</u>	<u>U</u>
Clinical Trial Study	<u>U</u>	<u>U</u>	<u>U</u>
General Series	<u>M</u>	<u>M</u>	<u>M</u>
Clinical Trial Series	<u>U</u>	<u>U</u>	<u>U</u>
Enhanced RT Series	<u>M</u>	<u>M</u>	<u>M</u>
General Equipment	<u>M</u>	<u>M</u>	<u>M</u>
Enhanced General Equipment	<u>M</u>	<u>M</u>	<u>M</u>
Frame Of Reference	<u>M</u>	<u>M</u>	<u>M</u>
...			
Radiotherapy Common Instance	<u>M</u>	<u>M</u>	<u>M</u>
RT Delivery Device Common	<u>M</u>	<u>M</u>	<u>M</u>
RT Radiation Common	<u>M</u>	<u>M</u>	<u>M</u>
<b>Tomotherapeutic Delivery Device</b>	<u>M</u>		

<b>IODs Modules</b>	<b>Tomo Rad</b>	<b>Multi- Fixed Rad</b>	<b>Rob Rad</b>
<b>Tomotherapeutic Beam</b>	<b>M</b>		
<b>Multiple Fixed Source Delivery Device</b>		<b>M</b>	
<b>Fixed Orientation Collimator Group</b>		<b>M</b>	
<b>Multiple Fixed Source Beams</b>		<b>M</b>	
<b>Robotic Delivery Device</b>			<b>M</b>
<b>Robotic Path</b>			<b>M</b>
...			
Common Instance Reference Module	<b>M</b>	<b>M</b>	<b>M</b>
SOP Common	<b>M</b>	<b>M</b>	<b>M</b>

118

120

**A.86 RT SECOND GENERATION**

122 **A.86.1. RT Second Generation Objects**

**A.86.1.N3 Tomotherapeutic Radiation Information Object Definition**

124 **A.86.1.N3.1 Tomotherapeutic Radiation IOD Description**

126 The Tomotherapeutic Radiation IOD represents the information required to describe a radiotherapy treatment on a serial or helical tomotherapeutic delivery device.

**A.86.1.N3.2 Tomotherapeutic Radiation IOD Entity-Relationship Model**

128 See Figure A.86.1.1.1-1.

**A.86.1.N3.3 Tomotherapeutic Radiation IOD Module Table**

130

**Table A.86.1.N3-1  
TOMOTHERAPEUTIC RADIATION IOD MODULES**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
	Enhanced RT Series	C.36.3	M
Equipment	General Equipment	C.7.5.1	M
	Enhanced General Equipment	C.7.5.2	M
Frame of Reference	Frame of Reference	C.7.4.1	M
RT Radiation	General Reference	C.12.4	M
	RT Delivery Device Common	C.36.E1	M
	RT Radiation Common	C.36.E2	M
	Tomotherapeutic Delivery Device	C.36.F1	M
	Tomotherapeutic Beam	C.36.F2	M
	SOP Common	C.12.1	M
	Common Instance Reference	C.12.2	M
Radiotherapy Common Instance	C.36.4	M	

132

**A.86.1.N3.4 Tomotherapeutic Radiation IOD Constraints**

134 **A.86.1.N3.4.1 Modality Attribute**

The value of Modality (0008,0060) shall be RTRAD.

136 **If described by CID 30 the code (RT, DCM, "Radiation Therapy Device") shall be used.**

**Commented [CSH1]:** Check outcome in 175 again

**A.86.1.N3.4.2 RT Delivery Device Common Module**

138 The Equipment Frame of Reference UID (gggg,51A0) shall be 1.2.840.10008.1.4.RRR.1.

Code Sequence	CID
Radiation Dosimeter Unit Sequence (gggg,5113)	Defined CID SUP176006 "Tomotherapeutic Dosimeter Unit"

140 **A.86.1.N3.4.3 RT Radiation Common Module**  
 The value of RT Record Flag (gggg,5014) shall be NO.

142 The following code sequences shall have values from the identified CIDs:

Code Sequence	CID
RT Treatment Technique Code Sequence (3010,0080)	Defined CID 9512 "Tomotherapeutic Radiotherapy Procedure Techniques"
Treatment Machine Special Mode Sequence (gggg,9C97)	Defined CID SUP175003 "Radiotherapy Treatment Machine Modes"

144 **A.86.1.N3.4.4 Radiotherapy Common Instance Module**

Code Sequence	CID
Author Identification Sequence (3010,0019)	Defined CID for Organizational Role is CID SUP175015 "Radiotherapy Treatment Planning Person Roles"

146 **A.36.1.N4 Multiple Fixed Source Radiation Information Object Definition**

**A.36.1.N4.1 Multiple Fixed Source Radiation IOD Description**

148 The Multiple Fixed Source Radiation IOD represents the information required to describe a radiotherapy treatment on a multiple fixed source photon delivery device.

150 **A.36.1.N4.2 Multiple Fixed Source Radiation IOD Entity-Relationship Model**

See Figure A.VV.1.1.1-1.

152 **A.36.1.N4.3 Multiple Fixed Source Radiation IOD Module Table**

**Table A.36.1.N4-1  
 MULTIPLE FIXED SOURCE RADIATION IOD MODULES**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
	Enhanced RT Series	C.36.3	M
Equipment	General Equipment	C.7.5.1	M
	Enhanced General Equipment	C.7.5.2	M



Frame of Reference	Frame of Reference	C.7.4.1	M
RT Radiation	General Reference	C.12.4	M
	RT Delivery Device Common	C.36.E1	M
	RT Radiation Common	C.36.E2	M
	Multiple Fixed Source Delivery Device	C.36.H1	M
	Fixed Orientation Collimator Group	C.36.H2	M
	Multiple Fixed Source Beams	C.36.H3	M
	SOP Common	C.12.1	M
	Common Instance Reference	C.12.2	M
	Radiotherapy Common Instance	C.36.4	M

156 **A.36.1.N4.4 Multiple Fixed Source Radiation IOD Constraints**

**A.36.1.N4.4.1 Modality Attribute**

158 The value of Modality (0008,0060) shall be RTRAD.

**If described by CID 30 the code (RT, DCM, "Radiation Therapy Device") shall be used.**

160 **A.36.1.N4.4.2 RT Delivery Device Common Module**

The Equipment Frame of Reference UID (gggg,51A0) shall be 1.2.840.10008.1.4.RRR.3.

