

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: P331708-940

Luminaire Tested: **SA2XXRDIP-C865D330U940-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331708-940
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-2,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C865D330U940-4F0-1E-UDD-F
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 865 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 330 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

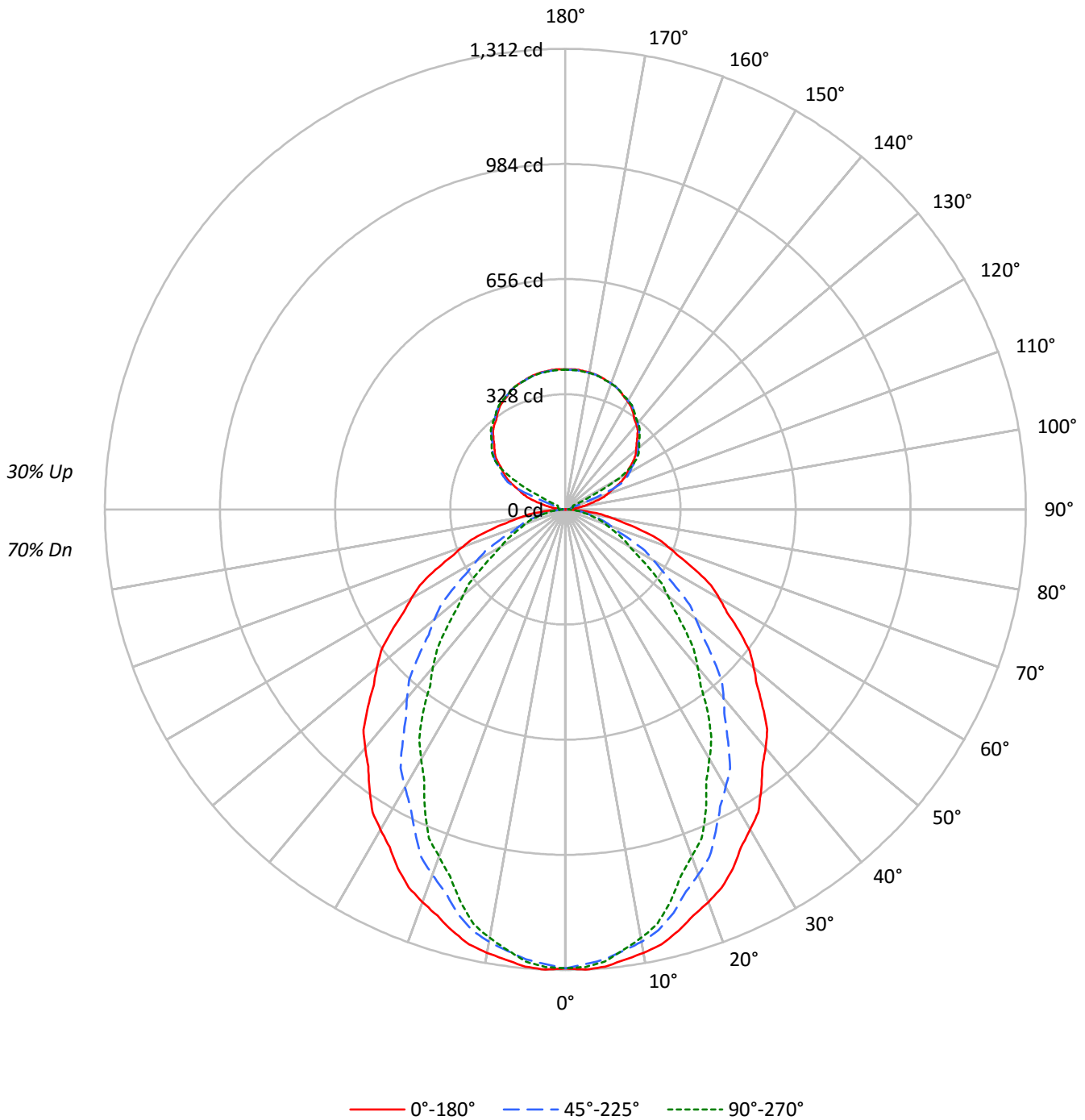
Lumens per Lamp: N/A
Luminaire Lumens: 3857.9 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

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



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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	0	
RCR																						
0	112	112	112	112	106	106	106	106	94	94	94	84	84	84	74	74	74	74	74	74	70	
1	103	99	95	92	97	93	90	87	84	81	79	75	73	71	67	65	64	64	64	64	60	
2	94	87	81	76	89	83	77	73	74	70	67	67	63	61	60	57	55	55	55	55	51	
3	86	77	70	64	82	73	67	62	66	61	57	60	55	52	53	50	48	48	48	48	44	
4	79	69	61	55	75	65	58	53	59	54	49	54	49	45	48	45	42	42	42	42	39	
5	73	62	54	48	69	59	52	46	53	47	43	48	44	40	44	40	37	37	37	37	34	
6	68	56	48	42	64	53	46	41	49	42	38	44	39	35	40	36	33	33	33	33	30	
7	63	51	43	37	60	49	41	36	44	38	34	40	35	32	37	33	29	29	29	29	27	
8	59	46	39	33	56	44	37	32	41	35	30	37	32	28	34	30	27	27	27	27	24	
9	55	43	35	30	52	41	34	29	37	32	27	34	29	26	31	27	24	24	24	24	22	
10	51	39	32	27	49	38	31	26	35	29	25	32	27	24	29	25	22	22	22	22	20	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	21111	21111	21111
5°	21191	20846	20960
10°	21028	20505	20330
15°	20787	19896	19323
20°	20452	19029	18076
25°	20110	18045	16864
30°	19634	17031	15310
35°	19170	15930	13947
40°	18704	14790	12370
45°	18155	13511	10942
50°	17595	12215	9540
55°	17022	10826	8194
60°	16353	9361	6801
65°	15595	7866	6193
70°	14691	6477	5693
75°	13587	5908	5315
80°	11985	5281	4844
85°	9429	4168	4168



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.4	3.2
