

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: P242127

Luminaire Tested: **S121DR-S305D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242127
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-S305D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1262.6 lumens
Efficiency: N/A
Efficacy: 108.8 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

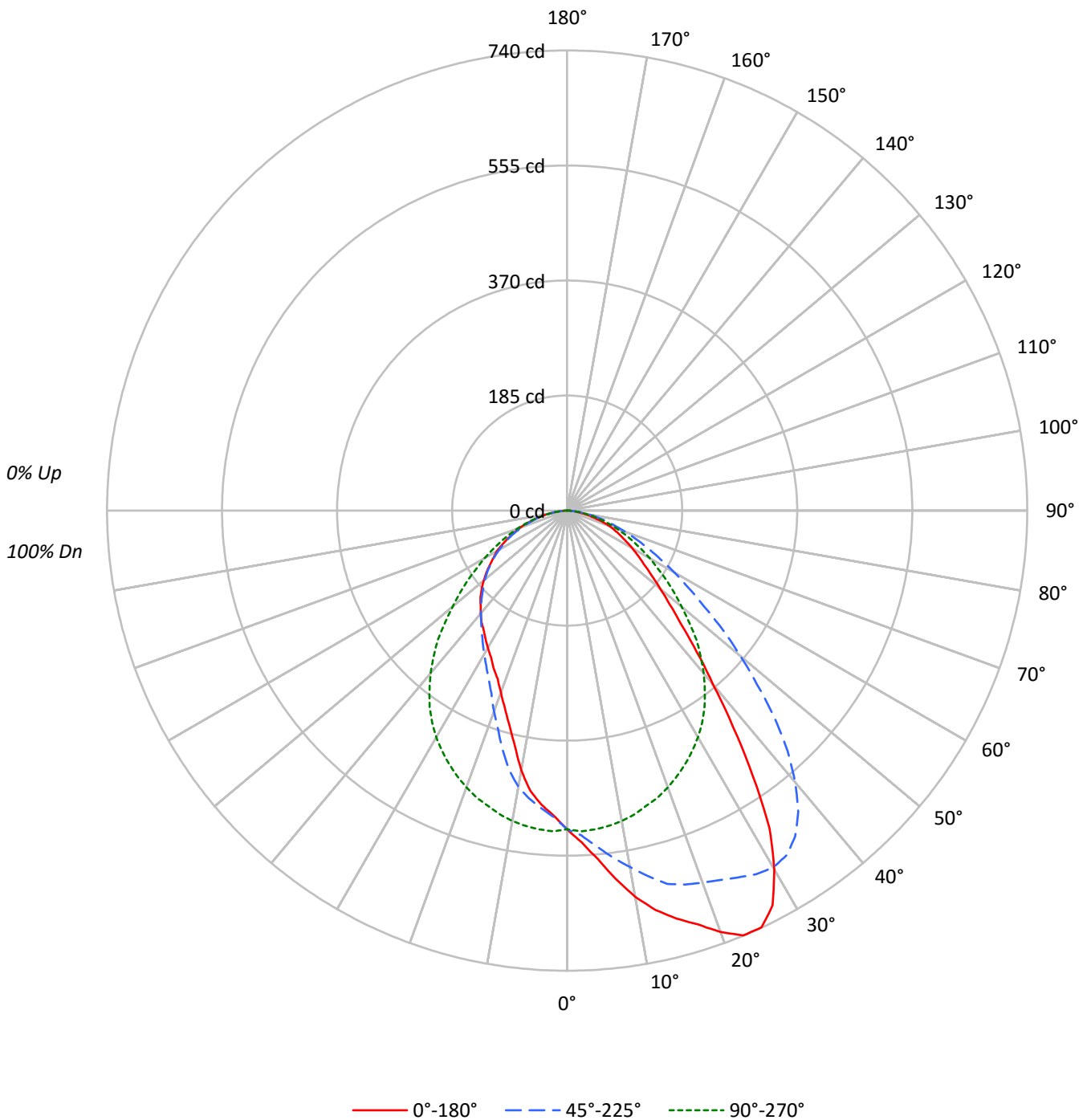
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

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°	15182	15182	15182
5°	16710	15306	14113
10°	18973	15251	12763
15°	20831	15083	10969
20°	22731	14933	9816
25°	24176	14695	9141
30°	22796	14394	8721
35°	18838	13940	8468
40°	14122	13217	8358
45°	10882	12324	8259
50°	9026	11086	8071
55°	7790	10068	7836
60°	7159	9079	7733
65°	6618	8210	7298
70°	6263	7372	6991
75°	5152	6514	6205
80°	4061	5307	5119
85°	3162	3910	3434



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.3	3.9
10°-20°	143.7	11.4
20°-30°	220.1	17.4
30°-40°	251.1	19.9
40°-50°	225.3	17.8
50°-60°	176.7	14.0
60°-70°	120.2	9.5
70°-80°	61.9	4.9
80°-90°	14.3	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°	413.0	32.7
0°-40°	664.1	52.6
0°-60°	1066.2	84.4
0°-90°	1262.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1262.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	512	512	512	512	512	
5°	562	542	515	480	474	56
15°	679	622	492	399	358	193
25°	740	651	450	298	280	334
35°	521	639	385	239	234	323
45°	260	472	294	194	197	206
55°	151	269	195	150	152	137
65°	94	143	117	102	104	94
75°	45	63	57	52	54	49
85°	9	12	12	11	10	11
90°	0	0	0	0	0	



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4
2.5°	534.0	534.0	534.9	534.6	533.8	532.2	530.9	529.4	525.4	522.7	525.2
5°	561.8	562.9	564.0	563.7	560.4	557.6	553.4	552.3	545.2	541.9	540.8
7.5°	597.0	596.8	597.3	593.5	590.6	587.8	582.3	575.4	567.1	562.4	558.0
10°	630.6	632.5	631.7	627.0	622.6	619.5	610.7	602.3	592.0	582.0	576.5
12.5°	657.9	656.8	660.5	656.1	650.8	645.1	636.5	629.0	615.6	602.1	590.9
