

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: P332960-935

Luminaire Tested: **SA4XXRDIP-C1020D365U935-4F0-1E-UDD-F4**

Issue Date: 10/7/2019

Test Information

Test Method: LM-79-08
Report Number: P332960-935
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-18,
Test Lab: INNOVATION CENTER
Issue Date: 10/7/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: SA4XXRDIP-C1020D365U935-4F0-1E-UDD-F4
Description: DEFINE 4 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED
HOUSING
UPLIGHT 365 LUMENS PER FOOT, BATWING OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4719.3 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')
CIE Type: Semi-Direct

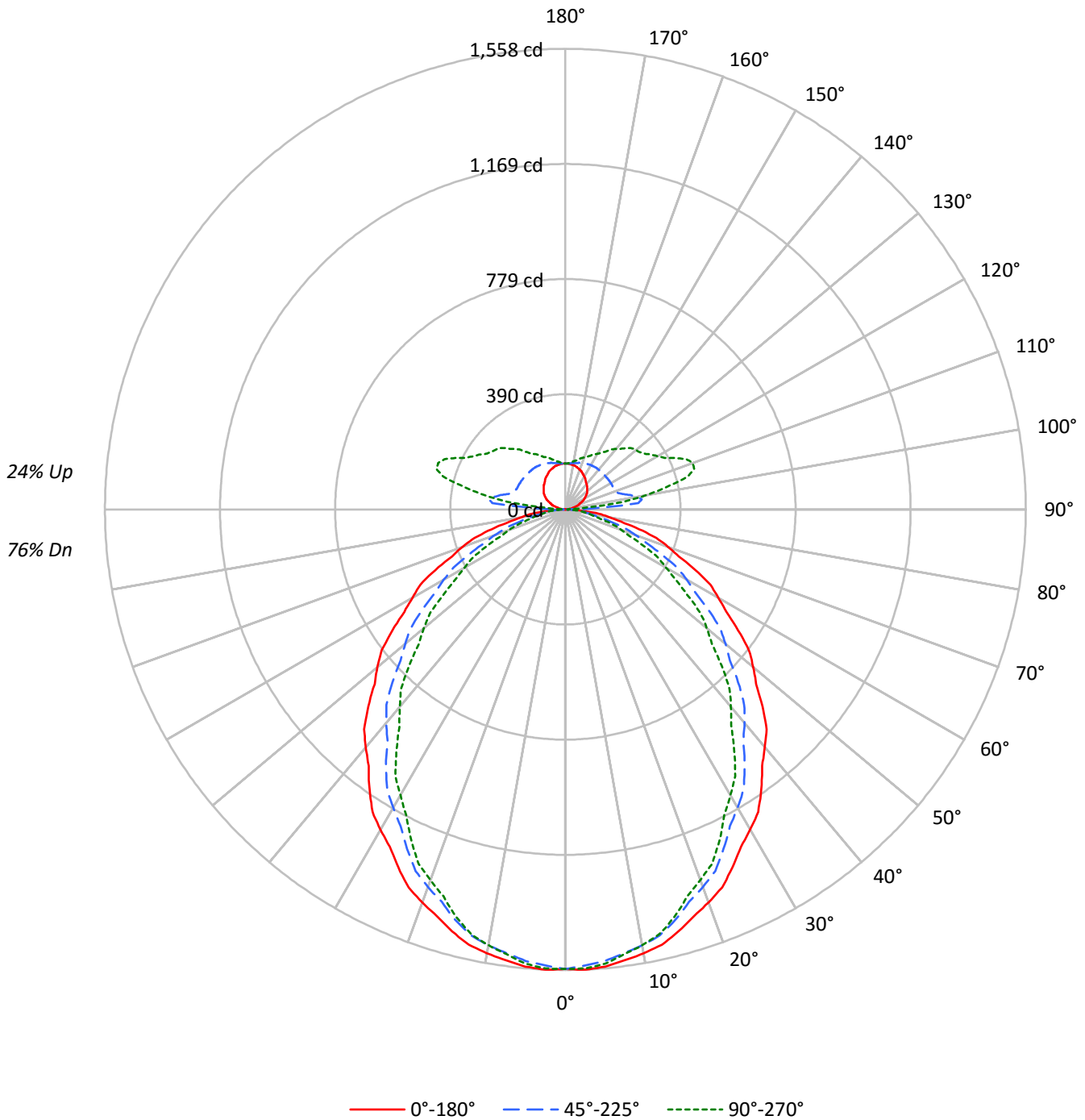
Input Watts (W): 43.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0	
RCR																						
0	113	113	113	113	108	108	108	108	98	98	98	89	89	89	80	80	80	76				76
1	104	100	96	92	99	95	92	89	87	84	82	79	77	75	72	70	69				65	
2	95	88	81	76	90	84	78	73	76	72	68	70	66	63	63	61	58				55	
3	87	77	70	64	83	74	67	62	68	62	58	62	58	54	57	53	50				47	
4	80	69	61	55	76	66	59	53	61	55	50	56	51	47	51	47	44				41	
5	74	62	53	47	70	59	52	46	54	48	43	50	45	41	46	42	38				36	
6	68	56	47	41	65	53	46	40	49	43	38	45	40	36	42	37	34				31	
7	63	51	42	37	60	49	41	36	45	39	34	42	36	32	38	34	30				28	
8	59	46	38	33	56	44	37	32	41	35	30	38	33	29	35	31	27				25	
9	55	42	35	29	52	41	34	29	38	32	27	35	30	26	33	28	25				23	
10	51	39	32	27	49	38	31	26	35	29	25	33	27	24	30	26	23				21	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12551	12551	12551
5°	12580	12426	12503
10°	12500	12276	12276
15°	12357	12018	11929
20°	12160	11679	11465
25°	11908	11282	10996
30°	11663	10864	10409
35°	11392	10430	9819
40°	11065	9936	9183
45°	10764	9445	8535
50°	10420	8881	7850
55°	10054	8294	7104
60°	9649	7650	6344
65°	9278	6844	5593
70°	8738	5958	4749
75°	8057	4938	3862
80°	7029	3761	3543
85°	5956	3418	3196



