

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: P332966-830

Luminaire Tested: **SA4XXRDIP-C1020D590U830-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332966-830
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-C1020D590U830-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

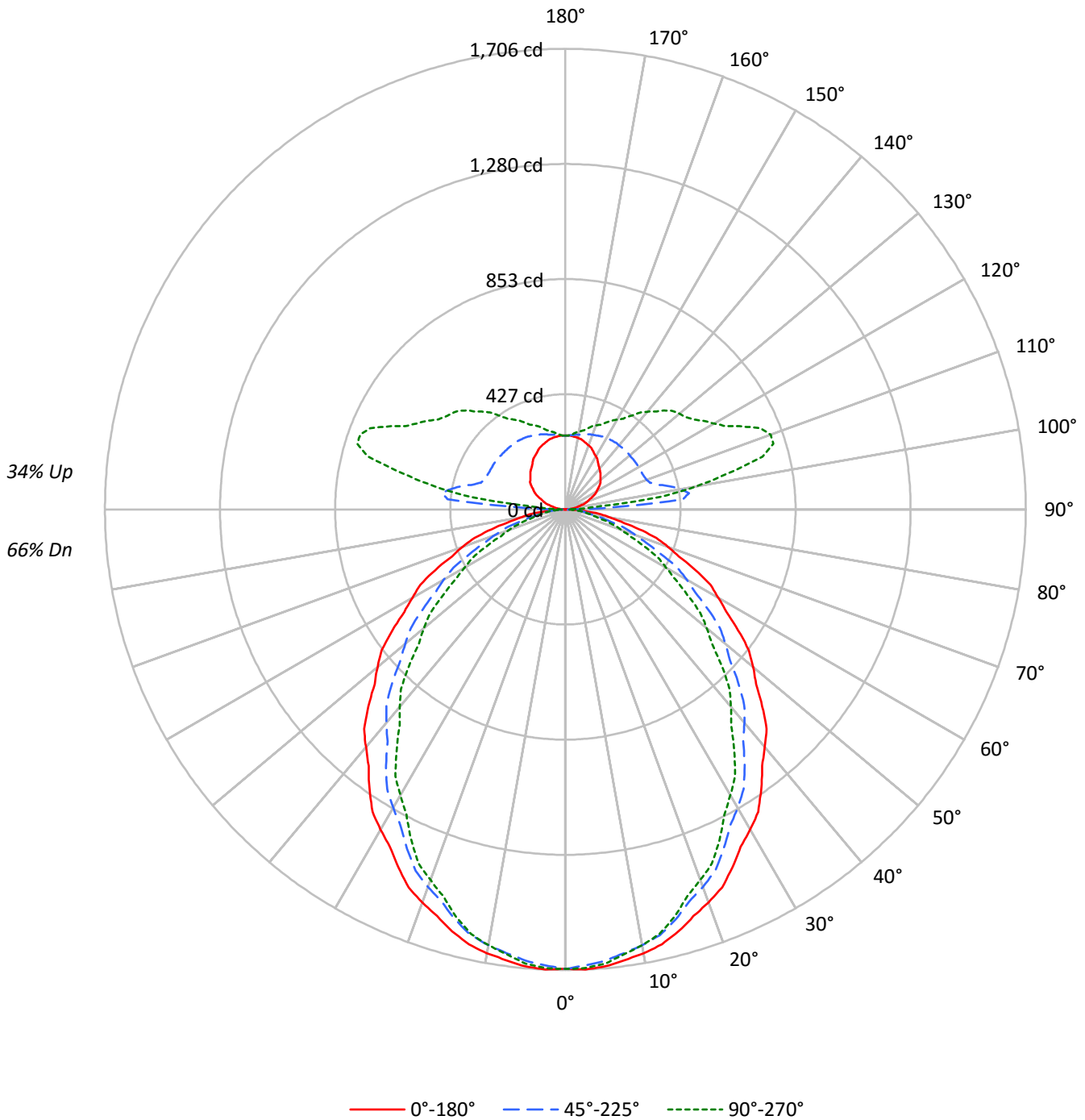
Lumens per Lamp: N/A
Luminaire Lumens: 5924.1 lumens
Efficiency: N/A
Efficacy: 121.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 48.8
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	111	111	111	111	105	105	105	105	92	92	92	81	81	81	71	71	71	66				
1	102	98	94	90	96	92	89	86	82	79	77	72	70	69	64	62	61	57				
2	93	86	79	74	87	81	75	71	72	68	64	64	61	58	56	54	52	48				
3	85	76	68	62	80	72	65	60	64	59	54	57	53	49	50	47	44	41				
4	78	67	59	53	73	64	56	51	57	51	47	51	46	43	45	42	39	35				
5	72	60	52	46	67	57	50	44	51	45	41	46	41	37	41	37	34	31				
6	66	54	46	40	62	51	44	39	46	40	36	42	37	33	37	33	30	27				
7	62	49	41	35	58	47	39	34	42	36	32	38	33	29	34	30	27	24				
8	57	45	37	31	54	43	35	30	39	33	28	35	30	26	31	27	24	22				
9	53	41	33	28	50	39	32	27	36	30	25	32	27	24	29	25	22	20				
10	50	38	30	26	47	36	29	25	33	27	23	30	25	22	27	23	20	18				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13739	13739	13739
5°	13771	13602	13686
10°	13684	13439	13439
15°	13527	13157	13059
20°	13311	12785	12550
25°	13036	12351	12038
30°	12767	11893	11395
35°	12471	11417	10749
40°	12113	10877	10053
45°	11783	10340	9344
50°	11408	9722	8593
55°	11005	9080	7776
60°	10563	8375	6944
65°	10157	7494	6124
70°	9567	6522	5200
75°	8821	5405	4226
80°	7694	4119	3877
85°	6521	3742	3501



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.9	2.7
10°-20°	445.8	7.5
20°-30°	643.8	10.9
30°-40°	729.7	12.3
40°-50°	704.7	11.9
50°-60°	586.0	9.9
60°-70°	404.6	6.8
70°-80°	205.1	3.5
80°-90°	54.1	0.9
90°-100°	197.7	3.3
100°-110°	411.4	6.9
110°-120°	368.5	6.2
120°-130°	310.0	5.2
130°-140°	258.4	4.4
140°-150°	197.4	3.3
150°-160°	138.8	2.3
160°-170°	81.6	1.4
170°-180°	26.6	0.4
0°-30°	1249.5	21.1
0°-40°	1979.2	33.4
