

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: P331643-840

Luminaire Tested: **SA2XXRDIP-C290D1080U840-4F0-1E-UDD-F1**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331643-840
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-C290D1080U840-4F0-1E-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: 4935.0 lumens
Efficiency: N/A
Efficacy: 116.9 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

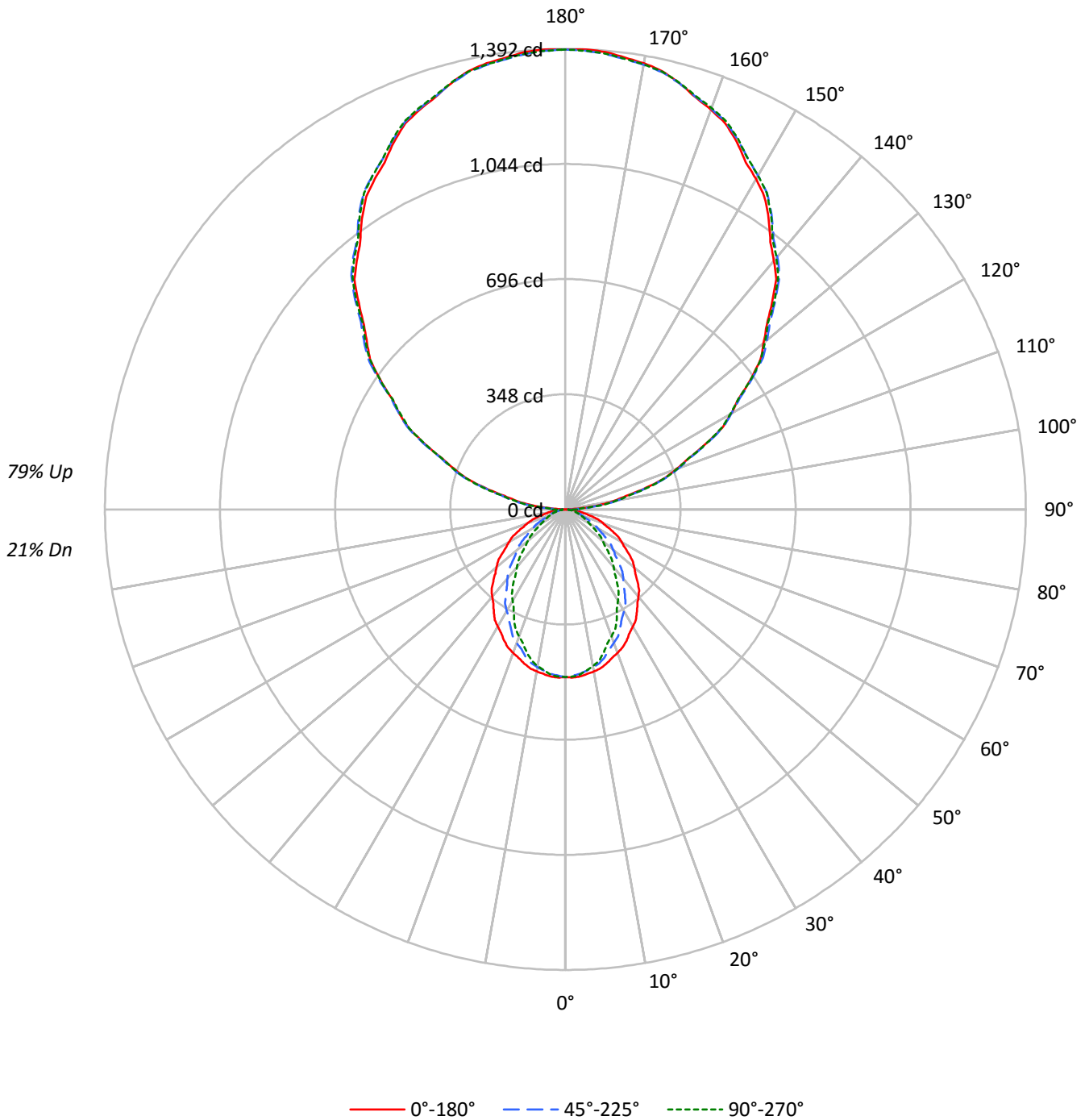
Input Watts (W): 42.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	8186	8186	8186
5°	8217	8083	8126
10°	8153	7950	7883
15°	8058	7714	7492
20°	7930	7378	7009
25°	7798	6996	6538
30°	7612	6604	5936
35°	7433	6177	5409
40°	7253	5735	4795
45°	7040	5236	4242
50°	6822	4735	3697
55°	6598	4197	3178
60°	6339	3630	2638
65°	6044	3049	2399
70°	5698	2511	2209
75°	5265	2289	2059
80°	4649	2046	1878
85°	3649	1612	1612



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.4	1.0
10°-20°	130.3	2.6
20°-30°	183.0	3.7
30°-40°	199.5	4.0
40°-50°	183.4	3.7
50°-60°	144.1	2.9
60°-70°	93.9	1.9
70°-80°	48.4	1.0
80°-90°	18.1	0.4
90°-100°	88.1	1.8
100°-110°	273.6	5.5
110°-120°	467.6	9.5
120°-130°	614.9	12.5
130°-140°	690.2	14.0
140°-150°	676.7	13.7
150°-160°	567.6	11.5
160°-170°	376.5	7.6
170°-180°	131.6	2.7
0°-30°	360.7	7.3
0°-40°	560.2	11.4
0°-60°	887.7	18.0
0°-90°	1048.2	21.2
90°-120°	829.3	16.8
90°-150°	2811.1	57.0
90°-180°	3887.0	78.8
0°-180°	4935.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	507	507	507	507	507	
5°	507	504	499	502	501	48
15°	482	476	462	453	448	136
25°	438	422	393	375	367	201
35°	377	353	313	285	274	236
45°	308	277	229	198	186	238
55°	234	198	149	123	113	209
65°	158	121	80	65	63	157
75°	84	53	37	34	33	89
85°	20	11	9	9	9	23
90°	1	16	41	39	40	4
95°	61	72	75	75	73	70
105°	252	256	258	260	260	266
115°	469	476	474	473	469	464
125°	683	692	690	686	685	610
135°	883	896	899	897	894	682
145°	1072	1080	1087	1088	1084	670
155°	1226	1229	1233	1238	1235	564
165°	1334	1333	1333	1340	1335	376
175°	1388	1384	1382	1389	1383	132
180°	1390	1390	1390	1390	1390	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	507.0	507.0	507.0	507.0	507.0	507.0	507.0	507.0	507.0	507.0	507.0
2.5°	508.8	508.4	508.0	507.6	507.2	506.4	505.5	504.7	503.8	502.9	503.7
5°	507.0	506.4	505.9	505.4	504.9	503.9	502.6	501.3	500.0	498.7	499.6
