

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: P332631-940

Luminaire Tested: **S124DIP-S1020D365U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332631-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D365U940-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 365 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

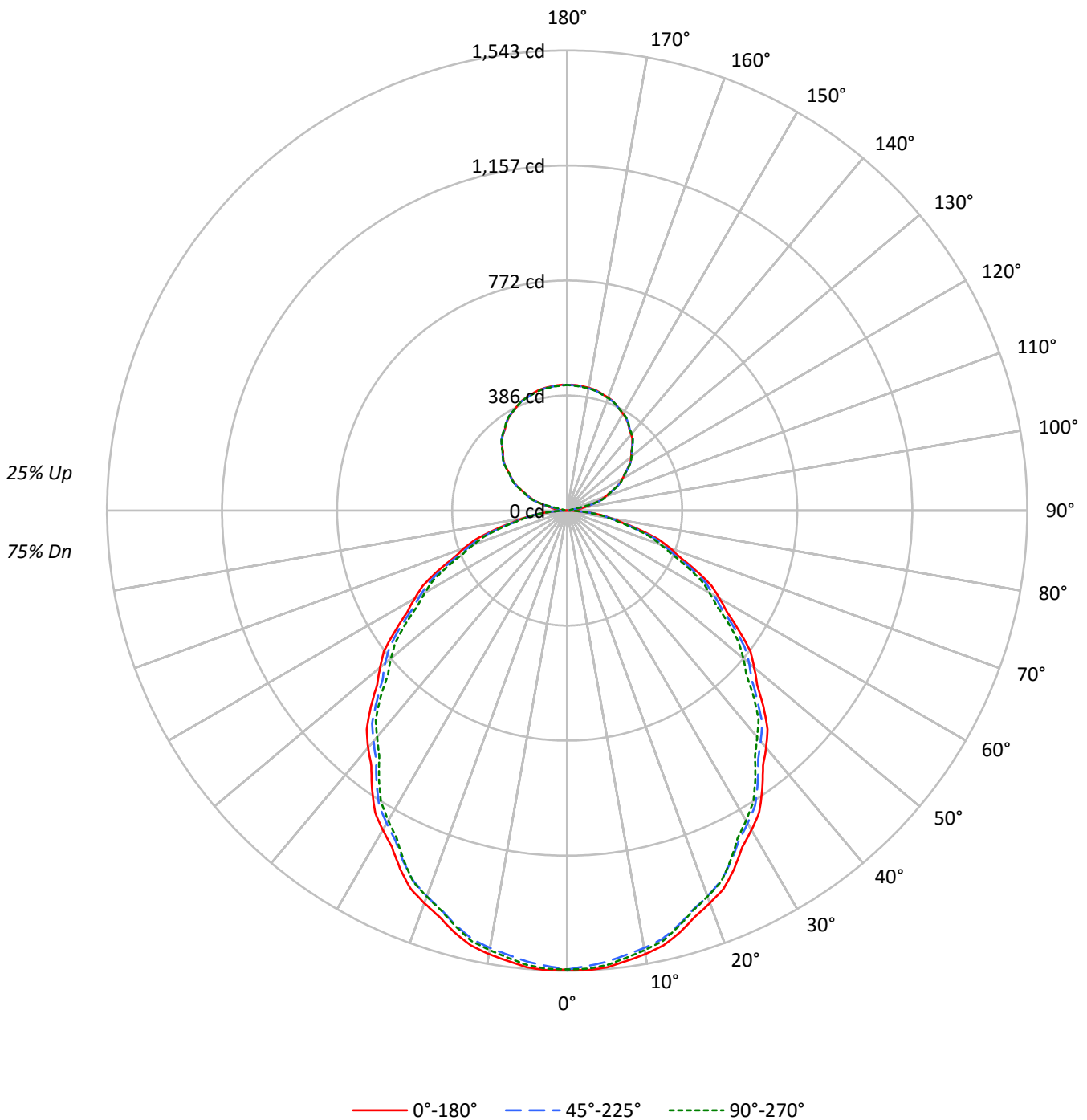
Lumens per Lamp: N/A  
Luminaire Lumens: 5253.0 lumens  
Efficiency: N/A  
Efficacy: 120.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Semi-Direct  
  
