

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: P332639-935

Luminaire Tested: **SA4XXDIP-C1020D590U935-4F0-1E-UDD-D4**

Issue Date: 10/7/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P332639-935  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,  
Test Lab: INNOVATION CENTER  
Issue Date: 10/7/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: SA4XXDIP-C1020D590U935-4F0-1E-UDD-D4  
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 590 LUMENS PER FOOT, BATWING OPTIC  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

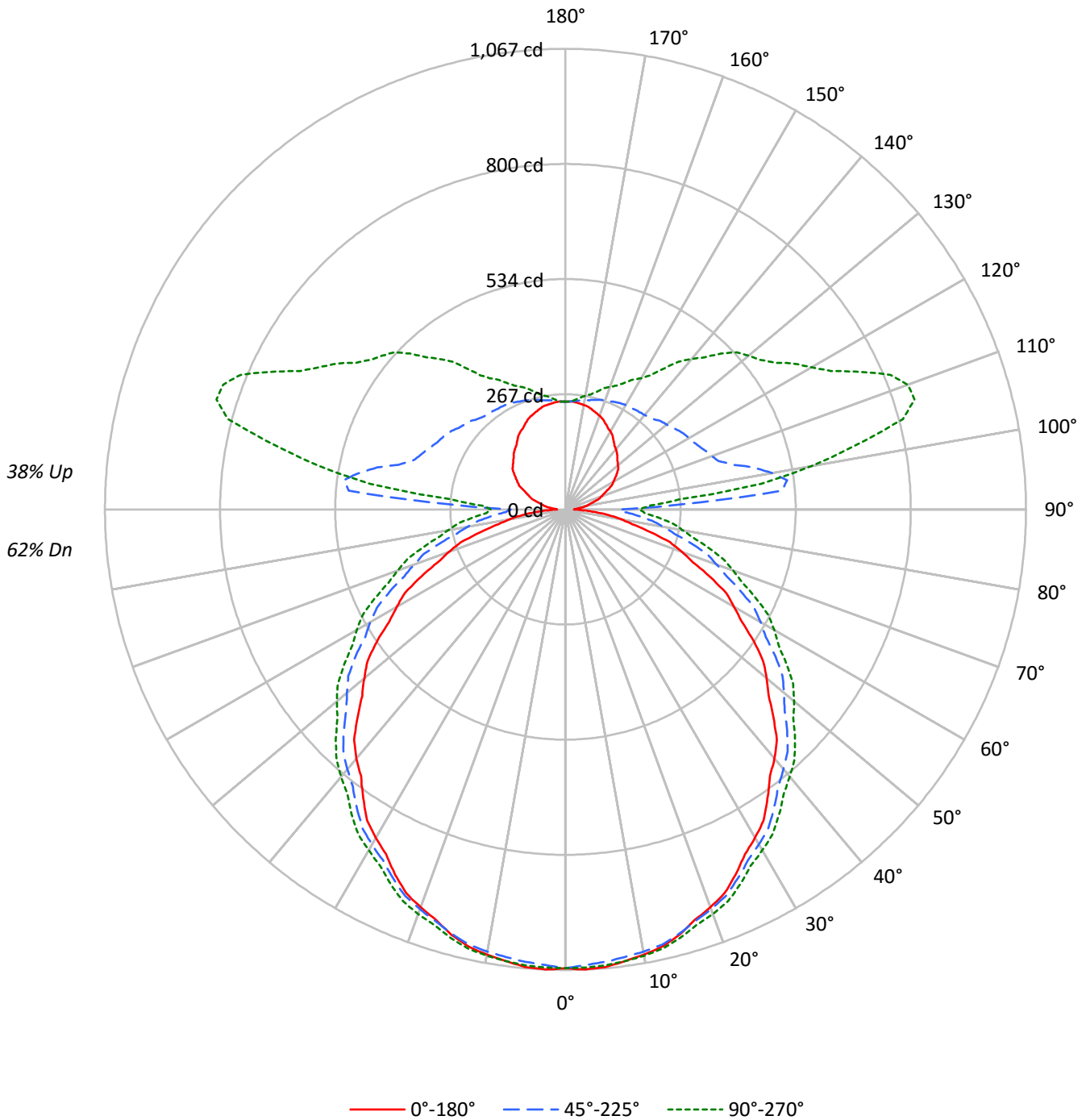
Lumens per Lamp: N/A  
Luminaire Lumens: 5443.4 lumens  
Efficiency: N/A  
Efficacy: 111.5 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Direct

