

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: P332633-830

Luminaire Tested: **S124DIP-S1020D365U830-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332633-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D365U830-4F0-1E-UDD-F4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 365 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5407.6 lumens  
Efficiency: N/A  
Efficacy: 124.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Direct

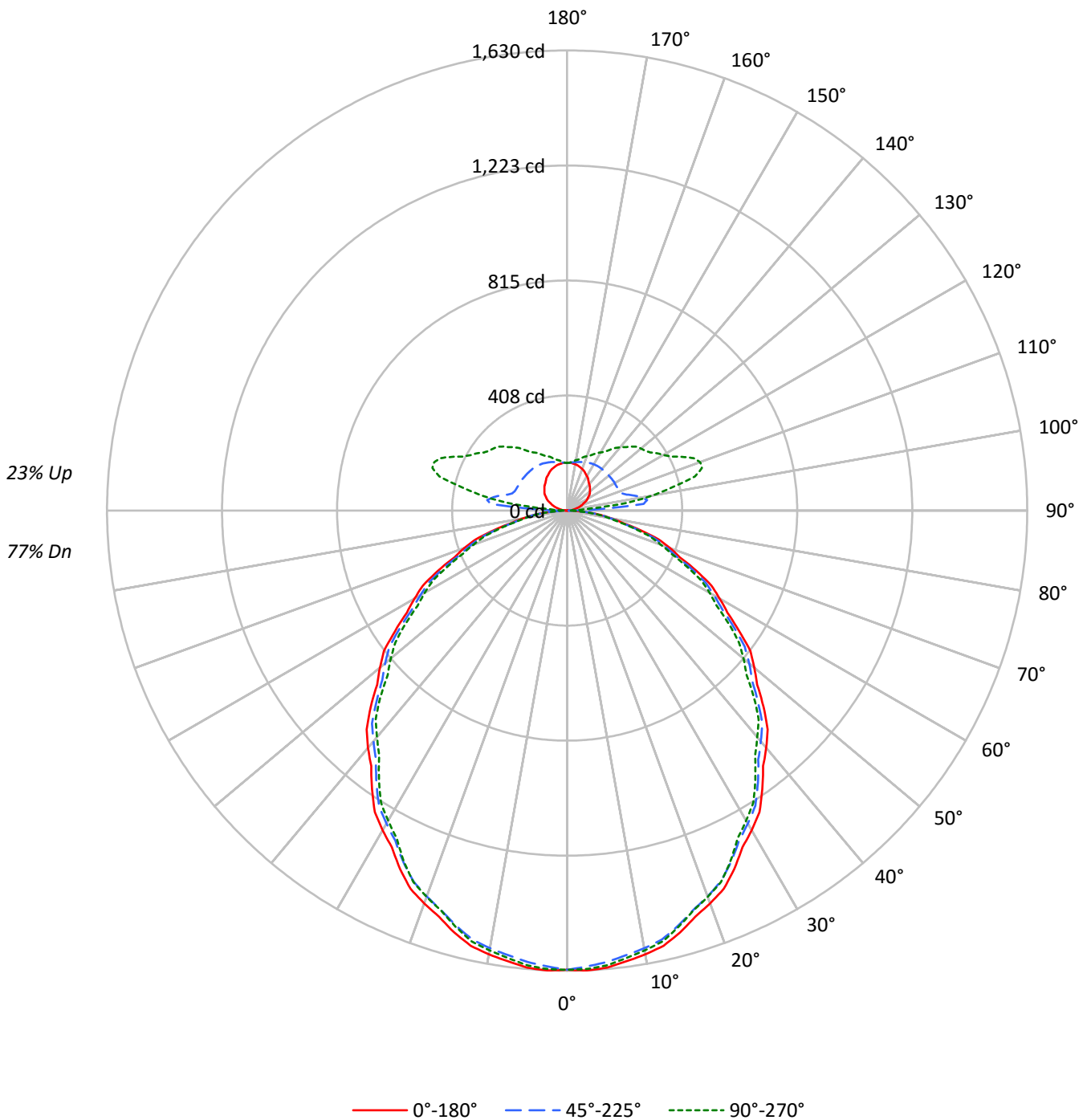
Input Watts (W): 43.5  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81	77
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68	65
2	95	87	80	75	90	83	77	72	76	71	67	69	65	62	63	60	58	54
3	86	76	69	62	82	73	66	60	67	61	56	61	57	53	56	52	49	46
4	79	68	59	53	75	65	57	51	60	53	48	55	49	45	50	46	42	39
5	73	60	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37	34
6	67	54	46	40	64	52	44	39	48	42	37	44	39	35	41	36	33	30
7	62	49	41	35	59	47	40	34	44	37	32	41	35	31	37	33	29	27
8	58	45	37	31	55	43	36	30	40	34	29	37	32	27	34	30	26	24
9	54	41	33	28	51	40	32	27	37	31	26	34	29	25	32	27	24	22
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	21	20

