# Direction Turning Film (DTF)

## LCD Display Applications

Display panels should be oriented to optimally direct images to the viewer, but this is not always possible because of space and design limitations. Luminit's Direction Turning Film can help. This transparent optical component takes the image created by your flat panel display and directs it by 20° up, down, left or right to attain an optimal angle for the viewer. Incorporating DTF into your display is easy.  It can be used either within the display under the LCD or on top of the LCD in the display. DTF may also be incorporated in double-sided film with the DTF on one side and a Luminit Light Shaping Diffuser® or Round Tip Prism brightness enhancer on the other side. Luminit DTF can also be used as a replacement for 3M Image Directing Film.

### How DTF Works:

The prismatic structure of the DTF faces the image light source and redirects the image at a controlled angle of 20°. Because of the high efficiency of the DTF, the redirected image is virtually distortion free.

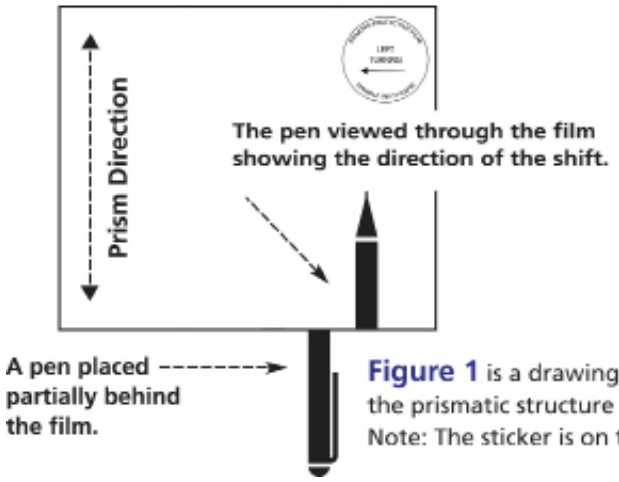



**Figure 1** is a drawing showing the way the prismatic structure redirects light. Note: The sticker is on the prism side.

Typical Application Inside the Display

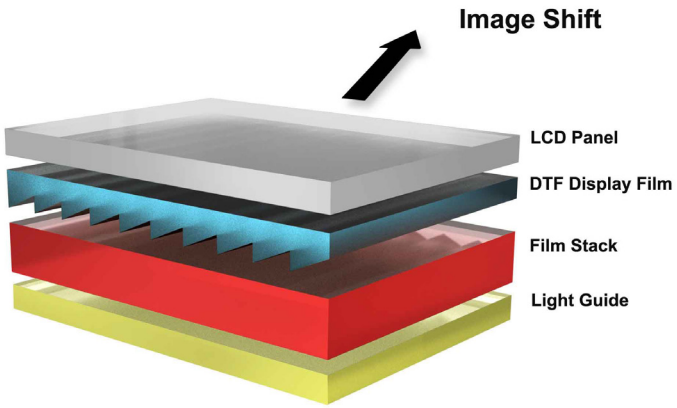



**Figure 2** is a simplified diagram of the DTF film within the display over the film stack and under the LCD panel.

Typical Application Above the Display

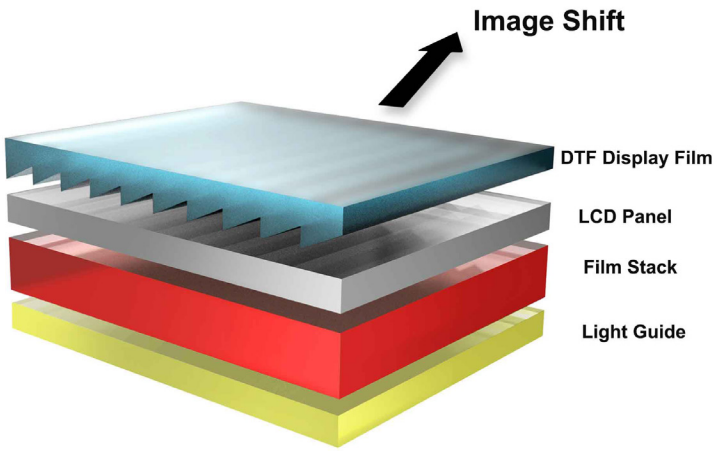
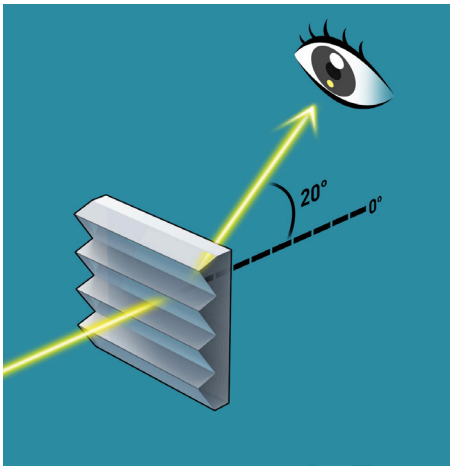



**Figure 3** shows the DTF located on top of the LCD.




## SPECIFICATIONS

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|---|---|
| Turning Angle: | 20° |
| Substrate: | 0.010 polycarbonate |
| Transmission Spectral Range: | 400nm to 800nm |
| Temperature Range: | -30°C to 80°C @ 240 hrs. |
| Humidity: | 95% ± 5% RH @ 24 hrs. |
| Pencil Hardness: | > 2H |
| Yellow Index: | <2% direct exposure (240 hours) |
| Solvent Resistances: | Methanol, Windex® |

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Note that the specifications contained herein are subject to change