

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: P332215-935

Luminaire Tested: **S123DIW-S1165D460U935-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332215-935  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D460U935-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 460 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5473.4 lumens  
Efficiency: N/A  
Efficacy: 104.5 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Direct

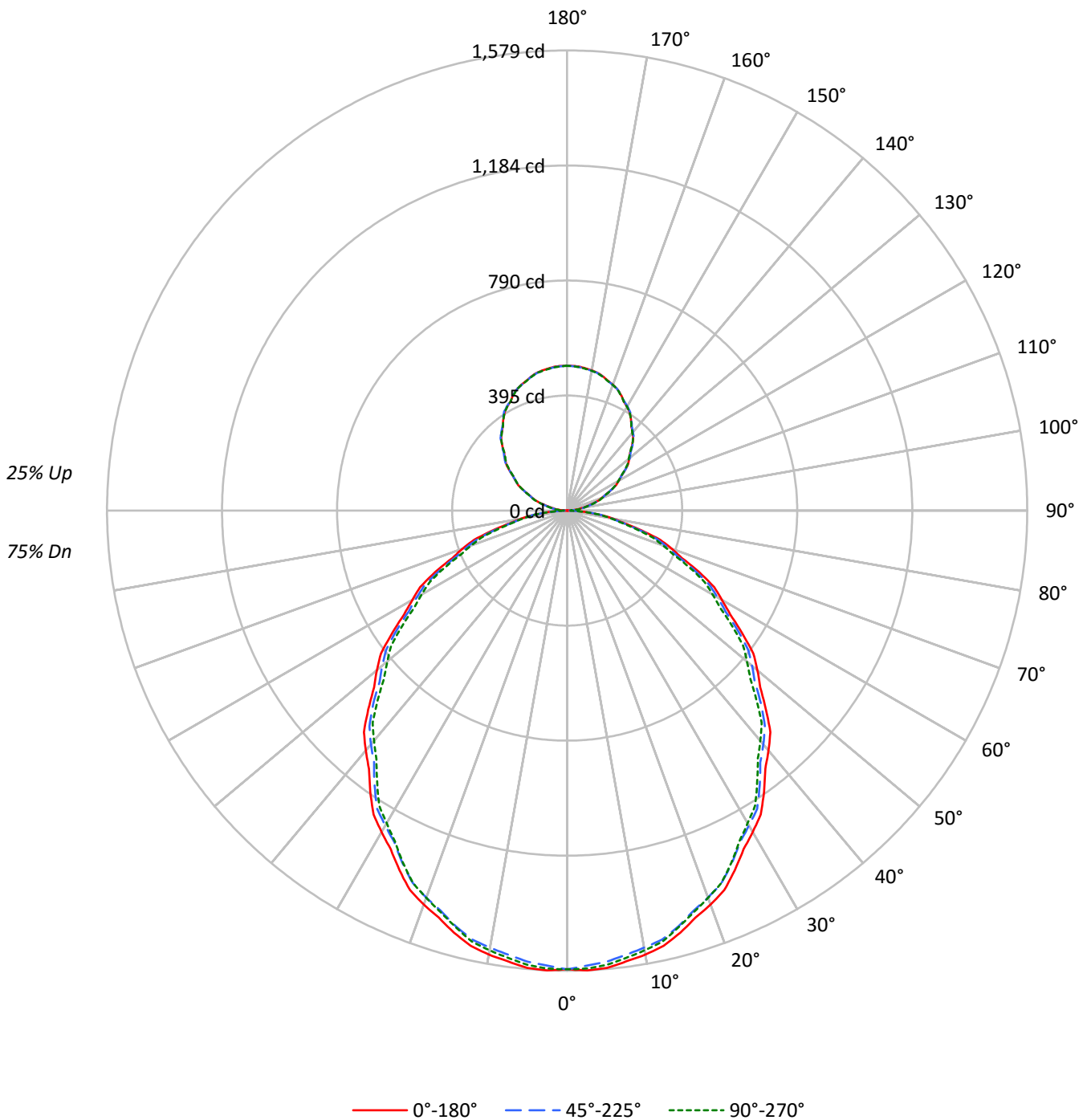
Input Watts (W): 52.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79	75
1	103	99	95	91	98	94	90	87	85	82	80	77	75	73	70	68	67	63
2	94	86	80	74	89	82	76	72	75	70	66	68	64	61	61	58	56	53
3	86	76	68	62	81	72	65	60	66	60	56	60	55	52	54	51	48	44
4	79	67	59	53	74	64	57	51	59	52	47	53	48	44	49	44	41	38
5	72	60	51	45	68	57	50	44	53	46	41	48	43	38	44	39	36	33
6	67	54	45	39	63	52	44	38	47	41	36	43	38	34	40	35	32	29
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	36	32	28	26
8	57	45	36	31	54	43	35	30	39	33	28	36	31	27	33	29	25	23
9	54	41	33	28	51	39	32	27	36	30	26	33	28	24	31	26	23	21
10	50	38	30	25	48	36	29	24	34	27	23	31	26	22	29	24	21	19

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	16942	16942	16942
5°	17022	16788	16904
10°	16909	16642	16746
15°	16711	16454	16485
20°	16479	16186	16200
25°	16170	15865	15833
30°	15830	15509	15392
35°	15473	15135	14939
40°	15100	14720	14491
45°	14690	14338	13988
50°	14277	13870	13485
55°	13741	13386	12979
60°	13199	12820	12411
65°	12720	12202	11826
70°	12013	11500	10990
75°	10975	10580	10131
80°	9899	9478	9397
85°	8682	8361	8028



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	148.3	2.7
10°-20°	418.7	7.6
20°-30°	618.4	11.3
30°-40°	722.4	13.2
40°-50°	726.3	13.3
50°-60°	638.0	11.7
60°-70°	475.3	8.7
70°-80°	270.8	4.9
80°-90°	79.2	1.4
90°-100°	32.4	0.6
100°-110°	96.8	1.8
110°-120°	164.7	3.0
120°-130°	216.7	4.0
130°-140°	243.5	4.4
140°-150°	239.4	4.4
150°-160°	201.5	3.7
160°-170°	134.2	2.5
170°-180°	47.0	0.9
0°-30°	1185.3	21.7
0°-40°	1907.7	34.9
