

Dome resolution comparisons (For single and dual 2560x1600 resolution projectors)

The values shown below are only approximate, in particular, they ignore edge blending regions which serve to reduce the values shown. Noting that precise values are not meaningful for other reasons, for example, the effective resolution depends on other factors such as dome surface quality, depth of focus of the lens, lens quality, and so on.

In order to compare these to a true 4K dome projection, the pixels around the circumference and across the radius should be as follows:

Circumference resolution = $4096 * \pi \approx 12,800$ pixels, or $3840 * \pi = 12,000$ pixels

Radius resolution = 2160 pixels

Pixel aspect at spring line

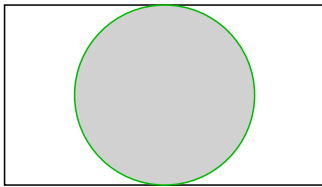
The often quoted approach of using dual 4K projectors on the dome perimeter only gives $\sim 8,000$ pixels around the circumference and a pixel aspect of 1.6 at the spring line. The exact numbers depend on whether "4K" is 4096x2160 (professional) or 3840x2160 (commodity).

Single projector + fisheye in center of dome

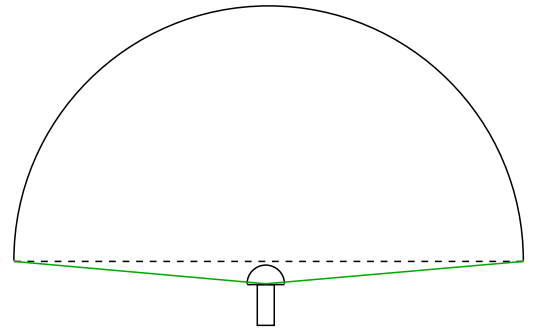
Circumference resolution = $1600 * \pi \approx 5,000$ pixels

Radius resolution = 800 pixels

Pixel aspect at spring line



2560x1600

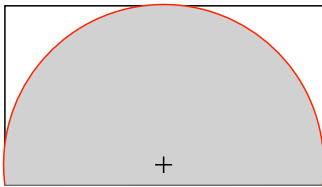


Dual projector + fisheye on dome perimeter

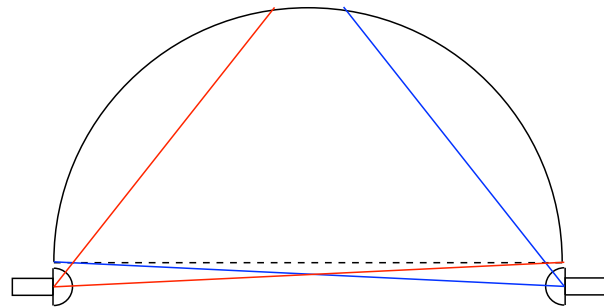
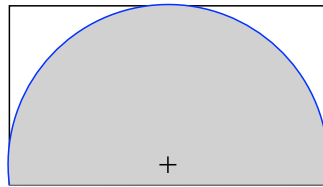
Circumference resolution = $2 * 2560 = \sim 5,000$ pixels

Radius resolution = $\sim 1,600$ pixels

Pixel aspect at spring line



2560x1600

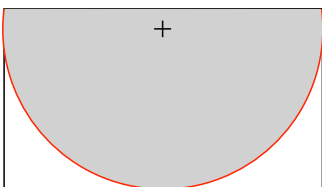


Dual projector + fisheye in dome center

Circumference resolution = $2560 * \pi \approx 8,000$ pixels

Radius resolution = $\sim 1,600$ pixels

Pixel aspect at spring line



2560x1600

