Focal Length 95mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	132.676	118.222	105.345	93.874	83.654	74.548	66.437	59.21	52.772

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	132.616	Infinity	118.166	Infinity	105.292	Infinity	93.823	Infinity	83.604	Infinity	74.501	Infinity	66.39	Infinity	59.164	Infinity	52.726	Infinity
60.000	41.387	109.244	39.875	121.469	38.303	138.924	36.682	165.653	35.018	211.303	33.323	305.996	31.606	616.012	29.879	Infinity	28.153	Infinity
30.000	24.519	38.663	23.983	40.082	23.409	41.805	22.797	43.925	22.147	46.577	21.46	49.966	20.739	54.411	19.985	60.45	19.203	69.059
20.000	17.419	23.488	17.149	24.001	16.855	24.604	16.537	25.319	16.194	26.174	15.826	27.204	15.433	28.462	15.014	30.022	14.57	31.991
15.000	13.508	16.867	13.346	17.129	13.168	17.432	12.974	17.786	12.764	18.201	12.535	18.69	12.289	19.272	12.023	19.97	11.739	20.817
12.000	11.031	13.158	10.923	13.316	10.805	13.498	10.675	13.707	10.532	13.951	10.377	14.235	10.209	14.568	10.026	14.961	9.828	15.429
10.000	9.322	10.787	9.245	10.892	9.161	11.012	9.067	11.151	8.965	11.31	8.853	11.495	8.731	11.71	8.598	11.961	8.453	12.256
9.000	8.449	9.629	8.386	9.713	8.317	9.808	8.24	9.917	8.156	10.043	8.064	10.188	7.963	10.355	7.852	10.551	7.732	10.779
8.000	7.564	8.491	7.514	8.555	7.458	8.629	7.397	8.713	7.329	8.809	7.255	8.92	7.173	9.047	7.084	9.195	6.986	9.367
7.000	6.666	7.37	6.627	7.419	6.584	7.473	6.537	7.536	6.484	7.607	6.426	7.689	6.363	7.783	6.293	7.892	6.216	8.017
6.500	6.212	6.817	6.178	6.858	6.141	6.905	6.1	6.958	6.055	7.018	6.004	7.088	5.949	7.167	5.888	7.259	5.821	7.364
6.000	5.755	6.268	5.726	6.302	5.694	6.341	5.659	6.386	5.62	6.437	5.577	6.495	5.529	6.561	5.477	6.637	5.419	6.725
5.500	5.294	5.723	5.27	5.751	5.243	5.784	5.214	5.821	5.181	5.863	5.144	5.91	5.104	5.965	5.059	6.028	5.01	6.099
5.000	4.831	5.182	4.811	5.205	4.788	5.232	4.764	5.262	4.736	5.296	4.706	5.335	4.673	5.379	4.635	5.429	4.595	5.487
4.750	4.597	4.914	4.579	4.934	4.559	4.958	4.537	4.985	4.512	5.015	4.485	5.05	4.455	5.089	4.421	5.134	4.384	5.186
4.500	4.363	4.646	4.347	4.664	4.329	4.685	4.309	4.709	4.287	4.736	4.262	4.767	4.235	4.802	4.205	4.842	4.171	4.887
4.250	4.128	4.379	4.114	4.396	4.098	4.414	4.08	4.435	4.06	4.459	4.038	4.486	4.014	4.517	3.987	4.552	3.957	4.592
4.000	3.893	4.114	3.88	4.128	3.866	4.144	3.85	4.163	3.832	4.184	3.813	4.207	3.791	4.234	3.767	4.265	3.741	4.3
3.800	3.704	3.902	3.692	3.915	3.679	3.929	3.665	3.946	3.649	3.964	3.632	3.986	3.612	4.01	3.59	4.037	3.566	4.068
3.600	3.514	3.691	3.503	3.702	3.492	3.715	3.479	3.73	3.465	3.746	3.449	3.765	3.432	3.787	3.412	3.811	3.391	3.838
3.500	3.419	3.586	3.409	3.596	3.398	3.608	3.386	3.622	3.373	3.638	3.358	3.655	3.341	3.675	3.323	3.698	3.302	3.724
3.400	3.323	3.48	3.314	3.49	3.304	3.502	3.293	3.515	3.28	3.529	3.266	3.546	3.25	3.565	3.233	3.586	3.214	3.61
3.300	3.228	3.375	3.219	3.385	3.21	3.396	3.199	3.408	3.187	3.421	3.174	3.437	3.159	3.455	3.143	3.474	3.125	3.497
3.200	3.133	3.271	3.124	3.279	3.115	3.289	3.105	3.301	3.094	3.314	3.082	3.328	3.068	3.345	3.053	3.363	3.036	3.384
3.100	3.037	3.166	3.029	3.174	3.021	3.184	3.012	3.194	3.001	3.206	2.989	3.22	2.976	3.235	2.962	3.252	2.946	3.272
3.000	2.941	3.061	2.934	3.069	2.926	3.078	2.917	3.088	2.908	3.099	2.897	3.111	2.885	3.126	2.871	3.142	2.856	3.16
2.900	2.845	2.957	2.839	2.964	2.831	2.972	2.823	2.982	2.814	2.992	2.804	3.004	2.792	3.017	2.78	3.032	2.766	3.049
2.800	2.749	2.853	2.743	2.86	2.736	2.867	2.729	2.876	2.72	2.885	2.711	2.896	2.7	2.908	2.688	2.922	2.675	2.938
2.700	2.653	2.749	2.647	2.755	2.641	2.762	2.634	2.77	2.626	2.779	2.617	2.789	2.607	2.8	2.596	2.813	2.584	2.827
2.600	2.556	2.645	2.551	2.651	2.545	2.657	2.539	2.664	2.532	2.672	2.523	2.682	2.514	2.692	2.504	2.704	2.493	2.717
2.550	2.508	2.593	2.503	2.599	2.498	2.605	2.491	2.612	2.484	2.619	2.477	2.628	2.468	2.638	2.458	2.649	2.447	2.662
2.500	2.46	2.541	2.455	2.547	2.45	2.552	2.444	2.559	2.437	2.567	2.43	2.575	2.421	2.584	2.412	2.595	2.402	2.607
2.450	2.412	2.49	2.407	2.495	2.402	2.5	2.396	2.507	2.39	2.514	2.383	2.522	2.375	2.531	2.366	2.541	2.356	2.553
2.400	2.363	2.438	2.359	2.443	2.354	2.448	2.348	2.454	2.342	2.461	2.335	2.469	2.328	2.477	2.319	2.487	2.31	2.498
2.350	2.315	2.386	2.311	2.391	2.306	2.396	2.301	2.402	2.295	2.408	2.288	2.415	2.281	2.424	2.273	2.433	2.264	2.444
2.300	2.266	2.335	2.262	2.339	2.258	2.344	2.253	2.349	2.247	2.355	2.241	2.362	2.234	2.37	2.226	2.379	2.218	2.389
2.250	2.218	2.283	2.214	2.287	2.21	2.292	2.205	2.297	2.2	2.303	2.194	2.309	2.187	2.317	2.18	2.325	2.171	2.335
2.200	2.17	2.231	2.166	2.235	2.162	2.24	2.157	2.245	2.152	2.25	2.146	2.257	2.14	2.264	2.133	2.272	2.125	2.281
2.150	2.121	2.18	2.118	2.184	2.114	2.188	2.109	2.192	2.104	2.198	2.099	2.204	2.093	2.211	2.086	2.218	2.079	2.227
2.100	2.072	2.128	2.069	2.132	2.065	2.136	2.061	2.14	2.057	2.145	2.051	2.151	2.046	2.157	2.039	2.165	2.032	2.173
2.050	2.024	2.077	2.021	2.08	2.017	2.084	2.013	2.088	2.009	2.093	2.004	2.098	1.998	2.105	1.992	2.111	1.986	2.119
2.000	1.975	2.025	1.972	2.029	1.969	2.032	1.965	2.036	1.961	2.041	1.956	2.046	1.951	2.052	1.945	2.058	1.939	2.065
1.975	1.951	2	1.948	2.003	1.945	2.006	1.941	2.01	1.937	2.015	1.933	2.02	1.927	2.025	1.922	2.032	1.915	2.039
1.950	1.927	1.974	1.924	1.977	1.921	1.98	1.917	1.984	1.913	1.988	1.909	1.993	1.904	1.999	1.898	2.005	1.892	2.012
1.925	1.902	1.948	1.899	1.951	1.896	1.955	1.893	1.958	1.889	1.962	1.885	1.967	1.88	1.972	1.875	1.978	1.869	1.985
1.900	1.878	1.923	1.875	1.926	1.872	1.929	1.869	1.932	1.865	1.936	1.861	1.941	1.856	1.946	1.851	1.952	1.845	1.958
1.875	1.853	1.897	1.851	1.9	1.848	1.903	1.845	1.906	1.841	1.91	1.837	1.915	1.833	1.92	1.827	1.925	1.822	1.932
1.850	1.829	1.871	1.827	1.874	1.824	1.877	1.821	1.88	1.817	1.884	1.813	1.889	1.809	1.893	1.804	1.899	1.798	1.905
1.825	1.805	1.846	1.802	1.848	1.8	1.851	1.796	1.855	1.793	1.858	1.789	1.862	1.785	1.867	1.78	1.872	1.775	1.878
1.800	1.78	1.82	1.778	1.823	1.775	1.825	1.772	1.829	1.769	1.832	1.765	1.836	1.761	1.841	1.757	1.846	1.751	1.852
1.775	1.756	1.795	1.754	1.797	1.751	1.8	1.748	1.803	1.745	1.806	1.741	1.81	1.737	1.815	1.733	1.819	1.728	1.825

1.750	1.732	1.769	1.729	1.771	1.727	1.774	1.724	1.777	1.721	1.78	1.717	1.784	1.713	1.788	1.709	1.793	1.704	1.799
1.725	1.707	1.743	1.705	1.746	1.703	1.748	1.7	1.751	1.697	1.754	1.693	1.758	1.69	1.762	1.685	1.767	1.681	1.772
1.700	1.683	1.718	1.681	1.72	1.678	1.722	1.676	1.725	1.673	1.728	1.669	1.732	1.666	1.736	1.662	1.74	1.657	1.745
1.675	1.658	1.692	1.656	1.694	1.654	1.697	1.651	1.699	1.649	1.702	1.645	1.706	1.642	1.71	1.638	1.714	1.633	1.719
1.650	1.634	1.667	1.632	1.669	1.63	1.671	1.627	1.674	1.624	1.676	1.621	1.68	1.618	1.684	1.614	1.688	1.61	1.692
1.625	1.609	1.641	1.607	1.643	1.605	1.645	1.603	1.648	1.6	1.651	1.597	1.654	1.594	1.657	1.59	1.661	1.586	1.666
1.600	1.585	1.615	1.583	1.617	1.581	1.62	1.579	1.622	1.576	1.625	1.573	1.628	1.57	1.631	1.566	1.635	1.562	1.64
1.575	1.56	1.59	1.559	1.592	1.557	1.594	1.554	1.596	1.552	1.599	1.549	1.602	1.546	1.605	1.543	1.609	1.539	1.613
1.550	1.536	1.564	1.534	1.566	1.532	1.568	1.53	1.57	1.528	1.573	1.525	1.576	1.522	1.579	1.519	1.583	1.515	1.587
1.525	1.511	1.539	1.51	1.541	1.508	1.543	1.506	1.545	1.504	1.547	1.501	1.55	1.498	1.553	1.495	1.557	1.491	1.56
1.500	1.487	1.513	1.485	1.515	1.484	1.517	1.482	1.519	1.479	1.521	1.477	1.524	1.474	1.527	1.471	1.53	1.467	1.534
1.475	1.462	1.488	1.461	1.489	1.459	1.491	1.457	1.493	1.455	1.496	1.453	1.498	1.45	1.501	1.447	1.504	1.444	1.508
1.450	1.438	1.462	1.436	1.464	1.435	1.466	1.433	1.468	1.431	1.47	1.429	1.472	1.426	1.475	1.423	1.478	1.42	1.482
1.425	1.413	1.437	1.412	1.438	1.41	1.44	1.409	1.442	1.407	1.444	1.404	1.446	1.402	1.449	1.399	1.452	1.396	1.455
1.400	1.389	1.411	1.387	1.413	1.386	1.414	1.384	1.416	1.382	1.418	1.38	1.42	1.378	1.423	1.375	1.426	1.372	1.429
1.375	1.364	1.386	1.363	1.387	1.361	1.389	1.36	1.391	1.358	1.392	1.356	1.395	1.354	1.397	1.351	1.4	1.348	1.403
1.350	1.34	1.36	1.338	1.362	1.337	1.363	1.335	1.365	1.334	1.367	1.332	1.369	1.33	1.371	1.327	1.374	1.324	1.377
1.325	1.315	1.335	1.314	1.336	1.313	1.338	1.311	1.339	1.309	1.341	1.308	1.343	1.305	1.345	1.303	1.348	1.3	1.351
1.300	1.291	1.31	1.289	1.311	1.288	1.312	1.287	1.314	1.285	1.315	1.283	1.317	1.281	1.319	1.279	1.322	1.276	1.325
1.275	1.266	1.284	1.265	1.285	1.264	1.287	1.262	1.288	1.261	1.29	1.259	1.291	1.257	1.294	1.255	1.296	1.253	1.298
1.250	1.241	1.259	1.24	1.26	1.239	1.261	1.238	1.262	1.236	1.264	1.235	1.266	1.233	1.268	1.231	1.27	1.229	1.272
1.225	1.217	1.233	1.216	1.234	1.215	1.236	1.213	1.237	1.212	1.238	1.21	1.24	1.209	1.242	1.207	1.244	1.204	1.246
1.200	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.211	1.188	1.213	1.186	1.214	1.184	1.216	1.183	1.218	1.18	1.22
1.175	1.168	1.183	1.167	1.184	1.166	1.185	1.164	1.186	1.163	1.187	1.162	1.189	1.16	1.19	1.158	1.192	1.156	1.194
1.150	1.143	1.157	1.142	1.158	1.141	1.159	1.14	1.16	1.139	1.161	1.137	1.163	1.136	1.165	1.134	1.166	1.132	1.168
1.125	1.118	1.132	1.117	1.133	1.117	1.134	1.115	1.135	1.114	1.136	1.113	1.137	1.112	1.139	1.11	1.14	1.108	1.142
1.100	1.094	1.106	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.11	1.089	1.112	1.087	1.113	1.086	1.115	1.084	1.116
1.075	1.069	1.081	1.068	1.082	1.067	1.083	1.066	1.084	1.065	1.085	1.064	1.086	1.063	1.087	1.062	1.089	1.06	1.091
1.050	1.044	1.056	1.044	1.057	1.043	1.057	1.042	1.058	1.041	1.059	1.04	1.06	1.039	1.062	1.037	1.063	1.036	1.065

8	9	10	11	13	14	16	18	20	22
47.036	41.926	37.373	33.317	29.704	26.485	23.617	21.062	18.785	16.757

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
46.991	Infinity	41.882	Infinity	37.329	Infinity	33.274	Infinity	29.661	Infinity	26.442	Infinity	23.574	Infinity	21.019	Infinity	18.743	Infinity	16.715	Infinity
26.44	Infinity	24.751	Infinity	23.096	Infinity	21.485	Infinity	19.927	Infinity	18.429	Infinity	16.996	Infinity	15.634	Infinity	14.346	Infinity	13.133	Infinity
18.395	82.21	17.566	104.582	16.72	150.634	15.864	298.132	15.003	Infinity	14.142	Infinity	13.288	Infinity	12.445	Infinity	11.619	Infinity	10.815	Infinity
14.103	34.535	13.613	37.923	13.103	42.62	12.575	49.509	12.03	60.497	11.474	80.6	10.908	128.654	10.337	390.149	9.764	Infinity	9.193	Infinity
11.435	21.859	11.113	23.161	10.773	24.821	10.415	26.996	10.041	29.944	9.652	34.133	9.251	40.501	8.839	51.25	8.419	73.049	7.994	140.032
9.616	15.99	9.389	16.671	9.146	17.51	8.888	18.558	8.616	19.896	8.33	21.651	8.031	24.034	7.721	27.427	7.4	32.602	7.071	41.384
8.296	12.606	8.127	13.023	7.946	13.525	7.752	14.139	7.545	14.898	7.326	15.854	7.095	17.087	6.853	18.724	6.601	20.984	6.339	24.281
7.601	11.047	7.459	11.365	7.307	11.744	7.143	12.202	6.968	12.76	6.781	13.453	6.584	14.326	6.376	15.455	6.158	16.956	5.93	19.036
6.88	9.568	6.764	9.804	6.639	10.084	6.504	10.418	6.359	10.82	6.205	11.311	6.04	11.919	5.865	12.686	5.681	13.675	5.488	14.989
6.132	8.163	6.041	8.333	5.941	8.533	5.834	8.769	5.718	9.051	5.593	9.39	5.459	9.802	5.317	10.311	5.166	10.951	5.007	11.772
5.748	7.486	5.667	7.629	5.58	7.795	5.486	7.991	5.383	8.223	5.273	8.501	5.155	8.836	5.028	9.246	4.893	9.755	4.751	10.398
5.356	6.826	5.287	6.944	5.211	7.081	5.129	7.241	5.04	7.431	4.943	7.656	4.839	7.925	4.728	8.252	4.61	8.652	4.483	9.152
4.956	6.182	4.897	6.278	4.833	6.389	4.762	6.519	4.686	6.671	4.603	6.85	4.513	7.064	4.417	7.321	4.314	7.633	4.204	8.017
4.549	5.553	4.5	5.63	4.446	5.719	4.386	5.822	4.322	5.942	4.252	6.083	4.176	6.25	4.094	6.449	4.005	6.688	3.911	6.979
4.343	5.245	4.298	5.313	4.249	5.391	4.195	5.482	4.136	5.588	4.072	5.712	4.002	5.859	3.927	6.032	3.846	6.24	3.759	6.492
4.134	4.939	4.094	4.999	4.049	5.069	4.001	5.149	3.947	5.242	3.889	5.35	3.826	5.478	3.757	5.629	3.683	5.808	3.604	6.025
3.924	4.638	3.888	4.69	3.848	4.751	3.804	4.821	3.756	4.902	3.703	4.996	3.646	5.107	3.584	5.237	3.517	5.392	3.445	5.577
3.711	4.34	3.679	4.385	3.643	4.438	3.604	4.499	3.561	4.569	3.514	4.65	3.463	4.745	3.407	4.857	3.347	4.989	3.282	5.146
3.54	4.104	3.51	4.144	3.478	4.191	3.442	4.245	3.403	4.307	3.361	4.379	3.314	4.463	3.263	4.561	3.208	4.676	3.149	4.813
3.367	3.87	3.34	3.906	3.311	3.947	3.279	3.994	3.244	4.049	3.205	4.112	3.163	4.185	3.117	4.271	3.067	4.372	3.013	4.491
3.28	3.754	3.255	3.787	3.227	3.826	3.197	3.87	3.163	3.922	3.127	3.981	3.087	4.049	3.043	4.129	2.995	4.223	2.944	4.333
3.192	3.638	3.169	3.67	3.143	3.706	3.114	3.747	3.082	3.795	3.048	3.85	3.01	3.914	2.968	3.988	2.923	4.075	2.874	4.178
3.105	3.523	3.082	3.553	3.058	3.586	3.031	3.625	3.001	3.669	2.968	3.721	2.932	3.78	2.893	3.849	2.85	3.93	2.804	4.025
3.017	3.409	2.996	3.436	2.972	3.467	2.947	3.504	2.919	3.545	2.888	3.593	2.854	3.648	2.817	3.712	2.777	3.787	2.733	3.874
2.928	3.295	2.909	3.32	2.887	3.349	2.863	3.383	2.836	3.421	2.807	3.465	2.775	3.517	2.74	3.576	2.702	3.645	2.661	3.726
2.839	3.181	2.821	3.205	2.801	3.232	2.778	3.263	2.753	3.299	2.726	3.339	2.696	3.387	2.663	3.441	2.627	3.505	2.588	3.579
2.75	3.068	2.733	3.09	2.714	3.115	2.693	3.144	2.67	3.177	2.644	3.214	2.616	3.258	2.585	3.308	2.552	3.367	2.515	3.435
2.661	2.956	2.645	2.976	2.627	2.999	2.607	3.026	2.586	3.056	2.562	3.091	2.536	3.131	2.507	3.177	2.475	3.231	2.441	3.293
2.571	2.844	2.556	2.862	2.54	2.884	2.521	2.908	2.501	2.936	2.479	2.968	2.454	3.004	2.427	3.047	2.398	3.096	2.366	3.153
2.481	2.732	2.467	2.749	2.452	2.769	2.435	2.791	2.416	2.817	2.395	2.846	2.373	2.879	2.348	2.918	2.32	2.963	2.29	3.015
2.435	2.677	2.422	2.693	2.407	2.712	2.391	2.733	2.373	2.757	2.353	2.785	2.331	2.817	2.307	2.854	2.281	2.897	2.252	2.946
2.39	2.621	2.377	2.637	2.363	2.655	2.348	2.675	2.33	2.698	2.311	2.725	2.29	2.756	2.267	2.791	2.242	2.831	2.214	2.879
2.345	2.566	2.332	2.581	2.319	2.598	2.304	2.617	2.287	2.64	2.269	2.665	2.249	2.694	2.226	2.728	2.202	2.766	2.175	2.811
2.299	2.511	2.287	2.525	2.274	2.541	2.26	2.56	2.244	2.581	2.226	2.605	2.207	2.633	2.186	2.665	2.162	2.702	2.137	2.744
2.254	2.456	2.242	2.469	2.23	2.485	2.216	2.503	2.201	2.523	2.184	2.546	2.165	2.572	2.145	2.602	2.122	2.637	2.098	2.678
2.208	2.401	2.197	2.414	2.185	2.429	2.172	2.445	2.157	2.465	2.141	2.486	2.123	2.512	2.104	2.54	2.082	2.573	2.058	2.612
2.162	2.346	2.152	2.358	2.14	2.372	2.128	2.388	2.114	2.407	2.098	2.427	2.081	2.451	2.062	2.479	2.042	2.51	2.019	2.546
2.116	2.291	2.106	2.303	2.096	2.316	2.083	2.332	2.07	2.349	2.055	2.369	2.039	2.391	2.021	2.417	2.001	2.447	1.979	2.481
2.07	2.237	2.061	2.248	2.05	2.261	2.039	2.275	2.026	2.291	2.012	2.31	1.997	2.331	1.979	2.356	1.96	2.384	1.94	2.417
2.024	2.182	2.015	2.193	2.005	2.205	1.994	2.219	1.982	2.234	1.969	2.252	1.954	2.272	1.938	2.295	1.919	2.322	1.9	2.352
1.978	2.128	1.969	2.138	1.96	2.149	1.95	2.162	1.938	2.177	1.925	2.194	1.911	2.213	1.896	2.235	1.878	2.26	1.859	2.289
1.932	2.074	1.924	2.083	1.915	2.094	1.905	2.106	1.894	2.12	1.882	2.136	1.868	2.154	1.853	2.174	1.837	2.198	1.819	2.225
1.908	2.047	1.901	2.056	1.892	2.066	1.882	2.078	1.872	2.092	1.86	2.107	1.847	2.124	1.832	2.144	1.816	2.167	1.799	2.194
1.885	2.02	1.878	2.029	1.869	2.039	1.86	2.05	1.849	2.063	1.838	2.078	1.825	2.095	1.811	2.115	1.795	2.137	1.778	2.162
1.862	1.993	1.855	2.001	1.846	2.011	1.837	2.022	1.827	2.035	1.816	2.049	1.803	2.066	1.79	2.085	1.775	2.106	1.758	2.131
1.839	1.966	1.832	1.974	1.824	1.984	1.815	1.995	1.805	2.007	1.794	2.021	1.782	2.037	1.768	2.055	1.754	2.076	1.737	2.1
1.816	1.939	1.809	1.947	1.801	1.956	1.792	1.967	1.783	1.979	1.772	1.992	1.76	2.008	1.747	2.025	1.733	2.046	1.717	2.069
1.792	1.912	1.785	1.92	1.778	1.929	1.769	1.939	1.76	1.951	1.75	1.964	1.738	1.979	1.726	1.996	1.712	2.015	1.696	2.038
1.769	1.885	1.762	1.893	1.755	1.901	1.747	1.911	1.738	1.922	1.728	1.935	1.717	1.95	1.704	1.966	1.691	1.985	1.676	2.007
1.746	1.858	1.739	1.866	1.732	1.874	1.724	1.884	1.715	1.894	1.706	1.907	1.695	1.921	1.683	1.937	1.669	1.955	1.655	1.976
1.722	1.831	1.716	1.839	1.709	1.847	1.701	1.856	1.693	1.866	1.683	1.878	1.673	1.892	1.661	1.907	1.648	1.925	1.634	1.946

1.699	1.805	1.693	1.812	1.686	1.819	1.679	1.828	1.67	1.839	1.661	1.85	1.651	1.863	1.64	1.878	1.627	1.895	1.613	1.915
1.675	1.778	1.67	1.785	1.663	1.792	1.656	1.801	1.648	1.811	1.639	1.822	1.629	1.835	1.618	1.849	1.606	1.866	1.592	1.884
1.652	1.751	1.646	1.758	1.64	1.765	1.633	1.773	1.625	1.783	1.616	1.794	1.607	1.806	1.596	1.82	1.584	1.836	1.572	1.854
1.629	1.724	1.623	1.731	1.617	1.738	1.61	1.746	1.603	1.755	1.594	1.765	1.585	1.777	1.575	1.791	1.563	1.806	1.551	1.824
1.605	1.698	1.6	1.704	1.594	1.711	1.587	1.719	1.58	1.727	1.572	1.737	1.563	1.749	1.553	1.762	1.542	1.777	1.529	1.794
1.582	1.671	1.576	1.677	1.571	1.684	1.564	1.691	1.557	1.7	1.549	1.709	1.541	1.72	1.531	1.733	1.52	1.747	1.508	1.764
1.558	1.645	1.553	1.65	1.547	1.657	1.541	1.664	1.534	1.672	1.527	1.681	1.518	1.692	1.509	1.704	1.499	1.718	1.487	1.734
1.534	1.618	1.53	1.623	1.524	1.63	1.518	1.637	1.512	1.645	1.504	1.653	1.496	1.664	1.487	1.675	1.477	1.689	1.466	1.704
1.511	1.591	1.506	1.597	1.501	1.603	1.495	1.609	1.489	1.617	1.482	1.626	1.474	1.635	1.465	1.647	1.455	1.659	1.445	1.674
1.487	1.565	1.483	1.57	1.478	1.576	1.472	1.582	1.466	1.59	1.459	1.598	1.452	1.607	1.443	1.618	1.434	1.63	1.423	1.644
1.464	1.538	1.459	1.543	1.454	1.549	1.449	1.555	1.443	1.562	1.437	1.57	1.429	1.579	1.421	1.59	1.412	1.601	1.402	1.615
1.44	1.512	1.436	1.517	1.431	1.522	1.426	1.528	1.42	1.535	1.414	1.542	1.407	1.551	1.399	1.561	1.39	1.572	1.381	1.585
1.416	1.486	1.412	1.49	1.408	1.495	1.403	1.501	1.397	1.507	1.391	1.515	1.384	1.523	1.377	1.533	1.368	1.544	1.359	1.556
1.393	1.459	1.389	1.463	1.384	1.468	1.38	1.474	1.374	1.48	1.368	1.487	1.362	1.495	1.354	1.504	1.346	1.515	1.337	1.527
1.369	1.433	1.365	1.437	1.361	1.442	1.356	1.447	1.351	1.453	1.346	1.46	1.339	1.467	1.332	1.476	1.324	1.486	1.316	1.497
1.345	1.406	1.342	1.41	1.338	1.415	1.333	1.42	1.328	1.426	1.323	1.432	1.317	1.44	1.31	1.448	1.302	1.457	1.294	1.468
1.321	1.38	1.318	1.384	1.314	1.388	1.31	1.393	1.305	1.399	1.3	1.405	1.294	1.412	1.287	1.42	1.28	1.429	1.272	1.439
1.298	1.354	1.294	1.357	1.291	1.362	1.286	1.366	1.282	1.371	1.277	1.377	1.271	1.384	1.265	1.392	1.258	1.401	1.25	1.41
1.274	1.328	1.271	1.331	1.267	1.335	1.263	1.339	1.259	1.344	1.254	1.35	1.249	1.357	1.243	1.364	1.236	1.372	1.229	1.382
1.25	1.301	1.247	1.305	1.243	1.308	1.24	1.313	1.236	1.317	1.231	1.323	1.226	1.329	1.22	1.336	1.214	1.344	1.207	1.353
1.226	1.275	1.223	1.278	1.22	1.282	1.216	1.286	1.212	1.29	1.208	1.296	1.203	1.302	1.197	1.308	1.191	1.316	1.185	1.324
1.202	1.249	1.199	1.252	1.196	1.255	1.193	1.259	1.189	1.264	1.185	1.269	1.18	1.274	1.175	1.28	1.169	1.288	1.163	1.296
1.178	1.223	1.175	1.226	1.173	1.229	1.169	1.233	1.166	1.237	1.162	1.241	1.157	1.247	1.152	1.253	1.147	1.26	1.14	1.267
1.154	1.197	1.152	1.199	1.149	1.203	1.146	1.206	1.142	1.21	1.138	1.214	1.134	1.219	1.129	1.225	1.124	1.232	1.118	1.239
1.13	1.171	1.128	1.173	1.125	1.176	1.122	1.179	1.119	1.183	1.115	1.187	1.111	1.192	1.107	1.198	1.102	1.204	1.096	1.211
1.106	1.145	1.104	1.147	1.101	1.15	1.099	1.153	1.095	1.156	1.092	1.16	1.088	1.165	1.084	1.17	1.079	1.176	1.074	1.183
1.082	1.119	1.08	1.121	1.078	1.123	1.075	1.126	1.072	1.13	1.069	1.134	1.065	1.138	1.061	1.143	1.056	1.148	1.051	1.154
1.058	1.093	1.056	1.095	1.054	1.097	1.051	1.1	1.048	1.103	1.045	1.107	1.042	1.111	1.038	1.115	1.034	1.121	1.029	1.126
1.034	1.067	1.032	1.069	1.03	1.071	1.028	1.074	1.025	1.077	1.022	1.08	1.019	1.084	1.015	1.088	1.011	1.093	1.006	1.099

Focal Length 95mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	435'3.46"	387'10.41"	345'7.44"	307'11.83"	274'5.46"	244'6.96"	217'11.63"	194'3.1"	173'1.64"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	435'1.09"	Infinity	387'8.2"	Infinity	345'5.36"	Infinity	307'9.8"	Infinity	274'3.51"	Infinity	244'5.09"	Infinity	217'9.78"	Infinity	194'1.29"	Infinity	172'11.85"	Infinity
200'0''	137'3.27"	369'0.26"	132'2.42"	411'8.21"	126'11.27"	473'1.15"	121'6.15"	568'3.37"	115'11.4"	734'1.66"	110'3.44"	1092'0.57"	104'6.67"	2413'3.69"	98'9.57"	Infinity	93'0.58"	Infinity
100'0''	81'5.87"	129'5.77"	79'8.22"	134'4.04"	77'9.05"	140'2.91"	75'8.34"	147'6.3"	73'6.13"	156'7.92"	71'2.47"	168'4.4"	68'9.43"	183'9.48"	66'3.12"	204'10.4"	63'7.66"	235'1.85"
70'0''	60'5.25"	83'2.32"	59'5.34"	85'1.93"	58'4.42"	87'5.82"	57'2.47"	90'3"	55'11.47"	93'6.86"	54'7.4"	97'7.26"	53'2.27"	102'6.83"	51'8.08"	108'9.41"	50'0.87"	116'8.73"
50'0''	44'11.44"	56'4.07"	44'4.87"	57'2.75"	43'9.67"	58'3.14"	43'1.83"	59'5.61"	42'5.3"	60'10.58"	41'8.07"	62'6.63"	40'10.09"	64'6.49"	39'11.37"	66'11.17"	38'11.88"	69'10.02"
40'0''	36'8.66"	43'11.18"	36'4.28"	44'5.61"	35'11.48"	45'1.02"	35'6.21"	45'9.59"	35'0.45"	46'7.54"	34'6.17"	47'7.15"	33'11.35"	48'8.78"	33'3.95"	50'0.89"	32'7.97"	51'8.07"
35'0''	32'5.68"	37'11.52"	32'2.27"	38'4.29"	31'10.52"	38'9.77"	31'6.39"	39'4.08"	31'1.86"	39'11.37"	30'8.91"	40'7.84"	30'3.51"	41'5.7"	29'9.63"	42'5.27"	29'3.26"	43'6.92"
30'0''	28'1.61"	32'1.63"	27'11.07"	32'5.02"	27'8.25"	32'8.91"	27'5.15"	33'1.37"	27'1.74"	33'6.49"	26'9.99"	34'0.41"	26'5.89"	34'7.26"	26'1.41"	35'3.24"	25'8.54"	36'0.57"
25'0''	23'8.41"	26'5.44"	23'6.61"	26'7.72"	23'4.62"	26'10.32"	23'2.42"	27'1.29"	23'	27'4.69"	22'9.33"	27'8.59"	22'6.39"	28'1.09"	22'3.17"	28'6.28"	21'11.64"	29'0.31"
22'0''	20'11.92"	23'1.32"	20'10.52"	23'3.05"	20'8.97"	23'5.01"	20'7.25"	23'7.25"	20'5.34"	23'9.81"	20'3.24"	24'0.74"	20'0.93"	24'4.1"	19'10.39"	24'7.96"	19'7.59"	25'0.43"
20'0''	19'2.03"	20'10.9"	19'0.87"	21'0.3"	18'11.58"	21'1.9"	18'10.15"	21'3.72"	18'8.56"	21'5.79"	18'6.81"	21'8.15"	18'4.88"	21'10.86"	18'2.75"	22'1.97"	18'0.41"	22'5.56"
19'0''	18'3.01"	19'9.78"	18'1.96"	19'11.04"	18'0.79"	20'0.47"	17'11.5"	20'2.09"	17'10.06"	20'3.94"	17'8.48"	20'6.05"	17'6.72"	20'8.46"	17'4.79"	20'11.23"	17'2.66"	21'2.42"
18'0''	17'3.94"	18'8.73"	17'3"	18'9.85"	17'1.95"	18'11.12"	17'0.78"	19'0.56"	16'11.49"	19'2.2"	16'10.06"	19'4.07"	16'8.48"	19'6.21"	16'6.74"	19'8.66"	16'4.82"	19'11.47"
17'0''	16'4.83"	17'7.74"	16'3.98"	17'8.72"	16'3.04"	17'9.85"	16'2"	17'11.12"	16'0.85"	18'0.57"	15'11.57"	18'2.22"	15'10.15"	18'4.1"	15'8.59"	18'6.25"	15'6.87"	18'8.72"
16'0''	15'5.66"	16'6.81"	15'4.91"	16'7.67"	15'4.08"	16'8.66"	15'3.16"	16'9.77"	15'2.13"	16'11.04"	15'0.99"	17'0.48"	14'11.74"	17'2.13"	14'10.34"	17'4.01"	14'8.81"	17'6.16"
15'0''	14'6.44"	15'5.94"	14'5.79"	15'6.69"	14'5.06"	15'7.55"	14'4.24"	15'8.52"	14'3.34"	15'9.62"	14'2.34"	15'10.87"	14'1.23"	16'0.29"	14'	16'1.92"	13'10.64"	16'3.78"
14'0''	13'7.18"	14'5.13"	13'6.6"	14'5.78"	13'5.97"	14'6.52"	13'5.26"	14'7.35"	13'4.47"	14'8.3"	13'3.6"	14'9.37"	13'2.63"	14'10.6"	13'1.56"	14'11.99"	13'0.37"	15'1.58"
13'0''	12'7.86"	13'4.38"	12'7.37"	13'4.94"	12'6.82"	13'5.57"	12'6.21"	13'6.28"	12'5.53"	13'7.08"	12'4.78"	13'7.99"	12'3.94"	13'9.03"	12'3.01"	13'10.21"	12'1.98"	13'11.56"
12'6''	12'2.18"	12'10.03"	12'1.73"	12'10.54"	12'1.22"	12'11.12"	12'0.66"	12'11.77"	12'0.03"	13'0.51"	11'11.33"	13'1.35"	11'10.56"	13'2.3"	11'9.7"	13'3.38"	11'8.75"	13'4.62"
12'0''	11'8.49"	12'3.7"	11'8.07"	12'4.16"	11'7.61"	12'4.69"	11'7.09"	12'5.29"	11'6.51"	12'5.96"	11'5.87"	12'6.73"	11'5.16"	12'7.6"	11'4.36"	12'8.59"	11'3.49"	12'9.71"
11'6''	11'2.79"	11'9.38"	11'2.4"	11'9.8"	11'1.98"	11'10.28"	11'1.5"	11'10.83"	11'0.97"	11'11.44"	11'0.38"	12'0.14"	10'11.73"	12'0.93"	10'11"	12'1.83"	10'10.19"	12'2.85"
11'0''	10'9.07"	11'3.07"	10'8.72"	11'3.46"	10'8.33"	11'3.89"	10'7.9"	11'4.39"	10'7.41"	11'4.95"	10'6.88"	11'5.58"	10'6.28"	11'6.3"	10'5.61"	11'7.11"	10'4.87"	11'8.04"
10'6''	10'3.34"	10'8.78"	10'3.03"	10'9.13"	10'2.67"	10'9.52"	10'2.28"	10'9.97"	10'1.84"	10'10.47"	10'1.35"	10'11.05"	10'0.8"	10'11.69"	10'0.2"	11'0.43"	9'11.52"	11'1.26"
10'0''	9'9.6"	10'2.5"	9'9.31"	10'2.82"	9'8.99"	10'3.17"	9'8.64"	10'3.57"	9'8.24"	10'4.03"	9'7.8"	10'4.54"	9'7.3"	10'5.12"	9'6.75"	10'5.78"	9'6.14"	10'6.53"
9'6''	9'3.85"	9'8.24"	9'3.59"	9'8.52"	9'3.3"	9'8.84"	9'2.98"	9'9.2"	9'2.62"	9'9.6"	9'2.22"	9'10.06"	9'1.78"	9'10.58"	9'1.28"	9'11.17"	9'0.73"	9'11.84"
9'0''	8'10.08"	9'2"	8'9.85"	9'2.25"	8'9.59"	9'2.53"	8'9.3"	9'2.85"	8'8.98"	9'3.21"	8'8.63"	9'3.61"	8'8.23"	9'4.07"	8'7.79"	9'4.59"	8'7.29"	9'5.18"
8'9''	8'7.19"	8'10.88"	8'6.97"	8'11.11"	8'6.73"	8'11.38"	8'6.46"	8'11.68"	8'6.16"	9'0.01"	8'5.82"	9'0.4"	8'5.45"	9'0.83"	8'5.03"	9'1.32"	8'4.56"	9'1.87"
8'6''	8'4.3"	8'7.76"	8'4.09"	8'7.98"	8'3.87"	8'8.23"	8'3.61"	8'8.51"	8'3.33"	8'8.83"	8'3.01"	8'9.19"	8'2.66"	8'9.59"	8'2.26"	8'10.05"	8'1.83"	8'10.57"
8'3''	8'1.4"	8'4.65"	8'1.21"	8'4.86"	8'1"	8'5.09"	8'0.76"	8'5.36"	8'0.49"	8'5.65"	8'0.19"	8'5.99"	7'11.86"	8'6.37"	7'11.49"	8'6.8"	7'11.08"	8'7.28"
8'0''	7'10.51"	8'1.55"	7'10.33"	8'1.74"	7'10.12"	8'1.96"	7'9.9"	8'2.2"	7'9.65"	8'2.48"	7'9.37"	8'2.79"	7'9.06"	8'3.15"	7'8.71"	8'3.55"	7'8.33"	8'4"
7'9''	7'7.6"	7'10.44"	7'7.44"	7'10.62"	7'7.25"	7'10.83"	7'7.04"	7'11.06"	7'6.8"	7'11.31"	7'6.54"	7'11.61"	7'6.25"	7'11.94"	7'5.93"	8'0.31"	7'5.56"	8'0.73"
7'6''	7'4.7"	7'7.34"	7'4.54"	7'7.51"	7'4.37"	7'7.7"	7'4.17"	7'7.91"	7'3.95"	7'8.15"	7'3.71"	7'8.42"	7'3.44"	7'8.73"	7'3.13"	7'9.08"	7'2.8"	7'9.47"
7'3''	7'1.79"	7'4.25"	7'1.64"	7'4.4"	7'1.48"	7'4.58"	7'1.3"	7'4.78"	7'1.1"	7'5"	7'0.87"	7'5.25"	7'0.62"	7'5.53"	7'0.33"	7'5.86"	7'0.02"	7'6.22"
7'0''	6'10.88"	7'1.15"	6'10.74"	7'1.3"	6'10.59"	7'1.46"	6'10.42"	7'1.64"	6'10.23"	7'1.85"	6'10.02"	7'2.08"	6'9.79"	7'2.34"	6'9.53"	7'2.64"	6'9.23"	7'2.98"
6'9''	6'7.96"	6'10.07"	6'7.84"	6'10.2"	6'7.7"	6'10.35"	6'7.54"	6'10.52"	6'7.37"	6'10.71"	6'7.17"	6'10.92"	6'6.96"	6'11.16"	6'6.71"	6'11.44"	6'6.44"	6'11.75"
6'6''	6'5.05"	6'6.98"	6'4.93"	6'7.1"	6'4.8"	6'7.24"	6'4.66"	6'7.4"	6'4.5"	6'7.57"	6'4.32"	6'7.77"	6'4.12"	6'7.99"	6'3.89"	6'8.24"	6'3.64"	6'8.52"
6'3''	6'2.12"	6'3.9"	6'2.02"	6'4.01"	6'1.9"	6'4.14"	6'1.77"	6'4.28"	6'1.62"	6'4.44"	6'1.45"	6'4.62"	6'1.27"	6'4.82"	6'1.06"	6'5.05"	6'0.83"	6'5.31"
6'0''	5'11.2"	6'0.82"	5'11.1"	6'0.92"	5'10.99"	6'1.04"	5'10.87"	6'1.17"	5'10.74"	6'1.31"	5'10.59"	6'1.48"	5'10.42"	6'1.66"	5'10.23"	6'1.87"	5'10.02"	6'2.11"
5'11''	5'10.22"	5'11.8"	5'10.13"	5'11.89"	5'10.02"	6'0.01"	5'9.91"	6'0.13"	5'9.78"	6'0.27"	5'9.63"	6'0.43"	5'9.46"	6'0.61"	5'9.28"	6'0.81"	5'9.08"	6'1.04"
5'10''	5'9.25"	5'10.77"	5'9.16"	5'10.87"	5'9.05"	5'10.97"	5'8.94"	5'11.1"	5'8.81"	5'11.23"	5'8.67"	5'11.39"	5'8.51"	5'11.56"	5'8.33"	5'11.76"	5'8.14"	5'11.98"
5'9''	5'8.27"	5'9.75"	5'8.18"	5'9.84"	5'8.08"	5'9.94"	5'7.97"	5'10.06"	5'7.85"	5'10.19"	5'7.71"	5'10.34"	5'7.56"	5'10.51"	5'7.39"	5'10.7"	5'7.19"	5'10.92"
5'8''	5'7.29"	5'8.72"	5'7.21"	5'8.81"	5'7.11"	5'8.91"	5'7.01"	5'9.03"	5'6.89"	5'9.16"	5'6.75"	5'9.3"	5'6.6"	5'9.46"	5'6.44"	5'9.65"	5'6.25"	5'9.85"
5'7''	5'6.32"	5'7.7"	5'6.23"	5'7.79"	5'6.14"	5'7.88"	5'6.04"	5'7.99"	5'5.92"	5'8.12"	5'5.79"	5'8.26"	5'5.65"	5'8.41"	5'5.49"	5'8.59"	5'5.31"	5'8.79"
5'6''	5'5.34"	5'6.68"	5'5.26"	5'6.76"	5'5.17"	5'6.85"	5'5.07"	5'6.96"	5'4.96"	5'7.08"	5'4.83"	5'7.22"	5'4.69"	5'7.37"	5'4.54"	5'7.54"	5'4.36"	5'7.73"
5'5''	5'4.36"	5'5.65"	5'4.28"	5'5.73"	5'4.2"	5'5.83"	5'4.1"	5'5.93"	5'3.99"	5'6.04"	5'3.87"	5'6.17"	5'3.74"	5'6.32"	5'3.58"	5'6.49"	5'3.42"	5'6.67"
5'4''	5'3.38"	5'4.63"	5'3.31"	5'4.71"	5'3.22"	5'4.8"	5'3.13"	5'4.9"	5'3.03"	5'5.01"	5'2.91"	5'5.13"	5'2.78"	5'5.28"	5'2.63"	5'5.44"	5'2.47"	5'5.62"
5'3''	5'2.4"	5'3.61"	5'2.33"	5'3.68"	5'2.25"	5'3.77"	5'2.16"	5'3.86"	5'2.06"	5'3.97"	5'1.95"	5'4.09"	5'1.82"	5'4.23"	5'1.68"	5'4.38"	5'1.52"	5'4.56"
5'2''	5'1.43"	5'2.59"	5'1.36"	5'2.66"	5'1.28"	5'2.74"	5'1.19"	5'2.83"	5'1.09"	5'2.94"	5'0.98"	5'3.05"	5'0.86"	5'3.19"	5'0.73"	5'3.34"	5'0.57"	5'3.5"
5'1''	5'0.45"	5'1.57"	5'0.38"	5'1.64"	5'0.3"	5'1.71"	5'0.22"	5'1.8"	5'0.13"	5'1.9"	5'0.02"	5'2.02"	4'11.9"	5'2.14"	4'11.77"	5'2.29"	4'11.62"	5'2.45"
5'0''	4'11.47"	5'0.54"	4'11.4"	5'0.61"	4'11.33"	5'0.69"	4'11.25"	5'0.77"	4'11.16"	5'0.87"	4'11.06"	5'0.98"	4'10.94"	5'1.1"	4'10.82"	5'1.24"	4'10.67"	5'1.39"
4'11''	4'10.49"	4'11.52"	4'10.42"	4'11.59"	4'10.35"	4'11.66"	4'10.28"	4'11.74"	4'10.19"	4'11.84"	4'10.09"	4'11.94"	4'9.98"	5'0.06"	4'9.86"	5'0.19"	4'9.72"	5'0.34"

4'10''	4'9.51"	4'10.5"	4'9.45"	4'10.57"	4'9.38"	4'10.64"	4'9.3"	4'10.72"	4'9.22"	4'10.81"	4'9.12"	4'10.91"	4'9.02"	4'11.02"	4'8.9"	4'11.15"	4'8.77"	4'11.29"
4'9''	4'8.52"	4'9.48"	4'8.47"	4'9.54"	4'8.4"	4'9.61"	4'8.33"	4'9.69"	4'8.25"	4'9.77"	4'8.16"	4'9.87"	4'8.06"	4'9.98"	4'7.94"	4'10.1"	4'7.82"	4'10.24"
4'8''	4'7.54"	4'8.47"	4'7.49"	4'8.52"	4'7.43"	4'8.59"	4'7.36"	4'8.66"	4'7.28"	4'8.74"	4'7.19"	4'8.84"	4'7.09"	4'8.94"	4'6.99"	4'9.06"	4'6.86"	4'9.19"
4'7''	4'6.56"	4'7.45"	4'6.51"	4'7.5"	4'6.45"	4'7.56"	4'6.38"	4'7.63"	4'6.31"	4'7.71"	4'6.22"	4'7.8"	4'6.13"	4'7.9"	4'6.03"	4'8.01"	4'5.91"	4'8.14"
4'6''	4'5.58"	4'6.43"	4'5.53"	4'6.48"	4'5.47"	4'6.54"	4'5.41"	4'6.61"	4'5.34"	4'6.68"	4'5.26"	4'6.77"	4'5.17"	4'6.86"	4'5.07"	4'6.97"	4'4.95"	4'7.09"
4'5''	4'4.6"	4'5.41"	4'4.55"	4'5.46"	4'4.49"	4'5.52"	4'4.43"	4'5.58"	4'4.36"	4'5.65"	4'4.29"	4'5.74"	4'4.2"	4'5.83"	4'4.1"	4'5.93"	4'4"	4'6.05"
4'4''	4'3.61"	4'4.39"	4'3.57"	4'4.44"	4'3.52"	4'4.5"	4'3.46"	4'4.56"	4'3.39"	4'4.63"	4'3.32"	4'4.7"	4'3.23"	4'4.79"	4'3.14"	4'4.89"	4'3.04"	4'5"
4'3''	4'2.63"	4'3.38"	4'2.59"	4'3.42"	4'2.54"	4'3.47"	4'2.48"	4'3.53"	4'2.42"	4'3.6"	4'2.35"	4'3.67"	4'2.27"	4'3.76"	4'2.18"	4'3.85"	4'2.08"	4'3.96"
4'2''	4'1.65"	4'2.36"	4'1.6"	4'2.4"	4'1.56"	4'2.45"	4'1.5"	4'2.51"	4'1.44"	4'2.57"	4'1.38"	4'2.64"	4'1.3"	4'2.72"	4'1.22"	4'2.81"	4'1.12"	4'2.91"
4'1''	4'0.66"	4'1.34"	4'0.62"	4'1.38"	4'0.58"	4'1.43"	4'0.53"	4'1.48"	4'0.47"	4'1.54"	4'0.4"	4'1.61"	4'0.33"	4'1.69"	4'0.25"	4'1.77"	4'0.16"	4'1.87"
4'0''	3'11.68"	4'0.33"	3'11.64"	4'0.37"	3'11.6"	4'0.41"	3'11.55"	4'0.46"	3'11.49"	4'0.52"	3'11.43"	4'0.58"	3'11.36"	4'0.66"	3'11.29"	4'0.74"	3'11.2"	4'0.83"
3'11''	3'10.69"	3'11.31"	3'10.66"	3'11.35"	3'10.62"	3'11.39"	3'10.57"	3'11.44"	3'10.52"	3'11.49"	3'10.46"	3'11.56"	3'10.39"	3'11.62"	3'10.32"	3'11.7"	3'10.24"	3'11.79"
3'10''	3'9.71"	3'10.29"	3'9.67"	3'10.33"	3'9.64"	3'10.37"	3'9.59"	3'10.42"	3'9.54"	3'10.47"	3'9.49"	3'10.53"	3'9.42"	3'10.59"	3'9.35"	3'10.67"	3'9.28"	3'10.75"
3'9''	3'8.72"	3'9.28"	3'8.69"	3'9.31"	3'8.65"	3'9.35"	3'8.61"	3'9.4"	3'8.56"	3'9.45"	3'8.51"	3'9.5"	3'8.45"	3'9.56"	3'8.39"	3'9.63"	3'8.31"	3'9.71"
3'8''	3'7.74"	3'8.26"	3'7.71"	3'8.3"	3'7.67"	3'8.33"	3'7.63"	3'8.38"	3'7.59"	3'8.42"	3'7.54"	3'8.47"	3'7.48"	3'8.53"	3'7.42"	3'8.6"	3'7.35"	3'8.67"
3'7''	3'6.75"	3'7.25"	3'6.72"	3'7.28"	3'6.69"	3'7.32"	3'6.65"	3'7.36"	3'6.61"	3'7.4"	3'6.56"	3'7.45"	3'6.51"	3'7.5"	3'6.45"	3'7.57"	3'6.38"	3'7.64"
3'6''	3'5.77"	3'6.24"	3'5.74"	3'6.27"	3'5.71"	3'6.3"	3'5.67"	3'6.34"	3'5.63"	3'6.38"	3'5.59"	3'6.42"	3'5.54"	3'6.48"	3'5.48"	3'6.54"	3'5.42"	3'6.6"
3'5''	3'4.78"	3'5.22"	3'4.75"	3'5.25"	3'4.72"	3'5.28"	3'4.69"	3'5.32"	3'4.65"	3'5.36"	3'4.61"	3'5.4"	3'4.56"	3'5.45"	3'4.51"	3'5.51"	3'4.45"	3'5.57"

8	9	10	11	13	14	16	18	20	22
154'3.81"	137'6.63"	122'7.38"	109'3.69"	97'5.45"	86'10.72"	77'5.8"	69'1.21"	61'7.57"	54'11.72"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
154'2.05"	Infinity	137'4.88"	Infinity	122'5.66"	Infinity	109'1.99"	Infinity	97'3.74"	Infinity	86'9.01"	Infinity	77'4.1"	Infinity	68'11.52"	Infinity	61'5.9"	Infinity	54'10.06"	Infinity
87'4.16"	Infinity	81'8.76"	Infinity	76'2.79"	Infinity	70'10.63"	Infinity	65'8.61"	Infinity	60'9.02"	Infinity	56'0.09"	Infinity	51'6"	Infinity	47'2.88"	Infinity	43'2.8"	Infinity
60'11.21"	281'11.75"	58'1.94"	363'2.73"	55'4.06"	537'0.93"	52'5.77"	1161'10.84"	49'7.31"	Infinity	46'8.9"	Infinity	43'10.77"	Infinity	41'1.13"	Infinity	38'4.21"	Infinity	35'8.18"	Infinity
48'4.69"	127'1.88"	46'7.61"	141'4.11"	44'9.72"	161'7.14"	42'11.13"	192'7.22"	40'11.95"	245'6.52"	39'0.32"	355'3.6"	37'0.4"	714'0.73"	35'0.33"	Infinity	33'0.29"	Infinity	31'0.42"	Infinity
37'11.63"	73'4.96"	36'10.64"	77'10.76"	35'8.92"	83'7.62"	34'6.51"	91'2.18"	33'3.47"	101'5.64"	31'11.85"	116'2.46"	30'7.73"	138'10.46"	29'3.2"	177'10.51"	27'10.36"	259'11.73"	26'5.32"	540'7.19"
31'11.39"	53'7.13"	31'2.2"	55'11.16"	30'4.4"	58'9.72"	29'6.01"	62'5.06"	28'7.04"	67'0.58"	27'7.52"	73'1.68"	26'7.5"	81'5.51"	25'7.02"	93'4.83"	24'6.14"	111'10.06"	23'4.94"	143'8.99"
28'8.38"	44'11.16"	28'0.98"	46'6.64"	27'5.05"	48'6.27"	26'8.58"	50'11.33"	25'11.6"	53'11.65"	25'2.11"	57'9.98"	24'4.13"	62'10.67"	23'5.7"	69'8.94"	22'6.87"	79'5.85"	21'7.68"	94'3.64"
25'3.25"	36'11.55"	24'9.52"	38'0.58"	24'3.36"	39'4.15"	23'8.74"	40'10.97"	23'1.67"	42'9.99"	22'6.14"	45'2.57"	21'10.18"	48'2.75"	21'1.8"	52'1.65"	20'5.02"	57'4.37"	19'7.87"	64'7.84"
21'7.8"	29'7.34"	21'3.62"	30'3.58"	20'11.09"	31'1.31"	20'6.2"	32'0.88"	20'0.93"	33'2.77"	19'7.29"	34'7.63"	19'1.27"	36'4.36"	18'6.89"	38'6.28"	18'0.14"	41'3.36"	17'5.04"	44'10.72"
19'4.54"	25'5.61"	19'1.21"	25'11.65"	18'9.58"	26'6.73"	18'5.65"	27'3.07"	18'1.4"	28'0.97"	17'8.82"	29'0.85"	17'3.92"	30'3.24"	16'10.69"	31'8.9"	16'5.12"	33'6.93"	15'11.25"	35'10.96"
17'9.84"	22'9.7"	17'7.03"	23'2.5"	17'3.97"	23'8.11"	17'0.64"	24'2.68"	16'9.04"	24'10.43"	16'5.14"	25'7.66"	16'0.95"	26'6.74"	15'8.45"	27'8.18"	15'3.66"	29'0.71"	14'10.57"	30'9.39"
17'0.33"	21'6.09"	16'9.77"	21'10.35"	16'6.98"	22'3.3"	16'3.94"	22'9.09"	16'0.64"	23'3.9"	15'9.07"	23'11.98"	15'5.22"	24'9.63"	15'1.09"	25'9.28"	14'8.67"	26'11.51"	14'3.98"	28'5.18"
16'2.71"	20'2.72"	16'0.39"	20'6.46"	15'9.86"	20'10.81"	15'7.1"	21'3.88"	15'4.1"	21'9.84"	15'0.85"	22'4.86"	14'9.33"	23'1.22"	14'5.56"	23'11.27"	14'1.51"	24'11.47"	13'9.19"	26'2.48"
15'4.97"	18'11.56"	15'2.89"	19'2.84"	15'0.61"	19'6.64"	14'10.12"	19'11.05"	14'7.41"	20'4.22"	14'4.46"	20'10.3"	14'1.28"	21'5.5"	13'9.84"	22'2.11"	13'6.16"	23'0.5"	13'2.22"	24'1.2"
14'7.12"	17'8.63"	14'5.26"	17'11.48"	14'3.22"	18'2.77"	14'0.99"	18'6.58"	13'10.56"	18'11.03"	13'7.91"	19'4.25"	13'5.05"	19'10.41"	13'1.95"	20'5.74"	12'10.62"	21'2.53"	12'7.05"	22'1.21"
13'9.15"	16'5.91"	13'7.5"	16'8.36"	13'5.69"	16'11.19"	13'3.71"	17'2.46"	13'1.55"	17'6.27"	12'11.19"	17'10.71"	12'8.63"	18'3.94"	12'5.86"	18'10.13"	12'2.87"	19'5.51"	11'11.67"	20'2.42"
12'11.06"	15'3.4"	12'9.62"	15'5.49"	12'8.03"	15'7.9"	12'6.29"	15'10.68"	12'4.38"	16'1.9"	12'2.3"	16'5.65"	12'0.03"	16'10.05"	11'9.58"	17'3.23"	11'6.92"	17'9.38"	11'4.07"	18'4.74"
12'0.85"	14'1.1"	11'11.6"	14'2.86"	11'10.22"	14'4.89"	11'8.7"	14'7.22"	11'7.04"	14'9.92"	11'5.22"	15'1.05"	11'3.24"	15'4.71"	11'1.09"	15'9"	10'10.76"	16'2.07"	10'8.24"	16'8.1"
11'7.7"	13'6.02"	11'6.54"	13'7.64"	11'5.26"	13'9.49"	11'3.85"	13'11.61"	11'2.31"	14'2.07"	11'0.62"	14'4.92"	10'10.77"	14'8.24"	10'8.77"	15'0.13"	10'6.59"	15'4.71"	10'4.23"	15'10.14"
11'2.52"	12'11"	11'1.44"	13'0.47"	11'0.26"	13'2.15"	10'10.96"	13'4.08"	10'9.53"	13'6.32"	10'7.96"	13'8.9"	10'6.25"	13'11.9"	10'4.39"	14'3.41"	10'2.36"	14'7.54"	10'0.17"	15'0.42"
10'9.3"	12'4.02"	10'8.31"	12'5.35"	10'7.22"	12'6.88"	10'6.03"	12'8.63"	10'4.71"	12'10.65"	10'3.26"	13'0.98"	10'1.68"	13'3.69"	9'11.95"	13'6.85"	9'10.08"	13'10.55"	9'8.04"	14'2.92"
10'4.06"	11'9.09"	10'3.15"	11'10.3"	10'2.15"	11'11.67"	10'1.05"	12'1.25"	9'11.84"	12'3.07"	9'10.51"	12'5.17"	9'9.05"	12'7.6"	9'7.46"	12'10.43"	9'5.73"	13'1.74"	9'3.85"	13'5.63"
9'10.78"	11'2.21"	9'9.95"	11'3.3"	9'9.04"	11'4.53"	9'8.03"	11'5.95"	9'6.93"	11'7.58"	9'5.71"	11'9.46"	9'4.38"	11'11.63"	9'2.92"	12'2.15"	9'1.33"	12'5.1"	8'11.6"	12'8.55"
9'5.47"	10'7.38"	9'4.72"	10'8.35"	9'3.89"	10'9.46"	9'2.98"	10'10.72"	9'1.97"	11'0.18"	9'0.86"	11'1.85"	8'11.64"	11'3.78"	8'10.31"	11'6.02"	8'8.86"	11'8.63"	8'7.28"	11'11.68"
9'0.12"	10'0.59"	8'11.45"	10'1.46"	8'10.7"	10'2.44"	8'9.87"	10'3.57"	8'8.96"	10'4.86"	8'7.96"	10'6.34"	8'6.86"	10'8.05"	8'5.65"	10'10.02"	8'4.33"	11'0.32"	8'2.89"	11'3"
8'6.75"	9'5.86"	8'6.14"	9'6.62"	8'5.47"	9'7.49"	8'4.73"	9'8.48"	8'3.91"	9'9.62"	8'3.01"	9'10.92"	8'2.01"	10'0.42"	8'0.92"	10'2.16"	7'11.73"	10'4.17"	7'10.43"	10'6.51"
8'4.05"	9'2.5"	8'3.48"	9'3.22"	8'2.84"	9'4.04"	8'2.14"	9'4.97"	8'1.36"	9'6.03"	8'0.51"	9'7.25"	7'11.57"	9'8.66"	7'10.54"	9'10.27"	7'9.4"	10'0.15"	7'8.17"	10'2.33"
8'1.34"	8'11.16"	8'0.8"	8'11.83"	8'0.2"	9'0.6"	7'11.54"	9'1.47"	7'10.81"	9'2.46"	7'10"	9'3.6"	7'9.11"	9'4.91"	7'8.13"	9'6.42"	7'7.06"	9'8.17"	7'5.89"	9'10.2"
7'10.62"	8'7.83"	7'10.11"	8'8.46"	7'9.55"	8'9.17"	7'8.93"	8'9.99"	7'8.24"	8'10.92"	7'7.48"	8'11.98"	7'6.64"	9'1.2"	7'5.72"	9'2.6"	7'4.71"	9'4.23"	7'3.6"	9'6.11"
7'7.9"	8'4.52"	7'7.42"	8'5.1"	7'6.89"	8'5.77"	7'6.3"	8'6.52"	7'5.66"	8'7.39"	7'4.94"	8'8.38"	7'4.15"	8'9.51"	7'3.28"	8'10.81"	7'2.33"	9'0.32"	7'1.29"	9'2.07"
7'5.16"	8'1.21"	7'4.72"	8'1.75"	7'4.22"	8'2.37"	7'3.67"	8'3.08"	7'3.06"	8'3.88"	7'2.39"	8'4.8"	7'1.65"	8'5.85"	7'0.83"	8'7.06"	6'11.94"	8'8.45"	6'10.96"	8'10.06"
7'2.42"	7'9.91"	7'2"	7'10.42"	7'1.54"	7'10.99"	7'1.02"	7'11.65"	7'0.46"	8'0.39"	6'11.83"	8'1.24"	6'11.13"	8'2.21"	6'10.37"	8'3.33"	6'9.53"	8'4.62"	6'8.61"	8'6.1"
6'11.67"	7'6.63"	6'11.28"	7'7.1"	6'10.85"	7'7.63"	6'10.37"	7'8.23"	6'9.84"	7'8.92"	6'9.25"	7'9.7"	6'8.6"	7'10.6"	6'7.89"	7'11.63"	6'7.1"	8'0.82"	6'6.24"	8'2.19"
6'8.91"	7'3.36"	6'8.55"	7'3.79"	6'8.14"	7'4.28"	6'7.7"	7'4.84"	6'7.2"	7'5.47"	6'6.66"	7'6.19"	6'6.05"	7'7.02"	6'5.39"	7'7.97"	6'4.65"	7'9.05"	6'3.85"	7'10.31"
6'6.14"	7'0.1"	6'5.81"	7'0.49"	6'5.43"	7'0.94"	6'5.02"	7'1.45"	6'4.56"	7'2.04"	6'4.05"	7'2.7"	6'3.49"	7'3.46"	6'2.87"	7'4.33"	6'2.19"	7'5.33"	6'1.44"	7'6.47"
6'3.36"	6'8.85"	6'3.05"	6'9.21"	6'2.71"	6'9.62"	6'2.33"	6'10.09"	6'1.9"	6'10.62"	6'1.43"	6'11.23"	6'0.91"	6'11.93"	6'0.34"	7'0.72"	5'11.71"	7'1.63"	5'11.01"	7'2.68"
6'0.58"	6'5.61"	6'0.29"	6'5.94"	5'11.98"	6'6.32"	5'11.62"	6'6.74"	5'11.23"	6'7.23"	5'10.8"	6'7.78"	5'10.32"	6'8.42"	5'9.79"	6'9.14"	5'9.21"	6'9.97"	5'8.56"	6'10.92"
5'9.78"	6'2.38"	5'9.52"	6'2.68"	5'9.23"	6'3.02"	5'8.91"	6'3.41"	5'8.55"	6'3.86"	5'8.15"	6'4.36"	5'7.71"	6'4.93"	5'7.22"	6'5.59"	5'6.68"	6'6.34"	5'6.09"	6'7.2"
5'8.85"	6'1.3"	5'8.6"	6'1.6"	5'8.31"	6'1.93"	5'8"	6'2.31"	5'7.65"	6'2.73"	5'7.26"	6'3.22"	5'6.84"	6'3.78"	5'6.36"	6'4.41"	5'5.84"	6'5.13"	5'5.26"	6'5.97"
5'7.91"	6'0.23"	5'7.67"	6'0.51"	5'7.4"	6'0.84"	5'7.09"	6'1.2"	5'6.75"	6'1.62"	5'6.38"	6'2.09"	5'5.96"	6'2.62"	5'5.5"	6'3.24"	5'4.99"	6'3.94"	5'4.43"	6'4.74"
5'6.98"	5'11.16"	5'6.74"	5'11.43"	5'6.48"	5'11.74"	5'6.18"	6'0.1"	5'5.85"	6'0.5"	5'5.49"	6'0.95"	5'5.08"	6'1.47"	5'4.64"	6'2.06"	5'4.15"	6'2.74"	5'3.6"	6'3.52"
5'6.04"	5'10.09"	5'5.81"	5'10.35"	5'5.55"	5'10.66"	5'5.27"	5'11"	5'4.95"	5'11.38"	5'4.6"	5'11.82"	5'4.21"	6'0.32"	5'3.77"	6'0.9"	5'3.3"	6'1.55"	5'2.77"	6'2.3"
5'5.11"	5'9.02"	5'4.88"	5'9.28"	5'4.63"	5'9.57"	5'4.36"	5'9.9"	5'4.05"	5'10.27"	5'3.7"	5'10.7"	5'3.33"	5'11.18"	5'2.91"	5'11.73"	5'2.44"	6'0.36"	5'1.93"	6'1.08"
5'4.17"	5'7.95"	5'3.95"	5'8.2"	5'3.71"	5'8.48"	5'3.44"	5'8.8"	5'3.14"	5'9.16"	5'2.81"	5'9.57"	5'2.44"	5'10.04"	5'2.04"	5'10.57"	5'1.59"	5'11.18"	5'1.09"	5'11.87"
5'3.23"	5'6.89"	5'3.02"	5'7.12"	5'2.78"	5'7.4"	5'2.52"	5'7.7"	5'2.24"	5'8.05"	5'1.92"	5'8.45"	5'1.56"	5'8.9"	5'1.17"	5'9.41"	5'0.73"	5'9.99"	5'0.25"	5'10.66"
5'2.29"	5'5.82"	5'2.08"	5'6.05"	5'1.86"	5'6.31"	5'1.61"	5'6.61"	5'1.33"	5'6.94"	5'1.02"	5'7.32"	5'0.67"	5'7.76"	5'0.29"	5'8.25"	4'11.87"	5'8.82"	4'11.41"	5'9.46"
5'1.35"	5'4.76"	5'1.15"	5'4.98"	5'0.93"	5'5.23"	5'0.69"	5'5.52"	5'0.42"	5'5.84"	5'0.12"	5'6.21"	4'11.79"	5'6.62"	4'11.42"	5'7.1"	4'11.01"	5'7.64"	4'10.56"	5'8.26"
5'0.4"	5'3.69"	5'0.21"	5'3.91"	5'	5'4.15"	4'11.77"	5'4.42"	4'11.51"	5'4.74"	4'11.22"	5'5.09"	4'10.9"	5'5.49"	4'10.54"	5'5.95"	4'10.15"	5'6.47"	4'9.71"	5'7.07"
4'11.46"	5'2.63"	4'11.28"	5'2.84"	4'11.07"	5'3.07"	4'10.85"	5'3.34"	4'10.6"	5'3.63"	4'10.32"	5'3.98"	4'10.01"	5'4.36"	4'9.66"	5'4.8"	4'9.28"	5'5.3"	4'8.86"	5'5.88"
4'10.52"	5'1.57"	4'10.34"	5'1.77"	4'10.14"	5'1.99"	4'9.93"	5'2.25"	4'9.68"	5'2.54"	4'9.41"	5'2.86"	4'9.11"	5'3.23"	4'8.78"	5'3.66"	4'8.41"	5'4.14"	4'8"	5'4.69"
4'9.57"	5'0.51"	4'9.4"	5'0.7"	4'9.21"	5'0.92"	4'9"	5'1.16"	4'8.77"	5'1.44"	4'8.51"	5'1.75"	4'8.22"	5'2.11"	4'7.9"	5'2.52"	4'7.54"	5'2.98"	4'7.15"	5'3.51"

