

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: P331710-840

Luminaire Tested: **SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331710-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-16,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 865 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 330 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

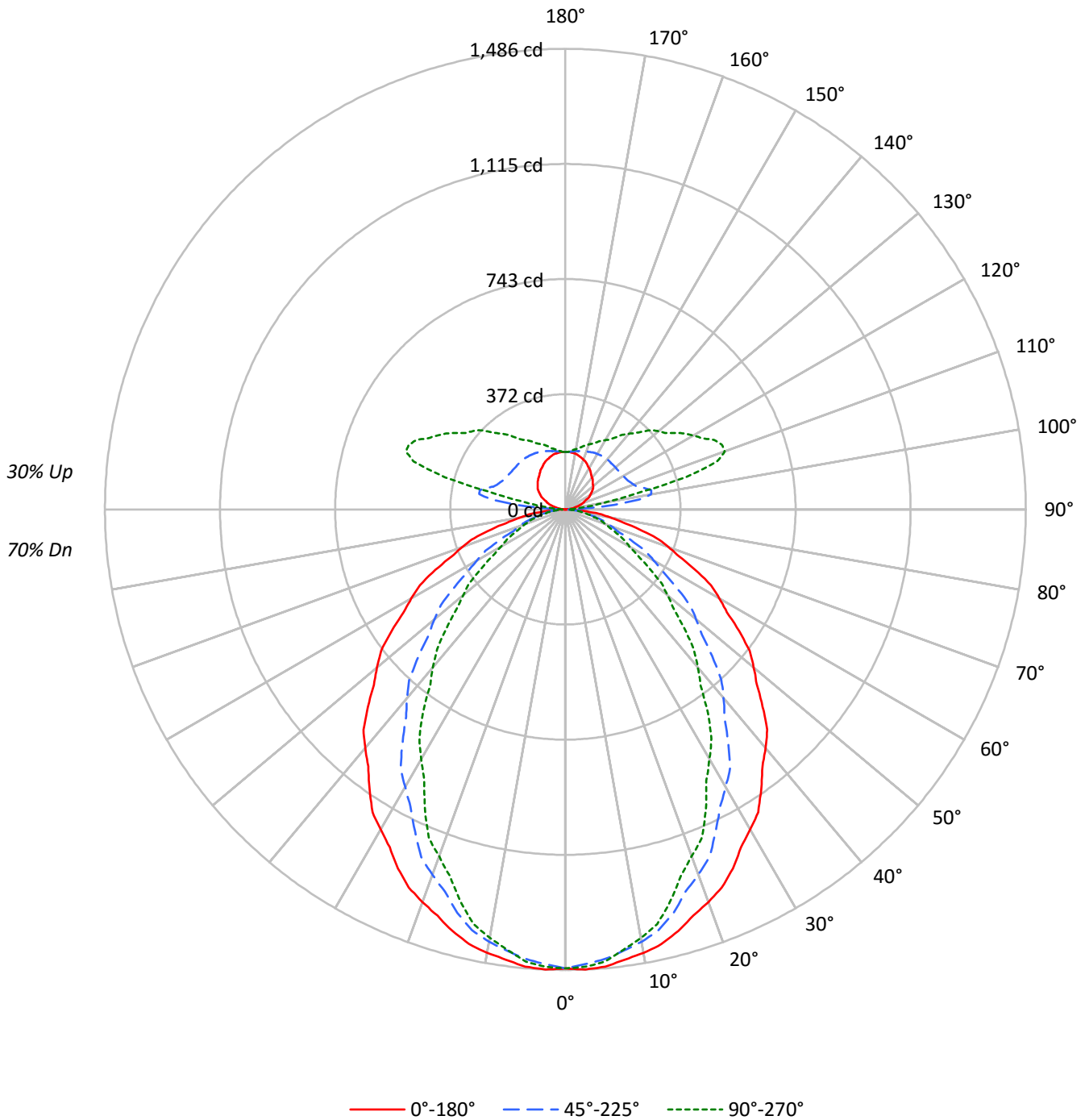
Lumens per Lamp: N/A
Luminaire Lumens: 4338.3 lumens
Efficiency: N/A
Efficacy: 99.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

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	95	95	95	84	84	84	75	75	75	70				
1	103	99	95	92	97	94	90	87	84	82	79	75	73	72	67	66	64	60				
2	94	87	81	76	89	83	77	73	74	70	67	67	64	61	60	57	55	52				
3	87	77	70	64	82	73	67	62	66	61	57	60	56	52	54	51	48	45				
4	80	69	61	55	75	66	59	53	59	54	49	54	49	45	48	45	42	39				
5	73	62	54	48	69	59	52	46	54	48	43	49	44	40	44	40	37	34				
6	68	56	48	42	64	53	46	41	49	43	38	44	39	35	40	36	33	30				
7	63	51	43	37	60	49	41	36	44	38	34	41	35	32	37	33	30	27				
8	59	46	39	33	56	44	37	32	41	35	30	37	32	29	34	30	27	25				
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	27	24	22				
10	52	39	32	27	49	38	31	27	35	29	25	32	27	24	29	25	22	20				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	23909	23909	23909
5°	24000	23608	23738
10°	23815	23222	23023
15°	23542	22534	21884
20°	23163	21551	20469
25°	22775	20436	19099
30°	22236	19287	17339
35°	21711	18039	15794
40°	21182	16750	14010
45°	20562	15299	12392
50°	19926	13835	10803
55°	19277	12262	9278
60°	18519	10601	7702
65°	17662	8909	7014
70°	16636	7336	6449
75°	15384	6687	6014
80°	13575	5979	5486
85°	10689	4705	4705



TEST NUMBER: P331710-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.6	3.2
10°-20°	380.6	8.8
20°-30°	534.4	12.3
30°-40°	582.7	13.4
40°-50°	535.8	12.4
50°-60°	420.8	9.7
60°-70°	274.4	6.3
70°-80°	141.5	3.3
80°-90°	38.4	0.9
90°-100°	74.2	1.7
100°-110°	251.8	5.8
110°-120°	267.5	6.2
120°-130°	220.2	5.1
130°-140°	176.8	4.1
140°-150°	133.6	3.1
