

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: P243002

Luminaire Tested: **S121DR-H305D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243002
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-H305D940-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1074.7 lumens
Efficiency: N/A
Efficacy: 96.0 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

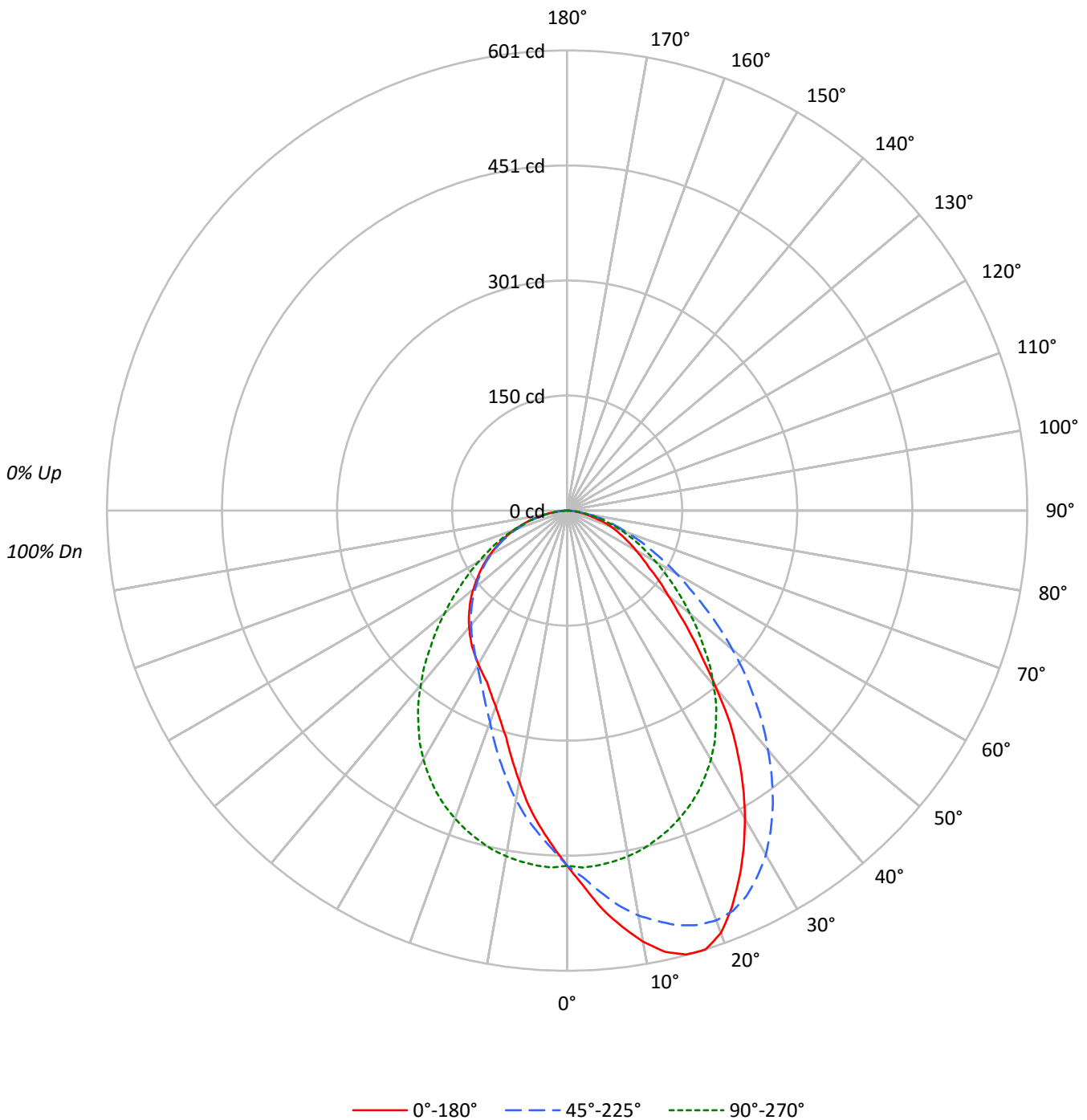
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					86			
2	101	93	87	81	98	91	85	80	88	83	79	84	80	77	81	78	75	73					73			
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65	63					63			
4	85	74	66	59	83	72	65	59	70	63	58	68	62	57	66	61	57	54					54			
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50	48					48			
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44	42					42			
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40	38					38			
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36	34					34			
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33	31					31			
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30	28					28			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13739	13739	13739
5°	15523	13836	12293
10°	17198	13792	10804
15°	18414	13675	9423
20°	18515	13495	8583
25°	17366	13244	8091
30°	15889	12844	7931
35°	14071	12255	7831
40°	11724	11495	7697
45°	9558	10576	7555
50°	7933	9639	7366
55°	6788	8735	7175
60°	6151	7911	6945
65°	5679	7200	6703
70°	5241	6489	6307
75°	4236	5747	5816
80°	3378	4658	4965
85°	2550	3434	4046



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.3	4.1
10°-20°	126.9	11.8
20°-30°	184.8	17.2
30°-40°	206.0	19.2
40°-50°	190.4	17.7
50°-60°	151.7	14.1
60°-70°	103.9	9.7
70°-80°	53.9	5.0
80°-90°	12.8	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°	356.0	33.1
0°-40°	562.0	52.3
0°-60°	904.1	84.1
0°-90°	1074.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1074.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	464	464	464	464	464	
5°	522	500	465	424	413	51
15°	600	561	446	338	307	168
25°	531	555	405	260	248	243
35°	389	468	339	213	216	241
45°	228	345	252	176	180	178
55°	131	218	169	136	139	120
65°	81	120	103	93	96	81
75°	37	54	50	47	51	41
