



ULTRACAM

Calibration Report

Camera: UltraCam Eagle M3
Serial: 431S51176X010093-f210

Laboratory Calibration Date: Aug-14-2023
Camera Revision: Rev02.00

Date of Report: Aug-17-2023
Version of Report: V01



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Venice, Italy

Photo on page 1 courtesy of Vexcel Imaging GmbH



ULTRACAM

Geometric Calibration

Camera: UltraCam Eagle M3
Serial: 431S51176X010093-f210

Panchromatic Camera: ck = 212.100 mm
Multispectral Camera: ck = 212.100 mm

PPA Information: X: 0.000mm
Y: 0.000mm



Panchromatic Camera

Large Format Panchromatic Output Image

Image Format	long track cross track	68.016mm 105.840mm	17004pixel 26460pixel
Image Extent		(-34.008, -52.920)mm	(34.008, 52.920)mm
Pixel Size		4.000µm*4.000µm	
Focal Length	ck	212.100mm	± 0.002mm
Principal Point (Level 2)	X_ppa	0.000mm	± 0.002mm
	Y_ppa	0.000mm	± 0.002mm
Lens Distortion	Remaining Distortion less than 0.002mm		

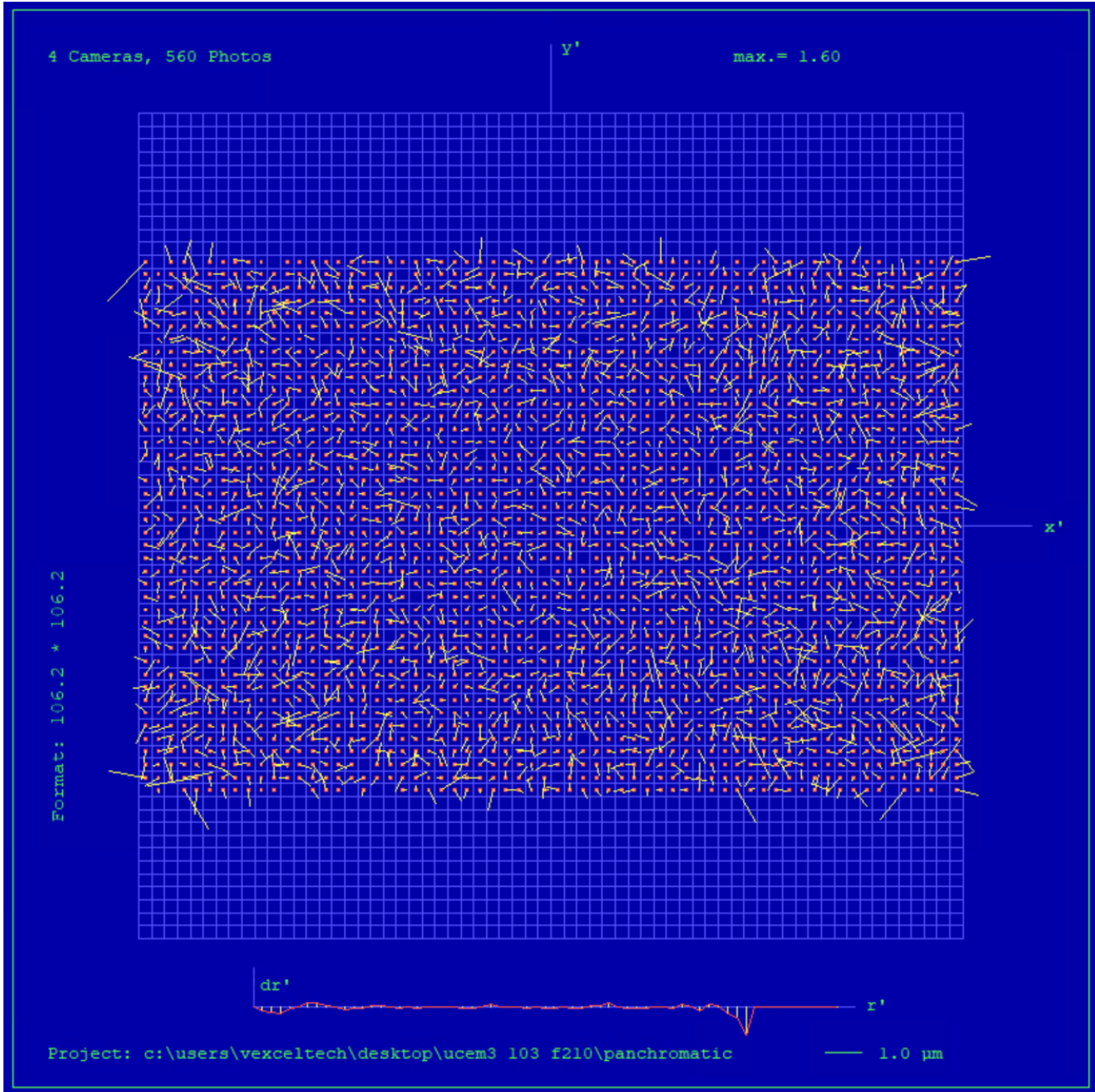
Multispectral Camera

Medium Format Multispectral Output Image (Upscaled to panchromatic image format)

Image Format	long track cross track	68.016mm 105.840mm	5668pixel 8820pixel
Image Extent		(-34.008, -52.920)mm	(34.008, 52.920)mm
Pixel Size		12.000µm*12.000µm	
Focal Length	ck	212.100mm	± 0.002mm
Principal Point (Level 2)	X_ppa	0.000mm	± 0.002mm
	Y_ppa	0.000mm	± 0.002mm
Lens Distortion	Remaining Distortion less than 0.002mm		



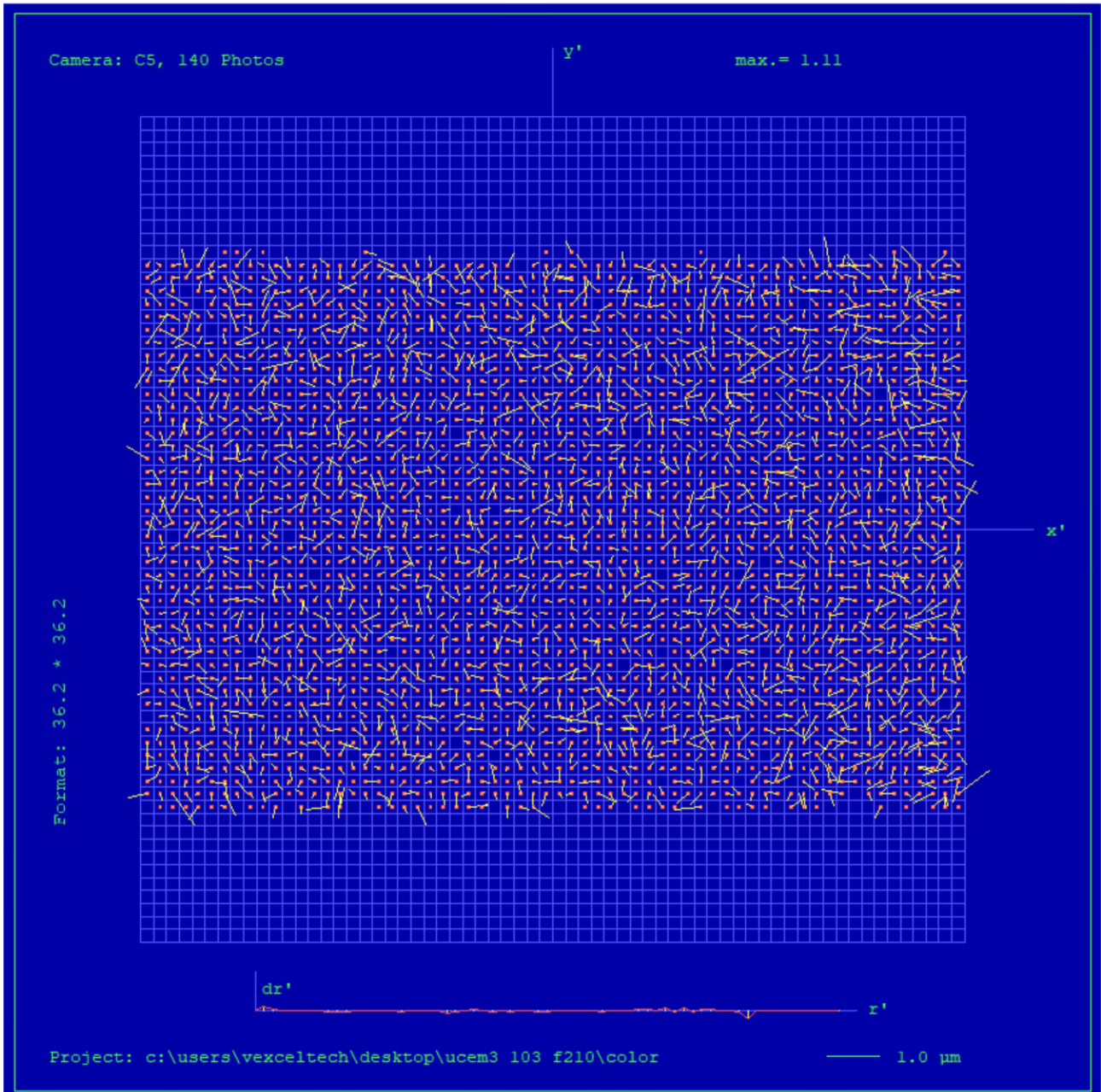
Full Panchromatic Image, Residual Error Diagram



Residual Error (RMS): **0.64 μm**



Green Cone (Cone 5), Residual Error Diagram



Residual Error (RMS): **0.49 μm**



Explanations

Calibration Method:

The geometric calibration is based on a set of 140 images of a defined geometry target with 394 GCPs.

Number of point measurements for the panchromatic camera : >16000

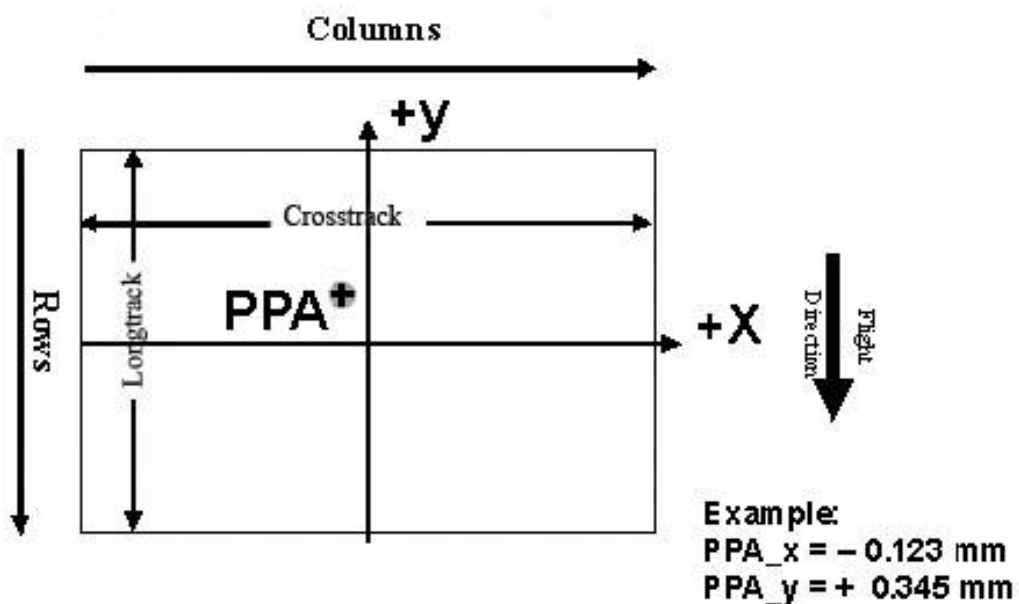
Number of point measurements for the multispectral camera : >60000

Determination of the image parameters by Least Squares Adjustment.

