ACC, HIMSS and RSNA
Integrating the Healthcare Enterprise

IHE Cardiology Tests: Transaction Sequences

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1 Introduction

The MESA tests include a number of cases each of which rely on a sequence of messages between actors. These tests range across different integration profiles:

- Cardiac Catheterization Workflow (Cath)
- Echo Workflow (Echo)
- Retrieve ECG for Display (ECG)
- Displayable Reports (DRPT)
- Evidence Documents using Cardiology options (ED)

This document lists the transactions and messages for a number of cases. It may not describe the clinical scenario behind each case, but listing the transactions should clearly define what is expected of each actor. These are all of the transactions involving all of the actors. When you test with your particular actor, you may see only a subset of these messages.

Some of the messages need to appear in the order listed in this document. For example, patient registration must precede order messages. In other instances, some messages may appear in a slightly different sequence. Our document typically lists MPPS N-Create, MPPS N-Set and Image C-Store as a sequence of messages. Some equipment may begin the storage process before the final MPPS N-Set message.

You can see an HTML version of the messages by opening the file: *$MESA_TARGET/mesa_tests/card/msgs/index.html* with a web browser.

This document lists test sequences but does not define required sequences for your actor or actors. Those requirements are listed in separate documents (a spreadsheet that lists test requirements in table form and separate test documents that provide test instructions for each actor).

1.1 Patient Identification

The tests involve a small set of patients. In some of the tests, we update patient names. The table below is a list of patients and patient IDs used in the tests.

Patient ID (ADT)	Temp Patient ID (Order Filler)	Last Name	First Name	Test Number
201011		FE	CHARLES	20101
201021		FO	Charlotte	20102
201031		SMITH	Peter	20103
201049		DOE	John	20104
201041 (updated)		MCKINNERY	Martin	20104
	201059	Doe	Jane	20105
201051		Peters	Maryann	20105
	201069	Smith	John	20106
201061		Parsons	Andrew	20106
201079		Doe	John	20107
201071 (updated)		McGuiness	Marty	20107
201081		Perry	James	20108
201091		Peterson	Thomas	20109
201101		Smithson	Peter	20110
201111		Schwarz	Joseph	20111
201121		Blarney	Fred	20112
20201		Russell	Sonya	20201
202021		O'Malley	Jim	20202
202022		Smiley	Patrick	20202
202023		O'Brien	Diedre	20202
202029		O'Malley	James	20202
202031		Krauss	Thomas	20203
202032		Stromm	Timothy	20203
202039		Schmitt	Mikhail	20203
202041		Stromberg	Hans	20204

202049		Vanderhaas	Wilber	20204
202051		Fischer	Peter	20205
	202059	Doe	John	20205
202061		Lee	Sedalia	20206
202071		Thompson	Scott	20207
203011		Ehel	Joseph	203**
203012		Sommer	Isaac	203**
20605		Nixon	Thomas	20605

2 Cath Test Cases

This section describes the test cases that constitute the Transaction Sequences for the Cath Workflow. Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

2.1 Test Case 20101: C1: Patient Registered at ADT and Procedure Ordered at the Order Placer (single MPPS)

Test 20101 covers C1: Patient Registered at ADT and Procedure Ordered at the Order Placer profile (see CARD TF-1: 3.4.1). In order to complete this test, you must disable any messages you send to the Order Placer for Order Status Update (see RAD TF-2: 4.3.4.2).

The nominal patient name is FE^CHARLES.

Test the case where the modality responds to a single SPS with a single MPPS.

Identifier	Description	Source	Destination	Verify
20101.102.a04.adt	A04: Register FE as outpatient (Patient Class = 'O')	ADT	Order Placer	
20101.104.a04.adt	A04: Register FE as outpatient (Patient Class = 'O')	ADT	Order Filler	
20101.106.o01.orm	ORM: Order "CATH CONSULT" for FE (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
20101.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
20101.110.dcm	MWL C-Find Query based on: Scheduled AE Title = HEMO7 Scheduled Date = today Return SPS: SPS procedure code desc = Left Heart Cath RP procedure code desc = CATH CONSULT	Modality (hemo7)	OF	

20101.112.dcm	PPS: Begin procedure(Left Heart Cath for Patient "FE")	Modality (hemo7)	PPS Mgr	
20101.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: Order Filler schedules 1 SPS for each other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab. That is, in this case HEMO7 has been configured on the DSS/OF as the "selector" for that lab. XA7 and IVUS7 each scheduled for 1 SPS for Left Heart Cath			All modalities in a lab have SPS steps scheduled for them, per configuration.
20101.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Left Heart Cath)	Modality (XA7)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of a broad query).
	PPS: Begin procedure(Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Modality evidence sent (waveform and/or SR)	Modality (hemo7)	Img Mgr	Verify same St Inst UID) ** SR and WV object creation is OPTIONAL, but if the modality sends it, the IM must be able to support it.
	Storage Commit	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (hemo7)	Img Mgr	Verify same St Inst UID
20101.118.dcm	PPS: End procedure (Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
20101.120.dcm	PPS: End procedure (Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID

	A08: Update Patient information	ADT	OP	Verify new patient info at OP
	A08: Update Patient information	ADT	OF	Verify new patient info at OF
	A08: Update Patient information	OF	Img Mgr	Verify new patient info at IM

2.2 Test Case 20102: C1: Patient Registered at ADT and Procedure Ordered at the Order Placer w/ Diagnostic to Interventional Transition (multiple MPPS)

Test the Order Filler to verify that it can handle the modality separately the single SPS of Left Heart Cath into a Diagnostic and Interventional Procedure Step, ie., multiple MPPS corresponding to a single SPS.

Patient Name is FO^Charlotte.

Identifier	Description	Source	Destination	Verify
20102.102.a04.adt	A04: Register FO as outpatient (Patient Class = 'O')	ADT	Order Placer	
20102.104.a04.adt	A04: Register FO as outpatient (Patient Class = 'O')	ADT	Order Filler	
20102.106.o01.orm	ORM: Order "CATH CONSULT" for FO (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
20102.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
20102.110.dcm	MWL C-Find Query based on: Scheduled AE Title = HEMO7 Scheduled Date = today Return SPS: SPS procedure code desc = Left Heart Cath RP = CATH CONSULT	Modality (hemo7)	OF	
20102.112.dcm	PPS: Begin procedure(PPS Diag Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
20102.114.dcm	PPS: Begin procedure (PPS Diag	PPS Mgr	Img Mgr or	Verify same St Inst

	Left Heart Cath)		Ord Fil	UID
	Internal, Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab Eg. XA7 and IVUS7 scheduled for SPS for Left Heart Cath			
	MWL C-Find (SPS procedure code = Left Heart Cath)	Modality (XA7)	OF	Verify same St Inst UID
	PPS: Begin procedure(PPS configured on the modality = Diag Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (PPS configured on the modality = Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (PPS Diag Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (PPS Diag Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: Begin procedure(PPS configured on the modality = Interventional Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID; verify that OF can handle additional SPS for RP
	PPS: Begin procedure (PPS code configured on the modality = Interventional Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (PPS Interventional Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (PPS Interventional Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID verify that OF can handle additional SPS for RP
	PPS: End procedure (PPS Diag Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (PPS Diag Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID

2.3 Test Case 20103: C2: Patient Registered at ADT and Procedure Ordered at DSS/OF

Test 20103 covers C2: Patient Registered at ADT and Procedure Ordered at the DSS/OF profile (see CARD TF-1: 3.4.2) .

The nominal patient name is SMITH^PETER with ID 201031.

Test the case where the modality responds to a single SPS with a single MPPS.

Identifier	Description	Source	Destination	Verify
20103.102.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Placer	
20103.104.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Internal, Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab Eg. Hemo7, XA7 and IVUS7 scheduled for RP = "Cath Consult" and SPS for "Left Heart Cath"			All modalities in a lab have SPS steps scheduled for them, per configuration.
20103.106.o01.orm	ORM Filler Order Mngt -New: Order "CATH CONSULT" for DOE (Requested Procedure – Procedure Code = "CATH CONSULT")	OF	Order Placer	
20103.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
20103.110.dcm	MWL C-Find (SPS procedure code = Left Heart Cath)	Modality (hemo7)	OF	
20103.112.dcm	PPS: Begin procedure(Left Heart Cath)	Modality (hemo7)	PPS Mgr	
20103.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: if OF has implemented Start Procedure verify that SPS created for all modalities within a lab based on OF configuration. (using PERFORMED STATION AE TITLE to determine the location/lab)			
20103.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Left Heart Cath)	Modality (XA7)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of

				a broad query).
	PPS: Begin procedure(Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Modality evidence sent (waveform and/or SR)	Modality (hemo7)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (hemo7)	Img Mgr	Verify same St Inst UID
20103.118.dcm	PPS: End procedure (Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
20103.120.dcm	PPS: End procedure (Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID

2.4 Test Case 20104: C3: Patient Registered at ADT but Procedure Not Ordered

Test 20104 covers C3: Patient Registered at ADT but Procedure Not Ordered. (see CARD TF-1: 3.4.3) .

The unknown patient, registered at the ADT, is DOE^JOHN with a patient ID of 201049.

The updated patient in this case is MCKINNERY^MARTIN with a patient ID of 201041.

Test the case where the modality responds to a single SPS with a single MPPS.

Identifier	Description	Source	Destination	Verify
20104.102.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Placer	
20104.104.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Filler	
20104.112.dcm	PPS: Begin procedure(Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify correct patient ID is used (wrist band # used at

				modality); Note that the Study Inst UID is generated at the Modality
20104.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: the DSS/OF automatically creates a RP/SPS with a generic (configured) procedure code AND THE STUDY INST UID GENERATED BY THE MODALITY AND CONTAINED IN THE MPPS In progress MESSAGE AND the patient demographics provided from the ADT system for that patient.			
	ORM: Filler Order Mngt – New with GENERIC CATH procedure code	OF	Order Placer	As a test the OP should not respond with an ORR and OF should verify that it "continues on" without this response
	ORM: Filler Order Mngt – Status Update (in progress)	OF	Order Placer	
	ORM: Procedure Scheduled with GENERIC CATH procedure code	OF	Img Mgr	
20104.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code GENERIC CATH)	Modality (XA7)	OF	Verify same St Inst UID and codes as generated by the first modality (in this case hemo). Verify only a single SPS response to the modality (in spite of a broad query).
	PPS: Begin procedure(Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Modality evidence sent (waveform and/or SR)	Modality (hemo7)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (XA7)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (hemo7)	Img Mgr	Verify same St Inst UID
20104.118.dcm	PPS: End procedure (Left Heart	Modality (XA7)	PPS Mgr	Verify same St Inst

	Cath)			UID
20104.120.dcm	PPS: End procedure (Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	ADT	OP	Verify new patient info at OP
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	ADT	OF	Verify new patient info at OF
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	OF	Img Mgr	Verify new patient info at IM for each modality's objects

2.5 Test Case 20105: C4: Patient Registered at DSS/OF and Procedure Ordered at the DSS/OF

Test 20105 covers C4: Patient Registered at DSS/OF and Procedure Ordered at the DSS/OF profile (see CARD TF-1: 3.4.4). This is effectively an emergency case for an unknown patient.

The nominal temporary patient name is DOE^JANE with a temporary patient id of 201059 which is only within the scope of the OF. Later, this patient will be determined to be PETERS^MARYANN with an permanent patient id of 201051.

Test the case where the modality responds to a single SPS with a single MPPS.

Identifier	Description	Source	Destination	Verify
	Internal, Order Filler schedules SPS for other modalities in the room Eg. Hemo7, XA7 and IVUS7 scheduled for RP = "ER Cath" and SPS of "ER Cath"			All modalities in a lab have SPS steps scheduled for them, per configuration.

20105.108.o01.orm	ORM: Schedule DOE^JANE for "next CATHLAB" (SPS procedure code = ER Cath)	Ord Fil	Im Mgr	
20105.110.dcm	MWL C-Find (SPS procedure code = ER Cath)	Modality (hemo5)	OF	
20105.112.dcm	PPS: Begin procedure(Left Heart Cath)	Modality (hemo5)	PPS Mgr	
20105.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: OF updates schedule based on the location of the modality (PERFORMED STATION AE TITLE) which sends first MPPS. Creates SPSs for all other modalities in that lab.			
20105.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Left Heart Cath)	Modality (XA5)	OF	Verify same St Inst UID and codes as hemo DMWL query.
	PPS: Begin procedure(Left Heart Cath)	Modality (XA5)	PPS Mgr	Verify same St Inst UID as generated at OF and same as hemo
	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA5)	Img Mgr	Verify same St Inst UID as
	Modality evidence sent (waveform and/or SR)	Modality (hemo5)	Img Mgr	Verify same St Inst UID
20105.118.dcm	PPS: End procedure (Left Heart Cath)	Modality (XA5)	PPS Mgr	Verify same St Inst UID
20105.120.dcm	PPS: End procedure (Left Heart Cath)	PPS Mgr (XA5)	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	Modality (hemo5)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	PPS Mgr (hemo5)	Img Mgr or Ord Fil	Verify same St Inst UID
	ADT: A01 Inpatient registration for PETERS^MARYANN with an id of 98666.	ADT	OF	
	ADT: A01 Inpatient registration for PETERS^MARYANN with an id of 98666.	ADT	Order Placer	
	Internal: Manual reconciliation is required at the DSS/OF to verify that Jane Doe is really MaryAnn			

	Peters. After that point, the following transaction occur:			
	ORM Filler Order Mngt -New: Order "ER CATH " for PETERS (Requested Procedure – Procedure Code = "ER CATH")	OF	OP	
	ORM: Filler Order Mngt – Status Update (with Order Status Code of "IP" – in progress.)	OF	OP	
	A40: Patient Merge – Merge Jane Doe to Maryann Peters	OF	Img Mgr	Verify patient demographics and id updated at IM
	ORM: Procedure Updated with a ORC-1 Order Control Code of "XO" for procedure modified	OF	Img Mgr	Verify procedure info updated at IM

2.6 Test Case 20106: C5: Patient NOT Registered (no Order)

Test 20106 covers C5: Patient Not Registered. (see CARD TF-1: 3.4.5) .

