

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: P332965-830

Luminaire Tested: **S124RDIP-S1020D590U830-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332965-830
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: S124RDIP-S1020D590U830-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5862.7 lumens
Efficiency: N/A
Efficacy: 120.1 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: Semi-Direct

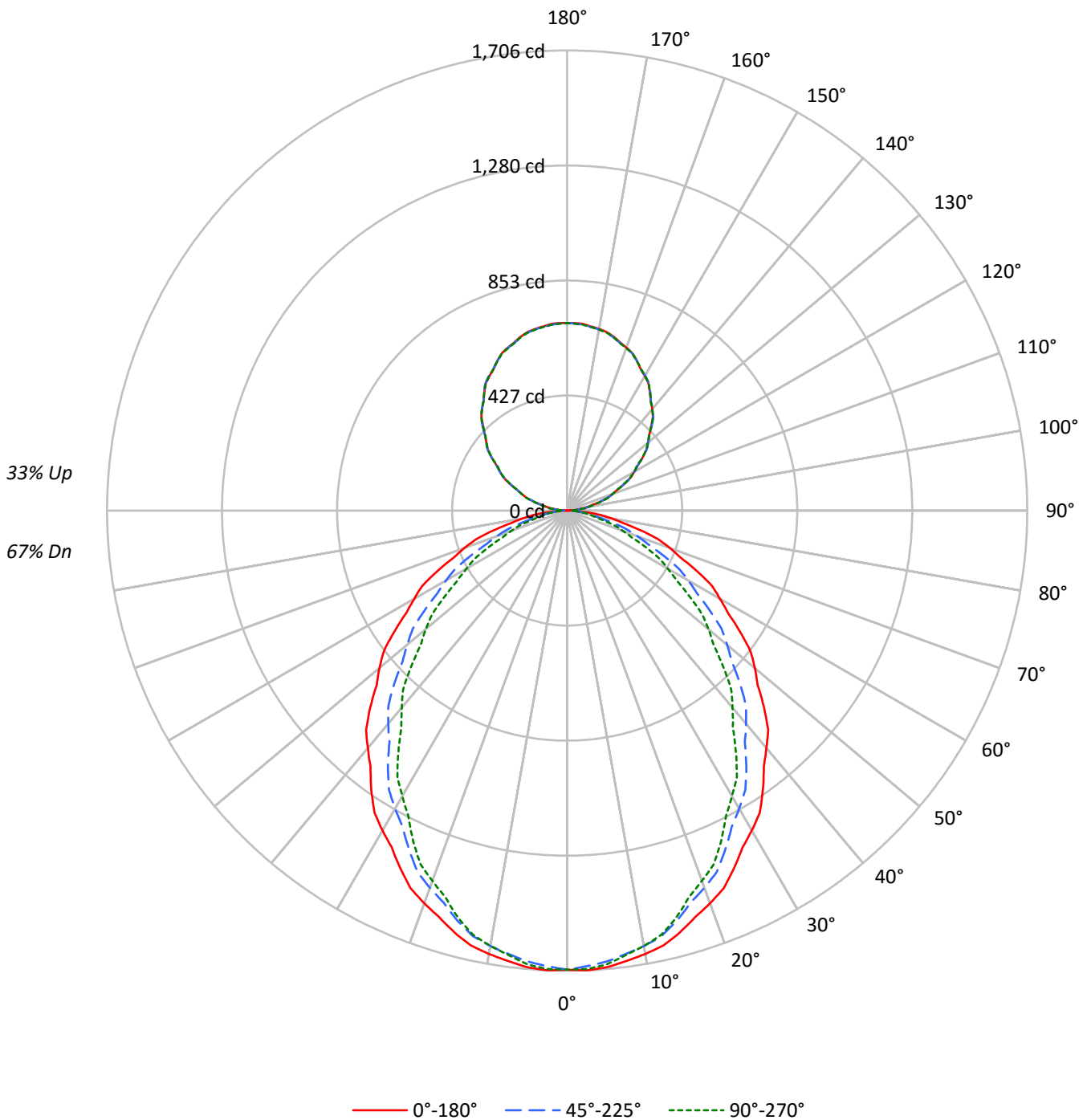
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72
1	102	98	94	90	96	92	89	86	82	80	77	73	71	69	64	63	61
2	93	86	80	74	88	81	76	71	72	68	64	64	61	58	57	54	52
3	85	76	68	62	80	72	65	60	64	59	55	57	53	50	51	48	45
4	78	67	59	53	73	64	57	51	57	51	47	51	47	43	45	42	39
5	72	60	52	46	68	57	50	44	51	45	41	46	41	37	41	37	34
6	66	54	46	40	63	52	44	39	47	40	36	42	37	33	37	33	30
7	62	49	41	35	58	47	39	34	42	36	32	38	33	29	34	30	27
8	57	45	37	32	54	43	36	31	39	33	28	35	30	26	32	27	24
9	53	41	33	28	50	39	32	27	36	30	26	32	27	24	29	25	22
10	50	38	30	26	47	36	29	25	33	27	23	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13739	13739	13739
5°	13771	13602	13686
10°	13684	13439	13439
15°	13527	13157	13059
20°	13311	12785	12550
25°	13036	12351	12038
30°	12767	11893	11395
35°	12471	11417	10749
40°	12113	10877	10053
45°	11783	10340	9344
50°	11408	9722	8593
55°	11005	9080	7776
60°	10563	8375	6944
65°	10157	7494	6124
70°	9567	6522	5200
75°	8821	5405	4226
80°	7694	4119	3877
85°	6521	3742	3501



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.9	2.7
10°-20°	445.8	7.6
20°-30°	643.8	11.0
30°-40°	729.7	12.4
40°-50°	704.7	12.0
50°-60°	586.0	10.0
60°-70°	404.6	6.9
70°-80°	205.1	3.5
80°-90°	54.7	0.9
90°-100°	45.8	0.8
100°-110°	135.8	2.3
110°-120°	230.5	3.9
120°-130°	304.0	5.2
130°-140°	341.4	5.8
140°-150°	335.4	5.7
150°-160°	282.1	4.8
160°-170°	187.7	3.2
170°-180°	65.7	1.1
0°-30°	1249.5	21.3
0°-40°	1979.2	33.8
0°-60°	3269.8	55.8
0°-90°	3934.3	67.1
90°-120°	412.2	7.0
90°-150°	1392.9	23.8
90°-180°	1928.0	32.9
