

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: P243499

Luminaire Tested: **S124DR-H575D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243499
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H575D835-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2341.7 lumens
Efficiency: N/A
Efficacy: 136.1 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

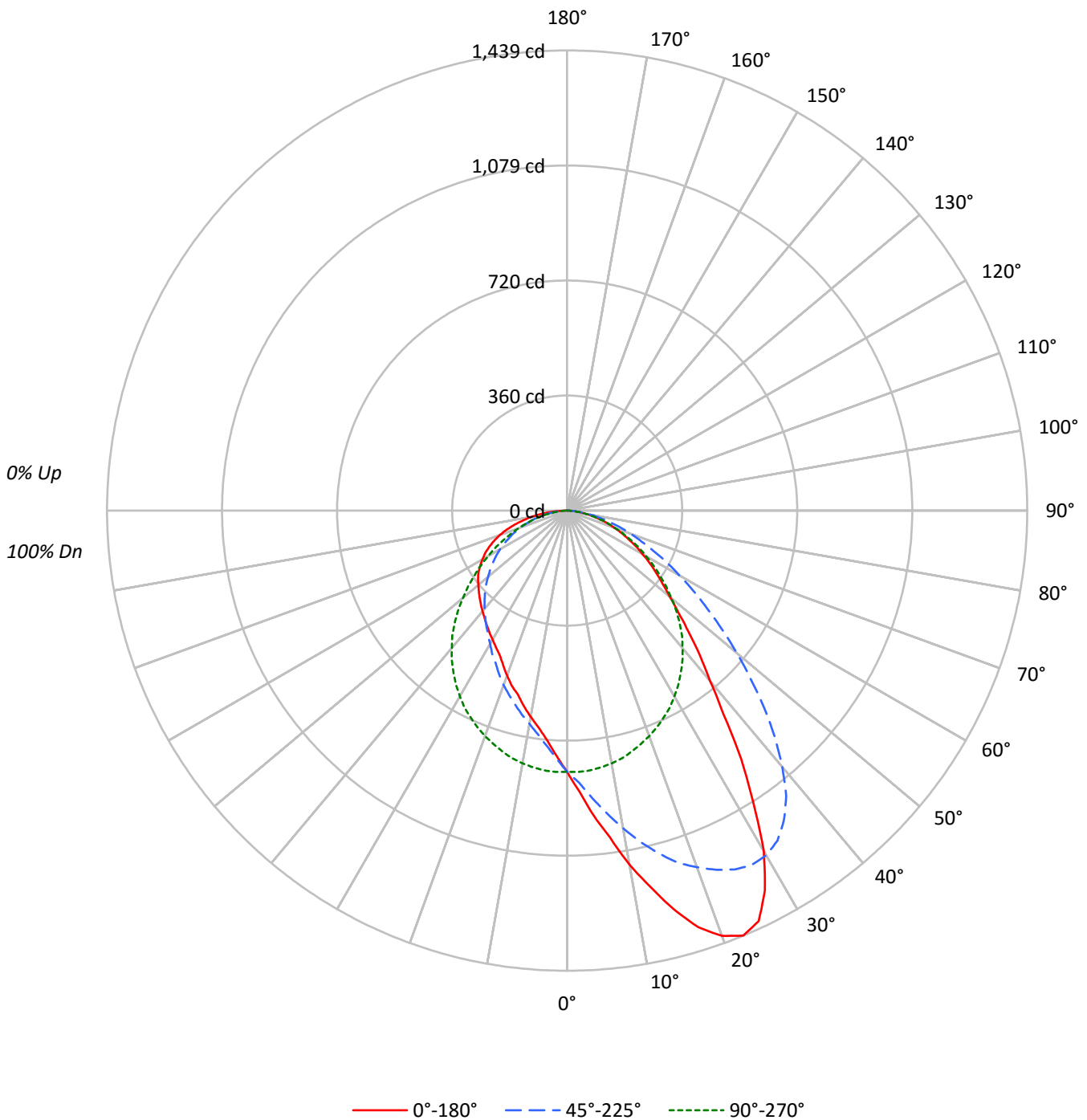
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P243499

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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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7260	7260	7260
5°	8543	7278	6424
10°	10152	7245	5915
15°	11890	7182	5478
20°	13389	7098	5196
25°	13895	7003	4891
30°	12619	6884	4783
35°	10295	6720	4753
40°	8061	6510	4773
45°	6747	6248	4861
50°	5790	5881	5006
55°	5289	5486	5249
60°	4848	5079	5440
65°	4444	4648	5652
70°	4088	4192	5822
75°	3640	3685	5814
80°	3036	3020	5800
85°	2315	2274	5436



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	79.5	3.4
10°-20°	246.2	10.5
20°-30°	395.5	16.9
30°-40°	452.1	19.3
40°-50°	416.2	17.8
50°-60°	340.4	14.5
60°-70°	242.6	10.4
70°-80°	133.3	5.7
80°-90°	35.8	1.5
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°	721.2	30.8
0°-40°	1173.4	50.1
0°-60°	1930.0	82.4
0°-90°	2341.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2341.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	817	817	817	817	817	
5°	957	903	816	737	720	96
15°	1292	1110	780	628	595	368
25°	1417	1238	714	528	499	636
35°	949	1182	619	441	438	590
45°	537	871	497	363	387	419
55°	341	535	354	283	339	306
65°	211	297	221	198	269	211
75°	106	137	107	110	169	113
85°	23	28	22	31	53	27
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°	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7
2.5°	879.4	876.7	875.4	873.7	873.4	871.7	868.4	863.7	857.7	851.4	851.4
5°	957.4	956.7	951.7	952.0	945.7	938.7	933.4	926.7	913.7	902.7	895.0
7.5°	1032.0	1039.0	1037.4	1032.0	1022.7	1012.7	1002.0	992.7	968.7	955.4	944.4
10°	1124.7	1127.4	1122.7	1115.0	1106.7	1087.4	1073.4	1057.7	1031.7	1009.0	989.0
12.5°	1206.0	1212.4	1204.0	1196.7	1177.0	1162.7	1148.7	1117.4	1090.0	1061.4	1032.4
