

AGFA HEALTHCARE DICOM Conformance Statement

→ **LR DICOM Controller 1.00 & 1.01**

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Revision Record

Revision Number	Remark
1.0	Initial revision
1.1	Added document number 000699
1.2	Corrections to SOP Class UID values in tables 3.1 & 3.5 and chapter 3.1.1.6
1.3	Removed support of 'Presentation LUT Shape – IDENTITY and INVERSE'. Presentation LUT SOP Class is only supported with 'Presentation LUT Sequence'.

1 INTRODUCTION

1.1 Intended Audience

The user of this document is involved with system integration and/or software design. It is assumed that the user is familiar with the terminology and concepts that are used within the DICOM 3.0 standard.

When you are not familiar with DICOM 3.0 terminology it is strongly advised to first read the appropriate parts of the DICOM standard, prior to reading this conformance statement.

Although the use of this conformance statement in conjunction with the DICOM 3.0 standard is intended to facilitate image and data communication between medical devices, it does not guarantee full interoperability between the connected devices. Therefore the following issues need to be carefully considered:

- **Integration:** The level and definition of interoperability between medical devices within a network remains outside the scope of the DICOM 3.0 standard and this conformance statement. Furthermore, the definition of specifications on the interoperability part, and developing an adequate solution that fully integrates this Agfa device with systems from other vendors, will be part of the user's responsibility in close coordination and agreement with both Agfa and the vendors of the other system(s) connected, and should not be underestimated.
- **Validation:** A detailed validation of the connection between this Agfa device and non-Agfa devices, before the connection is declared 'released for customer installation', is still required. The user should ensure that any non-Agfa system-provider accepts full responsibility to participate in the validation-process. The responsibility to maintain the integrity on image and related data is assumed to be part of the device where the image is handled at any given moment in the process-chain.
- **Future Evolution:** As the DICOM 3.0 standard evolves to meet changing user demands and to incorporate new features and technologies, Agfa will closely follow the evolution of the standard. This may result in a need for modification of operational, Dicom 3.0 compatible, devices. The user should ensure that any non-Agfa system-providers, whose systems are (to be) connected with Agfa devices, appropriately anticipate upon such changes to the DICOM standard in the future. Refusal to do so may consequently lead to a loss or significant deterioration of interoperability and/or connectivity between the connected devices.

1.2 Purpose of this Document

This conformance statement specifies the compliance of the ADPM component with the DICOM 3.0 standard. The ADPM component is an implementation of the DICOM 3.0 standard for Print Management Services (SCP). The ADPM component, as part of the LR DICOM Controller, serves as a Dicom input server (SCP) to accept DICOM hardcopy requests from other DICOM 3.0 compliant devices to be printed on the Agfa LR5200 or LR3300 printers.

It is the responsibility of the requesting device (SCU) to provide all necessary image quality-related attributes to the SCP.

2 IMPLEMENTATION MODEL

2.1 Application Data Flow Diagram

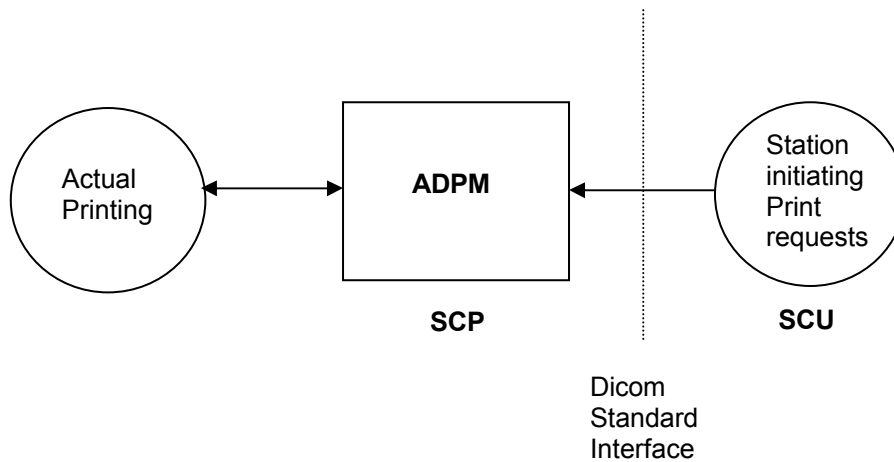


Figure 2-1 Implementation Model.

2.2 Functional Definitions of AE's

When a request for hardcopy has been initiated by the SCU AE, the SCU will make use of the DICOM Print Management Service SOP classes to allow for the definition of a Film Session with one or more subordinate Film Boxes, which in turn contain one or more subordinate Image Boxes. The SCU controls the hardcopy request by means of DIMSE services defined within the associated SOP-classes.

2.3 Sequencing of Real World Activities

Not applicable for Real World Activities.

However, a Film Session should be created before one or more subordinate Film Boxes can be created. Also, the Film Box should be created before one or more subordinate Image Boxes can be created.

3 AE SPECIFICATIONS

ADPM accepts hardcopy requests via DICOM (Print Management Service Class) associations.

3.1 ADPM – Specifications

- The ADPM component provides standard conformance to the following DICOM 3.0 Meta SOP Classes and DICOM 3.0 Optional SOP Classes as SCP:

Meta SOP Class Name	SOP Class UID
Basic Grayscale Print Management Meta SOP class	1.2.840.10008.5.1.1.9
Basic Color Print Management Meta SOP class	1.2.840.10008.5.1.1.18
Optional SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15
Print Job SOP Class	1.2.840.10008.5.1.1.14
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23

Table 3.1: META SOP Classes & SOP Classes.

- Support for Basic Grayscale Print Management as SCP also includes support for the following SOP Classes as SCP:

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Printer SOP Class	1.2.840.10008.5.1.1.16

Table 3.2: Supported SOP Classes for Basic Grayscale Print Management Meta SOP Class.

