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DICOM Conformance Statement for FLEXAVISION

(SDR-100 Rev01.04)

SHIMADZU CORPORATION
KYOTO JAPAN

MEDICAL SYSTEMS DIVISION

NO TEXT

Overview:

This conformance statement details the SDR-100's compliance to DICOM 3.0.

NETWORK SERVICES

SOP Classes	Role
Transfer	
XRF Image Storage	SCU
Print Management	
Basic Grayscale Print Management	SCU
Modality Worklist Management	
Modality Worklist Information Model - FIND	SCU

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1. INTRODUCTION

1.1. REVISION HISTORY

Revision	Date	Description
First Edition	2007/01/25	New Release
A	2008/02/18	Add Annex A

1.2. AUDIENCE

Hospital officials and administrator of network devices connected to this device.

1.3. REMARKS

(Any important remarks, disclaimers, and general information are specified.)

1.4. DEFINITIONS, TERMS AND ABBREVIATIONS

AE – Application Entity

IOD – Information Object Definition

SCU – Service Class User

SCP – Service Class Provider

SOP – Service Object Pair

UID – Unique Identifier

1.5. REFERENCES

DICOM PS 3.2 Conformance

DICOM PS 3.3 Information Object Definitions

DICOM PS 3.4 Service Class Specifications

DICOM PS 3.5 Data Structures and Encoding

DICOM PS 3.6 Data Dictionary

DICOM PS 3.7 Message Exchange

DICOM PS 3.8 Network Communication Support for Message Exchange

2. NETWORKING

2.1. IMPLEMENTATION MODEL

2.1.1. Application Data Flow

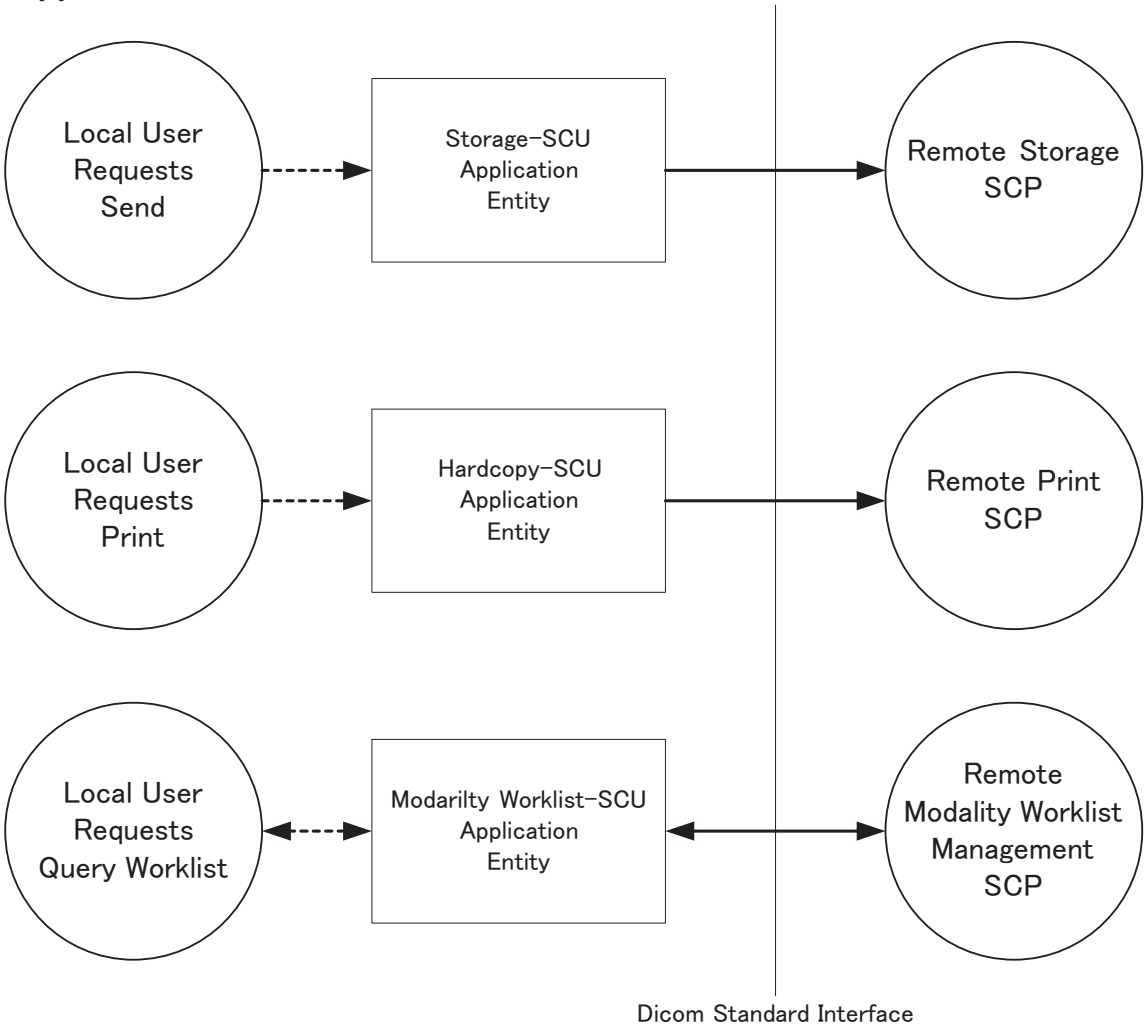

Figure 2-1 APPLICATION DATA FLOW DIAGRAM

DICOM capabilities of the SDR-100 include:

The SDR-100 can send images to a remote AE by initiating the DICOM C-STORE request as a SCU .

The SDR-100 can send images to a DICOM Print Server AE by utilizing the services of the Basic Grayscale Print Management Meta SOP Class as a SCU.

The SDR-100 can query worklist to a DICOM Modality worklist Server AE by utilizing the services of the Modality Worklist Information Model - FIND SOP Class as a SCU.

2.1.2. Functional Definitions of AE's

2.1.2.1. Storage-SCU Application Entity

