

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: P331738-935

Luminaire Tested: **SA2XXRDIP-C1005D330U935-4F0-1E-UDD-F**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331738-935
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-C1005D330U935-4F0-1E-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

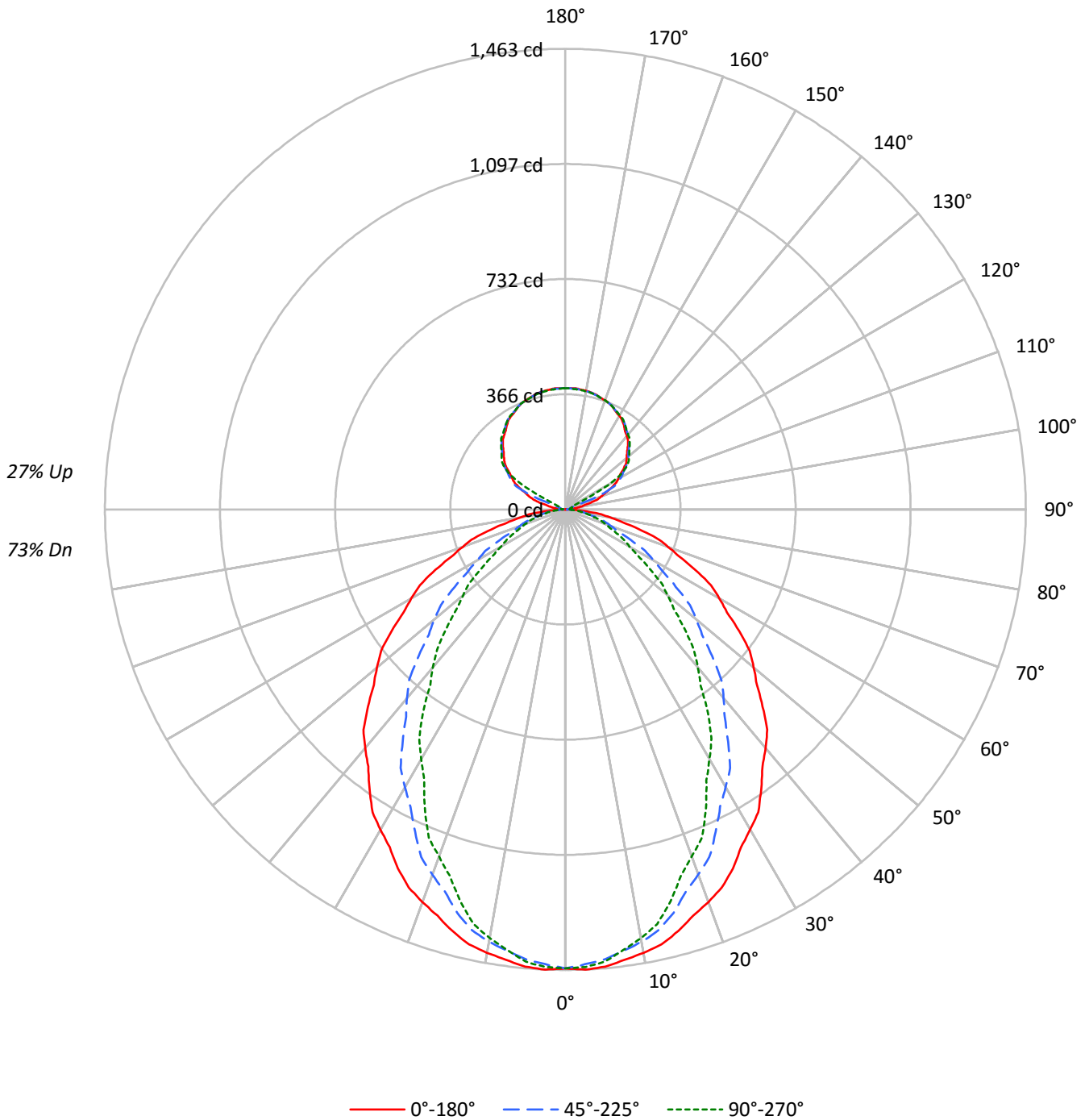
Lumens per Lamp: N/A
Luminaire Lumens: 4127.2 lumens
Efficiency: N/A
Efficacy: 82.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 0.17' x L: 4' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 49.8
Input Voltage (V): 120
Input Current (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



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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	50	30	10	0	
RCR																						
0	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	73	73	73	73	
1	104	99	96	92	98	94	91	88	85	83	80	77	75	73	69	68	66	63	63	63	63	
2	95	88	82	77	90	83	78	74	76	71	68	68	65	62	62	59	57	54	54	54	54	
3	87	78	70	65	82	74	68	62	67	62	58	61	57	54	55	52	49	46	46	46	46	
4	80	69	61	55	76	66	59	54	60	55	50	55	50	47	50	46	43	40	40	40	40	
5	74	62	54	48	70	60	52	47	55	48	44	50	45	41	45	41	38	35	35	35	35	
6	68	56	48	42	65	54	47	41	49	43	39	45	40	36	41	37	34	31	31	31	31	
7	64	51	43	38	60	49	42	37	45	39	35	42	36	32	38	34	30	28	28	28	28	
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	28	25	25	25	25	
9	55	43	35	30	53	41	34	30	38	32	28	35	30	27	33	28	25	23	23	23	23	
10	52	40	32	28	49	38	31	27	35	30	26	33	28	24	30	26	23	21	21	21	21	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	23541	23541	23541
5°	23631	23246	23376
10°	23451	22866	22673
15°	23181	22188	21549
20°	22807	21220	20155
25°	22425	20122	18805
30°	21895	18990	17074
35°	21378	17763	15554
40°	20858	16493	13793
45°	20247	15066	12202
50°	19623	13622	10638
55°	18978	12073	9137
60°	18235	10440	7585
65°	17391	8772	6907
70°	16386	7227	6354
75°	15147	6588	5926
80°	13371	5895	5393
85°	10504	4650	4650



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	136.5	3.3
10°-20°	374.7	9.1