4'8.62"	4'11.45"	4'8.46"	4'11.64"	4'8.28"	4'11.84"	4'8.08"	5'0.08"	4'7.85"	5'0.34"	4'7.6"	5'0.65"	4'7.32"	5'0.99"	4'7.01"	5'1.38"	4'6.67"	5'1.82"	4'6.29"	5'2.33"
4'7.68"	4'10.4"	4'7.52"	4'10.57"	4'7.34"	4'10.77"	4'7.15"	4'11"	4'6.93"	4'11.25"	4'6.69"	4'11.54"	4'6.42"	4'11.87"	4'6.12"	5'0.24"	4'5.79"	5'0.67"	4'5.43"	5'1.15"
4'6.73"	4'9.34"	4'6.58"	4'9.51"	4'6.41"	4'9.7"	4'6.22"	4'9.92"	4'6.01"	4'10.16"	4'5.78"	4'10.44"	4'5.52"	4'10.75"	4'5.23"	4'11.11"	4'4.92"	4'11.52"	4'4.56"	4'11.98"
4'5.78"	4'8.28"	4'5.63"	4'8.45"	4'5.47"	4'8.63"	4'5.29"	4'8.84"	4'5.09"	4'9.07"	4'4.87"	4'9.34"	4'4.62"	4'9.64"	4'4.34"	4'9.98"	4'4.04"	4'10.37"	4'3.7"	4'10.82"
4'4.83"	4'7.23"	4'4.69"	4'7.39"	4'4.53"	4'7.56"	4'4.36"	4'7.76"	4'4.17"	4'7.98"	4'3.95"	4'8.24"	4'3.71"	4'8.53"	4'3.45"	4'8.85"	4'3.16"	4'9.23"	4'2.83"	4'9.65"
4'3.88"	4'6.18"	4'3.74"	4'6.33"	4'3.59"	4'6.49"	4'3.43"	4'6.68"	4'3.24"	4'6.9"	4'3.04"	4'7.14"	4'2.81"	4'7.42"	4'2.55"	4'7.73"	4'2.27"	4'8.09"	4'1.96"	4'8.49"
4'2.93"	4'5.13"	4'2.8"	4'5.27"	4'2.65"	4'5.43"	4'2.5"	4'5.61"	4'2.32"	4'5.82"	4'2.12"	4'6.05"	4'1.9"	4'6.31"	4'1.66"	4'6.61"	4'1.39"	4'6.95"	4'1.09"	4'7.34"
4'1.97"	4'4.08"	4'1.85"	4'4.21"	4'1.71"	4'4.37"	4'1.56"	4'4.54"	4'1.39"	4'4.73"	4'1.2"	4'4.96"	4'0.99"	4'5.21"	4'0.76"	4'5.49"	4'0.5"	4'5.82"	4'0.21"	4'6.19"
4'1.02"	4'3.03"	4'0.9"	4'3.16"	4'0.77"	4'3.3"	4'0.62"	4'3.47"	4'0.46"	4'3.65"	4'0.28"	4'3.87"	4'0.08"	4'4.11"	3'11.85"	4'4.38"	3'11.61"	4'4.69"	3'11.33"	4'5.04"
4'0.06"	4'1.98"	3'11.95"	4'2.1"	3'11.83"	4'2.24"	3'11.69"	4'2.4"	3'11.53"	4'2.58"	3'11.36"	4'2.78"	3'11.16"	4'3.01"	3'10.95"	4'3.27"	3'10.71"	4'3.56"	3'10.45"	4'3.89"
3'11.11"	4'0.93"	3'11"	4'1.05"	3'10.88"	4'1.18"	3'10.75"	4'1.33"	3'10.6"	4'1.5"	3'10.43"	4'1.69"	3'10.25"	4'1.91"	3'10.05"	4'2.16"	3'9.82"	4'2.44"	3'9.57"	4'2.75"
3'10.15"	3'11.89"	3'10.05"	4'	3'9.93"	4'0.13"	3'9.81"	4'0.27"	3'9.66"	4'0.43"	3'9.51"	4'0.61"	3'9.33"	4'0.82"	3'9.14"	4'1.05"	3'8.92"	4'1.31"	3'8.68"	4'1.62"
3'9.19"	3'10.84"	3'9.09"	3'10.95"	3'8.99"	3'11.07"	3'8.86"	3'11.2"	3'8.73"	3'11.36"	3'8.58"	3'11.53"	3'8.41"	3'11.72"	3'8.23"	3'11.95"	3'8.02"	4'0.2"	3'7.79"	4'0.48"
3'8.23"	3'9.8"	3'8.14"	3'9.9"	3'8.04"	3'10.01"	3'7.92"	3'10.14"	3'7.79"	3'10.29"	3'7.65"	3'10.45"	3'7.49"	3'10.64"	3'7.31"	3'10.85"	3'7.12"	3'11.08"	3'6.9"	3'11.35"
3'7.27"	3'8.76"	3'7.18"	3'8.85"	3'7.09"	3'8.96"	3'6.98"	3'9.08"	3'6.85"	3'9.22"	3'6.72"	3'9.37"	3'6.57"	3'9.55"	3'6.4"	3'9.75"	3'6.21"	3'9.97"	3'6.01"	3'10.23"
3'6.31"	3'7.72"	3'6.23"	3'7.81"	3'6.13"	3'7.91"	3'6.03"	3'8.02"	3'5.91"	3'8.15"	3'5.79"	3'8.3"	3'5.64"	3'8.46"	3'5.48"	3'8.65"	3'5.31"	3'8.86"	3'5.11"	3'9.11"
3'5.35"	3'6.68"	3'5.27"	3'6.76"	3'5.18"	3'6.86"	3'5.08"	3'6.97"	3'4.97"	3'7.09"	3'4.85"	3'7.23"	3'4.72"	3'7.38"	3'4.57"	3'7.56"	3'4.4"	3'7.76"	3'4.21"	3'7.99"
3'4.38"	3'5.64"	3'4.31"	3'5.72"	3'4.23"	3'5.81"	3'4.13"	3'5.91"	3'4.03"	3'6.03"	3'3.92"	3'6.16"	3'3.79"	3'6.3"	3'3.64"	3'6.47"	3'3.49"	3'6.66"	3'3.31"	3'6.87"

Focal Length 100mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	146.984	130.969	116.702	103.991	92.666	82.578	73.59	65.582	58.448

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	146.92	Infinity	130.91	Infinity	116.646	Infinity	103.938	Infinity	92.616	Infinity	82.529	Infinity	73.542	Infinity	65.536	Infinity	58.403	Infinity
60.000	42.675	101.147	41.22	110.433	39.7	123.123	38.123	141.362	36.496	169.567	34.828	218.527	33.129	323.376	31.411	701.182	29.683	Infinity
30.000	24.962	37.604	24.46	38.811	23.92	40.26	23.341	42.023	22.725	44.196	22.07	46.92	21.38	50.409	20.655	55.001	19.898	61.271
20.000	17.641	23.095	17.39	23.542	17.116	24.065	16.82	24.68	16.499	25.409	16.153	26.281	15.782	27.335	15.386	28.624	14.964	30.224
15.000	13.64	16.665	13.49	16.895	13.326	17.161	13.147	17.47	12.951	17.83	12.738	18.253	12.508	18.752	12.259	19.346	11.991	20.059
12.000	11.118	13.036	11.019	13.176	10.91	13.336	10.79	13.52	10.659	13.734	10.515	13.982	10.358	14.271	10.188	14.61	10.004	15.011
10.000	9.383	10.705	9.313	10.798	9.236	10.905	9.15	11.027	9.056	11.168	8.953	11.33	8.839	11.518	8.716	11.737	8.581	11.993
9.000	8.499	9.565	8.442	9.639	8.378	9.723	8.308	9.82	8.231	9.931	8.146	10.059	8.052	10.206	7.95	10.377	7.838	10.575
8.000	7.604	8.441	7.558	8.498	7.507	8.563	7.451	8.638	7.389	8.723	7.321	8.821	7.246	8.934	7.163	9.064	7.073	9.214
7.000	6.697	7.333	6.661	7.376	6.622	7.425	6.579	7.48	6.531	7.544	6.478	7.617	6.419	7.7	6.355	7.795	6.284	7.906
6.500	6.239	6.785	6.208	6.822	6.174	6.863	6.137	6.911	6.095	6.964	6.049	7.026	5.998	7.097	5.942	7.177	5.88	7.27
6.000	5.778	6.241	5.751	6.272	5.722	6.307	5.69	6.346	5.655	6.392	5.615	6.443	5.571	6.502	5.523	6.57	5.47	6.647
5.500	5.313	5.701	5.292	5.726	5.267	5.755	5.24	5.788	5.21	5.825	5.176	5.868	5.14	5.917	5.099	5.972	5.054	6.036
5.000	4.846	5.164	4.828	5.185	4.808	5.209	4.786	5.235	4.761	5.266	4.733	5.3	4.702	5.34	4.668	5.384	4.631	5.436
4.750	4.612	4.897	4.595	4.916	4.577	4.937	4.557	4.961	4.534	4.988	4.509	5.019	4.481	5.054	4.451	5.094	4.417	5.14
4.500	4.376	4.631	4.361	4.648	4.345	4.667	4.327	4.688	4.307	4.712	4.284	4.74	4.259	4.771	4.231	4.806	4.201	4.847
4.250	4.14	4.366	4.127	4.381	4.112	4.398	4.096	4.417	4.078	4.438	4.058	4.462	4.035	4.49	4.011	4.521	3.983	4.557
4.000	3.903	4.102	3.891	4.115	3.878	4.13	3.864	4.146	3.848	4.165	3.83	4.186	3.81	4.21	3.788	4.238	3.764	4.269
3.800	3.713	3.892	3.702	3.903	3.691	3.916	3.678	3.931	3.663	3.948	3.647	3.967	3.629	3.988	3.609	4.013	3.587	4.041
3.600	3.522	3.682	3.513	3.692	3.502	3.704	3.491	3.717	3.478	3.732	3.463	3.749	3.447	3.768	3.429	3.789	3.41	3.814
3.500	3.426	3.577	3.417	3.587	3.408	3.598	3.397	3.61	3.384	3.624	3.371	3.64	3.356	3.658	3.339	3.678	3.32	3.701
3.400	3.331	3.472	3.322	3.482	3.313	3.492	3.303	3.503	3.291	3.517	3.278	3.531	3.264	3.548	3.248	3.567	3.231	3.589
3.300	3.235	3.368	3.227	3.377	3.218	3.386	3.209	3.397	3.198	3.409	3.186	3.423	3.172	3.439	3.157	3.457	3.141	3.477
3.200	3.139	3.264	3.132	3.272	3.123	3.281	3.114	3.291	3.104	3.302	3.093	3.315	3.08	3.33	3.066	3.347	3.051	3.366
3.100	3.043	3.16	3.036	3.167	3.028	3.175	3.02	3.185	3.01	3.196	3	3.208	2.988	3.221	2.975	3.237	2.96	3.255
3.000	2.947	3.055	2.94	3.062	2.933	3.07	2.925	3.079	2.916	3.089	2.906	3.1	2.895	3.113	2.883	3.128	2.869	3.144
2.900	2.85	2.952	2.844	2.958	2.838	2.965	2.83	2.974	2.822	2.983	2.813	2.993	2.802	3.005	2.791	3.019	2.778	3.034
2.800	2.754	2.848	2.748	2.854	2.742	2.861	2.735	2.868	2.727	2.877	2.719	2.886	2.709	2.897	2.699	2.91	2.687	2.924
2.700	2.657	2.744	2.652	2.75	2.646	2.756	2.64	2.763	2.633	2.771	2.625	2.78	2.616	2.79	2.606	2.801	2.595	2.814
2.600	2.561	2.641	2.556	2.646	2.551	2.652	2.545	2.658	2.538	2.665	2.531	2.674	2.522	2.683	2.513	2.693	2.503	2.705
2.550	2.512	2.589	2.508	2.594	2.503	2.599	2.497	2.606	2.49	2.613	2.483	2.621	2.475	2.629	2.467	2.64	2.457	2.651
2.500	2.464	2.537	2.459	2.542	2.454	2.547	2.449	2.553	2.443	2.56	2.436	2.568	2.429	2.576	2.42	2.586	2.411	2.597
2.450	2.415	2.486	2.411	2.49	2.406	2.495	2.401	2.501	2.395	2.507	2.389	2.515	2.382	2.523	2.373	2.532	2.364	2.543
2.400	2.367	2.434	2.363	2.439	2.358	2.443	2.353	2.449	2.348	2.455	2.341	2.462	2.334	2.47	2.327	2.478	2.318	2.488
2.350	2.318	2.383	2.314	2.387	2.31	2.391	2.305	2.397	2.3	2.402	2.294	2.409	2.287	2.416	2.28	2.425	2.272	2.434
2.300	2.27	2.331	2.266	2.335	2.262	2.34	2.257	2.344	2.252	2.35	2.246	2.356	2.24	2.363	2.233	2.371	2.225	2.381
2.250	2.221	2.28	2.218	2.283	2.214	2.288	2.209	2.292	2.204	2.298	2.199	2.304	2.193	2.31	2.186	2.318	2.179	2.327
2.200	2.172	2.228	2.169	2.232	2.165	2.236	2.161	2.24	2.157	2.245	2.151	2.251	2.146	2.258	2.139	2.265	2.132	2.273
2.150	2.124	2.177	2.121	2.18	2.117	2.184	2.113	2.188	2.109	2.193	2.104	2.199	2.098	2.205	2.092	2.212	2.085	2.219
2.100	2.075	2.126	2.072	2.129	2.069	2.132	2.065	2.136	2.061	2.141	2.056	2.146	2.051	2.152	2.045	2.158	2.038	2.166
2.050	2.026	2.074	2.023	2.077	2.02	2.081	2.017	2.085	2.013	2.089	2.008	2.094	2.003	2.099	1.998	2.105	1.991	2.112
2.000	1.978	2.023	1.975	2.026	1.972	2.029	1.968	2.033	1.965	2.037	1.96	2.041	1.956	2.047	1.95	2.052	1.944	2.059
1.975	1.953	1.997	1.951	2	1.948	2.003	1.944	2.007	1.941	2.011	1.936	2.015	1.932	2.02	1.927	2.026	1.921	2.032
1.950	1.929	1.972	1.926	1.974	1.923	1.977	1.92	1.981	1.917	1.985	1.913	1.989	1.908	1.994	1.903	2	1.897	2.006
1.925	1.904	1.946	1.902	1.949	1.899	1.952	1.896	1.955	1.892	1.959	1.889	1.963	1.884	1.968	1.879	1.973	1.874	1.979
1.900	1.88	1.921	1.878	1.923	1.875	1.926	1.872	1.929	1.868	1.933	1.865	1.937	1.86	1.942	1.856	1.947	1.85	1.953
1.875	1.856	1.895	1.853	1.897	1.851	1.9	1.848	1.903	1.844	1.907	1.841	1.911	1.836	1.915	1.832	1.92	1.827	1.926
1.850	1.831	1.869	1.829	1.872	1.826	1.874	1.823	1.878	1.82	1.881	1.817	1.885	1.813	1.889	1.808	1.894	1.803	1.9
1.825	1.807	1.844	1.804	1.846	1.802	1.849	1.799	1.852	1.796	1.855	1.793	1.859	1.789	1.863	1.784	1.868	1.779	1.873
1.800	1.782	1.818	1.78	1.82	1.778	1.823	1.775	1.826	1.772	1.829	1.769	1.833	1.765	1.837	1.761	1.841	1.756	1.847
1.775	1.758	1.793	1.756	1.795	1.753	1.797	1.751	1.8	1.748	1.803	1.744	1.807	1.741	1.811	1.737	1.815	1.732	1.82

1.750	1.733	1.767	1.731	1.769	1.729	1.772	1.726	1.774	1.724	1.777	1.72	1.781	1.717	1.785	1.713	1.789	1.708	1.794
1.725	1.709	1.742	1.707	1.744	1.705	1.746	1.702	1.749	1.699	1.751	1.696	1.755	1.693	1.758	1.689	1.763	1.685	1.767
1.700	1.684	1.716	1.682	1.718	1.68	1.72	1.678	1.723	1.675	1.726	1.672	1.729	1.669	1.732	1.665	1.736	1.661	1.741
1.675	1.66	1.691	1.658	1.692	1.656	1.695	1.654	1.697	1.651	1.7	1.648	1.703	1.645	1.706	1.641	1.71	1.637	1.715
1.650	1.635	1.665	1.634	1.667	1.632	1.669	1.629	1.671	1.627	1.674	1.624	1.677	1.621	1.68	1.617	1.684	1.614	1.688
1.625	1.611	1.639	1.609	1.641	1.607	1.643	1.605	1.646	1.603	1.648	1.6	1.651	1.597	1.654	1.593	1.658	1.59	1.662
1.600	1.586	1.614	1.585	1.616	1.583	1.618	1.581	1.62	1.578	1.622	1.576	1.625	1.573	1.628	1.57	1.632	1.566	1.636
1.575	1.562	1.588	1.56	1.59	1.558	1.592	1.556	1.594	1.554	1.597	1.552	1.599	1.549	1.602	1.546	1.606	1.542	1.61
1.550	1.537	1.563	1.536	1.565	1.534	1.566	1.532	1.568	1.53	1.571	1.527	1.573	1.525	1.576	1.522	1.58	1.518	1.583
1.525	1.513	1.538	1.511	1.539	1.51	1.541	1.508	1.543	1.506	1.545	1.503	1.548	1.501	1.55	1.498	1.553	1.494	1.557
1.500	1.488	1.512	1.487	1.514	1.485	1.515	1.483	1.517	1.481	1.519	1.479	1.522	1.476	1.524	1.474	1.527	1.47	1.531
1.475	1.464	1.487	1.462	1.488	1.461	1.49	1.459	1.492	1.457	1.494	1.455	1.496	1.452	1.498	1.45	1.501	1.447	1.505
1.450	1.439	1.461	1.438	1.463	1.436	1.464	1.435	1.466	1.433	1.468	1.431	1.47	1.428	1.473	1.426	1.475	1.423	1.479
1.425	1.414	1.436	1.413	1.437	1.412	1.439	1.41	1.44	1.408	1.442	1.406	1.444	1.404	1.447	1.402	1.449	1.399	1.452
1.400	1.39	1.41	1.389	1.412	1.387	1.413	1.386	1.415	1.384	1.416	1.382	1.419	1.38	1.421	1.377	1.423	1.375	1.426
1.375	1.365	1.385	1.364	1.386	1.363	1.388	1.361	1.389	1.36	1.391	1.358	1.393	1.356	1.395	1.353	1.397	1.351	1.4
1.350	1.341	1.359	1.34	1.361	1.338	1.362	1.337	1.363	1.335	1.365	1.333	1.367	1.331	1.369	1.329	1.372	1.327	1.374
1.325	1.316	1.334	1.315	1.335	1.314	1.336	1.312	1.338	1.311	1.34	1.309	1.341	1.307	1.343	1.305	1.346	1.303	1.348
1.300	1.291	1.309	1.29	1.31	1.289	1.311	1.288	1.312	1.286	1.314	1.285	1.316	1.283	1.318	1.281	1.32	1.279	1.322
1.275	1.267	1.283	1.266	1.284	1.265	1.286	1.263	1.287	1.262	1.288	1.26	1.29	1.259	1.292	1.257	1.294	1.255	1.296
1.250	1.242	1.258	1.241	1.259	1.24	1.26	1.239	1.261	1.238	1.263	1.236	1.264	1.234	1.266	1.233	1.268	1.23	1.27
1.225	1.218	1.233	1.217	1.234	1.216	1.235	1.214	1.236	1.213	1.237	1.212	1.239	1.21	1.24	1.208	1.242	1.206	1.244
1.200	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.212	1.187	1.213	1.186	1.215	1.184	1.216	1.182	1.218
1.175	1.168	1.182	1.167	1.183	1.166	1.184	1.165	1.185	1.164	1.186	1.163	1.187	1.162	1.189	1.16	1.191	1.158	1.192
1.150	1.144	1.157	1.143	1.157	1.142	1.158	1.141	1.159	1.14	1.16	1.139	1.162	1.137	1.163	1.136	1.165	1.134	1.167
1.125	1.119	1.131	1.118	1.132	1.117	1.133	1.116	1.134	1.115	1.135	1.114	1.136	1.113	1.137	1.111	1.139	1.11	1.141
1.100	1.094	1.106	1.093	1.107	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.111	1.088	1.112	1.087	1.113	1.086	1.115
1.075	1.07	1.081	1.069	1.081	1.068	1.082	1.067	1.083	1.066	1.084	1.065	1.085	1.064	1.086	1.063	1.088	1.061	1.089
1.050	1.045	1.055	1.044	1.056	1.043	1.057	1.043	1.057	1.042	1.058	1.041	1.059	1.04	1.061	1.038	1.062	1.037	1.063

8	9	10	11	13	14	16	18	20	22
52.093	46.431	41.386	36.892	32.889	29.322	26.144	23.313	20.791	18.544

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
52.048	Infinity	46.386	Infinity	41.342	Infinity	36.849	Infinity	32.845	Infinity	29.278	Infinity	26.101	Infinity	23.27	Infinity	20.748	Infinity	18.501	Infinity
27.958	Infinity	26.247	Infinity	24.561	Infinity	22.911	Infinity	21.306	Infinity	19.754	Infinity	18.262	Infinity	16.837	Infinity	15.483	Infinity	14.203	Infinity
19.112	70.267	18.301	84.143	17.47	108.129	16.623	159.072	15.766	337.975	14.905	Infinity	14.044	Infinity	13.191	Infinity	12.349	Infinity	11.526	Infinity
14.518	32.248	14.048	34.872	13.556	38.38	13.043	43.27	12.513	50.498	11.967	62.168	11.409	83.979	10.842	138.654	10.271	517.169	9.698	Infinity
11.705	20.926	11.399	21.994	11.074	23.331	10.732	25.041	10.372	27.288	9.996	30.349	9.606	34.725	9.204	41.443	8.791	52.961	8.37	77.031
9.805	15.488	9.59	16.062	9.361	16.759	9.116	17.619	8.857	18.695	8.583	20.074	8.296	21.888	7.995	24.363	7.683	27.91	7.362	33.373
8.435	12.294	8.277	12.65	8.107	13.076	7.924	13.59	7.728	14.218	7.52	14.997	7.299	15.981	7.067	17.253	6.824	18.948	6.57	21.301
7.717	10.808	7.585	11.081	7.442	11.405	7.288	11.793	7.123	12.261	6.946	12.833	6.758	13.544	6.56	14.443	6.35	15.607	6.131	17.163
6.974	9.389	6.867	9.594	6.75	9.835	6.624	10.12	6.488	10.461	6.342	10.873	6.185	11.376	6.019	12	5.843	12.789	5.658	13.809
6.206	8.033	6.121	8.182	6.029	8.355	5.929	8.559	5.82	8.8	5.703	9.088	5.577	9.434	5.443	9.856	5.299	10.379	5.148	11.037
5.812	7.378	5.738	7.502	5.657	7.647	5.569	7.817	5.474	8.017	5.37	8.254	5.259	8.537	5.14	8.88	5.012	9.3	4.877	9.823
5.412	6.736	5.348	6.84	5.278	6.959	5.201	7.099	5.118	7.262	5.028	7.455	4.931	7.685	4.826	7.961	4.714	8.295	4.595	8.706
5.004	6.109	4.95	6.193	4.89	6.29	4.825	6.404	4.753	6.536	4.676	6.691	4.592	6.874	4.502	7.093	4.405	7.355	4.301	7.675
4.589	5.495	4.544	5.562	4.494	5.64	4.439	5.73	4.379	5.835	4.314	5.958	4.243	6.102	4.166	6.272	4.083	6.475	3.994	6.72
4.379	5.192	4.338	5.252	4.292	5.322	4.242	5.402	4.188	5.494	4.128	5.602	4.063	5.729	3.993	5.878	3.917	6.056	3.836	6.268
4.167	4.893	4.13	4.946	4.089	5.007	4.044	5.078	3.994	5.159	3.94	5.254	3.881	5.365	3.818	5.495	3.748	5.649	3.674	5.833
3.953	4.597	3.92	4.644	3.883	4.697	3.842	4.759	3.798	4.83	3.749	4.913	3.696	5.009	3.639	5.122	3.576	5.254	3.508	5.412
3.737	4.304	3.707	4.345	3.675	4.392	3.639	4.445	3.599	4.507	3.555	4.578	3.508	4.661	3.456	4.758	3.4	4.872	3.339	5.007
3.563	4.072	3.536	4.108	3.506	4.15	3.474	4.197	3.438	4.252	3.398	4.315	3.355	4.388	3.308	4.474	3.257	4.574	3.201	4.692
3.388	3.842	3.364	3.874	3.337	3.911	3.307	3.953	3.275	4.001	3.239	4.056	3.2	4.121	3.157	4.195	3.111	4.283	3.06	4.386
3.3	3.728	3.277	3.758	3.251	3.792	3.223	3.831	3.193	3.876	3.159	3.928	3.122	3.989	3.081	4.058	3.037	4.14	2.989	4.235
3.211	3.614	3.189	3.642	3.166	3.674	3.139	3.711	3.11	3.753	3.078	3.802	3.043	3.858	3.005	3.923	2.963	3.998	2.917	4.087
3.122	3.5	3.102	3.527	3.079	3.557	3.054	3.591	3.027	3.63	2.997	3.676	2.964	3.728	2.927	3.788	2.888	3.859	2.844	3.941
3.033	3.387	3.014	3.412	2.993	3.44	2.969	3.472	2.943	3.508	2.915	3.551	2.884	3.599	2.849	3.655	2.812	3.721	2.771	3.797
2.944	3.275	2.926	3.298	2.906	3.324	2.884	3.353	2.859	3.387	2.833	3.427	2.803	3.472	2.771	3.524	2.736	3.584	2.697	3.654
2.854	3.163	2.837	3.184	2.818	3.208	2.798	3.236	2.775	3.267	2.75	3.303	2.722	3.345	2.692	3.393	2.659	3.449	2.622	3.514
2.764	3.051	2.748	3.071	2.731	3.093	2.711	3.119	2.69	3.148	2.667	3.181	2.641	3.22	2.612	3.264	2.581	3.315	2.547	3.375
2.673	2.94	2.659	2.958	2.643	2.979	2.625	3.002	2.605	3.029	2.583	3.06	2.558	3.095	2.532	3.136	2.503	3.183	2.471	3.238
2.583	2.829	2.569	2.846	2.554	2.865	2.537	2.887	2.519	2.911	2.498	2.94	2.476	2.972	2.451	3.01	2.424	3.053	2.394	3.103
2.492	2.719	2.479	2.734	2.465	2.752	2.449	2.772	2.432	2.794	2.413	2.82	2.392	2.85	2.369	2.884	2.344	2.924	2.316	2.969
2.446	2.664	2.434	2.679	2.42	2.695	2.405	2.714	2.389	2.736	2.371	2.761	2.351	2.789	2.328	2.822	2.304	2.86	2.277	2.903
2.4	2.609	2.389	2.623	2.376	2.639	2.361	2.657	2.345	2.678	2.328	2.702	2.308	2.729	2.287	2.76	2.264	2.796	2.238	2.837
2.354	2.554	2.343	2.568	2.331	2.583	2.317	2.6	2.302	2.62	2.285	2.643	2.266	2.669	2.246	2.698	2.223	2.732	2.199	2.772
2.308	2.5	2.298	2.513	2.286	2.527	2.273	2.544	2.258	2.563	2.242	2.584	2.224	2.609	2.204	2.637	2.183	2.669	2.159	2.707
2.262	2.445	2.252	2.457	2.241	2.471	2.228	2.487	2.214	2.505	2.199	2.526	2.182	2.549	2.163	2.576	2.142	2.607	2.119	2.642
2.216	2.391	2.206	2.402	2.196	2.416	2.184	2.431	2.17	2.448	2.155	2.467	2.139	2.49	2.121	2.515	2.101	2.544	2.079	2.578
2.17	2.336	2.161	2.348	2.15	2.36	2.139	2.374	2.126	2.391	2.112	2.409	2.096	2.43	2.079	2.455	2.06	2.482	2.039	2.515
2.124	2.282	2.115	2.293	2.105	2.305	2.094	2.318	2.082	2.334	2.068	2.351	2.053	2.371	2.037	2.394	2.018	2.421	1.998	2.451
2.077	2.228	2.069	2.238	2.059	2.25	2.049	2.262	2.037	2.277	2.024	2.294	2.01	2.313	1.994	2.335	1.977	2.359	1.958	2.388
2.031	2.174	2.023	2.184	2.014	2.194	2.004	2.207	1.993	2.22	1.98	2.236	1.967	2.254	1.952	2.275	1.935	2.298	1.917	2.326
1.985	2.12	1.977	2.129	1.968	2.139	1.959	2.151	1.948	2.164	1.936	2.179	1.923	2.196	1.909	2.216	1.893	2.238	1.876	2.263
1.938	2.067	1.931	2.075	1.922	2.085	1.913	2.096	1.903	2.108	1.892	2.122	1.88	2.138	1.866	2.156	1.851	2.177	1.835	2.202
1.915	2.04	1.907	2.048	1.9	2.057	1.891	2.068	1.881	2.08	1.87	2.094	1.858	2.109	1.845	2.127	1.83	2.147	1.814	2.171
1.891	2.013	1.884	2.021	1.877	2.03	1.868	2.04	1.858	2.052	1.848	2.065	1.836	2.08	1.823	2.098	1.809	2.117	1.793	2.14
1.868	1.986	1.861	1.994	1.854	2.003	1.845	2.013	1.836	2.024	1.826	2.037	1.814	2.052	1.802	2.068	1.788	2.088	1.772	2.11
1.844	1.959	1.838	1.967	1.831	1.975	1.822	1.985	1.813	1.996	1.803	2.009	1.792	2.023	1.78	2.039	1.766	2.058	1.751	2.079
1.821	1.933	1.815	1.94	1.808	1.948	1.8	1.958	1.791	1.968	1.781	1.98	1.77	1.994	1.758	2.01	1.745	2.028	1.731	2.049
1.798	1.906	1.791	1.913	1.784	1.921	1.777	1.93	1.768	1.941	1.759	1.952	1.748	1.966	1.737	1.981	1.724	1.998	1.71	2.018
1.774	1.879	1.768	1.886	1.761	1.894	1.754	1.903	1.746	1.913	1.736	1.924	1.726	1.937	1.715	1.952	1.702	1.969	1.689	1.988
1.751	1.853	1.745	1.859	1.738	1.867	1.731	1.875	1.723	1.885	1.714	1.896	1.704	1.909	1.693	1.923	1.681	1.939	1.667	1.958
1.727	1.826	1.721	1.832	1.715	1.84	1.708	1.848	1.7	1.857	1.692	1.868	1.682	1.88	1.671	1.894	1.659	1.91	1.646	1.928

1.704	1.799	1.698	1.806	1.692	1.813	1.685	1.821	1.677	1.83	1.669	1.84	1.66	1.852	1.649	1.865	1.638	1.88	1.625	1.898
1.68	1.773	1.675	1.779	1.669	1.786	1.662	1.793	1.655	1.802	1.647	1.812	1.637	1.824	1.627	1.836	1.616	1.851	1.604	1.868
1.656	1.746	1.651	1.752	1.645	1.759	1.639	1.766	1.632	1.775	1.624	1.784	1.615	1.795	1.605	1.808	1.595	1.822	1.583	1.838
1.633	1.72	1.628	1.725	1.622	1.732	1.616	1.739	1.609	1.747	1.601	1.756	1.593	1.767	1.583	1.779	1.573	1.793	1.561	1.809
1.609	1.693	1.604	1.699	1.599	1.705	1.593	1.712	1.586	1.72	1.579	1.729	1.57	1.739	1.561	1.751	1.551	1.764	1.54	1.779
1.586	1.667	1.581	1.672	1.576	1.678	1.57	1.685	1.563	1.692	1.556	1.701	1.548	1.711	1.539	1.722	1.529	1.735	1.519	1.749
1.562	1.64	1.557	1.645	1.552	1.651	1.547	1.658	1.54	1.665	1.533	1.673	1.526	1.683	1.517	1.694	1.508	1.706	1.497	1.72
1.538	1.614	1.534	1.619	1.529	1.624	1.523	1.631	1.517	1.638	1.511	1.646	1.503	1.655	1.495	1.665	1.486	1.677	1.476	1.691
1.514	1.587	1.51	1.592	1.505	1.598	1.5	1.604	1.494	1.61	1.488	1.618	1.481	1.627	1.473	1.637	1.464	1.648	1.454	1.661
1.491	1.561	1.487	1.566	1.482	1.571	1.477	1.577	1.471	1.583	1.465	1.591	1.458	1.599	1.45	1.609	1.442	1.62	1.432	1.632
1.467	1.535	1.463	1.539	1.459	1.544	1.454	1.55	1.448	1.556	1.442	1.563	1.435	1.571	1.428	1.581	1.42	1.591	1.411	1.603
1.443	1.508	1.439	1.513	1.435	1.517	1.43	1.523	1.425	1.529	1.419	1.536	1.413	1.544	1.406	1.553	1.398	1.563	1.389	1.574
1.419	1.482	1.416	1.486	1.412	1.491	1.407	1.496	1.402	1.502	1.396	1.508	1.39	1.516	1.383	1.524	1.375	1.534	1.367	1.545
1.396	1.456	1.392	1.46	1.388	1.464	1.384	1.469	1.379	1.475	1.373	1.481	1.367	1.488	1.361	1.497	1.353	1.506	1.345	1.516
1.372	1.43	1.368	1.433	1.365	1.438	1.36	1.442	1.356	1.448	1.35	1.454	1.345	1.461	1.338	1.469	1.331	1.478	1.323	1.488
1.348	1.403	1.345	1.407	1.341	1.411	1.337	1.416	1.332	1.421	1.327	1.427	1.322	1.433	1.316	1.441	1.309	1.449	1.301	1.459
1.324	1.377	1.321	1.381	1.317	1.385	1.313	1.389	1.309	1.394	1.304	1.399	1.299	1.406	1.293	1.413	1.286	1.421	1.279	1.43
1.3	1.351	1.297	1.354	1.294	1.358	1.29	1.362	1.286	1.367	1.281	1.372	1.276	1.378	1.27	1.385	1.264	1.393	1.257	1.402
1.276	1.325	1.273	1.328	1.27	1.332	1.266	1.336	1.262	1.34	1.258	1.345	1.253	1.351	1.248	1.358	1.242	1.365	1.235	1.374
1.252	1.299	1.249	1.302	1.246	1.305	1.243	1.309	1.239	1.313	1.235	1.318	1.23	1.324	1.225	1.33	1.219	1.337	1.213	1.345
1.228	1.273	1.226	1.276	1.223	1.279	1.219	1.282	1.216	1.287	1.212	1.291	1.207	1.297	1.202	1.302	1.197	1.309	1.19	1.317
1.204	1.247	1.202	1.249	1.199	1.253	1.196	1.256	1.192	1.26	1.188	1.264	1.184	1.269	1.179	1.275	1.174	1.281	1.168	1.289
1.18	1.221	1.178	1.223	1.175	1.226	1.172	1.229	1.169	1.233	1.165	1.237	1.161	1.242	1.156	1.248	1.151	1.254	1.146	1.261
1.156	1.195	1.154	1.197	1.151	1.2	1.148	1.203	1.145	1.207	1.142	1.211	1.138	1.215	1.133	1.22	1.129	1.226	1.123	1.233
1.132	1.169	1.13	1.171	1.127	1.174	1.125	1.177	1.122	1.18	1.118	1.184	1.115	1.188	1.11	1.193	1.106	1.198	1.101	1.205
1.108	1.143	1.106	1.145	1.104	1.147	1.101	1.15	1.098	1.153	1.095	1.157	1.091	1.161	1.087	1.166	1.083	1.171	1.078	1.177
1.084	1.117	1.082	1.119	1.08	1.121	1.077	1.124	1.074	1.127	1.071	1.13	1.068	1.134	1.064	1.139	1.06	1.144	1.055	1.149
1.06	1.091	1.058	1.093	1.056	1.095	1.053	1.098	1.051	1.101	1.048	1.104	1.045	1.107	1.041	1.112	1.037	1.116	1.033	1.121
1.035	1.065	1.034	1.067	1.032	1.069	1.03	1.071	1.027	1.074	1.024	1.077	1.021	1.081	1.018	1.084	1.014	1.089	1.01	1.094

Focal Length 100mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	482'2.77"	429'8.26"	382'10.57"	341'2.13"	304'0.27"	270'11.1"	241'5.24"	215'1.97"	191'9.1"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	482'0.27"	Infinity	429'5.93"	Infinity	382'8.35"	Infinity	341'0.03"	Infinity	303'10.28"	Infinity	270'9.16"	Infinity	241'3.35"	Infinity	215'0.14"	Infinity	191'7.32"	Infinity
200'0''	141'7.12"	340'11.05"	136'8.52"	373'1.88"	131'7.39"	417'5.73"	126'4"	481'8.64"	120'10.68"	582'4.06"	115'3.77"	760'9.27"	109'7.69"	1159'10.26"	103'10.86"	2822'8.57"	98'1.74"	Infinity
100'0''	82'11.79"	125'10.38"	81'3.49"	129'11.84"	79'5.66"	134'11.38"	77'6.31"	140'11.9"	75'5.43"	148'5.48"	73'3.06"	157'10.08"	70'11.23"	169'10.79"	68'6.04"	185'10.14"	65'11.59"	207'8.89"
70'0''	61'3.01"	81'8.32"	60'3.94"	83'4.82"	59'3.91"	85'4.88"	58'2.88"	87'9.31"	57'0.81"	90'7.18"	55'9.69"	93'11.9"	54'5.49"	98'1.42"	53'0.23"	103'2.49"	51'5.93"	109'7.08"
50'0''	45'4.78"	55'7.83"	44'10.71"	56'5.22"	44'4.07"	57'4.08"	43'8.8"	58'4.69"	43'0.88"	59'7.42"	42'4.27"	61'0.71"	41'6.95"	62'9.16"	40'8.89"	64'9.52"	39'10.08"	67'2.83"
40'0''	37'0.19"	43'6.19"	36'8.17"	43'11.88"	36'3.75"	44'6.41"	35'10.89"	45'1.95"	35'5.57"	45'10.66"	34'11.75"	46'8.79"	34'5.41"	47'8.62"	33'10.52"	48'10.51"	33'3.05"	50'2.93"
35'0''	32'8.43"	37'7.81"	32'5.3"	38'0.04"	32'1.85"	38'4.89"	31'10.06"	38'10.46"	31'5.88"	39'4.88"	31'1.31"	40'0.29"	30'8.3"	40'8.91"	30'2.85"	41'6.95"	29'8.91"	42'6.74"
30'0''	28'3.66"	31'10.98"	28'1.33"	32'2"	27'10.75"	32'5.45"	27'7.9"	32'9.4"	27'4.76"	33'1.93"	27'1.31"	33'7.14"	26'9.53"	34'1.16"	26'5.38"	34'8.13"	26'0.86"	35'4.25"
25'0''	23'9.85"	26'3.66"	23'8.2"	26'5.7"	23'6.39"	26'8.01"	23'4.37"	26'10.65"	23'2.15"	27'1.67"	22'11.69"	27'5.12"	22'8.99"	27'9.09"	22'6.02"	28'1.66"	22'2.76"	28'6.95"
22'0''	21'1.04"	22'11.97"	20'11.76"	23'1.52"	20'10.35"	23'3.27"	20'8.77"	23'5.27"	20'7.03"	23'7.54"	20'5.1"	23'10.14"	20'2.98"	24'1.11"	20'0.64"	24'4.53"	19'10.06"	24'8.46"
20'0''	19'2.96"	20'9.8"	19'1.9"	20'11.06"	19'0.72"	21'0.48"	18'11.41"	21'2.1"	18'9.96"	21'3.95"	18'8.36"	21'6.05"	18'6.59"	21'8.46"	18'4.63"	21'11.21"	18'2.48"	22'2.37"
19'0''	18'3.85"	19'8.8"	18'2.89"	19'9.92"	18'1.83"	19'11.2"	18'0.64"	20'0.65"	17'11.33"	20'2.3"	17'9.88"	20'4.18"	17'8.27"	20'6.32"	17'6.5"	20'8.78"	17'4.54"	20'11.59"
18'0''	17'4.69"	18'7.85"	17'3.83"	18'8.86"	17'2.88"	18'9.99"	17'1.81"	18'11.28"	17'0.63"	19'0.75"	16'11.33"	19'2.41"	16'9.88"	19'4.32"	16'8.28"	19'6.49"	16'6.51"	19'8.98"
17'0''	16'5.49"	17'6.96"	16'4.73"	17'7.85"	16'3.87"	17'8.85"	16'2.92"	17'9.99"	16'1.87"	17'11.29"	16'0.7"	18'0.76"	15'11.4"	18'2.43"	15'9.97"	18'4.35"	15'8.39"	18'6.54"
16'0''	15'6.25"	16'6.13"	15'5.57"	16'6.91"	15'4.81"	16'7.79"	15'3.97"	16'8.79"	15'3.04"	16'9.92"	15'2"	16'11.21"	15'0.85"	17'0.67"	14'11.57"	17'2.34"	14'10.16"	17'4.25"
15'0''	14'6.96"	15'5.35"	14'6.37"	15'6.03"	14'5.7"	15'6.79"	14'4.96"	15'7.66"	14'4.14"	15'8.64"	14'3.22"	15'9.76"	14'2.21"	15'11.03"	14'1.08"	16'0.48"	13'11.84"	16'2.14"
14'0''	13'7.63"	14'4.62"	13'7.11"	14'5.21"	13'6.53"	14'5.87"	13'5.88"	14'6.61"	13'5.17"	14'7.46"	13'4.37"	14'8.42"	13'3.48"	14'9.52"	13'2.5"	14'10.76"	13'1.42"	15'0.18"
13'0''	12'8.25"	13'3.95"	12'7.8"	13'4.45"	12'7.3"	13'5.01"	12'6.75"	13'5.65"	12'6.13"	13'6.37"	12'5.44"	13'7.19"	12'4.68"	13'8.12"	12'3.83"	13'9.17"	12'2.89"	13'10.37"
12'6''	12'2.54"	12'9.64"	12'2.13"	12'10.09"	12'1.67"	12'10.61"	12'1.15"	12'11.2"	12'0.58"	12'11.86"	11'11.95"	13'0.61"	11'11.24"	13'1.46"	11'10.46"	13'2.43"	11'9.59"	13'3.53"
12'0''	11'8.82"	12'3.33"	11'8.44"	12'3.75"	11'8.02"	12'4.23"	11'7.55"	12'4.76"	11'7.02"	12'5.37"	11'6.43"	12'6.05"	11'5.78"	12'6.83"	11'5.06"	12'7.72"	11'4.26"	12'8.72"
11'6''	11'3.09"	11'9.05"	11'2.74"	11'9.43"	11'2.35"	11'9.86"	11'1.92"	11'10.35"	11'1.44"	11'10.9"	11'0.9"	11'11.53"	11'0.3"	12'0.23"	10'11.64"	12'1.04"	10'10.9"	12'1.95"
11'0''	10'9.35"	11'2.77"	10'9.03"	11'3.12"	10'8.68"	11'3.51"	10'8.28"	11'3.95"	10'7.84"	11'4.45"	10'7.35"	11'5.02"	10'6.8"	11'5.66"	10'6.2"	11'6.39"	10'5.52"	11'7.22"
10'6''	10'3.59"	10'8.51"	10'3.3"	10'8.82"	10'2.98"	10'9.18"	10'2.62"	10'9.58"	10'2.22"	10'10.03"	10'1.78"	10'10.54"	10'1.28"	10'11.12"	10'0.73"	10'11.78"	10'0.11"	11'0.53"
10'0''	9'9.83"	10'2.26"	9'9.57"	10'2.54"	9'9.28"	10'2.86"	9'8.95"	10'3.22"	9'8.59"	10'3.63"	9'8.18"	10'4.09"	9'7.73"	10'4.61"	9'7.23"	10'5.2"	9'6.68"	10'5.87"
9'6''	9'4.05"	9'8.02"	9'3.81"	9'8.28"	9'3.55"	9'8.56"	9'3.26"	9'8.88"	9'2.94"	9'9.25"	9'2.57"	9'9.66"	9'2.17"	9'10.13"	9'1.72"	9'10.65"	9'1.22"	9'11.25"
9'0''	8'10.26"	9'1.8"	8'10.05"	9'2.03"	8'9.82"	9'2.28"	8'9.56"	9'2.57"	8'9.26"	9'2.89"	8'8.94"	9'3.26"	8'8.58"	9'3.67"	8'8.17"	9'4.14"	8'7.73"	9'4.67"
8'9''	8'7.36"	8'10.7"	8'7.16"	8'10.91"	8'6.94"	8'11.15"	8'6.7"	8'11.42"	8'6.42"	8'11.72"	8'6.12"	9'0.06"	8'5.77"	9'0.45"	8'5.39"	9'0.89"	8'4.97"	9'1.39"
8'6''	8'4.46"	8'7.59"	8'4.27"	8'7.79"	8'4.07"	8'8.02"	8'3.83"	8'8.27"	8'3.58"	8'8.55"	8'3.29"	8'8.88"	8'2.97"	8'9.24"	8'2.61"	8'9.65"	8'2.21"	8'10.12"
8'3''	8'1.55"	8'4.49"	8'1.38"	8'4.68"	8'1.18"	8'4.89"	8'0.97"	8'5.13"	8'0.72"	8'5.39"	8'0.45"	8'5.69"	8'0.15"	8'6.03"	7'11.81"	8'6.42"	7'11.44"	8'6.86"
8'0''	7'10.65"	8'1.4"	7'10.48"	8'1.57"	7'10.3"	8'1.77"	7'10.1"	8'1.99"	7'9.87"	8'2.24"	7'9.61"	8'2.52"	7'9.33"	8'2.84"	7'9.01"	8'3.2"	7'8.66"	8'3.6"
7'9''	7'7.73"	7'10.3"	7'7.58"	7'10.47"	7'7.41"	7'10.65"	7'7.22"	7'10.86"	7'7.01"	7'11.09"	7'6.77"	7'11.35"	7'6.5"	7'11.65"	7'6.21"	7'11.98"	7'5.88"	8'0.36"
7'6''	7'4.82"	7'7.21"	7'4.68"	7'7.36"	7'4.52"	7'7.54"	7'4.34"	7'7.73"	7'4.14"	7'7.94"	7'3.92"	7'8.19"	7'3.67"	7'8.46"	7'3.4"	7'8.77"	7'3.09"	7'9.13"
7'3''	7'1.9"	7'4.13"	7'1.77"	7'4.27"	7'1.62"	7'4.43"	7'1.46"	7'4.6"	7'1.27"	7'4.8"	7'1.07"	7'5.03"	7'0.84"	7'5.29"	7'0.58"	7'5.58"	7'0.29"	7'5.9"
7'0''	6'10.98"	7'1.04"	6'10.86"	7'1.17"	6'10.72"	7'1.32"	6'10.57"	7'1.48"	6'10.4"	7'1.67"	6'10.21"	7'1.88"	6'9.99"	7'2.12"	6'9.75"	7'2.38"	6'9.49"	7'2.68"
6'9''	6'8.06"	6'9.96"	6'7.95"	6'10.08"	6'7.82"	6'10.22"	6'7.68"	6'10.37"	6'7.52"	6'10.54"	6'7.34"	6'10.73"	6'7.14"	6'10.95"	6'6.92"	6'11.2"	6'6.68"	6'11.48"
6'6''	6'5.13"	6'6.89"	6'5.03"	6'7"	6'4.91"	6'7.12"	6'4.78"	6'7.26"	6'4.64"	6'7.42"	6'4.47"	6'7.6"	6'4.29"	6'7.8"	6'4.09"	6'8.02"	6'3.86"	6'8.28"
6'3''	6'2.21"	6'3.81"	6'2.11"	6'3.91"	6'2"	6'4.03"	6'1.88"	6'4.16"	6'1.75"	6'4.3"	6'1.6"	6'4.46"	6'1.43"	6'4.65"	6'1.24"	6'4.85"	6'1.03"	6'5.09"
6'0''	5'11.27"	6'0.74"	5'11.19"	6'0.83"	5'11.09"	6'0.94"	5'10.98"	6'1.06"	5'10.85"	6'1.19"	5'10.72"	6'1.34"	5'10.56"	6'1.5"	5'10.39"	6'1.69"	5'10.2"	6'1.9"
5'11''	5'10.3"	5'11.72"	5'10.21"	5'11.81"	5'10.11"	5'11.91"	5'10.01"	6'0.02"	5'9.89"	6'0.15"	5'9.76"	6'0.29"	5'9.61"	6'0.46"	5'9.44"	6'0.64"	5'9.25"	6'0.85"
5'10''	5'9.32"	5'10.7"	5'9.23"	5'10.78"	5'9.14"	5'10.88"	5'9.04"	5'10.99"	5'8.92"	5'11.11"	5'8.79"	5'11.25"	5'8.65"	5'11.41"	5'8.49"	5'11.59"	5'8.31"	5'11.79"
5'9''	5'8.34"	5'9.68"	5'8.26"	5'9.76"	5'8.17"	5'9.85"	5'8.07"	5'9.96"	5'7.96"	5'10.08"	5'7.83"	5'10.21"	5'7.69"	5'10.37"	5'7.53"	5'10.54"	5'7.36"	5'10.73"
5'8''	5'7.36"	5'8.65"	5'7.28"	5'8.73"	5'7.2"	5'8.83"	5'7.1"	5'8.93"	5'6.99"	5'9.04"	5'6.87"	5'9.17"	5'6.73"	5'9.32"	5'6.58"	5'9.49"	5'6.41"	5'9.67"
5'7''	5'6.38"	5'7.63"	5'6.31"	5'7.71"	5'6.22"	5'7.8"	5'6.13"	5'7.9"	5'6.02"	5'8.01"	5'5.9"	5'8.14"	5'5.77"	5'8.28"	5'5.63"	5'8.44"	5'5.46"	5'8.62"
5'6''	5'5.4"	5'6.61"	5'5.33"	5'6.69"	5'5.25"	5'6.77"	5'5.16"	5'6.87"	5'5.05"	5'6.98"	5'4.94"	5'7.1"	5'4.81"	5'7.24"	5'4.67"	5'7.39"	5'4.51"	5'7.57"
5'5''	5'4.42"	5'5.59"	5'4.35"	5'5.66"	5'4.27"	5'5.75"	5'4.18"	5'5.84"	5'4.09"	5'5.94"	5'3.98"	5'6.06"	5'3.85"	5'6.19"	5'3.72"	5'6.34"	5'3.56"	5'6.51"
5'4''	5'3.44"	5'4.57"	5'3.37"	5'4.64"	5'3.3"	5'4.72"	5'3.21"	5'4.81"	5'3.12"	5'4.91"	5'3.01"	5'5.02"	5'2.89"	5'5.15"	5'2.76"	5'5.3"	5'2.61"	5'5.46"
5'3''	5'2.46"	5'3.55"	5'2.39"	5'3.62"	5'2.32"	5'3.7"	5'2.24"	5'3.78"	5'2.15"	5'3.88"	5'2.04"	5'3.99"	5'1.93"	5'4.11"	5'1.8"	5'4.25"	5'1.66"	5'4.41"
5'2''	5'1.48"	5'2.53"	5'1.42"	5'2.6"	5'1.34"	5'2.67"	5'1.27"	5'2.75"	5'1.18"	5'2.85"	5'1.08"	5'2.95"	5'0.97"	5'3.07"	5'0.84"	5'3.21"	5'0.7"	5'3.36"
5'1''	5'0.5"	5'1.51"	5'0.44"	5'1.58"	5'0.37"	5'1.65"	5'0.29"	5'1.73"	5'0.21"	5'1.82"	5'0.11"	5'1.92"	5'	5'2.03"	4'11.88"	5'2.16"	4'11.75"	5'2.31"
5'0''	4'11.52"	5'0.49"	4'11.46"	5'0.55"	4'11.39"	5'0.62"	4'11.32"	5'0.7"	4'11.24"	5'0.79"	4'11.14"	5'0.89"	4'11.04"	5'1"	4'10.92"	5'1.12"	4'10.8"	5'1.26"
4'11''	4'10.53"	4'11.47"	4'10.48"	4'11.53"	4'10.41"	4'11.6"	4'10.34"	4'11.67"	4'10.26"	4'11.76"	4'10.17"	4'11.85"	4'10.08"	4'11.96"	4'9.96"	5'0.08"	4'9.84"	5'0.21"

4'10''	4'9.55"	4'10.46"	4'9.5"	4'10.51"	4'9.44"	4'10.58"	4'9.37"	4'10.65"	4'9.29"	4'10.73"	4'9.21"	4'10.82"	4'9.11"	4'10.92"	4'9"	4'11.04"	4'8.88"	4'11.17"
4'9''	4'8.57"	4'9.44"	4'8.52"	4'9.49"	4'8.46"	4'9.55"	4'8.39"	4'9.62"	4'8.32"	4'9.7"	4'8.24"	4'9.79"	4'8.14"	4'9.89"	4'8.04"	4'10"	4'7.93"	4'10.12"
4'8''	4'7.59"	4'8.42"	4'7.54"	4'8.47"	4'7.48"	4'8.53"	4'7.42"	4'8.6"	4'7.35"	4'8.67"	4'7.27"	4'8.76"	4'7.18"	4'8.85"	4'7.08"	4'8.96"	4'6.97"	4'9.08"
4'7''	4'6.6"	4'7.4"	4'6.55"	4'7.45"	4'6.5"	4'7.51"	4'6.44"	4'7.57"	4'6.37"	4'7.65"	4'6.3"	4'7.73"	4'6.21"	4'7.82"	4'6.12"	4'7.92"	4'6.01"	4'8.03"
4'6''	4'5.62"	4'6.39"	4'5.57"	4'6.44"	4'5.52"	4'6.49"	4'5.46"	4'6.55"	4'5.4"	4'6.62"	4'5.32"	4'6.7"	4'5.24"	4'6.78"	4'5.15"	4'6.88"	4'5.05"	4'6.99"
4'5''	4'4.63"	4'5.37"	4'4.59"	4'5.42"	4'4.54"	4'5.47"	4'4.48"	4'5.53"	4'4.42"	4'5.59"	4'4.35"	4'5.67"	4'4.27"	4'5.75"	4'4.19"	4'5.84"	4'4.09"	4'5.95"
4'4''	4'3.65"	4'4.36"	4'3.61"	4'4.4"	4'3.56"	4'4.45"	4'3.51"	4'4.5"	4'3.45"	4'4.57"	4'3.38"	4'4.64"	4'3.31"	4'4.72"	4'3.22"	4'4.81"	4'3.13"	4'4.91"
4'3''	4'2.67"	4'3.34"	4'2.62"	4'3.38"	4'2.58"	4'3.43"	4'2.53"	4'3.48"	4'2.47"	4'3.54"	4'2.41"	4'3.61"	4'2.34"	4'3.68"	4'2.26"	4'3.77"	4'2.17"	4'3.87"
4'2''	4'1.68"	4'2.32"	4'1.64"	4'2.36"	4'1.6"	4'2.41"	4'1.55"	4'2.46"	4'1.49"	4'2.52"	4'1.43"	4'2.58"	4'1.36"	4'2.65"	4'1.29"	4'2.74"	4'1.2"	4'2.83"
4'1''	4'0.69"	4'1.31"	4'0.66"	4'1.35"	4'0.62"	4'1.39"	4'0.57"	4'1.44"	4'0.52"	4'1.49"	4'0.46"	4'1.55"	4'0.39"	4'1.62"	4'0.32"	4'1.7"	4'0.24"	4'1.79"
4'0''	3'11.71"	4'0.3"	3'11.67"	4'0.33"	3'11.63"	4'0.37"	3'11.59"	4'0.42"	3'11.54"	4'0.47"	3'11.48"	4'0.53"	3'11.42"	4'0.59"	3'11.35"	4'0.67"	3'11.27"	4'0.75"
3'11''	3'10.72"	3'11.28"	3'10.69"	3'11.32"	3'10.65"	3'11.35"	3'10.61"	3'11.4"	3'10.56"	3'11.45"	3'10.51"	3'11.5"	3'10.45"	3'11.57"	3'10.38"	3'11.64"	3'10.31"	3'11.72"
3'10''	3'9.74"	3'10.27"	3'9.7"	3'10.3"	3'9.67"	3'10.34"	3'9.63"	3'10.38"	3'9.58"	3'10.43"	3'9.53"	3'10.48"	3'9.48"	3'10.54"	3'9.41"	3'10.6"	3'9.34"	3'10.68"
3'9''	3'8.75"	3'9.25"	3'8.72"	3'9.28"	3'8.69"	3'9.32"	3'8.65"	3'9.36"	3'8.6"	3'9.4"	3'8.56"	3'9.45"	3'8.5"	3'9.51"	3'8.44"	3'9.57"	3'8.38"	3'9.65"
3'8''	3'7.76"	3'8.24"	3'7.73"	3'8.27"	3'7.7"	3'8.3"	3'7.67"	3'8.34"	3'7.62"	3'8.38"	3'7.58"	3'8.43"	3'7.53"	3'8.48"	3'7.47"	3'8.54"	3'7.41"	3'8.61"
3'7''	3'6.78"	3'7.23"	3'6.75"	3'7.26"	3'6.72"	3'7.29"	3'6.68"	3'7.32"	3'6.64"	3'7.36"	3'6.6"	3'7.41"	3'6.55"	3'7.46"	3'6.5"	3'7.51"	3'6.44"	3'7.58"
3'6''	3'5.79"	3'6.22"	3'5.76"	3'6.24"	3'5.73"	3'6.27"	3'5.7"	3'6.3"	3'5.66"	3'6.34"	3'5.62"	3'6.38"	3'5.58"	3'6.43"	3'5.53"	3'6.49"	3'5.47"	3'6.55"
3'5''	3'4.8"	3'5.2"	3'4.77"	3'5.23"	3'4.75"	3'5.26"	3'4.72"	3'5.29"	3'4.68"	3'5.32"	3'4.64"	3'5.36"	3'4.6"	3'5.41"	3'4.55"	3'5.46"	3'4.5"	3'5.52"

