

**BK Medical Ultrasound System,  
1202, 2202 and 2300**

### Network Services

Networking SOP Classes	User of Service (SCU)	Provider of Service (SCP)
<b>Transfer</b>		
Ultrasound Image Storage	Yes	No
Ultrasound Multiframe Image Storage	Yes	No
Storage Commitment Push Model	Yes	No
Comprehensive SR	Yes	No
<b>Workflow Management</b>		
Modality Worklist	Yes	No
Modality Performed Procedure Step	Yes	No
<b>Print Management</b>		
Basic Grayscale Print Management	Yes	No
Basic Color Print Management	Yes	No

### Supported Structured Report Templates

Concept Name	Template ID
Vascular Ultrasound Procedure Report	TID 5100
B-K Medical Structured Report	TID BK1000

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## 1 Introduction

This section provides general information about the purpose, scope and contents of this Conformance Statement.

This document describes the conformance to the DICOM 3.0 Standard of the B-K Medical ultrasound system.

The B-K Medical ultrasound system is a device that:

- Generates ultrasound images and other data that:
  - Can be sent using DICOM standard protocols and definitions to network archive servers.
  - Can be printed on a remote printer.
- Can retrieve data from a Radiology Information System (RIS).
- Can notify the Remote Modality Performed Procedure Step server on the Procedures performed.
- Generates ultrasound comprehensive structure reporting and other data that:
  - Can be sent using DICOM standard protocols and definitions to network archive servers.

### 1.1 Scope and Field of Application

The scope of this DICOM Conformance Statement is to facilitate data exchange with equipment from B-K Medical. This document specifies the compliance to the DICOM standard, formally called the NEMA PS 3.X standards. It contains a short description of the applications involved and provides technical information about the data exchange capabilities of the equipment. The main elements describing these capabilities are: the supported DICOM Service Object Pair (SOP) Classes, Application Profiles, Roles, Information Object Definitions (IOD) and Transfer Syntaxes.

The field of application is the integration of the B-K Medical equipment into an environment of medical devices.

This Conformance Statement should be read in conjunction with the DICOM standard and its addenda.

### 1.2 Intended 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.

### 1.3 Used Definitions, Terms, Symbols 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 following symbols and abbreviations are used in this document:

AE	Application Entity
AP	Application Profile
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
DIMSE-N	DICOM Message Service Element-Normalized
HIS	Hospital Information System
IE	Information Entity
IOD	Information Object Definition
ISO	International Standards Organization
MPPS	Modality Performed Procedure Step
NEMA	National Electrical Manufacturers Association
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
RIS	Radiology Information System
RWA	Real-World Activity
SC	Service Class
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
US	Ultrasound
VR	Value Representation
SR	Structured Reporting
DCID	Defined Context Group Identifier
BCID	Baseline Context Group Identifier
TID	Template ID
EV	Enumerated Value
UCUM	Unified Code for Units of Measure
SNOMED	Systematized Nomenclature of Medicine
IFF	If and only if
DCMR	DICOM Content Mapping Resource
BKCMR	BK Content Mapping Resource

The following upper-case abbreviations represent specific Attributes:

CV	Code Value (0008, 0100)
CSD	Coding Scheme Designator (0008, 0102)
CM	Code Meaning (0008, 0104)
CSV	Coding Scheme Version (0008,0103)

### 1.4 References

DICOM	The Digital Imaging and Communications in Medicine (DICOM) standard: NEMA PS 3.X (X refers to the part 1 - 20 and Supplements). National Electrical Manufacturers Association (NEMA) Publication Sales 1300 N. 17th Street, Suite 1752, Rosslyn, Virginia 22209, United States of America. Can also be downloaded from <a href="http://medical.nema.org/">http://medical.nema.org/</a>
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## **1.5 Important Note to the Reader**

This Conformance Statement by itself does not guarantee successful interoperability of B-K Medical equipment with non-B-K Medical equipment. The user should be aware of the following issues:

- Interoperability.
- Validation.
- New (or old) versions of the DICOM standard.

### **1.5.1 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 a networked 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 B-K Medical equipment with non-B-K Medical equipment.

It is the user's responsibility to thoroughly analyze the application requirements and to specify a solution that integrates B-K Medical equipment with non-B-K Medical equipment.

### **1.5.2 Validation**

B-K Medical equipment has been tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.

Where B-K Medical equipment is linked to non-B-K Medical 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, report and image or report related data.

It is the user's responsibility to specify the appropriate test and to carry out the additional validation tests.

### **1.5.3 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. B-K Medical plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, B-K Medical reserves the right to make changes to its products or to discontinue their delivery.



## 2 Implementation Model - Network

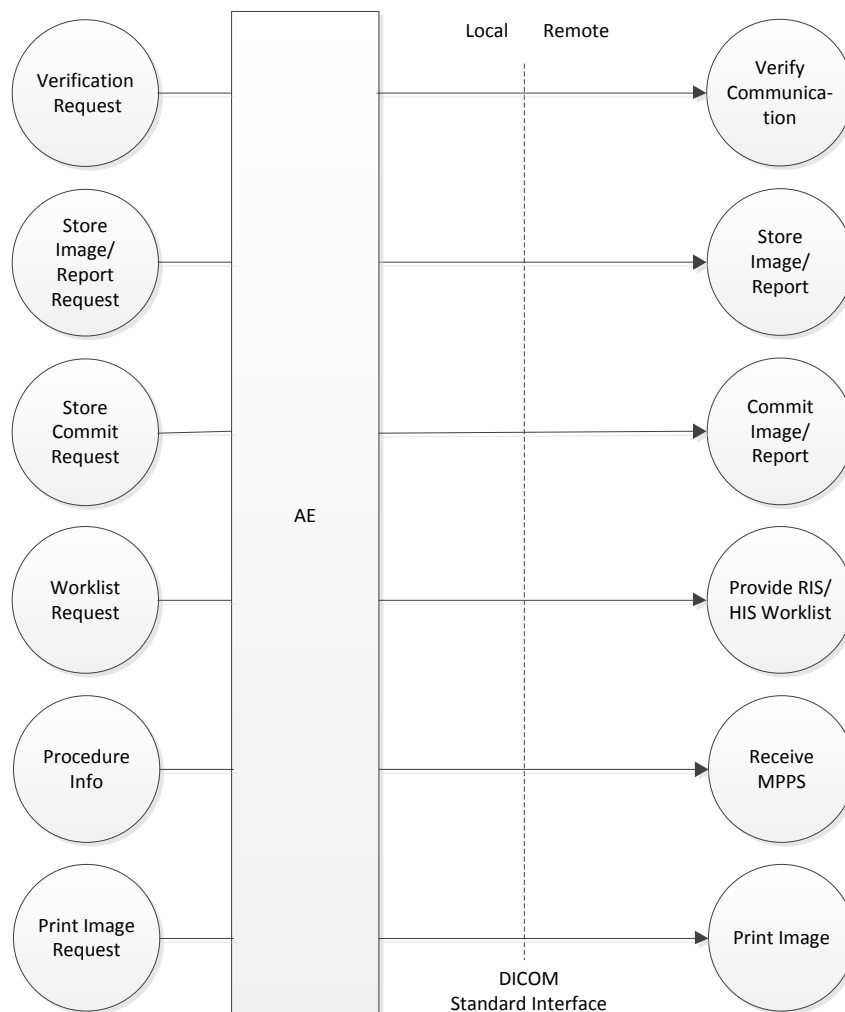
B-K Medical's Ultrasound Systems with DICOM option activated has implemented the DICOM functionality as one Application Entity.

The AE contains the following DICOM functionality:

- Verify communication to a remote AE.
- Retrieve a worklist for ultrasound modality from a Radiology Information System (RIS) or a Hospital Information System (HIS).
- Send Step by Step information on the procedures performed to a remote server.
- Transfer ultrasound images to a remote storage system.
- Transfer ultrasound comprehensive structure reports to a remote storage system
- Transfer ultrasound video clips as multi-frame images to a remote system.
- Request Storage Commitment of images and reports to the remote storage system.
- Print ultrasound images on a remote printer.

### 2.1 Application Data Flow Diagram

The Implementation Model for the AE, the DICOM networking service for the B-K Medical Ultrasound System, is depicted in Figure 2-1.



**Figure 2-1 AE Implementation Model**

The AE can send image and report storage objects. It receives requests from the operator to transmit an image and report to a specific DICOM destination. It receives the Storage Commitment reports from the remote storage server and passes it to the Modality. It can query for information from external sources. Worklist demographic queries can be initiated and executed by the AE. It receives the performed procedure step notifications from the Modality and initiates an association and transmits the information to the remote MPPS Server. The operator can initiate an association with a DICOM-compliant grayscale or color printer to print a selected image.

The AE is implemented as a Windows®-based application.

### **2.1.1 Verify Communication**

The B-K Medical Ultrasound System is able to verify DICOM communication with a remote system, i.e., PACS and Storage Commitment, RIS, MPPS or a remote printer. This is done at the operator's request. This function is used for network diagnostic purposes.

### **2.1.2 Store Image and Reports**

The B-K Medical Ultrasound System is able to store ultrasound images, structure reports and clips on a remote system. This is done at the operator's request. The remote destination (PACS) can be set in the DICOM setup. Image data to be transferred are instances of the Ultrasound Image Storage or Ultrasound Multi-frame Image Storage SOP class. The structure reports of Vascular and Generic data to be transferred are instances of the Comprehensive SR SOP class.

Graphics, both within the ultrasound image and surrounding the image, are transferred as burned-in graphics, so it is the operator's responsibility to put in or leave out the desired graphics before transferring the image.

### **2.1.3 Storage Commitment**

The B-K Medical Ultrasound system is capable of supporting a remote Storage Commitment System. The user can enable or disable Storage Commitment. If Storage Commitment is configured, the user can choose to configure a separate SCP for Storage Commitment or can configure the Storage SCP to act also as Storage Commitment SCP. The Storage Commitment SCP can be set as part of the PACS Configuration in the DICOM setup.

If Storage Commitment SCP is configured, the Storage SCU issues a Commit request for the images and reports transferred to the Storage SCP by the Storage AE, and the Commitment SCP issues an acknowledgement to the Storage AE on successful commitment of the images and reports.

### **2.1.4 Retrieve HIS/RIS Worklist**

The B-K Medical Ultrasound System is able to retrieve the ultrasound modality Worklist from a RIS. This is done both at the operator's request and automatically at a specified time interval. From the received list, a selection of one Worklist item can be made, i.e. the examination to be performed. The data received from the RIS consists of patient demographic data and procedure step information.

### **2.1.5 Performed Procedure Step**

The B-K Medical Ultrasound System is able to notify a remote Modality Performed Procedure Step System (MPPS) on the procedures performed. The remote system can be configured in the DICOM Setup. It initiates an association with the MPPS to notify the Start, Stop or Discontinued Examinations / Procedures.

### **2.1.6 Print Image**

The B-K Medical Ultrasound System is able to print ultrasound images on a remote grayscale or color printer. The images are sent to the printer at the operator's request or at the end of the current examination.

## **2.2 Functional Definition of Application Entity**

The AE acts as a Service Class User (SCU) for the following SOP classes:

- Verification.
- Storage (PACS and Storage Commitment).
- Basic worklist management.
- Modality Performed Procedure Step (MPPS).
- Basic grayscale print management.
- Basic color print management.

### **2.2.1 Real World Activity: Verification**

The Verification AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with remote AEs, i.e., PACS, Storage Commitment Server, RIS, MPPS, and remote printer.
- Verifies communication to a remote AE by issuing an echo request.
- Releases the association with a remote AE.
- Notifies the operator of the communication status.

### **2.2.2 Real World Activity: Storage**

The Storage AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote PACS (Storage SCP).
- Sends DICOM Information Objects (US, US-mf & Reports) to the remote SCP.
- Requests Commit (Storage Commitment SCP) for the images and reports transferred to the remote PACS.
- Awaits the acknowledgement from the Storage Commitment SCP on successful "Commit" of the images and reports
- Updates the status of the transferred images and reports as "Committed" in the Local Archive (Modality).
- Provides the option of enabling or disabling Storage Commitment.
- The user can choose the PACS SCP to act as both Storage Commitment and PACS or configure a separate Server to act as a Storage Commitment server.
- Releases the association with the remote SCP.
- Notifies the operator of the communication status.

### **2.2.3 Real World Activity: Request Worklist**

The Request Worklist AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote RIS system (SCP).

- Queries for patient and procedure step information using the Modality Worklist Information Model.
- Releases the association with a remote RIS system.
- Shows the received worklist information to the operator.

#### **2.2.4 Real World Activity: Performed Procedure Step**

The Modality Performed Procedure Step AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote MPPS system (SCP).
- Notifies the MPPS on the Start, Stop and Discontinue of an examination.
- Updates the status of the examination in the local patient database.
- Releases the association with the remote MPPS system.

#### **2.2.5 Real World Activity: Print**

The Print AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote printer (SCP).
- Creates a Film Session.
- Creates one Film Box.
- Sets (updates) one or more Grayscale or Color Image Box.
- Prints (action) a Film Box, i.e., prints one copy of a single film of the film session.
- Releases the association with a remote printer.

### **2.3 Sequencing of Real-World Activities**

Not applicable.

### 3 AE Specifications

#### 3.1 AE Specification

The Application Entity provides Standard Conformance to the following DICOM SOP classes as an SCU:

**Table 3.1-1: Supported SOP Classes by the AE as SCU**

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Storage Commitment Push Model	1.2.840.10008.1.20.1
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33

The Application Entity does not support DICOM SOP classes as an SCP.

#### 3.1.1 Association Establishment Policies

##### 3.1.1.1 General

The Application Context Name that is always proposed is:

DICOM 3.0 Application Context: “1.2.840.10008.3.1.1.1”

The maximum Protocol Data Unit (PDU) size for PDUs sent to the B-K Medical Ultrasound System is fixed at 32Kb (64Kb for verification). The minimum PDU size accepted for sending from the scanner is 512 bytes. In case the receiving SCP claims PDUs smaller than 512 bytes, then 512 bytes is used.

##### 3.1.1.2 Number of Associations

The AE will attempt only one association establishment at a time.

##### 3.1.1.3 Asynchronous Nature

The AE does not support asynchronous mode.

##### 3.1.1.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Implementation Class UID: 1.2.208.154.1

Implementation Version Name: BKM DICOM 3.2

#### 3.1.2 Association Initiation Policy

The AE initiates associations for the following activities:

- Verify Communication. See section 3.1.2.1.
- Store Image/Report. See section 3.1.2.2.
- Storage Commitment. See section 3.1.2.3
- Request Worklist. See section 3.1.2.4

- Performed Procedure Step. See section 3.1.2.5
- Print Image. See section 3.1.2.6
- Store Comprehensive SR. See See section 3.1.2.2

### 3.1.2.1 Real-World Activity: "Echo Operation"

#### 3.1.2.1.1 Associated Real-World Activity

The Associated Real-World Activity is the attempt to verify communications with a remote AE. This occurs when the operator selects the Echo function from the dialog box of the DICOM setup. In the event that the remote AE does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

#### 3.1.2.1.2 Proposed Presentation Contexts

**Table 3.1-2: Transfer Syntax**

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 3.1-3: Proposed Presentation Contexts for Sending Verification Request**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Verification	1.2.840.10008.1.1	See Table 3.1-2	SCU / SCP	None

#### 3.1.2.1.2.1 SOP-Specific Conformance to Verification SOP Class

The AE provides standard conformance. Extended negotiation is not supported.

Verification Service Class is a feature used for network diagnostic purposes. Association is released upon receipt of each C-ECHO confirmation.

### 3.1.2.2 Real World Activity: Archive Image(s) / Report

#### 3.1.2.2.1 Associated Real-World Activity

The B-K Medical Ultrasound System operator sends a request for storage of an image or a Multi-frame image or a structured report to a remote system. The image or Multi-frame image or structured report is transferred to the remote system.