STORAGE-SCU is activated through the user interface when a user selects instances from the local database, and requests that they be sent to a remote AE (selected from a pre-configured list).

2.1.2.2. Hardcopy-SCU Application Entity

The existence of a print-job in the print queue will activate the Hardcopy AE. An association is established with the printer and the printer's status determined. If the printer is operating normally, the film sheets described within the print-job will be printed. Changes in printer status will be detected (e.g. out of film) and reported to the user. If the printer is not operating normally, the print-job will set to an error state and can be restarted by the user via the job control interface.

2.1.2.3. Modality Worklist-SCU Application Entity

Modality Worklist-SCU requests the DICOM Association Establishment to the SCP.

The query condition is input, and the query request according to the query conditionis sent to the SCP.

The retrieval result is received, and the received information object is transmitted to the SDR-100 system software and it is displayed on the Patients' list.

2.1.3. Sequencing of Real-World Activities

All SCP activities are performed asynchronously in the background and not dependent on any sequencing.

2.2. AE SPECIFICATIONS

2.2.1. STORAGE-SCU

2.2.1.1. SOP Classes

STORAGE-SCU provide Standard Conformance to the following SOP Classes:

Table 2-1

SOP CLASSES SUPPORTED BY STORAGE-SCU

SOP Class Name	SOP Class UID	Role
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	SCU

2.2.1.2. Association Policies

2.2.1.2.1. General

STORAGE-SCU initiates but never accepts associations.

Table 2-2

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR STORAGE-SCU

Maximum PDU size received	Unlimited

2.2.1.2.2. Number of Associations

Table 2-3

NUMBER OF ASSOCIATIONS AS A SCP FOR STORAGE-SCU

Maximum number of simultaneous associations	1

2.2.1.2.3. Asynchronous Nature

STORAGE-SCU will only allow a single outstanding operation on an Association. Therefore, STORAGE-SCU will not perform asynchronous operations window negotiation.

