

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: P231621

Luminaire Tested: **S123-DR-1-35-X-0048-1-U-DD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231621
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-1-35-X-0048-1-U-DD-4-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH DROP LENS.
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

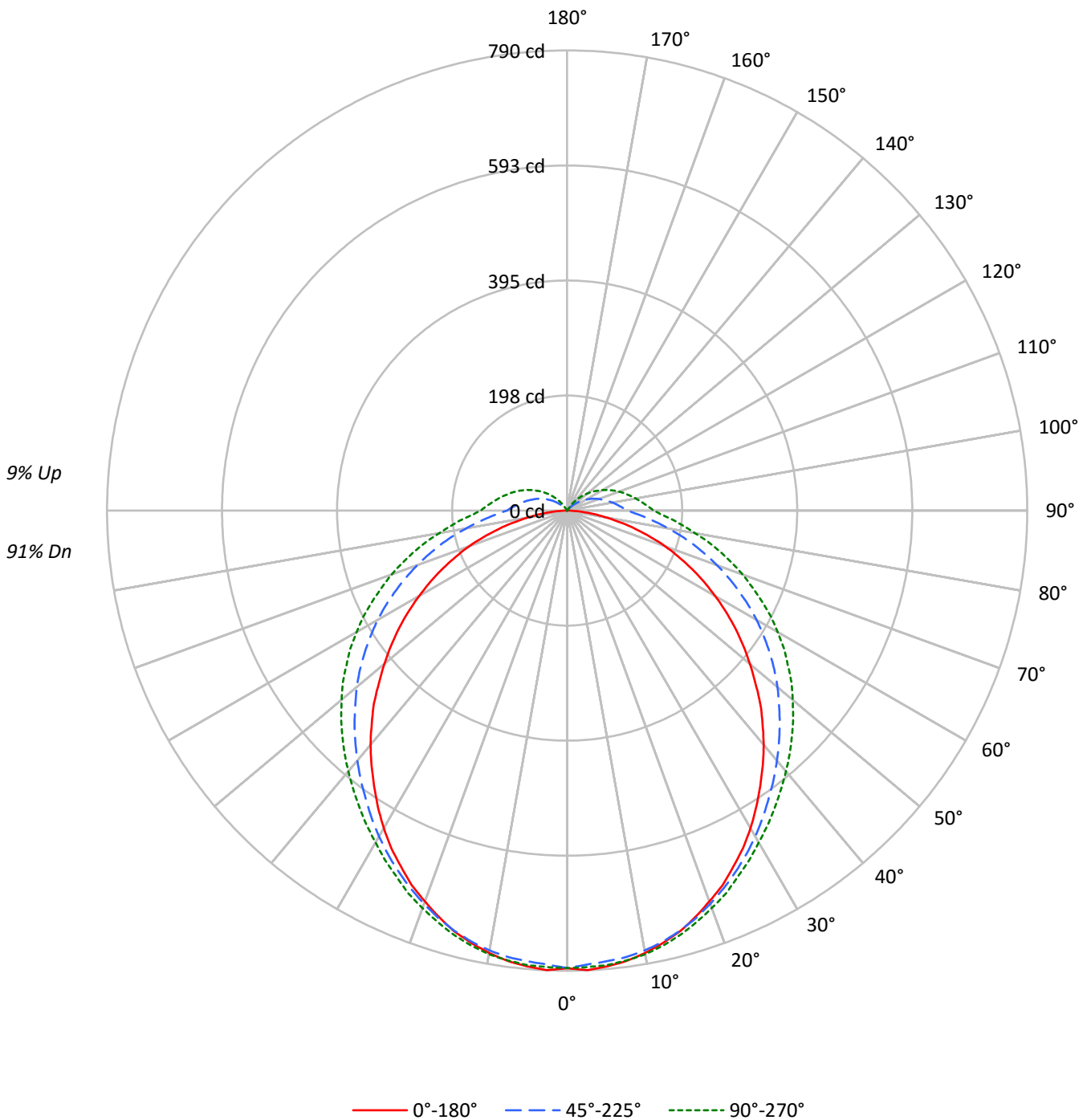
Lumens per Lamp: N/A
Luminaire Lumens: 2655.2 lumens
Efficiency: N/A
Efficacy: 95.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.22' x L: 3.92' x H: 0.08')
CIE Type: Direct