Software used for the adjustment: BINGO (GIP Eng. Aalen, Germany)

Level 2 Image Coordinate System:

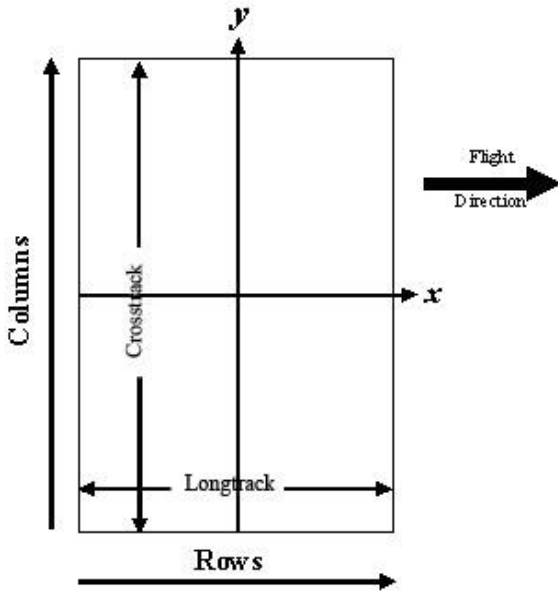
Lvl2, Camera prop. Orientation



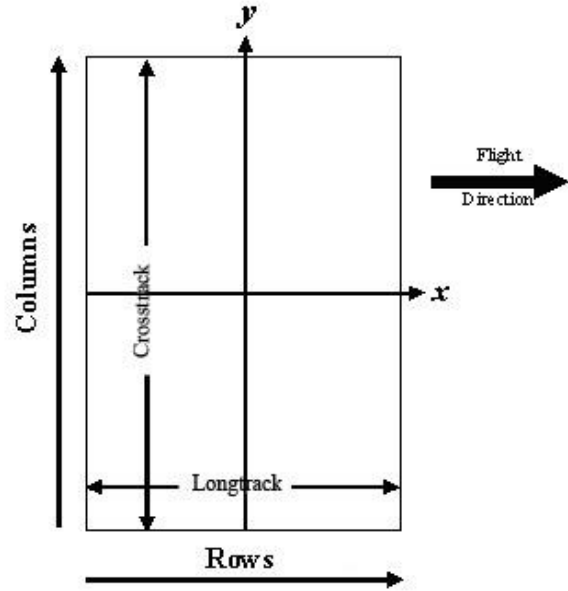
The image coordinate system of the Level 2 images is shown in the above figure. The basic image format and coordinate of the principal point in the level 2 image is given on page 4 of this report. The above figure shows the position of an example principal point at the coordinate (-0.123 / 0.345).



Level 3 Image Coordinate System:
(after rotation of 270° CW)



Panchromatic Image Format



Multispectral Image Format

Position of Principal Point in Level 3 Image

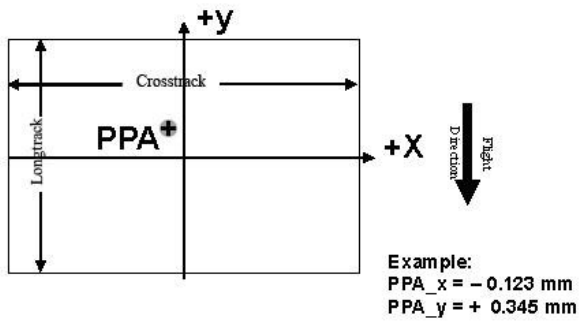
The position of the principal point in the level 3 image depends on the “rotation” setting used in UltraMap during the pan-sharpening step. The exact position relative to the image center is given in the table below as a function of the rotation setting used in UltraMap. The coordinates are specified for clockwise (CW) rotation in steps of 90 degrees, according to the principal point coordinate given on page 4 for high- and low resolution images.

Image Format	Clockwise Rotation (Degree)	PPA	
		X	Y
Level 2	-	0.000	0.000
Level 3	0	0.000	0.000
Level 3	90	0.000	0.000
Level 3	180	0.000	0.000
Level 3	270	0.000	0.000

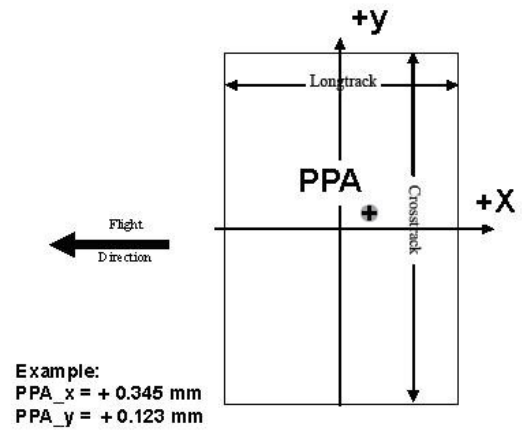


The coordinates in the figure below are only example values to illustrate the effect of image rotation on the principal point position, and do **not** correspond to the camera described in this report.

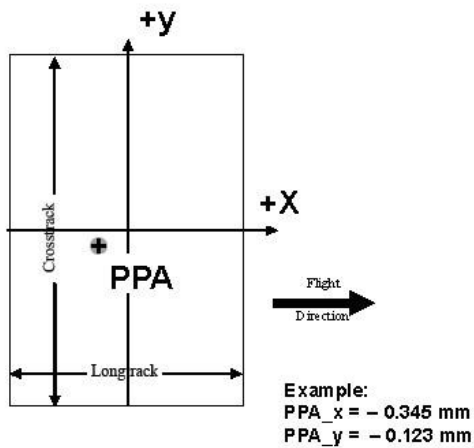
Lvl3, Rotation 0 deg clockwise



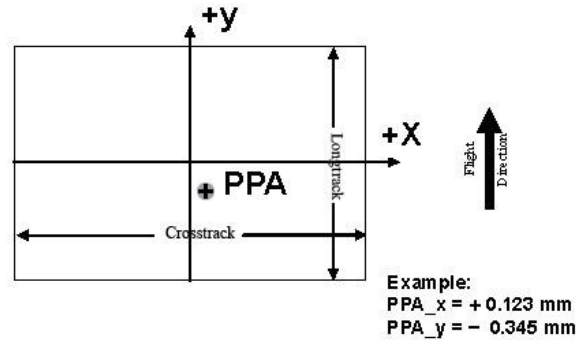
Lvl3, Rotation 90 deg clockwise



Lvl3, Rotation 270 deg clockwise



Lvl3, Rotation 180 deg clockwise





Lens Resolving Power

The following curves show the development of the modulation transfer function across different image heights of the panchromatic cones.

Please note that these values have been calculated and can vary up to 10% with optics from production (especially at high LP's).

The curves are given for the meridional (tangential) and sagital (radial) component of signals at frequencies of 12.5, 25, 50 and 100 line pairs per millimeter.

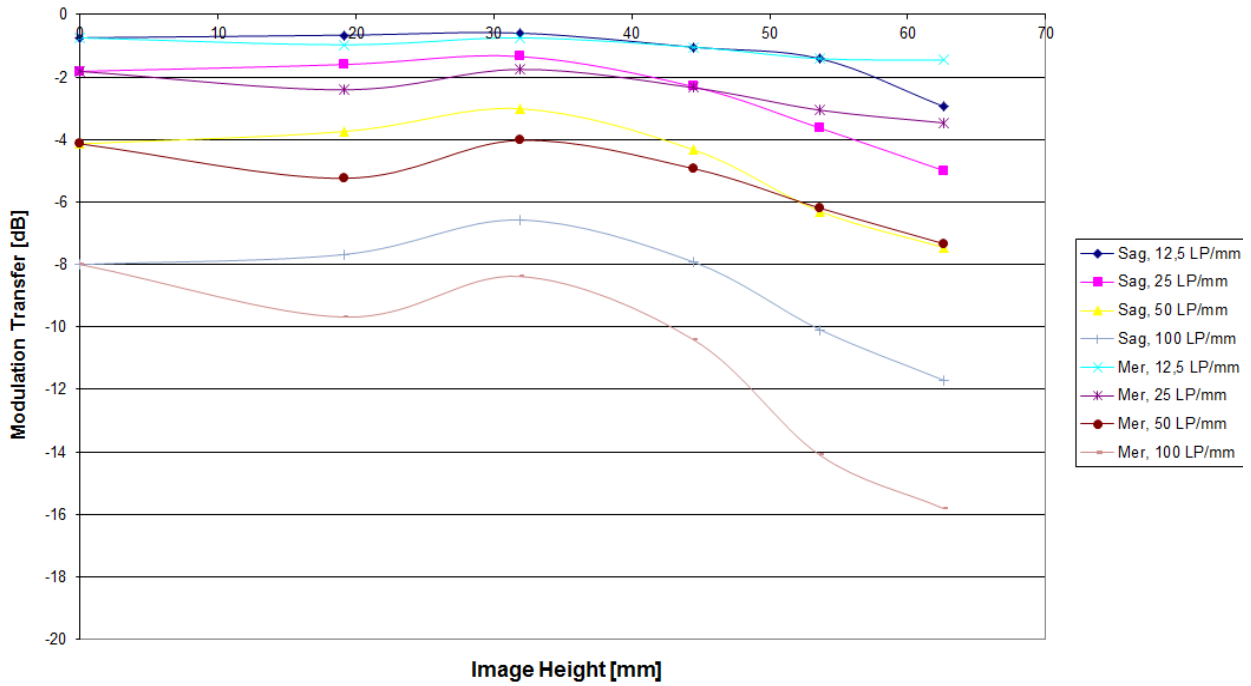
As the MTF is a function of the specific aperture size used, one set of curves is given for each aperture size.

