

SYSTEM OVERVIEW

COMPONENTS

Description	Model	Serial Number
Head	DU-885K-CS0-#VP-461	X-7627
Controller Card	CCI-24	C-7186

SENSOR DETAILS

Manufacturer / Model No.	Pixels	Description
TI / CCD-TX285SPD-31	1004x1002, 8µm x 8µm	Virtual Phase, Front-illuminated

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)
35 MHz, 14-bit, EM amplifier	1	4.55	24.39
	1.90	2.51	21.44
	3.90	1.35	26.64
27 MHz, 14-bit, EM amplifier	1	4.53	26.82
	1.90	2.36	24.12
	3.90	1.15	22.52
13 MHz, 14-bit, EM amplifier	1	4.32	14.3
	1.90	2.35	13.32
	3.90	1.04	12.31

SATURATION LEVEL

Image Area Saturation Signal Per Pixel(Max Speed, Max Preamp, 14 bit)	29512	electrons / pixel
---	-------	-------------------

LINEARITY AND UNIFORMITY

Non-linearity less than ♦3	1	% at 14 bit, EM amplifier
Response Non Uniformity ♦4	0.03	%

SENSOR DARK CURRENT

Minimum Dark Current Achievable ♦5	0.0088	electrons / pixel / sec
@ Sensor Temperature of ♦6	-95.47	°C and 16 °C water cooling

DEFECTS

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

Spots	(143, 447) 1, (Hot)	(803, 143) 1, (Hot)
--------------	---------------------	---------------------

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

Test Technician	Date
David McIntyre	21/08/2013

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.