

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: P243322

Luminaire Tested: **S123DR-H560D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243322
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-H560D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2067.9 lumens
Efficiency: N/A
Efficacy: 120.2 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

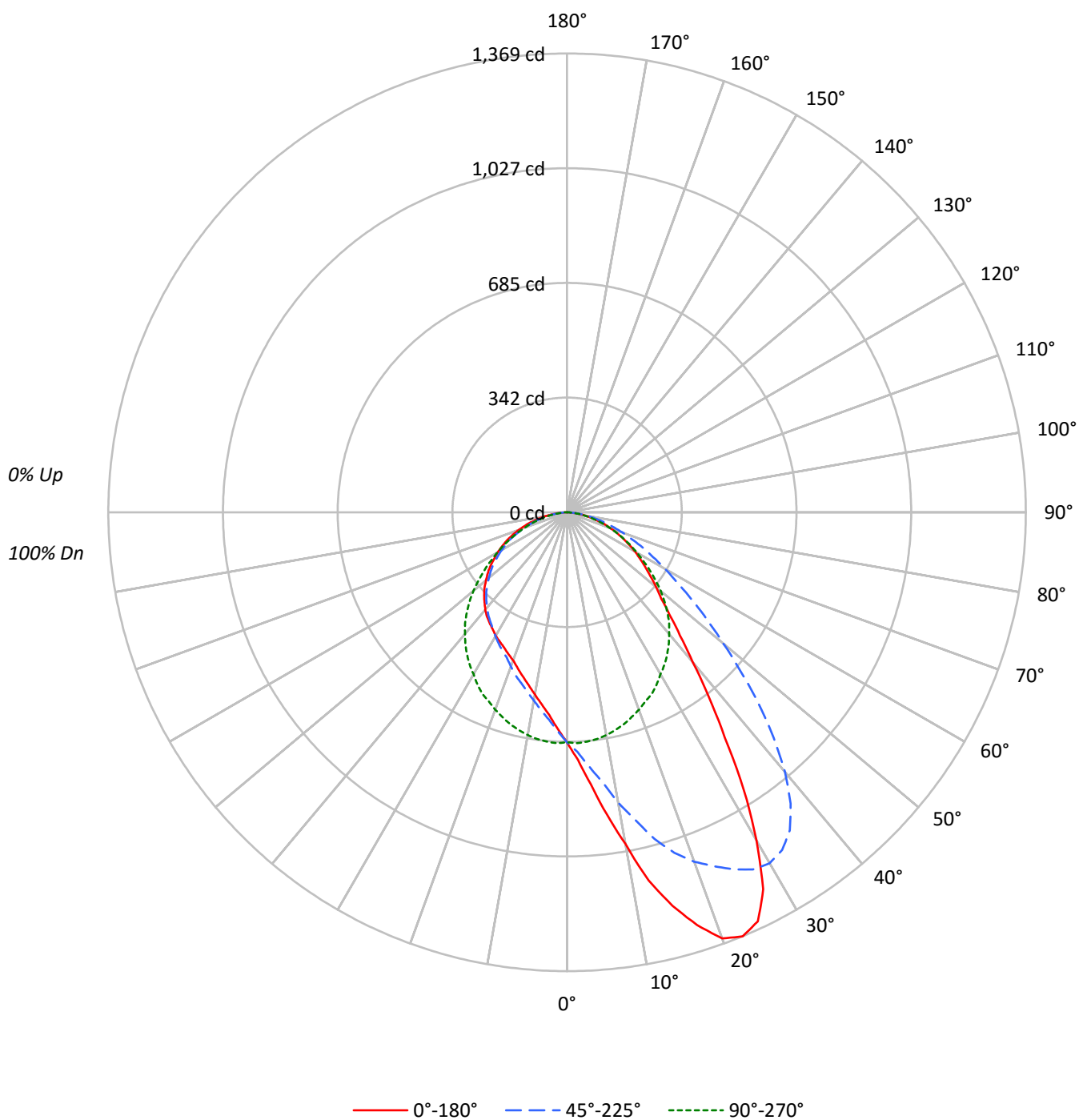
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



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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°	8316	8316	8316
5°	9908	8357	7386
10°	12373	8306	6790
15°	15249	8216	6371
20°	17450	8085	6063
25°	18008	7996	5950
30°	15822	7804	5954
35°	12143	7689	5960
40°	9236	7502	6005
45°	7431	7260	6000
50°	6540	6872	5948
55°	6029	6367	5909
60°	5682	5825	5789
65°	5280	5326	5676
70°	4830	4777	5433
75°	4295	4163	5063
80°	3595	3441	4433
85°	2531	2489	3324

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	3.3
10°-20°	216.7	10.5
20°-30°	358.0	17.3
30°-40°	409.7	19.8
40°-50°	371.3	18.0
50°-60°	300.0	14.5
60°-70°	209.0	10.1
70°-80°	109.6	5.3
80°-90°	26.1	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°	642.2	31.1
0°-40°	1051.9	50.9
0°-60°	1723.1	83.3
0°-90°	2067.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2067.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	686	686	686	686	686	
5°	814	762	687	621	607	84
15°	1215	1009	655	528	508	346
25°	1346	1175	598	456	445	602
35°	821	1158	520	399	403	520
45°	434	809	424	341	350	342
55°	285	454	301	268	280	256
65°	184	248	186	183	198	182
75°	92	113	89	92	108	98
85°	18	23	18	20	24	23
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°	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1
2.5°	738.9	740.5	738.0	739.5	735.8	733.6	730.1	728.5	721.0	715.7	713.8
5°	814.3	814.3	814.9	811.2	806.8	798.9	788.6	782.0	774.4	761.5	754.9
7.5°	909.2	904.5	901.3	894.4	888.5	875.6	864.3	850.8	833.2	811.8	800.5
10°	1005.3	1010.4	1007.2	1000.0	984.6	963.5	946.9	927.4	900.1	879.3	849.8
12.5°	1125.3	1118.7	1113.7	1102.7	1085.8	1063.4	1037.7	1008.8	973.6	939.4	906.4