2.2.1.2.4. Implementation Identifying Information

Table 2-4

DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCU

Implementation Class UID	1.2.392.200036.9110.1.0.6711.2001002
Implementation Version Name	SPF XX (XX : version number)

2.2.1.3. Association Initiation Policy

2.2.1.3.1. Activity – Send Storage Request

2.2.1.3.1.1. Description and Sequencing of Activities

For each instance selected from the user interface to be transferred, a single attempt will be made to transmit it to the selected remote AE. If the send fails, for whatever reason, no retry will be performed, and an attempt will be made to send the next instance.

2.2.1.3.1.2. Proposed Presentation Contexts

Table 2-5

PROPOSED PRESENTATION CONTEXTS FOR STORAGE-SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
X-Ray RF Image Store	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

2.2.1.3.1.2.1. Extended Negotiation

No extended negotiation is performed.

2.2.1.3.1.3. SOP Specific Conformance

2.2.1.3.1.3.1. SOP Specific Conformance to Storage SOP Classes

STORAGE-SCU provides standard conformance to the Storage Service Class.

2.2.1.3.1.3.2. Presentation Context Acceptance Criterion

STORAGE-SCU does not accept associations.

2.2.1.4. Association Acceptance Policy

STORAGE-SCU does not accept associations.

2.2.2. HARDCOPY-SCU

2.2.2.1. SOP Classes

The SDR-100 provides Standard Conformance to the following SOP Classes:

Table 2-6

SOP CLASSES SUPPORTED BY PRINT -SCU

SOP Class Name	SOP Class UID	Role
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	SCU
Basic Film Session	1.2.840.10008.5.1.1.1	SCU
Basic Film Box	1.2.840.10008.5.1.1.2	SCU
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	SCU
Printer	1.2.840.10008.5.1.1.16	SCU
Print Job	1.2.840.10008.5.1.1.14	SCU

2.2.2.2. Association Policies

2.2.2.2.1. General

HARDCOPY-SCU initiates but never accepts associations.

Table 2-7

DICOM APPLICATION CONTEXT FOR AE HARDCOPY

Application Context Name	1.2.840.10008.3.1.1.1

2.2.2.2.2. Number of Associations

Table 2-8

NUMBER OF ASSOCIATIONS AS A SCP FOR HARDCOPY-SCU

Maximum number of simultaneous associations	1

2.2.2.2.3. Asynchronous Nature

PRINT -SCU will only allow a single outstanding operation on an Association. Therefore, PRINT -SCU will not perform asynchronous operations window negotiation.

2.2.2.2.4. Implementation Identifying Information

Table 2-9

DICOM IMPLEMENTATION CLASS AND VERSION FOR HARDCOPY-SCU

Implementation Class UID	1.2.392.200036.9110.1.0.6711.2001002
Implementation Version Name	SPF XX (XX : version number)

2.2.2.3. Association Initiation Policy

2.2.2.3.1. Activity – Print Images

2.2.2.3.1.1. Description and Sequencing of Activities

For each instance selected from the user interface to be printed, a single attempt will be made to transmit it to the selected remote AE. If the print fails, for whatever reason, no retry will be performed, and an attempt will be made to send the next instance.

2.2.2.3.1.2. Proposed Presentation Contexts

Table 2-10

PROPOSED PRESENTATION CONTEXTS FOR HARDCOPY-SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Basic Grayscale Print Management (META)	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
Print Job	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

2.2.2.3.1.2.1. Extended Negotiation

No extended negotiation is performed.

2.2.2.3.1.3. SOP Specific Conformance

2.2.2.3.1.3.1. SOP Specific Conformance to Print SOP Classes

HARDCOPY-SCU provides standard conformance to the Storage Service Class.

2.2.2.3.1.3.2. Presentation Context Acceptance Criterion

HARDCOPY-SCU does not accept associations.

2.2.2.4. Association Acceptance Policy

HARDCOPY-SCU does not accept associations.

