Confocal Uniformity Calculator

To calculate Confocal uniformity, please fill in the required information as much as possible.

1. Cathode Size/ Target Diameter: _____
2. Substrate Rotation, On or Off: _____
3. Target to Substrate Distance: _____
4. Target Tilt Angle: _____
5. Substrate Size/ Diameter: _____
6. Focal Point Offset: _____
7. Uniformity Requirement: _____
8. Any System Constraints: _____

As a general guide when laying out a confocal geometry, take the substrate size and divide it in two then round up to get the cathode size. Next, focus on the substrate radius, use 150mm source to substrate distance and a 30-degree angle. This will always get +/- 5% or better uniformity.

As an example, a 140mm substrate divided by two would be 70mm so use a 3-inch, (75mm) cathode focused at 70mm with a source to substrate distance of 150mm and a 30-degree angle, you will get +/- 3% uniformity. See below.

EXAMPLE:

Confocal Calculation Results — Angstrom Sciences, Inc.

Substrate Uniformity – Surface Plot

Legend:

☐ 0 to 3%	☐ -3 to 0%
☐ 3 to 6%	☐ -6 to -3%
☐ 6 to 9%	☐ -9 to -6%
☐ > 9%	☐ < -9%

Data "in-Spec" Range:

Radius "in-Spec":

Calculation Parameters:

Magnetron:	ONYX 3
Target-Substrate:	150 mm
Substrate Diameter:	140 mm
Tilt Angle:	30 deg.
Focal Point:	70 mm
Substrate Rotation:	ON
Uniformity Requirement:	+/- 3%

Save Results to File   **Return to Parameters**   **Exit Program**

Confocal Calculator Results are for reference only and is intended to
provide the user with a starting location for uniformity optimization. Each system
may have a slight change of cathode orientation in order to achieve the desired results.

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