

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: P242117

Luminaire Tested: **S121DR-S305D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242117
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S305D830-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1178.4 lumens
Efficiency: N/A
Efficacy: 101.6 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

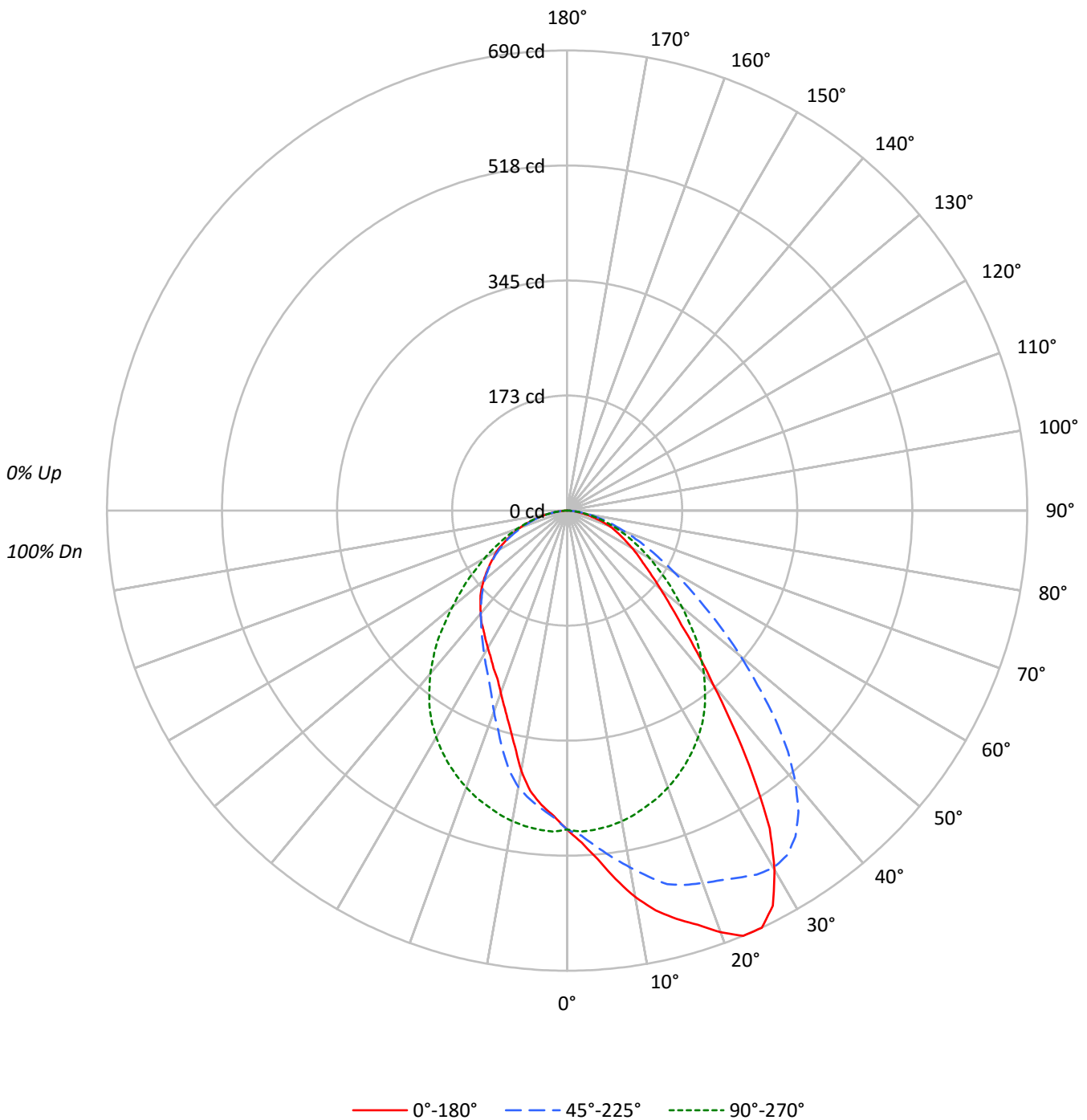
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					100			
1	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	52	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14169	14169	14169
5°	15594	14286	13170
10°	17706	14234	11911
15°	19442	14077	10239
20°	21217	13937	9163
25°	22565	13718	8530
30°	21277	13432	8139
35°	17579	13011	7903
40°	13182	12339	7802
45°	10157	11502	7710
50°	8422	10348	7532
55°	7268	9397	7315
60°	6684	8474	7218
65°	6177	7663	6808
70°	5848	6879	6523
75°	4808	6079	5793
80°	3788	4948	4778
85°	2924	3638	3230



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.0	3.9
10°-20°	134.1	11.4
20°-30°	205.4	17.4
30°-40°	234.4	19.9
40°-50°	210.3	17.8
50°-60°	165.0	14.0
60°-70°	112.2	9.5
70°-80°	57.8	4.9
80°-90°	13.3	1.1
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°	385.5	32.7
0°-40°	619.9	52.6
0°-60°	995.1	84.4
0°-90°	1178.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1178.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	478	478	478	478	478	
5°	524	506	480	448	443	52
15°	634	580	459	373	334	180
25°	690	607	420	278	261	311
35°	486	597	360	223	218	301
45°	242	440	274	181	184	192
55°	141	251	182	140	142	128
65°	88	134	109	96	97	88
75°	42	59	53	49	51	45
85°	9	12	11	10	10	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°	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2
2.5°	498.4	498.4	499.2	499.0	498.2	496.7	495.5	494.1	490.4	487.9	490.2
5°	524.3	525.3	526.4	526.2	523.1	520.4	516.5	515.5	508.9	505.8	504.8
7.5°	557.2	557.0	557.4	553.9	551.3	548.6	543.5	537.1	529.3	524.9	520.8
10°	588.5	590.4	589.5	585.2	581.1	578.2	570.0	562.2	552.5	543.2	538.1
