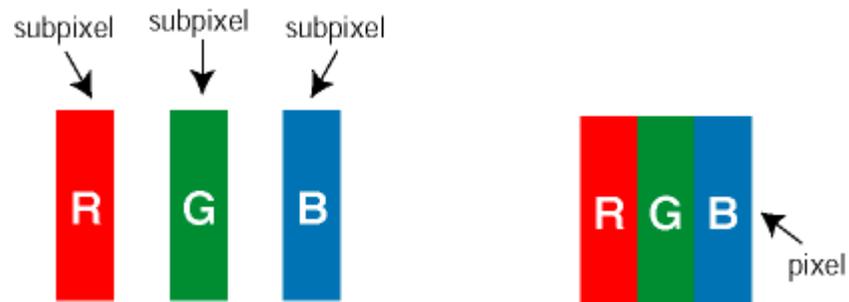


## Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or subpixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels. For example, no more than 0.0004% of the subpixels on a 15" XGA monitor may be defective. Additionally, because some types or combinations of pixel defects are more noticeable than others, Philips sets even higher quality standards for those.



### **Pixels and Subpixels**

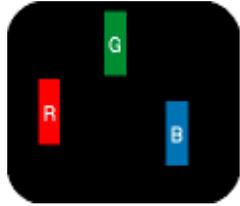
A pixel, or picture element, is composed of three subpixels in the primary colors of red, green and blue. Many pixels together form an image. When all subpixels of a pixel are lit, the three colored subpixels together appear as a single white pixel. When all are dark, the three colored subpixels together appear as a single black pixel. Other combinations of lit and dark subpixels appear as single pixels of other colors.

## Types of Pixel Defects

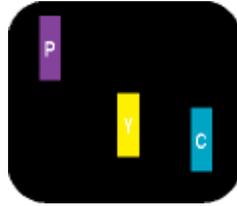
Pixel and subpixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of subpixel defects within each category.

### Bright Dot Defects

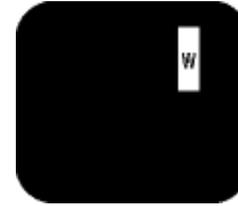
Bright dot defects appear as pixels or subpixels that are always lit or "on". These are the types of bright dot defects:



One lit red, green or blue subpixel



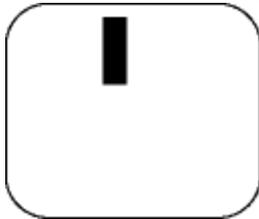
Two adjacent lit subpixels:  
- Red + Blue = Purple  
- Red + Green = Yellow  
- Green + Blue = Cyan (Light Blue)



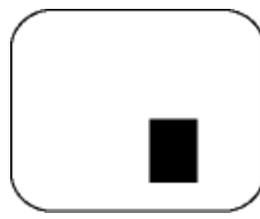
Three adjacent lit subpixels (one white pixel)

### Black Dot Defects

Black dot defects appear as pixels or subpixels that are always dark or "off". These are the types of black dot defects:



One dark subpixel



Two or three adjacent dark subpixels

## Proximity of Pixel Defects

Because pixel and subpixels defects of the same type that are nearby one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.

## Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Philips flat panel monitor must have pixel or subpixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS			ACCEPTABLE LEVEL								ZERO Bright-Dot		ACCEPTABLE LEVEL							
MODEL	150S2 150S3 150V3	150S4	150B2 150B3 150B4 150P3 150P3 150P4 150X3	150MT1 150MT2	150C4 150S5 170C4 170T4 170S5	170S2	170S4	170B2	170B4	150X4 150B5 170B5 170P5	170X4 170N4	180B2 180P2	180MT	190S5	190B4	190P5	200P3	200P4		
1 lit subpixel	≤ 8	≤ 4	0	≤ 4	≤ 4	≤ 8	≤ 6	≤ 4	≤ 4	0	0	≤ 3	≤ 3	≤ 3	≤ 4	≤ 2	≤ 6	≤ 4		
2 adjacent lit subpixels	≤ 3	≤ 2	0	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	0	0	≤ 2	≤ 2	≤ 1	≤ 2	≤ 1	≤ 2	≤ 2		
3 adjacent lit subpixels (one white subpixel)	≤ 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Distance between two bright dot defects*	≥ 15 mm	≥ 15 mm	0	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	0	0	≥ 15 mm	≥ 15 mm	≥ 25 mm	≥ 15 mm	≥ 15 mm	≥ 25 mm	≥ 15 mm		
Bright dot defects within 20mm circle*	≤ 3	-	0	≤ 3	-	≤ 3	≤ 3	≤ 3	≤ 3	-	-	≤ 3	-	-	-	-	N/A	-		
Total bright dot defects of all types	≤ 8	≤ 4	0	≤ 4	≤ 4	≤ 8	≤ 6	≤ 4	≤ 4	0	0	≤ 3	≤ 3	≤ 3	≤ 4	≤ 2	≤ 6	≤ 4		
<b>BLACK DOT DEFECTS</b>																				
			ACCEPTABLE LEVEL																	
MODEL	150S2 150S3 150V3	150S4	150B2 150B3 150B4 150P3 150P3 150P4 150X3	150MT1 150MT2	150C4 150S5 170C4 170T4 170S5	170S2	170S4	170B2	170B4	150X4 150B5 170B5 170P5	170X4 170N4	180B2 180P2	180MT	190S5	190B4	190P5	200P3	200P4		
1 dark subpixel	≤ 8	≤ 4	≤ 4	≤ 4	≤ 4	≤ 8	≤ 6	≤ 4	≤ 4	≤ 4	≤ 4	≤ 3	≤ 3	≤ 5	≤ 6	≤ 4	≤ 7	≤ 4		
2 adjacent dark subpixels	≤ 3	≤ 2	≤ 1	≤ 2	≤ 2	≤ 3	≤ 3	≤ 2	≤ 2	≤ 1	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 3	≤ 2		
3 adjacent dark subpixels (one white subpixel)	≤ 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
Distance between two bright dot defects*	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 5 mm	≥ 5 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 15 mm	≥ 5 mm	≥ 25 mm	≥ 15 mm		
Black dot defects within 20mm circle*	≤ 3	-	≤ 3	≤ 3	-	-	-	≤ 3	≤ 3	-	-	≤ 3	-	-	-	-	N/A	-		
Total black dot defects of all types	≤ 8	≤ 4	≤ 4	≤ 4	≤ 4	≤ 8	≤ 6	≤ 4	≤ 4	≤ 4	≤ 4	≤ 3	≤ 3	≤ 5	≤ 6	≤ 4	≤ 7	≤ 4		
<b>TOTAL DOT EFFECTS</b>																				
			ACCEPTABLE LEVEL																	
MODEL	150S2 150S3 150V3	150S4	150B2 150B3 150B4 150P3 150P3 150P4 150X3	150MT1 150MT2	150C4 150S5 170C4 170T4 170S5	170S2	170S4	170B2	170B4	150X4 150B5 170B5 170P5	170X4 170N4	180B2 180P2	180MT	190S5	190B4	190P5	200P3	200P4		
Total bright or black dot defects of all types	≤ 10	≤ 5	≤ 4	≤ 4	≤ 5	≤ 10	≤ 8	≤ 4	≤ 5	≤ 4	≤ 4	≤ 6	≤ 6	≤ 5	≤ 6	≤ 5	≤ 8	≤ 5		