Input Watts (W): 43.5  
Input Voltage (V): 120  
Input Current (Ain): 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	97	97	97	88	88	88	79	79	79	75
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67	63
2	94	86	80	74	89	82	77	72	75	70	66	68	64	61	62	59	56	53
3	86	76	68	62	81	73	66	60	66	60	56	60	56	52	55	51	48	45
4	79	67	59	53	75	64	57	51	59	53	48	54	49	44	49	45	41	38
5	72	60	52	45	69	58	50	44	53	46	41	48	43	39	44	40	36	33
6	67	54	46	40	63	52	44	38	48	41	36	44	38	34	40	35	32	29
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28	26
8	58	45	37	31	55	43	35	30	40	33	29	37	31	27	34	29	25	23
9	54	41	33	28	51	39	32	27	36	30	26	34	28	24	31	26	23	21
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21	19

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

	0°	45°	90°
0°	12421	12421	12421
5°	12459	12309	12399
10°	12381	12209	12269
15°	12232	12035	12066
20°	12032	11820	11832
25°	11805	11575	11541
30°	11527	11286	11182
35°	11239	10984	10838
40°	10940	10642	10446
45°	10628	10304	10106
50°	10282	10003	9693
55°	9909	9614	9301
60°	9536	9177	8898
65°	9116	8760	8407
70°	8641	8207	7886
75°	7923	7539	7346
80°	7053	6760	6592
85°	6169	5937	5826