12.5°	614.0	613.0	616.5	612.4	607.4	602.1	594.1	587.1	574.5	562.0	551.5
15°	633.8	632.8	633.2	630.1	624.9	620.2	612.0	604.6	592.6	580.1	569.0
17.5°	651.1	652.1	650.2	646.5	639.5	634.0	623.7	613.6	601.1	588.5	577.6
20°	672.9	673.9	670.4	665.1	658.3	648.8	638.1	623.7	609.7	594.3	580.7
22.5°	690.2	689.6	688.3	683.2	676.0	667.1	651.7	635.8	619.2	600.0	582.5
25°	690.2	691.0	691.6	688.9	684.2	676.8	666.3	649.6	630.9	607.4	583.0
27.5°	667.9	671.6	674.3	674.3	673.3	673.1	666.9	656.4	638.9	615.3	588.1
30°	621.9	626.8	630.9	637.3	644.9	649.8	651.7	647.6	638.5	618.6	590.4
32.5°	565.1	564.6	573.1	583.4	598.4	608.9	619.4	625.6	625.1	613.2	589.7
35°	486.0	491.8	501.9	516.3	535.6	552.9	575.8	587.7	597.2	596.7	581.7
37.5°	409.1	409.9	421.2	441.0	458.1	484.8	514.6	539.5	562.4	569.8	564.9
40°	340.8	346.5	354.1	370.6	387.7	411.1	449.0	482.3	510.5	532.3	538.3
42.5°	288.1	291.2	298.6	313.0	328.2	356.2	384.0	419.6	455.2	489.9	507.9
45°	242.4	245.3	252.1	262.2	276.4	298.4	327.0	361.5	399.6	440.4	465.9
47.5°	209.1	210.1	215.2	222.9	236.2	252.3	275.3	308.9	347.3	387.1	424.5
50°	182.7	184.4	187.9	193.8	203.7	218.7	237.1	262.4	298.0	339.1	377.2
52.5°	159.7	160.9	165.0	168.3	175.9	188.7	204.5	227.6	257.6	294.7	334.0
55°	140.7	142.0	144.0	147.7	153.7	162.4	175.9	194.3	220.0	251.3	288.1
57.5°	126.3	127.0	127.4	129.8	134.6	141.6	153.1	167.5	187.5	216.1	248.8
60°	112.8	112.6	114.2	116.1	118.9	123.3	131.7	144.7	162.6	185.8	216.3
62.5°	99.2	100.2	101.2	102.7	104.5	107.0	113.8	123.5	137.7	157.6	182.7
65°	88.1	88.3	89.1	89.3	91.6	94.0	99.2	105.8	117.5	133.8	154.5
67.5°	77.4	77.6	77.4	78.0	79.0	81.1	83.8	89.1	98.2	111.3	129.4
70°	67.5	66.9	66.1	67.1	68.1	69.1	71.0	75.1	81.9	91.8	106.8
72.5°	54.3	54.7	55.1	55.6	55.8	57.2	58.9	61.7	67.1	74.7	86.2
75°	42.0	42.0	42.6	43.0	44.9	45.3	47.1	49.2	53.5	58.9	67.9
77.5°	30.9	30.7	31.7	31.9	32.9	34.2	35.2	37.2	40.5	45.1	51.0
80°	22.2	22.4	22.2	22.2	22.8	23.7	25.1	26.1	28.4	31.3	35.6
82.5°	14.8	14.8	15.0	15.0	15.6	15.6	16.5	17.3	18.7	20.6	23.7
85°	8.6	8.6	8.4	8.4	8.6	8.6	9.5	10.1	10.3	11.5	12.6
87.5°	3.7	3.7	3.5	3.7	3.5	3.7	3.5	3.9	4.1	4.3	4.7
