

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: P331480

Luminaire Tested: **S122DIW-S290D970U835-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331480  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-8,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S122DIW-S290D970U835-4F0-1E-UDD-D1  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 970 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4556.7 lumens  
Efficiency: N/A  
Efficacy: 119.9 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

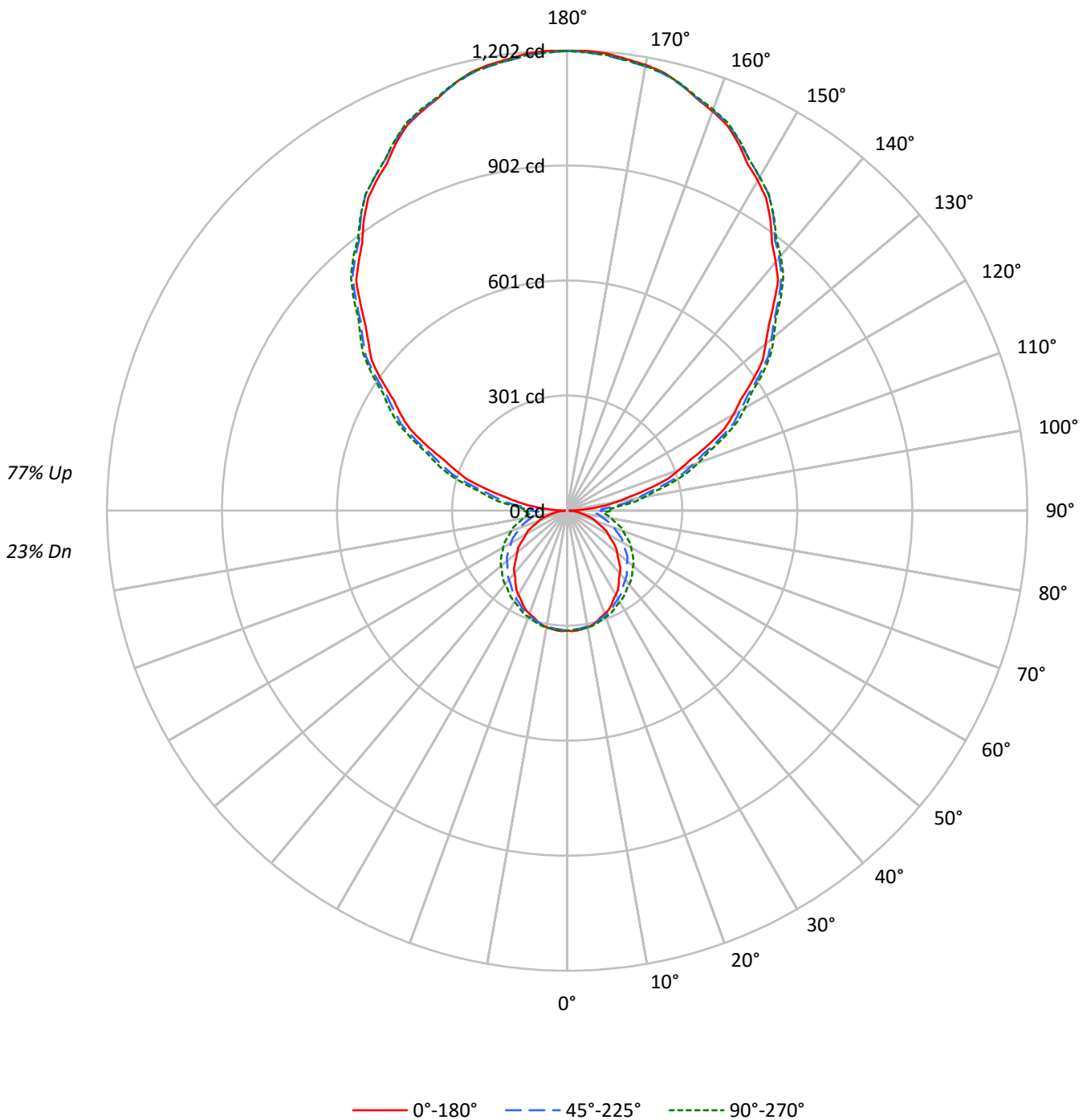
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