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	13130	13130	13130
5°	13169	13011	13105
10°	13086	12904	12969
15°	12929	12721	12754
20°	12718	12494	12506
25°	12479	12235	12200
30°	12185	11929	11820
35°	11880	11610	11456
40°	11564	11248	11041
45°	11233	10891	10683
50°	10868	10574	10246
55°	10473	10162	9831
60°	10078	9700	9405
65°	9635	9259	8886
70°	9135	8674	8337
75°	8372	7966	7764
80°	7452	7146	6969
85°	6521	6280	6150



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.2	2.8
10°-20°	431.5	8.0
20°-30°	635.2	11.7
30°-40°	738.4	13.7
40°-50°	738.4	13.7
50°-60°	645.9	11.9
60°-70°	479.7	8.9
70°-80°	272.5	5.0
80°-90°	79.6	1.5
90°-100°	122.5	2.3
100°-110°	254.9	4.7
110°-120°	228.3	4.2
120°-130°	192.0	3.6
130°-140°	160.1	3.0
140°-150°	122.3	2.3
150°-160°	86.0	1.6
160°-170°	50.6	0.9
170°-180°	16.5	0.3
0°-30°	1219.8	22.6
0°-40°	1958.2	36.2
0°-60°	3342.6	61.8
0°-90°	4174.4	77.2
90°-120°	605.7	11.2
90°-150°	1080.2	20.0
90°-180°	1233.0	22.8
0°-180°	5407.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1626	1626	1626	1626	1626	
5°	1625	1619	1606	1619	1617	154
15°	1547	1541	1522	1529	1526	436
25°	1401	1391	1374	1374	1370	644
35°	1205	1196	1178	1169	1162	753
45°	984	974	954	940	936	758
55°	744	739	722	707	698	666
65°	504	497	485	472	465	499
75°	268	262	255	250	249	285
85°	70	70	68	68	66	77
90°	0	3	6	7	7	4
95°	11	35	272	134	81	12
105°	39	56	218	471	469	42
115°	69	86	195	374	450	68
125°	96	114	194	319	359	85
135°	114	135	192	283	321	88
145°	131	150	191	238	262	82
155°	149	161	186	210	220	69
165°	162	167	178	189	192	46
175°	169	170	171	173	173	16
180°	170	170	170	170	170	



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CATALOG NUMBER: S124DIP-S1020D365U830-4F0-1E-UDD-F4

