

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: P331740-830

Luminaire Tested: **SA2XXRDIP-C1005D330U830-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P331740-830
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-16,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA2XXRDIP-C1005D330U830-4F0-1E-UDD-F4
Description: DEFINE 2 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1005 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 330 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4489.5 lumens
Efficiency: N/A
Efficacy: 90.2 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

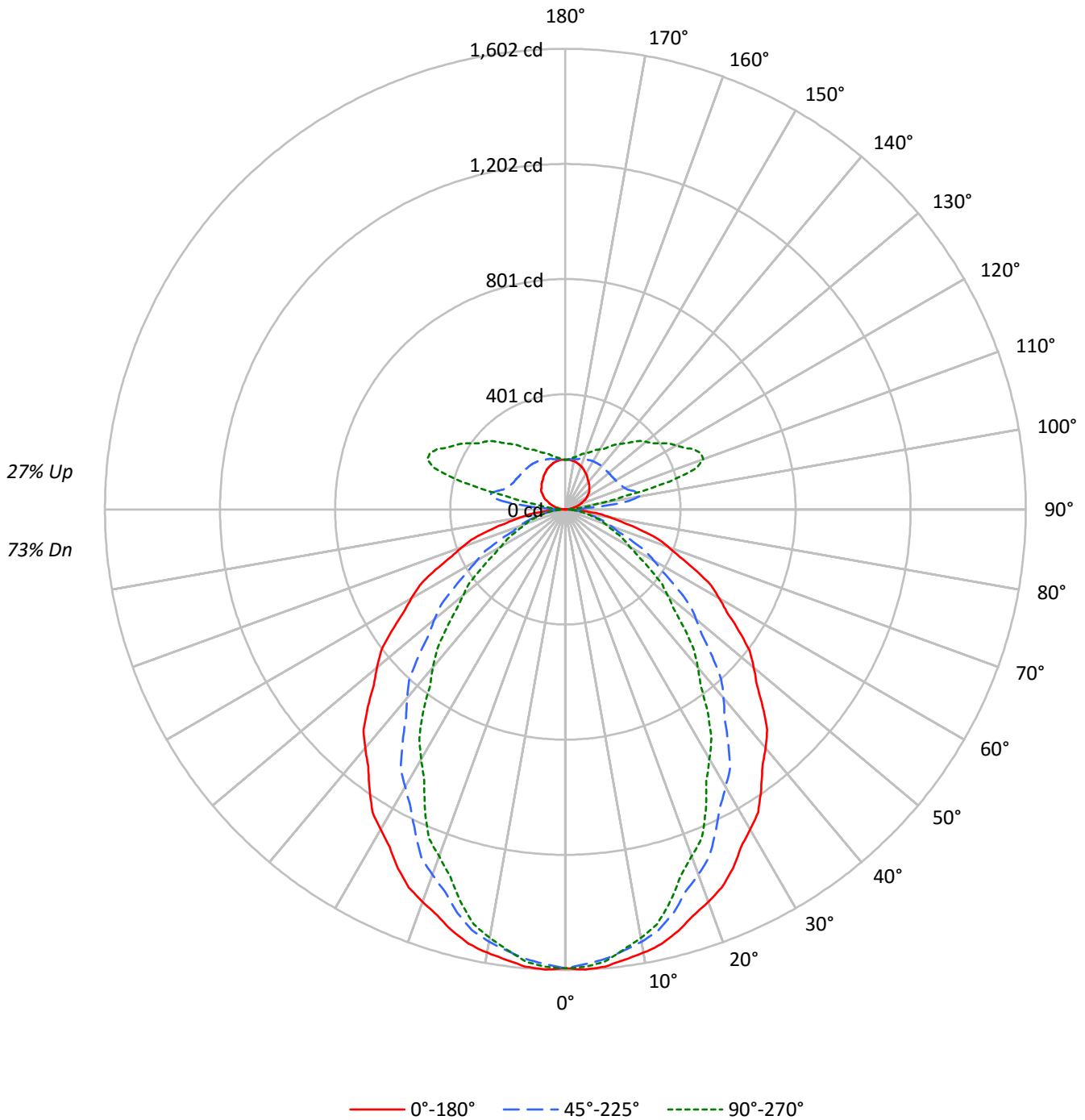
Input Watts (W): 49.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	95	91	88	86	83	81	77	75	74	70	68	67	63
2	95	88	82	77	90	84	78	74	76	72	68	69	65	63	62	60	57	54
3	87	78	71	65	83	74	68	62	68	62	58	61	57	54	56	52	50	47
4	80	69	62	56	76	66	59	54	61	55	50	55	51	47	50	46	43	41
5	74	62	54	48	70	60	52	47	55	49	44	50	45	41	46	42	38	36
6	68	56	48	42	65	54	47	41	50	43	39	46	40	36	42	37	34	32
7	64	51	43	38	60	49	42	37	45	39	35	42	36	33	38	34	31	28
8	59	47	39	34	56	45	38	33	42	35	31	38	33	29	35	31	28	26
9	55	43	36	30	53	41	34	30	38	32	28	36	30	27	33	28	25	23
10	52	40	32	28	49	38	32	27	36	30	26	33	28	24	31	26	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	25770	25770	25770
5°	25869	25449	25590
10°	25671	25032	24819
15°	25377	24289	23590
20°	24967	23230	22063
25°	24549	22026	20587
30°	23968	20789	18690
35°	23402	19446	17026
40°	22835	18054	15099
45°	22165	16493	13358
50°	21481	14913	11645
55°	20777	13216	10001
60°	19963	11428	8302
65°	19037	9605	7561
70°	17934	7912	6954
75°	16581	7211	6488
80°	14635	6453	5904
85°	11504	5076	5076



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.4	3.3
10°-20°	410.2	9.1
20°-30°	576.1	12.8
30°-40°	628.2	14.0
40°-50°	577.6	12.9
50°-60°	453.6	10.1
60°-70°	295.8	6.6
70°-80°	152.5	3.4
80°-90°	41.1	0.9
90°-100°	69.2	1.5
100°-110°	235.0	5.2
110°-120°	249.6	5.6
120°-130°	205.5	4.6
130°-140°	165.0	3.7
140°-150°	124.7	2.8
