

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: P332966-940

Luminaire Tested: **S124RDIP-S1020D590U940-4F0-1E-UDD-F4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332966-940
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124RDIP-S1020D590U940-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5604.6 lumens
Efficiency: N/A
Efficacy: 114.8 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

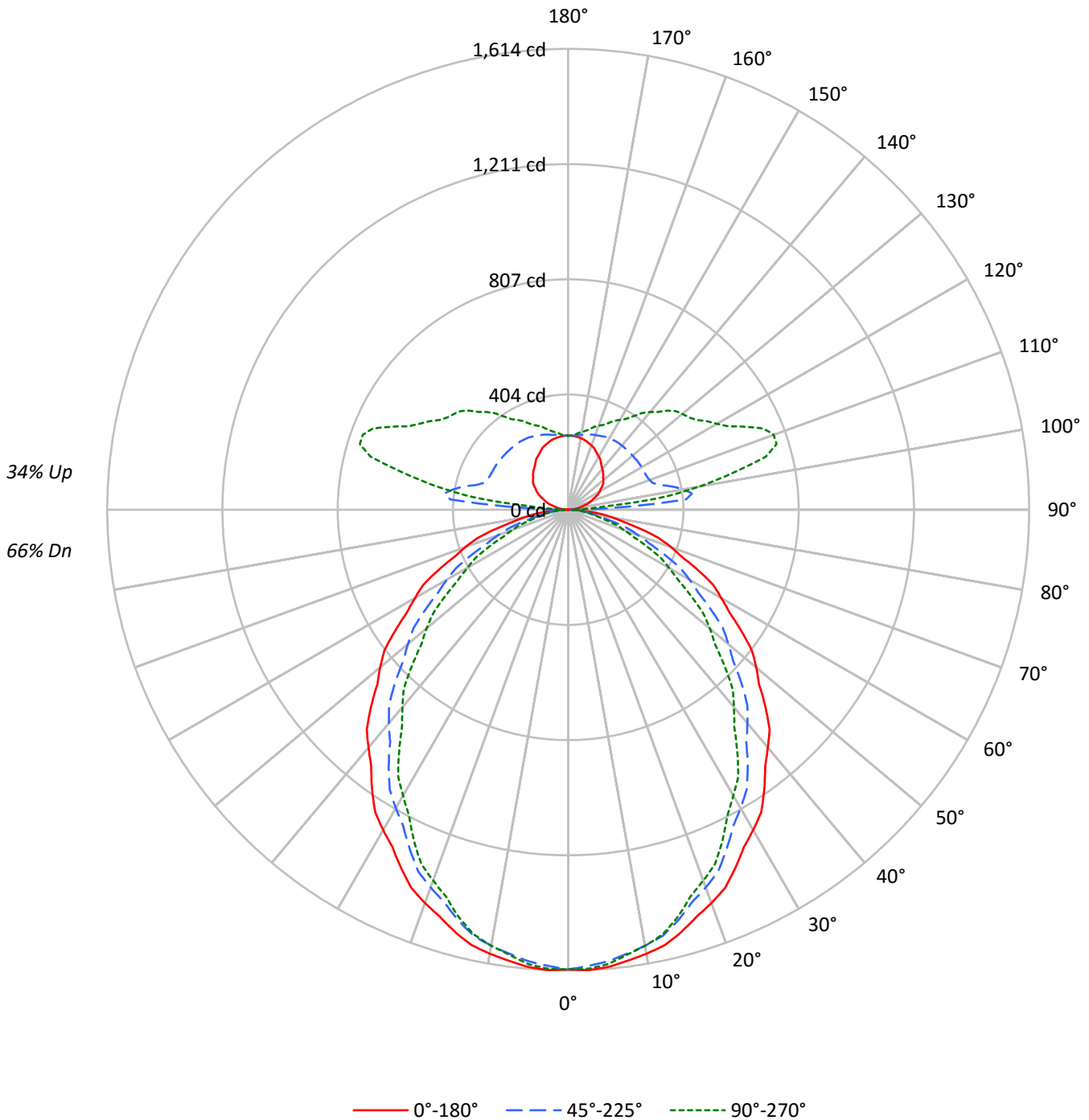
Input Watts (W): 48.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	105	105	105	105	92	92	92	81	81	81	71	71	71	66
1	102	98	94	90	96	92	89	86	82	79	77	72	70	69	64	62	61	57
2	93	86	79	74	87	81	75	71	72	68	64	64	61	58	56	54	52	48
3	85	76	68	62	80	72	65	60	64	59	54	57	53	49	50	47	44	41
4	78	67	59	53	73	64	56	51	57	51	47	51	46	43	45	42	39	35
5	72	60	52	46	67	57	50	44	51	45	41	46	41	37	41	37	34	31
6	66	54	46	40	62	51	44	39	46	40	36	42	37	33	37	33	30	27
7	62	49	41	35	58	47	39	34	42	36	32	38	33	29	34	30	27	24
8	57	45	37	31	54	43	35	30	39	33	28	35	30	26	31	27	24	22
9	53	41	33	28	50	39	32	27	36	30	25	32	27	24	29	25	22	20
10	50	38	30	26	47	36	29	25	33	27	23	30	25	22	27	23	20	18

