

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: P331709-840

Luminaire Tested: **SA2XXRDIP-C865D330U840-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331709-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-8,
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-F1
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 865 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 330 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

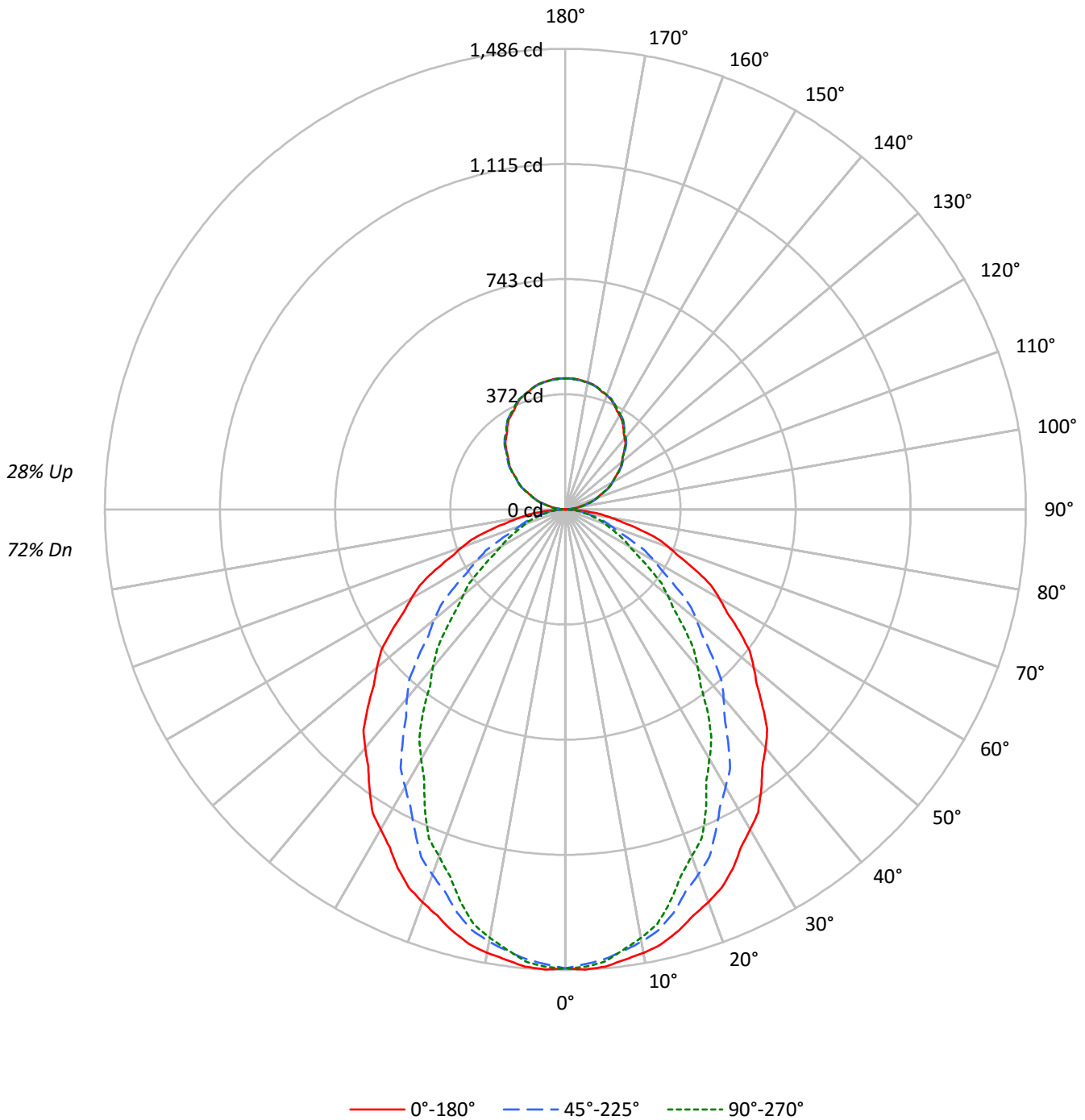
Lumens per Lamp: N/A
Luminaire Lumens: 4229.4 lumens
Efficiency: N/A
Efficacy: 97.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

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	107	107	107	107	96	96	96	86	86	86	76	76	76	76	76	76	72	
1	103	99	95	92	98	94	91	88	85	82	80	76	75	73	69	67	66	66	66	66	62	
2	95	87	81	76	90	83	78	73	75	71	67	68	65	62	61	59	57	57	57	57	53	
3	87	78	70	65	82	74	67	62	67	62	58	61	57	53	55	52	49	49	49	49	46	
4	80	69	61	55	76	66	59	53	60	54	50	55	50	46	50	46	43	43	43	43	40	
5	74	62	54	48	70	59	52	47	54	48	44	49	45	41	45	41	38	38	38	38	35	
6	68	56	48	42	65	54	46	41	49	43	39	45	40	36	41	37	34	34	34	34	31	
7	63	51	43	38	60	49	42	36	45	39	34	41	36	32	38	33	30	30	30	30	28	
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	27	27	27	27	25	
9	55	43	35	30	52	41	34	30	38	32	28	35	30	26	32	28	25	25	25	25	23	
10	52	40	32	27	49	38	31	27	35	29	25	33	28	24	30	26	23	23	23	23	21	

