

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: P242973

Luminaire Tested: **S121DR-H490D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242973  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S121DR-H490D927-X4F0-XX-UDD-A-W  
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

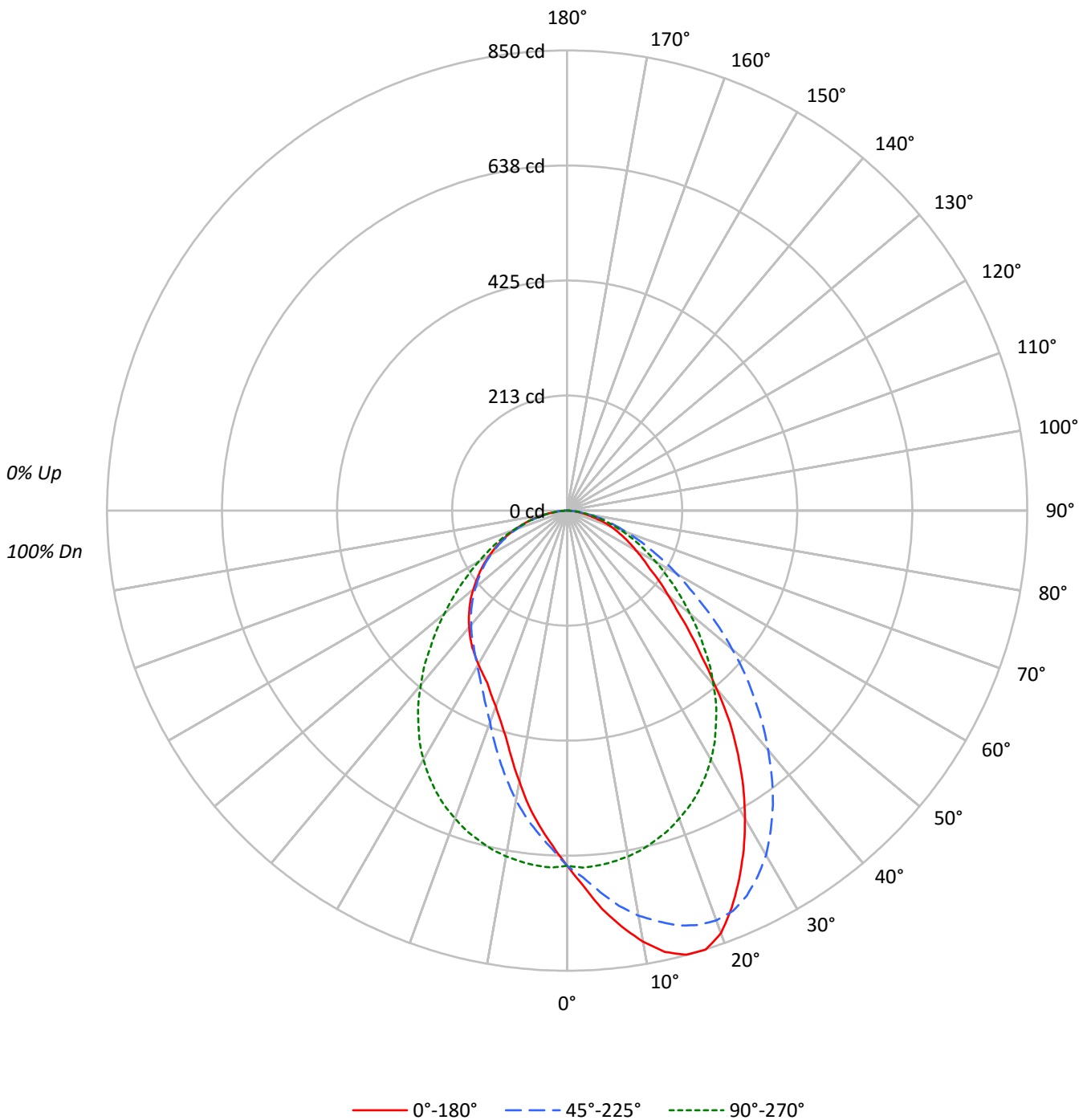
Lumens per Lamp: N/A  
Luminaire Lumens: 1520.4 lumens  
Efficiency: N/A  
Efficacy: 88.4 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28  
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
Input Voltage (V): 120  
Input Current (Ain): 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





TEST NUMBER: P242973

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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	110	105	102	98	107	103	100	96	99	96	93		95	93	91		92	90	88	86
2	101	93	87	81	98	91	85	80	88	83	79		84	80	77		81	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	72	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	53	45	40		51	45	40		50	44	40	38
8	63	50	42	37	62	50	42	36	48	41	36		47	41	36		46	40	36	34
9	59	46	38	33	58	46	38	33	45	38	33		44	37	33		43	37	33	31
10	56	43	35	30	54	42	35	30	41	35	30		41	34	30		40	34	30	28

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	19437	19437	19437
5°	21962	19574	17391
10°	24328	19514	15287
15°	26052	19344	13334
20°	26196	19095	12140
25°	24572	18736	11449
30°	22482	18171	11222
35°	19909	17337	11079
40°	16589	16261	10888
45°	13522	14959	10689
50°	11224	13635	10422
55°	9603	12362	10151
60°	8699	11188	9825
65°	8035	10180	9479
70°	7416	9174	8923
75°	5987	8128	8220
80°	4778	6586	7030
85°	3604	4861	5745



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	62.7	4.1
10°-20°	179.5	11.8
20°-30°	261.4	17.2
30°-40°	291.4	19.2
40°-50°	269.4	17.7
50°-60°	214.7	14.1
60°-70°	146.9	9.7
70°-80°	76.3	5.0
80°-90°	18.1	1.2
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°	503.6	33.1
0°-40°	795.1	52.3
0°-60°	1279.2	84.1
0°-90°	1520.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1520.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	656	656	656	656	656	
5°	738	708	658	600	585	72
15°	849	794	631	479	435	238
25°	752	785	573	368	350	344
35°	550	663	479	302	306	342
