

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: P231622

Luminaire Tested: **S123-DR-1-40-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231622
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33913)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123-DR-1-40-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

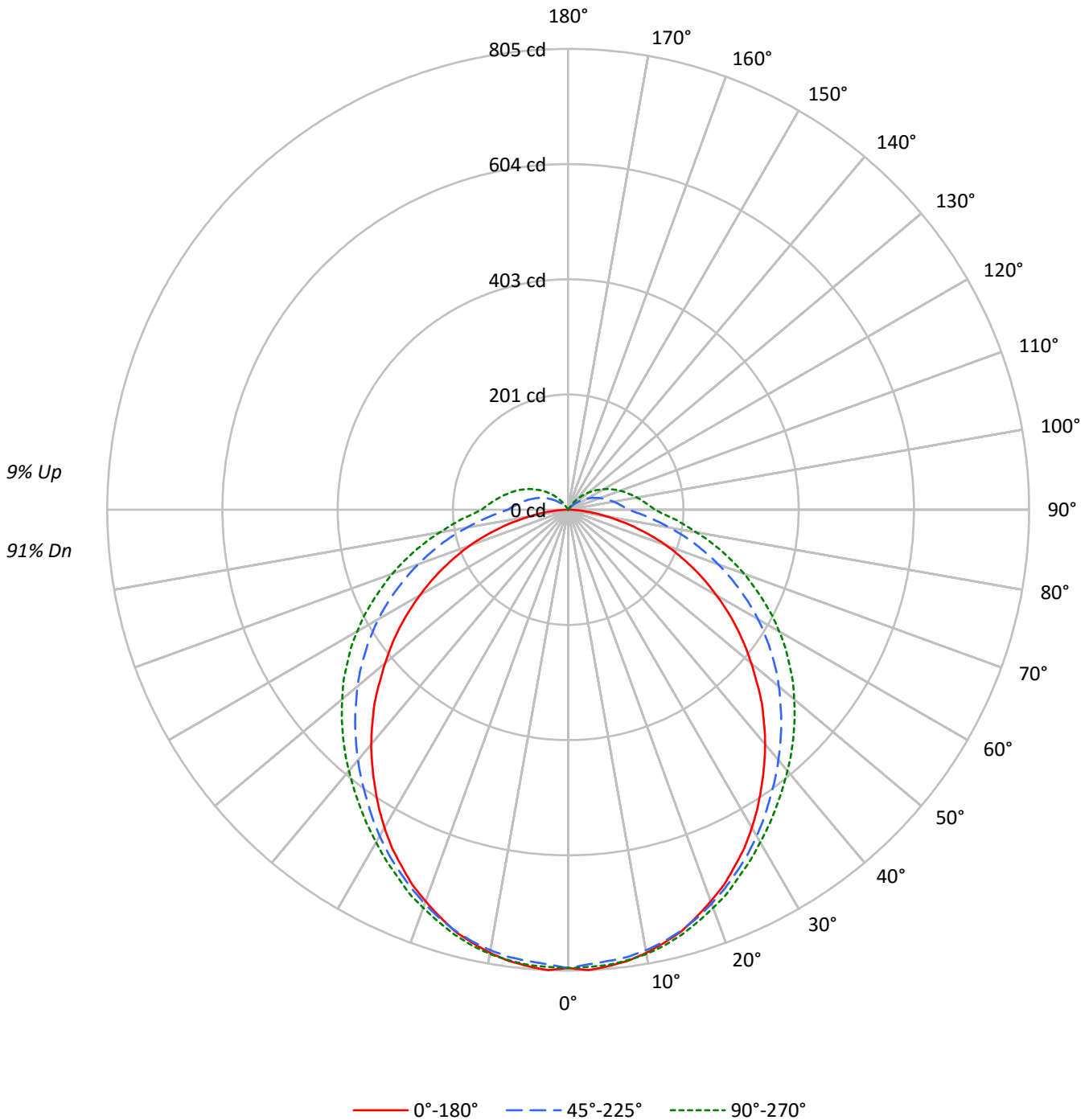
Lumens per Lamp: N/A
Luminaire Lumens: 2706.2 lumens
Efficiency: N/A
Efficacy: 97.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

