Flea3 USB 3.0

USB 3.0 Digital Camera

Imaging Performance Specification

Version 1.0

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Point Grey Research® Inc.

12051 Riverside Way • Richmond, BC • Canada • V6W 1K7 •T (604) 242-9937 • www.ptgrey.com

1 Specifications

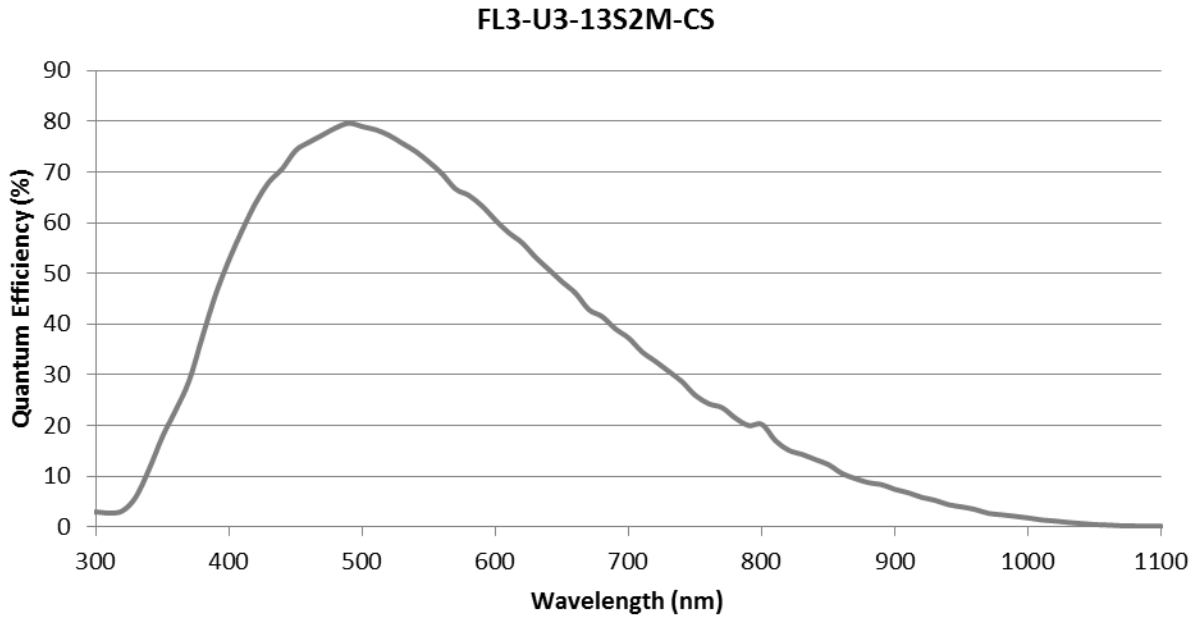
Model	Sensor	Maximum Resolution	Maximum Frame Rate	Pixel Size	Firmware	Results
FL3-U3-13S2M-CS	Sony IMX035 CMOS, 1/3", Mono	1328 x 1048	120 FPS	3.63 µm	1.41.3.0	page 3
FL3-U3-13S2C-CS	Sony IMX035 CMOS, 1/3", Color	1328 x 1048	120 FPS	3.63 µm	2.4.3.0	page 4
FL3-U3-13Y3M-C	On Semi VITA1300 CMOS, 1/2", Mono	1280 x 1024	150 FPS	4.8 µm	1.41.3.0	page 5
FL3-U3-13E4M-C	e2v EV76C560 CMOS, 1/1.8", Mono	1280 x 1024	60 FPS	5.3 µm	1.29.3.0	page 6
FL3-U3-13E4C-C	e2v EV76C560 CMOS, 1/1.8", Color	1280 x 1024	60 FPS	5.3 µm	1.29.3.0	page 7
FL3-U3-32S2M-CS	Sony IMX036 CMOS, 1/2.8", Mono	2080 x 1552	60 FPS	2.5 µm	1.34.3.0	page 8
FL3-U3-32S2C-CS	Sony IMX036 CMOS, 1/2.8", Color	2080 x 1552	60 FPS	2.5 µm	1.34.3.0	page 9
FL3-U3-88S2C-C	Sony IMX121 CMOS, 1/2.5", Color	4096 x 2160	21 FPS	1.55 µm	1.34.3.0	page 10

1288 EMVA Standard Compliant

Measurements are taken based on guidelines in the EMVA 1288 standard; the full definition can be found at EMVA.org. Camera settings are at maximum exposure time and bit depth unless otherwise noted. The pixel format is Mono 16 for mono cameras and Raw 16 for color cameras. Results are captured at room temperature (20°C).