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°	9666	9666	9666
5°	9685	9367	9371
10°	9602	9134	9069
15°	9478	8856	8729
20°	9280	8542	8373
25°	9069	8225	8019
30°	8837	7906	7694
35°	8554	7581	7407
40°	8288	7295	7151
45°	7995	7027	6921
50°	7652	6773	6697
55°	7343	6507	6475
60°	6963	6236	6241
65°	6548	5907	5972
70°	6089	5573	5701
75°	5322	5222	5393
80°	4307	4827	5073
85°	2999	4556	4893



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.3	2.8
10°-20°	211.6	8.0
20°-30°	316.2	11.9
30°-40°	377.8	14.2
40°-50°	396.1	14.9
50°-60°	373.5	14.1
60°-70°	312.8	11.8
70°-80°	224.9	8.5
80°-90°	135.7	5.1
90°-100°	87.5	3.3
100°-110°	64.3	2.4
110°-120°	43.2	1.6
120°-130°	24.7	0.9
130°-140°	10.7	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°	602.0	22.7
0°-40°	979.8	36.9
0°-60°	1749.4	65.9
0°-90°	2422.8	91.2
90°-120°	195.0	7.3
90°-150°	232.4	8.8
90°-180°	232.0	8.7
0°-180°	2655.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	785	785	785	785	785	
5°	785	783	777	784	783	75
15°	748	748	747	755	754	211
25°	674	681	684	694	693	311
35°	578	591	603	619	622	362
45°	469	490	516	539	546	361
55°	353	384	424	455	462	315
65°	235	276	324	359	369	233
75°	121	170	224	258	271	128
85°	26	79	135	170	182	31
90°	0	49	103	137	148	2
95°	0	40	90	123	133	0
105°	0	24	68	98	107	0
115°	0	11	48	74	82	0
125°	0	1	29	50	58	0
135°	0	0	11	28	34	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°	785.4	785.4	785.4	785.4	785.4	785.4	785.4	785.4	785.4	785.4	785.4
2.5°	789.8	787.6	785.4	785.4	786.5	786.5	786.5	784.4	783.3	780.0	780.0
5°	785.4	783.3	781.1	782.2	782.2	783.3	783.3	782.2	780.0	776.7	778.9
7.5°	780.0	777.8	775.6	775.6	776.7	777.8	777.8	776.7	775.6	773.4	774.5
10°	771.2	769.0	766.8	766.8	767.9	770.1	771.2	770.1	769.0	766.8	767.9
12.5°	760.2	758.0	755.8	758.0	759.1	761.3	761.3	761.3	760.2	758.0	760.2
15°	748.1	744.8	743.7	744.8	747.0	749.2	750.3	749.2	749.2	747.0	749.2
17.5°	731.6	729.4	728.3	730.5	732.7	734.9	737.1	736.0	736.0	733.8	736.0
20°	714.0	711.8	711.8	714.0	716.2	719.5	720.6	720.6	720.6	718.4	721.7
22.5°	696.5	693.2	693.2	695.4	699.8	702.0	703.1	703.1	703.1	702.0	706.4
25°	674.5	672.3	673.4	675.6	678.9	682.2	684.4	684.4	684.4	684.4	687.7
27.5°	653.6	650.3	651.4	654.7	659.1	661.3	664.6	664.6	664.6	665.7	669.0
30°	629.5	627.3	629.5	632.8	637.1	640.4	642.6	644.8	644.8	645.9	650.3
32.5°	604.2	603.1	605.3	609.7	611.9	617.4	619.6	620.7	622.9	625.1	628.4
35°	577.8	576.7	580.0	584.4	588.8	593.2	596.5	597.6	600.9	603.1	608.6
37.5°	551.5	551.5	554.8	558.1	563.5	569.0	572.3	574.5	576.7	582.2	587.7
40°	525.1	524.0	527.3	531.7	537.2	543.8	547.1	550.4	553.7	560.3	565.7
42.5°	496.5	496.5	500.9	506.4	513.0	519.6	522.9	525.1	531.7	538.3	543.8
45°	469.1	469.1	473.5	480.1	486.6	493.2	498.7	503.1	509.7	516.3	521.8
47.5°	438.3	440.5	444.9	451.5	459.2	466.9	472.4	479.0	486.6	493.2	499.8
50°	409.8	410.9	418.5	425.1	432.8	441.6	448.2	454.8	463.6	471.3	479.0
52.5°	381.2	383.4	390.0	397.7	406.5	414.1	424.0	431.7	439.4	448.2	455.9
55°	352.6	353.7	362.5	371.3	379.0	388.9	397.7	407.6	416.3	424.0	431.7
57.5°	323.0	326.3	332.9	341.6	351.5	362.5	372.4	381.2	390.0	399.9	408.7
60°	293.3	297.7	305.4	314.2	324.1	336.2	347.1	357.0	365.8	375.7	384.5
62.5°	264.7	268.0	276.8	285.6	296.6	308.7	320.8	330.7	340.5	350.4	360.3
65°	235.1	241.7	248.3	258.2	270.2	282.3	294.4	305.4	315.3	324.1	334.0
67.5°	206.5	210.9	220.8	230.7	242.8	256.0	266.9	279.0	290.0	298.8	307.6
70°	179.1	183.5	192.2	203.2	216.4	229.6	241.7	251.6	263.6	273.5	283.4
72.5°	149.4	154.9	164.8	175.8	188.9	202.1	215.3	227.4	238.4	248.3	258.2
75°	120.8	127.4	137.3	149.4	163.7	175.8	188.9	201.0	213.1	224.1	232.9
77.5°	93.4	100.0	111.0	124.1	137.3	151.6	163.7	176.9	187.8	199.9	209.8
80°	68.1	75.8	86.8	100.0	113.1	127.4	140.6	152.7	164.8	175.8	186.8
82.5°	47.2	53.8	64.8	78.0	92.3	105.5	118.6	131.8	142.8	154.9	164.8
85°	26.4	34.1	46.1	58.2	72.5	85.7	98.9	112.1	123.0	135.1	145.0
87.5°	11.0	19.8	30.8	42.8	56.0	69.2	82.4	94.5	106.6	117.5	127.4
90°	0.0	7.7	17.6	29.7	42.8	56.0	68.1	80.2	92.3	103.3	112.1
92.5°	0.0	4.4	13.2	25.3	37.4	50.5	63.7	74.7	85.7	96.7	105.5
95°	0.0	2.2	11.0	22.0	34.1	46.1	58.2	69.2	80.2	90.1	98.9
97.5°	0.0	1.1	8.8	18.7	29.7	41.7	53.8	64.8	74.7	84.6	93.4
100°	0.0	0.0	6.6	15.4	26.4	37.4	48.3	59.3	69.2	79.1	87.9
102.5°	0.0	0.0	3.3	12.1	23.1	33.0	43.9	54.9	64.8	73.6	82.4
105°	0.0	0.0	2.2	9.9	18.7	29.7	39.5	49.4	59.3	68.1	76.9
107.5°	0.0	0.0	0.0	6.6	16.5	25.3	35.2	45.0	54.9	62.6	71.4
110°	0.0	0.0	0.0	4.4	13.2	22.0	31.9	40.6	49.4	58.2	65.9



