

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: P332212-940

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332212-940
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-D
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 460 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5970.0 lumens
Efficiency: N/A
Efficacy: 113.9 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-Direct

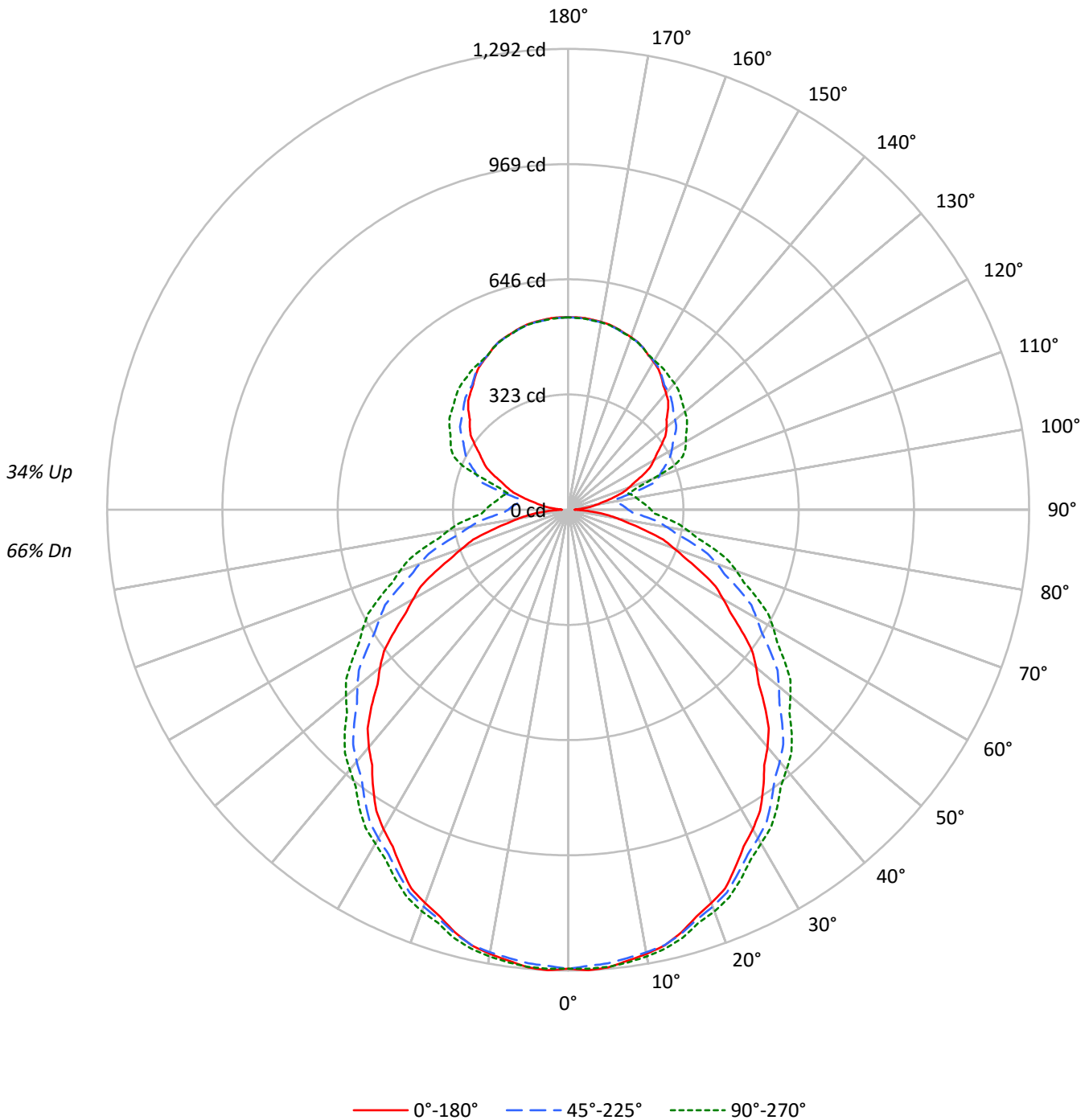
Input Watts (W): 52.4
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P332212-940

