

Depth of field tables

for APS-C DSLRs

These tables contain depth of field and hyperfocal distance data for various focal length lenses on an APS-C DSLR (such as a Canon EOS 350D).

The circle of confusion measurement used is a somewhat conservative 0.016mm. So in less focus-critical applications (smaller prints, or prints that are viewed from a distance) you may observe greater depth of field than is indicated by these tables.

The tables cover apertures from f/2.0 to f/22, and the following set of focal lengths (in mm):
18, 24, 28, 35, 50, 70, 100, 135, 200, 280

All distances are in metres.

Hyprefocal distances and depth of field (metres)												Focal length: 18 mm					
												circle of confusion: 0.016 mm					
Aperture		f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.	
Hyperfocal		10.1		7.18		5.08		3.60		2.55		1.81		1.28		0.91	
		near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far
Focus distance	0.25	0.24	0.26	0.24	0.26	0.24	0.26	0.23	0.27	0.23	0.28	0.22	0.29	0.21	0.31	0.20	0.34
	0.5	0.48	0.52	0.47	0.54	0.46	0.55	0.44	0.58	0.42	0.62	0.39	0.68	0.36	0.81	0.32	1.08
	0.75	0.70	0.81	0.68	0.84	0.66	0.88	0.62	0.94	0.58	1.06	0.53	1.27	0.48	1.78	0.41	4.12
	1.	0.91	1.11	0.88	1.16	0.84	1.24	0.78	1.38	0.72	1.63	0.65	2.22	0.56	4.46	0.48	inf
	1.5	1.31	1.76	1.24	1.89	1.16	2.12	1.06	2.56	0.95	3.62	0.82	8.72	0.69	inf	0.56	inf
	2.	1.67	2.49	1.57	2.77	1.44	3.29	1.29	4.48	1.12	9.22	0.95	inf	0.78	inf	0.62	inf
	2.5	2.01	3.31	1.86	3.83	1.68	4.90	1.48	8.15	1.26	128.5	1.05	inf	0.84	inf	0.66	inf
	3.	2.32	4.25	2.12	5.14	1.89	7.30	1.64	18.0	1.38	inf	1.13	inf	0.89	inf	0.69	inf
	3.5	2.60	5.33	2.35	6.81	2.07	11.2	1.77	128.2	1.47	inf	1.19	inf	0.93	inf	0.72	inf
	4.	2.87	6.59	2.57	9.01	2.24	18.7	1.89	inf	1.55	inf	1.24	inf	0.96	inf	0.73	inf
	4.5	3.12	8.07	2.77	12.0	2.39	39.2	2.00	inf	1.62	inf	1.28	inf	0.99	inf	0.75	inf
	5.	3.35	9.84	2.95	16.4	2.52	314.4	2.09	inf	1.68	inf	1.32	inf	1.01	inf	0.76	inf
	6.	3.77	14.7	3.27	36.5	2.75	inf	2.25	inf	1.78	inf	1.38	inf	1.05	inf	0.78	inf
	7.	4.14	22.6	3.54	282.4	2.94	inf	2.37	inf	1.86	inf	1.43	inf	1.07	inf	0.80	inf
	8.	4.47	37.8	3.78	inf	3.10	inf	2.48	inf	1.93	inf	1.47	inf	1.09	inf	0.81	inf
	9.	4.77	79.7	3.99	inf	3.24	inf	2.56	inf	1.98	inf	1.50	inf	1.11	inf	0.82	inf
	10.	5.04	708.0	4.18	inf	3.37	inf	2.64	inf	2.02	inf	1.52	inf	1.13	inf	0.82	inf
	15.	6.05	inf	4.85	inf	3.79	inf	2.89	inf	2.17	inf	1.60	inf	1.17	inf	0.85	inf
	20.	6.73	inf	5.28	inf	4.04	inf	3.04	inf	2.25	inf	1.64	inf	1.19	inf	0.86	inf
	25.	7.21	inf	5.57	inf	4.21	inf	3.13	inf	2.30	inf	1.67	inf	1.21	inf	0.86	inf
	30.	7.57	inf	5.78	inf	4.33	inf	3.20	inf	2.34	inf	1.69	inf	1.22	inf	0.87	inf
	40.	8.08	inf	6.07	inf	4.50	inf	3.29	inf	2.38	inf	1.71	inf	1.23	inf	0.88	inf
	50.	8.42	inf	6.26	inf	4.60	inf	3.34	inf	2.41	inf	1.73	inf	1.23	inf	0.88	inf
	75.	8.92	inf	6.54	inf	4.74	inf	3.42	inf	2.45	inf	1.75	inf	1.24	inf	0.88	inf
	100.	9.20	inf	6.68	inf	4.82	inf	3.46	inf	2.47	inf	1.76	inf	1.25	inf	0.89	inf

