

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: P332647-930

Luminaire Tested: **S124DIP-S1020D810U930-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332647-930  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIP-S1020D810U930-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 810 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

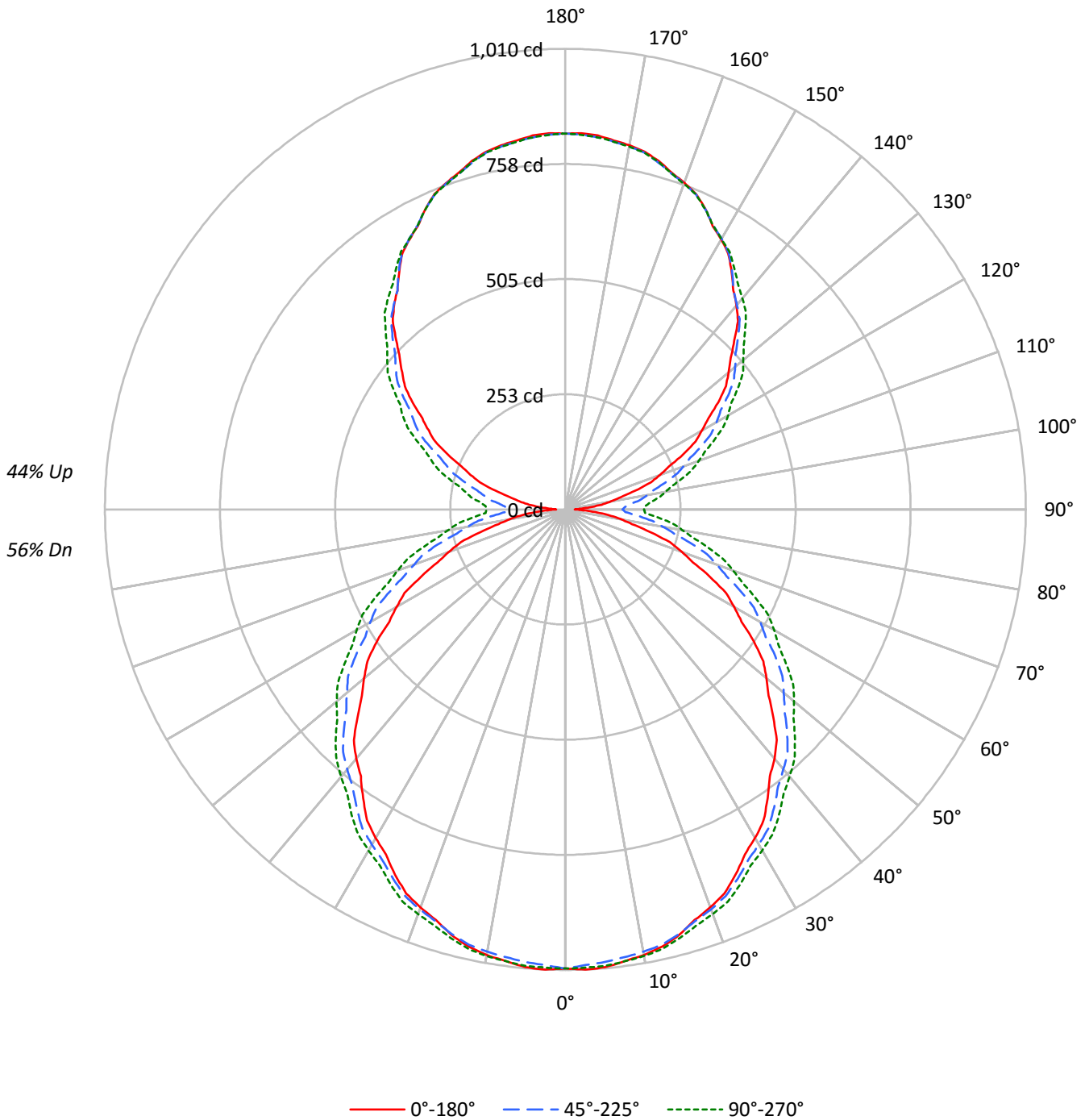
Lumens per Lamp: N/A  
Luminaire Lumens: 5720.5 lumens  
Efficiency: N/A  
Efficacy: 105.2 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: General Diffuse