- Support for Basic Color Print Management as SCP also implies support for the following SOP Classes as SCP:

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Printer SOP Class	1.2.840.10008.5.1.1.16

Table 3.3: Supported SOP Classes for Basic Color Print Management Meta SOP Class.

3.1.1 Association Establishment Policies

3.1.1.1 General

Before any SOP Class can be exchanged between the SCU AE and ADPM (SCP), an Association is started to negotiate and exchange the capabilities of the SCU and SCP. The Print Management SCU and SCP establish an Association by using the Association Services of the DICOM Upper Layer. During association establishment, the DICOM Print Management AE's negotiate the supported SOP classes.

Only the SCU AE shall release an Association. The Association may be aborted by the SCU or the SCP.

The SCU AE attempts to initiate a new Association for each print session. This means that when no further activity is planned within the Association, the SCU should release the Association.

One can only send DIMSE messages to instances that are created within the same Association.

ADPM (SCP) supports a maximum PDU length of 65542 bytes.

3.1.1.2 Number of Associations

The number of simultaneous Associations supported by the SCP is virtually unlimited. The number of simultaneous Associations will influence the performance of the system. Default the number of simultaneous Associations is set to 10.

3.1.1.3 Asynchronous Nature

ADPM (SCP) will only allow one outstanding operation on an Association. The ADPM (SCP) can, however, issue an asynchronous N-EVENT message as defined in the supported SOP Classes.

3.1.1.4 Implementation Identifying Information

For ADPM the following identifying information is valid:

- Implementation Version Name: **AGFA DTF1.0.54**
- Implementation Class UID: **1.3.51.0.1.3**
- DICOM Application Context Name: **1.2.840.10008.3.1.1.1**

3.1.2 Association Initiation Policy

Not applicable because the ADPM (SCP) can not initiate an Association request.

3.1.3 Association Acceptance Policy

The ADPM (SCP) 'AETitle' is configurable and is part of the installation and configuration procedures of the LR DICOM Controller.

The ADPM (SCP) accepts only associations if the 'called AETitle' matches the ADPM 'AETitle'. It is not requested that the 'calling AETitle' is known, via pre-configuration, by the ADPM application.

All Associations must use the same destination TCP/IP port number (default 104).

3.1.4 Printing Encoded with Implicit or Explicit VR

3.1.4.1 Associated Real World Activity

The associated Real World Activity can be described as the processing and subsequent printing of images that have been encoded with any VR as agreed upon within the context of the association wherein the hardcopy request was defined.

3.1.4.2 Proposed Presentation Contexts

- Any of the Presentation Contexts shown in the following table are acceptable for ADPM as SCP:

Name-list	UID-list
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1
DICOM Explicit VR Big Endian Transfer Syntax	1.2.840.10008.1.2.2

Table 3.4: Transfer Syntaxes.

- The following Presentation Contexts are acceptable for ADPM:

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Verification	1.2.840.10008.1.1	all Transfer Syntaxes of Table 3.4	SCP	None
Basic Grayscale Print Management *	1.2.840.10008.1.1.9	all Transfer Syntaxes of Table 3.4	SCP	None
Basic Color Print Management *	1.2.840.10008.1.1.18	all Transfer Syntaxes of Table 3.4	SCP	None
Print Job	1.2.840.10008.5.1.1.14	all Transfer Syntaxes of Table 3.4	SCP	None
Basic Annotation Box	1.2.840.10008.5.1.1.15	all Transfer Syntaxes of Table 3.4	SCP	None
Presentation LUT	1.2.840.10008.5.1.1.23	all Transfer Syntaxes of Table 3.4	SCP	None
Print Queue Management	1.2.840.10008.5.1.1.26	all Transfer Syntaxes of Table 3.4	SCP	None

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
* Meta SOP Class				

Table 3.5: Presentation Context Table.

Note:

Presentation Context shall use Abstract Syntax IDs that correspond to the SOP Classes UID of the Meta SOP Class, specified in the first column of the Presentation Context Table or included SOP Classes. None of the included SOP Classes supports extended negotiation.

3.1.5 SOP Specific Conformance to Basic Grayscale Print Management Meta SOP Class

Standard conformance is also provided to the DICOM Basic Grayscale Print Management Class as SCP. Received attributes that are neither supported nor mandatory under the DICOM 3.0 standard, will not issue an error or failure status code.

3.1.5.1 Basic Film Session SOP Class

The following DIMSE services are supported:

- N-CREATE
- N-SET
- N-DELETE
- N-ACTION

On all other DIMSE services requested, ADPM will return status code 0211H.

3.1.5.1.1 N-CREATE

Send by the SCU AE to create a Basic Film Session SOP instance, after an Association has been established. The N-CREATE causes the Basic Film Session to be created and its attributes initialized. The Basic Film session has to be created before the Basic Film Boxes are created. If "N-CREATE" fails, the SCP AE will return an error message.

ADPM only supports one Basic Film Session SOP instance on an Association. No other concurrent Film Session shall or can be created on one Association. However, a subsequent Film Session on the same Association is allowed after deleting the previous Film Session.

