

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: P231595

Luminaire Tested: **S121-DR-1-27-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231595
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33907)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121-DR-1-27-X-0048-1-U-DD-4-W
Description: DEFINE 1 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

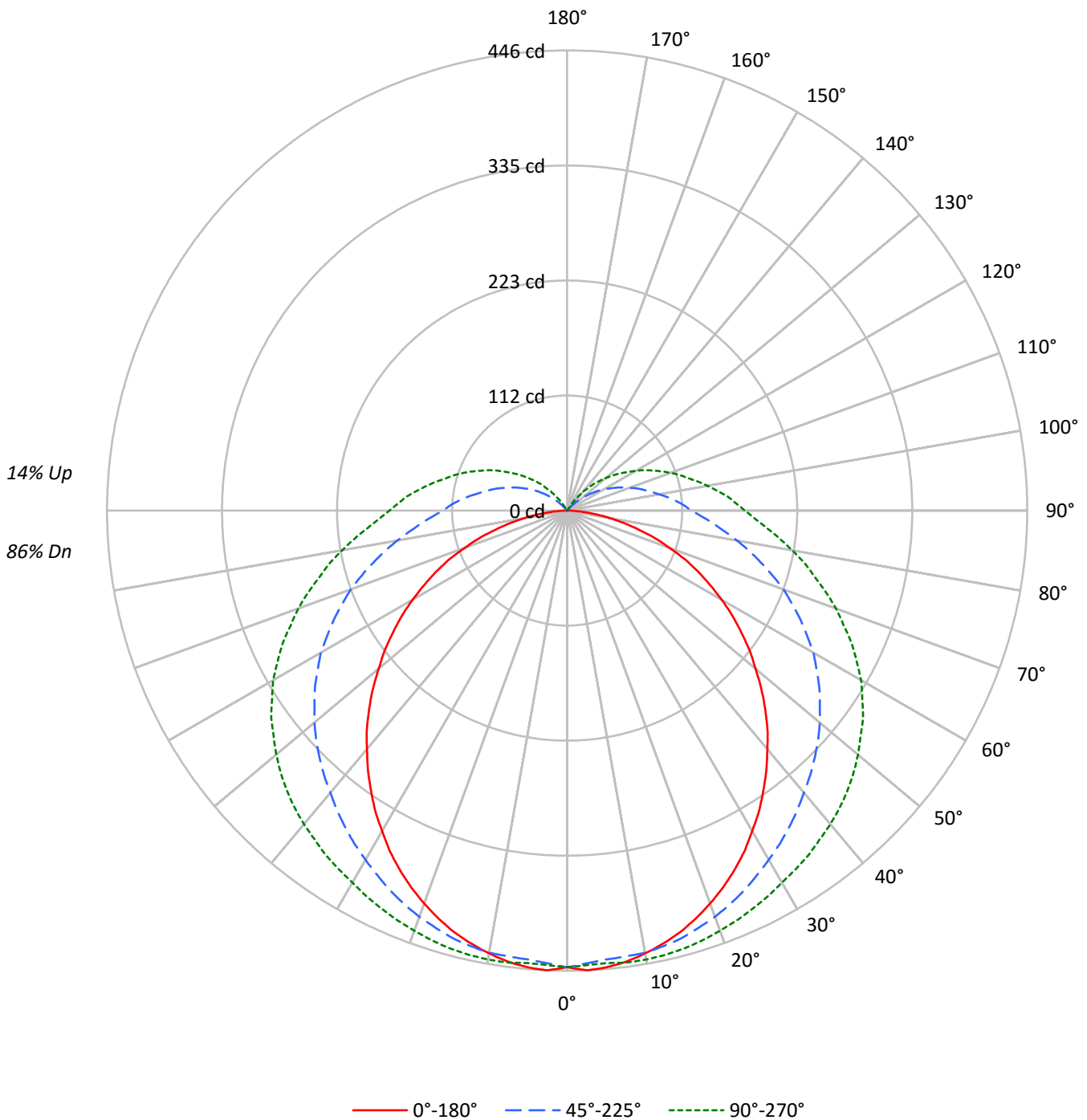
Lumens per Lamp: N/A
Luminaire Lumens: 1930.2 lumens
Efficiency: N/A
Efficacy: 69.2 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.42 / 1.49
Luminous Opening: Rectangular w/ Sides (W: 0.1' x L: 3.92' x H: 0.08')
CIE Type: Semi-Direct