8	9	10	11	13	14	16	18	20	22
170'10.91"	152'3.99"	135'9.37"	121'0.44"	107'10.84"	96'2.41"	85'9.29"	76'5.83"	68'2.54"	60'10.08"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
170'9.13"	Infinity	152'2.23"	Infinity	135'7.65"	Infinity	120'10.73"	Infinity	107'9.12"	Infinity	96'0.7"	Infinity	85'7.59"	Infinity	76'4.14"	Infinity	68'0.85"	Infinity	60'8.38"	Infinity
92'4.79"	Infinity	86'8.47"	Infinity	81'1.2"	Infinity	75'7.41"	Infinity	70'3.47"	Infinity	65'1.71"	Infinity	60'2.4"	Infinity	55'5.79"	Infinity	51'0.02"	Infinity	46'9.24"	Infinity
63'4"	239'5.09"	60'7.45"	288'10.99"	57'10.1"	376'3.52"	55'0.16"	569'11.19"	52'1.84"	1351'1.19"	49'3.36"	Infinity	46'4.97"	Infinity	43'6.88"	Infinity	40'9.32"	Infinity	38'0.48"	Infinity
49'10.6"	117'9.25"	48'2.32"	128'6.6"	46'5.14"	143'3.36"	44'7.16"	164'5.4"	42'8.49"	197'2.19"	40'9.25"	253'11.89"	38'9.58"	375'7.19"	36'9.63"	813'3.09"	34'9.56"	Infinity	32'9.52"	Infinity
38'10.5"	70'2.49"	37'10.17"	73'10.52"	36'9.09"	78'5.79"	35'7.29"	84'4.73"	34'4.8"	92'2.37"	33'1.68"	102'10.63"	31'10"	118'3.58"	30'5.83"	142'3"	29'1.26"	184'2.02"	27'8.39"	275'5.1"
32'7"	51'10.52"	31'10.35"	53'10.08"	31'1.09"	56'2.78"	30'3.22"	59'2.22"	29'4.76"	62'10.76"	28'5.72"	67'7.97"	27'6.14"	73'11.58"	26'6.06"	82'7.34"	25'5.53"	95'1.32"	24'4.61"	114'7.28"
29'2.48"	43'8.67"	28'7.54"	45'1.24"	28'0.08"	46'9.15"	27'4.08"	48'9.33"	26'7.56"	51'3.12"	25'10.51"	54'4.43"	25'0.96"	58'4.16"	24'2.93"	63'6.89"	23'4.45"	70'8.32"	22'5.57"	80'10.53"
25'7.94"	36'1.76"	25'2.6"	37'0.96"	24'8.82"	38'2.25"	24'2.6"	39'6.16"	23'7.93"	41'1.42"	23'0.8"	43'1"	22'5.22"	45'6.35"	21'9.21"	48'7.58"	21'0.78"	52'8"	20'3.95"	58'1.02"
21'11.2"	29'1.08"	21'7.32"	29'8.24"	21'3.1"	30'4.65"	20'10.53"	31'2.57"	20'5.59"	32'2.39"	20'0.28"	33'4.59"	19'6.59"	34'9.84"	19'0.53"	36'7.1"	18'6.1"	38'9.74"	17'11.31"	41'7.83"
19'7.24"	25'1.01"	19'4.16"	25'6.28"	19'0.79"	26'0.43"	18'9.13"	26'7.64"	18'5.16"	27'4.15"	18'0.87"	28'2.27"	17'8.25"	29'2.41"	17'3.31"	30'5.14"	16'10.03"	31'11.25"	16'4.43"	33'9.89"
18'0.11"	22'6.02"	17'9.52"	22'10.23"	17'6.68"	23'3.13"	17'3.59"	23'8.84"	17'0.22"	24'3.54"	16'8.58"	24'11.45"	16'4.65"	25'8.87"	16'0.42"	26'8.2"	15'7.89"	27'9.97"	15'3.06"	29'2.93"
17'2.39"	21'2.83"	17'0.03"	21'6.57"	16'9.45"	21'10.9"	16'6.63"	22'3.94"	16'3.55"	22'9.85"	16'0.22"	23'4.8"	15'8.62"	24'1.04"	15'4.74"	24'10.9"	15'0.57"	25'10.82"	14'8.12"	27'1.42"
16'4.57"	19'11.84"	16'2.44"	20'3.14"	16'0.1"	20'6.95"	15'9.54"	20'11.38"	15'6.75"	21'4.55"	15'3.72"	21'10.62"	15'0.43"	22'5.79"	14'8.89"	23'2.33"	14'5.08"	24'0.6"	14'1"	25'1.1"
15'6.64"	18'9.05"	15'4.73"	18'11.94"	15'2.62"	19'3.27"	15'0.31"	19'7.13"	14'9.8"	19'11.63"	14'7.06"	20'4.9"	14'4.08"	20'11.1"	14'0.87"	21'6.45"	13'9.41"	22'3.25"	13'5.69"	23'1.89"
14'8.61"	17'6.44"	14'6.9"	17'8.96"	14'5.02"	17'11.85"	14'2.96"	18'3.2"	14'0.7"	18'7.09"	13'10.24"	18'11.62"	13'7.57"	19'4.94"	13'4.68"	19'11.23"	13'1.55"	20'6.72"	12'10.19"	21'3.71"
13'10.47"	16'4.03"	13'8.95"	16'6.19"	13'7.29"	16'8.69"	13'5.46"	16'11.56"	13'3.46"	17'2.89"	13'1.27"	17'6.77"	12'10.89"	17'11.3"	12'8.3"	18'4.64"	12'5.5"	18'10.96"	12'2.49"	19'6.51"
13'0.21"	15'1.79"	12'10.89"	15'3.65"	12'9.43"	15'5.77"	12'7.82"	15'8.22"	12'6.06"	15'11.05"	12'4.13"	16'2.33"	12'2.03"	16'6.15"	11'11.74"	16'10.64"	11'9.26"	17'3.92"	11'6.58"	17'10.21"
12'1.85"	13'11.74"	12'0.7"	14'1.31"	11'11.43"	14'3.1"	11'10.04"	14'5.16"	11'8.5"	14'7.54"	11'6.82"	14'10.28"	11'4.98"	15'1.48"	11'2.98"	15'5.2"	11'0.81"	15'9.58"	10'10.45"	16'2.75"
11'8.62"	13'4.78"	11'7.56"	13'6.21"	11'6.38"	13'7.85"	11'5.09"	13'9.73"	11'3.66"	13'11.9"	11'2.1"	14'2.4"	11'0.39"	14'5.31"	10'10.53"	14'8.69"	10'8.5"	15'0.65"	10'6.3"	15'5.33"
11'3.37"	12'9.86"	11'2.39"	12'11.17"	11'1.3"	13'0.66"	11'0.1"	13'2.38"	10'10.78"	13'4.35"	10'9.34"	13'6.62"	10'7.75"	13'9.25"	10'6.02"	14'0.31"	10'4.14"	14'3.89"	10'2.09"	14'8.1"
10'10.09"	12'2.99"	10'9.18"	12'4.18"	10'8.18"	12'5.53"	10'7.08"	12'7.09"	10'5.86"	12'8.87"	10'4.53"	12'10.92"	10'3.07"	13'1.3"	10'1.47"	13'4.06"	9'11.72"	13'7.28"	9'9.83"	13'11.05"
10'4.77"	11'8.16"	10'3.95"	11'9.24"	10'3.03"	11'10.46"	10'2.02"	11'11.86"	10'0.9"	12'1.47"	9'11.68"	12'3.32"	9'10.33"	12'5.46"	9'8.86"	12'7.93"	9'7.25"	12'10.82"	9'5.5"	13'2.19"
9'11.43"	11'1.38"	9'10.68"	11'2.34"	9'9.84"	11'3.44"	9'8.92"	11'4.7"	9'7.9"	11'6.15"	9'6.78"	11'7.81"	9'5.55"	11'9.72"	9'4.2"	11'11.93"	9'2.72"	12'2.5"	9'1.11"	12'5.5"
9'6.06"	10'6.63"	9'5.37"	10'7.5"	9'4.62"	10'8.48"	9'3.78"	10'9.61"	9'2.85"	10'10.9"	9'1.83"	11'0.38"	9'0.71"	11'2.08"	8'11.48"	11'4.05"	8'10.13"	11'6.33"	8'8.66"	11'8.99"
9'0.66"	9'11.93"	9'0.04"	10'0.7"	8'11.36"	10'1.58"	8'10.6"	10'2.58"	8'9.76"	10'3.72"	8'8.84"	10'5.04"	8'7.82"	10'6.54"	8'6.7"	10'8.28"	8'5.48"	10'10.3"	8'4.14"	11'0.64"
8'7.23"	9'5.27"	8'6.67"	9'5.95"	8'6.06"	9'6.73"	8'5.38"	9'7.61"	8'4.63"	9'8.62"	8'3.79"	9'9.78"	8'2.88"	9'11.11"	8'1.87"	10'0.64"	8'0.77"	10'2.4"	7'11.56"	10'4.45"
8'4.5"	9'1.95"	8'3.98"	9'2.59"	8'3.4"	9'3.32"	8'2.75"	9'4.15"	8'2.04"	9'5.1"	8'1.26"	9'6.18"	8'0.39"	9'7.42"	7'11.44"	9'8.85"	7'10.39"	9'10.5"	7'9.25"	10'0.41"
8'1.76"	8'10.65"	8'1.27"	8'11.25"	8'0.72"	8'11.93"	8'0.12"	9'0.7"	7'11.45"	9'1.59"	7'10.7"	9'2.6"	7'9.89"	9'3.76"	7'8.99"	9'5.1"	7'8"	9'6.64"	7'6.91"	9'8.42"
7'11.02"	8'7.35"	7'10.56"	8'7.91"	7'10.04"	8'8.55"	7'9.47"	8'9.27"	7'8.84"	8'10.1"	7'8.14"	8'11.05"	7'7.37"	9'0.13"	7'6.52"	9'1.37"	7'5.59"	9'2.8"	7'4.56"	9'4.46"
7'8.27"	8'4.07"	7'7.84"	8'4.59"	7'7.35"	8'5.18"	7'6.82"	8'5.86"	7'6.22"	8'6.63"	7'5.56"	8'7.51"	7'4.84"	8'8.52"	7'4.04"	8'9.67"	7'3.16"	8'11"	7'2.2"	9'0.54"
7'5.51"	8'0.79"	7'5.1"	8'1.28"	7'4.65"	8'1.83"	7'4.15"	8'2.46"	7'3.59"	8'3.18"	7'2.98"	8'3.99"	7'2.29"	8'4.93"	7'1.54"	8'6"	7'0.72"	8'7.23"	6'11.81"	8'8.65"
7'2.75"	7'9.53"	7'2.37"	7'9.98"	7'1.94"	7'10.49"	7'1.47"	7'11.08"	7'0.95"	7'11.74"	7'0.37"	8'0.5"	6'11.74"	8'1.36"	6'11.03"	8'2.35"	6'10.26"	8'3.49"	6'9.41"	8'4.8"
6'11.97"	7'6.27"	6'11.62"	7'6.69"	6'11.22"	7'7.17"	6'10.78"	7'7.71"	6'10.3"	7'8.32"	6'9.76"	7'9.02"	6'9.16"	7'9.82"	6'8.51"	7'10.73"	6'7.78"	7'11.78"	6'6.99"	8'0.99"
6'9.19"	7'3.03"	6'8.86"	7'3.41"	6'8.49"	7'3.85"	6'8.09"	7'4.35"	6'7.63"	7'4.92"	6'7.13"	7'5.56"	6'6.58"	7'6.3"	6'5.97"	7'7.14"	6'5.29"	7'8.1"	6'4.55"	7'9.21"
6'6.4"	6'11.79"	6'6.1"	7'0.15"	6'5.76"	7'0.55"	6'5.38"	7'1.01"	6'4.96"	7'1.53"	6'4.49"	7'2.12"	6'3.98"	7'2.8"	6'3.41"	7'3.57"	6'2.78"	7'4.46"	6'2.09"	7'5.47"
6'3.6"	6'8.57"	6'3.32"	6'8.89"	6'3.01"	6'9.26"	6'2.66"	6'9.68"	6'2.27"	6'10.16"	6'1.84"	6'10.7"	6'1.36"	6'11.32"	6'0.84"	7'0.03"	6'0.25"	7'0.84"	5'11.61"	7'1.76"
6'0.8"	6'5.35"	6'0.54"	6'5.65"	6'0.25"	6'5.99"	5'11.93"	6'6.37"	5'11.57"	6'6.81"	5'11.17"	6'7.3"	5'10.73"	6'7.87"	5'10.25"	6'8.51"	5'9.71"	6'9.25"	5'9.12"	6'10.09"
5'9.99"	6'2.15"	5'9.75"	6'2.42"	5'9.48"	6'2.73"	5'9.19"	6'3.07"	5'8.86"	6'3.47"	5'8.49"	6'3.92"	5'8.09"	6'4.43"	5'7.64"	6'5.02"	5'7.15"	6'5.69"	5'6.6"	6'6.45"
5'9.05"	6'1.08"	5'8.82"	6'1.34"	5'8.56"	6'1.64"	5'8.27"	6'1.98"	5'7.95"	6'2.36"	5'7.6"	6'2.8"	5'7.21"	6'3.29"	5'6.77"	6'3.86"	5'6.29"	6'4.51"	5'5.76"	6'5.24"
5'8.11"	6'0.01"	5'7.88"	6'0.27"	5'7.63"	6'0.56"	5'7.35"	6'0.88"	5'7.04"	6'1.26"	5'6.7"	6'1.68"	5'6.32"	6'2.16"	5'5.9"	6'2.7"	5'5.43"	6'3.33"	5'4.92"	6'4.04"
5'7.16"	5'10.95"	5'6.95"	5'11.2"	5'6.7"	5'11.48"	5'6.44"	5'11.79"	5'6.14"	6'0.15"	5'5.8"	6'0.56"	5'5.43"	6'1.02"	5'5.02"	6'1.55"	5'4.57"	6'2.15"	5'4.07"	6'2.84"
5'6.22"	5'9.89"	5'6.01"	5'10.12"	5'5.78"	5'10.4"	5'5.52"	5'10.7"	5'5.22"	5'11.05"	5'4.9"	5'11.44"	5'4.54"	5'11.89"	5'4.15"	6'0.4"	5'3.71"	6'0.98"	5'3.22"	6'1.65"
5'5.28"	5'8.82"	5'5.08"	5'9.05"	5'4.85"	5'9.32"	5'4.59"	5'9.61"	5'4.31"	5'9.95"	5'4"	5'10.33"	5'3.65"	5'10.76"	5'3.27"	5'11.25"	5'2.84"	5'11.81"	5'2.37"	6'0.46"
5'4.34"	5'7.76"	5'4.14"	5'7.99"	5'3.92"	5'8.24"	5'3.67"	5'8.52"	5'3.4"	5'8.85"	5'3.1"	5'9.21"	5'2.76"	5'9.63"	5'2.39"	5'10.11"	5'1.97"	5'10.65"	5'1.52"	5'11.27"
5'3.39"	5'6.7"	5'3.2"	5'6.92"	5'2.99"	5'7.16"	5'2.75"	5'7.44"	5'2.48"	5'7.75"	5'2.19"	5'8.1"	5'1.87"	5'8.51"	5'1.5"	5'8.97"	5'1.1"	5'9.49"	5'0.66"	5'10.08"
5'2.44"	5'5.64"	5'2.26"	5'5.85"	5'2.05"	5'6.09"	5'1.82"	5'6.35"	5'1.57"	5'6.65"	5'1.28"	5'7"	5'0.97"	5'7.38"	5'0.62"	5'7.83"	5'0.23"	5'8.33"	4'11.81"	5'8.9"
5'1.5"	5'4.59"	5'1.32"	5'4.79"	5'1.12"	5'5.01"	5'0.9"	5'5.27"	5'0.65"	5'5.56"	5'0.38"	5'5.89"	5'0.07"	5'6.26"	4'11.73"	5'6.69"	4'11.36"	5'7.17"	4'10.95"	5'7.73"
5'0.55"	5'3.53"	5'0.38"	5'3.72"	5'0.19"	5'3.94"	4'11.97"	5'4.19"	4'11.73"	5'4.47"	4'11.47"	5'4.78"	4'11.17"	5'5.14"	4'10.85"	5'5.55"	4'10.48"	5'6.02"	4'10.08"	5'6.55"
4'11.6"	5'2.47"	4'11.43"	5'2.66"	4'11.25"	5'2.87"	4'11.04"	5'3.11"	4'10.81"	5'3.38"	4'10.56"	5'3.68"	4'10.27"	5'4.03"	4'9.96"	5'4.42"	4'9.61"	5'4.87"	4'9.22"	5'5.38"
4'10.65"	5'1.42"	4'10.49"	5'1.6"	4'10.31"	5'1.8"	4'10.11"	5'2.03"	4'9.89"	5'2.29"	4'9.64"	5'2.58"	4'9.37"	5'2.91"	4'9.06"	5'3.29"	4'8.73"	5'3.72"	4'8.35"	5'4.22"
4'9.7"	5'0.37"	4'9.55"	5'0.54"	4'9.37"	5'0.73"	4'9.18"	5'0.95"	4'8.97"	5'1.2"	4'8.73"	5'1.48"	4'8.47"	5'1.8"	4'8.17"	5'2.17"	4'7.85"	5'2.58"	4'7.48"	5'3.05"

4'8.75"	4'11.31"	4'8.6"	4'11.48"	4'8.44"	4'11.67"	4'8.25"	4'11.88"	4'8.04"	5'0.12"	4'7.81"	5'0.39"	4'7.56"	5'0.69"	4'7.28"	5'1.04"	4'6.96"	5'1.44"	4'6.61"	5'1.89"
4'7.8"	4'10.26"	4'7.65"	4'10.42"	4'7.49"	4'10.6"	4'7.32"	4'10.8"	4'7.12"	4'11.03"	4'6.9"	4'11.29"	4'6.65"	4'11.59"	4'6.38"	4'11.92"	4'6.08"	5'0.3"	4'5.74"	5'0.74"
4'6.84"	4'9.21"	4'6.71"	4'9.36"	4'6.55"	4'9.54"	4'6.38"	4'9.73"	4'6.19"	4'9.95"	4'5.98"	4'10.2"	4'5.74"	4'10.48"	4'5.48"	4'10.8"	4'5.19"	4'11.17"	4'4.87"	4'11.58"
4'5.89"	4'8.16"	4'5.76"	4'8.31"	4'5.61"	4'8.47"	4'5.45"	4'8.66"	4'5.26"	4'8.87"	4'5.06"	4'9.11"	4'4.83"	4'9.38"	4'4.58"	4'9.69"	4'4.3"	4'10.04"	4'3.99"	4'10.43"
4'4.94"	4'7.11"	4'4.81"	4'7.25"	4'4.67"	4'7.41"	4'4.51"	4'7.59"	4'4.33"	4'7.79"	4'4.14"	4'8.02"	4'3.92"	4'8.28"	4'3.68"	4'8.57"	4'3.41"	4'8.91"	4'3.11"	4'9.29"
4'3.98"	4'6.07"	4'3.86"	4'6.2"	4'3.72"	4'6.35"	4'3.57"	4'6.52"	4'3.4"	4'6.72"	4'3.21"	4'6.93"	4'3"	4'7.18"	4'2.77"	4'7.46"	4'2.51"	4'7.78"	4'2.23"	4'8.15"
4'3.02"	4'5.02"	4'2.91"	4'5.15"	4'2.78"	4'5.29"	4'2.63"	4'5.46"	4'2.47"	4'5.64"	4'2.29"	4'5.85"	4'2.09"	4'6.09"	4'1.86"	4'6.35"	4'1.62"	4'6.66"	4'1.34"	4'7.01"
4'2.07"	4'3.97"	4'1.95"	4'4.1"	4'1.83"	4'4.23"	4'1.69"	4'4.39"	4'1.53"	4'4.57"	4'1.36"	4'4.77"	4'1.17"	4'4.99"	4'0.96"	4'5.25"	4'0.72"	4'5.54"	4'0.45"	4'5.87"
4'1.11"	4'2.93"	4'1"	4'3.05"	4'0.88"	4'3.18"	4'0.75"	4'3.33"	4'0.6"	4'3.5"	4'0.43"	4'3.69"	4'0.25"	4'3.9"	4'0.05"	4'4.15"	3'11.82"	4'4.42"	3'11.57"	4'4.74"
4'0.15"	4'1.89"	4'0.05"	4'2"	3'11.93"	4'2.12"	3'11.8"	4'2.27"	3'11.66"	4'2.43"	3'11.5"	4'2.61"	3'11.33"	4'2.81"	3'11.13"	4'3.04"	3'10.92"	4'3.31"	3'10.67"	4'3.61"
3'11.19"	4'0.85"	3'11.09"	4'0.95"	3'10.98"	4'1.07"	3'10.86"	4'1.21"	3'10.72"	4'1.36"	3'10.57"	4'1.53"	3'10.41"	4'1.73"	3'10.22"	4'1.95"	3'10.01"	4'2.2"	3'9.78"	4'2.48"
3'10.23"	3'11.8"	3'10.13"	3'11.91"	3'10.03"	4'0.02"	3'9.91"	4'0.15"	3'9.78"	4'0.29"	3'9.64"	4'0.46"	3'9.48"	4'0.64"	3'9.3"	4'0.85"	3'9.1"	4'1.09"	3'8.88"	4'1.36"
3'9.26"	3'10.76"	3'9.18"	3'10.86"	3'9.08"	3'10.97"	3'8.97"	3'11.09"	3'8.84"	3'11.23"	3'8.71"	3'11.38"	3'8.55"	3'11.56"	3'8.38"	3'11.76"	3'8.2"	3'11.98"	3'7.99"	4'0.24"
3'8.3"	3'9.73"	3'8.22"	3'9.82"	3'8.12"	3'9.92"	3'8.02"	3'10.03"	3'7.9"	3'10.16"	3'7.77"	3'10.31"	3'7.63"	3'10.48"	3'7.46"	3'10.67"	3'7.28"	3'10.88"	3'7.08"	3'11.12"
3'7.34"	3'8.69"	3'7.26"	3'8.77"	3'7.17"	3'8.87"	3'7.07"	3'8.98"	3'6.96"	3'9.1"	3'6.83"	3'9.24"	3'6.7"	3'9.4"	3'6.54"	3'9.58"	3'6.37"	3'9.78"	3'6.18"	3'10.01"
3'6.37"	3'7.65"	3'6.3"	3'7.73"	3'6.21"	3'7.82"	3'6.12"	3'7.93"	3'6.01"	3'8.04"	3'5.89"	3'8.18"	3'5.76"	3'8.32"	3'5.62"	3'8.49"	3'5.46"	3'8.68"	3'5.28"	3'8.9"
3'5.41"	3'6.61"	3'5.33"	3'6.69"	3'5.25"	3'6.78"	3'5.16"	3'6.88"	3'5.07"	3'6.99"	3'4.95"	3'7.11"	3'4.83"	3'7.25"	3'4.69"	3'7.41"	3'4.54"	3'7.59"	3'4.37"	3'7.8"
3'4.44"	3'5.58"	3'4.37"	3'5.65"	3'4.3"	3'5.73"	3'4.21"	3'5.83"	3'4.12"	3'5.93"	3'4.01"	3'6.05"	3'3.89"	3'6.18"	3'3.76"	3'6.33"	3'3.62"	3'6.5"	3'3.46"	3'6.69"

Focal Length 105mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	162.026	144.37	128.64	114.626	102.142	91.019	81.11	72.281	64.416

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	161.958	Infinity	144.307	Infinity	128.581	Infinity	114.571	Infinity	102.089	Infinity	90.968	Infinity	81.061	Infinity	72.234	Infinity	64.37	Infinity
60.000	43.85	95.083	42.452	102.425	40.986	112.148	39.457	125.526	37.871	144.938	36.237	175.396	34.564	229.564	32.862	351.45	31.141	870.471
30.000	25.357	36.739	24.886	37.779	24.378	39.02	23.832	40.514	23.247	42.333	22.624	44.581	21.964	47.408	21.268	51.043	20.538	55.852
20.000	17.835	22.768	17.602	23.161	17.348	23.619	17.071	24.155	16.771	24.786	16.446	25.536	16.097	26.434	15.722	27.52	15.321	28.852
15.000	13.755	16.496	13.617	16.7	13.465	16.935	13.299	17.207	13.117	17.523	12.918	17.892	12.703	18.326	12.47	18.839	12.218	19.45
12.000	11.194	12.933	11.103	13.057	11.002	13.2	10.892	13.363	10.77	13.552	10.637	13.771	10.491	14.024	10.332	14.321	10.16	14.669
10.000	9.437	10.635	9.373	10.719	9.301	10.814	9.223	10.923	9.136	11.048	9.04	11.192	8.935	11.358	8.82	11.551	8.695	11.775
9.000	8.543	9.509	8.491	9.576	8.432	9.651	8.368	9.738	8.296	9.837	8.218	9.95	8.131	10.081	8.037	10.232	7.933	10.406
8.000	7.639	8.398	7.597	8.449	7.55	8.508	7.499	8.575	7.442	8.651	7.379	8.738	7.309	8.838	7.233	8.953	7.149	9.086
7.000	6.724	7.301	6.691	7.339	6.655	7.383	6.615	7.433	6.571	7.49	6.522	7.555	6.468	7.629	6.409	7.714	6.344	7.812
6.500	6.262	6.758	6.234	6.79	6.203	6.828	6.168	6.87	6.13	6.919	6.088	6.974	6.041	7.037	5.989	7.109	5.932	7.191
6.000	5.797	6.218	5.774	6.245	5.747	6.277	5.717	6.313	5.685	6.353	5.648	6.4	5.608	6.452	5.564	6.513	5.515	6.582
5.500	5.33	5.681	5.31	5.704	5.288	5.731	5.263	5.76	5.235	5.794	5.205	5.832	5.171	5.875	5.133	5.925	5.092	5.982
5.000	4.86	5.148	4.844	5.167	4.825	5.189	4.804	5.213	4.782	5.24	4.756	5.271	4.728	5.306	4.697	5.346	4.662	5.392
4.750	4.624	4.883	4.609	4.9	4.592	4.919	4.574	4.941	4.553	4.965	4.53	4.993	4.505	5.025	4.477	5.06	4.445	5.101
4.500	4.387	4.619	4.374	4.634	4.359	4.651	4.342	4.67	4.324	4.692	4.303	4.717	4.28	4.745	4.255	4.776	4.227	4.813
4.250	4.15	4.355	4.138	4.369	4.124	4.384	4.11	4.401	4.093	4.42	4.075	4.442	4.054	4.466	4.032	4.494	4.006	4.526
4.000	3.912	4.093	3.901	4.104	3.889	4.118	3.876	4.132	3.861	4.149	3.845	4.168	3.827	4.19	3.807	4.215	3.785	4.243
3.800	3.72	3.883	3.711	3.894	3.7	3.905	3.688	3.919	3.675	3.934	3.661	3.951	3.644	3.97	3.626	3.992	3.606	4.017
3.600	3.529	3.674	3.52	3.683	3.511	3.694	3.5	3.706	3.488	3.719	3.475	3.734	3.461	3.752	3.444	3.771	3.426	3.793
3.500	3.433	3.57	3.425	3.579	3.416	3.589	3.406	3.6	3.395	3.612	3.382	3.627	3.368	3.643	3.353	3.661	3.336	3.682
3.400	3.337	3.466	3.329	3.474	3.321	3.483	3.311	3.494	3.301	3.506	3.289	3.519	3.276	3.534	3.262	3.551	3.245	3.571
3.300	3.241	3.362	3.234	3.369	3.226	3.378	3.217	3.388	3.207	3.399	3.196	3.412	3.184	3.426	3.17	3.442	3.155	3.46
3.200	3.144	3.258	3.138	3.265	3.13	3.273	3.122	3.282	3.113	3.293	3.102	3.304	3.091	3.318	3.078	3.333	3.064	3.35
3.100	3.048	3.154	3.042	3.161	3.035	3.168	3.027	3.177	3.018	3.187	3.009	3.198	2.998	3.21	2.986	3.224	2.972	3.24
3.000	2.951	3.05	2.946	3.057	2.939	3.064	2.932	3.072	2.924	3.081	2.915	3.091	2.904	3.102	2.893	3.115	2.881	3.13
2.900	2.855	2.947	2.849	2.953	2.843	2.959	2.836	2.967	2.829	2.975	2.82	2.984	2.811	2.995	2.8	3.007	2.789	3.021
2.800	2.758	2.843	2.753	2.849	2.747	2.855	2.741	2.862	2.734	2.87	2.726	2.878	2.717	2.888	2.708	2.899	2.697	2.912
2.700	2.661	2.74	2.656	2.745	2.651	2.751	2.645	2.757	2.639	2.764	2.632	2.772	2.623	2.782	2.614	2.792	2.604	2.804
2.600	2.564	2.637	2.56	2.642	2.555	2.647	2.55	2.653	2.543	2.659	2.537	2.667	2.529	2.675	2.521	2.685	2.512	2.695
2.550	2.516	2.585	2.511	2.59	2.507	2.595	2.502	2.6	2.496	2.607	2.489	2.614	2.482	2.622	2.474	2.631	2.465	2.641
2.500	2.467	2.534	2.463	2.538	2.459	2.543	2.454	2.548	2.448	2.554	2.442	2.561	2.435	2.569	2.427	2.578	2.419	2.588
2.450	2.418	2.483	2.415	2.487	2.41	2.491	2.406	2.496	2.4	2.502	2.394	2.509	2.388	2.516	2.38	2.524	2.372	2.534
2.400	2.37	2.431	2.366	2.435	2.362	2.439	2.357	2.444	2.352	2.45	2.347	2.456	2.34	2.463	2.333	2.471	2.325	2.48
2.350	2.321	2.38	2.318	2.383	2.314	2.388	2.309	2.392	2.304	2.398	2.299	2.404	2.293	2.41	2.286	2.418	2.279	2.426
2.300	2.272	2.328	2.269	2.332	2.265	2.336	2.261	2.34	2.256	2.345	2.251	2.351	2.245	2.357	2.239	2.365	2.232	2.373
2.250	2.224	2.277	2.22	2.28	2.217	2.284	2.213	2.288	2.208	2.293	2.203	2.299	2.198	2.305	2.192	2.312	2.185	2.319
2.200	2.175	2.226	2.172	2.229	2.168	2.233	2.165	2.237	2.16	2.241	2.156	2.246	2.15	2.252	2.144	2.259	2.138	2.266
2.150	2.126	2.174	2.123	2.178	2.12	2.181	2.116	2.185	2.112	2.189	2.108	2.194	2.103	2.2	2.097	2.206	2.091	2.213
2.100	2.077	2.123	2.075	2.126	2.071	2.129	2.068	2.133	2.064	2.137	2.06	2.142	2.055	2.147	2.05	2.153	2.044	2.16
2.050	2.028	2.072	2.026	2.075	2.023	2.078	2.02	2.081	2.016	2.085	2.012	2.09	2.007	2.095	2.002	2.1	1.997	2.107
2.000	1.98	2.021	1.977	2.023	1.974	2.026	1.971	2.03	1.968	2.033	1.964	2.038	1.96	2.042	1.955	2.048	1.949	2.054
1.975	1.955	1.995	1.953	1.998	1.95	2.001	1.947	2.004	1.944	2.007	1.94	2.012	1.936	2.016	1.931	2.021	1.926	2.027
1.950	1.931	1.97	1.928	1.972	1.926	1.975	1.923	1.978	1.92	1.982	1.916	1.986	1.912	1.99	1.907	1.995	1.902	2.001
1.925	1.906	1.944	1.904	1.947	1.901	1.949	1.899	1.952	1.895	1.956	1.892	1.96	1.888	1.964	1.883	1.969	1.878	1.974
1.900	1.882	1.919	1.88	1.921	1.877	1.924	1.874	1.926	1.871	1.93	1.868	1.934	1.864	1.938	1.86	1.942	1.855	1.948
1.875	1.857	1.893	1.855	1.895	1.853	1.898	1.85	1.901	1.847	1.904	1.844	1.908	1.84	1.912	1.836	1.916	1.831	1.921
1.850	1.833	1.868	1.831	1.87	1.828	1.872	1.826	1.875	1.823	1.878	1.82	1.882	1.816	1.886	1.812	1.89	1.807	1.895
1.825	1.808	1.842	1.806	1.844	1.804	1.847	1.801	1.849	1.799	1.852	1.795	1.856	1.792	1.859	1.788	1.864	1.783	1.869
1.800	1.784	1.817	1.782	1.819	1.78	1.821	1.777	1.823	1.774	1.826	1.771	1.83	1.768	1.833	1.764	1.838	1.76	1.842
1.775	1.759	1.791	1.757	1.793	1.755	1.795	1.753	1.798	1.75	1.801	1.747	1.804	1.744	1.807	1.74	1.811	1.736	1.816

1.750	1.735	1.766	1.733	1.767	1.731	1.77	1.729	1.772	1.726	1.775	1.723	1.778	1.72	1.781	1.716	1.785	1.712	1.79
1.725	1.71	1.74	1.708	1.742	1.706	1.744	1.704	1.746	1.702	1.749	1.699	1.752	1.696	1.755	1.692	1.759	1.688	1.763
1.700	1.686	1.715	1.684	1.716	1.682	1.718	1.68	1.721	1.677	1.723	1.675	1.726	1.672	1.729	1.668	1.733	1.664	1.737
1.675	1.661	1.689	1.659	1.691	1.658	1.693	1.656	1.695	1.653	1.697	1.651	1.7	1.648	1.703	1.644	1.707	1.641	1.711
1.650	1.637	1.664	1.635	1.665	1.633	1.667	1.631	1.669	1.629	1.672	1.626	1.674	1.623	1.678	1.62	1.681	1.617	1.685
1.625	1.612	1.638	1.61	1.64	1.609	1.642	1.607	1.644	1.605	1.646	1.602	1.649	1.599	1.652	1.596	1.655	1.593	1.659
1.600	1.588	1.613	1.586	1.614	1.584	1.616	1.582	1.618	1.58	1.62	1.578	1.623	1.575	1.626	1.572	1.629	1.569	1.632
1.575	1.563	1.587	1.561	1.589	1.56	1.59	1.558	1.592	1.556	1.595	1.554	1.597	1.551	1.6	1.548	1.603	1.545	1.606
1.550	1.538	1.562	1.537	1.563	1.535	1.565	1.534	1.567	1.532	1.569	1.529	1.571	1.527	1.574	1.524	1.577	1.521	1.58
1.525	1.514	1.536	1.512	1.538	1.511	1.539	1.509	1.541	1.507	1.543	1.505	1.545	1.503	1.548	1.5	1.551	1.497	1.554
1.500	1.489	1.511	1.488	1.512	1.486	1.514	1.485	1.516	1.483	1.518	1.481	1.52	1.479	1.522	1.476	1.525	1.473	1.528
1.475	1.465	1.486	1.463	1.487	1.462	1.488	1.46	1.49	1.459	1.492	1.457	1.494	1.454	1.496	1.452	1.499	1.449	1.502
1.450	1.44	1.46	1.439	1.461	1.437	1.463	1.436	1.464	1.434	1.466	1.432	1.468	1.43	1.471	1.428	1.473	1.425	1.476
1.425	1.415	1.435	1.414	1.436	1.413	1.437	1.411	1.439	1.41	1.441	1.408	1.443	1.406	1.445	1.404	1.447	1.401	1.45
1.400	1.391	1.409	1.39	1.411	1.388	1.412	1.387	1.413	1.385	1.415	1.384	1.417	1.382	1.419	1.379	1.421	1.377	1.424
1.375	1.366	1.384	1.365	1.385	1.364	1.386	1.362	1.388	1.361	1.389	1.359	1.391	1.357	1.393	1.355	1.395	1.353	1.398
1.350	1.341	1.359	1.34	1.36	1.339	1.361	1.338	1.362	1.337	1.364	1.335	1.365	1.333	1.367	1.331	1.37	1.329	1.372
1.325	1.317	1.333	1.316	1.334	1.315	1.335	1.313	1.337	1.312	1.338	1.311	1.34	1.309	1.342	1.307	1.344	1.305	1.346
1.300	1.292	1.308	1.291	1.309	1.29	1.31	1.289	1.311	1.288	1.313	1.286	1.314	1.284	1.316	1.283	1.318	1.281	1.32
1.275	1.268	1.283	1.267	1.284	1.266	1.285	1.264	1.286	1.263	1.287	1.262	1.289	1.26	1.29	1.258	1.292	1.256	1.294
1.250	1.243	1.257	1.242	1.258	1.241	1.259	1.24	1.26	1.239	1.262	1.237	1.263	1.236	1.265	1.234	1.266	1.232	1.268
1.225	1.218	1.232	1.217	1.233	1.216	1.234	1.215	1.235	1.214	1.236	1.213	1.237	1.211	1.239	1.21	1.241	1.208	1.243
1.200	1.194	1.207	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21	1.188	1.212	1.187	1.213	1.186	1.215	1.184	1.217
1.175	1.169	1.181	1.168	1.182	1.167	1.183	1.166	1.184	1.165	1.185	1.164	1.186	1.163	1.188	1.161	1.189	1.16	1.191
1.150	1.144	1.156	1.143	1.157	1.143	1.158	1.142	1.158	1.141	1.159	1.14	1.161	1.138	1.162	1.137	1.163	1.135	1.165
1.125	1.119	1.131	1.119	1.131	1.118	1.132	1.117	1.133	1.116	1.134	1.115	1.135	1.114	1.136	1.113	1.138	1.111	1.139
1.100	1.095	1.105	1.094	1.106	1.093	1.107	1.093	1.108	1.092	1.109	1.091	1.11	1.089	1.111	1.088	1.112	1.087	1.114
1.075	1.07	1.08	1.069	1.081	1.069	1.081	1.068	1.082	1.067	1.083	1.066	1.084	1.065	1.085	1.064	1.086	1.062	1.088
1.050	1.045	1.055	1.045	1.055	1.044	1.056	1.043	1.057	1.042	1.058	1.042	1.059	1.041	1.06	1.039	1.061	1.038	1.062

8	9	10	11	13	14	16	18	20	22
57.41	51.167	45.606	40.651	36.237	32.305	28.801	25.68	22.899	20.422

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
57.364	Infinity	51.122	Infinity	45.561	Infinity	40.607	Infinity	36.193	Infinity	32.261	Infinity	28.758	Infinity	25.637	Infinity	22.856	Infinity	20.379	Infinity
29.413	Infinity	27.689	Infinity	25.981	Infinity	24.3	Infinity	22.656	Infinity	21.059	Infinity	19.516	Infinity	18.034	Infinity	16.62	Infinity	15.277	Infinity
19.776	62.461	18.986	72.034	18.172	87.013	17.338	113.534	16.489	172.651	15.631	416.063	14.769	Infinity	13.909	Infinity	13.057	Infinity	12.218	Infinity
14.896	30.51	14.445	32.615	13.972	35.355	13.476	39.038	12.961	44.214	12.427	51.953	11.879	64.672	11.32	89.219	10.752	155.607	10.18	951.724
11.947	20.185	11.657	21.08	11.349	22.184	11.021	23.572	10.676	25.354	10.314	27.706	9.935	30.932	9.543	35.588	9.139	42.836	8.724	55.554
9.973	15.081	9.771	15.572	9.555	16.163	9.323	16.883	9.076	17.773	8.814	18.891	8.538	20.327	8.248	22.227	7.946	24.837	7.633	28.613
8.559	12.037	8.411	12.346	8.251	12.713	8.078	13.151	7.893	13.682	7.696	14.331	7.485	15.138	7.263	16.161	7.029	17.489	6.784	19.269
7.82	10.61	7.696	10.848	7.563	11.129	7.418	11.462	7.262	11.862	7.095	12.344	6.917	12.936	6.727	13.673	6.527	14.607	6.316	15.824
7.058	9.24	6.957	9.42	6.848	9.63	6.73	9.877	6.602	10.17	6.465	10.521	6.317	10.946	6.159	11.466	5.992	12.113	5.814	12.933
6.272	7.925	6.193	8.056	6.107	8.208	6.014	8.386	5.912	8.595	5.802	8.843	5.683	9.139	5.556	9.496	5.42	9.933	5.275	10.474
5.87	7.287	5.801	7.397	5.726	7.524	5.644	7.673	5.554	7.847	5.458	8.052	5.353	8.296	5.24	8.588	5.12	8.942	4.991	9.377
5.461	6.661	5.402	6.752	5.337	6.858	5.266	6.98	5.188	7.123	5.104	7.291	5.013	7.49	4.915	7.726	4.809	8.01	4.695	8.355
5.046	6.047	4.996	6.122	4.94	6.208	4.88	6.308	4.813	6.424	4.741	6.559	4.663	6.718	4.578	6.907	4.487	7.132	4.388	7.403
4.624	5.445	4.582	5.505	4.536	5.574	4.485	5.654	4.429	5.746	4.369	5.854	4.302	5.979	4.23	6.127	4.153	6.302	4.069	6.512
4.411	5.148	4.373	5.202	4.331	5.263	4.284	5.334	4.234	5.416	4.178	5.511	4.118	5.622	4.052	5.751	3.981	5.905	3.904	6.087
4.195	4.854	4.161	4.901	4.123	4.956	4.081	5.018	4.036	5.09	3.986	5.174	3.931	5.271	3.871	5.385	3.806	5.518	3.736	5.677
3.979	4.563	3.948	4.605	3.914	4.652	3.876	4.707	3.835	4.77	3.79	4.843	3.741	4.927	3.687	5.026	3.629	5.142	3.565	5.278
3.76	4.274	3.732	4.311	3.702	4.352	3.669	4.4	3.632	4.455	3.592	4.518	3.548	4.591	3.5	4.676	3.447	4.775	3.39	4.892
3.584	4.046	3.559	4.078	3.531	4.115	3.501	4.157	3.468	4.206	3.431	4.262	3.391	4.327	3.348	4.402	3.3	4.489	3.248	4.592
3.406	3.818	3.384	3.847	3.359	3.88	3.332	3.917	3.302	3.96	3.269	4.009	3.233	4.066	3.193	4.132	3.15	4.209	3.103	4.299
3.317	3.705	3.296	3.732	3.273	3.763	3.247	3.798	3.218	3.838	3.187	3.885	3.153	3.938	3.115	3.999	3.074	4.071	3.029	4.155
3.228	3.593	3.208	3.618	3.186	3.647	3.161	3.68	3.134	3.717	3.105	3.761	3.072	3.81	3.037	3.868	2.998	3.934	2.955	4.012
3.138	3.481	3.119	3.504	3.098	3.531	3.075	3.562	3.05	3.597	3.022	3.637	2.991	3.684	2.958	3.737	2.921	3.799	2.881	3.872
3.048	3.369	3.03	3.391	3.011	3.416	2.989	3.445	2.965	3.478	2.939	3.515	2.91	3.558	2.878	3.608	2.843	3.666	2.805	3.733
2.957	3.258	2.941	3.278	2.923	3.302	2.902	3.328	2.88	3.359	2.855	3.394	2.828	3.434	2.798	3.48	2.765	3.533	2.729	3.595
2.867	3.147	2.851	3.166	2.834	3.188	2.815	3.212	2.794	3.241	2.771	3.273	2.745	3.31	2.717	3.353	2.686	3.402	2.653	3.459
2.776	3.037	2.761	3.054	2.745	3.074	2.728	3.097	2.708	3.123	2.686	3.153	2.662	3.187	2.636	3.227	2.607	3.272	2.575	3.325
2.685	2.926	2.671	2.943	2.656	2.961	2.64	2.983	2.621	3.007	2.601	3.034	2.579	3.066	2.554	3.102	2.527	3.144	2.498	3.192
2.593	2.817	2.58	2.832	2.567	2.849	2.551	2.868	2.534	2.891	2.515	2.916	2.495	2.945	2.472	2.978	2.446	3.016	2.419	3.061
2.501	2.708	2.49	2.721	2.477	2.737	2.462	2.755	2.447	2.775	2.429	2.799	2.41	2.825	2.389	2.855	2.365	2.89	2.34	2.931
2.455	2.653	2.444	2.666	2.432	2.681	2.418	2.698	2.403	2.718	2.386	2.74	2.367	2.765	2.347	2.795	2.324	2.828	2.3	2.866
2.409	2.599	2.398	2.611	2.386	2.626	2.373	2.642	2.359	2.661	2.343	2.682	2.325	2.706	2.305	2.734	2.283	2.766	2.259	2.802
2.363	2.544	2.352	2.557	2.341	2.57	2.328	2.586	2.314	2.604	2.299	2.624	2.282	2.647	2.263	2.673	2.242	2.704	2.219	2.739
2.316	2.49	2.307	2.502	2.296	2.515	2.284	2.53	2.27	2.547	2.255	2.566	2.239	2.588	2.221	2.613	2.201	2.642	2.179	2.676
2.27	2.436	2.261	2.447	2.25	2.46	2.239	2.474	2.226	2.49	2.212	2.508	2.196	2.529	2.178	2.553	2.159	2.581	2.138	2.613
2.224	2.382	2.215	2.393	2.205	2.405	2.194	2.418	2.181	2.433	2.168	2.451	2.153	2.471	2.136	2.494	2.117	2.52	2.097	2.55
2.177	2.328	2.169	2.338	2.159	2.35	2.148	2.362	2.137	2.377	2.124	2.394	2.109	2.413	2.093	2.434	2.076	2.459	2.056	2.488
2.131	2.275	2.122	2.284	2.113	2.295	2.103	2.307	2.092	2.321	2.079	2.337	2.066	2.355	2.05	2.375	2.034	2.399	2.015	2.426
2.084	2.221	2.076	2.23	2.067	2.24	2.058	2.252	2.047	2.265	2.035	2.28	2.022	2.297	2.007	2.316	1.991	2.339	1.974	2.364
2.037	2.167	2.03	2.176	2.021	2.185	2.012	2.196	2.002	2.209	1.991	2.223	1.978	2.239	1.964	2.258	1.949	2.279	1.932	2.303
1.99	2.114	1.983	2.122	1.975	2.131	1.967	2.141	1.957	2.153	1.946	2.167	1.934	2.182	1.921	2.199	1.906	2.219	1.89	2.242
1.943	2.06	1.937	2.068	1.929	2.077	1.921	2.086	1.912	2.098	1.901	2.11	1.89	2.125	1.878	2.141	1.864	2.16	1.848	2.181
1.92	2.034	1.913	2.041	1.906	2.05	1.898	2.059	1.889	2.07	1.879	2.082	1.868	2.096	1.856	2.112	1.842	2.13	1.827	2.151
1.896	2.007	1.89	2.014	1.883	2.022	1.875	2.032	1.866	2.042	1.857	2.054	1.846	2.068	1.834	2.083	1.821	2.101	1.806	2.121
1.873	1.98	1.867	1.987	1.86	1.995	1.852	2.004	1.844	2.015	1.834	2.026	1.824	2.039	1.812	2.054	1.799	2.072	1.785	2.091
1.849	1.954	1.843	1.961	1.837	1.968	1.829	1.977	1.821	1.987	1.812	1.998	1.801	2.011	1.79	2.026	1.778	2.042	1.764	2.061
1.826	1.927	1.82	1.934	1.813	1.941	1.806	1.95	1.798	1.959	1.789	1.97	1.779	1.983	1.768	1.997	1.756	2.013	1.743	2.031
1.802	1.901	1.796	1.907	1.79	1.914	1.783	1.923	1.775	1.932	1.767	1.942	1.757	1.955	1.746	1.968	1.734	1.984	1.721	2.002
1.779	1.874	1.773	1.88	1.767	1.887	1.76	1.895	1.752	1.904	1.744	1.915	1.735	1.926	1.724	1.94	1.713	1.955	1.7	1.972
1.755	1.848	1.75	1.854	1.744	1.861	1.737	1.868	1.73	1.877	1.721	1.887	1.712	1.898	1.702	1.911	1.691	1.926	1.679	1.942
1.731	1.821	1.726	1.827	1.72	1.834	1.714	1.841	1.707	1.85	1.699	1.859	1.69	1.87	1.68	1.883	1.669	1.897	1.657	1.913

1.708	1.795	1.703	1.8	1.697	1.807	1.691	1.814	1.684	1.822	1.676	1.832	1.667	1.842	1.658	1.854	1.647	1.868	1.636	1.883
1.684	1.768	1.679	1.774	1.674	1.78	1.668	1.787	1.661	1.795	1.653	1.804	1.645	1.814	1.636	1.826	1.625	1.839	1.614	1.854
1.66	1.742	1.655	1.747	1.65	1.753	1.644	1.76	1.638	1.768	1.631	1.776	1.622	1.786	1.613	1.797	1.604	1.81	1.593	1.825
1.637	1.716	1.632	1.721	1.627	1.726	1.621	1.733	1.615	1.74	1.608	1.749	1.6	1.758	1.591	1.769	1.582	1.781	1.571	1.796
1.613	1.689	1.608	1.694	1.603	1.7	1.598	1.706	1.592	1.713	1.585	1.721	1.577	1.73	1.569	1.741	1.56	1.753	1.549	1.766
1.589	1.663	1.585	1.668	1.58	1.673	1.575	1.679	1.569	1.686	1.562	1.694	1.555	1.703	1.547	1.713	1.538	1.724	1.528	1.737
1.565	1.637	1.561	1.641	1.556	1.646	1.551	1.652	1.546	1.659	1.539	1.666	1.532	1.675	1.524	1.685	1.515	1.696	1.506	1.708
1.541	1.61	1.537	1.615	1.533	1.62	1.528	1.625	1.522	1.632	1.516	1.639	1.509	1.647	1.502	1.657	1.493	1.667	1.484	1.679
1.518	1.584	1.514	1.588	1.509	1.593	1.505	1.599	1.499	1.605	1.493	1.612	1.487	1.62	1.479	1.629	1.471	1.639	1.462	1.651
1.494	1.558	1.49	1.562	1.486	1.567	1.481	1.572	1.476	1.578	1.47	1.584	1.464	1.592	1.457	1.601	1.449	1.611	1.44	1.622
1.47	1.532	1.466	1.536	1.462	1.54	1.458	1.545	1.453	1.551	1.447	1.557	1.441	1.565	1.434	1.573	1.427	1.582	1.418	1.593
1.446	1.505	1.442	1.509	1.439	1.513	1.434	1.518	1.429	1.524	1.424	1.53	1.418	1.537	1.412	1.545	1.404	1.554	1.396	1.565
1.422	1.479	1.419	1.483	1.415	1.487	1.411	1.492	1.406	1.497	1.401	1.503	1.395	1.51	1.389	1.517	1.382	1.526	1.374	1.536
1.398	1.453	1.395	1.457	1.391	1.461	1.387	1.465	1.383	1.47	1.378	1.476	1.372	1.482	1.366	1.49	1.359	1.498	1.352	1.508
1.374	1.427	1.371	1.43	1.368	1.434	1.364	1.438	1.36	1.443	1.355	1.449	1.349	1.455	1.343	1.462	1.337	1.47	1.33	1.479
1.35	1.401	1.347	1.404	1.344	1.408	1.34	1.412	1.336	1.417	1.332	1.422	1.326	1.428	1.321	1.435	1.314	1.442	1.307	1.451
1.326	1.375	1.323	1.378	1.32	1.381	1.317	1.385	1.313	1.39	1.308	1.395	1.303	1.401	1.298	1.407	1.292	1.414	1.285	1.423
1.302	1.349	1.299	1.352	1.296	1.355	1.293	1.359	1.289	1.363	1.285	1.368	1.28	1.373	1.275	1.38	1.269	1.387	1.263	1.395
1.278	1.323	1.276	1.326	1.273	1.329	1.269	1.332	1.266	1.336	1.262	1.341	1.257	1.346	1.252	1.352	1.247	1.359	1.24	1.367
1.254	1.297	1.252	1.299	1.249	1.302	1.246	1.306	1.242	1.31	1.238	1.314	1.234	1.319	1.229	1.325	1.224	1.331	1.218	1.339
1.23	1.271	1.228	1.273	1.225	1.276	1.222	1.28	1.219	1.283	1.215	1.287	1.211	1.292	1.206	1.298	1.201	1.304	1.195	1.311
1.206	1.245	1.204	1.247	1.201	1.25	1.198	1.253	1.195	1.257	1.192	1.261	1.188	1.265	1.183	1.27	1.178	1.276	1.173	1.283
1.182	1.219	1.18	1.221	1.177	1.224	1.175	1.227	1.171	1.23	1.168	1.234	1.164	1.238	1.16	1.243	1.155	1.249	1.15	1.255
1.158	1.193	1.156	1.195	1.153	1.198	1.151	1.2	1.148	1.204	1.145	1.207	1.141	1.211	1.137	1.216	1.133	1.221	1.128	1.227
1.134	1.167	1.132	1.169	1.129	1.172	1.127	1.174	1.124	1.177	1.121	1.181	1.118	1.185	1.114	1.189	1.11	1.194	1.105	1.2
1.109	1.141	1.107	1.143	1.105	1.145	1.103	1.148	1.1	1.151	1.098	1.154	1.094	1.158	1.091	1.162	1.087	1.167	1.082	1.172
1.085	1.115	1.083	1.117	1.081	1.119	1.079	1.122	1.077	1.125	1.074	1.128	1.071	1.131	1.067	1.135	1.064	1.14	1.059	1.145
1.061	1.089	1.059	1.091	1.057	1.093	1.055	1.096	1.053	1.098	1.05	1.101	1.047	1.104	1.044	1.108	1.04	1.112	1.036	1.117
1.037	1.064	1.035	1.065	1.033	1.067	1.031	1.069	1.029	1.072	1.027	1.075	1.024	1.078	1.021	1.081	1.017	1.085	1.013	1.09

Focal Length 105mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	531'6.98"	473'7.86"	422'0.57"	376'0.83"	335'1.34"	298'7.43"	266'1.31"	237'1.71"	211'4.06"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	531'4.3"	Infinity	473'5.38"	Infinity	421'10.26"	Infinity	375'10.67"	Infinity	334'11.25"	Infinity	298'5.43"	Infinity	265'11.37"	Infinity	236'11.86"	Infinity	211'2.25"	Infinity
200'0''	145'6.45"	319'11.46"	140'10.14"	345'4.17"	135'11.13"	379'1.54"	130'9.63"	425'10.85"	125'5.92"	494'4.68"	120'0.32"	603'3.89"	114'5.2"	801'8.07"	108'8.97"	1270'10.06"	103'0.06"	3707'5.35"
100'0''	84'3.76"	122'10.92"	82'8.71"	126'5.55"	81'0.17"	130'8.43"	79'2.1"	135'9.79"	77'2.51"	142'0.67"	75'1.39"	149'9.39"	72'10.78"	159'6.31"	70'6.74"	172'1.17"	68'1.34"	188'9.68"
70'0''	61'11.62"	80'5.35"	61'1.33"	81'11.33"	60'2.11"	83'8.35"	59'1.93"	85'9.03"	58'0.73"	88'2.24"	56'10.5"	91'1.08"	55'7.21"	94'7.03"	54'2.85"	98'10.16"	52'9.42"	104'1.35"
50'0''	45'9.46"	55'0.9"	45'3.86"	55'9.23"	44'9.7"	56'6.83"	44'2.96"	57'5.94"	43'7.59"	58'6.87"	42'11.57"	59'9.96"	42'2.85"	61'3.71"	41'5.41"	63'0.71"	40'7.23"	65'1.78"
40'0''	37'3.28"	43'1.97"	36'11.58"	43'7.04"	36'7.5"	44'0.85"	36'3.01"	44'7.53"	35'10.08"	45'3.24"	35'4.68"	46'0.17"	34'10.78"	46'10.54"	34'4.35"	47'10.67"	33'9.37"	49'0.93"
35'0''	32'10.83"	37'4.66"	32'7.95"	37'8.44"	32'4.78"	38'0.77"	32'1.27"	38'5.72"	31'9.42"	38'11.42"	31'5.18"	39'5.98"	31'0.54"	40'1.58"	30'7.46"	40'10.4"	30'1.93"	41'8.7"
30'0''	28'5.44"	31'8.73"	28'3.3"	31'11.44"	28'0.93"	32'2.52"	27'10.31"	32'6.05"	27'7.42"	32'10.08"	27'4.24"	33'2.71"	27'0.73"	33'8.04"	26'8.89"	34'2.2"	26'4.69"	34'9.34"
25'0''	23'11.1"	26'2.15"	23'9.59"	26'3.97"	23'7.93"	26'6.05"	23'6.08"	26'8.41"	23'4.03"	26'11.11"	23'1.77"	27'2.19"	22'11.28"	27'5.72"	22'8.53"	27'9.78"	22'5.52"	28'2.46"
22'0''	21'2.02"	22'10.82"	21'0.85"	23'0.21"	20'11.55"	23'1.78"	20'10.1"	23'3.57"	20'8.5"	23'5.61"	20'6.73"	23'7.94"	20'4.78"	23'10.59"	20'2.62"	24'1.63"	20'0.24"	24'5.12"
20'0''	19'3.76"	20'8.86"	19'2.79"	20'9.99"	19'1.71"	20'11.28"	19'0.52"	21'0.73"	18'11.19"	21'2.39"	18'9.71"	21'4.27"	18'8.08"	21'6.42"	18'6.28"	21'8.88"	18'4.3"	21'11.69"
19'0''	18'4.57"	19'7.96"	18'3.7"	19'8.97"	18'2.72"	19'10.12"	18'1.64"	19'11.42"	18'0.44"	20'0.9"	17'11.11"	20'2.59"	17'9.63"	20'4.51"	17'8"	20'6.7"	17'6.19"	20'9.21"
18'0''	17'5.35"	18'7.1"	17'4.56"	18'8.01"	17'3.68"	18'9.03"	17'2.71"	18'10.19"	17'1.63"	18'11.51"	17'0.43"	19'1"	16'11.1"	19'2.71"	16'9.63"	19'4.65"	16'8"	19'6.87"
17'0''	16'6.08"	17'6.3"	16'5.38"	17'7.1"	16'4.59"	17'8"	16'3.73"	17'9.03"	16'2.76"	17'10.19"	16'1.69"	17'11.51"	16'0.5"	18'1.01"	15'11.18"	18'2.73"	15'9.72"	18'4.68"
16'0''	15'6.77"	16'5.55"	15'6.14"	16'6.25"	15'5.45"	16'7.04"	15'4.68"	16'7.94"	15'3.83"	16'8.96"	15'2.87"	16'10.12"	15'1.82"	16'11.43"	15'0.65"	17'0.93"	14'11.35"	17'2.64"
15'0''	14'7.41"	15'4.84"	14'6.87"	15'5.45"	14'6.26"	15'6.14"	14'5.58"	15'6.93"	14'4.83"	15'7.81"	14'3.99"	15'8.82"	14'3.06"	15'9.96"	14'2.03"	15'11.26"	14'0.89"	16'0.74"
14'0''	13'8.02"	14'4.19"	13'7.55"	14'4.71"	13'7.02"	14'5.31"	13'6.43"	14'5.98"	13'5.77"	14'6.75"	13'5.04"	14'7.61"	13'4.23"	14'8.59"	13'3.33"	14'9.71"	13'2.33"	14'10.98"
13'0''	12'8.58"	13'3.58"	12'8.18"	13'4.03"	12'7.72"	13'4.54"	12'7.21"	13'5.11"	12'6.65"	13'5.76"	12'6.02"	13'6.5"	12'5.32"	13'7.33"	12'4.54"	13'8.28"	12'3.68"	13'9.36"
12'6''	12'2.85"	12'9.29"	12'2.47"	12'9.71"	12'2.05"	12'10.17"	12'1.59"	12'10.7"	12'1.06"	12'11.3"	12'0.48"	12'11.98"	11'11.83"	13'0.74"	11'11.12"	13'1.61"	11'10.32"	13'2.6"
12'0''	11'9.11"	12'3.02"	11'8.76"	12'3.4"	11'8.37"	12'3.83"	11'7.94"	12'4.31"	11'7.46"	12'4.86"	11'6.93"	12'5.48"	11'6.33"	12'6.18"	11'5.67"	12'6.97"	11'4.93"	12'7.87"
11'6''	11'3.35"	11'8.76"	11'3.03"	11'9.11"	11'2.68"	11'9.5"	11'2.28"	11'9.94"	11'1.84"	11'10.44"	11'1.35"	11'11"	11'0.81"	11'11.64"	11'0.2"	12'0.36"	10'11.52"	12'1.18"
11'0''	10'9.59"	11'2.51"	10'9.3"	11'2.83"	10'8.97"	11'3.18"	10'8.61"	11'3.58"	10'8.21"	11'4.03"	10'7.76"	11'4.54"	10'7.26"	11'5.12"	10'6.71"	11'5.78"	10'6.09"	11'6.52"
10'6''	10'3.81"	10'8.27"	10'3.55"	10'8.56"	10'3.25"	10'8.88"	10'2.92"	10'9.24"	10'2.56"	10'9.65"	10'2.15"	10'10.11"	10'1.7"	10'10.64"	10'1.19"	10'11.23"	10'0.63"	10'11.9"
10'0''	9'10.02"	10'2.05"	9'9.78"	10'2.3"	9'9.52"	10'2.59"	9'9.22"	10'2.92"	9'8.89"	10'3.29"	9'8.52"	10'3.7"	9'8.11"	10'4.17"	9'7.65"	10'4.7"	9'7.14"	10'5.31"
9'6''	9'4.22"	9'7.84"	9'4.01"	9'8.06"	9'3.77"	9'8.32"	9'3.51"	9'8.61"	9'3.21"	9'8.94"	9'2.88"	9'9.31"	9'2.51"	9'9.73"	9'2.09"	9'10.21"	9'1.64"	9'10.75"
9'0''	8'10.42"	9'1.63"	8'10.23"	9'1.84"	8'10.01"	9'2.07"	8'9.77"	9'2.33"	8'9.51"	9'2.62"	8'9.21"	9'2.95"	8'8.88"	9'3.32"	8'8.51"	9'3.74"	8'8.1"	9'4.22"
8'9''	8'7.51"	8'10.54"	8'7.33"	8'10.73"	8'7.13"	8'10.95"	8'6.9"	8'11.19"	8'6.65"	8'11.46"	8'6.37"	8'11.77"	8'6.06"	9'0.13"	8'5.71"	9'0.52"	8'5.32"	9'0.97"
8'6''	8'4.6"	8'7.45"	8'4.43"	8'7.63"	8'4.24"	8'7.83"	8'4.03"	8'8.06"	8'3.79"	8'8.31"	8'3.53"	8'8.61"	8'3.23"	8'8.93"	8'2.91"	8'9.31"	8'2.54"	8'9.73"
8'3''	8'1.68"	8'4.35"	8'1.52"	8'4.52"	8'1.35"	8'4.71"	8'1.15"	8'4.93"	8'0.93"	8'5.17"	8'0.68"	8'5.44"	8'0.4"	8'5.75"	8'0.1"	8'6.1"	7'11.75"	8'6.49"
8'0''	7'10.77"	8'1.27"	7'10.62"	8'1.43"	7'10.45"	8'1.6"	7'10.27"	8'1.8"	7'10.06"	8'2.03"	7'9.83"	8'2.28"	7'9.57"	8'2.57"	7'9.28"	8'2.9"	7'8.96"	8'3.26"
7'9''	7'7.85"	7'10.18"	7'7.71"	7'10.33"	7'7.55"	7'10.5"	7'7.38"	7'10.68"	7'7.19"	7'10.89"	7'6.97"	7'11.13"	7'6.73"	7'11.4"	7'6.46"	7'11.7"	7'6.15"	8'0.04"
7'6''	7'4.93"	7'7.1"	7'4.8"	7'7.24"	7'4.65"	7'7.39"	7'4.49"	7'7.57"	7'4.31"	7'7.76"	7'4.11"	7'7.98"	7'3.88"	7'8.23"	7'3.63"	7'8.51"	7'3.35"	7'8.83"
7'3''	7'2"	7'4.02"	7'1.88"	7'4.15"	7'1.75"	7'4.29"	7'1.6"	7'4.45"	7'1.43"	7'4.64"	7'1.24"	7'4.84"	7'1.03"	7'5.07"	7'0.79"	7'5.33"	7'0.53"	7'5.63"
7'0''	6'11.07"	7'0.95"	6'10.96"	7'1.07"	6'10.84"	7'1.2"	6'10.7"	7'1.35"	6'10.54"	7'1.52"	6'10.37"	7'1.7"	6'10.17"	7'1.92"	6'9.95"	7'2.16"	6'9.71"	7'2.43"
6'9''	6'8.14"	6'9.88"	6'8.04"	6'9.98"	6'7.93"	6'10.11"	6'7.8"	6'10.24"	6'7.65"	6'10.4"	6'7.49"	6'10.57"	6'7.31"	6'10.77"	6'7.11"	6'10.99"	6'6.88"	6'11.24"
6'6''	6'5.21"	6'6.81"	6'5.12"	6'6.91"	6'5.01"	6'7.02"	6'4.89"	6'7.14"	6'4.76"	6'7.29"	6'4.61"	6'7.45"	6'4.44"	6'7.63"	6'4.26"	6'7.83"	6'4.05"	6'8.06"
6'3''	6'2.28"	6'3.74"	6'2.19"	6'3.83"	6'2.09"	6'3.93"	6'1.98"	6'4.05"	6'1.86"	6'4.18"	6'1.72"	6'4.33"	6'1.57"	6'4.49"	6'1.4"	6'4.68"	6'1.21"	6'4.89"
6'0''	5'11.34"	6'0.67"	5'11.26"	6'0.76"	5'11.17"	6'0.85"	5'11.07"	6'0.96"	5'10.96"	6'1.08"	5'10.83"	6'1.21"	5'10.69"	6'1.36"	5'10.53"	6'1.53"	5'10.36"	6'1.73"
5'11''	5'10.36"	5'11.65"	5'10.28"	5'11.74"	5'10.19"	5'11.83"	5'10.1"	5'11.93"	5'9.99"	6'0.04"	5'9.87"	6'0.17"	5'9.73"	6'0.32"	5'9.58"	6'0.49"	5'9.41"	6'0.67"
5'10''	5'9.38"	5'10.63"	5'9.3"	5'10.71"	5'9.22"	5'10.8"	5'9.12"	5'10.9"	5'9.02"	5'11.01"	5'8.9"	5'11.14"	5'8.77"	5'11.28"	5'8.62"	5'11.44"	5'8.46"	5'11.62"
5'9''	5'8.4"	5'9.61"	5'8.32"	5'9.69"	5'8.24"	5'9.78"	5'8.15"	5'9.87"	5'8.05"	5'9.98"	5'7.94"	5'10.1"	5'7.81"	5'10.24"	5'7.66"	5'10.4"	5'7.5"	5'10.57"
5'8''	5'7.42"	5'8.59"	5'7.35"	5'8.67"	5'7.27"	5'8.75"	5'7.18"	5'8.84"	5'7.08"	5'8.95"	5'6.97"	5'9.07"	5'6.84"	5'9.2"	5'6.71"	5'9.35"	5'6.55"	5'9.52"
5'7''	5'6.44"	5'7.57"	5'6.37"	5'7.65"	5'6.29"	5'7.73"	5'6.21"	5'7.82"	5'6.11"	5'7.92"	5'6"	5'8.03"	5'5.88"	5'8.16"	5'5.75"	5'8.31"	5'5.6"	5'8.47"
5'6''	5'5.45"	5'6.56"	5'5.39"	5'6.62"	5'5.31"	5'6.7"	5'5.23"	5'6.79"	5'5.14"	5'6.89"	5'5.03"	5'7"	5'4.92"	5'7.12"	5'4.79"	5'7.26"	5'4.64"	5'7.42"
5'5''	5'4.47"	5'5.54"	5'4.41"	5'5.6"	5'4.34"	5'5.68"	5'4.26"	5'5.76"	5'4.17"	5'5.86"	5'4.07"	5'5.96"	5'3.95"	5'6.08"	5'3.83"	5'6.22"	5'3.69"	5'6.37"
5'4''	5'3.49"	5'4.52"	5'3.43"	5'4.58"	5'3.36"	5'4.66"	5'3.28"	5'4.74"	5'3.2"	5'4.83"	5'3.1"	5'4.93"	5'2.99"	5'5.05"	5'2.87"	5'5.18"	5'2.73"	5'5.33"
5'3''	5'2.51"	5'3.5"	5'2.45"	5'3.56"	5'2.38"	5'3.63"	5'2.31"	5'3.71"	5'2.22"	5'3.8"	5'2.13"	5'3.9"	5'2.02"	5'4.01"	5'1.91"	5'4.14"	5'1.78"	5'4.28"
5'2''	5'1.53"	5'2.48"	5'1.47"	5'2.54"	5'1.4"	5'2.61"	5'1.33"	5'2.69"	5'1.25"	5'2.77"	5'1.16"	5'2.87"	5'1.06"	5'2.97"	5'0.95"	5'3.1"	5'0.82"	5'3.23"
5'1''	5'0.54"	5'1.47"	5'0.49"	5'1.52"	5'0.42"	5'1.59"	5'0.35"	5'1.66"	5'0.28"	5'1.74"	5'0.19"	5'1.84"	5'0.09"	5'1.94"	4'11.98"	5'2.06"	4'11.86"	5'2.19"
5'0''	4'11.56"	5'0.45"	4'11.51"	5'0.5"	4'11.45"	5'0.57"	4'11.38"	5'0.64"	4'11.3"	5'0.72"	4'11.22"	5'0.8"	4'11.12"	5'0.9"	4'11.02"	5'1.02"	4'10.9"	5'1.14"
4'11''	4'10.58"	4'11.43"	4'10.52"	4'11.49"	4'10.47"	4'11.55"	4'10.4"	4'11.61"	4'10.33"	4'11.69"	4'10.25"	4'11.77"	4'10.16"	4'11.87"	4'10.06"	4'11.98"	4'9.94"	5'0.1"