0°-60°	3269.8	55.2
0°-90°	3933.7	66.4
90°-120°	977.6	16.5
90°-150°	1743.4	29.4
90°-180°	1990.0	33.6
0°-180°	5924.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1702	1702	1702	1702	1702	
5°	1699	1694	1678	1691	1689	161
15°	1618	1606	1574	1571	1562	456
25°	1464	1438	1387	1365	1351	674
35°	1265	1222	1158	1115	1091	790
45°	1032	982	906	844	818	795
55°	782	728	645	580	552	699
65°	532	474	392	338	321	525
75°	283	234	173	145	136	299
85°	70	46	40	38	38	79
90°	1	4	10	11	11	4
95°	18	56	438	217	131	20
105°	63	91	353	760	756	67
115°	111	139	314	604	726	110
125°	154	183	313	514	580	137
135°	183	218	310	456	518	142
145°	211	242	309	385	423	133
155°	240	259	300	340	354	111
165°	262	270	288	305	309	74
175°	273	274	276	280	278	26
180°	274	274	274	274	274	



TEST NUMBER: P332966-830

CATALOG NUMBER: SA4XXRDIP-C1020D590U830-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1706.1	1705.2	1704.2	1703.4	1702.4	1700.6	1698.1	1695.5	1693.0	1690.5	1693.0
5°	1699.3	1698.2	1697.0	1695.8	1694.7	1692.3	1688.9	1685.5	1682.0	1678.5	1681.4
7.5°	1683.9	1682.7	1681.5	1680.3	1679.0	1676.2	1671.7	1667.2	1662.6	1658.1	1660.0
10°	1669.3	1667.9	1666.4	1665.0	1663.6	1660.2	1655.0	1649.8	1644.5	1639.4	1640.5
12.5°	1650.6	1648.9	1647.2	1645.6	1643.9	1639.9	1633.8	1627.7	1621.6	1615.4	1616.1
15°	1618.5	1615.9	1613.4	1610.7	1608.1	1603.2	1595.9	1588.7	1581.5	1574.2	1573.7
17.5°	1579.7	1575.9	1572.2	1568.4	1564.6	1558.4	1549.7	1541.1	1532.4	1523.6	1522.0
20°	1549.4	1545.7	1541.9	1538.1	1534.4	1527.6	1517.8	1507.9	1498.1	1488.2	1485.9
22.5°	1516.1	1511.8	1507.6	1503.4	1499.2	1491.8	1481.3	1470.7	1460.2	1449.6	1446.1
25°	1463.5	1458.2	1453.0	1447.8	1442.6	1434.1	1422.2	1410.3	1398.5	1386.6	1381.7
27.5°	1408.2	1401.7	1395.2	1388.6	1382.1	1372.4	1359.7	1347.1	1334.4	1321.6	1315.6
30°	1369.6	1362.4	1355.2	1347.9	1340.7	1330.2	1316.6	1303.0	1289.4	1275.8	1268.6
32.5°	1329.0	1320.8	1312.6	1304.5	1296.3	1285.2	1271.1	1257.1	1242.9	1228.9	1220.5
35°	1265.4	1256.1	1246.8	1237.6	1228.3	1216.4	1201.9	1187.5	1173.0	1158.5	1148.7
