

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: P333077-940

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P333077-940  
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-S1020D470U940-4F0-1E-UDD-F  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 470 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5393.0 lumens  
Efficiency: N/A  
Efficacy: 116.7 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

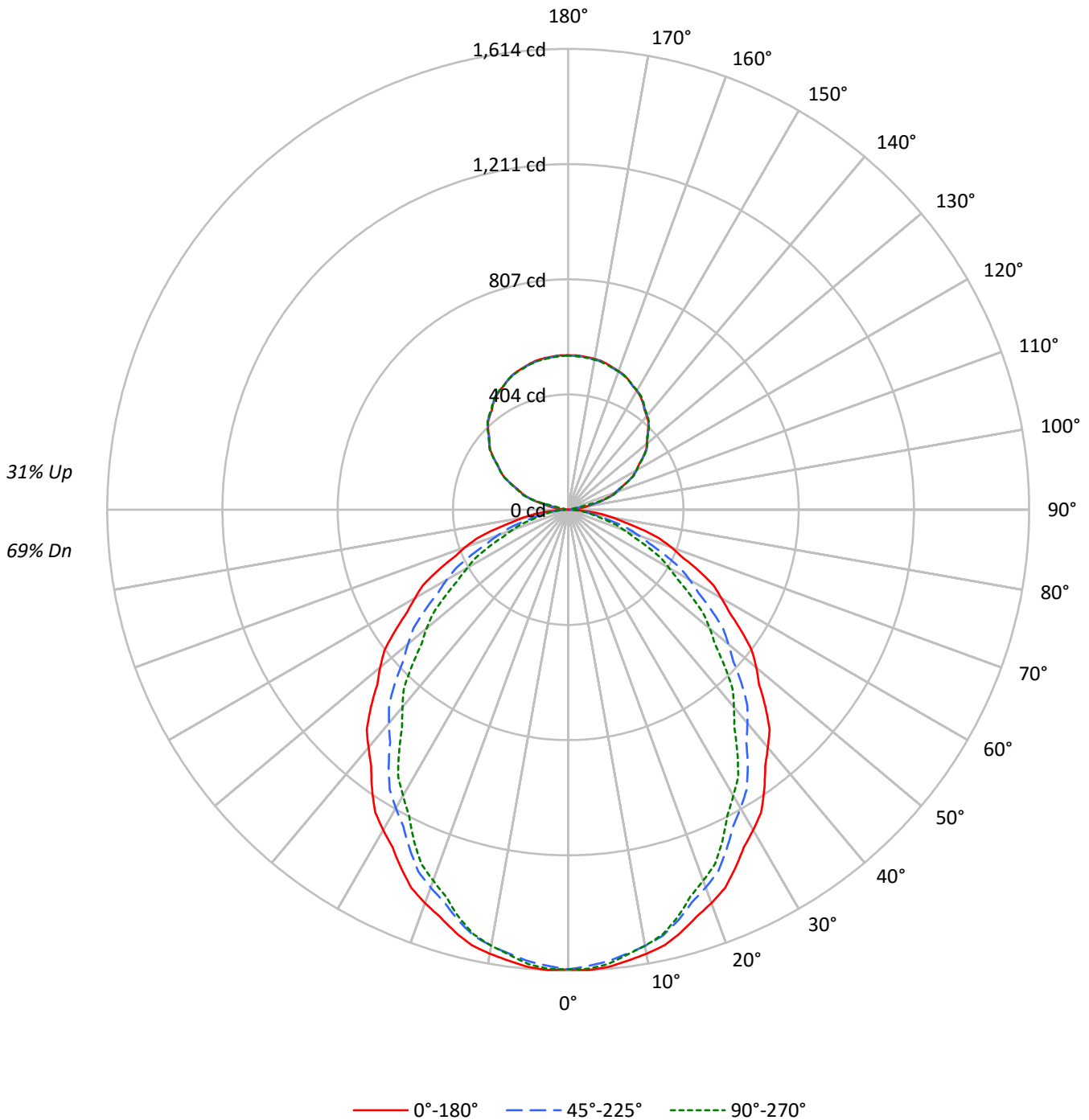
Input Watts (W): 46.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	74	74	74
1	102	98	94	91	97	93	89	86	83	80	78	74	72	70	66	64	63
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	56	54
3	86	76	69	63	81	72	66	60	65	60	55	58	54	51	52	49	46
4	79	68	60	54	74	64	57	51	58	52	48	52	47	44	47	43	40
5	72	61	52	46	68	58	50	45	52	46	41	47	42	38	42	38	35
6	67	55	46	40	63	52	44	39	47	41	36	43	38	34	38	34	31
7	62	49	41	36	58	47	40	35	43	37	32	39	34	30	35	31	28
8	58	45	37	32	54	43	36	31	39	33	29	36	31	27	32	28	25
9	54	41	34	29	51	40	33	28	36	30	26	33	28	24	30	26	23
10	50	38	31	26	48	36	30	25	33	28	24	31	26	22	28	24	21