0°-180°	5862.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1702	1702	1702	1702	1702	
5°	1699	1694	1678	1691	1689	161
15°	1618	1606	1574	1571	1562	456
25°	1464	1438	1387	1365	1351	674
35°	1265	1222	1158	1115	1091	790
45°	1032	982	906	844	818	795
55°	782	728	645	580	552	699
65°	532	474	392	338	321	525
75°	283	234	173	145	136	299
85°	70	46	40	38	38	79
90°	2	7	12	15	16	5
95°	32	37	41	42	42	36
105°	125	126	128	130	131	133
115°	234	234	233	233	232	231
125°	341	341	341	340	339	304
135°	440	443	444	442	441	340
145°	535	537	538	537	536	335
155°	613	613	612	614	612	282
165°	667	666	664	667	666	188
175°	694	691	691	694	691	66
180°	695	695	695	695	695	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1706.1	1705.2	1704.2	1703.4	1702.4	1700.6	1698.1	1695.5	1693.0	1690.5	1693.0
5°	1699.3	1698.2	1697.0	1695.8	1694.7	1692.3	1688.9	1685.5	1682.0	1678.5	1681.4
7.5°	1683.9	1682.7	1681.5	1680.3	1679.0	1676.2	1671.7	1667.2	1662.6	1658.1	1660.0
10°	1669.3	1667.9	1666.4	1665.0	1663.6	1660.2	1655.0	1649.8	1644.5	1639.4	1640.5
12.5°	1650.6	1648.9	1647.2	1645.6	1643.9	1639.9	1633.8	1627.7	1621.6	1615.4	1616.1
15°	1618.5	1615.9	1613.4	1610.7	1608.1	1603.2	1595.9	1588.7	1581.5	1574.2	1573.7
17.5°	1579.7	1575.9	1572.2	1568.4	1564.6	1558.4	1549.7	1541.1	1532.4	1523.6	1522.0
20°	1549.4	1545.7	1541.9	1538.1	1534.4	1527.6	1517.8	1507.9	1498.1	1488.2	1485.9
22.5°	1516.1	1511.8	1507.6	1503.4	1499.2	1491.8	1481.3	1470.7	1460.2	1449.6	1446.1
25°	1463.5	1458.2	1453.0	1447.8	1442.6	1434.1	1422.2	1410.3	1398.5	1386.6	1381.7
27.5°	1408.2	1401.7	1395.2	1388.6	1382.1	1372.4	1359.7	1347.1	1334.4	1321.6	1315.6
30°	1369.6	1362.4	1355.2	1347.9	1340.7	1330.2	1316.6	1303.0	1289.4	1275.8	1268.6
32.5°	1329.0	1320.8	1312.6	1304.5	1296.3	1285.2	1271.1	1257.1	1242.9	1228.9	1220.5
35°	1265.4	1256.1	1246.8	1237.6	1228.3	1216.4	1201.9	1187.5	1173.0	1158.5	1148.7
37.5°	1197.3	1187.8	1178.3	1168.7	1159.1	1146.3	1130.3	1114.3	1098.2	1082.1	1071.1
40°	1149.4	1139.8	1130.3	1120.7	1111.2	1098.2	1081.7	1065.1	1048.6	1032.1	1019.9