Input Watts (W): 54.4  
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					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	50	30	10	50	30	10	50	30	10	
RCR																														
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	56	56	56	44	44	44	33	33	33	22	22	22	
1	98	93	89	85	91	86	83	79	74	71	69	63	61	59	52	51	49	44	44	44	33	33	33	22	22	22	17	17	17	
2	89	81	74	68	82	75	69	64	64	60	56	54	51	48	45	43	41	36	36	36	26	26	26	19	19	19	14	14	14	
3	81	70	63	56	74	66	59	53	56	51	46	48	44	40	40	37	34	30	30	30	22	22	22	17	17	17	13	13	13	
4	74	62	54	47	68	58	50	45	50	44	39	42	38	34	35	32	29	26	26	26	19	19	19	14	14	14	10	10	10	
5	67	55	47	40	62	51	44	38	44	38	34	38	33	29	32	28	25	22	22	22	17	17	17	13	13	13	9	9	9	
6	62	49	41	35	57	46	38	33	40	34	29	34	29	26	29	25	22	19	19	19	14	14	14	10	10	10	7	7	7	
7	57	45	36	30	53	42	34	29	36	30	26	31	26	23	26	22	19	17	17	17	13	13	13	9	9	9	6	6	6	
8	53	40	32	27	49	38	31	25	33	27	23	28	23	20	24	20	17	15	15	15	11	11	11	8	8	8	5	5	5	
9	49	37	29	24	46	35	27	23	30	24	20	26	21	18	22	18	16	13	13	13	10	10	10	7	7	7	4	4	4	
10	46	34	26	21	43	32	25	20	28	22	18	24	19	16	20	17	14	12	12	12	9	9	9	6	6	6	3	3	3	

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

	0°	45°	90°
0°	8127	8127	8127
5°	8151	7942	7965
10°	8102	7812	7807
15°	8029	7662	7620
20°	7920	7496	7438
25°	7797	7310	7239
30°	7663	7125	7034
35°	7511	6935	6855
40°	7390	6755	6667
45°	7210	6588	6507
50°	7059	6397	6337
55°	6902	6217	6138
60°	6657	5986	5956
65°	6389	5740	5734
70°	6066	5458	5474
75°	5612	5146	5239
80°	5110	4847	5007
85°	4474	4583	4872