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



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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	0
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	99	94	90	86	92	88	84	81	77	74	71	67	64	62	57	55	54	49
2	90	82	75	69	84	76	70	65	67	62	58	58	54	51	49	47	44	40
3	82	71	63	57	76	67	60	54	58	53	48	51	46	43	43	40	37	33
4	74	63	54	48	69	59	51	45	52	46	41	45	40	36	39	35	32	28
5	68	56	47	41	63	52	45	39	46	40	35	40	35	31	35	31	27	24
6	63	50	41	35	58	47	39	34	41	35	30	36	31	27	31	27	24	21
7	58	45	37	31	54	42	35	29	38	31	27	33	28	24	28	24	21	19
8	54	41	33	27	50	39	31	26	34	28	24	30	25	21	26	22	19	17
9	50	37	30	24	47	35	28	23	31	25	21	28	23	19	24	20	17	15
10	47	34	27	22	44	32	25	21	29	23	19	26	21	17	22	18	15	13

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

	0°	45°	90°
0°	8582	8582	8582
5°	8608	8387	8412
10°	8556	8250	8244
15°	8479	8091	8047
20°	8364	7916	7856
25°	8233	7719	7645
30°	8093	7524	7428
35°	7933	7324	7239
40°	7804	7134	7041
45°	7615	6958	6871
50°	7455	6755	6692
55°	7289	6565	6482
60°	7031	6322	6290
65°	6747	6061	6055
70°	6405	5763	5780
75°	5924	5435	5533
80°	5397	5119	5288
85°	4721	4842	5146