20°-30°	526.2	12.8
30°-40°	573.8	13.9
40°-50°	527.6	12.8
50°-60°	414.4	10.0
60°-70°	270.2	6.5
70°-80°	139.3	3.4
80°-90°	37.1	0.9
90°-100°	12.8	0.3
100°-110°	47.1	1.1
110°-120°	125.8	3.0
120°-130°	207.7	5.0
130°-140°	220.8	5.4
140°-150°	205.3	5.0
150°-160°	165.0	4.0
160°-170°	106.3	2.6
170°-180°	36.6	0.9
0°-30°	1037.4	25.1
0°-40°	1611.3	39.0
0°-60°	2553.2	61.9
0°-90°	2999.8	72.7
90°-120°	185.7	4.5
90°-150°	819.5	19.9
90°-180°	1127.0	27.3
0°-180°	4127.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1458	1458	1458	1458	1458	
5°	1458	1451	1434	1445	1442	138
15°	1387	1371	1327	1303	1289	390
25°	1259	1214	1130	1077	1056	579
35°	1085	1015	901	821	789	678
45°	887	796	660	570	534	684
55°	674	569	429	353	325	602
65°	455	348	230	187	181	451
75°	243	153	106	97	95	257
85°	57	30	25	25	25	67
90°	0	3	6	7	8	3
95°	18	10	11	12	12	22
105°	85	88	17	20	21	90
115°	160	165	172	49	23	158
125°	226	230	235	237	238	202
135°	280	284	287	290	289	216
145°	325	325	329	331	330	203
155°	358	356	358	360	358	165
165°	377	375	376	378	376	106
175°	386	384	384	386	383	37
180°	385	385	385	385	385	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0
2.5°	1463.4	1462.2	1460.9	1459.8	1458.6	1456.7	1454.1	1451.6	1449.1	1446.5	1448.8
5°	1458.0	1456.6	1455.1	1453.6	1452.2	1449.6	1445.7	1441.9	1438.1	1434.3	1436.9
7.5°	1443.0	1441.2	1439.4	1437.5	1435.7	1432.6	1428.1	1423.7	1419.3	1414.8	1415.6
10°	1430.4	1428.3	1426.2	1424.2	1422.1	1418.2	1412.3	1406.4	1400.6	1394.7	1393.9
12.5°	1414.5	1412.0	1409.5	1407.0	1404.5	1399.4	1391.9	1384.4	1376.9	1369.4	1367.8
15°	1386.8	1383.5	1380.4	1377.1	1373.9	1367.3	1357.4	1347.4	1337.4	1327.4	1321.9
17.5°	1352.7	1347.8	1342.9	1338.0	1333.1	1324.2	1311.4	1298.6	1285.8	1273.1	1266.4
20°	1327.4	1321.5	1315.7	1309.8	1304.0	1293.7	1279.0	1264.4	1249.7	1235.0	1227.7
22.5°	1299.9	1293.4	1286.9	1280.3	1273.7	1262.1	1245.6	1229.1	1212.5	1196.0	1186.5
25°	1258.8	1249.4	1240.0	1230.6	1221.2	1206.9	1187.6	1168.2	1148.8	1129.5	1117.5
27.5°	1209.2	1199.0	1188.8	1178.6	1168.4	1152.4	1130.6	1108.7	1086.9	1065.1	1051.1