Code Sequence	CID
Radiation Dosimeter Unit Sequence (gggg,5113)	Defined CID SUP176010 "Teletherapy Decaying Source Dosimeter Unit"

162

**A.36.1.N4.4.2 RT Radiation Common Module**

164 The value of RT Record Flag (gggg,5014) shall be NO.

The following code sequences shall have values from the identified CIDs:

Code Sequence	CID
RT Treatment Technique Code Sequence (3010,0080)	Defined CID 9522 "Multi-Source Radiation Procedure Technique"

166

**A.86.1.N4.4.4 Radiotherapy Common Instance Module**

Code Sequence	CID
Author Identification Sequence (3010,0019)	Defined CID for Organizational Role is CID SUP175015 "Radiotherapy Treatment Planning Person Roles"

168

**A.36.1.N5 Robotic Radiation Information Object Definition**

170 **A.36.1.N5.1 Robotic Radiation IOD Description**

172 The Robotic Radiation IOD represents the information required to describe a radiotherapy treatment on a robotic delivery device, such as paths, nodes, and collimation type.

**A.36.1.N5.2 Robotic Radiation IOD Entity-Relationship Model**

174 See Figure A.VV.1.1.1-1.

**A.36.1.N5.3 Robotic Radiation IOD Module Table**

176

**Table A.36.1.N5-1  
ROBOTIC RADIATION IOD MODULES**

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
	Clinical Trial Subject	C.7.1.3	U
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
	Clinical Trial Study	C.7.2.3	U
Series	General Series	C.7.3.1	M
	Clinical Trial Series	C.7.3.2	U
	Enhanced RT Series	C.36.3	M
Equipment	General Equipment	C.7.5.1	M
	Enhanced General Equipment	C.7.5.2	M
Frame of Reference	Frame of Reference	C.7.4.1	M
RT Radiation	General Reference	C.12.4	M
	RT Delivery Device Common	C.36.E1	M
	RT Radiation Common	C.36.E2	M
	Robotic Delivery Device	C.36.J1	M
	Robotic Path	C.36.J2	M
	SOP Common	C.12.1	M
	Common Instance Reference	C.12.2	M
	Radiotherapy Common Instance	C.36.4	M

178

**A.36.1.N5.4 Robotic Radiation IOD Module Constraints**

**A.36.1.N5.4.1 Modality Attribute**

The value of Modality (0008,0060) shall be RTRAD.

182 **If described by CID 30 the code (RT, DCM, "Radiation Therapy Device") shall be used.**

**A.36.1.N5.4.2 RT Delivery Device Common Module**

184 The Equipment Frame of Reference UID (gggg,51A0) shall be 1.2.840.10008.1.4.RRR.4.

Code Sequence	CID
Radiation Dosimeter Unit Sequence (gggg,5113)	Defined CID SUP176008 "Robotic RT Therapy Dosimeter Unit"

Code Sequence	Code
---------------	------

RT Beam Distance Reference Location Code Sequence (gggg,5114)	(S175772, 99SUP175, Nominal Device Source Location)
---	---

186

**A.36.1.N5.4.3 RT Radiation Common Module**

188 The value of RT Record Flag (gggg,5014) shall be NO.

The following code sequences shall have values from the identified CIDs:

Code Sequence	CID
RT Treatment Technique Code Sequence (3010,0080)	Defined CID 9523 "Robotic Radiotherapy Procedure Techniques"
Treatment Machine Special Mode Sequence (gggg,9C97)	Defined CID SUP175003 "Radiotherapy Treatment Machine Modes"

190

**A.86.1.N5.4.4 Radiotherapy Common Instance Module**

Code Sequence	CID
Author Identification Sequence (3010,0019)	Defined CID for Organizational Role is CID SUP175015 "Radiotherapy Treatment Planning Person Roles"

192

194 **Add the following Sections to PS3.3 Annex C:**

**C.36 RT SECOND GENERATION MODULES**

196 **C.36.2 RT Second Generation Macros**

...

198 **C.36.2.N RT Second Generation Device Macros**

...

200 **C.36.2.N.18 Decaying Radiation Source Definition Common Macro**

202 The Decaying Radiation Source Definition Common Macro describes common parameters of  
 202 decaying radiation sources. It includes information about the isotope, manufacturer and source  
 202 strength.

204 **Table C.36.2.N.18-1  
 DECAYING RADIATION SOURCE DEFINITION COMMON MACRO ATTRIBUTES**

Attribute Name	Tag	Type	Description
Device Index	(3010,0039)	1	Index of the Device in this Sequence. The value shall start at 1 and increase monotonically by 1.
<i>Include Table 10.35-1 "Device Model Macro Attributes"</i>			
<i>Include Table 10.36-1 "Device Identification Macro Attributes"</i>			<i>Defined CID SUP SUP176004 "Decaying Radiation Source"</i>
Decaying Source Isotope Code Sequence	(gggg,51D2)	1	Isotope used as decaying source. Only a single Item shall be included in this Sequence.
<i>&gt;Include Table 8.8-1 "Code Sequence Macro Attributes"</i>			<i>CID is defined by invocation.</i>
Decaying Source Reference Datetime	(gggg,51D3)	1	Reference date and time for Decaying Source Dose Rate (gggg,51D6) of Isotope.
Decaying Source Dose Rate	(gggg,51D6)	1	Decaying Source Dose Rate of Isotope in Gy/sec at Decaying Source Reference Datetime (gggg,51D3).

206

**C.36.2.N.19 Teletherapy Decaying Radiation Source Definition Macro**

208 The Teletherapy Decaying Radiation Source Definition Macro describes instances of decaying  
 208 sources used for therapeutic radiation treatments. It includes common information about decaying  
 210 sources and related configuration and commissioning keys.

212 **Table C.36.2.N.19-1  
 TELETHERAPY DECAYING RADIATION SOURCE DEFINITION MACRO ATTRIBUTES**

Number of Decaying Radiation Source Definitions	(gggg,51D0)	1	Number of decaying radiation source definitions.
---	-------------	---	--

Decaying Radiation Source Definition Sequence	(gggg,51D1)	1	Sequence of decaying radiation source definitions. One or more Items shall be included in this Sequence. The number of Items included in this Sequence shall equal the value of Number of Decaying Radiation Source Definitions (gggg,51D0).
>Include Table C.36.2.N.18-1 "Decaying Radiation Source Definition Common Attributes"			Defined CID SUP176003 "Isotopes for Radiotherapy"
>Referenced Defined Device Index	(gggg,9119)	1C	Device Index value that links the device defined by this Sequence Item to the corresponding device in an RT Radiation Instance. The device description in this Sequence Item may or may not have changed. The value is the index of a device in the RT Beam Limiting Device Definition Sequence (gggg,504D) within the single SOP Instance referenced by Referenced RT Instance Sequence (gggg,9C05). Required if the Instance referenced in Referenced RT Instance Sequence (gggg,9C05) contains the device that corresponds to the device defined by this Sequence Item.
>Teletherapy Decaying Source Parameter Sequence	(gggg,51D5)	1	Parameters defining calibration parameters of a Teletherapy source. Only a single Item shall be included in this Sequence.
>>Radiation Device Configuration and Commissioning Key Sequence	(gggg,5115)	2	Keys identifying the configuration and commissioning data used as input for treatment planning of this Instance. Value Type (0040,A040) is constrained to value UIDREF. One or more Items shall be included in this Sequence.
>>>Include Table 10-2 "Content Item Macro Attributes"			No Baseline CID defined.

