



# 55282A Flatness Accessory Kit

## Data Sheet

### Flatness Measurement

The following specifications assume that the optional Agilent Dimensional Metrology Analysis System is used in conjunction with the Agilent 5529A Dynamic Calibrator system to gather, analyze and plot flatness calibration results and the temperature of all optical components is stabilized in the range 15° C to 25° C. Values do not include effects of surface cleanliness or operator positioning repeatability. Flatness measurements are a series of angular measurements made along a pattern of lines. These measurements document and analyze in three dimensions any flat surface, such as a surface plate or machine bed. Way straightness measurements are a series of angular measurements made in a single line to document and analyze the straightness of solid objects, such as machine tool ways and master straight edges.

### Range

Up to 15 m (50 ft)

### Flatness measurement Accuracy

±0.2% of displayed value

±7.9 nm (±0.3 μin) per meter of distance traveled by the moving optic

### Flatness measurement resolution (per step) Footspacing Dimension Resolution

50.8 mm (2 in)

0.03 micron (1.0 μin)

101.6 mm (4 in)

0.05 micron (2.0 μin)

152.4 mm (6 in)

0.08 micron (3.0 μin)

### Reference plane accuracy

The uncertainty of a surface plate flatness measurement is bounded by two parallel planes separated by the values below:

Metric units mode:  $0.03 M^2 \mu\text{m}$

English units mode:  $0.12 F^2 \mu\text{in}$ .

Where M = length of the surface diagonal in meters

F = length of the surface diagonal in feet.

### Lateral offset and flatness range

The combination of lateral offset and maximum flatness deviation must not displace the Reflector more than ±1.0 mm from the beam path in any direction.

### Way straightness accuracy

±0.2% of displayed value

±0.05 arc seconds per meter of distance travelled by the moving optics.



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