0°-60°	3272.0	59.8
0°-90°	4097.2	74.9
90°-120°	293.9	5.4
90°-150°	993.5	18.2
90°-180°	1376.0	25.1
0°-180°	5473.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1574	1574	1574	1574	1574	
5°	1575	1568	1554	1566	1564	149
15°	1500	1494	1476	1486	1479	423
25°	1362	1353	1336	1337	1333	627
35°	1178	1169	1152	1144	1137	736
45°	965	959	942	926	919	745
55°	732	730	713	699	692	656
65°	499	492	479	469	464	493
75°	264	259	254	248	244	282
85°	70	68	68	65	65	77
90°	0	4	9	11	12	5
95°	23	26	29	30	30	26
105°	88	89	92	92	93	94
115°	166	167	166	167	166	164
125°	243	244	243	242	240	216
135°	315	317	317	315	314	243
145°	382	383	384	384	382	239
155°	437	437	438	439	437	201
165°	476	475	475	477	475	134
175°	496	494	494	496	494	47
180°	497	497	497	497	497	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0
2.5°	1579.4	1578.5	1577.5	1576.6	1575.5	1573.7	1571.2	1568.5	1565.8	1563.1	1565.6
5°	1575.4	1573.9	1572.4	1570.9	1569.3	1566.9	1563.7	1560.3	1557.0	1553.7	1556.7
7.5°	1560.0	1558.4	1556.9	1555.4	1553.9	1551.4	1548.0	1544.6	1541.2	1537.7	1540.4
10°	1547.0	1545.4	1543.9	1542.4	1540.9	1538.3	1534.3	1530.4	1526.5	1522.6	1525.3
12.5°	1529.7	1528.4	1527.1	1525.9	1524.6	1522.1	1518.5	1514.8	1511.1	1507.4	1509.4
15°	1499.6	1498.4	1497.2	1496.0	1494.8	1492.2	1488.3	1484.4	1480.5	1476.5	1478.9
17.5°	1464.6	1463.1	1461.5	1460.0	1458.4	1455.7	1451.7	1447.9	1443.9	1440.0	1441.7
20°	1438.6	1436.8	1435.0	1433.2	1431.5	1428.6	1424.7	1420.8	1416.9	1413.0	1414.2
22.5°	1409.5	1407.6	1405.8	1404.0	1402.2	1399.4	1395.4	1391.5	1387.7	1383.7	1384.7
25°	1361.5	1359.7	1357.9	1356.1	1354.4	1351.4	1347.6	1343.7	1339.7	1335.8	1336.1
27.5°	1310.4	1308.6	1306.9	1305.1	1303.4	1300.5	1296.2	1292.0	1287.8	1283.6	1283.8
30°	1273.6	1272.0	1270.6	1269.0	1267.6	1264.7	1260.5	1256.3	1252.1	1247.8	1247.8
32.5°	1236.7	1234.8	1232.8	1230.8	1228.8	1226.2	1223.0	1219.7	1216.4	1213.2	1211.5
35°	1177.5	1175.7	1173.9	1172.1	1170.3	1167.4	1163.5	1159.6	1155.6	1151.8	1150.0
37.5°	1116.8	1114.6	1112.2	1110.0	1107.7	1104.6	1100.6	1096.7	1092.7	1088.6	1086.5
