

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: P332213-830

Luminaire Tested: **S123DIW-S1165D460U830-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332213-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D460U830-4F0-1E-UDD-D1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 460 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6078.7 lumens  
Efficiency: N/A  
Efficacy: 116.0 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

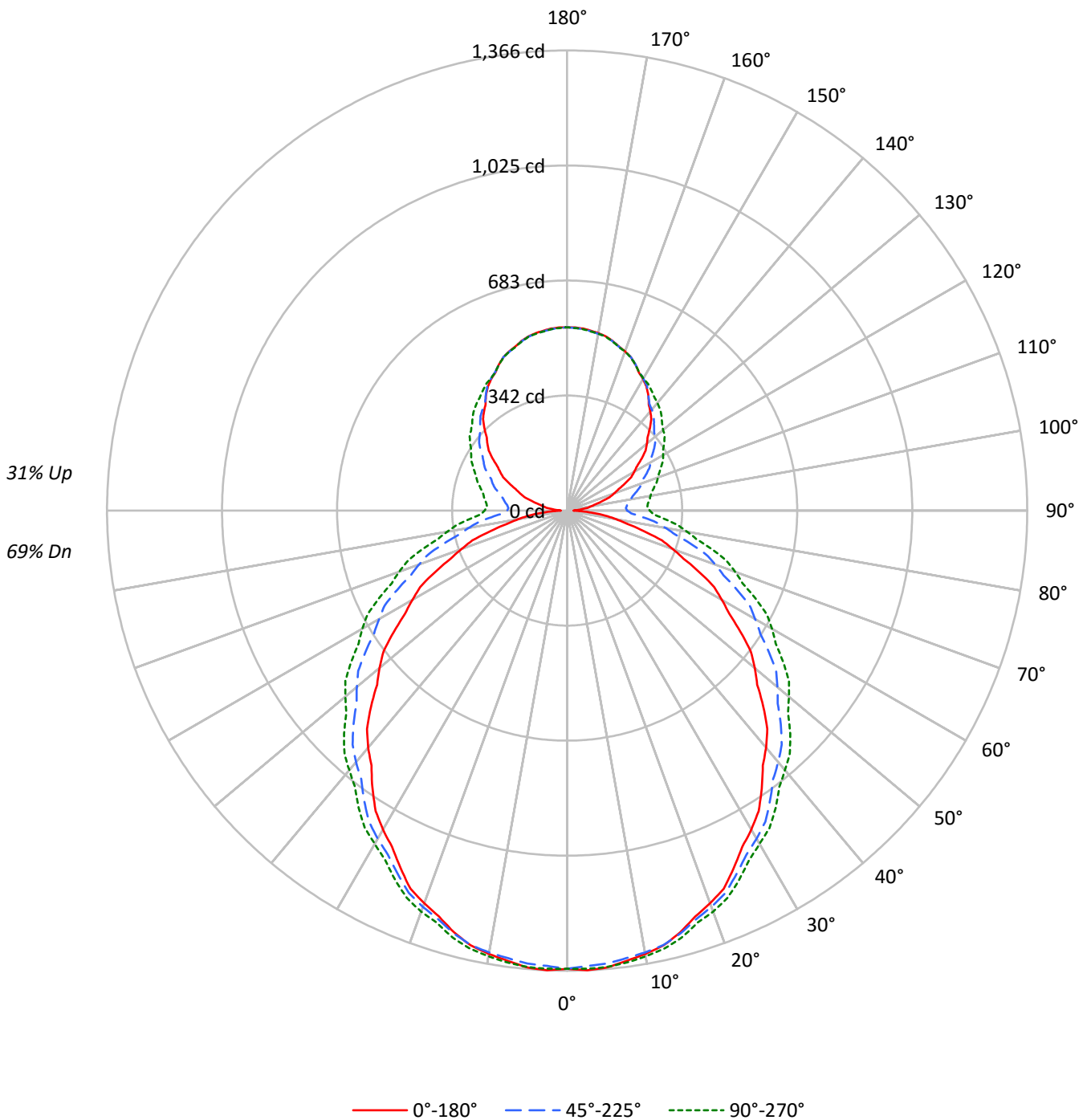
Input Watts (W): 52.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	69
1	101	95	91	87	95	90	86	82	80	77	74	71	69	66	63	61	59	55
2	91	83	76	70	85	78	72	67	70	65	60	62	58	54	54	51	49	45
3	83	72	64	58	78	68	61	55	61	55	50	54	49	45	48	44	41	37
4	76	64	55	48	71	60	52	46	54	47	42	48	43	39	42	38	35	32
5	69	57	48	41	65	54	46	40	48	42	36	43	38	33	38	34	30	27
6	64	51	42	36	60	48	40	34	43	37	32	39	33	29	34	30	26	24
7	59	46	37	31	55	44	36	30	39	33	28	35	30	26	31	27	23	21
8	55	42	33	28	52	40	32	27	36	29	25	32	27	23	29	24	21	19
9	51	38	30	25	48	36	29	24	33	27	22	30	24	21	27	22	19	17
10	48	35	27	22	45	33	26	22	30	24	20	27	22	19	25	20	17	15

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

	0°	45°	90°
0°	14640	14640	14640
5°	14685	14271	14279
10°	14553	13942	13872
15°	14366	13569	13429
20°	14098	13143	12941
25°	13767	12652	12427
30°	13428	12211	11906
35°	13049	11744	11491
40°	12686	11320	11046
45°	12284	10913	10690
50°	11887	10508	10298
55°	11448	10097	9946
60°	11021	9677	9585
65°	10584	9230	9154
70°	9925	8729	8713
75°	9088	8154	8264
80°	8133	7589	7753
85°	7242	7201	7456



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	128.9	2.1
10°-20°	367.5	6.0
20°-30°	549.7	9.0
30°-40°	656.5	10.8
40°-50°	686.9	11.3
50°-60°	644.6	10.6
60°-70°	538.3	8.9
70°-80°	385.2	6.3
80°-90°	231.3	3.8
90°-100°	179.5	3.0
100°-110°	211.9	3.5
110°-120°	251.0	4.1
120°-130°	277.6	4.6
130°-140°	284.7	4.7
140°-150°	265.9	4.4
150°-160°	220.6	3.6
160°-170°	146.9	2.4
170°-180°	51.4	0.8
0°-30°	1046.2	17.2
0°-40°	1702.7	28.0
0°-60°	3034.1	49.9