**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	2.8
10°-20°	421.8	7.8
20°-30°	609.1	11.3
30°-40°	690.4	12.8
40°-50°	666.7	12.4
50°-60°	554.4	10.3
60°-70°	382.8	7.1
70°-80°	194.0	3.6
80°-90°	51.3	1.0
90°-100°	18.5	0.3
100°-110°	117.8	2.2
110°-120°	225.4	4.2
120°-130°	286.1	5.3
130°-140°	306.1	5.7
140°-150°	286.3	5.3
150°-160°	230.9	4.3
160°-170°	148.9	2.8
170°-180°	51.3	1.0
0°-30°	1182.1	21.9
0°-40°	1872.5	34.7
0°-60°	3093.5	57.4
0°-90°	3721.7	69.0
90°-120°	361.7	6.7
90°-150°	1240.3	23.0
90°-180°	1671.0	31.0
0°-180°	5393.0	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	4
95°	22	9	9	11	12	29
105°	122	124	126	129	115	127
115°	227	228	228	229	229	223
125°	319	321	320	321	322	285
135°	396	396	397	398	399	305
145°	457	458	458	458	459	285
155°	501	501	500	501	500	231
165°	528	526	526	529	526	149
175°	540	538	538	541	537	51
180°	540	540	540	540	540	



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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°	5.1	5.2	5.2	5.3	5.4	5.7	6.4	7.1	7.8	8.6	9.1
95°	22.2	19.2	16.1	13.1	10.0	8.6	8.6	8.7	8.8	8.9	9.5
97.5°	47.2	49.1	51.0	52.9	54.8	50.7	40.8	30.7	20.7	10.7	10.7
100°	66.3	67.9	69.6	71.2	72.8	67.3	54.9	42.5	30.1	17.7	16.2
102.5°	87.7	88.8	90.0	91.1	92.4	92.1	90.5	88.9	87.3	85.7	69.2
105°	121.6	122.2	122.7	123.2	123.8	124.3	124.8	125.2	125.6	126.1	126.9
107.5°	153.3	153.6	153.8	154.1	154.4	154.8	155.3	156.0	156.6	157.2	157.6
110°	174.6	174.9	175.1	175.4	175.7	176.0	176.6	177.2	177.7	178.3	178.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	195.3	195.7	196.3	196.7	197.2	197.6	197.9	198.0	198.3	198.6	198.6
115°	227.1	227.4	227.7	227.9	228.2	228.3	228.2	228.1	228.0	227.9	228.1
117.5°	255.8	256.2	256.5	256.9	257.3	257.5	257.7	257.9	258.2	258.3	258.2
120°	275.2	275.5	275.9	276.3	276.6	276.8	276.7	276.6	276.5	276.4	276.6
122.5°	293.3	293.6	293.7	294.0	294.2	294.4	294.4	294.6	294.7	294.9	295.0
125°	319.2	319.6	319.9	320.3	320.7	320.7	320.6	320.4	320.2	320.0	320.3
127.5°	343.8	343.9	344.0	344.1	344.2	344.5	344.8	345.3	345.7	346.1	346.1
130°	359.6	359.7	359.9	360.0	360.1	360.3	360.5	360.8	361.1	361.3	361.4
132.5°	374.3	374.3	374.5	374.7	374.9	375.1	375.5	375.8	376.1	376.5	376.6
135°	396.0	395.9	395.8	395.7	395.7	395.8	396.2	396.5	396.9	397.3	397.4
137.5°	415.4	415.4	415.4	415.4	415.5	415.7	416.1	416.5	416.9	417.3	417.5
140°	427.9	428.1	428.3	428.5	428.6	428.8	429.0	429.3	429.4	429.6	429.9
142.5°	439.3	439.6	440.0	440.2	440.6	440.8	440.9	441.0	441.1	441.2	441.4
145°	456.6	456.9	457.2	457.4	457.7	457.9	457.9	457.9	457.9	457.9	458.0
147.5°	470.5	471.0	471.4	472.0	472.5	472.7	472.6	472.5	472.4	472.3	472.4
150°	480.5	480.9	481.3	481.6	482.0	482.1	482.0	481.9	481.8	481.7	481.7
152.5°	488.9	489.2	489.5	489.7	490.1	490.1	490.0	489.8	489.6	489.5	489.6
155°	500.7	500.8	500.9	501.0	501.1	501.0	500.7	500.4	500.2	499.9	500.2
157.5°	510.7	510.6	510.5	510.5	510.4	510.2	510.0	509.6	509.3	509.1	509.5
160°	516.5	516.2	515.9	515.7	515.4	515.2	515.1	515.1	515.0	514.9	515.4
162.5°	521.7	521.3	520.9	520.6	520.3	520.0	520.0	519.9	519.8	519.7	520.2
165°	528.2	527.7	527.3	526.8	526.4	526.2	526.2	526.2	526.2	526.2	526.9
167.5°	533.3	532.9	532.4	532.0	531.5	531.2	531.2	531.1	531.1	531.0	531.8
170°	536.3	535.7	535.2	534.7	534.1	533.9	534.0	534.0	534.1	534.2	534.9
172.5°	538.2	537.7	537.2	536.6	536.1	535.8	535.9	536.0	536.1	536.2	536.9
175°	540.3	539.8	539.2	538.7	538.1	538.0	538.1	538.1	538.2	538.3	539.1
177.5°	541.3	540.8	540.3	539.8	539.3	539.1	539.2	539.4	539.5	539.7	540.2
180°	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3



