

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: P243504

Luminaire Tested: **S124DR-H575D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243504
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DR-H575D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2364.9 lumens
Efficiency: N/A
Efficacy: 137.5 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

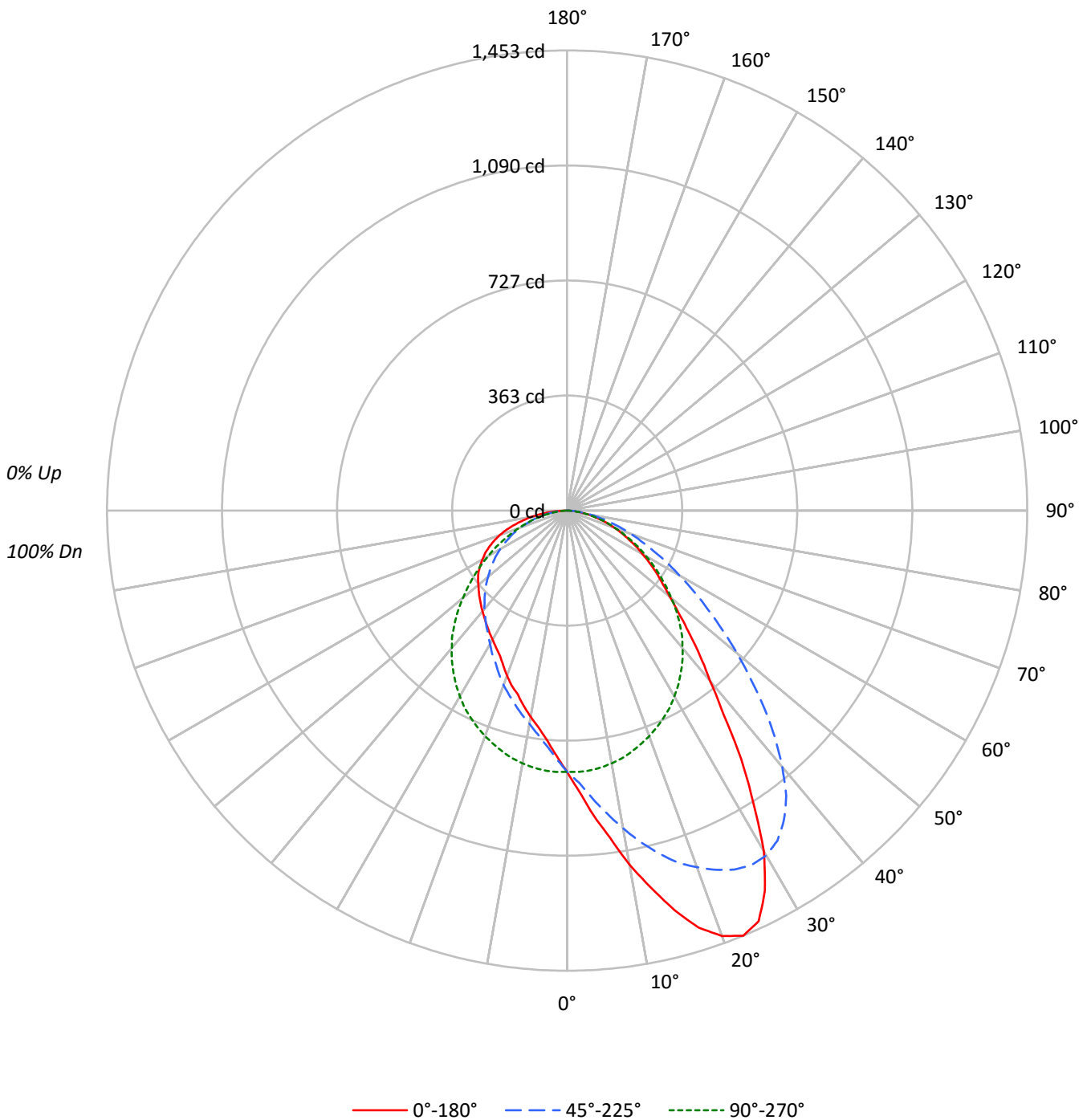
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7331	7331	7331
5°	8627	7350	6488
10°	10252	7317	5973
15°	12007	7252	5533
20°	13520	7168	5248
25°	14032	7072	4939
30°	12743	6952	4830
35°	10396	6788	4800
40°	8140	6573	4820
45°	6813	6309	4909
50°	5847	5939	5056
55°	5342	5540	5300
60°	4896	5129	5493
65°	4488	4695	5706
70°	4130	4234	5879
75°	3675	3723	5873
80°	3066	3051	5861
85°	2336	2305	5497



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.3	3.4
10°-20°	248.6	10.5
20°-30°	399.4	16.9
30°-40°	456.6	19.3
40°-50°	420.3	17.8
50°-60°	343.8	14.5
60°-70°	245.0	10.4
70°-80°	134.6	5.7
80°-90°	36.2	1.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	728.3	30.8
0°-40°	1184.9	50.1
0°-60°	1949.0	82.4
0°-90°	2364.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2364.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	825	825	825	825	825	
5°	967	912	824	745	727	97
15°	1305	1121	788	634	601	372
25°	1431	1251	721	533	504	642
35°	958	1194	626	445	442	595
45°	542	880	502	367	390	423
55°	345	541	358	286	342	309
65°	213	300	223	200	271	213
75°	107	138	108	111	171	114
85°	23	28	23	31	54	27
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	888.0	885.3	884.0	882.3	882.0	880.3	876.9	872.2	866.1	859.8	859.8
5°	966.8	966.1	961.1	961.4	955.0	947.9	942.6	935.8	922.7	911.6	903.8
7.5°	1042.2	1049.3	1047.6	1042.2	1032.8	1022.7	1011.9	1002.5	978.2	964.8	953.7
10°	1135.8	1138.5	1133.8	1126.0	1117.6	1098.1	1083.9	1068.1	1041.9	1019.0	998.8
12.5°	1217.9	1224.3	1215.9	1208.5	1188.6	1174.2	1160.0	1128.4	1100.8	1071.8	1042.5
15°	1304.8	1298.0	1302.4	1284.2	1270.1	1256.3	1220.3	1188.0	1156.7	1121.0	1090.3
