

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: P332744-840

Luminaire Tested: **S124DIW-S350D1560U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332744-840
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: S124DIW-S350D1560U840-4F0-1E-UDD-F1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 350 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 1560 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6999.2 lumens
Efficiency: N/A
Efficacy: 131.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.17 / 1.3
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Indirect

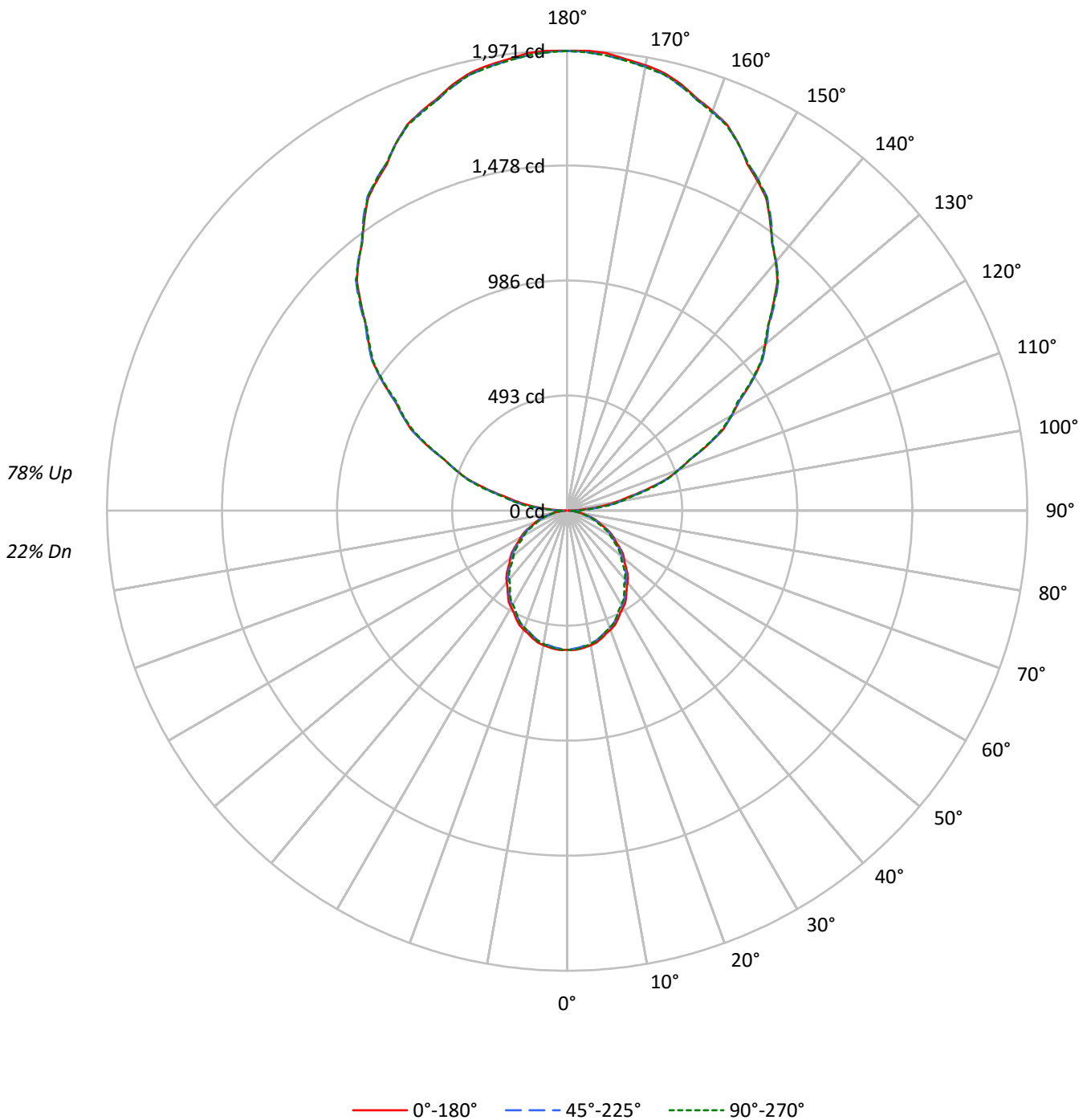
Input Watts (W): 53.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

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	100	100	100	100	89	89	89	89	68	68	68	48	48	48	30	30	30	22
1	91	87	84	80	81	77	74	72	59	57	55	42	41	40	27	26	25	18
2	83	76	70	65	74	68	63	59	52	48	46	37	35	33	23	22	21	15
3	76	67	60	54	67	59	54	49	46	42	38	33	30	28	21	19	18	13
4	69	59	52	46	61	53	46	41	40	36	32	29	26	24	19	17	16	11
5	63	52	45	39	56	47	40	35	36	31	28	26	23	21	17	15	14	10
6	58	47	39	34	51	42	35	30	32	28	24	23	20	18	15	13	12	9
7	54	42	34	29	47	38	31	26	29	24	21	21	18	16	14	12	11	8
8	50	38	31	26	44	34	28	23	26	22	19	19	16	14	13	11	9	7
9	46	35	27	23	41	31	25	21	24	20	16	18	15	12	12	10	8	6
10	43	32	25	20	38	28	22	18	22	18	15	16	13	11	11	9	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4816	4816	4816
5°	4830	4772	4807
10°	4800	4733	4757
15°	4741	4667	4679
20°	4665	4582	4587
25°	4577	4488	4475
30°	4470	4376	4336
35°	4357	4258	4202
40°	4241	4126	4051
45°	4120	3995	3919
50°	3986	3878	3758
55°	3842	3727	3606
60°	3696	3559	3450
65°	3534	3396	3261
70°	3352	3182	3059
75°	3072	2923	2848
80°	2734	2627	2552
85°	2399	2297	2251



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.2	0.8
10°-20°	158.3	2.3
20°-30°	233.0	3.3
30°-40°	270.8	3.9
40°-50°	270.9	3.9
50°-60°	236.9	3.4
60°-70°	175.9	2.5
70°-80°	100.0	1.4
80°-90°	34.7	0.5
90°-100°	129.9	1.9
100°-110°	384.7	5.5
110°-120°	652.9	9.3
120°-130°	861.0	12.3
130°-140°	966.9	13.8