4'10''	4'9.59"	4'10.42"	4'9.54"	4'10.47"	4'9.49"	4'10.52"	4'9.42"	4'10.59"	4'9.35"	4'10.66"	4'9.28"	4'10.74"	4'9.19"	4'10.84"	4'9.09"	4'10.94"	4'8.98"	4'11.06"
4'9''	4'8.61"	4'9.4"	4'8.56"	4'9.45"	4'8.51"	4'9.5"	4'8.45"	4'9.57"	4'8.38"	4'9.64"	4'8.3"	4'9.72"	4'8.22"	4'9.8"	4'8.13"	4'9.9"	4'8.02"	4'10.02"
4'8''	4'7.62"	4'8.38"	4'7.58"	4'8.43"	4'7.53"	4'8.48"	4'7.47"	4'8.54"	4'7.4"	4'8.61"	4'7.33"	4'8.69"	4'7.25"	4'8.77"	4'7.16"	4'8.87"	4'7.06"	4'8.98"
4'7''	4'6.64"	4'7.37"	4'6.59"	4'7.41"	4'6.54"	4'7.46"	4'6.49"	4'7.52"	4'6.43"	4'7.59"	4'6.36"	4'7.66"	4'6.28"	4'7.74"	4'6.19"	4'7.83"	4'6.1"	4'7.94"
4'6''	4'5.65"	4'6.35"	4'5.61"	4'6.4"	4'5.56"	4'6.45"	4'5.51"	4'6.5"	4'5.45"	4'6.56"	4'5.38"	4'6.63"	4'5.31"	4'6.71"	4'5.23"	4'6.8"	4'5.13"	4'6.9"
4'5''	4'4.67"	4'5.34"	4'4.63"	4'5.38"	4'4.58"	4'5.43"	4'4.53"	4'5.48"	4'4.47"	4'5.54"	4'4.41"	4'5.61"	4'4.34"	4'5.68"	4'4.26"	4'5.77"	4'4.17"	4'5.86"
4'4''	4'3.68"	4'4.32"	4'3.64"	4'4.36"	4'3.6"	4'4.41"	4'3.55"	4'4.46"	4'3.5"	4'4.52"	4'3.43"	4'4.58"	4'3.37"	4'4.65"	4'3.29"	4'4.73"	4'3.2"	4'4.82"
4'3''	4'2.69"	4'3.31"	4'2.66"	4'3.35"	4'2.62"	4'3.39"	4'2.57"	4'3.44"	4'2.52"	4'3.49"	4'2.46"	4'3.55"	4'2.39"	4'3.62"	4'2.32"	4'3.7"	4'2.24"	4'3.79"
4'2''	4'1.71"	4'2.3"	4'1.67"	4'2.33"	4'1.63"	4'2.37"	4'1.59"	4'2.42"	4'1.54"	4'2.47"	4'1.48"	4'2.53"	4'1.42"	4'2.59"	4'1.35"	4'2.67"	4'1.27"	4'2.75"
4'1''	4'0.72"	4'1.28"	4'0.69"	4'1.32"	4'0.65"	4'1.36"	4'0.61"	4'1.4"	4'0.56"	4'1.45"	4'0.51"	4'1.5"	4'0.45"	4'1.57"	4'0.38"	4'1.64"	4'0.31"	4'1.72"
4'0''	3'11.73"	4'0.27"	3'11.7"	4'0.3"	3'11.67"	4'0.34"	3'11.63"	4'0.38"	3'11.58"	4'0.43"	3'11.53"	4'0.48"	3'11.47"	4'0.54"	3'11.41"	4'0.61"	3'11.34"	4'0.68"
3'11''	3'10.75"	3'11.26"	3'10.72"	3'11.29"	3'10.68"	3'11.32"	3'10.64"	3'11.36"	3'10.6"	3'11.41"	3'10.55"	3'11.46"	3'10.5"	3'11.51"	3'10.44"	3'11.58"	3'10.37"	3'11.65"
3'10''	3'9.76"	3'10.24"	3'9.73"	3'10.27"	3'9.7"	3'10.31"	3'9.66"	3'10.34"	3'9.62"	3'10.39"	3'9.57"	3'10.44"	3'9.52"	3'10.49"	3'9.46"	3'10.55"	3'9.4"	3'10.62"
3'9''	3'8.77"	3'9.23"	3'8.74"	3'9.26"	3'8.71"	3'9.29"	3'8.68"	3'9.33"	3'8.64"	3'9.37"	3'8.6"	3'9.41"	3'8.55"	3'9.46"	3'8.49"	3'9.52"	3'8.43"	3'9.59"
3'8''	3'7.78"	3'8.22"	3'7.76"	3'8.25"	3'7.73"	3'8.28"	3'7.69"	3'8.31"	3'7.66"	3'8.35"	3'7.62"	3'8.39"	3'7.57"	3'8.44"	3'7.52"	3'8.49"	3'7.46"	3'8.56"
3'7''	3'6.8"	3'7.21"	3'6.77"	3'7.23"	3'6.74"	3'7.26"	3'6.71"	3'7.29"	3'6.68"	3'7.33"	3'6.64"	3'7.37"	3'6.59"	3'7.42"	3'6.54"	3'7.47"	3'6.49"	3'7.53"
3'6''	3'5.81"	3'6.2"	3'5.78"	3'6.22"	3'5.76"	3'6.25"	3'5.73"	3'6.28"	3'5.69"	3'6.31"	3'5.66"	3'6.35"	3'5.61"	3'6.39"	3'5.57"	3'6.44"	3'5.52"	3'6.5"
3'5''	3'4.82"	3'5.18"	3'4.79"	3'5.21"	3'4.77"	3'5.23"	3'4.74"	3'5.26"	3'4.71"	3'5.29"	3'4.68"	3'5.33"	3'4.64"	3'5.37"	3'4.59"	3'5.42"	3'4.54"	3'5.47"

8	9	10	11	13	14	16	18	20	22
188'4.24"	167'10.45"	149'7.51"	133'4.43"	118'10.65"	105'11.85"	94'5.9"	84'3.02"	75'1.54"	67'0.02"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
188'2.43"	Infinity	167'8.69"	Infinity	149'5.76"	Infinity	133'2.71"	Infinity	118'8.94"	Infinity	105'10.13"	Infinity	94'4.21"	Infinity	84'1.33"	Infinity	74'11.86"	Infinity	66'10.33"	Infinity
97'2.94"	Infinity	91'6.06"	Infinity	85'9.86"	Infinity	80'2.8"	Infinity	74'9.27"	Infinity	69'5.65"	Infinity	64'4.25"	Infinity	59'5.35"	Infinity	54'9.16"	Infinity	50'3.85"	Infinity
65'6.7"	211'10.96"	62'10.95"	245'8.2"	60'2.26"	299'2.97"	57'4.8"	396'3.66"	54'6.78"	623'5.84"	51'8.42"	1751'8.6"	48'9.94"	Infinity	45'11.58"	Infinity	43'1.56"	Infinity	40'4.09"	Infinity
51'2.95"	110'8.86"	49'7.47"	119'3.16"	47'11.03"	130'6.63"	46'1.72"	146'1.02"	44'3.63"	168'7.47"	42'4.86"	203'11.77"	40'5.54"	266'10.31"	38'5.81"	408'3.67"	36'5.83"	1010'0.78"	34'5.75"	Infinity
39'8.3"	67'7.98"	38'8.6"	70'8.81"	37'8.15"	74'6.38"	36'6.95"	79'3.78"	35'5.04"	85'5.74"	34'2.45"	93'7.84"	32'11.23"	104'11.18"	31'7.47"	121'4.25"	30'3.22"	147'3.11"	28'10.6"	193'9.06"
33'1.81"	50'5.8"	32'5.67"	52'1.95"	31'8.92"	54'2.25"	30'11.56"	56'7.88"	30'1.6"	59'8.58"	29'3.04"	63'6.84"	28'3.91"	68'6.49"	27'4.25"	75'1.75"	26'4.09"	84'3.28"	25'3.49"	97'7.2"
29'7.92"	42'8.8"	29'1.41"	43'11.1"	28'6.39"	45'4.15"	27'10.84"	47'0.67"	27'2.76"	49'1.64"	26'6.15"	51'8.47"	25'9.02"	54'11.21"	24'11.39"	59'0.94"	24'1.28"	64'6.63"	23'2.73"	72'0.7"
26'0.1"	35'5.67"	25'7.11"	36'3.42"	25'1.7"	37'2.92"	24'7.85"	38'4.59"	24'1.56"	39'8.98"	23'6.82"	41'4.85"	22'11.62"	43'5.23"	22'3.97"	45'11.67"	21'7.88"	49'2.42"	20'11.39"	53'5.03"
22'2.21"	28'7.87"	21'10.6"	29'2.16"	21'6.66"	29'9.5"	21'2.39"	30'6.12"	20'9.76"	31'4.32"	20'4.76"	32'4.48"	19'11.39"	33'7.12"	19'5.64"	35'0.94"	18'11.52"	36'10.95"	18'5.02"	39'2.61"
19'9.63"	24'9.15"	19'6.76"	25'1.8"	19'3.63"	25'7.21"	19'0.22"	26'1.51"	18'8.5"	26'8.92"	18'4.48"	27'5.66"	18'0.14"	28'4.07"	17'7.47"	29'4.58"	17'2.48"	30'7.79"	16'9.15"	32'2.54"
18'2.11"	22'2.93"	17'11.71"	22'6.66"	17'9.07"	22'10.97"	17'6.19"	23'3.99"	17'3.06"	23'9.84"	16'11.65"	24'4.72"	16'7.96"	25'0.86"	16'3.98"	25'10.56"	15'11.7"	26'10.23"	15'7.12"	28'0.45"
17'4.21"	21'0.09"	17'2.02"	21'3.4"	16'11.63"	21'7.23"	16'9.01"	21'11.67"	16'6.14"	22'4.84"	16'3.03"	22'10.89"	15'11.65"	23'6.03"	15'8"	24'2.51"	15'4.08"	25'0.67"	14'11.86"	26'0.98"
16'6.21"	19'9.42"	16'4.24"	20'0.34"	16'2.07"	20'3.72"	15'11.69"	20'7.62"	15'9.1"	21'0.16"	15'6.27"	21'5.47"	15'3.2"	21'11.7"	14'11.87"	22'7.07"	14'8.28"	23'3.86"	14'4.43"	24'2.46"
15'8.11"	18'6.92"	15'6.34"	18'9.49"	15'4.39"	19'0.45"	15'2.26"	19'3.86"	14'11.92"	19'7.82"	14'9.37"	20'0.43"	14'6.59"	20'5.84"	14'3.58"	21'0.21"	14'0.32"	21'7.77"	13'8.81"	22'4.84"
14'9.92"	17'4.59"	14'8.34"	17'6.83"	14'6.6"	17'9.4"	14'4.69"	18'0.36"	14'2.6"	18'3.79"	14'0.31"	18'7.78"	13'9.82"	19'0.43"	13'7.11"	19'5.9"	13'4.18"	20'0.36"	13'1.01"	20'8.07"
13'11.62"	16'2.43"	13'10.23"	16'4.36"	13'8.69"	16'6.58"	13'7"	16'9.13"	13'5.14"	17'0.07"	13'3.11"	17'3.49"	13'0.89"	17'7.46"	12'10.48"	18'0.12"	12'7.86"	18'5.59"	12'5.02"	19'0.1"
13'1.23"	15'0.43"	13'	15'2.08"	12'10.66"	15'3.97"	12'9.17"	15'6.15"	12'7.54"	15'8.66"	12'5.75"	15'11.55"	12'3.79"	16'2.92"	12'1.66"	16'6.84"	11'11.34"	16'11.44"	11'8.83"	17'4.88"
12'2.72"	13'10.58"	12'1.67"	13'11.98"	12'0.5"	14'1.59"	11'11.21"	14'3.42"	11'9.79"	14'5.53"	11'8.23"	14'7.96"	11'6.53"	14'10.78"	11'4.66"	15'2.05"	11'2.63"	15'5.87"	11'0.43"	15'10.37"
11'9.43"	13'3.72"	11'8.45"	13'5"	11'7.37"	13'6.47"	11'6.18"	13'8.15"	11'4.86"	13'10.07"	11'3.41"	14'0.29"	11'1.83"	14'2.85"	11'0.09"	14'5.83"	10'10.2"	14'9.3"	10'8.15"	15'1.37"
11'4.12"	12'8.9"	11'3.21"	12'10.07"	11'2.21"	12'11.4"	11'1.11"	13'0.93"	10'11.89"	13'2.68"	10'10.55"	13'4.7"	10'9.08"	13'7.03"	10'7.48"	13'9.72"	10'5.72"	14'0.86"	10'3.81"	14'4.54"
10'10.77"	12'2.12"	10'9.94"	12'3.18"	10'9.02"	12'4.39"	10'8"	12'5.78"	10'6.88"	12'7.37"	10'5.65"	12'9.19"	10'4.29"	12'11.3"	10'2.81"	13'1.73"	10'1.19"	13'4.56"	9'11.42"	13'7.86"
10'5.4"	11'7.37"	10'4.64"	11'8.33"	10'3.8"	11'9.43"	10'2.87"	11'10.68"	10'1.84"	12'0.12"	10'0.7"	12'1.76"	9'11.46"	12'3.66"	9'10.09"	12'5.84"	9'8.6"	12'8.38"	9'6.97"	12'11.34"
10'	11'0.66"	9'11.31"	11'1.53"	9'10.54"	11'2.52"	9'9.69"	11'3.64"	9'8.75"	11'4.93"	9'7.72"	11'6.41"	9'6.58"	11'8.11"	9'5.33"	11'10.07"	9'3.96"	12'0.33"	9'2.46"	12'2.97"
9'6.58"	10'5.99"	9'5.95"	10'6.77"	9'5.25"	10'7.65"	9'4.48"	10'8.66"	9'3.63"	10'9.81"	9'2.69"	10'11.13"	9'1.65"	11'0.65"	9'0.51"	11'2.39"	8'11.26"	11'4.41"	8'9.89"	11'6.75"
9'1.12"	9'11.36"	9'0.56"	10'0.05"	8'11.93"	10'0.84"	8'11.23"	10'1.74"	8'10.46"	10'2.76"	8'9.61"	10'3.93"	8'8.67"	10'5.28"	8'7.64"	10'6.82"	8'6.5"	10'8.6"	8'5.26"	10'10.67"
8'7.64"	9'4.76"	8'7.14"	9'5.38"	8'6.57"	9'6.07"	8'5.95"	9'6.87"	8'5.25"	9'7.77"	8'4.49"	9'8.81"	8'3.64"	9'9.99"	8'2.71"	9'11.35"	8'1.69"	10'0.92"	8'0.57"	10'2.73"
8'4.89"	9'1.48"	8'4.41"	9'2.05"	8'3.88"	9'2.71"	8'3.29"	9'3.45"	8'2.64"	9'4.3"	8'1.91"	9'5.27"	8'1.11"	9'6.38"	8'0.23"	9'7.65"	7'11.26"	9'9.12"	7'10.2"	9'10.81"
8'2.14"	8'10.2"	8'1.68"	8'10.74"	8'1.18"	8'11.36"	8'0.62"	9'0.05"	8'0.01"	9'0.85"	7'11.32"	9'1.75"	7'10.57"	9'2.79"	7'9.74"	9'3.98"	7'8.82"	9'5.34"	7'7.82"	9'6.92"
7'11.37"	8'6.94"	7'10.95"	8'7.44"	7'10.47"	8'8.02"	7'9.95"	8'8.67"	7'9.37"	8'9.41"	7'8.72"	8'10.25"	7'8.01"	8'11.22"	7'7.23"	9'0.33"	7'6.37"	9'1.6"	7'5.42"	9'3.07"
7'8.6"	8'3.68"	7'8.2"	8'4.15"	7'7.76"	8'4.69"	7'7.26"	8'5.29"	7'6.72"	8'5.98"	7'6.11"	8'6.77"	7'5.44"	8'7.67"	7'4.71"	8'8.7"	7'3.89"	8'9.89"	7'3"	8'11.25"
7'5.82"	8'0.43"	7'5.45"	8'0.87"	7'5.03"	8'1.37"	7'4.57"	8'1.93"	7'4.06"	8'2.58"	7'3.49"	8'3.31"	7'2.86"	8'4.15"	7'2.17"	8'5.1"	7'1.41"	8'6.2"	7'0.57"	8'7.46"
7'3.03"	7'9.19"	7'2.68"	7'9.6"	7'2.3"	7'10.06"	7'1.86"	7'10.59"	7'1.39"	7'11.18"	7'0.85"	7'11.86"	7'0.27"	8'0.64"	6'11.62"	8'1.52"	6'10.9"	8'2.54"	6'10.12"	8'3.7"
7'0.24"	7'5.96"	6'11.91"	7'6.34"	6'11.55"	7'6.77"	6'11.15"	7'7.25"	6'10.7"	7'7.81"	6'10.21"	7'8.43"	6'9.66"	7'9.15"	6'9.05"	7'9.97"	6'8.39"	7'10.9"	6'7.65"	7'11.98"
6'9.44"	7'2.74"	6'9.14"	7'3.09"	6'8.8"	7'3.49"	6'8.43"	7'3.93"	6'8.01"	7'4.44"	6'7.55"	7'5.02"	6'7.04"	7'5.68"	6'6.48"	7'6.44"	6'5.85"	7'7.3"	6'5.16"	7'8.29"
6'6.63"	6'11.53"	6'6.35"	6'11.85"	6'6.04"	7'0.21"	6'5.69"	7'0.63"	6'5.31"	7'1.1"	6'4.88"	7'1.63"	6'4.41"	7'2.23"	6'3.88"	7'2.93"	6'3.3"	7'3.72"	6'2.66"	7'4.62"
6'3.82"	6'8.33"	6'3.56"	6'8.62"	6'3.27"	6'8.95"	6'2.95"	6'9.33"	6'2.59"	6'9.76"	6'2.2"	6'10.25"	6'1.76"	6'10.81"	6'1.27"	6'11.44"	6'0.74"	7'0.16"	6'0.15"	7'0.99"
6'0.99"	6'5.13"	6'0.76"	6'5.4"	6'0.49"	6'5.71"	6'0.2"	6'6.05"	5'11.87"	6'6.45"	5'11.5"	6'6.89"	5'11.1"	6'7.4"	5'10.65"	6'7.97"	5'10.16"	6'8.63"	5'9.61"	6'9.39"
5'10.16"	6'1.94"	5'9.95"	6'2.19"	5'9.7"	6'2.47"	5'9.43"	6'2.78"	5'9.13"	6'3.14"	5'8.8"	6'3.55"	5'8.43"	6'4.01"	5'8.01"	6'4.53"	5'7.56"	6'5.13"	5'7.06"	6'5.81"
5'9.22"	6'0.88"	5'9.01"	6'1.12"	5'8.77"	6'1.39"	5'8.51"	6'1.7"	5'8.22"	6'2.04"	5'7.89"	6'2.44"	5'7.53"	6'2.88"	5'7.13"	6'3.39"	5'6.69"	6'3.97"	5'6.2"	6'4.63"
5'8.27"	5'11.83"	5'8.07"	6'0.06"	5'7.84"	6'0.32"	5'7.58"	6'0.61"	5'7.3"	6'0.95"	5'6.99"	6'1.33"	5'6.64"	6'1.76"	5'6.25"	6'2.25"	5'5.82"	6'2.81"	5'5.34"	6'3.45"
5'7.33"	5'10.77"	5'7.13"	5'10.99"	5'6.91"	5'11.24"	5'6.66"	5'11.53"	5'6.38"	5'11.85"	5'6.08"	6'0.22"	5'5.74"	6'0.64"	5'5.36"	6'1.11"	5'4.95"	6'1.65"	5'4.48"	6'2.27"
5'6.38"	5'9.71"	5'6.19"	5'9.93"	5'5.97"	5'10.17"	5'5.73"	5'10.45"	5'5.47"	5'10.76"	5'5.17"	5'11.12"	5'4.84"	5'11.52"	5'4.47"	5'11.98"	5'4.07"	6'0.5"	5'3.62"	6'1.1"
5'5.43"	5'8.65"	5'5.24"	5'8.86"	5'5.04"	5'9.1"	5'4.8"	5'9.37"	5'4.55"	5'9.67"	5'4.26"	5'10.01"	5'3.94"	5'10.4"	5'3.59"	5'10.84"	5'3.19"	5'11.35"	5'2.76"	5'11.92"
5'4.48"	5'7.6"	5'4.3"	5'7.8"	5'4.1"	5'8.03"	5'3.87"	5'8.29"	5'3.62"	5'8.58"	5'3.35"	5'8.91"	5'3.04"	5'9.29"	5'2.7"	5'9.71"	5'2.32"	5'10.2"	5'1.89"	5'10.75"
5'3.53"	5'6.55"	5'3.36"	5'6.74"	5'3.16"	5'6.96"	5'2.94"	5'7.21"	5'2.7"	5'7.49"	5'2.43"	5'7.81"	5'2.13"	5'8.17"	5'1.8"	5'8.59"	5'1.43"	5'9.05"	5'1.03"	5'9.59"
5'2.58"	5'5.49"	5'2.41"	5'5.68"	5'2.22"	5'5.89"	5'2.01"	5'6.13"	5'1.78"	5'6.4"	5'1.52"	5'6.71"	5'1.23"	5'7.06"	5'0.91"	5'7.46"	5'0.55"	5'7.91"	5'0.16"	5'8.43"
5'1.63"	5'4.44"	5'1.47"	5'4.62"	5'1.28"	5'4.83"	5'1.08"	5'5.06"	5'0.86"	5'5.32"	5'0.6"	5'5.62"	5'0.32"	5'5.95"	5'0.01"	5'6.34"	4'11.67"	5'6.77"	4'11.29"	5'7.27"
5'0.68"	5'3.39"	5'0.52"	5'3.56"	5'0.34"	5'3.76"	5'0.15"	5'3.98"	4'11.93"	5'4.24"	4'11.69"	5'4.52"	4'11.42"	5'4.85"	4'11.12"	5'5.22"	4'10.78"	5'5.63"	4'10.41"	5'6.11"
4'11.72"	5'2.34"	4'11.57"	5'2.51"	4'11.4"	5'2.7"	4'11.21"	5'2.91"	4'11"	5'3.15"	4'10.77"	5'3.43"	4'10.51"	5'3.74"	4'10.22"	5'4.1"	4'9.89"	5'4.5"	4'9.54"	5'4.96"
4'10.77"	5'1.29"	4'10.62"	5'1.45"	4'10.46"	5'1.63"	4'10.28"	5'1.84"	4'10.07"	5'2.07"	4'9.85"	5'2.34"	4'9.6"	5'2.64"	4'9.32"	5'2.98"	4'9.01"	5'3.37"	4'8.66"	5'3.81"
4'9.82"	5'0.24"	4'9.67"	5'0.4"	4'9.52"	5'0.57"	4'9.34"	5'0.77"	4'9.14"	5'1"	4'8.93"	5'1.25"	4'8.68"	5'1.54"	4'8.41"	5'1.87"	4'8.11"	5'2.24"	4'7.78"	5'2.66"

4'8.86"	4'11.19"	4'8.72"	4'11.34"	4'8.57"	4'11.51"	4'8.4"	4'11.7"	4'8.21"	4'11.92"	4'8"	5'0.16"	4'7.77"	5'0.44"	4'7.51"	5'0.75"	4'7.22"	5'1.11"	4'6.9"	5'1.52"
4'7.9"	4'10.15"	4'7.77"	4'10.29"	4'7.63"	4'10.45"	4'7.46"	4'10.64"	4'7.28"	4'10.84"	4'7.08"	4'11.08"	4'6.85"	4'11.34"	4'6.6"	4'11.65"	4'6.32"	4'11.99"	4'6.02"	5'0.38"
4'6.95"	4'9.1"	4'6.82"	4'9.24"	4'6.68"	4'9.39"	4'6.52"	4'9.57"	4'6.35"	4'9.77"	4'6.15"	4'9.99"	4'5.94"	4'10.25"	4'5.7"	4'10.54"	4'5.43"	4'10.87"	4'5.13"	4'11.24"
4'5.99"	4'8.06"	4'5.87"	4'8.19"	4'5.73"	4'8.34"	4'5.58"	4'8.51"	4'5.41"	4'8.7"	4'5.23"	4'8.91"	4'5.02"	4'9.16"	4'4.79"	4'9.43"	4'4.53"	4'9.75"	4'4.24"	4'10.11"
4'5.03"	4'7.01"	4'4.91"	4'7.14"	4'4.78"	4'7.28"	4'4.64"	4'7.44"	4'4.48"	4'7.63"	4'4.3"	4'7.83"	4'4.1"	4'8.07"	4'3.87"	4'8.33"	4'3.63"	4'8.63"	4'3.35"	4'8.97"
4'4.07"	4'5.97"	4'3.96"	4'6.09"	4'3.83"	4'6.23"	4'3.7"	4'6.38"	4'3.54"	4'6.56"	4'3.37"	4'6.75"	4'3.18"	4'6.98"	4'2.96"	4'7.23"	4'2.72"	4'7.52"	4'2.46"	4'7.85"
4'3.11"	4'4.93"	4'3"	4'5.04"	4'2.88"	4'5.17"	4'2.75"	4'5.32"	4'2.6"	4'5.49"	4'2.44"	4'5.68"	4'2.25"	4'5.89"	4'2.05"	4'6.13"	4'1.82"	4'6.41"	4'1.57"	4'6.72"
4'2.15"	4'3.89"	4'2.05"	4'4"	4'1.93"	4'4.12"	4'1.8"	4'4.26"	4'1.66"	4'4.42"	4'1.5"	4'4.6"	4'1.33"	4'4.81"	4'1.13"	4'5.04"	4'0.91"	4'5.3"	4'0.67"	4'5.6"
4'1.19"	4'2.85"	4'1.09"	4'2.95"	4'0.98"	4'3.07"	4'0.86"	4'3.21"	4'0.72"	4'3.36"	4'0.57"	4'3.53"	4'0.4"	4'3.72"	4'0.21"	4'3.95"	4'	4'4.2"	3'11.77"	4'4.48"
4'0.22"	4'1.81"	4'0.13"	4'1.91"	4'0.02"	4'2.02"	3'11.91"	4'2.15"	3'11.78"	4'2.29"	3'11.63"	4'2.46"	3'11.47"	4'2.64"	3'11.29"	4'2.85"	3'11.09"	4'3.09"	3'10.87"	4'3.36"
3'11.26"	4'0.77"	3'11.17"	4'0.86"	3'11.07"	4'0.97"	3'10.96"	4'1.1"	3'10.83"	4'1.23"	3'10.7"	4'1.39"	3'10.54"	4'1.57"	3'10.37"	4'1.77"	3'10.18"	4'1.99"	3'9.97"	4'2.25"
3'10.29"	3'11.73"	3'10.21"	3'11.82"	3'10.11"	3'11.93"	3'10.01"	4'0.04"	3'9.89"	4'0.17"	3'9.76"	4'0.32"	3'9.61"	4'0.49"	3'9.45"	4'0.68"	3'9.27"	4'0.89"	3'9.06"	4'1.14"
3'9.33"	3'10.7"	3'9.25"	3'10.78"	3'9.16"	3'10.88"	3'9.06"	3'10.99"	3'8.94"	3'11.11"	3'8.82"	3'11.26"	3'8.68"	3'11.41"	3'8.52"	3'11.6"	3'8.35"	3'11.8"	3'8.16"	4'0.03"
3'8.36"	3'9.66"	3'8.28"	3'9.74"	3'8.2"	3'9.84"	3'8.1"	3'9.94"	3'8"	3'10.06"	3'7.88"	3'10.19"	3'7.74"	3'10.34"	3'7.6"	3'10.51"	3'7.43"	3'10.71"	3'7.25"	3'10.93"
3'7.39"	3'8.63"	3'7.32"	3'8.7"	3'7.24"	3'8.79"	3'7.15"	3'8.89"	3'7.05"	3'9"	3'6.93"	3'9.13"	3'6.81"	3'9.27"	3'6.67"	3'9.43"	3'6.51"	3'9.62"	3'6.34"	3'9.82"
3'6.43"	3'7.59"	3'6.36"	3'7.67"	3'6.28"	3'7.75"	3'6.19"	3'7.84"	3'6.1"	3'7.95"	3'5.99"	3'8.07"	3'5.87"	3'8.2"	3'5.74"	3'8.36"	3'5.59"	3'8.53"	3'5.42"	3'8.73"
3'5.46"	3'6.56"	3'5.39"	3'6.63"	3'5.32"	3'6.71"	3'5.24"	3'6.8"	3'5.15"	3'6.9"	3'5.04"	3'7.01"	3'4.93"	3'7.14"	3'4.8"	3'7.28"	3'4.66"	3'7.44"	3'4.51"	3'7.63"
3'4.49"	3'5.53"	3'4.43"	3'5.59"	3'4.36"	3'5.67"	3'4.28"	3'5.75"	3'4.19"	3'5.85"	3'4.1"	3'5.95"	3'3.99"	3'6.07"	3'3.87"	3'6.21"	3'3.74"	3'6.36"	3'3.59"	3'6.54"

Focal Length 110mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	177.808	158.43	141.166	125.785	112.083	99.875	89	79.311	70.679

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	177.734	Infinity	158.363	Infinity	141.104	Infinity	125.727	Infinity	112.028	Infinity	99.823	Infinity	88.95	Infinity	79.262	Infinity	70.631	Infinity
60.000	44.923	90.385	43.583	96.367	42.172	104.103	40.693	114.414	39.152	128.73	37.556	149.771	35.914	183.437	34.234	245.372	32.527	395.218
30.000	25.71	36.02	25.268	36.929	24.79	38.005	24.274	39.29	23.72	40.841	23.128	42.735	22.498	45.082	21.831	48.045	21.128	51.875
20.000	18.008	22.492	17.791	22.841	17.554	23.245	17.296	23.717	17.014	24.27	16.709	24.923	16.38	25.699	16.025	26.63	15.645	27.759
15.000	13.857	16.351	13.729	16.533	13.588	16.743	13.434	16.985	13.264	17.265	13.079	17.591	12.877	17.972	12.659	18.42	12.422	18.95
12.000	11.261	12.844	11.177	12.956	11.084	13.083	10.981	13.23	10.869	13.398	10.745	13.593	10.609	13.818	10.461	14.079	10.299	14.385
10.000	9.484	10.576	9.425	10.651	9.359	10.737	9.286	10.835	9.206	10.947	9.117	11.075	9.02	11.223	8.913	11.394	8.797	11.592
9.000	8.582	9.462	8.533	9.522	8.479	9.59	8.42	9.668	8.354	9.756	8.281	9.858	8.201	9.975	8.113	10.109	8.017	10.264
8.000	7.669	8.361	7.631	8.408	7.588	8.46	7.54	8.521	7.488	8.589	7.43	8.667	7.365	8.757	7.295	8.86	7.217	8.978
7.000	6.747	7.273	6.717	7.308	6.684	7.348	6.648	7.393	6.607	7.444	6.562	7.502	6.512	7.569	6.457	7.645	6.396	7.733
6.500	6.282	6.734	6.256	6.764	6.228	6.798	6.196	6.836	6.161	6.88	6.122	6.929	6.079	6.986	6.031	7.05	5.978	7.124
6.000	5.815	6.198	5.793	6.223	5.768	6.251	5.741	6.284	5.711	6.32	5.678	6.362	5.641	6.41	5.6	6.464	5.555	6.526
5.500	5.345	5.665	5.326	5.686	5.306	5.709	5.283	5.736	5.258	5.767	5.229	5.801	5.198	5.84	5.164	5.885	5.125	5.936
5.000	4.872	5.135	4.857	5.152	4.84	5.171	4.821	5.193	4.8	5.218	4.777	5.246	4.751	5.278	4.722	5.314	4.69	5.355
4.750	4.635	4.871	4.621	4.886	4.606	4.904	4.589	4.923	4.57	4.945	4.549	4.971	4.525	4.999	4.499	5.031	4.47	5.068
4.500	4.397	4.608	4.385	4.622	4.371	4.637	4.356	4.655	4.339	4.674	4.32	4.697	4.299	4.722	4.275	4.751	4.249	4.783
4.250	4.158	4.346	4.147	4.358	4.135	4.372	4.122	4.387	4.106	4.404	4.09	4.424	4.071	4.446	4.05	4.472	4.027	4.501
4.000	3.919	4.084	3.909	4.095	3.899	4.107	3.887	4.12	3.873	4.136	3.858	4.153	3.842	4.173	3.823	4.195	3.803	4.22
3.800	3.727	3.876	3.719	3.885	3.709	3.896	3.698	3.908	3.686	3.922	3.672	3.937	3.657	3.955	3.641	3.975	3.622	3.997
3.600	3.535	3.668	3.527	3.676	3.519	3.686	3.509	3.696	3.498	3.708	3.486	3.722	3.472	3.738	3.457	3.755	3.441	3.775
3.500	3.439	3.564	3.431	3.572	3.423	3.581	3.414	3.591	3.404	3.602	3.392	3.615	3.38	3.63	3.365	3.646	3.35	3.665
3.400	3.342	3.46	3.335	3.467	3.328	3.476	3.319	3.485	3.309	3.496	3.299	3.508	3.287	3.522	3.273	3.537	3.258	3.555
3.300	3.246	3.356	3.239	3.363	3.232	3.371	3.224	3.38	3.215	3.39	3.205	3.401	3.193	3.414	3.181	3.429	3.167	3.445
3.200	3.149	3.253	3.143	3.259	3.136	3.267	3.129	3.275	3.12	3.284	3.111	3.295	3.1	3.307	3.088	3.321	3.075	3.336
3.100	3.052	3.149	3.047	3.155	3.04	3.162	3.033	3.17	3.025	3.179	3.016	3.189	3.006	3.2	2.995	3.213	2.983	3.227
3.000	2.956	3.046	2.95	3.052	2.944	3.058	2.938	3.065	2.93	3.073	2.922	3.083	2.913	3.093	2.902	3.105	2.891	3.118
2.900	2.859	2.943	2.854	2.948	2.848	2.954	2.842	2.961	2.835	2.968	2.827	2.977	2.819	2.987	2.809	2.998	2.798	3.01
2.800	2.762	2.84	2.757	2.844	2.752	2.85	2.746	2.856	2.74	2.863	2.732	2.871	2.724	2.88	2.715	2.89	2.705	2.902
2.700	2.664	2.737	2.66	2.741	2.655	2.746	2.65	2.752	2.644	2.759	2.637	2.766	2.63	2.774	2.622	2.784	2.612	2.794
2.600	2.567	2.634	2.563	2.638	2.559	2.643	2.554	2.648	2.548	2.654	2.542	2.661	2.535	2.668	2.528	2.677	2.519	2.687
2.550	2.519	2.582	2.515	2.586	2.51	2.591	2.506	2.596	2.5	2.602	2.494	2.608	2.488	2.616	2.48	2.624	2.472	2.633
2.500	2.47	2.531	2.466	2.535	2.462	2.539	2.458	2.544	2.452	2.55	2.447	2.556	2.44	2.563	2.433	2.571	2.425	2.58
2.450	2.421	2.48	2.418	2.483	2.414	2.487	2.409	2.492	2.404	2.497	2.399	2.503	2.393	2.51	2.386	2.518	2.379	2.526
2.400	2.372	2.428	2.369	2.432	2.365	2.436	2.361	2.44	2.356	2.445	2.351	2.451	2.345	2.457	2.339	2.465	2.332	2.473
2.350	2.324	2.377	2.32	2.38	2.317	2.384	2.313	2.389	2.308	2.393	2.303	2.399	2.298	2.405	2.292	2.412	2.285	2.42
2.300	2.275	2.326	2.272	2.329	2.268	2.333	2.264	2.337	2.26	2.341	2.255	2.346	2.25	2.352	2.244	2.359	2.238	2.366
2.250	2.226	2.275	2.223	2.278	2.22	2.281	2.216	2.285	2.212	2.289	2.207	2.294	2.202	2.3	2.197	2.306	2.19	2.313
2.200	2.177	2.223	2.174	2.226	2.171	2.23	2.168	2.233	2.164	2.238	2.159	2.242	2.155	2.247	2.149	2.253	2.143	2.26
2.150	2.128	2.172	2.126	2.175	2.123	2.178	2.119	2.182	2.116	2.186	2.111	2.19	2.107	2.195	2.102	2.201	2.096	2.207
2.100	2.079	2.121	2.077	2.124	2.074	2.127	2.071	2.13	2.067	2.134	2.063	2.138	2.059	2.143	2.054	2.148	2.049	2.154
2.050	2.03	2.07	2.028	2.073	2.025	2.075	2.022	2.079	2.019	2.082	2.015	2.086	2.011	2.091	2.006	2.096	2.001	2.101
2.000	1.981	2.019	1.979	2.021	1.977	2.024	1.974	2.027	1.971	2.03	1.967	2.034	1.963	2.038	1.959	2.043	1.954	2.049
1.975	1.957	1.994	1.955	1.996	1.952	1.998	1.949	2.001	1.946	2.005	1.943	2.008	1.939	2.012	1.935	2.017	1.93	2.022
1.950	1.932	1.968	1.93	1.97	1.928	1.973	1.925	1.976	1.922	1.979	1.919	1.982	1.915	1.986	1.911	1.991	1.906	1.996
1.925	1.908	1.943	1.906	1.945	1.903	1.947	1.901	1.95	1.898	1.953	1.895	1.956	1.891	1.96	1.887	1.965	1.882	1.97
1.900	1.883	1.917	1.881	1.919	1.879	1.921	1.876	1.924	1.874	1.927	1.87	1.931	1.867	1.934	1.863	1.939	1.859	1.944
1.875	1.859	1.892	1.857	1.894	1.855	1.896	1.852	1.898	1.849	1.901	1.846	1.905	1.843	1.908	1.839	1.913	1.835	1.917
1.850	1.834	1.866	1.832	1.868	1.83	1.87	1.828	1.873	1.825	1.876	1.822	1.879	1.819	1.882	1.815	1.886	1.811	1.891
1.825	1.81	1.841	1.808	1.842	1.806	1.845	1.803	1.847	1.801	1.85	1.798	1.853	1.795	1.856	1.791	1.86	1.787	1.865
1.800	1.785	1.815	1.783	1.817	1.781	1.819	1.779	1.821	1.777	1.824	1.774	1.827	1.771	1.83	1.767	1.834	1.763	1.839
1.775	1.761	1.79	1.759	1.791	1.757	1.793	1.755	1.796	1.752	1.798	1.75	1.801	1.747	1.805	1.743	1.808	1.739	1.812

1.750	1.736	1.764	1.734	1.766	1.732	1.768	1.73	1.77	1.728	1.773	1.725	1.775	1.722	1.779	1.719	1.782	1.715	1.786
1.725	1.712	1.739	1.71	1.74	1.708	1.742	1.706	1.744	1.704	1.747	1.701	1.75	1.698	1.753	1.695	1.756	1.691	1.76
1.700	1.687	1.713	1.685	1.715	1.684	1.717	1.682	1.719	1.679	1.721	1.677	1.724	1.674	1.727	1.671	1.73	1.667	1.734
1.675	1.662	1.688	1.661	1.689	1.659	1.691	1.657	1.693	1.655	1.696	1.653	1.698	1.65	1.701	1.647	1.704	1.644	1.708
1.650	1.638	1.662	1.636	1.664	1.635	1.666	1.633	1.668	1.631	1.67	1.628	1.672	1.626	1.675	1.623	1.678	1.62	1.682
1.625	1.613	1.637	1.612	1.638	1.61	1.64	1.608	1.642	1.606	1.644	1.604	1.647	1.602	1.649	1.599	1.652	1.596	1.656
1.600	1.589	1.612	1.587	1.613	1.586	1.615	1.584	1.616	1.582	1.619	1.58	1.621	1.577	1.623	1.575	1.626	1.572	1.63
1.575	1.564	1.586	1.563	1.588	1.561	1.589	1.559	1.591	1.558	1.593	1.555	1.595	1.553	1.598	1.55	1.6	1.548	1.604
1.550	1.539	1.561	1.538	1.562	1.537	1.564	1.535	1.565	1.533	1.567	1.531	1.569	1.529	1.572	1.526	1.574	1.523	1.578
1.525	1.515	1.535	1.513	1.537	1.512	1.538	1.511	1.54	1.509	1.542	1.507	1.544	1.505	1.546	1.502	1.549	1.499	1.552
1.500	1.49	1.51	1.489	1.511	1.488	1.513	1.486	1.514	1.484	1.516	1.482	1.518	1.48	1.52	1.478	1.523	1.475	1.526
1.475	1.465	1.485	1.464	1.486	1.463	1.487	1.462	1.489	1.46	1.49	1.458	1.492	1.456	1.494	1.454	1.497	1.451	1.5
1.450	1.441	1.459	1.44	1.46	1.438	1.462	1.437	1.463	1.436	1.465	1.434	1.467	1.432	1.469	1.43	1.471	1.427	1.474
1.425	1.416	1.434	1.415	1.435	1.414	1.436	1.413	1.438	1.411	1.439	1.409	1.441	1.408	1.443	1.405	1.445	1.403	1.448
1.400	1.392	1.409	1.391	1.41	1.389	1.411	1.388	1.412	1.387	1.414	1.385	1.415	1.383	1.417	1.381	1.419	1.379	1.422
1.375	1.367	1.383	1.366	1.384	1.365	1.385	1.364	1.387	1.362	1.388	1.361	1.39	1.359	1.392	1.357	1.394	1.355	1.396
1.350	1.342	1.358	1.341	1.359	1.34	1.36	1.339	1.361	1.338	1.363	1.336	1.364	1.335	1.366	1.333	1.368	1.331	1.37
1.325	1.318	1.333	1.317	1.333	1.316	1.335	1.314	1.336	1.313	1.337	1.312	1.339	1.31	1.34	1.308	1.342	1.306	1.344
1.300	1.293	1.307	1.292	1.308	1.291	1.309	1.29	1.31	1.289	1.312	1.287	1.313	1.286	1.315	1.284	1.316	1.282	1.318
1.275	1.268	1.282	1.267	1.283	1.266	1.284	1.265	1.285	1.264	1.286	1.263	1.287	1.261	1.289	1.26	1.291	1.258	1.293
1.250	1.243	1.257	1.243	1.257	1.242	1.258	1.241	1.259	1.24	1.261	1.238	1.262	1.237	1.263	1.235	1.265	1.234	1.267
1.225	1.219	1.231	1.218	1.232	1.217	1.233	1.216	1.234	1.215	1.235	1.214	1.236	1.213	1.238	1.211	1.239	1.209	1.241
1.200	1.194	1.206	1.193	1.207	1.193	1.208	1.192	1.209	1.191	1.21	1.189	1.211	1.188	1.212	1.187	1.214	1.185	1.215
1.175	1.169	1.181	1.169	1.181	1.168	1.182	1.167	1.183	1.166	1.184	1.165	1.185	1.164	1.186	1.162	1.188	1.161	1.19
1.150	1.145	1.155	1.144	1.156	1.143	1.157	1.142	1.158	1.141	1.159	1.14	1.16	1.139	1.161	1.138	1.162	1.137	1.164
1.125	1.12	1.13	1.119	1.131	1.119	1.132	1.118	1.132	1.117	1.133	1.116	1.134	1.115	1.135	1.114	1.137	1.112	1.138
1.100	1.095	1.105	1.095	1.105	1.094	1.106	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.11	1.089	1.111	1.088	1.112
1.075	1.07	1.08	1.07	1.08	1.069	1.081	1.069	1.082	1.068	1.082	1.067	1.083	1.066	1.084	1.065	1.085	1.064	1.087
1.050	1.046	1.054	1.045	1.055	1.045	1.056	1.044	1.056	1.043	1.057	1.042	1.058	1.041	1.059	1.04	1.06	1.039	1.061

8	9	10	11	13	14	16	18	20	22
62.988	56.137	50.033	44.595	39.751	35.435	31.59	28.164	25.112	22.393

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
62.942	Infinity	56.092	Infinity	49.988	Infinity	44.551	Infinity	39.707	Infinity	35.391	Infinity	31.546	Infinity	28.121	Infinity	25.069	Infinity	22.35	Infinity
30.804	1257.895	29.076	Infinity	27.354	Infinity	25.651	Infinity	23.976	Infinity	22.34	Infinity	20.753	Infinity	19.221	Infinity	17.752	Infinity	16.352	Infinity
20.391	56.974	19.624	64.045	18.828	74.418	18.01	90.967	17.172	121.257	16.321	193.728	15.462	589.756	14.6	Infinity	13.741	Infinity	12.891	Infinity
15.24	29.147	14.809	30.882	14.354	33.093	13.876	35.988	13.376	39.91	12.857	45.477	12.321	53.929	11.77	68.166	11.209	96.921	10.64	184.309
12.166	19.583	11.892	20.346	11.598	21.278	11.286	22.431	10.955	23.886	10.606	25.763	10.24	28.257	9.859	31.707	9.464	36.749	9.058	44.748
10.124	14.745	9.934	15.171	9.73	15.68	9.51	16.294	9.276	17.043	9.026	17.972	8.761	19.144	8.482	20.658	8.19	22.673	7.885	25.466
8.669	11.824	8.53	12.094	8.38	12.414	8.218	12.793	8.043	13.248	7.855	13.799	7.655	14.476	7.442	15.32	7.218	16.394	6.981	17.797
7.911	10.444	7.796	10.654	7.671	10.9	7.535	11.19	7.388	11.536	7.23	11.95	7.061	12.452	6.88	13.069	6.688	13.839	6.486	14.822
7.132	9.115	7.038	9.274	6.937	9.459	6.826	9.675	6.706	9.931	6.576	10.235	6.436	10.599	6.287	11.041	6.127	11.583	5.957	12.26
6.33	7.833	6.257	7.949	6.177	8.084	6.089	8.241	5.994	8.424	5.891	8.641	5.779	8.897	5.659	9.204	5.53	9.576	5.392	10.031
5.92	7.209	5.856	7.307	5.786	7.42	5.71	7.552	5.626	7.705	5.536	7.885	5.437	8.097	5.331	8.35	5.217	8.653	5.095	9.021
5.505	6.596	5.45	6.678	5.389	6.772	5.323	6.881	5.251	7.007	5.172	7.155	5.086	7.328	4.994	7.534	4.894	7.778	4.787	8.073
5.083	5.994	5.036	6.061	4.985	6.138	4.929	6.227	4.867	6.329	4.799	6.449	4.726	6.589	4.646	6.753	4.56	6.949	4.467	7.182
4.655	5.402	4.616	5.456	4.573	5.518	4.526	5.589	4.474	5.671	4.418	5.767	4.356	5.877	4.288	6.007	4.215	6.16	4.136	6.341
4.439	5.11	4.403	5.158	4.364	5.213	4.322	5.276	4.275	5.349	4.223	5.434	4.167	5.532	4.105	5.646	4.038	5.78	3.966	5.939
4.221	4.821	4.189	4.863	4.154	4.912	4.115	4.968	4.073	5.032	4.026	5.106	3.975	5.192	3.919	5.292	3.859	5.41	3.793	5.548
4.001	4.533	3.973	4.571	3.941	4.614	3.907	4.663	3.868	4.719	3.826	4.784	3.781	4.859	3.73	4.946	3.676	5.048	3.616	5.168
3.78	4.249	3.755	4.281	3.727	4.319	3.696	4.361	3.662	4.41	3.624	4.467	3.583	4.532	3.538	4.607	3.489	4.695	3.436	4.798
3.602	4.023	3.579	4.052	3.553	4.085	3.526	4.123	3.495	4.167	3.461	4.217	3.424	4.274	3.383	4.341	3.338	4.418	3.289	4.509
3.422	3.798	3.402	3.824	3.379	3.853	3.354	3.887	3.326	3.925	3.296	3.97	3.262	4.02	3.225	4.079	3.185	4.147	3.141	4.226
3.332	3.686	3.313	3.711	3.291	3.738	3.268	3.77	3.241	3.806	3.212	3.847	3.181	3.895	3.146	3.95	3.107	4.013	3.065	4.087
3.242	3.575	3.224	3.598	3.203	3.624	3.181	3.653	3.156	3.687	3.129	3.726	3.099	3.77	3.065	3.821	3.029	3.881	2.989	3.949
3.151	3.464	3.134	3.485	3.115	3.51	3.094	3.537	3.07	3.569	3.045	3.605	3.016	3.646	2.985	3.694	2.95	3.749	2.913	3.813
3.06	3.354	3.044	3.373	3.026	3.396	3.006	3.422	2.984	3.451	2.96	3.485	2.933	3.523	2.904	3.568	2.871	3.619	2.836	3.678
2.969	3.243	2.954	3.262	2.937	3.283	2.919	3.307	2.898	3.334	2.875	3.366	2.85	3.401	2.822	3.443	2.792	3.49	2.758	3.545
2.878	3.134	2.864	3.151	2.848	3.17	2.83	3.193	2.811	3.218	2.79	3.247	2.766	3.28	2.74	3.318	2.711	3.362	2.68	3.413
2.786	3.024	2.773	3.04	2.758	3.058	2.742	3.079	2.724	3.102	2.704	3.129	2.681	3.16	2.657	3.195	2.63	3.236	2.601	3.282
2.694	2.915	2.682	2.93	2.668	2.946	2.653	2.965	2.636	2.987	2.617	3.012	2.597	3.04	2.574	3.073	2.549	3.11	2.521	3.153
2.602	2.806	2.59	2.82	2.578	2.835	2.564	2.853	2.548	2.873	2.53	2.896	2.511	2.922	2.49	2.951	2.467	2.986	2.441	3.025
2.509	2.698	2.499	2.71	2.487	2.724	2.474	2.741	2.459	2.759	2.443	2.78	2.425	2.804	2.406	2.831	2.384	2.862	2.36	2.898
2.463	2.644	2.453	2.656	2.441	2.669	2.429	2.685	2.415	2.702	2.399	2.722	2.382	2.745	2.363	2.771	2.342	2.801	2.319	2.835
2.417	2.59	2.407	2.601	2.396	2.614	2.384	2.629	2.37	2.646	2.355	2.665	2.339	2.687	2.321	2.712	2.301	2.74	2.279	2.773
2.37	2.536	2.361	2.547	2.35	2.559	2.339	2.573	2.326	2.589	2.311	2.608	2.296	2.628	2.278	2.652	2.259	2.679	2.237	2.711
2.324	2.482	2.314	2.493	2.304	2.504	2.293	2.518	2.281	2.533	2.267	2.551	2.252	2.57	2.235	2.593	2.217	2.619	2.196	2.649
2.277	2.428	2.268	2.438	2.259	2.45	2.248	2.462	2.236	2.477	2.223	2.494	2.208	2.513	2.192	2.534	2.175	2.559	2.155	2.587
2.23	2.375	2.222	2.384	2.213	2.395	2.202	2.407	2.191	2.421	2.179	2.437	2.165	2.455	2.149	2.475	2.132	2.499	2.113	2.526
2.183	2.321	2.175	2.33	2.167	2.341	2.157	2.352	2.146	2.365	2.134	2.38	2.121	2.397	2.106	2.417	2.09	2.439	2.072	2.465
2.136	2.268	2.129	2.276	2.121	2.286	2.111	2.297	2.101	2.31	2.089	2.324	2.077	2.34	2.063	2.359	2.047	2.38	2.03	2.404
2.089	2.214	2.082	2.223	2.074	2.232	2.065	2.242	2.056	2.254	2.045	2.268	2.032	2.283	2.019	2.301	2.004	2.321	1.988	2.344
2.042	2.161	2.036	2.169	2.028	2.178	2.02	2.188	2.01	2.199	2	2.212	1.988	2.226	1.975	2.243	1.961	2.262	1.946	2.284
1.995	2.108	1.989	2.115	1.982	2.124	1.974	2.133	1.965	2.144	1.955	2.156	1.944	2.17	1.932	2.185	1.918	2.203	1.903	2.224
1.948	2.055	1.942	2.062	1.935	2.07	1.928	2.079	1.919	2.089	1.91	2.1	1.899	2.113	1.888	2.128	1.875	2.145	1.861	2.164
1.925	2.028	1.919	2.035	1.912	2.043	1.904	2.051	1.896	2.061	1.887	2.072	1.877	2.085	1.866	2.099	1.853	2.116	1.839	2.135
1.901	2.002	1.895	2.008	1.889	2.016	1.881	2.024	1.873	2.034	1.864	2.045	1.854	2.057	1.843	2.071	1.831	2.087	1.818	2.105
1.877	1.975	1.872	1.982	1.865	1.989	1.858	1.997	1.85	2.006	1.842	2.017	1.832	2.029	1.821	2.042	1.809	2.058	1.796	2.075
1.854	1.949	1.848	1.955	1.842	1.962	1.835	1.97	1.827	1.979	1.819	1.989	1.81	2.001	1.799	2.014	1.788	2.029	1.775	2.046
1.83	1.923	1.825	1.929	1.819	1.935	1.812	1.943	1.805	1.952	1.796	1.962	1.787	1.973	1.777	1.986	1.766	2	1.753	2.017
1.806	1.896	1.801	1.902	1.795	1.909	1.789	1.916	1.782	1.924	1.774	1.934	1.765	1.945	1.755	1.957	1.744	1.971	1.732	1.987
1.782	1.87	1.777	1.875	1.772	1.882	1.766	1.889	1.759	1.897	1.751	1.906	1.742	1.917	1.732	1.929	1.722	1.943	1.71	1.958
1.759	1.843	1.754	1.849	1.748	1.855	1.742	1.862	1.735	1.87	1.728	1.879	1.72	1.889	1.71	1.901	1.7	1.914	1.688	1.929
1.735	1.817	1.73	1.822	1.725	1.828	1.719	1.835	1.712	1.843	1.705	1.852	1.697	1.861	1.688	1.873	1.678	1.885	1.667	1.9

1.711	1.791	1.707	1.796	1.701	1.802	1.696	1.808	1.689	1.816	1.682	1.824	1.674	1.834	1.665	1.845	1.656	1.857	1.645	1.871
1.687	1.764	1.683	1.769	1.678	1.775	1.672	1.781	1.666	1.789	1.659	1.797	1.652	1.806	1.643	1.816	1.634	1.828	1.623	1.842
1.664	1.738	1.659	1.743	1.654	1.748	1.649	1.755	1.643	1.762	1.636	1.769	1.629	1.778	1.621	1.788	1.611	1.8	1.601	1.813
1.64	1.712	1.636	1.717	1.631	1.722	1.626	1.728	1.62	1.734	1.613	1.742	1.606	1.751	1.598	1.76	1.589	1.772	1.579	1.784
1.616	1.686	1.612	1.69	1.607	1.695	1.602	1.701	1.597	1.707	1.59	1.715	1.583	1.723	1.576	1.733	1.567	1.743	1.557	1.756
1.592	1.659	1.588	1.664	1.584	1.669	1.579	1.674	1.573	1.681	1.567	1.688	1.561	1.696	1.553	1.705	1.545	1.715	1.535	1.727
1.568	1.633	1.564	1.637	1.56	1.642	1.555	1.648	1.55	1.654	1.544	1.66	1.538	1.668	1.53	1.677	1.522	1.687	1.513	1.698
1.544	1.607	1.541	1.611	1.536	1.616	1.532	1.621	1.527	1.627	1.521	1.633	1.515	1.641	1.508	1.649	1.5	1.659	1.491	1.67
1.52	1.581	1.517	1.585	1.513	1.589	1.508	1.594	1.503	1.6	1.498	1.606	1.492	1.613	1.485	1.622	1.478	1.631	1.469	1.641
1.496	1.555	1.493	1.559	1.489	1.563	1.485	1.568	1.48	1.573	1.475	1.579	1.469	1.586	1.462	1.594	1.455	1.603	1.447	1.613
1.472	1.529	1.469	1.532	1.465	1.536	1.461	1.541	1.457	1.546	1.452	1.552	1.446	1.559	1.44	1.566	1.433	1.575	1.425	1.585
1.448	1.503	1.445	1.506	1.442	1.51	1.438	1.514	1.433	1.519	1.428	1.525	1.423	1.532	1.417	1.539	1.41	1.547	1.402	1.556
1.424	1.477	1.421	1.48	1.418	1.484	1.414	1.488	1.41	1.493	1.405	1.498	1.4	1.504	1.394	1.511	1.387	1.519	1.38	1.528
1.4	1.451	1.397	1.454	1.394	1.457	1.39	1.461	1.386	1.466	1.382	1.471	1.377	1.477	1.371	1.484	1.365	1.491	1.358	1.5
1.376	1.425	1.374	1.428	1.37	1.431	1.367	1.435	1.363	1.439	1.359	1.444	1.354	1.45	1.348	1.457	1.342	1.464	1.335	1.472
1.352	1.399	1.35	1.402	1.347	1.405	1.343	1.409	1.339	1.413	1.335	1.418	1.33	1.423	1.325	1.429	1.319	1.436	1.313	1.444
1.328	1.373	1.326	1.375	1.323	1.379	1.319	1.382	1.316	1.386	1.312	1.391	1.307	1.396	1.302	1.402	1.297	1.409	1.29	1.416
1.304	1.347	1.302	1.349	1.299	1.352	1.296	1.356	1.292	1.36	1.288	1.364	1.284	1.369	1.279	1.375	1.274	1.381	1.268	1.388
1.28	1.321	1.278	1.323	1.275	1.326	1.272	1.329	1.269	1.333	1.265	1.337	1.261	1.342	1.256	1.348	1.251	1.354	1.245	1.361
1.256	1.295	1.254	1.297	1.251	1.3	1.248	1.303	1.245	1.307	1.241	1.311	1.237	1.315	1.233	1.32	1.228	1.326	1.223	1.333
1.232	1.269	1.23	1.271	1.227	1.274	1.224	1.277	1.221	1.28	1.218	1.284	1.214	1.288	1.21	1.293	1.205	1.299	1.2	1.305
1.208	1.243	1.205	1.245	1.203	1.248	1.201	1.251	1.198	1.254	1.194	1.258	1.191	1.262	1.187	1.266	1.182	1.272	1.177	1.278
1.183	1.217	1.181	1.219	1.179	1.222	1.177	1.224	1.174	1.228	1.171	1.231	1.167	1.235	1.163	1.239	1.159	1.244	1.154	1.25
1.159	1.191	1.157	1.193	1.155	1.196	1.153	1.198	1.15	1.201	1.147	1.204	1.144	1.208	1.14	1.212	1.136	1.217	1.131	1.223
1.135	1.166	1.133	1.167	1.131	1.17	1.129	1.172	1.126	1.175	1.123	1.178	1.12	1.182	1.117	1.186	1.113	1.19	1.109	1.195
1.111	1.14	1.109	1.142	1.107	1.144	1.105	1.146	1.102	1.149	1.1	1.152	1.097	1.155	1.093	1.159	1.09	1.163	1.086	1.168
1.086	1.114	1.085	1.116	1.083	1.118	1.081	1.12	1.079	1.122	1.076	1.125	1.073	1.128	1.07	1.132	1.067	1.136	1.063	1.141
1.062	1.088	1.061	1.09	1.059	1.092	1.057	1.094	1.055	1.096	1.052	1.099	1.05	1.102	1.047	1.105	1.043	1.109	1.04	1.113
1.038	1.062	1.036	1.064	1.035	1.066	1.033	1.068	1.031	1.07	1.029	1.073	1.026	1.075	1.023	1.079	1.02	1.082	1.016	1.086