150°-160°	93.9	2.2
160°-170°	55.3	1.3
170°-180°	18.0	0.4
0°-30°	1053.6	24.3
0°-40°	1636.3	37.7
0°-60°	2593.0	59.8
0°-90°	3047.2	70.2
90°-120°	593.4	13.7
90°-150°	1124.0	25.9
90°-180°	1291.0	29.8
0°-180°	4338.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1481	1481	1481	1481	1481	
5°	1481	1473	1457	1468	1465	140
15°	1408	1392	1348	1323	1309	397
25°	1278	1233	1147	1094	1072	588
35°	1102	1030	915	834	801	689
45°	900	808	670	578	543	695
55°	685	578	436	358	330	612
65°	462	353	233	190	184	458
75°	247	155	107	98	96	261
85°	58	31	25	25	25	68
90°	0	5	12	12	12	3
95°	12	31	140	53	41	13
105°	44	66	264	473	402	46
115°	77	97	221	457	529	76
125°	107	127	213	370	429	95
135°	126	150	210	311	356	97
145°	143	165	209	260	284	90
155°	163	176	203	230	239	75
165°	178	183	194	206	209	50
175°	185	185	187	189	189	18
180°	186	186	186	186	186	



TEST NUMBER: P331710-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8
2.5°	1486.1	1484.9	1483.7	1482.5	1481.4	1479.5	1476.8	1474.2	1471.6	1468.9	1471.4
5°	1480.8	1479.3	1477.7	1476.2	1474.8	1472.1	1468.2	1464.4	1460.5	1456.6	1459.3
7.5°	1465.4	1463.6	1461.8	1460.0	1458.0	1454.9	1450.4	1445.8	1441.3	1436.7	1437.5
10°	1452.6	1450.5	1448.4	1446.3	1444.2	1440.3	1434.3	1428.4	1422.4	1416.4	1415.5
12.5°	1436.5	1433.9	1431.4	1428.9	1426.2	1421.2	1413.5	1405.9	1398.3	1390.7	1389.1
15°	1408.4	1405.1	1401.8	1398.6	1395.2	1388.6	1378.5	1368.4	1358.2	1348.1	1342.4
17.5°	1373.8	1368.8	1363.8	1358.8	1353.8	1344.8	1331.8	1318.8	1305.9	1292.8	1286.2
20°	1348.1	1342.1	1336.2	1330.2	1324.2	1313.8	1298.9	1284.0	1269.2	1254.3	1246.8
22.5°	1320.2	1313.5	1306.9	1300.2	1293.5	1281.8	1265.0	1248.2	1231.4	1214.6	1205.0
25°	1278.4	1268.9	1259.3	1249.8	1240.3	1225.7	1206.0	1186.4	1166.7	1147.1	1134.9
27.5°	1228.0	1217.6	1207.3	1196.9	1186.6	1170.3	1148.1	1126.0	1103.8	1081.7	1067.4
30°	1192.7	1181.3	1170.0	1158.7	1147.4	1129.8	1106.0	1082.2	1058.3	1034.5	1019.4
32.5°	1158.3	1145.1	1131.9	1118.6	1105.4	1086.7	1062.4	1038.0	1013.8	989.5	972.2
35°	1101.5	1086.3	1071.2	1055.9	1040.8	1020.1	993.8	967.7	941.5	915.2	896.5