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	100.7	1.8
10°-20°	288.4	5.3
20°-30°	436.1	8.0
30°-40°	527.7	9.7
40°-50°	557.9	10.2
50°-60°	525.0	9.6
60°-70°	435.6	8.0
70°-80°	306.0	5.6
80°-90°	174.4	3.2
90°-100°	283.3	5.2
100°-110°	451.8	8.3
110°-120°	387.6	7.1
120°-130°	311.9	5.7
130°-140°	248.5	4.6
140°-150°	182.9	3.4
150°-160°	126.8	2.3
160°-170°	74.6	1.4
170°-180°	24.3	0.4
0°-30°	825.2	15.2
0°-40°	1352.9	24.9
0°-60°	2435.8	44.7
0°-90°	3351.7	61.6
90°-120°	1122.7	20.6
90°-150°	1866.1	34.3
90°-180°	2092.0	38.4
0°-180°	5443.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1063	1063	1063	1063	1063	
5°	1064	1060	1052	1061	1061	101
15°	1020	1021	1018	1028	1027	287
25°	933	940	944	956	958	430
35°	817	831	843	859	863	511
45°	681	704	726	746	752	526
55°	533	559	594	617	625	475
65°	369	407	448	476	487	366
75°	205	249	299	331	343	218
85°	63	113	167	201	214	67
90°	20	71	127	161	172	13
95°	32	106	504	333	266	30
105°	68	119	401	801	809	73
115°	108	146	343	633	754	108
125°	146	173	319	525	592	130
135°	170	202	294	446	510	132
145°	194	221	282	359	398	122
155°	220	237	274	310	324	101
165°	239	247	263	278	282	68
175°	250	250	252	255	254	24
180°	250	250	250	250	250	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1066.9	1066.3	1065.6	1065.0	1064.3	1063.2	1061.4	1059.8	1058.1	1056.4	1057.8
5°	1064.2	1063.4	1062.6	1061.9	1061.1	1059.7	1057.9	1056.0	1054.2	1052.3	1054.5
7.5°	1055.2	1054.7	1054.2	1053.8	1053.3	1052.3	1050.8	1049.2	1047.7	1046.1	1048.5
10°	1047.6	1047.3	1047.1	1046.8	1046.5	1045.7	1044.4	1043.1	1041.7	1040.4	1042.8
12.5°	1037.1	1037.1	1037.0	1036.9	1036.9	1036.4	1035.5	1034.6	1033.7	1032.8	1035.0
15°	1020.2	1020.5	1020.7	1021.0	1021.2	1021.0	1020.2	1019.4	1018.6	1017.8	1020.2
17.5°	997.1	997.9	998.7	999.4	1000.3	1000.6	1000.4	1000.3	1000.1	1000.0	1002.4
20°	980.9	981.7	982.5	983.3	984.1	984.6	984.9	985.2	985.4	985.7	988.3
22.5°	962.8	963.8	964.8	965.9	966.8	967.6	968.0	968.5	969.0	969.5	972.2
25°	933.3	934.9	936.4	938.1	939.6	940.8	941.6	942.5	943.2	944.0	946.9
27.5°	900.4	902.8	905.1	907.4	909.7	911.5	912.7	914.0	915.2	916.4	919.1
30°	878.6	880.6	882.8	884.8	887.0	889.0	890.8	892.7	894.5	896.4	899.3
32.5°	854.7	857.3	859.8	862.4	864.9	867.2	869.3	871.3	873.4	875.5	878.7
35°	816.7	819.8	822.9	826.1	829.3	832.2	834.9	837.5	840.2	842.8	846.5
37.5°	778.3	782.0	785.6	789.3	792.9	796.3	799.6	802.9	806.2	809.5	813.2
40°	753.5	757.0	760.4	763.9	767.3	770.9	774.6	778.3	782.0	785.7	789.6
42.5°	725.0	728.8	732.7	736.6	740.4	744.5	748.8	753.2	757.5	761.9	766.3
45°	680.9	686.0	691.0	696.0	701.0	706.0	711.1	716.1	721.1	726.2	730.6
47.5°	638.8	643.9	649.1	654.4	659.5	665.0	670.8	676.7	682.5	688.3	692.9
50°	608.3	614.2	619.9	625.8	631.5	637.4	643.3	649.0	654.9	660.6	666.0
52.5°	577.8	583.7	589.4	595.3	601.2	607.3	614.0	620.7	627.3	634.0	639.3
55°	533.3	538.9	544.4	550.0	555.5	562.2	570.2	578.2	586.1	594.0	599.3
57.5°	483.5	490.4	497.3	504.2	511.1	518.4	526.3	534.3	542.1	550.0	556.3
