

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: P332729-840

Luminaire Tested: **S124DIW-S350D1050U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332729-840  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DIW-S350D1050U840-4F0-1E-UDD-D  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 350 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5690.7 lumens  
Efficiency: N/A  
Efficacy: 149.8 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')  
CIE Type: Semi-Indirect

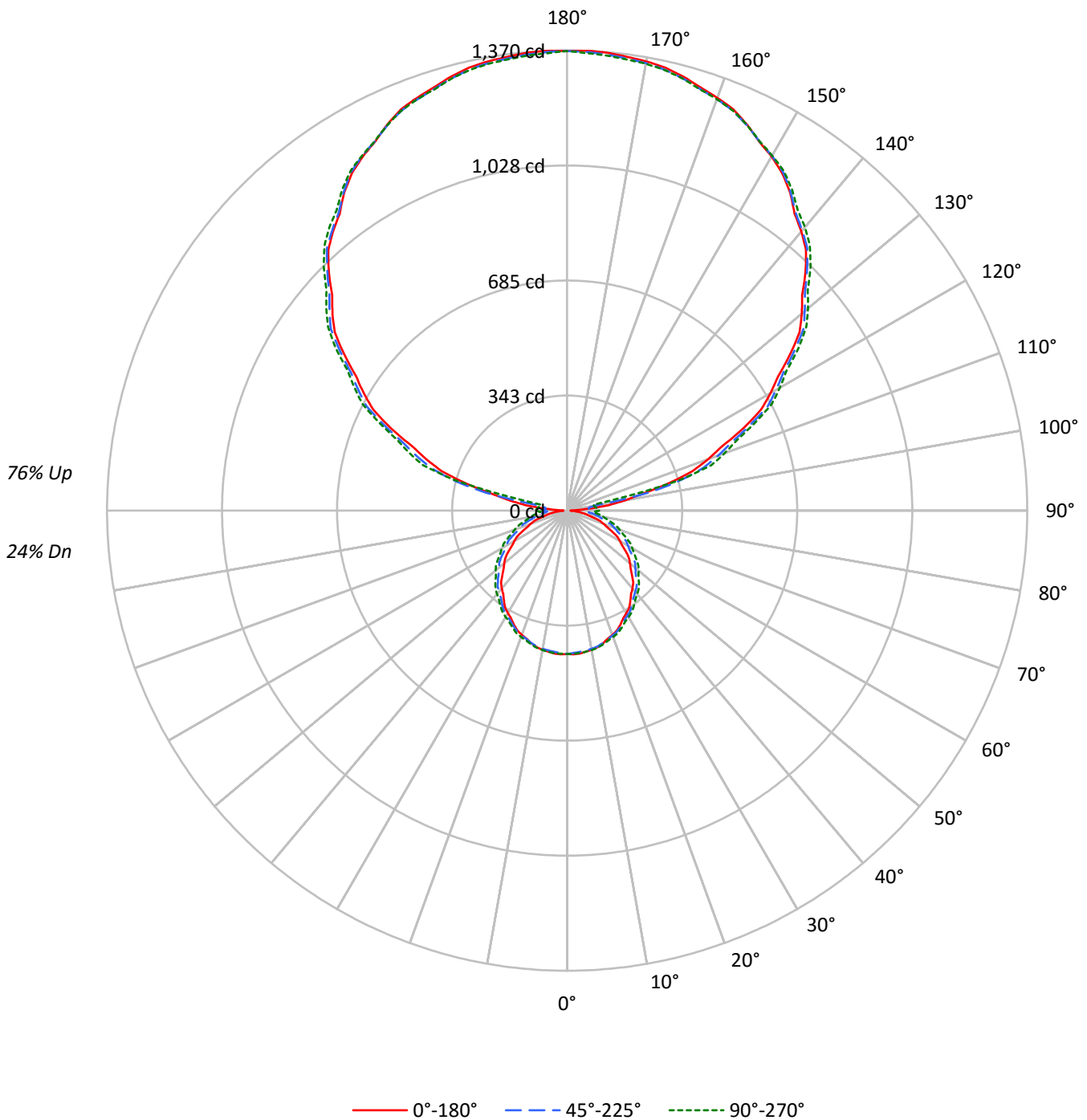
Input Watts (W): 38  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32	24
1	91	87	83	80	81	77	74	71	59	57	55	43	41	40	27	27	26	19
2	83	76	70	64	73	67	62	58	52	48	45	37	35	33	24	23	21	15
3	76	66	59	53	67	59	53	48	45	41	38	33	30	28	21	19	18	13
4	69	58	51	45	61	52	45	40	40	35	32	29	26	23	19	17	15	11
5	63	52	44	38	56	46	39	34	36	31	27	26	23	20	17	15	13	9
6	58	46	38	33	51	41	34	30	32	27	23	23	20	17	15	13	12	8
7	53	41	34	28	47	37	30	26	29	24	20	21	18	15	14	12	10	7
8	49	37	30	25	44	34	27	23	26	21	18	19	16	13	12	10	9	6
9	46	34	27	22	41	30	24	20	24	19	16	17	14	12	11	10	8	6
10	43	31	24	19	38	28	22	18	22	17	14	16	13	11	11	9	7	5

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3446	3446	3446
5°	3457	3367	3378
10°	3435	3313	3310
15°	3404	3249	3231
20°	3358	3179	3155
25°	3306	3100	3070
30°	3249	3021	2983
35°	3185	2941	2907
40°	3134	2865	2828
45°	3058	2793	2759
50°	2994	2713	2687
55°	2928	2636	2603
60°	2824	2538	2526
65°	2708	2435	2431
70°	2572	2315	2320
75°	2379	2183	2220
80°	2166	2057	2123
85°	1893	1946	2065



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.4	0.7
10°-20°	115.8	2.0
20°-30°	175.1	3.1
30°-40°	211.9	3.7
40°-50°	224.0	3.9
50°-60°	210.8	3.7
60°-70°	174.9	3.1
70°-80°	122.9	2.2
80°-90°	73.4	1.3
90°-100°	88.0	1.5
100°-110°	328.9	5.8
110°-120°	591.2	10.4
120°-130°	736.0	12.9
130°-140°	780.1	13.7
140°-150°	725.8	12.8
150°-160°	584.5	10.3
160°-170°	377.0	6.6
170°-180°	129.9	2.3
0°-30°	331.4	5.8
0°-40°	543.2	9.5
0°-60°	978.1	17.2
0°-90°	1349.2	23.7
90°-120°	1008.1	17.7