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

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	111	111	111	111	105	105	105	105	92	92	92	81	81	81	71	71	71	66																				
1	100	95	90	86	94	89	85	82	79	76	73	70	67	65	61	59	57	53																				
2	91	82	75	69	85	77	71	66	69	64	60	60	57	53	53	50	47	43																				
3	82	72	64	57	77	68	60	55	60	54	49	53	48	44	46	43	40	36																				
4	75	63	55	48	70	60	52	46	53	47	42	47	42	38	41	37	34	31																				
5	69	56	48	41	64	53	45	39	47	41	36	42	37	33	37	33	29	26																				
6	64	51	42	36	59	48	40	34	43	36	31	38	33	28	33	29	26	23																				
7	59	46	37	31	55	43	35	30	39	32	28	34	29	25	30	26	23	20																				
8	55	41	33	28	51	39	32	27	35	29	24	32	26	22	28	24	20	18																				
9	51	38	30	25	48	36	29	24	32	26	22	29	24	20	26	21	18	16																				
10	48	35	27	22	45	33	26	21	30	24	20	27	22	18	24	20	17	15																				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	13850	13850	13850
5°	13894	13501	13509
10°	13769	13190	13124
15°	13592	12837	12705
20°	13338	12435	12243
25°	13025	11969	11757
30°	12705	11553	11264
35°	12344	11111	10871
40°	12002	10709	10450
45°	11622	10323	10113
50°	11245	9942	9744
55°	10831	9553	9410
60°	10426	9156	9068
65°	10013	8733	8661
70°	9389	8257	8243
75°	8597	7713	7819
80°	7695	7181	7334
85°	6853	6811	7053



TEST NUMBER: P332212-940

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.0	2.0
10°-20°	347.7	5.8
20°-30°	520.1	8.7
30°-40°	621.1	10.4
40°-50°	649.8	10.9
50°-60°	609.8	10.2
60°-70°	509.3	8.5
70°-80°	364.4	6.1
80°-90°	218.8	3.7
90°-100°	155.9	2.6
100°-110°	193.6	3.2
110°-120°	291.4	4.9
120°-130°	324.0	5.4
130°-140°	322.5	5.4
140°-150°	289.2	4.8
150°-160°	230.4	3.9
160°-170°	148.7	2.5
170°-180°	51.2	0.9
0°-30°	989.8	16.6
0°-40°	1610.9	27.0
0°-60°	2870.5	48.1
0°-90°	3963.0	66.4
90°-120°	640.9	10.7
90°-150°	1576.7	26.4
90°-180°	2007.0	33.6
0°-180°	5970.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1287	1287	1287	1287	1287	
5°	1288	1285	1277	1287	1287	122
15°	1226	1230	1229	1242	1242	345
25°	1107	1121	1126	1143	1144	510
35°	953	975	994	1014	1020	596
45°	779	813	848	874	886	601
55°	594	641	691	727	740	532
65°	411	466	527	568	583	406
75°	223	289	359	403	422	238
85°	69	139	213	259	275	72
90°	19	92	168	215	232	14
95°	40	80	151	196	211	42
105°	131	168	193	164	175	138
115°	231	252	304	340	355	228
125°	320	325	365	395	406	286
135°	396	398	414	439	446	305
145°	455	456	457	469	475	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: P332212-940

