

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: P231627

Luminaire Tested: **S124-DR-LO-27-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231627
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-LO-27-X-0048-1-U-DD-4-W
Description: DEFINE 4 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1019.5 lumens
Efficiency: N/A
Efficacy: 75.0 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

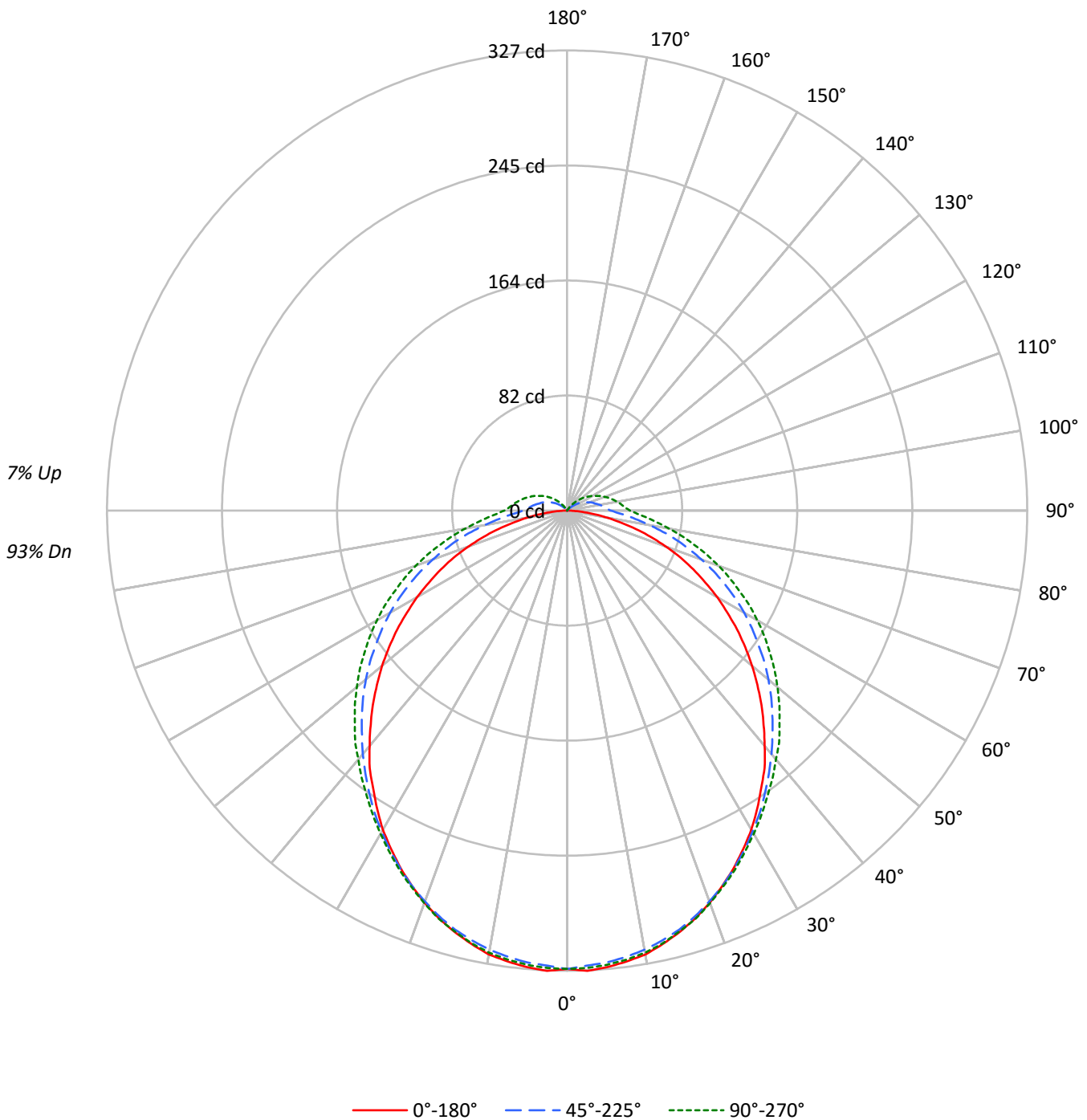
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P231627

CATALOG NUMBER: S124-DR-LO-27-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°	2918	2918	2918
5°	2924	2848	2847
10°	2903	2782	2770
15°	2858	2709	2675
20°	2806	2621	2576
25°	2743	2530	2474
30°	2676	2435	2372
35°	2592	2342	2279
40°	2510	2251	2200
45°	2425	2166	2127
50°	2333	2087	2054
55°	2235	1999	1979
60°	2129	1917	1904
65°	2007	1815	1807
70°	1839	1695	1716
75°	1620	1566	1601
80°	1308	1407	1493
85°	901	1301	1423



