

The 2018 ACR Digital Mammography Quality Control Manual

What the Technologist Needs to Know



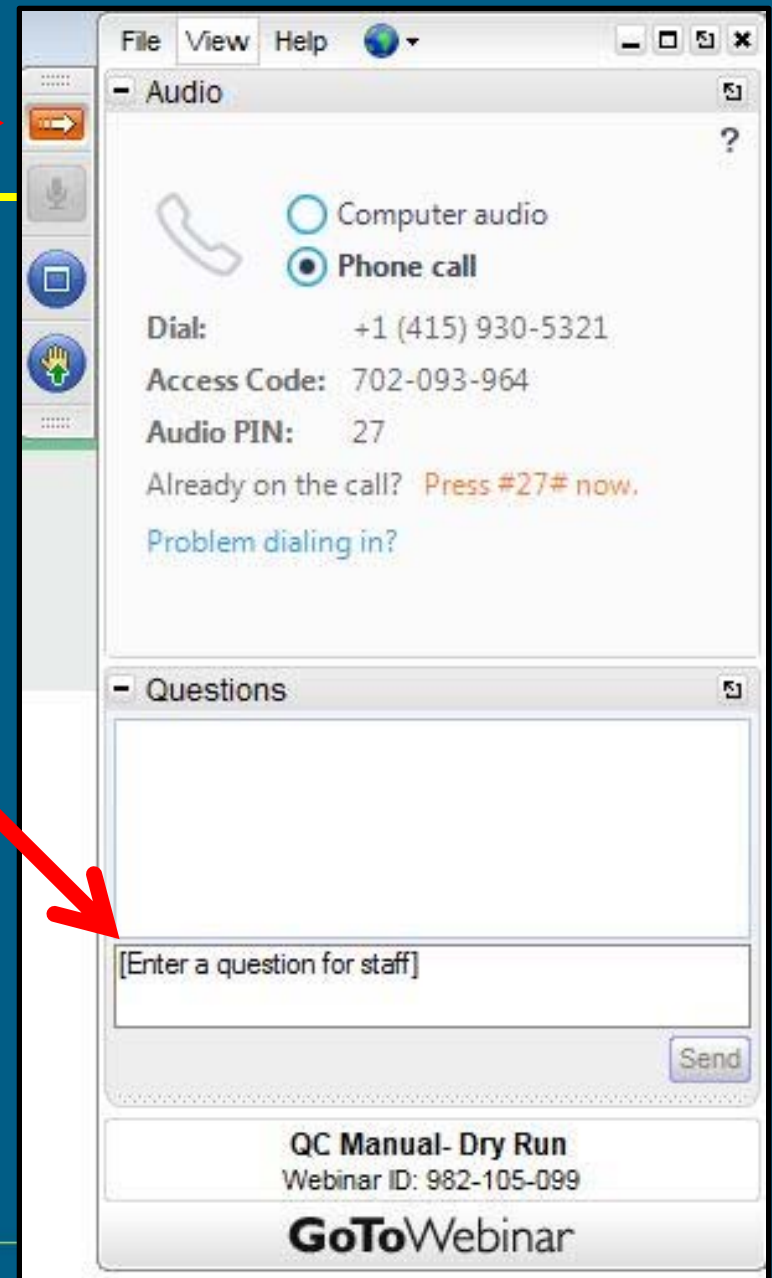
By Eric Berns, PhD, FACR

Chair, Subcommittee on Breast X-ray Imaging Physics

American College of Radiology

Questions

- Submit questions at any time during the webinar
- If we don't get to your question, send them via email to dmqc@acr.org and we'll respond ASAP
- Fodder for future FAQs



The screenshot shows a GoToWebinar interface with two main panels. The top panel, titled "Audio", contains a telephone handset icon, radio buttons for "Computer audio" (unselected) and "Phone call" (selected), and the following text: "Dial: +1 (415) 930-5321", "Access Code: 702-093-964", "Audio PIN: 27", "Already on the call? Press #27# now.", and "Problem dialing in?". The bottom panel, titled "Questions", features a large empty text area, a smaller input field with the placeholder "[Enter a question for staff]", and a "Send" button. At the bottom of the interface, it displays "QC Manual- Dry Run", "Webinar ID: 982-105-099", and the "GoToWebinar" logo. A red arrow points from the "Questions" section of the text on the left to the "Questions" panel in the screenshot, and another red arrow points from the "Submit questions at any time during the webinar" text to the "Audio" panel.

Overview

- **Why:**
 - The benefits of the ACR QC Digital Mammography Program
- **How:**
 - How to perform the QC tests
- **When:**
 - Steps to transition to the new QC Manual
- **Resources:**
 - Where to go for help

Benefits of the ACR Program

Definition

Definition

- An **Alternative Standard** was issued by the FDA for the ACR DM QC Manual.
 - This means it can replace any other Manufacturer QC Manual.
 - Therefore, you can stop using Mfr QC Manuals when you switch to the ACR DM Manual.
 - **Note:** Some Mfr's have "calibrations" that are different than QC Tests. These are manufacturer specific and may need to continue if the Mfr requires them. It is important to differentiate "calibration" and "QC Test".

Why should we switch?

Every day efficiency

- Fewer QC tests than mfr QC
- Lower frequency of QC tests
- Less total time spent on QC tests
- No more “baselines” in any tests
- No more calculations of any sort
- All results are read or scored directly from the Acquisition Monitor
- 2D and Tomo are both included
- Forms can be either paper or electronic (both provided by the ACR)

...yet, QC tests are more useful, more relevant, more helpful, and provide a better quality evaluation of your system!

Why else should we switch?

Improved quality

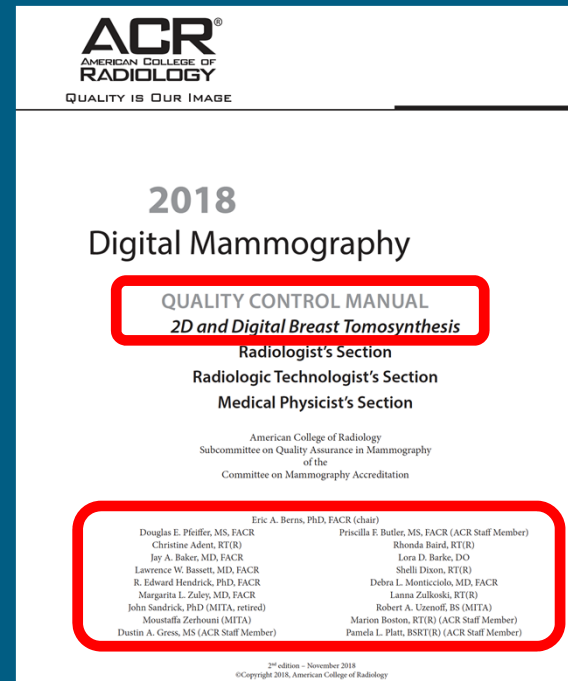
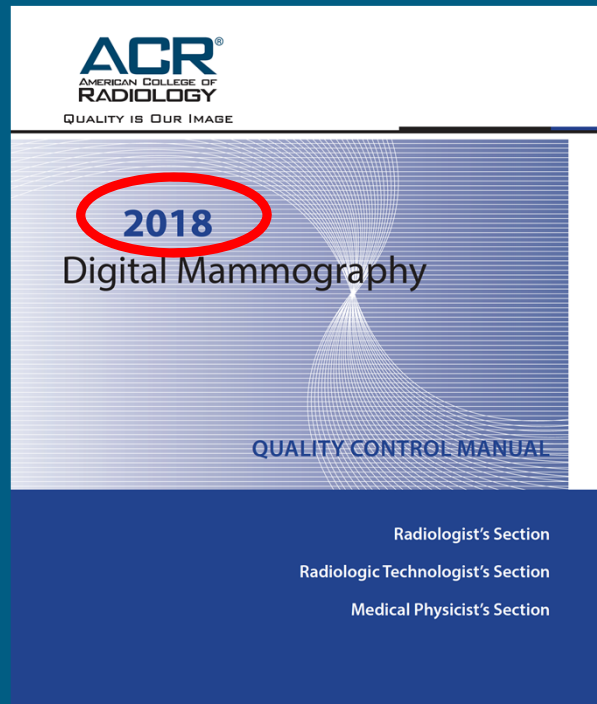
- Much better (new) phantom
- Better artifact detection
- QC program is structured for modern facilities (with multiple **units**, multiple **RW's**, and at multiple **facilities**)
- Team approach emphasized with QA Committee
 - (Tech, Rad, Management, Medical Physicist)
- Radiologist involvement and feedback incorporated in QC program

Why else should we switch?

Life is easier with standardization

- Expect cleaner MQSA inspections
- Standardization reduces errors
- No more chasing mfr QC manual versions
- Current edition & future revisions will be provided by ACR
- QC forms will be provided by the ACR (paper or electronic)

The 2018 ACR Digital Mammography Quality Control Manual



***Link for free
 download sent
 to all ACR
 mammography
 accredited
 facilities**

How to Perform the Tests

Digital Mammography Quality Control Tests Radiologic Technologist's Tests (2D and DBT)

Important: Before a facility may start using the procedures in the ACR Digital Mammography QC Manual for the first time on a unit, the medical physicist must first conduct an annual survey of the digital mammography unit and display devices using the manual and the ACR Digital Mammography Phantom.

Note: Complete Facility, Unit and Test Equipment Data tab first to populate facility information into forms

Test*	Minimum Frequency**	Corrective Action Timeframe***
ACR Digital Mammography Phantom Image Quality	Weekly	Before clinical use
CR Cassette Erasure (if applicable)	Weekly	Before clinical use
Compression Thickness Indicator	Monthly	Within 30 days
Visual Checklist	Monthly	Critical: before clinical use; less critical: w/in 30 days
Acquisition Workstation (AW) Monitor QC	Monthly	W/in 30 days; before clinical use for severe defects
Radiologist Workstation (RW) Monitor QC	Monthly	W/in 30 days; before clinical use for severe defects
Film Printer QC (if applicable)	Monthly	Before clinical use
Viewbox Cleanliness (if applicable)	Monthly	Before clinical use
Facility QC Review	Quarterly	Not applicable
Compression Force	Semiannual	Before clinical use
Manufacturer Calibration (if applicable)	Mfr. Recommendation	Before clinical use
Optional - Repeat Analysis	As Needed	Within 30 days after analysis
Optional - System QC for Radiologist	As Needed	W/in 30 days; before clinical use for severe artifacts
Optional - Radiologist Image Quality Feedback	As Needed	Not applicable

* All required tests (except Facility QC Review) **must** be performed upon installation of new equipment and before clinical use.