The remote system is one of the DICOM system settings. After the transfer, the association is released. In the event that the remote system does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

In the event of failure to transfer the Image/Report to the Remote device, the modality tries to re-send the images/reports every 30 seconds, till the configured Max retry attempts are reached. Once the maximum retry limit is reached, the modality stops retrying and notifies the operator on the failed transfer.

The images/reports can either be sent to the Remote system one by one, or as a batch of images/reports together.

### 3.1.2.2.2 Proposed Presentation Contexts

**Table 3.1-4: Transfer Syntax**

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 Implicit VR Big Endian Transfer Syntax	1.2.830.10008.1.2.2
JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50

**Table 3.1-5: Proposed Presentation Contexts for Image Storage**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2 (default) or 1.2.840.10008.1.2.1 or 1.2.830.10008.1.2.2 See Table 3.1-4	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.4.50 (default) or 1.2.840.10008.1.2 or 1.2.840.10008.1.2.1 or 1.2.830.10008.1.2.2 See Table 3.1-4	SCU	None
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	1.2.840.10008.1.2 (default) or 1.2.840.10008.1.2.1 or 1.2.830.10008.1.2.2 See Table 3.1-4	SCU	None

Note: Transfer Syntax for Multi-frame Image Storage or Image Storage can only be changed by trained service personnel. Default for Multi-frame Image Storage is JPEG Baseline (1.2.840.10008.1.2.4.50), and for Image Storage is Implicit VR Little Endian (1.2.840.10008.1.2)

#### 3.1.2.2.2.1 SOP-Specific Conformance to Storage SOP Class

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied US Image IOD is given in appendix 9.1.

If a RIS connection is present, Patient and Study related information is retrieved by the AE from the RIS via the Worklist and written in the image headers of the images and Multi-frames to be stored.

The UIDs – (Study Instance UID, Series Instance UID and SOP Instance UID) in the images are generated when the related Study, Series and Image are created. This means that two storages/transfers of the same image will have the same UIDs. The Study Instance UID will be retrieved from the RIS if it is present in the Worklist.

In the following cases, the images and Multi-frames will be resent until the transmission succeeded or the user cancels the jobs:

- If the AE is unable to open an association with the selected destination AE.
- If the Abstract Syntax for an image is not supported by the receiving AE.
- If a failed or refused response to the C-STORE operation is received.

The following are the status codes that are more specifically processed when receiving messages from the Storage SCP equipment:

**Table 3.1-6: Storage Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated; Transfer will be retried until aborted by user.

### 3.1.2.3 Storage Commitment

#### 3.1.2.3.1 Associated Real-World Activity

The Storage AE requests the Storage Commitment of the Storage SOP Classes if a remote AE is configured as Storage Commitment Server (SCP) through the PACS listed in Table 3.1-8 (Storage SCP).

The remote system is one of the DICOM system settings. The Storage commitment acknowledgement can be received in the association requesting the commitment. The Storage AE waits on a configurable listener port, for incoming associations for the Storage Commitment SCP reporting a successful Storage Commitment.

#### 3.1.2.3.2 Proposed Presentation Contexts

The AE will include the presentation context for the Storage Commitment Push Model.

**Table 3.1-7: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2



**Table 3.1-8: Proposed Presentation Contexts for Storage Commitment**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Storage Commitment Push Model	1.2.840.10008.1.20.1	See Table 3.1-7	SCU	None

**3.1.2.3.2.1 SOP-Specific Conformance to Storage Commitment SOP Class**

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied Storage Commitment IOD is given in appendix 9.6.

The Storage AE will send an N-ACTION request to the Storage commitment through the PACS and close the existing association. Then it will wait for a successful event report from the SCP, after successful transfer of an Image or a batch of Images to the PACS. The SCP shall open a new association with the Storage AE and send an N-EVENT-REPORT (Storage Commitment Response) and then the association shall be released by the SCP.

If the report is not received within the applicable time limit for the transaction UID, that specific Storage Commitment will be considered as a failure and the transaction UID is considered as invalid. Whenever the Storage AE tries to resend documents to the PACS, it also resends the Storage Commit requests.

The Storage AE doesn't send the optional image attributes with the Storage Commitment request. The Storage Commitment Status for the various jobs will be stored in the Patient database. The successful / pending / failed Storage commitment status will be updated in the DICOM Status window.

The following table shows the status of the N-ACTION request.

**Table 3.1-9: Storage Commitment Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated. The status will be updated as pending till the time out. Once the time out occurs the status will be updated as failure.

The N-EVENT-REPORT transports the status of the Storage Commitment.

**3.1.2.4 Retrieve HIS/RIS Worklist**

**3.1.2.4.1 Associated Real-World Activity**

This function can be triggered at the operator's request or automatically when the Worklist Window is opened. An association is set up to the pre-configured remote system, the RIS. After receiving the Worklist, the association is released. In the event

that the remote system does not respond for some reason, the operations will time out after 90 seconds and the association will be released.

#### 3.1.2.4.2 Proposed Presentation Contexts

The AE will include the following presentation contexts:

**Table 3.1-10: Transfer Syntax**

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

**Table 3.1-11: Proposed Presentation Contexts for Request for Modality Worklist**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	See Table 3.1-10	SCU	None

##### 3.1.2.4.2.1 SOP Specific Conformance to Modality Worklist Management

The AE provides standard conformance. Extended negotiation is not supported.

An overview of all requested Matching and Return keys with additional attribute information is given in appendix 9.2. The matching type (Single Value, Wild Card Matching or Range Matching) is also specified.

The user can chose between four date/time queries and one patient query.

The four date/time queries are: Today only, +/- 12 hours, +/- 24 Hours and +/- 3 Days.

The patient query is made from Patient Name (only Last is used), Patient ID, Accession Number and Requested Procedure ID. The user can enter data in one or more of these fields to query for patients i.e. the user can enter data in the Accession Number field only to query on Accession Number only.

The system will expect the extended character set in the worklist (used on the RIS) to match the extended character set on the scanner. The user will be notified if the two extended character sets do not match. The extended character set used on the scanner depends on the selected language. See section 7 for a list of language and extended character sets.

The following are the status codes that are more specifically processed when messages are received from the Modality Worklist SCP equipment:

**Table 3.1-12: Modality Worklist Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Refused	Out of Resources	A700	Process terminated. No patient data received.
Failed	Identifier does not match SOP Class	A900	Process terminated. No patient data received.
	Unable to process	Cxxx	Process terminated. No patient data received.
Cancel	Matching terminated due to Cancel request	FE00	Process terminated. No patient data received.
Success	Matching is complete – No final identifier is supplied	0000	
Pending	Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The process of receiving matches continues.
	Matches are continuing – Warnings that one or more Option Keys were not supported for existence and/or matching for this identifier.	FF01	The process of receiving matches continues without any warnings or errors.
	Unknown	None of above	Process terminated. No patient data received.

If the response of a query to the RIS/Worklist-server somehow fails, the user will see an empty list of patients and examinations. The operator can retry by pushing an update key or can enter the patient and examination information manually.

### 3.1.2.5 Performed Procedure(s)

#### 3.1.2.5.1 Associated Real-World Activity

An association is created with the specific remote Modality Performed Procedure Step (MPPS) System when the user selects the patient and on OK in the Patient Entry window or triggers a new examination for the existing patient. The related MPPS SOP instance is created at once.

The status message is sent to the MPPS during Start, Stop or Discontinued Examination. After every message transfer the association is released.

#### 3.1.2.5.2 Proposed Presentation Contexts

The AE will include the following presentation contexts for notification of the performed procedures:

**Table 3.1-13: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2

**Table 3.1-14: Proposed Presentation Contexts for MPPS**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	See Table 3.1-13	SCU	None

**3.1.2.5.2.1 SOP Specific Conformance to Modality Performed Procedure Step SOP Classes**

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied Modality Performed Procedure Step IOD is given in appendix 9.5.

The N-CREATE Service Element is used to create the MPPS instance. The N-SET Service Element is used to indicate the end of the MPPS.

**Table 3.1-15: MPPS Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated; the status is updated as failure.

**3.1.2.6 Print Image(s)**

**3.1.2.6.1 Associated Real-World Activity**

An association is initiated with the named DICOM printer when the operator requests the image to be printed. After the printing is finished, the association is released. In the event that the printer does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

**3.1.2.6.2 Proposed Presentation Contexts**

The AE will include the following presentation contexts for printing an image as a grayscale image:

**Table 3.1-16: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2

**Table 3.1-17: Proposed Presentation Contexts for Grayscale Print Management**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	See Table 3.1-16	SCU	None

**Table 3.1-18: Proposed Presentation Contexts for Color Print Management**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	See Table 3.1-16	SCU	None

**3.1.2.6.2.1 SOP Specific Conformance to Print SOP Classes**

The AE provides standard conformance. Extended negotiation is not supported.

The N-CREATE Service Element is used for the Basic Film Session and Basic Film Box. The N-SET Service Element is used for Basic Grayscale Image Box and Basic Color Image Box. The N-ACTION Service Element is used for Basic Film Box to print the image. The N-EVENT-REPORT Service Element is used to report the changes of printer status in an asynchronous way.

The color/monochrome configuration must be correctly set for the printer. A color printer that is set up as a monochrome printer (or vice versa) will not produce any output. A printer that supports both color and monochrome must be installed as a color printer.

The implementation does make use of certain User Optional attributes that are mandatory for the DICOM printer. See appendix 9.3 and 9.4 for details.

The following are the status codes that are more specifically processed when messages are received from the Print SCP equipment:

**Table 3.1-19: Create Basic Film Session Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film session successfully created	0000	
	<i>All others</i>		Association is terminated; Creation will be retried until aborted by user.

**Table 3.1-20: Create Basic Film Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film box successfully created	0000	
	<i>All others</i>		Association is terminated; Creation will be retried until aborted by user.

**Table 3.1-21: Set Basic Grayscale and Color Image Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Image successfully stored in image box	0000	
	<i>All others</i>		Association is terminated; Update (set) will be retried until aborted by user.

**Table 3.1-22: Print Basic Film Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film accepted for printing	0000	
	<i>All others</i>		Association is terminated; Print job will be retried until aborted by user.

**Table 3.1-23: Print SOP Class Status Codes**

Service Status	Further Meaning	Event type ID	Application behavior when receiving Status Codes
NORMAL	Given jobs are being printed	1	
	<i>All others</i>		Association is terminated; Print job will be retried until aborted by user.

### 3.1.3 Association Acceptance Policy

The AE does not accept associations proposed by another application entity.

## **4 Communication Profiles**

### **4.1 TCP/IP Stack**

The AE provides DICOM 3.0 TCP/IP Network Communication Support as defined in NEMA PS 3.8.

The TCP/IP stack is inherited from the underlying Microsoft Windows®-based operating system.

#### **4.1.1 Physical Media Support**

The system is indifferent to the physical medium; it inherits the medium from the Windows® Operating System.

**5 Extensions / Specializations / Privatizations**

Not applicable.



## 6 Configuration

The system is configured in the DICOM setup menu. Only an operator with the correct level of knowledge should change the configuration. The Configuration menu is intended to be used during installation, by a service engineer only.

### 6.1 AE Title/Presentation Address Mapping

The Local AE Title is configurable. A service engineer must configure it during installation.

### 6.2 Configurable Parameters

#### 6.2.1 Local AE

The following fields are configurable:

- Local AE Title.

The following fields can be configured through Windows Network Setup dialog:

- Local IP Address.
- Local IP Net mask.

#### 6.2.2 Remote AE

The following fields are configurable for every remote DICOM AE:

- Remote AE Title.
- Remote IP Address or hostname.
- Responding TCP/IP Port.

#### 6.2.3 Storage

The default transfer syntax for Image Storage is Implicit VR Little Endian. The transfer syntax can be changed to Explicit VR Little Endian by B-K Medical trained service personnel.

The default transfer syntax for Multi-frame images (clips) is JPEG. The transfer syntax can be changed to Implicit Little Endian by B-K Medical trained service personnel.

The default transfer syntax for Reports Storage is Explicit VR Little Endian. The transfer syntax can be changed to Implicit VR Little Endian by B-K Medical trained service personnel.

#### 6.2.4 Storage Commitment

The Storage Commitment support for the Modality can be configured. By default Storage Commitment support is disabled. The Storage Commitment support can be enabled or disabled & either the Storage SCP can be configured as Storage Commitment SCP or a new Storage Commitment SCP can be configured. For the Storage commitment SCU, a listener port can be configured. Only B-K Medical trained service personnel can do these changes.

#### 6.2.5 Printing

The color/monochrome configuration must be correctly set for the printer. A color printer that is set up as a monochrome printer (or vice versa) will not produce any output. A printer that supports both color and monochrome must be installed as a color printer.

## 7 Support of Extended Character Sets

The system supports the following character sets depending upon the language selected on the scanner:

Language	DICOM Character Set
BULGARIAN	ISO_IR 144
CZECH	ISO_IR 101
<i>DEFAULT<sup>1</sup></i>	ISO_IR 100 / ISO_IR 6 <sup>2</sup>
GREEK	ISO_IR 126
HUNGARIAN	ISO_IR 101
ICELANDIC	ISO_IR 100
LATVIAN	ISO_IR 110
LITHUANIAN	ISO_IR 110
NORWEGIAN	ISO_IR 100
POLISH	ISO_IR 101
ROMANIAN	ISO_IR 101
RUSSIAN	ISO_IR 144
SLOVAK	ISO_IR 101

## 8 Security Profiles

The product does not conform to any defined DICOM Security Profiles.

It is assumed that the product is used within a secured environment.

It is assumed that a secured environment includes at a minimum:

1. Firewall or router protections to ensure that only approved external hosts have network access to the product.
2. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.
3. Any communication with external hosts and services outside the locally secured environment use appropriate secure network channels (e.g. such as a Virtual Private Network (VPN)).

<sup>1</sup> Default refers to the following languages:

Danish, Dutch, English, Finnish, French, German, Italian, Portuguese, Spanish, Swedish, Bulgarian, Czech, Estonian, Greek, Hungarian, Icelandic, Latvian, Lithuanian, Norwegian, Polish, Romanian, Russian, Slovak

<sup>2</sup> ISO\_IR 6 if no extended characters are used.

## 9 Appendix: Overview of the Applied Information Object Definitions

### Definitions

Usage Specification	M = Mandatory	C = Conditional	U = User Option
Matching Key	U = Unique	R = Required	O = Optional
Type/Return Key	1 = Mandatory	2 = Mandatory, may be empty	3 = Optional
	1C = Conditional	2C = Conditional	
Device usage	A = Always	AE = Always maybe empty	N = Not used
	No entry = standard behaviour		

### 9.1 Overview of the Applied Ultrasound (US) Storage SOP Classes

The modules selected from the IOD module table of DICOM 3.0 are given in the table below.

**Table 9.1-1: Applied Modules in the US Image IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1-5
Series	General Series	M	See Table 9.1-6
Equipment	Equipment	M	See Table 9.1-7
Image	General Image	M	See Table 9.1-8
	Image Pixel	M	See Table 9.1-9
	Contrast/Bolus	C	See Table 9.1-10
	US Region Calibration	U	See Table 9.1-14
	US Image	M	See Table 9.1-15
	SOP Common	M	See Table 9.1-16

**Table 9.1-2: Applied Modules in the US Multi-frame Image IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1-5
Series	General Series	M	See Table 9.1-6
Equipment	Equipment	M	See Table 9.1-7
Image	General Image	M	See Table 9.1-8
	Image Pixel	M	See Table 9.1-9
	Contrast/Bolus	C	See Table 9.1-10
	Cine	M	See Table 9.1-11
	Multi-frame	M	See Table 9.1-12
	Frame Pointers	U	See Table 9.1-13
	US Image	M	See Table 9.1-15
	SOP Common	M	See Table 9.1-16

The details of these applied modules are given in the tables below. The list of possible values is given, if applicable. If an attribute may be present conditionally/optionally or may contain a zero length value, this is also indicated.

