

ReflectorCAD 1.5

Significant features added since Version 1.0

This technical publication describes features that were added to ReflectorCAD® 1.5 from Breault Research Organization (BRO). As with ReflectorCAD 1.0, this version supports construction and analysis of a segmented reflector, greatly reducing the time required from design to prototype. Primarily targeted for automotive applications, ReflectorCAD can be used anywhere segmented reflectors are required. It works well as a stand-alone application, in conjunction with ASAP for additional ray-tracing analysis, or for SAE compliance using the ELTM module in the Advanced Systems Analysis Program (ASAP®), also from BRO.

Import of IGES base surfaces

The IgesToBaseSurf utility translates geometry from an IGES file to a sampled base surface without the need for ASAP.

Positional output

The approximate output engine in ReflectorCAD quickly calculates positional output (illuminance), in addition to directional output (luminous intensity).

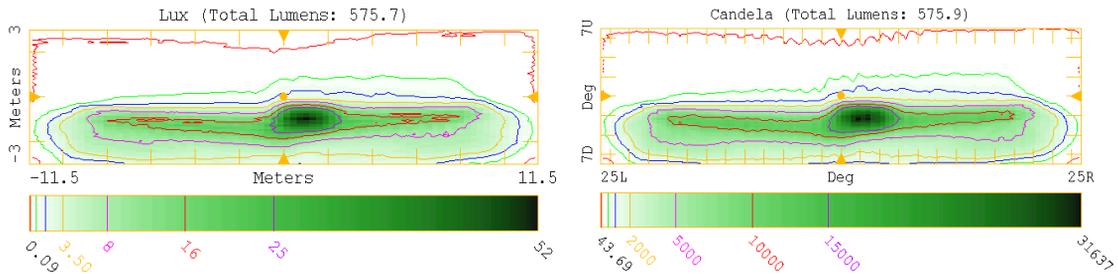


Figure 1 Positional and directional output (left to right) calculated by ReflectorCAD for the same reflector

Gradient measurement

Measurements of vertical gradients in the output are easily determined via a graph window. Multiple gradient definitions are supported. See Figure 2.

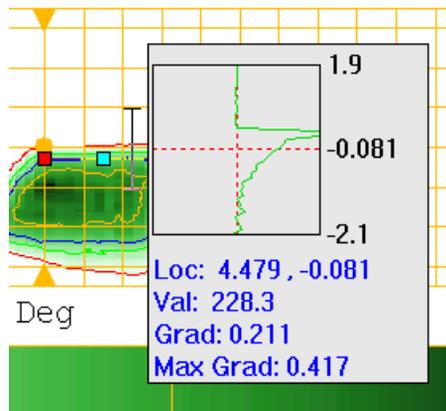


Figure 2 Pop-up graph window showing measurement of vertical gradient at a specific output location

Sources

Sources are faceted finely for improved output calculation accuracy. Approximately 85 sources are available.

Assigned source points

A segment can be assigned a specific source point. For example, a segment associated with the low beam of a headlamp can be assigned always to use the low beam source point when developed.

User-defined source points

Additional user-defined source points can be positioned, at filament ends for example, to improve segment performance. See Figure 3.

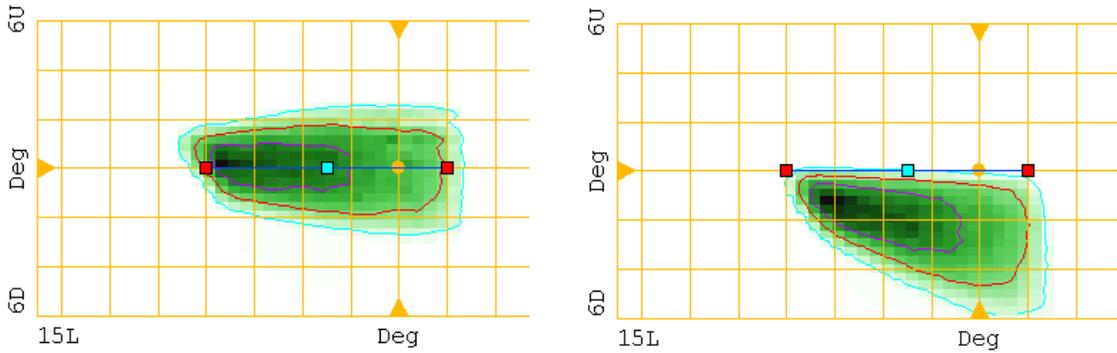


Figure 3 Effect of choosing a different source point for developing a segment. When the filament's center is used (left), the filament's size results in significant flux both above and below the aim line. If the filament's inner end is used instead (right), flux can be effectively kept below the aim line, because the segment is located above the filament.

Alternate segment developer

An alternate segment integration pattern provides more control over segment performance.

Improved built-in base surfaces

The conic section base surface can be shifted, allowing the focus to be at the origin. The “racetrack” shape provides a bounder.

Easier aim adjustments

All corners and edges of the aim region can be dragged immediately to a different position. The aim balance is easily distinguished from other aim region points.

3D Viewer support

The BRO 3D Viewer is included with ReflectorCAD. Similar to the 3D Viewer in ASAP, it includes such features as an object name tree and mouse-based object selection.

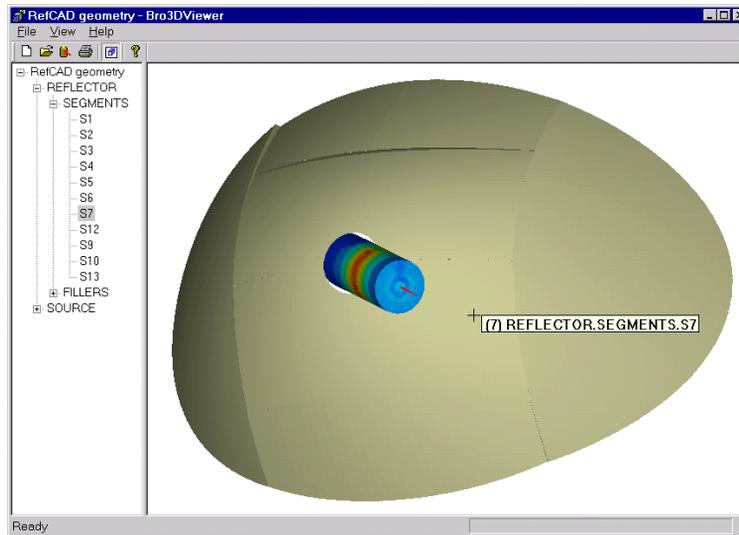


Figure 4 The BRO 3D Viewer has a tree-based hierarchical geometry list, and supports mouse-based object selection in the display pane

Source positions exported to IGES

All source positions can be exported to an IGES file along with the reflector geometry.

Configuration preferences

Many settings, including units, can be saved as defaults for new reflectors.

Quick tour

A quick tour is included in the documentation to highlight ReflectorCAD features.