

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: P332637-840

Luminaire Tested: **SA4XXDIP-C1020D590U840-4F0-1E-UDD-D**

Issue Date: 10/7/2019

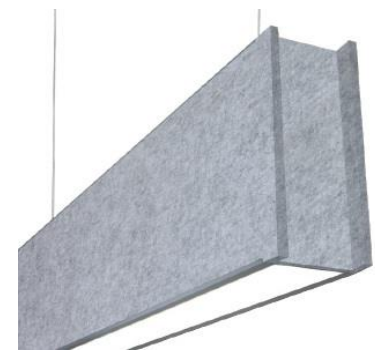
**Test Information**

Test Method: LM-79-08  
Report Number: P332637-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 10/7/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

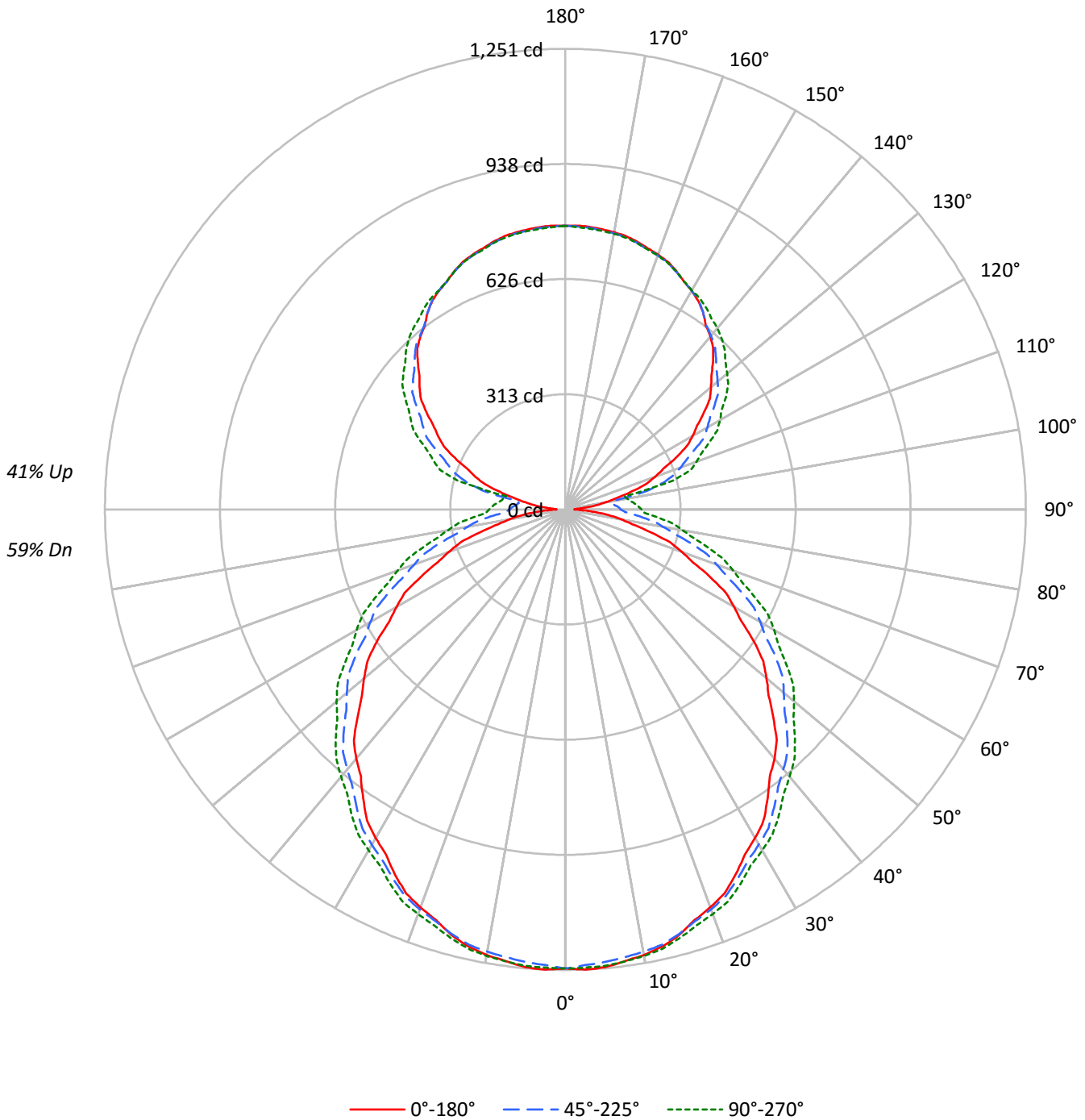
Lumens per Lamp: N/A  
Luminaire Lumens: 6635.0 lumens  
Efficiency: N/A  
Efficacy: 136.0 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