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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°	9.6	10.2	10.7	11.0	11.1	11.1	11.1	11.1
95°	10.0	10.5	11.1	11.3	11.4	11.5	11.6	11.7
97.5°	10.8	10.8	10.9	11.0	11.1	11.1	11.2	11.3
100°	14.7	13.2	11.7	11.0	11.1	11.1	11.2	11.3
102.5°	52.7	36.3	19.8	11.6	11.6	11.6	11.6	11.7
105°	127.7	128.5	129.3	128.1	124.8	121.6	118.4	115.2
107.5°	158.0	158.4	158.8	159.2	159.5	159.8	160.2	160.5
110°	178.6	178.8	179.0	179.1	179.4	179.7	179.9	180.2





TEST NUMBER: P333077-940

CATALOG NUMBER: S124RDIW-S1020D470U940-4F0-1E-UDD-F

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	198.5	198.5	198.4	198.6	198.9	199.3	199.7	199.9
115°	228.3	228.5	228.6	228.7	228.7	228.7	228.7	228.7
117.5°	258.2	258.2	258.2	258.2	258.1	258.1	258.1	258.0
120°	276.8	277.0	277.1	277.1	277.0	276.8	276.6	276.4
122.5°	295.1	295.2	295.2	295.2	295.1	294.9	294.7	294.5
125°	320.6	320.8	321.1	321.3	321.4	321.5	321.6	321.6
127.5°	346.0	345.9	345.9	345.8	345.7	345.6	345.6	345.5
130°	361.5	361.6	361.7	361.7	361.7	361.7	361.7	361.7
132.5°	376.7	376.7	376.8	376.8	376.7	376.7	376.7	376.6
135°	397.6	397.8	398.0	398.1	398.3	398.5	398.7	398.9
137.5°	417.7	417.9	418.1	418.1	418.1	418.0	418.0	417.9
140°	430.2	430.4	430.7	430.9	431.0	431.1	431.1	431.2
142.5°	441.6	441.8	442.0	442.1	442.1	442.2	442.2	442.2
145°	458.1	458.2	458.3	458.3	458.5	458.7	458.9	459.1
147.5°	472.5	472.5	472.6	472.7	472.8	472.9	473.0	473.1
150°	481.7	481.7	481.7	481.8	481.9	482.0	482.1	482.1
152.5°	489.7	489.9	490.1	490.1	490.1	490.0	489.9	489.9
155°	500.6	501.0	501.3	501.4	501.1	500.9	500.6	500.3
157.5°	510.0	510.4	510.9	510.9	510.4	510.0	509.5	509.1
160°	515.9	516.5	517.0	517.0	516.5	515.9	515.4	514.9
162.5°	520.8	521.3	521.8	521.8	521.2	520.6	520.0	519.4
165°	527.6	528.3	529.1	529.0	528.2	527.4	526.6	525.8
167.5°	532.6	533.4	534.2	534.1	533.2	532.4	531.5	530.6
170°	535.7	536.4	537.2	537.1	536.1	535.2	534.3	533.4
172.5°	537.6	538.3	539.0	539.0	538.0	537.0	536.0	535.0
175°	539.9	540.7	541.5	541.4	540.3	539.2	538.1	537.1
177.5°	540.8	541.4	542.0	541.8	541.0	540.1	539.2	538.4
180°	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3

(END OF REPORT)