

2

4

Digital Imaging and Communications in Medicine (DICOM)

6

Supplement 29: Radiotherapy Treatment Records and Radiotherapy Media Extensions

8

10

12

14

16

18

DICOM Standards Committee, Working Group 7 Radiotherapy Extensions

20 1300 N. 17th Street

Rosslyn, Virginia 22209 USA

22

24 **Version: Final Text**

27 May 1999

Contents

Contents.....	2
Foreword.....	3
Scope and Field of Application.....	4
<i>A.X RT BEAMS Treatment Record Information Object Definition.....</i>	<i>11</i>
A.X.1 RT Beams Treatment Record IOD Description.....	11
A.X.2 RT Beams Treatment Record IOD entity-relationship model.....	11
A.X.3 RT Beams Treatment Record IOD Module Table.....	12
<i>A.Y RT Brachy Treatment Record Information Object Definition.....</i>	<i>13</i>
A.Y.1 RT Brachy Treatment Record IOD Description.....	13
A.Y.2 RT Brachy Treatment Record IOD entity-relationship model.....	13
A.Y.3 RT Brachy Treatment Record IOD Module Table.....	14
<i>A.Z RT Treatment Summary Record Information Object Definition.....</i>	<i>15</i>
A.Z.1 RT Treatment Summary Record IOD Description.....	15
A.Z.2 RT Treatment Summary Record IOD entity-relationship model.....	15
A.Z.3 RT Treatment Summary Record IOD Module Table.....	16
C.8.8.1 RT Series Module.....	18
C.8.8.1.1 Modality.....	18
C.8.8.17 RT General Treatment Record Module.....	19
C.8.8.18 RT Treatment Machine Record Module.....	20
C.8.8.19 Measured Dose Reference Record Module.....	21
C.8.8.20 Calculated Dose Reference Record Module.....	22
C.8.8.21 RT Beams Session Record Module.....	23
C.8.8.21.1 Control point machine delivery parameters.....	34
C.8.8.22 RT Brachy Session Record Module.....	35
C.8.8.22.1 PDR (Pulsed Dose Rate) Treatment.....	44
C.8.8.23 RT Treatment Summary Record Module.....	45
C.8.8.23.1 Current Treatment Status.....	47
F.5.18 RT Dose Directory Record Definition.....	50
F.5.19 RT Structure Set Directory Record Definition.....	51
F.5.20 RT Plan Directory Record Definition.....	52
F.5.21 RT Treatment Record Directory Record Definition.....	53
<i>B.5 Standard SOP Classes.....</i>	<i>55</i>

Foreword

The American College of Radiology (ACR) and the National Electrical Manufacturers Association (NEMA) formed a joint committee to develop a Standard for Digital Imaging and Communications in Medicine (DICOM). This DICOM Standard and the corresponding supplements to the DICOM Standard were developed according to the NEMA Procedures.

This Supplement to the Standard is being developed in liaison with other standardization organizations including IEC Subcommittee 62C Working Group 1 (see document IEC 62C/124/NWP, January 1995), CEN TC251 Working Group 4, and the AAPM.

The DICOM standard is structured as a multi-part document using the guidelines established in the following document:

- ISO/IEC Directives, 1989 Part 3 - Drafting and Presentation of International Standards.

This document is a Supplement to the DICOM Standard. It is an extension to PS 3.3, 3.4 and 3.6 of the published DICOM Standard which consists of the following parts:

- PS 3.1 — Introduction and Overview
- PS 3.2 — Conformance
- PS 3.3 — Information Object Definitions
- PS 3.4 — Service Class Specifications
- PS 3.5 — Data Structures and Encoding
- PS 3.6 — Data Dictionary
- PS 3.7 — Message Exchange
- PS 3.8 — Network Communication Support for Message Exchange
- PS 3.9 — Point-to-Point Communication Support for Message Exchange
- PS 3.10 — Media Storage and File Format for Data Interchange
- PS 3.11 — Media Storage Application Profiles
- PS 3.12 — Media Formats and Physical Media for Data Interchange
- PS 3.13 — Print Management Point-to-Point Communication Support
- PS 3.14 — Gray scale Standard Display Function

These Parts are independent but related documents.

Scope and Field of Application

This supplement to the DICOM Standard defines information objects applicable to the domain of radiation oncology. The intent of these objects is to support the transfer of radiotherapy-related data between devices found within and outside a radiotherapy department. It is not, however, intended to support the *management* of the transferred data, a function which may be addressed in future revisions of the DICOM standard.

This task of process management has not been addressed in the current document due to the absence of a consistent process model for a radiotherapy department, especially in an international context. As a result, the radiotherapy information objects contain a large number of conditional and optional data elements. Essentially the objects are intended to be used as “containers” for related radiotherapy data, with data being added as the object flows through the department.

This Supplement specifies the following information objects:

1. A DICOM *Radiotherapy Beams Treatment Record* Information Object for Radiotherapy. It specifies the semantic content of RT Beams Treatment Records. It is commonly abbreviated the RT Beams Treatment Record IOD. It also includes the corresponding Storage SOP Class so that this IOD can be used in Network and Media Storage exchanges. The scope of the RT Beams Treatment Record IOD is external beam treatment session records during a radiotherapy treatment course, with an optional treatment summary indicating the cumulative state of a treatment course.
2. A DICOM *Radiotherapy Brachytherapy Treatment Record* Information Object for Radiotherapy. It specifies the semantic content of RT Brachy Treatment Records. It is commonly abbreviated the RT Brachy Treatment Record IOD. It also includes the corresponding Storage SOP Class so that this IOD can be used in Network and Media Storage exchanges. The scope of the RT Brachy Treatment Record IOD is brachytherapy treatment session records during a radiotherapy treatment course, with an optional treatment summary indicating the cumulative state of a treatment course.
3. A DICOM *Radiotherapy Treatment Summary Record* Information Object for Radiotherapy. It specifies the semantic content of RT Treatment Summary Records. It is commonly abbreviated the RT Treatment Summary Record IOD. It also includes the corresponding Storage SOP Class so that this IOD can be used in Network and Media Storage exchanges. The scope of the RT Treatment Summary Record IOD is treatment summaries indicating the cumulative state of a treatment course.

Since this document proposes changes to existing Parts of DICOM the reader should have a working understanding of the Standard.

This proposed Supplement includes a number of Addenda to existing Parts of DICOM:

1. Part 3 Addenda (Extension to the body, Annexes A, C and F)
2. Part 4 Addenda (Extension to Annexes B and I)
3. Part 6 Addenda (Extension to Section 6 and Annex A)

Changes to:
NEMA Standards Publication PS 3.3-1998

Digital Imaging and Communications in Medicine (DICOM)
Part 3: Information Object Definitions

Item #1 In Section 4 add the following:

2

4 Symbols and abbreviations

4

6 **EPI** Electronic Portal Image

EPID Electronic portal imaging device

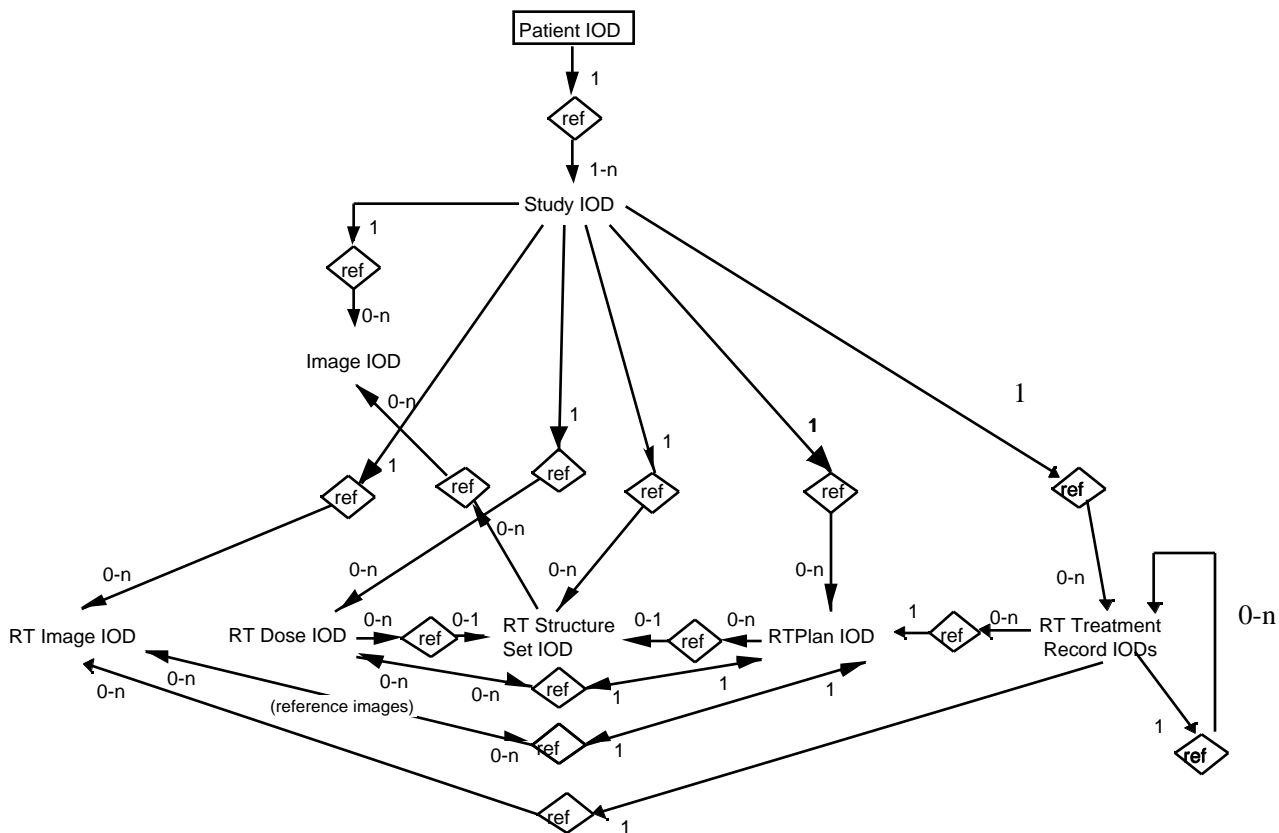
8

SSD Source-skin distance

10

Item #2 Add RT Treatment Record IODs box (at right of diagram) and related relationships to Figure 7-2c