Tag	Name	Supported	Default
(2000,0010)	Number of Copies	1-100	1
(2000,0020)	Print Priority	<ul style="list-style-type: none"> • HIGH, • LOW, • (MED=LOW) 	LOW
(2000,0030)	Medium Type	<ul style="list-style-type: none"> • CLEAR FILM • BLUE FILM 	refer to explanation below
(2000,0040)	Film Destination	PROCESSOR	PROCESSOR
(2000,0050)	Film Session Label		""
(2000,0060)	Memory Allocation		
(2100,0160)	Owner ID		
(2130,00A0)	Proposed Study Seq.		
(0010,0010)	>Patient's Name		
(0010,0020)	>Patient ID		
(0010,0030)	>Patient's Birth Date		
(0010,0032)	>Patient's Birth Time		
(0010,0040)	>Patient's Sex		
(0010,1000)	>Other Patient ID		

Tag	Name	Supported	Default
(0010,1001)	>Other Patient Names		
(0010,1010)	>Patient's Age		
(0010,1020)	>Patient's Size		
(0010,1030)	>Patient Weight		
(0010,2160)	>Ethnic Group		
(0010,2180)	>Occupation		
(0010,21B0)	>Add. Patient's History		
(0010,4000)	>Patient Comments		
(0020,0010)	>Study ID		
(0020,0011)	>Series Number		
(0020,000D)	>Study Instance UID		
(0008,0020)	>Study Date		
(0008,0030)	>Study Time		
(0008,0050)	>Accession Number		
(0008,0090)	>Ref. Physician's Name		
(0008,1030)	>Study Description		
(0008,1060)	>Name of Physician Reading Study		
(0008,1080)	>Admitting Diagnosis Description		

Table 3.6: Supported Attributes.

- > Medium Type:

Requested 'Medium Type' Supported?	'Medium Type' Available?	Behavior
YES	YES	Requested Medium Type is used
YES	NO	Film is not printed, print job is queued
NO	-	Default , this print job will be printed on the available 'Medium Type'. This setting is configurable (refer to Section 6).

Table 3.7: Medium Type.

- > The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned in case of no problems.
Warning (*)	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Failure	0117H	Invalid Object Instance Returned if a given instance UID has violated the UID construction rules.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	0213H	Resource Limitation Returned to indicate that the requested allocation can temporarily not be provided.

(*) **default**, 'warnings' are not returned. Enabling warnings is explained in Section 6.

Table 3.8: Status Codes.

3.1.5.1.2 N-SET

Used to update a Basic Film Session SOP instance.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned in case of no problems.
Warning (*)	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Failure	0110H	Processing failure Returned if no Data Set is provided by the SCU for the Basic Film Session SOP Class.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	0213H	Resource Limitation Returned to indicate that the requested allocation can temporarily not be provided.
(*) default , 'warnings' are not returned. Enabling warnings is explained in Section 6.		

Table 3.9: Status Codes.

3.1.5.1.3 N-DELETE

Used to delete the complete Basic Film Session SOP instance.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

Table 3.10: Status Codes.

3.1.5.1.4 N-ACTION

Used to print a Basic Film Session.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning (*)	B602H	Film Session SOP Instance hierarchy does not contain Image Box SOP Instances (empty page).
Failure	0115H	Invalid Argument Value Returned if the Action Type provided by the SCU is not recognized.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	C600H	Film Session SOP Instance hierarchy does not contain Film Box SOP Instances.
Failure	C601H	Returned if the support for the Print Job Class was negotiated and the creation of the Print Job Instance failed.
(*) default , 'warnings' are not returned. Enabling warnings is explained in Section 6.		

Table 3.11: Status Codes.

3.1.5.2 Basic Film Box SOP Class

The following DIMSE services are supported:

- N-CREATE
- N-SET
- N-DELETE
- N-ACTION

On all other DIMSE services requested, ADPM will return status code 0211H.

3.1.5.2.1 N-CREATE

Send by the SCU AE to create a Basic Film Box, after a Film Session has been successfully created. If "N-CREATE" fails, the SCP AE returns an error message. The creation of a Basic Film Box also causes the subordinate Basic Image Box instances to be created per image box as requested in the film format. The Basic Film Box contains the presentation parameters common for all images on a given sheet of film.

Tag	Name	Supported	Default
(2010,0010)	Image Display Format	<ul style="list-style-type: none"> STANDARD\ ROW\ COL\ SLIDE SUPERSLIDE 	
(2010,0030)	Annotation Display Format ID	ANNOTATION supported when the Annotation SOP Class is accepted during Association set-up (Refer to Section 3.1.6.5)	""
(2010,0040)	Film Orientation	<ul style="list-style-type: none"> PORTRAIT LANDSCAPE 	PORTRAIT
(2010,0050)	Film Size ID	<ul style="list-style-type: none"> 8INX10IN 10INX12IN (*) 11INX14IN 14INX14IN 14INX17IN 	(*) refer to explanation below
(2010,0060)	Magnification Type	<ul style="list-style-type: none"> REPLICATE BILINEAR CUBIC NONE 	CUBIC
(2010,0080)	Smoothing Type	0 / 100...200 / 251...299	140
(2010,0100)	Border Density	<ul style="list-style-type: none"> BLACK WHITE i, where i represents the desired density in hundredths of OD 	BLACK
(2010,0110)	Empty Image Density	<ul style="list-style-type: none"> BLACK WHITE i, where i represents the desired density in hundredths of OD 	BLACK
(2010,0120)	Minimum Density	Refer to explanation below	
(2010,0130)	Maximum Density	Refer to explanation below	
(2010,0140)	Trim	YES, NO	NO
(2010,0150)	Configuration Information	Refer to explanation below	KANAMORI
(2010,015E)	Illumination	1 ... 10.000	2000
(2010,0160)	Reflective Ambient Light	0 ... 10.000	10
(2010,0500)	Ref. Film Session Seq.		
(0008,1150)	>Ref. SOP Class UID		
(0008,1155)	>Ref. SOP Instance UID		
(2010,0510)	Ref. Image Box Seq.		
(0008,1150)	>Ref. SOP Class UID		
(0008,1155)	>Ref. SOP Instance UID		
(2010,0520)	Ref. Basic Annotation Box Seq.		
(0008,1150)	>Ref. SOP Class UID		
(0008,1155)	>Ref. SOP Instance UID		
(2050,0500)	Ref. Presentation LUT Seq.		
(0008,1150)	>Ref. SOP Class UID		
(0008,1155)	>Ref. SOP Instance UID		

Table 3.12: Supported Attributes.