0°-90°	4188.9	68.9
90°-120°	642.5	10.6
90°-150°	1470.8	24.2
90°-180°	1890.0	31.1
0°-180°	6078.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1360	1360	1360	1360	1360	
5°	1362	1358	1350	1361	1360	129
15°	1296	1300	1299	1313	1313	365
25°	1170	1185	1190	1208	1209	539
35°	1008	1031	1050	1072	1079	630
45°	824	859	896	924	936	635
55°	628	677	730	769	782	562
65°	434	492	557	600	616	429
75°	236	305	379	426	446	252
85°	73	147	225	274	290	76
90°	20	97	178	228	245	15
95°	42	103	178	224	241	41
105°	108	146	212	252	268	115
115°	189	210	260	295	308	187
125°	270	274	314	342	352	241
135°	348	350	365	389	396	268
145°	420	419	420	431	436	262
155°	479	479	479	481	478	220
165°	522	520	520	522	520	147
175°	542	541	541	543	540	52
180°	544	544	544	544	544	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1
2.5°	1366.0	1365.3	1364.4	1363.7	1362.8	1361.4	1359.3	1357.2	1355.1	1353.0	1355.1
5°	1361.6	1360.9	1360.3	1359.6	1359.0	1357.6	1355.7	1353.7	1351.7	1349.7	1352.4
7.5°	1348.2	1348.4	1348.5	1348.7	1348.8	1347.9	1346.0	1344.1	1342.2	1340.2	1343.5
10°	1336.4	1337.1	1337.8	1338.4	1339.1	1338.5	1336.9	1335.2	1333.6	1331.9	1335.2
12.5°	1322.2	1323.0	1324.0	1324.9	1325.9	1325.8	1324.6	1323.5	1322.4	1321.3	1324.3
15°	1296.4	1297.4	1298.4	1299.4	1300.3	1300.7	1300.3	1300.0	1299.7	1299.4	1302.7
17.5°	1263.8	1265.7	1267.7	1269.7	1271.7	1272.6	1272.5	1272.3	1272.2	1272.1	1275.1
20°	1240.1	1242.1	1244.1	1246.0	1248.0	1249.3	1250.0	1250.7	1251.3	1252.0	1254.9
22.5°	1215.2	1217.2	1219.2	1221.2	1223.1	1224.6	1225.5	1226.4	1227.3	1228.2	1232.0
25°	1170.4	1173.7	1177.0	1180.3	1183.6	1185.7	1186.8	1187.7	1188.7	1189.7	1194.0
27.5°	1125.4	1129.2	1132.9	1136.7	1140.4	1143.4	1145.5	1147.5	1149.7	1151.8	1155.5
30°	1093.4	1097.7	1101.9	1106.3	1110.5	1114.0	1116.6	1119.3	1121.9	1124.5	1128.5
32.5°	1057.8	1062.6	1067.4	1072.2	1077.0	1081.2	1084.6	1088.1	1091.5	1094.9	1099.1
35°	1007.5	1012.8	1018.0	1023.3	1028.6	1033.3	1037.6	1041.9	1046.1	1050.5	1055.4
37.5°	954.1	960.1	966.0	971.9	977.9	983.4	988.7	994.0	999.3	1004.6	1010.1