1



4

Figure 7-2c—DICOM information model (Radiotherapy)

Item #3 Add in Table A.1-1. All modifications to existing table are in BOLD font

2

**Table A.1-1
Composite Information Object Modules Overview**

IODs Modules	RT Beams Treatment Record	RT Brachy Treatment Record	RT Treatment Summary Record
Patient	M	M	M
Patient Summary			
General Study	M	M	M
Patient Study	U	U	U
Study Content			
General Series			
CR Series			
NM Series			
RT Series	M	M	M
Frame Of Reference			
US Frame of Ref.			
General Equipment	M	M	M
NM Equipment			
SC Equipment			
General Image			
Image Plane			
Image Pixel			
Contrast/Bolus			
Cine			
Multi-frame			
CR Image			
CT Image			
MR Image			
NM Image			
NM SPECT			
NM Multi-Gated			

IODs Modules	RT Beams Treatment Record	RT Brachy Treatment Record	RT Treatment Summary Record
US Region Calibration			
US Image			
SC Image			
RT Image			
RT Dose			
RT DVH			
Structure Set			
ROI Contour			
RT Dose ROI			
RT ROI Observations			
RT General Treatment Record	M	M	M
RT Treatment Machine Record	M	M	
Measured Dose Reference Record	U	U	
Calculated Dose Reference Record	U	U	
RT Beams Session Record	M		
RT Brachy Session Record		M	
RT Treatment Summary Record	U	U	M
RT General Plan			
RT Prescription			
RT Tolerance Tables			
RT Patient Setup	U	U	
RT Fraction Scheme			
RT Beams			
RT Brachy Application Setups			
Approval			
Overlay Identification			
Overlay Plane			
Multi-frame Overlay			
Curve Identification			

IODs Modules	RT Beams Treatment Record	RT Brachy Treatment Record	RT Treatment Summary Record
Curve	U	U	U
Audio			
Modality LUT			
VOI LUT			
LUT Identification			
SOP Common	M	M	M

Item #4 In Section A add the following:

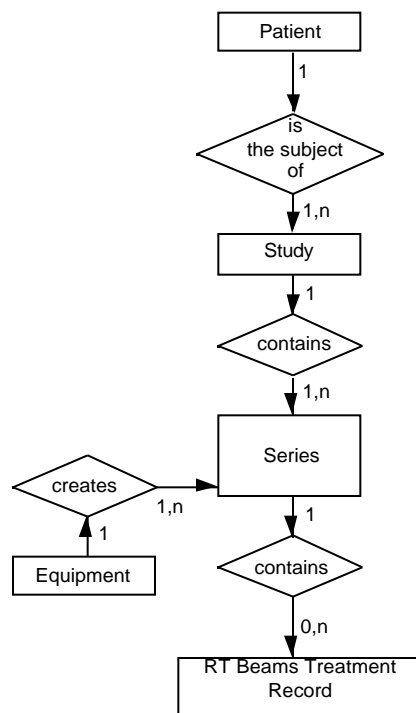
2 A.X RT BEAMS TREATMENT RECORD INFORMATION OBJECT DEFINITION

A.X.1 RT Beams Treatment Record IOD Description

4 The focus for this Radiotherapy Beams Treatment Record IOD (RT Beams Treatment Record IOD) is to
6 address the requirements for transfer of treatment session reports generated by a treatment verification
8 system during a course of external beam treatment, with optional cumulative summary information. It may
also be used for transfer of treatment information during delivery.

8 A.X.2 RT Beams Treatment Record IOD entity-relationship model

The E-R model for the RT Beams Treatment Record IOD is illustrated in Figure A.X-1.



10

Figure A.X-1—DICOM RT Beams Treatment Record IOD information model

A.X.3 RT Beams Treatment Record IOD Module Table

2

Table A.X.3-1—RT Beams Treatment Record IOD Modules

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
Series	RT Series	C.8.8.1	M
Equipment	General Equipment	C.7.5.1	M
Treatment Record	RT General Treatment Record	C.8.8.17	M
	RT Patient Setup	C.8.8.12	U
	RT Treatment Machine Record	C.8.8.18	M
	Measured Dose Reference Record	C.8.8.19	U
	Calculated Dose Reference Record	C.8.8.20	U
	RT Beams Session Record	C.8.8.21	M
	RT Treatment Summary Record	C.8.8.23	U
	Curve	C.10.2	U
	SOP Common	C.12.1	M

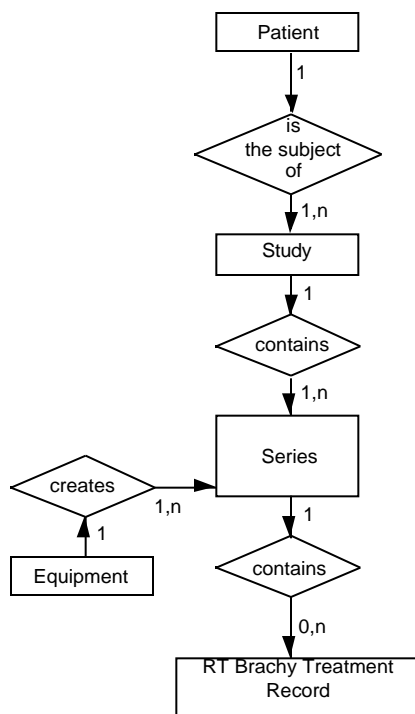
A.Y RT BRACHY TREATMENT RECORD INFORMATION OBJECT DEFINITION

2 A.Y.1 RT Brachy Treatment Record IOD Description

4 The focus for this Radiotherapy Brachy Treatment Record IOD (RT Brachy Treatment Record IOD) is to
6 address the requirements for transfer of treatment session reports generated by a treatment verification
system during a course of Brachytherapy treatment, with optional cumulative summary information. It may
also be used for transfer of treatment information during delivery.

A.Y.2 RT Brachy Treatment Record IOD entity-relationship model

8 The E-R model for the RT Brachy Treatment Record IOD is illustrated in Figure A.Y-1.



10 **Figure A.Y-1—DICOM RT Brachy Treatment Record IOD information model**

A.Y.3 RT Brachy Treatment Record IOD Module Table

2

Table A.Y.3-1—RT Brachy Treatment Record IOD Modules

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
Series	RT Series	C.8.8.1	M
Equipment	General Equipment	C.7.5.1	M
Treatment Record	RT General Treatment Record	C.8.8.17	M
	RT Patient Setup	C.8.8.12	U
	RT Treatment Machine Record	C.8.8.18	M
	Measured Dose Reference Record	C.8.8.19	U
	Calculated Dose Reference Record	C.8.8.20	U
	RT Brachy Session Record	C.8.8.22	M
	RT Treatment Summary Record	C.8.8.23	U
	Curve	C.10.2	U
	SOP Common	C.12.1	M

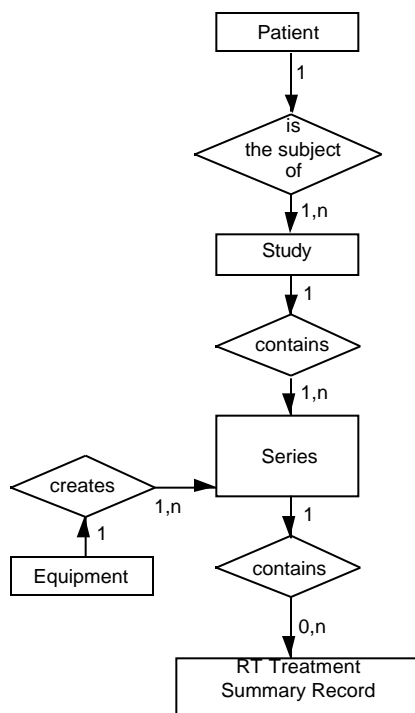
A.Z RT TREATMENT SUMMARY RECORD INFORMATION OBJECT DEFINITION

2 A.Z.1 RT Treatment Summary Record IOD Description

4 The focus for this Radiotherapy Treatment Summary Record IOD (RT Treatment Summary Record IOD) is to address the requirements for transfer of cumulative summary information, normally generated at the completion of a course of treatment.

6 A.Z.2 RT Treatment Summary Record IOD entity-relationship model

The E-R model for the RT Treatment Summary Record IOD is illustrated in Figure A.Z-1.



