Mammography Quality Control

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Repeat Analysis

Make sure you divide each category into the total number of repeats, *not rejects or total films*.

To calculate % of repeats: #films/total repeats x 100%

Sum of all percentages should equal 100.

Screen Contact

Required semi-annual.

Must be done when new screens are placed into service.

Must account for ALL screens in the facility, no matter how many units are present.

When a screen is removed, immediately document in the log, so it is not forgotten months later… “has anyone seen screen #6 ? ”

Darkroom Cleanliness

A clean darkroom will result in fewer artifacts and reduce the effort required for cleaning the cassettes and screens.

The darkroom ceiling should be constructed of a solid material.

Storage shelves should not be located over the darkroom countertop.

Consider purchasing an ultraviolet light to view dust in your darkroom

Screen Cleanliness

Required weekly, but wet cleaning can be performed less often if using a brush or canned air

Screens should be cleaned more frequently when artifacts are noted on clinical images

Make sure screens dry completely and look for faint stains on the actual screen

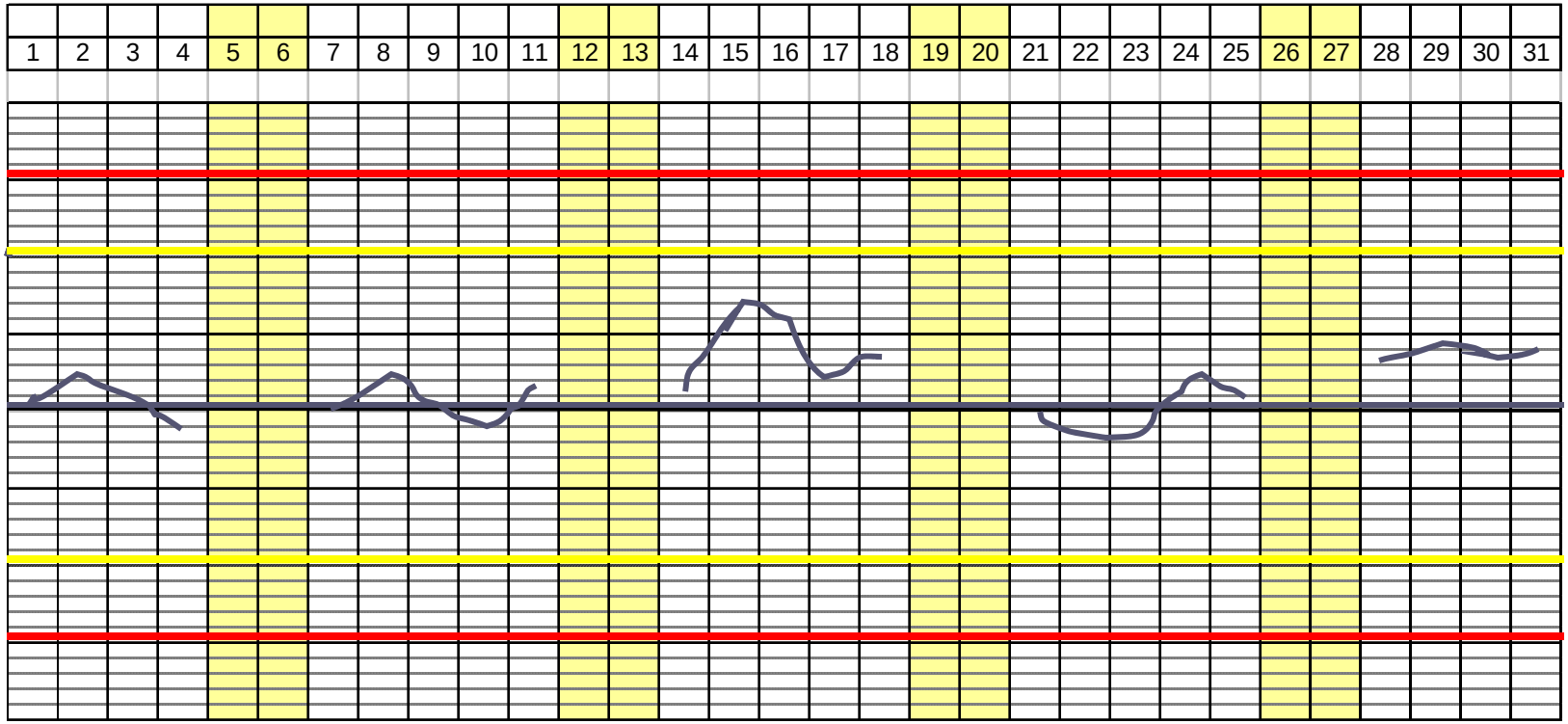
Screen Cleanliness

Most common Artifacts found on screens?

