

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: P332965-840

Luminaire Tested: **SA4XXRDIP-C1020D590U840-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332965-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
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-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6281.4 lumens
Efficiency: N/A
Efficacy: 128.7 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

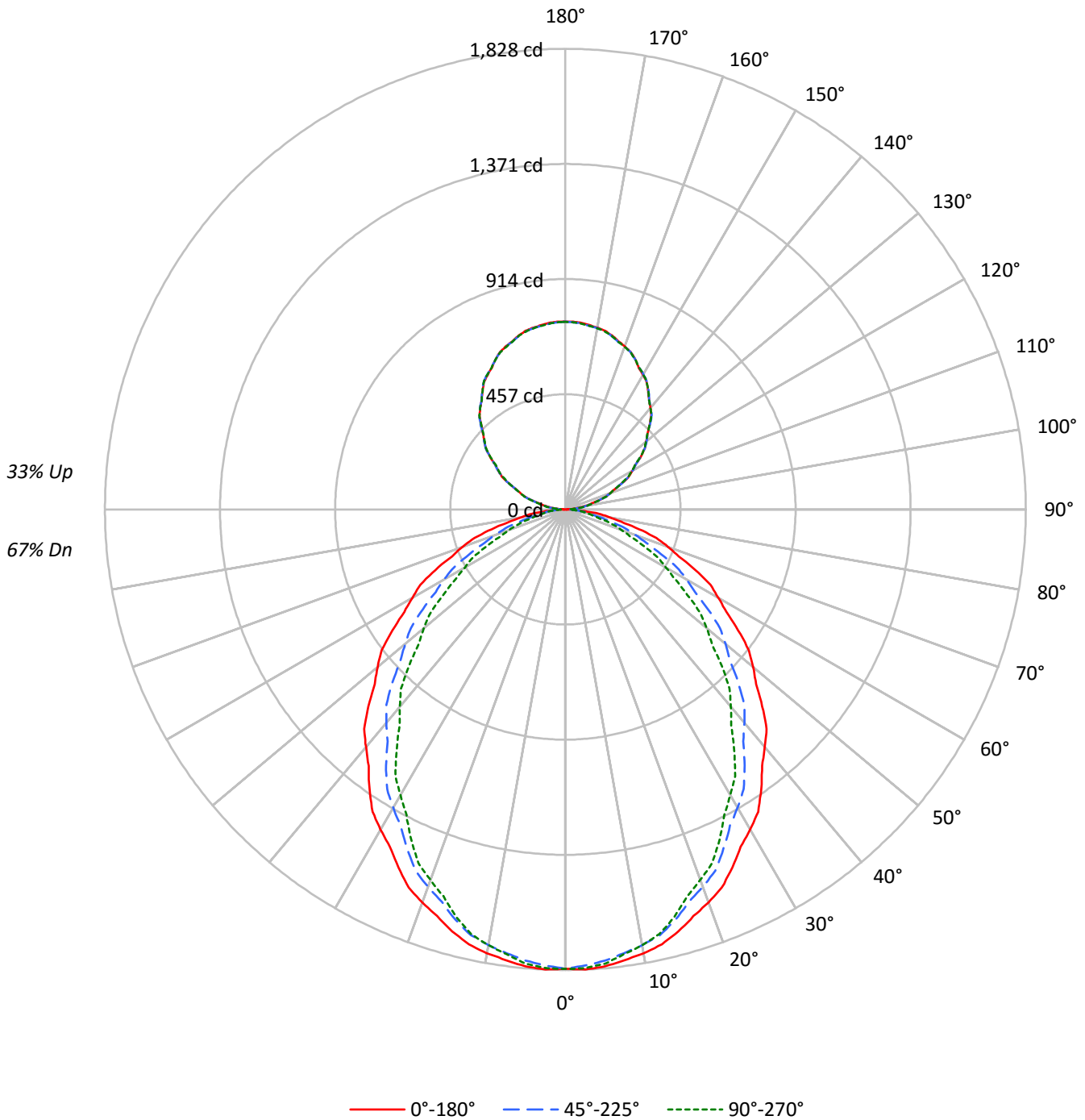
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67
1	102	98	94	90	96	92	89	86	82	80	77	73	71	69	64	63	61	57
2	93	86	80	74	88	81	76	71	72	68	64	64	61	58	57	54	52	49
3	85	76	68	62	80	72	65	60	64	59	55	57	53	50	51	48	45	41
4	78	67	59	53	73	64	57	51	57	51	47	51	47	43	45	42	39	36
5	72	60	52	46	68	57	50	44	51	45	41	46	41	37	41	37	34	31
6	66	54	46	40	63	52	44	39	47	40	36	42	37	33	37	33	30	28
7	62	49	41	35	58	47	39	34	42	36	32	38	33	29	34	30	27	25
8	57	45	37	32	54	43	36	31	39	33	28	35	30	26	32	27	24	22
9	53	41	33	28	50	39	32	27	36	30	26	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°	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	2.7
10°-20°	477.7	7.6
20°-30°	689.8	11.0
30°-40°	781.8	12.4
40°-50°	755.0	12.0
50°-60°	627.8	10.0
60°-70°	433.5	6.9
70°-80°	219.7	3.5
80°-90°	58.6	0.9
90°-100°	49.1	0.8
100°-110°	145.5	2.3
110°-120°	247.0	3.9
120°-130°	325.7	5.2
130°-140°	365.7	5.8
140°-150°	359.4	5.7
150°-160°	302.3	4.8
160°-170°	201.1	3.2
170°-180°	70.4	1.1
0°-30°	1338.7	21.3
0°-40°	2120.6	33.8
0°-60°	3503.4	55.8
0°-90°	4215.3	67.1
90°-120°	441.6	7.0
90°-150°	1492.4	23.8
90°-180°	2066.0	32.9
0°-180°	6281.4	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	6
95°	34	40	44	45	46	38
105°	134	135	137	139	141	142
115°	251	251	250	249	249	248
125°	366	366	365	364	363	326
135°	472	475	475	474	472	365
145°	573	575	576	575	574	358
155°	657	657	656	658	656	302
165°	715	713	712	715	713	201
175°	744	741	740	744	740	71
180°	745	745	745	745	745	