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	116	116	116	116	112	112	112	112	104	104	104	96	96	96	90	90	90	86
1	103	97	91	86	98	93	88	84	86	82	79	80	77	74	74	72	69	66
2	92	83	75	68	88	79	72	66	74	68	62	68	63	59	63	59	56	53
3	83	72	62	55	80	69	61	54	64	57	51	59	53	49	55	50	46	43
4	76	63	53	46	72	61	52	45	56	49	43	52	46	41	48	43	39	36
5	69	56	46	39	66	54	45	38	50	42	36	47	40	35	43	38	33	31
6	64	50	40	34	61	48	39	33	45	37	32	42	35	30	39	33	29	26
7	59	45	36	29	57	44	35	29	41	33	28	38	31	27	36	30	25	23
8	55	41	32	26	53	40	31	26	37	30	25	35	28	24	33	27	23	20
9	51	37	29	23	49	36	28	23	34	27	22	32	26	21	30	24	20	18
10	48	34	26	21	46	33	26	21	31	25	20	30	23	19	28	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12374	12374	12374
5°	12446	11631	11499
10°	12326	11142	10912
15°	12177	10662	10360
20°	11966	10186	9853
25°	11732	9738	9410
30°	11439	9316	9024
35°	11148	8945	8735
40°	10825	8598	8463
45°	10503	8308	8220
50°	10108	8028	7963
55°	9745	7751	7723
60°	9330	7466	7455
65°	8851	7117	7148
70°	8117	6782	6811
75°	7215	6371	6446
80°	6092	5997	6137
85°	4155	5663	5830



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.0	2.2
10°-20°	121.5	6.3
20°-30°	187.4	9.7
30°-40°	233.6	12.1
40°-50°	258.2	13.4
50°-60°	258.9	13.4
60°-70°	235.2	12.2
70°-80°	191.1	9.9
80°-90°	139.8	7.2
90°-100°	102.0	5.3
100°-110°	73.1	3.8
110°-120°	47.8	2.5
120°-130°	26.7	1.4
130°-140°	11.1	0.6
140°-150°	1.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	350.9	18.2
0°-40°	584.5	30.3
0°-60°	1101.6	57.1
0°-90°	1667.7	86.4
90°-120°	222.9	11.5
90°-150°	262.5	13.6
90°-180°	262.0	13.6
0°-180°	1930.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	443	443	443	443	443	
5°	444	441	437	441	440	42
15°	423	423	429	439	439	119
25°	384	392	406	422	426	177
35°	332	348	375	399	408	207
45°	271	299	339	374	384	209
55°	206	244	298	337	350	184
65°	140	188	249	291	304	138
75°	72	130	194	235	248	77
85°	16	78	142	181	194	19
90°	0	58	120	159	172	1
95°	0	46	106	143	156	0
105°	0	27	77	111	121	0
115°	0	11	53	82	92	0
125°	0	1	30	55	63	0
135°	0	0	9	29	36	0
145°	0	0	0	5	10	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°	442.6	442.6	442.6	442.6	442.6	442.6	442.6	442.6	442.6	442.6	442.6
2.5°	446.0	444.3	442.6	443.5	443.5	444.3	442.6	442.6	440.9	439.2	439.2
5°	444.3	442.6	440.1	440.9	440.9	441.8	440.9	440.1	438.4	436.7	437.5
7.5°	440.9	439.2	436.7	437.5	437.5	437.5	437.5	437.5	436.7	435.8	436.7
10°	435.8	434.1	432.4	432.4	432.4	434.1	434.1	435.0	435.0	435.0	436.7
12.5°	429.9	428.2	426.5	426.5	427.3	429.9	430.7	431.6	432.4	432.4	434.1
15°	423.1	420.6	418.9	420.6	421.4	424.8	426.5	427.3	428.2	429.0	431.6
17.5°	414.6	412.9	410.4	412.1	414.6	418.9	420.6	422.3	424.0	424.0	427.3
20°	405.3	403.6	401.1	404.5	407.8	411.2	413.8	415.5	417.2	418.9	422.3
22.5°	395.1	392.6	391.7	396.0	399.4	403.6	406.1	408.7	410.4	412.9	417.2
25°	384.1	381.6	381.6	385.8	390.0	394.3	397.7	401.1	402.8	406.1	410.4
27.5°	372.2	369.7	370.5	375.6	379.0	384.9	388.3	392.6	395.1	398.5	403.6
30°	358.7	356.1	357.8	363.8	368.8	374.8	379.0	382.4	386.6	390.9	396.8
32.5°	345.9	342.6	345.1	351.9	357.0	363.8	368.8	373.1	378.2	383.3	389.2
35°	331.5	329.0	332.4	339.2	345.1	351.9	357.8	362.9	368.8	374.8	381.6
37.5°	317.1	313.7	318.8	325.6	333.2	340.0	346.8	351.9	358.7	366.3	373.9
40°	301.9	299.3	305.2	312.9	319.7	327.3	334.9	340.9	349.3	357.0	365.4
42.5°	287.4	284.9	291.7	298.5	306.9	315.4	323.9	329.8	339.2	348.5	357.0
45°	271.3	269.6	276.4	284.9	294.2	303.5	311.2	319.7	329.8	339.2	348.5
47.5°	255.2	253.5	261.2	270.5	279.8	290.0	299.3	309.5	319.7	329.8	339.2
50°	238.3	238.3	246.7	256.1	265.4	277.3	286.6	298.5	308.6	319.7	329.0
52.5°	223.0	223.0	231.5	240.8	251.8	263.7	275.6	286.6	298.5	308.6	319.7
55°	206.0	207.7	217.1	226.4	237.4	250.1	262.9	274.7	287.4	298.5	308.6
57.5°	189.9	192.5	201.0	211.1	223.8	237.4	250.1	262.9	274.7	286.6	297.6
60°	173.0	176.4	185.7	196.7	209.4	223.8	237.4	250.1	262.9	275.6	285.7
62.5°	156.0	160.3	169.6	180.6	195.0	209.4	223.8	236.6	250.1	262.0	273.0
65°	139.9	144.1	153.5	165.3	180.6	195.9	210.3	223.8	237.4	249.3	261.2
67.5°	123.8	128.0	138.2	150.9	166.2	181.5	195.9	210.3	223.8	235.7	246.7
70°	105.1	111.9	122.1	135.7	151.8	167.0	182.3	195.9	209.4	223.0	234.0
72.5°	89.9	95.8	106.8	121.3	136.5	152.6	167.9	182.3	195.9	208.6	219.6
75°	72.1	78.9	90.7	106.0	122.1	138.2	153.5	167.9	181.5	194.2	206.0
77.5°	56.8	63.6	76.3	91.6	107.7	123.8	139.9	154.3	167.9	180.6	191.6
80°	42.4	49.2	62.7	78.0	95.0	111.1	126.3	140.8	154.3	167.0	178.1
82.5°	28.8	35.6	50.0	65.3	81.4	97.5	112.8	127.2	140.8	153.5	165.3
85°	16.1	24.6	38.2	53.4	69.5	85.6	100.9	116.2	128.9	141.6	153.5
87.5°	6.8	16.1	28.8	43.2	59.4	75.5	90.7	104.3	118.7	130.6	141.6
90°	0.0	8.5	20.3	34.8	50.9	66.1	81.4	95.0	108.5	120.4	131.4
92.5°	0.0	5.1	16.1	29.7	44.9	60.2	74.6	89.0	101.7	113.6	124.6
95°	0.0	2.5	11.9	25.4	39.0	53.4	67.8	81.4	94.1	106.0	116.2
97.5°	0.0	0.8	9.3	20.3	33.9	48.3	61.9	75.5	87.3	98.4	108.5
100°	0.0	0.0	6.8	17.0	29.7	42.4	56.0	68.7	80.6	90.7	100.9
102.5°	0.0	0.0	3.4	13.6	25.4	37.3	50.0	61.9	73.8	83.9	94.1
105°	0.0	0.0	1.7	10.2	21.2	33.1	44.9	56.0	67.0	77.2	87.3
107.5°	0.0	0.0	0.0	6.8	17.0	28.0	39.9	50.9	61.9	71.2	79.7
110°	0.0	0.0	0.0	4.2	13.6	23.7	34.8	44.9	55.1	64.4	73.8



