

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: P243336

Luminaire Tested: **S123DR-H340D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243336
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H340D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1123.2 lumens
Efficiency: N/A
Efficacy: 100.3 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

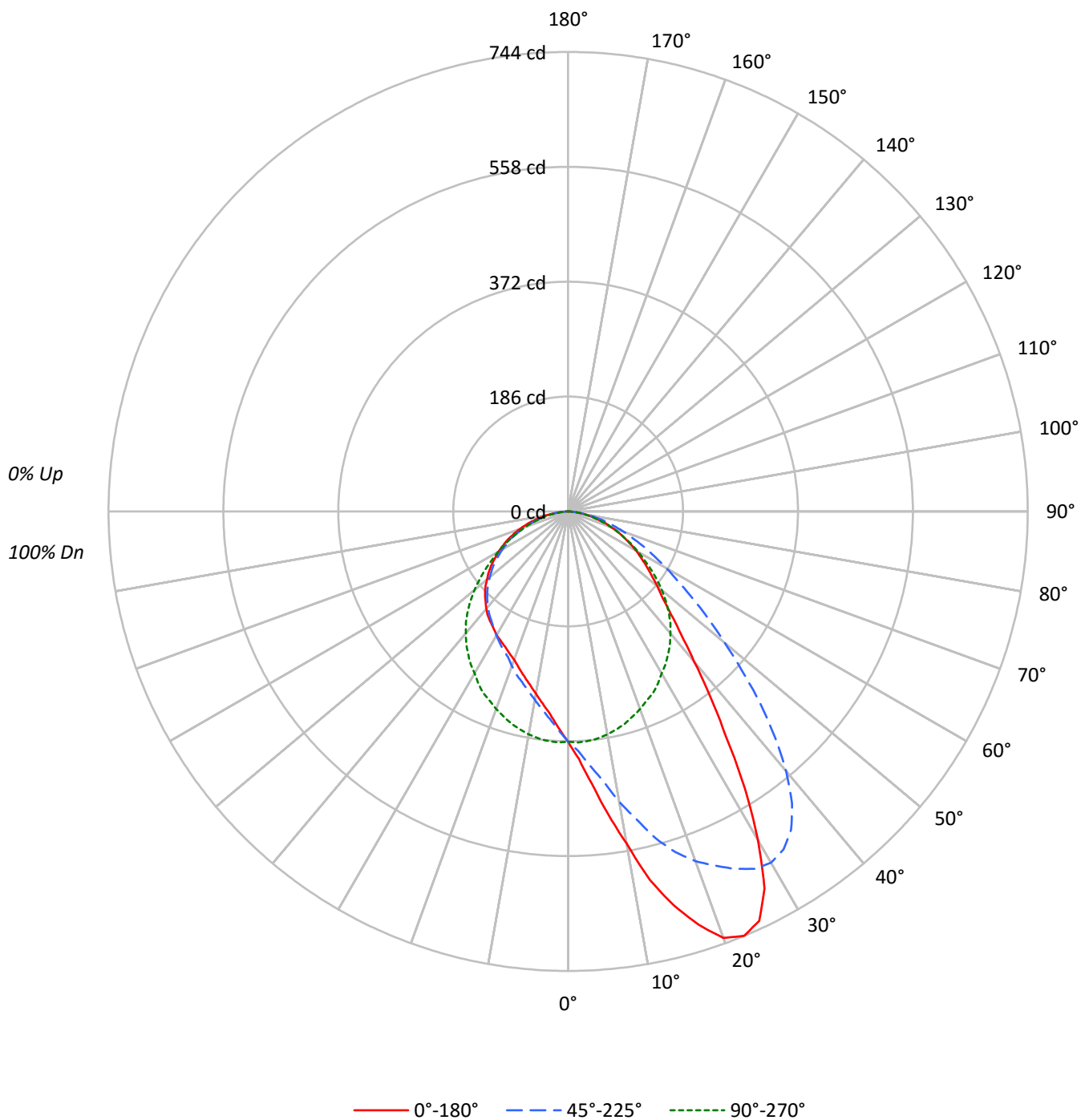
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4518	4518	4518
5°	5382	4538	4012
10°	6722	4511	3688
15°	8282	4462	3461
20°	9478	4391	3293
25°	9782	4343	3231
30°	8594	4240	3235
35°	6595	4176	3238
40°	5018	4074	3261
45°	4037	3943	3259
50°	3553	3732	3230
55°	3273	3457	3210
60°	3086	3164	3144
65°	2868	2891	3083
70°	2626	2594	2952
75°	2332	2262	2749
80°	1954	1871	2408
85°	1377	1349	1808

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.7	3.3
10°-20°	117.7	10.5
20°-30°	194.4	17.3
30°-40°	222.5	19.8
40°-50°	201.7	18.0
50°-60°	162.9	14.5
60°-70°	113.5	10.1
70°-80°	59.5	5.3
80°-90°	14.2	1.3
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°	348.8	31.1
0°-40°	571.3	50.9
0°-60°	935.9	83.3
0°-90°	1123.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1123.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	373	373	373	373	373	
5°	442	414	373	337	330	46
15°	660	548	356	286	276	188
25°	731	638	325	248	242	327
35°	446	629	282	216	219	282
45°	236	440	230	185	190	186
55°	155	247	164	145	152	139
65°	100	135	101	100	108	99
75°	50	61	48	50	59	53
85°	10	13	10	11	13	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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	401.4	402.2	400.8	401.7	399.6	398.5	396.6	395.7	391.6	388.7	387.7
5°	442.3	442.3	442.6	440.6	438.2	433.9	428.3	424.7	420.6	413.6	410.1
7.5°	493.8	491.3	489.6	485.8	482.6	475.6	469.4	462.1	452.5	440.9	434.8
10°	546.1	548.8	547.1	543.2	534.8	523.4	514.3	503.7	488.9	477.6	461.6
12.5°	611.2	607.7	604.9	599.0	589.7	577.6	563.6	547.9	528.8	510.2	492.3
15°	660.0	660.6	660.4	652.5	643.5	627.1	614.1	588.0	563.8	548.1	518.4
