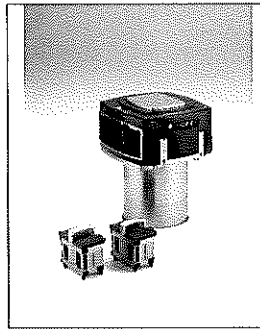


Camera Geometric Verification Certificate  
No: DMC III 27542



For

**Peregrine Aerial Survey, Inc**

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

Canada

DMC III 27542 Geometric  
Verification

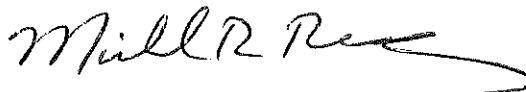
Camera: DMC III 27542  
Manufacturer: Leica Geosystems Technologies, D-73430 Aalen, Germany  
Reference: PAN  
Serial Number: 00128301 (PAN Head)  
Date of Calibration: 20 June 2017  
Date of Report: 29 June 2021  
Number of Pages: 6

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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: 29 June 2021



Dipl.Ing. Christian Müller, Product Manager

Michael Reading, Customer Support Consultant

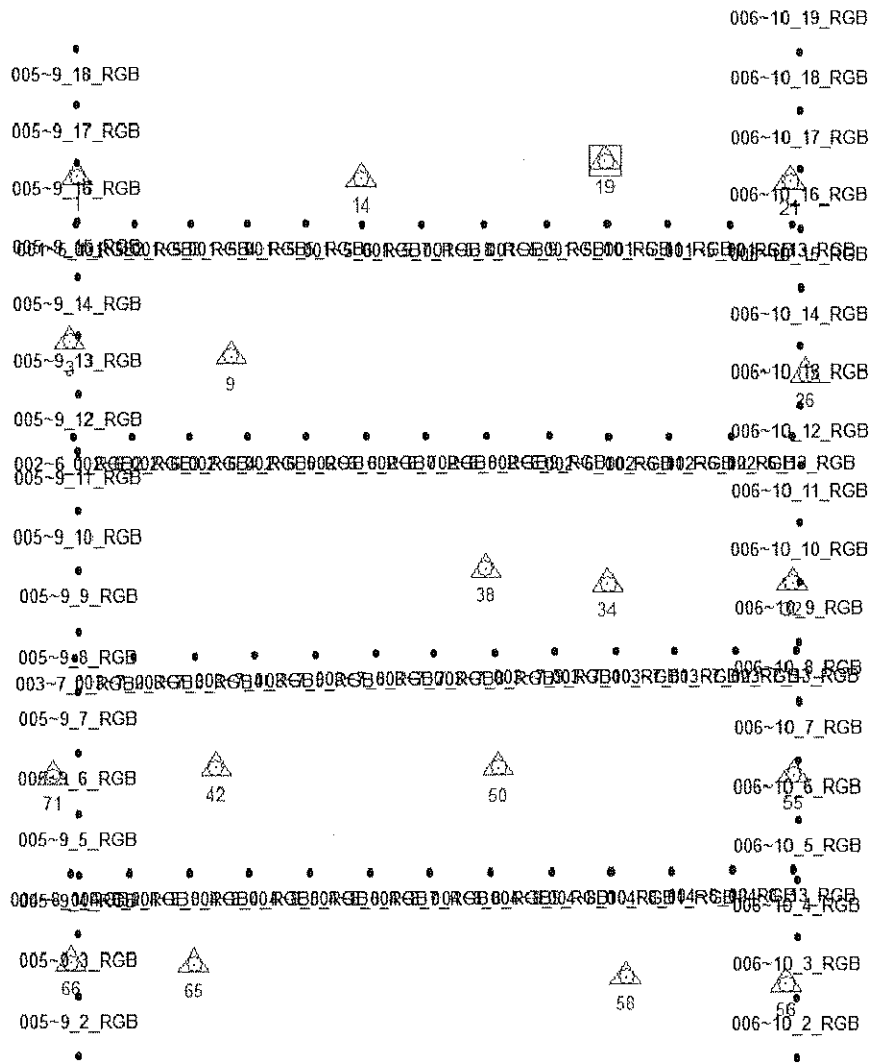
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# Camera Serial Numbers and Burn-In flight

