

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: P243096

Luminaire Tested: **S121RDR-H490D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243096
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-H490D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1270.7 lumens
Efficiency: N/A
Efficacy: 73.9 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

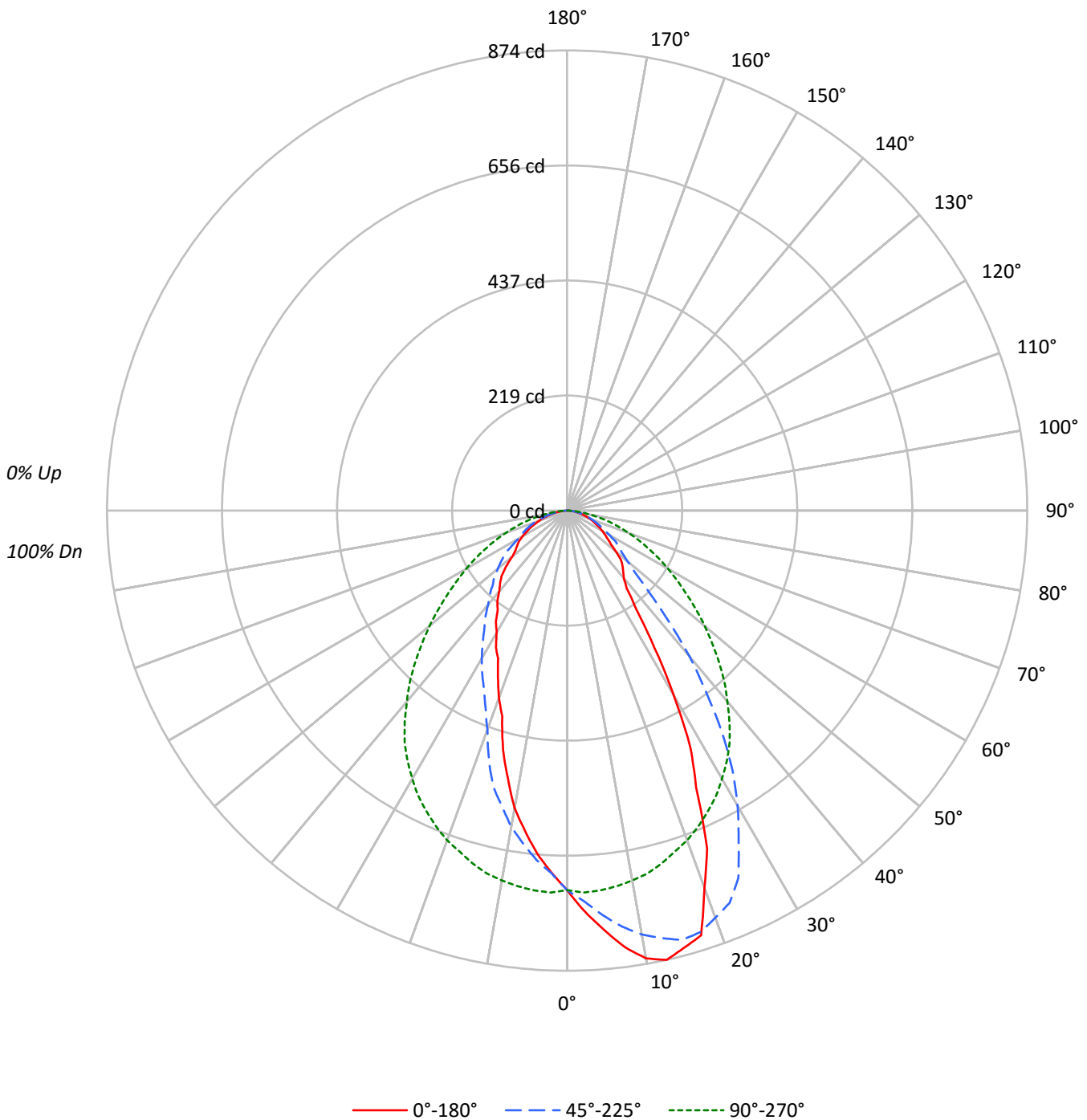
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	21357	21357	21357
5°	23768	21528	19449
10°	25986	21464	17270
15°	26362	21285	14423
20°	24030	21012	11928
25°	18926	20632	10148
30°	13836	20131	9149
35°	8258	19464	8316
40°	6475	18314	7759
45°	6239	17096	7379
50°	5564	15723	6264
55°	4856	14309	5982
60°	4539	13096	5796
65°	4228	11912	5370
70°	4002	10734	4895
75°	3675	9548	4362
80°	3344	7747	3805
85°	3128	5915	2788



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.8	5.4
10°-20°	192.0	15.1
20°-30°	255.2	20.1
30°-40°	243.5	19.2
40°-50°	202.0	15.9
50°-60°	150.3	11.8
60°-70°	97.3	7.7
70°-80°	49.5	3.9
80°-90°	12.1	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°	516.0	40.6
0°-40°	759.5	59.8
0°-60°	1111.8	87.5
0°-90°	1270.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1270.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	721	721	721	721	721	
5°	799	771	724	666	654	78
15°	859	844	694	542	470	239
25°	579	769	631	373	310	269
35°	228	511	538	274	230	155
45°	149	220	408	200	176	114
55°	94	119	277	144	116	85
65°	60	68	170	87	77	60
75°	32	35	83	43	38	34
85°	9	9	17	9	8	10
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°	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8
2.5°	762.1	760.2	762.4	761.6	758.0	758.8	754.5	751.8	745.2	742.8	742.8
5°	799.1	801.8	800.1	800.7	797.2	795.0	790.4	785.2	777.0	771.1	768.9
7.5°	836.0	836.8	837.7	835.5	831.4	827.6	821.1	813.5	804.5	796.9	790.9
10°	863.7	865.6	864.6	861.3	858.3	852.6	845.5	837.4	827.6	817.5	810.2
12.5°	874.1	875.7	878.1	876.2	876.0	873.3	866.2	856.1	844.2	831.7	823.2
