Visibility Laboratory
University of California
Scripps Institution of Oceanography
San Diego 52, California

CONTRAST THRESHOLDS AS A FUNCTION OF RETINAL POSITION AND TARGET SIZE FOR THE LIGHT-ADAPTED EYE: II. DATA SUPPLEMENT

John H. Taylor

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Approved:

S. Q. Duntley

S. Q. Duntley, Director
Visibility Laboratory

INTRODUCTION AND SUMMARY

An earlier report from this laboratory[1] showed the manner in which the visual contrast thresholds for circular targets of uniform luminance were found to depend upon their position in the binocular visual field. The experiments were conducted using a single photopic level of adapting luminance (75 foot-lamberts) and the targets were presented for 0.33 second. Five target sizes were used; with angular diameters of 1.0, 1.74, 3.60, 15, and 120 minutes of arc. The targets were presented at seven positions in the field, so that they appeared at Zero, 1.25, 2.5, 5, 7.5, 10, and 12.5 degrees away from the fixational center in a horizontal meridian. Four emmetropic male subjects completed approximately 80,000 observations, using the yes-no method of constant stimuli.

This report constitutes a supplement to the previous paper, and contains the detailed experimental results which were summarized there. Details of the experimental procedure and of the data reduction technique may be found in the primary report.

FORM OF THE DATA

The tables which form the bulk of this report contain complete results from the data analysis performed by the probit technique. Corrected frequencies of seeing (proportions of positive responses) were used to find best-fitting Gaussian integral curves of either linear or logarithmic form. In the original report, those threshold values were plotted which gave the lower value of Chi-square, here used as an indicator of goodness of fit.

The probit analysis, as modified for computer use by Richardson[2], yields the following statistical quantities:

C_t - The value of stimulus brightness contrast (ratio of target luminance increment to background luminance) which yields a detection probability of 0.50.

σ_t - The standard deviation of the threshold.

σ - The standard deviation of the Gaussian ogive; or the inverse of the slope.

σ_σ - The standard error of sigma.

X^2 - The value of Chi-square.

$P(X^2)$ - The Chi-square probability.

The foregoing values are included in the tables which follow. Each table contains values for a single observer.

TABLE I

OBSERVER: RC

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
			1.0' TARGET DIAMETER				
1	0°	.482	.0319	.202	.0982	3.751	.30-.10
2		.449	.0403	.255	.0846	3.046	.50-.30
3		.350	.0497	.314	.147	.0191	.90-.70
4	1.25°	.615	.0357	.226	.134	1.232	.70-.50
5		.704	.0340	.215	.153	9.901	>.01-.001
6		.620	.0190	.120	.247	1.770	.30-.10
7	2.5°	.872	.0572	.362	.0570	4.664	.10-.05
8		.957	.0512	.323	.0588	5.448	.10-.05
9		.777	.0254	.161	.157	10.812	.01-.001
10	5.0°	2.95	.0191	.121	.247	.00005	1.0-.90
11		2.10	.0432	.273	.105	18.270	7.001
12		1.80	.0700	.443	.062	>100	>.001
13	7.5°	2.89	.0403	.255	.0833	1.693	.30-.10
14		3.88	.0641	.406	.0630	1.789	.50-.30
15		3.12	.00734	.223	.129	7.971	.01-.001
16	10°	4.40	.0441	.279	.101	.0631	.90-.70
17		3.96	.0247	.156	.185	.205	.70-.50
18		3.92	.0362	.229	.111	.299	.70-.50
19	12.5°	5.52	.0413	.261	.113	.146	.90-.70
20		6.60	.0251	.159	.183	4.925	.05-.02
21		4.63	.00821	.267	.107	34.62	<.001
			1.75' TARGET DIAMETER				
22	0°	.146	.0107	.384	.0943	11.42	<.001
23		.184	.00872	.298	.107	4.001	.05-.02
24		.212	.0171	.108	.231	1.484	.30-.10
25	2.5°	.292	.0145	.379	.109	16.777	>.001
26		.252	.00877	.297	.0894	17.109	>.001
27		.254	.00916	.326	.0178	17.299	>.001
28	5°	.725	.0484	.306	.0933	3.3748	.10-.05
29		.797	.0262	.166	.177	4.700	.05-.02
30		.759	.0201	.127	.220	1.891	10>30
31	7.5°	.943	.0422	.267	.0823	1.531	30-10
32		.929	.0394	.249	.117	8.768	.01-.001
33		.770	.0645	.408	.0974	2.150	30-10
34	10°	1.89	.0194	.123	.222	1.773	.30-.10
35		1.35	.0212	.134	.166	1.361	.30-.10
36		1.46	.0541	.342	.0969	.246	.70-.50

