

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: P331738-840

Luminaire Tested: **SA2XXRDIP-C1005D330U840-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331738-840
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-2,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C1005D330U840-4F0-1E-UDD-F
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1005 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 330 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4840.9 lumens
Efficiency: N/A
Efficacy: 97.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

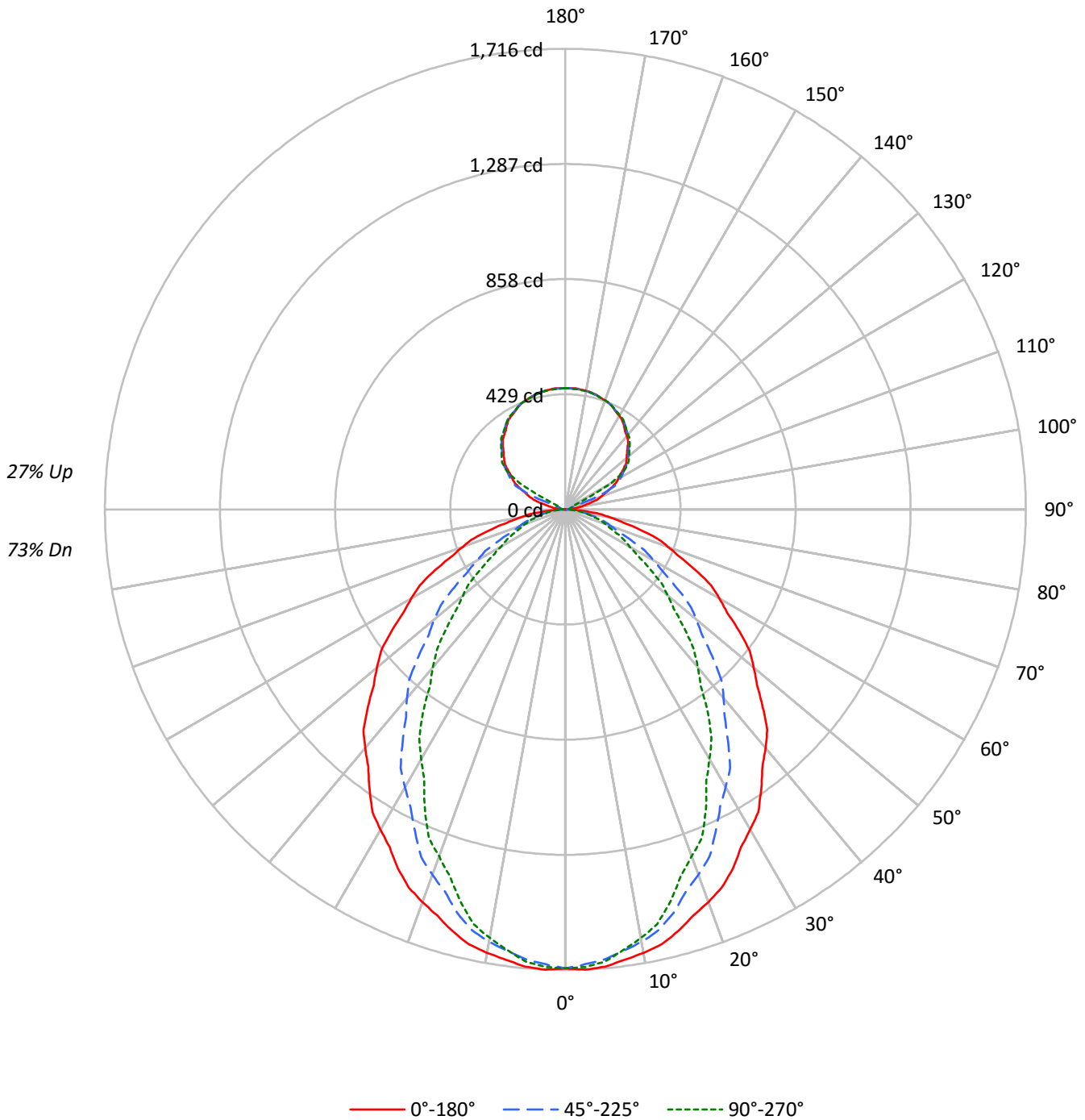
Input Watts (W): 49.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	73
1	104	99	96	92	98	94	91	88	85	83	80	77	75	73	69	68	66	63
2	95	88	82	77	90	83	78	74	76	71	68	68	65	62	62	59	57	54
3	87	78	70	65	82	74	68	62	67	62	58	61	57	54	55	52	49	46
4	80	69	61	55	76	66	59	54	60	55	50	55	50	47	50	46	43	40
5	74	62	54	48	70	60	52	47	55	48	44	50	45	41	45	41	38	35
6	68	56	48	42	65	54	47	41	49	43	39	45	40	36	41	37	34	31
7	64	51	43	38	60	49	42	37	45	39	35	42	36	32	38	34	30	28
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	28	25
9	55	43	35	30	53	41	34	30	38	32	28	35	30	27	33	28	25	23
10	52	40	32	28	49	38	31	27	35	30	26	33	28	24	30	26	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	27611	27611	27611
5°	27716	27266	27417
10°	27506	26820	26591
15°	27189	26024	25275
20°	26751	24890	23639
25°	26302	23599	22057
30°	25682	22275	20025
35°	25074	20834	18242
40°	24464	19344	16179
45°	23749	17671	14312
50°	23016	15978	12479
55°	22261	14159	10716
60°	21390	12245	8896
65°	20397	10288	8103
70°	19218	8478	7449
75°	17767	7723	6949
80°	15676	6908	6332
85°	12338	5446	5446



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	160.1	3.3
10°-20°	439.5	9.1
20°-30°	617.2	12.8
30°-40°	673.0	13.9
40°-50°	618.8	12.8
50°-60°	486.0	10.0
60°-70°	316.9	6.5
70°-80°	163.4	3.4
80°-90°	43.5	0.9
90°-100°	15.1	0.3
100°-110°	55.2	1.1
110°-120°	147.6	3.0
120°-130°	243.6	5.0
130°-140°	259.0	5.4
