

Geometric Verification DMC III 27542



Camera Geometric Verification Certificate No: DMC III 27542



For

Peregrine Aerial Survey

#201 2555 Townline Road Abbotsford, British Columbia V2T 6E1

Canada

DMC III 27542 Geometric Verification

Camera:DMC III 27542Manufacturer:Leica Geosystems Technologies, D-73430 Aalen, GermanyReference:PANSerial Number:00128301 (PAN Head)Date of Calibration:20 June 2017Date of Report:19 March 2024Number of Pages:5

This camera system is certified by Leica Geosystems Technologies and is fully functional within its specifications and tolerances.

Date of Calibration: 20 June 2017

Date of Certification: 19 March 2024

Mr. Meles

Dipl.Ing. Christian Müller, Product Manager

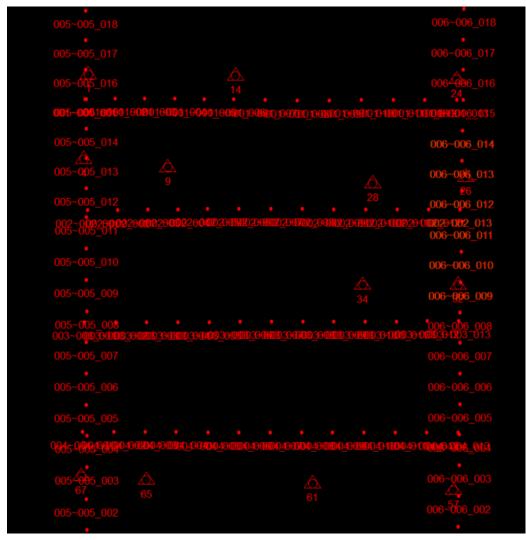
Michael Reading, Customer Support Consultant

Camera Serial Numbers and Burn-In flight

Camera Head	Serial	Calib. Date
	Number	
PAN	00128301	20.06.2017
(reference)		
MS1 (NIR)	00128770	20.06.2017
MS2 (Blue)	00128798	20.06.2017
MS3 (Red)	00128775	20.06.2017
MS4 (Green)	00128801	20.06.2017

Verification flight performed: 14 March 2024

Flight parameters of 5 cm Verification Flight – Control Points



Flight parameters of 5 cm Verification Flight – Check Points

						_
005 0	•					006~006_018
005~0	05_018					000-000_010
						000-000 017
005~0	005_017					006~006_017
		<u>(C)</u>	<u>k</u>	À t	<u>4422</u>	000
005~0	05_016	16		18		006-106_016
	• • •	• •				• •
005-0	08100001000	0 <u>1</u> 0 00 0 <u>1</u> 0 00 0 <u>1</u> 0(040010404000104	000_100800_100	1010104000010400	D <mark>008ED060</mark> 035
005~0	005_014					006~006_014
	<u>Ö</u>		A			
005~0	05_013					006~ <u>x</u> @6_013
						27
005~0	005_012					006~006_012
		002000020000020	0H010200H01202	000020080020	19020-000220-0	00220-002 013
005~0	0826 0 082601					006~006_011
005~0	005_010					006~006_010
			<u>A</u>		A	A
005~0)05_009					006~996_009
005~0	05_008					006~006 008
003~0	<u>@B300DB300</u>	110 <u>3000003000003</u> 6	000030000030	0000300000300	<u>1406]39-0106]39-0</u>	00301003_013
005~0	005_007					006~006_007
oorôn	905_006	<u>A</u>	<u>æ</u>	<u>í</u>		006-006
68	03_000	48		519		55
005~0)05_005					006~006_005
004-00	.			• • • • • • • • • • • • • • • • • • • •		
405-4	00200402000					P00_2004_003
0054	2 05_003		<u>kon</u>	à	â	006~006_003
					59	
005~0	05_002					006~906_002

Parameter	Validation Flight
GSD (cm)	5
End-lap (%)	70
Side-Lap (%)	40
Number of Exposures	88
Number of Flight Lines	4
Number of Cross Flight Lines	2
Number of Control Points	13
Number of Check Points	41
GNSS / INS	Yes

Application

Parameter	Validation Flight
Weighting for manual measured image points (um)	3.0
Weighting for automatic measured image points (um)	3.0
Weighting for Control Points (m)	0.100/ 0.100 / 0.100
Weighting for GPS (m)	0.100 / 0.100 / 0.100
Weighting for INS (deg)	0.010 / 0.010 / 0.020
Modeling of GPS systematic residuals	YES
Bore Sight Alignment (YES/NO)	YES
Camera Self Calibration (YES/NO)	NO

Statistics – Bundle Block Adjustment

Parameter	Validation Flight
Sigma0 [µm]	0.72593
Mean Std Dev Photo Position [m]	0.02936 / 0.02746 / 0.01947
Mean Std Dev Photo Attitude [deg]	0.00128 / 0.00133 / 0.00057
Mean Std Dev Control Points [m]	0.01239 / 0.01236 / 0.03029
Mean Std Dev Check Points [m]	0.01099 / 0.01178 / 0.02608
RMS Photo Position [m]	0.01505 / 0.01296 / 0.01313
RMS Photo Attitude [deg]	0.00076 / 0.00104 / 0.00086

Statistics – Results From Independent Reference Measurements

Parameter	Validation Flight
RMS of Control Points – horizontal [m]	0.02037 / 0.01959
Max Ground Residual of Control Points – horizontal [m]	0.05749 / 0.04211
RMS of Control Points – vertical [m]	0.02722
Max Ground Residual of Control Points – vertical [m]	0.05236
RMS of Check Points – horizontal [m]	0.02153 / 0.02316
Max Ground Residual of Check Points – horizontal [m]	0.06370 / 0.04345
RMS of Check Points – vertical [m]	0.04059
Max Ground Residual of Check Points – vertical [m]	0.09644

The results of the aerial triangulation were generated with ImageStation Automatic Triangulation (ISAT), 2023, Version 16.8.0, Build 215 from Hexagon Geospatial.

Aerial Triangulation performed by

Michael Reading

03.19.2024 Date