Input Watts (W): 48.8  
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



TEST NUMBER: P332637-840  
CATALOG NUMBER: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D

### Luminous Intensity Polar Plot





TEST NUMBER: P332637-840

CATALOG NUMBER: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	65	65	65	59																			
1	99	94	89	85	92	88	84	80	76	73	70	65	63	61	55	54	52	47																			
2	89	81	74	69	83	76	70	65	66	61	57	56	53	50	48	45	43	39																			
3	81	71	63	57	75	66	59	54	58	52	48	50	45	42	42	39	36	32																			
4	74	63	54	48	69	59	51	45	51	45	40	44	39	35	37	34	31	27																			
5	68	56	47	41	63	52	44	39	45	39	34	39	34	30	33	30	27	23																			
6	63	50	41	35	58	47	39	33	41	35	30	35	30	27	30	26	23	20																			
7	58	45	37	31	54	42	35	29	37	31	26	32	27	23	28	24	21	18																			
8	54	41	33	27	50	38	31	26	34	28	23	29	24	21	25	21	18	16																			
9	50	37	29	24	46	35	28	23	31	25	21	27	22	19	23	19	16	14																			
10	47	34	27	22	43	32	25	21	28	23	19	25	20	17	22	18	15	13																			

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

	0°	45°	90°
0°	10066	10066	10066
5°	10097	9838	9866
10°	10035	9677	9669
15°	9945	9490	9439
20°	9810	9285	9213
25°	9657	9054	8967
30°	9492	8825	8712
35°	9305	8591	8490
40°	9154	8367	8259
45°	8931	8161	8059
50°	8744	7924	7849
55°	8549	7700	7603
60°	8247	7415	7378
65°	7914	7109	7102
70°	7513	6760	6779
75°	6949	6374	6488
80°	6328	6004	6203
85°	5536	5679	6037



TEST NUMBER: P332637-840

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.1	1.8
10°-20°	338.3	5.1
20°-30°	511.5	7.7
30°-40°	618.9	9.3
40°-50°	654.3	9.9
50°-60°	615.8	9.3
60°-70°	510.9	7.7
70°-80°	358.9	5.4
80°-90°	205.1	3.1
90°-100°	146.8	2.2
100°-110°	257.1	3.9
110°-120°	381.1	5.7
120°-130°	441.6	6.7
130°-140°	451.0	6.8
140°-150°	411.0	6.2
150°-160°	329.1	5.0
160°-170°	212.2	3.2
170°-180°	73.2	1.1
0°-30°	967.9	14.6
0°-40°	1586.8	23.9
0°-60°	2856.9	43.1
0°-90°	3931.8	59.3
90°-120°	785.1	11.8
90°-150°	2088.7	31.5
90°-180°	2703.0	40.7
0°-180°	6635.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1247	1247	1247	1247	1247	
5°	1248	1244	1234	1245	1244	118
15°	1197	1198	1194	1206	1205	337
25°	1095	1103	1107	1122	1124	504
35°	958	974	989	1007	1012	600
45°	799	825	852	875	882	617
55°	626	656	697	724	733	557
65°	433	478	525	559	571	429
75°	240	292	350	388	402	255
85°	74	133	196	236	251	79
90°	24	86	151	193	207	16
95°	50	78	134	174	188	55
105°	186	219	272	309	302	196
115°	332	348	390	421	432	327
125°	461	463	495	523	532	411
135°	567	567	579	602	612	437
145°	652	653	653	662	668	408
155°	714	714	713	715	713	329
165°	753	750	750	754	749	213
175°	770	767	767	772	766	73
180°	770	770	770	770	770	



