Unmanned Aircraft System Flight Planning

Camera	Sony A5100

Camera Inputs:

FL (mm)	Img wdth (pix)	Image hgt (pix)	Sensor wdth (mm)	Sensor hgt (mm)	Pix Size (wdth)	Pix Size (hgt)
20	6000	4000	23.50	15.60	0.0039	0.0039

Calculations:

	GSD wdth (cm)	GSD hgt (cm)	GSD wdth (inches)	GSD hgt (inches)	Photo wdth (ft)	Photo hgt (ft)
50 ft	0.30	0.30	0.12	0.12	58.8	39.2
100 ft	0.60	0.59	0.24	0.23	117.5	78.0
200 ft	1.19	1.19	0.47	0.47	235.0	156.0
300 ft	1.79	1.78	0.71	0.70	352.5	234.0
400 ft	2.39	2.38	0.94	0.94	470.0	312.0
500 ft	2.98	2.97	1.18	1.17	587.5	390.0
600 ft	3.58	3.57	1.41	1.40	705.0	468.0
700 ft	4.18	4.16	1.65	1.64	822.5	546.0
800 ft	4.78	4.75	1.88	1.87	940.0	624.0
900 ft	5.37	5.35	2.12	2.11	1057.5	702.0
1000 ft	5.97	5.94	2.35	2.34	1175.0	780.0

Flight Planning:

	Speed (mph)	Speed (kts)	Flt Hgt (ft.-AGL)	Dist. Side Transect (ft)	Dist. Forelap (ft)	Cam. Interv. (s)
50 ft			50	29.4	23.5	1.07
100 ft	15	13	100	58.8	46.8	2.13
200 ft			200	117.5	93.6	4.25
300 ft			300	176.3	140.4	6.38
400 ft			400	235.0	187.2	8.51
500 ft			500	293.8	234.0	10.63
600 ft			600	352.5	280.8	12.76
700 ft			700	411.3	327.6	14.89
800 ft			800	470.0	374.4	17.01
900 ft			900	528.8	421.2	19.14
1000 ft			1000	587.5	468.0	21.27

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	Camera Input Parameters
	Calculations
	UAS Flight Planning Inputs

Notes:

*Formula: GSD = Pix Size * Flight Height / Focal Lgth*

*Formula: Photo Footprint = Img pix * GSD*

Dist. Between Transects for 50% sidelap:

Dist. Between Photo Interval for 60% sidelap:

1 mph = 1.467 feet per second