**Table 9.1-3: Patient Module**

Attribute Name	Tag	Type	Note
Patient's Name	(0010,0010)	2A	Received from RIS or entered by user
Patient ID	(0010,0020)	2A	Received from RIS or entered by user
Patient's Birth Date	(0010,0030)	2	Received from RIS or entered by user
Patient's Sex	(0010,0040)	2	Received from RIS or entered by user
Other Patient ID's	(0010,1000)	2	Received from RIS or entered by user

**Table 9.1-4: General Study Module**

Attribute Name	Tag	Type	Note
Study Instance UID	(0020,000D)	1	Generated at creation of the Study or received from RIS
Study Date	(0008,0020)	2A	Generated at creation of the Study
Study Time	(0008,0030)	1	Generated at creation of the Study
Referring Physician's Name	(0008,0090)	2	Received from RIS or entered by user
Study ID	(0020,0010)	2	Auto-generated from Study Date and Study Time if not entered by user
Accession Number	(0008,0050)	2	Received from RIS or entered by user
Study Description	(0008,1030)	3AE	Received from RIS (copied from Scheduled Procedure Step Description (0040,0007)) or entered by the user
Name of Physician(s) Reading Study	(0008,1060)	3AE	Received from RIS (copied from Names of Intended Recipients of Results (0040,1010)) or entered by the user

**Table 9.1-5: Patient Study Module**

Attribute Name	Tag	Type	Note
Admitting Diagnosis Description	(0008,1080)	3AE	Present if received from RIS or entered by user or empty
Patient's Size	(0010,1020)	3	Length or size of the Patient, in meters. Not present if neither received from RIS nor entered by user
Patient's Weight	(0010,1030)	3	Weight of the Patient, in kilograms. Not present if neither received from RIS nor entered by user
Admission ID	(0038,0010)	3	Present if received from RIS or entered by user or empty

**Table 9.1-6: General Series Module**

Attribute Name	Tag	Type	Note
Modality	(0008,0060)	1	US
Series Instance UID	(0020,000E)	1	Generated at creation of the Series
Series Number	(0020,0011)	2	Auto generated
Performing Physician's Name	(0008,1050)	3	Entered by user
Protocol Name	(0018,1030)	3	User defined
Operator's Name	(0008,1070)	3	Entered by user
Body Part Examined	(0018,0015)	3	Entered by user
Requested Attribute Sequence	(0040,0275)	3AE	Active only if MPPS & MWL are available.
Requested Procedure ID	(0040,1001)	1C	From MWL
Scheduled Procedure Step ID	(0040,0009)	1C	From MWL
Scheduled Procedure Step Description	(0040,0007)	3	From MWL
Performed Procedure Step ID	(0040,0253)	3	Auto generated – only if MPPS is active
Performed Procedure Step Start Date	(0040,0244)	3	Auto generated– only if MPPS is active
Performed Procedure Step Start Time	(0040,0245)	3	Auto generated– only if MPPS is active
Performed Procedure Step Description	(0040,0254)	3	Entered by user – active only if MPPS is available.
Performed Protocol Code Sequence	(0040,0260)	3	Auto generated – only if MPPS is active

**Table 9.1-7: General Equipment Module**

Attribute Name	Tag	Type	Note
Manufacturer	(0008,0070)	2A	“B-K Medical”
Institution Name	(0008,0080)	3AE	Institution where the equipment that produced the composite instance is located. Set up by the user.
Institution Address	(0008,0081)	3	Mailing address of the institution where the equipment that produced the composite instances is located. Set up by the user.
Station Name	(0008,1010)	1	User defined name identifying the machine that produced the composite instances. Set up by the user.
Institutional Department Name	(0008,1040)	3	Department in the institution where the equipment that produced the composite instances is located. Set up by the user.
Manufacturer's Model Name	(0008,1090)	3A	Scanner model name e.g. “2202”
Device Serial Number	(0018,1000)	3A	The serial number of the scanner
Software Version(s)	(0018,1020)	3A	Software version of the current software

**Table 9.1-8: General Image Module**

Attribute Name	Tag	Type	Note
Instance Number	(0020,0013)	2	Images are numbered in chronological order, starting from 1 at the beginning of a new examination
Patient Orientation	(0020,0020)	2C	
Content Date	(0008,0023)	2C	Date when the image was captured. Note: This Attribute was formerly known as Image Date
Content Time	(0008,0033)	2C	Time when the image was captured. Note: This Attribute was formerly known as Image Time
Image Type	(0008,0008)	3	
Burned In Annotation	(0028,0301)	3A	“YES”
Lossy Image Compression	(0028,2110)	3	01H for Multi-frame Image with JPEG Transfer Syntax. Otherwise: Not present.

**Table 9.1-9: Image Pixel Module**

Attribute Name	Tag	Type	Note
Samples per Pixel	(0028,0002)	1	0003H
Photometric Interpretation	(0028,0004)	1	Multi-frame with JPEG Transfer Syntax: “YBR_FULL_422” Otherwise: “RGB”
Rows	(0028,0010)	1	Image height
Columns	(0028,0011)	1	Image width
Bits Allocated	(0028,0100)	1	0008H
Bits Stored	(0028,0101)	1	0008H
High Bit	(0028,0102)	1	0007H
Pixel Representation	(0028,0103)	1	0000H (= unsigned integer)
Planar Configuration	(0028,0006)	1C	1 (color-by-plane)
Pixel Data	(7FE0,0010)	1	

**Table 9.1-10: Contrast/Bolus Module**

Attribute Name	Tag	Type	Note
Contrast/Bolus Agent	(0018,0010)	2	Present and empty if Contrast Harmonic is activated. Otherwise not present.

**Table 9.1-11: Cine Module**

Attribute Name	Tag	Type	Note
Preferred Playback Sequencing	(0018,1244)	3	0 (looping playback)
Frame Time	(0018,1063)	1C	1000 / Frame rate of Multi-frame in Hz (Nominal time in msec per individual frame)
Recommended Display	(0008,2144)	3	Frame rate of Multi-frame in Hz



Frame Rate			(Recommended rate (frames/sec) for display of multi-frame sequence)
Cine Rate	(0018,0040)	3	Frame rate of Multi-frame in Hz (Number of frames per seconds)
Frame Delay	(0018,1066)	3	000H (Time in msec to start of first frame)

**Table 9.1-12: Multi-frame Module**

Attribute Name	Tag	Type	Note
Number of Frames	(0028,0008)	1	Number of frames in Multi-frame
Frame Increment Pointer	(0028,0009)	1	Set to Frame Time (0018,1063) from Table 9.1-11: Cine Module

**Table 9.1-13: Frame Pointers Module**

Attribute Name	Tag	Type	Note
Representative Frame Number	(0028,6010)	3	1 (Number of frame selected for use as icon)

**Table 9.1-14: US Region Calibration Module**

Attribute Name	Tag	Type	Note
Sequence of Ultrasound Regions	(0018,6011)	1	A sequence for each B-mode view. One sequence for each D/M/CW view.
>Region Location Min x0	(0018,6018)	1	
>Region Location Min y0	(0018,601A)	1	
>Region Location Max x1	(0018,601C)	1	
>Region Location Max y1	(0018,601E)	1	
>Physical Units X Direction	(0018,6024)	1	B-mode: 03H (cm) D-mode: 04H (sec) M-mode: 04H (sec) CW-mode: 04H (sec)
>Physical Units Y Direction	(0018,6026)	1	B-mode: 03H (cm) D-mode: 07H (cm/sec) M-mode: 03H (cm) CW-mode: 07H (cm/sec)
>Physical Delta X	(0018,602C)	1	
>Physical Delta Y	(0018,602E)	1	
>Reference Pixel x0	(0018,6020)	3	
>Reference Pixel y0	(0018,6022)	3	
>Ref. Pixel Physical Value X	(0018,6028)	3	0
>Ref. Pixel Physical Value Y	(0018,602A)	3	0
>Region Spatial Format	(0018,6012)	1	B-mode: 01H (2D) D-mode: 03H (Spectral)

			M-mode: 02H (M-Mode) CW-mode: 03H (Spectral)
>Region Data Type	(0018,6014)	1	B-mode: 01H (Tissue) D-mode: 03H (PW Spectral Doppler) M-mode: 01H (Tissue) CW-mode: 04H (CW Spectral Doppler)
>Region Flags	(0018,6016)	1	0
>Doppler Correction Angle	(0018,6034)	3	B-mode: Not applied. D-mode: Angle Correction (Degrees) M-mode: Not applied. CW-mode: Not applied

**Table 9.1-15: US Image Module**

Attribute Name	Tag	Type	Note
Samples per Pixel	(0028,0002)	1	See Table 9.1-9 Image Pixel Module
Photometric Interpretation	(0028,0004)	1	See Table 9.1-9 Image Pixel Module
Bits Allocated	(0028,0100)	1	See Table 9.1-9 Image Pixel Module
Bits Stored	(0028,0101)	1	See Table 9.1-9 Image Pixel Module
High Bit	(0028,0102)	1	See Table 9.1-9 Image Pixel Module
Planar Configuration	(0028,0006)	1C	See Table 9.1-9 Image Pixel Module
Pixel Representation	(0028,0103)	1	See Table 9.1-9 Image Pixel Module
Frame Increment Pointer	(0028,0009)	1C	See Table 9.1-9 Image Pixel Module
Image Type	(0008,0008)	2	See Table 9.1-8: General Image Module
Lossy Image Compression	(0028,2110)	1C	See Table 9.1-8: General Image Module
Transducer Data	(0018,5010)	3	Name of transducer e.g. "8801". Only set for single frame images
Mechanical Index	(0018,5022)	3	Only sent for single view images
Bone Thermal Index	(0018,5024)	3	Only sent for single view images. Only sent if TI type is TIB.
Cranial Thermal Index	(0018,5026)	3	Only sent for single view images. Only sent if TI type is TIC.
Soft Tissue Thermal Index	(0018,5027)	3	Only sent for single view images. Only sent if TI type is TIS.

**Table 9.1-16: SOP Common Module**

Attribute Name	Tag	Type	Note
SOP Class UID	(0008,0016)	1	For US Image: "1.2.840.10008.5.1.4.1.1.6.1" For US Multi-Frame Image: "1.2.840.10008.5.1.4.1.1.3.1"
SOP Instance UID	(0008,0018)	1	Generated when image is created
Specific Character Set	(0008,0005)	1C	Set according to selected language on the scanner. See section 7.
Instance Creation Date	(0008,0012)	3	Document creation date



Instance Creation Time	(0008,0013)	3	Document creation time
Time zone Offset From UTC	(0008,0201)	3	
Instance Number	(0020,0013)	3	See Table 9.1-8: General Image Module

## 9.2 Overview of the Applied Modality Worklist IOD

This section specifies in detail the applied attributes in the C-FIND Service Element of this supported SOP Class.

If an attribute is present conditionally/optionally or if the attribute may contain a zero length value, this is indicated.

The scanner will use predefined DICOM Character Sets depending upon the selected language. See table in section 7.

The user will be warned if the Character Set of the worklist does not match the Character Set of the scanner.

The search filter mentioned is set in the worklist setup for the modality. The queries mentioned are selected in the patient dialog where the worklist is displayed.

**Table 9.2-1: Modality Worklist Information Model - FIND SOP Class - C-FIND**

Description	Tag	Match	Return	Note
<b>Scheduled Procedure Step</b>				
Scheduled Procedure Step Sequence	(0040,0100)	R	1	Return key
> Scheduled Station AE Title	(0040,0001)	R	1	Single Value Matching is applied; the applied value is the configured AE Title. Only used if search filter is "This System Only"
> Scheduled Procedure Step Start Date	(0040,0002)	R	1	Range Value Matching is applied when using date/time queries.
> Scheduled Procedure Step Start Time	(0040,0003)	R	1	Range Value Matching is applied when using date/time queries.
> Modality	(0008,0060)	R	1	Single Value Matching is applied; the applied value is US. Only used if search filter is "Ultrasound Only"
> Scheduled Procedure Step Description	(0040,0007)	O	1C	Return key
> Scheduled Procedure Step Location	(0040,0011)	O	2	Return key
> Scheduled Protocol Code Sequence	(0040,0008)	O	1C	Return key
> Scheduled Procedure Step ID	(0040,0009)	O	1	Return key



<b>Requested Procedure</b>				
Requested Procedure ID	(0040,1001)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and “Patient” query has been selected.
Requested Procedure Description	(0032,1060)	R	1C	Return Key
Requested Procedure Code Sequence	(0032,1064)	R	1C	Return Key
> Code Value	(0008,0100)	R	1	Return Key
> Coding Scheme Designator	(0008,0102)	R	1	Return Key
> Code Meaning	(0008,0104)	R	2	Return key
Study Instance UID	(0020,000D)	R	1	Return key
Referenced Study Sequence	(0008,1110)	R	2	Return Key
> Referenced SOP Class UID	(0008,1150)	R	1	Return Key
> Referenced SOP Instance UID	(0008,1155)	R	1	Return Key
Requested Procedure Priority	(0040,1003)	O	2	Return key
Names of Intended Recipients of Results	(0040,1010)	O	3	Return key
<b>Imaging Service Request</b>				
Accession Number	(0008,0050)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and “Patient” query has been selected.
Referring Physician’s Name	(0008,0090)	R	2	Return key
<b>Visit Admission</b>				
Admitting Diagnosis Description	(0008,1080)	O	2	Return key
Admission ID	(0038,0010)	O	3	Return key
<b>Patient Identification</b>				
Patient’s Name	(0010,0010)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and “Patient” query has been selected.
Patient ID	(0010,0020)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and “Patient” query has been selected.
Other Patient ID’s	(0010,1000)	R	2	Return key.

Patient Demographic				
Patient's Birth Date	(0010,0030)	R	2	Return key
Patient's Sex	(0010,0040)	R	2	Return key
Patient's Weight	(0010,1030)	R	2	Return key
Patient's Size	(0010,1020)	R	2	Return key
Patient's Address	(0010,1040)	O	3	Return key
Current Patient Location	(0038,0300)	O	3	Return key

### 9.3 Overview of the Applied Basic Grayscale Print Management Meta IOD

#### 9.3.1 Overview of the Applied Basic Film Session IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.3-1: Basic Film Session Presentation Module**

Attribute Name	Tag	Usage	Note
Number of Copies	(2000,0010)	U	1
Print Priority	(2000,0020)	U	HIGH
Medium Type	(2000,0030)	U	PAPER, CLEAR FILM, BLUE FILM
Film Destination	(2000,0040)	U	PROCESSOR
Film Session Label	(2000,0050)	U	"B-K Medical"

#### 9.3.2 Overview of the Applied Basic Film Box IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.3-2: Basic Film Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Display Format	(2010,0010)	M	STANDARD\C,R (C,R = 1,1 / 1,2 / 2,2 / 2,3 / 3,3 / 3,4 / 3,5 / 4,4 / 4,5 / 4,6 / 5,5 / 5,6 / <Custom>)
Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	Appl. value: 1.2.840.10008.5.1.1.1 (Basic Film Session SOP Class)
> Referenced SOP Instance UID	(0008,1155)	M	Appl. value: The SOP Instance UID of the parent film session
Film Orientation	(2010,0040)	U	PORTRAIT / LANDSCAPE
Film Size ID	(2010,0050)	U	See defined terms
Magnification Type	(2010,0060)	U	CUBIC

#### Film Size ID

The defined terms are:

8INX10IN    10INX12IN  
 10INX14IN    11INX14IN  
 14INX14IN    14INX17IN  
 24CMX24CM    24CMX30CM  
 and custom size (both CM and IN)

### 9.3.3 Overview of the Applied Basic Grayscale Image Box IOD

This section specifies in detail the applied attributes in the N-SET Service Element of this supported SOP Class.

