

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: P332146-930

Luminaire Tested: **S123DIW-S560D1535U930-4F0-1E-UDD-D**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332146-930  
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-S560D1535U930-4F0-1E-UDD-D  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 560 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1535 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6934.2 lumens  
Efficiency: N/A  
Efficacy: 114.4 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

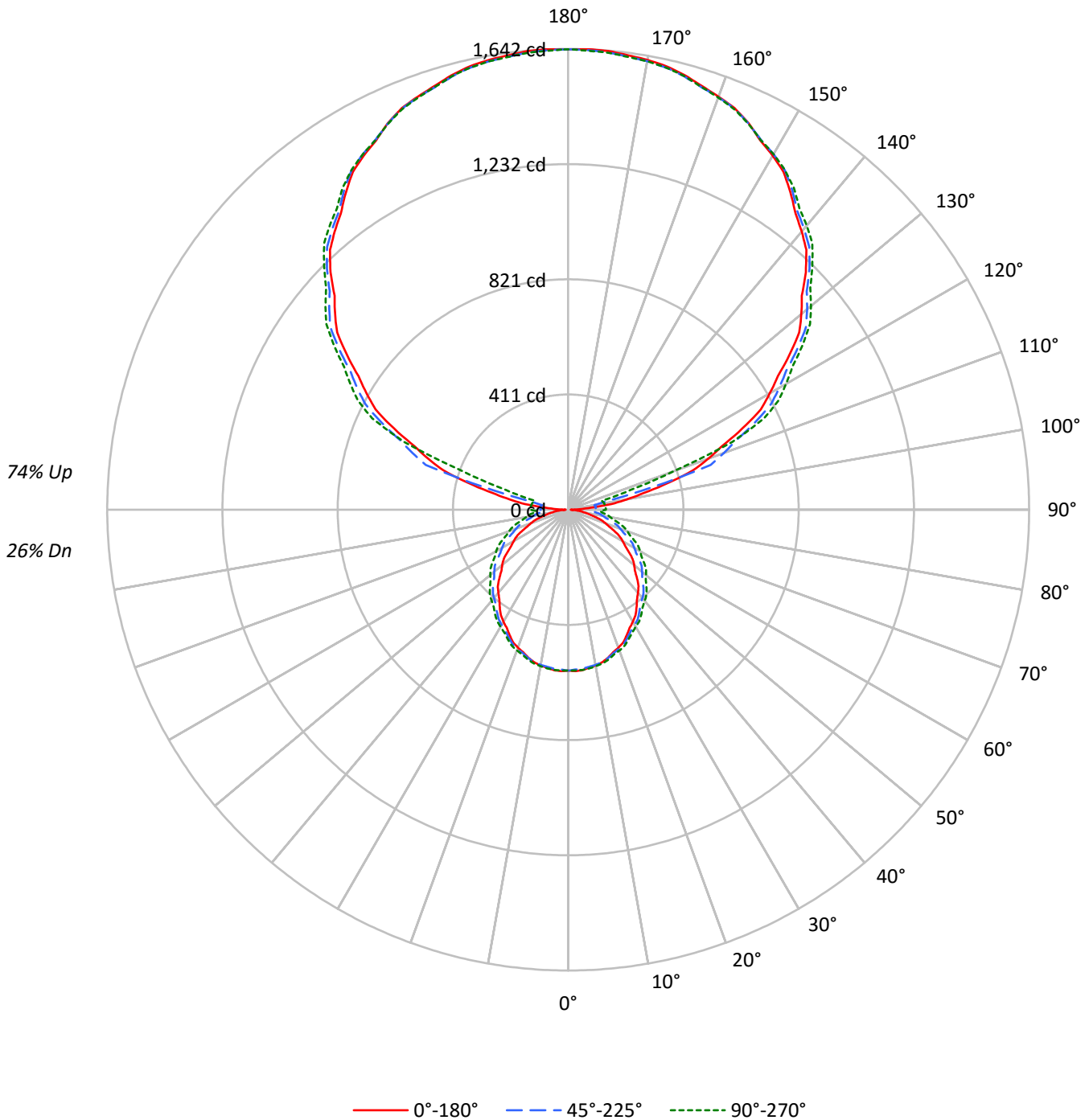
Input Watts (W): 60.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	70	70	70	51	51	51	34	34	34	26
1	92	87	83	80	82	78	75	72	60	58	56	44	42	41	29	28	27	20
2	83	76	70	65	74	68	63	58	52	49	46	38	36	34	25	24	23	17
3	76	66	59	54	67	59	53	48	46	42	38	34	31	28	22	20	19	14
4	69	59	51	45	61	52	46	41	41	36	32	30	27	24	20	18	16	12
5	63	52	44	38	56	46	40	35	36	31	28	26	23	21	17	16	14	10
6	58	46	38	33	52	42	35	30	32	27	24	24	20	18	16	14	12	9
7	54	42	34	29	48	37	31	26	29	24	21	22	18	16	14	12	11	8
8	50	38	30	25	44	34	27	23	26	22	18	20	16	14	13	11	10	7
9	46	34	27	22	41	31	24	20	24	19	16	18	15	12	12	10	9	6
10	43	31	24	20	38	28	22	18	22	18	14	17	13	11	11	9	8	6