40°	918.6	924.5	930.5	936.3	942.3	948.6	955.2	961.7	968.3	974.9	980.5
42.5°	879.5	886.7	894.0	901.2	908.4	915.5	922.4	929.2	936.0	942.9	949.0
45°	823.8	831.7	839.5	847.4	855.4	863.5	871.7	879.9	888.2	896.4	902.6
47.5°	765.3	774.3	783.3	792.3	801.3	810.4	819.8	829.2	838.7	848.1	855.1
50°	727.5	736.7	745.9	755.1	764.3	774.0	784.3	794.5	804.6	814.8	822.5
52.5°	687.2	696.9	706.6	716.4	726.1	736.7	747.9	759.1	770.4	781.7	789.6
55°	628.2	639.0	649.9	660.8	671.7	683.0	694.8	706.7	718.6	730.5	739.3
57.5°	570.7	582.0	593.3	604.6	616.0	628.2	641.1	654.1	667.0	680.0	689.0
60°	530.4	542.2	554.1	566.0	577.8	590.5	604.0	617.5	631.0	644.5	653.7
62.5°	492.5	504.6	516.7	528.9	540.9	554.1	568.4	582.7	597.0	611.3	620.5
65°	434.1	447.0	459.8	472.6	485.5	499.2	513.6	528.1	542.6	557.0	566.9
67.5°	374.8	388.5	402.1	415.8	429.3	443.6	458.3	473.1	487.8	502.6	513.3
70°	333.4	347.5	361.7	375.8	390.0	405.0	420.8	436.6	452.4	468.2	478.7
72.5°	295.4	309.6	323.8	337.9	352.0	367.3	383.6	399.9	416.3	432.6	443.5
75°	235.5	251.1	266.6	282.0	297.5	313.4	329.9	346.4	362.8	379.3	390.1
77.5°	183.4	199.1	214.6	230.3	245.8	261.9	278.5	295.1	311.7	328.3	339.8
80°	146.7	162.8	179.0	195.1	211.2	227.8	245.0	262.1	279.2	296.3	307.6
82.5°	114.7	131.1	147.5	163.9	180.2	197.2	214.5	232.0	249.3	266.6	277.9
85°	72.6	89.1	105.6	122.0	138.5	155.4	172.9	190.3	207.7	225.2	236.4
87.5°	39.5	56.1	72.7	89.3	105.8	122.6	139.7	156.7	173.8	190.8	202.1
90°	19.7	36.8	53.8	71.0	88.0	105.6	123.6	141.7	159.7	177.7	189.3
92.5°	28.4	43.6	58.8	74.0	89.2	105.4	122.6	139.9	157.1	174.4	185.6
95°	41.5	55.0	68.5	82.0	95.5	110.7	127.6	144.5	161.4	178.3	188.9
97.5°	59.3	71.4	83.4	95.6	107.6	121.7	137.6	153.5	169.5	185.5	195.8
100°	71.4	82.6	93.6	104.7	115.8	129.2	144.9	160.4	176.1	191.7	201.5
102.5°	85.6	95.5	105.3	115.1	124.9	137.6	153.1	168.6	184.1	199.6	209.2
105°	107.9	116.0	124.1	132.2	140.3	151.8	166.9	181.9	196.9	211.9	221.1
107.5°	132.5	139.3	146.2	153.0	159.9	170.1	183.9	197.7	211.4	225.2	234.3
110°	147.7	153.8	159.9	166.1	172.2	181.9	195.3	208.6	222.0	235.4	244.3