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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	2.2	9.9	18.7	27.5	36.3	45.0	52.7	60.4
115°	0.0	0.0	0.0	0.0	6.6	15.4	23.1	31.9	40.6	48.3	54.9
117.5°	0.0	0.0	0.0	0.0	4.4	12.1	19.8	27.5	35.2	42.8	49.4
120°	0.0	0.0	0.0	0.0	1.1	8.8	15.4	23.1	30.8	37.4	45.0
122.5°	0.0	0.0	0.0	0.0	0.0	5.5	12.1	19.8	26.4	33.0	39.5
125°	0.0	0.0	0.0	0.0	0.0	2.2	8.8	15.4	22.0	28.6	34.1
127.5°	0.0	0.0	0.0	0.0	0.0	0.0	5.5	11.0	17.6	23.1	29.7
130°	0.0	0.0	0.0	0.0	0.0	0.0	2.2	7.7	13.2	18.7	24.2
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	9.9	14.3	19.8
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.5	11.0	15.4
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.6	11.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.6
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°	785.4	785.4	785.4	785.4	785.4	785.4	785.4	785.4
2.5°	783.3	784.4	785.4	785.4	785.4	785.4	784.4	784.4
5°	781.1	783.3	783.3	784.4	784.4	784.4	783.3	783.3
7.5°	777.8	778.9	780.0	780.0	781.1	781.1	780.0	778.9
10°	771.2	773.4	774.5	774.5	774.5	774.5	774.5	773.4
12.5°	763.5	764.6	765.7	765.7	765.7	766.8	765.7	764.6
15°	752.5	754.7	754.7	755.8	755.8	755.8	754.7	753.6
17.5°	739.3	741.5	742.6	742.6	742.6	742.6	741.5	740.4
20°	725.0	726.1	728.3	727.2	728.3	728.3	727.2	726.1
22.5°	708.6	709.7	711.8	710.7	712.9	712.9	711.8	711.8
25°	691.0	693.2	694.3	694.3	694.3	694.3	694.3	693.2
27.5°	672.3	673.4	675.6	676.7	676.7	676.7	676.7	676.7
30°	652.5	654.7	656.9	656.9	659.1	660.2	659.1	658.0
32.5°	631.7	635.0	637.1	638.2	640.4	641.5	640.4	640.4
35°	610.8	615.2	618.5	619.6	621.8	621.8	622.9	621.8
37.5°	591.0	595.4	597.6	600.9	603.1	605.3	604.2	603.1
40°	571.2	575.6	578.9	581.1	583.3	584.4	584.4	584.4
42.5°	549.3	554.8	558.1	561.3	564.6	565.7	565.7	565.7
45°	527.3	532.8	537.2	541.6	544.9	546.0	546.0	546.0
47.5°	506.4	511.9	516.3	520.7	524.0	525.1	526.2	526.2
50°	485.6	491.0	496.5	499.8	503.1	505.3	505.3	505.3
52.5°	462.5	468.0	473.5	477.9	482.3	483.4	485.6	485.6
55°	439.4	446.0	452.6	457.0	459.2	461.4	462.5	462.5
57.5°	416.3	421.8	427.3	433.9	437.2	439.4	440.5	441.6
60°	392.2	398.8	405.4	410.9	413.0	416.3	417.4	417.4
62.5°	366.9	373.5	381.2	385.6	390.0	392.2	393.3	394.4
65°	342.7	349.3	355.9	362.5	364.7	366.9	369.1	369.1
67.5°	317.5	324.1	330.7	336.2	339.4	342.7	344.9	343.8
70°	292.2	299.9	305.4	312.0	315.3	317.5	319.7	320.8
72.5°	266.9	274.6	281.2	286.7	290.0	292.2	294.4	295.5
75°	242.8	249.4	256.0	260.4	264.7	268.0	269.1	271.3
77.5°	217.5	226.3	231.8	238.4	240.6	243.9	245.0	247.2
80°	195.5	202.1	208.7	214.2	218.6	221.9	221.9	223.0
82.5°	173.6	180.2	186.8	193.3	196.6	199.9	201.0	201.0
85°	152.7	160.4	167.0	172.5	176.9	179.1	181.3	182.4
87.5°	136.2	142.8	149.4	153.8	158.2	160.4	162.6	162.6
90°	120.8	127.4	134.0	139.5	142.8	145.0	147.2	148.3
92.5°	114.2	120.8	127.4	131.8	136.2	138.4	139.5	140.6
95°	107.7	114.2	120.8	125.2	128.5	131.8	132.9	132.9
97.5°	101.1	107.7	114.2	118.6	121.9	124.1	126.3	126.3
100°	95.6	102.2	107.7	112.1	115.3	117.5	119.7	119.7
102.5°	89.0	95.6	101.1	105.5	108.8	111.0	113.1	113.1
105°	83.5	90.1	95.6	100.0	103.3	105.5	106.6	106.6
107.5°	78.0	84.6	90.1	93.4	96.7	98.9	101.1	101.1
110°	72.5	78.0	83.5	87.9	91.2	93.4	94.5	94.5