**Table 9.3-3: Basic Grayscale Image Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Position	(2020,0010)	M	
Polarity	(2020,0020)	U	NORMAL
Basic Grayscale Image Sequence	(2020,0110)	M	
> Samples Per Pixel	(0028,0002)	M	0001H
> Photometric Interpretation	(0028,0004)	M	MONOCHROME2
> Rows	(0028,0010)	M	Image height
> Columns	(0028,0011)	M	Image width
> Pixel Aspect Ratio	(0028,0034)	U	"1\1"
> Bits Allocated	(0028,0100)	M	0008H
> Bits Stored	(0028,0101)	M	0008H
> High Bit	(0028,0102)	M	0007H
> Pixel Representation	(0028,0103)	M	0000H (= unsigned integer)
> Pixel Data	(7FE0,0010)	M	

## 9.4 Overview of the Applied Basic Color Print Management Meta IOD

### 9.4.1 Overview of the Applied Basic Film Session IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.4-1: Basic Film Session Presentation Module**

Attribute Name	Tag	Usage	Note
Number of Copies	(2000,0010)	U	1
Print Priority	(2000,0020)	U	HIGH
Medium Type	(2000,0030)	U	PAPER, CLEAR FILM, BLUE FILM
Film Destination	(2000,0040)	U	PROCESSOR
Film Session Label	(2000,0050)	U	"B-K Medical"

### 9.4.2 Overview of the Applied Basic Film Box IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.4-2: Basic Film Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Display Format	(2010,0010)	M	STANDARD\C,R (C,R = 1,1 / 1,2 / 2,2 / 2,3 / 3,3 / 3,4 / 3,5 / 4,4 / 4,5 / 4,6 / 5,5 / 5,6 / <Custom>)
Referenced Film Session	(2010,0500)	M	

Sequence			
> Referenced SOP Class UID	(0008,1150)	M	Appl. value: 1.2.840.10008.5.1.1.1 (Basic Film Session SOP Class)
> Referenced SOP Instance UID	(0008,1155)	M	Appl. value: The SOP Instance UID of the parent film session
Film Orientation	(2010,0040)	U	PORTRAIT / LANDSCAPE
Film Size ID	(2010,0050)	U	See defined terms
Magnification Type	(2010,0060)	U	CUBIC

### Film Size ID

The defined terms are:

8INX10IN    10INX12IN  
 10INX14IN    11INX14IN  
 14INX14IN    14INX17IN  
 24CMX24CM    24CMX30CM  
 and custom size (both CM and IN)

### 9.4.3 Overview of the Applied Basic Color Image Box IOD

This section specifies in detail the applied attributes in the N-SET Service Element of this supported SOP Class.

**Table 9.4-3: Basic Color Image Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Position	(2020,0010)	M	
Polarity	(2020,0020)	U	NORMAL
Basic Color Image Sequence	(2020,0111)	M	
> Samples Per Pixel	(0028,0002)	M	3
> Photometric Interpretation	(0028,0004)	M	RGB
> Rows	(0028,0010)	M	Image height
> Columns	(0028,0011)	M	Image width
> Pixel Aspect Ratio	(0028,0034)	U	"1\1"
> Bits Allocated	(0028,0100)	M	0008H
> Bits Stored	(0028,0101)	M	0008H
> High Bit	(0028,0102)	M	0007H
> Pixel Representation	(0028,0103)	M	0000H (= unsigned integer)
> Pixel Data	(7FE0,0010)	M	

### 9.5 Overview of the Applied Modality Performed Procedure Step IOD

This section specifies in detail the applied attributes in the N-CREATE and N-SET Service Elements of this supported SOP Class.

**Table 9.5-1: Performed Procedure Step Relationship Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Scheduled Step Attributes Sequence	(0040,0270)	1	Not allowed	From MWL



>Study Instance UID	(0020,000D)	1	Not allowed	From MWL
>Referenced Study Sequence	(0008,1110)	2	Not allowed	From MWL
>>Referenced SOP Class UID	(0008,1150)	1	Not allowed	From MWL
>>Referenced SOP Instance UID	(0008,1155)	1	Not allowed	From MWL
>Accession Number	(0008,0050)	2	Not allowed	From MWL
>Requested Procedure ID	(0040,1001)	2	Not allowed	From MWL
>Requested Procedure Code Sequence	(0032,1064)	3	Not allowed	From MWL
>Requested Procedure Description	(0032,1060)	2	Not allowed	From MWL
>Scheduled Procedure Step ID	(0040,0009)	2	Not allowed	From MWL
>Scheduled Procedure Step Description	(0040,0007)	2	Not allowed	From MWL / Entered by User
>Scheduled Protocol Code Sequence	(0040,0008)	2	Not allowed	From MWL / Entered by User
Patient's Name	(0010,0010)	2	Not allowed	From MWL / Entered by User
Patient ID	(0010,0020)	2	Not allowed	From MWL / Entered by User
Patient's Birth Date	0010,0030)	2	Not allowed	From MWL / Entered by User
Patient's Sex	(0010,0040)	2	Not allowed	From MWL / Entered by User
Referenced Patient Sequence	(0008,1120)	2	Not allowed	From MWL / Entered by User
Protocol Name	(0018,1030)	Not allowed	1	Updated at the end of Examination

**Table 9.5-2: Performed Procedure Step Information Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Performed Procedure Step ID	(0040,0253)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Station AE Title	(0040,0241)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Station Name	(0040,0242)	2	Not allowed	Returned by MPPS server after Begin Study
Performed Location	(0040,0243)	2	Not allowed	Returned by MPPS server after Begin Study
Performed Procedure Step Start Date	(0040,0244)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Procedure Step Start Time	(0040,0245)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Procedure	(0040,0252)	1	3	This value can be: In



Step Status				Progress, Completed or Discontinued. Returned by MPPS server after Begin Study
Performed Procedure Step Description	(0040,0254)	2	3	Returned by MPPS server after Begin Study
Performed Procedures Type Description	(0040,0255)	2	3	Returned by MPPS server after Begin Study
Performed Procedure Code Sequence	(0008,1032)	2	3	Returned by MPPS server after Begin Study
>Code Value	(0008,0100)			
>Coding Scheme Designator	(0008,0102)			
>Code Meaning	(0008,0104)			
Performed Procedure Step End Date	(0040,0250)	3	2	Updated on End Study
Performed Procedure Step End Time	(0040,0251)	3	2	Updated on End Study

The following table specifies the attributes which describe the acquisition of Images during the Performance of the MPPS.

**Table 9.5-3: Image Acquisition Results Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Modality	(0008,0060)	1	Not allowed	Type of Equipment =US. Retrieved from MWL / entered by user
Study ID	(0020,0010)	2	Not allowed	Retrieved from MWL / entered by user
Performed Protocol Code Sequence	(0040,0260)	2	2	Updated at the end study by MPPS
Performed Series Sequence	(0040,0340)	2	1	Updated at the end study by MPPS
>Performing Physician's Name	(0008,1050)	2	2	Updated at the end study by MPPS
>Protocol Name	(0018,1030)	1	1	Updated at the end study by MPPS
>Operators' Name	(0008,1070)	2	2	Updated at the end study by MPPS
>Series Instance UID	(0020,000E)	1	1	Updated at the end study by MPPS
>Series Description	(0008,103E)	2	2	Updated at the end study by MPPS
>Retrieve AE Title	(0008,0054)	2	2	Updated at the end study by MPPS
>Referenced Image Sequence	(0008,1140)	2	2	Updated at the end study by MPPS
>>Referenced SOP Class UID	(0008,1150)	1	1	Updated at the end study by MPPS
>>Referenced SOP	(0008,1155)	1	1	Updated at the end study

Instance UID				by MPPS
>Referenced Non Image composite SOP Instance Sequence	(0040,0220)	2	2	Updated at the end study by MPPS
>>Referenced SOP Class UID	(0008,1150)	1	1	Updated at the end study by MPPS
>>Referenced SOP Instance UID	(0008,1155)	1	1	Updated at the end study by MPPS

## 9.6 Overview of the Applied Storage Commitment IOD

This section specifies in detail the applied attributes in the N-ACTION service element of this supported SOP class.

**Table 9.6-1: Storage Commitment Attribute Module**

Attribute Name	Tag	Usage	Note
Transaction UID	(0008,1195)	M	Uniquely generated by the equipment
Retrieve AE Title	(0008,0054)	U	Not used
Storage Media File Set ID	(0088,0130)	U	Not used
Storage Media File Set UID	(0088,0140)	U	Not used
Referenced SOP Sequence	(0008,1199)	M	Supported
>Referenced SOP Class UID	(0008,1150)	M	Supported
>Referenced SOP Instance UID	(0008,1155)	M	Supported
>Retrieve AE Title	(0008,0054)	U	Not used
>Storage Media File Set ID	(0088,0130)	U	Not used
>Storage Media File – Set UID	(0088,0140)	U	Not used
Failed SOP Sequence	(0008,1198)	M	Supported N-Event-RQ
>References SOP Class UID	(0008,1150)	M	Supported
>Referenced SOP Instance UID	(0008,1155)	M	Supported
>Failure Reason	(0008,1197)	M	Supported

## 9.7 Overview of the Applied Comprehensive SR IOD

The Comprehensive SR IOD specifies a class of documents, the content of which may include textual and coded information, numeric measurement values, references to the DICOM Composite Instances.

The modules selected from the IOD module table of DICOM 3.0 are given in the table below.



**Table 9.7-1: Applied Modules in the Comprehensive SR IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1.5
Series	SR Document Series	M	See Table 9.7-2
Equipment	Equipment	M	See Table 9.1-7
Document	SR Document General	M	See Table 9.7-3
	SR Document Content	M	See Table 9.7-4
	SOP Common	M	See Table 9.7-5

The details of these applied Comprehensive SR IOD modules are given in the tables. The list of possible values is given, if applicable. If an attribute may be present conditionally/optionally or may contain a zero length value, this is also indicated.

**Table 9.7-2: SR Document Series**

Attribute Name	Tag	Type	Note
Modality	(0008,0060)	1	SR
SeriesInstanceUID	(0020,000E)	1	Generated at creation of the Series
SeriesNumber	(0020,0011)	1	Auto generated
Referenced Performed Procedure Step Sequence	(0008,1111)	2	Value set to EMPTY

**Table 9.7-3: SR Document General**

Attribute Name	Tag	Type	Note
Content Date	(0008,0023)	1	Date of SR document creation, based upon when user action that content creation started
Content Time	(0008,0033)	1	Time of SR document creation, based upon when user action that content creation started
Instance Number	(0020,0013)	1	A number that identifies SOP Instance. The value is always 1
Verifying Observer Sequence	(0040,A073)	1C	Not Used
Predecessor Documents Sequence	(0040,A360)	1C	Not Used
Referenced Request Sequence	(0040,A370)	1C	Not Used
Performed Procedure Code Sequence	(0040,A372)	2	Value set to EMPTY
Current Requested Procedure Evidence Sequence	(0040,A375)	1C	Not Used
Pertinent Other Evidence Sequence	(0040,A385)	1C	Not Used
Completion Flag	(0040,A491)	1	PARTIAL
Verification Flag	(0040,A493)	1	UNVERIFIED
Identical Documents Sequence	(0040,A525)	1C	Not Used

**Table 9.7-4: SR Document Content**

Attribute Name	Tag	Type	Note
Observation Date Time	(0040,A032)	1C	Not used
Value Type	(0040,A040)	1	CONTAINER
Concept Name Code Sequence	(0040,A043)	1C	Depending on application template - 'Vascular Ultrasound Procedure Reports' 'B-K Medical Structure Report'
Continuity Of Content	(0040,A050)	1C	SEPARATE
Content Template Sequence	(0040,A504)	1C	Depending on application template – Template ID's used are 'Vascular Ultrasound Procedure Reports' (TID 5100) and 'B-K Medical Structure Report'(TID BK1000)
>Mapping Resource	(0008,0105)	1	Mapping Resource that defines the template. 1)'DCMR' for 'Vascular Ultrasound Procedure Reports' 2)'BKCMR' for 'B-K Medical Structure Report'
>Template Identifier	(0040,DB00)	1	Template identifier 1)'5100' for 'Vascular Ultrasound Procedure Reports' 2)'BK1000' for 'B-K Medical Structure Report'
Content Sequence	(0040,A730)	1C	Depending on application template - 'Vascular Ultrasound Procedure Reports' 'B-K Medical Structure Report'

**Table 9.7-5: SOP Common Module**

Attribute Name	Tag	Type	Note
SOP Class UID	(0008,0016)	1	For Comprehensive SR: "1.2.840.10008.5.1.4.1.1.88.33"
SOP Instance UID	(0008,0018)	1	Generated when SR is created
Specific Character Set	(0008,0005)	1C	Set according to selected language on the scanner. See section 7.

## 9.7.1 Overview of SR Document Content Descriptions

### 9.7.1.1 SR Document Content Template

B-K Medical Ultrasound System -1202 , 2202 and 2300 supports the following DICOM SR root templates for Comprehensive SR SOP Instances created, generated, or displayed by BK US systems

**Table 9.7-6: DICOM SR Root Templates**

Template ID	Template Name
5100	Vascular Ultrasound Procedure Reports
BK1000	B-K Medical Structured Report

### 9.7.1.2 DICOM Standard Extended and Private Template

B-K Medical US System -1202, 2202 and 2300 supports the DICOM standard extended and private defined templates in the following sections.

#### 9.7.1.2.1 TID 5100 Vascular SR - DICOM Standard Extended

DICOM Standard Extended Table 9.7-7 TID 5100 Vascular Ultrasound Procedure Reports for user selected Pro-Package Carotid for B-K Medical US systems

**Table 9.7-7: TID 5100 - VASCULAR ULTRASOUND REPORT**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (125100, DCM, "Vascular Ultrasound Procedure Report")	1	M		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	1	M		Person Name value of Performing-Physician
3	>	CONTAINS	CONTAINER	EV (111028, DCM, "Image Library")	1	U		
4	>>	CONTAINS	IMAGE	No purpose of reference	1-n	M		DCID(12224) Ultrasound Image Modes
5	>	CONTAINS	INCLUDE	DTID (5102) Vascular Procedure Summary Section	1	U		
6	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-45005, SRT, "Artery of neck") \$SectionLaterality = EV(G-A101, SRT, "Left") \$Anatomy = DCID (12104) Extracranial Arteries \$AnatomyRatio = DCID (12123) Carotid Ratios
7	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-45005, SRT, "Artery of neck") \$SectionLaterality = EV (G-A100, SRT, "Right") \$Anatomy = DCID (12104) Extracranial Arteries \$AnatomyRatio = DCID (12123) Carotid Ratios
8	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-47040, SRT, "Artery of Lower Extremity") \$SectionLaterality = EV (G-A101, SRT, "Left") \$Anatomy = DCID (12109) Lower Extremity Arteries



	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
9	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-47040, SRT, "Artery of Lower Extremity") \$SectionLaterality = EV (G-A100, SRT, "Right") \$Anatomy = DCID (12109) Lower Extremity Arteries
10	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-49403, SRT, "Vein of Lower Extremity") \$SectionLaterality = EV (G-A101, SRT, "Left") \$Anatomy = DCID (12110) Lower Extremity Veins
11	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-49403, SRT, "Vein of Lower Extremity") \$SectionLaterality = EV (G-A100, SRT, "Right") \$Anatomy = DCID (12110) Lower Extremity Veins
12	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-46002, SRT, "Artery of Abdomen") \$SectionLaterality = EV (G-A103, SRT, "Unilateral") \$Anatomy = DCID (12112) Abdominal Arteries (unilateral)
13	>	CONTAINS	INCLUDE	DTID (5103) Vascular Ultrasound Section	1	U		\$SectionScope = DT (T-487A0, SRT, " Vein of Abdomen") \$SectionLaterality = EV (G-A103, SRT, "Unilateral") \$Anatomy = DCID (12114) Abdominal Veins (unilateral)
14	>	CONTAINS	INCLUDE	DTID (5105) Ultrasound Graft Section	1	U		

**Table 9.7-8: TID 5102 - Vascular Procedure Summary Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121111, DCM, "Summary")	1	M		
2	>	CONTAINS	TEXT	DCID (12101) Vascular Summary	1-n	M		Text Value of Report Remarks

**Table 9.7-9: TID 5103 - Vascular Ultrasound Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	1	M		\$SectionScope= DT (T-45005, SRT, "Artery of neck") \$SectionScope = DT (T-47040, SRT, "Artery of Lower Extremity") \$SectionScope = DT (T-49403, SRT, "Vein of Lower Extremity") \$SectionScope = DT (T-47020, SRT, "Artery Of Upper Extremity") \$SectionScope = DT (T-46002, SRT, "Artery of Abdomen") \$SectionScope = DT (T-487A0, SRT, " Vein of Abdomen")
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	1	M		\$SectionLaterality = EV(G-A101, SRT, "Left"), EV(G-A100, SRT, "Right") EV(G-A103, SRT, "Unilateral")
4	>	CONTAINS	INCLUDE	DTID (5104) Vascular Measurement Group	1-n	M		\$Anatomy = DCID (12104) Extracranial Arteries , if \$SectionScope = DT (T-45005, SRT, "Artery of neck"). \$Anatomy = DCID (12109) Lower Extremity Arteries , if \$SectionScope = DT (T-47040, SRT, "Artery of Lower Extremity"). \$Anatomy = DCID (12110) Lower Extremity Veins, if \$SectionScope = DT (T-49403, SRT, "Vein of Lower Extremity").