37.5°	1044.7	1028.0	1011.4	994.6	978.0	955.6	927.8	899.8	871.9	843.9	823.2
40°	1005.0	987.1	969.3	951.4	933.5	910.2	881.3	852.4	823.5	794.7	773.5
42.5°	964.3	945.4	926.7	907.9	889.0	864.6	834.9	805.0	775.2	745.3	723.5
45°	900.5	880.5	860.6	840.6	820.7	795.1	763.9	732.6	701.3	670.0	648.8
47.5°	838.3	817.2	796.1	774.9	753.8	727.0	694.8	662.5	630.2	597.9	576.9
50°	793.3	772.1	751.0	729.8	708.7	681.8	649.0	616.2	583.5	550.8	530.2
52.5°	749.3	727.2	705.2	683.1	661.0	633.9	601.9	569.8	537.8	505.7	485.8
55°	684.8	661.6	638.3	615.1	591.9	564.1	532.0	499.8	467.7	435.6	417.7
57.5°	618.5	594.7	570.9	547.0	523.3	495.9	464.9	434.0	403.1	372.2	355.9
60°	573.5	549.7	525.9	502.1	478.3	451.0	420.3	389.6	359.0	328.3	313.2
62.5°	529.6	505.7	481.9	458.1	434.2	407.8	378.5	349.3	320.0	290.7	276.3
65°	462.3	438.2	414.0	389.9	365.9	340.3	313.6	286.8	259.9	233.2	223.1
67.5°	397.5	373.5	349.6	325.6	301.6	277.6	253.6	229.4	205.3	181.2	176.5
70°	352.4	329.2	306.0	282.8	259.5	237.6	217.1	196.5	176.0	155.4	152.5
72.5°	309.5	287.3	265.0	242.8	220.5	201.1	184.6	168.0	151.6	135.1	132.6
75°	246.6	225.7	204.9	184.0	163.2	147.7	137.5	127.4	117.3	107.2	105.1
77.5°	184.7	166.3	148.0	129.8	111.5	100.0	95.0	90.2	85.3	80.4	79.2
80°	146.0	130.9	115.7	100.5	85.3	76.2	73.2	70.3	67.3	64.3	63.1
82.5°	110.7	98.9	86.9	75.1	63.3	56.4	54.3	52.3	50.3	48.3	47.6
85°	57.7	51.4	45.1	38.9	32.6	29.1	28.2	27.3	26.4	25.4	25.4
87.5°	17.3	15.6	13.9	12.1	10.4	9.7	10.0	10.5	10.9	11.0	10.7
90°	0.4	1.4	2.8	3.5	4.2	5.4	7.2	9.6	11.8	12.1	11.8
92.5°	4.3	6.3	8.9	10.4	12.8	16.2	24.2	35.6	45.7	46.4	39.2
95°	12.5	13.9	17.5	20.7	26.4	34.9	51.4	82.4	123.8	139.9	122.4
97.5°	20.3	22.2	26.1	30.9	37.5	47.2	67.8	111.1	179.9	238.7	250.4
100°	27.5	28.6	31.7	37.5	44.6	54.6	73.5	117.0	194.1	281.9	333.3
102.5°	34.0	34.8	38.1	43.7	51.2	61.2	78.7	117.3	188.6	283.3	364.1
105°	43.5	44.9	47.5	52.8	60.7	70.7	87.5	119.2	178.0	264.4	359.3
107.5°	53.8	54.9	57.4	62.3	70.1	80.2	96.4	124.1	172.8	244.1	328.0
110°	60.7	62.1	64.2	68.9	76.3	86.7	102.4	128.1	171.7	234.4	308.3