37.5°	1197.3	1187.8	1178.3	1168.7	1159.1	1146.3	1130.3	1114.3	1098.2	1082.1	1071.1
40°	1149.4	1139.8	1130.3	1120.7	1111.2	1098.2	1081.7	1065.1	1048.6	1032.1	1019.9
42.5°	1103.5	1093.5	1083.5	1073.5	1063.5	1049.8	1032.6	1015.4	998.2	981.0	968.7
45°	1032.1	1021.4	1010.7	999.9	989.2	975.2	957.8	940.5	923.0	905.7	891.6
47.5°	958.4	947.3	936.2	925.2	914.1	899.6	881.5	863.4	845.3	827.3	812.6
50°	908.3	897.0	885.7	874.4	863.1	848.2	829.7	811.2	792.6	774.1	759.6
52.5°	857.2	846.1	835.1	824.1	812.9	798.0	778.9	760.0	740.9	722.0	707.3
55°	781.9	770.3	758.7	747.2	735.6	720.4	701.5	682.7	663.9	645.1	630.0
57.5°	707.4	695.3	683.2	671.2	659.2	643.9	625.4	606.8	588.2	569.8	554.5
60°	654.2	642.6	631.0	619.4	607.8	592.8	574.3	555.7	537.2	518.7	503.6
62.5°	606.2	594.2	582.1	570.0	558.1	542.5	523.5	504.5	485.5	466.6	452.6
65°	531.7	519.2	506.8	494.4	481.9	466.4	447.9	429.3	410.8	392.3	379.8
67.5°	454.3	442.3	430.5	418.5	406.5	392.0	374.8	357.6	340.4	323.2	312.5
70°	405.3	393.1	381.0	368.8	356.7	342.3	325.8	309.2	292.8	276.3	266.7
72.5°	353.2	342.1	331.1	320.2	309.2	295.9	280.3	264.7	249.1	233.6	225.4
75°	282.8	272.1	261.4	250.6	240.0	227.7	214.1	200.6	186.9	173.3	166.6
77.5°	211.4	202.3	193.2	184.1	175.0	164.9	153.9	143.0	132.0	120.9	117.1
80°	165.5	157.1	148.7	140.3	132.0	123.4	114.7	106.0	97.3	88.6	87.8
82.5°	125.9	118.2	110.5	102.7	95.1	88.7	83.8	78.8	73.8	68.8	68.1
85°	70.4	64.6	58.8	53.0	47.2	43.8	43.0	42.1	41.3	40.4	39.8
87.5°	24.1	22.4	20.9	19.1	17.4	16.4	16.8	16.6	16.6	16.5	16.2
90°	0.6	1.6	3.2	3.8	4.3	4.3	7.5	7.5	8.6	9.7	9.1
92.5°	6.1	9.0	13.9	20.5	28.4	39.6	66.9	108.6	149.3	170.5	142.0
95°	17.7	19.3	24.7	31.8	44.6	67.2	114.0	202.2	330.6	438.2	450.5
97.5°	31.9	31.9	36.5	42.9	54.0	73.0	109.0	181.7	309.5	461.6	566.1
100°	40.9	40.9	44.6	51.1	61.3	78.5	110.2	171.0	280.7	432.3	570.0
102.5°	49.5	50.3	53.6	59.7	69.5	85.8	114.5	168.0	261.3	395.8	537.6
105°	62.9	64.6	67.2	73.7	83.3	99.0	124.7	169.4	244.7	352.7	479.1
107.5°	77.8	78.8	81.5	88.4	97.6	113.0	136.7	177.3	241.7	328.7	431.8