15°	1292.0	1285.4	1289.7	1271.7	1257.7	1244.0	1208.4	1176.4	1145.4	1110.0	1079.7
17.5°	1366.7	1366.7	1358.7	1347.0	1332.4	1306.7	1271.0	1235.7	1201.4	1155.0	1112.0
20°	1415.4	1419.0	1409.7	1397.4	1379.7	1353.0	1324.7	1286.4	1240.7	1186.7	1138.0
22.5°	1438.7	1439.4	1436.0	1425.7	1411.4	1388.7	1359.7	1322.4	1274.0	1216.0	1165.0
25°	1416.7	1420.4	1419.4	1418.7	1411.4	1398.4	1375.0	1340.4	1296.4	1238.4	1183.4
27.5°	1339.4	1348.4	1356.0	1359.4	1367.4	1368.0	1361.0	1340.0	1304.0	1249.4	1188.0
30°	1229.4	1224.7	1245.4	1255.7	1283.0	1299.4	1311.0	1309.7	1289.0	1244.7	1186.4
32.5°	1082.7	1095.4	1110.0	1134.4	1166.7	1204.7	1233.4	1254.7	1252.7	1223.7	1175.0
35°	948.7	948.7	967.4	997.4	1031.7	1077.4	1125.4	1165.0	1189.4	1182.0	1147.7
37.5°	803.4	812.4	833.7	857.0	899.0	943.0	1006.4	1059.0	1110.0	1125.4	1107.7
40°	694.7	698.7	721.3	741.0	784.0	829.7	882.7	950.0	1008.7	1046.4	1048.7
42.5°	614.0	613.7	623.0	640.7	675.3	716.0	773.4	839.4	908.0	961.4	986.4
45°	536.7	536.0	545.7	563.7	588.3	624.3	674.0	740.0	810.4	871.0	910.4
47.5°	471.3	477.3	481.7	495.7	516.0	546.7	589.3	642.0	709.7	777.7	830.7
50°	418.7	421.3	430.7	437.3	460.0	481.3	515.7	563.0	621.0	692.3	749.7
52.5°	376.7	378.3	384.0	392.7	405.7	424.3	451.7	495.3	547.7	609.7	669.0
55°	341.3	340.3	344.0	349.7	361.0	376.7	396.7	430.0	475.7	535.3	590.0
57.5°	306.7	306.7	310.0	314.0	320.3	333.3	353.0	379.3	416.0	469.0	517.3
60°	272.7	275.0	276.3	280.3	285.7	295.3	310.0	330.7	361.7	405.0	453.0
62.5°	242.7	242.7	245.0	246.3	253.3	260.3	271.0	288.7	313.0	351.7	389.0
65°	211.3	213.3	213.3	216.0	222.0	227.3	235.7	249.0	269.0	296.7	331.7
67.5°	184.7	184.7	186.3	187.7	191.0	194.7	202.0	212.3	229.3	251.3	283.0
70°	157.3	158.3	157.7	159.3	161.3	165.0	170.3	179.0	191.3	210.3	233.7
72.5°	132.7	131.3	132.0	133.7	134.7	137.0	140.3	147.0	157.0	172.3	189.3
75°	106.0	105.3	107.7	107.0	108.7	110.7	113.7	118.7	126.3	137.0	150.0
77.5°	82.7	81.7	82.7	83.3	84.0	85.7	88.0	91.0	96.3	103.3	115.0
80°	59.3	59.0	59.7	60.3	60.7	63.3	64.0	67.0	69.3	74.7	80.3
82.5°	39.3	40.0	40.3	41.0	40.7	42.0	42.7	44.7	46.7	49.3	53.7
85°	22.7	21.7	22.7	22.7	22.7	24.3	24.0	25.3	26.7	28.0	31.0
