

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

Luminaire Tested: **SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332966
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-C1020D590U835-4F0-1E-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: 6285.2 lumens
Efficiency: N/A
Efficacy: 128.8 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

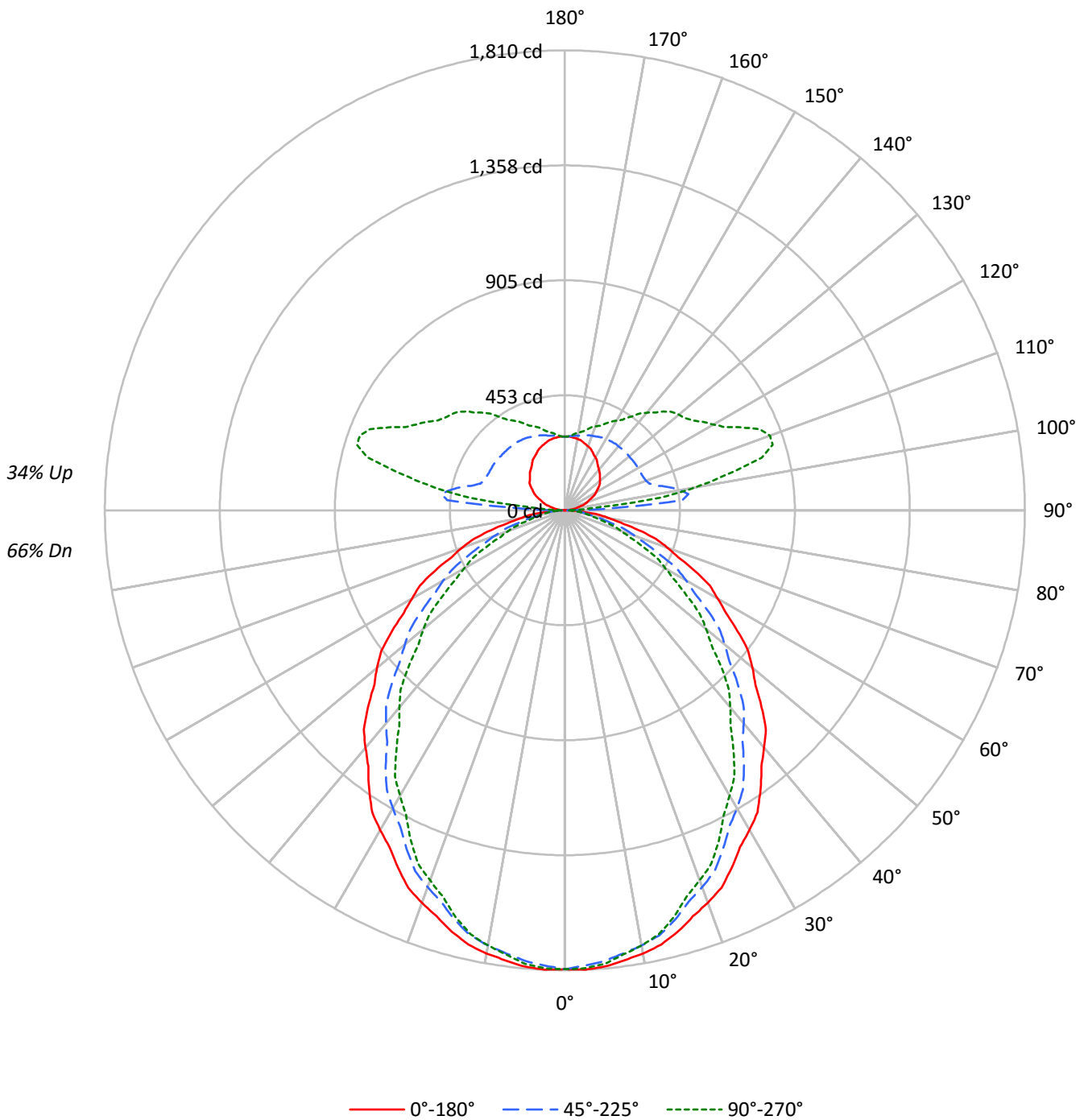
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

Luminous Intensity Polar Plot





TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

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	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°	14577	14577	14577
5°	14610	14431	14521
10°	14519	14258	14258
15°	14352	13959	13855
20°	14123	13564	13315
25°	13831	13104	12772
30°	13546	12618	12089
35°	13231	12113	11404
40°	12852	11540	10666
45°	12501	10970	9913
50°	12103	10315	9117
55°	11676	9633	8251
60°	11207	8885	7367
65°	10776	7950	6497
70°	10150	6918	5516
75°	9357	5736	4485
80°	8164	4370	4114
85°	6919	3974	3714



