



3M News Release

3M's Uniformity Tape Allows LCD Manufacturers to Reduce Number of LEDs Without Sacrificing Display Image Brightness or Quality

*Unique Uniformity Tape Enables 3X More LED Spacing,
Reducing LCD Panel Manufacturing Costs*

St. Paul, Minn.—May 11, 2011 —In an effort to meet LCD manufacturer design flexibility demands, the 3M Optical Systems Division today announced that it has developed a unique solution called Uniformity Tape that will allow LCD manufacturers to reduce the number of LEDs required for edge-lit LED LCD panels at a low cost, without sacrificing brightness or efficiency.

LEDs are becoming brighter and even more efficient—requiring fewer bulbs to achieve target brightness for a given display. Until now, there have been limitations as to how far LEDs can be spaced apart at the edge of an LCD panel because of dark areas that appear between LEDs when they are too far apart. This scenario is commonly referred to as ‘head-lighting’ because it looks like the dark space on the road between the headlights of a car.

3M's Uniformity Tape is a clear tape, which has adhesive on one side and a micro-replicated optical pattern on the other side. It is adhered to the edge of the light guide, which faces the LED light sources. The tape is designed to increase the spreading of light in the light guide from each LED, which greatly increases the allowable LED spacing. The optical pattern is spatially uniform, meaning that no positional registration of LEDs is required along its length. The Uniformity Tape keeps the edge of the display closest to the LEDs uniform in brightness when the spacing of light sources is increased. This allows panel manufacturers to save money by removing unnecessary LEDs. Uniformity Tape can also increase LED spacing by up to three times the current spacing, while maintaining edge uniformity for a given bezel size.

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“As LED technology continues to improve and becomes even brighter, some backlight designs are currently using more LEDs than needed for a brightness specification in order to avoid head lighting or thick bezels. Uniformity constraints have also prevented manufacturers from removing LEDs to save on cost,” noted Gilles Georges, 3M global marketing manager. “By spacing-LEDs further apart for edge-lit LED LCD panels, 3M’s Uniformity Tape allows light to travel inside the light guide at wider angles—allowing manufacturers to design wider spacing between LEDs without any dark areas.”

When combined with 3M’s Dual Brightness Enhancement Film (DBEF), Uniformity Tape allows display manufacturers even more design freedom to innovate and use less LEDs to create a backlight that not only meets energy standards, but also remains competitive at a low cost. Furthermore, Uniformity Tape helps device manufacturers meet the growing number of energy efficiency standards around the world.

Note to Editors: Media interested in seeing 3M’s Uniformity Film demonstration, as well as 3M’s full suite of Optical Films for handhelds, notebooks, tablets, monitors and LCD TVs should visit Booth #807 or contact Stacey Voorhees-Harmon at stacey@savvypublicrelations.net or 925-336-9592 to schedule a briefing during the show.

Photos available upon request.

About 3M

3M captures the spark of new ideas and transforms them into thousands of ingenious products. Our culture of creative collaboration inspires a never-ending stream of powerful technologies that make life better. 3M is the innovation company that never stops inventing. With \$27 billion in sales, 3M employs about 80,000 people worldwide and has operations in more than 65 countries. For more information, visit www.3M.com or follow @3MNews on [Twitter](https://twitter.com/3MNews).

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Photo Caption: Comparison of LCD Monitor without 3M's Uniformity Tape (Left Image) and with 3M's Uniformity Tape



Source: 3M Optical Systems Division