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.8	3.0
10°-20°	87.2	8.6
20°-30°	129.6	12.7
30°-40°	153.5	15.1
40°-50°	158.8	15.6
50°-60°	147.0	14.4
60°-70°	119.6	11.7
70°-80°	81.2	8.0
80°-90°	43.6	4.3
90°-100°	26.0	2.5
100°-110°	19.1	1.9
110°-120°	12.7	1.2
120°-130°	7.1	0.7
130°-140°	2.9	0.3
140°-150°	0.5	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	247.6	24.3
0°-40°	401.1	39.3
0°-60°	706.9	69.3
0°-90°	951.3	93.3
90°-120°	57.7	5.7
90°-150°	68.2	6.7
90°-180°	68.0	6.7
0°-180°	1019.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	326	326	326	326	326	
5°	326	325	322	324	324	31
15°	310	310	308	310	309	87
25°	280	281	281	283	282	129
35°	240	243	245	248	248	151
45°	195	200	206	212	213	151
55°	147	156	166	174	176	132
65°	99	110	124	132	135	98
75°	50	64	80	90	93	53
85°	11	26	43	53	57	13
90°	0	15	31	41	45	1
95°	0	12	27	37	40	0
105°	0	7	20	29	32	0
115°	0	3	14	22	25	0
125°	0	0	8	15	17	0
135°	0	0	2	8	10	0
145°	0	0	0	1	2	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: P231627

CATALOG NUMBER: S124-DR-LO-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	325.7	325.7	325.7	325.7	325.7	325.7	325.7	325.7	325.7	325.7	325.7
2.5°	327.4	326.5	325.7	325.3	325.7	326.1	325.7	325.3	324.4	323.6	323.6
5°	325.7	324.9	324.0	324.0	324.9	324.9	324.4	324.0	323.2	322.4	322.4
7.5°	323.2	322.4	321.9	321.9	322.4	322.4	322.4	321.9	321.1	319.9	320.7
10°	320.3	319.4	318.6	318.6	319.0	319.0	319.0	318.6	317.8	316.9	317.4
12.5°	315.3	314.4	314.0	314.0	314.4	314.8	314.4	314.4	313.6	312.8	313.2
15°	309.8	309.4	308.6	309.0	309.4	309.8	309.8	309.4	308.6	308.2	308.6
17.5°	303.6	303.2	302.7	302.7	303.2	303.6	303.6	303.6	302.7	302.3	302.7
20°	296.5	295.6	295.6	296.1	296.5	296.9	296.9	296.5	296.1	295.6	296.5
22.5°	288.5	288.1	287.7	288.1	289.4	289.4	289.8	289.0	288.5	288.5	289.0
25°	280.2	279.8	279.4	280.2	281.0	281.4	281.4	281.4	281.0	280.6	281.4
27.5°	271.0	271.0	270.2	271.0	272.3	272.7	272.7	272.7	272.3	272.3	272.7
30°	261.8	261.4	260.6	261.8	262.6	263.9	263.9	263.9	263.5	263.5	264.3