42.5°	1103.5	1093.5	1083.5	1073.5	1063.5	1049.8	1032.6	1015.4	998.2	981.0	968.7
45°	1032.1	1021.4	1010.7	999.9	989.2	975.2	957.8	940.5	923.0	905.7	891.6
47.5°	958.4	947.3	936.2	925.2	914.1	899.6	881.5	863.4	845.3	827.3	812.6
50°	908.3	897.0	885.7	874.4	863.1	848.2	829.7	811.2	792.6	774.1	759.6
52.5°	857.2	846.1	835.1	824.1	812.9	798.0	778.9	760.0	740.9	722.0	707.3
55°	781.9	770.3	758.7	747.2	735.6	720.4	701.5	682.7	663.9	645.1	630.0
57.5°	707.4	695.3	683.2	671.2	659.2	643.9	625.4	606.8	588.2	569.8	554.5
60°	654.2	642.6	631.0	619.4	607.8	592.8	574.3	555.7	537.2	518.7	503.6
62.5°	606.2	594.2	582.1	570.0	558.1	542.5	523.5	504.5	485.5	466.6	452.6
65°	531.7	519.2	506.8	494.4	481.9	466.4	447.9	429.3	410.8	392.3	379.8
67.5°	454.3	442.3	430.5	418.5	406.5	392.0	374.8	357.6	340.4	323.2	312.5
70°	405.3	393.1	381.0	368.8	356.7	342.3	325.8	309.2	292.8	276.3	266.7
72.5°	353.2	342.1	331.1	320.2	309.2	295.9	280.3	264.7	249.1	233.6	225.4
75°	282.8	272.1	261.4	250.6	240.0	227.7	214.1	200.6	186.9	173.3	166.6
77.5°	211.4	202.3	193.2	184.1	175.0	164.9	153.9	143.0	132.0	120.9	117.1
80°	165.5	157.1	148.7	140.3	132.0	123.4	114.7	106.0	97.3	88.6	87.8
82.5°	125.9	118.2	110.5	102.7	95.1	88.7	83.8	78.8	73.8	68.8	68.1
85°	70.4	64.6	58.8	53.0	47.2	43.8	43.0	42.1	41.3	40.4	39.8
87.5°	24.3	22.7	21.1	19.5	17.9	17.2	17.1	17.1	17.0	17.0	16.9
90°	1.6	2.9	4.2	5.6	6.9	8.0	9.0	9.9	10.8	11.8	12.5
92.5°	11.5	13.0	14.5	16.0	17.5	18.6	19.3	20.0	20.6	21.3	21.7
95°	32.2	33.4	34.4	35.4	36.6	37.5	38.4	39.2	40.1	40.8	41.2
97.5°	56.4	57.2	58.1	58.9	59.8	60.7	61.6	62.7	63.6	64.7	65.0
100°	75.2	75.8	76.3	76.7	77.2	77.9	79.0	80.1	81.2	82.3	82.5
102.5°	95.0	95.2	95.4	95.6	95.8	96.4	97.4	98.3	99.3	100.3	100.7
105°	125.3	125.4	125.5	125.6	125.7	126.0	126.5	127.0	127.4	127.9	128.3
107.5°	156.9	157.1	157.2	157.4	157.6	157.7	157.7	157.8	157.9	158.0	158.3
110°	178.5	178.7	179.0	179.2	179.5	179.5	179.4	179.3	179.2	179.0	178.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	200.9	200.9	201.0	201.0	201.0	201.0	200.8	200.5	200.3	200.1	200.0