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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	10.2	19.5	29.7	39.9	49.2	58.5	67.0
115°	0.0	0.0	0.0	0.0	6.8	15.3	25.4	34.8	44.1	52.6	61.0
117.5°	0.0	0.0	0.0	0.0	3.4	11.9	20.3	29.7	38.2	46.6	54.3
120°	0.0	0.0	0.0	0.0	0.8	8.5	16.1	25.4	33.1	41.5	48.3
122.5°	0.0	0.0	0.0	0.0	0.0	4.2	11.9	20.3	28.0	35.6	42.4
125°	0.0	0.0	0.0	0.0	0.0	1.7	8.5	15.3	22.9	29.7	37.3
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	4.2	11.0	17.8	24.6	31.4
130°	0.0	0.0	0.0	0.0	0.0	0.0	1.7	6.8	13.6	19.5	25.4
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	8.5	14.4	19.5
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.2	9.3	14.4
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.1	9.3
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	0.8
145°	0.0	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°	442.6	442.6	442.6	442.6	442.6	442.6	442.6	442.6
2.5°	440.9	441.8	442.6	441.8	441.8	442.6	441.8	440.9
5°	439.2	440.1	440.9	440.9	441.8	441.8	440.9	440.1
7.5°	439.2	440.9	441.8	442.6	442.6	443.5	442.6	441.8
10°	439.2	440.1	441.8	442.6	442.6	443.5	442.6	441.8
12.5°	437.5	439.2	440.9	440.9	441.8	442.6	441.8	440.9
15°	434.1	435.8	438.4	439.2	440.1	440.1	439.2	439.2
17.5°	430.7	432.4	435.0	435.8	436.7	437.5	436.7	436.7
20°	425.6	428.2	430.7	432.4	433.3	434.1	434.1	433.3
22.5°	420.6	424.0	426.5	427.3	429.0	430.7	429.9	429.9
25°	414.6	418.0	421.4	423.1	424.8	426.5	425.6	425.6
27.5°	408.7	412.1	415.5	418.0	420.6	421.4	421.4	421.4
30°	401.1	406.1	409.5	412.1	414.6	416.3	416.3	416.3
32.5°	394.3	399.4	403.6	406.1	409.5	411.2	412.1	412.1
35°	387.5	392.6	397.7	401.1	404.5	407.0	407.0	407.8
37.5°	379.9	386.6	391.7	396.0	399.4	401.9	402.8	401.9
40°	373.1	379.9	384.9	390.0	393.4	396.0	396.8	396.8
42.5°	364.6	372.2	378.2	383.3	387.5	390.0	390.9	390.9
45°	357.0	364.6	371.4	376.5	379.9	382.4	384.1	384.1
47.5°	348.5	356.1	362.1	368.0	372.2	374.8	375.6	376.5
50°	339.2	346.8	352.7	359.5	363.8	366.3	367.1	368.0
52.5°	329.0	336.6	344.2	350.2	354.4	357.8	358.7	358.7
55°	318.8	326.4	334.1	340.0	345.1	347.6	349.3	350.2
57.5°	306.9	315.4	323.1	329.8	334.1	337.5	339.2	339.2
60°	295.9	304.4	312.0	318.8	323.1	326.4	327.3	329.0
62.5°	283.2	291.7	300.2	306.1	310.3	313.7	315.4	316.3
65°	270.5	279.8	288.3	293.4	297.6	301.9	303.5	304.4
67.5°	256.9	266.2	273.9	280.7	284.0	288.3	290.0	290.0
70°	244.2	253.5	260.3	266.2	271.3	274.7	276.4	277.3
72.5°	230.6	239.1	246.7	252.7	256.9	260.3	262.9	262.9
75°	215.4	224.7	232.3	238.3	243.3	246.7	248.4	248.4
77.5°	202.6	211.1	217.9	224.7	229.8	233.2	234.9	235.7
80°	188.2	196.7	204.3	210.3	215.4	218.8	220.5	221.3
82.5°	175.5	184.0	190.8	197.6	201.8	205.2	206.9	207.7
85°	162.8	171.3	178.9	184.0	189.1	191.6	194.2	194.2
87.5°	151.8	159.4	167.0	172.1	177.2	180.6	182.3	182.3
90°	140.8	149.2	156.0	162.8	167.0	170.4	171.3	172.1
92.5°	133.1	141.6	148.4	154.3	158.6	161.1	163.6	163.6
95°	125.5	133.1	140.8	145.8	150.1	153.5	155.2	156.0
97.5°	117.9	125.5	132.3	137.4	141.6	145.0	145.8	146.7
100°	110.2	117.9	123.8	128.9	133.1	135.7	138.2	138.2
102.5°	102.6	110.2	116.2	121.3	125.5	128.0	129.7	129.7
105°	95.0	102.6	108.5	113.6	117.0	120.4	121.3	121.3
107.5°	88.2	95.8	101.7	106.0	109.4	112.8	114.5	114.5
110°	81.4	88.2	94.1	98.4	102.6	105.1	106.8	106.8