Lens types

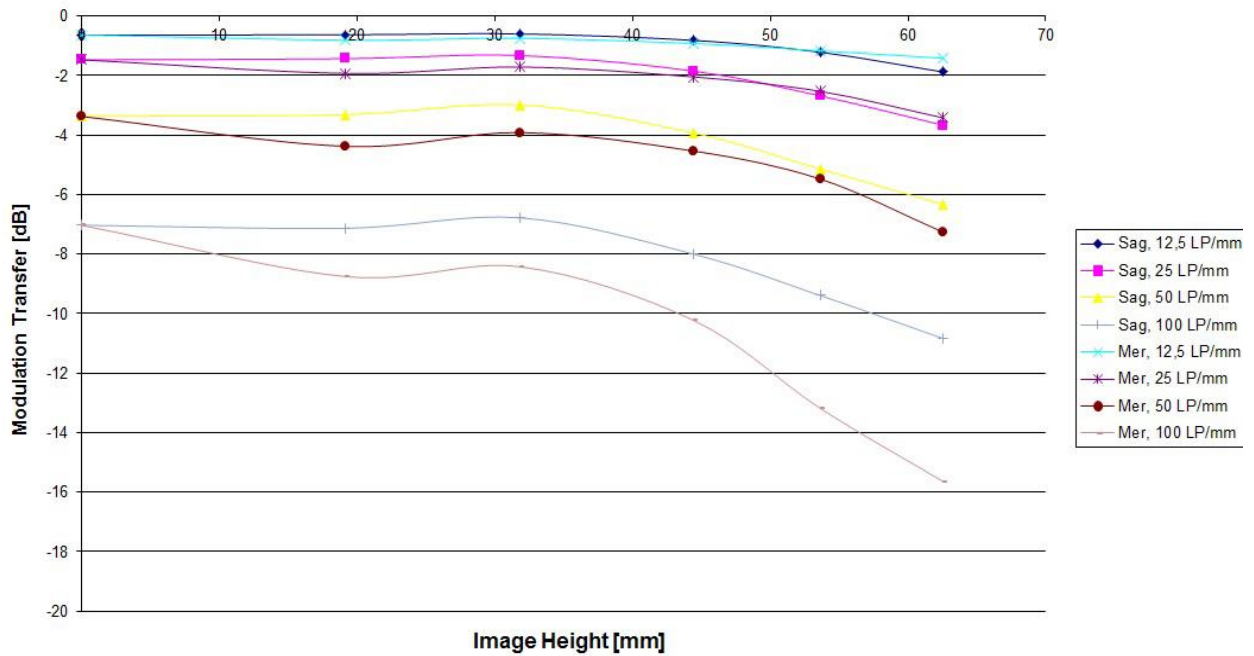
Cone	Lens
C0 (PAN)	Qioptic Vexcel HR Digaron 1:8,6/210mm, Qioptic GmbH, Germany
C1 (PAN)	Qioptic Vexcel HR Digaron 1:8,6/210mm, Qioptic GmbH, Germany
C2 (PAN)	Qioptic Vexcel HR Digaron 1:8,6/210mm, Qioptic GmbH, Germany
C3 (PAN)	Qioptic Vexcel HR Digaron 1:8,6/210mm, Qioptic GmbH, Germany
C4 (RED)	Qioptic Vexcel HR Digaron 1:5.6/70mm, Qioptic GmbH, Germany
C5 (GREEN)	Qioptic Vexcel HR Digaron 1:5.6/70mm, Qioptic GmbH, Germany
C6 (BLUE)	Qioptic Vexcel HR Digaron 1:5.6/70mm, Qioptic GmbH, Germany
C7 (NIR)	Qioptic Vexcel HR Digaron 1:5.6/70mm, Qioptic GmbH, Germany