115°	234.4	234.4	234.4	234.4	234.4	234.2	234.0	233.8	233.6	233.3	233.2
117.5°	266.0	266.1	266.2	266.3	266.4	266.4	266.2	266.0	265.8	265.7	265.2
120°	287.1	287.6	288.0	288.5	289.0	289.1	288.7	288.3	287.9	287.6	287.0
122.5°	309.0	309.2	309.3	309.5	309.7	309.8	309.6	309.4	309.2	309.2	308.7
125°	341.4	341.4	341.4	341.4	341.4	341.3	341.2	341.1	340.9	340.8	340.5
127.5°	370.7	371.1	371.5	371.8	372.1	372.2	372.0	371.8	371.6	371.5	371.3
130°	391.3	391.7	392.1	392.5	392.8	392.9	392.9	392.9	392.9	392.9	392.8
132.5°	412.5	412.7	412.9	413.2	413.5	413.6	413.5	413.4	413.3	413.2	412.9
135°	440.3	441.0	441.7	442.4	443.2	443.5	443.5	443.5	443.5	443.5	443.3
137.5°	470.6	470.9	471.3	471.6	471.9	472.2	472.4	472.6	472.8	473.0	472.7
140°	490.8	491.1	491.3	491.5	491.7	491.9	491.9	491.9	491.9	491.9	491.7
142.5°	509.3	509.5	509.8	510.0	510.3	510.3	510.2	510.1	510.0	509.9	509.9
145°	534.9	535.4	535.8	536.3	536.8	537.1	537.2	537.3	537.4	537.5	537.4
147.5°	560.2	560.8	561.4	561.9	562.6	562.8	562.7	562.6	562.5	562.4	562.3
150°	575.7	576.3	576.7	577.2	577.7	577.9	577.9	577.9	577.9	577.9	577.9
152.5°	590.4	590.7	591.0	591.3	591.5	591.7	591.8	591.9	592.0	592.1	592.4
155°	612.8	612.8	612.8	612.8	612.8	612.7	612.7	612.6	612.5	612.3	612.7
157.5°	631.8	631.5	631.3	631.1	630.9	630.7	630.7	630.7	630.7	630.7	631.0
160°	642.9	642.8	642.7	642.6	642.4	642.3	642.2	642.2	642.0	641.9	642.2
162.5°	653.3	653.0	652.6	652.3	652.1	651.8	651.7	651.6	651.5	651.3	652.0
165°	667.1	666.8	666.4	666.1	665.7	665.4	665.2	665.0	664.7	664.5	665.2
167.5°	677.8	677.3	676.7	676.3	675.8	675.5	675.5	675.6	675.6	675.6	676.4
170°	683.8	683.2	682.6	682.0	681.4	681.2	681.3	681.4	681.6	681.6	682.4
172.5°	688.1	687.6	687.1	686.6	686.1	685.9	685.9	685.9	685.9	686.0	686.7
175°	694.0	693.4	692.9	692.2	691.6	691.3	691.2	691.1	690.9	690.8	691.6
177.5°	696.0	695.5	695.0	694.6	694.0	693.8	693.8	693.8	693.8	693.8	694.5
180°	695.1	695.1	695.1	695.1	695.1	695.1	695.1	695.1	695.1	695.1	695.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9	1701.9