85°	8	10	10	11	12	9
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°	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7
2.5°	490.6	490.6	489.2	489.8	489.1	487.8	485.7	483.5	480.7	479.5	479.0
5°	521.9	522.7	521.7	519.9	519.5	518.0	513.5	510.9	504.9	500.3	498.8
7.5°	548.0	549.4	549.4	546.0	544.5	540.8	537.6	533.3	525.8	520.6	516.3
10°	571.6	572.1	570.1	568.2	565.2	562.2	556.8	551.4	543.4	537.0	529.9
12.5°	590.2	591.4	589.9	586.9	583.3	579.4	572.7	565.8	557.9	549.4	541.7
15°	600.3	602.0	602.2	599.8	597.1	592.5	587.6	580.2	571.6	560.9	548.4
17.5°	601.1	601.8	602.4	600.5	598.8	597.1	592.3	586.1	577.9	567.5	555.9
20°	587.2	588.9	590.8	589.1	589.9	589.9	587.8	584.6	577.9	569.5	558.3
22.5°	561.5	565.4	567.8	569.5	571.2	573.6	576.0	574.6	571.9	565.8	555.7
25°	531.2	534.4	539.1	540.6	541.9	549.0	553.3	556.3	556.3	555.0	548.2
27.5°	499.1	501.2	505.1	510.3	515.2	519.5	528.4	534.0	538.5	538.5	535.0
30°	464.4	467.4	472.1	475.6	481.6	490.4	497.8	504.6	514.8	519.3	518.6
32.5°	427.8	430.8	435.7	438.7	447.2	454.3	465.9	476.4	488.1	494.8	499.0
35°	389.0	389.2	397.4	402.3	409.7	418.5	432.7	444.4	457.3	468.5	477.3
37.5°	349.1	348.9	354.7	363.2	369.2	381.5	396.1	409.2	427.1	439.0	452.8
40°	303.1	307.1	311.9	319.8	330.0	344.6	358.4	375.4	393.3	408.2	423.0
42.5°	262.1	265.3	273.1	281.9	292.9	305.2	322.0	340.8	358.4	377.8	394.2
45°	228.1	229.8	234.5	241.5	253.1	267.1	284.7	304.6	325.4	345.1	363.4
47.5°	196.7	201.8	204.2	210.7	219.1	232.2	250.5	268.4	292.3	314.3	334.3
50°	172.1	173.0	177.3	182.2	192.1	201.8	215.6	234.1	256.3	281.1	301.5
52.5°	151.9	151.6	155.1	159.4	166.3	176.6	188.5	206.5	225.3	249.9	272.2
55°	131.4	133.3	135.0	139.3	145.4	153.3	163.3	178.5	196.2	218.0	241.4
57.5°	117.2	117.4	118.3	121.9	126.0	132.2	141.9	154.7	170.6	189.7	212.2
60°	103.8	104.0	105.7	106.8	109.6	114.8	122.3	132.9	146.9	165.2	185.0
62.5°	92.2	92.4	93.3	94.5	97.1	99.1	105.5	114.6	126.0	142.2	159.2
65°	81.0	81.2	81.2	82.7	84.4	86.2	90.7	96.5	107.5	120.4	135.5
67.5°	70.2	71.3	70.9	72.1	73.5	74.5	77.7	82.9	90.3	101.2	114.2
70°	60.5	60.3	60.9	61.4	62.0	63.5	65.5	69.1	75.4	83.1	94.6
72.5°	50.0	48.9	49.7	50.4	51.3	52.5	54.1	56.7	61.6	67.8	76.3
