

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: P331381-840

Luminaire Tested: **SA2XXDIP-C865D330U840-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331381-840
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: SA2XXDIP-C865D330U840-4F0-1E-UDD-F
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 865 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 330 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

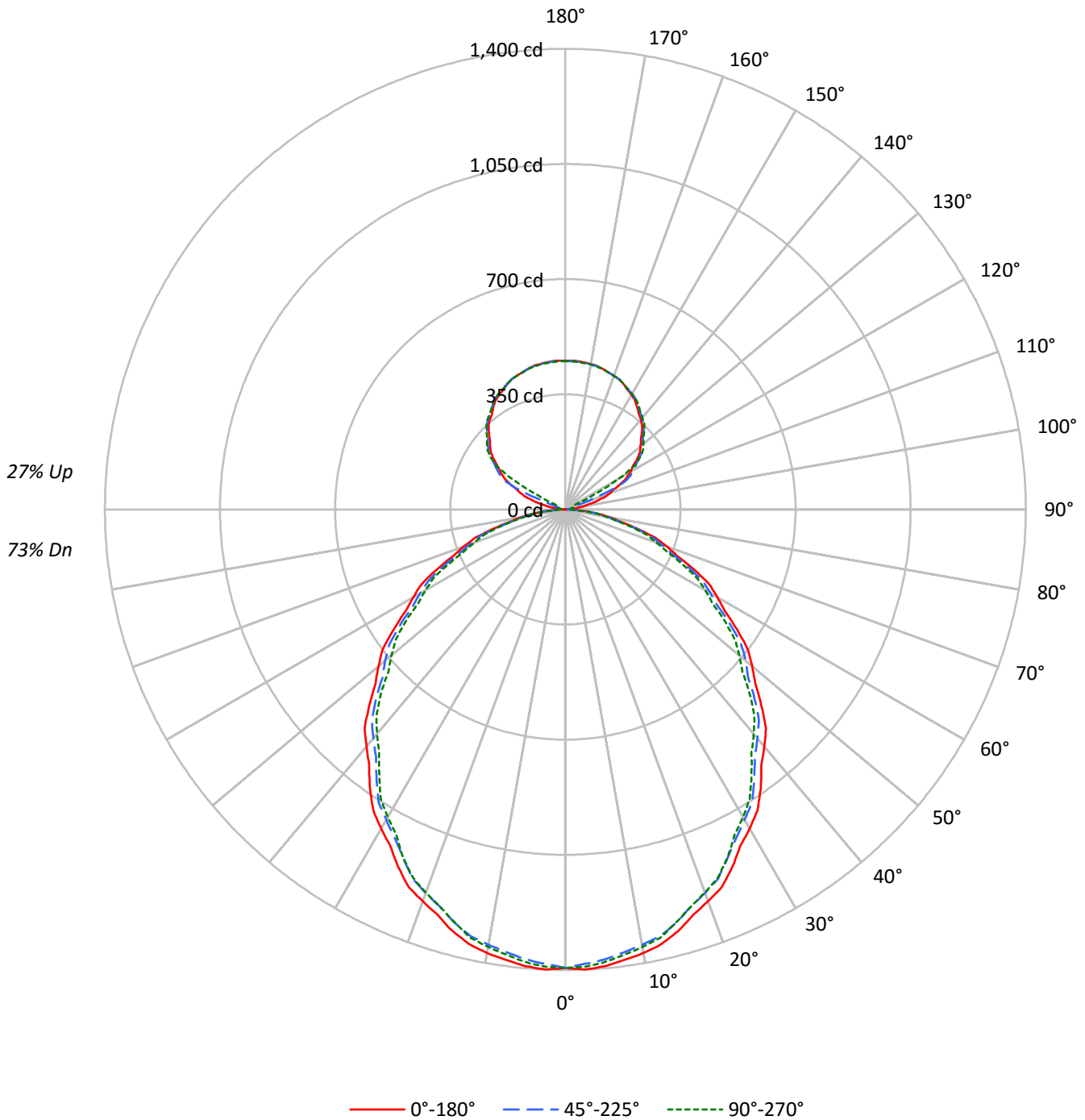
Lumens per Lamp: N/A
Luminaire Lumens: 4869.1 lumens
Efficiency: N/A
Efficacy: 111.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.3
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	73				73
1	103	98	94	91	97	94	90	87	84	82	79	76	74	72	68	67	65	61				61
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55	51				51
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47	44				44
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	40	37				37
5	72	60	51	45	68	57	50	44	52	46	41	47	42	38	43	39	35	32				32
6	67	54	45	39	63	52	44	38	47	41	36	43	38	33	39	35	31	29				29
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28	25				25
8	57	44	36	31	54	43	35	30	39	33	28	36	30	27	33	28	25	23				23
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22	20				20
10	50	38	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20	19				19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	22501	22501	22501
5°	22587	22261	22392
10°	22453	22035	22146
15°	22176	21750	21727
20°	21782	21321	21297
25°	21389	20794	20794
30°	20885	20310	20137
35°	20416	19730	19438
40°	19827	19150	18782
45°	19244	18573	18114
50°	18613	17975	17334
55°	17954	17275	16636
60°	17221	16443	15839
65°	16435	15614	14896
70°	15437	14611	13917
75°	14042	13456	13125
80°	12459	12087	11464
85°	10170	9689	8688



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.0	2.7
10°-20°	368.7	7.6
20°-30°	542.0	11.1
30°-40°	629.6	12.9
40°-50°	628.9	12.9
50°-60°	548.4	11.3
60°-70°	405.5	8.3
70°-80°	229.7	4.7
80°-90°	62.9	1.3
90°-100°	15.1	0.3
100°-110°	55.2	1.1
110°-120°	147.6	3.0
120°-130°	243.6	5.0
130°-140°	259.0	5.3
140°-150°	240.8	4.9
150°-160°	193.6	4.0
160°-170°	124.7	2.6
170°-180°	42.9	0.9
0°-30°	1041.8	21.4
0°-40°	1671.3	34.3
0°-60°	2848.6	58.5
0°-90°	3546.7	72.8
90°-120°	217.8	4.5
90°-150°	961.2	19.7
90°-180°	1322.0	27.2
0°-180°	4869.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1394	1394	1394	1394	1394	
5°	1394	1388	1374	1384	1382	132