** This is a minimum frequency; tests may be performed more often if problems are noted. Also, weekly tests do not need to be performed if mammography is not performed during that week. However, the test must be performed prior to examining patients once mammography resumes. In these cases, be sure to note in the QC charts that mammography was not performed during this time period.

*** Corrective action for MEEs must be performed before clinical use.

Management Forms

ACR Technique and Procedure Summaries
 Corrective Action Log
 Facility Offsite Display Locations
 Digital Mammography Unit QC Summary Checklist
 Facility Display Device QC Summary Checklist

Mobile Systems

In addition to meeting the minimum frequencies outlined in the table above, the following tests must be performed, evaluated, and pass after each move of the mobile system to a new location:

- ACR Digital Mammography Phantom Image Quality - after each move and prior to examining patients
- Compression Thickness Indicator - after each move and prior to interpretation
- Radiologist Workstation (RW) Monitor QC (mobile RW only) - after each move and prior to interpretation
- Film Printer QC (mobile film printers only) - after each move and prior to printing patient images

QC Equipment List - Technologist

ACR Digital Mammography Phantom	Scale	Appropriate monitor cleaning materials
Densitometer	Towels	

Table 2. Required Tests for Imaging Modes Used on 2D and DBT Systems

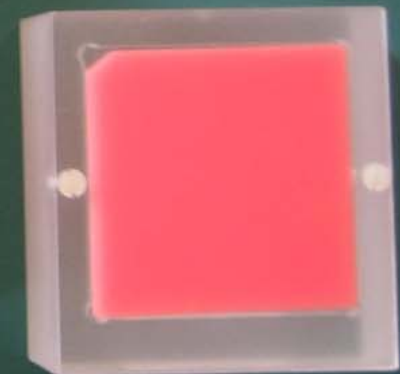
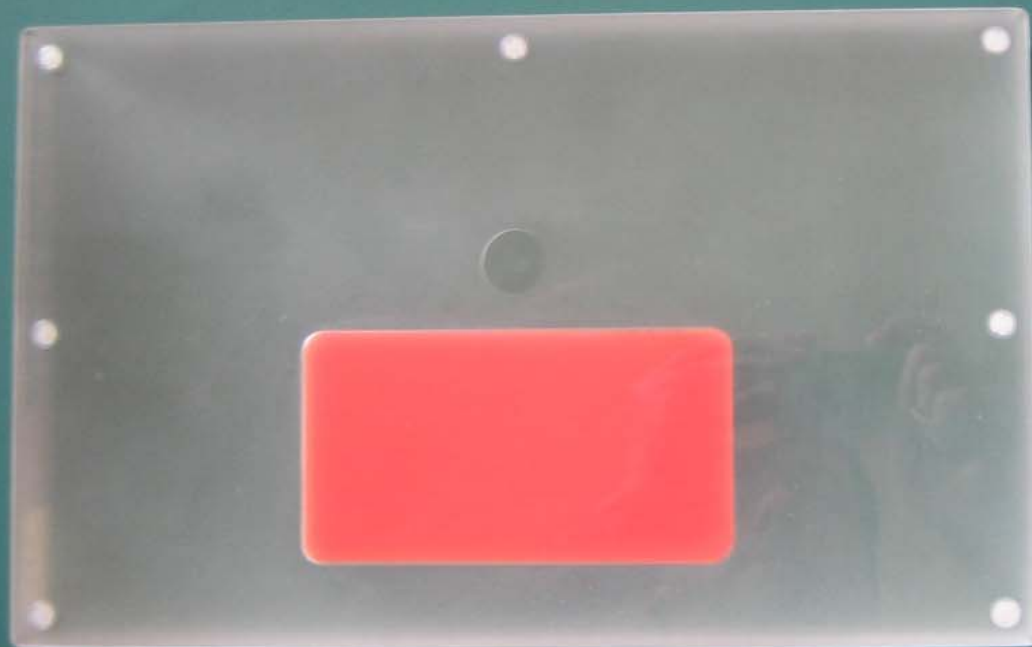
Test	Imaging Modes to Test			
	System Used for Both 2D and DBT Acquisition			System Used for DBT Acquisition Only
	2D	2D w/Add-on DBT Device	DBT	DBT
Technologist Tests				
1. ACR DM Phantom Image Quality	✓*	✓	✓	✓ & 2D*
2. Computed Radiography Cassette Erasure (if applicable)	✓*			
3. Compression Thickness Indicator	✓*	✓*		✓*
4. Visual Checklist	✓*	✓	✓	✓
5. Acquisition Workstation Monitor QC	✓*			✓*
6. Radiologist Workstation Monitor QC	✓*			✓*
7. Film Printer QC (if applicable)	✓*			✓*
8. Viewbox Cleanliness (if applicable)	✓*			✓*
9. Facility QC Review	✓*	✓	✓	✓
10. Compression Force	✓*	✓*		✓*
11. Manufacturer Calibrations (if applicable)	✓*	✓	✓	✓

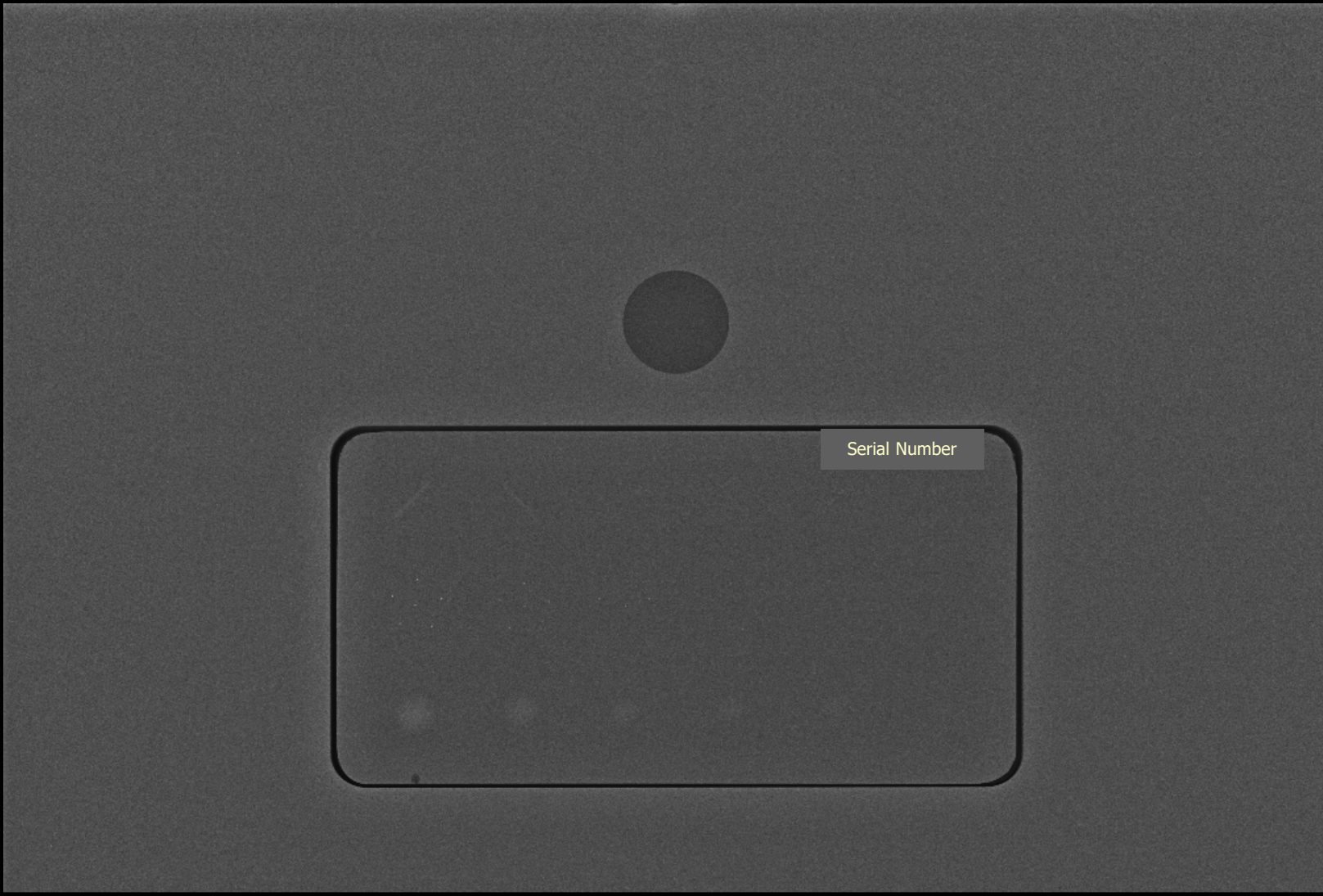
*Follow the procedures and frequency outlined for 2D QC

^{TF}HVL and kVp tests must include kVp, target, and filter combinations used for DBT

The ACR DM Phantom

*Phantom must be purchased from an approved vendor (listed on the ACR Website)





