



## Optical Bonding & Lamination Capabilities

- In-house bonding and lamination facility
- The latest in contrast enhancement techniques
- Reduced costs
- Improved production lead-times and production rates
- Consistent high quality through direct control of critical process steps

### Capabilities Include:

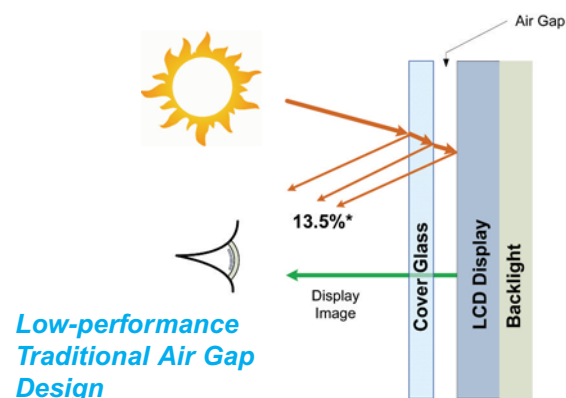
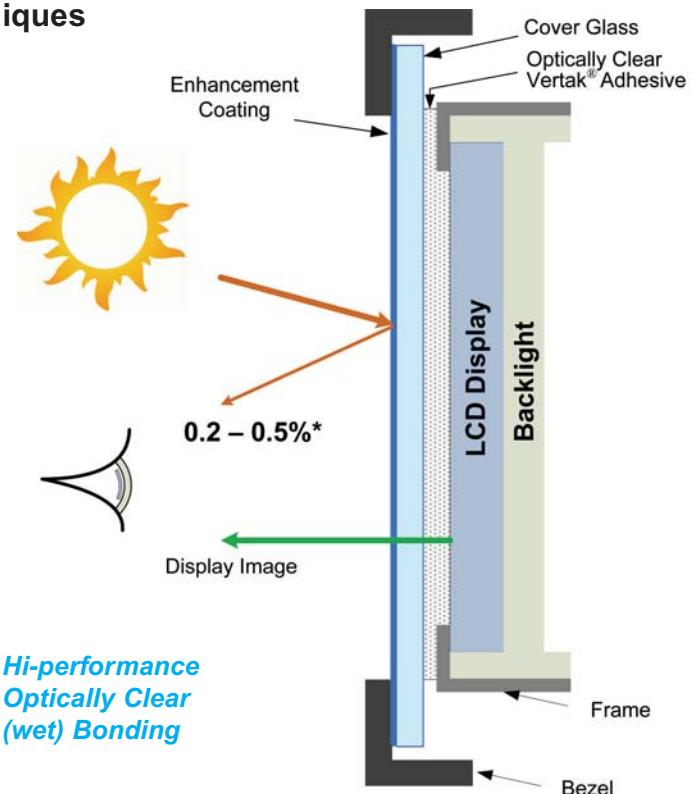
- DuPont™ Vertak® bonding process
  - Proven high-performance Gen2 adhesive technology
  - Reworkable process
  - UV stable material
- Direct bonding of LCDs from 1.5" to 30" active display area
- Cover glass to frame bonding options
  - In-frame bonding
  - On-frame bonding
  - Over-frame bonding
- In-house lamination process

### Optical Benefits:

- Improved display contrast and sunlight readability
  - Improved light transmission
  - Reduced internal light reflections
- Reduced parallax issues

### Additional Key Benefits:

- Prevents condensation and internal dust buildup
- Improved durability
- Improved impact resistance



\* based on coating and cover glass material/construction



## Optical Bonding & Lamination Capabilities, *continued*

### *IEE's In-house Capabilities Include:*

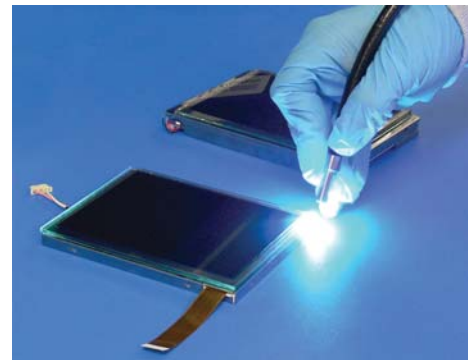
- DuPont™ Vertak® optical bonding of substrates to flat panel displays
  - Touch screens
  - Filters
  - Protective windows
  - Anti-reflective, anti-glare, anti-smudge and contrast enhancement windows
- 1,000 square foot Class 10,000 clean room
  - Laminar flow benches = Class 100
- Hot roller lamination and autoclave
  - EMI filters: ITO, wire-mesh, micro-mesh
- Laser cutter
  - Finish cut all display filter material
- Robotic dispenser
- Plasma surface cleaner
- UV curing system
- Radiometer
- Darkroom for display performance measurements

### *Mechanical Benefits:*

- Increases impact resistance
- Prevents condensation and internal dust buildup
- Durability against vibration, extreme temperatures, altitudes and vandalization
- Reworkability enables complete restoration of LCD and original substrate at any time

### *Advantages of Using Vertak® Adhesive:*

- Excellent adhesion and compliancy properties
- Optically clear with low refractive index
- Optimized viscosity
- Cured adhesive stable at over 100° C
- Highly resistant to yellowing, delamination or bubbling
- Withstands extreme temperature, humidity, shock and vibration
- Superior bond strength
- Low curing shrinkage



Note: IEE is registered with the US DOS and as such we adhere to all ITAR regulations as it pertains to 'defense articles'.

ISO 9001:2008 Certified



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