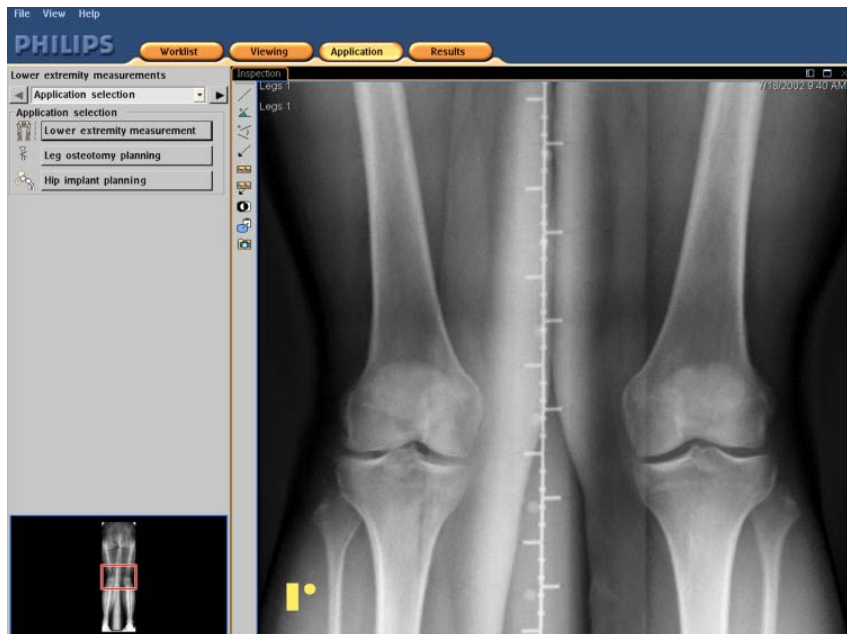

DICOM

Conformance Statement

Ortho Workbench R1.2V1L2



PHILIPS

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1. DICOM CONFORMANCE STATEMENT OVERVIEW

The Ortho Workbench provides an environment for data selection, viewing and reporting, in which specific orthopedic applications can be executed. This orthopedic software package offers an opportunity to offer products directly to an orthopedic surgeon, who usually does not have a PACS or a ViewForum. The Philips Orthopaedic Applications provide evaluation and planning functionality for Orthopaedic images. They are able to read DICOM files and create Secondary Captures Images.

A table of Supported Networking DICOM Service (SOP) Classes is provided with roles (User/Provider)

The main application areas of the Philips Orthopaedic Applications are:

- Leg Osteotomy planning
- Lower extremity measurements
- Hip Implant planning
- Viewing Images
- Generate Reports in Word format by filling in a Word template.

This DICOM Conformance Statement describes the DICOM conformance of the Philips Orthopaedic Applications platform. Application packages specific DICOM conformance is described in chapter 8 in this Conformance Statement.

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
Transfer			
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	No	Yes

The services can be specified as a SCU, SCP or as an Option, which means that it is either configurable or that it can be purchased separately.

A table of Supported Media Storage Application Profiles (with roles) is provided

Table 2: Media Services

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk – Recordable		
General Purpose CD-R Interchange	No	Yes

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3. INTRODUCTION

The introduction specifies product and relevant disclaimers as well as any general information that the vendor feels is appropriate.

3.1. Revision History

The revision history provides dates and differences of the different releases.

Table 3: Revision History

Document Version	Date of Issue	Author	Description
00	01 January 2006	PMS CTO C&S IC2	Template for the DICOM Conformance Statement (Ref. DICOM Standard PS 3.2 - Conformance)
01	30 January 2007	PMS CTO C&S IC2	Draft version of the DICOM Conformance Statements for Philips Ortho Workbench R1.2V1L2
02	05 March 2007	PMS CTO C&S IC2	Update after review.
03	20 March 2007	PMS CTO C&S IC2	Deleting of the Watermark DRAFT Final version

3.2. Audience

This Conformance Statement is intended for:

- (Potential) customers
- System integrators of medical equipment
- Marketing staff interested in system functionality
- Software designers implementing DICOM interfaces

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

3.3. Remarks

The DICOM Conformance Statement is contained in chapter 4 through 8 and follows the contents and structuring requirements of DICOM PS 3.2.

This DICOM Conformance Statement by itself does not guarantee successful interoperability of Philips equipment with non-Philips equipment. The user (or user's agent) should be aware of the following issues:

- **Interoperability**
Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into an IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment.
It is the user's responsibility to analyze thoroughly the application requirements and to specify a solution that integrates Philips equipment with non-Philips equipment.
- **Validation**
Philips equipment has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.
Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of

the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.

