

Visibility of Artifacts in Flat-Panel Displays

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Abstract: Modern electronic displays are typically composed of emissive elements (LCD/backlight, OLED, etc.) faced with a sheet of cover glass. Bright light sources and high contrast surrounds can produce veiling reflections that seriously reduce the quality and usability of displayed images. To address this problem, anti-glare (AG) treatments can be applied that typically provide a rough surface to reduce the contrast and visibility of surface reflections. While these treatments can be effective in reducing the impact of surface reflections, they can sometimes produce a transmission artifact known as “sparkle” where the displayed image appears to be covered by small colored highlights that scintillate with relative movement of the display and observer. In this presentation we describe a series of psychophysical experiments to quantify the relationships between anti-glare glass treatments and perceived sparkle in emissive displays.