Modulation versus Image Height - Aperture f/ 5.6

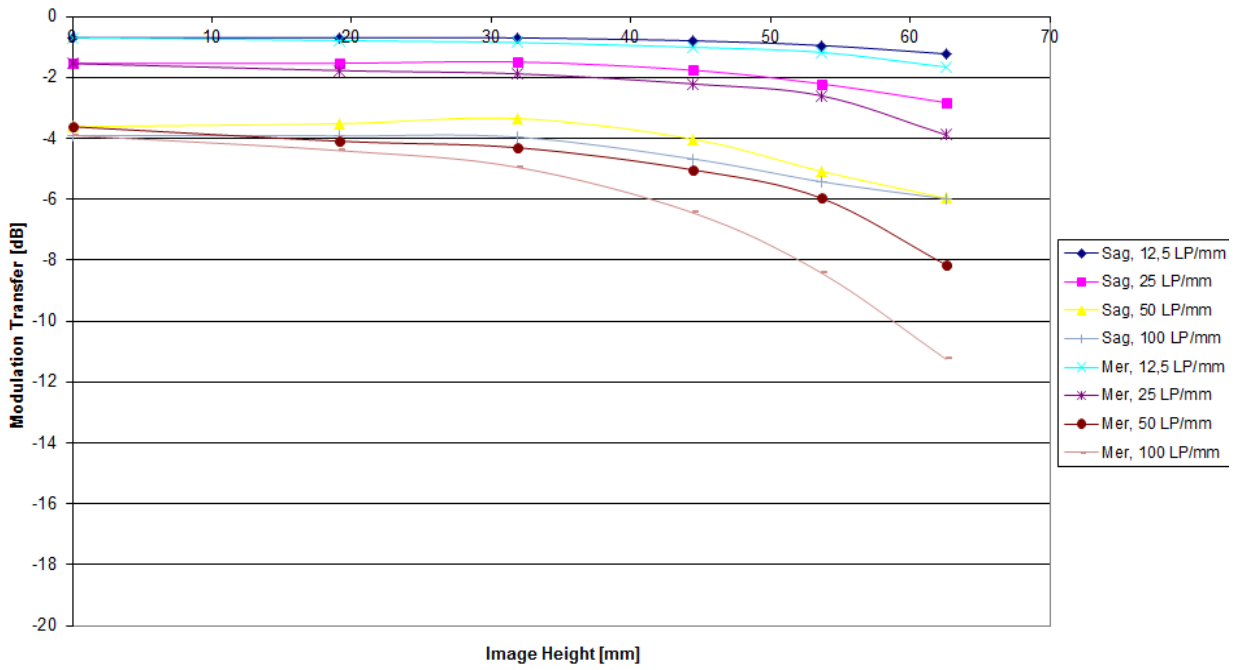


Modulation versus Image Height - Aperture f/ 6.7

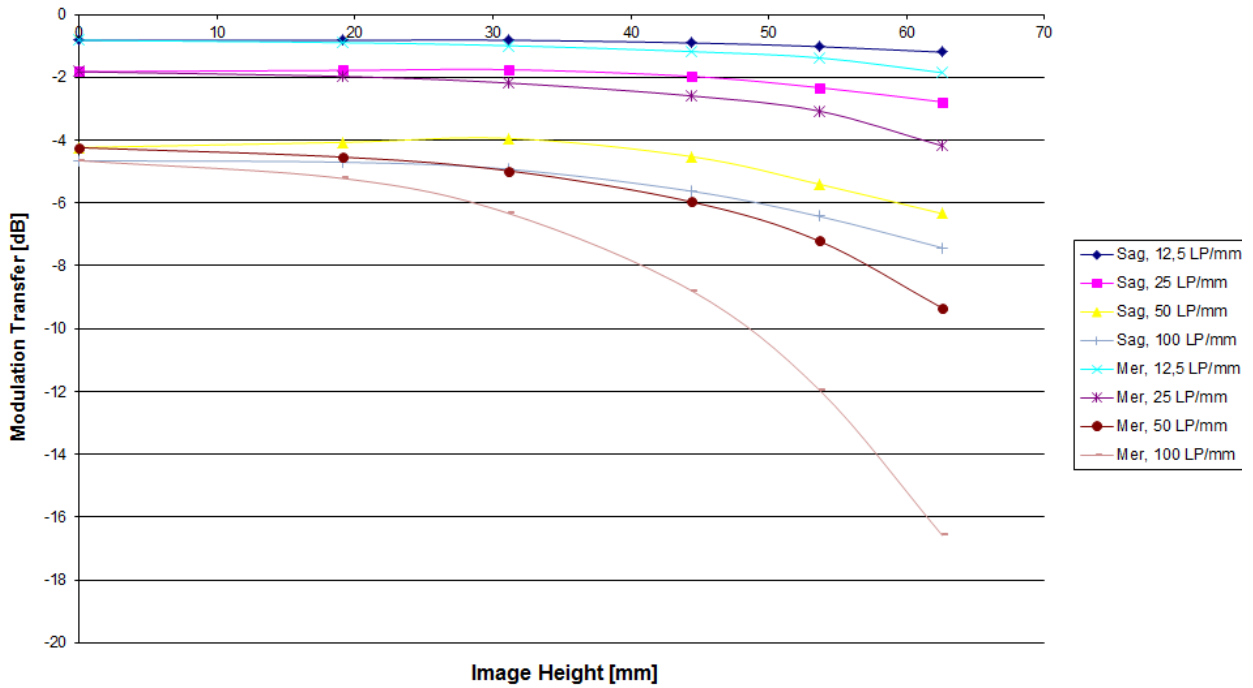




Modulation versus Image Height - Aperture f / 8

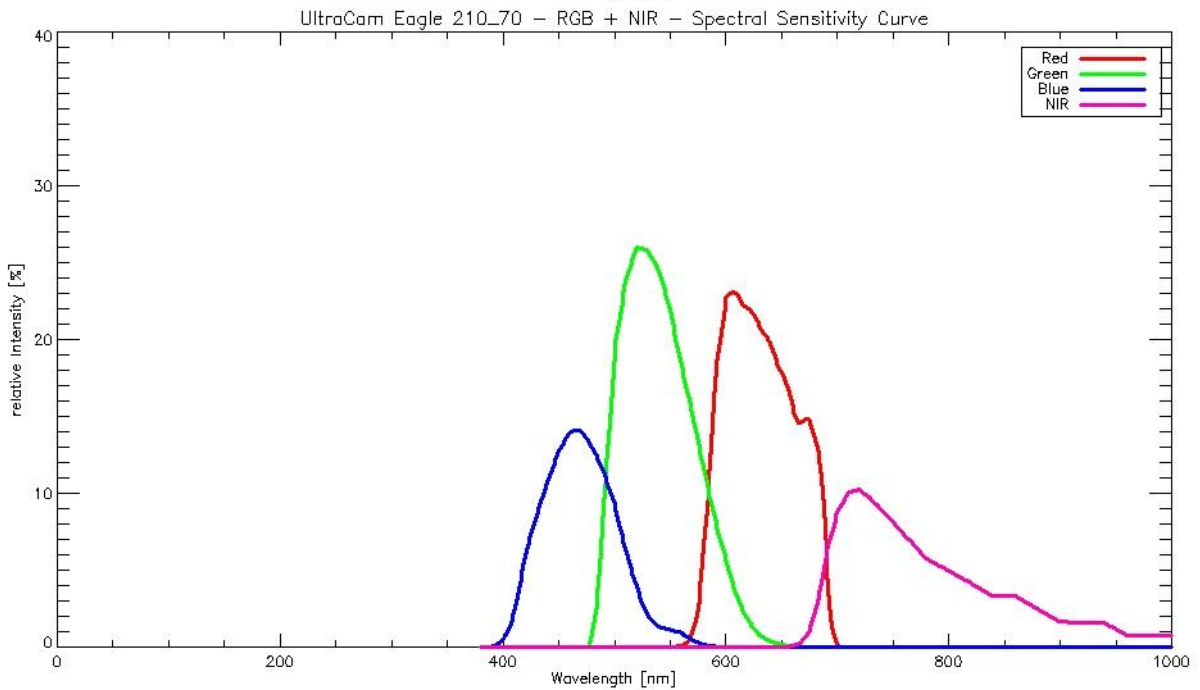
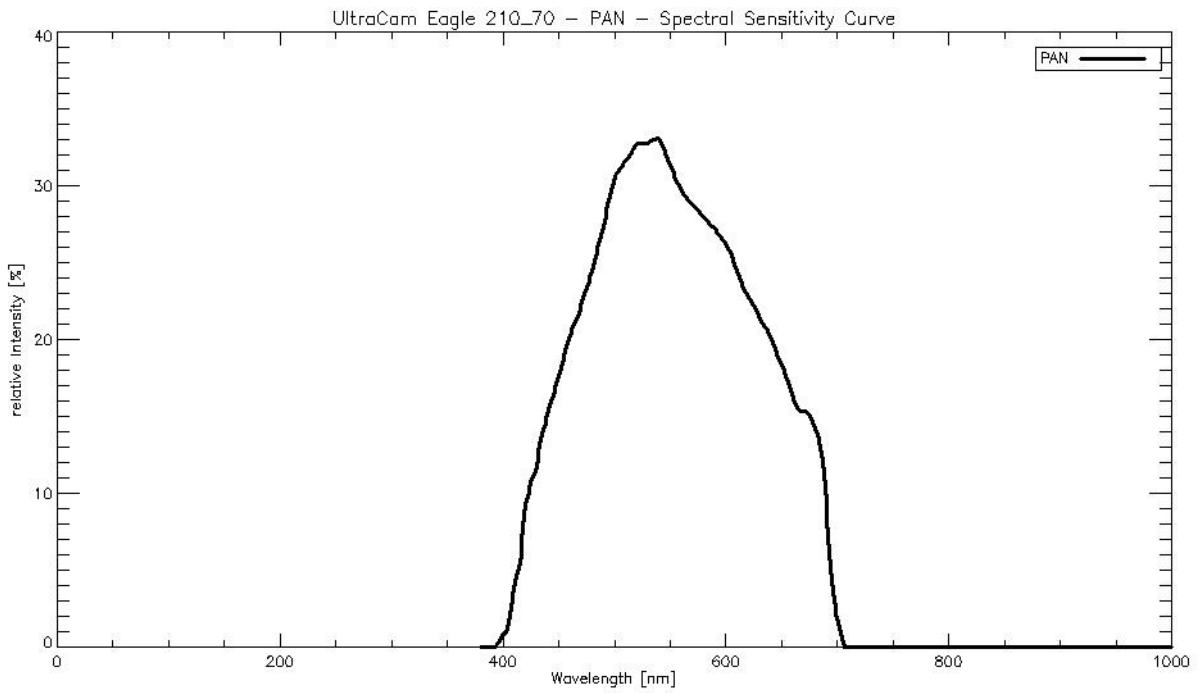


Modulation versus Image Height - Aperture f / 9.5





Spectral Sensitivity





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Radiometric Calibration

Camera: UltraCam Eagle M3
Serial: 431S51176X010093-f210

	PAN	R, G, NIR	B
Used Apertures	F7.8	F5.6	F5.6
	F9.5	F6.7	F5.6
	F11	F8	F5.6
	F13	F9.5	F6.7
	F16	F11	F8
	F22	F16	F11

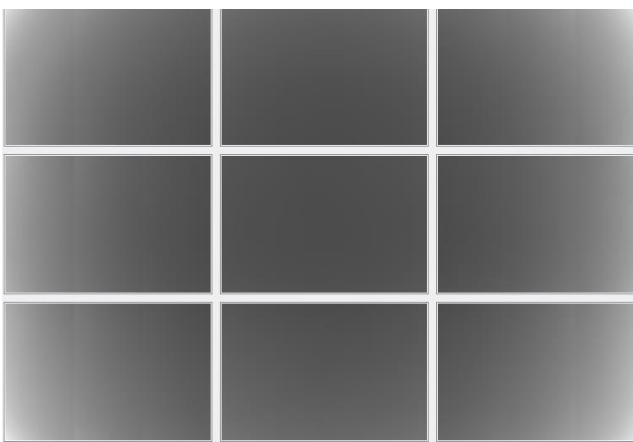
Dead Pixel Report: see Appendix I



Calibration of Vignetting for working Aperture F8

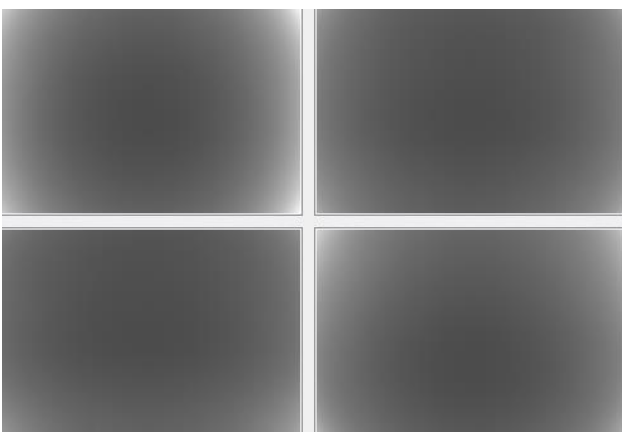
	PAN	R, G, NIR	B
Aperture	F7.8	F5.6	F5.6

Graphical Overview of Pan Sensors:



00_00	01_00	00_01
02_00	03_00	02_01
00_02	01_01	00_03

Graphical Overview of Multispectral Sensors:



04_00 (RED)	06_00 (BLUE)
05_00 (GREEN)	07_00 (NIR)



Explanations

Calibration Method:

The radiometric calibration is based on a series of 50 flat field images for each aperture size and sensor. The flat field is illuminated by eight normal light lamps with known spectral illumination curves.

These images are used to calculate the specific sensitivity of each pixel to compensate local as well as global variations in sensitivity. Sensitivity tables are calculated for each sensor and aperture setting, and applied during post processing from level 0 to level 1.

Outlier Pixels that do not have a linear behavior as described in the CCD specifications are marked as defective during the calibration procedure. These pixels are not used or only partially used during post processing and the information is restored by interpolation between the neighborhood pixels surrounding the defective pixels.

Certain pixels that are named Qmax pixels due to the fact that they can only store and transfer charge up to a certain maximum amount are detected in an additional calibration step. These pixels are treated differently during post processing, since their behavior can affect not only single pixel values but whole columns.



ULTRACAM

Shutter Calibration

Camera: UltraCam Eagle M3
Serial: 431S51176X010093-f210

Panchromatic Camera: 4 * Prontor Magnetic 0 HS
Prontor-Werk Alfred Gauthier GmbH, Germany

Multispectral Camera: 4 * Prontor Magnetic 0 HS
Prontor-Werk Alfred Gauthier GmbH, Germany



Calibration of Shutter Release Times:

The shutter release times measured during the calibration describe the time from the moment when the electrical current through the shutter is turned off by the electronics, until the shutter is mechanically closed.

This time is relevant for the exposure control and needs to be known before image recording can take place.

Currently used SRT values (operation values):

Cone Number	Lens Serial Number	SRT F8 [ms]	SRT F9.5 [ms]	SRT F11 [ms]	SRT F13 [ms]	SRT F16 [ms]	SRT F22 [ms]	Measurement Tolerance [ms]
C0 (Pan)	12 48 13 07	5.81	6.06	6.51	6.82	7.16	7.50	+/- 0.2
C1 (Pan)	12 48 13 06	5.50	5.62	6.06	6.48	6.76	7.13	+/- 0.2
C2 (Pan)	12 48 13 01	4.85	5.07	5.50	5.91	6.22	6.53	+/- 0.2
C3 (Pan)	12 48 13 00	5.37	5.53	6.05	6.45	6.78	7.13	+/- 0.2
C4 (Red)	12 47 31 67	6.71	6.89	7.07	7.22	7.35	7.76	+/- 0.2
C5 (Green)	12 47 31 66	7.16	7.43	7.65	7.79	7.95	8.26	+/- 0.2
C6 (Blue)	12 47 31 56	6.33	6.33	6.28	6.51	6.78	7.02	+/- 0.2
C7 (NIR)	12 47 31 75	6.92	7.15	7.38	7.59	7.62	8.02	+/- 0.2



ULTRACAM

Electronics and Sensor Calibration

Camera: UltraCam Eagle M3
Serial: 431S51176X010093-f210

Panchromatic Camera: 9 * FTF9060-M Area CCD Sensor by DALSA
Multispectral Camera: 4 * FTF9060-M Area CCD Sensor by DALSA



Calibration of Negative Substrate Voltage (VNS):

For optimum performance of the DALSA CCD sensors, the negative substrate voltage is adjusted to a value specified by DALSA.

This voltage value is measured to achieve the best anti-blooming performance possible for each particular sensor.

Currently used VNS and VOG values (operation values):

Cone_Sensor	Sensor Type	Sensor Serial Number	VNS Voltage [V]	VOG Voltage [V]
00_00	FTF9060-M	18 0770/037	22.40	6.17
00_01	FTF9060-M	18 1922/005	22.60	6.58
00_02	FTF9060-M	18 1922/020	22.80	6.27
00_03	FTF9060-M	18 1922/029	23.00	6.12
01_00	FTF9060-M	18 0770/036	22.80	6.75
01_01	FTF9060-M	18 0770/029	22.20	6.22
02_00	FTF9060-M	18 0770/034	22.00	6.17
02_01	FTF9060-M	18 1922/036	23.60	6.48
03_00	FTF9060-M	18 1922/039	23.20	6.41
04_00 (red)	FTF9060-M	18 1922/024	23.20	6.41
05_00 (green)	FTF9060-M	18 1922/011	23.00	5.98
06_00 (blue)	FTF9060-M	18 1922/009	22.80	6.32
07_00 (NIR)	FTF9060-M	18 1922/027	22.80	6.78



Calibration of Intensity Threshold for Exposure Control:

Each CCD sensor and electronics module varies slightly in global sensitivity and intensity scale.

Therefore the maximum possible intensity of each sensor needs to be measured to evaluate the sensitivity behavior of the CCD and electronics.