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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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2
2.5°	489.5	488.9	488.7	486.5	484.2	481.5	481.1	481.9	478.4	474.1	473.9
5°	502.3	500.0	496.7	492.4	488.7	483.8	481.3	480.3	474.9	468.8	467.5
7.5°	516.5	510.9	505.0	498.4	491.8	484.6	480.1	477.4	470.0	462.4	459.3
10°	530.1	522.9	513.8	503.7	494.5	484.6	477.8	473.1	464.0	454.6	449.8
12.5°	545.7	533.8	521.0	508.5	497.2	484.4	474.1	466.9	456.4	446.3	439.3
15°	557.0	539.7	529.9	512.0	497.8	482.3	469.8	458.9	447.4	436.2	429.2
17.5°	565.9	552.3	535.0	515.3	496.1	479.5	463.8	451.7	436.4	424.3	416.7
20°	568.8	555.0	537.3	515.7	496.5	475.1	456.6	442.0	425.7	410.9	400.4
22.5°	567.7	552.1	534.0	512.8	493.4	468.1	448.8	431.3	413.2	397.4	382.9
25°	565.5	547.4	527.4	507.4	485.8	460.9	438.7	419.6	397.8	380.5	363.2
27.5°	564.2	540.6	518.1	496.5	476.0	451.9	428.0	406.6	382.5	361.5	339.3
30°	563.8	535.6	507.4	482.3	463.4	438.9	415.3	392.6	364.4	340.8	318.1
32.5°	563.0	531.5	498.4	468.3	446.7	424.7	399.6	377.2	345.3	320.6	296.3
35°	557.4	524.3	487.9	453.7	428.4	405.6	383.2	359.7	326.6	300.0	276.8
37.5°	545.5	516.5	477.6	439.1	408.9	385.6	364.8	339.3	307.2	278.2	256.6
40°	527.8	504.1	466.5	424.7	389.1	363.6	341.6	319.0	285.8	258.0	238.5
42.5°	504.8	486.5	451.1	407.8	370.0	341.4	319.0	296.5	266.1	239.3	221.8
45°	474.5	463.2	432.1	389.5	351.5	318.3	294.1	274.5	246.3	221.8	205.8
47.5°	441.0	436.0	410.1	369.2	329.0	296.9	268.5	248.0	225.9	205.2	191.0
50°	400.4	404.3	384.0	346.3	307.4	274.5	246.7	224.5	205.4	189.3	176.8
52.5°	362.6	371.8	355.4	319.6	284.8	250.6	222.6	202.3	187.3	174.1	163.2
55°	320.4	333.8	323.9	293.0	258.5	228.2	200.2	181.9	168.9	158.9	149.6
57.5°	279.9	298.8	291.6	263.8	234.4	205.0	178.6	160.5	151.2	143.8	136.0
60°	243.8	261.1	260.1	236.4	207.0	180.9	159.3	143.0	134.8	129.8	123.1
62.5°	211.5	229.0	227.4	206.0	182.7	158.4	140.1	125.3	119.3	114.0	109.7
65°	178.6	193.6	194.5	178.6	156.2	136.6	121.0	109.3	103.9	100.6	97.5
67.5°	148.8	163.4	164.8	152.3	132.5	115.6	103.9	94.0	89.3	86.4	84.2