15°	859.4	858.3	864.8	863.2	862.7	861.6	863.5	861.3	855.0	844.2	833.8
17.5°	845.8	845.3	851.8	853.4	851.0	847.4	845.3	842.5	839.6	839.8	838.5
20°	762.1	778.7	781.9	790.6	809.1	821.3	833.6	833.0	824.3	823.0	822.4
22.5°	694.7	700.9	698.0	712.1	722.1	744.2	765.6	792.8	811.0	806.4	803.4
25°	578.9	598.5	607.4	625.1	650.7	678.7	690.9	719.7	747.7	769.4	786.0
27.5°	507.2	511.5	517.2	535.4	544.9	570.5	616.1	655.3	681.4	705.0	748.8
30°	404.4	406.3	426.2	436.2	464.2	489.2	528.9	560.4	612.9	647.9	681.6
32.5°	308.8	307.1	328.9	340.6	368.3	402.0	446.3	475.6	527.0	584.3	624.6
35°	228.3	228.0	239.7	247.9	278.3	304.1	360.4	398.7	455.0	511.2	563.1
37.5°	185.9	185.6	188.1	195.1	207.9	237.0	264.2	321.0	375.9	431.3	496.3
40°	167.4	168.8	169.3	172.6	176.9	185.6	202.2	241.9	295.7	361.8	427.0
42.5°	157.6	157.6	158.2	159.0	161.2	163.6	173.7	188.9	232.1	284.8	357.9
45°	148.9	149.2	149.8	150.3	149.8	151.1	155.7	162.0	178.8	220.4	291.1
47.5°	138.6	138.3	139.7	140.5	141.6	143.2	143.5	146.8	154.1	175.8	227.2
50°	120.7	120.9	122.3	125.6	129.1	132.1	134.0	136.2	138.6	148.9	176.1
52.5°	104.4	104.6	105.5	107.9	111.2	115.0	120.9	125.8	127.7	131.0	146.2
55°	94.0	94.0	95.1	96.5	97.3	100.0	104.1	109.5	116.6	119.3	125.8
57.5°	85.3	85.3	85.9	85.9	87.0	88.3	91.0	93.8	99.7	108.4	112.5
60°	76.6	76.6	77.2	77.2	78.5	79.1	81.0	82.6	85.9	91.9	100.0
62.5°	68.5	67.9	68.5	68.8	69.6	70.4	71.8	73.7	75.6	79.1	85.1
65°	60.3	60.1	60.6	61.2	61.7	62.8	63.6	65.0	66.6	68.5	71.5
67.5°	53.3	53.0	53.3	54.1	53.8	54.4	55.7	56.3	57.9	59.8	62.2
70°	46.2	45.7	46.2	46.2	46.5	47.3	47.3	48.7	50.0	51.1	53.3
72.5°	38.6	38.9	38.6	38.9	39.4	39.7	40.2	41.0	41.9	42.9	44.3
75°	32.1	32.1	32.3	32.6	33.2	33.2	33.4	34.0	34.5	35.1	36.7
77.5°	25.5	25.8	26.1	26.4	26.4	26.6	26.9	27.2	28.0	28.3	29.1
80°	19.6	19.8	19.8	19.8	20.4	19.8	20.4	20.9	20.9	21.2	21.7
82.5°	14.1	14.4	14.1	14.4	14.7	14.7	14.4	14.7	14.7	15.2	15.2
85°	9.2	8.7	8.7	8.7	8.7	8.7	9.0	9.2	9.0	9.0	9.2
87.5°	3.8	3.8	3.8	3.8	4.1	3.8	4.1	4.1	4.1	3.8	4.1
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°	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8
