

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: P333077-935

Luminaire Tested: **S124RDIW-S1020D470U935-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P333077-935
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-S1020D470U935-4F0-1E-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: 5207.3 lumens
Efficiency: N/A
Efficacy: 112.7 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

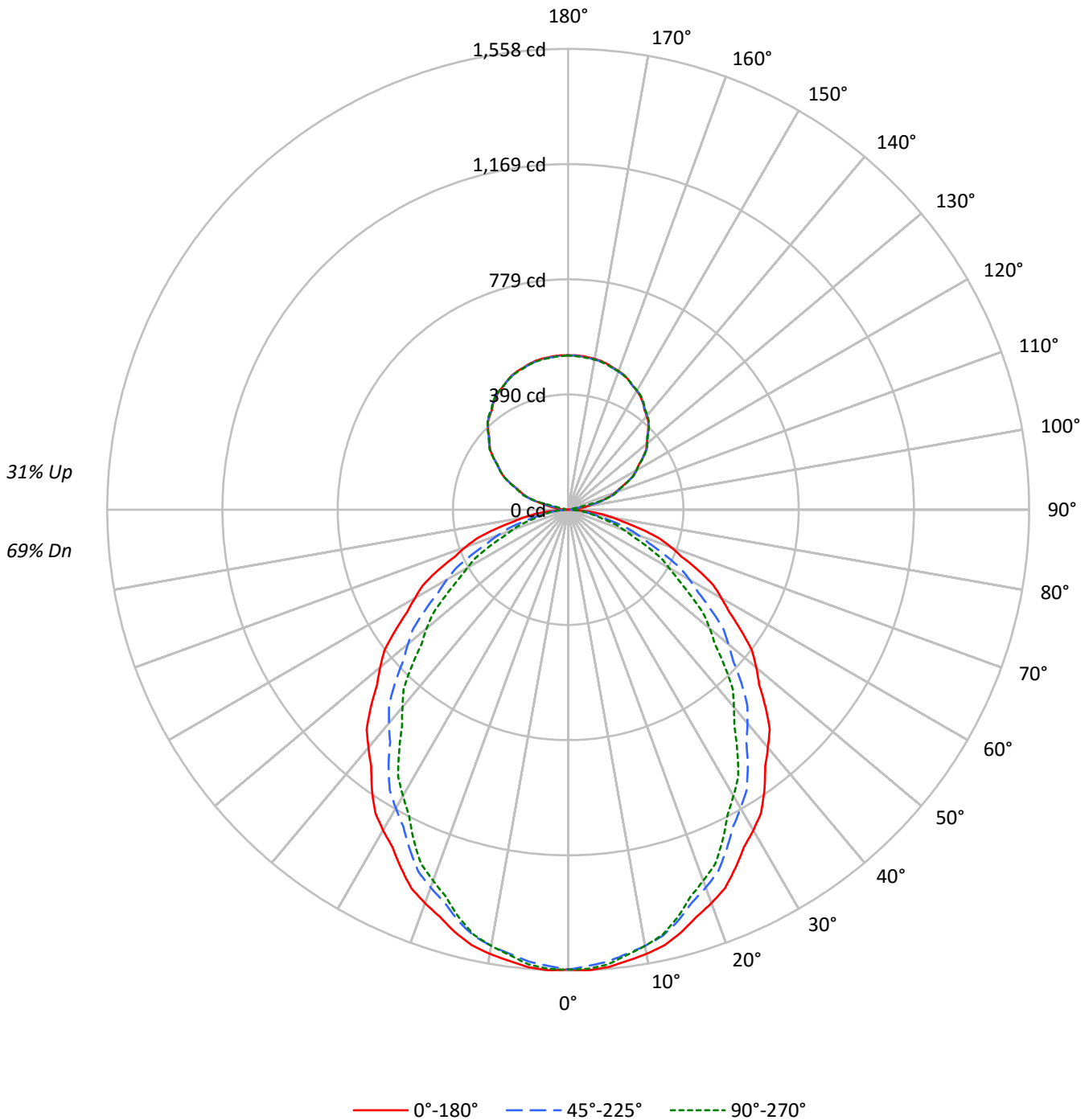
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	105	105	105	94	94	94	83	83	83	74	74	74	69
1	102	98	94	91	97	93	89	86	83	80	78	74	72	70	66	64	63	59
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	56	54	50
3	86	76	69	63	81	72	66	60	65	60	55	58	54	51	52	49	46	43
4	79	68	60	54	74	64	57	51	58	52	48	52	47	44	47	43	40	37
5	72	61	52	46	68	58	50	45	52	46	41	47	42	38	42	38	35	32
6	67	55	46	40	63	52	44	39	47	41	36	43	38	34	38	34	31	28
7	62	49	41	36	58	47	40	35	43	37	32	39	34	30	35	31	28	25
8	58	45	37	32	54	43	36	31	39	33	29	36	31	27	32	28	25	23
9	54	41	34	29	51	40	33	28	36	30	26	33	28	24	30	26	23	21
10	50	38	31	26	48	36	30	25	33	28	24	31	26	22	28	24	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12551	12551	12551
5°	12580	12426	12503
10°	12500	12276	12276
15°	12357	12018	11929
20°	12160	11679	11465
25°	11908	11282	10996
30°	11663	10864	10409
35°	11392	10430	9819
40°	11065	9936	9183
45°	10764	9445	8535
50°	10420	8881	7850
55°	10054	8294	7104
60°	9649	7650	6344
65°	9278	6844	5593
70°	8738	5958	4749
75°	8057	4938	3862
80°	7029	3761	3543
85°	5956	3418	3196



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	2.8
10°-20°	407.3	7.8
20°-30°	588.1	11.3
30°-40°	666.6	12.8
40°-50°	643.7	12.4
50°-60°	535.3	10.3
60°-70°	369.6	7.1
70°-80°	187.4	3.6
80°-90°	49.6	1.0
90°-100°	17.8	0.3
100°-110°	113.8	2.2
110°-120°	217.6	4.2
120°-130°	276.3	5.3
130°-140°	295.6	5.7
140°-150°	276.4	5.3
150°-160°	222.9	4.3
160°-170°	143.8	2.8
170°-180°	49.6	1.0
0°-30°	1141.4	21.9
0°-40°	1808.0	34.7
0°-60°	2987.0	57.4
0°-90°	3593.5	69.0
90°-120°	349.2	6.7
90°-150°	1197.5	23.0
90°-180°	1614.0	31.0
0°-180°	5207.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1555	1555	1555	1555	1555	
5°	1552	1547	1533	1544	1543	147
15°	1478	1467	1438	1435	1427	416
25°	1337	1314	1267	1247	1234	616
35°	1156	1117	1058	1019	996	722
45°	943	897	827	771	748	727
55°	714	665	589	530	505	639
65°	486	433	358	309	293	479
75°	258	214	158	132	124	273
85°	64	42	37	35	34	72
