

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: P332110-840

Luminaire Tested: **S123DIW-S340D1320U840-4F0-1E-UDD-D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332110-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DIW-S340D1320U840-4F0-1E-UDD-D
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 340 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1320 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6786.4 lumens
Efficiency: N/A
Efficacy: 145.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')
CIE Type: Semi-Indirect

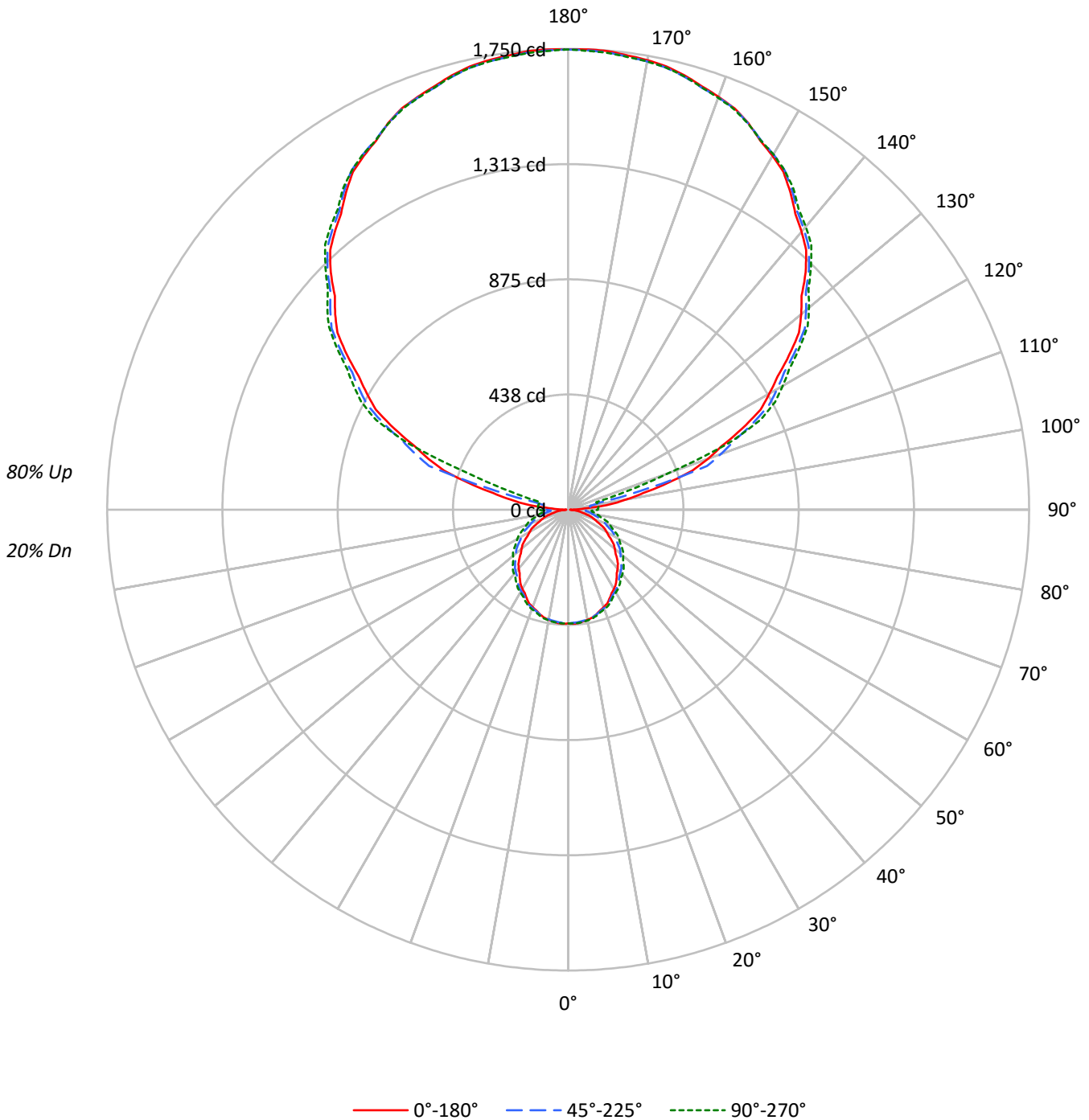
Input Watts (W): 46.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P332110-840

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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	50	30	10	50	30	10	0		
RCR																										
0	100	100	100	100	88	88	88	88	66	66	66	47	47	47	28	28	28	20					20			
1	91	86	82	79	80	76	73	70	57	55	53	40	39	38	24	24	23	16					16			
2	82	75	69	64	72	66	61	57	50	47	44	35	33	31	21	20	19	13					13			
3	75	66	59	53	66	58	52	47	44	40	37	31	28	26	19	17	16	11					11			
4	68	58	50	44	60	51	45	40	39	34	31	27	24	22	16	15	14	9					9			
5	62	51	44	38	55	46	39	34	35	30	26	24	21	19	15	13	12	8					8			
6	57	46	38	32	50	41	34	29	31	26	23	22	19	16	13	12	10	7					7			
7	53	41	33	28	46	37	30	25	28	23	20	20	17	14	12	10	9	6					6			
8	49	37	30	25	43	33	27	22	25	21	17	18	15	13	11	9	8	5					5			
9	45	34	27	22	40	30	24	20	23	19	15	16	13	11	10	8	7	5					5			
10	42	31	24	19	37	27	21	17	21	17	14	15	12	10	9	8	6	4					4			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4649	4649	4649
5°	4664	4533	4534
10°	4622	4428	4406
15°	4562	4309	4265
20°	4477	4174	4110
25°	4372	4019	3947
30°	4265	3879	3780
35°	4143	3731	3649
40°	4030	3595	3508
45°	3902	3466	3395
50°	3776	3338	3272
55°	3636	3207	3158
60°	3499	3074	3045
65°	3360	2931	2907
70°	3149	2772	2766
75°	2886	2590	2626
80°	2583	2410	2462
85°	2294	2286	2367



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.9	0.6
10°-20°	116.7	1.7
20°-30°	174.6	2.6
30°-40°	208.5	3.1
40°-50°	218.1	3.2
50°-60°	204.7	3.0
60°-70°	171.0	2.5