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	164.8	169.8	174.7	179.7	184.7	193.6	206.2	219.0	231.6	244.3	253.1
115°	189.0	193.2	197.4	201.6	205.9	213.9	225.5	237.1	248.8	260.5	268.4
117.5°	214.4	217.1	219.7	222.3	225.0	231.7	242.6	253.4	264.4	275.2	283.0
120°	229.3	231.5	233.8	235.9	238.2	244.5	254.9	265.2	275.7	286.1	293.5
122.5°	246.1	247.3	248.6	249.9	251.2	256.8	266.9	277.0	287.1	297.2	304.3
125°	270.1	270.4	270.7	271.0	271.3	276.1	285.4	294.8	304.2	313.5	320.1
127.5°	293.7	294.0	294.3	294.5	294.8	298.8	306.5	314.1	321.9	329.6	335.5
130°	309.4	309.8	310.3	310.8	311.1	314.5	320.8	327.1	333.4	339.7	345.5
132.5°	324.0	324.6	325.4	326.0	326.7	329.6	334.7	339.7	344.8	349.9	355.3
135°	347.7	347.9	348.2	348.4	348.6	350.5	354.0	357.6	361.1	364.6	370.1
137.5°	369.6	369.8	370.0	370.2	370.4	371.6	374.0	376.3	378.5	380.8	385.6
140°	383.8	384.3	384.7	385.2	385.7	386.4	387.6	388.6	389.6	390.8	395.6
142.5°	397.8	398.0	398.2	398.4	398.6	398.9	399.3	399.6	400.0	400.4	404.7
145°	419.6	419.5	419.3	419.2	419.1	419.1	419.4	419.7	420.0	420.3	422.8
147.5°	437.3	437.6	438.0	438.3	438.7	438.9	439.2	439.5	439.8	440.1	440.8
150°	450.6	450.8	451.0	451.2	451.4	451.6	451.8	451.9	452.1	452.3	452.3
152.5°	461.6	461.8	462.1	462.3	462.6	462.8	462.9	463.1	463.2	463.3	463.4
155°	478.8	478.8	478.8	478.8	478.8	478.9	479.0	479.1	479.2	479.3	479.7
157.5°	493.5	493.4	493.3	493.1	493.0	493.0	493.1	493.2	493.2	493.3	493.7
160°	502.8	502.6	502.4	502.2	502.0	501.9	501.9	501.9	501.9	501.9	502.4
162.5°	511.0	510.7	510.4	510.1	509.9	509.8	509.8	509.9	510.0	510.1	510.6
165°	521.5	521.2	520.9	520.7	520.4	520.3	520.3	520.3	520.3	520.3	520.8
167.5°	530.0	529.6	529.2	528.9	528.5	528.3	528.4	528.5	528.6	528.6	529.2
170°	534.8	534.4	534.0	533.7	533.3	533.1	533.1	533.1	533.1	533.1	533.8
172.5°	538.6	538.2	537.8	537.4	537.0	536.8	536.8	536.8	536.8	536.8	537.4
175°	542.4	542.1	541.7	541.3	540.9	540.7	540.7	540.7	540.7	540.7	541.3
177.5°	544.1	543.8	543.5	543.2	542.9	542.7	542.7	542.7	542.7	542.7	543.2
180°	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1	1360.1