87.5°	8.0	8.0	8.3	8.7	8.7	9.7	9.3	10.0	11.3	11.3	12.3
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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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7
2.5°	849.4	845.7	843.0	835.4	830.7	826.4	822.4	818.0	813.4	807.4	803.7
5°	887.0	879.0	867.4	856.7	844.7	834.0	825.4	815.7	805.0	794.0	784.4
7.5°	928.7	913.7	895.7	876.0	857.4	841.7	825.4	810.0	795.0	780.4	766.7
10°	970.4	944.4	920.7	893.7	869.0	845.4	824.0	802.7	784.0	764.7	747.4
12.5°	1009.0	977.7	943.0	909.4	876.4	845.7	819.4	793.4	769.4	746.4	726.0
15°	1038.7	999.4	958.4	918.4	880.4	848.4	814.0	780.4	755.4	727.3	705.0
17.5°	1072.7	1026.0	985.4	937.4	890.0	838.4	802.0	765.4	735.4	708.3	686.0
20°	1095.4	1044.0	985.4	931.0	882.4	836.0	792.4	750.4	718.7	687.3	660.3
22.5°	1113.4	1060.4	995.7	939.0	878.0	822.0	774.7	733.4	696.0	666.3	640.7
25°	1122.7	1058.0	996.4	927.7	866.7	813.0	759.7	714.0	676.3	643.3	621.3
27.5°	1123.0	1056.7	983.7	915.7	850.4	792.4	739.7	694.7	652.3	620.7	594.3
30°	1121.4	1048.0	971.0	896.7	831.7	772.4	717.3	670.7	632.0	598.3	573.3
32.5°	1110.7	1036.0	952.0	874.0	803.4	743.7	693.0	646.7	605.3	574.7	548.3
35°	1086.7	1009.7	925.4	845.0	778.0	716.0	666.0	619.3	582.3	549.0	522.0
37.5°	1056.0	984.0	898.4	814.4	742.0	683.3	636.3	592.3	553.7	523.0	496.0
40°	1017.4	949.7	865.4	778.0	705.7	646.3	602.0	561.0	528.0	496.7	470.3
42.5°	964.4	912.4	825.7	740.7	665.0	609.0	566.0	532.0	498.0	469.7	443.3
45°	907.7	860.4	783.4	699.0	626.3	568.7	528.3	497.0	468.0	439.3	418.0
47.5°	845.0	806.4	735.0	652.7	581.0	530.0	490.3	462.3	435.7	413.7	392.3
50°	770.4	750.0	683.3	608.7	539.0	486.7	454.0	425.3	405.7	384.3	364.3
52.5°	701.0	684.7	630.3	557.0	493.7	447.7	412.7	390.0	370.7	355.0	339.0
55°	625.7	617.3	571.3	508.0	450.7	404.7	374.7	354.0	338.7	324.0	312.3
57.5°	556.3	555.7	515.0	460.7	404.7	365.7	337.0	320.0	306.7	296.3	286.3
60°	485.3	491.0	457.7	408.0	363.7	327.0	301.0	285.7	276.7	267.0	258.7
62.5°	421.0	429.7	399.3	360.3	316.7	286.7	266.7	255.0	245.0	238.0	231.7
65°	359.3	370.3	345.7	310.7	277.3	249.0	232.0	221.0	213.3	209.3	205.0
67.5°	305.0	311.0	294.3	267.0	239.3	214.7	200.7	191.0	184.3	182.7	177.7