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

	0°	45°	90°
0°	6171	6171	6171
5°	6191	6015	6019
10°	6135	5878	5848
15°	6056	5720	5660
20°	5943	5540	5454
25°	5804	5333	5238
30°	5660	5147	5019
35°	5500	4950	4844
40°	5347	4771	4656
45°	5177	4599	4506
50°	5010	4430	4341
55°	4826	4256	4193
60°	4646	4080	4040
65°	4462	3891	3859
70°	4185	3680	3673
75°	3832	3437	3484
80°	3426	3199	3268
85°	3052	3034	3143



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	54.4	0.8
10°-20°	154.9	2.2
20°-30°	231.7	3.3
30°-40°	276.7	4.0
40°-50°	289.5	4.2
50°-60°	271.7	3.9
60°-70°	226.9	3.3
70°-80°	162.4	2.3
80°-90°	101.4	1.5
90°-100°	120.4	1.7
100°-110°	328.9	4.7
110°-120°	712.6	10.3
120°-130°	886.5	12.8
130°-140°	936.7	13.5
140°-150°	870.4	12.6
150°-160°	700.8	10.1
160°-170°	452.3	6.5
170°-180°	155.9	2.2
0°-30°	441.0	6.4
0°-40°	717.7	10.4
0°-60°	1279.0	18.4
0°-90°	1769.7	25.5
90°-120°	1162.0	16.8
90°-150°	3855.6	55.6
90°-180°	5165.0	74.5
0°-180°	6934.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	573	573	573	573	573	
5°	574	573	569	574	573	54
15°	546	548	548	554	553	154
25°	493	499	502	509	510	227
35°	425	435	443	452	455	266
45°	347	362	378	389	395	268
55°	265	286	308	324	330	237
65°	183	208	235	253	260	181
75°	99	129	160	180	188	106
85°	31	62	95	115	122	32
90°	9	52	100	125	135	9
95°	81	60	100	126	134	97
105°	368	390	314	127	124	390
115°	684	700	733	759	770	676
125°	962	973	995	1010	1017	859
135°	1197	1204	1215	1229	1230	921
145°	1380	1388	1391	1398	1401	864
155°	1520	1518	1519	1524	1518	700
165°	1603	1599	1598	1607	1599	453
175°	1640	1635	1636	1643	1634	156
180°	1640	1640	1640	1640	1640	



