Z/I DMC II Camera Family

Klaus Neumann
Product Manager Sensor Systems

Z/I DMC II Camera Family

Overview

- Hexagon Geosystems
- DMC II Design Overview
- Peripheral Products
- Results

Organization

Hexagon Geosystems 2010

750M € sales **3500 employees**

… the most complete professional airborne sensor portfolio

Leica ADS Pushbroom

Imaging

Z/I DMC II Frame

Imaging

Leica RCD Frame

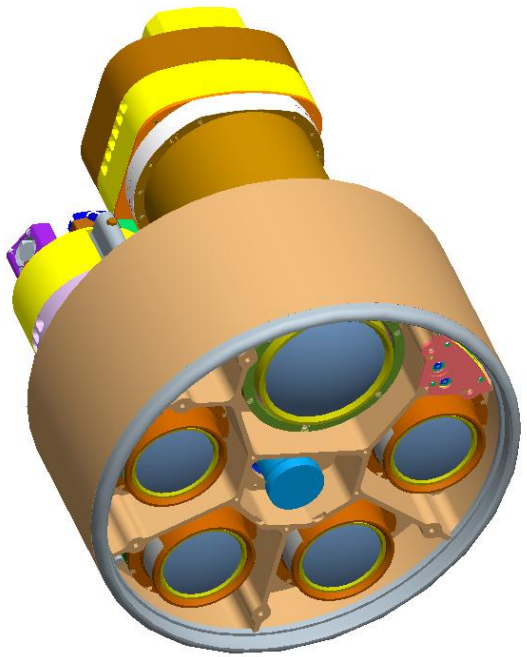
Imaging

Leica ALS

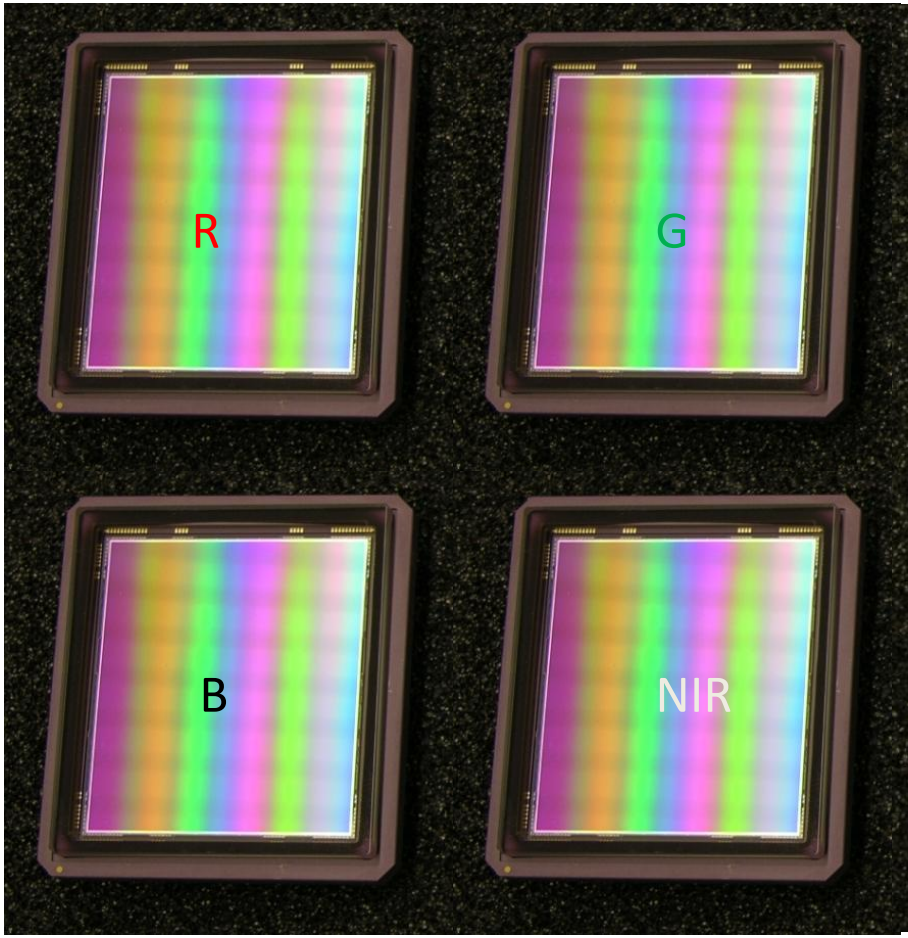
LIDAR

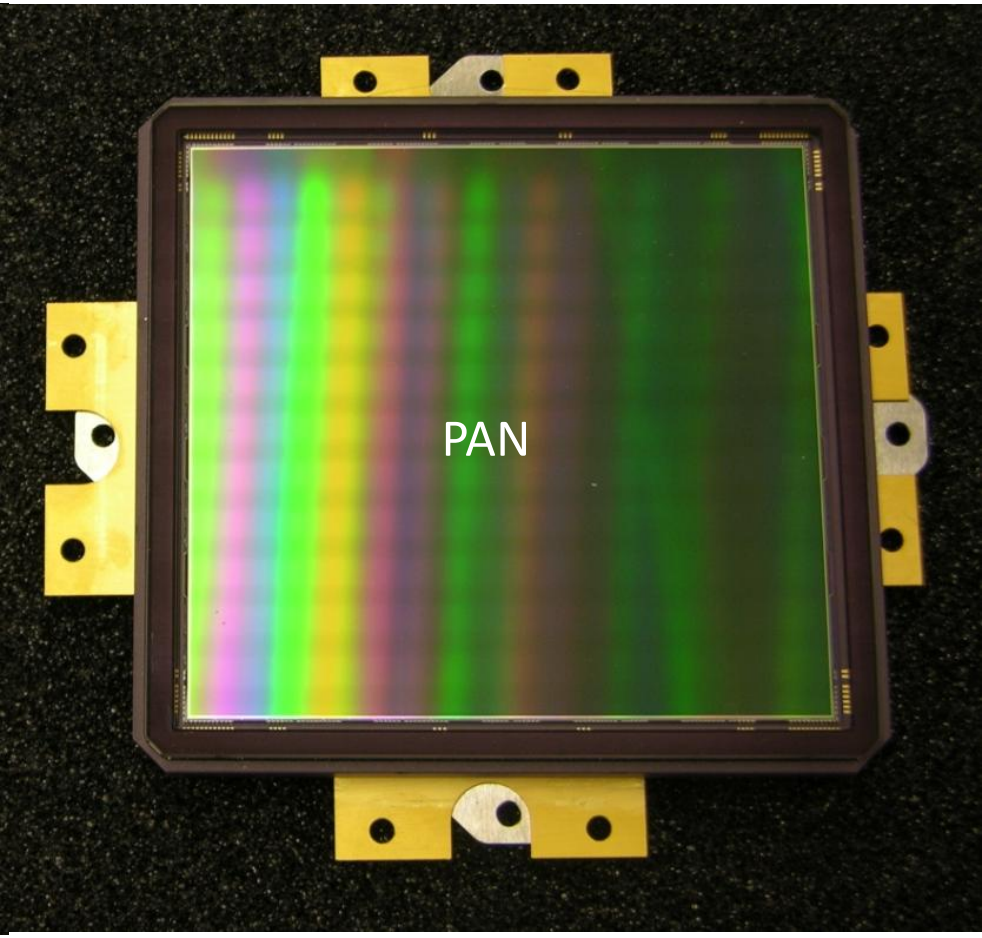
DMC II Camera System

DMC II Camera Design



DMC II 140 Sensor Design





DMC II Camera Family

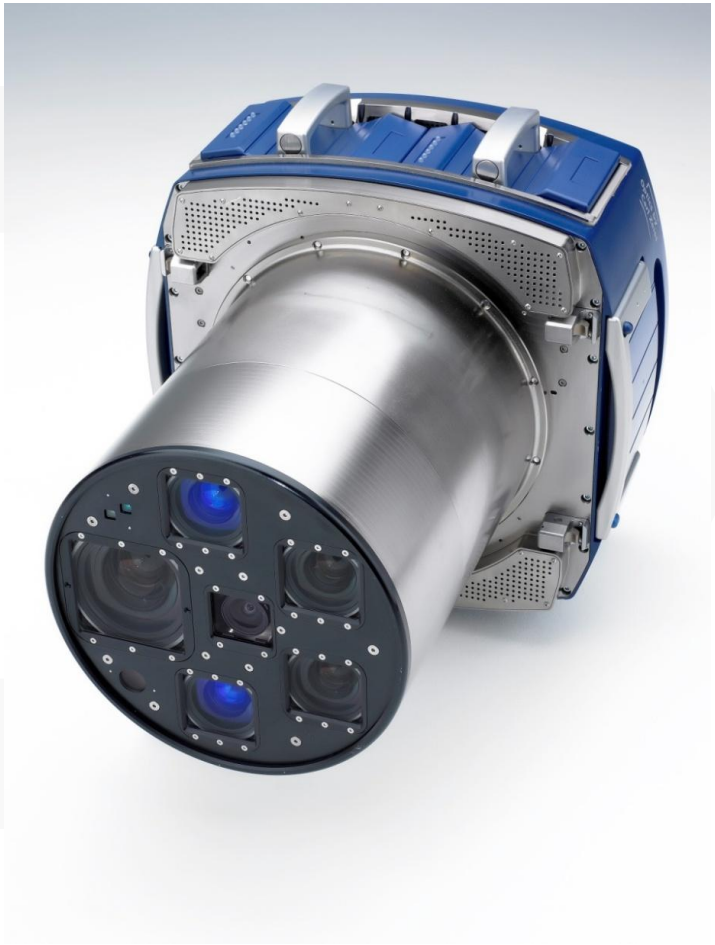
RMK D
A Product of Z/I Imaging

Metric Medium Format Camera

- Multi spectral sensor, RGB and IR
- 1:1 color resolution
- FMC forward motion compensation
- 1.1 second frame rate
- B/H ratio of 0.41 @ 60% overlap
- 4x42 MPixel, 7.2um CCD
- Finished Image Size: 5760 x 6400 pixel
- 10cm GSD @ 2051 ft flying height

DMC II Camera Family

DMC II 140
A Product of Z/I Imaging



- Multi spectral sensor, RGB and IR
- 2:1 pan-sharpened color resolution
- FMC forward motion compensation
- 2 second frame rate
- 92 mm focal length
- B/H ratio of 0.36 @ 60% overlap
- 4x42 MPixel, 7.2 um MS CCD
- 1x140 MPixel, 7.2um PAN CCD
- Finished Image Size: 12,096 x 11,200
- 15cm GSD @ 6288 ft flying height