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



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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	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	105	100	95	90	101	96	92	88	90	87	84	85	82	79	80	78	76	73
2	95	86	79	72	91	83	76	71	78	73	68	74	69	65	69	66	62	59
3	86	75	66	59	83	73	65	58	68	62	56	64	59	54	61	56	52	49
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	44	42
5	72	59	50	43	70	57	49	42	54	47	41	51	45	40	49	43	38	36
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	31
7	62	48	39	33	59	47	38	32	44	37	31	42	36	31	40	34	30	28
8	57	44	35	29	55	43	34	29	41	33	28	39	32	27	37	31	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	22
10	50	37	29	24	49	36	28	23	35	28	23	33	27	22	32	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	9853	9853	9853
5°	9872	9547	9551
10°	9786	9309	9242
15°	9660	9027	8897
20°	9459	8707	8534
25°	9244	8382	8172
30°	9007	8059	7842
35°	8718	7727	7549
40°	8448	7434	7289
45°	8148	7162	7054
50°	7798	6903	6826
55°	7484	6633	6599
60°	7096	6356	6363
65°	6673	6020	6086
70°	6205	5681	5809
75°	5428	5322	5498
80°	4389	4918	5171
85°	3056	4644	4987



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	75.7	2.8
10°-20°	215.6	8.0
20°-30°	322.3	11.9
30°-40°	385.1	14.2
40°-50°	403.7	14.9
50°-60°	380.7	14.1
60°-70°	318.8	11.8
70°-80°	229.2	8.5
80°-90°	138.3	5.1
90°-100°	89.2	3.3
100°-110°	65.5	2.4
110°-120°	44.0	1.6
120°-130°	25.2	0.9
130°-140°	10.9	0.4
140°-150°	2.0	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	613.6	22.7
0°-40°	998.7	36.9
0°-60°	1783.1	65.9
0°-90°	2469.4	91.2
90°-120°	198.7	7.3
90°-150°	236.9	8.8
90°-180°	237.0	8.8
0°-180°	2706.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	801	801	801	801	801	
5°	801	798	792	799	798	76
15°	762	762	761	770	768	215
25°	688	694	698	708	706	317
35°	589	602	615	631	634	369
45°	478	499	526	550	556	368
55°	359	391	432	464	471	321
65°	240	282	330	366	376	238
75°	123	173	228	263	277	131
85°	27	81	138	173	186	31
90°	0	50	105	139	151	2
95°	0	41	92	125	136	0
105°	0	25	69	100	109	0
115°	0	11	49	75	84	0
125°	0	1	29	51	59	0
135°	0	0	11	28	35	0
145°	1	0	0	7	11	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



