

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: P332640-940

Luminaire Tested: **S124DIP-S1020D590U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332640-940
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-S1020D590U940-4F0-1E-UDD-F
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 590 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6054.0 lumens
Efficiency: N/A
Efficacy: 124.1 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

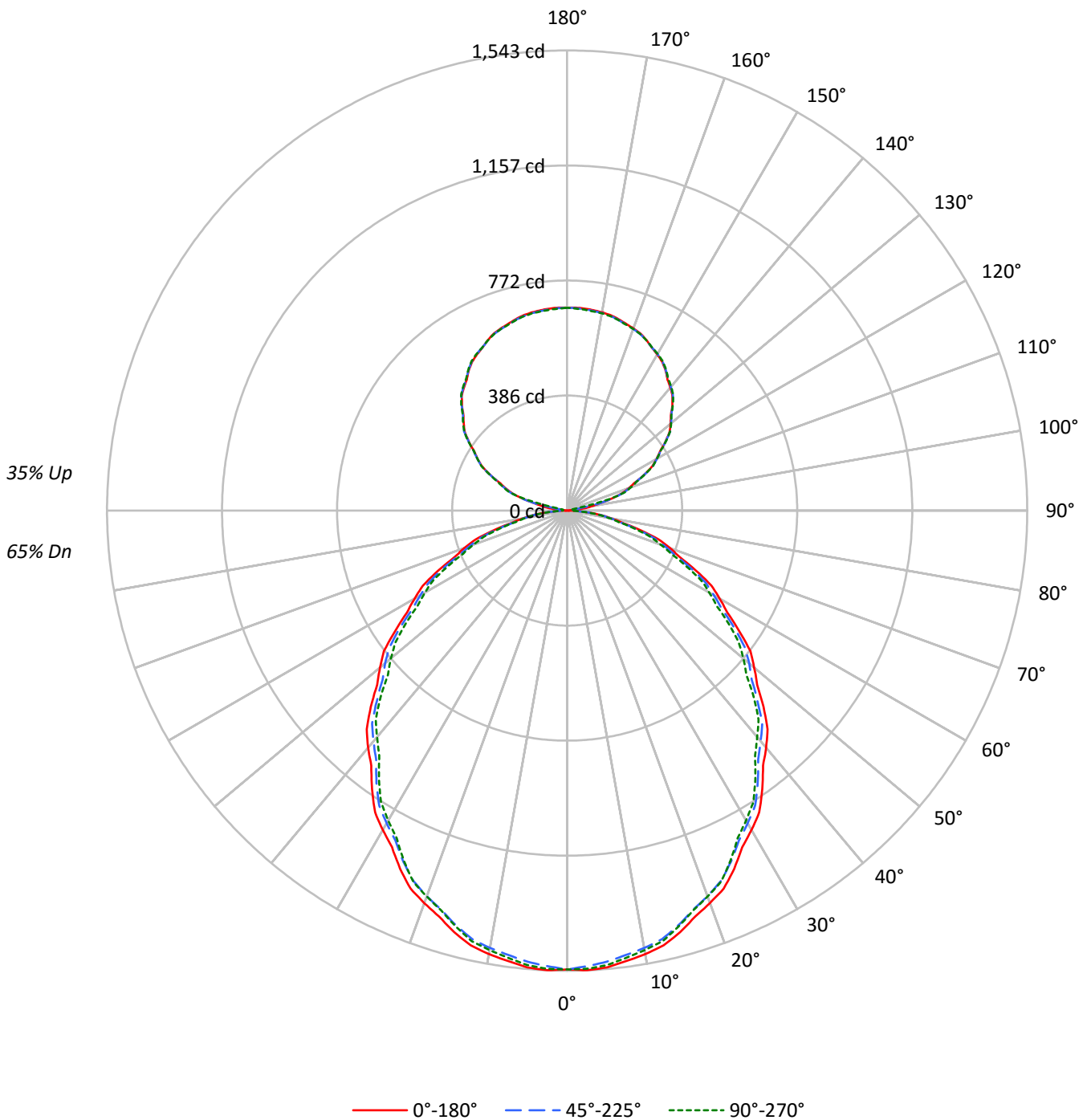
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	104	104	104	104	92	92	92	81	81	81	70	70	70	65
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	61	59	55
2	92	84	78	73	86	80	74	69	71	66	62	62	59	56	54	52	50	46
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42	39
4	77	66	58	51	72	62	55	49	55	50	45	49	44	41	43	40	37	33
5	71	59	50	44	66	56	48	42	50	43	39	44	39	35	39	35	32	29
6	65	53	44	38	61	50	42	37	45	39	34	40	35	31	35	31	28	25
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	23
8	56	43	35	30	53	41	34	29	37	31	27	33	28	25	30	26	22	20
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20	18
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	18	17