Focal Length 110mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	583'4.31"	519'9.4"	463'1.72"	412'8.17"	367'8.72"	327'8.09"	291'11.94"	260'2.48"	231'10.64"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	583'1.42"	Infinity	519'6.75"	Infinity	462'11.27"	Infinity	412'5.9"	Infinity	367'6.56"	Infinity	327'6.05"	Infinity	291'9.95"	Infinity	260'0.55"	Infinity	231'8.76"	Infinity
200'0''	149'1.69"	303'9.11"	144'7.69"	324'4.66"	139'10.84"	351'1.95"	134'11.32"	387'0.33"	129'9.37"	437'1.87"	124'5.26"	511'6.61"	118'11.33"	632'4.69"	113'3.96"	860'8.33"	107'7.56"	1447'6.29"
100'0''	85'6.03"	120'5.5"	84'0.15"	123'6.68"	82'4.81"	127'2.77"	80'7.97"	131'7.51"	78'9.61"	136'11.24"	76'9.72"	143'5.21"	74'8.31"	151'6.07"	72'5.41"	161'8.71"	70'1.09"	174'11.77"
70'0''	62'7.26"	79'4.72"	61'9.68"	80'8.66"	60'11.2"	82'3.19"	59'11.8"	84'0.87"	58'11.42"	86'2.36"	57'10.03"	88'8.57"	56'7.59"	91'8.67"	55'4.09"	95'4.23"	53'11.51"	99'9.46"
50'0''	46'1.59"	54'7"	45'8.4"	55'2.44"	45'2.69"	55'11"	44'8.43"	56'8.88"	44'1.56"	57'8.33"	43'6.07"	58'9.64"	42'9.91"	60'1.22"	42'1.05"	61'7.55"	41'3.47"	63'5.28"
40'0''	37'5.99"	42'10.36"	37'2.58"	43'2.91"	36'10.8"	43'8.12"	36'6.65"	44'2.09"	36'2.07"	44'8.96"	35'9.05"	45'4.89"	35'3.56"	46'2.08"	34'9.55"	47'0.78"	34'3.02"	48'1.29"
35'0''	33'0.93"	37'1.96"	32'10.28"	37'5.36"	32'7.35"	37'9.25"	32'4.11"	38'1.69"	32'0.54"	38'6.78"	31'8.61"	39'0.64"	31'4.3"	39'7.39"	30'11.57"	40'3.21"	30'6.41"	41'0.3"
30'0''	28'7.01"	31'6.8"	28'5.04"	31'9.24"	28'2.85"	32'0.02"	28'0.43"	32'3.18"	27'9.76"	32'6.8"	27'6.81"	32'10.95"	27'3.57"	33'3.7"	27'	33'9.19"	26'8.09"	34'3.53"
25'0''	24'0.19"	26'0.84"	23'10.81"	26'2.49"	23'9.28"	26'4.36"	23'7.57"	26'6.49"	23'5.69"	26'8.92"	23'3.6"	26'11.69"	23'1.29"	27'2.85"	22'10.75"	27'6.48"	22'7.95"	27'10.65"
22'0''	21'2.87"	22'9.83"	21'1.79"	22'11.08"	21'0.6"	23'0.51"	20'11.27"	23'2.12"	20'9.8"	23'3.96"	20'8.16"	23'6.05"	20'6.36"	23'8.43"	20'4.36"	23'11.16"	20'2.16"	24'2.29"
20'0''	19'4.47"	20'8.05"	19'3.58"	20'9.08"	19'2.59"	20'10.24"	19'1.49"	20'11.55"	19'0.26"	21'1.04"	18'10.91"	21'2.74"	18'9.4"	21'4.68"	18'7.74"	21'6.88"	18'5.9"	21'9.41"
19'0''	18'5.21"	19'7.23"	18'4.41"	19'8.15"	18'3.51"	19'9.19"	18'2.52"	19'10.37"	18'1.41"	19'11.7"	18'0.18"	20'1.22"	17'10.82"	20'2.95"	17'9.32"	20'4.92"	17'7.65"	20'7.17"
18'0''	17'5.92"	18'6.46"	17'5.2"	18'7.28"	17'4.39"	18'8.2"	17'3.5"	18'9.25"	17'2.5"	18'10.44"	17'1.4"	18'11.79"	17'0.18"	19'1.32"	16'10.82"	19'3.07"	16'9.32"	19'5.07"
17'0''	16'6.58"	17'5.73"	16'5.94"	17'6.45"	16'5.23"	17'7.27"	16'4.43"	17'8.2"	16'3.54"	17'9.25"	16'2.55"	17'10.44"	16'1.46"	17'11.8"	16'0.24"	18'1.34"	15'10.9"	18'3.1"
16'0''	15'7.22"	16'5.04"	15'6.65"	16'5.68"	15'6.01"	16'6.4"	15'5.31"	16'7.21"	15'4.52"	16'8.14"	15'3.64"	16'9.18"	15'2.67"	16'10.37"	15'1.59"	16'11.72"	15'0.4"	17'1.26"
15'0''	14'7.81"	15'4.4"	14'7.31"	15'4.96"	14'6.75"	15'5.59"	14'6.13"	15'6.29"	14'5.44"	15'7.1"	14'4.67"	15'8.01"	14'3.81"	15'9.04"	14'2.86"	15'10.21"	14'1.81"	15'11.54"
14'0''	13'8.36"	14'3.81"	13'7.93"	14'4.29"	13'7.44"	14'4.83"	13'6.9"	14'5.44"	13'6.3"	14'6.13"	13'5.63"	14'6.91"	13'4.88"	14'7.8"	13'4.06"	14'8.81"	13'3.14"	14'9.95"
13'0''	12'8.88"	13'3.26"	12'8.5"	13'3.67"	12'8.09"	13'4.13"	12'7.62"	13'4.65"	12'7.1"	13'5.24"	12'6.53"	13'5.9"	12'5.88"	13'6.66"	12'5.17"	13'7.51"	12'4.37"	13'8.49"
12'6''	12'3.12"	12'9"	12'2.78"	12'9.37"	12'2.39"	12'9.8"	12'1.96"	12'10.28"	12'1.48"	12'10.82"	12'0.95"	12'11.43"	12'0.36"	13'0.12"	11'11.7"	13'0.91"	11'10.96"	13'1.8"
12'0''	11'9.36"	12'2.75"	11'9.04"	12'3.09"	11'8.68"	12'3.48"	11'8.29"	12'3.92"	11'7.85"	12'4.42"	11'7.36"	12'4.98"	11'6.81"	12'5.61"	11'6.2"	12'6.33"	11'5.52"	12'7.15"
11'6''	11'3.58"	11'8.51"	11'3.29"	11'8.83"	11'2.96"	11'9.18"	11'2.6"	11'9.58"	11'2.2"	11'10.03"	11'1.75"	11'10.54"	11'1.25"	11'11.12"	11'0.69"	11'11.78"	11'0.07"	12'0.52"
11'0''	10'9.79"	11'2.29"	10'9.53"	11'2.57"	10'9.23"	11'2.89"	10'8.9"	11'3.26"	10'8.53"	11'3.67"	10'8.12"	11'4.13"	10'7.66"	11'4.66"	10'7.15"	11'5.25"	10'6.58"	11'5.92"
10'6''	10'4"	10'8.07"	10'3.76"	10'8.33"	10'3.49"	10'8.62"	10'3.19"	10'8.95"	10'2.85"	10'9.32"	10'2.48"	10'9.74"	10'2.06"	10'10.21"	10'1.6"	10'10.75"	10'1.08"	10'11.36"
10'0''	9'10.19"	10'1.87"	9'9.98"	10'2.1"	9'9.73"	10'2.36"	9'9.46"	10'2.66"	9'9.16"	10'2.99"	9'8.82"	10'3.37"	9'8.44"	10'3.79"	9'8.02"	10'4.28"	9'7.55"	10'4.82"
9'6''	9'4.38"	9'7.67"	9'4.18"	9'7.88"	9'3.96"	9'8.12"	9'3.72"	9'8.38"	9'3.45"	9'8.68"	9'3.14"	9'9.02"	9'2.8"	9'9.4"	9'2.43"	9'9.83"	9'2"	9'10.31"
9'0''	8'10.55"	9'1.49"	8'10.38"	9'1.67"	8'10.18"	9'1.88"	8'9.97"	9'2.12"	8'9.72"	9'2.38"	8'9.45"	9'2.68"	8'9.15"	9'3.02"	8'8.81"	9'3.4"	8'8.43"	9'3.84"
8'9''	8'7.64"	8'10.4"	8'7.47"	8'10.58"	8'7.29"	8'10.77"	8'7.08"	8'10.99"	8'6.85"	8'11.24"	8'6.6"	8'11.53"	8'6.31"	8'11.84"	8'5.99"	9'0.2"	8'5.64"	9'0.61"
8'6''	8'4.72"	8'7.32"	8'4.56"	8'7.48"	8'4.39"	8'7.66"	8'4.2"	8'7.87"	8'3.98"	8'8.11"	8'3.74"	8'8.37"	8'3.47"	8'8.67"	8'3.17"	8'9.01"	8'2.83"	8'9.39"
8'3''	8'1.8"	8'4.23"	8'1.65"	8'4.39"	8'1.49"	8'4.56"	8'1.31"	8'4.76"	8'1.11"	8'4.98"	8'0.88"	8'5.22"	8'0.63"	8'5.5"	8'0.34"	8'5.82"	8'0.03"	8'6.17"
8'0''	7'10.87"	8'1.16"	7'10.74"	8'1.3"	7'10.59"	8'1.46"	7'10.42"	8'1.64"	7'10.23"	8'1.85"	7'10.01"	8'2.08"	7'9.78"	8'2.34"	7'9.51"	8'2.64"	7'9.21"	8'2.97"
7'9''	7'7.95"	7'10.08"	7'7.82"	7'10.21"	7'7.68"	7'10.36"	7'7.52"	7'10.53"	7'7.34"	7'10.72"	7'7.14"	7'10.94"	7'6.92"	7'11.18"	7'6.67"	7'11.46"	7'6.4"	7'11.77"
7'6''	7'5.02"	7'7"	7'4.9"	7'7.13"	7'4.77"	7'7.27"	7'4.62"	7'7.43"	7'4.45"	7'7.61"	7'4.27"	7'7.81"	7'4.06"	7'8.03"	7'3.83"	7'8.29"	7'3.57"	7'8.58"
7'3''	7'2.09"	7'3.93"	7'1.98"	7'4.05"	7'1.85"	7'4.18"	7'1.72"	7'4.33"	7'1.56"	7'4.49"	7'1.39"	7'4.68"	7'1.2"	7'4.89"	7'0.98"	7'5.12"	7'0.74"	7'5.39"
7'0''	6'11.15"	7'0.86"	6'11.05"	7'0.97"	6'10.94"	7'1.09"	6'10.81"	7'1.23"	6'10.67"	7'1.38"	6'10.51"	7'1.55"	6'10.33"	7'1.75"	6'10.13"	7'1.97"	6'9.9"	7'2.21"
6'9''	6'8.22"	6'9.8"	6'8.12"	6'9.9"	6'8.02"	6'10.01"	6'7.9"	6'10.13"	6'7.77"	6'10.27"	6'7.62"	6'10.43"	6'7.45"	6'10.61"	6'7.27"	6'10.82"	6'7.06"	6'11.04"
6'6''	6'5.28"	6'6.73"	6'5.19"	6'6.83"	6'5.1"	6'6.93"	6'4.99"	6'7.04"	6'4.86"	6'7.17"	6'4.73"	6'7.32"	6'4.57"	6'7.48"	6'4.4"	6'7.67"	6'4.21"	6'7.88"
6'3''	6'2.34"	6'3.67"	6'2.26"	6'3.76"	6'2.17"	6'3.85"	6'2.07"	6'3.96"	6'1.96"	6'4.08"	6'1.83"	6'4.21"	6'1.69"	6'4.36"	6'1.53"	6'4.53"	6'1.36"	6'4.72"
6'0''	5'11.4"	6'0.62"	5'11.32"	6'0.69"	5'11.24"	6'0.78"	5'11.15"	6'0.87"	5'11.05"	6'0.98"	5'10.93"	6'1.1"	5'10.8"	6'1.24"	5'10.66"	6'1.4"	5'10.5"	6'1.57"
5'11''	5'10.41"	5'11.6"	5'10.34"	5'11.67"	5'10.26"	5'11.75"	5'10.17"	5'11.85"	5'10.07"	5'11.95"	5'9.96"	6'0.07"	5'9.84"	6'0.2"	5'9.7"	6'0.36"	5'9.54"	6'0.52"
5'10''	5'9.43"	5'10.58"	5'9.36"	5'10.65"	5'9.29"	5'10.73"	5'9.2"	5'10.82"	5'9.1"	5'10.92"	5'8.99"	5'11.04"	5'8.87"	5'11.17"	5'8.74"	5'11.31"	5'8.59"	5'11.48"
5'9''	5'8.45"	5'9.56"	5'8.38"	5'9.63"	5'8.31"	5'9.71"	5'8.22"	5'9.79"	5'8.13"	5'9.89"	5'8.03"	5'10"	5'7.91"	5'10.13"	5'7.78"	5'10.27"	5'7.63"	5'10.43"
5'8''	5'7.47"	5'8.54"	5'7.4"	5'8.61"	5'7.33"	5'8.68"	5'7.25"	5'8.77"	5'7.16"	5'8.87"	5'7.06"	5'8.97"	5'6.94"	5'9.09"	5'6.82"	5'9.23"	5'6.67"	5'9.38"
5'7''	5'6.48"	5'7.52"	5'6.42"	5'7.59"	5'6.35"	5'7.66"	5'6.27"	5'7.74"	5'6.19"	5'7.84"	5'6.09"	5'7.94"	5'5.98"	5'8.06"	5'5.85"	5'8.19"	5'5.72"	5'8.34"
5'6''	5'5.5"	5'6.51"	5'5.44"	5'6.57"	5'5.37"	5'6.64"	5'5.3"	5'6.72"	5'5.21"	5'6.81"	5'5.12"	5'6.91"	5'5.01"	5'7.02"	5'4.89"	5'7.15"	5'4.76"	5'7.29"
5'5''	5'4.52"	5'5.49"	5'4.46"	5'5.55"	5'4.39"	5'5.62"	5'4.32"	5'5.7"	5'4.24"	5'5.78"	5'4.15"	5'5.88"	5'4.04"	5'5.99"	5'3.93"	5'6.11"	5'3.8"	5'6.25"
5'4''	5'3.53"	5'4.47"	5'3.48"	5'4.53"	5'3.41"	5'4.6"	5'3.34"	5'4.67"	5'3.26"	5'4.76"	5'3.18"	5'4.85"	5'3.08"	5'4.95"	5'2.96"	5'5.07"	5'2.84"	5'5.21"
5'3''	5'2.55"	5'3.46"	5'2.5"	5'3.51"	5'2.43"	5'3.58"	5'2.37"	5'3.65"	5'2.29"	5'3.73"	5'2.2"	5'3.82"	5'2.11"	5'3.92"	5'2"	5'4.04"	5'1.88"	5'4.17"
5'2''	5'1.57"	5'2.44"	5'1.51"	5'2.5"	5'1.45"	5'2.56"	5'1.39"	5'2.63"	5'1.31"	5'2.7"	5'1.23"	5'2.79"	5'1.14"	5'2.89"	5'1.03"	5'3"	5'0.92"	5'3.12"
5'1''	5'0.58"	5'1.42"	5'0.53"	5'1.48"	5'0.47"	5'1.54"	5'0.41"	5'1.6"	5'0.34"	5'1.68"	5'0.26"	5'1.76"	5'0.17"	5'1.86"	5'0.07"	5'1.96"	4'11.96"	5'2.08"
5'0''	4'11.6"	5'0.41"	4'11.55"	5'0.46"	4'11.49"	5'0.52"	4'11.43"	5'0.58"	4'11.36"	5'0.65"	4'11.29"	5'0.73"	4'11.2"	5'0.83"	4'11.1"	5'0.93"	4'11"	5'1.04"
4'11''	4'10.61"	4'11.39"	4'10.56"	4'11.44"	4'10.51"	4'11.5"	4'10.45"	4'11.56"	4'10.39"	4'11.63"	4'10.31"	4'11.71"	4'10.23"	4'11.79"	4'10.14"	4'11.89"	4'10.03"	5'

4'10''	4'9.63"	4'10.38"	4'9.58"	4'10.43"	4'9.53"	4'10.48"	4'9.47"	4'10.54"	4'9.41"	4'10.6"	4'9.34"	4'10.68"	4'9.26"	4'10.76"	4'9.17"	4'10.86"	4'9.07"	4'10.97"
4'9''	4'8.64"	4'9.36"	4'8.6"	4'9.41"	4'8.55"	4'9.46"	4'8.49"	4'9.52"	4'8.43"	4'9.58"	4'8.36"	4'9.65"	4'8.29"	4'9.73"	4'8.2"	4'9.83"	4'8.1"	4'9.93"
4'8''	4'7.65"	4'8.35"	4'7.61"	4'8.39"	4'7.57"	4'8.44"	4'7.51"	4'8.5"	4'7.45"	4'8.56"	4'7.39"	4'8.63"	4'7.31"	4'8.71"	4'7.23"	4'8.79"	4'7.14"	4'8.89"
4'7''	4'6.67"	4'7.34"	4'6.63"	4'7.38"	4'6.58"	4'7.42"	4'6.53"	4'7.48"	4'6.48"	4'7.54"	4'6.41"	4'7.6"	4'6.34"	4'7.68"	4'6.26"	4'7.76"	4'6.17"	4'7.86"
4'6''	4'5.68"	4'6.32"	4'5.64"	4'6.36"	4'5.6"	4'6.41"	4'5.55"	4'6.46"	4'5.5"	4'6.51"	4'5.44"	4'6.58"	4'5.37"	4'6.65"	4'5.29"	4'6.73"	4'5.21"	4'6.82"
4'5''	4'4.7"	4'5.31"	4'4.66"	4'5.35"	4'4.62"	4'5.39"	4'4.57"	4'5.44"	4'4.52"	4'5.49"	4'4.46"	4'5.55"	4'4.39"	4'5.62"	4'4.32"	4'5.7"	4'4.24"	4'5.79"
4'4''	4'3.71"	4'4.3"	4'3.67"	4'4.33"	4'3.63"	4'4.37"	4'3.59"	4'4.42"	4'3.54"	4'4.47"	4'3.48"	4'4.53"	4'3.42"	4'4.59"	4'3.35"	4'4.67"	4'3.27"	4'4.75"
4'3''	4'2.72"	4'3.28"	4'2.69"	4'3.32"	4'2.65"	4'3.36"	4'2.61"	4'3.4"	4'2.56"	4'3.45"	4'2.51"	4'3.51"	4'2.45"	4'3.57"	4'2.38"	4'3.64"	4'2.3"	4'3.72"
4'2''	4'1.73"	4'2.27"	4'1.7"	4'2.3"	4'1.66"	4'2.34"	4'1.62"	4'2.38"	4'1.58"	4'2.43"	4'1.53"	4'2.48"	4'1.47"	4'2.54"	4'1.41"	4'2.61"	4'1.33"	4'2.69"
4'1''	4'0.75"	4'1.26"	4'0.71"	4'1.29"	4'0.68"	4'1.32"	4'0.64"	4'1.36"	4'0.6"	4'1.41"	4'0.55"	4'1.46"	4'0.49"	4'1.52"	4'0.43"	4'1.58"	4'0.36"	4'1.65"
4'0''	3'11.76"	4'0.25"	3'11.73"	4'0.28"	3'11.69"	4'0.31"	3'11.66"	4'0.35"	3'11.62"	4'0.39"	3'11.57"	4'0.44"	3'11.52"	4'0.49"	3'11.46"	4'0.55"	3'11.39"	4'0.62"
3'11''	3'10.77"	3'11.23"	3'10.74"	3'11.26"	3'10.71"	3'11.29"	3'10.67"	3'11.33"	3'10.63"	3'11.37"	3'10.59"	3'11.42"	3'10.54"	3'11.47"	3'10.49"	3'11.53"	3'10.42"	3'11.59"
3'10''	3'9.78"	3'10.22"	3'9.75"	3'10.25"	3'9.72"	3'10.28"	3'9.69"	3'10.31"	3'9.65"	3'10.35"	3'9.61"	3'10.4"	3'9.56"	3'10.45"	3'9.51"	3'10.5"	3'9.45"	3'10.56"
3'9''	3'8.79"	3'9.21"	3'8.77"	3'9.24"	3'8.74"	3'9.27"	3'8.71"	3'9.3"	3'8.67"	3'9.34"	3'8.63"	3'9.38"	3'8.58"	3'9.42"	3'8.53"	3'9.48"	3'8.48"	3'9.54"
3'8''	3'7.8"	3'8.2"	3'7.78"	3'8.22"	3'7.75"	3'8.25"	3'7.72"	3'8.28"	3'7.69"	3'8.32"	3'7.65"	3'8.36"	3'7.61"	3'8.4"	3'7.56"	3'8.45"	3'7.51"	3'8.51"
3'7''	3'6.81"	3'7.19"	3'6.79"	3'7.21"	3'6.76"	3'7.24"	3'6.74"	3'7.27"	3'6.7"	3'7.3"	3'6.67"	3'7.34"	3'6.63"	3'7.38"	3'6.58"	3'7.43"	3'6.53"	3'7.48"
3'6''	3'5.82"	3'6.18"	3'5.8"	3'6.2"	3'5.78"	3'6.23"	3'5.75"	3'6.25"	3'5.72"	3'6.29"	3'5.69"	3'6.32"	3'5.65"	3'6.36"	3'5.6"	3'6.4"	3'5.56"	3'6.45"
3'5''	3'4.83"	3'5.17"	3'4.81"	3'5.19"	3'4.79"	3'5.21"	3'4.76"	3'5.24"	3'4.73"	3'5.27"	3'4.7"	3'5.3"	3'4.67"	3'5.34"	3'4.63"	3'5.38"	3'4.58"	3'5.43"

8	9	10	11	13	14	16	18	20	22
206'7.84"	184'2.12"	164'1.8"	146'3.71"	130'5"	116'3.08"	103'7.7"	92'4.82"	82'4.66"	73'5.61"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
206'6.03"	Infinity	184'0.33"	Infinity	164'0.05"	Infinity	146'1.98"	Infinity	130'3.27"	Infinity	116'1.36"	Infinity	103'5.98"	Infinity	92'3.12"	Infinity	82'2.98"	Infinity	73'3.94"	Infinity
101'10.58"	6177'6.7"	96'1.46"	Infinity	90'4.68"	Infinity	84'8.67"	Infinity	79'1.87"	Infinity	73'8.68"	Infinity	68'5.47"	Infinity	63'4.53"	Infinity	58'6.14"	Infinity	53'10.5"	Infinity
67'7.44"	192'8.62"	65'0.57"	217'5.72"	62'4.62"	254'1.79"	59'7.76"	313'6.4"	56'10.18"	425'1.41"	54'0.07"	708'3.83"	51'1.67"	2816'2.33"	48'3.19"	Infinity	45'4.88"	Infinity	42'6.94"	Infinity
52'5.88"	105'3.46"	50'11.21"	112'2.82"	49'3.53"	121'2.62"	47'6.92"	133'2.31"	45'9.45"	149'9.81"	43'11.21"	174'3.02"	42'0.32"	213'4.15"	40'0.91"	285'3.15"	38'1.12"	459'2.84"	36'1.1"	1460'2.86"
40'5.14"	65'7.26"	39'6.06"	68'2.63"	38'6.21"	71'4.98"	37'5.61"	75'4.58"	36'4.27"	80'4.79"	35'2.22"	86'10.75"	33'11.5"	95'6.87"	32'8.17"	107'7.83"	31'4.3"	125'5.7"	29'11.97"	154'1.95"
33'7.93"	49'4.02"	33'0.26"	50'9.48"	32'3.99"	52'6.37"	31'7.12"	54'7.6"	30'9.64"	57'2.47"	29'11.56"	60'4.81"	29'0.89"	64'5.34"	28'1.65"	69'8.26"	27'1.89"	76'8.41"	26'1.64"	86'5.79"
30'0.78"	41'10.93"	29'6.68"	42'11.43"	29'0.07"	44'2.22"	28'4.94"	45'7.89"	27'9.28"	47'5.19"	27'1.1"	49'7.19"	26'4.38"	52'3.39"	25'7.15"	55'8"	24'9.42"	60'0.39"	23'11.23"	65'10.05"
26'3.81"	34'10.88"	25'11.15"	35'7.47"	25'6.07"	36'5.54"	25'0.58"	37'5.44"	24'6.64"	38'7.59"	24'0.26"	40'0.6"	23'5.43"	41'9.26"	22'10.14"	43'10.7"	22'2.4"	46'6.56"	21'6.23"	49'11.31"
22'4.88"	28'3.47"	22'1.52"	28'9.04"	21'9.85"	29'3.52"	21'5.84"	29'11.1"	21'1.5"	30'8.01"	20'8.79"	31'6.56"	20'3.72"	32'7.16"	19'10.28"	33'10.36"	19'4.45"	35'4.92"	18'10.25"	37'3.91"
19'11.74"	24'5.88"	19'9.08"	24'10.02"	19'6.16"	25'2.81"	19'2.97"	25'8.38"	18'11.5"	26'2.89"	18'7.73"	26'10.54"	18'3.64"	27'7.58"	17'11.24"	28'6.37"	17'6.5"	29'7.36"	17'1.44"	30'11.2"
18'3.88"	22'0.3"	18'1.65"	22'3.63"	17'11.2"	22'7.47"	17'8.52"	22'11.91"	17'5.59"	23'5.08"	17'2.4"	23'11.13"	16'10.94"	24'6.23"	16'7.19"	25'2.65"	16'3.15"	26'0.71"	15'10.81"	27'0.84"
17'5.81"	20'9.75"	17'3.79"	21'0.71"	17'1.56"	21'4.12"	16'11.12"	21'8.06"	16'8.45"	22'0.63"	16'5.54"	22'5.97"	16'2.38"	23'0.22"	15'10.95"	23'7.6"	15'7.24"	24'4.39"	15'3.25"	25'2.93"
16'7.66"	19'7.35"	16'5.83"	19'9.97"	16'3.82"	20'0.98"	16'1.61"	20'4.45"	15'11.19"	20'8.48"	15'8.55"	21'1.16"	15'5.67"	21'6.63"	15'2.55"	22'1.07"	14'11.17"	22'8.7"	14'7.53"	23'5.82"
15'9.41"	18'5.11"	15'7.77"	18'7.41"	15'5.97"	18'10.05"	15'3.98"	19'1.09"	15'1.8"	19'4.6"	14'11.42"	19'8.69"	14'8.83"	20'1.44"	14'6"	20'7.03"	14'2.94"	21'1.61"	13'11.64"	21'9.45"
14'11.08"	17'3.01"	14'9.61"	17'5.02"	14'8"	17'7.32"	14'6.23"	17'9.96"	14'4.29"	18'1.01"	14'2.16"	18'4.54"	13'11.83"	18'8.65"	13'9.29"	19'1.45"	13'6.54"	19'7.1"	13'3.56"	20'1.79"
14'0.64"	16'1.06"	13'11.35"	16'2.8"	13'9.93"	16'4.78"	13'8.36"	16'7.06"	13'6.64"	16'9.69"	13'4.75"	17'0.72"	13'2.68"	17'4.24"	13'0.42"	17'8.34"	12'9.96"	18'1.14"	12'7.3"	18'6.81"
13'2.12"	14'11.26"	13'0.99"	15'0.74"	12'11.74"	15'2.44"	12'10.37"	15'4.39"	12'8.85"	15'6.63"	12'7.19"	15'9.21"	12'5.37"	16'0.19"	12'3.38"	16'3.66"	12'1.21"	16'7.71"	11'10.85"	17'0.46"
12'3.49"	13'9.59"	12'2.52"	13'10.85"	12'1.44"	14'0.29"	12'0.25"	14'1.94"	11'10.93"	14'3.82"	11'9.49"	14'5.99"	11'7.9"	14'8.5"	11'6.16"	14'11.4"	11'4.27"	15'2.77"	11'2.2"	15'6.72"
11'10.15"	13'2.81"	11'9.24"	13'3.97"	11'8.24"	13'5.29"	11'7.14"	13'6.79"	11'5.92"	13'8.51"	11'4.58"	13'10.49"	11'3.1"	14'0.78"	11'1.49"	14'3.42"	10'11.72"	14'6.49"	10'9.8"	14'10.07"
11'4.77"	12'8.07"	11'3.94"	12'9.13"	11'3.02"	12'10.33"	11'2"	12'11.7"	11'0.87"	13'1.27"	10'11.63"	13'3.07"	10'10.26"	13'5.14"	10'8.77"	13'7.54"	10'7.13"	13'10.32"	10'5.34"	14'1.56"
10'11.38"	12'1.36"	10'10.61"	12'2.32"	10'9.76"	12'3.41"	10'8.82"	12'4.66"	10'7.79"	12'6.08"	10'6.64"	12'7.72"	10'5.38"	12'9.59"	10'4"	12'11.76"	10'2.49"	13'2.27"	10'0.84"	13'5.19"
10'5.95"	11'6.69"	10'5.25"	11'7.56"	10'4.48"	11'8.54"	10'3.62"	11'9.67"	10'2.66"	11'10.96"	10'1.62"	12'0.43"	10'0.46"	12'2.12"	9'11.19"	12'4.07"	9'9.8"	12'6.33"	9'8.28"	12'8.95"
10'0.51"	11'0.05"	9'11.87"	11'0.83"	9'11.16"	11'1.72"	9'10.37"	11'2.73"	9'9.51"	11'3.89"	9'8.55"	11'5.22"	9'7.49"	11'6.74"	9'6.33"	11'8.48"	9'5.06"	11'10.5"	9'3.66"	12'0.84"
9'7.03"	10'5.44"	9'6.45"	10'6.14"	9'5.81"	10'6.94"	9'5.1"	10'7.85"	9'4.31"	10'8.88"	9'3.44"	10'10.07"	9'2.48"	10'11.43"	9'1.42"	11'0.98"	9'0.26"	11'2.78"	8'10.99"	11'4.86"
9'1.53"	9'10.87"	9'1.01"	9'11.49"	9'0.43"	10'0.2"	8'11.79"	10'1.01"	8'11.08"	10'1.94"	8'10.29"	10'2.99"	8'9.42"	10'4.19"	8'8.47"	10'5.57"	8'7.41"	10'7.16"	8'6.26"	10'9"
8'8.01"	9'4.33"	8'7.54"	9'4.88"	8'7.02"	9'5.51"	8'6.45"	9'6.23"	8'5.81"	9'7.04"	8'5.1"	9'7.97"	8'4.32"	9'9.04"	8'3.46"	9'10.25"	8'2.51"	9'11.65"	8'1.47"	10'1.27"
8'5.24"	9'1.07"	8'4.8"	9'1.59"	8'4.31"	9'2.18"	8'3.76"	9'2.85"	8'3.16"	9'3.62"	8'2.49"	9'4.49"	8'1.75"	9'5.49"	8'0.94"	9'6.63"	8'0.04"	9'7.94"	7'11.05"	9'9.44"
8'2.46"	8'9.82"	8'2.05"	8'10.31"	8'1.58"	8'10.86"	8'1.07"	8'11.49"	8'0.5"	9'0.21"	7'11.87"	9'1.02"	7'11.17"	9'1.96"	7'10.4"	9'3.02"	7'9.56"	9'4.24"	7'8.62"	9'5.65"
7'11.68"	8'6.58"	7'11.29"	8'7.04"	7'10.85"	8'7.55"	7'10.37"	8'8.14"	7'9.83"	8'8.81"	7'9.24"	8'9.57"	7'8.58"	8'10.44"	7'7.86"	8'11.44"	7'7.06"	9'0.58"	7'6.18"	9'1.89"
7'8.89"	8'3.35"	7'8.52"	8'3.77"	7'8.11"	8'4.26"	7'7.66"	8'4.81"	7'7.15"	8'5.43"	7'6.6"	8'6.14"	7'5.98"	8'6.95"	7'5.3"	8'7.87"	7'4.54"	8'8.93"	7'3.71"	8'10.15"
7'6.09"	8'0.12"	7'5.74"	8'0.52"	7'5.36"	8'0.97"	7'4.94"	8'1.48"	7'4.47"	8'2.06"	7'3.94"	8'2.72"	7'3.36"	8'3.47"	7'2.72"	8'4.33"	7'2.02"	8'5.32"	7'1.24"	8'6.45"
7'3.28"	7'8.9"	7'2.96"	7'9.27"	7'2.61"	7'9.69"	7'2.21"	7'10.17"	7'1.77"	7'10.71"	7'1.28"	7'11.32"	7'0.74"	8'0.02"	7'0.14"	8'0.81"	6'11.48"	8'1.72"	6'10.75"	8'2.77"
7'0.47"	7'5.7"	7'0.17"	7'6.04"	6'11.84"	7'6.43"	6'11.47"	7'6.86"	6'11.06"	7'7.36"	6'10.6"	7'7.93"	6'10.1"	7'8.58"	6'9.54"	7'9.31"	6'8.92"	7'10.15"	6'8.24"	7'11.12"
6'9.66"	7'2.49"	6'9.38"	7'2.81"	6'9.07"	7'3.17"	6'8.72"	7'3.57"	6'8.34"	7'4.04"	6'7.92"	7'4.56"	6'7.45"	7'5.15"	6'6.93"	7'5.83"	6'6.35"	7'6.61"	6'5.71"	7'7.49"
6'6.83"	6'11.3"	6'6.57"	6'11.59"	6'6.29"	6'11.92"	6'5.97"	7'0.3"	6'5.61"	7'0.72"	6'5.22"	7'1.2"	6'4.78"	7'1.75"	6'4.3"	7'2.37"	6'3.76"	7'3.08"	6'3.17"	7'3.9"
6'4"	6'8.12"	6'3.76"	6'8.38"	6'3.5"	6'8.69"	6'3.2"	6'9.03"	6'2.88"	6'9.42"	6'2.51"	6'9.86"	6'2.11"	6'10.36"	6'1.66"	6'10.93"	6'1.17"	6'11.58"	6'0.62"	7'0.33"
6'1.16"	6'4.94"	6'0.94"	6'5.19"	6'0.7"	6'5.46"	6'0.43"	6'5.78"	6'0.13"	6'6.13"	5'11.79"	6'6.53"	5'11.42"	6'6.99"	5'11.01"	6'7.51"	5'10.55"	6'8.11"	5'10.04"	6'8.78"
5'10.32"	6'1.77"	5'10.12"	6'1.99"	5'9.9"	6'2.25"	5'9.65"	6'2.53"	5'9.37"	6'2.86"	5'9.06"	6'3.22"	5'8.72"	6'3.64"	5'8.34"	6'4.11"	5'7.92"	6'4.65"	5'7.46"	6'5.27"
5'9.37"	6'0.72"	5'9.18"	6'0.93"	5'8.96"	6'1.18"	5'8.72"	6'1.45"	5'8.45"	6'1.77"	5'8.15"	6'2.12"	5'7.82"	6'2.53"	5'7.45"	6'2.98"	5'7.04"	6'3.51"	5'6.59"	6'4.1"
5'8.42"	5'11.66"	5'8.23"	5'11.87"	5'8.02"	6'0.11"	5'7.79"	6'0.38"	5'7.53"	6'0.68"	5'7.24"	6'1.02"	5'6.91"	6'1.41"	5'6.56"	6'1.86"	5'6.16"	6'2.36"	5'5.72"	6'2.94"
5'7.47"	5'10.61"	5'7.29"	5'10.81"	5'7.08"	5'11.04"	5'6.85"	5'11.3"	5'6.6"	5'11.59"	5'6.32"	5'11.93"	5'6.01"	6'0.3"	5'5.66"	6'0.73"	5'5.28"	6'1.22"	5'4.85"	6'1.78"
5'6.52"	5'9.56"	5'6.34"	5'9.75"	5'6.14"	5'9.98"	5'5.92"	5'10.23"	5'5.68"	5'10.51"	5'5.4"	5'10.83"	5'5.1"	5'11.2"	5'4.77"	5'11.61"	5'4.39"	6'0.08"	5'3.98"	6'0.62"
5'5.56"	5'8.51"	5'5.39"	5'8.7"	5'5.2"	5'8.91"	5'4.99"	5'9.15"	5'4.75"	5'9.43"	5'4.49"	5'9.74"	5'4.19"	5'10.09"	5'3.87"	5'10.49"	5'3.51"	5'10.95"	5'3.1"	5'11.46"
5'4.61"	5'7.46"	5'4.44"	5'7.64"	5'4.26"	5'7.85"	5'4.05"	5'8.08"	5'3.82"	5'8.35"	5'3.57"	5'8.65"	5'3.28"	5'8.99"	5'2.97"	5'9.37"	5'2.62"	5'9.81"	5'2.23"	5'10.31"
5'3.66"	5'6.41"	5'3.5"	5'6.58"	5'3.32"	5'6.78"	5'3.12"	5'7.01"	5'2.9"	5'7.27"	5'2.65"	5'7.56"	5'2.37"	5'7.88"	5'2.07"	5'8.26"	5'1.73"	5'8.68"	5'1.35"	5'9.16"
5'2.7"	5'5.36"	5'2.55"	5'5.53"	5'2.37"	5'5.72"	5'2.18"	5'5.94"	5'1.97"	5'6.19"	5'1.73"	5'6.47"	5'1.46"	5'6.78"	5'1.16"	5'7.14"	5'0.84"	5'7.55"	5'0.47"	5'8.02"
5'1.75"	5'4.31"	5'1.6"	5'4.48"	5'1.43"	5'4.66"	5'1.24"	5'4.87"	5'1.03"	5'5.11"	5'0.8"	5'5.38"	5'0.55"	5'5.68"	5'0.26"	5'6.03"	4'11.94"	5'6.42"	4'11.59"	5'6.87"
5'0.79"	5'3.26"	5'0.64"	5'3.42"	5'0.48"	5'3.6"	5'0.3"	5'3.81"	5'0.1"	5'4.03"	4'11.88"	5'4.29"	4'11.63"	5'4.59"	4'11.35"	5'4.92"	4'11.05"	5'5.3"	4'10.71"	5'5.73"
4'11.83"	5'2.22"	4'11.69"	5'2.37"	4'11.54"	5'2.54"	4'11.36"	5'2.74"	4'11.17"	5'2.96"	4'10.95"	5'3.21"	4'10.71"	5'3.49"	4'10.45"	5'3.81"	4'10.15"	5'4.18"	4'9.82"	5'4.59"
4'10.87"	5'1.17"	4'10.74"	5'1.32"	4'10.59"	5'1.49"	4'10.42"	5'1.68"	4'10.24"	5'1.89"	4'10.03"	5'2.13"	4'9.8"	5'2.4"	4'9.54"	5'2.71"	4'9.25"	5'3.06"	4'8.93"	5'3.46"
4'9.92"	5'0.13"	4'9.79"	5'0.27"	4'9.64"	5'0.43"	4'9.48"	5'0.61"	4'9.3"	5'0.82"	4'9.1"	5'1.05"	4'8.88"	5'1.31"	4'8.63"	5'1.61"	4'8.35"	5'1.94"	4'8.04"	5'2.33"

4'8.96"	4'11.09"	4'8.83"	4'11.22"	4'8.69"	4'11.38"	4'8.54"	4'11.55"	4'8.36"	4'11.75"	4'8.17"	4'11.97"	4'7.95"	5'0.22"	4'7.71"	5'0.5"	4'7.45"	5'0.83"	4'7.15"	5'1.2"
4'8"	4'10.04"	4'7.88"	4'10.18"	4'7.74"	4'10.32"	4'7.59"	4'10.49"	4'7.43"	4'10.68"	4'7.24"	4'10.89"	4'7.03"	4'11.13"	4'6.8"	4'11.41"	4'6.54"	4'11.72"	4'6.26"	5'0.07"
4'7.04"	4'9"	4'6.92"	4'9.13"	4'6.79"	4'9.27"	4'6.65"	4'9.43"	4'6.49"	4'9.61"	4'6.31"	4'9.82"	4'6.11"	4'10.05"	4'5.89"	4'10.31"	4'5.64"	4'10.61"	4'5.37"	4'10.94"
4'6.07"	4'7.96"	4'5.96"	4'8.08"	4'5.84"	4'8.22"	4'5.7"	4'8.37"	4'5.55"	4'8.55"	4'5.37"	4'8.74"	4'5.18"	4'8.96"	4'4.97"	4'9.21"	4'4.73"	4'9.5"	4'4.47"	4'9.82"
4'5.11"	4'6.92"	4'5.01"	4'7.04"	4'4.89"	4'7.17"	4'4.75"	4'7.31"	4'4.6"	4'7.48"	4'4.44"	4'7.67"	4'4.26"	4'7.88"	4'4.05"	4'8.12"	4'3.82"	4'8.39"	4'3.57"	4'8.7"
4'4.15"	4'5.88"	4'4.05"	4'5.99"	4'3.93"	4'6.12"	4'3.8"	4'6.26"	4'3.66"	4'6.42"	4'3.5"	4'6.6"	4'3.33"	4'6.8"	4'3.13"	4'7.03"	4'2.91"	4'7.29"	4'2.67"	4'7.59"
4'3.18"	4'4.85"	4'3.09"	4'4.95"	4'2.98"	4'5.07"	4'2.86"	4'5.2"	4'2.72"	4'5.36"	4'2.57"	4'5.53"	4'2.4"	4'5.72"	4'2.21"	4'5.94"	4'2"	4'6.19"	4'1.77"	4'6.47"
4'2.22"	4'3.81"	4'2.13"	4'3.91"	4'2.02"	4'4.02"	4'1.9"	4'4.15"	4'1.77"	4'4.3"	4'1.63"	4'4.46"	4'1.47"	4'4.65"	4'1.29"	4'4.86"	4'1.08"	4'5.09"	4'0.86"	4'5.36"
4'1.25"	4'2.77"	4'1.16"	4'2.87"	4'1.06"	4'2.98"	4'0.95"	4'3.1"	4'0.83"	4'3.24"	4'0.69"	4'3.39"	4'0.53"	4'3.57"	4'0.36"	4'3.77"	4'0.17"	4'4"	3'11.95"	4'4.25"
4'0.29"	4'1.74"	4'0.2"	4'1.83"	4'0.11"	4'1.93"	4'	4'2.05"	3'11.88"	4'2.18"	3'11.75"	4'2.33"	3'11.6"	4'2.5"	3'11.43"	4'2.69"	3'11.25"	4'2.9"	3'11.05"	4'3.15"
3'11.32"	4'0.7"	3'11.24"	4'0.79"	3'11.15"	4'0.89"	3'11.05"	4'1"	3'10.93"	4'1.12"	3'10.81"	4'1.27"	3'10.66"	4'1.43"	3'10.51"	4'1.61"	3'10.33"	4'1.81"	3'10.13"	4'2.05"
3'10.35"	3'11.67"	3'10.28"	3'11.75"	3'10.19"	3'11.84"	3'10.09"	3'11.95"	3'9.98"	4'0.07"	3'9.86"	4'0.2"	3'9.73"	4'0.36"	3'9.58"	4'0.53"	3'9.41"	4'0.72"	3'9.22"	4'0.95"
3'9.38"	3'10.63"	3'9.31"	3'10.71"	3'9.23"	3'10.8"	3'9.14"	3'10.9"	3'9.03"	3'11.02"	3'8.92"	3'11.14"	3'8.79"	3'11.29"	3'8.64"	3'11.45"	3'8.49"	3'11.64"	3'8.31"	3'11.85"
3'8.42"	3'9.6"	3'8.35"	3'9.68"	3'8.27"	3'9.76"	3'8.18"	3'9.86"	3'8.08"	3'9.97"	3'7.97"	3'10.09"	3'7.85"	3'10.22"	3'7.71"	3'10.38"	3'7.56"	3'10.55"	3'7.39"	3'10.75"
3'7.45"	3'8.57"	3'7.38"	3'8.64"	3'7.3"	3'8.72"	3'7.22"	3'8.81"	3'7.13"	3'8.91"	3'7.02"	3'9.03"	3'6.91"	3'9.16"	3'6.78"	3'9.31"	3'6.63"	3'9.47"	3'6.47"	3'9.66"
3'6.47"	3'7.54"	3'6.41"	3'7.61"	3'6.34"	3'7.68"	3'6.26"	3'7.77"	3'6.17"	3'7.87"	3'6.07"	3'7.97"	3'5.96"	3'8.1"	3'5.84"	3'8.24"	3'5.7"	3'8.39"	3'5.55"	3'8.57"
3'5.5"	3'6.51"	3'5.44"	3'6.57"	3'5.38"	3'6.65"	3'5.3"	3'6.73"	3'5.22"	3'6.82"	3'5.12"	3'6.92"	3'5.02"	3'7.04"	3'4.9"	3'7.17"	3'4.77"	3'7.32"	3'4.63"	3'7.48"
3'4.53"	3'5.48"	3'4.47"	3'5.54"	3'4.41"	3'5.61"	3'4.34"	3'5.69"	3'4.26"	3'5.77"	3'4.17"	3'5.87"	3'4.07"	3'5.98"	3'3.96"	3'6.1"	3'3.84"	3'6.24"	3'3.7"	3'6.4"

Focal Length 115mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	194.314	173.135	154.267	137.457	122.481	109.139	97.252	86.662	77.228

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	194.234	Infinity	173.063	Infinity	154.2	Infinity	137.395	Infinity	122.423	Infinity	109.084	Infinity	97.2	Infinity	86.613	Infinity	77.18	Infinity
60.000	45.903	86.652	44.62	91.642	43.263	97.975	41.836	106.217	40.342	117.294	38.788	132.851	37.18	156.096	35.528	194.263	33.841	267.786
30.000	26.026	35.416	25.611	36.217	25.161	37.161	24.674	38.282	24.149	39.623	23.587	41.245	22.986	43.232	22.347	45.705	21.671	48.843
20.000	18.162	22.256	17.96	22.568	17.738	22.929	17.496	23.348	17.232	23.838	16.946	24.412	16.635	25.091	16.3	25.9	15.939	26.872
15.000	13.947	16.227	13.828	16.391	13.698	16.579	13.554	16.796	13.396	17.047	13.223	17.337	13.034	17.674	12.828	18.069	12.605	18.535
12.000	11.32	12.768	11.242	12.869	11.156	12.984	11.061	13.116	10.956	13.267	10.841	13.441	10.714	13.642	10.576	13.875	10.425	14.146
10.000	9.526	10.524	9.471	10.592	9.41	10.67	9.343	10.758	9.268	10.859	9.186	10.975	9.096	11.108	8.996	11.261	8.887	11.438
9.000	8.616	9.421	8.571	9.475	8.521	9.537	8.466	9.607	8.405	9.687	8.338	9.779	8.263	9.884	8.181	10.004	8.092	10.143
8.000	7.696	8.329	7.661	8.371	7.621	8.419	7.577	8.474	7.529	8.536	7.475	8.606	7.415	8.687	7.35	8.78	7.277	8.886
7.000	6.768	7.249	6.74	7.281	6.71	7.317	6.676	7.358	6.639	7.404	6.597	7.457	6.551	7.517	6.5	7.586	6.443	7.664
6.500	6.3	6.713	6.276	6.741	6.25	6.771	6.221	6.806	6.188	6.846	6.152	6.891	6.112	6.942	6.068	7	6.019	7.067
6.000	5.83	6.181	5.81	6.203	5.787	6.229	5.762	6.259	5.735	6.292	5.704	6.33	5.669	6.373	5.632	6.422	5.59	6.477
5.500	5.357	5.651	5.341	5.67	5.322	5.691	5.301	5.715	5.277	5.743	5.251	5.774	5.222	5.81	5.19	5.85	5.155	5.896
5.000	4.883	5.123	4.869	5.139	4.853	5.156	4.836	5.176	4.816	5.199	4.795	5.224	4.771	5.253	4.744	5.286	4.715	5.323
4.750	4.644	4.861	4.632	4.875	4.618	4.89	4.602	4.908	4.585	4.928	4.565	4.951	4.543	4.977	4.519	5.006	4.493	5.04
4.500	4.405	4.599	4.394	4.611	4.382	4.625	4.367	4.641	4.352	4.659	4.334	4.679	4.315	4.702	4.293	4.728	4.269	4.758
4.250	4.166	4.338	4.156	4.349	4.145	4.361	4.132	4.375	4.118	4.391	4.103	4.409	4.085	4.429	4.066	4.452	4.045	4.478
4.000	3.926	4.077	3.917	4.087	3.907	4.098	3.896	4.11	3.884	4.124	3.87	4.14	3.854	4.157	3.837	4.178	3.818	4.2
3.800	3.733	3.869	3.725	3.878	3.716	3.888	3.706	3.899	3.695	3.911	3.683	3.925	3.669	3.941	3.654	3.959	3.637	3.98
3.600	3.54	3.662	3.533	3.669	3.525	3.678	3.516	3.688	3.506	3.699	3.495	3.712	3.483	3.726	3.469	3.742	3.454	3.76
3.500	3.444	3.558	3.437	3.565	3.429	3.574	3.421	3.583	3.412	3.593	3.401	3.605	3.389	3.618	3.376	3.633	3.362	3.651
3.400	3.347	3.455	3.341	3.462	3.334	3.469	3.326	3.478	3.317	3.488	3.307	3.499	3.296	3.511	3.284	3.525	3.27	3.541
3.300	3.25	3.351	3.244	3.358	3.238	3.365	3.23	3.373	3.222	3.382	3.213	3.393	3.202	3.404	3.191	3.418	3.178	3.433
3.200	3.153	3.248	3.148	3.254	3.142	3.261	3.134	3.268	3.127	3.277	3.118	3.287	3.108	3.298	3.097	3.31	3.085	3.324
3.100	3.056	3.145	3.051	3.151	3.045	3.157	3.039	3.164	3.031	3.172	3.023	3.181	3.014	3.191	3.004	3.203	2.993	3.216
3.000	2.959	3.042	2.954	3.047	2.949	3.053	2.943	3.06	2.936	3.067	2.928	3.076	2.92	3.085	2.91	3.096	2.9	3.108
2.900	2.862	2.939	2.858	2.944	2.852	2.949	2.847	2.955	2.84	2.962	2.833	2.97	2.825	2.979	2.816	2.989	2.806	3
2.800	2.765	2.836	2.761	2.841	2.756	2.846	2.751	2.851	2.745	2.858	2.738	2.865	2.731	2.873	2.722	2.883	2.713	2.893
2.700	2.667	2.733	2.663	2.738	2.659	2.742	2.654	2.748	2.649	2.753	2.643	2.76	2.636	2.768	2.628	2.776	2.619	2.786
2.600	2.57	2.631	2.566	2.635	2.562	2.639	2.558	2.644	2.553	2.649	2.547	2.655	2.541	2.662	2.533	2.67	2.526	2.679
2.550	2.521	2.58	2.518	2.583	2.514	2.587	2.509	2.592	2.505	2.597	2.499	2.603	2.493	2.61	2.486	2.617	2.479	2.626
2.500	2.472	2.528	2.469	2.532	2.465	2.536	2.461	2.54	2.456	2.545	2.451	2.551	2.445	2.557	2.439	2.565	2.432	2.573
2.450	2.424	2.477	2.42	2.48	2.417	2.484	2.413	2.489	2.408	2.493	2.403	2.499	2.398	2.505	2.391	2.512	2.384	2.52
2.400	2.375	2.426	2.372	2.429	2.368	2.433	2.364	2.437	2.36	2.441	2.355	2.447	2.35	2.452	2.344	2.459	2.337	2.467
2.350	2.326	2.375	2.323	2.378	2.32	2.381	2.316	2.385	2.312	2.39	2.307	2.395	2.302	2.4	2.296	2.406	2.29	2.414
2.300	2.277	2.324	2.274	2.327	2.271	2.33	2.267	2.334	2.263	2.338	2.259	2.343	2.254	2.348	2.249	2.354	2.243	2.361
2.250	2.228	2.273	2.225	2.275	2.222	2.278	2.219	2.282	2.215	2.286	2.211	2.291	2.206	2.296	2.201	2.301	2.195	2.308
2.200	2.179	2.221	2.176	2.224	2.174	2.227	2.17	2.231	2.167	2.234	2.163	2.239	2.158	2.243	2.153	2.249	2.148	2.255
2.150	2.13	2.17	2.128	2.173	2.125	2.176	2.122	2.179	2.118	2.183	2.115	2.187	2.11	2.191	2.106	2.196	2.1	2.202
2.100	2.081	2.119	2.079	2.122	2.076	2.125	2.073	2.128	2.07	2.131	2.066	2.135	2.062	2.139	2.058	2.144	2.053	2.15
2.050	2.032	2.068	2.03	2.071	2.027	2.073	2.025	2.076	2.021	2.079	2.018	2.083	2.014	2.087	2.01	2.092	2.005	2.097
2.000	1.983	2.017	1.981	2.02	1.978	2.022	1.976	2.025	1.973	2.028	1.97	2.031	1.966	2.035	1.962	2.04	1.957	2.045
1.975	1.958	1.992	1.956	1.994	1.954	1.996	1.952	1.999	1.949	2.002	1.946	2.005	1.942	2.009	1.938	2.014	1.934	2.018
1.950	1.934	1.966	1.932	1.969	1.93	1.971	1.927	1.973	1.924	1.976	1.921	1.98	1.918	1.983	1.914	1.987	1.91	1.992
1.925	1.909	1.941	1.907	1.943	1.905	1.945	1.903	1.948	1.9	1.951	1.897	1.954	1.894	1.957	1.89	1.961	1.886	1.966
1.900	1.885	1.916	1.883	1.918	1.881	1.92	1.878	1.922	1.876	1.925	1.873	1.928	1.87	1.931	1.866	1.935	1.862	1.94
1.875	1.86	1.89	1.858	1.892	1.856	1.894	1.854	1.896	1.852	1.899	1.849	1.902	1.846	1.906	1.842	1.909	1.838	1.914
1.850	1.836	1.865	1.834	1.867	1.832	1.869	1.83	1.871	1.827	1.873	1.824	1.876	1.821	1.88	1.818	1.883	1.814	1.887
1.825	1.811	1.839	1.809	1.841	1.807	1.843	1.805	1.845	1.803	1.848	1.8	1.851	1.797	1.854	1.794	1.857	1.79	1.861
1.800	1.786	1.814	1.785	1.816	1.783	1.817	1.781	1.82	1.779	1.822	1.776	1.825	1.773	1.828	1.77	1.831	1.766	1.835
1.775	1.762	1.788	1.76	1.79	1.758	1.792	1.756	1.794	1.754	1.796	1.752	1.799	1.749	1.802	1.746	1.805	1.742	1.809

1.750	1.737	1.763	1.736	1.765	1.734	1.766	1.732	1.768	1.73	1.771	1.727	1.773	1.725	1.776	1.722	1.779	1.718	1.783
1.725	1.713	1.738	1.711	1.739	1.709	1.741	1.708	1.743	1.705	1.745	1.703	1.748	1.7	1.75	1.697	1.754	1.694	1.757
1.700	1.688	1.712	1.687	1.714	1.685	1.715	1.683	1.717	1.681	1.719	1.679	1.722	1.676	1.725	1.673	1.728	1.67	1.731
1.675	1.663	1.687	1.662	1.688	1.66	1.69	1.659	1.692	1.657	1.694	1.654	1.696	1.652	1.699	1.649	1.702	1.646	1.705
1.650	1.639	1.661	1.637	1.663	1.636	1.664	1.634	1.666	1.632	1.668	1.63	1.67	1.628	1.673	1.625	1.676	1.622	1.679
1.625	1.614	1.636	1.613	1.637	1.611	1.639	1.61	1.641	1.608	1.643	1.606	1.645	1.603	1.647	1.601	1.65	1.598	1.653
1.600	1.59	1.611	1.588	1.612	1.587	1.613	1.585	1.615	1.583	1.617	1.581	1.619	1.579	1.621	1.577	1.624	1.574	1.627
1.575	1.565	1.585	1.564	1.587	1.562	1.588	1.561	1.59	1.559	1.591	1.557	1.593	1.555	1.596	1.552	1.598	1.55	1.601
1.550	1.54	1.56	1.539	1.561	1.538	1.562	1.536	1.564	1.535	1.566	1.533	1.568	1.531	1.57	1.528	1.572	1.526	1.575
1.525	1.516	1.535	1.514	1.536	1.513	1.537	1.512	1.539	1.51	1.54	1.508	1.542	1.506	1.544	1.504	1.547	1.502	1.549
1.500	1.491	1.509	1.49	1.51	1.489	1.512	1.487	1.513	1.486	1.515	1.484	1.516	1.482	1.519	1.48	1.521	1.477	1.523
1.475	1.466	1.484	1.465	1.485	1.464	1.486	1.463	1.488	1.461	1.489	1.46	1.491	1.458	1.493	1.456	1.495	1.453	1.498
1.450	1.442	1.459	1.441	1.46	1.439	1.461	1.438	1.462	1.437	1.464	1.435	1.465	1.433	1.467	1.431	1.469	1.429	1.472
1.425	1.417	1.433	1.416	1.434	1.415	1.435	1.414	1.437	1.412	1.438	1.411	1.44	1.409	1.441	1.407	1.444	1.405	1.446
1.400	1.392	1.408	1.391	1.409	1.39	1.41	1.389	1.411	1.388	1.413	1.386	1.414	1.385	1.416	1.383	1.418	1.381	1.42
1.375	1.368	1.383	1.367	1.383	1.366	1.385	1.364	1.386	1.363	1.387	1.362	1.388	1.36	1.39	1.358	1.392	1.356	1.394
1.350	1.343	1.357	1.342	1.358	1.341	1.359	1.34	1.36	1.339	1.362	1.337	1.363	1.336	1.365	1.334	1.366	1.332	1.368
1.325	1.318	1.332	1.317	1.333	1.316	1.334	1.315	1.335	1.314	1.336	1.313	1.337	1.311	1.339	1.31	1.341	1.308	1.343
1.300	1.293	1.307	1.293	1.307	1.292	1.308	1.291	1.309	1.29	1.311	1.288	1.312	1.287	1.313	1.285	1.315	1.284	1.317
1.275	1.269	1.281	1.268	1.282	1.267	1.283	1.266	1.284	1.265	1.285	1.264	1.286	1.263	1.288	1.261	1.289	1.259	1.291
1.250	1.244	1.256	1.243	1.257	1.242	1.258	1.242	1.259	1.241	1.26	1.239	1.261	1.238	1.262	1.237	1.264	1.235	1.265
1.225	1.219	1.231	1.219	1.231	1.218	1.232	1.217	1.233	1.216	1.234	1.215	1.235	1.214	1.237	1.212	1.238	1.211	1.24
1.200	1.195	1.206	1.194	1.206	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.211	1.188	1.212	1.186	1.214
1.175	1.17	1.18	1.169	1.181	1.168	1.182	1.168	1.182	1.167	1.183	1.166	1.184	1.165	1.186	1.163	1.187	1.162	1.188
1.150	1.145	1.155	1.144	1.156	1.144	1.156	1.143	1.157	1.142	1.158	1.141	1.159	1.14	1.16	1.139	1.161	1.138	1.163
1.125	1.12	1.13	1.12	1.13	1.119	1.131	1.118	1.132	1.118	1.133	1.117	1.133	1.116	1.135	1.115	1.136	1.113	1.137
1.100	1.096	1.104	1.095	1.105	1.094	1.106	1.094	1.106	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.11	1.089	1.111
1.075	1.071	1.079	1.07	1.08	1.07	1.08	1.069	1.081	1.068	1.082	1.068	1.083	1.067	1.084	1.066	1.085	1.064	1.086
1.050	1.046	1.054	1.046	1.055	1.045	1.055	1.044	1.056	1.044	1.056	1.043	1.057	1.042	1.058	1.041	1.059	1.04	1.06

8	9	10	11	13	14	16	18	20	22
68.823	61.335	54.664	48.721	43.426	38.709	34.507	30.763	27.427	24.455

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
68.776	Infinity	61.289	Infinity	54.619	Infinity	48.676	Infinity	43.382	Infinity	38.665	Infinity	34.463	Infinity	30.719	Infinity	27.384	Infinity	24.413	Infinity
32.13	465.723	30.404	2741.033	28.677	Infinity	26.958	Infinity	25.26	Infinity	23.594	Infinity	21.969	Infinity	20.393	Infinity	18.875	Infinity	17.422	Infinity
20.96	52.922	20.216	58.4	19.442	66.081	18.641	77.535	17.817	96.281	16.976	132.182	16.123	227.47	15.262	1197.013	14.401	Infinity	13.543	Infinity
15.553	28.055	15.142	29.514	14.706	31.345	14.245	33.693	13.762	36.788	13.258	41.021	12.734	47.111	12.194	56.542	11.641	72.952	11.077	108.27
12.364	19.087	12.104	19.747	11.825	20.546	11.527	21.523	11.211	22.738	10.875	24.278	10.522	26.277	10.153	28.955	9.769	32.701	9.371	38.264
10.26	14.463	10.081	14.837	9.888	15.281	9.68	15.812	9.457	16.454	9.219	17.241	8.965	18.219	8.697	19.461	8.415	21.074	8.12	23.238
8.768	11.643	8.638	11.883	8.496	12.164	8.343	12.496	8.178	12.892	8	13.367	7.81	13.944	7.607	14.655	7.391	15.546	7.164	16.686
7.993	10.304	7.885	10.49	7.768	10.708	7.64	10.963	7.502	11.265	7.352	11.625	7.192	12.058	7.02	12.584	6.836	13.232	6.642	14.046
7.198	9.008	7.111	9.15	7.015	9.314	6.911	9.506	6.799	9.731	6.676	9.997	6.544	10.314	6.402	10.694	6.25	11.157	6.088	11.727
6.381	7.755	6.313	7.859	6.239	7.979	6.157	8.119	6.068	8.281	5.971	8.472	5.865	8.697	5.752	8.964	5.629	9.285	5.498	9.673
5.965	7.143	5.906	7.231	5.841	7.332	5.769	7.449	5.691	7.586	5.606	7.745	5.513	7.931	5.413	8.152	5.305	8.415	5.189	8.732
5.543	6.541	5.492	6.615	5.436	6.699	5.374	6.796	5.307	6.909	5.233	7.04	5.153	7.193	5.065	7.373	4.971	7.587	4.869	7.842
5.116	5.949	5.072	6.009	5.025	6.078	4.972	6.158	4.915	6.249	4.852	6.356	4.783	6.48	4.708	6.625	4.627	6.796	4.539	6.999
4.682	5.366	4.646	5.414	4.606	5.47	4.562	5.534	4.514	5.607	4.461	5.692	4.403	5.791	4.34	5.906	4.272	6.041	4.197	6.2
4.463	5.078	4.431	5.121	4.394	5.17	4.355	5.227	4.311	5.293	4.263	5.368	4.21	5.455	4.153	5.557	4.09	5.676	4.022	5.815
4.243	4.792	4.213	4.83	4.181	4.874	4.145	4.924	4.105	4.982	4.062	5.048	4.014	5.125	3.962	5.214	3.905	5.318	3.844	5.44
4.021	4.508	3.995	4.542	3.965	4.58	3.933	4.625	3.898	4.675	3.859	4.733	3.816	4.801	3.769	4.878	3.718	4.969	3.662	5.074
3.797	4.226	3.774	4.256	3.748	4.29	3.72	4.328	3.688	4.372	3.653	4.423	3.615	4.481	3.573	4.548	3.527	4.627	3.477	4.718
3.617	4.003	3.596	4.029	3.573	4.059	3.547	4.094	3.519	4.133	3.487	4.178	3.452	4.229	3.414	4.289	3.373	4.358	3.327	4.438
3.437	3.781	3.418	3.804	3.397	3.831	3.373	3.861	3.348	3.896	3.319	3.935	3.288	3.981	3.254	4.033	3.216	4.094	3.175	4.165
3.346	3.67	3.328	3.692	3.308	3.717	3.286	3.745	3.262	3.778	3.235	3.815	3.205	3.858	3.172	3.907	3.137	3.964	3.098	4.03
3.255	3.56	3.238	3.58	3.219	3.604	3.198	3.63	3.175	3.661	3.15	3.696	3.122	3.736	3.091	3.782	3.057	3.835	3.02	3.896
3.163	3.45	3.147	3.469	3.13	3.491	3.11	3.516	3.088	3.544	3.064	3.577	3.038	3.614	3.009	3.657	2.977	3.706	2.942	3.763
3.072	3.34	3.057	3.358	3.04	3.379	3.022	3.402	3.001	3.428	2.979	3.459	2.954	3.493	2.926	3.533	2.896	3.579	2.863	3.632
2.98	3.231	2.966	3.248	2.95	3.267	2.933	3.288	2.914	3.313	2.893	3.341	2.869	3.374	2.843	3.411	2.815	3.453	2.784	3.502
2.888	3.122	2.875	3.137	2.86	3.155	2.844	3.175	2.826	3.198	2.806	3.224	2.784	3.254	2.76	3.289	2.733	3.328	2.704	3.374
2.795	3.013	2.783	3.028	2.77	3.044	2.754	3.063	2.738	3.084	2.719	3.108	2.699	3.136	2.676	3.168	2.651	3.204	2.623	3.246
2.703	2.905	2.691	2.918	2.679	2.933	2.665	2.951	2.649	2.97	2.632	2.993	2.613	3.018	2.591	3.048	2.568	3.081	2.542	3.12
2.61	2.797	2.599	2.809	2.588	2.823	2.574	2.839	2.56	2.857	2.544	2.878	2.526	2.901	2.506	2.928	2.485	2.959	2.461	2.995
2.517	2.689	2.507	2.701	2.496	2.714	2.484	2.728	2.471	2.745	2.456	2.764	2.439	2.785	2.421	2.81	2.401	2.838	2.378	2.87
2.47	2.636	2.461	2.646	2.45	2.659	2.439	2.673	2.426	2.689	2.411	2.707	2.395	2.727	2.378	2.751	2.358	2.778	2.337	2.809
2.423	2.582	2.414	2.592	2.404	2.604	2.393	2.618	2.381	2.633	2.367	2.65	2.352	2.67	2.335	2.692	2.316	2.718	2.296	2.748
2.377	2.528	2.368	2.538	2.358	2.55	2.348	2.562	2.336	2.577	2.322	2.594	2.308	2.612	2.292	2.634	2.274	2.658	2.254	2.686
2.33	2.475	2.321	2.484	2.312	2.495	2.302	2.507	2.29	2.521	2.278	2.537	2.264	2.555	2.248	2.576	2.231	2.599	2.212	2.626
2.283	2.422	2.275	2.431	2.266	2.441	2.256	2.453	2.245	2.466	2.233	2.481	2.22	2.498	2.205	2.517	2.188	2.54	2.17	2.565
2.236	2.368	2.228	2.377	2.22	2.387	2.21	2.398	2.2	2.41	2.188	2.425	2.175	2.441	2.161	2.46	2.145	2.481	2.128	2.505
2.189	2.315	2.181	2.323	2.173	2.333	2.164	2.343	2.154	2.355	2.143	2.369	2.131	2.384	2.117	2.402	2.102	2.422	2.085	2.445
2.142	2.262	2.135	2.27	2.127	2.279	2.118	2.289	2.109	2.3	2.098	2.313	2.086	2.328	2.073	2.344	2.059	2.364	2.043	2.385
2.094	2.209	2.088	2.216	2.08	2.225	2.072	2.234	2.063	2.245	2.053	2.257	2.042	2.271	2.029	2.287	2.016	2.305	2	2.326
2.047	2.156	2.041	2.163	2.034	2.171	2.026	2.18	2.017	2.19	2.008	2.202	1.997	2.215	1.985	2.23	1.972	2.247	1.958	2.267
2	2.103	1.994	2.11	1.987	2.117	1.98	2.126	1.972	2.136	1.962	2.147	1.952	2.159	1.941	2.173	1.928	2.189	1.915	2.208
1.952	2.05	1.947	2.057	1.94	2.064	1.933	2.072	1.926	2.081	1.917	2.091	1.907	2.103	1.896	2.117	1.885	2.132	1.871	2.149
1.929	2.024	1.923	2.03	1.917	2.037	1.91	2.045	1.903	2.054	1.894	2.064	1.885	2.075	1.874	2.088	1.863	2.103	1.85	2.12
1.905	1.997	1.9	2.003	1.894	2.01	1.887	2.018	1.879	2.026	1.871	2.036	1.862	2.047	1.852	2.06	1.841	2.075	1.828	2.091
1.881	1.971	1.876	1.977	1.87	1.983	1.864	1.991	1.856	1.999	1.848	2.009	1.839	2.02	1.83	2.032	1.819	2.046	1.806	2.062
1.857	1.945	1.852	1.95	1.847	1.957	1.84	1.964	1.833	1.972	1.826	1.981	1.817	1.992	1.807	2.004	1.796	2.017	1.785	2.033
1.834	1.918	1.829	1.924	1.823	1.93	1.817	1.937	1.81	1.945	1.803	1.954	1.794	1.964	1.785	1.976	1.774	1.989	1.763	2.004
1.81	1.892	1.805	1.898	1.8	1.904	1.794	1.91	1.787	1.918	1.78	1.927	1.771	1.937	1.762	1.948	1.752	1.961	1.741	1.975
1.786	1.866	1.781	1.871	1.776	1.877	1.77	1.883	1.764	1.891	1.757	1.899	1.749	1.909	1.74	1.92	1.73	1.932	1.719	1.946
1.762	1.84	1.758	1.845	1.753	1.85	1.747	1.857	1.741	1.864	1.734	1.872	1.726	1.881	1.717	1.892	1.708	1.904	1.697	1.917
1.738	1.813	1.734	1.818	1.729	1.824	1.724	1.83	1.717	1.837	1.711	1.845	1.703	1.854	1.695	1.864	1.685	1.876	1.675	1.889

1.714	1.787	1.71	1.792	1.705	1.797	1.7	1.803	1.694	1.81	1.688	1.818	1.68	1.826	1.672	1.836	1.663	1.847	1.653	1.86
1.69	1.761	1.686	1.766	1.682	1.771	1.677	1.777	1.671	1.783	1.665	1.79	1.657	1.799	1.65	1.808	1.641	1.819	1.631	1.832
1.667	1.735	1.663	1.739	1.658	1.744	1.653	1.75	1.648	1.756	1.641	1.763	1.635	1.771	1.627	1.781	1.618	1.791	1.609	1.803
1.643	1.709	1.639	1.713	1.634	1.718	1.63	1.723	1.624	1.729	1.618	1.736	1.612	1.744	1.604	1.753	1.596	1.763	1.587	1.775
1.619	1.683	1.615	1.687	1.611	1.691	1.606	1.697	1.601	1.703	1.595	1.709	1.589	1.717	1.582	1.725	1.574	1.735	1.565	1.746
1.595	1.657	1.591	1.661	1.587	1.665	1.583	1.67	1.578	1.676	1.572	1.682	1.566	1.689	1.559	1.698	1.551	1.707	1.542	1.718
1.571	1.63	1.567	1.634	1.563	1.639	1.559	1.643	1.554	1.649	1.549	1.655	1.543	1.662	1.536	1.67	1.529	1.679	1.52	1.69
1.547	1.604	1.543	1.608	1.54	1.612	1.535	1.617	1.531	1.622	1.525	1.628	1.52	1.635	1.513	1.643	1.506	1.651	1.498	1.661
1.523	1.578	1.519	1.582	1.516	1.586	1.512	1.59	1.507	1.596	1.502	1.601	1.497	1.608	1.49	1.615	1.483	1.624	1.476	1.633
1.499	1.552	1.496	1.556	1.492	1.56	1.488	1.564	1.484	1.569	1.479	1.574	1.473	1.581	1.467	1.588	1.461	1.596	1.453	1.605
1.475	1.526	1.472	1.53	1.468	1.533	1.464	1.538	1.46	1.542	1.456	1.548	1.45	1.554	1.444	1.561	1.438	1.568	1.431	1.577
1.451	1.5	1.448	1.503	1.444	1.507	1.441	1.511	1.437	1.516	1.432	1.521	1.427	1.527	1.421	1.533	1.415	1.541	1.408	1.549
1.427	1.474	1.424	1.477	1.421	1.481	1.417	1.485	1.413	1.489	1.409	1.494	1.404	1.5	1.398	1.506	1.392	1.513	1.386	1.521
1.402	1.448	1.4	1.451	1.397	1.455	1.393	1.458	1.39	1.463	1.385	1.467	1.381	1.473	1.375	1.479	1.37	1.486	1.363	1.494
1.378	1.422	1.376	1.425	1.373	1.428	1.37	1.432	1.366	1.436	1.362	1.441	1.357	1.446	1.352	1.452	1.347	1.458	1.341	1.466
1.354	1.397	1.352	1.399	1.349	1.402	1.346	1.406	1.342	1.41	1.338	1.414	1.334	1.419	1.329	1.425	1.324	1.431	1.318	1.438
1.33	1.371	1.328	1.373	1.325	1.376	1.322	1.379	1.319	1.383	1.315	1.387	1.311	1.392	1.306	1.397	1.301	1.403	1.295	1.41
1.306	1.345	1.304	1.347	1.301	1.35	1.298	1.353	1.295	1.357	1.291	1.361	1.287	1.365	1.283	1.37	1.278	1.376	1.272	1.383
1.282	1.319	1.279	1.321	1.277	1.324	1.274	1.327	1.271	1.33	1.268	1.334	1.264	1.339	1.26	1.343	1.255	1.349	1.25	1.355
1.257	1.293	1.255	1.295	1.253	1.298	1.25	1.301	1.247	1.304	1.244	1.308	1.24	1.312	1.236	1.316	1.232	1.322	1.227	1.328
1.233	1.267	1.231	1.269	1.229	1.272	1.226	1.275	1.224	1.278	1.22	1.281	1.217	1.285	1.213	1.29	1.209	1.295	1.204	1.3
1.209	1.241	1.207	1.244	1.205	1.246	1.202	1.248	1.2	1.251	1.197	1.255	1.193	1.259	1.19	1.263	1.186	1.268	1.181	1.273
1.185	1.216	1.183	1.218	1.181	1.22	1.179	1.222	1.176	1.225	1.173	1.228	1.17	1.232	1.166	1.236	1.162	1.241	1.158	1.246
1.16	1.19	1.159	1.192	1.157	1.194	1.155	1.196	1.152	1.199	1.149	1.202	1.146	1.205	1.143	1.209	1.139	1.214	1.135	1.218
1.136	1.164	1.135	1.166	1.133	1.168	1.131	1.17	1.128	1.173	1.126	1.176	1.123	1.179	1.119	1.183	1.116	1.187	1.112	1.191
1.112	1.139	1.11	1.14	1.109	1.142	1.107	1.144	1.104	1.147	1.102	1.149	1.099	1.152	1.096	1.156	1.093	1.16	1.089	1.164
1.088	1.113	1.086	1.114	1.084	1.116	1.082	1.118	1.08	1.12	1.078	1.123	1.075	1.126	1.072	1.129	1.069	1.133	1.066	1.137
1.063	1.087	1.062	1.089	1.06	1.09	1.058	1.092	1.056	1.094	1.054	1.097	1.052	1.1	1.049	1.103	1.046	1.106	1.042	1.11
1.039	1.061	1.037	1.063	1.036	1.064	1.034	1.066	1.032	1.068	1.03	1.071	1.028	1.073	1.025	1.076	1.022	1.079	1.019	1.083

