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器件物理及器件制备技术

显示器的室外可读性分析

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摘要：实验采用美国国家标准与技术研究院的环境光对比度测试方法测试目前市场上常用的几种显示屏幕的环境光对比度, 测试样品包括: 透射式液晶显示器, 半反半透式液晶显示器, 电子纸, 彩色电子纸, 微机电干涉仪调制显示屏。并在阳光下对几种不同显示器的室外可读性做了目测比较。通过本次实验对显示器的室外可读性给出了定性及定量的分析, 找到了各种显示器提高室外可读性的方法: 提高液晶显示器亮度可以提高室外可读性, 提高半反半透式屏幕及反射式屏幕反射区域的反射率可以提高其室外可读性。

关键词：室外可读性 透射式液晶显示器 半反半透液晶显示器 全反射式显示器 电子纸

Display Sunlight Readable Analysis

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Abstract: The NIST ambient contrast ratio measurement method was used in this experiment to measure the ambient CR of different display in market. The samples include: transmissive LCD, transfective LCD, e-Ink, color e-Ink and Interferometric modulation mirasol display. Their sunlight readability were also compared under sunlight by human eyes. The ambient CR of these displays were qualitatively and quantitatively analyzed. Some methods to enhance sunlight readability were found: For LCD, enhancing LCD panel brightness will enhance LCD sunlight readability, for transfective LCD and reflective display, enhancing the reflectivity of display area will enhance their sunlight readability.

Keywords: sunlight readable transmissive LCD transfective display reflective display E-Ink

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