

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: P332214-940

Luminaire Tested: **S123DIW-S1165D460U940-4F0-1E-UDD-F**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332214-940
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-S1165D460U940-4F0-1E-UDD-F
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
UPLIGHT 460 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5887.8 lumens
Efficiency: N/A
Efficacy: 112.4 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')
CIE Type: Semi-Direct

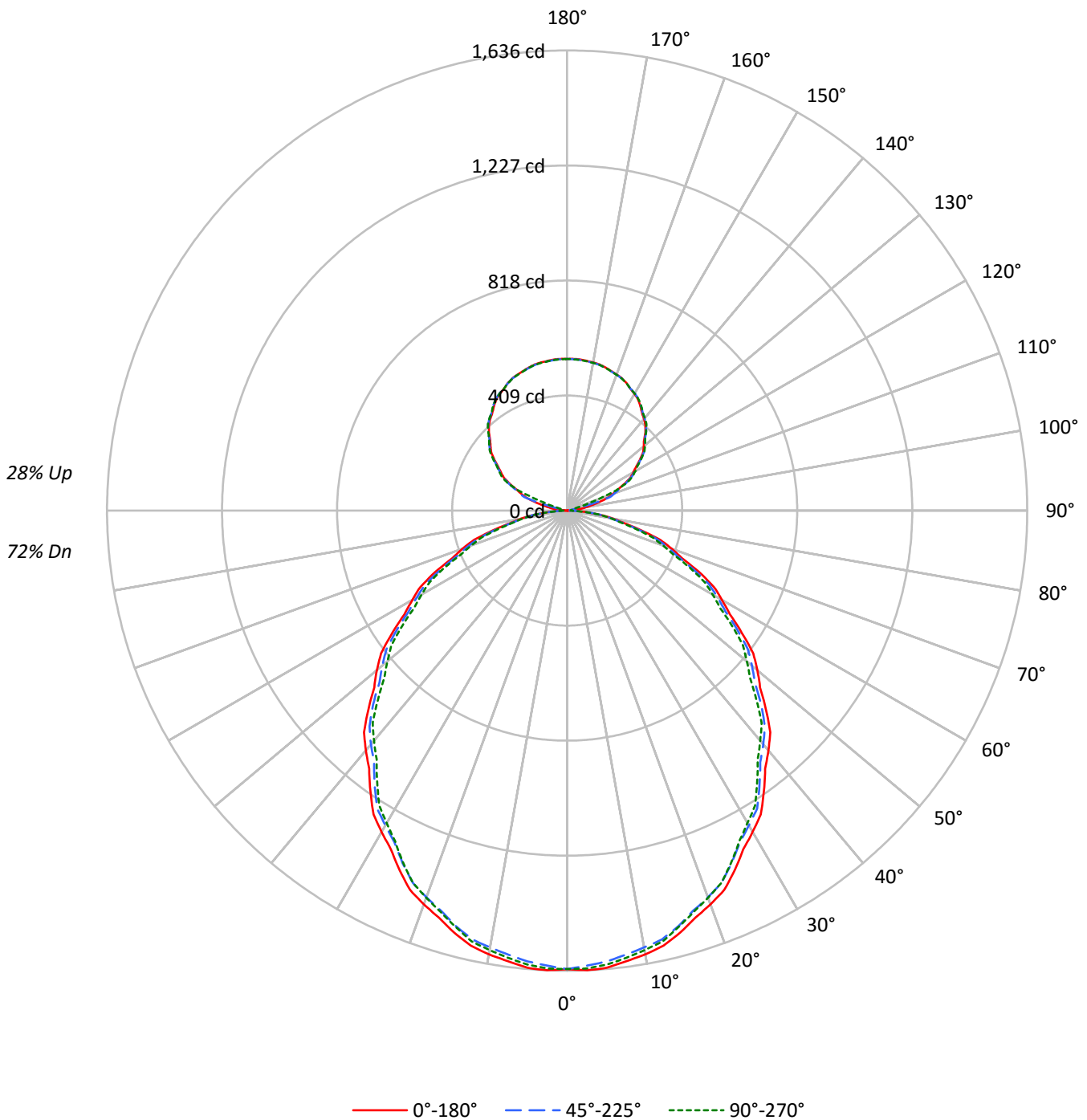
Input Watts (W): 52.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76	72
1	103	98	94	90	97	93	90	86	84	81	79	75	73	71	67	66	64	61
2	93	86	79	74	88	81	76	71	73	69	65	66	63	59	59	57	54	51
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	53	49	46	43
4	78	67	58	52	74	64	56	50	58	52	47	52	47	43	47	43	40	37
5	72	60	51	45	68	57	49	43	52	45	40	47	42	37	42	38	35	32
6	66	54	45	39	63	51	43	38	47	40	35	42	37	33	38	34	30	28
7	61	49	40	34	58	46	39	33	42	36	31	39	33	29	35	31	27	25
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	28	24	22
9	53	40	33	27	50	39	32	27	36	29	25	33	27	24	30	25	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	17546	17546	17546
5°	17629	17386	17507
10°	17511	17235	17343
15°	17307	17041	17072
20°	17068	16763	16778
25°	16747	16431	16397
30°	16394	16063	15940
35°	16025	15674	15471
40°	15638	15244	15008
45°	15213	14850	14487
50°	14788	14364	13966
55°	14230	13863	13440
60°	13670	13276	12854
65°	13173	12638	12246
70°	12441	11909	11383
75°	11366	10959	10493
80°	10253	9819	9732
85°	9003	8657	8312



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.6	2.6
10°-20°	433.6	7.4
20°-30°	640.5	10.9
30°-40°	748.2	12.7
40°-50°	752.2	12.8
50°-60°	660.7	11.2
60°-70°	492.2	8.4
70°-80°	280.4	4.8
80°-90°	82.0	1.4
90°-100°	19.6	0.3
100°-110°	93.4	1.6
110°-120°	224.4	3.8
120°-130°	285.8	4.9
130°-140°	305.4	5.2
140°-150°	285.5	4.8
150°-160°	230.3	3.9
160°-170°	148.7	2.5
170°-180°	51.2	0.9
0°-30°	1227.6	20.9
0°-40°	1975.8	33.6
