

Project Calculation	Vexcel Imaging GmbH	1.2
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Aircraft	Transfer grnd speed [kts]	Mission grnd speed [kts]	Climb rate [ft/min]	Turn rate [min/180°]	Endurance/ Illumination [h]	Cost [Curr/h]
Jet	465	200	2,000	3	6	2,000
Conv: m/s, m/s, m/s, s, s, €/s	239.22	102.89	10.16	180.00	21,600.00	0.56

Project	GSD [cm]	Length [km]	Width [km]	Distance [km]	Sidelap [%]	Frontlap [%]
NAIP sample	100	225	400	50	30	60
Converted to m and sec.	1.00	225,000	400,000	50,000	0.30	0.60

Camera	UCLp	UCD	UCX	UCXp	DMC	ADS80	Remarks
Project altitude [m]	11,667	11,267	13,958	16,750	10,000	9,538	Calculated due to camera design and GSD
Time enroute [h]	0.06	0.06	0.06	0.06	0.06	0.06	Calculated due to transfer speed and distance
Time for climb [min]	19.1	18.5	22.9	27.5	16.4	15.6	Calculated from the climb rate and project altitude
Mobilization [h]	0.32	0.31	0.39	0.46	0.28	0.27	Mobilization includes climbing to project altitude
Image size accross [m]	11,310	11,500	14,430	17,310	13,810	12,000	Calculated due to project alt. and camera design
Number of flight lines [-]	51	50	40	34	42	48	Calculated due to project width and camera design
Mission duration [h]	33.53	32.87	26.30	22.35	27.61	31.56	Calculated by number of flight lines, line lengt, turns
Number of stops	5	5	4	3	4	5	Stops due to refuel or illumination restrictions
Additional flight hours	3.24	3.13	3.09	2.77	2.24	2.67	Additional flight time due to stop over
Total flight hours [h]	37.42	36.63	30.16	26.05	30.41	34.76	Flight hours for the project (mob+mission+stops+demob)
Total flight days [-]	6	6	5	4	5	6	Days required for the project
Total flight costs [Curr.]	74,839	73,266	60,315	52,091	60,815	69,526	Flight costs
Index [%]	144	141	116	100	117	133	Flight cost compared to UCXp

Camera	UCLp	UCD	UCX	UCXp	DMC	ADS80	Remarks
Image size along [m]	7,920	7,500	9,420	11,310	7,600	-	Calculated due to project alt. and camera design
Images per flight line [-]	72	75	60	50	75	-	Calculated due to camera design and frontlap
Total amount of images [-]	3,672	3,750	2,400	1,700	3,150	N/A	Calculated with number of flight lines

Camera	UCLp	UCD	UCX	UCXp	DMC	ADS80	Remarks
Project frame rate [s]	30.79	29.16	36.62	43.97	29.55	9.72	Required frame rate for defined frontlap
Max. frame rate [s]	2.50	0.75	1.35	2.00	2.20	1.00	Camera parameter (ADS = max. cycle rate in mili sec.)
Min. distance per image [m]	257	77	139	206	226	N/A	Calculated due to camera design and survey speed
Max. frontlap [%]	97	99	99	98	97	N/A	Maximum frontlap to be obtained at survey speed
Max. survey speed [m/s]	1,267	4,000	2,791	2,262	1,382	1,000	Maximum survey speed for defined frontlap
Max. survey speed [kts]	2,463	7,775	5,425	4,397	2,686	1,944	Maximum survey speed for defined frontlap