TEST NUMBER: P332146-930

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	573.3	573.3	573.3	573.3	573.3	573.3	573.3	573.3	573.3	573.3	573.3
2.5°	575.8	575.5	575.2	574.8	574.5	573.9	573.0	572.1	571.2	570.3	571.2
5°	574.0	573.6	573.4	573.2	572.8	572.3	571.4	570.6	569.8	568.9	570.1
7.5°	568.3	568.3	568.4	568.5	568.6	568.2	567.4	566.6	565.7	564.9	566.3
10°	563.4	563.6	563.9	564.2	564.4	564.3	563.5	562.9	562.1	561.5	562.9
12.5°	557.3	557.7	558.2	558.5	558.9	558.9	558.4	557.9	557.4	556.9	558.2
15°	546.5	546.9	547.3	547.7	548.1	548.3	548.1	548.0	547.9	547.7	549.1
17.5°	532.7	533.5	534.4	535.2	536.1	536.5	536.4	536.3	536.3	536.2	537.4
20°	522.8	523.6	524.4	525.2	526.0	526.6	526.9	527.2	527.4	527.7	529.0
22.5°	512.3	513.1	513.9	514.8	515.6	516.2	516.6	517.0	517.4	517.7	519.3
25°	493.4	494.8	496.2	497.6	499.0	499.9	500.3	500.7	501.1	501.5	503.3
27.5°	474.4	476.0	477.6	479.2	480.7	481.9	482.8	483.7	484.6	485.5	487.1
30°	460.9	462.7	464.5	466.4	468.1	469.6	470.7	471.8	472.9	474.0	475.7
32.5°	445.9	447.9	450.0	452.0	454.0	455.8	457.2	458.6	460.1	461.5	463.3
35°	424.7	426.9	429.1	431.4	433.6	435.6	437.4	439.2	441.0	442.8	444.9
37.5°	402.2	404.7	407.2	409.7	412.2	414.6	416.8	419.0	421.2	423.5	425.8
40°	387.2	389.7	392.2	394.7	397.2	399.8	402.6	405.4	408.1	410.9	413.3
42.5°	370.7	373.8	376.8	379.8	382.9	385.9	388.8	391.7	394.6	397.5	400.1
45°	347.2	350.6	353.9	357.3	360.5	363.9	367.5	370.9	374.4	377.8	380.5
47.5°	322.6	326.4	330.2	333.9	337.7	341.6	345.6	349.5	353.5	357.5	360.4
50°	306.6	310.5	314.4	318.3	322.2	326.3	330.6	334.9	339.2	343.5	346.7
52.5°	289.7	293.8	297.9	302.0	306.1	310.5	315.3	320.0	324.7	329.5	332.8
55°	264.8	269.4	273.9	278.5	283.2	287.9	292.9	297.9	302.9	307.9	311.6
57.5°	240.6	245.3	250.1	254.9	259.7	264.8	270.3	275.7	281.2	286.7	290.4
60°	223.6	228.6	233.6	238.6	243.5	248.9	254.6	260.3	266.0	271.7	275.6
62.5°	207.6	212.7	217.8	222.9	228.0	233.6	239.6	245.6	251.7	257.7	261.5
65°	183.0	188.4	193.8	199.3	204.6	210.4	216.5	222.6	228.7	234.8	239.0
67.5°	158.0	163.8	169.5	175.2	181.0	186.9	193.2	199.4	205.6	211.8	216.4
70°	140.6	146.5	152.5	158.4	164.4	170.7	177.3	184.0	190.7	197.4	201.8
72.5°	124.5	130.5	136.5	142.4	148.4	154.8	161.7	168.6	175.5	182.4	186.9
75°	99.3	105.8	112.3	118.9	125.4	132.2	139.1	146.0	153.0	159.9	164.4
77.5°	77.3	83.9	90.5	97.0	103.6	110.4	117.4	124.4	131.4	138.4	143.2
80°	61.8	68.6	75.4	82.3	89.0	96.0	103.2	110.5	117.7	124.9	129.6
82.5°	48.3	55.3	62.1	69.1	76.0	83.1	90.4	97.8	105.1	112.4	117.2
85°	30.6	37.5	44.5	51.4	58.4	65.5	72.9	80.2	87.6	94.9	99.6
87.5°	16.9	24.3	31.8	39.2	46.6	54.3	62.0	69.9	77.6	85.4	90.3
90°	9.4	18.8	28.4	37.8	47.4	57.4	68.0	78.6	89.2	99.8	105.7