17.5°	701.3	703.6	701.0	689.2	681.2	671.5	654.9	625.9	603.9	578.5	545.7
20°	734.8	735.1	731.0	722.3	713.1	702.2	680.4	658.2	636.7	602.5	571.3
22.5°	743.7	744.5	743.7	739.9	732.4	720.8	704.4	683.9	656.8	620.5	591.4
25°	731.4	730.9	733.8	731.5	731.2	727.5	716.7	700.1	673.4	638.4	601.5
27.5°	688.4	684.8	692.1	701.7	703.0	709.0	709.2	701.5	682.2	652.4	612.3
30°	614.0	617.4	621.0	640.9	652.0	667.6	681.0	686.0	678.6	656.6	619.1
32.5°	533.1	544.0	554.1	567.9	584.1	610.4	631.7	650.5	658.5	648.8	619.1
35°	445.7	451.5	467.4	485.0	508.3	528.8	571.1	598.4	622.8	629.2	611.2
37.5°	377.5	382.8	388.2	401.9	428.1	462.3	497.3	533.1	569.3	595.2	594.2
40°	317.1	318.2	323.0	334.8	356.6	387.0	423.7	466.9	513.8	549.1	564.0
42.5°	270.6	270.6	276.6	290.3	302.9	325.1	360.6	398.6	450.0	495.4	527.1
45°	235.5	235.8	240.6	250.3	260.2	277.6	303.9	339.7	392.6	439.6	483.8
47.5°	206.8	210.1	212.8	217.9	227.8	243.2	262.3	292.8	330.5	381.7	433.3
50°	188.4	189.1	191.1	194.2	201.9	211.9	228.5	251.7	285.1	330.5	382.6
52.5°	170.3	170.3	172.3	176.1	180.5	188.7	200.7	220.0	245.0	286.2	332.9
55°	154.9	155.5	155.8	158.9	162.6	168.8	178.2	190.8	213.8	246.7	287.5
57.5°	139.9	141.8	141.3	143.7	146.4	150.8	157.5	168.4	186.0	211.1	247.8
60°	127.3	127.0	127.8	128.8	130.7	133.8	139.9	147.9	162.6	183.6	213.6
62.5°	113.0	112.6	113.6	114.8	116.5	119.1	123.5	129.7	141.3	157.0	183.1
65°	100.0	99.7	100.2	100.8	102.7	104.8	108.2	113.3	121.0	134.8	154.8
67.5°	87.0	87.0	87.4	88.1	89.2	90.8	93.5	96.6	104.3	113.5	129.2
70°	74.1	74.2	74.2	74.9	75.9	77.1	79.3	82.1	86.9	95.0	107.7
72.5°	62.8	62.8	62.5	62.8	63.5	64.0	65.4	67.9	71.5	77.5	87.0
75°	49.8	50.7	50.5	50.3	50.9	51.7	52.9	54.9	57.2	61.4	68.6
77.5°	38.2	38.7	38.7	38.9	39.4	40.1	40.4	42.5	44.5	47.1	52.4
80°	28.0	28.3	28.0	28.2	28.5	29.2	29.9	30.2	31.7	34.0	36.5
82.5°	18.8	18.3	18.9	18.8	19.1	19.3	19.6	19.8	20.8	22.2	23.9
85°	9.9	10.8	10.6	10.9	10.6	10.8	10.9	11.6	11.8	12.6	13.7
87.5°	3.8	4.1	4.1	4.1	4.1	4.1	4.4	4.6	4.9	5.1	5.5
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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	388.4	386.8	384.6	382.2	379.7	377.1	375.9	374.4	371.3	368.2	365.9
