

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: P231634

Luminaire Tested: **S124-DR-1-40-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231634
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33916)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124-DR-1-40-X-0048-1-U-DD-4-W
Description: DEFINE 4 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2733.6 lumens
Efficiency: N/A
Efficacy: 98.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.34
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.92' x H: 0.08')
CIE Type: Direct

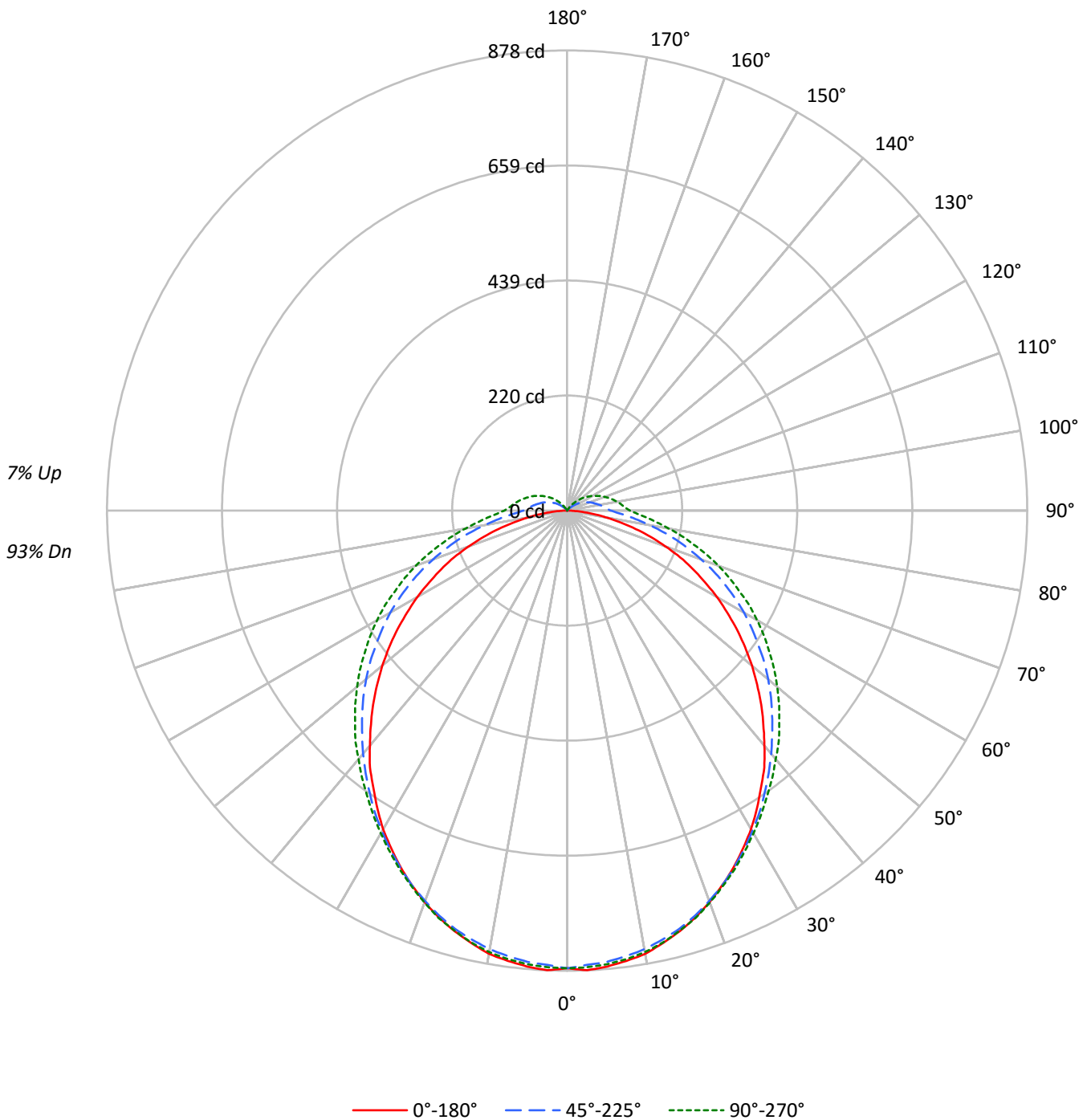
Input Watts (W): 27.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231634

