

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: P243101

Luminaire Tested: **S121RDR-H490D935-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243101
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H490D935-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1341.9 lumens
Efficiency: N/A
Efficacy: 78.0 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

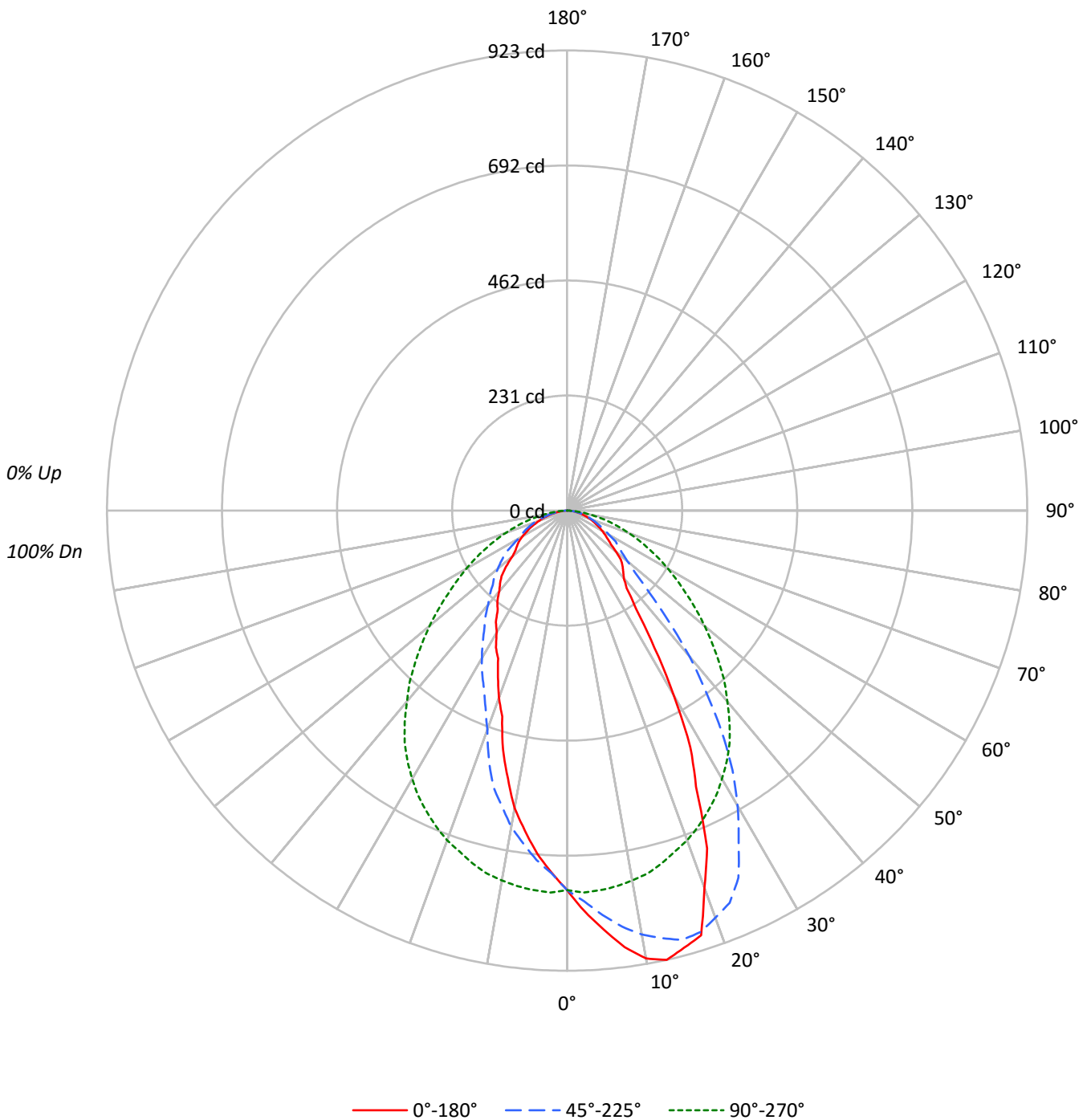
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	22554	22554	22554
5°	25097	22732	20540
10°	27445	22667	18239
15°	27841	22479	15233
20°	25376	22192	12597
25°	19988	21790	10717
30°	14613	21260	9662
35°	8721	20556	8782
40°	6838	19339	8192
45°	6591	18052	7794
50°	5873	16604	6615
55°	5130	15110	6318
60°	4794	13825	6121
65°	4466	12578	5672
70°	4228	11340	5172
75°	3881	10086	4602
80°	3532	8173	4010
85°	3332	6255	2924



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.7	5.4
10°-20°	202.7	15.1
20°-30°	269.5	20.1
30°-40°	257.1	19.2
40°-50°	213.4	15.9
50°-60°	158.7	11.8
60°-70°	102.7	7.7
70°-80°	52.3	3.9
80°-90°	12.8	1.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	544.9	40.6
0°-40°	802.0	59.8
0°-60°	1174.1	87.5
0°-90°	1341.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1341.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	761	761	761	761	761	
5°	844	814	764	704	691	83
15°	908	892	733	573	497	253
25°	611	813	666	394	328	284
35°	241	540	568	290	243	164
45°	157	233	431	211	186	120
55°	99	126	292	152	122	90
65°	64	72	179	92	81	64
75°	34	37	88	46	40	36
85°	10	10	18	10	9	11
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2
2.5°	804.8	802.8	805.1	804.2	800.5	801.4	796.8	793.9	787.0	784.4	784.4
5°	843.8	846.7	845.0	845.6	841.8	839.5	834.7	829.2	820.6	814.3	812.0
7.5°	882.9	883.7	884.6	882.3	878.0	874.0	867.1	859.1	849.6	841.6	835.2
10°	912.2	914.2	913.0	909.6	906.4	900.4	892.9	884.3	874.0	863.4	855.6
12.5°	923.1	924.8	927.4	925.4	925.1	922.2	914.7	904.1	891.5	878.3	869.4
15°	907.6	906.4	913.3	911.6	911.0	909.9	911.9	909.6	903.0	891.5	880.6
