

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: P332213-927

Luminaire Tested: **S123DIW-S1165D460U927-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332213-927  
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-S1165D460U927-4F0-1E-UDD-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 460 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

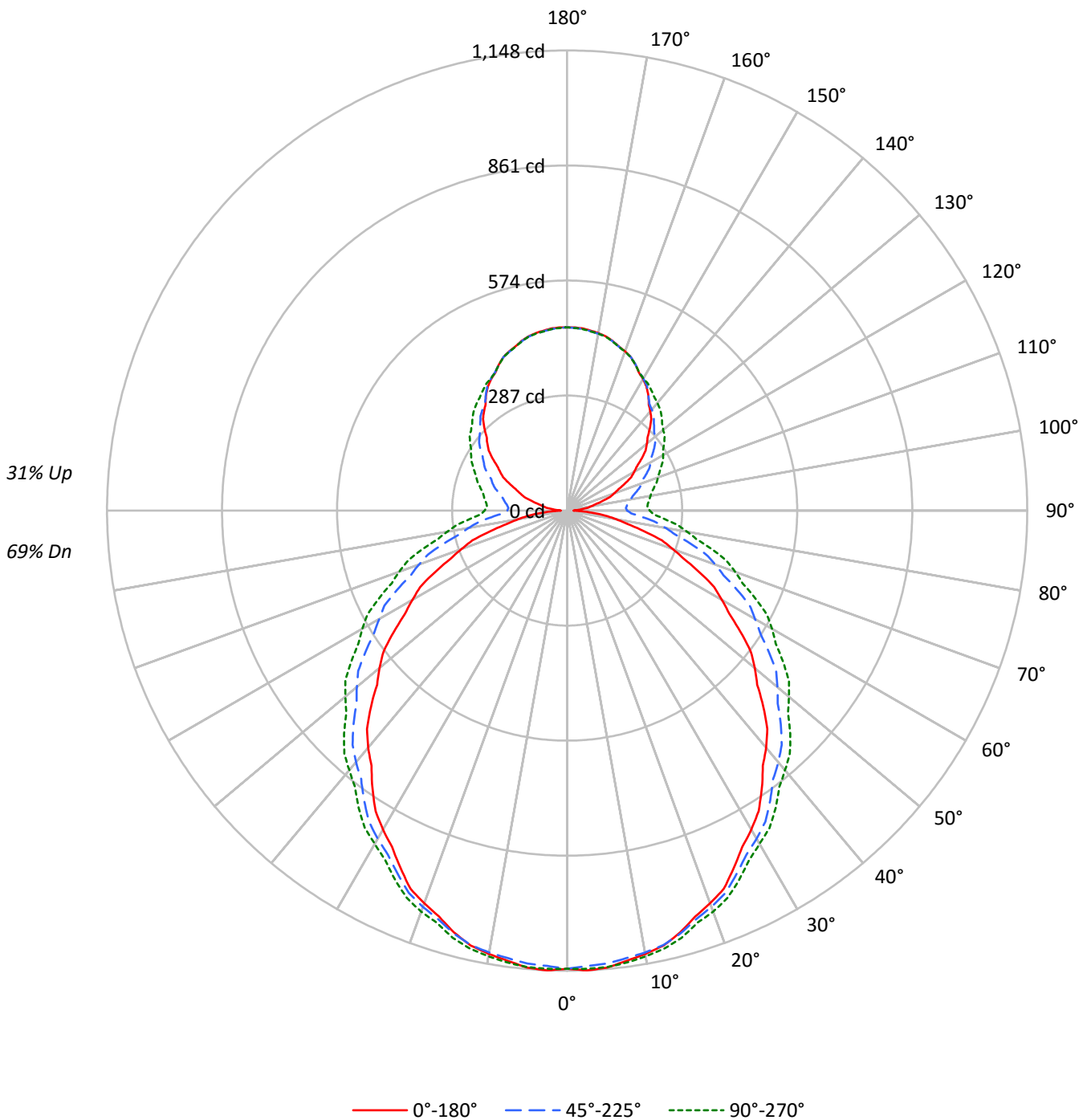
Lumens per Lamp: N/A  
Luminaire Lumens: 5109.0 lumens  
Efficiency: N/A  
Efficacy: 97.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')  
CIE Type: Semi-Direct  
  
Input Watts (W): 52.4  
Input Voltage (V): 120  
Input 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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	69
1	101	95	91	87	95	90	86	82	80	77	74	71	69	66	63	61	59	55
2	91	83	76	70	85	78	72	67	70	65	60	62	58	54	54	51	49	45
3	83	72	64	58	78	68	61	55	61	55	50	54	49	45	48	44	41	37
4	76	64	55	48	71	60	52	46	54	47	42	48	43	39	42	38	35	32
5	69	57	48	41	65	54	46	40	48	42	36	43	38	33	38	34	30	27
6	64	51	42	36	60	48	40	34	43	37	32	39	33	29	34	30	26	24
7	59	46	37	31	55	44	36	30	39	33	28	35	30	26	31	27	23	21
8	55	42	33	28	52	40	32	27	36	29	25	32	27	23	29	24	21	19
9	51	38	30	25	48	36	29	24	33	27	22	30	24	21	27	22	19	17
10	48	35	27	22	45	33	26	22	30	24	20	27	22	19	25	20	17	15

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

	0°	45°	90°
0°	12304	12304	12304
5°	12343	11994	12001
10°	12232	11718	11659
15°	12075	11405	11287
20°	11849	11047	10876
25°	11571	10634	10444
30°	11287	10264	10006
35°	10967	9871	9658
40°	10663	9514	9284
45°	10325	9172	8985
50°	9990	8832	8655
55°	9622	8486	8359
60°	9263	8134	8056
65°	8896	7758	7694
70°	8341	7336	7323
75°	7640	6853	6946
80°	6835	6380	6515
85°	6085	6053	6268



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	108.4	2.1
10°-20°	308.9	6.0
20°-30°	462.0	9.0
30°-40°	551.8	10.8
40°-50°	577.3	11.3
50°-60°	541.7	10.6
60°-70°	452.5	8.9
70°-80°	323.7	6.3
80°-90°	194.4	3.8
90°-100°	150.9	3.0
100°-110°	178.1	3.5
110°-120°	211.0	4.1
120°-130°	233.3	4.6
130°-140°	239.3	4.7