15°	1327	1318	1301	1306	1300	373
25°	1201	1189	1167	1170	1167	552
35°	1036	1022	1001	993	986	646
45°	843	833	813	799	793	650
55°	638	629	614	598	591	570
65°	430	422	409	397	390	425
75°	225	222	216	208	210	240
85°	55	54	52	48	47	63
90°	0	4	7	8	9	4
95°	21	11	13	14	14	26
105°	99	104	20	23	25	106
115°	188	193	202	57	27	185
125°	266	270	276	278	279	237
135°	328	334	337	340	339	254
145°	381	381	386	388	387	238
155°	420	417	420	422	420	193
165°	442	440	441	443	441	125
175°	452	450	451	453	450	43
180°	451	451	451	451	451	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6
2.5°	1400.1	1398.9	1397.7	1396.5	1395.3	1393.4	1390.8	1388.2	1385.5	1382.9	1385.3
5°	1393.6	1392.4	1391.3	1390.1	1388.9	1386.6	1383.4	1380.1	1376.8	1373.5	1375.9
7.5°	1381.3	1379.5	1377.7	1375.7	1373.9	1371.3	1368.0	1364.6	1361.3	1358.0	1360.4
10°	1369.5	1367.5	1365.3	1363.2	1361.2	1358.4	1354.7	1351.2	1347.7	1344.0	1346.5
12.5°	1353.4	1351.6	1349.8	1347.9	1346.0	1343.3	1339.8	1336.2	1332.6	1329.1	1330.7
15°	1326.7	1324.8	1323.0	1321.3	1319.5	1316.7	1312.8	1308.9	1305.0	1301.2	1302.3
17.5°	1292.3	1290.5	1288.8	1287.0	1285.2	1282.3	1278.4	1274.4	1270.5	1266.6	1268.0
20°	1267.7	1265.9	1264.1	1262.3	1260.5	1257.6	1253.3	1249.2	1245.1	1240.9	1241.7
22.5°	1243.0	1240.5	1238.0	1235.5	1233.0	1229.8	1225.9	1221.9	1218.0	1214.1	1214.3
25°	1200.6	1198.3	1195.9	1193.6	1191.1	1187.4	1182.3	1177.3	1172.3	1167.2	1167.8
27.5°	1152.5	1150.3	1148.1	1146.0	1143.9	1140.7	1136.8	1132.8	1128.8	1124.8	1124.0
30°	1120.2	1117.9	1115.5	1113.2	1110.8	1107.3	1102.9	1098.4	1093.9	1089.4	1088.5
32.5°	1086.0	1084.1	1082.2	1080.3	1078.3	1075.0	1070.4	1065.6	1061.0	1056.2	1054.6
35°	1035.8	1032.9	1029.9	1026.9	1023.9	1020.1	1015.3	1010.6	1005.7	1001.0	999.3
37.5°	979.3	976.6	974.0	971.4	968.9	965.1	960.4	955.6	950.8	946.0	943.8
40°	940.7	938.4	935.9	933.5	931.2	927.6	922.8	918.1	913.3	908.6	905.8
42.5°	903.2	900.8	898.4	896.1	893.6	890.1	885.3	880.6	875.8	871.0	868.1
45°	842.8	840.8	838.7	836.7	834.6	831.2	826.8	822.3	817.9	813.4	810.1
47.5°	782.8	780.9	778.9	777.0	775.0	771.6	767.0	762.3	757.7	753.1	749.6
50°	741.0	739.5	738.1	736.6	735.1	732.3	728.1	723.9	719.7	715.6	711.4
52.5°	700.3	698.3	696.4	694.4	692.5	689.5	685.6	681.7	677.7	673.8	670.3
55°	637.8	636.1	634.3	632.5	630.7	628.0	624.5	620.9	617.3	613.7	610.2
57.5°	575.1	573.7	572.3	570.9	569.5	566.7	562.8	558.9	554.9	551.0	547.5
60°	533.3	532.1	531.0	529.8	528.6	525.9	521.7	517.6	513.4	509.2	505.9