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	95.3	1.7
10°-20°	273.1	4.8
20°-30°	413.0	7.2
30°-40°	499.7	8.7
40°-50°	528.2	9.2
50°-60°	497.1	8.7
60°-70°	412.5	7.2
70°-80°	289.7	5.1
80°-90°	166.3	2.9
90°-100°	151.6	2.7
100°-110°	233.0	4.1
110°-120°	321.6	5.6
120°-130°	387.6	6.8
130°-140°	416.5	7.3
140°-150°	400.1	7.0
150°-160°	334.5	5.8
160°-170°	222.6	3.9
170°-180°	77.9	1.4
0°-30°	781.4	13.7
0°-40°	1281.1	22.4
0°-60°	2306.5	40.3
0°-90°	3174.9	55.5
90°-120°	706.3	12.3
90°-150°	1910.5	33.4
90°-180°	2546.0	44.5
0°-180°	5720.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1007	1007	1007	1007	1007	
5°	1008	1004	996	1005	1004	96
15°	966	967	964	973	973	272
25°	884	890	894	906	907	407
35°	773	787	798	813	817	484
45°	645	666	688	706	712	498
55°	505	529	562	584	592	450
65°	349	386	424	451	461	346
75°	194	236	283	313	325	206
85°	60	107	158	190	203	64
90°	20	72	126	161	172	14
95°	53	96	146	178	189	54
105°	159	183	226	255	267	169
115°	285	296	330	353	361	281
125°	409	410	436	455	461	365
135°	524	528	536	552	558	406
145°	635	637	637	643	646	398
155°	727	727	726	728	726	334
165°	791	789	788	791	789	223
175°	823	820	819	823	819	78
180°	824	824	824	824	824	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1010.2	1009.7	1009.0	1008.4	1007.8	1006.7	1005.1	1003.6	1001.9	1000.3	1001.7
5°	1007.7	1007.0	1006.2	1005.5	1004.8	1003.5	1001.8	1000.0	998.3	996.5	998.5
7.5°	999.1	998.7	998.3	997.8	997.4	996.5	995.0	993.5	992.1	990.6	992.9
10°	992.0	991.7	991.5	991.2	991.0	990.2	989.0	987.7	986.4	985.2	987.5
12.5°	982.0	982.0	981.9	981.9	981.9	981.4	980.6	979.7	978.8	978.0	980.1
15°	966.0	966.3	966.5	966.8	967.0	966.8	966.0	965.3	964.5	963.8	966.0
17.5°	944.2	944.9	945.7	946.4	947.2	947.5	947.3	947.2	947.1	946.9	949.2
20°	928.9	929.6	930.3	931.1	931.9	932.4	932.6	932.9	933.1	933.4	935.9
22.5°	911.7	912.6	913.6	914.6	915.5	916.2	916.6	917.1	917.5	918.0	920.6
25°	883.8	885.3	886.7	888.3	889.7	890.9	891.6	892.4	893.2	893.9	896.7
27.5°	852.6	854.8	857.0	859.2	861.4	863.2	864.3	865.4	866.6	867.7	870.3
30°	831.9	833.9	835.9	837.9	839.9	841.8	843.5	845.3	847.0	848.8	851.6
32.5°	809.3	811.8	814.2	816.6	819.0	821.2	823.1	825.1	827.0	829.0	832.1
35°	773.3	776.3	779.3	782.3	785.3	788.1	790.6	793.0	795.6	798.1	801.6
37.5°	736.9	740.5	743.9	747.4	750.8	754.1	757.2	760.3	763.4	766.5	770.1
40°	713.5	716.8	720.1	723.3	726.6	729.9	733.4	736.9	740.5	744.0	747.7
42.5°	686.5	690.2	693.8	697.5	701.1	705.0	709.1	713.2	717.3	721.5	725.6
45°	644.7	649.5	654.3	659.1	663.8	668.5	673.4	678.1	682.8	687.6	691.9
47.5°	604.9	609.8	614.7	619.6	624.5	629.7	635.2	640.7	646.3	651.8	656.2
50°	576.0	581.6	587.0	592.6	598.0	603.6	609.1	614.6	620.1	625.6	630.6
52.5°	547.1	552.7	558.2	563.7	569.2	575.1	581.4	587.7	594.0	600.4	605.4
55°	505.0	510.3	515.5	520.8	526.0	532.4	540.0	547.5	555.0	562.5	567.5
57.5°	457.9	464.4	470.9	477.4	484.0	490.9	498.4	505.9	513.3	520.8	526.8
60°	427.2	433.7	440.3	446.8	453.3	460.6	469.0	477.2	485.4	493.7	499.5
62.5°	397.5	404.6	411.7	418.8	425.9	433.6	441.9	450.1	458.4	466.7	472.5
65°	349.4	357.4	365.5	373.5	381.5	389.8	398.3	406.8	415.3	423.9	430.1
67.5°	303.2	311.8	320.2	328.8	337.3	346.1	355.2	364.4	373.5	382.6	389.0
70°	271.7	280.2	288.7	297.2	305.7	314.8	324.2	333.8	343.3	352.9	359.6
72.5°	241.0	249.7	258.4	267.2	275.9	285.3	295.4	305.5	315.7	325.8	332.3
75°	193.9	203.2	212.4	221.7	231.0	240.8	251.4	261.9	272.4	282.9	289.9
77.5°	149.9	159.7	169.6	179.4	189.2	199.6	210.7	221.7	232.7	243.7	250.8
80°	122.9	132.9	142.9	153.0	163.0	173.5	184.5	195.5	206.5	217.5	225.1
82.5°	95.8	106.2	116.7	127.1	137.5	148.2	159.2	170.2	181.3	192.3	200.0
85°	59.8	70.3	80.8	91.3	101.8	112.8	124.0	135.3	146.5	157.8	165.3
87.5°	33.8	44.3	54.8	65.3	75.9	86.7	97.9	109.2	120.3	131.5	139.0
90°	20.0	31.6	43.1	54.7	66.3	78.0	89.9	101.8	113.7	125.6	133.7
92.5°	30.7	41.6	52.3	63.2	73.9	85.2	96.7	108.3	119.8	131.4	139.0
95°	52.9	62.5	72.0	81.5	91.1	101.4	112.8	124.0	135.3	146.5	153.7
97.5°	80.1	88.2	96.4	104.5	112.7	122.4	133.7	145.0	156.4	167.7	174.8
100°	101.7	108.7	115.8	122.9	130.0	139.0	150.1	161.1	172.1	183.2	190.2
102.5°	125.1	131.0	137.0	142.9	148.9	157.2	167.9	178.6	189.4	200.1	207.1
105°	158.7	163.8	168.9	174.1	179.3	186.8	196.6	206.4	216.3	226.1	232.8
107.5°	196.0	200.3	204.6	208.9	213.1	219.7	228.5	237.4	246.3	255.1	261.7
110°	220.6	224.5	228.2	232.0	235.8	242.0	250.6	259.3	267.9	276.5	282.0