15°	679.1	678.0	678.4	675.1	669.6	664.5	655.7	647.7	635.0	621.5	609.6
17.5°	697.6	698.7	696.7	692.7	685.2	679.3	668.3	657.4	644.0	630.6	618.9
20°	720.9	722.0	718.3	712.6	705.3	695.1	683.7	668.3	653.3	636.7	622.2
22.5°	739.5	738.8	737.5	732.0	724.3	714.8	698.2	681.3	663.4	642.9	624.2
25°	739.5	740.3	741.0	738.1	733.1	725.1	713.9	696.0	676.0	650.8	624.6
27.5°	715.7	719.6	722.5	722.5	721.4	721.2	714.6	703.3	684.6	659.2	630.1
30°	666.3	671.6	676.0	682.8	691.0	696.3	698.2	693.8	684.1	662.7	632.5
32.5°	605.4	605.0	614.0	625.0	641.1	652.4	663.6	670.2	669.8	657.0	631.9
35°	520.8	526.9	537.7	553.2	573.9	592.4	616.9	629.7	639.8	639.4	623.3
37.5°	438.3	439.2	451.3	472.5	490.8	519.4	551.4	578.1	602.6	610.5	605.2
40°	365.1	371.3	379.4	397.1	415.4	440.5	481.1	516.8	547.0	570.4	576.8
42.5°	308.7	312.0	319.9	335.3	351.7	381.6	411.4	449.5	487.7	524.9	544.1
45°	259.7	262.8	270.1	280.9	296.1	319.7	350.3	387.4	428.2	471.8	499.1
47.5°	224.0	225.1	230.6	238.8	253.1	270.3	295.0	330.9	372.2	414.7	454.8
50°	195.8	197.5	201.3	207.7	218.3	234.4	254.0	281.1	319.2	363.3	404.1
52.5°	171.1	172.4	176.8	180.3	188.5	202.2	219.1	243.8	276.0	315.7	357.8
55°	150.8	152.1	154.3	158.3	164.7	174.0	188.5	208.1	235.7	269.2	308.7
57.5°	135.4	136.0	136.5	139.1	144.2	151.7	164.0	179.5	200.9	231.5	266.6
60°	120.8	120.6	122.4	124.3	127.4	132.1	141.1	155.0	174.2	199.1	231.7
62.5°	106.3	107.4	108.5	110.0	112.0	114.6	121.9	132.3	147.5	168.9	195.8
65°	94.4	94.6	95.5	95.7	98.1	100.8	106.3	113.3	125.9	143.3	165.6
67.5°	82.9	83.1	82.9	83.6	84.7	86.9	89.7	95.5	105.2	119.3	138.7
70°	72.3	71.7	70.8	71.9	73.0	74.1	76.1	80.5	87.7	98.3	114.4
72.5°	58.2	58.6	59.1	59.5	59.7	61.3	63.1	66.1	71.9	80.0	92.4
75°	45.0	45.0	45.6	46.1	48.1	48.5	50.5	52.7	57.3	63.1	72.8
77.5°	33.1	32.9	34.0	34.2	35.3	36.6	37.7	39.9	43.4	48.3	54.7
80°	23.8	24.0	23.8	23.8	24.5	25.4	26.9	28.0	30.4	33.5	38.1
82.5°	15.9	15.9	16.1	16.1	16.8	16.8	17.6	18.5	20.1	22.0	25.4
85°	9.3	9.3	9.0	9.0	9.3	9.3	10.1	10.8	11.0	12.3	13.4
87.5°	4.0	4.0	3.7	4.0	3.7	4.0	3.7	4.2	4.4	4.6	5.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4