OBSERVER: RC TABLE I, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
37	12.5°	1.88	.0512	.323	.0893	3.298	.10-.05
38		1.84	.0139	.0878	.334	.187	.70-.50
39		1.99	.0188	.199	.219	.0938	.90-.70
			3.60' TARGET DIAMETER				
40	0°	.0475	.0470	.297	.103	.00276	1.00-.90
41		.0523	.0174	.110	.262	>100	>.001
42		.0480	.0207	.131	.217	5.153	.05-.02
43	1.25°	.0785	.0142	.0904	.333	.190	.70-.50
44		.0641	.0224	.142	.204	.898	.50-.30
45		.0724	.0164	.104	.234	.478	.50-.30
46	2.5°	.0881	.0417	.264	.118	1.455	.30-.10
47		.0876	.0340	.215	.167	.00451	1.0-.90
48		.0802	.0372	.235	.122	.340	.50-.30
49	5°	.169	.0495	.313	.0789	3.0229	.10-.05
50		.162	.0413	.261	.113	.146	.70-.50
51		.211	.0492	.311	.0815	20.760	>.001
52	7.5°	.153	.0452	.286	.106	.000248	1-.90
53		.210	.0550	.348	.0978	4.672	.05-.02
54		.210	.0281	.178	.170	.0175	.90-.70
55	10°	.345	.0224	.142	.203	.365	.70-.50
56		.266	.0533	.337	.0874	24.943	>.001
57		.233	.0429	.271	.106	3.010	.10-.05
58	12.5°	.378	.0490	.310	.0933	2.727	.10-.05
59		.493	.0209	.132	.214	3.818	.05-.02
60		.427	.0487	.308	.101	.607	.50-.30
			15.0' TARGET DIAMETER				
61	0°	.0173	.0210	.133	.166	2.096	.30-.10
62		.0157	.0483	.305	.0961	.224	.70-.50
63		.0133	.0446	.282	.116	11.264	>.001
64	1.25°	.0216	.0149	.0942	.247	.372	.70-.50
65		.0187	.0307	.194	.122	2.329	.30-.10
66		.0208	.0141	.0894	.356	60.205	>.001
67	2.5°	.0196	.0150	.0948	.251	2.399	.30-.10
68		.0245	.0335	.212	.141	5.859	.02-.01
69		.0251	.0345	.218	.135	30.093	>.001

OBSERVER: RC TABLE I, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
70	5°	.0254	.0361	.228	.124	.0228	.40-.70
71		.0285	.0468	.296	.107	1.908	.30-.10
72		.0144	.0240	.152	.199	71.328	>.001
73	7.5°	.0363	.0353	.223	.112	.0921	.90-.70
74		.0406	.0149	.0940	.307	33.985	----
75		.0366	.0186	.118	.238	2.848	.10-.05
76	10°	.0521	.0384	.243	.151	4.904	.05-.02
77		.0508	.0332	.210	.116	.353	.70-.50
78		.0566	.0231	.146	.186	.280	.70-.50
79	12.5°	.0708	.0403	.255	.0834	1.728	.30-.10
80		.0729	.0151	.0954	.249	1.647	.30-.10
81		.0694	.0353	.233	.112	.0921	.90-.70
			160' DIAMETER TARGET				
82	0°	.00722	.0292	.153	.190	37.767	<.001
83		.00712	.0256	.162	.182	60.610	<.001
84		.00764	.0179	.113	.221	14.316	<.001
85	1.3°	.00921	.0264	.167	.118	.435	.70-.50
86		.00838	.0228	.144	.199	.156	.70-.50
87		.00768	.0228	.144	.202	1.519	.30-.10
88	5°	.0101	.0198	.125	.205	8.865	.01-.001
89		.0110	.0199	.123	.170	2.833	.10-.05
90		.0106	.0210	.133	.162	15.489	<.001
91	7.5°	.0123	.0304	.192	.154	.0195	.90-.70
92		.0118	.0362	.229	.111	.299	.70-.50
93		.0115	.0210	.133	.187	20.066	<.001
94	10°	.0117	.0193	.122	.225	45.689	<.001
95		.0123	.0248	.157	.147	13.344	.01-.001
96		.0123	.0236	.149	.198	2.828	.10-.05
97	12.5°	.0138	.0253	.160	.179	.187	.70-.50
98		.0128	.0175	.111	.216	3.810	.05-.02
99		.0125	.0421	.266	.0823	1.388	.30-.10

