

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: P231619

Luminaire Tested: **S123-DR-1-27-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231619
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-1-27-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

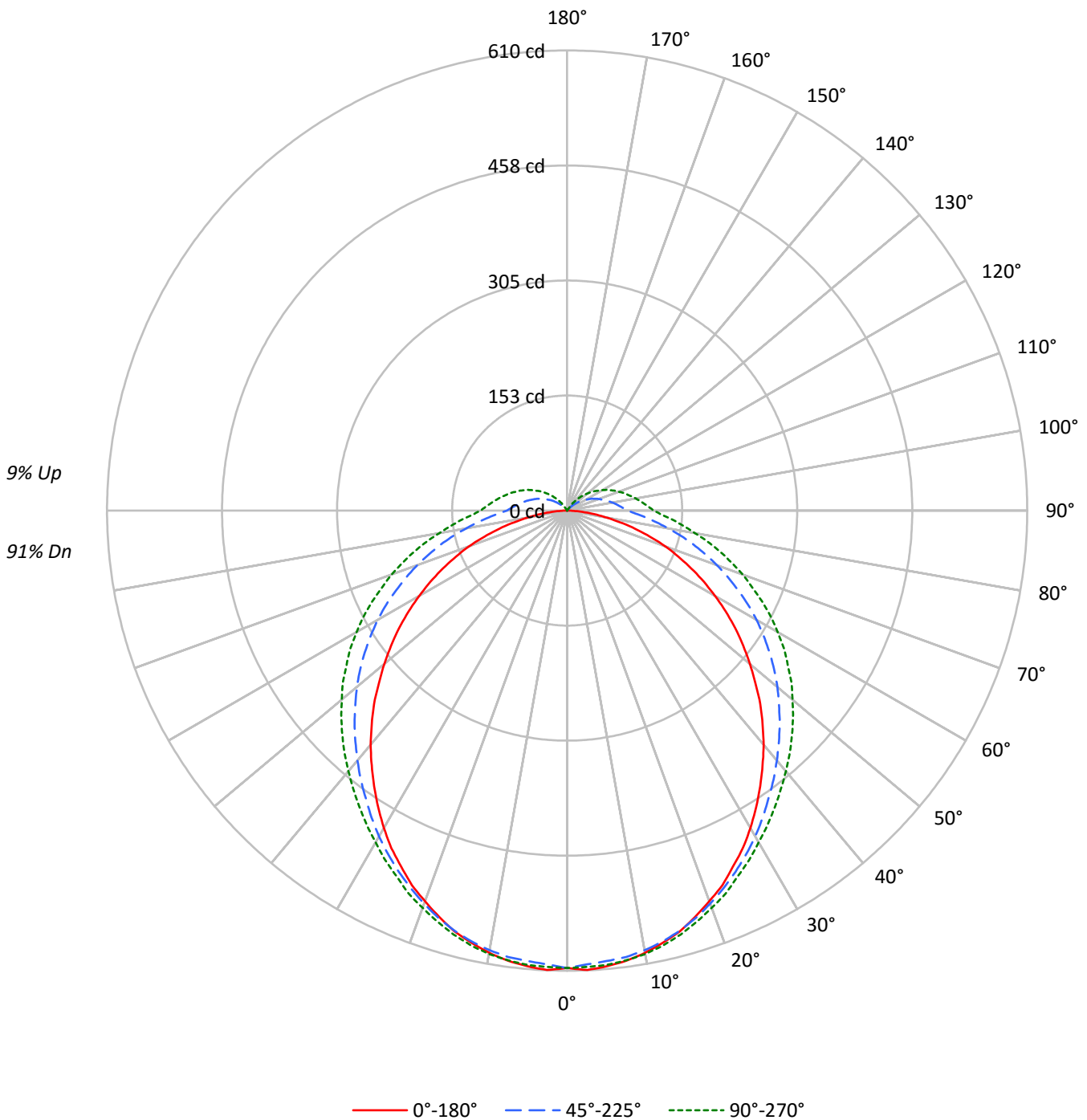
Lumens per Lamp: N/A
Luminaire Lumens: 2049.4 lumens
Efficiency: N/A
Efficacy: 73.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

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°	7462	7462	7462
5°	7476	7230	7233
10°	7410	7049	6999
15°	7315	6836	6738
20°	7162	6593	6463
25°	7000	6347	6189
30°	6821	6103	5939
35°	6603	5851	5717
40°	6397	5630	5520
45°	6171	5424	5342
50°	5906	5228	5169
55°	5668	5023	4998
60°	5375	4814	4818
65°	5055	4558	4609
70°	4698	4301	4400
75°	4110	4031	4162
80°	3327	3726	3915
85°	2306	3518	3777