150°-160°	87.6	2.0
160°-170°	51.6	1.1
170°-180°	16.8	0.4
0°-30°	1135.7	25.3
0°-40°	1763.9	39.3
0°-60°	2795.1	62.3
0°-90°	3284.4	73.2
90°-120°	553.8	12.3
90°-150°	1049.0	23.4
90°-180°	1205.0	26.8
0°-180°	4489.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1596	1596	1596	1596	1596	
5°	1596	1588	1570	1582	1579	151
15°	1518	1500	1453	1426	1411	427
25°	1378	1329	1236	1179	1156	633
35°	1187	1111	987	899	864	743
45°	971	871	722	623	585	749
55°	738	623	470	386	355	659
65°	498	381	251	205	198	494
75°	266	168	116	106	104	281
85°	62	33	27	27	27	73
90°	0	4	11	11	11	3
95°	12	29	130	49	38	12
105°	41	61	247	441	375	43
115°	72	90	206	426	494	71
125°	100	118	198	345	401	89
135°	117	140	196	290	332	91
145°	134	154	195	242	265	84
155°	152	164	190	214	223	70
165°	166	171	182	192	196	47
175°	173	173	174	177	176	16
180°	173	173	173	173	173	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1
2.5°	1601.9	1600.6	1599.3	1598.1	1596.8	1594.7	1591.9	1589.1	1586.3	1583.5	1586.0
5°	1596.1	1594.5	1592.9	1591.3	1589.7	1586.9	1582.6	1578.5	1574.3	1570.2	1573.0
7.5°	1579.7	1577.7	1575.7	1573.7	1571.7	1568.3	1563.4	1558.5	1553.7	1548.8	1549.6
10°	1565.8	1563.6	1561.3	1559.1	1556.8	1552.5	1546.1	1539.6	1533.2	1526.8	1525.9
12.5°	1548.5	1545.7	1542.9	1540.2	1537.5	1531.9	1523.7	1515.5	1507.3	1499.1	1497.3
15°	1518.2	1514.6	1511.1	1507.5	1504.0	1496.8	1485.9	1475.0	1464.1	1453.1	1447.1
17.5°	1480.8	1475.5	1470.1	1464.7	1459.3	1449.6	1435.6	1421.6	1407.6	1393.6	1386.4
20°	1453.1	1446.7	1440.3	1433.9	1427.5	1416.3	1400.1	1384.1	1368.1	1352.0	1344.0
22.5°	1423.1	1415.9	1408.7	1401.6	1394.3	1381.7	1363.6	1345.5	1327.4	1309.3	1298.9
25°	1378.0	1367.7	1357.4	1347.2	1336.9	1321.3	1300.0	1278.8	1257.6	1236.4	1223.3
27.5°	1323.7	1312.6	1301.4	1290.2	1279.0	1261.5	1237.7	1213.7	1189.9	1166.0	1150.7
30°	1285.6	1273.4	1261.2	1249.0	1236.8	1217.9	1192.1	1166.5	1140.9	1115.1	1098.7
32.5°	1248.6	1234.4	1220.1	1205.9	1191.6	1171.4	1145.2	1119.0	1092.8	1066.6	1047.9
35°	1187.3	1171.0	1154.6	1138.2	1121.9	1099.6	1071.3	1043.1	1014.8	986.6	966.4