90°	1	5	9	11	12	4
95°	21	9	9	11	11	28
105°	117	120	122	124	111	123
115°	219	220	220	221	221	216
125°	308	310	309	310	311	275
135°	382	382	384	384	385	295
145°	441	442	442	443	443	275
155°	484	484	483	484	483	223
165°	510	508	508	511	508	144
175°	522	520	520	523	519	50
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°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1558.5	1557.6	1556.8	1556.0	1555.1	1553.5	1551.2	1548.9	1546.5	1544.2	1546.5
5°	1552.3	1551.3	1550.2	1549.1	1548.1	1545.9	1542.8	1539.6	1536.5	1533.3	1535.9
7.5°	1538.3	1537.1	1536.0	1534.9	1533.8	1531.2	1527.1	1522.9	1518.8	1514.7	1516.4
10°	1524.9	1523.6	1522.2	1521.0	1519.7	1516.6	1511.8	1507.1	1502.3	1497.5	1498.6
12.5°	1507.8	1506.2	1504.7	1503.2	1501.7	1498.1	1492.5	1486.9	1481.3	1475.7	1476.3
15°	1478.5	1476.1	1473.8	1471.4	1469.0	1464.5	1457.8	1451.2	1444.7	1438.0	1437.5
17.5°	1443.0	1439.6	1436.1	1432.7	1429.3	1423.6	1415.7	1407.7	1399.8	1391.8	1390.3
20°	1415.4	1412.0	1408.5	1405.1	1401.6	1395.4	1386.5	1377.4	1368.5	1359.4	1357.4
22.5°	1384.9	1381.0	1377.2	1373.4	1369.5	1362.7	1353.1	1343.5	1333.9	1324.2	1321.0
25°	1336.9	1332.1	1327.3	1322.6	1317.8	1310.0	1299.2	1288.3	1277.5	1266.6	1262.1
27.5°	1286.3	1280.4	1274.5	1268.4	1262.5	1253.7	1242.1	1230.5	1218.9	1207.3	1201.8
30°	1251.1	1244.5	1237.9	1231.3	1224.7	1215.1	1202.7	1190.2	1177.8	1165.4	1158.8
32.5°	1214.0	1206.5	1199.0	1191.6	1184.1	1174.0	1161.1	1148.3	1135.4	1122.6	1114.9
35°	1155.9	1147.5	1138.9	1130.5	1122.1	1111.2	1097.9	1084.8	1071.5	1058.3	1049.3
37.5°	1093.7	1085.0	1076.3	1067.6	1058.9	1047.1	1032.5	1017.9	1003.2	988.5	978.4
40°	1050.0	1041.2	1032.5	1023.7	1015.0	1003.2	988.1	972.9	957.9	942.8	931.7
42.5°	1008.1	998.9	989.7	980.6	971.5	959.0	943.3	927.6	911.9	896.1	884.8
45°	942.8	933.1	923.3	913.4	903.6	890.8	874.9	859.1	843.2	827.3	814.4
47.5°	875.5	865.3	855.2	845.2	835.0	821.7	805.2	788.7	772.1	755.7	742.3
50°	829.7	819.4	809.1	798.7	788.4	774.8	757.9	741.0	724.0	707.1	693.9
52.5°	783.1	772.9	762.8	752.8	742.6	728.9	711.5	694.2	676.8	659.5	646.1
55°	714.3	703.7	693.1	682.5	671.9	658.1	640.8	623.6	606.5	589.3	575.5
57.5°	646.2	635.2	624.1	613.1	602.2	588.1	571.3	554.3	537.4	520.5	506.5
60°	597.6	587.0	576.4	565.8	555.3	541.5	524.6	507.6	490.7	473.8	460.0
62.5°	553.8	542.8	531.8	520.7	509.8	495.6	478.2	460.9	443.5	426.2	413.5
65°	485.7	474.3	463.0	451.6	440.2	426.0	409.1	392.2	375.2	358.3	347.0
