

MODEL L-777 AND L-777-MINI CR/DR TEST TOOL

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Ludlum
Medical Physics

501 Oak Street • P.O. Box 810
Sweetwater, Texas 79556
325-235-5494 • Fax: 325-235-4672
www.medphys.ludlums.com

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Table of Contents

<i>Overview</i>	<i>1</i>
<i>Specifications</i>	<i>1</i>
<i>General Procedure</i>	<i>3</i>
<i>Printed Film Results Evaluation</i>	<i>3</i>
<i>Soft-Copy Display Image Results</i>	<i>4</i>
<i>Target Specifications</i>	<i>6</i>

Overview

The Model L-777 and L-777-Mini Ludlum CR/DR Test Tool are designed for the evaluation of the newer filmless digital CR (Computed Radiography) and DR (Digital Radiography) imaging systems.

The CR/DR test tool incorporates a variety of testing parameters that, when used daily, tracks geometry (region of interest) symmetry, line-pair resolution, as well as high contrast performance. In the center of the phantom is a 20-line-per-inch wire mesh pattern for quick visual evaluation of the system resolution. Measurements of the various targets allow for evaluation of both the monitor and printed film image. The CR/DR tool will become a valuable asset to the QA technologist and the medical physicist when trying to determine the source of the image quality problem or complaint.

The large 14 x 17 in. size makes it ideal for quick checks on automated chest systems. The smaller “mini” version can be used for a variety of DR applications.

Specifications

Dimensions:

Model L-777: 35.6 x 17.8 x 1.3 cm (14 x 7 x 0.5 in.) (W x H x D)

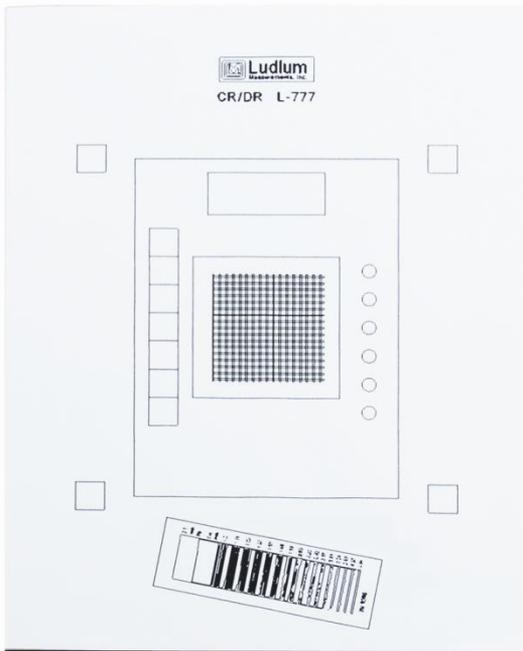
Model L-777 Mini: 30.5 x 25.4 x 0.95 cm (12 x 10 x 0.38 in.) (W x H x D)

Weight:

Model L-777: 3.2 kg (7 lb)

Model L-777 Mini: 1.4 kg (3 lb)

Converging line-pair test pattern.



General Procedure

1. Place the CD/DR test tool on the imaging surface of the X-ray table (or wall Bucky).
2. Select the proper SID and exposure factors (typically 10 mAs and 72 kVp). Be sure to use the same distance and technique factors for each subsequent test.
3. The initial use of the phantom will require the user to find the correct mA and kVp that will be used on each exposure to produce an optimal density and contrast.
4. After the exposure of the test tool, take the CR/DR plate and select the anatomical region (post processing) technique that will allow you to see the six-step wedge (test objects). Typically, this will be the abdomen processing, but may vary with manufacturer.

Printed Film Results Evaluation

1. The contrast step wedges, line-pair resolution phantom, and the four linearity squares should be visible.
2. Note the line-pair number for future comparison and trend analysis.
3. Take densities and record on the step wedges.
4. The density of the four linearity squares should be equal.

5. Take a density reading in the free (D-max) area and compare to future exposures.
6. Print a copy of the image for the QA record. The printed image should be an exact image of what you see on the monitor. The various linearity and low and high-contrast targets should be visible, and the line-pair resolution should be the same. Report significant variances to the appropriate service personnel.

Soft-Copy Display Image Results from CR or DR Systems

1. Slight adjustment of the window/level may be necessary to visualize the step wedge and low-contrast (disc) objects on the monitor. Record the values when satisfactory.
2. If the low-contrast objects are not visualized, the mA can be adjusted slightly to compensate. Be sure to stay within the manufacturer's recommended exposure range index.
3. Note the line-pair number for future comparison and trend analysis.
4. ROIs (Regions of Interest) can be taken and recorded and compared to future exposures. Specifically, the four linearity squares should be equal in density.
5. Take an ROI reading in the free (D-max) area to compare to future exposures.

6. Print a copy of the image for the QA record. The printed image should be an exact image of what you see on the monitor. The various linearity and low and high-contrast targets should be visualized, and the line-pair resolution should be the same.

Model L-777 Target Specifications

