Hologic’s R2 ImageChecker CAD (computer-aided detection) software enhances review of screen-film mammography. Much like the spell-checker on your personal computer, ImageChecker CAD identifies potential regions-of-interest on screen-film mammograms and brings them to the attention of the radiologist.

R2 ImageChecker CAD was the first FDA approved computer-aided detection system for mammography and has always led the market by consistently delivering the best detection performance available. Being a pioneer in this technology allows us to leverage a formidable and growing database of clinical cases to effectively identify masses, architectural distortions, and microcalcifications in a diverse screening population. In fact, prospective studies\(^1,2,3,4\) have shown that ImageChecker CAD improves detection performance without an undue increase in workup rates.

Getting started with ImageChecker

Screen-film CAD begins with digitizing each film for analysis. Hologic provides a choice of film scanning platforms for every clinical scenario. In addition, many existing Hologic R2 film scanning systems can be upgraded with the latest ImageChecker CAD software. Digitized images are analyzed using highly refined algorithms based on thousands of clinical cases. When the analysis is complete, results are sent to Hologic R2 CAD display systems for review by the radiologist.

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1 Cupples, T. Impact of Computer-Aided Detection in a Regional Screening Mammography Program, AJR:185, October 2005
ImageChecker CAD 8.7 Specifications

The following graphs show plots of algorithm sensitivity vs false-mark rate based on cases with the four standard screening views, with data points for each of the three operating points.

![Graphs showing algorithm sensitivity vs false-mark rate](image)

### Operating Points

<table>
<thead>
<tr>
<th></th>
<th>Calcifications</th>
<th>Masses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>95% 96% 97%</td>
<td>83% 88% 90%</td>
</tr>
<tr>
<td>False Marks</td>
<td>0.36 0.48 0.64</td>
<td>0.68 1.0 1.4</td>
</tr>
</tbody>
</table>

### Operating Point Combinations

<table>
<thead>
<tr>
<th>Mass/Calc</th>
<th>0/0</th>
<th>1/1</th>
<th>2/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case specificity</td>
<td>48%</td>
<td>35%</td>
<td>24%</td>
</tr>
</tbody>
</table>

### Extended Features:

- **RightOn CAD Marks**: Assorted shaped markers indicate the type of detected finding
- **Citra Core**: EmphaSize marks are scaled according to the prominence of features
- **PeerView**: Provides anatomic outline of detected tissue

### Features:

- **Calcification detection**: Included
- **Mass detection**: Included
- **Architectural distortion detection**: Marked as masses
- **Mass with Calcification (Malc™) detection**: Included
- **Anatomic correlation**: Included
- **Number of operating points for masses and calcs**: 9 combinations
  - 3 calc X 3 mass
- **Choice of output**
  - R2 CheckMate Ultra (optional)
  - Postscript printer (optional)

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1 Data based on 1,365 biopsy proven breast cancers (767 mass and 588 calcification cases)
2 Data based on 445 four-view normal cases
3 Four film normal cases with no markers