TEST NUMBER: P332637-840  
 CATALOG NUMBER: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1251.3	1250.6	1249.8	1249.1	1248.3	1247.0	1245.0	1243.0	1241.0	1239.0	1240.7
5°	1248.2	1247.3	1246.4	1245.5	1244.6	1242.9	1240.8	1238.6	1236.5	1234.3	1236.8
7.5°	1237.6	1237.1	1236.5	1236.0	1235.4	1234.3	1232.4	1230.6	1228.8	1227.0	1229.8
10°	1228.7	1228.4	1228.1	1227.8	1227.5	1226.5	1225.0	1223.5	1221.8	1220.3	1223.1
12.5°	1216.4	1216.4	1216.3	1216.2	1216.2	1215.6	1214.6	1213.5	1212.4	1211.3	1214.0
15°	1196.6	1196.9	1197.2	1197.5	1197.8	1197.5	1196.6	1195.7	1194.7	1193.8	1196.6
17.5°	1169.5	1170.4	1171.3	1172.3	1173.3	1173.6	1173.4	1173.3	1173.1	1172.9	1175.7
20°	1150.5	1151.4	1152.4	1153.3	1154.3	1154.9	1155.2	1155.5	1155.8	1156.1	1159.2
22.5°	1129.2	1130.4	1131.7	1132.9	1134.0	1134.9	1135.4	1136.0	1136.5	1137.1	1140.2
25°	1094.7	1096.5	1098.3	1100.2	1102.1	1103.5	1104.4	1105.4	1106.3	1107.2	1110.6
27.5°	1056.1	1058.8	1061.6	1064.3	1067.0	1069.1	1070.6	1072.0	1073.4	1074.8	1078.0
30°	1030.5	1032.9	1035.4	1037.8	1040.4	1042.7	1044.8	1047.0	1049.1	1051.4	1054.8
32.5°	1002.5	1005.5	1008.5	1011.5	1014.4	1017.1	1019.6	1022.0	1024.4	1026.8	1030.7
35°	957.9	961.6	965.2	969.0	972.7	976.1	979.3	982.3	985.4	988.6	992.9
37.5°	912.8	917.2	921.4	925.7	930.0	934.0	937.9	941.7	945.6	949.5	953.8
40°	883.8	887.9	891.9	896.0	900.0	904.1	908.5	912.8	917.2	921.5	926.1
42.5°	850.3	854.9	859.4	863.9	868.4	873.2	878.3	883.4	888.5	893.6	898.8
45°	798.6	804.6	810.4	816.4	822.2	828.1	834.0	839.9	845.8	851.7	857.0
47.5°	749.2	755.3	761.3	767.5	773.6	780.0	786.8	793.7	800.5	807.3	812.7
50°	713.5	720.3	727.1	734.0	740.7	747.6	754.5	761.2	768.1	774.9	781.1
52.5°	677.7	684.6	691.4	698.2	705.1	712.4	720.1	728.0	735.8	743.7	749.8
55°	625.5	632.1	638.5	645.1	651.6	659.4	668.8	678.1	687.4	696.7	703.0
57.5°	567.1	575.2	583.3	591.4	599.5	608.0	617.3	626.6	635.8	645.1	652.5
60°	529.2	537.2	545.3	553.4	561.5	570.6	580.9	591.1	601.3	611.6	618.6
62.5°	492.3	501.1	510.0	518.8	527.6	537.0	547.3	557.5	567.8	578.0	585.2
65°	432.8	442.7	452.7	462.6	472.5	482.8	493.3	503.9	514.4	525.0	532.7
67.5°	375.6	386.2	396.7	407.3	417.8	428.7	440.0	451.3	462.6	473.9	481.8
70°	336.5	347.1	357.6	368.1	378.7	389.9	401.6	413.4	425.3	437.1	445.5
72.5°	298.5	309.3	320.1	330.9	341.7	353.4	365.9	378.4	391.0	403.5	411.6
75°	240.1	251.7	263.1	274.6	286.1	298.3	311.3	324.4	337.4	350.4	359.1
77.5°	185.7	197.8	210.1	222.2	234.4	247.2	260.9	274.6	288.2	301.8	310.6
80°	152.2	164.6	177.0	189.5	201.9	214.9	228.5	242.2	255.8	269.4	278.8
82.5°	118.7	131.6	144.5	157.4	170.3	183.6	197.2	210.9	224.6	238.2	247.7
85°	74.0	87.1	100.1	113.1	126.1	139.7	153.6	167.5	181.5	195.5	204.8
87.5°	41.7	54.6	67.6	80.5	93.4	106.8	120.6	134.4	148.1	162.0	171.2
90°	24.0	37.9	51.7	65.5	79.4	93.4	107.9	122.2	136.5	150.9	160.7
92.5°	28.5	39.7	51.0	62.2	73.5	86.2	100.7	115.0	129.4	143.7	153.3
95°	49.8	55.7	61.6	67.5	73.4	82.7	95.6	108.5	121.3	134.1	143.3
97.5°	83.7	95.3	106.8	118.4	129.9	134.8	133.1	131.4	129.7	128.1	136.2
100°	109.9	120.2	130.6	141.0	151.3	153.7	148.1	142.6	137.0	131.5	137.6
102.5°	140.3	149.1	157.7	166.5	175.3	184.5	194.0	203.6	213.1	222.7	207.3
105°	185.9	192.9	200.0	206.9	213.9	223.4	235.5	247.6	259.7	271.9	280.7
107.5°	230.8	236.2	241.7	247.1	252.6	261.3	273.0	284.7	296.4	308.1	316.3
110°	260.0	264.8	269.4	274.2	278.9	287.1	298.7	310.3	322.0	333.7	341.0