45°	323	488	357	249	255	251
55°	186	308	239	192	196	170
65°	115	170	145	132	135	114
75°	52	77	71	67	72	57
85°	11	14	14	15	17	13
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°	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0
2.5°	694.0	694.0	692.2	693.0	691.9	690.1	687.2	684.0	680.0	678.4	677.7
5°	738.4	739.4	738.1	735.5	735.0	732.8	726.5	722.8	714.4	707.8	705.6
7.5°	775.4	777.2	777.2	772.5	770.3	765.1	760.6	754.5	743.9	736.5	730.5
10°	808.6	809.4	806.5	803.9	799.7	795.4	787.8	780.1	768.8	759.8	749.7
12.5°	835.0	836.6	834.5	830.3	825.3	819.7	810.2	800.5	789.4	777.2	766.4
15°	849.3	851.7	851.9	848.5	844.8	838.2	831.4	820.8	808.6	793.6	775.9
17.5°	850.4	851.4	852.2	849.6	847.2	844.8	838.0	829.2	817.6	802.8	786.5
20°	830.8	833.2	835.8	833.5	834.5	834.5	831.6	827.1	817.6	805.7	789.9
22.5°	794.4	799.9	803.4	805.7	808.1	811.5	815.0	812.9	809.2	800.5	786.2
25°	751.6	756.1	762.7	764.8	766.6	776.7	782.8	787.0	787.0	785.1	775.6
27.5°	706.2	709.1	714.6	722.0	728.9	735.0	747.6	755.6	761.9	761.9	756.9
30°	657.1	661.3	667.9	672.9	681.3	693.8	704.3	713.8	728.4	734.7	733.6
32.5°	605.3	609.5	616.4	620.6	632.8	642.8	659.2	674.0	690.6	700.1	705.9
35°	550.4	550.6	562.2	569.1	579.7	592.1	612.2	628.8	647.0	662.9	675.3
37.5°	493.8	493.6	501.8	513.9	522.4	539.8	560.4	578.9	604.2	621.1	640.7
40°	428.9	434.4	441.3	452.4	466.9	487.5	507.0	531.1	556.4	577.6	598.4
42.5°	370.8	375.3	386.4	398.8	414.4	431.8	455.6	482.2	507.0	534.5	557.8
45°	322.7	325.1	331.7	341.7	358.1	377.9	402.7	431.0	460.3	488.3	514.2
47.5°	278.3	285.5	288.9	298.2	310.0	328.5	354.4	379.8	413.6	444.7	473.0
50°	243.5	244.8	250.9	257.8	271.7	285.5	305.0	331.2	362.6	397.7	426.5
52.5°	215.0	214.4	219.5	225.5	235.3	249.8	266.7	292.1	318.8	353.6	385.0
55°	185.9	188.6	190.9	197.0	205.7	216.8	231.1	252.5	277.6	308.5	341.5
57.5°	165.8	166.1	167.4	172.4	178.3	187.0	200.7	218.9	241.4	268.3	300.3
60°	146.8	147.1	149.5	151.1	155.0	162.4	173.0	188.0	207.8	233.7	261.7
62.5°	130.5	130.7	132.0	133.6	137.3	140.2	149.2	162.2	178.3	201.2	225.3
65°	114.6	114.9	114.9	117.0	119.4	122.0	128.3	136.5	152.1	170.3	191.7
67.5°	99.3	100.9	100.4	101.9	104.1	105.4	109.9	117.3	127.8	143.1	161.6
70°	85.6	85.3	86.1	86.9	87.7	89.8	92.7	97.7	106.7	117.5	133.9
