



### MOBILE APP PLATFORMS

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David D. Douglas, senior director of service management, Scientific Games

# Why Mobile Device Display Is So Important

If you're selecting a device without considering the display it provides, you're making a mistake.

**C**ustomer surveys and market research on mobile computers consistently list the same top user complaint: poor display readability in bright outdoor sunlight. If you can't see the display, how can you get any work done? While most mobile computers claim to be "sunlight readable," very few are easy to see when the sun is blazing down. The good news? There is a solution.

## Understanding Mobile Device Display Ratings

When evaluating sunlight readability, you'll often see nit specifications for the mobile computer's display — referring to the luminance or light emitted per unit area (usually a pixel). While this metric is somewhat useful, it doesn't tell the whole story. First, nits only describe how much light the display produces on its own. Second, nits don't offer any help toward knowing how readable the display is. So what should you look for?

For overall brightness outdoors, some computers publish a lux (lumens per square meter) rating, which measures all the light coming from the display, both transmitted from the backlight and reflected from its surroundings. This becomes increasingly important outdoors where reflected sunlight overwhelms all but the most powerful displays.

For readability, look for a published contrast ratio, which describes the difference between white and black portions of the image — like these letters you're reading now. The problem, however, is that most published contrast ratios are measured indoors under ideal lighting conditions rather than outdoors under blazing sunlight. On most displays, contrast ratio decreases in outdoor sunlight, making it harder to read text and see graphics. Ideally, the manufacturer will list the contrast ratio across a range of ambient lighting conditions, from the office to outdoors under cloudy skies or bright sunlight.

## Choosing The Right Display Technology

A simple strategy for making displays appear bright

outdoors is to increase brightness. Unfortunately, the battery power required to keep pace with the sun's intensity becomes a limiting factor when the mobile computer is meant to operate continuously for hours.

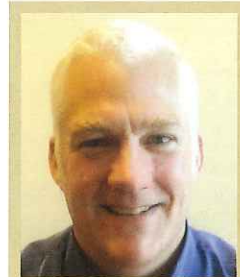
A better solution uses transfective display technology, where each pixel transmits light from the backlight and also reflects sunlight so that overall image brightness and contrast are improved. When used indoors, most of the light a user sees is supplied by the backlight. Outdoors, as sunlight increases beyond overcast conditions, the backlight has little influence on what the user sees and can be turned off altogether, thus saving valuable battery power.

Not many devices are available with fully-transfective displays. If present, you have a device that is power-smart with all the benefits of true sunlight readability. You'll lose some color saturation, but the contrast will remain, allowing mobile, outdoor workers to be productive — even on a cloudless sunny day.

## Discerning Your Mobile Workforce's Needs

Of course for mobile workers, no matter your geography or weather challenges, it is imperative your display be readable. For years we have been developing rugged, innovative devices with a focus on outdoor productivity in all weather conditions, especially bright sun. By employing transfective displays, we are able to offer the best in bright sunlight, maximize the life of the battery, and boost your team's efficiency and return on investment.

When looking for equipment for your field workers, consider the display technology embedded in the devices under consideration. With the right technologies in-hand, your devices will begin to find their way to the sunny side of the street. •



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