3.1.5.2.1.1 Film Size ID

- **Supported Film Sizes:** When printing on film size 10INX12IN is requested by the SCU, the request will be accepted but the film-content will be printed on 11INX14IN medium. The applied scaling depends on the value of the received Magnification Type attribute or AE-specific (host-profile) configuration settings.
- **Pixel Matrixes:** The following printable areas are valid for 1/1 (R/C) layouts:
- Normal Resolution (315 dpi):

Printer Type	Film Size	NO annotations		WITH annotations			
		Portr.&Landsc.		Portrait		Landscape	
		Width	Height	Width	Height	Width	Height
LR5200	8INX10IN	2388	2972	2344	2647	2950	2046
	11INX14IN	3300	4256	3268	3924	4224	2962
	14INX14IN	4256	4232	4224	3897	NA	NA
	14INX17IN	4256	5174	4224	4839	5142	3924

Table 3.13: Pixel Matrixes.

- High Resolution (630 dpi):

Printer Type	Film Size	NO annotations		WITH annotations			
		Portr.&Landsc.		Portrait		Landscape	
		Width	Height	Width	Height	Width	Height
LR5200	8INX10IN	4776	5944	4688	5294	5900	4092
	11INX14IN	6600	8512	6536	7848	8448	5924
	14INX14IN	8512	8464	8448	7794	NA	NA
	14INX17IN	8512	10348	8448	9678	10284	7848

Table 3.14: Pixel Matrixes.

- **'Supported' and 'Available' Film Sizes:** With respect to selected film sizes, the following rules are applicable:

Requested 'Film Size ID' Supported ?	'Film Size' Available?	Behavior
YES	YES	Requested film size is used
YES	NO	Film is not printed, print job is queued
NO	-	Default , this print job will be printed on the available 'Film Size ID'. This behavior can be configured differently (refer to Section 6).

Table 3.15: 'Supported' and 'Not Supported' Film Sizes.

3.1.5.2.1.2 Magnification Type/Smoothing Type

- If the Magnification Type attribute value is "CUBIC" and no Smoothing Type attribute is defined, the default Smoothing Type value is used.
- For magnification type "CUBIC", following Smoothing Type values are special:

Value	Meaning
0	Cubic B, very smooth, but less smooth than LINEAR
100-200	Cubic High Resolution, very sharp (100) – smooth (200)
251-299	CubicBell

Table 3.16: Smoothing Type Values.

3.1.5.2.1.3 Configuration Information

This attribute can be used to define the Perception LUT and the contents of the Annotation Boxes. The individual parameters defined are separated by the "\" (BACKSLASH) character.

Example: "PERCEPTION_LUT=LINEAR\ANNOTATION1=PatientID: %PATIENTID%"

- **Perception LUT:** The following values are supported:
 - PERCEPTION_LUT=LINEAR: **Linear Perception LUT**
 - PERCEPTION_LUT=KANAMORI: **Kanamori Perception LUT**
 - PERCEPTION_LUT=n: **KanamoriLike Perception LUT**

When "PERCEPTION_LUT=n" is used, 'n' is defined in the range 75 to 220 as follows:

N	Kanamori Like Perception LUT meaning
< 100	Hyper-Kanamori Curve
100	Exact Kanamori Curve(same as "PERCEPTION_LUT=KANAMORI")
100...200	Curve between Kanamori and Linear
200	Exact Linear Curve (same as "PERCEPTION_LUT=LINEAR")
> 200	Hypo-Linear Curve

Table 3.17: 'n' Values.

- If the SCU AE does not define the Perception LUT, the default Perception LUT value is used.
- **Annotation:** There are 6 available Annotation boxes: ANNOTATION1 - ANNOTATION6. Each Annotation Box can be filled with the following information:
 - **Logo's:** Contents of a TIFF file:

<filename>.tif	Is used to print a logo on a film (to support backwards compatibility with MG3000).
%logo:<filename>.tif%	An extension '.TIF' needs to be added to each logo filename. The logo file '<filename>.tif' needs to be present on the hardcopy device at the location ' C:\logos ' on the LR DICOM Controller (???)

Note:

A 'logo' needs to be placed exclusively in a separate annotation box. It cannot be combined with other annotation information ('Field names'/'text') in the same annotation box.

- **Field Names:** The value of a DICOM attribute part of the print session (Basic Film Session). The following field names are defined:

Field Names	Attribute
Patid	(0010,0020)
Patientid %PATIENTID%	(0010,0020) (0010,0020)
Patientname %PATIENTNAME%	(0010,0010) (0010,0010)

Table 3.18: Field Names.

- **Text:** To put a text on the film.
- **Example:**
"ANNOTATION1=Patient Name: %PATIENTNAME%\ ANNOTATION2=%logo:AGFA.TIF%"

3.1.5.2.1.4 'Minimum Density', 'Maximum Density', 'Border Density' and 'Empty Image Density'

The following default behavior is applicable for attributes 'Border Density' (2010,0100), 'Empty Image Density' (2010,0110), 'Minimum Density' (2010,0120) (D_{min}) and/or 'Maximum Density' (2010,0130) (D_{max}):

- If the attribute is not send or no attribute value ("") is send, then the values are mapped to the D_{min} and D_{max} values, as measured during the last D_{max} -calibration, valid for the corresponding film (Film Size ID and Medium Type).
- If both a D_{min} and D_{max} value was sent, and these values are within the calibrated range for the corresponding film, then the send values are applied.
- If both a D_{min} or D_{max} value was sent, but (one of) the value(s) is outside the range for the corresponding film, then default behavior is that the 'out-of-range' value is mapped to the respective D_{min} or D_{max} value that is valid for the corresponding film type.
- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning (*)	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Warning (*)	B605H	Requested Dmin or Dmax Value Outside of Printer's Operating Range. Returned warning if requested density value is out of range. The instance UID is created.
Failure	0106H	Invalid Attribute Value
Failure	0110H	Processing failure Returned if no Data Set is provided by the SCU for the Basic Film Box SOP Class.
Failure	0117H	Invalid Object Instance Returned if a given instance UID has violated the UID construction rules.