Focal Length 115mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	637'6.16"	568'0.34"	506'1.5"	450'11.69"	401'10.09"	358'0.81"	319'0.82"	284'3.89"	253'4.47"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	637'3.02"	Infinity	567'9.5"	Infinity	505'10.88"	Infinity	450'9.27"	Infinity	401'7.81"	Infinity	357'10.66"	Infinity	318'10.78"	Infinity	284'1.95"	Infinity	253'2.58"	Infinity
200'0''	152'5.19"	290'11.04"	148'1.47"	308'1.04"	143'6.79"	329'11.33"	138'9.31"	358'5.99"	133'9.21"	397'0.99"	128'6.73"	451'7.92"	123'2.17"	534'1"	117'7.87"	671'8.75"	112'0.22"	945'3.55"
100'0''	86'6.82"	118'4.79"	85'2.02"	121'1.56"	83'7.8"	124'4.21"	82'0.12"	128'2.13"	80'2.93"	132'9.17"	78'4.21"	138'3.86"	76'3.97"	145'1.73"	74'2.21"	153'7.83"	71'10.98"	164'5.77"
70'0''	63'2.06"	78'5.98"	62'5.12"	79'8.21"	61'7.33"	81'0.7"	60'8.65"	82'7.91"	59'9.02"	84'6.4"	58'8.41"	86'8.9"	57'6.77"	89'4.36"	56'4.09"	92'6.03"	55'0.34"	96'3.61"
50'0''	46'5.25"	54'1.94"	46'0.43"	54'8.64"	45'7.12"	55'4.32"	45'1.29"	56'1.17"	44'6.89"	56'11.39"	43'11.88"	57'11.24"	43'4.23"	59'1.04"	42'7.91"	60'5.21"	41'10.89"	62'0.26"
40'0''	37'8.39"	42'7.25"	37'5.23"	42'11.36"	37'1.73"	43'4.06"	36'9.87"	43'9.43"	36'5.62"	44'3.6"	36'0.95"	44'10.71"	35'7.82"	45'6.91"	35'2.21"	46'4.42"	34'8.08"	47'3.51"
35'0''	33'2.79"	36'11.63"	33'0.34"	37'2.71"	32'9.63"	37'6.22"	32'6.63"	37'10.23"	32'3.31"	38'2.81"	31'11.66"	38'8.07"	31'7.64"	39'2.12"	31'3.24"	39'9.11"	30'10.41"	40'5.2"
30'0''	28'8.38"	31'5.13"	28'6.56"	31'7.34"	28'4.55"	31'9.85"	28'2.31"	32'0.72"	27'11.84"	32'3.98"	27'9.1"	32'7.72"	27'6.09"	33'	27'2.77"	33'4.91"	26'11.12"	33'10.58"
25'0''	24'1.15"	25'11.71"	23'11.88"	26'1.21"	23'10.47"	26'2.91"	23'8.89"	26'4.84"	23'7.15"	26'7.03"	23'5.22"	26'9.53"	23'3.08"	27'0.39"	23'0.72"	27'3.65"	22'10.12"	27'7.4"
22'0''	21'3.62"	22'8.97"	21'2.63"	22'10.11"	21'1.52"	22'11.4"	21'0.3"	23'0.87"	20'10.94"	23'2.53"	20'9.43"	23'4.42"	20'7.76"	23'6.58"	20'5.91"	23'9.04"	20'3.87"	23'11.85"
20'0''	19'5.09"	20'7.35"	19'4.27"	20'8.28"	19'3.35"	20'9.33"	19'2.34"	20'10.53"	19'1.21"	20'11.88"	18'11.96"	21'1.42"	18'10.57"	21'3.17"	18'9.03"	21'5.17"	18'7.32"	21'7.44"
19'0''	18'5.77"	19'6.6"	18'5.03"	19'7.44"	18'4.21"	19'8.38"	18'3.29"	19'9.45"	18'2.27"	19'10.67"	18'1.14"	20'0.04"	17'11.88"	20'1.61"	17'10.48"	20'3.39"	17'8.94"	20'5.42"
18'0''	17'6.42"	18'5.9"	17'5.75"	18'6.64"	17'5.01"	18'7.48"	17'4.19"	18'8.44"	17'3.27"	18'9.52"	17'2.26"	18'10.74"	17'1.12"	19'0.13"	16'11.87"	19'1.71"	16'10.48"	19'3.52"
17'0''	16'7.03"	17'5.23"	16'6.44"	17'5.89"	16'5.78"	17'6.64"	16'5.05"	17'7.48"	16'4.23"	17'8.43"	16'3.32"	17'9.52"	16'2.31"	17'10.75"	16'1.18"	18'0.14"	15'11.94"	18'1.73"
16'0''	15'7.61"	16'4.61"	15'7.09"	16'5.19"	15'6.5"	16'5.84"	15'5.85"	16'6.58"	15'5.13"	16'7.42"	15'4.32"	16'8.37"	15'3.42"	16'9.45"	15'2.43"	16'10.67"	15'1.32"	17'0.06"
15'0''	14'8.15"	15'4.02"	14'7.7"	15'4.53"	14'7.18"	15'5.1"	14'6.61"	15'5.74"	14'5.97"	15'6.47"	14'5.26"	15'7.3"	14'4.48"	15'8.24"	14'3.6"	15'9.3"	14'2.62"	15'10.51"
14'0''	13'8.66"	14'3.48"	13'8.26"	14'3.92"	13'7.82"	14'4.41"	13'7.32"	14'4.97"	13'6.77"	14'5.59"	13'6.15"	14'6.31"	13'5.46"	14'7.11"	13'4.7"	14'8.03"	13'3.85"	14'9.06"
13'0''	12'9.14"	13'2.98"	12'8.79"	13'3.35"	12'8.41"	13'3.77"	12'7.98"	13'4.24"	12'7.51"	13'4.78"	12'6.97"	13'5.39"	12'6.38"	13'6.07"	12'5.72"	13'6.85"	12'4.99"	13'7.73"
12'6''	12'3.36"	12'8.74"	12'3.04"	12'9.08"	12'2.69"	12'9.47"	12'2.29"	12'9.91"	12'1.85"	12'10.4"	12'1.36"	12'10.96"	12'0.82"	12'11.59"	12'0.21"	13'0.3"	11'11.53"	13'1.11"
12'0''	11'9.57"	12'2.51"	11'9.28"	12'2.83"	11'8.96"	12'3.18"	11'8.59"	12'3.58"	11'8.19"	12'4.03"	11'7.74"	12'4.54"	11'7.23"	12'5.12"	11'6.67"	12'5.77"	11'6.05"	12'6.51"
11'6''	11'3.78"	11'8.3"	11'3.51"	11'8.58"	11'3.22"	11'8.91"	11'2.88"	11'9.27"	11'2.51"	11'9.68"	11'2.1"	11'10.15"	11'1.63"	11'10.67"	11'1.12"	11'11.27"	11'0.55"	11'11.94"
11'0''	10'9.98"	11'2.09"	10'9.73"	11'2.35"	10'9.46"	11'2.64"	10'9.16"	11'2.98"	10'8.82"	11'3.35"	10'8.44"	11'3.77"	10'8.02"	11'4.25"	10'7.55"	11'4.79"	10'7.02"	11'5.4"
10'6''	10'4.16"	10'7.89"	10'3.94"	10'8.13"	10'3.7"	10'8.4"	10'3.42"	10'8.7"	10'3.11"	10'9.03"	10'2.77"	10'9.42"	10'2.38"	10'9.85"	10'1.96"	10'10.34"	10'1.48"	10'10.89"
10'0''	9'10.34"	10'1.71"	9'10.14"	10'1.92"	9'9.92"	10'2.16"	9'9.67"	10'2.43"	9'9.39"	10'2.73"	9'9.08"	10'3.08"	9'8.73"	10'3.46"	9'8.35"	10'3.9"	9'7.92"	10'4.4"
9'6''	9'4.51"	9'7.53"	9'4.33"	9'7.72"	9'4.13"	9'7.93"	9'3.91"	9'8.18"	9'3.66"	9'8.45"	9'3.38"	9'8.76"	9'3.07"	9'9.1"	9'2.72"	9'9.49"	9'2.33"	9'9.94"
9'0''	8'10.67"	9'1.36"	8'10.51"	9'1.53"	8'10.33"	9'1.72"	8'10.13"	9'1.94"	8'9.91"	9'2.18"	8'9.66"	9'2.45"	8'9.38"	9'2.76"	8'9.07"	9'3.11"	8'8.72"	9'3.5"
8'9''	8'7.75"	8'10.28"	8'7.6"	8'10.44"	8'7.43"	8'10.62"	8'7.24"	8'10.82"	8'7.03"	8'11.05"	8'6.79"	8'11.31"	8'6.53"	8'11.6"	8'6.24"	8'11.93"	8'5.91"	9'0.3"
8'6''	8'4.82"	8'7.2"	8'4.68"	8'7.35"	8'4.52"	8'7.52"	8'4.35"	8'7.71"	8'4.15"	8'7.93"	8'3.93"	8'8.17"	8'3.68"	8'8.44"	8'3.4"	8'8.75"	8'3.09"	8'9.09"
8'3''	8'1.9"	8'4.13"	8'1.76"	8'4.27"	8'1.61"	8'4.43"	8'1.45"	8'4.61"	8'1.26"	8'4.81"	8'1.05"	8'5.03"	8'0.82"	8'5.29"	8'0.56"	8'5.57"	8'0.27"	8'5.9"
8'0''	7'10.97"	8'1.06"	7'10.84"	8'1.19"	7'10.7"	8'1.34"	7'10.55"	8'1.5"	7'10.37"	8'1.69"	7'10.18"	8'1.9"	7'9.96"	8'2.14"	7'9.71"	8'2.41"	7'9.44"	8'2.71"
7'9''	7'8.04"	7'9.99"	7'7.92"	7'10.11"	7'7.79"	7'10.25"	7'7.64"	7'10.4"	7'7.48"	7'10.58"	7'7.3"	7'10.77"	7'7.09"	7'11"	7'6.86"	7'11.25"	7'6.61"	7'11.53"
7'6''	7'5.1"	7'6.92"	7'4.99"	7'7.03"	7'4.87"	7'7.16"	7'4.73"	7'7.31"	7'4.58"	7'7.47"	7'4.41"	7'7.65"	7'4.22"	7'7.86"	7'4.01"	7'8.09"	7'3.77"	7'8.35"
7'3''	7'2.16"	7'3.85"	7'2.06"	7'3.96"	7'1.95"	7'4.08"	7'1.82"	7'4.21"	7'1.68"	7'4.36"	7'1.52"	7'4.53"	7'1.34"	7'4.73"	7'1.15"	7'4.94"	7'0.93"	7'5.19"
7'0''	6'11.22"	7'0.79"	6'11.13"	7'0.89"	6'11.03"	7'1"	6'10.91"	7'1.12"	6'10.78"	7'1.26"	6'10.63"	7'1.42"	6'10.46"	7'1.6"	6'10.28"	7'1.8"	6'10.08"	7'2.02"
6'9''	6'8.28"	6'9.73"	6'8.2"	6'9.82"	6'8.1"	6'9.92"	6'7.99"	6'10.04"	6'7.87"	6'10.17"	6'7.73"	6'10.31"	6'7.58"	6'10.48"	6'7.41"	6'10.66"	6'7.22"	6'10.87"
6'6''	6'5.34"	6'6.67"	6'5.26"	6'6.76"	6'5.17"	6'6.85"	6'5.07"	6'6.95"	6'4.96"	6'7.07"	6'4.83"	6'7.21"	6'4.69"	6'7.36"	6'4.53"	6'7.53"	6'4.36"	6'7.72"
6'3''	6'2.39"	6'3.62"	6'2.32"	6'3.69"	6'2.24"	6'3.78"	6'2.15"	6'3.88"	6'2.04"	6'3.98"	6'1.93"	6'4.11"	6'1.8"	6'4.24"	6'1.65"	6'4.4"	6'1.49"	6'4.58"
6'0''	5'11.45"	6'0.56"	5'11.38"	6'0.63"	5'11.3"	6'0.71"	5'11.22"	6'0.8"	5'11.12"	6'0.9"	5'11.02"	6'1.01"	5'10.9"	6'1.14"	5'10.77"	6'1.28"	5'10.62"	6'1.44"
5'11''	5'10.46"	5'11.55"	5'10.4"	5'11.61"	5'10.32"	5'11.69"	5'10.24"	5'11.78"	5'10.15"	5'11.87"	5'10.05"	5'11.98"	5'9.93"	6'0.1"	5'9.81"	6'0.24"	5'9.66"	6'0.39"
5'10''	5'9.48"	5'10.53"	5'9.42"	5'10.59"	5'9.35"	5'10.67"	5'9.27"	5'10.75"	5'9.18"	5'10.84"	5'9.08"	5'10.95"	5'8.97"	5'11.07"	5'8.84"	5'11.2"	5'8.7"	5'11.35"
5'9''	5'8.5"	5'9.51"	5'8.43"	5'9.58"	5'8.37"	5'9.65"	5'8.29"	5'9.73"	5'8.2"	5'9.82"	5'8.11"	5'9.92"	5'8"	5'10.03"	5'7.88"	5'10.16"	5'7.74"	5'10.31"
5'8''	5'7.51"	5'8.5"	5'7.45"	5'8.56"	5'7.39"	5'8.63"	5'7.31"	5'8.7"	5'7.23"	5'8.79"	5'7.13"	5'8.89"	5'7.03"	5'9"	5'6.91"	5'9.13"	5'6.78"	5'9.27"
5'7''	5'6.53"	5'7.48"	5'6.47"	5'7.54"	5'6.41"	5'7.61"	5'6.33"	5'7.68"	5'6.25"	5'7.77"	5'6.16"	5'7.86"	5'6.06"	5'7.97"	5'5.95"	5'8.09"	5'5.82"	5'8.22"
5'6''	5'5.54"	5'6.46"	5'5.49"	5'6.52"	5'5.42"	5'6.59"	5'5.36"	5'6.66"	5'5.28"	5'6.74"	5'5.19"	5'6.83"	5'5.09"	5'6.94"	5'4.98"	5'7.05"	5'4.86"	5'7.18"
5'5''	5'4.56"	5'5.45"	5'4.5"	5'5.5"	5'4.44"	5'5.57"	5'4.38"	5'5.64"	5'4.3"	5'5.72"	5'4.22"	5'5.8"	5'4.12"	5'5.9"	5'4.02"	5'6.02"	5'3.9"	5'6.14"
5'4''	5'3.57"	5'4.43"	5'3.52"	5'4.49"	5'3.46"	5'4.55"	5'3.4"	5'4.62"	5'3.32"	5'4.69"	5'3.24"	5'4.78"	5'3.15"	5'4.87"	5'3.05"	5'4.98"	5'2.94"	5'5.11"
5'3''	5'2.59"	5'3.42"	5'2.54"	5'3.47"	5'2.48"	5'3.53"	5'2.42"	5'3.59"	5'2.35"	5'3.67"	5'2.27"	5'3.75"	5'2.18"	5'3.84"	5'2.08"	5'3.95"	5'1.97"	5'4.07"
5'2''	5'1.6"	5'2.4"	5'1.55"	5'2.45"	5'1.5"	5'2.51"	5'1.44"	5'2.57"	5'1.37"	5'2.64"	5'1.29"	5'2.72"	5'1.21"	5'2.81"	5'1.11"	5'2.91"	5'1.01"	5'3.03"
5'1''	5'0.62"	5'1.39"	5'0.57"	5'1.44"	5'0.52"	5'1.49"	5'0.46"	5'1.55"	5'0.39"	5'1.62"	5'0.32"	5'1.7"	5'0.24"	5'1.78"	5'0.15"	5'1.88"	5'0.04"	5'1.99"
5'0''	4'11.63"	5'0.38"	4'11.59"	5'0.42"	4'11.53"	5'0.47"	4'11.48"	5'0.53"	4'11.42"	5'0.6"	4'11.34"	5'0.67"	4'11.27"	5'0.76"	4'11.18"	5'0.85"	4'11.08"	5'0.96"
4'11''	4'10.64"	4'11.36"	4'10.6"	4'11.41"	4'10.55"	4'11.46"	4'10.5"	4'11.51"	4'10.44"	4'11.58"	4'10.37"	4'11.65"	4'10.29"	4'11.73"	4'10.21"	4'11.82"	4'10.11"	4'11.92"

4'10''	4'9.66"	4'10.35"	4'9.62"	4'10.39"	4'9.57"	4'10.44"	4'9.52"	4'10.49"	4'9.46"	4'10.55"	4'9.39"	4'10.62"	4'9.32"	4'10.7"	4'9.24"	4'10.79"	4'9.14"	4'10.88"
4'9''	4'8.67"	4'9.33"	4'8.63"	4'9.38"	4'8.59"	4'9.42"	4'8.54"	4'9.47"	4'8.48"	4'9.53"	4'8.42"	4'9.6"	4'8.35"	4'9.67"	4'8.27"	4'9.76"	4'8.18"	4'9.85"
4'8''	4'7.68"	4'8.32"	4'7.64"	4'8.36"	4'7.6"	4'8.4"	4'7.55"	4'8.45"	4'7.5"	4'8.51"	4'7.44"	4'8.57"	4'7.37"	4'8.65"	4'7.29"	4'8.73"	4'7.21"	4'8.82"
4'7''	4'6.7"	4'7.31"	4'6.66"	4'7.35"	4'6.62"	4'7.39"	4'6.57"	4'7.44"	4'6.52"	4'7.49"	4'6.46"	4'7.55"	4'6.4"	4'7.62"	4'6.32"	4'7.7"	4'6.24"	4'7.78"
4'6''	4'5.71"	4'6.3"	4'5.67"	4'6.33"	4'5.63"	4'6.37"	4'5.59"	4'6.42"	4'5.54"	4'6.47"	4'5.48"	4'6.53"	4'5.42"	4'6.59"	4'5.35"	4'6.67"	4'5.27"	4'6.75"
4'5''	4'4.72"	4'5.28"	4'4.69"	4'5.32"	4'4.65"	4'5.36"	4'4.61"	4'5.4"	4'4.56"	4'5.45"	4'4.5"	4'5.51"	4'4.44"	4'5.57"	4'4.38"	4'5.64"	4'4.3"	4'5.72"
4'4''	4'3.73"	4'4.27"	4'3.7"	4'4.3"	4'3.66"	4'4.34"	4'3.62"	4'4.38"	4'3.58"	4'4.43"	4'3.53"	4'4.48"	4'3.47"	4'4.54"	4'3.4"	4'4.61"	4'3.33"	4'4.69"
4'3''	4'2.74"	4'3.26"	4'2.71"	4'3.29"	4'2.68"	4'3.33"	4'2.64"	4'3.37"	4'2.6"	4'3.41"	4'2.55"	4'3.46"	4'2.49"	4'3.52"	4'2.43"	4'3.59"	4'2.36"	4'3.66"
4'2''	4'1.76"	4'2.25"	4'1.73"	4'2.28"	4'1.69"	4'2.31"	4'1.65"	4'2.35"	4'1.61"	4'2.39"	4'1.57"	4'2.44"	4'1.51"	4'2.5"	4'1.45"	4'2.56"	4'1.39"	4'2.63"
4'1''	4'0.77"	4'1.24"	4'0.74"	4'1.27"	4'0.71"	4'1.3"	4'0.67"	4'1.33"	4'0.63"	4'1.38"	4'0.59"	4'1.42"	4'0.54"	4'1.47"	4'0.48"	4'1.53"	4'0.42"	4'1.6"
4'0''	3'11.78"	4'0.22"	3'11.75"	4'0.25"	3'11.72"	4'0.28"	3'11.69"	4'0.32"	3'11.65"	4'0.36"	3'11.61"	4'0.4"	3'11.56"	4'0.45"	3'11.5"	4'0.51"	3'11.44"	4'0.57"
3'11''	3'10.79"	3'11.21"	3'10.76"	3'11.24"	3'10.73"	3'11.27"	3'10.7"	3'11.3"	3'10.66"	3'11.34"	3'10.62"	3'11.38"	3'10.58"	3'11.43"	3'10.53"	3'11.48"	3'10.47"	3'11.54"
3'10''	3'9.8"	3'10.2"	3'9.77"	3'10.23"	3'9.75"	3'10.26"	3'9.72"	3'10.29"	3'9.68"	3'10.32"	3'9.64"	3'10.36"	3'9.6"	3'10.41"	3'9.55"	3'10.46"	3'9.5"	3'10.52"
3'9''	3'8.81"	3'9.19"	3'8.79"	3'9.22"	3'8.76"	3'9.24"	3'8.73"	3'9.27"	3'8.7"	3'9.31"	3'8.66"	3'9.35"	3'8.62"	3'9.39"	3'8.57"	3'9.44"	3'8.52"	3'9.49"
3'8''	3'7.82"	3'8.18"	3'7.8"	3'8.21"	3'7.77"	3'8.23"	3'7.74"	3'8.26"	3'7.71"	3'8.29"	3'7.68"	3'8.33"	3'7.64"	3'8.37"	3'7.59"	3'8.41"	3'7.55"	3'8.47"
3'7''	3'6.83"	3'7.17"	3'6.81"	3'7.2"	3'6.78"	3'7.22"	3'6.76"	3'7.25"	3'6.73"	3'7.28"	3'6.69"	3'7.31"	3'6.66"	3'7.35"	3'6.62"	3'7.39"	3'6.57"	3'7.44"
3'6''	3'5.84"	3'6.16"	3'5.82"	3'6.18"	3'5.8"	3'6.21"	3'5.77"	3'6.23"	3'5.74"	3'6.26"	3'5.71"	3'6.29"	3'5.68"	3'6.33"	3'5.64"	3'6.37"	3'5.59"	3'6.42"
3'5''	3'4.85"	3'5.16"	3'4.83"	3'5.17"	3'4.81"	3'5.2"	3'4.78"	3'5.22"	3'4.76"	3'5.25"	3'4.73"	3'5.28"	3'4.69"	3'5.31"	3'4.66"	3'5.35"	3'4.62"	3'5.39"

8	9	10	11	13	14	16	18	20	22
225'9.57"	201'2.76"	179'4.13"	159'10.15"	142'5.69"	126'11.98"	113'2.54"	100'11.14"	89'11.8"	80'2.8"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
225'7.72"	Infinity	201'0.96"	Infinity	179'2.35"	Infinity	159'8.39"	Infinity	142'3.95"	Infinity	126'10.25"	Infinity	113'0.81"	Infinity	100'9.42"	Infinity	89'10.11"	Infinity	80'1.12"	Infinity
106'3.65"	1741'11.3"	100'6.59"	32512'10.62"	94'9.51"	Infinity	89'0.86"	Infinity	83'5.09"	Infinity	77'10.63"	Infinity	72'5.87"	Infinity	67'3.15"	Infinity	62'2.78"	Infinity	57'5.01"	Infinity
69'6.34"	178'7.38"	67'0.4"	197'8.32"	64'5.26"	224'7.7"	61'9.09"	265'3"	59'0.04"	332'10.05"	56'2.31"	466'3.68"	53'4.12"	848'7.44"	50'5.68"	10768'4.68"	47'7.22"	Infinity	44'8.97"	Infinity
53'7.52"	100'11.47"	52'1.64"	106'9.01"	50'6.73"	114'1.28"	48'10.83"	123'8.15"	47'2.01"	136'6.54"	45'4.35"	154'7.36"	43'5.95"	181'7.35"	41'6.93"	225'11.3"	39'7.41"	311'4.05"	37'7.56"	541'2.86"
41'1.14"	63'10.89"	40'2.64"	66'2"	39'3.37"	68'10.83"	38'3.35"	72'3.1"	37'2.57"	76'5.27"	36'1.06"	81'9.04"	34'10.85"	88'8.15"	33'7.99"	98'0.11"	32'4.53"	111'1.78"	31'0.54"	130'10.4"
34'1.42"	48'4.5"	33'6.19"	49'7.81"	32'10.39"	51'2"	32'1.98"	52'11.8"	31'4.97"	55'2.21"	30'7.35"	57'10.63"	29'9.13"	61'3.05"	28'10.32"	65'6.47"	27'10.96"	71'1.57"	26'11.08"	78'8.09"
30'5.14"	41'2.63"	29'11.41"	42'1.66"	29'5.18"	43'2.64"	28'10.45"	44'6.05"	28'3.2"	46'0.48"	27'7.42"	47'10.77"	26'11.11"	50'2.06"	26'2.28"	52'11.98"	25'4.93"	56'6.96"	24'7.09"	61'2.78"
26'7.12"	34'5.14"	26'2.76"	35'0.77"	25'10"	35'9.67"	25'4.83"	36'8.13"	24'11.23"	37'8.51"	24'5.19"	38'11.27"	23'10.71"	40'5.05"	23'3.76"	42'2.7"	22'8.37"	44'5.47"	22'0.53"	47'3.13"
22'7.26"	27'11.72"	22'4.12"	28'4.69"	22'0.69"	28'10.46"	21'8.94"	29'5.18"	21'4.86"	30'1.05"	21'0.43"	30'10.31"	20'7.64"	31'9.3"	20'2.48"	32'10.45"	19'8.95"	34'2.36"	19'3.04"	35'9.84"
20'1.61"	24'3.08"	19'11.14"	24'6.79"	19'8.42"	24'11.08"	19'5.44"	25'4.04"	19'2.19"	25'9.81"	18'10.64"	26'4.57"	18'6.8"	27'0.51"	18'2.64"	27'9.93"	17'10.16"	28'9.19"	17'5.35"	29'10.78"
18'5.44"	21'10.05"	18'3.37"	22'1.04"	18'1.09"	22'4.48"	17'10.59"	22'8.45"	17'7.85"	23'1.05"	17'4.87"	23'6.41"	17'1.61"	24'0.68"	16'10.08"	24'8.07"	16'6.27"	25'4.84"	16'2.16"	26'3.34"
17'7.23"	20'7.74"	17'5.35"	20'10.41"	17'3.28"	21'1.47"	17'1.01"	21'4.99"	16'10.52"	21'9.07"	16'7.79"	22'1.81"	16'4.82"	22'7.34"	16'1.6"	23'1.84"	15'10.1"	23'9.52"	15'6.33"	24'6.68"
16'8.94"	19'5.58"	16'7.24"	19'7.93"	16'5.37"	19'10.64"	16'3.32"	20'1.75"	16'1.06"	20'5.34"	15'10.59"	20'9.51"	15'7.9"	21'2.36"	15'4.96"	21'8.04"	15'1.78"	22'2.74"	14'10.34"	22'10.69"
15'10.56"	18'3.55"	15'9.04"	18'5.62"	15'7.36"	18'7.99"	15'5.52"	18'10.72"	15'3.49"	19'1.87"	15'1.26"	19'5.51"	14'10.83"	19'9.74"	14'8.18"	20'2.67"	14'5.3"	20'8.47"	14'2.19"	21'3.33"
15'0.1"	17'1.65"	14'10.74"	17'3.46"	14'9.25"	17'5.53"	14'7.6"	17'7.9"	14'5.79"	17'10.64"	14'3.8"	18'1.79"	14'1.63"	18'5.45"	13'11.25"	18'9.71"	13'8.66"	19'2.7"	13'5.86"	19'8.57"
14'1.55"	15'11.88"	14'0.35"	16'1.45"	13'11.03"	16'3.24"	13'9.57"	16'5.29"	13'7.97"	16'7.65"	13'6.21"	16'10.36"	13'4.28"	17'1.5"	13'2.16"	17'5.15"	12'11.86"	17'9.4"	12'9.35"	18'2.39"
13'2.9"	14'10.24"	13'1.86"	14'11.59"	13'0.71"	15'1.12"	12'11.43"	15'2.88"	12'10.02"	15'4.89"	12'8.48"	15'7.2"	12'6.78"	15'9.87"	12'4.91"	16'0.96"	12'2.88"	16'4.55"	12'0.67"	16'8.76"
12'4.17"	13'8.74"	12'3.27"	13'9.88"	12'2.27"	13'11.18"	12'1.17"	14'0.66"	11'11.95"	14'2.36"	11'10.6"	14'4.31"	11'9.12"	14'6.55"	11'7.5"	14'9.14"	11'5.73"	15'0.15"	11'3.79"	15'3.65"
11'10.78"	13'2.03"	11'9.94"	13'3.07"	11'9.01"	13'4.26"	11'7.99"	13'5.62"	11'6.86"	13'7.18"	11'5.61"	13'8.96"	11'4.24"	13'11"	11'2.73"	14'1.37"	11'1.08"	14'4.1"	10'11.28"	14'7.28"
11'5.35"	12'7.35"	11'4.58"	12'8.31"	11'3.73"	12'9.4"	11'2.78"	12'10.63"	11'1.74"	13'0.05"	11'0.59"	13'1.67"	10'11.32"	13'3.53"	10'9.92"	13'5.68"	10'8.39"	13'8.16"	10'6.72"	13'11.04"
10'11.91"	12'0.71"	10'11.2"	12'1.58"	10'10.42"	12'2.57"	10'9.55"	12'3.69"	10'8.59"	12'4.98"	10'7.52"	12'6.45"	10'6.35"	12'8.14"	10'5.07"	12'10.08"	10'3.66"	13'0.32"	10'2.11"	13'2.92"
10'6.44"	11'6.1"	10'5.79"	11'6.88"	10'5.08"	11'7.78"	10'4.28"	11'8.8"	10'3.4"	11'9.96"	10'2.42"	11'11.29"	10'1.35"	12'0.81"	10'0.17"	12'2.56"	9'10.87"	12'4.58"	9'9.45"	12'6.91"
10'0.95"	10'11.51"	10'0.36"	11'0.22"	9'11.71"	11'1.03"	9'10.98"	11'1.95"	9'10.18"	11'3"	9'9.29"	11'4.19"	9'8.31"	11'5.56"	9'7.23"	11'7.13"	9'6.04"	11'8.94"	9'4.73"	11'11.02"
9'7.43"	10'4.96"	9'6.9"	10'5.6"	9'6.31"	10'6.32"	9'5.65"	10'7.15"	9'4.92"	10'8.08"	9'4.11"	10'9.15"	9'3.22"	10'10.37"	9'2.24"	10'11.78"	9'1.16"	11'1.39"	8'11.97"	11'3.25"
9'1.9"	9'10.44"	9'1.42"	9'11.01"	9'0.88"	9'11.65"	9'0.29"	10'0.39"	8'11.63"	10'1.22"	8'10.9"	10'2.17"	8'10.09"	10'3.26"	8'9.2"	10'4.5"	8'8.22"	10'5.93"	8'7.15"	10'7.58"
8'8.33"	9'3.95"	8'7.9"	9'4.45"	8'7.42"	9'5.03"	8'6.89"	9'5.68"	8'6.3"	9'6.41"	8'5.65"	9'7.25"	8'4.92"	9'8.21"	8'4.12"	9'9.31"	8'3.24"	9'10.57"	8'2.27"	10'0.02"
8'5.54"	9'0.71"	8'5.14"	9'1.19"	8'4.69"	9'1.73"	8'4.18"	9'2.34"	8'3.63"	9'3.03"	8'3.01"	9'3.82"	8'2.32"	9'4.72"	8'1.57"	9'5.75"	8'0.73"	9'6.92"	7'11.81"	9'8.28"
8'2.75"	8'9.49"	8'2.37"	8'9.93"	8'1.94"	8'10.44"	8'1.47"	8'11.01"	8'0.94"	8'11.66"	8'0.36"	9'0.39"	7'11.71"	9'1.24"	7'11"	9'2.2"	7'10.21"	9'3.3"	7'9.34"	9'4.56"
7'11.95"	8'6.27"	7'11.59"	8'6.68"	7'11.19"	8'7.15"	7'10.74"	8'7.69"	7'10.24"	8'8.3"	7'9.7"	8'8.99"	7'9.09"	8'9.77"	7'8.41"	8'10.67"	7'7.67"	8'11.7"	7'6.85"	9'0.87"
7'9.14"	8'3.05"	7'8.8"	8'3.44"	7'8.42"	8'3.88"	7'8.01"	8'4.38"	7'7.54"	8'4.95"	7'7.03"	8'5.59"	7'6.45"	8'6.32"	7'5.82"	8'7.16"	7'5.12"	8'8.12"	7'4.35"	8'9.21"
7'6.32"	7'11.85"	7'6.01"	8'0.21"	7'5.66"	8'0.62"	7'5.26"	8'1.09"	7'4.83"	8'1.61"	7'4.35"	8'2.21"	7'3.81"	8'2.89"	7'3.22"	8'3.67"	7'2.56"	8'4.56"	7'1.84"	8'5.57"
7'3.5"	7'8.65"	7'3.21"	7'8.99"	7'2.88"	7'9.37"	7'2.51"	7'9.8"	7'2.11"	7'10.29"	7'1.65"	7'10.85"	7'1.15"	7'11.48"	7'0.6"	8'0.2"	6'11.98"	8'1.02"	6'11.31"	8'1.96"
7'0.68"	7'5.46"	7'0.4"	7'5.77"	7'0.1"	7'6.13"	6'11.76"	7'6.53"	6'11.38"	7'6.98"	6'10.95"	7'7.49"	6'10.49"	7'8.08"	6'9.97"	7'8.74"	6'9.39"	7'9.5"	6'8.76"	7'10.37"
6'9.85"	7'2.28"	6'9.59"	7'2.57"	6'9.31"	7'2.89"	6'8.99"	7'3.26"	6'8.64"	7'3.68"	6'8.24"	7'4.16"	6'7.81"	7'4.69"	6'7.33"	7'5.31"	6'6.79"	7'6.01"	6'6.2"	7'6.81"
6'7.01"	6'11.1"	6'6.77"	6'11.37"	6'6.51"	6'11.67"	6'6.21"	7'0.01"	6'5.89"	7'0.39"	6'5.52"	7'0.83"	6'5.12"	7'1.33"	6'4.67"	7'1.89"	6'4.18"	7'2.54"	6'3.63"	7'3.27"
6'4.16"	6'7.93"	6'3.95"	6'8.18"	6'3.7"	6'8.45"	6'3.43"	6'8.77"	6'3.13"	6'9.12"	6'2.79"	6'9.52"	6'2.42"	6'9.98"	6'2"	6'10.49"	6'1.55"	6'11.08"	6'1.04"	6'11.75"
6'1.31"	6'4.77"	6'1.11"	6'5"	6'0.89"	6'5.25"	6'0.64"	6'5.53"	6'0.36"	6'5.86"	6'0.05"	6'6.22"	5'11.71"	6'6.64"	5'11.32"	6'7.11"	5'10.9"	6'7.65"	5'10.43"	6'8.26"
5'10.46"	6'1.62"	5'10.27"	6'1.82"	5'10.07"	6'2.05"	5'9.84"	6'2.31"	5'9.58"	6'2.61"	5'9.3"	6'2.94"	5'8.98"	6'3.32"	5'8.63"	6'3.75"	5'8.24"	6'4.24"	5'7.81"	6'4.79"
5'9.5"	6'0.57"	5'9.32"	6'0.77"	5'9.12"	6'0.99"	5'8.9"	6'1.24"	5'8.65"	6'1.53"	5'8.38"	6'1.85"	5'8.07"	6'2.22"	5'7.73"	6'2.63"	5'7.35"	6'3.11"	5'6.94"	6'3.64"
5'8.55"	5'11.52"	5'8.37"	5'11.71"	5'8.18"	5'11.93"	5'7.97"	6'0.17"	5'7.73"	6'0.45"	5'7.46"	6'0.76"	5'7.16"	6'1.11"	5'6.83"	6'1.52"	5'6.46"	6'1.97"	5'6.06"	6'2.5"
5'7.59"	5'10.47"	5'7.43"	5'10.66"	5'7.24"	5'10.87"	5'7.03"	5'11.1"	5'6.8"	5'11.37"	5'6.54"	5'11.67"	5'6.25"	6'0.01"	5'5.93"	6'0.4"	5'5.57"	6'0.85"	5'5.18"	6'1.35"
5'6.64"	5'9.42"	5'6.47"	5'9.6"	5'6.29"	5'9.81"	5'6.09"	5'10.03"	5'5.86"	5'10.29"	5'5.61"	5'10.59"	5'5.33"	5'10.92"	5'5.02"	5'11.29"	5'4.68"	5'11.72"	5'4.29"	6'0.21"
5'5.68"	5'8.38"	5'5.52"	5'8.55"	5'5.35"	5'8.75"	5'5.15"	5'8.97"	5'4.93"	5'9.22"	5'4.69"	5'9.5"	5'4.42"	5'9.82"	5'4.12"	5'10.18"	5'3.78"	5'10.6"	5'3.41"	5'11.07"
5'4.72"	5'7.33"	5'4.57"	5'7.5"	5'4.4"	5'7.69"	5'4.21"	5'7.9"	5'4"	5'8.14"	5'3.76"	5'8.42"	5'3.5"	5'8.73"	5'3.21"	5'9.08"	5'2.88"	5'9.47"	5'2.53"	5'9.93"
5'3.77"	5'6.29"	5'3.62"	5'6.45"	5'3.45"	5'6.63"	5'3.27"	5'6.84"	5'3.07"	5'7.07"	5'2.84"	5'7.33"	5'2.58"	5'7.63"	5'2.3"	5'7.97"	5'1.99"	5'8.36"	5'1.64"	5'8.79"
5'2.81"	5'5.24"	5'2.66"	5'5.4"	5'2.51"	5'5.58"	5'2.33"	5'5.77"	5'2.13"	5'6"	5'1.91"	5'6.25"	5'1.66"	5'6.54"	5'1.39"	5'6.87"	5'1.09"	5'7.24"	5'0.75"	5'7.66"
5'1.85"	5'4.2"	5'1.71"	5'4.35"	5'1.56"	5'4.52"	5'1.38"	5'4.71"	5'1.19"	5'4.93"	5'0.98"	5'5.17"	5'0.74"	5'5.45"	5'0.48"	5'5.77"	5'0.18"	5'6.12"	4'11.86"	5'6.53"
5'0.89"	5'3.16"	5'0.76"	5'3.3"	5'0.61"	5'3.47"	5'0.44"	5'3.65"	5'0.26"	5'3.86"	5'0.05"	5'4.1"	4'11.82"	5'4.36"	4'11.56"	5'4.67"	4'11.28"	5'5.01"	4'10.97"	5'5.4"
4'11.93"	5'2.12"	4'11.8"	5'2.26"	4'11.66"	5'2.41"	4'11.5"	5'2.59"	4'11.32"	5'2.79"	4'11.12"	5'3.02"	4'10.9"	5'3.28"	4'10.65"	5'3.57"	4'10.38"	5'3.9"	4'10.07"	5'4.28"
4'10.97"	5'1.07"	4'10.84"	5'1.21"	4'10.7"	5'1.36"	4'10.55"	5'1.53"	4'10.38"	5'1.73"	4'10.19"	5'1.94"	4'9.97"	5'2.19"	4'9.73"	5'2.47"	4'9.47"	5'2.79"	4'9.18"	5'3.15"
4'10"	5'0.03"	4'9.89"	5'0.16"	4'9.75"	5'0.31"	4'9.6"	5'0.47"	4'9.44"	5'0.66"	4'9.25"	5'0.87"	4'9.05"	5'1.11"	4'8.82"	5'1.38"	4'8.56"	5'1.68"	4'8.28"	5'2.03"

4'9.04"	4'10.99"	4'8.93"	4'11.12"	4'8.8"	4'11.26"	4'8.66"	4'11.42"	4'8.5"	4'11.6"	4'8.32"	4'11.8"	4'8.12"	5'0.03"	4'7.9"	5'0.29"	4'7.65"	5'0.58"	4'7.38"	5'0.91"
4'8.08"	4'9.96"	4'7.97"	4'10.08"	4'7.84"	4'10.21"	4'7.71"	4'10.36"	4'7.55"	4'10.53"	4'7.38"	4'10.73"	4'7.19"	4'10.95"	4'6.98"	4'11.2"	4'6.74"	4'11.48"	4'6.48"	4'11.8"
4'7.11"	4'8.92"	4'7.01"	4'9.03"	4'6.89"	4'9.16"	4'6.76"	4'9.31"	4'6.61"	4'9.47"	4'6.44"	4'9.66"	4'6.26"	4'9.87"	4'6.05"	4'10.11"	4'5.83"	4'10.38"	4'5.57"	4'10.69"
4'6.15"	4'7.88"	4'6.05"	4'7.99"	4'5.93"	4'8.11"	4'5.81"	4'8.25"	4'5.66"	4'8.41"	4'5.51"	4'8.59"	4'5.33"	4'8.79"	4'5.13"	4'9.02"	4'4.91"	4'9.28"	4'4.67"	4'9.58"
4'5.18"	4'6.84"	4'5.09"	4'6.95"	4'4.98"	4'7.07"	4'4.85"	4'7.2"	4'4.72"	4'7.35"	4'4.57"	4'7.53"	4'4.4"	4'7.72"	4'4.21"	4'7.94"	4'4"	4'8.19"	4'3.76"	4'8.47"
4'4.22"	4'5.81"	4'4.12"	4'5.91"	4'4.02"	4'6.02"	4'3.9"	4'6.15"	4'3.77"	4'6.3"	4'3.62"	4'6.46"	4'3.46"	4'6.65"	4'3.28"	4'6.86"	4'3.08"	4'7.09"	4'2.85"	4'7.36"
4'3.25"	4'4.77"	4'3.16"	4'4.87"	4'3.06"	4'4.98"	4'2.95"	4'5.1"	4'2.82"	4'5.24"	4'2.68"	4'5.4"	4'2.53"	4'5.57"	4'2.35"	4'5.77"	4'2.16"	4'6"	4'1.94"	4'6.26"
4'2.28"	4'3.74"	4'2.2"	4'3.83"	4'2.1"	4'3.94"	4'1.99"	4'4.05"	4'1.87"	4'4.19"	4'1.74"	4'4.34"	4'1.59"	4'4.5"	4'1.42"	4'4.7"	4'1.24"	4'4.91"	4'1.03"	4'5.16"
4'1.32"	4'2.71"	4'1.23"	4'2.79"	4'1.14"	4'2.89"	4'1.04"	4'3.01"	4'0.92"	4'3.13"	4'0.79"	4'3.27"	4'0.65"	4'3.44"	4'0.49"	4'3.62"	4'0.31"	4'3.82"	4'0.12"	4'4.06"
4'0.35"	4'1.67"	4'0.27"	4'1.76"	4'0.18"	4'1.85"	4'0.08"	4'1.96"	3'11.97"	4'2.08"	3'11.85"	4'2.22"	3'11.71"	4'2.37"	3'11.56"	4'2.54"	3'11.39"	4'2.74"	3'11.2"	4'2.96"
3'11.38"	4'0.64"	3'11.3"	4'0.72"	3'11.22"	4'0.81"	3'11.12"	4'0.91"	3'11.02"	4'1.03"	3'10.9"	4'1.16"	3'10.77"	4'1.3"	3'10.63"	4'1.47"	3'10.46"	4'1.66"	3'10.28"	4'1.87"
3'10.41"	3'11.61"	3'10.33"	3'11.69"	3'10.25"	3'11.77"	3'10.17"	3'11.87"	3'10.07"	3'11.98"	3'9.95"	4'0.1"	3'9.83"	4'0.24"	3'9.69"	4'0.4"	3'9.54"	4'0.58"	3'9.36"	4'0.78"
3'9.44"	3'10.58"	3'9.37"	3'10.65"	3'9.29"	3'10.74"	3'9.21"	3'10.83"	3'9.11"	3'10.93"	3'9"	3'11.05"	3'8.89"	3'11.18"	3'8.75"	3'11.33"	3'8.61"	3'11.5"	3'8.44"	3'11.69"
3'8.46"	3'9.55"	3'8.4"	3'9.62"	3'8.33"	3'9.7"	3'8.25"	3'9.79"	3'8.15"	3'9.88"	3'8.05"	3'9.99"	3'7.94"	3'10.12"	3'7.82"	3'10.26"	3'7.67"	3'10.42"	3'7.52"	3'10.6"
3'7.49"	3'8.52"	3'7.43"	3'8.59"	3'7.36"	3'8.66"	3'7.28"	3'8.74"	3'7.2"	3'8.84"	3'7.1"	3'8.94"	3'6.99"	3'9.06"	3'6.88"	3'9.2"	3'6.74"	3'9.35"	3'6.59"	3'9.52"
3'6.52"	3'7.5"	3'6.46"	3'7.56"	3'6.39"	3'7.63"	3'6.32"	3'7.7"	3'6.24"	3'7.79"	3'6.15"	3'7.89"	3'6.05"	3'8"	3'5.93"	3'8.13"	3'5.81"	3'8.27"	3'5.67"	3'8.44"
3'5.54"	3'6.47"	3'5.49"	3'6.53"	3'5.43"	3'6.59"	3'5.36"	3'6.67"	3'5.28"	3'6.75"	3'5.19"	3'6.84"	3'5.1"	3'6.95"	3'4.99"	3'7.07"	3'4.87"	3'7.2"	3'4.74"	3'7.36"
3'4.57"	3'5.44"	3'4.52"	3'5.5"	3'4.46"	3'5.56"	3'4.39"	3'5.63"	3'4.32"	3'5.71"	3'4.24"	3'5.8"	3'4.15"	3'5.9"	3'4.05"	3'6.01"	3'3.93"	3'6.14"	3'3.81"	3'6.28"

Focal Length 120mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	211.567	188.505	167.96	149.656	133.349	118.821	105.878	94.347	84.074

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	211.48	Infinity	188.428	Infinity	167.889	Infinity	149.591	Infinity	133.289	Infinity	118.765	Infinity	105.825	Infinity	94.296	Infinity	84.025	Infinity
60.000	46.799	83.619	45.572	87.858	44.27	93.159	42.894	99.929	41.449	108.806	39.938	120.861	38.369	138.03	36.749	164.226	35.087	208.7
30.000	26.31	34.902	25.92	35.615	25.496	36.451	25.036	37.438	24.539	38.611	24.005	40.02	23.432	41.729	22.821	43.83	22.173	46.458
20.000	18.299	22.053	18.11	22.334	17.903	22.658	17.677	23.033	17.429	23.47	17.159	23.98	16.866	24.58	16.549	25.29	16.207	26.138
15.000	14.027	16.119	13.917	16.268	13.795	16.438	13.661	16.634	13.513	16.859	13.351	17.119	13.174	17.421	12.981	17.772	12.771	18.185
12.000	11.373	12.702	11.3	12.793	11.22	12.898	11.132	13.017	11.034	13.154	10.927	13.311	10.809	13.491	10.679	13.7	10.537	13.942
10.000	9.563	10.48	9.512	10.542	9.456	10.612	9.393	10.692	9.324	10.784	9.247	10.888	9.163	11.008	9.07	11.146	8.968	11.305
9.000	8.646	9.385	8.604	9.435	8.558	9.491	8.507	9.555	8.451	9.627	8.388	9.71	8.319	9.805	8.242	9.914	8.158	10.039
8.000	7.72	8.301	7.687	8.34	7.651	8.383	7.61	8.433	7.565	8.489	7.515	8.554	7.46	8.627	7.398	8.71	7.331	8.806
7.000	6.786	7.228	6.761	7.257	6.733	7.29	6.701	7.327	6.667	7.369	6.628	7.417	6.585	7.472	6.538	7.534	6.485	7.606
6.500	6.316	6.696	6.294	6.72	6.27	6.748	6.243	6.78	6.213	6.816	6.179	6.857	6.142	6.903	6.101	6.956	6.055	7.017
6.000	5.843	6.165	5.825	6.186	5.804	6.21	5.781	6.237	5.755	6.267	5.727	6.301	5.695	6.341	5.66	6.385	5.621	6.436
5.500	5.369	5.638	5.353	5.655	5.336	5.675	5.316	5.697	5.295	5.722	5.271	5.751	5.244	5.783	5.214	5.82	5.181	5.862
5.000	4.892	5.113	4.879	5.127	4.865	5.143	4.849	5.161	4.831	5.182	4.811	5.205	4.789	5.231	4.764	5.261	4.737	5.295
4.750	4.653	4.852	4.641	4.864	4.628	4.879	4.614	4.895	4.598	4.913	4.58	4.934	4.56	4.958	4.537	4.984	4.513	5.015
4.500	4.413	4.591	4.403	4.602	4.391	4.615	4.378	4.629	4.363	4.646	4.347	4.664	4.329	4.685	4.309	4.709	4.287	4.736
4.250	4.173	4.33	4.163	4.34	4.153	4.352	4.141	4.365	4.129	4.379	4.114	4.395	4.098	4.414	4.08	4.435	4.061	4.459
4.000	3.932	4.071	3.924	4.08	3.914	4.09	3.904	4.101	3.893	4.114	3.88	4.128	3.866	4.144	3.85	4.163	3.833	4.183
3.800	3.739	3.863	3.731	3.871	3.723	3.88	3.714	3.89	3.704	3.902	3.692	3.915	3.679	3.929	3.665	3.946	3.649	3.964
3.600	3.545	3.657	3.539	3.664	3.531	3.672	3.523	3.681	3.514	3.691	3.503	3.702	3.492	3.715	3.479	3.73	3.465	3.746
3.500	3.448	3.553	3.442	3.56	3.435	3.568	3.427	3.576	3.419	3.586	3.409	3.596	3.398	3.608	3.386	3.622	3.373	3.638
3.400	3.351	3.45	3.345	3.456	3.339	3.463	3.332	3.471	3.323	3.48	3.314	3.491	3.304	3.502	3.293	3.515	3.28	3.529
3.300	3.254	3.347	3.249	3.353	3.243	3.36	3.236	3.367	3.228	3.375	3.219	3.385	3.21	3.396	3.199	3.408	3.187	3.421
3.200	3.157	3.244	3.152	3.25	3.146	3.256	3.14	3.263	3.132	3.271	3.124	3.28	3.115	3.29	3.105	3.301	3.094	3.314
3.100	3.06	3.141	3.055	3.146	3.05	3.152	3.044	3.159	3.037	3.166	3.029	3.174	3.021	3.184	3.011	3.194	3.001	3.206
3.000	2.963	3.038	2.958	3.043	2.953	3.049	2.947	3.055	2.941	3.062	2.934	3.069	2.926	3.078	2.917	3.088	2.907	3.099
2.900	2.865	2.936	2.861	2.94	2.856	2.945	2.851	2.951	2.845	2.957	2.838	2.964	2.831	2.972	2.823	2.982	2.814	2.992
2.800	2.768	2.833	2.764	2.837	2.759	2.842	2.754	2.847	2.749	2.853	2.743	2.86	2.736	2.867	2.728	2.876	2.72	2.885
2.700	2.67	2.731	2.666	2.735	2.662	2.739	2.658	2.744	2.653	2.749	2.647	2.755	2.641	2.762	2.634	2.77	2.626	2.779
2.600	2.572	2.628	2.569	2.632	2.565	2.636	2.561	2.64	2.556	2.645	2.551	2.651	2.545	2.657	2.539	2.664	2.531	2.673
2.550	2.523	2.577	2.52	2.581	2.517	2.584	2.513	2.589	2.508	2.593	2.503	2.599	2.497	2.605	2.491	2.612	2.484	2.62
2.500	2.475	2.526	2.471	2.529	2.468	2.533	2.464	2.537	2.46	2.542	2.455	2.547	2.45	2.553	2.444	2.559	2.437	2.567
2.450	2.426	2.475	2.423	2.478	2.419	2.481	2.416	2.485	2.412	2.49	2.407	2.495	2.402	2.5	2.396	2.507	2.39	2.514
2.400	2.377	2.424	2.374	2.427	2.371	2.43	2.367	2.434	2.363	2.438	2.359	2.443	2.354	2.448	2.348	2.454	2.342	2.461
2.350	2.328	2.373	2.325	2.376	2.322	2.379	2.319	2.382	2.315	2.386	2.311	2.391	2.306	2.396	2.301	2.402	2.295	2.408
2.300	2.279	2.322	2.276	2.324	2.273	2.327	2.27	2.331	2.266	2.335	2.262	2.339	2.258	2.344	2.253	2.349	2.247	2.356
2.250	2.23	2.271	2.227	2.273	2.224	2.276	2.221	2.279	2.218	2.283	2.214	2.287	2.21	2.292	2.205	2.297	2.2	2.303
2.200	2.181	2.22	2.178	2.222	2.176	2.225	2.173	2.228	2.169	2.231	2.166	2.235	2.162	2.24	2.157	2.245	2.152	2.25
2.150	2.132	2.169	2.129	2.171	2.127	2.174	2.124	2.177	2.121	2.18	2.117	2.184	2.114	2.188	2.109	2.193	2.104	2.198
2.100	2.083	2.118	2.08	2.12	2.078	2.123	2.075	2.125	2.072	2.128	2.069	2.132	2.065	2.136	2.061	2.14	2.056	2.146
2.050	2.033	2.067	2.031	2.069	2.029	2.071	2.027	2.074	2.024	2.077	2.021	2.08	2.017	2.084	2.013	2.088	2.009	2.093
2.000	1.984	2.016	1.982	2.018	1.98	2.02	1.978	2.023	1.975	2.026	1.972	2.029	1.969	2.032	1.965	2.036	1.961	2.041
1.975	1.96	1.991	1.958	1.993	1.956	1.995	1.953	1.997	1.951	2	1.948	2.003	1.945	2.006	1.941	2.01	1.937	2.015
1.950	1.935	1.965	1.933	1.967	1.931	1.969	1.929	1.971	1.926	1.974	1.924	1.977	1.92	1.981	1.917	1.984	1.913	1.989
1.925	1.911	1.94	1.909	1.942	1.907	1.944	1.905	1.946	1.902	1.948	1.899	1.951	1.896	1.955	1.893	1.958	1.889	1.963
1.900	1.886	1.914	1.884	1.916	1.882	1.918	1.88	1.92	1.878	1.923	1.875	1.926	1.872	1.929	1.869	1.932	1.865	1.937
1.875	1.861	1.889	1.86	1.891	1.858	1.893	1.856	1.895	1.853	1.897	1.851	1.9	1.848	1.903	1.845	1.907	1.841	1.91
1.850	1.837	1.863	1.835	1.865	1.833	1.867	1.831	1.869	1.829	1.872	1.826	1.874	1.824	1.877	1.82	1.881	1.817	1.884
1.825	1.812	1.838	1.811	1.84	1.809	1.842	1.807	1.844	1.805	1.846	1.802	1.848	1.799	1.851	1.796	1.855	1.793	1.858
1.800	1.787	1.813	1.786	1.814	1.784	1.816	1.782	1.818	1.78	1.82	1.778	1.823	1.775	1.826	1.772	1.829	1.769	1.832
1.775	1.763	1.787	1.761	1.789	1.76	1.791	1.758	1.792	1.756	1.795	1.754	1.797	1.751	1.8	1.748	1.803	1.745	1.806

1.750	1.738	1.762	1.737	1.763	1.735	1.765	1.733	1.767	1.731	1.769	1.729	1.771	1.727	1.774	1.724	1.777	1.721	1.78
1.725	1.714	1.737	1.712	1.738	1.711	1.74	1.709	1.741	1.707	1.743	1.705	1.746	1.702	1.748	1.7	1.751	1.697	1.754
1.700	1.689	1.711	1.688	1.713	1.686	1.714	1.684	1.716	1.683	1.718	1.68	1.72	1.678	1.723	1.675	1.725	1.673	1.728
1.675	1.664	1.686	1.663	1.687	1.662	1.689	1.66	1.69	1.658	1.692	1.656	1.694	1.654	1.697	1.651	1.7	1.648	1.703
1.650	1.64	1.66	1.638	1.662	1.637	1.663	1.635	1.665	1.634	1.667	1.632	1.669	1.63	1.671	1.627	1.674	1.624	1.677
1.625	1.615	1.635	1.614	1.636	1.612	1.638	1.611	1.639	1.609	1.641	1.607	1.643	1.605	1.645	1.603	1.648	1.6	1.651
1.600	1.59	1.61	1.589	1.611	1.588	1.612	1.586	1.614	1.585	1.616	1.583	1.617	1.581	1.62	1.579	1.622	1.576	1.625
1.575	1.566	1.584	1.565	1.586	1.563	1.587	1.562	1.588	1.56	1.59	1.559	1.592	1.557	1.594	1.554	1.596	1.552	1.599
1.550	1.541	1.559	1.54	1.56	1.539	1.561	1.537	1.563	1.536	1.564	1.534	1.566	1.532	1.568	1.53	1.571	1.528	1.573
1.525	1.516	1.534	1.515	1.535	1.514	1.536	1.513	1.537	1.511	1.539	1.51	1.541	1.508	1.543	1.506	1.545	1.503	1.547
1.500	1.492	1.508	1.491	1.509	1.49	1.511	1.488	1.512	1.487	1.513	1.485	1.515	1.483	1.517	1.481	1.519	1.479	1.521
1.475	1.467	1.483	1.466	1.484	1.465	1.485	1.464	1.487	1.462	1.488	1.461	1.49	1.459	1.491	1.457	1.493	1.455	1.496
1.450	1.442	1.458	1.441	1.459	1.44	1.46	1.439	1.461	1.438	1.462	1.436	1.464	1.435	1.466	1.433	1.468	1.431	1.47
1.425	1.418	1.433	1.417	1.433	1.416	1.434	1.415	1.436	1.413	1.437	1.412	1.438	1.41	1.44	1.408	1.442	1.406	1.444
1.400	1.393	1.407	1.392	1.408	1.391	1.409	1.39	1.41	1.389	1.412	1.387	1.413	1.386	1.415	1.384	1.416	1.382	1.418
1.375	1.368	1.382	1.367	1.383	1.366	1.384	1.365	1.385	1.364	1.386	1.363	1.387	1.361	1.389	1.36	1.391	1.358	1.393
1.350	1.343	1.357	1.343	1.357	1.342	1.358	1.341	1.359	1.34	1.361	1.338	1.362	1.337	1.363	1.335	1.365	1.334	1.367
1.325	1.319	1.331	1.318	1.332	1.317	1.333	1.316	1.334	1.315	1.335	1.314	1.336	1.312	1.338	1.311	1.339	1.309	1.341
1.300	1.294	1.306	1.293	1.307	1.292	1.308	1.291	1.309	1.29	1.31	1.289	1.311	1.288	1.312	1.287	1.314	1.285	1.315
1.275	1.269	1.281	1.269	1.282	1.268	1.282	1.267	1.283	1.266	1.284	1.265	1.285	1.264	1.287	1.262	1.288	1.261	1.29
1.250	1.244	1.256	1.244	1.256	1.243	1.257	1.242	1.258	1.241	1.259	1.24	1.26	1.239	1.261	1.238	1.263	1.236	1.264
1.225	1.22	1.23	1.219	1.231	1.218	1.232	1.218	1.233	1.217	1.233	1.216	1.234	1.215	1.236	1.213	1.237	1.212	1.238
1.200	1.195	1.205	1.194	1.206	1.194	1.206	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.21	1.189	1.211	1.187	1.213
1.175	1.17	1.18	1.17	1.18	1.169	1.181	1.168	1.182	1.167	1.183	1.167	1.184	1.165	1.185	1.164	1.186	1.163	1.187
1.150	1.145	1.155	1.145	1.155	1.144	1.156	1.144	1.156	1.143	1.157	1.142	1.158	1.141	1.159	1.14	1.16	1.139	1.162
1.125	1.121	1.129	1.12	1.13	1.12	1.13	1.119	1.131	1.118	1.132	1.117	1.133	1.116	1.134	1.115	1.135	1.114	1.136
1.100	1.096	1.104	1.095	1.105	1.095	1.105	1.094	1.106	1.094	1.107	1.093	1.107	1.092	1.108	1.091	1.109	1.09	1.11
1.075	1.071	1.079	1.071	1.079	1.07	1.08	1.07	1.081	1.069	1.081	1.068	1.082	1.067	1.083	1.066	1.084	1.065	1.085
1.050	1.046	1.054	1.046	1.054	1.045	1.055	1.045	1.055	1.044	1.056	1.043	1.057	1.043	1.057	1.042	1.058	1.041	1.059

8	9	10	11	13	14	16	18	20	22
74.922	66.769	59.505	53.034	47.268	42.132	37.556	33.479	29.847	26.611