2.5°	744.2	742.0	740.1	736.8	732.7	726.8	725.9	726.2	718.9	711.8	710.7
5°	764.3	760.7	754.8	747.7	741.2	731.1	726.8	723.8	712.6	703.1	699.3
7.5°	785.7	777.3	769.2	758.0	747.1	734.1	725.9	719.7	705.0	692.5	686.0
10°	802.6	792.3	780.6	766.4	751.5	735.5	723.2	713.4	695.8	680.3	672.1
12.5°	814.5	802.9	789.0	772.2	755.0	733.8	718.9	705.8	684.4	665.9	656.1
15°	820.8	808.3	791.2	772.7	755.0	732.7	712.9	693.9	672.7	649.6	637.3
17.5°	826.5	810.2	790.9	769.7	751.8	728.4	703.9	679.2	655.3	633.5	613.7
20°	822.4	808.6	787.1	765.1	745.0	717.8	692.0	666.4	636.5	611.3	591.4
22.5°	803.4	801.0	777.9	754.2	731.1	705.0	675.1	649.8	617.8	587.9	564.0
25°	781.1	778.1	765.6	740.4	714.3	687.1	660.2	631.1	594.1	563.1	535.7
27.5°	762.4	755.6	746.6	723.0	695.0	667.8	640.1	611.8	572.4	537.9	506.6
30°	724.3	730.8	720.8	704.5	672.1	645.8	619.1	588.4	549.3	509.6	477.5
32.5°	664.0	703.4	693.3	680.3	648.5	619.7	594.4	564.2	521.0	481.9	448.7
35°	610.7	644.7	667.5	651.7	623.8	590.3	564.5	538.1	493.0	453.1	421.3
37.5°	559.1	595.2	633.3	618.9	595.8	559.9	532.7	506.6	464.8	424.5	392.7
40°	491.4	544.1	580.8	586.5	562.9	526.7	500.4	473.5	436.5	396.5	362.6
42.5°	426.4	494.1	523.7	553.1	528.9	494.9	465.6	442.7	407.1	372.1	335.1
45°	358.5	435.4	479.2	501.7	493.0	462.0	430.0	408.0	378.1	345.4	310.4
47.5°	299.5	372.6	435.1	447.9	456.3	425.9	396.0	373.7	347.9	321.0	287.6
50°	237.5	313.4	380.2	403.3	419.4	391.6	360.4	341.1	319.4	295.2	265.5
52.5°	184.8	255.8	325.9	365.3	370.7	356.3	327.5	308.5	291.1	269.3	242.4
55°	146.8	201.7	271.8	317.7	322.9	319.4	293.5	277.0	264.2	246.0	223.4
57.5°	121.8	156.8	220.1	273.1	280.8	284.0	262.8	247.9	236.5	222.1	201.7
60°	105.2	123.7	172.0	224.0	244.9	250.6	231.8	221.0	211.5	198.4	179.4
62.5°	93.0	101.4	131.5	181.6	208.5	213.4	203.8	195.7	187.8	175.3	158.5
65°	77.5	86.4	101.4	140.2	173.4	175.8	177.7	169.9	163.6	153.3	138.3
67.5°	65.0	72.0	81.8	107.6	139.2	146.2	151.1	147.6	141.6	131.3	118.5
70°	55.2	59.2	66.3	80.7	106.3	121.5	126.7	123.9	120.9	109.8	98.9
