

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: P331644-935

Luminaire Tested: **SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331644-935
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-16,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 290 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 1080 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4512.8 lumens
Efficiency: N/A
Efficacy: 106.9 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

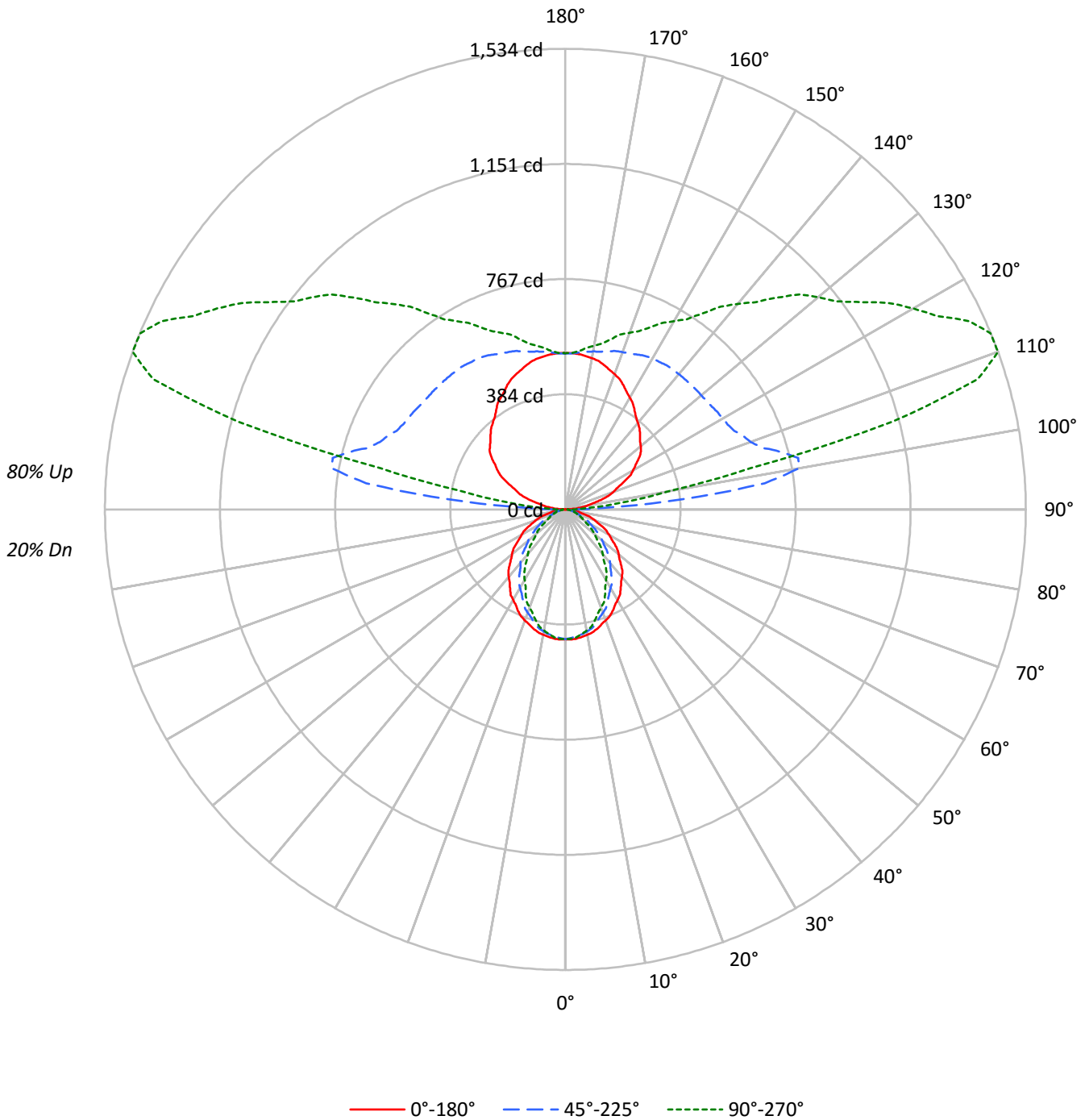
Input Watts (W): 42.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