5°	407.2	402.9	397.1	392.8	386.7	380.9	376.3	373.0	368.1	362.1	358.2
7.5°	428.1	420.5	411.2	401.9	392.6	383.9	376.8	370.6	363.0	355.6	349.6
10°	452.9	438.0	425.2	411.6	397.9	385.7	375.4	366.5	356.6	347.8	340.4
12.5°	474.7	457.5	439.7	420.5	402.0	386.2	373.0	361.4	349.5	339.2	331.7
15°	498.8	474.6	450.0	428.1	405.8	386.3	369.1	355.6	342.0	330.4	321.7
17.5°	526.4	494.0	463.1	431.7	411.9	386.8	365.7	347.9	333.9	322.3	311.1
20°	542.8	510.6	472.7	440.4	407.7	381.9	358.3	340.4	324.1	310.7	301.5
22.5°	551.7	517.7	478.1	445.0	406.8	378.0	352.9	331.7	314.2	300.8	290.4
25°	564.1	517.7	481.0	441.3	408.2	373.4	345.0	324.7	306.3	290.9	280.0
27.5°	569.8	522.3	481.4	434.1	400.0	364.7	336.0	314.5	294.0	279.0	269.6
30°	574.4	523.2	474.6	428.5	390.4	354.9	327.0	302.9	283.8	269.4	259.5
32.5°	574.7	521.0	465.3	417.9	377.6	343.5	316.2	293.5	273.5	258.4	248.6
35°	571.7	515.5	454.8	401.7	362.8	331.7	304.4	282.2	261.9	247.4	237.5
37.5°	563.8	509.4	444.9	386.5	345.2	315.0	291.8	270.6	250.5	236.0	227.8
40°	547.1	499.5	431.9	370.3	327.5	297.3	277.0	257.5	239.6	224.6	216.4
42.5°	524.9	484.6	416.2	353.1	307.7	278.5	260.6	244.9	226.6	213.6	205.3
45°	493.5	464.5	400.5	335.0	288.0	259.4	243.0	230.0	214.3	201.4	194.0
47.5°	458.0	440.3	380.2	314.7	267.4	240.4	224.9	214.5	201.2	190.1	182.8
50°	418.1	411.4	357.8	294.2	248.1	220.5	206.1	197.9	186.7	177.8	171.5
52.5°	374.7	378.8	334.3	273.4	229.5	201.5	187.9	180.4	173.2	165.7	159.7
55°	330.7	340.4	305.8	250.7	208.2	183.8	170.5	163.6	158.4	152.0	147.8
57.5°	289.4	304.6	276.3	226.4	188.6	165.2	152.6	146.6	142.7	139.2	135.3
60°	249.3	266.9	245.9	203.7	168.9	147.6	136.3	130.5	128.7	126.1	122.4
62.5°	213.8	231.7	216.0	180.4	149.1	130.9	120.6	115.9	113.1	112.3	110.1
65°	180.5	197.3	185.3	156.0	130.4	114.2	105.1	100.8	99.3	99.1	97.4
67.5°	151.7	167.9	157.0	132.2	110.6	97.4	90.6	87.2	85.7	85.8	84.6
70°	125.1	136.5	130.0	110.6	93.9	82.2	77.0	73.2	72.0	72.0	71.7
72.5°	100.3	109.4	104.4	89.6	76.4	67.6	63.0	60.7	59.7	59.6	59.7