10°-20°	336.0	8.7
20°-30°	471.9	12.2
30°-40°	514.6	13.3
40°-50°	473.1	12.3
50°-60°	371.6	9.6
60°-70°	242.3	6.3
70°-80°	124.9	3.2
80°-90°	33.4	0.9
90°-100°	13.3	0.3
100°-110°	48.7	1.3
110°-120°	130.3	3.4
120°-130°	215.1	5.6
130°-140°	228.7	5.9
140°-150°	212.6	5.5
150°-160°	170.9	4.4
160°-170°	110.1	2.9
170°-180°	37.9	1.0
0°-30°	930.3	24.1
0°-40°	1444.9	37.5
0°-60°	2289.6	59.3
0°-90°	2690.2	69.7
90°-120°	192.3	5.0
90°-150°	848.7	22.0
90°-180°	1168.0	30.3
0°-180°	3857.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1308	1308	1308	1308	1308	
5°	1308	1301	1286	1296	1293	124
15°	1244	1229	1190	1168	1156	350
25°	1129	1089	1013	966	947	519
35°	973	910	808	736	708	608
45°	795	713	592	511	479	614
55°	605	510	385	316	291	540
65°	408	312	206	168	162	405
75°	218	137	95	87	85	230
85°	51	27	22	22	22	60
90°	0	3	6	7	8	3
95°	19	10	11	13	12	23
105°	88	91	18	21	22	94
115°	166	171	178	51	24	163
125°	234	238	244	246	246	209
135°	290	295	297	300	300	224
145°	336	336	341	343	342	210
155°	370	368	371	373	371	171
165°	390	389	390	391	390	110
175°	399	397	398	400	397	38
180°	398	398	398	398	398	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5
2.5°	1312.2	1311.2	1310.1	1309.0	1308.1	1306.4	1304.0	1301.7	1299.4	1297.1	1299.2
5°	1307.5	1306.2	1304.8	1303.5	1302.3	1299.8	1296.5	1293.1	1289.6	1286.2	1288.5
7.5°	1294.0	1292.4	1290.8	1289.1	1287.5	1284.7	1280.7	1276.7	1272.6	1268.6	1269.4
10°	1282.6	1280.8	1279.0	1277.1	1275.2	1271.8	1266.5	1261.2	1256.0	1250.7	1249.9
12.5°	1268.5	1266.1	1263.9	1261.7	1259.4	1254.9	1248.1	1241.4	1234.7	1228.0	1226.5
15°	1243.6	1240.7	1237.8	1234.9	1232.0	1226.1	1217.2	1208.3	1199.3	1190.3	1185.4
17.5°	1213.1	1208.6	1204.3	1199.8	1195.4	1187.5	1176.0	1164.5	1153.1	1141.6	1135.7
20°	1190.3	1185.1	1179.8	1174.6	1169.3	1160.1	1146.9	1133.8	1120.7	1107.5	1100.9
22.5°	1165.7	1159.8	1154.0	1148.1	1142.2	1131.8	1117.0	1102.2	1087.4	1072.5	1064.0
25°	1128.8	1120.4	1112.0	1103.6	1095.2	1082.3	1064.9	1047.6	1030.2	1012.9	1002.1
27.5°	1084.3	1075.1	1066.0	1056.9	1047.8	1033.4	1013.8	994.3	974.6	955.1	942.5
