

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: P332810-940

Luminaire Tested: **S124DIW-S1020D470U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332810-940
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIW-S1020D470U940-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5399.5 lumens
Efficiency: N/A
Efficacy: 116.9 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

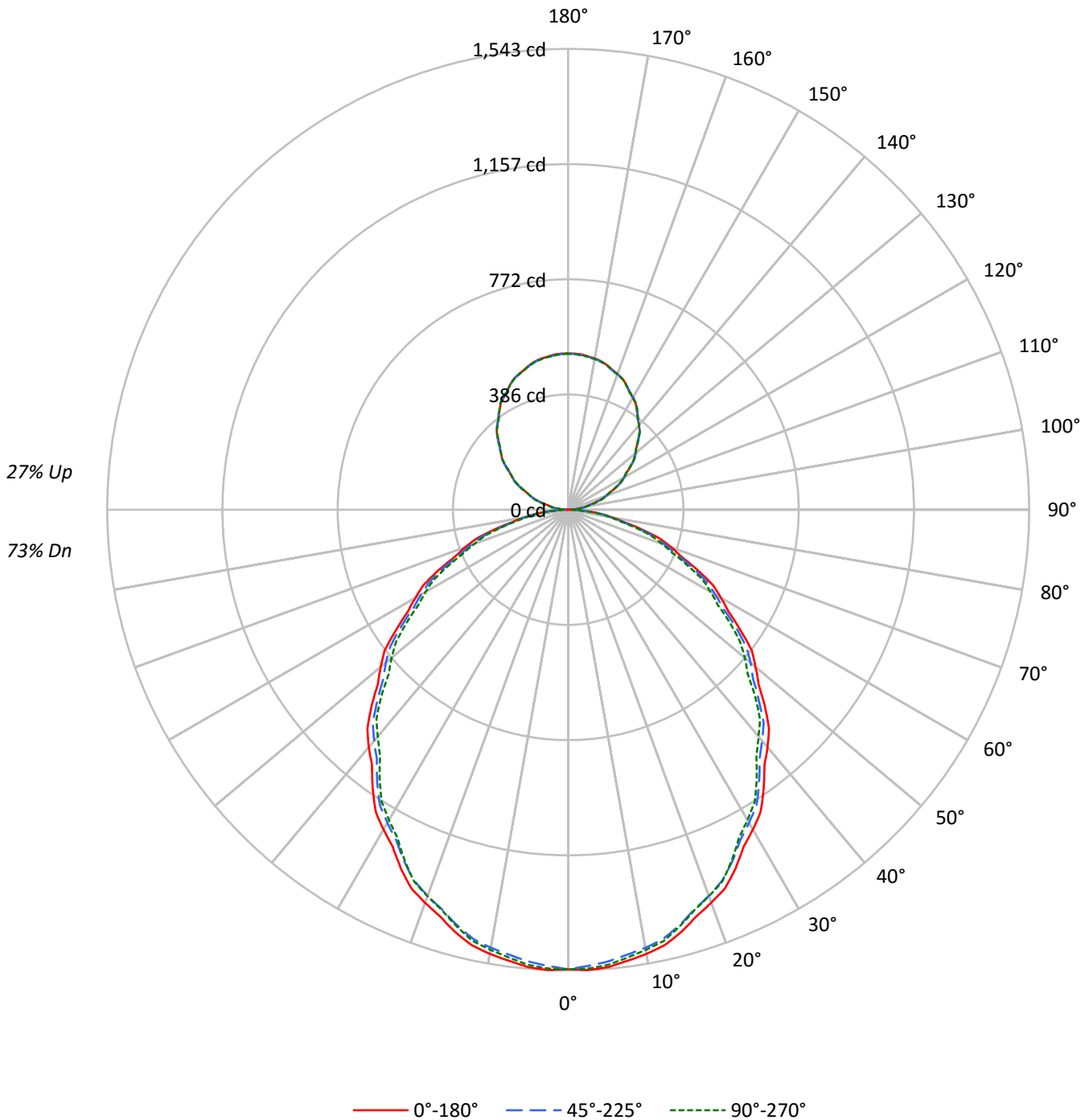
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	107	107	107	107	96	96	96	86	86	86	77	77	77	73
1	103	98	94	91	98	94	90	87	84	82	79	76	74	72	68	67	65	62
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55	51
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47	44
4	78	67	59	52	74	64	56	51	58	52	47	53	48	44	48	44	40	37
5	72	60	51	45	68	57	49	44	52	46	41	47	42	38	43	39	35	32
6	66	54	45	39	63	52	44	38	47	41	36	43	38	33	39	35	31	29
7	62	49	40	35	58	47	39	34	43	36	32	39	34	30	36	31	28	25
8	57	44	36	31	54	43	35	30	39	33	28	36	30	26	33	28	25	23
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22	20
10	50	37	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20	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	2.7
10°-20°	408.3	7.6
20°-30°	600.9	11.1
30°-40°	698.6	12.9
40°-50°	698.6	12.9
50°-60°	611.1	11.3
60°-70°	453.8	8.4
70°-80°	257.8	4.8
80°-90°	76.0	1.4
90°-100°	34.5	0.6
100°-110°	102.1	1.9
110°-120°	173.3	3.2
120°-130°	228.5	4.2
130°-140°	256.6	4.8
140°-150°	252.1	4.7
150°-160°	212.1	3.9
160°-170°	141.1	2.6
170°-180°	49.4	0.9
0°-30°	1154.1	21.4
0°-40°	1852.6	34.3
0°-60°	3162.3	58.6
0°-90°	3950.0	73.2
90°-120°	309.8	5.7
90°-150°	1047.0	19.4
90°-180°	1450.0	26.9
0°-180°	5399.5	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	6	9	11	12	5
95°	24	28	31	32	32	27
105°	94	95	96	97	99	100
115°	176	176	175	175	175	174
125°	256	256	256	255	255	229
135°	331	333	333	332	331	256
145°	402	404	404	404	402	252
155°	461	461	460	462	460	212
165°	501	500	499	502	500	141
175°	522	520	519	522	519	49
180°	522	522	522	522	522	



