

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: P243332

Luminaire Tested: **S123DR-H560D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243332
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-H560D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2215.6 lumens
Efficiency: N/A
Efficacy: 128.8 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

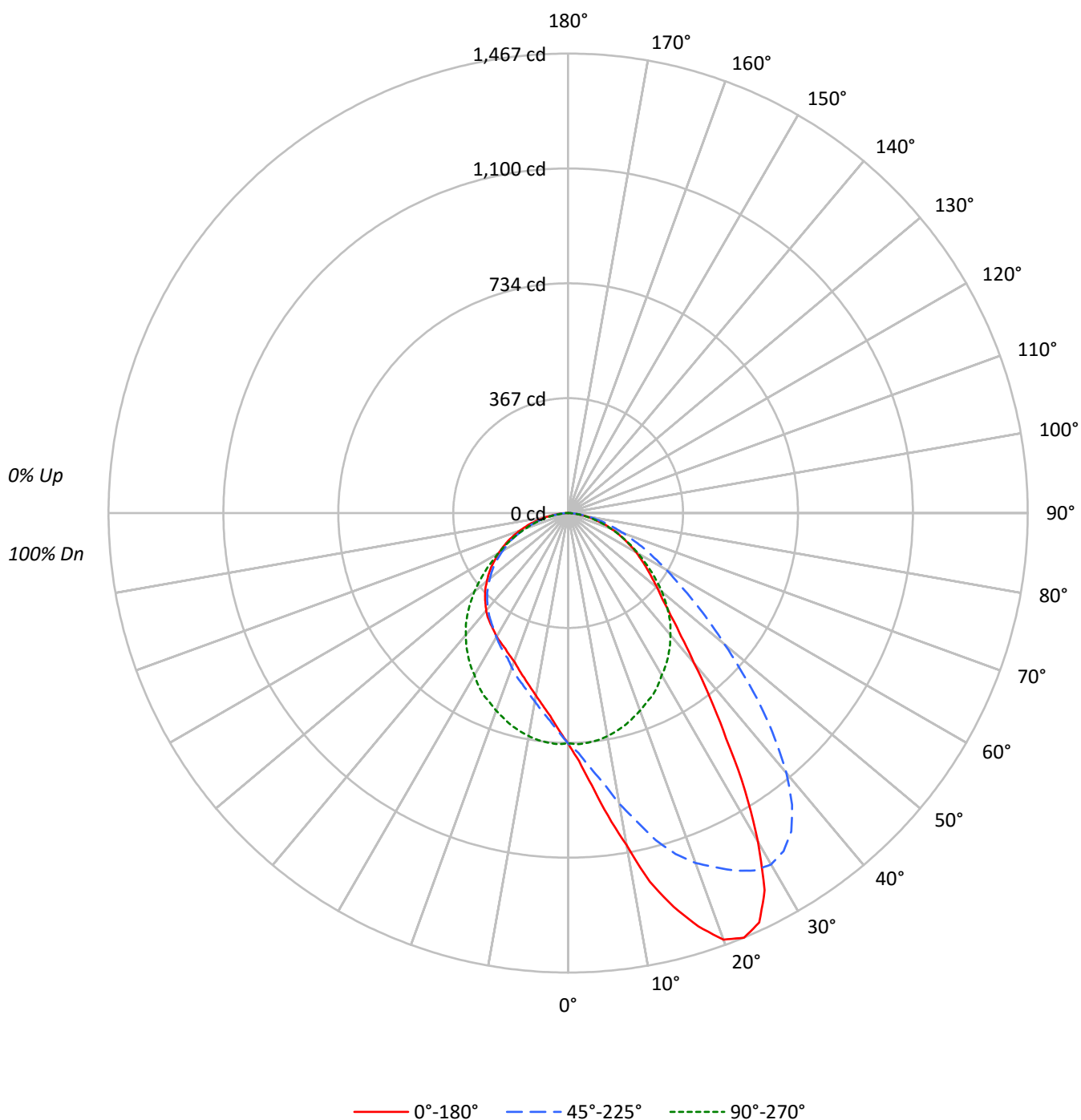
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8910	8910	8910
5°	10616	8953	7913
10°	13257	8899	7275
15°	16339	8803	6827
20°	18696	8662	6496
25°	19295	8568	6374
30°	16951	8363	6380
35°	13010	8238	6385
40°	9896	8037	6434
45°	7962	7777	6428
50°	7007	7364	6374
55°	6458	6822	6331
60°	6087	6242	6201
65°	5659	5705	6083
70°	5178	5118	5823
75°	4604	4463	5423
80°	3853	3686	4747
85°	2712	2670	3560

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.3	3.3
10°-20°	232.2	10.5
20°-30°	383.5	17.3
30°-40°	439.0	19.8
40°-50°	397.8	18.0
50°-60°	321.4	14.5
60°-70°	223.9	10.1
70°-80°	117.4	5.3
80°-90°	28.0	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°	688.1	31.1
0°-40°	1127.0	50.9
0°-60°	1846.2	83.3
0°-90°	2215.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2215.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	735	735	735	735	735	
5°	872	816	736	666	650	90
15°	1302	1081	702	565	544	371
25°	1443	1259	641	488	477	645
35°	879	1241	557	427	432	557
45°	464	867	454	366	375	366
55°	306	487	323	287	300	275
65°	197	266	199	196	212	195
75°	98	121	95	99	116	105
85°	20	25	19	22	26	25
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°	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1
2.5°	791.7	793.4	790.7	792.4	788.3	786.0	782.3	780.6	772.5	766.8	764.8
5°	872.5	872.5	873.2	869.1	864.4	856.0	844.9	837.8	829.7	815.9	808.9
7.5°	974.1	969.1	965.7	958.3	951.9	938.1	926.0	911.5	892.7	869.8	857.7
10°	1077.1	1082.5	1079.2	1071.4	1054.9	1032.4	1014.5	993.7	964.4	942.2	910.5
12.5°	1205.7	1198.7	1193.3	1181.5	1163.3	1139.4	1111.8	1080.8	1043.1	1006.4	971.1
15°	1302.0	1303.0	1302.7	1287.2	1269.3	1237.0	1211.4	1159.9	1112.1	1081.2	1022.6