8 **Figure A.Z-1—DICOM RT Treatment Summary Record IOD information model**

A.Z.3 RT Treatment Summary Record IOD Module Table

2

Table A.Z.3-1—RT Treatment Summary Record IOD Modules

IE	Module	Reference	Usage
Patient	Patient	C.7.1.1	M
Study	General Study	C.7.2.1	M
	Patient Study	C.7.2.2	U
Series	RT Series	C.8.8.1	M
Equipment	General Equipment	C.7.5.1	M
Treatment Record	RT General Treatment Record	C.8.8.17	M
	RT Treatment Summary Record	C.8.8.23	M
	Curve	C.10.2	U
	SOP Common	C.12.1	M

Item #5 In PS 3.3, Section C.7.3.1.1.1 (Modality), add the following defined term:

2 RTRECORD = RT Treatment Record

Item #6 Add RTRECORD Modality (items in bold) in C.8.8.1 (RT Series Module)

2 **C.8.8.1 RT Series Module**

Table C.8.8.1-1—RT Series Module

Attribute Name	Tag	Type	Attribute Description
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
...

4

C.8.8.1.1 Modality

6 The Enumerated Value for Modality (0008,0060) shall be determined by the IOD:

RTIMAGE if RT Image IOD

8 RTDOSE if RT Dose IOD

RTSTRUCT if RT Structure Set IOD

10 RTPLAN if RT Plan IOD

12 **RTRECORD if RT Beams Treatment Record IOD, RT Brachy Treatment Record IOD, or RT Treatment Summary Record IOD**

Item #7 Add new Sections C.8.8.17 to C.8.8.23

2 C.8.8.17 RT General Treatment Record Module

Table C.8.8.17-1—RT General Treatment Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	1	Instance number identifying this particular instance of the object.
Treatment Date	(3008,0250)	2	Date when current fraction was delivered, or Date last fraction was delivered in case of RT Treatment Summary Record IOD. See Note.
Treatment Time	(3008,0251)	2	Time when current fraction was delivered (begun), or Time last fraction was delivered (begun) in case of RT Treatment Summary Record IOD. See Note.
Referenced RT Plan Sequence	(300C,0002)	2	A sequence which provides reference to a RT Plan SOP Class/Instance pair. 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.
>Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced RT Plan Sequence (300C,0002) is sent.
Referenced Treatment Record Sequence	(3008,0030)	3	A sequence which provides reference to RT Treatment Record SOP Class/Instance pairs to which the current RT Treatment Record is significantly related. The sequence may contain one or more items.
>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Treatment Record Sequence (3008,0030) is sent.
>Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Treatment Record Sequence (3008,0030) is sent.

4

6

8

Note: Treatment Date (3008,0250) and Treatment Time (3008,0251) can be used to chronologically order a sequence of treatments, where each treatment is represented by an instance of a RT Beams Treatment Record or RT Brachy Treatment Record. In the case of a RT Treatment Summary Record, it can be used to identify the period for which the treatment summary is valid. Therefore, implementers are strongly advised to include values for these attributes whenever possible.

C.8.8.18 RT Treatment Machine Record Module

2

Table C.8.8.18-1—RT Treatment Machine Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Treatment Machine Sequence	(300A,0206)	1	Introduces sequence describing treatment machine used for treatment delivery. Only a single Item shall be permitted in this Sequence.
>Treatment Machine Name	(300A,00B2)	2	User-defined name identifying treatment machine used for treatment delivery.
>Manufacturer	(0008,0070)	2	Manufacturer of the equipment used for treatment delivery.
>Institution Name	(0008,0080)	2	Institution where the equipment is located that was used for treatment delivery.
>Institution Address	(0008,0081)	3	Mailing address of the institution where the equipment is located that was used for treatment delivery.
>Institutional Department Name	(0008,1040)	3	Department in the institution where the equipment is located that was used for treatment delivery.
>Manufacturer's Model Name	(0008,1090)	2	Manufacturer's model name of the equipment used for treatment delivery.
>Device Serial Number	(0018,1000)	2	Manufacturer's serial number of the equipment used for treatment delivery.

C.8.8.19 Measured Dose Reference Record Module

2

Table C.8.8.19-1—Measured Dose Reference Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Measured Dose Reference Sequence	(3008,0010)	1	Introduces sequence of doses measured during treatment delivery, summed over entire session. The sequence may contain one or more items.
>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan. Required only if Measured Dose Reference Number (3008,0064) is not sent. It shall not be present otherwise.
>Measured Dose Reference Number	(3008,0064)	1C	Unique identifier of measured dose point. Required only if Referenced Dose Reference Number (300C,0051) is not sent. It shall not be present otherwise.
>Dose Units	(3004,0002)	1	Units used to describe measured dose. Enumerated Values: GY = Gray RELATIVE = Dose relative to implicit reference value
>Measured Dose Value	(3008,0016)	2	Measured Dose in units specified by Dose Units (3004, 0002).
>Measured Dose Type	(3008,0014)	2	Type of dose measurement. Defined Terms: DIODE = semiconductor diode TLD = thermoluminescent dosimeter ION_CHAMBER = ion chamber GEL = dose sensitive gel EPID = electronic portal imaging device FILM = dose sensitive film
>Measured Dose Description	(3008,0012)	3	User-defined description of Dose Reference (e.g. "Exit dose", "Point A").

C.8.8.20 Calculated Dose Reference Record Module

2

Table C.8.8.20-1—Calculated Dose Reference Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Calculated Dose Reference Sequence	(3008,0070)	1	Introduces sequence of doses estimated for each treatment delivery. The sequence may contain one or more items.
>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A, 0012) in Dose Reference Sequence (300A, 0010) in RT Prescription Module of referenced RT Plan. Required only if Calculated Dose Reference Number (3008,0072) is not sent. It shall not be present otherwise.
>Calculated Dose Reference Number	(3008,0072)	1C	Unique identifier of dose reference point within RT Treatment Record IOD. Required only if Referenced Dose Reference Number (300C,0051) is not sent. It shall not be present otherwise.
>Calculated Dose Reference Dose Value	(3008,0076)	2	Calculated Dose (Gy).
>Calculated Dose Reference Description	(3008,0074)	3	User-defined description of Calculated Dose Reference.

C.8.8.21 RT Beams Session Record Module

2

Table C.8.8.21-1—RT Beams Session Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Operator Name	(0008,1070)	2	Name of operator administering treatment session.
Referenced Fraction Group Number	(300C,0022)	3	Identifier of Fraction Group within referenced RT Plan.
Number of Fractions Planned	(300A,0078)	2	Total number of treatments (Fractions) planned for current Fraction Group.
Primary Dosimeter Unit	(300A,00B3)	1	Measurement unit of machine dosimeter. Enumerated Values: MU = Monitor Unit MINUTE = minute
Treatment Session Beam Sequence	(3008,0020)	1	Introduces sequence of Beams administered during treatment session. The sequence may contain one or more items.
>Referenced Beam Number	(300C,0006)	3	References Beam specified by Beam Number (300A,00C0) in Beam Sequence (300A,00B0) in RT Beams Module within referenced RT Plan.
>Beam Name	(300A,00C2)	3	User-defined name for delivered Beam.
>Beam Description	(300A,00C3)	3	User-defined description for delivered Beam.
>Beam Type	(300A,00C4)	1	Motion characteristic of delivered Beam. Enumerated Values: STATIC = all beam parameters remain unchanged during delivery DYNAMIC = one or more beam parameters changes during delivery
>Radiation Type	(300A,00C6)	1	Particle type of delivered Beam. Defined Terms: PHOTON, ELECTRON, NEUTRON, PROTON.
>Referenced Verification Image Sequence	(300C,0040)	3	Introduces sequence of verification images obtained during delivery of current beam. The sequence may contain one or more items.
>>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Verification Image Sequence (300C,0040) is sent.

>>Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Verification Image Sequence (300C,0040) is sent.
>>Start Meterset	(3008,0078)	3	Cumulative Meterset Weight within Beam referenced by Referenced Beam Number at which image acquisition starts.
>>End Meterset	(3008,007A)	3	Cumulative Meterset Weight within Beam referenced by Referenced Beam Number at which image acquisition ends.
>Referenced Measured Dose Reference Sequence	(3008,0080)	3	Introduces sequence of doses measured during treatment delivery for current Beam. The sequence may contain one or more items.
>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely references Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Measured Dose Reference Number (3008,0082) is not sent. It shall not be present otherwise.
>>Referenced Measured Dose Reference Number	(3008,0082)	1C	Uniquely references Measured Dose Reference specified by Measured Dose Reference Number (3008,0064) in Measured Dose Reference Sequence (3008,0010). Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Dose Reference Number (300C, 0051) is not sent. It shall not be present otherwise.
>>Measured Dose Value	(3008,0016)	1C	Measured Dose in units specified by Dose Units (3004,0002) in sequence referenced by Measured Dose Reference Sequence (3008,0010) or Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan as defined above. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent.
>Referenced Calculated Dose Reference Sequence	(3008,0090)	3	Introduces sequence of doses estimated for each treatment delivery. The sequence may contain one or more items.

>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A, 0012) in Dose Reference Sequence (300A, 0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Calculated Dose Reference Number (3008,0092) is not sent.
>>Referenced Calculated Dose Reference Number	(3008,0092)	1C	Uniquely identifies Calculated Dose Reference specified by Calculated Dose Reference Number (3008,0072) within Calculated Dose Reference Sequence (3008,0070). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Dose Reference Number (300C,0051) is not sent.
>>Calculated Dose Reference Dose Value	(3008,0076)	1C	Calculated Dose (Gy). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent.
>Source-Axis Distance	(300A,00B4)	3	Radiation source to gantry rotation axis distance of the equipment that was used for beam delivery (mm).
>Beam Limiting Device Leaf Pairs Sequence	(3008,00A0)	1	Introduces sequence of beam limiting device (collimator) jaw or leaf (element) leaf pair values. The sequence may contain one or more items.
>>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
>>Number of Leaf/Jaw Pairs	(300A,00BC)	1	Number of leaf (element) or jaw pairs (equal to 1 for standard beam limiting device jaws).