Luminous Intensity Polar Plot





TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

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	100	100	100	100	88	88	88	88	67	67	67	47	47	47	28	28	28	20				
1	91	87	83	80	80	77	74	71	58	56	55	41	40	39	25	25	24	17				
2	83	76	70	66	73	68	63	59	51	48	45	36	34	33	22	21	21	15				
3	76	67	60	55	67	60	54	49	45	42	38	32	30	28	20	19	18	13				
4	69	59	52	46	61	53	47	42	40	36	33	29	26	24	18	17	15	11				
5	64	53	45	40	56	47	41	36	36	32	28	26	23	21	16	15	14	10				
6	58	47	40	34	52	42	36	31	32	28	24	23	20	18	15	13	12	9				
7	54	42	35	30	48	38	32	27	29	25	21	21	18	16	14	12	11	8				
8	50	38	31	26	44	34	28	24	27	22	19	19	16	14	12	11	10	7				
9	46	35	28	23	41	31	25	21	24	20	17	18	15	13	11	10	9	6				
10	43	32	25	21	38	29	23	19	22	18	15	16	13	11	11	9	8	6				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6978	6978	6978
5°	7005	6891	6929
10°	6951	6779	6720
15°	6870	6578	6387
20°	6761	6290	5976
25°	6649	5964	5574
30°	6490	5630	5062
35°	6337	5267	4610
40°	6182	4890	4089
45°	6003	4464	3617
50°	5815	4037	3152
55°	5624	3578	2711
60°	5406	3094	2251
65°	5154	2598	2048
70°	4858	2143	1884
75°	4492	1953	1759
80°	3961	1748	1599
85°	3112	1371	1371



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.5	0.9
10°-20°	111.1	2.5
20°-30°	156.0	3.5
30°-40°	170.1	3.8
40°-50°	156.4	3.5
50°-60°	122.8	2.7
60°-70°	80.1	1.8
70°-80°	41.3	0.9
80°-90°	15.4	0.3
90°-100°	208.0	4.6
100°-110°	705.7	15.6
110°-120°	749.7	16.6
120°-130°	617.2	13.7
130°-140°	495.6	11.0
140°-150°	374.5	8.3
150°-160°	263.2	5.8
160°-170°	154.9	3.4
170°-180°	50.4	1.1
0°-30°	307.5	6.8
0°-40°	477.6	10.6
0°-60°	756.8	16.8
0°-90°	893.6	19.8
90°-120°	1663.4	36.9
90°-150°	3150.7	69.8
90°-180°	3619.0	80.2
0°-180°	4512.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	432	432	432	432	432	
5°	432	430	425	428	428	41
15°	411	406	394	386	382	116
25°	373	360	335	319	313	172
35°	322	301	267	243	234	201
45°	263	236	196	169	158	203
55°	200	169	127	104	96	179
65°	135	103	68	55	54	134
75°	72	45	31	29	28	76
85°	17	9	7	7	7	20
90°	1	14	34	32	33	3
95°	35	86	392	148	114	37
105°	122	184	741	1325	1127	130
115°	215	272	620	1280	1483	213
125°	300	355	596	1037	1203	266
135°	352	420	589	871	997	272
145°	402	462	586	728	796	252
155°	457	494	569	644	669	210
165°	498	513	545	578	587	140
175°	519	520	524	531	529	49
180°	520	520	520	520	520	



