

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: P331643-830

Luminaire Tested: **SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331643-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-8,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 290 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1080 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4606.0 lumens
Efficiency: N/A
Efficacy: 109.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Indirect

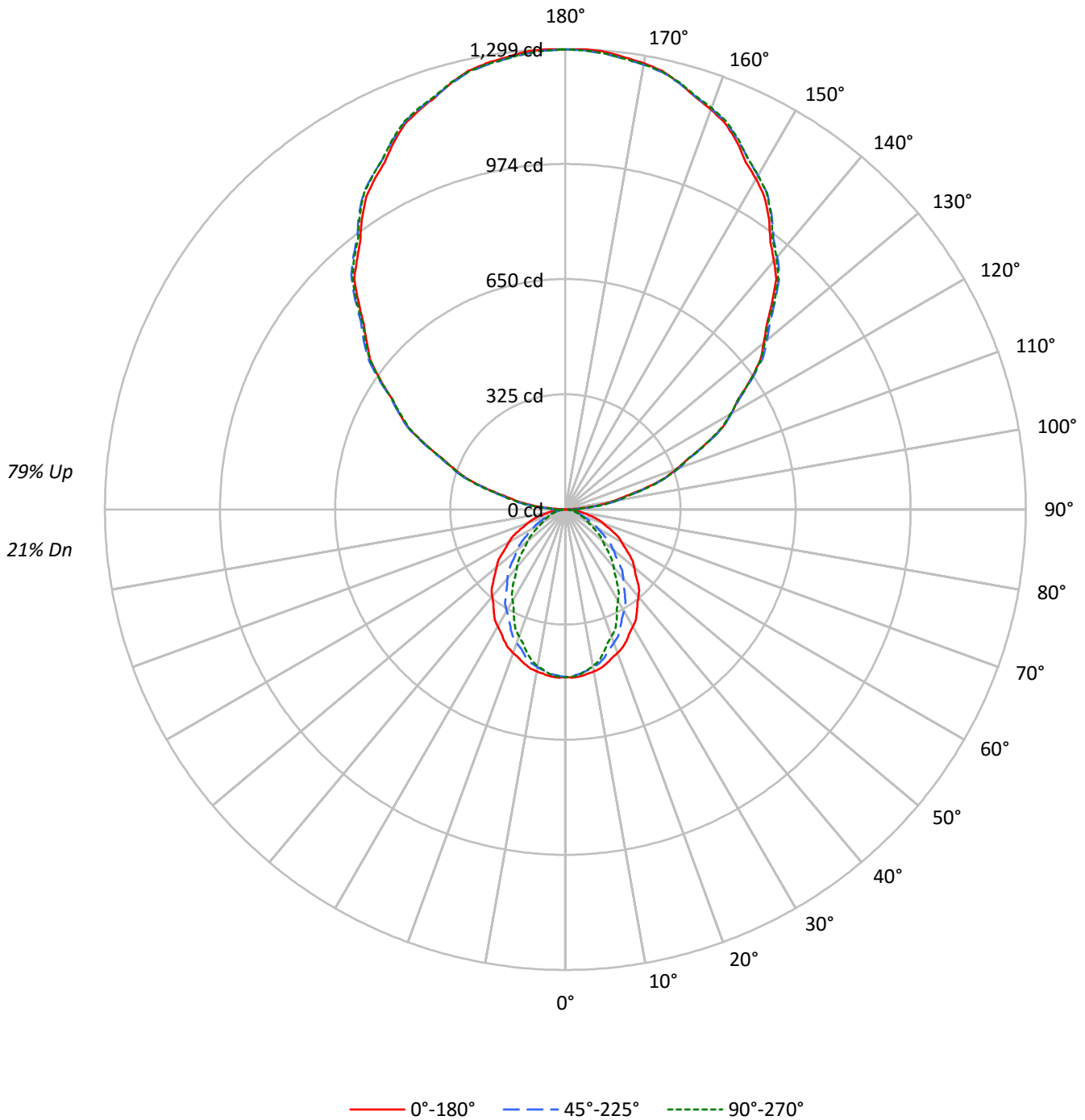
Input Watts (W): 42.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

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	100	100	100	100	89	89	89	89	67	67	67	48	48	48	30	30	30	21
1	92	87	84	80	81	78	75	72	59	57	55	42	41	40	26	26	25	18
2	83	77	71	66	74	68	63	59	52	49	46	37	35	34	24	23	22	16
3	76	67	61	55	67	60	54	50	46	42	39	33	31	29	21	20	19	13
4	70	60	52	47	61	53	47	42	41	37	33	29	27	25	19	17	16	12
5	64	53	45	40	56	47	41	36	36	32	29	26	24	21	17	15	14	10
6	59	47	40	34	52	42	36	31	33	28	25	24	21	19	16	14	13	9
7	54	43	35	30	48	38	32	27	30	25	22	22	19	16	14	12	11	8
8	50	39	31	26	44	35	28	24	27	22	19	20	17	15	13	11	10	7
9	47	35	28	23	41	32	25	21	25	20	17	18	15	13	12	10	9	7
10	43	32	25	21	39	29	23	19	23	18	15	17	14	12	11	9	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7640	7640	7640
5°	7669	7543	7585
10°	7609	7420	7356
15°	7522	7199	6992
20°	7400	6887	6541
25°	7277	6531	6102
30°	7105	6162	5541
35°	6936	5765	5048
40°	6768	5351	4477
45°	6572	4889	3959
50°	6365	4421	3451
55°	6159	3916	2967
60°	5916	3387	2464
65°	5643	2846	2239
70°	5316	2346	2058
75°	4916	2133	1921
80°	4342	1906	1757
85°	3409	1501	1501



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.3	1.0
10°-20°	121.6	2.6
20°-30°	170.8	3.7
30°-40°	186.2	4.0
40°-50°	171.2	3.7
50°-60°	134.5	2.9
60°-70°	87.7	1.9
70°-80°	45.2	1.0
80°-90°	16.9	0.4
90°-100°	82.2	1.8
100°-110°	255.3	5.5
110°-120°	436.4	9.5
120°-130°	573.9	12.5
130°-140°	644.2	14.0
140°-150°	631.6	13.7
150°-160°	529.8	11.5
160°-170°	351.4	7.6