Status	Code	Description
Failure	0120H	Missing Attribute Returned if a mandatory attribute of the Data Set, provided by the SCU AE, is missing.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

(*) **default**, 'warnings' are not returned. Enabling warnings is explained in Section 6.

Table 3.19: Status Codes.

3.1.5.2.2 N-SET

Used to update a Basic Film Box SOP instance.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning (*)	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Warning (*)	B605H	Requested Dmin or Dmax value Outside of Printer's operating Range. Returned warning if requested density value is out of range. The instance UID is created.
Failure	0106H	Invalid Attribute Value
Failure	0110H	Processing failure Returned if no Data Set is provided by the SCU for the Basic Film Box SOP Class.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

(*) **default**, 'warnings' are not returned. Enabling warnings is explained in Section 6.

Table 3.20: Status Codes.

3.1.5.2.3 N-DELETE

Used to delete the complete Basic Film Box SOP instance.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

Table 3.21: Status Codes.

3.1.5.2.4 N-ACTION

Used to print one or more copies of a single film of the Film Session. A Print Job SOP Instance is also created by the N-ACTION operation, if the Print Job SOP Class is accepted during the Association set-up.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning (*)	B603H	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page).
Failure	0115H	Invalid Argument Value Returned if the Action Type provided by the SCU is not recognized.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	C602H	Returned if the support for the Print Job Class was negotiated and the creation of the Print Job Instance failed.
(*) default , 'warnings' are not returned. Enabling warnings is explained in Section 6.		

Table 3.22: Status Codes.

3.1.5.3 Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box SOP instance is created by the ADPM at the time the N-CREATE of the Basic Film Box is processed. The Basic Grayscale Image Box contains the presentation parameters and image pixel data that apply to a single image.

The following DIMSE services are supported:

- N-SET

All other DIMSE services return status code 0211H.

3.1.5.3.1 N-SET

For each image in the Basic Film Box, the desired attributes of the Basic Image Box should be set. The SCU shall issue an N-SET for the Image Box. The SCP returns a status code. A print command can be issued by the SCU if at least one Basic Image Box is set. Empty image box positions are allowed. By using N-SET, the SCU can instruct the SCP to erase the image in the image position by setting a zero length and no value in the attribute 'Basic Grayscale Image Sequence'.

Tag	Name	Supported	Default
(2010,0060)	Magnification Type	Refer to Basic Film Box	
(2010,0080)	Smoothing Type	Refer to Basic Film Box	
(2020,0010)	Image Position	1 - x (depending layout)	
(2020,0020)	Polarity	<ul style="list-style-type: none"> • NORMAL • REVERSE 	NORMAL
(2020,0030)	Requested Image Size		
(2020,0110)	Basic Grayscale Image Sequence		
(0028,0002)	>Samples Per Pixel	1	
(0028,0004)	>Photometric Interpretation	<ul style="list-style-type: none"> • MONOCHROME1 • MONOCHROME2 	
(0028,0010)	>Rows	> 0	
(0028,0011)	>Columns	> 0	
(0028,0034)	>Pixel Aspect Ratio		111
(0028,0100)	>Bits Allocated	8, 16	
(0028,0101)	>Bits Stored	8 to 12	
(0028,0102)	>High Bit	7 to 15	
(0028,0103)	>Pixel Representation	0, 1	0
(7FE0,0010)	>Pixel Data		
(2050,0500)	Ref. Presentation LUT Seq.		
(0008,1150)	>Ref. SOP Class UID		
(0008,1155)	>Ref. SOP Instance UID		

Table 3.23: Supported Attributes.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning (*)	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Failure	0106H	Invalid Attribute Value
Failure	0110H	Processing failure Returned if no Data Set is provided by the SCU for the Basic Film Box SOP Class.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0120H	Missing Attribute Returned if a mandatory attribute of the Data Set, provided by the SCU AE, is missing.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	C605H	Insufficient memory in printer to store images.
(*) default , 'warnings' are not returned. Enabling warnings is explained in Section 6.		

Table 3.24: Status Codes.

3.1.5.4 Printer SOP Class

The Printer SOP Class is used to monitor the status of the printer. The Printer SOP instance is created by the SCP during the start-up of the device and has a well-known SOP instance UID: **1.2.840.10008.5.1.1.17**.

The following DIMSE services are supported:

- N-EVENT-REPORT
- N-GET

All other DIMSE services return status code 0211H.

3.1.5.4.1 N-EVENT-REPORT

At any time during the Association, the SCU application may receive an N-EVENT-REPORT from the ADPM (SCP). It is used by the SCP to report the changes of the printer status in an asynchronous way. N-EVENT-REPORT is default disabled.

Tag	Name	Supported	Default
(2110,0010)	Printer Status	<ul style="list-style-type: none"> • NORMAL • WARNING • FAILURE 	
(2110,0020)	Printer Status Info	Refer to Table 3.27 and Table 3.28	

Table 3.25: Supported Attributes.

3.1.5.4.2 N-GET

Retrieves an instance of the Printer SOP class.

Tag	Name	Supported	Default
(2110,0010)	Printer Status	<ul style="list-style-type: none"> • NORMAL • WARNING • FAILURE 	
(2110,0020)	Printer Status Info	Refer to Table 3.27 and Table 3.28	
(2110,0030)	Printer Name		Called AETitle
(0008,0070)	Manufacturer		Agfa
(0008,1090)	Manufacturer Model Name		FLRC
(0018,1000)	Device Serial Number		??
(0018,1020)	Software Versions		AGFA DTF1.0.?
(0018,1200)	Date Last Calibration		??
(0018,1201)	Time Last Calibration		??