75°	37.0	36.4	37.5	37.7	39.4	40.9	42.7	45.4	48.9	54.1	59.7
77.5°	26.9	27.6	28.0	28.4	28.6	30.2	32.3	34.5	36.6	41.4	45.7
80°	19.8	19.8	20.0	20.3	20.7	21.1	22.4	23.9	25.6	28.6	32.9
82.5°	13.8	13.6	13.6	13.8	14.0	14.4	14.9	15.5	17.0	18.5	20.7
85°	7.5	7.7	7.8	7.5	7.7	7.8	8.2	8.8	9.1	10.3	11.2
87.5°	2.6	3.2	3.0	3.0	3.2	3.2	3.2	3.5	3.5	3.5	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°	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7
2.5°	478.4	477.9	476.4	473.4	471.3	467.6	466.8	466.7	463.3	458.3	457.9
5°	496.2	491.9	488.3	483.1	477.9	471.5	467.8	465.2	459.2	451.7	448.4
7.5°	512.4	506.2	499.0	490.7	483.1	474.1	467.6	462.4	453.6	444.1	438.3
10°	525.5	517.8	508.7	497.6	487.2	475.4	466.3	458.4	446.9	435.1	427.3
12.5°	534.4	525.8	515.4	502.5	489.8	476.4	463.1	453.2	438.7	425.0	415.0
15°	544.5	530.3	519.5	504.9	490.0	473.9	459.9	445.8	429.0	413.6	400.6
17.5°	546.9	533.9	521.0	504.9	489.4	469.8	453.6	437.9	419.2	400.4	387.7
20°	549.2	534.2	518.4	501.0	484.8	464.6	446.3	428.0	406.4	386.0	370.2
22.5°	547.5	532.9	515.2	495.6	478.0	457.3	437.5	417.4	393.1	371.8	353.9
25°	542.6	529.2	510.9	489.4	468.3	447.2	426.5	405.1	378.7	354.1	334.3
27.5°	532.7	520.8	503.2	480.5	458.3	434.9	413.3	390.9	362.7	337.5	316.4
30°	519.5	510.0	492.2	469.5	445.4	420.4	398.2	375.4	346.1	318.6	296.2
32.5°	501.2	494.5	479.2	457.0	431.0	404.5	381.7	358.6	327.2	301.1	278.3
35°	480.7	477.5	463.9	441.6	414.8	387.0	362.5	338.8	309.9	282.2	260.4
37.5°	456.6	458.8	446.5	424.5	396.7	368.3	342.5	319.6	290.3	263.8	242.3
40°	432.7	436.0	426.7	406.2	377.2	347.9	321.8	297.2	269.9	246.6	225.3
42.5°	406.2	412.9	405.6	385.6	357.5	326.5	299.2	276.3	250.3	228.9	210.2
45°	378.0	386.6	383.6	363.2	335.4	305.0	276.3	252.4	231.5	212.4	195.4
47.5°	349.4	359.3	358.0	341.0	314.3	283.2	254.8	231.3	212.1	196.7	182.6
50°	320.1	330.2	330.4	315.3	290.4	260.8	230.3	209.1	193.8	180.3	168.7
52.5°	291.6	301.6	301.8	290.1	265.3	236.3	208.3	188.9	175.8	165.4	155.7
55°	261.7	273.5	274.6	263.2	241.2	213.4	187.6	169.1	157.5	150.8	142.4
57.5°	231.5	244.2	246.4	237.3	216.0	190.0	168.4	150.6	141.3	136.6	130.3
60°	203.3	215.8	219.3	208.9	191.3	169.1	148.4	133.5	126.0	122.3	117.8
