

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: P332960-930

Luminaire Tested: **SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332960-930
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 365 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4468.8 lumens
Efficiency: N/A
Efficacy: 102.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

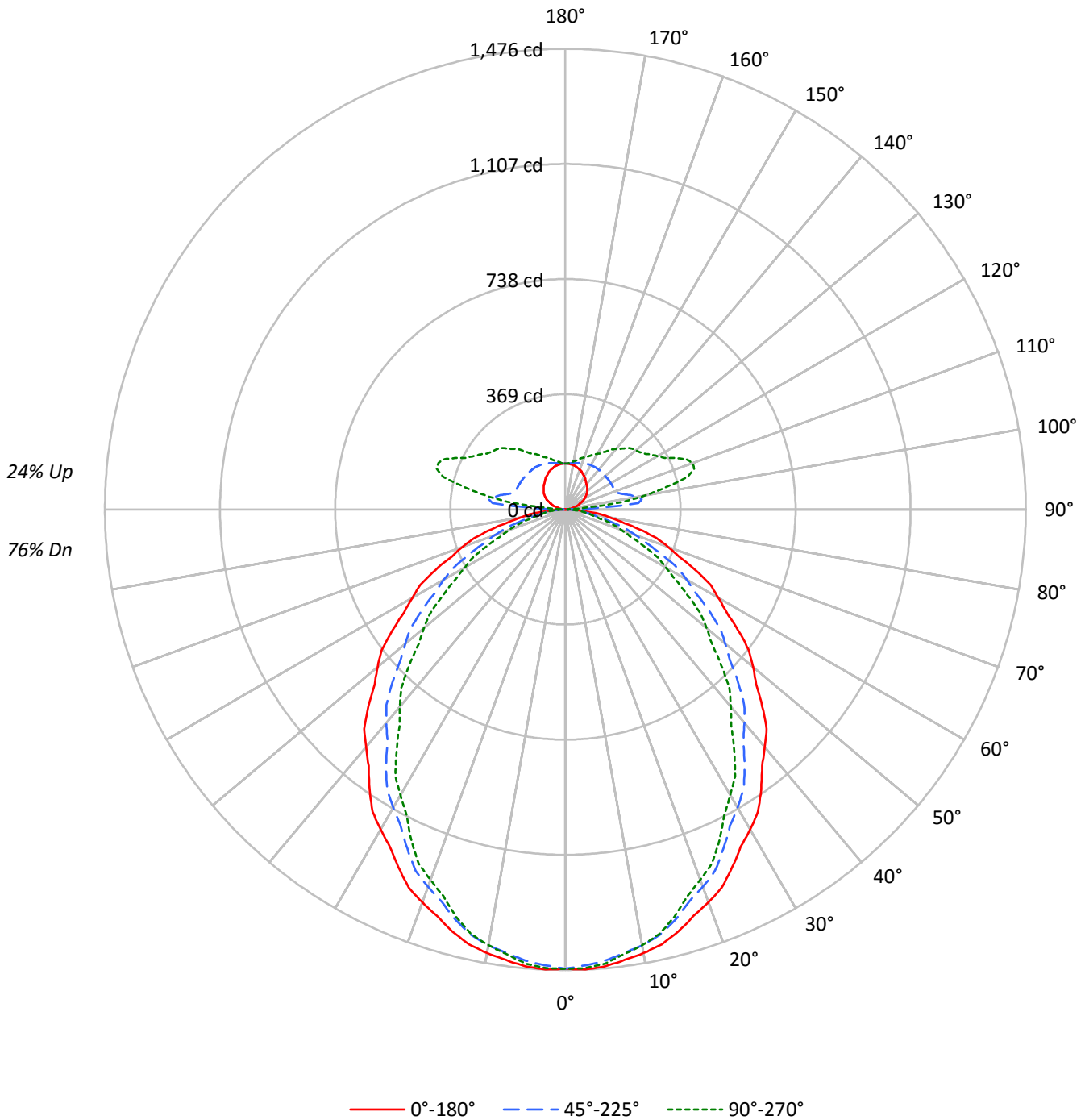
Input Watts (W): 43.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

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	108	108	108	108	98	98	98	89	89	89	80	80	80	76				76
1	104	100	96	92	99	95	92	89	87	84	82	79	77	75	72	70	69				65	
2	95	88	81	76	90	84	78	73	76	72	68	70	66	63	63	61	58				55	
3	87	77	70	64	83	74	67	62	68	62	58	62	58	54	57	53	50				47	
4	80	69	61	55	76	66	59	53	61	55	50	56	51	47	51	47	44				41	
5	74	62	53	47	70	59	52	46	54	48	43	50	45	41	46	42	38				36	
6	68	56	47	41	65	53	46	40	49	43	38	45	40	36	42	37	34				31	
7	63	51	42	37	60	49	41	36	45	39	34	42	36	32	38	34	30				28	
8	59	46	38	33	56	44	37	32	41	35	30	38	33	29	35	31	27				25	
9	55	42	35	29	52	41	34	29	38	32	27	35	30	26	33	28	25				23	
10	51	39	32	27	49	38	31	26	35	29	25	33	27	24	30	26	23				21	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	11885	11885	11885
5°	11912	11766	11839
10°	11837	11625	11625
15°	11701	11381	11295
20°	11515	11059	10856
25°	11276	10684	10413
30°	11044	10288	9857
35°	10787	9876	9298
40°	10478	9409	8696
45°	10193	8944	8082
50°	9868	8410	7433
55°	9520	7854	6726
60°	9137	7245	6006
65°	8785	6481	5297
70°	8275	5641	4497
75°	7629	4676	3656
80°	6657	3561	3357
85°	5641	3242	3029



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.3	3.1
10°-20°	385.6	8.6
20°-30°	556.9	12.5
30°-40°	631.2	14.1
40°-50°	609.5	13.6
50°-60°	506.9	11.3
60°-70°	350.0	7.8
70°-80°	177.4	4.0
80°-90°	46.3	1.0
90°-100°	105.9	2.4
100°-110°	220.5	4.9
110°-120°	197.5	4.4
120°-130°	166.1	3.7
130°-140°	138.5	3.1
140°-150°	105.8	2.4
150°-160°	74.4	1.7
160°-170°	43.7	1.0
170°-180°	14.2	0.3
0°-30°	1080.8	24.2
