Thorlabs offers positive and negative resolution test targets that are made from plating chrome on a soda lime glass substrate and measure either 3” x 1” or 3” x 3”. A set of six elements (horizontal and vertical line pair) are in one group and ten groups compose the resolution chart. The spacing between the lines in each element is equal to the thickness of the line itself. When the target is imaged, the resolution of an imaging system can be determined by viewing the clarity of the horizontal and vertical lines. The largest set of non-distinguishable horizontal and vertical lines determines the resolving power of the imaging system.

The 3” x 3” targets have 10 groups (-2 to +7), with 6 elements per group to offer resolution from 0.250 line pairs per mm (lp/mm) to 228.0 lp/mm. On the other hand, the 3” x 1” wheel pattern targets have 9 USAF 1951 targets, each with 6 groups (+2 to +7) to also offer a maximum resolution of 228.0 lp/mm with a minimum of 4.00 lp/mm.

### 1951 USAF Resolution Targets

**Features**
- Determine Resolution of an Optical System
- 3” x 1” Wheel Pattern Targets for Measuring Resolution Across Image
- 3” x 3” Targets Offer up to 4.4 µm per Line Pair Resolution
- Conforms to MIL-S-150A Standard
- Positive and Negative Patterns Available

**USD 1951 Targets**

<table>
<thead>
<tr>
<th>Element Number</th>
<th>Group Number</th>
<th>Resolution</th>
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<tbody>
<tr>
<td>1</td>
<td>-2</td>
<td>0.250</td>
</tr>
<tr>
<td>2</td>
<td>-1</td>
<td>0.500</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>1.000</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>2.000</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>4.000</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>8.000</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>16.000</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>32.000</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>64.000</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
<td>128.000</td>
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</table>

**NBS 1963A Resolution Targets**

**USD 1963A Targets**

<table>
<thead>
<tr>
<th>Cycles/mm</th>
<th>Cycle Size</th>
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<tbody>
<tr>
<td>1.0</td>
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<tr>
<td>1.1</td>
<td>0.909 mm</td>
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<tr>
<td>1.25</td>
<td>0.800 mm</td>
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<tr>
<td>1.4</td>
<td>0.714 mm</td>
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<td>1.6</td>
<td>0.625 mm</td>
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<tr>
<td>1.8</td>
<td>0.556 mm</td>
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<tr>
<td>2.0</td>
<td>0.500 mm</td>
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<tr>
<td>2.2</td>
<td>0.455 mm</td>
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<tr>
<td>2.5</td>
<td>0.400 mm</td>
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<tr>
<td>2.8</td>
<td>0.357 mm</td>
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<tr>
<td>3.2</td>
<td>0.315 mm</td>
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<tr>
<td>3.6</td>
<td>0.278 mm</td>
</tr>
<tr>
<td>4.0</td>
<td>0.250 mm</td>
</tr>
</tbody>
</table>

Thorlabs offers positive and negative NBS 1963A resolution test targets that are made from plating chrome on a glass substrate and measure 2” x 2”. These targets have sets of 5 horizontal and 5 vertical lines. Each set of lines is labeled with a number, which refers to the number of cycles per mm. With a maximum frequency of 18 cycles/mm, the smallest cycles are only 0.056 mm. The minimum frequency is 1.0 cycle/mm.

**USD 1963A Targets**

<table>
<thead>
<tr>
<th>Item #</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
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<tbody>
<tr>
<td>R2L2S1N</td>
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<td>€104.40</td>
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