2.5°	1695.5	1698.1	1700.6	1701.9	1701.6	1701.4	1701.1	1700.9
5°	1684.2	1687.2	1690.1	1691.2	1690.6	1690.1	1689.5	1688.9
7.5°	1661.9	1663.7	1665.6	1666.0	1665.1	1664.2	1663.2	1662.3
10°	1641.7	1642.9	1644.0	1644.0	1642.9	1641.7	1640.5	1639.4
12.5°	1616.7	1617.5	1618.2	1617.7	1616.1	1614.5	1612.9	1611.3
15°	1573.1	1572.4	1571.9	1570.6	1568.6	1566.5	1564.5	1562.5
17.5°	1520.4	1518.8	1517.2	1514.9	1511.7	1508.7	1505.6	1502.5
20°	1483.6	1481.3	1478.9	1475.9	1472.2	1468.4	1464.6	1460.8
22.5°	1442.7	1439.2	1435.8	1432.5	1429.4	1426.3	1423.2	1420.2
25°	1376.7	1371.8	1366.9	1362.9	1360.1	1357.2	1354.2	1351.4
27.5°	1309.5	1303.4	1297.3	1292.2	1288.1	1283.8	1279.7	1275.5
30°	1261.3	1254.1	1246.8	1240.9	1236.2	1231.6	1227.0	1222.4
32.5°	1212.1	1203.7	1195.3	1188.9	1184.5	1180.1	1175.7	1171.3
35°	1138.8	1129.0	1119.1	1111.6	1106.4	1101.2	1096.0	1090.7
37.5°	1060.2	1049.1	1038.1	1030.0	1024.8	1019.5	1014.4	1009.2
40°	1007.8	995.6	983.4	974.8	969.6	964.3	959.1	953.9
42.5°	956.2	943.9	931.4	922.6	917.1	911.6	906.2	900.8
45°	877.3	863.1	848.9	839.2	834.1	828.8	823.6	818.4
47.5°	797.9	783.2	768.4	758.2	752.4	746.7	740.9	735.3
50°	745.1	730.7	716.1	706.2	700.7	695.1	689.7	684.2
52.5°	692.5	677.8	663.1	652.9	647.1	641.4	635.7	630.0
55°	614.9	599.9	584.8	574.6	569.0	563.5	558.1	552.5
57.5°	539.1	523.9	508.6	498.9	494.6	490.5	486.4	482.2
60°	488.5	473.4	458.5	448.6	443.9	439.3	434.7	430.1
62.5°	438.8	424.8	410.9	402.1	398.4	394.7	391.0	387.3
65°	367.3	354.9	342.4	334.5	331.0	327.5	324.0	320.6
67.5°	301.7	291.1	280.3	273.1	269.2	265.4	261.6	257.8
70°	257.1	247.6	238.1	231.8	228.9	226.0	223.1	220.3
72.5°	217.2	209.1	200.9	195.5	192.7	190.1	187.5	184.8
75°	160.0	153.4	146.7	142.5	140.7	139.0	137.2	135.5
77.5°	113.2	109.3	105.4	103.2	102.6	102.2	101.6	101.1
80°	86.9	86.1	85.1	84.5	84.3	84.0	83.7	83.4
82.5°	67.5	66.9	66.3	65.8	65.5	65.2	64.9	64.7
85°	39.2	38.6	38.1	37.8	37.8	37.8	37.8	37.8
87.5°	16.8	16.7	16.6	16.7	17.0	17.2	17.5	17.8
90°	13.3	13.9	14.7	15.2	15.5	15.6	15.9	16.1
92.5°	22.1	22.6	23.0	23.3	23.5	23.6	23.8	23.8