2.5°	524.5	523.8	523.6	521.2	518.8	515.9	515.5	516.3	512.6	508.0	507.7
5°	538.2	535.7	532.2	527.6	523.6	518.3	515.7	514.6	508.8	502.2	500.9
7.5°	553.4	547.4	541.0	534.0	526.9	519.2	514.4	511.5	503.6	495.4	492.1
10°	567.9	560.2	550.5	539.7	529.8	519.2	511.9	506.9	497.2	487.0	482.0
12.5°	584.7	571.9	558.2	544.8	532.7	519.0	508.0	500.3	489.0	478.2	470.7
15°	596.8	578.3	567.7	548.5	533.3	516.8	503.3	491.7	479.3	467.4	459.9
17.5°	606.3	591.7	573.2	552.1	531.6	513.7	496.9	483.9	467.6	454.6	446.5
20°	609.4	594.6	575.7	552.5	532.0	509.1	489.2	473.6	456.2	440.3	429.0
22.5°	608.3	591.5	572.1	549.4	528.7	501.6	480.8	462.1	442.7	425.7	410.3
25°	605.9	586.5	565.1	543.7	520.5	493.9	470.0	449.5	426.2	407.7	389.1
27.5°	604.5	579.2	555.1	532.0	510.0	484.2	458.6	435.7	409.9	387.4	363.6
30°	604.1	573.9	543.7	516.8	496.5	470.3	444.9	420.7	390.5	365.1	340.9
32.5°	603.2	569.5	534.0	501.8	478.6	455.1	428.2	404.1	370.0	343.5	317.5
35°	597.3	561.8	522.7	486.1	459.0	434.6	410.5	385.4	349.9	321.4	296.5
37.5°	584.5	553.4	511.7	470.5	438.1	413.2	390.9	363.6	329.2	298.1	274.9
40°	565.5	540.2	499.8	455.1	416.9	389.6	366.0	341.7	306.2	276.5	255.5
42.5°	540.8	521.2	483.3	437.0	396.4	365.8	341.7	317.7	285.1	256.4	237.7
45°	508.4	496.3	463.0	417.4	376.6	341.1	315.1	294.1	263.9	237.7	220.5
47.5°	472.5	467.2	439.4	395.5	352.5	318.1	287.7	265.7	242.1	219.8	204.6
50°	429.0	433.2	411.4	371.1	329.4	294.1	264.3	240.5	220.0	202.8	189.4
52.5°	388.5	398.4	380.8	342.4	305.1	268.5	238.6	216.7	200.6	186.5	174.8
55°	343.3	357.6	347.0	314.0	276.9	244.5	214.5	194.9	181.0	170.2	160.3
57.5°	299.8	320.1	312.4	282.6	251.1	219.6	191.4	172.0	162.0	154.1	145.7
60°	261.3	279.8	278.7	253.3	221.8	193.8	170.6	153.2	144.4	139.1	131.8
62.5°	226.6	245.4	243.6	220.7	195.8	169.8	150.1	134.3	127.9	122.1	117.5
65°	191.4	207.5	208.3	191.4	167.3	146.4	129.6	117.1	111.3	107.8	104.5
67.5°	159.4	175.1	176.6	163.1	142.0	123.9	111.3	100.8	95.7	92.6	90.2
70°	131.4	144.2	147.1	135.8	118.0	103.8	93.3	85.1	81.8	78.7	77.8
