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## Macintosh 21 Color Display: Shadow Mask (10/91)

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TOPIC -----

This article explains the function of the shadow mask used in the Macintosh 21-inch Color Display.

DISCUSSION -----

The Macintosh 21-inch Color Display uses a perforated shield called a shadow mask to separate the red, green, and blue electron beams that create the displayed images. Electron beams pass through a mask to strike the designated red, green, or blue dots of phosphor on the back of the screen. These beams cause the colored phosphor dots to glow. The combination of glowing dots produces the color images.

A metal mask or shield commonly used is a vertically-oriented aperture grill design. Traditional mask designs use perforations arranged in a pattern that interacts with the changing pattern of the electron beams as they scan across the shield. The interaction of these patterns frequently causes a screen interference called a moire pattern. The interference is more obvious with certain Macintosh desktop patterns.

The Macintosh 21-inch Color Display uses a pattern of tiny holes in the shadow mask that avoids the distracting effects of the most common moire patterns. This design is an asymmetric dot pitch of .026 mm horizontally and .029 mm vertically. Dot pitch is the distance between two adjacent RGB dot triads. To achieve a high resolution, dot pitch should be as small as possible. This pattern doesn't conflict with the pattern created by electron beams.

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