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	144.9	2.8
10°-20°	408.3	7.8
20°-30°	600.9	11.4
30°-40°	698.6	13.3
40°-50°	698.6	13.3
50°-60°	611.1	11.6
60°-70°	453.8	8.6
70°-80°	257.8	4.9
80°-90°	75.6	1.4
90°-100°	14.4	0.3
100°-110°	91.9	1.7
110°-120°	175.8	3.3
120°-130°	223.1	4.2
130°-140°	238.7	4.5
140°-150°	223.2	4.2
150°-160°	180.0	3.4
160°-170°	116.1	2.2
170°-180°	40.0	0.8
0°-30°	1154.1	22.0
0°-40°	1852.6	35.3
0°-60°	3162.3	60.2
0°-90°	3949.6	75.2
90°-120°	282.1	5.4
90°-150°	967.2	18.4
90°-180°	1303.0	24.8
0°-180°	5253.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1539	1539	1539	1539	1539	
5°	1537	1532	1519	1532	1530	146
15°	1464	1458	1440	1447	1444	412
25°	1325	1316	1300	1300	1296	609
35°	1140	1131	1114	1106	1100	713
45°	931	922	902	889	885	717
55°	704	700	683	669	661	630
65°	477	471	459	447	440	472
75°	254	248	242	237	236	270
85°	67	66	64	64	63	73
90°	1	4	7	9	10	4
95°	17	7	7	9	9	22
105°	95	97	98	100	90	99
115°	177	178	178	178	178	174
125°	249	250	250	250	251	222
135°	309	309	310	310	311	238
145°	356	357	357	357	358	222
155°	390	391	390	391	390	180
165°	412	410	410	413	410	116
175°	421	420	420	422	419	40
180°	421	421	421	421	421	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1542.6	1541.9	1541.2	1540.6	1540.0	1538.4	1536.0	1533.6	1531.2	1528.7	1531.0
5°	1537.4	1536.3	1535.3	1534.1	1533.0	1531.0	1527.9	1524.9	1522.0	1518.9	1522.0
7.5°	1523.1	1522.0	1520.9	1519.8	1518.8	1516.5	1513.1	1509.8	1506.5	1503.2	1505.6
10°	1510.3	1509.2	1508.1	1507.0	1505.9	1503.6	1500.0	1496.5	1492.9	1489.3	1491.5
12.5°	1493.5	1492.5	1491.3	1490.2	1489.2	1486.7	1482.9	1479.2	1475.3	1471.6	1474.0
15°	1463.5	1462.3	1461.2	1460.2	1459.0	1456.4	1452.3	1448.2	1444.1	1440.0	1441.6
17.5°	1427.2	1425.8	1424.4	1423.1	1421.7	1419.1	1415.1	1411.3	1407.4	1403.6	1404.5
20°	1400.5	1399.2	1397.8	1396.4	1395.1	1392.3	1388.2	1384.1	1380.0	1375.9	1376.7
22.5°	1372.0	1370.1	1368.3	1366.5	1364.8	1361.7	1357.6	1353.5	1349.4	1345.3	1346.8
25°	1325.3	1323.5	1321.5	1319.6	1317.7	1314.8	1311.0	1307.2	1303.3	1299.5	1299.8
27.5°	1272.1	1270.2	1268.1	1266.1	1264.2	1261.4	1257.8	1254.3	1250.7	1247.1	1246.5
30°	1236.6	1234.4	1232.2	1230.0	1227.8	1224.9	1221.4	1217.8	1214.2	1210.7	1209.6
32.5°	1199.1	1197.1	1195.2	1193.2	1191.2	1188.3	1184.5	1180.8	1177.0	1173.2	1171.9
35°	1140.4	1138.5	1136.6	1134.7	1132.7	1129.9	1126.1	1122.2	1118.4	1114.5	1112.6
37.5°	1078.5	1076.7	1075.0	1073.3	1071.5	1068.6	1064.4	1060.3	1056.2	1052.1	1050.1
40°	1038.1	1035.9	1033.7	1031.5	1029.3	1026.2	1022.1	1018.0	1013.9	1009.8	1007.0
42.5°	994.7	993.4	992.0	990.8	989.4	986.5	982.0	977.4	972.9	968.3	965.1
45°	930.9	928.9	927.0	925.1	923.2	920.0	915.6	911.2	906.9	902.5	899.5
47.5°	864.0	862.7	861.4	860.1	858.7	856.0	852.0	847.9	843.9	839.8	836.4
50°	818.7	817.5	816.5	815.4	814.2	811.8	808.0	804.1	800.3	796.5	792.6
52.5°	774.3	772.9	771.6	770.3	769.0	766.3	762.2	758.2	754.1	750.1	746.7
55°	704.0	703.1	702.3	701.5	700.7	698.4	694.6	690.7	686.9	683.1	679.8
57.5°	636.9	636.0	635.1	634.1	633.2	630.8	627.1	623.3	619.5	615.7	612.6
60°	590.6	589.2	587.8	586.5	585.1	582.6	579.1	575.5	571.9	568.4	565.9
62.5°	545.2	544.0	542.9	541.7	540.6	538.1	534.3	530.6	526.7	523.0	520.8
65°	477.2	475.7	474.4	473.1	471.6	469.6	466.8	464.1	461.4	458.6	455.9
67.5°	408.6	407.3	406.1	404.8	403.5	401.6	399.0	396.4	393.7	391.1	388.4
70°	366.1	364.3	362.3	360.4	358.5	356.4	354.3	352.0	349.9	347.7	345.4
72.5°	320.8	318.9	317.0	315.0	313.2	311.3	309.5	307.8	306.0	304.3	302.6
75°	254.0	252.6	251.2	249.9	248.5	247.1	245.8	244.4	243.0	241.7	240.6
77.5°	190.1	189.5	188.9	188.3	187.7	186.8	185.6	184.4	183.2	182.0	181.6
80°	151.7	150.8	150.0	149.2	148.4	147.7	147.1	146.6	146.1	145.4	144.9
82.5°	114.1	113.8	113.4	113.0	112.6	112.4	112.3	112.2	112.1	111.9	111.6
85°	66.6	66.6	66.6	66.6	66.6	66.3	65.7	65.2	64.6	64.1	64.1
87.5°	25.9	25.8	25.7	25.7	25.6	25.5	25.4	25.2	25.1	25.1	25.1
90°	1.0	1.7	2.5	3.3	4.0	4.7	5.3	5.8	6.3	7.0	7.3
92.5°	4.0	4.0	4.0	4.1	4.1	4.5	5.0	5.5	6.2	6.7	7.1
95°	17.3	15.0	12.6	10.2	7.8	6.7	6.7	6.8	6.9	7.0	7.3
97.5°	36.8	38.3	39.8	41.3	42.7	39.6	31.7	24.0	16.1	8.3	8.4
100°	51.7	53.0	54.2	55.5	56.7	52.5	42.9	33.2	23.5	13.9	12.7
102.5°	68.3	69.3	70.2	71.1	72.1	71.9	70.6	69.4	68.0	66.8	53.9
105°	94.9	95.2	95.7	96.1	96.6	96.9	97.3	97.6	98.0	98.4	99.0
107.5°	119.5	119.7	119.9	120.1	120.4	120.6	121.2	121.6	122.1	122.6	122.9
110°	136.2	136.3	136.5	136.8	137.0	137.3	137.7	138.1	138.6	139.0	139.1