>Referenced Patient Setup Number	(300C, 006A)	3	Uniquely identifies Patient Setup used within current beam, specified by Patient Setup Number (300A, 0182) within Patient Setup Sequence (300A, 0180) of RT Treatment Record.
>Number of Wedges	(300A,00D0)	1	Number of wedges associated with current delivered Beam.
>Recorded Wedge Sequence	(3008,00B0)	1C	Introduces sequence of treatment wedges present during delivered Beam. Required if Number of Wedges (300A,00D0) is non-zero. The sequence may contain one or more items.
>>Wedge Number	(300A,00D2)	3	Identification number of the Wedge. The value of Wedge Number (300A,00D2) shall be unique within the wedge sequence.
>>Wedge Type	(300A,00D3)	2C	Type of wedge defined for delivered Beam. Required if Recorded Wedge Sequence (3008,00B0) is sent. Defined Terms: STANDARD = standard (static) wedge DYNAMIC = moving Beam Limiting Device (collimator) jaw simulating wedge MOTORIZED = single wedge which can be removed from beam remotely
>>Wedge ID	(300A,00D4)	3	User-supplied identifier for wedge.
>>Wedge Angle	(300A,00D5)	3	Nominal wedge angle delivered (degrees).
>>Wedge Orientation	(300A,00D8)	3	Orientation of wedge, i.e. orientation of IEC WEDGE FILTER coordinate system with respect to IEC BEAM LIMITING DEVICE coordinate system (degrees).
>Number of Compensators	(300A,00E0)	2	Number of compensators associated with current delivered Beam.
>Recorded Compensator Sequence	(3008,00C0)	3	Introduces sequence of treatment compensators associated with current Beam. The sequence may contain one or more items.
>>Referenced Compensator Number	(300C,00D0)	1C	Uniquely identifies compensator specified by Compensator Number (300A,00E4) within Beam referenced by Referenced Beam Number (300C,0006). Required if Recorded Compensator Sequence (3008,00C0) is sent.

>>Compensator Type	(300A,00EE)	2C	Type of compensator (if any). Required if Recorded Compensator Sequence (3008,00C0) is sent. Defined Terms: STANDARD = physical (static) compensator DYNAMIC = moving Beam Limiting Device (collimator) simulating compensator
>>Compensator ID	(300A,00E5)	3	User-supplied identifier for compensator.
>Number of Boli	(300A,00ED)	2	Number of boli used with current Beam.
>Referenced Bolus Sequence	(300C,00B0)	3	Introduces sequence of boli associated with Beam. The sequence may contain one or more items.
>>Referenced ROI Number	(3006,0084)	1C	Uniquely identifies ROI representing the bolus specified by ROI Number (3006,0022) in Structure Set ROI Sequence (3006,0020) in Structure Set Module within RT Structure Set IOD referenced by referenced RT Plan in Referenced RT Plan Sequence (300C,0002) in RT General Treatment Record Module. Required if Referenced Bolus Sequence (300C,00B0) is sent.
>Number of Blocks	(300A,00F0)	2	Number of shielding blocks or Electron Inserts associated with Beam.
>Recorded Block Sequence	(3008,00D0)	3	Introduces sequence of blocks associated with current Beam. The sequence may contain one or more items.
>>Block Tray ID	(300A,00F5)	3	User-supplied identifier for block tray or Electron Insert.
>>Referenced Block Number	(300C,00E0)	3	Uniquely identifies block specified by Block Number (300A,00FC) within Beam referenced by Referenced Beam Number (300C,0006).
>>Block Name	(300A,00FE)	2C	User-defined name for block. Required if Recorded Block Sequence (3008,00D0) is sent.
>Applicator Sequence	(300A,0107)	3	Introduces sequence of Applicators associated with Beam. Only a single item shall be permitted in this sequence.
>>Applicator ID	(300A,0108)	1C	User or machine supplied identifier for Applicator. Required if Applicator Sequence (300A,0107) is sent.

>>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
>>Applicator Description	(300A,010A)	3	User-defined description for Applicator.
>Current Fraction Number	(3008,0022)	2	Fraction number for this beam administration.
>Treatment Delivery Type	(300A,00CE)	2	Delivery Type of treatment. Defined Terms: TREATMENT = normal patient treatment OPEN_PORTFILM = portal image acquisition with open field TRMT_PORTFILM = portal image acquisition with treatment port CONTINUATION = continuation of interrupted treatment
>Treatment Termination Status	(3008,002A)	1	Conditions under which treatment was terminated. Enumerated Values: NORMAL = treatment terminated normally OPERATOR = operator terminated treatment MACHINE = machine terminated treatment UNKNOWN = status at termination unknown
>Treatment Termination Code	(3008,002B)	3	Treatment machine termination code. This code is dependent upon the particular application and equipment.

>Treatment Verification Status	(3008,002C)	2	Conditions under which treatment was verified by a verification system. Enumerated Values: VERIFIED = treatment verified VERIFIED_OVR = treatment verified with at least one out-of-range value overridden NOT_VERIFIED = treatment verified manually
>Specified Primary Meterset	(3008,0032)	3	Desired machine setting of primary meterset.
>Specified Secondary Meterset	(3008,0033)	3	Desired machine setting of secondary meterset.
>Delivered Primary Meterset	(3008,0036)	3	Machine setting actually delivered as recorded by primary meterset.
>Delivered Secondary Meterset	(3008,0037)	3	Machine setting actually delivered as recorded by secondary meterset.
>Specified Treatment Time	(3008,003A)	3	Treatment Time set (sec).
>Delivered Treatment Time	(3008,003B)	3	Treatment Time actually delivered (sec).
>Number of Control Points	(300A,0110)	1	Number of control points delivered.
>Control Point Delivery Sequence	(3008,0040)	1	Introduces sequence of beam control points for current treatment beam. The sequence may contain one or more items. See C.8.8.21.1.
>>Referenced Control Point Index	(300C,00F0)	3	Uniquely identifies Control Point specified by Control Point Index (300A,0112) within Beam referenced by Referenced Beam Number (300C,0006).
>>Treatment Control Point Date	(3008,0024)	1	Date administration of treatment beam began.
>>Treatment Control Point Time	(3008,0025)	1	Time administration of treatment beam began.
>>Specified Meterset	(3008,0042)	2	Desired machine setting for current control point.
>>Delivered Meterset	(3008,0044)	1	Machine setting actually delivered at current control point.
>>Dose Rate Set	(300A,0115)	2	Dose Rate set on treatment machine for segment beginning at current control point (meterset/min).
>>Dose Rate Delivered	(3008,0048)	2	Dose Rate actually delivered for segment beginning at current control point (meterset/min).
>>Nominal Beam Energy	(300A,0114)	3	Nominal Beam Energy at control point.

>>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,0115) shall be MV. If Radiation Type (300A,00C6) is ELECTRON, Nominal Beam Energy Unit (300A,0115) shall be MEV.
>>Wedge Position Sequence	(300A,0116)	3	Introduces sequence of Wedge positions for current control point. The sequence may contain one or more items.
>>>Referenced Wedge Number	(300C,00C0)	1C	Uniquely identifies wedge specified by Wedge Number (300A,00D2) within Beam referenced by Referenced Beam Number (300C,0006). Required if Wedge Position Sequence (300A,0116) is sent.
>>>Wedge Position	(300A,0118)	1C	Position of Wedge at current control point. Required if Wedge Position Sequence (300A,0116) is sent. Enumerated Values: IN, OUT.
>>Beam Limiting Device Position Sequence	(300A,011A)	1C	Introduces sequence of beam limiting device (collimator) jaw or leaf (element) positions. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if beam limiting device (collimator) changes during beam administration. The sequence may contain one or more items.

>>>RT Beam Limiting Device Type	(300A,00B8)	1C	<p>Type of beam limiting device. The value of this attribute shall correspond to RT Beam Limiting Device Type (300A,00B8) defined in an element of Beam Limiting Device Leaf Pairs Sequence (3008,00A0). Required if Beam Limiting Device Position Sequence (300A,011A) is sent.</p> <p>Enumerated Values:</p> <p>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</p>
>>>Leaf/Jaw Positions	(300A,011C)	1C	<p>Positions of beam limiting device (collimator) leaf (element) or jaw pairs (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) defined in element of Beam Limiting Device Leaf Pairs Sequence (3008,00A0). Values shall be in IEC leaf subscript order 101, 201, 102, 202, ... 1N, 2N. Required if Beam Limiting Device Position Sequence (300A,011A) is sent.</p>
>>Gantry Angle	(300A,011E)	1C	<p>Treatment machine gantry angle, i.e. orientation of IEC GANTRY coordinate system with respect to IEC FIXED REFERENCE coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Gantry Angle changes during beam administration.</p>