17.5°	893.2	892.6	899.5	901.3	898.7	894.9	892.6	889.8	886.6	886.9	885.5
20°	804.8	822.3	825.8	835.0	854.5	867.4	880.3	879.7	870.5	869.1	868.5
22.5°	733.6	740.2	737.1	752.0	762.6	785.9	808.5	837.2	856.5	851.6	848.4
25°	611.4	632.0	641.5	660.2	687.1	716.7	729.6	760.0	789.6	812.6	830.1
27.5°	535.6	540.2	546.2	565.4	575.5	602.5	650.7	692.0	719.6	744.5	790.7
30°	427.1	429.1	450.1	460.7	490.2	516.6	558.5	591.8	647.2	684.3	719.9
32.5°	326.1	324.3	347.3	359.6	388.9	424.5	471.3	502.3	556.5	617.1	659.6
35°	241.1	240.8	253.2	261.8	293.9	321.2	380.6	421.1	480.5	539.9	594.7
37.5°	196.3	196.0	198.6	206.1	219.6	250.3	279.0	339.0	397.0	455.5	524.1
40°	176.8	178.2	178.8	182.3	186.9	196.0	213.5	255.5	312.3	382.0	450.9
42.5°	166.5	166.5	167.0	167.9	170.2	172.8	183.4	199.5	245.1	300.8	378.0
45°	157.3	157.6	158.1	158.7	158.1	159.6	164.5	171.1	188.9	232.8	307.4
47.5°	146.4	146.1	147.5	148.4	149.5	151.3	151.5	155.0	162.7	185.7	240.0
50°	127.4	127.7	129.2	132.6	136.3	139.5	141.5	143.8	146.4	157.3	186.0
52.5°	110.2	110.5	111.4	113.9	117.4	121.4	127.7	132.9	134.9	138.3	154.4
55°	99.3	99.3	100.5	101.9	102.8	105.6	109.9	115.7	123.1	126.0	132.9
57.5°	90.1	90.1	90.7	90.7	91.8	93.3	96.2	99.0	105.3	114.5	118.8
60°	80.9	80.9	81.5	81.5	82.9	83.5	85.5	87.3	90.7	97.0	105.6
62.5°	72.3	71.8	72.3	72.6	73.5	74.3	75.8	77.8	79.8	83.5	89.8
65°	63.7	63.4	64.0	64.6	65.2	66.3	67.2	68.6	70.3	72.3	75.5
67.5°	56.3	56.0	56.3	57.1	56.8	57.4	58.8	59.4	61.1	63.1	65.7
70°	48.8	48.2	48.8	48.8	49.1	49.9	49.9	51.4	52.8	54.0	56.3
72.5°	40.8	41.0	40.8	41.0	41.6	41.9	42.5	43.3	44.2	45.3	46.8
75°	33.9	33.9	34.2	34.4	35.0	35.0	35.3	35.9	36.5	37.0	38.7
77.5°	27.0	27.3	27.6	27.8	27.8	28.1	28.4	28.7	29.6	29.9	30.7
80°	20.7	21.0	21.0	21.0	21.5	21.0	21.5	22.1	22.1	22.4	23.0
82.5°	14.9	15.2	14.9	15.2	15.5	15.5	15.2	15.5	15.5	16.1	16.1
85°	9.8	9.2	9.2	9.2	9.2	9.2	9.5	9.8	9.5	9.5	9.8
87.5°	4.0	4.0	4.0	4.0	4.3	4.0	4.3	4.3	4.3	4.0	4.3
90°	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°	95°	100°	105°