140°-150°	950.1	13.6
150°-160°	799.1	11.4
160°-170°	531.7	7.6
170°-180°	186.2	2.7
0°-30°	447.4	6.4
0°-40°	718.3	10.3
0°-60°	1226.1	17.5
0°-90°	1536.7	22.0
90°-120°	1167.5	16.7
90°-150°	3945.5	56.4
90°-180°	5463.0	78.1
0°-180°	6999.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	596	596	596	596	596	
5°	596	594	589	594	593	57
15°	567	565	558	561	560	160
25°	514	510	504	504	502	236
35°	442	439	432	429	426	276
45°	361	357	350	345	343	278
55°	273	271	265	259	256	244
65°	185	182	178	173	171	183
75°	98	96	94	92	91	105
85°	26	26	25	25	24	29
90°	4	21	34	42	46	7
95°	91	105	116	120	120	102
105°	355	357	362	367	372	376
115°	664	664	661	659	658	654
125°	967	967	965	962	959	861
135°	1247	1256	1256	1253	1249	964
145°	1515	1521	1523	1521	1517	948
155°	1736	1736	1734	1740	1734	798
165°	1890	1885	1882	1890	1885	532
175°	1966	1958	1957	1966	1957	187
180°	1969	1969	1969	1969	1969	



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5
2.5°	598.0	597.8	597.5	597.3	597.0	596.4	595.5	594.6	593.7	592.7	593.6
5°	596.0	595.6	595.2	594.8	594.4	593.6	592.4	591.3	590.1	588.9	590.1
7.5°	590.6	590.1	589.7	589.3	588.9	587.9	586.6	585.4	584.1	582.8	583.7
10°	585.5	585.1	584.7	584.3	583.9	583.0	581.6	580.2	578.9	577.4	578.2
12.5°	579.1	578.7	578.2	577.7	577.3	576.4	574.9	573.5	572.0	570.6	571.5
15°	567.3	566.9	566.5	566.1	565.7	564.7	563.1	561.5	559.9	558.4	559.0
17.5°	553.3	552.8	552.3	551.8	551.2	550.2	548.7	547.1	545.6	544.1	544.5
20°	543.0	542.5	542.0	541.4	540.9	539.9	538.3	536.6	535.0	533.4	533.8
22.5°	531.9	531.2	530.5	529.8	529.1	528.0	526.3	524.8	523.2	521.6	522.2
25°	513.8	513.1	512.4	511.6	510.9	509.8	508.3	506.8	505.3	503.8	503.9
27.5°	493.2	492.4	491.7	490.9	490.2	489.1	487.7	486.4	484.9	483.5	483.3
30°	479.5	478.6	477.8	476.9	476.1	474.9	473.5	472.1	470.8	469.4	469.0
32.5°	464.9	464.1	463.3	462.6	461.8	460.7	459.3	457.8	456.4	454.8	454.3
35°	442.1	441.4	440.7	439.9	439.2	438.1	436.6	435.0	433.6	432.1	431.4
37.5°	418.2	417.5	416.8	416.2	415.5	414.3	412.7	411.1	409.5	407.9	407.1
40°	402.4	401.6	400.8	399.9	399.1	397.9	396.3	394.7	393.0	391.5	390.4