75°	78.5	86.3	81.9	70.3	60.4	53.8	49.8	48.3	47.8	47.4	47.6
77.5°	58.7	63.6	60.9	53.4	45.2	40.6	38.7	37.2	36.7	36.9	37.2
80°	41.5	44.2	42.7	37.9	32.4	29.4	28.0	26.8	26.3	26.8	26.8
82.5°	26.3	28.3	27.0	23.9	21.2	19.1	17.7	17.4	17.2	16.9	17.4
85°	14.3	15.4	14.7	13.7	11.8	10.9	9.9	9.7	9.7	9.7	9.7
87.5°	5.6	6.3	5.5	5.5	5.1	4.3	4.3	4.1	3.9	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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	364.8	362.6	361.3	359.4	357.2	354.3	353.1	354.3	353.6	352.4	352.9
5°	354.8	351.9	348.1	345.0	341.6	337.4	336.0	335.3	334.3	333.8	332.9
7.5°	344.9	340.6	336.0	331.7	326.8	323.0	321.3	320.1	319.8	317.2	316.2
10°	334.6	329.3	324.7	318.9	314.7	309.7	307.7	306.3	304.8	303.1	301.9
12.5°	323.9	318.6	312.8	307.3	303.1	297.6	294.9	293.3	292.1	290.9	289.6
15°	314.5	309.2	301.2	297.1	292.0	286.5	284.8	281.4	281.7	279.7	278.3
17.5°	304.6	296.7	291.1	285.0	281.2	277.3	274.1	270.5	270.0	268.4	267.9
20°	293.5	285.3	281.4	275.1	270.0	266.0	263.1	262.8	261.8	259.5	258.7
22.5°	282.6	275.9	270.5	264.7	260.1	254.9	253.6	254.1	252.2	251.7	249.8
25°	272.7	266.9	260.1	254.6	250.8	247.6	245.7	245.0	244.4	243.8	243.0
27.5°	262.1	256.0	250.2	245.7	242.1	239.9	238.7	237.2	237.0	237.0	236.7
30°	251.5	246.1	242.1	236.5	233.3	231.9	230.9	230.4	230.9	230.9	231.1
32.5°	241.8	236.5	231.9	228.0	224.7	223.7	223.5	223.5	224.2	224.2	224.7
35°	231.7	226.4	222.2	219.4	216.7	216.5	216.7	217.1	217.9	218.1	218.8
37.5°	220.8	216.7	213.5	210.1	209.4	209.7	210.1	210.4	210.7	212.1	212.1
40°	210.7	207.7	204.4	202.2	201.0	201.9	202.4	202.6	203.6	204.4	205.1
42.5°	200.8	197.9	195.4	193.5	193.0	193.7	194.2	194.7	195.7	196.4	197.6
45°	189.8	187.9	185.7	184.1	184.3	185.3	185.3	187.0	187.7	188.0	188.9
47.5°	179.5	177.5	175.9	175.3	175.1	175.9	176.4	177.8	178.2	179.3	180.0
50°	168.6	167.1	165.9	165.0	165.2	165.5	166.7	168.1	168.4	169.8	171.0
52.5°	157.2	155.8	154.8	155.1	155.6	155.6	156.8	157.7	158.5	159.6	160.7
55°	145.9	144.0	144.2	143.7	144.2	145.4	145.9	147.3	147.9	148.5	150.2