40°	1074.6	1072.8	1071.0	1069.2	1067.4	1064.4	1060.1	1055.9	1051.7	1047.6	1045.2
42.5°	1032.3	1030.4	1028.3	1026.2	1024.2	1021.1	1016.8	1012.6	1008.4	1004.3	1001.9
45°	965.0	963.8	962.6	961.4	960.2	957.6	953.7	949.8	945.9	941.9	938.4
47.5°	898.1	896.4	894.7	892.9	891.1	888.5	884.8	881.1	877.4	873.7	870.2
50°	852.6	851.2	849.6	848.2	846.6	844.0	840.0	836.1	832.2	828.3	825.0
52.5°	805.0	804.0	803.0	801.9	800.9	798.3	794.2	790.1	785.9	781.7	778.9
55°	732.2	731.9	731.6	731.3	731.0	728.9	725.0	721.1	717.1	713.3	710.0
57.5°	662.9	661.9	660.8	659.9	658.8	656.8	653.6	650.5	647.4	644.2	641.3
60°	613.1	612.8	612.5	612.2	611.9	609.9	606.3	602.7	599.1	595.5	592.8
62.5°	568.7	567.9	567.1	566.4	565.6	563.4	559.7	556.1	552.6	549.0	546.2
65°	499.4	497.9	496.4	494.9	493.4	491.1	488.1	485.1	482.1	479.1	476.7
67.5°	426.0	424.7	423.4	422.1	420.8	419.0	416.6	414.4	412.1	409.8	407.7
70°	381.7	379.9	378.1	376.3	374.4	372.6	370.8	369.0	367.2	365.4	363.3
72.5°	335.1	333.8	332.4	331.1	329.8	328.1	326.1	324.0	322.0	319.9	318.1
75°	263.9	262.7	261.5	260.3	259.1	258.0	257.2	256.2	255.4	254.4	253.0
77.5°	200.9	200.2	199.5	198.9	198.2	197.3	196.2	195.2	194.1	193.0	192.0
80°	159.7	158.8	157.9	157.0	156.1	155.3	154.7	154.1	153.5	152.9	152.7
82.5°	119.7	119.4	119.2	119.1	118.9	118.7	118.6	118.6	118.4	118.3	117.8
85°	70.3	69.7	69.1	68.5	67.9	67.7	67.7	67.7	67.7	67.7	67.1
87.5°	28.2	27.6	27.1	26.6	26.0	25.7	25.7	25.7	25.7	25.7	25.5
90°	0.4	1.3	2.2	3.0	3.9	4.8	5.9	7.1	8.3	9.4	9.7
92.5°	9.5	10.1	10.6	11.2	11.8	12.4	13.1	13.7	14.4	15.0	15.2
95°	23.0	23.6	24.2	24.9	25.5	26.1	26.8	27.5	28.2	28.8	29.2
97.5°	40.9	41.3	41.8	42.3	42.7	43.1	43.7	44.2	44.7	45.2	45.5
100°	53.0	53.6	54.1	54.6	55.1	55.6	56.1	56.5	56.9	57.3	57.6
102.5°	67.1	67.4	67.8	68.0	68.4	68.8	69.4	69.9	70.5	71.1	71.4
105°	87.8	88.0	88.2	88.3	88.5	88.9	89.7	90.5	91.3	92.0	92.0
107.5°	111.8	111.9	112.0	112.1	112.3	112.4	112.8	113.0	113.4	113.7	114.0
110°	126.8	127.0	127.2	127.3	127.5	127.7	127.9	128.0	128.2	128.4	128.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	142.4	142.5	142.7	142.8	142.8	142.9	142.9	143.0	143.0	143.0	143.4