Hyperfocal distances and depth of field (metres)											Focal length: 24 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	18.0		12.8		9.02		6.39		4.52		3.21		2.27		1.61		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.24	0.26	0.24	0.26	0.24	0.26	0.23	0.27	0.23	0.28	0.22	0.29	
	0.5	0.49	0.51	0.48	0.52	0.47	0.53	0.47	0.54	0.45	0.56	0.43	0.59	0.41	0.63	0.38	0.71
	0.75	0.72	0.78	0.71	0.80	0.69	0.82	0.67	0.85	0.65	0.89	0.61	0.97	0.57	1.11	0.51	1.38
	1.	0.95	1.06	0.93	1.08	0.90	1.12	0.87	1.18	0.82	1.28	0.77	1.44	0.70	1.77	0.62	2.59
	1.5	1.39	1.63	1.34	1.70	1.29	1.79	1.22	1.95	1.13	2.23	1.02	2.80	0.91	4.36	0.78	20.8
	2.	1.80	2.25	1.73	2.37	1.64	2.56	1.53	2.90	1.39	3.57	1.23	5.28	1.06	16.4	0.89	inf
	2.5	2.20	2.90	2.09	3.10	1.96	3.45	1.80	4.09	1.61	5.56	1.41	11.3	1.19	inf	0.98	inf
	3.	2.57	3.59	2.43	3.92	2.25	4.48	2.04	5.64	1.81	8.86	1.55	46.3	1.29	inf	1.05	inf
	3.5	2.93	4.34	2.75	4.81	2.52	5.70	2.26	7.71	1.97	15.4	1.67	inf	1.38	inf	1.10	inf
	4.	3.28	5.13	3.05	5.82	2.77	7.17	2.46	10.7	2.12	34.4	1.78	inf	1.45	inf	1.14	inf
	4.5	3.60	5.99	3.33	6.94	3.01	8.95	2.64	15.2	2.26	843.8	1.87	inf	1.51	inf	1.18	inf
	5.	3.92	6.91	3.59	8.21	3.22	11.2	2.81	22.9	2.37	inf	1.95	inf	1.56	inf	1.21	inf
	6.	4.50	8.98	4.08	11.3	3.61	17.9	3.09	98.4	2.58	inf	2.08	inf	1.64	inf	1.26	inf
	7.	5.04	11.4	4.52	15.5	3.94	31.1	3.34	inf	2.74	inf	2.19	inf	1.71	inf	1.30	inf
	8.	5.54	14.4	4.92	21.4	4.24	70.3	3.55	inf	2.89	inf	2.28	inf	1.76	inf	1.33	inf
	9.	6.01	18.0	5.28	30.5	4.51	3375.0	3.73	inf	3.01	inf	2.36	inf	1.80	inf	1.36	inf
	10.	6.43	22.4	5.61	46.3	4.74	inf	3.89	inf	3.11	inf	2.42	inf	1.84	inf	1.38	inf
	15.	8.19	89.3	6.89	inf	5.63	inf	4.47	inf	3.47	inf	2.63	inf	1.96	inf	1.44	inf
	20.	9.48	inf	7.78	inf	6.21	inf	4.83	inf	3.68	inf	2.75	inf	2.02	inf	1.48	inf
	25.	10.5	inf	8.44	inf	6.62	inf	5.08	inf	3.82	inf	2.83	inf	2.07	inf	1.50	inf
	30.	11.3	inf	8.94	inf	6.93	inf	5.25	inf	3.92	inf	2.88	inf	2.09	inf	1.51	inf
	40.	12.4	inf	9.66	inf	7.35	inf	5.49	inf	4.05	inf	2.95	inf	2.13	inf	1.53	inf
	50.	13.2	inf	10.1	inf	7.63	inf	5.65	inf	4.13	inf	2.99	inf	2.15	inf	1.54	inf
	75.	14.5	inf	10.9	inf	8.04	inf	5.87	inf	4.25	inf	3.05	inf	2.19	inf	1.56	inf
	100.	15.3	inf	11.3	inf	8.26	inf	5.98	inf	4.31	inf	3.08	inf	2.20	inf	1.57	inf