90°-150°	3250.0	57.1
90°-180°	4341.0	76.3
0°-180°	5690.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	427	427	427	427	427	
5°	427	426	422	426	426	41
15°	410	410	409	413	412	115
25°	375	378	379	384	385	173
35°	328	334	338	345	347	205
45°	273	282	292	299	302	211
55°	214	224	238	248	251	191
65°	148	164	180	191	196	147
75°	82	100	120	133	138	87
85°	25	46	67	81	86	27
90°	11	41	70	89	96	8
95°	62	46	64	82	88	77
105°	312	328	351	369	339	327
115°	578	586	600	612	615	569
125°	810	814	824	836	840	723
135°	1004	1003	1010	1020	1025	773
145°	1157	1159	1159	1163	1167	723
155°	1268	1268	1266	1269	1267	584
165°	1337	1332	1332	1339	1331	378
175°	1368	1362	1363	1371	1360	130
180°	1368	1368	1368	1368	1368	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9
2.5°	428.4	428.1	427.9	427.6	427.4	426.9	426.3	425.6	424.9	424.1	424.7
5°	427.4	427.0	426.7	426.4	426.1	425.6	424.7	424.0	423.3	422.5	423.4
7.5°	423.7	423.5	423.3	423.1	422.9	422.5	421.9	421.3	420.7	420.1	421.0
10°	420.6	420.5	420.4	420.3	420.2	419.9	419.4	418.8	418.3	417.8	418.7
12.5°	416.5	416.4	416.4	416.4	416.4	416.2	415.8	415.5	415.1	414.8	415.6
15°	409.6	409.8	409.9	410.0	410.1	410.0	409.6	409.3	409.0	408.7	409.6
17.5°	400.4	400.7	401.0	401.3	401.6	401.8	401.7	401.6	401.6	401.5	402.5
20°	393.8	394.2	394.6	394.9	395.2	395.4	395.5	395.6	395.7	395.8	396.9
22.5°	386.6	387.0	387.4	387.8	388.2	388.5	388.7	388.9	389.1	389.3	390.3
25°	374.8	375.4	376.1	376.7	377.3	377.8	378.1	378.4	378.7	379.1	380.2
27.5°	361.5	362.5	363.5	364.4	365.3	366.0	366.5	367.0	367.5	368.0	369.0
30°	352.7	353.7	354.5	355.3	356.2	357.0	357.7	358.4	359.2	359.9	361.1
32.5°	343.3	344.3	345.3	346.3	347.3	348.2	349.0	349.8	350.7	351.5	352.8
35°	327.9	329.2	330.4	331.7	333.1	334.2	335.3	336.3	337.4	338.4	339.9
37.5°	312.6	314.0	315.5	316.9	318.4	319.7	321.1	322.4	323.8	325.1	326.6
40°	302.6	304.0	305.4	306.7	308.1	309.5	311.0	312.6	314.0	315.5	317.1
42.5°	291.1	292.7	294.2	295.8	297.3	298.9	300.7	302.5	304.2	305.9	307.7
45°	273.4	275.4	277.4	279.4	281.4	283.5	285.5	287.5	289.5	291.5	293.4
