

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: P333081-940

Luminaire Tested: **S124RDIW-S1020D770U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P333081-940  
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: S124RDIW-S1020D770U940-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 770 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6460.2 lumens  
Efficiency: N/A  
Efficacy: 120.5 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: General Diffuse

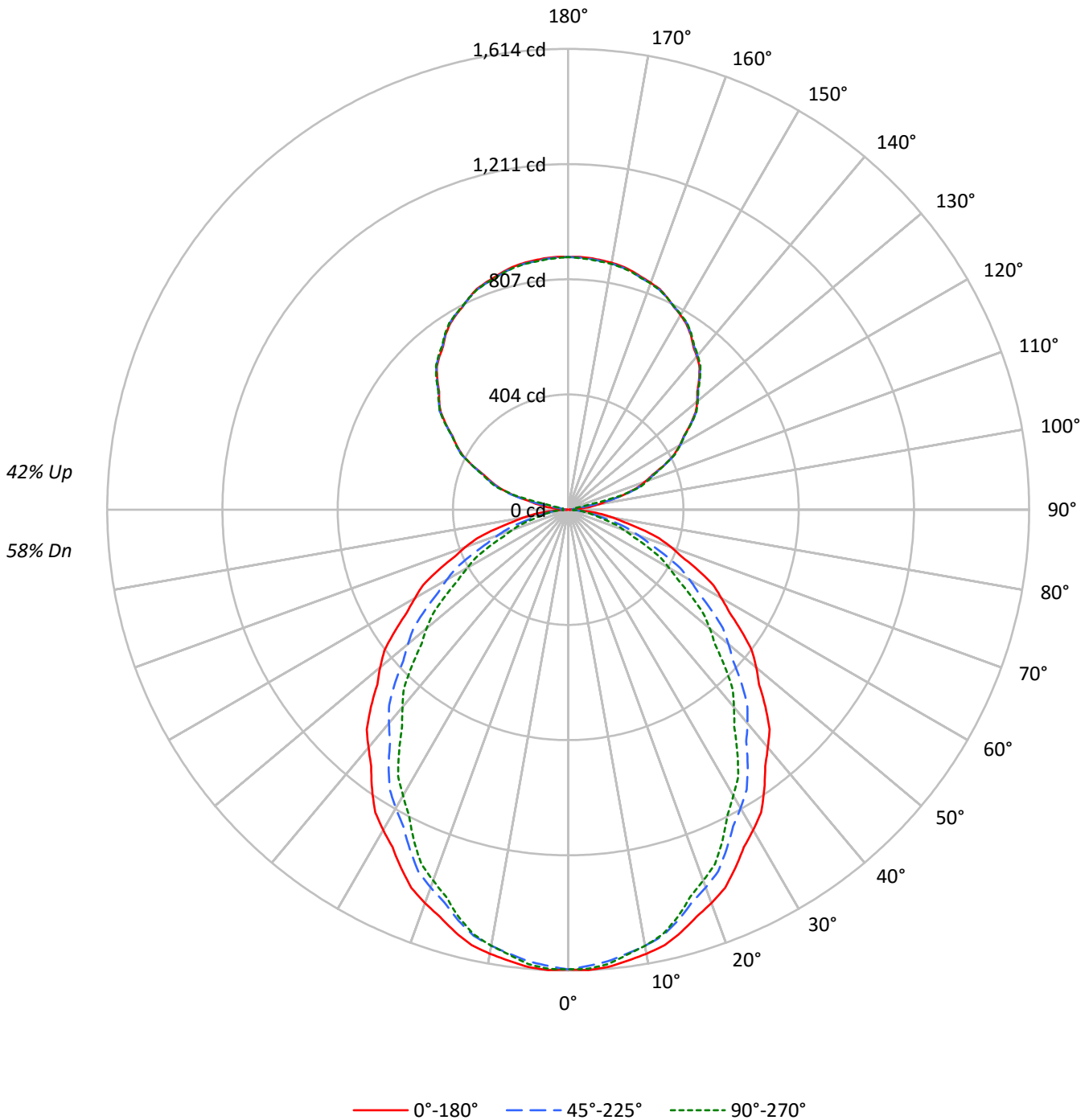
Input Watts (W): 53.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