0°-40°	1712.0	38.3
0°-60°	2828.4	63.3
0°-90°	3402.1	76.1
90°-120°	523.9	11.7
90°-150°	934.3	20.9
90°-180°	1067.0	23.9
0°-180°	4468.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1472	1472	1472	1472	1472	
5°	1470	1465	1452	1462	1461	139
15°	1400	1389	1362	1359	1352	394
25°	1266	1244	1199	1181	1169	583
35°	1094	1057	1002	965	944	684
45°	893	850	783	730	708	688
55°	676	630	558	501	478	605
65°	460	410	339	293	277	454
75°	245	202	150	125	117	258
85°	61	39	35	33	33	68
90°	0	2	5	6	6	3
95°	10	30	235	116	70	11
105°	34	49	189	407	405	36
115°	59	74	169	324	389	59
125°	83	98	168	276	311	74
135°	98	117	166	245	278	76
145°	113	130	165	206	227	71
155°	129	139	161	182	190	59
165°	140	145	154	163	166	40
175°	146	147	148	150	149	14
180°	147	147	147	147	147	



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1475.8	1475.0	1474.1	1473.4	1472.6	1471.0	1468.8	1466.6	1464.4	1462.2	1464.4
5°	1469.9	1468.9	1467.9	1466.9	1465.9	1463.9	1460.9	1457.9	1454.9	1451.9	1454.4
7.5°	1456.6	1455.6	1454.5	1453.4	1452.4	1449.9	1446.0	1442.1	1438.2	1434.3	1435.9
10°	1444.0	1442.8	1441.4	1440.2	1439.0	1436.1	1431.6	1427.1	1422.5	1418.1	1419.0
12.5°	1427.8	1426.3	1424.8	1423.4	1422.0	1418.5	1413.2	1407.9	1402.6	1397.3	1397.9
15°	1400.0	1397.7	1395.5	1393.3	1391.0	1386.7	1380.5	1374.2	1368.0	1361.7	1361.2
17.5°	1366.4	1363.2	1359.9	1356.7	1353.4	1348.0	1340.5	1333.0	1325.5	1317.9	1316.5
20°	1340.3	1337.0	1333.7	1330.5	1327.2	1321.4	1312.9	1304.3	1295.8	1287.3	1285.3
22.5°	1311.4	1307.7	1304.1	1300.5	1296.8	1290.4	1281.3	1272.2	1263.1	1253.9	1250.9
25°	1265.9	1261.3	1256.9	1252.4	1247.8	1240.5	1230.2	1219.9	1209.7	1199.4	1195.1
27.5°	1218.1	1212.4	1206.8	1201.1	1195.5	1187.2	1176.2	1165.2	1154.2	1143.2	1138.0
30°	1184.7	1178.4	1172.2	1166.0	1159.7	1150.6	1138.9	1127.1	1115.3	1103.6	1097.3
32.5°	1149.6	1142.5	1135.4	1128.4	1121.3	1111.7	1099.5	1087.4	1075.1	1063.0	1055.7
35°	1094.5	1086.5	1078.5	1070.5	1062.5	1052.2	1039.7	1027.2	1014.6	1002.1	993.6
37.5°	1035.7	1027.4	1019.2	1010.9	1002.7	991.6	977.7	963.8	949.9	936.0	926.5
