

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: 17289

Luminaire Tested: **S7A/648/2T8/ETG4/UEB-SI-S22**

Issue Date: 3/3/2020

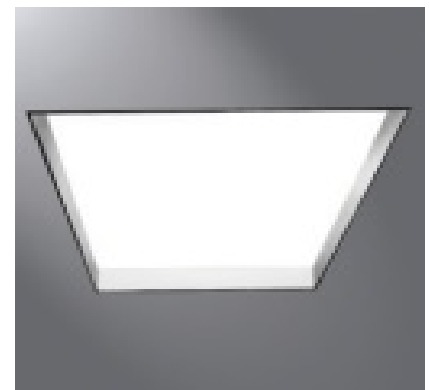
**Test Information**

Test Method: LM-41-14  
Report Number: 17289  
Test Lab: LUMINAIRE TESTING LABORATORY, INC.  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S7A/648/2T8/ETG4/UEB-SI-S22  
Description: FORMED WHITE ENAMEL STEEL AND ALUMINUM HOUSING, FORMED WHITE ENAMEL STEEL REFLECTOR, TRANSLUCENT WHITE PLASTIC ENCLOSURE.  
Light Source: TWO 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS EACH.  
PHILIPS F32T8/TL835/ALTO  
Ballast/Driver: ONE UNIVERSAL LIGHTING TECHNOLOGIES "TRIAD" B232IUNVHP-B

**Summary**

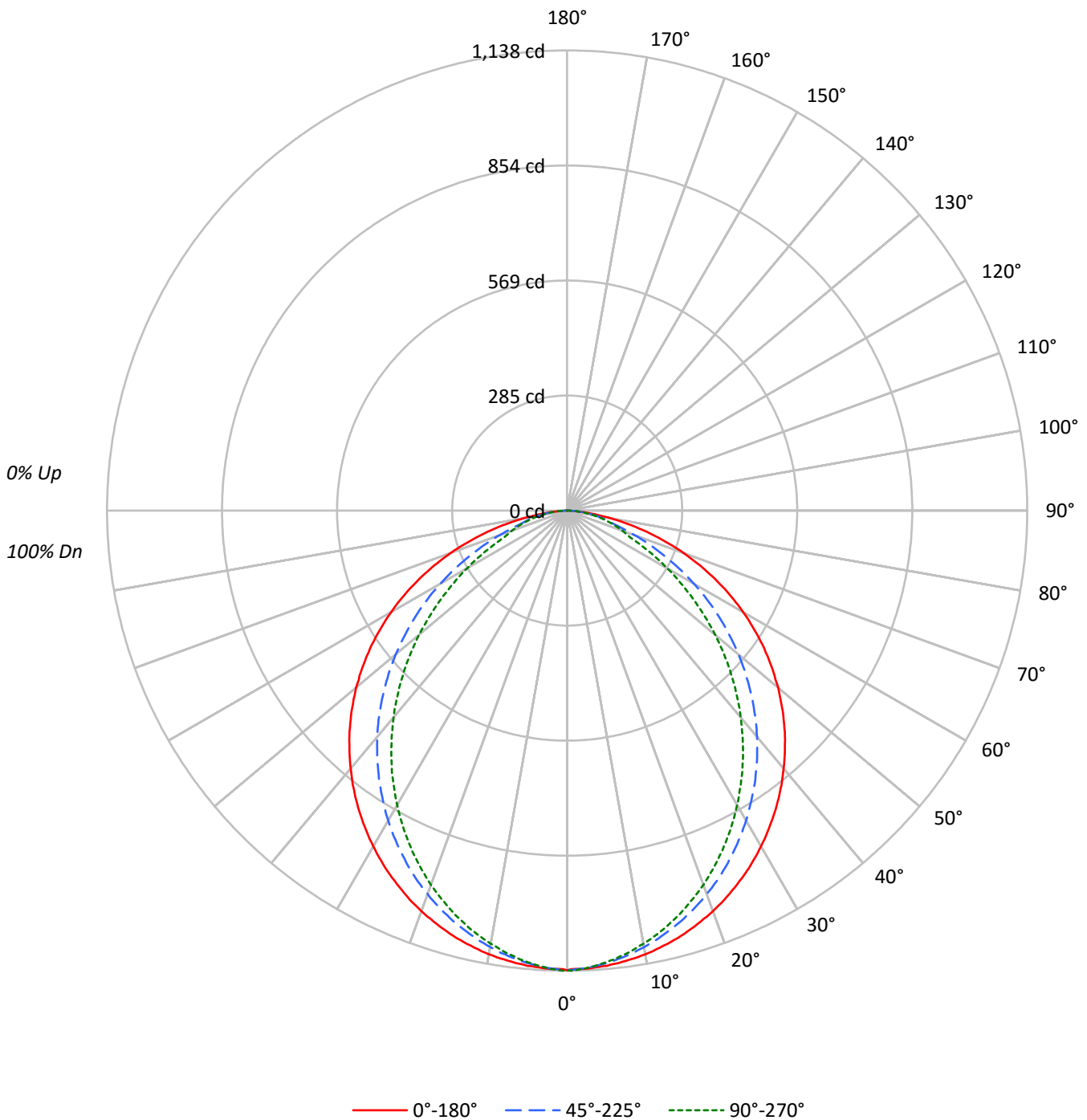
Lumens per Lamp: 2850 (2 lamps)  
Luminaire Lumens: 2743.7 lumens  
Efficiency: 48.1%  
Efficacy: 49.6 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.12 / 1.27  
Luminous Opening: Rectangular (W 0.44' x L: 3.94' x H: 0')  
CIE Type: Direct

