Unmanned Aircraft System Flight Planning

Camera	MicaSense Red Edge 3

Camera Inputs:

FL (mm)	Img wdth (pix)	Image hgt (pix)	Sensor wdth (mm)	Sensor hgt (mm)	Pix Size (wdth)	Pix Size (hgt)
5.5	1280	960	4.80	3.60	0.0038	0.0038

Calculations:

	GSD wdth (cm)	GSD hgt (cm)	GSD wdth (inches)	GSD hgt (inches)	Photo wdth (ft)	Photo hgt (ft)
50 ft	1.04	1.04	0.41	0.41	43.6	32.7
100 ft	2.08	2.08	0.82	0.82	87.3	65.5
200 ft	4.16	4.16	1.64	1.64	174.5	130.9
300 ft	6.23	6.23	2.45	2.45	261.8	196.4
400 ft	8.31	8.31	3.27	3.27	349.1	261.8
500 ft	10.39	10.39	4.09	4.09	436.4	327.3
600 ft	12.47	12.47	4.91	4.91	523.6	392.7
700 ft	14.55	14.55	5.73	5.73	610.9	458.2
800 ft	16.63	16.63	6.55	6.55	698.2	523.6
900 ft	18.70	18.70	7.36	7.36	785.5	589.1
1000 ft	20.78	20.78	8.18	8.18	872.7	654.5

Flight Planning:

	Speed (mph)	Speed (kts)	Flt Hgt (ft.-AGL)	Dist. Side Transect (ft)	Dist. Forelap (ft)	Cam. Interv. (s)
50 ft			50	21.8	19.6	1.34
100 ft	10	9	100	43.6	39.3	2.68
200 ft			200	87.3	78.5	5.35
300 ft			300	130.9	117.8	8.03
400 ft			400	174.5	157.1	10.71
500 ft			500	218.2	196.4	13.39
600 ft			600	261.8	235.6	16.06
700 ft			700	305.5	274.9	18.74
800 ft			800	349.1	314.2	21.42
900 ft			900	392.7	353.5	24.09
1000 ft			1000	436.4	392.7	26.77

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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

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