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

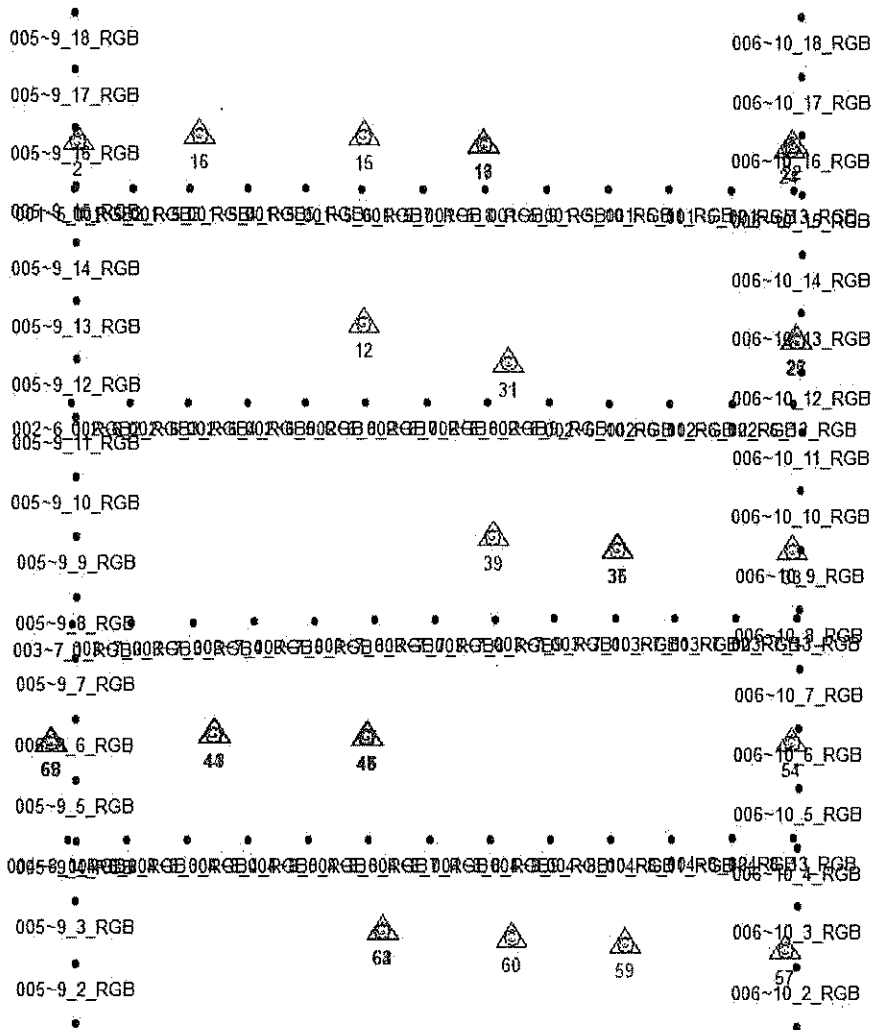
## Verification flight performed: 17 June 2021

Flight parameters of 5 cm Verification Flight - Control Points



DMC III 27542 Geometric  
Verification

Flight parameters of 5 cm Verification Flight - Check Points



Parameter	Validation Flight
GSD (cm)	5
End-lap (%)	70
Side-Lap (%)	40
Number of Exposures	89
Number of Flight Lines	4
Number of Cross Flight Lines	2
Number of Control Points	17
Number of Check Points	31
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)	0.50 / 0.50 / 0.50
Weighting for INS (deg)	0.01 / 0.01 / 0.01
Modeling of GPS systematic residuals	YES
Bore Sight Alignment (YES/NO)	YES
Camera Self Calibration (YES/NO)	NO

### Statistics – Bundleblockadjustment

Parameter	Validation Flight
Sigma0 [ $\mu\text{m}$ ]	0.8528
Mean Std Dev Photo Position [m]	0.0249 / 0.0245 / 0.0143
Mean Std Dev Photo Attitude [deg]	0.0009 / 0.0012 / 0.0004
Mean Std Dev Control Points [m]	0.0137 / 0.0127 / 0.0295
Mean Std Dev Check Points [m]	0.0297 / 0.0271 / 0.0489
RMS Photo Position [m]	0.0301 / 0.0276 / 0.0153
RMS Photo Attitude [deg]	0.0027 / 0.0018 / 0.0016

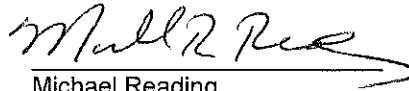
### Statistics – Results from independent reference measurements

Parameter	Validation Flight
RMS of Control Points – horizontal [m]	0.0159 / 0.0214
Max Ground Residual of Control Points – horizontal [m]	0.0365 / 0.0547
RMS of Control Points – vertical [m]	0.0412
Max Ground Residual of Control Points – vertical [m]	0.1010
RMS of Check Points – horizontal [m]	0.0297 / 0.0271
Max Ground Residual of Check Points – horizontal [m]	0.0875 / 0.0826
RMS of Check Points – vertical [m]	0.0489
Max Ground Residual of Check Points – vertical [m]	0.1096

DMC III 27542 Geometric  
Verification

The results of the aerial triangulation were generated with ImageStation Automatic  
Triangulation (ISAT), version 16.6.0 Build 618, from Hexagon Geospatial.

Aerial Triangulation performed by

  
Michael Reading

06.29 2021  
Date