37.5°	1126.1	1108.1	1090.1	1072.1	1054.2	1030.2	1000.0	970.0	939.8	909.7	887.5
40°	1083.4	1064.1	1044.8	1025.6	1006.4	981.1	950.0	918.9	887.7	856.6	833.8
42.5°	1039.4	1019.2	998.9	978.5	958.3	932.1	899.9	867.7	835.6	803.4	779.9
45°	970.7	949.1	927.7	906.2	884.7	857.1	823.3	789.7	755.9	722.3	699.5
47.5°	903.6	880.9	858.1	835.3	812.5	783.7	748.9	714.1	679.3	644.5	621.9
50°	855.2	832.4	809.5	786.7	763.9	734.9	699.6	664.3	629.0	593.7	571.6
52.5°	807.8	783.9	760.2	736.3	712.5	683.3	648.8	614.3	579.7	545.2	523.8
55°	738.1	713.1	688.1	663.0	638.0	608.1	573.4	538.8	504.2	469.5	450.2
57.5°	666.8	641.1	615.4	589.7	564.0	534.5	501.2	467.9	434.6	401.2	383.6
60°	618.2	592.6	566.8	541.2	515.5	486.2	453.1	420.0	386.9	353.9	337.5
62.5°	570.9	545.2	519.5	493.8	468.2	439.5	408.0	376.5	345.0	313.5	297.8
65°	498.3	472.3	446.4	420.4	394.4	366.9	338.0	309.2	280.2	251.4	240.4
67.5°	428.4	402.7	376.8	351.0	325.2	299.3	273.3	247.3	221.3	195.3	190.3
70°	379.9	354.9	329.8	304.8	279.7	256.2	234.0	211.9	189.7	167.6	164.4
72.5°	333.7	309.6	285.7	261.6	237.6	216.7	199.0	181.2	163.3	145.6	142.9
75°	265.8	243.3	220.8	198.4	175.9	159.2	148.3	137.4	126.5	115.6	113.3
77.5°	199.1	179.4	159.7	140.0	120.2	107.7	102.5	97.2	91.9	86.7	85.4
80°	157.4	141.1	124.7	108.3	92.0	82.2	79.0	75.8	72.6	69.4	68.1
82.5°	119.3	106.5	93.8	81.0	68.2	60.7	58.5	56.4	54.2	52.0	51.3
85°	62.1	55.3	48.6	41.8	35.2	31.3	30.3	29.4	28.4	27.4	27.4
87.5°	18.6	16.7	14.9	13.0	11.0	10.3	10.6	11.0	11.4	11.5	11.2
90°	0.4	1.3	2.6	3.3	4.0	5.0	6.7	9.0	11.0	11.3	11.0
92.5°	4.1	5.8	8.3	9.7	12.0	15.1	22.6	33.3	42.7	43.3	36.6
95°	11.7	13.0	16.3	19.3	24.6	32.6	48.0	76.9	115.6	130.5	114.2
97.5°	18.9	20.7	24.3	28.8	35.0	44.0	63.2	103.7	167.9	222.8	233.8
100°	25.6	26.7	29.6	35.0	41.7	51.0	68.6	109.2	181.2	263.1	311.0
102.5°	31.8	32.5	35.5	40.8	47.8	57.1	73.4	109.5	176.1	264.4	339.8
105°	40.6	41.9	44.3	49.3	56.6	66.0	81.6	111.2	166.2	246.8	335.4
107.5°	50.2	51.3	53.5	58.2	65.4	74.8	90.0	115.8	161.3	227.8	306.1
110°	56.6	58.0	59.9	64.3	71.3	81.0	95.6	119.5	160.2	218.8	287.8