62.5°	492.6	490.7	488.8	486.9	484.9	482.4	479.2	475.9	472.7	469.6	466.6
65°	430.2	428.4	426.6	424.7	423.0	420.6	417.7	414.7	411.7	408.7	406.1
67.5°	366.7	365.2	363.8	362.3	360.9	358.9	356.2	353.5	350.8	348.1	346.1
70°	327.0	325.8	324.6	323.4	322.2	320.2	317.6	314.9	312.3	309.5	307.5
72.5°	286.2	285.1	283.9	282.7	281.4	280.0	278.3	276.6	274.8	273.1	271.0
75°	225.1	224.5	223.9	223.4	222.8	221.7	220.3	218.7	217.2	215.7	214.0
77.5°	170.5	169.5	168.4	167.4	166.4	165.6	165.0	164.4	163.8	163.2	162.3
80°	134.0	133.7	133.4	133.1	132.8	132.4	131.8	131.2	130.6	130.0	129.1
82.5°	99.7	99.7	99.6	99.5	99.5	99.3	98.9	98.6	98.2	97.9	96.6
85°	54.9	54.6	54.3	54.0	53.7	53.4	53.1	52.8	52.5	52.3	51.4
87.5°	19.4	19.1	18.7	18.4	18.1	17.8	17.4	17.1	16.7	16.4	15.7
90°	0.3	1.1	1.9	2.7	3.5	4.2	4.7	5.4	6.0	6.6	6.9
92.5°	6.6	6.6	6.5	6.4	6.3	6.5	6.7	7.0	7.3	7.6	7.8
95°	21.2	18.8	16.5	14.0	11.6	10.7	11.2	11.7	12.2	12.7	13.1
97.5°	42.1	35.3	28.6	21.9	15.1	12.3	13.5	14.6	15.9	17.1	17.4
100°	57.8	47.9	37.9	28.0	18.1	13.6	14.9	16.2	17.4	18.6	19.2
102.5°	75.0	72.9	70.8	68.8	66.7	60.4	50.1	39.8	29.5	19.1	19.9
105°	99.3	101.4	103.6	105.8	108.0	99.2	79.4	59.6	39.7	19.9	20.7
107.5°	126.8	128.7	130.4	132.2	133.9	122.9	99.2	75.4	51.6	27.9	27.1
110°	144.6	146.1	147.7	149.3	150.8	141.0	120.1	99.1	78.1	57.2	49.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	161.4	162.7	164.1	165.4	166.7	164.8	159.7	154.5	149.3	144.1	117.6
115°	187.7	188.9	190.3	191.5	192.7	194.2	196.0	197.8	199.7	201.5	167.8
117.5°	211.4	212.7	214.1	215.5	216.8	218.1	219.4	220.7	221.9	223.2	215.0
120°	228.5	229.6	230.8	231.9	232.9	234.1	235.4	236.7	238.0	239.3	240.2
122.5°	243.2	244.4	245.5	246.6	247.8	249.0	250.4	251.9	253.4	254.8	255.3
125°	265.5	266.4	267.3	268.3	269.2	270.4	271.8	273.2	274.5	275.9	276.4
127.5°	285.6	286.7	287.7	288.8	289.8	290.8	291.9	293.0	294.0	295.0	295.7
130°	298.4	299.6	300.7	301.9	303.1	304.1	304.9	305.7	306.5	307.3	308.0
132.5°	311.5	312.5	313.5	314.5	315.5	316.3	317.1	317.9	318.7	319.5	320.2
135°	328.5	329.6	330.8	331.9	333.2	334.1	334.7	335.4	336.0	336.7	337.4
137.5°	345.7	346.5	347.3	348.1	348.9	349.7	350.4	351.1	351.9	352.6	353.4
140°	356.9	357.5	358.0	358.6	359.2	359.9	360.7	361.5	362.3	363.0	363.8
142.5°	366.3	366.8	367.3	367.9	368.4	369.1	370.0	370.9	371.8	372.7	373.3
145°	381.0	381.0	380.9	380.8	380.7	381.3	382.5	383.8	385.1	386.3	386.8
147.5°	393.9	393.6	393.3	393.0	392.8	393.2	394.5	395.8	397.0	398.2	398.5