17.5°	1383.4	1387.8	1382.8	1359.5	1343.7	1324.5	1291.9	1234.7	1191.2	1141.1	1076.5
20°	1449.4	1450.1	1442.0	1424.8	1406.7	1385.1	1342.0	1298.3	1255.9	1188.6	1127.0
22.5°	1466.9	1468.6	1466.9	1459.5	1444.7	1421.8	1389.5	1349.1	1295.6	1223.9	1166.7
25°	1442.7	1441.7	1447.4	1443.0	1442.4	1434.9	1413.7	1381.1	1328.2	1259.2	1186.5
27.5°	1357.9	1350.8	1365.3	1384.1	1386.8	1398.6	1398.9	1383.8	1345.7	1286.8	1207.7
30°	1211.1	1217.8	1224.9	1264.3	1286.2	1316.8	1343.4	1353.2	1338.7	1295.3	1221.2
32.5°	1051.6	1073.1	1093.0	1120.2	1152.2	1204.0	1246.1	1283.1	1299.0	1279.8	1221.2
35°	879.2	890.7	922.0	956.6	1002.7	1043.1	1126.6	1180.5	1228.6	1241.1	1205.7
37.5°	744.6	755.0	765.8	792.7	844.5	911.9	980.9	1051.6	1122.9	1174.1	1172.1
40°	625.4	627.8	637.2	660.4	703.5	763.4	835.8	921.0	1013.5	1083.2	1112.5
42.5°	533.9	533.9	545.6	572.6	597.5	641.2	711.2	786.3	887.6	977.2	1039.8
45°	464.5	465.2	474.6	493.8	513.3	547.7	599.5	670.2	774.5	867.1	954.3
47.5°	408.0	414.4	419.7	429.8	449.4	479.7	517.4	577.6	652.0	753.0	854.6
50°	371.6	373.0	377.0	383.1	398.2	418.1	450.7	496.5	562.5	652.0	754.7
52.5°	335.9	335.9	340.0	347.4	356.1	372.3	395.8	433.9	483.4	564.5	656.7
55°	305.6	306.6	307.3	313.4	320.8	332.9	351.4	376.3	421.8	486.7	567.2
57.5°	276.0	279.7	278.7	283.4	288.8	297.6	310.7	332.2	366.9	416.4	488.8
60°	251.1	250.4	252.1	254.1	257.8	263.9	276.0	291.8	320.8	362.2	421.4
62.5°	222.8	222.2	224.2	226.5	229.9	235.0	243.7	255.8	278.7	309.7	361.2
65°	197.3	196.6	197.6	198.9	202.6	206.7	213.4	223.5	238.7	265.9	305.3
67.5°	171.7	171.7	172.3	173.7	176.0	179.1	184.5	190.5	205.7	223.8	254.8
70°	146.1	146.4	146.4	147.8	149.8	152.1	156.5	161.9	171.3	187.5	212.4
72.5°	123.9	123.9	123.2	123.9	125.2	126.2	128.9	134.0	141.0	152.8	171.7
75°	98.3	100.0	99.6	99.3	100.3	102.0	104.3	108.4	112.8	121.2	135.3
77.5°	75.4	76.4	76.4	76.7	77.8	79.1	79.8	83.8	87.9	92.9	103.3
80°	55.2	55.9	55.2	55.5	56.2	57.6	58.9	59.6	62.6	67.0	72.0
82.5°	37.0	36.0	37.4	37.0	37.7	38.0	38.7	39.0	41.1	43.8	47.1
85°	19.5	21.2	20.9	21.5	20.9	21.2	21.5	22.9	23.2	24.9	26.9
87.5°	7.4	8.1	8.1	8.1	8.1	8.1	8.8	9.1	9.8	10.1	10.8