- **New versions of the DICOM Standard**

The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery.

The user should ensure that any non-Philips provider linking to Philips equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

3.4. Definitions, Terms and Abbreviations

DICOM definitions, terms and abbreviations are used throughout this Conformance Statement. For a description of these, see NEMA PS 3.3 and PS 3.4. The word Philips in this document refers to Philips Medical Systems.

The following acronyms and abbreviations are used in this document.

AE	Application Entity
ANSI	American National Standard Institute
AP	Application Profile
CD	Compact Disc
CD-R	CD-Recordable
CD-M	CD-Medical
CR	Computed Radiography
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DIMSE-Composite
DIMSE-N	DIMSE-Normalized
DX	Digital X-Ray
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
GUI	Graphic User Interface
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
RF	X-Ray Radiofluoroscopic
RWA	Real-World Activity
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/ Internet Protocol
UID	Unique Identifier
XA	X-Ray Angiographic

3.5. References

[DICOM] Digital Imaging and Communications in Medicine, Part 1 – 18
(NEMA PS 3.1– PS 3.18),
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1847
Rosslyn, Virginia. 22209, United States of America
Internet: <http://medical.nema.org/>

Note that at any point in time the official standard consists of the most recent yearly edition of the base standard (currently 2007) plus all the supplements and correction items that have been approved as Final Text.

4. NETWORKING

Philips Orthopaedic Applications does not provide any DICOM networking services.

5. MEDIA INTERCHANGE

5.1. Implementation Model

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

5.1.1. Application Data Flow Diagram

The Philips Orthopaedic Application consists of one single application entity only: the Philips Orthopaedic Application Application Entity.

Next figure shows the Media Interchange Application Data Flow as a functional overview of the Philips Orthopaedic Application for CD-R or DVD.

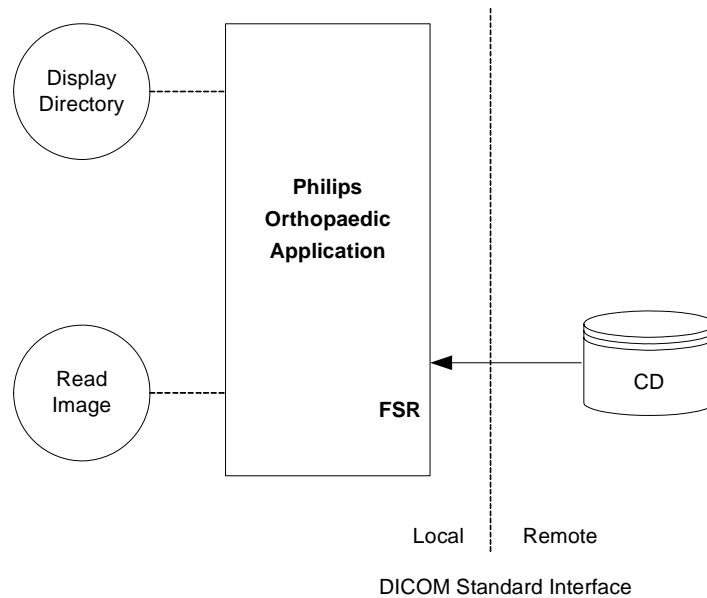


Figure 1: Application Data Flow Diagram

The next table shows the AE Related Application Profiles, Real-World Activities, and Roles for CD-R overview of the Philips Orthopaedic Application and the supporting roles for CD-R.

Table 4: Media Services table

Media Storage Application	Write Files (FSC / FSU)	Read Files (FSR)
General Purpose CD-R	NO / NO	YES

The Philips Orthopaedic Application will act as a FSR for CD-R, when reading the directory of the medium. Philips Orthopaedic Application supports the media profiles as shows in the Table below:

Table 5: Media Profiles supported by Philips Orthopaedic Application

Application Profile	CD
General Purpose	STD-GEN-CD

Supported Photometric Interpretations

The Philips Orthopaedic Application system supports images with the following DICOM Photometric Interpretations as shows in the Table below:

Table 6: Photometric interpretations supported by Philips Orthopaedic Application

Photometric Interpretation	Import	Export	Viewing
MONOCHROME1	YES	As RGB	YES
MONOCHROME2	YES	As RGB	YES
RGB	YES	As RGB	YES

5.1.2. Functional Definitions of AE's

This section shall describe in general terms the functions to be performed by the AE, and the DICOM services used to accomplish these functions.