STAINS: Make sure screens dry completely before loading next film. Once emulsion has stained screen, it cannot be removed. Simulates a mass!!

SCRATCHES: Watch those nails and rings. Once scratched, screen cannot be repaired.

Processor QC Chart

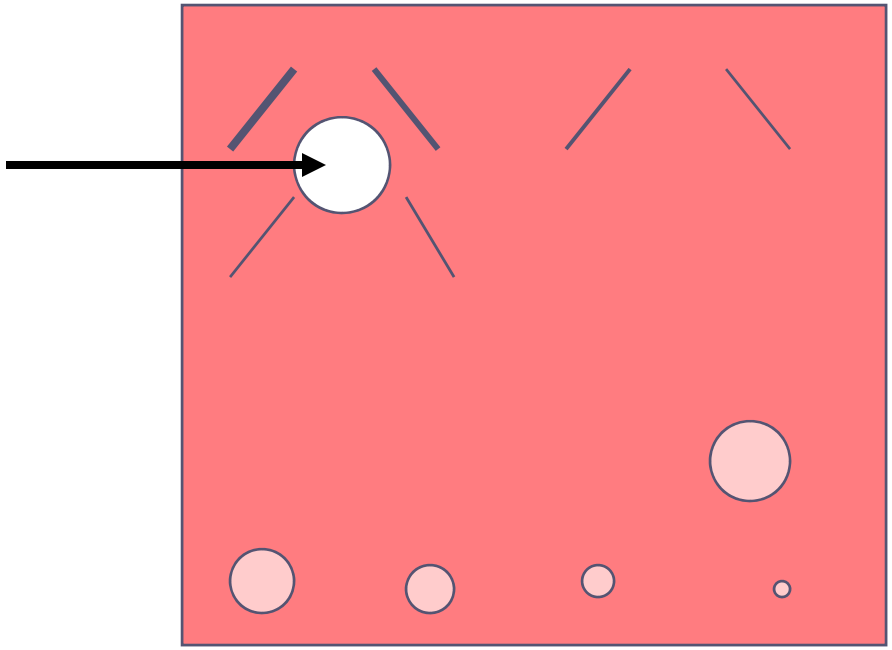


Phantom Images

Objective – To assure the film density, contrast, uniformity and image quality due to the X-ray imaging system and film processor are maintained at optimum levels.

Frequency – Tested at least weekly and after service to any equipment, film or screen changes or image quality changes.

The mammography accreditation phantom



Recommended optical disk location

The mammography accreditation phantom

Gluing the acrylic disc to the phantom is not recommended

Using a permanent marker, place a dot on the appropriate disc location

Do not store the phantom where it will be exposed to excess heat

Each site should have its own phantom

Phantom Images

Designate a cassette to be used for phantom images

Clinical film should be used for phantom images

Align the phantom along the chest wall edge of the image receptor

Lower the compression paddle so it just touches the top of the phantom

Center the photocell under the wax insert and make an exposure *using the same settings used clinically.*