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	246.2	249.4	252.6	255.8	258.9	264.6	272.6	280.8	288.9	297.0	302.5
115°	284.7	286.9	289.2	291.5	293.7	298.6	306.4	314.1	321.9	329.6	335.0
117.5°	321.9	323.3	324.8	326.3	327.8	332.2	339.4	346.7	353.9	361.2	365.9
120°	346.0	347.3	348.6	349.9	351.3	355.4	362.2	369.0	375.9	382.7	387.0
122.5°	372.0	372.3	372.8	373.2	373.5	377.1	383.7	390.4	397.1	403.7	408.2
125°	409.3	409.0	408.8	408.5	408.2	411.2	417.3	423.5	429.6	435.7	440.2
127.5°	443.8	444.0	444.2	444.3	444.5	446.9	451.5	456.1	460.6	465.2	469.4
130°	467.4	467.6	467.7	467.9	468.1	470.2	474.2	478.2	482.2	486.2	490.5
132.5°	492.4	492.4	492.5	492.6	492.6	494.2	497.3	500.4	503.4	506.5	510.6
135°	524.2	525.1	525.9	526.8	527.7	529.0	530.8	532.5	534.3	536.0	539.7
137.5°	560.2	560.4	560.5	560.7	560.8	561.4	562.5	563.6	564.7	565.7	569.0
140°	584.2	584.2	584.2	584.3	584.3	584.5	584.7	585.0	585.2	585.5	588.6
142.5°	605.2	605.4	605.7	605.9	606.2	606.1	605.8	605.6	605.4	605.1	607.9
145°	635.4	635.6	635.9	636.3	636.6	636.8	637.0	637.1	637.2	637.4	638.8
147.5°	665.4	665.9	666.3	666.7	667.2	667.3	667.2	667.1	666.9	666.8	666.9
150°	683.8	684.1	684.4	684.7	685.0	685.2	685.2	685.2	685.2	685.2	685.2
152.5°	700.2	700.5	700.7	701.1	701.4	701.6	701.6	701.8	701.9	702.1	702.4
155°	726.6	726.6	726.6	726.6	726.6	726.5	726.4	726.3	726.1	726.0	726.5
157.5°	749.1	748.8	748.5	748.3	748.0	747.9	747.9	747.9	747.8	747.8	748.2
160°	762.3	762.1	762.1	761.9	761.7	761.6	761.5	761.3	761.2	761.1	761.5
162.5°	774.5	774.2	773.8	773.5	773.1	772.8	772.7	772.6	772.4	772.3	773.1
165°	791.0	790.6	790.2	789.7	789.3	789.0	788.6	788.4	788.1	787.8	788.6
167.5°	803.6	803.0	802.4	801.8	801.3	801.0	801.0	801.0	801.0	801.0	801.9
170°	810.7	810.1	809.3	808.6	808.0	807.6	807.8	808.0	808.0	808.2	809.0
172.5°	815.9	815.3	814.6	814.1	813.5	813.2	813.3	813.3	813.3	813.3	814.2
175°	822.9	822.1	821.4	820.8	820.0	819.6	819.5	819.3	819.2	819.0	820.0
177.5°	825.2	824.6	824.0	823.5	822.9	822.6	822.6	822.6	822.6	822.6	823.4
180°	824.1	824.1	824.1	824.1	824.1	824.1	824.1	824.1	824.1	824.1	824.1