0°-60°	3388.7	57.6
0°-90°	4243.3	72.1
90°-120°	337.5	5.7
90°-150°	1214.2	20.6
90°-180°	1644.0	27.9
0°-180°	5887.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1630	1630	1630	1630	1630	
5°	1632	1624	1609	1622	1620	155
15°	1553	1547	1529	1539	1532	438
25°	1410	1401	1384	1385	1381	649
35°	1220	1211	1193	1185	1177	763
45°	999	993	976	959	952	771
55°	758	756	739	724	716	679
65°	517	510	496	485	481	510
75°	273	268	264	257	252	292
85°	73	70	70	67	67	80
90°	0	4	10	11	12	5
95°	24	9	12	15	15	30
105°	119	122	88	21	18	127
115°	224	226	230	234	236	221
125°	316	319	320	321	322	282
135°	393	395	397	398	397	302
145°	454	456	457	458	458	284
155°	500	499	499	501	499	230
165°	527	526	525	528	526	149
175°	539	537	538	540	537	51
180°	539	539	539	539	539	



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1
2.5°	1635.8	1634.8	1633.8	1632.8	1631.7	1629.9	1627.2	1624.4	1621.7	1618.9	1621.4
5°	1631.6	1630.0	1628.4	1626.9	1625.3	1622.8	1619.4	1616.0	1612.6	1609.1	1612.2
7.5°	1615.6	1614.0	1612.5	1610.9	1609.4	1606.8	1603.2	1599.7	1596.2	1592.6	1595.4
10°	1602.1	1600.5	1599.0	1597.4	1595.9	1593.1	1589.0	1585.0	1580.9	1576.9	1579.7
12.5°	1584.2	1582.9	1581.5	1580.3	1579.0	1576.4	1572.6	1568.8	1565.0	1561.2	1563.3
15°	1553.1	1551.8	1550.6	1549.3	1548.1	1545.4	1541.4	1537.3	1533.3	1529.2	1531.7
17.5°	1516.9	1515.3	1513.7	1512.1	1510.4	1507.6	1503.5	1499.5	1495.4	1491.4	1493.2
20°	1490.0	1488.1	1486.2	1484.3	1482.6	1479.5	1475.5	1471.5	1467.4	1463.4	1464.6
22.5°	1459.7	1457.9	1456.0	1454.1	1452.2	1449.3	1445.2	1441.2	1437.2	1433.1	1434.0
25°	1410.1	1408.2	1406.3	1404.4	1402.7	1399.6	1395.6	1391.6	1387.5	1383.5	1383.8
27.5°	1357.1	1355.3	1353.5	1351.7	1349.9	1346.8	1342.5	1338.1	1333.7	1329.4	1329.6
30°	1319.0	1317.4	1315.9	1314.3	1312.8	1309.8	1305.5	1301.1	1296.7	1292.4	1292.4
32.5°	1280.9	1278.8	1276.8	1274.7	1272.6	1269.9	1266.6	1263.2	1259.8	1256.5	1254.7
35°	1219.5	1217.6	1215.8	1213.9	1212.0	1209.1	1205.0	1201.0	1196.9	1192.8	1191.0
37.5°	1156.6	1154.3	1151.9	1149.6	1147.2	1144.0	1139.9	1135.8	1131.7	1127.5	1125.2