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°	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1
2.5°	766.1	763.1	758.7	754.0	748.9	743.9	741.5	738.5	732.5	726.4	721.7
5°	803.1	794.7	783.3	774.9	762.7	751.3	742.2	735.8	726.1	714.3	706.5
7.5°	844.5	829.4	811.2	792.7	774.5	757.4	743.2	731.1	716.0	701.5	689.7
10°	893.4	864.1	838.8	811.9	785.0	760.7	740.5	723.0	703.5	686.0	671.5
12.5°	936.4	902.4	867.4	829.4	793.0	761.7	735.8	712.9	689.4	669.2	654.4
15°	983.9	936.1	887.6	844.5	800.4	762.1	728.1	701.5	674.6	651.7	634.5
17.5°	1038.4	974.5	913.5	851.6	812.6	763.1	721.3	686.3	658.7	635.8	613.6
20°	1070.7	1007.1	932.4	868.8	804.1	753.3	706.9	671.5	639.2	613.0	594.8
22.5°	1088.2	1021.3	943.2	877.9	802.5	745.6	696.1	654.4	619.7	593.4	572.9
25°	1112.8	1021.3	948.9	870.5	805.2	736.5	680.6	640.6	604.2	573.9	552.4
27.5°	1123.9	1030.3	949.6	856.3	789.0	719.3	662.8	620.4	580.0	550.3	531.8
30°	1133.0	1032.0	936.1	845.2	770.2	700.1	644.9	597.5	559.8	531.5	512.0
32.5°	1133.7	1027.7	917.9	824.3	744.9	677.6	623.7	579.0	539.6	509.6	490.4
35°	1127.6	1016.9	897.1	792.4	715.6	654.4	600.5	556.7	516.7	488.1	468.6
37.5°	1112.1	1004.8	877.5	762.4	681.0	621.4	575.6	533.9	494.1	465.5	449.4
40°	1079.2	985.2	851.9	730.4	645.9	586.4	546.3	507.9	472.6	443.0	426.8
42.5°	1035.4	956.0	821.0	696.4	606.9	549.3	514.0	483.0	447.0	421.4	404.9
45°	973.5	916.2	790.0	660.8	568.2	511.6	479.3	453.7	422.8	397.2	382.7
47.5°	903.4	868.4	750.0	620.7	527.5	474.3	443.6	423.1	396.9	375.0	360.5
50°	824.7	811.6	705.9	580.3	489.4	434.9	406.6	390.5	368.2	350.7	338.3
52.5°	739.2	747.3	659.4	539.2	452.7	397.5	370.6	355.8	341.7	326.8	315.1
55°	652.3	671.5	603.2	494.5	410.7	362.5	336.3	322.8	312.4	299.9	291.5
57.5°	570.9	600.8	545.0	446.7	371.9	325.8	300.9	289.1	281.4	274.7	266.9
60°	491.8	526.5	485.0	401.9	333.2	291.2	268.9	257.5	253.8	248.8	241.3
62.5°	421.8	457.1	426.1	355.8	294.2	258.2	238.0	228.6	223.2	221.5	217.1
65°	356.1	389.1	365.6	307.7	257.2	225.2	207.3	198.9	195.9	195.6	192.2
67.5°	299.2	331.2	309.7	260.9	218.1	192.2	178.7	172.0	169.0	169.3	167.0
70°	246.7	269.3	256.5	218.1	185.1	162.2	151.8	144.4	142.0	142.0	141.4