170°-180°	122.8	2.7
0°-30°	336.6	7.3
0°-40°	522.8	11.4
0°-60°	828.5	18.0
0°-90°	978.3	21.2
90°-120°	774.0	16.8
90°-150°	2623.7	57.0
90°-180°	3628.0	78.8
0°-180°	4606.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	473	473	473	473	473	
5°	473	471	465	469	468	45
15°	450	445	431	423	418	127
25°	408	394	367	350	342	188
35°	352	329	292	266	256	220
45°	288	258	214	185	173	222
55°	219	185	139	114	105	195
65°	148	113	74	61	59	146
75°	79	50	34	31	31	83
85°	18	10	8	8	8	22
90°	1	15	38	36	37	4
95°	57	67	70	70	68	65
105°	235	239	241	243	243	249
115°	438	444	442	441	438	433
125°	637	646	644	641	639	569
135°	824	836	839	837	834	637
145°	1001	1008	1015	1016	1012	625
155°	1144	1147	1151	1156	1153	526
165°	1245	1244	1244	1251	1246	351
175°	1295	1292	1290	1297	1291	123
180°	1297	1297	1297	1297	1297	



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2
2.5°	474.9	474.5	474.1	473.7	473.3	472.7	471.8	471.1	470.2	469.4	470.1
5°	473.2	472.7	472.2	471.7	471.3	470.3	469.1	467.9	466.7	465.4	466.3
7.5°	468.3	467.7	467.0	466.5	465.9	464.9	463.4	461.9	460.5	459.1	459.3
10°	464.1	463.4	462.8	462.1	461.5	460.1	458.3	456.4	454.5	452.6	452.3
12.5°	459.0	458.2	457.3	456.6	455.7	454.1	451.7	449.2	446.8	444.3	443.8
15°	450.0	448.9	447.9	446.9	445.8	443.7	440.5	437.2	433.9	430.7	429.0
17.5°	438.9	437.3	435.7	434.1	432.5	429.7	425.6	421.4	417.3	413.1	410.9
20°	430.7	428.9	427.0	425.0	423.1	419.8	415.0	410.3	405.6	400.8	398.4
22.5°	421.9	419.7	417.5	415.5	413.3	409.5	404.2	398.8	393.5	388.1	385.0
25°	408.5	405.4	402.4	399.4	396.3	391.6	385.3	379.1	372.8	366.6	362.6
27.5°	392.4	389.1	385.8	382.5	379.1	373.9	366.8	359.8	352.7	345.6	341.1
30°	381.1	377.5	373.8	370.2	366.6	361.0	353.4	345.8	338.2	330.5	325.7
32.5°	370.1	365.9	361.7	357.4	353.2	347.2	339.5	331.7	324.0	316.1	310.7
35°	351.9	347.1	342.2	337.4	332.5	325.9	317.5	309.2	300.9	292.5	286.4
37.5°	333.8	328.5	323.1	317.8	312.5	305.4	296.4	287.5	278.6	269.7	263.1
40°	321.1	315.5	309.7	304.0	298.3	290.9	281.6	272.4	263.2	253.9	247.1