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	169.6	2.7
10°-20°	473.0	7.5
20°-30°	683.0	10.9
30°-40°	774.2	12.3
40°-50°	747.6	11.9
50°-60°	621.7	9.9
60°-70°	429.3	6.8
70°-80°	217.6	3.5
80°-90°	57.4	0.9
90°-100°	209.7	3.3
100°-110°	436.5	6.9
110°-120°	391.0	6.2
120°-130°	328.9	5.2
130°-140°	274.2	4.4
140°-150°	209.5	3.3
150°-160°	147.2	2.3
160°-170°	86.6	1.4
170°-180°	28.2	0.4
0°-30°	1325.6	21.1
0°-40°	2099.9	33.4
0°-60°	3469.2	55.2
0°-90°	4173.5	66.4
90°-120°	1037.2	16.5
90°-150°	1849.7	29.4
90°-180°	2112.0	33.6
0°-180°	6285.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1806	1806	1806	1806	1806	
5°	1803	1797	1781	1794	1792	171
15°	1717	1704	1670	1667	1658	484
25°	1553	1526	1471	1448	1434	715
35°	1342	1297	1229	1183	1157	839
45°	1095	1042	961	896	868	844
55°	830	772	684	615	586	742
65°	564	503	416	359	340	557
75°	300	248	184	153	144	317
85°	75	48	43	40	40	84
90°	1	5	10	11	12	5
95°	19	59	465	230	139	21
105°	67	97	374	806	803	71
115°	118	148	334	641	771	117
125°	164	194	332	546	615	146
135°	194	232	329	484	550	150
145°	224	257	327	408	449	141
155°	255	275	318	360	376	118
165°	278	286	305	323	328	78
175°	290	290	293	297	296	27
180°	290	290	290	290	290	