The unknown patient, registered at the ADT, is SMITH^JOHN with a temporary DSS/OF local patient ID of 201069.

The updated patient in this case is PARSONS^ANDREW with a patient ID of 201061.

Test the case where the modality responds to a single SPS with a single MPPS.

MESA: In this test case, the Order Filler is being tested. The MESA test tools are providing all of the other steps necessary to fulfill the Order Filler testing.

Identifier	Description	Source	Destination	Verify
20106.112.dcm	PPS: Begin procedure(ER Cath)	Modality (hemo3)	PPS Mgr	Temporary Patient ID and name are entered at the modality. Note that the Study Inst UID is generated at the Modality
20106.114.dcm	PPS: Begin procedure (ER Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: the DSS/OF automatically creates a RP/SPS using the modality PROCEDURE CODE AND THE STUDY INST UID			

	GENERATED BY THE MODALITY AND CONTAINED IN THE MPPS In progress MESSAGE AND the patient demographics provided from the MODALITY for that patient.			
	Added for Year 2 changes: Procedure Scheduled (RAD-4)	Department System Scheduler/Order Filler (OF)	Image Manager	
20105.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code ER CATH)	Modality (XA7)	OF	Verify same St Inst UID and codes as generated by the first modality (in this case hemo). Verigy the same patient demograpics as entered into the modality. Verify only a single SPS response to the modality (in spite of a broad query).
	PPS: Begin procedure(ER Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID as first modality
	PPS: Begin procedure (ER Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID as first modality
	Modality evidence sent (images)	Modality (XA7)	Img Mgr	Verify same St Inst UID as first modality
	Year 2: skip this step. Keeping it here for Year 3, however, when it will be required. Modality evidence sent (waveform and/or SR)	Modality (hemo7)	Img Mgr	Verify same St Inst UID as first modality
	Storage Commit	Modality (XA7)	Img Mgr	Verify same St Inst UID as first modality
	Storage Commit	Modality (hemo7)	Img Mgr	Verify same St Inst UID as first modality
20106.118.dcm	PPS: End procedure (Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID as first modality
20106.120.dcm	PPS: End procedure (Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID as first modality

	PPS: End procedure (Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID as first modality
	A04: Register PARSONS as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Internal: OF performs patient reconciliation on the DSS/OF			
	ORM Filler Order Mngt -New: Order "ER CATH " for PETERS (Requested Procedure – Procedure Code = "ER CATH")	OF	OP	
	ORM: Filler Order Mngt – Status Update (with Order Status Code of "IP" – in progress.)	OF	OP	
	A40: Patient Merge – Merge Jane Doe to Maryann Peters	OF	Img Mgr	Verify patient demographics and id updated at IM
	ORM: Procedure Update (RAD 13) with the ORC-1 Order Control Code set correctly	OF	Img Mgr	Verify procedure info updated at IM

Evaluation: The post-test MESA evaluation script should check the following items:

1. The "final" PPS "object" from the "hemo7" modality should have the hemo modality generated Study Instance UID, the temporary patient name, and the temporary patient id.
2. The "final" PPS "object" from the "XA" modality should have the exact same hemo-modality-generated Study Instance UID, the same temporary patient name, and the same temporary patient id.
3. The final image objects at the MESA Image Manager have the updated information for: Order Placer Number (from RAD13), updated patient name of "Maryann Peters", patient id updated, correct Order Filler Number, and the original hemo-modality-generated Study Instance UID.

2.7 Test Case 20107: C6: Patient Updated During Procedure

Test 20107 covers C6: Patient Updated During Procedure (see CARD TF-1: 3.4.6) .

The unknown patient, registered at the ADT, is DOE^JOHN with a patient ID of 201079.

The updated patient in this case is MCGUINESS^MARTY with a patient ID of 201071.

Test the case where the modality responds to a single SPS with a single MPPS.

Identifier	Description	Source	Destination	Verify
20107.102.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Placer	
20107.104.a04.adt	A04: Register DOE as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Internal: a human creates a RP/SPS with a generic (configured) procedure code and uses the ADT patient id and the (albeit temporary) demographics provided from the ADT system for that patient.			
	MWL C-Find (SPS procedure code GENERIC CATH)	Modality (hemo7)	OF	Use wrist band # at modality.
20107.112.dcm	PPS: Begin procedure(Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify correct patient ID is used (wrist band # used at modality);
20107.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Modality evidence sent (waveform and/or SR) - partial – modality continues to send	Modality (hemo7)	Img Mgr	Verify patient ID and temporary demographics
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	ADT	OP	Verify new patient info at OP
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	ADT	OF	Verify new patient info at OF
	A08: Update Patient information change DOE^JOHN to MCKINNERY^MARTIN with some patient demographics (e.g., allergies)	OF	Img Mgr	
	Modality evidence sent (waveform and/or SR) - partial – modality continues to send	Modality (hemo7)	Img Mgr	Verify that the modality is still using the patient ID and temporary demographics
	MWL C-Find using only modality and date and time as the query key	Modality (XA7)	OF	Verify same St Inst UID and codes as generated by the first modality (in this case hemo). Verify that the

				patient demographics are the "new" patient demographics.
	Modality evidence sent (waveform and/or SR) - partial – modality continues to send	Modality (XA7)	Img Mgr	Verify that the patient demographics are the "new" patient demographics. Verify patient ID and Study Inst UID.
	Internal: After all images, PPS message, and Storage Commitments are sent, verify that all image and evidence objects for this Study Inst UID have the same patient demographic information.			

2.8 Test Case 20108: C7: Change Rooms During Procedure (DSS/OF not updated)

Test 20108 covers C7: Change rooms during Procedure (see CARD TF-1: 3.4.7).

In this case, the room is changed because the procedure changes from Diagnostic to Interventional. In this case the MPPS Complete or In Progress, however, is not sent from the modalities in CATHLAB7 and the procedure is just continued in CATHLAB10. The schedule is NOT updated at the DSS/OF to change from a Diagnostic Procedure to an Interventional. This will result in an APPEND case to the same Requested Procedure.

The nominal patient name is PERRY^JAMES.

Identifier	Description	Source	Destination	Verify
20108.102.a04.adt	A04: Register PERRY as outpatient (Patient Class = 'O')	ADT	Order Placer	
20108.104.a04.adt	A04: Register PERRY as outpatient (Patient Class = 'O')	ADT	Order Filler	
20108.106.o01.orm	ORM: Order "CATH CONSULT" for FE (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
20108.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Diag Left	Ord Fil	Im Mgr	

	Heart Cath)			
20108.110.dcm	MWL C-Find (SPS procedure code = Diag Left Heart Cath)	Modality (LAB7_HEMO)	OF	
20108.112.dcm	PPS: Begin procedure(Diag Left Heart Cath)	Modality (LAB7_HEMO)	PPS Mgr	
20108.114.dcm	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal, Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab Eg. XA1 and IVUS1 scheduled for SPS for Diag Left Heart Cath			All modalities in a lab have SPS steps scheduled for them, per configuration.
20108.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Diag Left Heart Cath)	Modality (XA1)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of a broad query).
	PPS: Begin procedure(Diag Left Heart Cath)	Modality (XA1)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA1)	Img Mgr	Verify same St Inst UID
	Modality evidence sent (waveform and/or SR)	Modality (LAB7_HEMO)	Img Mgr	Verify same St Inst UID) ** SR and WV object creation is OPTIONAL, but if the modality sends it, the IM must be able to support it.
	Internal: Physician decides that an Interventional procedure be performed and the patient is moved to LAB2. The schedule is not updated at the DSS/OF to include an interventional stop. Furthermore, no one gets around to closing out the studies on the modalities in CATHLAB7 right away (ie., MPPS Complete or Storage Commit).			
	MWL C-Find - perform a broad query on modality, date, and time	Modality	OF	Verify that the modality in LAB2

	only (SPS procedure code still = Diag Left Heart Cath)	(LAB10_HEMO)		can “see” the previous SPS.
	PPS: Begin procedure(Diag Left Heart Cath)	Modality (LAB10_HEMO)	PPS Mgr	Verify that the DSS/OF does not choke on an Append SPS from a different Lab.
	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	

2.9 Test Case 20109: C7: Change Rooms During Procedure (DSS/OF is updated, creating additional SPSs)

Test 20109 covers C7: Change rooms during Procedure (see CARD TF-1: 3.4.7).

In this case, the room is changed because the procedure changes from Diagnostic to Interventional. In this case the MPPS Complete or In Progress, hoewver, is not sent from the modalities in Room 1 and the procedure is just continued in Room 2. The schedule IS updated at the DSS/OF to change from a Diagnostic Procedure to an Interventional. This will result in additional SPSs to the same Requested Procedure.

The nominal patient name is PETERSON^THOMAS.

Identifier	Description	Source	Destination	Verify
2010920109.102.a04.adt	A04: Register PETERSON as outpatient (Patient Class = ‘O’)	ADT	Order Placer	
20109.104.a04.adt	A04: Register PETERSON as outpatient (Patient Class = ‘O’)	ADT	Order Filler	
20109.106.o01.orm	ORM: Order “CATH CONSULT” for FE (Requested Procedure – Procedure Code = “CATH CONSULT”)	Ord Plc	OF	
20109.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Diag Left Heart Cath)	Ord Fil	Im Mgr	
20109.110.dcm	MWL C-Find (SPS procedure code = Diag Left Heart Cath)	Modality (hemo1)	OF	
20109.112.dcm	PPS: Begin procedure(Diag Left Heart Cath)	Modality (hemo1)	PPS Mgr	
20109.114.dcm	PPS: Begin procedure (Diag Left	PPS Mgr	Img Mgr or	

	Heart Cath)		Ord Fil	
	Internal, Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab Eg. XA1 and IVUS1 scheduled for SPS for Diag Left Heart Cath			All modalities in a lab have SPS steps scheduled for them, per configuration.
20109.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Diag Left Heart Cath)	Modality (XA1)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of a broad query).
	PPS: Begin procedure(Diag Left Heart Cath)	Modality (XA1)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	Modality evidence sent (images)	Modality (XA1)	Img Mgr	Verify same St Inst UID
	Modality evidence sent (waveform and/or SR)	Modality (hemo1)	Img Mgr	Verify same St Inst UID) ** SR and WV object creation is OPTIONAL, but if the modality sends it, the IM must be able to support it.
	Internal: Physician decides that an Interventional procedure be performed and the patient is moved to LAB2. The schedule IS updated at the DSS/OF to include an interventional step as an additional SPS. Furthermore, no one gets around to closing out the studies on the modalities in LAB1 right away (ie., MPPS Complete or Storage Commit).			
	MWL C-Find - perform a broad query on modality, date, and time only (SPS procedure code still = INTERVENTIONAL Left Heart Cath)	Modality (hemo1)	OF	Verify that the modality in LAB2 can “see” the new SPS with the updated SPS code.
	PPS: Begin procedure(INTERVENTIONAL Left Heart Cath)	Modality (hemo1)	PPS Mgr	Verify that the DSS/OF does not choke on an

				additional SPS but from a different Lab.
	PPS: Begin procedure (INTERVENTIONAL Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	

2.10 Test Case 20110: C8: Procedure Cancelled

Test 20110 covers C8: Procedure Cancelled (see CARD TF-1: 3.4.8) .

The nominal patient name is SMITHSON^PETER with ID 201101.

Test the case where the procedure is cancelled before it is even begun. Note that it is often critical for the Cath Lab Flow Manager to be able to refer back to see if a procedure has been cancelled and why.

Identifier	Description	Source	Destination	Verify
20110.102.a04.adt	A04: Register SMITHSON as inpatient (Patient Class = 'I')	ADT	Order Placer	
20110.104.a04.adt	A04: Register SMITHSON as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Internal, Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab Eg. Hemo7, XA7 and IVUS7 scheduled for RP = "Cath Consult" and SPS for "Left Heart Cath"			All modalities in a lab have SPS steps scheduled for them, per configuration.
20110.106.o01.orm	ORM Filler Order Mngt -New: Order "CATH CONSULT" for DOE (Requested Procedure – Procedure Code = "CATH CONSULT")	OF	Order Placer	
20110.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
	ORM: Filler Order Mngt – Cancel with a control code of "OC" (order cancelled)	OF	Order Placer	
	ORM: Procedure Management shall be sent with ORC-1 and	Ord Fil	Im Mgr	

	ORC-5 set to “CA” (cancelled)			
	Internal but optional: Verify that the OF has not completely deleted the order cancellation information.			