								\$Anatomy = DCID (12112) Abdominal Arteries (unilateral), \$SectionScope = DT (T-46002, SRT, "Artery of Abdomen"). \$Anatomy = DCID (12114) Abdominal Veins (unilateral), if \$SectionScope = DT (T-487A0, SRT, "Vein of Abdomen").
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	U		Units= \$Units DCID (12123) Carotid Ratios

**Table 9.7-10: TID 5104 - Vascular Measurement Group**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	\$AnatomyGroup	1	M		\$Anatomy = DCID (12104) Extracranial Arteries \$Anatomy = DCID (12109) Lower Extremity Arteries \$Anatomy = DCID (12110) Lower Extremity Veins \$Anatomy = DCID (12112) Abdominal Arteries (unilateral) \$Anatomy = DCID (12114) Abdominal Veins (unilateral)
2	>	HAS CONCEPT MOD	CODE	EV (G-A1F8, SRT, "Topographical Modifier")	1	U		DCID (12116) Vessel Segment Modifiers
3	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	M		\$Measurement = DCID (12120) Blood Velocity Measurements \$Measurement = BCID (B K1202) BK Vein Measurement \$Measurement = BCID (B K1203) BK Vascular Checklist



**Table 9.7-11: TID 5105 - Ultrasound Graft Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (G-C0E3, SRT, "Finding Site")	1	M		\$SectionScope= DT (T-D000F, SRT, "Vascular Graft")
3	>	HAS CONCEPT MOD	CODE	EV (G-C171, SRT, "Laterality")	1	U		\$SectionLaterality = EV(G-A101, SRT, "Left"), EV(G-A100, SRT, "Right")
4	>	HAS CONCEPT MOD	CODE	DT (G-D871, SRT, "Proximal anastomosis")	1	M		BCID (12103) Vascular Ultrasound Anatomic Location
5	>	HAS CONCEPT MOD	CODE	DT (G-D872, SRT, "Distal Anastomosis")	1	M		BCID (12103) Vascular Ultrasound Anatomic Location
6	>	HAS CONCEPT MOD	INCLUDE	DT (125102, DCM, "Graft Type")	1	U		No BCID BCID (BK1201) BK Graft Type
7	>	CONTAINS	INCLUDE	DTID (300) Measurement	1-n	M		\$Measurement = DCID (12119) Vascular Ultrasound Property \$Measurement = BCID (BK1205) BK Graft Measurements

**Table 9.7-12: CID 12103 - Vascular Ultrasound Anatomic Location**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12109 Lower Extremity Arteries		

**Table 9.7-13: CID 12104 - Extracranial Arteries**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	T-45170	Carotid Bulb
SRT	T-45100	Common Carotid Artery
SRT	T-45200	External Carotid Artery
SRT	T-45300	Internal Carotid Artery
SRT	T-46100	Subclavian Artery
SRT	T-45700	Vertebral Artery

**Table 9.7-14: CID 12109 - Lower Extremity Arteries**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	T-47440	Profunda Femoris Artery
SRT	T-47400	Common Femoral Artery
SRT	T-47500	Popliteal Artery

SRT	T-46710	Common Iliac Artery
SRT	T-46910	External Iliac Artery
SRT	T-47600	Posterior Tibial Artery
SRT	T-47741	Dorsalis Pedis Artery
SRT	T-47403	Superficial Femoral Artery
SRT	T-47700	Anterior Tibial Artery
SRT	T-47630	Peroneal Artery

**Note:** Only "Common Femoral Artery" anatomy is included for TID 5105 - Ultrasound Graft Section. TID 5104 - Vascular Measurement Group includes all the anatomies mentioned in the above table.

**Table 9.7-15: CID 12110 - Lower Extremity Veins**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	G-035B	Common Femoral Vein
SRT	T-D930A	Saphenofemoral Junction
SRT	T-49640	Peroneal Vein
SRT	T-49620	Posterior Tibial Vein
SRT	T-49650	Popliteal Vein
SRT	T-49530	Great Saphenous Vein
SRT	R-10259	Great Saphenous Vein of Thigh
SRT	R-1025A	Great Saphenous Vein of Calf
SRT	T-49550	Lesser Saphenous Vein
SRT	T-4942A	Hunterian perforating Vein
SRT	T-49426	Cockett's perforating Vein
SRT	T-49424	Boyd's perforating Vein
SRT	T-48920	Common Iliac Vein
SRT	T-48930	External Iliac Vein
SRT	T-49660	Profunda Femoris Vein
SRT	T-4942D	Gastrocnemius Vein
SRT	G-036B	Soleal Vein
SRT	T-49630	Anterior Tibial Vein
SRT	G-035A	Superficial Femoral Vein

**Table 9.7-16: CID 12112 - Abdominal Arteries (unilateral)**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	T-42000	Aorta



**Table 9.7-17: CID 12114 - Abdominal Veins (unilateral)**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	T-48710	Inferior Vena Cava

**Table 9.7-18: CID 12116 - Vessel Segment Modifiers**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	G-A119	Distal
SRT	G-A188	Mid-longitudinal
SRT	G-A118	Proximal

**Table 9.7-19: CID 12119 - Vascular Ultrasound Property**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12120 Blood Velocity Measurements		
INCLUDE CID 12122 Other Vascular Properties		

**Table 9.7-20: CID 12120 - Blood Velocity Measurements**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	11653-3	End Diastolic Velocity
LN	11726-7	Peak Systolic Velocity

**Table 9.7-21: CID12122 - Other Vascular Properties**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	G-0365	Vessel outside diameter

**Table 9.7-22: CID12123 - Carotid Ratios**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	33868-1	ICA/CCA velocity ratio

**Table 9.7-23: CID 12224 - Ultrasound Image Modes**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SRT	G-03A2	2D mode

**Table 9.7-24: BCID BK1201 - BK Graft Type**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
BK	BK1300	Bypass Graft

**Table 9.7-25: BCID BK1202 - BK Vein Measurement**

Label	Code Meaning (Coding Scheme Designator,Code Value) \$Measurement Name \$Measurement	Measurement unit
VCT	Valve Closure Time (BK, BK-10001)	ms

**Table 9.7-26: BCID BK1203 - BK Vascular Checklist**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	BT ( BK1203, BK, “BK Vascular Measurements”)	1	M		
2	>	CONTAINS	INCLUDE	BTID (1204) Measurement	1-n	M		\$Measurement = BCID (BK1204) BK Checklist Values

**Table 9.7-27: BCID BK1204 - BK Checklist Values**

Label	Code Meaning (Coding Scheme Designator,Code Value) \$Measurement Name \$Measurement	Measurement unit
Site Name	SiteName (BK, BK-10106)	no unit
Compression	Compression (BK, BK-10101)	no unit
Spontaneous	Spontaneous (BK, BK-10102)	no unit
Phasic	Phasic (BK, BK-10103)	no unit
Augmentation	Augmentation (BK, BK-10104)	no unit
Reflux	Reflux (BK, BK-10105)	no unit

**Table 9.7-28: BCID BK1205 - BK Graft Measurements**

Label	Code Meaning (Coding Scheme Designator,Code Value) \$Measurement Name \$Measurement	Measurement unit
Left Bypass Graft Inflow Vessel outside diameter	Left Bypass Graft Inflow Vessel outside diameter (BK, BK1301)	mm
Left Bypass Graft Outflow Vessel outside diameter	Left Bypass Graft Outflow Vessel outside diameter (BK, BK1302)	mm
Left Bypass Graft Inflow Peak Systole	Left Bypass Graft Inflow Peak Systole (BK, BK1303)	cm/s
Left Bypass Graft Outflow Peak Systole	Left Bypass Graft Outflow Peak Systole (BK, BK1304)	cm/s
Right Bypass Graft Inflow Vessel outside diameter	Right Bypass Graft Inflow Vessel outside diameter (BK, BK1305)	mm
Right Bypass Graft Outflow Vessel outside diameter	Right Bypass Graft Outflow Vessel outside diameter (BK, BK1306)	mm
Right Bypass Graft Inflow Peak	Right Bypass Graft Inflow Peak Systole	cm/s



Systole	(BK, BK1307)	
Right Bypass Graft Outflow Peak Systole	Right Bypass Graft Outflow Peak Systole (BK, BK1308)	cm/s

**Table 9.7-29: TID 300 - Measurement**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			NUM	\$Measurement	1	M		Refer CID 82 - Units of Measurement. Note: Peak Systole uses cm/s. Diameter uses mm.

**9.7.1.2.2 TID BK1000 B-K Medical Structured Report – Private User Defined**

The B-K Medical Structured Report template Table 9.7-30 provides the specific codes for user defined measurements and calculations with public/private code designator schemes.

TID BK1000 B-K Medical Structured Report will support for user selected any pro-package other than Carotid for B-K Medical US systems.

**Table 9.7-30: TID BK1000 - B-K Medical Structured Report**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (BK-00001, BK, "B-K Medical Structured Report")	1	M		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	1	M		Person Name value of Performing-Physician
3	>	CONTAINS	CONTAINER	EV (111028, DCM, "Image Library")	1	U		
4	>>	CONTAINS	IMAGE	No purpose of reference	1-n	M		DCID(12224) Ultrasound Image Modes
5	>	CONTAINS	INCLUDE	DTID (BK100) Summary Section	1	U		
6	>	CONTAINS	INCLUDE	DTID (BK200) B-K Medical Ultrasound Measurements Section	1	U		

**Table 9.7-31: TID BK100 - Summary Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121111, DCM, "Summary")	1	M		
2	>	CONTAINS	TEXT	EV(DCM,121106,"Comment")	1	M		Text Value of Report Remarks

**Table 9.7-32: TID BK200 - B-K Medical Ultrasound Measurements Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00471, BK, “ B-K Medical Ultrasound Measurements”)	1	U		
2	>	CONTAINS	INCLUDE	DTID (BK300) General Ultrasound Measurements	1	U		
3	>	CONTAINS	INCLUDE	DTID (BK400) Abdominal Measurements	1	U		
4	>	CONTAINS	INCLUDE	DTID (BK500) Cardiac Measurements	1	U		
5	>	CONTAINS	INCLUDE	DTID (BK600) OB-GYN Measurements	1	U		
6	>	CONTAINS	INCLUDE	DTID (BK700) Urology Measurements	1	U		
6	>	CONTAINS	INCLUDE	DTID (BK1005) Hemodynamics Measurements	1	U		

**Table 9.7-33: TID BK300 - General Ultrasound Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00472, BK, “General Ultrasound Measurement ”)				
2	>	CONTAINS	CONTAINER	\$MeasurementName	1-n	U	IFF Group Value Measurement	BCID (BK800) General Ultrasound Measurements
3	>>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U		BCID (BK800) General Ultrasound Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement
4	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK800) General Ultrasound Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement



**Table 9.7-34: TID BK400 - Abdominal Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00473, BK, "Abdominal Measurements")				
2	>	CONTAINS	CONTAINER	\$MeasurementName	1-n	U	IFF Group Value Measurement	BCID (BK900) Abdominal Measurements
3	>>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U		BCID (BK900) Abdominal Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement
4	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK900) Abdominal Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement

**Table 9.7-35: TID BK500 - Cardiac Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00474, BK, "Cardiac Measurements")				
2	>	CONTAINS	CONTAINER	\$MeasurementName	1-n	U	IFF Group Value Measurement	BCID (BK1001) Cardiac Measurements
3	>>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U		BCID (BK1001) Cardiac Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement
4	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK1001) Cardiac Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement



**Table 9.7-36: TID BK600 - OB-GYN Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00475, BK, "OB-GYN Measurements")				
2	>	CONTAINS	CONTAINER	\$MeasurementName	1-n	U	IFF Group Value Measurement	BCID (BK1002) OB-GYN Measurements
3	>>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U		BCID (BK1002) OB-GYN Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement
4	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK1002) OB-GYN Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement

**Table 9.7-37: TID BK700 - Urology Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00476, BK, "Urology Measurements")				
2	>	CONTAINS	CONTAINER	\$MeasurementName	1-n	U	IFF Group Value Measurement	BCID (BK1003) Urology Measurements
3	>>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U		BCID (BK1003) Urology Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement
4	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK1003) Urology Measurements, CID (82) Units of Measurement BCID (BK1004) Units of B-K Medical US Measurement

**Table 9.7-38: TID BK1005 - Hemodynamics Measurements**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (BK-00477, BK, "Hemodynamics Measurements")				
2	>	CONTAINS	NUM	\$Measurement \$Unit	1-n	U	IFF Single Value Measurement	BCID (BK1005) Hemodynamics Measurements, CID (82) Units of Measurement



**Table 9.7-39: BCID BK800 - General Ultrasound Measurements**

**Note:** Multiple measurements within the same container may occur. The value multiplicity for single measurements which are inside the container is 1-n. The order of the container and NUM items is relevant.

E.g. an ellipse container may contain 1-n single measurements.

