

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: P331479-840

Luminaire Tested: **S122DIW-S290D970U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P331479-840  
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-S290D970U840-4F0-1E-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: 5119.0 lumens  
Efficiency: N/A  
Efficacy: 134.7 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

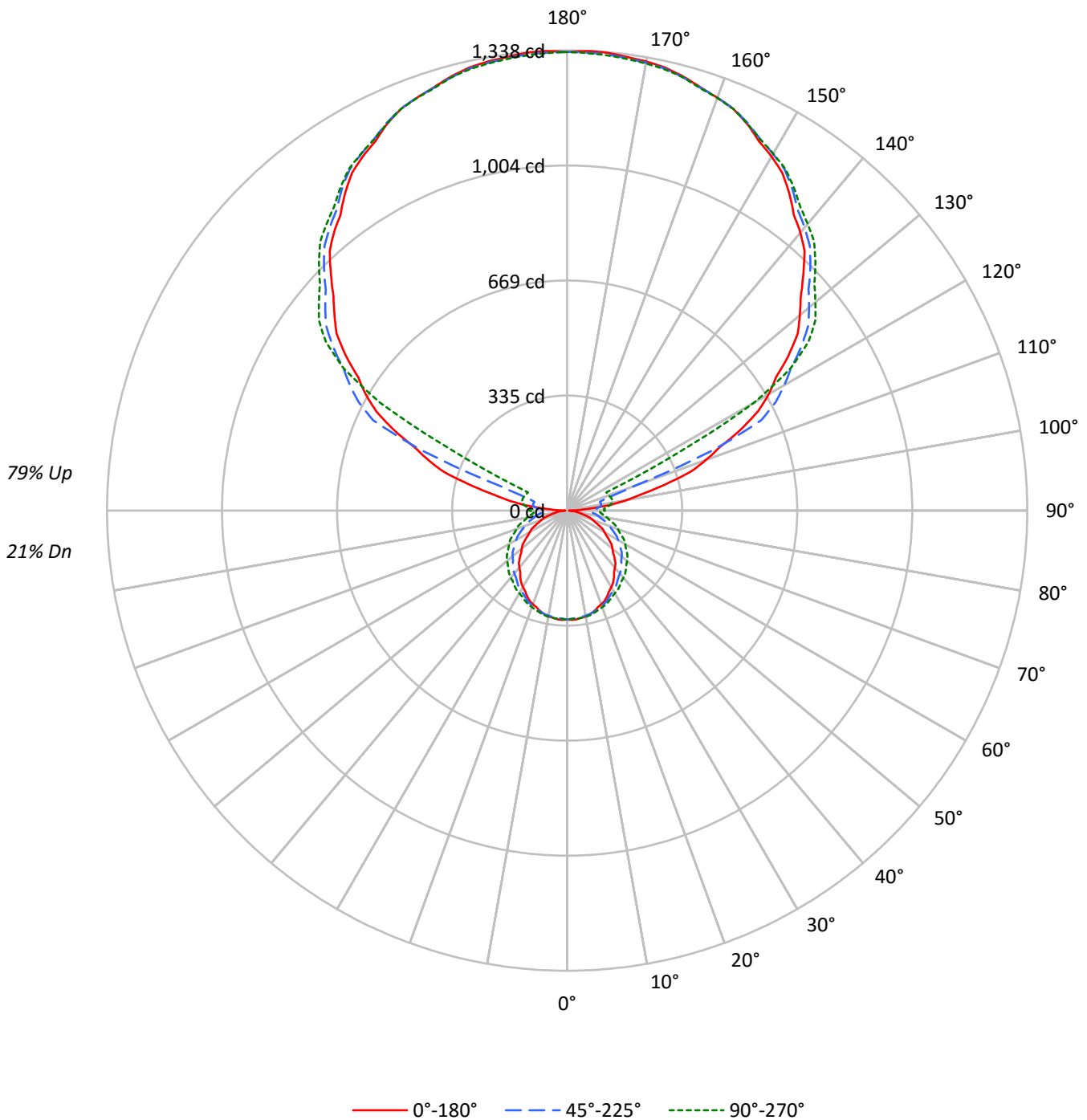
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

### Luminous Intensity Polar Plot





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CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

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

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

	0°	45°	90°
0°	5112	5112	5112
5°	5137	4921	4901
10°	5105	4774	4722
15°	5033	4621	4531
20°	4944	4456	4348
25°	4857	4297	4181
30°	4733	4133	4015
35°	4608	3975	3898
40°	4476	3840	3780
45°	4351	3721	3681
50°	4218	3612	3581
55°	4076	3496	3482
60°	3902	3373	3374
65°	3723	3232	3247
70°	3523	3079	3110
75°	3270	2929	2984
80°	2861	2776	2858
85°	2484	2642	2759



TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	30.0	0.6
10°-20°	86.0	1.7
20°-30°	130.3	2.5
30°-40°	158.8	3.1
40°-50°	170.8	3.3
50°-60°	165.9	3.2
60°-70°	144.8	2.8
70°-80°	111.5	2.2
80°-90°	78.1	1.5
90°-100°	96.0	1.9
100°-110°	200.8	3.9
110°-120°	460.9	9.0
120°-130°	733.7	14.3
130°-140°	771.3	15.1
140°-150°	712.5	13.9
150°-160°	572.1	11.2
160°-170°	368.6	7.2
170°-180°	126.9	2.5
0°-30°	246.3	4.8
0°-40°	405.1	7.9
0°-60°	741.7	14.5
0°-90°	1076.2	21.0
90°-120°	757.7	14.8
90°-150°	2975.3	58.1
90°-180°	4043.0	79.0
0°-180°	5119.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	317	317	317	317	317	
5°	318	316	313	316	316	30
15°	303	304	304	308	307	85
25°	275	278	283	288	289	127
35°	237	245	254	263	267	148
45°	194	207	223	237	242	150
55°	149	166	190	205	212	133
65°	102	125	151	170	176	101
75°	56	82	112	130	137	60
85°	17	45	74	93	100	18
90°	6	43	80	102	110	6
95°	66	59	90	112	117	80
105°	296	322	98	124	134	316
115°	557	579	623	210	125	548
125°	786	799	831	849	857	700
135°	971	987	1000	1018	1021	750
145°	1126	1126	1142	1150	1148	704
155°	1240	1232	1243	1248	1241	571
165°	1307	1301	1304	1310	1304	369
175°	1336	1330	1332	1338	1329	127
180°	1334	1334	1334	1334	1334	



TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6
2.5°	318.4	318.1	317.9	317.6	317.4	317.0	316.4	315.9	315.3	314.7	315.1
5°	317.5	317.2	316.9	316.6	316.2	315.8	315.2	314.6	314.0	313.4	314.0
7.5°	314.6	314.4	314.2	314.0	313.8	313.5	313.0	312.6	312.0	311.5	312.4
10°	312.5	312.3	312.0	311.8	311.6	311.3	311.0	310.7	310.4	310.1	310.9
12.5°	308.7	308.8	308.8	308.9	308.9	308.8	308.6	308.4	308.1	307.9	308.7
15°	302.8	303.0	303.2	303.4	303.6	303.7	303.7	303.7	303.7	303.7	304.6
17.5°	295.1	295.5	295.9	296.4	296.8	297.2	297.5	297.8	298.1	298.5	299.4
20°	289.9	290.4	290.9	291.4	292.0	292.5	292.9	293.3	293.7	294.1	295.2
22.5°	284.5	285.0	285.6	286.2	286.8	287.4	287.9	288.5	289.1	289.6	290.7
25°	275.3	276.0	276.7	277.4	278.1	278.9	279.8	280.7	281.7	282.6	283.8
27.5°	264.3	265.4	266.6	267.7	268.9	270.0	271.0	272.2	273.3	274.4	275.9
30°	256.9	258.2	259.5	260.8	262.2	263.6	264.9	266.2	267.5	268.8	270.4
32.5°	248.8	250.3	251.8	253.3	254.8	256.3	257.9	259.4	261.1	262.6	264.5
35°	237.2	238.9	240.7	242.4	244.1	245.9	247.9	249.8	251.8	253.7	255.9
37.5°	224.5	226.5	228.5	230.6	232.5	234.8	237.3	239.7	242.3	244.8	247.3
40°	216.1	218.3	220.6	222.8	225.0	227.5	230.2	233.1	235.8	238.5	241.2
42.5°	208.0	210.3	212.5	214.7	217.0	219.6	222.9	226.0	229.1	232.3	235.2
45°	194.5	197.2	200.1	202.8	205.5	208.6	212.3	215.8	219.3	223.0	226.1
47.5°	181.2	184.2	187.2	190.2	193.2	196.8	201.0	205.1	209.3	213.5	216.8
50°	172.1	175.2	178.3	181.5	184.7	188.5	193.2	197.7	202.3	206.9	210.4
52.5°	163.2	166.5	169.9	173.2	176.5	180.6	185.4	190.3	195.1	200.0	203.5
55°	149.1	152.8	156.4	160.1	163.8	168.2	173.6	178.8	184.2	189.5	193.2
57.5°	135.1	139.3	143.4	147.5	151.7	156.4	161.9	167.2	172.7	178.1	182.1
60°	125.2	129.7	134.0	138.4	142.8	147.8	153.7	159.5	165.3	171.1	175.0
62.5°	116.4	121.0	125.5	130.1	134.6	139.8	145.6	151.4	157.2	163.1	167.1
65°	101.8	106.8	111.8	116.8	121.8	127.3	133.3	139.4	145.4	151.4	155.6
67.5°	88.5	93.7	98.9	104.1	109.4	115.0	121.2	127.3	133.5	139.7	143.9
70°	78.9	84.2	89.5	94.8	100.1	105.9	112.2	118.6	124.9	131.2	135.6
72.5°	70.1	75.5	81.0	86.4	92.0	97.9	104.3	110.7	117.1	123.5	127.8
75°	56.5	62.1	67.9	73.5	79.3	85.3	91.9	98.5	104.9	111.5	115.8
77.5°	43.2	49.2	55.1	61.1	67.2	73.4	80.1	86.6	93.3	99.9	104.3
80°	34.4	40.6	46.9	53.0	59.3	65.7	72.3	79.0	85.5	92.2	96.4
82.5°	27.1	33.2	39.4	45.4	51.6	58.1	64.7	71.5	78.2	84.8	89.2
85°	16.6	22.8	29.2	35.4	41.8	48.2	54.7	61.3	67.8	74.3	78.6
87.5°	9.2	15.8	22.3	28.8	35.3	42.1	49.0	55.8	62.7	69.6	73.9
90°	5.6	13.8	22.1	30.4	38.7	46.9	55.1	63.4	71.6	79.9	85.0
92.5°	23.7	29.0	34.3	39.6	44.8	51.1	58.3	65.3	72.5	79.7	84.2
95°	66.3	64.1	61.8	59.6	57.3	59.9	67.6	75.1	82.8	90.4	95.3
97.5°	127.6	112.0	96.3	80.7	64.9	61.8	71.1	80.5	89.9	99.2	103.8
100°	174.0	148.5	122.8	97.1	71.6	63.4	72.8	82.2	91.5	100.9	106.3
102.5°	224.6	221.9	219.0	216.3	213.5	199.7	174.7	149.8	124.8	99.9	105.7
105°	295.7	305.1	314.4	323.8	333.2	311.2	258.0	204.8	151.6	98.4	104.2
107.5°	377.2	384.8	392.3	399.8	407.4	378.6	313.5	248.3	183.2	118.1	119.2
110°	429.3	435.9	442.4	449.0	455.4	430.3	373.2	316.3	259.3	202.4	184.2



TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	478.7	484.4	490.1	495.8	501.5	499.1	488.6	478.0	467.4	456.9	381.9
115°	556.6	561.5	566.2	571.0	575.7	583.1	593.1	603.0	613.0	622.9	526.6
117.5°	625.9	630.7	635.5	640.4	645.1	651.5	659.4	667.3	675.3	683.2	662.2
120°	676.8	680.4	684.1	687.7	691.4	697.1	705.1	713.0	720.9	728.9	734.3
122.5°	720.0	723.7	727.2	730.7	734.3	740.0	748.1	756.2	764.2	772.2	776.6
125°	785.5	788.2	791.0	793.8	796.6	801.6	809.0	816.3	823.6	831.0	835.3
127.5°	845.1	848.1	851.0	854.0	857.0	861.3	867.0	872.7	878.4	884.0	888.8
130°	882.9	886.3	889.6	892.9	896.3	900.1	904.6	909.1	913.6	918.1	922.9
132.5°	921.5	924.3	927.2	929.9	932.7	936.1	940.2	944.2	948.2	952.2	956.5
135°	971.2	974.6	978.1	981.5	984.9	988.2	991.1	994.0	996.9	1000.0	1004.2
137.5°	1022.0	1024.3	1026.7	1029.2	1031.5	1034.0	1036.6	1039.3	1041.9	1044.5	1048.5
140°	1055.2	1056.7	1058.3	1060.0	1061.6	1063.7	1066.2	1068.8	1071.4	1074.0	1077.5
142.5°	1083.0	1084.4	1085.8	1087.3	1088.7	1090.9	1093.6	1096.3	1099.0	1101.8	1104.9
145°	1126.1	1125.9	1125.7	1125.5	1125.3	1127.0	1130.6	1134.3	1137.9	1141.6	1143.7
147.5°	1164.2	1163.3	1162.5	1161.6	1160.8	1162.3	1165.9	1169.4	1173.1	1176.7	1177.9
150°	1188.8	1187.3	1185.8	1184.4	1182.9	1183.8	1187.2	1190.6	1194.1	1197.5	1198.8
152.5°	1209.7	1208.0	1206.3	1204.7	1203.0	1203.8	1207.0	1210.3	1213.6	1216.8	1218.1
155°	1240.0	1238.0	1236.1	1234.2	1232.2	1232.5	1235.2	1237.7	1240.3	1242.8	1244.2
157.5°	1263.7	1262.1	1260.4	1258.8	1257.2	1257.3	1259.1	1260.9	1262.6	1264.5	1266.0
160°	1277.6	1276.4	1275.1	1273.7	1272.4	1272.4	1273.7	1275.1	1276.4	1277.6	1278.9
162.5°	1290.0	1288.7	1287.4	1286.1	1284.9	1284.8	1285.9	1287.0	1288.1	1289.2	1290.6
165°	1306.6	1305.3	1303.9	1302.7	1301.4	1301.1	1301.7	1302.3	1303.0	1303.6	1305.1
167.5°	1318.9	1317.6	1316.4	1315.0	1313.7	1313.4	1314.0	1314.6	1315.2	1315.9	1317.3
170°	1325.9	1324.5	1323.3	1322.0	1320.7	1320.3	1320.7	1321.1	1321.6	1322.0	1323.5
172.5°	1330.5	1329.2	1327.9	1326.7	1325.3	1324.9	1325.3	1325.8	1326.2	1326.7	1328.2
175°	1336.5	1334.9	1333.4	1332.0	1330.5	1329.9	1330.4	1330.8	1331.2	1331.6	1333.1
177.5°	1337.5	1336.3	1335.0	1333.8	1332.6	1332.1	1332.3	1332.4	1332.6	1332.8	1334.0
180°	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5



TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	316.6	316.6	316.6	316.6	316.6	316.6	316.6	316.6
2.5°	315.5	315.9	316.3	316.5	316.3	316.1	316.0	315.8
5°	314.6	315.2	315.8	316.0	315.9	315.8	315.7	315.6
7.5°	313.1	313.8	314.6	314.9	314.8	314.7	314.6	314.5
10°	311.7	312.6	313.4	313.8	313.7	313.6	313.5	313.4
12.5°	309.5	310.3	311.1	311.5	311.4	311.3	311.2	311.1
15°	305.5	306.5	307.4	307.8	307.7	307.6	307.5	307.4
17.5°	300.4	301.3	302.3	302.8	302.8	302.8	302.8	302.8
20°	296.3	297.4	298.5	299.1	299.1	299.1	299.1	299.1
22.5°	292.0	293.1	294.2	294.8	295.0	295.1	295.3	295.5
25°	285.1	286.3	287.5	288.2	288.5	288.8	289.1	289.4
27.5°	277.4	279.0	280.5	281.4	281.7	281.9	282.1	282.4
30°	272.1	273.8	275.4	276.3	276.6	276.9	277.2	277.5
32.5°	266.3	268.2	270.1	271.4	271.9	272.5	273.0	273.5
35°	258.2	260.4	262.7	264.2	264.9	265.6	266.3	267.0
37.5°	249.7	252.3	254.8	256.4	257.1	257.9	258.6	259.3
40°	243.9	246.5	249.1	251.0	251.9	252.8	253.7	254.6
42.5°	238.1	241.0	243.9	245.8	246.7	247.6	248.5	249.4
45°	229.2	232.5	235.6	237.7	238.7	239.7	240.8	241.8
47.5°	220.2	223.4	226.7	228.9	230.0	231.2	232.3	233.4
50°	213.8	217.3	220.8	223.1	224.2	225.3	226.4	227.5
52.5°	207.0	210.6	214.1	216.5	217.7	218.9	220.2	221.3
55°	196.8	200.5	204.2	206.6	207.9	209.3	210.7	212.0
57.5°	186.0	190.0	193.9	196.5	197.9	199.2	200.6	202.0
60°	178.8	182.8	186.6	189.2	190.7	192.1	193.6	195.0
62.5°	171.3	175.4	179.6	182.3	183.6	184.9	186.3	187.6
65°	159.8	163.9	168.1	170.9	172.2	173.5	174.8	176.1
67.5°	148.0	152.3	156.5	159.4	160.7	162.1	163.5	164.9
70°	140.0	144.3	148.8	151.6	152.8	154.0	155.2	156.4
72.5°	132.1	136.4	140.7	143.6	145.0	146.5	148.0	149.5
75°	120.3	124.6	129.1	131.9	133.2	134.5	135.8	137.1
77.5°	108.7	113.0	117.3	120.3	121.7	123.1	124.5	125.9
80°	100.8	105.0	109.4	112.2	113.6	115.0	116.4	117.9
82.5°	93.4	97.8	102.0	104.8	106.1	107.6	108.9	110.2
85°	82.9	87.2	91.5	94.3	95.7	97.1	98.6	100.0
87.5°	78.3	82.7	87.1	90.0	91.3	92.7	94.1	95.5
90°	90.2	95.3	100.5	103.8	105.5	107.1	108.9	110.5
92.5°	88.8	93.3	97.9	100.9	102.4	103.8	105.3	106.8
95°	100.3	105.2	110.2	113.1	114.1	115.1	116.1	117.1
97.5°	108.5	113.1	117.8	120.8	122.2	123.7	125.1	126.6
100°	111.9	117.3	122.8	126.3	127.8	129.5	131.0	132.6
102.5°	111.7	117.6	123.5	127.3	129.1	130.8	132.5	134.2
105°	110.2	116.1	122.0	125.9	127.9	130.0	131.9	133.9
107.5°	120.2	121.2	122.2	123.7	125.6	127.6	129.7	131.6
110°	166.0	147.8	129.7	121.5	123.5	125.5	127.4	129.5





