

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P332630-840

Luminaire Tested: **S124DIP-S1020D365U840-4F0-1E-UDD-D4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332630-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D365U840-4F0-1E-UDD-D4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 365 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5572.6 lumens  
Efficiency: N/A  
Efficacy: 128.1 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Direct

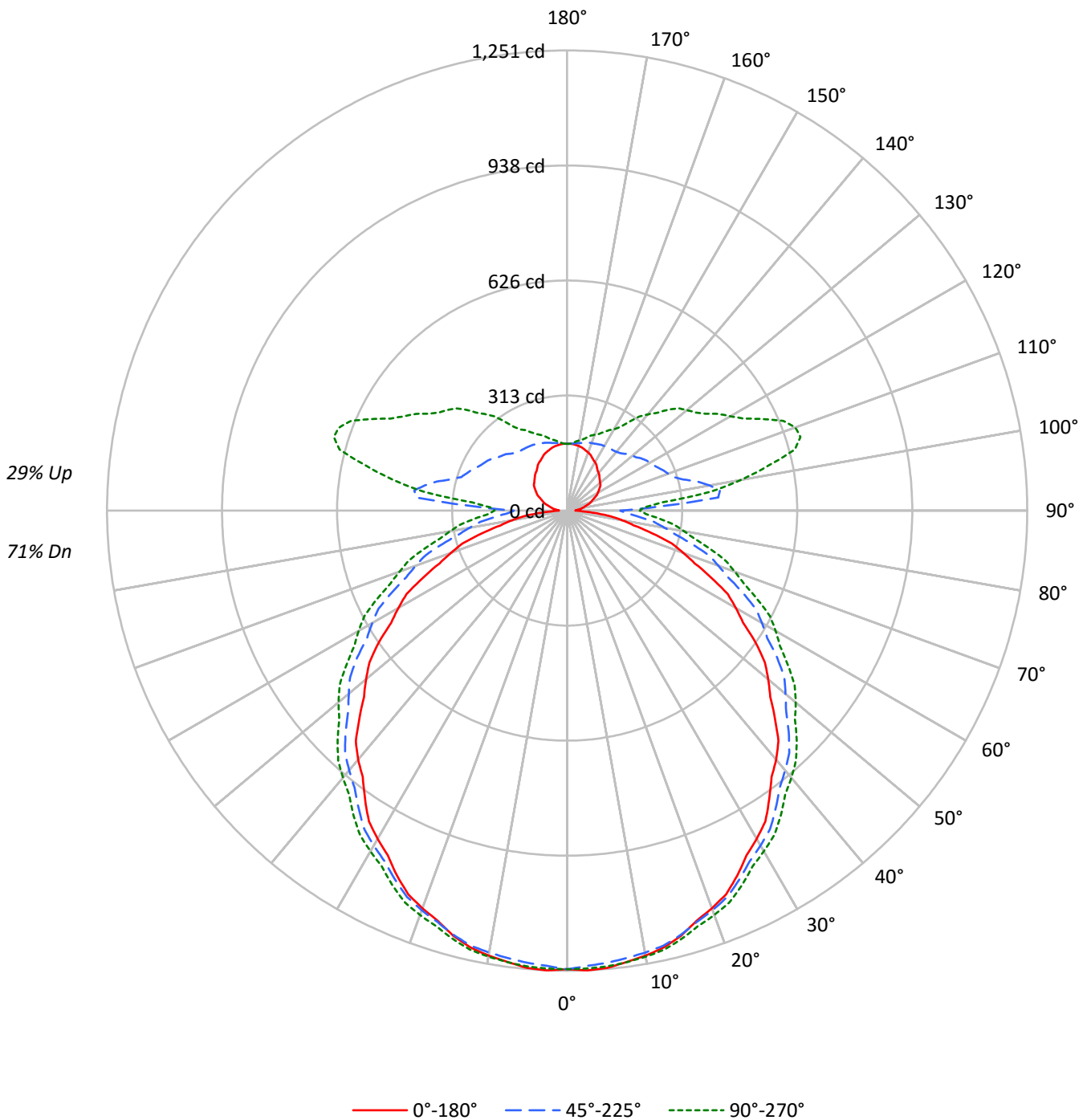
Input Watts (W): 43.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P332630-840