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	800.6	800.6	800.6	800.6	800.6	800.6	800.6	800.6	800.6	800.6	800.6
2.5°	805.0	802.8	800.6	800.6	801.7	801.7	801.7	799.4	798.3	795.0	795.0
5°	800.6	798.3	796.1	797.2	797.2	798.3	798.3	797.2	795.0	791.6	793.8
7.5°	795.0	792.7	790.5	790.5	791.6	792.7	792.7	791.6	790.5	788.2	789.4
10°	786.0	783.8	781.5	781.5	782.6	784.9	786.0	784.9	783.8	781.5	782.6
12.5°	774.8	772.6	770.3	772.6	773.7	775.9	775.9	775.9	774.8	772.6	774.8
15°	762.5	759.1	758.0	759.1	761.4	763.6	764.7	763.6	763.6	761.4	763.6
17.5°	745.7	743.5	742.3	744.6	746.8	749.1	751.3	750.2	750.2	747.9	750.2
20°	727.8	725.5	725.5	727.8	730.0	733.4	734.5	734.5	734.5	732.3	735.6
22.5°	709.9	706.5	706.5	708.7	713.2	715.5	716.6	716.6	716.6	715.5	719.9
25°	687.5	685.2	686.3	688.6	691.9	695.3	697.5	697.5	697.5	697.5	700.9
27.5°	666.2	662.8	664.0	667.3	671.8	674.0	677.4	677.4	677.4	678.5	681.9
30°	641.6	639.3	641.6	644.9	649.4	652.8	655.0	657.2	657.2	658.4	662.8
32.5°	615.8	614.7	616.9	621.4	623.6	629.2	631.5	632.6	634.8	637.1	640.4
35°	588.9	587.8	591.2	595.7	600.1	604.6	608.0	609.1	612.5	614.7	620.3
37.5°	562.1	562.1	565.4	568.8	574.4	580.0	583.3	585.6	587.8	593.4	599.0
40°	535.2	534.1	537.4	541.9	547.5	554.2	557.6	560.9	564.3	571.0	576.6
42.5°	506.1	506.1	510.6	516.2	522.9	529.6	533.0	535.2	541.9	548.6	554.2
45°	478.1	478.1	482.6	489.3	496.0	502.7	508.3	512.8	519.5	526.2	531.8
47.5°	446.7	449.0	453.5	460.2	468.0	475.9	481.5	488.2	496.0	502.7	509.4
50°	417.6	418.8	426.6	433.3	441.1	450.1	456.8	463.5	472.5	480.3	488.2
52.5°	388.5	390.8	397.5	405.3	414.3	422.1	432.2	440.0	447.9	456.8	464.7
55°	359.4	360.5	369.5	378.4	386.3	396.4	405.3	415.4	424.3	432.2	440.0
57.5°	329.2	332.5	339.3	348.2	358.3	369.5	379.6	388.5	397.5	407.6	416.5
60°	298.9	303.4	311.3	320.2	330.3	342.6	353.8	363.9	372.8	382.9	391.9
62.5°	269.8	273.2	282.2	291.1	302.3	314.6	326.9	337.0	347.1	357.2	367.2
65°	239.6	246.3	253.0	263.1	275.4	287.8	300.1	311.3	321.3	330.3	340.4
67.5°	210.5	215.0	225.1	235.1	247.4	260.9	272.1	284.4	295.6	304.5	313.5
70°	182.5	187.0	195.9	207.1	220.6	234.0	246.3	256.4	268.7	278.8	288.9
72.5°	152.3	157.9	167.9	179.1	192.6	206.0	219.5	231.8	243.0	253.0	263.1
75°	123.2	129.9	140.0	152.3	166.8	179.1	192.6	204.9	217.2	228.4	237.4
77.5°	95.2	101.9	113.1	126.5	140.0	154.5	166.8	180.3	191.5	203.8	213.9
80°	69.4	77.3	88.5	101.9	115.3	129.9	143.3	155.6	167.9	179.1	190.3
82.5°	48.1	54.9	66.1	79.5	94.1	107.5	120.9	134.4	145.6	157.9	167.9
85°	26.9	34.7	47.0	59.3	73.9	87.3	100.8	114.2	125.4	137.7	147.8
87.5°	11.2	20.2	31.4	43.7	57.1	70.5	84.0	96.3	108.6	119.8	129.9
90°	0.0	7.8	17.9	30.2	43.7	57.1	69.4	81.7	94.1	105.2	114.2
92.5°	0.0	4.5	13.4	25.8	38.1	51.5	64.9	76.1	87.3	98.5	107.5
95°	0.0	2.2	11.2	22.4	34.7	47.0	59.3	70.5	81.7	91.8	100.8
97.5°	0.0	1.1	9.0	19.0	30.2	42.5	54.9	66.1	76.1	86.2	95.2
100°	0.0	0.0	6.7	15.7	26.9	38.1	49.3	60.5	70.5	80.6	89.6
102.5°	0.0	0.0	3.4	12.3	23.5	33.6	44.8	56.0	66.1	75.0	84.0
105°	0.0	0.0	2.2	10.1	19.0	30.2	40.3	50.4	60.5	69.4	78.4
107.5°	0.0	0.0	0.0	6.7	16.8	25.8	35.8	45.9	56.0	63.8	72.8
110°	0.0	0.0	0.0	4.5	13.4	22.4	32.5	41.4	50.4	59.3	67.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0.0	0.0	0.0	2.2	10.1	19.0	28.0	36.9	45.9	53.7	61.6
115°	0.0	0.0	0.0	0.0	6.7	15.7	23.5	32.5	41.4	49.3	56.0
117.5°	0.0	0.0	0.0	0.0	4.5	12.3	20.2	28.0	35.8	43.7	50.4
120°	0.0	0.0	0.0	0.0	1.1	9.0	15.7	23.5	31.4	38.1	45.9
122.5°	0.0	0.0	0.0	0.0	0.0	5.6	12.3	20.2	26.9	33.6	40.3
125°	0.0	0.0	0.0	0.0	0.0	2.2	9.0	15.7	22.4	29.1	34.7
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	5.6	11.2	17.9	23.5	30.2
130°	0.0	0.0	0.0	0.0	0.0	0.0	2.2	7.8	13.4	19.0	24.6
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	10.1	14.6	20.2
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.6	11.2	15.7
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.7	11.2
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.7
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
145°	1.1	0.0	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	800.6	800.6	800.6	800.6	800.6	800.6	800.6	800.6
2.5°	798.3	799.4	800.6	800.6	800.6	800.6	799.4	799.4
5°	796.1	798.3	798.3	799.4	799.4	799.4	798.3	798.3
7.5°	792.7	793.8	795.0	795.0	796.1	796.1	795.0	793.8
10°	786.0	788.2	789.4	789.4	789.4	789.4	789.4	788.2
12.5°	778.2	779.3	780.4	780.4	780.4	781.5	780.4	779.3
15°	767.0	769.2	769.2	770.3	770.3	770.3	769.2	768.1
17.5°	753.5	755.8	756.9	756.9	756.9	756.9	755.8	754.6
20°	739.0	740.1	742.3	741.2	742.3	742.3	741.2	740.1
22.5°	722.2	723.3	725.5	724.4	726.7	726.7	725.5	725.5
25°	704.3	706.5	707.6	707.6	707.6	707.6	707.6	706.5
27.5°	685.2	686.3	688.6	689.7	689.7	689.7	689.7	689.7
30°	665.1	667.3	669.6	669.6	671.8	672.9	671.8	670.7
32.5°	643.8	647.2	649.4	650.5	652.8	653.9	652.8	652.8
35°	622.5	627.0	630.4	631.5	633.7	633.7	634.8	633.7
37.5°	602.4	606.9	609.1	612.5	614.7	616.9	615.8	614.7
40°	582.2	586.7	590.1	592.3	594.5	595.7	595.7	595.7
42.5°	559.8	565.4	568.8	572.1	575.5	576.6	576.6	576.6
45°	537.4	543.0	547.5	552.0	555.3	556.5	556.5	556.5
47.5°	516.2	521.8	526.2	530.7	534.1	535.2	536.3	536.3
50°	494.9	500.5	506.1	509.4	512.8	515.0	515.0	515.0
52.5°	471.4	477.0	482.6	487.1	491.5	492.6	494.9	494.9
55°	447.9	454.6	461.3	465.8	468.0	470.3	471.4	471.4
57.5°	424.3	429.9	435.5	442.3	445.6	447.9	449.0	450.1
60°	399.7	406.4	413.2	418.8	421.0	424.3	425.5	425.5
62.5°	374.0	380.7	388.5	393.0	397.5	399.7	400.8	402.0
65°	349.3	356.1	362.8	369.5	371.7	374.0	376.2	376.2
67.5°	323.6	330.3	337.0	342.6	346.0	349.3	351.6	350.5
70°	297.8	305.7	311.3	318.0	321.3	323.6	325.8	326.9
72.5°	272.1	279.9	286.6	292.2	295.6	297.8	300.1	301.2
75°	247.4	254.2	260.9	265.4	269.8	273.2	274.3	276.6
77.5°	221.7	230.6	236.2	243.0	245.2	248.6	249.7	251.9
80°	199.3	206.0	212.7	218.3	222.8	226.2	226.2	227.3
82.5°	176.9	183.6	190.3	197.1	200.4	203.8	204.9	204.9
85°	155.6	163.5	170.2	175.8	180.3	182.5	184.7	185.9
87.5°	138.8	145.6	152.3	156.8	161.2	163.5	165.7	165.7
90°	123.2	129.9	136.6	142.2	145.6	147.8	150.0	151.2
92.5°	116.4	123.2	129.9	134.4	138.8	141.1	142.2	143.3
95°	109.7	116.4	123.2	127.6	131.0	134.4	135.5	135.5
97.5°	103.0	109.7	116.4	120.9	124.3	126.5	128.8	128.8
100°	97.4	104.1	109.7	114.2	117.6	119.8	122.0	122.0
102.5°	90.7	97.4	103.0	107.5	110.8	113.1	115.3	115.3
105°	85.1	91.8	97.4	101.9	105.2	107.5	108.6	108.6
107.5°	79.5	86.2	91.8	95.2	98.5	100.8	103.0	103.0
110°	73.9	79.5	85.1	89.6	92.9	95.2	96.3	96.3