Label	Code Meaning (Coding Scheme Designator, Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Group Value Measurements</b>		
<b>General Ellipse</b>	<b>Container:</b> General Ellipse(BK, BK-00004)	
Perimeter	Perimeter(SRT, G-A197)	Cm
MeanDiameter	MeanDiameter(BK, BK-00005)	Mm
Area	Area(SRT, G-A166)	cm2
Volume	Volume(SRT, G-D705)	cm3
<b>General Circle</b>	<b>Container:</b> General Circle(BK, BK-00006)	
Perimeter	Perimeter(SRT, G-A197)	Cm
MeanDiameter	MeanDiameter(BK, BK-00005)	Mm
Area	Area(SRT, G-A166)	cm2
Volume	Volume(SRT, G-D705)	cm3
<b>General Polygon</b>	<b>Container:</b> General Polygon (BK, BK-00007)	
Perimeter	Perimeter(SRT, G-A197)	cm
Area	Area(SRT, G-A166)	cm2
<b>General Freehand</b>	<b>Container:</b> General Freehand (BK, BK-00008)	
Perimeter	Perimeter(SRT, G-A197)	cm
Area	Area(SRT, G-A166)	cm2
<b>2 Angles</b>	<b>Container:</b> 2 Angles (BK, BK-00010)	
Alpha	Alpha (BK, BK-00011)	deg
Beta	Beta (BK, BK-00012)	deg
<b>Auto Doppler Calculations</b>	<b>Container:</b> Auto Doppler Calculations (BK, BK-00375)	
PI	PI (BK, BK-00379)	no unit
RI	RI (BK, BK-00380)	no unit
PS	PS (BK, BK-00376)	cm/s
ED	ED (BK, BK-00377)	cm/s
MD	MD (BK, BK-00378)	cm/s
Heart Rate	Heart Rate (LN, 8867-4)	b/min
TAM	TAM (BK, BK-00382)	cm/s
TAMX	TAMX (BK, BK-00383)	cm/s
<b>Real-Time</b>	<b>Container:</b> Real-Time (BK, BK-00384)	
PI	PI (BK, BK-00379)	no unit
RI	RI (BK, BK-00380)	no unit
PS	PS (BK, BK-00376)	cm/s
ED	ED (BK, BK-00377)	cm/s
MD	MD (BK, BK-00378)	cm/s
Heart Rate	Heart Rate (LN, 8867-4)	b/min
TAM	TAM (BK, BK-00382)	cm/s
TAMX	TAMX (BK, BK-00383)	cm/s
<b>Gestational Sac (2 distances)</b>	<b>Container:</b> Gestational Sac (2 distances) (BK, BK-00454)	
GS 1	GS 1 (BK, BK-00455)	mm
GS 2	GS 2 (BK, BK-00456)	mm
GS	GS (BK, BK-00457)	mm
<b>Gestational Sac (3 distances, distance 1 and 2)</b>	<b>Container:</b> Gestational Sac (3 distances, distance 1 and 2) (BK, BK-00458)	
GS 1	GS 1 (BK, BK-00455)	mm
GS 2	GS 2 (BK, BK-00456)	mm
<b>Single Value Measurements</b>		



Distance	Distance (DCM ,121206)	mm
Depth	Depth (SRT,G-D785)	mm
Height	Height (DCM, 121207)	mm
Width	Width (SRT, G-A220)	mm
Length	Length (SRT, G-A22A)	mm
Diameter	Diameter (SRT, M-02550)	cm
Volume Flow	Volume Flow (LN, 33878-0)	ml/min
Angle	Angle (BK, BK-00002)	deg
H*W*L (Auto)	H*W*L (Auto)(BK, BK-00003)	cm3
l Angle	l Angle (BK, BK-00009)	deg
M Distance	M Distance (BK, BK-00015)	mm
M Delta Time	M Delta Time (BK, BK-00016)	s
Cardiac Output	Cardiac Output (BK, BK-00017)	l/min
Cardiac Index	Cardiac Index (BK, BK-00018)	l/min/m2
Prostate Outline	Prostate Outline (BK, BK-00019)	no unit
Bladder Outline	Bladder Outline (BK, BK-00020)	no unit
Urethra Outline	Urethra Outline (BK, BK-00021)	no unit
Rectum Outline	Rectum Outline (BK, BK-00022)	no unit
Seminal Vesicles Outline	Seminal Vesicles Outline (BK, BK-00023)	no unit
Alpha1 Angle	Alpha1 Angle (BK, BK-00024)	deg
Beta1 Angle	Beta1 Angle (BK, BK-00025)	deg
Gamma1 Angle	Gamma1 Angle (BK, BK-00026)	deg
Bladder Neck Symphysis Pubis Distance	Bladder Neck Symphysis Pubis Distance (BK, BK-00027)	mm
Bladder Neck Descent	Bladder Neck Descent (BK, BK-00028)	mm
Bladder Wall Thickness	Bladder Wall Thickness (BK, BK-00029)	mm
Alpha2 Angle using 180°	Alpha2 Angle using 180° (BK, BK-00030)	deg
Alpha3 Angle using 360°	Alpha3 Angle using 360° (BK, BK-00031)	deg
AnoRectal Angle	AnoRectal Angle (BK, BK-00032)	deg
Beta2 Angle using 180°	Beta2 Angle using 180° (BK, BK-00033)	deg
Beta3 Angle using 360°	Beta3 Angle using 360°(BK, BK-00034)	deg
Gamma2 Angle using 180°	Gamma2 Angle using 180° (BK, BK-00035)	deg
Gamma3 Angle using 360°	Gamma3 Angle using 360° (BK, BK-00036)	deg
Mass Vol	Mass Vol (BK, BK-00037)	no unit
Lymph Node 1	Lymph Node 1 (BK, BK-00038)	mm
Lymph Node 2	Lymph Node 2 (BK, BK-00039)	mm
Lymph Node 3	Lymph Node 3 (BK, BK-00040)	mm
Lymph Node 4	Lymph Node 4 (BK, BK-00041)	mm
Cyst 1 diameter	Cyst 1 diameter (BK, BK-00042)	mm
Cyst 2 diameter	Cyst 2 diameter (BK, BK-00043)	mm
Cyst 3 diameter	Cyst 3 diameter (BK, BK-00044)	mm
Cyst 4 diameter	Cyst 4 diameter (BK, BK-00045)	mm
Mass	Mass (BK, BK-00046)	mm
Left Internal Carotid Artery	Left Internal Carotid Artery (BK, BK-00203)	cm/s
Right Internal Carotid Artery	Right Internal Carotid Artery (BK, BK-00204)	cm/s
Left Common Carotid Artery	Left Common Carotid Artery (BK, BK-00205)	cm/s
Right Common Carotid Artery	Right Common Carotid Artery (BK, BK-00206)	cm/s
Left External Carotid Artery	Left External Carotid Artery (BK, BK-00207)	cm/s
Right External Carotid Artery	Right External Carotid Artery (BK, BK-00208)	cm/s
Left Internal Carotid Artery / Right Internal Carotid Artery Ratio	Left Internal Carotid Artery / Right Internal Carotid Artery Ratio (BK, BK-00209)	no unit
Right Internal Carotid Artery / Left Internal Carotid Artery Ratio	Right Internal Carotid Artery / Left Internal Carotid Artery Ratio (BK, BK-00210)	no unit
Left Common Carotid Artery / Right Common Carotid Artery Ratio	Left Common Carotid Artery / Right Common Carotid Artery Ratio (BK, BK-00211)	no unit
Right Common Carotid Artery / Left Common Carotid Artery Ratio	Right Common Carotid Artery / Left Common Carotid Artery Ratio (BK, BK-00212)	no unit
Left External Carotid Artery / Right External Carotid Artery Ratio	Left External Carotid Artery / Right External Carotid Artery Ratio (BK, BK-00213)	no unit
Right External Carotid Artery / Left External Carotid Artery Ratio	Right External Carotid Artery / Left External Carotid Artery Ratio (BK, BK-00214)	no unit





Left Internal Carotid Artery / Left Common Carotid Artery Ratio	Left Internal Carotid Artery / Left Common Carotid Artery Ratio (BK, BK-00215)	no unit
Right Internal Carotid Artery / Right Common Carotid Artery Ratio	Right Internal Carotid Artery / Right Common Carotid Artery Ratio (BK, BK-00216)	no unit
Left External Carotid Artery / Left Common Carotid Artery Ratio	Left External Carotid Artery / Left Common Carotid Artery Ratio (BK, BK-00217)	no unit
Right External Carotid Artery / Right Common Carotid Artery Ratio	Right External Carotid Artery / Right Common Carotid Artery Ratio (BK, BK-00218)	no unit
Left Common Carotid Artery Proximal Peak Systole	Left Common Carotid Artery Proximal Peak Systole (BK, BK-00219)	cm/s
Left Common Carotid Artery mid Peak Systole	Left Common Carotid Artery mid Peak Systole (BK, BK-00220)	cm/s
Left Common Carotid Artery Distal Peak Systole	Left Common Carotid Artery Distal Peak Systole (BK, BK-00221)	cm/s
Left Internal Carotid Artery Proximal Peak Systole	Left Internal Carotid Artery Proximal Peak Systole (BK, BK-00222)	cm/s
Left Internal Carotid Artery Mid Peak Systole	Left Internal Carotid Artery Mid Peak Systole (BK, BK-00223)	cm/s
Left Internal Carotid Artery Distal Peak Systole	Left Internal Carotid Artery Distal Peak Systole (BK, BK-00224)	cm/s
Left Bulb Peak Systole	Left Bulb Peak Systole (BK, BK-00226)	cm/s
Left Vert Artery Peak Systole	Left Vert Artery Peak Systole (BK, BK-00227)	cm/s
Left Sub Clav Artery Peak Systole	Left Sub Clav Artery Peak Systole (BK, BK-00228)	cm/s
Right Common Carotid Artery Proximal Peak Systole	Right Common Carotid Artery Proximal Peak Systole (BK, BK-00229)	cm/s
Right Common Carotid Artery mid Peak Systole	Right Common Carotid Artery mid Peak Systole (BK, BK-00230)	cm/s
Right Common Carotid Artery Distal Peak Systole	Right Common Carotid Artery Distal Peak Systole (BK, BK-00231)	cm/s
Right Internal Carotid Artery Proximal Peak Systole	Right Internal Carotid Artery Proximal Peak Systole (BK, BK-00232)	cm/s
Right Internal Carotid Artery Mid Peak Systole	Right Internal Carotid Artery Mid Peak Systole (BK, BK-00233)	cm/s
Right Internal Carotid Artery Distal Peak Systole	Right Internal Carotid Artery Distal Peak Systole (BK, BK-00234)	cm/s
Right External Carotid Artery	Right External Carotid Artery (BK, BK-00235)	cm/s
Right Bulb Peak Systole	Right Bulb Peak Systole (BK, BK-00236)	cm/s
Right Vert Artery Peak Systole	Right Vert Artery Peak Systole (BK, BK-00237)	cm/s
Right Sub Clav Artery Peak Systole	Right Sub Clav Artery Peak Systole (BK, BK-00238)	cm/s
LCCAp Peak Systole + End Diastole	LCCAp Peak Systole + End Diastole (BK, BK-00239)	cm/s
LCCAm Peak Systole + End Diastole	LCCAm Peak Systole + End Diastole (BK, BK-00240)	cm/s
LCCAd Peak Systole + End Diastole	LCCAd Peak Systole + End Diastole (BK, BK-00241)	cm/s
LICAp Peak Systole + End Diastole	LICAp Peak Systole + End Diastole (BK, BK-00242)	cm/s
LICAm Peak Systole + End Diastole	LICAm Peak Systole + End Diastole (BK, BK-00243)	cm/s
LICAd Peak Systole + End Diastole	LICAd Peak Systole + End Diastole (BK, BK-00244)	cm/s
LECA Peak Systole + End Diastole	LECA Peak Systole + End Diastole (BK, BK-00245)	cm/s
LBulb Peak Systole + End Diastole	LBulb Peak Systole + End Diastole (BK, BK-00246)	cm/s
LVertA Peak Systole + End Diastole	LVertA Peak Systole + End Diastole (BK, BK-00247)	cm/s
LSubClavA Peak Systole + End Diastole	LSubClavA Peak Systole + End Diastole (BK, BK-00248)	cm/s
RCCAp Peak Systole + End Diastole	RCCAp Peak Systole + End Diastole (BK, BK-00249)	cm/s



RCCAm Peak Systole + End Diastole	RCCAm Peak Systole + End Diastole (BK, BK-00250)	cm/s
RCCAd Peak Systole + End Diastole	RCCAd Peak Systole + End Diastole (BK, BK-00251)	cm/s
RICAp Peak Systole + End Diastole	RICAp Peak Systole + End Diastole (BK, BK-00252)	cm/s
RICAm Peak Systole + End Diastole	RICAm Peak Systole + End Diastole (BK, BK-00253)	cm/s
RICAd Peak Systole + End Diastole	RICAd Peak Systole + End Diastole (BK, BK-00254)	cm/s
RECA Peak Systole + End Diastole	RECA Peak Systole + End Diastole (BK, BK-00255)	cm/s
RBulb Peak Systole + End Diastole	RBulb Peak Systole + End Diastole (BK, BK-00256)	cm/s
RVertA Peak Systole + End Diastole	RVertA Peak Systole + End Diastole (BK, BK-00257)	cm/s
RSubClavA Peak Systole + End Diastole	RSubClavA Peak Systole + End Diastole (BK, BK-00258)	cm/s
Right External Carotid Artery Peak Systole	Right External Carotid Artery Peak Systole (BK, BK-00381)	cm/s
Peak Systole	Peak Systole (BK, BK-00424)	cm/s
End Diastole	End Diastole (BK, BK-00425)	cm/s
Stenosis Distance 1	Stenosis Distance 1 (BK, BK-00426)	mm
Stenosis Distance 2	Stenosis Distance 2 (BK, BK-00427)	mm
Stenosis Ellipse 1	Stenosis Ellipse 1 (BK, BK-00428)	cm <sup>2</sup>
Stenosis Ellipse 2	Stenosis Ellipse 2 (BK, BK-00429)	cm <sup>2</sup>
Stenosis Freehand 1	Stenosis Freehand 1 (BK, BK-00430)	cm <sup>2</sup>
Stenosis Freehand 2	Stenosis Freehand 2 (BK, BK-00431)	cm <sup>2</sup>
% Stenosis Distance	% Stenosis Distance (BK, BK-00432)	%
% Stenosis Area	% Stenosis Area (BK, BK-00433)	%
Time Average Mean by Manual Trace	Time Average Mean by Manual Trace (BK, BK-00434)	cm/s
Systolic Velocity / Diastolic Velocity	Systolic Velocity / Diastolic Velocity (BK, BK-00435)	no unit
Diastolic Velocity / Systolic Velocity	Diastolic Velocity / Systolic Velocity (BK, BK-00436)	no unit
Peak Systolic / End Diastolic Ratio	Peak Systolic End Diastolic Ratio (BK, BK-00437)	no unit
Volume Flow Distance	Volume Flow Distance (BK, BK-00438)	cm <sup>2</sup>
Volume Flow Ellipse	Volume Flow Ellipse (BK, BK-00439)	cm <sup>2</sup>
Volume Flow Circle	Volume Flow Circle (BK, BK-00440)	cm <sup>2</sup>
Left External Carotid Artery Peak Systole	Left External Carotid Artery Peak Systole (BK, BK-00441)	cm/s
Frequence / Velocity 1	Frequence / Velocity 1 (BK, BK-00442)	cm/s
Frequence / Velocity 2	Frequence / Velocity 2 (BK, BK-00443)	cm/s
Frequence Ratio / Velocity Ratio	Frequence Ratio / Velocity Ratio (BK, BK-00444)	no unit
Frequence Difference / Velocity Difference	Frequence Difference / Velocity Difference (BK, BK-00445)	cm/s
Time Difference	Time Difference (BK, BK-00446)	s
Acceleration	Acceleration (BK, BK-00447)	cm/s <sup>2</sup>
Volume Flow Based on Auto TAM	Volume Flow Based on Auto TAM (BK, BK-00448)	ml/min
Peak Systole Uterine Artery	Peak Systole Uterine Artery (BK, BK-00449)	cm/s
End Diastole Uterine Artery	End Diastole Uterine Artery (BK, BK-00450)	cm/s
DSOG Biparietal Diameter (and Femur Length)	DSOG Biparietal Diameter (and Femur Length) (BK, BK-00451)	mm
DSOG Femur Length (and Biparietal Diameter)	DSOG Femur Length (and Biparietal Diameter) (BK, BK-00452)	mm
Gestational Sac (1 distance)	Gestational Sac (1 distance) (BK, BK-00453)	mm
Gestational Sac (3 distances, distance 3)	Gestational Sac (3 distances, distance 3) (BK, BK-00459)	mm
IVSd	IVSd (BK, BK-00462)	mm