47.5°	256.5	258.6	260.6	262.8	264.8	267.0	269.3	271.8	274.1	276.4	278.2
50°	244.3	246.6	248.9	251.3	253.6	255.9	258.3	260.6	263.0	265.3	267.4
52.5°	232.1	234.4	236.7	239.0	241.4	243.9	246.5	249.2	251.9	254.6	256.7
55°	214.2	216.4	218.6	220.9	223.1	225.8	228.9	232.2	235.3	238.5	240.7
57.5°	194.2	196.9	199.7	202.5	205.2	208.1	211.4	214.5	217.6	220.9	223.4
60°	181.2	183.9	186.7	189.5	192.2	195.3	198.8	202.4	205.8	209.3	211.8
62.5°	168.5	171.6	174.6	177.6	180.6	183.9	187.3	190.9	194.4	197.9	200.4
65°	148.1	151.6	155.0	158.3	161.8	165.3	168.8	172.5	176.1	179.8	182.4
67.5°	128.6	132.2	135.8	139.5	143.0	146.7	150.7	154.5	158.3	162.2	164.9
70°	115.2	118.8	122.4	126.0	129.7	133.5	137.5	141.6	145.6	149.7	152.5
72.5°	102.2	105.9	109.6	113.3	116.9	121.0	125.2	129.6	133.8	138.1	140.9
75°	82.2	86.1	90.1	94.0	98.0	102.1	106.6	111.1	115.5	120.0	123.0
77.5°	63.6	67.8	71.9	76.0	80.2	84.6	89.3	94.0	98.7	103.3	106.3
80°	52.1	56.4	60.6	64.8	69.1	73.5	78.3	82.9	87.6	92.3	95.4
82.5°	40.6	45.0	49.5	53.9	58.3	62.8	67.6	72.2	76.9	81.6	84.8
85°	25.3	29.8	34.2	38.7	43.2	47.8	52.6	57.4	62.1	67.0	70.1
87.5°	14.7	19.6	24.4	29.3	34.1	39.0	44.0	49.1	54.0	59.1	62.4
90°	10.7	17.5	24.2	31.0	37.7	44.3	50.7	57.1	63.4	69.8	74.3
92.5°	20.2	24.1	28.1	32.0	36.0	41.2	47.6	53.9	60.3	66.8	71.1
95°	62.5	58.3	54.0	49.8	45.5	45.7	50.4	54.9	59.5	64.1	68.4
97.5°	125.1	133.0	140.8	148.7	156.5	149.9	128.9	107.8	86.6	65.6	68.6
100°	173.1	180.0	186.7	193.6	200.5	190.3	163.1	135.8	108.6	81.4	80.4
102.5°	227.1	232.5	237.9	243.4	248.7	251.5	251.5	251.4	251.4	251.4	212.4
105°	312.3	315.8	319.2	322.8	326.2	330.5	335.6	340.6	345.7	350.8	355.5
107.5°	392.2	394.7	397.1	399.5	401.9	405.8	411.0	416.3	421.5	426.8	430.4
110°	445.9	448.0	450.2	452.3	454.5	458.2	463.2	468.3	473.4	478.5	481.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	497.9	500.4	502.9	505.4	508.1	511.4	515.5	519.8	523.9	528.2	530.4
115°	577.8	579.6	581.2	582.8	584.4	586.8	590.1	593.2	596.3	599.6	602.3
117.5°	650.5	652.0	653.4	654.9	656.4	658.9	662.6	666.3	669.9	673.6	675.7