TABLE II

OBSERVER: RP

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
			1.0' TARGET DIAMETER				
1	0°	.513	.0370	.234	.139	96.967	>.001
2		.534	.0489	.309	.101	>100	>.001
3		.440	.0444	.281	.108	2.710	.10-.05
4	1.25°	.939	.0277	.175	.179	.759	.50-.30
5		.866	.0463	.293	.099	.194	.70-.50
6		.906	.0152	.0965	.303	14.621	>.001
7	2.5°	1.69	.0305	.193	.117	90.939	>.001
8		1.52	.0190	.120	.202	4.998	.10-.05
9		1.57	.0283	.179	.162	.109	.90-.70
10	5°	2.31	.0458	.290	.0986	.444	.70-.50
11		2.75	.0348	.220	.124ε	.500	.50-.30
12		3.23	.0548	.345	.0713	3.026	.30-.10
13	7.5°	4.92	.00888	.310	.0971	9.592	.01-.001
14		4.59	.0237	.150	.191	1.07	.50-.30
15		3.95	.0212	.134	.165	1.136	.30-.10
16	10°	5.18	.0370	.234	.110	.746	.50-.30
17		4.47	.0205	.130	.230	.857	.50-.30
18		5.30	.0209	.132	.215	47.73	>.001
19	12.5°	8.999	.00791	.292	.104	21.311	<.001
20		7.602	.0406	.257	.118	.252	.30-.10
21		6.76	.00887	.310	.0961	20.019	<.001
			1.75 TARGET DIAMETER				
22	0°	.210	.0664	.420	.0789	.541	.50-.30
23		.158	.00741	.265	.111	19.753	<.001
24		.215	.0460	.291	.0995	.0227	.90-.70
25	2.5°	.469	.0261	.165	.182	68.209	>.001
26		.513	.0164	.104	.234	.478	.50-.30
27		.489	.0428	.271	.106	1.106	.30-.10
28	5°	1.20	.0489	.309	.0932	.289	70>50
29		0.925	.0566	.358	.0948	.846	50-30
30		1.02	.0441	.279	.108	1.645	30>10
31	7.5°	1.20	.0441	.279	.106	2.062	30-10
32		1.56	.0387	.245	.119	.0257	90-70
33		1.59	.0387	.245	.119	.163	70-50
34	10°	1.82	.0500	.316	.0938	35.369	>.001
35		2.37	.0305	.193	.170	.0443	.90-.70
36		2.06	.0808	.511	.0774	37.63	>.001

OBSERVER: RP TABLE II, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
37	12.5°	2.59	.0482	.305	.0960	1.563	.30-.10
38		2.32	.0643	.407	.0850	>1000	>.001
39		3.07	.0626	.396	.0651	17.148	>.001
			3.60' TARGET DIAMETER				
40	0°	.0467	.0202	.254	.1137	48.952	>.001
41		.0475	.0254	.161	.182	.590	.50-.30
42		.0471	.0253	.160	.155	92.561	>.001
43	2.5°	.103	.0215	.136	.166	2.311	.30-.10
44		.119	.0218	.138	.208	19.819	>.001
45		.128	.0218	.138	.204	54.525	>.001
46	5°	.332	.0210	.133	.162	15.623	>.001
47		.310	.0432	.273	.108	12.005	>.001
48		.309	.0403	.255	.0833	2.0416	.30-.10
49	7.5°	.362	.0177	.112	.221	46.362	>.001
50		.327	.0403	.276	.108	.949	.50-.30
51		.415	.0523	.331	.0990	.313	.70-.50
52	10°	.388	.0349	.424	.0900	24.297	>.001
53		.388	.0384	.243	.0926	43.722	>.001
54		.393	.0209	.132	.216	.0197	.90-.70
55	12.5°	.632	.0223	.141	.0770	.0770	.90-.70
56		.658	.0460	.291	.105	2.874	.10-.05
57		.680	.0474	.300	.118	10.180	.01-.001
			15' TARGET DIAMETER				
58	0°	.0173	.0194	.123	.230	>0.0399	>.001
59		.0152	.0212	.134	.163	33.474	>.001
60		.0138	.0650	.411	.00532	2.577	.90-.70
61	1.25°	.0203	.0289	.183	.138	79.561	>.001
62		.0214	.0254	.161	.181	2.702	.10-.05
63		.0222	.0270	.171	.176	2.980	.10-.05
64	2.5°	.0217	.0196	.137	.213	>100	>.001
65		.0296	.0319	.202	.125	34.715	>.001
66		.0268	.0511	.323	.0997	.897	.50-.30
67	5°	.0388	.0463	.293	.0769	5.353	.10-.05
68		.0335	.0413	.261	.108	.354	.70-.50
69		.0379	.0482	.305	.0961	.616	.50-.30

