

## Reflexite<sup>®</sup> Collimating Film

### RCF90NS Mobile Display Solution

RCF90NS Mobile Display Solution is an optical film that is used to condition the light output of a transmissive LCD. This product is 40% thinner than our standard product. RCF Mobile Display Solution is designed for applications such as mobile phones and Personal Digital Assistants (PDAs) or similar small LCD products, where space and weight requirements are most critical.

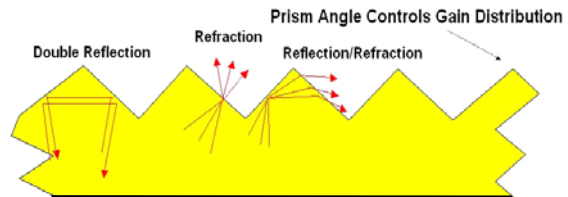


RCF collimates the light that comes out of the backlight through the LCD and toward the viewer. Backlights can be comprised of edge-lit light guides, or backlit light guides. These backlights use reflectors and diffusers to direct the light towards the LCD. RCF recycles the light that enters the film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

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

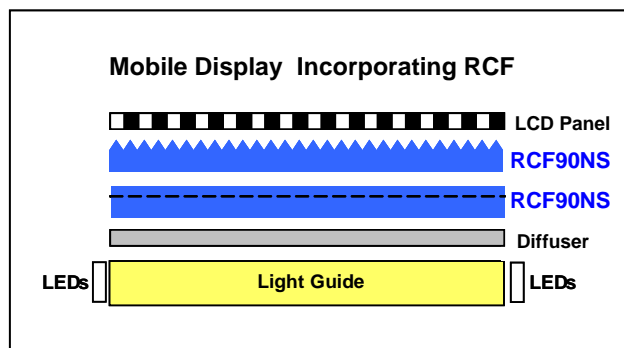
Using RCF allows the display maker to maintain a level of brightness without needing to add more lamps. This helps reduce the weight of the display as well as increase battery life.

#### RCF Product Construction



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

Below is an example of how RCF is incorporated into a cellular phone. One piece of the RCF90NS is placed directly on top of the light guide diffuser. A second piece of the RCF90NS is then placed on top of the first piece of RCF90NS with its prism structure running orthogonal to that first piece of the RCF90NS. At times, the orthogonal RCF is cut with a slight bias to eliminate moiré.



RCF90NS material will be provided with protective mask films applied to both sides. Reflexite<sup>®</sup> RCF90NS is printed on the backside masking film of each part to denote prism direction. RCF90NS can be sent as parts or slit rolls which can be subsequently converted to fit your specific requirements, including all mounting features, such as tabs, holes and slots.

## RCF Nominal Product Properties

<b>Part Number</b>	<b>RCF90NS</b>
<b>Prism Structure</b>	
▪ Angle	90°
▪ Pitch	32 μm
<b>Material</b>	
▪ Prism Side	Proprietary Acrylic Resin
▪ Substrate	Polyester
<b>Thickness</b>	60 +/- 3 μm

## Performance and Brightness Improvements

Handheld LCD applications typically utilize two crossed sheets of RCF. Our tested performance and brightness improvements<sup>1,2</sup> are shown in the following table.

Peak Brightness Improvement	165%
▪ Crossed Sheets	
½ Brightness Angle	
▪ Vertical	± 23°
▪ Horizontal	± 24°

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

Environmental Data, Crossed Sheets	Chromaticity		Average Delta Gain <sup>1,2</sup>
	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

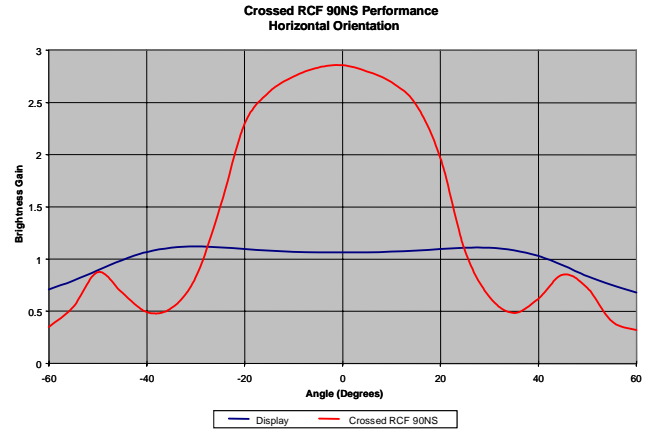
1) The data was obtained from 13 point uniformity testing of a backlight with diffuser materials and RCF.

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

### Reflexite Display Optics

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## Photometric Performance



For ordering information or additional technical information please email [display.optics@reflexite.com](mailto:display.optics@reflexite.com), visit our web site [www.display-optics.com](http://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*<sup>®</sup>. 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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