60°	451.2	458.1	464.9	471.8	478.7	486.5	495.2	503.9	512.6	521.4	527.4
62.5°	419.7	427.2	434.8	442.3	449.8	457.9	466.7	475.4	484.1	492.8	498.9
65°	369.0	377.5	386.0	394.4	402.9	411.6	420.6	429.6	438.6	447.6	454.2
67.5°	320.2	329.2	338.2	347.2	356.2	365.5	375.1	384.8	394.4	404.1	410.8
70°	286.9	295.9	304.9	313.8	322.9	332.4	342.4	352.5	362.6	372.6	379.8
72.5°	254.5	263.7	272.9	282.1	291.4	301.3	311.9	322.6	333.4	344.1	350.9
75°	204.7	214.6	224.3	234.1	243.9	254.3	265.4	276.6	287.7	298.8	306.2
77.5°	158.3	168.7	179.1	189.4	199.8	210.8	222.5	234.1	245.7	257.4	264.8
80°	129.8	140.3	150.9	161.5	172.1	183.2	194.8	206.5	218.1	229.7	237.7
82.5°	101.2	112.2	123.2	134.2	145.2	156.5	168.2	179.8	191.5	203.1	211.2
85°	63.1	74.2	85.3	96.4	107.5	119.1	131.0	142.8	154.7	166.7	174.6
87.5°	35.3	46.3	57.4	68.3	79.2	90.4	102.5	114.2	126.0	137.7	145.3
90°	19.5	31.1	43.1	54.2	65.3	76.3	90.6	101.9	114.3	126.7	133.9
92.5°	23.7	35.7	49.9	65.4	82.1	102.8	139.1	188.6	237.1	267.9	249.3
95°	31.7	41.8	55.5	70.6	91.2	121.6	175.1	266.6	394.8	503.9	522.3
97.5°	43.1	50.6	62.3	75.8	93.4	119.9	163.5	240.7	368.2	517.8	620.2
100°	50.5	57.3	67.6	80.4	96.6	120.9	160.2	226.0	336.6	485.3	618.2
102.5°	58.3	65.1	74.1	85.7	100.7	123.6	160.0	219.0	314.3	447.2	583.8
105°	68.2	74.9	82.7	93.8	108.0	129.8	163.2	213.7	292.2	400.8	522.8
107.5°	81.5	86.8	93.6	104.3	117.0	137.8	168.8	215.2	283.1	371.9	472.6
110°	89.5	94.3	100.4	110.0	122.6	142.3	173.1	216.8	280.1	360.6	446.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	97.3	101.5	107.6	116.4	128.5	147.9	177.5	218.8	278.1	352.3	429.6
115°	108.3	112.2	118.0	125.3	137.0	155.7	183.8	221.7	275.9	343.3	411.0
117.5°	121.1	123.8	128.3	135.2	145.3	163.8	190.3	225.2	274.1	335.6	398.4
120°	128.7	130.5	134.7	140.9	150.1	168.1	194.4	227.6	273.1	330.9	390.7
122.5°	136.6	137.8	141.4	146.5	155.8	172.9	198.8	230.0	272.3	325.7	382.8
125°	145.7	147.4	150.1	155.2	164.3	181.2	205.5	234.7	272.3	319.2	371.3
127.5°	154.6	155.9	159.2	165.1	174.6	190.9	213.0	238.8	270.9	311.0	357.0
130°	158.8	160.5	164.1	171.3	180.3	196.6	217.5	240.8	270.2	305.8	347.9
132.5°	163.8	165.2	170.0	176.8	186.6	201.6	221.7	243.8	269.9	301.6	339.9
135°	169.9	171.9	176.8	185.1	195.4	209.1	227.1	246.7	268.7	294.1	326.8
137.5°	177.0	178.7	183.7	191.5	201.9	214.4	230.4	247.8	266.7	288.5	315.9
140°	182.1	183.4	188.5	196.6	206.6	218.4	233.4	249.4	266.4	285.2	309.9
142.5°	186.7	188.1	193.0	201.0	210.9	222.1	236.3	250.7	266.5	283.4	305.1
145°	194.2	195.4	200.1	206.6	215.8	226.4	239.2	252.4	266.7	281.9	299.2
147.5°	202.9	203.2	207.2	214.0	221.5	231.2	243.1	254.7	267.2	280.2	294.2
150°	208.4	208.7	212.3	218.0	225.1	234.3	245.1	255.9	267.2	279.0	291.3
152.5°	212.6	212.7	216.5	222.0	228.5	237.0	246.7	256.7	266.4	277.0	288.1
155°	219.6	220.1	223.0	227.9	233.3	240.6	249.0	257.4	265.2	274.1	283.4
157.5°	226.5	226.5	229.3	233.1	237.8	243.6	250.7	257.4	264.0	271.0	278.6
160°	230.8	230.8	232.8	236.3	240.1	245.6	251.5	257.4	262.8	268.6	275.1