72.5°	70.8	69.2	70.2	71.3	72.6	74.2	76.6	80.3	87.1	95.9	108.0
75°	52.3	51.5	53.1	53.3	55.7	57.8	60.5	64.2	69.2	76.6	84.5
77.5°	38.0	39.1	39.6	40.1	40.4	42.8	45.7	48.9	51.8	58.6	64.7
80°	28.0	28.0	28.3	28.8	29.3	29.8	31.7	33.8	36.2	40.4	46.5
82.5°	19.5	19.3	19.3	19.5	19.8	20.3	21.1	21.9	24.0	26.1	29.3
85°	10.6	10.8	11.1	10.6	10.8	11.1	11.6	12.4	12.9	14.5	15.8
87.5°	3.7	4.5	4.2	4.2	4.5	4.5	4.5	5.0	5.0	5.0	5.8
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0
2.5°	676.9	676.1	674.0	669.7	666.8	661.5	660.5	660.2	655.5	648.3	647.8
5°	701.9	695.9	690.9	683.5	676.1	667.1	661.8	658.1	649.7	639.1	634.3
7.5°	724.9	716.2	705.9	694.3	683.5	670.8	661.5	654.1	641.7	628.3	620.1
10°	743.4	732.6	719.6	704.1	689.3	672.6	659.7	648.6	632.2	615.6	604.5
12.5°	756.1	743.9	729.1	710.9	693.0	674.0	655.2	641.2	620.6	601.3	587.1
15°	770.3	750.3	735.0	714.4	693.2	670.5	650.7	630.6	606.9	585.2	566.7
17.5°	773.8	755.3	737.1	714.4	692.4	664.7	641.7	619.6	593.1	566.5	548.5
20°	776.9	755.8	733.4	708.8	685.8	657.3	631.4	605.6	574.9	546.1	523.7
22.5°	774.6	754.0	728.9	701.2	676.3	647.0	619.0	590.5	556.2	526.1	500.7
25°	767.7	748.7	722.8	692.4	662.6	632.8	603.4	573.1	535.8	501.0	473.0
27.5°	753.7	736.8	712.0	679.8	648.3	615.3	584.7	553.0	513.1	477.5	447.6
30°	735.0	721.5	696.4	664.2	630.1	594.7	563.3	531.1	489.6	450.8	419.1
32.5°	709.1	699.6	677.9	646.5	609.8	572.3	540.1	507.3	462.9	426.0	393.8
35°	680.0	675.5	656.3	624.8	586.8	547.5	512.9	479.3	438.4	399.3	368.4
37.5°	646.0	649.1	631.7	600.5	561.2	521.0	484.6	452.1	410.7	373.2	342.8
40°	612.2	616.9	603.7	574.7	533.7	492.3	455.3	420.4	381.9	348.9	318.8
42.5°	574.7	584.2	573.9	545.6	505.7	461.9	423.3	390.9	354.1	323.8	297.4
45°	534.8	546.9	542.7	513.9	474.6	431.5	390.9	357.0	327.5	300.5	276.5
47.5°	494.4	508.4	506.5	482.5	444.7	400.6	360.5	327.2	300.0	278.3	258.3
50°	452.9	467.2	467.4	446.0	410.9	368.9	325.9	295.8	274.1	255.1	238.7
52.5°	412.5	426.8	427.0	410.4	375.3	334.3	294.7	267.3	248.8	234.0	220.2
55°	370.3	386.9	388.5	372.4	341.2	301.9	265.4	239.3	222.9	213.4	201.5
57.5°	327.5	345.4	348.6	335.7	305.6	268.8	238.2	213.1	199.9	193.3	184.3
60°	287.6	305.3	310.3	295.5	270.7	239.3	210.0	188.8	178.3	173.0	166.6
62.5°	250.9	268.6	271.2	258.5	234.0	207.6	185.4	166.1	157.4	153.4	148.4