67.5°	415.0	404.1	393.2	382.3	371.3	358.1	342.3	326.7	310.9	295.2	285.4
70°	370.2	359.1	348.0	336.9	325.8	312.7	297.6	282.5	267.4	252.4	243.7
72.5°	322.6	312.5	302.5	292.5	282.4	270.3	256.1	241.8	227.6	213.4	205.9
75°	258.3	248.6	238.8	228.9	219.2	208.0	195.6	183.2	170.7	158.3	152.2
77.5°	193.1	184.8	176.5	168.2	159.9	150.7	140.6	130.6	120.5	110.5	106.9
80°	151.2	143.5	135.9	128.2	120.5	112.7	104.8	96.9	88.9	80.9	80.2
82.5°	115.0	108.0	100.9	93.8	86.9	81.0	76.5	72.0	67.4	62.9	62.3
85°	64.3	59.0	53.7	48.4	43.1	40.0	39.3	38.5	37.7	36.9	36.3
87.5°	22.1	20.7	19.1	17.7	16.1	15.3	15.2	15.2	15.2	15.1	15.0
90°	1.2	2.2	3.1	4.0	5.0	5.8	6.5	7.2	7.9	8.6	9.1
92.5°	4.9	5.0	5.0	5.1	5.2	5.5	6.2	6.9	7.6	8.3	8.8
95°	21.4	18.5	15.6	12.7	9.6	8.3	8.4	8.4	8.5	8.6	9.1
97.5°	45.5	47.4	49.2	51.1	53.0	49.0	39.3	29.6	20.0	10.3	10.3
100°	64.0	65.5	67.2	68.7	70.3	65.0	53.0	41.1	29.1	17.1	15.7
102.5°	84.6	85.8	86.9	88.0	89.2	88.9	87.4	85.8	84.3	82.7	66.8
105°	117.4	118.0	118.5	119.0	119.5	120.0	120.5	120.9	121.3	121.7	122.5
107.5°	148.0	148.3	148.5	148.8	149.0	149.5	150.0	150.6	151.2	151.8	152.1
110°	168.6	168.8	169.1	169.4	169.6	170.0	170.5	171.1	171.6	172.1	172.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	188.6	189.0	189.5	189.9	190.5	190.8	191.1	191.2	191.5	191.7	191.7
115°	219.3	219.6	219.8	220.1	220.3	220.4	220.3	220.2	220.2	220.1	220.2
117.5°	247.0	247.4	247.7	248.1	248.4	248.7	248.8	249.0	249.3	249.4	249.3
120°	265.7	266.0	266.4	266.7	267.1	267.3	267.2	267.1	267.0	266.9	267.1
122.5°	283.2	283.4	283.6	283.9	284.0	284.2	284.3	284.5	284.6	284.7	284.8
125°	308.2	308.6	308.9	309.3	309.6	309.7	309.5	309.4	309.2	309.0	309.3
127.5°	332.0	332.1	332.2	332.3	332.3	332.6	332.9	333.4	333.8	334.2	334.2
130°	347.2	347.3	347.5	347.6	347.7	347.8	348.1	348.4	348.6	348.9	349.0
132.5°	361.4	361.4	361.6	361.8	362.0	362.2	362.6	362.8	363.2	363.5	363.6
135°	382.4	382.3	382.2	382.1	382.0	382.2	382.5	382.9	383.2	383.6	383.7
137.5°	401.1	401.1	401.1	401.1	401.2	401.4	401.7	402.2	402.5	402.9	403.1
140°	413.2	413.4	413.5	413.7	413.9	414.1	414.2	414.5	414.7	414.8	415.1
142.5°	424.1	424.5	424.8	425.1	425.4	425.6	425.7	425.9	425.9	426.0	426.2
145°	440.9	441.2	441.4	441.7	442.0	442.1	442.1	442.1	442.1	442.1	442.2
147.5°	454.3	454.8	455.2	455.7	456.2	456.4	456.3	456.2	456.2	456.1	456.2
150°	464.0	464.3	464.7	465.0	465.4	465.5	465.4	465.3	465.2	465.1	465.1
152.5°	472.1	472.3	472.6	472.9	473.2	473.2	473.1	472.9	472.8	472.6	472.8