140°-150°	223.5	4.4
150°-160°	185.5	3.6
160°-170°	123.4	2.4
170°-180°	43.2	0.8
0°-30°	879.3	17.2
0°-40°	1431.1	28.0
0°-60°	2550.1	49.9
0°-90°	3520.7	68.9
90°-120°	540.0	10.6
90°-150°	1236.2	24.2
90°-180°	1588.0	31.1
0°-180°	5109.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1143	1143	1143	1143	1143	
5°	1144	1142	1134	1144	1143	108
15°	1090	1093	1092	1104	1103	307
25°	984	996	1000	1015	1016	453
35°	847	866	883	901	906	529
45°	692	722	753	776	787	534
55°	528	569	614	646	658	473
65°	365	414	468	504	518	360
75°	198	257	319	358	375	212
85°	61	124	189	230	244	64
90°	17	81	149	191	206	12
95°	35	87	150	188	202	34
105°	91	123	178	212	225	97
115°	159	176	219	248	259	157
125°	227	230	264	287	296	203
135°	292	294	306	327	333	225
145°	353	352	353	362	366	220
155°	402	402	403	404	402	185
165°	438	437	437	439	437	124
175°	456	455	454	456	454	43
180°	457	457	457	457	457	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1
2.5°	1148.1	1147.5	1146.8	1146.1	1145.4	1144.2	1142.5	1140.7	1138.9	1137.2	1138.9
5°	1144.4	1143.8	1143.3	1142.7	1142.2	1141.1	1139.4	1137.7	1136.1	1134.4	1136.6
7.5°	1133.1	1133.3	1133.4	1133.5	1133.6	1132.9	1131.2	1129.7	1128.1	1126.4	1129.2
10°	1123.2	1123.8	1124.3	1124.9	1125.5	1125.0	1123.6	1122.2	1120.9	1119.4	1122.2
12.5°	1111.3	1112.0	1112.8	1113.6	1114.4	1114.3	1113.3	1112.4	1111.4	1110.5	1113.0
15°	1089.6	1090.4	1091.2	1092.1	1092.9	1093.2	1092.9	1092.7	1092.3	1092.1	1094.9
17.5°	1062.2	1063.8	1065.5	1067.1	1068.8	1069.6	1069.5	1069.4	1069.3	1069.1	1071.7
20°	1042.3	1043.9	1045.6	1047.3	1048.9	1050.0	1050.6	1051.1	1051.7	1052.3	1054.7
22.5°	1021.4	1023.0	1024.7	1026.4	1028.0	1029.2	1030.0	1030.8	1031.5	1032.3	1035.5
25°	983.7	986.5	989.3	992.0	994.8	996.6	997.4	998.2	999.1	999.9	1003.5
27.5°	945.9	949.0	952.2	955.4	958.5	961.0	962.7	964.5	966.3	968.0	971.1
30°	919.0	922.6	926.1	929.8	933.3	936.3	938.5	940.7	942.9	945.2	948.5
32.5°	889.1	893.1	897.1	901.2	905.2	908.7	911.6	914.5	917.3	920.2	923.8
35°	846.8	851.2	855.6	860.1	864.5	868.5	872.1	875.7	879.2	882.9	887.0