CATALOG NUMBER: S124-DR-1-40-X-0048-1-U-DD-4-W

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	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	106	101	96	92	103	98	93	90	92	89	86	87	84	82	82	80	78	76
2	96	87	80	74	93	85	78	72	80	75	70	76	71	67	72	68	65	62
3	87	76	68	61	84	74	66	60	70	64	58	67	61	56	63	58	54	52
4	80	67	58	51	77	66	57	51	62	55	49	59	53	48	56	51	47	44
5	73	60	51	44	71	59	50	44	56	48	43	53	47	41	51	45	40	38
6	68	54	45	38	65	53	44	38	50	43	37	48	41	36	46	40	35	33
7	63	49	40	34	61	48	40	34	46	38	33	44	37	32	42	36	31	29
8	58	45	36	30	56	44	36	30	42	35	29	40	34	29	38	33	28	26
9	55	41	33	27	53	40	32	27	39	31	26	37	31	26	35	30	25	24
10	51	38	30	25	50	37	30	24	36	29	24	34	28	24	33	27	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7825	7825	7825
5°	7841	7637	7634
10°	7785	7460	7427
15°	7663	7262	7175
20°	7523	7029	6908
25°	7355	6784	6633
30°	7175	6529	6359
35°	6951	6279	6113
40°	6730	6036	5899
45°	6502	5807	5701
50°	6257	5596	5507
55°	5992	5359	5306
60°	5709	5139	5104
65°	5382	4866	4845
70°	4933	4544	4603
75°	4346	4199	4293
80°	3504	3773	4004
85°	2407	3487	3815



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	82.5	3.0
10°-20°	233.9	8.6
20°-30°	347.5	12.7
30°-40°	411.5	15.1
40°-50°	425.8	15.6
50°-60°	394.2	14.4
60°-70°	320.7	11.7
70°-80°	217.7	8.0
80°-90°	117.0	4.3
90°-100°	69.7	2.5
100°-110°	51.2	1.9
110°-120°	33.9	1.2
120°-130°	19.0	0.7
130°-140°	7.7	0.3
140°-150°	1.2	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	663.9	24.3
0°-40°	1075.4	39.3
0°-60°	1895.3	69.3
0°-90°	2550.8	93.3
90°-120°	154.8	5.7
90°-150°	182.8	6.7
90°-180°	183.0	6.7
0°-180°	2733.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	873	873	873	873	873	
5°	873	871	864	870	869	83
15°	831	830	826	832	830	234
25°	751	754	752	758	756	346
35°	645	652	657	664	665	404
45°	524	537	553	568	572	404
55°	395	419	444	465	471	353
65°	265	296	331	355	362	262
75°	136	172	215	241	250	143
85°	29	71	114	143	152	34
90°	0	40	83	110	120	2
95°	0	31	72	98	106	0
105°	0	19	54	78	86	0
115°	0	8	37	59	66	0
125°	0	1	21	39	46	0
135°	0	0	7	20	26	0
145°	0	0	0	3	7	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P231634