140°-150°	240.8	5.0
150°-160°	193.6	4.0
160°-170°	124.7	2.6
170°-180°	42.9	0.9
0°-30°	1216.8	25.1
0°-40°	1889.8	39.0
0°-60°	2994.7	61.9
0°-90°	3518.5	72.7
90°-120°	217.8	4.5
90°-150°	961.2	19.9
90°-180°	1322.0	27.3
0°-180°	4840.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1710	1710	1710	1710	1710	
5°	1710	1702	1682	1695	1692	162
15°	1627	1608	1557	1528	1512	458
25°	1476	1424	1325	1264	1238	679
35°	1272	1190	1057	963	926	796
45°	1040	933	774	668	627	803
55°	791	668	503	414	381	706
65°	534	408	269	219	212	529
75°	285	180	124	114	111	301
85°	67	36	29	29	29	78
90°	0	4	7	8	9	4
95°	21	11	13	14	14	26
105°	99	104	20	23	25	106
115°	188	193	202	57	27	185
125°	266	270	276	278	279	237
135°	328	334	337	340	339	254
145°	381	381	386	388	387	238
155°	420	417	420	422	420	193
165°	442	440	441	443	441	125
175°	452	450	451	453	450	43
180°	451	451	451	451	451	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1
2.5°	1716.4	1715.0	1713.5	1712.2	1710.8	1708.6	1705.6	1702.6	1699.6	1696.6	1699.3
5°	1710.1	1708.4	1706.7	1705.0	1703.2	1700.2	1695.7	1691.2	1686.8	1682.3	1685.4
7.5°	1692.5	1690.4	1688.3	1686.1	1683.9	1680.3	1675.1	1669.8	1664.7	1659.4	1660.3
10°	1677.7	1675.3	1672.8	1670.4	1668.0	1663.3	1656.5	1649.6	1642.7	1635.9	1634.9
12.5°	1659.1	1656.1	1653.1	1650.2	1647.3	1641.3	1632.5	1623.8	1615.0	1606.2	1604.3
15°	1626.6	1622.8	1619.0	1615.2	1611.4	1603.7	1592.1	1580.3	1568.6	1556.9	1550.4
17.5°	1586.6	1580.8	1575.1	1569.3	1563.6	1553.2	1538.1	1523.2	1508.1	1493.2	1485.4
20°	1556.9	1550.0	1543.2	1536.3	1529.4	1517.4	1500.2	1483.0	1465.8	1448.6	1440.0
22.5°	1524.7	1517.0	1509.3	1501.7	1493.9	1480.4	1461.0	1441.6	1422.2	1402.8	1391.7
25°	1476.4	1465.4	1454.4	1443.4	1432.4	1415.6	1392.9	1370.2	1347.5	1324.7	1310.7
27.5°	1418.3	1406.3	1394.3	1382.4	1370.4	1351.6	1326.1	1300.4	1274.9	1249.3	1232.8
30°	1377.5	1364.3	1351.3	1338.2	1325.1	1304.8	1277.3	1249.8	1222.3	1194.8	1177.2
32.5°	1337.8	1322.5	1307.3	1292.0	1276.7	1255.1	1227.0	1198.9	1170.8	1142.8	1122.8
35°	1272.1	1254.7	1237.1	1219.5	1202.0	1178.1	1147.8	1117.6	1087.3	1057.0	1035.4