2.11 Test Case 20111: C1: Patient Registered at ADT and Procedure Ordered at the Order Placer, but patient scheduled for a different lab

Test 20111 covers C1: Patient Registered at ADT and Procedure Ordered at the Order Placer profile (see CARD TF-1: 3.4.1). In order to complete this test, you must disable any messages you send to the Order Placer for Order Status Update (see RAD TF-2: 4.3.4.2).

The nominal patient name is SCHWARZ^JOSEPH.

Test the case where the patient has been scheduled for Lab5, but the procedure is performed in Lab 7. This is effectively “change rooms prior to procedure”. This is a test of the modality to verify that the modality can easily change to a broad query.

Identifier	Description	Source	Destination	Verify
20111.102.a04.adt	A04: Register SCHWARZ as outpatient (Patient Class = ‘O’)	ADT	Order Placer	
20111.104.a04.adt	A04: Register SCHWARZ as outpatient (Patient Class = ‘O’)	ADT	Order Filler	
20111.106.o01.orm	ORM: Order “CATH CONSULT” for SCHWARZ (Requested Procedure – Procedure Code = “CATH CONSULT”)	Ord Plc	OF	
20111.108.o01.orm	ORM: Schedule CATHLAB5 with Scheduled AE Title HEMO5 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
20111.110.dcm	MWL C-Find Query based on Scheduled AE Title = HEMO7 Scheduled Date = today (SPS procedure code = Left Heart Cath)	Modality (hemo7)	OF	Patient not found on list.
	MWL C-Find (broaden query)	Modality	OF	Patient entry found.

	Query based on PATIENT NAME = "S*" and today's date. (SPS procedure code = Left Heart Cath)	(hemo7)		
	PPS: Begin procedure (Left Heart Cath)	Modality (hemo7)	PPS Mgr	
20111.114.dcm	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab. That is, in this case HEMO7 has been configured on the DSS/OF as the "selector" for that lab. XA7 and IVUS7- schedule single SPS of Left Heart Cath for each modality.			All modalities in a lab have SPS steps scheduled for them, per configuration. Verify that the XA SPS is scheduled for XA7 and not XA5.
20111.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure code = Left Heart Cath)	Modality (XA7)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of a broad query).

2.12 Test Case 20112: C1: Patient Registered at ADT and Procedure Ordered at the Order Placer – test different "selectors"

Test 20112 covers C1: Patient Registered at ADT and Procedure Ordered at the Order Placer profile (see CARD TF-1: 3.4.1). In order to complete this test, you must disable any messages you send to the Order Placer for Order Status Update (see RAD TF-2: 4.3.4.2).

The nominal patient names are:

Patient Name Patient ID

BLARNEY^FRED 201121

STONE^BETTY 201122

Test the Order Filler to verify the case where there are two different modality "selectors" used based on two different labs. See CARD TF-1:Appendix B and CARD TF-2:4.11 for more details and a clinical explanation.

CATHLAB7 uses HEMO7 as the "selector". CATHLAB5 does not have an IHE compliant hemo system and therefore it uses XA5 as the "selector".

Identifier	Description	Source	Destination	Verify
	Note: Register and schedule Blarney in LAB7.			
20112.102.a04.adt	A04: Register BLARNEY as outpatient (Patient Class = 'O')	ADT	Order Placer	
20112.104.a04.adt	A04: Register BLARNEY as outpatient (Patient Class = 'O')	ADT	Order Filler	
20112.106.o01.orm	ORM: Order "CATH CONSULT" for BLARNEY (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
20112.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
	Note: Register and schedule Stone in LAB5.			
	A04: Register STONE as outpatient (Patient Class = 'O')	ADT	Order Placer	
	A04: Register STONE as outpatient (Patient Class = 'O')	ADT	Order Filler	
	ORM: Order "CATH CONSULT" for STONE (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
	ORM: Schedule CATHLAB5 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
	Note: now "begin procedure" in both labs using different "selectors".			
	MWL C-Find Query based on Scheduled AE Title = HEMO7. (SPS procedure code = Left Heart Cath)	Modality (hemo7)	OF	
	PPS: Begin procedure(Left Heart Cath)	Modality (hemo7)	PPS Mgr	
	PPS: Begin procedure (Left Heart	PPS Mgr	Img Mgr or	

	Cath)		Ord Fil	
	Internal: Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab. That is, in this case HEMO7 has been configured on the DSS/OF as the "selector" for that lab. XA7 and IVUS7 scheduled for SPS for Left Heart Cath			All modalities in a lab have SPS steps scheduled for them, per configuration.
	MWL C-Find Query based on Scheduled AE Title = XA5. (SPS procedure code = Left Heart Cath)	Modality (XA5)	OF	
	PPS: Begin procedure(Left Heart Cath)	Modality (XA5)	PPS Mgr	
	PPS: Begin procedure (Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: Order Filler schedules SPS for other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab. That is, in this case XA5 has been configured on the DSS/OF as the "selector" for that lab. IVUS5 scheduled for SPS for Left Heart Cath			IVUS5 has SPS steps scheduled for them, per configuration.

2.13 Test Case 20113: C1: Patient Registered at ADT and Procedure Ordered at the Order Placer (schedule two SPSs, perform two PPSs; one each for Diagnostic and Interventional)

Test 20113 covers C1: Patient Registered at ADT and Procedure Ordered at the Order Placer profile (see CARD TF-1: 3.4.1). In order to complete this test, you must disable any messages you send to the Order Placer for Order Status Update (see RAD TF-2: 4.3.4.2).

The nominal patient name is SIMPSON^PETER.

Test the case where the modality responds to a two SPS with two MPPS- one each for diagnostic and one for interventional. Specifically see CARD TF-1: Appendix B and RAD TF-2: 4.6.4.1.2.3.

Identifier	Description	Source	Destination	Verify
20113.102.a04.adt	A04: Register SIMPSON as outpatient (Patient Class = 'O')	ADT	Order Placer	
20113.104.a04.adt	A04: Register SIMPSON as outpatient (Patient Class = 'O')	ADT	Order Filler	
20113.106.o01.orm	ORM: Order "CATH CONSULT" for FE (Requested Procedure – Procedure Code = "CATH CONSULT")	Ord Plc	OF	
20113.108.o01.orm	ORM: Schedule CATHLAB7 (SPS procedure code = Left Heart Cath)	Ord Fil	Im Mgr	
20113.110.dcm	MWL C-Find Query based on: Scheduled AE Title = HEMO7 Scheduled Date = today Return 2 SPSs: SPS procedure code desc = Diag Left Heart Cath SPS procedure code desc = Interventional Left Heart Cath RP procedure code desc = CATH CONSULT	Modality (hemo7)	OF	
20113.112.dcm	PPS: Begin procedure(Diag Left Heart Cath)	Modality (hemo7)	PPS Mgr	
20113.114.dcm	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	
	Internal: Order Filler schedules 2 SPS for each other modalities in the room using PERFORMED STATION AE TITLE to determine the location/lab. That is, in this case HEMO7 has been configured on the DSS/OF as the "selector" for that lab. XA7 and IVUS7 each scheduled for 2 SPSs: Diag Left Heart Cath Interventional Left Heart Cath			All modalities in a lab have SPS steps scheduled for them, per configuration.
20113.116.dcm	MWL C-Find using only modality and date and time as the query key (SPS procedure codes = Diag Left Heart Cath Interventional Left Heart Cath)	Modality (XA7)	OF	Verify same St Inst UID and codes as hemo DMWL query. Verify only a single SPS response to the modality (in spite of

				a broad query).
	PPS: Begin procedure(Diag Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Diag Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Diag Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID; verify PPS code sequence says something about "diagnostic"
	PPS: End procedure (Diag Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID; verify PPS code sequence says something about "diagnostic"
	PPS: End procedure (Diag Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID; verify PPS code sequence says something about "diagnostic"
	PPS: End procedure (Diag Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID; verify PPS code sequence says something about "diagnostic"
	PPS: Begin procedure(Interventional Left Heart Cath)	Modality (HEMO7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Interventional Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: Begin procedure(Interventional Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID
	PPS: Begin procedure (Interventional Left Heart Cath)	PPS Mgr	Img Mgr or Ord Fil	Verify same St Inst UID
	PPS: End procedure (Interventional Left Heart Cath)	Modality (XA7)	PPS Mgr	Verify same St Inst UID; verify PPS code sequence says something about "Interventional"
	PPS: End procedure (Interventional Left Heart Cath)	PPS Mgr (XA7)	Img Mgr or Ord Fil	Verify same St Inst UID; verify PPS code sequence says something about "Interventional"
	PPS: End procedure (Interventional Left Heart Cath)	Modality (hemo7)	PPS Mgr	Verify same St Inst UID; verify PPS code sequence says something about

				"Interventional"
	PPS: End procedure (Interventional Left Heart Cath)	PPS Mgr (hemo7)	Img Mgr or Ord Fil	Verify same St Inst UID; verify PPS code sequence says something about "Interventional"

3 Echo Test Cases

This section describes the test cases that constitute the Transaction Sequences for the Echo Workflow. Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

3.1 Test Case 20201: E1: Patient Registered at ADT and Procedure Ordered

Test 20201 covers E1: Patient Registered at ADT and Procedure Ordered profile (see CARD TF-1: 4.3.1). This test will have the procedure ordered at the Order Filler (Case E2 will test have a procedure order originate at the Order Placer). This test cases tests Patient Update, but vendors should also test Patient MERGED.

The nominal patient name is RUSSELL^SONYA with Patient ID 20201. Update patient name later to RUSSETT^SONYA.

Identifier	Description	Source	Destination	Verify
	A01: Register RUSSELL as inpatient (Patient Class = 'I')	ADT	Order Placer	
	A01: Register RUSSELL as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Using "RAD-3" ORM status NEW: Order "STRESS ECHO" for RUSSELL (Requested Procedure – Procedure Code = "STRESS ECHO")	OF	Order Placer	
	ORM: Schedule ECHORM2 (create SPS procedure code: "Exercise Stress")	Ord Fil	Im Mgr	
	MWL C-Find (SPS procedure code = "Exercise Stress")	Modality (Echo 2)	OF	
	PPS: Begin procedure(Exercise Stress)	Modality (echo 2)	PPS Mgr	Verify same St Inst UID and codes as submitted in DMWL query.
	PPS: Begin procedure (Exercise	PPS Mgr	Img Mgr or	

	Stress)		Ord Fil	
	Using “RAD-3” ORM status UPDATE (Control code = SC) to order status of In Progress (“IP”)	OF	Order Placer	
	Modality evidence sent (images)	Modality (echo2)	Img Mgr	Verify same St Inst UID
	Storage Commit	Modality (echo2)	Img Mgr	Verify same St Inst UID
	PPS: End procedure (Exercise Stress Baseline)	Modality (echo2)	PPS Mgr	Verify same St Inst UID
	PPS: End procedure (Exercise Stress Baseline)	PPS Mgr (echo2)	Img Mgr or Ord Fil	Verify same St Inst UID
	A08: Update Patient information (name now = RUSSETT^SONYA)	ADT	OP	Verify new patient info at OP
	A08: Update Patient information	ADT	OF	Verify new patient info at OF
	A08: Update Patient information	OF	Img Mgr	Verify new patient info at IM

3.2 Test Case 20202: E2: Intermittently Connected Modality

Test 20202 covers E2: Intermittently Connected Modality case (see CARD TF-1: 4.3.2).