65°	215.0	230.8	234.2	222.9	200.7	178.8	159.2	145.2	137.6	134.2	131.0
67.5°	182.0	196.7	199.1	188.8	170.3	151.6	137.3	125.2	119.9	115.4	114.1
70°	150.8	164.3	166.4	156.1	141.6	126.2	114.4	105.9	100.9	98.2	96.4
72.5°	122.0	132.6	134.4	128.1	116.7	103.3	94.0	86.9	83.7	81.3	80.5
75°	95.3	105.6	105.9	100.4	91.1	81.9	74.7	71.0	67.3	65.0	64.4
77.5°	73.2	79.0	79.8	76.8	67.9	62.1	56.5	53.9	52.6	50.2	50.2
80°	52.3	55.7	57.0	52.8	48.6	43.6	40.7	38.6	37.5	35.9	35.9
82.5°	32.5	35.4	37.0	33.8	31.7	29.0	26.9	25.6	24.8	24.0	23.8
85°	17.7	19.8	19.8	18.8	16.9	15.6	14.8	14.3	14.0	13.7	13.5
87.5°	6.3	7.9	7.1	7.4	6.6	6.3	6.1	6.1	6.3	5.8	5.8
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°	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0	656.0
2.5°	644.4	643.1	639.1	635.4	632.5	626.2	624.8	625.4	625.4	625.6	622.7
5°	628.8	623.2	616.9	611.1	606.6	599.5	595.5	594.5	593.7	592.1	589.2
7.5°	611.1	604.8	595.8	590.5	581.0	573.1	567.5	563.8	561.5	558.0	553.3
10°	593.1	583.9	573.9	563.3	553.8	543.2	534.5	530.3	525.3	521.8	516.6
12.5°	575.2	562.2	548.5	536.4	523.4	511.0	502.0	496.2	487.2	482.2	476.7
15°	551.7	535.8	524.2	503.1	496.8	478.8	468.0	463.5	454.8	453.2	444.5
17.5°	529.5	511.3	494.1	476.4	459.5	447.1	437.9	432.0	425.2	421.0	415.1
20°	501.8	482.8	462.2	443.7	429.4	416.2	410.4	403.0	399.0	394.8	390.6
22.5°	475.4	452.1	431.5	416.5	401.9	391.1	384.8	379.8	376.3	372.1	369.2
25°	447.1	425.4	406.4	390.9	376.9	368.4	363.1	360.2	358.1	354.9	353.1
27.5°	420.2	398.2	379.5	367.6	356.3	348.9	346.2	343.6	340.9	339.9	339.6
30°	391.4	371.3	356.0	345.7	335.4	331.4	330.1	327.5	328.0	328.3	327.5
32.5°	367.1	347.5	335.9	327.2	319.3	316.4	316.1	315.1	315.3	316.6	316.1
35°	342.0	327.5	315.8	308.7	303.7	301.6	301.9	302.1	303.7	304.0	305.0
37.5°	320.6	306.6	298.9	292.1	289.7	289.7	290.0	290.2	291.6	293.1	293.7
40°	299.5	288.1	281.5	277.0	275.7	275.7	276.8	278.1	278.9	280.5	280.7
42.5°	280.5	271.0	265.9	261.4	262.0	263.3	263.6	264.4	266.5	266.7	267.3
45°	261.7	254.6	249.6	248.2	248.2	249.3	250.6	251.1	252.7	253.0	253.5
47.5°	245.6	238.2	234.5	233.2	234.0	235.3	237.2	237.9	239.3	239.0	240.3
50°	227.6	221.6	218.7	218.1	218.7	221.0	221.8	223.7	225.0	225.8	226.3