37.5°	801.9	806.9	811.9	816.9	821.9	826.6	831.0	835.4	839.9	844.3	849.0
40°	772.1	777.1	782.0	787.0	791.9	797.3	802.8	808.3	813.8	819.4	824.1
42.5°	739.2	745.3	751.4	757.4	763.5	769.4	775.2	780.9	786.7	792.5	797.6
45°	692.4	699.0	705.6	712.3	718.9	725.7	732.6	739.5	746.5	753.4	758.6
47.5°	643.3	650.8	658.3	665.9	673.4	681.1	689.0	697.0	704.9	712.8	718.7
50°	611.4	619.2	626.9	634.6	642.4	650.5	659.2	667.7	676.3	684.8	691.3
52.5°	577.6	585.7	593.9	602.1	610.3	619.2	628.6	638.0	647.5	657.0	663.6
55°	528.0	537.1	546.2	555.4	564.5	574.0	584.0	594.0	604.0	613.9	621.4
57.5°	479.7	489.2	498.7	508.2	517.8	528.0	538.8	549.8	560.6	571.6	579.1
60°	445.8	455.7	465.7	475.7	485.6	496.3	507.6	519.0	530.4	541.7	549.5
62.5°	413.9	424.1	434.3	444.5	454.6	465.7	477.8	489.7	501.8	513.8	521.5
65°	364.9	375.7	386.4	397.2	408.1	419.5	431.7	443.9	456.1	468.2	476.5
67.5°	315.1	326.5	337.9	349.4	360.8	372.8	385.2	397.6	410.0	422.4	431.4
70°	280.2	292.1	304.0	315.8	327.8	340.4	353.6	366.9	380.2	393.5	402.3
72.5°	248.3	260.2	272.1	284.0	295.9	308.7	322.4	336.1	349.9	363.6	372.7
75°	198.0	211.0	224.0	237.0	250.0	263.4	277.3	291.1	304.9	318.8	327.9
77.5°	154.2	167.3	180.4	193.5	206.6	220.1	234.1	248.0	262.0	275.9	285.6
80°	123.3	136.8	150.4	164.0	177.5	191.5	205.9	220.3	234.6	249.1	258.5
82.5°	96.4	110.2	124.0	137.8	151.5	165.7	180.3	195.0	209.5	224.1	233.5
85°	61.0	74.9	88.7	102.5	116.4	130.6	145.3	159.9	174.6	189.3	198.7
87.5°	33.2	47.1	61.1	75.0	89.0	103.1	117.4	131.7	146.1	160.3	169.8
90°	16.6	30.9	45.2	59.7	74.0	88.7	103.9	119.1	134.2	149.3	159.1
92.5°	23.8	36.7	49.4	62.2	74.9	88.6	103.1	117.6	132.1	146.6	156.0
95°	34.9	46.3	57.6	68.9	80.2	93.1	107.3	121.4	135.6	149.9	158.8
97.5°	49.8	60.0	70.1	80.3	90.5	102.3	115.7	129.0	142.4	155.9	164.5
100°	60.0	69.4	78.7	88.0	97.4	108.6	121.8	134.8	148.0	161.1	169.4
102.5°	71.9	80.2	88.5	96.7	105.0	115.7	128.7	141.7	154.7	167.8	175.8
105°	90.7	97.5	104.3	111.1	118.0	127.6	140.3	152.9	165.5	178.1	185.8
107.5°	111.4	117.1	122.9	128.6	134.4	143.0	154.6	166.1	177.7	189.3	196.9