30°	1174.4	1163.2	1152.1	1140.9	1129.8	1112.5	1089.0	1065.6	1042.2	1018.6	1003.7
32.5°	1140.6	1127.6	1114.6	1101.6	1088.5	1070.1	1046.1	1022.2	998.2	974.3	957.3
35°	1084.6	1069.7	1054.7	1039.7	1024.8	1004.4	978.6	952.9	927.0	901.2	882.8
37.5°	1028.7	1012.3	995.8	979.4	963.0	941.1	913.5	886.1	858.5	831.0	810.7
40°	989.6	972.1	954.4	936.9	919.3	896.2	867.8	839.4	810.9	782.5	761.6
42.5°	949.5	931.0	912.5	893.9	875.4	851.4	822.1	792.6	763.3	733.9	712.4
45°	886.7	867.0	847.4	827.8	808.1	782.9	752.1	721.3	690.5	659.8	638.9
47.5°	825.4	804.7	783.9	763.0	742.2	715.9	684.2	652.3	620.5	588.8	568.1
50°	781.2	760.3	739.5	718.7	697.8	671.3	639.1	606.8	574.5	542.3	522.1
52.5°	737.9	716.1	694.4	672.6	650.8	624.2	592.6	561.1	529.5	498.0	478.5
55°	674.2	651.4	628.5	605.6	582.8	555.5	523.8	492.1	460.5	428.9	411.2
57.5°	609.1	585.7	562.1	538.7	515.2	488.3	457.9	427.4	397.0	366.5	350.4
60°	564.7	541.3	517.8	494.4	470.9	444.1	413.9	383.7	353.4	323.3	308.3
62.5°	521.5	498.0	474.6	451.1	427.7	401.5	372.7	343.9	315.1	286.4	272.1
65°	455.2	431.4	407.8	384.0	360.2	335.2	308.8	282.4	256.0	229.6	219.6
67.5°	391.3	367.8	344.2	320.6	297.0	273.4	249.7	225.9	202.2	178.4	173.8
70°	347.1	324.2	301.3	278.4	255.5	234.0	213.8	193.6	173.3	153.1	150.2
72.5°	304.8	282.8	261.0	239.0	217.1	197.9	181.8	165.5	149.2	133.0	130.5
75°	242.8	222.2	201.7	181.2	160.7	145.4	135.4	125.5	115.5	105.6	103.5
77.5°	181.8	163.8	145.9	127.9	109.8	98.4	93.6	88.8	83.9	79.2	78.0
80°	143.8	128.9	113.9	98.9	84.0	75.1	72.2	69.2	66.3	63.4	62.2
82.5°	109.0	97.3	85.7	74.0	62.3	55.4	53.5	51.5	49.5	47.5	46.8
85°	56.7	50.5	44.4	38.2	32.1	28.6	27.7	26.9	25.9	25.1	25.1
87.5°	17.0	15.2	13.4	11.7	10.0	9.1	9.3	9.4	9.5	9.6	9.4
90°	0.3	0.9	1.6	2.3	3.0	3.6	4.0	4.6	5.1	5.6	5.9
92.5°	5.6	5.6	5.5	5.4	5.3	5.5	5.7	5.9	6.2	6.5	6.6
95°	18.1	16.0	14.0	12.0	9.9	9.1	9.6	10.0	10.4	10.8	11.2
97.5°	35.9	30.1	24.4	18.7	12.9	10.5	11.5	12.5	13.5	14.6	14.8
100°	49.2	40.8	32.3	23.8	15.4	11.6	12.7	13.8	14.8	15.8	16.4
102.5°	64.0	62.2	60.4	58.6	56.8	51.5	42.7	33.9	25.1	16.3	17.0
105°	84.6	86.4	88.3	90.2	92.0	84.6	67.7	50.8	33.8	17.0	17.7