52.5°	210.5	205.7	204.4	204.1	205.2	206.8	207.8	209.7	211.3	211.3	211.0
55°	194.1	189.9	188.3	189.6	190.9	191.7	193.8	194.9	196.5	196.7	196.5
57.5°	177.5	173.8	173.2	173.8	176.4	178.0	179.3	179.3	180.1	180.4	181.2
60°	160.3	157.9	157.4	158.7	161.6	162.7	163.5	163.7	164.8	164.3	165.8
62.5°	144.2	141.8	142.9	144.2	145.2	146.8	147.4	148.7	148.4	148.9	149.7
65°	127.6	126.2	126.5	128.1	129.4	131.5	131.5	131.5	132.8	132.8	133.4
67.5°	111.4	110.7	111.7	113.0	113.3	114.6	114.4	115.9	117.0	117.5	118.0
70°	95.9	95.3	95.3	96.7	98.0	98.5	99.0	100.1	100.4	101.1	102.5
72.5°	81.1	79.5	79.8	81.6	81.6	82.7	84.0	84.0	85.6	85.8	87.1
75°	65.0	64.4	65.0	66.0	67.3	67.1	68.7	68.4	68.9	70.8	71.0
77.5°	50.7	49.9	51.2	51.8	52.0	52.3	52.8	54.1	55.2	56.0	56.3
80°	36.4	36.2	37.5	38.0	37.8	38.3	39.1	40.4	40.4	40.9	41.7
82.5°	24.6	24.0	24.8	25.6	26.1	26.4	26.4	26.9	27.2	27.7	27.7
85°	14.0	14.0	14.5	14.8	15.3	15.1	15.6	15.3	15.8	16.4	16.1
87.5°	6.1	6.1	6.1	6.1	6.3	6.3	6.6	6.6	6.3	6.6	6.1
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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CATALOG NUMBER: S121DR-H490D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	656.0	656.0	656.0	656.0
2.5°	621.7	622.2	620.9	619.6
5°	588.9	587.1	585.2	584.7
7.5°	552.2	552.2	547.7	548.8
10°	512.9	511.3	507.8	508.1
12.5°	474.6	473.2	471.4	470.6
15°	440.0	440.8	442.1	434.7
17.5°	412.8	410.7	409.6	408.3
20°	388.5	387.4	385.3	385.0
22.5°	369.7	367.3	366.8	367.1
25°	351.8	351.8	351.8	350.2
27.5°	339.1	339.1	338.3	338.6
30°	328.0	328.5	327.7	328.0
32.5°	317.4	317.7	317.2	316.9
35°	305.6	306.3	306.1	306.3
37.5°	294.2	294.7	294.2	294.2
40°	281.3	282.6	282.3	281.5
42.5°	268.3	268.3	269.1	268.8
45°	254.8	254.3	254.3	255.1
47.5°	240.6	241.6	241.1	241.4
50°	227.4	227.1	226.3	226.1
52.5°	211.8	212.3	212.1	210.7
55°	196.7	196.7	196.5	196.5
57.5°	180.6	181.4	181.2	181.2
60°	165.3	165.8	166.1	165.8
62.5°	149.7	150.0	149.7	150.0
65°	134.7	134.7	134.4	135.2
67.5°	118.3	118.6	118.3	118.8
70°	102.7	103.3	103.5	103.0
72.5°	87.9	87.4	87.7	87.1
75°	71.6	71.8	71.6	71.8
77.5°	56.3	56.5	56.3	56.5
80°	41.5	41.5	41.7	41.2
82.5°	28.0	28.0	28.8	28.0
85°	16.4	16.4	15.8	16.9
87.5°	6.3	6.3	6.3	6.3
90°	0.0	0.0	0.0	0.0

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