0°	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2
2.5°	785.9	783.6	781.6	778.1	773.8	767.5	766.6	766.9	759.2	751.7	750.6
5°	807.1	803.4	797.1	789.6	782.7	772.1	767.5	764.3	752.6	742.5	738.5
7.5°	829.8	820.9	812.3	800.5	789.0	775.2	766.6	760.0	744.5	731.3	724.4
10°	847.6	836.7	824.3	809.4	793.6	776.7	763.8	753.4	734.8	718.4	709.8
12.5°	860.2	847.9	833.2	815.4	797.4	775.0	759.2	745.4	722.7	703.2	692.9
15°	866.8	853.6	835.5	816.0	797.4	773.8	752.9	732.8	710.4	686.0	673.1
17.5°	872.8	855.6	835.2	812.8	793.9	769.2	743.4	717.3	692.0	669.1	648.1
20°	868.5	853.9	831.2	808.0	786.7	758.0	730.8	703.8	672.2	645.5	624.6
22.5°	848.4	845.9	821.5	796.5	772.1	744.5	713.0	686.3	652.4	620.8	595.6
25°	824.9	821.7	808.5	781.9	754.3	725.6	697.2	666.5	627.4	594.7	565.7
27.5°	805.1	797.9	788.5	763.5	733.9	705.2	675.9	646.1	604.5	568.0	535.0
30°	764.9	771.8	761.2	744.0	709.8	682.0	653.8	621.4	580.1	538.2	504.3
32.5°	701.2	742.8	732.2	718.4	684.8	654.4	627.7	595.9	550.2	508.9	473.9
35°	644.9	680.8	704.9	688.3	658.7	623.4	596.1	568.3	520.7	478.5	444.9
37.5°	590.4	628.6	668.8	653.6	629.2	591.3	562.6	535.0	490.8	448.3	414.7
40°	518.9	574.6	613.4	619.4	594.4	556.3	528.4	500.0	461.0	418.8	382.9
42.5°	450.3	521.8	553.1	584.1	558.5	522.7	491.7	467.6	430.0	392.9	353.9
45°	378.6	459.8	506.0	529.8	520.7	487.9	454.1	430.8	399.2	364.8	327.8
47.5°	316.3	393.5	459.5	473.0	481.9	449.8	418.2	394.7	367.4	339.0	303.7
50°	250.9	330.9	401.5	425.9	442.9	413.6	380.6	360.2	337.3	311.7	280.4
52.5°	195.2	270.1	344.1	385.8	391.5	376.3	345.9	325.8	307.4	284.4	256.0
55°	155.0	213.0	287.0	335.5	341.0	337.3	310.0	292.5	279.0	259.8	235.9
57.5°	128.6	165.6	232.5	288.5	296.5	299.9	277.6	261.8	249.7	234.5	213.0
60°	111.1	130.6	181.7	236.5	258.6	264.6	244.8	233.3	223.3	209.5	189.4
62.5°	98.2	107.1	138.9	191.7	220.1	225.3	215.3	206.7	198.3	185.1	167.3
65°	81.8	91.3	107.1	148.1	183.1	185.7	187.7	179.4	172.8	161.9	146.1
67.5°	68.6	76.1	86.4	113.7	147.0	154.4	159.6	155.9	149.5	138.6	125.1
70°	58.3	62.6	70.0	85.2	112.2	128.3	133.8	130.9	127.7	116.0	104.5