37.5°	1206.6	1187.3	1168.0	1148.7	1129.5	1103.8	1071.5	1039.3	1006.9	974.7	950.9
40°	1160.7	1140.1	1119.4	1098.8	1078.2	1051.2	1017.8	984.5	951.1	917.8	893.3
42.5°	1113.7	1092.0	1070.3	1048.4	1026.7	998.7	964.2	929.7	895.2	860.8	835.6
45°	1040.1	1016.9	993.9	970.9	947.9	918.3	882.1	846.1	809.9	773.9	749.4
47.5°	968.2	943.8	919.4	894.9	870.5	839.7	802.4	765.1	727.8	690.5	666.3
50°	916.3	891.8	867.4	842.9	818.5	787.4	749.6	711.8	673.9	636.1	612.4
52.5°	865.5	839.9	814.5	788.9	763.4	732.2	695.1	658.1	621.1	584.1	561.2
55°	790.8	764.1	737.2	710.3	683.6	651.6	614.4	577.2	540.2	503.0	482.3
57.5°	714.4	686.9	659.3	631.9	604.3	572.7	537.0	501.3	465.6	429.9	411.0
60°	662.4	634.9	607.3	579.9	552.3	520.9	485.4	450.0	414.5	379.2	361.6
62.5°	611.7	584.1	556.6	529.1	501.6	470.9	437.2	403.3	369.6	335.9	319.1
65°	533.9	506.0	478.3	450.4	422.5	393.1	362.1	331.2	300.2	269.3	257.6
67.5°	459.0	431.4	403.7	376.1	348.4	320.6	292.9	265.0	237.1	209.2	203.9
70°	407.1	380.2	353.4	326.6	299.7	274.5	250.7	227.0	203.3	179.6	176.1
72.5°	357.5	331.7	306.1	280.3	254.6	232.2	213.2	194.1	175.0	156.0	153.1
75°	284.8	260.6	236.6	212.6	188.4	170.6	158.9	147.2	135.5	123.8	121.4
77.5°	213.3	192.2	171.1	150.0	128.8	115.4	109.8	104.1	98.5	92.9	91.5
80°	168.6	151.2	133.6	116.0	98.6	88.1	84.6	81.2	77.8	74.3	72.9
82.5°	127.8	114.1	100.5	86.7	73.1	65.0	62.7	60.4	58.1	55.7	54.9
85°	66.6	59.3	52.1	44.8	37.7	33.5	32.5	31.5	30.4	29.4	29.4
87.5°	19.9	17.9	15.8	13.7	11.7	10.7	10.9	11.0	11.1	11.2	11.0
90°	0.3	1.1	1.9	2.7	3.5	4.2	4.7	5.4	6.0	6.6	6.9
92.5°	6.6	6.6	6.5	6.4	6.3	6.5	6.7	7.0	7.3	7.6	7.8
95°	21.2	18.8	16.5	14.0	11.6	10.7	11.2	11.7	12.2	12.7	13.1
97.5°	42.1	35.3	28.6	21.9	15.1	12.3	13.5	14.6	15.9	17.1	17.4
100°	57.8	47.9	37.9	28.0	18.1	13.6	14.9	16.2	17.4	18.6	19.2
102.5°	75.0	72.9	70.8	68.8	66.7	60.4	50.1	39.8	29.5	19.1	19.9
105°	99.3	101.4	103.6	105.8	108.0	99.2	79.4	59.6	39.7	19.9	20.7
107.5°	126.8	128.7	130.4	132.2	133.9	122.9	99.2	75.4	51.6	27.9	27.1