30°	1053.1	1043.1	1033.1	1023.1	1013.2	997.6	976.6	955.6	934.5	913.5	900.1
32.5°	1022.8	1011.1	999.4	987.7	976.1	959.6	938.1	916.6	895.2	873.7	858.4
35°	972.6	959.2	945.8	932.4	919.0	900.7	877.5	854.4	831.3	808.2	791.6
37.5°	922.5	907.8	893.0	878.2	863.5	843.8	819.2	794.5	769.9	745.2	726.9
40°	887.4	871.6	855.9	840.1	824.3	803.7	778.2	752.7	727.2	701.7	683.0
42.5°	851.5	834.8	818.2	801.6	785.0	763.5	737.2	710.8	684.5	658.1	638.8
45°	795.1	777.5	759.9	742.3	724.7	702.0	674.5	646.8	619.2	591.7	572.9
47.5°	740.2	721.6	702.9	684.2	665.6	641.9	613.5	585.0	556.4	528.0	509.4
50°	700.5	681.8	663.2	644.4	625.8	602.0	573.1	544.1	515.2	486.3	468.1
52.5°	661.6	642.1	622.7	603.2	583.6	559.7	531.5	503.1	474.8	446.6	429.0
55°	604.7	584.2	563.7	543.1	522.6	498.1	469.8	441.3	413.0	384.6	368.8
57.5°	546.2	525.1	504.1	483.0	462.1	437.9	410.5	383.3	356.0	328.7	314.2
60°	506.4	485.4	464.4	443.4	422.3	398.2	371.1	344.0	317.0	289.9	276.5
62.5°	467.6	446.6	425.5	404.5	383.4	360.1	334.2	308.4	282.6	256.7	244.0
65°	408.2	386.9	365.6	344.3	323.1	300.5	276.9	253.2	229.5	205.9	197.0
67.5°	351.0	329.8	308.7	287.5	266.4	245.1	223.9	202.6	181.3	160.0	155.9
70°	311.2	290.7	270.2	249.7	229.2	209.8	191.7	173.5	155.4	137.2	134.6
72.5°	273.3	253.7	234.0	214.4	194.7	177.5	163.0	148.4	133.8	119.3	117.1
75°	217.8	199.3	180.9	162.5	144.1	130.5	121.5	112.5	103.6	94.7	92.8
77.5°	163.1	146.9	130.7	114.6	98.4	88.3	83.9	79.6	75.3	71.0	69.9
80°	128.9	115.6	102.2	88.7	75.3	67.3	64.6	62.1	59.4	56.8	55.7
82.5°	97.7	87.3	76.8	66.3	55.9	49.8	48.0	46.2	44.4	42.6	42.0
85°	50.9	45.4	39.9	34.3	28.8	25.7	24.9	24.1	23.3	22.5	22.5
87.5°	15.2	13.6	12.1	10.6	9.0	8.3	8.4	8.6	8.6	8.7	8.6
90°	0.3	1.0	1.7	2.4	3.1	3.7	4.2	4.7	5.3	5.8	6.1
92.5°	5.8	5.8	5.7	5.6	5.5	5.7	5.9	6.2	6.4	6.7	6.9
95°	18.7	16.6	14.5	12.4	10.3	9.5	9.9	10.3	10.8	11.2	11.6
97.5°	37.2	31.2	25.2	19.4	13.4	10.9	11.9	12.9	14.0	15.1	15.3
100°	51.0	42.3	33.4	24.7	16.0	12.0	13.2	14.3	15.3	16.4	16.9
102.5°	66.3	64.4	62.5	60.7	58.9	53.3	44.2	35.1	26.0	16.9	17.6
105°	87.7	89.5	91.5	93.5	95.3	87.6	70.1	52.6	35.0	17.6	18.3