This value is used as a threshold for the exposure control dialogue shown in the in-flight user interface of the Eagle.

Currently used Threshold values (operation values):

Cone_Sensor	Sensor Type	Sensor Serial Number	Intensity Threshold [DN]	
			Tap 1	Tap2
00_00	FTF9060-M	18 0770/037	13120	12480
00_01	FTF9060-M	18 1922/005	13280	12550
00_02	FTF9060-M	18 1922/020	14060	12560
00_03	FTF9060-M	18 1922/029	13120	12450
01_00	FTF9060-M	18 0770/036	12320	12240
01_01	FTF9060-M	18 0770/029	13370	12430
02_00	FTF9060-M	18 0770/034	13480	12600
02_01	FTF9060-M	18 1922/036	12820	12130
03_00	FTF9060-M	18 1922/039	13660	12430
04_00 (red)	FTF9060-M	18 1922/024	13500	12290
05_00 (green)	FTF9060-M	18 1922/011	13190	12530
06_00 (blue)	FTF9060-M	18 1922/009	13460	12580
07_00 (NIR)	FTF9060-M	18 1922/027	13230	12220



ULTRACAM

Summary

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Serial:	431S51176X010093-f210
Laboratory Calibration Date:	Aug-14-2023
Camera Revision:	Rev02.00
Date of Report:	Aug-17-2023
Version of Report:	V01

The following calibrations have been performed for the above mentioned digital aerial mapping camera:

- Geometric Calibration
- Radiometric Calibration
- Shutter Calibration
- Sensor and Electronics Calibration

This equipment is operating fully within specification as defined by Vexcel Imaging GmbH.

Dr. Michael Gruber
Chief Scientist, Photogrammetry
Vexcel Imaging GmbH

Dipl. Ing. (FH) Helmut Jauk
Senior Project Engineer R&D
Vexcel Imaging GmbH



Appendix I

Dead Pixel Report:

Sensor number			
Anomaly type	X-Coordinate	Y-Coordinate	
C00-00			
PIXEL: 94/ 124	PIXEL: 4081/ 214	PIXEL: 5613/ 250	
PIXEL: 4134/ 269	PIXEL: 8328/ 397	PIXEL: 4309/ 424	PIXEL: 8309/ 534
PIXEL: 5018/ 558	PIXEL: 5455/ 622	PIXEL: 4169/ 625	PIXEL: 6960/ 626
PIXEL: 8797/ 784	PIXEL: 1130/ 973	PIXEL: 3371/1066	PIXEL: 5977/1230
PIXEL: 8012/1251	PIXEL: 8136/1266	PIXEL: 4166/1270	PIXEL: 724/1338
PIXEL: 5236/1340	PIXEL: 3675/1527	PIXEL: 3052/1593	PIXEL: 4925/1753
PIXEL: 3627/1924	PIXEL: 7070/2063	PIXEL: 4148/2242	PIXEL: 1832/2519
PIXEL: 6421/2559	PIXEL: 236/2714	PIXEL: 5446/2751	PIXEL: 5471/2757
PIXEL: 8424/2767	PIXEL: 1650/2978	PIXEL: 3911/3167	PIXEL: 1698/3190
PIXEL: 6454/3242	PIXEL: 878/3248	PIXEL: 4352/3273	PIXEL: 7659/3284
PIXEL: 2015/3314	PIXEL: 6527/3415	PIXEL: 5971/3478	PIXEL: 5519/3533
PIXEL: 4922/3571	PIXEL: 1284/3591	PIXEL: 1284/3592	PIXEL: 6485/3628
PIXEL: 8897/3657	PIXEL: 275/3745	PIXEL: 4843/3784	PIXEL: 8124/3848
PIXEL: 8786/3980	PIXEL: 5178/4037	PIXEL: 4154/4067	PIXEL: 7648/4071
PIXEL: 125/4108	PIXEL: 4758/4150	PIXEL: 4071/4178	PIXEL: 8123/4390
PIXEL: 8786/4420	PIXEL: 4336/4438	PIXEL: 5613/4526	PIXEL: 8939/4611
PIXEL: 8786/4638	PIXEL: 7170/4662	PIXEL: 1288/4677	PIXEL: 2605/4715
PIXEL: 2146/4731	PIXEL: 1316/4788	PIXEL: 6800/4840	PIXEL: 1913/4855
PIXEL: 1410/4861	PIXEL: 7510/4873	PIXEL: 4850/4898	PIXEL: 6200/4942
PIXEL: 5843/4992	PIXEL: 4254/5000	PIXEL: 4352/5001	PIXEL: 5674/5028
PIXEL: 5751/5035	PIXEL: 1562/5046	PIXEL: 1323/5049	PIXEL: 7038/5057
PIXEL: 1161/5067	PIXEL: 5455/5135	PIXEL: 3673/5136	PIXEL: 5266/5157
PIXEL: 7487/5215	PIXEL: 4662/5221	PIXEL: 5112/5221	PIXEL: 5112/5222
PIXEL: 6835/5228	PIXEL: 4352/5267	PIXEL: 6945/5275	PIXEL: 7589/5284
PIXEL: 2946/5294	PIXEL: 6717/5303	PIXEL: 4165/5320	PIXEL: 8255/5322
PIXEL: 5133/5329	PIXEL: 6421/5382	PIXEL: 3675/5434	PIXEL: 2774/5462
PIXEL: 5112/5472	PIXEL: 3988/5475	PIXEL: 7547/5477	PIXEL: 5112/5601
PIXEL: 7967/5625	PIXEL: 4600/5626	PIXEL: 4460/5658	PIXEL: 6810/5659
PIXEL: 7684/5660	PIXEL: 2827/5676	PIXEL: 2773/5678	PIXEL: 4086/5678
PIXEL: 6583/5683	PIXEL: 7335/5696	PIXEL: 1100/5753	PIXEL: 8801/5756
PIXEL: 6421/5805	PIXEL: 8786/5808	PIXEL: 3673/5818	PIXEL: 2556/5848
PIXEL: 5558/5851	PIXEL: 2197/5854	PIXEL: 1527/5856	PIXEL: 6717/5913
PIXEL: 5638/5924	PIXEL: 475/5946	PIXEL: 7650/5967	PIXEL: 6609/5977
PIXEL: 8716/5980	PIXEL: 6185/ 19	PIXEL: 7563/1823	PIXEL: 7563/1824
PIXEL: 7564/1824	PIXEL: 7564/1825	PIXEL: 267/3340	PIXEL: 362/5517



PIXEL: 8723/5609
COLUMN: 9001/ 238

PIXEL: 491/5998
COLUMN: 7179/1272

PIXEL: 4390/5946
COLUMN: 4812/4359

PIXEL: 4390/5947

C00-01

PIXEL: 144/ 53
PIXEL: 7740/ 361
PIXEL: 4316/ 808
PIXEL: 3351/1119
PIXEL: 3508/1216
PIXEL: 5553/1603
PIXEL: 2830/1814
PIXEL: 5639/2087
PIXEL: 7440/2257
PIXEL: 5958/2630
PIXEL: 6681/3016
PIXEL: 7159/3255
PIXEL: 6466/3580
PIXEL: 7017/3796
PIXEL: 5291/4220
PIXEL: 5335/4446
PIXEL: 7939/4588
PIXEL: 5590/4956
PIXEL: 2946/5379
PIXEL: 5893/5473
PIXEL: 8192/5688
PIXEL: 4277/5866
PIXEL: 3890/5924
COLUMN: 6764/5494

PIXEL: 6483/ 203
PIXEL: 2357/ 429
PIXEL: 5274/ 869
PIXEL: 8565/1134
PIXEL: 8048/1289
PIXEL: 3715/1610
PIXEL: 3471/1837
PIXEL: 28/2092
PIXEL: 3792/2270
PIXEL: 1678/2722
PIXEL: 4001/3022
PIXEL: 7159/3256
PIXEL: 4084/3650
PIXEL: 6983/3964
PIXEL: 5425/4277
PIXEL: 4277/4457
PIXEL: 3025/4611
PIXEL: 1028/4998
PIXEL: 3756/5381
PIXEL: 4277/5474
PIXEL: 4642/5707
PIXEL: 3007/5897
PIXEL: 419/ 468

PIXEL: 6251/ 229
PIXEL: 831/ 533
PIXEL: 6892/ 924
PIXEL: 8217/1149
PIXEL: 5303/1295
PIXEL: 4247/1680
PIXEL: 2582/2005
PIXEL: 5238/2094
PIXEL: 1087/2321
PIXEL: 8387/2892
PIXEL: 901/3074
PIXEL: 1768/3282
PIXEL: 4922/3653
PIXEL: 1677/3986
PIXEL: 4838/4394
PIXEL: 7840/4490
PIXEL: 5238/4687
PIXEL: 6600/5071
PIXEL: 8299/5383
PIXEL: 8862/5489
PIXEL: 5486/5743
PIXEL: 7357/5901
PIXEL: 6748/2840

PIXEL: 6821/ 669
PIXEL: 8309/ 943
PIXEL: 7890/1194
PIXEL: 5509/1446
PIXEL: 6762/1782
PIXEL: 5788/2051
PIXEL: 5921/2123
PIXEL: 4343/2547
PIXEL: 843/2922
PIXEL: 3292/3145
PIXEL: 8815/3460
PIXEL: 4455/3723
PIXEL: 1585/4120
PIXEL: 5705/4433
PIXEL: 8192/4506
PIXEL: 5408/4717
PIXEL: 7324/5142
PIXEL: 382/5391
PIXEL: 2557/5655
PIXEL: 5030/5844
PIXEL: 6873/5904
COLUMN: 4847/2968

C00-02

PIXEL: 959/ 26
PIXEL: 1395/ 57
PIXEL: 4736/ 267
PIXEL: 4390/ 579
PIXEL: 7873/1171
PIXEL: 3501/1572
PIXEL: 4220/1698
PIXEL: 1939/1805
PIXEL: 1454/1975
PIXEL: 7305/2027
PIXEL: 6961/2294
PIXEL: 4663/2493
PIXEL: 767/2608
PIXEL: 1956/2885
PIXEL: 2199/3030
PIXEL: 5035/3316
PIXEL: 7779/3398
PIXEL: 4204/3574
PIXEL: 1122/3894
PIXEL: 7392/4132
PIXEL: 6546/4313

PIXEL: 8584/ 86
PIXEL: 993/ 427
PIXEL: 7392/ 585
PIXEL: 5795/1287
PIXEL: 8461/1586
PIXEL: 4163/1786
PIXEL: 2529/1917
PIXEL: 8784/1999
PIXEL: 830/2045
PIXEL: 5635/2369
PIXEL: 6217/2522
PIXEL: 1912/2685
PIXEL: 4015/2906
PIXEL: 2265/3131
PIXEL: 8474/3322
PIXEL: 6515/3449
PIXEL: 7241/3690
PIXEL: 6391/3895
PIXEL: 6684/4231
PIXEL: 4788/4398

