

**SYSTEM OVERVIEW**

**COMPONENTS**

Description	Model	Serial Number
Head	DU-897D-CS0-#BV-462	X-8498
Controller Card	CCI-24	C-7392

**SENSOR DETAILS**

Manufacturer / Model No.	Pixels	Description
E2V / CCD97-00-1-095	512x512, 16µm x 16µm	Back-illuminated CCD, Vis. optimized

**SUMMARY OF SYSTEM TEST DATA**

**SENSITIVITY & READOUT NOISE**

System Readout Rate	Preamp setting	CCD Sensitivity ♦1 (electrons per A/D count)	Single Pixel Noise ♦2 (electrons)
10 MHz, 14-bit, EM amplifier	1	61	91.5
	2.40	26.19	62.59
	4.90	12.1	51.91
5 MHz, 14-bit, EM amplifier	1	57.2	83.51
	2.40	22.72	49.98
	4.90	10.58	41.47
3 MHz, 14-bit, Conventional amplifier	1	10.62	14.66
	2.40	4.14	10.85
	4.90	1.85	10.12
3 MHz, 14-bit, EM amplifier	1	56	62.16
	2.40	22.84	37
	4.90	10.19	29.96
1 MHz, 14-bit, EM amplifier	1	56.7	49.9
	2.40	22.71	26.8
	4.90	10.22	20.64
1 MHz, 14-bit, Conventional amplifier	1	9.83	11.8
	2.40	3.85	9.28
	4.90	1.72	8.7

**SATURATION LEVEL**

Image Area Saturation Signal Per Pixel(Max Speed, Max Preamp, 14 bit)	154368	electrons / pixel
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**LINEARITY AND UNIFORMITY**

<b>Non-linearity less than ♦3</b>	1	% at 14 bit, EM amplifier
<b>Response Non Uniformity ♦4</b>	0.26	%

**SENSOR DARK CURRENT**

<b>Minimum Dark Current Achievable ♦5</b>	0.00012	electrons / pixel / sec
<b>@ Sensor Temperature of ♦6</b>	-100.66	°C and 16 °C water cooling

**DEFECTS**

**SPOT DEFECTS** (Centroid(X, Y) . No. of Pixels Affected, defect type)  
No spot defects.

**COLUMN DEFECTS** (Column No.)  
No column defects.

**TRAPS** ( Location(X, Y) ) ♦7  
No traps.

**TEST CONDITIONS**

Readout Noise tested at	-75	°C with 16 °C water cooling
Base Mean Level	-75	°C with 16 °C water cooling
Blemishes tested at	-75	°C with 16 °C water cooling

**SYSTEM PASSED FOR SHIPPING**

<b>Test Technician</b>	<b>Date</b>
John Toal	15/04/2014

## NOTES

**All tests are carried out with standard test card  
Actual performance may differ slightly with supplied card, but will remain within specification**

- ◆ 1 Sensitivity is measured in photoelectrons per A/D count from a plot of Variance [Noise squared] against Signal.
- ◆ 2 Readout Noise is measured for single pixel readout with the CCD in darkness at temperature indicated and minimum exposure time. Noise values will change with pre-amplifier gain selection [PAG].
- ◆ 3 Linearity is measured from a plot of counts vs. signal up to the saturation point of the system. Linearity is expressed as a percentage deviation from a straight line fit. This quantity is not measured on individual systems.
- ◆ 4 RMS (root mean square) deviation from the average response of the CCD in full resolution image operation illuminated with uniform white light (defects not included).
- ◆ 5 Dark current falls exponentially with temperature. However, for a given temperature the actual dark current can vary by more than an order of magnitude from device to device. The devices are specified in terms of minimum dark current achievable rather than minimum temperature.
- ◆ 6 Minimum temperature achieved for thermoelectric (TE) cooler set to maximum value with water cooling.
- ◆ 7 Traps are pixels which absorb charge as it is clocked through the defective area. When the light source is switched off, the signal from the trap appears to drop off more slowly than the signal from the surrounding pixels.