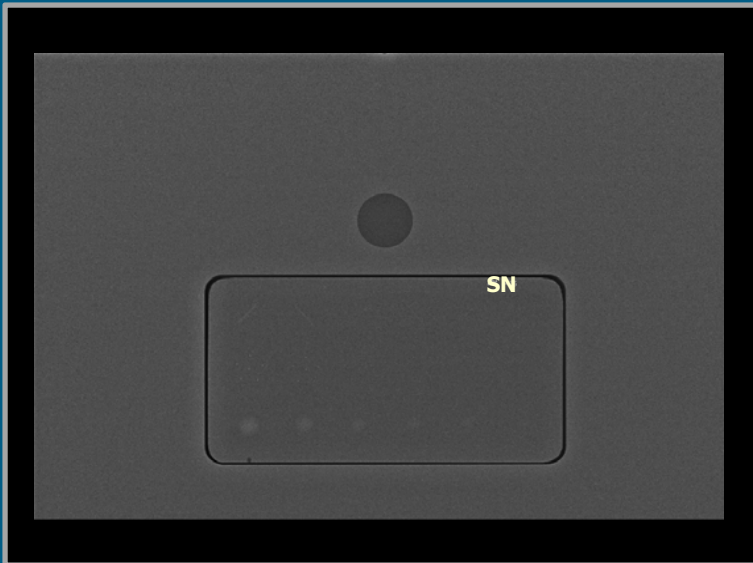
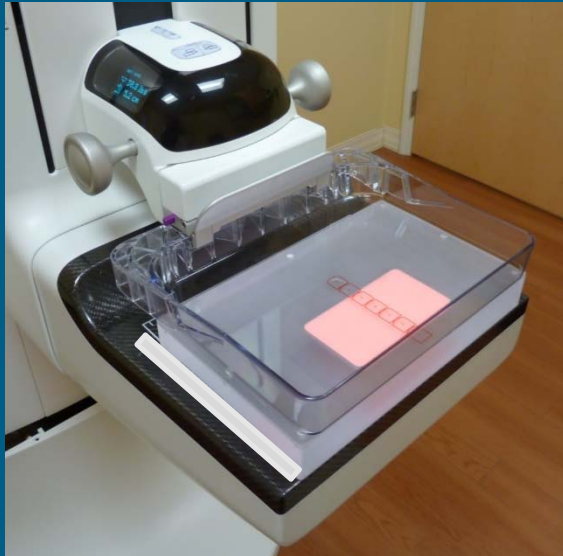
Pass Criteria:

2 Fibers, 3 Specks, 2 Masses

Equivalent to SFM Phantom:

4 Fibers, 3 Specks, 3 Masses





1. ACR DM Phantom Image Quality

Weekly

Image Mode (2D, 2D w/Add-on DBT, DBT) **DBT**

Facility **Breast Center USA** Room ID **Room 1**

MAP ID-Unit# (00000-00) **54321 - 01** Unit Mfr & Model **Manf AA Unit BB**

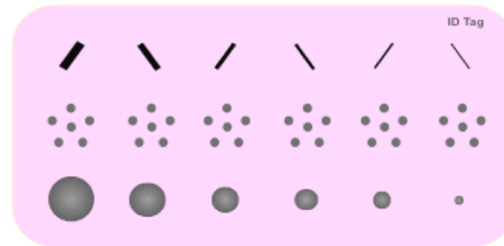
		Year 2018					
		Date (month & day)	1/1	1/7	1/14	1/21	1/28
		Tech Initials	AB	AB	AB	AB	AB
Resulting Techniques	Image receptor size	Large	Large	Large	Large	Large	Large
	View or selected image	QC	QC	QC	QC	QC	QC
	Slice or slab # (DBT only)	34	34	34	34	34	34
	AEC mode	Auto-Filter	Auto-Filter	Auto-Filter	Auto-Filter	Auto-Filter	Auto-Filter
	Target/filter	W/AI	W/AI	W/AI	W/AI	W/AI	W/AI
	kVp	29	29	29	29	29	29
	mAs	54	55	58	52	53	
ACR DM Phantom	Artifacts P/F	P	P	P	P	P	P
	Fiber score	5.0	5.0	5.0	5.0	5.0	5.0
	Speck group score	4.0	4.0	4.0	4.0	4.0	4.0
	Mass score	4.0	4.0	4.0	4.0	4.0	4.0
Overall Pass/Fail		Pass	Pass	Pass	Pass	Pass	Pass

P = Pass F = Fail

Analyses:

		Full Point	Half Point
Scoring	Fibers	≥ 8 mm long	≥ 5 and < 8 mm long
	Specks	4 - 6 specks	2 - 3 specks
	Masses	≥ ¼ border	≥ ½ & < ¾ border

Action Limits
Required: ACR DM Phantom image must be free of clinically significant artifacts.
 Fiber score must be ≥ 2.0; speck group score must be ≥ 3.0; mass score must be ≥ 2.0.
Timeframe: Required items must be corrected before clinical use.

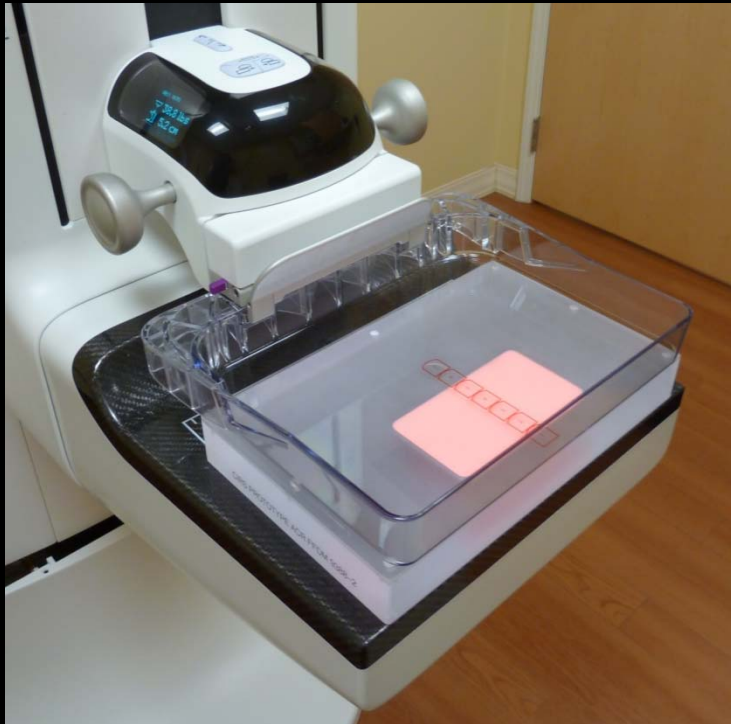


2. Computed Radiography (CR) Cassette Erasure

Weekly

(if applicable)

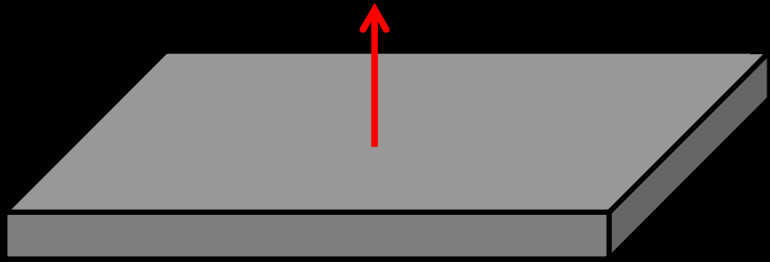
Facility Breast Center USA CR Room ROOM 12
 MAP ID-Unit# (00000-00) 54321 - 01 CR Reader Mfr & Model CR Read Mfr AAA CR Model BBB

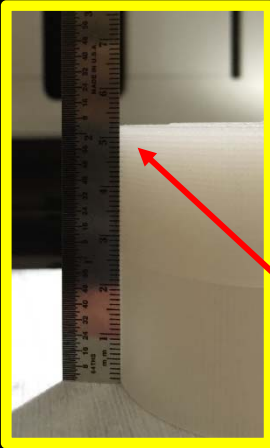


Year		2016																																	
Month	Jan					Feb					Mar					Apr					May					Jun									
Date	1	7	14	21	28	5	12	19	26																										
Tech Initials	TI	TI	TI	TI	TI	TI	TI	TI	TI																										
Month	July					August					September					October					November					December									
Date																																			
Tech Initials																																			
Date and initial each test -																				date	initial														

Action Taken on Cassette (include date & cassette #):

Action Limits	Required: Each cassette should successfully pass the CR cassette erasure process
	Timeframe: Failing cassettes must be corrected before clinical use.





3. Compression Thickness Indicator

Monthly

Image Mode (2D, 2D w/Add-on DBT, DBT) DBT

Facility Breast Center USA Room ID Room 1

MAP ID-Unit# (00000-00) 54321 - 01 Unit Mfr & Model Manf AA Unit BB

Year	2018											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	2	2	4	5	6	4	2	7	12	10	5	5
Tech Initials	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
Description of compression thickness indicator phantom	Tape											
Actual thickness of phantom	52.0	<input type="checkbox"/> cm <input checked="" type="checkbox"/> mm		(Use the same unit displayed on the indicator)								
Indicated thickness	51.0	52.0	52.0	53.0	51.0	52.0	52.0	53.0	52.0	51.0	53.0	52.0
Difference between indicated and actual thicknesses (Indicated - Actual)	-1.0	0.0	0.0	1.0	-1.0	0.0	0.0	1.0	0.0	-1.0	1.0	0.0
Overall Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
		P = Pass F = Fail										
Action Limits	Required: Compression thickness indicator <i>must</i> be accurate to within ± 0.5 cm (± 5 mm) of the actual thickness. Timeframe: Failures <i>must</i> be corrected within 30 days.											

Apply ~10 to 15lbs (4.4 to 6.7 daN)

Safety Note: Ensure tape (or designated thickness test object does not scratch, or leave residue, on the detector cover or paddle!



4. Visual Checklist

Monthly

Image Mode 2D, 2D w/Add-on DBT, DBT, All

DBT

Facility Breast Center USA

Room ID Room 1

MAP ID-Unit# (00000-00) 54321 - 01

Unit Mfr & Model Manf AA Unit BB

Procedure Inspect the unit and evaluate the functionality according to the checklist below.

	Year Month Date	2018											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		1	2	3	4	5	6	7	8	9	10	11	12
	Tech Initials	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
Room Cleanliness	Mag stands and paddles free from dust	P	P	P	P	P	P	P	P	P	P	P	P
	Room and countertops free from dust	P	P	P	P	P	P	P	P	P	P	P	P
	Cleaning solution available*	P	P	P	P	P	P	P	P	P	P	P	P
X-Ray Unit	Indicators working	P	P	P	P	P	P	P	P	P	P	P	P
	Locks (all)*	P	P	P	P	P	P	P	P	P	P	P	P
	Collimator light working	P	P	P	P	P	P	P	P	P	P	P	P
	Are cables safely positioned	P	P	P	P	P	P	P	P	P	P	P	P
	Smoothness of C-arm motion	P	P	P	P	P	P	P	P	P	P	P	P
	Smoothness of compression paddle	P	P	P	P	P	P	P	P	P	P	P	P
	Paddles/face shields not cracked*	P	P	P	P	P	P	P	P	P	P	P	P
Breast support not cracked*	P	P	P	P	P	P	P	P	P	P	P	P	
CR (if app)	Cassette holder and lock (small and large)*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Condition of imaging plates and cassettes*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Scanning Detector System (if app)													
DBT (if app)	DBT assembly moves as designed*	P	P	P	P	P	P	P	P	P	P	P	P
Other													

P = Pass F = Fail NA = Not Applicable

Action Limits

Required:

All items, both critical (*) and noncritical, must pass.