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



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.6	3.3
10°-20°	380.6	9.0
20°-30°	534.4	12.6
30°-40°	582.7	13.8
40°-50°	535.8	12.7
50°-60°	420.8	9.9
60°-70°	274.4	6.5
70°-80°	141.5	3.3
80°-90°	38.4	0.9
90°-100°	26.8	0.6
100°-110°	83.2	2.0
110°-120°	142.2	3.4
120°-130°	187.0	4.4
130°-140°	209.9	5.0
140°-150°	205.8	4.9
150°-160°	172.7	4.1
160°-170°	114.5	2.7
170°-180°	40.0	0.9
0°-30°	1053.6	24.9
0°-40°	1636.3	38.7
0°-60°	2593.0	61.3
0°-90°	3047.2	72.0
90°-120°	252.2	6.0
90°-150°	855.0	20.2
90°-180°	1182.0	27.9
0°-180°	4229.4	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°	19	22	23	23	22	21
105°	77	78	78	79	79	81
115°	143	145	144	144	143	141
125°	208	211	210	209	208	185
135°	269	272	273	273	272	207
145°	326	329	331	331	330	204
155°	373	374	375	377	376	172
165°	406	405	405	408	406	114
175°	422	421	420	422	421	40
180°	423	423	423	423	423	



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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	13.8	12.1	10.4	9.7	10.0	10.4	10.7	11.1	10.8
90°	0.4	1.3	2.2	3.2	4.1	5.6	7.3	9.0	10.7	12.5	12.3
92.5°	6.4	7.1	7.8	8.5	9.2	9.7	10.1	10.5	10.9	11.3	11.4
95°	18.6	19.4	20.1	20.9	21.7	22.2	22.3	22.5	22.7	22.8	22.8
97.5°	33.9	34.6	35.2	36.0	36.7	37.2	37.5	37.8	38.1	38.4	38.4
100°	45.3	45.9	46.6	47.3	47.9	48.3	48.5	48.8	49.0	49.3	49.3
102.5°	57.3	57.8	58.3	58.8	59.3	59.8	60.0	60.3	60.6	60.9	61.0
105°	76.7	77.0	77.2	77.5	77.7	77.9	78.1	78.2	78.4	78.5	78.7
107.5°	96.2	96.6	96.9	97.4	97.7	97.9	97.9	97.9	97.9	97.9	97.9
110°	108.9	109.3	109.8	110.3	110.7	111.0	111.0	111.0	111.0	111.0	111.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	122.5	123.0	123.5	123.9	124.4	124.6	124.5	124.5	124.4	124.4	124.2
115°	142.7	143.2	143.7	144.1	144.6	144.8	144.6	144.4	144.3	144.1	144.1
117.5°	162.8	163.5	164.1	164.7	165.4	165.5	165.0	164.6	164.1	163.7	163.5
120°	176.2	176.9	177.5	178.1	178.7	178.7	178.1	177.5	176.9	176.2	176.2
122.5°	188.5	189.2	190.1	190.8	191.6	191.8	191.3	190.9	190.4	190.0	189.8
125°	207.6	208.3	209.0	209.7	210.5	210.8	210.5	210.3	210.1	209.7	209.5
127.5°	226.3	227.2	228.1	228.9	229.8	230.1	229.9	229.6	229.3	229.0	228.7
130°	238.0	239.0	240.0	241.1	242.1	242.6	242.4	242.3	242.1	241.9	241.8
132.5°	251.2	252.0	252.8	253.6	254.5	254.9	254.9	255.0	255.0	255.0	254.7
135°	268.6	269.5	270.4	271.2	272.2	272.7	272.9	273.0	273.2	273.3	273.2
137.5°	287.1	287.8	288.5	289.3	290.0	290.4	290.6	290.8	291.0	291.2	291.2
140°	298.3	299.0	299.7	300.4	301.1	301.6	302.1	302.5	302.9	303.3	303.3
142.5°	309.7	310.4	311.1	311.8	312.6	313.1	313.3	313.6	313.9	314.1	314.2
145°	326.1	326.7	327.2	327.8	328.3	328.8	329.3	329.8	330.2	330.7	330.8
147.5°	340.7	341.4	342.0	342.7	343.4	343.9	344.2	344.6	344.9	345.2	345.4
150°	350.7	351.2	351.6	352.1	352.6	353.0	353.4	353.7	354.0	354.3	354.6
152.5°	359.6	360.0	360.5	361.0	361.4	361.9	362.2	362.6	363.0	363.5	363.8
155°	372.8	373.0	373.3	373.5	373.8	374.1	374.3	374.5	374.8	375.0	375.4
157.5°	384.2	384.4	384.5	384.7	384.9	385.0	385.2	385.3	385.4	385.6	386.1
160°	391.0	391.2	391.3	391.5	391.6	391.8	391.8	391.9	392.0	392.1	392.5
162.5°	397.3	397.4	397.4	397.4	397.5	397.5	397.6	397.7	397.8	397.8	398.4
165°	405.7	405.6	405.5	405.5	405.4	405.3	405.3	405.3	405.3	405.3	405.9
167.5°	412.6	412.4	412.2	411.9	411.7	411.6	411.5	411.5	411.5	411.5	412.0
170°	416.4	416.2	415.9	415.7	415.5	415.3	415.2	415.1	415.1	415.0	415.5
172.5°	418.9	418.7	418.5	418.2	418.0	417.8	417.8	417.7	417.6	417.5	418.1
175°	422.1	421.8	421.6	421.3	421.1	420.9	420.8	420.6	420.4	420.3	420.8
177.5°	423.3	423.1	422.9	422.8	422.6	422.4	422.3	422.2	422.0	421.9	422.3
180°	422.8	422.8	422.8	422.8	422.8	422.8	422.8	422.8	422.8	422.8	422.8