Input Watts (W): 55.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: 17289  
CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

### Luminous Intensity Polar Plot





TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0													
RCR																																					
0	57	57	57	57	56	56	56	56	53	53	53	51	51	51	49	49	49	48	48	48	48	48	48	48													
1	53	51	49	47	51	49	48	46	47	46	45	46	44	43	44	43	42	44	43	42	44	43	42	41													
2	48	44	41	39	47	44	41	38	42	39	37	40	38	37	39	37	36	39	37	36	39	37	36	35													
3	44	39	36	33	43	39	35	32	37	34	32	36	33	31	35	32	31	35	32	31	35	32	31	30													
4	41	35	31	28	39	34	31	28	33	30	27	32	29	27	31	29	27	31	29	27	31	29	27	26													
5	37	31	27	24	36	31	27	24	30	26	24	29	26	24	28	25	23	28	25	23	28	25	23	22													
6	35	28	24	21	34	28	24	21	27	24	21	26	23	21	26	23	21	26	23	21	26	23	21	20													
7	32	26	22	19	31	25	22	19	25	21	19	24	21	19	23	21	18	23	21	18	23	21	18	17													
8	30	24	20	17	29	23	19	17	23	19	17	22	19	17	22	19	17	22	19	17	22	19	17	16													
9	28	22	18	15	27	21	18	15	21	18	15	20	17	15	20	17	15	20	17	15	20	17	15	14													
10	26	20	16	14	26	20	16	14	19	16	14	19	16	14	19	16	14	19	16	14	19	16	14	13													

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	7095	7095	7095
5°	7079	7035	7022
10°	7059	6945	6894
15°	7036	6835	6732
20°	7000	6701	6541
25°	6955	6548	6314
30°	6910	6377	6060
35°	6856	6178	5767
40°	6786	5955	5442
45°	6707	5684	5066
50°	6612	5379	4641
55°	6474	4994	4134
60°	6278	4531	3570
65°	5995	3928	2968
70°	5565	3248	2646
75°	4943	2700	2532
80°	3953	2516	2372
85°	2649	2220	2148



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	106.5	3.9	1.9
10°-20°	299.1	10.9	5.2
20°-30°	440.5	16.1	7.7
30°-40°	511.6	18.6	9.0
40°-50°	504.1	18.4	8.8
50°-60°	421.1	15.3	7.4
60°-70°	282.1	10.3	4.9
70°-80°	142.6	5.2	2.5
80°-90°	36.2	1.3	0.6
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	846.2	30.8	14.8
0°-40°	1357.7	49.5	23.8
0°-60°	2282.9	83.2	40.1
0°-90°	2743.7	100.0	48.1
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	2743.7	100.0	48.1