>>Gantry Rotation Direction	(300A,011F)	1C	<p>Direction of Gantry Rotation when viewing gantry from isocenter, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040), or if Gantry Rotation Direction changes during beam administration.</p> <p>Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation</p>
>>Beam Stopper Position	(3008,0230)	3	<p>Position of Beam Stopper during beam administration.</p> <p>Enumerated Values: EXTENDED = Beam Stopper extended RETRACTED = Beam Stopper retracted UNKNOWN = Position unknown</p>
>>Beam Limiting Device Angle	(300A,0120)	1C	<p>Beam Limiting Device (collimator) angle, i.e. orientation of IEC BEAM LIMITING DEVICE coordinate system with respect to IEC GANTRY coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if beam limiting device (collimator) angle changes during beam delivery.</p>
>>Beam Limiting Device Rotation Direction	(300A,0121)	1C	<p>Direction of Beam Limiting Device Rotation when viewing beam limiting device (collimator) from radiation source, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Beam Limiting Device Rotation Direction changes during beam administration.</p> <p>Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation</p>

>>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 (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Patient Support Angle changes during beam administration.
>>Patient Support Rotation Direction	(300A,0123)	1C	Direction of Patient Support Rotation when viewing table from above, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040), or if Patient Support Rotation Direction changes during beam administration. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation
>>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).
>>Table Top Eccentric Angle	(300A,0125)	1C	Table Top (non-isocentric) angle, i.e. orientation of IEC TABLE TOP ECCENTRIC coordinate system with respect to IEC PATIENT SUPPORT coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Eccentric Angle changes during beam administration.
>>Table Top Eccentric Rotation Direction	(300A,0126)	1C	Direction of Table Top Eccentric Rotation when viewing table from above, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Eccentric Rotation Direction changes during beam administration. Enumerated Values: CW = clockwise CC = counter-clockwise NONE = no rotation

>>Table Top Vertical Position	(300A,0128)	2C	Table Top Vertical position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Vertical Position changes during beam administration.
>>Table Top Longitudinal Position	(300A,0129)	2C	Table Top Longitudinal position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Longitudinal Position changes during beam administration.
>>Table Top Lateral Position	(300A,012A)	2C	Table Top Lateral position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Lateral Position changes during beam administration.
>>Override Sequence	(3008,0060)	3	Introduces sequence of parameters which were overridden during the administration of the beam segment immediately prior to the current control point. The sequence may contain one or more items.
>>>Override Parameter Pointer	(3008,0062)	2C	Contains the Data Element Tag of the attribute which was overridden. Required if Override Sequence (3008,0060) is sent.
>>>Operator Name	(0008,1070)	2C	Name of operator who authorized override. Required if Override Sequence (3008,0060) is sent.
>>>Override Reason	(3008,0066)	3	User-defined description of reason for override of parameter specified by Override Parameter Pointer (3008,0062).

2 **C.8.8.21.1 Control point machine delivery parameters**

- 4 All treatment machine delivery parameters (including table angles and positions) in the RT Treatment Session Record Module shall be specified as absolute, not relative, values at the Control Point.

C.8.8.22 RT Brachy Session Record Module

2

Table C.8.8.22-1—RT Brachy Session Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Operator Name	(0008,1070)	2	Name of operator administering treatment session.
Referenced Fraction Group Number	(300C,0022)	3	Identifier of Fraction Group within referenced RT Plan.
Number of Fractions Planned	(300A,0078)	2	Total number of treatments (Fractions) planned for current Fraction Group.
Brachy Treatment Technique	(300A,0200)	1	Type of brachytherapy treatment technique. Enumerated Values: INTRALUMENARY, INTRACAVITARY, INTERSTITIAL, CONTACT, INTRAVASCULAR, PERMANENT. See RT Plan IOD.
Brachy Treatment Type	(300A,0202)	1	Type of brachytherapy treatment. Defined Terms: MANUAL = manually positioned HDR = High dose rate MDR = Medium dose rate LDR = Low dose rate PDR = Pulsed dose rate
Recorded Source Sequence	(3008,0100)	1	Introduces sequence of Sources to be used within Application Setups. The sequence may contain one or more items.
>Source Number	(300A,0212)	1	Identification number of the Source. The value of Source Number (300A,0212) shall be unique within the Recorded Source Sequence (3008,0100) in which it is created.
>Source Type	(300A,0214)	1	Type of Source. Defined Terms: POINT, LINE, CYLINDER, SPHERE.
>Source Manufacturer	(300A,0216)	2	Manufacturer of source.
>Source Serial Number	(3008,0105)	2	Serial Number of source.
>Source Isotope Name	(300A,0226)	1	User-defined name of Isotope.
>Source Isotope Half Life	(300A,0228)	1	Half-life of Isotope (days).
>Reference Air Kerma Rate	(300A,022A)	1	Air Kerma Rate in air of Isotope specified at Air Kerma Rate Reference Date (300A,022C) and Air Kerma Rate Reference Time (300A,022E) (in $\mu\text{Gy h}^{-1}$ at 1 m).
>Air Kerma Rate Reference Date	(300A,022C)	1	Reference date of Reference Air Kerma Rate (300A,022A) of Isotope.

>Air Kerma Rate Reference Time	(300A,022E)	1	Reference time of Air Kerma Rate (300A,022A) of Isotope.
Treatment Session Application Setup Sequence	(3008,0110)	1	Introduces sequence of Application Setups for RT Treatment Record for current RT Plan. The sequence may contain one or more items.
>Application Setup Type	(300A,0232)	1	Type of Application Setup. Defined Terms: FLETCHER_SUIT, DELCLOS, BLOEDORN, JOSLIN_FLYNN, CHANDIGARH, MANCHESTER, HENSCHKE, NASOPHARYNGEAL, OESOPHAGEAL, ENDOBRONCHIAL, SYED_NEBLETT, ENDORECTAL, PERINEAL.
>Referenced Brachy Application Setup Number	(300C,000C)	3	References application setup specified by Application Setup Number (300A,0234) in Application Setup Sequence (300A,0230) in RT Brachy Applications Module within referenced RT Plan.
>Application Setup Name	(300A,0236)	3	User-defined name for Application Setup.
>Application Setup Manufacturer	(300A,0238)	3	Manufacturer of Application Setup.
>Template Number	(300A,0240)	3	Identification number of the Template.
>Template Type	(300A,0242)	3	User-defined type for Template Device.
>Template Name	(300A,0244)	3	User-defined name for Template Device.
>Application Setup Check	(3008,0116)	3	Results of check-wire travel through all channels of current Application Setup. Enumerated Values: PASSED = Passed check FAILED = Failed check UNKNOWN = Unknown status
>Referenced Verification Image Sequence	(300C,0040)	3	Introduces sequence of verification images obtained during delivery of current beam. The sequence may contain one or more items. See Note.
>>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if Referenced Verification Image Sequence (300C,0040) is sent.
>>Referenced SOP Class Instance	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if Referenced Verification Image Sequence (300C,0040) is sent.

>Total Reference Air Kerma	(300A,0250)	1	Total Reference Air Kerma for current Application Setup, i.e. the sum of the products of the Air Kerma Rates of each Source in each Channel with its respective Channel Time (μGy at 1 m).
>Referenced Measured Dose Reference Sequence	(3008,0080)	3	Introduces sequence of doses measured during treatment delivery, summed over entire session. The sequence may contain one or more items.
>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely references Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Measured Dose Reference Number (3008,0082) is not sent. It shall not be present otherwise.
>>Referenced Measured Dose Reference Number	(3008,0082)	1C	Uniquely references Measured Dose Reference specified by Measured Dose Reference Number (3008,0064) in Measured Dose Reference Sequence (3008,0010). Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Dose Reference Number (300C, 0051) is not sent. It shall not be present otherwise.
>>Measured Dose Value	(3008,0016)	1C	Measured Dose in units specified by Dose Units (3004,0002) in sequence referenced by Measured Dose Reference Sequence (3008,0010) or Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan as defined above. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent.
>Referenced Calculated Dose Reference Sequence	(3008,0090)	3	Introduces sequence of doses estimated for each treatment delivery. The sequence may contain one or more items.

>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A, 0012) in Dose Reference Sequence (300A, 0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Calculated Dose Reference Number (3008,0092) is not sent. It shall not be present otherwise.
>>Referenced Calculated Dose Reference Number	(3008,0092)	1C	Uniquely identifies Calculated Dose Reference specified by Calculated Dose Reference Number (3008,0072) within Calculated Dose Reference Sequence (3008,0070). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Dose Reference Number (300C,0051) is not sent. It shall not be present otherwise.
>>Calculated Dose Reference Dose Value	(3008,0076)	1C	Calculated Dose (Gy). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent.
>Current Fraction Number	(3008,0022)	2	Fraction number for this application setup.
>Treatment Delivery Type	(300A,00CE)	2	Delivery Type of treatment. Defined Terms: TREATMENT = normal patient treatment CONTINUATION = continuation of interrupted treatment
>Treatment Termination Status	(3008,002A)	1	Conditions under which treatment was terminated. Enumerated Values: NORMAL = treatment terminated normally OPERATOR = operator terminated treatment MACHINE = machine terminated treatment for other than NORMAL condition UNKNOWN = status at termination unknown
>Treatment Termination Code	(3008,002B)	3	Treatment machine termination code. This code is dependent upon the particular application and equipment.

