

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: P333078-940

Luminaire Tested: **S124RDIW-S1020D470U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333078-940
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: S124RDIW-S1020D470U940-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5171.2 lumens
Efficiency: N/A
Efficacy: 111.9 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

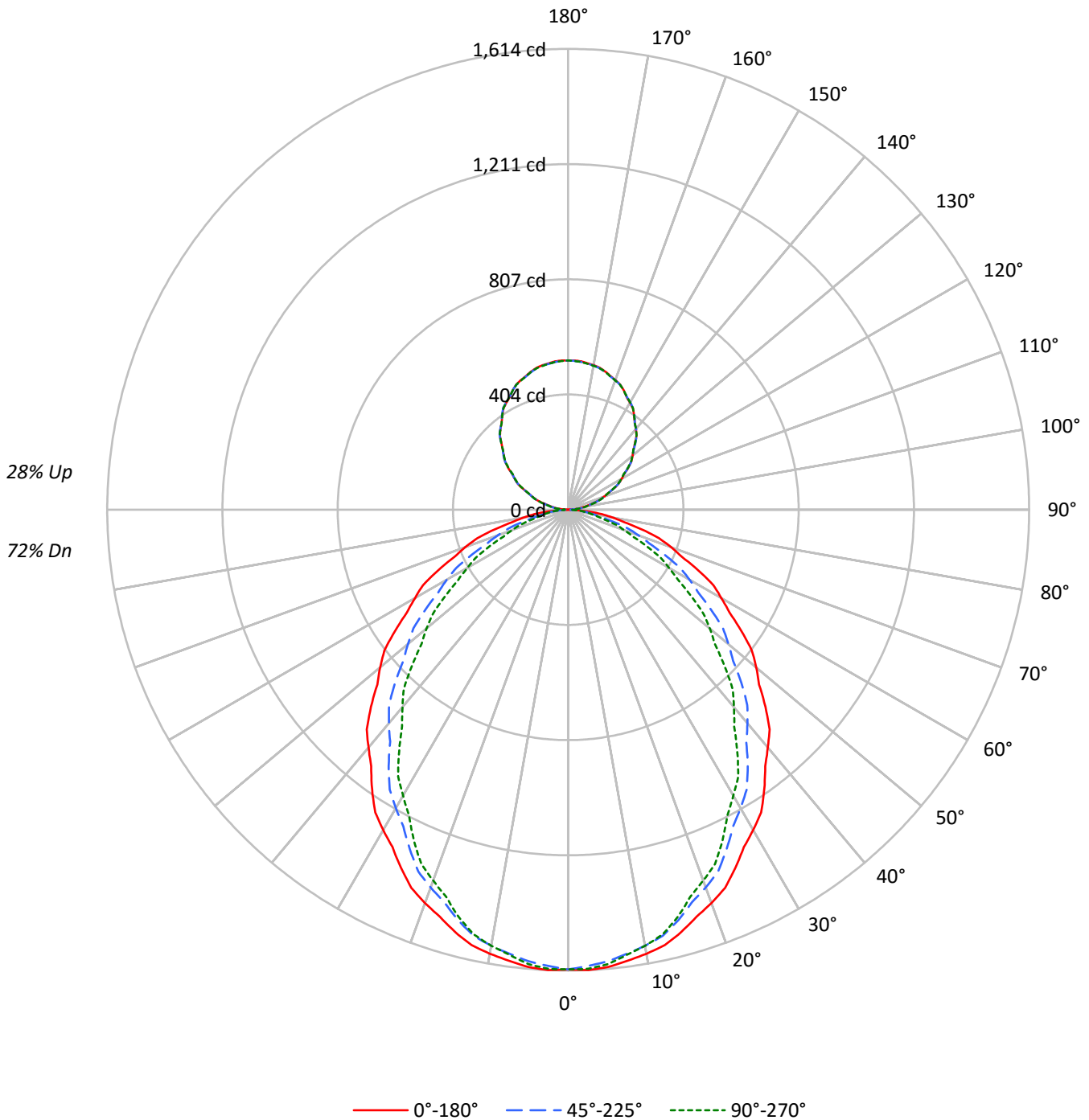
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76	72
1	103	99	95	91	98	94	90	87	85	82	80	76	74	72	68	67	65	61
2	94	87	81	75	89	83	77	72	75	70	66	67	64	61	60	58	56	52
3	86	77	69	63	81	73	66	61	66	61	56	60	56	52	54	51	48	45
4	79	68	60	54	75	65	58	52	59	53	48	54	49	45	48	45	41	38
5	73	61	53	47	69	58	51	45	53	47	42	48	43	39	44	40	36	34
6	67	55	47	41	64	53	45	40	48	42	37	44	39	35	40	36	32	30
7	62	50	42	36	59	48	40	35	44	37	33	40	35	31	36	32	29	26
8	58	46	38	32	55	44	36	31	40	34	29	37	31	28	34	29	26	24
9	54	42	34	29	51	40	33	28	37	31	27	34	29	25	31	27	23	21
10	51	38	31	26	48	37	30	25	34	28	24	31	26	23	29	25	21	20

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	2.9
10°-20°	421.8	8.2
20°-30°	609.1	11.8
30°-40°	690.4	13.4
40°-50°	666.7	12.9
50°-60°	554.4	10.7
60°-70°	382.8	7.4
70°-80°	194.0	3.8
80°-90°	51.3	1.0
90°-100°	34.5	0.7
100°-110°	102.1	2.0
110°-120°	173.3	3.4
120°-130°	228.5	4.4
130°-140°	256.6	5.0
140°-150°	252.1	4.9
150°-160°	212.1	4.1
160°-170°	141.1	2.7
170°-180°	49.4	1.0
0°-30°	1182.1	22.9
0°-40°	1872.5	36.2
0°-60°	3093.5	59.8
0°-90°	3721.7	72.0
90°-120°	309.8	6.0
90°-150°	1047.0	20.2
90°-180°	1450.0	28.0
0°-180°	5171.2	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°	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°	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°	22.9	21.4	19.8	18.3	16.7	15.9	15.8	15.7	15.7	15.6	15.5
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°	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°	15.3	15.2	15.2	15.2	15.4	15.7	16.0	16.2
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: P333078-940

CATALOG NUMBER: S124RDIW-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)