92.5°	30.3	35.6	41.0	46.4	51.8	59.3	68.9	78.5	88.1	97.8	104.1
95°	81.2	75.5	69.9	64.2	58.5	60.5	70.3	80.1	89.8	99.6	105.8
97.5°	155.6	155.5	155.4	155.2	155.2	148.6	135.6	122.6	109.6	96.6	102.9
100°	211.6	221.4	231.3	241.2	251.0	238.1	202.2	166.3	130.4	94.6	100.8
102.5°	275.5	283.4	291.2	299.1	307.0	291.1	251.2	211.3	171.5	131.5	128.7
105°	368.2	374.5	380.8	387.2	393.5	387.4	369.0	350.6	332.2	313.8	269.7
107.5°	465.5	470.7	475.9	481.1	486.3	493.7	503.2	512.7	522.2	531.7	500.3
110°	530.3	535.0	539.6	544.3	548.9	555.5	564.1	572.6	581.1	589.7	584.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	592.7	596.7	600.7	604.7	608.7	614.9	623.2	631.5	639.8	648.1	651.8
115°	684.4	687.8	691.0	694.3	697.7	703.0	710.5	717.9	725.3	732.7	738.7
117.5°	773.8	776.8	779.8	782.9	785.9	790.4	796.4	802.3	808.2	814.2	819.6
120°	828.9	832.0	835.1	838.3	841.4	845.7	851.1	856.5	861.9	867.2	872.6
122.5°	885.4	887.8	890.1	892.5	894.9	898.8	904.2	909.5	914.9	920.3	925.0
125°	962.3	964.5	966.7	968.8	971.0	974.6	979.7	984.9	989.9	995.1	998.5
127.5°	1037.4	1039.4	1041.5	1043.5	1045.5	1048.9	1053.5	1058.1	1062.7	1067.4	1071.0
130°	1084.2	1086.2	1088.3	1090.3	1092.3	1095.3	1099.1	1103.0	1106.9	1110.7	1114.4
132.5°	1128.5	1130.7	1132.9	1135.0	1137.1	1139.7	1142.8	1145.9	1149.0	1152.1	1155.7
135°	1196.9	1198.4	1200.0	1201.4	1202.9	1204.9	1207.5	1210.1	1212.8	1215.4	1218.7
137.5°	1255.3	1257.3	1259.2	1261.2	1263.1	1264.9	1266.2	1267.7	1269.2	1270.6	1274.1
140°	1293.8	1295.4	1297.1	1298.7	1300.3	1301.8	1303.0	1304.2	1305.5	1306.7	1309.9
142.5°	1329.9	1331.5	1332.9	1334.5	1335.9	1337.2	1338.1	1339.0	1339.9	1340.8	1343.5
145°	1380.4	1382.1	1383.9	1385.7	1387.4	1388.5	1389.1	1389.6	1390.2	1390.7	1392.4
147.5°	1427.3	1428.6	1429.8	1431.0	1432.2	1433.1	1433.7	1434.3	1434.8	1435.3	1436.2
150°	1456.5	1457.3	1458.2	1459.0	1459.8	1460.4	1461.0	1461.6	1462.1	1462.6	1463.1
152.5°	1482.9	1483.3	1483.6	1484.0	1484.4	1484.7	1485.1	1485.4	1485.7	1486.0	1487.0
155°	1519.9	1519.4	1518.8	1518.3	1517.8	1517.6	1517.9	1518.2	1518.4	1518.7	1520.0
157.5°	1548.7	1548.7	1548.6	1548.5	1548.5	1548.3	1548.0	1547.8	1547.5	1547.2	1548.8
160°	1566.3	1565.9	1565.7	1565.5	1565.1	1564.9	1564.6	1564.3	1564.1	1563.8	1565.5
162.5°	1582.8	1582.1	1581.4	1580.7	1580.0	1579.5	1579.2	1579.0	1578.7	1578.4	1580.3
165°	1602.8	1602.0	1601.2	1600.4	1599.5	1599.0	1598.7	1598.5	1598.2	1597.9	1600.1
167.5°	1618.4	1617.3	1616.2	1615.2	1614.0	1613.6	1613.6	1613.6	1613.6	1613.6	1615.7
170°	1627.2	1626.1	1625.0	1623.9	1622.9	1622.3	1622.3	1622.3	1622.3	1622.3	1624.5
172.5°	1633.0	1631.7	1630.4	1629.1	1627.8	1627.3	1627.5	1627.7	1627.9	1628.2	1630.4