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7
2.5°	1292.4	1291.6	1290.8	1290.1	1289.3	1288.0	1286.0	1284.0	1282.0	1280.1	1282.0
5°	1288.2	1287.5	1286.9	1286.3	1285.7	1284.4	1282.5	1280.7	1278.8	1276.9	1279.4
7.5°	1275.5	1275.7	1275.8	1275.9	1276.0	1275.2	1273.4	1271.6	1269.8	1267.9	1271.0
10°	1264.4	1265.0	1265.6	1266.2	1266.9	1266.3	1264.8	1263.2	1261.7	1260.1	1263.2
12.5°	1250.9	1251.7	1252.6	1253.5	1254.4	1254.3	1253.2	1252.1	1251.1	1250.0	1252.9
15°	1226.5	1227.4	1228.3	1229.3	1230.2	1230.6	1230.2	1229.9	1229.6	1229.3	1232.4
17.5°	1195.6	1197.5	1199.4	1201.2	1203.1	1204.0	1203.9	1203.7	1203.6	1203.5	1206.3
20°	1173.2	1175.1	1177.0	1178.8	1180.7	1182.0	1182.6	1183.2	1183.8	1184.5	1187.2
22.5°	1149.7	1151.6	1153.4	1155.3	1157.2	1158.5	1159.4	1160.3	1161.1	1162.0	1165.6
25°	1107.3	1110.4	1113.6	1116.7	1119.8	1121.8	1122.8	1123.6	1124.6	1125.5	1129.6
27.5°	1064.7	1068.3	1071.8	1075.4	1078.9	1081.7	1083.7	1085.7	1087.7	1089.7	1093.1
30°	1034.5	1038.5	1042.5	1046.6	1050.6	1053.9	1056.4	1058.9	1061.4	1063.9	1067.6
32.5°	1000.8	1005.3	1009.9	1014.4	1019.0	1022.9	1026.1	1029.4	1032.6	1035.8	1039.8
35°	953.1	958.1	963.1	968.1	973.1	977.6	981.7	985.7	989.7	993.8	998.4
37.5°	902.7	908.3	913.9	919.5	925.1	930.4	935.4	940.4	945.4	950.4	955.6
40°	869.1	874.7	880.3	885.8	891.4	897.4	903.7	909.8	916.1	922.3	927.6
42.5°	832.1	838.9	845.8	852.6	859.4	866.1	872.6	879.0	885.6	892.1	897.9
45°	779.4	786.8	794.2	801.7	809.2	816.9	824.7	832.4	840.3	848.0	853.9
47.5°	724.1	732.5	741.0	749.6	758.0	766.7	775.6	784.5	793.4	802.4	809.0
50°	688.2	697.0	705.7	714.3	723.1	732.3	742.0	751.6	761.3	770.9	778.1
52.5°	650.1	659.3	668.5	677.8	687.0	697.0	707.6	718.2	728.9	739.5	747.0
55°	594.3	604.6	614.8	625.2	635.4	646.1	657.4	668.6	679.8	691.1	699.5
57.5°	539.9	550.6	561.3	572.0	582.8	594.3	606.5	618.8	631.1	643.4	651.8
60°	501.8	513.0	524.2	535.5	546.6	558.7	571.4	584.2	597.0	609.8	618.5
62.5°	465.9	477.4	488.8	500.3	511.8	524.2	537.8	551.3	564.8	578.4	587.0
65°	410.7	422.8	435.0	447.1	459.3	472.3	485.9	499.6	513.4	527.0	536.4
67.5°	354.6	367.6	380.4	393.3	406.2	419.6	433.5	447.5	461.5	475.5	485.6
70°	315.4	328.8	342.1	355.5	369.0	383.2	398.1	413.0	428.0	442.9	452.9
72.5°	279.5	292.9	306.3	319.7	333.1	347.5	362.9	378.4	393.9	409.3	419.5
75°	222.8	237.6	252.2	266.8	281.4	296.5	312.1	327.7	343.2	358.8	369.1
77.5°	173.5	188.3	203.0	217.8	232.6	247.8	263.5	279.2	294.9	310.6	321.5
80°	138.8	154.0	169.3	184.6	199.8	215.5	231.8	248.0	264.1	280.4	291.0
82.5°	108.5	124.0	139.6	155.1	170.5	186.5	203.0	219.5	235.9	252.3	262.9
85°	68.7	84.3	99.9	115.4	131.0	147.0	163.5	180.0	196.5	213.0	223.6
87.5°	37.4	53.1	68.8	84.4	100.1	116.0	132.2	148.3	164.3	180.5	191.2
90°	18.6	34.8	50.9	67.1	83.2	99.9	116.9	133.9	151.0	168.0	179.0
92.5°	24.5	38.1	51.6	65.1	78.6	93.6	110.1	126.6	143.2	159.7	170.6
95°	39.9	48.3	56.9	65.4	73.8	86.2	102.5	118.7	134.9	151.1	161.5
97.5°	62.9	72.1	81.5	90.9	100.1	108.9	117.1	125.2	133.4	141.6	151.6
100°	80.3	92.0	103.8	115.6	127.3	133.4	133.8	134.3	134.7	135.2	144.9
102.5°	100.3	110.6	120.8	131.1	141.3	146.0	144.8	143.7	142.7	141.6	148.1
105°	130.6	139.0	147.5	156.0	164.4	171.3	176.7	182.1	187.4	192.9	185.8
107.5°	161.1	168.3	175.4	182.5	189.7	200.3	214.2	228.2	242.2	256.1	252.9
110°	181.5	187.8	194.1	200.5	206.8	216.6	230.1	243.5	257.0	270.4	275.5