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.4	2.8
10°-20°	163.3	8.0
20°-30°	244.0	11.9
30°-40°	291.6	14.2
40°-50°	305.7	14.9
50°-60°	288.3	14.1
60°-70°	241.4	11.8
70°-80°	173.6	8.5
80°-90°	104.7	5.1
90°-100°	67.6	3.3
100°-110°	49.6	2.4
110°-120°	33.3	1.6
120°-130°	19.1	0.9
130°-140°	8.3	0.4
140°-150°	1.5	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	464.7	22.7
0°-40°	756.3	36.9
0°-60°	1350.3	65.9
0°-90°	1870.0	91.2
90°-120°	150.5	7.3
90°-150°	179.4	8.8
90°-180°	179.0	8.7
0°-180°	2049.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	606	606	606	606	606	
5°	606	604	600	605	605	58
15°	577	577	577	583	582	163
25°	521	525	528	536	535	240
35°	446	456	466	478	480	279
45°	362	378	398	416	421	279
55°	272	296	327	351	357	243
65°	182	213	250	277	285	180
75°	93	131	173	199	209	99
85°	20	61	104	131	141	24
90°	0	38	80	106	114	1
95°	0	31	70	95	103	0
105°	0	19	53	76	82	0
115°	0	8	37	57	64	0
125°	0	1	22	39	45	0
135°	0	0	8	21	26	0
145°	1	0	0	5	8	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: P231619

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	606.3	606.3	606.3	606.3	606.3	606.3	606.3	606.3	606.3	606.3	606.3
2.5°	609.6	607.9	606.3	606.3	607.1	607.1	607.1	605.4	604.6	602.0	602.0
5°	606.3	604.6	602.9	603.7	603.7	604.6	604.6	603.7	602.0	599.5	601.2
7.5°	602.0	600.3	598.6	598.6	599.5	600.3	600.3	599.5	598.6	596.9	597.8
10°	595.2	593.5	591.8	591.8	592.7	594.4	595.2	594.4	593.5	591.8	592.7
12.5°	586.8	585.1	583.4	585.1	585.9	587.6	587.6	587.6	586.8	585.1	586.8
15°	577.4	574.9	574.0	574.9	576.6	578.3	579.1	578.3	578.3	576.6	578.3
17.5°	564.7	563.0	562.2	563.9	565.6	567.2	568.9	568.1	568.1	566.4	568.1
20°	551.1	549.4	549.4	551.1	552.8	555.4	556.2	556.2	556.2	554.5	557.1
22.5°	537.6	535.0	535.0	536.7	540.1	541.8	542.7	542.7	542.7	541.8	545.2
25°	520.6	518.9	519.8	521.5	524.0	526.6	528.2	528.2	528.2	528.2	530.8
27.5°	504.5	502.0	502.8	505.4	508.7	510.4	513.0	513.0	513.0	513.8	516.4
30°	485.9	484.2	485.9	488.4	491.8	494.3	496.0	497.7	497.7	498.6	502.0
32.5°	466.3	465.5	467.2	470.6	472.3	476.5	478.2	479.1	480.8	482.5	485.0
35°	446.0	445.2	447.7	451.1	454.5	457.9	460.4	461.3	463.8	465.5	469.7
37.5°	425.6	425.6	428.2	430.7	435.0	439.2	441.8	443.5	445.2	449.4	453.6
40°	405.3	404.5	407.0	410.4	414.6	419.7	422.3	424.8	427.3	432.4	436.7
42.5°	383.3	383.3	386.6	390.9	396.0	401.1	403.6	405.3	410.4	415.5	419.7
45°	362.1	362.1	365.4	370.5	375.6	380.7	384.9	388.3	393.4	398.5	402.8
47.5°	338.3	340.0	343.4	348.5	354.4	360.4	364.6	369.7	375.6	380.7	385.8
50°	316.3	317.1	323.1	328.1	334.1	340.9	345.9	351.0	357.8	363.8	369.7
52.5°	294.2	295.9	301.0	306.9	313.7	319.7	327.3	333.2	339.2	345.9	351.9
55°	272.2	273.0	279.8	286.6	292.5	300.2	306.9	314.6	321.4	327.3	333.2
57.5°	249.3	251.8	256.9	263.7	271.3	279.8	287.4	294.2	301.0	308.6	315.4
60°	226.4	229.8	235.7	242.5	250.1	259.5	267.9	275.6	282.4	290.0	296.8
62.5°	204.3	206.9	213.7	220.5	228.9	238.3	247.6	255.2	262.9	270.5	278.1
65°	181.5	186.5	191.6	199.3	208.6	217.9	227.2	235.7	243.3	250.1	257.8
67.5°	159.4	162.8	170.4	178.1	187.4	197.6	206.0	215.4	223.8	230.6	237.4
70°	138.2	141.6	148.4	156.9	167.0	177.2	186.5	194.2	203.5	211.1	218.8
72.5°	115.3	119.6	127.2	135.7	145.8	156.0	166.2	175.5	184.0	191.6	199.3
75°	93.3	98.4	106.0	115.3	126.3	135.7	145.8	155.2	164.5	173.0	179.8
77.5°	72.1	77.2	85.6	95.8	106.0	117.0	126.3	136.5	145.0	154.3	162.0
80°	52.6	58.5	67.0	77.2	87.3	98.4	108.5	117.9	127.2	135.7	144.1
82.5°	36.5	41.5	50.0	60.2	71.2	81.4	91.6	101.7	110.2	119.6	127.2
85°	20.3	26.3	35.6	44.9	56.0	66.1	76.3	86.5	95.0	104.3	111.9
87.5°	8.5	15.3	23.7	33.1	43.2	53.4	63.6	72.9	82.2	90.7	98.4
90°	0.0	5.9	13.6	22.9	33.1	43.2	52.6	61.9	71.2	79.7	86.5
92.5°	0.0	3.4	10.2	19.5	28.8	39.0	49.2	57.7	66.1	74.6	81.4
95°	0.0	1.7	8.5	17.0	26.3	35.6	44.9	53.4	61.9	69.5	76.3
97.5°	0.0	0.8	6.8	14.4	22.9	32.2	41.5	50.0	57.7	65.3	72.1
100°	0.0	0.0	5.1	11.9	20.3	28.8	37.3	45.8	53.4	61.0	67.8
102.5°	0.0	0.0	2.5	9.3	17.8	25.4	33.9	42.4	50.0	56.8	63.6
105°	0.0	0.0	1.7	7.6	14.4	22.9	30.5	38.2	45.8	52.6	59.4
107.5°	0.0	0.0	0.0	5.1	12.7	19.5	27.1	34.8	42.4	48.3	55.1
110°	0.0	0.0	0.0	3.4	10.2	17.0	24.6	31.4	38.2	44.9	50.9