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1137	1137	1137	1137	1137	
5°	1130	1129	1123	1121	1121	107
15°	1089	1077	1058	1046	1042	307
25°	1010	986	951	926	917	466
35°	900	863	811	772	757	563
45°	760	712	644	593	574	586
55°	595	539	459	401	380	531
65°	406	350	266	216	201	401
75°	205	161	112	106	105	217
85°	37	33	31	30	30	44
90°	0	0	0	0	0	1
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1137	1137	1137	1137	1137
0.5°	1134	1137	1136	1137	1138
1°	1134	1137	1135	1136	1137
1.5°	1134	1137	1134	1135	1135
2°	1134	1136	1133	1133	1134
2.5°	1134	1135	1132	1132	1132
3°	1133	1134	1130	1130	1130
3.5°	1132	1133	1129	1128	1128
4°	1131	1131	1127	1126	1126
4.5°	1130	1130	1125	1124	1123
5°	1130	1129	1123	1121	1121
5.5°	1128	1127	1121	1119	1118
6°	1127	1126	1119	1116	1116
6.5°	1126	1124	1116	1113	1112
7°	1124	1122	1114	1110	1109
7.5°	1123	1120	1111	1107	1106
8°	1121	1118	1108	1104	1103
8.5°	1120	1116	1106	1100	1099
9°	1118	1113	1102	1097	1095
9.5°	1116	1111	1099	1094	1091
10°	1114	1108	1096	1090	1088
10.5°	1112	1105	1093	1086	1084
11°	1110	1103	1089	1082	1080
11.5°	1107	1100	1086	1078	1075
12°	1105	1097	1082	1074	1071
12.5°	1102	1094	1078	1069	1066
13°	1100	1090	1074	1065	1062
13.5°	1097	1087	1070	1060	1057
14°	1094	1084	1066	1056	1052
14.5°	1092	1080	1062	1051	1047
15°	1089	1077	1058	1046	1042
15.5°	1086	1073	1054	1041	1037
16°	1082	1069	1049	1036	1031
16.5°	1079	1066	1044	1031	1026
17°	1076	1062	1040	1025	1020
17.5°	1072	1058	1035	1020	1014
18°	1069	1054	1030	1014	1009
18.5°	1065	1049	1025	1009	1003
19°	1062	1045	1020	1003	997
19.5°	1058	1041	1015	997	991
20°	1054	1036	1009	991	985
20.5°	1050	1031	1004	985	978
21°	1046	1027	999	979	972
21.5°	1042	1022	993	973	965
22°	1038	1017	988	966	959



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
22.5°	1033	1012	982	960	952
23°	1029	1007	976	953	945
23.5°	1024	1002	970	947	938
24°	1020	997	964	940	931
24.5°	1015	992	958	933	925
25°	1010	986	951	926	917
25.5°	1006	981	945	919	910
26°	1001	975	939	912	902
26.5°	996	970	932	905	895
27°	991	964	926	898	888
27.5°	986	958	919	891	880
28°	980	953	913	883	872
28.5°	975	946	906	876	865
29°	970	941	899	868	857
29.5°	964	934	892	860	849
30°	959	928	885	853	841
30.5°	953	922	878	845	833
31°	948	916	871	837	825
31.5°	942	909	863	829	816
32°	936	903	856	821	808
32.5°	930	897	849	813	800
33°	924	890	841	805	791
33.5°	918	883	834	797	784
34°	912	877	826	789	775
34.5°	906	870	819	780	766
35°	900	863	811	772	757
35.5°	893	856	803	763	749
36°	887	849	795	755	740
36.5°	881	842	787	746	731
37°	874	835	780	738	722
37.5°	867	828	772	729	713
38°	861	820	763	720	704
38.5°	854	813	755	712	695
39°	847	806	747	703	686
39.5°	840	798	739	694	677
40°	833	791	731	685	668
40.5°	826	783	722	676	659
41°	819	775	714	667	650
41.5°	812	768	705	658	640
42°	805	760	697	649	631
42.5°	797	752	688	640	621
43°	790	744	679	630	612
43.5°	783	736	671	621	603
44°	775	729	662	612	593
44.5°	768	720	653	602	583