110°	144.6	146.1	147.7	149.3	150.8	141.0	120.1	99.1	78.1	57.2	49.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	161.4	162.7	164.1	165.4	166.7	164.8	159.7	154.5	149.3	144.1	117.6
115°	187.7	188.9	190.3	191.5	192.7	194.2	196.0	197.8	199.7	201.5	167.8
117.5°	211.4	212.7	214.1	215.5	216.8	218.1	219.4	220.7	221.9	223.2	215.0
120°	228.5	229.6	230.8	231.9	232.9	234.1	235.4	236.7	238.0	239.3	240.2
122.5°	243.2	244.4	245.5	246.6	247.8	249.0	250.4	251.9	253.4	254.8	255.3
125°	265.5	266.4	267.3	268.3	269.2	270.4	271.8	273.2	274.5	275.9	276.4
127.5°	285.6	286.7	287.7	288.8	289.8	290.8	291.9	293.0	294.0	295.0	295.7
130°	298.4	299.6	300.7	301.9	303.1	304.1	304.9	305.7	306.5	307.3	308.0
132.5°	311.5	312.5	313.5	314.5	315.5	316.3	317.1	317.9	318.7	319.5	320.2
135°	328.5	329.6	330.8	331.9	333.2	334.1	334.7	335.4	336.0	336.7	337.4
137.5°	345.7	346.5	347.3	348.1	348.9	349.7	350.4	351.1	351.9	352.6	353.4
140°	356.9	357.5	358.0	358.6	359.2	359.9	360.7	361.5	362.3	363.0	363.8
142.5°	366.3	366.8	367.3	367.9	368.4	369.1	370.0	370.9	371.8	372.7	373.3
145°	381.0	381.0	380.9	380.8	380.7	381.3	382.5	383.8	385.1	386.3	386.8
147.5°	393.9	393.6	393.3	393.0	392.8	393.2	394.5	395.8	397.0	398.2	398.5
150°	402.2	401.7	401.2	400.7	400.2	400.6	401.7	402.9	404.0	405.3	405.7
152.5°	409.3	408.8	408.2	407.6	407.1	407.3	408.4	409.5	410.6	411.7	412.1
155°	419.6	418.9	418.3	417.6	417.0	417.1	418.0	418.8	419.7	420.5	421.0
157.5°	427.6	427.1	426.5	426.0	425.4	425.5	426.1	426.7	427.3	427.9	428.4
160°	432.3	431.9	431.4	431.0	430.6	430.6	431.0	431.4	431.9	432.3	432.7
162.5°	436.5	436.1	435.7	435.2	434.7	434.7	435.0	435.5	435.9	436.3	436.8
165°	442.1	441.7	441.2	440.8	440.4	440.3	440.5	440.7	440.9	441.1	441.6
167.5°	446.3	445.9	445.5	444.9	444.5	444.4	444.6	444.8	445.0	445.2	445.8
170°	448.7	448.2	447.8	447.4	446.9	446.8	446.9	447.1	447.2	447.4	447.9
172.5°	450.2	449.8	449.3	448.9	448.5	448.3	448.5	448.6	448.8	448.9	449.4
175°	452.2	451.7	451.2	450.7	450.2	450.0	450.2	450.3	450.5	450.6	451.1
177.5°	452.5	452.1	451.7	451.3	450.9	450.8	450.8	450.9	450.9	451.0	451.4