OBSERVER: RP TABLE II, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
70	7.5°	.0470	.0378	.239	.118	.395	.70-.50
71		.0455	.0365	.231	.123	7.695	.01-.001
72		.0475	.0345	.218	.131	2.098	.30-.10
73	10°	.0547	.0194	.123	.235	1.099	.50-.30
74		.0550	.0191	.121	.236	50.312	>.001
75		.0557	.0261	.165	.178	4.580	.05-.02
76	12.5°	.0784	.0362	.229	.111	.299	.70-.50
77		.0737	.0421	.266	.0825	2.368	.30-.10
78		.0787	.0262	.166	.168	.261	.70-.50
			120' TARGET DIAMETER				
79	0°	.00768	.0206	.130	.217	13.662	<.001
80		.00757	.0351	.222	.112	.131	.90-.70
81		.00769	.0546	.345	.091	.0812	.90-.70
82	1.3°	.0122	.0310	.196	.127	>100	<.001
83		.0109	.0251	.159	.191	2.283	.10-.05
84		.0101	.0234	.148	.224	45.490	<.001
85	5°	.0130	.0206	.130	.218	9.575	.01-.001
86		.0114	.0155	.0983	.237	1.237	.30-.10
87		.0122	.0563	.356	.0970	2.214	.30-.10
88	7.5°	.0156	.0277	.175	.187	.435	.70-.50
89		.0137	.0242	.153	.169	52.431	<.001
90		.0152	.0251	.159	.188	20.405	<.001
91	10°	.0156	.0293	.185	.171	1.197	.30-.10
92		.0141	.0207	.131	.217	3.936	.05-.02
93		.0155	.0202	.128	.211	38.994	<.001
94	12.5°	.0178	.0198	.125	.222	2.450	.30-.10
95		.0182	.0220	.139	.190	22.725	<.001
96		.0195	.0685	.433	.0856	1.034	.50-.30

TABLE III

OBSERVER: RS

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
			1' TARGET DIAMETER				
1	0°	.788	.0207	.131	.192	.223	.70-.50
2		.643	.0463	.293	.115	.183	.70-.50
3		1.01	.0304	.192	.128	3.267	.50-.30
4	1.25°	.995	.0432	.273	.117	.536	.50-.30
5		.917	.0269	.170	.178	.480	.50-.30
6		.878	.0504	.319	.0934	.382	.70-.50
7	2.5°	1.68	.0539	.341	.157	.124	.90-.70
8		1.73	.0319	.202	.163	.555	.50-.30
9		1.54	.0220	.139	.164	.966	.50-.30
10	5°	2.96	.0588	.372	.0835	43.951	>.001
11		3.39	.0648	.410	.0412	2.918	.50-.30
12		3.01	.0813	.514	.0727	27.531	>.001
13	7.5°	4.31	.0724	.458	.0794	2.6	.30-.10
14		3.90	.0295	.187	.166	10.67	.01-.00
15		3.68	.0424	.268	.0823	1.799	.30-.10
16	10°	4.63	.0651	.412	.0777	.168	.70-.50
17		5.21	.0205	.130	.221	17.315	>.001
18		4.07	.0221	.140	.175	5.947	.10-.05
19	12.5°	5.70	.0394	.249	.105	23.920	>.001
20		6.20	.0616	.390	.0673	4.924	.10-.05
21		7.91	.00990	.412	.0538	>100	<.001
			1.75' TARGET DIAMETER				
22	0°	.255	.0117	.427	.0661	63.086	>.001
23		.208	.0302	.191	.135	49.219	>>.001
24		.204	.0239	.151	.242	4.427	.05-.02
25	2.5°	.558	.0232	.147	.193	42.189	>>.001
26		.381	.0239	.151	.198	8.870	.01-.00
27		.582	.0504	.319	.0934	.382	.70-.50
28	5°	.949	.0666	.421	.0889	2.100	30-10
29		.922	.0534	.338	.0983	.171	70-50
30		.838	.0232	.147	.205	6.386	.02-.01
31	7.5°	1.14	.0306	.194	.148	8.353	.01-.00
32		1.49	.0460	.291	.107	3.316	.10-.05
33		1.31	.0460	.291	.105	2.874	.10-.05