214 **Add the following to PS3.3 Annex C, Section C.36.E1 RT Delivery Device Common Module.**

**This Module is currently defined in Supplement 175.**

216 **C.36.E1 RT Delivery Device Common Module**

...

218 **C.36.E1.2 Well-known Frame of Reference for Equipment**

...

220 **C.36.E1.2.1 IEC 61217 Fixed Reference System Frame of Reference**

...

222 **C.36.E1.2.2 Multiple Fixed Source Coordinate System Frame of Reference**

224 **The Well-known Value of 1.2.840.10008.1.4.RRR.3 for Equipment Frame of Reference UID (gggg,51A0) identifies the Multiple Fixed Source Coordinate System Frame of Reference.**

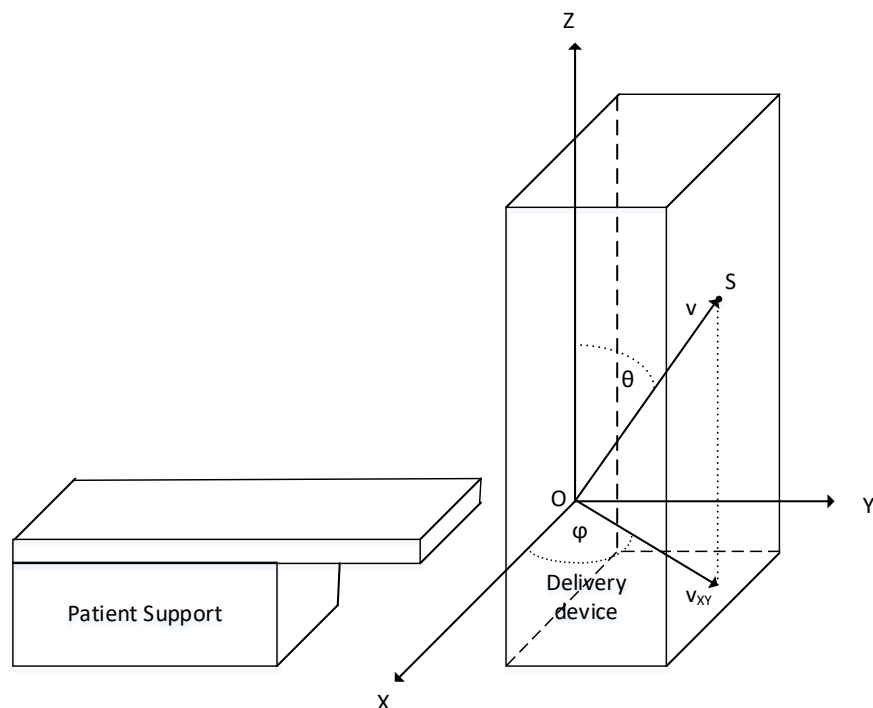
226 **The coordinate system axes are oriented as follows (when viewed from the patient support device pedestal to the front of the delivery device):**

- **the x-axis points is horizontal with respect gravity and points to the right**
- 228 • **the y-axis points towards the delivery device**
- **the z-axis is the cross-product of the x and y axes.**

230 **The origin of the coordinate system is the point where the beam lines of all fixed collimators intersect.**

232 **For each source,**

- 234 • **the Fixed Orientation Collimator Theta Angle (gggg,5133) is the angle from the z-axis to the vector (v) from the origin (O) to the source (S)**
- 236 • **the Fixed Orientation Collimator Phi Angle (gggg,5134) is the angle from the x-axis to the projection ( $v_{xy}$ ) of the vector (v) on the XY plane.**



238 **Figure C.36.E1.2-1**  
**Multiple Fixed Source Coordinate System**

240 **C.36.E1.2.3 Robotic Coordinate System Frame of Reference**

242 **The Well-known Value of 1.2.840.10008.1.4.RRR.4 for Equipment Frame of Reference UID (gggg,51A0) identifies the Robotic Coordinate System Frame of Reference. This coordinate system definition is only applicable when two X-Ray detectors are present at the same height and the X-ray beams intersect. The coordinate system is defined as follows:**

246 **The coordinate system axes are oriented as follows when viewed from the patient support device pedestal towards the delivery device:**

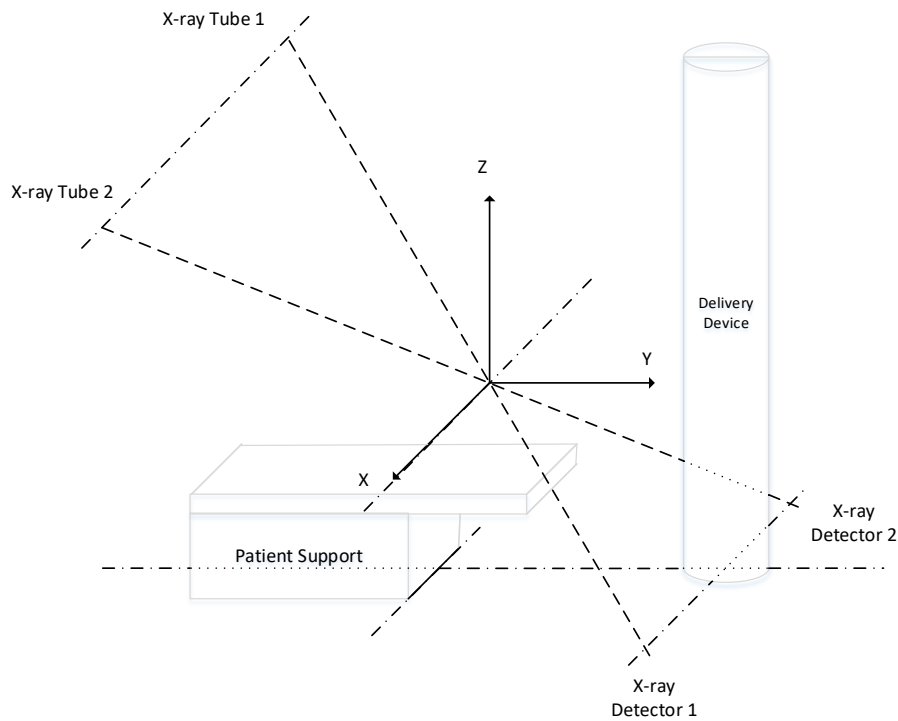
- 248 • **the x-axis is parallel to the line between the centers of the X-ray detectors and perpendicular to gravity pointing to the right.**
- **the z-axis points away from the direction of gravity.**
- 250 • **the y-axis is the cross-product of the z- and x-axis.**

