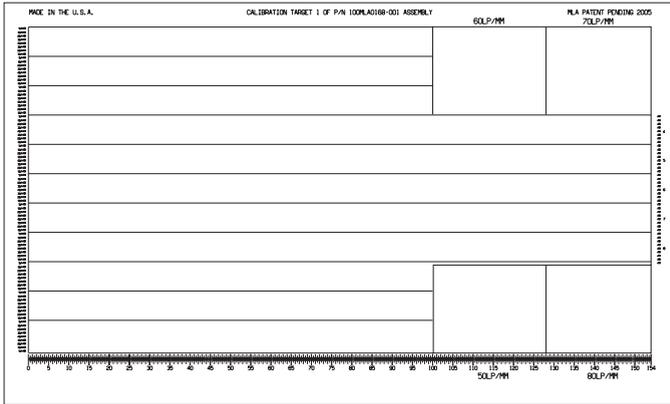


# Target 1



## List of Features

- 11 Groups of Variable Ronchi Rulings, each containing 5,10,20,30,40,30,20,10,5 LP/MM
- Overall ruling width of the pattern is 81.2 mm

### Fixed Frequency Ronchi Rulings

- 50 lp/mm
- 60 lp/mm
- 70 lp/mm
- 80 lp/mm

### Linear Scale, 154mm in length

- Line width .080mm
- End to end accuracy +.004mm / -.001mm
- Line to line accuracy  $\pm .0003$ mm

5LP/MM
10LP/MM
20LP/MM
30LP/MM
40LP/MM
30LP/MM
20LP/MM
10LP/MM
5LP/MM

**Variable Frequency Ronchi Ruling Pattern**

MAX LEVY AUTOGRAPH, INC.  
 PATENT PENDING 2006  
 700MLA0132-001  
 WWW.MAXLEVY.COM

**Multifunction Target**  
**Quick Reference Guide**  
 Stock Item # DA066, DA068, DA069

## Useful Formulas

Line width for a spatial frequency  $f$

$$W_L = \frac{1}{2 \cdot f}$$

Modulation Transfer Function(MTF)

$$M = \frac{L_{\max} - L_{\min}}{L_{\max} + L_{\min}}$$

where  $L_{\max}$  = Maximum intensity of the pattern at spatial frequency  $f$   
 $L_{\min}$  = Minimum intensity of the pattern at spatial frequency  $f$

Dep

$$L_I = |L_F - L_N|$$

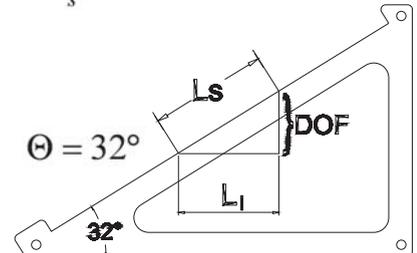
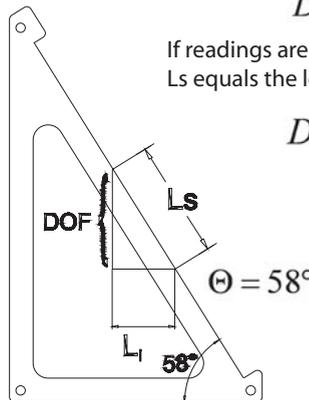
where  $L_I$  = In-Focus Distance  
 $L_F$  = Far Field Distance  
 $L_N$  = Near Field Distance

If readings are taken from a digital stage:

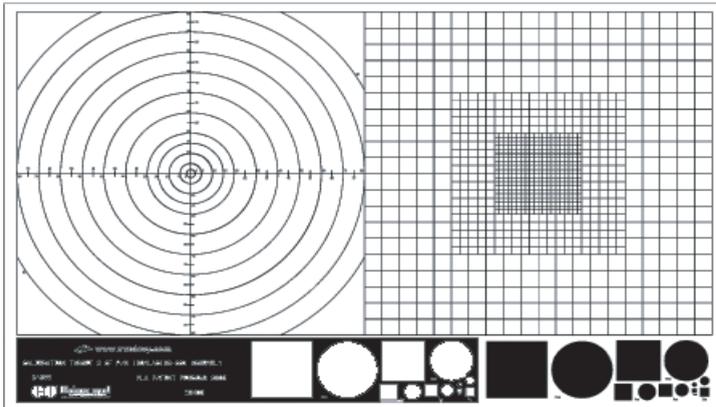
$$DOF = L_I \tan \Theta$$

If readings are taken directly from the scale, then  $L_s$  equals the length of the scale that is in focus and:

$$DOF = L_s \sin \Theta$$



## Target 2



### List of Features

#### Concentric Circles

- Diameters 2,5,10,15,20,30,40,50,60,70 mm
- Tick marks along axes at 2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80 mm
- Line width is .100mm for all circles and lines

#### Square Grid

- 20mm Square Grid, 1mm Increments
- 40mm Square Grid, 2mm Increments
- 80mm Square Grid, 4mm Increments
- All lines have width .100mm

#### Calibration Features/ Blooming /Lighting Setup

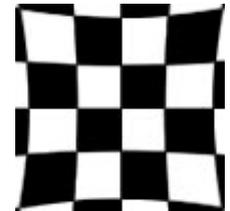
- Positive and Negative Circles and Squares with the following diameters:  
1, 2, 3, 4, 10, and 14mm

Multifunction Target  
Quick Reference Guide  
Stock Item # DA066, DA068, DA069

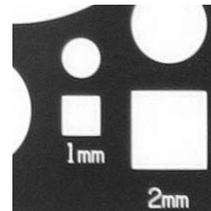
### Distortion Tests



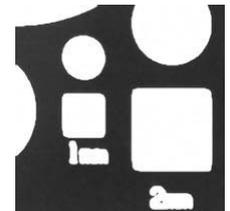
Barreling



Pincushioning



Correct  
Illumination



Blooming



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