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1810.1	1809.1	1808.1	1807.2	1806.2	1804.3	1801.6	1798.9	1796.2	1793.5	1796.2
5°	1802.9	1801.7	1800.5	1799.2	1798.0	1795.5	1791.9	1788.2	1784.5	1780.8	1783.9
7.5°	1786.6	1785.3	1784.0	1782.7	1781.4	1778.4	1773.6	1768.8	1764.0	1759.2	1761.2
10°	1771.1	1769.6	1768.0	1766.5	1765.0	1761.4	1755.9	1750.4	1744.8	1739.3	1740.5
12.5°	1751.2	1749.4	1747.6	1745.9	1744.1	1739.9	1733.4	1726.9	1720.4	1713.9	1714.6
15°	1717.2	1714.4	1711.7	1708.9	1706.1	1700.9	1693.2	1685.5	1677.9	1670.2	1669.6
17.5°	1676.0	1672.0	1668.0	1664.0	1660.0	1653.4	1644.2	1635.0	1625.8	1616.5	1614.8
20°	1643.9	1639.9	1635.9	1631.9	1627.9	1620.7	1610.3	1599.8	1589.4	1578.9	1576.5
22.5°	1608.5	1604.0	1599.5	1595.1	1590.6	1582.7	1571.6	1560.4	1549.2	1538.0	1534.3
25°	1552.7	1547.1	1541.6	1536.1	1530.5	1521.5	1508.9	1496.3	1483.7	1471.1	1465.9
27.5°	1494.0	1487.1	1480.2	1473.2	1466.3	1456.1	1442.6	1429.2	1415.7	1402.2	1395.8
30°	1453.1	1445.4	1437.8	1430.1	1422.4	1411.3	1396.9	1382.4	1368.0	1353.6	1345.9
32.5°	1410.0	1401.3	1392.6	1384.0	1375.3	1363.5	1348.6	1333.7	1318.7	1303.8	1294.9
35°	1342.5	1332.7	1322.8	1313.0	1303.2	1290.6	1275.2	1259.9	1244.5	1229.1	1218.7
37.5°	1270.3	1260.2	1250.1	1239.9	1229.8	1216.2	1199.2	1182.2	1165.1	1148.1	1136.4
40°	1219.5	1209.3	1199.2	1189.0	1178.9	1165.1	1147.6	1130.0	1112.5	1095.0	1082.1
42.5°	1170.8	1160.2	1149.5	1138.9	1128.3	1113.8	1095.6	1077.3	1059.1	1040.8	1027.7
45°	1095.0	1083.7	1072.3	1060.9	1049.5	1034.6	1016.2	997.8	979.3	960.9	945.9
47.5°	1016.8	1005.0	993.3	981.6	969.8	954.4	935.2	916.0	896.8	877.7	862.1
50°	963.7	951.7	939.7	927.7	915.7	899.9	880.3	860.6	840.9	821.3	805.9
52.5°	909.5	897.7	886.0	874.3	862.5	846.6	826.4	806.3	786.1	766.0	750.4
55°	829.6	817.3	805.0	792.7	780.4	764.3	744.3	724.3	704.4	684.4	668.4
57.5°	750.5	737.7	724.9	712.1	699.4	683.1	663.5	643.8	624.1	604.5	588.3
60°	694.1	681.8	669.5	657.2	644.9	628.9	609.3	589.6	569.9	550.3	534.3
62.5°	643.2	630.4	617.6	604.8	592.1	575.6	555.4	535.3	515.1	495.0	480.2
65°	564.1	550.9	537.7	524.5	511.3	494.8	475.2	455.5	435.8	416.2	403.0
67.5°	482.0	469.3	456.7	444.0	431.3	415.9	397.6	379.4	361.1	342.9	331.5
70°	430.0	417.1	404.2	391.3	378.4	363.2	345.7	328.1	310.6	293.1	283.0
72.5°	374.7	363.0	351.3	339.7	328.0	313.9	297.4	280.8	264.3	247.8	239.1
75°	300.0	288.7	277.3	265.9	254.6	241.6	227.2	212.8	198.3	183.9	176.8
77.5°	224.3	214.6	205.0	195.3	185.7	175.0	163.3	151.7	140.0	128.3	124.2
80°	175.6	166.7	157.8	148.9	140.0	130.9	121.7	112.5	103.2	94.0	93.1
82.5°	133.6	125.4	117.2	109.0	100.9	94.1	88.9	83.6	78.3	73.0	72.3
85°	74.7	68.5	62.4	56.2	50.1	46.5	45.6	44.7	43.8	42.9	42.2
87.5°	25.6	23.8	22.2	20.3	18.5	17.4	17.8	17.6	17.6	17.5	17.2
90°	0.6	1.7	3.4	4.0	4.6	4.6	8.0	8.0	9.1	10.3	9.7
92.5°	6.5	9.5	14.8	21.8	30.1	42.0	71.0	115.2	158.4	180.9	150.7
95°	18.8	20.5	26.2	33.7	47.3	71.3	120.9	214.5	350.8	464.9	478.0
97.5°	33.8	33.8	38.7	45.5	57.3	77.4	115.6	192.8	328.4	489.7	600.6
100°	43.4	43.4	47.3	54.2	65.0	83.3	116.9	181.4	297.8	458.6	604.7
102.5°	52.5	53.4	56.9	63.3	73.7	91.0	121.5	178.2	277.2	419.9	570.4
105°	66.7	68.5	71.3	78.2	88.4	105.0	132.3	179.7	259.6	374.2	508.3
107.5°	82.5	83.6	86.5	93.8	103.6	119.9	145.0	188.1	256.4	348.7	458.1
110°	93.0	94.1	97.0	103.8	114.1	129.5	154.6	194.5	257.3	340.0	433.0