70°	122.6	134.6	137.3	126.8	110.1	96.9	87.0	79.4	76.3	73.5	72.6
72.5°	99.4	109.1	110.9	101.2	88.9	79.0	71.4	65.6	63.4	60.5	59.9
75°	79.0	85.8	86.0	79.6	70.4	62.8	56.6	53.1	50.6	48.6	48.2
77.5°	57.4	63.4	65.2	60.5	52.9	46.5	43.0	40.3	38.7	37.7	37.5
80°	41.6	45.5	46.3	42.2	37.7	33.7	31.3	29.0	28.0	27.0	26.5
82.5°	25.9	29.4	29.6	26.8	24.5	21.8	19.8	18.9	18.3	17.7	17.7
85°	14.0	15.8	15.6	14.4	13.4	11.9	11.1	10.7	10.3	9.9	9.9
87.5°	5.4	6.0	6.0	6.2	5.4	4.7	4.3	4.5	4.3	4.3	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2	478.2
2.5°	472.5	471.6	469.6	466.3	464.4	460.3	460.5	461.3	461.6	460.9	460.7
5°	464.0	461.6	458.3	454.1	451.3	448.2	446.1	447.4	446.7	446.5	445.5
7.5°	454.8	451.5	447.4	443.2	439.9	435.8	434.2	432.7	431.1	430.9	430.1
10°	445.5	441.4	436.7	430.7	426.2	421.0	416.1	413.4	410.3	408.1	403.3
12.5°	434.6	427.6	422.2	416.1	407.8	399.6	394.1	386.4	382.3	378.2	372.7
15°	422.0	413.0	403.7	391.4	384.2	372.7	364.4	358.9	352.5	348.4	343.6
17.5°	404.1	394.7	382.9	369.0	356.2	344.5	338.5	331.3	328.6	319.6	318.7
20°	386.4	372.2	357.6	343.4	329.2	320.8	313.2	308.5	303.5	297.8	295.9
22.5°	366.5	348.0	332.5	319.4	306.4	297.1	293.4	288.1	283.4	280.1	277.0
25°	342.2	325.1	309.5	297.1	285.4	278.4	273.7	269.8	267.7	264.0	262.8
27.5°	319.8	302.7	290.1	278.6	269.2	263.0	258.9	255.4	252.7	252.1	250.6
30°	296.9	282.3	270.4	260.5	252.1	248.8	244.9	243.2	241.6	240.8	239.1
32.5°	276.4	263.4	252.9	243.4	238.5	235.4	233.3	231.7	230.5	230.1	229.6
35°	257.6	245.7	237.1	230.3	226.6	223.3	222.2	220.8	220.2	220.0	219.8
37.5°	241.2	230.1	223.5	217.5	214.8	211.7	211.9	211.3	210.9	209.7	210.5
40°	224.5	215.9	209.1	204.3	202.5	201.5	201.0	200.6	200.8	200.8	200.6
42.5°	209.3	201.7	197.3	192.8	192.0	191.2	191.2	190.5	190.8	191.8	192.2
45°	195.5	189.5	185.6	181.9	181.9	180.9	181.7	181.5	182.1	182.7	183.1
47.5°	181.7	176.3	173.5	171.6	170.8	170.8	171.4	172.4	172.9	173.1	173.5
50°	167.9	164.0	161.5	160.5	160.3	161.3	161.9	161.7	162.4	163.2	163.8
52.5°	155.8	152.3	150.6	150.2	150.2	151.0	151.2	151.9	152.3	152.3	153.1
55°	143.2	140.7	139.5	139.3	139.5	139.9	140.7	141.2	141.0	141.4	141.4