70°	250.7	257.7	246.0	221.0	199.7	181.7	169.0	161.3	157.3	155.0	151.7
72.5°	207.0	210.0	198.3	181.0	164.0	149.0	139.7	134.0	129.3	128.3	126.7
75°	162.0	166.3	157.0	143.7	129.7	119.0	112.0	107.3	105.0	103.3	103.3
77.5°	122.3	126.0	120.7	109.0	100.7	91.3	86.7	82.3	81.3	79.7	80.3
80°	87.0	88.7	85.7	77.7	70.3	65.3	61.3	59.0	58.7	57.3	58.7
82.5°	57.7	58.0	54.7	51.0	45.3	42.7	40.0	39.0	38.7	38.7	38.0
85°	32.0	32.7	30.3	28.0	26.0	23.7	23.0	22.3	21.7	22.7	23.3
87.5°	12.3	12.7	12.3	11.3	10.7	10.0	9.7	10.3	9.3	10.0	10.3
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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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7	816.7
2.5°	798.0	795.4	791.4	784.7	780.0	775.0	773.0	773.7	771.7	769.0	769.7
5°	777.0	769.4	762.7	753.4	744.7	737.4	735.0	732.0	729.3	727.7	726.0
7.5°	754.7	744.0	734.0	724.7	714.7	705.3	701.7	699.0	697.7	693.0	691.0
10°	733.4	721.0	709.0	698.0	687.7	677.3	673.7	670.3	665.7	663.7	661.3
12.5°	710.7	698.3	685.3	672.0	661.7	653.3	647.0	644.7	640.0	638.0	636.7
15°	688.7	673.7	663.3	653.0	637.3	628.0	625.3	617.0	614.3	610.3	607.7
17.5°	666.7	652.7	637.3	625.3	615.7	604.0	597.7	594.0	589.0	585.3	580.3
20°	645.0	628.7	616.7	601.7	591.0	580.3	572.3	569.0	564.7	559.7	552.7
22.5°	624.0	606.0	594.3	580.3	567.0	554.7	548.0	543.3	534.7	533.7	527.3
25°	599.3	583.3	568.0	553.3	540.3	528.0	523.7	516.3	513.3	507.3	506.3
27.5°	576.0	559.0	542.3	526.3	515.0	506.3	498.7	494.0	491.0	486.3	486.7
30°	551.7	533.0	517.3	502.7	490.3	482.0	477.0	474.7	470.3	469.7	467.3
32.5°	525.7	508.7	492.3	479.3	466.7	459.3	457.0	454.7	452.0	452.3	451.7
35°	499.7	484.7	467.3	455.3	445.0	440.7	437.0	436.3	435.3	436.0	436.0
37.5°	474.3	458.0	443.7	432.7	426.7	420.7	419.0	418.7	419.0	419.7	421.3
40°	449.7	434.7	420.7	411.7	405.0	402.3	400.0	401.0	402.3	404.7	406.7
42.5°	425.0	410.7	399.0	390.0	383.7	382.3	382.7	384.7	385.0	388.3	392.0
45°	399.0	386.7	375.7	368.7	364.7	363.0	363.7	365.7	368.0	372.7	377.3
47.5°	375.0	364.0	354.3	347.3	344.3	343.7	345.0	347.7	353.0	357.7	363.0
50°	350.7	340.7	331.7	325.3	325.0	322.7	325.7	329.0	335.3	341.7	349.7
52.5°	326.7	317.0	309.3	304.3	303.0	303.0	306.7	312.7	318.3	326.7	334.0