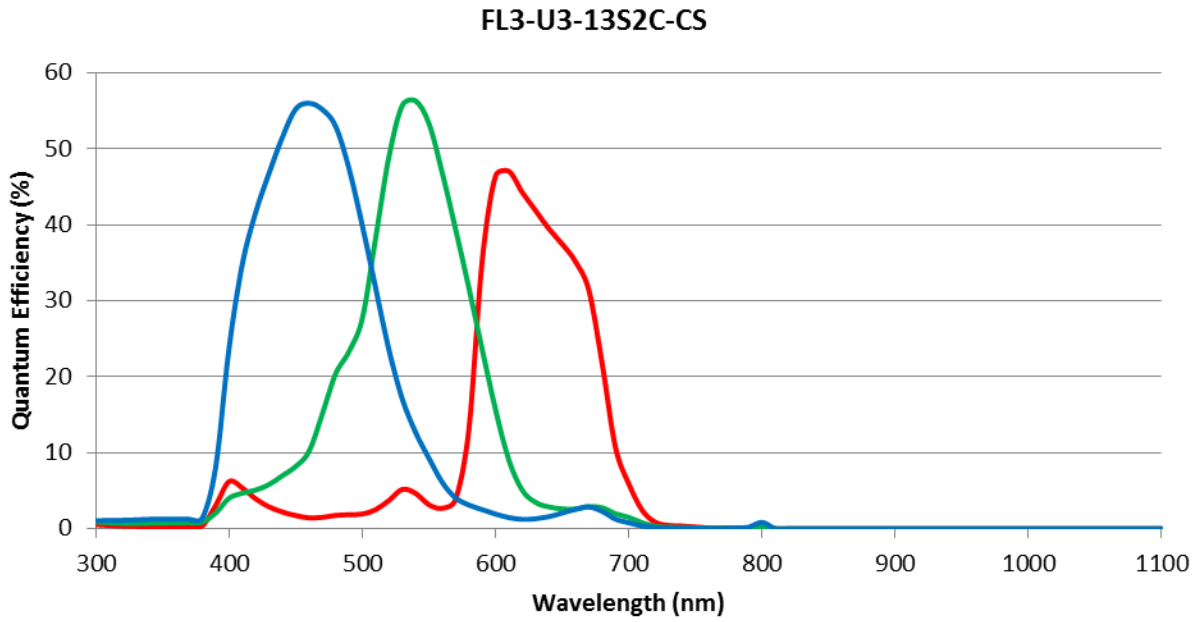
2 FL3-U3-13S2M-CS Imaging Performance

Measurement	Value	Unit
Quantum Efficiency	77	% at 525 nm
Temporal Dark Noise (Read Noise)	6.00	e-
Signal to Noise Ratio Maximum	41.90	dB
Signal to Noise Ratio Maximum	6.96	Bits
Absolute Sensitivity Threshold	8.72	γ
Saturation Capacity (Well Depth)	15491	e-
Dynamic Range	67.55	dB
Dynamic Range	11.22	Bits
Gain	0.27	e-/ADU