180°	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1	1710.1
2.5°	1702.0	1704.8	1707.6	1708.6	1708.1	1707.6	1707.0	1706.5
5°	1688.5	1691.6	1694.7	1695.7	1694.7	1693.6	1692.6	1691.6
7.5°	1661.1	1662.0	1662.9	1662.5	1660.7	1658.9	1657.2	1655.4
10°	1633.8	1632.7	1631.7	1630.2	1628.1	1626.1	1624.0	1621.9
12.5°	1602.5	1600.5	1598.7	1596.1	1592.7	1589.2	1585.8	1582.4
15°	1543.9	1537.3	1530.8	1525.8	1522.4	1518.9	1515.5	1512.1
17.5°	1477.6	1469.9	1462.1	1455.2	1449.4	1443.4	1437.4	1431.6
20°	1431.4	1422.8	1414.2	1406.1	1398.6	1391.0	1383.4	1375.8
22.5°	1380.7	1369.6	1358.5	1350.1	1344.5	1338.9	1333.2	1327.6
25°	1296.6	1282.5	1268.4	1258.8	1253.5	1248.4	1243.2	1238.1
27.5°	1216.4	1199.9	1183.5	1171.1	1163.0	1154.8	1146.6	1138.4
30°	1159.7	1142.2	1124.6	1111.3	1102.0	1092.7	1083.4	1074.1
32.5°	1102.8	1082.8	1062.7	1048.3	1039.7	1030.9	1022.1	1013.4
35°	1013.7	992.1	970.4	955.7	948.2	940.6	933.0	925.5
37.5°	927.0	903.1	879.2	862.9	854.3	845.7	837.0	828.3
40°	868.9	844.4	820.1	803.4	794.5	785.5	776.6	767.6
42.5°	810.3	785.1	759.8	742.9	734.2	725.5	716.9	708.2
45°	725.0	700.5	676.1	659.8	651.6	643.3	635.0	626.8
47.5°	642.0	617.7	593.4	577.5	570.1	562.6	555.0	547.5
50°	588.7	564.9	541.2	525.6	518.5	511.2	504.0	496.8
52.5°	538.3	515.3	492.5	477.7	471.0	464.3	457.7	451.0
55°	461.7	441.1	420.4	406.9	400.3	393.7	387.3	380.7
57.5°	392.1	373.1	354.3	342.0	336.6	331.0	325.6	320.0
60°	344.1	326.6	309.0	297.5	292.0	286.5	280.9	275.5
62.5°	302.5	285.7	269.0	258.9	255.7	252.4	249.0	245.8
65°	245.9	234.2	222.5	216.1	215.1	214.1	213.1	212.1
67.5°	198.5	193.2	187.7	184.5	183.5	182.4	181.3	180.2
70°	172.7	169.3	165.8	163.4	162.0	160.6	159.3	157.8
72.5°	150.3	147.3	144.4	142.6	141.8	141.0	140.1	139.3
75°	119.0	116.6	114.2	112.8	112.5	112.1	111.8	111.4
77.5°	90.1	88.8	87.4	86.3	85.8	85.3	84.7	84.2
80°	71.5	70.2	68.8	68.1	68.1	68.1	68.1	68.1
82.5°	54.0	53.2	52.4	52.0	52.0	52.0	52.0	52.0
85°	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
87.5°	10.8	10.6	10.4	10.3	10.3	10.4	10.4	10.4