7.5°	501.7	501.1	500.4	499.8	499.2	498.1	496.6	494.9	493.4	491.9	492.1
10°	497.3	496.6	495.8	495.1	494.4	493.0	491.0	489.0	487.0	484.9	484.6
12.5°	491.8	490.9	490.0	489.2	488.3	486.6	483.9	481.3	478.7	476.1	475.5
15°	482.1	481.0	479.9	478.8	477.7	475.3	471.9	468.5	464.9	461.5	459.6
17.5°	470.3	468.6	466.9	465.1	463.4	460.4	456.0	451.5	447.1	442.6	440.3
20°	461.5	459.5	457.5	455.3	453.3	449.8	444.6	439.6	434.5	429.4	426.9
22.5°	452.0	449.7	447.4	445.1	442.8	438.8	433.0	427.3	421.6	415.9	412.5
25°	437.7	434.3	431.1	427.9	424.6	419.6	412.8	406.2	399.4	392.7	388.5
27.5°	420.4	416.9	413.3	409.8	406.2	400.6	393.0	385.5	377.9	370.3	365.5
30°	408.3	404.5	400.5	396.7	392.8	386.8	378.6	370.5	362.3	354.2	349.0
32.5°	396.6	392.0	387.5	382.9	378.4	372.0	363.8	355.4	347.1	338.7	332.9
35°	377.1	371.9	366.7	361.5	356.3	349.2	340.2	331.2	322.3	313.4	306.9
37.5°	357.7	351.9	346.2	340.5	334.8	327.2	317.6	308.0	298.5	288.9	281.9
40°	344.1	338.0	331.8	325.7	319.6	311.6	301.7	291.9	282.0	272.1	264.8
42.5°	330.1	323.7	317.2	310.8	304.4	296.0	285.8	275.6	265.4	255.2	247.7
45°	308.3	301.4	294.6	287.8	280.9	272.2	261.5	250.7	240.0	229.3	222.2
47.5°	287.0	279.7	272.6	265.3	258.0	248.9	237.8	226.8	215.7	204.7	197.5
50°	271.6	264.4	257.1	249.8	242.7	233.4	222.2	211.0	199.8	188.5	181.5
52.5°	256.5	248.9	241.5	233.9	226.3	217.0	206.0	195.1	184.1	173.1	166.3
55°	234.4	226.5	218.5	210.6	202.6	193.2	182.1	171.1	160.1	149.1	143.0
57.5°	211.8	203.6	195.4	187.3	179.2	169.8	159.2	148.7	138.0	127.4	121.8
60°	196.3	188.2	180.1	171.9	163.7	154.4	143.9	133.4	122.9	112.4	107.1
62.5°	181.3	173.2	165.0	156.8	148.7	139.6	129.6	119.6	109.6	99.6	94.6
65°	158.2	150.0	141.8	133.5	125.2	116.5	107.3	98.2	89.0	79.8	76.3
67.5°	136.0	127.8	119.7	111.5	103.3	95.0	86.7	78.6	70.3	62.0	60.4
70°	120.7	112.7	104.7	96.8	88.9	81.4	74.3	67.3	60.3	53.2	52.2
72.5°	105.9	98.4	90.7	83.1	75.4	68.9	63.2	57.6	51.9	46.3	45.3
75°	84.4	77.3	70.2	63.0	55.8	50.6	47.1	43.6	40.2	36.7	36.0
77.5°	63.2	57.0	50.7	44.4	38.2	34.2	32.5	30.9	29.2	27.6	27.2
80°	50.0	44.8	39.6	34.4	29.2	26.1	25.0	24.0	23.0	22.0	21.6
82.5°	37.9	33.8	29.8	25.8	21.7	19.3	18.6	17.9	17.2	16.6	16.3
85°	19.7	17.6	15.5	13.3	11.2	9.9	9.6	9.3	9.0	8.7	8.7
87.5°	6.1	6.1	6.1	6.1	6.0	6.6	7.7	8.9	10.0	11.1	11.0
90°	1.2	4.3	7.5	10.6	13.7	18.1	23.8	29.6	35.3	41.1	40.5