120°	699.1	700.4	701.7	702.9	704.1	706.1	709.0	711.9	714.7	717.5	720.1
122.5°	745.0	745.6	746.2	746.8	747.4	749.3	752.6	755.8	759.0	762.2	764.7
125°	810.2	811.0	811.8	812.6	813.4	815.0	817.2	819.3	821.5	823.7	826.5
127.5°	872.3	872.4	872.5	872.7	872.8	874.4	877.5	880.6	883.6	886.8	888.6
130°	912.0	912.2	912.3	912.4	912.5	913.8	916.1	918.6	920.9	923.3	925.4
132.5°	948.9	949.2	949.5	949.8	950.1	951.4	953.6	955.8	958.1	960.3	962.3
135°	1003.7	1003.4	1003.2	1003.0	1002.8	1003.5	1005.1	1006.7	1008.5	1010.1	1012.2
137.5°	1052.6	1052.6	1052.6	1052.5	1052.5	1053.2	1054.5	1055.9	1057.2	1058.6	1060.7
140°	1084.5	1084.8	1085.2	1085.5	1085.9	1086.3	1086.9	1087.4	1088.0	1088.6	1090.7
142.5°	1112.8	1113.6	1114.4	1115.2	1115.9	1116.4	1116.7	1116.9	1117.1	1117.3	1119.0
145°	1156.7	1157.2	1157.8	1158.4	1158.9	1159.2	1159.2	1159.2	1159.2	1159.2	1160.1
147.5°	1191.6	1192.9	1194.0	1195.2	1196.3	1196.8	1196.6	1196.4	1196.1	1195.9	1196.2
150°	1217.0	1217.8	1218.6	1219.4	1220.2	1220.5	1220.3	1220.1	1219.8	1219.6	1219.6
152.5°	1237.9	1238.6	1239.3	1240.0	1240.7	1240.9	1240.5	1240.1	1239.7	1239.3	1239.6
155°	1267.7	1268.0	1268.2	1268.4	1268.6	1268.4	1267.7	1267.1	1266.4	1265.7	1266.6
157.5°	1292.9	1292.7	1292.6	1292.4	1292.3	1291.9	1291.1	1290.3	1289.6	1288.8	1290.0
160°	1307.6	1307.0	1306.3	1305.6	1304.8	1304.4	1304.2	1303.9	1303.7	1303.5	1304.8
162.5°	1320.7	1319.9	1319.0	1318.1	1317.3	1316.7	1316.5	1316.3	1316.1	1315.8	1317.2
165°	1337.3	1336.2	1335.0	1333.8	1332.7	1332.2	1332.2	1332.2	1332.2	1332.2	1334.0
167.5°	1350.4	1349.2	1348.1	1346.9	1345.6	1345.0	1344.8	1344.7	1344.6	1344.4	1346.5
170°	1357.8	1356.3	1355.0	1353.6	1352.3	1351.7	1351.9	1352.2	1352.4	1352.6	1354.4
172.5°	1362.6	1361.3	1359.9	1358.6	1357.2	1356.7	1356.9	1357.1	1357.4	1357.6	1359.4
175°	1368.0	1366.7	1365.2	1363.9	1362.5	1362.0	1362.2	1362.4	1362.6	1362.9	1364.9
177.5°	1370.4	1369.2	1367.9	1366.7	1365.3	1364.9	1365.2	1365.6	1365.9	1366.3	1367.8
180°	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	426.9	426.9	426.9	426.9	426.9	426.9	426.9	426.9