TEST NUMBER: P332637-840

CATALOG NUMBER: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	288.4	293.0	297.5	302.1	306.6	314.2	324.9	335.7	346.4	357.1	364.0
115°	332.1	335.3	338.5	341.6	344.9	351.3	361.1	370.9	380.7	390.5	397.6
117.5°	372.7	375.0	377.1	379.3	381.5	387.4	396.9	406.4	416.0	425.5	431.8
120°	399.3	400.7	402.1	403.6	405.1	410.2	419.1	428.0	436.8	445.7	452.1
122.5°	425.1	425.6	426.1	426.6	427.1	431.6	440.3	449.0	457.7	466.4	472.7
125°	460.7	460.9	461.1	461.3	461.5	465.3	472.8	480.3	487.9	495.3	501.6
127.5°	495.4	495.2	495.0	494.8	494.7	497.9	504.4	511.0	517.5	524.0	529.6
130°	516.8	516.6	516.5	516.3	516.1	518.8	524.1	529.5	534.8	540.1	545.8
132.5°	537.7	537.6	537.5	537.3	537.2	539.5	543.9	548.4	552.9	557.3	562.8
135°	567.3	567.2	567.0	566.9	566.8	568.0	570.8	573.5	576.1	578.9	584.0
137.5°	594.8	594.6	594.3	594.1	593.8	594.5	596.1	597.7	599.4	601.0	605.8
140°	612.8	612.8	612.7	612.7	612.6	612.9	613.4	614.0	614.6	615.1	619.6
142.5°	627.8	628.2	628.6	629.0	629.4	629.7	629.5	629.5	629.5	629.4	633.3
145°	652.4	652.4	652.5	652.6	652.7	652.7	652.7	652.7	652.7	652.7	654.7
147.5°	672.1	672.5	672.9	673.3	673.7	673.8	673.7	673.6	673.4	673.3	673.7
150°	686.3	686.5	686.7	686.9	687.1	687.2	687.0	686.9	686.8	686.6	686.6
152.5°	697.2	697.5	697.9	698.2	698.6	698.6	698.4	698.2	697.9	697.7	697.9
155°	713.8	713.9	714.0	714.1	714.3	714.1	713.8	713.4	713.0	712.6	713.1
157.5°	727.9	727.8	727.7	727.7	727.6	727.3	726.9	726.5	726.0	725.6	726.3
160°	736.2	735.8	735.4	735.1	734.7	734.4	734.3	734.2	734.0	733.9	734.7
162.5°	743.6	743.1	742.6	742.1	741.6	741.3	741.1	741.0	740.9	740.8	741.5
165°	752.9	752.2	751.6	750.9	750.3	750.0	750.0	750.0	750.0	750.0	751.0
167.5°	760.2	759.6	758.9	758.3	757.6	757.2	757.2	757.1	757.0	756.9	758.1
170°	764.5	763.7	762.9	762.1	761.3	761.0	761.1	761.2	761.4	761.5	762.5
172.5°	767.2	766.4	765.7	764.9	764.2	763.8	764.0	764.1	764.2	764.3	765.4
175°	770.2	769.4	768.6	767.9	767.1	766.8	766.9	767.1	767.2	767.3	768.4
177.5°	771.5	770.8	770.1	769.4	768.7	768.4	768.6	768.8	769.0	769.2	770.1
180°	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9	1246.9
2.5°	1242.5	1244.3	1246.0	1246.7	1246.5	1246.2	1246.0	1245.8
5°	1239.2	1241.7	1244.3	1245.3	1245.0	1244.7	1244.4	1244.1
7.5°	1232.6	1235.4	1238.2	1239.4	1239.1	1238.8	1238.5	1238.2