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



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	151.3	2.7
10°-20°	421.8	7.5
20°-30°	609.1	10.9
30°-40°	690.4	12.3
40°-50°	666.7	11.9
50°-60°	554.4	9.9
60°-70°	382.8	6.8
70°-80°	194.0	3.5
80°-90°	51.2	0.9
90°-100°	187.0	3.3
100°-110°	389.2	6.9
110°-120°	348.6	6.2
120°-130°	293.2	5.2
130°-140°	244.5	4.4
140°-150°	186.8	3.3
150°-160°	131.3	2.3
160°-170°	77.2	1.4
170°-180°	25.1	0.4
0°-30°	1182.1	21.1
0°-40°	1872.5	33.4
0°-60°	3093.5	55.2
0°-90°	3721.5	66.4
90°-120°	924.8	16.5
90°-150°	1649.4	29.4
90°-180°	1883.0	33.6
0°-180°	5604.6	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°	0	4	9	10	11	4
95°	17	53	415	205	124	19
105°	60	86	334	719	716	63
115°	105	132	298	572	687	104
125°	146	173	296	486	548	130
135°	173	206	294	432	490	134
145°	200	229	292	364	400	125
155°	227	245	284	321	335	105
165°	248	255	272	288	292	70
175°	258	259	261	264	264	25
180°	259	259	259	259	259	



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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°	22.8	21.2	19.8	18.1	16.5	15.5	15.9	15.7	15.7	15.6	15.3
90°	0.5	1.5	3.0	3.6	4.1	4.1	7.1	7.1	8.1	9.2	8.6
92.5°	5.8	8.5	13.2	19.4	26.8	37.5	63.3	102.7	141.2	161.3	134.4
95°	16.8	18.3	23.4	30.1	42.2	63.6	107.8	191.3	312.8	414.6	426.2
97.5°	30.1	30.1	34.5	40.6	51.1	69.0	103.1	171.9	292.8	436.7	535.6
100°	38.7	38.7	42.2	48.3	58.0	74.3	104.2	161.8	265.6	408.9	539.2
102.5°	46.8	47.6	50.7	56.4	65.7	81.1	108.3	158.9	247.2	374.4	508.6
105°	59.5	61.1	63.6	69.7	78.8	93.6	118.0	160.2	231.5	333.7	453.3
107.5°	73.6	74.5	77.1	83.6	92.4	106.9	129.3	167.7	228.6	310.9	408.5
110°	82.9	83.9	86.5	92.6	101.7	115.5	137.9	173.4	229.4	303.2	386.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	91.8	92.9	95.9	101.6	110.7	124.4	146.0	179.6	231.8	299.5	373.4
115°	104.8	106.3	109.9	114.9	124.7	138.4	158.7	189.2	236.6	297.6	361.7
117.5°	118.2	119.7	122.8	128.4	137.4	151.7	171.0	199.1	241.5	297.0	356.4
120°	127.2	128.2	131.7	137.3	146.0	160.2	179.6	206.0	245.2	297.0	353.6
122.5°	135.3	136.3	139.9	145.1	154.5	168.4	187.7	212.5	248.9	296.7	350.3
125°	146.0	148.0	151.1	156.7	166.3	180.6	198.9	222.3	254.3	296.0	344.9
127.5°	155.4	157.1	160.8	167.1	177.2	191.5	209.3	230.8	258.7	294.9	337.7
130°	160.8	162.7	166.8	174.5	184.1	198.9	216.2	236.0	262.0	294.5	333.1
132.5°	166.0	167.6	173.0	180.2	190.6	204.6	221.9	241.3	264.8	294.1	329.1
135°	173.4	175.5	180.6	189.2	199.9	213.1	229.9	248.3	269.1	293.5	323.0
137.5°	180.9	182.8	188.4	196.6	207.8	220.3	236.0	253.2	271.6	293.4	317.7
140°	186.2	187.7	193.3	202.0	212.6	224.8	240.1	256.4	273.7	293.0	314.9
142.5°	191.9	193.4	198.6	206.8	217.1	228.9	243.8	258.8	275.3	293.0	312.5
145°	199.9	201.4	206.5	213.7	223.3	234.5	247.7	261.4	276.3	291.9	308.3
147.5°	208.9	209.5	213.9	221.2	229.3	239.4	251.8	263.8	276.7	290.2	304.5
150°	214.6	215.2	219.3	225.3	233.0	242.6	253.9	265.0	276.7	288.9	301.7
152.5°	220.0	220.1	224.1	229.8	236.7	245.5	255.5	265.8	275.9	286.9	298.4
155°	227.4	227.9	231.0	236.0	241.7	249.2	257.9	266.5	274.6	283.8	293.5
157.5°	234.6	234.6	237.5	241.4	246.3	252.3	259.7	266.5	273.4	280.7	288.6
160°	239.1	239.1	241.1	244.7	248.7	254.3	260.5	266.5	272.2	278.2	284.9
162.5°	243.2	242.7	244.3	247.5	251.2	255.6	261.3	266.5	270.9	275.8	281.6
165°	247.7	247.7	248.7	251.3	253.9	256.9	261.4	265.6	268.6	272.2	276.3
167.5°	252.3	251.8	252.3	254.2	255.7	258.0	261.4	264.3	266.2	268.5	271.3
170°	254.3	253.9	254.3	255.8	256.9	258.4	260.9	263.5	264.5	266.0	268.0
172.5°	256.4	255.8	255.9	257.1	257.7	258.8	260.6	262.7	262.9	263.6	265.2
175°	258.4	257.9	257.9	258.4	259.0	259.0	259.9	261.4	260.9	260.9	262.0
177.5°	259.3	259.0	258.5	259.0	259.0	259.0	259.3	260.1	259.3	259.3	259.8
180°	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0