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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	25.9	25.9	25.9	25.8	25.8	25.7	25.6	25.5	25.4	25.6
90°	1.2	2.2	3.2	4.2	5.2	6.0	6.8	7.5	8.2	8.9	9.5
92.5°	8.6	9.8	10.9	12.0	13.2	14.0	14.5	15.0	15.5	16.0	16.3
95°	24.3	25.1	25.9	26.7	27.5	28.2	28.8	29.4	30.1	30.7	30.9
97.5°	42.4	43.0	43.6	44.3	44.9	45.7	46.4	47.1	47.8	48.6	48.9
100°	56.5	56.9	57.2	57.6	58.1	58.6	59.4	60.2	61.0	61.8	62.0
102.5°	71.4	71.6	71.7	71.9	72.1	72.5	73.2	73.9	74.6	75.4	75.6
105°	94.2	94.3	94.3	94.4	94.5	94.7	95.1	95.4	95.8	96.1	96.4
107.5°	118.0	118.1	118.2	118.3	118.4	118.5	118.6	118.6	118.7	118.7	119.0
110°	134.1	134.3	134.5	134.6	134.8	134.9	134.8	134.7	134.6	134.6	134.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	151.0	151.0	151.1	151.1	151.1	151.1	150.9	150.7	150.5	150.4	150.3
115°	176.2	176.2	176.2	176.2	176.2	176.1	175.9	175.8	175.6	175.4	175.3
117.5°	199.9	200.0	200.1	200.2	200.2	200.2	200.1	199.9	199.8	199.7	199.4
120°	215.8	216.2	216.5	216.9	217.2	217.2	217.0	216.7	216.4	216.2	215.7
122.5°	232.3	232.4	232.6	232.6	232.8	232.8	232.7	232.6	232.5	232.4	232.0
125°	256.5	256.5	256.5	256.5	256.5	256.5	256.5	256.4	256.3	256.2	256.0
127.5°	278.7	278.9	279.2	279.5	279.7	279.8	279.6	279.5	279.4	279.2	279.0
130°	294.2	294.4	294.7	295.0	295.2	295.3	295.3	295.3	295.3	295.3	295.2
132.5°	310.0	310.2	310.4	310.6	310.8	310.9	310.8	310.7	310.7	310.6	310.4
135°	330.9	331.4	332.0	332.5	333.1	333.3	333.3	333.3	333.3	333.3	333.1
137.5°	353.7	354.0	354.2	354.5	354.7	354.9	355.1	355.3	355.3	355.5	355.3
140°	368.9	369.1	369.3	369.4	369.6	369.7	369.7	369.7	369.7	369.7	369.6
142.5°	382.8	383.0	383.2	383.3	383.5	383.6	383.5	383.4	383.3	383.3	383.3
145°	402.1	402.4	402.8	403.1	403.5	403.7	403.8	403.9	403.9	404.0	403.9
147.5°	421.2	421.5	422.0	422.4	422.8	423.0	422.9	422.8	422.8	422.8	422.7
150°	432.7	433.1	433.5	433.8	434.2	434.4	434.4	434.4	434.4	434.4	434.4
152.5°	443.7	444.0	444.2	444.4	444.6	444.8	444.8	444.9	445.0	445.1	445.2
155°	460.7	460.7	460.7	460.7	460.7	460.6	460.5	460.4	460.3	460.2	460.6
157.5°	474.8	474.7	474.6	474.4	474.2	474.1	474.1	474.1	474.0	474.0	474.3
160°	483.3	483.2	483.1	483.0	483.0	482.9	482.8	482.7	482.6	482.5	482.8
162.5°	491.1	490.8	490.5	490.4	490.1	489.9	489.8	489.7	489.6	489.5	490.1
165°	501.4	501.1	500.9	500.6	500.3	500.2	500.0	499.8	499.6	499.4	500.0
167.5°	509.4	509.1	508.7	508.4	507.9	507.7	507.7	507.8	507.8	507.8	508.4
170°	514.0	513.5	513.1	512.6	512.2	512.0	512.1	512.2	512.3	512.4	512.9
172.5°	517.2	516.8	516.5	516.1	515.7	515.5	515.5	515.6	515.6	515.6	516.2
175°	521.7	521.2	520.8	520.3	519.9	519.6	519.5	519.4	519.3	519.2	519.9
177.5°	523.1	522.7	522.4	522.0	521.7	521.5	521.5	521.5	521.5	521.5	522.0
180°	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5



