

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: P332964-840

Luminaire Tested: **SA4XXRDIP-C1020D590U840-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332964-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D590U840-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6597.7 lumens
Efficiency: N/A
Efficacy: 135.2 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

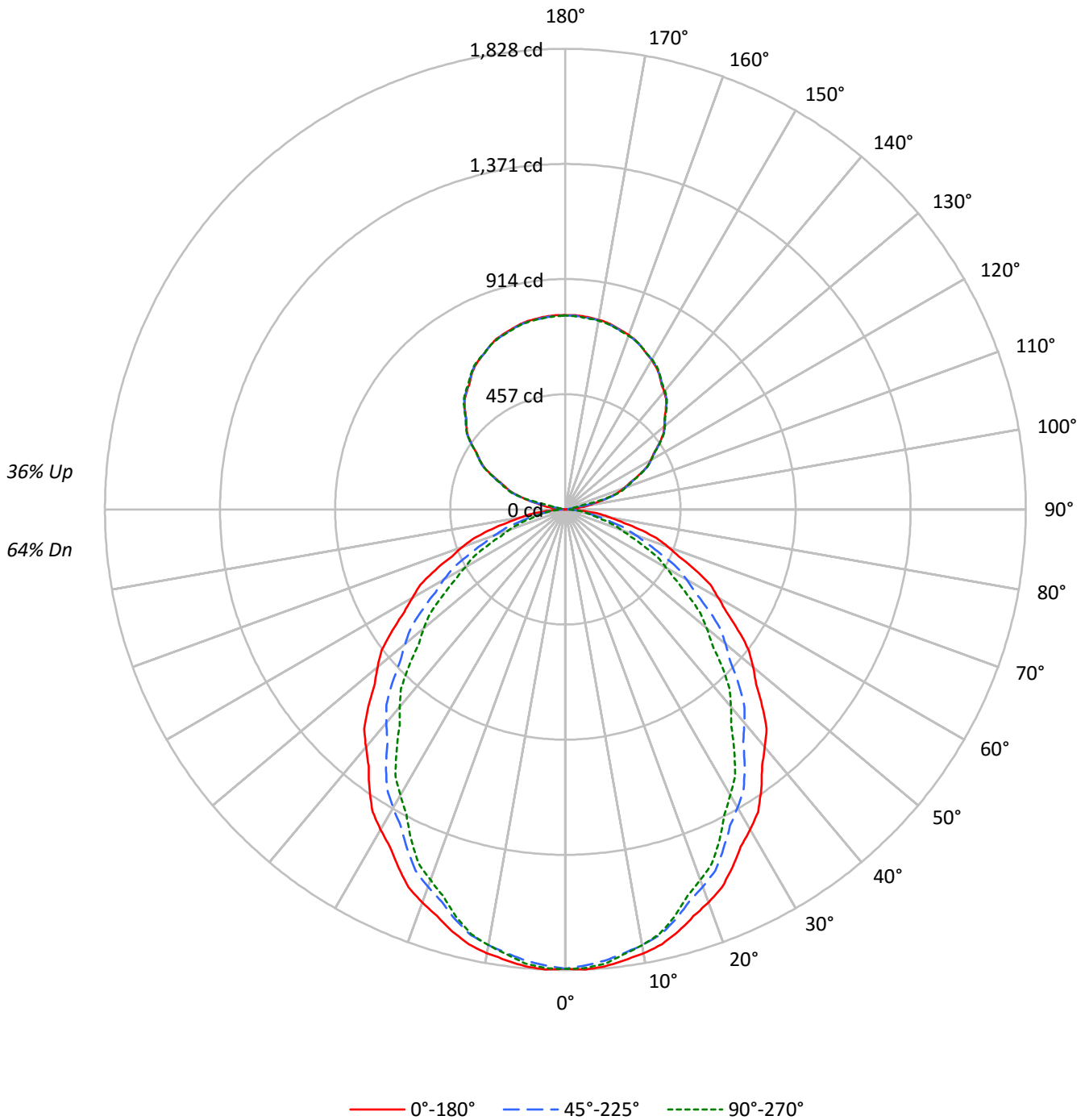
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	64
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59	55
2	92	85	79	74	87	80	75	70	71	67	63	62	59	57	54	52	50	46
3	85	75	68	62	79	71	64	59	63	58	54	55	51	48	49	46	43	40
4	78	67	59	53	73	63	56	50	56	50	46	50	45	42	44	40	37	34
5	71	60	52	45	67	56	49	44	50	44	40	45	40	36	39	36	33	30
6	66	54	46	40	62	51	44	38	46	40	35	41	36	32	36	32	29	26
7	61	49	41	35	57	46	39	34	41	35	31	37	32	28	33	29	26	23
8	57	44	37	31	53	42	35	30	38	32	28	34	29	26	30	26	23	21
9	53	41	33	28	50	39	32	27	35	29	25	31	27	23	28	24	21	19
10	50	37	30	25	47	36	29	24	32	27	23	29	24	21	26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	14721	14721	14721
5°	14755	14574	14665
10°	14662	14399	14399
15°	14493	14097	13992
20°	14262	13698	13447
25°	13967	13233	12897
30°	13679	12743	12209
35°	13361	12232	11517
40°	12978	11653	10771
45°	12625	11079	10011
50°	12223	10417	9207
55°	11792	9728	8332
60°	11317	8972	7440
65°	10883	8029	6562
70°	10249	6987	5570
75°	9451	5792	4529
80°	8243	4412	4156
85°	6984	4011	3751



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.3	2.6
10°-20°	477.7	7.2
20°-30°	689.8	10.5
30°-40°	781.8	11.9
40°-50°	755.0	11.4
50°-60°	627.8	9.5
60°-70°	433.5	6.6
70°-80°	219.7	3.3
80°-90°	58.6	0.9
90°-100°	26.3	0.4
100°-110°	168.0	2.5
110°-120°	321.3	4.9
120°-130°	407.9	6.2
130°-140°	436.4	6.6
140°-150°	408.1	6.2
150°-160°	329.1	5.0
160°-170°	212.2	3.2
170°-180°	73.2	1.1
0°-30°	1338.7	20.3
0°-40°	2120.6	32.1
0°-60°	3503.4	53.1
0°-90°	4215.3	63.9
90°-120°	515.6	7.8
90°-150°	1767.9	26.8
90°-180°	2382.0	36.1