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	152.3	152.7	153.0	153.4	153.8	154.1	154.3	154.4	154.6	154.9	154.8
115°	177.1	177.4	177.5	177.7	178.0	178.0	178.0	177.9	177.8	177.7	177.9
117.5°	199.5	199.7	200.0	200.4	200.6	200.8	201.0	201.2	201.3	201.4	201.4
120°	214.6	214.9	215.2	215.4	215.7	215.8	215.8	215.7	215.6	215.5	215.7
122.5°	228.7	228.9	229.1	229.3	229.4	229.5	229.6	229.7	229.8	230.0	230.0
125°	249.0	249.2	249.5	249.8	250.1	250.1	250.0	249.9	249.8	249.6	249.8
127.5°	268.1	268.2	268.2	268.3	268.4	268.6	268.9	269.2	269.6	269.9	269.8
130°	280.4	280.5	280.6	280.7	280.8	280.9	281.1	281.3	281.5	281.8	281.8
132.5°	291.9	291.9	292.0	292.2	292.3	292.5	292.7	293.0	293.3	293.6	293.6
135°	308.8	308.8	308.7	308.6	308.5	308.6	309.0	309.2	309.5	309.8	310.0
137.5°	323.9	324.0	324.0	324.0	324.0	324.2	324.5	324.8	325.1	325.4	325.6
140°	333.8	333.9	334.0	334.1	334.3	334.4	334.6	334.7	334.8	335.0	335.2
142.5°	342.6	342.8	343.0	343.3	343.6	343.8	343.8	343.9	344.0	344.1	344.2
145°	356.1	356.3	356.5	356.8	357.0	357.0	357.0	357.0	357.0	357.0	357.1
147.5°	366.8	367.3	367.7	368.1	368.5	368.6	368.5	368.5	368.4	368.4	368.4
150°	374.7	375.0	375.2	375.6	375.9	375.9	375.9	375.8	375.7	375.7	375.7
152.5°	381.3	381.5	381.7	381.9	382.2	382.2	382.1	381.9	381.8	381.7	381.8
155°	390.5	390.6	390.6	390.7	390.7	390.7	390.5	390.2	390.0	389.9	390.1
157.5°	398.2	398.1	398.1	398.1	398.1	397.9	397.7	397.4	397.2	397.0	397.3
160°	402.8	402.5	402.3	402.2	401.9	401.8	401.7	401.6	401.5	401.4	401.9
162.5°	406.8	406.5	406.3	406.0	405.7	405.6	405.5	405.4	405.4	405.3	405.7
165°	411.9	411.5	411.2	410.8	410.5	410.3	410.3	410.3	410.3	410.3	410.9
167.5°	415.9	415.5	415.2	414.8	414.5	414.3	414.2	414.2	414.1	414.1	414.7
170°	418.2	417.8	417.3	417.0	416.5	416.3	416.4	416.5	416.5	416.6	417.1
172.5°	419.7	419.3	418.8	418.5	418.0	417.9	417.9	418.0	418.0	418.1	418.7
175°	421.3	420.9	420.5	420.1	419.6	419.5	419.5	419.6	419.7	419.7	420.4
177.5°	422.1	421.7	421.3	420.9	420.5	420.4	420.5	420.6	420.7	420.8	421.3
180°	421.3	421.3	421.3	421.3	421.3	421.3	421.3	421.3	421.3	421.3	421.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6	1538.6
2.5°	1533.1	1535.3	1537.6	1538.6	1538.3	1538.1	1537.8	1537.7
5°	1524.9	1527.9	1531.0	1532.2	1531.7	1531.1	1530.5	1530.0