107.5°	108.1	109.7	111.2	112.7	114.2	104.8	84.6	64.3	44.0	23.8	23.1
110°	123.3	124.6	126.0	127.3	128.5	120.2	102.4	84.5	66.6	48.7	42.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	137.6	138.7	139.9	141.0	142.2	140.5	136.1	131.7	127.3	122.9	100.3
115°	160.1	161.1	162.2	163.2	164.3	165.6	167.1	168.7	170.2	171.8	143.1
117.5°	180.2	181.3	182.5	183.7	184.9	186.0	187.1	188.1	189.2	190.3	183.3
120°	194.8	195.8	196.7	197.7	198.5	199.6	200.7	201.8	202.9	204.1	204.8
122.5°	207.3	208.4	209.3	210.3	211.3	212.3	213.5	214.7	216.0	217.2	217.7
125°	226.4	227.1	227.9	228.8	229.5	230.6	231.7	232.9	234.0	235.2	235.7
127.5°	243.5	244.4	245.3	246.2	247.1	248.0	248.8	249.8	250.6	251.5	252.1
130°	254.4	255.5	256.4	257.4	258.4	259.2	259.9	260.6	261.3	262.0	262.6
132.5°	265.6	266.4	267.3	268.1	269.0	269.7	270.4	271.0	271.7	272.4	273.0
135°	280.1	281.0	282.1	283.0	284.0	284.8	285.3	285.9	286.5	287.1	287.7
137.5°	294.7	295.4	296.1	296.8	297.5	298.2	298.8	299.4	300.1	300.7	301.3
140°	304.3	304.8	305.2	305.7	306.3	306.9	307.5	308.2	308.9	309.5	310.1
142.5°	312.3	312.7	313.1	313.7	314.1	314.7	315.5	316.2	317.0	317.8	318.3
145°	324.9	324.9	324.8	324.7	324.6	325.1	326.1	327.3	328.3	329.3	329.8
147.5°	335.9	335.6	335.4	335.1	334.9	335.3	336.3	337.4	338.5	339.5	339.8
150°	342.9	342.5	342.1	341.6	341.2	341.6	342.5	343.5	344.5	345.5	345.9
152.5°	349.0	348.5	348.0	347.5	347.1	347.2	348.2	349.1	350.1	351.0	351.4
155°	357.7	357.1	356.6	356.0	355.5	355.6	356.4	357.1	357.8	358.5	359.0
157.5°	364.5	364.1	363.6	363.2	362.7	362.7	363.3	363.8	364.3	364.8	365.2
160°	368.6	368.2	367.8	367.5	367.1	367.1	367.5	367.8	368.2	368.6	368.9
162.5°	372.1	371.8	371.4	371.0	370.7	370.7	370.9	371.3	371.6	372.0	372.4
165°	376.9	376.6	376.2	375.8	375.5	375.4	375.6	375.7	375.9	376.1	376.5
167.5°	380.5	380.1	379.8	379.4	379.0	378.9	379.1	379.3	379.4	379.6	380.0
170°	382.5	382.1	381.8	381.4	381.0	380.9	381.0	381.2	381.3	381.4	381.9
172.5°	383.8	383.5	383.1	382.7	382.4	382.2	382.4	382.5	382.6	382.7	383.1
175°	385.6	385.1	384.7	384.3	383.8	383.7	383.8	383.9	384.1	384.2	384.6