The following patients are used for this test, registered in advance at ADT and OF:

Patient ID	Patient Name
202021	O’MALLEY^JIM
202022	SMILEY^PATRICK
202023	O’BRIEN^DIEDRE

Also include, but do not create an order for, a patient to be merged:

202029	O’MALLEY^JAMES

Identifier	Description	Source	Destination	Verify
	A04: Register all 4 patients as outpatient (Patient Class = ‘O’)	ADT	Order Placer	
	A04: Register all 4 patients as outpatient (Patient Class = ‘O’)	ADT	Order Filler	

	Using “RAD-2” ORM “new order” (Order Control Code = “NW”) the following procedures : Order “TTE” for patient 202021 Order “TEE” for patient 202022 Order “TTE” for patient 202023	Order Placer	Order Filler	
	ORM: Schedule ECHO2 (create a single SPS for each procedure with SPS codes the same as the Requested Procedure Codes)	Ord Fil	Im Mgr	
	MWL C-Find - broad, based only on date	Modality (Echo 2)	OF	Verify 3 SPS sent/received.
	Note: modality now goes mobile/off line (is disconnected from network). Assume that a significant amount of time goes by, eg., several hours. Note that the following transactions can be in different orders. Most likely they will be “interwoven”, but check final results.			
	PPS: Begin all 3 procedures(TEE and TTE)	Modality (echo 2)	PPS Mgr	Verify same St Inst UID and codes as submitted in DMWL query for each one.
	PPS: Begin all 3 procedures (TEE and TTE)	PPS Mgr	Img Mgr or Ord Fil	
	PPS: End all 3 procedures	Modality (echo2)	PPS Mgr	Verify same St Inst UID
	PPS: End all 3 procedures	PPS Mgr (echo2)	Img Mgr or Ord Fil	Verify same St Inst UID
	Using “RAD-3” ORM status UPDATE (Control code = SC) to order status of In Progress (“IP”) for all 3 procedures.	OF	Order Placer	
	Modality evidence sent (images) for all 3 studies	Modality (echo2)	Img Mgr	Verify same St Inst UID
	Storage Commit for all 3 studies	Modality (echo2)	Img Mgr	Verify same St Inst UID
	A40: Merge Patient 202021 (id now 202029)	ADT	OP	Verify patient 202029 at OP contains all info including this echo

				procedure; verify patient 202021 is somehow marked "old" or does not exist
	A40: Merge Patient 202021 (id now 202029)	ADT	OF	Verify patient 202029 at OP contains all info including this echo procedure; verify patient 202021 is somehow marked "old" or does not exist
	A40: Merge Patient 202021 (id now 202029)	OF	Img Mgr	Verify patient 202029 at OP contains all info including this echo procedure; verify patient 202021 is somehow marked "old" or does not exist

3.3 Test Case 20203: E3: Intermittently Connected Modality with Ad Hoc Procedure, Patient Registered, Scheduled Procedure

Test 20203 covers E3: Intermittently Connected Modality case (see CARD TF-1: 4.3.3).

The following patients are used for this test, registered in advance at ADT and OF:

Patient ID Patient Name

202031 KRAUSS^THOMAS

202032 STROMM^TIMOTHY

202039 SCHMITT^MIKHAIL (include allergy or some other "minute" information entered at ADT system)

Identifier	Description	Source	Destination	Verify
	A04: Register all 3 patients as outpatient (Patient Class = 'O')	ADT	Order Placer	

	A04: Register all 3 patients as outpatient (Patient Class = 'O')	ADT	Order Filler	
	Using "RAD-2" ORM "new order" (Order Control Code = "NW") the following procedures : Order "TTE" for patient 202031 Order "TEE" for patient 202032	Order Placer	Order Filler	
	ORM: Schedule ECHO2 (create a single SPS for each procedure with SPS codes the same as the Requested Procedure Codes)	Ord Fil	Im Mgr	
	MWL C-Find - broad, based only on date	Modality (Echo 2)	OF	Verify 2 SPSs
	Note: modality now goes mobile/off line (is disconnected from network). Assume that a significant amount of time goes by, eg., several hours. The technologist is given a verbal request for an additional ad hoc procedure and the study is completed. Note that the following transactions can be in different orders. Most likely they will be "interwoven", but check final results. Note the only results that are verified in this test are those of the ad hoc procedure (id = 202039).			
	New procedure is added after the modality is already offline/mobile: Using "RAD-2" ORM "new order" (Order Control Code = "NW") the following procedures : Order "TTE" for patient 202039	Order Placer	Order Filler	
	ORM: Schedule ECHO2 (create a single SPS for each procedure with SPS codes the same as the Requested Procedure Codes for 202039)	Ord Fil	Im Mgr	
	Note: the modality is reconnected			
	PPS: Begin for patient id 202039	Modality (echo 2)	PPS Mgr	Verify NEW (modality generated) St Inst UID since

				there was no received SPS in the DMWL for this study. However, the patient id and name were correctly entered at the modality for 202039. Verify that the Requested Procedure and SPS information is not sent per CARD-1 which indicates to the DSS/OF that this is an unscheduled step.
	PPS: Begin for patient id 202039	PPS Mgr	Img Mgr or Ord Fil	
	PPS: End for patient id 202039	Modality (echo2)	PPS Mgr	Verify NEW (modality generated) St Inst UID since there was no received SPS in the DMWL for this study.
	PPS: End for patient id 202039	PPS Mgr (echo2)	Img Mgr or Ord Fil	
	Modality evidence sent (images) for 202039 Note: not all objects may have been sent to IM prior to the rest of the following transactions being completed (but ALL objects must eventually be updated even if received after the Procedure Update message sent below…how to test that??!?!) two separate test cases?	Modality (echo2)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)
	Storage Commit for 202039	Modality (echo2)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)
	Note: Internally, DSS/OF flags an exception for manual intervention-unscheduled study. The patient is manually (or somehow automatically) matched as part of reconciliation process. (recall that the patient name and id were correctly entered at the modality)			

	First the recently created order is cancelled at the OF and the cancel is propogated to the IM and OP.			
	Using “RAD-3” ORM status CANCEL (order Control code = OC) for 202039.	OF	Order Placer	Verify order cancelled.
	Procedure Update Cancel RAD 13: ORM: Order Control Code = ‘CA’	OF	Img Mgr	Verify order cancelled.
	Note: now a new procedure is created at the OF using the modality generated Study Instance UID from the MPPS msg:			
	Using “RAD-3” ORM status NEW: Order “TTE” for 202039 (Requested Procedure – Procedure Code = “TTE”)	OF	Order Placer	
	ORM: Schedule ECHO2 (create a single SPS (what if multiple were performed?? Create multiple???) with SPS code “TTE” Procedure Codes for 202039)	OF	Img Mgr	Verify modality study instance UID is generated
	Update rest of patient demographics to IM: RAD-12 A08: Update patient with demographics from ADT	OF	Img Mgr	Verify allergy (or other) info is present at IM in ALL objects

3.4 Test Case 20204: E4: Intermittently Connected Modality with Ad Hoc Procedure, Patient Registered, Unscheduled Procedure

Test 20204 covers E4: Intermittently Connected Modality case (see CARD TF-1: 4.3.4).

The following patients are used for this test, registered in advance at ADT and OF:

Patient ID	Patient Name
202041	STROMBERG^HANS

Identifier	Description	Source	Destination	Verify
20204.102.a04	A04: Register STROMBERG as outpatient (Patient Class = ‘O’)	ADT	Order Placer	
20204.104.a04	A04: Register STROMBERG as outpatient (Patient Class = ‘O’)	ADT	Order Filler	

	Note: modality now goes mobile/off line (is disconnected from network). The technologist is given a verbal request for an additional ad hoc procedure and the study is completed. Note that the following transactions can be in different orders. Most likely they will be "interwoven", but check final results. Note the only results that are verified in this test are those of the ad hoc procedure (pid = 202041).			
	Note: the modality is reconnected			
20204.114.dcm	PPS: Begin for patient id STROMBERG	Modality (ELAB1_US)	PPS Mgr	Verify NEW (modality generated) St Inst UID since there was no received SPS in the DMWL for this study. However, the patient id and name were correctly entered at the modality for 202041. Verify that the Requested Procedure and SPS information is <u>not</u> sent per CARD-1 which indicates to the DSS/OF that this is an unscheduled step.
20204.116.dcm	PPS: Begin for patient STROMBERG	PPS Mgr	Img Mgr or Ord Fil	
20204.118.dcm	PPS: End for patient STROMBERG	Modality (V)	PPS Mgr	Verify NEW (modality generated) St Inst UID since there was no received SPS in the DMWL for this study.
20204.120.dcm	PPS: End for patient STROMBERG	PPS Mgr (ELAB1_US)	Img Mgr or Ord Fil	
20204.122.dcm	Modality evidence sent (images) for 202041 Note: not all objects may have been sent to IM prior to the rest of	Modality (ELAB1_US)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)

	the following transactions being completed (but ALL objects must eventually be updated even if received after the Procedure Update message sent below…how to test that??!?!) two separate test cases?			
20204.124.dcm	Storage Commit for 202041	Modality (ELAB1_US)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)
	Internally, DSS/OF flags an exception for manual intervention-unscheduled study. The patient is manually (or somehow automatically) matched as part of reconciliation process. The patient name and id were correctly entered at the modality.			
	Now a new procedure is created at the OF using the modality generated Study Instance UID from the MPPS msg:			
20204.140.o01.hl7	Using "RAD-3" ORM status SN: Order "TTE" for 202041 (Requested Procedure – Procedure Code = "TTE")	OF	Order Placer	
20204.150.o02.hl7	RAD-3: O02 message with Placer Order Number is returned	Order Placer	OF	
20204.160.o01.hl7	Using "RAD-3" ORM status UPDATE (Control code = SC) to order status of In Progress ("IP")	OF	Order Placer	
20204.170.o01.hl7	ORM: Schedule ELAB1_US (RAD-4) (create a single SPS with SPS code "TTE" Procedure Codes for 202041)	OF	Img Mgr	Verify modality study instance UID is generated
TERI, cut this Steve- why cut it? It's in the E4 transaction diagram.	Update rest of patient demographics to IM: RAD-12 A08: Update patient with demographics from ADT	OF	Img Mgr	Verify allergy (or other) info is present at IM in ALL objects
	Steve, after re-reading 4.3.4.2.3 of Rad Vol 2, I think that this transaction is incorrect. It should just be skipped until after the report is Verified (Year 2 at best).			

3.5 Test Case 20205: E5: Intermittently Connected Modality with Ad Hoc Procedure, Patient UNRegistered, UNScheduled Procedure

Test 20205 covers E5: Intermittently Connected Modality with Ad Hoc Procedure, Patient Unregistered, Unscheduled Procedure case (see CARD TF-1: 4.3.5).

The following patients are used for this test, registered in advance at ADT:

Patient ID	Patient Name
202051	FISCHER^PETER

Identifier	Description	Source	Destination	Verify
	Note: the modality is reconnected to the network after completing ad hoc procedure where the patient demographics for an unregistered patient were entered directly into the modality Patient is entered into modality as: DOE, JOHN ID= 202059 (local DSS/OFF ID)			
	PPS: Begin for patient id 202059	Modality (echo 2)	PPS Mgr	Verify NEW (modality generated) St Inst UID since there was no received SPS in a DMWL for this study. The patient id is local to the DSS/OF and the name is temporary. Verify that the Requested Procedure and SPS information is <u>not</u> sent per CARD-1 which indicates to the DSS/OF that this is an unscheduled step.
	PPS: Begin for patient id 202059	PPS Mgr	Img Mgr or	

			Ord Fil	
	PPS: End for patient id 202059	Modality (echo2)	PPS Mgr	Verify NEW (modality generated) St Inst UID since there was no received SPS in the DMWL for this study.
	PPS: End for patient id 202059	PPS Mgr (echo2)	Img Mgr or Ord Fil	
	Modality evidence sent (images) for 202059 Note: not all objects may have been sent to IM prior to the rest of the following transactions being completed (but ALL objects must eventually be updated even if received after the Procedure Update message sent below…how to test that??!?!) two separate test cases? This needs to be a completely separate test case and will be ignored in test case 20205.	Modality (echo2)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)
	Storage Commit for 202059	Modality (echo2)	Img Mgr	Verify same St Inst UID as MPPS msg (modality generated)
	Note: Meanwhile, the "real" patient is registered at the ADT system.			
	A04: Register patient Fischer 202051 as outpatient (Patient Class = 'O')	ADT	Order Placer	
	A04: Register patient as outpatient (Patient Class = 'O')	ADT	Order Filler	
	Note: Internally, DSS/OF flags an exception for manual intervention-unscheduled study based on MPPS information. The patient name and patient id is manually matched on the DSS/OF as part of reconciliation process. (recall that the patient name and id entered at the modality were TEMPORARY)			
	A40: Merge Patient 202059 (id	OF	Img Mgr	Verify patient 202051 at IM

	now 202051) (RAD-12)			contains all info including name change; verify patient 202059 is somehow marked "old" or does not exist
	Using "RAD-3" ORM status NEW: Order "TTE" for 202051 (Requested Procedure – Procedure Code = "TTE")	OF	Order Placer	
	ORM: Schedule ECHO2 (RAD-4) (create a single SPS with SPS code "TTE" Procedure Codes for 202051)	OF	Img Mgr	Verify modality generated study instance UID is still being used by the DSS/OF; verify order and procedure info is updated at the IM (e.g., procedure codes and Order Placer Number);
	Using "RAD-3" ORM status UPDATE (Control code = SC) to order status of In Progress ("IP")	OF	Order Placer	

3.6 Test Case 20206: E6: Stress Echo Staged Protocol – Clinically completed with four stages

Test 20206 covers E6: Stress Echo Staged Protocol (see CARD TF-1: 4.3.6). This test will test the case where all stages are clinically completed.

The nominal patient name is LEE^SEDALIA with Patient ID 202061.