72.5°	45.9	49.2	53.3	62.0	80.2	96.5	104.1	102.7	99.5	91.0	82.1
75°	38.1	39.4	42.7	47.6	58.2	73.4	82.4	83.4	79.6	71.8	64.7
77.5°	29.9	31.3	33.2	36.1	42.9	53.3	60.6	63.3	60.9	55.2	48.1
80°	22.8	23.6	25.0	26.4	29.1	36.1	43.8	45.4	44.0	39.4	35.1
82.5°	15.2	15.8	16.9	17.9	19.3	22.6	29.1	30.2	29.9	25.8	22.8
85°	9.2	9.2	9.5	10.3	10.9	12.2	15.8	17.4	16.6	13.9	12.5
87.5°	3.8	4.1	3.8	3.8	3.8	4.1	5.2	7.1	5.4	4.1	3.8
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°	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8	720.8
2.5°	707.7	706.6	702.6	698.8	694.4	689.3	689.5	690.3	688.4	687.9	689.8
5°	693.9	690.1	683.8	677.6	672.7	666.2	662.3	664.3	662.9	660.4	658.8
7.5°	679.2	673.8	664.8	656.9	650.4	638.2	635.4	632.2	629.5	624.0	622.9
10°	661.8	653.9	642.5	631.4	619.4	609.9	600.9	597.1	589.8	584.9	583.5
12.5°	643.9	630.8	618.0	601.7	588.2	574.3	566.4	561.0	553.6	541.7	536.0
15°	625.4	605.5	588.4	570.5	561.2	542.5	527.5	510.7	501.7	481.6	469.9
17.5°	600.7	577.8	554.7	540.0	520.7	494.7	469.7	461.0	447.4	434.3	421.3
20°	567.2	546.3	524.3	502.3	472.9	442.7	433.2	418.3	403.3	395.5	388.7
22.5°	536.5	514.0	487.9	458.8	428.6	405.0	392.5	381.6	372.4	365.3	357.4
25°	507.4	484.1	446.8	417.2	390.8	373.4	367.2	353.1	343.3	338.1	331.3
27.5°	475.4	443.3	413.4	382.7	359.3	349.5	335.1	324.0	313.6	303.6	301.1
30°	444.9	409.3	379.7	354.7	337.6	324.0	309.3	296.2	289.5	285.6	279.4
32.5°	414.7	378.6	350.9	331.3	312.8	298.4	284.6	277.8	267.4	259.0	253.6
35°	382.4	350.9	328.9	306.0	288.4	274.2	267.2	251.7	246.0	243.5	237.8
37.5°	353.9	325.9	303.6	286.2	266.9	255.5	241.6	238.1	230.5	224.0	222.1
40°	330.2	303.9	282.9	260.4	248.4	233.5	226.7	217.2	214.4	212.0	207.6
42.5°	304.4	281.8	257.9	242.7	225.0	218.2	207.6	204.9	198.4	196.0	194.3
45°	282.4	261.5	238.6	220.1	210.1	200.0	196.0	189.2	186.2	183.2	180.2
47.5°	260.9	239.2	221.0	203.6	192.4	187.8	180.5	175.6	172.3	169.3	166.3
50°	241.1	219.1	198.7	186.2	178.3	171.8	167.1	163.1	158.5	151.9	145.1
52.5°	219.6	199.8	183.2	171.0	163.9	157.6	153.6	146.5	137.5	130.5	127.2