177.5°	385.8	385.5	385.1	384.8	384.4	384.4	384.4	384.4	384.4	384.5	384.9
180°	384.7	384.7	384.7	384.7	384.7	384.7	384.7	384.7	384.7	384.7	384.7



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0	1458.0
2.5°	1451.1	1453.5	1455.9	1456.7	1456.3	1455.9	1455.3	1454.9
5°	1439.6	1442.3	1444.8	1445.7	1444.8	1444.0	1443.1	1442.3
7.5°	1416.3	1417.0	1417.8	1417.5	1415.9	1414.4	1412.9	1411.4
10°	1392.9	1392.1	1391.2	1389.9	1388.1	1386.4	1384.6	1382.9
12.5°	1366.2	1364.6	1363.0	1360.8	1357.9	1355.0	1352.0	1349.1
15°	1316.3	1310.7	1305.1	1300.9	1298.0	1295.0	1292.1	1289.2
17.5°	1259.8	1253.2	1246.6	1240.7	1235.7	1230.6	1225.5	1220.6
20°	1220.4	1213.1	1205.7	1198.9	1192.4	1185.9	1179.5	1173.0
22.5°	1177.2	1167.7	1158.2	1151.1	1146.3	1141.5	1136.7	1131.9
25°	1105.4	1093.5	1081.4	1073.2	1068.8	1064.4	1060.0	1055.6
27.5°	1037.1	1023.0	1009.0	998.5	991.5	984.6	977.6	970.6
30°	988.8	973.8	958.8	947.4	939.5	931.6	923.7	915.8
32.5°	940.2	923.2	906.0	893.8	886.4	878.9	871.4	864.0
35°	864.3	845.8	827.3	814.9	808.4	801.9	795.5	789.1
37.5°	790.3	770.0	749.6	735.7	728.4	721.0	713.6	706.2
40°	740.8	720.0	699.2	685.0	677.3	669.7	662.1	654.4
42.5°	690.9	669.3	647.8	633.4	625.9	618.5	611.2	603.8
45°	618.1	597.3	576.4	562.6	555.5	548.5	541.4	534.4
47.5°	547.3	526.7	505.9	492.4	486.0	479.7	473.2	466.8
50°	501.9	481.6	461.4	448.2	442.0	435.8	429.7	423.5
52.5°	458.9	439.4	419.9	407.3	401.6	395.9	390.2	384.5
55°	393.6	376.1	358.4	346.9	341.3	335.7	330.2	324.6
57.5°	334.3	318.1	302.0	291.6	287.0	282.2	277.6	272.9
60°	293.3	278.4	263.5	253.7	248.9	244.3	239.5	234.9
62.5°	257.9	243.6	229.4	220.8	218.0	215.2	212.3	209.6
65°	209.7	199.7	189.7	184.3	183.4	182.5	181.7	180.8
67.5°	169.3	164.7	160.1	157.3	156.4	155.5	154.5	153.6
70°	147.2	144.3	141.4	139.3	138.1	136.9	135.8	134.6
72.5°	128.1	125.6	123.1	121.6	120.9	120.2	119.4	118.7
75°	101.4	99.4	97.4	96.2	95.9	95.6	95.3	95.0
77.5°	76.8	75.7	74.5	73.6	73.2	72.8	72.2	71.8
80°	61.0	59.8	58.6	58.0	58.0	58.0	58.0	58.0
82.5°	46.1	45.4	44.7	44.3	44.3	44.3	44.3	44.3
85°	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