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	103.0	104.2	107.5	113.9	124.1	139.5	163.7	201.4	260.0	335.9	418.8
115°	117.5	119.2	123.2	128.9	139.8	155.2	178.0	212.2	265.3	333.7	405.6
117.5°	132.6	134.2	137.7	144.0	154.1	170.1	191.8	223.3	270.8	333.1	399.7
120°	142.6	143.8	147.7	154.0	163.7	179.7	201.4	231.0	275.0	333.1	396.5
122.5°	151.7	152.9	156.9	162.7	173.3	188.8	210.5	238.3	279.1	332.7	392.8
125°	163.7	166.0	169.4	175.7	186.5	202.5	223.0	249.3	285.2	332.0	386.8
127.5°	174.3	176.2	180.3	187.4	198.7	214.8	234.7	258.8	290.1	330.7	378.7
130°	180.3	182.5	187.1	195.7	206.5	223.0	242.4	264.7	293.8	330.3	373.6
132.5°	186.2	188.0	194.0	202.1	213.8	229.4	248.8	270.6	297.0	329.8	369.1
135°	194.5	196.8	202.5	212.2	224.2	239.0	257.8	278.4	301.8	329.1	362.2
137.5°	202.9	205.0	211.3	220.5	233.0	247.1	264.7	283.9	304.6	329.0	356.3
140°	208.8	210.5	216.8	226.5	238.4	252.1	269.3	287.5	306.9	328.6	353.1
142.5°	215.2	216.9	222.7	231.9	243.5	256.7	273.4	290.2	308.7	328.6	350.4
145°	224.2	225.9	231.6	239.6	250.4	263.0	277.8	293.2	309.8	327.4	345.7
147.5°	234.3	234.9	239.9	248.1	257.2	268.5	282.4	295.8	310.3	325.4	341.5
150°	240.7	241.3	245.9	252.7	261.3	272.1	284.7	297.2	310.3	324.0	338.3
152.5°	246.7	246.8	251.3	257.7	265.4	275.3	286.5	298.1	309.4	321.7	334.6
155°	255.0	255.6	259.0	264.7	271.0	279.5	289.2	298.9	308.0	318.3	329.1
157.5°	263.1	263.1	266.3	270.7	276.2	282.9	291.2	298.9	306.6	314.8	323.6
160°	268.1	268.1	270.4	274.4	278.9	285.2	292.1	298.9	305.2	312.0	319.5
162.5°	272.7	272.2	274.0	277.6	281.7	286.6	293.0	298.9	303.8	309.3	315.8
165°	277.8	277.8	278.9	281.8	284.7	288.1	293.2	297.8	301.2	305.2	309.8
167.5°	282.9	282.4	282.9	285.1	286.7	289.3	293.1	296.4	298.5	301.1	304.3
170°	285.2	284.7	285.2	286.9	288.1	289.8	292.6	295.5	296.6	298.3	300.6
172.5°	287.5	286.9	287.0	288.3	289.0	290.2	292.2	294.6	294.8	295.6	297.4
175°	289.8	289.2	289.2	289.8	290.4	290.4	291.5	293.2	292.6	292.6	293.8
177.5°	290.8	290.4	289.9	290.4	290.4	290.4	290.8	291.7	290.8	290.8	291.3
180°	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7	1805.7
2.5°	1798.9	1801.6	1804.3	1805.6	1805.3	1805.1	1804.8	1804.6
5°	1786.9	1790.0	1793.1	1794.3	1793.7	1793.1	1792.5	1791.9
7.5°	1763.2	1765.1	1767.1	1767.6	1766.6	1765.6	1764.6	1763.6
10°	1741.8	1743.0	1744.2	1744.2	1743.0	1741.8	1740.5	1739.3
12.5°	1715.3	1716.1	1716.8	1716.3	1714.6	1712.9	1711.2	1709.5
15°	1669.0	1668.3	1667.7	1666.3	1664.2	1662.0	1659.9	1657.7
17.5°	1613.1	1611.4	1609.7	1607.2	1603.9	1600.7	1597.4	1594.1
20°	1574.0	1571.6	1569.1	1565.9	1561.9	1557.9	1553.9	1549.9
22.5°	1530.6	1526.9	1523.3	1519.8	1516.5	1513.3	1510.0	1506.8
25°	1460.6	1455.4	1450.2	1446.0	1443.0	1439.9	1436.8	1433.8
27.5°	1389.3	1382.9	1376.4	1371.0	1366.6	1362.1	1357.7	1353.3
30°	1338.2	1330.5	1322.8	1316.5	1311.6	1306.7	1301.8	1296.9
32.5°	1286.0	1277.1	1268.2	1261.4	1256.7	1252.0	1247.4	1242.7
35°	1208.2	1197.8	1187.3	1179.4	1173.8	1168.3	1162.8	1157.2
37.5°	1124.8	1113.1	1101.4	1092.8	1087.3	1081.7	1076.2	1070.7
40°	1069.2	1056.3	1043.4	1034.2	1028.7	1023.1	1017.6	1012.1
42.5°	1014.5	1001.4	988.2	978.8	973.0	967.2	961.4	955.7
45°	930.8	915.7	900.7	890.4	884.9	879.3	873.8	868.3
47.5°	846.5	830.9	815.2	804.4	798.3	792.2	786.1	780.1
50°	790.5	775.2	759.8	749.2	743.4	737.5	731.7	725.9
52.5°	734.7	719.1	703.5	692.7	686.6	680.5	674.4	668.4
55°	652.4	636.5	620.5	609.6	603.7	597.9	592.1	586.2
57.5°	572.0	555.8	539.6	529.3	524.8	520.4	516.0	511.6
60°	518.3	502.3	486.4	475.9	471.0	466.1	461.2	456.3
62.5°	465.5	450.7	436.0	426.6	422.7	418.8	414.8	410.9
65°	389.7	376.5	363.3	354.9	351.2	347.5	343.8	340.1
67.5°	320.1	308.8	297.4	289.7	285.6	281.6	277.5	273.5
70°	272.8	262.7	252.6	245.9	242.9	239.8	236.7	233.7
72.5°	230.4	221.8	213.1	207.4	204.5	201.7	198.9	196.1
75°	169.8	162.7	155.6	151.2	149.3	147.5	145.6	143.8
77.5°	120.1	116.0	111.8	109.5	108.9	108.4	107.8	107.3
80°	92.2	91.3	90.3	89.7	89.4	89.1	88.8	88.5
82.5°	71.6	71.0	70.3	69.8	69.5	69.2	68.9	68.6
85°	41.6	41.0	40.4	40.1	40.1	40.1	40.1	40.1
87.5°	17.0	16.9	16.8	16.8	17.1	17.5	17.6	17.9
90°	10.3	10.8	11.4	11.4	12.0	12.5	12.0	12.0
92.5°	112.0	84.3	67.1	55.7	48.9	45.9	43.9	43.9
95°	422.7	334.3	257.8	202.5	174.6	156.9	146.6	139.2
97.5°	624.5	591.7	535.9	476.3	435.4	401.0	383.9	372.0
100°	688.0	699.4	671.4	629.2	579.6	544.8	527.7	523.1
102.5°	684.8	741.4	749.5	731.9	701.4	676.2	658.2	654.5
105°	638.9	737.6	794.1	817.5	818.6	814.0	806.0	802.6
107.5°	573.8	678.8	758.4	809.2	837.4	850.4	856.1	857.6
110°	534.5	633.2	715.9	778.7	819.2	843.1	853.4	858.5