150°	402.2	401.7	401.2	400.7	400.2	400.6	401.7	402.9	404.0	405.3	405.7
152.5°	409.3	408.8	408.2	407.6	407.1	407.3	408.4	409.5	410.6	411.7	412.1
155°	419.6	418.9	418.3	417.6	417.0	417.1	418.0	418.8	419.7	420.5	421.0
157.5°	427.6	427.1	426.5	426.0	425.4	425.5	426.1	426.7	427.3	427.9	428.4
160°	432.3	431.9	431.4	431.0	430.6	430.6	431.0	431.4	431.9	432.3	432.7
162.5°	436.5	436.1	435.7	435.2	434.7	434.7	435.0	435.5	435.9	436.3	436.8
165°	442.1	441.7	441.2	440.8	440.4	440.3	440.5	440.7	440.9	441.1	441.6
167.5°	446.3	445.9	445.5	444.9	444.5	444.4	444.6	444.8	445.0	445.2	445.8
170°	448.7	448.2	447.8	447.4	446.9	446.8	446.9	447.1	447.2	447.4	447.9
172.5°	450.2	449.8	449.3	448.9	448.5	448.3	448.5	448.6	448.8	448.9	449.4
175°	452.2	451.7	451.2	450.7	450.2	450.0	450.2	450.3	450.5	450.6	451.1
177.5°	452.5	452.1	451.7	451.3	450.9	450.8	450.8	450.9	450.9	451.0	451.4
180°	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6	1393.6
2.5°	1387.7	1390.1	1392.4	1393.4	1392.9	1392.4	1392.0	1391.5
5°	1378.3	1380.7	1383.1	1383.9	1383.4	1382.8	1382.2	1381.6
7.5°	1362.7	1365.1	1367.6	1368.4	1367.8	1367.1	1366.4	1365.7
10°	1348.8	1351.2	1353.6	1354.3	1353.4	1352.5	1351.6	1350.8
12.5°	1332.4	1334.0	1335.7	1336.3	1335.5	1334.9	1334.2	1333.6
15°	1303.5	1304.7	1306.0	1305.8	1304.3	1302.8	1301.3	1299.8
17.5°	1269.3	1270.7	1272.1	1272.0	1270.6	1269.2	1267.8	1266.4
20°	1242.6	1243.5	1244.5	1244.3	1243.1	1241.9	1240.7	1239.5
22.5°	1214.5	1214.6	1214.8	1214.6	1213.8	1213.0	1212.3	1211.6
25°	1168.4	1168.9	1169.5	1169.5	1168.9	1168.4	1167.8	1167.2
27.5°	1123.1	1122.2	1121.3	1120.1	1118.6	1117.2	1115.8	1114.4
30°	1087.6	1086.8	1085.9	1084.8	1083.7	1082.5	1081.3	1080.1
32.5°	1053.0	1051.4	1049.8	1048.3	1047.2	1046.0	1044.8	1043.6
35°	997.4	995.6	993.9	992.2	990.8	989.3	987.7	986.2
37.5°	941.7	939.5	937.3	935.4	934.0	932.6	931.2	929.7
40°	903.2	900.5	897.9	895.9	894.7	893.5	892.3	891.1
42.5°	865.2	862.2	859.4	857.1	855.4	853.7	852.0	850.4
45°	806.9	803.5	800.3	798.1	796.9	795.7	794.5	793.3
47.5°	746.2	742.8	739.3	736.7	735.0	733.3	731.5	729.8
50°	707.2	703.1	698.9	696.1	694.6	693.1	691.7	690.1
52.5°	666.8	663.4	659.9	657.2	655.3	653.3	651.4	649.3
55°	606.6	603.0	599.5	596.9	595.4	593.9	592.5	591.0
57.5°	544.0	540.5	536.9	534.6	533.5	532.4	531.3	530.1
60°	502.7	499.4	496.1	494.0	493.1	492.2	491.3	490.5
62.5°	463.4	460.4	457.4	455.3	454.1	453.0	451.9	450.8
65°	403.3	400.7	398.0	395.9	394.5	392.9	391.4	389.9
67.5°	344.0	341.8	339.8	338.2	337.0	335.8	334.6	333.4