32.5°	251.4	251.4	251.0	252.2	253.5	254.3	254.3	254.3	253.9	254.7	255.6
35°	240.5	240.1	240.5	241.4	242.6	243.9	244.3	244.3	244.3	245.1	245.9
37.5°	230.5	229.2	229.7	230.9	232.2	233.4	234.3	233.8	234.3	235.5	236.3
40°	218.4	218.0	218.8	220.5	221.7	223.0	223.4	223.8	224.7	225.9	227.2
42.5°	206.7	207.1	207.5	209.6	210.9	212.5	213.0	213.8	214.6	215.9	217.6
45°	195.4	195.0	196.3	197.5	199.6	201.3	202.5	202.9	204.6	206.3	207.5
47.5°	183.3	184.1	184.1	186.7	189.2	190.8	191.7	192.9	194.6	196.7	197.9
50°	171.6	171.6	173.3	175.4	177.5	179.6	180.8	182.5	184.6	186.7	188.3
52.5°	159.5	159.9	161.2	163.7	166.2	168.3	170.4	172.5	174.1	176.6	178.3
55°	147.4	147.8	149.9	152.4	154.9	157.4	159.5	161.6	164.1	165.8	167.9
57.5°	134.9	135.7	138.2	140.7	143.6	145.7	148.7	151.2	153.7	155.8	158.3
60°	123.2	123.6	125.7	129.0	131.1	134.5	137.4	139.9	142.4	145.3	147.4
62.5°	110.7	111.5	114.0	116.9	119.8	123.2	126.1	129.0	131.5	134.5	136.5
65°	99.0	99.8	101.9	104.8	108.6	112.3	115.2	117.8	120.7	123.6	125.7
67.5°	87.3	88.1	90.2	93.1	96.9	100.2	104.0	106.9	109.8	112.7	115.2
70°	74.3	75.6	78.1	81.8	85.2	88.9	92.3	95.6	98.5	101.5	104.0
72.5°	62.2	63.5	66.8	70.2	73.9	77.7	81.4	84.3	88.1	90.6	93.1
75°	50.5	52.2	55.1	58.5	62.2	66.4	69.7	73.9	77.2	80.2	82.3
77.5°	38.8	40.9	43.8	47.6	51.4	55.5	59.3	62.6	66.4	69.7	72.2
80°	28.4	30.1	33.4	37.2	41.8	45.5	49.3	53.0	56.4	59.3	62.6
82.5°	19.2	20.9	24.2	28.0	32.2	36.3	40.5	43.8	47.2	50.5	53.4
85°	10.9	12.9	16.3	20.0	24.6	28.4	32.2	35.9	39.3	42.6	45.5
87.5°	4.6	6.7	10.0	13.8	17.5	21.7	25.5	29.2	32.6	35.9	38.4
90°	0.0	2.1	5.0	8.8	12.9	16.7	20.5	24.2	27.6	30.9	33.4
92.5°	0.0	1.3	3.8	7.5	11.3	15.0	18.4	22.1	25.1	28.4	30.9
95°	0.0	0.8	2.9	6.3	10.0	13.4	17.1	20.5	23.8	26.7	29.2
97.5°	0.0	0.4	2.5	5.4	8.8	12.1	15.9	19.2	22.1	25.1	27.6
100°	0.0	0.0	1.7	4.6	7.5	10.9	14.2	17.5	20.5	23.4	25.9
102.5°	0.0	0.4	0.8	3.8	6.7	10.0	12.9	16.3	19.2	21.7	24.2
105°	0.0	0.0	0.4	2.5	5.4	8.8	11.7	14.6	17.5	20.0	22.5
107.5°	0.0	0.0	0.0	1.7	4.6	7.5	10.4	13.4	15.9	18.8	20.9
110°	0.0	0.0	0.0	0.8	3.3	6.3	9.2	11.7	14.6	17.1	19.2



