

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: P332960-840

Luminaire Tested: **SA4XXRDIP-C1020D365U840-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332960-840
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-C1020D365U840-4F0-1E-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: 5535.3 lumens
Efficiency: N/A
Efficacy: 127.2 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

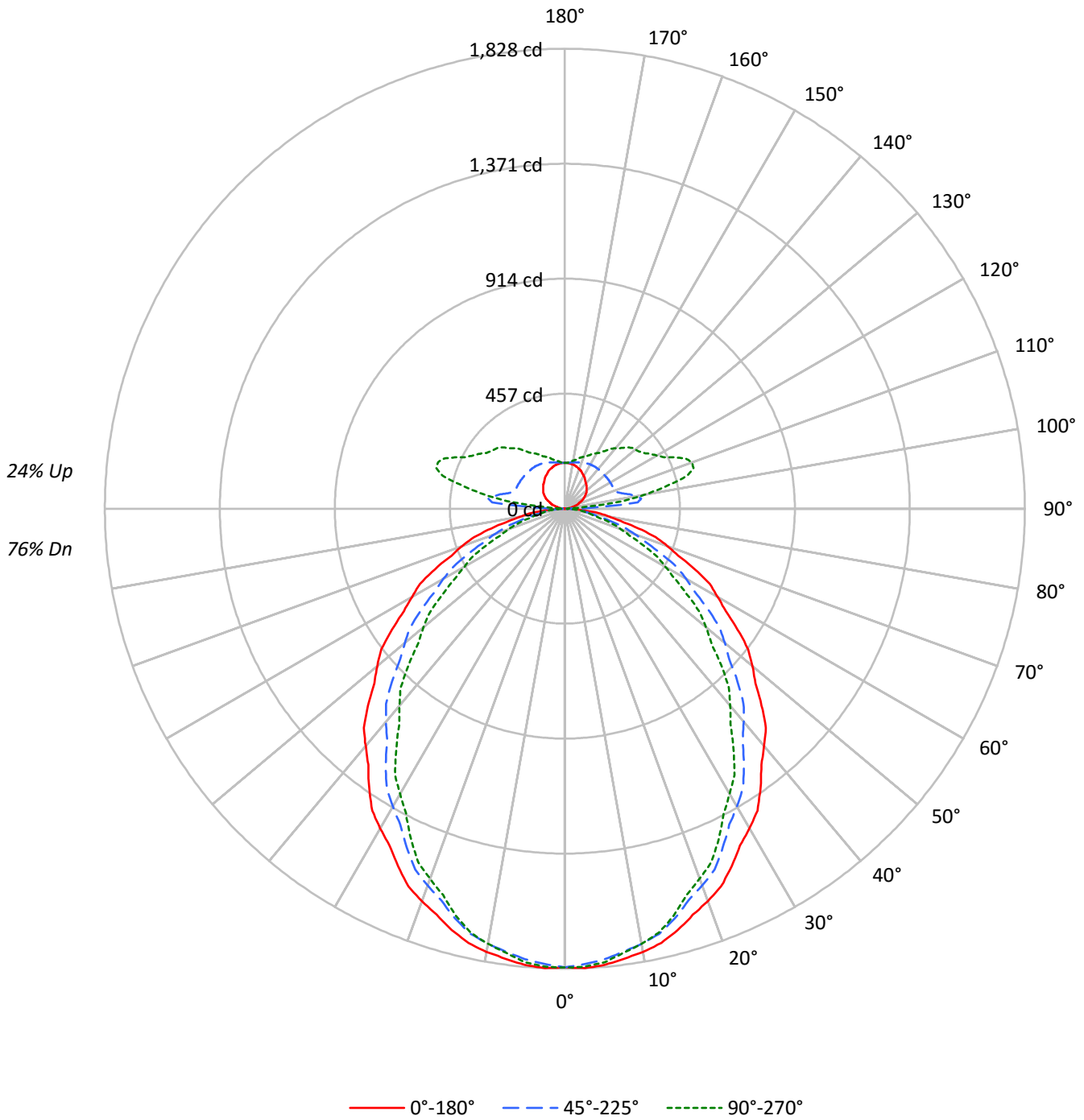
Input Watts (W): 43.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	113	113	113	108	108	108	108	98	98	98	89	89	89	80	80	80	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°	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	3.1
10°-20°	477.7	8.6
20°-30°	689.8	12.5
30°-40°	781.8	14.1
40°-50°	755.0	13.6
50°-60°	627.8	11.3
60°-70°	433.5	7.8
70°-80°	219.7	4.0
80°-90°	57.4	1.0
90°-100°	131.2	2.4
100°-110°	273.1	4.9
110°-120°	244.6	4.4
120°-130°	205.8	3.7
130°-140°	171.6	3.1
140°-150°	131.1	2.4
150°-160°	92.1	1.7
160°-170°	54.2	1.0
170°-180°	17.6	0.3
0°-30°	1338.7	24.2
0°-40°	2120.6	38.3
0°-60°	3503.4	63.3
0°-90°	4214.0	76.1
90°-120°	648.9	11.7
90°-150°	1157.3	20.9
90°-180°	1321.0	23.9
0°-180°	5535.3	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°	0	3	6	7	8	4
95°	12	37	291	144	87	13
105°	42	60	234	504	502	45
115°	74	92	209	401	482	73
125°	102	122	208	341	385	91
135°	122	145	206	303	344	94
145°	140	161	205	256	281	88
155°	160	172	199	226	235	74
165°	174	179	191	202	205	49
175°	181	182	183	186	185	17
180°	182	182	182	182	182	