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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°	10.5	10.3	10.0	9.9	9.9	9.9	9.9	9.9
90°	12.2	12.0	11.8	11.8	11.9	12.0	12.0	12.1
92.5°	11.4	11.4	11.5	11.5	11.5	11.5	11.5	11.5
95°	22.8	22.8	22.8	22.7	22.6	22.4	22.3	22.1
97.5°	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.3
100°	49.3	49.3	49.3	49.2	49.1	49.1	49.0	48.9
102.5°	61.1	61.1	61.2	61.2	61.1	61.0	61.0	60.9
105°	78.8	79.0	79.2	79.2	79.2	79.2	79.2	79.2
107.5°	98.0	98.1	98.1	98.0	97.6	97.3	96.8	96.4
110°	111.0	111.0	111.0	110.9	110.6	110.4	110.2	109.9



TEST NUMBER: P331709-840

CATALOG NUMBER: SA2XXRDIP-C865D330U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	124.0	123.8	123.6	123.4	123.3	123.1	122.9	122.7
115°	144.0	143.9	143.8	143.7	143.4	143.2	143.0	142.7
117.5°	163.3	163.1	162.9	162.7	162.5	162.3	162.0	161.8
120°	176.2	176.2	176.2	176.1	175.9	175.6	175.4	175.2
122.5°	189.6	189.3	189.1	189.0	188.8	188.6	188.4	188.3
125°	209.3	209.0	208.8	208.6	208.6	208.5	208.4	208.3
127.5°	228.5	228.2	227.9	227.6	227.4	227.1	226.9	226.6
130°	241.6	241.5	241.3	241.1	240.8	240.3	240.0	239.7
132.5°	254.3	254.0	253.7	253.4	253.1	252.9	252.6	252.4
135°	273.2	273.1	273.0	272.9	272.6	272.4	272.2	271.9
137.5°	291.1	291.0	291.0	290.8	290.5	290.2	289.9	289.5
140°	303.3	303.3	303.3	303.1	302.8	302.5	302.2	301.8
142.5°	314.3	314.3	314.4	314.3	314.0	313.6	313.3	313.0
145°	330.9	330.9	331.0	330.9	330.6	330.3	330.0	329.6
147.5°	345.5	345.7	345.9	345.8	345.5	345.2	344.9	344.6
150°	354.8	355.0	355.3	355.3	355.0	354.8	354.6	354.3
152.5°	364.1	364.4	364.7	364.7	364.4	364.1	363.8	363.5
155°	375.8	376.2	376.6	376.7	376.4	376.2	376.0	375.7
157.5°	386.6	387.2	387.7	387.8	387.4	387.0	386.7	386.3
160°	393.0	393.5	394.0	394.0	393.7	393.4	393.1	392.8
162.5°	398.9	399.4	400.0	400.0	399.7	399.3	398.9	398.5
165°	406.4	407.0	407.5	407.6	407.2	406.8	406.4	406.1
167.5°	412.6	413.1	413.7	413.8	413.4	412.9	412.5	412.1
170°	416.1	416.6	417.2	417.2	416.8	416.3	415.8	415.3
172.5°	418.6	419.2	419.7	419.8	419.3	418.8	418.4	417.9
175°	421.4	421.9	422.5	422.5	422.1	421.6	421.1	420.6
177.5°	422.7	423.0	423.4	423.4	423.0	422.7	422.3	421.9
180°	422.8	422.8	422.8	422.8	422.8	422.8	422.8	422.8

(END OF REPORT)