Timeframe:

Failures of critical items (*) must be corrected before clinical use; less critical items must be corrected within 30 days.

5. Acquisition Workstation (AW) Monitor QC

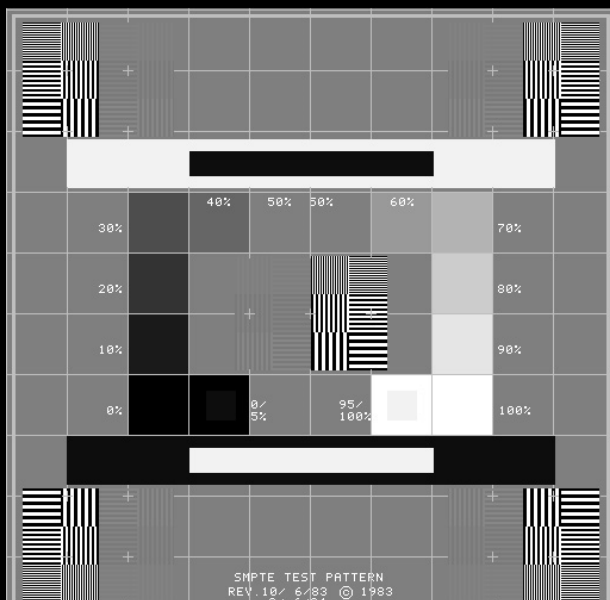
Monthly

Image Mode (2D, DBT) DBT

Facility Breast Center USA

Room ID Room 1

MAP ID-Unit# (00000-00) 54321 - 01



Year		2018											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Date	2	3	4	23	12	13	6	9	12	17	22	12	
Tech Initials	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	
Monitor Condition P/F (significant findings)	P	P	P	P	P	P	P	P	P	P	P	P	
Test Pattern Image Quality (if available)	0%-5% contrast boxes visible?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	95%-100% contrast boxes visible?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Line-pair images distinct (center)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Line-pair images distinct (corners)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Test pattern P/F	P	P	P	P	P	P	P	P	P	P	P	
Monthly Check - Mfr Automated Test P/F (if avail)	P	P	P	P	P	P	P	P	P	P	P	P	
Overall Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	

P = Pass F = Fail

Action Limits

Required: Any identified screen blemish that could interfere with clinical information must be removed.
Test pattern image quality must pass all visual tests.
Manufacturer's automated tests, if available, must pass mfr specifications (if 1 test fails, indicate F).

Timeframe: Significant monitor cleanliness defects must be corrected before clinical use; all other required tests must be corrected within 30 days.

Note: Test pattern testing and/or Manufacturer Tests are only required if available. If not available, then this part of the test is NA.

6. Radiologist Workstation (RW) Monitor QC

Monthly

RW Location and ID _____

Rad Workstation #1 _____

MAP ID# (00000) _____

54321

Monitor Mfr _____

Mfr AA

Model _____

Model 345

SN: Right _____

1234

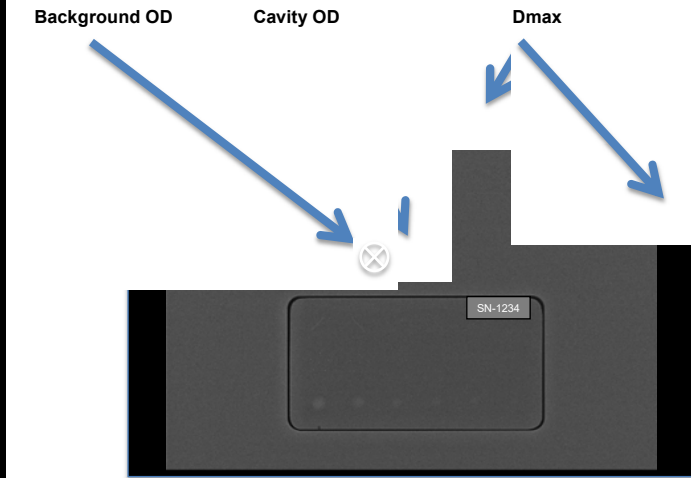
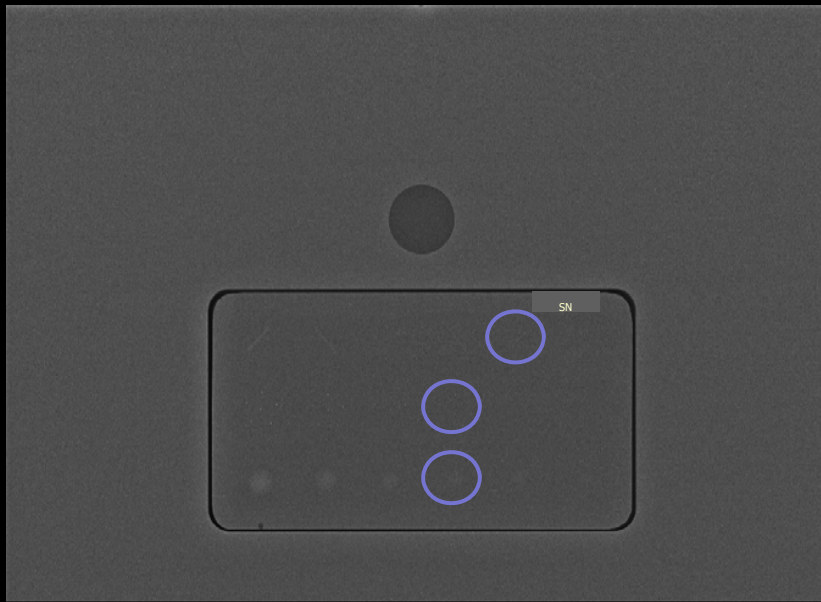
Left _____

5656

Year		2016																							
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
Date	1	6	5	7	12	25	31	15	22	1	12	25													
Tech Initials	TI	TI	TI	TI	TI	TI	TI	TI	TI	TI	TI	TI													
Monitor	R*	L*	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	
ACR DM Phantom	Monitor Condition P/F (significant findings)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	Artifacts P/F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
	Fiber score	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
	Speck group score	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
	Mass score	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
	Phantom P/F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Test Pattern Image Quality	0%-5% contrast boxes visible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	95%-100% contrast boxes visible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Line-pair images distinct (center)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Line-pair images distinct (corners)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Test pattern P/F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Monthly Check - Mfr Automated Test P/F (if avail)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		
Overall Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	

P = Pass F = Fail

Action Limits	Required:	Any identified monitor blemish that could interfere with clinical information must be removed. ACR DM Phantom image must be free of clinically significant artifacts. Fiber score must be ≥2.0; speck group score must be ≥3.0; mass score must be ≥2.0. Test pattern image quality must pass all visual tests. Manufacturer's automated tests, if available, must pass mfr specifications (if 1 test fails, indicate F).	* R and L - right and left monitors; if only 1 monitor, use "R" column
	Timeframe:	Phantom must pass and significant monitor cleanliness defects must be corrected before clinical use; all other tests must be corrected within 30 days.	



7. Film Printer QC (if applicable)

Monthly

Film Printer Location and ID

Printer #1

Film Printer and Model

Kodak 8900

Workstation for printing

Tech Workstation #1

Film size

10 x 12

Procedure

Applicability: If film printer is used clinically for mammography (i.e., for interpretation and to provide images to referring physicians and patients)

Equipment: Densitometer

Print an ACR DM Phantom image acquired from any DM unit within facility network.

Do not change window/level settings from acquired image prior to printing.

Print the phantom image from the workstation/computer typically used to print clinical films.

Dmax should be measured either at extreme left or right edge of film or at extreme non-chest wall edge.

		2016											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year													
Month													
Date		2	16	2	5	23	12	14	4	7	25	30	15
Tech Initials		TI	TI	TI	TI	TI	TI	TI	TI	TI	TI	TI	TI
ACR DM Phantom	Artifacts P/F	P	P	P	P	P	P	P	P	P	P	P	P
	Fiber score	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	Speck group score	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Mass score	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	Phantom P/F	P	P	P	P	P	P	P	P	P	P	P	P
Back-ground	Bkgd OD (Outside cavity)	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74
	Bkgd OD ≥ 1.6 (P/F)	P	P	P	P	P	P	P	P	P	P	P	P
Contrast	Cavity OD	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
	Bkgd OD (use value from above)	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74
	Contrast = Cavity OD - Bkgd OD	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
	Contrast ≥ 0.1 (P/F)	P	P	P	P	P	P	P	P	P	P	P	P
D _{max}	D _{max} OD	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65
	D _{max} OD ≥ 3.1 (P/F)	P	P	P	P	P	P	P	P	P	P	P	P
Overall Pass/Fail		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

P = Pass F = Fail

Action Limits

Required: The ACR DM Phantom image must be free of clinically significant artifacts.
 Fiber score must be ≥2.0; speck group score must be ≥3.0; mass score must be ≥2.0.
 Background OD must be ≥1.6 (1.7 to 2.2 is recommended; approx 2.0 is optimal).
 Contrast (Cavity OD - Background OD) must be ≥0.1.
 D_{max} must be ≥3.1 (≥3.5 is recommended).

Timeframe: Failures of required items must be corrected before printing clinical images.

8. Viewbox Cleanliness *(if applicable)*

Monthly

Viewbox Location and ID _____

Room 123

Procedure

Required Equipment: Viewbox manufacturer-recommended cleaner; soft paper or cotton towels
Clean viewbox surfaces and assure all marks have been removed.
Visually inspect the viewboxes for uniformity of luminance and assure masking equipment is functioning.

Year

2016

Month

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sep

Oct

Nov

Dec

Date

12

3

15

24

14

5

12

27

12

5

12

24

Tech Initials

TI

TI

TI

TI

TI

TI

TI

TI

TI

TI

TI

TI

Viewbox Designation

Viewbox #1

P

P

P

P

P

P

P

P

P

P

P

P

Alternator #2

P

P

P

P

P

P

P

P

P

P

P

P

P = Pass

F = Fail

Action Limits

Required: Viewboxes must be clean and free of marks and uniform in brightness.
Timeframe: Failures must be corrected before clinical images are viewed on the viewbox.