72.5°	197.9	215.8	206.0	176.7	150.8	133.3	124.2	119.8	117.8	117.5	117.8
75°	154.8	170.3	161.6	138.7	119.2	106.0	98.3	95.3	94.2	93.6	93.9
77.5°	115.8	125.6	120.2	105.4	89.2	80.1	76.4	73.4	72.4	72.7	73.4
80°	81.8	87.2	84.2	74.7	64.0	57.9	55.2	52.8	51.8	52.8	52.8
82.5°	51.8	55.9	53.2	47.1	41.7	37.7	35.0	34.3	34.0	33.3	34.3
85°	28.3	30.3	28.9	26.9	23.2	21.5	19.5	19.2	19.2	19.2	19.2
87.5°	11.1	12.5	10.8	10.8	10.1	8.4	8.4	8.1	7.7	8.1	8.1
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°	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1	735.1
2.5°	719.7	715.3	712.6	708.9	704.5	698.8	696.4	698.8	697.4	695.1	696.1
5°	699.8	694.1	686.7	680.6	673.9	665.5	662.8	661.4	659.4	658.4	656.7
7.5°	680.3	671.9	662.8	654.4	644.6	637.2	633.8	631.5	630.8	625.7	623.7
10°	660.1	649.6	640.6	629.1	620.7	610.9	606.9	604.2	601.2	597.8	595.5
12.5°	638.9	628.4	617.0	606.2	597.8	587.0	581.7	578.6	576.3	573.9	571.2
15°	620.4	609.9	594.1	586.0	575.9	565.2	561.8	555.1	555.7	551.7	549.0
17.5°	600.8	585.4	574.2	562.1	554.7	547.0	540.6	533.5	532.5	529.5	528.5
20°	579.0	562.8	555.1	542.6	532.5	524.8	519.0	518.4	516.4	512.0	510.3
22.5°	557.4	544.3	533.5	522.1	513.0	502.9	500.2	501.2	497.5	496.5	492.8
25°	537.9	526.5	513.0	502.2	494.8	488.4	484.7	483.4	482.0	481.0	479.3
27.5°	517.0	504.9	493.5	484.7	477.6	473.3	470.9	467.9	467.5	467.5	466.9
30°	496.2	485.4	477.6	466.5	460.1	457.4	455.4	454.4	455.4	455.4	455.8
32.5°	477.0	466.5	457.4	449.7	443.3	441.3	441.0	441.0	442.3	442.3	443.3
35°	457.1	446.7	438.3	432.9	427.5	427.2	427.5	428.2	429.8	430.2	431.5
37.5°	435.6	427.5	421.1	414.4	413.0	413.7	414.4	415.0	415.7	418.4	418.4
40°	415.7	409.6	403.3	398.9	396.5	398.2	399.2	399.6	401.6	403.3	404.6
42.5°	396.2	390.5	385.4	381.7	380.7	382.0	383.1	384.1	386.1	387.4	389.8
45°	374.3	370.6	366.2	363.2	363.5	365.6	365.6	368.9	370.3	370.9	372.6
47.5°	354.1	350.1	347.0	345.7	345.4	347.0	348.0	350.7	351.4	353.8	355.1
50°	332.6	329.5	327.2	325.5	325.8	326.5	328.9	331.6	332.2	334.9	337.3
52.5°	310.0	307.3	305.3	306.0	307.0	307.0	309.3	311.0	312.7	314.7	317.1
55°	287.8	284.1	284.4	283.4	284.4	286.8	287.8	290.5	291.8	292.8	296.2