90°	7.3	7.6	8.0	8.3	8.4	8.5	8.7	8.8
92.5°	8.0	8.2	8.3	8.5	8.6	8.7	8.7	8.8
95°	13.4	13.8	14.1	14.3	14.2	14.1	14.1	14.0
97.5°	17.7	17.9	18.2	18.4	18.5	18.6	18.7	18.8
100°	19.8	20.4	20.9	21.3	21.4	21.6	21.7	21.9
102.5°	20.6	21.4	22.1	22.6	22.8	23.0	23.2	23.4
105°	21.5	22.3	23.1	23.6	23.9	24.2	24.5	24.8
107.5°	26.3	25.4	24.6	24.3	24.6	24.9	25.2	25.5
110°	42.6	35.3	28.1	24.6	24.9	25.2	25.5	25.8



TEST NUMBER: P331738-840

CATALOG NUMBER: SA2XXRDIP-C1005D330U840-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	91.2	64.7	38.3	25.1	25.3	25.5	25.9	26.1
115°	134.3	100.7	67.1	47.7	42.4	37.3	32.0	26.8
117.5°	206.9	198.7	190.7	178.0	160.9	143.7	126.5	109.4
120°	241.1	242.0	242.8	238.3	228.5	218.7	208.9	199.1
122.5°	255.8	256.3	256.8	256.1	254.3	252.4	250.4	248.5
125°	276.9	277.4	277.9	278.3	278.5	278.7	278.9	279.1
127.5°	296.5	297.2	297.9	298.3	298.4	298.4	298.4	298.5
130°	308.8	309.6	310.4	310.8	310.7	310.6	310.6	310.5
132.5°	320.9	321.5	322.2	322.6	322.4	322.4	322.3	322.2
135°	338.1	338.8	339.5	339.8	339.7	339.5	339.4	339.2
137.5°	354.1	354.8	355.5	355.7	355.5	355.3	355.0	354.8
140°	364.4	365.1	365.7	365.9	365.5	365.2	364.8	364.4
142.5°	374.0	374.6	375.2	375.3	374.9	374.6	374.2	373.8
145°	387.3	387.8	388.3	388.4	388.0	387.7	387.3	386.9
147.5°	398.9	399.3	399.7	399.7	399.4	399.1	398.8	398.5
150°	406.1	406.5	407.0	407.0	406.7	406.3	405.9	405.6
152.5°	412.6	413.0	413.4	413.4	412.9	412.5	412.0	411.5
155°	421.4	421.8	422.3	422.2	421.6	421.1	420.5	419.9
157.5°	428.9	429.4	429.8	429.8	429.2	428.7	428.1	427.6
160°	433.2	433.6	434.0	434.0	433.5	433.0	432.5	432.0
162.5°	437.2	437.7	438.2	438.2	437.5	436.9	436.3	435.7
165°	442.1	442.6	443.1	443.1	442.6	442.1	441.6	441.1
167.5°	446.3	446.8	447.3	447.2	446.6	445.9	445.2	444.5
170°	448.4	448.9	449.4	449.3	448.7	448.0	447.4	446.7
172.5°	449.9	450.4	450.9	450.9	450.2	449.6	448.9	448.3
175°	451.6	452.1	452.6	452.5	451.8	451.1	450.3	449.6
177.5°	451.8	452.2	452.6	452.5	452.0	451.5	451.0	450.5
180°	451.2	451.2	451.2	451.2	451.2	451.2	451.2	451.2

(END OF REPORT)