Phantom Images

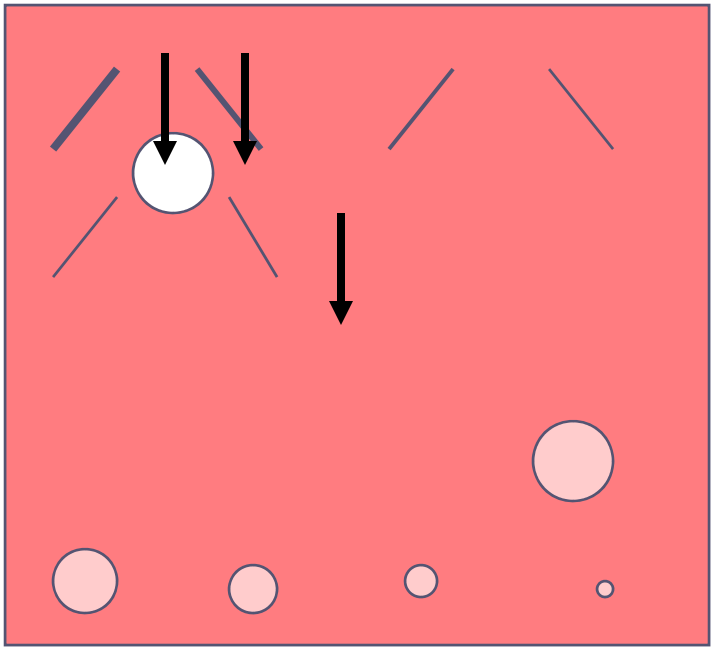
Be sure to note all of your phantom image parameters including:

Photocell location

Compression paddle location

Each variable can have an effect on your phantom image

The mammography accreditation phantom



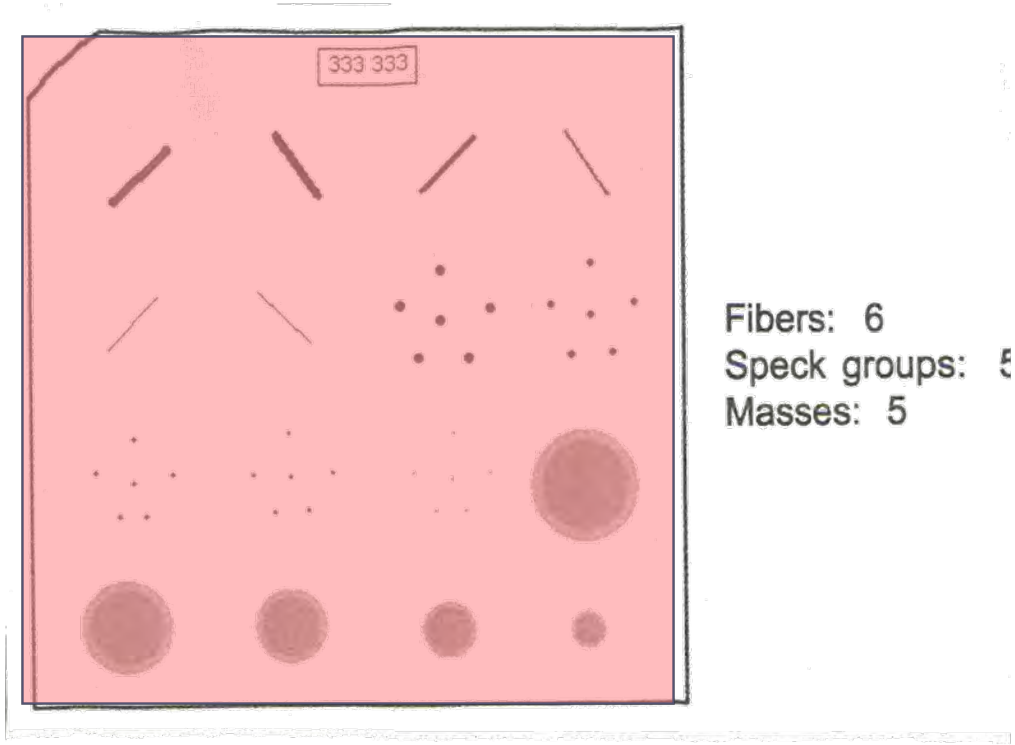
Points where density measurements should be made