5.1.2.1. Functional Definition of Philips Orthopaedic Application

The Philips Orthopaedic Application AE is the one and only application entity within Philips Orthopaedic Application. It includes the following service class.

Media Storage Service Class for CD

The Philips Orthopaedic Application AE can perform the CD-R Media Storage service as SCU, with capabilities for:

- Leg osteotomy planning, Hip implant planning and Lower extremity measurements
- RWA Display Directory (as FSR),
- RWA Read Images (as FSR).

5.1.3. Sequencing of Real World Activities

A CD can be read into the Philips Orthopaedic Application first by reading the DICOMDIR. The Philips Orthopaedic Application AE cannot compile the updated DICOMDIR. Any required DICOM images into a write session image is stored in file format to hard disk, memory stick or floppy disk.

5.1.4. File Meta Information for Implementation Class and Version

This section shall be used to list the values assigned to the File Meta Information attributes (ref. [DICOM] PS 3.10) that pertain to the Implementation Class and Version.

The Implementation Class UID and the Implementation Version Name in the File Meta Header are as specified for Philips Orthopaedic Application

Table 7: DICOM Implementation Class and Version for Philips Orthopaedic Application

Implementation Class and Version

File Meta Information Version	00, 01
Implementation Class UID	1.3.46.670589.5.4.2
Implementation Version Name	Ortho R 1.2V1L2

5.2. AE Specifications

The next section in the DICOM Conformance Statement contains the specification of the one and only Philips Orthopaedic Application Application Entity: Philips Orthopaedic Application AE

5.2.1. Philips Orthopaedic Application AE - Specification

The next section in the DICOM Conformance Statement contains the specification of the one and only Philips Orthopaedic Application Application Entity: Philips Orthopaedic Application AE

The Philips Orthopaedic Application AE provides Standard Conformance to the DICOM Media Storage Service and File Format ([DICOM] PS 3.10), the Media Storage Application Profiles STD-GEN-CD ([DICOM] PS 3.11)

Philips Orthopaedic Application supports multi-patient and multi-session CD-R disks, for Reading.

Supported media by Philips Orthopaedic Application is CD R / CD RW with the profile: STD-GEN-CD.

The supported Application Profiles, their Roles and the Service Class (SC) options, all defined in DICOM terminology, are listed in Table 8.

Table 8: AE Related Application Profiles, Real-World Activities, and Roles for CD-R

Supported Application Profile	Real-World Activity	Roles	SC Option
STD-GEN-CD	Display Directory	FSR	Interchange
	Read Images	FSR	Interchange

Only adding on instances is supported for the FSU, deleting is not supported.

5.2.1.1. File Meta Information for the Philips Orthopaedic Application

The Source Application Entity Title is configurable.

5.2.1.2. Real-World Activities

5.2.1.2.1. Display Directory

When a database open action is initiated on the CD-R then the Philips Orthopaedic Application acts as an FSR using the interchange option to read the DICOMDIR of the CD-R medium.

This will result in an overview of the patients, studies, series and images on the Philips Orthopaedic Application screen.

5.2.1.2.1.1. Media Storage Application Profile

The Philips Orthopaedic Application supports the RWA Display Directory for the STD-GEN-CD Application Profile.

5.2.1.2.2. Write Images

When an image transfer to hard disk is initiated then the Philips Orthopaedic Application acts as an FSC or FSU using the interchange option to export SOP Instances from to the local database or file medium.

5.2.1.2.2.1. Media Storage Application Profile

The Philips Orthopaedic Application supports the RWA Write Images function by sending these images to the local hard disk, memory disk or floppy disk.

6. SUPPORT OF CHARACTER SETS

Any support for character sets beyond the default character repertoire in Network and Media services shall be described here.