PIXEL: 882/ 213
PIXEL: 2012/ 429
PIXEL: 6810/ 609
PIXEL: 4015/1465
PIXEL: 6474/1615
PIXEL: 2672/1803
PIXEL: 4364/1969
PIXEL: 7271/2015
PIXEL: 6576/2272
PIXEL: 8752/2391
PIXEL: 2288/2546
PIXEL: 4722/2852
PIXEL: 1816/2993
PIXEL: 5923/3147
PIXEL: 1871/3351
PIXEL: 578/3473
PIXEL: 8699/3869
PIXEL: 6988/4016
PIXEL: 2490/4267
PIXEL: 5902/4517

PIXEL: 3486/ 231
PIXEL: 479/ 474
PIXEL: 6844/ 754
PIXEL: 7804/1477
PIXEL: 496/1669
PIXEL: 7696/1803
PIXEL: 6735/1970
PIXEL: 8550/2025
PIXEL: 5980/2285
PIXEL: 4059/2432
PIXEL: 3327/2578
PIXEL: 5758/2869
PIXEL: 4537/3017
PIXEL: 1784/3299
PIXEL: 7833/3376
PIXEL: 6383/3499
PIXEL: 813/3873
PIXEL: 7681/4024
PIXEL: 8088/4305
PIXEL: 7473/4535



PIXEL: 7271/4557	PIXEL: 8675/4710	PIXEL: 7602/4742	PIXEL: 4990/4753
PIXEL: 1264/4770	PIXEL: 5007/4799	PIXEL: 4085/4802	PIXEL: 1753/4867
PIXEL: 7392/4887	PIXEL: 2424/4908	PIXEL: 5768/4922	PIXEL: 6023/4934
PIXEL: 3586/5013	PIXEL: 5963/5076	PIXEL: 5623/5114	PIXEL: 3488/5115
PIXEL: 5603/5129	PIXEL: 5683/5136	PIXEL: 5319/5163	PIXEL: 8423/5164
PIXEL: 6243/5195	PIXEL: 3461/5229	PIXEL: 4714/5240	PIXEL: 6836/5247
PIXEL: 6950/5271	PIXEL: 1841/5282	PIXEL: 7347/5308	PIXEL: 6657/5316
PIXEL: 6704/5333	PIXEL: 4374/5343	PIXEL: 5953/5378	PIXEL: 6132/5391
PIXEL: 4642/5392	PIXEL: 6684/5394	PIXEL: 7190/5408	PIXEL: 7473/5438
PIXEL: 7597/5462	PIXEL: 4363/5490	PIXEL: 6858/5492	PIXEL: 1729/5493
PIXEL: 5011/5499	PIXEL: 7189/5562	PIXEL: 3483/5591	PIXEL: 6763/5606
PIXEL: 5197/5607	PIXEL: 7271/5667	PIXEL: 3825/5688	PIXEL: 898/5716
PIXEL: 5279/5761	PIXEL: 7473/5815	PIXEL: 5315/5821	PIXEL: 7392/5836
PIXEL: 7082/5850	PIXEL: 6364/5866	PIXEL: 7271/5876	PIXEL: 7005/5898
PIXEL: 2360/5937	PIXEL: 7444/5940	PIXEL: 7480/5968	PIXEL: 5626/5984
PIXEL: 4702/5987	PIXEL: 5120/5987	PIXEL: 4642/6016	PIXEL: 5228/2020
PIXEL: 5229/2020	PIXEL: 6397/4519	COLUMN: 6404/3380	COLUMN: 3911/1387
COLUMN: 4924/3847			

C00-03

PIXEL: 5249/ 133			
PIXEL: 4523/ 148	PIXEL: 3170/ 190	PIXEL: 2972/ 223	PIXEL: 7375/ 246
PIXEL: 8331/ 296	PIXEL: 3339/ 403	PIXEL: 4878/ 562	PIXEL: 7978/ 563
PIXEL: 147/ 726	PIXEL: 2433/ 784	PIXEL: 5515/ 853	PIXEL: 7852/ 905
PIXEL: 470/ 942	PIXEL: 1748/1124	PIXEL: 2236/1155	PIXEL: 8810/1246
PIXEL: 5195/1439	PIXEL: 6933/1470	PIXEL: 6589/1501	PIXEL: 262/1505
PIXEL: 2774/1569	PIXEL: 876/1701	PIXEL: 876/1702	PIXEL: 6592/1934
PIXEL: 4789/2006	PIXEL: 7984/2132	PIXEL: 647/2209	PIXEL: 5724/2624
PIXEL: 5800/2693	PIXEL: 6728/2694	PIXEL: 8400/2744	PIXEL: 3118/2756
PIXEL: 2892/2812	PIXEL: 5710/2838	PIXEL: 2181/2911	PIXEL: 5331/3261
PIXEL: 2016/3312	PIXEL: 4375/3327	PIXEL: 6427/3341	PIXEL: 7107/3383
PIXEL: 4984/3497	PIXEL: 1192/3589	PIXEL: 7365/3598	PIXEL: 8277/3732
PIXEL: 7790/3776	PIXEL: 5121/3822	PIXEL: 7716/3899	PIXEL: 7905/3954
PIXEL: 478/3984	PIXEL: 883/4016	PIXEL: 5926/4205	PIXEL: 7560/4390
PIXEL: 2831/4638	PIXEL: 891/4846	PIXEL: 8089/4926	PIXEL: 2960/5024
PIXEL: 1005/5116	PIXEL: 1943/5273	PIXEL: 7691/5347	PIXEL: 5838/5434
PIXEL: 5932/5572	PIXEL: 5195/5605	PIXEL: 3438/5705	PIXEL: 1339/5733
PIXEL: 4784/5768	PIXEL: 533/5968	PIXEL: 3245/ 917	PIXEL: 4005/2495
PIXEL: 1898/3733	PIXEL: 8018/5332	PIXEL: 8019/5333	PIXEL: 8020/5333
COLUMN: 5134/4779			

C01-00

PIXEL: 3362/ 249			
PIXEL: 5637/ 297	PIXEL: 4042/ 321	PIXEL: 462/ 416	PIXEL: 1297/ 785
PIXEL: 4935/ 927	PIXEL: 6907/1096	PIXEL: 7639/1109	PIXEL: 8721/1152
PIXEL: 73/1301	PIXEL: 553/1363	PIXEL: 468/1434	PIXEL: 6897/1477
PIXEL: 4768/1589	PIXEL: 5075/1641	PIXEL: 2220/1646	PIXEL: 3923/1770
PIXEL: 2532/2052	PIXEL: 2808/2062	PIXEL: 3939/2155	PIXEL: 6786/2160
PIXEL: 2054/2248	PIXEL: 5998/2255	PIXEL: 4988/2342	PIXEL: 5612/2696
PIXEL: 8733/2741	PIXEL: 949/2873	PIXEL: 512/2881	PIXEL: 8192/2928
PIXEL: 6755/3079	PIXEL: 4481/3100	PIXEL: 6423/3110	PIXEL: 3629/3113



PIXEL: 3531/3126	PIXEL: 5454/3152	PIXEL: 1297/3267	PIXEL: 4480/3387
PIXEL: 1487/3417	PIXEL: 7520/3620	PIXEL: 3887/3661	PIXEL: 4221/3672
PIXEL: 6312/3738	PIXEL: 578/3786	PIXEL: 2765/3840	PIXEL: 4673/3863
PIXEL: 5977/3932	PIXEL: 1204/3942	PIXEL: 7589/4148	PIXEL: 2964/4156
PIXEL: 1039/4205	PIXEL: 3748/4230	PIXEL: 1052/4342	PIXEL: 4758/4352
PIXEL: 855/4354	PIXEL: 5205/4475	PIXEL: 2777/4534	PIXEL: 7215/4552
PIXEL: 6026/4577	PIXEL: 4839/4617	PIXEL: 3971/4698	PIXEL: 5844/4765
PIXEL: 3971/4828	PIXEL: 752/4951	PIXEL: 6444/5084	PIXEL: 1733/5143
PIXEL: 3011/5190	PIXEL: 3391/5333	PIXEL: 6082/5411	PIXEL: 3971/5420
PIXEL: 3084/5433	PIXEL: 6872/5502	PIXEL: 3971/5515	PIXEL: 2557/5573
PIXEL: 6186/5647	PIXEL: 4944/5730	PIXEL: 3284/5801	PIXEL: 938/5858
PIXEL: 3971/5870	PIXEL: 4066/6004	PIXEL: 7341/ 943	PIXEL: 4707/1276
PIXEL: 2870/5697	COLUMN: 1083/3734	COLUMN: 5747/2221	COLUMN: 5348/1271
COLUMN: 5344/5030			

C01-01

PIXEL: 4473/ 145			
PIXEL: 6717/ 242	PIXEL: 4244/ 321	PIXEL: 4559/ 363	PIXEL: 3236/ 421
PIXEL: 4067/ 448	PIXEL: 7354/ 572	PIXEL: 2149/ 626	PIXEL: 6415/ 639
PIXEL: 6502/ 655	PIXEL: 1862/ 742	PIXEL: 3033/ 813	PIXEL: 6885/ 821
PIXEL: 6885/ 822	PIXEL: 6358/ 851	PIXEL: 3139/1035	PIXEL: 6374/1082
PIXEL: 8514/1093	PIXEL: 1877/1263	PIXEL: 4129/1587	PIXEL: 3651/1600
PIXEL: 7636/1631	PIXEL: 7130/1748	PIXEL: 607/2084	PIXEL: 4646/2100
PIXEL: 3862/2105	PIXEL: 4516/2123	PIXEL: 7456/2237	PIXEL: 5483/2326
PIXEL: 5205/2371	PIXEL: 3882/2373	PIXEL: 5776/2447	PIXEL: 4092/2456
PIXEL: 3151/2509	PIXEL: 7599/2648	PIXEL: 4622/2724	PIXEL: 84/2732
PIXEL: 2723/2796	PIXEL: 7304/2800	PIXEL: 6900/2820	PIXEL: 7256/2880
PIXEL: 3072/3017	PIXEL: 5917/3022	PIXEL: 2964/3237	PIXEL: 6885/3253
PIXEL: 2875/3364	PIXEL: 817/3412	PIXEL: 4391/3613	PIXEL: 1155/3751
PIXEL: 5737/3777	PIXEL: 6796/3785	PIXEL: 2773/3787	PIXEL: 2934/4260
PIXEL: 5827/4308	PIXEL: 8940/4406	PIXEL: 7365/4433	PIXEL: 4750/4440
PIXEL: 2094/4704	PIXEL: 4648/4724	PIXEL: 6808/4734	PIXEL: 4786/4765
PIXEL: 7456/4795	PIXEL: 7836/5065	PIXEL: 3116/5152	PIXEL: 8858/5302
PIXEL: 7408/5367	PIXEL: 1886/5409	PIXEL: 6312/5579	PIXEL: 1904/5683
PIXEL: 7748/5728	PIXEL: 7865/5741	PIXEL: 4933/5883	PIXEL: 7116/5892
PIXEL: 7588/5909	PIXEL: 5673/5955	PIXEL: 7456/6006	PIXEL: 157/5618
COLUMN: 4096/5946	COLUMN: 4134/3050		