Table 3.26: Supported Attributes.

The printer status will be returned as a combination of the Printer Status attribute (2110,0010) and the Printer Status Info attribute (2110,0020) of the Printer SOP Class.

- The following printer status returns are possible:

Printer Status	Printer Status Info	Meaning
----------------	---------------------	---------

Printer Status	Printer Status Info	Meaning
"NORMAL"	"NORMAL"	Printer OK
"WARNING"	See table 3.28	See table 3.28
"FAILURE"	"PRINTER DOWN"	The printer is not able to print due to a mechanical or electrical problem. A Service intervention is required.

Table 3.27: Default Printer Status Information.

- If configured, the following printer status information will be supported (refer to Section 6):

Printer Status	Printer Status Info	Meaning
"WARNING"	"PRINTER INIT"	Printer is not ready at this moment of time. It is expected to become available after initialization procedure is finished. No intervention is required. <u>Possible conditions:</u> <ul style="list-style-type: none"> • self diagnose • warming up Spooling of print jobs to the LR-controller is possible.
"WARNING"	"CALIBRATING"	Service is performing a printer- or film-calibration. The printer is expected to become available for normal operation shortly. Spooling of print jobs to the LR-controller is possible.
"WARNING"	"CHECK CHEMISTRY"	A problem with the processor chemicals has been detected, quality of the processed films may not be optimal.
"WARNING"	"EMPTY 8X10"	The 8"x10" supply-magazine in the dispenser is empty. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"EMPTY 10X12"	11"x14" film supply-magazine in the dispenser is empty. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"EMPTY 11X14"	11"x14" film supply-magazine in the dispenser is empty. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"EMPTY 14X14"	14"x14" film supply-magazine in the dispenser is empty. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"EMPTY 14X17"	14"x17" film supply-magazine in the dispenser is empty. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"COVER OPEN"	One of the covers is open. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"BAD SUPPLY MGZ"	A film tray is not closed. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"FILM JAM"	A film jam occurred. An intervention is required. Spooling of print jobs to the LR-controller is still possible.
"WARNING"	"PRINTER OFFLINE"	The printer has been disabled. Spooling of print jobs to the LR-controller is still possible.

Table 3.28: Additional Printer Status Information.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

Table 3.29: Status Codes.

3.1.6 SOP Specific Conformance to Basic Color Print Management Meta SOP Class

Standard conformance is also provided to the DICOM Basic Color Print Management Class.

Any attributes sent, other than those mentioned as supported, will not be flagged with an error or warning status code.

3.1.6.1 Basic Film Session SOP Class

Refer to the 'Basic Film Session SOP Class' for 'Basic Grayscale Print Management'.

3.1.6.2 Basic Film Box SOP Class

Refer to the 'Basic Film Box SOP Class' for 'Basic Grayscale Print Management'.

3.1.6.3 Basic Color Image Box SOP Class

The Basic Color Image Box SOP instance is created by the SCP at the time the N-CREATE of the Basic Film Box is processed. The Basic Color Image Box contains the presentation parameters and image pixel data that apply to a single image.

The following DIMSE services are supported:

- N-SET

All other DIMSE services return status code 0211H.

3.1.6.3.1 N-SET

For each image in the Basic Film Box, the desired attributes of the Basic Color Image Box should be set. The SCU shall issue an N-SET for the Image Box. The SCP returns a status code. A print command can be issued by the SCU if at least one Basic Image Box is set. Empty image box positions are allowed. By using N-SET, the SCU can instruct the SCP to erase the image in the image position by setting a zero length and no value in the attribute 'Basic Color Image Sequence'.

Tag	Name	Supported	Default
(2010,0060)	Magnification Type	<ul style="list-style-type: none"> • REPLICATE • BILINEAR • CUBIC • NONE 	CUBIC
(2010,0080)	Smoothing Type	Refer to Section 3.1.6.2	
(2020,0010)	Image Position	1 - x (depending layout)	
(2020,0020)	Polarity	<ul style="list-style-type: none"> • NORMAL • REVERSE 	NORMAL
(2020,0030)	Requested Image Size		
(2020,0111)	Basic Color Image Sequence		
(0028,0002)	>Samples Per Pixel	3	
(0028,0004)	>Photometric Interpretation	<ul style="list-style-type: none"> • RGB • PALETTE COLOR 	
(0028,0006)	>Planar Configuration	0000, 0001 (frame interleave)	
(0028,0010)	>Rows	> 0	
(0028,0011)	>Columns	> 0	
(0028,0034)	>Pixel Aspect Ratio		
(0028,0100)	>Bits Allocated	8	
(0028,0101)	>Bits Stored	8	
(0028,0102)	>High Bit	7	
(0028,0103)	>Pixel Representation	0	
(7FE0,0010)	>Pixel Data		

Table 3.30: Supported Attributes.

➤ The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Warning	0116H	Attribute Value Out of Range. Returned warning if an attribute value is out of range. The instance UID is created.
Failure	0106H	Invalid Attribute Value
Failure	0110H	Processing failure Returned if no Data Set is provided by the SCU for the Basic Film Box SOP Class.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0120H	Missing Attribute Returned if a mandatory attribute of the Data Set, provided by the SCU AE, is missing.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.
Failure	C605H	Insufficient memory in printer to store images.

Table 3.31: Status Codes.

3.1.6.4 Printer SOP Class

Refer to the 'Printer SOP Class' for Basic Grayscale Print Management'.

3.1.6.5 SOP Specific Conformance to Basic Annotation Box SOP Class

ADPM provides standard conformance to the DICOM Basic Annotation Box Service Class.

If the DICOM Basic Annotation Box Service Class is supported, the annotation data is provided via Basic Annotation Box Instance. This data is ignored if the 'Configuration Information' attribute (2010, 0150) contains annotation data. If this is not the case, the Basic Annotation Box data is used.

