

Reflexite[®] Collimating Film

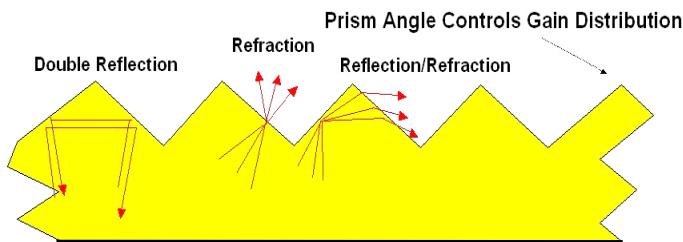
RCF90TV LCD Television Solution

RCF90TV is used to condition the light output of a transmissive LCD. This film is 40% thicker and more thermally stable than our standard product. RCF90TV film is designed for large screen LCD Television applications.

RCF collimates the light that comes out of the backlight through the LCD and toward the viewer. Backlights can be comprised of edge-lit light guides, or backlit light guides. 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 Product Construction



The prism peaks of RCF feature a patent pending sub-micron modulation. This engineered pattern reduces wetout when RCF contacts other films.

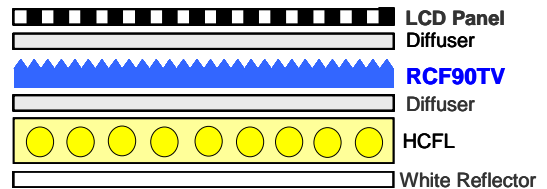
Using RCF allows the display maker to maintain a level of brightness without needing to add more lamps. This helps reduce the weight of the display as well as increase battery life.

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

Shown is an example of how RCF90TV is incorporated into an LCD television. The RCF90TV is placed directly on top of the light source diffuser. Often a second diffuser, or other optical film, is placed on top of the RCF.

RCF material is provided with protective masking on both sides. Reflexite[®] RCF90TV is printed on the backside masking film of each part to denote prism direction. Our material can be die cut to fit your specific requirements, including all mounting features, such as holes, slots and tabs.

LCD Television Incorporating RCF



RCF Nominal Product Properties

Part Number	RCF90TV
Prism Structure	
➤ Angle	90°
➤ Pitch	48 μm
Material	
➤ Prism Side	Proprietary Acrylic Resin
➤ Substrate	Polyester
Thickness	285 +/- 3μm

Performance and Brightness Improvements

Typically large format display applications utilize a single sheet of RCF90TV. Our tested performance and brightness improvements^{1,2} are shown in the following table.

Peak Brightness Improvement	81%
➤ Single Sheet	
½ Brightness Angle	
➤ Vertical	±32.5°
➤ Horizontal	±47.5°

Environmental Aging - 1000 hours (Values for standard thickness product)

Environmental Data, Single Sheet	Chromaticity		Average Delta Gain ^{1,2}
	Δx	Δy	L
-30°C	<0.0028	<0.0037	-3%
85°C/95% RH	+0.0053	+0.0070	-6%
85°C	+0.0035	+0.0048	-5%
-30°/85°C (100 cycles)	+0.0039	+0.0051	-5%

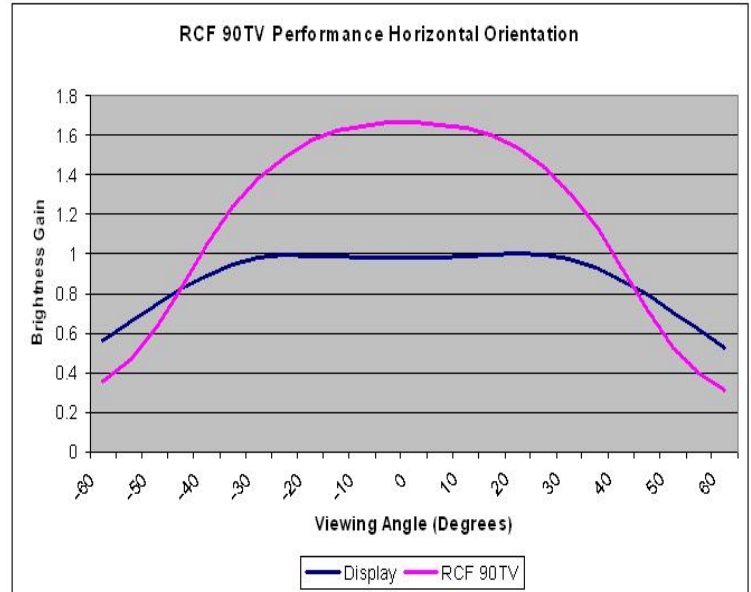
1) The data was obtained from 13 point uniformity testing of a backlight with diffuser materials and RCF.

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

Reflexite Display Optics

500 Lee Road
Rochester, NY 14606 USA
585-647-1140, fax 585-254-4940
www.display-optics.com
display.optics@reflexite.com

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. 1106.

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.

Reflexite[®] is a registered trademark of Reflexite Corporation, Avon, CT, USA.
Technical Publication RDO-196, Pub. 2007, Rev. 1
© 2007, Reflexite Display Optics