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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°	25.8	23.9	22.1	20.2	18.3	17.2	17.4	17.2	17.1	17.0	16.6
90°	0.4	1.1	2.1	2.5	2.8	2.8	4.9	4.9	5.8	6.5	6.1
92.5°	4.0	6.0	9.3	13.6	18.9	26.3	44.4	72.1	99.1	113.2	94.3
95°	11.8	12.8	16.5	21.1	29.6	44.6	75.6	134.2	219.5	290.8	299.1
97.5°	21.1	21.1	24.2	28.5	35.9	48.4	72.3	120.7	205.4	306.4	375.8
100°	27.2	27.2	29.6	33.9	40.7	52.1	73.2	113.5	186.3	287.0	378.3
102.5°	32.8	33.4	35.6	39.6	46.2	57.0	76.0	111.5	173.5	262.7	356.9
105°	41.8	42.8	44.6	48.9	55.3	65.6	82.8	112.4	162.4	234.1	318.0
107.5°	51.6	52.3	54.1	58.7	64.8	75.0	90.7	117.8	160.4	218.1	286.6
110°	58.2	58.9	60.7	64.9	71.4	81.0	96.7	121.7	161.0	212.7	270.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	64.4	65.1	67.3	71.2	77.7	87.3	102.4	126.0	162.7	210.2	262.1
115°	73.5	74.6	77.1	80.7	87.5	97.0	111.4	132.8	165.9	208.8	253.8
117.5°	82.9	83.9	86.1	90.1	96.4	106.4	120.0	139.7	169.5	208.4	250.0
120°	89.3	90.0	92.4	96.3	102.4	112.4	126.0	144.5	172.1	208.4	248.0
122.5°	94.9	95.6	98.2	101.8	108.5	118.2	131.7	149.2	174.6	208.1	245.8
125°	102.4	103.8	106.0	110.0	116.7	126.7	139.6	155.9	178.4	207.7	242.0
127.5°	109.1	110.2	112.8	117.2	124.3	134.4	146.8	161.9	181.6	206.9	236.9
130°	112.8	114.2	117.0	122.4	129.2	139.6	151.7	165.6	183.8	206.6	233.8
132.5°	116.5	117.6	121.4	126.4	133.8	143.5	155.7	169.4	185.8	206.4	231.0
135°	121.7	123.1	126.7	132.8	140.3	149.6	161.3	174.2	188.8	205.9	226.6
137.5°	126.9	128.3	132.2	137.9	145.7	154.6	165.6	177.6	190.6	205.9	223.0
140°	130.7	131.7	135.6	141.7	149.2	157.7	168.4	179.9	192.0	205.6	221.0
142.5°	134.6	135.7	139.4	145.1	152.3	160.6	171.1	181.6	193.2	205.6	219.2
145°	140.3	141.4	144.9	149.9	156.7	164.5	173.8	183.5	193.8	204.9	216.3
147.5°	146.6	146.9	150.2	155.2	160.9	167.9	176.6	185.1	194.2	203.6	213.7
150°	150.6	151.0	153.8	158.1	163.5	170.3	178.1	185.9	194.2	202.7	211.7
152.5°	154.3	154.4	157.2	161.3	166.0	172.3	179.3	186.5	193.6	201.3	209.3
155°	159.6	159.9	162.1	165.6	169.6	174.9	181.0	187.0	192.8	199.1	205.9
157.5°	164.6	164.6	166.6	169.4	172.8	177.0	182.2	187.0	191.8	196.9	202.5
160°	167.7	167.7	169.2	171.7	174.5	178.4	182.8	187.0	191.0	195.2	199.9
162.5°	170.6	170.4	171.5	173.7	176.2	179.4	183.3	187.0	190.1	193.5	197.6
165°	173.8	173.8	174.5	176.3	178.1	180.3	183.5	186.3	188.4	191.0	193.8
167.5°	177.0	176.6	177.0	178.3	179.4	181.1	183.4	185.4	186.7	188.3	190.4
170°	178.4	178.1	178.4	179.6	180.3	181.3	183.1	184.9	185.6	186.6	188.1
172.5°	179.9	179.6	179.6	180.4	180.8	181.6	182.8	184.3	184.5	184.9	186.1
175°	181.3	181.0	181.0	181.3	181.7	181.7	182.4	183.5	183.1	183.1	183.8
177.5°	182.0	181.7	181.4	181.7	181.7	181.7	182.0	182.5	182.0	182.0	182.3
180°	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7