70°-80°	122.3	1.8
80°-90°	77.8	1.1
90°-100°	109.3	1.6
100°-110°	336.5	5.0
110°-120°	749.9	11.1
120°-130°	939.2	13.8
130°-140°	995.5	14.7
140°-150°	926.8	13.7
150°-160°	746.6	11.0
160°-170°	481.8	7.1
170°-180°	166.1	2.4
0°-30°	332.3	4.9
0°-40°	540.8	8.0
0°-60°	963.6	14.2
0°-90°	1334.8	19.7
90°-120°	1195.7	17.6
90°-150°	4057.2	59.8
90°-180°	5452.0	80.3
0°-180°	6786.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	432	432	432	432	432	
5°	432	431	429	432	432	41
15°	412	413	413	417	417	116
25°	372	376	378	384	384	171
35°	320	327	334	340	342	200
45°	262	273	285	293	297	202
55°	200	215	232	244	248	179
65°	138	156	177	191	196	136
75°	75	97	120	135	142	80
85°	23	47	72	87	92	24
90°	7	44	84	105	113	8
95°	84	54	87	110	115	102
105°	391	410	320	115	110	414
115°	728	742	770	794	804	719
125°	1025	1036	1054	1066	1072	915
135°	1275	1282	1292	1304	1303	981
145°	1470	1479	1482	1488	1490	920
155°	1619	1617	1618	1624	1617	746
165°	1708	1704	1702	1712	1704	482
175°	1748	1742	1743	1751	1741	166
180°	1748	1748	1748	1748	1748	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9
2.5°	433.8	433.6	433.3	433.1	432.8	432.4	431.7	431.0	430.4	429.7	430.4
5°	432.4	432.2	432.0	431.8	431.6	431.2	430.5	429.9	429.3	428.7	429.5
7.5°	428.2	428.3	428.3	428.3	428.4	428.1	427.5	426.9	426.3	425.7	426.7
10°	424.4	424.6	424.9	425.1	425.3	425.2	424.5	424.0	423.5	423.0	424.0
12.5°	419.9	420.2	420.5	420.8	421.1	421.0	420.7	420.3	420.0	419.6	420.6
15°	411.7	412.0	412.3	412.6	412.9	413.1	412.9	412.8	412.7	412.6	413.7
17.5°	401.4	402.0	402.6	403.2	403.8	404.1	404.1	404.0	404.0	404.0	405.0
20°	393.8	394.5	395.1	395.8	396.4	396.8	397.0	397.2	397.4	397.6	398.6
22.5°	386.0	386.6	387.2	387.8	388.5	388.9	389.2	389.5	389.8	390.1	391.3
25°	371.7	372.7	373.9	374.9	375.9	376.6	376.9	377.2	377.5	377.9	379.2
27.5°	357.4	358.6	359.8	361.0	362.2	363.1	363.8	364.5	365.2	365.8	367.0
30°	347.3	348.6	350.0	351.3	352.7	353.8	354.7	355.5	356.3	357.2	358.4
32.5°	336.0	337.5	339.0	340.5	342.0	343.4	344.5	345.6	346.7	347.7	349.1
35°	319.9	321.6	323.4	325.0	326.7	328.2	329.5	330.9	332.2	333.7	335.2
37.5°	303.1	304.9	306.8	308.7	310.5	312.4	314.0	315.7	317.4	319.0	320.8