155°	483.5	483.5	483.6	483.7	483.8	483.7	483.5	483.2	482.9	482.7	483.0
157.5°	493.1	493.0	492.9	492.9	492.8	492.7	492.4	492.1	491.8	491.5	492.0
160°	498.7	498.4	498.2	497.9	497.7	497.5	497.4	497.3	497.2	497.1	497.7
162.5°	503.7	503.3	503.0	502.7	502.4	502.1	502.0	502.0	501.9	501.8	502.3
165°	510.0	509.5	509.1	508.7	508.2	508.1	508.1	508.1	508.1	508.1	508.8
167.5°	515.0	514.5	514.1	513.7	513.2	512.9	512.9	512.8	512.8	512.7	513.5
170°	517.8	517.3	516.8	516.3	515.7	515.5	515.6	515.7	515.7	515.8	516.5
172.5°	519.7	519.2	518.7	518.1	517.6	517.4	517.5	517.5	517.6	517.7	518.4
175°	521.7	521.2	520.6	520.1	519.6	519.4	519.5	519.6	519.7	519.8	520.6
177.5°	522.6	522.2	521.7	521.2	520.7	520.6	520.6	520.8	520.9	521.1	521.6
180°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1548.9	1551.2	1553.5	1554.6	1554.4	1554.2	1553.9	1553.8
5°	1538.5	1541.2	1543.9	1544.9	1544.4	1543.9	1543.3	1542.8
7.5°	1518.1	1519.8	1521.5	1521.9	1521.0	1520.2	1519.3	1518.5
10°	1499.7	1500.7	1501.8	1501.8	1500.7	1499.7	1498.6	1497.5
12.5°	1476.9	1477.6	1478.2	1477.7	1476.3	1474.8	1473.3	1471.9
15°	1437.0	1436.4	1435.9	1434.7	1432.9	1431.0	1429.2	1427.3
17.5°	1388.9	1387.4	1386.0	1383.8	1381.0	1378.2	1375.4	1372.5
20°	1355.2	1353.1	1351.0	1348.2	1344.8	1341.4	1337.9	1334.5
22.5°	1317.8	1314.7	1311.6	1308.5	1305.7	1303.0	1300.1	1297.4
25°	1257.6	1253.1	1248.6	1245.0	1242.4	1239.8	1237.1	1234.5
27.5°	1196.2	1190.7	1185.1	1180.4	1176.6	1172.8	1169.0	1165.2
30°	1152.2	1145.6	1138.9	1133.5	1129.3	1125.1	1120.8	1116.6
32.5°	1107.2	1099.6	1091.9	1086.1	1082.0	1078.0	1074.0	1070.0
35°	1040.3	1031.3	1022.3	1015.5	1010.6	1005.9	1001.2	996.3
37.5°	968.5	958.4	948.3	940.9	936.2	931.3	926.6	921.9
40°	920.6	909.5	898.4	890.4	885.7	880.9	876.2	871.4
42.5°	873.5	862.2	850.8	842.7	837.8	832.8	827.8	822.9
45°	801.4	788.4	775.5	766.6	761.9	757.1	752.3	747.6
47.5°	728.8	715.4	701.9	692.6	687.3	682.1	676.8	671.7
50°	680.6	667.4	654.2	645.1	640.1	635.0	630.0	625.0
52.5°	632.6	619.1	605.7	596.4	591.2	585.9	580.7	575.5
55°	561.7	548.0	534.3	524.9	519.8	514.8	509.8	504.7
57.5°	492.5	478.5	464.6	455.7	451.9	448.1	444.3	440.5
60°	446.3	432.5	418.8	409.7	405.5	401.3	397.1	392.9
62.5°	400.8	388.1	375.4	367.3	363.9	360.6	357.1	353.8
65°	335.5	324.2	312.8	305.6	302.4	299.2	296.0	292.8
67.5°	275.6	265.9	256.1	249.4	245.9	242.5	238.9	235.5
70°	234.9	226.2	217.5	211.7	209.1	206.5	203.8	201.2