40°	994.3	985.9	977.7	969.4	961.2	949.9	935.6	921.3	907.0	892.8	882.2
42.5°	954.6	945.9	937.2	928.5	919.9	908.1	893.2	878.3	863.5	848.6	837.9
45°	892.8	883.5	874.2	865.0	855.7	843.5	828.5	813.5	798.4	783.4	771.2
47.5°	829.0	819.4	809.8	800.3	790.7	778.1	762.5	746.8	731.2	715.6	702.9
50°	785.7	775.9	766.1	756.4	746.6	733.7	717.7	701.6	685.6	669.6	657.0
52.5°	741.5	731.9	722.4	712.8	703.2	690.2	673.8	657.4	640.9	624.5	611.8
55°	676.4	666.3	656.3	646.3	636.3	623.1	606.8	590.5	574.3	558.0	544.9
57.5°	611.9	601.4	591.0	580.6	570.2	556.9	541.0	524.9	508.8	492.8	479.6
60°	565.9	555.9	545.8	535.8	525.8	512.7	496.8	480.7	464.6	448.7	435.6
62.5°	524.4	514.0	503.5	493.1	482.7	469.3	452.8	436.4	420.0	403.6	391.5
65°	459.9	449.1	438.4	427.6	416.9	403.4	387.4	371.4	355.3	339.3	328.6
67.5°	393.0	382.6	372.3	362.0	351.6	339.1	324.2	309.3	294.4	279.6	270.3
70°	350.6	340.1	329.5	319.0	308.5	296.1	281.8	267.5	253.2	239.0	230.7
72.5°	305.5	296.0	286.4	277.0	267.4	255.9	242.5	228.9	215.5	202.0	194.9
75°	244.6	235.4	226.1	216.8	207.6	197.0	185.2	173.5	161.7	149.9	144.1
77.5°	182.9	175.0	167.1	159.2	151.4	142.7	133.1	123.7	114.1	104.6	101.3
80°	143.2	135.9	128.7	121.4	114.1	106.7	99.2	91.7	84.1	76.6	75.9
82.5°	108.9	102.2	95.6	88.9	82.3	76.7	72.5	68.2	63.8	59.5	58.9
85°	60.9	55.8	50.9	45.8	40.8	37.9	37.2	36.4	35.7	35.0	34.4
87.5°	20.8	19.3	17.9	16.3	14.8	13.9	14.0	13.9	13.8	13.7	13.4
90°	0.3	0.9	1.7	2.0	2.3	2.3	4.0	4.0	4.6	5.2	4.9
92.5°	3.3	4.8	7.5	11.0	15.2	21.2	35.9	58.2	80.0	91.4	76.1
95°	9.5	10.4	13.3	17.0	23.9	36.0	61.1	108.4	177.2	234.8	241.5
97.5°	17.0	17.0	19.6	23.0	28.9	39.1	58.4	97.4	165.8	247.4	303.4
100°	21.9	21.9	23.9	27.4	32.9	42.1	59.1	91.6	150.4	231.7	305.4
102.5°	26.5	27.0	28.8	32.0	37.3	46.0	61.4	90.0	140.1	212.1	288.1
105°	33.8	34.6	36.0	39.5	44.7	53.0	66.9	90.7	131.1	189.0	256.7
107.5°	41.7	42.2	43.7	47.4	52.3	60.6	73.2	95.1	129.5	176.1	231.4
110°	47.0	47.5	49.0	52.4	57.6	65.4	78.1	98.2	130.0	171.7	218.7