C02-00

PIXEL: 8474/ 107	PIXEL: 4106/ 281	PIXEL: 4025/ 373	PIXEL: 1674/ 511
PIXEL: 152/ 803	PIXEL: 3944/1006	PIXEL: 7197/1044	PIXEL: 7289/1136
PIXEL: 6659/1179	PIXEL: 4752/1243	PIXEL: 3211/1505	PIXEL: 631/1618
PIXEL: 7451/1754	PIXEL: 7640/1961	PIXEL: 505/2047	PIXEL: 7646/2065
PIXEL: 1730/2092	PIXEL: 301/2131	PIXEL: 1636/2139	PIXEL: 7984/2587
PIXEL: 6852/2614	PIXEL: 2489/2734	PIXEL: 5780/2781	PIXEL: 6377/2790
PIXEL: 5898/2830	PIXEL: 301/2985	PIXEL: 6722/3173	PIXEL: 2604/3199
PIXEL: 7984/3222	PIXEL: 1900/3251	PIXEL: 6909/3309	PIXEL: 6638/3324
PIXEL: 635/3353	PIXEL: 301/3420	PIXEL: 4508/3458	PIXEL: 1858/3482
PIXEL: 3532/3484	PIXEL: 5940/3565	PIXEL: 3377/3584	PIXEL: 4593/3655
PIXEL: 301/3883	PIXEL: 301/3890	PIXEL: 7409/4050	PIXEL: 1136/4232
PIXEL: 7984/4339	PIXEL: 4314/4354	PIXEL: 596/4369	PIXEL: 301/4377



PIXEL: 1388/4400	PIXEL: 6081/4430	PIXEL: 8681/4441	PIXEL: 152/4495
PIXEL: 684/4497	PIXEL: 3573/4498	PIXEL: 6186/4600	PIXEL: 8626/4658
PIXEL: 7541/4722	PIXEL: 301/4878	PIXEL: 301/4922	PIXEL: 8622/4998
PIXEL: 4366/5040	PIXEL: 301/5091	PIXEL: 5392/5105	PIXEL: 152/5112
PIXEL: 7984/5169	PIXEL: 5142/5198	PIXEL: 475/5226	PIXEL: 152/5272
PIXEL: 7500/5280	PIXEL: 5898/5300	PIXEL: 301/5304	PIXEL: 301/5386
PIXEL: 127/5394	PIXEL: 5501/5407	PIXEL: 7518/5506	PIXEL: 7742/5540
PIXEL: 7984/5548	PIXEL: 7345/5608	PIXEL: 1231/5634	PIXEL: 7984/5641
PIXEL: 301/5662	PIXEL: 6371/5681	PIXEL: 7984/5681	PIXEL: 152/5687
PIXEL: 301/5695	PIXEL: 7984/5743	PIXEL: 301/5833	PIXEL: 8028/5863
PIXEL: 871/5908	PIXEL: 5056/5934	PIXEL: 2380/6007	PIXEL: 7984/6010
PIXEL: 6175/6013	PIXEL: 518/4515		

C02-01

PIXEL: 1929/ 34	PIXEL: 5187/ 129	PIXEL: 6491/ 282	PIXEL: 1725/ 431
PIXEL: 1274/ 455	PIXEL: 5639/ 723	PIXEL: 4985/ 737	PIXEL: 6902/ 793
PIXEL: 6149/ 900	PIXEL: 6466/ 933	PIXEL: 5789/ 971	PIXEL: 5789/ 972
PIXEL: 7990/1101	PIXEL: 3237/1129	PIXEL: 938/1150	PIXEL: 8120/1152
PIXEL: 4489/1210	PIXEL: 5812/1351	PIXEL: 4818/1395	PIXEL: 206/1428
PIXEL: 8316/1566	PIXEL: 1396/1680	PIXEL: 5680/1725	PIXEL: 6910/1736
PIXEL: 5327/1738	PIXEL: 2784/1764	PIXEL: 1967/1898	PIXEL: 2962/1944
PIXEL: 8210/2001	PIXEL: 2358/2141	PIXEL: 4890/2370	PIXEL: 5617/2395
PIXEL: 5617/2396	PIXEL: 8708/2432	PIXEL: 6866/2470	PIXEL: 3163/2516
PIXEL: 2482/2774	PIXEL: 4461/2887	PIXEL: 6116/3039	PIXEL: 5406/3047
PIXEL: 4811/3058	PIXEL: 8070/3076	PIXEL: 4105/3096	PIXEL: 6871/3158
PIXEL: 7710/3356	PIXEL: 5789/3393	PIXEL: 949/3416	PIXEL: 6471/3562
PIXEL: 3676/3568	PIXEL: 50/3591	PIXEL: 6405/3613	PIXEL: 2962/3700
PIXEL: 7758/3708	PIXEL: 4076/3873	PIXEL: 5843/3886	PIXEL: 8363/3922
PIXEL: 5731/3933	PIXEL: 5731/3951	PIXEL: 5146/4112	PIXEL: 3984/4168
PIXEL: 8120/4237	PIXEL: 4103/4272	PIXEL: 4103/4273	PIXEL: 5052/4285
PIXEL: 4103/4382	PIXEL: 6449/4412	PIXEL: 4103/4430	PIXEL: 4103/4462
PIXEL: 5812/4620	PIXEL: 9036/4728	PIXEL: 6014/4735	PIXEL: 6993/4766
PIXEL: 5406/4838	PIXEL: 323/4976	PIXEL: 1826/5042	PIXEL: 6097/5075
PIXEL: 6234/5075	PIXEL: 4103/5082	PIXEL: 4103/5201	PIXEL: 5624/5243
PIXEL: 4103/5259	PIXEL: 847/5337	PIXEL: 6958/5407	PIXEL: 7375/5468
PIXEL: 6633/5485	PIXEL: 7308/5491	PIXEL: 4103/5499	PIXEL: 5527/5503
PIXEL: 7131/5589	PIXEL: 721/5601	PIXEL: 4103/5716	PIXEL: 1540/5738
PIXEL: 4103/5828	PIXEL: 6634/5907	PIXEL: 8947/5926	PIXEL: 6734/5947
PIXEL: 7174/5950	PIXEL: 3575/5993	PIXEL: 4103/6016	PIXEL: 5388/ 886
PIXEL: 566/5539			

C03-00

PIXEL: 4676/ 100			
PIXEL: 8797/ 418	PIXEL: 2520/ 440	PIXEL: 8711/ 611	PIXEL: 3799/ 695
PIXEL: 6978/ 807	PIXEL: 6328/1084	PIXEL: 5433/1280	PIXEL: 870/1297
PIXEL: 657/1303	PIXEL: 1401/1311	PIXEL: 1081/1426	PIXEL: 7869/1519
PIXEL: 1612/1753	PIXEL: 8956/1973	PIXEL: 4127/2031	PIXEL: 2471/2223
PIXEL: 494/2236	PIXEL: 2520/2306	PIXEL: 7069/2504	PIXEL: 6701/2601
PIXEL: 740/2653	PIXEL: 3847/2674	PIXEL: 5628/2773	PIXEL: 7869/2800
PIXEL: 3131/2817	PIXEL: 6782/2824	PIXEL: 3961/2826	PIXEL: 741/2919
PIXEL: 565/2965	PIXEL: 8323/3029	PIXEL: 8923/3050	PIXEL: 7869/3109



PIXEL: 7710/3292	PIXEL: 7869/3402	PIXEL: 6359/3446	PIXEL: 344/3522
PIXEL: 7869/3551	PIXEL: 3912/3613	PIXEL: 4706/3710	PIXEL: 4881/3809
PIXEL: 1679/3995	PIXEL: 7869/4023	PIXEL: 7869/4150	PIXEL: 4520/4179
PIXEL: 6194/4267	PIXEL: 7496/4409	PIXEL: 3836/4477	PIXEL: 1298/4529
PIXEL: 3451/4603	PIXEL: 2212/4719	PIXEL: 3332/4745	PIXEL: 1166/4879
PIXEL: 4222/4997	PIXEL: 4470/5045	PIXEL: 7162/5076	PIXEL: 3339/5243
PIXEL: 7869/5347	PIXEL: 6662/5645	PIXEL: 344/5657	PIXEL: 3648/5657
PIXEL: 2370/5767	PIXEL: 7869/5771	PIXEL: 6596/5804	PIXEL: 7869/5828
PIXEL: 822/5890	PIXEL: 9021/5924	PIXEL: 3088/5960	PIXEL: 8289/5980
PIXEL: 5935/3024	PIXEL: 3696/3594	PIXEL: 3697/3594	PIXEL: 3697/3595
PIXEL: 3698/3595	PIXEL: 8155/4341	PIXEL: 8155/4342	PIXEL: 51/4871
PIXEL: 7143/5083	COLUMN: 8149/ 274	COLUMN: 1940/5650	

C04-00

PIXEL: 885/ 124	PIXEL: 2282/ 145	PIXEL: 6126/ 177	
PIXEL: 5277/ 197	PIXEL: 6499/ 259	PIXEL: 2125/ 330	PIXEL: 6817/ 777
PIXEL: 623/1035	PIXEL: 3775/1038	PIXEL: 8939/1167	PIXEL: 7987/1206
PIXEL: 1771/1319	PIXEL: 4842/1447	PIXEL: 4842/1448	PIXEL: 501/1465
PIXEL: 47/1698	PIXEL: 6343/1927	PIXEL: 1703/2253	PIXEL: 8666/2269
PIXEL: 4451/2519	PIXEL: 2059/2739	PIXEL: 2059/2740	PIXEL: 7157/2810
PIXEL: 2328/3184	PIXEL: 7182/3212	PIXEL: 1336/3412	PIXEL: 4894/3482
PIXEL: 6410/3513	PIXEL: 7611/3741	PIXEL: 8091/3765	PIXEL: 4881/3880
PIXEL: 5974/4026	PIXEL: 8086/4042	PIXEL: 518/4096	PIXEL: 8418/4116
PIXEL: 8525/4167	PIXEL: 4262/4275	PIXEL: 2111/4638	PIXEL: 2215/4650
PIXEL: 1035/4712	PIXEL: 4058/4769	PIXEL: 3121/4849	PIXEL: 1220/4893
PIXEL: 94/4895	PIXEL: 3354/5075	PIXEL: 2126/5140	PIXEL: 2151/5367
PIXEL: 499/5407	PIXEL: 499/5408	PIXEL: 3864/5456	PIXEL: 2382/5543
PIXEL: 3761/5621	PIXEL: 8663/5853	PIXEL: 5871/5906	PIXEL: 8319/5968
PIXEL: 2525/5976	PIXEL: 6826/6001	PIXEL: 6458/6009	PIXEL: 2263/1424
PIXEL: 560/1546	PIXEL: 469/5441	PIXEL: 355/5801	COLUMN: 7779/5951