252 **The origin of the coordinate system is the intersection of the central beams from each X-ray source to the center of the corresponding detector. The coordinate system definition is irrespective of location of the robot and the patient support system. See Figure C.36.E1.2-2 for details where the robot and the patient support system are only annotated.**

254

256 **The axes of the Base Beam Modifier Coordinate System coincide with the Robotic Coordinate**  
257 **System under the following conditions:**

- 258 • **The source position equals 0,0,0**
- **The pitch, roll and yaw angles equal 0,0,0**



260

262 **Figure C.36.E1.2-2**  
**Robotic Coordinate System**

264

**C.36.F1 Tomotherapeutic Delivery Device Module**

266 The Tomotherapeutic Delivery Device Module contains tomotherapy-specific information pertaining to  
267 the physical device used to deliver the treatment, including geometrical parameters of the collimation  
268 system. This information is constant for all beam deliveries in this Instance.

270

**Table C.36.F1-1**  
**TOMOTHERAPEUTIC DELIVERY DEVICE MODULE ATTRIBUTES**



Attribute Name	Tag	Type	Description
Radiation Source-Axis Distance	(gggg,5029)	1	Distance in mm from the Radiation Source to the gantry rotation axis.
<i>Include Table C.36.2.N.7-1 "Radiation Generation Mode Macro Attributes"</i>			<i>Defined CID for Radiation Type Code Sequence (gggg,51C4) is CID 9525 "Radiation Therapy Particle".</i> <i>Defined CID for Energy Unit Code Sequence (gggg,51C9) is CID 9521 "Radiotherapy Treatment Energy Unit".</i> <i>Defined CID for Radiation Fluence Modifier Code Sequence (gggg,51C8) is CID SUP175009 "Radiation Generation Mode Type".</i>
<i>Include Table C.36.2.N.8-1 "RT Beam Limiting Devices Definition Macro Attributes"</i>			<i>Defined CID for included 'RT Accessory Device Identification Macro' is CID SUP175001 "Beam Limiting Device Types".</i>

272

**C.36.F2 Tomotherapeutic Beam Module**

274 The Tomotherapeutic Beam Module specifies how a tomotherapeutic treatment is to be delivered.

276

**Table C.8A.F2-1  
TOMOTHERAPEUTIC BEAM MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Description
Nominal Couch Speed	(gggg,1007)	1	Nominal couch speed in mm/sec.
Nominal Gantry Rotation Period	(gggg,1008)	1C	Nominal period in seconds of one rotation of the gantry. Required if RT Treatment Technique Code Sequence (3010,0080) is (130108, DCM, "Helical Beam"). May be present otherwise.
Nominal Pitch Factor	(gggg,1009)	1C	Nominal Pitch factor describing the treatment position motion defined by Nominal Couch Speed (gggg,1007) relative to the maximum collimator opening and the Nominal Gantry Rotation Period (gggg,1008). Required if Code Value in Radiotherapy Procedure Technique Code Sequence (gggg,0C99) is (130108, DCM, "Helical Beam"). May be present otherwise.

Attribute Name	Tag	Type	Description
Number of RT Control Points	(gggg,9122)	1	Number of RT Control Points in the Tomotherapeutic Control Point Sequence (gggg,1010). The value shall be equal to or greater than 2.
Tomotherapeutic Control Point Sequence	(gggg,1010)	1	Control Points used to model the beam delivery. The number of Items included in this Sequence shall equal the value of Number of RT Control Points (gggg,9122).
>Include Table C.36.2.N.6-1 "External Beam Control Point General Macro Attributes"			Defined CID SUP176007 "Tomotherapeutic Dose Rate Unit"
>Include Table C.36.2.N.9-1 "RT Beam Limiting Device Opening Macro Attributes"			
>Referenced Radiation Generation Mode Index	(gggg,9124)	1C	Radiation Generation Mode Index (gggg,9113) in the Radiation Generation Mode Sequence (gggg,51C0) in this IOD. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
>Source Roll Continuous Angle	(gggg,51B5)	1C	Continuous gantry roll angle in degrees of the Radiation Source at the Control Point with respect to the Equipment Coordinate System. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied. See C.36.G2.1.1, C.36.1.N8 and C.36.E1.1.1.
>Tomotherapeutic Leaf Open Fractions	(gggg,1030)	1C	Fraction of time for each leaf between the current Control Point and the next Control Point during which the leaf is open. N values shall be provided in the order of Parallel RT Beam Delimiter Element Position Boundaries (gggg,5049) where N is the number of Parallel RT Beam Delimiters (gggg,5048). Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.

Attribute Name	Tag	Type	Description
>Tomotherapeutic Leaf Initial Closed Fractions	(gggg,1031)	1C	Fraction of time for each leaf between the current Control Point and the next Control Point during which the leaf is closed before opening, starting at the current Control Point. N values shall be provided in the order of Parallel RT Beam Delimiter Element Position Boundaries (gggg,5049) where N is the number of Parallel RT Beam Delimiters (gggg,5048).  Required if one or more leaf open times are not symmetrical about the mid-point of the Control Point interval and  if the conditions in Section C.36.2.N.5.1.1 are satisfied.  May be present otherwise.

278 **C.36.H1 Multiple Fixed Source Delivery Device Module**

280 The Multiple Fixed Source Delivery Device Module describes the sources in a device with multiple fixed sources including geometrical parameters of the collimation system. This information is constant for all beam deliveries in this Instance.

282

**Table C.36.H1-1  
MULTIPLE FIXED SOURCE DELIVERY DEVICE MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Description
Fixed Orientation Collimator Sequence	(gggg,5130)	1	The fixed orientation collimators of the device that are used in this Radiation.  One or more Items shall be included in this Sequence.
>Fixed Orientation Collimator Index	(gggg,5135)	1	The Index of this Item in this Sequence.
>Radiation Source Origin Distance	(gggg,5132)	1	Radiation Source to origin distance in mm.
>Include Table C.36.2.N.8-1 "RT Beam Limiting Devices Definition Macro Attributes"			Defined CID SUP175005 "Fixed Beam Limiting Device Types"
>Fixed Orientation Collimator Theta Angle	(gggg,5133)	1	The theta angle in degrees is the angle from the z-axis to the vector from the origin to the source.  See C.36.E1.2.2.
>Fixed Orientation Collimator Phi Angle	(gggg,5134)	1	The phi angle in degrees is the angle from the x-axis to the projection of the vector on the XY plane.  See C.36.E1.2.2.