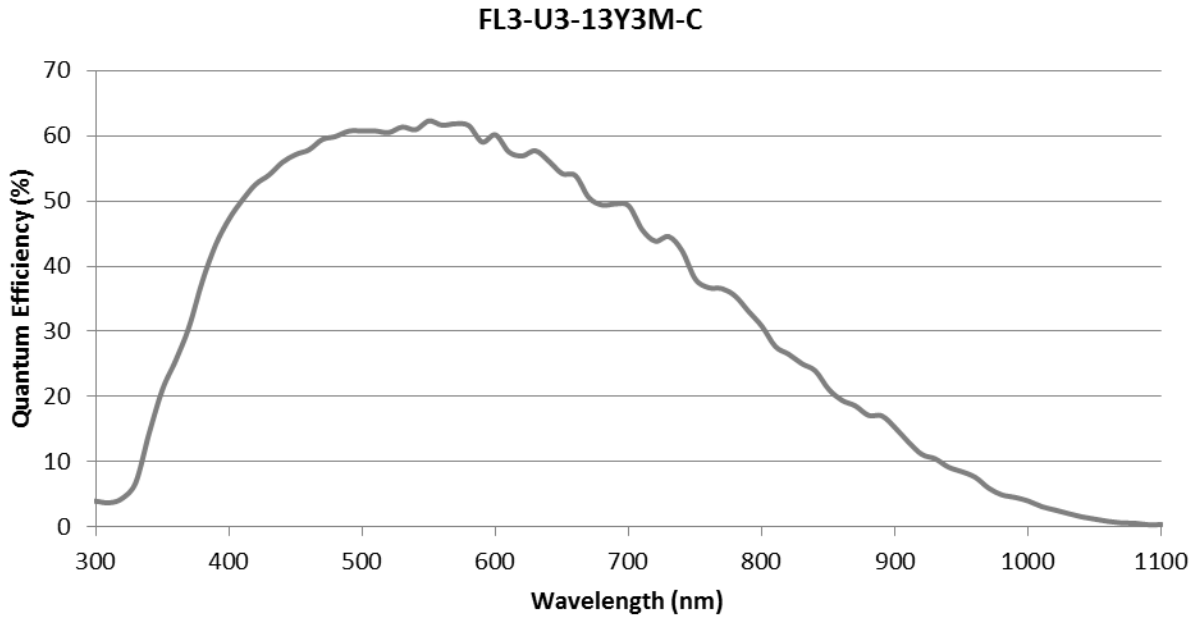
3 FL3-U3-13S2C-CS Imaging Performance

Measurement	Value	Unit
Quantum Efficiency Blue	55	% at 470 nm
Quantum Efficiency Green	52	% at 525 nm
Quantum Efficiency Red	39	% at 640 nm
Temporal Dark Noise (Read Noise)	7.95	e-
Signal to Noise Ratio Maximum	41.67	dB
Signal to Noise Ratio Maximum	6.92	Bits
Absolute Sensitivity Threshold	17.46	γ
Saturation Capacity (Well Depth)	14685	e-
Dynamic Range	64.81	dB
Dynamic Range	10.76	Bits
Gain	0.25	e-/ADU