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	3.1
10°-20°	407.3	8.6
20°-30°	588.1	12.5
30°-40°	666.6	14.1
40°-50°	643.7	13.6
50°-60°	535.3	11.3
60°-70°	369.6	7.8
70°-80°	187.4	4.0
80°-90°	48.9	1.0
90°-100°	111.9	2.4
100°-110°	232.8	4.9
110°-120°	208.5	4.4
120°-130°	175.4	3.7
130°-140°	146.3	3.1
140°-150°	111.7	2.4
150°-160°	78.5	1.7
160°-170°	46.2	1.0
170°-180°	15.0	0.3
0°-30°	1141.4	24.2
0°-40°	1808.0	38.3
0°-60°	2987.0	63.3
0°-90°	3592.8	76.1
90°-120°	553.3	11.7
90°-150°	986.7	20.9
90°-180°	1126.0	23.9
0°-180°	4719.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1555	1555	1555	1555	1555	
5°	1552	1547	1533	1544	1543	147
15°	1478	1467	1438	1435	1427	416
25°	1337	1314	1267	1247	1234	616
35°	1156	1117	1058	1019	996	722
45°	943	897	827	771	748	727
55°	714	665	589	530	505	639
65°	486	433	358	309	293	479
75°	258	214	158	132	124	273
85°	64	42	37	35	34	72
90°	0	2	6	6	6	4
95°	10	32	248	123	74	11
105°	36	52	200	430	428	38
115°	63	79	178	342	411	62
125°	87	104	177	291	328	78
135°	104	124	176	258	293	80
145°	120	137	175	218	239	75
155°	136	147	170	192	200	63
165°	148	153	163	172	175	42
175°	154	155	156	158	158	15
180°	155	155	155	155	155	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1558.5	1557.6	1556.8	1556.0	1555.1	1553.5	1551.2	1548.9	1546.5	1544.2	1546.5
5°	1552.3	1551.3	1550.2	1549.1	1548.1	1545.9	1542.8	1539.6	1536.5	1533.3	1535.9
7.5°	1538.3	1537.1	1536.0	1534.9	1533.8	1531.2	1527.1	1522.9	1518.8	1514.7	1516.4
10°	1524.9	1523.6	1522.2	1521.0	1519.7	1516.6	1511.8	1507.1	1502.3	1497.5	1498.6
12.5°	1507.8	1506.2	1504.7	1503.2	1501.7	1498.1	1492.5	1486.9	1481.3	1475.7	1476.3
15°	1478.5	1476.1	1473.8	1471.4	1469.0	1464.5	1457.8	1451.2	1444.7	1438.0	1437.5
17.5°	1443.0	1439.6	1436.1	1432.7	1429.3	1423.6	1415.7	1407.7	1399.8	1391.8	1390.3
20°	1415.4	1412.0	1408.5	1405.1	1401.6	1395.4	1386.5	1377.4	1368.5	1359.4	1357.4
22.5°	1384.9	1381.0	1377.2	1373.4	1369.5	1362.7	1353.1	1343.5	1333.9	1324.2	1321.0
25°	1336.9	1332.1	1327.3	1322.6	1317.8	1310.0	1299.2	1288.3	1277.5	1266.6	1262.1
27.5°	1286.3	1280.4	1274.5	1268.4	1262.5	1253.7	1242.1	1230.5	1218.9	1207.3	1201.8
30°	1251.1	1244.5	1237.9	1231.3	1224.7	1215.1	1202.7	1190.2	1177.8	1165.4	1158.8