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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°	16.5	16.3	16.1	16.1	16.4	16.7	16.9	17.2
90°	6.5	6.8	7.2	7.2	7.5	7.9	7.5	7.5
92.5°	70.1	52.7	42.0	34.8	30.6	28.7	27.5	27.5
95°	264.5	209.1	161.3	126.7	109.2	98.2	91.7	87.1
97.5°	390.7	370.2	335.3	298.0	272.4	251.0	240.2	232.8
100°	430.4	437.6	420.1	393.6	362.6	340.8	330.1	327.3
102.5°	428.5	463.8	468.9	457.9	438.9	423.1	411.8	409.5
105°	399.7	461.5	496.9	511.5	512.2	509.3	504.3	502.2
107.5°	359.0	424.7	474.4	506.3	523.9	532.1	535.6	536.5
110°	334.5	396.2	448.0	487.2	512.5	527.6	533.9	537.1



TEST NUMBER: P332960-840

CATALOG NUMBER: SA4XXRDIP-C1020D365U840-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	316.4	371.0	419.9	459.2	488.0	506.1	515.1	520.3
115°	298.4	342.2	384.1	418.3	446.5	467.9	479.4	482.2
117.5°	289.5	325.9	358.7	387.8	411.8	429.8	441.3	443.5
120°	285.5	318.7	347.3	372.6	392.9	408.7	418.0	421.9
122.5°	282.1	314.2	340.1	362.3	379.5	392.9	400.8	404.8
125°	276.3	306.9	331.5	351.2	365.5	375.9	382.6	384.8
127.5°	269.1	298.4	323.1	341.6	356.0	365.2	370.9	373.0
130°	263.4	291.6	315.9	334.8	349.4	358.3	364.1	366.2
132.5°	257.4	283.9	307.6	326.5	340.8	350.9	356.4	358.5
135°	249.1	272.4	294.1	311.9	326.2	336.2	341.9	344.1
137.5°	241.7	261.3	279.6	295.7	309.1	318.9	323.7	326.2
140°	237.3	254.1	270.1	285.2	297.7	305.5	310.5	313.4
142.5°	233.4	248.1	261.9	274.9	286.0	293.3	297.7	299.6
145°	227.7	239.8	250.5	260.5	269.4	275.5	279.1	280.8
147.5°	223.1	232.7	241.3	249.1	255.7	260.9	263.6	264.3
150°	220.3	228.4	235.6	242.0	247.7	252.4	254.5	254.8
152.5°	217.1	224.2	230.8	236.0	240.9	244.6	245.9	246.3
155°	212.4	218.0	223.4	227.7	231.3	234.1	235.2	235.2
157.5°	207.3	212.1	216.6	220.0	222.7	224.9	225.5	225.5
160°	204.2	208.0	212.0	214.9	217.0	219.1	219.5	219.5
162.5°	201.1	204.4	207.4	210.1	211.6	213.7	214.1	213.8
165°	196.6	198.8	201.3	203.1	204.5	205.9	205.6	205.2
167.5°	192.5	194.1	196.1	197.1	197.8	198.8	198.7	198.4
170°	189.9	191.0	192.4	193.5	194.2	194.5	194.2	194.2
172.5°	187.6	188.3	189.2	190.1	190.5	190.8	190.5	189.9
175°	184.5	184.9	185.6	185.6	185.6	186.3	185.6	184.9
177.5°	182.5	182.8	182.8	183.1	182.8	183.1	182.5	182.0
180°	181.7	181.7	181.7	181.7	181.7	181.7	181.7	181.7

(END OF REPORT)