57.5°	133.6	133.3	132.8	132.2	133.3	133.8	134.6	135.5	136.7	137.4	138.6
60°	121.0	120.5	120.5	121.2	121.5	122.5	123.9	124.4	124.7	126.1	127.6
62.5°	109.4	108.9	108.7	109.7	109.7	110.7	111.3	112.1	113.5	114.0	116.0
65°	96.9	96.6	96.6	97.4	97.6	99.5	99.5	99.5	100.3	102.2	103.2
67.5°	84.0	84.1	84.6	85.2	85.8	86.3	86.5	87.5	88.9	90.1	92.1
70°	71.0	71.8	72.9	72.7	73.2	74.1	74.2	75.3	76.4	78.0	80.4
72.5°	59.4	59.9	60.9	60.9	61.6	62.1	63.0	63.6	65.2	66.6	67.6
75°	47.8	48.0	48.8	49.3	49.8	50.2	51.0	52.2	53.1	54.3	55.8
77.5°	37.5	37.2	37.9	38.1	38.4	39.1	39.8	41.0	41.6	43.0	43.5
80°	26.6	27.3	27.5	27.6	28.0	28.8	29.4	29.9	30.5	31.7	32.3
82.5°	17.6	17.9	18.4	18.6	18.9	19.1	19.3	20.1	20.6	21.0	22.7
85°	10.2	10.8	10.4	10.4	10.8	10.9	11.6	11.6	12.3	11.9	12.8
87.5°	4.4	4.3	4.3	4.4	4.3	4.1	4.6	4.6	4.4	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

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CATALOG NUMBER: S123DR-H340D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	372.7	372.7	372.7	372.7
2.5°	352.0	352.0	350.7	351.2
5°	331.2	331.9	330.2	329.7
7.5°	315.9	315.2	314.0	314.0
10°	300.8	300.2	299.6	299.6
12.5°	287.9	287.2	286.2	287.0
15°	276.3	276.4	275.8	275.8
17.5°	267.4	265.9	265.3	265.2
20°	256.8	257.2	256.5	255.3
22.5°	250.2	249.3	248.6	248.5
25°	243.3	242.5	242.3	241.6
27.5°	236.5	236.7	236.2	236.2
30°	230.9	231.4	230.9	231.1
32.5°	225.2	225.2	225.2	224.6
35°	219.1	219.3	219.1	218.8
37.5°	212.8	212.8	213.0	213.3
40°	205.8	205.8	206.1	206.1
42.5°	197.4	198.3	198.8	197.9
45°	189.9	190.1	190.3	190.1
47.5°	181.6	181.1	181.2	181.6
50°	171.2	172.3	172.3	171.3
52.5°	161.1	161.4	162.1	162.1
55°	151.2	151.4	151.5	151.9
57.5°	139.9	140.1	140.1	139.9
60°	128.7	129.7	129.5	129.7
62.5°	116.5	118.1	118.6	118.4
65°	105.1	105.5	106.3	107.5
67.5°	93.0	93.9	95.2	94.9
70°	81.1	82.2	82.6	83.3
72.5°	69.1	70.6	71.0	71.3
75°	57.5	58.2	58.9	58.7
77.5°	44.9	45.9	47.1	46.4
80°	33.6	33.8	34.8	34.5
82.5°	22.2	23.5	23.5	22.9
85°	13.0	13.0	13.0	13.0
87.5°	4.4	4.3	4.6	4.4
90°	0.0	0.0	0.0	0.0

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