2.5°	425.4	426.0	426.6	426.8	426.8	426.7	426.6	426.5
5°	424.2	425.1	426.0	426.4	426.3	426.1	426.0	425.9
7.5°	422.0	422.9	423.9	424.3	424.2	424.1	424.0	423.9
10°	419.7	420.6	421.6	422.0	421.9	421.8	421.7	421.6
12.5°	416.5	417.4	418.2	418.6	418.6	418.6	418.6	418.5
15°	410.6	411.5	412.5	412.9	412.8	412.7	412.6	412.5
17.5°	403.4	404.5	405.5	405.9	405.8	405.7	405.7	405.6
20°	397.9	399.0	400.0	400.6	400.6	400.6	400.6	400.6
22.5°	391.4	392.4	393.5	394.2	394.4	394.5	394.7	394.9
25°	381.4	382.5	383.7	384.4	384.5	384.6	384.7	384.8
27.5°	370.1	371.2	372.3	372.9	373.0	373.1	373.2	373.4
30°	362.2	363.5	364.6	365.3	365.5	365.8	366.0	366.2
32.5°	354.2	355.6	356.9	357.7	357.9	358.1	358.3	358.5
35°	341.4	342.8	344.4	345.3	345.6	345.9	346.3	346.6
37.5°	328.1	329.5	331.0	332.0	332.3	332.6	333.1	333.4
40°	318.7	320.2	321.8	322.9	323.3	323.8	324.2	324.6
42.5°	309.4	311.2	313.0	314.1	314.4	314.7	315.1	315.4
45°	295.2	297.0	298.8	299.9	300.5	301.0	301.5	302.1
47.5°	280.1	282.0	283.9	285.1	285.8	286.4	287.0	287.7
50°	269.5	271.7	273.8	275.2	275.8	276.4	277.1	277.7
52.5°	258.8	260.9	263.1	264.5	265.1	265.7	266.4	267.0
55°	242.8	244.9	247.0	248.4	249.0	249.6	250.3	251.0
57.5°	225.9	228.4	231.0	232.5	233.1	233.7	234.3	234.9
60°	214.3	216.7	219.1	220.8	221.7	222.5	223.4	224.2
62.5°	202.8	205.2	207.6	209.3	210.2	211.0	211.9	212.7
65°	185.0	187.7	190.4	192.1	193.0	193.8	194.7	195.5
67.5°	167.6	170.4	173.0	174.8	175.6	176.4	177.2	178.1
70°	155.3	158.2	161.1	162.9	163.6	164.4	165.1	165.8
72.5°	143.7	146.5	149.3	151.1	151.9	152.7	153.6	154.4
75°	125.9	128.9	131.9	133.8	134.8	135.7	136.7	137.6
77.5°	109.4	112.4	115.4	117.4	118.5	119.5	120.5	121.5
80°	98.7	101.8	105.0	107.0	107.9	108.8	109.6	110.4
82.5°	88.1	91.4	94.6	96.7	97.7	98.6	99.6	100.5
85°	73.3	76.4	79.7	81.8	82.8	83.9	84.9	86.0
87.5°	65.8	69.2	72.5	74.7	75.7	76.7	77.8	78.8
90°	78.8	83.2	87.7	90.5	91.8	93.1	94.4	95.7
92.5°	75.4	79.8	84.1	86.8	87.8	88.7	89.7	90.6
95°	72.6	76.7	81.0	83.7	84.9	86.1	87.3	88.5
97.5°	71.5	74.4	77.4	79.4	80.5	81.6	82.8	83.9
100°	79.4	78.4	77.4	77.4	78.4	79.3	80.3	81.2