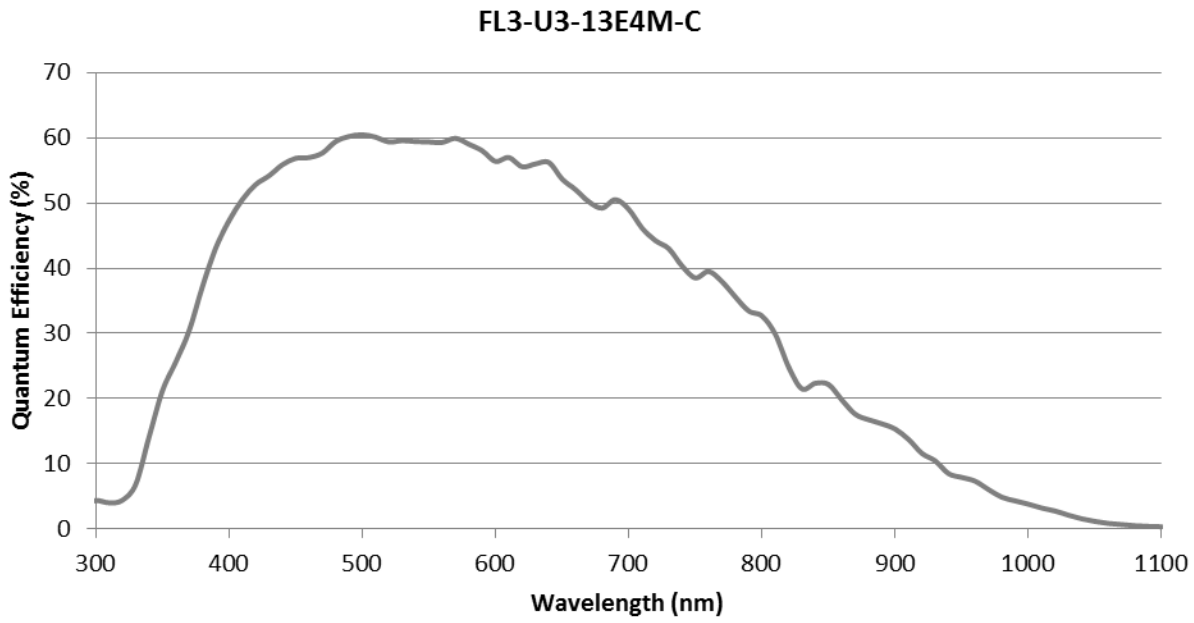
4 FL3-U3-13Y3M-C Imaging Performance

Measurement	Value	Unit
Quantum Efficiency	61	% at 525 nm
Temporal Dark Noise (Read Noise)	26.26	e-
Signal to Noise Ratio Maximum	40.10	dB
Signal to Noise Ratio Maximum	6.66	Bits
Absolute Sensitivity Threshold	44.13	γ
Saturation Capacity (Well Depth)	10226	e-
Dynamic Range	51.64	dB
Dynamic Range	8.58	Bits
Gain	0.21	e-/ADU



