

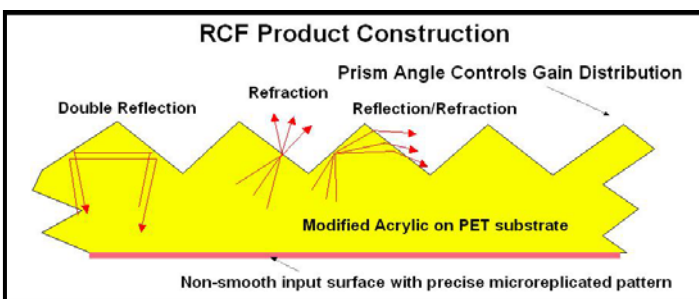
Reflexite[®] Collimating Film RCF90L Monitor Solution

RCF is an optical film that is used to condition the light output of a transmissive LCD monitor.



How it Works

RCF collimates the light that comes out of the backlight through the LCD and toward the viewer. Backlights can be comprised of edge-lit lightguides, backlit lightguides, or hollow cavities with multiple lamps. These backlights use reflectors and diffusers to direct the light towards the LCD. RCF recycles the light that enters the film at oblique angles by means of total internal reflection and reflection/refraction. The light that leaves the film is well collimated.

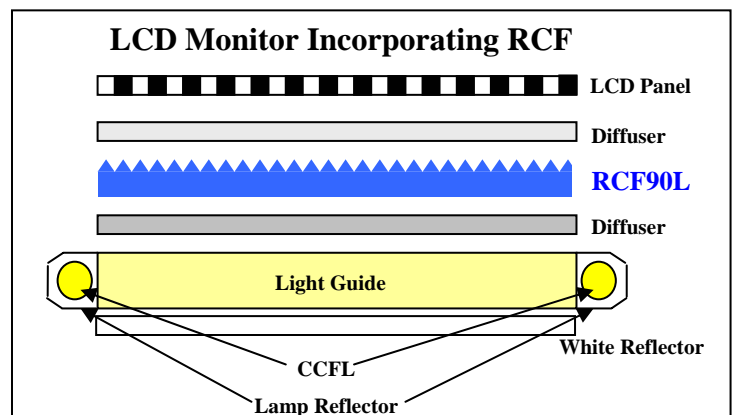


RCF features precise prisms on one side and a microreplicated, non-smooth surface on the other side (patents pending). The benefits of using RCF include a brighter backlight module and increased battery life.

In addition to these benefits, the non-smooth back surface also reduces Newton Rings, reduces wetout (when RCF contacts other films) and increases the stability of the film.

RCF does not create more light, it effectively manages the available light.

Below is an example of how RCF is incorporated into an LCD monitor application. The RCF is placed directly on top of the lightguide diffuser. Often a second diffuser, or other optical film, is placed on top of the RCF.



RCF material is provided with a colored protective sheet on the prism side and a clear protective sheet on the opposite side. Our material is die cut to fit your specific backlight configuration, including all mounting features, such as holes, slots and tabs.

RCF Nominal Product Properties

Part Number	RCF90L
Prism Structure	
➤ Angle	90°
➤ Pitch	48 μm
Material	
➤ Prism Side	Proprietary Acrylic Resin
➤ Substrate	Polyester
➤ Non-Prism Side	Proprietary Acrylic Resin
Thickness	178μm Nominal

Performance and Brightness Improvements

Typically monitor display applications utilize a single sheet of RCF90L. Our tested performance and brightness improvements^{1,2} are shown in the following table.

Peak Brightness Improvement	
➤ Single Sheet	82%
½ Brightness Angle	
➤ Vertical	±32°
➤ Horizontal	±48°

Environmental Aging - 1000 hours

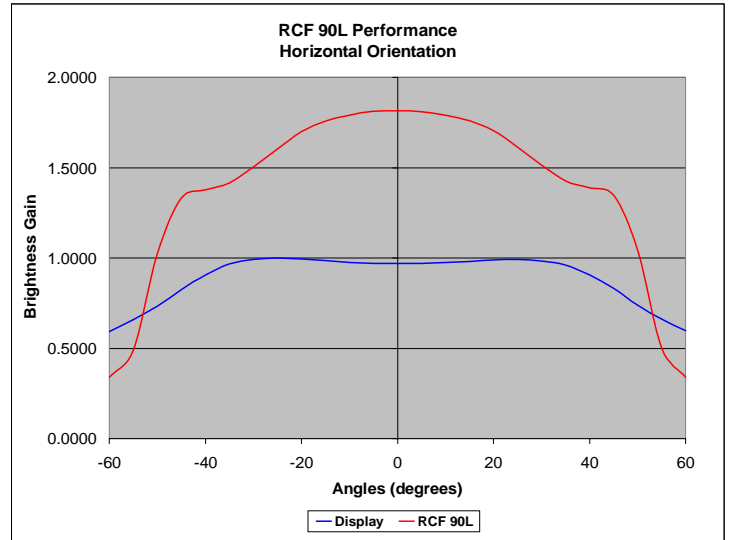
Environmental Data	Chromaticity		Average Delta Gain ^{1,2}
	Δx	Δy	L
-30°C	<0.000	<0.000	-0.01
85°C/95% RH	+0.003	+0.003	-0.04
85°C	+0.002	+0.003	-0.03
-30°/85°C (100 cycles)	+0.003	+0.003	-0.03

1) The data was obtained from 13-point uniformity testing of a backlight with diffuser materials and RCF.

2) RCF luminance depends on the backlight material composition, design, and lighting efficiency.

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Photometric Performance



For ordering information or additional technical information please email display.optics@reflexite.com, visit our web site www.display-optics.com or call our sales department at 585-647-1140, ext. 1114.

The seller makes no warranties, expressed or implied, including warranties of fitness of the films for any particular purpose. The seller shall not be liable for loss or damage arising directly from the use of these films. The seller will refund or replace any materials found to be defective.

Reflexite Corporation's business is the Management of Light[®]. We combine optical engineering, microreplication and polymer processing technologies to provide differentiated products to customers worldwide. At Reflexite Display Optics, a division of the Reflexite Corporation, we develop, market and sell microstructured optical films for the Display Industry.

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Technical Publication RDO-166, Pub. 2002, Rev. 2
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