9. Facility QC Review

Quarterly

Image Mode (2D, 2D w/Add-on DBT, DBT) DBT

Facility Breast Center USA

Date of QC Mtg 1/18/19

Reviewed

1. Review Medical Physics Surveys and Results

	Room 1	Room 2	Room 3	Room 4	Room 5
Room ID	1	2	3	4	5
Date of last Medical Physicist (MP) survey	1/10/19	1/11/19	1/12/19	1/13/19	1/14/19
MP DM QC Test Summary reviewed by radiologist?	Yes	Yes	Yes	Yes	Yes
All MP corrective actions completed?	Yes	Yes	Yes	Yes	Yes
ACR DM Phantom Average Glandular Dose (mGy)	1.23	1.25	1.34	1.45	1.00
Fiber Score	5.0	5.0	5.0	5.0	5.0
Speck Score	4.0	4.0	4.0	4.0	4.5
Mass Score	4.0	3.5	3.5	3.5	4.0

2. Review Tech QC

Test	Frequency	Summary Comments from Last Quarter					
1. ACR DM Phantom Image Quality	Weekly		<input checked="" type="checkbox"/>				
Scores of most recent phantom image:	Date	Room 1	Room 2	Room 3	Room 4	Room 5	
		12/25/18	12/26/18	12/27/18	12/24/18	12/23/18	
	Fiber score	5.0	5.0	5.0	5.0	5.0	
	Speck group score	4.0	4.0	4.0	4.0	4.5	
	Mass score	4.0	3.5	3.5	3.5	4.0	
2. CR Cassette Erasure (if app)	Weekly		<input checked="" type="checkbox"/>				
3. Compression Thickness Indicator	Monthly		<input checked="" type="checkbox"/>				
4. Visual Checklist	Monthly		<input checked="" type="checkbox"/>				
5. AW Monitor QC	Monthly		<input checked="" type="checkbox"/>				
6. RW Monitor QC	Monthly		<input checked="" type="checkbox"/>				
7. Film Printer QC	Monthly		<input checked="" type="checkbox"/>				
8. Viewbox Cleanliness (if app)	Monthly		<input checked="" type="checkbox"/>				
9. Facility QC Review	Quarterly		<input checked="" type="checkbox"/>				
10. Compression Force	Semiannual		<input checked="" type="checkbox"/>				
11. Manufacturer Calibrations (if app)			<input checked="" type="checkbox"/>				
Optional - Repeat Analysis	As Needed	% Repeats <u>2.1</u>	<input checked="" type="checkbox"/>				

3. Review and verify completion of all "Corrective Action"

- 4. Technique Chart review for each room (see MP report for recommendations) - (Annually)
- 5. Infection Control procedures followed
- 6. Offsite RW(s) & Film Printer(s) QC reviewed
- 7. Past and future service or service upgrades discussed (if app)
- 8. Past and future State and/or MQSA inspections discussed (if app)
- 9. Past and future ACR Accreditation issues discussed (if app)

9. Facility QC Review (cont)

Quarterly

Facility Breast Center USA

Date of QC Mtg 1/18/19

Follow-up
Confirmed
(If App.)

10. Notable findings during QC meeting

Ventilation system emitting dust into Room 1

11. Items for quality improvement from QC Meeting

Compression scale needs to be replaced. To be ordered by Manager.

12. Other QC Notes

Techs doing excellent job with performing QC.

Overall Pass/Fail **Pass**

Lead Interpreting Radiologist
signature

Facility Manager (If App)
signature

QC Technologist
signature

Action Limit:

Required: Lead interpreting radiologist and facility manager must review QC quarterly.
The test passes if meeting held.
Recommended: Technologist and lead interpreting radiologist should review technique charts at least annually for each DM system.
Timeframe: Not applicable.

10. Compression Force

Semiannual



Image Mode (2D, 2D w/Add-on DBT, DBT) **DBT**

Facility **Breast Center USA** Room ID **Room 1**

Unit Mfr & Model **Manf AA Unit BB** MAP ID-Unit# (00000-00) **54321** - **01**

Procedure

Required Equipment: Bathroom scale; towels
 Place towel on detector, place bathroom scale on towel with dial or read-out positioned for reading.
 Place another towel on top of scale.
 Using manual fine-adjustment mode, activate compression until at least 25 pounds reached.
 Read and record the compression force.
 Using initial power-drive mode, activate compression until it stops automatically.
 Read and record the compression force.
 Check that force is maintained.
Note: Ensure the scale used produces accurate readings as pressure is increased.

Year **2018**

Date (month & day) **3-6** **9-19**

Tech Initials **AB** **AB**

	Compression Force	Units	Compression Force	Units
Manual fine-adjustment compression force	35	lbs	33	lbs
Force is at least 25 lbs (11.1 daN) P/F				
Initial power-drive compression force	29	lbs	27	lbs
Force is at least 25 lbs (11.1 daN) but no more than 45 lbs (20.0 daN) P/F	P		P	
Compression remains at least 25 lbs (11.1 daN) throughout typical exposure P/F	P		P	
Overall Pass/Fail	Pass		Pass	

Enter number where appropriate. P = Pass F = Fail
 Legend: lbs = pounds
 daN = decanewton

Action Limit

Required: Manual fine-adjustment compression force must be least 25 lbs (11.1 daN).
 Initial power-drive compression force must be at least 25 lbs (11.1 daN) but no greater than 45 lbs (20 daN).
 Compression remains at least 25 lbs (11.1 daN) throughout typical exposure.

Timeframe: Failures must be corrected before further examinations are performed.

11. Manufacturer Calibrations *(if applicable)*

Image Mode (2D, 2D w/Add-on DBT, DBT) **DBT**


Facility **Breast Center USA**

Room ID **Room 1**

MAP ID-Unit# (00000-00) **54321 - 01**

Unit Mfr & Model **Manf AA Unit BB**

Manufacturer Procedure	Frequency: Every Two Weeks
	Frequency: Per manufacturer recommendations (if app).
	Note: See medical physicist and manufacturer for instructions (if any).

 Date (month & day)	2018				
	1/5	1/22	2/3	2/22	3/4
	AB	AB	AB	AB	AB

Name of Calibration					
Room 1	P	P	P	P	P
Room 2	P	P	P	P	P
Room 3	P	P	P	P	P

P = Pass F = Fail

Action Limits	Required: Unit must pass manufacturer's prescribed periodic calibrations.
	Timeframe: Failures must be corrected before further examinations are performed.

Optional - Repeat Analysis - Summary Form

As Needed

Facility Breast Center USA Year 2016
 MAP ID (00000) 54321

Procedure
 Required Equipment: All repeated mammograms and means to count and sort them
 Record the **total number of exposures** for the collection period (month or quarter).
 Record the **total number of repeat exposures** for that time period.
 Calculate by hand, or use formulas in spreadsheet, to calculate repeat rate.
Note: Some units may automatically calculate % Repeats. If so, enter this number into "% Repeats".

High Volume could do Monthly.

	Monthly Analysis				Quarterly Analysis			
	Total # of Exposures	# of Repeat Exposures	% Repeats	Pass or Fail	Total # of Exposures	# of Repeat Exposures	% Repeats	Pass or Fail
January	1000	20	2.0%	Pass	1000	25	2.5%	Pass
February	1000	30	3.0%	Pass				
March	1000	40	4.0%	Pass				
April	1000	20	2.0%	Pass	1000	35	3.5%	Pass
May	1000	10	1.0%	Pass				
June	1000	90	9.0%	Fail				
July	1000	10	1.0%	Pass	1000	45	4.5%	Pass
August	1000	60	6.0%	Fail				
September	1000	90	9.0%	Fail				
October	1000	20	2.0%	Pass	1000	100	10.0%	Fail
November	1000	70	7.0%	Fail				
December	1000	45	4.5%	Pass				

Lower Volume could do Quarterly

$\% \text{ Repeats} = (\# \text{ of Repeat Exposures} / \text{Total \# of Exposures}) * 100$ P = Pass F = Fail

Action Limits
Recommended: If repeat rate changes from the previously determined rate by more than 2.0% of the total images included in the analysis, the reason(s) for the change must be determined.
Timeframe: Failures must be corrected within 30 days after analysis.

Optional - Repeat Analysis A - Tally Sheet

Facility Breast Center USA **Date Start (month/day/yr)** 1/1/16
MAP ID (00000) 54321 **Date End (month/day/yr)** 3/31/16

Procedure _____ Record all repeat exposures on the form below.
 Transfer the **Total Number of Repeats** from below to the "Repeat Analysis -Summary Form"
 for final calculation of Repeat Analysis.

Total # of images for time period 1000

Reason	Comments/Notes	Total # of Repeat Exposures	% Repeats
Patient-Related Repeats:			
Poor positioning		2	0.2%
Patient motion		4	0.4%
Patient-caused artifacts		1	0.1%
Incorrect patient ID		1	0.1%
Technical Repeats:			
Exposure too low (excessive noise)		5	0.5%
Exposure too high (image saturation)		5	0.5%
Equipment-caused artifacts		2	0.2%
X-ray equipment failure		3	0.3%
Software failure		4	0.4%
Aborted AEC exposure		5	0.5%
Miscellaneous Repeats:			
Blank images		4	0.4%
Good images (no apparent reason)		2	0.2%
Other - miscellaneous		0	0.0%
Do Not Count as Repeats:			
Wire localization images			Not Included in Repeat Analysis
I-125 seed localization images			
Additional views to image entire breast			
Quality control			
Total:		38	3.8%

Note: Some equipment manufacturers provide an automated system to collect, record and analyze repeated clinical images. These systems may be used instead of these forms as long as the system includes the following 2 key elements:
 1. Count of the total # of exposures made during the evaluation period
 2. % Repeats during the same period: (# Repeat Exposures/Total # Exposures)*100

Optional - Repeat Analysis B - Daily Counting Sheet

Facility Breast Center USA **Date Start (Month/Day/Yr)** 1/1/16
MAP ID (00000) 54321 **Date End (Month/Day/Yr)** 3/31/16

Procedure **Record these counts daily.**
 For each patient, record all images including repeat exposures.
 Transfer the **Total Number of Repeats** from below to the "Repeat Analysis - Tally Sheet" for final calculation of Repeat Analysis.

