

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: P242589

Luminaire Tested: **S123RDR-S340D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242589
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-S340D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1132.3 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

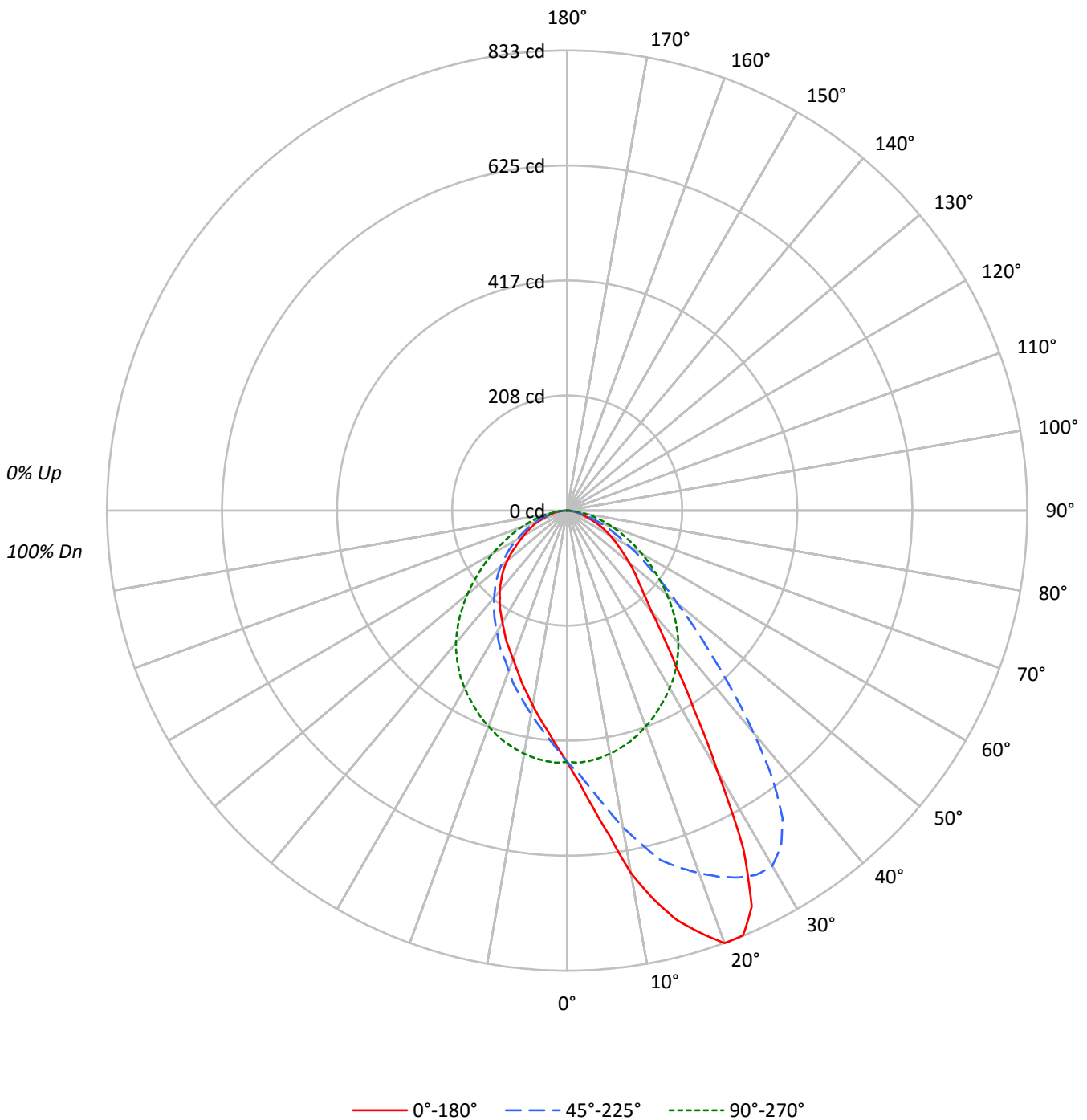
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5513	5513	5513
5°	6570	5536	4874
10°	8205	5504	4404
15°	9630	5447	4016
20°	10748	5363	3687
25°	10576	5275	3484
30°	7601	5194	3275
35°	5075	5087	3140
40°	3739	4959	3000
45°	3137	4735	2863
50°	2768	4443	2672
55°	2428	4106	2411
60°	2162	3784	2208
65°	1899	3439	2054
70°	1488	3133	1878
75°	1311	2735	1714
80°	1145	2324	1682
85°	918	1864	1780



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.7	3.9
10°-20°	139.8	12.3
20°-30°	220.2	19.4
30°-40°	229.0	20.2
40°-50°	195.9	17.3
50°-60°	149.3	13.2
60°-70°	95.7	8.4
70°-80°	45.8	4.0
80°-90°	12.0	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°	404.6	35.7
0°-40°	633.6	56.0
0°-60°	978.8	86.4
0°-90°	1132.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1132.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	455	455	455	455	455	
5°	540	506	455	411	401	55
15°	767	655	434	341	320	218
25°	791	733	394	282	260	344
35°	343	680	344	230	212	223
45°	183	369	276	182	167	144
55°	115	184	194	131	114	104
65°	66	91	120	82	72	65
75°	28	33	58	42	37	30
85°	7	7	13	12	13	8
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°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	491.7	492.5	490.0	489.6	486.7	485.9	485.9	481.8	479.3	476.0	474.0
5°	540.0	543.1	541.6	538.1	532.2	530.9	527.2	521.3	514.7	506.5	502.7
7.5°	595.3	601.7	600.6	595.1	588.9	585.0	574.7	566.3	553.7	542.2	533.2
10°	666.6	662.1	658.6	653.3	647.7	638.5	627.6	612.6	595.3	581.7	566.5
12.5°	719.9	720.1	715.4	710.0	701.4	692.8	678.8	659.8	638.9	617.7	599.8
15°	767.4	768.6	765.7	760.0	748.7	733.3	713.1	705.5	676.7	655.3	633.9
17.5°	801.3	801.5	800.9	793.3	781.0	770.5	751.6	733.9	706.7	677.7	649.0