>Treatment Verification Status	(3008,002C)	2	Conditions under which treatment was verified by a verification system. Enumerated Values: VERIFIED = treatment verified VERIFIED_OVR = treatment verified with at least one out-of-range value overridden NOT_VERIFIED = treatment verified manually
>Recorded Brachy Accessory Device Sequence	(3008,0120)	3	Introduces sequence of Brachy Accessory Devices associated with current Application Setup. The sequence may contain one or more items.
>>Referenced Brachy Accessory Device Number	(3008,0122)	2C	Identification number of the Brachy Accessory Device. The value of Brachy Accessory Device Number (300A,0262) shall be unique within the Application Setup in which it is created. Required if Recorded Brachy Accessory Device Sequence (3008,0120) is sent.
>>Brachy Accessory Device ID	(300A,0263)	2C	User or machine supplied identifier for Brachy Accessory Device. Required if Recorded Brachy Accessory Device Sequence (3008,0120) is sent.
>>Brachy Accessory Device Type	(300A,0264)	1C	Type of Brachy Accessory Device. Required if Recorded Brachy Accessory Device Sequence (3008,0120) is sent. Defined Terms: SHIELD, DILATATION, MOLD, PLAQUE, FLAB.
>>Brachy Accessory Device Name	(300A,0266)	3	User-defined name for Brachy Accessory Device.
>Recorded Channel Sequence	(3008,0130)	1	Introduces sequence of Channels for current Application Setup. The sequence may contain one or more items.
>>Channel Number	(300A,0282)	1	Identification number of the Channel. The value of Channel Number (300A,0282) shall be unique within the Application Setup in which it is created.
>>Channel Length	(300A,0284)	2	Length of Channel (mm). See RT Plan IOD.
>>Specified Channel Total Time	(3008,0132)	1	Total amount of time specified between Control Point 0 and final Control Point of the Brachy Control Point Sequence (300A,02D0) for current Channel (sec).

>>Delivered Channel Total Time	(3008,0134)	1	Total amount of time actually delivered between Control Point 0 and final Control Point of the Brachy Control Point Sequence (300A,02D0) for current Channel (sec).
>>Source Movement Type	(300A,0288)	1	Type of Source movement. Defined Terms: STEPWISE, FIXED, OSCILLATING, UNIDIRECTIONAL.
>>Specified Number of Pulses	(3008,0136)	1C	Number of Pulses specified per fraction for current Channel. Required if Brachy Treatment Type (300A,0202) is PDR. See C.8.8.22.1.
>>Delivered Number of Pulses	(3008,0138)	1C	Number of Pulses actually delivered per fraction for current Channel. Required if Brachy Treatment Type (300A,0202) is PDR. See C.8.8.22.1.
>>Specified Pulse Repetition Interval	(3008,013A)	1C	Pulse repetition interval (sec) specified for current Channel. Required if Brachy Treatment Type (300A,0202) is PDR. See C.8.8.22.1
>>Delivered Pulse Repetition Interval	(3008,013C)	1C	Pulse repetition interval (sec) actually delivered for current Channel. Required if Brachy Treatment Type (300A,0202) is PDR. See C.8.8.22.1.
>>Referenced Measured Dose Reference Sequence	(3008,0080)	3	Introduces sequence of doses measured during treatment delivery, summed over entire session. The sequence may contain one or more items.
>>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely references Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Measured Dose Reference Number (3008,0082) is not sent. It shall not be present otherwise.
>>>Referenced Measured Dose Reference Number	(3008,0082)	1C	References Measured Dose Reference specified by Measured Dose Reference Number (3008,0064) in Measured Dose Reference Sequence (3008,0010). Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent and Referenced Dose Reference Number (300C, 0051) is not sent. It shall not be present otherwise.

>>>Measured Dose Value	(3008,0016)	1C	Measured Dose. Required if Referenced Measured Dose Reference Sequence (3008,0080) is sent.
>>Referenced Calculated Dose Reference Sequence	(3008,0090)	3	Introduces sequence of doses estimated for each treatment delivery. The sequence may contain one or more items.
>>>Referenced Dose Reference Number	(300C,0051)	1C	Uniquely identifies Dose Reference specified by Dose Reference Number (300A, 0012) in Dose Reference Sequence (300A, 0010) in RT Prescription Module of referenced RT Plan. Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Calculated Dose Reference Number (3008,0092) is not sent. It shall not be present otherwise.
>>>Referenced Calculated Dose Reference Number	(3008,0092)	1C	Uniquely identifies Calculated Dose Reference specified by Calculated Dose Reference Number (3008,0072) within Calculated Dose Reference Sequence (3008,0070). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent and Referenced Dose Reference Number (300C,0051) is not sent. It shall not be present otherwise.
>>>Calculated Dose Reference Dose Value	(3008,0076)	1C	Calculated Dose (Gy). Required if Referenced Calculated Dose Reference Sequence (3008,0090) is sent.
>>Recorded Source Applicator Sequence	(3008,0140)	3	Introduces sequence of recorded Source Applicators. The sequence may contain one or more items.
>>>Referenced Source Applicator Number	(3008,0142)	2	Identification number of the Source Applicator. The value of Source Applicator Number (300A,0290) shall be unique within the Channel in which it is created.
>>>Source Applicator ID	(300A,0291)	2C	User or machine supplied identifier for Source Applicator. Required if Recorded Source Applicator Sequence (3008,0140) is sent.
>>>Source Applicator Type	(300A,0292)	1C	Type of Source Applicator. Required if Recorded Source Applicator Sequence (3008,0140) is sent. Enumerated Values: FLEXIBLE, RIGID.
>>>Source Applicator Name	(300A,0294)	3	User-defined name for Source Applicator.

>>>Source Applicator Length	(300A,0296)	1C	Length of Source Applicator (mm), defined as the distance between the connector of the applicator and the distal-most position of the source. Required if Recorded Source Applicator Sequence (3008,0140) is sent.
>>>Source Applicator Manufacturer	(300A,0298)	3	Manufacturer of Source Applicator.
>>>Source Applicator Step Size	(300A,02A0)	1C	Distance of path along channel (mm) between adjacent (potential) dwell positions. Required if Source Movement Type (300A,0288) is STEPWISE.
>>Transfer Tube Number	(300A,02A2)	2	Identification number of the Transfer Tube. The value of Transfer Tube Number (300A,02A2) shall be unique within the Channel in which it is created.
>>Transfer Tube Length	(300A,02A4)	2C	Length of Transfer Tube of current afterloading Channel (mm). Required if value Transfer Tube Number (300A,02A2) is not zero length.
>>Recorded Channel Shield Sequence	(3008,0150)	3	Introduces sequence of Channel Shields associated with current Channel. The sequence may contain one or more items. See RT Plan IOD for description of Channel Shields.
>>>Referenced Channel Shield Number	(3008,0152)	2C	Identification number of the Channel Shield. The value of Channel Shield Number (300A,02B2) shall be unique within the Channel in which it is created. Required if Recorded Channel Shield Sequence (3008,0150) is sent.
>>>Channel Shield ID	(300A,02B3)	2C	User or machine supplied identifier for Channel Shield. Required if Recorded Channel Shield Sequence (3008,0150) is sent.
>>>Channel Shield Name	(300A,02B4)	3	User-defined name for Channel Shield.
>>Referenced Source Number	(300C,000E)	1	Uniquely identifies the referenced Source within the Recorded Source Sequence (3008,0100) for current Application Setup.
>>Safe Position Exit Date	(3008,0162)	1C	Date on which the source(s) exited the safe. Required if Recorded Channel Sequence (3008,0130) is sent and Brachy Treatment Type (300A,0202) is not MANUAL.

>>Safe Position Exit Time	(3008,0164)	1C	Time on which the source(s) exited the safe. Required if Recorded Channel Sequence (3008,0130) is sent and Brachy Treatment Type (300A,0202) is not MANUAL.
>>Safe Position Return Date	(3008,0166)	1C	Date on which the source(s) returned to the safe. Required if Recorded Channel Sequence (3008,0130) is sent and Brachy Treatment Type (300A,0202) is not MANUAL.
>>Safe Position Return Time	(3008,0168)	1C	Time on which the source(s) returned to the safe. Required if Recorded Channel Sequence (3008,0130) is sent and Brachy Treatment Type (300A,0202) is not MANUAL.
>>Number of Control Points	(300A,0110)	1	Number of control points in Channel. For an N-segment Channel there will be 2N (stepwise movement) or N+1 (continuous movement) control points.
>>Brachy Control Point Delivered Sequence	(3008,0160)	1	Introduces sequence of machine configurations describing this Channel. The sequence may contain two or more items. See RT Plan IOD and C.8.8.22.1 for description of Brachy Control Point Delivered Sequence.
>>>Referenced Control Point Index	(300C,00F0)	3	Index of current Control Point, starting at 0 for first Control Point.
>>>Treatment Control Point Date	(3008,0024)	1	Date when current Control Point occurred.
>>>Treatment Control Point Time	(3008,0025)	1	Time when current Control Point occurred.
>>>Control Point Relative Position	(300A,02D2)	1	Distance between current Control Point Position and the distal-most possible Source position in current Channel (mm). See RT Plan IOD.
>>>Override Sequence	(3008,0060)	3	Introduces sequence of parameters which were overridden during the administration of the treatment immediately prior to the current control point. The sequence may contain one or more items.
>>>>Override Parameter Pointer	(3008,0062)	2C	Contains the Data Element Tag of the attribute which was overridden. Required if Override Sequence (3008,0060) is sent.

>>>>Operator Name	(0008,1070)	2C	Name of operator who authorized override. Required if Override Sequence (3008,0060) is sent.
>>>>Override Reason	(3008,0066)	3	User-defined description of reason for override of parameter specified by Override Parameter Pointer (3008,0062).

2 Note: The Referenced Verification Image Sequence (300C,0040) may contain either images taken specifically
4 for verification of the brachy application setup or reference images used in place of verification images,
as might be done in HDR treatment planning.