2.2.3. Modality Worklist-SCU

2.2.3.1. SOP Classes

The SDR-100 provides Standard Conformance to the following SOP Classes:

Table 2-11

SOP CLASSES SUPPORTED BY Modality Worklist -SCU

SOP Class Name	SOP Class UID	Role
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	SCU

2.2.3.2. Association Policies

2.2.3.2.1. General

Modality Worklist -SCU initiates but never accepts associations.

Table 2-12

DICOM APPLICATION CONTEXT FOR AE Modality Worklist

Application Context Name	1.2.840.10008.3.1.1.1

2.2.3.2.2. Number of Associations

Table 2-13

NUMBER OF ASSOCIATIONS AS A SCP FOR Modality Worklist -SCU

Maximum number of simultaneous associations	1

2.2.3.2.3. Asynchronous Nature

Modality Worklist -SCU will only allow a single outstanding operation on an Association. Therefore,

Modality Worklist -SCU will not perform asynchronous operations window negotiation.

2.2.3.2.4. Implementation Identifying Information

Table 2-14

DICOM IMPLEMENTATION CLASS AND VERSION FOR Modality Worklist -SCU

Implementation Class UID	1.2.392.200036.9110.1.0.6711.2001002
Implementation Version Name	SPF XX (XX : version number)

2.2.3.3. Association Initiation Policy

2.2.3.3.1. Activity – Query Worklist

2.2.3.3.1.1. Description and Sequencing of Activities

Associates real-world activity using C-FIND is that the Modality Worklist - SCU retrieves the information objects from the SCP and the Modality Worklist - SCU send the information objects to the SDR-100 System Software.

2.2.3.3.1.2. Proposed Presentation Contexts

Table 2-15

PROPOSED PRESENTATION CONTEXTS FOR Modality Worklist-SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

2.2.3.3.1.2.1. Extended Negotiation

No extended negotiation is performed.

2.2.3.3.1.3. SOP Specific Conformance

2.2.3.3.1.3.1. SOP Specific Conformance to Modality Worklist Information Class - C-FIND

Modality Worklist -SCU provides standard conformance to the Storage Service Class.

2.2.3.3.1.3.1.1. Matching Key

Scheduled Procedure Step Module

Tag	Attribute Name	VR	Match-ing Key Type	Description
(0008,0005)	Specific character set	CS	O	
(00400100)	Scheduled Procedure Step Sequence	SQ	R	Sequence is limited to one item.
>(00080060)	Modality	CS	R	Single Value RF Matching.
>(00400001)	Scheduled Station AE Title	AE	R	
>(00400002)	Scheduled Procedure Step Start Date	DA	R	Single Value Matching. Range Matching

Each matching key is configurable if it is used as the matching key or not.

2.2.3.3.1.3.2. Presentation Context Acceptance Criterion

Modality Worklist -SCU does not accept associations.

2.2.3.4. Association Acceptance Policy

Modality Worklist -SCU does not accept associations.

2.3. NETWORK INTERFACES

2.3.1. Physical Network Interface

The application is indifferent to the physical medium over which TCP/IP executes; which is dependent on the underlying operating system and hardware.

2.3.2. Additional Protocols

When host names rather than IP addresses are used in the configuration properties to specify presentation addresses for remote AEs, the application is dependent on the name resolution mechanism of the underlying operating system.

2.4. CONFIGURATION

2.4.1. AE Title/Presentation Address Mapping

AE Title can be changed using the service tool, which can be started by a user on the maintenance account.

This system uses IP address directly, not Host name.

2.4.2. Parameters

Table 2-16

CONFIGURATION PARAMETERS TABLE

Parameter	Configurable	Default Value
General Parameters		
PDU Size	Yes	16kB
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	No	None
General DIMSE level time-out values	No	None
Time-out waiting for response to TCP/IP connect() request. (Low-level timeout)	No	None
Time-out waiting for acceptance of a TCP/IP message over the network. (Low-level timeout)	No	None
Time-out for waiting for data between TCP/IP packets.(Low-level timeout)	No	None
Any changes to default TCP/IP settings, such as configurable stack parameters.	No	None

3. SUPPORT OF CHARACTER SETS

3.1. OVERVIEW

The SDR-100 supports the ISO_IR 100 Character set and ISO_IR 87, ISO_IR 13 Character set.