20°	833.2	831.3	831.7	822.9	814.3	801.7	783.4	754.4	733.0	698.1	668.3
22.5°	832.4	832.4	834.2	832.6	827.0	818.0	804.6	781.2	752.4	717.2	682.7
25°	790.8	789.2	798.4	800.9	810.8	812.6	808.3	794.9	769.0	732.8	691.3
27.5°	691.5	685.8	704.9	723.8	748.9	764.9	781.2	784.9	772.7	743.1	699.7
30°	543.1	561.4	570.0	600.8	635.0	675.9	711.7	745.8	754.2	742.9	708.8
32.5°	427.9	443.3	450.1	475.4	506.7	556.4	614.6	666.4	706.9	720.5	703.4
35°	343.0	343.2	359.6	371.2	400.8	450.1	502.3	566.9	631.1	679.8	684.9
37.5°	283.1	283.8	294.3	306.0	329.8	357.4	405.9	460.4	537.7	610.3	648.1
40°	236.3	238.1	245.5	257.0	272.9	292.6	328.4	379.0	440.9	524.1	592.0
42.5°	206.4	209.5	212.4	220.6	228.9	247.0	274.3	310.5	365.4	442.9	523.9
45°	183.0	184.6	187.5	191.6	200.5	213.4	232.8	259.1	305.8	369.1	447.6
47.5°	165.1	164.1	167.4	170.9	177.0	186.3	199.9	222.7	257.7	310.7	378.6
50°	146.8	146.6	148.7	151.3	156.9	163.3	174.0	190.2	216.7	258.7	319.7
52.5°	129.7	130.6	132.0	135.3	139.0	143.9	153.2	163.7	185.5	220.4	268.7
55°	114.9	115.4	117.6	119.3	122.3	127.5	133.5	143.3	158.9	184.2	226.0
57.5°	102.0	101.8	104.0	104.2	107.8	112.3	117.2	124.8	136.7	156.7	185.9
60°	89.2	88.6	90.3	91.7	93.4	96.9	100.8	108.2	117.2	131.0	155.2
62.5°	77.5	77.3	78.5	79.8	81.2	84.3	87.4	92.7	99.3	110.4	128.3
65°	66.2	66.8	67.4	67.9	68.7	70.7	73.8	77.7	82.5	90.7	104.5
67.5°	54.5	55.3	55.5	56.8	58.4	59.4	61.1	64.8	68.5	75.9	84.1
70°	42.0	41.9	42.0	42.6	44.8	46.9	49.4	52.0	54.1	59.0	65.6
72.5°	34.7	34.3	34.8	34.8	35.6	35.8	37.2	39.5	42.4	45.4	49.6
75°	28.0	28.0	28.0	28.0	28.8	29.2	29.8	30.4	31.3	32.9	36.4
77.5°	21.8	21.8	22.2	22.4	22.6	22.8	23.2	23.8	24.1	24.9	26.7
80°	16.4	16.5	16.4	16.5	16.5	16.9	17.1	17.7	17.9	18.9	19.5
82.5°	11.3	11.1	11.3	11.5	11.5	11.9	11.9	12.3	12.3	12.7	13.2
85°	6.6	6.2	6.6	6.4	6.8	6.4	6.6	7.0	7.0	7.2	8.0
87.5°	1.9	2.3	1.9	2.1	2.1	2.3	2.3	2.3	2.7	2.5	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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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	473.3	472.7	469.9	466.8	462.7	460.0	457.9	456.7	453.2	448.9	446.0