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	432.2	432.2	432.2	432.2	432.2	432.2	432.2	432.2	432.2	432.2	432.2
2.5°	433.8	433.4	433.1	432.7	432.4	431.8	431.0	430.3	429.6	428.8	429.5
5°	432.2	431.8	431.4	430.9	430.5	429.6	428.5	427.4	426.3	425.2	425.9
7.5°	427.7	427.2	426.6	426.1	425.6	424.6	423.4	422.0	420.7	419.4	419.6
10°	424.0	423.4	422.8	422.1	421.5	420.3	418.6	416.9	415.2	413.5	413.2
12.5°	419.3	418.5	417.8	417.1	416.3	414.8	412.6	410.4	408.1	405.9	405.4
15°	411.0	410.1	409.1	408.2	407.3	405.3	402.3	399.4	396.4	393.5	391.8
17.5°	401.0	399.5	398.0	396.6	395.1	392.5	388.7	385.0	381.2	377.4	375.4
20°	393.5	391.8	390.0	388.2	386.5	383.5	379.1	374.8	370.5	366.1	363.9
22.5°	385.4	383.4	381.4	379.5	377.5	374.1	369.2	364.3	359.5	354.6	351.7
25°	373.2	370.3	367.6	364.8	362.1	357.7	352.0	346.3	340.5	334.8	331.2
27.5°	358.4	355.4	352.4	349.4	346.3	341.6	335.1	328.6	322.2	315.7	311.6
30°	348.1	344.8	341.5	338.2	334.9	329.8	322.8	315.9	308.9	302.0	297.6
32.5°	338.1	334.2	330.4	326.5	322.6	317.2	310.1	303.0	295.9	288.8	283.8
35°	321.5	317.1	312.6	308.2	303.8	297.7	290.1	282.4	274.8	267.2	261.7
37.5°	305.0	300.1	295.2	290.3	285.4	279.0	270.8	262.6	254.5	246.3	240.3
40°	293.3	288.2	282.9	277.7	272.5	265.7	257.3	248.8	240.4	232.0	225.8
42.5°	281.5	276.0	270.4	265.0	259.5	252.4	243.7	235.0	226.3	217.6	211.2
45°	262.9	257.0	251.2	245.4	239.5	232.0	222.9	213.8	204.7	195.5	189.4
47.5°	244.7	238.5	232.4	226.2	220.0	212.2	202.8	193.4	183.9	174.5	168.4
50°	231.5	225.4	219.2	213.0	206.9	199.0	189.4	179.9	170.3	160.7	154.7
52.5°	218.7	212.2	205.9	199.4	193.0	185.0	175.6	166.3	157.0	147.6	141.8
55°	199.8	193.1	186.3	179.5	172.7	164.7	155.2	145.9	136.5	127.1	121.9
57.5°	180.6	173.6	166.6	159.7	152.7	144.7	135.7	126.7	117.7	108.7	103.8
60°	167.4	160.5	153.5	146.5	139.6	131.6	122.7	113.7	104.8	95.8	91.4
62.5°	154.5	147.7	140.7	133.7	126.7	119.0	110.5	101.9	93.4	84.9	80.7
65°	134.9	127.9	120.9	113.8	106.8	99.4	91.5	83.7	75.9	68.0	65.1
67.5°	116.0	109.0	102.0	95.1	88.1	81.0	74.0	67.0	59.9	52.9	51.5
70°	102.9	96.1	89.3	82.6	75.8	69.4	63.4	57.3	51.4	45.4	44.5
72.5°	90.3	83.9	77.3	70.9	64.3	58.7	53.9	49.1	44.3	39.4	38.7
75°	72.0	65.9	59.8	53.7	47.6	43.1	40.1	37.2	34.3	31.3	30.7
77.5°	53.9	48.6	43.2	37.9	32.5	29.2	27.7	26.3	24.9	23.5	23.2
80°	42.6	38.2	33.8	29.4	24.9	22.2	21.4	20.5	19.6	18.8	18.4
82.5°	32.3	28.8	25.4	22.0	18.5	16.4	15.8	15.2	14.6	14.1	13.9
85°	16.8	15.0	13.2	11.4	9.6	8.4	8.2	7.9	7.7	7.4	7.4
87.5°	5.2	5.3	5.5	5.3	5.2	5.5	6.5	7.9	9.1	9.3	9.0
90°	1.0	4.0	8.0	10.0	12.0	15.0	20.0	27.0	33.0	34.0	33.0
92.5°	12.2	17.6	24.8	29.2	36.0	45.4	68.0	99.8	128.2	130.0	109.9
95°	35.0	39.0	49.0	58.0	74.0	98.0	144.0	231.0	347.1	392.1	343.1
97.5°	57.0	62.4	73.0	86.6	105.0	132.2	190.0	311.3	504.1	669.3	702.1
100°	77.0	80.0	89.0	105.0	125.0	153.0	206.0	328.0	544.1	790.1	934.2
102.5°	95.4	97.6	106.6	122.6	143.4	171.4	220.4	328.9	528.9	794.2	1020.6
105°	122.0	126.1	133.0	148.0	170.0	198.0	245.0	334.1	499.1	741.1	1007.2
107.5°	150.8	154.0	160.8	174.6	196.5	224.6	270.3	347.8	484.3	684.3	919.4
110°	170.0	174.0	180.0	193.0	214.0	243.1	287.1	359.0	481.1	657.1	864.2