55°	198.1	179.4	165.0	155.2	150.3	144.3	135.1	124.8	119.0	118.0	117.1
57.5°	179.9	162.3	148.9	141.3	135.6	125.0	115.2	111.4	109.8	109.3	108.7
60°	159.5	143.8	134.3	126.1	116.6	106.5	103.6	103.0	101.4	100.6	100.0
62.5°	140.8	127.2	118.5	108.7	98.7	96.8	94.6	93.2	92.4	90.5	89.7
65°	122.6	111.7	102.2	91.9	88.3	87.0	85.1	83.2	81.0	79.6	78.5
67.5°	105.2	94.6	84.5	80.7	78.8	76.6	74.2	71.5	70.4	68.5	68.2
70°	88.1	78.3	72.8	70.4	66.9	65.0	62.2	61.2	59.2	58.4	57.6
72.5°	71.8	64.7	62.5	59.0	56.5	53.5	52.2	51.1	50.0	48.7	48.7
75°	56.0	54.1	50.0	47.3	44.8	43.2	42.7	40.8	40.5	39.7	39.1
77.5°	44.6	40.8	39.4	36.4	34.8	34.0	33.4	32.3	31.3	31.0	30.7
80°	31.5	29.6	28.0	26.6	25.3	24.7	24.2	23.9	23.4	22.8	22.6
82.5°	20.7	19.6	18.5	17.7	17.4	16.6	16.0	15.8	15.2	15.2	15.2
85°	11.1	10.9	10.3	9.8	9.2	9.2	9.0	8.7	8.7	7.9	7.9
87.5°	3.5	3.5	3.3	3.3	2.7	3.0	2.7	2.7	2.4	2.7	2.7
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-H490D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	720.8	720.8	720.8	720.8
2.5°	687.6	687.6	686.5	687.6
5°	657.7	655.3	654.5	653.9
7.5°	619.7	617.5	615.3	613.2
10°	580.8	577.6	575.6	574.0
12.5°	530.3	526.2	518.6	520.7
15°	468.0	468.3	450.6	470.2
17.5°	417.2	418.6	411.5	410.4
20°	384.9	384.3	381.6	378.3
22.5°	351.7	349.2	348.2	343.0
25°	320.7	316.4	317.7	310.4
27.5°	298.2	294.6	293.5	293.0
30°	275.6	268.3	265.8	267.4
32.5°	252.8	252.2	251.4	251.7
35°	233.5	232.4	229.9	229.9
37.5°	220.1	220.4	219.1	218.0
40°	203.8	202.5	202.2	200.6
42.5°	192.2	189.4	188.3	188.6
45°	178.6	176.9	175.6	176.1
47.5°	162.5	160.9	157.9	157.1
50°	140.8	138.6	137.3	135.9
52.5°	124.5	124.2	123.7	123.4
55°	116.6	115.8	115.8	115.8
57.5°	108.4	107.9	107.6	108.2
60°	99.5	98.9	97.8	97.8
62.5°	88.3	87.8	87.5	86.4
65°	77.2	76.9	76.4	76.6
67.5°	66.9	66.6	66.6	65.8
70°	56.8	56.8	56.0	56.5
72.5°	47.6	47.3	47.3	47.3
75°	38.6	38.3	38.1	38.1
77.5°	30.4	30.4	29.9	29.9
80°	22.0	22.0	21.7	22.3
82.5°	14.7	15.2	14.7	14.7
85°	7.9	8.2	8.2	8.2
87.5°	2.4	2.2	2.2	2.2
90°	0.0	0.0	0.0	0.0

(END OF REPORT)