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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°	25.7	25.8	25.9	25.9	25.9	26.0	26.0	26.1
90°	10.0	10.5	11.1	11.4	11.6	11.8	11.9	12.1
92.5°	16.7	16.9	17.3	17.5	17.7	17.7	17.8	17.9
95°	31.2	31.5	31.7	31.9	31.9	31.9	31.9	31.9
97.5°	49.2	49.6	49.8	50.0	50.0	50.0	50.0	50.0
100°	62.2	62.3	62.5	62.6	62.6	62.6	62.6	62.6
102.5°	75.9	76.2	76.4	76.6	76.6	76.7	76.8	76.9
105°	96.8	97.0	97.3	97.6	97.8	98.1	98.4	98.6
107.5°	119.2	119.5	119.8	119.8	119.8	119.8	119.8	119.8
110°	134.2	134.0	133.8	133.8	134.1	134.4	134.6	134.9



TEST NUMBER: P332810-940

CATALOG NUMBER: S124DIW-S1020D470U940-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	150.3	150.3	150.3	150.3	150.3	150.3	150.4	150.4
115°	175.2	175.1	175.0	175.0	174.9	174.8	174.7	174.6
117.5°	199.1	198.8	198.5	198.2	198.0	197.9	197.7	197.5
120°	215.3	214.8	214.4	214.3	214.5	214.6	214.8	215.0
122.5°	231.8	231.4	231.1	230.8	230.5	230.2	229.8	229.5
125°	255.8	255.7	255.5	255.3	255.1	254.9	254.8	254.6
127.5°	278.8	278.7	278.5	278.3	278.2	278.0	277.9	277.8
130°	295.0	294.8	294.6	294.4	294.0	293.6	293.3	292.9
132.5°	310.2	310.0	309.9	309.7	309.5	309.4	309.2	309.2
135°	333.0	332.8	332.6	332.4	332.2	331.9	331.6	331.4
137.5°	355.0	354.8	354.5	354.5	354.5	354.5	354.6	354.7
140°	369.5	369.4	369.3	369.3	369.2	369.1	369.0	368.9
142.5°	383.3	383.3	383.3	383.2	383.2	383.2	383.2	383.2
145°	403.9	403.8	403.7	403.5	403.2	403.0	402.7	402.4
147.5°	422.6	422.5	422.5	422.4	422.3	422.2	422.1	422.0
150°	434.4	434.4	434.4	434.4	434.3	434.2	434.1	434.0
152.5°	445.5	445.7	445.9	445.9	445.7	445.4	445.2	445.0
155°	460.9	461.3	461.6	461.6	461.3	460.9	460.6	460.2
157.5°	474.6	474.8	475.1	475.1	474.8	474.5	474.2	473.9
160°	483.0	483.3	483.6	483.5	483.0	482.6	482.1	481.6
162.5°	490.5	491.1	491.5	491.5	491.1	490.6	490.2	489.7
165°	500.5	501.1	501.6	501.7	501.3	501.0	500.6	500.2
167.5°	508.9	509.4	510.0	510.0	509.4	508.9	508.3	507.7
170°	513.4	514.0	514.5	514.4	513.8	513.2	512.6	511.9
172.5°	516.8	517.5	518.0	518.0	517.4	516.7	516.1	515.5
175°	520.5	521.1	521.7	521.7	521.1	520.5	519.9	519.2
177.5°	522.5	523.0	523.5	523.4	522.9	522.4	521.7	521.2
180°	522.5	522.5	522.5	522.5	522.5	522.5	522.5	522.5

(END OF REPORT)