42.5°	385.7	385.2	384.7	384.2	383.6	382.4	380.7	378.9	377.2	375.5	374.2
45°	360.9	360.1	359.4	358.7	357.9	356.7	355.0	353.3	351.6	349.9	348.7
47.5°	335.0	334.5	334.0	333.5	333.0	331.9	330.3	328.7	327.2	325.6	324.3
50°	317.4	317.0	316.6	316.1	315.7	314.8	313.3	311.7	310.2	308.8	307.3
52.5°	300.2	299.6	299.1	298.6	298.1	297.1	295.5	294.0	292.4	290.8	289.5
55°	273.0	272.7	272.3	272.0	271.7	270.7	269.2	267.8	266.3	264.8	263.6
57.5°	246.9	246.6	246.2	245.9	245.5	244.6	243.1	241.7	240.1	238.7	237.5
60°	228.9	228.4	227.9	227.3	226.8	225.9	224.5	223.1	221.8	220.4	219.4
62.5°	211.4	211.0	210.5	210.1	209.5	208.6	207.1	205.7	204.2	202.8	201.9
65°	185.0	184.5	183.9	183.4	182.9	182.1	181.0	180.0	178.8	177.8	176.7
67.5°	158.4	157.9	157.4	156.9	156.4	155.7	154.7	153.7	152.7	151.6	150.6
70°	142.0	141.2	140.5	139.8	139.0	138.1	137.3	136.5	135.6	134.8	133.9
72.5°	124.4	123.6	122.9	122.2	121.4	120.7	120.0	119.4	118.7	118.0	117.2
75°	98.5	98.0	97.5	96.8	96.3	95.8	95.3	94.7	94.2	93.7	93.3
77.5°	73.7	73.5	73.2	73.0	72.8	72.4	72.0	71.5	71.0	70.6	70.4
80°	58.8	58.5	58.2	57.9	57.6	57.3	57.1	56.9	56.7	56.5	56.1
82.5°	44.2	44.1	43.9	43.8	43.6	43.5	43.5	43.5	43.4	43.4	43.3
85°	25.9	25.9	25.9	25.9	25.9	25.8	25.4	25.2	25.0	24.8	24.8
87.5°	10.9	11.5	12.2	12.8	13.5	14.0	14.5	14.9	15.5	15.9	16.3
90°	4.5	8.3	12.0	15.8	19.5	22.7	25.3	28.1	30.8	33.5	35.5
92.5°	32.6	36.9	41.1	45.3	49.7	52.7	54.6	56.6	58.4	60.3	61.5
95°	91.4	94.4	97.5	100.5	103.5	106.2	108.7	111.0	113.4	115.7	116.7
97.5°	159.6	162.0	164.4	166.9	169.4	172.0	174.7	177.4	180.3	183.0	184.2
100°	213.2	214.5	215.9	217.2	218.6	220.8	223.9	226.9	229.9	233.0	233.7
102.5°	269.2	269.7	270.3	270.8	271.4	273.1	275.8	278.6	281.3	284.2	285.1
105°	354.8	355.2	355.5	355.8	356.2	357.0	358.3	359.7	361.0	362.4	363.5
107.5°	444.6	445.0	445.5	445.9	446.3	446.6	446.8	447.0	447.2	447.4	448.3
110°	505.5	506.2	506.9	507.6	508.3	508.5	508.1	507.8	507.4	507.1	506.3



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	568.9	569.1	569.2	569.3	569.5	569.2	568.6	567.9	567.3	566.7	566.6
115°	663.9	663.9	663.9	663.9	663.9	663.6	662.9	662.2	661.6	660.9	660.6