62.5°	177.3	189.8	191.7	182.7	165.4	146.7	131.0	117.4	111.3	108.5	104.9
65°	151.9	163.1	165.6	157.5	141.9	126.4	112.6	102.7	97.3	94.8	92.6
67.5°	128.6	139.1	140.7	133.5	120.4	107.1	97.1	88.5	84.7	81.6	80.6
70°	106.6	116.1	117.6	110.3	100.1	89.2	80.8	74.9	71.3	69.4	68.1
72.5°	86.2	93.7	95.0	90.5	82.5	73.0	66.5	61.4	59.2	57.5	56.9
75°	67.4	74.7	74.9	70.9	64.4	57.9	52.8	50.2	47.6	45.9	45.5
77.5°	51.7	55.8	56.4	54.3	48.0	43.9	39.9	38.1	37.1	35.5	35.5
80°	37.0	39.4	40.3	37.3	34.3	30.8	28.7	27.3	26.5	25.4	25.4
82.5°	23.0	25.0	26.1	23.9	22.4	20.5	19.0	18.1	17.5	17.0	16.8
85°	12.5	14.0	14.0	13.3	11.9	11.0	10.5	10.1	9.9	9.7	9.5
87.5°	4.5	5.6	5.0	5.2	4.7	4.5	4.3	4.3	4.5	4.1	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7	463.7
2.5°	455.5	454.5	451.7	449.1	447.1	442.6	441.6	442.0	442.0	442.2	440.2
5°	444.4	440.5	436.0	431.9	428.8	423.7	420.9	420.2	419.6	418.5	416.4
7.5°	431.9	427.5	421.1	417.4	410.7	405.1	401.1	398.5	396.8	394.4	391.1
10°	419.2	412.7	405.6	398.2	391.4	384.0	377.8	374.8	371.3	368.8	365.1
12.5°	406.6	397.4	387.7	379.1	370.0	361.2	354.8	350.7	344.4	340.8	336.9
15°	389.9	378.7	370.5	355.6	351.1	338.4	330.8	327.6	321.4	320.3	314.2
17.5°	374.3	361.4	349.2	336.7	324.8	316.0	309.5	305.4	300.5	297.5	293.4
20°	354.7	341.2	326.7	313.6	303.5	294.2	290.1	284.9	282.1	279.1	276.1
22.5°	336.0	319.6	305.0	294.4	284.1	276.5	272.0	268.4	266.0	263.0	261.0
25°	316.0	300.7	287.3	276.3	266.4	260.4	256.7	254.6	253.1	250.9	249.6
27.5°	297.0	281.5	268.2	259.8	251.8	246.6	244.7	242.9	241.0	240.2	240.1
30°	276.6	262.5	251.6	244.3	237.1	234.3	233.3	231.5	231.8	232.0	231.5
32.5°	259.5	245.7	237.4	231.3	225.7	223.6	223.4	222.7	222.9	223.8	223.4
35°	241.7	231.5	223.3	218.2	214.7	213.2	213.4	213.5	214.7	214.9	215.6
37.5°	226.6	216.7	211.3	206.5	204.8	204.8	205.0	205.1	206.1	207.2	207.6
40°	211.7	203.7	199.0	195.8	194.9	194.9	195.6	196.6	197.1	198.2	198.4
42.5°	198.2	191.5	188.0	184.8	185.2	186.1	186.3	186.9	188.3	188.5	188.9
45°	185.0	179.9	176.4	175.5	175.5	176.2	177.1	177.5	178.6	178.8	179.2
47.5°	173.6	168.4	165.8	164.8	165.4	166.3	167.6	168.2	169.1	168.9	169.9
50°	160.9	156.6	154.6	154.2	154.6	156.2	156.8	158.1	159.0	159.6	160.0