15°	1215.2	1216.1	1215.8	1201.4	1184.7	1154.6	1130.7	1082.6	1038.0	1009.1	954.4
17.5°	1291.2	1295.3	1290.6	1268.9	1254.1	1236.2	1205.8	1152.4	1111.8	1065.0	1004.7
20°	1352.8	1353.4	1345.9	1329.9	1312.9	1292.8	1252.6	1211.7	1172.2	1109.3	1051.8
22.5°	1369.1	1370.7	1369.1	1362.2	1348.4	1327.0	1296.9	1259.2	1209.2	1142.3	1088.9
25°	1346.5	1345.6	1350.9	1346.8	1346.2	1339.3	1319.5	1289.0	1239.7	1175.3	1107.4
27.5°	1267.3	1260.7	1274.3	1291.8	1294.4	1305.4	1305.7	1291.5	1256.0	1201.1	1127.2
30°	1130.4	1136.7	1143.2	1180.0	1200.4	1229.0	1253.8	1262.9	1249.4	1208.9	1139.8
32.5°	981.5	1001.6	1020.1	1045.5	1075.4	1123.8	1163.0	1197.6	1212.4	1194.5	1139.8
35°	820.6	831.3	860.5	892.9	935.9	973.6	1051.5	1101.8	1146.7	1158.3	1125.3
37.5°	694.9	704.7	714.7	739.9	788.2	851.1	915.5	981.5	1048.1	1095.8	1093.9
40°	583.7	585.9	594.7	616.4	656.6	712.5	780.1	859.6	946.0	1011.0	1038.3
42.5°	498.3	498.3	509.3	534.4	557.6	598.5	663.8	733.9	828.5	912.0	970.5
45°	433.5	434.2	443.0	460.9	479.1	511.1	559.5	625.5	722.9	809.3	890.7
47.5°	380.8	386.7	391.8	401.2	419.4	447.7	482.9	539.1	608.5	702.8	797.7
50°	346.8	348.1	351.9	357.5	371.7	390.2	420.7	463.4	525.0	608.5	704.4
52.5°	313.5	313.5	317.3	324.2	332.4	347.5	369.5	405.0	451.1	526.9	612.9
55°	285.3	286.2	286.8	292.5	299.4	310.7	328.0	351.2	393.6	454.3	529.4
57.5°	257.6	261.1	260.1	264.5	269.6	277.7	290.0	310.1	342.4	388.6	456.2
60°	234.4	233.7	235.3	237.2	240.7	246.3	257.6	272.4	299.4	338.0	393.3
62.5°	208.0	207.3	209.2	211.4	214.6	219.3	227.5	238.8	260.1	289.0	337.1
65°	184.1	183.5	184.4	185.7	189.1	192.9	199.2	208.6	222.7	248.2	284.9
67.5°	160.2	160.2	160.9	162.1	164.3	167.1	172.2	177.8	192.0	208.9	237.8
70°	136.3	136.7	136.7	137.9	139.8	142.0	146.1	151.1	159.9	175.0	198.2
72.5°	115.6	115.6	115.0	115.6	116.9	117.8	120.3	125.0	131.6	142.6	160.2
75°	91.7	93.3	93.0	92.7	93.6	95.2	97.4	101.2	105.2	113.1	126.3
77.5°	70.4	71.3	71.3	71.6	72.6	73.8	74.5	78.2	82.0	86.7	96.4
80°	51.5	52.2	51.5	51.8	52.5	53.7	55.0	55.6	58.4	62.5	67.2
82.5°	34.6	33.6	34.9	34.6	35.2	35.5	36.1	36.4	38.3	40.8	44.0
85°	18.2	19.8	19.5	20.1	19.5	19.8	20.1	21.4	21.7	23.2	25.1