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	62.5	63.8	66.1	70.1	76.8	86.8	100.9	123.6	160.4	212.9	274.9
115°	71.6	73.2	75.3	79.3	86.0	94.9	109.2	129.5	161.8	206.5	259.1
117.5°	81.1	82.4	84.4	87.9	94.3	103.7	116.9	135.9	164.3	203.3	249.1
120°	86.9	88.2	90.3	93.2	99.9	109.2	122.2	140.3	165.9	201.5	243.7
122.5°	92.6	93.6	95.6	98.9	105.5	115.1	127.2	143.9	167.7	200.4	239.2
125°	99.9	100.9	102.9	106.9	113.6	122.9	134.9	149.9	170.5	198.5	232.8
127.5°	105.8	107.1	109.9	114.3	120.6	130.3	141.9	155.4	173.3	197.4	226.8
130°	109.2	110.6	113.9	118.6	125.3	134.5	146.2	158.8	175.5	196.8	222.8
132.5°	112.4	114.0	117.6	122.5	129.5	138.8	150.0	162.3	177.7	196.5	219.6
135°	117.3	118.6	122.5	127.5	135.3	144.5	155.2	166.8	180.2	196.1	215.1
137.5°	121.8	123.4	127.3	132.7	140.3	148.9	159.5	170.3	182.5	196.0	212.0
140°	125.3	126.6	130.5	135.9	143.2	151.8	161.8	172.2	183.5	195.9	210.1
142.5°	128.7	129.8	133.5	138.8	145.9	154.0	163.7	173.8	184.3	195.9	208.3
145°	133.8	135.3	138.6	143.5	150.2	157.5	166.5	175.9	185.1	195.1	205.9
147.5°	139.5	140.4	143.6	148.3	153.8	160.3	168.8	177.0	185.4	194.0	203.3
150°	143.2	144.2	146.8	151.2	156.2	162.2	169.8	177.5	185.1	193.1	201.1
152.5°	146.9	147.4	150.1	153.8	158.6	164.0	170.9	177.8	184.6	191.8	199.3
155°	152.2	152.5	154.5	158.2	161.8	166.8	172.5	178.1	183.8	189.5	195.9
157.5°	156.6	156.9	158.5	161.7	164.7	168.8	173.6	178.1	182.3	187.1	192.6
160°	159.5	159.9	161.2	163.8	166.5	170.2	174.2	178.1	181.5	185.5	190.1
162.5°	162.5	162.2	163.6	165.7	168.1	171.0	174.5	177.9	180.7	184.2	188.0
165°	165.9	165.5	166.2	168.1	169.8	171.8	174.8	177.2	179.2	181.5	184.5
167.5°	168.6	168.2	168.8	170.1	171.4	172.6	174.7	176.7	177.7	179.2	181.1
170°	170.5	169.8	170.2	171.2	171.8	172.9	174.5	176.2	176.8	177.9	179.2
172.5°	171.5	171.2	171.0	172.0	172.4	173.1	174.3	175.4	175.8	176.3	177.3
175°	172.9	172.5	172.2	172.9	172.9	173.1	173.8	174.5	174.2	174.5	174.8
177.5°	173.4	172.9	172.7	173.1	173.1	173.1	173.4	174.0	173.4	173.1	173.4
180°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1	1596.1