40°	291.8	293.7	295.5	297.4	299.2	301.2	303.4	305.5	307.5	309.6	311.4
42.5°	279.3	281.7	283.9	286.2	288.5	290.7	293.0	295.1	297.3	299.4	301.4
45°	261.7	264.2	266.6	269.1	271.7	274.2	276.8	279.4	282.1	284.7	286.7
47.5°	243.1	245.9	248.7	251.7	254.5	257.4	260.3	263.4	266.3	269.3	271.6
50°	231.1	234.0	236.9	239.8	242.8	245.8	249.0	252.4	255.6	258.8	261.3
52.5°	218.2	221.4	224.4	227.5	230.7	234.0	237.5	241.2	244.7	248.2	250.7
55°	199.5	203.0	206.4	209.8	213.3	216.9	220.7	224.5	228.2	232.0	234.8
57.5°	181.3	184.8	188.4	192.1	195.6	199.5	203.6	207.7	211.9	216.0	218.8
60°	168.4	172.2	176.0	179.8	183.5	187.5	191.9	196.1	200.4	204.7	207.6
62.5°	156.4	160.3	164.1	167.9	171.8	176.0	180.6	185.1	189.7	194.2	197.0
65°	137.8	142.0	146.0	150.1	154.2	158.5	163.1	167.7	172.3	176.9	180.1
67.5°	119.1	123.4	127.7	132.0	136.3	140.9	145.5	150.3	154.9	159.7	163.0
70°	105.8	110.4	114.8	119.4	123.8	128.7	133.6	138.7	143.7	148.7	152.1
72.5°	93.8	98.4	102.8	107.3	111.8	116.6	121.8	127.0	132.2	137.4	140.9
75°	74.8	79.8	84.6	89.6	94.5	99.6	104.8	110.0	115.2	120.5	123.9
77.5°	58.3	63.2	68.2	73.1	78.1	83.2	88.5	93.7	99.0	104.3	108.0
80°	46.6	51.7	56.9	62.0	67.1	72.4	77.8	83.2	88.7	94.1	97.7
82.5°	36.5	41.6	46.9	52.0	57.3	62.6	68.2	73.6	79.2	84.7	88.3
85°	23.0	28.3	33.5	38.8	43.9	49.4	54.9	60.4	65.9	71.5	75.0
87.5°	12.8	18.6	24.3	30.1	36.0	41.8	48.0	54.0	60.1	66.1	70.0
90°	7.4	15.5	23.4	31.4	39.5	48.0	57.1	66.1	75.2	84.3	89.1
92.5°	29.9	33.7	37.6	41.3	45.1	51.1	59.2	67.3	75.3	83.4	88.8
95°	84.4	76.6	68.9	61.1	53.4	53.6	61.9	70.3	78.6	86.8	92.1
97.5°	163.8	162.2	160.6	159.0	157.3	148.6	132.7	116.7	100.9	85.0	90.4
100°	223.7	232.8	242.0	251.1	260.1	244.6	204.4	164.2	124.0	83.8	89.2
102.5°	291.9	299.0	306.2	313.4	320.5	301.8	257.4	213.0	168.5	124.1	119.9
105°	390.7	396.4	402.1	407.8	413.4	405.6	384.1	362.6	341.1	319.6	271.6
107.5°	494.5	499.3	503.9	508.6	513.2	519.8	528.2	536.5	544.8	553.2	518.6
110°	563.8	567.9	572.2	576.3	580.6	586.3	593.7	601.1	608.3	615.7	608.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	630.3	633.9	637.5	641.2	644.8	650.2	657.3	664.6	671.8	678.9	681.8