### Luminous Intensity Polar Plot





TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**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	109	109	109	109	101	101	101	101	88	88	88	75	75	75	63	63	63	58
1	100	96	92	88	93	89	86	83	77	75	73	66	65	63	56	55	54	49
2	91	84	78	73	85	78	73	69	68	64	61	59	56	53	50	48	46	42
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	42	39	36
4	76	66	58	52	71	62	55	49	54	48	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	42	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	42	37	44	38	33	38	33	30	33	29	27	24
7	60	48	40	34	56	45	38	33	40	34	30	35	30	27	30	26	24	21
8	56	43	36	30	52	41	34	29	36	31	26	32	27	24	28	24	21	19
9	52	40	32	27	49	38	31	26	33	28	24	29	25	22	26	22	19	17
10	49	37	29	25	45	35	28	24	31	25	22	27	23	20	24	20	18	16

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

	0°	45°	90°
0°	12999	12999	12999
5°	13028	12869	12949
10°	12946	12714	12714
15°	12797	12447	12354
20°	12594	12095	11874
25°	12333	11685	11388
30°	12078	11251	10781
35°	11798	10801	10170
40°	11460	10290	9511
45°	11147	9782	8840
50°	10792	9198	8130
55°	10412	8590	7357
60°	9993	7923	6570
65°	9608	7089	5794
70°	9050	6170	4919
75°	8344	5115	3999
80°	7280	3896	3668
85°	6169	3548	3316



TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	151.3	2.3
10°-20°	421.8	6.5
20°-30°	609.1	9.4
30°-40°	690.4	10.7
40°-50°	666.7	10.3
50°-60°	554.4	8.6
60°-70°	382.8	5.9
70°-80°	194.0	3.0
80°-90°	52.3	0.8
90°-100°	30.3	0.5
100°-110°	193.0	3.0
110°-120°	369.2	5.7
120°-130°	468.7	7.3
130°-140°	501.4	7.8
140°-150°	468.9	7.3
150°-160°	378.1	5.9
160°-170°	243.9	3.8
170°-180°	84.1	1.3
0°-30°	1182.1	18.3
0°-40°	1872.5	29.0
0°-60°	3093.5	47.9
0°-90°	3722.7	57.6
90°-120°	592.4	9.2
90°-150°	2031.4	31.4
90°-180°	2737.0	42.4
0°-180°	6460.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1610	1610	1610	1610	1610	
5°	1608	1602	1588	1599	1598	152
15°	1531	1519	1489	1486	1478	431
25°	1385	1361	1312	1291	1278	638
35°	1197	1156	1096	1055	1032	748
45°	976	929	857	799	774	753
55°	740	689	610	548	523	661
65°	503	449	371	320	303	497
75°	268	221	164	137	128	282
85°	67	43	38	36	36	75
90°	2	9	14	18	20	5
95°	36	15	14	18	19	47
105°	199	203	206	211	189	208
115°	372	374	373	375	375	366
125°	523	525	524	526	527	467
135°	649	648	651	652	653	500
145°	748	750	750	751	752	467
155°	820	821	819	821	820	378
165°	865	862	862	866	861	244
175°	885	881	882	887	880	84
180°	885	885	885	885	885	



TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1614.1	1613.2	1612.3	1611.5	1610.6	1608.9	1606.5	1604.1	1601.7	1599.3	1601.7
5°	1607.7	1606.6	1605.5	1604.4	1603.3	1601.1	1597.9	1594.6	1591.3	1588.0	1590.7
7.5°	1593.1	1592.0	1590.8	1589.7	1588.5	1585.8	1581.5	1577.3	1573.0	1568.7	1570.5
10°	1579.3	1578.0	1576.5	1575.2	1573.9	1570.7	1565.8	1560.9	1555.9	1551.0	1552.0
12.5°	1561.6	1560.0	1558.4	1556.8	1555.2	1551.5	1545.7	1539.9	1534.1	1528.3	1528.9
15°	1531.2	1528.7	1526.3	1523.8	1521.3	1516.7	1509.8	1503.0	1496.2	1489.3	1488.8
17.5°	1494.5	1490.9	1487.4	1483.8	1480.2	1474.4	1466.2	1457.9	1449.7	1441.5	1439.9
20°	1465.9	1462.3	1458.7	1455.2	1451.6	1445.2	1435.9	1426.6	1417.3	1407.9	1405.8
22.5°	1434.3	1430.3	1426.3	1422.4	1418.4	1411.3	1401.4	1391.4	1381.4	1371.5	1368.2
25°	1384.6	1379.6	1374.7	1369.8	1364.8	1356.7	1345.5	1334.3	1323.0	1311.8	1307.2
27.5°	1332.2	1326.1	1319.9	1313.7	1307.5	1298.4	1286.4	1274.4	1262.4	1250.4	1244.6
30°	1295.7	1288.9	1282.1	1275.2	1268.4	1258.5	1245.6	1232.7	1219.9	1207.0	1200.2
32.5°	1257.3	1249.6	1241.8	1234.1	1226.4	1215.8	1202.6	1189.3	1175.9	1162.6	1154.7
35°	1197.1	1188.4	1179.6	1170.8	1162.1	1150.8	1137.1	1123.5	1109.7	1096.0	1086.7
37.5°	1132.7	1123.7	1114.7	1105.6	1096.6	1084.5	1069.3	1054.2	1038.9	1023.8	1013.3
40°	1087.4	1078.3	1069.3	1060.2	1051.2	1038.9	1023.3	1007.6	992.0	976.4	964.9
42.5°	1044.0	1034.6	1025.0	1015.6	1006.1	993.2	977.0	960.6	944.4	928.1	916.4
45°	976.4	966.3	956.2	946.0	935.9	922.6	906.2	889.7	873.3	856.8	843.5
47.5°	906.7	896.2	885.7	875.3	864.8	851.0	833.9	816.8	799.7	782.7	768.7
50°	859.3	848.6	837.9	827.2	816.5	802.5	785.0	767.4	749.8	732.4	718.6
52.5°	811.0	800.5	790.1	779.6	769.1	754.9	736.9	719.0	701.0	683.1	669.1
55°	739.8	728.8	717.8	706.9	695.9	681.5	663.7	645.9	628.1	610.3	596.0
57.5°	669.2	657.8	646.4	635.0	623.7	609.1	591.7	574.1	556.5	539.0	524.6
60°	618.9	608.0	597.0	586.0	575.1	560.8	543.3	525.8	508.2	490.7	476.4
62.5°	573.5	562.1	550.7	539.3	528.0	513.3	495.3	477.3	459.3	441.4	428.2
65°	503.0	491.2	479.5	467.7	455.9	441.2	423.7	406.2	388.6	371.1	359.4
67.5°	429.8	418.5	407.2	395.9	384.6	370.9	354.5	338.3	322.0	305.8	295.6
70°	383.4	371.9	360.4	348.9	337.4	323.9	308.3	292.6	277.0	261.4	252.4
72.5°	334.1	323.7	313.3	302.9	292.5	279.9	265.2	250.4	235.7	221.0	213.2
75°	267.5	257.4	247.3	237.1	227.0	215.4	202.6	189.8	176.8	164.0	157.7
77.5°	200.0	191.4	182.8	174.2	165.6	156.0	145.6	135.3	124.8	114.4	110.8
80°	156.6	148.6	140.7	132.8	124.8	116.7	108.5	100.3	92.0	83.8	83.0
82.5°	119.1	111.8	104.5	97.2	90.0	83.9	79.3	74.5	69.8	65.1	64.5
85°	66.6	61.1	55.6	50.1	44.7	41.5	40.7	39.9	39.1	38.3	37.6
87.5°	23.1	21.7	20.2	18.8	17.4	16.7	16.7	16.7	16.7	16.8	16.7
90°	2.0	3.6	5.3	6.9	8.5	9.9	11.1	12.2	13.4	14.5	15.4
92.5°	8.4	8.5	8.6	8.6	8.6	9.4	10.5	11.7	12.8	14.0	14.9
95°	36.4	31.4	26.4	21.4	16.4	14.0	14.1	14.3	14.4	14.5	15.4
97.5°	77.3	80.4	83.6	86.7	89.8	83.1	66.7	50.3	33.9	17.5	17.6
100°	108.5	111.2	113.9	116.5	119.1	110.3	90.1	69.7	49.4	29.2	26.7
102.5°	143.5	145.4	147.4	149.4	151.2	150.9	148.3	145.6	142.9	140.4	113.3
105°	199.2	200.1	201.0	201.9	202.8	203.6	204.3	205.0	205.8	206.5	207.9
107.5°	251.0	251.5	251.9	252.4	252.8	253.5	254.5	255.5	256.5	257.4	258.2
110°	286.0	286.4	286.9	287.3	287.7	288.4	289.3	290.2	291.1	291.9	292.2



TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	319.9	320.7	321.5	322.2	323.0	323.6	324.0	324.4	324.9	325.3	325.2
115°	372.0	372.5	372.9	373.3	373.7	373.9	373.7	373.6	373.4	373.3	373.6
117.5°	419.0	419.5	420.2	420.7	421.3	421.8	422.1	422.4	422.8	423.1	423.0
120°	450.8	451.4	451.9	452.5	453.1	453.3	453.2	453.1	452.9	452.7	453.1
122.5°	480.5	480.7	481.1	481.4	481.8	482.1	482.3	482.5	482.7	483.0	483.1
125°	522.9	523.5	524.1	524.7	525.2	525.4	525.1	524.9	524.5	524.2	524.7
127.5°	563.1	563.3	563.5	563.6	563.7	564.2	564.8	565.5	566.1	566.9	566.8
130°	589.1	589.2	589.4	589.5	589.7	590.0	590.4	590.8	591.3	591.7	591.9
132.5°	613.0	613.2	613.5	613.7	613.9	614.4	614.9	615.5	616.1	616.6	616.8
135°	648.6	648.5	648.4	648.2	648.1	648.3	648.9	649.4	650.1	650.7	650.9
137.5°	680.3	680.4	680.5	680.5	680.6	680.9	681.5	682.2	682.9	683.5	683.8
140°	701.0	701.2	701.5	701.9	702.1	702.4	702.8	703.0	703.3	703.6	704.0
142.5°	719.5	720.1	720.6	721.0	721.6	721.9	722.1	722.3	722.5	722.6	723.0
145°	748.0	748.4	748.9	749.3	749.8	749.9	749.9	749.9	749.9	749.9	750.1
147.5°	770.6	771.4	772.2	773.0	773.9	774.2	774.1	773.9	773.7	773.6	773.7
150°	787.0	787.6	788.2	788.8	789.3	789.6	789.4	789.3	789.2	789.0	789.0
152.5°	800.8	801.2	801.7	802.2	802.6	802.7	802.5	802.3	802.0	801.7	801.9
155°	820.1	820.3	820.4	820.6	820.7	820.6	820.1	819.7	819.2	818.8	819.4
157.5°	836.4	836.3	836.2	836.2	836.1	835.7	835.3	834.7	834.2	833.7	834.5
160°	845.9	845.4	845.1	844.6	844.2	843.8	843.7	843.6	843.4	843.3	844.2
162.5°	854.3	853.8	853.3	852.7	852.1	851.8	851.7	851.5	851.3	851.2	852.1
165°	865.1	864.3	863.6	862.9	862.2	861.8	861.8	861.8	861.8	861.8	863.0
167.5°	873.6	872.8	872.1	871.3	870.5	870.1	870.0	870.0	869.9	869.8	871.0
170°	878.3	877.4	876.6	875.7	874.9	874.4	874.6	874.8	874.9	875.0	876.2
172.5°	881.5	880.7	879.8	878.9	878.0	877.6	877.8	877.9	878.1	878.2	879.4
175°	884.9	884.0	883.2	882.3	881.5	881.1	881.2	881.4	881.5	881.6	883.0
177.5°	886.5	885.7	884.9	884.0	883.2	883.0	883.2	883.4	883.7	883.9	884.8
180°	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9



TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2	1610.2
2.5°	1604.1	1606.5	1608.9	1610.1	1609.8	1609.6	1609.4	1609.2
5°	1593.4	1596.2	1598.9	1600.0	1599.5	1598.9	1598.4	1597.9
7.5°	1572.3	1574.0	1575.7	1576.2	1575.3	1574.4	1573.5	1572.6
10°	1553.2	1554.3	1555.3	1555.3	1554.3	1553.2	1552.0	1551.0
12.5°	1529.6	1530.3	1530.9	1530.4	1528.9	1527.4	1525.9	1524.4
15°	1488.3	1487.6	1487.1	1485.9	1484.0	1482.0	1480.2	1478.2
17.5°	1438.4	1436.9	1435.4	1433.2	1430.2	1427.4	1424.4	1421.5
20°	1403.6	1401.4	1399.2	1396.3	1392.8	1389.2	1385.6	1382.1
22.5°	1364.9	1361.6	1358.3	1355.2	1352.3	1349.4	1346.5	1343.6
25°	1302.4	1297.8	1293.2	1289.4	1286.7	1284.0	1281.2	1278.5
27.5°	1238.9	1233.1	1227.4	1222.5	1218.6	1214.6	1210.7	1206.8
30°	1193.3	1186.4	1179.6	1173.9	1169.6	1165.2	1160.8	1156.5
32.5°	1146.7	1138.8	1130.9	1124.8	1120.6	1116.4	1112.3	1108.1
35°	1077.4	1068.1	1058.7	1051.7	1046.7	1041.8	1036.9	1031.9
37.5°	1003.0	992.6	982.1	974.5	969.6	964.6	959.7	954.8
40°	953.4	941.9	930.4	922.2	917.3	912.3	907.4	902.5
42.5°	904.6	893.0	881.2	872.8	867.6	862.5	857.3	852.2
45°	830.0	816.5	803.2	794.0	789.1	784.1	779.2	774.3
47.5°	754.8	740.9	726.9	717.3	711.9	706.4	701.0	695.6
50°	704.9	691.3	677.5	668.1	662.9	657.6	652.5	647.3
52.5°	655.1	641.2	627.3	617.7	612.2	606.8	601.4	596.0
55°	581.8	567.6	553.3	543.6	538.3	533.2	528.0	522.7
57.5°	510.1	495.6	481.2	472.0	468.0	464.0	460.1	456.2
60°	462.2	447.9	433.7	424.4	420.0	415.6	411.3	406.9
62.5°	415.1	401.9	388.8	380.4	376.9	373.4	369.9	366.4
65°	347.5	335.7	324.0	316.5	313.2	309.9	306.6	303.3
67.5°	285.4	275.4	265.2	258.3	254.7	251.1	247.4	243.9
70°	243.3	234.3	225.2	219.3	216.6	213.8	211.1	208.4
72.5°	205.5	197.8	190.0	184.9	182.4	179.9	177.4	174.9
75°	151.4	145.1	138.8	134.8	133.1	131.5	129.8	128.2
77.5°	107.1	103.4	99.7	97.6	97.1	96.7	96.1	95.7
80°	82.2	81.4	80.5	80.0	79.7	79.5	79.2	78.9
82.5°	63.8	63.3	62.7	62.2	62.0	61.7	61.4	61.2
85°	37.1	36.6	36.0	35.8	35.8	35.8	35.8	35.8
87.5°	16.7	16.6	16.6	16.7	16.9	17.2	17.5	17.7
90°	16.3	17.2	18.1	18.6	19.0	19.3	19.5	19.9
92.5°	15.8	16.7	17.6	18.0	18.1	18.2	18.2	18.3
95°	16.3	17.2	18.1	18.6	18.7	18.9	19.1	19.2
97.5°	17.7	17.7	17.8	17.9	18.1	18.3	18.4	18.5
100°	24.2	21.6	19.1	17.9	18.1	18.3	18.4	18.5
102.5°	86.4	59.4	32.5	18.9	19.0	19.0	19.0	19.1
105°	209.2	210.4	211.8	209.8	204.6	199.2	193.9	188.7
107.5°	258.8	259.4	260.1	260.6	261.3	261.8	262.3	262.9
110°	292.5	292.7	293.1	293.5	293.9	294.4	294.8	295.2