110°	87.7	88.7	91.4	97.8	107.5	122.1	145.7	183.3	242.5	320.5	408.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	97.1	98.2	101.3	107.4	117.0	131.5	154.3	189.8	245.1	316.6	394.7
115°	110.7	112.4	116.1	121.5	131.8	146.3	167.8	200.0	250.1	314.5	382.3
117.5°	125.0	126.5	129.8	135.7	145.2	160.3	180.8	210.5	255.2	314.0	376.7
120°	134.4	135.5	139.2	145.2	154.3	169.4	189.8	217.7	259.2	314.0	373.7
122.5°	143.0	144.1	147.9	153.4	163.3	178.0	198.4	224.6	263.1	313.6	370.2
125°	154.3	156.5	159.7	165.6	175.8	190.9	210.2	235.0	268.8	312.9	364.6
127.5°	164.3	166.1	169.9	176.6	187.3	202.5	221.2	243.9	273.4	311.7	356.9
130°	169.9	172.0	176.3	184.5	194.6	210.2	228.5	249.5	276.9	311.3	352.1
132.5°	175.5	177.2	182.9	190.5	201.5	216.2	234.5	255.1	279.9	310.9	347.9
135°	183.3	185.5	190.9	200.0	211.3	225.3	243.0	262.4	284.5	310.2	341.4
137.5°	191.2	193.2	199.2	207.8	219.6	232.9	249.5	267.6	287.1	310.1	335.8
140°	196.8	198.4	204.3	213.5	224.7	237.6	253.8	271.0	289.3	309.7	332.8
142.5°	202.8	204.4	209.9	218.6	229.5	242.0	257.7	273.5	291.0	309.7	330.3
145°	211.3	212.9	218.3	225.8	236.0	247.9	261.8	276.4	292.0	308.6	325.8
147.5°	220.8	221.4	226.1	233.8	242.4	253.1	266.2	278.8	292.5	306.7	321.9
150°	226.9	227.4	231.8	238.2	246.3	256.5	268.3	280.1	292.5	305.4	318.9
152.5°	232.5	232.6	236.9	242.9	250.2	259.5	270.0	281.0	291.6	303.2	315.4
155°	240.3	240.9	244.1	249.5	255.4	263.4	272.6	281.7	290.3	300.0	310.2
157.5°	248.0	248.0	251.0	255.1	260.3	266.6	274.5	281.7	289.0	296.7	305.0
160°	252.7	252.7	254.9	258.6	262.9	268.8	275.3	281.7	287.7	294.1	301.1
162.5°	257.0	256.6	258.3	261.6	265.5	270.1	276.2	281.7	286.3	291.5	297.7
165°	261.8	261.8	262.9	265.6	268.3	271.5	276.4	280.7	283.9	287.7	292.0
167.5°	266.6	266.2	266.6	268.7	270.2	272.7	276.3	279.4	281.3	283.8	286.8
170°	268.8	268.3	268.8	270.4	271.5	273.1	275.8	278.5	279.6	281.2	283.3
172.5°	271.0	270.4	270.5	271.7	272.4	273.5	275.4	277.7	277.9	278.6	280.3
175°	273.1	272.6	272.6	273.1	273.7	273.7	274.8	276.4	275.8	275.8	276.9
177.5°	274.1	273.7	273.2	273.7	273.7	273.7	274.1	274.9	274.1	274.1	274.6
180°	273.7	273.7	273.7	273.7	273.7	273.7	273.7	273.7	273.7	273.7	273.7