Hyperfocal distances and depth of field (metres)											Focal length: 28 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	24.5		17.4		12.3		8.69		6.15		4.36		3.09		2.19		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.26	0.24	0.26	0.24	0.26	0.23	0.27	0.23	0.28	
	0.5	0.49	0.51	0.49	0.51	0.48	0.52	0.47	0.53	0.46	0.54	0.45	0.56	0.43	0.59	0.41	0.64
	0.75	0.73	0.77	0.72	0.78	0.71	0.80	0.69	0.82	0.67	0.85	0.64	0.90	0.61	0.98	0.56	1.13
	1.	0.96	1.04	0.95	1.06	0.93	1.09	0.90	1.13	0.86	1.19	0.82	1.29	0.76	1.46	0.69	1.81
	1.5	1.41	1.60	1.38	1.64	1.34	1.70	1.28	1.81	1.21	1.97	1.12	2.27	1.01	2.89	0.89	4.68
	2.	1.85	2.18	1.80	2.26	1.72	2.38	1.63	2.59	1.51	2.95	1.37	3.67	1.22	5.62	1.05	22.4
	2.5	2.27	2.78	2.19	2.92	2.08	3.13	1.94	3.50	1.78	4.19	1.59	5.82	1.38	13.0	1.17	inf
	3.	2.68	3.41	2.56	3.62	2.41	3.96	2.23	4.57	2.02	5.83	1.78	9.56	1.52	101.5	1.26	inf
	3.5	3.07	4.08	2.92	4.38	2.73	4.88	2.50	5.84	2.23	8.08	1.94	17.6	1.64	inf	1.34	inf
	4.	3.44	4.77	3.25	5.19	3.02	5.92	2.74	7.39	2.43	11.4	2.09	48.3	1.74	inf	1.41	inf
	4.5	3.81	5.50	3.58	6.07	3.30	7.09	2.97	9.30	2.60	16.7	2.21	inf	1.83	inf	1.47	inf
	5.	4.16	6.27	3.89	7.01	3.56	8.42	3.18	11.7	2.76	26.6	2.33	inf	1.91	inf	1.52	inf
	6.	4.82	7.93	4.46	9.16	4.03	11.7	3.55	19.3	3.04	240.2	2.52	inf	2.03	inf	1.60	inf
	7.	5.45	9.78	4.99	11.7	4.46	16.2	3.88	35.9	3.27	inf	2.68	inf	2.14	inf	1.66	inf
	8.	6.04	11.9	5.48	14.8	4.85	22.9	4.17	100.4	3.48	inf	2.82	inf	2.22	inf	1.71	inf
	9.	6.59	14.2	5.93	18.7	5.20	33.6	4.42	inf	3.65	inf	2.93	inf	2.29	inf	1.75	inf
	10.	7.11	16.9	6.35	23.6	5.51	53.8	4.65	inf	3.81	inf	3.03	inf	2.35	inf	1.78	inf
	15.	9.31	38.6	8.05	110.5	6.75	inf	5.50	inf	4.35	inf	3.37	inf	2.55	inf	1.90	inf
	20.	11.0	108.2	9.29	inf	7.60	inf	6.05	inf	4.69	inf	3.56	inf	2.66	inf	1.96	inf
	25.	12.4	inf	10.2	inf	8.23	inf	6.44	inf	4.92	inf	3.70	inf	2.73	inf	1.99	inf
	30.	13.5	inf	11.0	inf	8.70	inf	6.73	inf	5.09	inf	3.79	inf	2.78	inf	2.02	inf
	40.	15.2	inf	12.1	inf	9.38	inf	7.12	inf	5.31	inf	3.91	inf	2.85	inf	2.06	inf
	50.	16.4	inf	12.9	inf	9.84	inf	7.39	inf	5.46	inf	3.99	inf	2.89	inf	2.08	inf
	75.	18.5	inf	14.1	inf	10.5	inf	7.77	inf	5.66	inf	4.10	inf	2.94	inf	2.11	inf
	100.	19.7	inf	14.8	inf	10.9	inf	7.97	inf	5.77	inf	4.15	inf	2.97	inf	2.12	inf

Hyperfocal distances and depth of field (metres)											Focal length: 35 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	38.3		27.1		19.2		13.6		9.61		6.80		4.82		3.42		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.26	0.24	0.26	0.24	0.26	0.24	0.27	
	0.5	0.49	0.51	0.49	0.51	0.49	0.51	0.48	0.52	0.48	0.53	0.47	0.54	0.46	0.55	0.44	0.58
	0.75	0.74	0.76	0.73	0.77	0.72	0.78	0.71	0.79	0.70	0.81	0.68	0.84	0.65	0.88	0.62	0.95
	1.	0.98	1.03	0.97	1.04	0.95	1.05	0.93	1.08	0.91	1.11	0.88	1.17	0.83	1.25	0.78	1.40
	1.5	1.44	1.56	1.42	1.59	1.39	1.62	1.35	1.68	1.30	1.77	1.23	1.91	1.15	2.16	1.05	2.65
	2.	1.90	2.11	1.86	2.16	1.81	2.23	1.75	2.34	1.66	2.52	1.55	2.82	1.42	3.39	1.27	4.77
	2.5	2.35	2.67	2.29	2.75	2.21	2.87	2.11	3.06	1.99	3.37	1.83	3.93	1.65	5.16	1.45	9.21
	3.	2.78	3.25	2.70	3.37	2.60	3.55	2.46	3.84	2.29	4.35	2.09	5.34	1.85	7.89	1.60	24.2
	3.5	3.21	3.85	3.10	4.01	2.96	4.27	2.79	4.70	2.57	5.49	2.31	7.17	2.03	12.7	1.73	inf
	4.	3.62	4.46	3.49	4.69	3.31	5.05	3.09	5.66	2.83	6.83	2.52	9.66	2.19	23.3	1.84	inf
	4.5	4.03	5.09	3.86	5.39	3.65	5.87	3.38	6.72	3.07	8.44	2.71	13.2	2.33	67.3	1.94	inf
	5.	4.43	5.75	4.23	6.12	3.97	6.75	3.66	7.90	3.29	10.4	2.88	18.8	2.45	inf	2.03	inf
	6.	5.19	7.11	4.92	7.70	4.57	8.72	4.16	10.7	3.70	15.9	3.19	50.6	2.67	inf	2.17	inf
	7.	5.92	8.56	5.57	9.43	5.13	11.0	4.62	14.4	4.05	25.7	3.45	inf	2.85	inf	2.29	inf
	8.	6.62	10.1	6.18	11.3	5.65	13.7	5.04	19.4	4.37	47.7	3.67	inf	3.00	inf	2.39	inf
	9.	7.29	11.8	6.76	13.5	6.13	16.9	5.41	26.7	4.65	142.3	3.87	inf	3.13	inf	2.47	inf
	10.	7.93	13.5	7.31	15.8	6.58	20.9	5.76	37.9	4.90	inf	4.04	inf	3.24	inf	2.53	inf
	15.	10.8	24.6	9.66	33.5	8.42	68.8	7.12	inf	5.85	inf	4.67	inf	3.63	inf	2.77	inf
	20.	13.1	41.8	11.5	76.2	9.79	inf	8.08	inf	6.48	inf	5.06	inf	3.87	inf	2.90	inf
	25.	15.1	71.9	13.0	321.6	10.8	inf	8.79	inf	6.93	inf	5.33	inf	4.02	inf	2.98	inf
30.	16.8	138.1	14.2	inf	11.7	inf	9.33	inf	7.26	inf	5.53	inf	4.13	inf	3.04	inf	
40.	19.6	inf	16.2	inf	13.0	inf	10.1	inf	7.73	inf	5.79	inf	4.28	inf	3.12	inf	
50.	21.7	inf	17.6	inf	13.8	inf	10.7	inf	8.04	inf	5.96	inf	4.37	inf	3.17	inf	
75.	25.4	inf	19.9	inf	15.3	inf	11.5	inf	8.49	inf	6.21	inf	4.50	inf	3.24	inf	
100.	27.7	inf	21.3	inf	16.1	inf	11.9	inf	8.74	inf	6.34	inf	4.57	inf	3.27	inf	