TEST NUMBER: P331710-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	67.0	68.4	70.8	75.1	82.3	93.0	108.2	132.4	171.9	228.1	294.6
115°	76.7	78.5	80.7	84.9	92.1	101.7	117.0	138.8	173.4	221.3	277.6
117.5°	86.8	88.3	90.4	94.2	101.1	111.1	125.2	145.6	176.0	217.8	266.9
120°	93.1	94.5	96.7	99.9	107.0	117.0	131.0	150.3	177.7	215.9	261.2
122.5°	99.2	100.3	102.4	105.9	113.0	123.3	136.3	154.2	179.7	214.7	256.3
125°	107.0	108.2	110.3	114.5	121.7	131.7	144.5	160.6	182.7	212.7	249.4
127.5°	113.3	114.7	117.8	122.5	129.3	139.6	152.1	166.5	185.7	211.5	243.0
130°	117.0	118.5	122.0	127.0	134.2	144.1	156.6	170.2	188.0	210.9	238.7
132.5°	120.5	122.2	126.0	131.3	138.8	148.8	160.7	173.9	190.4	210.6	235.3
135°	125.6	127.0	131.3	136.6	144.9	154.8	166.3	178.7	193.1	210.2	230.5
137.5°	130.5	132.2	136.4	142.2	150.3	159.6	170.9	182.5	195.5	210.1	227.1
140°	134.2	135.6	139.9	145.6	153.4	162.7	173.4	184.5	196.6	209.8	225.1
142.5°	137.8	139.1	143.0	148.8	156.3	165.0	175.4	186.2	197.4	209.8	223.2
145°	143.4	144.9	148.5	153.8	161.0	168.7	178.4	188.4	198.3	209.0	220.6
147.5°	149.5	150.5	153.9	158.9	164.8	171.8	180.9	189.7	198.6	207.8	217.8
150°	153.4	154.5	157.3	162.0	167.3	173.8	182.0	190.2	198.3	206.9	215.5
152.5°	157.4	157.9	160.8	164.8	170.0	175.7	183.1	190.5	197.8	205.5	213.5
155°	163.1	163.4	165.5	169.5	173.4	178.7	184.8	190.9	196.9	203.0	209.8
157.5°	167.7	168.1	169.9	173.3	176.4	180.9	186.0	190.9	195.3	200.5	206.3
160°	170.9	171.3	172.7	175.5	178.4	182.4	186.6	190.9	194.5	198.7	203.7
162.5°	174.1	173.8	175.3	177.5	180.2	183.2	186.9	190.6	193.6	197.3	201.5
165°	177.7	177.3	178.0	180.2	182.0	184.1	187.3	189.9	192.0	194.5	197.6
167.5°	180.7	180.3	180.9	182.3	183.6	184.9	187.2	189.3	190.4	192.0	194.0
170°	182.7	182.0	182.4	183.4	184.1	185.2	186.9	188.7	189.5	190.6	192.0
172.5°	183.8	183.4	183.2	184.3	184.7	185.5	186.7	187.9	188.3	188.8	190.0
175°	185.2	184.8	184.5	185.2	185.2	185.5	186.2	186.9	186.6	186.9	187.3
177.5°	185.8	185.2	185.0	185.5	185.5	185.5	185.8	186.4	185.8	185.5	185.8
180°	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5