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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°	12.3	13.9	15.6	17.2	18.8	19.9	20.7	21.4	22.1	22.8	23.2
95°	34.5	35.7	36.9	38.0	39.2	40.2	41.1	42.0	42.9	43.7	44.1
97.5°	60.4	61.3	62.2	63.1	64.0	65.0	66.0	67.2	68.2	69.3	69.7
100°	80.6	81.2	81.7	82.2	82.7	83.5	84.6	85.8	86.9	88.2	88.4
102.5°	101.8	102.0	102.2	102.4	102.6	103.3	104.3	105.3	106.4	107.4	107.9
105°	134.2	134.3	134.4	134.6	134.7	135.0	135.5	136.0	136.5	137.0	137.4
107.5°	168.1	168.3	168.4	168.6	168.8	169.0	169.0	169.1	169.2	169.3	169.6
110°	191.3	191.5	191.8	192.0	192.3	192.3	192.2	192.1	192.0	191.8	191.6



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	215.2	215.2	215.3	215.3	215.4	215.3	215.1	214.8	214.6	214.4	214.3
115°	251.2	251.2	251.2	251.2	251.2	251.0	250.7	250.4	250.2	249.9	249.8
117.5°	285.0	285.1	285.2	285.3	285.4	285.4	285.2	285.0	284.8	284.7	284.2
120°	307.6	308.1	308.6	309.1	309.6	309.7	309.3	308.9	308.5	308.1	307.5
122.5°	331.0	331.2	331.4	331.6	331.8	331.9	331.7	331.5	331.3	331.2	330.7
125°	365.8	365.8	365.8	365.8	365.8	365.7	365.6	365.5	365.3	365.2	364.9
127.5°	397.2	397.6	398.0	398.4	398.7	398.8	398.6	398.4	398.2	398.0	397.8
130°	419.3	419.7	420.1	420.5	420.8	421.0	421.0	421.0	421.0	421.0	420.8
132.5°	441.9	442.2	442.4	442.7	443.0	443.1	443.0	442.9	442.8	442.7	442.4
135°	471.7	472.5	473.2	474.0	474.8	475.1	475.1	475.1	475.1	475.1	474.9
137.5°	504.2	504.5	504.9	505.2	505.6	505.9	506.1	506.3	506.5	506.8	506.4
140°	525.8	526.1	526.3	526.6	526.8	527.0	527.0	527.0	527.0	527.0	526.8
142.5°	545.6	545.9	546.2	546.4	546.7	546.7	546.6	546.5	546.4	546.3	546.3
145°	573.1	573.6	574.1	574.6	575.1	575.4	575.6	575.7	575.8	575.9	575.8
147.5°	600.3	600.9	601.5	602.1	602.8	603.0	602.9	602.8	602.7	602.6	602.5
150°	616.8	617.4	617.9	618.4	618.9	619.1	619.1	619.1	619.1	619.1	619.1
152.5°	632.6	632.9	633.2	633.5	633.8	634.0	634.1	634.2	634.3	634.4	634.7
155°	656.6	656.6	656.6	656.6	656.6	656.5	656.4	656.3	656.2	656.0	656.5
157.5°	676.9	676.6	676.4	676.2	676.0	675.8	675.8	675.8	675.8	675.7	676.1
160°	688.8	688.7	688.6	688.5	688.3	688.2	688.1	688.0	687.8	687.7	688.1
162.5°	699.9	699.6	699.2	698.9	698.6	698.3	698.2	698.1	698.0	697.8	698.5
165°	714.8	714.4	714.0	713.7	713.3	713.0	712.7	712.5	712.2	712.0	712.7
167.5°	726.2	725.7	725.1	724.6	724.1	723.8	723.8	723.9	723.9	723.9	724.7
170°	732.7	732.1	731.3	730.7	730.0	729.8	729.9	730.0	730.2	730.3	731.1
172.5°	737.2	736.7	736.2	735.7	735.1	734.9	734.9	734.9	734.9	735.0	735.8
175°	743.6	743.0	742.4	741.6	741.0	740.6	740.5	740.4	740.2	740.1	741.0
177.5°	745.7	745.2	744.7	744.2	743.6	743.4	743.4	743.4	743.4	743.4	744.1
180°	744.8	744.8	744.8	744.8	744.8	744.8	744.8	744.8	744.8	744.8	744.8