DMC II Camera Family

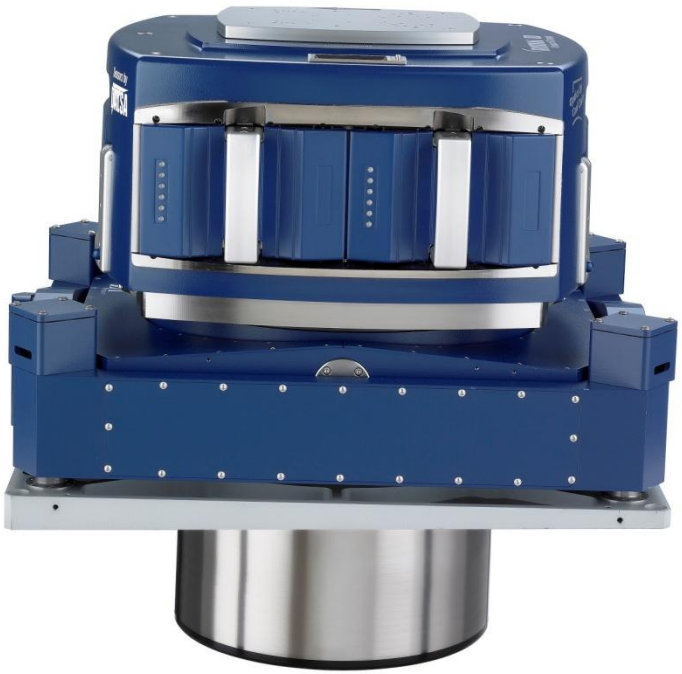
DMC II 230
A Product of Z/I Imaging

- Multi spectral sensor, RGB and IR
- 2.5:1 pan-sharpened color resolution
- FMC forward motion compensation
- 1.7 second frame rate
- 92 mm focal length
- B/H ratio of 0.35 @ 60% overlap
- 4x42 MPixel, 7.2um MS CCD
- 1x230 MPixel, 5.6um PAN CCD
- Finished Image Size: 15,552 x 14,144
- 15cm GSD @ 8085ft flying height

DMC II Camera Family

DMC II 250
A Product of Z/I Imaging

- Multi spectral sensor, RGB and IR
- 3.2:1 pan-sharpened color resolution
- FMC forward motion compensation
- 1.7 second frame rate
- 112 mm focal length
- B/H ratio of 0.29 @ 60% overlap
- 4x42 MPixel, 7.2um MS CCD
- 1x250 MPixel, 5.6um PAN CCD
- Finished Image Size: 17,216 x 14,656
- 15cm GSD @ 9843ft flying height



SSD Storage Cartridge

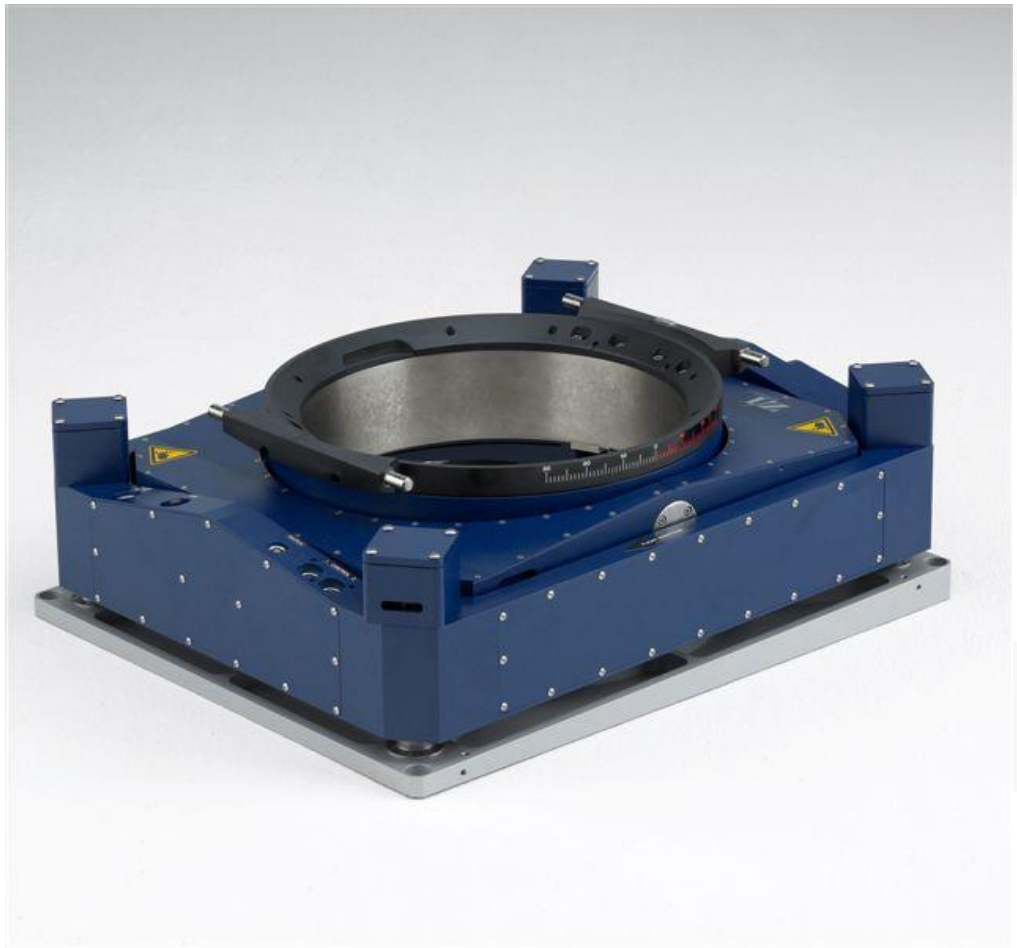
camera model	MS image size	PAN image size	Image overhead	2 x 384 GB	2 x 768 GB	2 x 984 GB
DMC	48 MB	224 MB	1 MB	1200	2500	2500
RMK D	320 MB	n.a.	1 MB	2100	4300	6000
DMC II 140	320 MB	267 MB	1 MB	1000	2200	2200
DMC II 230	320 MB	482 MB	1 MB	670	1350	2200
DMC II 250	320 MB	482 MB	1 MB	670	1350	2200