Identifier	Description	Source	Destination	Verify
	A01: Register LEE as inpatient (Patient Class = 'I')	ADT	Order Placer	
	A01: Register LEE as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Using "RAD-3" ORM status NEW: Order "STRESS ECHO" for LEE (Requested Procedure – Procedure Code = "STRESS ECHO")	OF	Order Placer	
	ORM: Schedule ECHO2	Ord Fil	Im Mgr	

	(create a single SPS procedure codes: "Exercise Stress")			
	MWL C-Find	Modality (Echo 2)	OF	Verify SPS present
	PPS: Begin procedure(Exercise Stress)	Modality (echo 2)	PPS Mgr	Verify same St Inst UID and codes as submitted in DMWL query.
	PPS: Begin procedure (Exercise Stress)	PPS Mgr	Img Mgr or Ord Fil	
	Modality evidence sent (images) (really Baseline)	Modality (echo2)	Img Mgr	See Vol 2, CARD-2: Verify same St Inst UID; Verify Stage Number (0008,2122) and View Number (0008,2128) number Stages and Views, starting with 1; Stage Code Sequence (0040,000A) and View Code Sequence (0008,2240) provide standard coded identifiers for Stages and Views; OPTIONAL: Verify Stage Name (0008,2120) and View Name (0008,2127) specify non-standardized textual names for Stages and Views.
	Modality evidence sent (images) (Really Mid Stress)	Modality (echo2)	Img Mgr	See above; note that this is the same SPS
	Modality evidence sent (images) (Really Peak Stress)	Modality (echo2)	Img Mgr	See above
	Modality evidence sent (images) (Really Recovery)	Modality (echo2)	Img Mgr	See above
	Storage Commit	Modality (echo2)	Img Mgr	Verify same St Inst UID
	PPS: End procedure (Exercise Stress Baseline)	Modality (echo2)	PPS Mgr	Verify same St Inst UID; verify that a status of "complete" is sent in the MPPS from the modality

	PPS: End procedure (Exercise Stress Baseline)	PPS Mgr (echo2)	Img Mgr or Ord Fil	Verify same St Inst UID

3.7 Test Case 20207: E6: Stress Echo Staged Protocol – Clinically completed with LESS THAN four stages

Test 20207 covers E6: Stress Echo Staged Protocol (see CARD TF-1: 4.3.6). This test will test the case where all stages are clinically completed, but in less than four stages (eg., during Mid Stress patient cannot continue, but there is no technical equipment failure).

The nominal patient name is THOMPSON^SCOTT with Patient ID 202071.

Identifier	Description	Source	Destination	Verify
	A01: Register THOMPSON as inpatient (Patient Class = 'I')	ADT	Order Placer	
	A01: Register THOMPSON as inpatient (Patient Class = 'I')	ADT	Order Filler	
	Using "RAD-3" ORM status NEW: Order "STRESS ECHO" for THOMPSON (Requested Procedure – Procedure Code = "STRESS ECHO")	OF	Order Placer	
	ORM: Schedule ECHO2 (create a single SPS procedure codes: "Exercise Stress")	Ord Fil	Im Mgr	
	MWL C-Find	Modality (Echo 2)	OF	Verify SPS present
	PPS: Begin procedure(Exercise Stress)	Modality (echo 2)	PPS Mgr	Verify same St Inst UID and codes as submitted in DMWL query.
	PPS: Begin procedure (Exercise Stress)	PPS Mgr	Img Mgr or Ord Fil	
	Modality evidence sent (images) (really Baseline)	Modality (echo2)	Img Mgr	See Vol 2, CARD-2: Verify same St Inst UID; Verify Stage Number (0008,2122) and View Number (0008,2128) number Stages and Views,

				starting with 1; Stage Code Sequence (0040,000A) and View Code Sequence (0008,2240) provide standard coded identifiers for Stages and Views; OPTIONAL: Verify Stage Name (0008,2120) and View Name (0008,2127) specify non-standardized textual names for Stages and Views.
	Modality evidence sent (images) (Really Mid Stress)	Modality (echo2)	Img Mgr	See above
	Note: assume that the patient cannot continue.			
	Storage Commit	Modality (echo2)	Img Mgr	Verify same St Inst UID
	PPS: End procedure (Exercise Stress Baseline)	Modality (echo2)	PPS Mgr	Verify same St Inst UID; Verify that the modality sends an MPPS status of COMPLETE in spite of the fact that all 4 stages were not completed.
	PPS: End procedure (Exercise Stress Baseline)	PPS Mgr (echo2)	Img Mgr or Ord Fil	

4 Retrieve ECG for Display Test Cases

This section describes the test cases that constitute the Transaction Sequences for the Retrieve ECG for Display Integration Profile. Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

All of the tests in this section use the following patients

Patient Name	Patient ID
Ehel^Joseph	203011 (must have several ECG documents with interpretations and measurements)
Sommer^Isaac	203012

4.1 Test Case 20301: D1: Simple Display (of ECGs) – Basic Query/HTML Response – Summary and Display

Test 20301 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using ITI-11 for patient ID 203011 and request type SUMMARY. Select an ECG from list and display.	Display	Information Source	Verify list of ECGs is returned via HTML page. Verify visually that the ECG page looks reasonable and contains the following information: Patient Name, Patient ID, local date and time of ECG recording, voltage and timescale, lead labels, and frequency information, interpretation information and measurements . The ECG must state either CONFIRMED or UNCONFIRMED.

4.2 Test Case 20302: D1: Simple Display (of ECGs) – Query – Summary- No such Patient

Test 20302 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using ITI-11 for patient ID 203019 and request type SUMMARY. (patient does not exist)	Display	Information Source	Verify that a human readable error message is presented.

4.3 Test Case 20303: D1: Simple Display (of ECGs) – Basic Query – SUMMARY-CARDIOLOGY/HTML Response

Test 20303 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using ITI-11 for patient ID 203011 and request type SUMMARY-CARDIOLOGY. Select an ECG from list and display.	Display	Information Source	Verify list of ECGs is returned via HTML page. Verify that the ECG page looks reasonable and contains interpretation information and measurements.

4.4 Test Case 20304: D1: Simple Display (of ECGs) – CARD5 Query – SUMMARY-CARDIOLOGY-ECG/XML Response

Test 20304 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using CARD-5 for patient ID 203011 and request type SUMMARY-CARIOLOGY-ECG. Select an ECG from the default style sheet and display.	Display	Information Source	Verify list of ECGs is returned via XML with a default style sheet which is displayable. Verify that the ECG page looks reasonable and contains interpretation

				information and measurements.

4.5 Test Case 20305: D1: Simple Display (of ECGs) – CARD5 Query – Summary-CARDIOLOGY-ECG - No such patient

Test 20305 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using CARD-5 for patient ID 203019 and request type SUMMARY-CARDIOLOGY-ECG. (patient does not exist)	Display	Information Source	Verify that a human readable error message is presented.

4.6 Test Case 20306: D1: Simple Display (of ECGs) – CARD5 Query-Zero Caching

Test 20306 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Query Information Source using CARD-5 for patient ID 203011 and request type SUMMARY-CARIOLOGY-ECG. On the Information Source add another ECG document for this patient ID. Query the information source again with the exact same query.	Display	Information Source	Verify that the second query response contains the new ECG document (ensure zero caching).

4.7 Test Case 20307: D1: Simple Display (of ECGs) – Retrieve document without query

Test 20307 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Without performing a query, perform a retrieve (CARD-6) with the documentUID = a properly defined Object identifier (OID)	Display	Information Source	Verify that document is found and viewable.

4.8 Test Case 20308: D1: Simple Display (of ECGs) – Retrieve vector pdf document

Test 20308 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Without performing a query, perform a retrieve (CARD-6) with the documentUID = a properly defined Object identifier (OID) and the preferredContentType = Application/pdf.	Display	Information Source	Verify that document is found and viewable. Verify that the pdf which is created is a "vector" drawing and not a "raster" drawing. (do this by zooming in repeatedly and check for aliasing, unless you have a better way? Encoded?)

4.9 Test Case 20309: D1: Simple Display (of ECGs) – Retrieve svg document

Test 20309 covers D1: Simple Display (see CARD TF-1: 5.3.1).

Identifier	Description	Source	Destination	Verify
	Without performing a query, perform a retrieve (CARD-6) with the documentUID = a Universal Unique identifier (UUID) and the preferredContentType = Image/svg+xml (Note: svg+xml is OPTIONAL, if it is not supported by this Information Source, skip.)	Display	Information Source	Verify that document is found and viewable.

4.10 Test Case 20310: D2: Advanced Display (of ECGs) – Information Source support of two document retrievals

Test 20310 covers D2: Advanced Display (see CARD TF-1: 5.3.2). This test tests the Information Source.

Identifier	Description	Source	Destination	Verify
	Test the Information Source: Query Information Source using CARD-5 for patient ID 203011 and request type SUMMARY-CARIOLOGY-ECG. Parse the XML response. Retrieve (using CARD-6) two ECG documents for display from the list.	Display	Information Source	Verify list of ECGs is returned via XML with a default style sheet which is displayable. Verify that the XML is parsable. Verify that two ECG documents are returned.

5 General Cardiology Transaction Test Cases

This section describes the test cases for specific transactions, such as testing a complete list of SOP classes for storage.

5.1 Test Case 20401: SOP Classes – Cardiac Cath Option (CARD-2)

All Image Archive actors which support the Cardiac Cath option (see CARD TF-2: 4.3.2) must support the following SOP Classes.

Identifier	Description	Source	Destination	Verify
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.7 Secondary Capture Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send SOP Class: 1.2.840.10008.5.1.4.1.1.7.2 Multi-Frame Grayscale Byte Secondary Capture	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.7.3 Multi-Frame Grayscale Word	Modality	Image Archive	Acceptance; full fidelity storage

	Secondary Capture			
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.6.1 Ultrasound Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.3.1 Ultrasound Multi-frame Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.9.1.2 General ECG Waveform Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.9.2.1 Hemodynamic Waveform Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.12.1 X-Ray Angiographic Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.11 Basic Text SR	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.22 Enhanced SR	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.33 Comprehensive SR	Modality	Image Archive	Acceptance; full fidelity storage

5.2 Test Case 20402: SOP Classes – Echocardiography Option (CARD-2)

All Image Archive actors which support the EchoCardiography option (see CARD TF-2: 4.3.2) must support the following SOP Classes.

Identifier	Description	Source	Destination	Verify
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.7 Secondary Capture Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.6.1 Ultrasound Image Storage	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.3.1	Modality	Image Archive	Acceptance; full

	Ultrasound Multi-frame Image Storage			fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.59 Key Object Selection	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.11 Basic Text SR	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.22 Enhanced SR	Modality	Image Archive	Acceptance; full fidelity storage
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.88.33 Comprehensive SR	Modality	Image Archive	Acceptance; full fidelity storage

5.3 Test Case 20403: SOP Classes – Stress Echo Option (CARD-2)

All MODALITY actors which support the Stress Echo option (see CARD TF-2: 4.3.2) must support the following data elements.

Identifier	Description	Source	Destination	Verify
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.6.1 Ultrasound Image Storage	Modality	Image Archive	Verity- Send elements identified below. (table 4.2-2)
	Send: SOP Class 1.2.840.10008.5.1.4.1.1.3.1 Ultrasound Multi-frame Image Storage	Modality	Image Archive	Verify- Send elements identified below. (table 4.2-2)

In both tests above, verify the existence of the following data elements:

Table 4.2-2. Multiframe Ultrasound Image Attributes That Convey Staged Protocol Related Information

Attribute Name	Tag	Requirement
Performed Procedure Step Description	(0040,0254)	R+
Protocol Name	(0018,1030)	R+
Performed Protocol Code Sequence	(0040,0260)	R+
Number of Stages	(0008,2124)	R+
Number of Views in Stage	(0008,212A)	R+
Stage Code Sequence	(0040,000A)	R+ (note 2)

Attribute Name	Tag	Requirement
Stage Number	(0008,2122)	R+
View Number	(0008,2128)	R+ (note 1)
View Code Sequence	(0054,0220)	R+ (note 2)

Notes:

1. Extra-protocol images (i.e., images not associated with the stress echo exam protocol) shall have the View Number empty or omitted.

2. View Code Sequence uses a pre-coordinated code and is preferred in echocardiography (see DICOM Supplement 72), rather than using post-coordinated codes in the Transducer Position Sequence and Transducer Orientation Sequence attributes. A DICOM change proposal (CP 476) to include the View Code Sequence attribute in the Ultrasound IOD has been submitted. In recognition of the implementation issues for the Stage Code Sequence and View Code Sequence in ultrasound machines, and that View Code Sequence is not yet defined as part of the Multiframe Ultrasound IOD, the IHE Connectathon for Cardiology Year 1 will not test this functionality.

6 Displayable Reports (DRPT) Test Cases

This section describes the test cases that constitute the Transaction Sequences for the Displayable Reports Profile. Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

6.1 Test Case 20501: Verify HL7 Encapsulated Report Message Content (CARD-7)

Test 20501 tests the creation and content of an HL7 message with an encapsulated PDF report.

MESA: In this test the MESA software is a RM/ERR and receives the reports and verifies their content.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send encapsulated report - unsoliticited	Report Creator or a Report Manager (as a report source)	Report Manager or Enterprise Report Repository	OBR25 = R/P/F/C For OBX w/ Study Instance UID, verify: OBX3= "113014/DCM/DICOM Study" OBX5 = valid format for SIU OBX11 = "O" For OBX w/ PDF report, verify: OBX3 = a (any) Report Title, e.g., a Report Title from Vol 2 Appendix D OBX 5 Source Application ID = a valid ISO OID OBX5 Type of Data = "Application" OBX5 Data Subtype = "PDF" OBX11= R/P/F/C and matches OBR25

Evaluation: A MESA script will verify that the RC/RM acurately generated the report by verifying the existance and, in some cases content of, all of the data elements listed in the Verify column.