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	187.6	191.7	198.5	210.6	230.8	260.6	303.1	371.1	481.9	639.6	825.8
115°	215.1	220.1	226.0	238.1	258.0	285.1	328.0	389.1	486.1	620.1	778.2
117.5°	243.5	247.5	253.5	264.1	283.3	311.3	351.0	408.3	493.3	610.7	748.1
120°	261.1	265.0	271.0	280.1	300.1	328.0	367.0	421.1	498.1	605.1	732.1
122.5°	277.8	281.0	287.1	296.9	316.8	345.7	382.3	432.3	503.7	601.9	718.5
125°	300.1	303.1	309.1	321.1	341.0	369.1	405.1	450.1	512.1	596.2	699.1
127.5°	317.6	321.7	330.1	343.3	362.5	391.2	426.3	466.7	520.7	592.7	681.1
130°	328.0	332.1	342.1	356.1	376.1	404.1	439.1	477.1	527.1	591.1	669.2
132.5°	337.7	342.5	353.3	368.1	388.9	416.9	450.3	487.5	533.5	590.3	659.5
135°	352.1	356.1	368.1	383.1	406.0	434.1	466.1	501.1	541.1	589.1	646.1
137.5°	365.7	370.5	382.5	398.5	421.3	447.3	478.9	511.5	547.9	588.9	636.7
140°	376.1	380.0	392.1	408.1	430.1	456.1	486.1	517.1	551.1	588.1	631.1
142.5°	386.5	389.7	400.9	416.9	438.1	462.5	491.7	521.9	553.5	588.1	625.5
145°	402.1	406.0	416.1	431.1	451.1	473.1	500.1	528.1	556.1	586.1	618.1
147.5°	418.9	421.9	431.4	445.3	461.9	481.5	506.9	531.5	556.9	582.6	610.5
150°	430.1	433.1	441.1	454.1	469.1	487.1	510.1	533.1	556.1	580.1	604.1
152.5°	441.3	442.7	450.6	462.1	476.3	492.7	513.3	533.9	554.5	576.1	598.5
155°	457.1	458.1	464.1	475.1	486.1	501.1	518.1	535.1	552.1	569.1	588.1
157.5°	470.3	471.3	476.1	485.7	494.5	507.1	521.5	535.1	547.5	561.9	578.3
160°	479.1	480.1	484.1	492.1	500.1	511.1	523.1	535.1	545.1	557.2	571.1
162.5°	487.9	487.3	491.3	497.7	504.9	513.5	523.9	534.3	542.7	553.1	564.7
165°	498.1	497.1	499.1	505.1	510.1	516.1	525.1	532.1	538.1	545.1	554.1
167.5°	506.5	505.3	507.1	510.9	514.5	518.3	524.9	530.7	533.5	538.1	543.7
170°	512.1	510.1	511.1	514.1	516.1	519.1	524.1	529.1	531.1	534.1	538.1
172.5°	515.3	514.1	513.5	516.5	517.7	519.9	523.3	526.7	527.9	529.3	532.5
175°	519.1	518.1	517.1	519.1	519.1	520.1	522.1	524.1	523.1	524.1	525.1
177.5°	520.9	519.3	518.5	520.1	520.1	520.1	520.9	522.5	520.9	520.1	520.9
180°	520.1	520.1	520.1	520.1	520.1	520.1	520.1	520.1	520.1	520.1	520.1



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	432.2	432.2	432.2	432.2	432.2	432.2	432.2	432.2
2.5°	430.2	430.8	431.5	431.8	431.7	431.5	431.4	431.3
5°	426.7	427.5	428.3	428.5	428.3	428.0	427.7	427.5
7.5°	419.8	420.1	420.3	420.2	419.7	419.2	418.8	418.4
10°	412.9	412.7	412.4	412.0	411.5	411.0	410.4	409.9
12.5°	405.0	404.5	404.1	403.4	402.5	401.7	400.8	399.9
15°	390.2	388.5	386.8	385.6	384.8	383.8	383.0	382.1
17.5°	373.4	371.4	369.5	367.8	366.3	364.8	363.3	361.8
20°	361.8	359.6	357.4	355.3	353.4	351.5	349.7	347.8
22.5°	349.0	346.1	343.4	341.2	339.8	338.4	336.9	335.5
25°	327.7	324.1	320.6	318.1	316.8	315.5	314.2	312.9
27.5°	307.4	303.2	299.1	296.0	293.9	291.9	289.8	287.7
30°	293.1	288.7	284.2	280.9	278.4	276.1	273.8	271.5
32.5°	278.7	273.6	268.5	264.9	262.8	260.5	258.3	256.1
35°	256.2	250.7	245.2	241.5	239.6	237.7	235.8	233.9
37.5°	234.3	228.3	222.2	218.1	215.9	213.7	211.5	209.3
40°	219.6	213.4	207.2	203.0	200.8	198.5	196.2	194.0
42.5°	204.7	198.4	192.0	187.8	185.5	183.4	181.2	179.0
45°	183.2	177.0	170.9	166.8	164.7	162.6	160.5	158.4
47.5°	162.2	156.1	150.0	145.9	144.0	142.2	140.3	138.4
50°	148.8	142.8	136.7	132.9	131.0	129.2	127.3	125.5
52.5°	136.0	130.3	124.5	120.7	119.1	117.4	115.6	114.0
55°	116.7	111.5	106.2	102.8	101.2	99.5	97.9	96.3
57.5°	99.1	94.3	89.5	86.4	85.1	83.7	82.3	80.8
60°	87.0	82.6	78.1	75.2	73.8	72.4	71.0	69.7
62.5°	76.5	72.2	68.0	65.4	64.6	63.8	62.9	62.1
65°	62.2	59.2	56.2	54.6	54.3	54.1	53.8	53.6
67.5°	50.2	48.8	47.4	46.7	46.3	46.1	45.8	45.5
70°	43.7	42.8	41.9	41.3	40.9	40.6	40.2	39.9
72.5°	38.0	37.2	36.5	36.1	35.8	35.6	35.4	35.2
75°	30.0	29.4	28.8	28.5	28.4	28.3	28.2	28.2
77.5°	22.7	22.4	22.0	21.9	21.7	21.5	21.4	21.3
80°	18.1	17.7	17.4	17.2	17.2	17.2	17.2	17.2
82.5°	13.7	13.4	13.3	13.2	13.2	13.2	13.2	13.2
85°	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
87.5°	8.8	8.3	8.6	8.8	8.8	8.8	8.8	8.8
90°	32.0	30.0	32.0	33.0	33.0	33.0	33.0	33.0
92.5°	87.2	74.8	66.4	60.2	59.4	56.2	57.0	55.4
95°	262.1	201.0	159.0	137.0	124.0	116.1	113.0	114.0
97.5°	611.5	500.3	392.1	319.9	272.1	247.5	232.8	224.5
100°	913.2	789.2	652.1	531.1	448.1	405.1	376.1	358.1
102.5°	1110.9	1082.8	982.6	854.4	764.1	690.8	654.5	630.2
105°	1215.2	1328.3	1341.3	1308.3	1246.2	1184.2	1141.3	1127.2
107.5°	1140.1	1310.3	1414.3	1462.7	1470.5	1467.1	1458.4	1439.9
110°	1075.2	1254.2	1382.2	1464.3	1507.3	1526.3	1535.3	1534.3