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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	1.7	7.6	14.4	21.2	28.0	34.8	40.7	46.6
115°	0.0	0.0	0.0	0.0	5.1	11.9	17.8	24.6	31.4	37.3	42.4
117.5°	0.0	0.0	0.0	0.0	3.4	9.3	15.3	21.2	27.1	33.1	38.2
120°	0.0	0.0	0.0	0.0	0.8	6.8	11.9	17.8	23.7	28.8	34.8
122.5°	0.0	0.0	0.0	0.0	0.0	4.2	9.3	15.3	20.3	25.4	30.5
125°	0.0	0.0	0.0	0.0	0.0	1.7	6.8	11.9	17.0	22.0	26.3
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	4.2	8.5	13.6	17.8	22.9
130°	0.0	0.0	0.0	0.0	0.0	0.0	1.7	5.9	10.2	14.4	18.7
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	7.6	11.0	15.3
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.2	8.5	11.9
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	5.1	8.5
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	5.1
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
145°	0.8	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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CATALOG NUMBER: S123-DR-1-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	606.3	606.3	606.3	606.3	606.3	606.3	606.3	606.3
2.5°	604.6	605.4	606.3	606.3	606.3	606.3	605.4	605.4
5°	602.9	604.6	604.6	605.4	605.4	605.4	604.6	604.6
7.5°	600.3	601.2	602.0	602.0	602.9	602.9	602.0	601.2
10°	595.2	596.9	597.8	597.8	597.8	597.8	597.8	596.9
12.5°	589.3	590.1	591.0	591.0	591.0	591.8	591.0	590.1
15°	580.8	582.5	582.5	583.4	583.4	583.4	582.5	581.7
17.5°	570.6	572.3	573.2	573.2	573.2	573.2	572.3	571.5
20°	559.6	560.5	562.2	561.3	562.2	562.2	561.3	560.5
22.5°	546.9	547.7	549.4	548.6	550.3	550.3	549.4	549.4
25°	533.3	535.0	535.9	535.9	535.9	535.9	535.9	535.0
27.5°	518.9	519.8	521.5	522.3	522.3	522.3	522.3	522.3
30°	503.7	505.4	507.0	507.0	508.7	509.6	508.7	507.9
32.5°	487.5	490.1	491.8	492.6	494.3	495.2	494.3	494.3
35°	471.4	474.8	477.4	478.2	479.9	479.9	480.8	479.9
37.5°	456.2	459.6	461.3	463.8	465.5	467.2	466.3	465.5
40°	440.9	444.3	446.8	448.5	450.2	451.1	451.1	451.1
42.5°	424.0	428.2	430.7	433.3	435.8	436.7	436.7	436.7
45°	407.0	411.2	414.6	418.0	420.6	421.4	421.4	421.4
47.5°	390.9	395.1	398.5	401.9	404.5	405.3	406.1	406.1
50°	374.8	379.0	383.3	385.8	388.3	390.0	390.0	390.0
52.5°	357.0	361.2	365.4	368.8	372.2	373.1	374.8	374.8
55°	339.2	344.3	349.3	352.7	354.4	356.1	357.0	357.0
57.5°	321.4	325.6	329.8	334.9	337.5	339.2	340.0	340.9
60°	302.7	307.8	312.9	317.1	318.8	321.4	322.2	322.2
62.5°	283.2	288.3	294.2	297.6	301.0	302.7	303.6	304.4
65°	264.5	269.6	274.7	279.8	281.5	283.2	284.9	284.9
67.5°	245.0	250.1	255.2	259.5	262.0	264.5	266.2	265.4
70°	225.5	231.5	235.7	240.8	243.3	245.0	246.7	247.6
72.5°	206.0	212.0	217.1	221.3	223.8	225.5	227.2	228.1
75°	187.4	192.5	197.6	201.0	204.3	206.9	207.7	209.4
77.5°	167.9	174.7	178.9	184.0	185.7	188.2	189.1	190.8
80°	150.9	156.0	161.1	165.3	168.7	171.3	171.3	172.1
82.5°	134.0	139.1	144.1	149.2	151.8	154.3	155.2	155.2
85°	117.9	123.8	128.9	133.1	136.5	138.2	139.9	140.8
87.5°	105.1	110.2	115.3	118.7	122.1	123.8	125.5	125.5
90°	93.3	98.4	103.4	107.7	110.2	111.9	113.6	114.5
92.5°	88.2	93.3	98.4	101.7	105.1	106.8	107.7	108.5
95°	83.1	88.2	93.3	96.7	99.2	101.7	102.6	102.6
97.5°	78.0	83.1	88.2	91.6	94.1	95.8	97.5	97.5
100°	73.8	78.9	83.1	86.5	89.0	90.7	92.4	92.4
102.5°	68.7	73.8	78.0	81.4	83.9	85.6	87.3	87.3
105°	64.4	69.5	73.8	77.2	79.7	81.4	82.2	82.2
107.5°	60.2	65.3	69.5	72.1	74.6	76.3	78.0	78.0
110°	56.0	60.2	64.4	67.8	70.4	72.1	72.9	72.9