6.2 Test Case 20502: Visual Verify of PDF Content (CARD-7)

Test 20502 is the simple visual verification of the PDF content. This test tests the case where the PDF becomes disassociated with the PDF message content.

MESA: In this test there is no MESA software or scripts involved. The vendor Report Creator/Report Manager is under test in this test case.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	Verify contents of a PDF sent via CARD – 7; ie., an HL7 Encapsulated PDF report	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Viewer should verify that the following data items are easily readable on the PDF report: • Identity of signing clinician (legal signature) The following items are recommended, but not required (please note which are included in an email): • Patient name • Patient ID • Date of Procedure • Type of Procedure • Date of Report • Status of Report

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20502_RC|RM_2005.doc . Using any vendor report viewing tool cut and paste in information from your own product which demonstrates that the data elements defined above are visible.

6.3 Test Case 20503: Receive HL7 Encapsulated Report (CARD-7)

Test 20503 tests the ability to receive an HL7 message with an encapsulated PDF report.

MESA: The MESA tools send a "good" encapsulated HL7 report, using the information the Description column, to verify that the vendor product can receive it. The MESA tools are acting as the Report Creator. The vendor Report Manager or Enterprise Report Repository are under test.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send "good" encapsulated report – unsoliticited; see test case 20501 for "good" HL7 message content	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Report accepted and stored.

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20503_RM|ERR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example.

6.4 Test Case 20504: Send HL7 Encapsulated Reports w/ different statuses for same report (CARD-7)

Test 20504 tests the ability to handle an HL7 message with an encapsulated PDF report with different statuses.

MESA: MESA acts as a Report Creator or Report Manager and stores multiple "pre-canned" reports, using the information in the Description column, to the same Report Manager or Enterprise Report Repository. The pre-canned reports must follow the instructions/data listed in the Description and Verify columns.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send "good" encapsulated report – unsoliticited; see test case 20501 for "good" HL7 message content; send report with status (OBR 25 and OBX11) of "R"	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Report accepted and stored.
	ORU: send same report and HL7 message; change report status (OBR 25 and OBX11) to "P")	Report Creator or Report Manager	Report Manager or Enterprise	Second copy of report internally stored (and

			Report Repository	internally viewable) with new status and a new OID; verify same Order Filler Number/Accession Number and Report Title
	ORU: send same report and HL7 message; change report status (OBR 25 and OBX11) to "F")	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Third copy of report internally stored (and internally viewable) with new status and a new OID; verify same Order Filler Number/Accession Number and Report Title
	ORU: send same report and HL7 message; change report status (OBR 25 and OBX11) to "C")	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Fourth copy of report internally stored (and internally viewable) with new status and a new OID; verify same Order Filler Number/Accession Number and Report Title

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20504_RM|ERR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example. The vendor information must clearly prove that the different report statuses are available for the same Order Filler Number/Accession Number and Report Title.

6.5 Test Case 20505: RM Finalize report and sign (CARD-7)

Test 20505 tests the ability of the Report Manager to receive an "R" or "P" status report and convert it to a signed report and disseminate.

MESA: MESA acts as a Report Creator and sends a "good" preliminary report using the information in the Description column to the Report Manager. The Report Manager must then sign and verify the report and change the status as defined in the Description and Verify columns. The MESA software then acts as an ERR and recieves the updated report.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify

	ORU: send "good" encapsulated report with a status of "P"(OBR 25 and OBX11)	Report Creator	Report Manager	Report accepted and stored.
	At the Report Manager, change the status of the report to a status of "C" or "F". ORU: send same report and HL7 message; change report status (OBR 25 and OBX11) to "P")	Report Manager	Enterprise Report Repository	Copy of report internally stored at ERR (and internally viewable) with new status and a new OID; verify same Order Filler Number/Accession Number and Report Title; verify signature exists

Evaluation: A MESA script should receive the updated report as an ERR and verify that the elements have been changed from the report which was originally sent to the Report Manager, per the description in the Verify column.

6.6 Test Case 20506: RM Sign and Release a Final or Corrected Report (CARD-7)

Test 20506 tests the ability of the Report Manager to receive a final "F" or corrected "C" status report and convert it to a signed report and disseminate.

MESA: MESA acts as a Report Creator and sends a "good" Final or Corrected report to the Report Manager, using the information in the Description column. The Report Manager must then sign and release the report and change the status as defined in the Description and Verify columns. The MESA software then acts as an ERR and recieves the updated report.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send "good" encapsulated report with a status of "F"(OBR 25 and OBX11)	Report Creator	Report Manager	Report accepted and stored.
	At the Report Manager, change the status of the report to a status of "C". ORU: send same report and HL7 message; change report status (OBR 25 and OBX11) to "P")	Report Manager	Enterprise Report Repository	Copy of report internally stored at ERR (and internally viewable) with new status and a new OID; verify same Order Filler Number/Accession Number and Report Title; verify signature exists

Evaluation: A MESA script should receive the updated report as an ERR and verify that the elements have been changed from the report which was originally sent to the Report Manager, per the description in the Verify column.

6.7 Test Case 20507: Send Multiple (different) HL7 Encapsulated Reports w/ same Requested Procedure ID (CARD-7)

Test 20507 tests the ability to handle multiple HL7 encapsulated PDF reports which have the same Requested Procedure ID. A common example of this is a single Requested Procedure which results in a Diagnostic Cath Report and an Interventional Cath Report.

MESA: The MESA tools act as a Report Creator or Report Manager (as a report source) and send multiple "good" reports with the same Requested Procedure ID and using the information in the Description column to the RM or ERR.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send "good" encapsulated report – unsoliticited; see test case 20501 for "good" HL7 message content; send a OBX3 Report Title of Coding scheme: LN Code Value: 18745-0 Code Name: Cardiac Catheterization Report	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Report accepted and stored.
	ORU: send same report and HL7 message; change OBX3 to Coding scheme: LN Code Value: 18750-0 Code Name: Cardiac Electrophysiology Report	Report Creator or Report Manager	Report Manager or Enterprise Report Repository	Second report internally stored (and internally viewable) with same Requested Procedure ID; not marked as duplicate report

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20507_RM|ERR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example. The vendor information must clearly prove that the different reports are available for the same Requested Procedure ID (which must also be visible).

6.8 Test Case 20508: Send Multiple (different) HL7 Encapsulated Reports w/ same Filler Order Number (CARD-7)

Test 20508 tests the ability to handle multiple HL7 encapsulated PDF reports which have the same Filler Order Number. A common example of this is a single procedure which results in a Diagnostic Cath Report and an Interventional Cath Report.

MESA: The MESA tools act as a Report Manager (as a report source) and send multiple "good" reports with the same Filler Order Number and using the information in the Description column to the ERR.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send "good" encapsulated report – unsoliticited; see test case 20501 for "good" HL7 message content;Order Filler Number is ORC-3- set it to any known value; send a OBX3 Report Title of Coding scheme: LN Code Value: 18745-0 Code Name: Cardiac Catheterization Report	Report Manager	Enterprise Report Repository	Report accepted and stored.
	ORU: send same report with the same ORC3 value and HL7 message; change OBX3 to Coding scheme: LN Code Value: 18750-0 Code Name: Cardiac Electrophysiology Report	Report Manager	Enterprise Report Repository	Second report internally stored (and internally viewable) with same Order Filler Number; not marked as duplicate report. Verify that the Report Title is the different between the two reports.

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20508_ERR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example. The vendor information must clearly prove that the different reports are available for the same Filler Order Number (which must also be visible).

6.9 Test Case 1721: ED: Describe Report Creator Methods

Test 1721 (previously referred to as Test 20510): Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_ 1721_RC_2005.doc and send it to the Cardiology Technical Project Manager.

In 500 words or less for each, describe the following for the Report Creator's:

a. What report statuses are sent by this Report Creator?

b. Describe how the physicians identity is conveyed in the PDF for results status P, F, and C (e.g., "signature on file" mechanism? Other?).

c. Describe the Report Signature and Verification process.

6.10 Test Case 1720: ED: Describe Report Manager Methods

Test 1720 (previously referred to as 20511): Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_1720_RM_2005.doc and send it to the Cardiology Technical Project Manager.

In 500 words or less for each, describe the following for the Report Manager's:

a. "RELEASE MECHANISM", eg., are reports of all statuses automatically sent to the ERR? Is manual interventional always necessary? Etc.

b. If the Report Manager is not grouped with the Report Repository, describe the method to change the web access point of the Report Repository (used in CARD-8)

c. Have you thought about a method to change the URLs if the web addresses change? (simply answer "yes" or "no")

d. Describe the Report Signature and Verification process

6.11 Test Case 20520: Verify HL7 Report Reference Submission Message Content and Retrieval (CARD-8)

Test 20520 tests the creation and content of an HL7 message with a referenced PDF report.

MESA: The MESA tools act as a Enterprise Report Repository (ERR) and tests the vendor Report Manager. They receive the report reference and then verify that it can in fact be retrieved.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send encapsulated report by reference – unsoliticited	Report Manager	Enterprise Report	OBR25 = R/P/F/C

			Repository	For OBX w/ Study Instance UID, verify: OBX3= "113014/DCM/DICOM Study" OBX5 = valid format for SIU OBX11 = "O"
	Cut and paste URL from CARD-8 OBX into a browser or somehow select the URL	Enterprise Report Repository	Report Manager	verify that the report can be displayed per the UR provided.

Evaluation: A MESA script should receive the report reference as an ERR. The MESA software should evaluate all of the data elements listed in the Verify column of the report reference. The MESA software verify that the elements of the report per the description in the Verify column. The MESA script should make the URL easily accessible/visible. The user should manually or somehow perform a query on the report link, retrieve, and view the report. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20520_RM_2005.doc . The vendor should cut and paste in a screen snapshot which demonstrates that the report was successfully displayed.

6.12 Test Case 20521: Accept HL7 Report Reference Submission Message Content and Retrieval (CARD-8)

Test 20521 tests the ability to accept and retrieve an HL7 message with a referenced PDF report.

MESA: The MESA tools act as a Report Manager, creates a pre-canned HL7 message using the information in the Description column, and tests the vendor Enterprise Report Repository (ERR) software, **if** the vendor ERR has implemented the REPORT BY REFERENCE option. They receive the report reference and then verify that it can in fact be retrieved.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send encapsulated report by reference – unsoliticited OBR25 = R/P/F/C For OBX w/ Study Instance UID, verify: OBX3= "113014/DCM/DICOM Study" OBX5 = valid format for SIU OBX11 = "O"	Report Manager	Enterprise Report Repository	

	For OBX w/ PDF report reference, verify: OBX3 = a (any) Report Title, eg., LOINC Report Titles from Vol 2 Appendix D OBX5 Pointer = validly formatted URL per ITI-12 format OBX 5 Source Application ID = a valid ISO OID OBX5 Type of Data = "Application" OBX5 Data Subtype = "PDF" OBX11= R/P/F/C and matches OBR25			
	Cut and paste URL from CARD-8 OBX into a browser or somehow select the URL	Enterprise Report Repository	Report Manager	verify that the report can be displayed per the UR provided.

Evaluation: There is no MESA evaluation script. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20521_RM_2005.doc . The vendor should cut and paste in a screen snapshot which demonstrates that the report was successfully displayed.

6.13 Test Case 20530: Verify Conversion into DICOM Encapsulated Report Message Content (CARD-9)

Test 20530 tests the creation and content of an DICOM message with an encapsulated PDF report.

This test case is only valid when the Report Manager is NOT grouped with the Report Repository or IF the Report Manager DOES support the DICOM OPTION.

MESA: The MESA tools act as a Report Creator by sending a pre-canned report, per the instructions in the Description column, to the vendor's Report Manager. The MESA tools then act as a Report Repository to accept the DICOM encapsulated report and evaluate it.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ORU: send a valid HL7 encapsulated report – unsoliticited CARD-7. Note the following:	Report Creator	Report Manager	

	OBR25 = R/P/F/C For OBX w/ Study Instance UID, verify: OBX3= “113014/DCM/DICOM Study” OBX5 = valid format for SIU OBX11 = “O” For OBX w/ PDF report reference, verify: OBX3 = a (any) Report Title, e.g., LOINC Report Titles from Vol 2 Appendix D OBX5 Pointer = validly formatted URL per ITI-12 format OBX 5 Source Application ID = a valid ISO OID OBX5 Type of Data = “Application” OBX5 Data Subtype = “PDF” OBX11= R/P/F/C and matches OBR25			
	C-Store: After the Report Manager has used it’s internal mechanisms to release the report, RE-encapsulate the PDF report as a DICOM object (CARD-9)	Report Manager	Report Repository	Verify that the following DICOM data elements exactly match the original HL7 message from the previous step: Patient Name Patient ID Study Instance UID from OBX5 Report Title Report Status (0040, A493) translated from OBX11 to Verified or Unverified Verify all Type 1s are present
	Storage Commit (RAD-10)	Report Manager	Report Repository	Verify that all encapsulated report objects are successfully stored and Storage Commit is completed

Evaluation: The MESA scripts will evaluate the DICOM object which is generated by the Report Manager by verifying all of the attributes identified in the Verify column. The MESA scripts will also verify that a valid Storage Commitment message is received.