92.5°	20.9	23.1	25.4	27.8	30.1	31.9	33.2	34.6	36.0	37.3	37.4
95°	61.0	63.6	66.2	68.8	71.4	73.0	73.5	74.0	74.5	75.0	75.0
97.5°	111.5	113.7	116.0	118.4	120.6	122.3	123.2	124.2	125.2	126.2	126.2
100°	149.0	151.1	153.2	155.2	157.3	158.8	159.6	160.3	161.1	161.9	161.9
102.5°	188.4	190.1	191.8	193.4	195.1	196.4	197.4	198.3	199.3	200.4	200.6
105°	252.2	253.0	253.8	254.6	255.3	256.0	256.5	257.0	257.5	258.0	258.6
107.5°	316.5	317.6	318.8	319.9	321.0	321.6	321.6	321.6	321.6	321.6	321.8
110°	357.8	359.3	360.9	362.4	364.1	364.9	364.9	364.9	364.9	364.9	364.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	402.8	404.3	406.0	407.5	409.1	409.8	409.5	409.3	409.1	408.9	408.3
115°	469.2	470.8	472.3	473.9	475.4	475.9	475.4	474.9	474.4	473.9	473.6
117.5°	535.3	537.5	539.6	541.6	543.7	544.0	542.6	541.1	539.7	538.2	537.6
120°	579.5	581.6	583.7	585.7	587.8	587.8	585.7	583.7	581.6	579.5	579.5
122.5°	619.9	622.4	624.8	627.3	629.9	630.4	628.9	627.4	626.0	624.5	623.9
125°	682.7	685.1	687.4	689.7	692.1	692.9	692.1	691.4	690.5	689.7	688.9
127.5°	744.0	746.9	749.9	752.9	755.8	756.9	755.9	755.0	754.1	753.1	752.1
130°	782.4	785.8	789.2	792.5	796.0	797.4	796.9	796.4	795.9	795.4	794.8
132.5°	825.6	828.4	831.1	833.8	836.7	838.1	838.2	838.3	838.4	838.5	837.4
135°	883.3	886.2	889.1	891.9	894.7	896.5	897.0	897.5	898.1	898.6	898.3
137.5°	944.0	946.4	948.8	951.1	953.4	954.9	955.6	956.3	956.9	957.7	957.5
140°	980.7	983.0	985.3	987.7	990.1	991.9	993.2	994.5	995.8	997.0	997.0
142.5°	1018.2	1020.6	1022.9	1025.2	1027.5	1029.2	1030.1	1031.0	1031.9	1032.8	1033.0
145°	1072.2	1074.0	1075.8	1077.6	1079.4	1081.2	1082.7	1084.3	1085.8	1087.4	1087.6
147.5°	1120.2	1122.5	1124.6	1126.8	1129.0	1130.6	1131.7	1132.8	1133.8	1134.8	1135.4
150°	1153.1	1154.7	1156.2	1157.8	1159.3	1160.6	1161.7	1162.8	1163.8	1164.9	1165.6
152.5°	1182.1	1183.8	1185.3	1186.9	1188.4	1189.8	1191.1	1192.3	1193.7	1194.9	1195.9
155°	1225.9	1226.6	1227.4	1228.2	1229.0	1229.7	1230.5	1231.3	1232.1	1232.8	1234.2
157.5°	1263.1	1263.6	1264.1	1264.7	1265.3	1265.7	1266.2	1266.7	1267.1	1267.6	1269.4
160°	1285.7	1286.2	1286.7	1287.2	1287.8	1288.1	1288.4	1288.7	1288.9	1289.2	1290.7
162.5°	1306.3	1306.4	1306.5	1306.6	1306.8	1306.9	1307.2	1307.4	1307.7	1308.0	1309.7
165°	1333.7	1333.5	1333.2	1332.9	1332.7	1332.6	1332.6	1332.6	1332.6	1332.6	1334.4
