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The Establishment of Uniform Color Space Based on LCD monitor

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ABSTRACT

The establishment of an uniform color space mostly based on the reflector ,and few researchers have been tried the establishment of the monitor uniform color space .To make sure a better color reproduction on the monitor ,and ensure an accurate color transformation among monitors ,It is necessary for us to establish an uniform monitor color space. In this paper, We used the Munsell color chips under the condition of C light. then processed the Munsell color chips on the monitor in the Lab color space. Finally, a set of uniform color data based on monitor is acquired called Lab-m3.

Keywords: LCD Monitor; Munsell color chips; Uniform color space;

1. Introduction

With the development of computer and display technology, people require higher and higher reproduction accuracy of the monitor. The display effects of monitor will affect our subjective feelings. Therefore we considered the color reproduction effect as an important factor to measure the quality of the monitor.

Color space is the digital description of a set of colors . One of the goals of the uniform color space is to find a color space in which the Euclidean distance between any two colors c - correspond to the color difference perceived by humans. It is a hot topic today on the research and evaluation of uniform color space as well as its application[1-7]. On the other hand, the monitor is much more popular for color repro- duction. However ,there are fewer researches on the monitor uniform color space .It is obvi- ously that it is important to establish an unifo- rm color space based on monitor[8] .

2. Experimental

2.1 Monitor calibration

Firstly, We must ensure the performance of the monitor to achieve the standard experi- mental requirements from the stability of the monitor, channel independence, chromaticity, spatial uniformity, channel independence, color temperature, color gamut, seven indicators. the result shows that the display has an excellent performance in line with experimental requirements [9]. In this paper, we use a visual gray balance model of the display device calibration method. First of all, Using the visual gray balance model to calculate the neutral gray color values, and as the

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