Attribute Name	Tag	Type	Description
>Referenced Device Index	(gggg,9142)	1	The value of the Device Index (3010,0039) in the Decaying Radiation Source Definition Sequence (gggg,51D1) identifying the source to be used by this fixed orientation collimator.
<i>Include Table C.36.2.N.19-1 "Teletherapy Decaying Radiation Source Definition Macro Attributes"</i>			<i>Defined CID 9527 "Teletherapy Isotope"</i>

284

**C.36.H2 Fixed Orientation Collimator Group Module**

286 The fixed orientation collimators grouped within this Module represent fixed orientation collimators  
 288 that are used together during treatment delivery. All the collimators may be in a single holder (often referred to as a "helmet") or may be in a set of holders each containing a subset of the collimators.

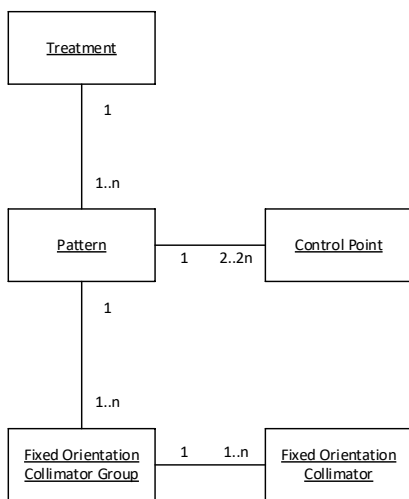
**Table C.36.H2-1  
 FIXED ORIENTATION COLLIMATOR GROUP MODULE ATTRIBUTES**

290

Attribute Name	Tag	Type	Description
Fixed Orientation Collimator Group Sequence	(gggg,5131)	1	Groups of fixed orientation collimators. One or more Items shall be included in this Sequence.
>Fixed Orientation Collimator Group Index	(gggg,5139)	1	Index of the fixed orientation collimator group in this Sequence. The value shall start at 1 and increase monotonically by 1.
<i>&gt;Include Table C.36.2.N.3-1 "RT Accessory Device Identification Macro Attributes"</i>			<i>Defined CID SUP176002 "Multiple Fixed Source Collimator Holders"</i>
>Fixed Orientation Collimator References Sequence	(gggg,513F)	1	Fixed orientation collimators that are contained in this group. One or more Items shall be included in this Sequence. See C.36.H3-1.
>>Referenced Fixed Orientation Collimator Index	(gggg,513A)	1	The value of Fixed Orientation Collimator Index (gggg,5135) from the Fixed Orientation Collimator Sequence (gggg,5130) identifying the fixed orientation collimator. Each fixed orientation collimator shall only be referenced once in the Fixed Orientation Collimator Group Sequence (gggg,5131).

**C.36.H3 Multiple Fixed Source Beams Module**

292 The Multiple Fixed Source Beams Module specifies how multiple fixed source treatment beams are to  
 294 be delivered. A pattern is a collection of fixed orientation collimators that are simultaneously used for  
 296 radiation delivery. A treatment may be specified by a sequence of one or more patterns. In this context, a pair of Control Points may be referred to as a "shot".



298

**Figure C.36.H3-1**  
**Model of a Multiple Fixed Source Beams Treatment**

300

**Table C.36.H3-1**  
**MULTIPLE FIXED SOURCE BEAMS MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Description
Number of Fixed Orientation Collimator Patterns	(gggg,513B)	1	Number of Fixed Orientation Collimator Patterns in the Fixed Orientation Collimator Pattern Sequence (gggg,513C).
Fixed Orientation Collimator Pattern Sequence	(gggg,513C)	1	Fixed orientation collimator patterns. The number of Items included in this Sequence shall be equal to the value of Number of Fixed Orientation Collimator Patterns (gggg,513B).
>Fixed Orientation Collimator Pattern Index	(gggg,5136)	1	Index of the fixed orientation collimator pattern in this Sequence. The value shall start at 1 and increase monotonically by 1.
>Fixed Orientation Collimator Pattern Label	(gggg,513D)	1	Identification label for the fixed orientation collimator pattern. The label shall be unique within this Sequence.

Attribute Name	Tag	Type	Description
>Fixed Orientation Collimator Group References Sequence	(gggg,5138)	1	The fixed orientation collimator groups used in this fixed orientation collimator pattern. One or more Items shall be included in this Sequence.
>>Referenced Fixed Orientation Collimator Group Index	(gggg,5140)	1	The value of Fixed Orientation Collimator Group Index (gggg,5139) from the Fixed Orientation Collimator Group Sequence (gggg,5131) identifying a fixed orientation collimator group used.
Number of RT Control Points	(gggg,9122)	1	Number of RT Control Points in the Multiple Fixed Source Control Point Sequence (gggg,5137). The value shall be even and equal to or greater than 2.
Multiple Fixed Source Control Point Sequence	(gggg,5137)	1	Control Points used to model the radiation delivery. The number of Items included in this Sequence shall equal the value of Number of RT Control Points (gggg,9122).
<i>&gt;Include Table C.36.2.N.5-1 "RT Control Point General Macro Attributes"</i>			
>Referenced Fixed Orientation Collimator Pattern Index	(gggg,513E)	1C	The value of Fixed Orientation Collimator Pattern Index (gggg,5136) from the Fixed Orientation Collimator Pattern Sequence (gggg,513C) identifying patterns of fixed orientation collimators. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.

302

**C.36.J1 Robotic Delivery Device Module**

304 The Robotic Delivery Device Module contains robot-specific information pertaining to the physical  
306 device used to deliver the treatment, including geometric parameters of the collimation system. This  
information is constant for all beam deliveries in this Instance.

308

**Table C.36.J1-1  
ROBOTIC DELIVERY DEVICE MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Description
Robotic Base Location Indicator	(gggg,9F03)	1	<p>Informative manufacturer-specific description of the location of the base of the robot. The value is independent of the Equipment Coordinate System.</p> <p>Defined Terms:</p> <p>FLOOR_LEFT – Looking from the foot of the table towards the robot, the robot is floor-mounted to the viewer's left</p> <p>FLOOR_RIGHT – Looking from the foot of the table towards the robot, the robot is floor-mounted to the viewer's right</p> <p>FLOOR_CENTER - Looking from the foot of the table towards the robot, the robot is floor-mounted straight ahead</p>
<p><i>Include Table C.36.2.N.7-1 "Radiation Generation Mode Macro Attributes"</i></p>			<p><i>Defined CID for Radiation Type Code Sequence (gggg,51C4) is CID 9525 "Radiation Therapy Particle".</i></p> <p><i>Defined CID for Energy Unit Code Sequence (gggg,51C9) is CID 9521 "Radiotherapy Treatment Energy Unit".</i></p> <p><i>Defined CID for Radiation Fluence Modifier Code Sequence (gggg,51C8) is CID SUP175009 "Radiation Generation Mode Type".</i></p>
<p><i>Include Table C.36.2.N.8-1 "RT Beam Limiting Devices Definition Macro Attributes"</i></p>			<p><i>Defined CID for included 'RT Accessory Device Identification Macro' is CID SUP175001 "Beam Limiting Device Types".</i></p>
<p><i>Include Table C.36.2.N.14-1 "RT Accessory Holders Definition Macro Attributes"</i></p>			

310 **C.36.J2 Robotic Path Module**

312 The Robotic Path Module specifies how a robotic path is to be delivered. Each SOP Instance corresponds to a single robotic path. Multiple paths are encoded as separate RT Radiation instances defined by reference in the RT Radiation Set IOD.