C05-00

PIXEL: 5570/ 331	PIXEL: 5738/ 426		
PIXEL: 7279/ 548	PIXEL: 1238/ 688	PIXEL: 4262/ 710	PIXEL: 3981/ 725
PIXEL: 3823/ 740	PIXEL: 5936/ 747	PIXEL: 2530/ 987	PIXEL: 5431/1240
PIXEL: 1475/1491	PIXEL: 2770/1635	PIXEL: 3969/1688	PIXEL: 7792/1729
PIXEL: 4788/1739	PIXEL: 2873/1869	PIXEL: 6796/1947	PIXEL: 1206/2412
PIXEL: 5660/2630	PIXEL: 504/2643	PIXEL: 8285/2677	PIXEL: 5472/2721
PIXEL: 5777/3159	PIXEL: 5744/3345	PIXEL: 2144/3517	PIXEL: 5462/3542
PIXEL: 3977/3545	PIXEL: 1627/3827	PIXEL: 2702/4181	PIXEL: 1747/4226
PIXEL: 5112/4260	PIXEL: 4462/4315	PIXEL: 4709/4375	PIXEL: 6054/4437
PIXEL: 2942/4471	PIXEL: 8837/4614	PIXEL: 220/4651	PIXEL: 1747/4721
PIXEL: 8593/4802	PIXEL: 9023/4943	PIXEL: 4402/4976	PIXEL: 7056/4996
PIXEL: 5709/5031	PIXEL: 7273/5227	PIXEL: 310/5386	PIXEL: 8894/5391
PIXEL: 8099/5411	PIXEL: 369/5432	PIXEL: 5709/5484	PIXEL: 4291/5510
PIXEL: 4619/5554	PIXEL: 2713/5564	PIXEL: 3227/5789	PIXEL: 4709/5871
PIXEL: 1747/5874	PIXEL: 7882/5959	PIXEL: 4112/5962	PIXEL: 1518/3997
PIXEL: 8599/4135	PIXEL: 6711/4883	PIXEL: 6712/4883	PIXEL: 6711/4884
PIXEL: 6712/4884			



C06-00

- PIXEL: 7962/ 27
- PIXEL: 4895/ 39
- PIXEL: 7889/ 916
- PIXEL: 7893/1094
- PIXEL: 4873/1412
- PIXEL: 3214/1723
- PIXEL: 1573/2077
- PIXEL: 6038/2273
- PIXEL: 659/2501
- PIXEL: 5038/2829
- PIXEL: 5108/3181
- PIXEL: 7962/3592
- PIXEL: 1471/3695
- PIXEL: 7962/3899
- PIXEL: 7271/4048
- PIXEL: 7962/4127
- PIXEL: 7962/4296
- PIXEL: 7962/4395
- PIXEL: 7962/4504
- PIXEL: 7962/4577
- PIXEL: 7962/4674
- PIXEL: 5266/4790
- PIXEL: 3537/4927
- PIXEL: 7962/5003
- PIXEL: 7863/5111
- PIXEL: 1361/5269
- PIXEL: 7962/5338
- PIXEL: 7780/5769
- PIXEL: 1972/5883
- PIXEL: 1883/ 794
- PIXEL: 7197/1692
- PIXEL: 686/2570
- PIXEL: 5852/3210
- PIXEL: 1375/3568
- PIXEL: 5467/3885
- PIXEL: 3618/4565
- PIXEL: 5397/4720
- PIXEL: 4104/5284
- PIXEL: 8254/5513
- PIXEL: 5204/5675
- PIXEL: 7962/ 230
- PIXEL: 1970/ 942
- PIXEL: 7536/1187
- PIXEL: 4093/1425
- PIXEL: 2924/1791
- PIXEL: 6072/2105
- PIXEL: 6724/2302
- PIXEL: 8864/2503
- PIXEL: 7962/2882
- PIXEL: 1238/3407
- PIXEL: 3557/3614
- PIXEL: 7962/3741
- PIXEL: 6301/3942
- PIXEL: 1444/4061
- PIXEL: 2890/4172
- PIXEL: 7962/4353
- PIXEL: 772/4406
- PIXEL: 7962/4550
- PIXEL: 4106/4606
- PIXEL: 5513/4742
- PIXEL: 7962/4807
- PIXEL: 7962/4949
- PIXEL: 7962/5007
- PIXEL: 7962/5170
- PIXEL: 7962/5269
- PIXEL: 7962/5358
- PIXEL: 8198/5776
- PIXEL: 7779/ 95
- PIXEL: 337/ 920
- PIXEL: 3918/1830
- PIXEL: 2275/2893
- PIXEL: 1335/3272
- PIXEL: 3008/3650
- PIXEL: 713/4325
- PIXEL: 3953/4565
- PIXEL: 2704/4800
- PIXEL: 1425/5344
- PIXEL: 837/5528
- PIXEL: 929/5808
- PIXEL: 7545/ 504
- PIXEL: 2115/ 995
- PIXEL: 1736/1271
- PIXEL: 2248/1451
- PIXEL: 7610/1794
- PIXEL: 7962/2188
- PIXEL: 2406/2389
- PIXEL: 7237/2703
- PIXEL: 3549/3006
- PIXEL: 6222/3556
- PIXEL: 7962/3616
- PIXEL: 986/3827
- PIXEL: 7821/3942
- PIXEL: 650/4067
- PIXEL: 7962/4220
- PIXEL: 2692/4363
- PIXEL: 5613/4412
- PIXEL: 7962/4560
- PIXEL: 2435/4607
- PIXEL: 7962/4755
- PIXEL: 7962/4816
- PIXEL: 7962/4965
- PIXEL: 7139/5056
- PIXEL: 7962/5209
- PIXEL: 7962/5281
- PIXEL: 7962/5476
- PIXEL: 4959/5806
- PIXEL: 2618/ 253
- PIXEL: 337/ 921
- PIXEL: 1065/2105
- PIXEL: 2372/3041
- PIXEL: 4629/3329
- PIXEL: 344/3678
- PIXEL: 1813/4494
- PIXEL: 6118/4578
- PIXEL: 6979/5127
- PIXEL: 8165/5470
- PIXEL: 8263/5591
- PIXEL: 7403/5863
- PIXEL: 6643/ 848
- PIXEL: 3902/1048
- PIXEL: 6708/1305
- PIXEL: 7962/1584
- PIXEL: 261/1981
- PIXEL: 8101/2218
- PIXEL: 8755/2462
- PIXEL: 1614/2740
- PIXEL: 7962/3036
- PIXEL: 7962/3580
- PIXEL: 7962/3674
- PIXEL: 1292/3863
- PIXEL: 7962/4018
- PIXEL: 7742/4076
- PIXEL: 7962/4285
- PIXEL: 7962/4386
- PIXEL: 4153/4415
- PIXEL: 408/4564
- PIXEL: 7962/4672
- PIXEL: 7962/4778
- PIXEL: 955/4920
- PIXEL: 7869/4984
- PIXEL: 7829/5057
- PIXEL: 7962/5233
- PIXEL: 6740/5310
- PIXEL: 7962/5554
- PIXEL: 7573/5813
- PIXEL: 8299/ 406
- PIXEL: 5367/1518
- PIXEL: 4623/2333
- PIXEL: 4139/3135
- PIXEL: 488/3493
- PIXEL: 1386/3736
- PIXEL: 1552/4561
- PIXEL: 6201/4600
- PIXEL: 622/5141
- PIXEL: 391/5499
- PIXEL: 951/5662

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- PIXEL: 6664/ 37
- PIXEL: 3535/ 502
- PIXEL: 3379/1791
- PIXEL: 9041/2856
- PIXEL: 6363/3499
- PIXEL: 8350/3835
- PIXEL: 3776/4283
- PIXEL: 7975/4523
- PIXEL: 6911/ 214
- PIXEL: 3524/ 531
- PIXEL: 3595/2316
- PIXEL: 2660/3401
- PIXEL: 6378/3559
- PIXEL: 6177/4189
- PIXEL: 7473/4331
- PIXEL: 2385/4774
- PIXEL: 2364/ 350
- PIXEL: 1126/ 716
- PIXEL: 8501/2480
- PIXEL: 919/3429
- PIXEL: 4829/3774
- PIXEL: 6033/4219
- PIXEL: 4197/4344
- PIXEL: 2824/5158
- PIXEL: 6077/1543
- PIXEL: 4797/2515
- PIXEL: 1881/3496
- PIXEL: 7620/3793
- PIXEL: 4952/4272
- PIXEL: 7217/4463
- PIXEL: 6241/5267



PIXEL: 6941/5543	PIXEL: 3933/5846	PIXEL: 799/5943	PIXEL: 8962/5950
PIXEL: 968/ 76	PIXEL: 6535/ 263	PIXEL: 5772/ 272	PIXEL: 3955/ 443
PIXEL: 7058/ 496	PIXEL: 705/ 530	PIXEL: 6528/ 681	PIXEL: 3509/ 753
PIXEL: 7225/ 831	PIXEL: 6452/1009	PIXEL: 3828/1465	PIXEL: 3828/1466
PIXEL: 6371/1896	PIXEL: 5019/2193	PIXEL: 102/3659	PIXEL: 3111/3749
PIXEL: 1877/4196	PIXEL: 844/5041	PIXEL: 996/5132	PIXEL: 3747/5143
PIXEL: 8154/5342	PIXEL: 572/5470	PIXEL: 4207/6003	PIXEL: 4208/6003
PIXEL: 4588/6011	PIXEL: 4207/6004	PIXEL: 4208/6004	PIXEL: 94/5904

Notes

COLUMN anomaly: all pixels below the Qmax detector at location (X,Y) may be affected.
PIXEL anomaly: single detector at location (X,Y) is not functioning within normal range

The Level0 coordinates exclude the two leftmost pixels containing the line index: the corresponding pixel can therefore be located at column (X+2,Y).



Appendix II

Calibration and Modification Dates

Type of Calibration	Laboratory Calibration Date	Modification Date	Modification Reason
Geometric Calibration	14.Aug.2023		
Radiometric Calibration	14.Aug.2023		
Shutter Calibration	14.Aug.2023		
Electronics and Sensor Calibration	14.Aug.2023		

Note: The above-mentioned Laboratory Calibration Dates represent the dates the camera was calibrated in one of our calibration labs for a full Laboratory Calibration. The Modification date represents a date on which the calibration has been modified due to a calibration enhancement or part exchange. It is an additional information and does not replace the Laboratory Calibration date in any way. With the Modification Reason, always the last modification to the calibration is highlighted