TEST NUMBER: P231627

CATALOG NUMBER: S124-DR-LO-27-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	0.4	2.5	5.0	7.9	10.4	12.9	15.4	17.5
115°	0.0	0.4	0.4	0.0	1.7	4.2	6.7	9.2	11.7	13.8	15.9
117.5°	0.0	0.0	0.0	0.0	0.8	2.9	5.4	7.9	10.0	12.5	14.2
120°	0.0	0.0	0.0	0.0	0.4	2.1	4.2	6.7	8.8	10.9	12.9
122.5°	0.0	0.0	0.0	0.0	0.0	1.3	2.9	5.0	7.5	9.6	11.3
125°	0.0	0.0	0.0	0.0	0.0	0.4	2.1	3.8	5.8	7.9	9.6
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.9	4.6	6.3	7.9
130°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7	3.3	5.0	6.7
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.1	3.8	5.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	2.5	3.8
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3	2.5
140°	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3
142.5°	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
145°	0.0	0.4	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: P231627

CATALOG NUMBER: S124-DR-LO-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	325.7	325.7	325.7	325.7	325.7	325.7	325.7	325.7
2.5°	324.4	325.7	325.7	325.7	325.7	325.7	325.7	325.3
5°	323.6	324.4	324.4	324.4	324.4	324.4	324.4	324.0
7.5°	321.5	322.4	322.8	322.8	322.8	322.8	322.4	321.9
10°	318.6	319.0	319.4	319.4	319.4	319.4	319.0	319.0
12.5°	314.4	314.8	315.3	315.3	315.3	315.3	314.8	314.8
15°	309.4	309.8	310.3	310.3	310.3	310.3	309.8	309.4
17.5°	304.0	304.4	304.4	304.4	304.4	304.0	303.6	304.0
20°	296.9	297.3	297.7	297.7	297.7	297.7	296.9	296.9
22.5°	290.2	290.6	290.6	290.2	290.6	290.2	289.8	289.4
25°	281.9	282.3	282.7	282.7	283.1	282.7	281.9	281.9
27.5°	273.5	274.3	273.9	273.9	274.3	273.9	273.5	273.5
30°	265.2	265.6	265.6	265.6	266.0	266.0	265.2	265.2
32.5°	256.0	256.4	256.8	257.2	257.2	257.2	256.8	256.8
35°	246.8	247.2	247.6	247.6	248.5	248.9	248.5	248.0
37.5°	237.2	238.0	238.8	239.3	239.3	239.7	239.7	239.7
40°	228.4	228.8	229.7	230.5	230.5	231.3	230.9	230.9
42.5°	218.4	220.1	220.5	222.1	222.1	222.1	222.1	223.0
45°	209.2	210.0	211.3	212.1	213.0	213.0	213.0	213.4
47.5°	200.0	201.3	201.7	202.9	203.8	204.2	204.2	204.6
50°	190.0	191.2	192.9	193.8	194.2	194.6	195.0	195.0
52.5°	180.0	181.6	182.9	184.1	184.6	185.0	185.0	185.8
55°	169.9	171.6	172.9	174.1	175.4	175.8	175.8	175.8
57.5°	160.3	161.6	162.9	164.5	164.9	165.4	166.2	166.2
60°	149.5	151.2	153.2	154.1	155.3	155.8	155.8	156.2
62.5°	139.0	141.1	142.4	143.6	144.9	145.7	145.7	146.1
65°	127.8	129.9	132.0	132.8	134.0	134.9	135.3	134.9
67.5°	117.3	119.8	121.1	122.8	123.6	124.0	124.9	124.9
70°	106.9	108.6	110.7	111.5	112.7	113.2	114.0	114.4
72.5°	96.0	97.7	99.4	101.1	102.3	102.7	104.0	104.0
75°	85.2	87.7	88.9	90.6	91.9	92.7	93.1	93.1
77.5°	74.7	77.2	78.9	80.6	81.8	82.7	83.1	83.5
80°	64.7	67.2	69.3	71.0	71.8	72.7	73.1	73.5
82.5°	56.4	58.0	60.1	62.2	63.1	63.9	64.3	64.3
85°	48.0	50.5	52.6	53.9	55.1	56.0	56.4	56.8
87.5°	40.9	43.4	45.1	46.8	48.0	49.3	49.7	49.7
90°	35.9	38.4	40.1	41.8	43.0	43.8	44.3	44.7
92.5°	33.4	35.5	37.6	39.3	40.1	40.9	41.8	41.8
95°	31.7	33.8	35.9	37.2	38.4	39.3	39.7	39.7
97.5°	30.1	32.2	33.8	35.5	36.7	37.2	37.6	38.0
100°	28.4	30.1	32.2	33.4	34.7	35.5	35.9	35.9
102.5°	26.7	28.4	30.5	31.7	32.6	33.4	33.8	34.2
105°	24.6	26.7	28.4	29.6	30.9	31.7	32.2	32.2
107.5°	23.0	25.1	26.7	28.0	29.2	29.6	30.1	30.5
110°	21.3	23.0	25.1	26.3	27.1	28.0	28.4	28.4



TEST NUMBER: P231627

CATALOG NUMBER: S124-DR-LO-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	19.6	21.3	23.0	24.2	25.1	25.9	26.3	26.7
115°	18.0	19.6	21.3	22.5	23.4	24.2	24.6	24.6
117.5°	16.3	18.0	19.6	20.5	21.3	22.1	22.5	22.5
120°	14.6	16.3	17.5	18.8	19.6	20.5	20.5	20.9
122.5°	12.9	14.6	15.9	17.1	18.0	18.4	18.8	18.8
125°	11.3	12.9	14.2	15.0	15.9	16.7	16.7	17.1
127.5°	9.6	10.9	12.1	13.4	14.2	14.6	15.0	15.0
130°	7.9	9.2	10.4	11.7	12.1	12.5	12.9	13.4
132.5°	6.3	7.5	8.8	9.6	10.4	10.9	11.3	11.3
135°	5.0	6.3	7.1	7.9	8.8	9.2	9.2	9.6
137.5°	3.8	4.6	5.4	6.3	6.7	7.1	7.5	7.5
140°	2.1	2.9	3.8	4.6	5.0	5.4	5.8	5.8
142.5°	0.8	1.7	2.1	2.9	3.3	3.8	4.2	4.2
145°	0.0	0.4	0.8	1.3	1.7	2.1	2.5	2.5
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)