6.14 Test Case 20531: Accept DICOM Encapsulated Report Message Content (CARD-9)

Test 20531 tests the creation and content of an DICOM message with an encapsulated PDF report.

This test case is only valid when the Report Manager is NOT grouped with the Report Repository or IF the Report Manager DOES support the DICOM OPTION.

MESA: The MESA tools act as a Report Manager and sends a DICOM encapsulated report to the vendor Report Repository.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	C-Store: RE-encapsulate a PDF report as a DICOM object (CARD-9). Verify the following attributes are present: Patient Name Patient ID Study Instance UID from OBX5 Report Title Report Status (0040, A493) of Verified or Unverified Verify all Type 1s are present	Report Manager	Report Repository	
	Storage Commit (RAD-10)	Report Manager	Report Repository	Verify that all encapsulated report objects are successfully stored and Storage Commit is completed

Evaluation: No MESA test script required for evaluation. The vendor should create a word or pdf file using the document naming convention of: CompanyName_Product_ 20531_RR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example.

6.15 Test Case 20540: DICOM Q/R of Encapsulated Reports – test server (SCP)

Test 20540 tests the query and retrieval of DICOM encapsulated PDF reports.

This test case is only valid when the Report Repository DOES support the DICOM OPTION.

MESA: The MESA tools act as the Report Reader and queries for a report per the infromation in the Description column.

Patient : Anderson.

Identifier	Description	Source	Destination	Verify
	C-Find: Query for a report using "Patient Name" wildcard (eg., last name of "Anderson") as a query key. Repeat using "Patient ID" as an exact match query key.	Report Reader	Report Repository	Get accurate list of available reports after drilling down in the levels of queries. Verify that Report Status (0040,A493) is available as "VERIFIED" or "UNVERIFIED" as accurate, but it is present as a response key. Verify that the following are also present as query response keys: • Report Title (0042, 0010) • Content Date (0008,0023) • Content Time (0008,0033) • Concept Name Code Sequence (0040,A043)
	C-Move: Move one or more reports for local viewing after each CFind.	Report Reader	Report Repository	Get report(s) and display.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20540_RR_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report query keys defined in the Veriry column were functional.

6.16 Test Case 20541: DICOM Q/R of Encapsulated Reports – test display client (SCU)

Test 20541 tests the query and retrieval of DICOM encapsulated PDF reports.

This test case is only valid when the Report Repository DOES support the DICOM OPTION.

MESA: The MESA tools act as the Report Repository and contain a pre-canned report per the infromation in the Description column.

Patient : Anderson.

Identifier	Description	Source	Destination	Verify
	C-Find: Query for a report using "Patient Name" wildcard (eg., last name of "Anderson") as a query key.	Report Reader	Report Repository	•
	C-Move: Move one or more reports for local viewing after each CFind.	Report Reader	Report Repository	Get report(s) and display.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20541_RRdr_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully retrieved and displayed in your product. A screen snapshot of that report is required.

6.17 Test Case 20550: RID Q/R of Encapsulated Reports

Test 20550 tests the query and retrieval of web encapsulated PDF reports.

All Report Repositories are required to be grouped with a RID Information Source.

MESA: The MESA tools act as a RID Display and test the vendor Report Repository.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	ITI-11: Query for any PDF report, using first patient name, then patient id as query keys.	RID Display	Report Repository/Information Source	Get accurate list of available reports.
	ITI-12: Retrieve the PDF report	RID Display	Report Repository/Information Source	Get report(s) and display..

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20550_RRepos_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the report was successfully retrieved and displayed in your product. A screen snapshot of that report is required.

6.18 Test Case 20560: PDF report from ERR to XDS Document Source

Test 20560 tests an Enterprise Report Repository grouped with an XDS Document Source Actor.

MESA: The MESA tools act as a Report Manager and uses a pre-canned report with a known and unique patient name and ID.

Identifier	Description	Source	Destination	Verify
	ORU: send encapsulated report by reference – CARD-8 Or ORU: send encapsulated report by value – CARD-7 (Depending upon how the ERR is configured)	Report Manager	Enterprise Report Repository	Verify report received at the ERR
	"transform" the HL7 message and PDF content into an XDS message and notify Document Registry	Enterprise Report Repository/ Document Source	Document Registry	From a Document Consumer or from the Document Registry database, verify that the PDF report is properly registered.

Evaluation: No MESA test script is required for evaluation. Do not divulge any proprietary information. Create a Word document with the following naming convention: Company Name_20560_ERR_2005.doc and send it to the Cardiology Technical Project Manager. Also answer the question: "What is the process that the RR uses to determine the Release Mechanism to the XDS domain?"

6.19 Test Case 20561: PDF report from Report Repository to XDS Document Source

Test 20561 tests a Report Repository grouped with an XDS Document Source Actor.

MESA: The MESA tools act as a Report Manager and uses a pre-canned report with a known and unique patient name and ID.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	Get a Verified report at the Report Repository from some mechanism, either via CARD-7 from a Report Creator via the Report Manager, or grouped with the Report Manager, or via CARD-9.	Report Manager	Report Repository	Verify report received at the RR
	"transform" the HL7 message and PDF content into an XDS message and notify Document Registry	Enterprise Report Repository/ Document Source	Document Registry	From a Document Consumer or from the Document Registry database, verify that the PDF report is properly registered.
	Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_20561_RR_2005.doc and send it to the Cardiology Technical Project Manager. • What is the process that the RR uses to determine the Release Mechanism to the XDS domain?			

Evaluation: No MESA test scripts are required for evaluation. Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_20561_RRepos_2005.doc and send it to the Cardiology Technical Project Manager. Include the answer to the question: "What is the process that the RR uses to determine the Release Mechanism to the XDS domain?"

7 Evidence Documents (ED) Test Cases

This section describes the test cases that constitute the Transaction Sequences for the Evidence Documents Profile, which applies to both the Radiology and Cardiology Domains. Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

7.1 Test Case 11700: ED: Describe Evidence Creator or Acquisition Modality Methods

Test 11700 (previously 20601): Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_11700_<EC|AM>_2005.doc , where "EC" is for an Evidence Creator and "AM" is for an Acquisiton Modality, and send it to the appropriate Domain (cardiology, radiology, ITI) Technical Project Manager.

In 500 words or less for each, describe the following:

a. What information does your product create? Why is it considered "evidence"?

b. How is your product used with Scheduled or Post-processing Workflow?

c. Which SOP Classes does it create? (e.g, Comprehensive, Basic Text, etc.)

d. Which Templates are used? (eg., Echo, Mammography, Procedure Log, etc.)

e. If private Templates are used, please provide a copy of the Template.

MESA: No software required.

7.2 Test Case 20602: ED: Describe Image Manager/Image Archive Methods

Test 20602: Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_20602_IM_2005.doc and send it to the appropriate Domain (cardiology, radiology, ITI) Technical Project Manager.

In 500 words or less for each, describe the following:

a. Which SOP Classes does your product support? (e.g, Comprehensive, Basic Text, etc.)

MESA: No software required.

7.3 Test Case 20603: ED: Describe Image Display/Report Creator Methods

Test 20603: Do not divulge any proprietary information. Create a Word document with the following naming convention: CompanyName_Product_20603_RC_2005.doc and send it to the appropriate Domain (cardiology, radiology, ITI) Technical Project Manager.

In 500 words or less for each, describe the following:

a. Which SOP Classes (e.g, Comprehensive, Basic Text, etc.) and which Templates (eg., Echo, Procedure Log) does your product exact evidence from?

MESA: No software required.

7.4 Test Case 20605: Evidence Creation – Cath option

Test 20605 tests the creation and content of a DICOMSR with the Cath Option. The ED Profile assumes that the Evidence Creator or Acquisiton Modality is part of Cath Scheduled Workflow. Although the query for images or reports and an MPPS messages are technically not part of this Profile, they are included here as test set up but not explicity tested. See the Radiology Technical Framework Volume 1:14 for a more complete explanation.

MESA: The MESA tools act first as a DICOM SCP for Q/R or DMWL and then as an Image Manager/Image Archive and evaluate an SR which is generated by the Evidence Creator.

Patient Name: Nixon

Test 20605 tests the creation and content of an SR with an Cath template. The ED Profile assumes that the Evidence Creator or Acquisiton Modality is part of Cath Scheduled Workflow. Although the acquisition of a reference image set is not part of this Profile, they are included here as test set up but not explicity tested. See the Radiology Technical Framework Volume 1:14 for a more complete explanation.

MESA: The MESA tools first send a Cath (XA) image. The vendor product creates an SR for that Cath image. Then the MESA tools act as an Image Manager/Image Archive to receive the SR and evaluate it.

Patient Name: Nixon

Identifier	Description	Source	Destination	Verify
	C-Store: (if appropriate) Get echo image (set) for NIXON	MESA Image Manager	Evidence Creator or Acquisition Modality	This step is not actually being tested but is necessary to get the test demographics;
	Create SR locally	Evidence Creator or Acquisition Modality	Not applicable	
	C-Store: SR	Evidence Creator	Image	Verify the following

		or Acquisition Modality	Manager/ Image Archive	in the SR Template of one of the SR SOP Classes: Basic Text SR 1.2.840.10008.5.1.4.1.1.88.11 Enhanced SR 1.2.840.10008.5.1.4.1.1.88.22 Comprehensive SR 1.2.840.10008.5.1.4.1.1.88.33 Procedure Log Storage 1.2.840.10008.5.1.4.1.1.88.40 Mammography CAD SR 1.2.840.10008.5.1.4.1.1.88.50 Chest CAD SR 1.2.840.10008.5.1.4.1.1.88.65 The SR object should match the original image or worklist verbatim: (See App C of Rad Vol3) • Referenced Study Component Sequence [2] >SOP Class UID >SOP Instance UID • Study Instance UID • Current Requested Procedure Evidence Sequence >references to all DICOM objects referenced in the content tree (parse content tree for any composite image or waveform entry, pick up the SOP Instance UID from that tree and make sure that it is in this Current Requested Procedure Evidence Sequence • Completion Flag (0040,A491) should be set (to some value) Verify that the Template used is one of the following: ▪ 3001 Procedure Log ▪ 3202 Ventricular Analysis

				▪ 3213 Quantitative Arterial Analysis ▪ 3250 Intravascular Ultrasound ▪ 3500 Hemodynamics

Evaluation: The MESA evaluation scripts should verify that all of the DICOM SR attributes which are listed in the Verify column are accurate and match the original DICOM image or DICOM MWL response values. The MESA evaluation scripts should report which TID/template was used but not attempt to parse the template or traverse the content.

7.5 Test Case 20606: Evidence Creation – Echo option

Test 20606 tests the creation and content of an SR with an Echo template. The ED Profile assumes that the Evidence Creator or Acquisiton Modality is part of Echo Scheduled Workflow. Although the acquisition of a reference image set is not part of this Profile, they are included here as test set up but not explicity tested. See the Radiology Technical Framework Volume 1:14 for a more complete explanation.

MESA: The MESA tools first send an Echo image. The vendor product creates an SR for that Echo image. Then the MESA tools act as an Image Manager/Image Archive to receive the SR and evaluate it.

Patient Name: Nixon

Identifier	Description	Source	Destination	Verify
	C-Store: (if appropriate) Get echo image (set) for NIXON	MESA Image Manager	Evidence Creator or Acquisition Modality	This step is not actually being tested but is necessary to get the test demographics;
	Create SR locally	Evidence Creator or Acquisition Modality	Not applicable	
	C-Store: SR	Evidence Creator or Acquisition Modality	Image Manager/ Image Archive	Verify the following in the SR Template of one of the SR SOP Classes: Basic Text SR 1.2.840.10008.5.1.4.1.1.88.11 Enhanced SR 1.2.840.10008.5.1.4.1.1.88.22

				Comprehensive SR 1.2.840.10008.5.1.4.1.1.88.33 Procedure Log Storage 1.2.840.10008.5.1.4.1.1.88.40 Mammography CAD SR 1.2.840.10008.5.1.4.1.1.88.50 Chest CAD SR 1.2.840.10008.5.1.4.1.1.88.65 The SR object should match the original image or worklist verbatim: (See App C of Rad Vol3) • Referenced Study Component Sequence [2] >SOP Class UID >SOP Instance UID • Study Instance UID • Current Requested Procedure Evidence Sequence >references to all DICOM objects referenced in the content tree (parse content tree for any composite image or waveform entry, pick up the SOP Instance UID from that tree and make sure that it is in this Current Requested Procedure Evidence Sequence • Completion Flag (0040,A491) should be set (to some value) Verify that the Template is one of: • 5100 Vascular Ultrasound • 5200 Echocardiography

Evaluation: The MESA evaluation scripts should verify that all of the DICOM SR attributes which are listed in the Verify column are accurate and match the original DICOM image or DICOM MWL response values. The MESA evaluation scripts should report which TID/template was used but not attempt to parse the template or traverse the content.