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7	1006.7
2.5°	1003.1	1004.5	1005.9	1006.5	1006.3	1006.1	1005.9	1005.8
5°	1000.5	1002.5	1004.5	1005.3	1005.1	1004.9	1004.6	1004.4
7.5°	995.2	997.4	999.6	1000.6	1000.4	1000.1	999.9	999.6
10°	989.7	992.0	994.3	995.2	995.0	994.7	994.5	994.3
12.5°	982.1	984.1	986.2	987.2	987.2	987.1	987.1	987.0
15°	968.3	970.5	972.8	973.8	973.5	973.3	973.1	972.8
17.5°	951.5	953.8	956.1	957.2	956.9	956.8	956.5	956.3
20°	938.3	940.9	943.4	944.6	944.6	944.6	944.6	944.6
22.5°	923.0	925.5	928.1	929.5	929.9	930.3	930.7	931.1
25°	899.4	902.1	904.9	906.4	906.7	906.9	907.2	907.4
27.5°	872.9	875.4	878.0	879.4	879.7	880.0	880.3	880.6
30°	854.4	857.0	859.8	861.4	861.9	862.4	863.0	863.5
32.5°	835.3	838.5	841.6	843.4	843.9	844.4	844.9	845.5
35°	805.1	808.6	812.1	814.2	815.0	815.7	816.5	817.3
37.5°	773.6	777.2	780.7	782.9	783.7	784.6	785.3	786.1
40°	751.5	755.2	759.0	761.4	762.4	763.4	764.4	765.4
42.5°	729.8	733.9	738.1	740.5	741.4	742.2	743.0	743.7
45°	696.1	700.4	704.7	707.4	708.7	709.9	711.2	712.4
47.5°	660.6	665.0	669.4	672.4	673.8	675.4	676.9	678.4
50°	635.6	640.7	645.6	648.9	650.4	651.9	653.4	654.9
52.5°	610.4	615.4	620.4	623.6	625.2	626.6	628.2	629.7
55°	572.5	577.6	582.5	585.8	587.3	588.8	590.3	591.8
57.5°	532.7	538.7	544.6	548.3	549.7	551.1	552.5	553.9
60°	505.2	511.0	516.7	520.7	522.7	524.6	526.7	528.6
62.5°	478.2	484.0	489.8	493.6	495.6	497.6	499.6	501.7
65°	436.3	442.6	448.9	453.1	455.0	457.1	459.0	461.1
67.5°	395.3	401.7	408.1	412.2	414.2	416.1	418.1	420.0
70°	366.3	373.1	379.8	384.2	385.9	387.7	389.4	391.2
72.5°	338.9	345.4	352.0	356.3	358.2	360.2	362.2	364.1
75°	296.9	303.9	311.0	315.6	317.9	320.2	322.4	324.7
77.5°	258.0	265.1	272.1	277.0	279.3	281.8	284.1	286.6
80°	232.6	240.1	247.6	252.3	254.4	256.4	258.4	260.4
82.5°	207.7	215.5	223.1	228.1	230.3	232.5	234.7	236.9
85°	172.8	180.3	187.8	192.9	195.4	197.9	200.4	202.9
87.5°	146.4	153.8	161.3	166.2	168.4	170.6	172.9	175.1
90°	141.9	149.9	158.1	163.3	165.6	167.9	170.2	172.4
92.5°	146.6	154.2	161.8	166.6	168.8	171.0	173.1	175.3
95°	160.9	168.1	175.3	180.0	182.2	184.5	186.8	189.0
97.5°	181.8	188.9	196.0	200.6	202.8	204.9	207.1	209.2
100°	197.3	204.3	211.4	215.8	217.5	219.3	221.0	222.8
102.5°	214.0	220.9	228.0	232.4	234.5	236.6	238.6	240.8
105°	239.5	246.1	252.8	257.4	259.8	262.3	264.7	267.1
107.5°	268.2	274.8	281.4	285.5	287.3	289.1	290.8	292.6
110°	287.5	292.9	298.4	302.4	304.8	307.2	309.7	312.1