102.5°	173.5	134.6	95.6	76.6	77.6	78.4	79.3	80.2
105°	360.2	364.9	369.6	368.3	360.9	353.6	346.3	338.9
107.5°	434.0	437.7	441.2	443.8	445.5	447.2	448.8	450.4
110°	484.2	487.2	490.1	492.3	493.8	495.3	496.9	498.4





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CATALOG NUMBER: S124DIW-S350D1050U840-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	532.7	534.9	537.1	539.2	540.9	542.6	544.3	546.0
115°	605.1	607.9	610.7	612.5	613.2	614.0	614.7	615.4
117.5°	677.8	679.9	682.1	683.5	684.3	685.0	685.8	686.6
120°	722.7	725.3	727.8	729.3	729.7	730.1	730.5	730.9
122.5°	767.1	769.5	771.8	773.3	773.6	773.9	774.2	774.5
125°	829.1	831.8	834.6	836.4	837.2	838.1	838.9	839.8
127.5°	890.3	892.1	893.8	895.0	895.5	896.1	896.7	897.2
130°	927.6	929.8	931.9	933.2	933.9	934.5	935.1	935.8
132.5°	964.4	966.4	968.5	969.8	970.2	970.7	971.1	971.6
135°	1014.4	1016.5	1018.7	1020.4	1021.4	1022.5	1023.6	1024.7
137.5°	1062.8	1064.8	1066.8	1068.0	1068.4	1068.8	1069.2	1069.6
140°	1092.7	1094.8	1096.8	1098.2	1099.0	1099.7	1100.6	1101.3
142.5°	1120.7	1122.5	1124.2	1125.2	1125.7	1126.2	1126.7	1127.2
145°	1160.9	1161.8	1162.8	1163.6	1164.5	1165.4	1166.2	1167.1
147.5°	1196.4	1196.7	1197.0	1197.4	1197.9	1198.5	1199.1	1199.6
150°	1219.6	1219.6	1219.6	1219.7	1219.9	1220.2	1220.4	1220.6
152.5°	1240.0	1240.3	1240.7	1240.8	1240.7	1240.5	1240.4	1240.3
155°	1267.5	1268.4	1269.3	1269.4	1268.7	1268.1	1267.4	1266.7
157.5°	1291.1	1292.3	1293.5	1293.5	1292.3	1291.1	1290.0	1288.8
160°	1306.3	1307.6	1309.0	1309.0	1307.6	1306.3	1304.8	1303.5
162.5°	1318.5	1319.9	1321.2	1321.2	1319.6	1318.1	1316.6	1314.9
165°	1335.8	1337.7	1339.5	1339.3	1337.3	1335.2	1333.2	1331.1
167.5°	1348.5	1350.5	1352.4	1352.3	1350.1	1347.8	1345.5	1343.2
170°	1356.2	1358.1	1359.9	1359.7	1357.4	1355.1	1352.8	1350.6
172.5°	1361.2	1363.0	1364.8	1364.5	1362.0	1359.6	1357.2	1354.6
175°	1367.0	1369.0	1371.1	1370.7	1368.0	1365.2	1362.5	1359.8
177.5°	1369.3	1370.7	1372.2	1371.8	1369.6	1367.5	1365.2	1363.1
180°	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0	1368.0

(END OF REPORT)