17.5°	1380.2	1380.2	1372.1	1360.3	1345.5	1319.6	1283.6	1247.9	1213.2	1166.4	1123.0
20°	1429.3	1433.0	1423.6	1411.2	1393.3	1366.4	1337.8	1299.1	1252.9	1198.4	1149.3
22.5°	1452.9	1453.6	1450.2	1439.8	1425.3	1402.4	1373.1	1335.4	1286.6	1228.0	1176.5
25°	1430.7	1434.4	1433.4	1432.7	1425.3	1412.2	1388.6	1353.6	1309.2	1250.6	1195.0
27.5°	1352.6	1361.7	1369.4	1372.8	1380.9	1381.5	1374.5	1353.3	1316.9	1261.7	1199.7
30°	1241.5	1236.8	1257.6	1268.1	1295.7	1312.2	1324.0	1322.6	1301.7	1257.0	1198.1
32.5°	1093.4	1106.2	1121.0	1145.5	1178.2	1216.6	1245.5	1267.1	1265.1	1235.8	1186.6
35°	958.0	958.0	976.9	1007.2	1041.9	1088.0	1136.5	1176.5	1201.1	1193.7	1159.0
37.5°	811.3	820.4	841.9	865.5	907.9	952.3	1016.3	1069.5	1121.0	1136.5	1118.6
40°	701.5	705.6	728.5	748.3	791.8	837.9	891.4	959.4	1018.6	1056.7	1059.0
42.5°	620.1	619.7	629.2	647.0	682.0	723.1	781.0	847.6	917.0	970.8	996.1
45°	542.0	541.3	551.1	569.2	594.2	630.5	680.7	747.3	818.3	879.6	919.3
47.5°	476.0	482.1	486.4	500.6	521.1	552.1	595.2	648.3	716.7	785.4	838.9
50°	422.8	425.5	434.9	441.7	464.5	486.1	520.8	568.6	627.1	699.2	757.1
52.5°	380.4	382.1	387.8	396.5	409.7	428.5	456.1	500.2	553.1	615.7	675.6
55°	344.7	343.7	347.4	353.1	364.6	380.4	400.6	434.3	480.4	540.6	595.8
57.5°	309.7	309.7	313.1	317.1	323.5	336.6	356.5	383.1	420.1	473.6	522.4
60°	275.4	277.7	279.1	283.1	288.5	298.3	313.1	333.9	365.2	409.0	457.5
62.5°	245.1	245.1	247.4	248.8	255.8	262.9	273.7	291.5	316.1	355.1	392.8
65°	213.4	215.4	215.4	218.1	224.2	229.6	238.0	251.5	271.7	299.6	334.9
67.5°	186.5	186.5	188.2	189.5	192.9	196.6	204.0	214.4	231.6	253.8	285.8
70°	158.9	159.9	159.2	160.9	162.9	166.6	172.0	180.8	193.2	212.4	236.0
72.5°	134.0	132.6	133.3	135.0	136.0	138.4	141.7	148.5	158.6	174.0	191.2
75°	107.0	106.4	108.7	108.1	109.7	111.8	114.8	119.8	127.6	138.4	151.5
77.5°	83.5	82.5	83.5	84.2	84.8	86.5	88.9	91.9	97.3	104.4	116.1
80°	59.9	59.6	60.3	60.9	61.3	64.0	64.6	67.7	70.0	75.4	81.1
82.5°	39.7	40.4	40.7	41.4	41.1	42.4	43.1	45.1	47.1	49.8	54.2
85°	22.9	21.9	22.9	22.9	22.9	24.6	24.2	25.6	26.9	28.3	31.3