C.8.8.22.1 PDR (Pulsed Dose Rate) Treatment

6 In Brachytherapy treatment techniques where Brachy Treatment Type (300A,0202) is PDR, the Brachy
Control Point Sequence (300A,02D0) shall consist of 2N items, where N = Delivered Number of Pulses
8 (3008,0138). Each control point pair shall specify the start and end of a single pulse.

C.8.8.23 RT Treatment Summary Record Module

2

Table C.8.8.23-1—RT Treatment Summary Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
Current Treatment Status	(3008,0200)	1	Status of the Treatment at the time the Treatment Summary was created. Enumerated Values: NOT_STARTED, ON_TREATMENT, ON_BREAK, SUSPENDED, STOPPED, COMPLETED. See C.8.8.23.1.
Treatment Status Comment	(3008,0202)	3	Comment on current treatment status.
First Treatment Date	(3008,0054)	2	Date of delivery of the first treatment.
Most Recent Treatment Date	(3008,0056)	2	Date of delivery of the most recent administration.
Fraction Group Summary Sequence	(3008,0220)	3	Introduces sequence describing current state of planned vs. delivered fraction groups. The sequence may contain one or more items.
>Referenced Fraction Group Number	(300C,0022)	3	References Fraction Group Number (300A,0071) in Fraction Group Sequence (300A,0070) in the referenced RT Plan.
>Fraction Group Type	(3008,0224)	2C	Indicates type of fraction group. Required if Fraction Group Summary Sequence (3008,0220) is sent. Enumerated Values: EXTERNAL_BEAM, BRACHY.
>Number of Fractions Planned	(300A,0078)	2C	Number of fractions planned for this fraction group. Required if Fraction Group Summary Sequence (3008,0220) is sent.
>Number of Fractions Delivered	(3008,005A)	2C	Number of fractions delivered as of Treatment Summary Report. Required if Fraction Group Summary Sequence (3008,0220) is sent.
>Fraction Status Summary Sequence	(3008,0240)	3	Introduces sequence describing status of fractions in Fraction Group. The sequence may contain one or more items.
>>Referenced Fraction Number	(3008,0223)	1C	Identifies fraction. Required if Fraction Status Summary Sequence (3008,0240) is sent.
>>Treatment Date	(3008,0250)	2C	Date when fraction was delivered. Required if Fraction Status Summary Sequence (3008,0240) is sent.

>>Treatment Time	(3008,0251)	2C	Time when fraction was delivered. Required if Fraction Status Summary Sequence (3008,0240) is sent.
>>Treatment Termination Status	(3008,002A)	2C	Conditions under which treatment was terminated. Required if Fraction Status Summary Sequence (3008,0240) is sent. Enumerated Values: NORMAL = treatment terminated normally OPERATOR = operator terminated treatment MACHINE = machine terminated treatment for other than NORMAL condition UNKNOWN = status at termination unknown
Treatment Summary Measured Dose Reference Sequence	(3008,00E0)	3	Introduces sequence of references to Measured Dose References. The sequence may contain one or more items.
>Referenced Dose Reference Number	(300C,0051)	3	Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan referenced in Referenced RT Plan Sequence (300C,0002) of RT General Treatment Record Module.
>Dose Reference Description	(300A,0016)	3	User-defined description of Dose Reference.
>Cumulative Dose to Dose Reference	(3008,0052)	1C	Cumulative Dose delivered to Dose Reference (Gy). Required if Treatment Summary Dose Reference Sequence (3008,00E0) is sent.
Treatment Summary Calculated Dose Reference Sequence	(3008,0050)	3	Introduces sequence of references to Calculated Dose References. The sequence may contain one or more items.
>Referenced Dose Reference Number	(300C,0051)	3	Uniquely identifies Dose Reference specified by Dose Reference Number (300A,0012) in Dose Reference Sequence (300A,0010) in RT Prescription Module of referenced RT Plan referenced in Referenced RT Plan Sequence (300C,0002) of RT General Treatment Record Module.

>Dose Reference Description	(300A,0016)	3	User-defined description of Dose Reference.
>Cumulative Dose to Dose Reference	(3008,0052)	1C	Cumulative Dose delivered to Dose Reference (Gy). Required if Treatment Summary Dose Reference Sequence (3008,0050) is sent.

2 Note: The RT Treatment Summary Record IOD may contain references to related RT Treatment Session
4 Record IODs. These references are contained within the Referenced Treatment Record Sequence
(3008,0030) of the RT General Treatment Record Module.

6 **C.8.8.23.1 Current Treatment Status**

The definition of the enumerated values for Current Treatment Status (3008,0200) are defined as follows:

8	NOT_STARTED	Patient has not yet begun treatment.
	ON_TREATMENT	Patient is currently undergoing treatment.
10	ON_BREAK	Patient is currently not undergoing treatment, but a resumption date is known.
12	SUSPENDED	Patient is currently not undergoing treatment, but resumption of treatment is planned at an unknown date.
14	STOPPED	Patient has stopped treatment without completing the planned course.
	COMPLETED	Patient completed the planned course of treatment.

16 A change in the Current Treatment Status (or any other field) in a RT Treatment Summary Record Object shall define a new instance of the RT Treatment Summary Record IOD.

Item #8 In Annex F.3, make the following change

- 2 In Annex F.3.2.2, Table F.3-3 (Directory Information Module), add the following Enumerated Values to the "Directory Record Type" attribute:
- 4 RT DOSE
RT STRUCTURE SET
- 6 RT PLAN
RT TREAT RECORD

Item #9 In Annex F.4, make the following changes

2 In Annex F.4, Table F.4-1 (Relationship Between Directory Records), add the following terms to right-hand column of the "SERIES" Directory Record Type:

4 RT DOSE, RT STRUCTURE SET, RT PLAN, RT TREAT RECORD

6

8 In Annex F.4, Table F.4-1 (Relationship Between Directory Records), add the following terms to the right-hand column of the "TOPIC" Directory Record Type:

RT DOSE, RT STRUCTURE SET, RT PLAN, RT TREAT RECORD

10

12 In Annex F.4, Table F.4-1 (Relationship Between Directory Records), add the following rows:

RT DOSE	F.5.18	PRIVATE
---------	--------	---------

14 RT STRUCTURE SET	F.5.19	PRIVATE
---------------------	--------	---------

RT PLAN	F.5.20	PRIVATE
---------	--------	---------

16 RT TREAT RECORD	F.5.21	PRIVATE
--------------------	--------	---------

18 In Annex F.4, Figure F.4-1 (Basic Directory IOD Information Model), add in box B the entities "RT Structure Set DR", "RT Dose DR", "RT Plan DR" and "RT Treat Record DR", as 0-n relationships.

Item #10 In Annex F.5, add the following sections

2 **F.5.18 RT Dose Directory Record Definition**

4 This Directory Record is based on the specification of Section F.3. It is identified by a Directory Record
 6 Type of Value "RT DOSE". Table F.5-18 lists the set of keys with their associated Types for such a
 8 Directory Record Type. The description of these keys may be found in the Modules related to the Dose IE
 of the RT Dose IOD. This Directory Record shall be used to reference a RT Dose SOP instance. This Type
 of Directory Record may reference a Lower-Level Directory Entity which includes one or more Directory
 Records as defined in Table F.4-2.

10 **Table F.5-18
RT DOSE KEYS**

Key	Tag	Type	Attribute Description
Specific Character Set	(0008,0005)	1C	Required if an extended or replacement character set is used in one of the keys.
Instance Number	(0020,0013)	1	
Dose Summation Type	(3004,000A)	1	
Dose Comment	(3004,0006)	3	
Icon Image Sequence	(0088,0200)	3	This Icon Image is representative of the RT Dose.
>Image Pixel Module			See Section F.7 of this part.
Any other Attribute of the Dose IE Modules		3	

12 Note: Because (0004,1511) Referenced SOP Instance UID in File may be used as a "pseudo" Directory Record Key (see Table F.3-3), it is not duplicated in this list of keys.

F.5.19 RT Structure Set Directory Record Definition

2 This Directory Record is based on the specification of Section F.3. It is identified by a Directory Record
4 Type of Value "RT STRUCTURE SET". Table F.5-19 lists the set of keys with their associated Types for
6 such a Directory Record Type. The description of these keys may be found in the Modules related to the
Structure Set IE of the RT Structure Set IOD. This Directory Record shall be used to reference a RT
Structure Set SOP instance. This Type of Directory Record may reference a Lower-Level Directory Entity
which includes one or more Directory Records as defined in Table F.4-2.

8

**Table F.5-19
RT STRUCTURE SET KEYS**

Key	Tag	Type	Attribute Description
Specific Character Set	(0008,0005)	1C	Required if an extended or replacement character set is used in one of the keys.
Instance Number	(0020,0013)	1	
Structure Set Label	(3006,0002)	1	
Structure Set Date	(3006,0008)	2	
Structure Set Time	(3006,0009)	2	
Any other Attribute of the Structure Set IE Modules		3	

10 Note: Because (0004,1511) Referenced SOP Instance UID in File may be used as a "pseudo" Directory Record Key (see Table F.3-3), it is not duplicated in this list of keys.

F.5.20 RT Plan Directory Record Definition

2 This Directory Record is based on the specification of Section F.3. It is identified by a Directory Record
4 Type of Value "RT PLAN". Table F.5-20 lists the set of keys with their associated Types for such a
6 Directory Record Type. The description of these keys may be found in the Modules related to the Plan IE
of the RT Plan IOD. This Directory Record shall be used to reference a RT Plan SOP instance. This Type
of Directory Record may reference a Lower-Level Directory Entity which includes one or more Directory
Records as defined in Table F.4-2.