7.6 Test Case 20610: Evidence Storage

Test 20610 tests the storage of all defined SRs.

MESA: The MESA test tools act as a DICOM Cstore user (SCU) and sends each of the SR objects defined in the Verify column.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	C-Store: SR	MESA Test Tool as Evidence Creator	Image Manager/ Image Archive	Verify the following SR SOP Classes can be stored: Basic Text SR 1.2.840.10008.5.1.4.1.1.88.11 Enhanced SR 1.2.840.10008.5.1.4.1.1.88.22 Comprehensive SR 1.2.840.10008.5.1.4.1.1.88.33 Procedure Log Storage 1.2.840.10008.5.1.4.1.1.88.40 Mammography CAD SR 1.2.840.10008.5.1.4.1.1.88.50 Chest CAD SR 1.2.840.10008.5.1.4.1.1.88.65

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20610_IM_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the SR objects were successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example.

7.7 Test Case 20611: Evidence Storage for same Requested Procedure ID

Test 20611 tests that an Image Manager can store multiple instances.

MESA: The MESA test tools act as a DICOM Cstore user (SCU) and sends two SR objects defined in the Description column.

Any patient name and ID can be used.

Identifier	Description	Source	Destination	Verify
	C-Store: SR – send two SRs, each	MESA Test Tool	Image	The IM does not

	with the same Requested Procedure ID, same Study Instance UID, same Completion Flag (0040,A491) = COMPLETE, but different SOP Instance UIDs.	as Evidence Creator	Manager/ Image Archive	identify the second SR as a duplicate.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20611_IM_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the SR objects were successfully stored in your product. A query/retrieve screen snapshot of that report or a database report screen snapshot would be a good example. The Requested Procedure ID and Study Instance UIDs must be clearly visible and obvious.

7.8 Test Case 20620: Evidence Query Return Keys

Test 20620 tests the query SCP return keys.

MESA: The MESA test tools act as a DICOM C-Store SCU (sends an known object) and then as a DICOM Q/R user (SCU) (queries for that object).

Identifier	Description	Source	Destination	Verify
	C-Store an known (well populated) SR – Enhanced SR SOP Class for NIXON	MESA or Evidence Creator	Image Manager/ Image Archive	Verify SR stored.
	C-Find	MESA or Image Display	Image Manager/ Image Archive	Query for NIXON. Verify that all of the keys are returned: Content Date(0008,0023) Content Time(0008,0033) Referenced Request Sequence(0040,A370) >Study Instance UID(0020,000D) >Accession Number(0008,0050) >Requested Procedure ID(0040,1000) >Requested Procedure Code Sequence(0032,1064) >>Code Value(0008,0100) >>Coding Scheme Designator(0008,0102) >>Coding Scheme Version(0008,0103) >>Code Meaning(0008,0104) Content Template Sequence(0040,A504)

				>Template Identifier(0040,DB00) Concept Name Code Sequence(0040,A043) >Code Value(0008,0100) >Coding Scheme Designator(0008,0102) >Coding Scheme Version(0008,0103) >Code Meaning(0008,0104)

Evaluation: The MESA test script should verify that all of the DICOM Q/R Return Keys listed in the Verify column are present.

7.9 Test Case 20621: Evidence Query Return Keys Displayed

Test 20621 tests that all of the query keys are displayed.

MESA: The MESA test tools act as a DICOM C-Store SCU (sends an known object).

Identifier	Description	Source	Destination	Verify
	C-Store an known (well populated) SR – Enhanced SR SOP Class for NIXON	MESA or Evidence Creator	Image Manager/ Image Archive	Verify SR stored.
	C-Find	MESA or Image Display	Image Manager/ Image Archive	Query for NIXON. Verify that all of the keys are returned: >Accession Number(0008,0050) >Requested Procedure ID(0040,1000) >>Code Value(0008,0100) (optional to display) >>Coding Scheme Designator(0008,0102) (optional to display) >>Coding Scheme Version(0008,0103) (optional to display) >>Code Meaning(0008,0104) (optional to display) >Template Identifier(0040,DB00) >Coding Scheme Version(0008,0103) (optional to display) >Code Meaning(0008,0104)

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20621_ID_2005.doc . Using any vendor tool cut and paste in information from your own product which demonstrates that the DICOM Q/R Return Keys were displayed. A query/retrieve screen snapshot of the known/sent object is required.

7.10 Test Case 20630: Evidence Display – Cath option

Test 20630 tests the display of a pre-created SR.

MESA: The MESA test tools act as an Evidence Creator and send a pre-created SR object.

Identifier	Description	Source	Destination	Verify
	C-Store an known (well populated) SR – Enhanced SR SOP Class using Template 3213 (QCA).	MESA or Evidence Creator	Image Manager/ Image Archive	Verify SR stored.
	Display	Image Display	Image Manager/ Image Archive	Visually verify that, in some reasonable format, all of the template values are displayed.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20630_ID_2005.doc . Using any vendor tool cut and paste in a screen snapshot from your own product which demonstrates that the DICOM SR information was displayed.

7.11 Test Case 20631: Evidence Display – Echo option

Test 20631 tests the display of a well known SR.

MESA: The MESA test tools act as an Evidence Creator and send a pre-created SR object.

Identifier	Description	Source	Destination	Verify
	C-Store an known (well populated) SR – Enhanced SR SOP Class using Template 5200 (Echocardiography).	MESA or Evidence Creator	Image Manager/ Image Archive	Verify SR stored.
	Display	Image Display	Image Manager/ Image Archive	Visually verify that, in some reasonable format, all of the template values are displayed

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: CompanyName_Product_ 20631_ID_2005.doc . Using any vendor tool cut and paste in a screen snapshot from your own product which demonstrates that the DICOM SR information was displayed.

7.12 Test Case 20640: Evidence Creation – Cath –Vendor Interoperability

Test 20640 tests the creation and content of an SR with a Cath template. The ED Profile assumes that the Evidence Creator or Acquisiton Modality is part of Cath Scheduled Workflow. Although the acquisition of a reference image set or DMWL response is not part of this Profile, they are included here as test set up, but not explicity tested. See the Radiology Technical Framework Volume 1:14 for a more complete explanation.

The purpose of this test is to collect SR object/cath templates from all Evidence Creators or Acquisition Modalities actors prior to the Connectathon. These vendors/actors are required to submit SR objects for every template and SOP Class supported. These files should be submitted to the IHE web tool as part of the results of these tests. These files will be used by the Image Display vendors/actors as Test Case 20650. It is requested that this test, in particular, be completed at least one month in advance of the MESA test completion date to allow the Image Display actors to test the display of each of these objects and to allow time for communication if there is a problem.

MESA: There is no MESA software required for this test.

Identifier	Description	Source	Destination	Verify
	Create SR locally using any cath image or any DMWL response	Evidence Creator or Acquisition Modality	Not applicable	
	C-Store: SR – place the SR object file into the IHE web tool the results of this test	Evidence Creator or Acquisition Modality	IHE web tool results section	Verify the following in the SR Template of one of the SR SOP Classes: Basic Text SR 1.2.840.10008.5.1.4.1.1.88.11 Enhanced SR 1.2.840.10008.5.1.4.1.1.88.22 Comprehensive SR 1.2.840.10008.5.1.4.1.1.88.33 Procedure Log Storage 1.2.840.10008.5.1.4.1.1.88.40 Mammography CAD SR

				1.2.840.10008.5.1.4.1.1.88.50 Chest CAD SR 1.2.840.10008.5.1.4.1.1.88.65 The SR object should match the original image or worklist verbatim: (See App C of Rad Vol3) • Referenced Study Component Sequence [2] >SOP Class UID >SOP Instance UID • Study Instance UID • Current Requested Procedure Evidence Sequence >references to all DICOM objects referenced in the content tree (parse content tree for any composite image or waveform entry, pick up the SOP Instance UID from that tree and make sure that it is in this Current Requested Procedure Evidence Sequence • Completion Flag (0040,A491) should be set (to some value) Verify that the Template used is one of the following: ▪ 3001 Procedure Log ▪ 3202 Ventricular Analysis ▪ 3213 Quantitative Arterial Analysis ▪ 3250 Intravascular Ultrasound ▪ 3500 Hemodynamics

Evaluation: The Technical Project Manager will verify that all of the DICOM SR attributes which are listed in the Verify column are accurate and match the original DICOM image or DICOM MWL response values, but not attempt to parse the template or traverse the content. Test Case 20650 will use other vendor products to test the complete display and content of each SR.

The vendor should create a file using the naming convention of: CompanyName_Product_ 20640_EC|ACQ_n_2005.doc , where n is any number to that you make up to differentiate the files if the SR Vendor has submitted multiple objects.

7.13 Test Case 20641: Evidence Creation – Echo –Vendor Interoperability

Test 20641 tests the creation and content of an SR with an Echo template. The ED Profile assumes that the Evidence Creator or Acquisiton Modality is part of Cath Scheduled Workflow. Although the acquisition of a reference image set is not part of this Profile, they are included here as test set up but not explicity tested. See the Radiology Technical Framework Volume 1:14 for a more complete explanation.

The purpose of this test is to collect SR object/cath templates from all Evidence Creators or Acquisition Modalities actors prior to the Connectathon. These vendors/actors are required to submit SR objects for every template supported. These files should be submitted to the IHE web tool as part of the results of these tests. These files will be used by the Image Display vendors/actors as Test Case 20651. It is requested that this test, in particular, be completed at least one month in advance of the MESA test completion date to allow the Image Display actors to test the display of each of these objects and to allow time for communication if there is a problem.

The vendor product creates an SR object for every Echo Template supported using any Cath image.

MESA: There is no MESA software required for this test.

Identifier	Description	Source	Destination	Verify
	Create SR locally using any echo image or any DMWL response	Evidence Creator or Acquisition Modality	Not applicable	
	C-Store: SR – place the SR object file into the IHE web tool the results of this test	Evidence Creator or Acquisition Modality	IHE web tool results section	Verify the following in the SR Template of one of the SR SOP Classes: Basic Text SR 1.2.840.10008.5.1.4.1.1.88.11 Enhanced SR 1.2.840.10008.5.1.4.1.1.88.22 Comprehensive SR 1.2.840.10008.5.1.4.1.1.88.33

				Procedure Log Storage 1.2.840.10008.5.1.4.1.1.88.40 Mammography CAD SR 1.2.840.10008.5.1.4.1.1.88.50 Chest CAD SR 1.2.840.10008.5.1.4.1.1.88.65 The SR object should match the original image or worklist verbatim: (See App C of Rad Vol3) • Referenced Study Component Sequence [2] >SOP Class UID >SOP Instance UID • Study Instance UID • Current Requested Procedure Evidence Sequence >references to all DICOM objects referenced in the content tree (parse content tree for any composite image or waveform entry, pick up the SOP Instance UID from that tree and make sure that it is in this Current Requested Procedure Evidence Sequence • Completion Flag (0040,A491) should be set (to some value) Verify that the Template used is one of the following: • 5100 Vascular Ultrasound ▪ 5200 Echocardiography

Evaluation: The Technical Project Manager will verify that all of the DICOM SR attributes which are listed in the Verify column are accurate and match the original DICOM image or DICOM MWL response values, but not attempt to parse the template or traverse the content. Test Case 20651 will use other vendor products to test the complete display and content of each SR.

The vendor should create a file using the naming convention of: CompanyName_Product_ 20641_EC|ACQ_n_2005.doc , where n is any number to that you make up to differentiate the files if the SR Vendor has submitted multiple objects.

7.14 Test Case 20650: Evidence Display – Cath –Vendor Interoperability

Test 20650 tests the display of SR objects created by other vendors. Every cath vendor SR object submitted to the MESA test tool must be tested and properly displayed.

MESA: No MESA test software required.

Identifier	Description	Source	Destination	Verify
	C-Store and Display every (all) cath SR objects which are submitted by SR vendors	Image Manager/ Image Archive (with IHE web tool acting as SR repository)	Image Display	Visually verify that, in some reasonable format, the template data is displayed.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: YourCompanyName_YourProduct_ 20650_ID__n_2005.doc , where n is any number to that you make up to differentiate the files if your company has submitted multiple objects. Using any tool cut and paste in a screen snapshot from your own product which demonstrates that Vendor-created DICOM SRs object's information was displayed as applicable.

7.15 Test Case 20651: Evidence Display – Echo –Vendor Interoperability

Test 20651 tests the display of SR objects created by other vendors. Every vendor echo SR object submitted to the MESA test tool must be tested and properly displayed.

MESA: No MESA test software required.

Identifier	Description	Source	Destination	Verify
	C-Store and Display every (all) echo SR objects which are submitted by SR vendors	Image Manager/ Image Archive (with IHE web tool acting as SR repository)	Image Display	Visually verify that, in some reasonable format, the template data is displayed.

Evaluation: No MESA test script required for evaluation. The vendor should create a word file using the document naming convention of: YourCompanyName_YourProduct_ 20651_ID_n_2005.doc , where n is any number to that you make up to differentiate the files if your company has submitted multiple objects. Using any tool cut and paste in a screen snapshot from your own product which demonstrates that theVendor-created DICOM SRs object's information was displayed as applicable.