

# 3M™ Contrast Enhancement Film

## CEF2804 • CEF2806 • CEF2807 • CEF2808 • CEF2810

### Product Description

3M™ Contrast Enhancement Films (CEF) are specialized optically clear adhesives offering superior clarity and excellent adhesion to various transparent display substrates. 3M CEF28XX is recommended for applications that require soft CEF for filling thick ink step (lens border frame), ITO compatibility and high adhesion. 3M CEF28XX is post UV curable which makes it suitable for film touch panel and LCM bonding applications.

### Construction

Product	3M™ Contrast Enhancement Film				
	CEF2804	CEF2806	CEF2807	CEF2808	CEF2810
<b>Adhesive Type:</b>	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic
<b>Adhesive Carrier:</b>	None	None	None	None	None
<b>Approximate Thickness:</b>					
<b>Release Liner</b>	2.0 mil (50 micron) Clear Polyester	2.0 mil (50 micron) Clear Polyester	2.0 mil (50 micron) Clear Polyester	2.0 mil (50 micron) Clear Polyester	2.0 mil (50 micron) Clear Polyester
<b>Adhesive</b>	4.0 mil (100 micron)	6.0 mil (150 micron)	7.0 mil (175 micron)	8.0 mil (200 micron)	10.0 mil (250 micron)
<b>Release Liner</b>	3.0 mil (75 micron) Clear Polyester	3.0 mil (75 micron) Clear Polyester	3.0 mil (75 micron) Clear Polyester	3.0 mil (75 micron) Clear Polyester	3.0 mil (75 micron) Clear Polyester

### Available Sizes

Available in die-cut pieces only.



## Typical Physical Properties and Performance Characteristics

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

### Peel Adhesion:

ASTM D3330 modified, 180 degree peel, 12 in/min  
(305 mm/min) 2.0 mil polyester backing

Peel Adhesion to Glass				
Dwell Time	20 min dwell at RT		3 days dwell at RT	
Units	Oz/in	N/100mm	Oz/in	N/100mm
CEF2804	72	79	94	103
CEF2806	74	81	99	108
CEF2807	92	101	98	107
CEF2808	84	92	97	106
CEF2810	99	108	128	140

### Color:

Ultra Scan Pro (Hunter Lab)  
ASTM E308, D65/10°

3M™ Contrast Enhancement Film				
CEF2804	CEF2806	CEF2807	CEF2808	CEF2810
L* = 96.9	L* = 97.0	L* = 97.0	L* = 96.9	L* = 96.9
a* = -0.06	a* = -0.07	a* = -0.00	a* = -0.06	a* = -0.05
b* = 0.18	b* = 0.18	b* = 0.20	b* = 0.25	b* = 0.25

### Refractive Index:

(± 0.0005 Metricon measurements)

3M™ Contrast Enhancement Film		
CEF28XX		
405 nm	532 nm	633 nm
1.4897	1.4782	1.4733

### Haze:

Haze was measured according to ASTM D1003-92

3M™ Contrast Enhancement Film
CEF28XX
0.3%

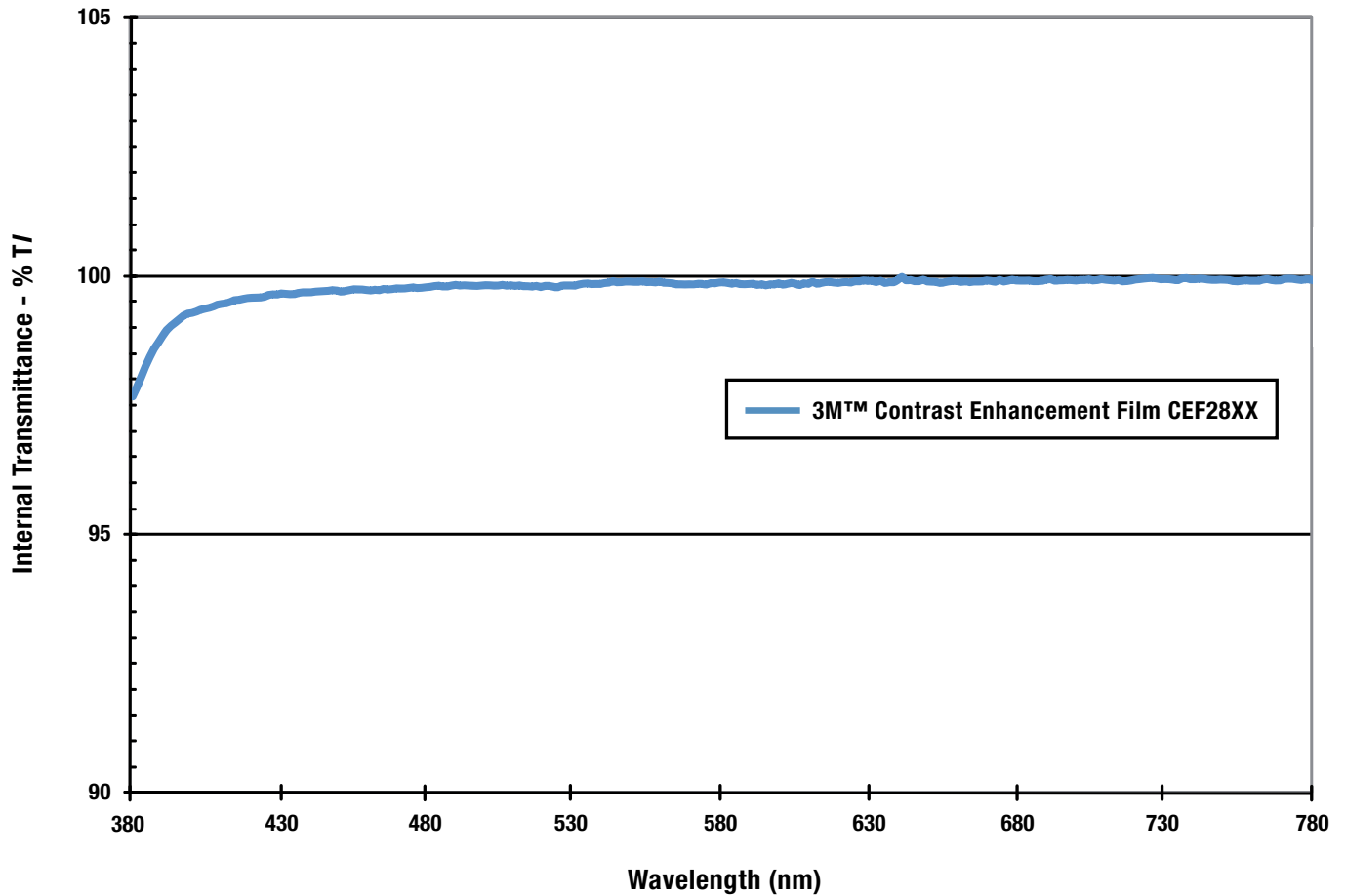
### Typical Physical Properties and Performance Characteristics (continued)