115°	165.8	166.1	166.3	166.6	166.9	166.9	166.8	166.6	166.4	166.3	166.3
117.5°	189.4	189.6	189.8	189.9	190.1	190.0	189.9	189.6	189.4	189.2	189.2
120°	204.1	204.6	205.1	205.6	206.1	206.2	205.8	205.3	204.9	204.5	204.4
122.5°	219.4	219.7	220.2	220.5	220.8	220.9	220.8	220.5	220.3	220.1	219.8
125°	242.7	243.0	243.2	243.5	243.7	243.7	243.6	243.4	243.2	243.1	242.7
127.5°	264.2	264.8	265.4	265.9	266.5	266.7	266.5	266.2	266.0	265.9	265.4
130°	278.6	279.3	280.0	280.7	281.4	281.5	281.3	281.0	280.8	280.5	280.2
132.5°	292.9	293.6	294.4	295.1	295.8	296.0	295.8	295.6	295.4	295.2	294.8
135°	314.9	315.4	315.9	316.4	316.9	317.2	317.1	317.0	316.9	316.8	316.5
137.5°	335.2	335.6	336.0	336.5	336.9	337.3	337.4	337.7	337.9	338.1	337.8
140°	349.2	349.7	350.1	350.5	350.9	351.2	351.3	351.4	351.5	351.5	351.5
142.5°	362.1	362.5	362.9	363.3	363.8	364.0	364.2	364.4	364.5	364.6	364.5
145°	382.0	382.2	382.4	382.5	382.7	382.9	383.1	383.4	383.7	383.9	383.8
147.5°	399.5	399.8	400.1	400.4	400.7	401.0	401.2	401.5	401.7	402.0	402.0
150°	411.6	411.8	412.0	412.2	412.3	412.5	412.7	412.8	413.0	413.2	413.2
152.5°	421.6	421.9	422.1	422.3	422.6	422.8	422.8	423.0	423.1	423.2	423.4
155°	437.4	437.4	437.4	437.4	437.4	437.5	437.6	437.6	437.7	437.8	438.2
157.5°	450.8	450.7	450.6	450.5	450.4	450.4	450.5	450.6	450.6	450.6	451.0
160°	459.3	459.1	458.9	458.7	458.6	458.5	458.5	458.5	458.5	458.5	458.9
162.5°	466.7	466.5	466.2	466.0	465.8	465.7	465.7	465.8	465.9	466.0	466.4
165°	476.4	476.1	475.9	475.6	475.4	475.3	475.3	475.3	475.3	475.3	475.8
167.5°	484.1	483.8	483.5	483.1	482.8	482.6	482.7	482.8	482.8	482.8	483.5
170°	488.5	488.2	487.8	487.5	487.2	487.0	487.0	487.0	487.0	487.0	487.6
172.5°	492.0	491.6	491.3	490.9	490.5	490.3	490.3	490.3	490.3	490.3	490.9
175°	495.5	495.2	494.8	494.5	494.1	494.0	494.0	494.0	494.0	494.0	494.5
177.5°	497.1	496.7	496.5	496.2	495.9	495.8	495.8	495.8	495.8	495.8	496.2
180°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0	1574.0