Table 9: Supported DICOM Character Sets of Ortho Workbench

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Latin alphabet No. 1	ISO 2022 IR 100	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/01	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO 2022 IR 101	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/02	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO 2022 IR 109	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/03	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO 2022 IR 110	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/04	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO 2022 IR 126	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/06	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO 2022 IR 127	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/07	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO 2022 IR 13	ESC 02/08 04/10	ISO-IR 14	G0	JIS X 0201: Romaji
		ESC 02/09 04/09	ISO-IR 13	G1	JIS X 0201: Katakana
Hebrew	ISO 2022 IR 138	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/08	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO 2022 IR 144	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/12	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO 2022 IR 148	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/13	ISO-IR 148	G1	Supplementary set of ISO 8859
Korean	ISO 2022 IR 149	-	ISO-IR 149	G1	KS X 1001: Hangul and Hanja
		-	-	-	-
Japanese	ISO 2022 IR 159	-	ISO-IR 159	G0	JIS X 0212: Supplementary Kanji set
		-	-	-	-
Thai	ISO 2022 IR 166	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 05/04	ISO-IR 166	G1	TIS 620-2533 (1990)
Default repertoire	ISO 2022 IR 6	-	ISO-IR 6	G0	ISO 646
		-	-	-	-
Japanese	ISO 2022 IR 87	-	ISO-IR 87	G0	JIS X 0208: Kanji

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
		-	-	-	-
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO_IR 101	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO_IR 109	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO_IR 110	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO_IR 126	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO_IR 127	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO_IR 13	-	ISO-IR 14	G0	JIS X 0201: Romaji
		-	ISO-IR 13	G1	JIS X 0201: Katakana
Hebrew	ISO_IR 138	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO_IR 144	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO_IR 148	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 148	G1	Supplementary set of ISO 8859
Thai	ISO_IR 166	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 166	G1	TIS 620-2533 (1990)
Unicode in UTF-8	ISO_IR 192	-	-	-	-
		-	-	-	-

7. SECURITY

Not Applicable

8. ANNEXES OF APPLICATION "PHILIPS ORTHOPAEDIC APPLICATIONS"

8.1. IOD Contents

8.1.1. Created SOP Instance

This section specifies each IOD created (including private IOD's). It should specify the attribute name, tag, VR, and value. The value should specify the range and source (e.g. user input, Modality Worklist, automatically generated, etc.). For content items in templates, the range and source of the concept name and concept values should be specified. Whether the value is always present or not shall be specified.

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS The module is always present
 CONDITIONAL The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS The attribute is always present with a value
 EMPTY The attribute is always present without any value (attribute sent zero length)
 VNAP The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
 ANAP The attribute is present under specified condition – if present then it will always have a value
 ANAPCV The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
 ANAPEV The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

AUTO The attribute value is generated automatically
 CONFIG The attribute value source is a configurable parameter
 COPY The attribute value source is another SOP instance
 FIXED The attribute value is hard-coded in the application
 IMPLICIT The attribute value source is a user-implicit setting
 MPPS The attribute value is the same as that use for Modality Performed Procedure Step
 MWL The attribute value source is a Modality Worklist
 USER The attribute value source is explicit user input

8.1.1.1. List of created SOP Classes

Table 10: List of created SOP Classes

SOP Class Name	SOP Class UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

8.1.1.2. Secondary Capture Image Storage SOP Class

Table 11: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	CONDITIONAL
Equipment	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 12: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	
Patient ID	0010,0020	LO		VNAP	COPY	
Patient's Birth Date	0010,0030	DA		VNAP	COPY	
Patient's Sex	0010,0040	CS		VNAP	COPY	
Issuer of Patient ID	0010,0021	LO		ANAP	COPY	
Patient's Birth Time	0010,0032	TM		ANAP	COPY	
Other Patient IDs	0010,1000	LO		ANAP	COPY	
Other Patient Names	0010,1001	PN		ANAP	COPY	
Ethnic Group	0010,2160	SH		ANAP	COPY	
Patient Comments	0010,4000	LT		ANAP	COPY	
Referenced Patient Sequence	0008,1120	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAPCV	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAPCV	COPY	

Table 13: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study Date	0008,0020	DA		VNAP	COPY	
Study Time	0008,0030	TM		VNAP	COPY	
Accession Number	0008,0050	SH		VNAP	COPY	
Referring Physician's Name	0008,0090	PN		VNAP	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Description	0008,1030	LO		ANAP	COPY	
Physician(s) of Record	0008,1048	PN		ANAP	COPY	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAPCV	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAPCV	COPY	
Referring Physician Identification Sequence	0008,0096	SQ		ANAP	COPY	
>Institution Name	0008,0080	LO		ANAPCV	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Person's Address	0040,1102	ST		ANAP	COPY	
>Person's Telephone Numbers	0040,1103	LO		ANAP	COPY	
>Person Identification Code Sequence	0040,1101	SQ		ALWAYS	COPY	