162.5°	234.8	234.4	235.9	239.0	242.5	246.8	252.3	257.4	261.6	266.3	271.9
165°	239.2	239.2	240.1	242.6	245.1	248.1	252.4	256.4	259.3	262.8	266.7
167.5°	243.6	243.1	243.6	245.5	246.8	249.1	252.4	255.2	257.0	259.2	262.0
170°	245.6	245.1	245.6	247.0	248.1	249.5	251.9	254.4	255.4	256.8	258.8
172.5°	247.5	247.0	247.1	248.2	248.8	249.9	251.6	253.7	253.8	254.5	256.1
175°	249.5	249.0	249.0	249.5	250.0	250.0	251.0	252.4	251.9	251.9	253.0
177.5°	250.4	250.0	249.6	250.0	250.0	250.0	250.4	251.2	250.4	250.4	250.8
180°	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1059.4	1060.8	1062.3	1062.9	1062.7	1062.5	1062.3	1062.1
5°	1056.5	1058.7	1060.8	1061.7	1061.4	1061.2	1060.9	1060.7
7.5°	1050.9	1053.3	1055.7	1056.7	1056.4	1056.2	1055.9	1055.7
10°	1045.2	1047.6	1050.0	1051.0	1050.8	1050.5	1050.2	1050.0
12.5°	1037.2	1039.3	1041.5	1042.6	1042.5	1042.4	1042.4	1042.3
15°	1022.6	1024.9	1027.3	1028.4	1028.1	1027.9	1027.6	1027.3
17.5°	1004.8	1007.3	1009.7	1010.8	1010.6	1010.4	1010.1	1010.0
20°	990.9	993.6	996.3	997.6	997.6	997.6	997.6	997.6
22.5°	974.7	977.4	980.1	981.6	982.1	982.4	982.8	983.3
25°	949.9	952.7	955.6	957.3	957.5	957.8	958.0	958.3
27.5°	921.8	924.5	927.2	928.7	929.0	929.4	929.6	930.0
30°	902.2	905.1	908.0	909.7	910.2	910.8	911.4	911.9
32.5°	882.1	885.5	888.8	890.7	891.2	891.7	892.3	892.9
35°	850.2	853.9	857.6	859.9	860.7	861.4	862.3	863.1
37.5°	817.0	820.8	824.5	826.8	827.7	828.5	829.3	830.2
40°	793.6	797.5	801.6	804.1	805.1	806.2	807.3	808.3
42.5°	770.7	775.1	779.5	782.0	782.9	783.8	784.6	785.4
45°	735.1	739.7	744.2	747.1	748.4	749.7	751.1	752.3
47.5°	697.6	702.2	707.0	710.1	711.6	713.3	714.8	716.4
50°	671.2	676.6	681.8	685.3	686.9	688.5	690.0	691.6
52.5°	644.6	649.9	655.2	658.6	660.2	661.8	663.4	665.0
55°	604.6	609.9	615.2	618.6	620.2	621.8	623.4	625.0
57.5°	562.6	568.9	575.1	579.0	580.5	582.0	583.5	585.0
60°	533.6	539.7	545.7	549.8	552.0	554.1	556.2	558.3
62.5°	505.0	511.1	517.2	521.2	523.4	525.5	527.6	529.8
65°	460.8	467.4	474.1	478.5	480.5	482.7	484.7	486.9
67.5°	417.5	424.2	430.9	435.3	437.4	439.5	441.5	443.6
70°	386.8	394.0	401.1	405.7	407.5	409.4	411.2	413.1
72.5°	357.9	364.8	371.8	376.3	378.3	380.4	382.5	384.5
75°	313.6	321.0	328.4	333.3	335.7	338.1	340.4	342.9
77.5°	272.4	279.9	287.4	292.5	295.0	297.6	300.1	302.6
80°	245.6	253.6	261.5	266.5	268.6	270.8	272.9	275.0
82.5°	219.4	227.6	235.7	240.9	243.2	245.6	247.9	250.2
85°	182.5	190.5	198.4	203.7	206.4	209.0	211.6	214.3
87.5°	153.1	160.8	168.6	173.6	176.0	178.5	180.6	183.0
90°	142.1	150.2	158.3	163.2	165.8	168.5	170.1	172.2
92.5°	223.5	207.1	199.8	194.7	191.1	190.5	191.0	193.0
95°	481.8	412.8	354.1	311.3	289.6	276.7	270.3	266.2
97.5°	647.7	626.4	585.3	538.6	505.7	478.4	465.9	458.0
100°	697.1	714.0	697.2	665.3	624.4	596.3	583.4	581.3
102.5°	689.1	744.9	758.7	748.1	723.9	704.3	690.8	689.7
105°	641.9	733.5	788.7	813.2	816.3	814.5	809.8	808.9
107.5°	578.7	675.6	750.6	798.7	824.8	837.9	844.7	847.9
110°	540.3	631.3	708.6	766.7	803.7	826.5	837.4	844.0