mAs Readout

Record the mAs readout on the phantom control chart

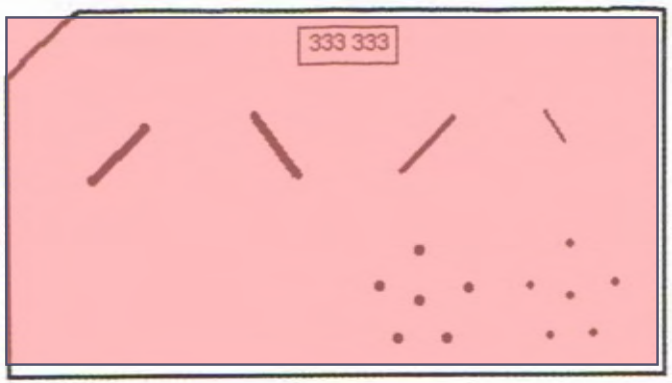
Some units will vary the kVp from week to week. How do you plot this?

Scoring the Phantom



Phantom images should be viewed under optimal viewing conditions

Scoring the Fibers

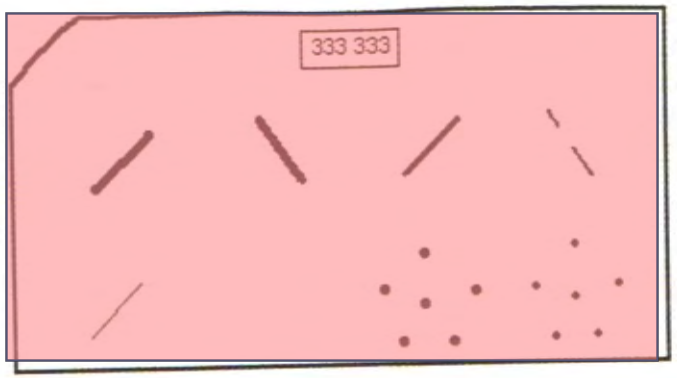


Fibers: 3.5
(not all but at least half of the 4th fiber is visible)

Fibers: 4.0 (4.5 – 0.5)
(the fiber-like artifact between the 1st and 2nd fiber must be subtracted from the last real fiber scored)

Scoring the Fibers

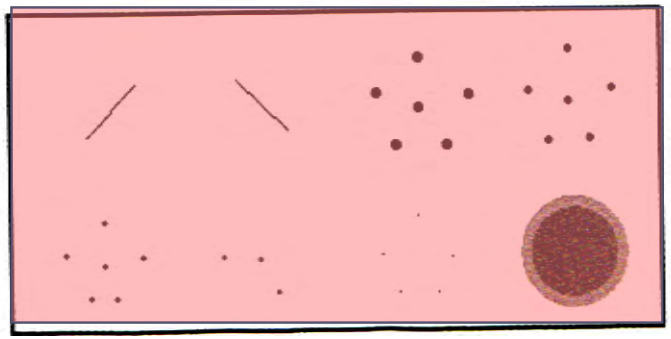
Fibers: 5.0 (6.0 – 1.0)
(the fiber-like artifact above the 6th fiber must be subtracted from the last real fiber scored)



Fibers: 3.5
(the entire, unbroken length of the 4th fiber is not visible)