314 **Table C.36.J2-1  
ROBOTIC PATH MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Description
Robotic Path Identifier Code Sequence	(gggg,9F15)	1C	Identifier of the robotic template path from which the nodes referenced in the Robotic Path Control Point Sequence (gggg,9F50) were selected.  Only a single Item shall be included in this Sequence.  Required if RT Recording Flag (gggg,5014) is NO. May be present otherwise.
>Include Table 8.8-1 "Code Sequence Macro Attributes"			Defined CID SUP176001 "Radiotherapy Robotic Paths"
Number of RT Control Points	(gggg,9122)	1	Number of RT Control Points in the Robotic Path Control Point Sequence (gggg,9F50).  The value shall be equal to or greater than 2.
Robotic Path Control Point Sequence	(gggg,9F50)	1	Control Points used to specify the path along which the beam is delivered.  The number of Items included in this Sequence shall equal the value of Number of RT Control Points (gggg,9122).
>Include Table C.36.2.N.6-1 "External Beam Control Point General Macro Attributes"			Defined CID SUP176009 "Robotic RT Therapy Dose Rate Unit"
>Referenced Radiation Generation Mode Index	(gggg,9124)	1C	Radiation Generation Mode Index (gggg,9113) in the Radiation Generation Mode Sequence (gggg,51C0) in this IOD.  Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
>Robotic Node Number	(gggg,9F33)	1C	An identifier of the individual node (point in space) along the path.  See Note 1.  Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
>RT Treatment Source Coordinates	(gggg,9F40)	1C	Coordinates (x,y,z) in mm of the source of the beam with respect to the Equipment Coordinate System.  These coordinates also represent the origin of the Base Beam Modifier Coordinate System.  Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.



Attribute Name	Tag	Type	Description
>Robot Head Yaw Angle	(gggg,9F46)	1C	The rotation in degrees of the Base Beam Modifier Coordinate System about its z-axis. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
>Robot Head Roll Angle	(gggg,9F47)	1C	The rotation in degrees of the Base Beam Modifier Coordinate System about its y-axis after the Robot Head Yaw Angle (gggg,9F46) is applied. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
>Robot Head Pitch Angle	(gggg,9F48)	1C	The rotation in degrees of the Base Beam Modifier Coordinate System about its x-axis after the Robot Head Roll Angle (gggg,9F47) is applied. Required if the conditions in Section C.36.2.N.5.1.1 are satisfied.
<i>&gt;Include Table C.36.2.N.9-1 "RT Beam Limiting Device Opening Macro Attributes"</i>			

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Note 1: The values of Robotic Node Number (gggg,9F33) within the Robotic Path Control Point Sequence (gggg,9F50) may reference node positions being pre-defined in the device configuration. This Attribute is distinct from the RT Control Point Index (gggg,9111), which simply indexes items within the Robotic Path Control Point Sequence (gggg,9F50).

322

**Part 4 Addendum**

<b>Add the following to PS3.4, Appendix B.5, Table B.5-1</b>
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324

<b>SOP Class Name</b>	<b>SOP Class UID</b>	<b>IOD Spec (defined in PS 3.3)</b>
<b><u>Tomotherapeutic Radiation Storage</u></b>	<b><u>1.2.840.10008.5.1.4.1.1.481.XN.5.1</u></b>	<b><u>Tomotherapeutic Radiation IOD</u></b>
<b><u>Multiple Fixed Source Radiation Storage</u></b>	<b><u>1.2.840.10008.5.1.4.1.1.481.XN.5.4</u></b>	<b><u>Multiple Fixed Source Radiation IOD</u></b>
<b><u>Robotic Radiation Storage</u></b>	<b><u>1.2.840.10008.5.1.4.1.1.481.XN.5.5</u></b>	<b><u>Robotic Radiation IOD</u></b>

326

**Part 6 Addendum**328 **Add the following data elements to PS3.6:****6 REGISTRY OF DICOM DATA ELEMENTS**

(gggg,9F03)	Robotic Base Location Indicator	RoboticBaseLocationIndicator	CS	1
(gggg,9F15)	Robotic Path Identifier Code Sequence	RoboticPathIdentifierCodeSequence	SQ	1
(gggg,9F33)	Robotic Node Number	RoboticNodeSequenceNumber	UL	1
(gggg,9F40)	RT Treatment Source Coordinates	RTTreatmentSourceCoordinates	FD	3
(gggg,9F44)	RT Treatment Target Coordinates	RTTreatmentTargetCoordinates	FD	3
(gggg,9F46)	Robot Head Yaw Angle	RobotHeadYawAngle	FD	1
(gggg,9F47)	Robot Head Roll Angle	RobotHeadPitchAngle	FD	1
(gggg,9F48)	Robot Head Pitch Angle	RobotHeadRollAngle	FD	1
(gggg,9F50)	Robotic Path Control Point Sequence	RoboticPathControlPointSequence	SQ	1
(gggg,1007)	Nominal Couch Speed	NominalCouchSpeed	FD	1
(gggg,1008)	Nominal Gantry Rotation Period	NominalGantryRotationPeriod	FD	1
(gggg,1009)	Nominal Pitch Factor	NominalPitchFactor	FD	1
(gggg,1010)	Tomotherapeutic Control Point Sequence	TomotherapeuticControlPointSequence	SQ	1
(gggg,1030)	Tomotherapeutic Leaf Open Fractions	TomotherapeuticLeafOpenFractions	FL	1-n
(gggg,1031)	Tomotherapeutic Leaf Initial Closed Fractions	TomotherapeuticLeafInitialClosedFractions	FL	1-n
(gggg,5130)	Fixed Orientation Collimator Sequence	FixedOrientationCollimatorSequence	SQ	1
(gggg,5131)	Fixed Orientation Collimator Group Sequence	FixedOrientationCollimatorGroupSequence	SQ	1
(gggg,5132)	Radiation Source Isocenter Distance	RadiationSourceIsocenterDistance	FD	1
(gggg,5133)	Fixed Orientation Collimator Theta Angle	FixedOrientationCollimatorThetaAngle	FD	1
(gggg,5134)	Fixed Orientation Collimator Phi Angle	FixedOrientationCollimatorPhiAngle	FD	1
(gggg,5135)	Fixed Orientation Collimator Index	FixedOrientationCollimatorIndex	US	1
(gggg,5136)	Fixed Orientation Collimator Pattern Index	FixedOrientationCollimatorPatternIndex	US	1