57.5°	130.7	128.8	128.2	128.8	128.8	129.6	129.6	129.6	129.4	130.3	130.0
60°	118.9	116.9	117.5	117.3	117.9	117.9	118.5	118.5	117.9	118.7	119.1
62.5°	107.2	106.8	106.0	106.0	106.6	106.8	106.2	106.8	107.0	107.6	108.0
65°	94.9	93.4	94.0	93.8	94.5	95.5	94.7	94.7	95.3	96.1	96.5
67.5°	83.1	81.9	82.5	82.7	82.7	83.1	82.5	82.9	83.8	84.8	85.4
70°	71.2	70.8	71.0	70.8	70.8	71.8	72.0	71.8	72.6	73.7	73.9
72.5°	59.1	59.5	59.1	59.5	59.9	59.3	59.5	60.1	60.9	61.5	62.6
75°	47.9	47.3	47.5	48.6	48.4	48.8	48.6	49.2	50.6	50.2	50.4
77.5°	37.0	36.8	37.0	37.2	37.5	38.1	37.9	38.9	39.1	39.3	39.7
80°	26.3	26.5	26.8	27.2	27.8	27.6	28.0	28.2	29.0	28.2	28.8
82.5°	17.9	17.7	18.1	18.1	18.7	19.1	18.5	18.5	18.5	18.3	18.3
85°	9.9	10.5	10.5	10.5	10.1	10.1	10.3	10.1	10.1	10.1	9.9
87.5°	4.3	4.3	4.1	3.9	4.1	3.9	3.9	3.7	3.5	3.5	3.3
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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CATALOG NUMBER: S121DR-S305D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	478.2	478.2	478.2	478.2
2.5°	459.5	460.5	459.3	458.5
5°	444.5	444.5	443.2	442.8
7.5°	427.6	427.8	425.5	423.9
10°	402.3	401.1	397.8	395.9
12.5°	368.5	370.4	365.5	361.8
15°	339.1	334.0	336.0	333.8
17.5°	314.4	312.8	310.5	310.7
20°	292.8	291.6	290.3	290.6
22.5°	275.7	274.7	274.3	272.9
25°	261.5	262.0	260.9	260.9
27.5°	249.8	249.2	248.6	247.8
30°	238.7	238.9	238.3	237.9
32.5°	228.8	229.0	228.6	228.0
35°	219.1	218.9	219.1	218.5
37.5°	210.3	210.1	210.3	211.1
40°	201.2	201.5	200.8	201.7
42.5°	192.4	192.6	192.6	192.2
45°	182.7	183.3	183.6	184.0
47.5°	173.3	174.3	173.9	174.1
50°	163.8	163.6	163.6	163.4
52.5°	153.3	152.7	152.5	152.7
55°	140.7	141.6	141.6	141.6
57.5°	130.5	130.7	131.3	130.5
60°	120.0	120.0	120.2	121.8
62.5°	108.2	108.4	108.9	109.1
65°	96.9	97.5	97.3	97.1
67.5°	85.8	85.8	86.0	85.6
70°	74.3	74.3	74.3	75.3
72.5°	62.3	62.3	62.6	63.0
75°	51.2	51.2	51.2	50.6
77.5°	39.1	39.3	39.3	39.5
80°	28.4	28.2	28.2	28.0
82.5°	17.9	18.1	17.9	17.7
85°	9.9	10.1	9.5	9.5
87.5°	3.5	3.5	3.3	3.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)