0°-180°	6597.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1824	1824	1824	1824	1824	
5°	1821	1814	1798	1811	1810	173
15°	1734	1720	1687	1683	1674	488
25°	1568	1541	1486	1462	1448	722
35°	1356	1310	1241	1195	1169	847
45°	1106	1052	970	904	877	852
55°	838	780	691	621	592	749
65°	570	508	420	363	344	562
75°	303	251	186	155	145	320
85°	75	49	43	41	40	85
90°	2	8	13	16	17	5
95°	32	13	13	16	17	41
105°	173	177	180	183	164	181
115°	324	325	325	326	326	318
125°	455	457	456	458	459	406
135°	564	564	566	567	569	435
145°	651	653	653	653	654	407
155°	714	714	713	715	713	329
165°	753	750	750	754	749	213
175°	770	767	767	772	766	73
180°	770	770	770	770	770	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5
2.5°	1828.0	1826.9	1825.9	1825.0	1824.0	1822.1	1819.4	1816.6	1813.9	1811.2	1813.9
5°	1820.7	1819.5	1818.3	1816.9	1815.7	1813.2	1809.6	1805.8	1802.1	1798.4	1801.5
7.5°	1804.2	1802.9	1801.6	1800.3	1799.0	1795.9	1791.1	1786.2	1781.4	1776.6	1778.6
10°	1788.6	1787.1	1785.4	1783.9	1782.4	1778.8	1773.2	1767.7	1762.0	1756.5	1757.7
12.5°	1768.5	1766.7	1764.8	1763.1	1761.3	1757.1	1750.5	1743.9	1737.4	1730.8	1731.5
15°	1734.1	1731.3	1728.6	1725.8	1722.9	1717.7	1709.9	1702.1	1694.5	1686.7	1686.1
17.5°	1692.5	1688.5	1684.5	1680.4	1676.4	1669.7	1660.4	1651.1	1641.8	1632.4	1630.7
20°	1660.1	1656.1	1652.0	1648.0	1644.0	1636.7	1626.2	1615.6	1605.1	1594.5	1592.1
22.5°	1624.4	1619.8	1615.3	1610.8	1606.3	1598.3	1587.1	1575.8	1564.5	1553.2	1549.4
25°	1568.0	1562.4	1556.8	1551.3	1545.6	1536.5	1523.8	1511.1	1498.3	1485.6	1480.4
27.5°	1508.7	1501.8	1494.8	1487.7	1480.8	1470.5	1456.8	1443.3	1429.7	1416.0	1409.6
30°	1467.4	1459.7	1452.0	1444.2	1436.4	1425.2	1410.7	1396.0	1381.5	1367.0	1359.2
32.5°	1423.9	1415.1	1406.3	1397.7	1388.9	1377.0	1361.9	1346.9	1331.7	1316.7	1307.7
35°	1355.7	1345.8	1335.8	1326.0	1316.1	1303.3	1287.8	1272.3	1256.8	1241.2	1230.7
37.5°	1282.8	1272.6	1262.4	1252.1	1241.9	1228.2	1211.0	1193.9	1176.6	1159.4	1147.6
40°	1231.5	1221.2	1211.0	1200.7	1190.5	1176.6	1158.9	1141.1	1123.5	1105.8	1092.8