32.5°	1214.0	1206.5	1199.0	1191.6	1184.1	1174.0	1161.1	1148.3	1135.4	1122.6	1114.9
35°	1155.9	1147.5	1138.9	1130.5	1122.1	1111.2	1097.9	1084.8	1071.5	1058.3	1049.3
37.5°	1093.7	1085.0	1076.3	1067.6	1058.9	1047.1	1032.5	1017.9	1003.2	988.5	978.4
40°	1050.0	1041.2	1032.5	1023.7	1015.0	1003.2	988.1	972.9	957.9	942.8	931.7
42.5°	1008.1	998.9	989.7	980.6	971.5	959.0	943.3	927.6	911.9	896.1	884.8
45°	942.8	933.1	923.3	913.4	903.6	890.8	874.9	859.1	843.2	827.3	814.4
47.5°	875.5	865.3	855.2	845.2	835.0	821.7	805.2	788.7	772.1	755.7	742.3
50°	829.7	819.4	809.1	798.7	788.4	774.8	757.9	741.0	724.0	707.1	693.9
52.5°	783.1	772.9	762.8	752.8	742.6	728.9	711.5	694.2	676.8	659.5	646.1
55°	714.3	703.7	693.1	682.5	671.9	658.1	640.8	623.6	606.5	589.3	575.5
57.5°	646.2	635.2	624.1	613.1	602.2	588.1	571.3	554.3	537.4	520.5	506.5
60°	597.6	587.0	576.4	565.8	555.3	541.5	524.6	507.6	490.7	473.8	460.0
62.5°	553.8	542.8	531.8	520.7	509.8	495.6	478.2	460.9	443.5	426.2	413.5
65°	485.7	474.3	463.0	451.6	440.2	426.0	409.1	392.2	375.2	358.3	347.0
67.5°	415.0	404.1	393.2	382.3	371.3	358.1	342.3	326.7	310.9	295.2	285.4
70°	370.2	359.1	348.0	336.9	325.8	312.7	297.6	282.5	267.4	252.4	243.7
72.5°	322.6	312.5	302.5	292.5	282.4	270.3	256.1	241.8	227.6	213.4	205.9
75°	258.3	248.6	238.8	228.9	219.2	208.0	195.6	183.2	170.7	158.3	152.2
77.5°	193.1	184.8	176.5	168.2	159.9	150.7	140.6	130.6	120.5	110.5	106.9
80°	151.2	143.5	135.9	128.2	120.5	112.7	104.8	96.9	88.9	80.9	80.2
82.5°	115.0	108.0	100.9	93.8	86.9	81.0	76.5	72.0	67.4	62.9	62.3
85°	64.3	59.0	53.7	48.4	43.1	40.0	39.3	38.5	37.7	36.9	36.3
87.5°	22.0	20.4	18.9	17.2	15.6	14.6	14.8	14.6	14.6	14.5	14.1
90°	0.3	0.9	1.8	2.2	2.4	2.4	4.2	4.2	4.9	5.5	5.2
92.5°	3.4	5.1	7.9	11.6	16.1	22.4	37.9	61.5	84.5	96.5	80.4
95°	10.1	10.9	14.0	18.0	25.2	38.1	64.5	114.4	187.2	248.0	255.0
97.5°	18.0	18.0	20.7	24.3	30.6	41.2	61.6	102.9	175.1	261.2	320.4
100°	23.2	23.2	25.2	28.9	34.7	44.4	62.4	96.8	158.9	244.7	322.5
102.5°	28.0	28.5	30.4	33.8	39.3	48.6	64.8	95.1	147.9	223.9	304.3
105°	35.6	36.5	38.1	41.7	47.2	56.0	70.6	95.8	138.4	199.6	271.1
107.5°	44.0	44.6	46.1	50.0	55.3	64.0	77.3	100.4	136.7	186.0	244.4
110°	49.6	50.2	51.7	55.4	60.9	69.1	82.5	103.8	137.2	181.3	231.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	54.9	55.5	57.3	60.7	66.2	74.4	87.3	107.5	138.7	179.2	223.4