CATALOG NUMBER: S124-DR-1-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	873.3	873.3	873.3	873.3	873.3	873.3	873.3	873.3	873.3	873.3	873.3
2.5°	877.8	875.6	873.3	872.2	873.3	874.5	873.3	872.2	870.0	867.7	867.7
5°	873.3	871.1	868.9	868.9	871.1	871.1	870.0	868.9	866.6	864.4	864.4
7.5°	866.6	864.4	863.3	863.3	864.4	864.4	864.4	863.3	861.0	857.7	859.9
10°	858.8	856.5	854.3	854.3	855.4	855.4	855.4	854.3	852.1	849.8	850.9
12.5°	845.3	843.1	842.0	842.0	843.1	844.2	843.1	843.1	840.9	838.6	839.7
15°	830.8	829.7	827.4	828.5	829.7	830.8	830.8	829.7	827.4	826.3	827.4
17.5°	814.0	812.9	811.7	811.7	812.9	814.0	814.0	814.0	811.7	810.6	811.7
20°	795.0	792.7	792.7	793.8	795.0	796.1	796.1	795.0	793.8	792.7	795.0
22.5°	773.7	772.6	771.4	772.6	775.9	775.9	777.0	774.8	773.7	773.7	774.8
25°	751.3	750.2	749.0	751.3	753.5	754.6	754.6	754.6	753.5	752.4	754.6
27.5°	726.7	726.7	724.4	726.7	730.0	731.1	731.1	731.1	730.0	730.0	731.1
30°	702.0	700.9	698.7	702.0	704.3	707.6	707.6	707.6	706.5	706.5	708.7
32.5°	674.0	674.0	672.9	676.3	679.6	681.9	681.9	681.9	680.7	683.0	685.2
35°	644.9	643.8	644.9	647.2	650.5	653.9	655.0	655.0	655.0	657.2	659.5
37.5°	618.0	614.7	615.8	619.2	622.5	625.9	628.1	627.0	628.1	631.5	633.7
40°	585.6	584.5	586.7	591.2	594.5	597.9	599.0	600.1	602.4	605.7	609.1
42.5°	554.2	555.3	556.5	562.1	565.4	569.9	571.0	573.3	575.5	578.9	583.3
45°	524.0	522.9	526.2	529.6	535.2	539.7	543.0	544.2	548.6	553.1	556.5
47.5°	491.5	493.8	493.8	500.5	507.2	511.7	513.9	517.3	521.8	527.4	530.7
50°	460.2	460.2	464.7	470.3	475.9	481.5	484.8	489.3	494.9	500.5	505.0
52.5°	427.7	428.8	432.2	438.9	445.6	451.2	456.8	462.4	466.9	473.6	478.1
55°	395.2	396.4	402.0	408.7	415.4	422.1	427.7	433.3	440.0	444.5	450.1
57.5°	361.6	363.9	370.6	377.3	385.2	390.8	398.6	405.3	412.0	417.6	424.3
60°	330.3	331.4	337.0	346.0	351.6	360.5	368.4	375.1	381.8	389.6	395.2
62.5°	296.7	298.9	305.7	313.5	321.3	330.3	338.1	346.0	352.7	360.5	366.1
65°	265.4	267.6	273.2	281.0	291.1	301.2	309.0	315.7	323.6	331.4	337.0
67.5°	234.0	236.2	241.8	249.7	259.8	268.7	278.8	286.6	294.5	302.3	309.0
70°	199.3	202.7	209.4	219.5	228.4	238.5	247.4	256.4	264.2	272.1	278.8
72.5°	166.8	170.2	179.1	188.1	198.2	208.3	218.3	226.2	236.2	243.0	249.7
75°	135.5	140.0	147.8	156.8	166.8	178.0	187.0	198.2	207.1	215.0	220.6
77.5°	104.1	109.7	117.6	127.6	137.7	148.9	159.0	167.9	178.0	187.0	193.7
80°	76.1	80.6	89.6	99.6	112.0	122.0	132.1	142.2	151.2	159.0	167.9
82.5°	51.5	56.0	64.9	75.0	86.2	97.4	108.6	117.6	126.5	135.5	143.3
85°	29.1	34.7	43.7	53.7	66.1	76.1	86.2	96.3	105.2	114.2	122.0
87.5°	12.3	17.9	26.9	36.9	47.0	58.2	68.3	78.4	87.3	96.3	103.0
90°	0.0	5.6	13.4	23.5	34.7	44.8	54.9	64.9	73.9	82.9	89.6
92.5°	0.0	3.4	10.1	20.2	30.2	40.3	49.3	59.3	67.2	76.1	82.9
95°	0.0	2.2	7.8	16.8	26.9	35.8	45.9	54.9	63.8	71.7	78.4
97.5°	0.0	1.1	6.7	14.6	23.5	32.5	42.5	51.5	59.3	67.2	73.9
100°	0.0	0.0	4.5	12.3	20.2	29.1	38.1	47.0	54.9	62.7	69.4
102.5°	0.0	1.1	2.2	10.1	17.9	26.9	34.7	43.7	51.5	58.2	64.9
105°	0.0	0.0	1.1	6.7	14.6	23.5	31.4	39.2	47.0	53.7	60.5
107.5°	0.0	0.0	0.0	4.5	12.3	20.2	28.0	35.8	42.5	50.4	56.0
110°	0.0	0.0	0.0	2.2	9.0	16.8	24.6	31.4	39.2	45.9	51.5



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CATALOG NUMBER: S124-DR-1-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	0.0	0.0	1.1	6.7	13.4	21.3	28.0	34.7	41.4	47.0
115°	0.0	1.1	1.1	0.0	4.5	11.2	17.9	24.6	31.4	36.9	42.5
117.5°	0.0	0.0	0.0	0.0	2.2	7.8	14.6	21.3	26.9	33.6	38.1
120°	0.0	0.0	0.0	0.0	1.1	5.6	11.2	17.9	23.5	29.1	34.7
122.5°	0.0	0.0	0.0	0.0	0.0	3.4	7.8	13.4	20.2	25.8	30.2
125°	0.0	0.0	0.0	0.0	0.0	1.1	5.6	10.1	15.7	21.3	25.8
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	2.2	7.8	12.3	16.8	21.3
130°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	4.5	9.0	13.4	17.9
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	5.6	10.1	13.4
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.2	6.7	10.1
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.4	6.7
140°	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.4
142.5°	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
145°	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P231634