42.5°	1182.3	1171.6	1160.8	1150.1	1139.4	1124.8	1106.4	1087.9	1069.5	1051.1	1037.8
45°	1105.8	1094.4	1082.9	1071.4	1059.9	1044.8	1026.2	1007.6	989.0	970.4	955.2
47.5°	1026.8	1014.9	1003.1	991.3	979.4	963.8	944.4	925.0	905.6	886.4	870.6
50°	973.2	961.1	949.0	936.9	924.7	908.8	889.0	869.1	849.2	829.4	813.9
52.5°	918.5	906.6	894.7	882.9	871.0	855.0	834.6	814.3	793.9	773.6	757.8
55°	837.8	825.4	812.9	800.5	788.1	771.8	751.6	731.4	711.3	691.2	675.0
57.5°	757.9	745.0	732.1	719.1	706.3	689.8	670.0	650.2	630.3	610.5	594.1
60°	700.9	688.5	676.1	663.7	651.3	635.1	615.3	595.4	575.5	555.7	539.6
62.5°	649.5	636.6	623.7	610.8	597.9	581.3	560.9	540.6	520.2	499.9	484.9
65°	569.7	556.3	543.0	529.7	516.3	499.7	479.9	460.0	440.1	420.3	407.0
67.5°	486.8	473.9	461.2	448.4	435.6	420.0	401.5	383.1	364.7	346.3	334.8
70°	434.2	421.2	408.2	395.2	382.1	366.8	349.1	331.3	313.7	296.0	285.8
72.5°	378.4	366.6	354.8	343.1	331.2	317.0	300.3	283.6	266.9	250.2	241.5
75°	303.0	291.5	280.0	268.5	257.1	244.0	229.4	214.9	200.3	185.7	178.5
77.5°	226.5	216.7	207.0	197.2	187.5	176.7	164.9	153.2	141.4	129.6	125.4
80°	177.3	168.3	159.4	150.4	141.4	132.2	122.9	113.6	104.2	94.9	94.0
82.5°	134.9	126.6	118.4	110.1	101.9	95.0	89.8	84.4	79.1	73.7	73.0
85°	75.4	69.2	63.0	56.8	50.6	47.0	46.0	45.1	44.2	43.3	42.6
87.5°	26.1	24.3	22.6	20.9	19.2	18.4	18.3	18.3	18.2	18.2	18.1
90°	1.7	3.1	4.5	6.0	7.4	8.6	9.6	10.6	11.6	12.6	13.4
92.5°	7.3	7.4	7.4	7.5	7.6	8.1	9.2	10.2	11.2	12.2	13.0
95°	31.7	27.4	23.0	18.6	14.2	12.1	12.3	12.4	12.5	12.6	13.4
97.5°	67.3	70.0	72.7	75.4	78.2	72.3	58.1	43.8	29.5	15.2	15.2
100°	94.4	96.7	99.1	101.4	103.7	96.0	78.4	60.7	43.0	25.3	23.1
102.5°	124.9	126.5	128.3	130.0	131.7	131.4	129.1	126.7	124.4	122.1	98.7
105°	173.4	174.2	174.9	175.7	176.4	177.1	177.8	178.4	179.0	179.8	180.9
107.5°	218.4	218.8	219.2	219.5	219.9	220.6	221.5	222.4	223.2	224.1	224.7
110°	248.8	249.2	249.6	250.0	250.3	251.0	251.8	252.5	253.3	254.1	254.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	278.3	279.0	279.7	280.4	281.1	281.7	282.0	282.4	282.8	283.1	283.1