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
74.875	Infinity	66.722	Infinity	59.459	Infinity	52.988	Infinity	47.224	Infinity	42.088	Infinity	37.512	Infinity	33.436	Infinity	29.804	Infinity	26.568	Infinity
33.393	299.898	31.676	588.866	29.949	Infinity	28.223	Infinity	26.509	Infinity	24.818	Infinity	23.161	Infinity	21.548	Infinity	19.987	Infinity	18.486	Infinity
21.487	49.811	20.767	54.204	20.015	60.163	19.233	68.637	18.426	81.537	17.597	103.357	16.752	147.784	15.896	285.805	15.035	Infinity	14.174	Infinity
15.84	27.161	15.447	28.41	15.029	29.956	14.587	31.906	14.12	34.424	13.631	37.771	13.121	42.403	12.593	49.179	12.049	59.942	11.493	79.49
12.543	18.671	12.297	19.249	12.032	19.943	11.748	20.784	11.445	21.818	11.124	23.108	10.784	24.753	10.426	26.905	10.053	29.817	9.665	33.946
10.382	14.225	10.214	14.556	10.032	14.947	9.835	15.412	9.623	15.97	9.396	16.646	9.153	17.478	8.896	18.518	8.624	19.844	8.338	21.581
8.857	11.489	8.735	11.703	8.602	11.953	8.457	12.246	8.301	12.594	8.132	13.009	7.951	13.508	7.757	14.117	7.551	14.871	7.332	15.819
8.066	10.183	7.965	10.35	7.855	10.545	7.735	10.771	7.604	11.038	7.463	11.354	7.311	11.732	7.147	12.187	6.972	12.742	6.786	13.429
7.257	8.917	7.175	9.044	7.086	9.191	6.989	9.362	6.882	9.562	6.767	9.797	6.642	10.075	6.508	10.408	6.363	10.808	6.208	11.296
6.428	7.687	6.364	7.781	6.294	7.889	6.218	8.014	6.134	8.159	6.043	8.329	5.943	8.528	5.836	8.763	5.72	9.043	5.595	9.38
6.005	7.086	5.95	7.165	5.889	7.256	5.822	7.362	5.749	7.483	5.669	7.625	5.582	7.791	5.488	7.986	5.385	8.217	5.275	8.494
5.578	6.493	5.53	6.56	5.478	6.636	5.42	6.723	5.357	6.824	5.288	6.941	5.212	7.078	5.13	7.238	5.041	7.426	4.945	7.65
5.145	5.91	5.105	5.964	5.06	6.026	5.011	6.098	4.957	6.181	4.898	6.276	4.834	6.387	4.763	6.516	4.687	6.668	4.604	6.847
4.706	5.334	4.673	5.378	4.636	5.428	4.595	5.486	4.55	5.552	4.501	5.629	4.446	5.717	4.387	5.82	4.323	5.94	4.252	6.08
4.485	5.049	4.455	5.089	4.421	5.133	4.384	5.185	4.343	5.244	4.299	5.312	4.249	5.39	4.195	5.481	4.136	5.587	4.072	5.71
4.263	4.766	4.235	4.801	4.205	4.841	4.172	4.887	4.135	4.939	4.094	4.999	4.05	5.068	4.001	5.148	3.948	5.24	3.889	5.349
4.039	4.486	4.014	4.517	3.987	4.552	3.957	4.592	3.924	4.637	3.888	4.69	3.848	4.75	3.804	4.82	3.756	4.901	3.703	4.995
3.813	4.207	3.791	4.234	3.767	4.265	3.741	4.299	3.711	4.339	3.679	4.385	3.643	4.438	3.604	4.498	3.561	4.568	3.514	4.649
3.632	3.985	3.612	4.009	3.59	4.037	3.566	4.068	3.54	4.103	3.51	4.144	3.478	4.191	3.443	4.244	3.403	4.306	3.361	4.378
3.449	3.765	3.432	3.786	3.412	3.811	3.391	3.838	3.367	3.87	3.34	3.906	3.311	3.947	3.279	3.994	3.244	4.049	3.205	4.112
3.358	3.655	3.341	3.675	3.323	3.698	3.302	3.724	3.28	3.754	3.255	3.787	3.227	3.826	3.197	3.87	3.163	3.921	3.127	3.98
3.266	3.546	3.25	3.565	3.233	3.586	3.214	3.61	3.192	3.638	3.169	3.67	3.143	3.706	3.114	3.747	3.082	3.795	3.047	3.85
3.174	3.437	3.159	3.455	3.143	3.475	3.125	3.497	3.105	3.523	3.082	3.553	3.058	3.586	3.031	3.625	3.001	3.67	2.968	3.721
3.082	3.328	3.068	3.345	3.053	3.363	3.035	3.384	3.016	3.409	2.995	3.436	2.972	3.468	2.947	3.504	2.919	3.545	2.888	3.593
2.989	3.22	2.976	3.235	2.962	3.252	2.946	3.272	2.928	3.295	2.908	3.32	2.887	3.349	2.863	3.383	2.836	3.421	2.807	3.466
2.897	3.112	2.884	3.126	2.871	3.142	2.856	3.16	2.839	3.181	2.821	3.205	2.8	3.232	2.778	3.263	2.753	3.299	2.726	3.34
2.804	3.004	2.792	3.017	2.78	3.032	2.766	3.049	2.75	3.068	2.733	3.09	2.714	3.115	2.693	3.144	2.669	3.177	2.644	3.215
2.71	2.896	2.7	2.908	2.688	2.922	2.675	2.938	2.661	2.956	2.645	2.976	2.627	2.999	2.607	3.026	2.585	3.056	2.561	3.091
2.617	2.789	2.607	2.8	2.596	2.813	2.584	2.827	2.571	2.844	2.556	2.863	2.539	2.884	2.521	2.908	2.501	2.936	2.478	2.968
2.523	2.682	2.514	2.692	2.504	2.704	2.493	2.717	2.48	2.732	2.467	2.75	2.451	2.769	2.434	2.792	2.416	2.817	2.395	2.846
2.476	2.628	2.468	2.638	2.458	2.65	2.447	2.662	2.435	2.677	2.422	2.693	2.407	2.712	2.391	2.733	2.373	2.758	2.353	2.786
2.429	2.575	2.421	2.585	2.412	2.595	2.401	2.608	2.39	2.621	2.377	2.637	2.363	2.655	2.347	2.676	2.33	2.699	2.311	2.726
2.382	2.522	2.374	2.531	2.365	2.541	2.356	2.553	2.344	2.566	2.332	2.581	2.319	2.598	2.304	2.618	2.287	2.64	2.268	2.666
2.335	2.469	2.328	2.477	2.319	2.487	2.31	2.498	2.299	2.511	2.287	2.525	2.274	2.542	2.26	2.56	2.244	2.582	2.226	2.606
2.288	2.416	2.281	2.424	2.273	2.433	2.263	2.444	2.253	2.456	2.242	2.47	2.23	2.485	2.216	2.503	2.2	2.523	2.183	2.546
2.241	2.363	2.234	2.371	2.226	2.379	2.217	2.39	2.208	2.401	2.197	2.414	2.185	2.429	2.172	2.446	2.157	2.465	2.141	2.487
2.194	2.31	2.187	2.317	2.179	2.326	2.171	2.335	2.162	2.346	2.151	2.359	2.14	2.373	2.127	2.389	2.113	2.407	2.098	2.428
2.146	2.257	2.14	2.264	2.133	2.272	2.125	2.281	2.116	2.292	2.106	2.303	2.095	2.317	2.083	2.332	2.07	2.349	2.055	2.369
2.099	2.204	2.093	2.211	2.086	2.218	2.078	2.227	2.07	2.237	2.061	2.248	2.05	2.261	2.039	2.275	2.026	2.292	2.012	2.311
2.051	2.151	2.046	2.158	2.039	2.165	2.032	2.173	2.024	2.183	2.015	2.193	2.005	2.205	1.994	2.219	1.982	2.235	1.968	2.252
2.004	2.099	1.998	2.105	1.992	2.112	1.985	2.119	1.978	2.128	1.969	2.138	1.96	2.15	1.949	2.163	1.938	2.177	1.925	2.194
1.956	2.046	1.951	2.052	1.945	2.058	1.939	2.066	1.931	2.074	1.923	2.084	1.914	2.094	1.904	2.107	1.893	2.121	1.881	2.136
1.932	2.02	1.927	2.025	1.922	2.032	1.915	2.039	1.908	2.047	1.9	2.056	1.892	2.067	1.882	2.079	1.871	2.092	1.859	2.108
1.908	1.994	1.904	1.999	1.898	2.005	1.892	2.012	1.885	2.02	1.877	2.029	1.869	2.039	1.859	2.051	1.849	2.064	1.837	2.079
1.885	1.967	1.88	1.973	1.874	1.979	1.868	1.985	1.862	1.993	1.854	2.002	1.846	2.012	1.837	2.023	1.827	2.036	1.815	2.05
1.861	1.941	1.856	1.946	1.851	1.952	1.845	1.959	1.839	1.966	1.831	1.975	1.823	1.984	1.814	1.995	1.804	2.007	1.793	2.021
1.837	1.915	1.832	1.92	1.827	1.926	1.822	1.932	1.815	1.939	1.808	1.947	1.8	1.957	1.792	1.967	1.782	1.979	1.771	1.993
1.813	1.889	1.809	1.894	1.804	1.899	1.798	1.905	1.792	1.912	1.785	1.92	1.778	1.929	1.769	1.939	1.76	1.951	1.749	1.964
1.789	1.863	1.785	1.867	1.78	1.873	1.775	1.879	1.769	1.885	1.762	1.893	1.755	1.902	1.746	1.912	1.737	1.923	1.727	1.936
1.765	1.836	1.761	1.841	1.756	1.846	1.751	1.852	1.745	1.859	1.739	1.866	1.732	1.874	1.724	1.884	1.715	1.895	1.705	1.907
1.741	1.81	1.737	1.815	1.733	1.82	1.728	1.825	1.722	1.832	1.716	1.839	1.709	1.847	1.701	1.856	1.692	1.867	1.683	1.879

1.717	1.784	1.713	1.788	1.709	1.793	1.704	1.799	1.699	1.805	1.692	1.812	1.686	1.82	1.678	1.829	1.67	1.839	1.661	1.851
1.693	1.758	1.689	1.762	1.685	1.767	1.68	1.772	1.675	1.778	1.669	1.785	1.663	1.793	1.655	1.801	1.647	1.811	1.638	1.822
1.669	1.732	1.666	1.736	1.661	1.741	1.657	1.746	1.652	1.752	1.646	1.758	1.64	1.765	1.633	1.774	1.625	1.783	1.616	1.794
1.645	1.706	1.642	1.71	1.638	1.714	1.633	1.719	1.628	1.725	1.623	1.731	1.617	1.738	1.61	1.746	1.602	1.756	1.594	1.766
1.621	1.68	1.618	1.684	1.614	1.688	1.61	1.693	1.605	1.698	1.599	1.704	1.593	1.711	1.587	1.719	1.579	1.728	1.571	1.738
1.597	1.654	1.594	1.658	1.59	1.662	1.586	1.666	1.581	1.672	1.576	1.677	1.57	1.684	1.564	1.692	1.557	1.7	1.549	1.71
1.573	1.628	1.57	1.631	1.566	1.635	1.562	1.64	1.558	1.645	1.553	1.651	1.547	1.657	1.541	1.664	1.534	1.673	1.526	1.682
1.549	1.602	1.546	1.605	1.542	1.609	1.538	1.613	1.534	1.618	1.529	1.624	1.524	1.63	1.518	1.637	1.511	1.645	1.504	1.654
1.525	1.576	1.522	1.579	1.519	1.583	1.515	1.587	1.511	1.592	1.506	1.597	1.501	1.603	1.495	1.61	1.488	1.617	1.481	1.626
1.501	1.55	1.498	1.553	1.495	1.557	1.491	1.561	1.487	1.565	1.482	1.57	1.477	1.576	1.472	1.583	1.466	1.59	1.459	1.598
1.477	1.524	1.474	1.527	1.471	1.531	1.467	1.534	1.463	1.539	1.459	1.544	1.454	1.549	1.449	1.555	1.443	1.563	1.436	1.571
1.453	1.498	1.45	1.501	1.447	1.504	1.443	1.508	1.44	1.512	1.435	1.517	1.431	1.522	1.426	1.528	1.42	1.535	1.413	1.543
1.428	1.472	1.426	1.475	1.423	1.478	1.42	1.482	1.416	1.486	1.412	1.49	1.407	1.496	1.402	1.501	1.397	1.508	1.391	1.515
1.404	1.446	1.402	1.449	1.399	1.452	1.396	1.456	1.392	1.459	1.388	1.464	1.384	1.469	1.379	1.474	1.374	1.481	1.368	1.488
1.38	1.421	1.378	1.423	1.375	1.426	1.372	1.429	1.369	1.433	1.365	1.437	1.361	1.442	1.356	1.447	1.351	1.453	1.345	1.46
1.356	1.395	1.354	1.397	1.351	1.4	1.348	1.403	1.345	1.407	1.341	1.411	1.337	1.415	1.333	1.42	1.328	1.426	1.322	1.433
1.332	1.369	1.329	1.371	1.327	1.374	1.324	1.377	1.321	1.38	1.318	1.384	1.314	1.389	1.309	1.393	1.305	1.399	1.299	1.405
1.307	1.343	1.305	1.345	1.303	1.348	1.3	1.351	1.297	1.354	1.294	1.358	1.29	1.362	1.286	1.367	1.282	1.372	1.276	1.378
1.283	1.317	1.281	1.32	1.279	1.322	1.276	1.325	1.273	1.328	1.27	1.331	1.267	1.335	1.263	1.34	1.258	1.345	1.253	1.351
1.259	1.292	1.257	1.294	1.255	1.296	1.252	1.299	1.25	1.302	1.247	1.305	1.243	1.309	1.239	1.313	1.235	1.318	1.23	1.323
1.235	1.266	1.233	1.268	1.231	1.27	1.228	1.273	1.226	1.275	1.223	1.279	1.22	1.282	1.216	1.286	1.212	1.291	1.207	1.296
1.21	1.24	1.208	1.242	1.206	1.244	1.204	1.247	1.202	1.249	1.199	1.252	1.196	1.256	1.192	1.26	1.189	1.264	1.184	1.269
1.186	1.214	1.184	1.216	1.182	1.218	1.18	1.221	1.178	1.223	1.175	1.226	1.172	1.229	1.169	1.233	1.165	1.237	1.161	1.242
1.162	1.189	1.16	1.19	1.158	1.192	1.156	1.195	1.154	1.197	1.151	1.2	1.149	1.203	1.145	1.206	1.142	1.21	1.138	1.215
1.137	1.163	1.136	1.165	1.134	1.167	1.132	1.169	1.13	1.171	1.128	1.174	1.125	1.176	1.122	1.18	1.119	1.184	1.115	1.188
1.113	1.137	1.111	1.139	1.11	1.141	1.108	1.143	1.106	1.145	1.104	1.147	1.101	1.15	1.098	1.153	1.095	1.157	1.092	1.161
1.089	1.112	1.087	1.113	1.086	1.115	1.084	1.117	1.082	1.119	1.08	1.121	1.077	1.124	1.075	1.127	1.072	1.13	1.068	1.134
1.064	1.086	1.063	1.088	1.061	1.089	1.06	1.091	1.058	1.093	1.056	1.095	1.054	1.098	1.051	1.1	1.048	1.104	1.045	1.107
1.04	1.061	1.038	1.062	1.037	1.063	1.036	1.065	1.034	1.067	1.032	1.069	1.03	1.071	1.027	1.074	1.025	1.077	1.021	1.08

Focal Length 120mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	694'1.41"	618'5.46"	551'0.6"	490'11.97"	437'5.96"	389'9.99"	347'4.43"	309'6.45"	275'10"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	693'9.98"	Infinity	618'2.41"	Infinity	550'9.82"	Infinity	490'9.42"	Infinity	437'3.59"	Infinity	389'7.77"	Infinity	347'2.32"	Infinity	309'4.44"	Infinity	275'8.07"	Infinity
200'0''	155'5.37"	280'6.08"	151'3.87"	295'0.76"	146'11.36"	313'3.81"	142'3.93"	336'8.43"	137'5.74"	367'5.97"	132'4.98"	409'6.63"	127'1.92"	469'11.21"	121'8.87"	563'1.92"	116'2.17"	724'6.72"
100'0''	87'6.32"	116'7.76"	86'2.52"	119'0.91"	84'9.36"	121'11.12"	83'2.76"	125'3.54"	81'6.69"	129'3.65"	79'9.1"	134'1.48"	77'9.97"	139'11.77"	75'9.33"	147'2.39"	73'7.17"	156'2.96"
70'0''	63'8.13"	77'8.74"	62'11.78"	78'9.53"	62'2.62"	80'0.32"	61'4.6"	81'5.48"	60'5.67"	83'1.49"	59'5.79"	85'0.96"	58'4.91"	87'4.67"	57'3"	90'1.62"	56'0.04"	93'5.19"
50'0''	46'8.5"	53'9.55"	46'4.02"	54'3.62"	45'11.08"	54'10.56"	45'5.64"	55'6.54"	44'11.66"	56'3.72"	44'5.1"	57'2.34"	43'9.93"	58'2.67"	43'2.11"	59'5.06"	42'5.6"	60'9.93"
40'0''	37'10.52"	42'4.55"	37'7.59"	42'8.28"	37'4.34"	43'0.54"	37'0.75"	43'5.41"	36'8.79"	43'10.98"	36'4.43"	44'5.38"	35'11.64"	45'0.76"	35'6.38"	45'9.28"	35'0.64"	46'7.19"
35'0''	33'4.44"	36'9.61"	33'2.17"	37'0.41"	32'11.65"	37'3.6"	32'8.86"	37'7.23"	32'5.78"	37'11.38"	32'2.38"	38'4.13"	31'10.64"	38'9.59"	31'6.52"	39'3.87"	31'2"	39'11.13"
30'0''	28'9.6"	31'3.67"	28'7.92"	31'5.69"	28'6.05"	31'7.97"	28'3.98"	31'10.57"	28'1.68"	32'1.54"	27'11.14"	32'4.92"	27'8.33"	32'8.79"	27'5.24"	33'1.23"	27'1.83"	33'6.33"
25'0''	24'2.01"	25'10.72"	24'0.83"	26'0.09"	23'11.52"	26'1.64"	23'10.07"	26'3.39"	23'8.45"	26'5.39"	23'6.66"	26'7.66"	23'4.67"	26'10.25"	23'2.48"	27'1.21"	23'0.06"	27'4.6"
22'0''	21'4.28"	22'8.21"	21'3.36"	22'9.26"	21'2.35"	22'10.44"	21'1.21"	22'11.77"	20'11.95"	23'1.29"	20'10.55"	23'3.01"	20'9"	23'4.97"	20'7.29"	23'7.2"	20'5.39"	23'9.75"
20'0''	19'5.63"	20'6.73"	19'4.88"	20'7.58"	19'4.03"	20'8.55"	19'3.1"	20'9.64"	19'2.05"	20'10.87"	19'0.89"	21'0.27"	18'11.6"	21'1.87"	18'10.17"	21'3.68"	18'8.59"	21'5.74"
19'0''	18'6.26"	19'6.05"	18'5.58"	19'6.81"	18'4.82"	19'7.68"	18'3.97"	19'8.65"	18'3.03"	19'9.76"	18'1.98"	19'11.01"	18'0.81"	20'0.44"	17'11.52"	20'2.06"	17'10.09"	20'3.9"
18'0''	17'6.86"	18'5.4"	17'6.25"	18'6.08"	17'5.57"	18'6.85"	17'4.8"	18'7.72"	17'3.96"	18'8.71"	17'3.01"	18'9.83"	17'1.97"	18'11.09"	17'0.8"	19'0.53"	16'11.51"	19'2.17"
17'0''	16'7.43"	17'4.8"	16'6.88"	17'5.4"	16'6.27"	17'6.08"	16'5.59"	17'6.85"	16'4.84"	17'7.72"	16'3.99"	17'8.71"	16'3.06"	17'9.83"	16'2.02"	17'11.1"	16'0.87"	18'0.54"
16'0''	15'7.96"	16'4.22"	15'7.48"	16'4.75"	15'6.94"	16'5.35"	15'6.34"	16'6.03"	15'5.67"	16'6.79"	15'4.92"	16'7.66"	15'4.09"	16'8.64"	15'3.17"	16'9.76"	15'2.14"	16'11.02"
15'0''	14'8.46"	15'3.69"	14'8.04"	15'4.15"	14'7.56"	15'4.67"	14'7.04"	15'5.26"	14'6.45"	15'5.93"	14'5.79"	15'6.68"	14'5.06"	15'7.54"	14'4.25"	15'8.51"	14'3.35"	15'9.6"
14'0''	13'8.93"	14'3.19"	13'8.56"	14'3.59"	13'8.15"	14'4.04"	13'7.69"	14'4.55"	13'7.18"	14'5.13"	13'6.61"	14'5.78"	13'5.97"	14'6.51"	13'5.27"	14'7.34"	13'4.48"	14'8.29"
13'0''	12'9.37"	13'2.73"	12'9.05"	13'3.07"	12'8.7"	13'3.46"	12'8.3"	13'3.89"	12'7.86"	13'4.38"	12'7.37"	13'4.94"	12'6.82"	13'5.56"	12'6.21"	13'6.27"	12'5.53"	13'7.08"
12'6''	12'3.57"	12'8.51"	12'3.28"	12'8.83"	12'2.95"	12'9.18"	12'2.59"	12'9.58"	12'2.18"	12'10.03"	12'1.73"	12'10.54"	12'1.22"	12'11.12"	12'0.66"	12'11.77"	12'0.03"	13'0.51"
12'0''	11'9.77"	12'2.31"	11'9.5"	12'2.59"	11'9.2"	12'2.92"	11'8.87"	12'3.28"	11'8.49"	12'3.7"	11'8.07"	12'4.16"	11'7.61"	12'4.69"	11'7.09"	12'5.29"	11'6.51"	12'5.96"
11'6''	11'3.96"	11'8.11"	11'3.71"	11'8.37"	11'3.44"	11'8.67"	11'3.13"	11'9"	11'2.79"	11'9.38"	11'2.4"	11'9.8"	11'1.98"	11'10.28"	11'1.5"	11'10.83"	11'0.97"	11'11.44"
11'0''	10'10.14"	11'1.92"	10'9.91"	11'2.16"	10'9.66"	11'2.43"	10'9.38"	11'2.73"	10'9.07"	11'3.07"	10'8.72"	11'3.46"	10'8.33"	11'3.89"	10'7.9"	11'4.39"	10'7.41"	11'4.95"
10'6''	10'4.31"	10'7.74"	10'4.11"	10'7.95"	10'3.88"	10'8.2"	10'3.63"	10'8.47"	10'3.34"	10'8.78"	10'3.02"	10'9.13"	10'2.67"	10'9.53"	10'2.27"	10'9.97"	10'1.83"	10'10.48"
10'0''	9'10.48"	10'1.57"	9'10.29"	10'1.76"	9'10.09"	10'1.98"	9'9.86"	10'2.23"	9'9.6"	10'2.51"	9'9.31"	10'2.82"	9'8.99"	10'3.18"	9'8.63"	10'3.58"	9'8.24"	10'4.03"
9'6''	9'4.63"	9'7.4"	9'4.47"	9'7.58"	9'4.28"	9'7.77"	9'4.08"	9'8"	9'3.84"	9'8.25"	9'3.59"	9'8.53"	9'3.3"	9'8.84"	9'2.98"	9'9.2"	9'2.62"	9'9.61"
9'0''	8'10.78"	9'1.25"	8'10.63"	9'1.41"	8'10.47"	9'1.58"	8'10.28"	9'1.78"	8'10.08"	9'2"	8'9.85"	9'2.25"	8'9.59"	9'2.53"	8'9.3"	9'2.85"	8'8.98"	9'3.21"
8'9''	8'7.85"	8'10.18"	8'7.71"	8'10.32"	8'7.56"	8'10.49"	8'7.38"	8'10.67"	8'7.19"	8'10.88"	8'6.97"	8'11.12"	8'6.73"	8'11.38"	8'6.46"	8'11.68"	8'6.15"	9'0.02"
8'6''	8'4.92"	8'7.11"	8'4.79"	8'7.24"	8'4.64"	8'7.4"	8'4.48"	8'7.57"	8'4.3"	8'7.77"	8'4.09"	8'7.99"	8'3.86"	8'8.24"	8'3.61"	8'8.52"	8'3.32"	8'8.84"
8'3''	8'1.99"	8'4.04"	8'1.86"	8'4.17"	8'1.73"	8'4.31"	8'1.57"	8'4.47"	8'1.4"	8'4.66"	8'1.21"	8'4.86"	8'0.99"	8'5.1"	8'0.75"	8'5.36"	8'0.49"	8'5.66"
8'0''	7'11.05"	8'0.97"	7'10.94"	8'1.09"	7'10.81"	8'1.23"	7'10.66"	8'1.38"	7'10.5"	8'1.55"	7'10.32"	8'1.74"	7'10.12"	8'1.96"	7'9.9"	8'2.21"	7'9.64"	8'2.49"
7'9''	7'8.11"	7'9.91"	7'8"	7'10.02"	7'7.88"	7'10.14"	7'7.75"	7'10.29"	7'7.6"	7'10.45"	7'7.43"	7'10.63"	7'7.24"	7'10.83"	7'7.03"	7'11.06"	7'6.8"	7'11.32"
7'6''	7'5.17"	7'6.84"	7'5.07"	7'6.95"	7'4.96"	7'7.07"	7'4.83"	7'7.2"	7'4.69"	7'7.35"	7'4.54"	7'7.52"	7'4.36"	7'7.7"	7'4.17"	7'7.92"	7'3.95"	7'8.16"
7'3''	7'2.23"	7'3.78"	7'2.14"	7'3.88"	7'2.03"	7'3.99"	7'1.92"	7'4.11"	7'1.79"	7'4.25"	7'1.64"	7'4.41"	7'1.48"	7'4.58"	7'1.29"	7'4.78"	7'1.09"	7'5"
7'0''	6'11.29"	7'0.73"	6'11.2"	7'0.82"	6'11.1"	7'0.92"	6'11"	7'1.03"	6'10.87"	7'1.16"	6'10.74"	7'1.3"	6'10.59"	7'1.47"	6'10.42"	7'1.65"	6'10.23"	7'1.86"
6'9''	6'8.34"	6'9.67"	6'8.26"	6'9.75"	6'8.17"	6'9.85"	6'8.07"	6'9.95"	6'7.96"	6'10.07"	6'7.83"	6'10.2"	6'7.69"	6'10.35"	6'7.54"	6'10.52"	6'7.36"	6'10.71"
6'6''	6'5.39"	6'6.62"	6'5.32"	6'6.69"	6'5.24"	6'6.78"	6'5.14"	6'6.88"	6'5.04"	6'6.99"	6'4.93"	6'7.11"	6'4.8"	6'7.25"	6'4.65"	6'7.4"	6'4.49"	6'7.58"
6'3''	6'2.44"	6'3.57"	6'2.37"	6'3.64"	6'2.3"	6'3.72"	6'2.21"	6'3.8"	6'2.12"	6'3.9"	6'2.01"	6'4.02"	6'1.89"	6'4.14"	6'1.76"	6'4.28"	6'1.61"	6'4.45"
6'0''	5'11.49"	6'0.52"	5'11.43"	6'0.58"	5'11.36"	6'0.65"	5'11.28"	6'0.73"	5'11.19"	6'0.83"	5'11.1"	6'0.93"	5'10.99"	6'1.04"	5'10.87"	6'1.17"	5'10.73"	6'1.32"
5'11''	5'10.51"	5'11.5"	5'10.45"	5'11.56"	5'10.38"	5'11.63"	5'10.3"	5'11.71"	5'10.22"	5'11.8"	5'10.12"	5'11.9"	5'10.02"	6'0.01"	5'9.9"	6'0.14"	5'9.77"	6'0.28"
5'10''	5'9.52"	5'10.49"	5'9.46"	5'10.55"	5'9.4"	5'10.61"	5'9.32"	5'10.69"	5'9.24"	5'10.78"	5'9.15"	5'10.87"	5'9.05"	5'10.98"	5'8.93"	5'11.1"	5'8.81"	5'11.24"
5'9''	5'8.54"	5'9.47"	5'8.48"	5'9.53"	5'8.42"	5'9.59"	5'8.35"	5'9.67"	5'8.27"	5'9.75"	5'8.18"	5'9.84"	5'8.08"	5'9.95"	5'7.97"	5'10.07"	5'7.84"	5'10.2"
5'8''	5'7.55"	5'8.46"	5'7.5"	5'8.51"	5'7.43"	5'8.58"	5'7.37"	5'8.65"	5'7.29"	5'8.73"	5'7.2"	5'8.82"	5'7.11"	5'8.92"	5'7"	5'9.03"	5'6.88"	5'9.16"
5'7''	5'6.56"	5'7.44"	5'6.51"	5'7.5"	5'6.45"	5'7.56"	5'6.39"	5'7.63"	5'6.31"	5'7.7"	5'6.23"	5'7.79"	5'6.14"	5'7.89"	5'6.03"	5'8"	5'5.92"	5'8.12"
5'6''	5'5.58"	5'6.43"	5'5.53"	5'6.48"	5'5.47"	5'6.54"	5'5.41"	5'6.61"	5'5.33"	5'6.68"	5'5.25"	5'6.76"	5'5.16"	5'6.86"	5'5.06"	5'6.97"	5'4.95"	5'7.09"
5'5''	5'4.59"	5'5.41"	5'4.54"	5'5.46"	5'4.49"	5'5.52"	5'4.43"	5'5.58"	5'4.36"	5'5.66"	5'4.28"	5'5.74"	5'4.19"	5'5.83"	5'4.09"	5'5.93"	5'3.99"	5'6.05"
5'4''	5'3.61"	5'4.4"	5'3.56"	5'4.45"	5'3.51"	5'4.5"	5'3.45"	5'4.56"	5'3.38"	5'4.63"	5'3.3"	5'4.71"	5'3.22"	5'4.8"	5'3.13"	5'4.9"	5'3.02"	5'5.01"
5'3''	5'2.62"	5'3.38"	5'2.57"	5'3.43"	5'2.52"	5'3.49"	5'2.46"	5'3.55"	5'2.4"	5'3.61"	5'2.33"	5'3.69"	5'2.25"	5'3.77"	5'2.16"	5'3.87"	5'2.05"	5'3.98"
5'2''	5'1.63"	5'2.37"	5'1.59"	5'2.42"	5'1.54"	5'2.47"	5'1.48"	5'2.53"	5'1.42"	5'2.59"	5'1.35"	5'2.66"	5'1.27"	5'2.75"	5'1.18"	5'2.84"	5'1.09"	5'2.94"
5'1''	5'0.65"	5'1.36"	5'0.6"	5'1.4"	5'0.56"	5'1.45"	5'0.5"	5'1.51"	5'0.44"	5'1.57"	5'0.37"	5'1.64"	5'0.3"	5'1.72"	5'0.21"	5'1.81"	5'0.12"	5'1.91"
5'0''	4'11.66"	5'0.34"	4'11.62"	5'0.39"	4'11.57"	5'0.43"	4'11.52"	5'0.49"	4'11.46"	5'0.55"	4'11.4"	5'0.62"	4'11.32"	5'0.69"	4'11.24"	5'0.78"	4'11.15"	5'0.88"
4'11''	4'10.67"	4'11.33"	4'10.63"	4'11.37"	4'10.59"	4'11.42"	4'10.54"	4'11.47"	4'10.48"	4'11.53"	4'10.42"	4'11.59"	4'10.35"	4'11.67"	4'10.27"	4'11.75"	4'10.18"	4'11.84"

4'10''	4'9.68"	4'10.32"	4'9.65"	4'10.36"	4'9.6"	4'10.4"	4'9.56"	4'10.45"	4'9.5"	4'10.51"	4'9.44"	4'10.57"	4'9.37"	4'10.64"	4'9.3"	4'10.72"	4'9.21"	4'10.81"
4'9''	4'8.7"	4'9.31"	4'8.66"	4'9.34"	4'8.62"	4'9.39"	4'8.57"	4'9.44"	4'8.52"	4'9.49"	4'8.46"	4'9.55"	4'8.4"	4'9.62"	4'8.32"	4'9.69"	4'8.24"	4'9.78"
4'8''	4'7.71"	4'8.29"	4'7.67"	4'8.33"	4'7.63"	4'8.37"	4'7.59"	4'8.42"	4'7.54"	4'8.47"	4'7.48"	4'8.53"	4'7.42"	4'8.59"	4'7.35"	4'8.67"	4'7.27"	4'8.75"
4'7''	4'6.72"	4'7.28"	4'6.69"	4'7.32"	4'6.65"	4'7.36"	4'6.61"	4'7.4"	4'6.56"	4'7.45"	4'6.5"	4'7.51"	4'6.44"	4'7.57"	4'6.38"	4'7.64"	4'6.3"	4'7.72"
4'6''	4'5.73"	4'6.27"	4'5.7"	4'6.3"	4'5.66"	4'6.34"	4'5.62"	4'6.38"	4'5.58"	4'6.43"	4'5.52"	4'6.49"	4'5.47"	4'6.55"	4'5.4"	4'6.61"	4'5.33"	4'6.69"
4'5''	4'4.74"	4'5.26"	4'4.71"	4'5.29"	4'4.68"	4'5.33"	4'4.64"	4'5.37"	4'4.59"	4'5.41"	4'4.54"	4'5.47"	4'4.49"	4'5.52"	4'4.43"	4'5.59"	4'4.36"	4'5.66"
4'4''	4'3.75"	4'4.25"	4'3.72"	4'4.28"	4'3.69"	4'4.31"	4'3.65"	4'4.35"	4'3.61"	4'4.4"	4'3.56"	4'4.45"	4'3.51"	4'4.5"	4'3.45"	4'4.56"	4'3.38"	4'4.63"
4'3''	4'2.76"	4'3.24"	4'2.74"	4'3.27"	4'2.7"	4'3.3"	4'2.67"	4'3.34"	4'2.63"	4'3.38"	4'2.58"	4'3.43"	4'2.53"	4'3.48"	4'2.47"	4'3.54"	4'2.41"	4'3.6"
4'2''	4'1.78"	4'2.23"	4'1.75"	4'2.26"	4'1.72"	4'2.29"	4'1.68"	4'2.32"	4'1.64"	4'2.36"	4'1.6"	4'2.41"	4'1.55"	4'2.46"	4'1.5"	4'2.51"	4'1.44"	4'2.58"
4'1''	4'0.79"	4'1.22"	4'0.76"	4'1.24"	4'0.73"	4'1.27"	4'0.7"	4'1.31"	4'0.66"	4'1.35"	4'0.62"	4'1.39"	4'0.57"	4'1.44"	4'0.52"	4'1.49"	4'0.46"	4'1.55"
4'0''	3'11.8"	4'0.21"	3'11.77"	4'0.23"	3'11.74"	4'0.26"	3'11.71"	4'0.29"	3'11.68"	4'0.33"	3'11.64"	4'0.37"	3'11.59"	4'0.42"	3'11.54"	4'0.47"	3'11.49"	4'0.52"
3'11''	3'10.8"	3'11.2"	3'10.78"	3'11.22"	3'10.75"	3'11.25"	3'10.72"	3'11.28"	3'10.69"	3'11.31"	3'10.65"	3'11.35"	3'10.61"	3'11.4"	3'10.56"	3'11.44"	3'10.51"	3'11.5"
3'10''	3'9.81"	3'10.19"	3'9.79"	3'10.21"	3'9.77"	3'10.24"	3'9.74"	3'10.27"	3'9.71"	3'10.3"	3'9.67"	3'10.33"	3'9.63"	3'10.38"	3'9.59"	3'10.42"	3'9.54"	3'10.48"
3'9''	3'8.82"	3'9.18"	3'8.8"	3'9.2"	3'8.78"	3'9.22"	3'8.75"	3'9.25"	3'8.72"	3'9.28"	3'8.69"	3'9.32"	3'8.65"	3'9.36"	3'8.61"	3'9.4"	3'8.56"	3'9.45"
3'8''	3'7.83"	3'8.17"	3'7.81"	3'8.19"	3'7.79"	3'8.21"	3'7.76"	3'8.24"	3'7.74"	3'8.27"	3'7.7"	3'8.3"	3'7.67"	3'8.34"	3'7.63"	3'8.38"	3'7.58"	3'8.43"
3'7''	3'6.84"	3'7.16"	3'6.82"	3'7.18"	3'6.8"	3'7.2"	3'6.78"	3'7.23"	3'6.75"	3'7.25"	3'6.72"	3'7.29"	3'6.68"	3'7.32"	3'6.65"	3'7.36"	3'6.6"	3'7.41"
3'6''	3'5.85"	3'6.15"	3'5.83"	3'6.17"	3'5.81"	3'6.19"	3'5.79"	3'6.21"	3'5.76"	3'6.24"	3'5.73"	3'6.27"	3'5.7"	3'6.3"	3'5.67"	3'6.34"	3'5.62"	3'6.38"
3'5''	3'4.86"	3'5.14"	3'4.84"	3'5.16"	3'4.82"	3'5.18"	3'4.8"	3'5.2"	3'4.78"	3'5.23"	3'4.75"	3'5.25"	3'4.72"	3'5.29"	3'4.68"	3'5.32"	3'4.65"	3'5.36"

8	9	10	11	13	14	16	18	20	22
245'9.69"	219'0.7"	195'2.72"	173'11.95"	155'0.94"	138'2.74"	123'2.58"	109'10.07"	97'11.08"	87'3.68"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
245'7.82"	Infinity	218'10.86"	Infinity	195'0.91"	Infinity	173'10.16"	Infinity	154'11.2"	Infinity	138'1"	Infinity	123'0.85"	Infinity	109'8.36"	Infinity	97'9.38"	Infinity	87'2"	Infinity
110'6.24"	1068'4.72"	104'9.49"	2287'3.33"	99'0.38"	Infinity	93'3.37"	Infinity	87'6.91"	Infinity	81'11.45"	Infinity	76'5.4"	Infinity	71'1.14"	Infinity	65'11.01"	Infinity	60'11.3"	Infinity
71'3.56"	167'9.95"	68'10.57"	183'0.83"	66'4.3"	203'10.31"	63'8.88"	233'7.92"	61'0.45"	279'6.74"	58'3.21"	358'8.6"	55'5.34"	526'0.38"	52'7.05"	1105'1.93"	49'8.58"	Infinity	46'10.16"	Infinity
54'8.01"	97'5.21"	53'2.91"	102'4.29"	51'8.75"	108'6.19"	50'1.58"	116'4.55"	48'5.43"	126'8.28"	46'8.38"	140'8.31"	44'10.51"	160'7.64"	42'11.93"	191'0.79"	41'0.77"	242'8.74"	39'1.15"	348'8.1"
41'8.39"	62'5.85"	40'10.44"	64'5.56"	39'11.74"	66'10.05"	39'0.27"	69'8.64"	38'0.05"	73'3.24"	36'11.08"	77'8.58"	35'9.38"	83'4.77"	34'6.99"	90'10.35"	33'3.96"	101'0.28"	32'0.35"	115'6.5"
34'6.38"	47'6.74"	33'11.57"	48'8.29"	33'4.19"	50'0.31"	32'8.22"	51'7.37"	31'11.66"	53'6.28"	31'2.49"	55'10.12"	30'4.71"	58'8.42"	29'6.33"	62'3.4"	28'7.37"	66'10.4"	27'7.87"	72'10.75"
30'9.06"	40'7.55"	30'3.67"	41'5.37"	29'9.81"	42'4.88"	29'3.45"	43'6.46"	28'8.59"	44'10.59"	28'1.2"	46'5.96"	27'5.28"	48'5.43"	26'8.83"	50'10.28"	25'11.86"	53'10.32"	25'2.37"	57'8.25"
26'10.1"	34'0.22"	26'6.01"	34'7.05"	26'1.54"	35'2.99"	25'8.67"	36'0.27"	25'3.39"	36'11.2"	24'9.68"	38'0.16"	24'3.52"	39'3.64"	23'8.91"	40'10.35"	23'1.85"	42'9.22"	22'6.34"	45'1.6"
22'9.39"	27'8.49"	22'6.46"	28'0.96"	22'3.24"	28'6.14"	21'11.73"	29'0.14"	21'7.89"	29'7.14"	21'3.72"	30'3.35"	20'11.2"	31'1.03"	20'6.31"	32'0.55"	20'1.05"	33'2.36"	19'7.42"	34'7.12"
20'3.29"	24'0.67"	20'0.98"	24'4.02"	19'10.44"	24'7.87"	19'7.65"	25'0.32"	19'4.6"	25'5.48"	19'1.28"	25'11.5"	18'9.65"	26'6.54"	18'5.73"	27'2.85"	18'1.48"	28'0.71"	17'8.91"	29'0.53"
18'6.84"	21'8.1"	18'4.91"	21'10.8"	18'2.79"	22'1.9"	18'0.45"	22'5.48"	17'9.89"	22'9.6"	17'7.09"	23'2.39"	17'4.03"	23'7.98"	17'0.7"	24'2.53"	16'9.1"	24'10.25"	16'5.2"	25'7.44"
17'8.5"	20'6.01"	17'6.75"	20'8.42"	17'4.82"	20'11.18"	17'2.7"	21'2.35"	17'0.37"	21'6.01"	16'9.82"	21'10.26"	16'7.03"	22'3.19"	16'3.99"	22'8.96"	16'0.69"	23'3.75"	15'9.13"	23'11.79"
16'10.09"	19'4.04"	16'8.51"	19'6.17"	16'6.76"	19'8.62"	16'4.85"	19'11.42"	16'2.74"	20'2.65"	16'0.43"	20'6.39"	15'9.9"	20'10.73"	15'7.14"	21'3.78"	15'4.14"	21'9.71"	15'0.89"	22'4.72"
15'11.59"	18'2.19"	15'10.17"	18'4.07"	15'8.61"	18'6.22"	15'6.89"	18'8.68"	15'4.99"	18'11.51"	15'2.92"	19'2.78"	15'0.64"	19'6.57"	14'10.15"	19'10.97"	14'7.44"	20'4.12"	14'4.5"	20'10.18"
15'1.01"	17'0.46"	14'11.75"	17'2.1"	14'10.36"	17'3.98"	14'8.83"	17'6.13"	14'7.14"	17'8.59"	14'5.28"	17'11.43"	14'3.24"	18'2.71"	14'1.01"	18'6.52"	13'10.58"	18'10.96"	13'7.94"	19'4.16"
14'2.35"	15'10.85"	14'1.24"	16'0.28"	14'0.01"	16'1.9"	13'10.66"	16'3.76"	13'9.16"	16'5.88"	13'7.52"	16'8.33"	13'5.71"	16'11.15"	13'3.73"	17'2.42"	13'1.57"	17'6.21"	12'11.21"	17'10.65"
13'3.61"	14'9.36"	13'2.64"	14'10.58"	13'1.56"	14'11.98"	13'0.38"	15'1.57"	12'11.07"	15'3.38"	12'9.62"	15'5.47"	12'8.04"	15'7.87"	12'6.3"	15'10.65"	12'4.39"	16'1.86"	12'2.31"	16'5.61"
12'4.78"	13'7.99"	12'3.94"	13'9.03"	12'3.02"	13'10.21"	12'1.99"	13'11.55"	12'0.85"	14'1.09"	11'11.6"	14'2.85"	11'10.22"	14'4.87"	11'8.71"	14'7.2"	11'7.04"	14'9.9"	11'5.23"	15'1.03"
11'11.34"	13'1.34"	11'10.56"	13'2.29"	11'9.7"	13'3.38"	11'8.75"	13'4.61"	11'7.7"	13'6.02"	11'6.54"	13'7.63"	11'5.26"	13'9.47"	11'3.85"	13'11.6"	11'2.31"	14'2.06"	11'0.62"	14'4.9"
11'5.87"	12'6.73"	11'5.16"	12'7.6"	11'4.36"	12'8.58"	11'3.49"	12'9.71"	11'2.52"	12'10.99"	11'1.44"	13'0.46"	11'0.26"	13'2.14"	10'10.96"	13'4.08"	10'9.53"	13'6.31"	10'7.96"	13'8.89"
11'0.38"	12'0.14"	10'11.73"	12'0.93"	10'11"	12'1.83"	10'10.19"	12'2.85"	10'9.3"	12'4.02"	10'8.31"	12'5.35"	10'7.22"	12'6.88"	10'6.02"	12'8.63"	10'4.7"	12'10.65"	10'3.26"	13'0.98"
10'6.87"	11'5.58"	10'6.27"	11'6.3"	10'5.61"	11'7.11"	10'4.87"	11'8.04"	10'4.05"	11'9.09"	10'3.15"	11'10.3"	10'2.15"	11'11.68"	10'1.05"	12'1.26"	9'11.83"	12'3.07"	9'10.5"	12'5.17"
10'1.34"	10'11.05"	10'0.8"	10'11.7"	10'0.19"	11'0.43"	9'11.52"	11'1.26"	9'10.77"	11'2.22"	9'9.95"	11'3.3"	9'9.03"	11'4.54"	9'8.03"	11'5.96"	9'6.92"	11'7.59"	9'5.7"	11'9.46"
9'7.79"	10'4.54"	9'7.3"	10'5.12"	9'6.75"	10'5.78"	9'6.14"	10'6.53"	9'5.46"	10'7.38"	9'4.71"	10'8.36"	9'3.88"	10'9.46"	9'2.97"	10'10.73"	9'1.96"	11'0.19"	9'0.85"	11'1.86"
9'2.22"	9'10.07"	9'1.77"	9'10.59"	9'1.28"	9'11.17"	9'0.73"	9'11.84"	9'0.12"	10'0.6"	8'11.44"	10'1.47"	8'10.69"	10'2.45"	8'9.86"	10'3.58"	8'8.95"	10'4.87"	8'7.94"	10'6.35"
8'8.62"	9'3.62"	8'8.22"	9'4.08"	8'7.78"	9'4.6"	8'7.29"	9'5.19"	8'6.74"	9'5.86"	8'6.13"	9'6.63"	8'5.46"	9'7.5"	8'4.72"	9'8.49"	8'3.89"	9'9.63"	8'2.99"	9'10.94"
8'5.82"	9'0.4"	8'5.44"	9'0.84"	8'5.02"	9'1.33"	8'4.56"	9'1.88"	8'4.04"	9'2.51"	8'3.47"	9'3.23"	8'2.83"	9'4.05"	8'2.13"	9'4.98"	8'1.35"	9'6.05"	8'0.49"	9'7.27"
8'3"	8'9.19"	8'2.65"	8'9.6"	8'2.26"	8'10.06"	8'1.82"	8'10.58"	8'1.33"	8'11.17"	8'0.79"	8'11.84"	8'0.19"	9'0.61"	7'11.53"	9'1.48"	7'10.79"	9'2.48"	7'9.98"	9'3.62"
8'0.19"	8'5.99"	7'11.85"	8'6.37"	7'11.48"	8'6.8"	7'11.07"	8'7.29"	7'10.61"	8'7.84"	7'10.1"	8'8.47"	7'9.54"	8'9.19"	7'8.91"	8'10"	7'8.22"	8'10.93"	7'7.46"	9'
7'9.36"	8'2.8"	7'9.05"	8'3.15"	7'8.7"	8'3.56"	7'8.32"	8'4.01"	7'7.89"	8'4.53"	7'7.41"	8'5.11"	7'6.88"	8'5.78"	7'6.29"	8'6.54"	7'5.64"	8'7.4"	7'4.92"	8'8.4"
7'6.54"	7'11.61"	7'6.24"	7'11.94"	7'5.92"	8'0.32"	7'5.55"	8'0.74"	7'5.15"	8'1.22"	7'4.7"	8'1.77"	7'4.21"	8'2.39"	7'3.66"	8'3.09"	7'3.05"	8'3.9"	7'2.37"	8'4.82"
7'3.7"	7'8.43"	7'3.43"	7'8.74"	7'3.12"	7'9.09"	7'2.79"	7'9.48"	7'2.41"	7'9.93"	7'1.99"	7'10.43"	7'1.52"	7'11.01"	7'1.01"	7'11.66"	7'0.44"	8'0.41"	6'11.81"	8'1.26"
7'0.86"	7'5.26"	7'0.61"	7'5.54"	7'0.32"	7'5.86"	7'0.01"	7'6.23"	6'11.66"	7'6.64"	6'11.27"	7'7.11"	6'10.83"	7'7.64"	6'10.35"	7'8.25"	6'9.82"	7'8.94"	6'9.23"	7'9.73"
6'10.02"	7'2.09"	6'9.78"	7'2.35"	6'9.52"	7'2.65"	6'9.22"	7'2.99"	6'8.9"	7'3.37"	6'8.53"	7'3.8"	6'8.13"	7'4.29"	6'7.68"	7'4.85"	6'7.19"	7'5.49"	6'6.64"	7'6.21"
6'7.17"	6'10.93"	6'6.95"	6'11.17"	6'6.7"	6'11.45"	6'6.43"	6'11.76"	6'6.13"	7'0.11"	6'5.79"	7'0.51"	6'5.42"	7'0.96"	6'5"	7'1.47"	6'4.54"	7'2.06"	6'4.03"	7'2.72"
6'4.31"	6'7.77"	6'4.11"	6'8"	6'3.88"	6'8.25"	6'3.63"	6'8.54"	6'3.35"	6'8.86"	6'3.04"	6'9.22"	6'2.69"	6'9.64"	6'2.31"	6'10.11"	6'1.88"	6'10.64"	6'1.41"	6'11.25"
6'1.45"	6'4.63"	6'1.26"	6'4.83"	6'1.05"	6'5.06"	6'0.82"	6'5.32"	6'0.57"	6'5.62"	6'0.28"	6'5.95"	5'11.96"	6'6.33"	5'11.61"	6'6.76"	5'11.21"	6'7.25"	5'10.78"	6'7.81"
5'10.58"	6'1.49"	5'10.41"	6'1.67"	5'10.22"	6'1.88"	5'10.01"	6'2.12"	5'9.77"	6'2.39"	5'9.51"	6'2.69"	5'9.22"	6'3.04"	5'8.89"	6'3.43"	5'8.53"	6'3.88"	5'8.13"	6'4.38"
5'9.62"	6'0.44"	5'9.46"	6'0.62"	5'9.27"	6'0.82"	5'9.07"	6'1.06"	5'8.84"	6'1.32"	5'8.58"	6'1.61"	5'8.3"	6'1.94"	5'7.98"	6'2.32"	5'7.63"	6'2.75"	5'7.24"	6'3.24"
5'8.66"	5'11.4"	5'8.5"	5'11.57"	5'8.32"	5'11.77"	5'8.13"	5'11.99"	5'7.9"	6'0.24"	5'7.66"	6'0.53"	5'7.38"	6'0.85"	5'7.07"	6'1.22"	5'6.73"	6'1.64"	5'6.36"	6'2.11"
5'7.7"	5'10.35"	5'7.55"	5'10.52"	5'7.38"	5'10.71"	5'7.18"	5'10.93"	5'6.97"	5'11.17"	5'6.73"	5'11.45"	5'6.46"	5'11.76"	5'6.16"	6'0.12"	5'5.83"	6'0.52"	5'5.47"	6'0.98"
5'6.75"	5'9.31"	5'6.6"	5'9.47"	5'6.43"	5'9.66"	5'6.24"	5'9.87"	5'6.03"	5'10.1"	5'5.8"	5'10.37"	5'5.54"	5'10.67"	5'5.25"	5'11.01"	5'4.93"	5'11.4"	5'4.58"	5'11.85"
5'5.79"	5'8.26"	5'5.64"	5'8.42"	5'5.48"	5'8.6"	5'5.3"	5'8.8"	5'5.09"	5'9.03"	5'4.87"	5'9.29"	5'4.62"	5'9.58"	5'4.34"	5'9.91"	5'4.03"	5'10.29"	5'3.68"	5'10.72"
5'4.82"	5'7.22"	5'4.68"	5'7.38"	5'4.53"	5'7.55"	5'4.35"	5'7.74"	5'4.16"	5'7.96"	5'3.94"	5'8.21"	5'3.69"	5'8.5"	5'3.42"	5'8.82"	5'3.12"	5'9.18"	5'2.79"	5'9.59"
5'3.86"	5'6.18"	5'3.73"	5'6.33"	5'3.58"	5'6.5"	5'3.41"	5'6.68"	5'3.22"	5'6.9"	5'3.01"	5'7.14"	5'2.77"	5'7.41"	5'2.51"	5'7.72"	5'2.22"	5'8.07"	5'1.9"	5'8.47"
5'2.9"	5'5.14"	5'2.77"	5'5.28"	5'2.62"	5'5.45"	5'2.46"	5'5.63"	5'2.28"	5'5.83"	5'2.07"	5'6.06"	5'1.84"	5'6.33"	5'1.59"	5'6.63"	5'1.31"	5'6.96"	5'1"	5'7.35"
5'1.94"	5'4.1"	5'1.81"	5'4.24"	5'1.67"	5'4.39"	5'1.51"	5'4.57"	5'1.33"	5'4.77"	5'1.14"	5'4.99"	5'0.92"	5'5.25"	5'0.67"	5'5.53"	5'0.4"	5'5.86"	5'0.1"	5'6.23"
5'0.98"	5'3.06"	5'0.85"	5'3.2"	5'0.72"	5'3.34"	5'0.56"	5'3.51"	5'0.39"	5'3.71"	5'0.2"	5'3.92"	4'11.99"	5'4.17"	4'11.75"	5'4.44"	4'11.49"	5'4.76"	4'11.2"	5'5.11"
5'0.01"	5'2.02"	4'11.89"	5'2.15"	4'11.76"	5'2.3"	4'11.61"	5'2.46"	4'11.45"	5'2.64"	4'11.27"	5'2.85"	4'11.06"	5'3.09"	4'10.83"	5'3.35"	4'10.58"	5'3.65"	4'10.3"	5'4"
4'11.05"	5'0.99"	4'10.93"	5'1.11"	4'10.81"	5'1.25"	4'10.66"	5'1.41"	4'10.5"	5'1.58"	4'10.33"	5'1.78"	4'10.13"	5'2.01"	4'9.91"	5'2.27"	4'9.66"	5'2.56"	4'9.39"	5'2.89"
4'10.08"	4'11.95"	4'9.97"	5'0.07"	4'9.85"	5'0.2"	4'9.71"	5'0.35"	4'9.56"	5'0.52"	4'9.39"	5'0.72"	4'9.2"	5'0.93"	4'8.99"	5'1.18"	4'8.75"	5'1.46"	4'8.49"	5'1.78"

4'9.12"	4'10.91"	4'9.01"	4'11.03"	4'8.89"	4'11.16"	4'8.76"	4'11.3"	4'8.61"	4'11.46"	4'8.45"	4'11.65"	4'8.27"	4'11.86"	4'8.06"	5'0.1"	4'7.83"	5'0.36"	4'7.58"	5'0.67"
4'8.15"	4'9.88"	4'8.05"	4'9.99"	4'7.94"	4'10.11"	4'7.81"	4'10.25"	4'7.67"	4'10.41"	4'7.51"	4'10.58"	4'7.33"	4'10.79"	4'7.13"	4'11.01"	4'6.91"	4'11.27"	4'6.67"	4'11.56"
4'7.18"	4'8.84"	4'7.09"	4'8.95"	4'6.98"	4'9.07"	4'6.85"	4'9.2"	4'6.72"	4'9.35"	4'6.57"	4'9.52"	4'6.4"	4'9.71"	4'6.21"	4'9.93"	4'5.99"	4'10.18"	4'5.76"	4'10.46"
4'6.22"	4'7.81"	4'6.12"	4'7.91"	4'6.02"	4'8.02"	4'5.9"	4'8.15"	4'5.77"	4'8.3"	4'5.62"	4'8.46"	4'5.46"	4'8.64"	4'5.28"	4'8.85"	4'5.07"	4'9.09"	4'4.85"	4'9.36"
4'5.25"	4'6.78"	4'5.16"	4'6.87"	4'5.06"	4'6.98"	4'4.94"	4'7.1"	4'4.82"	4'7.24"	4'4.68"	4'7.4"	4'4.52"	4'7.58"	4'4.35"	4'7.78"	4'4.15"	4'8"	4'3.93"	4'8.26"
4'4.28"	4'5.74"	4'4.19"	4'5.84"	4'4.1"	4'5.94"	4'3.99"	4'6.06"	4'3.87"	4'6.19"	4'3.73"	4'6.34"	4'3.58"	4'6.51"	4'3.41"	4'6.7"	4'3.23"	4'6.92"	4'3.02"	4'7.16"
4'3.31"	4'4.71"	4'3.23"	4'4.8"	4'3.13"	4'4.9"	4'3.03"	4'5.01"	4'2.91"	4'5.14"	4'2.79"	4'5.28"	4'2.64"	4'5.44"	4'2.48"	4'5.63"	4'2.3"	4'5.83"	4'2.1"	4'6.07"
4'2.34"	4'3.68"	4'2.26"	4'3.76"	4'2.17"	4'3.86"	4'2.07"	4'3.97"	4'1.96"	4'4.09"	4'1.84"	4'4.23"	4'1.7"	4'4.38"	4'1.55"	4'4.55"	4'1.37"	4'4.75"	4'1.18"	4'4.98"
4'1.37"	4'2.65"	4'1.29"	4'2.73"	4'1.21"	4'2.82"	4'1.11"	4'2.92"	4'1.01"	4'3.04"	4'0.89"	4'3.17"	4'0.76"	4'3.32"	4'0.61"	4'3.48"	4'0.44"	4'3.67"	4'0.26"	4'3.89"
4'0.4"	4'1.62"	4'0.33"	4'1.7"	4'0.24"	4'1.78"	4'0.15"	4'1.88"	4'0.05"	4'1.99"	3'11.94"	4'2.12"	3'11.81"	4'2.26"	3'11.67"	4'2.42"	3'11.51"	4'2.6"	3'11.34"	4'2.8"
3'11.43"	4'0.59"	3'11.36"	4'0.66"	3'11.28"	4'0.75"	3'11.19"	4'0.84"	3'11.1"	4'0.94"	3'10.99"	4'1.06"	3'10.87"	4'1.2"	3'10.73"	4'1.35"	3'10.58"	4'1.52"	3'10.42"	4'1.71"
3'10.45"	3'11.56"	3'10.39"	3'11.63"	3'10.31"	3'11.71"	3'10.23"	3'11.8"	3'10.14"	3'11.9"	3'10.04"	4'0.01"	3'9.92"	4'0.14"	3'9.79"	4'0.28"	3'9.65"	4'0.45"	3'9.49"	4'0.63"
3'9.48"	3'10.53"	3'9.42"	3'10.6"	3'9.35"	3'10.68"	3'9.27"	3'10.76"	3'9.18"	3'10.85"	3'9.08"	3'10.96"	3'8.97"	3'11.08"	3'8.85"	3'11.22"	3'8.71"	3'11.37"	3'8.56"	3'11.55"
3'8.51"	3'9.51"	3'8.45"	3'9.57"	3'8.38"	3'9.64"	3'8.3"	3'9.72"	3'8.22"	3'9.81"	3'8.13"	3'9.91"	3'8.02"	3'10.03"	3'7.91"	3'10.16"	3'7.78"	3'10.3"	3'7.63"	3'10.47"
3'7.53"	3'8.48"	3'7.47"	3'8.54"	3'7.41"	3'8.61"	3'7.34"	3'8.68"	3'7.26"	3'8.77"	3'7.17"	3'8.87"	3'7.07"	3'8.97"	3'6.96"	3'9.1"	3'6.84"	3'9.24"	3'6.7"	3'9.39"
3'6.56"	3'7.46"	3'6.5"	3'7.51"	3'6.44"	3'7.58"	3'6.37"	3'7.65"	3'6.3"	3'7.73"	3'6.22"	3'7.82"	3'6.12"	3'7.92"	3'6.02"	3'8.04"	3'5.9"	3'8.17"	3'5.77"	3'8.32"
3'5.58"	3'6.43"	3'5.53"	3'6.48"	3'5.47"	3'6.54"	3'5.41"	3'6.61"	3'5.34"	3'6.69"	3'5.26"	3'6.77"	3'5.17"	3'6.87"	3'5.07"	3'6.98"	3'4.96"	3'7.1"	3'4.84"	3'7.24"
3'4.6"	3'5.41"	3'4.55"	3'5.46"	3'4.5"	3'5.51"	3'4.44"	3'5.58"	3'4.37"	3'5.65"	3'4.3"	3'5.73"	3'4.21"	3'5.82"	3'4.12"	3'5.93"	3'4.02"	3'6.04"	3'3.9"	3'6.17"

Focal Length 125mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (m)	229.547	204.524	182.23	162.369	144.675	128.912	114.868	102.356	91.21

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
Infinity	229.452	Infinity	204.44	Infinity	182.155	Infinity	162.301	Infinity	144.612	Infinity	128.853	Infinity	114.812	Infinity	102.303	Infinity	91.159	Infinity
60.000	47.62	81.115	46.447	84.771	45.198	89.288	43.874	94.971	42.477	102.278	41.012	111.95	39.484	125.246	37.899	144.52	36.266	174.706
30.000	26.566	34.46	26.199	35.099	25.799	35.846	25.365	36.723	24.894	37.761	24.386	38.998	23.841	40.487	23.257	42.3	22.635	44.54
20.000	18.421	21.877	18.245	22.132	18.051	22.424	17.839	22.763	17.606	23.155	17.352	23.611	17.075	24.146	16.775	24.776	16.451	25.524
15.000	14.099	16.025	13.996	16.161	13.882	16.316	13.757	16.493	13.619	16.697	13.467	16.931	13.301	17.203	13.119	17.518	12.921	17.887
12.000	11.419	12.644	11.352	12.727	11.278	12.822	11.195	12.931	11.104	13.055	11.004	13.198	10.893	13.361	10.772	13.55	10.638	13.768
10.000	9.596	10.44	9.549	10.497	9.496	10.561	9.438	10.634	9.373	10.718	9.302	10.813	9.223	10.922	9.137	11.047	9.041	11.19
9.000	8.672	9.354	8.634	9.399	8.591	9.45	8.544	9.509	8.491	9.575	8.433	9.651	8.368	9.737	8.297	9.836	8.219	9.949
8.000	7.741	8.277	7.711	8.312	7.677	8.352	7.639	8.397	7.597	8.449	7.551	8.507	7.499	8.574	7.442	8.65	7.379	8.737
7.000	6.802	7.21	6.779	7.236	6.753	7.266	6.724	7.3	6.691	7.339	6.656	7.383	6.616	7.433	6.572	7.49	6.523	7.554
6.500	6.33	6.68	6.31	6.703	6.287	6.728	6.262	6.757	6.234	6.79	6.203	6.828	6.169	6.87	6.13	6.918	6.088	6.973
6.000	5.855	6.152	5.838	6.171	5.819	6.193	5.798	6.218	5.774	6.245	5.747	6.277	5.718	6.312	5.685	6.353	5.649	6.399
5.500	5.379	5.627	5.364	5.643	5.348	5.661	5.33	5.681	5.31	5.704	5.288	5.73	5.263	5.76	5.235	5.794	5.205	5.832
5.000	4.9	5.104	4.888	5.117	4.875	5.132	4.86	5.148	4.844	5.167	4.825	5.188	4.805	5.213	4.782	5.24	4.756	5.271
4.750	4.66	4.843	4.649	4.855	4.637	4.868	4.624	4.883	4.609	4.9	4.592	4.919	4.574	4.941	4.553	4.965	4.53	4.993
4.500	4.42	4.583	4.41	4.594	4.399	4.606	4.387	4.619	4.374	4.634	4.359	4.651	4.342	4.67	4.324	4.692	4.303	4.716
4.250	4.179	4.324	4.17	4.333	4.16	4.344	4.15	4.355	4.138	4.369	4.124	4.384	4.11	4.401	4.093	4.42	4.075	4.442
4.000	3.937	4.065	3.929	4.073	3.921	4.082	3.912	4.093	3.901	4.104	3.889	4.118	3.876	4.132	3.861	4.149	3.845	4.168
3.800	3.743	3.858	3.737	3.866	3.729	3.874	3.72	3.883	3.711	3.894	3.7	3.905	3.688	3.919	3.675	3.934	3.661	3.951
3.600	3.549	3.652	3.543	3.659	3.536	3.666	3.529	3.674	3.52	3.684	3.511	3.694	3.5	3.706	3.488	3.719	3.475	3.734
3.500	3.452	3.549	3.447	3.555	3.44	3.562	3.433	3.57	3.425	3.579	3.416	3.589	3.406	3.6	3.395	3.612	3.382	3.627
3.400	3.355	3.446	3.35	3.452	3.344	3.458	3.337	3.466	3.329	3.474	3.321	3.483	3.311	3.494	3.301	3.506	3.289	3.519
3.300	3.258	3.343	3.253	3.349	3.247	3.355	3.241	3.362	3.234	3.369	3.226	3.378	3.217	3.388	3.207	3.399	3.196	3.412
3.200	3.16	3.241	3.156	3.246	3.15	3.251	3.144	3.258	3.138	3.265	3.13	3.273	3.122	3.282	3.113	3.293	3.102	3.304
3.100	3.063	3.138	3.059	3.143	3.054	3.148	3.048	3.154	3.042	3.161	3.035	3.168	3.027	3.177	3.018	3.187	3.008	3.198
3.000	2.965	3.035	2.961	3.04	2.957	3.045	2.951	3.05	2.946	3.057	2.939	3.064	2.932	3.072	2.924	3.081	2.915	3.091
2.900	2.868	2.933	2.864	2.937	2.86	2.942	2.855	2.947	2.849	2.953	2.843	2.959	2.836	2.967	2.829	2.975	2.82	2.985
2.800	2.77	2.831	2.767	2.834	2.762	2.839	2.758	2.843	2.753	2.849	2.747	2.855	2.741	2.862	2.734	2.87	2.726	2.878
2.700	2.672	2.728	2.669	2.732	2.665	2.736	2.661	2.74	2.656	2.745	2.651	2.751	2.645	2.757	2.639	2.764	2.631	2.772
2.600	2.574	2.626	2.571	2.629	2.568	2.633	2.564	2.637	2.56	2.642	2.555	2.647	2.549	2.653	2.543	2.659	2.537	2.667
2.550	2.526	2.575	2.523	2.578	2.519	2.582	2.516	2.586	2.511	2.59	2.507	2.595	2.502	2.601	2.496	2.607	2.489	2.614
2.500	2.477	2.524	2.474	2.527	2.47	2.53	2.467	2.534	2.463	2.538	2.458	2.543	2.454	2.548	2.448	2.554	2.442	2.561
2.450	2.428	2.473	2.425	2.476	2.422	2.479	2.418	2.483	2.415	2.487	2.41	2.491	2.405	2.496	2.4	2.502	2.394	2.509
2.400	2.378	2.422	2.376	2.425	2.373	2.428	2.37	2.431	2.366	2.435	2.362	2.439	2.357	2.444	2.352	2.45	2.347	2.456
2.350	2.329	2.371	2.327	2.374	2.324	2.376	2.321	2.38	2.318	2.383	2.314	2.388	2.309	2.392	2.304	2.398	2.299	2.404
2.300	2.28	2.32	2.278	2.322	2.275	2.325	2.272	2.328	2.269	2.332	2.265	2.336	2.261	2.34	2.256	2.345	2.251	2.351
2.250	2.231	2.269	2.229	2.271	2.226	2.274	2.224	2.277	2.22	2.28	2.217	2.284	2.213	2.289	2.208	2.293	2.203	2.299
2.200	2.182	2.218	2.18	2.22	2.178	2.223	2.175	2.226	2.172	2.229	2.168	2.233	2.165	2.237	2.16	2.241	2.156	2.246
2.150	2.133	2.167	2.131	2.169	2.129	2.172	2.126	2.175	2.123	2.178	2.12	2.181	2.116	2.185	2.112	2.189	2.108	2.194
2.100	2.084	2.116	2.082	2.118	2.08	2.121	2.077	2.123	2.074	2.126	2.071	2.129	2.068	2.133	2.064	2.137	2.06	2.142
2.050	2.035	2.066	2.033	2.067	2.031	2.07	2.028	2.072	2.026	2.075	2.023	2.078	2.02	2.081	2.016	2.085	2.012	2.09
2.000	1.985	2.015	1.984	2.017	1.982	2.019	1.98	2.021	1.977	2.024	1.974	2.026	1.971	2.03	1.968	2.033	1.964	2.038
1.975	1.961	1.989	1.959	1.991	1.957	1.993	1.955	1.995	1.953	1.998	1.95	2.001	1.947	2.004	1.944	2.008	1.94	2.012
1.950	1.936	1.964	1.935	1.966	1.933	1.968	1.931	1.97	1.928	1.972	1.926	1.975	1.923	1.978	1.919	1.982	1.916	1.986
1.925	1.912	1.939	1.91	1.94	1.908	1.942	1.906	1.944	1.904	1.947	1.901	1.949	1.898	1.952	1.895	1.956	1.892	1.96
1.900	1.887	1.913	1.885	1.915	1.884	1.917	1.882	1.919	1.879	1.921	1.877	1.924	1.874	1.927	1.871	1.93	1.868	1.934
1.875	1.862	1.888	1.861	1.889	1.859	1.891	1.857	1.893	1.855	1.895	1.853	1.898	1.85	1.901	1.847	1.904	1.844	1.908
1.850	1.838	1.862	1.836	1.864	1.835	1.866	1.833	1.868	1.831	1.87	1.828	1.872	1.826	1.875	1.823	1.878	1.819	1.882
1.825	1.813	1.837	1.812	1.839	1.81	1.84	1.808	1.842	1.806	1.844	1.804	1.847	1.801	1.849	1.799	1.852	1.795	1.856
1.800	1.788	1.812	1.787	1.813	1.785	1.815	1.784	1.817	1.782	1.819	1.78	1.821	1.777	1.824	1.774	1.826	1.771	1.83
1.775	1.764	1.786	1.762	1.788	1.761	1.789	1.759	1.791	1.757	1.793	1.755	1.795	1.753	1.798	1.75	1.801	1.747	1.804