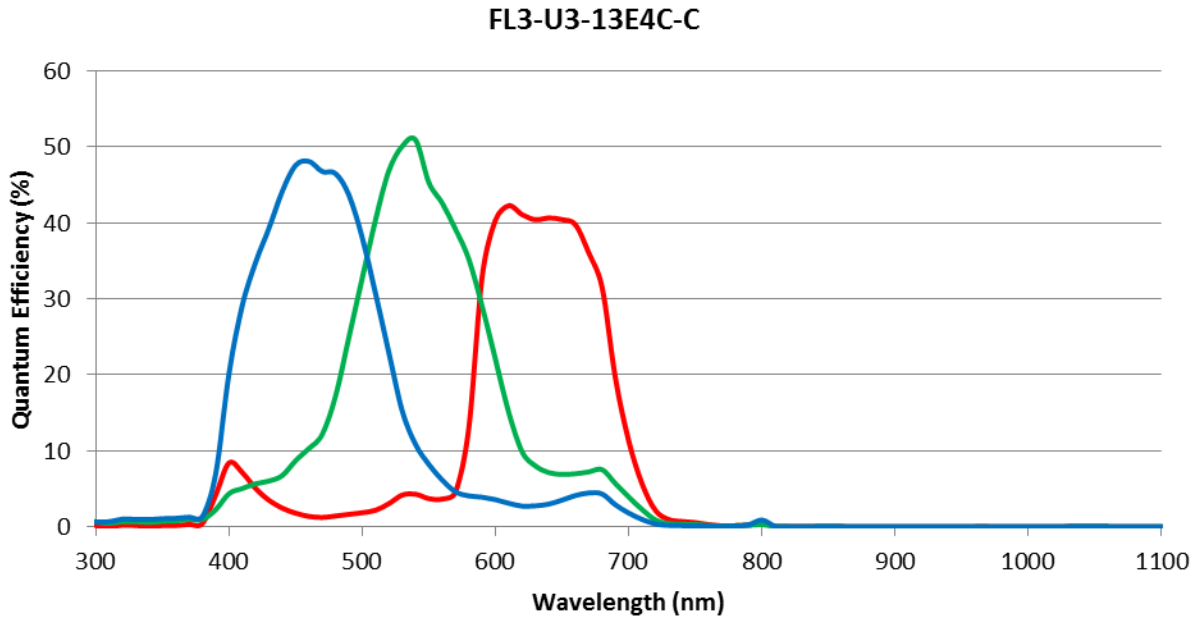
5 FL3-U3-13E4M-C Imaging Performance

Measurement	Value	Unit
Quantum Efficiency	59	% at 525 nm
Temporal Dark Noise (Read Noise)	25.14	e-
Signal to Noise Ratio Maximum	39.24	dB
Signal to Noise Ratio Maximum	6.52	Bits
Absolute Sensitivity Threshold	43.18	γ
Saturation Capacity (Well Depth)	8384	e-
Dynamic Range	50.29	dB
Dynamic Range	8.35	Bits
Gain	0.16	e-/ADU



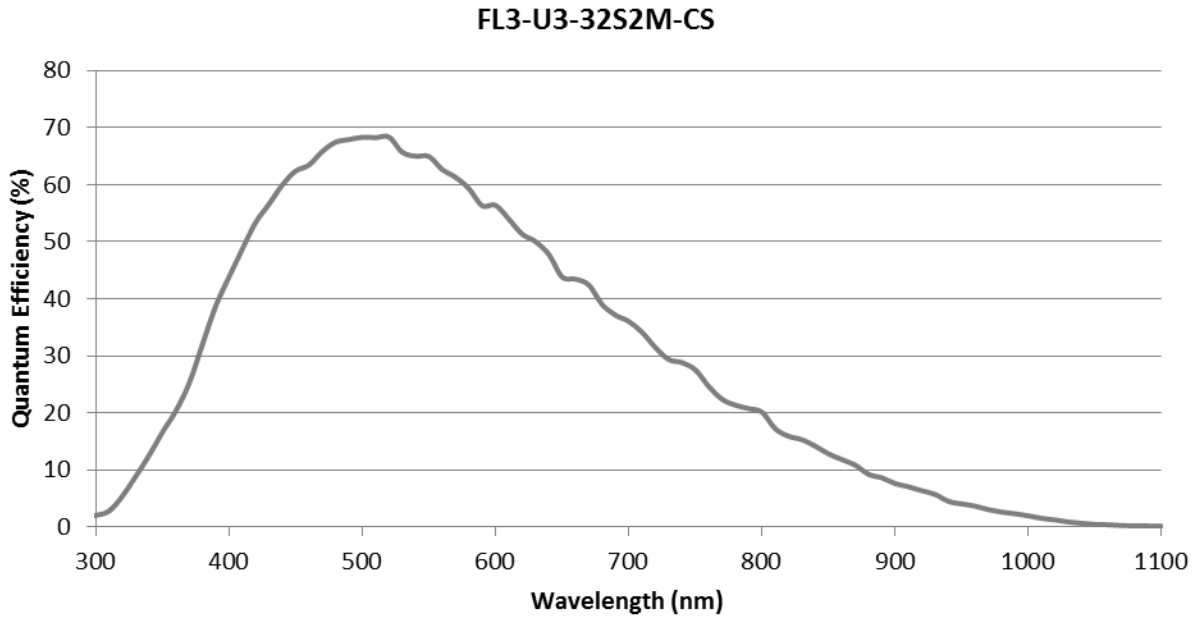
6 FL3-U3-13E4C-C Imaging Performance

Measurement	Value	Unit
Quantum Efficiency Blue	47	% at 470 nm
Quantum Efficiency Green	48	% at 525 nm
Quantum Efficiency Red	41	% at 640 nm
Temporal Dark Noise (Read Noise)	26.24	e-
Signal to Noise Ratio Maximum	37.58	dB
Signal to Noise Ratio Maximum	6.24	Bits
Absolute Sensitivity Threshold	55.57	γ
Saturation Capacity (Well Depth)	5726	e-
Dynamic Range	46.61	dB
Dynamic Range	7.74	Bits
Gain	0.16	e-/ADU