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
45°	760	712	644	593	574
45.5°	752	704	635	584	565
46°	744	696	626	574	555
46.5°	737	688	617	565	546
47°	729	679	608	556	536
47.5°	721	671	599	546	526
48°	713	662	590	536	517
48.5°	705	654	581	527	507
49°	697	646	572	517	497
49.5°	689	637	562	508	488
50°	681	628	554	498	478
50.5°	672	619	544	488	468
51°	663	611	534	479	458
51.5°	656	602	525	469	448
52°	647	593	516	459	438
52.5°	639	584	506	450	428
53°	630	575	497	440	419
53.5°	621	566	487	430	409
54°	613	557	478	420	399
54.5°	603	548	469	410	390
55°	595	539	459	401	380
55.5°	586	530	449	391	371
56°	577	520	440	381	360
56.5°	568	511	430	372	351
57°	559	502	421	362	342
57.5°	549	493	411	352	332
58°	540	484	401	343	323
58.5°	531	474	392	333	314
59°	522	465	382	324	305
59.5°	513	455	372	315	296
60°	503	446	363	305	286
60.5°	494	436	353	296	277
61°	484	427	343	287	269
61.5°	475	417	333	278	260
62°	465	407	324	268	251
62.5°	455	398	314	260	242
63°	446	388	304	251	234
63.5°	436	379	295	242	226
64°	426	369	285	233	217
64.5°	416	359	276	225	209
65°	406	350	266	216	201
65.5°	396	340	257	208	193
66°	386	330	248	199	184
66.5°	376	321	239	192	176
67°	366	311	230	184	169





TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
67.5°	357	301	221	176	165
68°	346	292	212	168	161
68.5°	336	282	203	160	157
69°	326	272	195	155	153
69.5°	316	263	186	151	149
70°	305	254	178	147	145
70.5°	296	244	169	143	141
71°	285	235	162	139	137
71.5°	275	225	154	135	133
72°	265	217	146	131	129
72.5°	255	207	139	127	125
73°	245	197	131	123	121
73.5°	235	188	125	119	117
74°	224	179	120	115	113
74.5°	214	170	116	111	109
75°	205	161	112	106	105
75.5°	195	152	108	103	101
76°	184	143	104	98	97
76.5°	175	135	99	94	93
77°	165	126	95	91	89
77.5°	155	118	91	87	85
78°	146	110	87	83	81
78.5°	137	103	82	79	77
79°	127	95	78	75	73
79.5°	118	88	74	71	70
80°	110	81	70	67	66
80.5°	101	75	66	63	62
81°	92	68	62	59	58
81.5°	84	64	58	55	55
82°	76	59	54	52	51
82.5°	69	55	50	48	47
83°	62	50	46	44	44
83.5°	55	46	42	41	40
84°	48	42	38	37	37
84.5°	42	37	35	34	33
85°	37	33	31	30	30
85.5°	30	29	28	27	26
86°	24	25	24	23	23
86.5°	19	21	20	20	19
87°	13	17	17	16	16
87.5°	10	14	13	13	12
88°	7	10	10	9	9
88.5°	4	7	7	6	6
89°	2	3	3	3	3
89.5°	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
90°	0	0	0	0	0
90.5°	0	0	0	0	0
91°	0	0	0	0	0
91.5°	0	0	0	0	0
92°	0	0	0	0	0
92.5°	0	0	0	0	0
93°	0	0	0	0	0
93.5°	0	0	0	0	0
94°	0	0	0	0	0
94.5°	0	0	0	0	0
95°	0	0	0	0	0
95.5°	0	0	0	0	0
96°	0	0	0	0	0
96.5°	0	0	0	0	0
97°	0	0	0	0	0
97.5°	0	0	0	0	0
98°	0	0	0	0	0
98.5°	0	0	0	0	0
99°	0	0	0	0	0
99.5°	0	0	0	0	0
100°	0	0	0	0	0
100.5°	0	0	0	0	0
101°	0	0	0	0	0
101.5°	0	0	0	0	0
102°	0	0	0	0	0
102.5°	0	0	0	0	0
103°	0	0	0	0	0
103.5°	0	0	0	0	0
104°	0	0	0	0	0
104.5°	0	0	0	0	0
105°	0	0	0	0	0
105.5°	0	0	0	0	0
106°	0	0	0	0	0
106.5°	0	0	0	0	0
107°	0	0	0	0	0
107.5°	0	0	0	0	0
108°	0	0	0	0	0
108.5°	0	0	0	0	0
109°	0	0	0	0	0
109.5°	0	0	0	0	0
110°	0	0	0	0	0
110.5°	0	0	0	0	0
111°	0	0	0	0	0
111.5°	0	0	0	0	0
112°	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0	0	0	0	0
113°	0	0	0	0	0
113.5°	0	0	0	0	0
114°	0	0	0	0	0
114.5°	0	0	0	0	0
115°	0	0	0	0	0
115.5°	0	0	0	0	0
116°	0	0	0	0	0
116.5°	0	0	0	0	0
117°	0	0	0	0	0
117.5°	0	0	0	0	0
118°	0	0	0	0	0
118.5°	0	0	0	0	0
119°	0	0	0	0	0
119.5°	0	0	0	0	0
120°	0	0	0	0	0
120.5°	0	0	0	0	0
121°	0	0	0	0	0
121.5°	0	0	0	0	0
122°	0	0	0	0	0
122.5°	0	0	0	0	0
123°	0	0	0	0	0
123.5°	0	0	0	0	0
124°	0	0	0	0	0
124.5°	0	0	0	0	0
125°	0	0	0	0	0
125.5°	0	0	0	0	0
126°	0	0	0	0	0
126.5°	0	0	0	0	0
127°	0	0	0	0	0
127.5°	0	0	0	0	0
128°	0	0	0	0	0
128.5°	0	0	0	0	0
129°	0	0	0	0	0
129.5°	0	0	0	0	0
130°	0	0	0	0	0
130.5°	0	0	0	0	0
131°	0	0	0	0	0
131.5°	0	0	0	0	0
132°	0	0	0	0	0
132.5°	0	0	0	0	0
133°	0	0	0	0	0
133.5°	0	0	0	0	0
134°	0	0	0	0	0
134.5°	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
135°	0	0	0	0	0
135.5°	0	0	0	0	0
136°	0	0	0	0	0
136.5°	0	0	0	0	0
137°	0	0	0	0	0
137.5°	0	0	0	0	0
138°	0	0	0	0	0
138.5°	0	0	0	0	0
139°	0	0	0	0	0
139.5°	0	0	0	0	0
140°	0	0	0	0	0
140.5°	0	0	0	0	0
141°	0	0	0	0	0
141.5°	0	0	0	0	0
142°	0	0	0	0	0
142.5°	0	0	0	0	0
143°	0	0	0	0	0
143.5°	0	0	0	0	0
144°	0	0	0	0	0
144.5°	0	0	0	0	0
145°	0	0	0	0	0
145.5°	0	0	0	0	0
146°	0	0	0	0	0
146.5°	0	0	0	0	0
147°	0	0	0	0	0
147.5°	0	0	0	0	0
148°	0	0	0	0	0
148.5°	0	0	0	0	0
149°	0	0	0	0	0
149.5°	0	0	0	0	0
150°	0	0	0	0	0
150.5°	0	0	0	0	0
151°	0	0	0	0	0
151.5°	0	0	0	0	0
152°	0	0	0	0	0
152.5°	0	0	0	0	0
153°	0	0	0	0	0
153.5°	0	0	0	0	0
154°	0	0	0	0	0
154.5°	0	0	0	0	0
155°	0	0	0	0	0
155.5°	0	0	0	0	0
156°	0	0	0	0	0
156.5°	0	0	0	0	0
157°	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
157.5°	0	0	0	0	0
158°	0	0	0	0	0
158.5°	0	0	0	0	0
159°	0	0	0	0	0
159.5°	0	0	0	0	0
160°	0	0	0	0	0
160.5°	0	0	0	0	0
161°	0	0	0	0	0
161.5°	0	0	0	0	0
162°	0	0	0	0	0
162.5°	0	0	0	0	0
163°	0	0	0	0	0
163.5°	0	0	0	0	0
164°	0	0	0	0	0
164.5°	0	0	0	0	0
165°	0	0	0	0	0
165.5°	0	0	0	0	0
166°	0	0	0	0	0
166.5°	0	0	0	0	0
167°	0	0	0	0	0
167.5°	0	0	0	0	0
168°	0	0	0	0	0
168.5°	0	0	0	0	0
169°	0	0	0	0	0
169.5°	0	0	0	0	0
170°	0	0	0	0	0
170.5°	0	0	0	0	0
171°	0	0	0	0	0
171.5°	0	0	0	0	0
172°	0	0	0	0	0
172.5°	0	0	0	0	0
173°	0	0	0	0	0
173.5°	0	0	0	0	0
174°	0	0	0	0	0
174.5°	0	0	0	0	0
175°	0	0	0	0	0
175.5°	0	0	0	0	0
176°	0	0	0	0	0
176.5°	0	0	0	0	0
177°	0	0	0	0	0
177.5°	0	0	0	0	0
178°	0	0	0	0	0
178.5°	0	0	0	0	0
179°	0	0	0	0	0
179.5°	0	0	0	0	0



TEST NUMBER: 17289

CATALOG NUMBER: S7A/648/2T8/ETG4/UEB-SI-S22

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
180°	0	0	0	0	0

(END OF REPORT)