52.5°	148.8	145.4	144.5	144.3	145.0	146.2	146.9	148.2	149.3	149.3	149.1
55°	137.2	134.2	133.1	134.0	135.0	135.5	137.0	137.8	138.9	139.1	138.9
57.5°	125.4	122.8	122.5	122.8	124.7	125.8	126.7	126.7	127.3	127.5	128.1
60°	113.3	111.6	111.3	112.2	114.2	115.0	115.5	115.7	116.5	116.1	117.2
62.5°	101.9	100.2	101.0	101.9	102.7	103.8	104.2	105.1	104.9	105.3	105.8
65°	90.2	89.2	89.4	90.5	91.5	93.0	93.0	93.0	93.9	93.9	94.3
67.5°	78.8	78.2	79.0	79.9	80.1	81.0	80.8	81.9	82.7	83.1	83.4
70°	67.8	67.4	67.4	68.3	69.3	69.6	70.0	70.7	70.9	71.5	72.4
72.5°	57.3	56.2	56.4	57.7	57.7	58.4	59.4	59.4	60.5	60.7	61.6
75°	45.9	45.5	45.9	46.7	47.6	47.4	48.5	48.3	48.7	50.0	50.2
77.5°	35.8	35.3	36.2	36.6	36.8	37.0	37.3	38.3	39.0	39.6	39.8
80°	25.8	25.6	26.5	26.9	26.7	27.1	27.6	28.6	28.6	28.9	29.5
82.5°	17.4	17.0	17.5	18.1	18.5	18.7	18.7	19.0	19.2	19.6	19.6
85°	9.9	9.9	10.3	10.5	10.8	10.6	11.0	10.8	11.2	11.6	11.4
87.5°	4.3	4.3	4.3	4.3	4.5	4.5	4.7	4.7	4.5	4.7	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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CATALOG NUMBER: S121DR-H305D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	463.7	463.7	463.7	463.7
2.5°	439.4	439.8	438.8	437.9
5°	416.3	415.0	413.6	413.3
7.5°	390.3	390.3	387.1	387.9
10°	362.5	361.4	359.0	359.1
12.5°	335.4	334.5	333.2	332.6
15°	311.0	311.5	312.5	307.2
17.5°	291.8	290.3	289.5	288.6
20°	274.6	273.8	272.3	272.2
22.5°	261.3	259.7	259.3	259.5
25°	248.6	248.6	248.6	247.5
27.5°	239.7	239.7	239.1	239.3
30°	231.8	232.2	231.7	231.8
32.5°	224.4	224.6	224.2	224.0
35°	216.0	216.5	216.3	216.5
37.5°	207.9	208.3	207.9	207.9
40°	198.8	199.7	199.5	199.0
42.5°	189.7	189.7	190.2	190.0
45°	180.1	179.8	179.8	180.3
47.5°	170.1	170.8	170.4	170.6
50°	160.7	160.5	160.0	159.8
52.5°	149.7	150.1	149.9	149.0
55°	139.1	139.1	138.9	138.9
57.5°	127.7	128.2	128.1	128.1
60°	116.9	117.2	117.4	117.2
62.5°	105.8	106.0	105.8	106.0
65°	95.2	95.2	95.0	95.6
67.5°	83.6	83.8	83.6	84.0
70°	72.6	73.0	73.2	72.8
72.5°	62.2	61.8	62.0	61.6
75°	50.6	50.8	50.6	50.8
77.5°	39.8	39.9	39.8	39.9
80°	29.3	29.3	29.5	29.1
82.5°	19.8	19.8	20.3	19.8
85°	11.6	11.6	11.2	11.9
87.5°	4.5	4.5	4.5	4.5
90°	0.0	0.0	0.0	0.0

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