- for DMC , storage capacity is calculated for one SSD cartridge
- ground coverage of DMC II 250 is 2.2 times more than DMC
- always 2 SSD cartridges required to operate DMC II

New High Speed Readout Station

- Mobile workstation
- Embedded Windows PC
- eSATA, USB and 1GB Ethernet
- LTO 4 tape option
- Z/I Copy SW for office use
- 400 GByte/hour copy speed for high speed version (factor of 1.6 faster than old version)

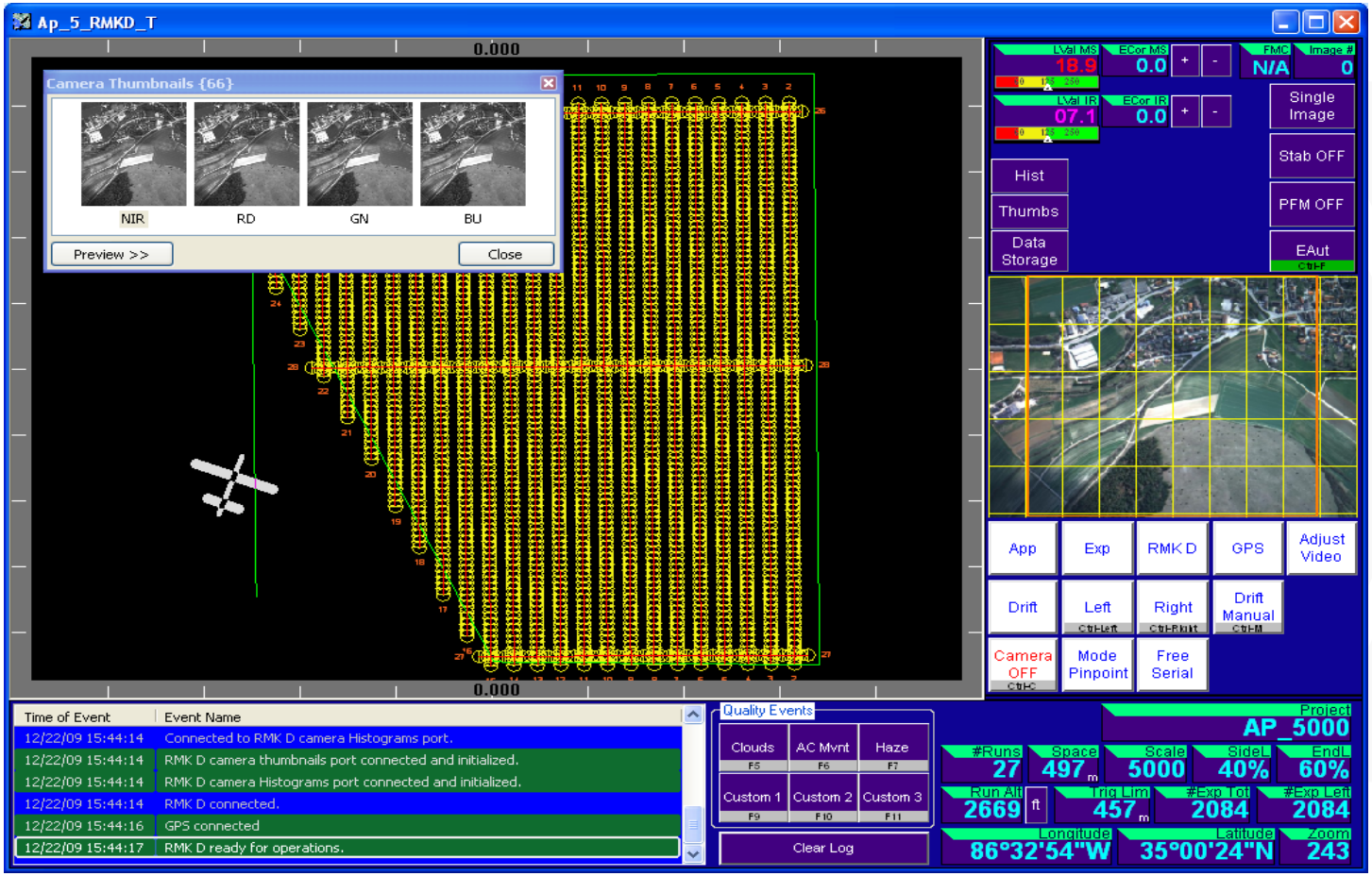
Gyro Stabilized Z/I Mount



- 1.5° tilted based plate
  give extended pitch range
- Improved control of Omega and Phi
- Automated drift control using IMU