7.5°	1508.0	1510.4	1512.8	1513.9	1513.5	1513.1	1512.8	1512.5
10°	1493.7	1495.9	1498.1	1498.9	1498.3	1497.8	1497.3	1496.7
12.5°	1476.4	1478.8	1481.2	1482.0	1481.3	1480.5	1479.7	1479.0
15°	1443.3	1444.9	1446.6	1447.0	1446.2	1445.4	1444.6	1443.7
17.5°	1405.6	1406.7	1407.7	1407.9	1407.4	1406.9	1406.3	1405.7
20°	1377.5	1378.4	1379.2	1379.3	1378.8	1378.2	1377.7	1377.2
22.5°	1348.3	1349.8	1351.2	1351.5	1350.5	1349.5	1348.5	1347.6
25°	1300.0	1300.3	1300.6	1300.1	1299.0	1298.0	1296.8	1295.7
27.5°	1245.9	1245.2	1244.6	1243.6	1242.2	1240.8	1239.4	1238.1
30°	1208.5	1207.4	1206.3	1205.1	1203.7	1202.3	1201.0	1199.6
32.5°	1170.5	1169.3	1168.0	1166.6	1165.2	1163.9	1162.5	1161.1
35°	1110.7	1108.8	1106.9	1105.2	1103.8	1102.5	1101.1	1099.7
37.5°	1047.9	1045.9	1043.8	1041.9	1040.1	1038.2	1036.4	1034.7
40°	1004.2	1001.5	998.8	996.8	995.3	994.0	992.7	991.2
42.5°	962.0	958.8	955.6	953.5	952.6	951.6	950.7	949.9
45°	896.4	893.4	890.4	888.5	887.7	886.9	886.0	885.2
47.5°	833.0	829.6	826.3	823.5	821.4	819.3	817.3	815.2
50°	788.8	785.0	781.1	778.4	776.7	775.1	773.5	771.8
52.5°	743.3	739.9	736.5	733.8	731.6	729.6	727.5	725.4
55°	676.5	673.2	669.9	667.4	665.8	664.1	662.5	660.8
57.5°	609.5	606.4	603.2	600.8	599.2	597.7	596.1	594.5
60°	563.5	561.0	558.5	556.6	555.2	553.8	552.5	551.1
62.5°	518.5	516.2	514.0	512.2	510.9	509.4	508.1	506.8
65°	453.2	450.4	447.6	445.6	444.3	442.9	441.5	440.1
67.5°	385.8	383.2	380.6	379.1	378.6	378.3	377.9	377.6
70°	343.3	341.1	338.9	337.4	336.6	335.7	334.9	334.1
72.5°	300.8	299.0	297.3	296.0	295.2	294.4	293.6	292.7
75°	239.4	238.4	237.3	236.6	236.3	236.0	235.8	235.5
77.5°	181.3	181.0	180.7	180.1	179.4	178.7	178.0	177.3
80°	144.4	143.8	143.3	142.9	142.6	142.3	142.0	141.8
82.5°	111.3	110.9	110.7	110.3	110.0	109.8	109.5	109.2
85°	64.1	64.1	64.1	63.9	63.7	63.4	63.1	62.9
87.5°	25.2	25.3	25.4	25.4	25.5	25.5	25.5	25.6
90°	7.8	8.2	8.6	8.9	9.0	9.2	9.3	9.5
92.5°	7.5	7.9	8.4	8.6	8.6	8.6	8.6	8.7
95°	7.8	8.2	8.6	8.8	8.9	9.0	9.1	9.1
97.5°	8.4	8.5	8.5	8.6	8.6	8.6	8.7	8.8
100°	11.5	10.3	9.1	8.6	8.6	8.6	8.7	8.8
102.5°	41.1	28.3	15.4	9.0	9.0	9.0	9.1	9.1
105°	99.6	100.2	100.9	99.9	97.4	94.9	92.3	89.8
107.5°	123.2	123.5	123.9	124.1	124.4	124.7	124.9	125.2
110°	139.3	139.4	139.6	139.7	139.9	140.2	140.4	140.5