OBSERVER: RS TABLE III, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
34	10°	1.92	.0376	.238	.120	7.370	.01-.001
35		1.33	.0643	.408	.0864	7.389	.01-.001
36		1.56	.0329	.208	.158	.595	.50-.30
37	12.5°	2.17	.0449	.284	.0949	21.008	> .001
38		1.88	.0329	.208	.107	22.743	> .001
39		1.95	.0376	.238	.110	65.040	< .001
			3.60' TARGET DIAMETER				
40	0°	.0419	.0558	.353	.0760	.961	.50-.30
41		.0567	.0593	.375	.0665	3.096	.30-.10
42		.0493	.0327	.207	.106	33.700	> .001
43		.0449	.0226	.143	.207	5.247	.05-.02
44	1.25°	.0663	.0270	.171	.178	8.493	.01-.001
45		.0654	.0142	.0904	.333	.190	.70-.50
46		.0675	.0266	.168	.148	> 100	> .001
47	2.5°	.122	.0335	.212	.126	> 100	> .001
48		.119	.0164	.104	.234	.478	.50-.30
49		.103	.0547	.346	.0546	2.309	.70-.50
50	5°	.195	.0251	.159	.182	1.039	.30-.10
51		.183	.0582	.368	.0828	2.179	.30-.10
52		.203	.0458	.290	.119	2.462	.30-.10
53	7.5°	.378	.0293	.185	.138	23.451	> .001
54		.298	.0229	.145	.155	20.720	> .001
55		.307	.0259	.164	.159	1.712	.50-.30
56	10°	.394	.0759	.480	.0544	14.828	< .001
57		.345	.0232	.147	.171	4.823	.10-.05
58		.386	.0254	.161	.182	.0135	.100-.90
59	12.5°	.693	.0378	.239	.115	> 100	< .001
60		.650	.0612	.387	.0660	58.642	< .001
61		.606	.0506	.320	.0801	39.659	< .001
			15' TARGET DIAMETER				
62	0°	.0168	.0376	.238	.109	.201	.70-.5
63		.0159	.0413	.261	.112	2.446	.10-.0
64		.0151	.0264	.167	.149	21.350	> .001
65	1.25°	.0229	.0494	.186	.168	5.555	.02-.0
66		.0196	.0493	.312	.0789	3.797	.10-.0
67		.0206	.0274	.173	.172	2.137	.30-.1

