

## DICOM Correction Proposal

STATUS	Letter Ballot
Date of Last Update	2014/09/08
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Submission Date	2013/12/10

Correction Number	CP-1394
Log Summary:	Add Radioactive Source Model ID to RT Brachy Application Setups Module.
Name of Standard	PS 3.3 2011
Rationale for Correction:	<p>RT Brachy Applications Setups Module, Source Sequence (300A,0210) identifies the radioactive sources used in the RT plan. However, there are not enough attributes to fully determine what kind of radioactive source was actually used. Dosimetric properties of radioactive sources used in brachytherapy differ not only by their dimensions and activity, but also by the internal construction of the radioactive source. Current attributes in the source sequence neglect source construction and therefore the matching of the actual dosimetric source is ambiguous.</p> <p>Recorded Source Sequence (3008,0100) in the RT Brachy Session Record Module specify Source Serial Number (3008,0105). This further enhances matching process, allowing system to determine between two identical physical sources of the same manufacturer. However this information is not present in the Source Sequence of the RT Brachy Applications Setup Module.</p>
Correction Wording:	

*Modify PS 3.3 C8.8.15 RT Brachy Application Setup Module*

- Table C.8-51—RT BRACHY APPLICATION SETUPS MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Brachy Treatment Technique	(300A,0200)	1	Type of brachytherapy treatment technique. Enumerated Values: INTRALUMENARY INTRACAVITARY INTERSTITIAL CONTACT INTRAVASCULAR PERMANENT See C.8.8.15.1.
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
Treatment Machine Sequence	(300A,0206)	1	Introduces single item sequence describing treatment machine to be used for treatment delivery. Only a single item shall be included in this sequence.
>Treatment Machine Name	(300A,00B2)	2	User-defined name identifying treatment machine to be used for treatment delivery.
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Source Sequence	(300A,0210)	1	Introduces sequence of Sources to be used within Application Setups. One or more items shall be included in this sequence.
>Source Number	(300A,0212)	1	Identification number of the Source. The value of Source Number (300A,0212) shall be unique within the RT Plan in which it is created.
>Source Type	(300A,0214)	1	Type of Source. Defined Terms: POINT LINE CYLINDER SPHERE
<b>&gt;Source Model ID</b>	<b>(300A,xxxx)</b>	<b>3</b>	<b><u>User-supplied identifier for the radioactive source model used for the source.</u></b> <b><u>See 8.8.15.15</u></b>
>Source Manufacturer	(300A,0216)	3	Manufacturer of Source.
<b>&gt;Source Serial Number</b>	<b>(3008,0105)</b>	<b>3</b>	<b><u>Serial number of Source.</u></b>
>Active Source Diameter	(300A,0218)	3	Diameter of active Source (mm).
>Active Source Length	(300A,021A)	3	Length of active Source (mm).
>Material ID	(300A,00E1)	3	User-supplied identifier for encapsulation material of active Source.
>Source Encapsulation Nominal Thickness	(300A,0222)	3	Nominal thickness of wall of encapsulation (mm). See C.8.8.15.12.

>Source Encapsulation Nominal Transmission	(300A,0224)	3	Nominal transmission through wall of encapsulation (between 0 and 1). See C.8.8.15.12
>Source Isotope Name	(300A,0226)	1	Name of Isotope.
>Source Isotope Half Life	(300A,0228)	1	Half-life of Isotope (days).
>Source Strength Units	(300A,0229)	1C	Measurement unit of Source Strength. Required if the source is not a gamma-emitting (photon) source. May be present otherwise. Enumerated Values: AIR_KERMA_RATE = Air Kerma Rate if Source is Gamma emitting Isotope. DOSE_RATE_WATER = Dose Rate in Water if Source is Beta emitting Isotope.
>Reference Air Kerma Rate	(300A,022A)	1	Air Kerma Rate in air of Isotope specified at Source Strength Reference Date (300A,022C) and Source Strength Reference Time (300A,022E) (in $\mu\text{Gy h}^{-1}$ at 1 m). Value shall be zero for non-gamma sources.
>Source Strength	(300A,022B)	1C	Source Strength of Isotope at Source Strength Reference Date (300A,022C) and Source Strength Reference Time (300A,022E), in units specified in Source Strength Units (300A,0229). Required if the source is not a gamma-emitting (photon) source. See C.8.8.15.13.
>Source Strength Reference Date	(300A,022C)	1	Reference date for Reference Air Kerma Rate (300A,022A) or Source Strength (300A,022B) of Isotope.
>Source Strength Reference Time	(300A,022E)	1	Reference time for Air Kerma Rate (300A,022A) or Source Strength (300A,022B) of Isotope.

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#### **C.8.8.15.15 Source Model ID**

**The Source Model ID (300A,xxxx) ties together the physical source properties. The creator of the plan has used this ID to select the radioactive source model for the plan. An example would be the name of the used TG-43 data set.**

*Modify PS 3.3 C8.8.22 - RT Brachy Session Record Module*

**Table C.8-58—RT BRACHY SESSION RECORD MODULE ATTRIBUTES**

<b>Attribute Name</b>	<b>Tag</b>	<b>Type</b>	<b>Attribute Description</b>
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. One or more Items shall be included in this sequence.
>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.
<b><u>&gt;Source Model ID</u></b>	<b><u>(300A,xxxx)</u></b>	<b><u>3</u></b>	<b><u>User-supplied identifier for the radioactive source model that was used for the source in the treatment plan of which this session record is based to. See 8.8.15.15</u></b>
>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).
>Source Strength Units	(300A,0229)	1C	Measurement unit of Source Strength. Required if the source is not a gamma-emitting (photon) source. May be present otherwise. Enumerated Values: AIR_KERMA_RATE = Air Kerma Rate if Source is Gamma emitting Isotope. DOSE_RATE_WATER = Dose Rate in Water if Source is Beta emitting Isotope.
>Reference Air Kerma Rate	(300A,022A)	1	Air Kerma Rate in air of Isotope specified at Source Strength Reference Date (300A,022C) and Source Strength Reference Time (300A,022E) (in $\mu\text{Gy h}^{-1}$ at 1 m). Value shall be zero for non-gamma sources.
>Source Strength	(300A,022B)	1C	Source Strength of Isotope at Source Strength Reference Date (300A,022C) and Source Strength Reference Time (300A,022E), in units specified in Source Strength Units (300A,0229). Required if the source is not a gamma-emitting (photon) source. See C.8.8.15.13.

>Source Strength Reference Date	(300A,022C)	1	Reference date for Reference Air Kerma Rate (300A,022A) or Source Strength (300A,022B) of Isotope.
>Source Strength Reference Time	(300A,022E)	1	Reference time for Air Kerma Rate (300A,022A) or Source Strength (300A,022B) of Isotope.

*Modify 3.6: Add the following data element to the data dictionary:*

<u>(300A,xxxx)</u>	<u>Source Model ID</u>	<u>SourceModelID</u>	<u>LO</u>	<u>1</u>
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