Patient Name and/or ID	Total Number of Images	# of Repeat Exposures	Positioning	Patient motion	Patient-caused artifacts	Incorrect patient ID	Exposure too low	Exposure too high	Equipment-caused artifacts	X-ray equipment failure	Software failure	Aborted AEC exposure	Blank images	Good images (no apparent reason)	Other - miscellaneous	Localization images (wire and I-125)	Additional views for entire breast	Quality control
Pt 1	6	2	1	1														
Pt 2	4	0																
Pt 3	4	0																
Pt 4	7	3	1	2														
Total	15	5	2	3														

Note: Some equipment manufacturers provide an automated system to collect, record and analyze repeated clinical images. These systems may be used instead of these forms as long as the system includes the following 2 key elements:
 1. Count of the total # of exposures made during the evaluation period
 2. % Repeats during the same period: (# Repeat Exposures/Total # Exposures)*100

Optional - Radiologist Image Quality Feedback
(For Quality Improvement)

As Needed

Radiologist's Name Dr. Smith
Date 12/20/16

Procedure This report is to be completed by the Interpreting Radiologist when asked to interpret sub-optimal cases requiring the patient to be called back.
The form may also be used to provide feedback on excellent quality.
The radiologists should complete this form as needed for each case.
A system should be in place for analyzing feedback and taking measures for improvement as necessary.

Objective For the Radiologist to provide routine feedback to the technologists and manager on the quality of images.

Patient Identifier: 12345
Technologist's Name: Ms. Tech's Last Name
Date of Exam: 12/20/16

Overall Assessment

Excellent Good Needs improvement, but do not repeat Sub-Optimal, and should be repeated

Image Evaluation

	RCC	LCC	RMLO	LMLO	Other View	Other View
Positioning						
Missing tissue	✓					
Laterally						
Posteriorly						
Medially	✓					
Inferiorly						
Nipple not in profile						
Skin fold						
Pectoralis not down to PNL						
Tissue droopy (camel nose)						
Narrow/concave pectoralis						
Inframammary fold						
Not open						
Not shown						
Centering not correct	✓					
Technical Issues						
Not enough compression	✓					
Exposure Too Low (Excessive Noise)						
Exposure Too High (Image Saturation)						
Patient Motion						
Artifacts	✓					
Incorrect Patient ID						
Other						

Additional Images Needed for Complete Breast Evaluation

Requested views RCC LCC RMLO LMLO Other View

Action Limits

Recommended: Patients should be called back for additional images if the quality is suboptimal according to the interpreting radiologist's request.
Timeframe: Not applicable.

Note: This test and form may be useful in meeting the FDA EQUIP requirement.

Optional - System QC for Radiologist

(For Quality Improvement)

As Needed

Facility Breast Center USA

MAP ID-Unit# (00000-00) 54321 - 01

Procedure	<p>This test is to be performed or supervised by the lead interpreting radiologist. The technologist should deliver this form to the radiologist, ensure correct completion, follow-up on any failures, and place the form into QC notebook.</p> <p>This test can be performed on the same workstation for multiple DM or CR units.</p> <p>Example: A radiologist can sit at one workstation and view the images for all the DM and/or CR units within a facility. The radiologist does not need to evaluate every monitor at every workstation.</p>
------------------	---

Objective

This test is for the Radiologist to perform an evaluation of the entire mammographic imaging chain with the focus being primarily on the detector and secondarily on the monitors. This test is not intended to evaluate technologist issues such as positioning, compression, etc.

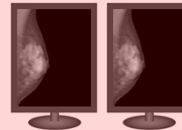
Procedure for Radiologist

Step 1: Complete the demographics:

Step 2: Pull up the recent mammographic study from the above listed DM unit and record ID & Study Date.

Step 3: Place the same MLO image on each monitor.

Room ID Room 1
 DM or CR Unit Mfr & Model Mfr A, Model 123
 Monitor ID Rad Workstation #1
 Radiologist Name Dr. Smith
 Date of Evaluation 12/25/16
 Image ID: 12345678
 Study Date: 12/22/16



Left Monitor Right Monitor

Step 4: Evaluate the images for artifacts and check the appropriate boxes.

For examples and more detailed descriptions, please see the Guide on Identifying Artifacts.

Step 5: If necessary, document any failures on the "Corrective Action Log" form and ensure items are resolved.

	Yes	No
<u>Comparing the monitors (or sides)</u> , do the background areas (outside of breast) appear different (darker or lighter, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there a difference in contrast between monitors/sides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the image contain excessive noise (not patient motion)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see ghosting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see "bad pixels" (singular or clusters) (white or black)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see white dots that could be from excessive dust?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see any <u>image</u> distortion (not architectural distortion)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see gridlines?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Do you see artifacts that could be due to image processing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do you see "line artifacts" (single or multiple pixels that form lines extending across image - horizontally or vertically)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are there any other artifacts that are present and clinically significant (impeding interpretation)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Action Limits

Recommended: If any box is checked "Yes", then seek service.
Timeframe: If an image quality problem or artifact impedes clinical interpretation, seek service before further imaging or interpretations are performed. If the artifact does not impede clinical interpretation, seek service within 30 days.

Corrective Action Log

Facility Breast Center USA MAP ID# (00000-00) 54321 - 01

Room or Equipment ID Room 4 Date 12/12/16

QC Test Name and # (if app): **Phantom Image Quality**

Description: Room 4 failed phantom image quality test. Artifacts seemed to be obstructing 2 fiber.
Room 4 is closed and not being used for patient imaging until this can be resolved.

Relevant Personnel Notified:	Personnel Name:	Date/Time of Call/Notification:
(Radiologist, MP, tech, manager, service engineer)	<u>Service</u>	<u>12-12-2016 @ 7:30am</u>
	<u>Manager</u>	<u>12-12-2016 @ 7:35am</u>
	<u>Medical Physicist</u>	<u>12-12-2016 @ 7:38am</u>

Describe Actions Taken: Service came, decided the detector needed to be replaced. Detector ordered and to be replaced on 12-14-2016.

Detector replaced on 12-14-2016. Medical physicist came and did complete testing. Tech performed all relevant weekly tests. System passed all physics and tech tests and is ready for clinical use.

Reports were obtained from service and medical physicist.

Confirmation of Resolution:	To Be			Tech Signature <u>Tech Signature</u>
	Yes	Monitored	NA	
Event resolved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Date <u>12/14/16</u>
Documentation from service engineer obtained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Facility Offsite Display Locations

Facility Breast Center USA **MAP ID# (00000)** 54321
Address Los Angeles, CA. 10001

Offsite Locations or Facilities Where Images are Interpreted for this Facility (list facility name, address, and MAP ID)

Location or Facility Name	Address	MAP ID
Breast Center #1	1123 Smith Road	12345
	Reston VA 12345	
Breast Clinic #2	9988 USA Street	23456
	Washington DC, 33344	
Outpatient Imaging Center #3	5678 Santa Fe Road	34567
	Santa Fe, NM 12345	

Facility Display Device QC Summary Checklist

Facility _____ **Breast Center #1** _____ **MAP ID# (00000)** 54321
Address _____ 1123 Smith Road
Address _____ Reston VA 12345

QC Summary information for display devices at this MAP ID

Physical Location at Facility/ ID Designation Device <small>(RW, film printer, viewbox)</small>	Read Rm 1	Read Rm 2	Laser Print 1	Viewbox 1	Viewbox 2				
	RW	RW	Film Printer	Viewbox	Viewbox				
	Manufacturer	Mfr A	Mfr A	Mfr B	Mfr C	Mfr C			
	Model	Model 22	Model 22	Model A1	Model 771	Model 771			
Jan	Date	1/2/2016	1/2/2016	1/25/2016	1-24-20016	1/14/2016			
	Tech Initials	TI	TI	JJ	LT	LT			
Feb	Date	2/21/2016	2/1/2016	2/15/2016	2/12/2016	2/24/2016			
	Tech Initials	TI	TI	JJ	LT	LT			
Mar	Date								
	Tech Initials								
Apr	Date								
	Tech Initials								
May	Date								
	Tech Initials								
Jun	Date								
	Tech Initials								
Jul	Date								
	Tech Initials								
Aug	Date								
	Tech Initials								
Sep	Date								
	Tech Initials								
Oct	Date								
	Tech Initials								
Nov	Date								
	Tech Initials								
Dec	Date								
	Tech Initials								
Medical Physicist Survey Date		2/22/16	2/22/16	2/22/16	2/22/16	2/22/16			
Medical Physicist Name(s)		MP	MP	MP	MP	MP			

Digital Mammography Unit QC Summary Checklist

Image Mode (2D, 2D w/Add-on DBT, DBT, All) All

Facility Breast Center USA Room ID Room 1

MAP ID# (00000-00) 54321 - 01 Unit Mfr & Model Manf AA Unit BB

Year	2018																							
Month	Jan		Feb		Mar		Apr		May		Jun													
ACR DM Phantom Image Quality (weekly)	4												AB											
CR Cassette Erasure, if app (weekly)	4												AB											
Compression Thickness Indicator (monthly)		12											AB											
Visual Checklist (monthly)		23											AB											
AW Monitor QC (monthly)		12											AB											
Compression (semiannual)	3-3-2018												AB											
Mfr Detector Calibration, if app	3												AB											
Overall (only need to complete once for the facility)																								
Facility QC Review (quarterly)																								
Repeat Analysis (optional - as needed)																								

Detector Calibration Freq: Bi-Monthly

Date and initial each test:

date
initial

Cross out boxes where mfr calibration test is not required:

X
X

And from the Medical Physicist.....

- Single 1-page summary form
- Single 1-page corrective action form (if necessary)
- Single 1-page reports for AW's & RW's
- Technique Chart
- Summary letter that goes directly to the Radiologist informing them of important physics testing results (image quality & dose).
 - Reason: We want the summary letter to be given to the LIP.
- Provide the Tech with a dedicated form with acquisition parameters for the ACR Phantom

Transitioning

Transition – **BIG PICTURE**

- In order to transition to the new manual, a mammo unit must have an annual physics survey – we'll call this the unit's **transition survey**.
- Once the mammo unit has its transition survey, it is now in the new QC program and Tech's can begin performing the new ACR DM QC tests.
- The mammo unit's transition survey starts the one-year clock on the display devices requiring their transition surveys.
- Until each display device has a transition survey, it must continue on its existing manufacturer's QC program.
- Upon having its (display device) transition survey, a display device is then in the new QC program and the Tech can begin performing the new ACR DM QC tests.
- Each display device needs to have its transition survey within a year of the mammo unit.
- After each transition survey by the Physicist (for either a unit or display device) the Technologists should begin the ACR DM QC Tests and this date should be noted in the QC books. At this time, Manufacturer QC may be stopped (as ACR QC will be performed going forward).