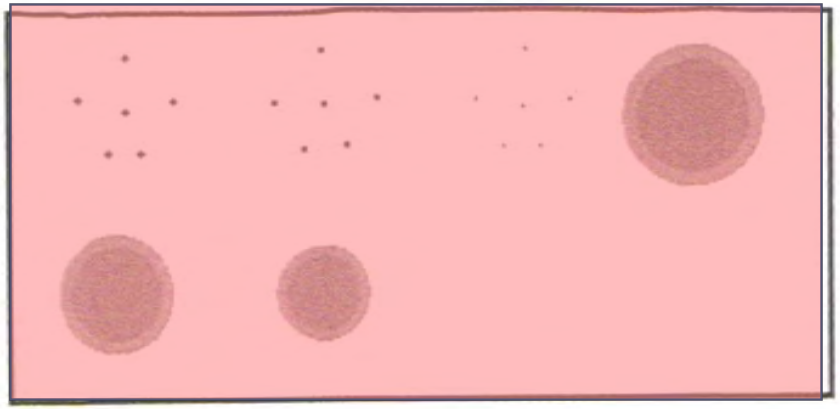
Scoring the Specks

Speck groups: 3.5
(only 3 specks in the 4th speck group are visible)



Speck groups: 3.5
(although 5 specks in the 5th speck group are visible, only 3 are visible in the 4th group)

Scoring the Masses

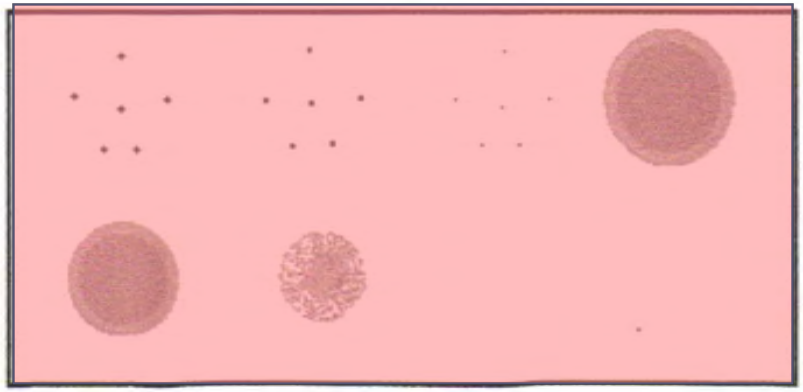


Masses: 3.0

Masses: 3.5
(greater than 3/4 of the round perimeter should be visible for a full point)

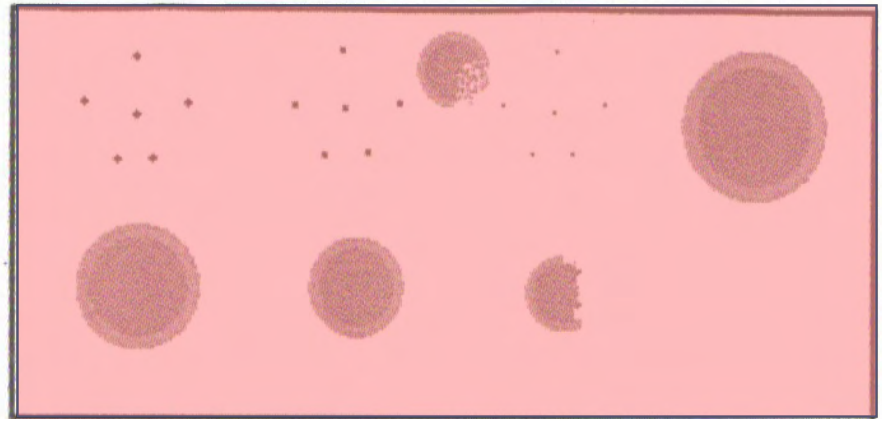
Scoring the Masses

Masses: 4.0
(the 4th mass is given a full point in spite of the linear artifact since it is still generally circular)



Masses: 3.0
(although the 3rd mass has less contrast, it is still generally circular and is given a full point)