117.5°	753.5	753.7	754.0	754.3	754.6	754.5	754.0	753.5	753.0	752.6	751.3
120°	813.1	814.5	815.9	817.2	818.5	818.7	817.7	816.7	815.7	814.7	812.9
122.5°	875.3	875.8	876.4	876.9	877.4	877.5	877.0	876.5	876.1	875.6	874.4
125°	966.9	966.9	966.9	966.9	966.9	966.7	966.4	966.0	965.7	965.4	964.7
127.5°	1050.1	1051.1	1052.1	1053.1	1054.1	1054.4	1053.8	1053.3	1052.8	1052.2	1051.5
130°	1108.5	1109.5	1110.5	1111.6	1112.6	1113.1	1113.1	1113.1	1113.1	1113.1	1112.5
132.5°	1168.2	1169.0	1169.7	1170.4	1171.2	1171.4	1171.1	1170.9	1170.6	1170.3	1169.7
135°	1247.1	1249.1	1251.1	1253.2	1255.3	1256.3	1256.3	1256.3	1256.3	1256.3	1255.6
137.5°	1333.0	1333.9	1334.8	1335.8	1336.8	1337.6	1338.1	1338.6	1339.2	1339.7	1338.8
140°	1390.3	1390.9	1391.6	1392.3	1392.9	1393.3	1393.3	1393.3	1393.3	1393.3	1392.9
142.5°	1442.6	1443.3	1444.0	1444.6	1445.3	1445.5	1445.2	1445.0	1444.7	1444.4	1444.4
145°	1515.1	1516.4	1517.8	1519.1	1520.6	1521.4	1521.7	1522.1	1522.4	1522.7	1522.4
147.5°	1587.0	1588.6	1590.2	1591.9	1593.5	1594.2	1593.9	1593.6	1593.4	1593.1	1592.8
150°	1630.8	1632.1	1633.6	1634.9	1636.3	1636.9	1636.9	1636.9	1636.9	1636.9	1636.9
152.5°	1672.2	1673.0	1673.9	1674.7	1675.5	1676.1	1676.3	1676.6	1676.9	1677.1	1677.9
155°	1735.9	1735.9	1735.9	1735.9	1735.9	1735.8	1735.4	1735.0	1734.7	1734.3	1735.8
157.5°	1789.5	1788.9	1788.3	1787.7	1787.1	1786.8	1786.7	1786.6	1786.6	1786.5	1787.5
160°	1821.2	1820.8	1820.5	1820.2	1819.8	1819.5	1819.2	1818.8	1818.5	1818.2	1819.2
162.5°	1850.4	1849.6	1848.7	1847.8	1846.8	1846.2	1845.9	1845.6	1845.2	1844.9	1846.7
165°	1889.7	1888.6	1887.6	1886.6	1885.6	1884.8	1884.1	1883.4	1882.8	1882.1	1884.1
167.5°	1919.9	1918.4	1917.0	1915.6	1914.2	1913.5	1913.6	1913.6	1913.7	1913.8	1915.8
170°	1936.9	1935.2	1933.5	1931.8	1930.2	1929.4	1929.8	1930.2	1930.5	1930.8	1932.8
172.5°	1949.0	1947.6	1946.2	1944.8	1943.4	1942.7	1942.8	1942.9	1942.9	1943.0	1945.3
175°	1965.8	1964.1	1962.5	1960.8	1959.0	1958.0	1957.7	1957.3	1957.0	1956.7	1959.0
177.5°	1971.3	1969.9	1968.6	1967.2	1965.9	1965.2	1965.2	1965.2	1965.2	1965.2	1967.1