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1630.5	1629.8	1629.1	1628.4	1627.8	1626.1	1623.5	1621.0	1618.4	1615.9	1618.3
5°	1625.0	1623.9	1622.8	1621.6	1620.4	1618.3	1615.0	1611.8	1608.7	1605.5	1608.7
7.5°	1610.0	1608.7	1607.6	1606.5	1605.3	1603.0	1599.4	1595.9	1592.3	1588.8	1591.4
10°	1596.4	1595.3	1594.0	1592.9	1591.8	1589.3	1585.5	1581.8	1578.0	1574.2	1576.5
12.5°	1578.7	1577.5	1576.3	1575.2	1574.0	1571.4	1567.4	1563.5	1559.4	1555.5	1558.0
15°	1546.9	1545.7	1544.5	1543.4	1542.2	1539.5	1535.1	1530.8	1526.4	1522.1	1523.8
17.5°	1508.5	1507.1	1505.6	1504.2	1502.8	1500.0	1495.8	1491.8	1487.6	1483.6	1484.6
20°	1480.4	1478.9	1477.5	1476.0	1474.6	1471.7	1467.4	1463.0	1458.7	1454.3	1455.2
22.5°	1450.2	1448.2	1446.3	1444.4	1442.6	1439.4	1435.0	1430.7	1426.3	1422.0	1423.6
25°	1400.9	1398.9	1396.8	1394.8	1392.8	1389.8	1385.7	1381.7	1377.6	1373.6	1373.9
27.5°	1344.6	1342.6	1340.4	1338.3	1336.2	1333.3	1329.6	1325.8	1322.0	1318.2	1317.6
30°	1307.1	1304.8	1302.4	1300.1	1297.8	1294.8	1291.0	1287.2	1283.5	1279.7	1278.6
32.5°	1267.4	1265.4	1263.3	1261.2	1259.1	1256.0	1252.1	1248.1	1244.1	1240.1	1238.7
35°	1205.4	1203.4	1201.4	1199.4	1197.3	1194.3	1190.2	1186.2	1182.1	1178.1	1176.0
37.5°	1140.0	1138.1	1136.3	1134.4	1132.6	1129.5	1125.1	1120.8	1116.4	1112.1	1109.9
40°	1097.3	1095.0	1092.6	1090.3	1088.0	1084.7	1080.3	1076.0	1071.7	1067.3	1064.4
42.5°	1051.4	1050.0	1048.6	1047.3	1045.8	1042.7	1037.9	1033.1	1028.3	1023.5	1020.1
45°	983.9	981.8	979.9	977.8	975.8	972.4	967.8	963.2	958.6	953.9	950.7
47.5°	913.2	911.9	910.5	909.1	907.7	904.8	900.6	896.3	892.0	887.7	884.1
50°	865.3	864.1	863.0	861.9	860.6	858.1	854.0	850.0	845.9	841.9	837.8
52.5°	818.4	817.0	815.6	814.3	812.8	810.0	805.7	801.4	797.1	792.9	789.3
55°	744.1	743.2	742.3	741.5	740.6	738.2	734.1	730.1	726.0	722.0	718.5
57.5°	673.3	672.2	671.3	670.2	669.3	666.8	662.8	658.8	654.8	650.8	647.5
60°	624.2	622.7	621.3	619.9	618.4	615.9	612.1	608.3	604.5	600.8	598.1
62.5°	576.3	575.0	573.8	572.6	571.4	568.8	564.8	560.8	556.8	552.8	550.4
65°	504.4	502.8	501.4	500.0	498.5	496.3	493.4	490.6	487.7	484.7	481.9
67.5°	431.9	430.6	429.2	427.9	426.5	424.5	421.7	419.0	416.1	413.4	410.6
70°	387.0	385.0	383.0	381.0	378.9	376.7	374.5	372.1	369.9	367.5	365.1
72.5°	339.1	337.1	335.1	333.0	331.0	329.0	327.2	325.4	323.5	321.6	319.8
75°	268.4	267.0	265.5	264.1	262.7	261.2	259.8	258.4	256.8	255.4	254.3
77.5°	201.0	200.3	199.6	199.1	198.4	197.5	196.1	194.9	193.6	192.4	192.0
80°	160.3	159.4	158.5	157.7	156.8	156.1	155.5	155.0	154.4	153.7	153.2
82.5°	120.6	120.3	119.9	119.4	119.0	118.8	118.7	118.6	118.5	118.3	118.0
85°	70.4	70.4	70.4	70.4	70.4	70.1	69.5	68.9	68.3	67.8	67.8
87.5°	27.1	27.1	27.1	26.9	26.7	26.5	26.7	26.4	26.3	26.2	26.1
90°	0.4	1.0	2.0	2.4	2.6	2.6	4.6	4.6	5.4	6.0	5.7
92.5°	3.8	5.6	8.7	12.7	17.6	24.5	41.5	67.3	92.5	105.7	88.0
95°	11.0	12.0	15.4	19.7	27.6	41.7	70.6	125.3	204.9	271.5	279.2
97.5°	19.7	19.7	22.6	26.6	33.5	45.1	67.5	112.6	191.7	286.0	350.7
100°	25.4	25.4	27.6	31.7	38.0	48.6	68.3	105.9	173.9	267.9	353.1
102.5°	30.6	31.2	33.3	36.9	43.1	53.2	71.0	104.1	161.9	245.2	333.1
105°	39.0	40.0	41.7	45.6	51.7	61.3	77.3	104.9	151.6	218.5	296.8
107.5°	48.2	48.8	50.5	54.8	60.5	70.0	84.6	109.9	149.7	203.6	267.5
110°	54.3	55.0	56.6	60.6	66.6	75.6	90.3	113.6	150.2	198.5	252.9