3.2. CHARACTER SETS

Table 3-1

SUPPORTED SPECIFIC CHARACTER SET DEFINED TERMS

Character Set Description	Defined Term
Latin alphabet No. 1	ISO_IR 100
Japanese	ISO 2022 IR 87
	ISO 2022 IR 13

3.3. CHARACTER SET CONFIGURATION

The English mode employ ISO_IR 100 as standard, and the Japanese mode employ ISO 2022 IR 87 and ISO 2022 IR 13 as standard. In both mode the image specified character set is given priority. If the unsupported character set is supported by WindowsXP, they might be displayed. In this case its proper operation is not guaranteed.

4. SECURITY

4.1. SECURITY PROFILES

None supported.

4.2. ASSOCIATION LEVEL SECURITY

Only the combination of the registered AE Titles and IP address can open the Association.

4.3. APPLICATION LEVEL SECURITY

None supported.

Annex A - DICOM Data Elements Supported

Patient Module			PS3.3 section C.7.1.1
Attribute Name	**Tag**	**Type**	**Description**
Patient's name	0010,0010	2	Patient's full name. The value is filled by the operator for registration of study, or sent from MWM or Card-Reader.
Patient ID	0010,0020	2	Primary hospital identification number orcode for the patient. The value is filled by the operator for registration of study, or sent from MWM or Card-Reader.
Patient's Birth Date	0010,0030	2	Birth Date of the patient. The value is filled by the operator for registration of study, or sent from MWM or Card-Reader.
Patien's Sex	0010,0040	2	Sex of the named patient. The value is filled by the operator for registration of study, or sent from MWM or Card-Reader.

General Study Module			PS3.3 section C.7.2.1
Attribute Name	**Tag**	**Type**	**Description**
Stduy Instance UID	0020,000D	1	Unique identifier for study. The value is generate by the system, or sent from MWM.
Study Date	0008,0020	2	Date the Study started.
Study Time	0008,0030	2	Time the Study started.
Referring Physician's Name	0008,0090	2	Name of the patient's referring physician . (zero length data.)
Study ID	0020,0010	2	Study ID. The value is generate by the system.
Accession Number	0008,0050	2	Accession Number. The value is generate by the system, or filled by the operator, or sent from MWM.

Patient Study Module(Optional) PS3.3 section C.7.2.2			
Attribute Name	**Tag**	**Type**	**Description**
Patient's Age	0010,1010	3	Age of the patient. If Patient's birth date exists, the age calculated by the system will be set.

General Series Module PS3.3 section C.7.3.1			
Attribute Name	**Tag**	**Type**	**Description**
Modality	0008,0060	1	Type of equipment that originally acquired the data used to create the images in this Series.(RF)
Series Instance UID	0020,000E	1	Unique identifier of series. The system genrates this value.
Series Number	0020,0011	2	A number that identifies this Series. The value "1" is always set.
Laterality	0020,0060	2C	Laterality of (paired) body part examined. (zero length data)
Series Date	0008,0021	3	Date the Series started.
Series Time	0008,0031	3	Time the Series started
Performing Physicias' name	0008,1050	3	Physician's name will be set if it is selected in the Patient List Window.
Protocol Name	0018,1030	3	The name of APR will be set.
Series Description	0008,103E	3	The name of APR will be set.
Operators' Name	0008,1070	3	Operator's name will be set if it is selected in the Patient List Window.

General Equipment Module PS3.3 section C.7.5.1			
Attribute Name	**Tag**	**Type**	**Description**
Manufacturer	0008,0070	2	Manufacturer of the equipment that produced the composite instances. (SHIMADZU CORPORATION)
Institution Name	0008,0080	3	Institution where the equipment that produced the composite instances is located. (The Hospital Name in the site information setting service tool will be set.)
Station Name	0008,1010	3	User defined name identifying the machine that produced the images. (The Station Name in the site information setting tool will be set.)