180°	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	596.5	596.5	596.5	596.5	596.5	596.5	596.5	596.5
2.5°	594.4	595.3	596.1	596.5	596.4	596.3	596.2	596.1
5°	591.3	592.4	593.6	594.0	593.8	593.6	593.4	593.2
7.5°	584.6	585.6	586.5	586.9	586.8	586.6	586.5	586.4
10°	579.2	580.0	580.9	581.2	581.0	580.7	580.5	580.3
12.5°	572.4	573.3	574.3	574.6	574.3	574.0	573.7	573.4
15°	559.6	560.2	560.9	561.0	560.7	560.4	560.1	559.8
17.5°	544.9	545.3	545.7	545.8	545.6	545.4	545.2	545.0
20°	534.1	534.4	534.7	534.8	534.5	534.3	534.1	533.9
22.5°	522.7	523.3	523.9	524.0	523.6	523.2	522.8	522.5
25°	504.0	504.1	504.2	504.1	503.6	503.2	502.8	502.4
27.5°	483.0	482.8	482.5	482.1	481.6	481.1	480.5	480.0
30°	468.6	468.2	467.7	467.3	466.7	466.2	465.6	465.1
32.5°	453.8	453.3	452.8	452.3	451.8	451.2	450.7	450.2
35°	430.6	429.9	429.1	428.5	428.0	427.5	426.9	426.4
37.5°	406.3	405.5	404.7	403.9	403.2	402.5	401.8	401.1
40°	389.4	388.3	387.3	386.5	385.9	385.4	384.9	384.4
42.5°	372.9	371.7	370.5	369.7	369.3	369.0	368.6	368.3
45°	347.6	346.4	345.3	344.5	344.2	343.9	343.6	343.3
47.5°	323.0	321.6	320.3	319.3	318.5	317.7	316.9	316.1
50°	305.8	304.4	302.9	301.7	301.1	300.5	299.8	299.2
52.5°	288.2	286.9	285.6	284.5	283.7	282.9	282.1	281.2
55°	262.3	260.9	259.7	258.7	258.1	257.5	256.8	256.2
57.5°	236.3	235.1	233.9	233.0	232.4	231.8	231.2	230.5
60°	218.4	217.5	216.5	215.8	215.3	214.7	214.2	213.7
62.5°	201.1	200.2	199.2	198.5	198.0	197.5	197.0	196.4
65°	175.7	174.6	173.6	172.8	172.3	171.7	171.2	170.7
67.5°	149.6	148.6	147.5	146.9	146.8	146.6	146.5	146.3
70°	133.1	132.3	131.4	130.8	130.5	130.2	129.9	129.6
72.5°	116.6	115.9	115.2	114.7	114.4	114.1	113.8	113.5
75°	92.8	92.4	92.0	91.7	91.6	91.5	91.4	91.3
77.5°	70.3	70.2	70.1	69.9	69.6	69.3	69.0	68.8
80°	55.9	55.7	55.5	55.4	55.2	55.1	55.0	54.9
82.5°	43.1	43.0	42.9	42.8	42.7	42.5	42.4	42.3
85°	24.8	24.8	24.8	24.8	24.7	24.6	24.4	24.3
87.5°	16.7	17.1	17.5	17.8	17.9	18.1	18.2	18.3
90°	37.6	39.6	41.6	43.0	43.6	44.3	45.0	45.6
92.5°	62.7	63.9	65.1	65.9	66.3	66.8	67.2	67.6
95°	117.8	118.8	119.8	120.3	120.3	120.3	120.3	120.3
97.5°	185.5	186.7	187.9	188.5	188.5	188.5	188.5	188.5