(gggg,5137)	Multiple Fixed Source Control Point Sequence	MultipleFixedSourceControlPointSequence	SQ	1
(gggg,5138)	Fixed Orientation Collimator Group References Sequence	FixedOrientationCollimatorGroupReferencesSequence	SQ	1
(gggg,5139)	Fixed Orientation Collimator Group Index	FixedOrientationCollimatorGroupIndex	US	1
(gggg,513A)	Referenced Fixed Orientation Collimator Index	ReferencedFixedOrientationCollimatorIndex	US	1
(gggg,513B)	Number of Fixed Orientation Collimator Patterns	NumberOfFixedOrientationCollimatorPatterns	US	1
(gggg,513C)	Fixed Orientation Collimator Pattern Sequence	FixedOrientationCollimatorPatternSequence	SQ	1
(gggg,513D)	Fixed Orientation Collimator Group Label	FixedOrientationCollimatorGroupLabel	LO	1
(gggg,513E)	Referenced Fixed Orientation Collimator Pattern Index	ReferencedFixedOrientationCollimatorPatternIndex	US	1
(gggg,513F)	Fixed Orientation Collimator References Sequence	FixedOrientationCollimatorReferencesSequence	SQ	1
(gggg,5140)	Referenced Fixed Orientation Collimator Group Index	ReferencedFixedOrientationCollimatorGroupIndex	US	1
(gggg,5143)	Fixed Orientation Collimator Groups Used Flag	FixedOrientationCollimatorGroupsUsedFlag	CS	1
(gggg,51D0)	Number of Decaying Radiation Source Definitions	NumberOfDecayingRadiationSourceDefinitions	US	1
(gggg,51D1)	Decaying Radiation Source Definition Sequence	DecayingRadiationSourceDefinitionSequence	SQ	1
(gggg,51D2)	Decaying Source Isotope Code Sequence	DecayingSourceIsotopeCodeSequence	SQ	1
(gggg,51D3)	Decaying Source Reference Datetime	DecayingSourceReferenceDatetime	DT	1
(gggg,51D5)	Teletherapy Decaying Source Parameter Sequence	TeletherapyDecayingSourceParameterSequence	SQ	1
(gggg,51D6)	Decaying Source Dose Rate	DecayingSourceDoseRate	FD	1

332 Add the following to PS3.6 Annex A

**ANNEX A REGISTRY OF DICOM UNIQUE IDENTIFIERS (UID) (NORMATIVE)**

334 **Table A-1 UID Values**

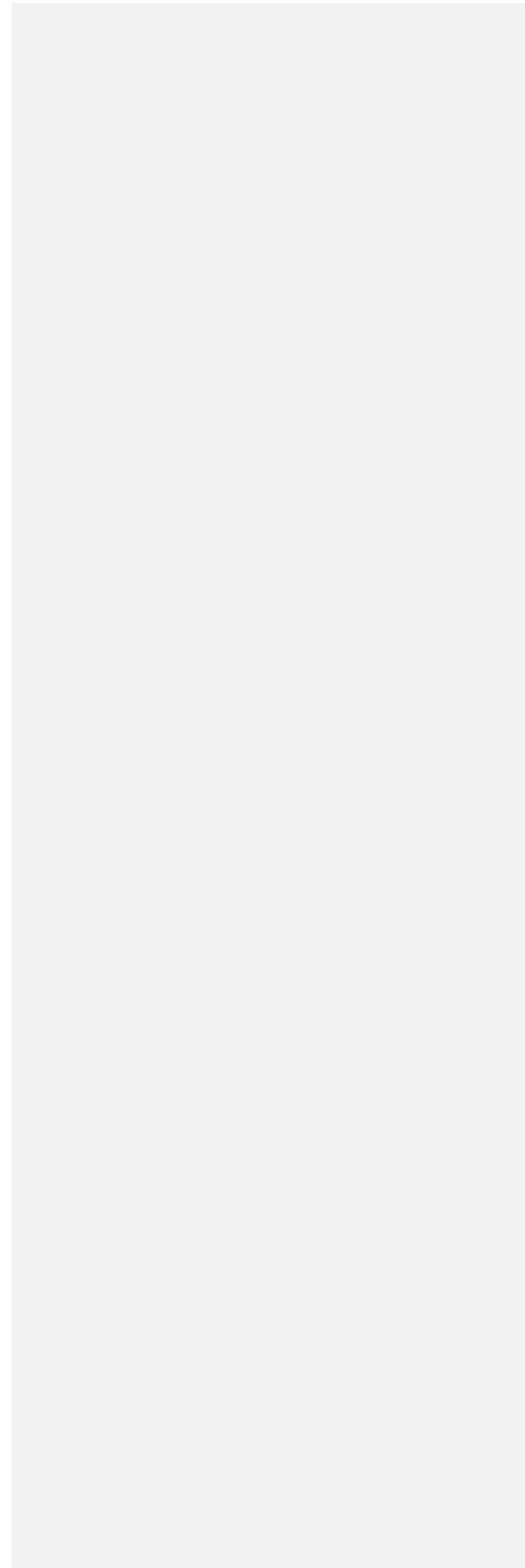
UID Value	UID NAME	UID TYPE	Part
<u>1.2.840.10008.5.1.4.1.1.481.XN.5.1</u>	<u>Tomotherapeutic Radiation Storage</u>	<u>SOP Class</u>	<u>PS3.4</u>
<u>1.2.840.10008.5.1.4.1.1.481.XN.5.4</u>	<u>Multiple Fixed Source Radiation Storage</u>	<u>SOP Class</u>	<u>PS3.4</u>
<u>1.2.840.10008.5.1.4.1.1.481.XN.5.5</u>	<u>Robotic Radiation Storage</u>	<u>SOP Class</u>	<u>PS3.4</u>
<u>1.2.840.10008.1.4.RRR.3</u>	<u>Multiple Fixed Source Coordinate System Frame of Reference</u>	<u>Well-known Frame of Reference</u>	<u>PS3.3</u>
<u>1.2.840.10008.1.4.RRR.4</u>	<u>Robotic Coordinate System Frame of Reference</u>	<u>Well-known Frame of Reference</u>	<u>PS3.3</u>

336 **Table A-2. Well-known Frames of Reference**  
338

UID Value	UID Name	Normative Reference
<u>1.2.840.10008.1.4.RRR.3</u>	<u>Multiple Fixed Source Coordinate System Frame of Reference</u>	<u>See C.36.E1.2.2</u>
<u>1.2.840.10008.1.4.RRR.4</u>	<u>Robotic Coordinate System Frame of Reference</u>	<u>See C.36.E1.2.3</u>