70°	305.4	303.3	301.2	299.5	298.4	297.2	296.0	294.8
72.5°	268.9	266.8	264.8	263.3	262.3	261.4	260.3	259.4
75°	212.2	210.4	208.6	208.0	208.6	209.2	209.7	210.4
77.5°	161.5	160.6	159.7	158.8	157.9	157.1	156.3	155.4
80°	128.2	127.3	126.4	125.6	125.0	124.5	123.9	123.3
82.5°	95.5	94.4	93.3	92.7	92.5	92.4	92.3	92.2
85°	50.5	49.6	48.7	48.1	47.8	47.5	47.2	46.9
87.5°	15.0	14.3	13.7	13.3	13.1	12.9	12.7	12.5
90°	7.3	7.6	8.0	8.3	8.4	8.5	8.7	8.8
92.5°	8.0	8.2	8.3	8.5	8.6	8.7	8.7	8.8
95°	13.4	13.8	14.1	14.3	14.2	14.1	14.1	14.0
97.5°	17.7	17.9	18.2	18.4	18.5	18.6	18.7	18.8
100°	19.8	20.4	20.9	21.3	21.4	21.6	21.7	21.9
102.5°	20.6	21.4	22.1	22.6	22.8	23.0	23.2	23.4
105°	21.5	22.3	23.1	23.6	23.9	24.2	24.5	24.8
107.5°	26.3	25.4	24.6	24.3	24.6	24.9	25.2	25.5
110°	42.6	35.3	28.1	24.6	24.9	25.2	25.5	25.8



TEST NUMBER: P331381-840

CATALOG NUMBER: SA2XXDIP-C865D330U840-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	91.2	64.7	38.3	25.1	25.3	25.5	25.9	26.1
115°	134.3	100.7	67.1	47.7	42.4	37.3	32.0	26.8
117.5°	206.9	198.7	190.7	178.0	160.9	143.7	126.5	109.4
120°	241.1	242.0	242.8	238.3	228.5	218.7	208.9	199.1
122.5°	255.8	256.3	256.8	256.1	254.3	252.4	250.4	248.5
125°	276.9	277.4	277.9	278.3	278.5	278.7	278.9	279.1
127.5°	296.5	297.2	297.9	298.3	298.4	298.4	298.4	298.5
130°	308.8	309.6	310.4	310.8	310.7	310.6	310.6	310.5
132.5°	320.9	321.5	322.2	322.6	322.4	322.4	322.3	322.2
135°	338.1	338.8	339.5	339.8	339.7	339.5	339.4	339.2
137.5°	354.1	354.8	355.5	355.7	355.5	355.3	355.0	354.8
140°	364.4	365.1	365.7	365.9	365.5	365.2	364.8	364.4
142.5°	374.0	374.6	375.2	375.3	374.9	374.6	374.2	373.8
145°	387.3	387.8	388.3	388.4	388.0	387.7	387.3	386.9
147.5°	398.9	399.3	399.7	399.7	399.4	399.1	398.8	398.5
150°	406.1	406.5	407.0	407.0	406.7	406.3	405.9	405.6
152.5°	412.6	413.0	413.4	413.4	412.9	412.5	412.0	411.5
155°	421.4	421.8	422.3	422.2	421.6	421.1	420.5	419.9
157.5°	428.9	429.4	429.8	429.8	429.2	428.7	428.1	427.6
160°	433.2	433.6	434.0	434.0	433.5	433.0	432.5	432.0
162.5°	437.2	437.7	438.2	438.2	437.5	436.9	436.3	435.7
165°	442.1	442.6	443.1	443.1	442.6	442.1	441.6	441.1
167.5°	446.3	446.8	447.3	447.2	446.6	445.9	445.2	444.5
170°	448.4	448.9	449.4	449.3	448.7	448.0	447.4	446.7
172.5°	449.9	450.4	450.9	450.9	450.2	449.6	448.9	448.3
175°	451.6	452.1	452.6	452.5	451.8	451.1	450.3	449.6
177.5°	451.8	452.2	452.6	452.5	452.0	451.5	451.0	450.5
180°	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2

(END OF REPORT)