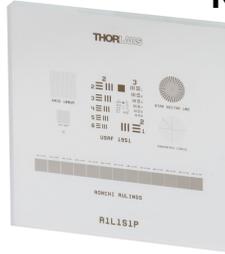
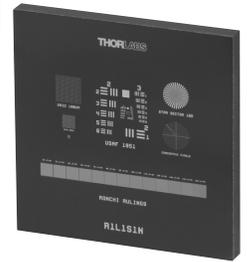


R1L1S1P



R1L1S1N



### Description

The R1L1S1P and R1L1S1N test targets are designed for calibration of imaging systems and microscope stages. They have five different patterns: grids, 1951 USAF, star sector, concentric circles, and variable frequency Ronchi rulings. The R1L1S1P positive pattern is recommended for quality control of microscopes and magnifiers. The R1L1S1N negative pattern is ideal for collimators and other illuminated test equipment.

The Grid arrays are used to determine the distortion of an imaging system as the horizontal and vertical lines of the grid should be perpendicular to each other. A distorted image will show the lines as bowed; this image can then be used to correct for distortion. The 1951 USAF is used to determine the resolution of an imaging system. The star sector and concentric circles are ideal for identifying focus errors, astigmatism, and other aberrations existing in an imaging system. Variable frequency Ronchi Rulings are excellent for evaluating resolution, field distortion, and parfocal stability.

The reticle is patterned on soda lime glass with O.D.>3, low reflectivity vacuum sputtered chrome. The Low Reflection Chrome can be used with front lighting, without creating highlights that degrade the image of the target.

### Test Targets

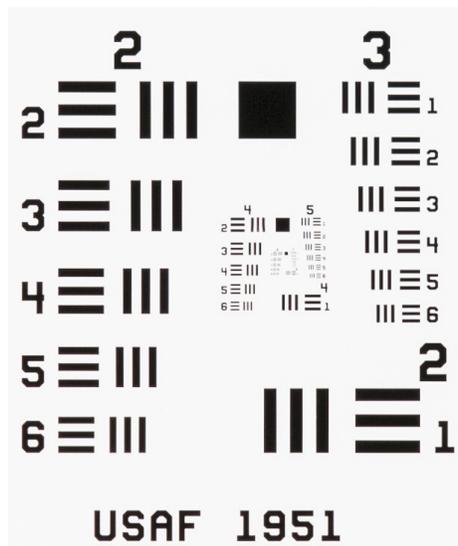
#### Grid Patterns

The grid pattern contains a 10  $\mu\text{m}$  grid, 50  $\mu\text{m}$  grid, and 100  $\mu\text{m}$  grid. The 10  $\mu\text{m}$  grid is a 20x20 array with 1.5  $\mu\text{m}$  wide lines and 10  $\mu\text{m}$  pitch in the x and y directions. The 50  $\mu\text{m}$  grid is a 20x20 array with 5  $\mu\text{m}$  wide lines and 50  $\mu\text{m}$  pitch in the x and y directions. The 100  $\mu\text{m}$  grid is a 20x20 array with 5  $\mu\text{m}$  wide lines and a 100  $\mu\text{m}$  pitch in the x and y directions.



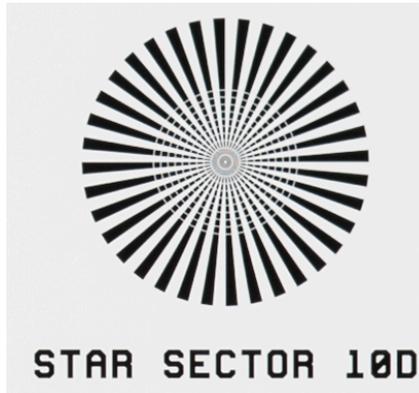
#### USAF 1951 Target

The standard USAF 1951 target has groups 2 - 7 for measuring resolutions from 4 to 227 lines per millimeter.



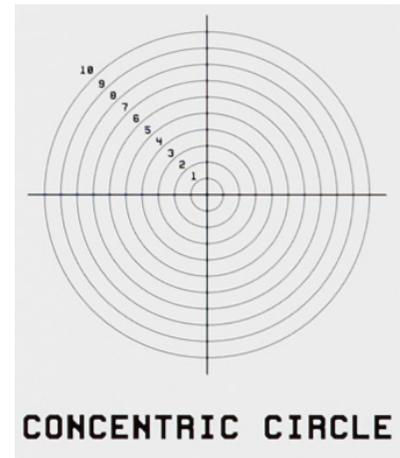
## Star Sector

The star sector consists of 36 equal bars at 10° intervals. The star diameter is 2 mm. In the center, there is a 10 μm radius clear hole. There are 10 clear concentric circles with radii: 50 μm, 100 μm, 150 μm, 200 μm, 250 μm, 300 μm, 350 μm, 400 μm, 450 μm and 500 μm on the chrome bars.



## Concentric Circles

The concentric circles consist of 10 circles with cross lines in the center. The circles' radii are 100 μm, 200 μm, 300 μm, 400 μm, 500 μm, 600 μm, 700 μm, 800 μm, 900 μm and 1000 μm. The arc line width is 5 μm. The circles are labeled by numbers from 1 to 10.



## Ronchi Rulings

These variable frequency gratings consist of thirteen 1 mm square individual Ronchi Rulings. Each individual Ronchi ruling fills with same line width grating. The pitches vary from 30 lp/mm, up to 150 lp/mm in 10 lp/mm intervals.

