

LCD Quality Standards and Pixel Policy

Envision Peripherals, Inc. (EPI) uses selected high quality panels for the manufacture of its Envision branded LCD monitors. Nevertheless, the display may have a few innate cosmetic imperfections that appear as small dark or bright spots. This is not a specific occurrence to ENVISION monitors, but linked to the current state of the art of LCD manufacturing.

In fact, LCD panels contain millions of small sub-pixels that are each turned on or off by a transistor which make up the picture on the screen. It is extremely difficult to manufacture millions of perfect transistors on a large surface. As an example, a 15" panel that has a native resolution of 1024x768 contains 2,359,296 sub-pixels and a 17" or 18" panel that has a native resolution of 1280x1024 contains 3,932,160 sub-pixels. Due to the immense number of sub-pixels, it is extremely difficult to eliminate non-performing pixels in spite of current high technology production processes. Therefore, no manufacturer can currently guarantee 100% non-performing pixel free panels at a reasonable price.

How visible a defect is depends on its type and location.

Each pixel is made up of one red, one green and one blue sub-pixel.

- A defect in a sub-pixel is not very visible, and can often only be seen against specific backgrounds.
- Adjacent sub-pixel defects appearing close in proximity are more visible than "geographically dispersed" defects.
- A full-pixel defect (all three R/G/B sub-pixels always on or always off) is quite visible.

ENVISION does not accept any full-pixel defects upon shipment. The vast majority of ENVISION monitors do not have visible imperfections. On the other hand, ENVISION is obliged – for the reasons outlined before – to accept the possibility of a few sub-pixel defects.

ENVISION has established clear standards for the maximum of imperfections per panel that can be tolerated. Your display has been checked to comply with these standards.

Details of Envision's Pixel Policy

The ENVISION monitor is evaluated on the number of acceptable non-performing pixels and the distance between each non-performing pixels. The terms "non-performing" and "defective pixels/sub-pixels" are used interchangeably for ease of identification. All monitors have been tested to ensure they comply with this standard.

To identify non-performing pixels, the monitor shall be viewed under normal operating conditions, preferably in its native resolution, and from a normal viewing distance of at least 50 cm (16 in.).

Under these conditions the ENVISION monitor shall not show more than (whichever of the following limits is reached first):

- a total of 8 non-performing pixels (of whatever type), or
- 5 bright non-performing pixels appearing as a red, green, blue, yellow, cyan, magenta, or white dot on a dark or black background, or
- 5 dark non-performing pixels appearing as a black dot on a bright or white background, or
- 2 non-performing pixels of any type located less than 10 mm from each other.

ENVISION will entertain any warranty request concerning non-performing pixels. However, it should be noted that non-performing pixels are innate within the current LCD panel manufacturing process. As such, ENVISION cannot guarantee that the return unit to our customers will be 100% free of pixel defects or have fewer numbers of defects than the accepted standard of non-performing pixels as outlined before.