107.5°	112.0	113.6	115.1	116.7	118.2	108.5	87.6	66.6	45.6	24.6	23.9
110°	127.7	129.0	130.5	131.8	133.1	124.5	106.0	87.5	68.9	50.5	44.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	142.5	143.7	144.9	146.1	147.2	145.5	141.0	136.4	131.8	127.2	103.9
115°	165.8	166.8	168.0	169.1	170.1	171.5	173.1	174.7	176.3	177.9	148.2
117.5°	186.6	187.8	189.0	190.3	191.5	192.6	193.8	194.8	195.9	197.1	189.8
120°	201.8	202.8	203.8	204.7	205.6	206.7	207.9	209.0	210.2	211.3	212.1
122.5°	214.7	215.8	216.8	217.8	218.8	219.9	221.1	222.4	223.7	225.0	225.4
125°	234.4	235.2	236.0	236.9	237.7	238.8	240.0	241.2	242.4	243.6	244.1
127.5°	252.2	253.2	254.0	255.0	255.9	256.8	257.7	258.7	259.6	260.5	261.1
130°	263.5	264.6	265.6	266.6	267.6	268.5	269.2	269.9	270.6	271.3	272.0
132.5°	275.1	275.9	276.8	277.7	278.6	279.3	280.0	280.7	281.4	282.1	282.8
135°	290.1	291.1	292.1	293.1	294.2	295.0	295.5	296.1	296.7	297.3	297.9
137.5°	305.2	305.9	306.7	307.4	308.1	308.8	309.4	310.0	310.8	311.4	312.0
140°	315.1	315.7	316.1	316.6	317.2	317.8	318.5	319.2	319.9	320.6	321.2
142.5°	323.4	323.9	324.3	324.9	325.3	325.9	326.7	327.5	328.3	329.1	329.7
145°	336.4	336.4	336.4	336.3	336.2	336.7	337.8	338.9	340.0	341.1	341.5
147.5°	347.9	347.6	347.3	347.1	346.9	347.2	348.3	349.5	350.5	351.6	351.9
150°	355.2	354.7	354.3	353.8	353.4	353.7	354.7	355.8	356.8	357.8	358.2
152.5°	361.4	361.0	360.4	359.9	359.4	359.6	360.6	361.6	362.6	363.6	363.9
155°	370.5	369.9	369.3	368.7	368.2	368.3	369.1	369.8	370.6	371.3	371.8
157.5°	377.6	377.1	376.6	376.1	375.6	375.7	376.2	376.7	377.3	377.8	378.3
160°	381.7	381.4	380.9	380.6	380.2	380.2	380.6	380.9	381.4	381.7	382.1
162.5°	385.4	385.0	384.7	384.2	383.9	383.9	384.1	384.5	384.9	385.2	385.7
165°	390.4	390.0	389.6	389.2	388.9	388.8	389.0	389.1	389.3	389.5	389.9
167.5°	394.0	393.7	393.3	392.9	392.5	392.4	392.6	392.8	393.0	393.2	393.6
170°	396.2	395.7	395.4	395.0	394.6	394.5	394.6	394.8	394.8	395.0	395.5
172.5°	397.5	397.2	396.7	396.4	396.0	395.8	396.0	396.1	396.3	396.4	396.8
175°	399.3	398.9	398.4	398.0	397.5	397.3	397.5	397.6	397.8	397.9	398.3