TEST NUMBER: P331644-935

CATALOG NUMBER: SA2XXRDIP-C290D1080U935-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	1016.0	1187.8	1324.6	1418.7	1478.5	1510.3	1527.3	1532.7
115°	943.2	1097.3	1228.2	1331.3	1402.3	1448.3	1474.3	1483.3
117.5°	888.4	1023.6	1142.5	1239.1	1311.5	1360.0	1387.5	1395.1
120°	861.2	985.2	1091.2	1182.2	1252.2	1299.2	1328.3	1338.3
122.5°	839.6	953.2	1053.6	1135.8	1198.6	1244.8	1270.7	1279.0
125°	808.1	911.2	999.2	1074.2	1132.2	1170.3	1195.2	1203.2
127.5°	777.1	870.4	953.4	1022.6	1073.2	1108.8	1130.4	1136.9
130°	757.2	843.2	922.2	988.2	1037.2	1071.3	1091.2	1099.2
132.5°	738.0	817.6	890.2	952.2	1000.4	1034.4	1052.8	1060.0
135°	711.1	777.1	843.2	899.1	942.2	975.2	993.2	997.2
137.5°	689.7	744.9	797.4	846.2	885.4	913.8	929.6	935.6
140°	676.1	724.2	770.2	814.2	846.2	872.2	887.2	893.2
142.5°	665.0	705.8	745.4	782.1	812.5	836.2	849.5	850.8
145°	649.1	682.2	713.2	742.2	766.1	783.2	793.2	796.2
147.5°	637.0	663.0	687.2	708.3	728.1	741.8	748.6	750.4
150°	628.1	650.1	671.1	689.1	704.1	716.2	722.1	723.2
152.5°	619.3	639.7	657.5	673.1	684.9	695.3	699.7	699.9
155°	607.1	623.1	638.1	649.1	660.1	667.1	671.1	669.2
157.5°	592.9	606.3	618.9	627.5	635.3	641.1	642.9	642.9
160°	584.1	595.1	606.1	613.1	620.1	625.1	626.1	626.1
162.5°	575.3	584.7	594.1	599.5	606.5	609.9	610.9	610.1
165°	562.1	569.1	576.1	580.1	584.1	588.1	588.1	587.1
167.5°	549.5	554.9	559.7	563.4	565.1	567.3	567.1	565.9
170°	543.1	546.1	550.1	552.1	553.1	556.1	555.1	553.1
172.5°	535.9	538.1	541.3	542.5	543.5	544.9	543.9	542.7
175°	528.1	529.1	530.1	531.1	531.1	532.1	531.1	529.1
177.5°	522.5	522.5	523.3	523.3	523.3	523.3	522.5	520.9
180°	520.1	520.1	520.1	520.1	520.1	520.1	520.1	520.1

(END OF REPORT)