40°	1112.9	1111.1	1109.2	1107.3	1105.5	1102.3	1098.0	1093.6	1089.2	1084.9	1082.4
42.5°	1069.2	1067.1	1065.0	1062.8	1060.7	1057.5	1053.1	1048.7	1044.4	1040.1	1037.6
45°	999.4	998.2	996.9	995.7	994.4	991.8	987.7	983.6	979.6	975.5	971.9
47.5°	930.1	928.4	926.6	924.7	922.9	920.2	916.3	912.5	908.7	904.9	901.3
50°	883.1	881.5	879.9	878.4	876.8	874.1	870.0	865.9	861.8	857.8	854.4
52.5°	833.7	832.7	831.6	830.5	829.5	826.8	822.5	818.2	814.0	809.6	806.6
55°	758.3	758.0	757.7	757.4	757.1	754.9	750.8	746.8	742.7	738.7	735.3
57.5°	686.5	685.5	684.4	683.4	682.3	680.2	676.9	673.7	670.5	667.2	664.1
60°	635.0	634.6	634.4	634.0	633.7	631.7	627.9	624.2	620.5	616.7	613.9
62.5°	589.0	588.2	587.4	586.6	585.8	583.4	579.7	576.0	572.3	568.6	565.7
65°	517.2	515.7	514.1	512.6	511.0	508.6	505.5	502.4	499.3	496.2	493.7
67.5°	441.2	439.9	438.5	437.1	435.8	433.9	431.5	429.2	426.8	424.5	422.2
70°	395.3	393.4	391.6	389.7	387.8	385.9	384.1	382.2	380.3	378.4	376.3
72.5°	347.1	345.7	344.3	343.0	341.6	339.8	337.7	335.6	333.5	331.4	329.4
75°	273.3	272.1	270.8	269.6	268.3	267.2	266.4	265.4	264.5	263.5	262.0
77.5°	208.0	207.3	206.6	206.0	205.3	204.4	203.2	202.2	201.0	199.9	198.9
80°	165.4	164.4	163.5	162.6	161.7	160.9	160.2	159.6	159.0	158.4	158.1
82.5°	123.9	123.7	123.5	123.3	123.1	123.0	122.9	122.8	122.6	122.5	122.0
85°	72.9	72.2	71.6	71.0	70.4	70.1	70.1	70.1	70.1	70.1	69.5
87.5°	29.2	28.6	28.1	27.6	26.9	26.7	26.7	26.7	26.6	26.6	26.4
90°	0.4	1.2	2.1	3.0	3.9	5.0	6.2	7.3	8.5	9.6	10.0
92.5°	7.5	7.2	7.0	6.7	6.4	6.8	7.7	8.5	9.4	10.3	10.8
95°	24.4	20.8	17.1	13.5	9.8	8.5	9.5	10.4	11.4	12.4	13.0
97.5°	49.1	47.4	45.8	44.2	42.5	38.5	32.1	25.7	19.4	12.9	13.6
100°	67.7	69.5	71.2	73.0	74.8	68.8	54.9	41.0	27.1	13.2	13.9
102.5°	88.8	90.2	91.4	92.7	94.0	87.0	71.9	56.7	41.6	26.4	24.2
105°	119.4	120.4	121.4	122.3	123.3	119.8	111.7	103.8	95.8	87.7	72.0
107.5°	151.6	152.4	153.2	153.9	154.7	155.8	157.0	158.3	159.5	160.8	149.3
110°	173.1	173.8	174.5	175.2	175.9	176.7	177.7	178.7	179.7	180.7	177.7