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	52.0	52.6	54.3	57.5	62.7	70.4	82.7	101.7	131.3	169.7	211.6
115°	59.4	60.3	62.2	65.1	70.6	78.4	89.9	107.2	134.0	168.6	204.9
117.5°	66.9	67.8	69.5	72.7	77.9	85.9	96.9	112.8	136.8	168.3	201.9
120°	72.1	72.6	74.6	77.8	82.7	90.7	101.7	116.7	138.9	168.3	200.2
122.5°	76.6	77.2	79.2	82.2	87.6	95.4	106.3	120.4	141.0	168.0	198.4
125°	82.7	83.8	85.6	88.8	94.2	102.3	112.7	125.9	144.1	167.7	195.3
127.5°	88.1	88.9	91.1	94.7	100.4	108.5	118.5	130.7	146.6	167.1	191.3
130°	91.1	92.2	94.5	98.8	104.3	112.7	122.5	133.7	148.4	166.8	188.7
132.5°	94.1	95.0	98.0	102.1	108.0	115.9	125.7	136.7	150.0	166.6	186.5
135°	98.2	99.4	102.3	107.2	113.2	120.7	130.2	140.6	152.5	166.2	183.0
137.5°	102.5	103.5	106.7	111.4	117.6	124.8	133.7	143.4	153.8	166.2	180.0
140°	105.5	106.3	109.5	114.4	120.4	127.3	136.0	145.2	155.0	166.0	178.4
142.5°	108.7	109.6	112.5	117.2	122.9	129.6	138.1	146.6	156.0	166.0	177.0
145°	113.2	114.1	117.0	121.0	126.5	132.8	140.3	148.1	156.5	165.4	174.6
147.5°	118.4	118.6	121.2	125.3	129.9	135.6	142.6	149.4	156.8	164.4	172.5
150°	121.6	121.9	124.2	127.7	132.0	137.5	143.8	150.1	156.8	163.6	170.9
152.5°	124.6	124.7	126.9	130.2	134.0	139.1	144.7	150.6	156.3	162.5	169.0
155°	128.8	129.1	130.9	133.7	136.9	141.2	146.1	151.0	155.6	160.8	166.2
157.5°	132.9	132.9	134.5	136.7	139.5	142.9	147.1	151.0	154.8	159.0	163.5
160°	135.4	135.4	136.6	138.6	140.9	144.1	147.6	151.0	154.2	157.6	161.3
162.5°	137.7	137.5	138.4	140.2	142.3	144.8	148.0	151.0	153.4	156.2	159.6
165°	140.3	140.3	140.9	142.4	143.8	145.5	148.1	150.4	152.1	154.2	156.5
167.5°	142.9	142.6	142.9	144.0	144.8	146.2	148.1	149.7	150.7	152.1	153.7
170°	144.1	143.8	144.1	145.0	145.5	146.3	147.8	149.3	149.9	150.7	151.9
172.5°	145.2	145.0	145.0	145.6	145.9	146.6	147.6	148.8	149.0	149.3	150.3
175°	146.3	146.1	146.1	146.3	146.7	146.7	147.2	148.1	147.8	147.8	148.4
177.5°	146.9	146.7	146.4	146.7	146.7	146.7	146.9	147.3	146.9	146.9	147.2
180°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2	1472.2