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CATALOG NUMBER: S123-DR-1-40-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	68.3	73.9	79.5	82.9	86.2	88.5	89.6	90.7
115°	62.7	68.3	72.8	77.3	80.6	81.7	84.0	84.0
117.5°	57.1	62.7	67.2	70.5	73.9	76.1	77.3	78.4
120°	51.5	56.0	61.6	64.9	68.3	69.4	71.7	71.7
122.5°	45.9	50.4	56.0	58.2	61.6	63.8	64.9	64.9
125°	40.3	45.9	49.3	52.6	56.0	57.1	58.2	59.3
127.5°	34.7	39.2	43.7	47.0	49.3	51.5	52.6	52.6
130°	29.1	33.6	38.1	41.4	43.7	44.8	45.9	47.0
132.5°	24.6	29.1	32.5	34.7	38.1	39.2	40.3	40.3
135°	19.0	23.5	26.9	29.1	31.4	33.6	33.6	34.7
137.5°	14.6	17.9	21.3	23.5	25.8	26.9	28.0	28.0
140°	10.1	13.4	15.7	17.9	20.2	21.3	22.4	22.4
142.5°	5.6	7.8	11.2	12.3	14.6	15.7	16.8	16.8
145°	1.1	3.4	5.6	7.8	9.0	10.1	11.2	11.2
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)