TEST NUMBER: P331710-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8	1480.8
2.5°	1473.7	1476.1	1478.4	1479.5	1478.9	1478.4	1478.0	1477.5
5°	1462.0	1464.6	1467.3	1468.2	1467.3	1466.4	1465.5	1464.6
7.5°	1438.4	1439.1	1439.9	1439.5	1437.9	1436.4	1434.8	1433.3
10°	1414.6	1413.7	1412.8	1411.5	1409.7	1408.0	1406.1	1404.3
12.5°	1387.5	1385.8	1384.2	1382.0	1379.0	1376.0	1373.0	1370.1
15°	1336.8	1331.1	1325.4	1321.1	1318.2	1315.1	1312.2	1309.2
17.5°	1279.4	1272.6	1266.0	1260.0	1254.9	1249.8	1244.7	1239.5
20°	1239.4	1231.9	1224.5	1217.5	1210.9	1204.4	1197.8	1191.3
22.5°	1195.5	1185.9	1176.3	1169.0	1164.2	1159.2	1154.4	1149.5
25°	1122.7	1110.4	1098.2	1089.8	1085.4	1081.0	1076.5	1072.1
27.5°	1053.2	1038.9	1024.7	1014.1	1007.0	999.9	992.8	985.7
30°	1004.1	989.0	973.7	962.1	954.1	946.0	938.1	930.0
32.5°	954.8	937.5	920.2	907.7	900.2	892.6	885.0	877.5
35°	877.7	859.0	840.2	827.6	821.0	814.5	807.9	801.3
37.5°	802.6	781.9	761.3	747.2	739.7	732.2	724.7	717.2
40°	752.3	731.2	710.0	695.6	687.9	680.1	672.4	664.7
42.5°	701.7	679.7	657.9	643.2	635.7	628.2	620.7	613.2
45°	627.7	606.6	585.4	571.3	564.1	557.0	549.9	542.7
47.5°	555.8	534.8	513.8	500.1	493.6	487.1	480.6	474.1
50°	509.7	489.1	468.6	455.1	448.9	442.6	436.4	430.1
52.5°	466.1	446.3	426.4	413.6	407.8	402.0	396.3	390.5
55°	399.8	381.9	364.1	352.2	346.6	340.9	335.3	329.6
57.5°	339.5	323.2	306.8	296.2	291.4	286.6	281.9	277.1
60°	297.9	282.8	267.5	257.6	252.8	248.0	243.3	238.5
62.5°	261.9	247.4	232.9	224.2	221.4	218.5	215.6	212.8
65°	212.9	202.8	192.7	187.1	186.2	185.4	184.5	183.6
67.5°	171.9	167.2	162.6	159.8	158.9	157.8	156.9	156.0
70°	149.5	146.5	143.5	141.5	140.3	139.1	137.8	136.6
72.5°	130.1	127.5	125.0	123.5	122.7	122.0	121.3	120.6
75°	103.0	101.0	98.9	97.7	97.4	97.0	96.7	96.4
77.5°	78.1	76.9	75.6	74.8	74.3	73.8	73.4	72.9
80°	61.9	60.8	59.6	59.0	59.0	59.0	59.0	59.0
82.5°	46.9	46.0	45.3	45.0	45.0	45.0	45.0	45.0
85°	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
87.5°	10.4	10.0	9.9	9.9	9.9	9.9	9.9	9.9