175°	1640.5	1639.2	1637.9	1636.6	1635.2	1634.6	1634.9	1635.2	1635.4	1635.7	1637.6
177.5°	1642.5	1641.4	1640.4	1639.3	1638.2	1637.8	1638.0	1638.2	1638.4	1638.7	1640.4
180°	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	573.3	573.3	573.3	573.3	573.3	573.3	573.3	573.3
2.5°	572.1	573.0	573.9	574.3	574.1	574.1	574.0	573.8
5°	571.2	572.3	573.4	573.9	573.7	573.6	573.5	573.3
7.5°	567.7	569.1	570.5	571.1	571.0	570.8	570.6	570.5
10°	564.3	565.7	567.0	567.5	567.3	567.0	566.7	566.5
12.5°	559.5	560.8	562.1	562.6	562.3	562.0	561.7	561.5
15°	550.5	551.9	553.3	553.9	553.8	553.6	553.5	553.3
17.5°	538.7	540.0	541.2	541.8	541.5	541.4	541.2	541.0
20°	530.3	531.5	532.7	533.5	533.5	533.7	533.9	533.9
22.5°	520.9	522.5	524.1	524.8	524.7	524.6	524.6	524.5
25°	505.1	507.0	508.7	509.6	509.6	509.6	509.6	509.6
27.5°	488.6	490.2	491.7	492.6	492.7	492.8	492.9	493.0
30°	477.4	479.0	480.7	481.5	481.5	481.5	481.5	481.5
32.5°	465.0	466.8	468.6	469.7	470.0	470.3	470.7	471.0
35°	446.9	449.1	451.1	452.4	453.0	453.6	454.1	454.7
37.5°	428.1	430.5	432.8	434.3	434.7	435.1	435.6	436.0
40°	415.6	418.0	420.4	421.8	422.4	423.0	423.5	424.0
42.5°	402.6	405.2	407.8	409.4	410.3	411.0	411.8	412.5
45°	383.1	385.7	388.4	390.3	391.3	392.5	393.6	394.7
47.5°	363.5	366.4	369.3	371.3	372.1	373.0	373.9	374.7
50°	349.8	353.1	356.3	358.3	359.3	360.3	361.3	362.2
52.5°	336.1	339.4	342.8	345.0	346.2	347.3	348.5	349.8
55°	315.4	319.1	322.9	325.3	326.4	327.5	328.6	329.8
57.5°	294.2	298.0	301.7	304.3	305.6	306.9	308.2	309.5
60°	279.5	283.3	287.2	289.9	291.5	292.9	294.5	296.0
62.5°	265.5	269.4	273.2	275.9	277.3	278.7	280.1	281.5
65°	243.1	247.3	251.5	254.3	255.7	257.1	258.4	259.8
67.5°	220.9	225.5	230.1	232.9	234.1	235.2	236.4	237.6
70°	206.3	210.7	215.2	218.0	219.4	220.8	222.2	223.6
72.5°	191.4	196.0	200.6	203.6	205.0	206.4	207.7	209.1
75°	169.0	173.7	178.2	181.3	183.0	184.7	186.3	188.0
77.5°	148.1	152.9	157.7	160.8	162.1	163.3	164.6	165.9
80°	134.4	139.1	143.8	146.8	148.2	149.6	151.0	152.4
82.5°	121.9	126.5	131.3	134.4	135.7	137.1	138.5	139.9
85°	104.4	109.1	113.8	116.8	118.2	119.6	121.0	122.4
87.5°	95.3	100.2	105.2	108.4	109.9	111.4	112.8	114.4
90°	111.5	117.2	123.0	126.9	128.8	130.8	132.6	134.6
92.5°	110.5	116.8	123.1	127.1	128.7	130.3	131.9	133.5
95°	112.0	118.2	124.4	128.2	129.6	130.9	132.4	133.8
97.5°	109.2	115.5	121.8	125.8	127.4	129.1	130.8	132.4
100°	107.0	113.2	119.4	123.3	124.9	126.5	128.2	129.9
102.5°	126.0	123.1	120.3	119.8	121.7	123.6	125.5	127.3
105°	225.7	181.6	137.5	116.4	118.2	120.0	121.8	123.6
107.5°	468.9	437.4	405.9	372.8	337.9	303.0	268.1	233.2
110°	579.0	573.7	568.3	546.9	509.2	471.7	434.0	396.4