Institutional Department Name	0008,1040	3	Department in the institution where the equipment that produced the composite instances is located. (The Institutional Department Name in the site information setting tool will be set.)
Manufacturer's Model Name	0008,1090	3	Manufacturer's model name of the equipment that produced the composite instances. (SDR-100)
Device Serial Number	0018,1000	3	Manufacturer's serial number of the equipment that produced the composite instances.

General Image Module		**PS3.3 section C.7.6.1**	
Attribute Name	**Tag**	**Type**	**Description**
Instance Number	0020,0013	2	A number that identifies this image.
Patient Orientation	0020,0020	2C	Patient direction of the rows and columns of the image. (zero length data)
Content Date	0008,0023	2C	The date the image pixel data creation started.
Content Time	0008,0033	2C	The time the image pixel data creation started.
Image Type	0008,0008	3	Image identification characteristics.
Acquisition Date	0008,0022	3	The date the acquisition of data that resulted in this image started.
Acquisition Time	0008,0032	3	The time the acquisition of data that resulted in this image started.
Referenced Image Sequence	0008,1140	3	A sequence that references other images significantly related to this image. This attribute will be set if the image is sent as a processed image.
>Referenced SOP Class UID	0008,1150	1C	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	0008,1155	1C	Uniquely identifies the referenced SOP Instance.
Source Image Sequence	0008,2112	3	A Sequence that identifies the set of Image SOP Class/Instance pairs of the Images that were used to derive this Image. This attribute will be set if the image is DIV, DIV_P or newly saved image.
>Referenced SOP Class UID	0008,1150	1C	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	0008,1155	1C	Uniquely identifies the referenced SOP Instance.
Image Comments	0020,4000	3	User-defined comments about the image. This attribute will be set if the image is newly saved image.

Image Pixel Module PS3.3 section C.7.6.3			
Attribute Name	**Tag**	**Type**	**Description**
Samples per Pixel	0028,0002	1	Number of samples (planes) in this image.(1)
Photometric Interpretation	0028,0004	1	Specifies the intended interpretation of the pixel data.(MONOCHROME2)
Rows	0028,0010	1	Number of rows in the image.
Columns	0028,0010	1	Number of columns in the image.
Bits Allocated	0028,0100	1	Number of bits allocated for each pixel sample.(16)
Bits Stored	0028,0101	1	Number of bits stored for each pixel sample.(12)
High Bit	0028,0102	1	Most significant bit for pixel sample data.(11)
Pixel Representation	0028,0103	1	Data representation of the pixel samples.(0)
Pixel Data	7FE0,0010	1	A data stream of the pixel samples that comprise the Image.
Pixel Aspect Ratio	0028,0034	1C	Ratio of the vertical size and horizontal size of the pixels in the image.(1\1)

Contrast/Bolus Module(Conditional) PS3.3 section C.7.6.4			
Attribute Name	**Tag**	**Type**	**Description**
(Contrast/Bolus Module is not used)			

Cine Module(Conditional) PS3.3 section C.7.6.5			
Attribute Name	**Tag**	**Type**	**Description**
Frame Time	0018,1063	1C	Nominal time (in msec) per individual frame.
Cine Rate	0018,0040	3	Number of frames per second.

Multi-Frame Module(Conditional)			PS3.3 section C.7.6.6
Attribute Name	**Tag**	**Type**	**Description**
Number of Frames	0028,0008	1	Number of frames in a Multi-frameImage.
Frame Increment Pointer	0028,0009	1	Contains the Data Element Tag of the attribute that is used as the frame increment in Multi-frame pixel data.

Frame Pointers Module			PS3.3 section C.7.6.9
Attribute Name	**Tag**	**Type**	**Description**
Representative Frame Number	0028,6010	3	The frame number selected for use as a pictorial representation (e.g. icon) of the Multi-frame Image.