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	193.6	194.2	194.8	195.5	196.2	197.0	198.0	198.9	199.9	200.9	200.9
115°	223.9	224.4	225.0	225.5	226.0	226.8	227.6	228.4	229.2	230.0	230.9
117.5°	253.3	254.0	254.7	255.3	256.0	256.5	256.9	257.3	257.8	258.2	258.9
120°	271.6	272.4	273.2	274.0	274.8	275.4	275.6	275.9	276.2	276.4	277.1
122.5°	290.3	290.9	291.5	292.2	292.8	293.4	293.7	294.0	294.4	294.7	295.2
125°	315.7	316.4	317.1	317.8	318.5	319.1	319.4	319.8	320.1	320.5	320.7
127.5°	340.4	341.1	341.8	342.5	343.2	343.8	344.2	344.6	345.1	345.5	345.8
130°	355.8	356.5	357.2	357.9	358.6	359.2	359.5	359.9	360.3	360.5	360.9
132.5°	370.5	371.2	371.9	372.6	373.4	373.8	374.2	374.4	374.7	375.0	375.3
135°	393.0	393.5	394.0	394.6	395.1	395.6	395.9	396.3	396.6	397.0	397.3
137.5°	412.2	413.0	413.6	414.3	414.9	415.4	415.6	415.8	416.0	416.2	416.6
140°	425.1	425.6	426.1	426.7	427.2	427.6	427.8	428.1	428.4	428.6	429.0
142.5°	436.9	437.5	438.0	438.5	439.1	439.4	439.7	440.0	440.2	440.5	440.8
145°	453.5	454.1	454.8	455.4	456.0	456.4	456.6	456.7	456.9	457.1	457.3
147.5°	469.1	469.6	469.9	470.4	470.7	471.1	471.3	471.4	471.6	471.8	472.0
150°	478.8	479.0	479.3	479.6	479.8	480.0	480.2	480.4	480.5	480.7	480.9
152.5°	487.4	487.5	487.7	487.8	487.9	488.0	488.1	488.2	488.3	488.5	488.7
155°	499.5	499.4	499.2	499.1	498.9	498.8	498.9	499.0	499.1	499.2	499.6
157.5°	509.1	509.0	509.0	509.0	509.0	508.9	508.8	508.7	508.6	508.5	509.1
160°	514.8	514.7	514.6	514.5	514.4	514.3	514.2	514.2	514.1	514.0	514.5
162.5°	520.2	520.0	519.8	519.6	519.3	519.2	519.1	519.0	518.9	518.8	519.4
165°	526.8	526.6	526.3	526.0	525.8	525.6	525.5	525.4	525.3	525.2	525.9
167.5°	532.0	531.6	531.3	530.9	530.6	530.4	530.4	530.4	530.4	530.4	531.1
170°	534.8	534.5	534.1	533.8	533.4	533.2	533.2	533.2	533.2	533.2	534.0
172.5°	536.7	536.4	535.9	535.5	535.0	534.8	534.9	535.0	535.1	535.1	535.8
175°	539.2	538.8	538.3	537.9	537.4	537.3	537.3	537.4	537.5	537.6	538.2
177.5°	539.8	539.5	539.1	538.8	538.4	538.3	538.4	538.4	538.5	538.6	539.1
180°	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1	1630.1