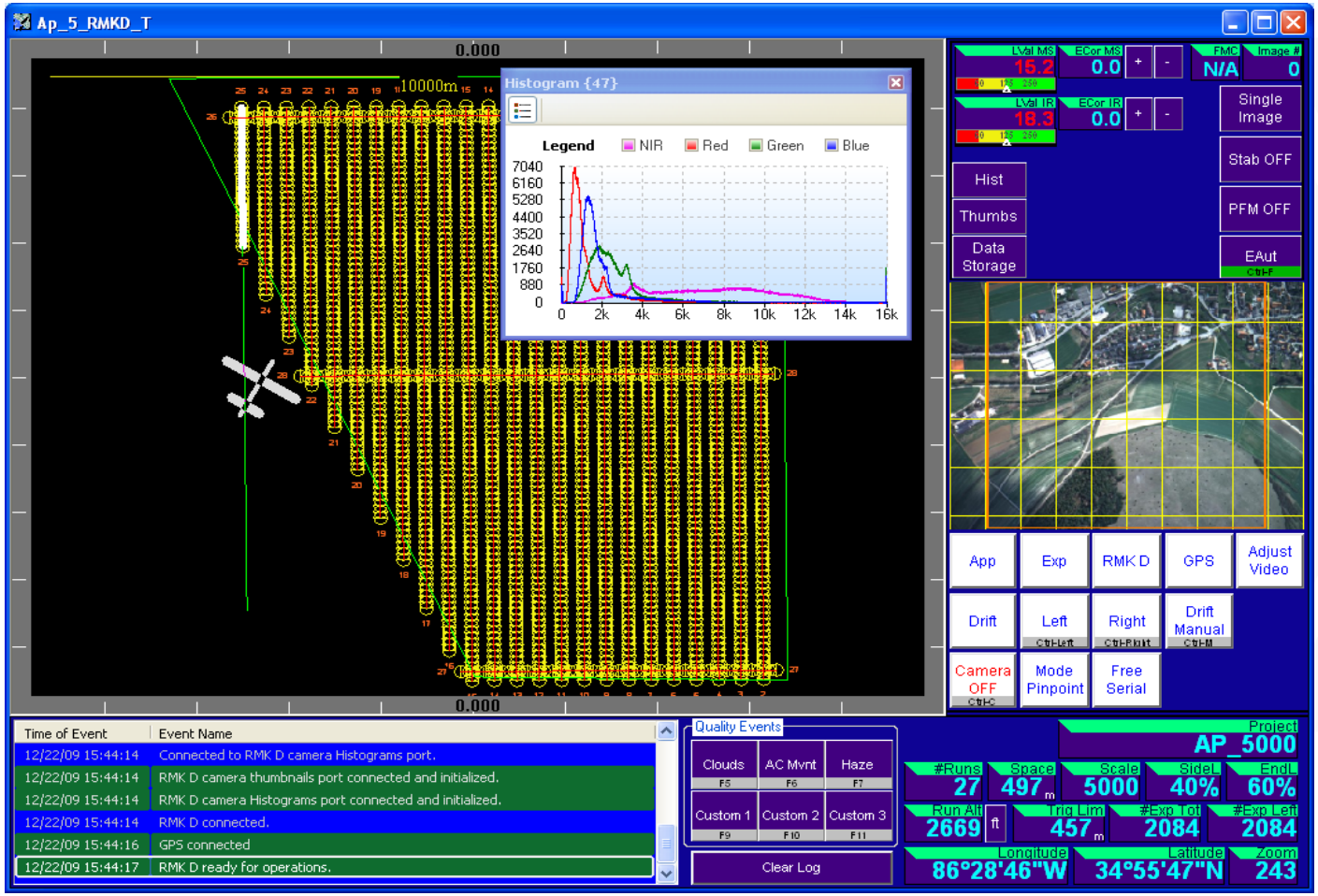
Sensor Management System

Z/I Inflight – Real Time Thumbnails



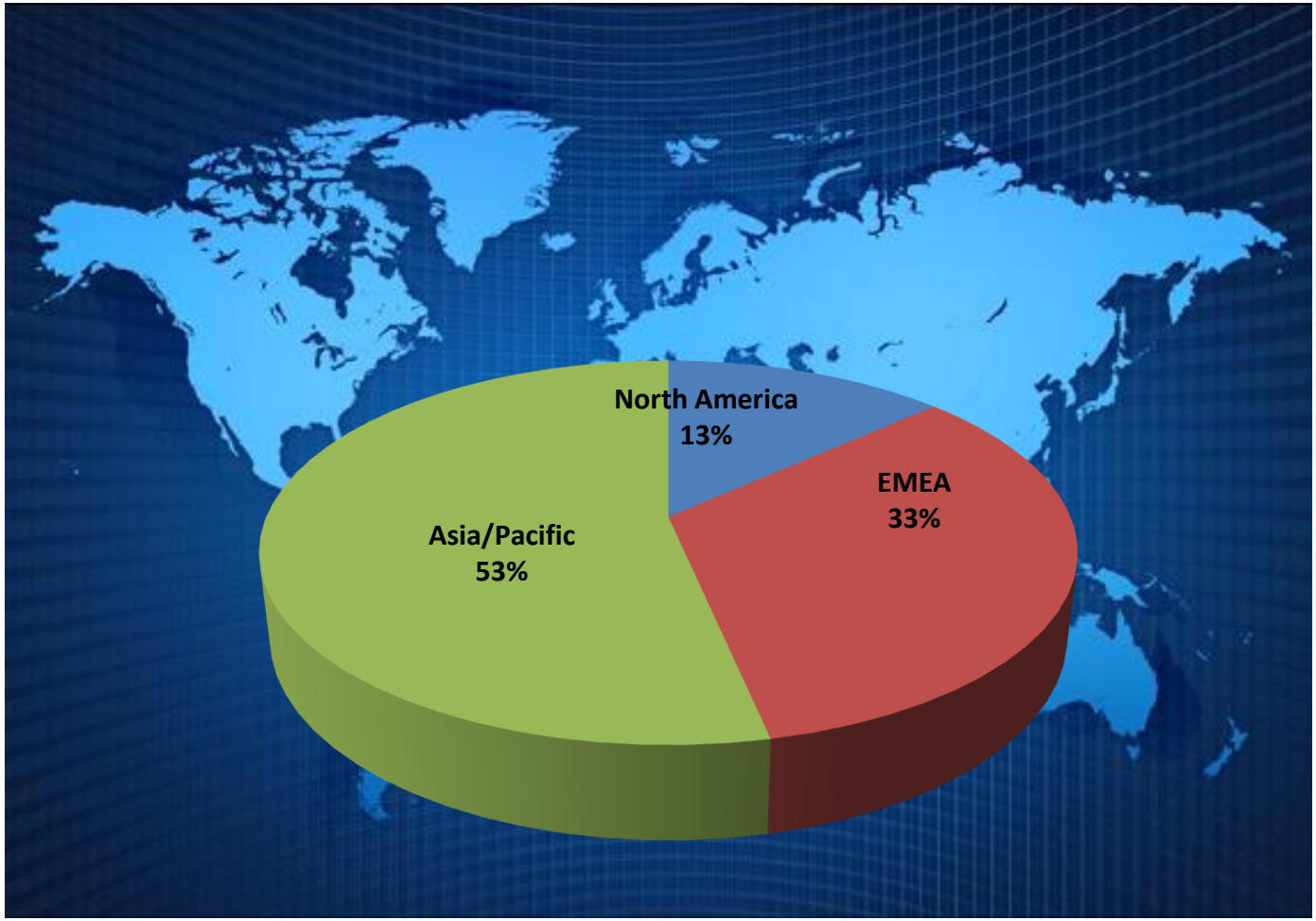
For RMK D
and DMC II only

Z/I Inflight – Real Time Histogram



For RMK D and DMC II only

16 DMC II sold since 2010



DMC II in Japan

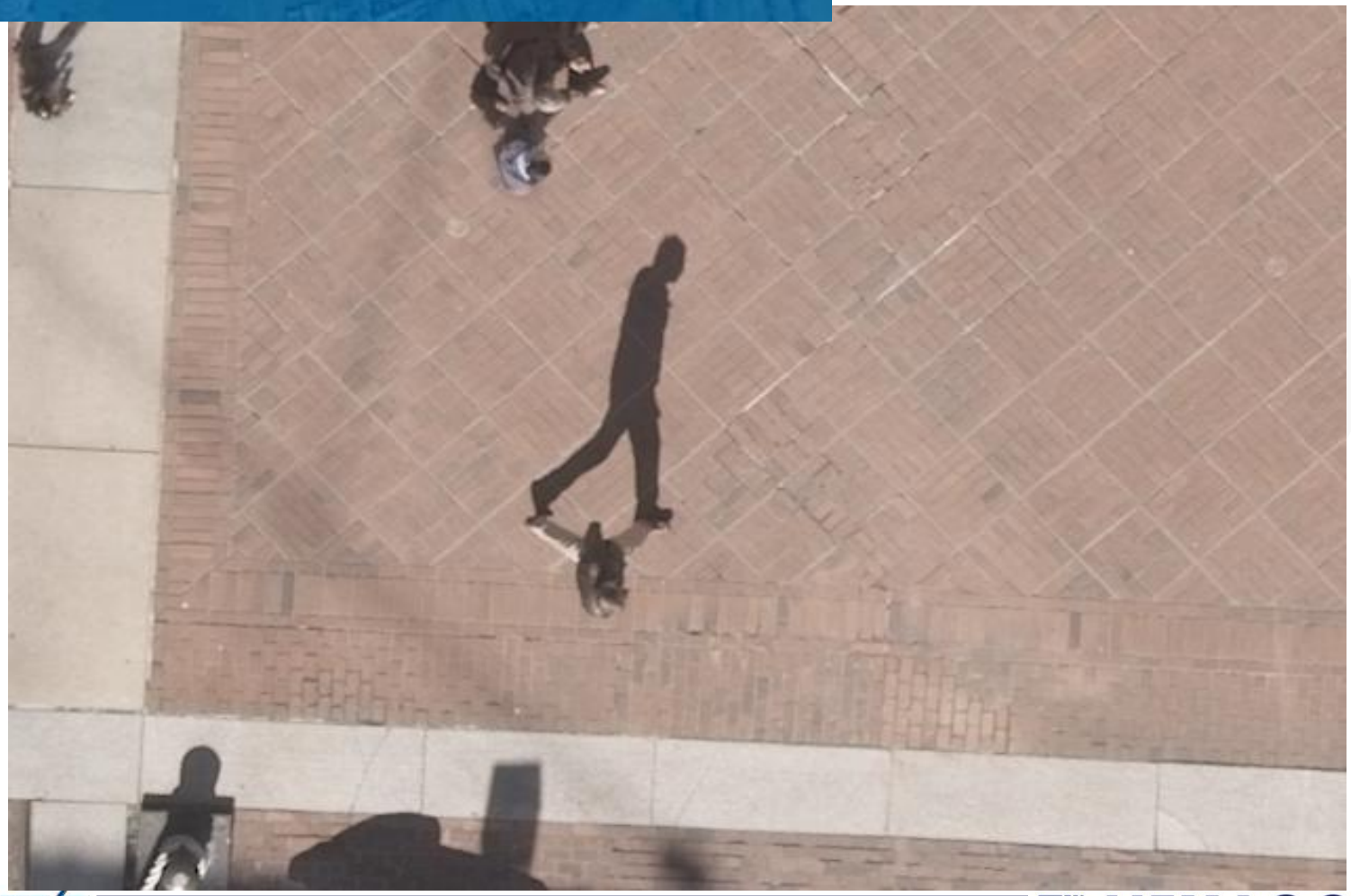
DMC II in Japan

Digital Mapping Camera System

Optimize the accuracy of your data acquisition

Digital Mapping Camera System

Optimize the accuracy of your data acquisition



Digital Mapping Camera System

Optimize the accuracy of your data acquisition