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### Luminous Intensity Polar Plot





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

RF	20					20					20					20					20					
RC	80					70					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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75	75	75	75	75	75	75	71		
1	101	96	91	87	95	91	87	83	81	78	75	72	70	68	64	62	61	61	61	61	61	61	61	56		
2	91	83	76	70	86	79	72	67	70	65	61	63	59	55	56	53	50	50	50	50	50	50	50	46		
3	83	72	64	58	78	69	61	55	61	56	51	55	50	46	49	45	42	42	42	42	42	42	42	38		
4	76	64	55	49	71	61	53	47	54	48	43	49	43	39	43	39	36	36	36	36	36	36	36	32		
5	69	57	48	41	65	54	46	40	49	42	37	43	38	34	39	34	31	31	31	31	31	31	31	28		
6	64	51	42	36	60	48	40	35	44	37	32	39	34	29	35	31	27	27	27	27	27	27	27	24		
7	59	46	37	31	56	44	36	30	40	33	28	36	30	26	32	27	24	24	24	24	24	24	24	21		
8	55	42	33	28	52	40	32	27	36	30	25	33	27	23	29	25	21	21	21	21	21	21	21	19		
9	51	38	30	25	48	36	29	24	33	27	22	30	25	21	27	22	19	19	19	19	19	19	19	17		
10	48	35	27	22	45	34	26	22	31	24	20	28	22	19	25	21	17	17	17	17	17	17	17	15		

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

	0°	45°	90°
0°	10066	10066	10066
5°	10097	9838	9866
10°	10035	9677	9669
15°	9945	9490	9439
20°	9810	9285	9213
25°	9657	9054	8967
30°	9492	8825	8712
35°	9305	8591	8490
40°	9154	8367	8259
45°	8931	8161	8059
50°	8744	7924	7849
55°	8549	7700	7603
60°	8247	7415	7378
65°	7914	7109	7102
70°	7513	6760	6779
75°	6949	6374	6488
80°	6328	6004	6203
85°	5536	5679	6037



TEST NUMBER: P332630-840

CATALOG NUMBER: S124DIP-S1020D365U840-4F0-1E-UDD-D4

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.1	2.1
10°-20°	338.3	6.1
20°-30°	511.5	9.2
30°-40°	618.9	11.1
40°-50°	654.3	11.7
50°-60°	615.8	11.1
60°-70°	510.9	9.2
70°-80°	358.9	6.4
80°-90°	203.9	3.7
90°-100°	251.7	4.5
100°-110°	362.3	6.5
110°-120°	304.5	5.5
120°-130°	239.5	4.3
130°-140°	186.1	3.3
140°-150°	134.0	2.4
150°-160°	92.1	1.7
160°-170°	54.2	1.0
170°-180°	17.6	0.3
0°-30°	967.9	17.4
0°-40°	1586.8	28.5
0°-60°	2856.9	51.3
0°-90°	3930.5	70.5
90°-120°	918.4	16.5
90°-150°	1478.1	26.5
90°-180°	1642.0	29.5
0°-180°	5572.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1247	1247	1247	1247	1247	
5°	1248	1244	1234	1245	1244	118
15°	1197	1198	1194	1206	1205	337
25°	1095	1103	1107	1122	1124	504
35°	958	974	989	1007	1012	600
45°	799	825	852	875	882	617
55°	626	656	697	724	733	557
65°	433	478	525	559	571	429
75°	240	292	350	388	402	255
85°	74	133	196	236	251	79
90°	23	81	145	184	197	15
95°	30	102	412	302	259	28
105°	54	102	326	630	640	59
115°	82	115	274	496	588	82
125°	108	128	247	406	459	96
135°	124	148	218	337	387	97
145°	142	161	205	264	295	89
155°	160	172	199	226	235	74
165°	174	179	191	202	205	49
175°	181	182	183	186	185	17
180°	182	182	182	182	182	