42.5°	308.1	302.1	296.1	290.1	284.1	276.3	266.7	257.2	247.7	238.2	231.2
45°	287.8	281.3	274.9	268.6	262.2	254.0	244.0	234.0	224.0	214.1	207.4
47.5°	267.9	261.1	254.4	247.6	240.8	232.3	222.0	211.7	201.3	191.1	184.4
50°	253.4	246.8	240.0	233.2	226.5	217.8	207.4	196.9	186.4	176.0	169.4
52.5°	239.4	232.3	225.4	218.3	211.2	202.6	192.3	182.1	171.8	161.6	155.2
55°	218.8	211.4	204.0	196.5	189.1	180.3	169.9	159.7	149.4	139.1	133.5
57.5°	197.7	190.0	182.4	174.8	167.2	158.4	148.5	138.7	128.8	118.9	113.7
60°	183.2	175.7	168.1	160.4	152.8	144.1	134.3	124.5	114.7	104.9	100.0
62.5°	169.2	161.6	154.0	146.4	138.7	130.3	120.9	111.6	102.3	92.9	88.3
65°	147.7	140.0	132.3	124.6	116.9	108.8	100.2	91.6	83.0	74.5	71.3
67.5°	127.0	119.3	111.7	104.1	96.4	88.7	81.0	73.3	65.6	57.9	56.4
70°	112.6	105.2	97.7	90.4	82.9	76.0	69.4	62.8	56.3	49.7	48.7
72.5°	98.9	91.8	84.6	77.6	70.4	64.3	59.0	53.7	48.4	43.2	42.3
75°	78.8	72.1	65.5	58.8	52.1	47.2	43.9	40.7	37.5	34.2	33.6
77.5°	59.0	53.2	47.3	41.5	35.6	32.0	30.3	28.8	27.2	25.7	25.4
80°	46.7	41.8	36.9	32.1	27.2	24.3	23.4	22.4	21.5	20.5	20.2
82.5°	35.3	31.6	27.8	24.0	20.3	18.0	17.3	16.7	16.0	15.5	15.2
85°	18.4	16.4	14.4	12.4	10.5	9.2	9.0	8.7	8.4	8.1	8.1
87.5°	5.7	5.7	5.7	5.7	5.6	6.1	7.2	8.3	9.3	10.4	10.3
90°	1.1	4.1	7.0	9.9	12.8	16.9	22.2	27.6	33.0	38.4	37.8
92.5°	19.5	21.6	23.8	25.9	28.1	29.8	31.0	32.3	33.6	34.8	34.9
95°	56.9	59.4	61.8	64.2	66.6	68.1	68.6	69.1	69.6	70.0	70.0
97.5°	104.1	106.1	108.3	110.5	112.5	114.1	115.0	115.9	116.9	117.8	117.8
100°	139.0	141.0	143.0	144.9	146.8	148.2	148.9	149.6	150.3	151.1	151.1
102.5°	175.9	177.4	179.0	180.5	182.1	183.3	184.3	185.1	186.1	187.0	187.2
105°	235.4	236.1	236.9	237.6	238.3	238.9	239.4	239.9	240.3	240.8	241.4
107.5°	295.4	296.4	297.6	298.6	299.6	300.2	300.2	300.2	300.2	300.2	300.4
110°	333.9	335.4	336.9	338.3	339.8	340.5	340.5	340.5	340.5	340.5	340.5



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	376.0	377.4	378.9	380.3	381.8	382.5	382.2	382.0	381.8	381.6	381.1
115°	437.9	439.4	440.8	442.3	443.7	444.2	443.7	443.3	442.8	442.3	442.1