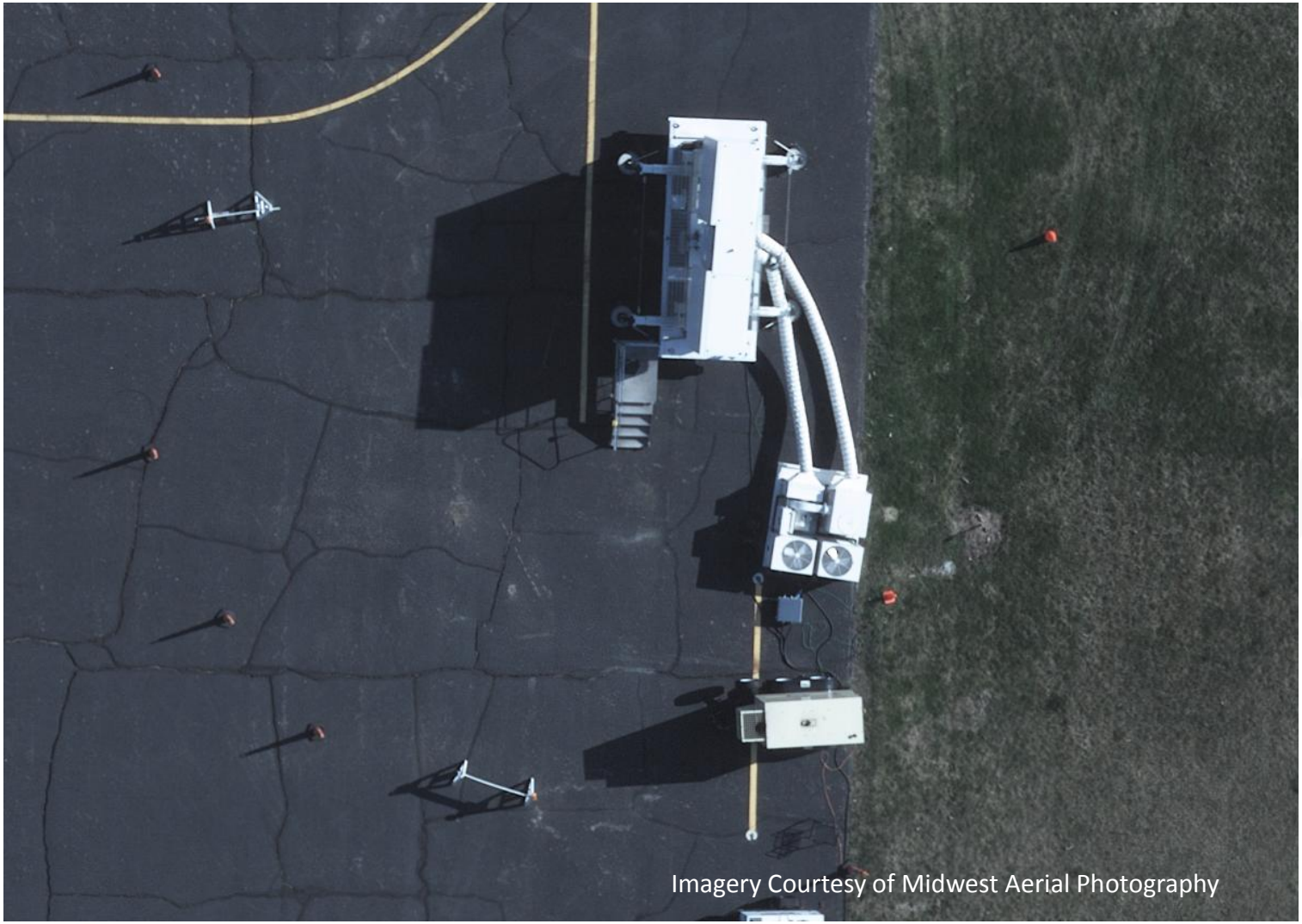
Digital Mapping Camera System

Optimize the accuracy of your data acquisition

DMC® II$_{140}$ CAMERA SYSTEM

Imagery Courtesy of Midwest Aerial Photography

DMC® II$_{140}$ CAMERA SYSTEM



Imagery Courtesy of Midwest Aerial Photography

RMK D

Medium Format Aerial Mapping System

RMK D

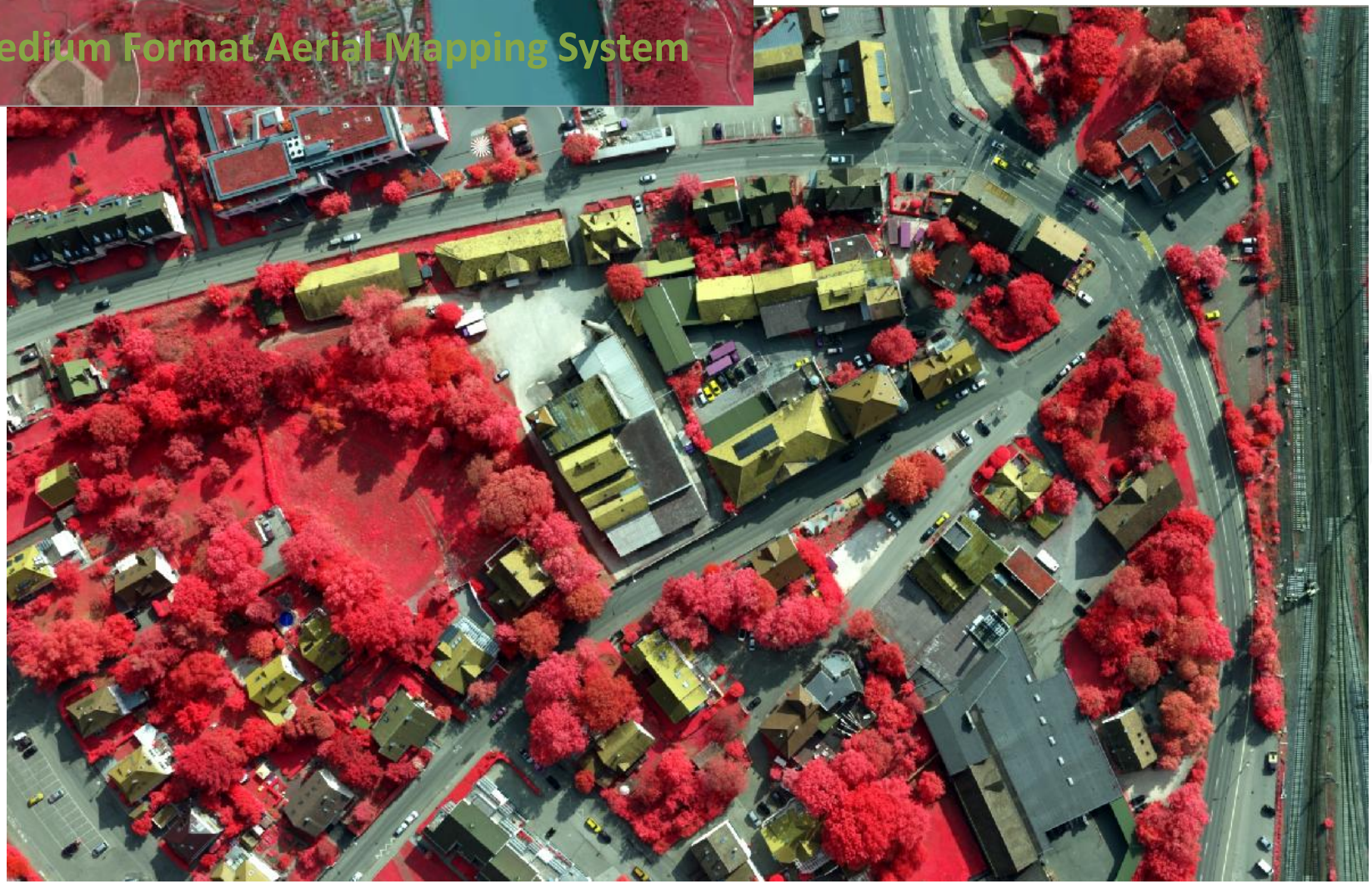
Medium Format Aerial Mapping System

RMK D

Medium Format Aerial Mapping System

RMK D

Medium Format Aerial Mapping System



RMK D

Medium Format Aerial Mapping System

RMK D

Medium Format Aerial Mapping System