>Institution Code Sequence	0008,0082	SQ		ANAPCV	COPY	
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	
>Code Value	0008,0100	SH		ALWAYS	COPY	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>Code Meaning	0008,0104	LO		ALWAYS	COPY	
>Coding Scheme Version	0008,0103	SH		ANAPCV	COPY	
>Mapping Resource	0008,0105	CS		ANAPCV	COPY	
>Context Group Version	0008,0106	DT		ANAPCV	COPY	
>Context Group Local Version	0008,0107	DT		ANAPCV	COPY	
>Context Group Extension Creator UID	0008,010D	UI		ANAPCV	COPY	
>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	
>Context Identifier	0008,010F	CS		ANAP	COPY	
Physician(s) of Record Identification Sequence	0008,1049	SQ		ANAP	COPY	
>Institution Name	0008,0080	LO		ANAPCV	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Person's Adress	0040,1102	ST		ANAP	COPY	
>Person's Telephone Numbers	0040,1103	LO		ANAP	COPY	
>Person Identification Code Sequence	0040,1101	SQ		ALWAYS	COPY	
>>Code Value	0008,0100	SH		ALWAYS	COPY	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>>Code Meaning	0008,0104	LO		ALWAYS	COPY	
>>Coding Scheme Version	0008,0103	SH		ANAPCV	COPY	
>>Mapping Resource	0008,0105	CS		ANAPCV	COPY	
>>Context Group Version	0008,0106	DT		ANAPCV	COPY	
>>Context Group Local Version	0008,0107	DT		ANAPCV	COPY	
>>Context Group Extension Creator UID	0008,010D	UI		ANAPCV	COPY	
>>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	
>>Context Identifier	0008,010F	CS		ANAP	COPY	
>Institution Code Sequence	0008,0082	SQ		ANAPCV	COPY	
>>Code Value	0008,0100	SH		ALWAYS	COPY	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>>Code Meaning	0008,0104	LO		ALWAYS	COPY	
>>Coding Scheme Version	0008,0103	SH		ANAPCV	COPY	
>>Mapping Resource	0008,0105	CS		ANAPCV	COPY	
>>Context Group Version	0008,0106	DT		ANAPCV	COPY	
>>Context Group Local Version	0008,0107	DT		ANAPCV	COPY	
>>Context Group Extension Creator UID	0008,010D	UI		ANAPCV	COPY	
>>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	
>>Context Identifier	0008,010F	CS		ANAP	COPY	
Physician(s) Reading Study Identification Sequence	0008,1062	SQ		ANAP	COPY	
>Institution Name	0008,0080	LO		ANAPCV	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Person's Adress	0040,1102	ST		ANAP	COPY	
>Person's Telephone Numbers	0040,1103	LO		ANAP	COPY	
>Person Identification Code Sequence	0040,1101	SQ		ALWAYS	COPY	
>Institution Code Sequence	0008,0082	SQ		ANAPCV	COPY	

Table 14: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	
Patient's Age	0010,1010	AS		ANAP	COPY	

Patient's Size	0010,1020	DS		ANAP	COPY	
Patient's Weight	0010,1030	DS		ANAP	COPY	
Occupation	0010,2180	SH		ANAP	COPY	
Additional Patient History	0010,21B0	LT		ANAP	COPY	
Admitting Diagnosis Code Sequence	0008,1084	SQ		ANAP	COPY	
>Code Value	0008,0100	SH		ALWAYS	COPY	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>Code Meaning	0008,0104	LO		ALWAYS	COPY	
>Coding Scheme Version	0008,0103	SH		ANAPCV	COPY	
>Mapping Resource	0008,0105	CS		ANAPCV	COPY	
>Context Group Version	0008,0106	DT		ANAPCV	COPY	
>Context Group Local Version	0008,0107	DT		ANAPCV	COPY	
>Context Group Extension Creator UID	0008,010D	UI		ANAPCV	COPY	
>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	
>Context Identifier	0008,010F	CS		ANAP	COPY	

Table 15: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	New generated value
Series Number	0020,0011	IS		ALWAYS	AUTO	Set to first available
Laterality	0020,0060	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ANAP	COPY	
Series Time	0008,0031	TM		ANAP	COPY	
Body Part Examined	0018,0015	CS		ANAP	COPY	
Protocol Name	0018,1030	LO		ANAP	COPY	

Table 16: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	FIXED	
Station Name	0008,1010	SH		ANAP	COPY	
Manufacturer's Model Name	0008,1090	LO	Philips Orthopaedic Applications	ALWAYS	FIXED	
Software Version(s)	0018,1020	LO		ALWAYS	COPY	Copied from original, extended with the version: "Philips Orthopaedic Applications R 1.2V1L1"