TEST NUMBER: P331479-840

CATALOG NUMBER: S122DIW-S290D970U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	306.9	232.0	157.0	120.4	122.2	124.0	125.8	127.6
115°	430.4	334.3	238.0	182.7	168.4	154.1	139.8	125.4
117.5°	641.3	620.3	599.3	563.9	514.2	464.4	414.8	365.1
120°	739.7	745.2	750.6	739.4	711.6	683.8	655.9	628.0
122.5°	780.8	785.2	789.5	789.3	784.7	780.0	775.4	770.6
125°	839.5	843.7	848.0	850.9	852.4	854.0	855.6	857.2
127.5°	893.4	898.2	902.9	905.7	906.8	907.9	908.9	909.9
130°	927.8	932.5	937.4	940.1	940.7	941.3	941.8	942.4
132.5°	961.0	965.3	969.7	972.2	972.8	973.4	974.0	974.6
135°	1008.5	1012.8	1017.0	1019.4	1019.8	1020.2	1020.6	1021.0
137.5°	1052.5	1056.5	1060.5	1062.4	1062.4	1062.4	1062.3	1062.3
140°	1081.1	1084.6	1088.2	1089.7	1089.2	1088.8	1088.3	1087.9
142.5°	1107.9	1111.0	1114.1	1115.3	1114.8	1114.2	1113.7	1113.2
145°	1145.8	1147.9	1150.0	1150.7	1150.2	1149.6	1149.1	1148.5
147.5°	1179.0	1180.2	1181.4	1181.7	1181.0	1180.4	1179.7	1179.1
150°	1200.1	1201.3	1202.6	1202.7	1201.7	1200.6	1199.5	1198.5
152.5°	1219.4	1220.6	1221.9	1221.9	1220.5	1219.1	1217.7	1216.3
155°	1245.5	1246.7	1248.0	1247.8	1246.1	1244.4	1242.6	1240.9
157.5°	1267.4	1268.9	1270.3	1270.2	1268.5	1266.9	1265.2	1263.5
160°	1280.2	1281.4	1282.7	1282.6	1281.1	1279.6	1278.2	1276.7
162.5°	1292.1	1293.5	1295.1	1294.8	1292.9	1291.1	1289.3	1287.5
165°	1306.7	1308.2	1309.7	1309.7	1308.2	1306.7	1305.1	1303.6
167.5°	1318.8	1320.3	1321.8	1321.6	1319.7	1317.8	1315.9	1313.9
170°	1325.0	1326.5	1328.0	1327.8	1325.9	1323.9	1322.0	1320.1
172.5°	1329.6	1331.1	1332.6	1332.4	1330.5	1328.6	1326.7	1324.7
175°	1334.6	1336.2	1337.7	1337.4	1335.1	1333.0	1330.9	1328.8
177.5°	1335.2	1336.4	1337.6	1337.5	1335.8	1334.3	1332.8	1331.3
180°	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5	1333.5

(END OF REPORT)