115°	728.2	731.2	734.2	737.2	740.1	744.9	751.2	757.6	764.0	770.3	775.7
117.5°	823.4	826.4	829.3	832.1	835.1	839.0	843.8	848.7	853.5	858.4	863.2
120°	882.3	885.3	888.5	891.6	894.7	898.5	902.8	907.1	911.4	915.7	920.5
122.5°	942.5	944.9	947.4	949.8	952.2	955.5	959.9	964.3	968.7	973.1	977.0
125°	1024.6	1026.9	1029.3	1031.6	1033.9	1037.1	1041.3	1045.5	1049.7	1053.9	1056.6
127.5°	1104.6	1106.8	1109.0	1111.3	1113.5	1116.5	1120.3	1124.3	1128.2	1132.1	1135.1
130°	1154.5	1156.7	1158.9	1161.1	1163.3	1166.0	1169.3	1172.6	1175.8	1179.0	1182.1
132.5°	1201.9	1204.2	1206.5	1208.8	1211.0	1213.5	1216.1	1218.7	1221.3	1223.9	1226.9
135°	1274.8	1276.4	1278.1	1279.7	1281.3	1283.2	1285.6	1287.9	1290.2	1292.4	1295.3
137.5°	1337.1	1339.1	1341.2	1343.3	1345.4	1347.2	1348.5	1349.7	1351.0	1352.3	1355.3
140°	1378.2	1379.9	1381.7	1383.4	1385.1	1386.5	1387.8	1389.0	1390.1	1391.3	1394.0
142.5°	1416.6	1418.3	1420.0	1421.6	1423.2	1424.5	1425.4	1426.3	1427.2	1428.3	1430.6
145°	1470.4	1472.3	1474.2	1476.1	1478.0	1479.3	1479.9	1480.5	1481.1	1481.6	1483.0
147.5°	1520.6	1521.9	1523.2	1524.5	1525.9	1526.8	1527.4	1527.9	1528.5	1529.1	1529.9
150°	1551.8	1552.6	1553.5	1554.3	1555.2	1555.9	1556.5	1557.0	1557.6	1558.2	1558.8
152.5°	1579.7	1580.1	1580.5	1580.9	1581.3	1581.8	1582.2	1582.5	1582.8	1583.2	1584.2
155°	1619.2	1618.7	1618.1	1617.5	1616.9	1616.8	1617.1	1617.4	1617.7	1617.9	1619.4
157.5°	1649.9	1649.8	1649.8	1649.7	1649.6	1649.5	1649.2	1648.9	1648.6	1648.3	1650.0
160°	1668.6	1668.3	1668.0	1667.7	1667.4	1667.2	1666.9	1666.6	1666.3	1666.0	1667.7
162.5°	1686.3	1685.5	1684.8	1683.9	1683.2	1682.7	1682.4	1682.1	1681.8	1681.5	1683.5
165°	1707.6	1706.7	1705.8	1705.0	1704.0	1703.5	1703.2	1702.9	1702.6	1702.3	1704.7
167.5°	1724.1	1723.0	1721.8	1720.7	1719.5	1719.0	1719.0	1719.0	1719.0	1719.0	1721.3
170°	1733.5	1732.3	1731.2	1730.1	1728.9	1728.3	1728.3	1728.3	1728.3	1728.3	1730.6
172.5°	1739.8	1738.4	1737.0	1735.6	1734.2	1733.6	1733.8	1734.1	1734.3	1734.5	1736.9
175°	1747.8	1746.4	1744.9	1743.4	1742.0	1741.4	1741.7	1742.0	1742.3	1742.6	1744.6
177.5°	1749.9	1748.7	1747.6	1746.5	1745.2	1744.8	1745.0	1745.2	1745.5	1745.8	1747.6