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1695.5	1698.1	1700.6	1701.9	1701.6	1701.4	1701.1	1700.9
5°	1684.2	1687.2	1690.1	1691.2	1690.6	1690.1	1689.5	1688.9
7.5°	1661.9	1663.7	1665.6	1666.0	1665.1	1664.2	1663.2	1662.3
10°	1641.7	1642.9	1644.0	1644.0	1642.9	1641.7	1640.5	1639.4
12.5°	1616.7	1617.5	1618.2	1617.7	1616.1	1614.5	1612.9	1611.3
15°	1573.1	1572.4	1571.9	1570.6	1568.6	1566.5	1564.5	1562.5
17.5°	1520.4	1518.8	1517.2	1514.9	1511.7	1508.7	1505.6	1502.5
20°	1483.6	1481.3	1478.9	1475.9	1472.2	1468.4	1464.6	1460.8
22.5°	1442.7	1439.2	1435.8	1432.5	1429.4	1426.3	1423.2	1420.2
25°	1376.7	1371.8	1366.9	1362.9	1360.1	1357.2	1354.2	1351.4
27.5°	1309.5	1303.4	1297.3	1292.2	1288.1	1283.8	1279.7	1275.5
30°	1261.3	1254.1	1246.8	1240.9	1236.2	1231.6	1227.0	1222.4
32.5°	1212.1	1203.7	1195.3	1188.9	1184.5	1180.1	1175.7	1171.3
35°	1138.8	1129.0	1119.1	1111.6	1106.4	1101.2	1096.0	1090.7
37.5°	1060.2	1049.1	1038.1	1030.0	1024.8	1019.5	1014.4	1009.2
40°	1007.8	995.6	983.4	974.8	969.6	964.3	959.1	953.9
42.5°	956.2	943.9	931.4	922.6	917.1	911.6	906.2	900.8
45°	877.3	863.1	848.9	839.2	834.1	828.8	823.6	818.4
47.5°	797.9	783.2	768.4	758.2	752.4	746.7	740.9	735.3
50°	745.1	730.7	716.1	706.2	700.7	695.1	689.7	684.2
52.5°	692.5	677.8	663.1	652.9	647.1	641.4	635.7	630.0
55°	614.9	599.9	584.8	574.6	569.0	563.5	558.1	552.5
57.5°	539.1	523.9	508.6	498.9	494.6	490.5	486.4	482.2
60°	488.5	473.4	458.5	448.6	443.9	439.3	434.7	430.1
62.5°	438.8	424.8	410.9	402.1	398.4	394.7	391.0	387.3
65°	367.3	354.9	342.4	334.5	331.0	327.5	324.0	320.6
67.5°	301.7	291.1	280.3	273.1	269.2	265.4	261.6	257.8
70°	257.1	247.6	238.1	231.8	228.9	226.0	223.1	220.3
72.5°	217.2	209.1	200.9	195.5	192.7	190.1	187.5	184.8
75°	160.0	153.4	146.7	142.5	140.7	139.0	137.2	135.5
77.5°	113.2	109.3	105.4	103.2	102.6	102.2	101.6	101.1
80°	86.9	86.1	85.1	84.5	84.3	84.0	83.7	83.4
82.5°	67.5	66.9	66.3	65.8	65.5	65.2	64.9	64.7
85°	39.2	38.6	38.1	37.8	37.8	37.8	37.8	37.8
87.5°	16.0	15.9	15.8	15.8	16.1	16.5	16.6	16.9
90°	9.7	10.2	10.7	10.7	11.3	11.8	11.3	11.3
