# Electro-Optical Test Results for Sensor ITL-113-10-3XXKhz

July 27, 2015

## 1 Summary

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| ✓ | CCD-007 | Read Noise | $< 8\,e^-$rms | 0.00–0.00 $e^-$ rms |
| ✓ | CCD-008 | Blooming Full Well | $< 175000\,e^-$ | 0–0 $e^-$ |
| × | CCD-009 | Nonlinearity | $< 2\%$ | max. fractional deviation from linearity: 1.8 |
| × | CCD-010 | Serial CTE | $> 1 - 5 \times 10^{-6}$ | $1 - 1.22 \times 10^{-3}$ (min. value) |
| × | CCD-011 | Parallel CTE | $> 1 - 3 \times 10^{-6}$ | $1 - 1.01 \times 10^{-3}$ (min. value) |
| ✓ | CCD-012 | Active Imaging Area and Cosmetic Quality | $< 0.5\%$ defective pixels | defective pixels: 27103 |
| ··· | CCD-012a | Bright Pixels | ··· | 2864 |
| ··· | CCD-012b | Dark Pixels | ··· | 323 |
| ··· | CCD-012c | Bright Columns | ··· | 12 |
| ··· | CCD-012d | Dark Columns | ··· | 0 |
| ··· | CCD-012e | Traps | ··· | 0 |
| ··· | CCD-013 | Crosstalk | $< 0.19\%$ | ··· |
| × | CCD-014 | Dark Current 95th Percentile | $< 0.2\,e^-\,s^{-1}$ | $2.65e^-\,s^{-1}$ |
| ··· | CCD-021 | u Band QE | $> 41\%$ | No data |
| × | CCD-022 | g Band QE | $> 78\%$ | 1.6% |
| × | CCD-023 | r Band QE | $> 83\%$ | 1.8% |
| × | CCD-024 | i Band QE | $> 82\%$ | 2.7% |
| × | CCD-025 | z Band QE | $> 75\%$ | 3.2% |
| × | CCD-026 | y Band QE | $> 21\%$ | 1.2% |
| × | CCD-027 | PRNU | $< 5\%$ | max. variation = $1.1 \times 10^1\%$ at 750 nm missing wavelengths: 350, 500, 620 nm |
| ✓ | CCD-028 | Point Spread Function | $\sigma < 5\mu$ | $4.51\,\mu$ |

## 2 Read Noise

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| ✓ | CCD-007 | Read Noise | $< 8\,\mathrm{e}^-$ rms | 0.00–0.00 $\mathrm{e}^-$ rms |

# 3 Full Well and Nonlinearity

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| ✓ | CCD-008 | Blooming Full Well | $< 175000\,\mathrm{e}^-$ | 0–0 $\mathrm{e}^-$ |
| × | CCD-009 | Nonlinearity | $< 2\%$ | max. fractional deviation from linearity: 1.8 |

# 4 Charge Transfer Efficiency

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| × | CCD-010 | Serial CTE | $> 1 - 5 \times 10^{-6}$ | $1 - 1.22 \times 10^{-3}$ (min. value) |
| × | CCD-011 | Parallel CTE | $> 1 - 3 \times 10^{-6}$ | $1 - 1.01 \times 10^{-3}$ (min. value) |

| Amp | Serial CTE | Parallel CTE |
|---|---|---|
| 1 | $1 - 5.91 \times 10^{-4}$ | $1 - 0.00$ |
| 2 | $1 - 6.59 \times 10^{-4}$ | $1 + 2.86 \times 10^{-4}$ |
| 3 | $1 - 8.14 \times 10^{-4}$ | $1 + 2.41 \times 10^{-5}$ |
| 4 | $1 - 1.22 \times 10^{-3}$ | $1 + 1.20 \times 10^{-5}$ |
| 5 | $1 - 4.97 \times 10^{-4}$ | $1 - 0.00$ |
| 6 | $1 - 1.04 \times 10^{-3}$ | $1 + 2.70 \times 10^{-5}$ |
| 7 | $1 - 6.33 \times 10^{-4}$ | $1 + 1.18 \times 10^{-4}$ |
| 8 | $1 - 1.03 \times 10^{-3}$ | $1 + 1.43 \times 10^{-4}$ |
| 9 | $1 - 4.23 \times 10^{-6}$ | $1 - 1.01 \times 10^{-3}$ |
| 10 | $1 - 8.88 \times 10^{-7}$ | $1 - 1.01 \times 10^{-3}$ |
| 11 | $1 - 8.15 \times 10^{-6}$ | $1 - 1.01 \times 10^{-3}$ |
| 12 | $1 - 1.27 \times 10^{-6}$ | $1 - 1.01 \times 10^{-3}$ |
| 13 | $1 - 2.88 \times 10^{-6}$ | $1 - 1.00 \times 10^{-3}$ |
| 14 | $1 - 1.39 \times 10^{-6}$ | $1 - 1.00 \times 10^{-3}$ |
| 15 | $1 - 5.21 \times 10^{-6}$ | $1 - 1.00 \times 10^{-3}$ |
| 16 | $1 - 1.17 \times 10^{-6}$ | $1 - 1.00 \times 10^{-3}$ |

# 5 Crosstalk

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| ··· | CCD-013 | Crosstalk | $< 0.19\%$ | ··· |

# 6 Quantum Efficiency

| Status | Spec. ID | Description | Specification | Measurement |
|---|---|---|---|---|
| ··· | CCD-021 | u Band QE | $> 41\%$ | No data |
| × | CCD-022 | g Band QE | $> 78\%$ | 1.6% |
| × | CCD-023 | r Band QE | $> 83\%$ | 1.8% |
| × | CCD-024 | i Band QE | $> 82\%$ | 2.7% |
| × | CCD-025 | z Band QE | $> 75\%$ | 3.2% |
| × | CCD-026 | y Band QE | $> 21\%$ | 1.2% |