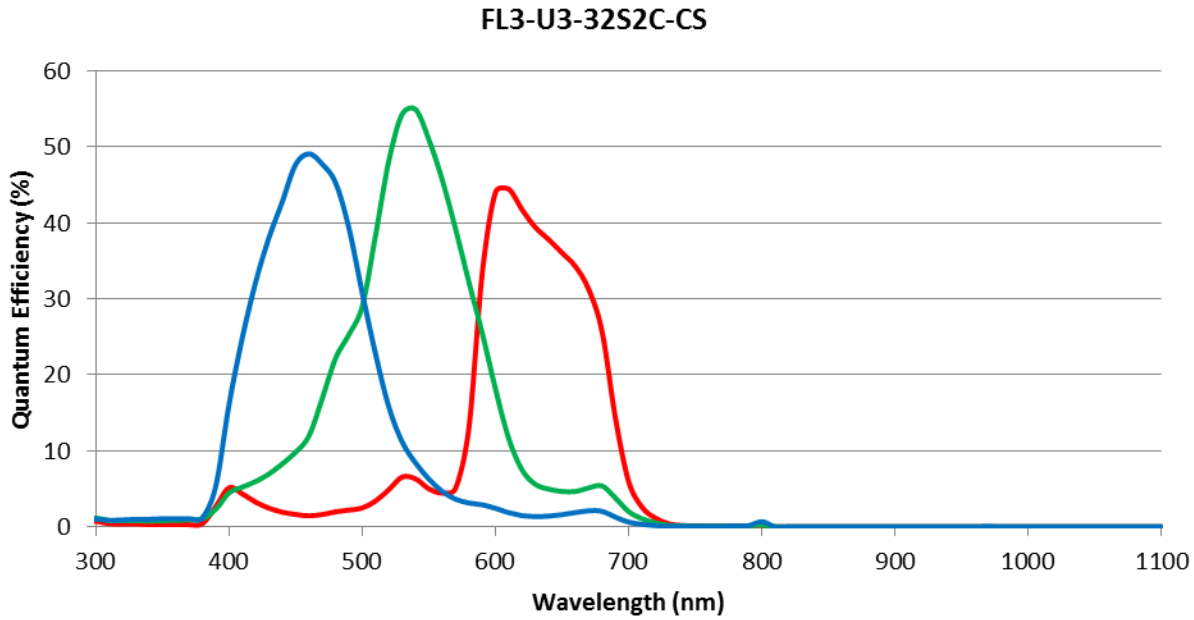
7 FL3-U3-32S2M-CS Imaging Performance

Measurement	Value	Unit
Quantum Efficiency	67	% at 525 nm
Temporal Dark Noise (Read Noise)	6.71	e-
Signal to Noise Ratio Maximum	40.03	dB
Signal to Noise Ratio Maximum	6.65	Bits
Absolute Sensitivity Threshold	10.99	γ
Saturation Capacity (Well Depth)	10066	e-
Dynamic Range	62.90	dB
Dynamic Range	10.45	Bits
Gain	0.19	e-/ADU



8 FL3-U3-32S2C-CS Imaging Performance

Measurement	Value	Unit
Quantum Efficiency Blue	48	% at 470 nm
Quantum Efficiency Green	51	% at 525 nm
Quantum Efficiency Red	38	% at 640 nm
Temporal Dark Noise (Read Noise)	10.00	e-
Signal to Noise Ratio Maximum	40.24	dB
Signal to Noise Ratio Maximum	6.68	Bits
Absolute Sensitivity Threshold	22.06	γ
Saturation Capacity (Well Depth)	10569	e-
Dynamic Range	60.06	dB
Dynamic Range	9.98	Bits
Gain	0.19	e-/ADU



9 FL3-U3-88S2C-C Imaging Performance

Measurement	Value	Unit
Quantum Efficiency Blue	63	% at 470 nm
Quantum Efficiency Green	73	% at 525 nm
Quantum Efficiency Red	49	% at 640 nm
Temporal Dark Noise (Read Noise)	3.06	e-
Signal to Noise Ratio Maximum	37.76	dB
Signal to Noise Ratio Maximum	6.27	Bits
Absolute Sensitivity Threshold	5.26	γ
Saturation Capacity (Well Depth)	5966	e-
Dynamic Range	64.49	dB
Dynamic Range	10.71	Bits
Gain	0.12	e-/ADU