72.5°	106.5	116.9	118.8	108.5	95.2	84.7	76.5	70.3	67.9	64.8	64.2
75°	84.7	91.9	92.2	85.3	75.4	67.2	60.6	56.9	54.2	52.0	51.6
77.5°	61.5	67.9	69.9	64.8	56.7	49.8	46.1	43.2	41.4	40.3	40.1
80°	44.5	48.7	49.6	45.2	40.3	36.2	33.5	31.1	30.0	28.9	28.4
82.5°	27.8	31.5	31.7	28.7	26.2	23.4	21.2	20.3	19.6	19.0	19.0
85°	15.0	17.0	16.8	15.4	14.3	12.8	11.9	11.5	11.0	10.6	10.6
87.5°	5.7	6.4	6.4	6.6	5.7	5.1	4.6	4.9	4.6	4.6	4.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4	512.4
2.5°	506.2	505.3	503.1	499.6	497.6	493.2	493.4	494.3	494.5	493.9	493.6
5°	497.2	494.5	491.0	486.6	483.5	480.2	478.0	479.3	478.6	478.4	477.3
7.5°	487.2	483.7	479.3	474.9	471.4	467.0	465.2	463.7	461.9	461.7	460.8
10°	477.3	472.9	467.8	461.4	456.6	451.1	445.8	442.9	439.6	437.2	432.1
12.5°	465.6	458.1	452.4	445.8	437.0	428.2	422.2	414.0	409.6	405.2	399.3
15°	452.2	442.5	432.6	419.3	411.6	399.3	390.5	384.5	377.7	373.3	368.2
17.5°	433.0	422.9	410.3	395.3	381.6	369.1	362.7	355.0	352.1	342.4	341.5
20°	414.0	398.8	383.2	368.0	352.8	343.7	335.6	330.5	325.2	319.0	317.0
22.5°	392.7	372.8	356.3	342.2	328.3	318.4	314.4	308.7	303.6	300.1	296.8
25°	366.6	348.3	331.6	318.4	305.8	298.3	293.2	289.0	286.8	282.9	281.5
27.5°	342.6	324.3	310.9	298.5	288.4	281.8	277.4	273.6	270.7	270.1	268.5
30°	318.1	302.5	289.7	279.1	270.1	266.6	262.4	260.6	258.8	258.0	256.2
32.5°	296.1	282.2	271.0	260.8	255.5	252.2	250.0	248.3	246.9	246.5	246.0
35°	276.0	263.2	254.0	246.7	242.7	239.2	238.1	236.6	235.9	235.7	235.5
37.5°	258.4	246.5	239.4	233.0	230.2	226.9	227.1	226.4	226.0	224.7	225.5
40°	240.5	231.3	224.0	218.9	216.9	215.8	215.4	215.0	215.2	215.2	215.0
42.5°	224.2	216.1	211.4	206.6	205.7	204.8	204.8	204.2	204.4	205.5	205.9
45°	209.4	203.1	198.9	194.9	194.9	193.8	194.7	194.5	195.1	195.8	196.2
47.5°	194.7	188.9	185.9	183.9	183.0	183.0	183.7	184.8	185.2	185.4	185.9
50°	179.9	175.7	173.1	172.0	171.7	172.9	173.5	173.3	174.0	174.8	175.5
52.5°	166.9	163.1	161.4	160.9	160.9	161.8	162.0	162.7	163.1	163.1	164.0
55°	153.4	150.8	149.5	149.3	149.5	149.9	150.8	151.2	151.0	151.5	151.5