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CATALOG NUMBER: S123-DR-1-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	51.7	56.0	60.2	62.7	65.3	67.0	67.8	68.7
115°	47.5	51.7	55.1	58.5	61.0	61.9	63.6	63.6
117.5°	43.2	47.5	50.9	53.4	56.0	57.7	58.5	59.4
120°	39.0	42.4	46.6	49.2	51.7	52.6	54.3	54.3
122.5°	34.8	38.2	42.4	44.1	46.6	48.3	49.2	49.2
125°	30.5	34.8	37.3	39.9	42.4	43.2	44.1	44.9
127.5°	26.3	29.7	33.1	35.6	37.3	39.0	39.9	39.9
130°	22.0	25.4	28.8	31.4	33.1	33.9	34.8	35.6
132.5°	18.7	22.0	24.6	26.3	28.8	29.7	30.5	30.5
135°	14.4	17.8	20.3	22.0	23.7	25.4	25.4	26.3
137.5°	11.0	13.6	16.1	17.8	19.5	20.3	21.2	21.2
140°	7.6	10.2	11.9	13.6	15.3	16.1	17.0	17.0
142.5°	4.2	5.9	8.5	9.3	11.0	11.9	12.7	12.7
145°	0.8	2.5	4.2	5.9	6.8	7.6	8.5	8.5
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)