Assessment of faulty pixels on LCDs

For all Fujitsu Computer Systems LifeBook® and Stylistic® products

General information:

Production techniques today cannot guarantee an absolutely fault-free display. In some instances a few isolated constant lit or unlit pixels may be present. Should this occur, the maximum permitted number of pixel faults is stipulated in the stringent international standard ISO 13406-2 (Class II).

- For example: a 15" flat-screen with a resolution of 1024 x 768 has 1024 x 768 = 786432 pixels. Each pixel consists of three dots or sub-pixels (red, green and blue), so there are almost 2.4 million dots in total. According to ISO 13406-2 (Class II), a maximum of 4 pixels and 5 sub pixels may be defective, i.e. a total of 17 faulty dots. This corresponds to approximately 0.002% of the entire screen surface.

Assessment of Faulty Pixels on LCDs

The manufacturing processes for LCDs almost invariably results in a small number of the pixels on LCD screens to be defective. This phenomenon is not confined to Fujitsu and is common throughout the industry. Fujitsu has established a standard acceptance criterion for the number of defective pixels allowed.

A pixel is considered defective if one or more of the sub-pixels cannot be controlled, i.e. the sub-pixel stays the same color rather than the desired color, and it is visible from a distance of one foot from the LCD panel surface. Typically such defects can be seen as bright spots on a dark
background. The bright spot can be seen as bright white, red, blue or green.

Fujitsu Computer Systems Criteria

The general criteria for an acceptable number of defective pixels are defined in the table below:

<table>
<thead>
<tr>
<th>Failure Type</th>
<th>Defect Type</th>
<th>Maximum Allowable</th>
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<tbody>
<tr>
<td></td>
<td>Colored spot (green, red or blue)</td>
<td>4</td>
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A “White Spot” is defined as a pixel with no control of all three dots where all three dots are turned on. Please note that on some backgrounds 2 dots being turned on can cause the pixel to appear white.

LCDs should only be considered for warranty replacement if the number of defective pixels exceeds the stated criteria above.