8 **Table F.5-20**
RT PLAN KEYS

Key	Tag	Type	Attribute Description
Specific Character Set	(0008,0005)	1C	Required if an extended or replacement character set is used in one of the keys
Instance Number	(0020,0013)	1	
RT Plan Label	(300A,0002)	1	
RT Plan Date	(300A,0006)	2	
RT Plan Time	(300A,0007)	2	
Any other Attribute of the Plan IE Modules		3	

10 Note: Because (0004,1511) Referenced SOP Instance UID in File may be used as a "pseudo" Directory Record Key (see Table F.3-3), it is not duplicated in this list of keys.

F.5.21 RT Treatment Record Directory Record Definition

2 This Directory Record is based on the specification of Section F.3. It is identified by a Directory Record
4 Type of Value "RT TREAT RECORD". Table F.5-21 lists the set of keys with their associated Types for
6 such a Directory Record Type. The description of these keys may be found in the Modules related to the
8 Treatment Record IE of the RT Treatment Record IODs. This Directory Record shall be used to reference
an RT Beams Treatment Record SOP instance, RT Brachy Treatment Record SOP instance, or RT
Treatment Summary Record SOP instance. This Type of Directory Record may reference a Lower-Level
Directory Entity which includes one or more Directory Records as defined in Table F.4-2.

**Table F.5-21
RT TREATMENT RECORD KEYS**

Key	Tag	Type	Attribute Description
Specific Character Set	(0008,0005)	1C	Required if an extended or replacement character set is used in one of the keys
Instance Number	(0020,0013)	1	
Treatment Date	(3008,0250)	2	
Treatment Time	(3008,0251)	2	
Any other Attribute of the Treatment Record IE Modules		3	

Note: Because (0004,1511) Referenced SOP Instance UID in File may be used as a "pseudo" Directory Record Key (see Table F.3-3), it is not duplicated in this list of keys.

Changes to:
NEMA Standards Publication PS 3.4-1998

Digital Imaging and Communications in Medicine (DICOM)
PS 3.4 Storage SOP Classes

Item #1 In PS 3.4 Section B.5, add the following SOP Classes:

2 **B.5 STANDARD SOP CLASSES**

SOP Class Name	SOP Class UID
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7

Item #2 In PS 3.4 Annex I.5, Table I.4-1 (Media Storage Standard SOP Classes), add the following SOP Classes:

**Table I.4-1
MEDIA STORAGE STANDARD SOP CLASSES**

SOP Class Name	SOP Class UID	IOD Specification
RT IMAGE STORAGE	1.2.840.10008.5.1.4.1.1.481.1	IOD defined in PS 3.3
RT DOSE STORAGE	1.2.840.10008.5.1.4.1.1.481.2	IOD defined in PS 3.3
RT STRUCTURE SET STORAGE	1.2.840.10008.5.1.4.1.1.481.3	IOD defined in PS 3.3
RT PLAN STORAGE	1.2.840.10008.5.1.4.1.1.481.5	IOD defined in PS 3.3
RT BEAMS TREATMENT RECORD STORAGE	1.2.840.10008.5.1.4.1.1.481.4	IOD defined in PS 3.3
RT BRACHY TREATMENT RECORD STORAGE	1.2.840.10008.5.1.4.1.1.481.6	IOD defined in PS 3.3
RT TREATMENT SUMMARY RECORD STORAGE	1.2.840.10008.5.1.4.1.1.481.7	IOD defined in PS 3.3

Changes to:
NEMA Standards Publication PS 3.6-1998

Digital Imaging and Communications in Medicine (DICOM)
PS 3.6 Data Dictionary

2 **Item #1 In PS 3.6 Section 6, add the following data elements:**

Tag	Name	VR	VM
(3008,001 0)	Measured Dose Reference Sequence	SQ	1
(3008,001 2)	Measured Dose Description	ST	1
(3008,001 4)	Measured Dose Type	CS	1
(3008,001 6)	Measured Dose Value	DS	1
(3008,002 0)	Treatment Session Beam Sequence	SQ	1
(3008,002 2)	Current Fraction Number	IS	1
(3008,002 4)	Treatment Control Point Date	DA	1
(3008,002 5)	Treatment Control Point Time	TM	1
(3008,002 A)	Treatment Termination Status	CS	1
(3008,002 B)	Treatment Termination Code	SH	1
(3008,002 C)	Treatment Verification Status	CS	1
(3008,003 0)	Referenced Treatment Record Sequence	SQ	1
(3008,003 2)	Specified Primary Meterset	DS	1
(3008,003 3)	Specified Secondary Meterset	DS	1
(3008,003 6)	Delivered Primary Meterset	DS	1
(3008,003 7)	Delivered Secondary Meterset	DS	1
(3008,003 A)	Specified Treatment Time	DS	1
(3008,003 B)	Delivered Treatment Time	DS	1
(3008,004 0)	Control Point Delivery Sequence	SQ	1

(3008,004 2)	Specified Meterset	DS	1
(3008,004 4)	Delivered Meterset	DS	1
(3008,004 8)	Dose Rate Delivered	DS	1
(3008,005 0)	Treatment Summary Calculated Dose Reference Sequence	SQ	1
(3008,005 2)	Cumulative Dose to Dose Reference	DS	1
(3008,005 4)	First Treatment Date	DA	1
(3008,005 6)	Most Recent Treatment Date	DA	1
(3008,005 A)	Number of Fractions Delivered	IS	1
(3008,006 0)	Override Sequence	SQ	1
(3008,006 2)	Override Parameter Pointer	AT	1
(3008,006 4)	Measured Dose Reference Number	IS	1
(3008,006 6)	Override Reason	ST	1
(3008,007 0)	Calculated Dose Reference Sequence	SQ	1
(3008,007 2)	Calculated Dose Reference Number	IS	1
(3008,007 4)	Calculated Dose Reference Description	ST	1
(3008,007 6)	Calculated Dose Reference Dose Value	DS	1
(3008,007 8)	Start Meterset	DS	1
(3008,007 A)	End Meterset	DS	1
(3008,008 0)	Referenced Measured Dose Reference Sequence	SQ	1
(3008,008 2)	Referenced Measured Dose Reference Number	IS	1
(3008,009 0)	Referenced Calculated Dose Reference Sequence	SQ	1
(3008,009 2)	Referenced Calculated Dose Reference Number	IS	1

(3008,00A 0)	Beam Limiting Device Leaf Pairs Sequence	SQ	1
(3008,00B 0)	Recorded Wedge Sequence	SQ	1
(3008,00C 0)	Recorded Compensator Sequence	SQ	1
(3008,00D 0)	Recorded Block Sequence	SQ	1
(3008,00E 0)	Treatment Summary Measured Dose Reference Sequence	SQ	1
(3008,010 0)	Recorded Source Sequence	SQ	1
(3008,010 5)	Source Serial Number	LO	1
(3008,011 0)	Treatment Session Application Setup Sequence	SQ	1
(3008,011 6)	Application Setup Check	CS	1
(3008,012 0)	Recorded Brachy Accessory Device Sequence	SQ	1
(3008,012 2)	Referenced Brachy Accessory Device Number	IS	1
(3008,013 0)	Recorded Channel Sequence	SQ	1
(3008,013 2)	Specified Channel Total Time	DS	1
(3008,013 4)	Delivered Channel Total Time	DS	1
(3008,013 6)	Specified Number of Pulses	IS	1
(3008,013 8)	Delivered Number of Pulses	IS	1
(3008,013 A)	Specified Pulse Repetition Interval	DS	1
(3008,013 C)	Delivered Pulse Repetition Interval	DS	1
(3008,014 0)	Recorded Source Applicator Sequence	SQ	1
(3008,014 2)	Referenced Source Applicator Number	IS	1
(3008,015 0)	Recorded Channel Shield Sequence	SQ	1
(3008,015 2)	Referenced Channel Shield Number	IS	1
(3008,016)	Brachy Control Point Delivered Sequence	SQ	1

0)			
(3008,016	Safe Position Exit Date	DA	1
2)			
(3008,016	Safe Position Exit Time	TM	1
4)			
(3008,016	Safe Position Return Date	DA	1
6)			
(3008,016	Safe Position Return Time	TM	1
8)			
(3008,020	Current Treatment Status	CS	1
0)			
(3008,020	Treatment Status Comment	ST	1
2)			
(3008,022	Fraction Group Summary Sequence	SQ	1
0)			
(3008,022	Referenced Fraction Number	IS	1
3)			
(3008,022	Fraction Group Type	CS	1
4)			
(3008,023	Beam Stopper Position	CS	1
0)			
(3008,024	Fraction Status Summary Sequence	SQ	1
0)			
(3008,025	Treatment Date	DA	1
0)			
(3008,025	Treatment Time	TM	1
1)			
(300A,001	Nominal Beam Energy Unit	CS	1
5)			
(300A,00E	Compensator Type	CS	1
E)			

Item #2 In PS 3.6 Annex A, add the following UIDs:

2

UID Value	UID NAME	UID TYPE	Part
1.2.840.10008.5.1.4.1.1.481.4	RT Beams Treatment Record Storage	SOP Class	Part 4
1.2.840.10008.5.1.4.1.1.481.6	RT Brachy Treatment Record Storage	SOP Class	Part 4
1.2.840.10008.5.1.4.1.1.481.7	RT Treatment Summary Record Storage	SOP Class	Part 4

4 **END OF DOCUMENT**