2.5°	1588.6	1591.1	1593.7	1594.7	1594.2	1593.7	1593.2	1592.7
5°	1575.9	1578.9	1581.7	1582.6	1581.7	1580.7	1579.8	1578.9
7.5°	1550.4	1551.2	1552.1	1551.7	1550.0	1548.3	1546.7	1545.0
10°	1524.8	1523.9	1523.0	1521.5	1519.6	1517.7	1515.7	1513.8
12.5°	1495.6	1493.8	1492.1	1489.7	1486.5	1483.3	1480.1	1476.9
15°	1441.0	1434.8	1428.7	1424.1	1420.9	1417.7	1414.5	1411.3
17.5°	1379.1	1371.9	1364.6	1358.2	1352.7	1347.2	1341.6	1336.1
20°	1336.0	1327.9	1319.9	1312.4	1305.3	1298.3	1291.2	1284.1
22.5°	1288.6	1278.3	1267.9	1260.1	1254.9	1249.6	1244.3	1239.1
25°	1210.1	1197.0	1183.8	1174.9	1170.0	1165.2	1160.4	1155.6
27.5°	1135.3	1119.9	1104.6	1093.1	1085.4	1077.8	1070.2	1062.5
30°	1082.4	1066.0	1049.6	1037.2	1028.5	1019.8	1011.2	1002.5
32.5°	1029.3	1010.6	991.8	978.5	970.3	962.1	953.9	945.8
35°	946.1	926.0	905.7	892.0	885.0	877.9	870.8	863.8
37.5°	865.2	842.9	820.6	805.4	797.4	789.3	781.2	773.1
40°	811.0	788.2	765.4	749.9	741.5	733.1	724.8	716.4
42.5°	756.3	732.7	709.2	693.3	685.2	677.1	669.1	661.0
45°	676.7	653.8	631.0	615.9	608.1	600.4	592.7	585.0
47.5°	599.2	576.6	553.8	539.0	532.1	525.1	518.0	511.0
50°	549.4	527.3	505.1	490.6	483.9	477.1	470.4	463.6
52.5°	502.4	481.0	459.7	445.8	439.6	433.4	427.2	420.9
55°	430.9	411.7	392.4	379.8	373.6	367.5	361.5	355.3
57.5°	366.0	348.3	330.6	319.2	314.1	309.0	303.9	298.7
60°	321.1	304.8	288.4	277.7	272.5	267.4	262.2	257.1
62.5°	282.3	266.6	251.1	241.7	238.7	235.5	232.4	229.4
65°	229.5	218.6	207.6	201.7	200.8	199.8	198.9	197.9
67.5°	185.3	180.3	175.2	172.2	171.3	170.2	169.2	168.1
70°	161.2	158.0	154.8	152.5	151.2	149.9	148.6	147.3
72.5°	140.3	137.5	134.8	133.1	132.3	131.6	130.7	130.0
75°	111.0	108.9	106.6	105.3	105.0	104.6	104.3	104.0
77.5°	84.1	82.8	81.5	80.6	80.1	79.6	79.1	78.6
80°	66.7	65.5	64.2	63.5	63.5	63.5	63.5	63.5
82.5°	50.4	49.7	48.9	48.5	48.5	48.5	48.5	48.5
85°	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4
87.5°	10.8	10.5	10.4	10.3	10.3	10.3	10.3	10.3
90°	10.7	10.0	10.7	11.0	11.0	11.0	11.0	11.0
92.5°	29.0	24.9	22.1	20.1	19.8	18.8	18.9	18.5