177.5°	399.6	399.2	398.9	398.5	398.1	398.1	398.1	398.1	398.1	398.2	398.6
180°	398.4	398.4	398.4	398.4	398.4	398.4	398.4	398.4	398.4	398.4	398.4



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5	1307.5
2.5°	1301.3	1303.4	1305.5	1306.4	1305.9	1305.5	1305.1	1304.7
5°	1290.9	1293.2	1295.7	1296.5	1295.7	1294.9	1294.1	1293.2
7.5°	1270.1	1270.7	1271.4	1271.0	1269.7	1268.4	1266.9	1265.6
10°	1249.1	1248.3	1247.5	1246.3	1244.7	1243.2	1241.6	1240.0
12.5°	1225.1	1223.7	1222.3	1220.3	1217.6	1215.0	1212.4	1209.8
15°	1180.4	1175.4	1170.4	1166.5	1164.0	1161.3	1158.7	1156.0
17.5°	1129.7	1123.7	1117.8	1112.6	1108.0	1103.6	1099.0	1094.5
20°	1094.4	1087.8	1081.2	1075.0	1069.3	1063.5	1057.7	1052.0
22.5°	1055.6	1047.1	1038.7	1032.2	1028.0	1023.6	1019.3	1015.0
25°	991.3	980.5	969.7	962.3	958.4	954.5	950.6	946.6
27.5°	930.0	917.4	904.8	895.5	889.2	882.9	876.6	870.4
30°	886.6	873.3	859.8	849.5	842.5	835.4	828.3	821.2
32.5°	843.1	827.8	812.5	801.5	794.9	788.2	781.5	774.8
35°	775.0	758.5	741.9	730.8	725.0	719.2	713.4	707.6
37.5°	708.7	690.5	672.3	659.8	653.2	646.5	639.9	633.3
40°	664.3	645.7	627.0	614.2	607.4	600.6	593.7	586.9
42.5°	619.6	600.2	580.9	567.9	561.3	554.7	548.0	541.4
45°	554.3	535.7	516.9	504.4	498.1	491.9	485.5	479.2
47.5°	490.8	472.3	453.7	441.6	435.9	430.1	424.4	418.7
50°	450.0	431.9	413.8	401.9	396.4	390.8	385.3	379.8
52.5°	411.5	394.0	376.5	365.2	360.1	355.0	349.9	344.8
55°	353.0	337.2	321.5	311.0	306.0	301.0	296.0	291.1
57.5°	299.8	285.3	270.9	261.5	257.3	253.1	248.9	244.7
60°	263.1	249.7	236.2	227.5	223.2	219.0	214.8	210.6
62.5°	231.2	218.5	205.6	198.0	195.5	193.0	190.4	187.9
65°	188.0	179.1	170.1	165.2	164.4	163.7	162.9	162.1
67.5°	151.8	147.7	143.6	141.1	140.3	139.4	138.6	137.8
70°	132.0	129.4	126.7	124.9	123.9	122.8	121.7	120.6
72.5°	114.9	112.6	110.4	109.1	108.3	107.7	107.1	106.5
75°	91.0	89.2	87.3	86.2	86.0	85.7	85.4	85.2
77.5°	68.9	67.9	66.8	66.1	65.6	65.2	64.8	64.4
80°	54.7	53.7	52.6	52.1	52.1	52.1	52.1	52.1
82.5°	41.4	40.7	40.0	39.8	39.8	39.8	39.8	39.8
85°	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