5°	498.6	492.7	486.5	478.9	471.9	464.7	460.2	455.0	448.5	441.3	436.3
7.5°	523.7	513.6	502.5	491.0	479.3	469.0	459.4	451.6	441.9	432.0	425.2
10°	553.5	536.7	519.4	501.7	485.5	470.3	458.7	447.2	434.9	423.0	414.1
12.5°	580.5	557.2	536.5	513.7	491.9	473.1	455.0	440.9	425.6	412.7	402.2
15°	602.5	579.9	555.8	522.7	495.3	472.3	451.8	434.1	416.2	400.6	390.7
17.5°	625.5	591.2	559.5	533.8	498.0	470.1	446.2	425.6	406.1	390.1	377.7
20°	638.7	605.8	570.6	535.4	500.3	468.2	439.2	415.8	395.4	376.7	365.4
22.5°	646.7	608.4	570.8	532.2	494.5	460.8	432.2	405.9	383.3	365.8	351.2
25°	652.6	608.2	567.3	529.9	491.9	455.7	421.7	394.4	370.5	351.6	336.8
27.5°	657.2	605.8	558.9	518.2	479.9	443.1	412.3	383.1	359.2	339.5	323.4
30°	658.4	602.9	549.0	504.0	464.9	431.8	398.7	371.1	345.4	324.1	309.3
32.5°	659.9	595.7	535.6	487.1	446.8	414.1	384.9	358.8	332.3	311.5	296.3
35°	654.5	594.0	521.9	467.0	426.9	395.2	368.1	343.8	317.9	297.7	282.3
37.5°	637.9	584.4	508.3	444.6	403.2	374.0	351.4	329.2	305.3	283.1	268.8
40°	610.1	568.8	491.9	424.6	380.8	350.6	330.8	313.4	290.5	270.0	254.4
42.5°	568.6	547.6	476.4	403.6	355.5	326.7	310.7	294.7	275.3	254.4	240.0
45°	516.1	519.4	454.0	381.0	332.5	303.3	287.5	276.2	258.3	241.2	226.2
47.5°	452.2	479.9	430.0	357.2	307.6	280.1	266.3	256.0	243.5	225.8	212.0
50°	389.9	434.1	400.1	333.3	284.4	257.2	243.5	235.6	225.0	211.8	198.8
52.5°	332.5	380.8	363.8	306.6	259.3	235.0	221.7	215.5	207.7	195.5	184.0
55°	280.5	328.6	323.9	279.7	234.2	211.8	201.7	194.3	188.6	179.3	170.0
57.5°	235.4	281.9	282.9	250.0	212.4	189.6	180.9	175.0	171.1	163.7	154.6
60°	193.1	235.0	243.1	219.8	188.6	169.2	160.6	156.1	153.2	147.6	140.9
62.5°	158.1	192.1	201.7	186.5	165.9	148.0	141.7	137.4	135.7	131.0	125.4
65°	126.3	155.9	164.9	155.5	143.7	129.1	123.6	119.9	118.2	115.4	111.2
67.5°	99.7	122.6	132.4	124.6	120.1	109.8	106.1	104.0	102.4	100.5	96.8
70°	76.3	92.3	102.4	100.6	97.1	92.3	89.7	88.4	86.8	85.3	82.2
72.5°	57.6	67.4	76.7	78.3	75.5	75.5	73.4	73.0	72.2	70.3	68.9