Hypfocal distances and depth of field (metres)												Focal length: 50 mm					
												circle of confusion: 0.016 mm					
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	78.2		55.3		39.1		27.7		19.6		13.9		9.82		6.96		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.26	0.24	0.26	
	0.5	0.50	0.50	0.50	0.49	0.51	0.49	0.51	0.49	0.51	0.48	0.52	0.48	0.52	0.47	0.53	
	0.75	0.74	0.76	0.74	0.76	0.74	0.76	0.73	0.77	0.72	0.78	0.71	0.79	0.70	0.81	0.68	0.83
	1.	0.99	1.01	0.98	1.02	0.98	1.02	0.97	1.04	0.95	1.05	0.94	1.07	0.91	1.11	0.88	1.16
	1.5	1.47	1.53	1.46	1.54	1.45	1.56	1.43	1.58	1.40	1.62	1.36	1.68	1.31	1.76	1.24	1.90
	2.	1.95	2.05	1.93	2.07	1.90	2.11	1.87	2.15	1.82	2.22	1.75	2.33	1.67	2.50	1.56	2.79
	2.5	2.42	2.58	2.39	2.62	2.35	2.67	2.30	2.74	2.22	2.86	2.12	3.04	2.00	3.34	1.85	3.87
	3.	2.89	3.12	2.85	3.17	2.79	3.25	2.71	3.36	2.61	3.53	2.47	3.81	2.30	4.30	2.10	5.24
	3.5	3.35	3.66	3.29	3.73	3.22	3.84	3.11	4.00	2.97	4.25	2.80	4.67	2.59	5.41	2.33	6.99
	4.	3.81	4.21	3.73	4.31	3.63	4.45	3.50	4.67	3.33	5.01	3.11	5.60	2.85	6.72	2.54	9.35
	4.5	4.26	4.77	4.16	4.89	4.04	5.08	3.88	5.36	3.66	5.83	3.40	6.64	3.09	8.27	2.74	12.7
	5.	4.70	5.34	4.59	5.49	4.44	5.73	4.24	6.09	3.99	6.70	3.68	7.79	3.32	10.1	2.91	17.7
	6.	5.58	6.49	5.42	6.72	5.21	7.08	4.94	7.65	4.60	8.63	4.19	10.5	3.73	15.4	3.22	43.4
	7.	6.43	7.68	6.22	8.01	5.94	8.51	5.59	9.35	5.16	10.9	4.66	14.1	4.09	24.3	3.49	inf
	8.	7.26	8.91	6.99	9.34	6.65	10.0	6.21	11.2	5.69	13.5	5.08	18.9	4.41	43.0	3.72	inf
	9.	8.07	10.2	7.75	10.7	7.32	11.7	6.80	13.3	6.17	16.6	5.46	25.6	4.70	107.8	3.92	inf
	10.	8.87	11.5	8.47	12.2	7.97	13.4	7.35	15.6	6.62	20.4	5.81	35.8	4.95	inf	4.10	inf
	15.	12.6	18.5	11.8	20.6	10.8	24.3	9.73	32.7	8.50	63.9	7.20	inf	5.93	inf	4.74	inf
	20.	15.9	26.9	14.7	31.3	13.2	40.9	11.6	72.0	9.89	inf	8.18	inf	6.57	inf	5.14	inf
	25.	18.9	36.7	17.2	45.6	15.3	69.2	13.1	258.5	11.0	inf	8.91	inf	7.03	inf	5.42	inf
30.	21.7	48.7	19.5	65.5	17.0	128.6	14.4	inf	11.8	inf	9.47	inf	7.38	inf	5.62	inf	
40.	26.5	81.9	23.2	144.5	19.8	inf	16.4	inf	13.1	inf	10.3	inf	7.86	inf	5.90	inf	
50.	30.5	138.6	26.3	521.9	21.9	inf	17.8	inf	14.1	inf	10.8	inf	8.18	inf	6.07	inf	
75.	38.3	1845.5	31.8	inf	25.7	inf	20.2	inf	15.5	inf	11.7	inf	8.65	inf	6.33	inf	
100.	43.9	inf	35.6	inf	28.1	inf	21.7	inf	16.3	inf	12.1	inf	8.90	inf	6.46	inf	