72.5°	48.5	52.0	56.3	65.4	84.7	101.9	109.9	108.5	105.1	96.2	86.7
75°	40.2	41.6	45.1	50.2	61.4	77.5	87.0	88.1	84.1	75.8	68.3
77.5°	31.6	33.0	35.0	38.2	45.3	56.3	64.0	66.9	64.3	58.3	50.8
80°	24.1	25.0	26.4	27.8	30.7	38.2	46.2	47.9	46.5	41.6	37.0
82.5°	16.1	16.6	17.8	18.9	20.4	23.8	30.7	31.9	31.6	27.3	24.1
85°	9.8	9.8	10.0	10.9	11.5	12.9	16.6	18.4	17.5	14.6	13.2
87.5°	4.0	4.3	4.0	4.0	4.0	4.3	5.5	7.5	5.7	4.3	4.0
90°	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2	761.2
2.5°	747.4	746.3	742.0	737.9	733.3	727.9	728.2	729.0	727.0	726.5	728.5
5°	732.8	728.8	722.2	715.5	710.4	703.5	699.5	701.5	700.0	697.5	695.7
7.5°	717.3	711.5	702.1	693.7	686.8	673.9	671.1	667.6	664.7	659.0	657.9
10°	698.9	690.6	678.5	666.8	654.1	644.1	634.6	630.6	622.8	617.7	616.2
12.5°	680.0	666.2	652.7	635.5	621.1	606.5	598.2	592.4	584.7	572.0	566.0
15°	660.4	639.5	621.4	602.5	592.7	572.9	557.1	539.3	529.8	508.6	496.3
17.5°	634.3	610.2	585.8	570.3	549.9	522.4	496.0	486.8	472.4	458.7	444.9
20°	599.0	576.9	553.7	530.4	499.4	467.6	457.5	441.7	425.9	417.6	410.4
22.5°	566.6	542.8	515.2	484.5	452.6	427.7	414.5	403.0	393.2	385.8	377.4
25°	535.9	511.2	471.9	440.6	412.7	394.4	387.8	372.8	362.5	357.1	349.9
27.5°	502.0	468.1	436.6	404.1	379.4	369.1	353.9	342.1	331.2	320.6	318.0
30°	469.9	432.3	401.0	374.6	356.5	342.1	326.6	312.9	305.7	301.7	295.1
32.5°	438.0	399.8	370.5	349.9	330.4	315.2	300.5	293.3	282.4	273.5	267.8
35°	403.8	370.5	347.3	323.2	304.5	289.6	282.1	265.8	259.8	257.2	251.1
37.5°	373.7	344.1	320.6	302.2	281.9	269.8	255.2	251.4	243.4	236.5	234.5
40°	348.7	320.9	298.8	275.0	262.3	246.6	239.4	229.3	226.5	223.9	219.3
42.5°	321.5	297.6	272.4	256.3	237.7	230.5	219.3	216.4	209.5	206.9	205.2
45°	298.2	276.1	252.0	232.5	221.9	211.2	206.9	199.8	196.6	193.5	190.3
47.5°	275.5	252.6	233.3	215.0	203.2	198.3	190.6	185.4	182.0	178.8	175.7
50°	254.6	231.3	209.8	196.6	188.3	181.4	176.5	172.2	167.3	160.4	153.3
52.5°	231.9	211.0	193.5	180.5	173.1	166.5	162.2	154.7	145.2	137.8	134.3