75°	40.7	48.3	54.9	57.4	58.6	59.6	58.6	58.4	58.2	56.7	55.7
77.5°	28.2	33.1	37.6	42.0	43.6	45.0	45.2	45.9	45.4	44.4	44.0
80°	20.4	21.4	24.3	28.0	31.0	32.1	32.9	33.3	33.1	32.9	32.1
82.5°	13.4	14.2	15.2	17.5	19.9	22.0	22.4	22.2	22.8	23.0	22.4
85°	8.0	8.2	8.6	9.0	10.3	12.5	13.0	13.4	13.8	13.8	12.7
87.5°	3.1	2.9	3.3	3.3	3.9	4.1	5.3	6.2	6.4	5.6	5.6
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°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	445.0	442.5	440.7	436.9	434.3	431.6	428.9	430.6	430.4	430.2	430.2
5°	432.0	427.5	423.4	418.2	414.9	410.8	407.6	407.3	408.0	405.3	403.8
7.5°	419.7	413.9	408.0	402.6	396.6	391.9	389.0	387.8	385.7	383.9	382.3
10°	406.7	399.5	393.8	386.6	380.0	374.2	370.5	367.9	366.6	365.2	362.7
12.5°	393.2	386.2	378.6	370.3	364.0	357.0	354.5	351.6	348.7	347.1	343.4
15°	380.2	371.1	363.5	354.9	347.9	341.3	337.4	331.7	330.9	329.0	325.5
17.5°	367.5	357.4	346.3	340.5	333.5	326.5	320.2	318.5	312.6	310.7	307.4
20°	352.0	342.8	334.8	326.5	315.0	308.6	303.9	301.4	296.9	294.2	292.2
22.5°	338.5	329.2	319.7	309.5	300.6	293.2	290.1	285.8	283.8	279.7	277.6
25°	325.9	315.8	304.7	294.2	287.3	281.9	276.4	272.9	269.4	267.7	263.8
27.5°	310.5	300.4	289.7	281.5	273.7	268.3	263.0	260.1	255.6	252.7	250.5
30°	298.2	285.8	276.8	269.6	258.9	253.9	250.2	246.3	243.1	240.0	237.9
32.5°	284.0	272.9	264.6	255.2	247.6	242.0	236.9	233.6	231.1	228.2	226.0
35°	269.0	259.5	250.7	241.8	235.8	230.1	224.5	221.5	219.0	216.3	214.3
37.5°	255.4	246.5	238.3	229.7	222.3	217.5	212.8	210.8	207.3	205.4	203.4
40°	243.0	234.2	225.2	217.1	209.3	205.8	201.7	198.4	195.3	193.9	191.8
42.5°	229.3	220.6	213.4	204.4	198.4	193.3	189.6	185.9	183.8	181.6	180.7
45°	215.9	208.1	200.7	191.9	185.9	181.8	177.5	174.2	172.1	170.7	168.6
47.5°	203.0	195.1	187.7	179.9	174.0	169.4	164.9	162.7	159.8	158.3	156.7
50°	188.8	181.8	173.8	166.8	161.0	156.3	152.8	149.9	147.4	145.2	144.3
52.5°	175.8	168.2	161.6	155.2	148.9	143.5	140.4	137.2	135.5	133.0	131.8
55°	161.2	154.0	148.1	141.7	135.7	131.2	127.3	124.6	122.6	119.9	118.4