1.750	1.739	1.761	1.738	1.762	1.736	1.764	1.735	1.766	1.733	1.768	1.731	1.77	1.728	1.772	1.726	1.775	1.723	1.778
1.725	1.714	1.736	1.713	1.737	1.712	1.738	1.71	1.74	1.708	1.742	1.706	1.744	1.704	1.746	1.702	1.749	1.699	1.752
1.700	1.69	1.71	1.689	1.712	1.687	1.713	1.686	1.715	1.684	1.716	1.682	1.718	1.68	1.721	1.677	1.723	1.675	1.726
1.675	1.665	1.685	1.664	1.686	1.663	1.688	1.661	1.689	1.659	1.691	1.658	1.693	1.655	1.695	1.653	1.698	1.65	1.7
1.650	1.64	1.66	1.639	1.661	1.638	1.662	1.637	1.664	1.635	1.665	1.633	1.667	1.631	1.669	1.629	1.672	1.626	1.675
1.625	1.616	1.634	1.615	1.635	1.613	1.637	1.612	1.638	1.61	1.64	1.609	1.642	1.607	1.644	1.605	1.646	1.602	1.649
1.600	1.591	1.609	1.59	1.61	1.589	1.611	1.587	1.613	1.586	1.614	1.584	1.616	1.582	1.618	1.58	1.62	1.578	1.623
1.575	1.566	1.584	1.565	1.585	1.564	1.586	1.563	1.587	1.561	1.589	1.56	1.591	1.558	1.592	1.556	1.595	1.554	1.597
1.550	1.542	1.558	1.541	1.559	1.54	1.561	1.538	1.562	1.537	1.563	1.535	1.565	1.534	1.567	1.532	1.569	1.529	1.571
1.525	1.517	1.533	1.516	1.534	1.515	1.535	1.514	1.536	1.512	1.538	1.511	1.539	1.509	1.541	1.507	1.543	1.505	1.546
1.500	1.492	1.508	1.491	1.509	1.49	1.51	1.489	1.511	1.488	1.512	1.486	1.514	1.485	1.516	1.483	1.518	1.481	1.52
1.475	1.468	1.482	1.467	1.483	1.466	1.484	1.465	1.486	1.463	1.487	1.462	1.488	1.46	1.49	1.458	1.492	1.456	1.494
1.450	1.443	1.457	1.442	1.458	1.441	1.459	1.44	1.46	1.439	1.461	1.437	1.463	1.436	1.464	1.434	1.466	1.432	1.468
1.425	1.418	1.432	1.417	1.433	1.416	1.434	1.415	1.435	1.414	1.436	1.413	1.437	1.411	1.439	1.41	1.441	1.408	1.443
1.400	1.393	1.407	1.393	1.407	1.392	1.408	1.391	1.409	1.39	1.411	1.388	1.412	1.387	1.413	1.385	1.415	1.384	1.417
1.375	1.369	1.381	1.368	1.382	1.367	1.383	1.366	1.384	1.365	1.385	1.364	1.386	1.362	1.388	1.361	1.389	1.359	1.391
1.350	1.344	1.356	1.343	1.357	1.342	1.358	1.341	1.359	1.34	1.36	1.339	1.361	1.338	1.362	1.336	1.364	1.335	1.366
1.325	1.319	1.331	1.318	1.332	1.318	1.332	1.317	1.333	1.316	1.334	1.315	1.335	1.313	1.337	1.312	1.338	1.31	1.34
1.300	1.294	1.306	1.294	1.306	1.293	1.307	1.292	1.308	1.291	1.309	1.29	1.31	1.289	1.311	1.288	1.313	1.286	1.314
1.275	1.27	1.28	1.269	1.281	1.268	1.282	1.267	1.283	1.267	1.284	1.266	1.285	1.264	1.286	1.263	1.287	1.262	1.289
1.250	1.245	1.255	1.244	1.256	1.244	1.256	1.243	1.257	1.242	1.258	1.241	1.259	1.24	1.26	1.239	1.262	1.237	1.263
1.225	1.22	1.23	1.22	1.23	1.219	1.231	1.218	1.232	1.217	1.233	1.216	1.234	1.215	1.235	1.214	1.236	1.213	1.237
1.200	1.195	1.205	1.195	1.205	1.194	1.206	1.193	1.207	1.193	1.207	1.192	1.208	1.191	1.209	1.19	1.211	1.188	1.212
1.175	1.171	1.179	1.17	1.18	1.169	1.181	1.169	1.181	1.168	1.182	1.167	1.183	1.166	1.184	1.165	1.185	1.164	1.186
1.150	1.146	1.154	1.145	1.155	1.145	1.155	1.144	1.156	1.143	1.157	1.143	1.158	1.142	1.158	1.141	1.16	1.14	1.161
1.125	1.121	1.129	1.121	1.13	1.12	1.13	1.119	1.131	1.119	1.131	1.118	1.132	1.117	1.133	1.116	1.134	1.115	1.135
1.100	1.096	1.104	1.096	1.104	1.095	1.105	1.095	1.105	1.094	1.106	1.093	1.107	1.092	1.108	1.092	1.109	1.091	1.11
1.075	1.071	1.079	1.071	1.079	1.071	1.08	1.07	1.08	1.069	1.081	1.069	1.081	1.068	1.082	1.067	1.083	1.066	1.084
1.050	1.047	1.053	1.046	1.054	1.046	1.054	1.045	1.055	1.045	1.055	1.044	1.056	1.043	1.057	1.042	1.058	1.042	1.059

8	9	10	11	13	14	16	18	20	22
81.279	72.432	64.55	57.528	51.272	45.699	40.734	36.31	32.369	28.858

8		9		10		11		13		14		16		18		20		22	
Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)	Short Focus (m)	Long Focus (m)
81.23	Infinity	72.384	Infinity	64.504	Infinity	57.483	Infinity	51.227	Infinity	45.655	Infinity	40.69	Infinity	36.267	Infinity	32.326	Infinity	28.815	Infinity
34.593	228.237	32.891	347.961	31.17	846.769	29.442	Infinity	27.718	Infinity	26.01	Infinity	24.328	Infinity	22.683	Infinity	21.084	Infinity	19.54	Infinity
21.975	47.356	21.279	50.974	20.55	55.759	19.788	62.33	18.998	71.837	18.184	86.69	17.35	112.913	16.502	171.034	15.644	405.608	14.782	Infinity
16.102	26.419	15.727	27.502	15.327	28.829	14.902	30.481	14.452	32.577	13.979	35.305	13.483	38.97	12.968	44.115	12.435	51.798	11.887	64.401
12.706	18.319	12.473	18.831	12.221	19.44	11.951	20.173	11.661	21.065	11.353	22.166	11.026	23.549	10.681	25.324	10.318	27.666	9.94	30.875
10.493	14.021	10.334	14.317	10.162	14.664	9.975	15.075	9.774	15.565	9.558	16.155	9.326	16.873	9.079	17.759	8.817	18.873	8.541	20.305
8.936	11.356	8.822	11.549	8.697	11.772	8.56	12.034	8.412	12.342	8.252	12.708	8.08	13.146	7.895	13.674	7.698	14.322	7.488	15.126
8.132	10.079	8.038	10.23	7.934	10.404	7.821	10.608	7.698	10.845	7.564	11.126	7.419	11.458	7.264	11.857	7.097	12.338	6.919	12.928
7.31	8.837	7.234	8.952	7.15	9.085	7.058	9.239	6.958	9.418	6.849	9.627	6.731	9.874	6.604	10.167	6.466	10.517	6.318	10.941
6.469	7.628	6.409	7.713	6.344	7.811	6.272	7.924	6.194	8.054	6.108	8.206	6.014	8.384	5.913	8.593	5.803	8.84	5.684	9.136
6.041	7.036	5.99	7.108	5.933	7.191	5.87	7.286	5.801	7.396	5.726	7.523	5.644	7.671	5.555	7.845	5.458	8.05	5.354	8.293
5.609	6.452	5.564	6.512	5.515	6.581	5.461	6.66	5.402	6.751	5.337	6.857	5.266	6.979	5.189	7.122	5.105	7.29	5.013	7.488
5.171	5.875	5.133	5.925	5.092	5.982	5.046	6.047	4.996	6.121	4.94	6.207	4.88	6.307	4.814	6.423	4.742	6.558	4.663	6.717
4.728	5.306	4.697	5.346	4.662	5.392	4.624	5.445	4.582	5.505	4.536	5.574	4.485	5.654	4.429	5.746	4.369	5.853	4.303	5.979
4.505	5.024	4.477	5.06	4.445	5.101	4.411	5.148	4.373	5.201	4.331	5.263	4.284	5.334	4.234	5.415	4.178	5.51	4.118	5.621
4.28	4.744	4.255	4.776	4.227	4.813	4.196	4.854	4.161	4.901	4.123	4.956	4.082	5.018	4.036	5.09	3.986	5.173	3.931	5.271
4.054	4.466	4.032	4.494	4.006	4.526	3.979	4.563	3.948	4.604	3.914	4.652	3.876	4.707	3.835	4.77	3.79	4.843	3.741	4.927
3.827	4.19	3.807	4.215	3.785	4.243	3.76	4.274	3.732	4.311	3.702	4.352	3.669	4.4	3.632	4.455	3.592	4.518	3.548	4.591
3.644	3.97	3.626	3.992	3.606	4.017	3.584	4.046	3.559	4.078	3.531	4.115	3.501	4.157	3.468	4.206	3.431	4.262	3.391	4.327
3.461	3.752	3.444	3.771	3.426	3.793	3.406	3.818	3.384	3.847	3.359	3.88	3.332	3.917	3.302	3.96	3.269	4.01	3.233	4.066
3.368	3.643	3.353	3.661	3.336	3.682	3.317	3.706	3.296	3.732	3.273	3.763	3.247	3.798	3.218	3.838	3.187	3.885	3.153	3.938
3.276	3.534	3.262	3.551	3.245	3.571	3.227	3.593	3.208	3.618	3.186	3.647	3.161	3.68	3.134	3.717	3.105	3.761	3.072	3.81
3.183	3.426	3.17	3.442	3.155	3.46	3.138	3.481	3.119	3.505	3.098	3.531	3.075	3.562	3.05	3.597	3.022	3.638	2.991	3.684
3.091	3.318	3.078	3.333	3.064	3.35	3.048	3.369	3.03	3.391	3.01	3.416	2.989	3.445	2.965	3.478	2.939	3.515	2.91	3.558
2.998	3.21	2.986	3.224	2.972	3.24	2.957	3.258	2.941	3.279	2.922	3.302	2.902	3.328	2.88	3.359	2.855	3.394	2.828	3.434
2.904	3.102	2.893	3.116	2.881	3.13	2.867	3.147	2.851	3.166	2.834	3.188	2.815	3.213	2.794	3.241	2.771	3.273	2.745	3.31
2.811	2.995	2.8	3.007	2.789	3.021	2.776	3.037	2.761	3.054	2.745	3.074	2.727	3.097	2.708	3.123	2.686	3.153	2.662	3.188
2.717	2.888	2.707	2.9	2.697	2.912	2.684	2.927	2.671	2.943	2.656	2.962	2.639	2.983	2.621	3.007	2.601	3.034	2.578	3.066
2.623	2.782	2.614	2.792	2.604	2.804	2.593	2.817	2.58	2.832	2.566	2.849	2.551	2.869	2.534	2.891	2.515	2.916	2.494	2.945
2.529	2.675	2.521	2.685	2.511	2.696	2.501	2.708	2.489	2.722	2.477	2.737	2.462	2.755	2.446	2.776	2.429	2.799	2.41	2.825
2.482	2.622	2.474	2.631	2.465	2.642	2.455	2.653	2.444	2.666	2.431	2.682	2.418	2.699	2.403	2.718	2.386	2.74	2.367	2.766
2.435	2.569	2.427	2.578	2.418	2.588	2.409	2.599	2.398	2.612	2.386	2.626	2.373	2.642	2.358	2.661	2.342	2.682	2.324	2.706
2.388	2.516	2.38	2.524	2.372	2.534	2.363	2.545	2.352	2.557	2.341	2.57	2.328	2.586	2.314	2.604	2.299	2.624	2.282	2.647
2.34	2.463	2.333	2.471	2.325	2.48	2.316	2.49	2.306	2.502	2.296	2.515	2.283	2.53	2.27	2.547	2.255	2.566	2.239	2.588
2.293	2.41	2.286	2.418	2.278	2.427	2.27	2.436	2.261	2.447	2.25	2.46	2.238	2.474	2.226	2.49	2.211	2.509	2.196	2.53
2.245	2.358	2.239	2.365	2.232	2.373	2.224	2.382	2.215	2.393	2.205	2.405	2.193	2.418	2.181	2.434	2.167	2.451	2.152	2.471
2.198	2.305	2.192	2.312	2.185	2.32	2.177	2.328	2.168	2.338	2.159	2.35	2.148	2.363	2.136	2.377	2.123	2.394	2.109	2.413
2.15	2.252	2.144	2.259	2.138	2.266	2.13	2.275	2.122	2.284	2.113	2.295	2.103	2.307	2.092	2.321	2.079	2.337	2.065	2.355
2.103	2.2	2.097	2.206	2.091	2.213	2.084	2.221	2.076	2.23	2.067	2.24	2.058	2.252	2.047	2.265	2.035	2.28	2.022	2.297
2.055	2.147	2.05	2.153	2.044	2.16	2.037	2.167	2.03	2.176	2.021	2.186	2.012	2.197	2.002	2.209	1.99	2.223	1.978	2.24
2.007	2.095	2.002	2.1	1.996	2.107	1.99	2.114	1.983	2.122	1.975	2.131	1.966	2.142	1.957	2.153	1.946	2.167	1.934	2.182
1.959	2.042	1.955	2.048	1.949	2.054	1.943	2.06	1.937	2.068	1.929	2.077	1.921	2.087	1.911	2.098	1.901	2.111	1.89	2.125
1.936	2.016	1.931	2.021	1.926	2.027	1.92	2.034	1.913	2.041	1.906	2.05	1.898	2.059	1.889	2.07	1.879	2.082	1.868	2.097
1.912	1.99	1.907	1.995	1.902	2.001	1.896	2.007	1.89	2.014	1.883	2.023	1.875	2.032	1.866	2.042	1.856	2.054	1.846	2.068
1.888	1.964	1.883	1.969	1.878	1.974	1.873	1.981	1.867	1.988	1.86	1.996	1.852	2.005	1.843	2.015	1.834	2.026	1.823	2.04
1.864	1.938	1.859	1.943	1.855	1.948	1.849	1.954	1.843	1.961	1.836	1.969	1.829	1.977	1.821	1.987	1.811	1.998	1.801	2.011
1.84	1.912	1.836	1.916	1.831	1.922	1.826	1.927	1.82	1.934	1.813	1.942	1.806	1.95	1.798	1.96	1.789	1.971	1.779	1.983
1.816	1.886	1.812	1.89	1.807	1.895	1.802	1.901	1.796	1.907	1.79	1.915	1.783	1.923	1.775	1.932	1.766	1.943	1.757	1.955
1.792	1.86	1.788	1.864	1.783	1.869	1.778	1.874	1.773	1.881	1.767	1.888	1.76	1.896	1.752	1.905	1.744	1.915	1.734	1.927
1.768	1.834	1.764	1.838	1.76	1.842	1.755	1.848	1.749	1.854	1.743	1.861	1.737	1.868	1.729	1.877	1.721	1.887	1.712	1.898
1.744	1.807	1.74	1.812	1.736	1.816	1.731	1.821	1.726	1.827	1.72	1.834	1.714	1.841	1.706	1.85	1.698	1.859	1.69	1.87

1.72	1.781	1.716	1.785	1.712	1.79	1.707	1.795	1.702	1.801	1.697	1.807	1.691	1.814	1.684	1.822	1.676	1.832	1.667	1.842
1.696	1.755	1.692	1.759	1.688	1.764	1.684	1.768	1.679	1.774	1.673	1.78	1.667	1.787	1.661	1.795	1.653	1.804	1.645	1.814
1.672	1.73	1.668	1.733	1.664	1.737	1.66	1.742	1.655	1.747	1.65	1.753	1.644	1.76	1.638	1.768	1.63	1.777	1.622	1.786
1.647	1.704	1.644	1.707	1.64	1.711	1.636	1.716	1.632	1.721	1.627	1.727	1.621	1.733	1.615	1.741	1.608	1.749	1.6	1.759
1.623	1.678	1.62	1.681	1.617	1.685	1.613	1.689	1.608	1.694	1.603	1.7	1.598	1.706	1.592	1.713	1.585	1.722	1.577	1.731
1.599	1.652	1.596	1.655	1.593	1.659	1.589	1.663	1.585	1.668	1.58	1.673	1.574	1.679	1.568	1.686	1.562	1.694	1.554	1.703
1.575	1.626	1.572	1.629	1.569	1.633	1.565	1.637	1.561	1.641	1.556	1.647	1.551	1.652	1.545	1.659	1.539	1.667	1.532	1.675
1.551	1.6	1.548	1.603	1.545	1.606	1.541	1.61	1.537	1.615	1.533	1.62	1.528	1.626	1.522	1.632	1.516	1.639	1.509	1.648
1.527	1.574	1.524	1.577	1.521	1.58	1.517	1.584	1.514	1.588	1.509	1.593	1.504	1.599	1.499	1.605	1.493	1.612	1.486	1.62
1.503	1.548	1.5	1.551	1.497	1.554	1.494	1.558	1.49	1.562	1.486	1.567	1.481	1.572	1.476	1.578	1.47	1.585	1.464	1.592
1.478	1.522	1.476	1.525	1.473	1.528	1.47	1.532	1.466	1.536	1.462	1.54	1.458	1.545	1.453	1.551	1.447	1.558	1.441	1.565
1.454	1.496	1.452	1.499	1.449	1.502	1.446	1.505	1.442	1.509	1.438	1.514	1.434	1.519	1.429	1.524	1.424	1.53	1.418	1.537
1.43	1.471	1.428	1.473	1.425	1.476	1.422	1.479	1.419	1.483	1.415	1.487	1.411	1.492	1.406	1.497	1.401	1.503	1.395	1.51
1.406	1.445	1.403	1.447	1.401	1.45	1.398	1.453	1.395	1.457	1.391	1.461	1.387	1.465	1.383	1.47	1.378	1.476	1.372	1.483
1.382	1.419	1.379	1.421	1.377	1.424	1.374	1.427	1.371	1.43	1.367	1.434	1.364	1.439	1.359	1.443	1.355	1.449	1.349	1.455
1.357	1.393	1.355	1.396	1.353	1.398	1.35	1.401	1.347	1.404	1.344	1.408	1.34	1.412	1.336	1.417	1.331	1.422	1.326	1.428
1.333	1.367	1.331	1.37	1.329	1.372	1.326	1.375	1.323	1.378	1.32	1.382	1.316	1.385	1.313	1.39	1.308	1.395	1.303	1.401
1.309	1.342	1.307	1.344	1.305	1.346	1.302	1.349	1.299	1.352	1.296	1.355	1.293	1.359	1.289	1.363	1.285	1.368	1.28	1.374
1.284	1.316	1.283	1.318	1.28	1.32	1.278	1.323	1.275	1.326	1.273	1.329	1.269	1.333	1.266	1.337	1.261	1.341	1.257	1.347
1.26	1.29	1.258	1.292	1.256	1.294	1.254	1.297	1.251	1.3	1.249	1.303	1.246	1.306	1.242	1.31	1.238	1.314	1.234	1.319
1.236	1.265	1.234	1.266	1.232	1.269	1.23	1.271	1.228	1.273	1.225	1.276	1.222	1.28	1.218	1.283	1.215	1.288	1.211	1.292
1.211	1.239	1.21	1.241	1.208	1.243	1.206	1.245	1.204	1.247	1.201	1.25	1.198	1.253	1.195	1.257	1.191	1.261	1.187	1.265
1.187	1.213	1.185	1.215	1.184	1.217	1.182	1.219	1.18	1.221	1.177	1.224	1.174	1.227	1.171	1.23	1.168	1.234	1.164	1.239
1.163	1.188	1.161	1.189	1.159	1.191	1.158	1.193	1.156	1.195	1.153	1.198	1.151	1.201	1.148	1.204	1.144	1.208	1.141	1.212
1.138	1.162	1.137	1.164	1.135	1.165	1.133	1.167	1.131	1.169	1.129	1.172	1.127	1.174	1.124	1.177	1.121	1.181	1.117	1.185
1.114	1.136	1.112	1.138	1.111	1.139	1.109	1.141	1.107	1.143	1.105	1.146	1.103	1.148	1.1	1.151	1.097	1.154	1.094	1.158
1.089	1.111	1.088	1.112	1.087	1.114	1.085	1.115	1.083	1.117	1.081	1.119	1.079	1.122	1.077	1.125	1.074	1.128	1.071	1.131
1.065	1.085	1.064	1.087	1.062	1.088	1.061	1.09	1.059	1.091	1.057	1.093	1.055	1.096	1.053	1.098	1.05	1.101	1.047	1.105
1.041	1.06	1.039	1.061	1.038	1.062	1.037	1.064	1.035	1.065	1.033	1.067	1.031	1.07	1.029	1.072	1.026	1.075	1.024	1.078

Focal Length 125mm

Circle of Confusion 0.025mm

T/No	2.8	3.2	3.5	4	4.5	5	5.6	6.3	7.1
Hyperfocal Distance (ft-inch)	753'1.28"	671'0.13"	597'10.41"	532'8.48"	474'7.87"	422'11.28"	376'10.36"	335'9.76"	299'2.94"

T/No	2.8		3.2		3.5		4		4.5		5		5.6		6.3		7.1	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	752'9.54"	Infinity	670'8.8"	Infinity	597'7.45"	Infinity	532'5.79"	Infinity	474'5.39"	Infinity	422'8.94"	Infinity	376'8.17"	Infinity	335'7.69"	Infinity	299'0.93"	Infinity
200'0''	158'2.5"	271'11.06"	154'3.16"	284'5.49"	150'0.77"	299'11.81"	145'7.39"	319'6.79"	140'11.13"	344'10.05"	136'0.16"	378'5.24"	130'10.7"	424'11.1"	125'7.02"	492'10.84"	120'1.45"	600'10.02"
100'0''	88'4.68"	115'1.72"	87'1.82"	117'3.85"	85'9.63"	119'10.39"	84'4.05"	122'10.28"	82'9.02"	126'4.78"	81'0.5"	130'7.51"	79'2.47"	135'8.68"	77'2.9"	141'11.3"	75'1.8"	149'7.67"
70'0''	64'1.57"	77'0.73"	63'5.76"	78'0.31"	62'9.17"	79'1.65"	61'11.77"	80'5.09"	61'1.49"	81'11.04"	60'2.29"	83'8"	59'2.11"	85'8.62"	58'0.94"	88'1.75"	56'10.72"	91'0.48"
50'0''	46'11.41"	53'5.73"	46'7.23"	53'11.25"	46'2.62"	54'5.56"	45'9.53"	55'0.79"	45'3.94"	55'9.1"	44'9.79"	56'6.68"	44'3.06"	57'5.77"	43'7.7"	58'6.67"	42'11.68"	59'9.73"
40'0''	38'0.42"	42'2.19"	37'9.69"	42'5.6"	37'6.66"	42'9.48"	37'3.32"	43'1.9"	36'11.62"	43'6.97"	36'7.55"	44'0.77"	36'3.07"	44'7.44"	35'10.14"	45'3.13"	35'4.75"	46'0.04"
35'0''	33'5.9"	36'7.83"	33'3.79"	36'10.39"	33'1.45"	37'1.3"	32'10.86"	37'4.61"	32'7.99"	37'8.39"	32'4.82"	38'0.71"	32'1.32"	38'5.66"	31'9.46"	38'11.34"	31'5.23"	39'5.9"
30'0''	28'10.69"	31'2.39"	28'9.13"	31'4.24"	28'7.39"	31'6.33"	28'5.46"	31'8.7"	28'3.33"	31'11.41"	28'0.96"	32'2.49"	27'10.34"	32'6.01"	27'7.45"	32'10.03"	27'4.27"	33'2.66"
25'0''	24'2.77"	25'9.85"	24'1.67"	25'11.1"	24'0.46"	26'0.52"	23'11.11"	26'2.13"	23'9.61"	26'3.95"	23'7.94"	26'6.03"	23'6.09"	26'8.39"	23'4.05"	26'11.08"	23'1.79"	27'2.16"
22'0''	21'4.87"	22'7.55"	21'4.02"	22'8.51"	21'3.07"	22'9.59"	21'2.02"	22'10.81"	21'0.86"	23'0.2"	20'11.56"	23'1.77"	20'10.11"	23'3.56"	20'8.52"	23'5.59"	20'6.75"	23'7.92"
20'0''	19'6.12"	20'6.19"	19'5.42"	20'6.97"	19'4.64"	20'7.86"	19'3.77"	20'8.85"	19'2.8"	20'9.99"	19'1.72"	20'11.27"	19'0.53"	21'0.72"	18'11.2"	21'2.37"	18'9.72"	21'4.26"
19'0''	18'6.7"	19'5.56"	18'6.07"	19'6.27"	18'5.36"	19'7.06"	18'4.58"	19'7.95"	18'3.7"	19'8.96"	18'2.73"	19'10.11"	18'1.65"	19'11.41"	18'0.45"	20'0.89"	17'11.11"	20'2.58"
18'0''	17'7.25"	18'4.97"	17'6.69"	18'5.6"	17'6.05"	18'6.3"	17'5.35"	18'7.1"	17'4.56"	18'8"	17'3.69"	18'9.02"	17'2.72"	18'10.18"	17'1.64"	18'11.5"	17'0.44"	19'0.99"
17'0''	16'7.78"	17'4.41"	16'7.27"	17'4.97"	16'6.71"	17'5.59"	16'6.08"	17'6.3"	16'5.38"	17'7.1"	16'4.6"	17'8"	16'3.73"	17'9.02"	16'2.76"	17'10.19"	16'1.69"	17'11.51"
16'0''	15'8.27"	16'3.89"	15'7.82"	16'4.37"	15'7.32"	16'4.92"	15'6.77"	16'5.54"	15'6.15"	16'6.25"	15'5.46"	16'7.04"	15'4.69"	16'7.94"	15'3.83"	16'8.96"	15'2.88"	16'10.11"
15'0''	14'8.73"	15'3.39"	14'8.34"	15'3.82"	14'7.9"	15'4.3"	14'7.41"	15'4.84"	14'6.87"	15'5.45"	14'6.26"	15'6.14"	14'5.59"	15'6.92"	14'4.83"	15'7.81"	14'3.99"	15'8.82"
14'0''	13'9.17"	14'2.94"	13'8.83"	14'3.3"	13'8.44"	14'3.72"	13'8.02"	14'4.19"	13'7.55"	14'4.71"	13'7.02"	14'5.31"	13'6.43"	14'5.98"	13'5.77"	14'6.75"	13'5.04"	14'7.61"
13'0''	12'9.57"	13'2.51"	12'9.28"	13'2.83"	12'8.95"	13'3.18"	12'8.58"	13'3.58"	12'8.18"	13'4.03"	12'7.72"	13'4.54"	12'7.21"	13'5.11"	12'6.65"	13'5.76"	12'6.02"	13'6.5"
12'6''	12'3.76"	12'8.31"	12'3.49"	12'8.6"	12'3.19"	12'8.93"	12'2.85"	12'9.29"	12'2.47"	12'9.71"	12'2.05"	12'10.18"	12'1.58"	12'10.7"	12'1.06"	12'11.3"	12'0.48"	12'11.98"
12'0''	11'9.94"	12'2.12"	11'9.69"	12'2.39"	11'9.42"	12'2.69"	11'9.11"	12'3.02"	11'8.76"	12'3.4"	11'8.37"	12'3.83"	11'7.94"	12'4.31"	11'7.46"	12'4.86"	11'6.93"	12'5.48"
11'6''	11'4.12"	11'7.94"	11'3.89"	11'8.18"	11'3.63"	11'8.45"	11'3.35"	11'8.76"	11'3.03"	11'9.11"	11'2.68"	11'9.5"	11'2.28"	11'9.94"	11'1.84"	11'10.44"	11'1.35"	11'11"
11'0''	10'10.28"	11'1.77"	10'10.08"	11'1.99"	10'9.84"	11'2.23"	10'9.58"	11'2.51"	10'9.29"	11'2.83"	10'8.97"	11'3.18"	10'8.61"	11'3.58"	10'8.21"	11'4.03"	10'7.76"	11'4.55"
10'6''	10'4.44"	10'7.6"	10'4.25"	10'7.8"	10'4.04"	10'8.02"	10'3.81"	10'8.28"	10'3.54"	10'8.56"	10'3.25"	10'8.88"	10'2.92"	10'9.24"	10'2.56"	10'9.65"	10'2.15"	10'10.11"
10'0''	9'10.59"	10'1.44"	9'10.42"	10'1.62"	9'10.23"	10'1.82"	9'10.02"	10'2.05"	9'9.78"	10'2.31"	9'9.52"	10'2.6"	9'9.22"	10'2.92"	9'8.89"	10'3.29"	9'8.52"	10'3.71"
9'6''	9'4.74"	9'7.29"	9'4.58"	9'7.45"	9'4.41"	9'7.63"	9'4.22"	9'7.84"	9'4.01"	9'8.07"	9'3.77"	9'8.33"	9'3.5"	9'8.62"	9'3.21"	9'8.95"	9'2.87"	9'9.32"
9'0''	8'10.87"	9'1.15"	8'10.74"	9'1.29"	8'10.59"	9'1.46"	8'10.41"	9'1.64"	8'10.22"	9'1.84"	8'10.01"	9'2.07"	8'9.77"	9'2.33"	8'9.51"	9'2.62"	8'9.21"	9'2.95"
8'9''	8'7.94"	8'10.08"	8'7.81"	8'10.22"	8'7.67"	8'10.37"	8'7.51"	8'10.54"	8'7.33"	8'10.73"	8'7.13"	8'10.95"	8'6.9"	8'11.19"	8'6.65"	8'11.47"	8'6.37"	8'11.78"
8'6''	8'5"	8'7.02"	8'4.88"	8'7.14"	8'4.75"	8'7.29"	8'4.6"	8'7.45"	8'4.43"	8'7.63"	8'4.24"	8'7.83"	8'4.03"	8'8.06"	8'3.79"	8'8.32"	8'3.53"	8'8.61"
8'3''	8'2.06"	8'3.96"	8'1.95"	8'4.07"	8'1.82"	8'4.21"	8'1.68"	8'4.36"	8'1.52"	8'4.53"	8'1.35"	8'4.72"	8'1.15"	8'4.93"	8'0.92"	8'5.17"	8'0.68"	8'5.45"
8'0''	7'11.12"	8'0.89"	7'11.02"	8'1"	7'10.9"	8'1.13"	7'10.77"	8'1.27"	7'10.62"	8'1.43"	7'10.45"	8'1.61"	7'10.26"	8'1.81"	7'10.06"	8'2.03"	7'9.82"	8'2.29"
7'9''	7'8.18"	7'9.83"	7'8.08"	7'9.94"	7'7.97"	7'10.05"	7'7.85"	7'10.19"	7'7.71"	7'10.33"	7'7.55"	7'10.5"	7'7.38"	7'10.69"	7'7.18"	7'10.9"	7'6.97"	7'11.13"
7'6''	7'5.24"	7'6.78"	7'5.14"	7'6.87"	7'5.04"	7'6.98"	7'4.92"	7'7.1"	7'4.79"	7'7.24"	7'4.65"	7'7.4"	7'4.49"	7'7.57"	7'4.31"	7'7.77"	7'4.1"	7'7.99"
7'3''	7'2.29"	7'3.72"	7'2.2"	7'3.81"	7'2.11"	7'3.91"	7'2"	7'4.03"	7'1.88"	7'4.15"	7'1.74"	7'4.3"	7'1.59"	7'4.46"	7'1.42"	7'4.64"	7'1.24"	7'4.84"
7'0''	6'11.34"	7'0.67"	6'11.26"	7'0.75"	6'11.17"	7'0.84"	6'11.07"	7'0.95"	6'10.96"	7'1.07"	6'10.84"	7'1.2"	6'10.7"	7'1.35"	6'10.54"	7'1.52"	6'10.36"	7'1.71"
6'9''	6'8.39"	6'9.62"	6'8.32"	6'9.69"	6'8.24"	6'9.78"	6'8.14"	6'9.88"	6'8.04"	6'9.99"	6'7.92"	6'10.11"	6'7.79"	6'10.25"	6'7.65"	6'10.4"	6'7.49"	6'10.58"
6'6''	6'5.44"	6'6.57"	6'5.37"	6'6.64"	6'5.3"	6'6.72"	6'5.21"	6'6.81"	6'5.11"	6'6.91"	6'5.01"	6'7.02"	6'4.89"	6'7.15"	6'4.75"	6'7.29"	6'4.6"	6'7.45"
6'3''	6'2.49"	6'3.52"	6'2.42"	6'3.59"	6'2.35"	6'3.66"	6'2.27"	6'3.74"	6'2.19"	6'3.83"	6'2.09"	6'3.94"	6'1.98"	6'4.05"	6'1.86"	6'4.18"	6'1.72"	6'4.33"
6'0''	5'11.53"	6'0.48"	5'11.47"	6'0.54"	5'11.41"	6'0.6"	5'11.34"	6'0.68"	5'11.26"	6'0.76"	5'11.17"	6'0.85"	5'11.07"	6'0.96"	5'10.95"	6'1.08"	5'10.83"	6'1.22"
5'11''	5'10.54"	5'11.46"	5'10.49"	5'11.52"	5'10.43"	5'11.58"	5'10.36"	5'11.66"	5'10.28"	5'11.74"	5'10.19"	5'11.83"	5'10.09"	5'11.93"	5'9.98"	6'0.05"	5'9.86"	6'0.18"
5'10''	5'9.56"	5'10.45"	5'9.5"	5'10.5"	5'9.44"	5'10.57"	5'9.38"	5'10.64"	5'9.3"	5'10.71"	5'9.22"	5'10.8"	5'9.12"	5'10.9"	5'9.02"	5'11.02"	5'8.9"	5'11.14"
5'9''	5'8.57"	5'9.43"	5'8.52"	5'9.49"	5'8.46"	5'9.55"	5'8.4"	5'9.62"	5'8.32"	5'9.69"	5'8.24"	5'9.78"	5'8.15"	5'9.87"	5'8.05"	5'9.98"	5'7.93"	5'10.11"
5'8''	5'7.59"	5'8.42"	5'7.53"	5'8.47"	5'7.48"	5'8.53"	5'7.42"	5'8.6"	5'7.34"	5'8.67"	5'7.26"	5'8.75"	5'7.18"	5'8.85"	5'7.08"	5'8.95"	5'6.97"	5'9.07"
5'7''	5'6.6"	5'7.41"	5'6.55"	5'7.46"	5'6.5"	5'7.51"	5'6.43"	5'7.58"	5'6.37"	5'7.65"	5'6.29"	5'7.73"	5'6.2"	5'7.82"	5'6.11"	5'7.92"	5'6"	5'8.04"
5'6''	5'5.61"	5'6.39"	5'5.56"	5'6.44"	5'5.51"	5'6.5"	5'5.45"	5'6.56"	5'5.39"	5'6.63"	5'5.31"	5'6.7"	5'5.23"	5'6.79"	5'5.14"	5'6.89"	5'5.03"	5'7"
5'5''	5'4.62"	5'5.38"	5'4.58"	5'5.43"	5'4.53"	5'5.48"	5'4.47"	5'5.54"	5'4.41"	5'5.61"	5'4.33"	5'5.68"	5'4.25"	5'5.77"	5'4.16"	5'5.86"	5'4.06"	5'5.97"
5'4''	5'3.64"	5'4.37"	5'3.59"	5'4.41"	5'3.54"	5'4.46"	5'3.49"	5'4.52"	5'3.43"	5'4.58"	5'3.36"	5'4.66"	5'3.28"	5'4.74"	5'3.19"	5'4.83"	5'3.09"	5'4.93"
5'3''	5'2.65"	5'3.35"	5'2.61"	5'3.4"	5'2.56"	5'3.45"	5'2.51"	5'3.5"	5'2.45"	5'3.56"	5'2.38"	5'3.63"	5'2.3"	5'3.71"	5'2.22"	5'3.8"	5'2.13"	5'3.9"
5'2''	5'1.66"	5'2.34"	5'1.62"	5'2.38"	5'1.58"	5'2.43"	5'1.52"	5'2.48"	5'1.47"	5'2.54"	5'1.4"	5'2.61"	5'1.33"	5'2.69"	5'1.25"	5'2.77"	5'1.16"	5'2.87"
5'1''	5'0.67"	5'1.33"	5'0.63"	5'1.37"	5'0.59"	5'1.42"	5'0.54"	5'1.47"	5'0.48"	5'1.53"	5'0.42"	5'1.59"	5'0.35"	5'1.66"	5'0.27"	5'1.75"	5'0.19"	5'1.84"
5'0''	4'11.69"	5'0.32"	4'11.65"	5'0.36"	4'11.61"	5'0.4"	4'11.56"	5'0.45"	4'11.5"	5'0.51"	4'11.44"	5'0.57"	4'11.38"	5'0.64"	4'11.3"	5'0.72"	4'11.22"	5'0.81"
4'11''	4'10.7"	4'11.31"	4'10.66"	4'11.34"	4'10.62"	4'11.39"	4'10.57"	4'11.43"	4'10.52"	4'11.49"	4'10.46"	4'11.55"	4'10.4"	4'11.62"	4'10.33"	4'11.69"	4'10.24"	4'11.78"

4'10''	4'9.71"	4'10.29"	4'9.67"	4'10.33"	4'9.63"	4'10.37"	4'9.59"	4'10.42"	4'9.54"	4'10.47"	4'9.48"	4'10.53"	4'9.42"	4'10.59"	4'9.35"	4'10.67"	4'9.27"	4'10.75"
4'9''	4'8.72"	4'9.28"	4'8.69"	4'9.32"	4'8.65"	4'9.36"	4'8.61"	4'9.4"	4'8.56"	4'9.45"	4'8.5"	4'9.51"	4'8.44"	4'9.57"	4'8.38"	4'9.64"	4'8.3"	4'9.72"
4'8''	4'7.73"	4'8.27"	4'7.7"	4'8.31"	4'7.66"	4'8.34"	4'7.62"	4'8.39"	4'7.57"	4'8.43"	4'7.52"	4'8.49"	4'7.47"	4'8.55"	4'7.4"	4'8.61"	4'7.33"	4'8.69"
4'7''	4'6.74"	4'7.26"	4'6.71"	4'7.29"	4'6.68"	4'7.33"	4'6.64"	4'7.37"	4'6.59"	4'7.42"	4'6.54"	4'7.47"	4'6.49"	4'7.52"	4'6.42"	4'7.59"	4'6.35"	4'7.66"
4'6''	4'5.75"	4'6.25"	4'5.72"	4'6.28"	4'5.69"	4'6.32"	4'5.65"	4'6.35"	4'5.61"	4'6.4"	4'5.56"	4'6.45"	4'5.51"	4'6.5"	4'5.45"	4'6.57"	4'5.38"	4'6.64"
4'5''	4'4.76"	4'5.24"	4'4.73"	4'5.27"	4'4.7"	4'5.3"	4'4.67"	4'5.34"	4'4.62"	4'5.38"	4'4.58"	4'5.43"	4'4.53"	4'5.48"	4'4.47"	4'5.54"	4'4.41"	4'5.61"
4'4''	4'3.77"	4'4.23"	4'3.75"	4'4.26"	4'3.71"	4'4.29"	4'3.68"	4'4.33"	4'3.64"	4'4.37"	4'3.6"	4'4.41"	4'3.55"	4'4.46"	4'3.49"	4'4.52"	4'3.43"	4'4.58"
4'3''	4'2.78"	4'3.22"	4'2.76"	4'3.25"	4'2.73"	4'3.28"	4'2.69"	4'3.31"	4'2.66"	4'3.35"	4'2.61"	4'3.39"	4'2.57"	4'3.44"	4'2.52"	4'3.5"	4'2.46"	4'3.56"
4'2''	4'1.79"	4'2.21"	4'1.77"	4'2.24"	4'1.74"	4'2.26"	4'1.71"	4'2.3"	4'1.67"	4'2.33"	4'1.63"	4'2.37"	4'1.59"	4'2.42"	4'1.54"	4'2.47"	4'1.48"	4'2.53"
4'1''	4'0.8"	4'1.2"	4'0.78"	4'1.22"	4'0.75"	4'1.25"	4'0.72"	4'1.28"	4'0.69"	4'1.32"	4'0.65"	4'1.36"	4'0.61"	4'1.4"	4'0.56"	4'1.45"	4'0.5"	4'1.51"
4'0''	3'11.81"	4'0.19"	3'11.79"	4'0.21"	3'11.76"	4'0.24"	3'11.73"	4'0.27"	3'11.7"	4'0.3"	3'11.66"	4'0.34"	3'11.62"	4'0.38"	3'11.58"	4'0.43"	3'11.53"	4'0.48"
3'11''	3'10.82"	3'11.18"	3'10.8"	3'11.2"	3'10.77"	3'11.23"	3'10.75"	3'11.26"	3'10.72"	3'11.29"	3'10.68"	3'11.32"	3'10.64"	3'11.36"	3'10.6"	3'11.41"	3'10.55"	3'11.46"
3'10''	3'9.83"	3'10.17"	3'9.81"	3'10.19"	3'9.78"	3'10.22"	3'9.76"	3'10.24"	3'9.73"	3'10.27"	3'9.7"	3'10.31"	3'9.66"	3'10.35"	3'9.62"	3'10.39"	3'9.57"	3'10.44"
3'9''	3'8.84"	3'9.16"	3'8.82"	3'9.18"	3'8.8"	3'9.21"	3'8.77"	3'9.23"	3'8.74"	3'9.26"	3'8.71"	3'9.29"	3'8.68"	3'9.33"	3'8.64"	3'9.37"	3'8.59"	3'9.42"
3'8''	3'7.85"	3'8.16"	3'7.83"	3'8.17"	3'7.81"	3'8.2"	3'7.78"	3'8.22"	3'7.76"	3'8.25"	3'7.73"	3'8.28"	3'7.69"	3'8.31"	3'7.66"	3'8.35"	3'7.61"	3'8.39"
3'7''	3'6.85"	3'7.15"	3'6.84"	3'7.17"	3'6.82"	3'7.19"	3'6.79"	3'7.21"	3'6.77"	3'7.23"	3'6.74"	3'7.26"	3'6.71"	3'7.3"	3'6.67"	3'7.33"	3'6.63"	3'7.37"
3'6''	3'5.86"	3'6.14"	3'5.84"	3'6.16"	3'5.83"	3'6.18"	3'5.8"	3'6.2"	3'5.78"	3'6.22"	3'5.75"	3'6.25"	3'5.72"	3'6.28"	3'5.69"	3'6.31"	3'5.65"	3'6.35"
3'5''	3'4.87"	3'5.13"	3'4.85"	3'5.15"	3'4.84"	3'5.17"	3'4.82"	3'5.19"	3'4.79"	3'5.21"	3'4.77"	3'5.23"	3'4.74"	3'5.26"	3'4.71"	3'5.3"	3'4.67"	3'5.33"

8	9	10	11	13	14	16	18	20	22
266'7.96"	237'7.65"	211'9.34"	188'8.88"	168'2.58"	149'11.17"	133'7.7"	119'1.53"	106'2.37"	94'8.14"

8		9		10		11		13		14		16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
266'6.04"	Infinity	237'5.78"	Infinity	211'7.51"	Infinity	188'7.09"	Infinity	168'0.83"	Infinity	149'9.43"	Infinity	133'5.96"	Infinity	118'11.82"	Infinity	106'0.68"	Infinity	94'6.46"	Infinity
114'6.35"	796'8.81"	108'10.13"	1256'11.15"	103'1.23"	3577'3.74"	97'4.1"	Infinity	91'7.2"	Infinity	85'10.99"	Infinity	80'3.9"	Infinity	74'10.33"	Infinity	69'6.67"	Infinity	64'5.22"	Infinity
72'11.22"	159'4.12"	70'7.19"	171'10.3"	68'1.81"	188'5.78"	65'7.19"	211'5.43"	62'11.45"	244'11.82"	60'2.77"	298'0.95"	57'5.32"	393'11.94"	54'7.3"	617'0.61"	51'8.94"	1695'6.02"	48'10.46"	Infinity
55'7.44"	94'6.31"	54'3.1"	98'9.27"	52'9.68"	104'0.24"	51'3.22"	110'7.45"	49'7.76"	119'1.31"	47'11.34"	130'4.12"	46'2.04"	145'9.48"	44'3.95"	168'2.14"	42'5.18"	203'2.95"	40'5.87"	265'5.23"
42'2.97"	61'3.44"	41'5.54"	63'0.39"	40'7.37"	65'1.38"	39'8.45"	67'7.5"	38'8.76"	70'8.22"	37'8.32"	74'5.64"	36'7.13"	79'2.83"	35'5.22"	85'4.49"	34'2.64"	93'6.15"	32'11.43"	104'8.76"
34'10.85"	46'10.39"	34'4.43"	47'10.5"	33'9.46"	49'0.72"	33'1.91"	50'5.56"	32'5.77"	52'1.66"	31'9.02"	54'1.89"	30'11.67"	56'7.44"	30'1.72"	59'8.02"	29'3.17"	63'6.12"	28'4.04"	68'5.55"
31'0.59"	40'1.48"	30'7.52"	40'10.28"	30'2"	41'8.56"	29'7.99"	42'8.64"	29'1.49"	43'10.91"	28'6.47"	45'3.92"	27'10.92"	47'0.38"	27'2.85"	49'1.29"	26'6.24"	51'8.03"	25'9.12"	54'10.64"
27'0.77"	33'7.98"	26'8.93"	34'2.12"	26'4.73"	34'9.26"	26'0.15"	35'5.56"	25'7.16"	36'3.3"	25'1.76"	37'2.78"	24'7.91"	38'4.42"	24'1.62"	39'8.77"	23'6.88"	41'4.59"	22'11.69"	43'4.91"
22'11.3"	27'5.69"	22'8.56"	27'9.74"	22'5.54"	28'2.41"	22'2.24"	28'7.81"	21'10.63"	29'2.09"	21'6.7"	29'9.42"	21'2.42"	30'6.03"	20'9.8"	31'4.21"	20'4.8"	32'4.35"	19'11.43"	33'6.95"
20'4.79"	23'10.57"	20'2.63"	24'1.6"	20'0.26"	24'5.09"	19'9.65"	24'9.11"	19'6.78"	25'1.76"	19'3.65"	25'7.16"	19'0.24"	26'1.46"	18'8.53"	26'8.85"	18'4.51"	27'5.58"	18'0.17"	28'3.97"
18'8.09"	21'6.4"	18'6.29"	21'8.86"	18'4.31"	21'11.67"	18'2.12"	22'2.9"	17'11.72"	22'6.63"	17'9.09"	22'10.94"	17'6.21"	23'3.95"	17'3.08"	23'9.8"	16'11.67"	24'4.67"	16'7.98"	25'0.79"
17'9.64"	20'4.49"	17'8.01"	20'6.68"	17'6.2"	20'9.19"	17'4.22"	21'0.07"	17'2.04"	21'3.38"	16'11.64"	21'7.2"	16'9.02"	21'11.63"	16'6.16"	22'4.8"	16'3.05"	22'10.85"	15'11.67"	23'5.98"
16'11.11"	19'2.7"	16'9.64"	19'4.64"	16'8.01"	19'6.86"	16'6.22"	19'9.4"	16'4.25"	20'0.33"	16'2.08"	20'3.7"	15'11.7"	20'7.6"	15'9.11"	21'0.13"	15'6.28"	21'5.43"	15'3.21"	21'11.65"
16'0.5"	18'1.01"	15'11.18"	18'2.72"	15'9.73"	18'4.67"	15'8.12"	18'6.91"	15'6.35"	18'9.47"	15'4.4"	19'0.43"	15'2.26"	19'3.84"	14'11.93"	19'7.8"	14'9.37"	20'0.41"	14'6.6"	20'5.8"
15'1.82"	16'11.43"	15'0.65"	17'0.92"	14'11.36"	17'2.63"	14'9.92"	17'4.58"	14'8.35"	17'6.82"	14'6.61"	17'9.39"	14'4.7"	18'0.35"	14'2.61"	18'3.78"	14'0.32"	18'7.76"	13'9.83"	19'0.41"
14'3.06"	15'9.96"	14'2.03"	15'11.25"	14'0.89"	16'0.73"	13'11.63"	16'2.42"	13'10.23"	16'4.35"	13'8.69"	16'6.57"	13'7"	16'9.12"	13'5.14"	17'0.06"	13'3.11"	17'3.48"	13'0.89"	17'7.45"
13'4.23"	14'8.59"	13'3.33"	14'9.71"	13'2.33"	14'10.98"	13'1.23"	15'0.42"	13'	15'2.08"	12'10.66"	15'3.97"	12'9.17"	15'6.15"	12'7.54"	15'8.65"	12'5.75"	15'11.55"	12'3.79"	16'2.91"
12'5.32"	13'7.33"	12'4.54"	13'8.28"	12'3.68"	13'9.36"	12'2.72"	13'10.58"	12'1.66"	13'11.98"	12'0.5"	14'1.58"	11'11.21"	14'3.42"	11'9.79"	14'5.53"	11'8.23"	14'7.96"	11'6.52"	14'10.77"
11'11.83"	13'0.74"	11'11.11"	13'1.61"	11'10.32"	13'2.6"	11'9.43"	13'3.72"	11'8.45"	13'5.01"	11'7.37"	13'6.47"	11'6.17"	13'8.15"	11'4.86"	13'10.07"	11'3.41"	14'0.29"	11'1.82"	14'2.85"
11'6.33"	12'6.18"	11'5.67"	12'6.97"	11'4.93"	12'7.88"	11'4.11"	12'8.9"	11'3.21"	12'10.07"	11'2.21"	12'11.41"	11'1.1"	13'0.93"	10'11.89"	13'2.69"	10'10.55"	13'4.7"	10'9.08"	13'7.03"
11'0.8"	11'11.64"	11'0.2"	12'0.36"	10'11.52"	12'1.18"	10'10.77"	12'2.12"	10'9.94"	12'3.18"	10'9.02"	12'4.39"	10'8"	12'5.78"	10'6.88"	12'7.37"	10'5.65"	12'9.19"	10'4.29"	12'11.3"
10'7.26"	11'5.13"	10'6.7"	11'5.78"	10'6.08"	11'6.53"	10'5.4"	11'7.37"	10'4.64"	11'8.34"	10'3.79"	11'9.43"	10'2.86"	11'10.69"	10'1.83"	12'0.12"	10'0.7"	12'1.77"	9'11.45"	12'3.66"
10'1.69"	10'10.64"	10'1.19"	10'11.23"	10'0.63"	10'11.9"	10'	11'0.67"	9'11.31"	11'1.53"	9'10.54"	11'2.52"	9'9.69"	11'3.65"	9'8.75"	11'4.94"	9'7.71"	11'6.41"	9'6.57"	11'8.11"
9'8.11"	10'4.18"	9'7.65"	10'4.71"	9'7.14"	10'5.31"	9'6.57"	10'6"	9'5.94"	10'6.77"	9'5.25"	10'7.66"	9'4.47"	10'8.67"	9'3.62"	10'9.82"	9'2.68"	10'11.14"	9'1.64"	11'0.66"
9'2.5"	9'9.74"	9'2.09"	9'10.21"	9'1.63"	9'10.75"	9'1.12"	9'11.36"	9'0.55"	10'0.06"	8'11.92"	10'0.85"	8'11.23"	10'1.74"	8'10.45"	10'2.77"	8'9.6"	10'3.94"	8'8.66"	10'5.28"
8'8.88"	9'3.33"	8'8.51"	9'3.75"	8'8.1"	9'4.23"	8'7.64"	9'4.77"	8'7.13"	9'5.38"	8'6.57"	9'6.08"	8'5.94"	9'6.87"	8'5.25"	9'7.78"	8'4.48"	9'8.82"	8'3.64"	9'10"
8'6.06"	9'0.13"	8'5.71"	9'0.53"	8'5.32"	9'0.97"	8'4.89"	9'1.48"	8'4.41"	9'2.06"	8'3.88"	9'2.72"	8'3.28"	9'3.46"	8'2.63"	9'4.31"	8'1.9"	9'5.28"	8'1.1"	9'6.39"
8'3.23"	8'8.94"	8'2.9"	8'9.31"	8'2.54"	8'9.73"	8'2.13"	8'10.21"	8'1.68"	8'10.75"	8'1.18"	8'11.36"	8'0.62"	9'0.06"	8'	9'0.86"	7'11.32"	9'1.76"	7'10.56"	9'2.8"
8'0.4"	8'5.75"	8'0.09"	8'6.1"	7'11.75"	8'6.5"	7'11.37"	8'6.94"	7'10.94"	8'7.45"	7'10.47"	8'8.02"	7'9.94"	8'8.67"	7'9.36"	8'9.42"	7'8.72"	8'10.26"	7'8"	8'11.23"
7'9.56"	8'2.57"	7'9.27"	8'2.9"	7'8.95"	8'3.27"	7'8.59"	8'3.69"	7'8.19"	8'4.16"	7'7.75"	8'4.69"	7'7.26"	8'5.3"	7'6.71"	8'5.99"	7'6.1"	8'6.78"	7'5.43"	8'7.68"
7'6.72"	7'11.4"	7'6.45"	7'11.71"	7'6.15"	8'0.05"	7'5.81"	8'0.44"	7'5.44"	8'0.88"	7'5.02"	8'1.38"	7'4.56"	8'1.94"	7'4.05"	8'2.59"	7'3.48"	8'3.32"	7'2.85"	8'4.16"
7'3.88"	7'8.24"	7'3.62"	7'8.52"	7'3.34"	7'8.84"	7'3.03"	7'9.2"	7'2.68"	7'9.61"	7'2.29"	7'10.07"	7'1.86"	7'10.6"	7'1.38"	7'11.19"	7'0.85"	7'11.87"	7'0.26"	8'0.65"
7'1.02"	7'5.08"	7'0.79"	7'5.34"	7'0.53"	7'5.63"	7'0.23"	7'5.97"	6'11.91"	7'6.35"	6'11.55"	7'6.78"	6'11.14"	7'7.26"	6'10.7"	7'7.81"	6'10.2"	7'8.44"	6'9.65"	7'9.16"
6'10.17"	7'1.92"	6'9.95"	7'2.16"	6'9.71"	7'2.44"	6'9.43"	7'2.75"	6'9.13"	7'3.1"	6'8.79"	7'3.49"	6'8.42"	7'3.94"	6'8"	7'4.45"	6'7.54"	7'5.03"	6'7.03"	7'5.69"
6'7.31"	6'10.77"	6'7.1"	6'11"	6'6.88"	6'11.25"	6'6.63"	6'11.53"	6'6.34"	6'11.86"	6'6.03"	7'0.22"	6'5.69"	7'0.64"	6'5.3"	7'1.1"	6'4.87"	7'1.64"	6'4.4"	7'2.25"
6'4.44"	6'7.63"	6'4.25"	6'7.84"	6'4.04"	6'8.07"	6'3.81"	6'8.33"	6'3.55"	6'8.63"	6'3.26"	6'8.96"	6'2.94"	6'9.34"	6'2.58"	6'9.77"	6'2.19"	6'10.26"	6'1.75"	6'10.82"
6'1.56"	6'4.5"	6'1.39"	6'4.68"	6'1.2"	6'4.9"	6'0.99"	6'5.14"	6'0.75"	6'5.41"	6'0.48"	6'5.71"	6'0.19"	6'6.06"	5'11.86"	6'6.45"	5'11.49"	6'6.9"	5'11.09"	6'7.41"
5'10.69"	6'1.37"	5'10.53"	6'1.54"	5'10.35"	6'1.73"	5'10.16"	6'1.95"	5'9.94"	6'2.2"	5'9.7"	6'2.48"	5'9.42"	6'2.79"	5'9.12"	6'3.15"	5'8.79"	6'3.56"	5'8.42"	6'4.02"
5'9.73"	6'0.33"	5'9.57"	6'0.49"	5'9.4"	6'0.68"	5'9.21"	6'0.89"	5'9"	6'1.13"	5'8.76"	6'1.4"	5'8.5"	6'1.71"	5'8.21"	6'2.05"	5'7.88"	6'2.45"	5'7.52"	6'2.89"
5'8.77"	5'11.28"	5'8.62"	5'11.44"	5'8.45"	5'11.63"	5'8.27"	5'11.83"	5'8.06"	6'0.06"	5'7.83"	6'0.32"	5'7.58"	6'0.62"	5'7.29"	6'0.96"	5'6.98"	6'1.34"	5'6.63"	6'1.77"
5'7.8"	5'10.24"	5'7.66"	5'10.4"	5'7.5"	5'10.57"	5'7.32"	5'10.77"	5'7.12"	5'11"	5'6.9"	5'11.25"	5'6.65"	5'11.54"	5'6.38"	5'11.86"	5'6.07"	6'0.23"	5'5.73"	6'0.65"
5'6.84"	5'9.2"	5'6.7"	5'9.35"	5'6.55"	5'9.52"	5'6.37"	5'9.72"	5'6.18"	5'9.93"	5'5.96"	5'10.18"	5'5.72"	5'10.45"	5'5.46"	5'10.77"	5'5.16"	5'11.12"	5'4.83"	5'11.53"
5'5.88"	5'8.16"	5'5.74"	5'8.31"	5'5.59"	5'8.47"	5'5.43"	5'8.66"	5'5.24"	5'8.87"	5'5.03"	5'9.11"	5'4.8"	5'9.37"	5'4.54"	5'9.68"	5'4.25"	5'10.02"	5'3.93"	5'10.41"
5'4.91"	5'7.13"	5'4.78"	5'7.27"	5'4.64"	5'7.43"	5'4.48"	5'7.6"	5'4.3"	5'7.81"	5'4.09"	5'8.04"	5'3.87"	5'8.29"	5'3.62"	5'8.59"	5'3.34"	5'8.92"	5'3.03"	5'9.3"
5'3.95"	5'6.09"	5'3.82"	5'6.22"	5'3.68"	5'6.38"	5'3.53"	5'6.55"	5'3.35"	5'6.75"	5'3.16"	5'6.97"	5'2.94"	5'7.22"	5'2.7"	5'7.5"	5'2.43"	5'7.82"	5'2.13"	5'8.18"
5'2.99"	5'5.05"	5'2.86"	5'5.18"	5'2.73"	5'5.33"	5'2.58"	5'5.5"	5'2.41"	5'5.69"	5'2.22"	5'5.9"	5'2.01"	5'6.14"	5'1.77"	5'6.41"	5'1.51"	5'6.72"	5'1.22"	5'7.07"
5'2.02"	5'4.01"	5'1.9"	5'4.14"	5'1.77"	5'4.28"	5'1.62"	5'4.44"	5'1.46"	5'4.63"	5'1.28"	5'4.83"	5'1.07"	5'5.06"	5'0.85"	5'5.33"	5'0.59"	5'5.63"	5'0.31"	5'5.96"
5'1.05"	5'2.98"	5'0.94"	5'3.1"	5'0.81"	5'3.24"	5'0.67"	5'3.39"	5'0.51"	5'3.57"	5'0.34"	5'3.77"	5'0.14"	5'3.99"	4'11.92"	5'4.24"	4'11.68"	5'4.53"	4'11.41"	5'4.86"
5'0.09"	5'1.94"	4'11.98"	5'2.06"	4'11.86"	5'2.19"	4'11.72"	5'2.34"	4'11.57"	5'2.51"	4'11.4"	5'2.7"	4'11.21"	5'2.92"	4'10.99"	5'3.16"	4'10.76"	5'3.44"	4'10.5"	5'3.75"
4'11.12"	5'0.91"	4'11.02"	5'1.02"	4'10.9"	5'1.15"	4'10.77"	5'1.29"	4'10.62"	5'1.46"	4'10.45"	5'1.64"	4'10.27"	5'1.85"	4'10.07"	5'2.08"	4'9.84"	5'2.35"	4'9.59"	5'2.65"
4'10.15"	4'11.87"	4'10.05"	4'11.98"	4'9.94"	5'0.11"	4'9.81"	5'0.24"	4'9.67"	5'0.4"	4'9.51"	5'0.58"	4'9.33"	5'0.78"	4'9.14"	5'1"	4'8.92"	5'1.26"	4'8.67"	5'1.55"

4'9.19"	4'10.84"	4'9.09"	4'10.95"	4'8.98"	4'11.06"	4'8.86"	4'11.2"	4'8.72"	4'11.35"	4'8.57"	4'11.52"	4'8.4"	4'11.71"	4'8.21"	4'11.93"	4'7.99"	5'0.17"	4'7.76"	5'0.45"
4'8.22"	4'9.81"	4'8.12"	4'9.91"	4'8.02"	4'10.02"	4'7.9"	4'10.15"	4'7.77"	4'10.29"	4'7.62"	4'10.46"	4'7.46"	4'10.64"	4'7.27"	4'10.85"	4'7.07"	4'11.09"	4'6.84"	4'11.35"
4'7.25"	4'8.78"	4'7.16"	4'8.87"	4'7.06"	4'8.98"	4'6.94"	4'9.1"	4'6.82"	4'9.24"	4'6.67"	4'9.4"	4'6.52"	4'9.58"	4'6.34"	4'9.78"	4'6.15"	4'10"	4'5.93"	4'10.26"
4'6.28"	4'7.74"	4'6.19"	4'7.84"	4'6.09"	4'7.94"	4'5.98"	4'8.06"	4'5.86"	4'8.19"	4'5.73"	4'8.34"	4'5.58"	4'8.51"	4'5.41"	4'8.7"	4'5.22"	4'8.92"	4'5.01"	4'9.17"
4'5.31"	4'6.71"	4'5.22"	4'6.8"	4'5.13"	4'6.9"	4'5.02"	4'7.02"	4'4.91"	4'7.14"	4'4.78"	4'7.29"	4'4.63"	4'7.45"	4'4.47"	4'7.63"	4'4.29"	4'7.84"	4'4.09"	4'8.08"
4'4.34"	4'5.68"	4'4.26"	4'5.77"	4'4.17"	4'5.87"	4'4.07"	4'5.97"	4'3.95"	4'6.1"	4'3.83"	4'6.23"	4'3.69"	4'6.39"	4'3.53"	4'6.56"	4'3.36"	4'6.76"	4'3.17"	4'6.99"
4'3.36"	4'4.65"	4'3.29"	4'4.74"	4'3.2"	4'4.83"	4'3.1"	4'4.93"	4'3"	4'5.05"	4'2.88"	4'5.18"	4'2.74"	4'5.33"	4'2.59"	4'5.5"	4'2.43"	4'5.69"	4'2.24"	4'5.9"
4'2.39"	4'3.63"	4'2.32"	4'3.7"	4'2.24"	4'3.79"	4'2.14"	4'3.89"	4'2.04"	4'4"	4'1.93"	4'4.13"	4'1.8"	4'4.27"	4'1.66"	4'4.43"	4'1.5"	4'4.61"	4'1.32"	4'4.82"
4'1.42"	4'2.6"	4'1.35"	4'2.67"	4'1.27"	4'2.76"	4'1.18"	4'2.85"	4'1.08"	4'2.96"	4'0.97"	4'3.08"	4'0.85"	4'3.21"	4'0.71"	4'3.37"	4'0.56"	4'3.54"	4'0.39"	4'3.73"
4'0.44"	4'1.57"	4'0.38"	4'1.64"	4'0.3"	4'1.72"	4'0.22"	4'1.81"	4'0.12"	4'1.91"	4'0.02"	4'2.03"	3'11.9"	4'2.16"	3'11.77"	4'2.3"	3'11.63"	4'2.47"	3'11.46"	4'2.65"
3'11.47"	4'0.54"	3'11.41"	4'0.61"	3'11.33"	4'0.69"	3'11.25"	4'0.77"	3'11.16"	4'0.87"	3'11.06"	4'0.98"	3'10.95"	4'1.1"	3'10.83"	4'1.24"	3'10.69"	4'1.4"	3'10.53"	4'1.57"
3'10.5"	3'11.52"	3'10.43"	3'11.58"	3'10.37"	3'11.65"	3'10.29"	3'11.74"	3'10.2"	3'11.83"	3'10.11"	3'11.93"	3'10"	4'0.05"	3'9.88"	4'0.18"	3'9.75"	4'0.33"	3'9.6"	4'0.5"
3'9.52"	3'10.49"	3'9.46"	3'10.55"	3'9.4"	3'10.62"	3'9.32"	3'10.7"	3'9.24"	3'10.79"	3'9.15"	3'10.89"	3'9.05"	3'11"	3'8.94"	3'11.12"	3'8.81"	3'11.26"	3'8.67"	3'11.42"
3'8.54"	3'9.47"	3'8.49"	3'9.53"	3'8.43"	3'9.59"	3'8.36"	3'9.66"	3'8.28"	3'9.75"	3'8.19"	3'9.84"	3'8.1"	3'9.95"	3'7.99"	3'10.06"	3'7.87"	3'10.2"	3'7.74"	3'10.35"
3'7.57"	3'8.44"	3'7.51"	3'8.5"	3'7.46"	3'8.56"	3'7.39"	3'8.63"	3'7.32"	3'8.71"	3'7.24"	3'8.8"	3'7.14"	3'8.9"	3'7.04"	3'9.01"	3'6.93"	3'9.14"	3'6.8"	3'9.28"
3'6.59"	3'7.42"	3'6.54"	3'7.47"	3'6.48"	3'7.53"	3'6.42"	3'7.6"	3'6.35"	3'7.67"	3'6.28"	3'7.75"	3'6.19"	3'7.85"	3'6.09"	3'7.96"	3'5.98"	3'8.08"	3'5.86"	3'8.21"
3'5.61"	3'6.4"	3'5.56"	3'6.45"	3'5.51"	3'6.5"	3'5.45"	3'6.56"	3'5.39"	3'6.63"	3'5.31"	3'6.71"	3'5.23"	3'6.8"	3'5.14"	3'6.9"	3'5.04"	3'7.02"	3'4.92"	3'7.14"
3'4.63"	3'5.37"	3'4.59"	3'5.42"	3'4.54"	3'5.47"	3'4.48"	3'5.53"	3'4.42"	3'5.6"	3'4.35"	3'5.67"	3'4.27"	3'5.76"	3'4.19"	3'5.85"	3'4.09"	3'5.96"	3'3.98"	3'6.08"