TEST NUMBER: P332630-840

CATALOG NUMBER: S124DIP-S1020D365U840-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1251.3	1250.6	1249.8	1249.1	1248.3	1247.0	1245.0	1243.0	1241.0	1239.0	1240.7
5°	1248.2	1247.3	1246.4	1245.5	1244.6	1242.9	1240.8	1238.6	1236.5	1234.3	1236.8
7.5°	1237.6	1237.1	1236.5	1236.0	1235.4	1234.3	1232.4	1230.6	1228.8	1227.0	1229.8
10°	1228.7	1228.4	1228.1	1227.8	1227.5	1226.5	1225.0	1223.5	1221.8	1220.3	1223.1
12.5°	1216.4	1216.4	1216.3	1216.2	1216.2	1215.6	1214.6	1213.5	1212.4	1211.3	1214.0
15°	1196.6	1196.9	1197.2	1197.5	1197.8	1197.5	1196.6	1195.7	1194.7	1193.8	1196.6
17.5°	1169.5	1170.4	1171.3	1172.3	1173.3	1173.6	1173.4	1173.3	1173.1	1172.9	1175.7
20°	1150.5	1151.4	1152.4	1153.3	1154.3	1154.9	1155.2	1155.5	1155.8	1156.1	1159.2
22.5°	1129.2	1130.4	1131.7	1132.9	1134.0	1134.9	1135.4	1136.0	1136.5	1137.1	1140.2
25°	1094.7	1096.5	1098.3	1100.2	1102.1	1103.5	1104.4	1105.4	1106.3	1107.2	1110.6
27.5°	1056.1	1058.8	1061.6	1064.3	1067.0	1069.1	1070.6	1072.0	1073.4	1074.8	1078.0
30°	1030.5	1032.9	1035.4	1037.8	1040.4	1042.7	1044.8	1047.0	1049.1	1051.4	1054.8
32.5°	1002.5	1005.5	1008.5	1011.5	1014.4	1017.1	1019.6	1022.0	1024.4	1026.8	1030.7
35°	957.9	961.6	965.2	969.0	972.7	976.1	979.3	982.3	985.4	988.6	992.9
37.5°	912.8	917.2	921.4	925.7	930.0	934.0	937.9	941.7	945.6	949.5	953.8
40°	883.8	887.9	891.9	896.0	900.0	904.1	908.5	912.8	917.2	921.5	926.1
42.5°	850.3	854.9	859.4	863.9	868.4	873.2	878.3	883.4	888.5	893.6	898.8
45°	798.6	804.6	810.4	816.4	822.2	828.1	834.0	839.9	845.8	851.7	857.0
47.5°	749.2	755.3	761.3	767.5	773.6	780.0	786.8	793.7	800.5	807.3	812.7
50°	713.5	720.3	727.1	734.0	740.7	747.6	754.5	761.2	768.1	774.9	781.1
52.5°	677.7	684.6	691.4	698.2	705.1	712.4	720.1	728.0	735.8	743.7	749.8
55°	625.5	632.1	638.5	645.1	651.6	659.4	668.8	678.1	687.4	696.7	703.0
57.5°	567.1	575.2	583.3	591.4	599.5	608.0	617.3	626.6	635.8	645.1	652.5
60°	529.2	537.2	545.3	553.4	561.5	570.6	580.9	591.1	601.3	611.6	618.6
62.5°	492.3	501.1	510.0	518.8	527.6	537.0	547.3	557.5	567.8	578.0	585.2
65°	432.8	442.7	452.7	462.6	472.5	482.8	493.3	503.9	514.4	525.0	532.7
67.5°	375.6	386.2	396.7	407.3	417.8	428.7	440.0	451.3	462.6	473.9	481.8
70°	336.5	347.1	357.6	368.1	378.7	389.9	401.6	413.4	425.3	437.1	445.5
72.5°	298.5	309.3	320.1	330.9	341.7	353.4	365.9	378.4	391.0	403.5	411.6
75°	240.1	251.7	263.1	274.6	286.1	298.3	311.3	324.4	337.4	350.4	359.1
77.5°	185.7	197.8	210.1	222.2	234.4	247.2	260.9	274.6	288.2	301.8	310.6
80°	152.2	164.6	177.0	189.5	201.9	214.9	228.5	242.2	255.8	269.4	278.8
82.5°	118.7	131.6	144.5	157.4	170.3	183.6	197.2	210.9	224.6	238.2	247.7
85°	74.0	87.1	100.1	113.1	126.1	139.7	153.6	167.5	181.5	195.5	204.8
87.5°	41.4	54.2	67.1	79.8	92.5	105.6	119.7	133.3	147.0	160.8	169.7
90°	22.7	35.9	49.3	62.1	74.8	87.8	103.2	116.5	130.6	144.6	153.3
92.5°	25.2	38.3	52.8	68.4	84.7	104.4	135.9	176.9	217.2	244.7	234.6
95°	29.9	41.2	55.0	69.9	88.8	115.2	159.0	230.2	328.2	412.3	429.0
97.5°	37.6	46.5	58.3	71.4	87.6	110.8	147.3	208.2	305.7	419.2	496.8
100°	42.5	50.6	61.1	73.4	88.4	109.8	143.0	195.4	280.3	393.0	492.8
102.5°	48.2	55.8	65.1	76.2	89.8	110.1	141.0	188.3	262.2	363.2	465.5
105°	54.3	61.6	69.6	80.1	92.7	111.9	140.5	181.6	243.1	326.3	417.9
107.5°	63.9	69.7	76.5	86.2	97.5	115.6	142.2	180.1	233.6	302.2	378.3
110°	69.4	74.4	80.5	89.2	100.0	117.1	143.7	179.6	229.7	292.4	357.6