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CATALOG NUMBER: S121-DR-1-27-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	74.6	81.4	87.3	91.6	95.0	97.5	99.2	99.2
115°	67.8	74.6	79.7	84.8	88.2	90.7	91.6	91.6
117.5°	61.9	67.8	72.9	77.2	80.6	83.1	84.8	84.8
120°	55.1	61.0	66.1	70.4	73.8	75.5	77.2	77.2
122.5°	49.2	54.3	59.4	63.6	66.1	68.7	70.4	69.5
125°	43.2	48.3	52.6	56.8	59.4	61.9	62.7	62.7
127.5°	36.5	41.5	46.6	50.0	52.6	55.1	56.0	56.0
130°	30.5	35.6	39.9	43.2	45.8	47.5	49.2	49.2
132.5°	25.4	29.7	33.9	36.5	39.0	40.7	42.4	42.4
135°	19.5	23.7	27.1	30.5	33.1	34.8	35.6	36.5
137.5°	13.6	17.8	21.2	24.6	26.3	28.0	28.8	28.8
140°	8.5	11.9	15.3	17.8	19.5	21.2	22.0	22.9
142.5°	3.4	6.8	9.3	11.9	13.6	14.4	15.3	15.3
145°	0.0	1.7	4.2	5.9	7.6	9.3	9.3	10.2
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)