340 **Table A-3 Context Group UID Values**

Context UID	Context Identifier	Context Group Name
<u>1.2.840.10008.6.1.S176.01</u>	<u>SUP176001</u>	<u>Radiotherapy Robotic Paths</u>
<u>1.2.840.10008.6.1.S176.02</u>	<u>SUP176002</u>	<u>Multiple Fixed Source Collimator Holders</u>
<u>1.2.840.10008.6.1.S176.03</u>	<u>SUP176003</u>	<u>Isotopes for Radiotherapy</u>
<u>1.2.840.10008.6.1.S176.04</u>	<u>SUP176004</u>	<u>Decaying Radiation Source</u>
<u>1.2.840.10008.6.1.S176.06</u>	<u>SUP176006</u>	<u>Tomotherapeutic Dosimeter Unit</u>
<u>1.2.840.10008.6.1.S176.07</u>	<u>SUP176007</u>	<u>Tomotherapeutic Dose Rate Unit</u>
<u>1.2.840.10008.6.1.S176.08</u>	<u>SUP176008</u>	<u>Robotic RT Therapy Dosimeter Unit</u>
<u>1.2.840.10008.6.1.S176.09</u>	<u>SUP176009</u>	<u>Robotic RT Therapy Dose Rate Unit</u>
<u>1.2.840.10008.6.1.S176.10</u>	<u>SUP176010</u>	<u>Teletherapy Decaying Source Dosimeter Unit</u>



**Part 16 Addendum**344 **Add the following new CIDs to PS3.16, Annex B:****CID SUP176001 RADIOTHERAPY ROBOTIC PATHS**346 **Context ID SUP176001****Radiotherapy Robotic Paths**348 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML****Type: Extensible**350 **Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.01**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
99SUP176	S176200	One Path Head
99SUP176	S176201	One Path Body
99SUP176	S176202	Three Paths Head
99SUP176	S176203	Three Paths Body
99SUP176	S176204	Short Paths Head
99SUP176	S176205	Short Path Body
99SUP176	S176206	Prostate Path
99SUP176	S176207	Prostate Short Path

352

**CID SUP176002 MULTIPLE FIXED SOURCE COLLIMATOR HOLDERS**354 **Context ID SUP176002****Multiple Fixed Source Collimator Holders**356 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML****Type: Non-Extensible**358 **Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.02**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
99SUP176	S176210	Helmet Collimator Holder
99SUP176	S176211	Sector Collimator Holder

360

**CID SUP176003 ISOTOPES FOR RADIOTHERAPY**362 **Context ID SUP176003****Isotopes for Radiotherapy**

364 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML**

**Type: Extensible**

366 **Version: yyyyymmdd**

**UID: 1.2.840.10008.6.1.S176.03**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
<i>Include CID 9527 "Teletherapy Isotope"</i>		
<i>Include CID 9528 "Brachytherapy Isotope"</i>		

368

**CID SUP176004 DECAYING RADIATION SOURCE**

370 **Context ID SUP176004**

**Decaying Radiation Source**

372 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML**

**Type: Non-Extensible**

374 **Version: yyyyymmdd**

**UID: 1.2.840.10008.6.1.S176.04**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
99SUP176	S176960	Teletherapy Radiotherapeutic Decaying Source
99SUP176	S176961	Brachytherapy Decaying Source

376

**CID SUP176006 TOMOTHERAPEUTIC DOSIMETER UNIT**

378 **Context ID SUP176006**

**Tomotherapeutic Dosimeter Unit**

380 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML**

**Type: Non-Extensible**

382 **Version: yyyyymmdd**

**UID: 1.2.840.10008.6.1.S176.06**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
UCUM	s	Second
UCUM	{MU}	Monitor Units

384

**CID SUP176007 TOMOTHERAPEUTIC DOSE RATE UNIT**

386 **Context ID SUP176007**

**Tomotherapeutic Dose Rate Unit**

388 **Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML**



390

**Type: Non-Extensible****Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.07**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
UCUM	Gy/s	Gray / Second
UCUM	{MU}/s	Monitor Units / Second

392

**CID SUP176008 ROBOTIC RT THERAPY DOSIMETER UNIT**

394

**Context ID SUP176008****Robotic RT Therapy Dosimeter Unit**

396

**Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML****Type: Non-Extensible**

398

**Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.08**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
UCUM	s	Second

400

**CID SUP176009 ROBOTIC RT THERAPY DOSE RATE UNIT**

402

**Context ID SUP176009****Robotic RT Therapy Dose Rate Unit**

404

**Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML****Type: Non-Extensible**

406

**Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.09**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
UCUM	Gy/s	Gray / Second

408

**CID SUP176010 TELETHERAPY DECAIVING SOURCE DOSIMETER UNIT**

410

**Context ID SUP176010****Teletherapy Decaying Source Dosimeter Unit**

412

**Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML****Type: Non-Extensible**

414

**Version: yyyyymmdd****UID: 1.2.840.10008.6.1.S176.10**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
UCUM	s	Second

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<b>Add the following to the table in PS3.16, Annex D:</b>
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**ANNEX D DICOM CONTROLLED TERMINOLOGY DEFINITIONS (NORMATIVE)**

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Code Value	Code Meaning	Definition	Notes
S176200	One Path Head	A robotic path that includes the full set of nodes available with the patient in a head-first position and the target being associated with the patient's head.	
S176201	One Path Body	A robotic path that includes the full set of nodes available with a target being within the body, excluding the head.	
S176202	Three Paths Head	A set of three robotic paths for different collimators. The path includes the same set of nodes defined by One Path Head, divided into three paths.	
S176203	Three Paths Body	A set of three robotic paths for different collimators. The path includes the same set of nodes defined by One Path Body, divided into three paths.	
S176204	Short Paths Head	A robotic path with a reduced set of nodes from One Path Head that limits the number of nodes but covers the whole area.	
S176205	Short Path Body	A robotic path with a reduced set of nodes from One Path Body that limits the number of nodes but covers the whole area.	
S176206	Prostate Path	A robotic path that supports increased corrections related to prostate treatments.	
S176207	Prostate Short Path	A robotic path with a reduced set of nodes from the Prostate Path that limits the number of possible nodes but covers the whole area.	
S176210	Helmet Collimator Holder	A helmet-shaped holder for the whole set of collimators of a multiple fixed sources device used for delivery of a Control Point.	
S176211	Sector Collimator Holder	A holder for a subset of available collimators for delivery of a Control Point.	
S176960	Teletherapy Radiotherapeutic Decaying Source	A decaying source located at a distance from the body used for radiotherapeutic treatments.	
S176961	Brachytherapy Decaying Source	A decaying source used for brachytherapy treatments.	