87.5°	6.9	7.5	7.5	7.5	7.5	7.5	8.2	8.5	9.1	9.4	10.1
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°	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1
2.5°	715.0	712.2	708.1	703.7	699.0	694.3	692.1	689.3	683.6	678.0	673.6
5°	749.6	741.7	731.1	723.2	711.9	701.2	692.7	686.8	677.7	666.7	659.4
7.5°	788.2	774.1	757.1	739.9	722.9	706.9	693.7	682.4	668.2	654.7	643.7
10°	833.8	806.5	782.9	757.8	732.6	710.0	691.2	674.8	656.6	640.3	626.8
12.5°	874.0	842.3	809.6	774.1	740.2	711.0	686.8	665.4	643.4	624.6	610.7
15°	918.3	873.7	828.5	788.2	747.1	711.3	679.5	654.7	629.6	608.2	592.2
17.5°	969.2	909.5	852.6	794.8	758.4	712.2	673.3	640.6	614.8	593.5	572.7
20°	999.4	940.0	870.2	810.9	750.5	703.1	659.7	626.8	596.6	572.1	555.1
22.5°	1015.7	953.2	880.3	819.3	749.0	695.9	649.7	610.7	578.4	553.9	534.7
25°	1038.6	953.2	885.6	812.4	751.5	687.4	635.2	597.9	563.9	535.7	515.5
27.5°	1049.0	961.7	886.3	799.2	736.4	671.4	618.6	579.0	541.3	513.7	496.4
30°	1057.5	963.2	873.7	788.9	718.8	653.5	601.9	557.6	522.5	496.1	477.8
32.5°	1058.1	959.1	856.7	769.4	695.2	632.4	582.1	540.4	503.6	475.6	457.7
35°	1052.5	949.1	837.3	739.5	667.9	610.7	560.5	519.6	482.2	455.5	437.3
37.5°	1038.0	937.8	819.0	711.6	635.6	579.9	537.2	498.3	461.2	434.5	419.4
40°	1007.2	919.6	795.2	681.7	602.9	547.3	509.9	474.1	441.1	413.4	398.4
42.5°	966.4	892.2	766.2	650.0	566.4	512.7	479.7	450.8	417.2	393.3	377.9
45°	908.6	855.2	737.3	616.7	530.3	477.5	447.4	423.5	394.6	370.7	357.2
47.5°	843.2	810.5	700.0	579.3	492.3	442.7	414.1	394.9	370.4	350.0	336.5
50°	769.7	757.5	658.8	541.6	456.8	405.9	379.5	364.4	343.7	327.4	315.7
52.5°	689.9	697.4	615.5	503.3	422.6	371.0	345.9	332.1	318.9	305.1	294.1
55°	608.9	626.8	563.0	461.5	383.3	338.4	313.9	301.3	291.5	279.9	272.1
57.5°	532.8	560.8	508.6	416.9	347.2	304.1	280.9	269.9	262.6	256.4	249.1
60°	459.0	491.4	452.7	375.1	311.0	271.8	251.0	240.3	236.9	232.2	225.3
62.5°	393.6	426.6	397.7	332.1	274.6	241.0	222.1	213.3	208.3	206.7	202.6
65°	332.4	363.2	341.2	287.1	240.0	210.2	193.5	185.7	182.8	182.5	179.4
67.5°	279.3	309.1	289.0	243.5	203.6	179.4	166.8	160.5	157.7	158.0	155.8