167.5°	1356.8	1355.9	1355.1	1354.4	1353.6	1353.2	1353.1	1353.1	1353.0	1353.0	1354.8
170°	1369.0	1368.2	1367.4	1366.5	1365.8	1365.3	1365.0	1364.7	1364.5	1364.2	1366.0
172.5°	1377.4	1376.6	1375.8	1375.0	1374.2	1373.7	1373.5	1373.2	1372.9	1372.7	1374.5
175°	1387.8	1386.9	1386.1	1385.3	1384.6	1383.9	1383.4	1382.9	1382.4	1381.8	1383.7
177.5°	1391.9	1391.3	1390.7	1390.1	1389.5	1388.9	1388.5	1388.1	1387.7	1387.3	1388.5
180°	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	507.0	507.0	507.0	507.0	507.0	507.0	507.0	507.0
2.5°	504.5	505.3	506.1	506.4	506.3	506.1	505.9	505.8
5°	500.5	501.4	502.3	502.6	502.3	502.0	501.7	501.4
7.5°	492.4	492.7	492.9	492.8	492.3	491.7	491.2	490.7
10°	484.3	484.0	483.7	483.2	482.6	482.0	481.4	480.8
12.5°	475.0	474.4	473.9	473.1	472.1	471.1	470.1	469.1
15°	457.7	455.7	453.7	452.3	451.3	450.2	449.2	448.2
17.5°	438.0	435.7	433.4	431.4	429.6	427.9	426.1	424.3
20°	424.3	421.7	419.2	416.8	414.5	412.3	410.1	407.9
22.5°	409.3	406.0	402.7	400.2	398.5	396.9	395.2	393.5
25°	384.4	380.1	376.0	373.1	371.6	370.0	368.5	367.0
27.5°	360.5	355.7	350.8	347.2	344.8	342.3	339.9	337.5
30°	343.8	338.6	333.4	329.4	326.6	323.9	321.1	318.4
32.5°	326.9	320.9	315.0	310.7	308.2	305.6	303.0	300.4
35°	300.5	294.1	287.6	283.3	281.0	278.8	276.6	274.4
37.5°	274.8	267.7	260.6	255.8	253.3	250.6	248.1	245.5
40°	257.6	250.3	243.1	238.1	235.5	232.9	230.1	227.5
42.5°	240.1	232.7	225.2	220.3	217.6	215.1	212.5	210.0
45°	214.9	207.6	200.5	195.6	193.2	190.7	188.2	185.8
47.5°	190.3	183.1	175.9	171.2	169.0	166.7	164.5	162.3
50°	174.5	167.4	160.4	155.8	153.7	151.6	149.4	147.2
52.5°	159.6	152.8	146.0	141.6	139.7	137.6	135.6	133.7
55°	136.8	130.8	124.6	120.6	118.7	116.7	114.8	112.9
57.5°	116.2	110.6	105.0	101.4	99.8	98.2	96.5	94.8
60°	102.0	96.8	91.6	88.2	86.5	84.9	83.3	81.7
62.5°	89.7	84.7	79.8	76.7	75.7	74.8	73.8	72.8
65°	72.9	69.4	65.9	64.0	63.7	63.4	63.1	62.8
67.5°	58.9	57.3	55.6	54.7	54.3	54.0	53.7	53.4
70°	51.2	50.2	49.2	48.5	48.0	47.6	47.2	46.8
72.5°	44.5	43.6	42.8	42.3	42.0	41.8	41.5	41.3
75°	35.2	34.5	33.8	33.4	33.3	33.2	33.1	33.0
77.5°	26.7	26.3	25.9	25.7	25.4	25.2	25.1	24.9
80°	21.2	20.8	20.4	20.2	20.2	20.2	20.2	20.2
82.5°	16.1	15.8	15.6	15.5	15.5	15.5	15.5	15.5
85°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
87.5°	10.8	10.6	10.4	10.3	10.4	10.4	10.5	10.5