Transition – Practical Steps (recommendation)

- 1. Order/buy a phantom (*from and approved vendor*).
- 2. Organize a meeting with relevant Lead Techs, Facility Managers, Medical Physicists (MP), and Lead Interpreting Physician (LIP) to develop an implementation plan and schedule.
- **3. To begin, an MP must test a unit and/or display device using the ACR QC program BEFORE the Tech can start Tech QC.**
- 4. After the MP tests a unit and/or display device the tech must start ACR QC (and this date should be documented in the QC book).
- 5. The ACR does not need to be notified. This information will be reviewed by your MQSA Inspector during your annual inspection(s).
- 6. For display devices, it's the same process, MP tests using ACR QC, then, Techs follow with ACR QC.
- 7. After the first unit is tested by the MP, all display devices have 12 months to be tested using the ACR program. In the meantime, facilities should continue with Mfr QC for the displays.
- **8. BIG NOTE: The key to successful transition comes from the initial group meeting where you develop a schedule to make sure each unit and/or display device is having the proper QC methodology being performed (Mfr vs. ACR).**
 - There may be overlap where you're performing ACR on a unit before a display, or, where it's the display(s) that have been tested before all the units are tested. As long as you have one large DM phantom image acquired from MP testing on a single unit, you can use this phantom for display testing across multiple display devices.

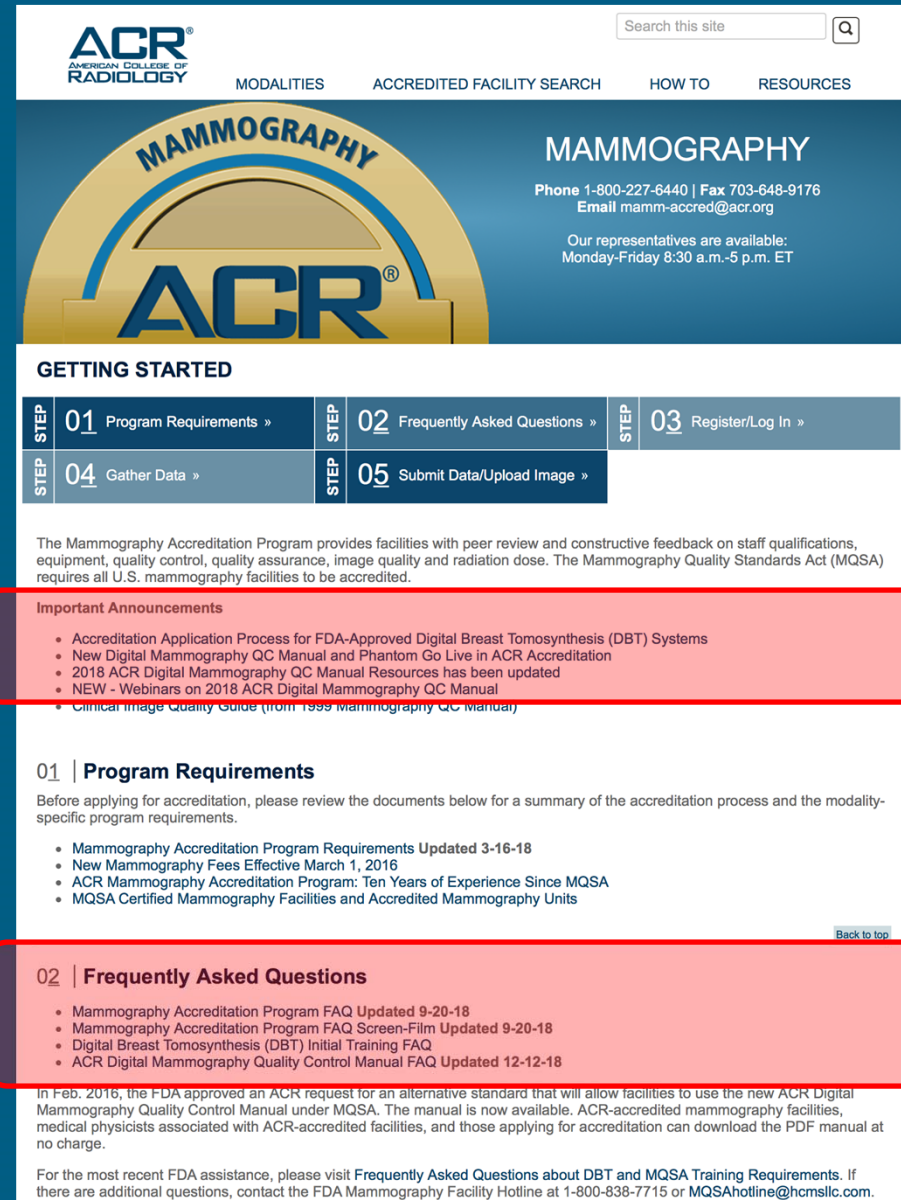
Transition – Practical Steps

- One way to transition (an example):
 - Have MP and Lead Tech(s) meet and train each other on how to perform and document correctly each test (on Units and display devices). This includes determining what kind of unit(s) you have (2D, DBT, Add-on DBT, etc) and which tests need to be performed. Once this is established, it will simplify everything.
 - Have Lead Tech, Manager, and LIP meet to review QC Tests and the new Quarterly QC Review Test. Orient the LIP to the tests and their overall responsibilities of Mammography QC for their facility.
 - Have Tech's start performing ACR QC on selected devices (Unit and RW) for, perhaps 1-3 months before MP does ACR Testing. This would mean you're running parallel Tech testing (Mfr & ACR). Note this is not that burdensome and worth the investment to ensure seamless transition.
 - At the end of Tech ACR QC trial period, have MP and Tech review the documented QC and ensure correct.
 - Have the MP test a Unit for ACR QC. Next day have Tech start (continue) ACR QC on this unit.
 - Document in the QC book the day ACR QC officially starts. (**Note** it must start with MP testing of a unit and/or display device.
- (**Note #2:** this may have to be scaled depending on how many units/RW's/facilities)

Resources

Resources

ACR Mammography Accreditation Website



The screenshot shows the ACR Mammography Accreditation website. At the top, there is a search bar and navigation links for MODALITIES, ACCREDITED FACILITY SEARCH, HOW TO, and RESOURCES. The main header features the ACR MAMMOGRAPHY logo and contact information: Phone 1-800-227-6440 | Fax 703-648-9176, Email mamm-accr@acr.org, and operating hours: Monday-Friday 8:30 a.m.-5 p.m. ET.

GETTING STARTED

STEP 01	Program Requirements »	STEP 02	Frequently Asked Questions »	STEP 03	Register/Log In »
STEP 04	Gather Data »	STEP 05	Submit Data/Upload Image »		

The Mammography Accreditation Program provides facilities with peer review and constructive feedback on staff qualifications, equipment, quality control, quality assurance, image quality and radiation dose. The Mammography Quality Standards Act (MQSA) requires all U.S. mammography facilities to be accredited.

Important Announcements

- Accreditation Application Process for FDA-Approved Digital Breast Tomosynthesis (DBT) Systems
- New Digital Mammography QC Manual and Phantom Go Live in ACR Accreditation
- 2018 ACR Digital Mammography QC Manual Resources has been updated
- NEW - Webinars on 2018 ACR Digital Mammography QC Manual
- Clinical Image Quality Guide (from 1999 mammography QC manual)

01 | Program Requirements

Before applying for accreditation, please review the documents below for a summary of the accreditation process and the modality-specific program requirements.

- Mammography Accreditation Program Requirements Updated 3-16-18
- New Mammography Fees Effective March 1, 2016
- ACR Mammography Accreditation Program: Ten Years of Experience Since MQSA
- MQSA Certified Mammography Facilities and Accredited Mammography Units

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02 | Frequently Asked Questions

- Mammography Accreditation Program FAQ Updated 9-20-18
- Mammography Accreditation Program FAQ Screen-Film Updated 9-20-18
- Digital Breast Tomosynthesis (DBT) Initial Training FAQ
- ACR Digital Mammography Quality Control Manual FAQ Updated 12-12-18

In Feb. 2016, the FDA approved an ACR request for an alternative standard that will allow facilities to use the new ACR Digital Mammography Quality Control Manual under MQSA. The manual is now available. ACR-accredited mammography facilities, medical physicists associated with ACR-accredited facilities, and those applying for accreditation can download the PDF manual at no charge.

For the most recent FDA assistance, please visit [Frequently Asked Questions about DBT and MQSA Training Requirements](#). If there are additional questions, contact the FDA Mammography Facility Hotline at 1-800-838-7715 or MQSAhotline@hcmsllc.com.

Resources

ACR Mammography Accreditation Website

03 | Register/Log In

First-time applicants for mammography accreditation: Use the link below to register with the online accreditation system.

Existing users: If you already have an account, please log in to access your facility records. If the login person has changed, please use the link below or contact mamm-accred@acr.org.

- Access the online accreditation system
Log in to ACRedit to apply for, update or renew your accreditation. Effective July 1, 2016, ACR will discontinue support for browsers that do not meet minimum requirements for transmitting sensitive data. After this date, only the following browsers will be supported:
 - Google Chrome (version 22+)
 - Firefox (version 27+)
 - Safari (version 5+)
 - Internet Explorer (version 10+)
- Change user login

Information for new mammography facilities:

- Introductory Memorandum
- VHA Mammography Facilities Letter

Submit the applicable medical physicist forms below with new or relocated units:

- MQSA Requirements for Mammography Equipment Checklist
- Medical Physicist Evaluation Forms

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04 | Gather Data

After we process your initial application, we will send you the following forms and testing materials. Facilities generally return the completed forms at the same time they submit their images for review.

Positioning Guidance

- Clinical Image Quality Guide (from 1999 Mammography QC Manual) New

Personnel Forms

- Radiologist Qualifications
- Medical Physicist Qualifications
- Radiologic Technologists Qualifications
- MQSA Personnel Requirements

Instructions

- Testing Instructions
- Testing Packet Checklist
- Test Image Data

Quality Control and Equipment Evaluation Forms

- Radiologic Technologist Quality Control Forms
- Medical Physicist Evaluation Forms

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05 | Submit Data/Upload Image

ACR Accreditation requires electronic upload of all accreditation images and documents. Electronic submission reduces costs, ensures compliance with HIPAA regulations and speeds turnaround time from image submission to final results.