### 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	50	30	10	0	
RCR																						
0	101	101	101	101	90	90	90	90	69	69	69	49	49	49	32	32	32	23				
1	91	87	83	79	81	77	74	71	59	57	55	42	41	39	27	26	25	18				
2	83	75	69	64	73	67	62	57	51	48	45	37	34	32	23	22	21	15				
3	75	66	59	53	66	58	52	47	45	41	37	32	29	27	20	19	17	12				
4	69	58	50	44	60	52	45	40	40	35	31	28	25	23	18	16	15	10				
5	63	51	43	38	55	46	39	34	35	30	27	25	22	20	16	14	13	9				
6	58	46	38	32	51	41	34	29	31	27	23	23	19	17	14	13	11	8				
7	53	41	33	28	47	37	30	25	28	24	20	21	17	15	13	11	10	7				
8	49	37	30	24	43	33	27	22	26	21	18	19	15	13	12	10	9	6				
9	46	34	26	22	40	30	24	20	23	19	16	17	14	12	11	9	8	5				
10	42	31	24	19	38	28	21	17	21	17	14	16	13	10	10	8	7	5				

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

	0°	45°	90°
0°	5062	5062	5062
5°	5086	4872	4853
10°	5054	4728	4675
15°	4983	4575	4487
20°	4896	4412	4306
25°	4810	4254	4140
30°	4687	4093	3976
35°	4563	3936	3860
40°	4433	3803	3743
45°	4308	3685	3644
50°	4176	3577	3546
55°	4035	3461	3447
60°	3865	3340	3342
65°	3686	3200	3215
70°	3487	3048	3081
75°	3236	2900	2956
80°	2836	2748	2829
85°	2454	2617	2731



TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.7	0.7
10°-20°	85.2	1.9
20°-30°	129.1	2.8
30°-40°	157.2	3.4
40°-50°	169.1	3.7
50°-60°	164.2	3.6
60°-70°	143.4	3.1
70°-80°	110.4	2.4
80°-90°	78.9	1.7
90°-100°	127.1	2.8
100°-110°	273.5	6.0
110°-120°	428.4	9.4
120°-130°	544.7	12.0
130°-140°	601.7	13.2
140°-150°	585.3	12.8
150°-160°	490.1	10.8
160°-170°	325.1	7.1
170°-180°	113.6	2.5
0°-30°	243.9	5.4
0°-40°	401.1	8.8
0°-60°	734.5	16.1
0°-90°	1067.2	23.4
90°-120°	829.0	18.2
90°-150°	2560.7	56.2
90°-180°	3490.0	76.6
0°-180°	4556.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	314	314	314	314	314	
5°	314	313	310	313	312	30
15°	300	301	301	305	304	84
25°	273	276	280	285	287	125
35°	235	243	251	261	264	147
45°	193	205	221	234	239	149
55°	148	164	188	203	210	132
65°	101	123	150	168	174	100
75°	56	82	110	129	136	59
85°	16	45	74	92	99	18
90°	6	45	95	111	118	6
95°	56	88	117	134	138	63
105°	220	237	262	279	285	233
115°	407	418	436	448	451	402
125°	590	600	611	620	623	528
135°	763	774	781	789	790	589
145°	926	933	939	942	941	578
155°	1058	1061	1064	1069	1066	487
165°	1152	1151	1151	1157	1153	325
175°	1198	1195	1193	1200	1194	114
180°	1200	1200	1200	1200	1200	



TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	313.5	313.5	313.5	313.5	313.5	313.5	313.5	313.5	313.5	313.5	313.5
2.5°	315.3	315.0	314.8	314.5	314.3	313.9	313.3	312.8	312.2	311.6	312.0
5°	314.4	314.1	313.8	313.5	313.1	312.7	312.1	311.5	310.9	310.3	310.9
7.5°	311.5	311.3	311.1	310.9	310.7	310.4	309.9	309.5	309.0	308.5	309.3
10°	309.4	309.2	309.0	308.8	308.6	308.3	308.0	307.7	307.4	307.1	307.9
12.5°	305.7	305.8	305.8	305.9	305.9	305.8	305.6	305.4	305.1	304.9	305.7
15°	299.8	300.0	300.2	300.4	300.6	300.7	300.7	300.7	300.7	300.7	301.6
17.5°	292.2	292.6	293.0	293.5	293.9	294.3	294.6	294.9	295.2	295.6	296.5
20°	287.1	287.6	288.1	288.6	289.1	289.6	290.0	290.4	290.8	291.2	292.3
22.5°	281.7	282.2	282.8	283.4	284.0	284.6	285.1	285.7	286.3	286.8	287.9
25°	272.6	273.3	274.0	274.7	275.4	276.2	277.1	278.0	278.9	279.8	281.0
27.5°	261.7	262.8	264.0	265.1	266.3	267.4	268.4	269.5	270.6	271.7	273.2
30°	254.4	255.7	257.0	258.3	259.6	261.0	262.3	263.6	264.9	266.2	267.8
32.5°	246.4	247.9	249.3	250.8	252.3	253.8	255.4	256.9	258.5	260.0	261.9
35°	234.9	236.6	238.3	240.0	241.7	243.5	245.5	247.4	249.3	251.2	253.4
37.5°	222.3	224.3	226.3	228.3	230.2	232.5	235.0	237.4	239.9	242.4	244.9
40°	214.0	216.2	218.4	220.6	222.8	225.3	228.0	230.8	233.5	236.2	238.8
42.5°	206.0	208.2	210.4	212.6	214.9	217.5	220.7	223.8	226.9	230.0	232.9
45°	192.6	195.3	198.1	200.8	203.5	206.6	210.2	213.7	217.2	220.8	223.9
47.5°	179.4	182.4	185.4	188.3	191.3	194.9	199.0	203.1	207.3	211.4	214.7
50°	170.4	173.5	176.6	179.7	182.9	186.7	191.3	195.8	200.3	204.9	208.3
52.5°	161.6	164.9	168.2	171.5	174.8	178.8	183.6	188.4	193.2	198.0	201.5
55°	147.6	151.3	154.9	158.5	162.2	166.6	171.9	177.1	182.4	187.6	191.3
57.5°	133.8	137.9	142.0	146.1	150.2	154.9	160.3	165.6	171.0	176.4	180.3
60°	124.0	128.4	132.7	137.0	141.4	146.4	152.2	157.9	163.7	169.4	173.3
62.5°	115.3	119.8	124.3	128.8	133.3	138.4	144.2	149.9	155.7	161.5	165.5
65°	100.8	105.8	110.7	115.7	120.6	126.1	132.0	138.0	144.0	149.9	154.1
67.5°	87.6	92.8	97.9	103.1	108.3	113.9	120.0	126.1	132.2	138.3	142.5
70°	78.1	83.4	88.6	93.9	99.1	104.9	111.1	117.4	123.7	129.9	134.3
72.5°	69.4	74.8	80.2	85.6	91.1	96.9	103.3	109.6	116.0	122.3	126.6
75°	55.9	61.5	67.2	72.8	78.5	84.5	91.0	97.5	103.9	110.4	114.7
77.5°	42.8	48.7	54.6	60.5	66.5	72.7	79.3	85.8	92.4	98.9	103.3
80°	34.1	40.2	46.4	52.5	58.7	65.1	71.6	78.2	84.7	91.3	95.5
82.5°	26.8	32.9	39.0	45.0	51.1	57.5	64.1	70.8	77.4	84.0	88.3
85°	16.4	22.6	28.9	35.1	41.4	47.7	54.2	60.7	67.1	73.6	77.8
87.5°	9.1	15.7	22.2	28.8	35.3	42.3	49.8	57.2	64.7	72.1	76.2
90°	5.6	14.1	22.7	31.2	39.8	49.8	61.2	72.6	84.0	95.4	99.0
92.5°	22.2	29.6	37.1	44.5	51.9	59.3	66.7	74.1	81.5	88.9	93.0
95°	56.3	63.3	70.3	77.3	84.3	91.0	97.5	104.1	110.6	117.1	120.9
97.5°	99.4	105.6	111.8	118.0	124.2	130.6	137.3	144.0	150.6	157.3	161.1
100°	131.8	137.3	142.9	148.4	154.0	159.9	166.2	172.5	178.9	185.2	188.9
102.5°	165.5	170.3	175.2	180.0	184.9	190.5	196.8	203.2	209.5	215.9	219.7
105°	220.0	223.6	227.2	230.8	234.4	239.1	244.8	250.5	256.2	261.9	265.9
107.5°	275.4	278.8	282.1	285.4	288.8	293.0	298.0	303.0	308.0	313.1	316.6
110°	310.7	314.1	317.5	320.8	324.2	328.4	333.3	338.3	343.2	348.2	351.4



TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	349.6	352.7	355.7	358.8	361.8	365.6	370.1	374.7	379.2	383.7	386.4
115°	407.0	409.4	411.9	414.3	416.8	420.1	424.2	428.3	432.4	436.5	439.3
117.5°	463.6	466.2	468.7	471.2	473.7	476.5	479.4	482.4	485.3	488.2	490.7
120°	501.7	503.9	506.1	508.3	510.5	512.8	515.0	517.2	519.5	521.7	524.5
122.5°	536.6	538.9	541.2	543.5	545.8	548.3	550.8	553.3	555.9	558.4	560.6
125°	590.4	592.4	594.4	596.5	598.5	600.8	603.3	605.9	608.4	611.0	613.1
127.5°	643.3	645.7	648.2	650.7	653.1	655.3	657.0	658.8	660.6	662.4	664.1
130°	676.5	679.3	682.1	685.0	687.8	690.0	691.7	693.4	695.0	696.7	698.7
132.5°	713.8	716.0	718.3	720.6	722.9	724.9	726.6	728.4	730.1	731.8	733.2
135°	763.1	765.6	768.1	770.6	773.0	775.0	776.5	777.9	779.4	780.8	782.7
137.5°	815.6	817.6	819.6	821.6	823.6	825.1	826.2	827.2	828.2	829.3	830.9
140°	847.2	849.1	851.1	853.0	854.9	856.5	857.9	859.2	860.5	861.8	863.5
142.5°	879.6	881.5	883.5	885.4	887.3	888.7	889.5	890.3	891.1	891.9	893.4
145°	925.7	927.3	928.9	930.5	932.1	933.5	934.9	936.2	937.6	938.9	939.7
147.5°	967.3	969.2	971.1	972.9	974.8	976.2	977.1	978.0	978.9	979.8	980.4
150°	995.6	997.0	998.3	999.7	1001.0	1002.2	1003.1	1004.0	1004.9	1005.8	1006.4
152.5°	1020.8	1022.1	1023.5	1024.8	1026.2	1027.4	1028.5	1029.5	1030.6	1031.7	1032.5
155°	1058.4	1059.1	1059.8	1060.5	1061.1	1061.8	1062.5	1063.2	1063.8	1064.5	1065.6
157.5°	1090.6	1091.1	1091.5	1092.0	1092.4	1092.9	1093.3	1093.7	1094.1	1094.5	1096.0
160°	1110.1	1110.5	1111.0	1111.4	1111.9	1112.2	1112.5	1112.7	1112.9	1113.1	1114.5
162.5°	1127.9	1128.0	1128.1	1128.2	1128.3	1128.4	1128.7	1128.9	1129.1	1129.3	1130.9
165°	1151.6	1151.4	1151.2	1150.9	1150.7	1150.6	1150.6	1150.6	1150.6	1150.6	1152.2
167.5°	1171.5	1170.8	1170.1	1169.4	1168.8	1168.4	1168.4	1168.3	1168.3	1168.2	1169.8
170°	1182.0	1181.3	1180.7	1180.0	1179.3	1178.9	1178.6	1178.4	1178.2	1178.0	1179.5
172.5°	1189.3	1188.6	1187.9	1187.3	1186.6	1186.1	1185.9	1185.7	1185.5	1185.2	1186.8
175°	1198.2	1197.5	1196.9	1196.2	1195.5	1194.9	1194.5	1194.0	1193.6	1193.1	1194.7
177.5°	1201.9	1201.3	1200.8	1200.2	1199.7	1199.2	1198.9	1198.5	1198.2	1197.8	1198.9
180°	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2



TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	313.5	313.5	313.5	313.5	313.5	313.5	313.5	313.5
2.5°	312.4	312.8	313.2	313.4	313.2	313.0	312.9	312.7
5°	311.5	312.1	312.7	312.9	312.8	312.7	312.6	312.5
7.5°	310.0	310.7	311.5	311.8	311.7	311.6	311.5	311.4
10°	308.7	309.5	310.3	310.7	310.6	310.5	310.4	310.3
12.5°	306.5	307.3	308.1	308.5	308.4	308.3	308.2	308.1
15°	302.5	303.5	304.4	304.8	304.7	304.6	304.5	304.4
17.5°	297.5	298.4	299.3	299.8	299.8	299.8	299.8	299.8
20°	293.4	294.5	295.6	296.2	296.2	296.2	296.2	296.2
22.5°	289.1	290.2	291.3	291.9	292.1	292.2	292.4	292.6
25°	282.3	283.5	284.7	285.4	285.7	286.0	286.3	286.6
27.5°	274.7	276.3	277.8	278.7	278.9	279.1	279.3	279.6
30°	269.4	271.1	272.7	273.6	273.9	274.2	274.5	274.8
32.5°	263.7	265.6	267.5	268.7	269.2	269.8	270.3	270.8
35°	255.7	257.9	260.1	261.6	262.3	263.0	263.7	264.4
37.5°	247.3	249.8	252.3	253.9	254.6	255.4	256.1	256.8
40°	241.5	244.1	246.7	248.5	249.4	250.3	251.2	252.1
42.5°	235.8	238.6	241.5	243.4	244.3	245.2	246.1	247.0
45°	227.0	230.2	233.3	235.4	236.4	237.4	238.4	239.4
47.5°	218.0	221.2	224.5	226.7	227.8	228.9	230.0	231.1
50°	211.7	215.2	218.6	220.9	222.0	223.1	224.2	225.3
52.5°	205.0	208.5	212.0	214.4	215.6	216.8	218.0	219.1
55°	194.9	198.5	202.2	204.6	205.9	207.3	208.6	209.9
57.5°	184.2	188.1	192.0	194.6	196.0	197.3	198.6	200.0
60°	177.1	181.0	184.8	187.4	188.8	190.2	191.7	193.1
62.5°	169.6	173.7	177.8	180.5	181.8	183.1	184.5	185.8
65°	158.2	162.3	166.5	169.2	170.5	171.8	173.1	174.4
67.5°	146.6	150.8	155.0	157.8	159.1	160.5	161.9	163.3
70°	138.6	142.9	147.3	150.1	151.3	152.5	153.7	154.9
72.5°	130.8	135.1	139.3	142.2	143.6	145.1	146.6	148.0
75°	119.1	123.4	127.8	130.6	131.9	133.2	134.5	135.8
77.5°	107.6	111.9	116.2	119.1	120.5	121.9	123.3	124.7
80°	99.8	104.0	108.3	111.1	112.5	113.9	115.3	116.7
82.5°	92.5	96.8	101.0	103.8	105.1	106.5	107.8	109.1
85°	82.1	86.3	90.6	93.4	94.8	96.2	97.6	99.0
87.5°	80.2	84.2	88.3	90.9	92.3	93.6	95.0	96.3
90°	102.6	106.2	109.8	112.3	113.7	115.2	116.6	118.0
92.5°	97.0	101.0	105.1	107.7	109.0	110.3	111.5	112.8
95°	124.7	128.6	132.4	134.7	135.5	136.2	137.0	137.8
97.5°	164.8	168.5	172.3	174.7	175.8	177.0	178.1	179.3
100°	192.7	196.4	200.1	202.5	203.3	204.2	205.1	206.0
102.5°	223.5	227.4	231.2	233.6	234.5	235.3	236.2	237.1
105°	269.9	273.8	277.8	280.4	281.5	282.6	283.7	284.8
107.5°	320.2	323.8	327.4	329.2	329.3	329.3	329.4	329.5
110°	354.6	357.9	361.1	362.9	363.4	363.8	364.2	364.7





