Pantone for AppleVision: Read Me File (10/95)

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Security: Everyone

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TOPIC ----------

This article contains the ReadMe file included with the Pantone color picker module for the AppleVision 1710 AV display posted online.

DISCUSSION ----------

PANTONE Color Picker for the AppleVision Color Display

The PANTONE Color Picker consists of a self contained Macintosh system extension. This extension is an extensible color picker module which displays calibrated PANTONE Colors from the PANTONE MATCHING SYSTEM. It will display the PANTONE Colors in three modes:

PANTONE MATCHING SYSTEM - As printed as a spot ink on a coated paper stock
PANTONE MATCHING SYSTEM - As printed as a spot ink on uncoated paper stock
PANTONE MATCHING SYSTEM - As reproduced in four-color process ("Spot to Process")

System requirements are: ColorSync 2.0 Apple Color Picker Extension
ICC/ColorSync 2.0 Monitor profiles

Installation
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Assuming you have ColorSync 2.0 and the Apple Color Picker extensions installed on your Macintosh, copy the PANTONE Color Picker extension into the Extensions folder within your System Folder. Then copy the ColorSync/ICC source profile into your ColorSync Profiles folder inside the Preferences folder. The source profile is named Pantone XYZ Source Profile and ensures that the purest PANTONE Color information is processed by ColorSync and your new AppleVision monitor.

Restart your Macintosh prior to using the Color Picker.

How to load the PANTONE Color Picker

You can use the PANTONE Color Picker anytime the built-in Macintosh Color Picker is called by software running on your Macintosh. When the Color Picker is called, a dialog box such as the one shown below will appear.

When you exit the dialog box by clicking the OK button, the color value you selected is returned to the calling application or utility.

Setting the Display Profile

You will need to tell the PANTONE Color Picker what monitor profile you want to use. Select your monitor type in the pop-up list under Profile: You new AppleVision Color display ships with software which enables you to re calibrate you monitor at any time and create a current ColorSync profile. If you use this software, make sure you save the profile in the ColorSync Profiles folder prior to loading the Color Picker.

Selecting a PANTONE Color Mode

The PANTONE MATCHING SYSTEM is provided in three different flavors. You can obtain display simulations of PANTONE Colors as they would appear printed on Coated Paper, Uncoated Paper and as printed in four-color process on Coated stock. You will notice that the appearance of the colors change when you select each of the three modes.

Selecting a PANTONE Color

To choose a PANTONE Color you can type the number in the edit field below the horizontal scroll bar. Or you can simply scroll through the colors until you find one you like. Additionally, you can click on the vertical multi-colored bar on the right side of the PANTONE Color display to jump to a particular color range.

Computer Displays _ Additive Color Mixing

Additive color mixing is the basis for non-reflective sources such as computer monitors and televisions. Non-reflective sources are actually light sources, and each pixel on a color computer display is a separate light source.

Each pixel on a computer display is composed of three "cells," each of which is coated with a different type of phosphor. One type of phosphor emits bluish light when it is bombarded with electrons, one emits greenish light, and the third emits reddish light. In theory (though not quite in practice), each of these phospors operate independently of the others. The intensity of the light emitted by each phosphor more or less depends on the intensity of the electron beam bombarding it. The color of the pixel results by adding together the light emitted by each of these phosphors.

The relationship between the intensity of the beam and the light emitted by the phosphor is only approximate and indirect. This can cause real problems for those who wish to display accurate and repeatable colors.

A factor that can effect color accuracy on a monitor is called "gamma". Gamma occurs because the intensity of light emitted by the pixel phospors is not directly proportional to the number of electrons hitting them. Actually, the brightness emitted varies with a number that is between the square of the number of electrons and the cube of that number. For example, the monitor has a gamma of 2.6. This means that the brightness of the light emitted by a phosphor on that monitor is proportional to the number of electrons hitting it raised to the 2.6 power.

In order to ensure consistent color reproduction, all video cards for Macintosh displays have "average gamma correction" tables stored on-board the card. If the monitor response is measured and recorded in such a table, the monitor will be able to consistently reproduce colors.

Color Gamuts

Each set of color primaries (RGB, CMY) define a "color space" that includes all colors that can result from any combination of these primaries. The "color space," or "color gamut," may be quite different for different sets of primaries. Typically, a CMY color gamut falls inside (is smaller) a RGB color gamut, which means that the eye can detect (or a monitor can display) more colors than a printer can print. In other words, it is not possible to print some colors that can be photographed or displayed on a montior when using CMYK printing.

Some of the PANTONE Colors do not fall within the RGB color gamut for particular monitors because the primaries (or phosphors sets) are much more saturated than those that define the RGB gamut for particular phosphor sets. RGB color gamuts vary as well. For example, the color gamut for one monitor may be quite different from the color gamut for another, since the phosphor set that produces the RGB primaries, the gamma correction and other variables for the monitors may be different.

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