2.5°	1568.0	1570.4	1572.8	1573.9	1573.6	1573.4	1573.1	1573.0
5°	1559.7	1562.7	1565.7	1566.9	1566.3	1565.7	1565.1	1564.5
7.5°	1543.2	1545.8	1548.6	1549.7	1549.4	1549.0	1548.7	1548.3
10°	1528.0	1530.7	1533.4	1534.5	1533.9	1533.3	1532.7	1532.1
12.5°	1511.4	1513.4	1515.4	1516.2	1515.8	1515.4	1515.1	1514.8
15°	1481.4	1483.8	1486.2	1486.5	1484.7	1482.9	1481.1	1479.3
17.5°	1443.4	1445.1	1446.7	1447.3	1446.7	1446.0	1445.3	1444.7
20°	1415.4	1416.6	1417.8	1417.9	1417.0	1416.1	1415.2	1414.3
22.5°	1385.7	1386.6	1387.6	1387.5	1386.4	1385.2	1384.1	1382.9
25°	1336.4	1336.7	1337.0	1336.7	1335.8	1334.9	1334.0	1333.1
27.5°	1284.1	1284.3	1284.5	1284.1	1283.0	1281.8	1280.7	1279.5
30°	1247.8	1247.8	1247.8	1246.8	1244.7	1242.6	1240.4	1238.4
32.5°	1209.8	1208.2	1206.4	1205.1	1203.9	1202.7	1201.6	1200.5
35°	1148.1	1146.3	1144.5	1142.9	1141.3	1139.9	1138.3	1136.9
37.5°	1084.3	1082.2	1080.0	1078.5	1077.5	1076.5	1075.6	1074.6
40°	1042.8	1040.3	1037.9	1036.1	1034.9	1033.7	1032.5	1031.3
42.5°	999.4	997.0	994.6	992.8	991.6	990.4	989.2	988.0
45°	934.8	931.2	927.6	925.0	923.5	922.0	920.5	918.9
47.5°	866.7	863.2	859.5	857.1	855.8	854.5	853.2	851.9
50°	821.7	818.4	815.0	812.5	810.7	808.9	807.1	805.3
52.5°	776.1	773.3	770.4	768.1	766.3	764.5	762.7	760.9
55°	706.6	703.4	700.0	697.6	696.1	694.6	693.1	691.6
57.5°	638.3	635.4	632.4	630.1	628.4	626.6	624.8	623.1
60°	590.1	587.4	584.7	582.6	581.1	579.5	578.1	576.5
62.5°	543.5	540.8	538.1	536.2	535.2	534.2	533.2	532.2
65°	474.3	471.9	469.5	467.9	466.9	466.1	465.1	464.3
67.5°	405.6	403.5	401.4	399.7	398.5	397.2	395.9	394.7
70°	361.2	359.1	357.0	355.2	353.7	352.1	350.7	349.2
72.5°	316.2	314.4	312.5	311.2	310.4	309.6	308.8	308.1
75°	251.4	249.9	248.4	247.2	246.3	245.4	244.5	243.6
77.5°	191.0	189.9	188.9	188.4	188.4	188.4	188.4	188.4
80°	152.3	152.1	151.7	151.6	151.6	151.6	151.6	151.6
82.5°	117.2	116.7	116.1	115.7	115.5	115.3	115.0	114.8
85°	66.5	65.9	65.3	65.0	65.0	65.0	65.0	65.0
87.5°	25.3	25.1	25.0	25.0	25.0	25.0	25.1	25.1
90°	10.1	10.4	10.8	11.0	11.2	11.4	11.5	11.7