110°	124.1	129.3	134.4	139.6	144.7	152.9	164.1	175.3	186.6	197.8	205.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	138.5	142.7	146.9	151.1	155.3	162.7	173.3	184.0	194.6	205.3	212.7
115°	158.8	162.4	165.9	169.4	173.0	179.7	189.5	199.3	209.1	219.0	225.6
117.5°	180.2	182.4	184.7	186.9	189.1	194.7	203.9	213.0	222.2	231.3	237.9
120°	192.7	194.6	196.5	198.3	200.2	205.5	214.2	222.9	231.7	240.4	246.7
122.5°	206.8	207.9	209.0	210.0	211.1	215.9	224.3	232.8	241.3	249.8	255.7
125°	227.0	227.3	227.5	227.8	228.0	232.0	239.9	247.8	255.6	263.5	269.0
127.5°	246.8	247.1	247.3	247.6	247.8	251.1	257.6	264.0	270.5	277.0	282.0
130°	260.1	260.4	260.8	261.2	261.5	264.4	269.7	274.9	280.2	285.5	290.4
132.5°	272.3	272.8	273.5	274.0	274.6	277.0	281.3	285.5	289.8	294.1	298.7
135°	292.2	292.4	292.6	292.8	293.0	294.6	297.5	300.6	303.5	306.4	311.1
137.5°	310.6	310.8	311.0	311.2	311.3	312.4	314.3	316.2	318.1	320.0	324.1
140°	322.6	323.0	323.4	323.8	324.2	324.8	325.7	326.6	327.5	328.4	332.5
142.5°	334.3	334.5	334.7	334.9	335.0	335.3	335.6	335.9	336.2	336.5	340.2
145°	352.7	352.6	352.4	352.4	352.2	352.3	352.5	352.8	353.0	353.2	355.4
147.5°	367.6	367.8	368.1	368.4	368.7	368.9	369.2	369.4	369.6	369.9	370.5
150°	378.7	378.9	379.1	379.2	379.4	379.5	379.7	379.9	380.0	380.2	380.2
152.5°	387.9	388.2	388.4	388.6	388.8	389.0	389.0	389.2	389.3	389.4	389.5
155°	402.4	402.4	402.4	402.4	402.4	402.5	402.6	402.7	402.7	402.8	403.1
157.5°	414.8	414.7	414.6	414.5	414.4	414.4	414.5	414.5	414.5	414.6	414.9
160°	422.6	422.4	422.2	422.1	421.9	421.8	421.8	421.8	421.8	421.8	422.2
162.5°	429.4	429.2	429.0	428.7	428.6	428.5	428.5	428.6	428.6	428.7	429.1
165°	438.3	438.1	437.8	437.6	437.4	437.3	437.3	437.3	437.3	437.3	437.8
167.5°	445.4	445.1	444.8	444.5	444.2	444.0	444.1	444.2	444.3	444.3	444.8
170°	449.5	449.2	448.9	448.5	448.2	448.1	448.1	448.1	448.1	448.1	448.6
172.5°	452.7	452.3	452.0	451.7	451.3	451.1	451.1	451.1	451.1	451.1	451.7
175°	455.9	455.6	455.3	455.0	454.6	454.5	454.5	454.5	454.5	454.5	455.0
177.5°	457.3	457.0	456.8	456.5	456.3	456.1	456.1	456.1	456.1	456.1	456.5