115°	62.7	63.6	65.7	68.8	74.6	82.7	95.0	113.2	141.5	178.1	216.4
117.5°	70.7	71.5	73.4	76.8	82.2	90.7	102.3	119.1	144.5	177.7	213.2
120°	76.1	76.7	78.8	82.1	87.3	95.8	107.5	123.2	146.7	177.7	211.5
122.5°	80.9	81.5	83.7	86.8	92.5	100.7	112.3	127.2	148.9	177.5	209.6
125°	87.3	88.5	90.4	93.8	99.5	108.1	119.0	132.9	152.1	177.1	206.3
127.5°	93.0	93.9	96.2	100.0	106.0	114.6	125.2	138.0	154.8	176.4	202.0
130°	96.2	97.4	99.8	104.4	110.1	119.0	129.3	141.2	156.7	176.2	199.3
132.5°	99.4	100.3	103.5	107.8	114.1	122.3	132.8	144.4	158.4	176.0	196.9
135°	103.8	105.0	108.1	113.2	119.6	127.5	137.5	148.5	161.0	175.6	193.2
137.5°	108.2	109.3	112.7	117.6	124.2	131.8	141.2	151.4	162.5	175.6	190.1
140°	111.4	112.3	115.6	120.8	127.2	134.5	143.6	153.3	163.7	175.3	188.4
142.5°	114.8	115.7	118.8	123.7	129.8	136.9	145.9	154.8	164.7	175.3	186.9
145°	119.6	120.5	123.6	127.8	133.6	140.3	148.2	156.4	165.2	174.7	184.4
147.5°	125.0	125.3	128.0	132.3	137.2	143.2	150.6	157.8	165.6	173.6	182.2
150°	128.4	128.7	131.1	134.8	139.4	145.2	151.9	158.5	165.6	172.8	180.5
152.5°	131.6	131.6	134.1	137.5	141.5	146.9	152.8	159.0	165.1	171.6	178.5
155°	136.0	136.3	138.2	141.2	144.6	149.1	154.3	159.5	164.4	169.8	175.6
157.5°	140.3	140.3	142.1	144.4	147.3	150.9	155.3	159.5	163.5	167.9	172.6
160°	143.0	143.0	144.2	146.4	148.8	152.1	155.8	159.5	162.8	166.4	170.4
162.5°	145.4	145.3	146.2	148.1	150.2	152.9	156.3	159.5	162.0	165.0	168.5
165°	148.2	148.2	148.8	150.3	151.9	153.7	156.4	158.9	160.7	162.8	165.2
167.5°	150.9	150.6	150.9	152.1	152.9	154.4	156.4	158.1	159.2	160.6	162.3
170°	152.1	151.9	152.1	153.1	153.7	154.5	156.1	157.6	158.3	159.1	160.4
172.5°	153.3	153.1	153.1	153.8	154.1	154.8	155.8	157.1	157.3	157.6	158.7
175°	154.5	154.3	154.3	154.5	154.9	154.9	155.5	156.4	156.1	156.1	156.7
177.5°	155.2	154.9	154.6	154.9	154.9	154.9	155.2	155.6	155.2	155.2	155.4
180°	154.9	154.9	154.9	154.9	154.9	154.9	154.9	154.9	154.9	154.9	154.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7	1554.7
2.5°	1548.9	1551.2	1553.5	1554.6	1554.4	1554.2	1553.9	1553.8
5°	1538.5	1541.2	1543.9	1544.9	1544.4	1543.9	1543.3	1542.8
7.5°	1518.1	1519.8	1521.5	1521.9	1521.0	1520.2	1519.3	1518.5