LVDd	LVDd (BK, BK-00463)	mm
LVPWd	LVPWd (BK, BK-00464)	mm
LVPWs	LVPWs (BK, BK-00465)	mm
IVSs	IVSs (BK, BK-00466)	mm
LVDs	LVDs (BK, BK-00467)	mm
Cardiac Output (D-Mode)BK	Cardiac Output (D-Mode) (BK, BK-00468)	l/min

**Table 9.7-40: BCID BK900 - Abdominal Measurements**

Label	Code Meaning (Coding Scheme Designator,Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Group Value Measurements</b>		
<b>Adenoma Volume</b>	<b>Container:</b> Adenoma Volume (BK, BK-00049)	
Step#	Step# (BK, BK-00050)	no unit
StepSize	StepSize (BK, BK-00051)	mm
Area	Area(SRT, G-A166)	cm2
Ad-Vol	Ad-Vol (BK, BK-00052)	cm3
<b>Single Value Measurements</b>		
Adenoma Volume Ellipse	Adenoma Volume Ellipse (BK, BK-000470)	cm3
Adenoma Volume H*W*L	Adenoma Volume H*W*L (BK, BK-00048)	cm3
Adenoma Height	Adenoma Height (BK, BK-00053)	mm
Adenoma Width	Adenoma Width (BK, BK-00054)	mm
Adenoma Length	Adenoma Length (BK, BK-00055)	mm
Bladder Volume Ellipse	Bladder Volume Ellipse (BK, BK-00056)	cm3
Bladder Volume H*W*L	Bladder Volume H*W*L (BK, BK-00057)	cm3
Empiric Transversal Freehand	Empiric Transversal Freehand (BK, BK-00058)	cm2
Empiric Transversal Ellipse	Empiric Transversal Ellipse (BK, BK-00059)	cm2
Empiric Longitudinal Freehand	Empiric Longitudinal Freehand (BK, BK-00060)	cm3
Empiric Longitudinal Ellipse	Empiric Longitudinal Ellipse (BK, BK-00061)	cm2
Empiric Volume	Empiric Volume (BK, BK-00062)	cm3
Bladder Height	Bladder Height (BK, BK-00063)	mm
Bladder Width	Bladder Width (BK, BK-00064)	mm
Bladder Length	Bladder Length (BK, BK-00065)	mm

**Table 9.7-41: BCID BK1001 - Cardiac Measurements**

Label	Code Meaning (Coding Scheme Designator,Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Group Value Measurements</b>		
<b>Peak Flow Velocity Mitral Valve (Point)</b>	<b>Container:</b> Peak Flow Velocity Mitral Valve (Point) (BK, BK-00073)	
PFV MV	PFV MV(BK, BK-00074)	cm/s
PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Aortic Valve (Point)</b>	<b>Container:</b> Peak Flow Velocity Aortic Valve (Point) (BK, BK-00076)	
PFV AV	PFV AV (BK, BK-00077)	cm/s
PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Pulmonic Valve (Point)</b>	<b>Container:</b> Peak Flow Velocity Pulmonic Valve (Point) (BK, BK-00082)	
PFV PV	PFV PV (BK, BK-00083)	cm/s
PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Tricuspid Valve (Point)</b>	<b>Container:</b> Peak Flow Velocity Tricuspid Valve (Point) (BK, BK-00090)	
PFV TV	PFV TV (BK, BK-00091)	cm/s



PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Aortic Valve (Trace)</b>	<b>Container:</b> Peak Flow Velocity Aortic Valve (Trace)(BK, BK-00097)	
PFVAV	PFVAV (BK, BK-00098)	cm/s
PG	PG (BK, BK-00075)	mmHg
MPG	MPG (BK, BK-00088)	mmHg
<b>Left Ventricle Diastole</b>	<b>Container:</b> Left Ventricle Diastole (BK, BK-00144)	
IVSd	IVSd (BK, BK-00145)	mm
LVDd	LVDd (BK, BK-00146)	mm
LVPWd	LVPWd (BK, BK-00147)	mm
<b>Left Ventricle Systole</b>	<b>Container:</b> Left Ventricle Systole (BK, BK-00148)	
IVSs	IVSs (BK, BK-00149)	mm
LVDs	LVDs (BK, BK-00150)	mm
LVPWs	LVPWs (BK, BK-00151)	mm
<b>Peak Flow Velocity Mitral Valve (Trace)</b>	<b>Container:</b> Peak Flow Velocity Mitral Valve (Trace) (BK, BK-00183)	
PFV MV	PFV MV(BK, BK-00074)	cm/s
MPG	MPG (BK, BK-00088)	mmHg
PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Pulmonic Valve (Trace)</b>	<b>Container:</b> Peak Flow Velocity Pulmonic Valve (Trace) (BK, BK-00193)	
PFV PV	PFV PV (BK, BK-00083)	cm/s
MPG	MPG (BK, BK-00088)	mmHg
PG	PG (BK, BK-00075)	mmHg
<b>Peak Flow Velocity Tricuspid Valve (Trace)</b>	<b>Container:</b> Peak Flow Velocity Tricuspid Valve (Trace) (BK, BK-00201)	
PFV TV	PFV TV (BK, BK-00091)	cm/s
MPG	MPG (BK, BK-00088)	mmHg
PG	PG (BK, BK-00075)	mmHg
<b>Single Value Measurements</b>		
Aortic Root Dimension, diastole	Aortic Root Dimension, diastole (BK, BK-00066)	mm
Right Ventricular Outflow Tract Diameter, diastole	Right Ventricular Outflow Tract Diameter, diastole (BK, BK-00067)	mm
Aortic Root Dimension, systole	Aortic Root Dimension, systole (BK, BK-00068)	mm
Left Atrium Medial-Lateral Diameter, systole	Left Atrium Medial-Lateral Diameter, systole (BK, BK-00069)	mm
Right Ventricular Outflow Tract Diameter, systole	Right Ventricular Outflow Tract Diameter, systole (BK, BK-00070)	mm
LA Diameter, systole / AO Diameter, systole	LA Diameter, systole / AO Diameter, systole (BK, BK-00071)	no unit
Left Ventricular Outflow Tract Diameter, systole	Left Ventricular Outflow Tract Diameter, systole (BK, BK-00072)	mm
Ejection Time Aortic Valve	Ejection Time Aortic Valve (BK, BK-00078)	ms
Left Ventricle Outflow Tract Peak Flow Velocity	Left Ventricle Outflow Tract Peak Flow Velocity (BK, BK-00079)	ms
Acceleration Time	Acceleration Time (LN, 20168-1)	ms
Acceleration Time / Ejection Time	Acceleration Time / Ejection Time (BK, BK-00081)	no unit
Mitral Valve Area (auto)	Mitral Valve Area (auto) (BK, BK-00084)	cm <sup>2</sup>
Velocity Time Integral Left Ventricle Outflow Tract	Velocity Time Integral Left Ventricle Outflow Tract (BK, BK-00089)	cm
Mitral Valve Area (manual)	Mitral Valve Area (manual) (BK, BK-00093)	cm <sup>2</sup>
Velocity Time Integral Aortic Valve	Velocity Time Integral Aortic Valve (BK, BK-00094)	cm
Stroke Volume Aortic Valve	Stroke Volume Aortic Valve (BK, BK-00095)	ml
Aortic Valve Area	Aortic Valve Area (BK, BK-00096)	cm <sup>2</sup>
Aortic Valve Leaflet Separation, systole	Aortic Valve Leaflet Separation, systole (BK, BK-00100)	mm
Left Atrium Dimension, systole	Left Atrium Dimension, systole (BK, BK-00101)	mm
Left Ventricle Pre-ejection Period	Left Ventricle Pre-ejection Period (BK, BK-	ms



	00102)	
Left Ventricle Ejection Time	Left Ventricle Ejection Time (BK, BK-00103)	ms
LV Pre-ejection period/LV Ejection time Ratio	LV Pre-ejection period/LV Ejection time Ratio (BK, BK-00104)	no unit
LADs/AOd Ratio	LADs/AOd Ratio (BK, BK-00105)	%
Body Surface Area (m <sup>2</sup> )	Body Surface Area (m <sup>2</sup> ) (BK, BK-00106)	m <sup>2</sup>
Left Ventricular Length, diastole - Bullet	Left Ventricular Length, diastole - Bullet (BK, BK-00110)	mm
Left Ventricular Length, systole - Bullet	Left Ventricular Length, systole - Bullet (BK, BK-00111)	mm
Left Ventricular Area, diastole - Bullet	Left Ventricular Area, diastole - Bullet (BK, BK-00112)	cm <sup>2</sup>
Left Ventricular Area, systole - Bullet	Left Ventricular Area, systole - Bullet (BK, BK-00113)	cm <sup>2</sup>
End-diastolic Volume - Bullet	End-diastolic Volume - Bullet (BK, BK-00114)	ml
End-systolic Volume - Bullet	End-systolic Volume - Bullet (BK, BK-00115)	ml
Stroke Volume - Bullet	Stroke Volume - Bullet (BK, BK-00116)	ml
Ejection Fraction - Bullet	Ejection Fraction - Bullet (BK, BK-00117)	%
Stroke Volume Index	Stroke Volume Index (BK, BK-00118)	ml/m <sup>2</sup>
Interventricular Septal Thickness, diastole (B-mode)	Interventricular Septal Thickness, diastole (B-mode) (BK, BK-00119)	mm
Left Ventricular Internal Diameter, diastole (B-mode)	Left Ventricular Internal Diameter, diastole (B-mode) (BK, BK-00120)	mm
Interventricular Septal Thickness, systole (B-mode)	Interventricular Septal Thickness, systole (B-mode) (BK, BK-00121)	mm
Left Ventricular Internal Diameter, systole (B-mode)	Left Ventricular Internal Diameter, systole (B-mode) (BK, BK-00122)	mm
Left Ventricle Posterior Wall Thickness, diastole (B-mode)	Left Ventricle Posterior Wall Thickness, diastole (B-mode) (BK, BK-00123)	mm
Left Ventricle Posterior Wall Thickness, systole (B-mode)	Left Ventricle Posterior Wall Thickness, systole (B-mode) (BK, BK-00124)	mm
End-diastolic Volume	End-diastolic Volume (BK, BK-00125)	ml
End-systolic Volume	End-systolic Volume (BK, BK-00126)	ml
Stroke Volume Left Ventricle	Stroke Volume Left Ventricle (BK, BK-00127)	ml
Ejection Fraction	Ejection Fraction (BK, BK-00128)	%
Fractional Shortening	Fractional Shortening (BK, BK-00129)	%
Interventricular Septal Thickness, diastole (M-mode)	Interventricular Septal Thickness, diastole (M-mode) (BK, BK-00130)	mm
Left Ventricular Internal Diameter, diastole (M-mode)	Left Ventricular Internal Diameter, diastole (M-mode) (BK, BK-00131)	mm
Interventricular Septal Thickness, systole (M-mode)	Interventricular Septal Thickness, systole (M-mode) (BK, BK-00132)	mm
Left Ventricular Internal Diameter, systole (M-mode)	Left Ventricular Internal Diameter, systole (M-mode) (BK, BK-00133)	mm
Left Ventricle Posterior Wall Thickness, diastole (M-mode)	Left Ventricle Posterior Wall Thickness, diastole (M-mode) (BK, BK-00134)	mm
Left Ventricle Posterior Wall Thickness, systole (M-mode)	Left Ventricle Posterior Wall Thickness, systole (M-mode) (BK, BK-00135)	mm
Right Ventricle Internal Diameter, diastole	Right Ventricle Internal Diameter, diastole (BK, BK-00136)	mm
Right Ventricle Internal Diameter, systole	Right Ventricle Internal Diameter, systole (BK, BK-00137)	mm
End-diastolic Volume (M-Mode)	End-diastolic Volume (M-Mode) (BK, BK-00138)	ml
End-systolic Volume (M-Mode)	End-systolic Volume (M-Mode) (BK, BK-00139)	ml
Stroke Volume (M-Mode All)	Stroke Volume (M-Mode All) (BK, BK-00140)	ml
Ejection Fraction (M-Mode)	Ejection Fraction (M-Mode) (BK, BK-00141)	%
Fractional Shortening (M-mode)	Fractional Shortening (M-mode) (BK, BK-00142)	%
Left Ventricle Cardiac Mass (M-mode)	Left Ventricle Cardiac Mass (M-mode) (BK, BK-00143)	g
Stroke Volume	Stroke Volume (BK, BK-00152)	ml
Left Ventricle Cardiac Mass	Left Ventricle Cardiac Mass (BK, BK-00155)	g
Cardiac Output (M-Mode)	Cardiac Output (M-Mode) (BK, BK-00166)	l/min

Cardiac Output (M-Mode All)	Cardiac Output (M-Mode All) (BK, BK-00167)	l/min
Stroke Volume Index (M-Mode)	Stroke Volume Index (M-Mode) (BK, BK-00168)	ml/m2
Stroke Volume Index (M-Mode All)	Stroke Volume Index (M-Mode All) (BK, BK-00169)	ml/m2
Cardiac Index (M-Mode)	Cardiac Index (M-Mode) (BK, BK-00170)	l/min/m2
Cardiac Index (M-Mode All)	Cardiac Index (M-Mode All) (BK, BK-00171)	l/min/m2
Peak Flow Velocity, Left Atrium	Peak Flow Velocity, Left Atrium (BK, BK-00172)	cm/s
Flow Acceleration Time	Flow Acceleration Time (BK, BK-00173)	ms
Flow Deceleration Time	Flow Deceleration Time (BK, BK-00174)	ms
Velocity Time Integral, Mitral Valve	Velocity Time Integral, Mitral Valve (BK, BK-00179)	cm
Pressure Half Time Mitral Valve	Pressure Half Time Mitral Valve (BK, BK-00181)	ms
Mitral Valve Area	Mitral Valve Area (BK, BK-00182)	cm2
PFV MV / PFV LA Ratio	PFV MV / PFV LA Ratio (BK, BK-00184)	%
Ejection Time Mitral Valve	Ejection Time Mitral Valve (BK, BK-00185)	ms
Mitral Valve C-A Separation	Mitral Valve C-A Separation (BK, BK-00186)	mm
Mitral Valve C-E Separation	Mitral Valve C-E Separation (BK, BK-00187)	mm
Mitral Valve D-E Separation	Mitral Valve D-E Separation (BK, BK-00188)	mm
Mitral Valve A-C interval	Mitral Valve A-C interval (BK, BK-00189)	ml
Mitral Valve D-E slope	Mitral Valve D-E slope (BK, BK-00190)	mm/s
Mitral Valve E-F slope	Mitral Valve E-F slope (BK, BK-00191)	mm/s
Velocity Time Integral Pulmonic Valve	Velocity Time Integral Pulmonic Valve (BK, BK-00192)	cm
Ejection Time Pulmonic Valve	Ejection Time Pulmonic Valve (BK, BK-00194)	ms
Atrial Contraction	Atrial Contraction (BK, BK-00196)	m/s
Ejection Time Tricuspid Valve	Ejection Time Tricuspid Valve (BK, BK-00202)	ms

**Table 9.7-42: BCID BK1002 - OB-GYN Measurements**

Label	Code Meaning (Coding Scheme Designator, Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Group Value Measurements</b>		
<b>Follicle Diameter (2 distances)</b>	<b>Container:</b> Follicle Diameter (2 distances) (BK, BK-00274)	
FD a	FD a (BK, BK-00275)	mm
FD b	FD b (BK, BK-00276)	mm
AVGFD	AVGFD (BK, BK-00277)	mm
<b>Follicle Diameter (3 distances, distance 1 and 2)</b>	<b>Container:</b> Follicle Diameter (3 distances, distance 1 and 2) (BK, BK-00278)	
FD 1	FD 1 (BK, BK-00279)	mm
FD 2	FD 2 (BK, BK-00280)	mm
<b>Hansmann Crown Rump Length</b>	<b>Container:</b> Hansmann Crown Rump Length (BK, BK-00289)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Tokyo Crown Rump Length</b>	<b>Container:</b> Tokyo Crown Rump Length (BK, BK-00293)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Robinson Crown Rump Length</b>	<b>Container:</b> Robinson Crown Rump Length (BK, BK-00294)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hobbins Crown Rump Length</b>	<b>Container:</b> Hobbins Crown Rump Length (BK, BK-00295)	



CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hadlock Crown Rump Length</b>	<b>Container:</b> Hadlock Crown Rump Length (BK, BK-00296)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Campbell Crown Rump Length</b>	<b>Container:</b> Campbell Crown Rump Length (BK, BK-00297)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Jeanty Crown Rump Length</b>	<b>Container:</b> Jeanty Crown Rump Length (BK, BK-00298)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Biparietal Diameter</b>	<b>Container:</b> Hansmann Biparietal Diameter (BK, BK-00299)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Tokyo Biparietal Diameter</b>	<b>Container:</b> Tokyo Biparietal Diameter (BK, BK-00301)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Robinson Biparietal Diameter</b>	<b>Container:</b> Robinson Biparietal Diameter (BK, BK-00302)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Kurtz Biparietal Diameter</b>	<b>Container:</b> Kurtz Biparietal Diameter (BK, BK-00303)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hobbins Biparietal Diameter</b>	<b>Container:</b> Hobbins Biparietal Diameter (BK, BK-00304)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hadlock Biparietal Diameter</b>	<b>Container:</b> Hadlock Biparietal Diameter (BK, BK-00305)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Campbell Biparietal Diameter</b>	<b>Container:</b> Campbell Biparietal Diameter (BK, BK-00306)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Jeanty Biparietal Diameter</b>	<b>Container:</b> Jeanty Biparietal Diameter (BK, BK-00307)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Eik-Nes Biparietal Diameter</b>	<b>Container:</b> Eik-Nes Biparietal Diameter (BK, BK-00308)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit



EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Femur Length</b>	<b>Container:</b> Hansmann Femur Length (BK, BK-00309)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Tokyo Femur Length</b>	<b>Container:</b> Tokyo Femur Length (BK, BK-00311)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hadlock Femur Length</b>	<b>Container:</b> Hadlock Femur Length (BK, BK-00312)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Campbell Femur Length</b>	<b>Container:</b> Campbell Femur Length (BK, BK-00313)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hadlock Abdominal Circumference</b>	<b>Container:</b> Hadlock Abdominal Circumference (BK, BK-00314)	
AC	AC (BK, BK-00315)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Campbell Abdominal Circumference</b>	<b>Container:</b> Campbell Abdominal Circumference (BK, BK-00316)	
AC	AC (BK, BK-00315)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Jeanty Abdominal Circumference</b>	<b>Container:</b> Jeanty Abdominal Circumference (BK, BK-00317)	
AC	AC (BK, BK-00315)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Occipito-Frontal Distance</b>	<b>Container:</b> Hansmann Occipito-Frontal Distance (BK, BK-00318)	
OFD	OFD(BK, BK-00319)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Thorax Transverse Distance</b>	<b>Container:</b> Hansmann Thorax Transverse Distance (BK, BK-00320)	
TT	TT (BK, BK-321)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Thorax Anteroposterior Distance</b>	<b>Container:</b> Hansmann Thorax Anteroposterior Distance (BK, BK-322)	
THAP	THAP (BK, BK-323)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hansmann Head Circumference</b>	<b>Container:</b> Hansmann Head Circumference (BK, BK-324)	
HC	HC (BK, BK-325)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hadlock Head Circumference</b>	<b>Container:</b> Hadlock Head Circumference (BK, BK-326)	
HC	HC (BK, BK-325)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Campbell Head Circumference</b>	<b>Container:</b> Campbell Head Circumference (BK,	





	BK-327)	
HC	HC (BK, BK-325)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Vertebra Length</b>	<b>Container:</b> Vertebra Length (BK, BK-328)	
VL	VL (BK, BK-329)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hobbins Tibia Length</b>	<b>Container:</b> Hobbins Tibia Length (BK, BK-330)	
TBL	TBL (BK, BK-331)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hobbins Fibula Length</b>	<b>Container:</b> Hobbins Fibula Length (BK, BK-332)	
FBL	FBL (BK, BK-333)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hobbins Foot Length</b>	<b>Container:</b> Hobbins Foot Length (BK, BK-334)	
PL	PL (BK, BK-335)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Persson Abdominal Diameter - AC</b>	<b>Container:</b> Persson Abdominal Diameter – AC (BK, BK-336)	
AD	AD (BK, BK-337)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Persson Biparietal Diameter</b>	<b>Container:</b> Persson Biparietal Diameter (BK, BK-338)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>DSOG Biparietal Diameter</b>	<b>Container:</b> DSOG Biparietal Diameter (BK, BK-339)	
BPD	BPD (BK, BK-00300)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Persson Femur Length</b>	<b>Container:</b> Persson Femur Length (BK, BK-00340)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>DSOG Femur Length</b>	<b>Container:</b> DSOG Femur Length (BK, BK-00341)	
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>DSOG Crown Rump Length</b>	<b>Container:</b> DSOG Crown Rump Length (BK, BK-00342)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Persson Crown Rump Length</b>	<b>Container:</b> Persson Crown Rump Length (BK, BK-00343)	
CRL	CRL (BK, BK-00290)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>DSOG Biparietal Diameter and Femur Length</b>	<b>Container:</b> DSOG Biparietal Diameter and Femur Length (BK, BK-00344)	
BPD	BPD (BK, BK-00300)	mm
FL	FL (BK, BK-00310)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit



<b>Hansmann Gestational Sac</b>	<b>Container:</b> Hansmann Gestational Sac (BK, BK-00345)	
GS	GS (BK, BK-00346)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Tokyo Gestational Sac</b>	<b>Container:</b> Tokyo Gestational Sac (BK, BK-00347)	
GS	GS (BK, BK-00346)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Hellman Gestational Sac</b>	<b>Container:</b> Hellman Gestational Sac (BK, BK-00348)	
GS	GS (BK, BK-00346)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Persson Mean Abdominal Diameter</b>	<b>Container:</b> Persson Mean Abdominal Diameter (BK, BK-00349)	
AD	AD (BK, BK-337)	mm
GA	GA (BK, BK-00291)	no unit
EDC	EDC (BK, BK-00292)	no unit
<b>Single Value Measurements</b>		
Right Ovary Width	Right Ovary Width (LN, 11830-7)	mm
Right Ovary Length	Right Ovary Length (LN, 11841-4)	mm
Right Ovary Height	Right Ovary Height (LN, 11858-8)	mm
Left Ovary Width	Left Ovary Width (LN, 11829-9)	mm
Left Ovary Length	Left Ovary Length (LN, 11840-6)	mm
Left Ovary Height	Left Ovary Height (LN, 11857-0)	mm
Endometrial Thickness	Endometrial Thickness (LN, 12145-9)	mm
Right Ovary Volume	Right Ovary Volume (LN, 12165-7)	cm3
Left Ovary Volume	Left Ovary Volume (LN, 12164-0)	cm3
Amniotic Fluid Index	Amniotic Fluid Index (LN, 11627-7)	mm
Uterine Length	Uterine Length (BK, BK-00259)	mm
Uterine Width	Uterine Width (BK, BK-00260)	mm
Uterine Height	Uterine Height (BK, BK-00261)	mm
Uterine Volume	Uterine Volume (BK, BK-00262)	cm3
Average Endometrial Thickness	Average Endometrial Thickness (BK, BK-00270)	mm
Follicle Diameter (1 distance)	Follicle Diameter (1 distance) (BK, BK-00273)	mm
Follicle Diameter (3 distances, distance 3)	Follicle Diameter (3 distances, distance 3) (BK, BK-00281)	mm
Follicle Diameter (3 distances)	Follicle Diameter (3 distances) (BK, BK-00282)	mm
Abdominal Transverse	Abdominal Transverse (BK, BK-00283)	mm
Amniotic Fluid Index (Result only)	Amniotic Fluid Index (Result only) (BK, BK-00285)	mm
Anteroposterior Diameter	Anteroposterior Diameter (BK, BK-00286)	mm
Mean Abdominal Diameter	Mean Abdominal Diameter (BK, BK-00287)	mm
Nuchal Translucency (NT)	Nuchal Translucency (NT) (BK, BK-00288)	mm
Warsof Fetal Weight	Warsof Fetal Weight (BK, BK-00351)	g
Eik-Nes Fetal Weight	Eik-Nes Fetal Weight (BK, BK-00352)	g
Hadlock (AC,FL) Fetal Weight	Hadlock (AC,FL) Fetal Weight (BK, BK-00353)	g
Hadlock (AC,FL,BPD) Fetal Weight	Hadlock (AC,FL,BPD) Fetal Weight (BK, BK-00354)	g
Shepard Fetal Weight	Shepard Fetal Weight (BK, BK-00355)	g
Campbell Fetal Weight	Campbell Fetal Weight (BK, BK-00356)	g
Hansmann Fetal Weight	Hansmann Fetal Weight (BK, BK-00357)	g
Persson (BPD,AD) Fetal Weight	Persson (BPD,AD) Fetal Weight (BK, BK-00358)	g
Persson (BPD,AD,FL) Fetal Weight	Persson (BPD,AD,FL) Fetal Weight (BK, BK-00359)	g
DSOG (BPD,AD) Fetal Weight	DSOG (BPD,AD) Fetal Weight (BK, BK-00360)	g
DSOG (BPD,AD,FL) Fetal Weight	DSOG (BPD,AD,FL) Fetal Weight (BK, BK-00361)	g
Williams FW from Clinical GA	Williams FW from Clinical GA (BK, BK-00362)	g
Persson FW from Clinical GA	Persson FW from Clinical GA (BK, BK-00363)	g



Osaka FW from Clinical GA	Osaka FW from Clinical GA (BK, BK-00364)	g
Femur Length / Abdominal Circumference	Femur Length / Abdominal Circumference (BK, BK-00366)	no unit
Femur Length / Biparietal Diameter	Femur Length / Biparietal Diameter (BK, BK-00367)	no unit
Head Circumference / Abdominal Circumference Ratio	Head Circumference / Abdominal Circumference Ratio (BK, BK-00368)	no unit
Cephalic Index - BPD + OFD	Cephalic Index - BPD + OFD (BK, BK-00369)	no unit
Cephalic Index - HC	Cephalic Index - HC (BK, BK-00370)	no unit
Resistance Index	Resistance Index (BK, BK-00371)	no unit
Resistance Index Uterine Artery	Resistance Index Uterine Artery (BK, BK-00372)	no unit
Pulsativity Index (manual)	Pulsativity Index (manual) (BK, BK-00373)	no unit
Pulsativity Index Uterine Artery (manual)	Pulsativity Index Uterine Artery (manual) (BK, BK-00374)	no unit

**Table 9.7-43: BCID BK1003 - Urology Measurements**

Label	Code Meaning (Coding Scheme Designator, Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Group Value Measurements</b>		
<b>Prostate Volume</b>	<b>Container:</b> Prostate Volume (BK, BK-00388)	
Step#	Step# (BK, BK-00050)	no unit
StepSize	StepSize (BK, BK-00051)	mm
Area	Area(SRT, G-A166)	cm2
Pr-Vol	Pr-Vol (BK, BK-00389)	cm3
<b>Single Value Measurements</b>		
PSA	PSA (BK, BK-00080)	no unit
Prostate Volume Ellipse	Prostate Volume Ellipse (BK, BK-00385)	cm3
Prostate Volume H*W*L (Auto)	Prostate Volume H*W*L (Auto) (BK, BK-00386)	cm3
PSAD	PSAD (BK, BK-00387)	no unit
Prostate Height	Prostate Height (BK, BK-00390)	mm
Prostate Width	Prostate Width (BK, BK-00391)	mm
Prostate Length	Prostate Length (BK, BK-00392)	mm
Gleason Score	Gleason Score (BK, BK-00393)	no unit
Kidney Volume Ellipse	Kidney Volume Ellipse (BK, BK-00394)	cm3
Kidney Volume H*W*L	Kidney Volume H*W*L (BK, BK-00395)	cm3
Kidney Height	Kidney Height (BK, BK-00396)	mm
Kidney Width	Kidney Width (BK, BK-00397)	mm
Kidney Length	Kidney Length (BK, BK-00398)	mm
Left Kidney Length	Left Kidney Length (BK, BK-00399)	mm
Left Kidney Height	Left Kidney Height (BK, BK-00400)	mm
Left Kidney Width	Left Kidney Width (BK, BK-00401)	mm
Left Kidney Volume H*W*L	Left Kidney Volume H*W*L (BK, BK-00402)	cm3
Left Kidney Volume Ellipse	Left Kidney Volume Ellipse (BK, BK-00403)	cm3
Right Kidney Height	Right Kidney Height (BK, BK-00404)	mm
Right Kidney Length	Right Kidney Length (BK, BK-00405)	mm
Right Kidney Width	Right Kidney Width (BK, BK-00406)	mm
Right Kidney Volume H*W*L	Right Kidney Volume H*W*L (BK, BK-00407)	cm3
Right Kidney Volume Ellipse	Right Kidney Volume Ellipse (BK, BK-00408)	cm3
Testis Volume Ellipse	Testis Volume Ellipse (BK, BK-00409)	cm3
Testis Volume H*W*L	Testis Volume H*W*L (BK, BK-00410)	cm3
Testis Height	Testis Height (BK, BK-00411)	mm
Testis Width	Testis Width (BK, BK-00412)	mm
Testis Length	Testis Length (BK, BK-00413)	mm
Left Testis Height	Left Testis Height (BK, BK-00414)	mm
Left Testis Width	Left Testis Width (BK, BK-00415)	mm
Left Testis Length	Left Testis Length (BK, BK-00416)	mm
Left Testis Volume H*W*L	Left Testis Volume H*W*L (BK, BK-00417)	cm3



Left Testis Volume Ellipse	Left Testis Volume Ellipse (BK, BK-00418)	cm3
Right Testis Height	Right Testis Height (BK, BK-00419)	mm
Right Testis Width	Right Testis Width (BK, BK-00420)	mm
Right Testis Length	Right Testis Length (BK, BK-00421)	mm
Right Testis Volume H*W*L	Right Testis Volume H*W*L (BK, BK-00422)	cm3
Right Testis Volume Ellipse	Right Testis Volume Ellipse (BK, BK-00423)	cm3

**Table 9.7-44: BCID BK1005 - Hemodynamics Measurements**

Label	Code Meaning (Coding Scheme Designator, Code Value) \$Measurement Name \$Measurement	Measurement unit
<b>Single Value Measurements</b>		
ABI	Tibial/brachial index (LN, 8581-1)	no unit

**Table 9.7-45: CID 82 - Units of Measurement**

Coding Scheme Designator (0008,0102)	Coding Scheme Version (0008,0103)	Code Value (0008,0100)	Code Meaning (0008,0104)
UCUM	1.4	1	no units
UCUM	1.4	cm/s	centimeter/second
UCUM	1.4	mm	mm
UCUM	1.4	deg	°
UCUM	1.4	cm3	cubic centimeter
UCUM	1.4	cm	cm
UCUM	1.4	cm2	cm2
UCUM	1.4	s	S
UCUM	1.4	l/min	l/min
UCUM	1.4	l/min/m2	l/min/m2
UCUM	1.4	ms	ms
UCUM	1.4	ml	ml
UCUM	1.4	mm/s	mm/s
UCUM	1.4	%	%
UCUM	1.4	m2	m^2
UCUM	1.4	ml/m2	ml/m^2
UCUM	1.4	g	g
UCUM	1.4	ml/min	ml/min

**Table 9.7-46: BCID BK1004 - Units of B-K Medical US Measurement**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
BK	b/min	b/min
BK	mmHg	mmHg
BK	m/s	m/s
BK	cm/s2	cm/s2