TEST NUMBER: P333081-940

CATALOG NUMBER: S124RDIW-S1020D770U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	325.1	325.1	325.0	325.3	325.8	326.4	327.0	327.5
115°	373.9	374.2	374.5	374.6	374.6	374.6	374.6	374.6
117.5°	422.9	422.9	422.8	422.8	422.8	422.7	422.6	422.6
120°	453.3	453.6	453.9	453.9	453.6	453.3	453.1	452.7
122.5°	483.3	483.5	483.7	483.6	483.3	483.0	482.7	482.4
125°	525.1	525.6	526.0	526.3	526.5	526.6	526.7	526.9
127.5°	566.7	566.6	566.5	566.4	566.3	566.1	566.1	566.0
130°	592.0	592.2	592.4	592.4	592.4	592.4	592.4	592.4
132.5°	616.9	617.1	617.2	617.2	617.2	617.0	616.9	616.8
135°	651.2	651.6	651.8	652.1	652.4	652.7	653.0	653.3
137.5°	684.1	684.5	684.7	684.9	684.8	684.7	684.7	684.6
140°	704.5	704.9	705.3	705.7	705.8	706.0	706.1	706.2
142.5°	723.4	723.6	724.0	724.2	724.2	724.2	724.2	724.2
145°	750.2	750.4	750.6	750.7	751.0	751.4	751.6	751.9
147.5°	773.8	774.0	774.1	774.3	774.4	774.5	774.7	774.8
150°	789.0	789.0	789.0	789.1	789.3	789.3	789.5	789.6
152.5°	802.2	802.4	802.6	802.7	802.6	802.5	802.5	802.4
155°	819.9	820.6	821.1	821.2	820.7	820.3	819.8	819.5
157.5°	835.3	836.1	836.8	836.8	836.1	835.3	834.5	833.7
160°	845.1	845.9	846.8	846.8	845.9	845.1	844.2	843.3
162.5°	853.0	853.8	854.7	854.7	853.7	852.7	851.7	850.7
165°	864.2	865.3	866.5	866.5	865.1	863.8	862.5	861.1
167.5°	872.4	873.6	874.9	874.9	873.3	871.9	870.4	869.0
170°	877.4	878.6	879.8	879.6	878.2	876.6	875.2	873.7
172.5°	880.6	881.7	882.9	882.7	881.1	879.6	878.0	876.4
175°	884.3	885.6	887.0	886.7	884.9	883.2	881.5	879.7
177.5°	885.8	886.7	887.7	887.4	886.0	884.6	883.2	881.8
180°	884.9	884.9	884.9	884.9	884.9	884.9	884.9	884.9

(END OF REPORT)