Hyprefocal distances and depth of field (metres)												Focal length: 70 mm					
												circle of confusion: 0.016 mm					
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	153.2		108.3		76.6		54.2		38.4		27.1		19.2		13.6		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	0.5	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.49	0.51	0.49	0.51	0.49	0.51	0.48	0.52	
	0.75	0.75	0.75	0.75	0.74	0.76	0.74	0.76	0.74	0.76	0.73	0.77	0.72	0.78	0.71	0.79	
	1.	0.99	1.01	0.99	1.01	0.99	1.01	0.98	1.02	0.98	1.02	0.97	1.04	0.95	1.05	0.94	1.07
	1.5	1.49	1.51	1.48	1.52	1.47	1.53	1.46	1.54	1.45	1.56	1.42	1.58	1.40	1.62	1.36	1.68
	2.	1.98	2.03	1.96	2.04	1.95	2.05	1.93	2.07	1.90	2.11	1.87	2.15	1.82	2.22	1.75	2.33
	2.5	2.46	2.54	2.45	2.56	2.42	2.58	2.39	2.62	2.35	2.67	2.29	2.75	2.22	2.86	2.12	3.05
	3.	2.94	3.06	2.92	3.08	2.89	3.12	2.85	3.17	2.79	3.25	2.71	3.36	2.60	3.54	2.47	3.83
	3.5	3.42	3.58	3.39	3.61	3.35	3.66	3.29	3.74	3.21	3.84	3.11	4.01	2.97	4.26	2.79	4.69
	4.	3.90	4.11	3.86	4.15	3.80	4.22	3.73	4.31	3.63	4.46	3.49	4.68	3.32	5.03	3.10	5.64
	4.5	4.37	4.63	4.32	4.69	4.25	4.78	4.16	4.90	4.03	5.09	3.87	5.38	3.65	5.86	3.39	6.69
	5.	4.84	5.17	4.78	5.24	4.70	5.34	4.58	5.50	4.43	5.74	4.23	6.11	3.98	6.73	3.67	7.86
	6.	5.78	6.24	5.69	6.35	5.57	6.50	5.41	6.74	5.20	7.10	4.92	7.68	4.58	8.69	4.17	10.7
	7.	6.70	7.33	6.58	7.48	6.42	7.70	6.21	8.03	5.93	8.55	5.57	9.41	5.14	11.0	4.63	14.3
	8.	7.61	8.44	7.45	8.63	7.25	8.92	6.98	9.37	6.63	10.1	6.19	11.3	5.66	13.7	5.04	19.3
	9.	8.50	9.56	8.31	9.81	8.06	10.2	7.73	10.8	7.30	11.7	6.77	13.4	6.14	16.9	5.42	26.5
	10.	9.39	10.7	9.16	11.0	8.85	11.5	8.45	12.2	7.94	13.5	7.32	15.8	6.58	20.8	5.77	37.5
	15.	13.7	16.6	13.2	17.4	12.6	18.6	11.8	20.7	10.8	24.6	9.67	33.4	8.43	68.2	7.13	inf
	20.	17.7	23.0	16.9	24.5	15.9	27.0	14.6	31.7	13.2	41.7	11.5	75.8	9.80	inf	8.09	inf
	25.	21.5	29.9	20.3	32.5	18.9	37.1	17.1	46.3	15.1	71.7	13.0	316.4	10.9	inf	8.80	inf
30.	25.1	37.3	23.5	41.5	21.6	49.3	19.3	67.1	16.8	137.5	14.2	inf	11.7	inf	9.34	inf	
40.	31.7	54.1	29.2	63.4	26.3	83.6	23.0	152.4	19.6	inf	16.2	inf	13.0	inf	10.1	inf	
50.	37.7	74.2	34.2	92.8	30.3	143.7	26.0	643.3	21.7	inf	17.6	inf	13.9	inf	10.7	inf	
75.	50.4	146.9	44.3	243.5	37.9	3517.4	31.5	inf	25.4	inf	19.9	inf	15.3	inf	11.5	inf	
100.	60.5	287.9	52.0	1297.4	43.4	inf	35.1	inf	27.7	inf	21.3	inf	16.1	inf	11.9	inf	