117.5°	499.6	501.6	503.6	505.5	507.5	507.7	506.4	505.0	503.7	502.3	501.7
120°	540.8	542.8	544.8	546.7	548.7	548.7	546.7	544.8	542.8	540.8	540.8
122.5°	578.5	580.9	583.2	585.5	587.9	588.3	587.0	585.6	584.3	582.9	582.3
125°	637.2	639.4	641.6	643.8	645.9	646.7	645.9	645.3	644.5	643.8	643.0
127.5°	694.4	697.1	699.9	702.7	705.4	706.4	705.5	704.6	703.8	702.9	702.0
130°	730.3	733.4	736.6	739.7	742.9	744.2	743.8	743.3	742.8	742.3	741.8
132.5°	770.5	773.2	775.7	778.3	780.9	782.2	782.3	782.4	782.5	782.6	781.6
135°	824.4	827.1	829.8	832.5	835.1	836.7	837.2	837.6	838.2	838.7	838.4
137.5°	881.1	883.4	885.5	887.7	889.9	891.3	891.9	892.6	893.2	893.8	893.6
140°	915.3	917.5	919.6	921.9	924.1	925.8	927.0	928.2	929.4	930.6	930.6
142.5°	950.4	952.5	954.7	956.9	959.0	960.5	961.4	962.2	963.1	963.9	964.1
145°	1000.7	1002.4	1004.1	1005.8	1007.5	1009.1	1010.5	1012.0	1013.4	1014.9	1015.1
147.5°	1045.6	1047.6	1049.6	1051.7	1053.8	1055.3	1056.2	1057.2	1058.2	1059.1	1059.7
150°	1076.2	1077.7	1079.1	1080.6	1082.0	1083.3	1084.3	1085.2	1086.2	1087.2	1087.9
152.5°	1103.3	1104.8	1106.3	1107.8	1109.2	1110.5	1111.7	1112.9	1114.1	1115.2	1116.2
155°	1144.2	1144.8	1145.6	1146.3	1147.1	1147.7	1148.5	1149.2	1150.0	1150.7	1151.9
157.5°	1178.9	1179.4	1179.9	1180.3	1180.9	1181.3	1181.8	1182.2	1182.6	1183.1	1184.8
160°	1200.0	1200.4	1200.9	1201.4	1201.9	1202.2	1202.5	1202.8	1203.0	1203.2	1204.7
162.5°	1219.2	1219.3	1219.4	1219.5	1219.7	1219.7	1220.0	1220.2	1220.5	1220.8	1222.4
165°	1244.8	1244.6	1244.3	1244.1	1243.9	1243.8	1243.8	1243.8	1243.8	1243.8	1245.5
167.5°	1266.3	1265.6	1264.8	1264.1	1263.4	1263.0	1262.9	1262.9	1262.8	1262.8	1264.5
170°	1277.7	1277.0	1276.2	1275.4	1274.8	1274.3	1274.0	1273.8	1273.6	1273.3	1275.0
172.5°	1285.5	1284.9	1284.1	1283.4	1282.6	1282.1	1282.0	1281.7	1281.4	1281.2	1282.9
175°	1295.2	1294.5	1293.7	1293.0	1292.3	1291.7	1291.2	1290.7	1290.2	1289.7	1291.5
177.5°	1299.1	1298.5	1298.0	1297.4	1296.8	1296.3	1295.9	1295.5	1295.1	1294.8	1295.9
180°	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	473.2	473.2	473.2	473.2	473.2	473.2	473.2	473.2