57.5°	147.8	141.5	134.3	128.7	122.3	118.8	115.4	111.5	109.2	107.1	105.5
60°	134.1	126.7	120.7	115.4	110.0	105.1	102.2	99.3	96.8	94.6	93.2
62.5°	119.9	113.7	108.0	102.2	97.3	93.2	89.7	87.4	85.3	84.1	82.7
65°	105.3	100.3	94.4	89.7	85.1	82.0	79.2	77.1	75.5	74.6	73.4
67.5°	91.9	87.0	81.8	76.9	73.8	71.3	69.3	67.4	66.6	65.4	64.6
70°	78.8	73.8	69.3	65.8	62.7	60.9	59.8	58.4	57.6	56.1	55.3
72.5°	64.6	61.3	58.4	55.7	53.3	51.8	50.2	48.5	47.1	45.4	44.6
75°	53.1	49.8	47.3	45.4	43.8	41.7	39.5	37.8	37.2	36.6	36.4
77.5°	41.5	39.3	37.4	35.8	33.7	31.7	31.1	30.8	30.6	30.2	30.2
80°	31.0	29.0	27.6	25.7	24.5	24.5	24.5	24.1	24.3	24.3	24.3
82.5°	21.0	19.3	18.7	18.3	18.3	18.5	18.5	18.7	18.5	18.9	18.7
85°	11.9	12.1	12.5	12.3	12.5	12.5	12.8	12.7	12.8	12.5	12.8
87.5°	5.5	6.0	6.2	6.4	6.6	6.4	6.6	6.6	6.8	6.8	6.8
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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CATALOG NUMBER: S123RDR-S340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	454.8	454.8	454.8	454.8
2.5°	427.9	427.7	427.9	427.1
5°	403.2	403.0	402.4	400.6
7.5°	380.8	380.4	378.8	379.2
10°	361.3	361.5	359.2	357.8
12.5°	342.4	341.3	339.5	338.0
15°	326.3	324.3	319.7	320.0
17.5°	306.2	304.7	304.5	301.7
20°	289.1	288.1	288.5	285.8
22.5°	275.7	274.7	272.5	272.2
25°	262.6	261.1	259.5	260.5
27.5°	249.4	248.2	246.5	246.5
30°	236.9	235.8	235.0	234.0
32.5°	224.3	224.3	222.7	222.7
35°	213.6	212.4	212.0	212.2
37.5°	203.2	201.7	200.9	200.1
40°	191.9	190.4	190.0	189.6
42.5°	179.3	178.9	178.7	177.9
45°	168.0	167.8	166.6	167.0
47.5°	155.9	155.0	154.4	155.0
50°	143.5	143.1	141.3	141.7
52.5°	131.0	129.3	128.9	128.5
55°	117.0	115.2	114.5	114.1
57.5°	103.2	102.6	101.8	102.4
60°	91.3	91.3	91.3	91.1
62.5°	82.2	81.6	81.4	81.8
65°	72.8	72.6	71.8	71.6
67.5°	64.2	63.5	63.5	63.1
70°	54.3	53.9	52.8	53.0
72.5°	43.6	43.2	43.2	42.8
75°	36.2	36.0	35.8	36.6
77.5°	30.2	30.2	30.4	30.0
80°	24.3	24.3	24.1	24.1
82.5°	18.3	18.5	18.7	18.3
85°	12.8	12.7	13.0	12.8
87.5°	7.2	6.8	6.8	7.0
90°	0.0	0.0	0.0	0.0

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