TEST NUMBER: P332630-840

CATALOG NUMBER: S124DIP-S1020D365U840-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	74.5	79.1	85.0	92.8	103.1	119.9	145.3	179.3	226.3	284.2	343.0
115°	81.9	85.7	91.1	97.5	106.9	123.0	147.2	178.5	221.7	274.4	326.2
117.5°	91.1	93.7	97.7	103.2	111.3	126.7	149.5	178.4	217.4	265.7	313.8
120°	96.2	97.9	101.3	106.1	113.1	128.1	150.7	178.2	214.7	260.1	305.9
122.5°	101.9	102.8	105.5	109.4	116.1	130.2	152.3	178.2	212.2	254.2	298.0
125°	108.1	109.2	111.0	114.6	121.1	134.8	155.4	179.6	209.7	246.8	287.0
127.5°	114.4	115.2	117.4	121.7	128.5	141.3	159.7	180.7	206.3	237.6	273.3
130°	116.9	118.1	120.7	125.7	132.2	144.8	161.9	180.8	204.0	231.8	264.5
132.5°	120.7	121.5	124.9	129.7	136.7	148.3	164.4	182.1	202.5	227.0	256.9
135°	124.5	125.9	129.5	135.5	143.1	153.4	167.3	182.4	199.2	218.5	244.2
137.5°	129.7	130.8	134.4	139.9	147.3	156.5	168.5	181.7	195.7	212.0	233.6
140°	133.4	134.2	137.8	143.6	150.8	159.4	170.4	182.1	194.5	208.3	227.7
142.5°	136.3	137.3	140.9	146.6	153.8	161.9	172.2	182.5	193.9	206.1	223.3
145°	141.7	142.4	145.7	150.4	156.8	164.5	173.8	183.5	193.8	204.9	218.1
147.5°	148.0	148.0	150.9	155.7	161.1	167.9	176.6	185.1	194.2	203.6	213.9
150°	152.0	152.1	154.6	158.5	163.6	170.3	178.1	185.9	194.2	202.7	211.7
152.5°	154.6	154.6	157.4	161.4	166.0	172.3	179.3	186.5	193.6	201.3	209.3
155°	159.6	159.9	162.1	165.6	169.6	174.9	181.0	187.0	192.8	199.1	205.9
157.5°	164.6	164.6	166.6	169.4	172.8	177.0	182.2	187.0	191.8	196.9	202.5
160°	167.7	167.7	169.2	171.7	174.5	178.4	182.8	187.0	191.0	195.2	199.9
162.5°	170.6	170.4	171.5	173.7	176.2	179.4	183.3	187.0	190.1	193.5	197.6
165°	173.8	173.8	174.5	176.3	178.1	180.3	183.5	186.3	188.4	191.0	193.8
167.5°	177.0	176.6	177.0	178.3	179.4	181.1	183.4	185.4	186.7	188.3	190.4
170°	178.4	178.1	178.4	179.6	180.3	181.3	183.1	184.9	185.6	186.6	188.1
172.5°	179.9	179.6	179.6	180.4	180.8	181.6	182.8	184.3	184.5	184.9	186.1
175°	181.3	181.0	181.0	181.3	181.7	181.7	182.4	183.5	183.1	183.1	183.8
177.5°	182.0	181.7	181.4	181.7	181.7	181.7	182.0	182.5	182.0	182.0	182.3
180°	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7