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	60.1	60.8	62.8	66.4	72.5	81.4	95.6	117.6	151.8	196.1	244.6
115°	68.6	69.7	71.9	75.3	81.6	90.6	104.0	123.9	154.9	194.9	236.9
117.5°	77.4	78.3	80.4	84.1	90.0	99.3	112.0	130.4	158.2	194.5	233.4
120°	83.3	84.0	86.2	89.9	95.6	104.9	117.6	134.9	160.6	194.5	231.5
122.5°	88.6	89.3	91.6	95.0	101.2	110.3	122.9	139.2	163.0	194.3	229.4
125°	95.6	96.9	99.0	102.6	109.0	118.3	130.3	145.5	166.5	193.9	225.8
127.5°	101.8	102.8	105.3	109.4	116.0	125.5	137.0	151.1	169.5	193.1	221.1
130°	105.3	106.6	109.2	114.2	120.6	130.3	141.6	154.6	171.5	192.8	218.2
132.5°	108.8	109.8	113.3	118.0	124.9	133.9	145.3	158.1	173.4	192.7	215.6
135°	113.6	114.9	118.3	123.9	130.9	139.6	150.5	162.6	176.3	192.2	211.5
137.5°	118.5	119.7	123.4	128.8	136.0	144.3	154.6	165.8	177.9	192.2	208.1
140°	122.0	122.9	126.6	132.2	139.2	147.2	157.2	167.9	179.2	191.9	206.2
142.5°	125.6	126.7	130.1	135.4	142.1	149.9	159.7	169.5	180.3	191.9	204.6
145°	130.9	132.0	135.3	139.9	146.3	153.5	162.2	171.3	180.9	191.2	201.9
147.5°	136.9	137.1	140.2	144.9	150.1	156.7	164.9	172.8	181.3	190.0	199.4
150°	140.5	140.9	143.5	147.6	152.6	158.9	166.3	173.5	181.3	189.2	197.6
152.5°	144.0	144.1	146.8	150.5	155.0	160.8	167.3	174.1	180.7	187.8	195.4
155°	148.9	149.2	151.3	154.6	158.3	163.2	168.9	174.6	179.9	185.9	192.2
157.5°	153.6	153.6	155.5	158.1	161.3	165.2	170.0	174.6	179.0	183.8	189.0
160°	156.6	156.6	157.9	160.2	162.9	166.5	170.6	174.6	178.2	182.2	186.5
162.5°	159.2	159.0	160.0	162.1	164.5	167.4	171.1	174.6	177.4	180.6	184.5
165°	162.2	162.2	162.9	164.6	166.3	168.2	171.3	173.9	175.9	178.2	180.9
167.5°	165.2	164.9	165.2	166.5	167.4	169.0	171.2	173.1	174.3	175.8	177.7
170°	166.5	166.3	166.5	167.6	168.2	169.2	170.9	172.6	173.2	174.2	175.6
172.5°	167.9	167.6	167.6	168.3	168.7	169.5	170.6	172.0	172.2	172.6	173.7
175°	169.2	168.9	168.9	169.2	169.6	169.6	170.2	171.3	170.9	170.9	171.5
177.5°	169.8	169.6	169.3	169.6	169.6	169.6	169.8	170.3	169.8	169.8	170.1
180°	169.6	169.6	169.6	169.6	169.6	169.6	169.6	169.6	169.6	169.6	169.6