57.5°	263.6	262.9	261.9	260.9	262.9	263.9	265.6	267.3	269.6	271.0	273.3
60°	238.7	237.6	237.6	239.0	239.7	241.7	244.4	245.4	246.1	248.8	251.8
62.5°	215.8	214.8	214.4	216.4	216.4	218.5	219.5	221.1	223.8	224.9	228.9
65°	191.2	190.5	190.5	192.2	192.5	196.2	196.2	196.2	197.9	201.6	203.6
67.5°	165.6	165.9	167.0	168.0	169.3	170.3	170.7	172.7	175.4	177.7	181.8
70°	140.0	141.7	143.7	143.4	144.4	146.1	146.4	148.4	150.8	153.8	158.5
72.5°	117.1	118.1	120.2	120.2	121.5	122.5	124.2	125.6	128.6	131.3	133.3
75°	94.2	94.6	96.3	97.3	98.3	99.0	100.6	103.0	104.7	107.0	110.1
77.5°	74.1	73.4	74.7	75.1	75.7	77.1	78.4	80.8	82.1	84.8	85.8
80°	52.5	53.9	54.2	54.5	55.2	56.9	57.9	58.9	60.3	62.6	63.6
82.5°	34.7	35.3	36.4	36.7	37.4	37.7	38.0	39.7	40.7	41.4	44.8
85°	20.2	21.2	20.5	20.5	21.2	21.5	22.9	22.9	24.2	23.6	25.2
87.5°	8.8	8.4	8.4	8.8	8.4	8.1	9.1	9.1	8.8	9.1	9.1
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: S123DR-H560D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	735.1	735.1	735.1	735.1
2.5°	694.4	694.4	691.7	692.7
5°	653.4	654.7	651.3	650.3
7.5°	623.1	621.7	619.4	619.4
10°	593.4	592.1	591.1	591.1
12.5°	567.9	566.5	564.5	566.2
15°	545.0	545.3	544.0	544.0
17.5°	527.5	524.4	523.4	523.1
20°	506.6	507.3	505.9	503.6
22.5°	493.5	491.8	490.4	490.1
25°	480.0	478.3	478.0	476.6
27.5°	466.5	466.9	465.9	465.9
30°	455.4	456.4	455.4	455.8
32.5°	444.3	444.3	444.3	443.0
35°	432.2	432.5	432.2	431.5
37.5°	419.7	419.7	420.1	420.8
40°	405.9	405.9	406.6	406.6
42.5°	389.5	391.1	392.1	390.5
45°	374.6	375.0	375.3	375.0
47.5°	358.1	357.1	357.5	358.1
50°	337.6	340.0	340.0	338.0
52.5°	317.8	318.4	319.8	319.8
55°	298.2	298.6	298.9	299.6
57.5°	276.0	276.4	276.4	276.0
60°	253.8	255.8	255.5	255.8
62.5°	229.9	232.9	233.9	233.6
65°	207.3	208.0	209.7	212.1
67.5°	183.4	185.1	187.8	187.2
70°	159.9	162.2	162.9	164.3
72.5°	136.3	139.4	140.0	140.7
75°	113.4	114.8	116.1	115.8
77.5°	88.5	90.5	92.9	91.6
80°	66.3	66.6	68.7	68.0
82.5°	43.8	46.5	46.5	45.1
85°	25.6	25.6	25.6	25.6
87.5°	8.8	8.4	9.1	8.8
90°	0.0	0.0	0.0	0.0

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