87.5°	8.1	8.1	8.4	8.8	8.8	9.8	9.4	10.1	11.4	11.4	12.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	857.7	854.0	851.3	843.6	838.9	834.5	830.5	826.1	821.4	815.3	811.6
5°	895.8	887.7	875.9	865.1	853.0	842.2	833.5	823.7	813.0	801.9	792.1
7.5°	937.8	922.7	904.5	884.7	865.8	850.0	833.5	818.0	802.9	788.0	774.2
10°	979.9	953.7	929.8	902.5	877.6	853.7	832.1	810.6	791.8	772.2	754.7
12.5°	1019.0	987.3	952.3	918.3	885.0	854.0	827.4	801.2	776.9	753.7	733.2
15°	1048.9	1009.2	967.8	927.4	889.0	856.7	822.0	788.0	762.8	734.5	712.0
17.5°	1083.3	1036.1	995.1	946.6	898.8	846.6	809.9	772.9	742.6	715.3	692.8
20°	1106.2	1054.3	995.1	940.2	891.1	844.3	800.2	757.8	725.8	694.1	666.9
22.5°	1124.3	1070.8	1005.5	948.3	886.7	830.1	782.3	740.6	702.9	672.9	647.0
25°	1133.8	1068.5	1006.2	936.8	875.2	821.0	767.2	721.1	683.0	649.7	627.5
27.5°	1134.1	1067.1	993.4	924.7	858.7	800.2	747.0	701.5	658.8	626.8	600.2
30°	1132.4	1058.4	980.6	905.5	839.9	780.0	724.4	677.3	638.2	604.2	579.0
32.5°	1121.6	1046.2	961.4	882.6	811.3	751.0	699.9	653.1	611.3	580.3	553.8
35°	1097.4	1019.7	934.5	853.4	785.7	723.1	672.6	625.5	588.1	554.4	527.2
37.5°	1066.4	993.7	907.2	822.4	749.3	690.1	642.6	598.2	559.1	528.2	500.9
40°	1027.4	959.1	873.9	785.7	712.6	652.7	608.0	566.5	533.2	501.6	475.0
42.5°	973.9	921.4	833.8	748.0	671.6	615.0	571.6	537.3	502.9	474.3	447.7
45°	916.6	868.8	791.1	705.9	632.5	574.3	533.6	501.9	472.6	443.7	422.1
47.5°	853.4	814.3	742.3	659.1	586.7	535.2	495.2	466.9	440.0	417.8	396.2
50°	778.0	757.4	690.1	614.7	544.3	491.5	458.5	429.5	409.7	388.1	367.9
52.5°	707.9	691.4	636.6	562.5	498.5	452.1	416.7	393.9	374.3	358.5	342.4
55°	631.9	623.4	577.0	513.0	455.1	408.7	378.4	357.5	342.0	327.2	315.4
57.5°	561.8	561.2	520.1	465.2	408.7	369.3	340.3	323.2	309.7	299.3	289.2
60°	490.1	495.9	462.2	412.0	367.3	330.2	304.0	288.5	279.4	269.6	261.2
62.5°	425.2	433.9	403.3	363.9	319.8	289.5	269.3	257.5	247.4	240.4	234.0
65°	362.9	374.0	349.1	313.7	280.1	251.5	234.3	223.2	215.4	211.4	207.0
67.5°	308.0	314.1	297.2	269.6	241.7	216.8	202.7	192.9	186.2	184.5	179.4
70°	253.1	260.2	248.4	223.2	201.6	183.5	170.7	162.9	158.9	156.5	153.2