Mask Module(Conditional)			PS3.3 section C.7.6.10
Attribute Name	**Tag**	**Type**	**Description**
(Mask Module is not used)			

X-Ray Image Module			PS3.3 section C.8.7.1
Attribute Name	**Tag**	**Type**	**Description**
Frame Increment Pointer	0028,0009	1C	Required if Multi-Frame Image. Contains the Data Element Tag of the attribute which is used as the Frame increment in Multi-frame image pixel data.
Image Type	0008,0008	1	Image identification characteristics.
Pixel Intensity Relationship	0028,1040	1	The relationship between the Pixel sample values and the X-Ray beam intensity.(LIN)
Samples per Pixel	0028,0002	1	Number of samples (color planes) in the image.(1)
Photometric Interpretation	0028,0004	1	Specifies the intended interpretation of the pixel data.(MONOCHROME2)
Bits Allocated	0028,0100	1	Number of bits allocated for each pixel sample.(16)
Bits Stored	0028,0101	1	Number of bits stored for each pixel sample.(12)
High Bit	0028,0102	1	Most significant bit for pixel sample data.(11)

Pixel Representation	0028,0103	1	Data representation of the pixel samples.(0)
Reference Image Sequence	0008,1140	1C	A sequence which provides reference to a set of Image SOP Class/Instance identifying other images significantly related to this image. This attribute will be set if the image is sent as a processed image.
>Referenced SOP Class UID	0008,1150	1C	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	0008,1155	1C	Uniquely identifies the referenced SOP Instance.

X-Ray Acquisition Module			**PS3.3 section C.8.7.2**
Attribute Name	**Tag**	**Type**	**Description**
KVP	0018,0060	2	Peak kilo voltage output of the X-Ray generator used.(zero length data)
Radiation Setting	0018,1155	1	Identify the general level of X-Ray dose exposure.(GR)
X-Ray Tube Current	0018,1151	2C	X-Ray Tube Current in mA. Required if Exposure (0018,1152) is not present. (zero length data)
Exposure Time	0018,1150	2C	Duration of X-Ray exposure in msec. (zero length data)
Intensifier Size	0018,1162	3	Diameter of X-Ray intensifier in mm.
Field of View Shape	0018,1147	3	Shape of the Image Intensifier Field of View. (ROUND if the image is neither DIV nor DIV_P)
Field of View Dimension(s)	0018,1149	3	Dimensions of the Image Intensifier Field of View in mm.
Pixel Spacing	0028,0030	1C	Physical distance in the patient between the center of each pixel, specified by a numeric pair - adjacent row spacing (delimiter) adjacent column spacing in mm.

X-Ray Collimator Module(Optional) PS3.3 section C.8.7.3			
Attribute Name	**Tag**	**Type**	**Description**
Collimator Shape	0018,1700	1	Shape(s) of the collimator.
Center of Circular Collimator	0018,1710	1C	Required if Collimator Shape (0018,1700) is CIRCULAR. Location of the center of the circular collimator with respect to pixels in the image given as row and column.
Radius of Circular Collimator	0018,1712	1C	Required if Collimator Shape (0018,1700) is CIRCULAR. Radius of the circular collimator with respect to pixels in the image given as a number of pixels along the row direction.

Display Shutter Module (Optional) PS3.3 section C.7.6.11			
Attribute Name	**Tag**	**Type**	**Description**
(Display Shutter Module is not used with standard DICOM storage configuration(Processed image storage). This module is used only when with Non-Processed image storage configuration.)			
Shutter Shape	0018,1600	1	Shape(s) of the shutter defined for display. (CIRCLE, RECTANGLER, both, or none will be set, depending on type of image.)
Shutter Left Vertical Edge	0018,1602	1C	Required if Shutter Shape (0018,1600) is RECTANGULAR. Location of the left edge of the rectangular shutter with respect to pixels in the image given as column.
Shutter Right Vertical Edge	0018,1604	1C	Required if Shutter Shape (0018,1600) is RECTANGULAR. Location of the right edge of the rectangular shutter with respect to pixels in the image given as column.
Shutter Upper Horizontal Edge	0018,1606	1C	Required if Shutter Shape (0018,1600) is RECTANGULAR. Location of the upper edge of the rectangular shutter with respect to pixels in the image given as row.
Shutter Lower Horizontal Edge	0018,1608	1C	Required if Shutter Shape (0018,1600) is RECTANGULAR. Location of the lower edge of the rectangular shutter with respect to pixels in the image given as row.
Center of Circular Shutter	0018,1610	1C	Required if Shutter Shape (0018,1600) is CIRCULAR. Location of the center of the circular shutter with respect to pixels in the image given as row and column.
Radius of Circular Shutter	0018,1612	1C	Required if Shutter Shape (0018,1600) is CIRCULAR. Radius of the circular shutter with respect to pixels in the image given as a number of pixels along the row direction.