OBSERVER: RS TABLE III, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
68	2.5°	.0256	.0297	.188	.156	.306	.70-.50
69		.0213	.0210	.133	.162	16.419	> .001
70		.0229	.0313	.198	.150	.0154	1.00-.90
71	5°	.0409	.0247	.156	.182	.208	.70-.50
72		.0417	.0411	.260	.103	.143	.90-.70
73		.0398	.0511	.323	.0927	.208	.70-.50
74	7.5°	.0512	.0487	.308	.101	2.562	.30-.10
75		.0494	.0220	.139	.240	81.539	>.001
76		.0481	.0232	.147	.193	62.863	>.001
77	10°	.0528	.0210	.133	.212	34.308	>.001
78		.0505	.0232	.147	.194	81.907	>.001
79		.0569	.0261	.165	.178	>100	>.001
80	12.5°	.0748	.0172	.109	.229	29.010	>.001
81		.0640	.0161	.102	.251	42.928	>.001
82		.0724	.0394	.249	.119	.287	.70-.50
			120' TARGET DIAMETER				
83	0°	.00828	.0228	.144	.198	3.830	.05-.02
84		.00817	.0562	.356	.043	.305	.70-.50
85		.00866	.0217	.137	.205	1.037	.90-.70
86	1.3°	.00899	.0436	.276	.117	>100	<.001
87		.00858	.0288	.182	.158	.305	.70-.50
88		.00798	.0376	.238	.0947	95.987	<.001
89	5°	.0115	.0288	.182	.136	44.960	>.001
90		.0125	.0239	.151	.195	2.051	.30-.10
91		.0118	.0762	.482	.0788	.460	.50-.30
92	7.5°	.0130	.0422	.267	.103	.0784	.90-.70
93		.0130	.0191	.121	.234	28.513	<.001
94		.0114	.0198	.125	.170	1.746	.30-.10
95	10°	.0134	.0340	.215	.118	38.708	<.001
96		.0121	.0656	.415	.0854	1.046	.50-.30
97		.0121	.0158	.0998	.299	48.851	<.001
98	12.5°	.0158	.0191	.121	.247	.0000507	1.00-.10
99		.0145	.0307	.194	.170	4.848	.05-.02
100		.0149	.0169	.107	.233	2.187	.30-.10

TABLE IV

OBSERVER: JF

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
			1' TARGET DIAMETER				
1	0°	.456	.0424	.268	.1010	27.792	>.001
2		.383	.0392	.248	.0940	3.240	.50-.30
3		.422	.0414	.262	.1200	13.390	>.001
4	1.25°	.643	.0202	.128	.2040	32.401	>.001
5		.603	.0421	.266	.1090	.790	.50-.30
6		.576	.0384	.243	.0845	2.316	.30-.10
7	2.5°	.805	.0498	.315	.0840	41.598	>.001
8		1.300	.0138	.0874	.2440	1.353	.30-.10
9		2.250	.0387	.245	.0823	3.692	.30-.10
10	5°	2.720	.0632	.400	.086	18.338	-----
11		3.180	.0471	.298	.1030	1.686	.30-.10
12		2.590	.0572	.362	.0853	1.915	.30-.10
13	7.5°	3.200	.0129	.565	.0507	>100	<.001
14		2.990	.0245	.155	.1670	3.941	.30-.10
15		3.260	.0100	.424	.0526	>100	<.001
16	10°	4.880	.0550	.348	.0857	2.393	.30-.10
17		4.470	.0770	.487	.0572	.304	.30-.10
18		4.050	.0259	.164	.2030	1.216	.30-.10
19	12.5°	5.810	.0269	.170	.202	.0000559	1-.90
20		5.980	.0289	.183	.172	.0490	.90-.70
21		6.200	.0326	.206	.128	1.238	.70-.50
			1.75' TARGET DIAMETER				
22	0°	.146	.00904	.316	.103	>100	<.001
23		.210	.0531	.336	.143	25.041	>>.001
24		.208	.0452	.286	.123	.847	.50-.30
25	2.5°	.245	.0390	.247	.120	.224	.70-.50
26		.307	.0460	.291	.105	2.874	.10-.05
27		.290	.0406	.257	.114	3.395	.10-.05
28	5°	.412	.0397	.251	.163	6.469	.02>.01
29		.463	.0224	.142	.245	6.918	.01>.001
30		.421	.0512	.342	.0907	1.684	30> 10
31	7.5°	.460	.0489	.309	.0932	.289	70-50
32		.529	.00921	.325	.0895	59.100	>.001
33		.475	.0324	.205	.162	.203	70-50
34	10°	.739	.0742	.469	.0589	3.073	.30-.10
35		.608	.0715	.452	.0592	9.781	.01-.001
36		.604	.0748	.473	.0582	7.544	.05-.02