72.5°	209.0	212.1	200.3	182.8	165.6	150.5	141.0	135.3	130.6	129.6	127.9
75°	163.6	168.0	158.6	145.1	130.9	120.2	113.1	108.4	106.0	104.4	104.4
77.5°	123.5	127.2	121.9	110.1	101.7	92.2	87.5	83.1	82.1	80.5	81.1
80°	87.9	89.5	86.5	78.4	71.0	66.0	61.9	59.6	59.2	57.9	59.2
82.5°	58.2	58.6	55.2	51.5	45.8	43.1	40.4	39.4	39.0	39.0	38.4
85°	32.3	33.0	30.6	28.3	26.3	23.9	23.2	22.6	21.9	22.9	23.6
87.5°	12.5	12.8	12.5	11.4	10.8	10.1	9.8	10.4	9.4	10.1	10.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	805.9	803.2	799.2	792.4	787.7	782.7	780.6	781.3	779.3	776.6	777.3
5°	784.7	776.9	770.2	760.8	752.0	744.6	742.3	739.2	736.5	734.9	733.2
7.5°	762.1	751.4	741.3	731.8	721.7	712.3	708.6	705.9	704.6	699.9	697.8
10°	740.6	728.1	716.0	704.9	694.5	684.0	680.3	677.0	672.2	670.2	667.9
12.5°	717.7	705.2	692.1	678.6	668.2	659.8	653.4	651.0	646.3	644.3	643.0
15°	695.5	680.3	669.9	659.5	643.6	634.2	631.5	623.1	620.4	616.4	613.7
17.5°	673.3	659.1	643.6	631.5	621.8	610.0	603.6	599.9	594.8	591.1	586.1
20°	651.4	634.9	622.8	607.6	596.8	586.1	578.0	574.6	570.3	565.2	558.1
22.5°	630.2	612.0	600.2	586.1	572.6	560.2	553.4	548.7	540.0	538.9	532.5
25°	605.3	589.1	573.6	558.8	545.7	533.2	528.8	521.4	518.4	512.3	511.3
27.5°	581.7	564.5	547.7	531.5	520.1	511.3	503.6	498.9	495.9	491.1	491.5
30°	557.1	538.3	522.4	507.6	495.2	486.8	481.7	479.4	475.0	474.3	472.0
32.5°	530.9	513.7	497.2	484.1	471.3	463.9	461.5	459.2	456.5	456.8	456.1
35°	504.6	489.5	472.0	459.8	449.4	445.0	441.3	440.6	439.6	440.3	440.3
37.5°	479.0	462.5	448.1	436.9	430.9	424.8	423.1	422.8	423.1	423.8	425.5
40°	454.1	439.0	424.8	415.7	409.0	406.3	404.0	405.0	406.3	408.7	410.7
42.5°	429.2	414.7	402.9	393.9	387.5	386.1	386.5	388.5	388.8	392.2	395.9
45°	402.9	390.5	379.4	372.3	368.3	366.6	367.3	369.3	371.6	376.4	381.1
47.5°	378.7	367.6	357.8	350.8	347.7	347.1	348.4	351.1	356.5	361.2	366.6
50°	354.1	344.0	334.9	328.6	328.2	325.9	328.9	332.3	338.6	345.0	353.1
52.5°	329.9	320.1	312.4	307.3	306.0	306.0	309.7	315.8	321.5	329.9	337.3
55°	304.6	295.9	288.5	286.8	284.8	285.8	289.8	295.9	304.0	313.4	321.5