92.5°	105.6	79.5	63.2	52.5	46.1	43.3	41.4	41.4
95°	398.4	315.1	243.0	190.9	164.6	147.9	138.2	131.2
97.5°	588.6	557.7	505.1	448.9	410.4	378.0	361.8	350.6
100°	648.5	659.2	632.8	593.0	546.3	513.5	497.4	493.0
102.5°	645.5	698.8	706.4	689.8	661.1	637.3	620.4	616.9
105°	602.2	695.2	748.5	770.5	771.6	767.2	759.7	756.5
107.5°	540.8	639.8	714.8	762.7	789.3	801.5	806.9	808.3
110°	503.8	596.8	674.8	734.0	772.1	794.7	804.4	809.2



TEST NUMBER: P332966-830

CATALOG NUMBER: SA4XXRDIP-C1020D590U830-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	476.7	558.9	632.6	691.7	735.1	762.4	776.0	783.8
115°	449.5	515.7	578.5	630.2	672.6	704.9	722.1	726.4
117.5°	436.1	490.9	540.4	584.1	620.4	647.4	664.9	668.3
120°	430.2	480.1	523.1	561.3	592.0	615.7	629.6	635.6
122.5°	425.0	473.3	512.4	545.8	571.7	592.0	603.8	609.7
125°	416.1	462.4	499.5	529.0	550.5	566.2	576.4	579.6
127.5°	405.4	449.6	486.6	514.6	536.3	550.2	558.7	561.9
130°	396.8	439.3	475.8	504.4	526.4	539.8	548.5	551.7
132.5°	387.8	427.6	463.4	491.8	513.5	528.7	536.8	540.1
135°	375.3	410.3	443.0	470.0	491.4	506.5	515.1	518.3
137.5°	364.0	393.6	421.2	445.5	465.6	480.5	487.6	491.4
140°	357.5	382.9	407.0	429.6	448.5	460.2	467.8	472.1
142.5°	351.6	373.8	394.5	414.2	430.7	441.8	448.5	451.4
145°	343.0	361.3	377.5	392.5	406.0	415.1	420.5	423.1
147.5°	336.0	350.5	363.4	375.3	385.2	393.0	397.1	398.1
150°	331.8	344.1	354.9	364.6	373.2	380.1	383.3	383.9
152.5°	327.0	337.6	347.5	355.5	362.8	368.5	370.4	371.0
155°	319.9	328.5	336.6	343.0	348.5	352.7	354.3	354.3
157.5°	312.3	319.5	326.2	331.4	335.5	338.7	339.7	339.7
160°	307.6	313.5	319.3	323.7	326.9	330.2	330.6	330.6
162.5°	302.8	307.8	312.5	316.4	318.8	322.0	322.5	322.1
165°	296.2	299.4	303.2	305.9	308.1	310.2	309.7	309.2
167.5°	289.9	292.4	295.4	297.0	298.1	299.4	299.4	299.0
170°	286.1	287.7	289.8	291.4	292.5	293.0	292.5	292.5
172.5°	282.6	283.8	285.1	286.3	286.9	287.5	286.9	286.1
175°	278.0	278.5	279.6	279.6	279.6	280.7	279.6	278.5
177.5°	274.9	275.4	275.4	275.8	275.4	275.8	274.9	274.1
180°	273.7	273.7	273.7	273.7	273.7	273.7	273.7	273.7

(END OF REPORT)