2.5°	470.9	471.6	472.4	472.7	472.6	472.4	472.2	472.1
5°	467.1	468.0	468.8	469.1	468.8	468.5	468.3	468.0
7.5°	459.6	459.9	460.1	460.0	459.5	458.9	458.5	458.0
10°	452.0	451.8	451.5	451.0	450.4	449.9	449.3	448.7
12.5°	443.4	442.8	442.3	441.6	440.6	439.7	438.8	437.8
15°	427.2	425.3	423.5	422.2	421.2	420.2	419.2	418.3
17.5°	408.8	406.6	404.5	402.7	401.0	399.4	397.7	396.1
20°	396.1	393.6	391.2	389.0	386.9	384.8	382.8	380.7
22.5°	382.0	378.9	375.9	373.5	371.9	370.4	368.8	367.3
25°	358.7	354.8	350.9	348.3	346.9	345.3	343.9	342.5
27.5°	336.5	332.0	327.4	324.0	321.8	319.5	317.3	315.0
30°	320.8	316.0	311.1	307.5	304.8	302.3	299.7	297.2
32.5°	305.1	299.5	294.0	290.0	287.7	285.2	282.8	280.4
35°	280.5	274.5	268.4	264.4	262.3	260.2	258.2	256.1
37.5°	256.5	249.9	243.3	238.7	236.4	233.9	231.6	229.1
40°	240.4	233.7	226.9	222.3	219.8	217.4	214.8	212.4
42.5°	224.1	217.2	210.2	205.6	203.1	200.8	198.3	196.0
45°	200.6	193.8	187.1	182.6	180.3	178.0	175.7	173.4
47.5°	177.6	170.9	164.2	159.8	157.7	155.6	153.5	151.5
50°	162.9	156.3	149.7	145.4	143.5	141.5	139.4	137.4
52.5°	148.9	142.6	136.3	132.1	130.4	128.5	126.6	124.8
55°	127.7	122.1	116.3	112.5	110.7	109.0	107.2	105.4
57.5°	108.5	103.2	98.0	94.6	93.1	91.6	90.1	88.5
60°	95.2	90.4	85.5	82.3	80.8	79.3	77.8	76.3
62.5°	83.7	79.1	74.5	71.6	70.7	69.8	68.9	68.0
65°	68.1	64.8	61.5	59.8	59.5	59.2	58.9	58.6
67.5°	55.0	53.4	51.9	51.1	50.7	50.4	50.1	49.9
70°	47.8	46.8	45.9	45.2	44.8	44.4	44.0	43.6
72.5°	41.6	40.7	40.0	39.5	39.2	39.0	38.7	38.5
75°	32.9	32.2	31.6	31.2	31.1	31.0	30.9	30.8
77.5°	24.9	24.5	24.1	23.9	23.8	23.6	23.5	23.3
80°	19.8	19.4	19.0	18.9	18.9	18.9	18.9	18.9
82.5°	15.0	14.7	14.5	14.4	14.4	14.4	14.4	14.4
85°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
87.5°	10.1	9.9	9.7	9.6	9.7	9.7	9.8	9.8
90°	37.3	36.9	36.4	36.3	36.5	36.8	36.9	37.2
92.5°	35.0	35.1	35.3	35.3	35.3	35.3	35.4	35.4
95°	70.0	70.0	70.0	69.8	69.4	68.9	68.3	67.9
97.5°	117.8	117.8	117.8	117.8	117.7	117.7	117.6	117.6