TEST NUMBER: P331480

CATALOG NUMBER: S122DIW-S290D970U835-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	389.1	391.8	394.5	396.1	396.7	397.3	398.0	398.6
115°	442.1	444.9	447.7	449.3	449.7	450.2	450.6	451.0
117.5°	493.1	495.6	498.0	499.4	499.8	500.1	500.5	500.8
120°	527.4	530.2	533.0	534.6	535.1	535.5	535.9	536.4
122.5°	562.8	565.0	567.2	568.6	569.0	569.5	569.9	570.4
125°	615.1	617.2	619.2	620.6	621.3	621.9	622.6	623.3
127.5°	665.8	667.5	669.2	670.1	670.3	670.5	670.6	670.8
130°	700.7	702.6	704.6	705.5	705.4	705.4	705.3	705.2
132.5°	734.5	735.9	737.2	737.9	738.0	738.1	738.2	738.3
135°	784.6	786.5	788.4	789.4	789.6	789.7	789.8	790.0
137.5°	832.6	834.3	836.0	836.7	836.5	836.3	836.1	835.8
140°	865.1	866.7	868.3	869.0	868.7	868.4	868.1	867.8
142.5°	894.8	896.3	897.8	898.3	898.0	897.6	897.2	896.8
145°	940.6	941.4	942.2	942.5	942.1	941.7	941.3	940.9
147.5°	981.0	981.6	982.1	982.1	981.5	980.9	980.3	979.7
150°	1007.1	1007.8	1008.5	1008.5	1007.8	1007.1	1006.4	1005.8
152.5°	1033.4	1034.3	1035.1	1035.1	1034.3	1033.4	1032.5	1031.7
155°	1066.8	1067.9	1069.0	1069.2	1068.6	1067.9	1067.2	1066.5
157.5°	1097.6	1099.1	1100.6	1100.8	1099.8	1098.7	1097.6	1096.5
160°	1115.8	1117.2	1118.5	1118.8	1117.9	1117.0	1116.1	1115.2
162.5°	1132.4	1133.9	1135.5	1135.7	1134.6	1133.5	1132.4	1131.4
165°	1153.8	1155.3	1156.9	1157.1	1156.0	1154.9	1153.8	1152.6
167.5°	1171.4	1173.0	1174.5	1174.7	1173.6	1172.4	1171.2	1170.1
170°	1181.1	1182.7	1184.3	1184.4	1183.0	1181.7	1180.3	1179.0
172.5°	1188.4	1190.0	1191.5	1191.7	1190.3	1189.0	1187.6	1186.3
175°	1196.3	1197.9	1199.4	1199.6	1198.2	1196.9	1195.5	1194.2
177.5°	1200.0	1201.0	1202.1	1202.1	1201.0	1200.0	1198.9	1197.8
180°	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2	1200.2

(END OF REPORT)