95°	41.6	41.9	42.3	42.5	42.5	42.5	42.5	42.5
97.5°	65.5	65.9	66.4	66.5	66.5	66.5	66.5	66.5
100°	82.8	82.9	83.2	83.3	83.3	83.3	83.3	83.3
102.5°	100.9	101.3	101.6	101.9	102.0	102.1	102.2	102.3
105°	128.7	129.0	129.4	129.7	130.1	130.4	130.8	131.2
107.5°	158.6	158.9	159.3	159.5	159.4	159.4	159.4	159.4
110°	178.5	178.3	178.0	178.1	178.5	178.8	179.2	179.6



TEST NUMBER: P332965-830

CATALOG NUMBER: S124RDIP-S1020D590U830-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	200.0	199.9	199.9	199.9	200.0	200.0	200.1	200.2
115°	233.1	233.0	232.8	232.7	232.6	232.4	232.3	232.2
117.5°	264.9	264.5	264.0	263.7	263.4	263.3	263.0	262.8
120°	286.4	285.8	285.2	285.0	285.3	285.5	285.8	286.0
122.5°	308.3	307.9	307.5	307.1	306.6	306.2	305.8	305.4
125°	340.4	340.1	339.9	339.6	339.4	339.1	338.9	338.7
127.5°	371.0	370.8	370.5	370.3	370.1	369.9	369.8	369.6
130°	392.5	392.3	392.0	391.6	391.2	390.7	390.2	389.7
132.5°	412.7	412.5	412.3	412.0	411.8	411.6	411.4	411.2
135°	443.0	442.8	442.5	442.2	441.9	441.5	441.2	440.8
137.5°	472.3	472.0	471.7	471.6	471.6	471.7	471.8	471.9
140°	491.6	491.5	491.4	491.3	491.2	491.1	491.0	490.8
142.5°	509.9	509.9	509.8	509.8	509.8	509.8	509.7	509.7
145°	537.3	537.2	537.1	536.9	536.5	536.1	535.7	535.5
147.5°	562.2	562.1	562.0	561.9	561.8	561.7	561.6	561.5
150°	577.9	577.9	577.9	577.9	577.7	577.6	577.5	577.4
152.5°	592.7	593.0	593.2	593.2	593.0	592.6	592.3	592.0
155°	613.2	613.7	614.3	614.3	613.7	613.2	612.7	612.3
157.5°	631.4	631.8	632.2	632.1	631.7	631.3	630.8	630.5
160°	642.6	642.9	643.3	643.2	642.6	642.0	641.4	640.8
162.5°	652.6	653.3	653.9	653.9	653.4	652.7	652.1	651.6
165°	665.9	666.6	667.3	667.4	666.9	666.5	666.0	665.5
167.5°	677.0	677.8	678.5	678.4	677.8	677.0	676.3	675.5
170°	683.1	683.8	684.5	684.5	683.6	682.8	681.9	681.1
172.5°	687.6	688.4	689.2	689.2	688.3	687.5	686.6	685.9
175°	692.5	693.3	694.1	694.1	693.3	692.5	691.6	690.8
177.5°	695.1	695.8	696.4	696.4	695.7	694.9	694.1	693.3
180°	695.1	695.1	695.1	695.1	695.1	695.1	695.1	695.1

(END OF REPORT)