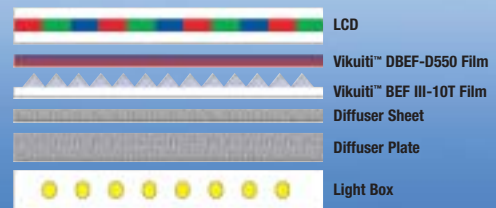
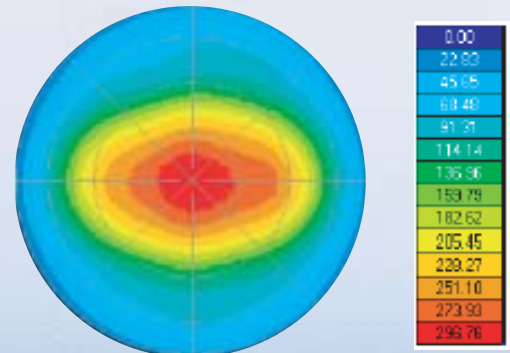




## Vikuiti™ Dual Brightness Enhancement Film–Diffuse 550 (DBEF-D550)



**Vikuiti™ DBEF-D550 Film  
LCD TV Application**



### Testing

This polar plot was obtained through testing Vikuiti™ DBEF-D550 Film (with Vikuiti™ BEF III-10T Film) in a commercially available 30" LCD TV. The LCD TV was measured at standard factory settings on an autronic-MELCHERS GmbH coscope.

We believe these measurements and reporting techniques clearly and concisely represent the benefits of the Vikuiti DBEF-D550 film while providing results that are readily compared to other film stack combinations.

### Description

Vikuiti™ Dual Brightness Enhancement Film–Diffuse 550 (DBEF-D550) is the newest addition to the Vikuiti DBEF-D film family. Vikuiti DBEF-D550 film is a durable, multilayer reflective polarizer with two diffuse surfaces that provides brightness enhancement for wide viewing angle applications. Vikuiti DBEF-D550 film delivers display uniformity, masks minor cosmetic imperfections in the panel and eliminates wet-out thereby reducing the need for a cover sheet. Vikuiti DBEF-D550 film reduces reflective moiré, and in this newest configuration provides additional warp resistance.

Vikuiti DBEF-D550 film is ideal for use with direct lit LCD televisions both as a stand alone solution and also in combination with Vikuiti™ BEF film products.

## Optical performance

Film Configuration	Axial Luminance (cd/m <sup>2</sup> )	Maximum Luminance (cd/m <sup>2</sup> )	Integrated Intensity (lm/m <sup>2</sup> )	Horizontal 1/2 Viewing Angle (°)	Vertical 1/2 Viewing Angle (°)
OEM diffusers only	166	177	373	61	58
Vikuiti DBEF-D550 Film	261	277	576	64	59
Vikuiti DBEF-D550 and Vikuiti BEF III-10T Films	315	324	516	54	37

System optical data was taken on a commercially available 30" diagonal LCD TV with a direct lit backlight using an autronic-MELCHERS GmbH conoscope. The TV was measured at standard factory settings.

Luminance increase depends on the backlight material composition, design and overall lighting efficiency.

## Nominal film properties

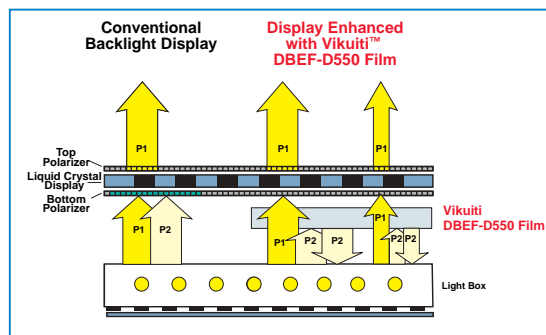
Thickness	ASTM D2103	540um
Thermal shrinkage	MD / TD % after 15 minutes at 85°C	<0.1% / <0.1%
Thermal expansion	MD / TD % after 15 minutes at 85°C	0.5% / 0.4%

Data presented here are typical film properties.

Please reference the Vikuiti D550 film customer quality specification (CQS) for specification limits.

## How it works

Vikuiti DBEF-D550 film works through polarization recycling. The diagram shows a conventional backlit system emitting P1 and P2 light. A typical polarizer absorbs P2, but Vikuiti DBEF-D550 film reflects P2 into the backlight, where it is recycled into P1 and P2 light. With Vikuiti DBEF-D550 film, more P1 light is available to be transmitted through the LCD, increasing on-axis luminance by up to 50% for a direct lit backlight. Vikuiti DBEF-D550 film achieves additional on-axis illumination performance in a wedge backlight display by redirecting available light to the viewer.



## Environmental test results

Cycle	Environment	Duration	Change of color: Delta E* vs. Initial Value	Change of effective transmission % of initial value
Low temperature	-40°C	1000 hours	0.1	99%
High temperature, high humidity	65°C at 95%RH	1000 hours	0.2	99%
High temperature	85°C	1000 hours	0.2	98%
Thermal shock	-40°C - 85°C	100 cycles	0.2	99%

Data presented here are average values from qualification samples.

Please reference the Vikuiti DBEF-D550 film customer quality specification (CQS) for specification limits.

For ordering information on Vikuiti™ Display Enhancement Films from 3M, please call: **1-800-553-9215**

For more information, visit us at: [www.3M.com/Vikuiti](http://www.3M.com/Vikuiti)

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**Electronic Display Lighting  
Optical Systems Division**

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Minimum 10% Post-Consumer Fiber

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