57.5°	140.0	138.0	137.4	138.0	138.0	138.9	138.9	138.9	138.7	139.6	139.3
60°	127.4	125.2	125.9	125.7	126.3	126.3	127.0	127.0	126.3	127.2	127.7
62.5°	114.9	114.4	113.5	113.5	114.2	114.4	113.8	114.4	114.6	115.3	115.7
65°	101.6	100.1	100.8	100.5	101.2	102.3	101.4	101.4	102.1	103.0	103.4
67.5°	89.1	87.7	88.4	88.6	88.6	89.1	88.4	88.9	89.7	90.8	91.5
70°	76.3	75.8	76.1	75.8	75.8	76.9	77.2	76.9	77.8	78.9	79.1
72.5°	63.3	63.7	63.3	63.7	64.2	63.5	63.7	64.4	65.3	65.9	67.0
75°	51.4	50.7	50.9	52.0	51.8	52.3	52.0	52.7	54.2	53.8	54.0
77.5°	39.7	39.5	39.7	39.9	40.1	40.8	40.6	41.7	41.9	42.1	42.6
80°	28.2	28.4	28.7	29.1	29.8	29.5	30.0	30.2	31.1	30.2	30.9
82.5°	19.2	19.0	19.4	19.4	20.1	20.5	19.8	19.8	19.8	19.6	19.6
85°	10.6	11.2	11.2	11.2	10.8	10.8	11.0	10.8	10.8	10.8	10.6
87.5°	4.6	4.6	4.4	4.2	4.4	4.2	4.2	4.0	3.7	3.7	3.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242127

CATALOG NUMBER: S121DR-S305D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	512.4	512.4	512.4	512.4
2.5°	492.3	493.4	492.1	491.2
5°	476.2	476.2	474.9	474.5
7.5°	458.1	458.4	455.9	454.2
10°	431.0	429.7	426.2	424.2
12.5°	394.9	396.8	391.6	387.6
15°	363.3	357.8	360.0	357.6
17.5°	336.9	335.1	332.7	332.9
20°	313.7	312.4	311.1	311.3
22.5°	295.4	294.3	293.9	292.3
25°	280.2	280.7	279.6	279.6
27.5°	267.7	267.0	266.3	265.4
30°	255.7	256.0	255.3	254.9
32.5°	245.2	245.4	244.9	244.3
35°	234.8	234.6	234.8	234.1
37.5°	225.3	225.1	225.3	226.2
40°	215.6	215.8	215.2	216.1
42.5°	206.1	206.4	206.4	205.9
45°	195.8	196.4	196.7	197.1
47.5°	185.6	186.7	186.3	186.5
50°	175.5	175.3	175.3	175.1
52.5°	164.3	163.6	163.4	163.6
55°	150.8	151.7	151.7	151.7
57.5°	139.8	140.0	140.7	139.8
60°	128.5	128.5	128.8	130.5
62.5°	116.0	116.2	116.6	116.9
65°	103.8	104.5	104.3	104.1
67.5°	91.9	91.9	92.2	91.7
70°	79.6	79.6	79.6	80.7
72.5°	66.8	66.8	67.0	67.5
75°	54.9	54.9	54.9	54.2
77.5°	41.9	42.1	42.1	42.3
80°	30.4	30.2	30.2	30.0
82.5°	19.2	19.4	19.2	19.0
85°	10.6	10.8	10.1	10.1
87.5°	3.7	3.7	3.5	4.0
90°	0.0	0.0	0.0	0.0

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