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

#### Transmission Curve:

3M™ Contrast Enhancement Film CEF28XX

Internal Transmittance (T<sub>i</sub>) vs. Wavelength for CEF28XX



#### Typical Electrical Properties of 3M™ Contrast Enhancement Film CEF28XX at R.T.

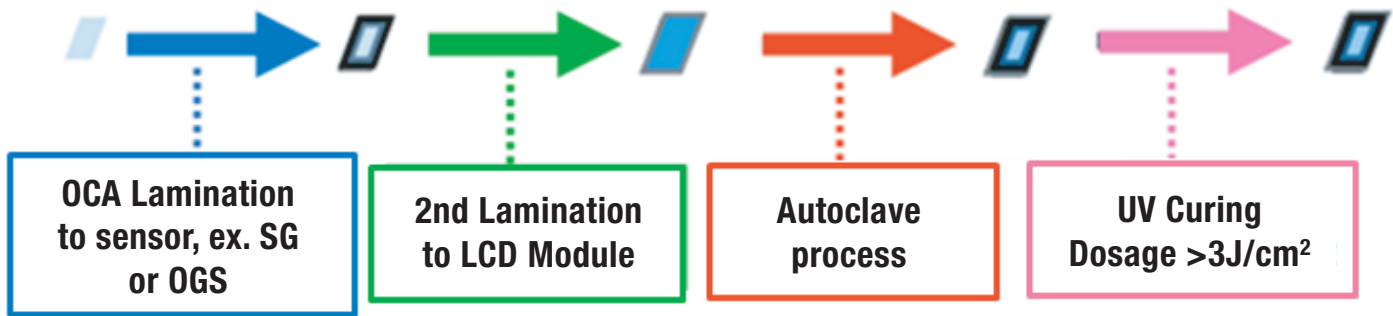
ASTM-D150-92

#### Dielectric Constant:

3M™ Contrast Enhancement Film CEF2807	
Frequency (KHz)	Dielectric Constant
100	4.2
500	3.9

### Suggested Lamination Process

- 1st Step:** Remove secondary liner, and then laminate CEF28XX to 1st adherent substrate by roller @ RT.
- Recommendation: Roller pressure 0.1 - 0.2 MPa, Roller speed 0.5 - 1 m/min.
- 2nd Step:** Remove primary liner, and then laminate CEF28XX / 1st adherent to 2nd adherent by vacuum lamination.
- Recommendation: Vacuum condition < 50 Pa, Pressure around 0.1 - 0.2 MPa
- 3rd Step:** Autoclave process. (Condition depends on application)
- 4th Step:** UV curing with over 3J/cm<sup>2</sup> dosage.



## Regulatory

For regulatory information about this product, please contact your 3M representative.

## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

## Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

## Warranty, Limited Remedy, and Disclaimer

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

## Limitation of Liability

Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



### Electronics Markets Materials Division

3M Center, Building 225-3S-06  
St. Paul, MN 55144-1000  
1-800-251-8634 phone  
651-778-4244 fax  
[www.3M.com/electronics](http://www.3M.com/electronics)

3M is a trademark of 3M Company.  
Please recycle. Printed in U.S.A.  
©3M 2013. All rights reserved.  
60-5002-0641-6