Hyprefocal distances and depth of field (metres)													Focal length:		100 mm		
													circle of confusion:		0.016 mm		
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	312.6		221.1		156.4		110.6		78.2		55.3		39.2		27.7		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	0.5	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.49	0.51	0.49	0.51	
	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.74	0.76	0.74	0.76	0.74	0.76	0.73	0.77	
	1.	1.00	1.00	1.00	1.00	0.99	1.01	0.99	1.01	0.99	1.01	0.98	1.02	0.98	1.02	0.97	1.03
	1.5	1.49	1.51	1.49	1.51	1.49	1.51	1.48	1.52	1.47	1.53	1.46	1.54	1.45	1.56	1.43	1.58
	2.	1.99	2.01	1.98	2.02	1.98	2.02	1.97	2.03	1.95	2.05	1.93	2.07	1.91	2.10	1.87	2.15
	2.5	2.48	2.52	2.47	2.53	2.46	2.54	2.45	2.56	2.43	2.58	2.40	2.61	2.36	2.66	2.30	2.74
	3.	2.97	3.03	2.96	3.04	2.95	3.06	2.92	3.08	2.89	3.12	2.85	3.17	2.79	3.24	2.71	3.35
	3.5	3.46	3.54	3.45	3.55	3.43	3.58	3.40	3.61	3.35	3.66	3.30	3.73	3.22	3.83	3.12	3.99
	4.	3.95	4.05	3.93	4.07	3.90	4.10	3.86	4.15	3.81	4.21	3.74	4.30	3.64	4.44	3.51	4.66
	4.5	4.44	4.56	4.41	4.59	4.38	4.63	4.33	4.69	4.26	4.77	4.17	4.89	4.04	5.07	3.88	5.35
	5.	4.92	5.08	4.89	5.11	4.85	5.16	4.79	5.23	4.70	5.33	4.59	5.49	4.44	5.72	4.25	6.08
	6.	5.89	6.12	5.84	6.16	5.78	6.24	5.70	6.34	5.58	6.49	5.42	6.72	5.21	7.07	4.94	7.63
	7.	6.85	7.16	6.79	7.23	6.70	7.32	6.59	7.47	6.43	7.68	6.22	8.00	5.95	8.50	5.60	9.33
	8.	7.80	8.21	7.72	8.30	7.61	8.43	7.47	8.62	7.27	8.90	7.00	9.33	6.65	10.0	6.22	11.2
	9.	8.75	9.26	8.65	9.38	8.51	9.54	8.33	9.79	8.08	10.2	7.75	10.7	7.33	11.7	6.81	13.3
	10.	9.69	10.3	9.57	10.5	9.40	10.7	9.18	11.0	8.88	11.5	8.48	12.2	7.98	13.4	7.36	15.6
	15.	14.3	15.8	14.1	16.1	13.7	16.6	13.2	17.3	12.6	18.5	11.8	20.5	10.9	24.2	9.74	32.6
	20.	18.8	21.4	18.3	22.0	17.7	22.9	16.9	24.4	15.9	26.8	14.7	31.3	13.2	40.8	11.6	71.5
	25.	23.2	27.2	22.5	28.2	21.6	29.7	20.4	32.3	19.0	36.7	17.2	45.5	15.3	69.0	13.1	253.7
30.	27.4	33.2	26.4	34.7	25.2	37.1	23.6	41.1	21.7	48.6	19.5	65.4	17.0	127.9	14.4	inf	
40.	35.5	45.9	33.9	48.8	31.9	53.7	29.4	62.6	26.5	81.8	23.2	144.0	19.8	inf	16.4	inf	
50.	43.1	59.5	40.8	64.6	37.9	73.5	34.4	91.2	30.5	138.4	26.3	517.0	22.0	inf	17.8	inf	
75.	60.5	98.6	56.0	113.5	50.7	144.1	44.7	232.9	38.3	1816.9	31.8	inf	25.7	inf	20.2	inf	
100.	75.8	147.0	68.9	182.5	61.0	277.3	52.5	1043.7	43.9	inf	35.6	inf	28.1	inf	21.7	inf	