Table 17: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	
Modality	0008,0060	CS	CR, XA, DX, RF	ALWAYS	COPY	

Table 18: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS	1	ALWAYS	FIXED	
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Image Type	0008,0008	CS	DERIVED, SECONDARY	ALWAYS	FIXED	
Acquisition Date	0008,0022	DA		ANAP	COPY	
Acquisition Time	0008,0032	TM		ANAP	COPY	
Derivation Description	0008,2111	ST		ANAP	COPY	Copied from original, extended with "CAPTURE"

Table 19: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	FIXED	
Rows	0028,0010	US		ALWAYS	AUTO	512, 1024 and calculated using the ratio
Columns	0028,0011	US		ALWAYS	AUTO	512, 1024 and calculated using the ratio
Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
High Bit	0028,0102	US	7	ALWAYS	FIXED	
Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	

Table 20: SC Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Date of Secondary Capture	0018,1012	DA		ALWAYS	AUTO	Set to date of creation
Time of Secondary Capture	0018,1014	TM		ALWAYS	AUTO	Set to time of creation

Table 21: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPCV	COPY	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	New generated value

Table 22: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Group 0002 Length	0002,0000	UL		ALWAYS	AUTO	
File Meta Information Version	0002,0001	OB		ALWAYS	AUTO	
Media Storage SOP Class UID	0002,0002	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	AUTO	
Media Storage SOP Instance UID	0002,0003	UI		ALWAYS	AUTO	
Transfer Syntax UID	0002,0010	UI	1.2.840.10008.1.2.1	ALWAYS	AUTO	
Implementation Class UID	0002,0012	UI	1.3.46.670589.5.4.2	ALWAYS	AUTO	
Implementation Version Name	0002,0013	SH	ORTHO R 1.2V1L2	ALWAYS	AUTO	
Series Type (PIIM)	2001,106E	SH	SCSERIES	ALWAYS	AUTO	

8.1.2. Usage of Attributes from Received IOD

The following table defines the requirement per functionality:

- Type 1 This functionality requires all DICOM mandatory attributes
- Optional This functionality requires DICOM optional attributes as specified in related subsection including the DICOM mandatory attributes.
- Private This functionality requires private attributes, including DICOM mandatory and DICOM optional attributes.

The Philips Orthopaedic Application system supports the DICOM image SOP Classes as mentioned in the following table:

Table 23: Functionalities

Functionality	Type1	Optional	Private
Leg Osteotomy planning		X	
Lower extremity measurements		X	
Hip implant planning		X	
Viewing		X	

8.1.2.1. Usage of the Functionality Leg Osteotomy planning

The Leg Osteotomy application supports the following SOP classes

Table 24: Supported SOP Classes for functionality Leg Osteotomy planning

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

Table 25: Supported Optional attributes of functionality Leg Osteotomy planning

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
SOP Class UID	0008,0016	UI		
Number of Frames	0028,0008	IS		

8.1.2.2. Usage of the Functionality Lower extremity measurements

The Lower extremity measurements application supports the following SOP classes.

Table 26: Supported SOP Classes for functionality Lower extremity measurements

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

Table 27: Supported Optional attributes of functionality Lower extremity measurements

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
SOP Class UID	0008,0016	UI		
Number of Frames	0028,0008	IS		

8.1.2.3. Usage of the Functionality Hip implant planning

The Hip implant planning application supports the following SOP classes.

Table 28: Supported SOP Classes for functionality Hip implant planning

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

Table 29: Supported Optional attributes of functionality Hip implant planning

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
SOP Class UID	0008,0016	UI		
Number of Frames	0028,0008	IS		

8.1.2.4. Usage of the Functionality Viewing

The viewing application supports the following SOP classes.

Table 30: Supported SOP Classes for functionality Viewing

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1

Table 31: Supported Optional attributes of functionality Viewing

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
SOP Class UID	0008,0016	UI		
Number of Frames	0028,0008	IS		

8.1.3. Attribute Mapping

Not Applicable

8.1.4. Coerced/Modified fields

Not Applicable

8.2. Data Dictionary of Private Attributes

Not Applicable

8.3. Coded Terminology and Templates

Not Applicable

8.4. Grayscale Image consistency

Not Applicable

8.5. Standard Extended/Specialized/Private SOPs

Not Applicable

8.6. Private Transfer Syntaxes

Not Applicable