DMC II Camera Family

Cameras Technical Specs Overview

Camera Type	RMK D	DMC	DMC II 140	DMC II 230	DMC II 250
Ground Coverage in cross direction	5700	13824	12096	15552	17216
Ground Coverage in flight direction	6400	7640	11200	14144	14656
Height Accuracy	0,7 x GSD	1,0 x GSD	0,7 x GSD	0,7 x GSD	0,7 x GSD
Field of View in cross direction	49,5°	69,4°	50,7°	49,4°	46,6°
PAN : Color Resolution	1:1	1:4,8	1:2	1:2,6	1:3,2
Max Airspeed @ 5cm GSD and 80% overlap	113 kts	71 kts	109 kts	165 kts	168 kts
AGL @ 5cm GSD	1025 ft	1640ft	2096 ft	2695 ft	3281 ft
Color Channels	R,G,B,NIR	R,G,B,NIR	R,G,B,NIR	R,G,B,NIR	R,G,B,NIR
FMC	TDI	TDI	TDI	TDI	TDI
Power consumption typical	300 W	250 W	320 W	320 W	320 W
Camera weight	60 kg	94 kg	67 kg	67 kg	67 kg
Onboard Storage	768 Gbyte	768 Gbyte	1,5 Tbyte	1,5 Tbyte	1,5 Tbyte
Onboard Storage Images	2000	2500	2000	1350	1350

Values for DMC II 250 are preliminary!

Thank you for your attention!

INTERGRAPH

Klaus Neumann
Product Manager Sensor Systems
Z/I Imaging

P +49 (0)7361.8895.4540
M +49 (0)175 184 8067
F +49 (0)7361.8895.4529
klaus.neumann@intergraph.com
www.intergraph.com/photo

Intergraph Z/I Deutschland GmbH
Ziegelstr. 12
D-73431 Aalen
Germany