TEST NUMBER: P332630-840

CATALOG NUMBER: S124DIP-S1020D365U840-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1242.5	1244.3	1246.0	1246.7	1246.5	1246.2	1246.0	1245.8
5°	1239.2	1241.7	1244.3	1245.3	1245.0	1244.7	1244.4	1244.1
7.5°	1232.6	1235.4	1238.2	1239.4	1239.1	1238.8	1238.5	1238.2
10°	1225.9	1228.7	1231.5	1232.7	1232.4	1232.1	1231.8	1231.5
12.5°	1216.5	1219.0	1221.5	1222.8	1222.7	1222.6	1222.6	1222.5
15°	1199.4	1202.1	1205.0	1206.2	1205.9	1205.6	1205.3	1205.0
17.5°	1178.5	1181.4	1184.3	1185.6	1185.3	1185.1	1184.8	1184.6
20°	1162.3	1165.4	1168.5	1170.0	1170.0	1170.0	1170.0	1170.0
22.5°	1143.3	1146.4	1149.5	1151.3	1151.9	1152.3	1152.8	1153.3
25°	1114.1	1117.4	1120.8	1122.8	1123.1	1123.4	1123.7	1124.0
27.5°	1081.2	1084.3	1087.5	1089.2	1089.6	1090.0	1090.4	1090.8
30°	1058.2	1061.6	1065.0	1067.0	1067.6	1068.2	1068.9	1069.5
32.5°	1034.6	1038.5	1042.5	1044.7	1045.3	1045.9	1046.5	1047.2
35°	997.2	1001.6	1005.9	1008.6	1009.5	1010.4	1011.4	1012.3
37.5°	958.3	962.7	967.0	969.8	970.8	971.8	972.7	973.7
40°	930.8	935.4	940.2	943.1	944.3	945.5	946.8	948.1
42.5°	903.9	909.1	914.2	917.3	918.3	919.3	920.3	921.2
45°	862.2	867.6	872.8	876.3	877.8	879.3	880.9	882.4
47.5°	818.2	823.6	829.2	832.8	834.7	836.6	838.4	840.3
50°	787.3	793.6	799.7	803.8	805.7	807.5	809.3	811.2
52.5°	756.1	762.2	768.5	772.4	774.4	776.2	778.1	779.9
55°	709.1	715.4	721.5	725.6	727.4	729.3	731.1	733.1
57.5°	659.8	667.2	674.6	679.1	680.9	682.7	684.4	686.1
60°	625.8	633.0	640.1	644.9	647.4	649.8	652.4	654.8
62.5°	592.3	599.5	606.6	611.4	613.9	616.3	618.8	621.4
65°	540.5	548.3	556.0	561.2	563.6	566.1	568.6	571.1
67.5°	489.7	497.6	505.4	510.6	513.0	515.4	517.9	520.3
70°	453.7	462.1	470.5	475.8	478.0	480.2	482.3	484.5
72.5°	419.8	427.9	436.1	441.3	443.7	446.2	448.6	451.0
75°	367.8	376.5	385.2	390.9	393.7	396.6	399.3	402.1
77.5°	319.5	328.3	337.1	343.1	346.0	349.0	351.9	355.0
80°	288.1	297.4	306.7	312.6	315.1	317.6	320.0	322.6
82.5°	257.3	266.9	276.4	282.6	285.3	288.0	290.7	293.5
85°	214.1	223.4	232.7	238.9	242.1	245.1	248.2	251.4
87.5°	178.7	187.8	196.8	202.8	205.5	208.3	211.0	213.7
90°	162.7	172.0	181.4	187.1	190.0	192.8	194.9	197.4
92.5°	219.1	210.6	208.5	207.0	205.2	205.8	207.0	209.5
95°	402.7	355.8	316.3	287.3	272.6	264.3	260.6	258.8
97.5°	519.8	507.4	480.6	448.8	425.8	407.0	398.9	394.2
100°	553.3	568.9	559.7	538.6	509.7	490.1	481.6	480.9
102.5°	545.2	588.8	602.0	596.2	579.6	566.2	557.3	557.5
105°	507.5	576.9	620.0	639.7	643.0	642.6	640.1	640.4
107.5°	458.3	531.7	589.1	625.8	645.7	656.1	661.9	665.0
110°	428.3	497.2	556.0	600.2	627.9	645.4	654.3	660.0