Hyperfocal distances and depth of field (metres)											Focal length: 135 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	569.7		402.9		284.9		201.5		142.5		100.8		71.3		50.5		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	0.5	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.74	0.76	0.74	0.76	
	1.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.01	0.99	1.01	0.99	1.01	0.98	1.02	
	1.5	1.50	1.50	1.49	1.51	1.49	1.51	1.49	1.51	1.49	1.51	1.48	1.52	1.47	1.53	1.46	1.54
	2.	1.99	2.01	1.99	2.01	1.99	2.01	1.98	2.02	1.97	2.03	1.96	2.04	1.95	2.05	1.93	2.08
	2.5	2.49	2.51	2.49	2.51	2.48	2.52	2.47	2.53	2.46	2.54	2.44	2.56	2.42	2.59	2.39	2.62
	3.	2.98	3.02	2.98	3.02	2.97	3.03	2.96	3.04	2.94	3.06	2.92	3.09	2.88	3.13	2.84	3.18
	3.5	3.48	3.52	3.47	3.53	3.46	3.54	3.44	3.56	3.42	3.58	3.39	3.62	3.34	3.67	3.28	3.75
	4.	3.97	4.03	3.96	4.04	3.95	4.06	3.92	4.08	3.89	4.11	3.85	4.16	3.79	4.23	3.71	4.33
	4.5	4.47	4.53	4.45	4.55	4.43	4.57	4.40	4.60	4.37	4.64	4.31	4.70	4.24	4.79	4.14	4.93
	5.	4.96	5.04	4.94	5.06	4.92	5.09	4.88	5.12	4.83	5.18	4.77	5.25	4.68	5.37	4.56	5.53
	6.	5.94	6.06	5.91	6.09	5.88	6.13	5.83	6.18	5.76	6.26	5.67	6.37	5.54	6.54	5.37	6.79
	7.	6.92	7.09	6.88	7.12	6.84	7.17	6.77	7.25	6.68	7.35	6.55	7.51	6.38	7.75	6.16	8.11
	8.	7.89	8.11	7.85	8.16	7.78	8.23	7.70	8.33	7.58	8.47	7.42	8.68	7.20	8.99	6.92	9.48
	9.	8.86	9.14	8.81	9.20	8.73	9.29	8.62	9.41	8.47	9.60	8.27	9.87	8.00	10.3	7.65	10.9
	10.	9.83	10.2	9.76	10.3	9.67	10.4	9.53	10.5	9.35	10.7	9.11	11.1	8.78	11.6	8.36	12.4
	15.	14.6	15.4	14.5	15.6	14.3	15.8	14.0	16.2	13.6	16.7	13.1	17.6	12.4	19.0	11.6	21.3
	20.	19.3	20.7	19.1	21.0	18.7	21.5	18.2	22.2	17.6	23.2	16.7	24.9	15.6	27.7	14.3	33.0
	25.	24.0	26.1	23.5	26.6	23.0	27.4	22.3	28.5	21.3	30.3	20.0	33.2	18.5	38.4	16.7	49.4
30.	28.5	31.7	27.9	32.4	27.2	33.5	26.1	35.2	24.8	38.0	23.1	42.7	21.1	51.7	18.8	73.8	
40.	37.4	43.0	36.4	44.4	35.1	46.5	33.4	49.9	31.3	55.6	28.7	66.2	25.6	90.9	22.3	192.2	
50.	46.0	54.8	44.5	57.1	42.5	60.6	40.1	66.5	37.0	76.9	33.4	99.1	29.4	166.9	25.1	5299.8	
75.	66.3	86.4	63.2	92.1	59.4	101.8	54.7	119.4	49.2	158.2	43.0	292.5	36.6	inf	30.2	inf	
100.	85.1	121.3	80.1	133.0	74.0	154.0	66.8	198.4	58.8	334.9	50.2	#####	41.6	inf	33.5	inf	

Hypfocal distances and depth of field (metres)											Focal length: 200 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	1250.2		884.1		625.2		442.1		312.7		221.2		156.5		110.7		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	0.5	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
	1.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.01	0.99	1.01	
	1.5	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.49	1.51	1.49	1.51	1.49	1.51	1.48	1.52	
	2.	2.00	2.00	2.00	2.00	1.99	2.01	1.99	2.01	1.99	2.01	1.98	2.02	1.98	2.02	1.97	2.03
	2.5	2.50	2.50	2.49	2.51	2.49	2.51	2.49	2.51	2.48	2.52	2.47	2.53	2.46	2.54	2.45	2.55
	3.	2.99	3.01	2.99	3.01	2.99	3.01	2.98	3.02	2.97	3.03	2.96	3.04	2.95	3.05	2.93	3.08
	3.5	3.49	3.51	3.49	3.51	3.48	3.52	3.47	3.53	3.46	3.54	3.45	3.55	3.43	3.58	3.40	3.61
	4.	3.99	4.01	3.98	4.02	3.98	4.02	3.97	4.03	3.95	4.05	3.93	4.07	3.91	4.10	3.87	4.14
	4.5	4.48	4.52	4.48	4.52	4.47	4.53	4.46	4.54	4.44	4.56	4.41	4.59	4.38	4.63	4.33	4.68
	5.	4.98	5.02	4.97	5.03	4.96	5.04	4.95	5.05	4.92	5.08	4.89	5.11	4.85	5.16	4.79	5.23
	6.	5.97	6.03	5.96	6.04	5.94	6.06	5.92	6.08	5.89	6.11	5.85	6.16	5.79	6.23	5.70	6.33
	7.	6.96	7.04	6.95	7.05	6.92	7.08	6.89	7.11	6.85	7.16	6.79	7.22	6.71	7.32	6.59	7.46
	8.	7.95	8.05	7.93	8.07	7.90	8.10	7.86	8.14	7.81	8.20	7.73	8.29	7.62	8.42	7.47	8.61
	9.	8.94	9.06	8.91	9.09	8.88	9.13	8.82	9.18	8.75	9.26	8.66	9.37	8.52	9.54	8.34	9.78
	10.	9.92	10.1	9.89	10.1	9.85	10.2	9.78	10.2	9.70	10.3	9.58	10.5	9.41	10.7	9.19	11.0
	15.	14.8	15.2	14.8	15.3	14.7	15.4	14.5	15.5	14.3	15.7	14.1	16.1	13.7	16.6	13.2	17.3
	20.	19.7	20.3	19.6	20.5	19.4	20.7	19.1	20.9	18.8	21.4	18.4	22.0	17.8	22.9	17.0	24.4
	25.	24.5	25.5	24.3	25.7	24.0	26.0	23.7	26.5	23.2	27.2	22.5	28.2	21.6	29.7	20.4	32.2
30.	29.3	30.7	29.0	31.0	28.6	31.5	28.1	32.2	27.4	33.2	26.4	34.7	25.2	37.1	23.6	41.1	
40.	38.8	41.3	38.3	41.9	37.6	42.7	36.7	44.0	35.5	45.8	33.9	48.8	31.9	53.7	29.4	62.5	
50.	48.1	52.1	47.3	53.0	46.3	54.3	44.9	56.3	43.1	59.5	40.8	64.5	37.9	73.4	34.5	91.0	
75.	70.8	79.8	69.1	81.9	67.0	85.2	64.1	90.3	60.5	98.6	56.0	113.4	50.7	143.9	44.7	232.2	
100.	92.6	108.7	89.9	112.7	86.2	119.0	81.6	129.2	75.8	146.9	68.9	182.4	61.0	276.8	52.5	1034.0	

