



XMV-16M CAMERA BLEMISH SPECIFICATION

Description	Definition	CL1 Grade	CL2 Grade Color only	CL2 Grade Mono only	Notes	Test
Major Dark field defective pixels	Defect \geq 245mV	150	300	300	2	1
Major Bright field defective pixels	Defect \geq 15%				2	2
Minor Dark field defective pixels	Defect \geq 126mV	1,500	3,000	3,000	3	1
Cluster defect	A group of 2 to N contiguous major defective pixels, but no more than W adjacent pixels wide	30 N=20 W=4	30 N=20 W=4	30 N=20 W=4	1,2	
Column defect	A group of more than 10 contiguous major defective pixels along a single column	0	15	4	1,2	

NOTES:

1. There will be at least two non-defective pixels separating any two major defective pixels.
2. Tested at 27 degrees and 40 degrees Celsius
3. Tested at 40 degrees Celsius

TESTS:

1. Dark field defect test

This test is performed under dark field conditions. The sensor is partitioned into 384 sub regions of interest, each of which is 203 by 203 pixels in size. In each region of interest, the median value of all pixels is found. For each region of interest, a pixel is marked defective if it is greater than or equal to the median value of that region of interest plus the defect threshold specified in the "Defect Definitions" section.

2. Bright field defect test

This test is performed with the imager illuminated to a level such that the output is at approximately 630mV. Prior to this test being performed the substrate voltage has been set such that the charge capacity of the sensor is 900mV. The average signal level of all active pixels is found. The bright and dark thresholds are set as:

Dark defect threshold = Active Area Signal * threshold
Bright defect threshold = Active Area Signal * threshold

The sensor is then partitioned into 384 sub regions of interest, each of which is 203 by 203 pixels in size. In each region of interest, the average value of all pixels is found. For each region of interest, a pixel is marked defective if it is greater than or equal to the median value of that region of interest plus the bright threshold specified or if it is less than or equal to the median value of that region of interest minus the dark threshold specified.

Example for major bright field defective pixels:

- Average value of all active pixels is found to be 630 mV
- Dark defect threshold: $630\text{mV} * 15\% = 95 \text{ mV}$
- Bright defect threshold: $630\text{mV} * 15\% = 95 \text{ mV}$
- Region of interest #1 selected. This region of interest is pixels 1,1 to pixels 203, 203.
 - Median of this region of interest is found to be 630 mV.
 - Any pixel in this region of interest that is $\geq [630+95 \text{ mV}] 725 \text{ mV}$ in intensity will be marked defective.
 - Any pixel in this region of interest that is $\leq [630-95 \text{ mV}] 535 \text{ mV}$ in intensity will be marked defective.
- All remaining 384 sub regions of interest are analyzed for defective pixels in the same manner.