

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: P331708-840

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

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331708-840
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: SA2XXRDIP-C865D330U840-4F0-1E-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: 4369.0 lumens
Efficiency: N/A
Efficacy: 100.4 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

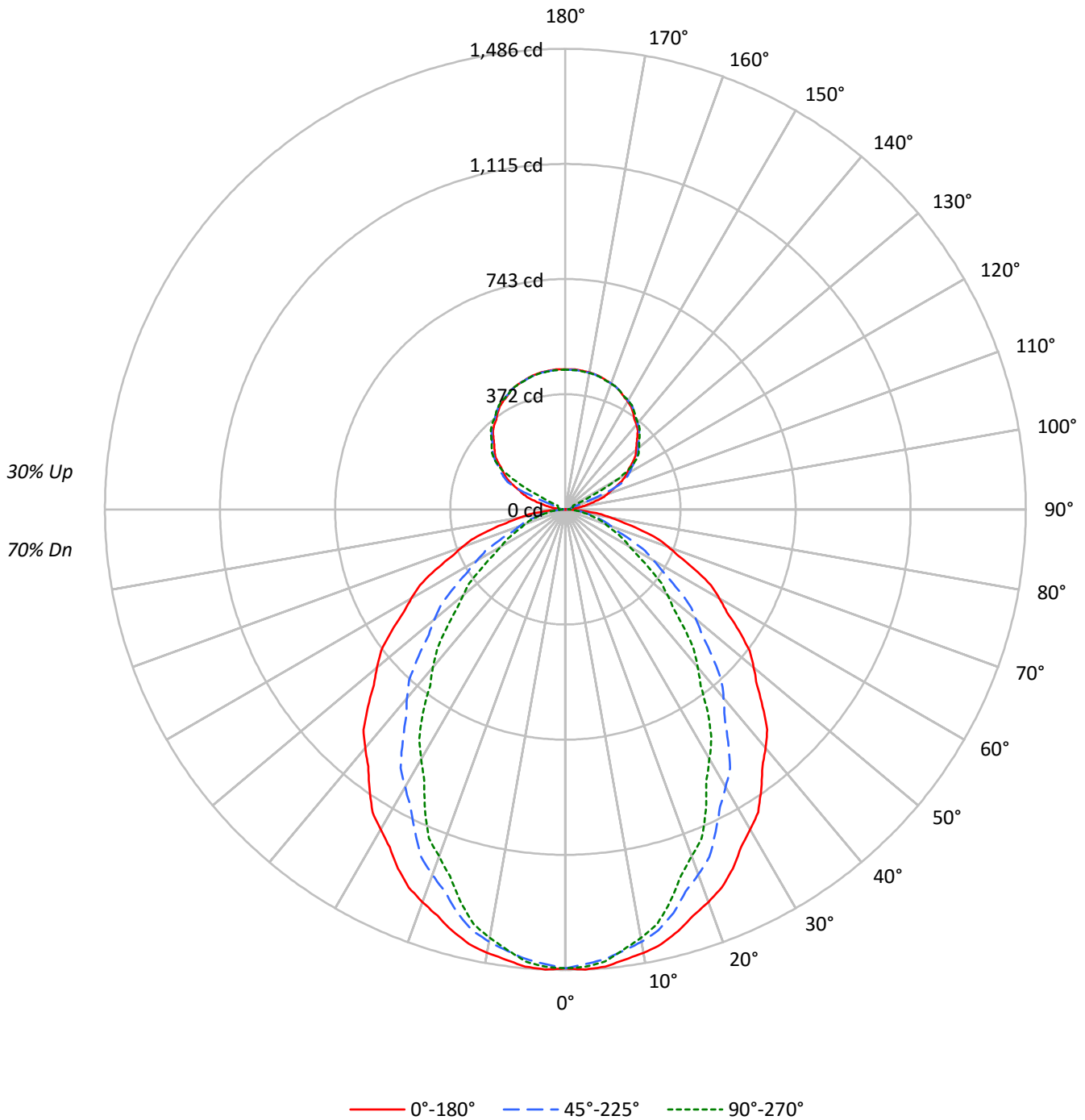
Input Watts (W): 43.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	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	3.2
10°-20°	380.6	8.7
20°-30°	534.4	12.2
30°-40°	582.7	13.3
40°-50°	535.8	12.3
50°-60°	420.8	9.6
60°-70°	274.4	6.3
70°-80°	141.5	3.2
80°-90°	37.8	0.9
90°-100°	15.1	0.3
100°-110°	55.2	1.3
110°-120°	147.6	3.4
120°-130°	243.6	5.6
130°-140°	259.0	5.9
140°-150°	240.8	5.5
150°-160°	193.6	4.4
160°-170°	124.7	2.9
170°-180°	42.9	1.0
0°-30°	1053.6	24.1
0°-40°	1636.3	37.5
0°-60°	2593.0	59.3
0°-90°	3046.6	69.7
90°-120°	217.8	5.0
90°-150°	961.2	22.0
90°-180°	1322.0	30.3
0°-180°	4369.0	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	4	7	8	9	3
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°	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°	17.2	15.5	13.7	12.0	10.2	9.4	9.5	9.7	9.8	9.9	9.7
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°	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°	9.6	9.4	9.2	9.2	9.2	9.2	9.2	9.3
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: P331708-840

CATALOG NUMBER: SA2XXRDIP-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)