Hyprefocal distances and depth of field (metres)											Focal length: 280 mm						
											circle of confusion: 0.016 mm						
Aperture	f/2.		f/2.8		f/4.		f/5.6		f/8.		f/11.		f/16.		f/22.		
Hyperfocal	2450.3		1732.7		1225.3		866.5		612.8		433.4		306.5		216.8		
	near	far	near	far	near	far	near	far	near	far	near	far	near	far	near	far	
Focus distance	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	0.5	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
	1.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	1.5	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.49	1.51	1.49	1.51	
	2.	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.99	2.01	1.99	2.01	1.99	2.01	1.98	2.02
	2.5	2.50	2.50	2.50	2.50	2.50	2.50	2.49	2.51	2.49	2.51	2.49	2.51	2.48	2.52	2.47	2.53
	3.	3.00	3.00	3.00	3.00	2.99	3.01	2.99	3.01	2.99	3.01	2.98	3.02	2.97	3.03	2.96	3.04
	3.5	3.50	3.50	3.49	3.51	3.49	3.51	3.49	3.51	3.48	3.52	3.47	3.53	3.46	3.54	3.45	3.55
	4.	3.99	4.01	3.99	4.01	3.99	4.01	3.98	4.02	3.98	4.02	3.97	4.03	3.95	4.05	3.93	4.07
	4.5	4.49	4.51	4.49	4.51	4.48	4.52	4.48	4.52	4.47	4.53	4.46	4.54	4.44	4.56	4.41	4.59
	5.	4.99	5.01	4.99	5.01	4.98	5.02	4.97	5.03	4.96	5.04	4.95	5.06	4.92	5.08	4.89	5.11
	6.	5.99	6.01	5.98	6.02	5.97	6.03	5.96	6.04	5.94	6.06	5.92	6.08	5.89	6.11	5.85	6.16
	7.	6.98	7.02	6.97	7.03	6.96	7.04	6.95	7.05	6.92	7.08	6.89	7.11	6.85	7.16	6.79	7.22
	8.	7.97	8.03	7.96	8.04	7.95	8.05	7.93	8.07	7.90	8.10	7.86	8.15	7.80	8.21	7.72	8.30
	9.	8.97	9.03	8.95	9.05	8.94	9.06	8.91	9.09	8.87	9.13	8.82	9.18	8.75	9.26	8.65	9.38
	10.	9.96	10.0	9.94	10.1	9.92	10.1	9.89	10.1	9.84	10.2	9.78	10.2	9.69	10.3	9.57	10.5
	15.	14.9	15.1	14.9	15.1	14.8	15.2	14.7	15.3	14.6	15.4	14.5	15.5	14.3	15.8	14.0	16.1
	20.	19.8	20.2	19.8	20.2	19.7	20.3	19.6	20.5	19.4	20.7	19.1	21.0	18.8	21.4	18.3	22.0
	25.	24.8	25.3	24.6	25.4	24.5	25.5	24.3	25.7	24.0	26.1	23.7	26.5	23.1	27.2	22.4	28.2
30.	29.6	30.4	29.5	30.5	29.3	30.7	29.0	31.1	28.6	31.5	28.1	32.2	27.3	33.2	26.4	34.8	
40.	39.4	40.7	39.1	40.9	38.7	41.3	38.2	41.9	37.6	42.8	36.6	44.0	35.4	46.0	33.8	49.0	
50.	49.0	51.0	48.6	51.5	48.0	52.1	47.3	53.0	46.2	54.4	44.9	56.5	43.0	59.7	40.7	64.9	
75.	72.8	77.4	71.9	78.4	70.7	79.9	69.0	82.1	66.8	85.4	64.0	90.6	60.3	99.2	55.8	114.5	
100.	96.1	104.2	94.6	106.1	92.5	108.9	89.7	113.0	86.0	119.4	81.3	129.9	75.4	148.3	68.5	185.4	