87.5°	8.5	8.3	8.1	8.1	8.1	8.1	8.1	8.2
90°	6.4	6.7	7.0	7.3	7.4	7.5	7.7	7.8
92.5°	7.0	7.2	7.3	7.5	7.6	7.7	7.7	7.8
95°	11.9	12.2	12.5	12.7	12.6	12.5	12.5	12.4
97.5°	15.6	15.8	16.1	16.2	16.3	16.4	16.5	16.6
100°	17.5	18.0	18.5	18.8	18.9	19.1	19.2	19.4
102.5°	18.2	18.9	19.5	20.0	20.2	20.3	20.5	20.7
105°	19.0	19.7	20.4	20.9	21.1	21.4	21.7	21.9
107.5°	23.2	22.5	21.8	21.5	21.8	22.0	22.3	22.6
110°	37.6	31.2	24.8	21.8	22.0	22.3	22.6	22.7



TEST NUMBER: P331708-940

CATALOG NUMBER: SA2XXRDIP-C865D330U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	80.5	57.2	33.8	22.2	22.4	22.6	22.8	23.0
115°	118.6	88.9	59.2	42.1	37.5	32.9	28.3	23.6
117.5°	182.7	175.5	168.4	157.2	142.0	126.9	111.7	96.6
120°	212.9	213.7	214.4	210.4	201.8	193.1	184.5	175.8
122.5°	225.9	226.3	226.8	226.1	224.5	222.8	221.1	219.5
125°	244.5	245.0	245.4	245.8	245.9	246.1	246.3	246.5
127.5°	261.8	262.4	263.1	263.4	263.5	263.5	263.5	263.6
130°	272.7	273.4	274.1	274.5	274.4	274.3	274.3	274.2
132.5°	283.4	283.9	284.5	284.8	284.7	284.7	284.6	284.5
135°	298.5	299.2	299.8	300.1	300.0	299.8	299.7	299.5
137.5°	312.6	313.3	313.9	314.1	313.9	313.7	313.4	313.3
140°	321.7	322.4	322.9	323.1	322.7	322.4	322.1	321.7
142.5°	330.2	330.7	331.3	331.4	331.0	330.7	330.4	330.0
145°	342.0	342.4	342.9	343.0	342.6	342.3	342.0	341.6
147.5°	352.2	352.6	352.9	352.9	352.7	352.4	352.1	351.9
150°	358.6	358.9	359.4	359.4	359.1	358.7	358.4	358.1
152.5°	364.4	364.7	365.1	365.1	364.6	364.3	363.8	363.4
155°	372.1	372.5	372.9	372.8	372.3	371.8	371.3	370.8
157.5°	378.7	379.2	379.5	379.5	379.0	378.5	378.0	377.6
160°	382.5	382.9	383.3	383.3	382.8	382.4	381.9	381.5
162.5°	386.0	386.5	386.9	386.9	386.3	385.8	385.2	384.7
165°	390.4	390.8	391.3	391.3	390.8	390.4	389.9	389.5
167.5°	394.0	394.5	394.9	394.8	394.3	393.7	393.2	392.5
170°	395.9	396.4	396.8	396.7	396.2	395.6	395.0	394.4
172.5°	397.3	397.7	398.1	398.1	397.5	397.0	396.4	395.8
175°	398.8	399.2	399.7	399.6	399.0	398.3	397.6	397.0
177.5°	399.0	399.3	399.7	399.6	399.1	398.7	398.2	397.8
180°	398.4	398.4	398.4	398.4	398.4	398.4	398.4	398.4

(END OF REPORT)