180°	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	431.9	431.9	431.9	431.9	431.9	431.9	431.9	431.9
2.5°	431.0	431.7	432.4	432.6	432.6	432.5	432.4	432.3
5°	430.3	431.2	432.0	432.4	432.3	432.1	432.0	431.9
7.5°	427.8	428.8	429.8	430.3	430.2	430.0	429.9	429.8
10°	425.2	426.2	427.2	427.6	427.4	427.2	427.0	426.8
12.5°	421.5	422.5	423.4	423.8	423.6	423.4	423.2	423.0
15°	414.8	415.8	416.9	417.3	417.2	417.1	417.0	416.9
17.5°	405.9	406.9	407.8	408.2	408.0	407.9	407.8	407.6
20°	399.5	400.4	401.4	401.9	402.0	402.1	402.2	402.3
22.5°	392.4	393.6	394.9	395.5	395.4	395.3	395.3	395.2
25°	380.5	381.9	383.2	384.0	384.0	384.0	384.0	384.0
27.5°	368.1	369.3	370.5	371.1	371.2	371.3	371.3	371.4
30°	359.6	360.9	362.1	362.7	362.7	362.7	362.7	362.7
32.5°	350.4	351.7	353.0	353.9	354.2	354.4	354.7	354.9
35°	336.8	338.3	339.9	340.9	341.3	341.7	342.1	342.5
37.5°	322.6	324.4	326.2	327.2	327.5	327.9	328.2	328.5
40°	313.2	315.0	316.7	317.8	318.2	318.7	319.1	319.5
42.5°	303.4	305.3	307.2	308.5	309.1	309.6	310.2	310.8
45°	288.6	290.6	292.7	294.1	294.9	295.7	296.6	297.4
47.5°	273.8	276.1	278.3	279.7	280.3	281.0	281.7	282.4
50°	263.6	266.0	268.4	270.0	270.7	271.5	272.2	273.0
52.5°	253.3	255.7	258.2	259.9	260.8	261.8	262.6	263.5
55°	237.6	240.4	243.3	245.1	245.9	246.8	247.6	248.4
57.5°	221.7	224.5	227.3	229.2	230.2	231.3	232.3	233.2
60°	210.6	213.5	216.4	218.4	219.5	220.8	221.9	223.1
62.5°	200.0	202.9	205.8	207.8	208.9	210.0	211.1	212.2
65°	183.2	186.3	189.5	191.6	192.6	193.7	194.7	195.7
67.5°	166.4	169.9	173.3	175.5	176.3	177.2	178.1	178.9
70°	155.4	158.8	162.1	164.3	165.3	166.3	167.4	168.4
72.5°	144.2	147.6	151.1	153.4	154.4	155.4	156.5	157.5
75°	127.3	130.8	134.3	136.6	137.8	139.2	140.4	141.7
77.5°	111.6	115.2	118.9	121.1	122.1	123.1	124.0	125.0
80°	101.2	104.8	108.4	110.6	111.7	112.7	113.8	114.8
82.5°	91.8	95.3	99.0	101.2	102.3	103.3	104.3	105.4
85°	78.7	82.2	85.7	88.1	89.1	90.2	91.2	92.2
87.5°	73.7	77.6	81.3	83.8	84.9	86.1	87.3	88.5
90°	93.7	98.5	103.2	106.3	108.0	109.6	111.2	112.8
92.5°	94.0	99.4	104.7	108.0	109.3	110.6	111.9	113.2
95°	97.4	102.6	107.9	111.1	112.1	113.1	114.2	115.2
97.5°	95.8	101.3	106.7	110.1	111.4	112.8	114.1	115.4