10°	1225.9	1228.7	1231.5	1232.7	1232.4	1232.1	1231.8	1231.5
12.5°	1216.5	1219.0	1221.5	1222.8	1222.7	1222.6	1222.6	1222.5
15°	1199.4	1202.1	1205.0	1206.2	1205.9	1205.6	1205.3	1205.0
17.5°	1178.5	1181.4	1184.3	1185.6	1185.3	1185.1	1184.8	1184.6
20°	1162.3	1165.4	1168.5	1170.0	1170.0	1170.0	1170.0	1170.0
22.5°	1143.3	1146.4	1149.5	1151.3	1151.9	1152.3	1152.8	1153.3
25°	1114.1	1117.4	1120.8	1122.8	1123.1	1123.4	1123.7	1124.0
27.5°	1081.2	1084.3	1087.5	1089.2	1089.6	1090.0	1090.4	1090.8
30°	1058.2	1061.6	1065.0	1067.0	1067.6	1068.2	1068.9	1069.5
32.5°	1034.6	1038.5	1042.5	1044.7	1045.3	1045.9	1046.5	1047.2
35°	997.2	1001.6	1005.9	1008.6	1009.5	1010.4	1011.4	1012.3
37.5°	958.3	962.7	967.0	969.8	970.8	971.8	972.7	973.7
40°	930.8	935.4	940.2	943.1	944.3	945.5	946.8	948.1
42.5°	903.9	909.1	914.2	917.3	918.3	919.3	920.3	921.2
45°	862.2	867.6	872.8	876.3	877.8	879.3	880.9	882.4
47.5°	818.2	823.6	829.2	832.8	834.7	836.6	838.4	840.3
50°	787.3	793.6	799.7	803.8	805.7	807.5	809.3	811.2
52.5°	756.1	762.2	768.5	772.4	774.4	776.2	778.1	779.9
55°	709.1	715.4	721.5	725.6	727.4	729.3	731.1	733.1
57.5°	659.8	667.2	674.6	679.1	680.9	682.7	684.4	686.1
60°	625.8	633.0	640.1	644.9	647.4	649.8	652.4	654.8
62.5°	592.3	599.5	606.6	611.4	613.9	616.3	618.8	621.4
65°	540.5	548.3	556.0	561.2	563.6	566.1	568.6	571.1
67.5°	489.7	497.6	505.4	510.6	513.0	515.4	517.9	520.3
70°	453.7	462.1	470.5	475.8	478.0	480.2	482.3	484.5
72.5°	419.8	427.9	436.1	441.3	443.7	446.2	448.6	451.0
75°	367.8	376.5	385.2	390.9	393.7	396.6	399.3	402.1
77.5°	319.5	328.3	337.1	343.1	346.0	349.0	351.9	355.0
80°	288.1	297.4	306.7	312.6	315.1	317.6	320.0	322.6
82.5°	257.3	266.9	276.4	282.6	285.3	288.0	290.7	293.5
85°	214.1	223.4	232.7	238.9	242.1	245.1	248.2	251.4
87.5°	180.3	189.5	198.6	204.6	207.3	210.2	212.9	215.7
90°	170.5	180.2	190.0	196.2	198.9	201.7	204.4	207.1
92.5°	162.8	172.3	181.8	187.8	190.4	192.9	195.4	197.9
95°	152.4	161.6	170.8	176.7	179.7	182.6	185.5	188.4
97.5°	144.4	152.7	160.9	166.3	169.2	172.0	174.7	177.5
100°	143.9	150.1	156.2	160.5	162.8	165.1	167.4	169.8
102.5°	192.0	176.6	161.3	154.8	157.2	159.7	162.2	164.6
105°	289.7	298.6	307.5	310.9	308.8	306.7	304.6	302.4
107.5°	324.6	332.8	340.9	346.4	349.1	351.8	354.6	357.3
110°	348.4	355.8	363.1	368.3	371.2	374.1	376.9	379.8