2.5°	1466.6	1468.8	1471.0	1472.1	1471.9	1471.7	1471.5	1471.3
5°	1456.9	1459.4	1461.9	1462.9	1462.4	1461.9	1461.4	1460.9
7.5°	1437.5	1439.1	1440.7	1441.1	1440.3	1439.5	1438.7	1437.9
10°	1420.1	1421.1	1422.0	1422.0	1421.1	1420.1	1419.0	1418.1
12.5°	1398.5	1399.1	1399.7	1399.3	1397.9	1396.5	1395.1	1393.8
15°	1360.7	1360.2	1359.7	1358.5	1356.8	1355.0	1353.3	1351.5
17.5°	1315.2	1313.8	1312.4	1310.3	1307.7	1305.0	1302.4	1299.7
20°	1283.3	1281.3	1279.3	1276.7	1273.4	1270.2	1266.9	1263.6
22.5°	1247.9	1244.9	1241.9	1239.1	1236.4	1233.8	1231.1	1228.5
25°	1190.8	1186.6	1182.3	1178.9	1176.5	1173.9	1171.4	1169.0
27.5°	1132.7	1127.5	1122.2	1117.8	1114.2	1110.5	1106.9	1103.3
30°	1091.0	1084.8	1078.5	1073.3	1069.3	1065.4	1061.4	1057.4
32.5°	1048.5	1041.2	1034.0	1028.4	1024.6	1020.8	1017.0	1013.2
35°	985.0	976.6	968.0	961.6	957.0	952.5	948.0	943.5
37.5°	917.0	907.5	898.0	891.0	886.5	881.9	877.4	872.9
40°	871.7	861.2	850.7	843.2	838.7	834.1	829.6	825.2
42.5°	827.1	816.4	805.7	798.0	793.3	788.6	783.8	779.2
45°	758.9	746.6	734.3	725.9	721.5	716.9	712.4	707.9
47.5°	690.2	677.4	664.6	655.8	650.9	645.9	640.9	636.0
50°	644.5	632.0	619.5	610.8	606.1	601.3	596.6	591.8
52.5°	599.0	586.3	573.6	564.8	559.8	554.8	549.8	544.9
55°	531.9	518.9	505.9	497.0	492.2	487.5	482.7	477.9
57.5°	466.4	453.1	439.9	431.5	427.9	424.3	420.7	417.1
60°	422.6	409.5	396.6	388.0	384.0	380.0	376.0	372.0
62.5°	379.5	367.5	355.5	347.8	344.6	341.4	338.2	335.0
65°	317.7	307.0	296.2	289.3	286.3	283.3	280.3	277.3
67.5°	261.0	251.8	242.5	236.2	232.8	229.6	226.2	223.0
70°	222.4	214.2	205.9	200.5	198.0	195.5	193.0	190.5
72.5°	187.8	180.8	173.7	169.1	166.7	164.4	162.2	159.9
75°	138.4	132.6	126.9	123.3	121.7	120.3	118.7	117.2
77.5°	97.9	94.6	91.2	89.3	88.8	88.4	87.9	87.5
80°	75.2	74.4	73.6	73.1	72.9	72.6	72.4	72.2
82.5°	58.4	57.9	57.3	56.9	56.7	56.4	56.2	55.9
85°	33.9	33.4	32.9	32.7	32.7	32.7	32.7	32.7
87.5°	13.3	13.1	13.0	13.0	13.2	13.5	13.6	13.9
90°	5.2	5.5	5.8	5.8	6.0	6.4	6.0	6.0
92.5°	56.6	42.6	33.9	28.1	24.7	23.2	22.2	22.2