TEST NUMBER: P332647-930

CATALOG NUMBER: S124DIP-S1020D810U930-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	308.0	313.5	319.0	322.8	324.9	326.9	329.1	331.2
115°	340.3	345.7	351.1	354.6	356.2	357.8	359.4	361.0
117.5°	370.6	375.4	380.1	383.4	385.1	386.8	388.5	390.2
120°	391.3	395.6	399.9	403.2	405.5	407.8	410.1	412.4
122.5°	412.8	417.3	421.8	424.7	426.0	427.3	428.6	429.9
125°	444.6	449.1	453.6	456.4	457.6	458.9	460.1	461.3
127.5°	473.7	477.9	482.2	485.0	486.5	488.0	489.4	490.9
130°	494.6	498.9	503.1	505.7	506.6	507.6	508.5	509.5
132.5°	514.6	518.7	522.7	525.3	526.6	527.9	529.1	530.4
135°	543.5	547.1	550.9	553.3	554.4	555.5	556.5	557.6
137.5°	572.3	575.6	578.9	581.2	582.5	583.9	585.2	586.5
140°	591.7	594.8	597.9	600.1	601.1	602.3	603.4	604.5
142.5°	610.7	613.6	616.4	618.3	619.3	620.4	621.4	622.4
145°	640.1	641.5	642.9	643.8	644.4	645.0	645.6	646.1
147.5°	667.0	667.1	667.2	667.6	668.2	668.9	669.5	670.2
150°	685.2	685.2	685.2	685.1	685.0	684.9	684.7	684.5
152.5°	702.7	703.0	703.4	703.4	703.0	702.6	702.3	701.9
155°	727.1	727.7	728.2	728.2	727.7	727.1	726.5	726.0
157.5°	748.6	749.1	749.5	749.4	749.0	748.5	748.0	747.5
160°	761.9	762.3	762.7	762.6	761.9	761.2	760.5	759.8
162.5°	773.8	774.5	775.3	775.3	774.6	774.0	773.2	772.5
165°	789.5	790.4	791.2	791.3	790.8	790.2	789.6	789.1
167.5°	802.7	803.6	804.5	804.5	803.6	802.7	801.8	801.0
170°	809.9	810.7	811.6	811.5	810.6	809.6	808.5	807.6
172.5°	815.2	816.2	817.2	817.2	816.2	815.1	814.2	813.2
175°	821.0	822.0	823.0	823.0	822.0	821.0	820.0	819.0
177.5°	824.2	825.0	825.8	825.7	824.8	823.9	823.0	822.1
180°	824.1	824.1	824.1	824.1	824.1	824.1	824.1	824.1

(END OF REPORT)