55°	209.2	189.4	174.2	163.9	158.7	152.4	142.7	131.7	125.7	124.6	123.7
57.5°	190.0	171.4	157.3	149.3	143.2	132.0	121.7	117.7	116.0	115.4	114.8
60°	168.5	151.8	141.8	133.2	123.1	112.5	109.4	108.8	107.1	106.2	105.6
62.5°	148.7	134.3	125.1	114.8	104.2	102.2	99.9	98.4	97.6	95.6	94.7
65°	129.4	118.0	107.9	97.0	93.3	91.8	89.8	87.8	85.5	84.1	82.9
67.5°	111.1	99.9	89.3	85.2	83.2	80.9	78.4	75.5	74.3	72.3	72.0
70°	93.0	82.7	76.9	74.3	70.6	68.6	65.7	64.6	62.6	61.7	60.8
72.5°	75.8	68.3	66.0	62.3	59.7	56.5	55.1	54.0	52.8	51.4	51.4
75°	59.1	57.1	52.8	49.9	47.4	45.6	45.1	43.1	42.8	41.9	41.3
77.5°	47.1	43.1	41.6	38.5	36.7	35.9	35.3	34.2	33.0	32.7	32.4
80°	33.3	31.3	29.6	28.1	26.7	26.1	25.5	25.3	24.7	24.1	23.8
82.5°	21.8	20.7	19.5	18.7	18.4	17.5	16.9	16.6	16.1	16.1	16.1
85°	11.8	11.5	10.9	10.3	9.8	9.8	9.5	9.2	9.2	8.3	8.3
87.5°	3.7	3.7	3.4	3.4	2.9	3.2	2.9	2.9	2.6	2.9	2.9
90°	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: S121RDR-H490D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	761.2	761.2	761.2	761.2
2.5°	726.2	726.2	725.0	726.2
5°	694.6	692.0	691.2	690.6
7.5°	654.4	652.1	649.8	647.5
10°	613.4	609.9	607.9	606.2
12.5°	560.0	555.7	547.6	549.9
15°	494.3	494.5	475.9	496.6
17.5°	440.6	442.0	434.6	433.4
20°	406.4	405.9	403.0	399.5
22.5°	371.4	368.8	367.7	362.2
25°	338.7	334.1	335.5	327.8
27.5°	314.9	311.1	310.0	309.4
30°	291.0	283.3	280.7	282.4
32.5°	266.9	266.4	265.5	265.8
35°	246.6	245.4	242.8	242.8
37.5°	232.5	232.8	231.3	230.2
40°	215.3	213.8	213.5	211.8
42.5°	202.9	200.1	198.9	199.2
45°	188.6	186.9	185.4	186.0
47.5°	171.6	169.9	166.8	165.9
50°	148.7	146.4	144.9	143.5
52.5°	131.5	131.2	130.6	130.3
55°	123.1	122.3	122.3	122.3
57.5°	114.5	113.9	113.7	114.2
60°	105.1	104.5	103.3	103.3
62.5°	93.3	92.7	92.4	91.3
65°	81.5	81.2	80.7	80.9
67.5°	70.6	70.3	70.3	69.5
70°	60.0	60.0	59.1	59.7
72.5°	50.2	49.9	49.9	49.9
75°	40.8	40.5	40.2	40.2
77.5°	32.1	32.1	31.6	31.6
80°	23.2	23.2	23.0	23.5
82.5°	15.5	16.1	15.5	15.5
85°	8.3	8.6	8.6	8.6
87.5°	2.6	2.3	2.3	2.3
90°	0.0	0.0	0.0	0.0

(END OF REPORT)