115°	323.8	324.2	324.5	324.9	325.3	325.4	325.3	325.2	325.0	324.9	325.2
117.5°	364.7	365.2	365.7	366.2	366.7	367.1	367.4	367.7	367.9	368.2	368.2
120°	392.3	392.8	393.3	393.8	394.4	394.6	394.5	394.3	394.2	394.0	394.3
122.5°	418.1	418.4	418.7	419.0	419.3	419.6	419.8	419.9	420.1	420.3	420.4
125°	455.0	455.6	456.2	456.7	457.2	457.3	457.0	456.8	456.5	456.3	456.7
127.5°	490.1	490.2	490.4	490.5	490.6	491.0	491.6	492.1	492.7	493.3	493.2
130°	512.7	512.8	512.9	513.1	513.2	513.4	513.8	514.2	514.6	515.0	515.1
132.5°	533.4	533.6	533.9	534.1	534.3	534.7	535.2	535.6	536.1	536.6	536.7
135°	564.5	564.4	564.3	564.1	564.0	564.2	564.7	565.2	565.7	566.2	566.5
137.5°	592.1	592.1	592.2	592.2	592.3	592.6	593.1	593.7	594.3	594.8	595.1
140°	610.1	610.3	610.6	610.8	611.1	611.3	611.6	611.9	612.1	612.4	612.7
142.5°	626.2	626.6	627.1	627.5	628.0	628.3	628.4	628.6	628.7	628.9	629.2
145°	651.0	651.4	651.7	652.1	652.5	652.7	652.7	652.7	652.7	652.7	652.8
147.5°	670.7	671.4	672.1	672.8	673.5	673.8	673.7	673.6	673.4	673.3	673.4
150°	684.9	685.4	686.0	686.5	687.0	687.2	687.0	686.9	686.8	686.6	686.6
152.5°	696.9	697.3	697.7	698.1	698.5	698.6	698.4	698.2	697.9	697.7	697.9
155°	713.8	713.9	714.0	714.1	714.3	714.1	713.8	713.4	713.0	712.6	713.1
157.5°	727.9	727.8	727.7	727.7	727.6	727.3	726.9	726.5	726.0	725.6	726.3
160°	736.2	735.8	735.4	735.1	734.7	734.4	734.3	734.2	734.0	733.9	734.7
162.5°	743.6	743.1	742.6	742.1	741.6	741.3	741.1	741.0	740.9	740.8	741.5
165°	752.9	752.2	751.6	750.9	750.3	750.0	750.0	750.0	750.0	750.0	751.0
167.5°	760.2	759.6	758.9	758.3	757.6	757.2	757.2	757.1	757.0	756.9	758.1
170°	764.5	763.7	762.9	762.1	761.3	761.0	761.1	761.2	761.4	761.5	762.5
172.5°	767.2	766.4	765.7	764.9	764.2	763.8	764.0	764.1	764.2	764.3	765.4
175°	770.2	769.4	768.6	767.9	767.1	766.8	766.9	767.1	767.2	767.3	768.4
177.5°	771.5	770.8	770.1	769.4	768.7	768.4	768.6	768.8	769.0	769.2	770.1
180°	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5	1823.5