100°	94.4	99.8	105.1	108.5	109.9	111.2	112.5	113.8
102.5°	115.7	111.5	107.2	105.9	107.6	109.1	110.7	112.2
105°	223.4	175.2	127.0	103.7	105.3	106.8	108.4	109.9
107.5°	483.9	449.3	414.7	378.5	340.9	303.4	265.8	228.2
110°	602.2	595.3	588.5	564.9	524.5	484.0	443.6	403.2



TEST NUMBER: P332110-840

CATALOG NUMBER: S123DIW-S340D1320U840-4F0-1E-UDD-D

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	684.6	687.3	690.1	687.7	679.8	672.1	664.3	656.5
115°	781.0	786.5	791.8	795.6	797.6	799.5	801.5	803.5
117.5°	868.0	872.8	877.6	880.5	881.6	882.6	883.6	884.7
120°	925.1	929.9	934.6	937.4	938.1	938.8	939.5	940.3
122.5°	981.0	984.9	988.9	991.3	992.2	993.2	994.1	995.1
125°	1059.4	1062.2	1065.0	1067.0	1068.3	1069.6	1071.0	1072.3
127.5°	1138.0	1141.0	1144.1	1145.6	1145.8	1145.9	1146.0	1146.1
130°	1185.3	1188.4	1191.5	1193.2	1193.3	1193.3	1193.4	1193.4
132.5°	1230.0	1233.0	1236.1	1237.6	1237.5	1237.4	1237.3	1237.2
135°	1298.0	1300.7	1303.4	1304.6	1304.3	1303.9	1303.6	1303.3
137.5°	1358.4	1361.4	1364.4	1365.9	1365.8	1365.8	1365.7	1365.7
140°	1396.7	1399.5	1402.2	1403.5	1403.5	1403.4	1403.3	1403.3
142.5°	1432.9	1435.2	1437.5	1438.6	1438.2	1437.9	1437.6	1437.4
145°	1484.4	1485.8	1487.2	1488.1	1488.5	1489.0	1489.4	1489.9
147.5°	1530.8	1531.7	1532.5	1532.4	1531.5	1530.5	1529.5	1528.5
150°	1559.3	1559.9	1560.5	1560.4	1559.8	1559.1	1558.5	1557.8
152.5°	1585.2	1586.3	1587.3	1587.2	1585.9	1584.6	1583.4	1582.1
155°	1620.8	1622.2	1623.8	1623.6	1621.8	1620.1	1618.4	1616.7
157.5°	1651.8	1653.6	1655.3	1655.0	1652.7	1650.5	1648.2	1646.0
160°	1669.4	1671.2	1672.9	1672.7	1670.7	1668.7	1666.7	1664.7
162.5°	1685.5	1687.5	1689.4	1689.5	1687.7	1686.0	1684.2	1682.3
165°	1707.0	1709.3	1711.6	1711.7	1709.7	1707.7	1705.7	1703.6
167.5°	1723.6	1725.9	1728.2	1728.2	1725.9	1723.6	1721.3	1719.0
170°	1732.9	1735.3	1737.6	1737.6	1735.3	1732.9	1730.6	1728.3
172.5°	1739.2	1741.5	1743.8	1743.6	1741.1	1738.6	1736.1	1733.5
175°	1746.7	1748.7	1750.7	1750.5	1748.3	1746.0	1743.6	1741.3
177.5°	1749.4	1751.3	1753.1	1752.9	1750.6	1748.3	1746.0	1743.6
180°	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8	1747.8

(END OF REPORT)