TEST NUMBER: P332212-940

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

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	202.0	207.2	212.5	217.8	223.0	232.1	245.0	258.0	270.9	283.8	291.8
115°	231.0	235.2	239.5	243.8	248.1	256.2	268.2	280.2	292.2	304.3	312.6
117.5°	260.1	263.1	266.0	268.9	272.0	278.9	289.8	300.8	311.7	322.6	330.7
120°	277.2	279.6	282.0	284.3	286.7	293.1	303.6	314.2	324.8	335.3	343.2
122.5°	295.8	297.3	298.7	300.2	301.7	307.5	317.6	327.7	337.9	347.9	355.3
125°	319.9	320.6	321.3	322.0	322.7	327.8	337.2	346.6	356.0	365.3	372.1
127.5°	344.6	345.0	345.4	345.8	346.2	350.4	358.2	366.1	374.1	381.9	388.4
130°	360.0	360.3	360.8	361.1	361.6	365.1	371.7	378.3	384.8	391.4	397.7
132.5°	373.6	374.3	374.9	375.5	376.2	379.2	384.4	389.7	394.9	400.2	406.3
135°	395.8	396.0	396.3	396.5	396.7	398.7	402.5	406.3	410.1	413.8	419.7
137.5°	414.7	415.2	415.6	416.1	416.5	417.8	419.9	422.0	424.1	426.2	431.6
140°	426.5	427.0	427.6	428.1	428.6	429.4	430.7	431.9	433.1	434.3	439.3
142.5°	438.4	438.6	438.9	439.2	439.4	439.8	440.3	440.8	441.2	441.7	446.1
145°	455.0	455.2	455.6	455.8	456.2	456.4	456.6	456.7	456.9	457.1	459.8
147.5°	469.1	469.6	469.9	470.4	470.7	471.1	471.3	471.4	471.6	471.8	472.7
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: P332212-940