TEST NUMBER: P332630-840

CATALOG NUMBER: S124DIP-S1020D365U840-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	404.2	465.7	521.5	565.4	596.7	617.3	628.7	636.5
115°	377.7	428.4	477.0	515.7	546.1	569.7	583.3	588.3
117.5°	359.7	402.4	441.7	475.2	501.8	522.3	536.3	541.0
120°	349.6	389.0	423.7	453.4	476.3	494.4	506.2	512.6
122.5°	340.6	378.8	411.0	437.5	456.9	472.5	482.6	488.8
125°	327.1	363.8	394.3	417.8	433.9	446.1	454.7	458.8
127.5°	311.0	345.9	376.1	398.5	415.0	426.4	434.1	438.4
130°	299.7	333.5	363.3	386.0	402.4	413.2	420.8	424.9
132.5°	288.7	320.5	349.6	372.1	388.3	400.2	407.6	411.5
135°	271.7	299.8	326.5	347.8	364.0	375.8	383.3	387.4
137.5°	256.8	280.9	303.9	323.1	337.9	349.3	355.6	359.7
140°	248.2	269.0	289.1	306.9	320.9	330.3	336.9	341.3
142.5°	241.0	259.3	276.6	292.1	304.4	313.0	318.7	322.0
145°	231.5	245.4	258.0	269.5	279.7	287.0	291.9	294.9
147.5°	223.6	233.5	242.3	250.7	258.3	264.5	268.2	269.8
150°	220.3	228.4	235.6	242.0	247.7	252.4	254.5	254.8
152.5°	217.1	224.2	230.8	236.0	240.9	244.6	245.9	246.3
155°	212.4	218.0	223.4	227.7	231.3	234.1	235.2	235.2
157.5°	207.3	212.1	216.6	220.0	222.7	224.9	225.5	225.5
160°	204.2	208.0	212.0	214.9	217.0	219.1	219.5	219.5
162.5°	201.1	204.4	207.4	210.1	211.6	213.7	214.1	213.8
165°	196.6	198.8	201.3	203.1	204.5	205.9	205.6	205.2
167.5°	192.5	194.1	196.1	197.1	197.8	198.8	198.7	198.4
170°	189.9	191.0	192.4	193.5	194.2	194.5	194.2	194.2
172.5°	187.6	188.3	189.2	190.1	190.5	190.8	190.5	189.9
175°	184.5	184.9	185.6	185.6	185.6	186.3	185.6	184.9
177.5°	182.5	182.8	182.8	183.1	182.8	183.1	182.5	182.0
180°	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7

(END OF REPORT)