TEST NUMBER: P332637-840

CATALOG NUMBER: SA4XXDIP-C1020D590U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	370.7	377.6	384.5	389.3	392.3	395.3	398.2	401.2
115°	404.7	411.7	418.9	423.4	425.7	427.8	430.0	432.1
117.5°	438.3	444.6	451.1	455.4	457.9	460.4	462.8	465.2
120°	458.6	465.0	471.5	475.8	478.1	480.3	482.5	484.7
122.5°	479.1	485.4	491.8	495.9	498.0	499.9	501.9	503.9
125°	507.9	514.1	520.5	524.6	526.5	528.6	530.6	532.5
127.5°	535.0	540.6	546.0	549.9	551.9	553.8	555.8	557.8
130°	551.6	557.2	563.0	566.7	568.7	570.5	572.4	574.2
132.5°	568.3	573.7	579.2	582.8	584.5	586.3	588.0	589.9
135°	589.3	594.5	599.7	603.4	605.5	607.6	609.8	611.9
137.5°	610.6	615.4	620.3	623.4	624.8	626.3	627.8	629.2
140°	624.0	628.4	632.8	635.8	637.5	639.2	640.9	642.6
142.5°	637.1	641.0	644.8	647.3	648.6	650.1	651.4	652.7
145°	656.6	658.6	660.7	662.4	663.9	665.4	666.8	668.3
147.5°	674.0	674.4	674.7	675.4	676.5	677.7	678.8	679.9
150°	686.6	686.6	686.6	686.7	686.8	687.0	687.1	687.2
152.5°	698.1	698.3	698.5	698.6	698.5	698.4	698.3	698.3
155°	713.6	714.1	714.6	714.7	714.3	713.9	713.6	713.2
157.5°	726.9	727.6	728.2	728.2	727.6	726.9	726.3	725.6
160°	735.4	736.2	737.0	737.0	736.2	735.4	734.7	733.9
162.5°	742.4	743.1	743.9	743.9	743.0	742.0	741.2	740.3
165°	752.0	753.1	754.2	754.1	752.9	751.7	750.6	749.4
167.5°	759.2	760.3	761.4	761.3	760.1	758.8	757.5	756.3
170°	763.6	764.6	765.7	765.5	764.3	763.0	761.6	760.4
172.5°	766.4	767.4	768.4	768.2	766.9	765.5	764.1	762.7
175°	769.6	770.7	771.9	771.7	770.2	768.6	767.1	765.6
177.5°	770.9	771.7	772.5	772.3	771.1	769.9	768.6	767.4
180°	770.2	770.2	770.2	770.2	770.2	770.2	770.2	770.2

(END OF REPORT)