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7	1286.7
2.5°	1284.0	1286.0	1288.0	1288.9	1288.6	1288.3	1288.1	1287.9
5°	1281.9	1284.4	1286.9	1288.0	1287.7	1287.4	1287.1	1286.7
7.5°	1274.2	1277.3	1280.4	1281.8	1281.4	1281.0	1280.7	1280.3
10°	1266.3	1269.4	1272.6	1273.8	1273.2	1272.6	1271.9	1271.3
12.5°	1255.8	1258.6	1261.5	1262.6	1261.9	1261.3	1260.7	1260.1
15°	1235.5	1238.6	1241.7	1243.1	1242.9	1242.5	1242.2	1241.9
17.5°	1209.1	1211.9	1214.7	1215.8	1215.5	1215.0	1214.6	1214.2
20°	1190.0	1192.8	1195.6	1197.2	1197.5	1197.8	1198.1	1198.5
22.5°	1169.1	1172.7	1176.2	1177.9	1177.7	1177.5	1177.3	1177.1
25°	1133.6	1137.7	1141.7	1143.8	1143.8	1143.8	1143.8	1143.8
27.5°	1096.6	1100.1	1103.6	1105.5	1105.7	1106.0	1106.3	1106.5
30°	1071.4	1075.1	1078.8	1080.7	1080.7	1080.7	1080.7	1080.7
32.5°	1043.8	1047.8	1051.8	1054.2	1054.9	1055.7	1056.4	1057.1
35°	1003.2	1007.8	1012.4	1015.5	1016.7	1018.0	1019.2	1020.4
37.5°	960.9	966.3	971.5	974.6	975.7	976.7	977.7	978.7
40°	932.9	938.2	943.5	946.7	948.0	949.2	950.5	951.7
42.5°	903.7	909.5	915.3	919.0	920.7	922.5	924.2	926.0
45°	859.9	865.8	871.7	875.9	878.4	880.9	883.4	885.8
47.5°	815.6	822.3	829.0	833.3	835.2	837.1	839.1	841.0
50°	785.2	792.5	799.6	804.2	806.5	808.6	810.8	813.0
52.5°	754.4	761.8	769.2	774.3	776.9	779.6	782.3	785.0
55°	707.8	716.2	724.7	730.1	732.6	735.1	737.6	740.1
57.5°	660.3	668.8	677.3	683.0	685.9	688.8	691.8	694.6
60°	627.1	635.9	644.6	650.7	654.2	657.5	660.9	664.4
62.5°	595.8	604.5	613.2	619.2	622.3	625.5	628.7	631.9
65°	545.7	555.1	564.5	570.6	573.7	576.8	580.0	583.1
67.5°	495.9	506.1	516.3	522.7	525.4	528.0	530.6	533.2
70°	462.9	472.9	482.8	489.4	492.5	495.6	498.6	501.8
72.5°	429.7	440.0	450.1	456.8	459.9	463.1	466.2	469.3
75°	379.4	389.7	399.9	407.0	410.7	414.5	418.2	421.9
77.5°	332.3	343.1	354.0	360.8	363.7	366.6	369.4	372.3
80°	301.5	312.1	322.7	329.6	332.7	335.8	338.9	342.0
82.5°	273.5	284.1	294.6	301.5	304.6	307.7	310.9	314.0
85°	234.3	244.9	255.4	262.3	265.4	268.5	271.6	274.7
87.5°	201.8	212.5	223.1	230.1	233.2	236.4	239.5	242.6
90°	189.9	200.8	211.8	218.9	222.2	225.5	228.8	232.1
92.5°	181.5	192.4	203.3	210.3	213.2	216.2	219.2	222.1
95°	171.7	182.0	192.3	199.0	202.2	205.3	208.3	211.4
97.5°	161.6	171.6	181.6	188.2	191.4	194.6	197.8	201.0
100°	154.6	164.4	174.2	180.7	183.9	187.0	190.2	193.4
102.5°	154.7	161.3	167.9	172.8	176.1	179.3	182.6	185.9
105°	178.8	171.7	164.7	162.6	165.7	168.6	171.7	174.6
107.5°	249.7	246.5	243.3	237.1	228.0	218.8	209.7	200.5
110°	280.7	285.9	291.1	288.5	278.2	268.0	257.8	247.5



TEST NUMBER: P332212-940

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

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	299.6	307.6	315.5	319.4	319.5	319.6	319.6	319.7
115°	321.0	329.3	337.7	343.3	346.2	349.0	351.9	354.7
117.5°	338.9	347.1	355.2	360.4	362.9	365.4	367.9	370.4
120°	351.1	358.9	366.8	371.8	374.0	376.2	378.4	380.6
122.5°	362.7	370.2	377.6	382.5	384.7	386.9	389.2	391.5
125°	378.8	385.5	392.3	396.8	399.1	401.4	403.9	406.2
127.5°	394.8	401.3	407.8	412.0	413.9	415.8	417.8	419.7
130°	403.9	410.2	416.5	420.4	422.1	423.8	425.5	427.2
132.5°	412.2	418.3	424.3	428.3	430.2	432.0	433.9	435.8
135°	425.6	431.5	437.3	441.0	442.2	443.5	444.8	446.1
137.5°	436.9	442.3	447.6	451.0	452.4	453.8	455.1	456.6
140°	444.3	449.3	454.4	457.6	459.0	460.4	461.7	463.2
142.5°	450.6	455.0	459.5	462.4	463.7	465.0	466.3	467.6
145°	462.4	465.1	467.8	469.8	471.0	472.3	473.5	474.7
147.5°	473.6	474.6	475.5	476.3	477.0	477.7	478.4	479.1
150°	481.1	481.3	481.4	481.7	482.1	482.4	482.8	483.1
152.5°	489.1	489.4	489.7	489.7	489.5	489.2	488.9	488.6
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)