90°	40.0	39.5	39.0	38.9	39.1	39.4	39.6	39.9
92.5°	37.5	37.6	37.8	37.8	37.9	37.9	38.0	38.0
95°	75.0	75.0	75.0	74.8	74.3	73.8	73.2	72.7
97.5°	126.2	126.2	126.2	126.2	126.1	126.1	126.0	126.0
100°	161.9	161.9	161.9	161.8	161.5	161.3	161.0	160.7
102.5°	200.8	201.0	201.2	201.2	200.9	200.7	200.4	200.2
105°	259.1	259.6	260.1	260.4	260.4	260.4	260.4	260.4
107.5°	322.0	322.2	322.4	321.9	320.8	319.6	318.4	317.2
110°	364.9	364.9	364.9	364.5	363.7	362.8	362.0	361.3



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CATALOG NUMBER: SA2XXRDIP-C290D1080U840-4F0-1E-UDD-F1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	407.7	407.1	406.5	405.9	405.3	404.7	404.1	403.5
115°	473.4	473.1	472.8	472.3	471.6	470.8	470.0	469.2
117.5°	536.9	536.3	535.7	535.0	534.2	533.4	532.6	531.9
120°	579.5	579.5	579.5	579.1	578.3	577.5	576.7	575.9
122.5°	623.3	622.7	622.0	621.5	620.9	620.3	619.8	619.1
125°	688.2	687.4	686.6	686.1	685.8	685.6	685.3	685.1
127.5°	751.2	750.2	749.3	748.4	747.6	746.8	746.0	745.1
130°	794.3	793.8	793.2	792.4	791.4	790.3	789.3	788.3
132.5°	836.2	835.1	833.9	832.9	832.1	831.2	830.4	829.6
135°	898.1	897.8	897.5	897.0	896.2	895.4	894.6	893.8
137.5°	957.3	957.0	956.8	956.2	955.1	954.1	953.1	952.0
140°	997.0	997.0	997.0	996.5	995.5	994.5	993.4	992.4
142.5°	1033.2	1033.4	1033.6	1033.2	1032.1	1031.1	1030.1	1029.0
145°	1087.9	1088.2	1088.4	1088.0	1087.0	1086.0	1084.9	1083.9
147.5°	1136.0	1136.5	1137.1	1136.9	1135.9	1134.9	1133.9	1133.0
150°	1166.4	1167.2	1168.0	1168.0	1167.2	1166.4	1165.6	1164.9
152.5°	1196.9	1197.8	1198.8	1198.8	1197.8	1196.9	1195.9	1194.9
155°	1235.5	1236.8	1238.1	1238.3	1237.6	1236.8	1236.0	1235.2
157.5°	1271.1	1272.9	1274.7	1275.0	1273.6	1272.4	1271.2	1269.9
160°	1292.3	1293.8	1295.5	1295.7	1294.6	1293.6	1292.5	1291.5
162.5°	1311.5	1313.2	1315.0	1315.2	1314.0	1312.8	1311.5	1310.3
165°	1336.3	1338.1	1339.9	1340.1	1338.9	1337.6	1336.3	1334.9
167.5°	1356.7	1358.5	1360.3	1360.5	1359.2	1357.8	1356.5	1355.1
170°	1367.9	1369.7	1371.5	1371.7	1370.1	1368.6	1367.0	1365.4
172.5°	1376.3	1378.2	1380.0	1380.1	1378.6	1377.0	1375.4	1373.8
175°	1385.5	1387.4	1389.2	1389.3	1387.8	1386.1	1384.6	1383.0
177.5°	1389.8	1391.0	1392.2	1392.2	1391.0	1389.8	1388.5	1387.3
180°	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1	1390.1

(END OF REPORT)