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



TEST NUMBER: P332640-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-F

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.9	2.4
10°-20°	408.3	6.7
20°-30°	600.9	9.9
30°-40°	698.6	11.5
40°-50°	698.6	11.5
50°-60°	611.1	10.1
60°-70°	453.8	7.5
70°-80°	257.8	4.3
80°-90°	76.4	1.3
90°-100°	23.3	0.4
100°-110°	148.3	2.4
110°-120°	283.7	4.7
120°-130°	360.1	5.9
130°-140°	385.3	6.4
140°-150°	360.3	6.0
150°-160°	290.6	4.8
160°-170°	187.4	3.1
170°-180°	64.6	1.1
0°-30°	1154.1	19.1
0°-40°	1852.6	30.6
0°-60°	3162.3	52.2
0°-90°	3950.4	65.3
90°-120°	455.3	7.5
90°-150°	1561.1	25.8
90°-180°	2104.0	34.8
0°-180°	6054.0	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°	2	7	11	14	15	5
95°	28	12	11	14	15	36
105°	153	156	159	162	145	160
115°	286	287	287	288	288	281
125°	402	404	403	404	405	359
135°	498	498	500	501	502	384
145°	575	576	576	577	578	359
155°	630	631	629	631	630	290
165°	665	662	662	666	662	188
175°	680	677	678	682	676	65
180°	680	680	680	680	680	



TEST NUMBER: P332640-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-F

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	25.9	26.0	26.0	26.0	26.0	26.0	25.9	25.9	25.9	26.0
90°	1.5	2.8	4.0	5.3	6.5	7.6	8.5	9.4	10.3	11.1	11.9
92.5°	6.4	6.5	6.5	6.6	6.7	7.1	8.1	9.0	9.9	10.8	11.5
95°	28.0	24.2	20.3	16.4	12.6	10.7	10.9	11.0	11.1	11.1	11.9
97.5°	59.4	61.8	64.2	66.6	69.0	63.8	51.3	38.7	26.0	13.5	13.5
100°	83.4	85.4	87.5	89.5	91.6	84.8	69.2	53.6	38.0	22.4	20.4
102.5°	110.3	111.7	113.2	114.8	116.3	116.0	114.0	111.9	109.9	107.8	87.1
105°	153.1	153.8	154.4	155.2	155.8	156.4	157.0	157.6	158.1	158.7	159.7
107.5°	192.9	193.2	193.6	193.9	194.2	194.7	195.6	196.4	197.1	197.9	198.4
110°	219.7	220.1	220.4	220.8	221.1	221.6	222.3	222.9	223.6	224.4	224.5



TEST NUMBER: P332640-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	245.8	246.4	247.0	247.6	248.3	248.7	249.0	249.3	249.7	249.9	249.9
115°	285.9	286.2	286.5	286.9	287.2	287.3	287.2	287.1	287.0	286.9	287.1
117.5°	322.0	322.4	322.9	323.3	323.8	324.1	324.4	324.7	324.9	325.1	325.1
120°	346.4	346.9	347.3	347.8	348.2	348.4	348.3	348.1	348.0	347.9	348.1
122.5°	369.2	369.4	369.7	370.0	370.2	370.5	370.7	370.8	371.0	371.1	371.2
125°	401.8	402.3	402.8	403.2	403.7	403.8	403.5	403.3	403.1	402.9	403.2
127.5°	432.7	432.8	433.0	433.1	433.2	433.5	434.1	434.5	435.1	435.6	435.5
130°	452.7	452.8	452.9	453.1	453.2	453.3	453.7	454.1	454.4	454.8	454.9
132.5°	471.0	471.2	471.4	471.6	471.8	472.2	472.6	473.0	473.4	473.9	473.9
135°	498.5	498.4	498.3	498.1	498.0	498.2	498.6	499.1	499.5	500.0	500.2
137.5°	522.8	522.8	522.9	522.9	523.0	523.3	523.7	524.2	524.8	525.2	525.5
140°	538.7	538.9	539.1	539.3	539.6	539.8	540.0	540.3	540.5	540.7	541.0
142.5°	552.9	553.3	553.8	554.1	554.6	554.8	554.9	555.1	555.2	555.4	555.6
145°	574.8	575.2	575.4	575.8	576.1	576.3	576.3	576.3	576.3	576.3	576.4
147.5°	592.2	592.8	593.4	594.1	594.7	594.9	594.9	594.8	594.6	594.5	594.6
150°	604.8	605.2	605.7	606.2	606.6	606.8	606.6	606.5	606.5	606.3	606.3
152.5°	615.4	615.7	616.1	616.4	616.8	616.9	616.7	616.5	616.3	616.1	616.3
155°	630.3	630.4	630.4	630.5	630.7	630.5	630.3	629.9	629.5	629.2	629.6
157.5°	642.7	642.7	642.6	642.6	642.5	642.2	641.9	641.5	641.1	640.7	641.3
160°	650.1	649.7	649.3	649.1	648.7	648.5	648.4	648.3	648.1	648.0	648.7
162.5°	656.6	656.1	655.7	655.3	654.9	654.6	654.4	654.3	654.2	654.2	654.8
165°	664.8	664.2	663.7	663.1	662.5	662.3	662.3	662.3	662.3	662.3	663.2
167.5°	671.3	670.7	670.1	669.6	669.0	668.6	668.6	668.5	668.4	668.3	669.4
170°	675.0	674.3	673.6	673.0	672.3	672.0	672.1	672.2	672.3	672.4	673.3
172.5°	677.4	676.7	676.1	675.4	674.8	674.4	674.6	674.7	674.8	674.8	675.8
175°	680.1	679.4	678.7	678.1	677.3	677.1	677.2	677.3	677.4	677.5	678.5
177.5°	681.3	680.6	680.0	679.4	678.8	678.5	678.7	678.9	679.0	679.2	680.0
180°	680.1	680.1	680.1	680.1	680.1	680.1	680.1	680.1	680.1	680.1	680.1