95°	87.3	66.9	53.0	45.6	41.3	38.6	37.6	38.0
97.5°	203.6	166.5	130.5	106.5	90.6	82.4	77.6	74.7
100°	304.1	262.8	217.2	176.8	149.2	134.9	125.3	119.2
102.5°	369.9	360.5	327.2	284.5	254.4	230.0	217.9	209.8
105°	404.6	442.2	446.6	435.6	414.9	394.3	379.9	375.3
107.5°	379.6	436.3	470.9	487.0	489.7	488.5	485.6	479.5
110°	358.0	417.6	460.2	487.6	501.9	508.2	511.2	510.9



TEST NUMBER: P331740-830

CATALOG NUMBER: SA2XXRDIP-C1005D330U830-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	338.3	395.5	441.0	472.4	492.3	502.8	508.5	510.3
115°	314.1	365.3	409.0	443.3	466.9	482.2	490.9	493.9
117.5°	295.8	340.8	380.4	412.6	436.7	452.9	461.9	464.5
120°	286.7	328.0	363.4	393.6	417.0	432.6	442.2	445.6
122.5°	279.6	317.4	350.8	378.1	399.1	414.5	423.1	425.8
125°	269.1	303.4	332.7	357.7	377.0	389.6	397.9	400.7
127.5°	258.7	289.8	317.4	340.4	357.3	369.2	376.4	378.5
130°	252.1	280.8	307.1	329.0	345.3	356.7	363.4	366.0
132.5°	245.7	272.2	296.4	317.1	333.1	344.4	350.5	353.0
135°	236.8	258.7	280.8	299.4	313.7	324.7	330.7	332.1
137.5°	229.7	248.1	265.5	281.7	294.8	304.3	309.5	311.5
140°	225.1	241.1	256.5	271.1	281.7	290.4	295.4	297.4
142.5°	221.4	235.0	248.2	260.4	270.5	278.4	282.9	283.2
145°	216.1	227.2	237.4	247.1	255.1	260.8	264.1	265.0
147.5°	212.1	220.7	228.8	235.8	242.4	246.9	249.2	249.9
150°	209.2	216.5	223.5	229.4	234.4	238.5	240.4	240.8
152.5°	206.2	213.0	219.0	224.1	228.1	231.5	233.0	233.1
155°	202.2	207.5	212.4	216.1	219.8	222.2	223.5	222.8
157.5°	197.5	201.9	206.0	209.0	211.5	213.5	214.1	214.1
160°	194.4	198.1	201.8	204.2	206.5	208.1	208.5	208.5
162.5°	191.5	194.7	197.8	199.6	202.0	203.1	203.4	203.1
165°	187.2	189.5	191.8	193.1	194.4	195.9	195.9	195.5
167.5°	182.9	184.7	186.3	187.6	188.1	188.9	188.8	188.4
170°	180.9	181.8	183.1	183.8	184.2	185.1	184.8	184.2
172.5°	178.4	179.2	180.2	180.6	181.0	181.4	181.1	180.7
175°	175.9	176.2	176.5	176.8	176.8	177.2	176.8	176.2
177.5°	174.0	174.0	174.3	174.3	174.3	174.3	174.0	173.4
180°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1

(END OF REPORT)