TEST NUMBER: P332639-935

CATALOG NUMBER: SA4XXDIP-C1020D590U935-4F0-1E-UDD-D4

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	510.3	591.3	664.5	722.5	764.2	791.3	805.7	815.0
115°	478.2	544.4	607.7	658.7	699.4	730.6	748.2	754.1
117.5°	458.2	513.8	564.5	608.2	643.4	670.3	688.4	693.5
120°	447.5	498.5	543.1	581.7	611.8	635.5	650.4	657.9
122.5°	438.1	487.5	528.5	562.7	588.2	608.6	621.3	628.6
125°	423.5	470.8	509.7	540.0	561.3	577.1	588.1	592.5
127.5°	406.0	451.2	489.7	518.7	540.2	554.7	564.3	569.0
130°	393.4	437.0	475.2	504.4	526.1	539.9	549.4	553.9
132.5°	380.9	422.0	459.1	488.2	509.5	525.0	534.0	538.6
135°	362.0	398.1	432.4	459.9	481.0	496.4	505.8	510.4
137.5°	345.4	376.3	405.4	430.2	450.0	464.9	472.6	477.5
140°	335.9	362.4	388.0	411.0	429.5	441.6	449.8	455.0
142.5°	327.6	350.9	373.0	392.9	409.2	420.3	427.6	431.4
145°	316.5	334.8	351.1	366.2	379.5	389.0	394.9	398.5
147.5°	307.4	320.9	332.9	344.2	354.1	362.1	366.7	368.4
150°	303.1	314.4	324.2	333.0	340.9	347.2	350.2	350.7
152.5°	298.7	308.4	317.5	324.8	331.4	336.7	338.4	338.9
155°	292.2	300.1	307.5	313.3	318.3	322.2	323.6	323.6
157.5°	285.2	291.9	298.0	302.7	306.5	309.4	310.3	310.3
160°	280.9	286.4	291.7	295.7	298.6	301.6	302.0	302.0
162.5°	276.6	281.2	285.4	289.0	291.2	294.1	294.6	294.2
165°	270.6	273.5	277.0	279.5	281.5	283.4	282.9	282.4
167.5°	264.8	267.1	269.8	271.3	272.3	273.5	273.5	273.1
170°	261.3	262.8	264.8	266.2	267.2	267.7	267.2	267.2
172.5°	258.1	259.2	260.5	261.5	262.1	262.6	262.1	261.3
175°	253.9	254.4	255.4	255.4	255.4	256.4	255.4	254.4
177.5°	251.2	251.6	251.6	251.9	251.6	251.9	251.2	250.4
180°	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0

(END OF REPORT)