72.5°	198.4	191.0	183.5	178.6	176.1	173.7	171.3	168.8
75°	146.2	140.1	134.0	130.2	128.5	127.0	125.4	123.8
77.5°	103.4	99.9	96.3	94.3	93.8	93.3	92.8	92.4
80°	79.4	78.6	77.7	77.2	77.0	76.7	76.5	76.2
82.5°	61.6	61.1	60.5	60.1	59.8	59.6	59.3	59.1
85°	35.8	35.3	34.8	34.5	34.5	34.5	34.5	34.5
87.5°	14.8	14.7	14.6	14.7	14.9	15.2	15.4	15.7
90°	9.6	10.2	10.7	11.0	11.2	11.4	11.5	11.7
92.5°	9.3	9.8	10.3	10.6	10.7	10.7	10.8	10.8
95°	9.6	10.2	10.7	10.9	11.0	11.1	11.2	11.3
97.5°	10.4	10.4	10.5	10.6	10.7	10.8	10.8	10.9
100°	14.2	12.7	11.3	10.6	10.7	10.8	10.8	10.9
102.5°	50.9	35.0	19.1	11.2	11.2	11.2	11.2	11.3
105°	123.3	124.1	124.8	123.7	120.5	117.4	114.3	111.2
107.5°	152.6	152.9	153.3	153.7	154.0	154.3	154.6	155.0
110°	172.5	172.6	172.8	173.0	173.2	173.5	173.7	174.0



TEST NUMBER: P333077-935

CATALOG NUMBER: S124RDIW-S1020D470U935-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	191.7	191.7	191.6	191.7	192.1	192.4	192.8	193.0
115°	220.4	220.6	220.8	220.8	220.8	220.8	220.8	220.8
117.5°	249.3	249.3	249.3	249.3	249.2	249.2	249.2	249.1
120°	267.3	267.4	267.6	267.6	267.4	267.3	267.1	266.9
122.5°	284.9	285.0	285.1	285.1	284.9	284.7	284.6	284.4
125°	309.5	309.8	310.0	310.2	310.3	310.4	310.5	310.6
127.5°	334.1	334.0	334.0	333.9	333.8	333.7	333.7	333.6
130°	349.0	349.1	349.2	349.2	349.2	349.2	349.2	349.2
132.5°	363.7	363.8	363.9	363.9	363.8	363.8	363.7	363.6
135°	383.9	384.1	384.3	384.4	384.6	384.8	385.0	385.1
137.5°	403.3	403.5	403.7	403.7	403.7	403.6	403.6	403.6
140°	415.3	415.6	415.9	416.0	416.1	416.2	416.3	416.4
142.5°	426.4	426.6	426.8	426.9	426.9	427.0	427.0	427.0
145°	442.3	442.4	442.5	442.6	442.7	442.9	443.1	443.2
147.5°	456.2	456.2	456.3	456.4	456.5	456.6	456.7	456.8
150°	465.1	465.1	465.1	465.2	465.3	465.4	465.5	465.5
152.5°	472.9	473.0	473.2	473.2	473.2	473.1	473.0	473.0
155°	483.4	483.7	484.1	484.1	483.9	483.6	483.4	483.1
157.5°	492.4	492.8	493.3	493.3	492.8	492.4	492.0	491.5
160°	498.2	498.7	499.2	499.2	498.7	498.2	497.7	497.1
162.5°	502.8	503.3	503.9	503.9	503.3	502.7	502.0	501.5
165°	509.5	510.1	510.8	510.7	510.0	509.2	508.4	507.6
167.5°	514.3	515.1	515.8	515.7	514.9	514.0	513.2	512.3
170°	517.2	517.9	518.7	518.6	517.6	516.8	515.9	515.1
172.5°	519.1	519.8	520.5	520.4	519.4	518.5	517.5	516.6
175°	521.3	522.1	522.9	522.7	521.7	520.6	519.6	518.6
177.5°	522.2	522.7	523.3	523.1	522.4	521.5	520.6	519.9
180°	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7

(END OF REPORT)