TEST NUMBER: P332146-930

CATALOG NUMBER: S123DIW-S560D1535U930-4F0-1E-UDD-D

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	655.4	659.1	662.8	661.1	654.1	647.2	640.3	633.2
115°	744.8	750.8	756.9	761.0	763.2	765.4	767.6	769.8
117.5°	825.1	830.5	836.0	839.4	840.7	842.0	843.3	844.7
120°	878.0	883.3	888.7	891.9	892.8	893.8	894.8	895.8
122.5°	929.5	934.1	938.7	941.6	942.8	944.0	945.2	946.4
125°	1002.0	1005.4	1008.9	1011.4	1012.9	1014.4	1015.9	1017.4
127.5°	1074.6	1078.2	1081.8	1083.9	1084.3	1084.7	1085.1	1085.5
130°	1118.2	1121.9	1125.6	1127.6	1127.9	1128.2	1128.5	1128.8
132.5°	1159.3	1162.9	1166.5	1168.4	1168.7	1168.8	1169.0	1169.1
135°	1222.0	1225.3	1228.7	1230.2	1230.1	1230.0	1229.9	1229.7
137.5°	1277.7	1281.2	1284.6	1286.5	1286.6	1286.8	1286.9	1287.0
140°	1313.0	1316.1	1319.3	1321.0	1321.1	1321.3	1321.4	1321.6
142.5°	1346.2	1348.9	1351.7	1353.0	1352.9	1352.8	1352.8	1352.7
145°	1394.0	1395.7	1397.3	1398.4	1399.0	1399.5	1400.1	1400.7
147.5°	1437.0	1437.9	1438.8	1438.9	1438.1	1437.4	1436.6	1435.9
150°	1463.7	1464.3	1464.8	1464.8	1464.3	1463.7	1463.2	1462.6
152.5°	1488.0	1489.0	1490.0	1489.8	1488.7	1487.4	1486.3	1485.1
155°	1521.4	1522.7	1524.1	1524.0	1522.3	1520.7	1519.1	1517.5
157.5°	1550.5	1552.1	1553.7	1553.5	1551.4	1549.2	1547.1	1545.0
160°	1567.1	1568.6	1570.3	1570.2	1568.2	1566.4	1564.5	1562.6
162.5°	1582.1	1584.0	1585.8	1585.8	1584.2	1582.5	1580.9	1579.2
165°	1602.2	1604.4	1606.6	1606.7	1604.8	1603.0	1601.0	1599.1
167.5°	1617.9	1620.0	1622.2	1622.2	1620.0	1617.9	1615.7	1613.6
170°	1626.6	1628.8	1631.0	1631.0	1628.8	1626.6	1624.5	1622.3
172.5°	1632.5	1634.7	1636.8	1636.7	1634.3	1632.0	1629.5	1627.2
175°	1639.5	1641.4	1643.3	1643.2	1641.0	1638.8	1636.6	1634.5
177.5°	1642.1	1643.8	1645.6	1645.4	1643.2	1641.0	1638.8	1636.7
180°	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5	1640.5

(END OF REPORT)