2.5°	1816.6	1819.4	1822.1	1823.4	1823.1	1822.9	1822.6	1822.4
5°	1804.5	1807.7	1810.8	1812.0	1811.4	1810.8	1810.2	1809.6
7.5°	1780.6	1782.5	1784.5	1785.0	1784.0	1783.0	1782.0	1781.0
10°	1759.0	1760.2	1761.4	1761.4	1760.2	1759.0	1757.7	1756.5
12.5°	1732.2	1733.0	1733.7	1733.2	1731.5	1729.8	1728.1	1726.4
15°	1685.5	1684.8	1684.2	1682.7	1680.6	1678.4	1676.3	1674.1
17.5°	1629.0	1627.3	1625.6	1623.1	1619.7	1616.5	1613.2	1609.8
20°	1589.5	1587.1	1584.6	1581.3	1577.3	1573.3	1569.2	1565.2
22.5°	1545.7	1542.0	1538.3	1534.8	1531.5	1528.2	1524.9	1521.7
25°	1475.0	1469.8	1464.5	1460.3	1457.2	1454.1	1451.0	1447.9
27.5°	1403.0	1396.5	1390.0	1384.5	1380.1	1375.5	1371.1	1366.7
30°	1351.4	1343.6	1335.8	1329.5	1324.5	1319.6	1314.6	1309.7
32.5°	1298.7	1289.7	1280.7	1273.8	1269.1	1264.4	1259.7	1255.0
35°	1220.1	1209.6	1199.0	1191.0	1185.4	1179.8	1174.3	1168.6
37.5°	1135.9	1124.1	1112.3	1103.6	1098.0	1092.4	1086.8	1081.3
40°	1079.7	1066.7	1053.7	1044.4	1038.8	1033.2	1027.6	1022.1
42.5°	1024.5	1011.3	997.9	988.5	982.6	976.7	970.9	965.1
45°	940.0	924.7	909.6	899.2	893.6	888.0	882.4	876.9
47.5°	854.9	839.1	823.2	812.3	806.2	800.0	793.9	787.8
50°	798.3	782.8	767.3	756.6	750.7	744.8	738.9	733.1
52.5°	741.9	726.2	710.4	699.5	693.4	687.2	681.1	675.0
55°	658.8	642.8	626.6	615.6	609.7	603.8	597.9	592.0
57.5°	577.6	561.3	544.9	534.5	530.0	525.5	521.1	516.6
60°	523.4	507.3	491.2	480.6	475.6	470.7	465.7	460.8
62.5°	470.1	455.1	440.3	430.8	426.9	422.9	418.9	415.0
65°	393.5	380.2	366.9	358.4	354.7	350.9	347.2	343.5
67.5°	323.3	311.8	300.3	292.6	288.4	284.4	280.2	276.2
70°	275.5	265.3	255.1	248.3	245.3	242.2	239.0	236.0
72.5°	232.7	224.0	215.2	209.4	206.5	203.7	200.9	198.0
75°	171.5	164.3	157.1	152.7	150.8	149.0	147.0	145.2
77.5°	121.3	117.1	112.9	110.6	110.0	109.5	108.9	108.4
80°	93.1	92.2	91.2	90.6	90.3	90.0	89.7	89.4
82.5°	72.3	71.7	71.0	70.5	70.2	69.9	69.6	69.3
85°	42.0	41.4	40.8	40.5	40.5	40.5	40.5	40.5
87.5°	18.0	17.9	17.8	17.9	18.2	18.5	18.8	19.1
90°	14.2	14.9	15.8	16.3	16.6	16.8	17.1	17.3
92.5°	13.7	14.5	15.2	15.7	15.8	15.8	15.9	15.9