10°	1499.7	1500.7	1501.8	1501.8	1500.7	1499.7	1498.6	1497.5
12.5°	1476.9	1477.6	1478.2	1477.7	1476.3	1474.8	1473.3	1471.9
15°	1437.0	1436.4	1435.9	1434.7	1432.9	1431.0	1429.2	1427.3
17.5°	1388.9	1387.4	1386.0	1383.8	1381.0	1378.2	1375.4	1372.5
20°	1355.2	1353.1	1351.0	1348.2	1344.8	1341.4	1337.9	1334.5
22.5°	1317.8	1314.7	1311.6	1308.5	1305.7	1303.0	1300.1	1297.4
25°	1257.6	1253.1	1248.6	1245.0	1242.4	1239.8	1237.1	1234.5
27.5°	1196.2	1190.7	1185.1	1180.4	1176.6	1172.8	1169.0	1165.2
30°	1152.2	1145.6	1138.9	1133.5	1129.3	1125.1	1120.8	1116.6
32.5°	1107.2	1099.6	1091.9	1086.1	1082.0	1078.0	1074.0	1070.0
35°	1040.3	1031.3	1022.3	1015.5	1010.6	1005.9	1001.2	996.3
37.5°	968.5	958.4	948.3	940.9	936.2	931.3	926.6	921.9
40°	920.6	909.5	898.4	890.4	885.7	880.9	876.2	871.4
42.5°	873.5	862.2	850.8	842.7	837.8	832.8	827.8	822.9
45°	801.4	788.4	775.5	766.6	761.9	757.1	752.3	747.6
47.5°	728.8	715.4	701.9	692.6	687.3	682.1	676.8	671.7
50°	680.6	667.4	654.2	645.1	640.1	635.0	630.0	625.0
52.5°	632.6	619.1	605.7	596.4	591.2	585.9	580.7	575.5
55°	561.7	548.0	534.3	524.9	519.8	514.8	509.8	504.7
57.5°	492.5	478.5	464.6	455.7	451.9	448.1	444.3	440.5
60°	446.3	432.5	418.8	409.7	405.5	401.3	397.1	392.9
62.5°	400.8	388.1	375.4	367.3	363.9	360.6	357.1	353.8
65°	335.5	324.2	312.8	305.6	302.4	299.2	296.0	292.8
67.5°	275.6	265.9	256.1	249.4	245.9	242.5	238.9	235.5
70°	234.9	226.2	217.5	211.7	209.1	206.5	203.8	201.2
72.5°	198.4	191.0	183.5	178.6	176.1	173.7	171.3	168.8
75°	146.2	140.1	134.0	130.2	128.5	127.0	125.4	123.8
77.5°	103.4	99.9	96.3	94.3	93.8	93.3	92.8	92.4
80°	79.4	78.6	77.7	77.2	77.0	76.7	76.5	76.2
82.5°	61.6	61.1	60.5	60.1	59.8	59.6	59.3	59.1
85°	35.8	35.3	34.8	34.5	34.5	34.5	34.5	34.5
87.5°	14.0	13.9	13.7	13.7	13.9	14.2	14.4	14.6
90°	5.5	5.8	6.1	6.1	6.4	6.7	6.4	6.4
92.5°	59.8	44.9	35.8	29.7	26.1	24.5	23.4	23.4
95°	225.5	178.3	137.5	108.1	93.1	83.7	78.2	74.2
97.5°	333.1	315.6	285.9	254.1	232.2	214.0	204.8	198.5
100°	367.0	373.1	358.2	335.6	309.2	290.6	281.5	279.1
102.5°	365.3	395.5	399.8	390.4	374.2	360.8	351.1	349.1
105°	340.8	393.5	423.6	436.1	436.7	434.2	430.0	428.2
107.5°	306.1	362.1	404.5	431.7	446.7	453.7	456.7	457.4
110°	285.2	337.8	381.9	415.3	437.0	449.8	455.2	458.0