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4	1626.4
2.5°	1620.5	1622.9	1625.2	1626.3	1626.0	1625.8	1625.5	1625.3
5°	1611.8	1615.0	1618.3	1619.6	1619.0	1618.3	1617.8	1617.2
7.5°	1593.9	1596.5	1599.0	1600.2	1599.8	1599.4	1599.0	1598.7
10°	1578.9	1581.2	1583.5	1584.3	1583.8	1583.2	1582.6	1582.1
12.5°	1560.6	1563.1	1565.7	1566.5	1565.8	1564.9	1564.1	1563.3
15°	1525.6	1527.3	1529.1	1529.5	1528.6	1527.8	1526.9	1526.0
17.5°	1485.7	1486.9	1487.9	1488.2	1487.6	1487.0	1486.5	1485.8
20°	1456.0	1457.0	1457.8	1457.9	1457.4	1456.8	1456.2	1455.7
22.5°	1425.1	1426.7	1428.2	1428.5	1427.5	1426.4	1425.4	1424.4
25°	1374.1	1374.4	1374.7	1374.2	1373.1	1372.0	1370.7	1369.6
27.5°	1316.9	1316.2	1315.5	1314.5	1313.0	1311.5	1310.0	1308.6
30°	1277.4	1276.2	1275.1	1273.8	1272.3	1270.8	1269.4	1268.0
32.5°	1237.3	1236.0	1234.5	1233.1	1231.6	1230.2	1228.8	1227.3
35°	1174.0	1172.0	1170.0	1168.2	1166.8	1165.4	1163.9	1162.4
37.5°	1107.7	1105.5	1103.3	1101.3	1099.4	1097.4	1095.5	1093.6
40°	1061.5	1058.6	1055.7	1053.6	1052.1	1050.7	1049.2	1047.7
42.5°	1016.8	1013.4	1010.0	1007.9	1006.9	1005.9	1004.9	1004.0
45°	947.5	944.3	941.1	939.1	938.3	937.5	936.5	935.7
47.5°	880.5	876.9	873.4	870.4	868.3	866.0	863.8	861.7
50°	833.8	829.7	825.7	822.7	821.0	819.3	817.6	815.8
52.5°	785.7	782.0	778.4	775.6	773.4	771.2	769.0	766.8
55°	715.0	711.5	708.0	705.5	703.7	702.0	700.2	698.5
57.5°	644.2	640.9	637.6	635.1	633.4	631.8	630.1	628.4
60°	595.6	593.0	590.3	588.3	586.8	585.4	584.0	582.5
62.5°	548.1	545.6	543.3	541.4	540.0	538.5	537.1	535.6
65°	479.0	476.1	473.2	471.0	469.6	468.2	466.7	465.2
67.5°	407.8	405.0	402.3	400.7	400.2	399.8	399.4	399.1
70°	362.9	360.5	358.3	356.7	355.8	354.9	354.0	353.2
72.5°	317.9	316.0	314.2	312.8	312.0	311.1	310.3	309.3
75°	253.1	251.9	250.8	250.1	249.8	249.5	249.2	248.9
77.5°	191.6	191.3	191.0	190.4	189.6	188.9	188.1	187.4
80°	152.6	152.0	151.5	151.0	150.7	150.4	150.1	149.9
82.5°	117.6	117.3	117.0	116.6	116.3	116.0	115.7	115.5
85°	67.8	67.8	67.8	67.6	67.3	67.0	66.7	66.4
87.5°	26.2	26.3	26.4	26.4	26.4	26.5	26.4	26.4
90°	6.0	6.3	6.7	6.7	7.0	7.4	7.0	7.0
92.5°	65.4	49.2	39.2	32.5	28.6	26.8	25.6	25.6
95°	246.9	195.2	150.5	118.3	101.9	91.6	85.6	81.2
97.5°	364.7	345.5	312.9	278.1	254.2	234.2	224.2	217.3
100°	401.7	408.4	392.1	367.4	338.5	318.1	308.1	305.5
102.5°	399.9	432.9	437.6	427.3	409.6	394.9	384.4	382.2
105°	373.1	430.7	463.7	477.4	478.1	475.3	470.7	468.7
107.5°	335.1	396.4	442.8	472.6	489.0	496.6	499.9	500.8
110°	312.2	369.8	418.1	454.7	478.3	492.4	498.3	501.3