180°	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1	1143.1
2.5°	1140.7	1142.5	1144.2	1145.0	1144.8	1144.5	1144.3	1144.1
5°	1138.8	1141.1	1143.3	1144.2	1144.0	1143.7	1143.4	1143.1
7.5°	1131.9	1134.7	1137.5	1138.8	1138.4	1138.0	1137.7	1137.4
10°	1125.0	1127.8	1130.5	1131.6	1131.1	1130.5	1130.0	1129.4
12.5°	1115.6	1118.2	1120.7	1121.7	1121.1	1120.5	1120.0	1119.4
15°	1097.6	1100.3	1103.1	1104.4	1104.1	1103.8	1103.6	1103.3
17.5°	1074.1	1076.7	1079.1	1080.1	1079.8	1079.4	1079.0	1078.6
20°	1057.2	1059.7	1062.2	1063.6	1063.8	1064.1	1064.4	1064.7
22.5°	1038.6	1041.8	1044.9	1046.4	1046.2	1046.1	1045.9	1045.8
25°	1007.1	1010.7	1014.3	1016.1	1016.1	1016.1	1016.1	1016.1
27.5°	974.2	977.3	980.4	982.1	982.3	982.5	982.8	983.0
30°	951.8	955.1	958.4	960.0	960.0	960.0	960.0	960.0
32.5°	927.3	930.9	934.4	936.5	937.2	937.9	938.5	939.1
35°	891.2	895.3	899.4	902.1	903.2	904.4	905.5	906.5
37.5°	853.7	858.4	863.1	865.9	866.8	867.7	868.5	869.4
40°	828.8	833.5	838.2	841.1	842.2	843.3	844.4	845.5
42.5°	802.8	807.9	813.1	816.4	817.9	819.5	821.0	822.6
45°	763.9	769.1	774.4	778.2	780.4	782.6	784.8	787.0
47.5°	724.6	730.6	736.5	740.3	742.0	743.7	745.4	747.1
50°	697.6	704.0	710.3	714.5	716.4	718.4	720.3	722.2
52.5°	670.2	676.8	683.3	687.9	690.2	692.6	695.0	697.4
55°	628.8	636.3	643.8	648.6	650.9	653.1	655.3	657.5
57.5°	586.6	594.1	601.7	606.7	609.3	612.0	614.6	617.1
60°	557.1	564.9	572.7	578.1	581.1	584.2	587.2	590.3
62.5°	529.3	537.0	544.8	550.1	552.9	555.7	558.6	561.3
65°	484.8	493.1	501.5	506.9	509.7	512.5	515.2	518.0
67.5°	440.5	449.6	458.7	464.4	466.8	469.1	471.3	473.7
70°	411.2	420.1	428.9	434.7	437.5	440.3	443.0	445.8
72.5°	381.8	390.9	399.9	405.8	408.6	411.4	414.2	416.9
75°	337.1	346.2	355.3	361.6	364.9	368.2	371.5	374.8
77.5°	295.2	304.8	314.5	320.5	323.1	325.7	328.2	330.7
80°	267.8	277.3	286.7	292.8	295.6	298.3	301.1	303.8
82.5°	243.0	252.4	261.7	267.8	270.6	273.4	276.2	278.9
85°	208.1	217.5	226.9	233.0	235.8	238.5	241.3	244.1
87.5°	179.4	188.8	198.3	204.4	207.2	210.0	212.8	215.6
90°	168.8	178.5	188.2	194.6	197.5	200.4	203.4	206.3