100°	151.1	151.1	151.1	151.0	150.7	150.5	150.2	150.0
102.5°	187.4	187.6	187.8	187.8	187.5	187.3	187.0	186.8
105°	241.9	242.3	242.8	243.1	243.1	243.1	243.1	243.1
107.5°	300.6	300.8	301.0	300.5	299.4	298.3	297.2	296.1
110°	340.5	340.5	340.5	340.2	339.4	338.7	337.9	337.2



TEST NUMBER: P331643-830

CATALOG NUMBER: SA2XXRDIP-C290D1080U830-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	380.5	379.9	379.4	378.8	378.2	377.7	377.2	376.6
115°	441.9	441.6	441.3	440.8	440.2	439.4	438.7	437.9
117.5°	501.1	500.6	500.0	499.4	498.6	497.9	497.1	496.4
120°	540.8	540.8	540.8	540.5	539.8	539.0	538.3	537.5
122.5°	581.7	581.2	580.5	580.0	579.5	578.9	578.4	577.9
125°	642.3	641.6	640.8	640.4	640.1	639.9	639.6	639.4
127.5°	701.2	700.2	699.4	698.5	697.8	697.0	696.3	695.4
130°	741.3	740.8	740.4	739.6	738.7	737.6	736.7	735.7
132.5°	780.4	779.4	778.4	777.4	776.7	775.8	775.1	774.3
135°	838.2	837.9	837.6	837.2	836.4	835.8	835.0	834.2
137.5°	893.4	893.2	893.1	892.5	891.5	890.5	889.6	888.5
140°	930.6	930.6	930.6	930.1	929.2	928.2	927.2	926.2
142.5°	964.3	964.5	964.7	964.3	963.3	962.3	961.4	960.4
145°	1015.4	1015.7	1015.9	1015.5	1014.6	1013.6	1012.6	1011.6
147.5°	1060.3	1060.7	1061.3	1061.1	1060.2	1059.2	1058.3	1057.4
150°	1088.6	1089.4	1090.1	1090.1	1089.4	1088.6	1087.9	1087.2
152.5°	1117.1	1117.9	1118.9	1118.9	1117.9	1117.1	1116.2	1115.2
155°	1153.1	1154.3	1155.6	1155.7	1155.1	1154.3	1153.6	1152.8
157.5°	1186.4	1188.1	1189.7	1190.0	1188.7	1187.6	1186.5	1185.2
160°	1206.2	1207.6	1209.1	1209.3	1208.3	1207.4	1206.4	1205.4
162.5°	1224.1	1225.7	1227.4	1227.6	1226.4	1225.3	1224.1	1222.9
165°	1247.2	1248.9	1250.6	1250.8	1249.6	1248.4	1247.2	1245.9
167.5°	1266.2	1267.9	1269.6	1269.8	1268.6	1267.2	1266.0	1264.8
170°	1276.7	1278.4	1280.1	1280.3	1278.7	1277.3	1275.8	1274.4
172.5°	1284.6	1286.3	1288.0	1288.1	1286.7	1285.2	1283.7	1282.2
175°	1293.2	1294.9	1296.6	1296.7	1295.2	1293.7	1292.3	1290.8
177.5°	1297.1	1298.3	1299.4	1299.4	1298.3	1297.1	1295.9	1294.8
180°	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4	1297.4

(END OF REPORT)