

LCD TVs and Wide-Angle Luminance: 3M's Perspective

Since 2007, 3M's team of scientists has documented a decline in LCD TV wide-angle luminance – a combination of off-axis viewing and brightness.

3M Physicist Dr. Dave Lamb, an expert in applied optics, and his team at 3M have characterized and disassembled more than 150 commercial LCD TVs of a variety of brands and models to assess technical quality over the past five years. In the process, they have documented a decline in wide-angle luminance – a quality 3M technology enhances.

“This decline in wide-angle luminance is a concern, because we believe it results in consumers changing the settings on their TVs in an effort to brighten them,” said Lamb.

Since ENERGY STAR ratings for TVs are based on the home-mode settings, consumers may be using more energy than they realize. “When consumers must change the settings to meet their home-viewing needs, it reduces the effectiveness of an efficiency standard,” Lamb said.

He says new standards are needed to ensure consumers receive the screen quality they prefer.

“We believe the time is now for a new measurement standard of wide-angle luminance – a combination of brightness and off-axis viewing. The standard must meet consumers' needs while achieving high ENERGY STAR standards,” Lamb stated.

Lamb, who also is at work on a next generation 3M LCD technology, says that a minimum industry wide-angle luminance specification of 100 cd/m² (a measure of luminance) at 45 degrees in the home mode for TVs will ensure that consumers have great picture quality from all viewing angles without having to adjust the settings on ENERGY STAR-qualified sets.

“We want to ensure that every seat is the best seat in the house,” Lamb said.

Dr. Dave Lamb is a senior physics research specialist for 3M's optical systems division in St. Paul, Minn. He earned his Ph.D. in physics with an emphasis in applied optics from the University of Alabama in Huntsville, Ala.

About 3M

3M is a core supplier to the consumer electronics industry since 1995, making displays brighter, lighter and more energy-efficient. 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.

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