TEST NUMBER: P332631-940

CATALOG NUMBER: S124DIP-S1020D365U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	154.8	154.8	154.7	154.9	155.2	155.4	155.7	156.0
115°	178.0	178.2	178.3	178.3	178.3	178.3	178.3	178.3
117.5°	201.3	201.3	201.3	201.3	201.3	201.3	201.3	201.2
120°	215.8	216.0	216.2	216.2	216.0	215.8	215.7	215.5
122.5°	230.1	230.2	230.2	230.2	230.1	230.0	229.8	229.7
125°	250.0	250.2	250.4	250.6	250.7	250.7	250.7	250.8
127.5°	269.8	269.7	269.7	269.7	269.7	269.6	269.5	269.5
130°	281.9	282.0	282.0	282.0	282.0	282.0	282.0	282.0
132.5°	293.7	293.8	293.9	293.9	293.8	293.7	293.7	293.6
135°	310.0	310.2	310.3	310.5	310.6	310.8	310.9	311.0
137.5°	325.7	325.9	326.0	326.1	326.0	326.0	325.9	325.9
140°	335.4	335.6	335.8	336.0	336.1	336.1	336.2	336.3
142.5°	344.4	344.6	344.6	344.7	344.8	344.8	344.8	344.8
145°	357.2	357.3	357.3	357.4	357.6	357.8	357.8	358.0
147.5°	368.5	368.5	368.5	368.6	368.7	368.7	368.8	368.9
150°	375.7	375.7	375.7	375.7	375.8	375.9	375.9	375.9
152.5°	381.9	382.0	382.2	382.2	382.1	382.1	382.1	382.0
155°	390.4	390.7	390.9	391.0	390.7	390.6	390.4	390.1
157.5°	397.7	398.1	398.4	398.4	398.1	397.7	397.3	397.0
160°	402.3	402.8	403.1	403.1	402.8	402.3	401.9	401.4
162.5°	406.1	406.5	407.0	406.9	406.4	406.0	405.5	405.0
165°	411.4	412.0	412.6	412.5	411.9	411.3	410.6	410.0
167.5°	415.4	416.0	416.5	416.5	415.8	415.1	414.4	413.8
170°	417.8	418.3	418.8	418.7	418.1	417.4	416.7	416.0
172.5°	419.3	419.8	420.4	420.3	419.5	418.7	418.0	417.2
175°	421.1	421.7	422.3	422.2	421.3	420.5	419.6	418.8
177.5°	421.8	422.2	422.7	422.5	421.9	421.2	420.5	419.8
180°	421.3	421.3	421.3	421.3	421.3	421.3	421.3	421.3

(END OF REPORT)