70°	230.3	251.3	239.4	203.6	172.8	151.4	141.7	134.8	132.6	132.6	131.9
72.5°	184.7	201.4	192.3	164.9	140.7	124.4	115.9	111.8	110.0	109.6	110.0
75°	144.5	159.0	150.8	129.4	111.2	99.0	91.7	88.9	88.0	87.3	87.7
77.5°	108.1	117.2	112.2	98.3	83.3	74.8	71.3	68.5	67.5	67.9	68.5
80°	76.3	81.4	78.5	69.7	59.7	54.0	51.5	49.3	48.4	49.3	49.3
82.5°	48.4	52.2	49.6	44.0	39.0	35.2	32.7	32.0	31.7	31.1	32.0
85°	26.4	28.3	27.0	25.1	21.7	20.1	18.2	17.9	17.9	17.9	17.9
87.5°	10.4	11.6	10.1	10.1	9.4	7.9	7.9	7.5	7.2	7.5	7.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1	686.1
2.5°	671.7	667.6	665.1	661.6	657.5	652.2	650.0	652.2	651.0	648.8	649.7
5°	653.1	647.8	640.9	635.2	629.0	621.1	618.6	617.3	615.5	614.5	612.9
7.5°	634.9	627.1	618.6	610.7	601.6	594.7	591.6	589.4	588.7	584.0	582.1
10°	616.1	606.3	597.9	587.2	579.3	570.2	566.4	563.9	561.1	558.0	555.8
12.5°	596.3	586.5	575.9	565.8	558.0	547.9	542.9	540.1	537.9	535.7	533.1
15°	579.0	569.3	554.5	547.0	537.5	527.5	524.3	518.1	518.7	514.9	512.4
17.5°	560.8	546.3	536.0	524.7	517.7	510.5	504.5	498.0	497.0	494.2	493.2
20°	540.4	525.3	518.1	506.4	497.0	489.8	484.4	483.8	481.9	477.8	476.3
22.5°	520.3	508.0	498.0	487.3	478.8	469.4	466.8	467.8	464.3	463.4	459.9
25°	502.0	491.4	478.8	468.7	461.8	455.9	452.4	451.1	449.9	448.9	447.4
27.5°	482.6	471.2	460.6	452.4	445.8	441.7	439.5	436.7	436.4	436.4	435.7
30°	463.1	453.0	445.8	435.4	429.5	427.0	425.1	424.1	425.1	425.1	425.4
32.5°	445.2	435.4	427.0	419.7	413.8	411.9	411.6	411.6	412.8	412.8	413.8
35°	426.6	416.9	409.0	404.0	399.0	398.7	399.0	399.6	401.2	401.5	402.8
37.5°	406.5	399.0	393.0	386.7	385.5	386.1	386.7	387.4	388.0	390.5	390.5
40°	388.0	382.3	376.4	372.3	370.1	371.7	372.6	372.9	374.8	376.4	377.6
42.5°	369.8	364.4	359.7	356.3	355.3	356.6	357.5	358.5	360.3	361.6	363.8
45°	349.4	345.9	341.8	339.0	339.3	341.2	341.2	344.3	345.6	346.2	347.8
47.5°	330.5	326.7	323.9	322.6	322.3	323.9	324.8	327.4	328.0	330.2	331.4
50°	310.4	307.6	305.4	303.8	304.1	304.7	306.9	309.5	310.1	312.6	314.8
52.5°	289.3	286.8	284.9	285.6	286.5	286.5	288.7	290.3	291.9	293.7	295.9
55°	268.6	265.2	265.5	264.5	265.5	267.7	268.6	271.1	272.4	273.3	276.5