- Instructions for Uploading Images Updated 10-19-18
- FAQ's Electronic Upload Updated 11-09-18

Resources

ACR Mammography Accreditation Website

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Search this site

MODALITIES ACCREDITED FACILITY SEARCH HOW TO RESOURCES

DIGITAL MAMMOGRAPHY QC MANUAL RESOURCES

ACR Digital Mammography QC Manual Resources

The 2018 ACR Digital Mammography Quality Control Manual is now available. This manual is intended to guide the development and implementation of your quality control program for digital mammography imaging equipment — including detailed responsibilities of the radiologist, technologist and medical physicist. [Purchase your copy now.](#)

In 2016, the Food and Drug Administration approved the ACR alternative standard request to allow mammography facilities to use the ACR Digital Mammography Quality Control Manual and Digital Mammography QC Phantom in routine QC of digital equipment. In 2018, the FDA approved the Digital Breast Tomosynthesis supplement, which has been integrated into the 2018 edition of the manual. Approval of this alternative standard and DBT supplement enables mammography QC technologists and medical physicists to use the new manual in lieu of manufacturers' quality control manuals.

The FDA specifies that the new manual may be used only for full-field digital mammography systems and systems with DBT (not for contrast enhancement systems). The new ACR manual will go into effect in November 2018 for facilities that choose to use it for QC.

A link to download the new manual at no charge was emailed to the facility and technologist contacts (the persons with the ACR Mammography Accreditation login information) at all ACR-accredited mammography facilities on November 19, 2018, with instructions to share the link with their colleagues at the facilities, including their medical physicists. If you did not receive yours, please contact mamm-accred@acr.org.

For more information, please see our [Frequently Asked Questions](#) or contact the ACR at DMQC@acr.org.

New Digital Mammography Manual and Phantom Go Live in ACR Accreditation

On November 19, 2018, the ACR will implement the 2018 ACR Digital Mammography Quality Control Manual within the accreditation process. Facilities who choose to use the 2018 ACR Digital Mammography Quality Control Manual may submit phantom images obtained with the ACR Digital Mammography Phantom and QC results using the new manual for accreditation of their 2D and DBT systems.

For more information, please see our [Frequently Asked Questions](#) or contact the ACR at 800-227-6440.

ACR Digital Mammography QC Manual

- [Purchase the Manual](#)
- [ACR Digital Mammography QC Manual FAQ — Updated 12/12/18](#)
- [ACR Digital Mammography Phantom Scoring Key](#)

Digital Mammography Quality Control Test Forms

- [Radiologic Technologist Forms \(Excel\) — Updated 11/19/18](#)
- [Medical Physicist Forms \(Excel\) — Updated 11/19/18](#)

ACR Digital Mammography QC Manual Webinars

Webinars for 2019 — register now!

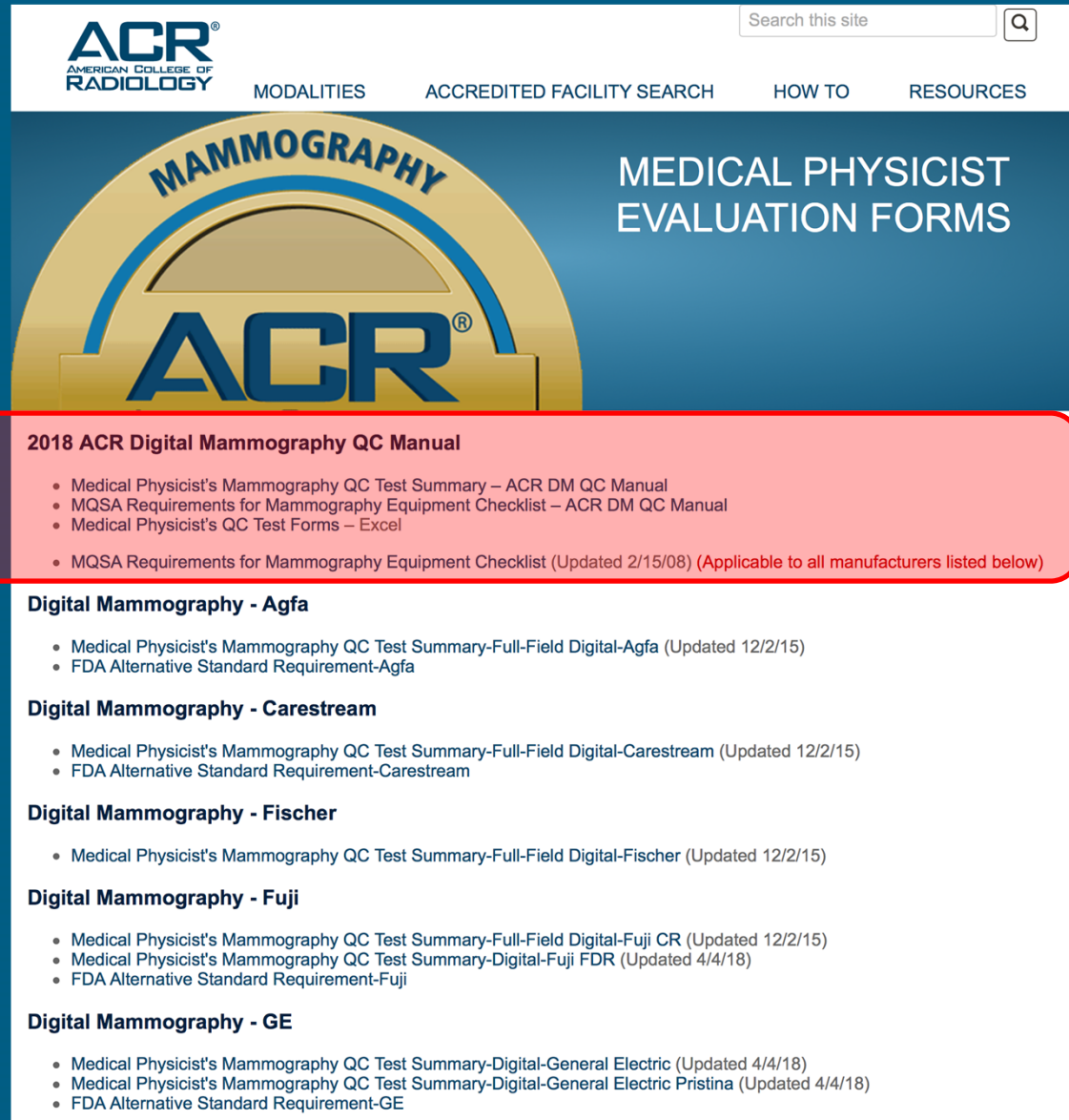
- [ACR Digital Mammography QC Manual Webinar for Technologists](#)
Friday, January 18, 2-3pm EST
[Registration link for Technologist Webinar »](#)
- [ACR Digital Mammography QC Manual Webinar for Medical Physicists](#)
Friday, January 25, 12-1pm EST
[Registration link for Medical Physicist Webinar »](#)

Approved ACR Digital Mammography Phantoms — approved for 2D and DBT

- CIRS
- Gammex
- Pro-Project
- RaySafe
- Supertech

Resources

ACR Mammography Accreditation Website



The screenshot shows the ACR Mammography Accreditation Website. At the top, there is a search bar and navigation links for MODALITIES, ACCREDITED FACILITY SEARCH, HOW TO, and RESOURCES. The main header features the ACR logo and the text "MAMMOGRAPHY" and "MEDICAL PHYSICIST EVALUATION FORMS". A red box highlights the "2018 ACR Digital Mammography QC Manual" section, which includes a list of resources. Below this, there are sections for "Digital Mammography - Agfa", "Digital Mammography - Carestream", "Digital Mammography - Fischer", "Digital Mammography - Fuji", and "Digital Mammography - GE", each with a list of resources.

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Search this site

MODALITIES ACCREDITED FACILITY SEARCH HOW TO RESOURCES

MAMMOGRAPHY

MEDICAL PHYSICIST EVALUATION FORMS

2018 ACR Digital Mammography QC Manual

- Medical Physicist's Mammography QC Test Summary – ACR DM QC Manual
- MQSA Requirements for Mammography Equipment Checklist – ACR DM QC Manual
- Medical Physicist's QC Test Forms – Excel
- MQSA Requirements for Mammography Equipment Checklist (Updated 2/15/08) (Applicable to all manufacturers listed below)

Digital Mammography - Agfa

- Medical Physicist's Mammography QC Test Summary-Full-Field Digital-Agfa (Updated 12/2/15)
- FDA Alternative Standard Requirement-Agfa

Digital Mammography - Carestream

- Medical Physicist's Mammography QC Test Summary-Full-Field Digital-Carestream (Updated 12/2/15)
- FDA Alternative Standard Requirement-Carestream

Digital Mammography - Fischer

- Medical Physicist's Mammography QC Test Summary-Full-Field Digital-Fischer (Updated 12/2/15)

Digital Mammography - Fuji

- Medical Physicist's Mammography QC Test Summary-Full-Field Digital-Fuji CR (Updated 12/2/15)
- Medical Physicist's Mammography QC Test Summary-Digital-Fuji FDR (Updated 4/4/18)
- FDA Alternative Standard Requirement-Fuji

Digital Mammography - GE

- Medical Physicist's Mammography QC Test Summary-Digital-General Electric (Updated 4/4/18)
- Medical Physicist's Mammography QC Test Summary-Digital-General Electric Pristina (Updated 4/4/18)
- FDA Alternative Standard Requirement-GE

Resources:

- The QC Manual itself
- The ACR Mammography Accreditation Website
 - In particular, the FAQ's contain all the latest information that are most helpful to facilities
- Training Webinars
- Your Medical Physicist
- Call the ACR!

Why should we switch?

- Question: is it worth switching to the ACR Digital Mammography QC Program.
- Answer: Yes, for reasons such as ease of learning, ease of documentation, less tests, less time need for performing the tests, no baselines, no calculations, better forms, better handling of offsite equipment, better handling of multi-facility situations, better phantom, and... most importantly, an overall superior program that focuses on quality while respecting the time and resources of mammography facilities.

And now, the ACR Staff

If we don't get to your question, send them via email to dmqc@acr.org and we'll respond ASAP.