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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°	15.2	15.1	15.0	15.0	15.2	15.6	15.7	16.0
90°	9.2	9.6	10.2	10.2	10.7	11.1	10.7	10.7
92.5°	99.9	75.2	59.8	49.7	43.6	40.9	39.1	39.1
95°	376.9	298.1	229.9	180.6	155.7	139.9	130.7	124.1
97.5°	556.9	527.6	477.9	424.7	388.3	357.6	342.3	331.7
100°	613.5	623.7	598.7	561.1	516.8	485.8	470.6	466.5
102.5°	610.6	661.1	668.3	652.6	625.4	603.0	586.9	583.6
105°	569.7	657.7	708.1	729.0	730.0	725.9	718.7	715.7
107.5°	511.7	605.3	676.3	721.6	746.7	758.3	763.4	764.7
110°	476.6	564.6	638.4	694.4	730.5	751.8	761.0	765.5



TEST NUMBER: P332966-940

CATALOG NUMBER: S124RDIP-S1020D590U940-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	451.0	528.8	598.5	654.4	695.4	721.3	734.1	741.5
115°	425.3	487.9	547.3	596.2	636.3	666.9	683.1	687.2
117.5°	412.6	464.4	511.2	552.6	586.9	612.5	629.0	632.2
120°	407.0	454.2	494.9	531.0	560.1	582.5	595.7	601.3
122.5°	402.1	447.7	484.7	516.4	540.9	560.1	571.2	576.8
125°	393.7	437.5	472.5	500.5	520.8	535.7	545.3	548.3
127.5°	383.5	425.3	460.4	486.9	507.4	520.5	528.6	531.6
130°	375.4	415.6	450.1	477.2	498.0	510.7	518.9	521.9
132.5°	366.8	404.6	438.4	465.3	485.8	500.2	507.8	511.0
135°	355.1	388.2	419.1	444.6	464.9	479.2	487.3	490.4
137.5°	344.4	372.4	398.5	421.5	440.5	454.6	461.3	464.9
140°	338.2	362.2	385.0	406.4	424.3	435.4	442.6	446.7
142.5°	332.6	353.7	373.3	391.8	407.5	417.9	424.3	427.0
145°	324.5	341.8	357.1	371.3	384.1	392.7	397.8	400.3
147.5°	317.9	331.6	343.8	355.1	364.4	371.8	375.7	376.7
150°	313.9	325.6	335.7	344.9	353.0	359.6	362.7	363.2
152.5°	309.3	319.4	328.8	336.4	343.2	348.7	350.4	351.0
155°	302.6	310.8	318.4	324.5	329.7	333.7	335.2	335.2
157.5°	295.4	302.3	308.6	313.5	317.4	320.5	321.4	321.4
160°	291.0	296.6	302.1	306.2	309.2	312.4	312.8	312.8
162.5°	286.5	291.2	295.6	299.3	301.6	304.6	305.1	304.7
165°	280.3	283.3	286.9	289.4	291.5	293.5	293.0	292.5
167.5°	274.3	276.6	279.5	281.0	282.0	283.3	283.2	282.9
170°	270.6	272.2	274.2	275.7	276.7	277.2	276.7	276.7
172.5°	267.3	268.5	269.7	270.8	271.4	272.0	271.4	270.6
175°	263.0	263.5	264.5	264.5	264.5	265.6	264.5	263.5
177.5°	260.1	260.6	260.6	260.9	260.6	260.9	260.1	259.3
180°	259.0	259.0	259.0	259.0	259.0	259.0	259.0	259.0

(END OF REPORT)