Category: Display
Distribution: Service Partner
Number: SB-DIS-15001
Version: 1.0

Date; September 7th, 2015

Service Facts
SB-DIS-150011
Information about Pixel Failures According to ISO 9241-307

Affected Product(s):	Monitor
Affected Operating System(s):	N/A
Affected Version(s):	N/A

Attachment(s):	N/A
Reference:	N/A
Change History:	N/A
Related Support Bulletin(s):	SB-DIS-09006

Problem / Question

The information mentioned in the product data sheet for monitors pixel failures are regulated according to the international standard ISO 9241-307 (Class I). For the maximum permitted number of faulty pixel s please handle service and warranty assignments in accordance to these information

Reason / Cause

Replace displays only when the maximum permitted number of faulty pixels is exceeded

Solution / Workaround

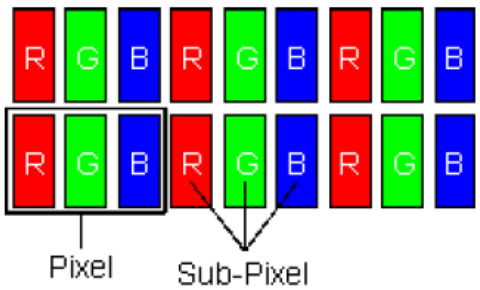
According to ISO 9241-307 (Class I) panels permit any or all of the following (per million pixels):

1. More than 1 full bright pixel
2. More than 1 full dark pixel
3. More than 3-5 bright and dark sub-pixel constellations (more than 5 dark subpixels are permitted generally)

ISO 9241-307 (New	ISO 13406-2 (Previous)	Comment	Maximum Number of defects per million pixels (dpm) ISO 9241-307			
			Type 1 full bright pixel	Type 2 full dark pixel	Type 3 sub pixel	
					Bright	Dark
0	I	Absolutely 0 pixel failures	0	0	0	0
I		For critical content (e.g. observation)	1	1	2	1
					1	3
					0	5
II	II	For Office use	2	2	5	0
					5-n*	2n*
					0	10
III	III	Not acceptable for office use	5	15	Up to 50	
IV	IV	Not acceptable for office use	50	150	Up to 500	

***n = 1….5**

A pixel is the smallest element that can be generated by complete functionality of the display. A subpixel is a separately addressable internal structure within a pixel that enhances the pixel function.



Pixel fault types:

Type 1 = all 3 sub pixel are bright
Type 2 = all 3 sub pixel are dark
Type 3 = only one sub pixel is bright/black

Example:
A diplsay with a nativel panel resolution of 1920 x 1200 has 2.304.000 pixels. According to ISO 9241-307 (class I), a maximum of 2 lit and 2 unlit pixels and, additionally, 4 bright plus 2 dark sub pixels are allowed

Table of Current resolutions and maximum permitted faulty pixels:

Native Panel Resolution	Type 1 full bright pixel Max. faulty pixel	Type 2 full dark pixel Max. faulty pixel	Type 3 sub pixel Max. faulty pixel	
			Bright	Dark
UHD - 3840 x 2160	8	8	16	8
			8	24
			0	40
QHD - 2560 x 1440	3	3	6	1
			3	9
			0	15
WUXGA - 1920 x 1200	2	2	4	2
			2	6
			0	10
Full HD - 1920 x 1080	2	2	4	2
			2	6
			0	10
WSXGA+ - 1680 x 1050	1	1	2	1
			1	3
			0	5
SXGA – 1280 x 1024	1	1	2	1
			1	3
			0	5