92.5°	165.4	174.8	184.3	190.3	192.7	195.1	197.6	200.0
95°	167.6	176.5	185.4	191.2	194.0	196.8	199.6	202.3
97.5°	173.1	181.7	190.4	196.0	198.8	201.5	204.2	206.9
100°	177.6	185.9	194.2	199.8	202.7	205.7	208.5	211.4
102.5°	183.9	191.9	199.9	205.3	208.0	210.8	213.6	216.3
105°	193.6	201.4	209.1	214.3	217.0	219.6	222.3	224.9
107.5°	204.6	212.3	220.0	225.0	227.4	229.7	232.0	234.3
110°	212.9	220.4	227.8	232.7	234.7	236.8	238.8	240.8





TEST NUMBER: P332213-927

CATALOG NUMBER: S123DIW-S1165D460U927-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	220.1	227.4	234.7	239.6	242.0	244.5	246.8	249.2
115°	232.3	239.1	245.8	250.3	252.4	254.5	256.7	258.8
117.5°	244.5	251.0	257.6	261.8	263.8	265.7	267.7	269.6
120°	252.9	259.3	265.5	269.6	271.3	273.1	274.9	276.7
122.5°	261.7	267.6	273.5	277.3	279.1	280.7	282.5	284.2
125°	274.5	280.0	285.5	289.0	290.7	292.2	293.9	295.5
127.5°	287.1	292.1	297.1	300.4	301.9	303.4	304.9	306.5
130°	295.4	300.3	305.3	308.3	309.4	310.5	311.6	312.7
132.5°	303.3	308.0	312.7	315.7	317.1	318.6	320.0	321.5
135°	315.8	320.4	325.1	328.0	329.2	330.5	331.7	333.0
137.5°	328.1	332.2	336.2	338.8	339.8	341.0	342.0	343.1
140°	336.6	340.6	344.8	347.1	348.0	348.8	349.7	350.5
142.5°	343.8	347.4	351.0	353.3	354.3	355.2	356.2	357.1
145°	357.5	359.7	361.8	363.2	364.0	364.8	365.6	366.4
147.5°	371.1	371.9	372.5	373.1	373.6	374.1	374.6	375.2
150°	380.2	380.2	380.2	380.2	380.3	380.3	380.4	380.5
152.5°	389.6	389.8	389.9	389.8	389.5	389.2	388.9	388.6
155°	403.5	403.8	404.1	403.9	403.4	402.8	402.3	401.7
157.5°	415.3	415.7	416.0	415.9	415.5	415.0	414.5	414.2
160°	422.6	423.0	423.4	423.4	423.1	422.8	422.5	422.2
162.5°	429.5	429.9	430.3	430.2	429.8	429.2	428.7	428.2
165°	438.2	438.7	439.2	439.1	438.6	438.0	437.4	436.9
167.5°	445.3	445.8	446.2	446.2	445.8	445.3	444.8	444.3
170°	449.2	449.7	450.3	450.3	449.7	449.2	448.6	448.1
172.5°	452.2	452.7	453.1	453.1	452.6	452.0	451.5	450.9
175°	455.4	455.9	456.4	456.4	455.8	455.3	454.7	454.2
177.5°	456.9	457.3	457.6	457.6	457.2	456.8	456.3	455.8
180°	457.0	457.0	457.0	457.0	457.0	457.0	457.0	457.0

(END OF REPORT)