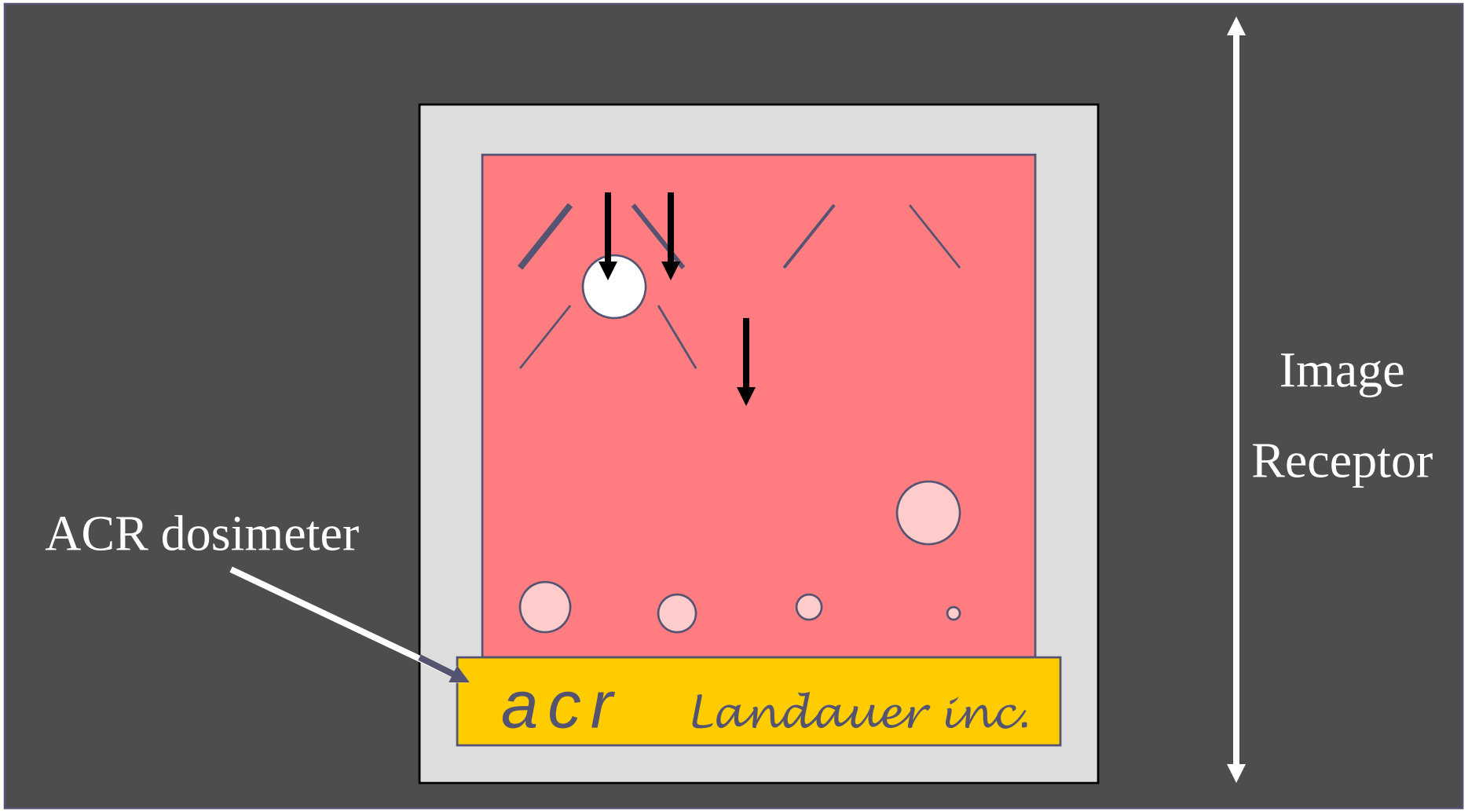
Scoring the Masses



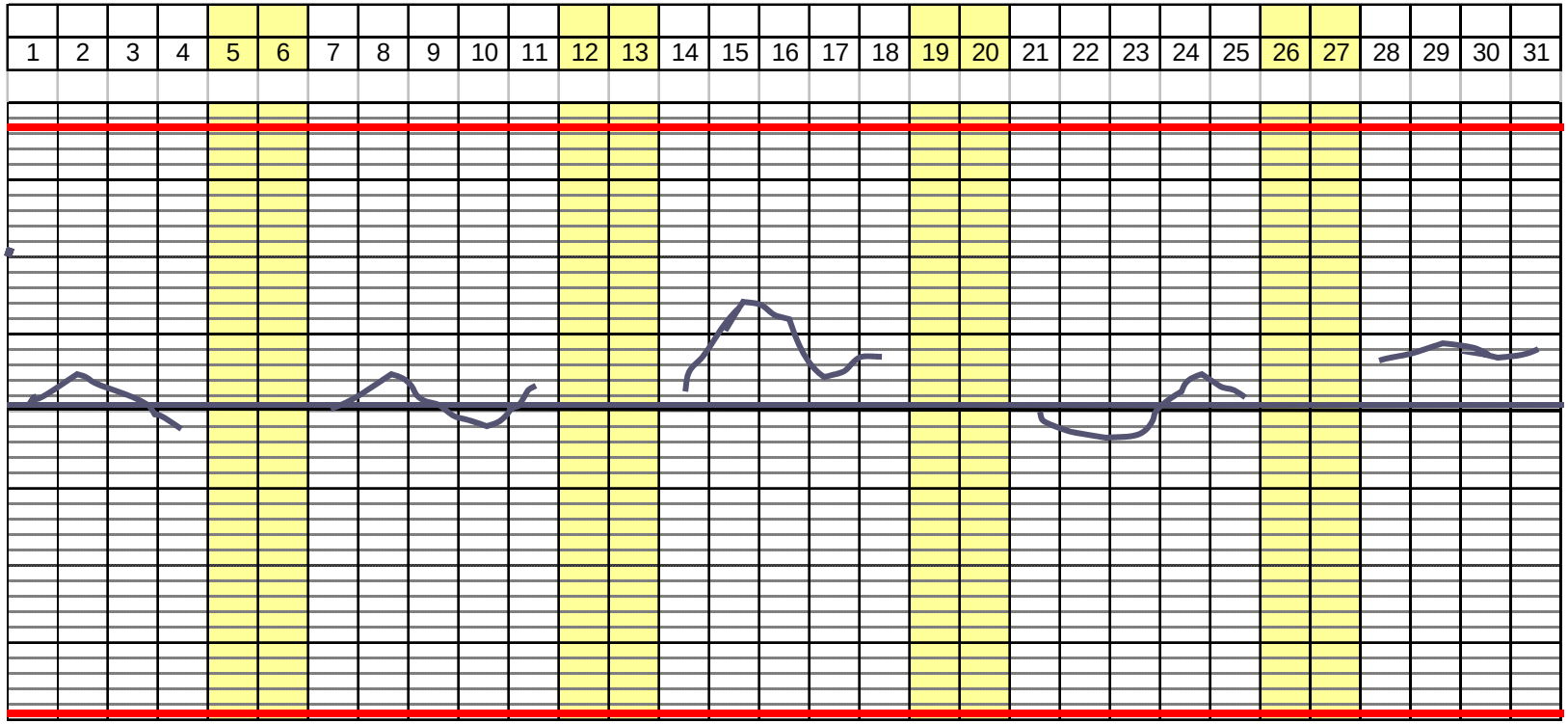
Masses: 3.0 (3.5 – 0.5)
(the mass-like artifact between the 4th and 5th speck groups must be subtracted from the last real mass scored)

Masses: 2.5
(the 3rd mass is of less contrast and is not generally circular)

ACR phantom image setup



Phantom QC Chart



The QC binder

Keep your records organized and neat

Organized records are indicative of an organized program!

Walter L. Robinson & Associates

1492 N. Red Maple Way
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1-800-446-7622

Helpful websites:

www.acr.org
www.fda.gov

Questions?

Thank You