TEST NUMBER: P332966

CATALOG NUMBER: SA4XXRDIP-C1020D590U835-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	505.8	593.0	671.2	733.9	779.9	808.9	823.3	831.6
115°	476.9	547.1	613.8	668.6	713.6	747.9	766.1	770.7
117.5°	462.7	520.8	573.3	619.7	658.2	686.9	705.4	709.0
120°	456.4	509.4	555.0	595.5	628.1	653.2	668.0	674.3
122.5°	450.9	502.1	543.6	579.1	606.6	628.1	640.6	646.9
125°	441.5	490.6	529.9	561.3	584.1	600.7	611.5	614.9
127.5°	430.1	477.0	516.3	546.0	569.0	583.7	592.8	596.2
130°	421.0	466.1	504.8	535.1	558.5	572.7	581.9	585.3
132.5°	411.4	453.7	491.6	521.8	544.8	560.9	569.5	573.0
135°	398.2	435.3	470.0	498.6	521.4	537.4	546.5	549.9
137.5°	386.2	417.6	446.9	472.7	494.0	509.8	517.3	521.4
140°	379.3	406.2	431.8	455.8	475.8	488.3	496.3	500.9
142.5°	373.0	396.6	418.6	439.4	457.0	468.7	475.8	478.9
145°	363.9	383.3	400.5	416.4	430.7	440.4	446.1	448.9
147.5°	356.5	371.9	385.6	398.2	408.7	417.0	421.3	422.4
150°	352.0	365.1	376.5	386.8	395.9	403.3	406.7	407.3
152.5°	346.9	358.2	368.7	377.2	384.9	391.0	393.0	393.6
155°	339.4	348.5	357.1	363.9	369.7	374.2	375.9	375.9
157.5°	331.3	339.0	346.1	351.6	356.0	359.4	360.4	360.4
160°	326.3	332.6	338.8	343.4	346.8	350.3	350.8	350.8
162.5°	321.3	326.6	331.5	335.7	338.2	341.6	342.2	341.7
165°	314.3	317.7	321.7	324.6	326.9	329.1	328.6	328.0
167.5°	307.6	310.2	313.4	315.1	316.3	317.7	317.6	317.2
170°	303.5	305.2	307.5	309.2	310.3	310.9	310.3	310.3
172.5°	299.8	301.1	302.5	303.7	304.4	305.0	304.4	303.5
175°	294.9	295.5	296.6	296.6	296.6	297.8	296.6	295.5
177.5°	291.7	292.2	292.2	292.6	292.2	292.6	291.7	290.8
180°	290.4	290.4	290.4	290.4	290.4	290.4	290.4	290.4

(END OF REPORT)