TEST NUMBER: P332640-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-F

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°	26.2	26.3	26.5	26.6	26.6	26.7	26.7	26.8
90°	12.6	13.2	13.9	14.4	14.6	14.8	15.1	15.2
92.5°	12.1	12.8	13.5	13.8	13.9	13.9	14.0	14.0
95°	12.6	13.2	13.9	14.3	14.4	14.5	14.6	14.7
97.5°	13.6	13.6	13.7	13.8	13.9	14.0	14.1	14.3
100°	18.5	16.6	14.7	13.8	13.9	14.0	14.1	14.3
102.5°	66.3	45.7	24.9	14.5	14.6	14.6	14.6	14.6
105°	160.8	161.8	162.7	161.2	157.2	153.1	149.0	145.0
107.5°	198.9	199.4	199.8	200.3	200.7	201.2	201.6	202.1
110°	224.8	225.0	225.2	225.5	225.9	226.1	226.5	226.9



TEST NUMBER: P332640-940

CATALOG NUMBER: S124DIP-S1020D590U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	249.9	249.9	249.8	249.9	250.4	250.8	251.3	251.6
115°	287.3	287.6	287.8	287.9	287.9	287.9	287.9	287.9
117.5°	325.0	325.0	324.9	324.9	324.9	324.9	324.8	324.8
120°	348.4	348.6	348.8	348.8	348.6	348.4	348.1	347.9
122.5°	371.4	371.5	371.7	371.6	371.4	371.1	371.0	370.7
125°	403.5	403.9	404.2	404.5	404.6	404.7	404.7	404.9
127.5°	435.5	435.4	435.3	435.2	435.2	435.1	435.0	434.9
130°	455.0	455.0	455.2	455.2	455.2	455.2	455.2	455.2
132.5°	474.1	474.2	474.3	474.3	474.2	474.1	474.0	473.9
135°	500.4	500.7	500.9	501.1	501.3	501.6	501.9	502.0
137.5°	525.8	526.0	526.2	526.3	526.3	526.2	526.1	526.0
140°	541.4	541.7	542.1	542.2	542.4	542.5	542.6	542.7
142.5°	555.8	556.1	556.3	556.5	556.5	556.5	556.5	556.6
145°	576.5	576.7	576.8	576.9	577.1	577.4	577.7	577.8
147.5°	594.7	594.8	594.9	594.9	595.1	595.2	595.3	595.4
150°	606.3	606.3	606.3	606.4	606.5	606.6	606.7	606.8
152.5°	616.4	616.6	616.8	616.9	616.8	616.7	616.6	616.6
155°	630.1	630.5	631.0	631.1	630.7	630.4	630.1	629.7
157.5°	641.9	642.5	643.0	643.0	642.5	641.9	641.3	640.7
160°	649.3	650.1	650.8	650.8	650.1	649.3	648.7	648.0
162.5°	655.5	656.1	656.8	656.8	656.0	655.2	654.5	653.7
165°	664.1	664.9	665.9	665.8	664.8	663.8	662.8	661.7
167.5°	670.4	671.4	672.3	672.3	671.2	670.0	668.9	667.8
170°	674.2	675.1	676.1	675.9	674.8	673.7	672.5	671.5
172.5°	676.7	677.6	678.5	678.3	677.2	675.9	674.7	673.4
175°	679.6	680.6	681.6	681.4	680.1	678.7	677.3	676.0
177.5°	680.7	681.4	682.2	682.0	680.9	679.8	678.7	677.6
180°	680.1	680.1	680.1	680.1	680.1	680.1	680.1	680.1

(END OF REPORT)