100°	234.3	235.0	235.7	236.0	236.0	236.0	236.0	236.0
102.5°	286.0	287.0	287.9	288.5	288.8	289.1	289.3	289.6
105°	364.5	365.5	366.5	367.5	368.5	369.5	370.5	371.5
107.5°	449.3	450.2	451.2	451.6	451.5	451.5	451.4	451.3
110°	505.7	505.0	504.3	504.5	505.5	506.5	507.6	508.6



TEST NUMBER: P332744-840

CATALOG NUMBER: S124DIW-S350D1560U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	566.4	566.3	566.2	566.2	566.4	566.6	566.8	567.0
115°	660.1	659.8	659.5	659.1	658.8	658.5	658.1	657.8
117.5°	750.2	749.1	747.9	747.0	746.3	745.7	745.0	744.3
120°	811.2	809.6	807.9	807.4	808.1	808.7	809.4	810.1
122.5°	873.2	872.1	871.0	869.8	868.6	867.4	866.2	864.9
125°	964.0	963.4	962.7	962.0	961.3	960.7	960.0	959.3
127.5°	1050.9	1050.2	1049.5	1048.8	1048.3	1047.8	1047.2	1046.7
130°	1111.8	1111.1	1110.3	1109.3	1108.0	1106.7	1105.3	1104.0
132.5°	1169.0	1168.3	1167.6	1167.0	1166.5	1166.0	1165.4	1164.9
135°	1254.9	1254.3	1253.5	1252.6	1251.6	1250.6	1249.6	1248.6
137.5°	1338.0	1337.1	1336.2	1335.8	1336.1	1336.3	1336.5	1336.7
140°	1392.6	1392.3	1391.9	1391.6	1391.3	1390.9	1390.6	1390.3
142.5°	1444.3	1444.2	1444.2	1444.1	1444.0	1444.0	1443.9	1443.8
145°	1522.1	1521.7	1521.4	1520.7	1519.6	1518.6	1517.6	1516.6
147.5°	1592.6	1592.3	1592.0	1591.6	1591.3	1591.0	1590.6	1590.3
150°	1636.9	1636.9	1636.9	1636.8	1636.4	1636.1	1635.8	1635.4
152.5°	1678.7	1679.5	1680.3	1680.3	1679.4	1678.6	1677.7	1676.8
155°	1737.1	1738.4	1739.8	1739.8	1738.4	1737.1	1735.8	1734.3
157.5°	1788.5	1789.5	1790.5	1790.4	1789.3	1788.2	1787.0	1785.8
160°	1820.2	1821.2	1822.2	1821.8	1820.2	1818.5	1816.7	1815.0
162.5°	1848.6	1850.4	1852.2	1852.3	1850.6	1849.0	1847.2	1845.5
165°	1886.1	1888.1	1890.2	1890.6	1889.2	1887.8	1886.4	1885.1
167.5°	1917.8	1919.9	1921.9	1921.9	1919.8	1917.6	1915.5	1913.4
170°	1934.9	1936.9	1938.9	1938.7	1936.4	1934.0	1931.7	1929.2
172.5°	1947.6	1949.8	1952.2	1952.2	1949.7	1947.4	1945.0	1942.7
175°	1961.5	1963.8	1966.2	1966.2	1963.8	1961.5	1959.0	1956.7
177.5°	1969.0	1970.9	1972.8	1972.7	1970.4	1968.3	1966.2	1964.0
180°	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8	1968.8

(END OF REPORT)