TEST NUMBER: P231621

CATALOG NUMBER: S123-DR-1-35-X-0048-1-U-DD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	67.0	72.5	78.0	81.3	84.6	86.8	87.9	89.0
115°	61.5	67.0	71.4	75.8	79.1	80.2	82.4	82.4
117.5°	56.0	61.5	65.9	69.2	72.5	74.7	75.8	76.9
120°	50.5	54.9	60.4	63.7	67.0	68.1	70.3	70.3
122.5°	45.0	49.4	54.9	57.1	60.4	62.6	63.7	63.7
125°	39.5	45.0	48.3	51.6	54.9	56.0	57.1	58.2
127.5°	34.1	38.4	42.8	46.1	48.3	50.5	51.6	51.6
130°	28.6	33.0	37.4	40.6	42.8	43.9	45.0	46.1
132.5°	24.2	28.6	31.9	34.1	37.4	38.4	39.5	39.5
135°	18.7	23.1	26.4	28.6	30.8	33.0	33.0	34.1
137.5°	14.3	17.6	20.9	23.1	25.3	26.4	27.5	27.5
140°	9.9	13.2	15.4	17.6	19.8	20.9	22.0	22.0
142.5°	5.5	7.7	11.0	12.1	14.3	15.4	16.5	16.5
145°	1.1	3.3	5.5	7.7	8.8	9.9	11.0	11.0
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)