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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°	23.7	24.2	24.6	24.9	25.1	25.2	25.4	25.5
95°	44.5	44.9	45.3	45.5	45.5	45.5	45.5	45.5
97.5°	70.2	70.6	71.1	71.3	71.3	71.3	71.3	71.3
100°	88.7	88.9	89.2	89.3	89.3	89.3	89.3	89.3
102.5°	108.2	108.6	108.9	109.2	109.3	109.4	109.5	109.6
105°	137.8	138.3	138.7	139.0	139.4	139.8	140.2	140.6
107.5°	170.0	170.3	170.7	170.9	170.8	170.8	170.8	170.8
110°	191.3	191.1	190.8	190.9	191.3	191.6	192.0	192.4



TEST NUMBER: P332965-840

CATALOG NUMBER: SA4XXRDIP-C1020D590U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	214.3	214.2	214.2	214.2	214.3	214.3	214.4	214.5
115°	249.7	249.6	249.4	249.3	249.2	249.0	248.9	248.8
117.5°	283.8	283.4	282.9	282.6	282.3	282.1	281.8	281.6
120°	306.9	306.2	305.6	305.4	305.7	305.9	306.2	306.4
122.5°	330.3	329.9	329.4	329.0	328.5	328.1	327.6	327.2
125°	364.7	364.4	364.2	363.9	363.7	363.3	363.1	362.8
127.5°	397.5	397.3	397.0	396.8	396.6	396.4	396.2	396.0
130°	420.5	420.3	420.0	419.6	419.1	418.6	418.1	417.6
132.5°	442.2	441.9	441.7	441.4	441.2	441.0	440.8	440.6
135°	474.6	474.4	474.1	473.8	473.4	473.0	472.7	472.3
137.5°	506.0	505.7	505.4	505.2	505.3	505.4	505.5	505.6
140°	526.7	526.6	526.5	526.3	526.2	526.1	526.0	525.8
142.5°	546.3	546.3	546.2	546.2	546.2	546.2	546.1	546.1
145°	575.7	575.6	575.4	575.2	574.8	574.4	574.0	573.7
147.5°	602.4	602.3	602.2	602.1	602.0	601.8	601.7	601.6
150°	619.1	619.1	619.1	619.1	618.9	618.8	618.7	618.6
152.5°	635.0	635.3	635.6	635.6	635.3	634.9	634.6	634.3
155°	657.0	657.5	658.1	658.1	657.5	657.0	656.5	656.0
157.5°	676.5	676.9	677.3	677.2	676.8	676.4	675.9	675.5
160°	688.5	688.8	689.2	689.1	688.5	687.8	687.2	686.6
162.5°	699.2	699.9	700.6	700.6	700.0	699.3	698.7	698.1
165°	713.5	714.2	715.0	715.1	714.6	714.1	713.6	713.1
167.5°	725.4	726.2	727.0	726.9	726.2	725.4	724.6	723.8
170°	731.8	732.7	733.4	733.4	732.5	731.5	730.6	729.7
172.5°	736.7	737.6	738.4	738.4	737.5	736.6	735.7	734.9
175°	741.9	742.9	743.7	743.7	742.9	741.9	741.0	740.1
177.5°	744.8	745.5	746.2	746.2	745.4	744.6	743.7	742.9
180°	744.8	744.8	744.8	744.8	744.8	744.8	744.8	744.8

(END OF REPORT)