2.5°	1623.9	1626.4	1628.9	1630.0	1629.8	1629.5	1629.2	1629.1
5°	1615.3	1618.5	1621.6	1622.8	1622.2	1621.6	1621.0	1620.3
7.5°	1598.2	1601.0	1603.8	1605.0	1604.6	1604.3	1603.9	1603.6
10°	1582.5	1585.3	1588.1	1589.2	1588.6	1588.0	1587.3	1586.7
12.5°	1565.3	1567.4	1569.4	1570.3	1569.9	1569.5	1569.1	1568.8
15°	1534.2	1536.7	1539.2	1539.5	1537.7	1535.8	1533.9	1532.0
17.5°	1494.9	1496.6	1498.3	1498.9	1498.3	1497.5	1496.8	1496.2
20°	1465.9	1467.1	1468.4	1468.5	1467.6	1466.6	1465.7	1464.7
22.5°	1435.1	1436.1	1437.1	1437.0	1435.8	1434.6	1433.4	1432.3
25°	1384.1	1384.4	1384.7	1384.4	1383.5	1382.5	1381.6	1380.6
27.5°	1329.9	1330.1	1330.3	1329.9	1328.7	1327.5	1326.3	1325.2
30°	1292.4	1292.4	1292.4	1291.3	1289.1	1286.9	1284.7	1282.5
32.5°	1252.9	1251.2	1249.5	1248.0	1246.9	1245.6	1244.5	1243.3
35°	1189.1	1187.2	1185.4	1183.7	1182.1	1180.5	1178.9	1177.4
37.5°	1123.0	1120.8	1118.6	1117.0	1115.9	1114.9	1113.9	1112.9
40°	1080.0	1077.5	1075.0	1073.1	1071.8	1070.6	1069.3	1068.1
42.5°	1035.1	1032.6	1030.1	1028.2	1027.0	1025.7	1024.5	1023.2
45°	968.1	964.4	960.6	958.0	956.4	954.8	953.3	951.7
47.5°	897.6	893.9	890.2	887.7	886.4	884.9	883.6	882.3
50°	851.0	847.6	844.1	841.5	839.6	837.8	835.9	834.0
52.5°	803.8	800.8	797.9	795.5	793.6	791.8	789.9	788.0
55°	731.8	728.4	725.0	722.5	720.9	719.3	717.8	716.2
57.5°	661.1	658.1	655.0	652.6	650.8	649.0	647.1	645.3
60°	611.2	608.3	605.6	603.3	601.8	600.2	598.7	597.1
62.5°	562.9	560.1	557.3	555.4	554.3	553.2	552.2	551.2
65°	491.2	488.7	486.2	484.6	483.6	482.7	481.7	480.8
67.5°	420.1	417.9	415.7	413.9	412.7	411.3	410.0	408.8
70°	374.1	371.9	369.7	367.8	366.3	364.7	363.2	361.7
72.5°	327.5	325.6	323.6	322.3	321.5	320.7	319.9	319.1
75°	260.4	258.9	257.3	256.0	255.1	254.1	253.2	252.3
77.5°	197.8	196.7	195.6	195.1	195.1	195.1	195.1	195.1
80°	157.7	157.5	157.1	157.0	157.0	157.0	157.0	157.0
82.5°	121.4	120.8	120.3	119.8	119.6	119.4	119.1	118.9
85°	68.8	68.2	67.6	67.3	67.3	67.3	67.3	67.3
87.5°	26.2	26.0	25.9	25.8	25.9	25.9	25.9	25.9
90°	10.3	10.7	11.1	11.3	11.5	11.7	11.9	12.0