The Basic Annotation Box SOP Instance is created by a N-CREATE of the Film Box SOP Class, and the attribute 'Annotation Display Format ID' has the value "ANNOTATION".

The following DIMSE service is supported:

- N-SET

All other DIMSE services return status code 0211H.

3.1.6.5.1 N-SET

Used to update the Basic Annotation Box SOP Instance. Each Film Box has its own annotation boxes.

Tag	Name	Supported
(2030,0010)	Annotation Position	1-6 (for each Film Box)
(2030,0020)	Text String	Refer to explanation below

Table 3.32: Supported Attributes.

For each Film Box, 6 annotation boxes are available: ANNOTATION1 - ANNOTATION6. Each Annotation Box can be filled with the following information:

- **Logo's:** Contents of a TIFF file.

%logo:<filename>.tif%	Is used to print a logo on a film. An extension '.TIF' has to be added to each annotation filename. The annotation file '<filename>.tif' needs to be present on the hardcopy device at the following location: ' c:\logos '
-----------------------	--

Note:

A 'logo' needs to be placed exclusively in a separate annotation box. It cannot be combined with other annotation information ('Field names'/'text') in the same annotation box.

- **Field Names:** The value of a DICOM attribute part of the print session (Basic Film Session). The following field names are defined:

Field Name	Attribute
%ACCESSIONNUMBER%	(0008,0050)
%DIAGNOSEDESCRIPTION%	(0008,1080)
%ETHNICGROUP%	(0010,2160)
%OCCUPATION%	(0010,2180)
%OTHERPATIENTNAMES%	(0010,1001)

Field Name	Attribute
%OTHERPATIENTID%	(0010,1000)
%OWNERID%	(2100,0160)
%PATIENTID%	(0010,0020)
%PATIENTNAME%	(0010,0010)
%PATIENTSEX%	(0010,0040)
%PATIENTBIRTHDATE%	(0010,0030)
%PATIENTBIRTHTIME%	(0010,0032)
%PATIENTAGE%	(0010,1010)
%PATIENTSIZE%	(0010,1020)
%PATIENTWEIGHT%	(0010,1030)
%PATIENTHISTORY%	(0010,21B0)
%PATIENTCOMMENTS%	(0010,4000)
%SERIESNUMBER%	(0020,0011)
%STUDYID%	(0020,0010)
%STUDYIUID%	(0020,000D)
%STUDYDATE%	(0008,0020)
%STUDYTIME%	(0008,0030)
%STUDYDESCRIPTION%	(0008,1030)
%READINGPHYSICIAN%	(0008,1060)
%REFERRINGPHYSICIAN%	(0008,0090)

Table 3.33: Field Names.

- **A Configurable Parameter** (refer to Section 6): The following field names are defined:

Field Name	Parameter
MODALITY	modality

Table 3.34: Field Names.

- **Text:** To put a text on the film.
- **Example:** "ANNOTATION1=Patient Name : %PATIENTNAME%\ ANNOTATION2=%logo:AGFA.TIF%\ ANNOTATION5=Patient Birth Date: %PATIENTBIRTHDATE%"
- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

Table 3.35: Status Codes.

3.1.6.6 SOP Specific Conformance to Print Job SOP Class

ADPM provides standard conformance to the DICOM Print Job Service Class (1.2.840.10008.5.1.1.14).

Any attributes sent, other than those mentioned as supported, will not be flagged with an error or warning status code.

The Print Job SOP Instance is created by a N-ACTION of the Film Session SOP Class or a N-ACTION of the Film Box SOP Class. After all films are printed or in case of an error, the Print Job Instance is deleted.

The SCP returns status code C602H for the N-ACTION command in case the creation of the Print Job failed.

The following DIMSE services are supported:

- N-EVENT-REPORT
- N-GET

All other DIMSE services return status code 0211H.

3.1.6.6.1 N-EVENT-REPORT

Used to report execution status changes to the SCU in an asynchronous way. N-EVENT-REPORT is default disabled.

Tag	Name	Supported
(2100,0020)	Execution Status	<ul style="list-style-type: none"> • PENDING • PRINTING • DONE • FAILURE
(2100,0030)	Execution Status Info	
(2000,0020)	Print Priority	HIGH, LOW

Table 3.36: Supported Attributes.

3.1.6.6.2 N-GET

Used to retrieve an instance of the Print Job SOP Class.

Tag	Name	Supported
(2100,0020)	Execution Status	<ul style="list-style-type: none"> • PENDING • PRINTING • DONE • FAILURE
(2100,0030)	Execution Status Info	
(2000,0020)	Print Priority	HIGH, LOW
(2100,0040)	Creation Date	
(2100,0050)	Creation Time	

Tag	Name	Supported
(2100,0070)	Originator	
(2110,0030)	Printer Name	

Table 3.37: Supported Attributes.

3.1.6.7 SOP Specific Conformance to Presentation LUT SOP Class

ADPM provides standard conformance to the DICOM Presentation LUT Service Class.

The following DIMSE services are supported:

- N-CREATE
- N-DELETE

3.1.6.7.1 N-CREATE

Used to create a Presentation LUT SOP Instance.

Tag	Name	Supported
(2050,0010)	Presentation LUT sequence	
(0028,3002)	>LUT Descriptor	
(0028,3003)	>LUT Explanation	
(0028,3006)	>LUT Data	
(2050,0020)	NOT SUPPORTED	

Table 3.38: Supported Attributes.

If Presentation LUT Sequence is specified, failure 0106H is returned, indicating the creation of the Presentation LUT has failed.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0106H	Invalid Attribute Value
Failure	0120H	Missing Attribute

Table 3.39: Status Codes.

3.1.6.7.2 N-DELETE

Used to delete a Presentation LUT SOP Instance.

- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.

Failure	0119H	Class-Instance Conflict Returned if the SOP Class Instance UID is not defined for the given SOP Class.
---------	-------	--

Table 3.40: Status Codes.

3.1.6.8 SOP Specific Conformance to Verification SOP Class

ADPM provides standard conformance to the DICOM Verification Service Class (1.2.840.10008.1.1).

Any attributes sent, other than those mentioned as supported, will not be flagged with an error or warning status code.

- **C-ECHO:** The Verification Service Class defines a service that verifies the application level communication between DICOM Application Entities. The verification is accomplished on an established Association using C-ECHO.
- The ADPM will return one of the following 'Status Codes':

Status	Code	Description
Success	0000H	Success , is normally returned.
Failure	0122H	SOP Class Not Supported Returned if the SOP Class specified in the DIMSE command does not match the SOP Class UID.

Table 3.41: Status Codes.

3.1.6.9 Print Queue Management SOP Class

ADPM provides standard support for the Print Queue Management SOP Class in the role of SCP. The following DIMSE commands are supported:

- N-EVENT-REPORT
- N-GET
- N-ACTION

3.1.6.9.1 N-EVENT-REPORT

The N-EVENT-REPORT Service Element is used to report execution status changes within the Queue operation at the LR DICOM Controller to the SCU in an asynchronous way.

The following Status types are supported by ADPM:

Event type Name	Event type ID	Description
HALTED	1	Queue operation is halted at the LR DICOM Controller
FULL	2	Queue is full at the LR DICOM Controller
NORMAL	3	Queue at the LR DICOM Controller is operational

Table 3.42 Event Type Names**3.1.6.9.2 N-GET**

This command is used to retrieve an instance of the Print Queue Management SOP Class. The following attributes are supported:

Tag	Name	Supported
(2120,0010)	Queue Status	X
(2120,0050)	Print Job Description Sequence	X
(2100,0010)	> Print Job ID	X
(2100,0020)	> Execution Status	X
(2100,0030)	> Execution Status Info	X
(2100,0040)	> Creation Date	X
(2100,0050)	> Creation Time	X
(2000,0020)	> Print Priority	X
(2100,0070)	> Origin AE	X
(2100,0140)	> Destination AE	X
(2110,0030)	> Printer Name	X
(2000,0040)	> Film Destination	X
(2000,0050)	> Film Session Label	X
(2000,0030)	> Medium Type	X
(2100,0170)	> Number of Films	X
(2100,0070)	> Referenced Print Job Sequence	X
(0008,1150)	>> Referenced SOP Class UID	X
(0008,1155)	>> Referenced SOP Instance UID	X

Table 3.43 Supported Attributes

3.1.6.9.3 N-ACTION

This command is used to manipulate the queue-contents of the LR DICOM Controller.

The following arguments of the N-ACTION command are supported by ADPM:

Action type Name	Action type ID	Description	Attribute	Tag
PRIORITIZE	1	Change Priority of Queue Entry	Print Job ID	(2100,0010)
			Print Priority	(2000,0020)
			Owner ID	(2100,0160)
DELETE	2	Delete Queue Entry	Print Job ID	(2100,0010)
			Owner ID	(2100,0160)

Table 3.44 Supported Attributes

4 COMMUNICATIONS PROFILES

4.1 Supported Communications Stacks

- ADPM uses TCP/IP for the protocol stacks.
- ADPM (SCP) listens by default to port number 104, unless this is configured differently.

5 EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS

The Print Management Server supports the following extensions to DICOM attributes:

- **SOP Class:** Basic Film Box
- **Attribute:** Configuration Information
- **Extensions:** A specific perception LUT is selected using the 'configuration information' attribute. Also 'Annotations' can be put on film using this same attribute.

6 CONFIGURATION

6.1 SCU specific ADPM configuration

A SCU dependent configuration is possible. This (Calling) AETitle specific configuration is saved in a so-called 'Host Profile'. With this 'Host Profile' mechanism it is possible to 'individually' customize the controller/printer combination for multiple users.

6.1.1 'Host Profile' settings.

6.1.1.1 "Medium Type".

If the requested 'Medium Type' is 'not supported' or 'available', then the default behavior is that the printer will print this film on the medium type of the selected film-size that is currently available in one of the dispensers.

- For 'Medium Type' the following configurations are possible:
 - default behavior: print on either "BLUE FILM" or "CLEAR FILM"
 - always print on "BLUE FILM"
 - always print on "CLEAR FILM"

If, due to one of the above configuration settings, the print-job cannot be printed, a failure status code will be returned to the SCU.

6.1.1.2 'Status codes' and 'Printer Status Info' Levels.

Two printer information levels are defined:

- Level 0: default setting
 - Status Codes: 'Failure' status codes are activate.
 - Printer Status Info: the values in Table 3.27: Default Printer Status Information' (refer to 'Printer SOP Class') are active.
- Level 1: this level activates the following additional functionality:
 - Status Codes: 'Warning" status codes are activate and will be returned, in case a SCU attribute value is replaced by the default value.
 - Printer Status Info: the values of Table 3.28: Additional Printer Status Information (refer to 'Printer SOP Class') are also active.

6.1.1.3 N-EVENT-REPORT messages.

Default, the asynchronous N-EVENT-REPORT messages are disabled for both 'Printer SOP Class' and 'Print Job SOP Class'.

With a specific SCU configuration it is possible to enable asynchronous N-EVENT-REPORT messages.

6.1.1.4 Association time-out.

It is possible to limit the time an association is open. This can be done two ways:

- A general association time-out: the association will be closed automatically if no activity took place for the defined time-out period.
- An image time-out: if no activity took place for the defined time-out period during the image transfer, the association will be closed automatically

Default no time-out period is activated.

7 ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in this document:

AE	Application Entity
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
ADPM	Print Management Drystar 4x00
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier



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