57.5°	246.0	245.4	244.4	243.5	245.4	246.3	247.9	249.4	251.6	252.9	255.1
60°	222.7	221.8	221.8	223.1	223.7	225.6	228.1	229.0	229.7	232.2	235.0
62.5°	201.4	200.4	200.1	202.0	202.0	203.9	204.8	206.4	208.9	209.9	213.6
65°	178.4	177.8	177.8	179.4	179.7	183.2	183.2	183.2	184.7	188.2	190.1
67.5°	154.6	154.9	155.8	156.8	158.0	159.0	159.3	161.2	163.7	165.9	169.6
70°	130.7	132.3	134.1	133.8	134.8	136.3	136.7	138.5	140.7	143.6	148.0
72.5°	109.3	110.3	112.2	112.2	113.4	114.4	115.9	117.2	120.0	122.5	124.4
75°	88.0	88.3	89.9	90.8	91.7	92.4	93.9	96.1	97.7	99.9	102.7
77.5°	69.1	68.5	69.7	70.1	70.7	71.9	73.2	75.4	76.7	79.2	80.1
80°	49.0	50.3	50.6	50.9	51.5	53.1	54.0	55.0	56.2	58.4	59.4
82.5°	32.4	33.0	33.9	34.2	34.9	35.2	35.5	37.1	38.0	38.6	41.8
85°	18.8	19.8	19.2	19.2	19.8	20.1	21.4	21.4	22.6	22.0	23.6
87.5°	8.2	7.9	7.9	8.2	7.9	7.5	8.5	8.5	8.2	8.5	8.5
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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CATALOG NUMBER: S123DR-H560D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	686.1	686.1	686.1	686.1
2.5°	648.1	648.1	645.6	646.6
5°	609.8	611.1	607.9	607.0
7.5°	581.5	580.3	578.1	578.1
10°	553.9	552.6	551.7	551.7
12.5°	530.0	528.7	526.9	528.4
15°	508.6	508.9	507.7	507.7
17.5°	492.3	489.5	488.5	488.2
20°	472.8	473.4	472.2	470.0
22.5°	460.6	459.0	457.7	457.4
25°	448.0	446.4	446.1	444.9
27.5°	435.4	435.7	434.8	434.8
30°	425.1	426.0	425.1	425.4
32.5°	414.7	414.7	414.7	413.4
35°	403.4	403.7	403.4	402.8
37.5°	391.8	391.8	392.1	392.7
40°	378.9	378.9	379.5	379.5
42.5°	363.5	365.1	366.0	364.4
45°	349.7	350.0	350.3	350.0
47.5°	334.3	333.3	333.6	334.3
50°	315.1	317.3	317.3	315.4
52.5°	296.6	297.2	298.5	298.5
55°	278.4	278.7	279.0	279.6
57.5°	257.6	257.9	257.9	257.6
60°	236.9	238.8	238.5	238.8
62.5°	214.6	217.4	218.3	218.0
65°	193.5	194.2	195.7	197.9
67.5°	171.2	172.8	175.3	174.7
70°	149.2	151.4	152.1	153.3
72.5°	127.2	130.1	130.7	131.3
75°	105.9	107.1	108.4	108.1
77.5°	82.6	84.5	86.7	85.5
80°	61.9	62.2	64.1	63.5
82.5°	40.8	43.4	43.4	42.1
85°	23.9	23.9	23.9	23.9
87.5°	8.2	7.9	8.5	8.2
90°	0.0	0.0	0.0	0.0

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