87.5°	9.2	9.0	8.9	8.8	8.8	8.9	8.9	8.9
90°	6.2	6.5	6.8	7.1	7.1	7.2	7.4	7.5
92.5°	6.8	7.0	7.1	7.2	7.3	7.4	7.4	7.5
95°	11.5	11.8	12.1	12.2	12.1	12.1	12.1	12.0
97.5°	15.1	15.2	15.5	15.7	15.8	15.8	15.9	16.0
100°	16.9	17.4	17.8	18.2	18.3	18.4	18.5	18.7
102.5°	17.6	18.3	18.9	19.3	19.5	19.6	19.8	20.0
105°	18.3	19.0	19.7	20.1	20.4	20.7	20.9	21.2
107.5°	22.4	21.7	21.0	20.8	21.0	21.3	21.5	21.8
110°	36.3	30.1	23.9	21.0	21.3	21.5	21.8	22.0



TEST NUMBER: P331738-935

CATALOG NUMBER: SA2XXRDIP-C1005D330U935-4F0-1E-UDD-F

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	77.7	55.2	32.6	21.4	21.6	21.8	22.0	22.2
115°	114.5	85.8	57.2	40.6	36.2	31.8	27.3	22.8
117.5°	176.4	169.4	162.6	151.8	137.2	122.5	107.9	93.2
120°	205.5	206.3	207.0	203.2	194.8	186.5	178.1	169.8
122.5°	218.1	218.5	219.0	218.3	216.8	215.2	213.5	211.9
125°	236.1	236.5	236.9	237.3	237.5	237.6	237.8	238.0
127.5°	252.8	253.4	254.0	254.3	254.4	254.4	254.4	254.5
130°	263.3	264.0	264.7	265.0	264.9	264.8	264.8	264.8
132.5°	273.6	274.1	274.7	275.0	274.9	274.9	274.8	274.7
135°	288.3	288.9	289.5	289.7	289.6	289.5	289.4	289.2
137.5°	301.9	302.5	303.1	303.2	303.1	302.9	302.6	302.5
140°	310.6	311.3	311.8	311.9	311.6	311.3	311.0	310.6
142.5°	318.8	319.3	319.9	319.9	319.6	319.3	319.0	318.7
145°	330.2	330.6	331.1	331.1	330.8	330.5	330.2	329.8
147.5°	340.1	340.4	340.8	340.8	340.5	340.3	340.0	339.8
150°	346.2	346.6	347.0	347.0	346.7	346.4	346.0	345.8
152.5°	351.8	352.1	352.5	352.5	352.1	351.7	351.3	350.9
155°	359.3	359.6	360.1	360.0	359.5	359.0	358.5	358.0
157.5°	365.7	366.1	366.4	366.4	365.9	365.5	365.0	364.5
160°	369.4	369.7	370.1	370.1	369.6	369.2	368.8	368.3
162.5°	372.7	373.2	373.6	373.6	373.0	372.5	372.0	371.4
165°	376.9	377.4	377.8	377.8	377.4	376.9	376.5	376.1
167.5°	380.5	380.9	381.3	381.3	380.7	380.1	379.6	379.0
170°	382.3	382.7	383.1	383.1	382.5	381.9	381.4	380.8
172.5°	383.6	384.0	384.4	384.4	383.8	383.3	382.7	382.2
175°	385.0	385.5	385.9	385.8	385.2	384.6	383.9	383.3
177.5°	385.2	385.6	385.9	385.8	385.4	385.0	384.5	384.1
180°	384.7	384.7	384.7	384.7	384.7	384.7	384.7	384.7

(END OF REPORT)