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Display Monitors and Geometric Distortion

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TOPIC -----

This articles explains why computer display monitors experience geometric distortion, and describes some remedies.

DISCUSSION -----

General -----

The earth's magnetic field often distorts a monitor's visible raster, which is the lighted portion of the display. A monitor properly adjusted at the factory may appear significantly different when it is set up in its new environment. The raster may be tilted, off-center, or have areas of various forms of distortion such as "soft corners" or raster edges that may not be perfectly straight.

The influence of the earth's magnetic field is not peculiar to Apple monitors. All monitors are affected to some degree. The extent of the distortion depends on the location of the monitor. This can be demonstrated by moving the monitor to another location or by rotating it 90 degrees. The movement may either improve or worsen the shape and position of the raster. In most cases, the effects of the earth's magnetic field are primarily cosmetic. The active area of the screen, where work is actually performed, is still very usable.

Here are some tips to help you determine whether a monitor exhibiting geometric distortion needs to be repaired or is simply being influenced by some environmental interference.

Change Location -----

If your monitor has a distorted raster, move the monitor to another location and note any changes in the display. If the display changes when the monitor is moved or rotated, the monitor's environment is the source of the distortion. Servicing the monitor will make no difference.

Remove Metal Objects From the Area

Operating a monitor near large metal objects such as desks, file cabinets, or bookshelves may worsen the problem. If possible, rearrange the work area so that large metal objects are as far from the monitor as possible.

Look for Other Environmental Influence

If the raster jitters or has bars or lines in the display, this may indicate another type of environmental interference. If the monitor is close to another monitor, electrical appliance, or other units of electronic gear, turn off the power to the other unit(s) to see if the monitor returns to normal operation.

Fluorescent lighting fixtures are also common sources of external interference. The lights can arc internally (even though the lights don't flicker) and cause interference with the monitor. In these cases, turn off the lights momentarily to see if the display distortion stops.

How To Verify Environmental Interference as the Cause of Distortion

The best way to verify environmental interference as the cause of the distortion is to remove the unit from the building and check for the same symptoms at another location. If the problem is intermittent, look for electric devices that operate intermittently. These include, but are not limited to, coffeemakers, copy machines, and refrigerators.

Caution

You can compensate for some of the geometric distortions mentioned by performing various monitor adjustments. However, Apple does not recommend these "corrections." Remember that the monitor left the factory within specifications. Although a particular environment can distort a properly adjusted monitor, by adjusting the monitor to suit a particular environment, you are actually changing the monitor's correct factory settings. If the monitor is moved, or the environment in which it operates is changed (including everything from rearranging furniture to the construction of a nearby building), the resulting geometric distortion could be worse because the monitor is no longer set to its factory specifications.

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