Device Module(Optional)			PS3.3 section C.7.6.12
Attribute Name	**Tag**	**Type**	**Description**
(Device Module is not used)			

Therapy Module(Optional)			PS3.3 section C.7.6.13
Attribute Name	**Tag**	**Type**	**Description**
(Therapy Module is not used)			

X-Ray Table Module (Optional)			PS3.3 section C.8.7.4
Attribute Name	**Tag**	**Type**	**Description**
(X-Ray Table Module is not used)			

XRF Positioner Module(Optional)			PS3.3 section C.8.7.6
Attribute Name	**Tag**	**Type**	**Description**
Distance Source to Detector	0018,1110	3	Distance in mm from source to detector center.
Distance Source to Patient	0018,1111	3	Distance in mm from source to isocenter (center of field of view).

X-Ray Tomography Acquisition Module(Conditional)			PS3.3 section C.8.7.7
Attribute Name	**Tag**	**Type**	**Description**
(X-Ray Tomography Acquisition Module is not used)			

Overlay Plane Module (Optional)			PS3.3 section C.9.2
Attribute Name	**Tag**	**Type**	**Description**
(Overlay Plane Module is not used)			

Multi-frame Overlay Module (Conditional)			PS3.3 section C.9.3
Attribute Name	**Tag**	**Type**	**Description**
(Multi-frame Overlay Module is not used)			

Curve Module (Optional)			PS3.3 section C.10.2
Attribute Name	**Tag**	**Type**	**Description**
(Curve Module is not used)			

Modality LUT Module(Optional)			PS3.3 section C.11.1
Attribute Name	**Tag**	**Type**	**Description**
Rescale Intercept	0028,1052	1C	The value b in relationship between stored values (SV) and the output units specified in Rescale Type (0028,1054). Output units = m*SV + b. Required if Modality LUT Sequence (0028,3000) is not present. Shall not be present otherwise. (0)
Rescale Slope	0028,1053	1C	m in the equation specified by Rescale Intercept (0028,1052). Required if Rescale Intercept is present.(1.0)
Rescale Type	0028,1054	1C	Specifies the output units of Rescale Slope (0028,1053) and Rescale Intercept (0028,1052). Required if Rescale Intercept is present.(US)

VOI LUT Module(Optional)			PS3.3 section C.11.1
Attribute Name	**Tag**	**Type**	**Description**
Window Center	0028,1050	3	Window Center for display.
Window Width	0028,1051	1C	Window Width for display. Required if Window Center (0028,1050) is sent.

SOP Common Module			PS3.3 section C.12.1
Attribute Name	**Tag**	**Type**	**Description**
SOP Class UID	0008,0016	1	Uniquely identifies the SOP Class.
SOP Instance UID	0008,0018	1	Uniquely identifies the SOP Instance.
Specific Character Set	0008,0005	1C	Character Set that expands or replaces the Basic Graphic Set. “\ISO 2022 IR 87”(Japanese version) or “ISO 2022 IR 100”(English version) will be set by default. If sent from MWM, the sent value will be used. Japanese version only: If the data sent from Card-Reader or Info-File contains the characters of ISO 2022 IR 13, “ISO 2022 IR13\ISO 2022 IR87” will be set.
Instance Number	0020,0013	3	A number that identifies this Composite object instance.