2.5°	1357.2	1359.3	1361.4	1362.4	1362.1	1361.8	1361.5	1361.3
5°	1355.0	1357.6	1360.3	1361.4	1361.1	1360.7	1360.5	1360.1
7.5°	1346.8	1350.1	1353.4	1354.9	1354.4	1354.1	1353.7	1353.3
10°	1338.5	1341.8	1345.1	1346.4	1345.8	1345.1	1344.4	1343.8
12.5°	1327.4	1330.4	1333.4	1334.5	1333.9	1333.2	1332.6	1331.9
15°	1305.9	1309.2	1312.5	1314.0	1313.7	1313.3	1313.1	1312.7
17.5°	1278.0	1281.0	1283.9	1285.2	1284.8	1284.3	1283.8	1283.4
20°	1257.8	1260.8	1263.8	1265.5	1265.7	1266.1	1266.4	1266.8
22.5°	1235.8	1239.5	1243.2	1245.0	1244.8	1244.6	1244.4	1244.3
25°	1198.3	1202.6	1206.8	1209.0	1209.0	1209.0	1209.0	1209.0
27.5°	1159.1	1162.8	1166.5	1168.5	1168.8	1169.0	1169.3	1169.6
30°	1132.5	1136.4	1140.3	1142.3	1142.3	1142.3	1142.3	1142.3
32.5°	1103.3	1107.6	1111.7	1114.3	1115.0	1115.9	1116.6	1117.4
35°	1060.4	1065.3	1070.2	1073.4	1074.7	1076.0	1077.3	1078.6
37.5°	1015.7	1021.3	1026.9	1030.2	1031.3	1032.4	1033.4	1034.4
40°	986.1	991.6	997.3	1000.7	1002.0	1003.3	1004.7	1006.0
42.5°	955.2	961.3	967.4	971.4	973.2	975.1	976.9	978.7
45°	908.9	915.1	921.4	925.9	928.5	931.1	933.8	936.3
47.5°	862.1	869.2	876.3	880.8	882.8	884.9	886.9	888.9
50°	830.0	837.6	845.2	850.1	852.4	854.7	857.1	859.3
52.5°	797.4	805.2	813.0	818.4	821.2	824.1	826.9	829.7
55°	748.2	757.1	766.0	771.8	774.4	777.0	779.7	782.3
57.5°	698.0	706.9	715.9	721.9	725.0	728.1	731.2	734.2
60°	662.9	672.1	681.4	687.8	691.4	695.0	698.6	702.3
62.5°	629.7	638.9	648.2	654.5	657.8	661.2	664.6	667.9
65°	576.8	586.7	596.6	603.1	606.4	609.7	613.0	616.3
67.5°	524.1	535.0	545.7	552.5	555.3	558.1	560.8	563.6
70°	489.3	499.8	510.3	517.3	520.6	523.9	527.1	530.4
72.5°	454.2	465.1	475.8	482.9	486.2	489.5	492.8	496.1
75°	401.1	411.9	422.7	430.2	434.1	438.1	442.1	445.9
77.5°	351.2	362.7	374.2	381.4	384.5	387.5	390.5	393.5
80°	318.7	329.9	341.1	348.4	351.7	355.0	358.3	361.5
82.5°	289.1	300.3	311.4	318.7	322.0	325.3	328.6	331.9
85°	247.6	258.8	269.9	277.2	280.5	283.8	287.1	290.4
87.5°	213.4	224.6	235.9	243.2	246.5	249.9	253.2	256.5
90°	200.9	212.4	223.9	231.5	235.0	238.5	242.0	245.4
92.5°	196.8	208.0	219.2	226.4	229.2	232.1	235.1	238.0