57.5°	278.7	271.3	265.9	263.6	262.6	265.9	270.7	277.0	287.5	296.9	305.7
60°	254.2	247.8	242.0	241.4	240.7	245.1	250.8	257.5	268.0	277.4	288.2
62.5°	227.9	222.8	219.1	218.1	218.1	222.5	228.9	237.7	247.4	257.5	269.0
65°	201.3	196.9	195.9	194.6	197.6	200.3	206.7	215.1	225.5	236.7	248.8
67.5°	176.7	174.0	172.0	172.0	174.4	179.4	185.1	193.6	204.3	216.1	226.9
70°	152.2	149.5	147.8	149.5	150.8	156.9	162.9	171.0	181.1	192.6	204.0
72.5°	126.6	126.9	127.2	126.9	128.3	134.0	140.0	147.8	157.5	168.7	179.1
75°	104.0	102.3	102.7	103.3	107.7	110.8	116.8	124.2	134.7	144.8	153.5
77.5°	80.8	80.1	81.8	81.8	85.8	89.5	94.6	102.0	111.1	120.2	127.2
80°	59.2	59.6	60.9	61.3	64.6	68.7	74.1	79.1	87.2	93.6	100.3
82.5°	40.1	40.7	42.4	44.8	46.1	48.5	53.2	58.6	64.3	71.0	75.1
85°	23.2	24.2	25.6	27.3	28.6	31.0	34.3	38.7	42.8	46.5	49.8
87.5°	11.4	11.4	12.5	13.1	14.1	15.5	17.8	19.5	22.2	24.9	26.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243504

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	824.7	824.7	824.7	824.7
2.5°	775.9	775.6	774.2	774.9
5°	732.2	728.8	728.5	727.1
7.5°	694.5	693.5	693.5	690.8
10°	665.5	662.5	663.2	661.8
12.5°	637.9	636.2	634.2	632.2
15°	606.9	606.9	606.9	601.2
17.5°	582.7	582.4	580.7	580.3
20°	557.5	556.1	551.7	554.8
22.5°	531.9	530.9	527.2	527.8
25°	508.0	507.0	506.3	503.6
27.5°	487.4	487.8	488.4	486.8
30°	472.0	470.9	472.3	470.6
32.5°	457.5	457.5	456.1	456.5
35°	441.0	442.3	442.7	442.3
37.5°	426.5	428.2	429.5	428.2
40°	413.0	414.4	415.7	415.4
42.5°	398.9	401.3	402.3	403.3
45°	385.4	388.5	390.2	390.5
47.5°	371.6	375.3	378.7	378.4
50°	358.2	362.9	365.9	365.6
52.5°	344.7	349.4	353.1	354.8
55°	329.6	335.6	339.0	342.0
57.5°	314.4	321.1	324.5	325.9
60°	297.6	303.6	308.0	309.0
62.5°	278.7	285.1	290.8	292.2
65°	259.2	266.3	270.7	271.3
67.5°	236.7	243.4	247.8	249.8
70°	213.4	218.5	223.2	226.2
72.5°	187.5	193.6	197.9	200.0
75°	160.6	167.3	169.7	171.0
77.5°	132.6	136.7	140.4	140.7
80°	104.7	109.7	111.1	114.5
82.5°	77.1	81.8	80.8	82.1
85°	50.8	52.5	53.5	53.9
87.5°	26.9	27.9	28.6	29.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)