

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: P331479

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331479  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-2,  
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-D  
Description: DEFINE 2 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 290 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 970 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5069.0 lumens  
Efficiency: N/A  
Efficacy: 133.4 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

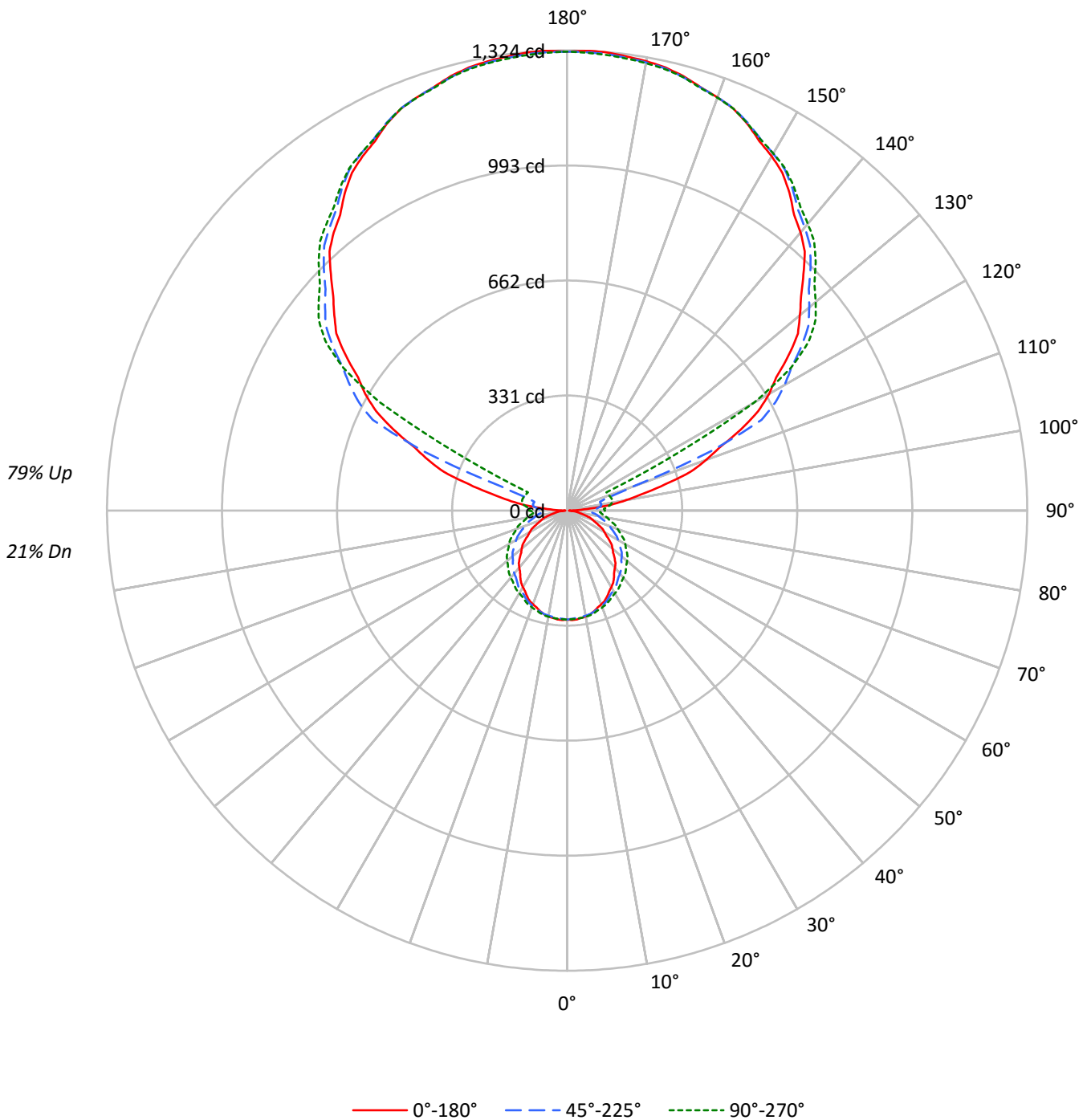
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P331479

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### Luminous Intensity Polar Plot





TEST NUMBER: P331479

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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	50	30	10	0		
RCR																										
0	100	100	100	100	89	89	89	89	67	67	67	48	48	48	30	30	30	21					21			
1	91	86	82	79	80	76	73	70	58	56	54	41	39	38	25	24	24	16					16			
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	22	20	19	13					13			
3	75	66	58	53	66	58	52	47	44	40	36	31	28	26	19	17	16	11					11			
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	17	15	14	9					9			
5	62	51	43	37	55	45	39	34	35	30	26	24	21	19	15	13	12	8					8			
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	14	12	10	7					7			
7	53	41	33	28	46	36	30	25	28	23	20	20	17	14	12	10	9	6					6			
8	49	37	29	24	43	33	26	22	25	21	17	18	15	13	11	9	8	5					5			
9	45	34	26	21	40	30	24	19	23	18	15	16	13	11	10	8	7	5					5			
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	10	8	6	4					4			