92.5°	15.5	15.8	16.1	16.2	16.1	15.9	15.8	15.8
95°	29.5	29.9	30.2	30.4	30.4	30.4	30.4	30.4
97.5°	46.0	46.4	46.8	46.9	46.9	46.9	46.8	46.8
100°	57.9	58.1	58.4	58.6	58.8	59.0	59.2	59.3
102.5°	71.6	71.9	72.2	72.2	72.2	72.2	72.2	72.1
105°	92.0	92.0	92.0	92.1	92.4	92.6	92.7	92.9
107.5°	114.3	114.5	114.8	114.9	114.8	114.7	114.6	114.5
110°	129.1	129.4	129.8	129.8	129.7	129.5	129.3	129.2





TEST NUMBER: P332215-935

CATALOG NUMBER: S123DIW-S1165D460U935-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	143.9	144.3	144.7	144.9	144.8	144.8	144.8	144.7
115°	166.4	166.5	166.6	166.6	166.5	166.4	166.3	166.3
117.5°	189.2	189.1	189.1	189.0	188.7	188.5	188.2	188.0
120°	204.3	204.2	204.1	204.0	203.8	203.6	203.5	203.3
122.5°	219.6	219.4	219.1	219.0	218.7	218.4	218.2	217.9
125°	242.4	242.0	241.7	241.3	241.0	240.6	240.3	240.0
127.5°	264.9	264.4	263.9	263.5	263.1	262.7	262.3	261.9
130°	279.8	279.5	279.1	278.7	278.1	277.5	276.9	276.2
132.5°	294.4	293.9	293.5	293.1	292.7	292.1	291.7	291.2
135°	316.2	315.8	315.5	315.2	315.0	314.9	314.7	314.5
137.5°	337.4	337.1	336.7	336.3	336.0	335.7	335.4	335.0
140°	351.4	351.3	351.2	350.9	350.3	349.7	349.0	348.4
142.5°	364.5	364.4	364.3	364.0	363.6	363.1	362.7	362.1
145°	383.7	383.7	383.6	383.4	383.1	382.7	382.4	382.0
147.5°	402.0	402.0	402.0	401.7	401.2	400.6	400.1	399.6
150°	413.2	413.2	413.2	412.9	412.4	411.9	411.4	410.9
152.5°	423.4	423.6	423.8	423.6	423.2	422.7	422.2	421.8
155°	438.5	438.9	439.2	439.0	438.4	437.8	437.2	436.6
157.5°	451.4	451.8	452.1	452.0	451.6	451.1	450.6	450.1
160°	459.3	459.8	460.2	460.2	459.9	459.5	459.2	458.8
162.5°	466.8	467.3	467.7	467.6	467.1	466.5	466.0	465.4
165°	476.3	476.8	477.3	477.3	476.6	476.0	475.4	474.8
167.5°	484.0	484.5	485.0	485.0	484.5	484.0	483.5	482.8
170°	488.2	488.8	489.4	489.4	488.8	488.2	487.6	487.0
172.5°	491.5	492.0	492.5	492.5	491.9	491.3	490.7	490.1
175°	495.0	495.5	496.0	496.0	495.4	494.8	494.2	493.6
177.5°	496.6	497.1	497.4	497.4	496.9	496.5	495.9	495.4
180°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7

(END OF REPORT)