95°	14.2	14.9	15.8	16.2	16.4	16.5	16.6	16.7
97.5°	15.3	15.5	15.6	15.7	15.8	15.9	16.0	16.2
100°	21.0	18.8	16.7	15.7	15.8	15.9	16.0	16.2
102.5°	75.1	51.7	28.2	16.5	16.6	16.6	16.6	16.6
105°	182.1	183.2	184.3	182.6	178.0	173.4	168.7	164.2
107.5°	225.2	225.8	226.3	226.8	227.3	227.8	228.3	228.8
110°	254.6	254.8	255.1	255.4	255.8	256.1	256.5	256.9



TEST NUMBER: P332964-840

CATALOG NUMBER: SA4XXRDIP-C1020D590U840-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	283.0	283.0	282.9	283.1	283.6	284.1	284.6	285.0
115°	325.4	325.7	325.9	326.1	326.1	326.1	326.1	326.1
117.5°	368.1	368.1	368.0	368.0	367.9	367.9	367.8	367.8
120°	394.6	394.8	395.1	395.1	394.8	394.6	394.3	394.0
122.5°	420.6	420.7	420.9	420.8	420.6	420.3	420.1	419.8
125°	457.0	457.4	457.8	458.1	458.2	458.3	458.4	458.6
127.5°	493.2	493.1	493.0	492.9	492.8	492.7	492.6	492.5
130°	515.2	515.3	515.5	515.5	515.5	515.5	515.5	515.5
132.5°	536.9	537.0	537.1	537.1	537.0	536.9	536.8	536.7
135°	566.7	567.0	567.2	567.5	567.7	568.0	568.4	568.6
137.5°	595.4	595.7	595.9	596.0	596.0	595.9	595.8	595.7
140°	613.1	613.5	613.9	614.1	614.3	614.4	614.5	614.6
142.5°	629.4	629.8	630.1	630.3	630.3	630.3	630.3	630.4
145°	652.9	653.1	653.2	653.4	653.6	653.9	654.2	654.4
147.5°	673.5	673.6	673.7	673.8	674.0	674.1	674.2	674.3
150°	686.6	686.6	686.6	686.7	686.8	687.0	687.1	687.2
152.5°	698.1	698.3	698.5	698.6	698.5	698.4	698.3	698.3
155°	713.6	714.1	714.6	714.7	714.3	713.9	713.6	713.2
157.5°	726.9	727.6	728.2	728.2	727.6	726.9	726.3	725.6
160°	735.4	736.2	737.0	737.0	736.2	735.4	734.7	733.9
162.5°	742.4	743.1	743.9	743.9	743.0	742.0	741.2	740.3
165°	752.0	753.1	754.2	754.1	752.9	751.7	750.6	749.4
167.5°	759.2	760.3	761.4	761.3	760.1	758.8	757.5	756.3
170°	763.6	764.6	765.7	765.5	764.3	763.0	761.6	760.4
172.5°	766.4	767.4	768.4	768.2	766.9	765.5	764.1	762.7
175°	769.6	770.7	771.9	771.7	770.2	768.6	767.1	765.6
177.5°	770.9	771.7	772.5	772.3	771.1	769.9	768.6	767.4
180°	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2

(END OF REPORT)