90°	11.4	10.7	11.4	11.8	11.8	11.8	11.8	11.8
92.5°	31.1	26.7	23.7	21.5	21.2	20.1	20.3	19.8
95°	93.5	71.7	56.8	48.9	44.2	41.4	40.3	40.7
97.5°	218.1	178.4	139.9	114.1	97.0	88.3	83.1	80.1
100°	325.8	281.6	232.7	189.5	159.9	144.5	134.2	127.7
102.5°	396.3	386.3	350.5	304.8	272.6	246.4	233.5	224.8
105°	433.5	473.8	478.5	466.8	444.5	422.4	407.1	402.1
107.5°	406.7	467.5	504.5	521.8	524.6	523.4	520.3	513.7
110°	383.5	447.5	493.1	522.4	537.8	544.5	547.8	547.3



TEST NUMBER: P331710-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	362.4	423.7	472.5	506.1	527.5	538.8	544.8	546.7
115°	336.5	391.4	438.2	474.9	500.3	516.6	525.9	529.2
117.5°	316.9	365.2	407.6	442.0	467.9	485.2	494.9	497.7
120°	307.2	351.4	389.3	421.7	446.8	463.5	473.8	477.5
122.5°	299.5	340.0	375.9	405.2	427.6	444.1	453.3	456.3
125°	288.3	325.1	356.5	383.2	403.9	417.5	426.4	429.3
127.5°	277.2	310.5	340.1	364.8	382.8	395.6	403.2	405.6
130°	270.1	300.8	329.0	352.5	370.0	382.1	389.3	392.1
132.5°	263.3	291.6	317.6	339.7	356.9	369.0	375.6	378.2
135°	253.7	277.2	300.8	320.7	336.1	347.9	354.4	355.8
137.5°	246.1	265.8	284.5	301.8	315.9	326.0	331.6	333.8
140°	241.2	258.3	274.8	290.4	301.8	311.1	316.5	318.6
142.5°	237.2	251.8	265.9	279.0	289.8	298.3	303.1	303.5
145°	231.6	243.4	254.4	264.8	273.3	279.4	283.0	284.0
147.5°	227.2	236.5	245.1	252.7	259.7	264.6	267.0	267.7
150°	224.1	232.0	239.4	245.8	251.2	255.5	257.6	258.0
152.5°	221.0	228.2	234.6	240.1	244.4	248.0	249.6	249.7
155°	216.6	222.3	227.6	231.6	235.5	238.0	239.4	238.7
157.5°	211.6	216.3	220.8	223.9	226.6	228.7	229.3	229.3
160°	208.3	212.3	216.2	218.7	221.3	223.0	223.4	223.4
162.5°	205.2	208.6	212.0	213.9	216.4	217.6	217.9	217.6
165°	200.6	203.0	205.5	206.9	208.3	209.8	209.8	209.4
167.5°	196.0	197.9	199.7	201.0	201.6	202.4	202.3	201.9
170°	193.8	194.8	196.2	196.9	197.3	198.3	198.0	197.3
172.5°	191.2	192.0	193.1	193.5	193.9	194.4	194.0	193.6
175°	188.4	188.7	189.1	189.5	189.5	189.9	189.5	188.7
177.5°	186.4	186.4	186.7	186.7	186.7	186.7	186.4	185.8
180°	185.5	185.5	185.5	185.5	185.5	185.5	185.5	185.5

(END OF REPORT)