95°	213.5	168.8	130.2	102.3	88.1	79.2	74.0	70.3
97.5°	315.4	298.9	270.7	240.6	219.9	202.6	194.0	187.9
100°	347.5	353.3	339.2	317.8	292.8	275.2	266.5	264.2
102.5°	345.9	374.5	378.5	369.7	354.3	341.6	332.5	330.6
105°	322.7	372.6	401.1	412.9	413.5	411.2	407.2	405.4
107.5°	289.8	342.9	383.0	408.8	423.0	429.6	432.4	433.2
110°	270.0	319.8	361.7	393.3	413.8	425.9	431.0	433.7



TEST NUMBER: P332960-930

CATALOG NUMBER: SA4XXRDIP-C1020D365U930-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	255.4	299.5	339.0	370.7	394.0	408.6	415.9	420.0
115°	240.9	276.3	310.1	337.7	360.4	377.7	387.0	389.3
117.5°	233.7	263.1	289.6	313.1	332.5	347.0	356.3	358.1
120°	230.5	257.3	280.4	300.8	317.2	330.0	337.5	340.6
122.5°	227.7	253.6	274.6	292.5	306.4	317.2	323.6	326.8
125°	223.1	247.8	267.7	283.6	295.1	303.5	308.9	310.6
127.5°	217.3	240.9	260.8	275.8	287.4	294.8	299.5	301.2
130°	212.6	235.5	255.0	270.3	282.1	289.3	293.9	295.6
132.5°	207.8	229.2	248.3	263.6	275.2	283.3	287.7	289.4
135°	201.1	219.9	237.4	251.8	263.3	271.4	276.1	277.8
137.5°	195.1	210.9	225.8	238.7	249.6	257.5	261.3	263.3
140°	191.6	205.1	218.1	230.2	240.4	246.6	250.7	253.0
142.5°	188.4	200.3	211.4	221.9	230.9	236.8	240.4	241.9
145°	183.8	193.6	202.3	210.3	217.5	222.4	225.3	226.7
147.5°	180.1	187.8	194.8	201.1	206.4	210.7	212.8	213.4
150°	177.8	184.4	190.2	195.3	200.0	203.7	205.5	205.7
152.5°	175.3	181.0	186.3	190.5	194.4	197.5	198.5	198.9
155°	171.5	176.0	180.3	183.8	186.7	189.0	189.9	189.9
157.5°	167.4	171.2	174.9	177.7	179.8	181.6	182.1	182.1
160°	164.9	168.0	171.1	173.5	175.2	176.9	177.2	177.2
162.5°	162.3	165.0	167.5	169.6	170.8	172.5	172.8	172.6
165°	158.7	160.5	162.5	164.0	165.1	166.2	166.0	165.7
167.5°	155.4	156.7	158.3	159.1	159.7	160.5	160.5	160.2
170°	153.3	154.2	155.3	156.2	156.8	157.0	156.8	156.8
172.5°	151.5	152.1	152.8	153.4	153.8	154.0	153.8	153.3
175°	149.0	149.3	149.9	149.9	149.9	150.4	149.9	149.3
177.5°	147.3	147.6	147.6	147.8	147.6	147.8	147.3	146.9
180°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7

(END OF REPORT)