95°	199.4	210.0	220.6	227.5	230.8	234.1	237.4	240.7
97.5°	205.9	216.2	226.5	233.2	236.5	239.7	243.0	246.2
100°	211.3	221.2	231.0	237.7	241.2	244.7	248.1	251.6
102.5°	218.8	228.3	237.9	244.3	247.5	250.8	254.1	257.3
105°	230.4	239.6	248.8	255.0	258.2	261.3	264.5	267.6
107.5°	243.5	252.6	261.7	267.7	270.5	273.2	276.1	278.8
110°	253.3	262.2	271.1	276.8	279.3	281.7	284.2	286.5





TEST NUMBER: P332213-830

CATALOG NUMBER: S123DIW-S1165D460U830-4F0-1E-UDD-D1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	261.8	270.5	279.3	285.1	287.9	290.9	293.7	296.5
115°	276.4	284.5	292.5	297.7	300.3	302.8	305.4	307.9
117.5°	290.9	298.7	306.5	311.5	313.9	316.1	318.5	320.7
120°	301.0	308.5	315.9	320.7	322.8	325.0	327.1	329.2
122.5°	311.3	318.4	325.5	330.0	332.1	334.0	336.1	338.2
125°	326.6	333.1	339.7	343.8	345.8	347.7	349.7	351.6
127.5°	341.6	347.5	353.5	357.4	359.2	361.0	362.8	364.7
130°	351.5	357.3	363.3	366.8	368.2	369.4	370.7	372.0
132.5°	360.9	366.5	372.0	375.6	377.3	379.1	380.8	382.5
135°	375.7	381.3	386.8	390.3	391.7	393.2	394.6	396.2
137.5°	390.4	395.2	400.0	403.1	404.4	405.7	406.9	408.2
140°	400.5	405.3	410.2	413.0	414.1	415.0	416.0	417.0
142.5°	409.1	413.3	417.6	420.4	421.5	422.6	423.8	424.9
145°	425.4	427.9	430.5	432.2	433.1	434.0	435.0	435.9
147.5°	441.6	442.4	443.2	443.9	444.5	445.2	445.7	446.4
150°	452.3	452.3	452.3	452.4	452.5	452.5	452.6	452.7
152.5°	463.5	463.7	463.9	463.7	463.4	463.1	462.7	462.3
155°	480.0	480.4	480.8	480.6	479.9	479.3	478.6	478.0
157.5°	494.2	494.6	494.9	494.8	494.4	493.8	493.2	492.8
160°	502.8	503.3	503.8	503.8	503.4	503.0	502.7	502.3
162.5°	511.0	511.5	512.0	511.9	511.3	510.7	510.1	509.4
165°	521.4	522.0	522.5	522.5	521.8	521.1	520.5	519.8
167.5°	529.8	530.4	530.9	530.9	530.4	529.8	529.2	528.6
170°	534.4	535.1	535.7	535.7	535.1	534.4	533.8	533.1
172.5°	538.0	538.6	539.1	539.1	538.5	537.8	537.2	536.5
175°	541.9	542.4	543.0	543.0	542.3	541.7	541.0	540.4
177.5°	543.7	544.1	544.5	544.5	543.9	543.5	542.9	542.3
180°	543.8	543.8	543.8	543.8	543.8	543.8	543.8	543.8

(END OF REPORT)