TEST NUMBER: P332960-935

CATALOG NUMBER: SA4XXRDIP-C1020D365U935-4F0-1E-UDD-F4

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	269.8	316.3	358.0	391.5	416.0	431.5	439.2	443.6
115°	254.4	291.8	327.4	356.6	380.6	398.9	408.7	411.1
117.5°	246.8	277.8	305.8	330.6	351.1	366.4	376.3	378.2
120°	243.4	271.7	296.1	317.7	335.0	348.4	356.4	359.7
122.5°	240.5	267.9	290.0	308.9	323.6	335.0	341.7	345.1
125°	235.6	261.7	282.7	299.5	311.6	320.5	326.2	328.0
127.5°	229.5	254.4	275.4	291.3	303.5	311.3	316.2	318.1
130°	224.5	248.7	269.3	285.4	297.9	305.5	310.4	312.2
132.5°	219.5	242.0	262.3	278.4	290.6	299.2	303.8	305.7
135°	212.4	232.2	250.7	266.0	278.1	286.6	291.5	293.3
137.5°	206.0	222.7	238.4	252.1	263.6	271.9	276.0	278.1
140°	202.3	216.6	230.3	243.1	253.8	260.5	264.8	267.2
142.5°	199.0	211.5	223.3	234.4	243.8	250.0	253.8	255.5
145°	194.2	204.5	213.6	222.1	229.7	234.9	238.0	239.4
147.5°	190.2	198.4	205.7	212.4	218.0	222.5	224.7	225.3
150°	187.8	194.8	200.9	206.3	211.2	215.2	217.0	217.2
152.5°	185.1	191.1	196.7	201.2	205.3	208.5	209.7	210.0
155°	181.1	185.9	190.5	194.2	197.2	199.6	200.5	200.5
157.5°	176.8	180.8	184.7	187.6	189.9	191.7	192.3	192.3
160°	174.1	177.4	180.7	183.2	185.0	186.8	187.2	187.2
162.5°	171.4	174.3	176.8	179.1	180.4	182.2	182.5	182.3
165°	167.6	169.5	171.6	173.1	174.4	175.6	175.3	175.0
167.5°	164.1	165.5	167.2	168.1	168.7	169.5	169.4	169.2
170°	161.9	162.8	164.0	165.0	165.6	165.8	165.6	165.6
172.5°	160.0	160.6	161.4	162.0	162.4	162.6	162.4	161.9
175°	157.3	157.6	158.3	158.3	158.3	158.9	158.3	157.6
177.5°	155.6	155.8	155.8	156.1	155.8	156.1	155.6	155.2
180°	154.9	154.9	154.9	154.9	154.9	154.9	154.9	154.9

(END OF REPORT)