

# Visual Quality is Quantifiable with 3M Display Quality Score

3M measures for manufacturers the factors consumers expect in a top quality display

3M is at it again. Known for industry leading innovation, 3M's Display Materials and Systems Division created a calculation to predict consumers' *perception* of display quality. This will allow designers to optimize design to consumer preferences and balance consumer desires for exceptional visual quality with the consumer need for energy efficiency and pricing.

3M™ Display Quality Score (DQS) measures the consumer perception of a display's quality based on the levels of resolution, contrast, luminance, size and color compiled within the display. Using an unprecedented collection of data on display color preferences from 6 countries, 3M was able to quantify the effects of color gamut on perceived image quality. They use these data in combination with knowledge from vision science to quantify how the human brain combines the various display parameters into single judgment of quality.

"Each of these display attributes affect the quality of the display, so by identifying the peaks for each factor we are able to identify a mix that will provide the best quality display," explained Erik Jostes, Business Director, 3M.

Importantly, various configurations can achieve a similar 3M DQS. By examining score with different design configurations, manufacturers will be able to find cost effective design solutions without sacrificing quality.

The values derived from 3M DQS assess the impact of improving each display attribute, but it will also reveal when an improvement has little to no effect on the overall quality with a recent example on resolutions of 4K and beyond.

"Based on DQS, higher resolution displays (4K sets) do translate to a meaningful increase in consumer perception of quality, but the effect diminishes quickly after 4K, making 8K resolution a less attractive improvement," Jostes added.

Multiple insights into the effect of a change in each variable such as this can be derived using the 3M Display Quality Score and the possibilities continue to expand.

## 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 \$31 billion in sales, 3M employs 89,000 people worldwide and has operations in more than 70 countries. For more information, visit [www.3M.com](http://www.3M.com) or follow [@3MNews](https://twitter.com/3MNews) on Twitter.

From:

3M Public Relations and Corporate Communications

3M Center, Building 225-1S-15

St. Paul, MN 55144-1000

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