55°	301.7	293.0	285.7	284.0	282.0	283.0	287.0	293.0	301.0	310.3	318.3
57.5°	276.0	268.7	263.3	261.0	260.0	263.3	268.0	274.3	284.7	294.0	302.7
60°	251.7	245.3	239.7	239.0	238.3	242.7	248.3	255.0	265.3	274.7	285.3
62.5°	225.7	220.7	217.0	216.0	216.0	220.3	226.7	235.3	245.0	255.0	266.3
65°	199.3	195.0	194.0	192.7	195.7	198.3	204.7	213.0	223.3	234.3	246.3
67.5°	175.0	172.3	170.3	170.3	172.7	177.7	183.3	191.7	202.3	214.0	224.7
70°	150.7	148.0	146.3	148.0	149.3	155.3	161.3	169.3	179.3	190.7	202.0
72.5°	125.3	125.7	126.0	125.7	127.0	132.7	138.7	146.3	156.0	167.0	177.3
75°	103.0	101.3	101.7	102.3	106.7	109.7	115.7	123.0	133.3	143.3	152.0
77.5°	80.0	79.3	81.0	81.0	85.0	88.7	93.7	101.0	110.0	119.0	126.0
80°	58.7	59.0	60.3	60.7	64.0	68.0	73.3	78.3	86.3	92.7	99.3
82.5°	39.7	40.3	42.0	44.3	45.7	48.0	52.7	58.0	63.7	70.3	74.3
85°	23.0	24.0	25.3	27.0	28.3	30.7	34.0	38.3	42.3	46.0	49.3
87.5°	11.3	11.3	12.3	13.0	14.0	15.3	17.7	19.3	22.0	24.7	26.0
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: S124DR-H575D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	816.7	816.7	816.7	816.7
2.5°	768.4	768.0	766.7	767.4
5°	725.0	721.7	721.3	720.0
7.5°	687.7	686.7	686.7	684.0
10°	659.0	656.0	656.7	655.3
12.5°	631.7	630.0	628.0	626.0
15°	601.0	601.0	601.0	595.3
17.5°	577.0	576.7	575.0	574.7
20°	552.0	550.7	546.3	549.3
22.5°	526.7	525.7	522.0	522.7
25°	503.0	502.0	501.3	498.7
27.5°	482.7	483.0	483.7	482.0
30°	467.3	466.3	467.7	466.0
32.5°	453.0	453.0	451.7	452.0
35°	436.7	438.0	438.3	438.0
37.5°	422.3	424.0	425.3	424.0
40°	409.0	410.3	411.7	411.3
42.5°	395.0	397.3	398.3	399.3
45°	381.7	384.7	386.3	386.7
47.5°	368.0	371.7	375.0	374.7
50°	354.7	359.3	362.3	362.0
52.5°	341.3	346.0	349.7	351.3
55°	326.3	332.3	335.7	338.7
57.5°	311.3	318.0	321.3	322.7
60°	294.7	300.7	305.0	306.0
62.5°	276.0	282.3	288.0	289.3
65°	256.7	263.7	268.0	268.7
67.5°	234.3	241.0	245.3	247.3
70°	211.3	216.3	221.0	224.0
72.5°	185.7	191.7	196.0	198.0
75°	159.0	165.7	168.0	169.3
77.5°	131.3	135.3	139.0	139.3
80°	103.7	108.7	110.0	113.3
82.5°	76.3	81.0	80.0	81.3
85°	50.3	52.0	53.0	53.3
87.5°	26.7	27.7	28.3	28.7
90°	0.0	0.0	0.0	0.0

(END OF REPORT)