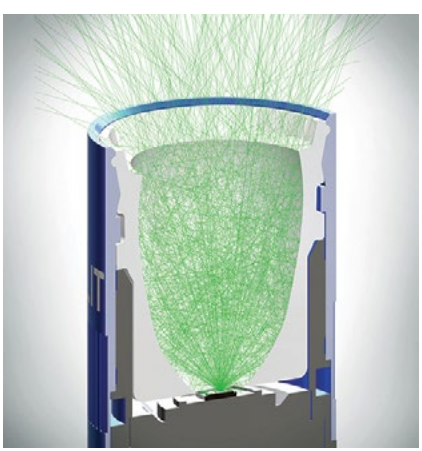
10° TIR lens



Reflection is that portion of light that bounces back from the surface of a medium. This lens makes use of Total Internal Reflection (TIR), a phenomenon which eliminates light loss during reflection. This phenomenon allows for the formation of narrow beam angles, such as 10°, when using appropriately designed lenses, as shown in the ray trace diagram below.

TIR can be illustrated by using a laser to shine through the lens. As the laser is pointed down the lens, you can see it ‘bounce’ from the wall of the lens toward the exit face.

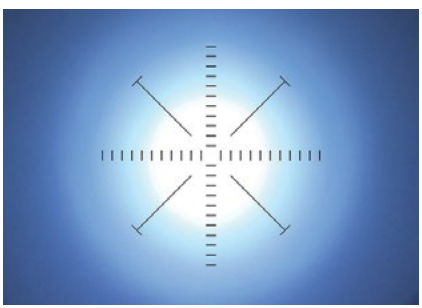
One practical use of this is demonstrated using the 10° TIR lens. Since no light escapes from the sides of the lens, there is no loss of light; such a lens can be more effective than a traditional reflector. Also, the beam can be more accurately controlled to evenly deliver the necessary level of illumination to a specified target area.

Points to note:

The highly polished exterior surfaces, coupled with the lens shape, produce a TIR optic.

This optic ‘snaps’ into the flashlight cap and replaces a metalized reflector, an end cover, and two O-rings. It is a single part – compared to four parts for a traditional reflector assembly.

Notice the very tight beam and uniform light distribution with neither a halo effect nor striations.



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