OBSERVER: JF TABLE IV, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
37	12.5°	1.310	.0821	.519	.0672	3.212	.50-.30
38		1.130	.0800	.506	.0446	43.323	>.001
39		1.110	.0107	.674	.0504	32.769	>.001
			3.60' TARGET DIAMETER				
40	0°	.0527	.0250	.158	.190	1.914	.30-.10
41		.0453	.0169	.107	.166	32.208	>.001
42		.0545	.0490	.310	.111	22.759	>.001
43	1.25°	.0907	.0185	.117	.246	6.063	.02-.01
44		.0724	.0175	.111	.276	3.810	.05-.02
45		.0759	.0267	.169	.175	1.807	.30-.10
46		.106	.0193	.122	.243	3.193	.10-.05
47		.0972	.0169	.107	.225	.0657	.90-.70
48		.0950	.0231	.146	.194	31.830	>.001
49	2.5°	.0841	.0707	.447	.0599	12.434	.01-.001
50		.0588	.0387	.245	.107	.194	.70-.50
51		.0593	.0191	.121	.247	.0000507	1.00-.90
52	5°	.196	.0795	.503	.0937	2.893	.10-.05
53		.168	.0468	.296	.0997	1.813	.30-.10
54		.177	.0390	.247	.117	.0175	.90-.70
55	7.5°	.244	.0381	.241	.1080	18.159	>.001
56		.184	.0490	.310	.0933	2.727	.01-.05
57		.243	.0574	.363	.0698	40.825	>.001
			15' TARGET DIAMETER				
58	0°	.0195	.0675	.427	.0955	1.021	.50-.30
59		.0180	.0596	.377	.137	10.637	>.001
60		.0164	.0508	.321	.0714	42.189	>.001
61	1.25°	.0227	.0245	.155	.186	23.693	>.001
62		.0239	.0285	.180	.154	44.771	>.001
63		.0221	.0421	.266	.104	.516	.50-.30
64	2.5°	.0240	.0209	.132	.215	47.734	>.001
65		.0225	.0315	.199	.129	44.644	>.001
66		.0239	.0217	.137	.164	3.348	.10-.05
67	10°	.259	.0575	.364	.0694	37.737	>.001
68		.271	.0718	.454	.0570	5.385	.10-.05
69		.326	.0349	.221	.123	12.453	.01-.001

OBSERVER: JF

TABLE IV, Continued

Run No.	Eccentricity	C_t	σ_t	σ	σ_σ	X^2	$P(X^2)$
70	12.5°	.663	.0425	.269	.0860	33.778	>.001
71		.671	.0838	.530	.0565	.839	.70-.50
72		.628	.0640	.405	.0769	.318	.70-.50
73	5°	.0443	.0330	.209	.147	5.778	.02-.01
74		.0394	.0306	.192	.145	1.690	.30-.10
75		.0431	.0280	.177	.162	10.061	.01-.001
76	7.5°	.0505	.0359	.227	.124	.424	.70-.50
77		.0517	.0321	.203	.150	1.234	.30-.10
78		.0540	.0313	.198	.150	.0155	1.00-.90
79	10°	.0592	.0387	.245	.135	.00212	1.00-.90
80		.0610	.0239	.151	.190	.625	.50ε.30
81		.0632	.0204	.129	.201	.123	.80-.70
82	12.5°	.0712	.0212	.134	.190	>100	>.001
83		.0806	.0218	.138	.205	9.062	.01-.001
84		.0665	.0391	.247	.120	.0443	.90-.70
			120' TARGET DIAMETER				
85	0°	.00772	.0292	.185	.138	19.329	<.001
86		.00740	.0349	.221	.133	>100	<.001
87		.00842	.0305	.193	.163	4.631	.05-.02
89	1.3°	.00872	.0274	.173	.174	45.471	<.001
90		.00952	.0330	.209	.128	1.596	.50-.30
91		.00827	.0319	.202	.129	11.317	.01-.001
92	5°	.0127	.0247	.156	.185	49.669	<.001
93		.0150	.0387	.245	.125	9.173	.02-.01
94		.0136	.0168	.106	.282	17.538	<.001
95	7.5°	.0110	.0485	.307	.101	1.669	.30-.10
96		.0115	.0245	.155	.194	2.824	.10-.05
97		.0119	.0272	.172	.165	.171	.70-.50
98	10°	.0157	.0188	.119	.209	.0676	.90-.70
99		.0133	.0253	.160	.184	.262	.30-.10
100		.0136	.0221	.140	.203	8.537	.01-.001
101	12.5°	.0181	.0153	.0966	.311	.0286	.90-.70
102		.0197	.0248	.157	.197	66.441	<.001
103		.0164	.0221	.140	.157	21.130	<.001

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