**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



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.7	0.6
10°-20°	85.2	1.7
20°-30°	129.1	2.5
30°-40°	157.2	3.1
40°-50°	169.1	3.3
50°-60°	164.2	3.2
60°-70°	143.4	2.8
70°-80°	110.4	2.2
80°-90°	77.4	1.5
90°-100°	95.1	1.9
100°-110°	198.8	3.9
110°-120°	456.4	9.0
120°-130°	726.5	14.3
130°-140°	763.8	15.1
140°-150°	705.6	13.9
150°-160°	566.5	11.2
160°-170°	365.0	7.2
170°-180°	125.6	2.5
0°-30°	243.9	4.8
0°-40°	401.1	7.9
0°-60°	734.5	14.5
0°-90°	1065.6	21.0
90°-120°	750.3	14.8
90°-150°	2946.2	58.1
90°-180°	4003.0	79.0
0°-180°	5069.0	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	42	79	101	109	6
95°	66	58	90	111	116	79
105°	293	319	97	123	133	313
115°	551	574	617	208	124	542
125°	778	791	823	841	849	693
135°	962	977	990	1008	1011	743
145°	1115	1115	1130	1139	1137	697
155°	1228	1220	1231	1236	1229	566
165°	1294	1289	1291	1297	1291	365
175°	1323	1317	1319	1324	1316	126
180°	1320	1320	1320	1320	1320	



TEST NUMBER: P331479

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

**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	15.6	22.1	28.5	35.0	41.7	48.5	55.3	62.1	68.9	73.2
90°	5.5	13.7	21.9	30.1	38.3	46.4	54.6	62.8	70.9	79.1	84.2
92.5°	23.5	28.7	34.0	39.2	44.4	50.6	57.7	64.7	71.8	78.9	83.4
95°	65.7	63.5	61.2	59.0	56.7	59.3	66.9	74.4	82.0	89.5	94.4
97.5°	126.4	110.9	95.4	79.9	64.3	61.2	70.4	79.7	89.0	98.2	102.8
100°	172.3	147.0	121.6	96.2	70.9	62.8	72.1	81.4	90.6	99.9	105.3
102.5°	222.4	219.7	216.9	214.2	211.4	197.7	173.0	148.3	123.6	98.9	104.7
105°	292.8	302.1	311.3	320.6	329.9	308.2	255.5	202.8	150.1	97.4	103.2
107.5°	373.5	381.0	388.5	395.9	403.4	374.9	310.4	245.9	181.4	116.9	118.0
110°	425.1	431.6	438.1	444.6	451.0	426.1	369.6	313.2	256.8	200.4	182.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	474.0	479.7	485.3	491.0	496.6	494.2	483.8	473.3	462.8	452.4	378.2
115°	551.2	556.0	560.7	565.4	570.1	577.4	587.3	597.1	607.0	616.8	521.5
117.5°	619.8	624.5	629.3	634.1	638.8	645.1	653.0	660.8	668.7	676.5	655.7
120°	670.2	673.8	677.4	681.0	684.6	690.3	698.2	706.0	713.9	721.8	727.1
122.5°	713.0	716.6	720.1	723.6	727.1	732.8	740.8	748.8	756.7	764.7	769.0
125°	777.8	780.5	783.3	786.0	788.8	793.8	801.1	808.3	815.6	822.9	827.1
127.5°	836.8	839.8	842.7	845.7	848.6	852.9	858.5	864.2	869.8	875.4	880.1
130°	874.3	877.6	880.9	884.2	887.5	891.3	895.8	900.2	904.7	909.1	913.9
132.5°	912.5	915.3	918.1	920.8	923.6	927.0	931.0	935.0	938.9	942.9	947.2
135°	961.7	965.1	968.5	971.9	975.3	978.5	981.4	984.3	987.2	990.2	994.4
137.5°	1012.0	1014.3	1016.7	1019.1	1021.4	1023.9	1026.5	1029.1	1031.7	1034.3	1038.3
140°	1044.9	1046.4	1048.0	1049.6	1051.2	1053.3	1055.8	1058.4	1060.9	1063.5	1067.0
142.5°	1072.4	1073.8	1075.2	1076.7	1078.1	1080.2	1082.9	1085.6	1088.3	1091.0	1094.1
145°	1115.1	1114.9	1114.7	1114.5	1114.3	1116.0	1119.6	1123.2	1126.8	1130.4	1132.5
147.5°	1152.8	1151.9	1151.1	1150.3	1149.5	1150.9	1154.5	1158.0	1161.6	1165.2	1166.4
150°	1177.2	1175.7	1174.2	1172.8	1171.3	1172.2	1175.6	1179.0	1182.4	1185.8	1187.1
152.5°	1197.9	1196.2	1194.5	1192.9	1191.2	1192.0	1195.2	1198.5	1201.7	1204.9	1206.2
155°	1227.9	1225.9	1224.0	1222.1	1220.2	1220.5	1223.1	1225.6	1228.2	1230.7	1232.0
157.5°	1251.4	1249.8	1248.1	1246.5	1244.9	1245.0	1246.8	1248.6	1250.3	1252.1	1253.6
160°	1265.1	1263.9	1262.6	1261.3	1260.0	1260.0	1261.3	1262.6	1263.9	1265.1	1266.4
162.5°	1277.4	1276.1	1274.8	1273.5	1272.3	1272.2	1273.3	1274.4	1275.5	1276.6	1278.0
165°	1293.8	1292.5	1291.2	1290.0	1288.7	1288.4	1289.0	1289.6	1290.3	1290.9	1292.4
167.5°	1306.0	1304.7	1303.5	1302.2	1300.9	1300.6	1301.2	1301.8	1302.4	1303.0	1304.4
170°	1312.9	1311.6	1310.4	1309.1	1307.8	1307.4	1307.8	1308.2	1308.7	1309.1	1310.6
172.5°	1317.5	1316.2	1314.9	1313.7	1312.4	1312.0	1312.4	1312.8	1313.2	1313.7	1315.2
175°	1323.4	1321.9	1320.4	1319.0	1317.5	1316.9	1317.4	1317.8	1318.2	1318.6	1320.1
177.5°	1324.4	1323.2	1322.0	1320.8	1319.6	1319.1	1319.3	1319.4	1319.6	1319.8	1321.0
180°	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5