92.5°	11.4	11.9	12.6	12.8	13.0	13.1	13.2	13.3
95°	13.6	14.3	14.9	15.2	15.2	15.2	15.2	15.2
97.5°	14.4	15.1	15.8	16.1	16.2	16.3	16.4	16.5
100°	14.6	15.3	16.1	16.5	16.6	16.7	16.8	16.9
102.5°	21.9	19.7	17.6	16.5	16.7	16.9	16.9	17.1
105°	56.2	40.5	24.7	16.9	17.1	17.3	17.5	17.7
107.5°	137.7	126.2	114.6	102.9	91.0	79.1	67.2	55.4
110°	174.8	171.8	168.9	161.1	148.4	135.6	122.9	110.2



TEST NUMBER: P332214-940

CATALOG NUMBER: S123DIW-S1165D460U940-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	201.0	201.0	201.1	199.7	197.1	194.4	191.7	189.0
115°	231.8	232.6	233.5	234.2	234.5	234.9	235.2	235.6
117.5°	259.6	260.3	261.0	261.4	261.4	261.5	261.6	261.7
120°	277.9	278.6	279.3	279.6	279.6	279.6	279.6	279.6
122.5°	295.7	296.2	296.7	296.9	297.0	297.1	297.2	297.3
125°	320.8	321.0	321.2	321.4	321.6	321.7	321.9	322.1
127.5°	346.1	346.3	346.6	346.7	346.5	346.3	346.2	346.0
130°	361.2	361.6	361.9	362.0	361.9	361.7	361.5	361.3
132.5°	375.7	376.0	376.4	376.5	376.2	375.9	375.7	375.5
135°	397.5	397.8	398.1	398.1	397.8	397.5	397.3	397.0
137.5°	417.1	417.4	417.9	418.0	417.9	417.7	417.5	417.3
140°	429.4	429.7	430.1	430.2	430.0	429.8	429.6	429.4
142.5°	441.1	441.4	441.7	441.7	441.4	441.2	441.0	440.7
145°	457.4	457.6	457.8	457.9	457.9	457.9	457.9	457.9
147.5°	472.2	472.3	472.5	472.3	472.0	471.5	471.2	470.7
150°	481.1	481.3	481.4	481.4	481.2	480.9	480.6	480.4
152.5°	489.1	489.4	489.7	489.6	489.3	488.8	488.5	488.0
155°	500.1	500.5	501.0	500.9	500.3	499.8	499.3	498.8
157.5°	509.6	510.1	510.7	510.6	509.9	509.3	508.5	507.8
160°	515.1	515.6	516.1	516.1	515.5	514.9	514.2	513.6
162.5°	520.0	520.7	521.2	521.3	520.7	520.1	519.6	519.1
165°	526.6	527.4	528.1	528.1	527.4	526.9	526.3	525.7
167.5°	531.8	532.4	533.2	533.2	532.4	531.8	531.1	530.4
170°	534.7	535.4	536.1	536.1	535.4	534.7	534.0	533.2
172.5°	536.5	537.3	538.0	538.0	537.2	536.4	535.7	534.8
175°	538.9	539.5	540.1	540.1	539.4	538.7	538.0	537.3
177.5°	539.8	540.3	540.9	540.8	540.1	539.4	538.7	538.0
180°	539.2	539.2	539.2	539.2	539.2	539.2	539.2	539.2

(END OF REPORT)