CATALOG NUMBER: S124-DR-1-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	873.3	873.3	873.3	873.3	873.3	873.3	873.3	873.3
2.5°	870.0	873.3	873.3	873.3	873.3	873.3	873.3	872.2
5°	867.7	870.0	870.0	870.0	870.0	870.0	870.0	868.9
7.5°	862.1	864.4	865.5	865.5	865.5	865.5	864.4	863.3
10°	854.3	855.4	856.5	856.5	856.5	856.5	855.4	855.4
12.5°	843.1	844.2	845.3	845.3	845.3	845.3	844.2	844.2
15°	829.7	830.8	831.9	831.9	831.9	831.9	830.8	829.7
17.5°	815.1	816.2	816.2	816.2	816.2	815.1	814.0	815.1
20°	796.1	797.2	798.3	798.3	798.3	798.3	796.1	796.1
22.5°	778.2	779.3	779.3	778.2	779.3	778.2	777.0	775.9
25°	755.8	756.9	758.0	758.0	759.1	758.0	755.8	755.8
27.5°	733.4	735.6	734.5	734.5	735.6	734.5	733.4	733.4
30°	711.0	712.1	712.1	712.1	713.2	713.2	711.0	711.0
32.5°	686.3	687.5	688.6	689.7	689.7	689.7	688.6	688.6
35°	661.7	662.8	664.0	664.0	666.2	667.3	666.2	665.1
37.5°	636.0	638.2	640.4	641.6	641.6	642.7	642.7	642.7
40°	612.5	613.6	615.8	618.0	618.0	620.3	619.2	619.2
42.5°	585.6	590.1	591.2	595.7	595.7	595.7	595.7	597.9
45°	560.9	563.2	566.5	568.8	571.0	571.0	571.0	572.1
47.5°	536.3	539.7	540.8	544.2	546.4	547.5	547.5	548.6
50°	509.4	512.8	517.3	519.5	520.6	521.8	522.9	522.9
52.5°	482.6	487.0	490.4	493.8	494.9	496.0	496.0	498.2
55°	455.7	460.2	463.5	466.9	470.3	471.4	471.4	471.4
57.5°	429.9	433.3	436.7	441.1	442.3	443.4	445.6	445.6
60°	400.8	405.3	410.9	413.2	416.5	417.6	417.6	418.8
62.5°	372.8	378.4	381.8	385.2	388.5	390.8	390.8	391.9
65°	342.6	348.2	353.8	356.1	359.4	361.6	362.8	361.6
67.5°	314.6	321.3	324.7	329.2	331.4	332.5	334.8	334.8
70°	286.6	291.1	296.7	298.9	302.3	303.4	305.7	306.8
72.5°	257.5	262.0	266.5	271.0	274.3	275.4	278.8	278.8
75°	228.4	235.1	238.5	243.0	246.3	248.6	249.7	249.7
77.5°	200.4	207.1	211.6	216.1	219.5	221.7	222.8	223.9
80°	173.5	180.3	185.9	190.3	192.6	194.8	195.9	197.1
82.5°	151.2	155.6	161.2	166.8	169.1	171.3	172.4	172.4
85°	128.8	135.5	141.1	144.4	147.8	150.0	151.2	152.3
87.5°	109.7	116.4	120.9	125.4	128.8	132.1	133.2	133.2
90°	96.3	103.0	107.5	112.0	115.3	117.6	118.7	119.8
92.5°	89.6	95.2	100.8	105.2	107.5	109.7	112.0	112.0
95°	85.1	90.7	96.3	99.6	103.0	105.2	106.4	106.4
97.5°	80.6	86.2	90.7	95.2	98.5	99.6	100.8	101.9
100°	76.1	80.6	86.2	89.6	92.9	95.2	96.3	96.3
102.5°	71.7	76.1	81.7	85.1	87.3	89.6	90.7	91.8
105°	66.1	71.7	76.1	79.5	82.9	85.1	86.2	86.2
107.5°	61.6	67.2	71.7	75.0	78.4	79.5	80.6	81.7
110°	57.1	61.6	67.2	70.5	72.8	75.0	76.1	76.1



TEST NUMBER: P231634

CATALOG NUMBER: S124-DR-1-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	52.6	57.1	61.6	64.9	67.2	69.4	70.5	71.7
115°	48.1	52.6	57.1	60.5	62.7	64.9	66.1	66.1
117.5°	43.7	48.1	52.6	54.9	57.1	59.3	60.5	60.5
120°	39.2	43.7	47.0	50.4	52.6	54.9	54.9	56.0
122.5°	34.7	39.2	42.5	45.9	48.1	49.3	50.4	50.4
125°	30.2	34.7	38.1	40.3	42.5	44.8	44.8	45.9
127.5°	25.8	29.1	32.5	35.8	38.1	39.2	40.3	40.3
130°	21.3	24.6	28.0	31.4	32.5	33.6	34.7	35.8
132.5°	16.8	20.2	23.5	25.8	28.0	29.1	30.2	30.2
135°	13.4	16.8	19.0	21.3	23.5	24.6	24.6	25.8
137.5°	10.1	12.3	14.6	16.8	17.9	19.0	20.2	20.2
140°	5.6	7.8	10.1	12.3	13.4	14.6	15.7	15.7
142.5°	2.2	4.5	5.6	7.8	9.0	10.1	11.2	11.2
145°	0.0	1.1	2.2	3.4	4.5	5.6	6.7	6.7
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)