TEST NUMBER: P332633-830

CATALOG NUMBER: S124DIP-S1020D365U830-4F0-1E-UDD-F4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	295.3	346.3	391.9	428.6	455.4	472.4	480.8	485.6
115°	278.5	319.4	358.4	390.4	416.7	436.7	447.4	450.1
117.5°	270.2	304.2	334.8	361.9	384.4	401.1	411.9	414.0
120°	266.5	297.5	324.1	347.8	366.7	381.4	390.1	393.8
122.5°	263.3	293.2	317.4	338.2	354.2	366.7	374.1	377.8
125°	257.9	286.4	309.4	327.8	341.1	350.8	357.1	359.1
127.5°	251.2	278.5	301.5	318.9	332.2	340.8	346.2	348.2
130°	245.8	272.2	294.8	312.5	326.1	334.4	339.8	341.8
132.5°	240.3	264.9	287.1	304.7	318.1	327.5	332.6	334.6
135°	232.5	254.2	274.5	291.2	304.4	313.8	319.1	321.1
137.5°	225.6	243.8	261.0	276.0	288.5	297.7	302.1	304.4
140°	221.5	237.1	252.1	266.2	277.9	285.1	289.8	292.5
142.5°	217.8	231.6	244.4	256.6	266.9	273.7	277.9	279.7
145°	212.5	223.9	233.8	243.2	251.5	257.1	260.5	262.1
147.5°	208.2	217.2	225.2	232.5	238.7	243.6	246.0	246.7
150°	205.6	213.2	219.9	225.8	231.2	235.5	237.5	237.8
152.5°	202.6	209.2	215.4	220.3	224.8	228.3	229.5	229.9
155°	198.2	203.5	208.5	212.5	215.8	218.5	219.5	219.5
157.5°	193.5	197.9	202.2	205.4	207.8	209.9	210.5	210.5
160°	190.6	194.2	197.8	200.6	202.6	204.5	204.9	204.9
162.5°	187.7	190.8	193.6	196.0	197.5	199.4	199.8	199.5
165°	183.5	185.6	187.8	189.5	190.9	192.2	191.9	191.5
167.5°	179.6	181.2	183.0	184.0	184.6	185.6	185.5	185.2
170°	177.2	178.2	179.6	180.6	181.3	181.5	181.3	181.3
172.5°	175.1	175.8	176.6	177.4	177.8	178.0	177.8	177.2
175°	172.2	172.6	173.2	173.2	173.2	173.9	173.2	172.6
177.5°	170.3	170.6	170.6	170.9	170.6	170.9	170.3	169.8
180°	169.6	169.6	169.6	169.6	169.6	169.6	169.6	169.6

(END OF REPORT)