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**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°	77.5	81.9	86.2	89.1	90.4	91.8	93.2	94.6
90°	89.3	94.4	99.5	102.8	104.5	106.1	107.8	109.4
92.5°	87.9	92.4	96.9	99.9	101.4	102.8	104.3	105.8
95°	99.3	104.2	109.1	112.0	113.0	114.0	115.0	116.0
97.5°	107.4	112.0	116.6	119.6	121.0	122.5	123.9	125.4
100°	110.8	116.2	121.6	125.1	126.6	128.2	129.7	131.3
102.5°	110.6	116.5	122.3	126.1	127.8	129.5	131.2	132.9
105°	109.1	115.0	120.8	124.7	126.7	128.7	130.6	132.6
107.5°	119.0	120.0	121.0	122.5	124.4	126.4	128.4	130.3
110°	164.4	146.4	128.4	120.3	122.3	124.3	126.2	128.2





TEST NUMBER: P331479

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

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	303.9	229.7	155.5	119.2	121.0	122.8	124.6	126.4
115°	426.2	331.0	235.7	180.9	166.8	152.6	138.4	124.2
117.5°	635.0	614.2	593.4	558.4	509.2	459.9	410.7	361.5
120°	732.5	737.9	743.3	732.2	704.6	677.1	649.5	621.9
122.5°	773.2	777.5	781.8	781.6	777.0	772.4	767.8	763.1
125°	831.3	835.5	839.7	842.6	844.1	845.7	847.2	848.8
127.5°	884.7	889.4	894.1	896.9	897.9	899.0	900.0	901.0
130°	918.7	923.4	928.2	930.9	931.5	932.1	932.6	933.2
132.5°	951.6	955.9	960.2	962.7	963.3	963.9	964.5	965.1
135°	998.6	1002.9	1007.1	1009.4	1009.8	1010.2	1010.6	1011.0
137.5°	1042.2	1046.2	1050.1	1052.0	1052.0	1052.0	1051.9	1051.9
140°	1070.5	1074.0	1077.6	1079.1	1078.6	1078.2	1077.7	1077.3
142.5°	1097.1	1100.1	1103.2	1104.4	1103.9	1103.3	1102.8	1102.3
145°	1134.6	1136.7	1138.8	1139.5	1139.0	1138.4	1137.9	1137.3
147.5°	1167.5	1168.7	1169.9	1170.2	1169.5	1168.9	1168.2	1167.6
150°	1188.4	1189.6	1190.9	1191.0	1190.0	1188.9	1187.8	1186.8
152.5°	1207.5	1208.7	1210.0	1210.0	1208.6	1207.2	1205.8	1204.4
155°	1233.3	1234.5	1235.8	1235.6	1233.9	1232.2	1230.5	1228.8
157.5°	1255.0	1256.5	1257.9	1257.8	1256.1	1254.5	1252.8	1251.2
160°	1267.7	1268.9	1270.2	1270.1	1268.6	1267.1	1265.7	1264.2
162.5°	1279.5	1280.9	1282.4	1282.2	1280.3	1278.5	1276.7	1274.9
165°	1293.9	1295.4	1296.9	1296.9	1295.4	1293.9	1292.4	1290.9
167.5°	1305.9	1307.4	1308.9	1308.7	1306.8	1304.9	1303.0	1301.1
170°	1312.1	1313.5	1315.0	1314.8	1312.9	1311.0	1309.1	1307.2
172.5°	1316.6	1318.1	1319.6	1319.4	1317.5	1315.6	1313.7	1311.8
175°	1321.6	1323.1	1324.6	1324.3	1322.1	1320.0	1317.9	1315.8
177.5°	1322.2	1323.3	1324.5	1324.4	1322.8	1321.3	1319.8	1318.3
180°	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5	1320.5

(END OF REPORT)